SEWAGE TREATMENT PLANT #1 AREA, SWMU 117
PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)
SITE ASSESSMENT PROGRESS REPORT
KENNEDY SPACE CENTER, FLORIDA

Prepared for:

National Aeronautics and Space Administration
Kennedy Space Center, Florida

April 2023
Revision 0

Prepared by:

Tetra Tech, Inc.
661 Andersen Drive
Pittsburgh, PA 15220
(412) 921-7090

APPENDIX C

LABORATORY ANALYTICAL REPORTS

(Included in Electronic Copy Only)

National Aeronautics and
Space Administration

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______________________________ 06/24/2021

Signature Date

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Jonesh@battelle.org

PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW, QC

Batch 20-0502

Package DP-20-0433

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

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PFAS: Nasa Kennedy Space Center
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PFAS by DoD QSM 5.3 Table B-15

GW, QC

Batch 20-0502

Package DP-20-0433

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

NELAP Accreditation Number: E87856 (Florida Department of Health)
DoD-ELAP Accreditation Number: 91667

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

Analyst Approval: Denise Schumitz — Digitally signed by Denise Schumitz Date: 2020.04.30 16:23:25 -04'00'

QC Chemist Approval: Carla Devine — Digitally signed by Carla Devine Date: 2020.05.06 16:43:06 -04'00'

Project Manager Approval: Digitally signed by Jonathan Thorn Date: 2020.05.06 16:54:57 -04'00'

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PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW, QC

Batch 20-0502

Package DP-20-0433

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Master Signature Page

Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	1/9/2020
Robert Lizotte, Jr.		BL	1.9.2020
Ellyn M Fitch		EMF	1/9/2020
Carla Devine		CRD	1/9/2020
Denise Schumitz		DS	1/9/2020
Lauren Griffith		LMG	1.9.2020
Carole P McCarthy		CPM	1/9/2020
Rich Restucci		RR	1/9/2020
Sam Guimaraes		SAG	1/9/2020
Jordan Tower		JCT	1/9/2020
Christie Usher		CU	1/9/2020
Kevin McInerney		KM	1/14/2020
Matt Schumitz		MDS	1/14/2020
Weidong Li		W.L	1/14/2020
Kayla Lamarre		KAL	1/14/2020
MUNAZ MUNTASIR		MM	01/14/2020
Kristen Nichols		KN	01/14/2020
Kelsey Harnden		KH	01/30/2020
Kevin Bailey		KB	1/30/2020
Stephanie Schultz		SAS	1/30/2020

Master Signature Page

Name (Printed)	Signature	Initials	Date
Chimiceo Brown		CB	01/30/20
Ryan Kelly		RK	01/30/20
KAREN HYPPOLITE		K.H.	01/31/20
Gail DeRuzzo		GD	01/31/2020
Tracy Stenner			1/31/2020
Ashley Wellington		AW	1/31/2020
Daniel Cooney		DAC	1/31/2020
Peter Demers		PD	1/31/2020
Zachary Willenberg		ZW	2/3/2020

Sample Summary

Client: Tetra Tech
SDG: 20-0502
Project/Site: Nasa Kennedy Space Center
CTO: N/A

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CY785PB-FS	Procedural Blank	WATER	4/24/2020	4/24/2020
CY786LCS-FS	Laboratory Control Sample	WATER	4/24/2020	4/24/2020
H4967-FS	POL-MW0045I-035.0-20200422	GW	4/22/2020	4/24/2020
H4968-FS	POL-MW0043S-015.0-20200422	GW	4/22/2020	4/24/2020
H4969-FS	POL-EB-20200423-01	QC	4/23/2020	4/24/2020
H4970-FS	POL-EB-20200423-02	QC	4/23/2020	4/24/2020
H4971-FS	POL-MW0043I-025.0-20200423	GW	4/23/2020	4/24/2020
H4972-FS	POL-MW0043D-035.0-20200423	GW	4/23/2020	4/24/2020
H4973-FS	POL-MW0011S-012.5-20200423	GW	4/23/2020	4/24/2020
H4974-FS	POL-MW0011I-027.5-20200423	GW	4/23/2020	4/24/2020
H4975-FS	POL-MW0044I-025.0-20200423	GW	4/23/2020	4/24/2020
H4976-FS	POL-MW0044D-035.0-20200423	GW	4/23/2020	4/24/2020
H4977-FS	SW3-MW0027-032.0-20200423	GW	4/23/2020	4/24/2020
H4978-FS	SW3-MW0028-032.0-20200423	GW	4/23/2020	4/24/2020

Work Plan

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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title:	PFAS: Nasa Kennedy Space Center
Project Number:	100137609
Client:	Tetra Tech 661 Anderson Drive Foster Plaza 7 Pittsburgh, PA 15220 USA
Client Contact Information:	Andrew Walters Chemical Engineer (412) 921-7351(V) NA andrew.walters@tetratech.com
Effective Date of QAPP:	1/28/2020
Version Number:	100137609(L)-01
Project Manager:	Thorn, Jonathan
Laboratory Task Manager:	Thorn, Jonathan
Deliverable Due Date:	2/18/2020

2.0 SCOPE OF WORK

Overview:	Analysis of non-potable water for PFAS.
Matrix:	Water

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

The list of samples for this project plan are presented in Attachment 1.

Storage Directions:	Store refrigerated.
Sub_Sampling:	None
Procedures:	NA
Contact:	NA
Comment:	NA
Archiving:	Samples will be stored for 6 months after delivery of final data, client will be notified prior to disposal. Extracts will be archived for1 year after delivery of final data, client will be notified prior to disposal.
Disposal:	Dispose of samples in the appropriate waste stream.

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WORK/QUALITY ASSURANCE PROJECT PLAN

2.1.2 Sample Preparation

NA

Samples Expected:	Samples Per Batch:	Batches Expected:
12	20	1

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

Type:	*Description:*	*Count:*	*Rgt:*	*Reference:*	*Comment:*
PB	Laboratory control reagent blank.	1 per batch	--	NA	
LCS	Laboratory Control Sample	1 per batch	No	NA	
MS	Spiked field sample for determining method accuracy in the presence of matrix.	1 per batch	--	NA	MS/MSD to be identified on the COC.
MSD	Spiked field sample for determining method accuracy and precision in the presence of matrix.	1 per batch	--	NA	

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	**5-370-09**
SOP Title:	*Extraction of Poly and Perfluoroalkyl Substances from Environmental Matrices*
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	None

Table 2: SIS and LCS/MS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	KU42 SIS	~ 1.13 - 1.25 ng	125 uL	NA

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Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Second Source LCS/MS Solution	KV40 LCS/MS	~ 10.0 ng	100 uL	NA

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Internal Standard Spiking Solution	KU43 RIS	~ 1.25 ng	125 uL	NA

2.1.4 Instrumental Analysis

The list of analytes along with data quality criteria are presented in Attachment 2.

1) SOP_No-Rev: **5-369-08**

SOP_Title: *Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)*

Deviations: None.

Comments:
- Data censored at the MDL, MDL value reported for Non-Detects.
- Special Florida Qualifiers are required (use Florida reporting template)

2.2. DELIVERABLES

Deliverables Due:	2/18/2020
LIMS Reports:	*Yes*
Histograms:	*No*
Excel Tables:	*Yes*
EICs:	*No*
Chromatograms:	*No*

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EDDs:	*Yes*
Comments:	• Excel tables for rush samples to Project Manager within 3-business days (full data package within 10 days). Select samples will be 21-day TAT. • Tetra Tech EDD format • Full validation packages (see SOW for details) • Florida reporting template and qualifiers (see SOW for details)

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

The project team is defined in Table 4. Supervisors may make substitutions with Project Manager concurrence.

Table 4: Project Team and Roles

Staff Member	Role	Comment
Jonathan R. Thorn	Project Manager	NA
Stephanie A. Schultz	Sample Preparation	NA
Denise M. Schumitz	LC-MS/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Carla R. Devine	Quality Control Officer	NA
Zachary J. Willenberg	Quality Assurance Officer	NA

4.2 COMMUNICATION

A kick-off meeting will be held to discuss project scope and goals.

5.0 SCHEDULE

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	01/28/2020	01/28/2020	0	NA

WORK/QUALITY ASSURANCE PROJECT PLAN

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Preparation	01/28/2020	02/04/2020	7	NA
Instrument Analysis	02/04/2020	02/11/2020	7	NA
Quality Control Review	02/11/2020	02/14/2020	3	NA
Quality Assurance Review	02/14/2020	02/18/2020	4	NA

6.0 BUDGET

The labor budget for the analytical task is presented in Table 6.

Table 6. Labor Budget (Laboratory Analytical Task)

Labor Activity:	Hours/ Batch:	Batches:	Total Hours:	Comment:
Sample Receipt	2	1	2	NA
Sample Preparation	8	1	8	NA
Instrument Analysis	8	1	8	NA
Quality Control Review	3	1	3	NA
Quality Assurance Review	1	1	1	NA

7.0 STAFF DEVELOPMENT

None anticipated.

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment:	**SHP-200128-02**
Status:	Pending
Description:	KSC-CCB
Range:	H2271-H2271
Comment:	NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2271	CCB-DRUM209864-20200124	01/24/2020 5:10 pm	GW	R0119 (NA)			

Shipment:	**SHP-200206-01**
Status:	Pending
Description:	PFAS IDW TRT
Range:	H2631-H2633
Comment:	NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2631	IDWTRT-INFLUENT-20200205	02/05/2020 10:30 am	GW	R0119 (NA)			
2	H2632	IDWTRT-LEADGAC-20200205	02/05/2020 2:00 pm	GW	R0119 (NA)			
3	H2633	IDWTRT-EFFLUENT-20200205	02/05/2020 2:30 pm	GW	R0119 (NA)			

Shipment:	**SHP-200210-01**
Status:	Pending
Description:	KSC-HMPN
Range:	H2802-H2802
Comment:	NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2802	HMPN-TANK-20200206-01	02/06/2020 12:25 pm	GW	R0119 (NA)			

Shipment:	**SHP-200219-01**
Status:	Pending
Description:	PFAS IDW TRT
Range:	H3028-H3028
Comment:	NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3028	IDWTRT-EFFLUENT-20200218	02/18/2020 2:00 pm	GW	R0119 (NA)			

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Shipment: **SHP-200227-03**

Status: Pending

Description: KSC-POL

Range: H3356-H3356

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3356	POL-TANK-20200226-01	02/26/2020 1:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200304-02**

Status: Pending

Description: KSC-HBF

Range: H3718-H3720

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3718	HBF-DRUM217600-20200303	03/03/2020 10:00 am	GW	R0119 (NA)			
2	H3719	SRLF-DRUM217510-20200303	03/03/2020 11:30 am	GW	R0119 (NA)			
3	H3720	SRLF-DRUM217511-20200303	03/03/2020 12:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200323-01**

Status: Pending

Description: HSC-KHCA

Range: H4571-H4572

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4571	KHQA-DRUM217966-20200320	03/20/2020 2:10 pm	WC	R0119 (NA)			
2	H4572	KHQA-DRUM216887-20200320	03/20/2020 2:20 pm	WC	R0119 (NA)			

Shipment: **SHP-200326-01**

Status: Pending

Description: PFAS

Range: H4626-H4628

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4626	IDWTRT2-INFLUENT-20200325	03/25/2020 1:30 pm	GW	R0119 (NA)			
2	H4627	IDWTRT2-LEADGAC-20200325	03/25/2020 2:30 pm	GW	R0119 (NA)			
3	H4628	IDWTRT2-EFFLUENT-20200325	03/25/2020 2:35 pm	GW	R0119 (NA)			

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Shipment: **SHP-200410-02**

Status: Pending

Description: PFAS

Range: H4735-H4737

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4735	IDWTR-T3-INFLUENT-20200409	04/09/2020 11:00 am	GW	R0119 (NA)			
2	H4736	IDWTR-T3-LEADGAC-20200409	04/09/2020 2:00 pm	GW	R0119 (NA)			
3	H4737	IDWTR-T3-EFFLUENT-20200409	04/09/2020 2:15 pm	GW	R0119 (NA)			

Shipment: **SHP-200424-02**

Status: Pending

Description: KSC-POL/SW3

Range: H4954-H4978

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4954	POL-MW0041SI-020.5-20200421	04/21/2020 11:15 am	GW	R0119 (NA)			
2	H4955	POL-MW0008S-009.3-20200421	04/21/2020 12:40 pm	GW	R0119 (NA)			
3	H4956	POL-MW0008I-007.5-20200421	04/21/2020 1:00 pm	GW	R0119 (NA)			
4	H4957	POL-MW0036SI-020.5-20200421	04/21/2020 2:05 pm	GW	R0119 (NA)			
5	H4958	POL-MW0036I-027.5-20200421	04/21/2020 2:25 pm	GW	R0119 (NA)			
6	H4959	POL-MW0047I-025.0-20200422	04/22/2020 10:30 am	GW	R0119 (NA)			
7	H4960	POL-FRB-0200422-01	04/22/2020 10:50 am	QC	R0119 (NA)			
8	H4961	POL-MW0047D-035.0-20200422	04/22/2020 11:05 am	GW	R0119 (NA)			
9	H4962	POL-MW0047DD-045.0-20200422	04/22/2020 11:50 am	GW	R0119 (NA)			
10	H4963	POL-MW0046D-035.0-20200422	04/22/2020 12:25 pm	GW	R0119 (NA)			
11	H4964	POL-MW0046DD-045.0-20200422	04/22/2020 12:55 pm	GW	R0119 (NA)			
12	H4965	POL-MW0045S-015.0-20200422	04/22/2020 1:45 pm	GW	R0119 (NA)			
13	H4966	POL-MW0045I-025.0-20200422	04/22/2020 2:35 pm	GW	R0119 (NA)			
14	H4967	POL-MW0045I-035.0-20200422	04/22/2020 3:05 pm	GW	R0119 (NA)			
15	H4968	POL-MW0043S-015.0-20200422	04/22/2020 3:55 pm	GW	R0119 (NA)			
16	H4969	POL-EB-20200423-01	04/23/2020 9:15 am	QC	R0119 (NA)			
17	H4970	POL-EB-20200423-02	04/23/2020 9:25 am	QC	R0119 (NA)			
18	H4971	POL-MW0043I-025.0-20200423	04/23/2020 9:50 am	GW	R0119 (NA)			

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Shipment: **SHP-200424-02**

Status: Pending

Description: KSC-POL/SW3

Range: H4954-H4978

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
19	H4972	POL-MW0043D-035.0-20200423	04/23/2020 10:20 am	GW	R0119 (NA)			
20	H4973	POL-MW0011S-012.5-20200423	04/23/2020 11:35 am	GW	R0119 (NA)			
21	H4974	POL-MW0011I-027.5-20200423	04/23/2020 12:05 pm	GW	R0119 (NA)			
22	H4975	POL-MW0044I-025.0-20200423	04/23/2020 12:45 pm	GW	R0119 (NA)			
23	H4976	POL-MW0044D-035.0-20200423	04/23/2020 1:20 pm	GW	R0119 (NA)			
24	H4977	SW3-MW0027-032.0-20200423	04/23/2020 2:10 pm	GW	R0119 (NA)			
25	H4978	SW3-MW0028-032.0-20200423	04/23/2020 2:50 pm	GW	R0119 (NA)			

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Attachment 2: Test Codes

Project Test Code Name:	Master_369B
SOP Reference:	5-369 - Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)
Description:	PFAS by DoD QSM 5.1 Table B-15
Matrix:	L - Liquid Samples, like water or sea water, prepared and anlyzed under the same class of detection limits.
Detection Limit Study:	5-369
Instrument:	LC-MS/MS
MQO Criteria	Universal_LC
Standard Report:	Standard Result Report

Method Specific Reporting				Holding Times (days)		Data Flags	
Result Units:	ng/L	***Unit Conversion:***	(none)	***Sample:***	14	***DL_Flag:***	U
Weight Basis:	LIQUID	***Result Format:***	Fixed Digits	***Frozen:***	14	***RL_Flag:***	J
Standard Basis:	SIS	***# of Figures/Digits:***	2	***Extract:***	28	***PB_Flag:***	B
Oil Weight Basis:	No	***Oil Weight Source:***	Oil Weight			***DIL_Flag:***	D
U-Value Substition:	U-Flag=MD	***Histograms:***	No			***HT_Flag:***	T
ECD_Reporting:	No						

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
1	Perfluoro-n-hexanoic acid	PFHxA	T		13C5-PFHxA	No	No
2	Perfluoro-n-heptanoic Acid	PFHpA	T		13C4-PFHpA	No	No
3	Perfluoro-n-octanoic Acid	PFOA	T		13C8-PFOA	No	No
4	Perfluorononanoic Acid	PFNA	T		13C9-PFNA	No	No
5	Perfluoro-n-decanoic Acid	PFDA	T		13C6-PFDA	No	No
6	Perfluoro-n-undecanoic acid	PFUnA	T		13C7-PFUnA	No	No
7	Perfluoro-n-dodecanoic acid	PFDoA	T		13C2-PFDoA	No	No
8	Perfluoro-n-tridecanoic acid	PFTrDA	T		13C2-PFTeDA	No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T		13C2-PFTeDA	No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T		d3-MeFOSAA	No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T		d5-EtFOSAA	No	No
12	Perfluoro-1-butanesulfonate	PFBS	T		13C3-PFBS	No	No
13	Perfluoro-1-hexanesulfonate	PFHxS	T		13C3-PFHxS	No	No
14	Perfluoro-1-octanesulfonate	PFOS	T		13C8-PFOS	No	No
15	Hexafluoropropylene oxide dimer acid	HFPO-DA	T		13C3-HFPO-DA	No	No
16	Adona	Adona	T		13C3-PFHxS	No	No
17	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	T		13C2-PFDoA	No	No

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Attachment 2: Test Codes

Project Test Code Name: Master_369B

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
18	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	T		13C9-PFNA	No	No
1	13C5-PFHxA	13C5-PFHxA	SIS	13C2-PFOA		No	No
2	13C4-PFHpA	13C4-PFHpA	SIS	13C2-PFOA		No	No
3	13C8-PFOA	13C8-PFOA	SIS	13C2-PFOA		No	No
4	13C9-PFNA	13C9-PFNA	SIS	13C2-PFOA		No	No
5	13C6-PFDA	13C6-PFDA	SIS	13C2-PFDA		No	No
6	13C7-PFUnA	13C7-PFUnA	SIS	13C2-PFDA		No	No
7	13C2-PFDoA	13C2-PFDoA	SIS	13C2-PFDA		No	No
8	13C2-PFTeDA	13C2-PFTeDA	SIS	13C2-PFDA		No	No
9	d3-MeFOSAA	d3-MeFOSAA	SIS	13C4-PFOS		No	No
10	d5-EtFOSAA	d5-EtFOSAA	SIS	13C4-PFOS		No	No
11	13C3-PFBS	13C3-PFBS	SIS	13C4-PFOS		No	No
12	13C3-PFHxS	13C3-PFHxS	SIS	13C4-PFOS		No	No
13	13C8-PFOS	13C8-PFOS	SIS	13C4-PFOS		No	No
14	13C3-HFPO-DA	13C3-HFPO-DA	SIS	13C2-PFOA		No	No

Total Analytes: 32

Subtract Peaks:

None

Sum Peaks:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_369B

ICAL Acceptance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.99	N	5	N	y = Bx + C
Quadratic	NA	NA	0.99	N	6	N	y = Ax^2 + Bx + C

Continuing Calibration Verification Criteria:

CCV Name: 5-369

Frequency Hrs:		Mean PD(%):		Individual PD(%):		RIS/SIS RT Window (min):		Area Limit Low(%):	Area Limit High(%):		Comment:
12	(N)	30	(N)	30	(N)	0.04	(N)	-50	100	(N)	NA

Independent Calibration Verification:

ICC Name: 5-369

Mean PD Limit(%):		Ind. PD Limit(%):		RIS/SIS Window Limit (Secs):		Area Limit High(%):	Area Limit Low(%):		Comment:
30	(N)	30	(N)	0.04	(N)	-50	100	(N)	NA

Mass Discrimination Criteria:

None

Degredation Check Criteria:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	***Universal_LC***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Procedural Blank	Samples must be greater than five times the blank concentration (>5xPB).	B	Review with Project Manager; re-analyze or justify results in project records.
PB Measurement Quality Objective	Organic results in the Procedural Blank are less than 1/2 times the LOQ (<1/2xLOQ)	N	Review with Project Manager; re-analyze or justify results in project records.
Laboratory Control Sample	Recovery values 70-130%.	N	Review with project manager; re-analyze or justify reporting the results in project records.
Matrix Spike / Matrix Spike Duplicate Recovery	Organics 70-130%. Analyte concentration in MS/MSD must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Matrix Spike/Spike Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration in MS/MSD must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Standard Reference Material Accuracy	Organics Percent Difference less than 30% from a range of certified values on average. Analyte concentration must be greater than five times the Method Detection Limit (>5xMDL).	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the MDL	n	
Analytical Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	*Universal_LC*		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-369-8: R-squared greater than or equal to 0.990		Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-369-8: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-369-8: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.

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ShpNo SHP-200424-02

Battelle Project No:

Sample Receipt Form

Approved: ☐ **Authorized** ☐

Project Number: 112G09020 **Client:** Tetra Tech

Received by: Schumitz, Matt **Date/Time Received:** Friday, April 24, 2020 10:00 AM

No. of Shipping Containers: 2

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** Fed Ex

COC Forms: ☑ **Shipped with samples** ☐ **No Forms**

Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 2	Cooler	7703 0866 4653	Custody Seals	Intact	Intact	Therm_1	1.0	13
2 of 2	Cooler	7703 0866 5134	Custody Seals	Intact	Intact	Therm_1	1.3	12

Samples

Sample Labels:
- ☑ Sample labels agree with COC forms
- ☐ Discrepancies (see Sample Custody Corrective Action Form)

Container Seals:
- ☐ Tape ☐ Custody Seals ☐ Other Seals (See sample Log)
- ☑ Seals intact for each shipping container
- ☐ Seals broken (See sample log for impacted samples)

Condition of Samples:
- ☑ Sample containers intact
- ☐ Sample containers broken/leaking (See Custody Corrective Action Form)

Temperature upon receipt (°C): 1.3 Temperature Blank used ☑ Yes ☐ No
(Note: If temperature upon receipt differs from required conditions, see sample log comment field)

Samples Acidified: ☐ Yes ☐ No ☑ Unknown

Initial pH 5-9?: ☐ Yes ☐ No ☑ NA
If no, individual sample adjustments on the Auxiliary Sample Receipt Form

Total Residual Chlorine Present?: ☐ Yes ☐ No ☑ NA
If yes, individual sample adjustments on the Auxiliary Sample Receipt Form

Head Space <1% in samples for water VOC analysis: ☐ Yes ☐ No ☑ NA
Individual sample deviations noted on sample log

Samples Containers:
Samples returned in PC-grade jars: ☐ Yes ☐ No ☑ Unknown /Lot No.: Unknown

Storage Location: Custody: Refrigerator - R0119 (NA) **BDO IDs Assigned:** H4954 - H4978

Samples logged in by: Schumitz, Matt **Date/Time:** 04/24/2020 10:00 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

BATTELLE
It can be done

ShpNo SHP-200424-02

Battelle Project No: 100137609

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: 112G09020 **Client:** Tetra Tech

Received by: Schumitz, Matt **Date/Time Received:** Friday, April 24, 2020 10:00 AM

No. of Shipping Containers: 2

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
H4954	POL-MW0041SI-020.5-20200421	04/21/20 11:15	04/24/20 10:21	2	GW	1	NA	NA	NA	R0119 (NA)			
H4955	POL-MW0008S-009.3-20200421	04/21/20 12:40	04/24/20 10:21	2	GW	1	NA	NA	NA	R0119 (NA)			
H4956	POL-MW0008I-007.5-20200421	04/21/20 13:00	04/24/20 10:22	2	GW	1	NA	NA	NA	R0119 (NA)			
H4957	POL-MW0036SI-020.5-20200421	04/21/20 14:05	04/24/20 10:22	2	GW	1	NA	NA	NA	R0119 (NA)			
H4958	POL-MW0036I-027.5-20200421	04/21/20 14:25	04/24/20 10:23	2	GW	1	NA	NA	NA	R0119 (NA)			
H4959	POL-MW0047I-025.0-20200422	04/22/20 10:30	04/24/20 10:23	2	GW	1	NA	NA	NA	R0119 (NA)			
H4960	POL-FRB-0200422-01	04/22/20 10:50	04/24/20 10:23	2	QC	1	NA	NA	NA	R0119 (NA)			
H4961	POL-MW0047D-035.0-20200422	04/22/20 11:05	04/24/20 10:24	2	GW	1	NA	NA	NA	R0119 (NA)			
H4962	POL-MW0047DD-045.0-20200422	04/22/20 11:50	04/24/20 10:24	2	GW	1	NA	NA	NA	R0119 (NA)			
H4963	POL-MW0046D-035.0-20200422	04/22/20 12:25	04/24/20 10:25	2	GW	1	NA	NA	NA	R0119 (NA)			
H4964	POL-MW0046DD-045.0-20200422	04/22/20 12:55	04/24/20 10:25	2	GW	1	NA	NA	NA	R0119 (NA)			
H4965	POL-MW0045S-015.0-20200422	04/22/20 13:45	04/24/20 10:25	2	GW	1	NA	NA	NA	R0119 (NA)			
H4966	POL-MW0045I-025.0-20200422	04/22/20 14:35	04/24/20 10:26	2	GW	1	NA	NA	NA	R0119 (NA)			
H4967	POL-MW0045I-035.0-20200422	04/22/20 15:05	04/24/20 10:31	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4968	POL-MW0043S-015.0-20200422	04/22/20 15:55	04/24/20 10:32	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4969	POL-EB-20200423-01	04/23/20 9:15	04/24/20 10:32	2	QC	1.3	NA	NA	NA	R0119 (NA)			
H4970	POL-EB-20200423-02	04/23/20 9:25	04/24/20 10:33	2	QC	1.3	NA	NA	NA	R0119 (NA)			
H4971	POL-MW0043I-025.0-20200423	04/23/20 9:50	04/24/20 10:33	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4972	POL-MW0043D-035.0-20200423	04/23/20 10:20	04/24/20 10:33	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4973	POL-MW0011S-012.5-20200423	04/23/20 11:35	04/24/20 10:34	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4974	POL-MW0011I-027.5-20200423	04/23/20 12:05	04/24/20 10:34	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4975	POL-MW0044I-025.0-20200423	04/23/20 12:45	04/24/20 10:34	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4976	POL-MW0044D-035.0-20200423	04/23/20 13:20	04/24/20 10:35	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4977	SW3-MW0027-032.0-20200423	04/23/20 14:10	04/24/20 10:35	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4978	SW3-MW0028-032.0-20200423	04/23/20 14:50	04/24/20 10:36	2	GW	1.3	NA	NA	NA	R0119 (NA)			

Total Samples: 25

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 1298 | PAGE 1 OF 2

PROJECT NO: 112G09020	FACILITY: KSC-POL/SWMU Area	PROJECT MANAGER Mark Jonnet	PHONE NUMBER (412) 921-8622	LABORATORY NAME AND CONTACT: Battelle — Jon Thorn
SAMPLERS (SIGNATURE) Chuck Sorden		FIELD OPERATIONS LEADER Chuck Sorden	PHONE NUMBER (321) 591-7580	ADDRESS 141 Longwater Dr. Suite 202
		CARRIER/WAYBILL NUMBER		CITY, STATE Norwell, MA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: 4°C
TYPE OF ANALYSIS: EPA 537 MOD PFAS

DATE YEAR 2020	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	EPA 537 MOD PFAS								COMMENTS
04/21	1115	POL-MW0041SI-020.5-20200421		18	23	GW	G	2	X								H4954
	1240	POL-MW0008S-009.3-20200421		8.6	10												55
	1300	POL-MW0008I-027.5-20200421		25	30												56
	1405	POL-MW0036SI-020.5-20200421		18	23												57
04/21	1425	POL-MW0036I-027.5-20200421		25	30												58
04/22	1030	POL-MW0047I-025.0-20200422		20	30	GW											59
	1050	POL-FRB-20200422-01		—	—	QC											60
	1105	POL-MW00470-035.0-20200422		30	40	GW											61
	1150	POL-MW0047DD-045.0-20200422		40	50												62
	1225	POL-MW0046D-035.0-20200422		30	40												63
	1255	POL-MW0046DD-045.0-20200422		40	50												64
	1345	POL-MW0045S-015.0-20200422		10	20												65
04/22	1435	POL-MW0045I-035.0-20200422		20	30	GW	G	2	X								H4966

1. RELINQUISHED BY	DATE 04/23/2020	TIME 1700	1. RECEIVED BY	DATE 4.24.20	TIME 1000
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

Tetra Tech, Inc.

CHAIN OF CUSTODY | **NUMBER** No. 1312 | **PAGE** 2 **OF** 2

PROJECT NO: 112G09020	FACILITY: KSC-POL/SW3	PROJECT MANAGER Mark Johnct	PHONE NUMBER (412) 921-8622	LABORATORY NAME AND CONTACT: Battelle — Jon Thom
SAMPLERS (SIGNATURE) Chuck Serda		FIELD OPERATIONS LEADER Chuck Serda	PHONE NUMBER (321) 591-7580	ADDRESS 141 Longwater Dr. Ste. 202
		CARRIER/WAYBILL NUMBER		CITY, STATE Norwell, MA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: 4°C
TYPE OF ANALYSIS: EPA 537 MOD PFAS

DATE YEAR 2020	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	EPA 537 MOD PFAS	COMMENTS
04/22	1505	POL-MW0045I-035.0-20200422		30	40	GW	G	2	X	H4967
04/22	1555	POL-MW0043$-015.0-20200422		10	20					68
04/23	0915	POL-EB-20200423-01	—	—	—	QC				69
	0925	POL-EB-20200423-02	—	—	—	QC				70
	0950	POL-MW0043I-025.0-20200423		20	30	GW				71
	1020	POL-MW0043D-035.0-20200423		30	40					72
	1135	POL-MW0011$-012.5-20200423		10	15					73
	1205	POL-MW0011I-027.5-20200423		25	30					74
	1245	POL-MW0044I-025.0-20200423		20	30					75
	1320	POL-MW0044D-035.0-20200423		30	40					76
	1410	SW3-MW0027-032.0-20200423		27	37					77
04/23	1450	SW3-MW0028-032.0-20200423		27	37	GW	G	2	X	H4978

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	04/23/2020	1700	1. RECEIVED BY	4.24.20	1000
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

ORIGIN ID:COIA (321) 591-7580
CHARLES SORDEN
TETRA TECH, INC.
11 RIVERSIDE DR
SUITE 204
COCOA, FL 32922
UNITED STATES US

SHIP DATE: 23APR20
ACTWGT: 57.00 LB
CAD: 100864341/INET4220

BILL SENDER

TO **MATTHEW SCHUMITZ**
BATTELLE
141 LONGWATER DR
SUITE 202
NORWELL MA 02061
(781) 681-5588 REF: 112G09020.3060
INV:
PO: DEPT:

1.0
Therm
+B

56BJ4/7B3A/FE4A

FedEx Express

E

J201020011301uv

1 of 2

TRK# 7703 0866 4653
0201

MASTER

FRI - 24 APR 10:30A
PRIORITY OVERNIGHT

XE XPUA

02061
MA-US **BOS**

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ORIGIN ID:COIA (321) 591-7580
CHARLES SORDEN
TETRA TECH, INC.
11 RIVERSIDE DR
SUITE 204
COCOA, FL 32922
UNITED STATES US

SHIP DATE: 23APR20
ACTWGT: 57.00 LB
CAD: 100864341/INET4220

BILL SENDER

TO **MATTHEW SCHUMITZ**
BATTELLE
141 LONGWATER DR
SUITE 202
NORWELL MA 02061
(781) 681-5588 REF: 112G09020.3060
INV:
PO: DEPT:

1.3°
THERM I
JB

56BJ4/7B3A/FE4A

FedEx Express

E

J201020011301uv

FRI - 24 APR 10:30A
PRIORITY OVERNIGHT

2 of 2
MPS# 7703 0866 5134
0263
Mstr# 7703 0866 4653
0201

XE XPUA

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Data Tables

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0045I-035.0-20200422
Battelle ID	H4967-FS
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.275
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	3.01	I	H4967-FS(0)	1.000	4/29/2020	0.48	1.36	4.55
PFHpA	375-85-9	1.49	I	H4967-FS(0)	1.000	4/29/2020	0.24	0.91	4.55
PFOA	335-67-1	1.39	I	H4967-FS(0)	1.000	4/29/2020	0.46	1.36	4.55
PFNA	375-95-1	0.28	U	H4967-FS(0)	1.000	4/29/2020	0.28	0.91	4.55
PFDA	335-76-2	0.13	U	H4967-FS(0)	1.000	4/29/2020	0.13	0.45	4.55
PFUnA	2058-94-8	0.20	U	H4967-FS(0)	1.000	4/29/2020	0.20	0.45	4.55
PFDoA	307-55-1	0.17	U	H4967-FS(0)	1.000	4/29/2020	0.17	0.45	4.55
PFTrDA	72629-94-8	0.14	U	H4967-FS(0)	1.000	4/29/2020	0.14	0.45	4.55
PFTeDA	376-06-7	0.66	U	H4967-FS(0)	1.000	4/29/2020	0.66	1.82	4.55
NMeFOSAA	2355-31-9	0.32	U	H4967-FS(0)	1.000	4/29/2020	0.32	0.91	4.55
NEtFOSAA	2991-50-6	0.55	I	H4967-FS(0)	1.000	4/29/2020	0.45	0.91	4.55
PFBS	375-73-5	2.67	I	H4967-FS(0)	1.000	4/29/2020	0.13	0.45	4.55
PFHxS	355-46-4	5.66		H4967-FS(0)	1.000	4/29/2020	0.10	0.36	4.55
PFOS	1763-23-1	0.40	U	H4967-FS(0)	1.000	4/29/2020	0.40	0.91	4.55
HFPO-DA	13252-13-6	0.23	U	H4967-FS(0)	1.000	4/29/2020	0.23	0.45	4.55
Adona	919005-14-4	0.25	U	H4967-FS(0)	1.000	4/29/2020	0.25	0.91	4.55
11Cl-PF3OUdS	763051-92-9	0.21	U	H4967-FS(0)	1.000	4/29/2020	0.21	0.45	4.55
9Cl-PF3ONS	756426-58-1	0.25	U	H4967-FS(0)	1.000	4/29/2020	0.25	0.91	4.55

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0045I-035.0-20200422
Battelle ID	H4967-FS
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	26	J	H4967-FS(0)	4/29/2020
13C4-PFHpA	47	J	H4967-FS(0)	4/29/2020
13C8-PFOA	71		H4967-FS(0)	4/29/2020
13C9-PFNA	86		H4967-FS(0)	4/29/2020
13C6-PFDA	93		H4967-FS(0)	4/29/2020
13C7-PFUnA	64		H4967-FS(0)	4/29/2020
13C2-PFDoA	34	J	H4967-FS(0)	4/29/2020
13C2-PFTeDA	5	J	H4967-FS(0)	4/29/2020
d3-MeFOSAA	43	J	H4967-FS(0)	4/29/2020
d5-EtFOSAA	28	J	H4967-FS(0)	4/29/2020
13C3-PFBS	44	J	H4967-FS(0)	4/29/2020
13C3-PFHxS	77		H4967-FS(0)	4/29/2020
13C8-PFOS	99		H4967-FS(0)	4/29/2020
13C3-HFPO-DA	60		H4967-FS(0)	4/29/2020

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0043S-015.0-20200422						
Battelle ID		H4968-FS						
Sample Type		SA						
Collection Date		04/22/2020						
Extraction Date		04/24/2020						
Analytical Instrument		Sciex 6500+ LC/MS/MS						
% Moisture		NA						
Matrix		GW						
Sample Size		0.270						
Size Unit-Basis		L						
Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	7.68	H4968-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	6.01	H4968-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	26.57	H4968-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	4.06 I	H4968-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	1.33 I	H4968-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20 U	H4968-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18 U	H4968-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14 U	H4968-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68 U	H4968-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32 U	H4968-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46 U	H4968-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	3.24 I	H4968-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	33.79	H4968-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	325.77 D	H4968-FS-D(3)	5.000	4/29/2020	2.04	4.63	23.15
HFPO-DA	13252-13-6	0.23 U	H4968-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25 U	H4968-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21 U	H4968-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25 U	H4968-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0043S-015.0-20200422
Battelle ID	H4968-FS
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	20	J	H4968-FS(0)	4/29/2020
13C4-PFHpA	40	J	H4968-FS(0)	4/29/2020
13C8-PFOA	65		H4968-FS(0)	4/29/2020
13C9-PFNA	83		H4968-FS(0)	4/29/2020
13C6-PFDA	75		H4968-FS(0)	4/29/2020
13C7-PFUnA	49	J	H4968-FS(0)	4/29/2020
13C2-PFDoA	18	J	H4968-FS(0)	4/29/2020
13C2-PFTeDA	1	J	H4968-FS(0)	4/29/2020
d3-MeFOSAA	86	D	H4968-FS-D(3)	4/29/2020
d5-EtFOSAA	89	D	H4968-FS-D(3)	4/29/2020
13C3-PFBS	50	D	H4968-FS-D(3)	4/29/2020
13C3-PFHxS	83	D	H4968-FS-D(3)	4/29/2020
13C8-PFOS	96	D	H4968-FS-D(3)	4/29/2020
13C3-HFPO-DA	45	J	H4968-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-EB-20200423-01
Battelle ID		H4969-FS
Sample Type		SA
Collection Date		04/23/2020
Extraction Date		04/24/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		QC
Sample Size		0.270
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.49	U	H4969-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	0.24	U	H4969-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	0.47	U	H4969-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4969-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4969-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4969-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4969-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4969-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4969-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4969-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4969-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	0.13	U	H4969-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	0.10	U	H4969-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	0.41	U	H4969-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4969-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4969-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4969-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4969-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

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It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-EB-20200423-01
Battelle ID	H4969-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	76	H4969-FS(0)	4/29/2020
13C4-PFHpA	76	H4969-FS(0)	4/29/2020
13C8-PFOA	87	H4969-FS(0)	4/29/2020
13C9-PFNA	85	H4969-FS(0)	4/29/2020
13C6-PFDA	100	H4969-FS(0)	4/29/2020
13C7-PFUnA	96	H4969-FS(0)	4/29/2020
13C2-PFDoA	84	H4969-FS(0)	4/29/2020
13C2-PFTeDA	79	H4969-FS(0)	4/29/2020
d3-MeFOSAA	86	H4969-FS(0)	4/29/2020
d5-EtFOSAA	92	H4969-FS(0)	4/29/2020
13C3-PFBS	122	H4969-FS(0)	4/29/2020
13C3-PFHxS	87	H4969-FS(0)	4/29/2020
13C8-PFOS	100	H4969-FS(0)	4/29/2020
13C3-HFPO-DA	76	H4969-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-EB-20200423-02
Battelle ID	H4970-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	QC
Sample Size	0.280
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.47	U	H4970-FS(0)	1.000	4/29/2020	0.47	1.34	4.46
PFHpA	375-85-9	0.23	U	H4970-FS(0)	1.000	4/29/2020	0.23	0.89	4.46
PFOA	335-67-1	0.46	U	H4970-FS(0)	1.000	4/29/2020	0.46	1.34	4.46
PFNA	375-95-1	0.28	U	H4970-FS(0)	1.000	4/29/2020	0.28	0.89	4.46
PFDA	335-76-2	0.13	U	H4970-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFUnA	2058-94-8	0.20	U	H4970-FS(0)	1.000	4/29/2020	0.20	0.45	4.46
PFDoA	307-55-1	0.17	U	H4970-FS(0)	1.000	4/29/2020	0.17	0.45	4.46
PFTrDA	72629-94-8	0.13	U	H4970-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFTeDA	376-06-7	0.65	U	H4970-FS(0)	1.000	4/29/2020	0.65	1.79	4.46
NMeFOSAA	2355-31-9	0.31	U	H4970-FS(0)	1.000	4/29/2020	0.31	0.89	4.46
NEtFOSAA	2991-50-6	0.45	U	H4970-FS(0)	1.000	4/29/2020	0.45	0.89	4.46
PFBS	375-73-5	0.13	U	H4970-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFHxS	355-46-4	0.10	U	H4970-FS(0)	1.000	4/29/2020	0.10	0.36	4.46
PFOS	1763-23-1	0.39	U	H4970-FS(0)	1.000	4/29/2020	0.39	0.89	4.46
HFPO-DA	13252-13-6	0.22	U	H4970-FS(0)	1.000	4/29/2020	0.22	0.45	4.46
Adona	919005-14-4	0.24	U	H4970-FS(0)	1.000	4/29/2020	0.24	0.89	4.46
11Cl-PF3OUdS	763051-92-9	0.21	U	H4970-FS(0)	1.000	4/29/2020	0.21	0.45	4.46
9Cl-PF3ONS	756426-58-1	0.24	U	H4970-FS(0)	1.000	4/29/2020	0.24	0.89	4.46

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It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-EB-20200423-02
Battelle ID	H4970-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	75	H4970-FS(0)	4/29/2020
13C4-PFHpA	68	H4970-FS(0)	4/29/2020
13C8-PFOA	85	H4970-FS(0)	4/29/2020
13C9-PFNA	80	H4970-FS(0)	4/29/2020
13C6-PFDA	105	H4970-FS(0)	4/29/2020
13C7-PFUnA	96	H4970-FS(0)	4/29/2020
13C2-PFDoA	88	H4970-FS(0)	4/29/2020
13C2-PFTeDA	81	H4970-FS(0)	4/29/2020
d3-MeFOSAA	96	H4970-FS(0)	4/29/2020
d5-EtFOSAA	94	H4970-FS(0)	4/29/2020
13C3-PFBS	128	H4970-FS(0)	4/29/2020
13C3-PFHxS	94	H4970-FS(0)	4/29/2020
13C8-PFOS	96	H4970-FS(0)	4/29/2020
13C3-HFPO-DA	76	H4970-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0043I-025.0-20200423						
Battelle ID		H4971-FS						
Sample Type		SA						
Collection Date		04/23/2020						
Extraction Date		04/24/2020						
Analytical Instrument		Sciex 6500+ LC/MS/MS						
% Moisture		NA						
Matrix		GW						
Sample Size		0.270						
Size Unit-Basis		L						
Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	6.41	H4971-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	5.70	H4971-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	22.01	H4971-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29 U	H4971-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13 U	H4971-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20 U	H4971-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18 U	H4971-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14 U	H4971-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68 U	H4971-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32 U	H4971-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46 U	H4971-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	4.86	H4971-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	67.14	H4971-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	17.73	H4971-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23 U	H4971-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25 U	H4971-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21 U	H4971-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25 U	H4971-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0043I-025.0-20200423
Battelle ID	H4971-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	23	J	H4971-FS(0)	4/29/2020
13C4-PFHpA	44	J	H4971-FS(0)	4/29/2020
13C8-PFOA	65		H4971-FS(0)	4/29/2020
13C9-PFNA	80		H4971-FS(0)	4/29/2020
13C6-PFDA	68		H4971-FS(0)	4/29/2020
13C7-PFUnA	39	J	H4971-FS(0)	4/29/2020
13C2-PFDoA	13	J	H4971-FS(0)	4/29/2020
13C2-PFTeDA	3	J	H4971-FS(0)	4/29/2020
d3-MeFOSAA	54		H4971-FS(0)	4/29/2020
d5-EtFOSAA	40	J	H4971-FS(0)	4/29/2020
13C3-PFBS	45	J	H4971-FS(0)	4/29/2020
13C3-PFHxS	80		H4971-FS(0)	4/29/2020
13C8-PFOS	82		H4971-FS(0)	4/29/2020
13C3-HFPO-DA	52		H4971-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0043D-035.0-20200423
Battelle ID	H4972-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.270
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	3.48	I	H4972-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	1.16	I	H4972-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	0.47	U	H4972-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4972-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4972-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4972-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4972-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4972-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4972-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4972-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4972-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	1.68	I	H4972-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	4.87		H4972-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	0.41	U	H4972-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4972-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4972-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4972-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4972-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0043D-035.0-20200423
Battelle ID	H4972-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	25	J	H4972-FS(0)	4/29/2020
13C4-PFHpA	43	J	H4972-FS(0)	4/29/2020
13C8-PFOA	67		H4972-FS(0)	4/29/2020
13C9-PFNA	81		H4972-FS(0)	4/29/2020
13C6-PFDA	75		H4972-FS(0)	4/29/2020
13C7-PFUnA	42	J	H4972-FS(0)	4/29/2020
13C2-PFDoA	14	J	H4972-FS(0)	4/29/2020
13C2-PFTeDA	3	J	H4972-FS(0)	4/29/2020
d3-MeFOSAA	42	J	H4972-FS(0)	4/29/2020
d5-EtFOSAA	32	J	H4972-FS(0)	4/29/2020
13C3-PFBS	41	J	H4972-FS(0)	4/29/2020
13C3-PFHxS	76		H4972-FS(0)	4/29/2020
13C8-PFOS	79		H4972-FS(0)	4/29/2020
13C3-HFPO-DA	52		H4972-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0011S-012.5-20200423
Battelle ID	H4973-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.270
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	30.63		H4973-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	9.87		H4973-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	4.86		H4973-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4973-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4973-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4973-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4973-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4973-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4973-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4973-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4973-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	8.25		H4973-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	61.65		H4973-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	16.66		H4973-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4973-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4973-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4973-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4973-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0011S-012.5-20200423
Battelle ID	H4973-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	25	J	H4973-FS(0)	4/29/2020
13C4-PFHpA	46	J	H4973-FS(0)	4/29/2020
13C8-PFOA	79		H4973-FS(0)	4/29/2020
13C9-PFNA	87		H4973-FS(0)	4/29/2020
13C6-PFDA	87		H4973-FS(0)	4/29/2020
13C7-PFUnA	38	J	H4973-FS(0)	4/29/2020
13C2-PFDoA	8	J	H4973-FS(0)	4/29/2020
13C2-PFTeDA	4	J	H4973-FS(0)	4/29/2020
d3-MeFOSAA	49	J	H4973-FS(0)	4/29/2020
d5-EtFOSAA	34	J	H4973-FS(0)	4/29/2020
13C3-PFBS	42	J	H4973-FS(0)	4/29/2020
13C3-PFHxS	79		H4973-FS(0)	4/29/2020
13C8-PFOS	93		H4973-FS(0)	4/29/2020
13C3-HFPO-DA	51		H4973-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0011I-027.5-20200423
Battelle ID		H4974-FS
Sample Type		SA
Collection Date		04/23/2020
Extraction Date		04/24/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.270
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	18.10		H4974-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	10.30		H4974-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	19.91		H4974-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4974-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4974-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4974-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4974-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4974-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4974-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4974-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4974-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	6.19		H4974-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	49.48		H4974-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	1.84	I	H4974-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4974-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4974-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4974-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4974-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0011I-027.5-20200423
Battelle ID	H4974-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	24	J	H4974-FS(0)	4/29/2020
13C4-PFHpA	44	J	H4974-FS(0)	4/29/2020
13C8-PFOA	68		H4974-FS(0)	4/29/2020
13C9-PFNA	98		H4974-FS(0)	4/29/2020
13C6-PFDA	99		H4974-FS(0)	4/29/2020
13C7-PFUnA	63		H4974-FS(0)	4/29/2020
13C2-PFDoA	26	J	H4974-FS(0)	4/29/2020
13C2-PFTeDA	2	J	H4974-FS(0)	4/29/2020
d3-MeFOSAA	62		H4974-FS(0)	4/29/2020
d5-EtFOSAA	46	J	H4974-FS(0)	4/29/2020
13C3-PFBS	35	J	H4974-FS(0)	4/29/2020
13C3-PFHxS	74		H4974-FS(0)	4/29/2020
13C8-PFOS	91		H4974-FS(0)	4/29/2020
13C3-HFPO-DA	49	J	H4974-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0044I-025.0-20200423
Battelle ID		H4975-FS
Sample Type		SA
Collection Date		04/23/2020
Extraction Date		04/24/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.270
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	7.81		H4975-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	8.95		H4975-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	42.59		H4975-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	1.45	I	H4975-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4975-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4975-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4975-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4975-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4975-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4975-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4975-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	4.45	I	H4975-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	28.93		H4975-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	75.33		H4975-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4975-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4975-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4975-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4975-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

BATTELLE
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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0044I-025.0-20200423
Battelle ID	H4975-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	20	J	H4975-FS(0)	4/29/2020
13C4-PFHpA	40	J	H4975-FS(0)	4/29/2020
13C8-PFOA	66		H4975-FS(0)	4/29/2020
13C9-PFNA	89		H4975-FS(0)	4/29/2020
13C6-PFDA	77		H4975-FS(0)	4/29/2020
13C7-PFUnA	49	J	H4975-FS(0)	4/29/2020
13C2-PFDoA	15	J	H4975-FS(0)	4/29/2020
13C2-PFTeDA	2	J	H4975-FS(0)	4/29/2020
d3-MeFOSAA	60		H4975-FS(0)	4/29/2020
d5-EtFOSAA	48	J	H4975-FS(0)	4/29/2020
13C3-PFBS	37	J	H4975-FS(0)	4/29/2020
13C3-PFHxS	71		H4975-FS(0)	4/29/2020
13C8-PFOS	104		H4975-FS(0)	4/29/2020
13C3-HFPO-DA	41	J	H4975-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0044D-035.0-20200423
Battelle ID	H4976-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.270
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	4.40	I	H4976-FS(0)	1.000	4/29/2020	0.49	1.39	4.63
PFHpA	375-85-9	1.96	I	H4976-FS(0)	1.000	4/29/2020	0.24	0.93	4.63
PFOA	335-67-1	1.42	I	H4976-FS(0)	1.000	4/29/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4976-FS(0)	1.000	4/29/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4976-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4976-FS(0)	1.000	4/29/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4976-FS(0)	1.000	4/29/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4976-FS(0)	1.000	4/29/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4976-FS(0)	1.000	4/29/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4976-FS(0)	1.000	4/29/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4976-FS(0)	1.000	4/29/2020	0.46	0.93	4.63
PFBS	375-73-5	1.85	I	H4976-FS(0)	1.000	4/29/2020	0.13	0.46	4.63
PFHxS	355-46-4	7.61		H4976-FS(0)	1.000	4/29/2020	0.10	0.37	4.63
PFOS	1763-23-1	0.41	U	H4976-FS(0)	1.000	4/29/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4976-FS(0)	1.000	4/29/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4976-FS(0)	1.000	4/29/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4976-FS(0)	1.000	4/29/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4976-FS(0)	1.000	4/29/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0044D-035.0-20200423
Battelle ID	H4976-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	28	J	H4976-FS(0)	4/29/2020
13C4-PFHpA	47	J	H4976-FS(0)	4/29/2020
13C8-PFOA	78		H4976-FS(0)	4/29/2020
13C9-PFNA	95		H4976-FS(0)	4/29/2020
13C6-PFDA	90		H4976-FS(0)	4/29/2020
13C7-PFUnA	68		H4976-FS(0)	4/29/2020
13C2-PFDoA	49	J	H4976-FS(0)	4/29/2020
13C2-PFTeDA	12	J	H4976-FS(0)	4/29/2020
d3-MeFOSAA	53		H4976-FS(0)	4/29/2020
d5-EtFOSAA	45	J	H4976-FS(0)	4/29/2020
13C3-PFBS	42	J	H4976-FS(0)	4/29/2020
13C3-PFHxS	70		H4976-FS(0)	4/29/2020
13C8-PFOS	88		H4976-FS(0)	4/29/2020
13C3-HFPO-DA	58		H4976-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		SW3-MW0027-032.0-20200423
Battelle ID		H4977-FS
Sample Type		SA
Collection Date		04/23/2020
Extraction Date		04/24/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.280
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	21.58		H4977-FS(0)	1.000	4/29/2020	0.47	1.34	4.46
PFHpA	375-85-9	22.33		H4977-FS(0)	1.000	4/29/2020	0.23	0.89	4.46
PFOA	335-67-1	22.28		H4977-FS(0)	1.000	4/29/2020	0.46	1.34	4.46
PFNA	375-95-1	0.28	U	H4977-FS(0)	1.000	4/29/2020	0.28	0.89	4.46
PFDA	335-76-2	0.13	U	H4977-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFUnA	2058-94-8	0.20	U	H4977-FS(0)	1.000	4/29/2020	0.20	0.45	4.46
PFDoA	307-55-1	0.17	U	H4977-FS(0)	1.000	4/29/2020	0.17	0.45	4.46
PFTrDA	72629-94-8	0.13	U	H4977-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFTeDA	376-06-7	0.65	U	H4977-FS(0)	1.000	4/29/2020	0.65	1.79	4.46
NMeFOSAA	2355-31-9	0.31	U	H4977-FS(0)	1.000	4/29/2020	0.31	0.89	4.46
NEtFOSAA	2991-50-6	0.45	U	H4977-FS(0)	1.000	4/29/2020	0.45	0.89	4.46
PFBS	375-73-5	2.28	I	H4977-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFHxS	355-46-4	13.63		H4977-FS(0)	1.000	4/29/2020	0.10	0.36	4.46
PFOS	1763-23-1	0.39	U	H4977-FS(0)	1.000	4/29/2020	0.39	0.89	4.46
HFPO-DA	13252-13-6	0.22	U	H4977-FS(0)	1.000	4/29/2020	0.22	0.45	4.46
Adona	919005-14-4	0.24	U	H4977-FS(0)	1.000	4/29/2020	0.24	0.89	4.46
11Cl-PF3OUdS	763051-92-9	0.21	U	H4977-FS(0)	1.000	4/29/2020	0.21	0.45	4.46
9Cl-PF3ONS	756426-58-1	0.24	U	H4977-FS(0)	1.000	4/29/2020	0.24	0.89	4.46

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	SW3-MW0027-032.0-20200423
Battelle ID	H4977-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	27	J	H4977-FS(0)	4/29/2020
13C4-PFHpA	48	J	H4977-FS(0)	4/29/2020
13C8-PFOA	72		H4977-FS(0)	4/29/2020
13C9-PFNA	80		H4977-FS(0)	4/29/2020
13C6-PFDA	91		H4977-FS(0)	4/29/2020
13C7-PFUnA	55		H4977-FS(0)	4/29/2020
13C2-PFDoA	22	J	H4977-FS(0)	4/29/2020
13C2-PFTeDA	3	J	H4977-FS(0)	4/29/2020
d3-MeFOSAA	42	J	H4977-FS(0)	4/29/2020
d5-EtFOSAA	34	J	H4977-FS(0)	4/29/2020
13C3-PFBS	48	J	H4977-FS(0)	4/29/2020
13C3-PFHxS	77		H4977-FS(0)	4/29/2020
13C8-PFOS	82		H4977-FS(0)	4/29/2020
13C3-HFPO-DA	55		H4977-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	SW3-MW0028-032.0-20200423
Battelle ID	H4978-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.280
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	15.54		H4978-FS(0)	1.000	4/29/2020	0.47	1.34	4.46
PFHpA	375-85-9	11.83		H4978-FS(0)	1.000	4/29/2020	0.23	0.89	4.46
PFOA	335-67-1	6.21		H4978-FS(0)	1.000	4/29/2020	0.46	1.34	4.46
PFNA	375-95-1	0.28	U	H4978-FS(0)	1.000	4/29/2020	0.28	0.89	4.46
PFDA	335-76-2	0.13	U	H4978-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFUnA	2058-94-8	0.20	U	H4978-FS(0)	1.000	4/29/2020	0.20	0.45	4.46
PFDoA	307-55-1	0.17	U	H4978-FS(0)	1.000	4/29/2020	0.17	0.45	4.46
PFTrDA	72629-94-8	0.13	U	H4978-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFTeDA	376-06-7	0.65	U	H4978-FS(0)	1.000	4/29/2020	0.65	1.79	4.46
NMeFOSAA	2355-31-9	0.31	U	H4978-FS(0)	1.000	4/29/2020	0.31	0.89	4.46
NEtFOSAA	2991-50-6	0.45	U	H4978-FS(0)	1.000	4/29/2020	0.45	0.89	4.46
PFBS	375-73-5	3.82	I	H4978-FS(0)	1.000	4/29/2020	0.13	0.45	4.46
PFHxS	355-46-4	4.79		H4978-FS(0)	1.000	4/29/2020	0.10	0.36	4.46
PFOS	1763-23-1	0.39	U	H4978-FS(0)	1.000	4/29/2020	0.39	0.89	4.46
HFPO-DA	13252-13-6	0.22	U	H4978-FS(0)	1.000	4/29/2020	0.22	0.45	4.46
Adona	919005-14-4	0.24	U	H4978-FS(0)	1.000	4/29/2020	0.24	0.89	4.46
11Cl-PF3OUdS	763051-92-9	0.21	U	H4978-FS(0)	1.000	4/29/2020	0.21	0.45	4.46
9Cl-PF3ONS	756426-58-1	0.24	U	H4978-FS(0)	1.000	4/29/2020	0.24	0.89	4.46

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	SW3-MW0028-032.0-20200423
Battelle ID	H4978-FS
Sample Type	SA
Collection Date	04/23/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	26	J	H4978-FS(0)	4/29/2020
13C4-PFHpA	49	J	H4978-FS(0)	4/29/2020
13C8-PFOA	70		H4978-FS(0)	4/29/2020
13C9-PFNA	86		H4978-FS(0)	4/29/2020
13C6-PFDA	85		H4978-FS(0)	4/29/2020
13C7-PFUnA	54		H4978-FS(0)	4/29/2020
13C2-PFDoA	30	J	H4978-FS(0)	4/29/2020
13C2-PFTeDA	5	J	H4978-FS(0)	4/29/2020
d3-MeFOSAA	34	J	H4978-FS(0)	4/29/2020
d5-EtFOSAA	25	J	H4978-FS(0)	4/29/2020
13C3-PFBS	39	J	H4978-FS(0)	4/29/2020
13C3-PFHxS	80		H4978-FS(0)	4/29/2020
13C8-PFOS	88		H4978-FS(0)	4/29/2020
13C3-HFPO-DA	53		H4978-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	KY40 IB
Battelle ID	KY40 IB_04/28/2020
Sample Type	IB
Collection Date	NA
Extraction Date	NA
Analysis Date	04/28/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	Water
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		DL	LOD	LOQ
PFHxA	307-24-4	0.53	U	0.53	1.50	5.00
PFHpA	375-85-9	0.26	U	0.26	1.00	5.00
PFOA	335-67-1	0.51	U	0.51	1.50	5.00
PFNA	375-95-1	0.31	U	0.31	1.00	5.00
PFDA	335-76-2	0.14	U	0.14	0.50	5.00
PFUnA	2058-94-8	0.22	U	0.22	0.50	5.00
PFDoA	307-55-1	0.19	U	0.19	0.50	5.00
PFTrDA	72629-94-8	0.15	U	0.15	0.50	5.00
PFTeDA	376-06-7	0.73	U	0.73	2.00	5.00
NMeFOSAA	2355-31-9	0.46	I	0.35	1.00	5.00
NEtFOSAA	2991-50-6	0.59	I	0.50	1.00	5.00
PFBS	375-73-5	0.14	U	0.14	0.50	5.00
PFHxS	355-46-4	0.11	U	0.11	0.40	5.00
PFOS	1763-23-1	0.44	U	0.44	1.00	5.00
HFPO-DA	13252-13-6	0.25	U	0.25	0.50	5.00
Adona	919005-14-4	0.27	U	0.27	1.00	5.00
11Cl-PF3OUdS	763051-92-9	0.23	U	0.23	0.50	5.00
9Cl-PF3ONS	756426-58-1	0.27	U	0.27	1.00	5.00

Surrogate Recoveries (%)	
13C5-PFHxA	111
13C4-PFHpA	111
13C8-PFOA	98
13C9-PFNA	103
13C6-PFDA	104
13C7-PFUnA	102
13C2-PFDoA	101
13C2-PFTeDA	102
d3-MeFOSAA	102
d5-EtFOSAA	100
13C3-PFBS	103
13C3-PFHxS	101
13C8-PFOS	96
13C3-HFPO-DA	101

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		Procedural Blank
Battelle ID		CY785PB-FS
Sample Type		PB
Collection Date		04/24/2020
Extraction Date		04/24/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		WATER
Sample Size		0.250
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.53	U	CY785PB-FS(0)	1.000	4/29/2020	0.53	1.50	5.00
PFHpA	375-85-9	0.26	U	CY785PB-FS(0)	1.000	4/29/2020	0.26	1.00	5.00
PFOA	335-67-1	0.51	U	CY785PB-FS(0)	1.000	4/29/2020	0.51	1.50	5.00
PFNA	375-95-1	0.31	U	CY785PB-FS(0)	1.000	4/29/2020	0.31	1.00	5.00
PFDA	335-76-2	0.14	U	CY785PB-FS(0)	1.000	4/29/2020	0.14	0.50	5.00
PFUnA	2058-94-8	0.22	U	CY785PB-FS(0)	1.000	4/29/2020	0.22	0.50	5.00
PFDoA	307-55-1	0.19	U	CY785PB-FS(0)	1.000	4/29/2020	0.19	0.50	5.00
PFTrDA	72629-94-8	0.15	U	CY785PB-FS(0)	1.000	4/29/2020	0.15	0.50	5.00
PFTeDA	376-06-7	0.73	U	CY785PB-FS(0)	1.000	4/29/2020	0.73	2.00	5.00
NMeFOSAA	2355-31-9	0.35	U	CY785PB-FS(0)	1.000	4/29/2020	0.35	1.00	5.00
NEtFOSAA	2991-50-6	0.50	U	CY785PB-FS(0)	1.000	4/29/2020	0.50	1.00	5.00
PFBS	375-73-5	0.14	U	CY785PB-FS(0)	1.000	4/29/2020	0.14	0.50	5.00
PFHxS	355-46-4	0.11	U	CY785PB-FS(0)	1.000	4/29/2020	0.11	0.40	5.00
PFOS	1763-23-1	0.44	U	CY785PB-FS(0)	1.000	4/29/2020	0.44	1.00	5.00
HFPO-DA	13252-13-6	0.25	U	CY785PB-FS(0)	1.000	4/29/2020	0.25	0.50	5.00
Adona	919005-14-4	0.27	U	CY785PB-FS(0)	1.000	4/29/2020	0.27	1.00	5.00
11Cl-PF3OUdS	763051-92-9	0.23	U	CY785PB-FS(0)	1.000	4/29/2020	0.23	0.50	5.00
9Cl-PF3ONS	756426-58-1	0.27	U	CY785PB-FS(0)	1.000	4/29/2020	0.27	1.00	5.00

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Procedural Blank
Battelle ID	CY785PB-FS
Sample Type	PB
Collection Date	04/24/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	90	CY785PB-FS(0)	4/29/2020
13C4-PFHpA	85	CY785PB-FS(0)	4/29/2020
13C8-PFOA	100	CY785PB-FS(0)	4/29/2020
13C9-PFNA	92	CY785PB-FS(0)	4/29/2020
13C6-PFDA	104	CY785PB-FS(0)	4/29/2020
13C7-PFUnA	98	CY785PB-FS(0)	4/29/2020
13C2-PFDoA	92	CY785PB-FS(0)	4/29/2020
13C2-PFTeDA	78	CY785PB-FS(0)	4/29/2020
d3-MeFOSAA	96	CY785PB-FS(0)	4/29/2020
d5-EtFOSAA	102	CY785PB-FS(0)	4/29/2020
13C3-PFBS	124	CY785PB-FS(0)	4/29/2020
13C3-PFHxS	107	CY785PB-FS(0)	4/29/2020
13C8-PFOS	109	CY785PB-FS(0)	4/29/2020
13C3-HFPO-DA	78	CY785PB-FS(0)	4/29/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Laboratory Control Sample
Battelle ID	CY786LCS-FS
Sample Type	LCS
Collection Date	04/24/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	WATER
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	Target	Recovery	Qual	Control Limits Lower	Control Limits Upper
PFHxA	307-24-4	39.17	CY786LCS-FS(0)	1.000	4/29/2020	40.40	97		72	129
PFHpA	375-85-9	36.08	CY786LCS-FS(0)	1.000	4/29/2020	40.00	90		72	130
PFOA	335-67-1	33.42	CY786LCS-FS(0)	1.000	4/29/2020	40.00	84		71	133
PFNA	375-95-1	36.88	CY786LCS-FS(0)	1.000	4/29/2020	40.00	92		69	130
PFDA	335-76-2	36.22	CY786LCS-FS(0)	1.000	4/29/2020	40.00	91		71	129
PFUnA	2058-94-8	35.27	CY786LCS-FS(0)	1.000	4/29/2020	40.00	88		69	133
PFDoA	307-55-1	35.64	CY786LCS-FS(0)	1.000	4/29/2020	40.00	89		72	134
PFTrDA	72629-94-8	37.47	CY786LCS-FS(0)	1.000	4/29/2020	40.00	94		65	144
PFTeDA	376-06-7	37.55	CY786LCS-FS(0)	1.000	4/29/2020	40.00	94		71	132
NMeFOSAA	2355-31-9	30.99	CY786LCS-FS(0)	1.000	4/29/2020	40.00	77		65	136
NEtFOSAA	2991-50-6	33.56	CY786LCS-FS(0)	1.000	4/29/2020	40.00	84		61	135
PFBS	375-73-5	32.90	CY786LCS-FS(0)	1.000	4/29/2020	40.00	82		72	130
PFHxS	355-46-4	36.60	CY786LCS-FS(0)	1.000	4/29/2020	40.40	91		68	131
PFOS	1763-23-1	35.69	CY786LCS-FS(0)	1.000	4/29/2020	40.40	88		65	140
HFPO-DA	13252-13-6	32.76	CY786LCS-FS(0)	1.000	4/29/2020	40.00	82		74	148
Adona	919005-14-4	31.93	CY786LCS-FS(0)	1.000	4/29/2020	40.00	80		61	143
11Cl-PF3OUdS	763051-92-9	28.84	CY786LCS-FS(0)	1.000	4/29/2020	40.00	72		52	158
9Cl-PF3ONS	756426-58-1	33.45	CY786LCS-FS(0)	1.000	4/29/2020	40.00	84		59	147

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Laboratory Control Sample
Battelle ID	CY786LCS-FS
Sample Type	LCS
Collection Date	04/24/2020
Extraction Date	04/24/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	72	CY786LCS-FS(0)	4/29/2020
13C4-PFHpA	78	CY786LCS-FS(0)	4/29/2020
13C8-PFOA	90	CY786LCS-FS(0)	4/29/2020
13C9-PFNA	80	CY786LCS-FS(0)	4/29/2020
13C6-PFDA	100	CY786LCS-FS(0)	4/29/2020
13C7-PFUnA	96	CY786LCS-FS(0)	4/29/2020
13C2-PFDoA	92	CY786LCS-FS(0)	4/29/2020
13C2-PFTeDA	87	CY786LCS-FS(0)	4/29/2020
d3-MeFOSAA	104	CY786LCS-FS(0)	4/29/2020
d5-EtFOSAA	96	CY786LCS-FS(0)	4/29/2020
13C3-PFBS	132	CY786LCS-FS(0)	4/29/2020
13C3-PFHxS	107	CY786LCS-FS(0)	4/29/2020
13C8-PFOS	101	CY786LCS-FS(0)	4/29/2020
13C3-HFPO-DA	82	CY786LCS-FS(0)	4/29/2020

Glossary of Data Qualifiers

Flag:	Application:
V	Analyte found in the sample at a concentration <10x the level found in the procedural blank
D	Dilution Run. Initial run outside the initial calibration range of the instrument
L	Estimate, result is greater than the highest concentration level in the calibration
I	The reported value is greater than or equal to the laboratory Detection Limit (DL) but less than the laboratoryLimit of Quantitation (LOQ)
*	Significant Matrix Interference - value could not be determined.
J	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not Applicable
Q	Holding Time (HT) exceeded
U	Analyte not detected or detected below the Detection Limit (DL) value, DL reported

Miscellaneous Documentation

QA/QC Summary
Batch 20-0502

Project:	Nasa Kennedy Space Center
Client Project Manager:	Andrew Walters
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW, QC
Data Set:	DP-20-0433
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.3 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
4/21 – 23/2020	4/24/2020	1.0, 1.3

Corrective Actions	None.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	None.

	METHOD SUMMARIES
Sample Preparation	Water samples were fortified with surrogates in the original sample container from the field. The water was extracted using a Weak-anion exchange (WAX) solid phase extraction (SPE) cartridges. Target analytes are eluted from the WAX SPE using 0.5% NH_3 in methanol. Extracts were further refined using Envi-carb to remove co-extracted interferences. Extracts were concentrated to approximately 500 µL under nitrogen with a water bath set between 50 °C and 60 °C, reconstituted with methanol/water and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis in 80:20 methanol/water (V/V).
Prep comments	pH verified between 6 and 8 prior to extraction. Samples H4967-FS (POL-MW0045I-035.0-20200422), H4968-FS (POL-MW0043S-015.0-20200422), H4971-FS (POL-MW0043I-025.0-20200423), H4972-FS (POL-MW0043D-035.0-20200423), H4973-FS (POL-MW0011S-012.5-20200423), H4974-FS (POL-MW0011I-027.5-20200423), H4975-FS (POL-MW0044I-025.0-20200423), H4976-FS (POL-MW0044D-035.0-20200423), H4977-FS (SW3-MW0027-032.0-20200423), and H4978-FS (SW3-MW0028-032.0-20200423) contained particulates. Sample H4970-FS (POL-EB-20200423-02) contained a few particulates. Samples H4968-FS (POL-MW0043S-015.0-20200422) and H4973-FS (POL-MW0011S-012.5-20200423) had a potent sulfur odor. Samples extracts H4967-FS (POL-MW0045I-035.0-20200422), H4971-FS (POL-MW0043I-025.0-20200423), H4972-FS (POL-MW0043D-035.0-20200423), H4973-FS (POL-MW0011S-012.5-20200423), H4974-FS (POL-MW0011I-027.5-20200423), and H4978-FS (SW3-MW0028-032.0-20200423) were yellow/brown and concentrated very slowly.

QA/QC Summary
Batch 20-0502

	Samples extracts H4968-FS (POL-MW0043S-015.0-20200422) and H4975-FS (POL-MW0044I-025.0-20200423) were dark yellow/brown and concentrated very slowly. Samples extracts H4976-FS (POL-MW0044D-035.0-20200423) and H4977-FS (SW3-MW0027-032.0-20200423) were pale yellow/brown and concentrated very slowly.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 6500+ LC-MS/MS. MeFOSAA, EtFOSAA, PFHxS, and PFOS in the LCS, and in field samples when detected, were found and reported as a combination of both linear and branched isomers. Due to the potential contribution of high concentration of native compounds to labelled analogs, in cases where the native PFOS is reported from a dilution, the extracted internal standards reported from 13C4-PFOS are reported from the same dilution level. In all other cases, the extracted internal standard is reported from the same dilution level as the native compound.

Holding Times	Extraction Date(s)	Analysis Date(s)
	4/24/2020	4/28 – 29/2020

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
< ½ the LOQ Samples >10x PB	No exceedances noted. No comments.

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery	No exceedances noted. No comments.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery and <30% RPD	MS/MSD not included in this batch. No comments.

QA/QC Summary
Batch 20-0502

Extracted Internal Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
50-150% of true value	Seventy-one (71) exceedances noted.
	Select samples had suppressed or enhanced recoveries for select extracted internal standards. The table below indicates if the extracted internal standard was within +/- 50% of the area of the L5 calibration point ("P") or if the area showed suppression ("↓"),or enhancement ("↑") for these extracted internal standards.

	13C5-PFHxA	13C4-PFHpA	13C7-PFUnA	13C2-PFDoA	13C2-PFTeDA	d3-MeFOSAA	d5-EtFOSAA	13C3-PFBS	13C3-HFPO-DA
H4967-FS (POL-MW0045I-035.0-20200422)	↓	↓		↓	↓	↓	↓	↓	
H4968-FS (POL-MW0043S-015.0-20200422)	↓	↓	↓	↓	↓				↓
H4971-FS (POL-MW0043I-025.0-20200423)	↓	↓	↓	↓	↓		↓	↓	
H4972-FS (POL-MW0043D-035.0-20200423)	↓	↓	↓	↓	↓	↓	↓	↓	
H4973-FS (POL-MW0011S-012.5-20200423)	↓	↓	↓	↓	↓	↓	↓	↓	
H4974-FS (POL-MW0011I-027.5-20200423)	↓	↓		↓	↓		↓	↓	↓
H4975-FS (POL-MW0044I-025.0-20200423)	↓	↓	↓	↓	↓		↓	↓	↓
H4976-FS (POL-MW0044D-035.0-20200423)	↓	↓		↓	↓		↓	↓	
H4977-FS (SW3-MW0027-032.0-20200423)	↓	↓		↓	↓	↓	↓	↓	
H4978-FS (SW3-MW0028-032.0-20200423)	↓	↓		↓	↓	↓	↓	↓	

The remaining extracted internal standards in each impacted sample, fortified from the same solution, pass criteria, suggesting that the suppression is matrix related to these analytes only.

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
+/- 50% of the area of the L5 calibration point.	No exceedances noted.
	No comments.

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
+/- 30% of true value, $R^2 \geq 0.99$	No exceedances noted.
	No comments.

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
+/- 30% of true value	No exceedances noted.
	No comments.

Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
+/- 30% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 20-0502

Instrument Blank (IB)	Immediately following the highest standard analyzed and daily prior to sample analysis.
≤ ½ the LOQ	No exceedances noted.
	No comments.

BATTELLE
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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project Number: 100137609
Preparation Batch: 20-0502
Data Set: DP-20-0433
Test Code: Master_369B

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	NA	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	71	There are seventy one extracted internal standard analytes that do not meet passing criteria. A fresh aliquot was taken, run and the results confirmed. DMS 5/1/2020
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

BATTELLE
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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	PFAS: Nasa Kennedy Space Center	**Data Set Number:**	DP-20-0433
Project Number:	100137609	**Prep Batch Number:**	20-0502
Entered By:	Denise Schumitz	**Entered On:**	05/01/2020
Test Code (Matrix Type):	Master_369B(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 5/1//2020

KY39 is not being used in the SIS calibration curve for 13C3-PFBS and 13C3-PFHxS. There is no impact on the data once this point of the calibration is removed.
DMS 5/1/2020

KY33 is not being used in the calibration curve for HFPO-DA. There is no impact on the data once this point of the calibration is removed.
DMS 5/1/2020

KY39 is not being used in the calibration curve for ADONA, 9Cl-PF3ONS and 11Cl-pf3OUdS. There is no impact on the data once this point of the calibration is removed.
DMS 5/1/2020

Due to the potential contribution of high concentration of native compounds to labelled analogs, in cases where the native PFOS is reported from a dilution, the extracted internal standards reported from 13C4-PFOS are reported from the same dilution level. In all other cases, the extracted internal standard is reported from the same dilution level as the native compound.
DMS 5/1/2020

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2020.05.04 11:02:31 -04'00'

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Example Calculation for PFAS

Calculation of final concentration from area:

$$Concentration = \left[\frac{PA - b}{m}\right] * C_{IS} * PIV * DF/S$$

Where:

PA = Area of target / area of internal standard
b = y intercept from calibration curve
CIS = concentration of internal standard (ng/L)
m = slope of calibration
DF = dilution factor
S = Sample Size
PIV = Pre-injection volume (L)

Sample ID:	H4968-FS-D(3)
Client Sample ID:	POL-MW0043S-015.0-20200422
Sample Size:	0.27
Units:	L
Dilution Factor:	5.000
PIV (L):	0.001
Target Analyte:	PFOS
MRM Transition:	499.0 / 80.0
Data file:	AE_04282020_5-369.wiff
Result table:	20-0502
Area:	13,711,327.35
IS Name:	13C8-PFOS
IS Area:	242,294.24
IS Amount (ng/L):	1196.25
y-intercept:	0.02579
slope:	3.84637

$$\text{Concentration} = \frac{[(13711327.35/242294.24) - 0.02579]}{3.84637} * 1196.25 * 0.001 * 5 / 0.27$$

ng/L = 325.77

*Final concentration may vary based on rounding.

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It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609
Preparation Batch: 20-0502
Data Set: DP-20-0433

		CY785PB-FS (Procedural Blank)	CY786LCS-FS (Laboratory Control Sample)	H4967-FS (POL-MW0045I-035.0-20200422)	H4968-FS (POL-MW0043S-015.0-20200422)	H4969-FS (POL-EB-20200423-01)	H4970-FS (POL-EB-20200423-02)	H4971-FS (POL-MW0043I-025.0-20200423)	H4972-FS (POL-MW0043D-035.0-20200423)	H4973-FS (POL-MW0011S-012.5-20200423)	H4974-FS (POL-MW0011I-027.5-20200423)	H4975-FS (POL-MW0044I-025.0-20200423)	H4976-FS (POL-MW0044D-035.0-20200423)	H4977-FS (SW3-MW0027-032.0-20200423)	H4978-FS (SW3-MW0028-032.0-20200423)
PFHxA	307-24-4	-	L	L	L	-	-	L	L	L	L	L	L	L	L
PFHpA	375-85-9	-	L	L	L	-	-	L	L	L	L	L	L	L	L
PFOA	335-67-1	-	L	L	L	-	-	L	-	L	L	L	L	L	L
PFNA	375-95-1	-	L	-	L	-	-	-	-	-	-	L	-	-	-
PFDA	335-76-2	-	L	-	L	-	-	-	-	-	-	-	-	-	-
PFUnA	2058-94-8	-	L	-	-	-	-	-	-	-	-	-	-	-	-
PFDoA	307-55-1	-	L	-	-	-	-	-	-	-	-	-	-	-	-
PFTrDA	72629-94-8	-	L	-	-	-	-	-	-	-	-	-	-	-	-
PFTeDA	376-06-7	-	L	-	-	-	-	-	-	-	-	-	-	-	-
NMeFOSAA	2355-31-9	-	L/Br	-	-	-	-	-	-	-	-	-	-	-	-
NEtFOSAA	2991-50-6	-	L/Br	L/Br	-	-	-	-	-	-	-	-	-	-	-
PFBS	375-73-5	-	L	L	L	-	-	L	L	L	L	L	L	L	L
PFHxS	355-46-4	-	L/Br	L/Br	L/Br	-	-	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br
PFOS	1763-23-1	-	L/Br	-	L/Br	-	-	L/Br	-	L/Br	L/Br	L/Br	-	-	-
HFPO-DA	13252-13-6	-	L	-	-	-	-	-	-	-	-	-	-	-	-
Adona	919005-14-4	-	L	-	-	-	-	-	-	-	-	-	-	-	-
11Cl-PF3OUdS	763051-92-9	-	L	-	-	-	-	-	-	-	-	-	-	-	-
9Cl-PF3ONS	756426-58-1	-	L	-	-	-	-	-	-	-	-	-	-	-	-

"L" :Linear
"Br": branched
"L/Br": Linear/Branched
"-": Not detected

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

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Passing criteria = 50% to 150% of internal standard area (compared to mid-point of calibration)

Sample Name	Sample ID	Analysis Date	13C3-PFBA	13C2-PFOA	13C2-PFDA	13C4-PFOS
KY37	L5	4/28/20 18:08	-	725,306.31	1,176,387.50	267,085.89
		Lower	-	362,653.16	588,193.75	133,542.95
		Upper	-	1,087,959.47	1,764,581.25	400,628.84

Sample Name	Sample ID	Analysis Date	13C3-PFBA	Qual	User	13C2-PFOA	Qual	User	13C2-PFDA	Qual	User	13C4-PFOS	Qual	User
KY33	L1	4/28/20 17:26	-			732,000.67			1,167,142.42			262,631.33		
KY34	L2	4/28/20 17:37	-			745,733.45			1,203,731.56			266,204.40		
KY35	L3	4/28/20 17:47	-			733,063.44			1,167,903.12			264,305.96		
KY36	L4	4/28/20 17:58	-			730,227.80			1,140,130.37			253,287.18		
KY37	L5	4/28/20 18:08	-			725,306.31			1,176,387.50			267,085.89		
KY38	L6	4/28/20 18:19	-			763,860.08			1,153,745.15			265,226.50		
KY39	L7	4/28/20 18:29	-			743,235.34			1,055,239.03			222,604.44		
KY40 IB	Instrument Blank	4/28/20 18:40	-			711,821.18			1,184,040.46			263,969.09		
KY41 ICC	ICC	4/28/20 18:50	-			690,146.48			1,101,219.96			255,986.52		
KY37 CCV	CCV	4/29/20 0:59	-			801,509.02			1,232,813.91			286,178.47		
CY785PB-FS(0)	Procedural Blank	4/29/20 1:20	-			892,094.62			1,280,629.82			259,500.80		
CY786LCS-FS(0)	Laboratory Control Sample	4/29/20 1:31	-			938,415.26			1,182,099.65			257,640.94		
H4967-FS(0)	POL-MW0045I-035.0-20200422	4/29/20 1:41	-			653,559.81			956,525.26			217,623.81		
H4968-FS(0)	POL-MW0043S-015.0-20200422	4/29/20 1:52	-			503,984.00			1,048,794.90			179,402.72		
H4968-FS-D(3)	POL-MW0043S-015.0-20200422	4/29/20 2:03	-			775,003.25			1,310,916.57			249,635.43		
H4969-FS(0)	POL-EB-20200423-01	4/29/20 2:13	-			966,776.35			1,271,673.00			267,937.56		
H4970-FS(0)	POL-EB-20200423-02	4/29/20 2:24	-			981,781.78			1,242,930.47			272,864.18		
H4971-FS(0)	POL-MW0043I-025.0-20200423	4/29/20 2:34	-			656,499.10			1,017,443.99			198,127.50		
KY36 CCV	CCV	4/29/20 2:55	-			721,711.33			1,214,927.28			254,152.07		
H4972-FS(0)	POL-MW0043D-035.0-20200423	4/29/20 3:06	-			625,915.86			812,338.99			196,811.39		
H4973-FS(0)	POL-MW0011S-012.5-20200423	4/29/20 3:16	-			607,641.54			848,434.43			188,262.53		
H4974-FS(0)	POL-MW0011I-027.5-20200423	4/29/20 3:27	-			597,654.68			950,941.47			218,074.01		
H4975-FS(0)	POL-MW0044I-025.0-20200423	4/29/20 3:37	-			548,839.74			925,018.01			179,617.33		
H4976-FS(0)	POL-MW0044D-035.0-20200423	4/29/20 3:48	-			707,156.23			1,159,346.41			255,335.37		
H4977-FS(0)	SW3-MW0027-032.0-20200423	4/29/20 3:58	-			681,093.47			818,016.91			212,208.72		
H4978-FS(0)	SW3-MW0028-032.0-20200423	4/29/20 4:09	-			602,963.51			775,803.17			204,091.66		
KY37 CCV	CCV	4/29/20 4:30	-			689,858.35			1,099,916.00			247,527.37		

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 01/05/2020 2:14:44 PM

Sample Name	KY38	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:19:18 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.33	1.13	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.58	1.22	0.8 – 1.5

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 01/05/2020 2:16:17 PM

Sample Name	KY39	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:29:50 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.33	58	>10
PFBS_2	298.9 / 99.0	1.33	61	>10
PFHxA_1	313.0 / 269.0	1.58	56	>10
PFHxA_2	313.0 / 119.0	1.58	51	>10
PFHpA_1	363.0 / 319.0	1.91	48	>10
PFHpA_2	363.0 / 169.0	1.91	51	>10
PFHxS_1	399.0 / 80.0	1.92	50	>10
PFHxS_2	399.0 / 99.0	1.92	46	>10
PFOA_1	413.0 / 369.0	2.27	48	>10
PFOA_2	413.0 / 169.0	2.27	42	>10
PFNA_1	463.0 / 419.0	2.64	55	>10
PFNA_2	463.0 / 219.0	2.64	56	>10
PFOS_1	499.0 / 80.0	2.64	63	>10
PFOS_2	499.0 / 99.0	2.64	61	>10
PFDA_1	513.0 / 469.0	3.01	58	>10
PFDA_2	513.0 / 219.0	3.00	64	>10
PFUnA_1	563.0 / 519.0	3.33	63	>10
PFUnA_2	563.0 / 269.0	3.33	63	>10
PFDoA_1	613.0 / 569.0	3.63	79	>10
PFDoA_2	613.0 / 319.0	3.63	84	>10
PFTrDA_1	663.0 / 619.0	3.89	90	>10
PFTrDA_2	663.0 / 169.0	3.88	69	>10
PFTeDA_1	713.0 / 669.0	4.12	95	>10
PFTeDA_2	713.0 / 169.0	4.12	102	>10
NMeFOSAA_1	570.0 / 419.0	3.15	55	>10
NMeFOSAA_2	570.0 / 512.0	3.15	71	>10
NEtFOSAA_1	584.0 / 419.0	3.32	81	>10
NEtFOSAA_2	584.0 / 483.0	3.32	73	>10
HFPO-DA_1	285.0 / 169.0	1.67	62	>10
HFPO-DA_2	285.0 / 118.8	1.67	46	>10
ADONA_1	377.0 / 251.0	1.95	53	>10
ADONA_2	377.0 / 85.0	1.95	53	>10
9Cl-PF3ONS_1	531.0 / 351.0	2.85	56	>10
9Cl-PF3ONS_2	531.0 / 83.0	2.85	41	>10
11Cl-pf3OUdS_1	631.0 / 451.0	3.49	80	>10
11Cl-pf3OUdS_2	631.0 / 83.0	3.49	37	>10

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 01/05/2020 2:04:26 PM

Sample Name	KY39	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:29:50 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.63	69	>10
d3-MeFOSAA	573.0 / 419.0	3.15	44	>10
d5-EtFOSAA	589.0 / 419.0	3.32	39	>10
13C5-PFHxA	318.0 / 273.0	1.57	49	>10
13C4-PFHpA	367.0 / 322.0	1.90	54	>10
13C8-PFOA	421.0 / 376.0	2.26	49	>10
13C9-PFNA	472.0 / 427.0	2.64	48	>10
13C6-PFDA	519.0 / 474.0	3.00	57	>10
13C7-PFUnA	570.0 / 525.0	3.33	73	>10
13C2-PFTeDA	715.0 / 670.0	4.12	90	>10
13C3-PFBS	302.0 / 99.0	1.32	40	>10
13C3-PFHxS	402.0 / 99.0	1.91	40	>10
13C8-PFOS	507.0 / 99.0	2.63	37	>10
13C3-HFPO-DA	287.0 / 169.0	1.67	50	>10

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Precision and Bias at the LOQ for PFAS in non-potable Water

Analyte	CAS No.	Average (ng/L)	ST DEV	2 Sigma	n [1]
PFBA	375-22-4	11.00	0.9226	1.85	14
PFPeA	2706-90-3	9.81	0.7228	1.45	11
PFHxA	307-24-4	9.88	1.1365	2.27	43
PFHpA	375-85-9	9.76	0.9225	1.85	43
PFOA	335-67-1	9.93	1.3923	2.78	44
PFNA	375-95-1	9.71	1.1236	2.25	43
PFDA	335-76-2	9.51	0.9842	1.97	43
PFUnA	2058-94-8	9.55	0.9267	1.85	43
PFDoA	307-55-1	10.22	0.9055	1.81	43
PFTrDA	72629-94-8	9.93	1.2752	2.55	43
PFTeDA	376-06-7	10.39	0.9707	1.94	43
NMeFOSAA	2355-31-9	10.02	1.5564	3.11	43
NEtFOSAA	2991-50-6	9.55	1.4218	2.84	43
PFOSA	754-91-6	10.06	0.8394	1.68	11
PFBS	375-73-5	9.63	1.1816	2.36	43
PFPeS	2706-91-4	9.88	0.9203	1.84	5
PFHxS	355-46-4	9.90	1.1346	2.27	43
PFHpS	375-92-8	10.13	1.0851	2.17	11
PFOS	1763-23-1	9.78	1.2383	2.48	44
PFNS	68259-12-1	9.45	1.0923	2.18	5
PFDS	335-77-3	9.55	1.3140	2.63	11
4:2FTS	757124-72-4	10.38	1.7353	3.47	6
6:2FTS	27619-97-2	10.08	1.1871	2.37	12
8:2FTS	39108-34-4	9.59	1.4345	2.87	12
HFPO-DA	13252-13-6	10.92	1.4420	2.88	25
Adona	919005-14-4	10.38	1.4862	2.97	25
11Cl-PF3OUdS	763051-92-9	9.80	1.5701	3.14	25
9Cl-PF3ONS	756426-58-1	9.52	1.0952	2.19	25

[1] Minimum of 20 samples required per QAM for determination of uncertainty, results including less than 20 data points are estimated.

BATTELLE DETECTION LIMITS FOR PFAS IN NON-POTABLE WATER

QSM 5.1.1 compliant with Table B-15 requirements

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.45	1.0	5.0
PFPeA	2706-90-3	0.26	1.0	5.0
PFHxA	307-24-4	0.53	1.5	5.0
PFHpA	375-85-9	0.26	1.0	5.0
PFOA	335-67-1	0.51	1.5	5.0
PFNA	375-95-1	0.31	1.0	5.0
PFDA	335-76-2	0.14	0.5	5.0
PFUnA	2058-94-8	0.22	0.5	5.0
PFDoA	307-55-1	0.19	0.5	5.0
PFTrDA	72629-94-8	0.15	0.5	5.0
PFTeDA	376-06-7	0.73	2.0	5.0
NMeFOSAA	2355-31-9	0.35	1.0	5.0
NEtFOSAA	2991-50-6	0.50	1.0	5.0
PFOSA	754-91-6	0.46	1.0	5.0
PFBS	375-73-5	0.14	0.5	5.0
PFPeS	2706-91-4	0.26	1.0	5.0
PFHxS	355-46-4	0.11	0.4	5.0
PFHpS	375-92-8	0.85	2.0	5.0
PFOS	1763-23-1	0.44	1.0	5.0
PFNS	68259-12-1	0.36	1.0	5.0
PFDS	335-77-3	0.27	1.0	5.0
4:2FTS	747124-72-4	0.50	1.0	5.0
6:2FTS	27619-97-2	0.53	1.5	5.0
8:2FTS	39108-34-4	0.60	2.0	5.0
3:3 FTCA	356-02-5	1.32	3.0	5.0
5:3 FTCA	914637-49-3	1.59	3.0	5.0
7:3 FTCA	812-70-4	1.40	3.0	5.0
HFPO-DA	13252-13-6	0.25	0.5	5.0
Adona	919005-14-4	0.27	1.0	5.0
11Cl-PF3OUdS	763051-92-9	0.23	0.5	5.0
9Cl-PF3ONS	756426-58-1	0.27	1.0	5.0

Analytes on ELAP QSM 5.1.1 Scope of accreditation
MDL calculated based on 40 CFR 136 (2017)

800.201.2011 | solutions@battelle.org | www.battelle.org

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Analytical Transitions for PFAS in non-potable water, solid, and tissue

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFBA	375-22-4	Target	213.0 / 169.0	NA
PFPeA	2706-90-3	Target	263.0 / 219.0	NA
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFOSA	754-91-6	Target	498.0 / 78.0	498.0 / 83.0
PFBS	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
PFPeS	BDO-2114	Target	349.0 / 99.0	249.0 / 80.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFHpS	375-99-6	Target	449.0 / 80.0	449.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
PFNS	98789-57-2	Target	549.0 / 99.0	549.0 / 80.0
PFDS	2806-15-7	Target	599.0 / 80.0	599.0 / 99.0
4:2FTS	BDO-2205	Target	327.0 / 307.0	327.0 / 80.0
6:2FTS	27619-97-2	Target	427.0 / 407.0	427.0 / 81.0
8:2FTS	39108-34-4	Target	527.0 / 507.0	527.0 / 487.0
3:3 FTCA	356-02-5	Target	241.0 / 177.0	NA
5:3 FTCA	914637-49-3	Target	341.0 / 237.0	NA
7:3 FTCA	812-70-4	Target	441.0 / 337.0	NA
HFPO-DA	13252-13-6	Target	285.0 /169.0	285.0 /118.8
Adona	919005-14-4	Target	377.0 / 251.0	377.0 / 85.0
9Cl-PF3ONS	756426-58-1	Target	531.0 / 351.0	531.0 / 83.0
11Cl-PF3OUdS	763051-92-9	Target	631.0 / 451.0	631.0 / 83.0

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
13C4-PFBA	NA	SIS[1]	217.0 / 172.0	NA
13C5-PFPeA	NA	SIS[1]	268.0 / 223.0	NA
13C5-PFHxA	NA	SIS[1]	318.0 / 273.0	NA
13C4-PFHpA	NA	SIS[1]	367.0 / 322.0	NA
13C8-PFOA	NA	SIS[1]	421.0 / 376.0	NA
13C9-PFNA	NA	SIS[1]	472.0 / 427.0	NA
13C6-PFDA	NA	SIS[1]	519.0 / 474.0	NA
13C7-PFUnA	NA	SIS[1]	570.0 / 525.0	NA
13C2-PFDoA	NA	SIS[1]	615.0 / 570.0	NA
13C2-PFTeDA	NA	SIS[1]	715.0 / 670.0	NA
d3-MeFOSAA	NA	SIS[1]	573.0 / 419.0	NA
d5-EtFOSAA	NA	SIS[1]	589.0 / 419.0	NA
13C8-FOSA	NA	SIS[1]	506.0 / 78.0	NA
13C3-PFBS	NA	SIS[1]	302.0 / 99.0	NA
13C3-PFHxS	NA	SIS[1]	402.0 / 99.0	NA
13C8-PFOS	NA	SIS[1]	507.0 / 99.0	NA
13C2-4:2FTS	NA	SIS[1]	329.0 / 81.0	NA
13C2-6:2FTS	NA	SIS[1]	429.0 / 81.0	NA
13C2-8:2FTS	NA	SIS[1]	529.0 / 81.0	NA
$^{13}C_3$-HFPO-DA	NA	SIS	287.0 / 169.0	NA
13C3-PFBA	NA	IS[2]	216.0 / 172.0	NA
13C2-PFOA	NA	IS[2]	415.0 / 370.0	NA
13C2-PFDA	NA	IS[2]	515.0 / 470.0	NA
13C4-PFOS	NA	IS[2]	503.0 / 99.0	NA

[1] – extracted internal standard (surrogate)
[2] – injection internal standard

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Non-Potable Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF[1]	Sample Size (L)	Sample Equivalent (ng/L)[2]
125	1	1	0.250	0.5
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
10,000	1	1	0.250	40.0
25,000	1	1	0.250	100.0

[1] - base level dilution as part of the extraction procedure

[2] - calculated equivalent of a sample based on the ICAL concentration

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Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

Triple Quad 6500+
Preventive Maintenance Checklist

Preventive Maintenance Date:	28JAN2020

Request ID:	19004
Company Name:	Battelle
Instrument ID:	AE
Instrument Model:	Triple Quad 6500 Plus
Instrument Serial Number:	CF22921705

☑ **PASS** ☐ **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments: Q1 CHARGING. PULLED RAIL AND CLEANED. PROCEEDED WITH POST PM
ALL TESTS PASSED SPECS.

Performed By: Rami Haddad **Date:** 28JAN2020

Approved By : Kevin McInerney 2020.02.11 14:00:02 -05'00' **Date:** 02/11/2020

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Appendix ZEFPM003-1S

PRE-PM PPG PERFORMANCE EVALUATION:

☑ Consult the customer concerning the system overall performance.
☑ Check Logbook for services performed recently if available.
☑ Check Vacuum Pressure.

CAD Settings	Vacuum Reading (10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.6e-5	0.4 to 1.1 x 10^{-5} Torr
☑ CAD 12	3.4e-5	2.4 to 4.1 x 10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☐ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☑ No degradation or Sensitivity drop

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Appendix ZEFPM003-1S

PPG Performance Test

(Make printouts showing all the peaks, intensities, peak widths, and mass shift values.)

Positive Mode: Masses for the peaks of interest are: 59.050, 175.133, 500.380, 616.464, 906.673, 1254.925, 1545.134,1952.427.

High Mass Test

☑ Perform High Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 500.380	5.75e6	Read Only	0.5337	Read Only
Q1 616.464	1.06e7	Read Only	0.5337	Read Only
Q1 906.673	4.99e7	Read Only	0.6004	Read Only
Q1 1952.427	1.45e7	Read Only	1.1000	Read Only

☑ Perform High Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 500.380	7.90e7	Read Only	0.7207	Read Only
Q3 616.464	4.37e7	Read Only	0.7146	Read Only
Q3 906.673	1.60e8	Read Only	0.7456	Read Only
Q3 1952.427	2.61e7	Read Only	0.8245	Read Only

Low Mass Test

☑ Perform Low Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 175.133	5.26e6	Read Only	0.4602	Read Only
Q1 500.380	4.29e7	Read Only	0.5591	Read Only
Q1 616.464	1.52e7	Read Only	0.4467	Read Only
Q1 906.673	6.72e7	Read Only	0.6448	Read Only

☑ Perform Low Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 175.133	2.56e7	Read Only	0.7140	Read Only
Q3 500.380	1.15e8	Read Only	0.7393	Read Only
Q3 616.464	6.03e7	Read Only	0.7499	Read Only
Q3 906.673	2.09e8	Read Only	0.7733	Read Only

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LC/MS/MS Detector System

Appendix ZEFPM003-1S

Preventive Maintenance Procedure

☑ Check cooling fans in mass spec if working. Replace them soon, if defective.
☑ Clean bench cooling fans if applicable. Replace them soon, if defective.

☑ Record AC input voltage while MS is OFF: ____________ (200 to 240 Vac).
Notify customer if input voltage is out of range.

☑ After venting, clean Interface region:
- ☑ Curtain Plate
- ☑ Orifice Plate atmosphere side
- ☑ Orifice Plate vacuum side
- ☑ Ion Drive QJet and IQ0.

☑ Check Q0 for signs of arcing and clean with cleaning solvent.
☐ Replace Roughing Pump Oil.

☐ Clean oil exhaust Filter.
Replace if necessary. ☑ N/A

☑ Adjust Multiplier Voltage if necessary.
☑ Clean or replace Air Filters.
☑ Clean the turbo pump filter screen if applicable.

☑ Check Orifice resistances.
Replace it soon if out of resistance specifications. ☐ N/A

☑ Replace Electrode if necessary in Ion Drive Turbo V source.

☑ Check Turbo heaters resistances and their physical conditions in Ion Drive Turbo V source.
Replace the defective heaters if necessary. ☐ N/A

☐ Check the APCI heater resistance. Verify Temperature reaches setpoint
Replace the heater if necessary. ☑ N/A

☑ Turn on the mass spec and rough pumps for pumping down.
☑ Verify Temperature reaches setpoint in both TIS and APCI modes if applicable.

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Appendix ZEFPM003-1S

POST- PM PPG PERFORMANCE TESTS:

☑ Set-up PPG standard for infusion.
☑ Check spray and adjust sprayer's position of the Ion Drive Turbo V source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.6e-5	0.4 to 1.1 x 10^{-5} Torr
☑ CAD 12	3.4e-5	2.4 to 4.1 x 10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☑ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☑ No degradation or Sensitivity drop

PPG Performance Test

(Mass calibrate to less than 0.1 amu. Make printouts showing all the peaks, intensities, peak widths, and mass shift values.)

Positive Mode: Masses for the peaks of interest are: 59.050, 175.133, 500.380, 616.464, 906.673, 1254.925, 1545.134,1952.427.

Negative Mode: Masses for the peaks of interest are: 44.998, 411.259, 585.385, 933.636, 1223.845, 1572.097, 1863.306, 1979.389.

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Appendix ZEFPM003-1S

High Mass Test

☑ Perform High Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 500.380	1.04e8	≥ 3.2 e7	0.7477	0.6 to 0.8
Q1 616.464	5.82e7	≥ 2.0 e7	0.7311	0.6 to 0.8
Q1 906.673	1.92e8	≥ 9.6 e7	0.7359	0.6 to 0.8
Q1 1952.427	1.69e7	≥ 2.4 e6	0.7432	0.6 to 0.8

☑ Perform High Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 500.380	1.11e8	≥ 3.2 e7	0.7546	0.6 to 0.8
Q3 616.464	6.71e7	≥ 2.0 e7	0.7276	0.6 to 0.8
Q3 906.673	2.17e8	≥ 9.6 e7	0.7791	0.6 to 0.8
Q3 1952.427	2.13e7	≥ 2.4 e6	0.7277	0.6 to 0.8

☑ Perform MSMS POS in Product Ion scan with 907 parent and record daughter 175.1 using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
MS/MS 175.1	4.18e6	Read Only	0.7445	Read Only

☑ Perform Q1 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 933.636	2.01e7	≥ 1.8 e7	0.8006	0.6 to 0.8
Q1 1863.306	3.39e6	≥ 1.0 e6	0.7928	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 933.636	1.93e7	≥ 1.8 e7	0.7928	0.6 to 0.8
Q3 1863.306	4.94e6	≥ 1.0 e6	0.7029	0.6 to 0.8

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Appendix ZEFPM003-1S

Low Mass Test

☑ Perform Low Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 175.133	1.80e7	≥ 8.0 e6	0.7651	0.6 to 0.8
Q1 500.380	1.14e8	≥ 3.68 e7	0.7838	0.6 to 0.8
Q1 616.464	6.29e7	≥ 2.4 e7	0.7839	0.6 to 0.8
Q1 906.673	1.65e8	≥ 1.0 e8	0.7910	0.6 to 0.8

☑ Perform Low Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 175.133	2.75e7	≥ 8.0 e6	0.7682	0.6 to 0.8
Q3 500.380	1.36e8	≥ 3.68 e7	0.7698	0.6 to 0.8
Q3 616.464	8.43e7	≥ 2.4 e7	0.7905	0.6 to 0.8
Q3 906.673	2.47e8	≥ 1.0 e8	0.7735	0.6 to 0.8

☑ Perform Q1 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	2.01e7	≥ 1.8 e7	0.7918	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.28e7	≥ 1.8 e7	0.7964	0.6 to 0.8

☑ Perform MSMS NEG in Product Ion scan with 933.6 parent and record daughter 45.0 using NEG PPG 3 x 10-5 M (10:1) at the scan rate of 10 Da/s for 10 MCA.

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
MS/MS 45.0	2.06e6	Read Only	0.7233	Read Only

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LC/MS/MS Detector System

Appendix ZEFPM003-1S

REVIEW:

☑ Attach all printouts to this checklist.
☑ If any parameter setting access modes were changed during the PM, ensure that they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
☐ Empty tuning cache folder, if necessary. ☑ N/A
☑ Fill and replaced PM Label.

END OF PREVENTIVE MAINTENANCE PROCEDURE

Document history:

04 OCT 2016: Appendix ZEFPM003-1S: New SOP Appendix.

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
KY44	PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	-	-	-	190926-12
KY44	PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	-	-	-	200326-03
KY48	PFAS - DoD Second Source LCS/MS Solution	-	-	-	200420-01
KY48	PFAS - DoD Second Source LCS/MS Solution	KV39	-	-	190926-13
KY48	PFAS - DoD Second Source LCS/MS Solution	KV39	-	-	190926-14
KY48	PFAS - DoD Second Source LCS/MS Solution	KV39	-	-	190926-15
KY45	PFAS - DoD Internal Standard Spiking Solution	-	-	-	200317-01
KY33	PFAS - DoD Calibration L1	KX62	KW27	KV39	190926-13
KY33	PFAS - DoD Calibration L1	KX62	KW27	KV39	190926-14
KY33	PFAS - DoD Calibration L1	KX62	KW27	KV39	190926-15
KY33	PFAS - DoD Calibration L1	KX62	KW27	-	200218-03
KY33	PFAS - DoD Calibration L1	KX80	-	-	190926-12
KY33	PFAS - DoD Calibration L1	KX80	-	-	200219-02
KY33	PFAS - DoD Calibration L1	KY32	-	-	200317-01
KY34	PFAS - DoD Calibration L2	KX62	KW27	KV39	190926-13
KY34	PFAS - DoD Calibration L2	KX62	KW27	KV39	190926-14
KY34	PFAS - DoD Calibration L2	KX62	KW27	KV39	190926-15
KY34	PFAS - DoD Calibration L2	KX62	KW27	-	200218-03
KY34	PFAS - DoD Calibration L2	KX80	-	-	190926-12
KY34	PFAS - DoD Calibration L2	KX80	-	-	200219-02
KY34	PFAS - DoD Calibration L2	KY32	-	-	200317-01
KY35	PFAS - DoD Calibration L3	KX62	KW27	KV39	190926-13
KY35	PFAS - DoD Calibration L3	KX62	KW27	KV39	190926-14
KY35	PFAS - DoD Calibration L3	KX62	KW27	KV39	190926-15
KY35	PFAS - DoD Calibration L3	KX62	KW27	-	200218-03
KY35	PFAS - DoD Calibration L3	KX80	-	-	190926-12
KY35	PFAS - DoD Calibration L3	KX80	-	-	200219-02
KY35	PFAS - DoD Calibration L3	KY32	-	-	200317-01
KY36	PFAS - DoD Calibration L4	KW27	KV39	-	190926-13
KY36	PFAS - DoD Calibration L4	KW27	KV39	-	190926-14
KY36	PFAS - DoD Calibration L4	KW27	KV39	-	190926-15
KY36	PFAS - DoD Calibration L4	KW27	-	-	200218-03
KY36	PFAS - DoD Calibration L4	KX80	-	-	190926-12
KY36	PFAS - DoD Calibration L4	KX80	-	-	200219-02
KY36	PFAS - DoD Calibration L4	KY32	-	-	200317-01
KY37	PFAS - DoD Calibration L5	KW27	KV39	-	190926-13
KY37	PFAS - DoD Calibration L5	KW27	KV39	-	190926-14
KY37	PFAS - DoD Calibration L5	KW27	KV39	-	190926-15
KY37	PFAS - DoD Calibration L5	KW27	-	-	200218-03
KY37	PFAS - DoD Calibration L5	KX80	-	-	190926-12
KY37	PFAS - DoD Calibration L5	KX80	-	-	200219-02
KY37	PFAS - DoD Calibration L5	KY32	-	-	200317-01
KY38	PFAS - DoD Calibration L6	KW27	KV39	-	190926-13
KY38	PFAS - DoD Calibration L6	KW27	KV39	-	190926-14
KY38	PFAS - DoD Calibration L6	KW27	KV39	-	190926-15
KY38	PFAS - DoD Calibration L6	KW27	-	-	200218-03
KY38	PFAS - DoD Calibration L6	KX80	-	-	190926-12
KY38	PFAS - DoD Calibration L6	KX80	-	-	200219-02
KY38	PFAS - DoD Calibration L6	KY32	-	-	200317-01
KY39	PFAS - DoD Calibration L7	KW27	KV39	-	190926-13
KY39	PFAS - DoD Calibration L7	KW27	KV39	-	190926-14
KY39	PFAS - DoD Calibration L7	KW27	KV39	-	190926-15
KY39	PFAS - DoD Calibration L7	KW27	-	-	200218-03
KY39	PFAS - DoD Calibration L7	KX80	-	-	190926-12
KY39	PFAS - DoD Calibration L7	KX80	-	-	200219-02
KY39	PFAS - DoD Calibration L7	KY32	-	-	200317-01
KY41	PFAS - DoD ICC	KX80	-	-	190926-12
KY41	PFAS - DoD ICC	KX80	-	-	200219-02

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
KY41	PFAS - DoD ICC	KX84	KV39	-	190926-13
KY41	PFAS - DoD ICC	KX84	KV39	-	190926-14
KY41	PFAS - DoD ICC	KX84	KV39	-	190926-15
KY41	PFAS - DoD ICC	KX84	-	-	200218-04
KY41	PFAS - DoD ICC	KY32	-	-	200317-01

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **KV39**

Description: PFAS - FTCA Stock

Stock Id: 190926-13

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-perfluoropropyl propanoic Acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 190926-14

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 190926-15

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoropentyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
3-Perfluoroheptyl propanoic acid	5.00000
3-Perfluoropentyl propanoic acid	5.00000
3-perfluoropropyl propanoic Acid	5.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190926-13	Pipette	B820865811
190926-14	Pipette	B820865811
190926-15	Pipette	B820865811

Solution Prepared By: Griffith, Lauren **Date Prepared:** 1/17/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** LC Laboratory: Freezer - F0111

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KW27**

Description: PFAS - DoD High ICAL Stock

Stock Id: 200218-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	20	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	20	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
Adona	2000	1.00	1	100.000	1	20	0.10000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	20	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-hexanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-octanesulfonate	2000	1.01	1	100.000	1	20	0.10100
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-hexanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	20	0.10000

Stock Id: KV39

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	20	0.10000

Final Concentrations:

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 2/18/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Thorn, Jonathan **Date:** 2/24/2020 3:06:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KW27**

Description: PFAS - DoD High ICAL Stock

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200218-03	Pipette	B814658143
KV39	Pipette	H0892322B

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 2/18/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Thorn, Jonathan **Date:** 2/24/2020 3:06:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KX62

Description: PFAS - DoD Low Level ICAL Stock

Stock Id: KW27

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	500	0.10	---	---	1	5	0.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.10	---	---	1	5	0.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.10	---	---	1	5	0.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.10	---	---	1	5	0.01000
3-Perfluoroheptyl propanoic acid	500	0.10	---	---	1	5	0.01000
3-Perfluoropentyl propanoic acid	500	0.10	---	---	1	5	0.01000
3-perfluoropropyl propanoic Acid	500	0.10	---	---	1	5	0.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	500	0.10	---	---	1	5	0.01000
Adona	500	0.10	---	---	1	5	0.01000
Hexafluoropropylene oxide dimer acid	500	0.10	---	---	1	5	0.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.10	---	---	1	5	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-1-butanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-1-decanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-heptanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-1-hexanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-nonanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-octanesulfonamide	500	0.10	---	---	1	5	0.01000
Perfluoro-1-octanesulfonate	500	0.10	---	---	1	5	0.01010
perfluoro-1-pentanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-n-butanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-decanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-dodecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-heptanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-hexanoic acid	500	0.10	---	---	1	5	0.01010
Perfluoro-n-octanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluorononanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-pentanoic acid	500	0.10	---	---	1	5	0.01010
Perfluoro-n-tetradecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-tridecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-undecanoic acid	500	0.10	---	---	1	5	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	.01010

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 3/18/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water

Approved By: Lizotte Jr, Robert **Date:** 3/23/2020 4:33:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KX62**

Description: PFAS - DoD Low Level ICAL Stock

1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.01000
Adona	.01000
Hexafluoropropylene oxide dimer acid	.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanesulfonate	.01000
Perfluoro-1-decanesulfonate	.01010
Perfluoro-1-heptanesulfonate	.01000
Perfluoro-1-hexanesulfonate	.01010
Perfluoro-1-nonanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01010
perfluoro-1-pentanesulfonate	.01000
Perfluoro-n-butanoic Acid	.01000
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01010
Perfluoro-n-octanoic Acid	.01000
Perfluorononanoic Acid	.01000
Perfluoro-n-pentanoic acid	.01010
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KW27	Pipette	B909301606

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 3/18/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Lizotte Jr, Robert **Date:** 3/23/2020 4:33:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KX80**

Description: PFAS- DoD High Level Labelled Extracted Internal Standards (SIS)

Stock Id: 190926-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-HFPO-DA	20	50.00	1	98.000	1	10	0.10000

Stock Id: 200219-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	1000	0.94	1	100.000	1	10	0.09350
13C2-6:2FTS	1000	0.95	1	100.000	1	10	0.09490
13C2-8:2FTS	1000	0.96	1	100.000	1	10	0.09580
13C2-PFDoA	1000	1.00	1	100.000	1	10	0.10000
13C2-PFTeDA	1000	1.00	1	100.000	1	10	0.10000
13C3-PFBS	1000	0.93	1	100.000	1	10	0.09290
13C3-PFHxS	1000	0.95	1	100.000	1	10	0.09460
13C4-PFBA	1000	1.00	1	100.000	1	10	0.10000
13C4-PFHpA	1000	1.00	1	100.000	1	10	0.10000
13C5-PFHxA	1000	1.00	1	100.000	1	10	0.10000
13C5-PFPeA	1000	1.00	1	100.000	1	10	0.10000
13C6-PFDA	1000	1.00	1	100.000	1	10	0.10000
13C7-PFUnA	1000	1.00	1	100.000	1	10	0.10000
13C8-FOSA	1000	1.00	1	100.000	1	10	0.10000
13C8-PFOA	1000	1.00	1	100.000	1	10	0.10000
13C8-PFOS	1000	0.96	1	100.000	1	10	0.09570
13C9-PFNA	1000	1.00	1	100.000	1	10	0.10000
d3-MeFOSAA	1000	1.00	1	100.000	1	10	0.10000
d5-EtFOSAA	1000	1.00	1	100.000	1	10	0.10000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.09350
13C2-6:2FTS	.09490
13C2-8:2FTS	.09580
13C2-PFDoA	.10000
13C2-PFTeDA	.10000
13C3-HFPO-DA	.10000
13C3-PFBS	.09290
13C3-PFHxS	.09460
13C4-PFBA	.10000

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 3/24/2020 **Expiration Date:** 3/24/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 3/24/2020 11:54:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KX80**

Description: PFAS- DoD High Level Labelled Extracted Internal Standards (SIS)

13C4-PFHpA	.10000
13C5-PFHxA	.10000
13C5-PFPeA	.10000
13C6-PFDA	.10000
13C7-PFUnA	.10000
13C8-FOSA	.10000
13C8-PFOA	.10000
13C8-PFOS	.09570
13C9-PFNA	.10000
d3-MeFOSAA	.10000
d5-EtFOSAA	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190926-12	Pipette	I0793912B
200219-02	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 3/24/2020	**Expiration Date:** 3/24/2021	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 3/24/2020 11:54:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KX84**

Description: PFAS - DoD Second Source LCS/MS Solution

Stock Id: 200218-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	1.00	1	100.000	1	10	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	1.01	1	100.000	1	10	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	1.00	1	100.000	1	10	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	1.00	1	100.000	1	10	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	1.00	1	100.000	1	10	0.10000
Adona	1000	1.00	1	100.000	1	10	0.10000
Hexafluoropropylene oxide dimer acid	1000	1.00	1	100.000	1	10	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	10	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-butanesulfonate	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-decanesulfonate	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-1-heptanesulfonate	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-hexanesulfonate	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-1-nonanesulfonate	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-1-octanesulfonamide	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-octanesulfonate	1000	1.01	1	100.000	1	10	0.10100
perfluoro-1-pentanesulfonate	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-butanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-decanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-dodecanoic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-heptanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-hexanoic acid	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-n-octanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluorononanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-pentanoic acid	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-n-tetradecanoic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-tridecanoic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-undecanoic acid	1000	1.00	1	100.000	1	10	0.10000

Stock Id: KV39

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	200	5.00	---	---	1	10	0.10000
3-Perfluoropentyl propanoic acid	200	5.00	---	---	1	10	0.10000
3-perfluoropropyl propanoic Acid	200	5.00	---	---	1	10	0.10000

Final Concentrations:

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 3/27/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 3/30/2020 9:32:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KX84**

Description: PFAS - DoD Second Source LCS/MS Solution

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200218-04	Pipette	B820865811
KV39	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 3/27/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 3/30/2020 9:32:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY32**

Description: PFAS - DoD Internal Standard Stock

Stock Id: 200317-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	250	2.00	1	100.000	1	5	0.10000
13C2-PFOA	250	2.00	1	100.000	1	5	0.10000
13C3-PFBA	250	2.00	1	100.000	1	5	0.10000
13C4-PFOS	250	1.91	1	100.000	1	5	0.09570

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.10000
13C2-PFOA	.10000
13C3-PFBA	.10000
13C4-PFOS	.09570

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200317-01	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 4/10/2021	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water (RP-200413-02).

Approved By: Schumitz, Denise **Date:** 4/16/2020 1:45:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY33

Description: PFAS - DoD Calibration L1

Stock Id: KX62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	125	0.01	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorodecane sulfonate	125	0.01	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorohexane sulfonate	125	0.01	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorooctane sulfonate	125	0.01	---	---	1	10	0.00013
3-Perfluoroheptyl propanoic acid	125	0.01	---	---	1	10	0.00013
3-Perfluoropentyl propanoic acid	125	0.01	---	---	1	10	0.00013
3-perfluoropropyl propanoic Acid	125	0.01	---	---	1	10	0.00013
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	125	0.01	---	---	1	10	0.00013
Adona	125	0.01	---	---	1	10	0.00013
Hexafluoropropylene oxide dimer acid	125	0.01	---	---	1	10	0.00013
N-ethylperfluoro-octanesulfonamidoacetic acid	125	0.01	---	---	1	10	0.00013
N-methylperfluoro-1-octanesulfonamidoacetic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-1-butanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-decanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-heptanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-hexanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-nonanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-octanesulfonamide	125	0.01	---	---	1	10	0.00013
Perfluoro-1-octanesulfonate	125	0.01	---	---	1	10	0.00013
perfluoro-1-pentanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-n-butanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-decanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-dodecanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-heptanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-hexanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-octanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluorononanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-pentanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-tetradecanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-tridecanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-undecanoic acid	125	0.01	---	---	1	10	0.00013

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY33

Description: PFAS - DoD Calibration L1

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00013
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY33**

Description: PFAS - DoD Calibration L1

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00013
1H,1H,2H,2H-Perfluorohexane sulfonate	.00013
1H,1H,2H,2H-Perfluorooctane sulfonate	.00013
3-Perfluoroheptyl propanoic acid	.00013
3-Perfluoropentyl propanoic acid	.00013
3-perfluoropropyl propanoic Acid	.00013
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00013
Adona	.00013
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00013
N-ethylperfluoro-octanesulfonamidoacetic acid	.00013
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00013
Perfluoro-1-butanesulfonate	.00013
Perfluoro-1-decanesulfonate	.00013
Perfluoro-1-heptanesulfonate	.00013
Perfluoro-1-hexanesulfonate	.00013
Perfluoro-1-nonanesulfonate	.00013
Perfluoro-1-octanesulfonamide	.00013
Perfluoro-1-octanesulfonate	.00013
perfluoro-1-pentanesulfonate	.00013
Perfluoro-n-butanoic Acid	.00013
Perfluoro-n-decanoic Acid	.00013
Perfluoro-n-dodecanoic acid	.00013
Perfluoro-n-heptanoic Acid	.00013
Perfluoro-n-hexanoic acid	.00013

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY33**

Description: PFAS - DoD Calibration L1

Perfluoro-n-octanoic Acid	.00013
Perfluorononanoic Acid	.00013
Perfluoro-n-pentanoic acid	.00013
Perfluoro-n-tetradecanoic acid	.00013
Perfluoro-n-tridecanoic acid	.00013
Perfluoro-n-undecanoic acid	.00013

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KX62	Pipette	B909301860
KX80	Pipette	B909301860
KY32	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY34

Description: PFAS - DoD Calibration L2

Stock Id: KX62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	250	0.01	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorodecane sulfonate	250	0.01	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorohexane sulfonate	250	0.01	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorooctane sulfonate	250	0.01	---	---	1	10	0.00025
3-Perfluoroheptyl propanoic acid	250	0.01	---	---	1	10	0.00025
3-Perfluoropentyl propanoic acid	250	0.01	---	---	1	10	0.00025
3-perfluoropropyl propanoic Acid	250	0.01	---	---	1	10	0.00025
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	250	0.01	---	---	1	10	0.00025
Adona	250	0.01	---	---	1	10	0.00025
Hexafluoropropylene oxide dimer acid	250	0.01	---	---	1	10	0.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	250	0.01	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-1-butanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-decanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-heptanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-hexanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-nonanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-octanesulfonamide	250	0.01	---	---	1	10	0.00025
Perfluoro-1-octanesulfonate	250	0.01	---	---	1	10	0.00025
perfluoro-1-pentanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-n-butanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-decanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-dodecanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-heptanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-hexanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-octanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluorononanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-pentanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-tetradecanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-tridecanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-undecanoic acid	250	0.01	---	---	1	10	0.00025

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY34**

Description: PFAS - DoD Calibration L2

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00025
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY34**

Description: PFAS - DoD Calibration L2

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00025
1H,1H,2H,2H-Perfluorohexane sulfonate	.00025
1H,1H,2H,2H-Perfluorooctane sulfonate	.00025
3-Perfluoroheptyl propanoic acid	.00025
3-Perfluoropentyl propanoic acid	.00025
3-perfluoropropyl propanoic Acid	.00025
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00025
Adona	.00025
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00025
Perfluoro-1-butanesulfonate	.00025
Perfluoro-1-decanesulfonate	.00025
Perfluoro-1-heptanesulfonate	.00025
Perfluoro-1-hexanesulfonate	.00025
Perfluoro-1-nonanesulfonate	.00025
Perfluoro-1-octanesulfonamide	.00025
Perfluoro-1-octanesulfonate	.00025
perfluoro-1-pentanesulfonate	.00025
Perfluoro-n-butanoic Acid	.00025
Perfluoro-n-decanoic Acid	.00025
Perfluoro-n-dodecanoic acid	.00025
Perfluoro-n-heptanoic Acid	.00025
Perfluoro-n-hexanoic acid	.00025

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY34**

Description: PFAS - DoD Calibration L2

Perfluoro-n-octanoic Acid	.00025
Perfluorononanoic Acid	.00025
Perfluoro-n-pentanoic acid	.00025
Perfluoro-n-tetradecanoic acid	.00025
Perfluoro-n-tridecanoic acid	.00025
Perfluoro-n-undecanoic acid	.00025

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KX62	Pipette	B909301860
KX80	Pipette	B909301860
KY32	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY35**

Description: PFAS - DoD Calibration L3

Stock Id: KX62

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	500	0.01	---	---	1	10	0.00050
1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.01	---	---	1	10	0.00051
1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.01	---	---	1	10	0.00050
1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.01	---	---	1	10	0.00050
3-Perfluoroheptyl propanoic acid	500	0.01	---	---	1	10	0.00050
3-Perfluoropentyl propanoic acid	500	0.01	---	---	1	10	0.00050
3-perfluoropropyl propanoic Acid	500	0.01	---	---	1	10	0.00050
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	500	0.01	---	---	1	10	0.00050
Adona	500	0.01	---	---	1	10	0.00050
Hexafluoropropylene oxide dimer acid	500	0.01	---	---	1	10	0.00050
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-1-butanesulfonate	500	0.01	---	---	1	10	0.00050
Perfluoro-1-decanesulfonate	500	0.01	---	---	1	10	0.00051
Perfluoro-1-heptanesulfonate	500	0.01	---	---	1	10	0.00050
Perfluoro-1-hexanesulfonate	500	0.01	---	---	1	10	0.00051
Perfluoro-1-nonanesulfonate	500	0.01	---	---	1	10	0.00051
Perfluoro-1-octanesulfonamide	500	0.01	---	---	1	10	0.00050
Perfluoro-1-octanesulfonate	500	0.01	---	---	1	10	0.00051
perfluoro-1-pentanesulfonate	500	0.01	---	---	1	10	0.00050
Perfluoro-n-butanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-decanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-dodecanoic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-heptanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-hexanoic acid	500	0.01	---	---	1	10	0.00051
Perfluoro-n-octanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluorononanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-pentanoic acid	500	0.01	---	---	1	10	0.00051
Perfluoro-n-tetradecanoic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-tridecanoic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-undecanoic acid	500	0.01	---	---	1	10	0.00050

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY35**

Description: PFAS - DoD Calibration L3

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00050
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY35**

Description: PFAS - DoD Calibration L3

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00051
1H,1H,2H,2H-Perfluorohexane sulfonate	.00050
1H,1H,2H,2H-Perfluorooctane sulfonate	.00050
3-Perfluoroheptyl propanoic acid	.00050
3-Perfluoropentyl propanoic acid	.00050
3-perfluoropropyl propanoic Acid	.00050
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00050
Adona	.00050
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00050
N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
Perfluoro-1-butanesulfonate	.00050
Perfluoro-1-decanesulfonate	.00051
Perfluoro-1-heptanesulfonate	.00050
Perfluoro-1-hexanesulfonate	.00051
Perfluoro-1-nonanesulfonate	.00051
Perfluoro-1-octanesulfonamide	.00050
Perfluoro-1-octanesulfonate	.00051
perfluoro-1-pentanesulfonate	.00050
Perfluoro-n-butanoic Acid	.00050
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexanoic acid	.00051

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY35**

Description: PFAS - DoD Calibration L3

Perfluoro-n-octanoic Acid	.00050
Perfluorononanoic Acid	.00050
Perfluoro-n-pentanoic acid	.00051
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KX62	Pipette	B909301606
KX80	Pipette	B909301860
KY32	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY36

Description: PFAS - DoD Calibration L4

Stock Id: KW27

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	400	0.10	---	---	1	40	0.00100
1H,1H,2H,2H-Perfluorodecane sulfonate	400	0.10	---	---	1	40	0.00101
1H,1H,2H,2H-Perfluorohexane sulfonate	400	0.10	---	---	1	40	0.00100
1H,1H,2H,2H-Perfluorooctane sulfonate	400	0.10	---	---	1	40	0.00100
3-Perfluoroheptyl propanoic acid	400	0.10	---	---	1	40	0.00100
3-Perfluoropentyl propanoic acid	400	0.10	---	---	1	40	0.00100
3-perfluoropropyl propanoic Acid	400	0.10	---	---	1	40	0.00100
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	400	0.10	---	---	1	40	0.00100
Adona	400	0.10	---	---	1	40	0.00100
Hexafluoropropylene oxide dimer acid	400	0.10	---	---	1	40	0.00100
N-ethylperfluoro-octanesulfonamidoacetic acid	400	0.10	---	---	1	40	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-1-butanesulfonate	400	0.10	---	---	1	40	0.00100
Perfluoro-1-decanesulfonate	400	0.10	---	---	1	40	0.00101
Perfluoro-1-heptanesulfonate	400	0.10	---	---	1	40	0.00100
Perfluoro-1-hexanesulfonate	400	0.10	---	---	1	40	0.00101
Perfluoro-1-nonanesulfonate	400	0.10	---	---	1	40	0.00101
Perfluoro-1-octanesulfonamide	400	0.10	---	---	1	40	0.00100
Perfluoro-1-octanesulfonate	400	0.10	---	---	1	40	0.00101
perfluoro-1-pentanesulfonate	400	0.10	---	---	1	40	0.00100
Perfluoro-n-butanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-decanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-dodecanoic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-heptanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-hexanoic acid	400	0.10	---	---	1	40	0.00101
Perfluoro-n-octanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluorononanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-pentanoic acid	400	0.10	---	---	1	40	0.00101
Perfluoro-n-tetradecanoic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-tridecanoic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-undecanoic acid	400	0.10	---	---	1	40	0.00100

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	500	0.09	---	---	1	40	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY36**

Description: PFAS - DoD Calibration L4

13C2-6:2FTS	500	0.09	---	---	1	40	0.00119
13C2-8:2FTS	500	0.10	---	---	1	40	0.00120
13C2-PFDoA	500	0.10	---	---	1	40	0.00125
13C2-PFTeDA	500	0.10	---	---	1	40	0.00125
13C3-HFPO-DA	500	0.10	---	---	1	40	0.00125
13C3-PFBS	500	0.09	---	---	1	40	0.00116
13C3-PFHxS	500	0.09	---	---	1	40	0.00118
13C4-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFHpA	500	0.10	---	---	1	40	0.00125
13C5-PFHxA	500	0.10	---	---	1	40	0.00125
13C5-PFPeA	500	0.10	---	---	1	40	0.00125
13C6-PFDA	500	0.10	---	---	1	40	0.00125
13C7-PFUnA	500	0.10	---	---	1	40	0.00125
13C8-FOSA	500	0.10	---	---	1	40	0.00125
13C8-PFOA	500	0.10	---	---	1	40	0.00125
13C8-PFOS	500	0.10	---	---	1	40	0.00120
13C9-PFNA	500	0.10	---	---	1	40	0.00125
d3-MeFOSAA	500	0.10	---	---	1	40	0.00125
d5-EtFOSAA	500	0.10	---	---	1	40	0.00125

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	40	0.00125
13C2-PFOA	500	0.10	---	---	1	40	0.00125
13C3-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFOS	500	0.10	---	---	1	40	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00100
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY36**

Description: PFAS - DoD Calibration L4

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00101
1H,1H,2H,2H-Perfluorohexane sulfonate	.00100
1H,1H,2H,2H-Perfluorooctane sulfonate	.00100
3-Perfluoroheptyl propanoic acid	.00100
3-Perfluoropentyl propanoic acid	.00100
3-perfluoropropyl propanoic Acid	.00100
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00100
Adona	.00100
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00100
N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanesulfonate	.00100
Perfluoro-1-decanesulfonate	.00101
Perfluoro-1-heptanesulfonate	.00100
Perfluoro-1-hexanesulfonate	.00101
Perfluoro-1-nonanesulfonate	.00101
Perfluoro-1-octanesulfonamide	.00100
Perfluoro-1-octanesulfonate	.00101
perfluoro-1-pentanesulfonate	.00100
Perfluoro-n-butanoic Acid	.00100
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00101

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY36**

Description: PFAS - DoD Calibration L4

Perfluoro-n-octanoic Acid	.00100
Perfluorononanoic Acid	.00100
Perfluoro-n-pentanoic acid	.00101
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KW27	Pipette	B909301606
KX80	Pipette	B909301606
KY32	Pipette	B909301606

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:26:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY37**

Description: PFAS - DoD Calibration L5

Stock Id: KW27

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	0.10	---	---	1	40	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.10	---	---	1	40	0.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.10	---	---	1	40	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.10	---	---	1	40	0.00250
3-Perfluoroheptyl propanoic acid	1000	0.10	---	---	1	40	0.00250
3-Perfluoropentyl propanoic acid	1000	0.10	---	---	1	40	0.00250
3-perfluoropropyl propanoic Acid	1000	0.10	---	---	1	40	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	0.10	---	---	1	40	0.00250
Adona	1000	0.10	---	---	1	40	0.00250
Hexafluoropropylene oxide dimer acid	1000	0.10	---	---	1	40	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.10	---	---	1	40	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-butanesulfonate	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-decanesulfonate	1000	0.10	---	---	1	40	0.00253
Perfluoro-1-heptanesulfonate	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-hexanesulfonate	1000	0.10	---	---	1	40	0.00253
Perfluoro-1-nonanesulfonate	1000	0.10	---	---	1	40	0.00253
Perfluoro-1-octanesulfonamide	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-octanesulfonate	1000	0.10	---	---	1	40	0.00253
perfluoro-1-pentanesulfonate	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-butanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-decanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-dodecanoic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-heptanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-hexanoic acid	1000	0.10	---	---	1	40	0.00253
Perfluoro-n-octanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluorononanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-pentanoic acid	1000	0.10	---	---	1	40	0.00253
Perfluoro-n-tetradecanoic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-tridecanoic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-undecanoic acid	1000	0.10	---	---	1	40	0.00250

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	500	0.09	---	---	1	40	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY37

Description: PFAS - DoD Calibration L5

13C2-6:2FTS	500	0.09	---	---	1	40	0.00119
13C2-8:2FTS	500	0.10	---	---	1	40	0.00120
13C2-PFDoA	500	0.10	---	---	1	40	0.00125
13C2-PFTeDA	500	0.10	---	---	1	40	0.00125
13C3-HFPO-DA	500	0.10	---	---	1	40	0.00125
13C3-PFBS	500	0.09	---	---	1	40	0.00116
13C3-PFHxS	500	0.09	---	---	1	40	0.00118
13C4-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFHpA	500	0.10	---	---	1	40	0.00125
13C5-PFHxA	500	0.10	---	---	1	40	0.00125
13C5-PFPeA	500	0.10	---	---	1	40	0.00125
13C6-PFDA	500	0.10	---	---	1	40	0.00125
13C7-PFUnA	500	0.10	---	---	1	40	0.00125
13C8-FOSA	500	0.10	---	---	1	40	0.00125
13C8-PFOA	500	0.10	---	---	1	40	0.00125
13C8-PFOS	500	0.10	---	---	1	40	0.00120
13C9-PFNA	500	0.10	---	---	1	40	0.00125
d3-MeFOSAA	500	0.10	---	---	1	40	0.00125
d5-EtFOSAA	500	0.10	---	---	1	40	0.00125

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	40	0.00125
13C2-PFOA	500	0.10	---	---	1	40	0.00125
13C3-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFOS	500	0.10	---	---	1	40	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY37**

Description: PFAS - DoD Calibration L5

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00253
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00253
perfluoro-1-pentanesulfonate	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexanoic acid	.00253

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY37**

Description: PFAS - DoD Calibration L5

Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KW27	Pipette	B909301606
KX80	Pipette	B909301606
KY32	Pipette	B909301606

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY38

Description: PFAS - DoD Calibration L6

Stock Id: KW27

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	0.10	---	---	1	10	0.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.10	---	---	1	10	0.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.10	---	---	1	10	0.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.10	---	---	1	10	0.01000
3-Perfluoroheptyl propanoic acid	1000	0.10	---	---	1	10	0.01000
3-Perfluoropentyl propanoic acid	1000	0.10	---	---	1	10	0.01000
3-perfluoropropyl propanoic Acid	1000	0.10	---	---	1	10	0.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	0.10	---	---	1	10	0.01000
Adona	1000	0.10	---	---	1	10	0.01000
Hexafluoropropylene oxide dimer acid	1000	0.10	---	---	1	10	0.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.10	---	---	1	10	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-butanesulfonate	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-decanesulfonate	1000	0.10	---	---	1	10	0.01010
Perfluoro-1-heptanesulfonate	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-hexanesulfonate	1000	0.10	---	---	1	10	0.01010
Perfluoro-1-nonanesulfonate	1000	0.10	---	---	1	10	0.01010
Perfluoro-1-octanesulfonamide	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-octanesulfonate	1000	0.10	---	---	1	10	0.01010
perfluoro-1-pentanesulfonate	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-butanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-decanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-dodecanoic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-heptanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-hexanoic acid	1000	0.10	---	---	1	10	0.01010
Perfluoro-n-octanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluorononanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-pentanoic acid	1000	0.10	---	---	1	10	0.01010
Perfluoro-n-tetradecanoic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-tridecanoic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-undecanoic acid	1000	0.10	---	---	1	10	0.01000

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY38

Description: PFAS - DoD Calibration L6

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.01000
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY38**

Description: PFAS - DoD Calibration L6

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.01000
Adona	.01000
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanesulfonate	.01000
Perfluoro-1-decanesulfonate	.01010
Perfluoro-1-heptanesulfonate	.01000
Perfluoro-1-hexanesulfonate	.01010
Perfluoro-1-nonanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01010
perfluoro-1-pentanesulfonate	.01000
Perfluoro-n-butanoic Acid	.01000
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01010

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY38**

Description: PFAS - DoD Calibration L6

Perfluoro-n-octanoic Acid	.01000
Perfluorononanoic Acid	.01000
Perfluoro-n-pentanoic acid	.01010
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KW27	Pipette	B909301606
KX80	Pipette	B909301860
KY32	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY39

Description: PFAS - DoD Calibration L7

Stock Id: KW27

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2500	0.10	---	---	1	10	0.02500
1H,1H,2H,2H-Perfluorodecane sulfonate	2500	0.10	---	---	1	10	0.02525
1H,1H,2H,2H-Perfluorohexane sulfonate	2500	0.10	---	---	1	10	0.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	2500	0.10	---	---	1	10	0.02500
3-Perfluoroheptyl propanoic acid	2500	0.10	---	---	1	10	0.02500
3-Perfluoropentyl propanoic acid	2500	0.10	---	---	1	10	0.02500
3-perfluoropropyl propanoic Acid	2500	0.10	---	---	1	10	0.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2500	0.10	---	---	1	10	0.02500
Adona	2500	0.10	---	---	1	10	0.02500
Hexafluoropropylene oxide dimer acid	2500	0.10	---	---	1	10	0.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	2500	0.10	---	---	1	10	0.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-butanesulfonate	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-decanesulfonate	2500	0.10	---	---	1	10	0.02525
Perfluoro-1-heptanesulfonate	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-hexanesulfonate	2500	0.10	---	---	1	10	0.02525
Perfluoro-1-nonanesulfonate	2500	0.10	---	---	1	10	0.02525
Perfluoro-1-octanesulfonamide	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-octanesulfonate	2500	0.10	---	---	1	10	0.02525
perfluoro-1-pentanesulfonate	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-butanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-decanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-dodecanoic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-heptanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-hexanoic acid	2500	0.10	---	---	1	10	0.02525
Perfluoro-n-octanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluorononanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-pentanoic acid	2500	0.10	---	---	1	10	0.02525
Perfluoro-n-tetradecanoic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-tridecanoic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-undecanoic acid	2500	0.10	---	---	1	10	0.02500

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY39**

Description: PFAS - DoD Calibration L7

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: **KY32**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.02500
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY39**

Description: PFAS - DoD Calibration L7

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.02525
1H,1H,2H,2H-Perfluorohexane sulfonate	.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	.02500
3-Perfluoroheptyl propanoic acid	.02500
3-Perfluoropentyl propanoic acid	.02500
3-perfluoropropyl propanoic Acid	.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.02500
Adona	.02500
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.02500
Perfluoro-1-butanesulfonate	.02500
Perfluoro-1-decanesulfonate	.02525
Perfluoro-1-heptanesulfonate	.02500
Perfluoro-1-hexanesulfonate	.02525
Perfluoro-1-nonanesulfonate	.02525
Perfluoro-1-octanesulfonamide	.02500
Perfluoro-1-octanesulfonate	.02525
perfluoro-1-pentanesulfonate	.02500
Perfluoro-n-butanoic Acid	.02500
Perfluoro-n-decanoic Acid	.02500
Perfluoro-n-dodecanoic acid	.02500
Perfluoro-n-heptanoic Acid	.02500
Perfluoro-n-hexanoic acid	.02525

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY39**

Description: PFAS - DoD Calibration L7

Perfluoro-n-octanoic Acid	.02500
Perfluorononanoic Acid	.02500
Perfluoro-n-pentanoic acid	.02525
Perfluoro-n-tetradecanoic acid	.02500
Perfluoro-n-tridecanoic acid	.02500
Perfluoro-n-undecanoic acid	.02500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KW27	Pipette	B635939323
KX80	Pipette	B909301860
KY32	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY41**

Description: PFAS - DoD ICC

Stock Id: KX80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117
13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KX84

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	250	0.10	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	250	0.10	---	---	1	10	0.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	250	0.10	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	250	0.10	---	---	1	10	0.00250
3-Perfluoroheptyl propanoic acid	250	0.10	---	---	1	10	0.00250
3-Perfluoropentyl propanoic acid	250	0.10	---	---	1	10	0.00250
3-perfluoropropyl propanoic Acid	250	0.10	---	---	1	10	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	250	0.10	---	---	1	10	0.00250
Adona	250	0.10	---	---	1	10	0.00250
Hexafluoropropylene oxide dimer acid	250	0.10	---	---	1	10	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	250	0.10	---	---	1	10	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	0.10	---	---	1	10	0.00250

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 4/10/2020 **Expiration Date:** 12/6/2020

Solution Volume 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY41

Description: PFAS - DoD ICC

Perfluoro-1-butanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-1-decanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-heptanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-1-hexanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-nonanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-octanesulfonamide	250	0.10	---	---	1	10	0.00250
Perfluoro-1-octanesulfonate	250	0.10	---	---	1	10	0.00253
perfluoro-1-pentanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-n-butanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-decanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-dodecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-heptanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-hexanoic acid	250	0.10	---	---	1	10	0.00253
Perfluoro-n-octanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluorononanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-pentanoic acid	250	0.10	---	---	1	10	0.00253
Perfluoro-n-tetradecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-tridecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-undecanoic acid	250	0.10	---	---	1	10	0.00250

Stock Id: KY32

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY41**

Description: PFAS - DoD ICC

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00253
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00253
perfluoro-1-pentanesulfonate	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexanoic acid	.00253

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY41**

Description: PFAS - DoD ICC

Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KX80	Pipette	B909301860
KX84	Pipette	B909301860
KY32	Pipette	B909301860

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/10/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200413-1).

Approved By: Schumitz, Denise **Date:** 4/13/2020 4:27:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY44**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

Stock Id: 190926-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-HFPO-DA	20	50.00	1	98.000	1	100	0.01000

Stock Id: 200326-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	1000	0.94	1	100.000	1	100	0.00935
13C2-6:2FTS	1000	0.95	1	100.000	1	100	0.00949
13C2-8:2FTS	1000	0.96	1	100.000	1	100	0.00958
13C2-PFDoA	1000	1.00	1	100.000	1	100	0.01000
13C2-PFTeDA	1000	1.00	1	100.000	1	100	0.01000
13C3-PFBS	1000	0.93	1	100.000	1	100	0.00929
13C3-PFHxS	1000	0.95	1	100.000	1	100	0.00946
13C4-PFBA	1000	1.00	1	100.000	1	100	0.01000
13C4-PFHpA	1000	1.00	1	100.000	1	100	0.01000
13C5-PFHxA	1000	1.00	1	100.000	1	100	0.01000
13C5-PFPeA	1000	1.00	1	100.000	1	100	0.01000
13C6-PFDA	1000	1.00	1	100.000	1	100	0.01000
13C7-PFUnA	1000	1.00	1	100.000	1	100	0.01000
13C8-FOSA	1000	1.00	1	100.000	1	100	0.01000
13C8-PFOA	1000	1.00	1	100.000	1	100	0.01000
13C8-PFOS	1000	0.96	1	100.000	1	100	0.00957
13C9-PFNA	1000	1.00	1	100.000	1	100	0.01000
d3-MeFOSAA	1000	1.00	1	100.000	1	100	0.01000
d5-EtFOSAA	1000	1.00	1	100.000	1	100	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00935
13C2-6:2FTS	.00949
13C2-8:2FTS	.00958
13C2-PFDoA	.01000
13C2-PFTeDA	.01000
13C3-HFPO-DA	.01000
13C3-PFBS	.00929
13C3-PFHxS	.00946
13C4-PFBA	.01000

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/13/2020	**Expiration Date:**	4/13/2021
Solution Volume 40 **mL X** 4 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 4/13/2020 2:41:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY44**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

13C4-PFHpA	.01000
13C5-PFHxA	.01000
13C5-PFPeA	.01000
13C6-PFDA	.01000
13C7-PFUnA	.01000
13C8-FOSA	.01000
13C8-PFOA	.01000
13C8-PFOS	.00957
13C9-PFNA	.01000
d3-MeFOSAA	.01000
d5-EtFOSAA	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190926-12	Pipette	B814659662
200326-03	Pipette	B909301606

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/13/2020	**Expiration Date:**	4/13/2021
Solution Volume 40 **mL X** 4 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 4/13/2020 2:41:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY45**

Description: PFAS - DoD Internal Standard Spiking Solution

Stock Id: 200317-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	2.00	1	100.000	1	100	0.01000
13C2-PFOA	500	2.00	1	100.000	1	100	0.01000
13C3-PFBA	500	2.00	1	100.000	1	100	0.01000
13C4-PFOS	500	1.91	1	100.000	1	100	0.00957

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.01000
13C2-PFOA	.01000
13C3-PFBA	.01000
13C4-PFOS	.00957

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200317-01	Pipette	B909301606

Solution Prepared By: Bailey, Kevin	**Date Prepared:** 4/20/2020	**Expiration Date:** 4/20/2021	
Solution Volume 40 **mL X** 4 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Thorn, Jonathan **Date:** 4/20/2020 12:42:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY48**

Description: PFAS - DoD Second Source LCS/MS Solution

Stock Id: 200420-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	20	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	20	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
Adona	2000	1.00	1	100.000	1	20	0.10000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	20	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-hexanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-octanesulfonate	2000	1.01	1	100.000	1	20	0.10100
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-hexanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	20	0.10000

Stock Id: KV39

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	20	0.10000

Final Concentrations:

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/20/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200420-6).

Approved By: Schumitz, Denise **Date:** 4/21/2020 9:40:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY48**

Description: PFAS - DoD Second Source LCS/MS Solution

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200420-01	Pipette	B906204506
KV39	Pipette	B909301606

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/20/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200420-6).

Approved By: Schumitz, Denise **Date:** 4/21/2020 9:40:00 AM

BATTELLE

It can be done

BDO Id: 190926-12

Reagent Receipt Report

Approved: ☑ Authorized ☐

Name:	2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-he	Received:	9/26/2019
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	M3HFPO-DA	Expires:	4/18/2022
Type:	Solution	Consumed:	
Lot No:	M3HFPODA0419	Stored In:	VOC Laboratory - R0123
Quantity:	2 ea ml	% Moisture:	
Description:	M3HFPO-DA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-HFPO-DA	BDO-2276	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	Thorn, Jonathan	Approved on:	9/27/2019 11:57:00 AM
Authorized by:		Authorized on:	

WELLINGTON
LABORATORIES

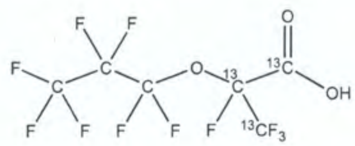
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3HFPO-DA

LOT NUMBER: M3HFPODA0419

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_3{}^{12}C_3HF_{11}O_3$

CONCENTRATION: 50 ± 2.5 μg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 04/18/2019

EXPIRY DATE: (mm/dd/yyyy) 04/18/2022

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: ≥99% ^{13}C ($^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.9% of the linear M3HFPO-DA isomer.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 07/05/2019 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE
It can be done

BDO Id: 190926-13

Reagent Receipt Report

Approved: ☑ Authorized ☐

Name: 3-Perfluoropropyl propanoic acid
Vendor: Wellington Laboratories
Catalogue No: FPrPA
Type: Solution
Lot No: FPrPA0310
Quantity: 2 ea ML % Moisture:
Description: FPrPA

Received: 9/26/2019
Custodian: Schumitz, Matt
Expires: 12/6/2020
Consumed:
Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-perfluoropropyl propanoic Acid	356-02-5	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by: Thorn, Jonathan
Approved on: 9/27/2019 11:57:00 AM
Authorized by:
Authorized on:

WELLINGTON LABORATORIES

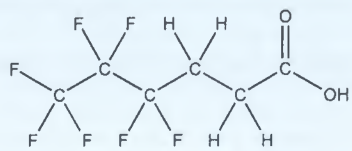
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FPrPA

LOT NUMBER: FPrPA0310

COMPOUND: 3-Perfluoropropyl propanoic acid

STRUCTURE:



CAS #: 356-02-5

MOLECULAR FORMULA: $C_6H_5F_7O_2$

MOLECULAR WEIGHT: 242.09

CONCENTRATION: 50 ± 2.5 μg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/06/2017

EXPIRY DATE: (mm/dd/yyyy) 12/06/2020

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 12/08/2017 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE

It can be done

BDO Id: 190926-14

Reagent Receipt Report

Approved: ☑ Authorized: ☐

Name: 3-Perfluoroheptyl Propanoic Acid

Vendor: Wellington Laboratories

Catalogue No: FHpPA

Type: Solution

Lot No: FHpPA1217

Quantity: 2 ea ml

% Moisture:

Description: FHpPA

Received: 9/26/2019

Custodian: Schumitz, Matt

Expires: 12/6/2020

Consumed:

Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoroheptyl propanoic acid	812-70-4	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by: Thorn, Jonathan

Approved on: 9/27/2019 11:57:00 AM

Authorized by:

Authorized on:

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

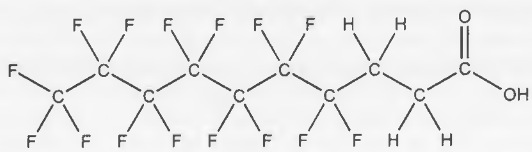
PRODUCT CODE: FHpPA

COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1217

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: $C_{10}H_5F_{15}O_2$

CONCENTRATION: 50 ± 2.5 µg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/06/2017

EXPIRY DATE: (mm/dd/yyyy) 12/06/2020

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/14/2017
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE

It can be done

BDO Id: 190926-15

Reagent Receipt Report

Approved: ☑ Authorized: ☐

Name:	3-Perfluoropentyl propanoic acid	**Received:**	9/26/2019
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	FPePA	**Expires:**	12/6/2020
Type:	Solution	**Consumed:**	
Lot No:	FPePA0310	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ml	**% Moisture:**	

Description: FPePA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoropentyl propanoic acid	914637-49-3	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	Thorn, Jonathan	**Approved on:**	9/27/2019 11:57:00 AM
Authorized by:		**Authorized on:**	

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

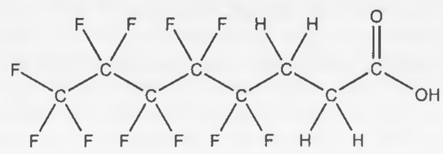
PRODUCT CODE: FPePA

COMPOUND: 3-Perfluoropentyl propanoic acid

LOT NUMBER: FPePA0310

STRUCTURE:

CAS #: 914637-49-3



MOLECULAR FORMULA: $C_8H_5F_{11}O_2$

CONCENTRATION: 50 ± 2.5 µg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/06/2017

EXPIRY DATE: (mm/dd/yyyy) 12/06/2020

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 342.11

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 12/08/2017 (mm/dd/yyyy)

BATTELLE
It can be done

BDO Id: 200218-03

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFAS Ical Mix	**Received:**	2/18/2020
Vendor:	ABSOLUTE STANDARDS	**Custodian:**	Schumitz, Matt
Catalogue No:	64029	**Expires:**	8/7/2024
Type:	Solution	**Consumed:**	
Lot No:	080719	**Stored In:**	LC Laboratory - F0111
Quantity:	2 ea ml	**% Moisture:**	
Description:	PFAS ICAL Mix		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			**1**
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			**2**
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐	0		**3**
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			**4**
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			**5**
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

	Analyte:	Comment:
1	N-ethylperfluoro-octanesulfonamidoacetic acid	Linear and branched

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

BATTELLE
It can be done

BDO Id: 200218-03

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFAS Ical Mix	**Received:**	2/18/2020
Vendor:	ABSOLUTE STANDARDS	**Custodian:**	Schumitz, Matt
Catalogue No:	64029	**Expires:**	8/7/2024
Type:	Solution	**Consumed:**	
Lot No:	080719	**Stored In:**	LC Laboratory - F0111
Quantity:	2 ea ml	**% Moisture:**	

Description: PFAS ICAL Mix

Analyte:		CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
2	N-methylperfluoro-1-octanesulfonamidoacetic acid	Linear and branched								
3	Perfluoro-1-hexanesulfonate	Linear and branched								
4	Perfluoro-1-octanesulfonate	Linear and branched								
5	Perfluoro-n-octanoic Acid	Linear and branched								

Approved by: ______ **Approved on:** ______

Authorized by: ______ **Authorized on:** ______

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

PFAS ICAL Mix

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

200218-03

CERTIFIED WEIGHT REPORT

Part Number:	64029			
Lot Number:	080719			
Description:	PFOA - DOD			
	28 components	**Solvent(s):**	**Lot#**	
Expiration Date:	080724	Methanol (1 mM KOH)	070919	(98%)
Recommended Storage:	Freezer (0 °C)	2-Propanol	23214	(2%)
Nominal Concentration (µg/mL):	1.0			
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty	
Volume(s) shown below were combined and diluted to (mL):	50.0	0.007	Flask Uncertainty	

Gabriel Helland 080719
Formulated By: Gabrial Helland DATE

Pedro Rentas 080719
Reviewed By: Pedro L. Rentas DATE

Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(µg/mL)	Final Conc.(µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (linear)	99542	110317	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid	99543	110317	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	022119	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (branched)*	99202	100918	0.02	1.00	0.004	50.2	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	020419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	020419	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	020419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9. Tricosafluorododecanoic acid	99196	022119	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	020419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	022119	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3877	FOSA0219I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	122818	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonate	99544	111017	0.02	0.98	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)*	99198	010419	0.02	1.00	0.004	50.6	1.01	0.01	3871-99-6	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0418	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)*	99201	100918	0.02	1.00	0.004	50.3	1.01	0.01	1763-23-1	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS0718	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3871	LPFDS1018	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS0718	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0418	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0118	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26. 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	4165	11ClPF3OUdS1118	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	4164	9ClPF3ONS1118	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoate (ADONA)	4103	NaDONA0119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	100918	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	100918	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	010419	0.02	1.00	0.004	50.0	1.00	0.01	3871-99-6	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	010419	0.02	1.00	0.004	0.6	0.01	0.0002	3871-99-6	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	100918	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	100918	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	100918	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	100918	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	0.6	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

BATTELLE
It can be done

BDO Id: 200218-04

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: PFAS 2nd Source
Vendor: ABSOLUTE STANDARDS
Catalogue No: 64029
Type: Solution
Lot No: 011420
Quantity: 5 ea ml **% Moisture:**

Received: 2/18/2020
Custodian: Schumitz, Matt
Expires: 1/14/2025
Consumed:
Stored In: LC Laboratory - F0111

Description: PFAS 2nd Source

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

PFAS - 2nd Source

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

200218-04

CERTIF[illegible] WEIGHT REPORT

Part Number:	64029		
Lot Number:	011420		
Description:	PFOA - DOD		
	28 components	**Solvent(s):**	**Lot#**
Expiration Date:	011425	Methanol (1 mM KOH)	112119 (98%)
Recommended Storage:	Freezer (0 °C)	2-Propanol	23214 (2%)
Nominal Concentration (µg/mL):	1.0		
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty
Volume(s) shown below were combined and diluted to (mL):	50.0	0.007	Flask Uncertainty

Formulated By:	Mario Luis	011420 DATE
Reviewed By:	Pedro L. Rentas	011420 DATE

Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(µg/mL)	Final Conc.(µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (linear)	99542	110419	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid	99543	110419	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	010820	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (branched)*	99202	080819	0.02	1.00	0.004	50.2	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	110419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	110419	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	110419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9. Tricosafluorododecanoic acid	99196	010820	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	110419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	120319	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3877	FOSA0219I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4182	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	080819	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonate	99544	011420	0.02	0.98	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)*	99198	091219	0.02	1.00	0.004	50.6	1.01	0.01	3871-99-6	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0418	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)*	99201	080819	0.02	1.00	0.004	50.3	1.01	0.01	1763-23-1	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS1119	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3871	LPFDS0419	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS0519	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	3881	62FTS1118	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS1118	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26. ...proeicosafluoro-3-oxaundecane-1-sulfonate	4185	11ClPF3OUdS1019	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27. ...rohexadecafluoro-3-oxanonane-1-sulfonate	4184	9ClPF3ONS0419	0.021	1.07	0.004	46.8	1.00	0.05	73606-19-6	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoate (ADONA)	4103	NaDONA0719	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080819	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080819	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	091219	0.02	1.00	0.004	50.0	1.00	0.01	3871-99-6	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	091219	0.02	1.00	0.004	0.6	0.01	0.0002	3871-99-6	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	080819	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	080819	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	080819	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	080819	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4182	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4182	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4182	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4182	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	0.6	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

BATTELLE
It can be done

BDO Id: 200219-02

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	MPFAC-24ES	**Received:**	2/19/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	MPFAC-24ES	**Expires:**	9/17/2024
Type:	Solution	**Consumed:**	
Lot No:	MPFAC24ES0218	**Stored In:**	VOC Laboratory - R0121
Quantity:	1 ea ml	**% Moisture:**	
Description:	MPFAC-24ES		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-4:2FTS	BDO-2229	0.9350	100.00	--	--	☐			
13C2-6:2FTS	BDO-2230	0.9490	100.00	--	--	☐			
13C2-8:2FTS	BDO-2220	0.9580	100.00	--	--	☐			
13C2-PFDoA	BDO-2112	1.0000	100.00	--	--	☐			
13C2-PFTeDA	BDO-2224	1.0000	100.00	--	--	☐			
13C3-PFBS	BDO-2226	0.9290	100.00	--	--	☐			
13C3-PFHxS	BDO-2227	0.9460	100.00	--	--	☐			
13C4-PFBA	BDO-2105	1.0000	100.00	--	--	☐			
13C4-PFHpA	BDO-2218	1.0000	100.00	--	--	☐			
13C5-PFHxA	BDO-2217	1.0000	100.00	--	--	☐			
13C5-PFPeA	BDO-2216	1.0000	100.00	--	--	☐			
13C6-PFDA	BDO-2222	1.0000	100.00	--	--	☐			
13C7-PFUnA	BDO-2223	1.0000	100.00	--	--	☐			
13C8-FOSA	BDO-2225	1.0000	100.00	--	--	☐			
13C8-PFOA	BDO-2219	1.0000	100.00	--	--	☐			
13C8-PFOS	BDO-2228	0.9570	100.00	--	--	☐			
13C9-PFNA	BDO-2221	1.0000	100.00	--	--	☐			
d3-MeFOSAA	BDO-1838	1.0000	100.00	--	--	☐			
d5-EtFOSAA	BDO-1839	1.0000	100.00	--	--	☐			

Total Analytes: 19

Notes:

Approved by:		**Approved on:**	
Authorized by:		**Authorized on:**	

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-24ES

Mass-Labelled Per- and Poly-fluoroalkyl Substance Extraction Standard Solution

PRODUCT CODE:	MPFAC-24ES
LOT NUMBER:	MPFAC24ES0218
SOLVENT(S):	Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/07/2018
LAST TESTED: (mm/dd/yyyy)	09/17/2019
EXPIRY DATE: (mm/dd/yyyy)	09/17/2024
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12} and C_{14}), three mass-labelled (^{13}C) perfluoroalkylsulfonates (C_4, C_6, and C_8), three mass-labelled (^{13}C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1-[$^{13}C_8$]octanesulfonamide. The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids, mass-labelled perfluoroalkylsulfonates, mass-labelled telomer sulfonates, and perfluoro-1-[$^{13}C_8$]octanesulfonamide all have chemical purities of >98% and isotopic purities of $\geq$99%. The individual mass-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of $\geq$98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Table A: **MPFAC-24ES; Components and Concentrations (ng/ml, ± 5% in Methanol / Isopropanol (2%) / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
Perfluoro-n-[$^{13}C_4$]butanoic acid	MPFBA	1000		A
Perfluoro-n-[$^{13}C_5$]pentanoic acid	M5PFPeA	1000		B
Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid	M5PFHxA	1000		E
Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid	M4PFHpA	1000		F
Perfluoro-n-[$^{13}C_8$]octanoic acid	M8PFOA	1000		I
Perfluoro-n-[$^{13}C_9$]nonanoic acid	M9PFNA	1000		J
Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid	M6PFDA	1000		M
Perfluoro-n-[1,2,3,4,5,6,7-$^{13}C_7$]undecanoic acid	M7PFUdA	1000		Q
Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid	MPFDoA	1000		R
Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid	M2PFTeDA	1000		S
Perfluoro-1-[$^{13}C_8$]octanesulfonamide	M8FOSA	1000		O
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		N
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		P
Compound	**Abbreviation**	**Concentration (ng/ml)**		**Peak Assignment in Figure 1**
		as the salt	**as the anion**	
Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate	M3PFBS	1000	929	C
Sodium perfluoro-1-[1,2,3-$^{13}C_3$]hexanesulfonate	M3PFHxS	1000	946	G
Sodium perfluoro-1-[$^{13}C_8$]octanesulfonate	M8PFOS	1000	957	K
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-$^{13}C_2$]hexanesulfonate	M2-4:2FTS	1000	935	D
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-$^{13}C_2$]octanesulfonate	M2-6:2FTS	1000	949	H
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-$^{13}C_2$]decanesulfonate	M2-8:2FTS	1000	958	L

Certified By: [signature]
B.G. Chittim, General Manager

Date: 09/30/2019
(mm/dd/yyyy)

BATTELLE
It can be done

BDO Id: 200317-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	MPFAC-C-IS	**Received:**	3/17/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	MPFAC-C-IS	**Expires:**	8/23/2023
Type:	Solution	**Consumed:**	
Lot No:	MPFACCIS0516	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ml	**% Moisture:**	
Description:	MPFAC-C-IS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDA	BDO-2110	2.0000	100.00	--	--	☐			
13C2-PFOA	BDO-2107	2.0000	100.00	--	--	☐			
13C3-PFBA	BDO-2231	2.0000	100.00	--	--	☐			
13C4-PFOS	BDO-2121	1.9140	100.00	--	--	☐			

Total Analytes: 4

Notes:

Approved by: ______________________ **Approved on:** ______________

Authorized by: ______________________ **Authorized on:** ______________

WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

MPFAC-C-IS

**Mass-Labelled Perfluorinated
Compound Injection Standards Solution**

PRODUCT CODE:	MPFAC-C-IS
LOT NUMBER:	MPFACCIS0516
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	05/24/2016
LAST TESTED: (mm/dd/yyyy)	08/23/2018
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-C-IS is a solution/mixture of mass-labelled (^{13}C) perfluoroalkylcarboxylic acids and a mass-labelled (^{13}C) perfluoroalkylsulfonate. The components and their concentrations are given in Table A.

MPFAC-C-IS was designed for, and prepared to be used with, PFC-CVS-C.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkylsulfonate all have chemical purities of >98% and isotopic purities of $\geq$99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The mass-labelled perfluoroalkylsulfonate compound concentration is reported as the salt.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Table A: **MPFAC-C-IS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid	M3PFBA	2000	A
Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid	M2PFOA	2000	B
Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid	MPFDA	2000	D
Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate	MPFOS	2000	C

Certified By: B.G. Chittim, General Manager

Date: 10/19/2018 (mm/dd/yyyy)

BATTELLE
It can be done

BDO Id: 200326-03

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: MPFAC-24ES
Vendor: Wellington Laboratories
Catalogue No: MPFAC-24ES
Type: Solution
Lot No: MPFAC24ES0218
Quantity: 3 ea Ml **% Moisture:**
Received: 3/26/2020
Custodian: Schumitz, Matt
Expires: 9/17/2024
Consumed:
Stored In: VOC Laboratory - R0123
Description: MPFAC-24ES

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-4:2FTS	BDO-2229	0.9350	100.00	--	--	☐			
13C2-6:2FTS	BDO-2230	0.9490	100.00	--	--	☐			
13C2-8:2FTS	BDO-2220	0.9580	100.00	--	--	☐			
13C2-PFDoA	BDO-2112	1.0000	100.00	--	--	☐			
13C2-PFTeDA	BDO-2224	1.0000	100.00	--	--	☐			
13C3-PFBS	BDO-2226	0.9290	100.00	--	--	☐			
13C3-PFHxS	BDO-2227	0.9460	100.00	--	--	☐			
13C4-PFBA	BDO-2105	1.0000	100.00	--	--	☐			
13C4-PFHpA	BDO-2218	1.0000	100.00	--	--	☐			
13C5-PFHxA	BDO-2217	1.0000	100.00	--	--	☐			
13C5-PFPeA	BDO-2216	1.0000	100.00	--	--	☐			
13C6-PFDA	BDO-2222	1.0000	100.00	--	--	☐			
13C7-PFUnA	BDO-2223	1.0000	100.00	--	--	☐			
13C8-FOSA	BDO-2225	1.0000	100.00	--	--	☐			
13C8-PFOA	BDO-2219	1.0000	100.00	--	--	☐			
13C8-PFOS	BDO-2228	0.9570	100.00	--	--	☐			
13C9-PFNA	BDO-2221	1.0000	100.00	--	--	☐			
d3-MeFOSAA	BDO-1838	1.0000	100.00	--	--	☐			
d5-EtFOSAA	BDO-1839	1.0000	100.00	--	--	☐			

Total Analytes: 19

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-24ES

Mass-Labelled Per- and Poly-fluoroalkyl Substance Extraction Standard Solution

PRODUCT CODE:	MPFAC-24ES
LOT NUMBER:	MPFAC24ES0218
SOLVENT(S):	Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/07/2018
LAST TESTED: (mm/dd/yyyy)	09/17/2019
EXPIRY DATE: (mm/dd/yyyy)	09/17/2024
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12} and C_{14}), three mass-labelled (^{13}C) perfluoroalkylsulfonates (C_4, C_6, and C_8), three mass-labelled (^{13}C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1-[$^{13}C_8$]octanesulfonamide. The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids, mass-labelled perfluoroalkylsulfonates, mass-labelled telomer sulfonates, and perfluoro-1-[$^{13}C_8$]octanesulfonamide all have chemical purities of >98% and isotopic purities of $\geq$99%. The individual mass-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of $\geq$98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **MPFAC-24ES; Components and Concentrations (ng/ml, ± 5% in Methanol / Isopropanol (2%) / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[$^{13}C_4$]butanoic acid	MPFBA	1000	A
Perfluoro-n-[$^{13}C_5$]pentanoic acid	M5PFPeA	1000	B
Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid	M5PFHxA	1000	E
Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid	M4PFHpA	1000	F
Perfluoro-n-[$^{13}C_8$]octanoic acid	M8PFOA	1000	I
Perfluoro-n-[$^{13}C_9$]nonanoic acid	M9PFNA	1000	J
Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid	M6PFDA	1000	M
Perfluoro-n-[1,2,3,4,5,6,7-$^{13}C_7$]undecanoic acid	M7PFUdA	1000	Q
Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid	MPFDoA	1000	R
Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid	M2PFTeDA	1000	S
Perfluoro-1-[$^{13}C_8$]octanesulfonamide	M8FOSA	1000	O
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	N
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	P

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate	M3PFBS	1000	929	C
Sodium perfluoro-1-[1,2,3-$^{13}C_3$]hexanesulfonate	M3PFHxS	1000	946	G
Sodium perfluoro-1-[$^{13}C_8$]octanesulfonate	M8PFOS	1000	957	K
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-$^{13}C_2$]hexanesulfonate	M2-4:2FTS	1000	935	D
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-$^{13}C_2$]octanesulfonate	M2-6:2FTS	1000	949	H
Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-$^{13}C_2$]decanesulfonate	M2-8:2FTS	1000	958	L

Certified By: [signature]
B.G. Chittim, General Manager

Date: 09/30/2019
(mm/dd/yyyy)

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It can be done

BDO Id: 200420-01

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFOA-DOD	**Received:**	4/20/2020
Vendor:	ABSOLUTE STANDARDS	**Custodian:**	Schumitz, Matt
Catalogue No:	64029	**Expires:**	4/16/2025
Type:	Solution	**Consumed:**	
Lot No:	041620	**Stored In:**	LC Laboratory - F0111
Quantity:	5 ea ml	**% Moisture:**	
Description:	PFOA-DOD		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

Approved by: ______________________ **Approved on:** ______________

Authorized by: ______________________ **Authorized on:** ______________

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number:	64029			
Lot Number:	041620			
Description:	PFOA - DOD			
	28 components	**Solvent(s):**	**Lot#**	
Expiration Date:	041625	Methanol (1 mM KOH)	030920	(98%)
Recommended Storage:	Freezer (0 °C)	2-Propanol	23214	(2%)
Nominal Concentration (µg/mL):	1.0			
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty	

Formulated By:	Prashant Chauhan	041620 DATE
Reviewed By:	Pedro L. Rentas	041620 DATE

Volume(s) shown below were combined and diluted to (mL): 50.0 | 0.007 Flask Uncertainty

Note: All assigned values are anion concentrations.

	Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(µg/mL)	Final Conc.(µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	Perfluoro-n-butanoic acid (linear)	99542	110419	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2.	Perfluoro-n-pentanoic acid	99543	110419	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3.	Perfluorohexanoic acid	99199	010820	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4.	Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5.	Perfluorooctanoic acid (branched)*	99202	021620	0.02	1.00	0.004	50.3	1.01	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6.	Perfluorononanoic acid	99200	110419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7.	Perfluorodecanoic acid	99195	110419	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg
8.	Perfluoroundecanoic acid	99205	110419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9.	Tricosafluorododecanoic acid	99196	010820	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10.	Perfluorotridecanoic acid	99204	110419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11.	Perfluorotetradecanoic acid	99203	120319	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12.	Perfluoro-1-octanesulfonamide	3677	FOSA0219I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13.	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14.	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15.	Perfluorobutanesulfonic acid	99194	021620	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16.	Perfluoro-1-pentanesulfonic acid	99544	011420	0.02	0.98	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17.	Perfluorohexanesulfonic acid (branched)*	99198	091219	0.02	1.00	0.004	50.6	1.01	0.01	355-46-4	N/A	N/A
18.	Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0819	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19.	Heptadecafluorooctanesulfonic acid (branched)*	99201	021620	0.02	1.00	0.004	50.2	1.00	0.01	1763-23-1	N/A	N/A
20.	Perfluoro-1-nonanesulfonic acid	3957	LPFNS1119	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21.	Perfluoro-1-decanesulfonic acid	3671	LPFDS0419	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22.	1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1019	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23.	1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0919	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24.	1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0919	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25.	2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS1019	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS1019	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28.	Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
	Perfluorooctanoic acid (linear)*	99202	021820	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorooctanoic acid (branched isomer)*	99202	021820	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorohexanesulfonic acid (linear)*	99198	091219	0.02	1.00	0.004	50.0	1.00	0.01	355-46-4	N/A	N/A
	Perfluorohexanesulfonic acid (branched isomer)*	99198	091219	0.02	1.00	0.004	0.6	0.01	0.0002	355-46-4	N/A	N/A
	Heptadecafluorooctanesulfonic acid (linear)*	99201	021620	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021620	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021820	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	0.6	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Absolute Standards Inc.
PO Box 5585
Hamden, CT 06518-0585
Phone: 203-281-2917
FAX: 203-281-2922

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY **ANALYTICAL STANDARD DISSOLVED IN METHANOL**

Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	**1-800-535-5053**
Address	44 Rossotto Dr.	Emergency Telephone International	**1-352-323-3500**
	Hamden CT, 06514	Date Prepared/Revised	May 1, 2015

Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H225	**Highly Flammable Liquid and Vapor**	**H301, 311, 331**	**Toxic if swallowed, skin contact, inhaled**
H370	**Cause damage to organs**	**H351**	**Suspected of causing cancer**
P271	**Use in ventilated area**	**P280**	**Use gloves, eye protection/face sheild**
P302,332	**If on skin, wash with soap and water**	**P305,351,338**	**If in eyes, remove contacts, rinse with water**

Signal Word: DANGER

Section III - Composition

Components (Specific Chemical Identity; Common Name(s))			% (optional)
Methanol	METHYL ALCOHOL	CAS#: 67-56-1	> 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash with soap and water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Flammability	Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Clean up	Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.
Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol 67-56-1 TWA 200 ppm
Skin notation TWA 200 ppm
Potential for skin absorption , ingestion and inhalation.
Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.
Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - Physical/Chemical Characteristics

Absolute Standards Inc.

PO Box 5585
Hamden, CT 06518-0585

Phone: 203-281-2917
FAX: 203-281-2922

Boiling Point	65°C	Specific Gravity (H2O = 1)	0.79
Vapor Pressure (mm Hg)	96	Melting Point	-98°C
Vapor Density (AIR = 1)	1.11	Evaporation rate (Butyl Acetate = 1)	4.6

Solubility in Water COMPLETE

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Vapours may form explosive mixture with air.
Conditions to avoid	Heat, flames, sparks, extreme temperature and sunlight.
Materials to avoid	Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg
LC50 Inhalation - rat - 4 h - 64000 ppm
LD50 Dermal - rabbit - 15,800 mg/kg
Toxic if absorbed through skin. Causes skin irritation.
Eye damage/eye irritation
Toxic if inhaled. Causes respiratory tract irritation.
Toxic if swallowed.

Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50	15,400 mg/l - 96 h
EC50	24,500.00 mg/l - 48 h
EC100	10,000.00 mg/l - 24 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)
UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol

IATA
UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol

Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

ACCREDITATIONS

Accrediting Authority	Laboratory ID
U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP)	91667
State of Florida Department of Health	E87856
State of New York Department of Health	12105
State of Washington Department of Ecology	C1050
State of California	3045
Commonwealth of Massachusetts	E87856
State of Maine	MA00056
State of Vermont	VT 87856
State of New Hampshire	2137
Commonwealth of Pennsylvania Department of Environmental Protection	68-05687
State of Alaska Department of Environmental Conservation	19-005
State of Rhode Island	E87856

Current certificates and lists of accredited parameters are available upon request.

Sample Preparation

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

SOP Numbers (see workplan for modifications)

ExtractionSOP No. 5-370

This Batch Contains The Following Samples:		
CY785PB-FS	H4971-FS	H4977-FS
CY786LCS-FS	H4972-FS	H4978-FS
H4967-FS	H4973-FS	
H4968-FS	H4974-FS	
H4969-FS	H4975-FS	
H4970-FS	H4976-FS	

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Kelsey Harnden

Approved By:	Date	Initials
Denise Schumitz	04/30/2020	DMS

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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID	Description
CY785PB-FS	Procedural Blank
CY786LCS-FS	Laboratory Control Sample
H4967-FS	POL-MW0045I-035.0-20200422
H4968-FS	POL-MW0043S-015.0-20200422
H4969-FS	POL-EB-20200423-01
H4970-FS	POL-EB-20200423-02
H4971-FS	POL-MW0043I-025.0-20200423
H4972-FS	POL-MW0043D-035.0-20200423
H4973-FS	POL-MW0011S-012.5-20200423
H4974-FS	POL-MW0011I-027.5-20200423
H4975-FS	POL-MW0044I-025.0-20200423
H4976-FS	POL-MW0044D-035.0-20200423
H4977-FS	SW3-MW0027-032.0-20200423
H4978-FS	SW3-MW0028-032.0-20200423

Samples Assigned By: Jonathan Thorn Date : April 24, 2020

Comments:

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BATTELLE - NORWELL OPERATIONS
SAMPLE CUSTODY LOG

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502
PFAS: Nasa Kennedy Space Center
GW, QC

Requested On/By: 04/24/2020 KH
Purpose: Sample Preparation
Relinquished On/By: 04/24/2020 MDS
Last Activity: Transfer

Accepted On/By: 04/24/2020 KH
Stored In Facility: Sample Preparation
Stored Until
Stored Comment: NA

Returned On/To:
Returned To Facility:
Returned Comment: NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	H4967	1	C	Consumed	NA
2	H4968	1	C	Consumed	NA
3	H4969	1	C	Consumed	NA
4	H4970	1	C	Consumed	NA
5	H4971	1	C	Consumed	NA
6	H4972	1	C	Consumed	NA
7	H4973	1	C	Consumed	NA
8	H4974	1	C	Consumed	NA
9	H4975	1	C	Consumed	NA
10	H4976	1	C	Consumed	NA
11	H4977	1	C	Consumed	NA
12	H4978	1	C	Consumed	NA

Total Samples 12 * "C" = Consumed Container

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502
PFAS: Nasa Kennedy Space Center
GW, QC

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CY785PB-FS	Procedural Blank	250.0	NA	C	04/24/20 KH
CY786LCS-FS	Laboratory Control Sample	250.0	NA	C	04/24/20 KH
H4967-FS	POL-MW0045I-035.0-20200422	275.0	1	C	04/28/20 AW
H4968-FS	POL-MW0043S-015.0-20200422	270.0	1	C	04/28/20 KH
H4969-FS	POL-EB-20200423-01	270.0	1	C	04/28/20 AW
H4970-FS	POL-EB-20200423-02	280.0	1	C	04/28/20 AW
H4971-FS	POL-MW0043I-025.0-20200423	270.0	1	C	04/28/20 AW
H4972-FS	POL-MW0043D-035.0-20200423	270.0	1	C	04/28/20 AW
H4973-FS	POL-MW0011S-012.5-20200423	270.0	1	C	04/28/20 KH
H4974-FS	POL-MW0011I-027.5-20200423	270.0	1	C	04/28/20 AW
H4975-FS	POL-MW0044I-025.0-20200423	270.0	1	C	04/28/20 AW
H4976-FS	POL-MW0044D-035.0-20200423	270.0	1	C	04/28/20 AW
H4977-FS	SW3-MW0027-032.0-20200423	280.0	1	C	04/28/20 AW
H4978-FS	SW3-MW0028-032.0-20200423	280.0	1	C	04/28/20 AW

Comments:

Sample ID:	Comments:
H4968-FS	20 ul of 10.0N NaOH 200103-01 was added to achieve a pH between 6 and 8.
H4973-FS	20 ul of 10.0N NaOH 200103-01 was added to achieve a pH between 6 and 8.

Samples Assigned By: Jonathan Thorn Date : April 24, 2020

* - "C" = Sample is Consumed

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BATTELLE - NORWELL OPERATIONS
SURROGATE SPIKE FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CY785PB-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
CY786LCS-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
CY786LCS-FS	KY48	LCS/MS	1	100	04/24/20 KH	AW	NA
H4967-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4968-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4969-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4970-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4971-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4972-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4973-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4974-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4975-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4976-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4977-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA
H4978-FS	KY44	SIS	2	125	04/24/20 KH	AW	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
KY44	Pipette	B814657482
KY48	Pipette	B814657482

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BATTELLE - NORWELL OPERATIONS
SAMPLE EXTRACTION FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CY785PB-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
CY786LCS-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4967-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4968-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4969-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4970-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4971-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4972-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4973-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4974-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4975-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4976-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4977-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA
H4978-FS	04/24/20 KH	NA	NA	NEVAP_3	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Whatman Indicator paper pH 0-14	200217-01	02/17/24	10D0391	NA	
0.5% NH3 in Methanol (w/v)	RP-200424-1	04/24/20	196258	Per 100 mL, 4.25 mL ammonia solution brought to 100 mL with methanol	
0.5% NH3 in Methanol (w/v)	RP-200424-1	04/24/20	10224584	Per 100 mL, 4.25 mL ammonia solution brought to 100 mL with methanol	
Pre-packed SPE Column	RP-200424-2	04/24/20	S308-0109/S20-001194	Pre-packed SPE Column	

Solvents/Reagents:

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502
PFAS: Nasa Kennedy Space Center
GW, QC

Extract Id	Date	Init.	Comments
CY785PB-FS(0)	04/24/20	KH	NA
CY786LCS-FS(0)	04/24/20	KH	NA
H4967-FS(0)	04/24/20	KH	NA
H4968-FS(0)	04/24/20	KH	NA
H4969-FS(0)	04/24/20	KH	NA
H4970-FS(0)	04/24/20	KH	NA
H4971-FS(0)	04/24/20	KH	NA
H4972-FS(0)	04/24/20	KH	NA
H4973-FS(0)	04/24/20	KH	NA
H4974-FS(0)	04/24/20	KH	NA
H4975-FS(0)	04/24/20	KH	NA
H4976-FS(0)	04/24/20	KH	NA
H4977-FS(0)	04/24/20	KH	NA
H4978-FS(0)	04/24/20	KH	NA

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Extract Id	Date	Init.	Comments

Cleanup:

Envi-Carb

Reagents:

Reagent Prep	Name	Expires	Lot No	Procedure
191209-01	Supelclean ENVI-Carb SPE Bulk Packing	12/09/24	122395	NA

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Extract Id	Date	Init.	Comments

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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502
PFAS: Nasa Kennedy Space Center
GW, QC

(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
CY785PB-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
CY786LCS-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4967-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4968-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4968-FS(2)	0	0	KY45	100	2	0	1.250	04/30/20 KB	DMS
H4968-FS-D(3)	900	100	KY45	125	2	1000	5.000	04/29/20 KB	DMS
H4969-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4970-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4971-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4972-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4973-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4974-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4975-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4976-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4977-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS
H4978-FS(0)	875	125	KY45	125	2	1000	1.000	04/28/20 KB	DMS

* - Final Dilution is any HPLC, dilutions, or other manipulation
^ - Pre Injection Volume (PIV) includes any RIS spikes.

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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
KY44	Pipette	B814657482
KY45	Pipette	B814657482

* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.

BATTELLE - NORWELL OPERATIONS
EXTRACT SPIKE FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502
PFAS: Nasa Kennedy Space Center
GW, QC

Extract Id	DF	Std. ID	Type	Vial No.	Vol. Added (uL)	Conc (ug/mL)	Added (ng)	Date Spiked/ Spiked By	Witn'd By
H4968-FS-D(3)	5	KY44	SIS	3	100	0	0	04/28/20 KB	DMS

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
KY44	Pipette	B814657482
KY45	Pipette	B814657482

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CY785PB-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
CY786LCS-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4967-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4968-FS	0	C	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4968-FS	2	--	4/28/2020 2:33:00 PM	H4968-FS	0	1000	800	1.250	1.250	04/28/20 KB
H4968-FS-D	3	--	4/28/2020 2:33:00 PM	H4968-FS	0	1000	200	5.000	5.000	04/28/20 KB
H4969-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4970-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4971-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4972-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4973-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4974-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4975-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4976-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]

Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor

* - "C" = Extract is Consumed

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
H4977-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH
H4978-FS	0	--	4/24/2020	NA		NA	NA	1.000	1.000	04/24/20 KH

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Apr 28 2020 4:46PM KH	**Received On/By:**	Apr 28 2020 4:46PM DMS
Relinquished From:	Sample Preparation: NA	**Received Location:**	LC Laboratory: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CY785PB-FS(0)	1000	1	Intact	NA
2	CY786LCS-FS(0)	1000	1	Intact	NA
3	H4967-FS(0)	1000	1	Intact	NA
4	H4968-FS(0)	1000	1	Intact	NA
5	H4968-FS-D(3)	1000	5	Intact	NA
6	H4969-FS(0)	1000	1	Intact	NA
7	H4970-FS(0)	1000	1	Intact	NA
8	H4971-FS(0)	1000	1	Intact	NA
9	H4972-FS(0)	1000	1	Intact	NA
10	H4973-FS(0)	1000	1	Intact	NA
11	H4974-FS(0)	1000	1	Intact	NA
12	H4975-FS(0)	1000	1	Intact	NA
13	H4976-FS(0)	1000	1	Intact	NA
14	H4977-FS(0)	1000	1	Intact	NA
15	H4978-FS(0)	1000	1	Intact	NA

Total Extracts: 15

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BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0502
PFAS: Nasa Kennedy Space Center
GW, QC

Sample ID:	Comment:	Date/Initials:
CY785PB-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:27 PM.	04/24/20 KH
CY786LCS-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:34 PM.	04/24/20 KH
H4967-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:55 PM.	04/24/20 KH
H4967-FS	Sample contained particulates.	04/24/20 KH
H4967-FS	Extract was yellow-brown and concentrated very slowly.	04/29/20 KB
H4968-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:55 PM.	04/24/20 KH
H4968-FS	Sample contained particulates.	04/24/20 KH
H4968-FS	had a very potent egg odor to it.	04/24/20 KH
H4968-FS	Extract was a dark yellow-brown and concentrated very slowly.	04/29/20 KB
H4969-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:33 PM.	04/24/20 KH
H4970-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:30 PM.	04/24/20 KH
H4970-FS	Sample contained a few particulates.	04/24/20 KH
H4971-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:30 PM.	04/24/20 KH
H4971-FS	Sample contained particulates.	04/24/20 KH
H4971-FS	Extract was yellow-brown and concentrated slowly.	04/29/20 KB
H4972-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:43 PM.	04/24/20 KH
H4972-FS	Sample contained particulates.	04/24/20 KH
H4972-FS	Extract was yellow-brown and concentrated slowly.	04/29/20 KB
H4973-FS	Extraction began at 1:15 PM, manifold 5, ended at 2:37 PM.	04/24/20 KH
H4973-FS	Sample contained particulates.	04/24/20 KH
H4973-FS	had a very potent egg odor to it.	04/24/20 KH
H4973-FS	Extract was yellow-brown and concentrated slowly.	04/29/20 KB
H4974-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:25 PM.	04/24/20 KH
H4974-FS	Sample contained particulates.	04/24/20 KH
H4974-FS	Extract was yellow-brown and concentrated slowly.	04/29/20 KB
H4975-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:42 PM.	04/24/20 KH
H4975-FS	Sample contained particulates.	04/24/20 KH
H4975-FS	Extract was a dark yellow-brown and concentrated slowly.	04/29/20 KB
H4976-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:52 PM.	04/24/20 KH
H4976-FS	Sample contained particulates.	04/24/20 KH

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BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID:	Comment:	Date/Initials:
H4976-FS	Extract was a pale yellow-brown and concentrated slowly.	04/29/20 KB
H4977-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:59 PM.	04/24/20 KH
H4977-FS	Sample contained particulates.	04/24/20 KH
H4977-FS	Extract was a pale yellow-brown and concentrated slowly.	04/29/20 KB
H4978-FS	Extraction began at 1:15 PM, manifold 6, ended at 2:56 PM.	04/24/20 KH
H4978-FS	Sample contained particulates.	04/24/20 KH
H4978-FS	Extract was yellow-brown and concentrated slowly.	04/29/20 KB

It can be done

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0502

PFAS: Nasa Kennedy Space Center

GW, QC

Entered By: On:

Task Leader Approval: On:

SupervisorApproval: On:

PM Approval: On:

Analytical Calibrations

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 01/05/2020 2:18:53 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File	
12	MeOH		4/28/2020 5:16:05 PM	5-369.dam	AE_04282020_5-369.wiff	
2	KY33	L1	4/28/2020 5:26:36 PM	5-369.dam	AE_04282020_5-369.wiff	
3	KY34	L2	4/28/2020 5:37:08 PM	5-369.dam	AE_04282020_5-369.wiff	
4	KY35	L3	4/28/2020 5:47:41 PM	5-369.dam	AE_04282020_5-369.wiff	
5	KY36	L4	4/28/2020 5:58:14 PM	5-369.dam	AE_04282020_5-369.wiff	
6	KY37	L5	4/28/2020 6:08:45 PM	5-369.dam	AE_04282020_5-369.wiff	
7	KY38	L6	4/28/2020 6:19:18 PM	5-369.dam	AE_04282020_5-369.wiff	
8	KY39	L7	4/28/2020 6:29:50 PM	5-369.dam	AE_04282020_5-369.wiff	
9	KY40 IB	Instrument Blank	4/28/2020 6:40:23 PM	5-369.dam	AE_04282020_5-369.wiff	
10	KY41 ICC	ICC	4/28/2020 6:50:56 PM	5-369.dam	AE_04282020_5-369.wiff	
11	KY42 Branch	Branch Standard	4/28/2020 7:01:29 PM	5-369.dam	AE_04282020_5-369.wiff	
12	MeOH		4/28/2020 7:12:02 PM	5-369.dam	AE_04282020_5-369.wiff	
~~13~~	~~CY435PB-FS(3)~~		~~4/28/2020 7:22:35 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	1
~~14~~	~~CY436LCS-FS(3)~~		~~4/28/2020 7:33:06 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~15~~	~~KY36 CCV~~	~~CCV~~	~~4/28/2020 7:43:37 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~16~~	~~MeOH~~		~~4/28/2020 7:54:09 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~17~~	~~H4206-FS(3)~~		~~4/28/2020 8:04:41 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~18~~	~~H4207-FS(3)~~		~~4/28/2020 8:15:13 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~19~~	~~H4208-FS(3)~~		~~4/28/2020 8:25:45 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~20~~	~~H4209-FS(3)~~		~~4/28/2020 8:36:17 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~21~~	~~H4210-FS(3)~~		~~4/28/2020 8:46:48 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~22~~	~~H4211-FS(3)~~		~~4/28/2020 8:57:20 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~23~~	~~KY37 CCV~~	~~CCV~~	~~4/28/2020 9:07:53 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~24~~	~~MeOH~~		~~4/28/2020 9:18:25 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~8~~	~~MeOH~~		~~4/28/2020 9:28:57 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~1~~	~~CY783PB-FS(0)~~		~~4/28/2020 9:39:30 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~2~~	~~CY784LCS-FS(0)~~		~~4/28/2020 9:50:03 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~3~~	~~H4954-FS(0)~~		~~4/28/2020 10:00:36 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~4~~	~~H4955-FS(0)~~		~~4/28/2020 10:11:08 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~5~~	~~H4956-FS(0)~~		~~4/28/2020 10:21:42 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~6~~	~~H4957-FS(0)~~		~~4/28/2020 10:32:15 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~7~~	~~H4958-FS(0)~~		~~4/28/2020 10:42:48 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~8~~	~~MeOH~~		~~4/28/2020 10:53:21 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~9~~	~~KY36 CCV~~	~~CCV~~	~~4/28/2020 11:03:54 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~10~~	~~H4959-FS(0)~~		~~4/28/2020 11:14:25 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~11~~	~~H4960-FS(0)~~		~~4/28/2020 11:24:57 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~12~~	~~H4961-FS(0)~~		~~4/28/2020 11:35:29 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~13~~	~~H4962-FS(0)~~		~~4/28/2020 11:46:01 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	
~~14~~	~~H4963-FS(0)~~		~~4/28/2020 11:56:32 PM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~	

1 Samples from another batch, not reported with this one. DMS 5/1/2020

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 01/05/2020 2:18:53 PM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~15~~	~~H4964-FS(0)~~		~~4/29/2020 12:07:04 AM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~ 1
~~16~~	~~H4965-FS(0)~~		~~4/29/2020 12:17:36 AM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~
~~17~~	~~H4965-FS-D(3)~~		~~4/29/2020 12:28:08 AM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~
~~18~~	~~H4966-FS(0)~~		~~4/29/2020 12:38:40 AM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~
~~19~~	~~MeOH~~		~~4/29/2020 12:49:12 AM~~	~~5-369.dam~~	~~AE_04282020_5-369.wiff~~
20	KY37 CCV	CCV	4/29/2020 12:59:44 AM	5-369.dam	AE_04282020_5-369.wiff
21	MeOH		4/29/2020 1:10:15 AM	5-369.dam	AE_04282020_5-369.wiff
22	CY785PB-FS(0)	Procedural Blank	4/29/2020 1:20:48 AM	5-369.dam	AE_04282020_5-369.wiff
23	CY786LCS-FS(0)	Laboratory Control Sample	4/29/2020 1:31:21 AM	5-369.dam	AE_04282020_5-369.wiff
24	H4967-FS(0)	POL-MW0045I-035.0-20200422	4/29/2020 1:41:54 AM	5-369.dam	AE_04282020_5-369.wiff
25	H4968-FS(0)	POL-MW0043S-015.0-20200422	4/29/2020 1:52:27 AM	5-369.dam	AE_04282020_5-369.wiff
26	H4968-FS-D(3)	POL-MW0043S-015.0-20200422	4/29/2020 2:03:00 AM	5-369.dam	AE_04282020_5-369.wiff
27	H4969-FS(0)	POL-EB-20200423-01	4/29/2020 2:13:33 AM	5-369.dam	AE_04282020_5-369.wiff
28	H4970-FS(0)	POL-EB-20200423-02	4/29/2020 2:24:06 AM	5-369.dam	AE_04282020_5-369.wiff
29	H4971-FS(0)	POL-MW0043I-025.0-20200423	4/29/2020 2:34:39 AM	5-369.dam	AE_04282020_5-369.wiff
31	MeOH		4/29/2020 2:45:12 AM	5-369.dam	AE_04282020_5-369.wiff
32	KY36 CCV	CCV	4/29/2020 2:55:45 AM	5-369.dam	AE_04282020_5-369.wiff
30	H4972-FS(0)	POL-MW0043D-035.0-20200423	4/29/2020 3:06:17 AM	5-369.dam	AE_04282020_5-369.wiff
33	H4973-FS(0)	POL-MW0011S-012.5-20200423	4/29/2020 3:16:49 AM	5-369.dam	AE_04282020_5-369.wiff
34	H4974-FS(0)	POL-MW0011I-027.5-20200423	4/29/2020 3:27:20 AM	5-369.dam	AE_04282020_5-369.wiff
35	H4975-FS(0)	POL-MW0044I-025.0-20200423	4/29/2020 3:37:52 AM	5-369.dam	AE_04282020_5-369.wiff
36	H4976-FS(0)	POL-MW0044D-035.0-20200423	4/29/2020 3:48:24 AM	5-369.dam	AE_04282020_5-369.wiff
37	H4977-FS(0)	SW3-MW0027-032.0-20200423	4/29/2020 3:58:56 AM	5-369.dam	AE_04282020_5-369.wiff
38	H4978-FS(0)	SW3-MW0028-032.0-20200423	4/29/2020 4:09:27 AM	5-369.dam	AE_04282020_5-369.wiff
39	MeOH		4/29/2020 4:19:59 AM	5-369.dam	AE_04282020_5-369.wiff
40	KY37 CCV	CCV	4/29/2020 4:30:31 AM	5-369.dam	AE_04282020_5-369.wiff

1 Samples from another batch, not reported with this one. DMS 5/1/2020

BATTELLE

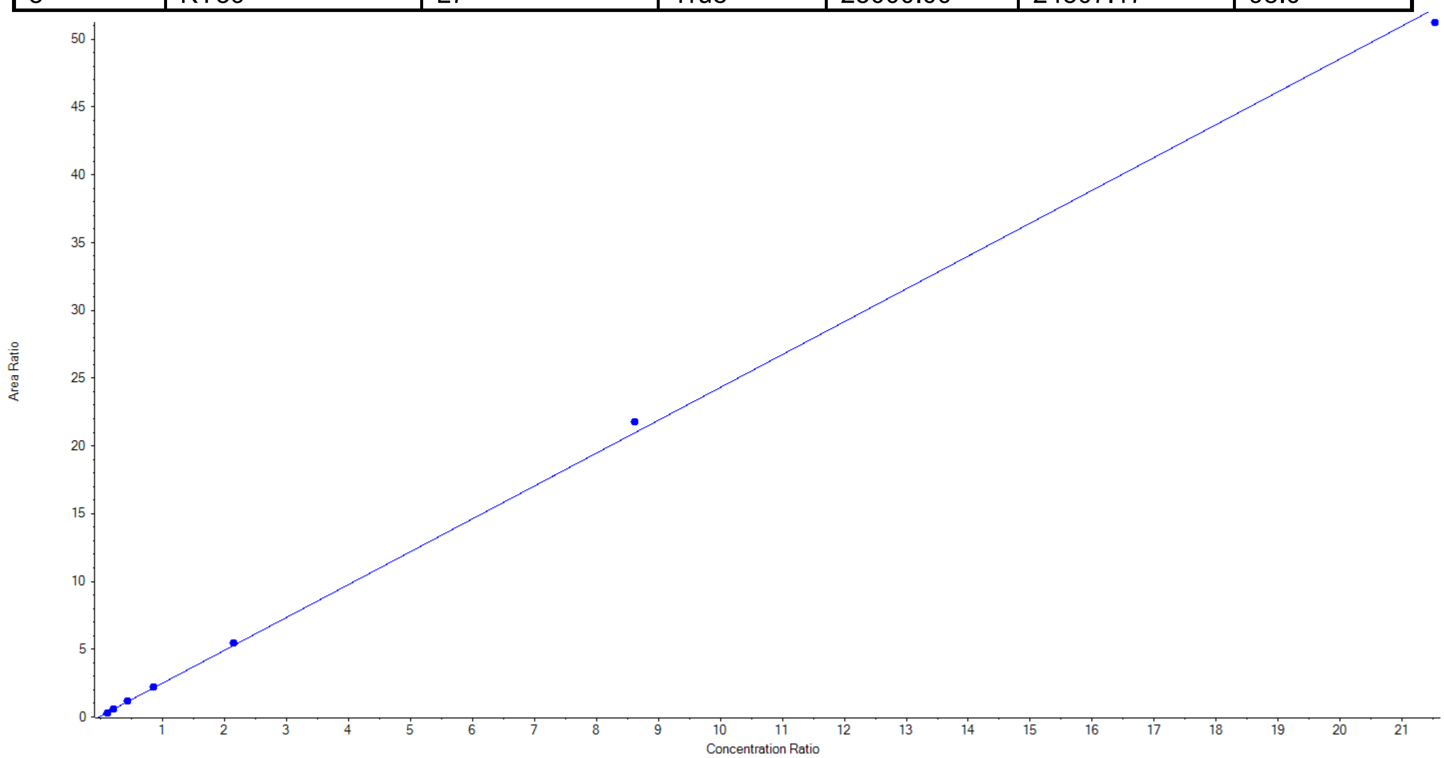
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFBS_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	298.9 / 80.0	**Result Table**	20-0502
Internal Standard	13C3-PFBS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 2.42446 x + 0.07020$ ($r = 0.99958$) (weighting: $1 / x$) r^2:0.9992

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	109.83	87.9
3	KY34	L2	True	250.00	254.68	101.9
4	KY35	L3	True	500.00	520.72	104.1
5	KY36	L4	True	1000.00	1014.00	101.4
6	KY37	L5	True	2500.00	2566.83	102.7
7	KY38	L6	True	10000.00	10401.77	104.0
8	KY39	L7	True	25000.00	24507.17	98.0



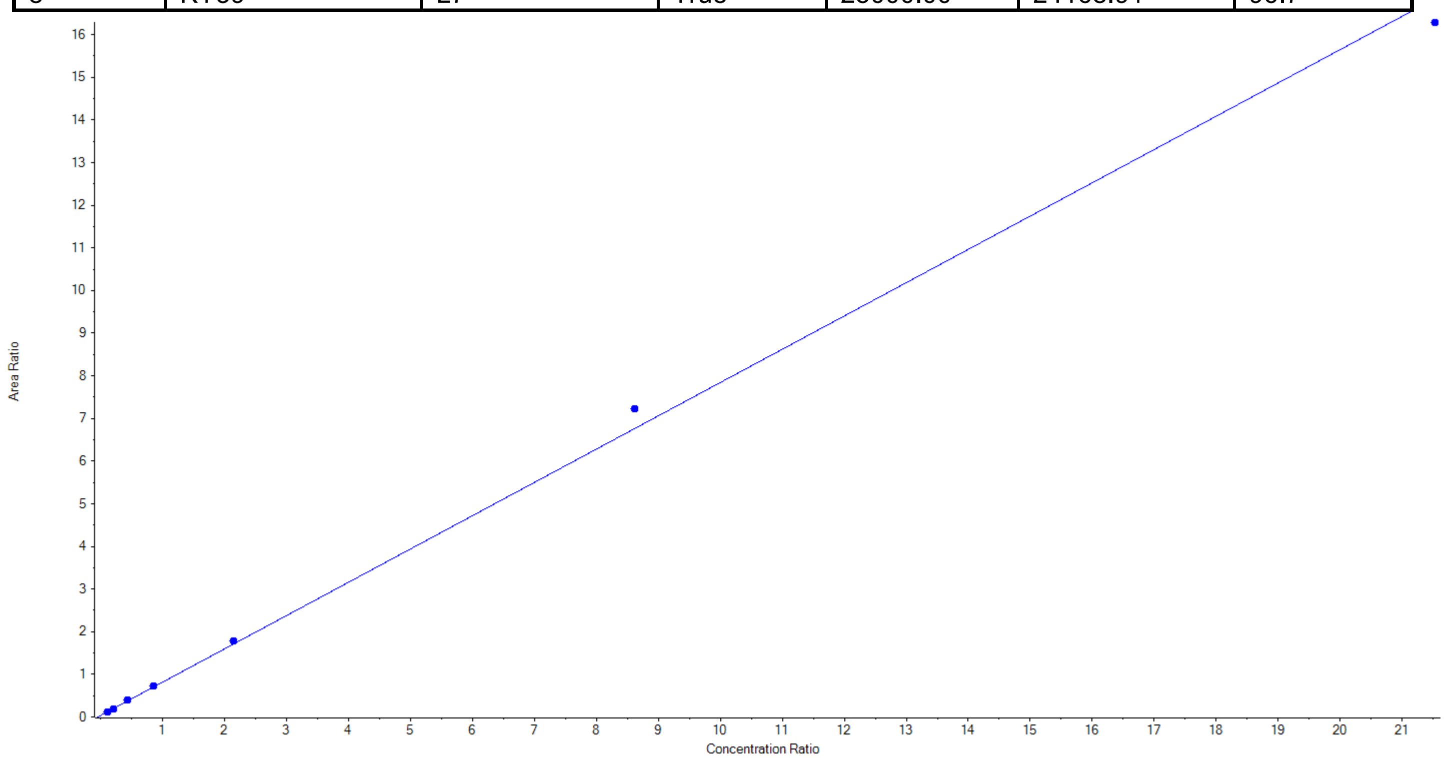
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFBS_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	298.9 / 99.0	**Result Table**	20-0502
Internal Standard	13C3-PFBS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.78076 x + 0.03493 (r = 0.99882) (weighting: 1 / x) r^2:0.9976

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	107.62	86.1
3	KY34	L2	True	250.00	242.38	97.0
4	KY35	L3	True	500.00	525.88	105.2
5	KY36	L4	True	1000.00	1046.66	104.7
6	KY37	L5	True	2500.00	2586.55	103.5
7	KY38	L6	True	10000.00	10696.99	107.0
8	KY39	L7	True	25000.00	24168.91	96.7



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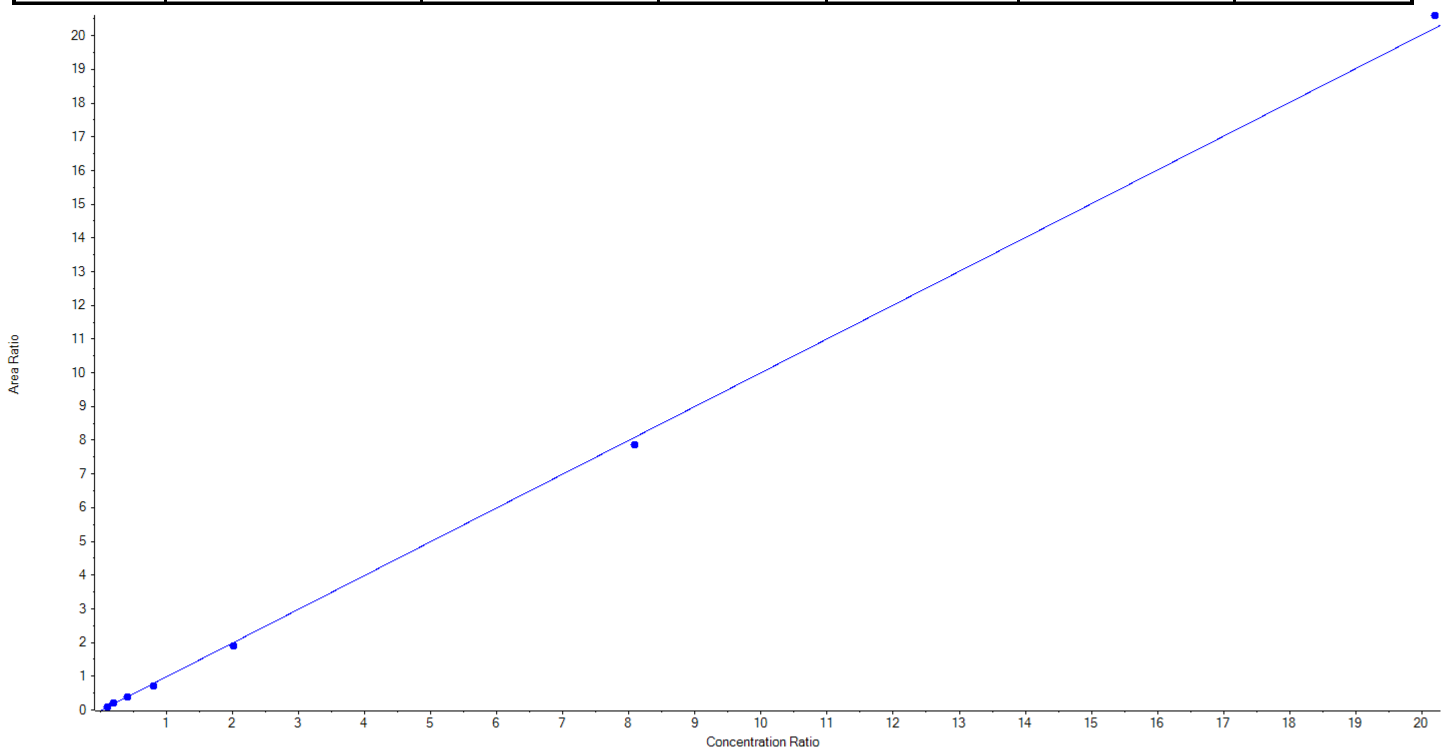
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFHxA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	313.0 / 269.0	**Result Table**	20-0502
Internal Standard	13C5-PFHxA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.00217 x + -0.01768 (r = 0.99953) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	126.25	139.12	110.2
3	KY34	L2	True	252.50	263.23	104.3
4	KY35	L3	True	505.00	512.64	101.5
5	KY36	L4	True	1010.00	906.04	89.7
6	KY37	L5	True	2525.00	2403.01	95.2
7	KY38	L6	True	10100.00	9830.48	97.3
8	KY39	L7	True	25250.00	25714.24	101.8



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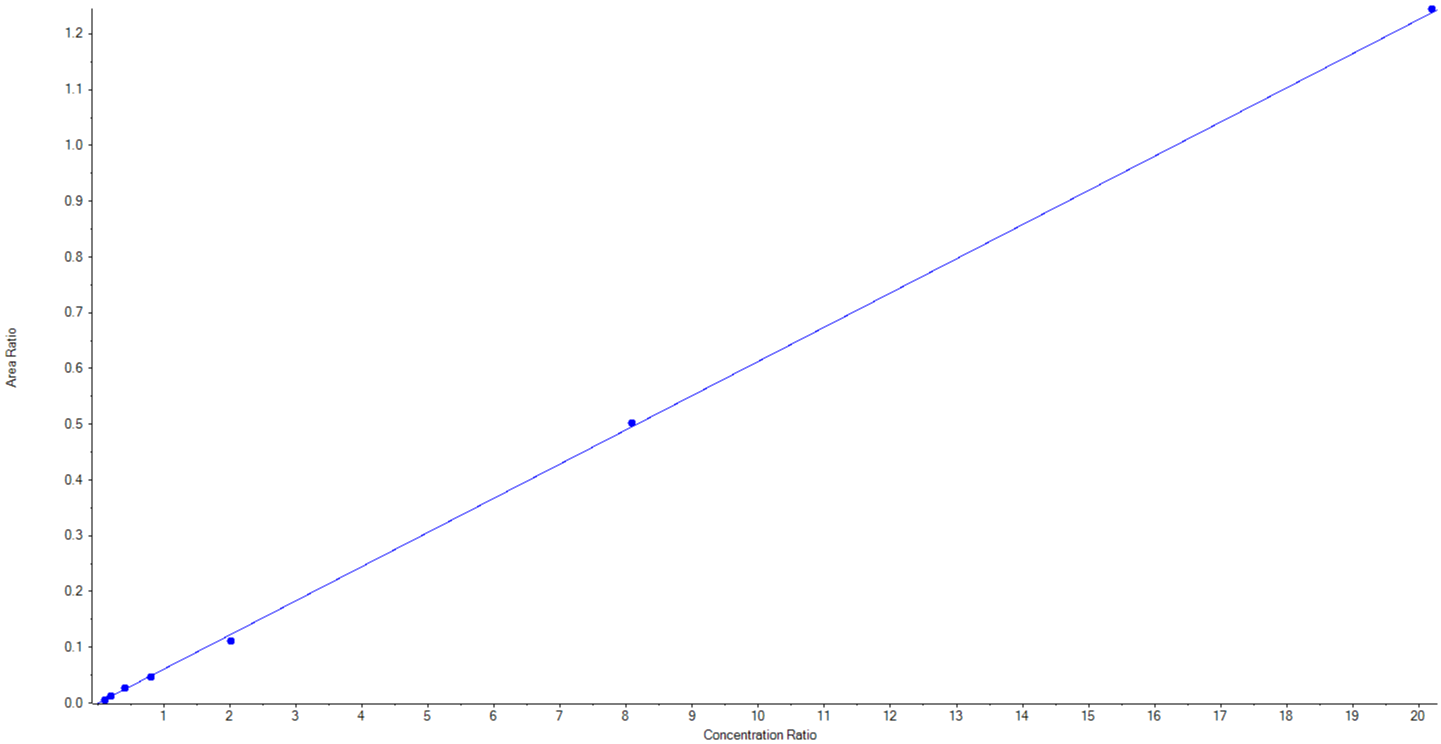
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFHxA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	313.0 / 119.0	**Result Table**	20-0502
Internal Standard	13C5-PFHxA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.06131 x + -3.95799e-4 (r = 0.99951) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	126.25	132.93	105.3
3	KY34	L2	True	252.50	253.12	100.3
4	KY35	L3	True	505.00	546.79	108.3
5	KY36	L4	True	1010.00	956.02	94.7
6	KY37	L5	True	2525.00	2264.58	89.7
7	KY38	L6	True	10100.00	10234.11	101.3
8	KY39	L7	True	25250.00	25381.21	100.5



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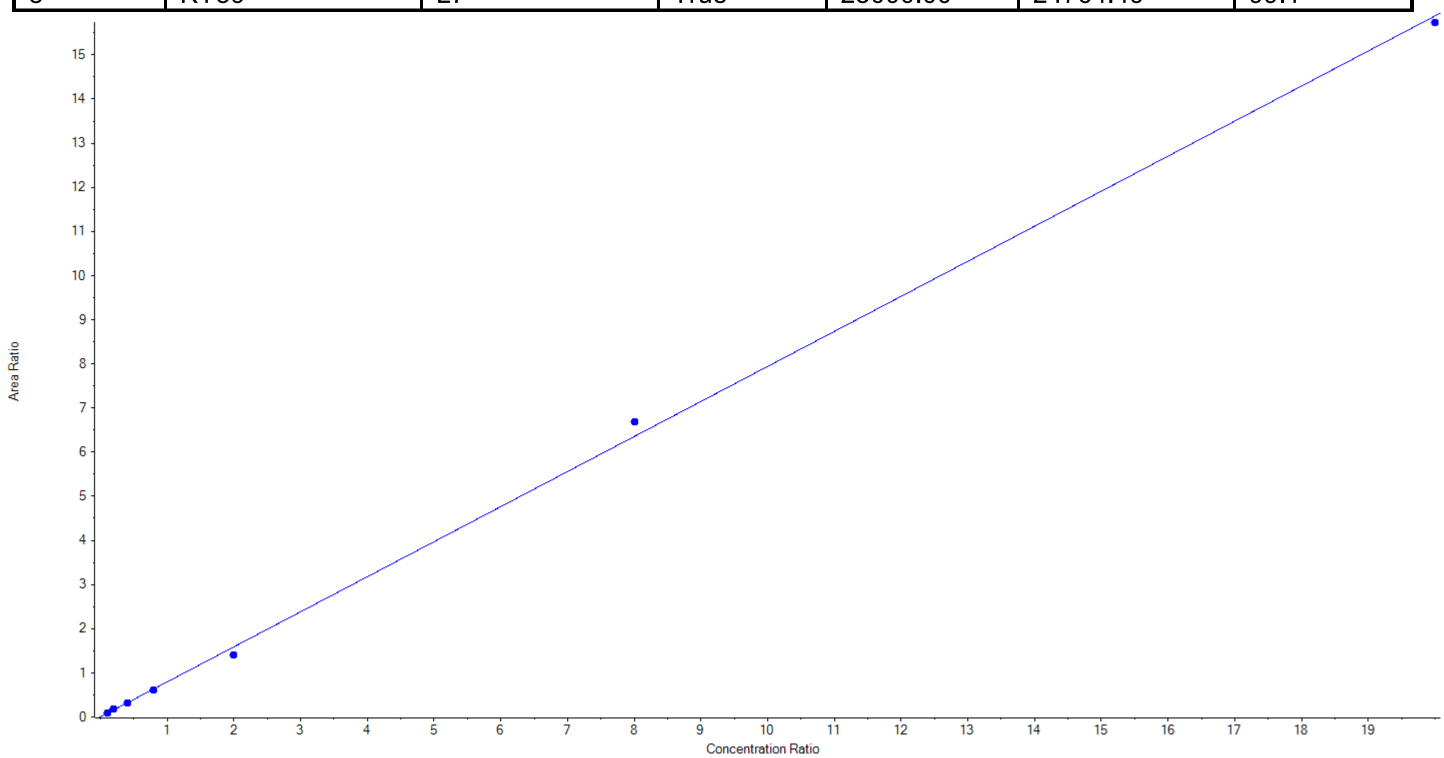
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFHpA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	363.0 / 319.0	**Result Table**	20-0502
Internal Standard	13C4-PFHpA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.79404 x + 0.00187 (r = 0.99907) (weighting: 1 / x) r^2:0.9981

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	126.05	100.8
3	KY34	L2	True	250.00	271.63	108.7
4	KY35	L3	True	500.00	507.33	101.5
5	KY36	L4	True	1000.00	962.18	96.2
6	KY37	L5	True	2500.00	2211.10	88.4
7	KY38	L6	True	10000.00	10532.22	105.3
8	KY39	L7	True	25000.00	24764.49	99.1



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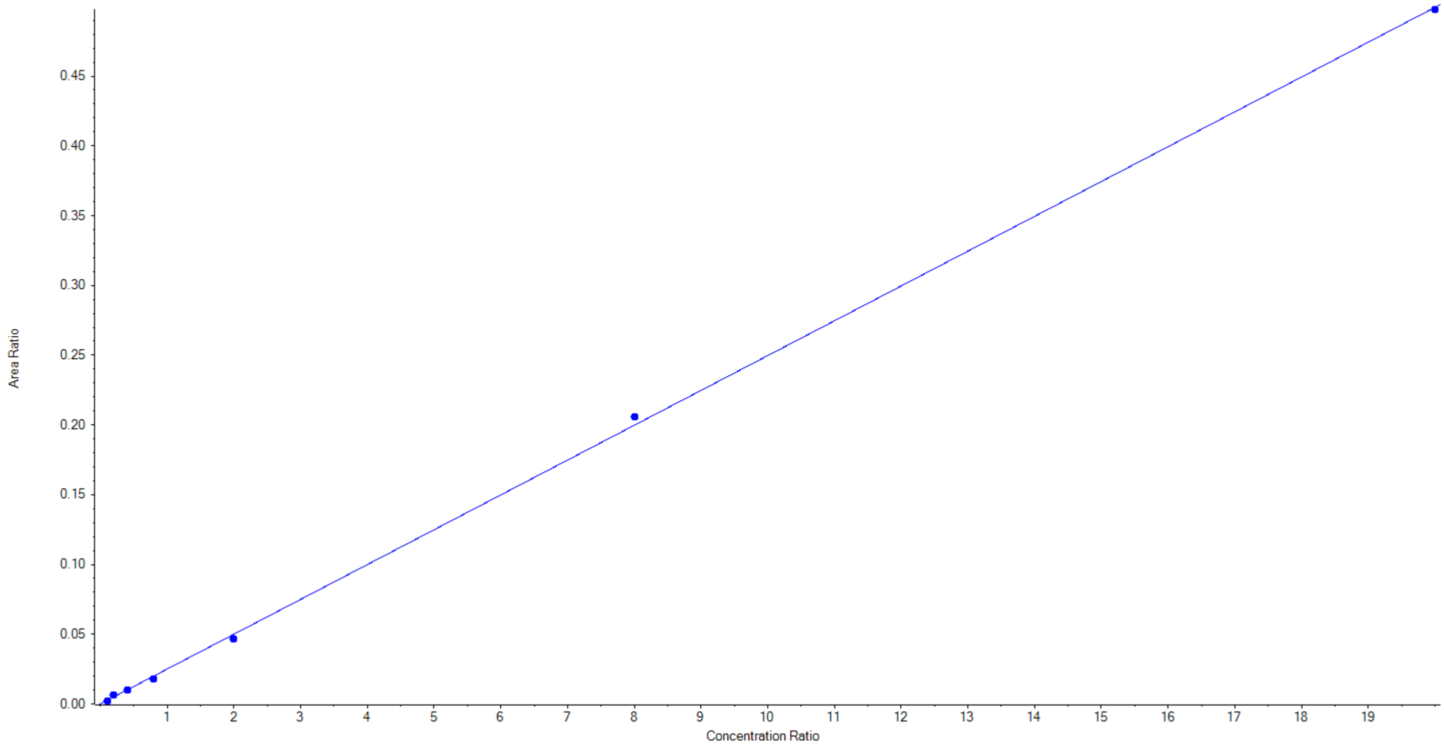
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFHpA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	363.0 / 169.0	**Result Table**	20-0502
Internal Standard	13C4-PFHpA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.02496 x + 1.06907e-4 (r = 0.99935) (weighting: 1 / x) r^2:0.9987

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	113.54	90.8
3	KY34	L2	True	250.00	312.68	125.1
4	KY35	L3	True	500.00	488.07	97.6
5	KY36	L4	True	1000.00	906.79	90.7
6	KY37	L5	True	2500.00	2326.77	93.1
7	KY38	L6	True	10000.00	10304.87	103.1
8	KY39	L7	True	25000.00	24922.28	99.7



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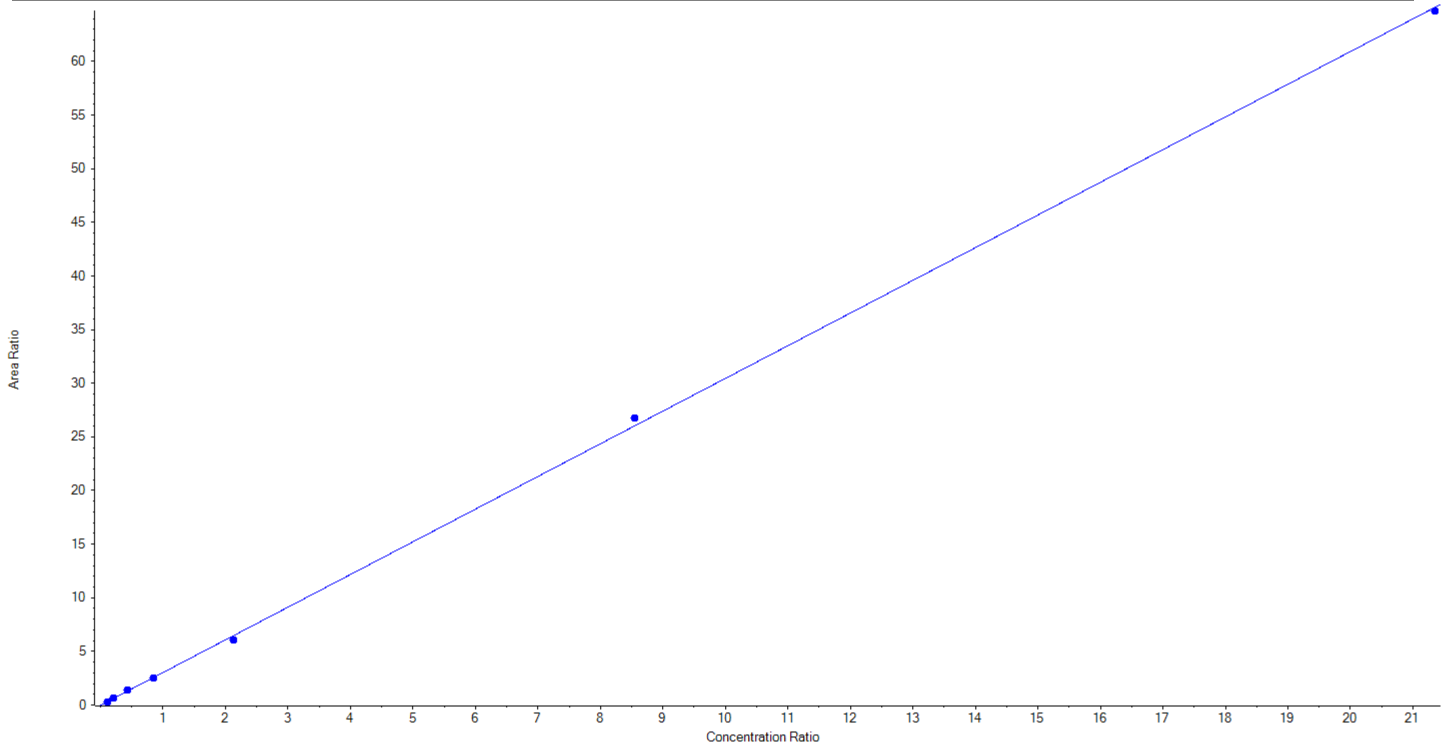
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFHxS_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	399.0 / 80.0	**Result Table**	20-0502
Internal Standard	13C3-PFHxS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 3.04699 x + -0.01705 (r = 0.99968) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	126.25	123.18	97.6
3	KY34	L2	True	252.50	256.71	101.7
4	KY35	L3	True	505.00	539.76	106.9
5	KY36	L4	True	1010.00	993.47	98.4
6	KY37	L5	True	2525.00	2353.69	93.2
7	KY38	L6	True	10100.00	10385.33	102.8
8	KY39	L7	True	25250.00	25116.60	99.5



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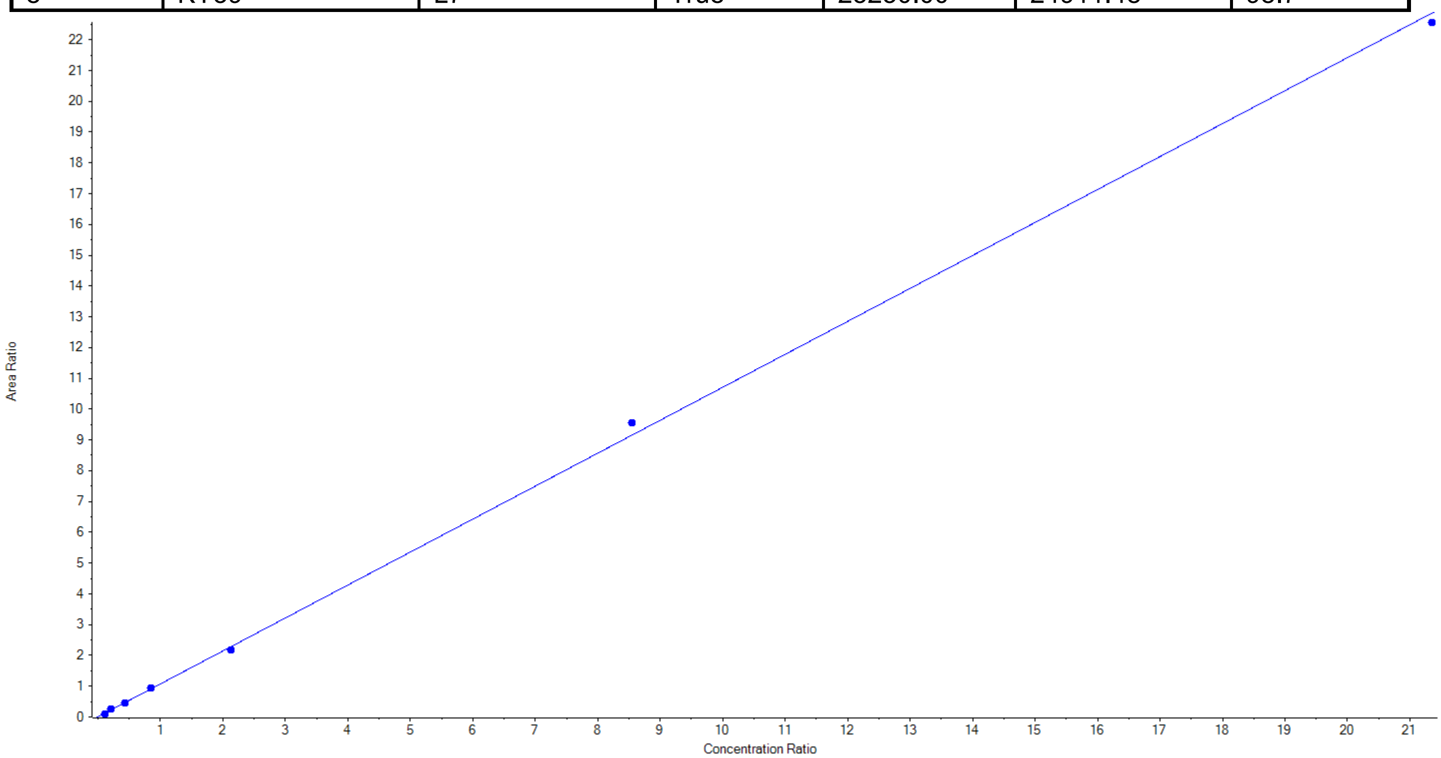
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFHxS_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	399.0 / 99.0	**Result Table**	20-0502
Internal Standard	13C3-PFHxS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 1.07051\ x + 0.00518$ ($r = 0.99956$) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	126.25	116.96	92.6
3	KY34	L2	True	252.50	267.00	105.7
4	KY35	L3	True	505.00	514.13	101.8
5	KY36	L4	True	1010.00	1030.40	102.0
6	KY37	L5	True	2525.00	2394.37	94.8
7	KY38	L6	True	10100.00	10534.40	104.3
8	KY39	L7	True	25250.00	24911.48	98.7



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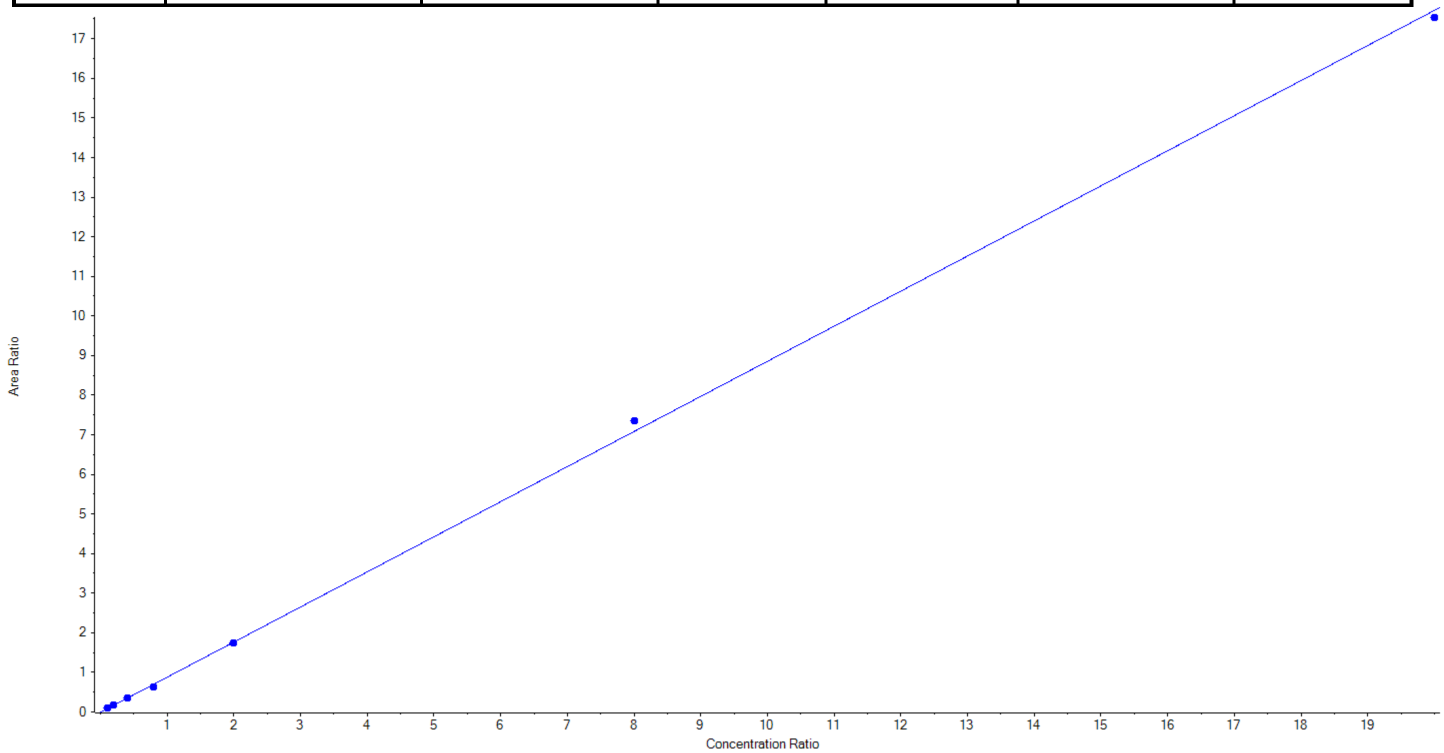
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFOA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	413.0 / 369.0	**Result Table**	20-0502
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.88620 x + -0.00703 (r = 0.99954) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	139.87	111.9
3	KY34	L2	True	250.00	241.76	96.7
4	KY35	L3	True	500.00	506.55	101.3
5	KY36	L4	True	1000.00	888.36	88.8
6	KY37	L5	True	2500.00	2457.81	98.3
7	KY38	L6	True	10000.00	10395.84	104.0
8	KY39	L7	True	25000.00	24744.80	99.0



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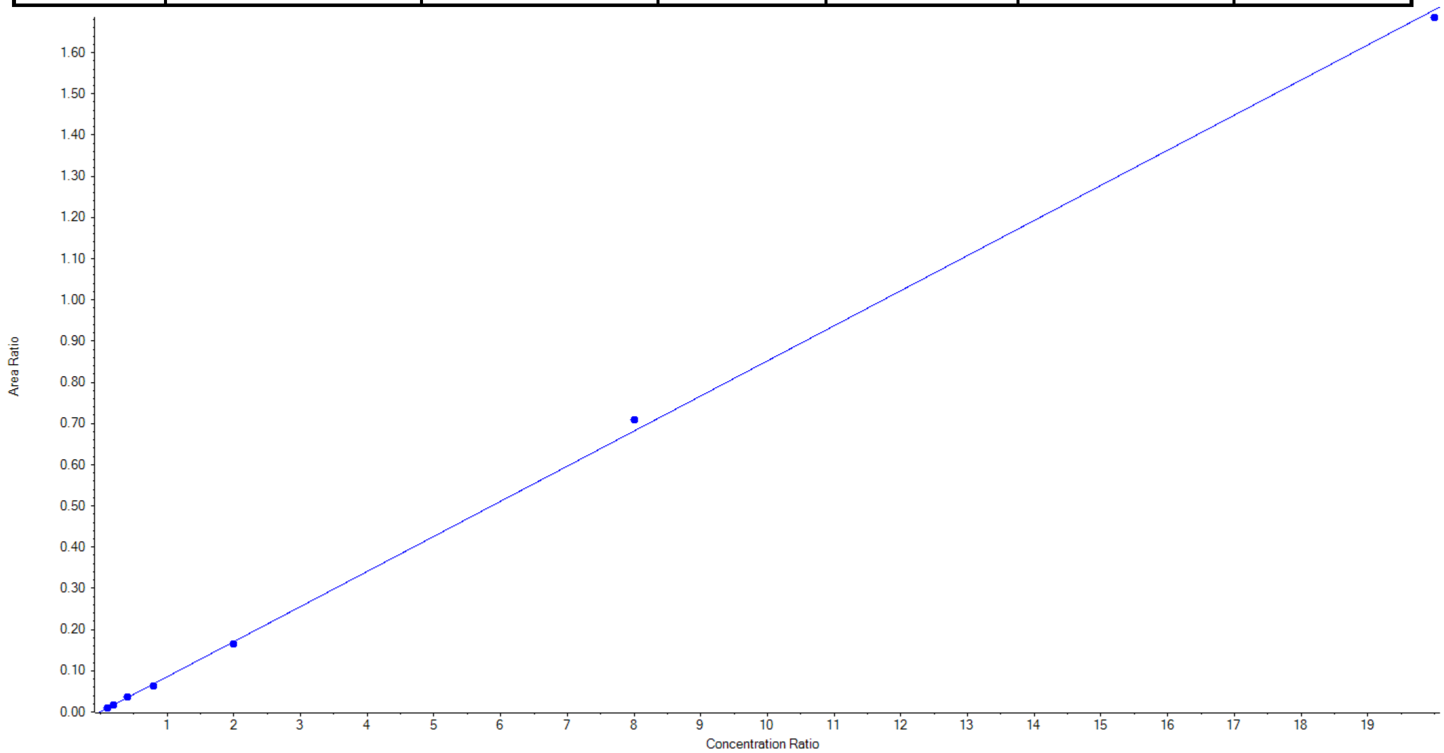
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFOA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	413.0 / 169.0	**Result Table**	20-0502
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.08517 x + 3.74370e-4 (r = 0.99955) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	122.68	98.1
3	KY34	L2	True	250.00	257.79	103.1
4	KY35	L3	True	500.00	538.77	107.8
5	KY36	L4	True	1000.00	915.49	91.6
6	KY37	L5	True	2500.00	2412.90	96.5
7	KY38	L6	True	10000.00	10401.88	104.0
8	KY39	L7	True	25000.00	24725.48	98.9



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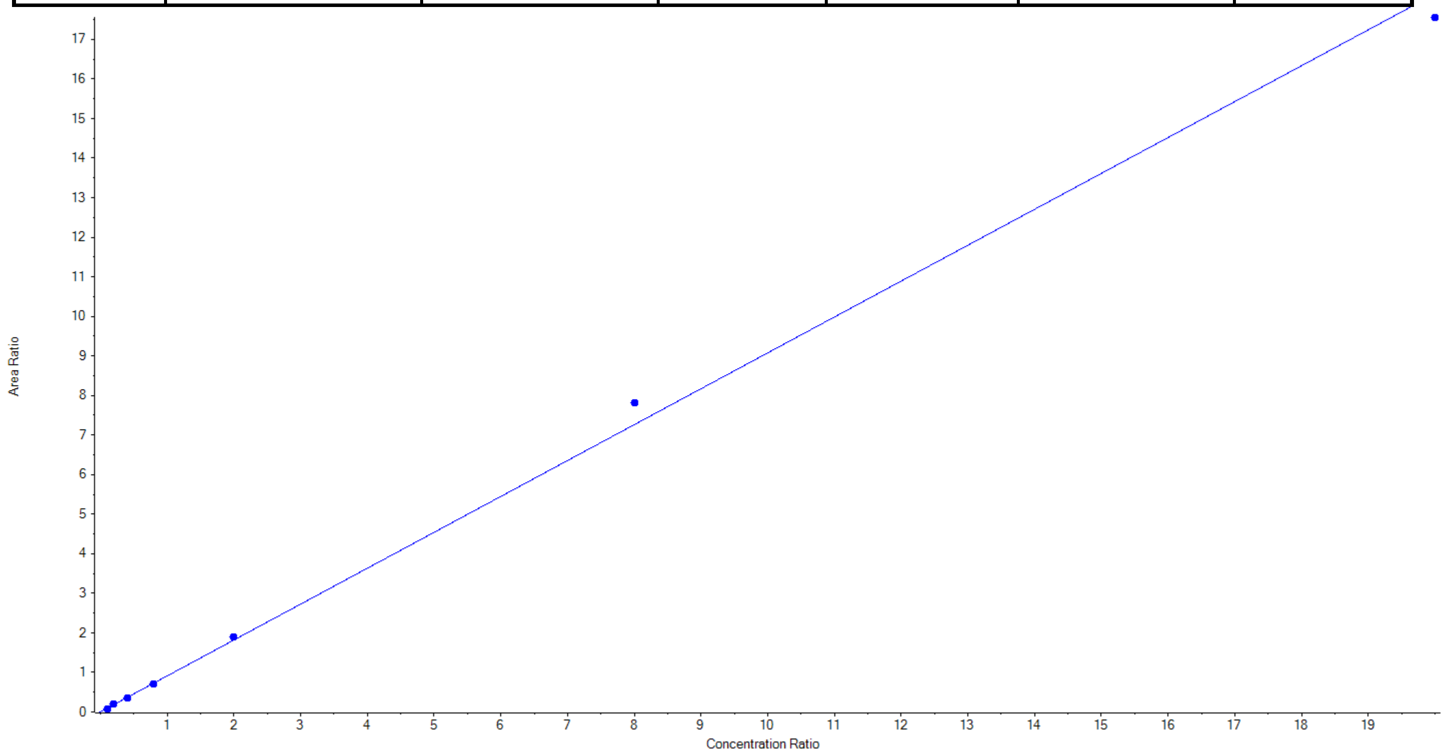
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFNA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	463.0 / 419.0	**Result Table**	20-0502
Internal Standard	13C9-PFNA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.90715\ x + 0.00591$ ($r = 0.99873$) (weighting: 1 / x) r^2:0.9975

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	113.73	91.0
3	KY34	L2	True	250.00	268.41	107.4
4	KY35	L3	True	500.00	475.85	95.2
5	KY36	L4	True	1000.00	984.17	98.4
6	KY37	L5	True	2500.00	2593.45	103.7
7	KY38	L6	True	10000.00	10761.46	107.6
8	KY39	L7	True	25000.00	24177.92	96.7



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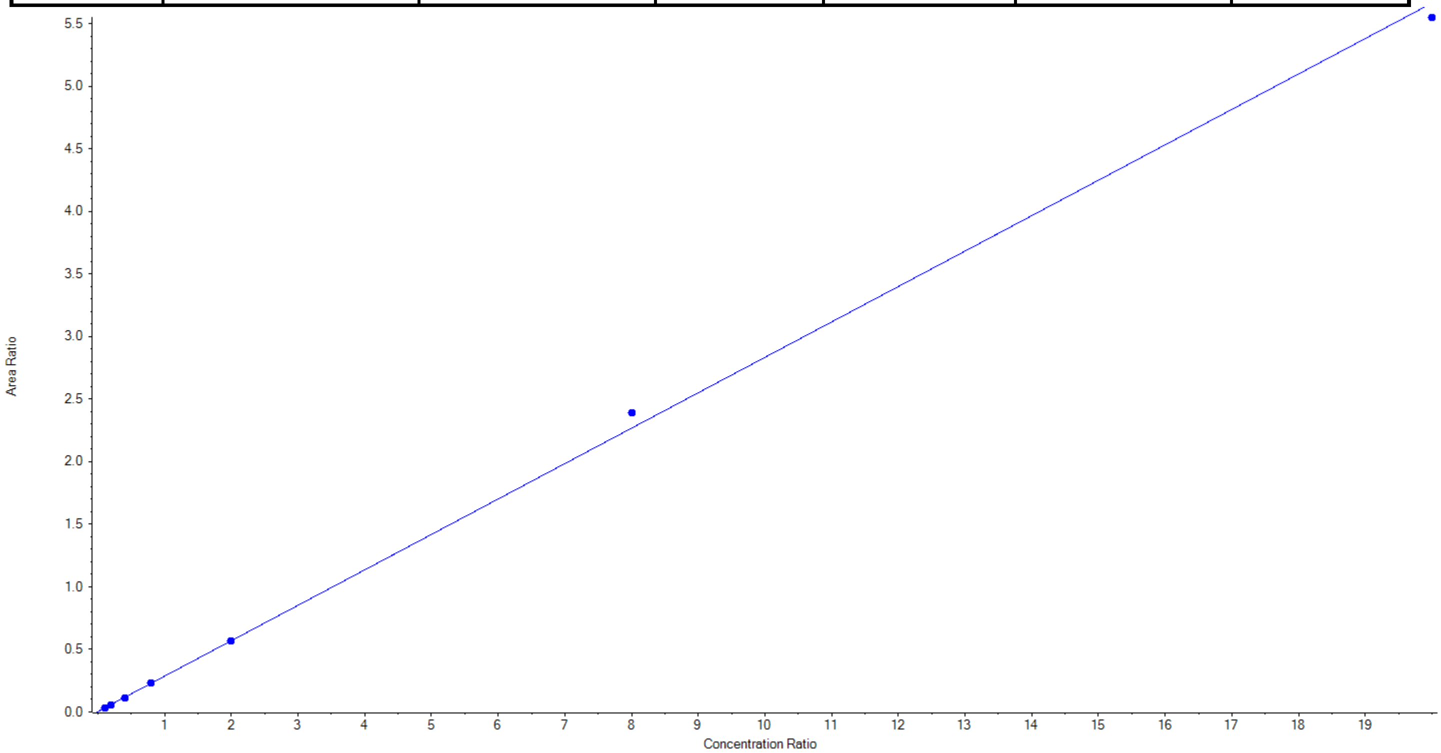
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFNA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	463.0 / 219.0	**Result Table**	20-0502
Internal Standard	13C9-PFNA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.28303 x + 0.00381$ ($r = 0.99942$) (weighting: $1 / x$) r^2:0.9988

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	131.70	105.4
3	KY34	L2	True	250.00	238.58	95.4
4	KY35	L3	True	500.00	475.95	95.2
5	KY36	L4	True	1000.00	1014.29	101.4
6	KY37	L5	True	2500.00	2479.76	99.2
7	KY38	L6	True	10000.00	10543.54	105.4
8	KY39	L7	True	25000.00	24491.19	98.0



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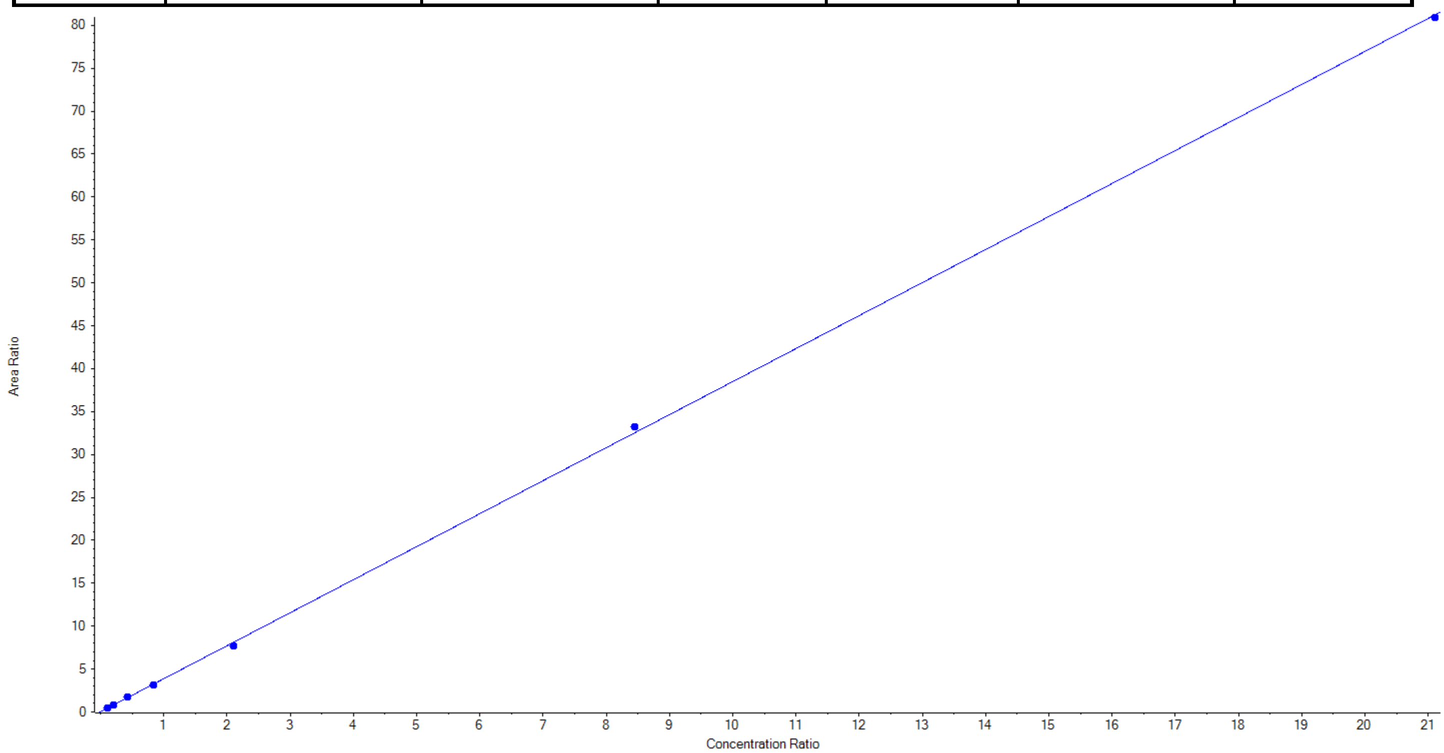
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFOS_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	499.0 / 80.0	**Result Table**	20-0502
Internal Standard	13C8-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 3.84637 x + 0.02579 (r = 0.99980) (weighting: 1 / x) r^2:0.9996

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	126.25	127.38	100.9
3	KY34	L2	True	252.50	256.60	101.6
4	KY35	L3	True	505.00	527.60	104.5
5	KY36	L4	True	1010.00	970.25	96.1
6	KY37	L5	True	2525.00	2398.69	95.0
7	KY38	L6	True	10100.00	10335.08	102.3
8	KY39	L7	True	25250.00	25153.15	99.6



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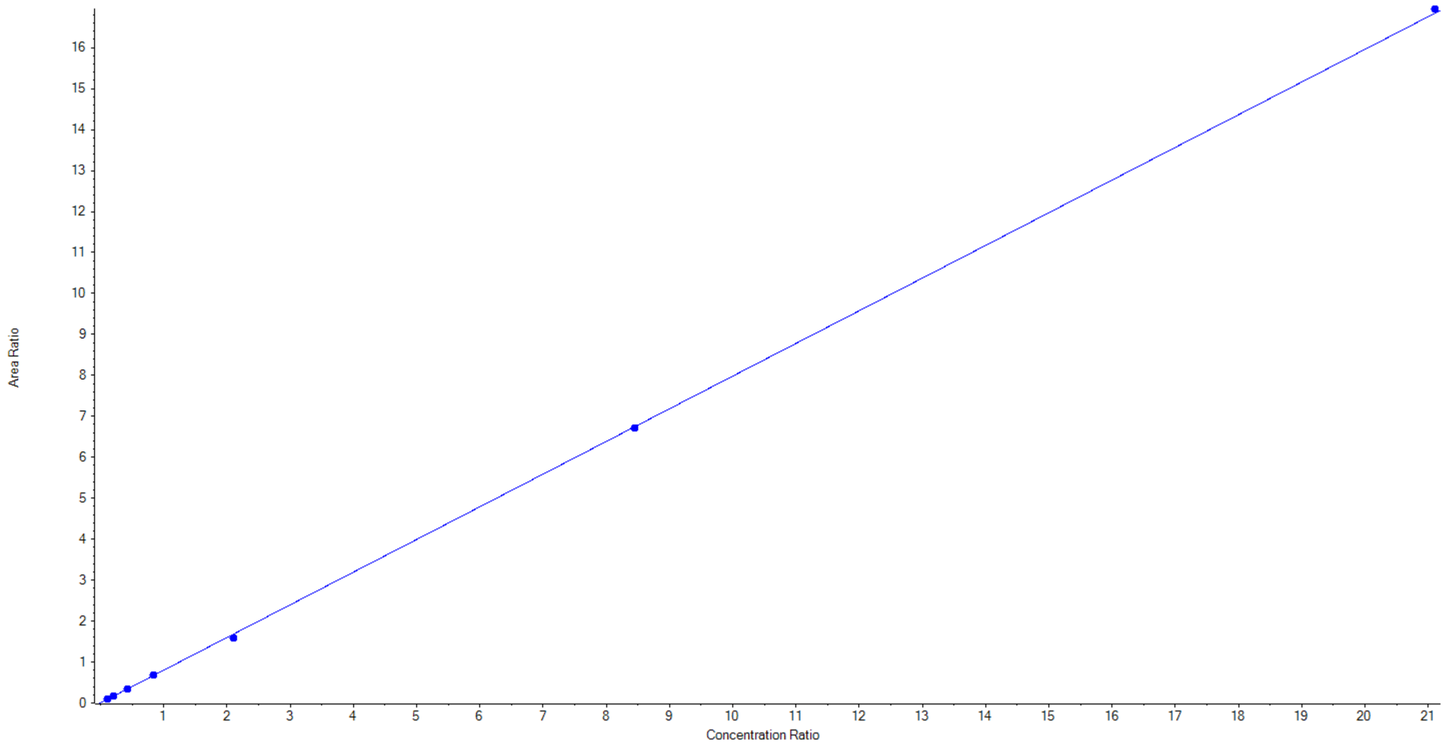
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFOS_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	499.0 / 99.0	**Result Table**	20-0502
Internal Standard	13C8-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.79776 x + 0.00463 (r = 0.99988) (weighting: 1 / x) r^2:0.9998

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	126.25	127.92	101.3
3	KY34	L2	True	252.50	262.63	104.0
4	KY35	L3	True	505.00	505.90	100.2
5	KY36	L4	True	1010.00	1005.55	99.6
6	KY37	L5	True	2525.00	2387.42	94.6
7	KY38	L6	True	10100.00	10077.64	99.8
8	KY39	L7	True	25250.00	25401.69	100.6



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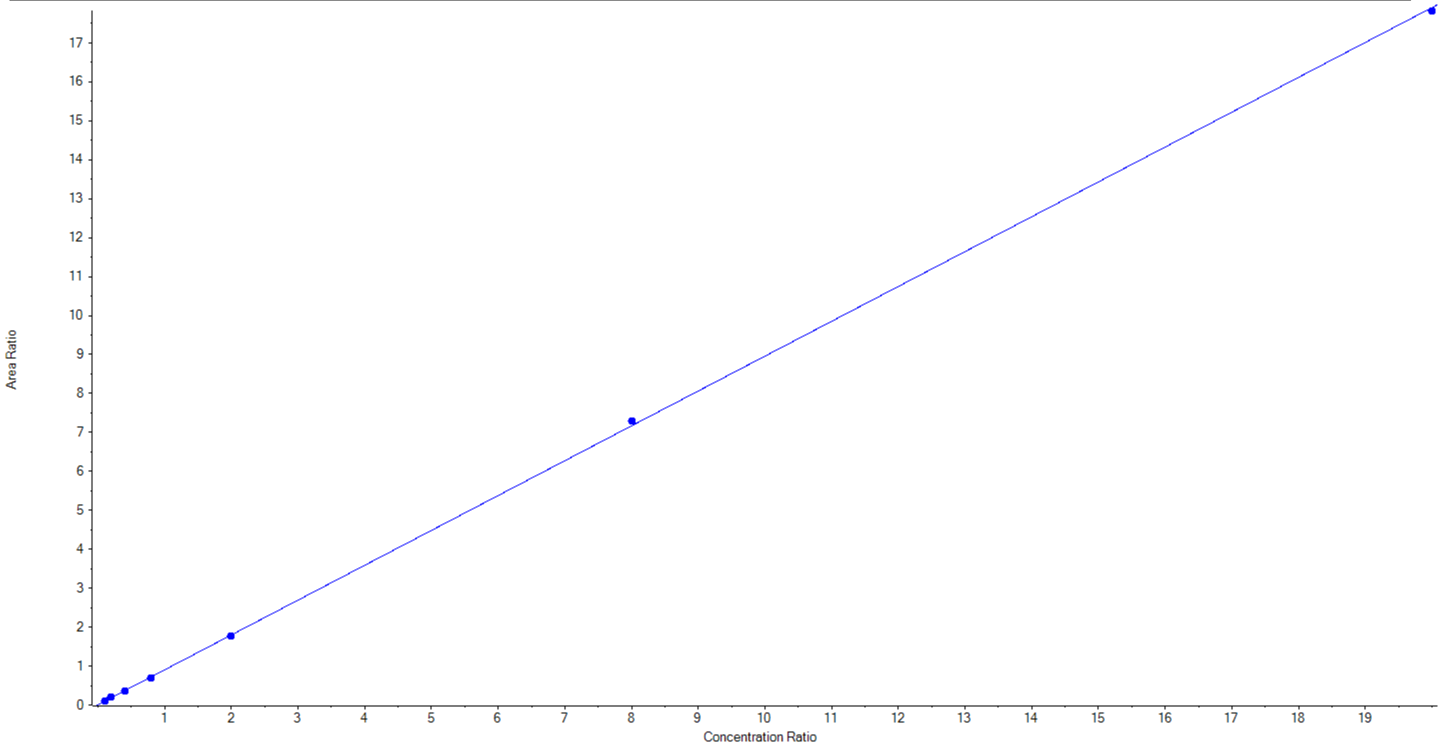
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFDA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	513.0 / 469.0	**Result Table**	20-0502
Internal Standard	13C6-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.89488 x + 0.00946 (r = 0.99993) (weighting: 1 / x) r^2:0.9999

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	124.48	99.6
3	KY34	L2	True	250.00	257.29	102.9
4	KY35	L3	True	500.00	500.41	100.1
5	KY36	L4	True	1000.00	973.01	97.3
6	KY37	L5	True	2500.00	2472.54	98.9
7	KY38	L6	True	10000.00	10170.81	101.7
8	KY39	L7	True	25000.00	24876.46	99.5



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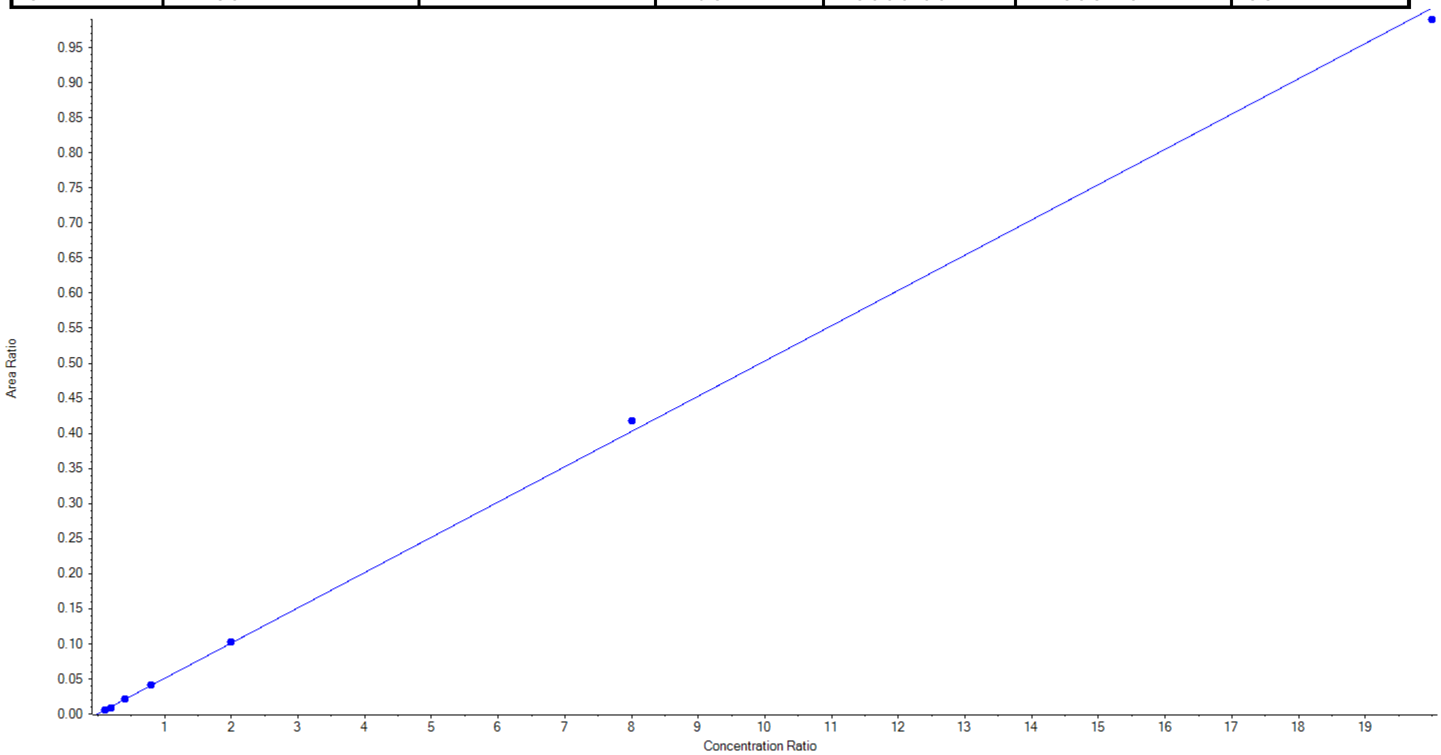
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFDA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	513.0 / 219.0	**Result Table**	20-0502
Internal Standard	13C6-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.05028 x + 5.79079e-4 (r = 0.99953) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	139.77	111.8
3	KY34	L2	True	250.00	197.13	78.9
4	KY35	L3	True	500.00	514.84	103.0
5	KY36	L4	True	1000.00	1030.70	103.1
6	KY37	L5	True	2500.00	2532.01	101.3
7	KY38	L6	True	10000.00	10362.06	103.6
8	KY39	L7	True	25000.00	24598.49	98.4



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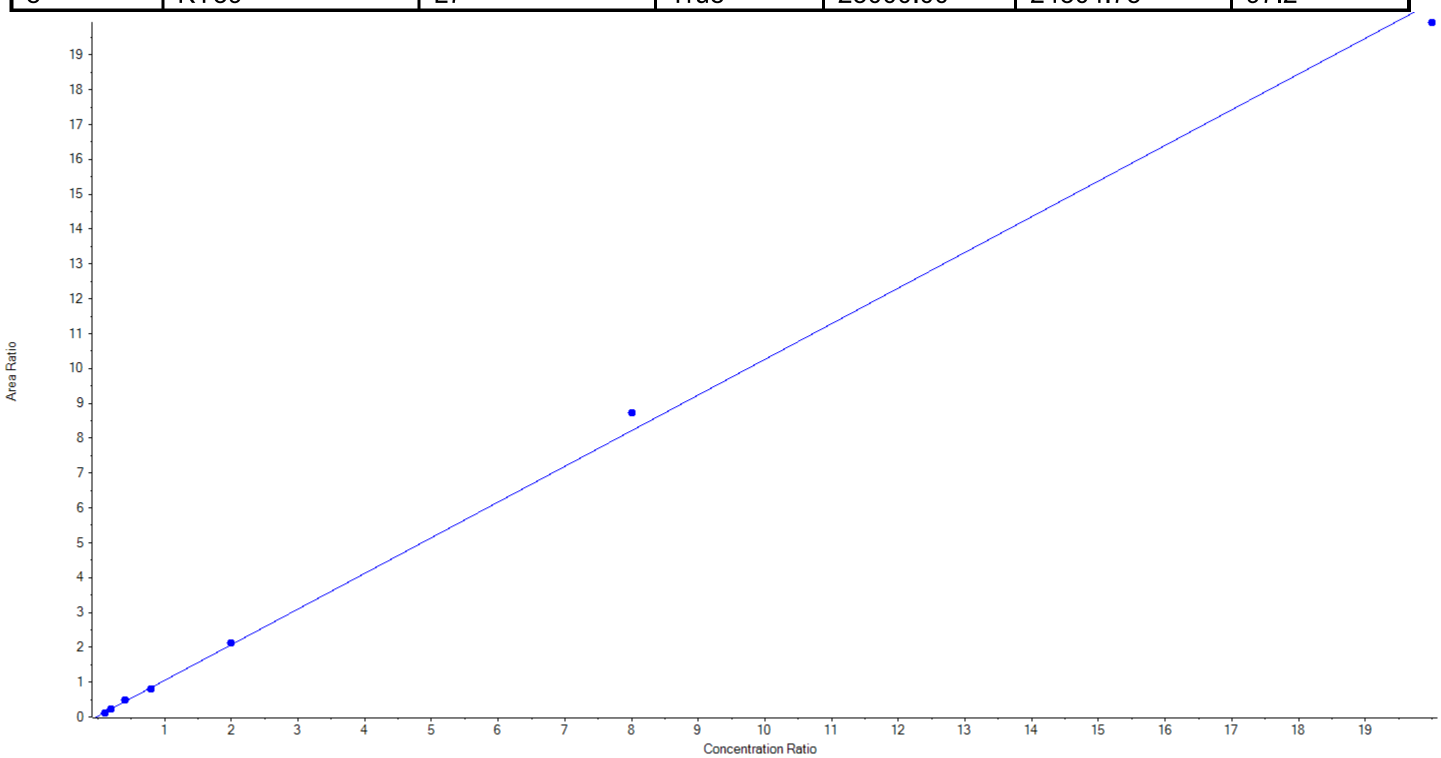
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFUnA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	563.0 / 519.0	**Result Table**	20-0502
Internal Standard	13C7-PFUnA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 1.02352 x + 0.02761$ ($r = 0.99901$) (weighting: 1 / x) r^2:0.9980

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	112.13	89.7
3	KY34	L2	True	250.00	244.93	98.0
4	KY35	L3	True	500.00	554.54	110.9
5	KY36	L4	True	1000.00	953.26	95.3
6	KY37	L5	True	2500.00	2560.58	102.4
7	KY38	L6	True	10000.00	10644.81	106.5
8	KY39	L7	True	25000.00	24304.75	97.2



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Calibration Summary Report

Created with Analyst Reporter
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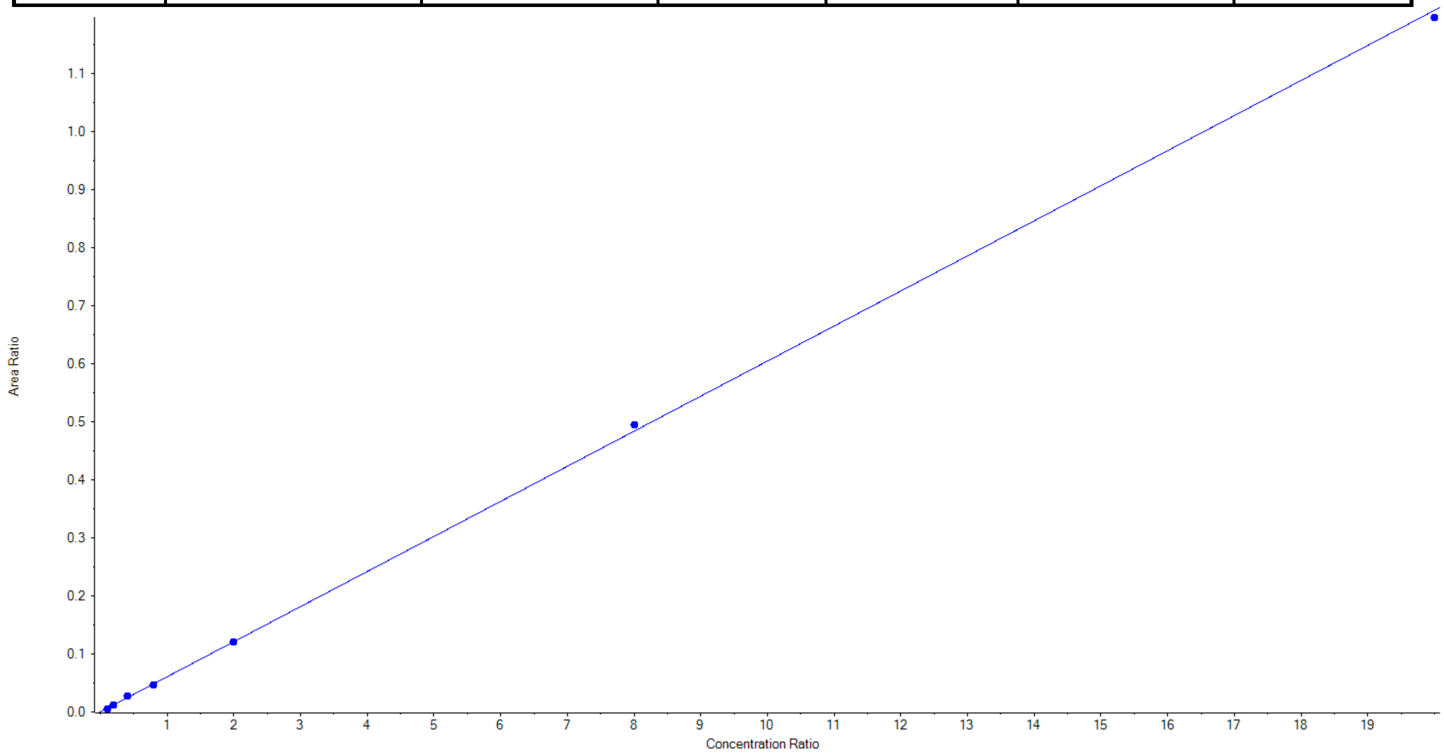
Analyte Name	PFUnA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	563.0 / 269.0	**Result Table**	20-0502
Internal Standard	13C7-PFUnA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.06043\,x + 3.36253e\text{-}4$ (r = 0.99963) (weighting: 1 / x) r^2:0.9993

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	105.79	84.6
3	KY34	L2	True	250.00	257.38	103.0
4	KY35	L3	True	500.00	580.05	116.0
5	KY36	L4	True	1000.00	953.61	95.4
6	KY37	L5	True	2500.00	2490.73	99.6
7	KY38	L6	True	10000.00	10244.69	102.5
8	KY39	L7	True	25000.00	24742.74	99.0



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Calibration Summary Report

Created with Analyst Reporter
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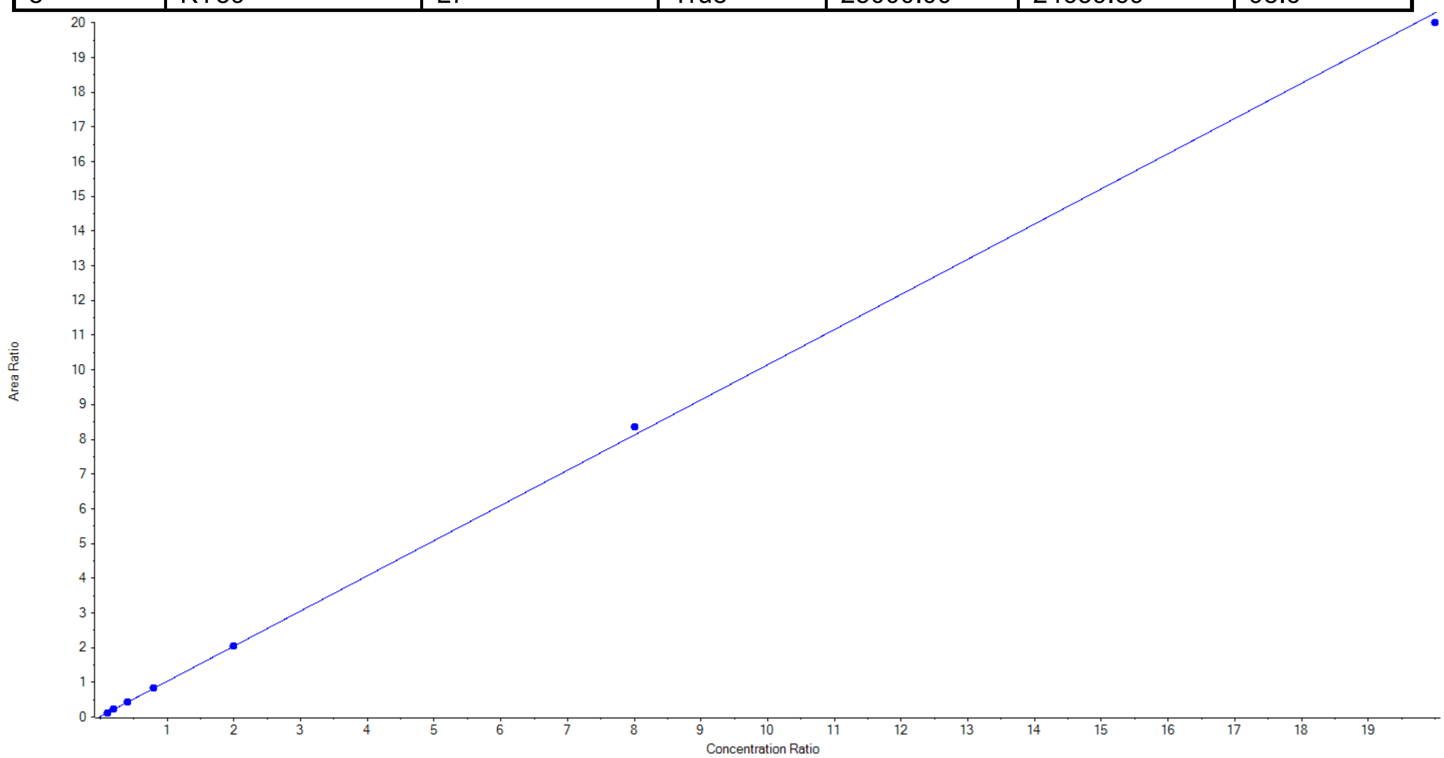
Analyte Name	PFDoA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	613.0 / 569.0	**Result Table**	20-0502
Internal Standard	13C2-PFDoA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 1.01348\ x + 0.01513$ ($r = 0.99978$) (weighting: 1 / x) r^2:0.9996

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	112.96	90.4
3	KY34	L2	True	250.00	252.72	101.1
4	KY35	L3	True	500.00	524.28	104.9
5	KY36	L4	True	1000.00	1016.49	101.7
6	KY37	L5	True	2500.00	2510.50	100.4
7	KY38	L6	True	10000.00	10298.38	103.0
8	KY39	L7	True	25000.00	24659.69	98.6



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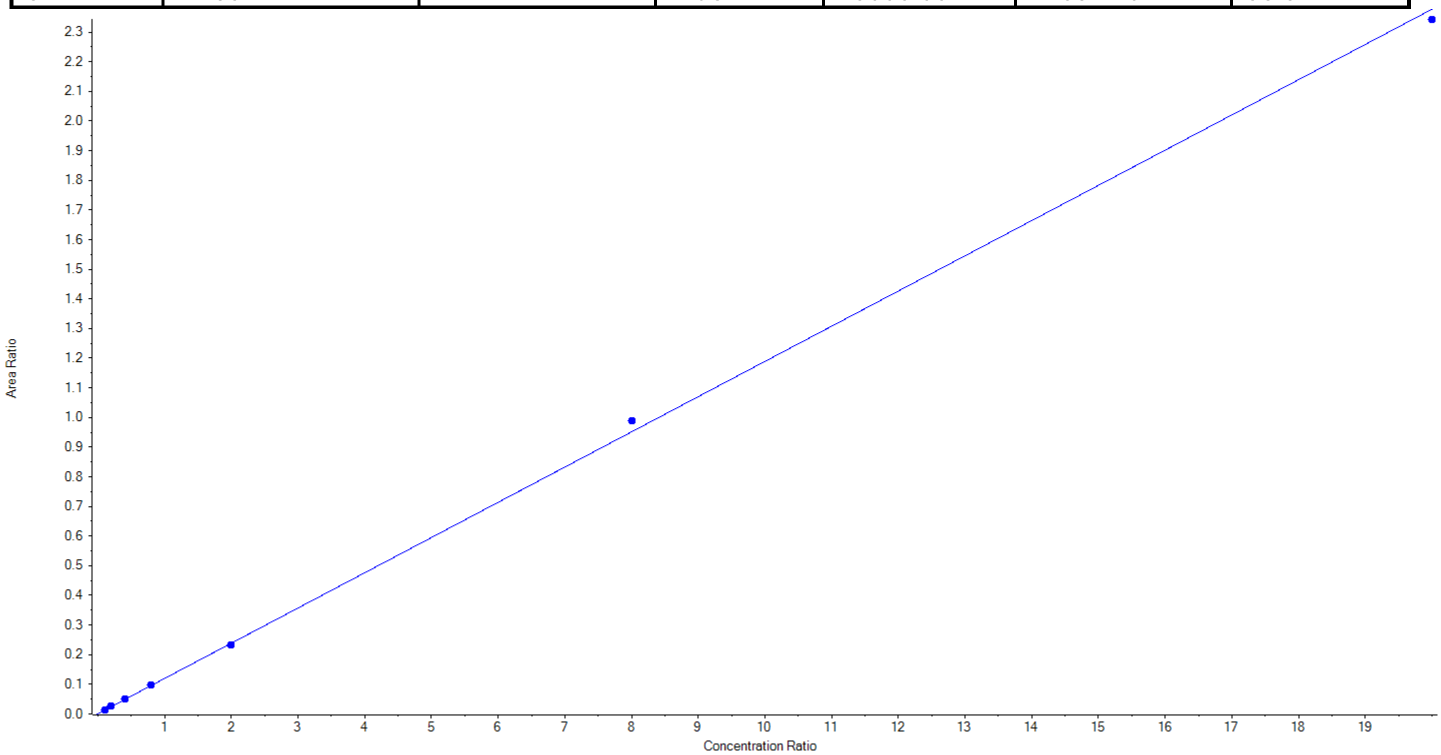
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFDoA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	613.0 / 319.0	**Result Table**	20-0502
Internal Standard	13C2-PFDoA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.11880 x + 0.00116 (r = 0.99964) (weighting: 1 / x) r^2:0.9993

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	113.75	91.0
3	KY34	L2	True	250.00	257.68	103.1
4	KY35	L3	True	500.00	522.32	104.5
5	KY36	L4	True	1000.00	1018.69	101.9
6	KY37	L5	True	2500.00	2426.07	97.0
7	KY38	L6	True	10000.00	10401.74	104.0
8	KY39	L7	True	25000.00	24634.76	98.5



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Calibration Summary Report

Created with Analyst Reporter
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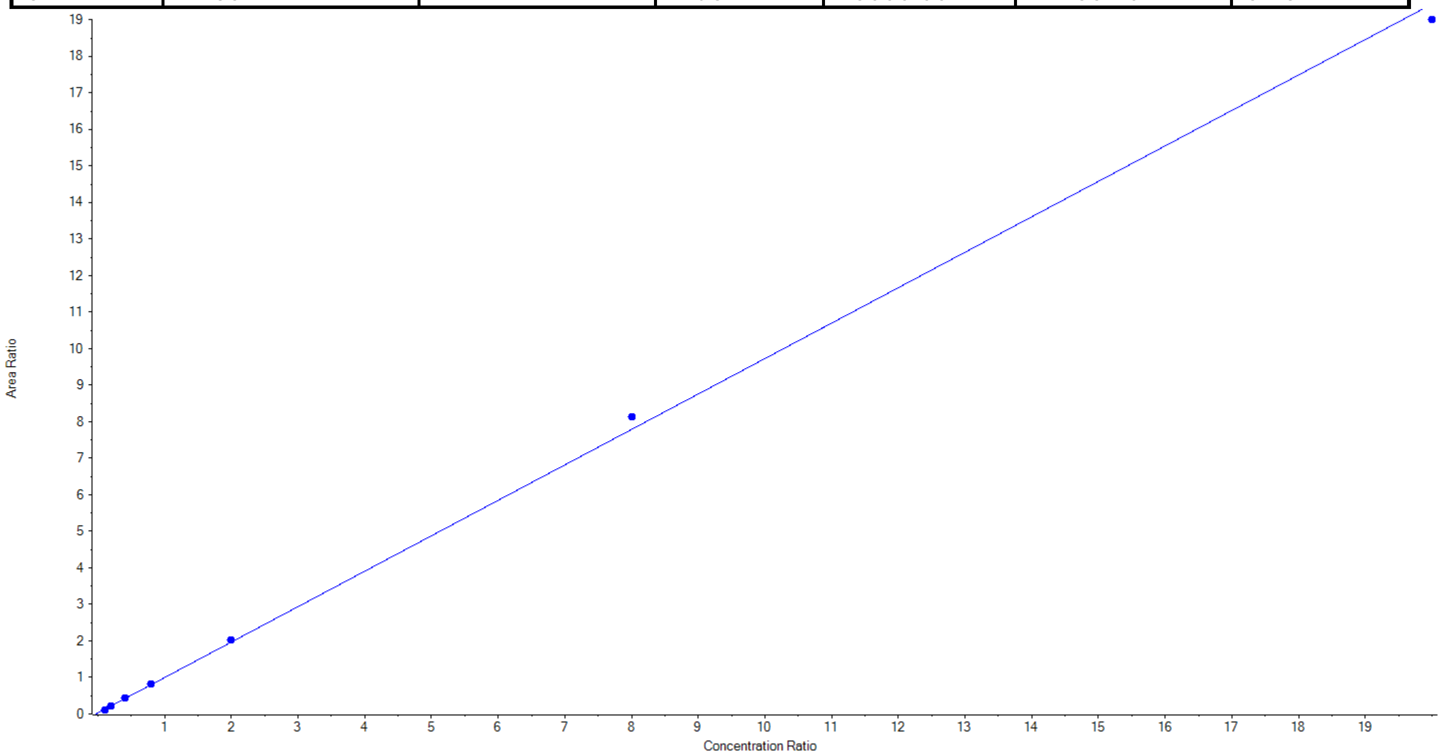
Analyte Name	PFTrDA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	663.0 / 619.0	**Result Table**	20-0502
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.97014 x + 0.02842$ ($r = 0.99948$) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	110.43	88.3
3	KY34	L2	True	250.00	244.06	97.6
4	KY35	L3	True	500.00	532.11	106.4
5	KY36	L4	True	1000.00	1024.24	102.4
6	KY37	L5	True	2500.00	2575.91	103.0
7	KY38	L6	True	10000.00	10432.54	104.3
8	KY39	L7	True	25000.00	24455.70	97.8



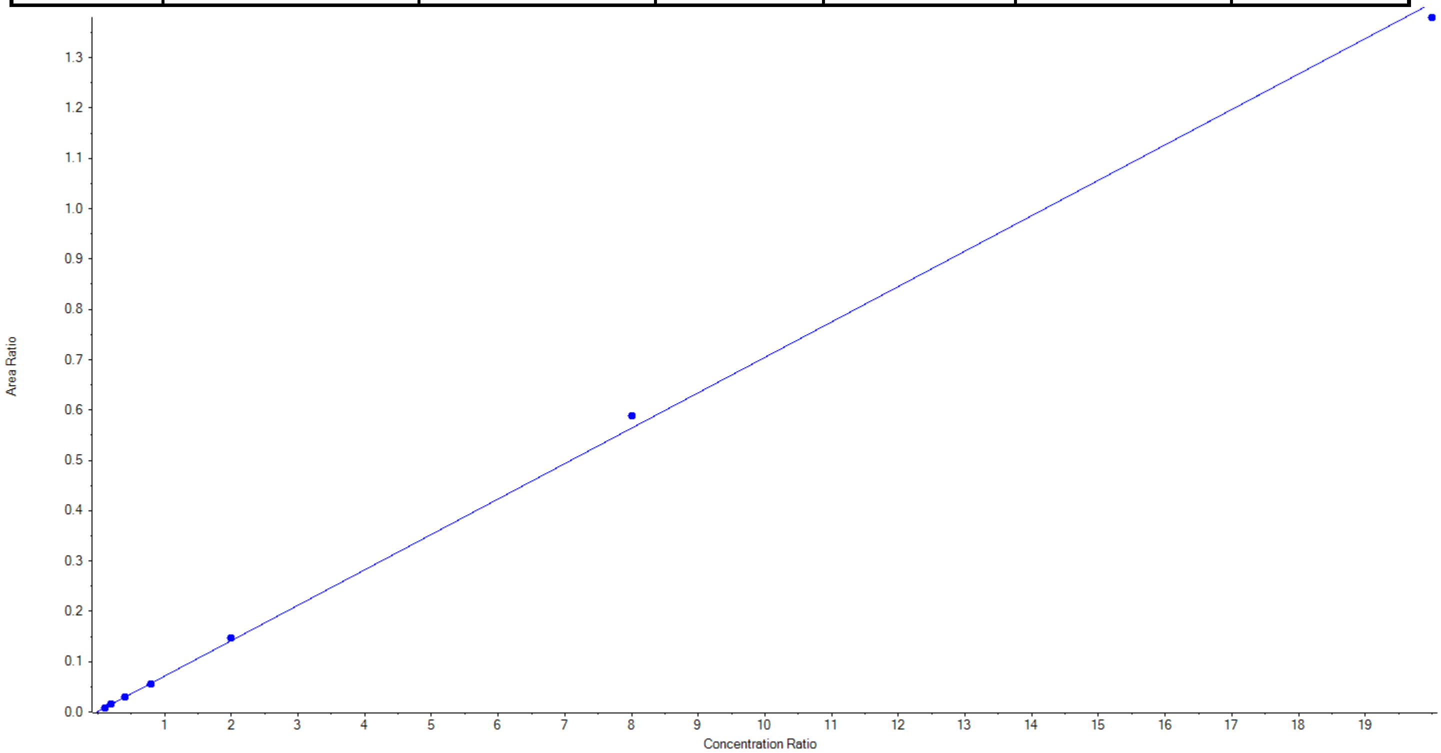
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFTrDA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	663.0 / 169.0	**Result Table**	20-0502
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.07036 x + 0.00106 (r = 0.99951) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	115.38	92.3
3	KY34	L2	True	250.00	248.91	99.6
4	KY35	L3	True	500.00	528.46	105.7
5	KY36	L4	True	1000.00	969.48	97.0
6	KY37	L5	True	2500.00	2577.47	103.1
7	KY38	L6	True	10000.00	10442.32	104.4
8	KY39	L7	True	25000.00	24492.98	98.0



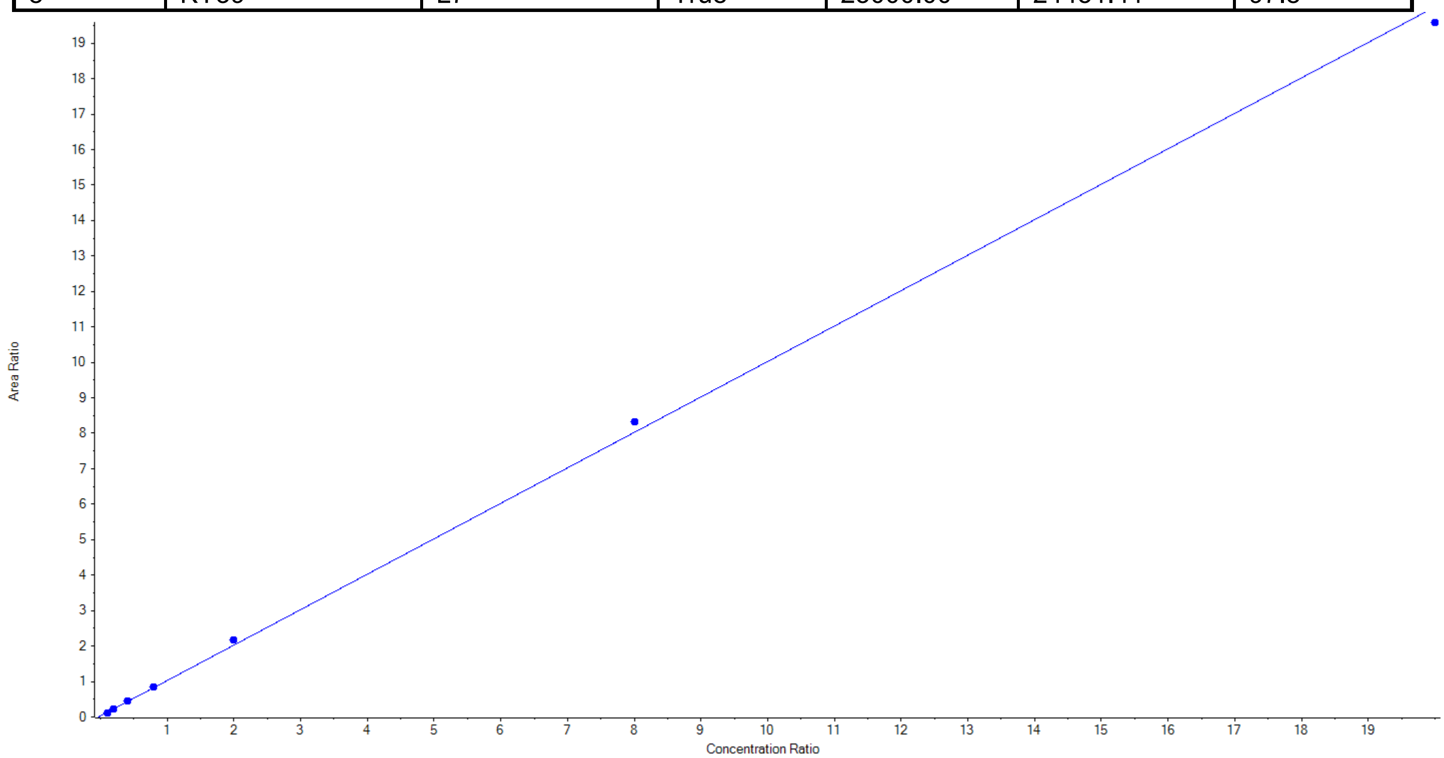
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFTeDA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	713.0 / 669.0	**Result Table**	20-0502
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.99960 x + 0.02916$ ($r = 0.99945$) (weighting: 1 / x) r^2:0.9989

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	108.98	87.2
3	KY34	L2	True	250.00	248.86	99.5
4	KY35	L3	True	500.00	522.22	104.4
5	KY36	L4	True	1000.00	1007.61	100.8
6	KY37	L5	True	2500.00	2663.35	106.5
7	KY38	L6	True	10000.00	10372.56	103.7
8	KY39	L7	True	25000.00	24451.41	97.8



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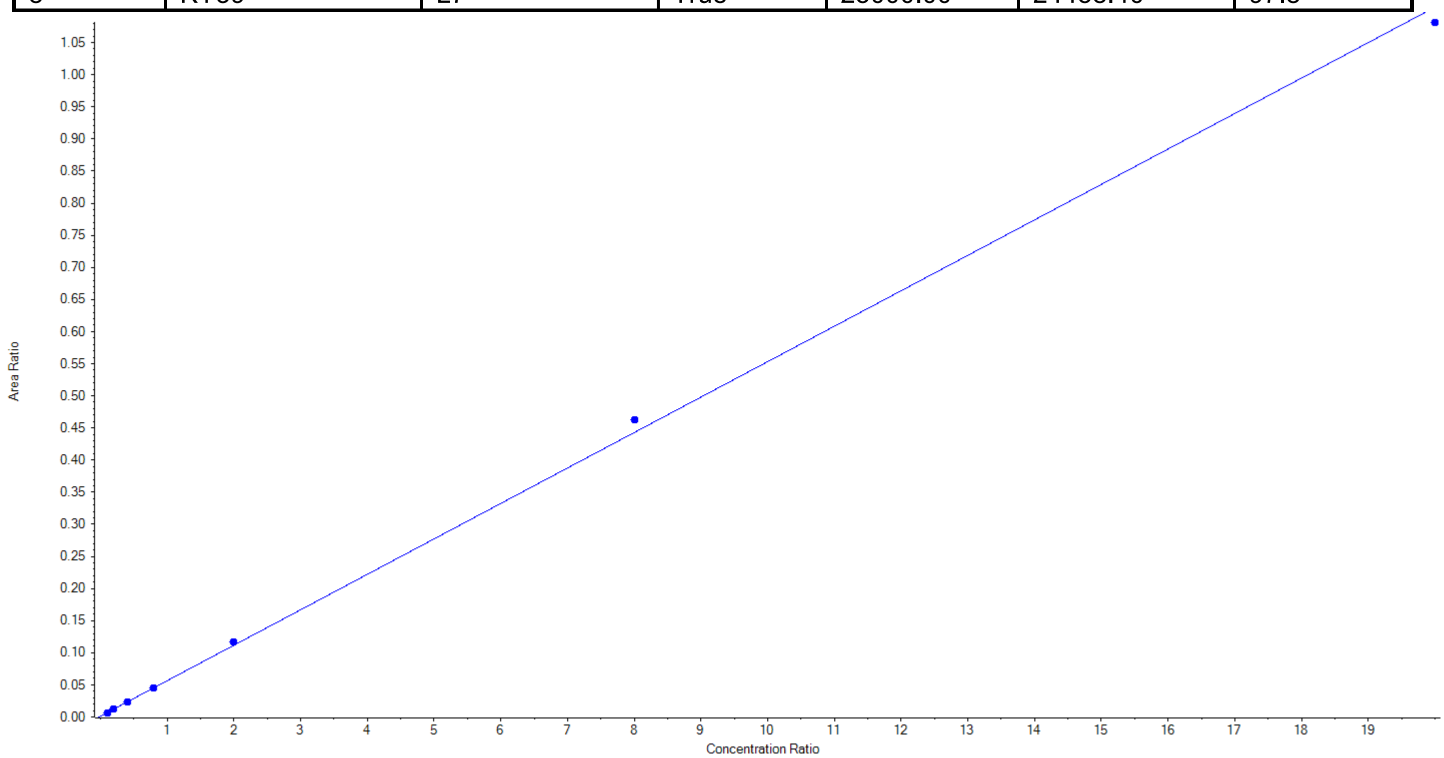
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	PFTeDA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	713.0 / 169.0	**Result Table**	20-0502
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.05519 x + 0.00140 (r = 0.99948) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	109.53	87.6
3	KY34	L2	True	250.00	263.87	105.6
4	KY35	L3	True	500.00	501.57	100.3
5	KY36	L4	True	1000.00	1002.08	100.2
6	KY37	L5	True	2500.00	2602.52	104.1
7	KY38	L6	True	10000.00	10437.03	104.4
8	KY39	L7	True	25000.00	24458.40	97.8



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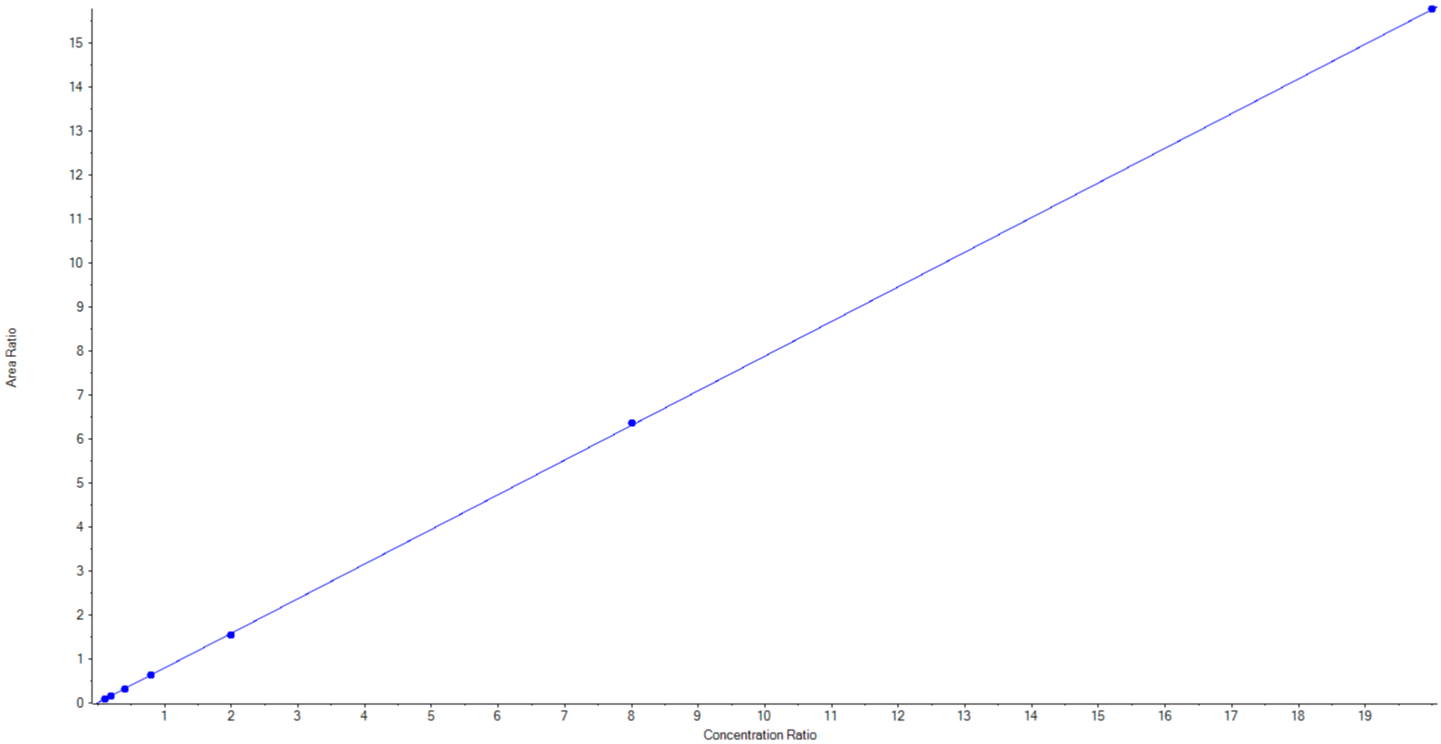
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	NMeFOSAA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	570.0 / 419.0	**Result Table**	20-0502
Internal Standard	d3-MeFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.78805 x + 0.01061 (r = 0.99994) (weighting: 1 / x) r^2:0.9999

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	132.67	106.1
3	KY34	L2	True	250.00	242.98	97.2
4	KY35	L3	True	500.00	506.03	101.2
5	KY36	L4	True	1000.00	978.29	97.8
6	KY37	L5	True	2500.00	2420.13	96.8
7	KY38	L6	True	10000.00	10075.46	100.8
8	KY39	L7	True	25000.00	25019.43	100.1



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Calibration Summary Report

Created with Analyst Reporter
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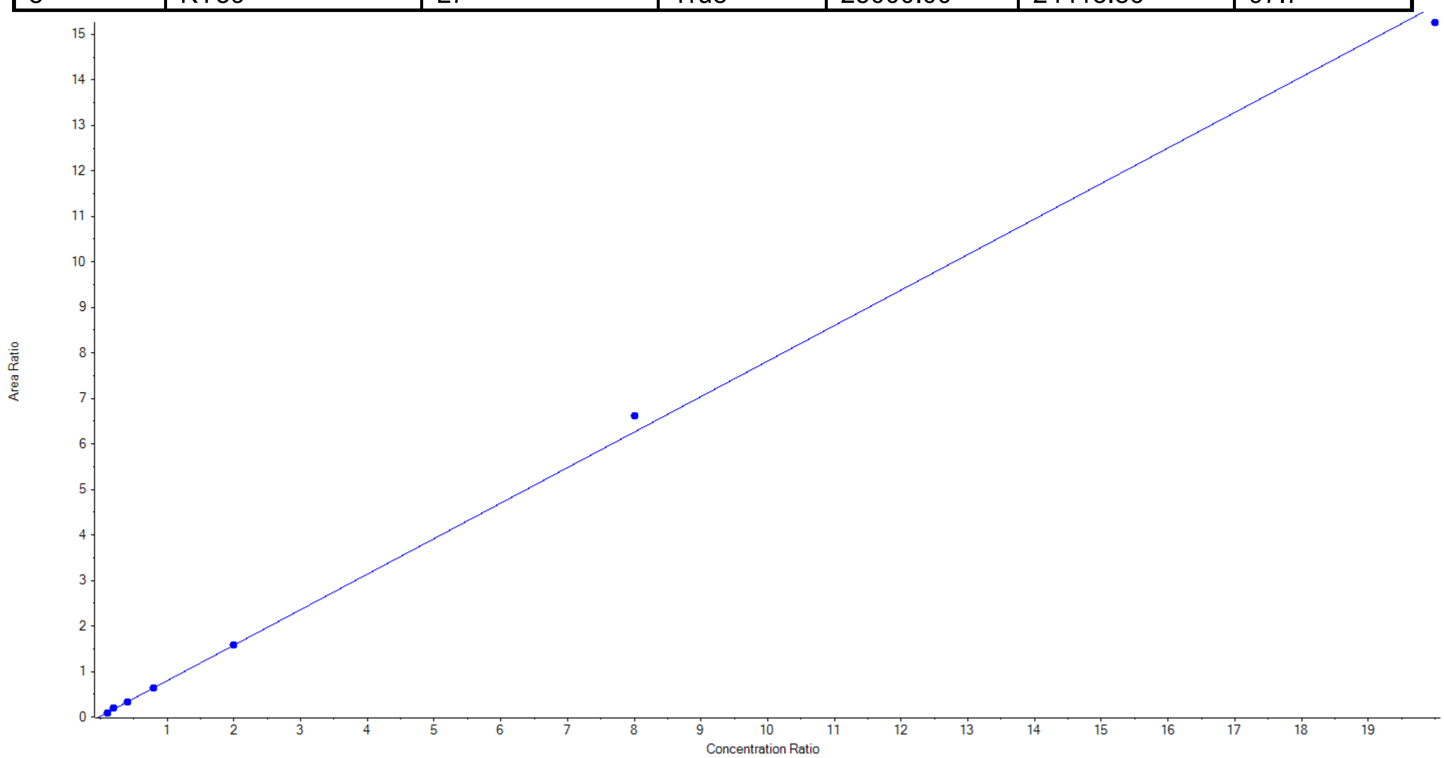
Analyte Name	NMeFOSAA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	570.0 / 512.0	**Result Table**	20-0502
Internal Standard	d3-MeFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.78040\ x + 0.01798$ ($r = 0.99913$) (weighting: $1 / x$) r^2:0.9983

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	100.65	80.5
3	KY34	L2	True	250.00	300.74	120.3
4	KY35	L3	True	500.00	482.78	96.6
5	KY36	L4	True	1000.00	986.73	98.7
6	KY37	L5	True	2500.00	2513.08	100.5
7	KY38	L6	True	10000.00	10577.15	105.8
8	KY39	L7	True	25000.00	24413.86	97.7



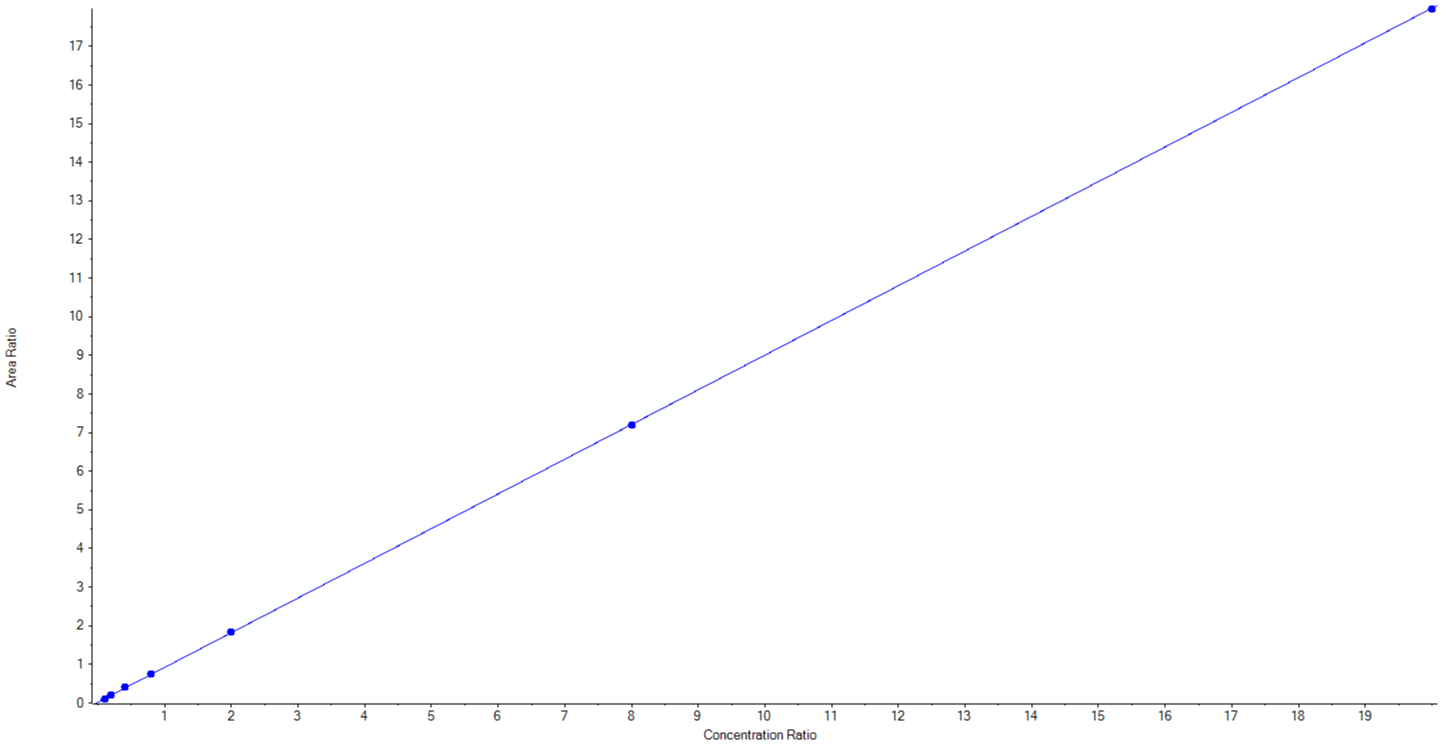
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	NEtFOSAA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	584.0 / 419.0	**Result Table**	20-0502
Internal Standard	d5-EtFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.89819 x + 0.02469 (r = 0.99996) (weighting: 1 / x) r^2:0.9999

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	116.67	93.3
3	KY34	L2	True	250.00	246.24	98.5
4	KY35	L3	True	500.00	525.78	105.2
5	KY36	L4	True	1000.00	1027.12	102.7
6	KY37	L5	True	2500.00	2517.17	100.7
7	KY38	L6	True	10000.00	9975.05	99.8
8	KY39	L7	True	25000.00	24966.99	99.9



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Calibration Summary Report

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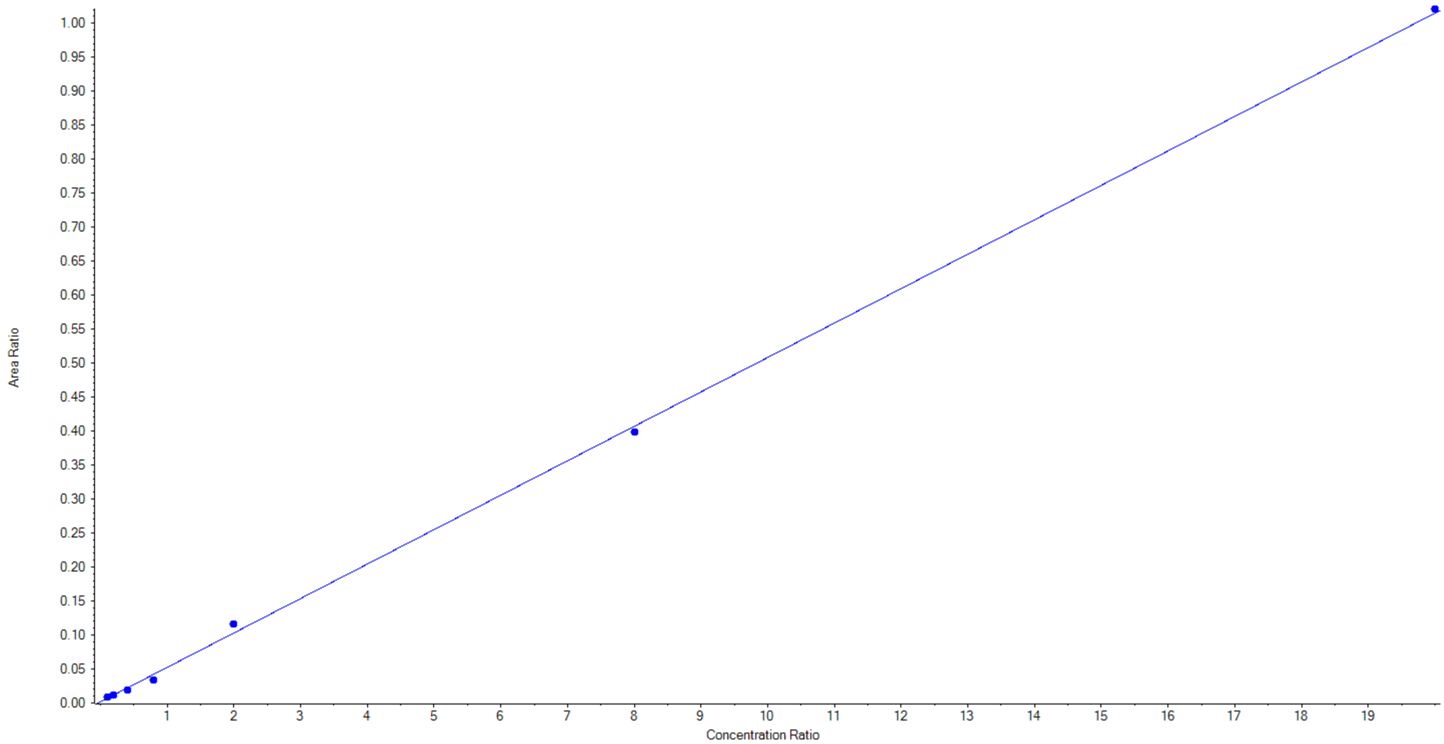
Printed: 01/05/2020 2:15:46 PM

Analyte Name	NEtFOSAA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	584.0 / 483.0	**Result Table**	20-0502
Internal Standard	d5-EtFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.05065 x + 0.00184$ ($r = 0.99845$) (weighting: $1 / x$) r^2:0.9969

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	157.73	126.2
3	KY34	L2	True	250.00	245.88	98.4
4	KY35	L3	True	500.00	428.09	85.6
5	KY36	L4	True	1000.00	784.74	78.5
6	KY37	L5	True	2500.00	2822.45	112.9
7	KY38	L6	True	10000.00	9787.68	97.9
8	KY39	L7	True	25000.00	25148.41	100.6



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Calibration Summary Report

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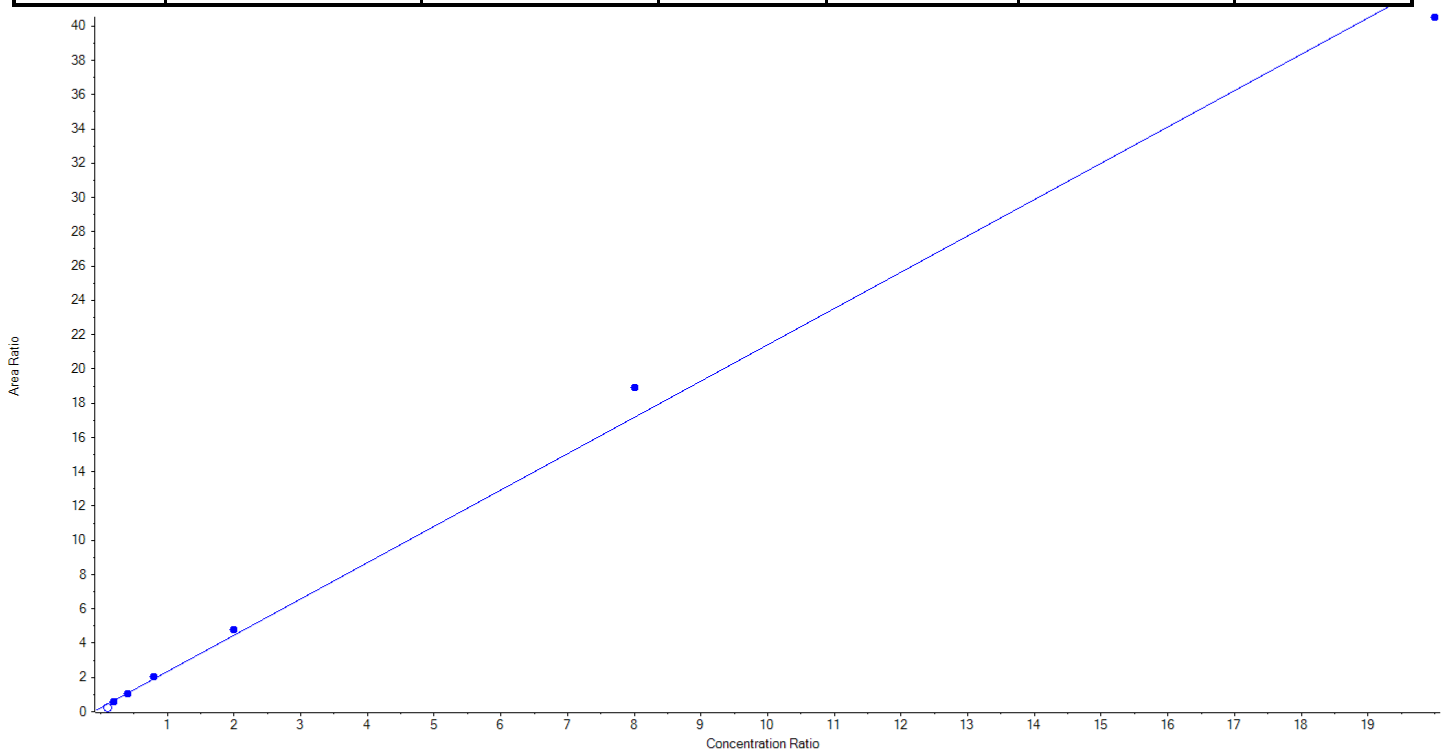
Printed: 01/05/2020 2:15:46 PM

Analyte Name	HFPO-DA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	285.0 / 169.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 2.11830\ x + 0.22691$ ($r = 0.99723$) (weighting: $1 / x$) r^2:0.9945

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	False	125.00	15.83	12.7
3	KY34	L2	True	250.00	203.60	81.4
4	KY35	L3	True	500.00	497.68	99.5
5	KY36	L4	True	1000.00	1057.18	105.7
6	KY37	L5	True	2500.00	2700.95	108.0
7	KY38	L6	True	10000.00	11017.73	110.2
8	KY39	L7	True	25000.00	23772.86	95.1



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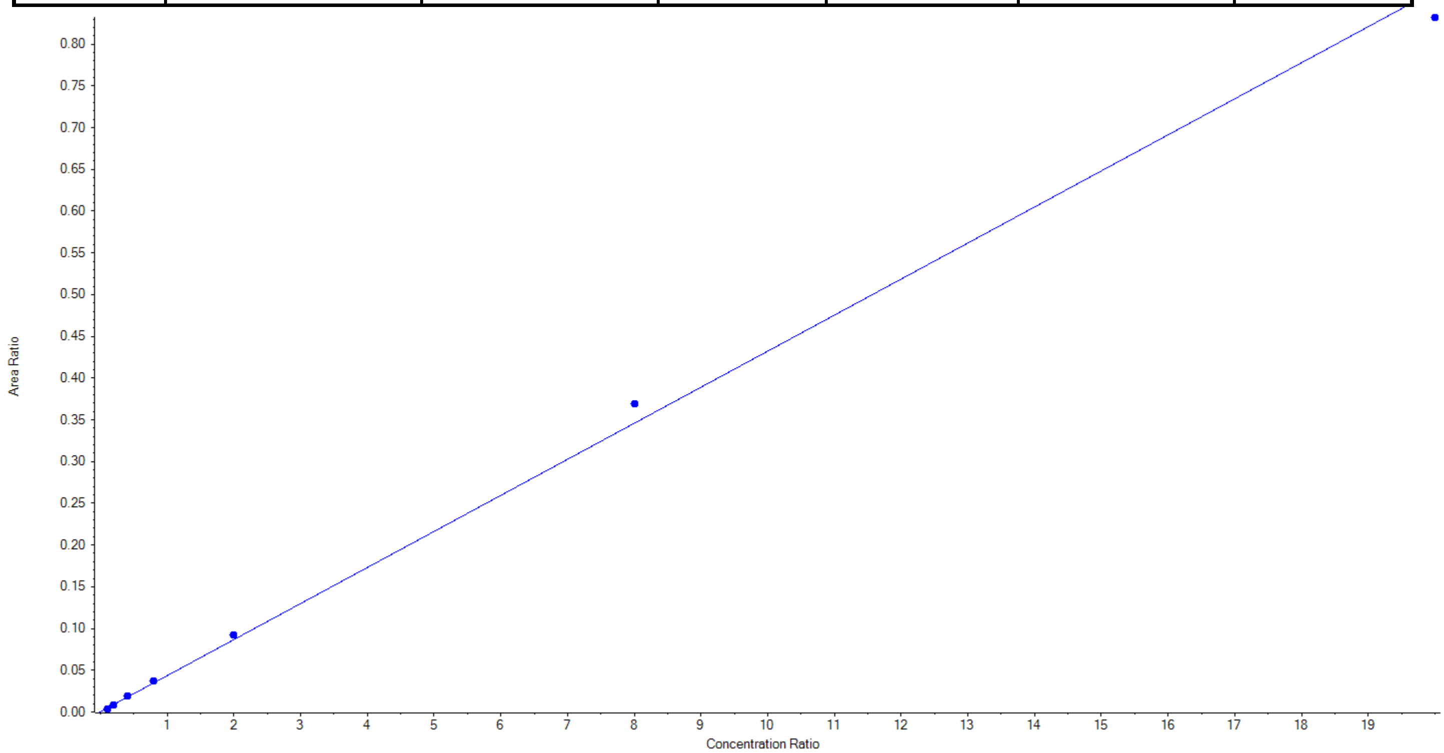
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	HFPO-DA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	285.0 / 118.8	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.04319 x + 3.89235e-4 (r = 0.99848) (weighting: 1 / x) r^2:0.9970

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	98.03	78.4
3	KY34	L2	True	250.00	235.04	94.0
4	KY35	L3	True	500.00	551.34	110.3
5	KY36	L4	True	1000.00	1074.59	107.5
6	KY37	L5	True	2500.00	2669.11	106.8
7	KY38	L6	True	10000.00	10680.00	106.8
8	KY39	L7	True	25000.00	24066.89	96.3



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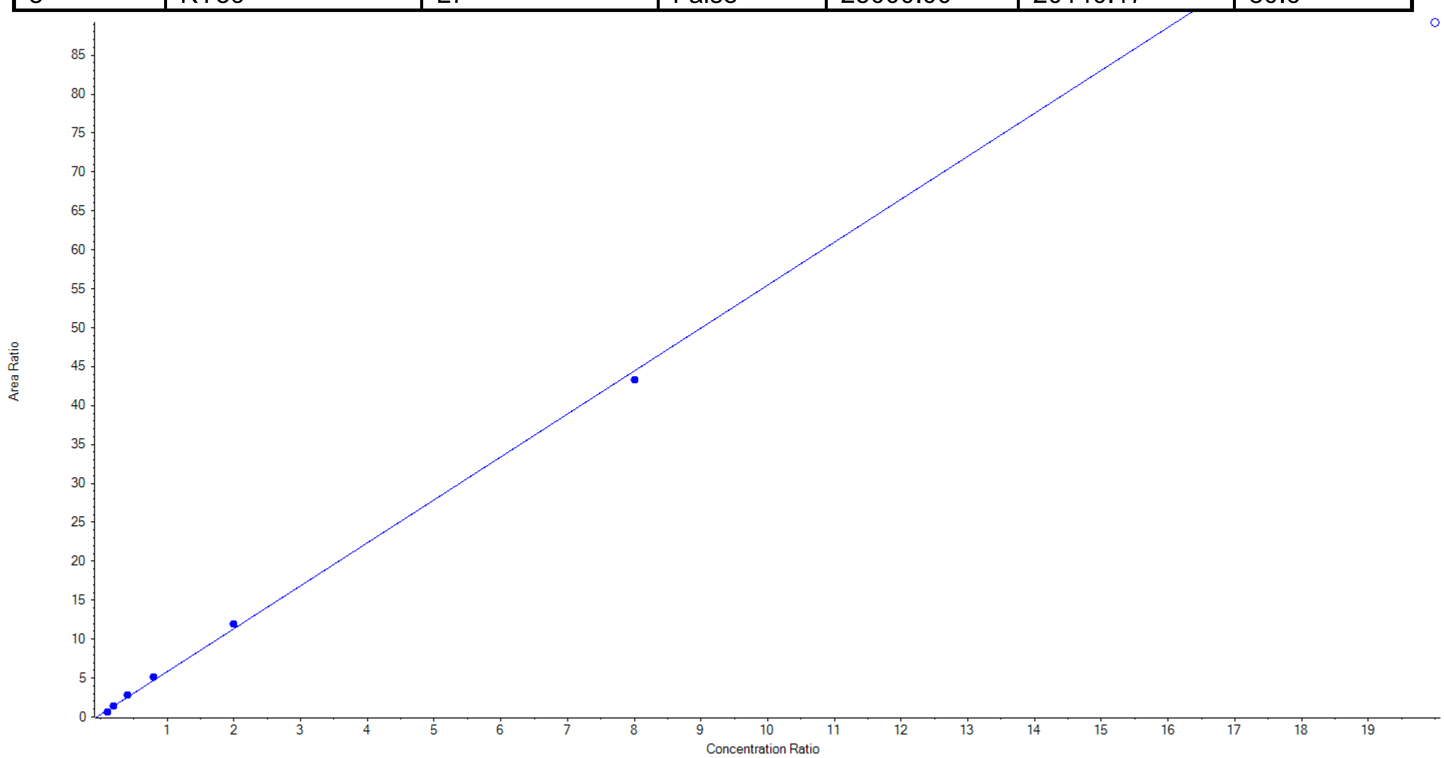
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	ADONA_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	377.0 / 251.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 5.51696 x + 0.30719 (r = 0.99819) (weighting: 1 / x) r^2:0.9964

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	87.72	70.2
3	KY34	L2	True	250.00	261.11	104.4
4	KY35	L3	True	500.00	567.91	113.6
5	KY36	L4	True	1000.00	1089.64	109.0
6	KY37	L5	True	2500.00	2638.47	105.5
7	KY38	L6	True	10000.00	9730.16	97.3
8	KY39	L7	False	25000.00	20140.17	80.6



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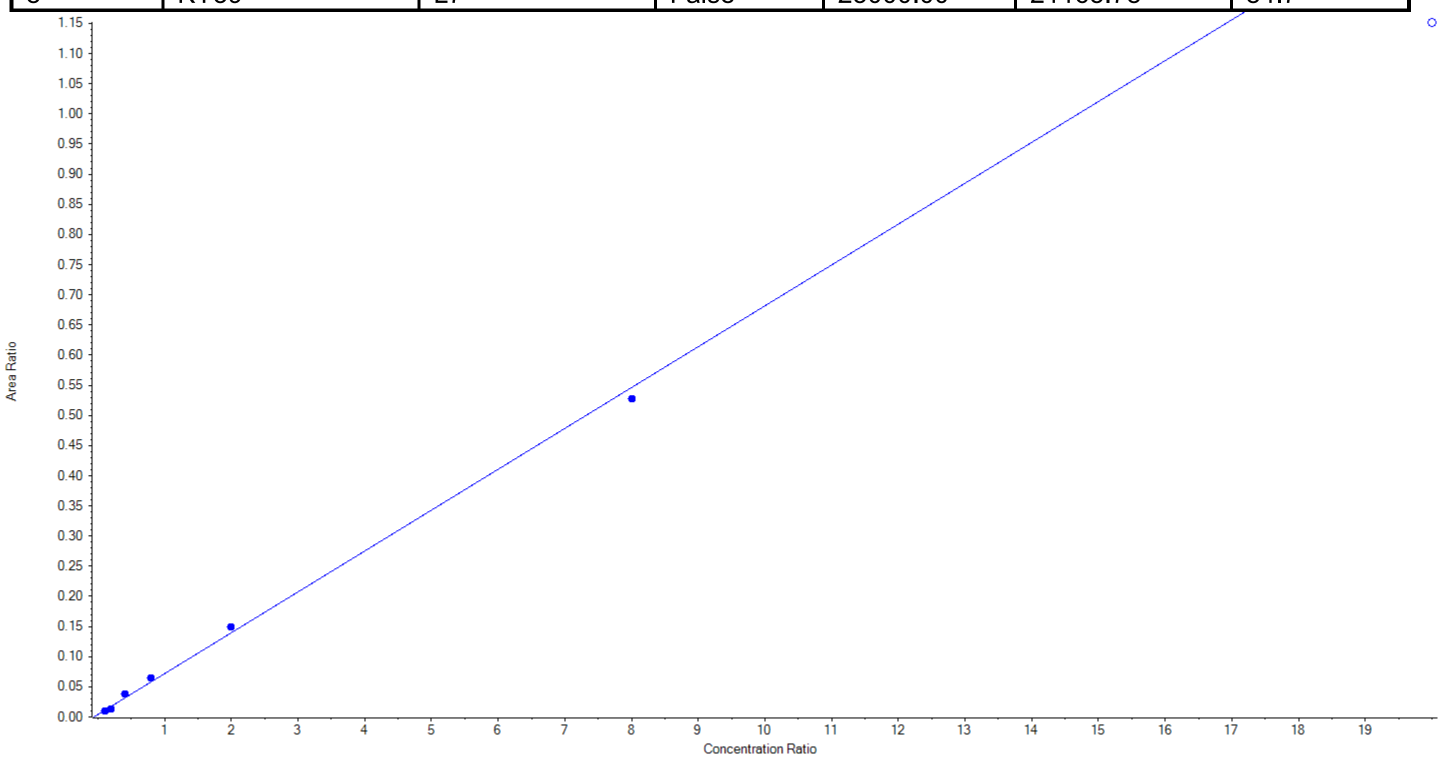
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	ADONA_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	377.0 / 85.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.06775\ x + 0.00420\ (r = 0.99611)\ (\text{weighting: } 1 / x)\ r^2{:}0.9922$

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	110.80	88.6
3	KY34	L2	True	250.00	176.08	70.4
4	KY35	L3	True	500.00	631.38	126.3
5	KY36	L4	True	1000.00	1105.25	110.5
6	KY37	L5	True	2500.00	2687.06	107.5
7	KY38	L6	True	10000.00	9664.43	96.6
8	KY39	L7	False	25000.00	21165.78	84.7



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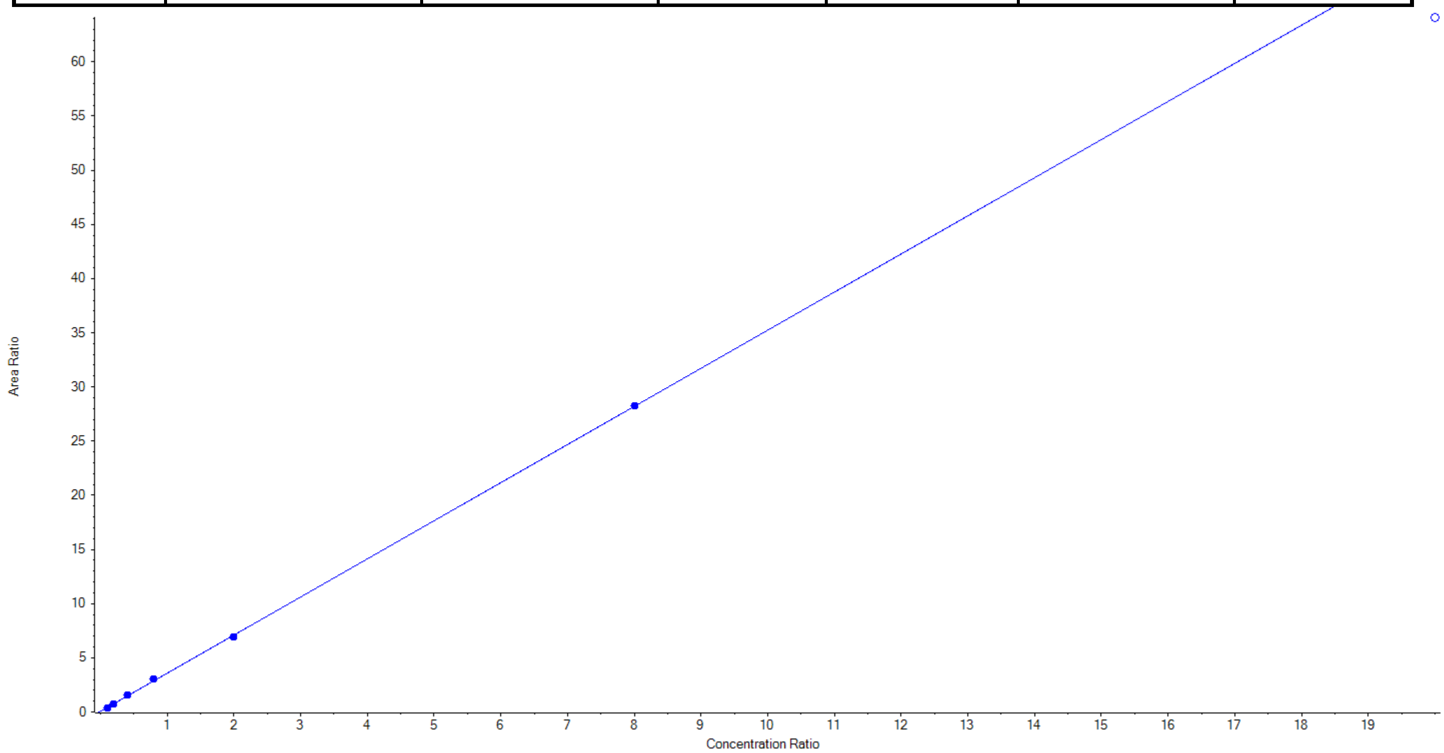
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:15:46 PM

Analyte Name	9Cl-PF3ONS_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	531.0 / 351.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 3.51752 x + 0.06432$ ($r = 0.99971$) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	114.25	91.4
3	KY34	L2	True	250.00	251.84	100.7
4	KY35	L3	True	500.00	531.65	106.3
5	KY36	L4	True	1000.00	1043.77	104.4
6	KY37	L5	True	2500.00	2427.46	97.1
7	KY38	L6	True	10000.00	10006.04	100.1
8	KY39	L7	False	25000.00	22752.84	91.0



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Calibration Summary Report

Created with Analyst Reporter
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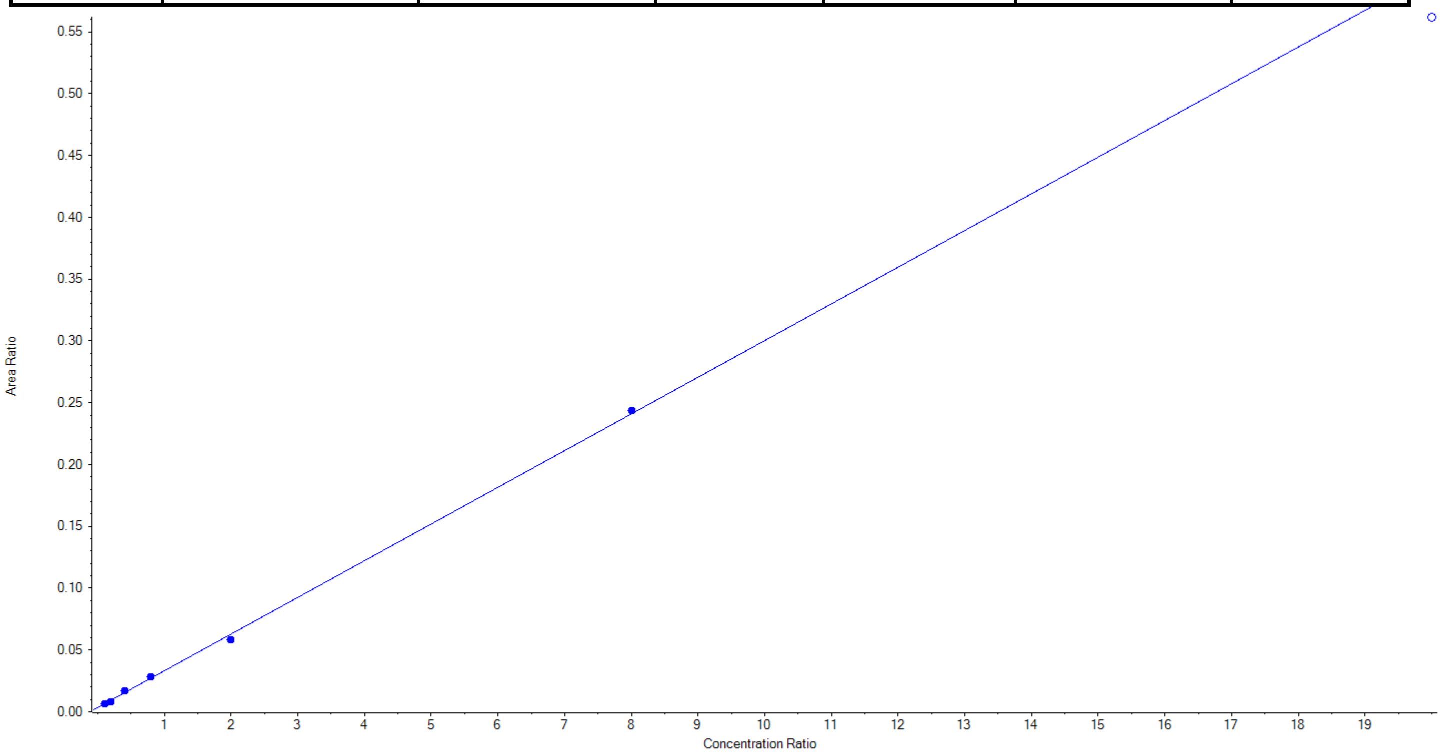
Analyte Name	9Cl-PF3ONS_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	531.0 / 83.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.02968\ x + 0.00353$ ($r = 0.99827$) (weighting: 1 / x) r^2:0.9965

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	137.38	109.9
3	KY34	L2	True	250.00	193.48	77.4
4	KY35	L3	True	500.00	571.56	114.3
5	KY36	L4	True	1000.00	1047.83	104.8
6	KY37	L5	True	2500.00	2312.16	92.5
7	KY38	L6	True	10000.00	10112.59	101.1
8	KY39	L7	False	25000.00	23512.73	94.1



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Calibration Summary Report

Created with Analyst Reporter
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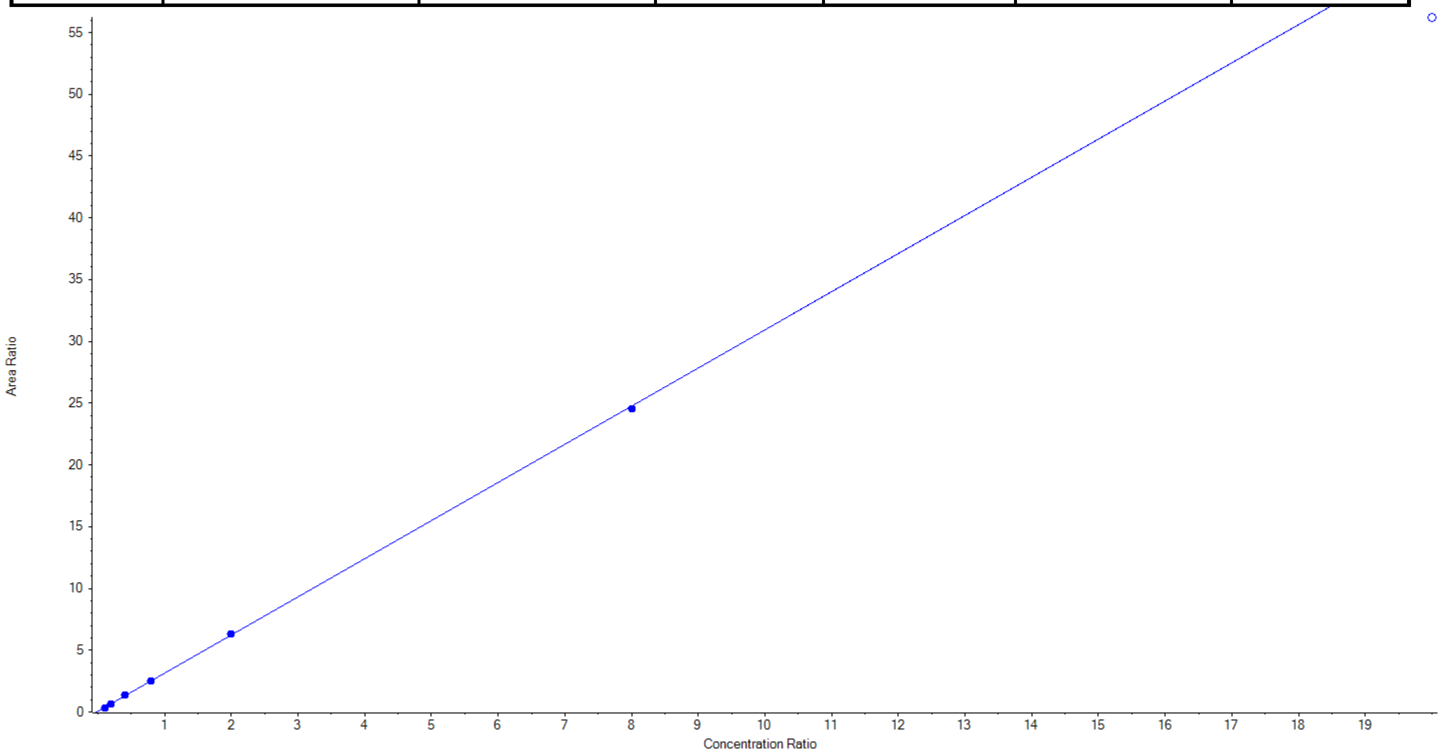
Analyte Name	11Cl-pf3OUdS_1	**Data File**	AE_04282020_5-369.wiff
MRM Transition	631.0 / 451.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 3.08725 x + 0.05947$ (r = 0.99970) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	111.20	89.0
3	KY34	L2	True	250.00	250.96	100.4
4	KY35	L3	True	500.00	546.55	109.3
5	KY36	L4	True	1000.00	1004.34	100.4
6	KY37	L5	True	2500.00	2543.24	101.7
7	KY38	L6	True	10000.00	9918.72	99.2
8	KY39	L7	False	25000.00	22733.56	90.9



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Calibration Summary Report

Created with Analyst Reporter
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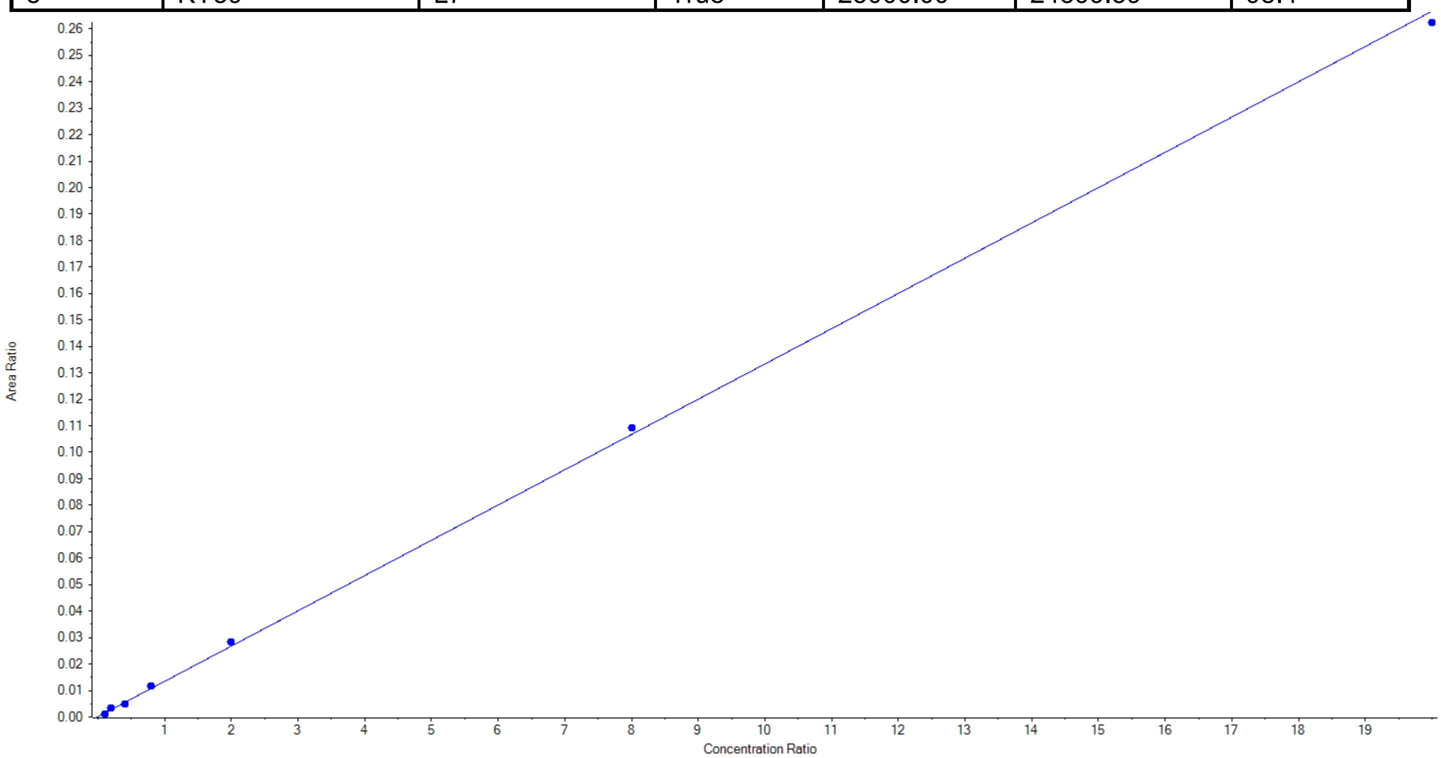
Analyte Name	11Cl-pf3OUdS_2	**Data File**	AE_04282020_5-369.wiff
MRM Transition	631.0 / 83.0	**Result Table**	20-0502
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.01333 x + 1.44679e-4$ ($r = 0.99941$) (weighting: 1 / x) r^2:0.9988

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	125.00	105.04	84.0
3	KY34	L2	True	250.00	287.91	115.2
4	KY35	L3	True	500.00	435.17	87.0
5	KY36	L4	True	1000.00	1070.98	107.1
6	KY37	L5	True	2500.00	2650.33	106.0
7	KY38	L6	True	10000.00	10225.98	102.3
8	KY39	L7	True	25000.00	24599.59	98.4



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Calibration Summary Report

Created with Analyst Reporter
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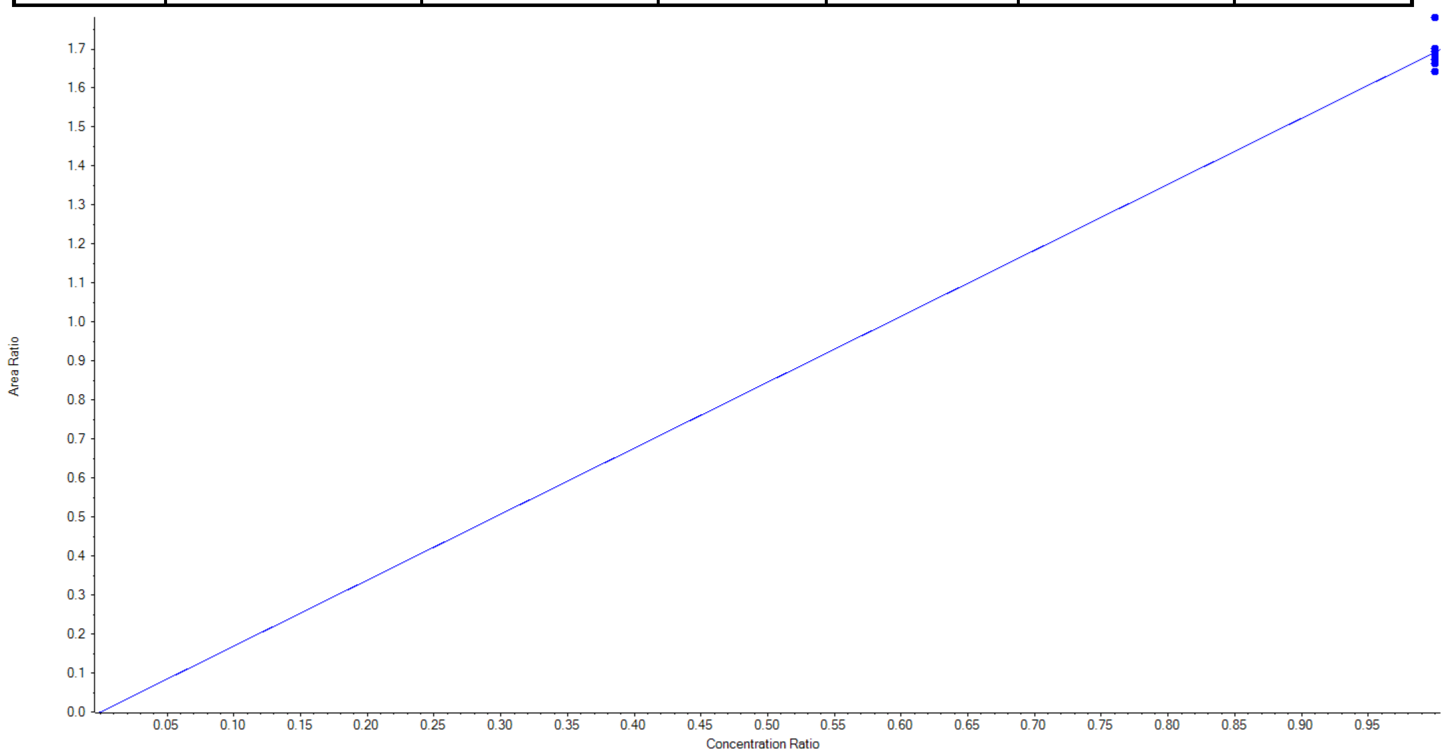
Analyte Name	13C2-PFDoA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	615.0 / 570.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.69165 x (std. dev. = 0.04412) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1315.96	105.3
3	KY34	L2	True	1250.00	1256.94	100.6
4	KY35	L3	True	1250.00	1245.84	99.7
5	KY36	L4	True	1250.00	1252.31	100.2
6	KY37	L5	True	1250.00	1228.59	98.3
7	KY38	L6	True	1250.00	1213.65	97.1
8	KY39	L7	True	1250.00	1236.71	98.9



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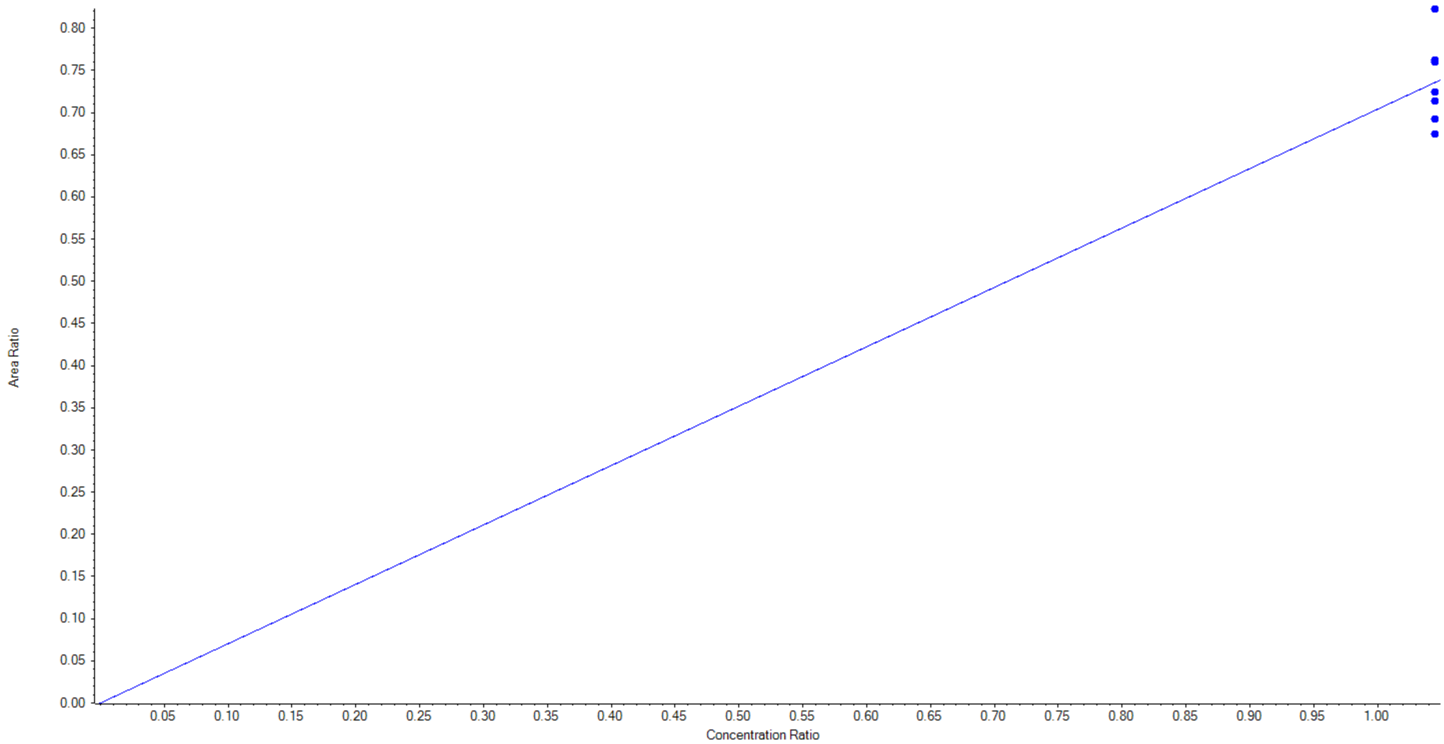
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	d3-MeFOSAA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	573.0 / 419.0	**Result Table**	20-0502_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.70398 x (std. dev. = 0.04790) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1290.31	103.2
3	KY34	L2	True	1250.00	1146.26	91.7
4	KY35	L3	True	1250.00	1231.09	98.5
5	KY36	L4	True	1250.00	1294.48	103.6
6	KY37	L5	True	1250.00	1213.66	97.1
7	KY38	L6	True	1250.00	1176.20	94.1
8	KY39	L7	True	1250.00	1398.01	111.8



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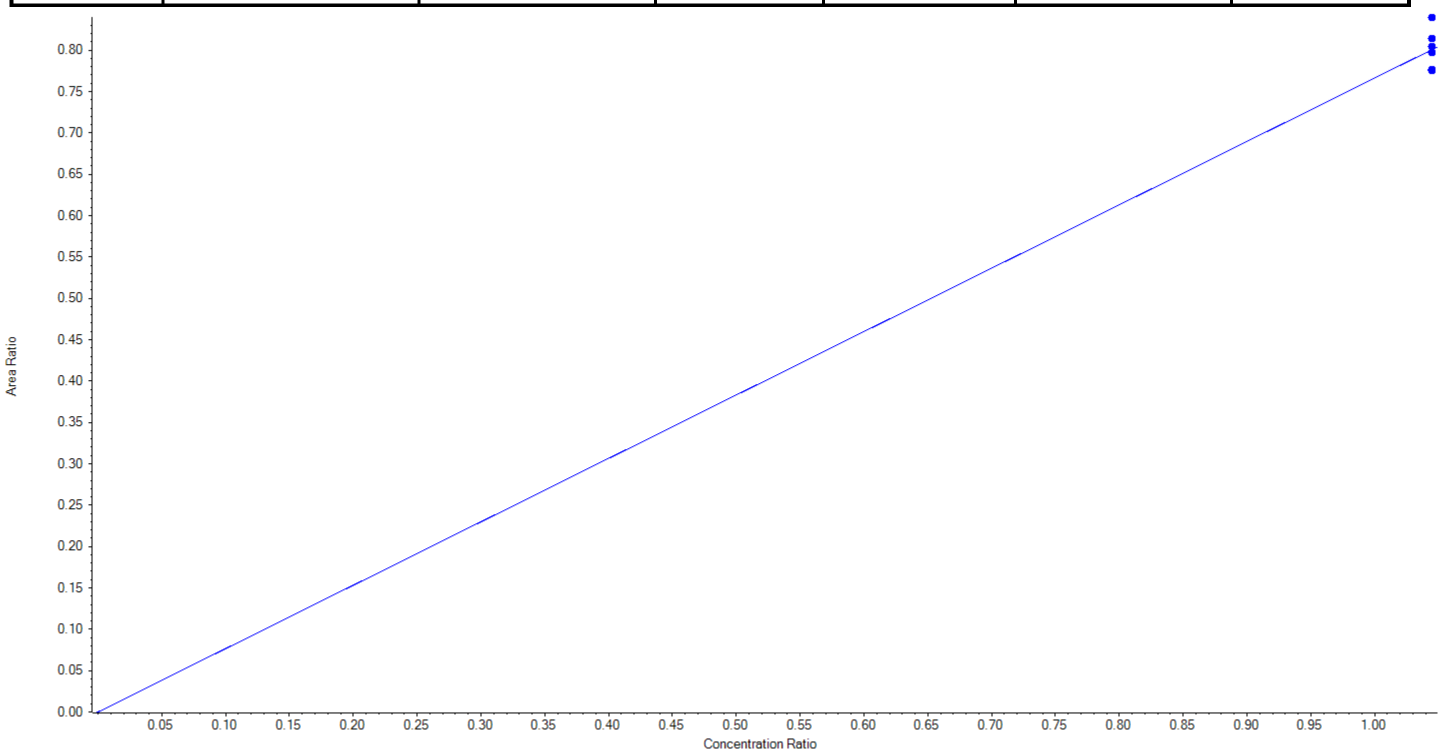
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	d5-EtFOSAA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	589.0 / 419.0	**Result Table**	20-0502_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.76632 x (std. dev. = 0.02130) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1310.54	104.8
3	KY34	L2	True	1250.00	1271.22	101.7
4	KY35	L3	True	1250.00	1255.97	100.5
5	KY36	L4	True	1250.00	1245.10	99.6
6	KY37	L5	True	1250.00	1210.46	96.8
7	KY38	L6	True	1250.00	1211.52	96.9
8	KY39	L7	True	1250.00	1245.19	99.6



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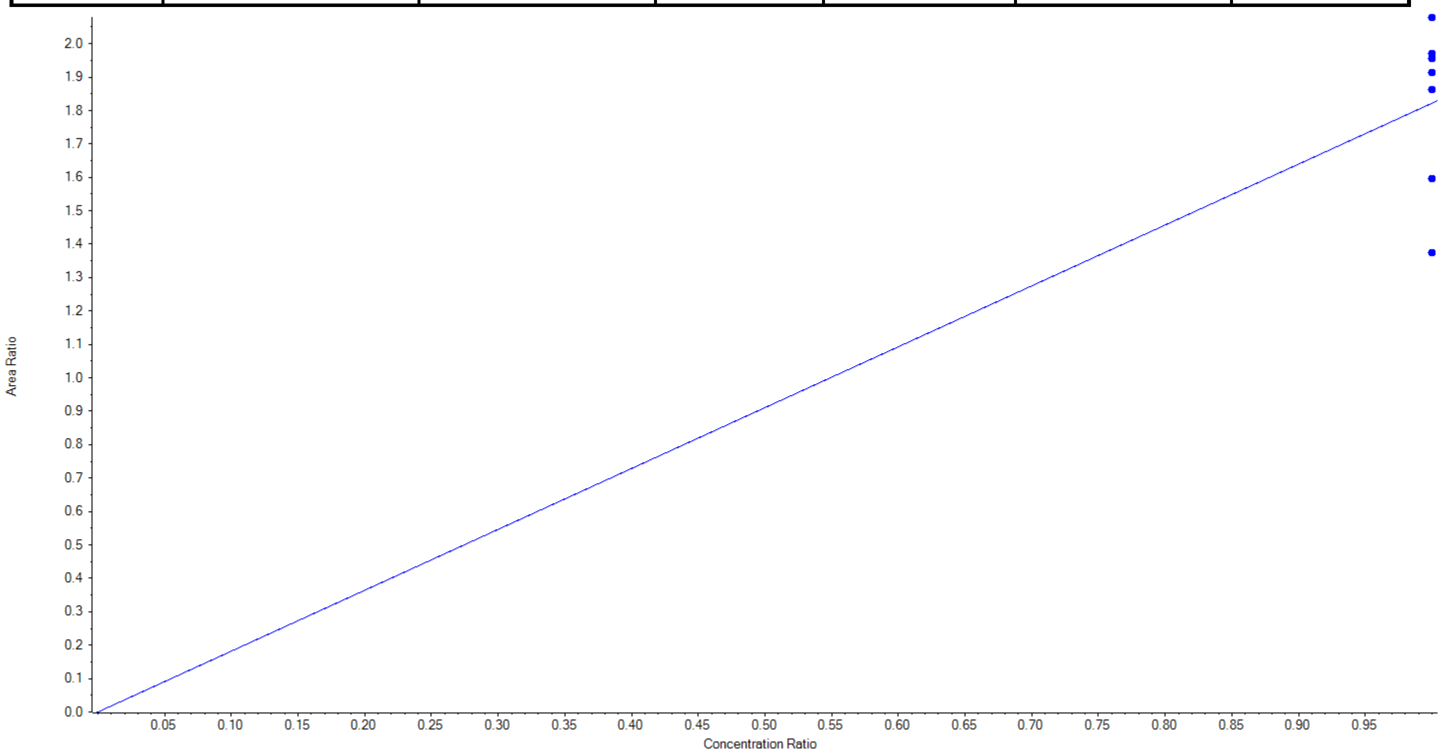
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C5-PFHxA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	318.0 / 273.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.82177 x (std. dev. = 0.24715) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1425.95	114.1
3	KY34	L2	True	1250.00	1351.45	108.1
4	KY35	L3	True	1250.00	1312.83	105.0
5	KY36	L4	True	1250.00	1342.26	107.4
6	KY37	L5	True	1250.00	1279.03	102.3
7	KY38	L6	True	1250.00	1095.04	87.6
8	KY39	L7	True	1250.00	943.44	75.5



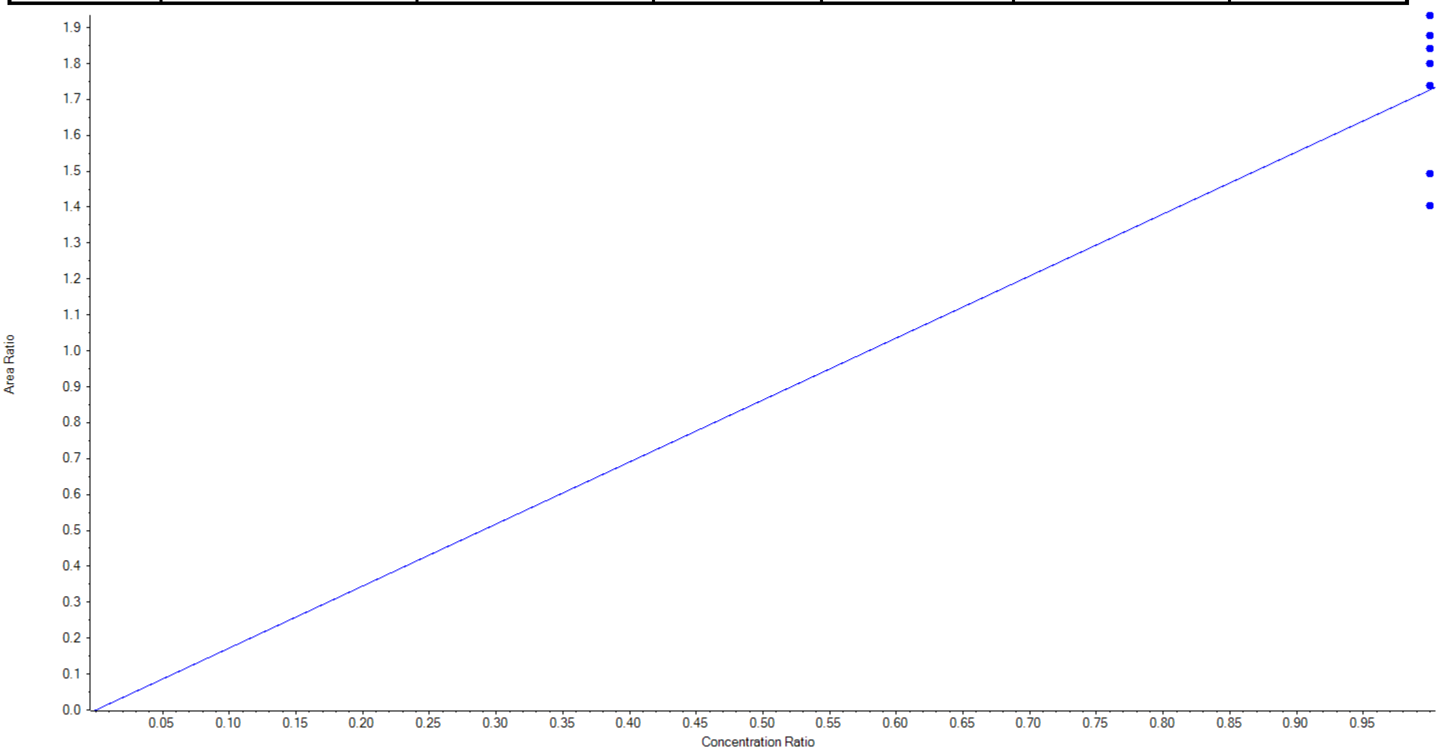
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C4-PFHpA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	367.0 / 322.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.72631 x (std. dev. = 0.20091) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1399.96	112.0
3	KY34	L2	True	1250.00	1358.63	108.7
4	KY35	L3	True	1250.00	1332.42	106.6
5	KY36	L4	True	1250.00	1258.26	100.7
6	KY37	L5	True	1250.00	1302.81	104.2
7	KY38	L6	True	1250.00	1082.19	86.6
8	KY39	L7	True	1250.00	1015.73	81.3



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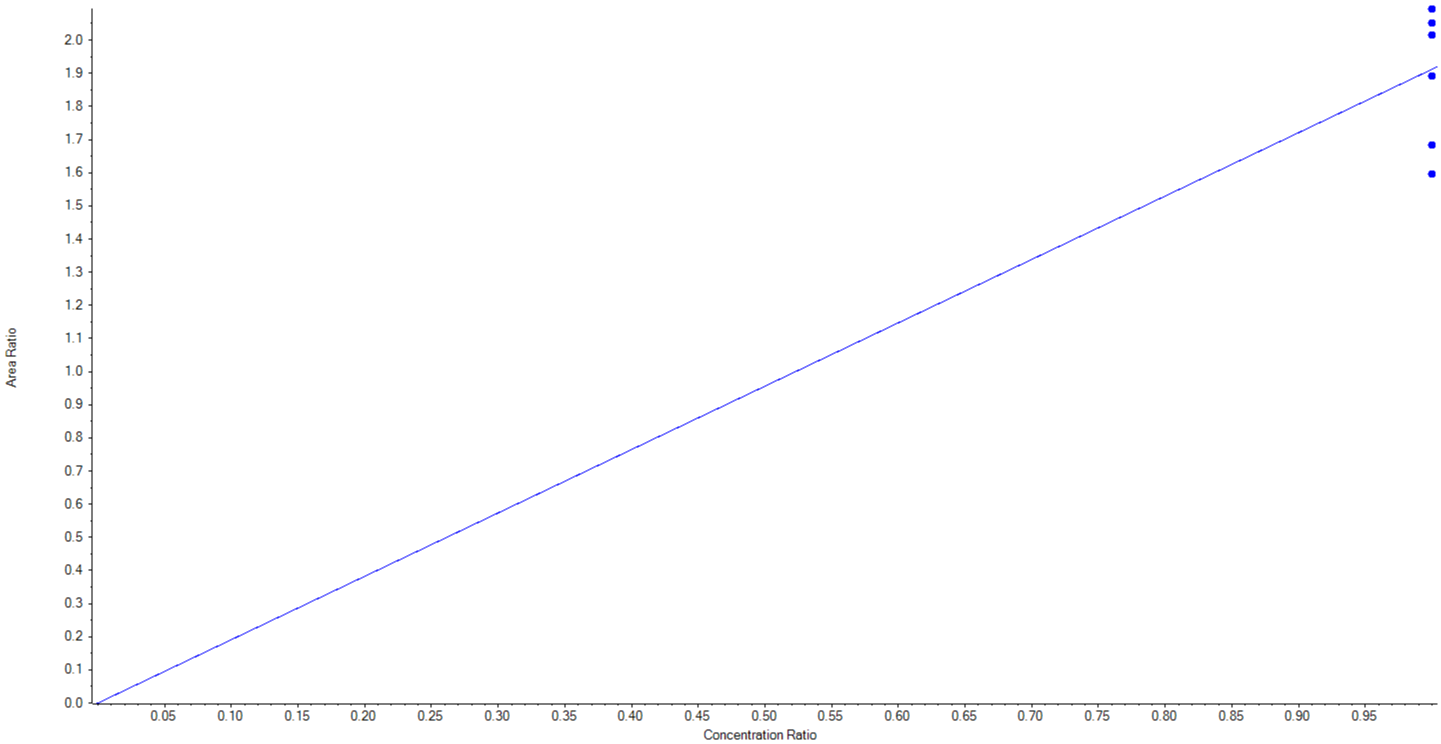
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C8-PFOA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	421.0 / 376.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.91191 x (std. dev. = 0.19839) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1317.56	105.4
3	KY34	L2	True	1250.00	1342.10	107.4
4	KY35	L3	True	1250.00	1341.37	107.3
5	KY36	L4	True	1250.00	1368.87	109.5
6	KY37	L5	True	1250.00	1236.61	98.9
7	KY38	L6	True	1250.00	1100.80	88.1
8	KY39	L7	True	1250.00	1042.70	83.4



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Calibration Summary Report

Created with Analyst Reporter
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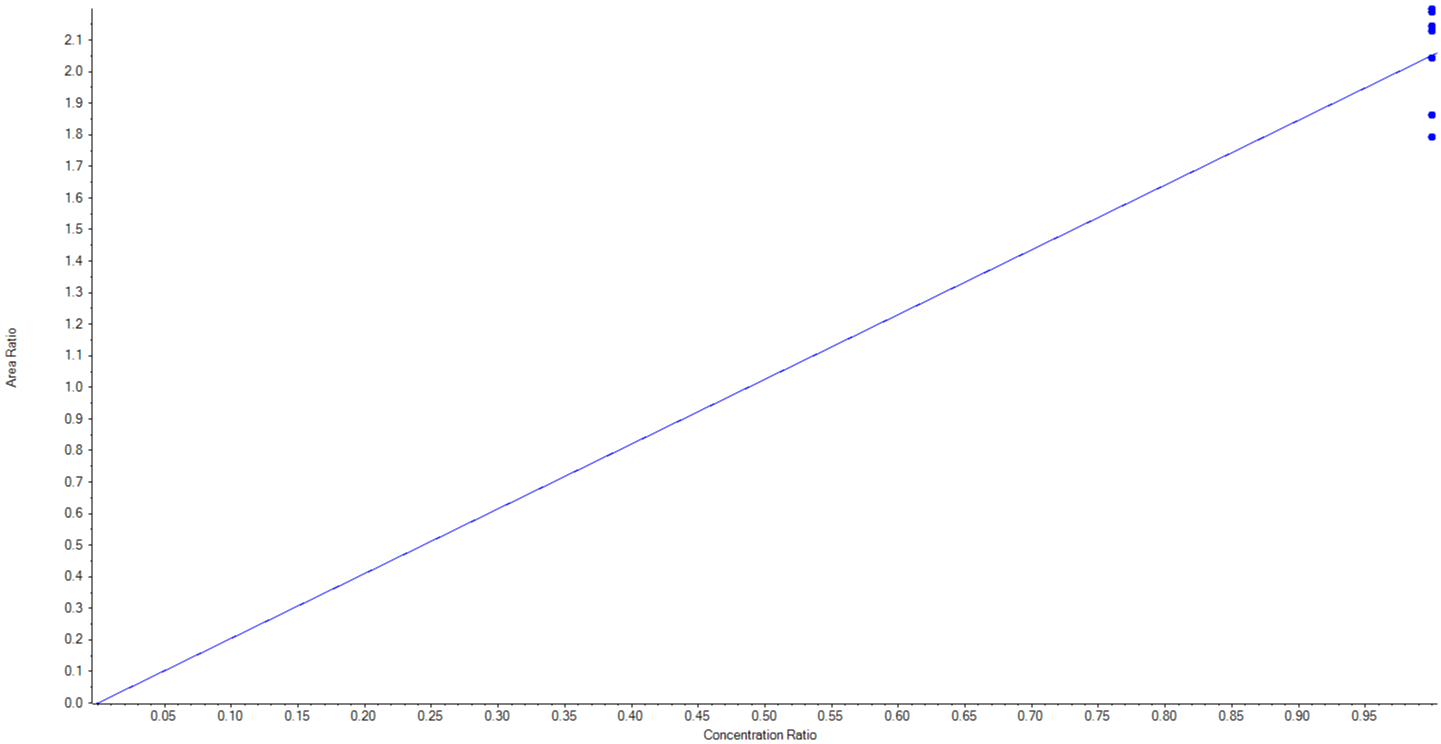
Analyte Name	13C9-PFNA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	472.0 / 427.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 2.05133 x (std. dev. = 0.16136) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1296.60	103.7
3	KY34	L2	True	1250.00	1306.60	104.5
4	KY35	L3	True	1250.00	1333.26	106.7
5	KY36	L4	True	1250.00	1339.69	107.2
6	KY37	L5	True	1250.00	1244.91	99.6
7	KY38	L6	True	1250.00	1135.56	90.8
8	KY39	L7	True	1250.00	1093.37	87.5



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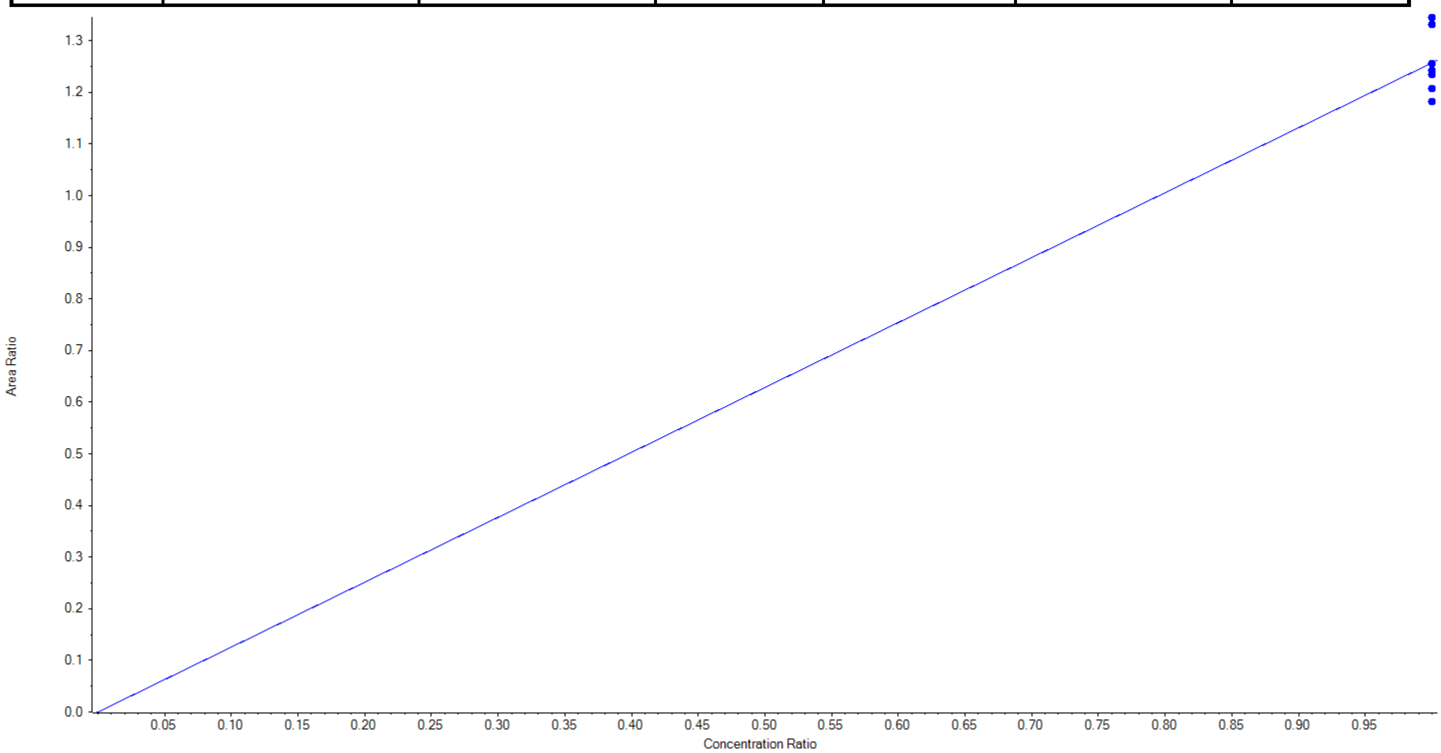
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C6-PFDA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	519.0 / 474.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.25721 x (std. dev. = 0.06065) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1248.09	99.9
3	KY34	L2	True	1250.00	1235.94	98.9
4	KY35	L3	True	1250.00	1324.68	106.0
5	KY36	L4	True	1250.00	1337.22	107.0
6	KY37	L5	True	1250.00	1227.73	98.2
7	KY38	L6	True	1250.00	1176.09	94.1
8	KY39	L7	True	1250.00	1200.24	96.0



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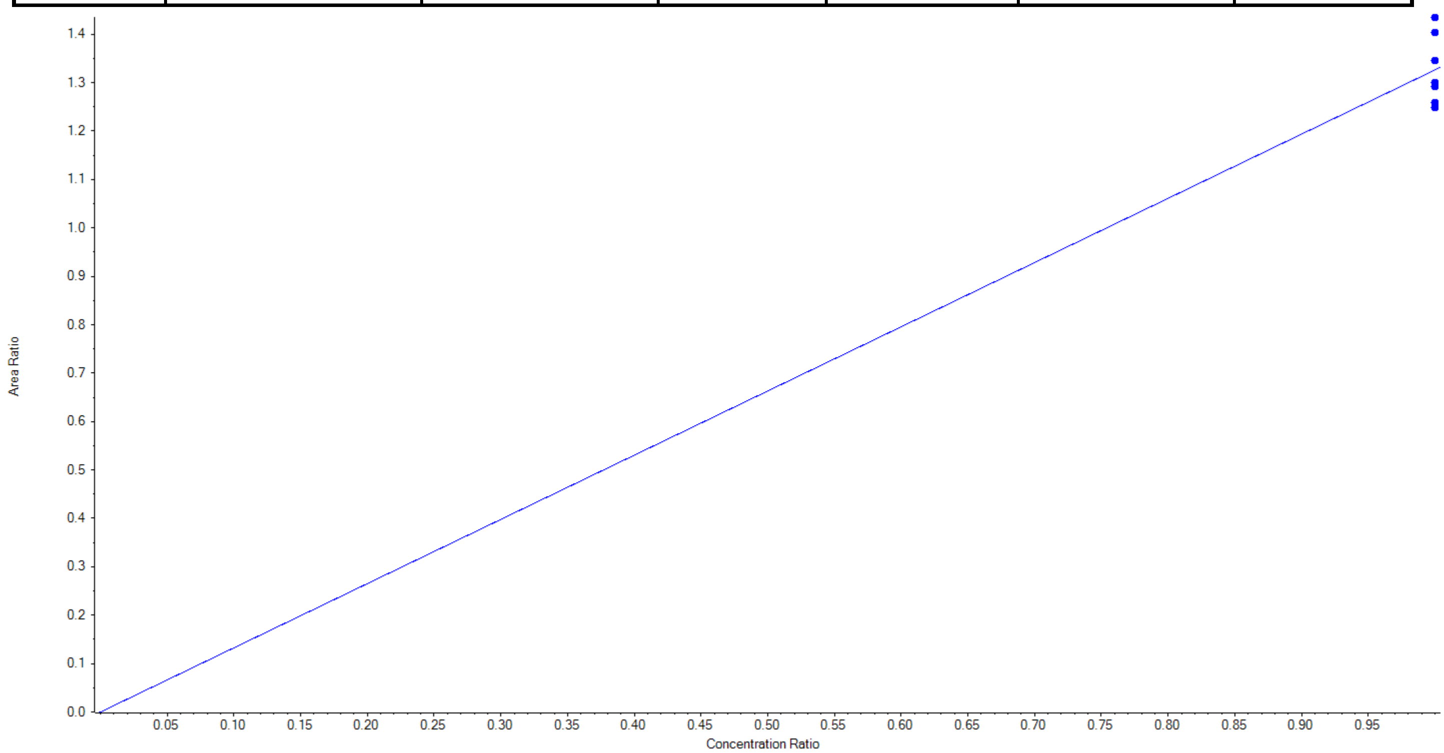
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C7-PFUnA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	570.0 / 525.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.32627 x (std. dev. = 0.07116) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1322.30	105.8
3	KY34	L2	True	1250.00	1226.09	98.1
4	KY35	L3	True	1250.00	1268.70	101.5
5	KY36	L4	True	1250.00	1351.99	108.2
6	KY37	L5	True	1250.00	1217.76	97.4
7	KY38	L6	True	1250.00	1177.15	94.2
8	KY39	L7	True	1250.00	1186.02	94.9



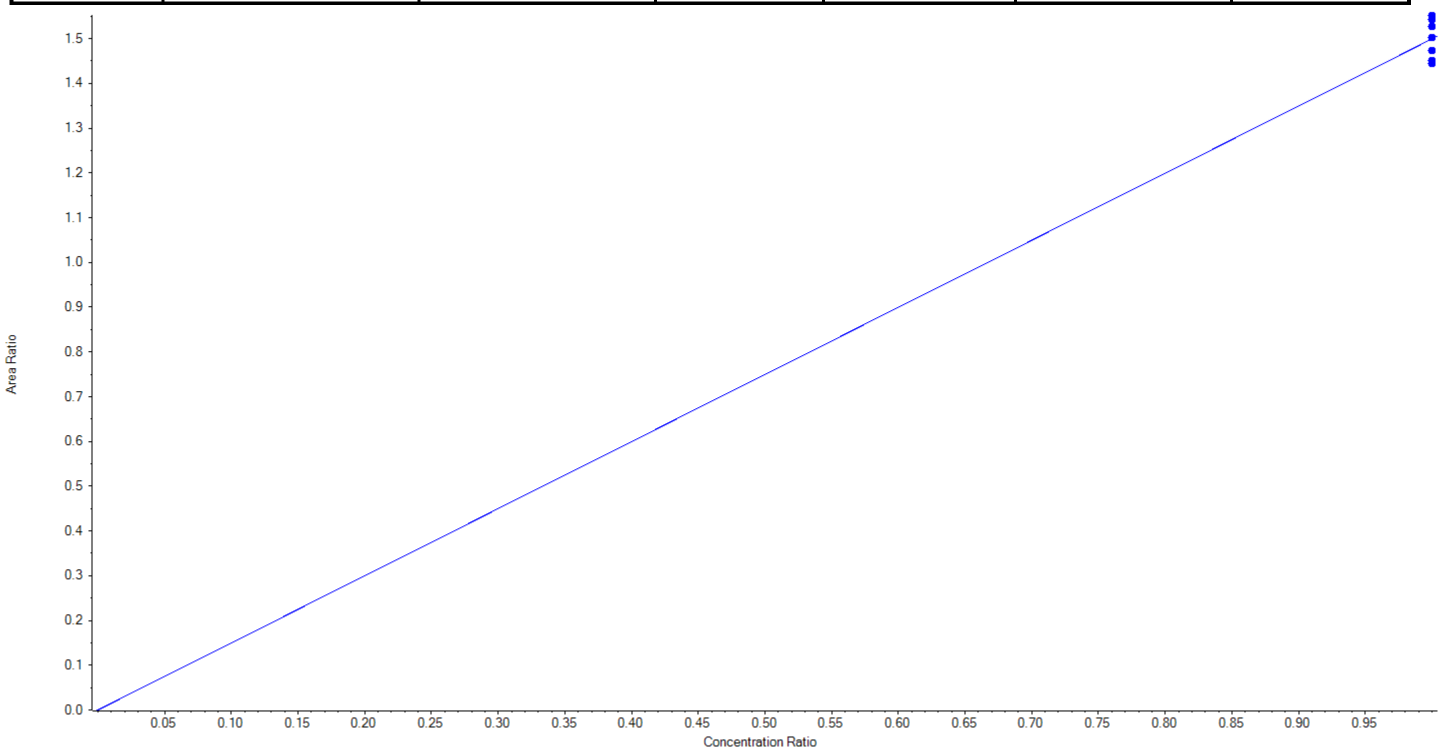
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C2-PFTeDA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	715.0 / 670.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.49923 x (std. dev. = 0.04370) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1273.69	101.9
3	KY34	L2	True	1250.00	1209.42	96.8
4	KY35	L3	True	1250.00	1293.64	103.5
5	KY36	L4	True	1250.00	1286.57	102.9
6	KY37	L5	True	1250.00	1204.81	96.4
7	KY38	L6	True	1250.00	1228.49	98.3
8	KY39	L7	True	1250.00	1253.39	100.3



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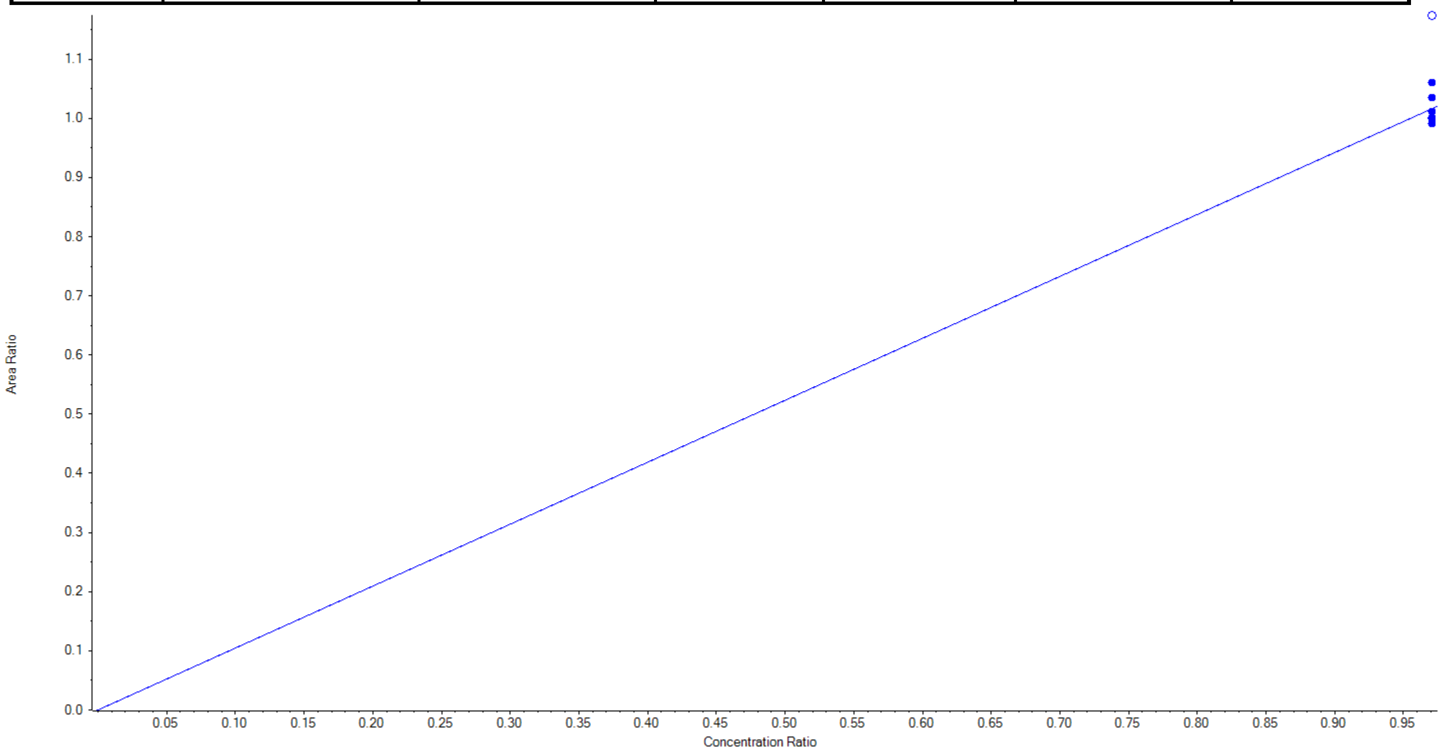
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C3-PFBS	**Data File**	AE_04282020_5-369.wiff
MRM Transition	302.0 / 99.0	**Result Table**	20-0502_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.04692 x (std. dev. = 0.02707) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1161.25	1142.86	98.4
3	KY34	L2	True	1161.25	1155.45	99.5
4	KY35	L3	True	1161.25	1182.14	101.8
5	KY36	L4	True	1161.25	1211.56	104.3
6	KY37	L5	True	1161.25	1143.37	98.5
7	KY38	L6	True	1161.25	1132.11	97.5
8	KY39	L7	False	1161.25	1341.16	115.5



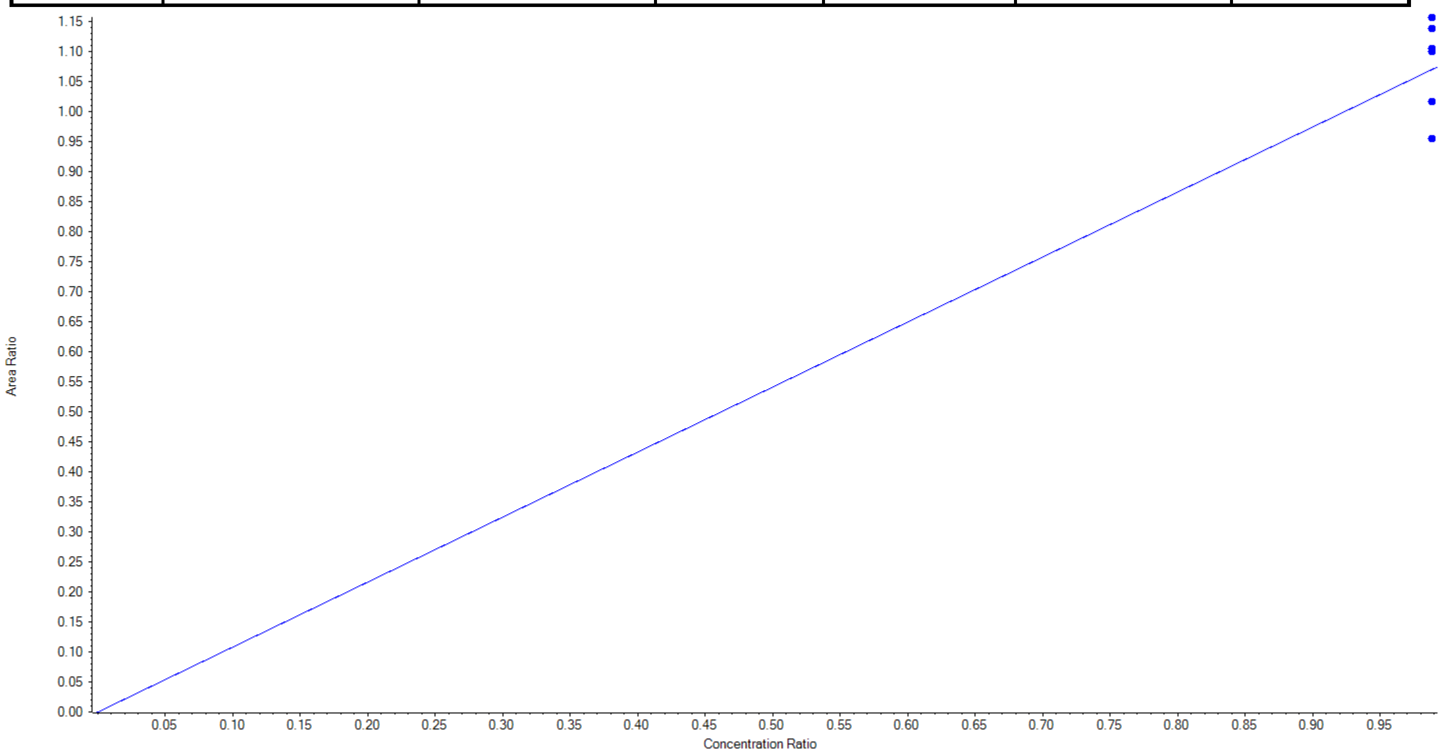
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C3-PFHxS	**Data File**	AE_04282020_5-369.wiff
MRM Transition	402.0 / 99.0	**Result Table**	20-0502_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.08315 x (std. dev. = 0.07533) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1182.50	1278.24	108.1
3	KY34	L2	True	1182.50	1221.91	103.3
4	KY35	L3	True	1182.50	1216.51	102.9
5	KY36	L4	True	1182.50	1258.04	106.4
6	KY37	L5	True	1182.50	1123.33	95.0
7	KY38	L6	True	1182.50	1055.93	89.3
8	KY39	L7	True	1182.50	1123.55	95.0



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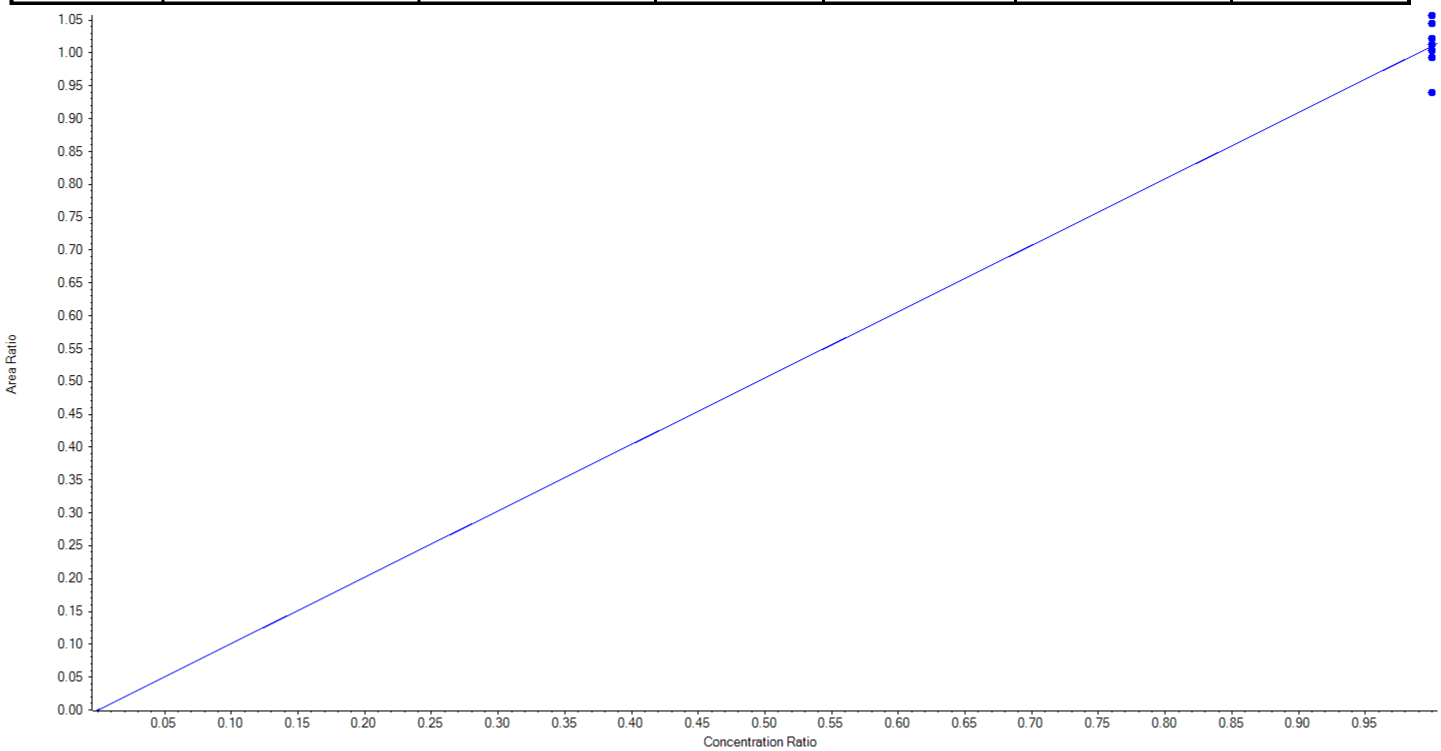
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C8-PFOS	**Data File**	AE_04282020_5-369.wiff
MRM Transition	507.0 / 99.0	**Result Table**	20-0502_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.01045 x (std. dev. = 0.03853) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1196.25	1237.09	103.4
3	KY34	L2	True	1196.25	1199.48	100.3
4	KY35	L3	True	1196.25	1175.82	98.3
5	KY36	L4	True	1196.25	1251.37	104.6
6	KY37	L5	True	1196.25	1188.27	99.3
7	KY38	L6	True	1196.25	1111.98	93.0
8	KY39	L7	True	1196.25	1209.74	101.1



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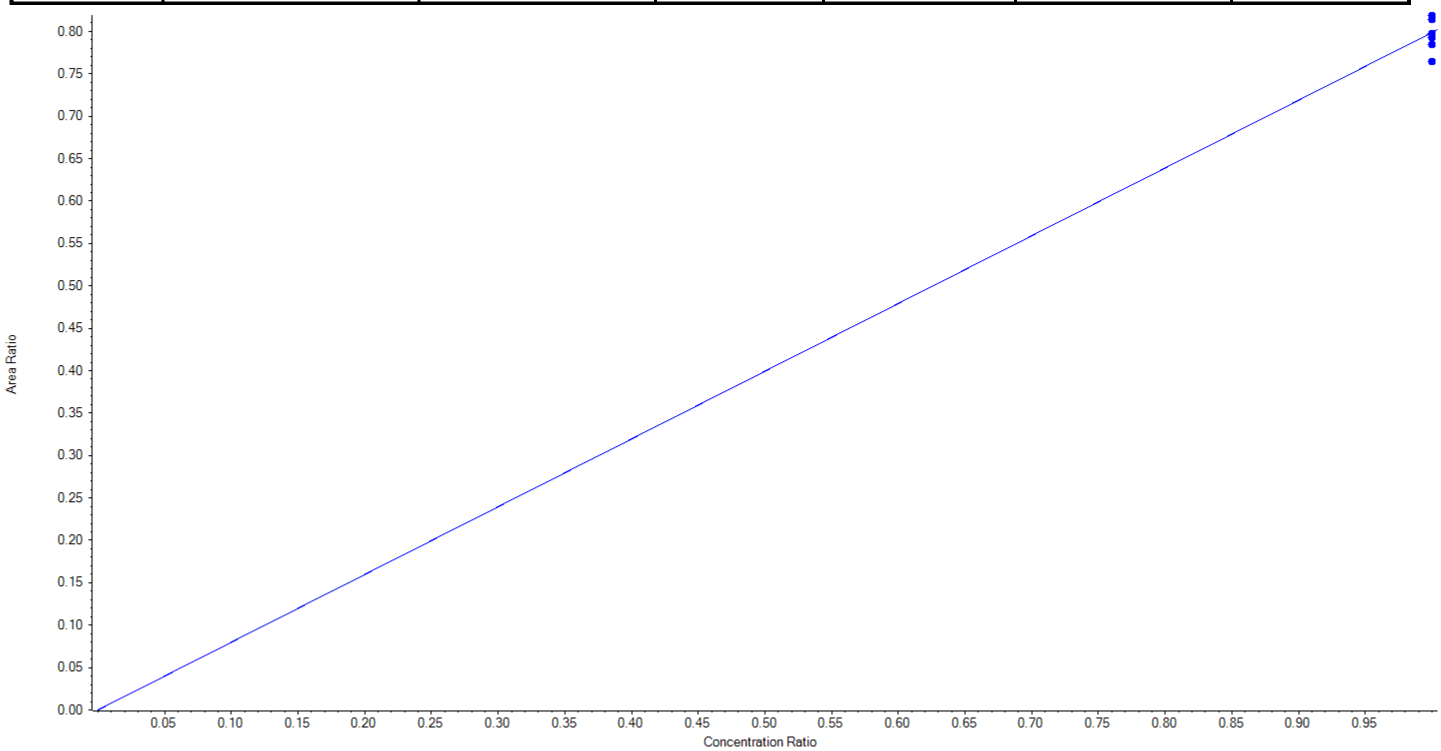
Calibration Summary Report

Created with Analyst Reporter
Printed: 01/05/2020 2:03:37 PM

Analyte Name	13C3-HFPO-DA	**Data File**	AE_04282020_5-369.wiff
MRM Transition	287.0 / 169.0	**Result Table**	20-0502_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.79883 x (std. dev. = 0.02009) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY33	L1	True	1250.00	1281.19	102.5
3	KY34	L2	True	1250.00	1197.19	95.8
4	KY35	L3	True	1250.00	1227.01	98.2
5	KY36	L4	True	1250.00	1248.90	99.9
6	KY37	L5	True	1250.00	1281.30	102.5
7	KY38	L6	True	1250.00	1240.59	99.3
8	KY39	L7	True	1250.00	1273.82	101.9



	Isotope Dilution Calibration Curve Concentrations (ng/L)							ICC (ng/L)
	KY33	KY34	KY35	KY36	KY37	KY38	KY39	KY41
PFBA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFPeA	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFHxA	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFHpA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFOA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFNA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFDA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFUnA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFDoA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFTrDA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFTeDA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
NMeFOSAA (Branched)	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
NEtFOSAA (Branched)	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFOSA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFBS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFPeS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFHxS (Branched)	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFHpS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFOS (Branched)	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFDS	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFNS	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
4:2FTS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
6:2FTS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
8:2FTS	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
3:3 FTCA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
5:3 FTCA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
7:3 FTCA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
HFPO-DA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
Adona	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
9Cl-PF3ONS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
11Cl-PF3OUdS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
	Surrogates / Extracted Internal Standards							
13C4-PFBA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C5-PFPeA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C5-PFHxA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C4-PFHpA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C8-PFOA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C9-PFNA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C6-PFDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C7-PFUnA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFDoA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFTeDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
d3-MeFOSAA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
d5-EtFOSAA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C8-FOSA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C3-PFBS	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25
13C3-PFHxS	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50
13C8-PFOS	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25
13C2-4:2FTS	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75
13C2-6:2FTS	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25
13C2-8:2FTS	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50
13C3-HFPO-DA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
	Internal Standards							
13C3-PFBA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFOA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C4-PFOS	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25

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PFAS Calibration Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:14:04 PM

Sample Name	KY33	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	80252.28	109.83	3713.5	False	13C3-PFBS	267950.75	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	28747.22	107.62	508.6	False	13C3-PFBS	267950.75	1161.25	PFBS	0.358	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	142786.11	139.12	442.2	True	13C5-PFHxA	1521251.87	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	9317.02	132.93	219.6	True	13C5-PFHxA	1521251.87	1250.00	PFHxA	0.065	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	115960.50	126.05	293.4	False	13C4-PFHpA	1415258.75	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	3359.41	113.54	38739.7	False	13C4-PFHpA	1415258.75	1250.00	PFHpA	0.029	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	91299.83	123.18	6327.3	False	13C3-PFHxS	303965.12	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	33759.34	116.96	353.1	False	13C3-PFHxS	303965.12	1182.50	PFHxS	0.370	0.361	✓
PFOA_1	413.0 / 369.0	2.26	135919.75	139.87	138.4	False	13C8-PFOA	1475160.78	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	12883.00	122.68	88.9	False	13C8-PFOA	1475160.78	1250.00	PFOA	0.095	0.100	✓
PFNA_1	463.0 / 419.0	2.63	137755.31	113.73	272.8	False	13C9-PFNA	1557547.08	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	52376.84	131.70	456.2	False	13C9-PFNA	1557547.08	1250.00	PFNA	0.380	0.319	✓
PFOS_1	499.0 / 80.0	2.63	119477.51	127.38	1193.2	False	13C8-PFOS	274436.79	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	24682.40	127.92	1841.2	False	13C8-PFOS	274436.79	1196.25	PFOS	0.207	0.207	✓
PFDA_1	513.0 / 469.0	3.00	144427.09	124.48	162.1	False	13C6-PFDA	1465095.47	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	9085.38	139.77	834.5	False	13C6-PFDA	1465095.47	1250.00	PFDA	0.063	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	195547.73	112.13	362.3	False	13C7-PFUnA	1637485.37	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	8924.89	105.79	21068.9	False	13C7-PFUnA	1637485.37	1250.00	PFUnA	0.046	0.056	✓
PFDoA_1	613.0 / 569.0	3.62	221813.70	112.96	334.1	False	13C2-PFDoA	2078575.17	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	24888.95	113.75	875.6	False	13C2-PFDoA	2078575.17	1250.00	PFDoA	0.112	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	203478.85	110.43	1082.1	False	13C2-PFTeDA	1782975.60	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	13461.50	115.38	1322.4	False	13C2-PFTeDA	1782975.60	1250.00	PFTrDA	0.066	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	207370.30	108.98	753.7	False	13C2-PFTeDA	1782975.60	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	11117.53	109.53	1278.4	False	13C2-PFTeDA	1782975.60	1250.00	PFTeDA	0.054	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	18746.25	132.67	96198.1	False	d3-MeFOSAA	198905.43	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	16075.79	100.65	1772.5	False	d3-MeFOSAA	198905.43	1250.00	NMeFOSAA	0.858	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	23801.16	116.67	376.8	False	d5-EtFOSAA	219317.36	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.33	1804.30	157.73	24034.0	True	d5-EtFOSAA	219317.36	1250.00	NEtFOSAA	0.076	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	152076.66	15.83	1863.4	False	13C3-HFPO-DA	599333.70	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	2263.20	98.03	243.5	False	13C3-HFPO-DA	599333.70	1250.00	HFPO-DA	0.015	0.018	✓
ADONA_1	377.0 / 251.0	1.94	416134.47	87.72	2324.9	False	13C3-HFPO-DA	599333.70	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	6114.22	110.80	422.3	False	13C3-HFPO-DA	599333.70	1250.00	ADONA	0.015	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	231233.55	114.25	529.2	False	13C3-HFPO-DA	599333.70	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.86	4067.79	137.38	68.8	False	13C3-HFPO-DA	599333.70	1250.00	9Cl-PF3ONS	0.018	0.011	
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	200238.68	111.20	1124.3	False	13C3-HFPO-DA	599333.70	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	757.82	105.04	36.7	False	13C3-HFPO-DA	599333.70	1250.00	11Cl-PF3OUdS	0.004	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY34	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:37:08 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	166082.68	254.68	6469.2	False	13C3-PFBS	275923.47	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	54603.18	242.38	1006.4	False	13C3-PFBS	275923.47	1161.25	PFBS	0.329	0.334	✓
PFHxA_1	313.0 / 269.0	1.59	284013.05	263.23	727.1	True	13C5-PFHxA	1468816.15	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	17655.73	253.12	267.5	True	13C5-PFHxA	1468816.15	1250.00	PFHxA	0.062	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	244054.29	271.63	422.2	False	13C4-PFHpA	1399252.83	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	8884.73	312.68	1357.5	False	13C4-PFHpA	1399252.83	1250.00	PFHpA	0.036	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	189801.37	256.71	6067.9	False	13C3-PFHxS	294523.89	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	72717.72	267.00	635.3	False	13C3-PFHxS	294523.89	1182.50	PFHxS	0.383	0.361	✓
PFOA_1	413.0 / 369.0	2.26	251629.22	241.76	187.2	False	13C8-PFOA	1530826.49	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	27462.15	257.79	148.9	False	13C8-PFOA	1530826.49	1250.00	PFOA	0.109	0.100	✓
PFNA_1	463.0 / 419.0	2.64	320922.15	268.41	439.2	False	13C9-PFNA	1599012.95	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	92469.31	238.58	532.6	False	13C9-PFNA	1599012.95	1250.00	PFNA	0.288	0.319	✓
PFOS_1	499.0 / 80.0	2.63	229486.81	256.60	989.7	False	13C8-PFOS	269713.92	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	48487.64	262.63	585.6	False	13C8-PFOS	269713.92	1196.25	PFOS	0.211	0.207	✓
PFDA_1	513.0 / 469.0	3.00	289774.86	257.29	299.0	False	13C6-PFDA	1496322.92	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	12731.16	197.13	2651.5	False	13C6-PFDA	1496322.92	1250.00	PFDA	0.044	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	357284.58	244.93	508.8	False	13C7-PFUnA	1565931.61	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	20011.35	257.38	80598.5	False	13C7-PFUnA	1565931.61	1250.00	PFUnA	0.056	0.056	✓
PFDoA_1	613.0 / 569.0	3.62	450526.44	252.72	532.4	False	13C2-PFDoA	2047596.51	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	52527.69	257.68	1649.7	False	13C2-PFDoA	2047596.51	1250.00	PFDoA	0.117	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	380359.16	244.06	1076.6	False	13C2-PFTeDA	1746075.76	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	26308.36	248.91	1933.9	False	13C2-PFTeDA	1746075.76	1250.00	PFTrDA	0.069	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	398390.11	248.86	1212.6	False	13C2-PFTeDA	1746075.76	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	22785.22	263.87	1755.2	False	13C2-PFTeDA	1746075.76	1250.00	PFTeDA	0.057	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	29427.77	242.98	700.6	False	d3-MeFOSAA	179662.05	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	36963.81	300.74	260.7	False	d3-MeFOSAA	179662.05	1250.00	NMeFOSAA	1.256	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	43869.64	246.24	599.9	False	d5-EtFOSAA	217578.92	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	2567.15	245.88	24521.2	False	d5-EtFOSAA	217578.92	1250.00	NEtFOSAA	0.059	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	326315.96	203.60	2742.2	False	13C3-HFPO-DA	570544.33	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.68	4855.24	235.04	170.6	False	13C3-HFPO-DA	570544.33	1250.00	HFPO-DA	0.015	0.018	✓
ADONA_1	377.0 / 251.0	1.94	832766.33	261.11	2881.2	False	13C3-HFPO-DA	570544.33	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.95	7839.49	176.08	82293.0	False	13C3-HFPO-DA	570544.33	1250.00	ADONA	0.009	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	441028.36	251.84	871.2	False	13C3-HFPO-DA	570544.33	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	4632.41	193.48	80.3	False	13C3-HFPO-DA	570544.33	1250.00	9Cl-PF3ONS	0.011	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	387559.90	250.96	1330.2	False	13C3-HFPO-DA	570544.33	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	1833.64	287.91	104.8	False	13C3-HFPO-DA	570544.33	1250.00	11Cl-PF3OUdS	0.005	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY35	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:47:41 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	322784.54	520.72	51212.0	False	13C3-PFBS	278895.22	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	108351.34	525.88	1620.2	False	13C3-PFBS	278895.22	1161.25	PFBS	0.336	0.334	✓
PFHxA_1	313.0 / 269.0	1.59	551686.23	512.64	869.7	True	13C5-PFHxA	1402602.26	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.59	37063.79	546.79	391.8	False	13C5-PFHxA	1402602.26	1250.00	PFHxA	0.067	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	437248.61	507.33	568.6	False	13C4-PFHpA	1348937.15	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	13288.89	488.07	1037.4	False	13C4-PFHpA	1348937.15	1250.00	PFHpA	0.030	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	399946.52	539.76	9797.9	False	13C3-PFHxS	291131.06	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	137012.95	514.13	884.7	False	13C3-PFHxS	291131.06	1182.50	PFHxS	0.343	0.361	✓
PFOA_1	413.0 / 369.0	2.26	529553.33	506.55	300.1	False	13C8-PFOA	1504001.74	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	55775.42	538.77	258.3	False	13C8-PFOA	1504001.74	1250.00	PFOA	0.105	0.100	✓
PFNA_1	463.0 / 419.0	2.63	563359.61	475.85	446.6	False	13C9-PFNA	1603918.80	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.63	178957.06	475.95	857.6	False	13C9-PFNA	1603918.80	1250.00	PFNA	0.318	0.319	✓
PFOS_1	499.0 / 80.0	2.63	452091.82	527.60	1509.5	False	13C8-PFOS	262507.11	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	89779.70	505.90	695.8	False	13C8-PFOS	262507.11	1196.25	PFOS	0.199	0.207	✓
PFDA_1	513.0 / 469.0	2.99	572162.62	500.41	417.2	False	13C6-PFDA	1556021.15	1250.00	PFDA			
PFDA_2	513.0 / 219.0	2.99	33124.87	514.84	8546.4	False	13C6-PFDA	1556021.15	1250.00	PFDA	0.058	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	757253.84	554.54	722.6	False	13C7-PFUnA	1572122.67	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	44614.62	580.05	2738.2	False	13C7-PFUnA	1572122.67	1250.00	PFUnA	0.059	0.056	✓
PFDoA_1	613.0 / 569.0	3.62	866807.46	524.28	767.1	False	13C2-PFDoA	1969098.18	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	100041.94	522.32	1989.4	False	13C2-PFDoA	1969098.18	1250.00	PFDoA	0.115	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	799841.80	532.11	1567.6	False	13C2-PFTeDA	1812079.18	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	55817.46	528.46	2627.8	False	13C2-PFTeDA	1812079.18	1250.00	PFTrDA	0.070	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	809573.13	522.22	1882.2	False	13C2-PFTeDA	1812079.18	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	42663.76	501.57	2484.0	False	13C2-PFTeDA	1812079.18	1250.00	PFTeDA	0.053	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	63190.03	506.03	3681.5	False	d3-MeFOSAA	191701.84	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	61227.60	482.78	2766.8	False	d3-MeFOSAA	191701.84	1250.00	NMeFOSAA	0.969	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.31	85575.71	525.78	771.0	False	d5-EtFOSAA	212615.40	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	4078.36	428.09	31562.0	False	d5-EtFOSAA	212615.40	1250.00	NEtFOSAA	0.048	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.68	615227.98	497.68	3050.9	False	13C3-HFPO-DA	574820.77	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.68	11173.19	551.34	454.5	False	13C3-HFPO-DA	574820.77	1250.00	HFPO-DA	0.018	0.018	✓
ADONA_1	377.0 / 251.0	1.94	1617364.80	567.91	4049.1	False	13C3-HFPO-DA	574820.77	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	22083.87	631.38	1172.7	False	13C3-HFPO-DA	574820.77	1250.00	ADONA	0.014	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	896938.40	531.65	1264.5	False	13C3-HFPO-DA	574820.77	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.84	9827.65	571.56	172.8	False	13C3-HFPO-DA	574820.77	1250.00	9Cl-PF3ONS	0.011	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	810125.05	546.55	1767.9	False	13C3-HFPO-DA	574820.77	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	2749.76	435.17	145.9	False	13C3-HFPO-DA	574820.77	1250.00	11Cl-PF3OUdS	0.003	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY36	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:58:14 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	604024.32	1014.00	9166.6	False	13C3-PFBS	276160.01	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	203984.83	1046.66	1991.6	False	13C3-PFBS	276160.01	1161.25	PFBS	0.338	0.334	✓
PFHxA_1	313.0 / 269.0	1.59	1012415.24	906.04	1031.4	True	13C5-PFHxA	1428491.56	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.59	66422.83	956.02	884.9	False	13C5-PFHxA	1428491.56	1250.00	PFHxA	0.066	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	777951.39	962.18	862.5	False	13C4-PFHpA	1268935.62	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	23109.10	906.79	652.3	False	13C4-PFHpA	1268935.62	1250.00	PFHpA	0.030	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	733659.21	993.47	10410.8	False	13C3-PFHxS	288517.39	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	270628.76	1030.40	1503.6	False	13C3-PFHxS	288517.39	1182.50	PFHxS	0.369	0.361	✓
PFOA_1	413.0 / 369.0	2.27	952173.12	888.36	404.1	False	13C8-PFOA	1528894.08	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	95942.52	915.49	416.6	False	13C8-PFOA	1528894.08	1250.00	PFOA	0.101	0.100	✓
PFNA_1	463.0 / 419.0	2.64	1156130.69	984.17	773.5	False	13C9-PFNA	1605419.76	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.63	374814.63	1014.29	1349.8	False	13C9-PFNA	1605419.76	1250.00	PFNA	0.324	0.319	✓
PFOS_1	499.0 / 80.0	2.63	842134.82	970.25	1655.7	False	13C8-PFOS	267728.49	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	180773.53	1005.55	1011.3	False	13C8-PFOS	267728.49	1196.25	PFOS	0.215	0.207	✓
PFDA_1	513.0 / 469.0	3.00	1082641.23	973.01	561.1	False	13C6-PFDA	1533393.66	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	64460.93	1030.70	4650.6	False	13C6-PFDA	1533393.66	1250.00	PFDA	0.060	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	1321731.37	953.26	953.7	False	13C7-PFUnA	1635492.51	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	75949.27	953.61	1375.4	False	13C7-PFUnA	1635492.51	1250.00	PFUnA	0.057	0.056	✓
PFDoA_1	613.0 / 569.0	3.62	1621704.86	1016.49	1067.7	False	13C2-PFDoA	1932260.94	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	189325.80	1018.69	2330.2	False	13C2-PFDoA	1932260.94	1250.00	PFDoA	0.117	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	1448536.83	1024.24	1888.7	False	13C2-PFTeDA	1759327.19	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	97869.41	969.48	2856.2	False	13C2-PFTeDA	1759327.19	1250.00	PFTrDA	0.068	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	1468891.85	1007.61	2430.6	False	13C2-PFTeDA	1759327.19	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	80298.43	1002.08	3440.2	False	13C2-PFTeDA	1759327.19	1250.00	PFTeDA	0.055	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	119704.12	978.29	257327.4	False	d3-MeFOSAA	190805.32	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	120973.52	986.73	2383.7	False	d3-MeFOSAA	190805.32	1250.00	NMeFOSAA	1.011	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	155119.23	1027.12	1256.6	False	d5-EtFOSAA	203373.06	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	6840.06	784.74	836.7	False	d5-EtFOSAA	203373.06	1250.00	NEtFOSAA	0.044	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.68	1176370.91	1057.18	4531.2	False	13C3-HFPO-DA	582810.29	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.68	21864.69	1074.59	1179.1	False	13C3-HFPO-DA	582810.29	1250.00	HFPO-DA	0.019	0.018	✓
ADONA_1	377.0 / 251.0	1.94	2981887.81	1089.64	6418.7	False	13C3-HFPO-DA	582810.29	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	37360.32	1105.25	8035.0	False	13C3-HFPO-DA	582810.29	1250.00	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	1749306.97	1043.77	1701.7	False	13C3-HFPO-DA	582810.29	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.84	16555.32	1047.83	275.6	False	13C3-HFPO-DA	582810.29	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	1480333.16	1004.34	2310.9	False	13C3-HFPO-DA	582810.29	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.49	6738.18	1070.98	268.7	False	13C3-HFPO-DA	582810.29	1250.00	11Cl-PF3OUdS	0.005	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY37	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:08:45 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	1485830.62	2566.83	50258.7	False	13C3-PFBS	273672.04	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	485489.25	2586.55	2916.0	False	13C3-PFBS	273672.04	1161.25	PFBS	0.327	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	2580891.35	2403.01	2241.9	False	13C5-PFHxA	1352025.69	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	149649.92	2264.58	862.4	False	13C5-PFHxA	1352025.69	1250.00	PFHxA	0.058	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	1835397.70	2211.10	1227.3	False	13C4-PFHpA	1305002.93	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	60763.64	2326.77	9421.2	False	13C4-PFHpA	1305002.93	1250.00	PFHpA	0.033	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	1642935.33	2353.69	6560.4	False	13C3-PFHxS	271658.64	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	590254.46	2394.37	2144.1	False	13C3-PFHxS	271658.64	1182.50	PFHxS	0.359	0.361	✓
PFOA_1	413.0 / 369.0	2.26	2380821.50	2457.81	590.9	False	13C8-PFOA	1371864.33	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	226057.95	2412.90	554.1	False	13C8-PFOA	1371864.33	1250.00	PFOA	0.095	0.100	✓
PFNA_1	463.0 / 419.0	2.64	2797652.63	2593.45	1181.0	False	13C9-PFNA	1481783.46	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	837630.98	2479.76	1541.5	False	13C9-PFNA	1481783.46	1250.00	PFNA	0.299	0.319	✓
PFOS_1	499.0 / 80.0	2.63	2074490.92	2398.69	2106.6	False	13C8-PFOS	268076.78	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	428054.32	2387.42	1366.1	False	13C8-PFOS	268076.78	1196.25	PFOS	0.206	0.207	✓
PFDA_1	513.0 / 469.0	3.00	2585033.26	2472.54	830.4	False	13C6-PFDA	1452619.15	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	148787.44	2532.01	1190.1	False	13C6-PFDA	1452619.15	1250.00	PFDA	0.058	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	3228798.24	2560.58	1370.3	False	13C7-PFUnA	1519967.71	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	183534.76	2490.73	2671.5	False	13C7-PFUnA	1519967.71	1250.00	PFUnA	0.057	0.056	✓
PFDoA_1	613.0 / 569.0	3.62	4010857.01	2510.50	1586.2	False	13C2-PFDoA	1955944.44	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	453274.15	2426.07	2518.2	False	13C2-PFDoA	1955944.44	1250.00	PFDoA	0.113	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	3446769.39	2575.91	2602.4	False	13C2-PFTeDA	1699909.49	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	248433.52	2577.47	4050.3	False	13C2-PFTeDA	1699909.49	1250.00	PFTrDA	0.072	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	3670068.28	2663.35	3062.3	False	13C2-PFTeDA	1699909.49	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	197702.21	2602.52	3167.0	False	13C2-PFTeDA	1699909.49	1250.00	PFTeDA	0.054	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	290299.85	2420.13	4064.8	False	d3-MeFOSAA	188953.96	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	299858.18	2513.08	1824.2	False	d3-MeFOSAA	188953.96	1250.00	NMeFOSAA	1.033	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	374669.37	2517.17	1618.7	False	d5-EtFOSAA	204356.21	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	23746.21	2822.45	16039.9	False	d5-EtFOSAA	204356.21	1250.00	NEtFOSAA	0.063	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	2853120.69	2700.95	5516.1	False	13C3-HFPO-DA	593900.28	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.68	54998.87	2669.11	2927.5	False	13C3-HFPO-DA	593900.28	1250.00	HFPO-DA	0.019	0.018	✓
ADONA_1	377.0 / 251.0	1.94	7098455.17	2638.47	8871.6	False	13C3-HFPO-DA	593900.28	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	88991.80	2687.06	47568.4	False	13C3-HFPO-DA	593900.28	1250.00	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.84	4095074.58	2427.46	2772.9	False	13C3-HFPO-DA	593900.28	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.84	34700.06	2312.16	579.8	False	13C3-HFPO-DA	593900.28	1250.00	9Cl-PF3ONS	0.008	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	3765781.68	2543.24	3538.7	False	13C3-HFPO-DA	593900.28	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	16865.34	2650.33	525.0	False	13C3-HFPO-DA	593900.28	1250.00	11Cl-PF3OUdS	0.004	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY38	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:19:18 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	5867144.42	10401.77	28833.1	False	13C3-PFBS	269295.54	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	1946199.01	10696.99	7661.4	False	13C3-PFBS	269295.54	1161.25	PFBS	0.332	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	9586463.73	9830.48	4314.2	False	13C5-PFHxA	1219063.64	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	611489.15	10234.11	1763.1	False	13C5-PFHxA	1219063.64	1250.00	PFHxA	0.064	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	7640173.98	10532.22	2619.9	False	13C4-PFHpA	1141636.58	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	235004.40	10304.87	4446.2	False	13C4-PFHpA	1141636.58	1250.00	PFHpA	0.031	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	6781564.39	10385.33	14942.1	False	13C3-PFHxS	253580.83	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	2419638.96	10534.40	4154.7	False	13C3-PFHxS	253580.83	1182.50	PFHxS	0.357	0.361	✓
PFOA_1	413.0 / 369.0	2.27	9469969.92	10395.84	1289.4	False	13C8-PFOA	1286118.70	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	912018.64	10401.88	1175.8	False	13C8-PFOA	1286118.70	1250.00	PFOA	0.096	0.100	✓
PFNA_1	463.0 / 419.0	2.64	11125488.67	10761.46	2167.9	False	13C9-PFNA	1423474.54	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	3403699.91	10543.54	2939.7	False	13C9-PFNA	1423474.54	1250.00	PFNA	0.306	0.319	✓
PFOS_1	499.0 / 80.0	2.63	8284896.38	10335.08	3419.4	False	13C8-PFOS	249119.43	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	1675381.83	10077.64	2562.1	False	13C8-PFOS	249119.43	1196.25	PFOS	0.202	0.207	✓
PFDA_1	513.0 / 469.0	3.00	9950014.30	10170.81	1597.7	False	13C6-PFDA	1364735.92	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	569619.32	10362.06	2835.7	False	13C6-PFDA	1364735.92	1250.00	PFDA	0.057	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	12599772.99	10644.81	1982.7	False	13C7-PFUnA	1440998.58	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	714172.30	10244.69	3751.9	False	13C7-PFUnA	1440998.58	1250.00	PFUnA	0.057	0.056	✓
PFDoA_1	613.0 / 569.0	3.62	15851206.74	10298.38	2048.9	False	13C2-PFDoA	1894973.17	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.62	1875579.48	10401.74	2428.1	False	13C2-PFDoA	1894973.17	1250.00	PFDoA	0.118	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	13812620.50	10432.54	2641.8	False	13C2-PFTeDA	1699958.95	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	1001053.36	10442.32	3344.4	False	13C2-PFTeDA	1699958.95	1250.00	PFTrDA	0.072	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	14150230.17	10372.56	3396.0	False	13C2-PFTeDA	1699958.95	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	785716.92	10437.03	3202.4	False	13C2-PFTeDA	1699958.95	1250.00	PFTeDA	0.056	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	1157937.29	10075.46	3850.8	False	d3-MeFOSAA	181992.27	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	1205058.51	10577.15	3195.6	False	d3-MeFOSAA	181992.27	1250.00	NMeFOSAA	1.041	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	1481341.94	9975.05	1466.1	False	d5-EtFOSAA	205962.04	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	82060.93	9787.68	25479.7	False	d5-EtFOSAA	205962.04	1250.00	NEtFOSAA	0.055	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	11444589.24	11017.73	9631.8	False	13C3-HFPO-DA	605598.35	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	223695.89	10680.00	2427.5	False	13C3-HFPO-DA	605598.35	1250.00	HFPO-DA	0.020	0.018	✓
ADONA_1	377.0 / 251.0	1.94	26193314.05	9730.16	12957.4	False	13C3-HFPO-DA	605598.35	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	319778.28	9664.43	5619.3	False	13C3-HFPO-DA	605598.35	1250.00	ADONA	0.012	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	17090878.88	10006.04	5923.2	False	13C3-HFPO-DA	605598.35	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	147553.41	10112.59	1240.5	False	13C3-HFPO-DA	605598.35	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	14871528.32	9918.72	6880.8	False	13C3-HFPO-DA	605598.35	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	66104.25	10225.98	1057.2	False	13C3-HFPO-DA	605598.35	1250.00	11Cl-PF3OUdS	0.004	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY39	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:29:50 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	13387077.70	24507.17	66917.5	False	13C3-PFBS	261281.23	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	4254908.10	24168.91	10855.9	False	13C3-PFBS	261281.23	1161.25	PFBS	0.318	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	21050385.76	25714.24	6255.6	False	13C5-PFHxA	1021942.25	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	1271907.63	25381.21	2291.7	False	13C5-PFHxA	1021942.25	1250.00	PFHxA	0.060	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	16403222.92	24764.49	3807.3	False	13C4-PFHpA	1042591.12	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	518889.63	24922.28	6645.8	False	13C4-PFHpA	1042591.12	1250.00	PFHpA	0.032	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	14652320.55	25116.60	15538.7	False	13C3-PFHxS	226459.23	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	5108314.16	24911.48	4998.4	False	13C3-PFHxS	226459.23	1182.50	PFHxS	0.349	0.361	✓
PFOA_1	413.0 / 369.0	2.27	20786160.10	24744.80	1830.2	False	13C8-PFOA	1185338.05	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.27	1997398.75	24725.48	1608.1	False	13C8-PFOA	1185338.05	1250.00	PFOA	0.096	0.100	✓
PFNA_1	463.0 / 419.0	2.64	23407504.18	24177.92	3048.7	False	13C9-PFNA	1333583.40	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	7400330.30	24491.19	5450.6	False	13C9-PFNA	1333583.40	1250.00	PFNA	0.316	0.319	✓
PFOS_1	499.0 / 80.0	2.64	18402694.18	25153.15	2212.2	False	13C8-PFOS	227468.76	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.64	3854352.02	25401.69	2613.6	False	13C8-PFOS	227468.76	1196.25	PFOS	0.209	0.207	✓
PFDA_1	513.0 / 469.0	3.01	22698139.79	24876.46	2262.1	False	13C6-PFDA	1273842.14	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	1261145.22	24598.49	3777.1	False	13C6-PFDA	1273842.14	1250.00	PFDA	0.056	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	26463403.38	24304.75	2096.2	False	13C7-PFUnA	1327898.20	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	1588841.73	24742.74	2609.4	False	13C7-PFUnA	1327898.20	1250.00	PFUnA	0.060	0.056	✓
PFDoA_1	613.0 / 569.0	3.63	35337836.23	24659.69	2323.4	False	13C2-PFDoA	1766117.33	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.63	4137131.61	24634.76	2566.2	False	13C2-PFDoA	1766117.33	1250.00	PFDoA	0.117	0.116	✓
PFTrDA_1	663.0 / 619.0	3.89	30154272.84	24455.70	2702.6	False	13C2-PFTeDA	1586328.51	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	2188818.16	24492.98	2646.6	False	13C2-PFTeDA	1586328.51	1250.00	PFTrDA	0.073	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	31064141.86	24451.41	3394.9	False	13C2-PFTeDA	1586328.51	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	1715209.86	24458.40	3726.6	False	13C2-PFTeDA	1586328.51	1250.00	PFTeDA	0.055	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	2876479.24	25019.43	4813.5	False	d3-MeFOSAA	182242.36	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	2781014.30	24413.86	3506.5	False	d3-MeFOSAA	182242.36	1250.00	NMeFOSAA	0.967	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	3217540.65	24966.99	1597.6	False	d5-EtFOSAA	179102.17	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	182834.02	25148.41	1232.6	False	d5-EtFOSAA	179102.17	1250.00	NEtFOSAA	0.057	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	24511756.40	23772.86	11126.0	False	13C3-HFPO-DA	605029.42	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	503319.40	24066.89	3833.5	False	13C3-HFPO-DA	605029.42	1250.00	HFPO-DA	0.021	0.018	✓
ADONA_1	377.0 / 251.0	1.95	53966962.15	20140.17	24250.9	False	13C3-HFPO-DA	605029.42	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.95	696657.92	21165.78	7705.3	False	13C3-HFPO-DA	605029.42	1250.00	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	38777060.66	22752.84	7739.8	False	13C3-HFPO-DA	605029.42	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	339927.08	23512.73	2052.9	False	13C3-HFPO-DA	605029.42	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.49	34006822.80	22733.56	10109.5	False	13C3-HFPO-DA	605029.42	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.49	158747.84	24599.59	1411.3	False	13C3-HFPO-DA	605029.42	1250.00	11Cl-PF3OUdS	0.005	0.004	✓

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PFAS Calibration Quant Report

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Sample Name	KY33	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	2078575.17	1315.96	4542.3	False	13C2-PFDA	1167142.42	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	199423.94	1290.31	1078.8	False	13C4-PFOS	262631.33	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	220489.36	1310.54	865.3	False	13C4-PFOS	262631.33	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1521251.87	1425.95	11813.1	False	13C2-PFOA	732000.67	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1415258.75	1399.96	101557.0	False	13C2-PFOA	732000.67	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1475160.78	1317.56	23859.2	False	13C2-PFOA	732000.67	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1557547.08	1296.60	4812.3	False	13C2-PFOA	732000.67	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1465095.47	1248.09	5151.8	False	13C2-PFDA	1167142.42	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1637485.37	1322.30	3838.2	False	13C2-PFDA	1167142.42	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1782975.60	1273.69	3464.3	False	13C2-PFDA	1167142.42	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	262683.78	1142.86	13295.0	True	13C4-PFOS	262631.33	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	303965.12	1278.24	34556.8	False	13C4-PFOS	262631.33	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	274436.79	1237.09	1362.1	False	13C4-PFOS	262631.33	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	599333.70	1281.19	4271.2	False	13C2-PFOA	732000.67	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY34	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:37:08 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	2047596.51	1256.94	5352.5	False	13C2-PFDA	1203731.56	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	179570.72	1146.26	1555.8	False	13C4-PFOS	266204.40	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	216783.02	1271.22	708.5	False	13C4-PFOS	266204.40	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.58	1468816.15	1351.45	12096.7	False	13C2-PFOA	745733.45	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1399252.83	1358.63	9824.4	False	13C2-PFOA	745733.45	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1530826.49	1342.10	1703821.0	False	13C2-PFOA	745733.45	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1599012.95	1306.60	62617.2	False	13C2-PFOA	745733.45	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1496322.92	1235.94	4755.7	False	13C2-PFDA	1203731.56	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1565931.61	1226.09	4273.6	False	13C2-PFDA	1203731.56	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1746075.76	1209.42	3602.2	False	13C2-PFDA	1203731.56	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	269190.02	1155.45	5706.8	True	13C4-PFOS	266204.40	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	294523.89	1221.91	2856.3	False	13C4-PFOS	266204.40	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	269713.92	1199.48	1403.7	False	13C4-PFOS	266204.40	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	570544.33	1197.19	4343.9	False	13C2-PFOA	745733.45	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY35	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:47:41 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	1969098.18	1245.84	3470.5	False	13C2-PFDA	1167903.12	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	191484.53	1231.09	1136.1	False	13C4-PFOS	264305.96	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	212654.56	1255.97	713.0	False	13C4-PFOS	264305.96	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.58	1402602.26	1312.83	8428.5	False	13C2-PFOA	733063.44	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1348937.15	1332.42	89800.5	False	13C2-PFOA	733063.44	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1504001.74	1341.37	1824998.7	False	13C2-PFOA	733063.44	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1603918.80	1333.26	7299.7	False	13C2-PFOA	733063.44	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1556021.15	1324.68	5551.4	False	13C2-PFDA	1167903.12	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1572122.67	1268.70	3180.1	False	13C2-PFDA	1167903.12	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1812079.18	1293.64	3819.4	False	13C2-PFDA	1167903.12	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	273444.45	1182.14	5400.6	True	13C4-PFOS	264305.96	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	291131.06	1216.51	2590.0	False	13C4-PFOS	264305.96	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	262507.11	1175.82	1333.7	False	13C4-PFOS	264305.96	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	574820.77	1227.01	3498.9	False	13C2-PFOA	733063.44	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY36	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:58:14 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	1932260.94	1252.31	4017.1	False	13C2-PFDA	1140130.37	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	192949.94	1294.48	1531.0	False	13C4-PFOS	253287.18	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	202025.92	1245.10	814.8	False	13C4-PFOS	253287.18	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.58	1428491.56	1342.26	18210.5	False	13C2-PFOA	730227.80	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1268935.62	1258.26	55774.7	False	13C2-PFOA	730227.80	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1528894.08	1368.87	1183.1	False	13C2-PFOA	730227.80	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1605419.76	1339.69	75005115.7	False	13C2-PFOA	730227.80	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1533393.66	1337.22	3121.5	False	13C2-PFDA	1140130.37	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1635492.51	1351.99	3432.8	False	13C2-PFDA	1140130.37	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1759327.19	1286.57	3281.3	False	13C2-PFDA	1140130.37	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	268566.22	1211.56	6970.8	True	13C4-PFOS	253287.18	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	288517.39	1258.04	2016.7	False	13C4-PFOS	253287.18	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	267728.49	1251.37	997.0	False	13C4-PFOS	253287.18	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.68	582810.29	1248.90	4583.4	False	13C2-PFOA	730227.80	1250.00		N/A	N/A	✓

PFAS Calibration Quant Report

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Sample Name	KY37	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:08:45 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	1955944.44	1228.59	4015.0	False	13C2-PFDA	1176387.50	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	190759.51	1213.66	1563.3	False	13C4-PFOS	267085.89	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	207104.53	1210.46	713.0	False	13C4-PFOS	267085.89	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.58	1352025.69	1279.03	9858.6	False	13C2-PFOA	725306.31	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1305002.93	1302.81	13642.1	False	13C2-PFOA	725306.31	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1371864.33	1236.61	1429045.1	False	13C2-PFOA	725306.31	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1481783.46	1244.91	64439.3	False	13C2-PFOA	725306.31	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1452619.15	1227.73	9321.5	False	13C2-PFDA	1176387.50	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1519967.71	1217.76	4366.7	False	13C2-PFDA	1176387.50	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1699909.49	1204.81	3362.6	False	13C2-PFDA	1176387.50	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	267258.02	1143.37	4519.5	True	13C4-PFOS	267085.89	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	271658.64	1123.33	2242.4	False	13C4-PFOS	267085.89	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	268076.78	1188.27	1891.4	False	13C4-PFOS	267085.89	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	593900.28	1281.30	4122.1	False	13C2-PFOA	725306.31	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY38	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:19:18 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.62	1894973.17	1213.65	4440.4	False	13C2-PFDA	1153745.15	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	183584.16	1176.20	1182.0	False	13C4-PFOS	265226.50	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	205843.84	1211.52	742.3	False	13C4-PFOS	265226.50	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1219063.64	1095.04	6987.0	False	13C2-PFOA	763860.08	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1141636.58	1082.19	5100.2	False	13C2-PFOA	763860.08	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1286118.70	1100.80	30364.3	False	13C2-PFOA	763860.08	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1423474.54	1135.56	3849.1	False	13C2-PFOA	763860.08	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1364735.92	1176.09	4835.7	False	13C2-PFDA	1153745.15	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.33	1440998.58	1177.15	2941.5	False	13C2-PFDA	1153745.15	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1699958.95	1228.49	3497.6	False	13C2-PFDA	1153745.15	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	262783.01	1132.11	5952.1	True	13C4-PFOS	265226.50	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	253580.83	1055.93	2225.8	False	13C4-PFOS	265226.50	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	249119.43	1111.98	852.6	False	13C4-PFOS	265226.50	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	605598.35	1240.59	2887.6	False	13C2-PFOA	763860.08	1250.00		N/A	N/A	✓

PFAS Calibration Quant Report

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Sample Name	KY39	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:29:50 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.63	1766117.33	1236.71	3011.2	False	13C2-PFDA	1055239.03	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	183139.60	1398.01	1189.3	False	13C4-PFOS	222604.44	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.32	177566.43	1245.19	656.0	False	13C4-PFOS	222604.44	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1021942.25	943.44	8683.4	False	13C2-PFOA	743235.34	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1042591.12	1015.73	3167680.8	False	13C2-PFOA	743235.34	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1185338.05	1042.70	1802.9	False	13C2-PFOA	743235.34	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1333583.40	1093.37	3903.9	False	13C2-PFOA	743235.34	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.00	1273842.14	1200.24	2809.0	False	13C2-PFDA	1055239.03	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.33	1327898.20	1186.02	3308.4	False	13C2-PFDA	1055239.03	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1586328.51	1253.39	3337.9	False	13C2-PFDA	1055239.03	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	261281.23	1341.16	6731.2	False	13C4-PFOS	222604.44	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	226459.23	1123.55	2865.3	False	13C4-PFOS	222604.44	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	227468.76	1209.74	1147.4	False	13C4-PFOS	222604.44	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	605029.42	1273.82	3722.1	False	13C2-PFOA	743235.34	1250.00		N/A	N/A	✓

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QC Summary Report

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Sample Name	KY41 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:50:56 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.33	2490.27	2500.00	99.61
PFBS_2	298.9 / 99.0	1.33	2529.39	2500.00	101.18
PFHxA_1	313.0 / 269.0	1.58	2360.68	2525.00	93.49
PFHxA_2	313.0 / 119.0	1.58	2375.61	2525.00	94.08
PFHpA_1	363.0 / 319.0	1.91	2374.47	2500.00	94.98
PFHpA_2	363.0 / 169.0	1.91	2234.72	2500.00	89.39
PFHxS_1	399.0 / 80.0	1.92	2347.61	2525.00	92.97
PFHxS_2	399.0 / 99.0	1.92	2289.93	2525.00	90.69
PFOA_1	413.0 / 369.0	2.27	2275.24	2500.00	91.01
PFOA_2	413.0 / 169.0	2.27	2366.61	2500.00	94.66
PFNA_1	463.0 / 419.0	2.65	2395.06	2500.00	95.80
PFNA_2	463.0 / 219.0	2.65	2424.88	2500.00	97.00
PFOS_1	499.0 / 80.0	2.64	2592.86	2525.00	102.69
PFOS_2	499.0 / 99.0	2.64	2690.61	2525.00	106.56
PFDA_1	513.0 / 469.0	3.01	2264.11	2500.00	90.56
PFDA_2	513.0 / 219.0	3.01	2100.16	2500.00	84.01
PFUnA_1	563.0 / 519.0	3.33	2341.28	2500.00	93.65
PFUnA_2	563.0 / 269.0	3.33	2307.50	2500.00	92.30
PFDoA_1	613.0 / 569.0	3.63	2294.21	2500.00	91.77
PFDoA_2	613.0 / 319.0	3.63	2233.45	2500.00	89.34
PFTrDA_1	663.0 / 619.0	3.88	2385.64	2500.00	95.43
PFTrDA_2	663.0 / 169.0	3.88	2294.96	2500.00	91.80
PFTeDA_1	713.0 / 669.0	4.12	2390.61	2500.00	95.62
PFTeDA_2	713.0 / 169.0	4.12	2361.81	2500.00	94.47
NMeFOSAA_1	570.0 / 419.0	3.15	2248.93	2500.00	89.96
NMeFOSAA_2	570.0 / 512.0	3.15	2287.68	2500.00	91.51
NEtFOSAA_1	584.0 / 419.0	3.32	2333.29	2500.00	93.33
NEtFOSAA_2	584.0 / 483.0	3.32	2472.51	2500.00	98.90
HFPO-DA_1	285.0 / 169.0	1.67	2547.92	2500.00	101.92
HFPO-DA_2	285.0 / 118.8	1.67	2503.95	2500.00	100.16
ADONA_1	377.0 / 251.0	1.95	2312.12	2500.00	92.48
ADONA_2	377.0 / 85.0	1.95	2454.73	2500.00	98.19
9Cl-PF3ONS_1	531.0 / 351.0	2.85	2388.18	2500.00	95.53
9Cl-PF3ONS_2	531.0 / 83.0	2.85	2390.81	2500.00	95.63
11Cl-pf3OUdS_1	631.0 / 451.0	3.49	2430.56	2500.00	97.22
11Cl-pf3OUdS_2	631.0 / 83.0	3.49	2826.71	2500.00	113.07

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QC Summary Report

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Sample Name	KY37 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 12:59:44 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.33	2514.32	2500.00	100.57
PFBS_2	298.9 / 99.0	1.33	2562.20	2500.00	102.49
PFHxA_1	313.0 / 269.0	1.58	2595.34	2525.00	102.79
PFHxA_2	313.0 / 119.0	1.58	2447.25	2525.00	96.92
PFHpA_1	363.0 / 319.0	1.91	2510.24	2500.00	100.41
PFHpA_2	363.0 / 169.0	1.91	2549.69	2500.00	101.99
PFHxS_1	399.0 / 80.0	1.92	2479.23	2525.00	98.19
PFHxS_2	399.0 / 99.0	1.92	2487.08	2525.00	98.50
PFOA_1	413.0 / 369.0	2.27	2480.86	2500.00	99.23
PFOA_2	413.0 / 169.0	2.27	2353.27	2500.00	94.13
PFNA_1	463.0 / 419.0	2.64	2459.53	2500.00	98.38
PFNA_2	463.0 / 219.0	2.64	2420.21	2500.00	96.81
PFOS_1	499.0 / 80.0	2.64	2639.04	2525.00	104.52
PFOS_2	499.0 / 99.0	2.63	2532.03	2525.00	100.28
PFDA_1	513.0 / 469.0	3.00	2326.52	2500.00	93.06
PFDA_2	513.0 / 219.0	3.00	2359.19	2500.00	94.37
PFUnA_1	563.0 / 519.0	3.32	2574.06	2500.00	102.96
PFUnA_2	563.0 / 269.0	3.32	2533.12	2500.00	101.32
PFDoA_1	613.0 / 569.0	3.61	2504.22	2500.00	100.17
PFDoA_2	613.0 / 319.0	3.61	2520.34	2500.00	100.81
PFTrDA_1	663.0 / 619.0	3.87	2592.80	2500.00	103.71
PFTrDA_2	663.0 / 169.0	3.87	2557.05	2500.00	102.28
PFTeDA_1	713.0 / 669.0	4.10	2644.98	2500.00	105.80
PFTeDA_2	713.0 / 169.0	4.10	2620.30	2500.00	104.81
NMeFOSAA_1	570.0 / 419.0	3.14	2451.02	2500.00	98.04
NMeFOSAA_2	570.0 / 512.0	3.14	2454.81	2500.00	98.19
NEtFOSAA_1	584.0 / 419.0	3.31	2512.12	2500.00	100.48
NEtFOSAA_2	584.0 / 483.0	3.31	2529.98	2500.00	101.20
HFPO-DA_1	285.0 / 169.0	1.66	2763.61	2500.00	110.54
HFPO-DA_2	285.0 / 118.8	1.66	2807.73	2500.00	112.31
ADONA_1	377.0 / 251.0	1.94	2440.89	2500.00	97.64
ADONA_2	377.0 / 85.0	1.94	2721.88	2500.00	108.88
9Cl-PF3ONS_1	531.0 / 351.0	2.85	2621.05	2500.00	104.84
9Cl-PF3ONS_2	531.0 / 83.0	2.85	2624.82	2500.00	104.99
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	2459.65	2500.00	98.39
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	2516.06	2500.00	100.64

Sample Name	KY36 CCV	Injection Vial	32
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:55:45 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.32	996.42	1000.00	99.64
PFBS_2	298.9 / 99.0	1.32	1001.59	1000.00	100.16
PFHxA_1	313.0 / 269.0	1.57	1080.71	1010.00	107.00
PFHxA_2	313.0 / 119.0	1.57	1098.02	1010.00	108.72
PFHpA_1	363.0 / 319.0	1.90	945.15	1000.00	94.52
PFHpA_2	363.0 / 169.0	1.90	864.14	1000.00	86.41
PFHxS_1	399.0 / 80.0	1.91	991.07	1010.00	98.13
PFHxS_2	399.0 / 99.0	1.91	1012.19	1010.00	100.22
PFOA_1	413.0 / 369.0	2.26	942.35	1000.00	94.23
PFOA_2	413.0 / 169.0	2.26	994.51	1000.00	99.45
PFNA_1	463.0 / 419.0	2.63	1023.78	1000.00	102.38
PFNA_2	463.0 / 219.0	2.63	1013.60	1000.00	101.36
PFOS_1	499.0 / 80.0	2.62	1015.24	1010.00	100.52
PFOS_2	499.0 / 99.0	2.62	976.12	1010.00	96.65
PFDA_1	513.0 / 469.0	2.99	928.02	1000.00	92.80
PFDA_2	513.0 / 219.0	2.99	913.75	1000.00	91.37
PFUnA_1	563.0 / 519.0	3.31	963.05	1000.00	96.31
PFUnA_2	563.0 / 269.0	3.31	968.59	1000.00	96.86
PFDoA_1	613.0 / 569.0	3.60	1003.16	1000.00	100.32
PFDoA_2	613.0 / 319.0	3.60	971.70	1000.00	97.17
PFTrDA_1	663.0 / 619.0	3.86	993.77	1000.00	99.38
PFTrDA_2	663.0 / 169.0	3.86	1006.89	1000.00	100.69
PFTeDA_1	713.0 / 669.0	4.09	1028.09	1000.00	102.81
PFTeDA_2	713.0 / 169.0	4.09	1041.05	1000.00	104.11
NMeFOSAA_1	570.0 / 419.0	3.13	926.53	1000.00	92.65
NMeFOSAA_2	570.0 / 512.0	3.13	965.57	1000.00	96.56
NEtFOSAA_1	584.0 / 419.0	3.30	953.80	1000.00	95.38
NEtFOSAA_2	584.0 / 483.0	3.30	935.48	1000.00	93.55
HFPO-DA_1	285.0 / 169.0	1.66	1006.21	1000.00	100.62
HFPO-DA_2	285.0 / 118.8	1.66	934.33	1000.00	93.43
ADONA_1	377.0 / 251.0	1.93	899.82	1000.00	89.98
ADONA_2	377.0 / 85.0	1.93	977.91	1000.00	97.79
9Cl-PF3ONS_1	531.0 / 351.0	2.83	937.44	1000.00	93.74
9Cl-PF3ONS_2	531.0 / 83.0	2.84	904.38	1000.00	90.44
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	963.45	1000.00	96.35
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	1072.01	1000.00	107.20

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QC Summary Report

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Sample Name	KY37 CCV	Injection Vial	40
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:30:31 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.32	2605.68	2500.00	104.23
PFBS_2	298.9 / 99.0	1.32	2631.12	2500.00	105.24
PFHxA_1	313.0 / 269.0	1.57	2692.65	2525.00	106.64
PFHxA_2	313.0 / 119.0	1.57	2489.55	2525.00	98.60
PFHpA_1	363.0 / 319.0	1.90	2521.99	2500.00	100.88
PFHpA_2	363.0 / 169.0	1.90	2588.38	2500.00	103.54
PFHxS_1	399.0 / 80.0	1.91	2646.45	2525.00	104.81
PFHxS_2	399.0 / 99.0	1.91	2708.84	2525.00	107.28
PFOA_1	413.0 / 369.0	2.25	2393.53	2500.00	95.74
PFOA_2	413.0 / 169.0	2.25	2523.47	2500.00	100.94
PFNA_1	463.0 / 419.0	2.63	2358.76	2500.00	94.35
PFNA_2	463.0 / 219.0	2.63	2440.26	2500.00	97.61
PFOS_1	499.0 / 80.0	2.62	2386.68	2525.00	94.52
PFOS_2	499.0 / 99.0	2.62	2448.31	2525.00	96.96
PFDA_1	513.0 / 469.0	2.98	2567.80	2500.00	102.71
PFDA_2	513.0 / 219.0	2.98	2408.39	2500.00	96.34
PFUnA_1	563.0 / 519.0	3.31	2653.17	2500.00	106.13
PFUnA_2	563.0 / 269.0	3.31	2649.67	2500.00	105.99
PFDoA_1	613.0 / 569.0	3.60	2521.41	2500.00	100.86
PFDoA_2	613.0 / 319.0	3.60	2468.98	2500.00	98.76
PFTrDA_1	663.0 / 619.0	3.86	2553.83	2500.00	102.15
PFTrDA_2	663.0 / 169.0	3.85	2444.53	2500.00	97.78
PFTeDA_1	713.0 / 669.0	4.09	2631.93	2500.00	105.28
PFTeDA_2	713.0 / 169.0	4.09	2614.90	2500.00	104.60
NMeFOSAA_1	570.0 / 419.0	3.13	2618.80	2500.00	104.75
NMeFOSAA_2	570.0 / 512.0	3.13	2730.38	2500.00	109.22
NEtFOSAA_1	584.0 / 419.0	3.30	2511.49	2500.00	100.46
NEtFOSAA_2	584.0 / 483.0	3.30	2892.75	2500.00	115.71
HFPO-DA_1	285.0 / 169.0	1.66	2679.17	2500.00	107.17
HFPO-DA_2	285.0 / 118.8	1.66	2628.71	2500.00	105.15
ADONA_1	377.0 / 251.0	1.93	2355.70	2500.00	94.23
ADONA_2	377.0 / 85.0	1.93	2243.08	2500.00	89.72
9Cl-PF3ONS_1	531.0 / 351.0	2.83	2336.74	2500.00	93.47
9Cl-PF3ONS_2	531.0 / 83.0	2.83	2589.44	2500.00	103.58
11Cl-pf3OUdS_1	631.0 / 451.0	3.46	2360.27	2500.00	94.41
11Cl-pf3OUdS_2	631.0 / 83.0	3.46	2582.98	2500.00	103.32

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QC Summary Report

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Sample Name	KY41 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:50:56 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.63	1326.27	1250.00	106.10
d3-MeFOSAA	573.0 / 419.0	3.15	1270.08	1250.00	101.61
d5-EtFOSAA	589.0 / 419.0	3.32	1217.45	1250.00	97.40
13C5-PFHxA	318.0 / 273.0	1.57	1276.54	1250.00	102.12
13C4-PFHpA	367.0 / 322.0	1.90	1259.93	1250.00	100.79
13C8-PFOA	421.0 / 376.0	2.27	1298.37	1250.00	103.87
13C9-PFNA	472.0 / 427.0	2.64	1275.05	1250.00	102.00
13C6-PFDA	519.0 / 474.0	3.00	1386.61	1250.00	110.93
13C7-PFUnA	570.0 / 525.0	3.33	1371.07	1250.00	109.69
13C2-PFTeDA	715.0 / 670.0	4.12	1332.16	1250.00	106.57
13C3-PFBS	302.0 / 99.0	1.32	1199.75	1161.25	103.32
13C3-PFHxS	402.0 / 99.0	1.91	1192.38	1182.50	100.84
13C8-PFOS	507.0 / 99.0	2.64	1073.29	1196.25	89.72
13C3-HFPO-DA	287.0 / 169.0	1.67	1305.38	1250.00	104.43

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QC Summary Report

Sample Name	KY37 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 12:59:44 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.61	1257.24	1250.00	100.58
d3-MeFOSAA	573.0 / 419.0	3.14	1189.04	1250.00	95.12
d5-EtFOSAA	589.0 / 419.0	3.31	1193.95	1250.00	95.52
13C5-PFHxA	318.0 / 273.0	1.57	1247.21	1250.00	99.78
13C4-PFHpA	367.0 / 322.0	1.90	1206.04	1250.00	96.48
13C8-PFOA	421.0 / 376.0	2.26	1264.14	1250.00	101.13
13C9-PFNA	472.0 / 427.0	2.63	1252.16	1250.00	100.17
13C6-PFDA	519.0 / 474.0	2.99	1354.47	1250.00	108.36
13C7-PFUnA	570.0 / 525.0	3.32	1272.46	1250.00	101.80
13C2-PFTeDA	715.0 / 670.0	4.10	1196.21	1250.00	95.70
13C3-PFBS	302.0 / 99.0	1.32	1283.46	1161.25	110.52
13C3-PFHxS	402.0 / 99.0	1.91	1144.04	1182.50	96.75
13C8-PFOS	507.0 / 99.0	2.63	1110.39	1196.25	92.82
13C3-HFPO-DA	287.0 / 169.0	1.66	1222.72	1250.00	97.82

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QC Summary Report

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Sample Name	KY36 CCV	Injection Vial	32
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:55:45 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.60	1240.66	1250.00	99.25
d3-MeFOSAA	573.0 / 419.0	3.13	1247.18	1250.00	99.77
d5-EtFOSAA	589.0 / 419.0	3.30	1367.98	1250.00	109.44
13C5-PFHxA	318.0 / 273.0	1.56	1316.15	1250.00	105.29
13C4-PFHpA	367.0 / 322.0	1.89	1352.17	1250.00	108.17
13C8-PFOA	421.0 / 376.0	2.25	1317.40	1250.00	105.39
13C9-PFNA	472.0 / 427.0	2.62	1331.92	1250.00	106.55
13C6-PFDA	519.0 / 474.0	2.98	1301.74	1250.00	104.14
13C7-PFUnA	570.0 / 525.0	3.31	1319.35	1250.00	105.55
13C2-PFTeDA	715.0 / 670.0	4.09	1239.25	1250.00	99.14
13C3-PFBS	302.0 / 99.0	1.31	1430.40	1161.25	123.18
13C3-PFHxS	402.0 / 99.0	1.90	1217.20	1182.50	102.93
13C8-PFOS	507.0 / 99.0	2.62	1197.31	1196.25	100.09
13C3-HFPO-DA	287.0 / 169.0	1.66	1379.25	1250.00	110.34

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QC Summary Report

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Sample Name	KY37 CCV	Injection Vial	40
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:30:31 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.60	1285.87	1250.00	102.87
d3-MeFOSAA	573.0 / 419.0	3.13	1121.79	1250.00	89.74
d5-EtFOSAA	589.0 / 419.0	3.29	1207.89	1250.00	96.63
13C5-PFHxA	318.0 / 273.0	1.56	1238.51	1250.00	99.08
13C4-PFHpA	367.0 / 322.0	1.89	1236.87	1250.00	98.95
13C8-PFOA	421.0 / 376.0	2.25	1316.37	1250.00	105.31
13C9-PFNA	472.0 / 427.0	2.62	1307.72	1250.00	104.62
13C6-PFDA	519.0 / 474.0	2.98	1276.42	1250.00	102.11
13C7-PFUnA	570.0 / 525.0	3.30	1258.14	1250.00	100.65
13C2-PFTeDA	715.0 / 670.0	4.08	1322.97	1250.00	105.84
13C3-PFBS	302.0 / 99.0	1.31	1319.98	1161.25	113.67
13C3-PFHxS	402.0 / 99.0	1.90	1140.53	1182.50	96.45
13C8-PFOS	507.0 / 99.0	2.62	1194.65	1196.25	99.87
13C3-HFPO-DA	287.0 / 169.0	1.66	1364.68	1250.00	109.17

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PFAS QC Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:13:32 PM

Sample Name	KY41 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:50:56 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	1416322.04	2490.27	24392.4	False	13C3-PFBS	268783.07	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	466486.28	2529.39	3011.5	False	13C3-PFBS	268783.07	1161.25	PFBS	0.329	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	2407438.07	2360.68	2503.3	False	13C5-PFHxA	1283988.70	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	149112.63	2375.61	1187.2	False	13C5-PFHxA	1283988.70	1250.00	PFHxA	0.062	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	1813579.07	2374.47	1003.7	False	13C4-PFHpA	1200875.00	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	53708.05	2234.72	2008.8	False	13C4-PFHpA	1200875.00	1250.00	PFHpA	0.030	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	1667116.85	2347.61	22307.5	False	13C3-PFHxS	276373.39	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	574368.01	2289.93	1882.5	False	13C3-PFHxS	276373.39	1182.50	PFHxS	0.345	0.361	✓
PFOA_1	413.0 / 369.0	2.27	2201167.01	2275.24	523.5	False	13C8-PFOA	1370562.07	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.27	221520.00	2366.61	485.3	False	13C8-PFOA	1370562.07	1250.00	PFOA	0.101	0.100	✓
PFNA_1	463.0 / 419.0	2.65	2518567.29	2395.06	923.5	False	13C9-PFNA	1444088.65	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.65	798377.45	2424.88	1597.8	False	13C9-PFNA	1444088.65	1250.00	PFNA	0.317	0.319	✓
PFOS_1	499.0 / 80.0	2.64	1940790.50	2592.86	1667.1	False	13C8-PFOS	232075.94	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.64	417492.50	2690.61	1578.9	False	13C8-PFOS	232075.94	1196.25	PFOS	0.215	0.207	✓
PFDA_1	513.0 / 469.0	3.01	2503845.59	2264.11	1135.6	False	13C6-PFDA	1535769.48	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.01	130626.59	2100.16	1635.6	False	13C6-PFDA	1535769.48	1250.00	PFDA	0.052	0.056	✓
PFUnA_1	563.0 / 519.0	3.33	3115338.89	2341.28	1339.1	False	13C7-PFUnA	1601974.36	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	179246.43	2307.50	2496.2	False	13C7-PFUnA	1601974.36	1250.00	PFUnA	0.058	0.056	✓
PFDoA_1	613.0 / 569.0	3.63	3706461.72	2294.21	1480.5	False	13C2-PFDoA	1976534.90	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.63	421861.75	2233.45	2592.9	False	13C2-PFDoA	1976534.90	1250.00	PFDoA	0.114	0.116	✓
PFTrDA_1	663.0 / 619.0	3.88	3307757.11	2385.64	2282.0	False	13C2-PFTeDA	1759497.41	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	229160.79	2294.96	2903.3	False	13C2-PFTeDA	1759497.41	1250.00	PFTrDA	0.069	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	3414965.18	2390.61	2641.5	False	13C2-PFTeDA	1759497.41	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	185933.58	2361.81	3143.7	False	13C2-PFTeDA	1759497.41	1250.00	PFTeDA	0.054	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	270745.50	2248.93	1806.3	False	d3-MeFOSAA	189541.71	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	274118.72	2287.68	7186.4	False	d3-MeFOSAA	189541.71	1250.00	NMeFOSAA	1.012	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	339886.81	2333.29	1598.4	False	d5-EtFOSAA	199781.80	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	20381.84	2472.51	280.8	False	d5-EtFOSAA	199781.80	1250.00	NEtFOSAA	0.060	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	2616538.13	2547.92	5077.8	False	13C3-HFPO-DA	575731.88	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	50031.09	2503.95	1035.7	False	13C3-HFPO-DA	575731.88	1250.00	HFPO-DA	0.019	0.018	✓
ADONA_1	377.0 / 251.0	1.95	6052024.02	2312.12	8084.4	False	13C3-HFPO-DA	575731.88	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.95	79019.15	2454.73	49860.9	False	13C3-HFPO-DA	575731.88	1250.00	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	3906172.46	2388.18	1908.9	False	13C3-HFPO-DA	575731.88	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	34713.70	2390.81	461.7	False	13C3-HFPO-DA	575731.88	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.49	3490357.61	2430.56	3467.7	False	13C3-HFPO-DA	575731.88	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.49	17431.93	2826.71	571.1	False	13C3-HFPO-DA	575731.88	1250.00	11Cl-PF3OUdS	0.005	0.004	✓

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PFAS QC Sample Quant Report

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Sample Name	KY37 CCV	**Injection Vial**	20
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 12:59:44 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	1709968.12	2514.32	18122.2	False	13C3-PFBS	321447.41	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	564978.77	2562.20	3771.7	False	13C3-PFBS	321447.41	1161.25	PFBS	0.330	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	3005751.34	2595.34	1579.9	False	13C5-PFHxA	1456904.71	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	174313.04	2447.25	951.7	False	13C5-PFHxA	1456904.71	1250.00	PFHxA	0.058	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	2131275.26	2510.24	1170.1	False	13C4-PFHpA	1335001.01	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	68102.02	2549.69	2715.5	False	13C4-PFHpA	1335001.01	1250.00	PFHpA	0.032	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	1888725.73	2479.23	4592.2	False	13C3-PFHxS	296444.03	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	668988.04	2487.08	2285.7	False	13C3-PFHxS	296444.03	1182.50	PFHxS	0.354	0.361	✓
PFOA_1	413.0 / 369.0	2.27	2714863.59	2480.86	506.2	False	13C8-PFOA	1549751.53	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.27	249074.00	2353.27	447.2	False	13C8-PFOA	1549751.53	1250.00	PFOA	0.092	0.100	✓
PFNA_1	463.0 / 419.0	2.64	2949495.81	2459.53	1018.8	False	13C9-PFNA	1646992.78	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	908816.38	2420.21	1903.4	False	13C9-PFNA	1646992.78	1250.00	PFNA	0.308	0.319	✓
PFOS_1	499.0 / 80.0	2.64	2284542.42	2639.04	1744.2	False	13C8-PFOS	268414.94	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	454479.63	2532.03	1303.4	False	13C8-PFOS	268414.94	1196.25	PFOS	0.199	0.207	✓
PFDA_1	513.0 / 469.0	3.00	2813103.32	2326.52	1094.6	False	13C6-PFDA	1679431.71	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	160344.55	2359.19	1538.6	False	13C6-PFDA	1679431.71	1250.00	PFDA	0.057	0.056	✓
PFUnA_1	563.0 / 519.0	3.32	3554054.14	2574.06	1317.7	False	13C7-PFUnA	1664429.57	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	204389.28	2533.12	2456.9	False	13C7-PFUnA	1664429.57	1250.00	PFUnA	0.058	0.056	✓
PFDoA_1	613.0 / 569.0	3.61	4290592.27	2504.22	1666.5	False	13C2-PFDoA	2097567.12	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	504887.06	2520.34	2876.0	False	13C2-PFDoA	2097567.12	1250.00	PFDoA	0.118	0.116	✓
PFTrDA_1	663.0 / 619.0	3.87	3609512.72	2592.80	2765.8	False	13C2-PFTeDA	1768736.46	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.87	256458.62	2557.05	3643.8	False	13C2-PFTeDA	1768736.46	1250.00	PFTrDA	0.071	0.070	✓
PFTeDA_1	713.0 / 669.0	4.10	3792683.72	2644.98	3732.6	False	13C2-PFTeDA	1768736.46	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.10	207095.50	2620.30	3995.1	False	13C2-PFTeDA	1768736.46	1250.00	PFTeDA	0.055	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.14	310810.87	2451.02	412.3	False	d3-MeFOSAA	199772.55	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	309759.93	2454.81	3184.8	False	d3-MeFOSAA	199772.55	1250.00	NMeFOSAA	0.997	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.31	399560.95	2512.12	1453.8	False	d5-EtFOSAA	218364.49	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.31	22786.19	2529.98	366.9	False	d5-EtFOSAA	218364.49	1250.00	NEtFOSAA	0.057	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.66	3075251.19	2763.61	7184.1	False	13C3-HFPO-DA	626295.11	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.66	60998.36	2807.73	1728.5	False	13C3-HFPO-DA	626295.11	1250.00	HFPO-DA	0.020	0.018	✓
ADONA_1	377.0 / 251.0	1.94	6939506.33	2440.89	7405.0	False	13C3-HFPO-DA	626295.11	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	95027.71	2721.88	2260.0	False	13C3-HFPO-DA	626295.11	1250.00	ADONA	0.014	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	4659625.90	2621.05	3169.6	False	13C3-HFPO-DA	626295.11	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	41242.58	2624.82	664.9	False	13C3-HFPO-DA	626295.11	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	3841888.00	2459.65	3325.9	False	13C3-HFPO-DA	626295.11	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	16888.89	2516.06	470.9	False	13C3-HFPO-DA	626295.11	1250.00	11Cl-PF3OUdS	0.004	0.004	✓

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PFAS QC Sample Quant Report

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Printed: 01/05/2020 2:13:32 PM

Sample Name	KY36 CCV	**Injection Vial**	32
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:55:45 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	684209.14	996.42	7661.9	False	13C3-PFBS	318157.52	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	225364.39	1001.59	1935.5	False	13C3-PFBS	318157.52	1161.25	PFBS	0.329	0.334	✓
PFHxA_1	313.0 / 269.0	1.57	1175012.94	1080.71	896.4	False	13C5-PFHxA	1384375.12	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	74014.42	1098.02	667.4	False	13C5-PFHxA	1384375.12	1250.00	PFHxA	0.063	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	811689.22	945.15	737.8	False	13C4-PFHpA	1347738.36	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	23396.51	864.14	1240.1	False	13C4-PFHpA	1347738.36	1250.00	PFHpA	0.029	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	710541.42	991.07	3103.8	False	13C3-PFHxS	280106.18	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	258121.40	1012.19	1104.5	False	13C3-PFHxS	280106.18	1182.50	PFHxS	0.363	0.361	✓
PFOA_1	413.0 / 369.0	2.26	961349.09	942.35	316.9	False	13C8-PFOA	1454249.66	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.26	99088.44	994.51	326.4	False	13C8-PFOA	1454249.66	1250.00	PFOA	0.103	0.100	✓
PFNA_1	463.0 / 419.0	2.63	1181355.31	1023.78	633.2	False	13C9-PFNA	1577486.10	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.63	368046.62	1013.60	1060.5	False	13C9-PFNA	1577486.10	1250.00	PFNA	0.312	0.319	✓
PFOS_1	499.0 / 80.0	2.62	845681.76	1015.24	1572.7	False	13C8-PFOS	257036.05	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.62	168510.20	976.12	1098.2	False	13C8-PFOS	257036.05	1196.25	PFOS	0.199	0.207	✓
PFDA_1	513.0 / 469.0	2.99	1071821.92	928.02	632.5	False	13C6-PFDA	1590635.29	1250.00	PFDA			
PFDA_2	513.0 / 219.0	2.99	59384.40	913.75	3501.9	False	13C6-PFDA	1590635.29	1250.00	PFDA	0.055	0.056	✓
PFUnA_1	563.0 / 519.0	3.31	1388080.98	963.05	757.9	False	13C7-PFUnA	1700723.71	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.31	80209.65	968.59	9731.5	False	13C7-PFUnA	1700723.71	1250.00	PFUnA	0.058	0.056	✓
PFDoA_1	613.0 / 569.0	3.60	1689969.20	1003.16	1077.0	False	13C2-PFDoA	2039863.63	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.60	190759.84	971.70	2468.4	False	13C2-PFDoA	2039863.63	1250.00	PFDoA	0.113	0.116	✓
PFTrDA_1	663.0 / 619.0	3.86	1444085.79	993.77	2089.3	False	13C2-PFTeDA	1805785.68	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	104256.59	1006.89	3154.5	False	13C2-PFTeDA	1805785.68	1250.00	PFTrDA	0.072	0.070	✓
PFTeDA_1	713.0 / 669.0	4.09	1537252.66	1028.09	2223.8	False	13C2-PFTeDA	1805785.68	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.09	85526.30	1041.05	3351.5	False	13C2-PFTeDA	1805785.68	1250.00	PFTeDA	0.056	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.13	111265.98	926.53	502.6	False	d3-MeFOSAA	187086.49	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.13	116144.30	965.57	447.4	False	d3-MeFOSAA	187086.49	1250.00	NMeFOSAA	1.044	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.30	158710.92	953.80	1057.0	False	d5-EtFOSAA	223521.42	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.30	8882.97	935.48	5752.3	False	d5-EtFOSAA	223521.42	1250.00	NEtFOSAA	0.056	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.66	1229049.26	1006.21	6136.7	False	13C3-HFPO-DA	636132.20	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.66	20782.43	934.33	798.7	False	13C3-HFPO-DA	636132.20	1250.00	HFPO-DA	0.017	0.018	✓
ADONA_1	377.0 / 251.0	1.93	2721767.84	899.82	5497.0	False	13C3-HFPO-DA	636132.20	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.93	36388.02	977.91	3407.1	False	13C3-HFPO-DA	636132.20	1250.00	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.83	1719004.70	937.44	1436.2	False	13C3-HFPO-DA	636132.20	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.84	15903.05	904.38	283.3	False	13C3-HFPO-DA	636132.20	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.47	1551529.04	963.45	2384.7	False	13C3-HFPO-DA	636132.20	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.47	7361.66	1072.01	203.4	False	13C3-HFPO-DA	636132.20	1250.00	11Cl-PF3OUdS	0.005	0.004	✓

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PFAS QC Sample Quant Report

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Sample Name	KY37 CCV	**Injection Vial**	40
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:30:31 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	1575660.29	2605.68	12240.8	False	13C3-PFBS	285945.67	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	515832.08	2631.12	3561.7	False	13C3-PFBS	285945.67	1161.25	PFBS	0.327	0.334	✓
PFHxA_1	313.0 / 269.0	1.57	2666147.02	2692.65	1413.4	False	13C5-PFHxA	1245210.62	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	151568.43	2489.55	703.9	False	13C5-PFHxA	1245210.62	1250.00	PFHxA	0.057	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	1890064.63	2521.99	999.0	False	13C4-PFHpA	1178399.99	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	61023.67	2588.38	1551.3	False	13C4-PFHpA	1178399.99	1250.00	PFHpA	0.032	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	1738769.15	2646.45	103742.6	False	13C3-PFHxS	255620.87	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	628181.71	2708.84	1443.2	False	13C3-PFHxS	255620.87	1182.50	PFHxS	0.361	0.361	✓
PFOA_1	413.0 / 369.0	2.25	2347234.39	2393.53	495.1	False	13C8-PFOA	1388984.57	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.25	239343.67	2523.47	439.9	False	13C8-PFOA	1388984.57	1250.00	PFOA	0.102	0.100	✓
PFNA_1	463.0 / 419.0	2.63	2543010.60	2358.76	944.1	False	13C9-PFNA	1480467.30	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.63	823646.76	2440.26	1616.1	False	13C9-PFNA	1480467.30	1250.00	PFNA	0.324	0.319	✓
PFOS_1	499.0 / 80.0	2.62	1923258.40	2386.68	1848.7	False	13C8-PFOS	249780.53	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.62	408981.12	2448.31	1208.7	False	13C8-PFOS	249780.53	1196.25	PFOS	0.213	0.207	✓
PFDA_1	513.0 / 469.0	2.98	2609131.05	2567.80	969.9	False	13C6-PFDA	1412051.03	1250.00	PFDA			
PFDA_2	513.0 / 219.0	2.98	137610.51	2408.39	1696.7	False	13C6-PFDA	1412051.03	1250.00	PFDA	0.053	0.056	✓
PFUnA_1	563.0 / 519.0	3.31	3230333.79	2653.17	1367.0	False	13C7-PFUnA	1468284.37	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.31	188575.69	2649.67	2494.5	False	13C7-PFUnA	1468284.37	1250.00	PFUnA	0.058	0.056	✓
PFDoA_1	613.0 / 569.0	3.60	3941915.84	2521.41	1720.7	False	13C2-PFDoA	1914067.31	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.60	451375.36	2468.98	2416.8	False	13C2-PFDoA	1914067.31	1250.00	PFDoA	0.115	0.116	✓
PFTrDA_1	663.0 / 619.0	3.86	3508863.80	2553.83	2825.7	False	13C2-PFTeDA	1745288.49	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.85	242004.73	2444.53	3383.7	False	13C2-PFTeDA	1745288.49	1250.00	PFTrDA	0.069	0.070	✓
PFTeDA_1	713.0 / 669.0	4.09	3724187.85	2631.93	3245.7	False	13C2-PFTeDA	1745288.49	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.09	203933.59	2614.90	4002.6	False	13C2-PFTeDA	1745288.49	1250.00	PFTeDA	0.055	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.13	272296.38	2618.80	463.4	False	d3-MeFOSAA	163875.92	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.13	282293.11	2730.38	2315.5	False	d3-MeFOSAA	163875.92	1250.00	NMeFOSAA	1.037	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.30	353497.14	2511.49	1578.2	False	d5-EtFOSAA	193238.10	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.30	23004.71	2892.75	133279.3	False	d5-EtFOSAA	193238.10	1250.00	NEtFOSAA	0.065	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.66	2868077.05	2679.17	5997.6	False	13C3-HFPO-DA	601634.93	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.66	54875.40	2628.71	1158.7	False	13C3-HFPO-DA	601634.93	1250.00	HFPO-DA	0.019	0.018	✓
ADONA_1	377.0 / 251.0	1.93	6440037.92	2355.70	8102.7	False	13C3-HFPO-DA	601634.93	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.93	75672.28	2243.08	9169.0	False	13C3-HFPO-DA	601634.93	1250.00	ADONA	0.012	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.83	3994825.24	2336.74	2131.5	False	13C3-HFPO-DA	601634.93	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.83	39113.17	2589.44	437.7	False	13C3-HFPO-DA	601634.93	1250.00	9Cl-PF3ONS	0.010	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.46	3542944.73	2360.27	3651.6	False	13C3-HFPO-DA	601634.93	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.46	16653.08	2582.98	464.5	False	13C3-HFPO-DA	601634.93	1250.00	11Cl-PF3OUdS	0.005	0.004	✓

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PFAS QC Sample Quant Report

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Sample Name	KY41 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:50:56 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.63	1976534.90	1326.27	3845.5	False	13C2-PFDA	1101219.96	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	191331.63	1270.08	1470.1	False	13C4-PFOS	255986.52	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.32	199645.00	1217.45	738.4	False	13C4-PFOS	255986.52	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1283988.70	1276.54	6456.9	False	13C2-PFOA	690146.48	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1200875.00	1259.93	10225.9	False	13C2-PFOA	690146.48	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.27	1370562.07	1298.37	917.1	False	13C2-PFOA	690146.48	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1444088.65	1275.05	18007.6	False	13C2-PFOA	690146.48	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.00	1535769.48	1386.61	4047.8	False	13C2-PFDA	1101219.96	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.33	1601974.36	1371.07	5440.0	False	13C2-PFDA	1101219.96	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1759497.41	1332.16	3500.1	False	13C2-PFDA	1101219.96	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	268783.07	1199.75	90717.6	False	13C4-PFOS	255986.52	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	276373.39	1192.38	2272.2	False	13C4-PFOS	255986.52	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.64	232075.94	1073.29	1220.0	False	13C4-PFOS	255986.52	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	575731.88	1305.38	3341.9	False	13C2-PFOA	690146.48	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Sample Name	KY37 CCV	Injection Vial	20
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 12:59:44 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	2097567.12	1257.24	4979.5	False	13C2-PFDA	1232813.91	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	200248.92	1189.04	1259.0	False	13C4-PFOS	286178.47	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	218884.04	1193.95	713.7	False	13C4-PFOS	286178.47	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1456904.71	1247.21	6481.8	False	13C2-PFOA	801509.02	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1335001.01	1206.04	7043.1	False	13C2-PFOA	801509.02	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1549751.53	1264.14	11099.6	False	13C2-PFOA	801509.02	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1646992.78	1252.16	6031.3	False	13C2-PFOA	801509.02	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1679431.71	1354.47	4391.1	False	13C2-PFDA	1232813.91	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1664429.57	1272.46	3610.4	False	13C2-PFDA	1232813.91	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	1768736.46	1196.21	3604.6	False	13C2-PFDA	1232813.91	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	321447.41	1283.46	14546.9	False	13C4-PFOS	286178.47	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	296444.03	1144.04	2589.9	False	13C4-PFOS	286178.47	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	268414.94	1110.39	1206.3	False	13C4-PFOS	286178.47	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	626295.11	1222.72	3714.4	False	13C2-PFOA	801509.02	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Sample Name	KY36 CCV	Injection Vial	32
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:55:45 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	2039863.63	1240.66	3500.8	False	13C2-PFDA	1214927.28	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	186534.42	1247.18	1233.7	False	13C4-PFOS	254152.07	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	222721.87	1367.98	755.0	False	13C4-PFOS	254152.07	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	1384375.12	1316.15	8479.3	False	13C2-PFOA	721711.33	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	1347738.36	1352.17	7464.0	False	13C2-PFOA	721711.33	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1454249.66	1317.40	9546.1	False	13C2-PFOA	721711.33	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1577486.10	1331.92	4880.7	False	13C2-PFOA	721711.33	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1590635.29	1301.74	5491.7	False	13C2-PFDA	1214927.28	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1700723.71	1319.35	4292.5	False	13C2-PFDA	1214927.28	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1805785.68	1239.25	4162.0	False	13C2-PFDA	1214927.28	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	318157.52	1430.40	5027.4	False	13C4-PFOS	254152.07	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	280106.18	1217.20	3249.7	False	13C4-PFOS	254152.07	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	257036.05	1197.31	1631.6	False	13C4-PFOS	254152.07	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	636132.20	1379.25	4287.0	False	13C2-PFOA	721711.33	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Sample Name	KY37 CCV	Injection Vial	40
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:30:31 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	1914067.31	1285.87	3732.6	False	13C2-PFDA	1099916.00	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	163408.23	1121.79	1070.1	False	13C4-PFOS	247527.37	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.29	191530.99	1207.89	613.7	False	13C4-PFOS	247527.37	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	1245210.62	1238.51	6436.1	False	13C2-PFOA	689858.35	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	1178399.99	1236.87	8325.4	False	13C2-PFOA	689858.35	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1388984.57	1316.37	2062387.0	False	13C2-PFOA	689858.35	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1480467.30	1307.72	10575.0	False	13C2-PFOA	689858.35	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1412051.03	1276.42	3140.1	False	13C2-PFDA	1099916.00	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.30	1468284.37	1258.14	2908.8	False	13C2-PFDA	1099916.00	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	1745288.49	1322.97	3877.4	False	13C2-PFDA	1099916.00	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	285945.67	1319.98	5950.1	False	13C4-PFOS	247527.37	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	255620.87	1140.53	451679.8	False	13C4-PFOS	247527.37	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	249780.53	1194.65	1192.1	False	13C4-PFOS	247527.37	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	601634.93	1364.68	4402.1	False	13C2-PFOA	689858.35	1250.00		N/A	N/A	✓

Raw Analytical Data

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 10:19:12 AM

Sample Name	KY40 IB	**Injection Vial**	9
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:40:23 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	276680.86	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	276680.86	1161.25	PFBS	N/A	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	15539.26	35.46	68.5	True	13C5-PFHxA	1444922.26	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1444922.26	1250.00	PFHxA	N/A	0.063	
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1367062.38	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1367062.38	1250.00	PFHpA	N/A	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	1359.99	8.46	1227.1	False	13C3-PFHxS	286441.27	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	286441.27	1182.50	PFHxS	N/A	0.361	
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1339107.86	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1339107.86	1250.00	PFOA	N/A	0.100	✓
PFNA_1	463.0 / 419.0	2.65	14434.01	5.12	62.9	False	13C9-PFNA	1500063.79	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1500063.79	1250.00	PFNA	N/A	0.319	
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	256736.85	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	256736.85	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	3.01	20061.86	4.96	46.3	False	13C6-PFDA	1542104.64	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1542104.64	1250.00	PFDA	N/A	0.056	
PFUnA_1	563.0 / 519.0	3.33	39856.48	< 0	162.7	False	13C7-PFUnA	1607643.83	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.33	2727.02	28.13	3214.9	False	13C7-PFUnA	1607643.83	1250.00	PFUnA	0.068	0.056	✓
PFDoA_1	613.0 / 569.0	3.63	57804.16	16.58	137.6	False	13C2-PFDoA	2023225.19	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.63	6010.66	19.02	250.1	False	13C2-PFDoA	2023225.19	1250.00	PFDoA	0.104	0.116	✓
PFTrDA_1	663.0 / 619.0	3.89	54246.72	2.02	350.7	False	13C2-PFTeDA	1809346.91	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.88	3959.52	20.13	322.5	False	13C2-PFTeDA	1809346.91	1250.00	PFTrDA	0.073	0.070	✓
PFTeDA_1	713.0 / 669.0	4.12	57998.57	3.63	347.4	False	13C2-PFTeDA	1809346.91	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.12	3314.10	9.79	454.7	False	13C2-PFTeDA	1809346.91	1250.00	PFTeDA	0.057	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	16153.32	114.08	67.8	True	d3-MeFOSAA	195726.30	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.15	17959.96	118.18	72.0	True	d3-MeFOSAA	195726.30	1250.00	NMeFOSAA	1.112	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.32	27345.82	146.34	87.5	True	d5-EtFOSAA	210608.11	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.32	1455.45	125.25	1717.7	True	d5-EtFOSAA	210608.11	1250.00	NEtFOSAA	0.053	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.64	2903.15	< 0	93.5	True	13C3-HFPO-DA	573165.33	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	573165.33	1250.00	HFPO-DA	N/A	0.018	
ADONA_1	377.0 / 251.0	1.94	12939.37	< 0	293.1	False	13C3-HFPO-DA	573165.33	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	573165.33	1250.00	ADONA	N/A	0.013	
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	573165.33	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	573165.33	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	573165.33	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	573165.33	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 10:19:12 AM

Sample Name	CY785PB-FS(0)	Injection Vial	22
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:20:48 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.37	14434.25	< 0	417.1	False	13C3-PFBS	328351.72	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	328351.72	1161.25	PFBS	N/A	0.334	
PFHxA_1	313.0 / 269.0	1.58	112759.89	117.88	284.4	True	13C5-PFHxA	1467630.27	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	6900.42	103.92	68.9	True	13C5-PFHxA	1467630.27	1250.00	PFHxA	0.061	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	11489.55	10.80	41.2	True	13C4-PFHpA	1316103.95	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.93	752.50	23.28	30.0	True	13C4-PFHpA	1316103.95	1250.00	PFHpA	0.065	0.032	
PFHxS_1	399.0 / 80.0	1.91	1945.18	9.17	29.3	False	13C3-PFHxS	295816.85	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	295816.85	1182.50	PFHxS	N/A	0.361	
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1705904.10	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1705904.10	1250.00	PFOA	N/A	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1679693.77	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1679693.77	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	284754.22	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	284754.22	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1669460.90	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1669460.90	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1665694.91	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1665694.91	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1996066.95	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1996066.95	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1499921.75	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1499921.75	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1499921.75	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1499921.75	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	181472.82	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	181472.82	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	210127.53	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	210127.53	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	557399.77	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	CY786LCS-FS(0)	**Injection Vial**	23
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:31:21 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	5976610.86	8224.61	29054.3	False	13C3-PFBS	346640.00	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	1938421.98	8265.25	5491.5	False	13C3-PFBS	346640.00	1161.25	PFBS	0.324	0.334	✓
PFHxA_1	313.0 / 269.0	1.58	9683362.95	9793.72	3001.8	False	13C5-PFHxA	1236017.17	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	576647.95	9519.18	923.0	False	13C5-PFHxA	1236017.17	1250.00	PFHxA	0.060	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	7230182.77	9019.70	2035.3	False	13C4-PFHpA	1261483.45	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.91	236712.62	9393.18	2518.1	False	13C4-PFHpA	1261483.45	1250.00	PFHpA	0.033	0.032	✓
PFHxS_1	399.0 / 80.0	1.92	6986063.36	9150.59	7974.6	False	13C3-PFHxS	296501.82	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.92	2444580.32	9101.56	2375.2	False	13C3-PFHxS	296501.82	1182.50	PFHxS	0.350	0.361	✓
PFOA_1	413.0 / 369.0	2.27	9550905.58	8355.73	848.9	False	13C8-PFOA	1614186.58	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.27	877752.91	7975.14	761.2	False	13C8-PFOA	1614186.58	1250.00	PFOA	0.092	0.100	✓
PFNA_1	463.0 / 419.0	2.64	10291861.40	9220.23	2593.0	False	13C9-PFNA	1536735.42	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.64	3313296.13	9505.40	3390.1	False	13C9-PFNA	1536735.42	1250.00	PFNA	0.322	0.319	✓
PFOS_1	499.0 / 80.0	2.64	7589665.55	8923.70	2470.8	False	13C8-PFOS	264276.58	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.64	1597025.95	9054.66	1621.1	False	13C8-PFOS	264276.58	1196.25	PFOS	0.210	0.207	✓
PFDA_1	513.0 / 469.0	3.00	9690676.58	9055.10	1892.2	False	13C6-PFDA	1492697.76	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.00	521647.14	8673.57	7033.7	False	13C6-PFDA	1492697.76	1250.00	PFDA	0.054	0.056	✓
PFUnA_1	563.0 / 519.0	3.32	10960733.27	8816.52	2155.1	False	13C7-PFUnA	1512505.40	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.32	645937.61	8826.85	2494.6	False	13C7-PFUnA	1512505.40	1250.00	PFUnA	0.059	0.056	✓
PFDoA_1	613.0 / 569.0	3.61	13307692.73	8909.81	2500.5	False	13C2-PFDoA	1838321.32	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.61	1573660.21	8994.63	2426.5	False	13C2-PFDoA	1838321.32	1250.00	PFDoA	0.118	0.116	✓
PFTrDA_1	663.0 / 619.0	3.87	11216475.37	9366.45	3641.3	False	13C2-PFTeDA	1536954.58	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.86	779125.63	8986.67	3986.9	False	13C2-PFTeDA	1536954.58	1250.00	PFTrDA	0.069	0.070	✓
PFTeDA_1	713.0 / 669.0	4.10	11583313.92	9388.00	3392.1	False	13C2-PFTeDA	1536954.58	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.10	618259.84	9079.52	3505.2	False	13C2-PFTeDA	1536954.58	1250.00	PFTeDA	0.053	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.15	960158.79	7747.58	3121.5	False	d3-MeFOSAA	196151.72	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.14	1003627.07	8166.69	2718.7	False	d3-MeFOSAA	196151.72	1250.00	NMeFOSAA	1.045	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.31	1205836.73	8390.43	2013.8	False	d5-EtFOSAA	199190.91	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.31	73355.94	9043.40	1675.7	False	d5-EtFOSAA	199190.91	1250.00	NEtFOSAA	0.061	0.057	✓
HFPO-DA_1	285.0 / 169.0	1.67	8709178.19	8191.18	5828.4	False	13C3-HFPO-DA	617322.18	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.67	171302.58	8020.44	25469.3	False	13C3-HFPO-DA	617322.18	1250.00	HFPO-DA	0.020	0.018	✓
ADONA_1	377.0 / 251.0	1.94	21935846.13	7981.45	14076.0	False	13C3-HFPO-DA	617322.18	1250.00	ADONA			
ADONA_2	377.0 / 85.0	1.94	275689.19	8161.78	1430.2	False	13C3-HFPO-DA	617322.18	1250.00	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.85	14566368.74	8362.33	5462.0	False	13C3-HFPO-DA	617322.18	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.85	131074.80	8793.54	1033.5	False	13C3-HFPO-DA	617322.18	1250.00	9Cl-PF3ONS	0.009	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.48	11031304.20	7211.16	5670.9	False	13C3-HFPO-DA	617322.18	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.48	47675.06	7231.05	750.9	False	13C3-HFPO-DA	617322.18	1250.00	11Cl-PF3OUdS	0.004	0.004	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 10:19:12 AM

Sample Name	H4967-FS(0)	Injection Vial	24
Sample ID	POL-MW0045I-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:41:54 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.31	157210.67	735.48	171.0	True	13C3-PFBS	97905.27	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.31	17181.47	209.06	129.6	False	13C3-PFBS	97905.27	1161.25	PFBS	0.109	0.334	
PFHxA_1	313.0 / 269.0	1.57	203931.20	828.84	53.5	False	13C5-PFHxA	315275.28	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	16928.68	1102.73	51.5	False	13C5-PFHxA	315275.28	1250.00	PFHxA	0.083	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	140287.63	408.74	32.4	False	13C4-PFHpA	536448.85	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.88	6117.45	565.81	61.7	False	13C4-PFHpA	536448.85	1250.00	PFHpA	0.044	0.032	✓
PFHxS_1	399.0 / 80.0	1.90	719485.28	1556.15	177.6	False	13C3-PFHxS	180198.88	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.90	238035.84	1453.43	217.1	False	13C3-PFHxS	180198.88	1182.50	PFHxS	0.331	0.361	✓
PFOA_1	413.0 / 369.0	2.24	233688.61	383.08	46.8	False	13C8-PFOA	883307.97	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.22	34039.92	560.09	93.3	False	13C8-PFOA	883307.97	1250.00	PFOA	0.146	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1155510.71	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1155510.71	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	216987.37	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	216987.37	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1114418.98	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1114418.98	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	810036.41	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	810036.41	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	551441.66	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	551441.66	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	80149.37	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	80149.37	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	80149.37	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	80149.37	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	3.12	4303.70	80.76	463.2	True	d3-MeFOSAA	69950.30	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.13	4418.11	72.37	50.4	True	d3-MeFOSAA	69950.30	1250.00	NMeFOSAA	1.027	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.29	6358.27	150.10	143.1	False	d5-EtFOSAA	47970.65	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	47970.65	1250.00	NEtFOSAA	N/A	0.057	
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	314077.59	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4968-FS(0)	Injection Vial	25
Sample ID	POL-MW0043S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:52:27 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.31	124233.84	874.40	171.8	False	13C3-PFBS	65531.89	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.31	32789.91	692.26	213.5	False	13C3-PFBS	65531.89	1161.25	PFBS	0.264	0.334	✓
PFHxA_1	313.0 / 269.0	1.56	302539.14	2073.77	65.2	False	13C5-PFHxA	183920.52	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.56	20040.66	2229.47	75.5	True	13C5-PFHxA	183920.52	1250.00	PFHxA	0.066	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	355121.92	1622.24	73.1	False	13C4-PFHpA	343986.60	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	14751.31	2142.52	127.4	False	13C4-PFHpA	343986.60	1250.00	PFHpA	0.042	0.032	✓
PFHxS_1	399.0 / 80.0	1.90	2737895.48	9122.31	397.8	False	13C3-PFHxS	116562.06	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	973439.33	9219.21	357.8	False	13C3-PFHxS	116562.06	1182.50	PFHxS	0.356	0.361	✓
PFOA_1	413.0 / 369.0	2.26	3181022.40	7175.10	203.5	False	13C8-PFOA	626205.34	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.25	401857.24	9412.83	448.2	False	13C8-PFOA	626205.34	1250.00	PFOA	0.126	0.100	✓
PFNA_1	463.0 / 419.0	2.63	688302.40	1096.04	160.8	False	13C9-PFNA	858953.98	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.63	224974.52	1139.93	321.6	False	13C9-PFNA	858953.98	1250.00	PFNA	0.327	0.319	✓
PFOS_1	499.0 / 80.0	2.63	56017842.13	97817.68	1248.3	False	13C8-PFOS	178092.08	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	11434610.78	96271.39	2198.5	False	13C8-PFOS	178092.08	1196.25	PFOS	0.204	0.207	✓
PFDA_1	513.0 / 469.0	2.99	263290.40	360.31	159.6	False	13C6-PFDA	984601.22	1250.00	PFDA			
PFDA_2	513.0 / 219.0	2.99	14056.81	340.53	217.9	False	13C6-PFDA	984601.22	1250.00	PFDA	0.053	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	682333.04	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	682333.04	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	317017.27	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	317017.27	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	15962.08	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	15962.08	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	15962.08	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	15962.08	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	95456.16	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	95456.16	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	3.30	3877.17	31.93	76.2	False	d5-EtFOSAA	81386.05	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	81386.05	1250.00	NEtFOSAA	N/A	0.057	
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	182961.30	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4968-FS-D(3)	Injection Vial	26
Sample ID	POL-MW0043S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:03:00 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	125969.71	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	125969.71	1161.25	PFBS	N/A	0.334	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	520021.35	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	520021.35	1250.00	PFHxA	N/A	0.063	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	858496.75	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	858496.75	1250.00	PFHpA	N/A	0.032	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	222787.88	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	222787.88	1182.50	PFHxS	N/A	0.361	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1284257.04	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1284257.04	1250.00	PFOA	N/A	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1564639.69	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1564639.69	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	2.63	13711327.35	17591.78	1186.0	False	13C8-PFOS	242294.24	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	2763459.17	17095.64	1528.1	False	13C8-PFOS	242294.24	1196.25	PFOS	0.202	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1490396.17	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1490396.17	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1375270.18	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1375270.18	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1646199.68	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1646199.68	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1259756.21	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1259756.21	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1259756.21	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1259756.21	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	159682.45	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	159682.45	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	177974.62	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	177974.62	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	388284.06	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4969-FS(0)	**Injection Vial**	27
Sample ID	POL-EB-20200423-01	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:13:33 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	7838.33	< 0	406.8	False	13C3-PFBS	332607.57	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	332607.57	1161.25	PFBS	N/A	0.334	
PFHxA_1	313.0 / 269.0	1.58	21894.92	42.30	47.7	True	13C5-PFHxA	1348557.39	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1348557.39	1250.00	PFHxA	N/A	0.063	
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1266756.12	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1266756.12	1250.00	PFHpA	N/A	0.032	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	250867.05	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	250867.05	1182.50	PFHxS	N/A	0.361	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1612082.99	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1612082.99	1250.00	PFOA	N/A	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1677210.07	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1677210.07	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	2.63	6380.67	< 0	50.8	True	13C8-PFOS	269936.11	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	269936.11	1196.25	PFOS	N/A	0.207	
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1603590.74	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1603590.74	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1622631.71	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1622631.71	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1798836.82	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1798836.82	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1509253.22	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1509253.22	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1509253.22	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1509253.22	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	168247.97	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	168247.97	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	198576.25	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	198576.25	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	586272.52	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4970-FS(0)	Injection Vial	28
Sample ID	POL-EB-20200423-02	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:24:06 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.36	4960.03	< 0	149.5	False	13C3-PFBS	354654.68	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	354654.68	1161.25	PFBS	N/A	0.334	
PFHxA_1	313.0 / 269.0	1.57	38532.71	57.84	58.6	True	13C5-PFHxA	1342846.12	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1342846.12	1250.00	PFHxA	N/A	0.063	
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1154540.97	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1154540.97	1250.00	PFHpA	N/A	0.032	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	273850.83	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	273850.83	1182.50	PFHxS	N/A	0.361	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1596847.54	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1596847.54	1250.00	PFOA	N/A	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1615843.28	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1615843.28	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	2.63	6801.22	0.01	78.2	True	13C8-PFOS	263375.96	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	263375.96	1196.25	PFOS	N/A	0.207	
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1634639.10	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1634639.10	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1571943.81	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1571943.81	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1840703.60	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1840703.60	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1512749.84	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1512749.84	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1512749.84	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1512749.84	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	190782.22	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	190782.22	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	204305.49	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	204305.49	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	597387.85	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

PFAS Sample Quant Report

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Sample Name	H4971-FS(0)	Injection Vial	29
Sample ID	POL-MW0043I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:34:39 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	254984.55	1312.23	186.7	False	13C3-PFBS	90745.68	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	40019.48	603.97	276.6	False	13C3-PFBS	90745.68	1161.25	PFBS	0.157	0.334	
PFHxA_1	313.0 / 269.0	1.56	382960.33	1731.24	78.6	False	13C5-PFHxA	279466.70	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.56	20680.86	1516.70	70.8	False	13C5-PFHxA	279466.70	1250.00	PFHxA	0.054	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	491187.29	1538.10	84.0	False	13C4-PFHpA	501765.64	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	19985.01	1989.56	149.8	False	13C4-PFHpA	501765.64	1250.00	PFHpA	0.041	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	7948241.62	18128.29	603.6	False	13C3-PFHxS	170216.94	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	2632449.90	17077.47	591.1	False	13C3-PFHxS	170216.94	1182.50	PFHxS	0.331	0.361	✓
PFOA_1	413.0 / 369.0	2.26	3438834.77	5941.44	244.2	False	13C8-PFOA	817753.58	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.24	429268.19	7698.66	492.8	False	13C8-PFOA	817753.58	1250.00	PFOA	0.125	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1080878.51	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1080878.51	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	2.56	2535220.92	4787.60	282.7	False	13C8-PFOS	164415.25	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	420103.47	3824.53	384.7	False	13C8-PFOS	164415.25	1196.25	PFOS	0.166	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	863662.41	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	863662.41	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	525979.98	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	525979.98	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	221551.65	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	221551.65	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	38121.79	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	38121.79	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	38121.79	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	38121.79	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	79153.51	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	79153.51	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	64650.45	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	64650.45	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	275667.87	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4972-FS(0)	Injection Vial	30
Sample ID	POL-MW0043D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:06:17 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	84555.39	454.41	133.6	True	13C3-PFBS	82986.17	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	18374.81	277.38	110.5	False	13C3-PFBS	82986.17	1161.25	PFBS	0.217	0.334	✓
PFHxA_1	313.0 / 269.0	1.56	213901.45	940.04	50.1	True	13C5-PFHxA	290629.73	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.58	7248.82	516.55	26.6	True	13C5-PFHxA	290629.73	1250.00	PFHxA	0.034	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	93493.00	314.28	24.6	False	13C4-PFHpA	463961.61	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	4383.64	467.88	52.2	False	13C4-PFHpA	463961.61	1250.00	PFHpA	0.047	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	544494.57	1316.16	179.9	False	13C3-PFHxS	161362.59	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	193607.48	1319.63	232.1	False	13C3-PFHxS	161362.59	1182.50	PFHxS	0.356	0.361	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	804114.21	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.23	33659.60	608.85	96.3	False	13C8-PFOA	804114.21	1250.00	PFOA	N/A	0.100	
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1037457.85	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1037457.85	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	156467.10	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	156467.10	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	767385.49	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	767385.49	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	450412.18	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	450412.18	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	199392.46	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	199392.46	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	33062.83	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	33062.83	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	33062.83	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	33062.83	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	60865.20	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	60865.20	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	49168.10	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	49168.10	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	261237.67	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4973-FS(0)	Injection Vial	33
Sample ID	POL-MW0011S-012.5-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:16:49 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	380521.88	2226.47	586.0	False	13C3-PFBS	80642.56	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	123566.08	2227.04	548.6	False	13C3-PFBS	80642.56	1161.25	PFBS	0.325	0.334	✓
PFHxA_1	313.0 / 269.0	1.56	1854981.83	8270.99	209.4	False	13C5-PFHxA	280484.51	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	106795.42	7770.34	224.8	False	13C5-PFHxA	280484.51	1250.00	PFHxA	0.058	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	827198.39	2665.27	128.3	False	13C4-PFHpA	488040.02	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.89	34291.54	3513.91	260.7	False	13C4-PFHpA	488040.02	1250.00	PFHpA	0.041	0.032	✓
PFHxS_1	399.0 / 80.0	1.90	6805939.46	16645.49	503.1	False	13C3-PFHxS	158742.85	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.90	2331033.03	16214.84	623.7	False	13C3-PFHxS	158742.85	1182.50	PFHxS	0.342	0.361	✓
PFOA_1	413.0 / 369.0	2.25	843960.11	1313.47	130.8	False	13C8-PFOA	913203.11	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.22	122410.07	1961.80	268.8	False	13C8-PFOA	913203.11	1250.00	PFOA	0.145	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1089822.56	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1089822.56	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	2.50	2565587.50	4498.65	434.4	True	13C8-PFOS	177052.75	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.58	359228.26	3035.48	288.8	False	13C8-PFOS	177052.75	1196.25	PFOS	0.140	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	924365.75	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	924365.75	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	433457.06	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	433457.06	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	118144.21	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	118144.21	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	49430.53	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	49430.53	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	49430.53	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	49430.53	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	69440.21	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	69440.21	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	51619.50	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	51619.50	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	249059.98	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Sample Name	H4974-FS(0)	Injection Vial	34
Sample ID	POL-MW0011I-027.5-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:27:20 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	274213.54	1671.16	318.7	False	13C3-PFBS	77042.63	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	58313.95	1073.82	371.4	False	13C3-PFBS	77042.63	1161.25	PFBS	0.213	0.334	✓
PFHxA_1	313.0 / 269.0	1.57	1030011.41	4887.89	142.5	True	13C5-PFHxA	264028.69	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	55697.60	4308.68	142.2	False	13C5-PFHxA	264028.69	1250.00	PFHxA	0.054	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	812643.47	2781.02	128.7	False	13C4-PFHpA	459519.03	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.89	29289.22	3187.10	226.4	False	13C4-PFHpA	459519.03	1250.00	PFHpA	0.036	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	5910365.50	13359.66	538.8	False	13C3-PFHxS	171776.62	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	1952063.91	12547.11	659.9	False	13C3-PFHxS	171776.62	1182.50	PFHxS	0.330	0.361	✓
PFOA_1	413.0 / 369.0	2.25	2973159.49	5376.60	218.5	False	13C8-PFOA	781429.35	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.24	400541.94	7517.26	420.5	False	13C8-PFOA	781429.35	1250.00	PFOA	0.135	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1200616.78	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1200616.78	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	2.50	327037.46	496.76	156.5	True	13C8-PFOS	201496.51	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.55	44888.09	327.11	71.5	False	13C8-PFOS	201496.51	1196.25	PFOS	0.137	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1181044.56	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1181044.56	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	791803.76	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	791803.76	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	422059.85	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	422059.85	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	34039.79	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	34039.79	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	34039.79	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	34039.79	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	99946.02	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	99946.02	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	80993.47	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	80993.47	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	232552.90	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Sample Name	H4975-FS(0)	Injection Vial	35
Sample ID	POL-MW0044I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:37:52 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.31	173328.40	1200.84	129.3	True	13C3-PFBS	67251.41	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.31	22834.76	453.06	159.2	False	13C3-PFBS	67251.41	1161.25	PFBS	0.132	0.334	
PFHxA_1	313.0 / 269.0	1.56	330727.10	2107.66	77.7	True	13C5-PFHxA	197789.95	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.56	15919.12	1648.89	59.8	True	13C5-PFHxA	197789.95	1250.00	PFHxA	0.048	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	575724.18	2416.90	108.6	False	13C4-PFHpA	374536.28	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.89	23904.17	3191.33	188.7	False	13C4-PFHpA	374536.28	1250.00	PFHpA	0.042	0.032	✓
PFHxS_1	399.0 / 80.0	1.90	2731005.02	7812.11	313.0	False	13C3-PFHxS	135785.04	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.90	947947.01	7705.86	450.5	False	13C3-PFHxS	135785.04	1182.50	PFHxS	0.347	0.361	✓
PFOA_1	413.0 / 369.0	2.25	5667070.99	11498.77	248.4	False	13C8-PFOA	695760.57	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.25	698993.19	14739.07	545.9	False	13C8-PFOA	695760.57	1250.00	PFOA	0.123	0.100	✓
PFNA_1	463.0 / 419.0	2.62	292124.68	391.22	110.1	False	13C9-PFNA	1007950.10	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.63	100956.91	425.54	207.7	False	13C9-PFNA	1007950.10	1250.00	PFNA	0.346	0.319	✓
PFOS_1	499.0 / 80.0	2.50	12357911.24	20340.32	680.5	True	13C8-PFOS	188880.59	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.55	1711443.50	13580.16	666.0	False	13C8-PFOS	188880.59	1196.25	PFOS	0.138	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	896354.05	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	896354.05	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	601462.44	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	601462.44	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	232718.57	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	232718.57	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	22590.10	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	22590.10	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	22590.10	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	22590.10	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	76134.72	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	76134.72	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	68767.48	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	68767.48	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	179501.43	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 10:19:12 AM

Sample Name	H4976-FS(0)	Injection Vial	36
Sample ID	POL-MW0044D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:48:24 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.31	122399.58	500.09	150.1	True	13C3-PFBS	109845.16	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	15481.42	157.67	94.0	False	13C3-PFBS	109845.16	1161.25	PFBS	0.126	0.334	
PFHxA_1	313.0 / 269.0	1.57	336435.06	1187.05	62.2	True	13C5-PFHxA	360199.28	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	13672.08	781.88	44.5	False	13C5-PFHxA	360199.28	1250.00	PFHxA	0.041	0.063	✓
PFHpA_1	363.0 / 319.0	1.91	194365.24	528.17	39.8	False	13C4-PFHpA	576106.22	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.89	9125.92	788.05	88.9	False	13C4-PFHpA	576106.22	1250.00	PFHpA	0.047	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	1010824.72	2054.20	234.3	False	13C3-PFHxS	191586.47	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	350620.41	2015.82	322.0	False	13C3-PFHxS	191586.47	1182.50	PFHxS	0.347	0.361	✓
PFOA_1	413.0 / 369.0	2.25	278490.43	382.48	52.3	False	13C8-PFOA	1054331.82	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.22	39211.60	540.33	118.3	True	13C8-PFOA	1054331.82	1250.00	PFOA	0.141	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1375890.71	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1375890.71	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	228361.83	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	228361.83	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1307823.39	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1307823.39	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1051970.73	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1051970.73	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	967134.41	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	967134.41	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	202121.69	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	202121.69	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	202121.69	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	202121.69	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	98561.03	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	98561.03	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	92024.93	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	92024.93	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	False	13C3-HFPO-DA	326993.81	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	326993.81	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Sample Name	H4977-FS(0)	**Injection Vial**	37
Sample ID	SW3-MW0027-032.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:58:56 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	146495.00	637.36	161.2	True	13C3-PFBS	104574.33	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	33910.09	430.34	109.1	False	13C3-PFBS	104574.33	1161.25	PFBS	0.231	0.334	✓
PFHxA_1	313.0 / 269.0	1.57	1639366.00	6041.51	178.3	False	13C5-PFHxA	339692.08	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	93254.10	5604.71	178.9	False	13C5-PFHxA	339692.08	1250.00	PFHxA	0.057	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	2255926.21	6251.78	166.6	False	13C4-PFHpA	567783.26	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	82666.65	7287.00	503.3	False	13C4-PFHpA	567783.26	1250.00	PFHpA	0.037	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	1704075.70	3817.52	316.8	False	13C3-PFHxS	173536.54	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	613894.76	3901.92	385.4	False	13C3-PFHxS	173536.54	1182.50	PFHxS	0.360	0.361	✓
PFOA_1	413.0 / 369.0	2.25	4144491.08	6238.64	214.2	False	13C8-PFOA	938533.30	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.22	614891.76	9609.91	595.8	False	13C8-PFOA	938533.30	1250.00	PFOA	0.148	0.100	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1114620.39	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1114620.39	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	175800.13	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	175800.13	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	929581.34	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	929581.34	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	593126.67	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	593126.67	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	310205.99	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	310205.99	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	42306.29	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	42306.29	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	42306.29	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	42306.29	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	66016.78	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	66016.78	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	57069.76	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	57069.76	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	298142.26	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Sample Name	H4978-FS(0)	**Injection Vial**	38
Sample ID	SW3-MW0028-032.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:09:27 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.31	188002.72	1070.63	171.0	True	13C3-PFBS	81546.79	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.32	27530.39	450.18	105.4	False	13C3-PFBS	81546.79	1161.25	PFBS	0.146	0.334	
PFHxA_1	313.0 / 269.0	1.57	1006798.01	4350.42	110.4	False	13C5-PFHxA	290124.69	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.57	63469.47	4467.97	121.4	False	13C5-PFHxA	290124.69	1250.00	PFHxA	0.063	0.063	✓
PFHpA_1	363.0 / 319.0	1.90	1068724.37	3312.61	108.0	False	13C4-PFHpA	507430.16	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.90	43088.97	4247.79	288.0	False	13C4-PFHpA	507430.16	1250.00	PFHpA	0.040	0.032	✓
PFHxS_1	399.0 / 80.0	1.91	600082.70	1341.22	132.8	False	13C3-PFHxS	174497.35	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.91	204364.59	1287.96	206.3	False	13C3-PFHxS	174497.35	1182.50	PFHxS	0.341	0.361	✓
PFOA_1	413.0 / 369.0	2.25	988257.27	1740.11	122.1	False	13C8-PFOA	805658.90	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.21	186815.38	3397.65	360.9	False	13C8-PFOA	805658.90	1250.00	PFOA	0.189	0.100	
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1060687.74	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1060687.74	1250.00	PFNA	N/A	0.319	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	181714.86	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	181714.86	1196.25	PFOS	N/A	0.207	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	831151.61	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	831151.61	1250.00	PFDA	N/A	0.056	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	551608.83	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	551608.83	1250.00	PFUnA	N/A	0.056	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	398848.95	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	398848.95	1250.00	PFDoA	N/A	0.116	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	59111.81	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	59111.81	1250.00	PFTrDA	N/A	0.070	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	59111.81	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	59111.81	1250.00	PFTeDA	N/A	0.055	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	50187.28	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	50187.28	1250.00	NMeFOSAA	N/A	1.019	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	41271.96	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	41271.96	1250.00	NEtFOSAA	N/A	0.057	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	HFPO-DA	N/A	0.018	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	9Cl-PF3ONS	N/A	0.011	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	254246.60	1250.00	11Cl-PF3OUdS	N/A	0.004	✓

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PFAS Sample Quant Report

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Printed: 01/05/2020 2:06:59 PM

Sample Name	KY40 IB	Injection Vial	9
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:40:23 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.63	2023225.19	1262.64	4039.4	False	13C2-PFDA	1184040.46	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	198438.06	1277.42	1522.3	False	13C4-PFOS	263969.09	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.32	210637.51	1245.64	734.6	False	13C4-PFOS	263969.09	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1444922.26	1392.80	9377.3	False	13C2-PFOA	711821.18	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1367062.38	1390.62	23208.4	False	13C2-PFOA	711821.18	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1339107.86	1229.95	34838.5	False	13C2-PFOA	711821.18	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1500063.79	1284.14	84324.8	False	13C2-PFOA	711821.18	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.00	1542104.64	1294.94	3842.7	False	13C2-PFDA	1184040.46	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.33	1607643.83	1279.68	3303.0	False	13C2-PFDA	1184040.46	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.12	1809346.91	1274.08	3370.6	False	13C2-PFDA	1184040.46	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	276680.86	1197.66	8767.8	False	13C4-PFOS	263969.09	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	286441.27	1198.44	2992.9	False	13C4-PFOS	263969.09	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	256736.85	1151.44	1203.1	False	13C4-PFOS	263969.09	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.67	573165.33	1259.99	3856.9	False	13C2-PFOA	711821.18	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	CY785PB-FS(0)	Injection Vial	22
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:20:48 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1996066.95	1151.73	4727.2	False	13C2-PFDA	1280629.82	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.15	182765.39	1196.79	1336.8	False	13C4-PFOS	259500.80	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	211044.08	1269.54	877.1	False	13C4-PFOS	259500.80	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1467630.27	1128.81	6862.5	False	13C2-PFOA	892094.62	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1316103.95	1068.24	5465.3	False	13C2-PFOA	892094.62	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1705904.10	1250.22	37583.7	False	13C2-PFOA	892094.62	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1679693.77	1147.35	7235.4	False	13C2-PFOA	892094.62	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1669460.90	1296.15	3114.3	False	13C2-PFDA	1280629.82	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1665694.91	1225.88	4812.8	False	13C2-PFDA	1280629.82	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1499921.75	976.53	4194.7	False	13C2-PFDA	1280629.82	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	328351.72	1445.80	5106.6	False	13C4-PFOS	259500.80	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	295816.85	1258.98	2762.1	False	13C4-PFOS	259500.80	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	284754.22	1299.08	1238.2	False	13C4-PFOS	259500.80	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	557399.77	977.72	2427.8	False	13C2-PFOA	892094.62	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	CY786LCS-FS(0)	**Injection Vial**	23
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:31:21 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1838321.32	1149.13	2645.9	False	13C2-PFDA	1182099.65	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	196599.43	1296.67	1519.8	False	13C4-PFOS	257640.94	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	197711.38	1197.92	937.2	False	13C4-PFOS	257640.94	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	1236017.17	903.74	4038.7	False	13C2-PFOA	938415.26	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1261483.45	973.37	6112.1	False	13C2-PFOA	938415.26	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.26	1614186.58	1124.61	5150.6	False	13C2-PFOA	938415.26	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.64	1536735.42	997.88	37471.4	False	13C2-PFOA	938415.26	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1492697.76	1255.51	3165.3	False	13C2-PFDA	1182099.65	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	1512505.40	1205.93	3717.6	False	13C2-PFDA	1182099.65	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1536954.58	1084.05	4154.9	False	13C2-PFDA	1182099.65	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	346640.00	1537.35	4943.3	False	13C4-PFOS	257640.94	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	296501.82	1271.00	1661.0	False	13C4-PFOS	257640.94	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	264276.58	1214.37	909.0	False	13C4-PFOS	257640.94	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	617322.18	1029.38	3248.5	False	13C2-PFOA	938415.26	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4967-FS(0)	Injection Vial	24
Sample ID	POL-MW0045I-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:41:54 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	551441.66	425.99	2804.4	False	13C2-PFDA	956525.26	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.12	69520.21	542.83	525.6	False	13C4-PFOS	217623.81	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.29	49030.51	351.70	415.6	False	13C4-PFOS	217623.81	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	315275.28	330.99	436.3	False	13C2-PFOA	653559.81	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	536448.85	594.34	1007.9	False	13C2-PFOA	653559.81	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.24	883307.97	883.63	1231.2	False	13C2-PFOA	653559.81	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.61	1155510.71	1077.37	924.2	False	13C2-PFOA	653559.81	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.97	1114418.98	1158.39	2913.4	False	13C2-PFDA	956525.26	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.30	810036.41	798.15	2802.0	False	13C2-PFDA	956525.26	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	80149.37	69.86	3001.1	False	13C2-PFDA	956525.26	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	97905.27	514.05	844.5	False	13C4-PFOS	217623.81	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	180198.88	914.49	462.4	False	13C4-PFOS	217623.81	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.60	216987.37	1180.41	417.5	False	13C4-PFOS	217623.81	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	314077.59	751.99	1243.7	False	13C2-PFOA	653559.81	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4968-FS(0)	Injection Vial	25
Sample ID	POL-MW0043S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:52:27 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	317017.27	223.35	2233.8	False	13C2-PFDA	1048794.90	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	96006.72	909.36	424.9	False	13C4-PFOS	179402.72	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	81325.94	707.64	388.2	False	13C4-PFOS	179402.72	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	183920.52	250.40	291.6	False	13C2-PFOA	503984.00	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	343986.60	494.21	525.0	False	13C2-PFOA	503984.00	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	626205.34	812.35	699.4	False	13C2-PFOA	503984.00	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	858953.98	1038.55	672.5	False	13C2-PFOA	503984.00	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	984601.22	933.41	1764.6	False	13C2-PFDA	1048794.90	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	682333.04	613.17	2186.6	False	13C2-PFDA	1048794.90	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	15962.08	12.69	1464.0	False	13C2-PFDA	1048794.90	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.30	65531.89	417.38	742.3	False	13C4-PFOS	179402.72	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	116562.06	717.57	422.1	False	13C4-PFOS	179402.72	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	178092.08	1175.23	309.3	False	13C4-PFOS	179402.72	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.65	182961.30	568.07	616.2	False	13C2-PFOA	503984.00	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4968-FS-D(3)	**Injection Vial**	26
Sample ID	POL-MW0043S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:03:00 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	1646199.68	927.91	5843.1	False	13C2-PFDA	1310916.57	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	158460.64	1078.64	945.0	False	13C4-PFOS	249635.43	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	177570.63	1110.39	654.4	False	13C4-PFOS	249635.43	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	520021.35	460.40	793.6	False	13C2-PFOA	775003.25	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	858496.75	802.09	1171.1	False	13C2-PFOA	775003.25	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1284257.04	1083.40	1396.6	False	13C2-PFOA	775003.25	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1564639.69	1230.23	1600.4	False	13C2-PFOA	775003.25	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1490396.17	1130.39	2551.9	False	13C2-PFDA	1310916.57	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1375270.18	988.76	2585.1	False	13C2-PFDA	1310916.57	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	1259756.21	801.22	4344.6	False	13C2-PFDA	1310916.57	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.30	127085.34	581.70	809.4	True	13C4-PFOS	249635.43	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	222787.88	985.64	690.7	False	13C4-PFOS	249635.43	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	242294.24	1149.06	623.2	False	13C4-PFOS	249635.43	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	388284.06	783.98	1191.9	False	13C2-PFOA	775003.25	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4969-FS(0)	Injection Vial	27
Sample ID	POL-EB-20200423-01	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:13:33 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	1798836.82	1045.24	4374.5	False	13C2-PFDA	1271673.00	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	169829.35	1077.06	1467.3	False	13C4-PFOS	267937.56	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	198240.08	1154.96	797.3	False	13C4-PFOS	267937.56	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	1348557.39	957.10	4556.9	False	13C2-PFOA	966776.35	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.90	1266756.12	948.76	16897.5	False	13C2-PFOA	966776.35	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1612082.99	1090.19	3696.6	False	13C2-PFOA	966776.35	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1677210.07	1057.15	3877.5	False	13C2-PFOA	966776.35	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	1603590.74	1253.78	4464.9	False	13C2-PFDA	1271673.00	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1622631.71	1202.60	3794.7	False	13C2-PFDA	1271673.00	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	1509253.22	989.53	3344.1	False	13C2-PFDA	1271673.00	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	332607.57	1418.42	5198.9	False	13C4-PFOS	267937.56	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	250867.05	1034.06	1704.3	False	13C4-PFOS	267937.56	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	269936.11	1192.70	1083.8	False	13C4-PFOS	267937.56	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	586272.52	948.92	3761.5	False	13C2-PFOA	966776.35	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:06:59 PM

Sample Name	H4970-FS(0)	Injection Vial	28
Sample ID	POL-EB-20200423-02	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:24:06 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	1840703.60	1094.30	3496.4	False	13C2-PFDA	1242930.47	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	192058.71	1196.05	1400.3	False	13C4-PFOS	272864.18	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	205259.85	1174.27	828.2	False	13C4-PFOS	272864.18	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	1342846.12	938.49	6010.9	False	13C2-PFOA	981781.78	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	1154540.97	851.50	5137.8	False	13C2-PFOA	981781.78	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1596847.54	1063.38	6425.3	False	13C2-PFOA	981781.78	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1615843.28	1002.90	6215.9	False	13C2-PFOA	981781.78	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1634639.10	1307.61	20776.9	False	13C2-PFDA	1242930.47	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1571943.81	1191.98	4324.8	False	13C2-PFDA	1242930.47	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	1512749.84	1014.76	3877.4	False	13C2-PFDA	1242930.47	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	354654.68	1485.14	5501.0	False	13C4-PFOS	272864.18	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	273850.83	1108.41	1630.0	False	13C4-PFOS	272864.18	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	263375.96	1142.71	1645.2	False	13C4-PFOS	272864.18	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	597387.85	952.14	4707.8	False	13C2-PFOA	981781.78	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Sample Name	H4971-FS(0)	Injection Vial	29
Sample ID	POL-MW0043I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:34:39 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	221551.65	160.90	2149.8	False	13C2-PFDA	1017443.99	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	78951.68	677.14	516.3	False	13C4-PFOS	198127.50	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	63512.51	500.41	375.3	False	13C4-PFOS	198127.50	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	279466.70	292.09	420.0	False	13C2-PFOA	656499.10	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	501765.64	553.42	879.2	False	13C2-PFOA	656499.10	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	817753.58	814.39	895.3	False	13C2-PFOA	656499.10	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1080878.51	1003.27	1255.6	False	13C2-PFOA	656499.10	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	863662.41	843.99	2243.5	False	13C2-PFDA	1017443.99	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	525979.98	487.23	2433.3	False	13C2-PFDA	1017443.99	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	38121.79	31.24	2614.2	False	13C2-PFDA	1017443.99	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	90745.68	523.35	997.9	False	13C4-PFOS	198127.50	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	170216.94	948.84	471.1	False	13C4-PFOS	198127.50	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	164415.25	982.43	324.6	False	13C4-PFOS	198127.50	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.65	275667.87	657.07	1002.1	False	13C2-PFOA	656499.10	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4972-FS(0)	Injection Vial	30
Sample ID	POL-MW0043D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:06:17 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	199392.46	181.37	1570.8	False	13C2-PFDA	812338.99	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	60529.71	522.61	582.7	False	13C4-PFOS	196811.39	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.31	49652.52	393.82	390.9	False	13C4-PFOS	196811.39	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	290629.73	318.60	447.9	False	13C2-PFOA	625915.86	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	463961.61	536.73	712.2	False	13C2-PFOA	625915.86	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	804114.21	839.93	1147.5	False	13C2-PFOA	625915.86	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1037457.85	1010.02	1134.6	False	13C2-PFOA	625915.86	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	767385.49	939.25	1837.5	False	13C2-PFDA	812338.99	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.32	450412.18	522.58	1738.0	False	13C2-PFDA	812338.99	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	33062.83	33.93	2138.1	False	13C2-PFDA	812338.99	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	82986.17	481.80	772.4	False	13C4-PFOS	196811.39	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	161362.59	905.50	557.9	False	13C4-PFOS	196811.39	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	156467.10	941.19	341.2	False	13C4-PFOS	196811.39	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	261237.67	653.10	1163.5	False	13C2-PFOA	625915.86	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4973-FS(0)	**Injection Vial**	33
Sample ID	POL-MW0011S-012.5-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:16:49 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	118144.21	102.90	1783.4	False	13C2-PFDA	848434.43	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	68258.92	616.11	501.0	False	13C4-PFOS	188262.53	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	50824.34	421.42	339.5	False	13C4-PFOS	188262.53	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	280484.51	316.72	506.0	False	13C2-PFOA	607641.54	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	488040.02	581.56	706.6	False	13C2-PFOA	607641.54	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	913203.11	982.57	1204.5	False	13C2-PFOA	607641.54	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1089822.56	1092.91	1207.7	False	13C2-PFOA	607641.54	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	924365.75	1083.25	1519.5	False	13C2-PFDA	848434.43	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	433457.06	481.51	2546.6	False	13C2-PFDA	848434.43	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	49430.53	48.58	1768.2	False	13C2-PFDA	848434.43	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	80642.56	489.45	845.7	False	13C4-PFOS	188262.53	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	158742.85	931.25	477.5	False	13C4-PFOS	188262.53	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	177052.75	1113.38	340.6	False	13C4-PFOS	188262.53	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.65	249059.98	641.38	871.5	False	13C2-PFOA	607641.54	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4974-FS(0)	Injection Vial	34
Sample ID	POL-MW0011I-027.5-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:27:20 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	422059.85	327.96	3042.6	False	13C2-PFDA	950941.47	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	100058.76	779.67	676.7	False	13C4-PFOS	218074.01	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	80318.75	574.94	434.1	False	13C4-PFOS	218074.01	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	264028.69	303.12	349.2	False	13C2-PFOA	597654.68	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	459519.03	556.73	883.5	False	13C2-PFOA	597654.68	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	781429.35	854.83	838.3	False	13C2-PFOA	597654.68	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1200616.78	1224.13	1271.8	False	13C2-PFOA	597654.68	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1181044.56	1234.85	1999.8	False	13C2-PFDA	950941.47	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	791803.76	784.77	2292.7	False	13C2-PFDA	950941.47	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	34039.79	29.85	2478.0	False	13C2-PFDA	950941.47	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	77042.63	403.68	980.8	False	13C4-PFOS	218074.01	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	171776.62	869.95	456.9	False	13C4-PFOS	218074.01	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	201496.51	1093.88	298.6	False	13C4-PFOS	218074.01	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	232552.90	608.88	1107.6	False	13C2-PFOA	597654.68	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4975-FS(0)	Injection Vial	35
Sample ID	POL-MW0044I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:37:52 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	232718.57	185.90	3087.4	False	13C2-PFDA	925018.01	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	78909.85	746.53	513.2	False	13C4-PFOS	179617.33	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	68563.51	595.87	462.1	False	13C4-PFOS	179617.33	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	197789.95	247.27	270.6	False	13C2-PFOA	548839.74	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	374536.28	494.13	659.8	False	13C2-PFOA	548839.74	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	695760.57	828.81	1021.1	False	13C2-PFOA	548839.74	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1007950.10	1119.10	974.3	False	13C2-PFOA	548839.74	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	896354.05	963.46	1581.5	False	13C2-PFDA	925018.01	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	601462.44	612.82	2065.3	False	13C2-PFDA	925018.01	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	22590.10	20.36	1550.2	False	13C2-PFDA	925018.01	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.30	67251.41	427.82	827.5	False	13C4-PFOS	179617.33	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	135785.04	834.91	412.1	False	13C4-PFOS	179617.33	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.61	188880.59	1244.93	332.1	False	13C4-PFOS	179617.33	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.65	179501.43	511.78	829.2	False	13C2-PFOA	548839.74	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4976-FS(0)	Injection Vial	36
Sample ID	POL-MW0044D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:48:24 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	967134.41	616.42	3321.8	False	13C2-PFDA	1159346.41	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.13	99072.54	659.33	756.7	False	13C4-PFOS	255335.37	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	91888.04	561.77	599.5	False	13C4-PFOS	255335.37	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	360199.28	349.50	512.0	False	13C2-PFOA	707156.23	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	576106.22	589.90	826.5	False	13C2-PFOA	707156.23	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	1054331.82	974.77	1158.6	False	13C2-PFOA	707156.23	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1375890.71	1185.61	1494.8	False	13C2-PFOA	707156.23	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	1307823.39	1121.60	2397.6	False	13C2-PFDA	1159346.41	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	1051970.73	855.20	2776.5	False	13C2-PFDA	1159346.41	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	202121.69	145.36	3895.9	False	13C2-PFDA	1159346.41	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	109845.16	491.56	793.4	False	13C4-PFOS	255335.37	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	191586.47	828.68	544.6	False	13C4-PFOS	255335.37	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	228361.83	1058.81	383.6	False	13C4-PFOS	255335.37	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	326993.81	723.57	1452.7	False	13C2-PFOA	707156.23	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4977-FS(0)	Injection Vial	37
Sample ID	SW3-MW0027-032.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:58:56 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	310205.99	280.21	3428.9	False	13C2-PFDA	818016.91	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	65943.76	528.05	643.2	False	13C4-PFOS	212208.72	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	57189.19	420.69	477.5	False	13C4-PFOS	212208.72	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	339692.08	342.21	490.6	False	13C2-PFOA	681093.47	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	567783.26	603.62	747.2	False	13C2-PFOA	681093.47	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	938533.30	900.92	932.7	False	13C2-PFOA	681093.47	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.62	1114620.39	997.23	1481.8	False	13C2-PFOA	681093.47	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.98	929581.34	1129.87	2145.2	False	13C2-PFDA	818016.91	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	593126.67	683.38	2216.0	False	13C2-PFDA	818016.91	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	42306.29	43.12	2602.8	False	13C2-PFDA	818016.91	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	104574.33	563.08	940.2	False	13C4-PFOS	212208.72	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	173536.54	903.15	461.4	False	13C4-PFOS	212208.72	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.62	175800.13	980.76	318.7	False	13C4-PFOS	212208.72	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	298142.26	684.97	1092.2	False	13C2-PFOA	681093.47	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:06:59 PM

Sample Name	H4978-FS(0)	Injection Vial	38
Sample ID	SW3-MW0028-032.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:09:27 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.61	398848.95	379.89	2453.3	False	13C2-PFDA	775803.17	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.14	50868.45	423.53	549.0	False	13C4-PFOS	204091.66	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.30	41506.24	317.47	305.7	False	13C4-PFOS	204091.66	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	290124.69	330.15	395.4	False	13C2-PFOA	602963.51	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	507430.16	609.36	587.3	False	13C2-PFOA	602963.51	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.25	805658.90	873.58	825.1	False	13C2-PFOA	602963.51	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.63	1060687.74	1071.94	979.5	False	13C2-PFOA	602963.51	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.99	831151.61	1065.20	2294.5	False	13C2-PFDA	775803.17	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.31	551608.83	670.13	1781.1	False	13C2-PFDA	775803.17	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	59111.81	63.53	3187.4	False	13C2-PFDA	775803.17	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	81546.79	456.55	705.9	False	13C4-PFOS	204091.66	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.91	174497.35	944.27	498.0	False	13C4-PFOS	204091.66	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.63	181714.86	1054.07	295.1	False	13C4-PFOS	204091.66	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	254246.60	659.81	1005.6	False	13C2-PFOA	602963.51	1250.00		N/A	N/A	✓

Chromatograms

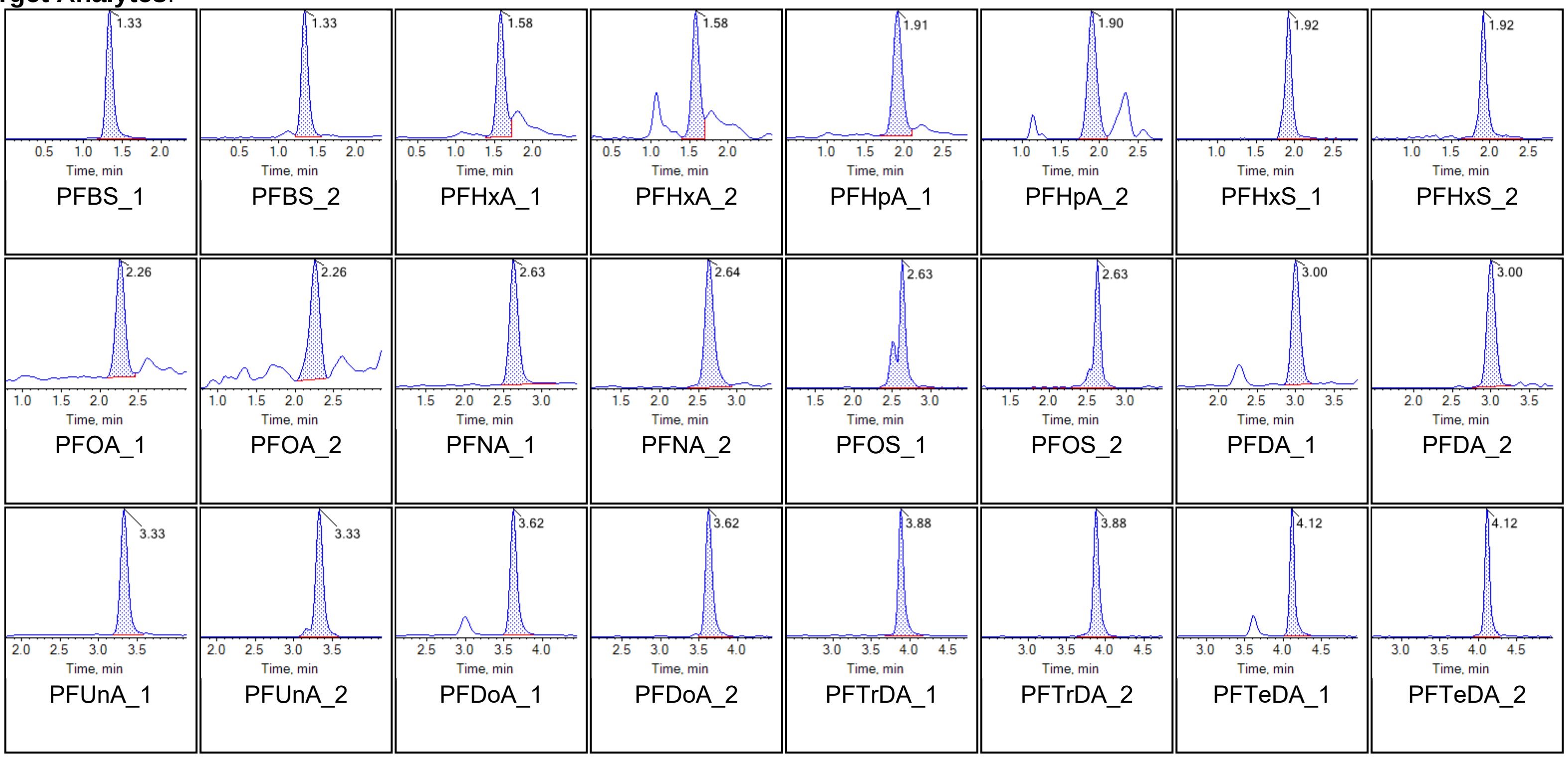
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY33	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

Chromatograms

Target Analytes:



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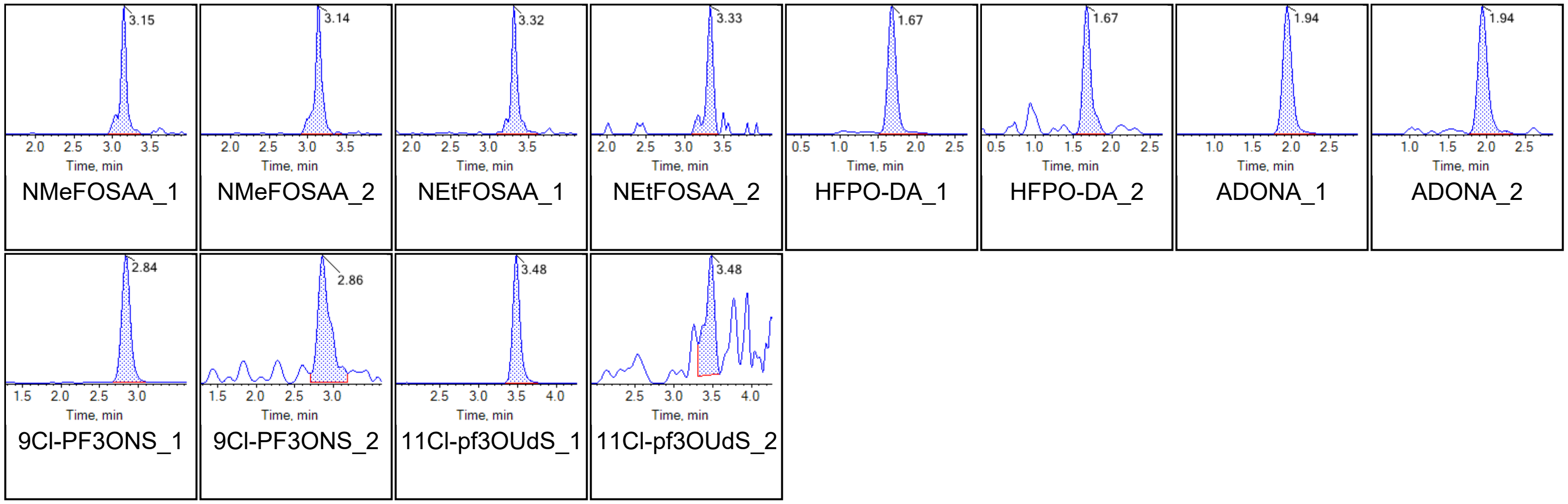
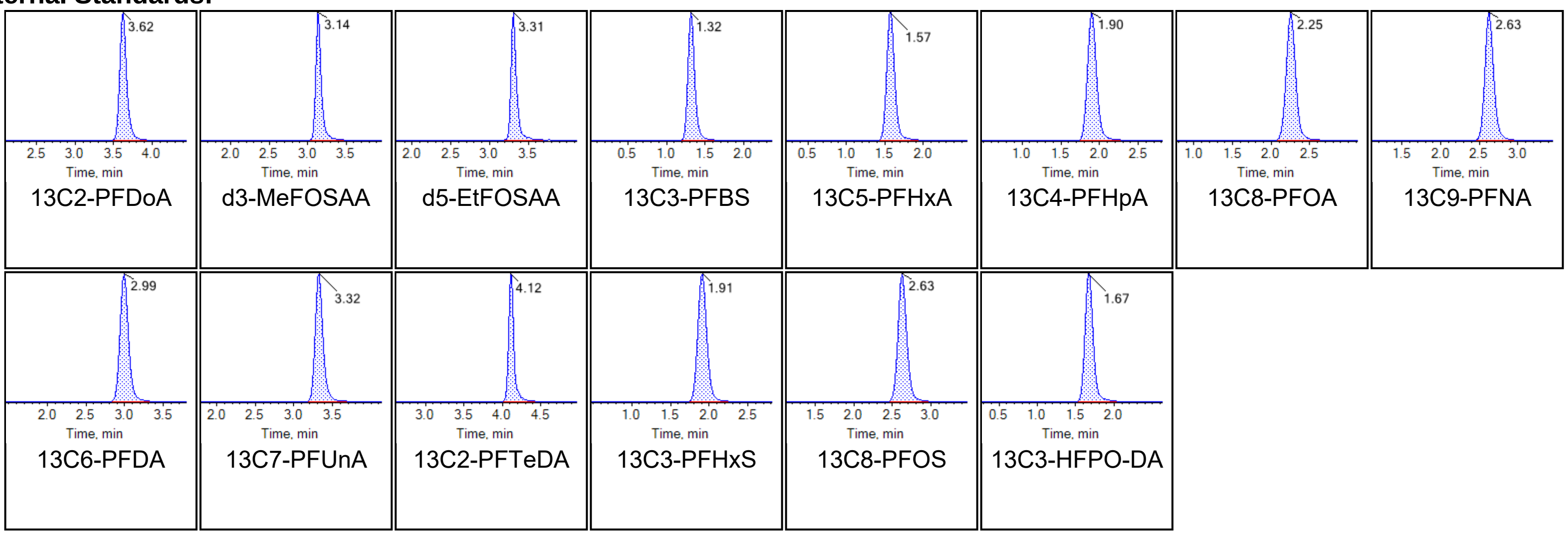
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



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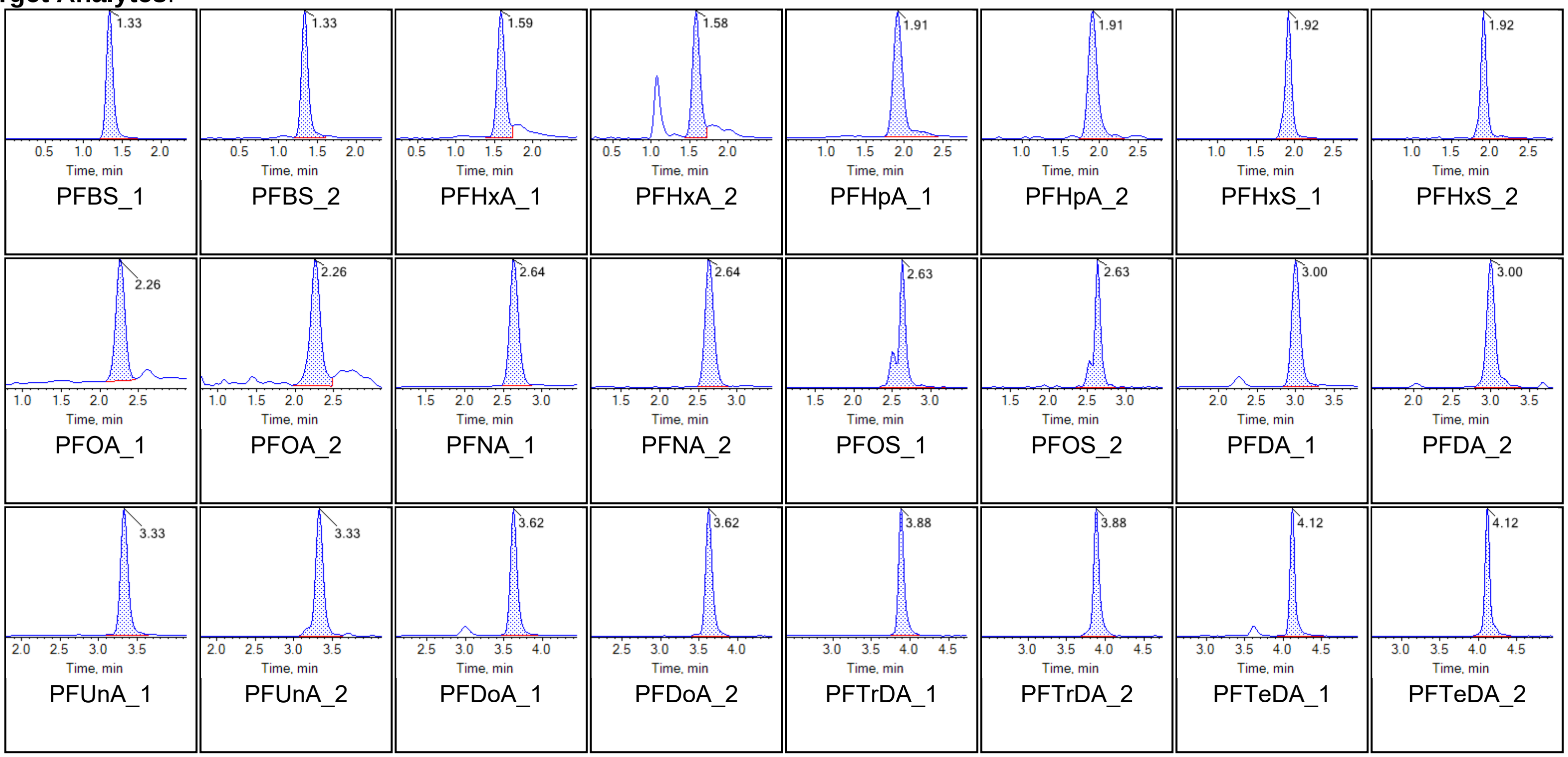
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY34	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:37:08 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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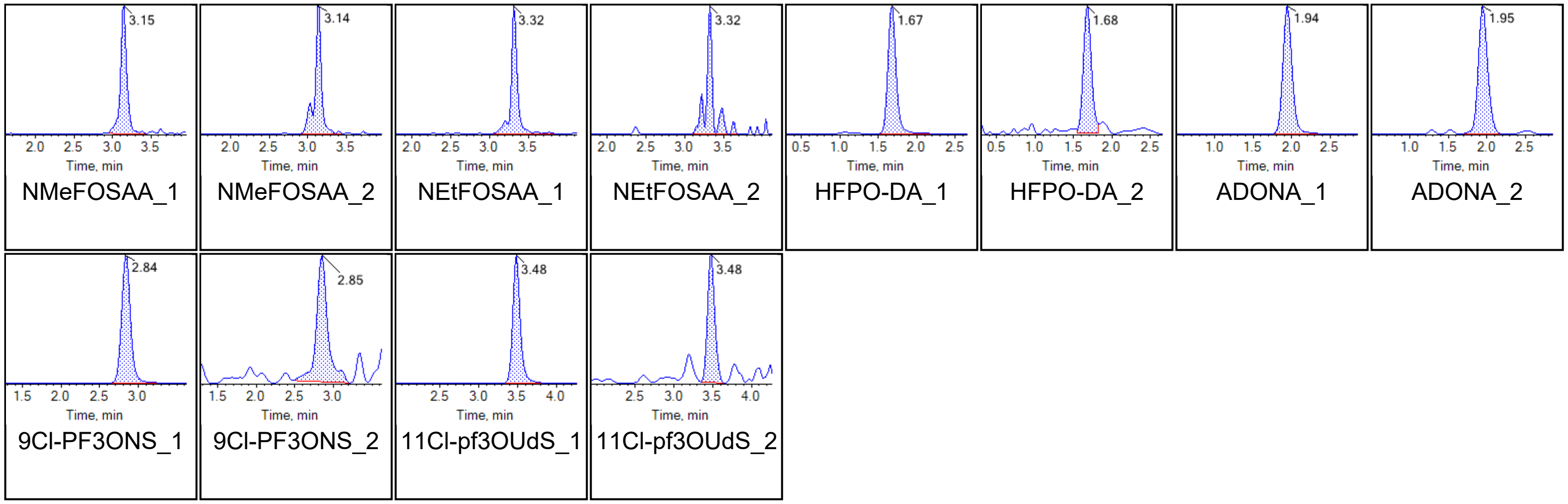
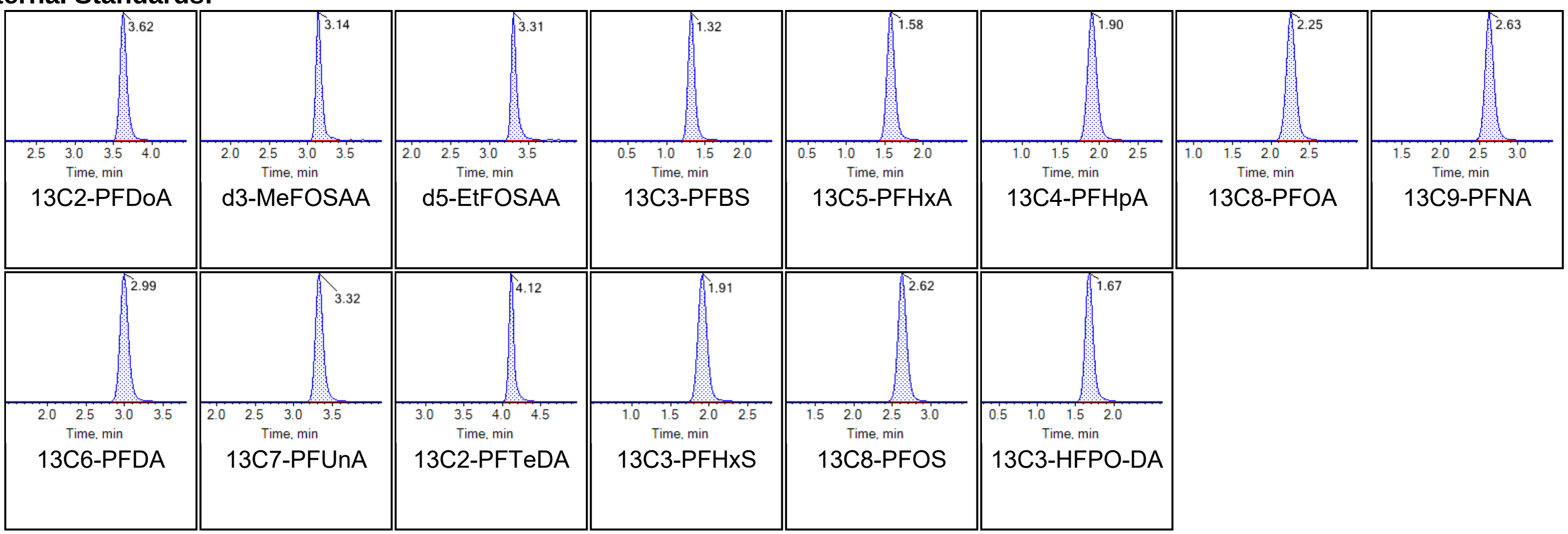
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



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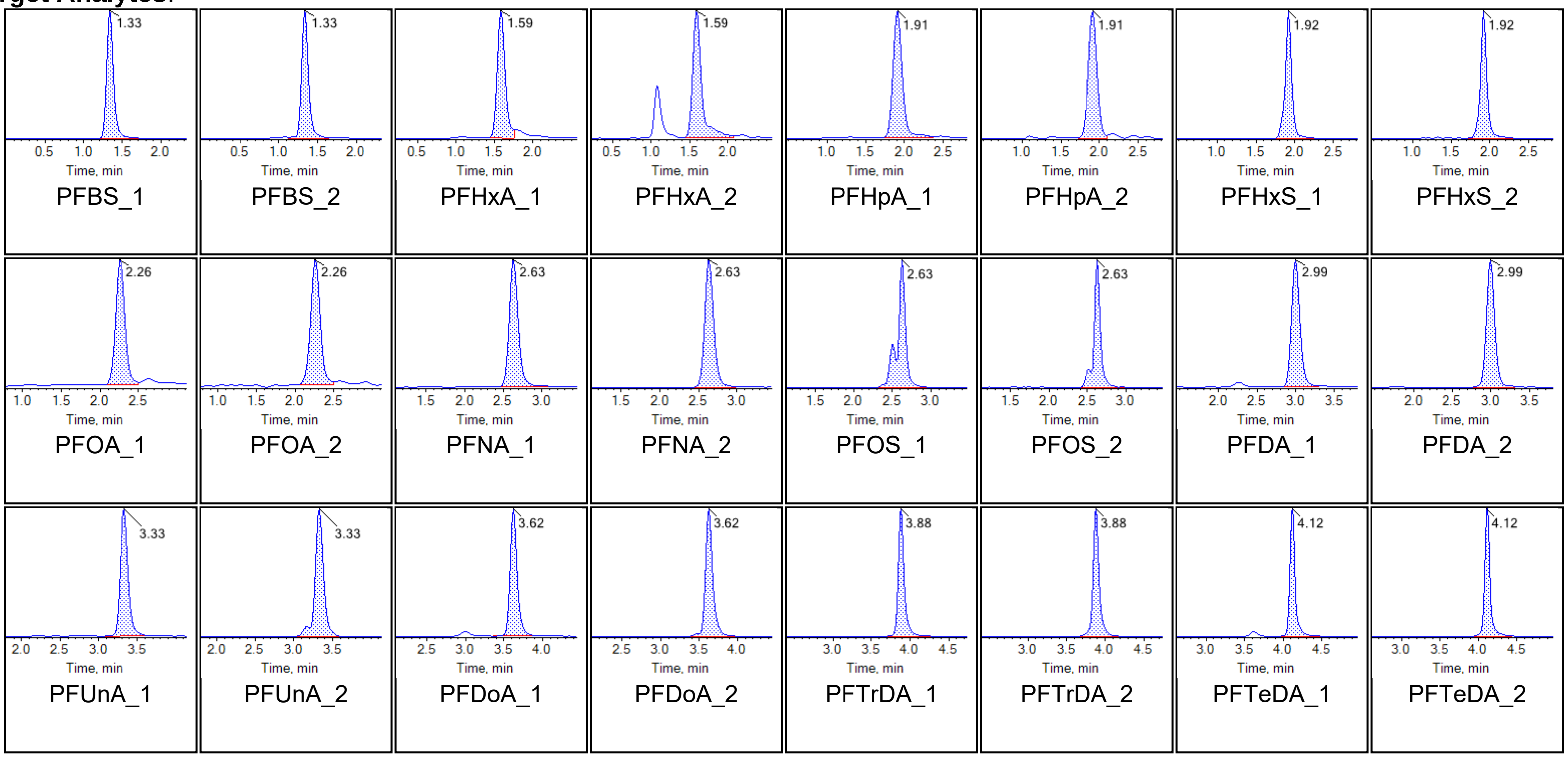
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY35	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:47:41 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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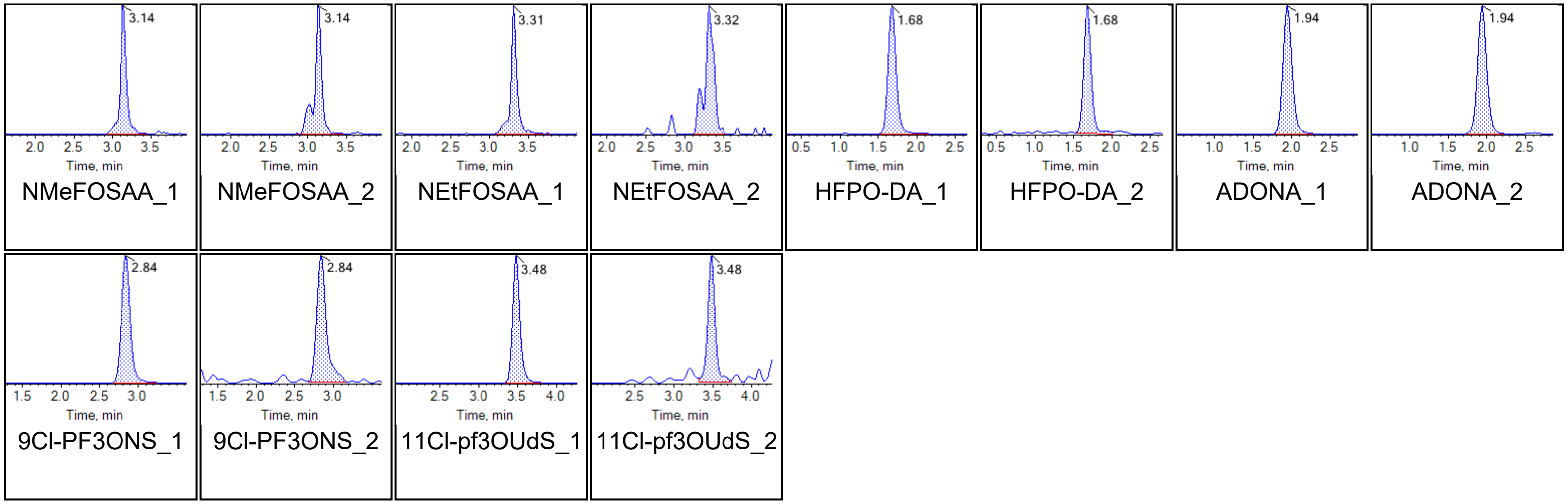
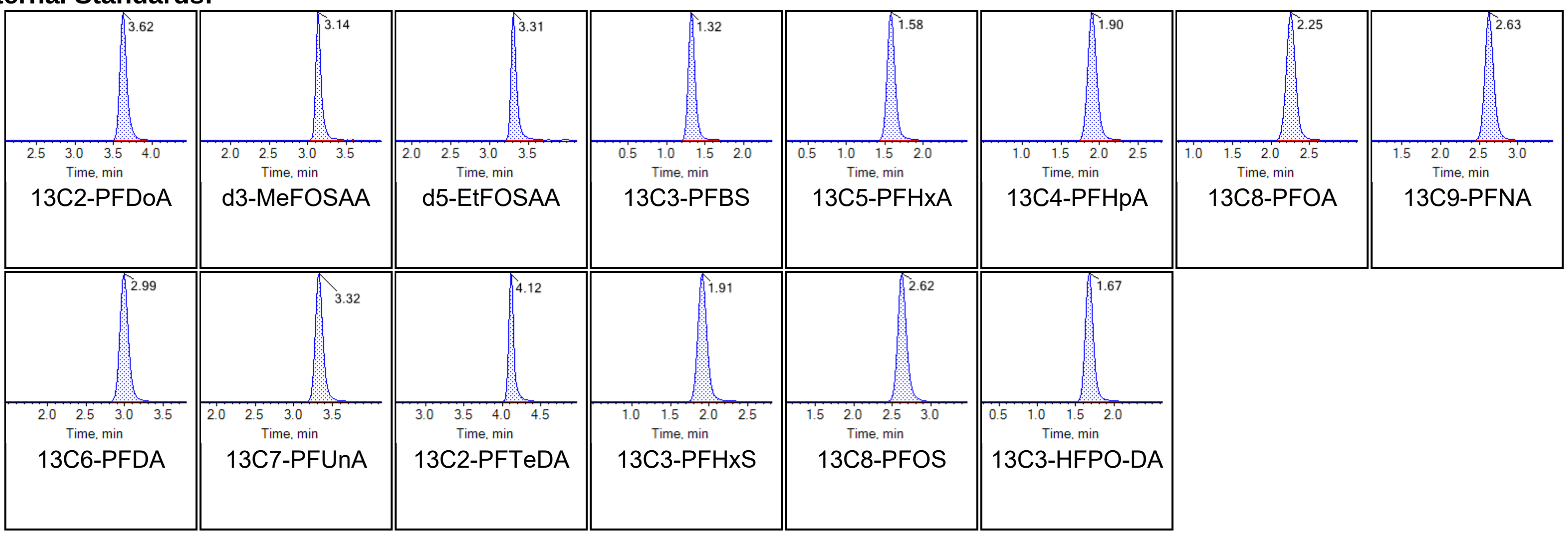
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



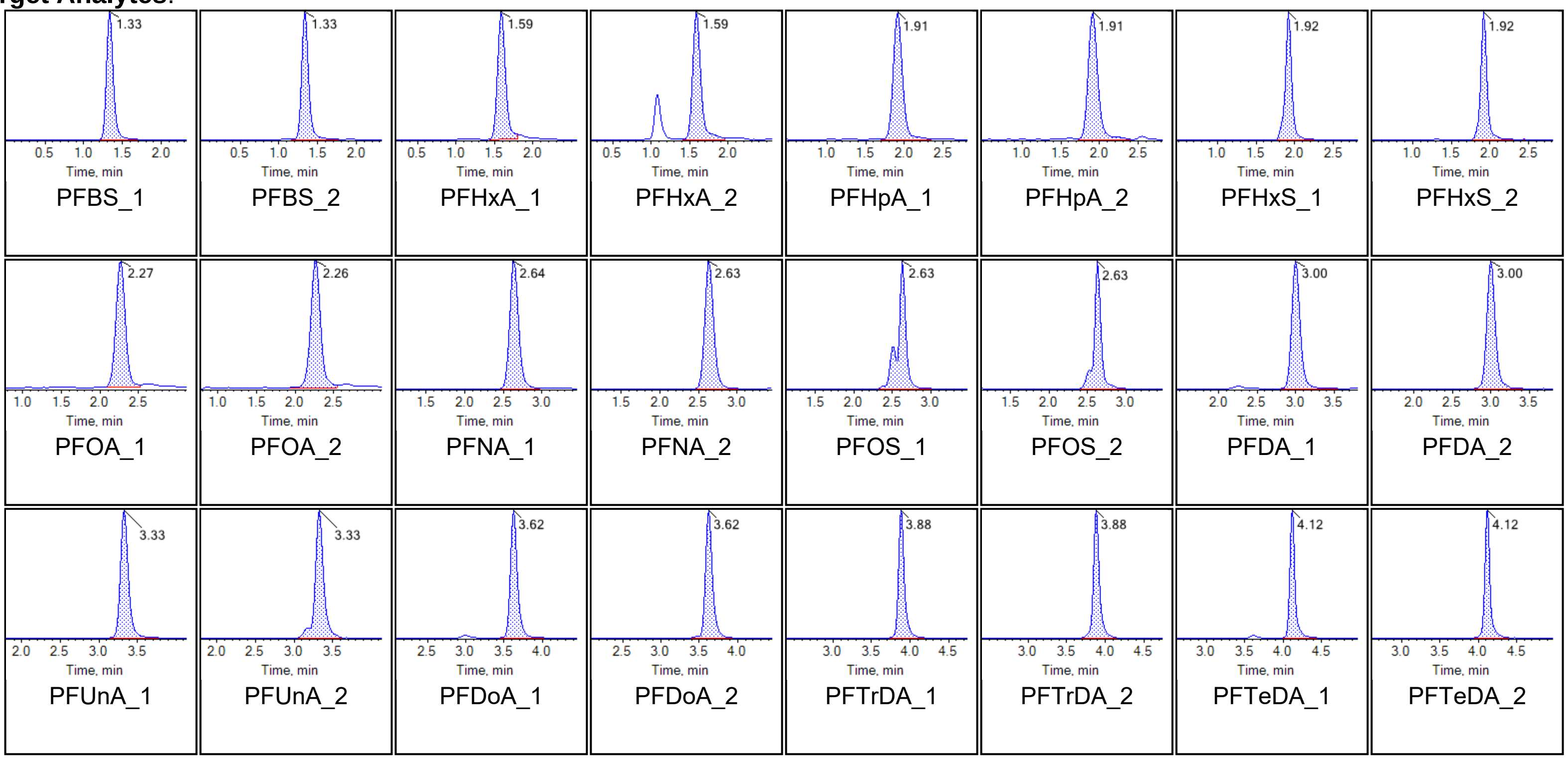
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY36	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:58:14 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

Chromatograms

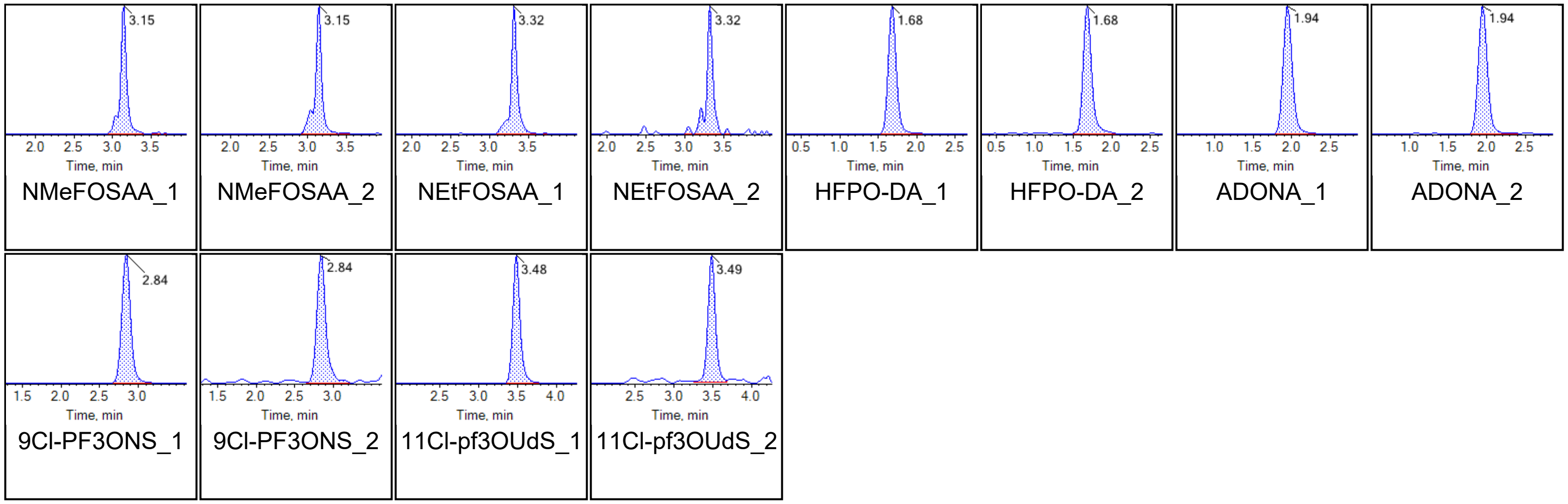
Target Analytes:



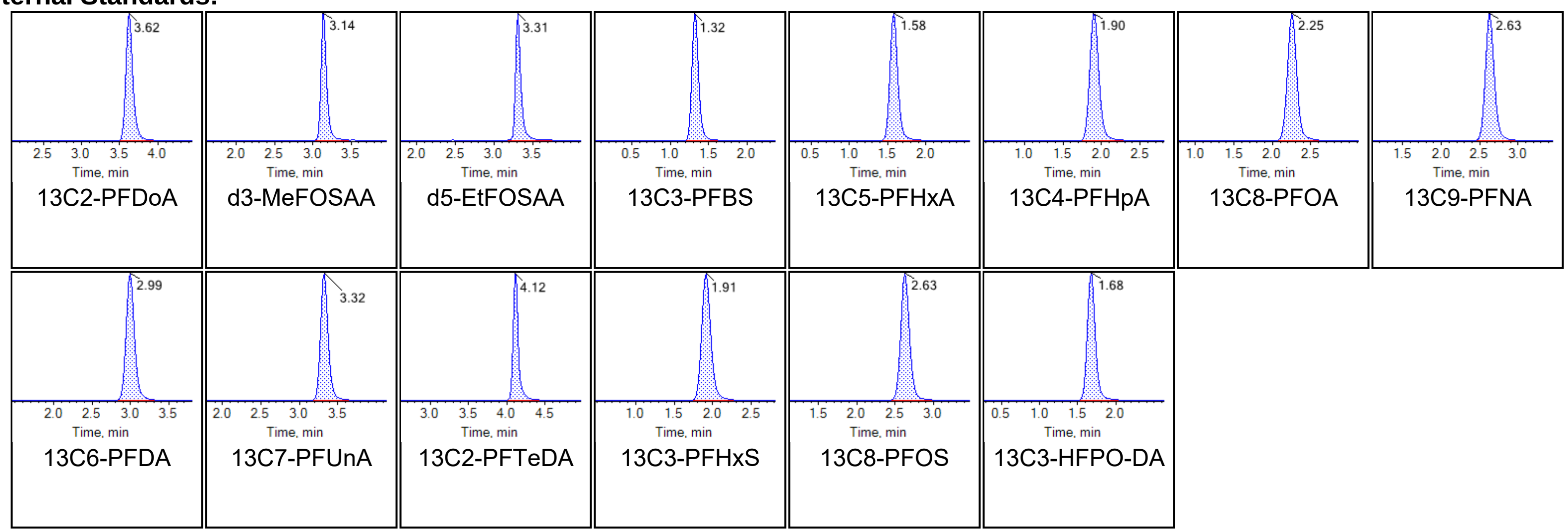
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



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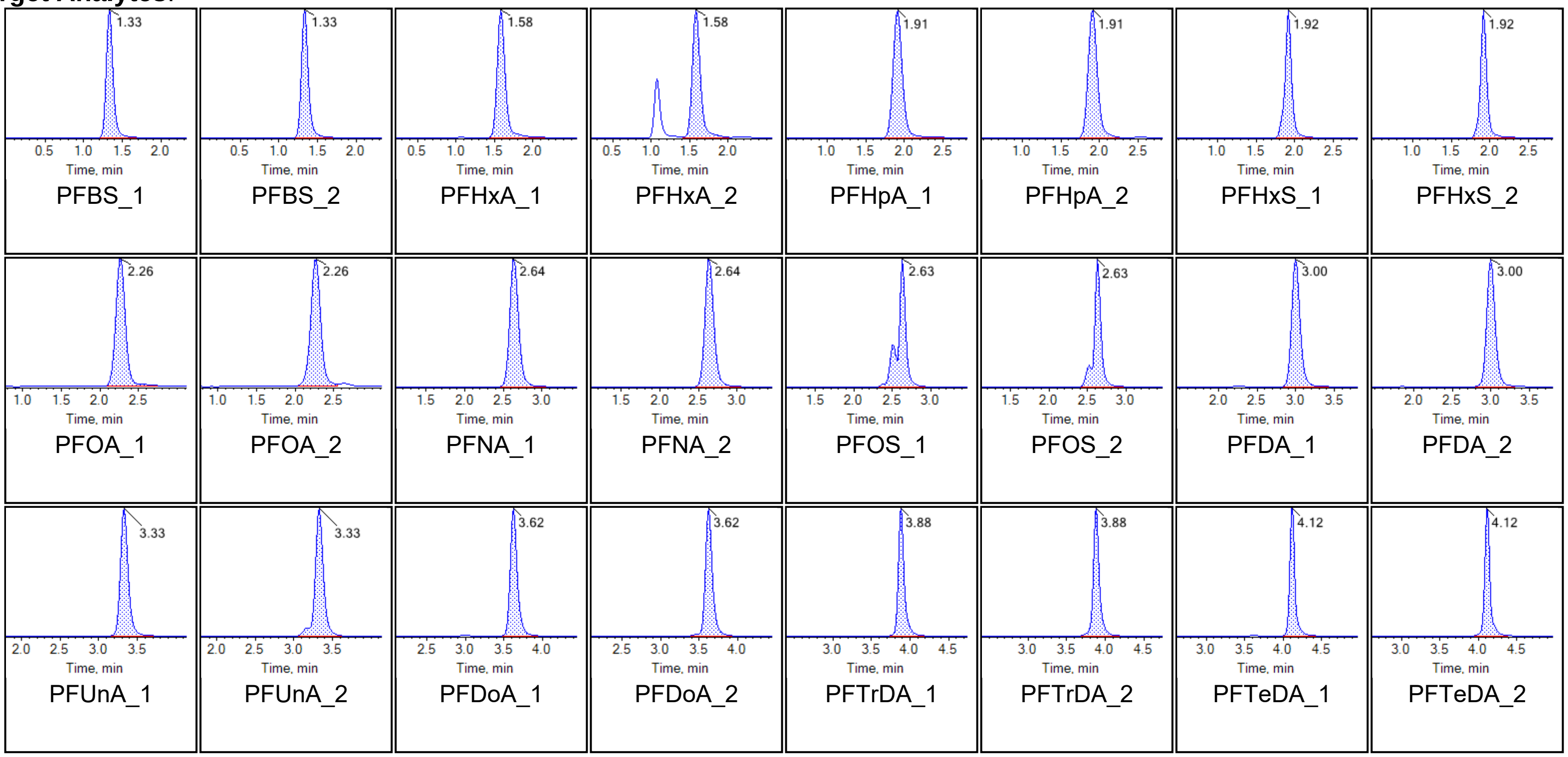
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY37	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:08:45 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

Chromatograms

Target Analytes:



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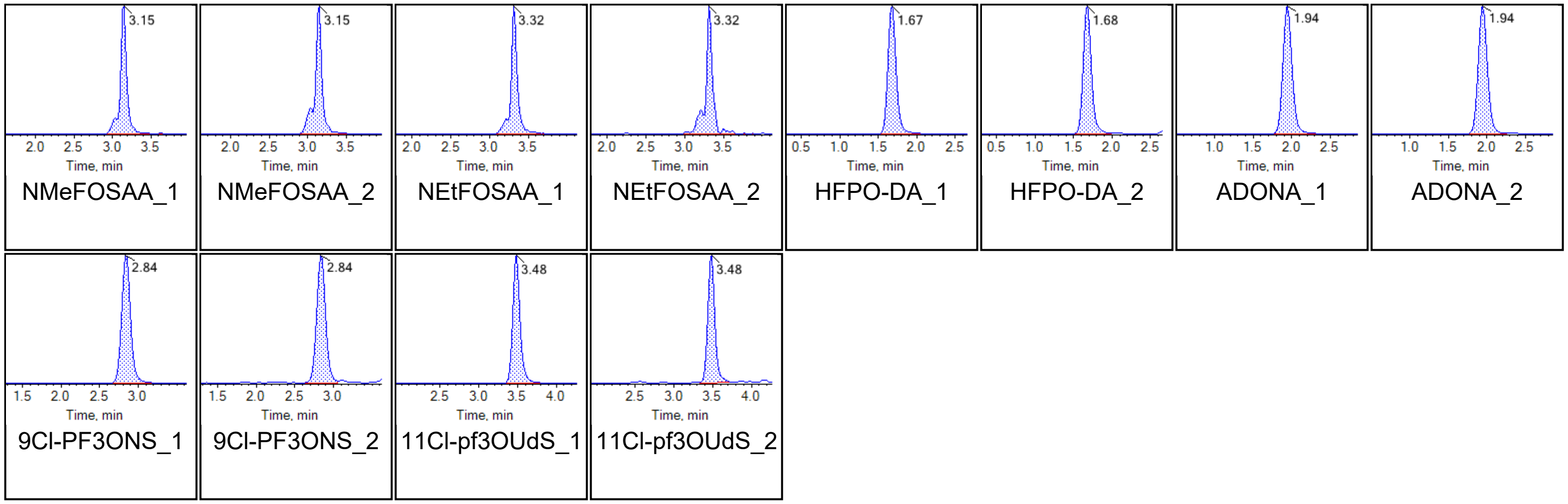
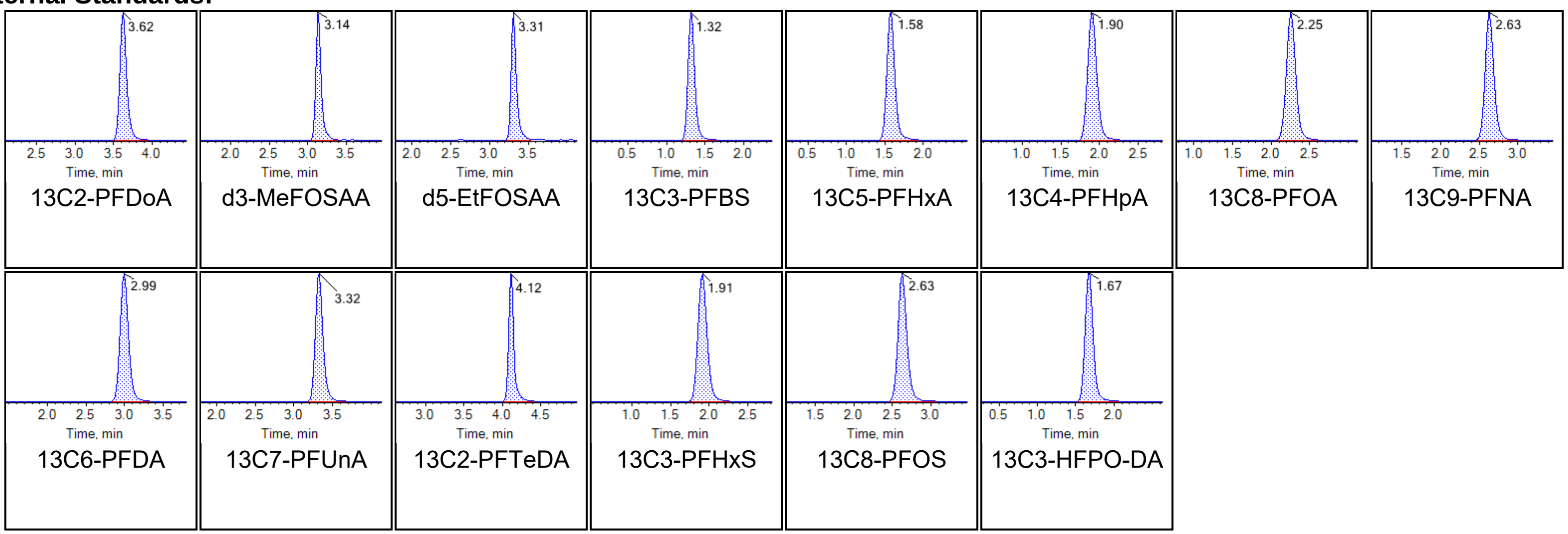
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



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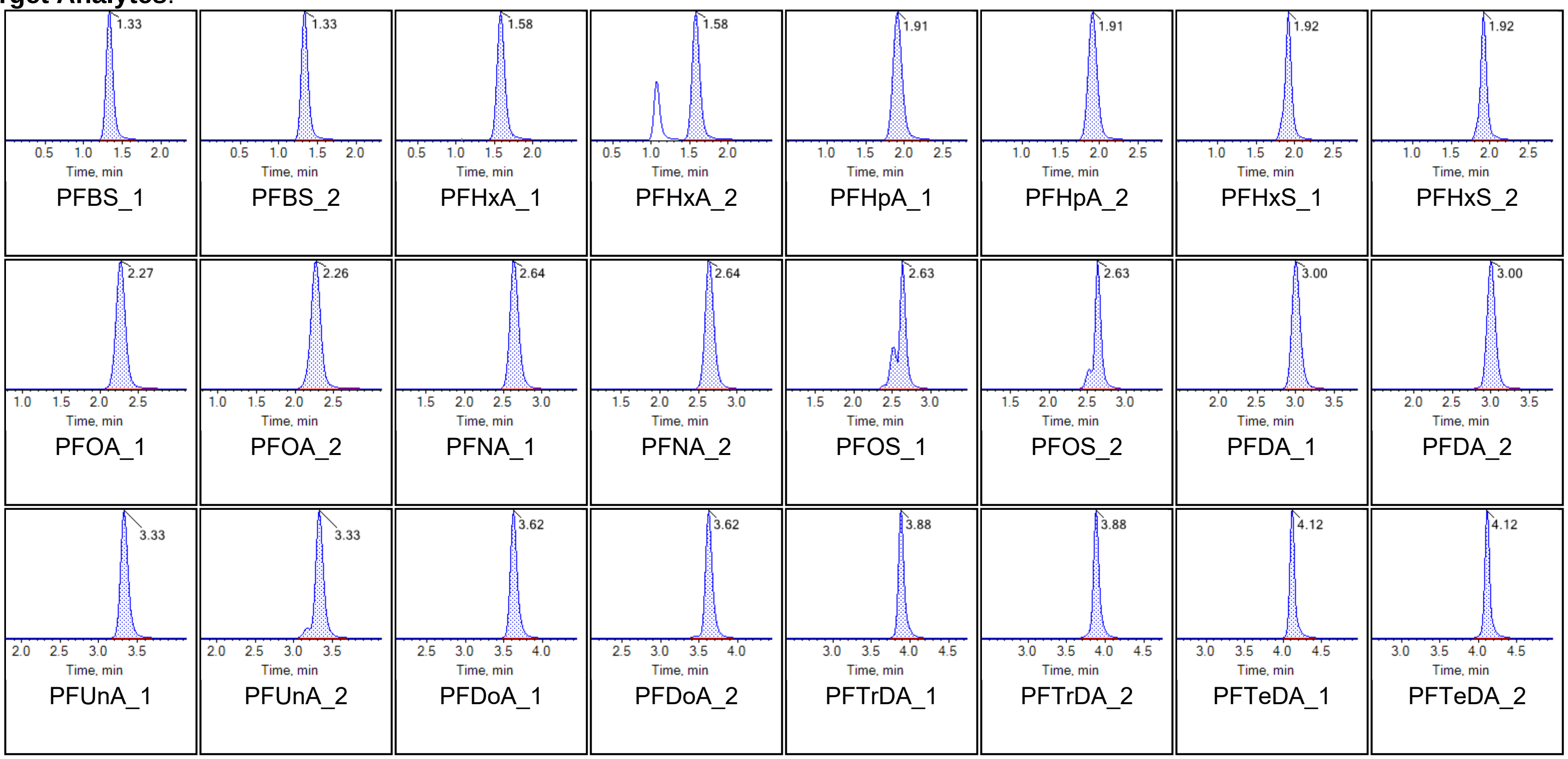
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY38	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:19:18 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

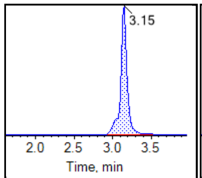
Chromatograms

Target Analytes:

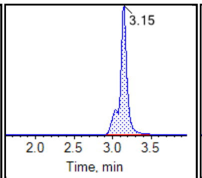


Chromatogram Report

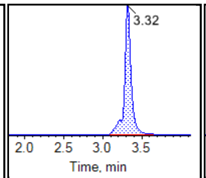
Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



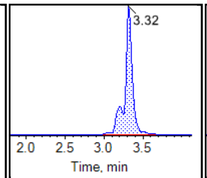
NMeFOSAA_1



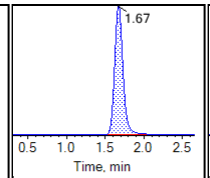
NMeFOSAA_2



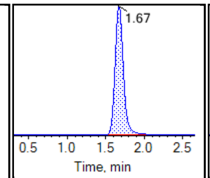
NEtFOSAA_1



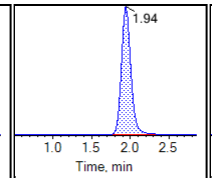
NEtFOSAA_2



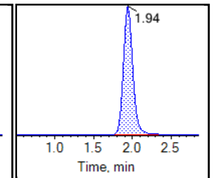
HFPO-DA_1



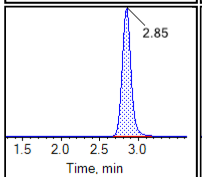
HFPO-DA_2



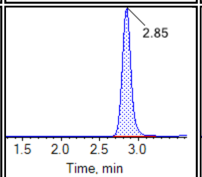
ADONA_1



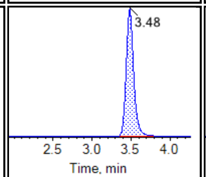
ADONA_2



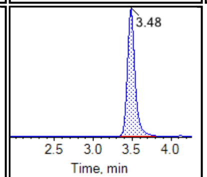
9Cl-PF3ONS_1



9Cl-PF3ONS_2

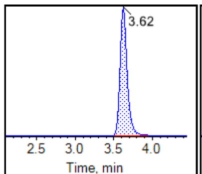


11Cl-pf3OUdS_1

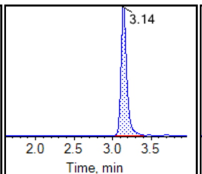


11Cl-pf3OUdS_2

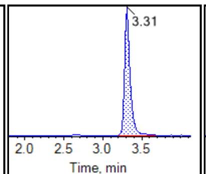
Internal Standards:



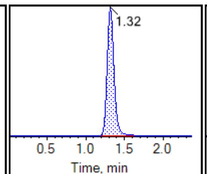
13C2-PFDoA



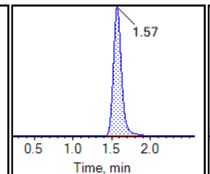
d3-MeFOSAA



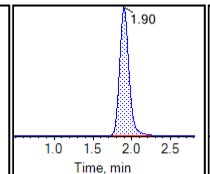
d5-EtFOSAA



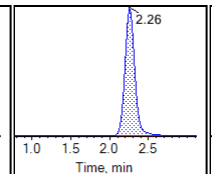
13C3-PFBS



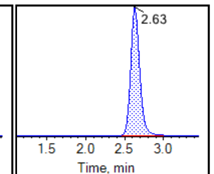
13C5-PFHxA



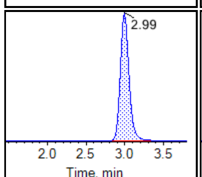
13C4-PFHpA



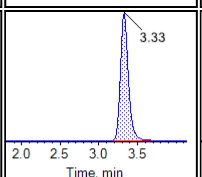
13C8-PFOA



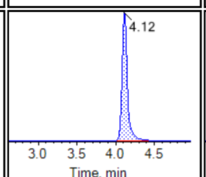
13C9-PFNA



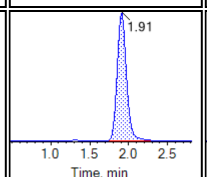
13C6-PFDA



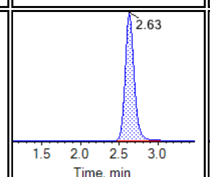
13C7-PFUnA



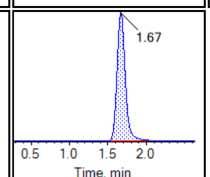
13C2-PFTeDA



13C3-PFHxS



13C8-PFOS



13C3-HFPO-DA

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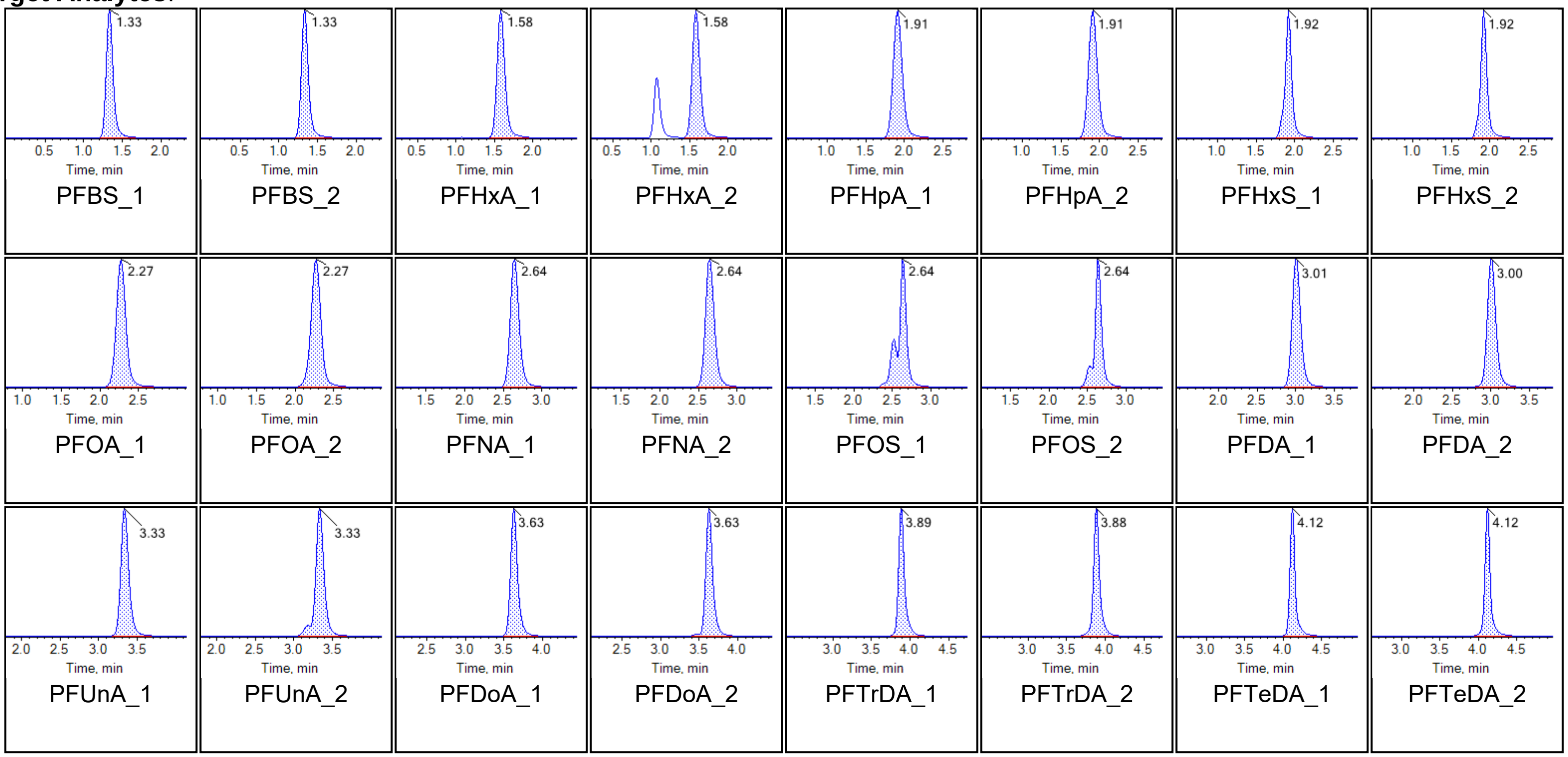
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY39	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:29:50 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

Chromatograms

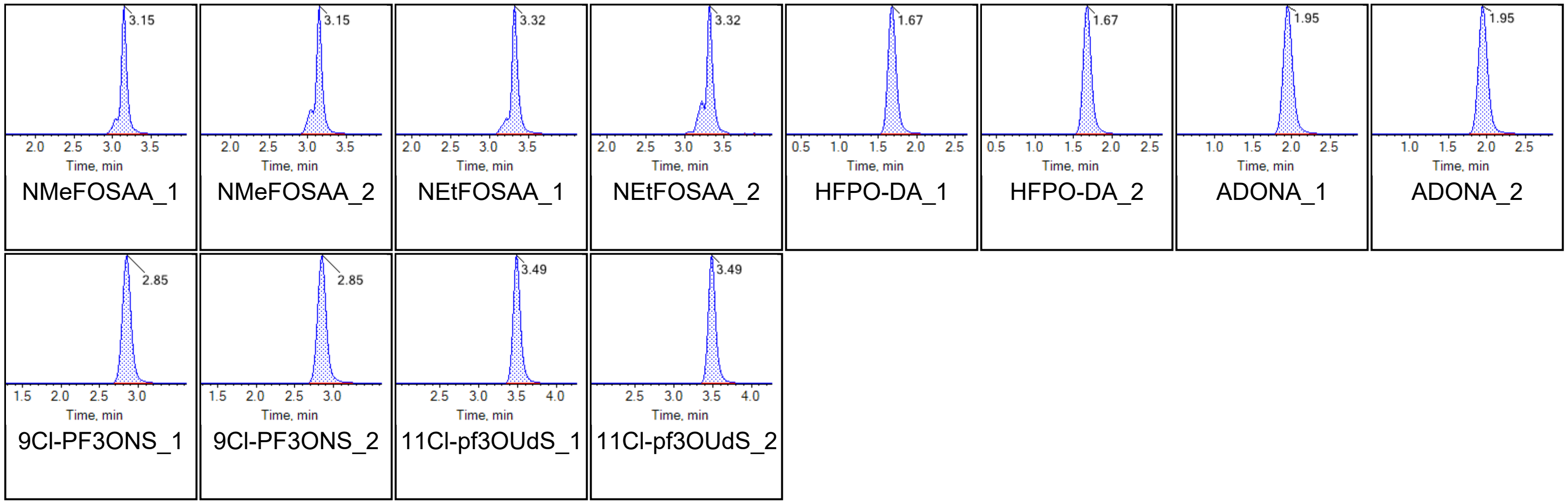
Target Analytes:



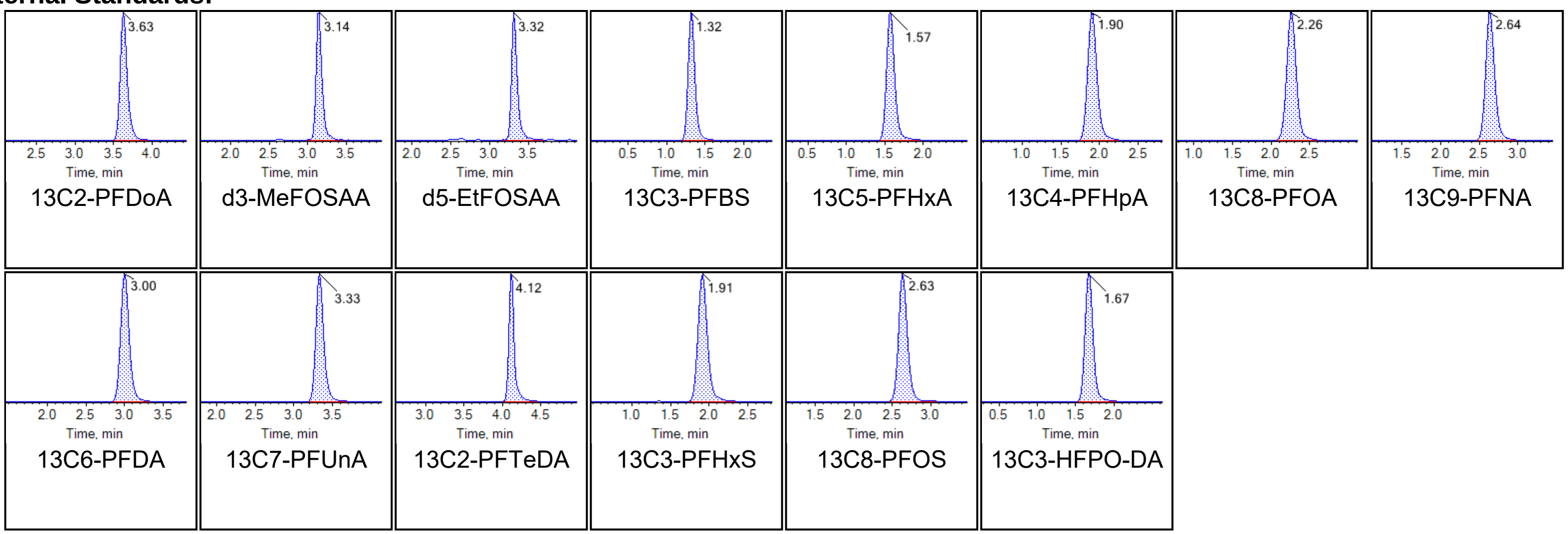
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



BATTELLE

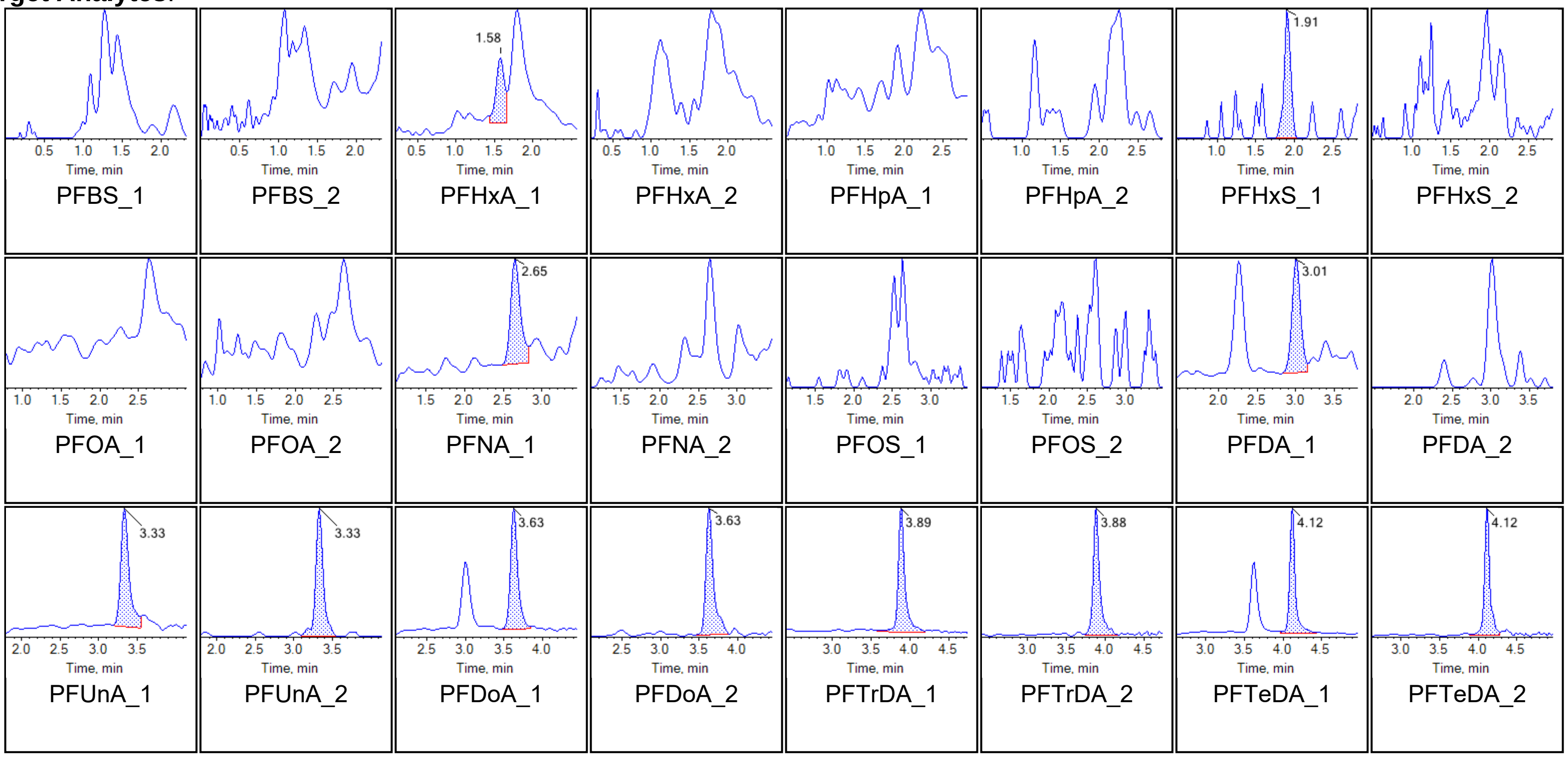
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY40 IB	Injection Vial	9
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:40:23 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

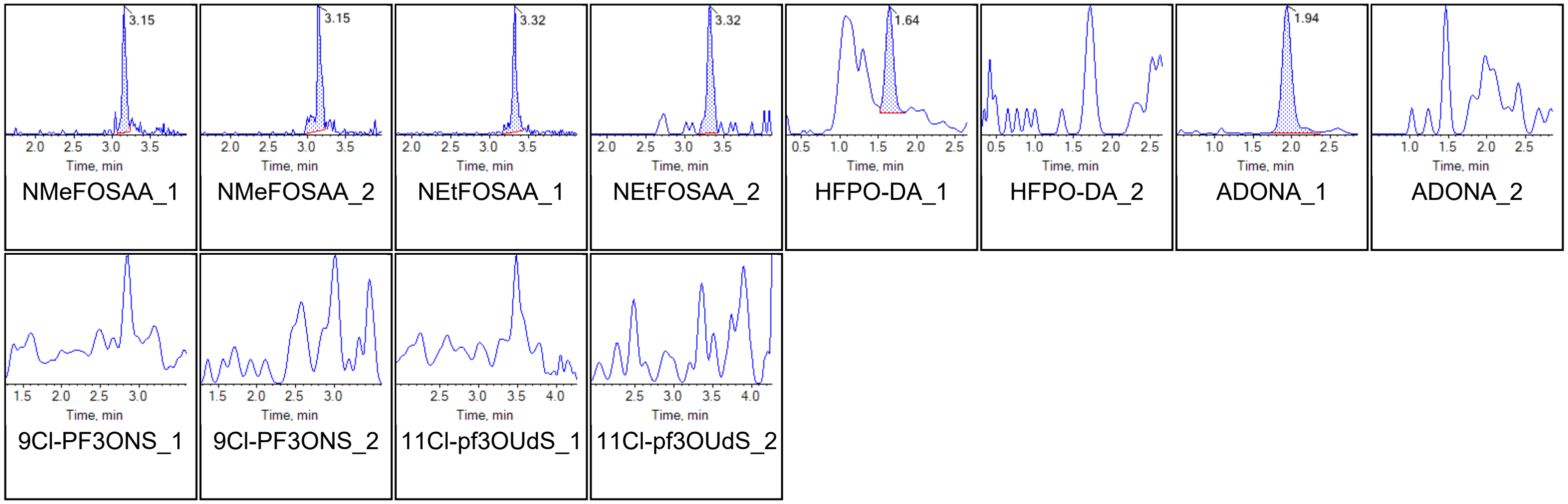
Chromatograms

Target Analytes:

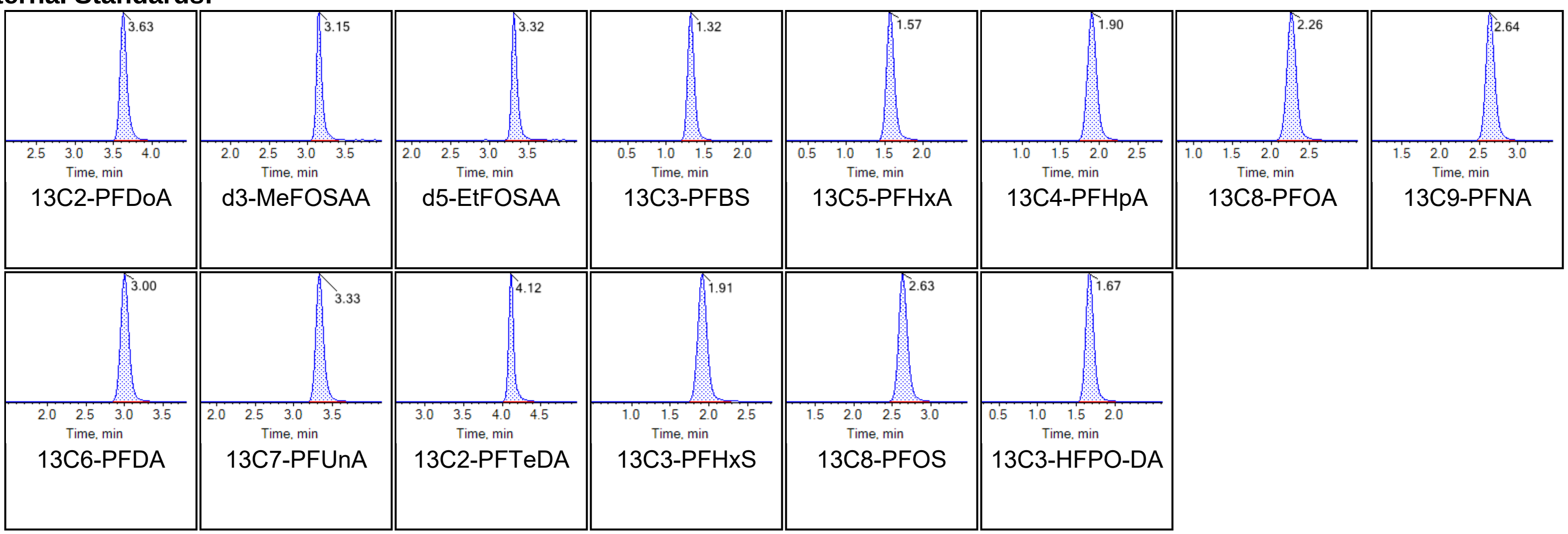


Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



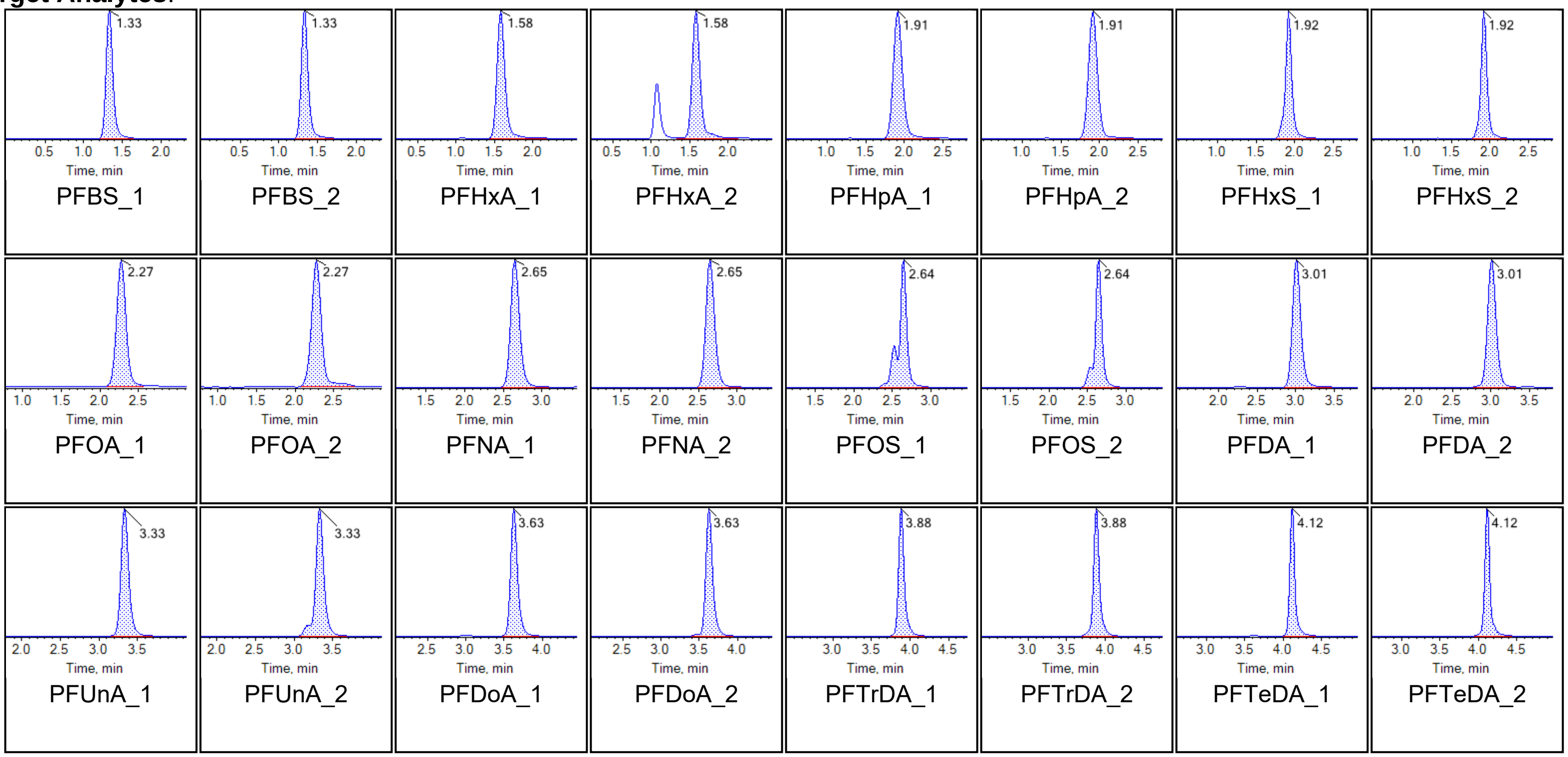
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY41 ICC	**Injection Vial**	10
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:50:56 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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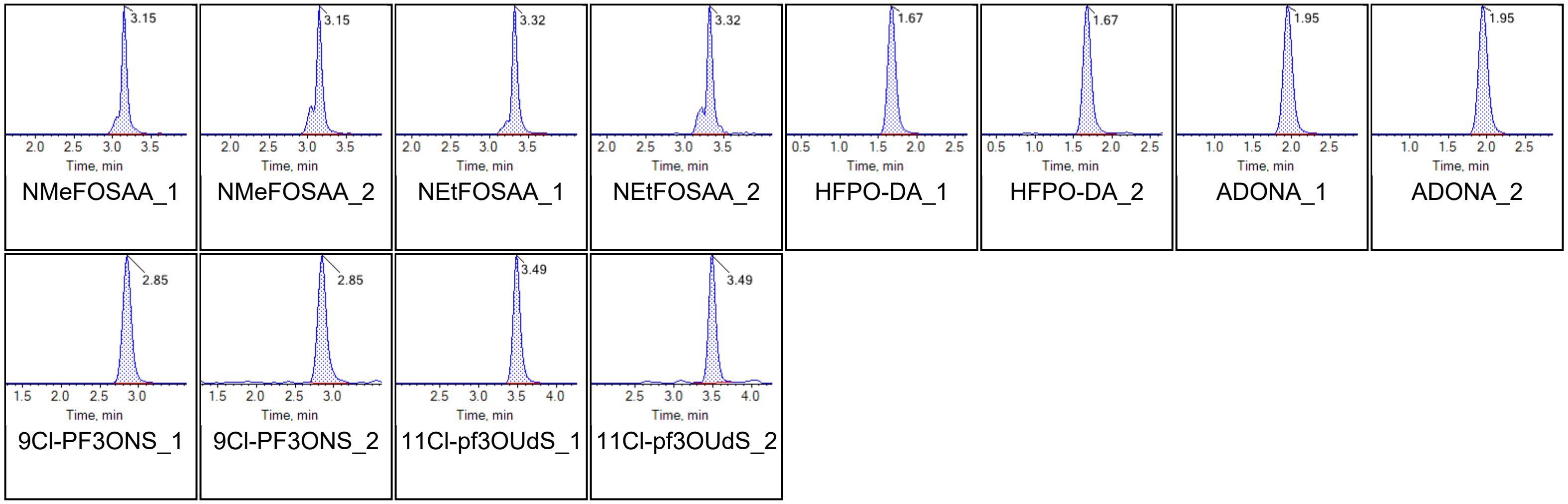
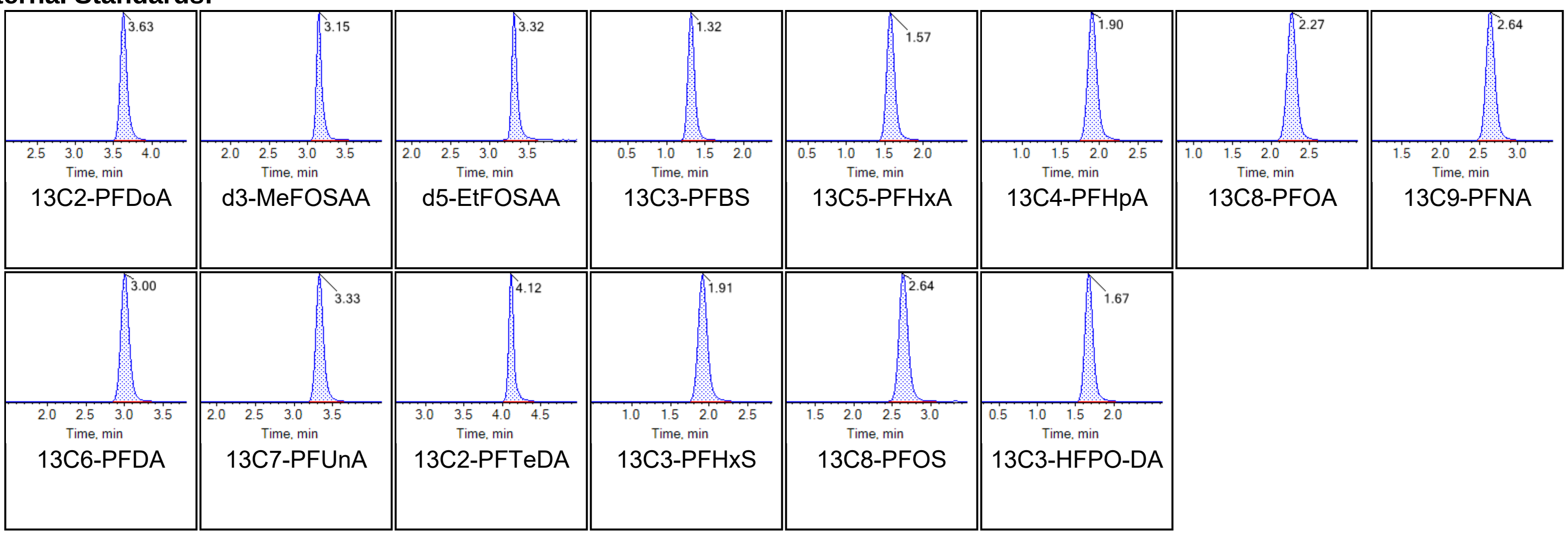
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



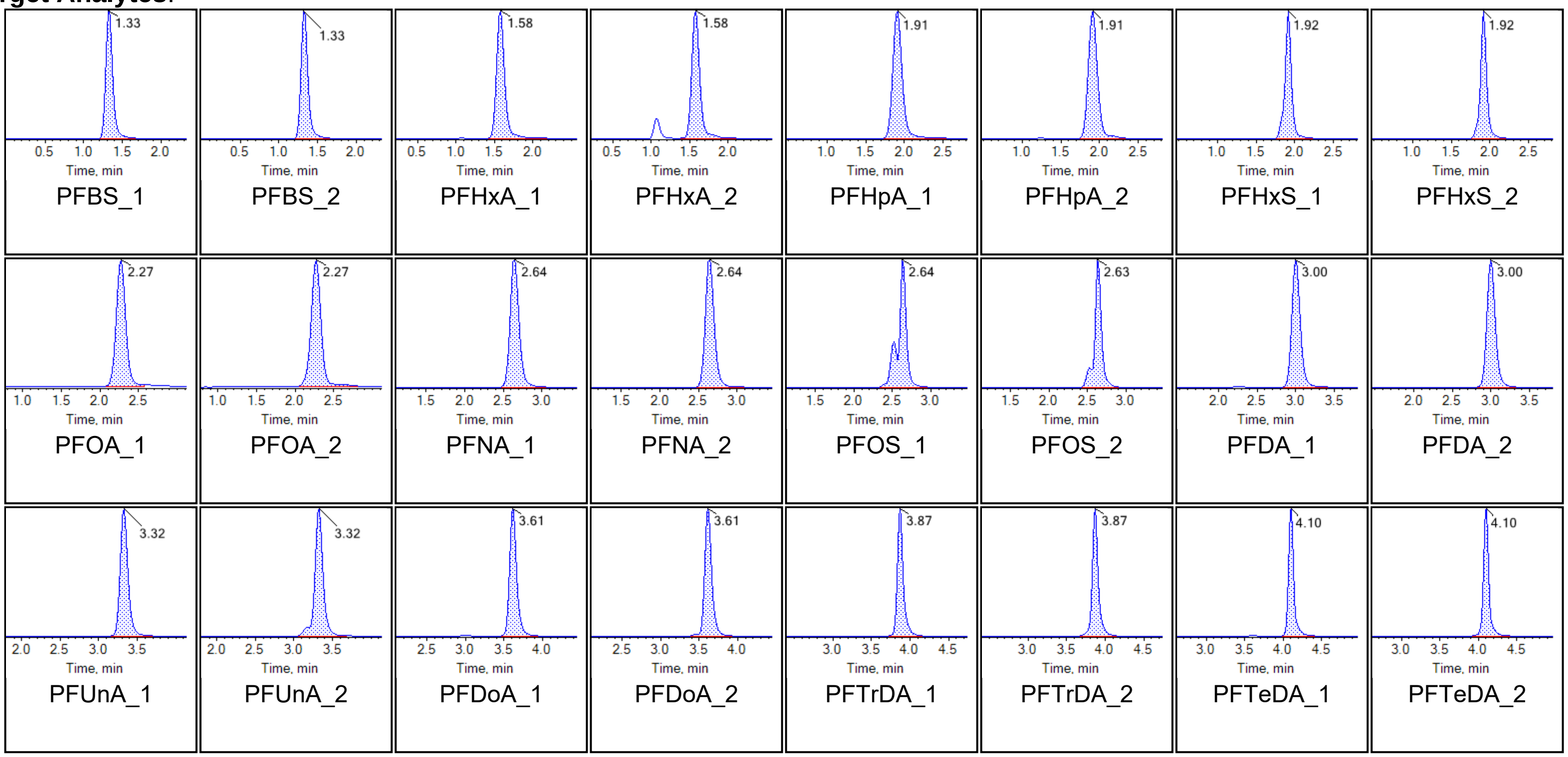
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY37 CCV	**Injection Vial**	20
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 12:59:44 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

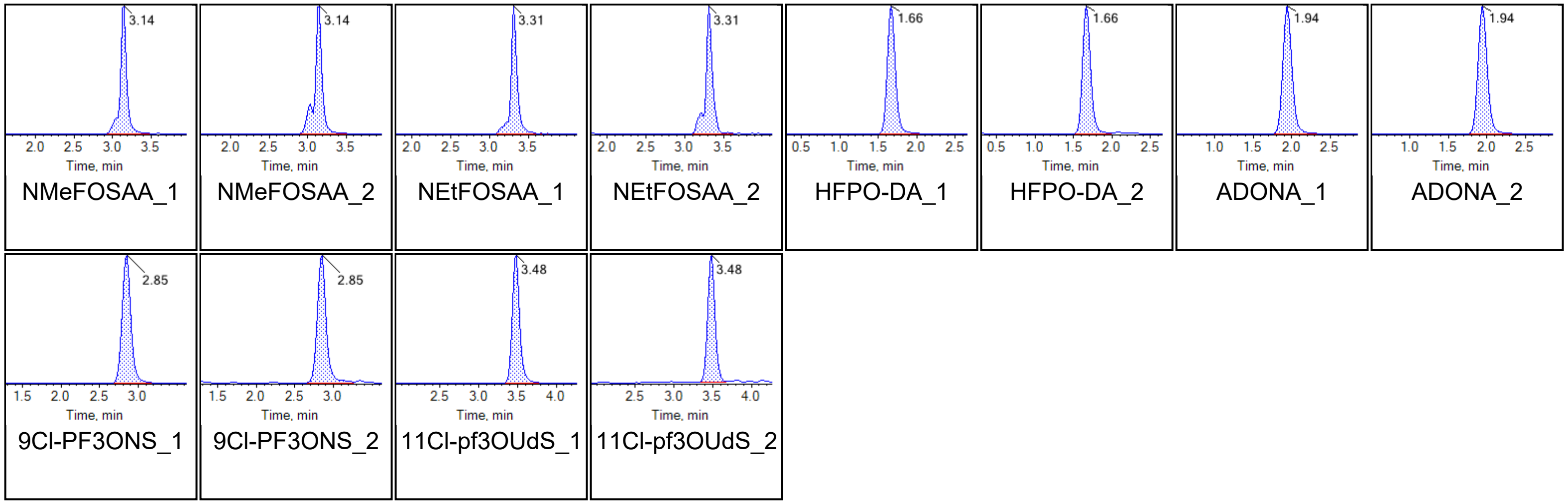
Chromatograms

Target Analytes:



Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Chromatogram Report



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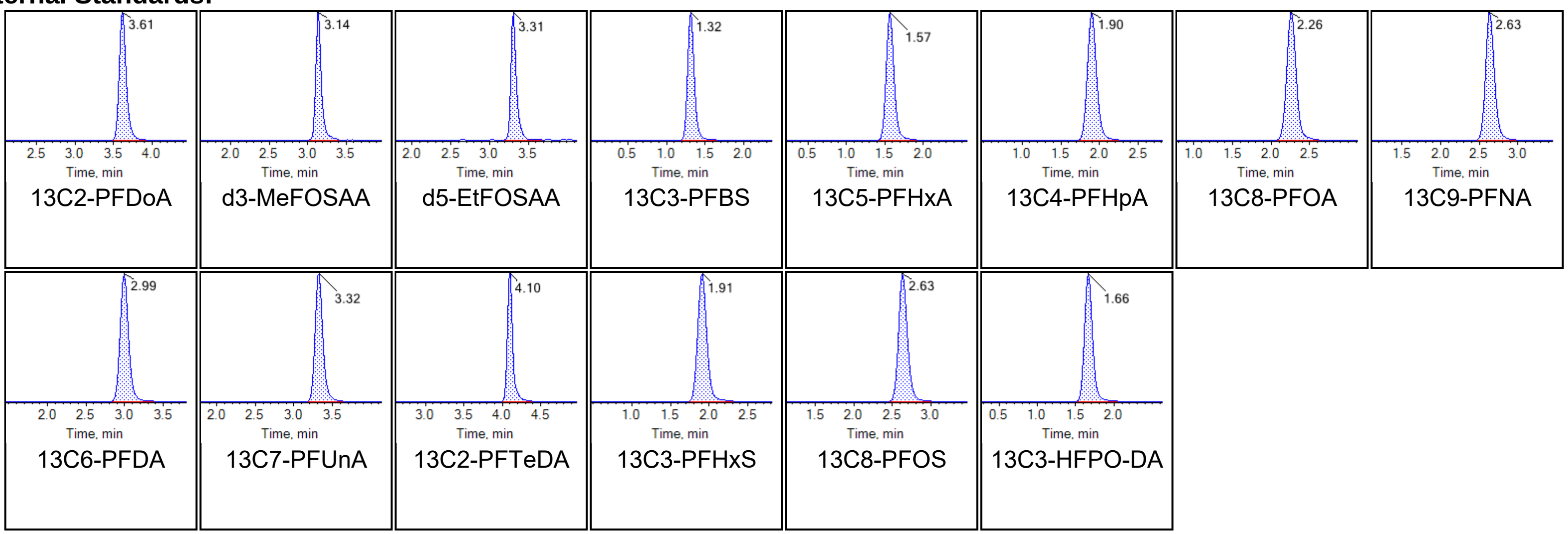

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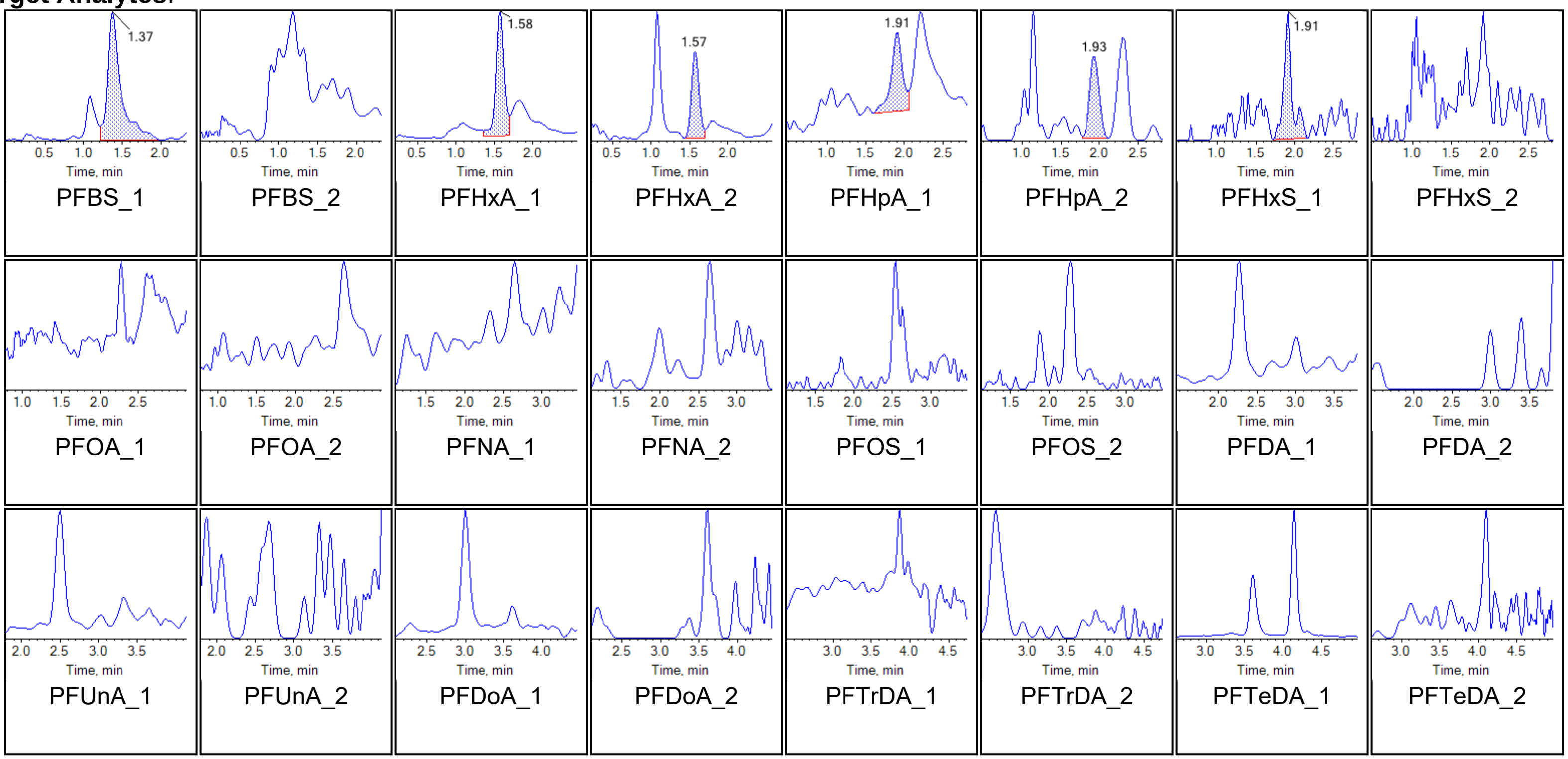
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	CY785PB-FS(0)	**Injection Vial**	22
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:20:48 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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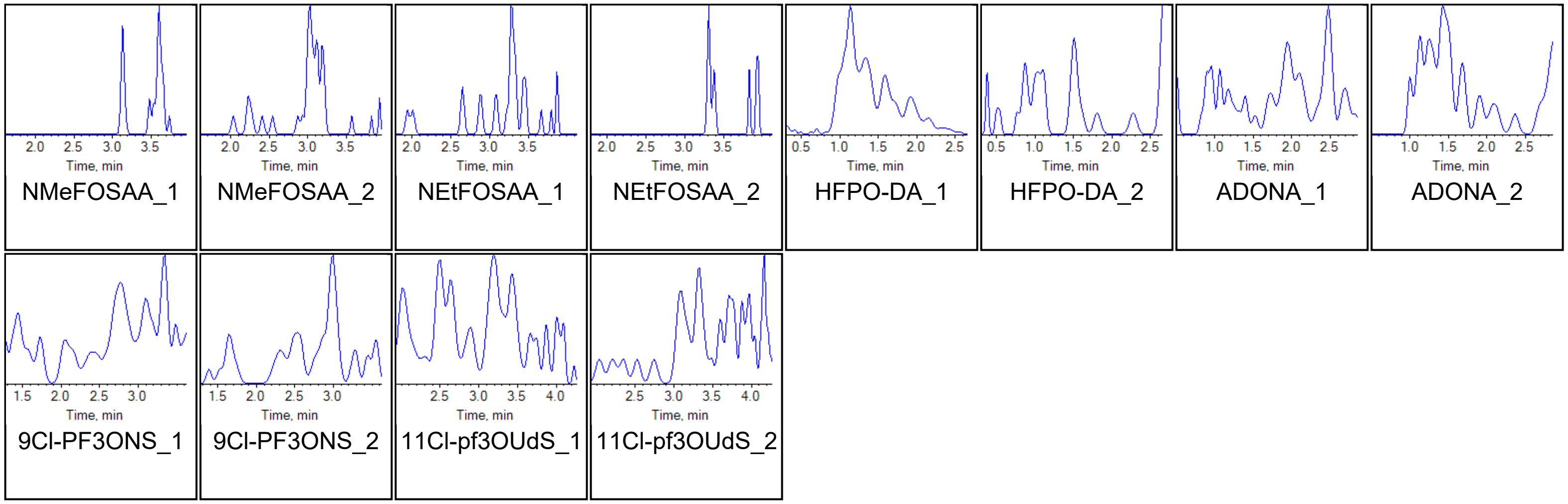
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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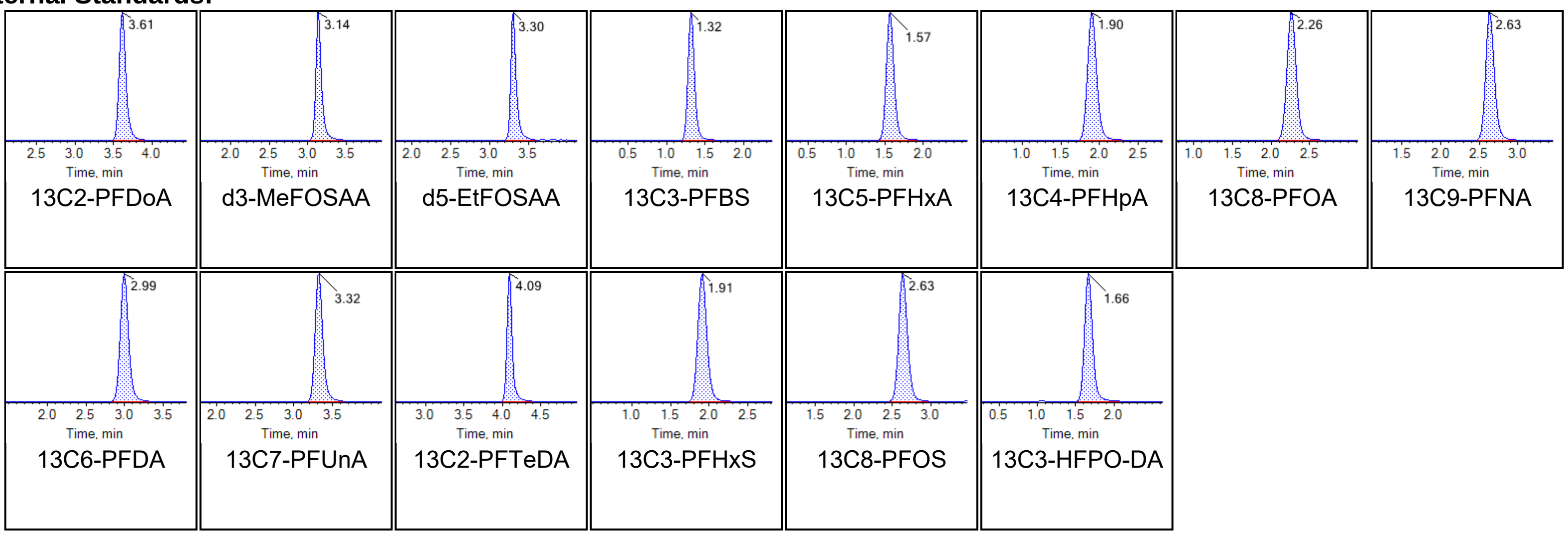

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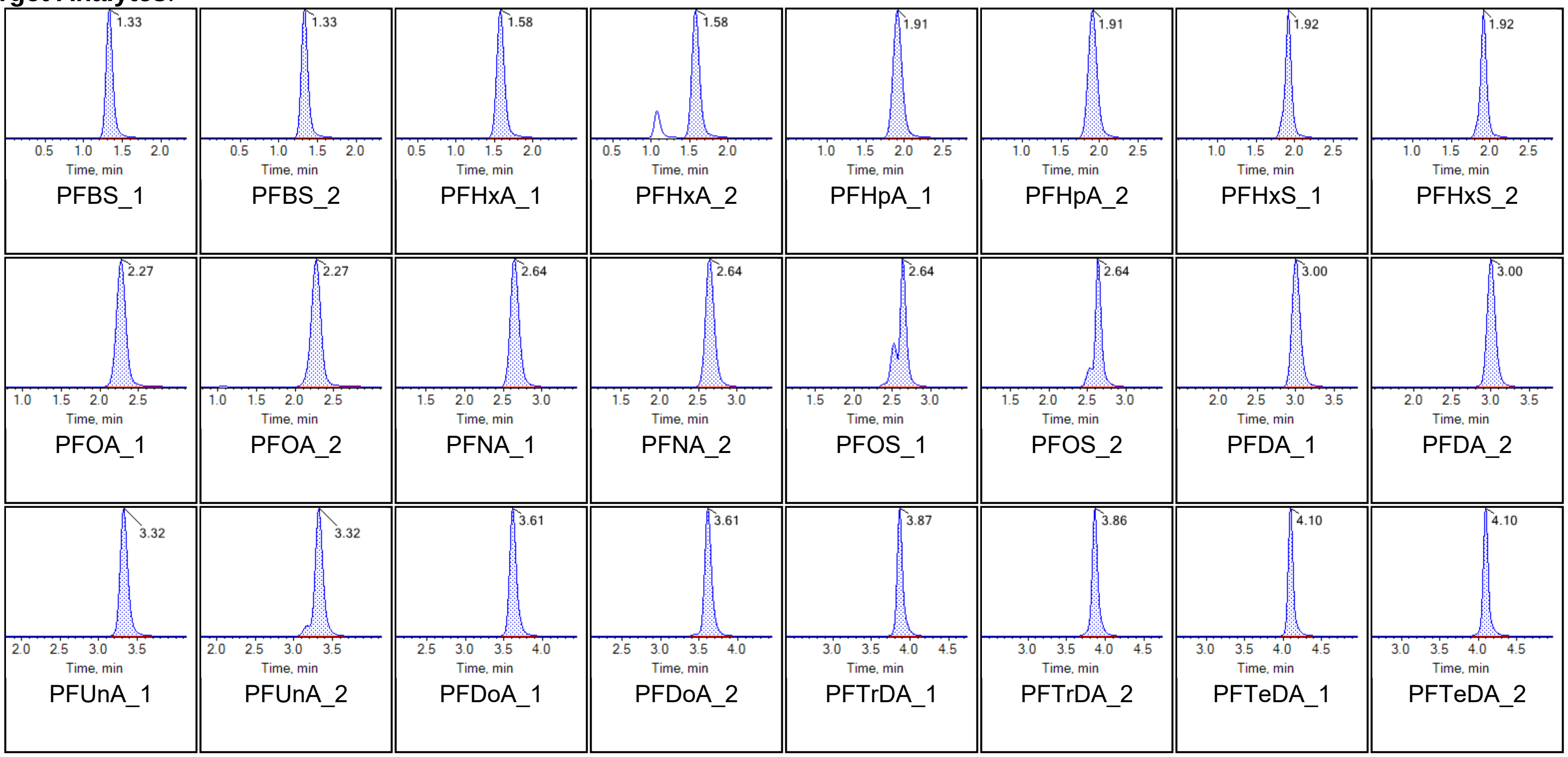
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	CY786LCS-FS(0)	**Injection Vial**	23
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:31:21 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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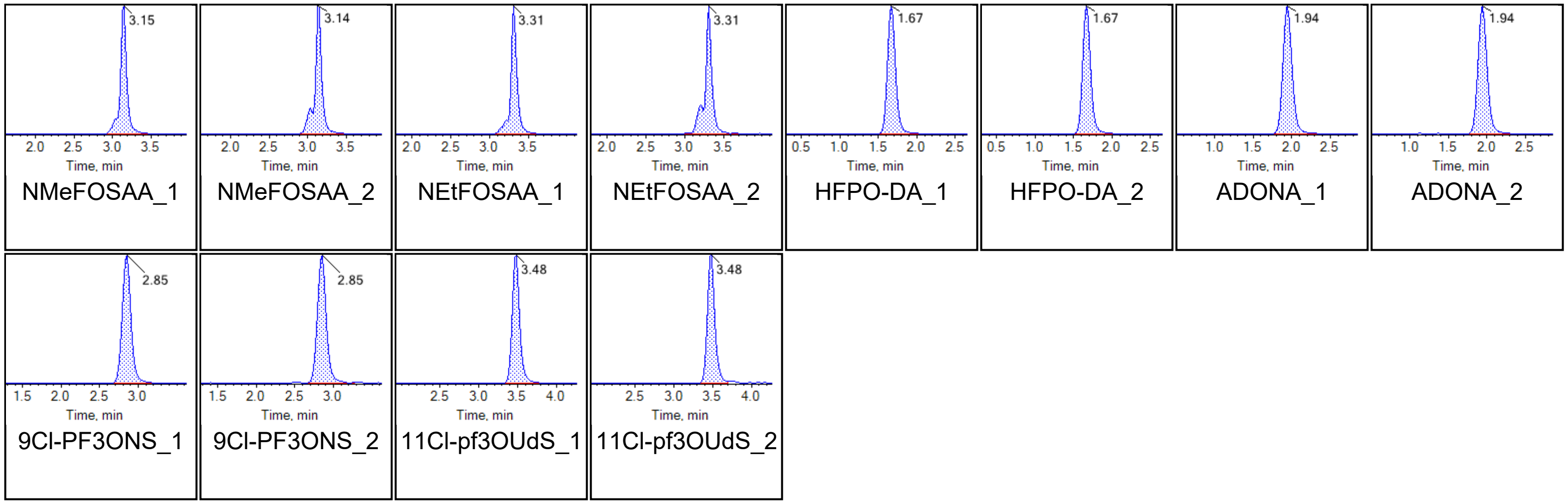
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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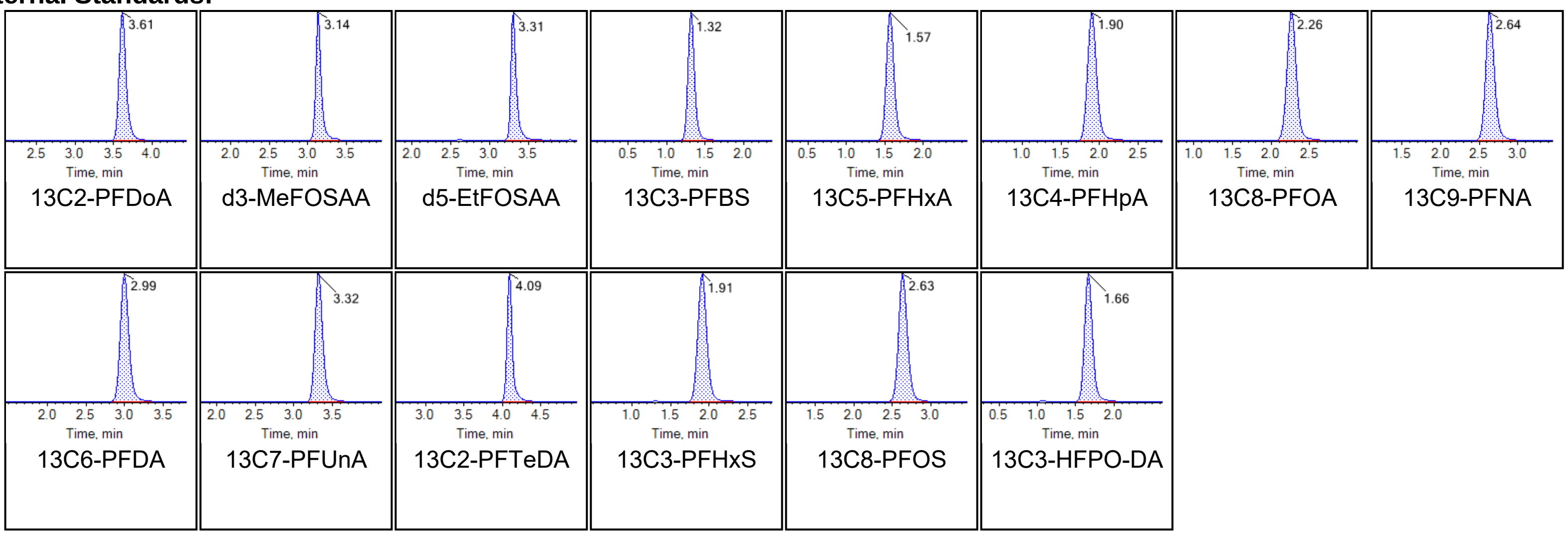

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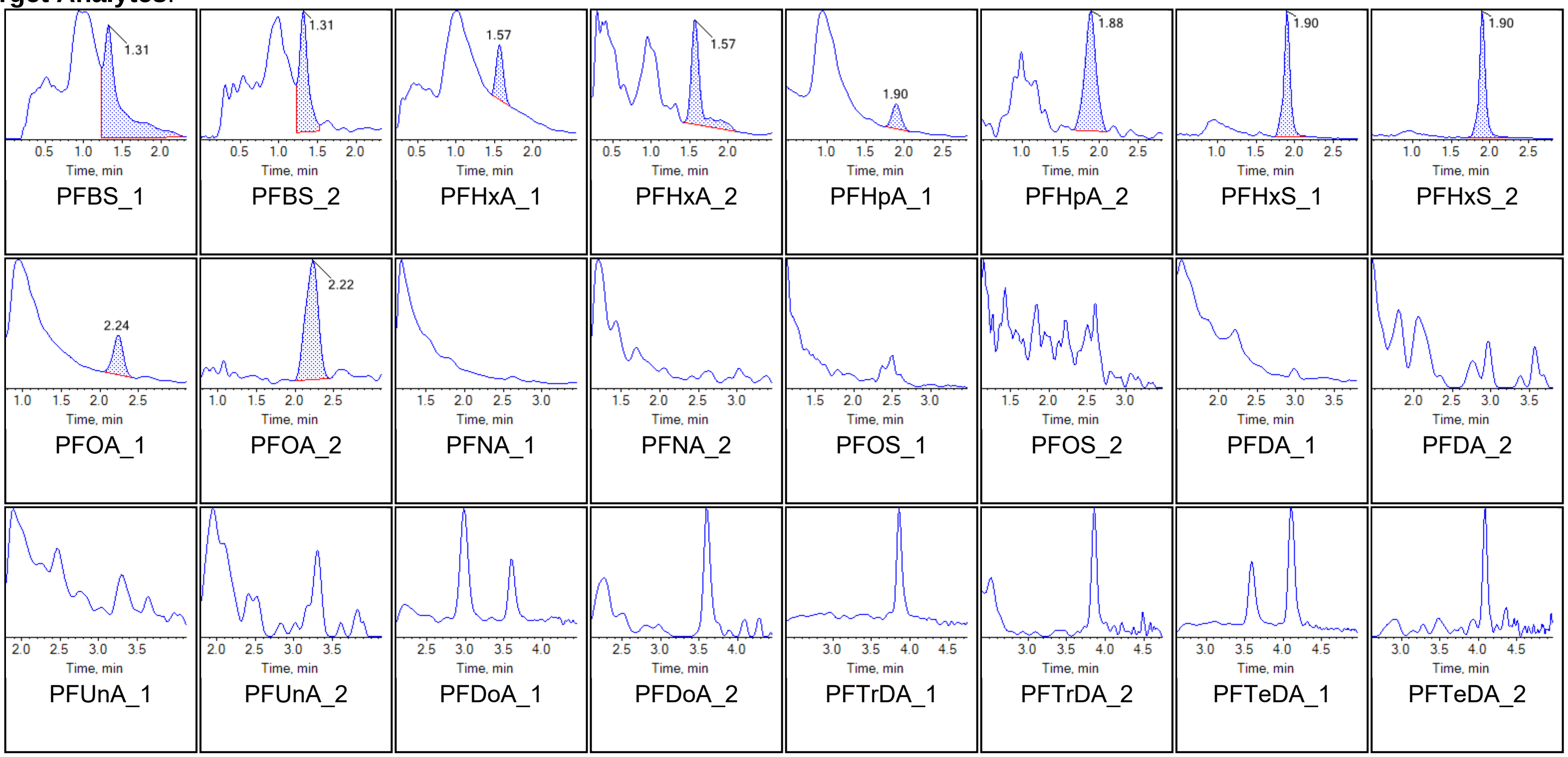
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4967-FS(0)	**Injection Vial**	24
Sample ID	POL-MW0045I-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:41:54 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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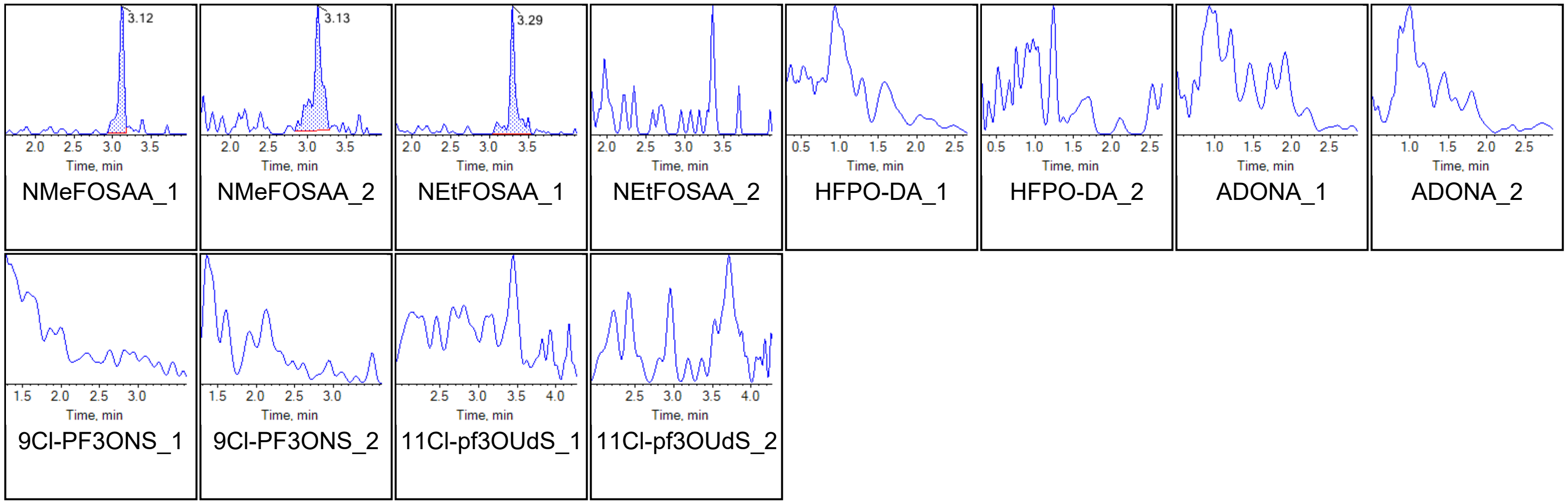
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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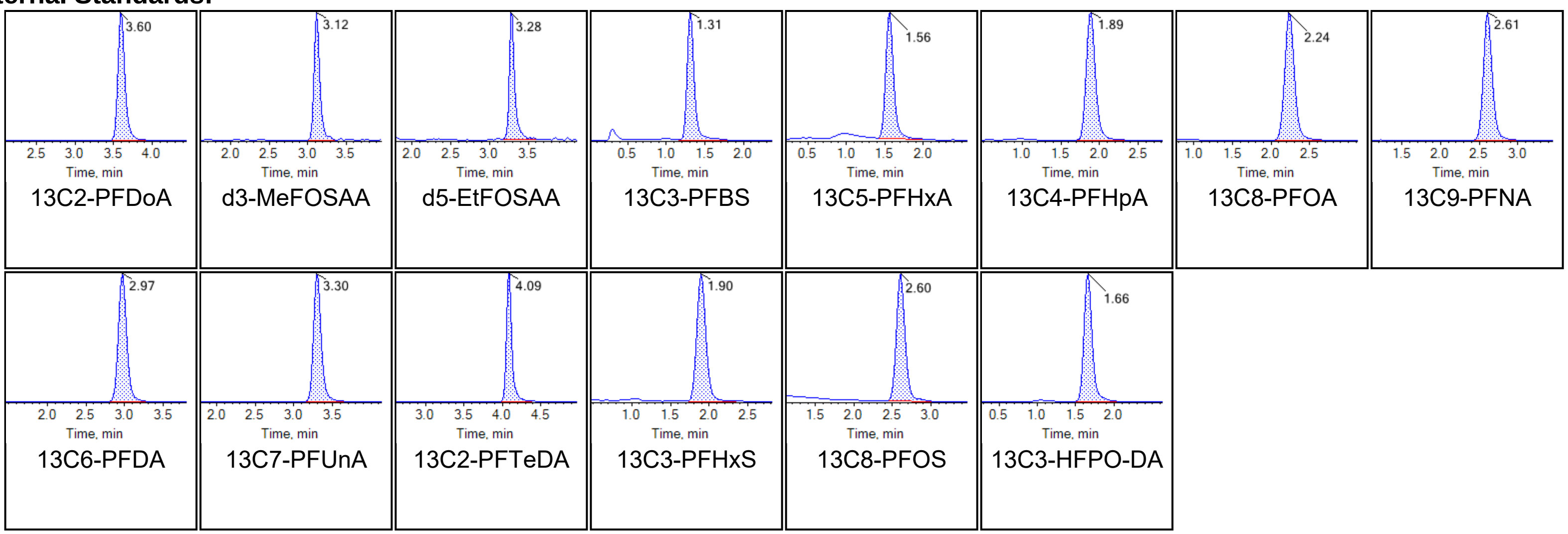


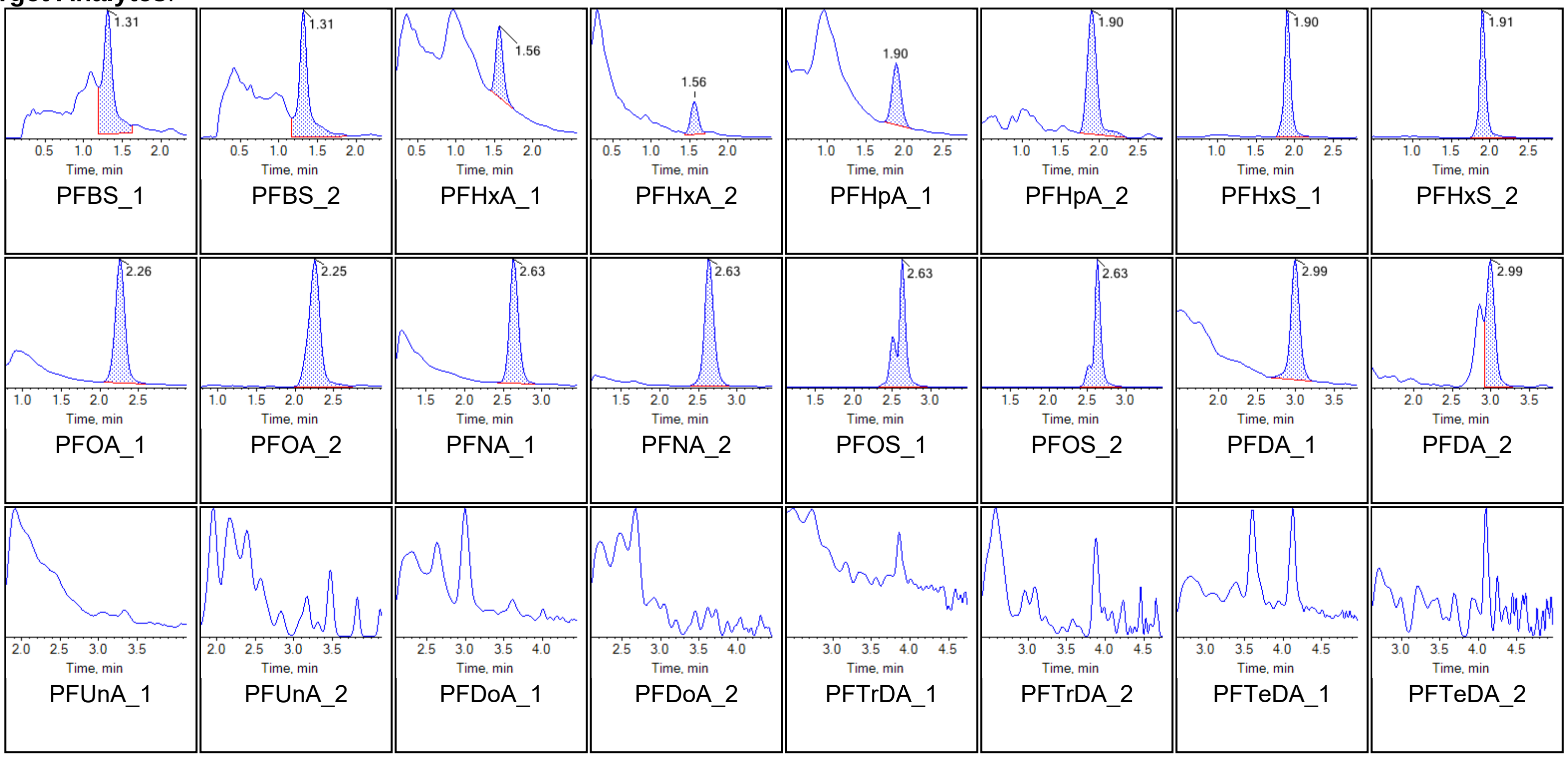
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4968-FS(0)	**Injection Vial**	25
Sample ID	POL-MW0043S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:52:27 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

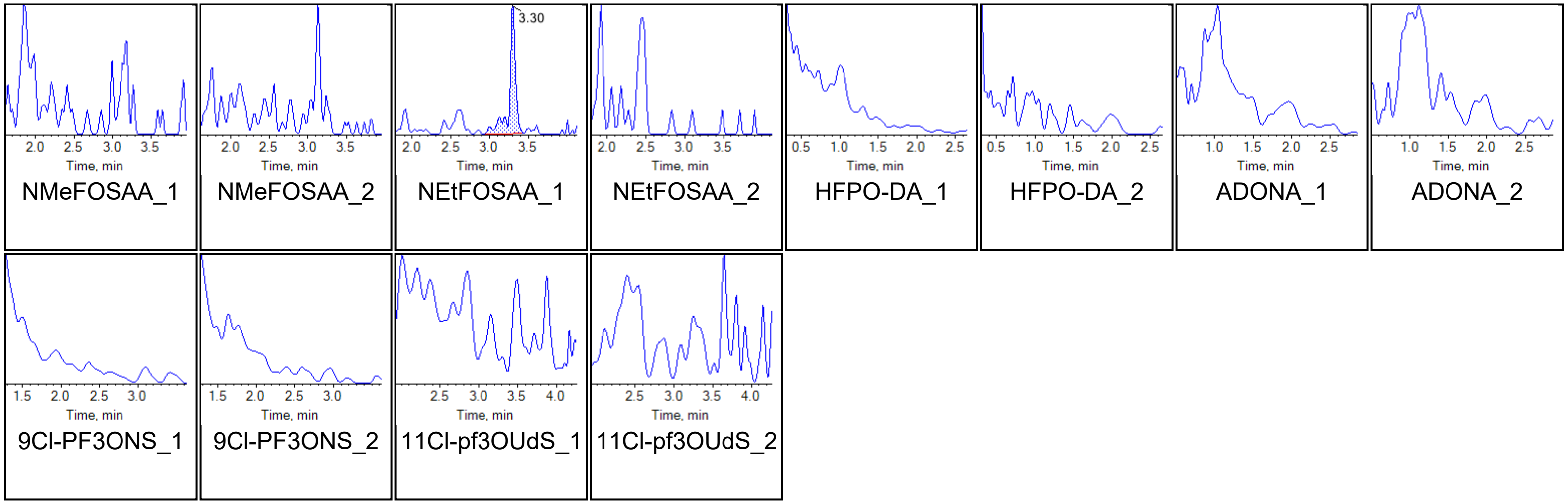
Chromatograms

Target Analytes:



Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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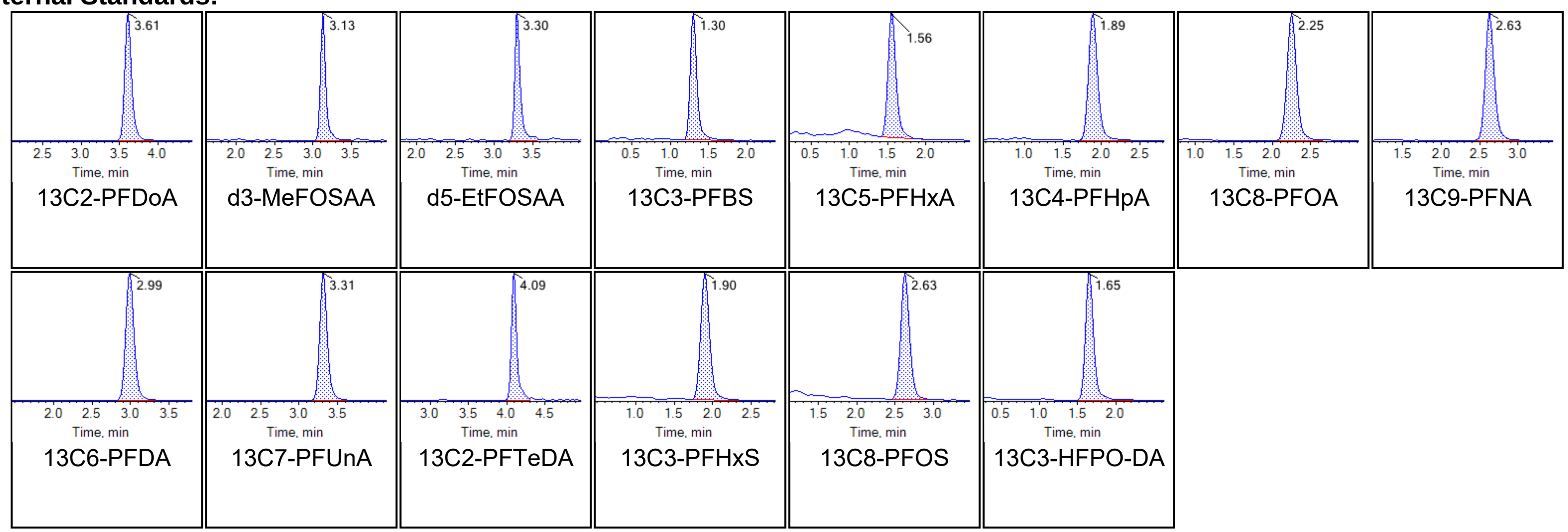


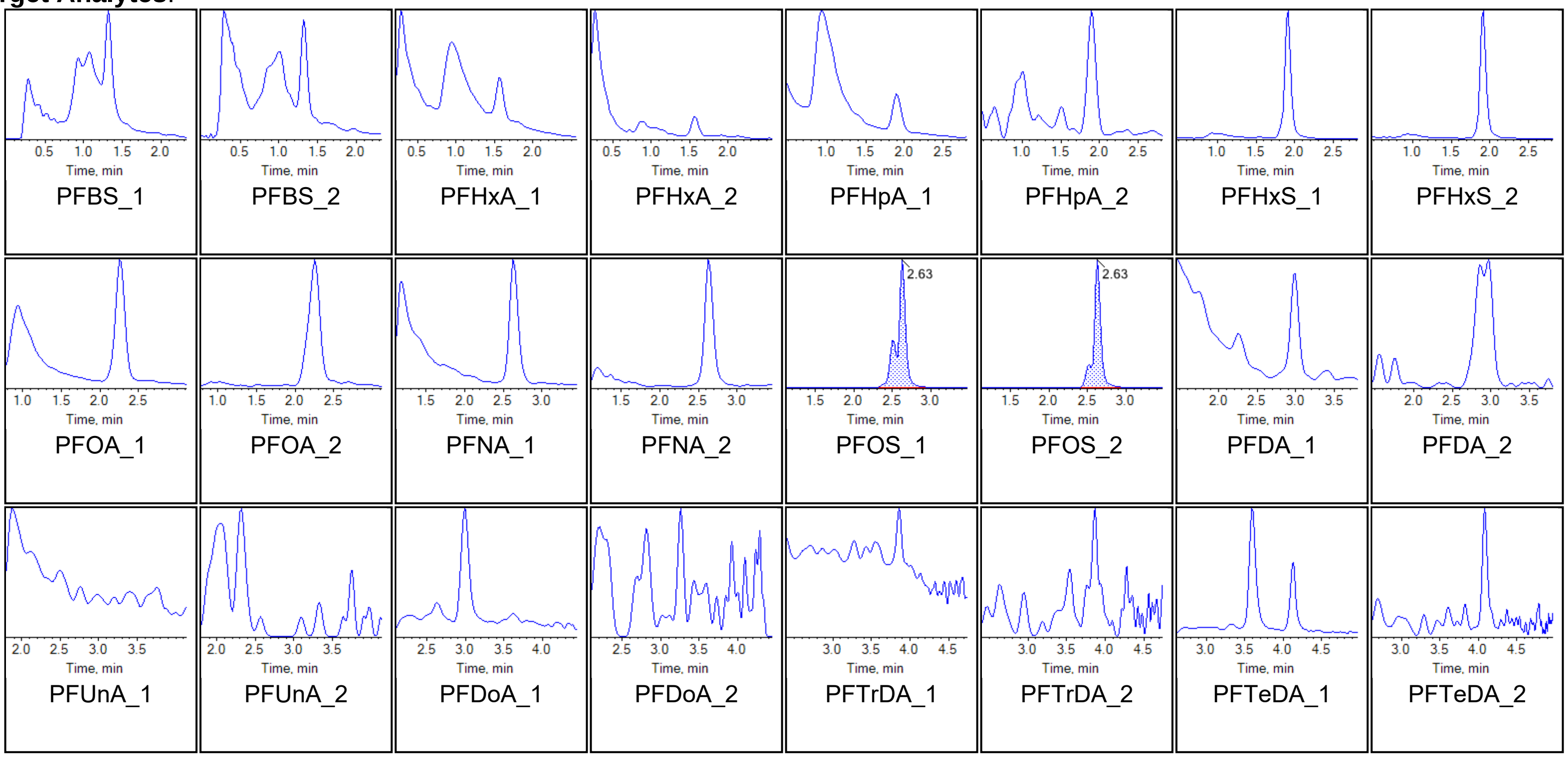
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4968-FS-D(3)	**Injection Vial**	26
Sample ID	POL-MW0043S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:03:00 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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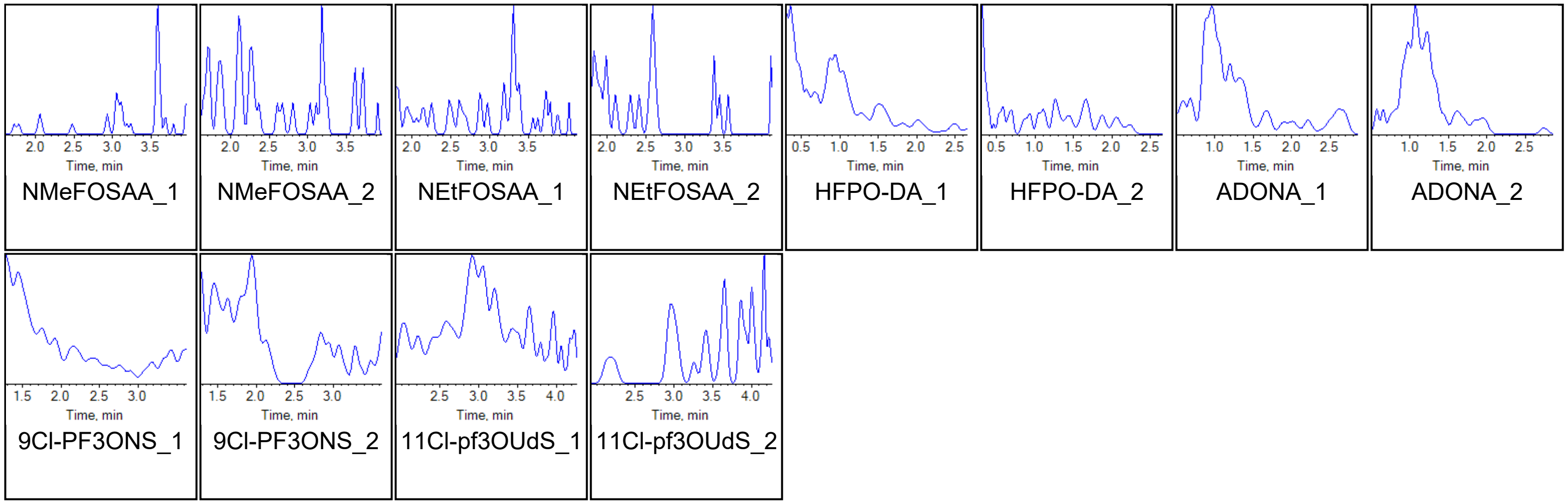
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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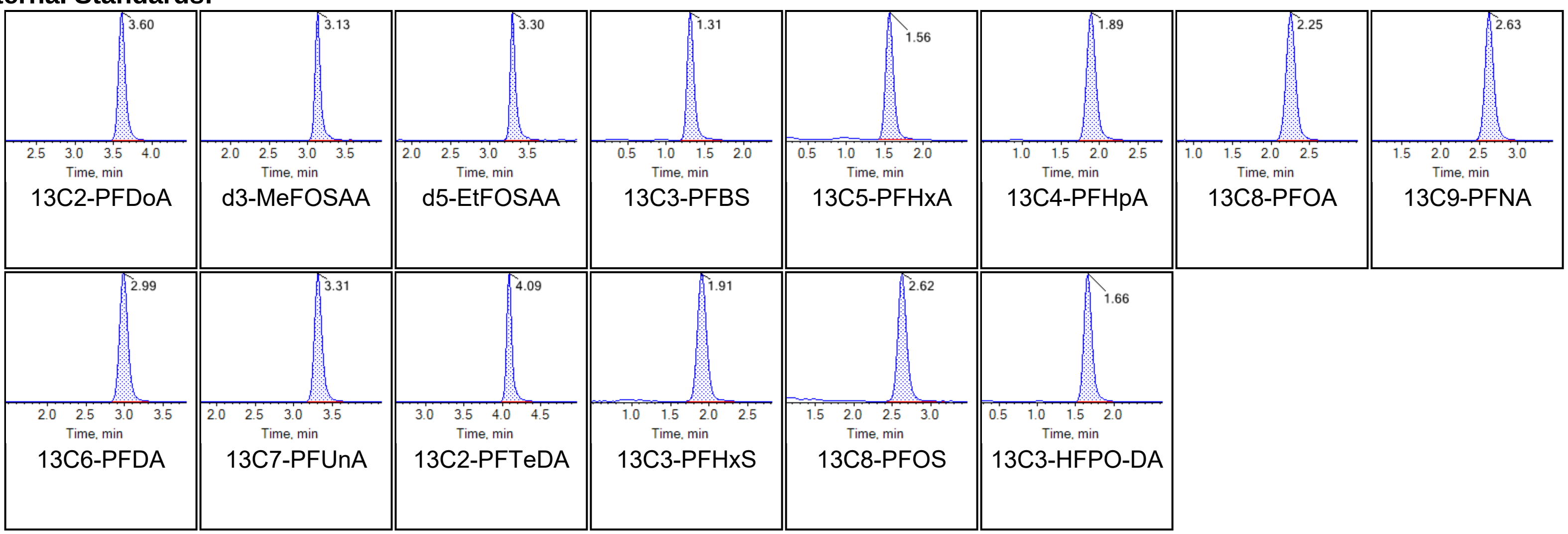

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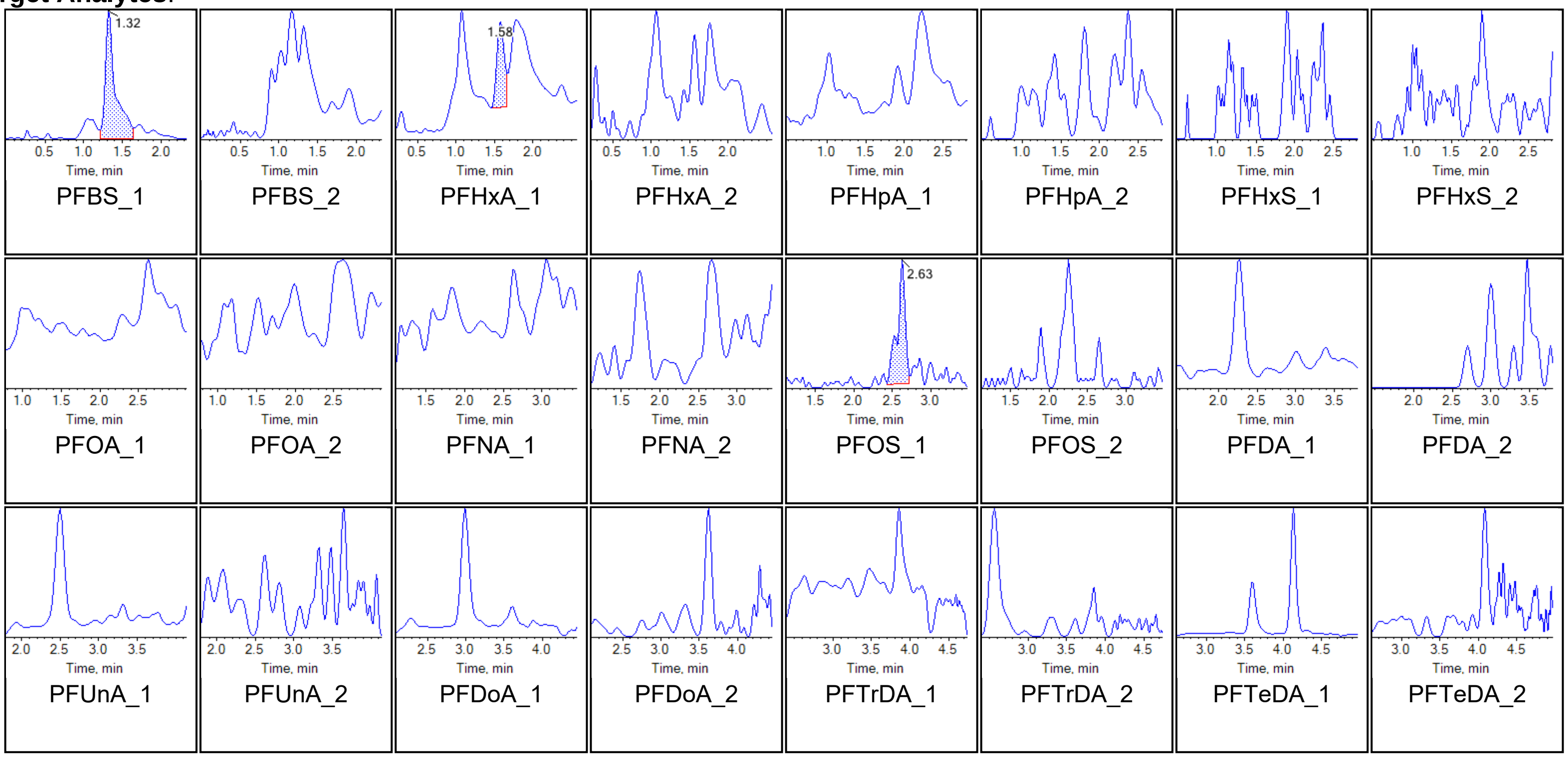
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4969-FS(0)	**Injection Vial**	27
Sample ID	POL-EB-20200423-01	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:13:33 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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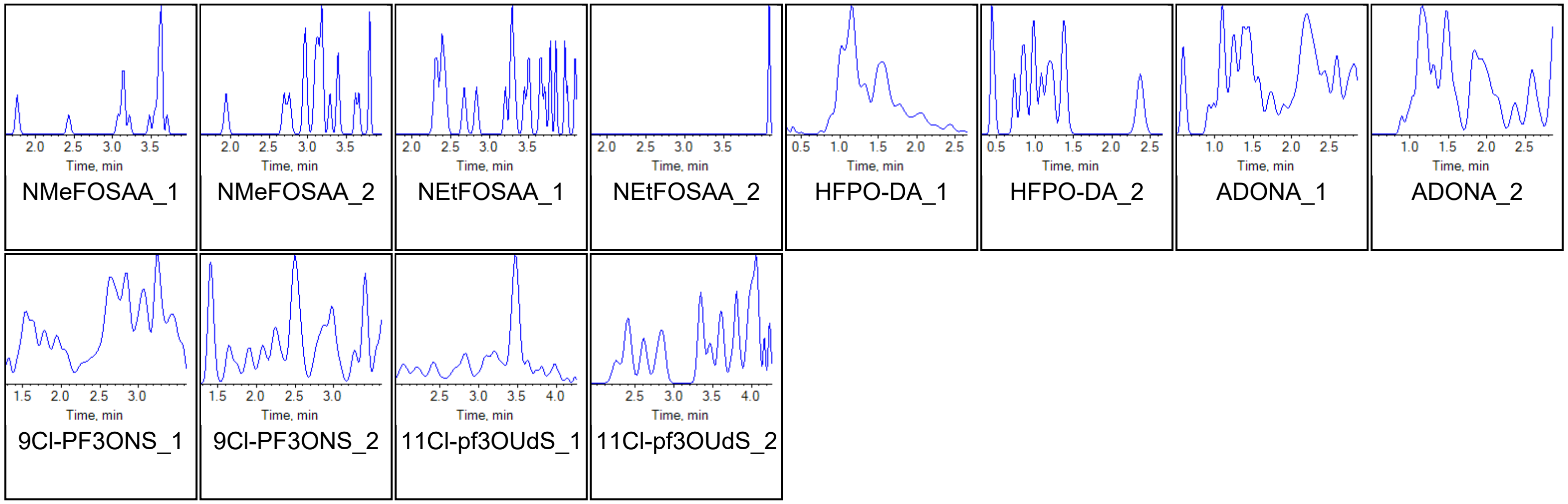
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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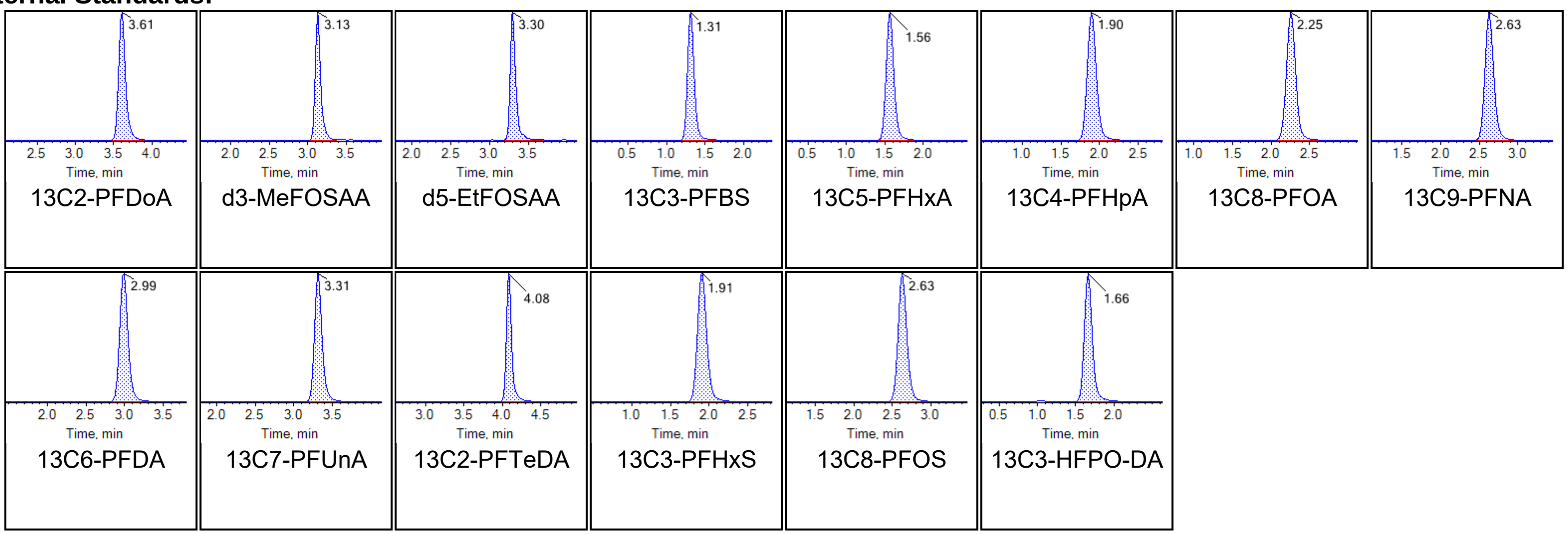


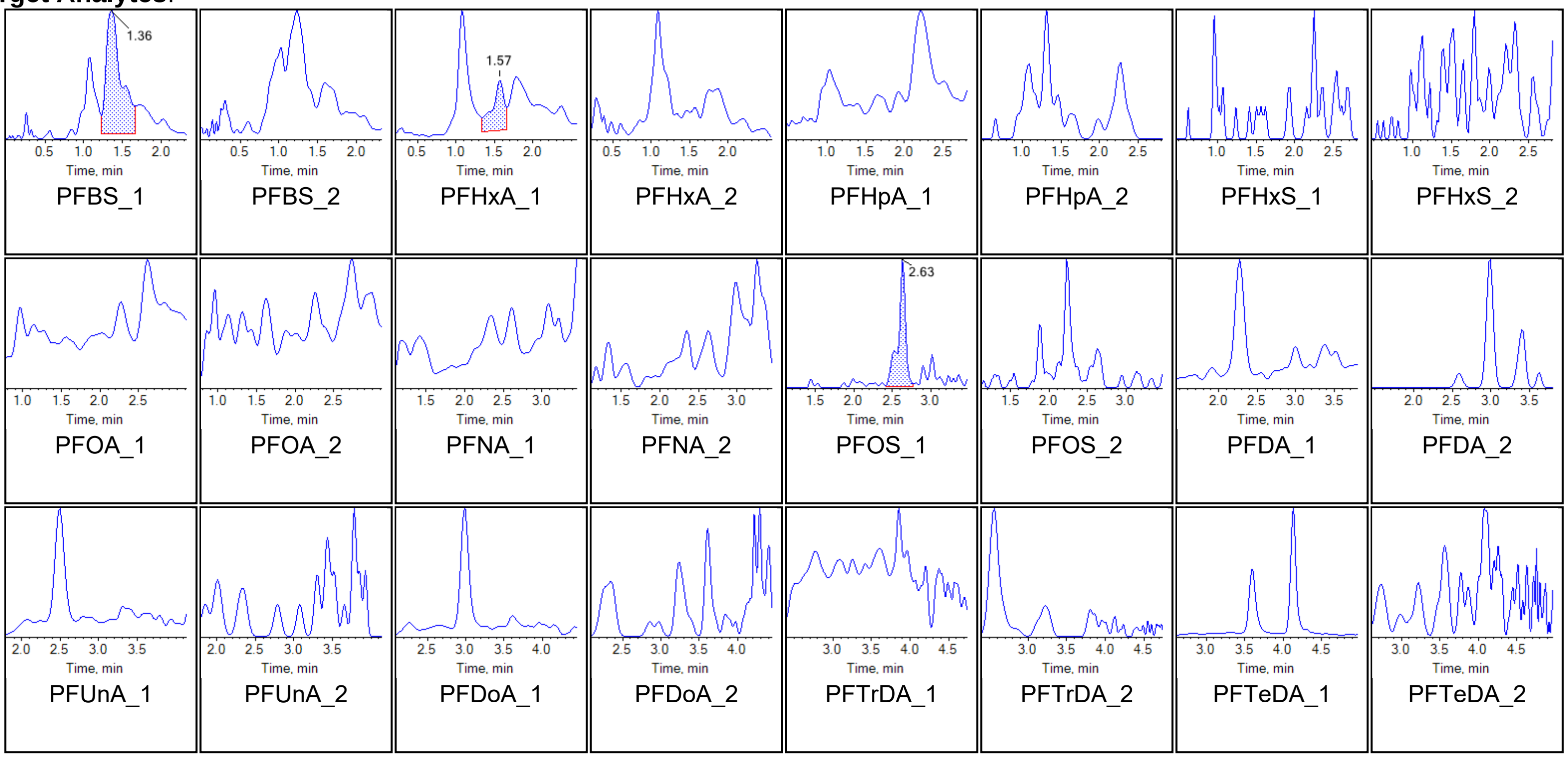
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4970-FS(0)	**Injection Vial**	28
Sample ID	POL-EB-20200423-02	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:24:06 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

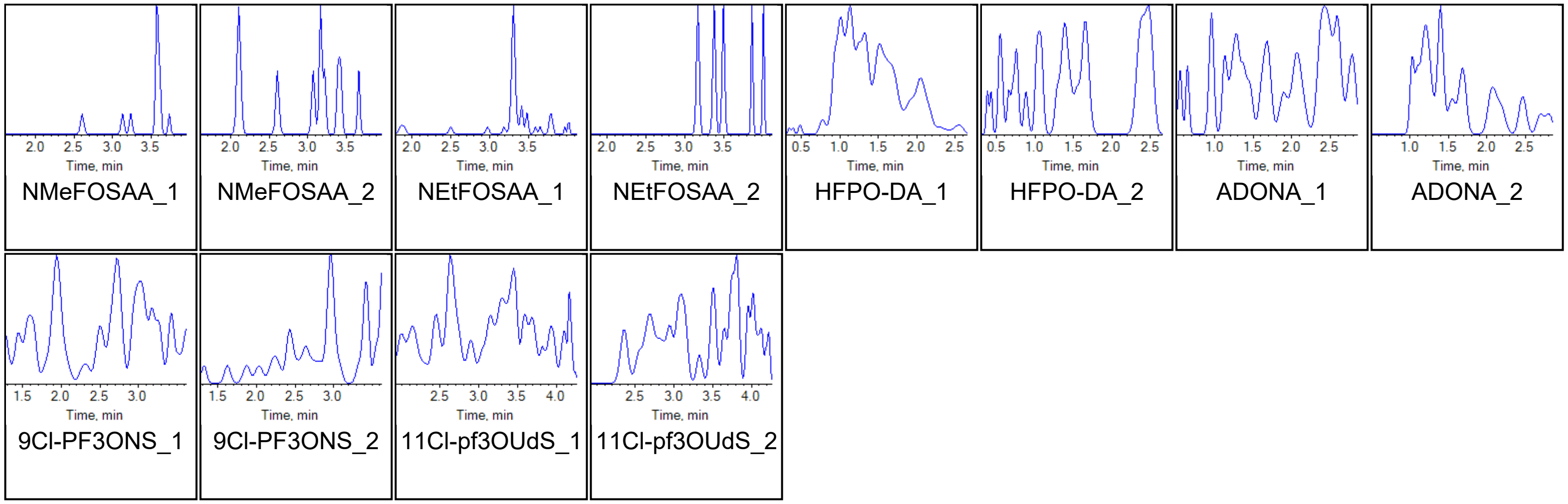
Target Analytes:



BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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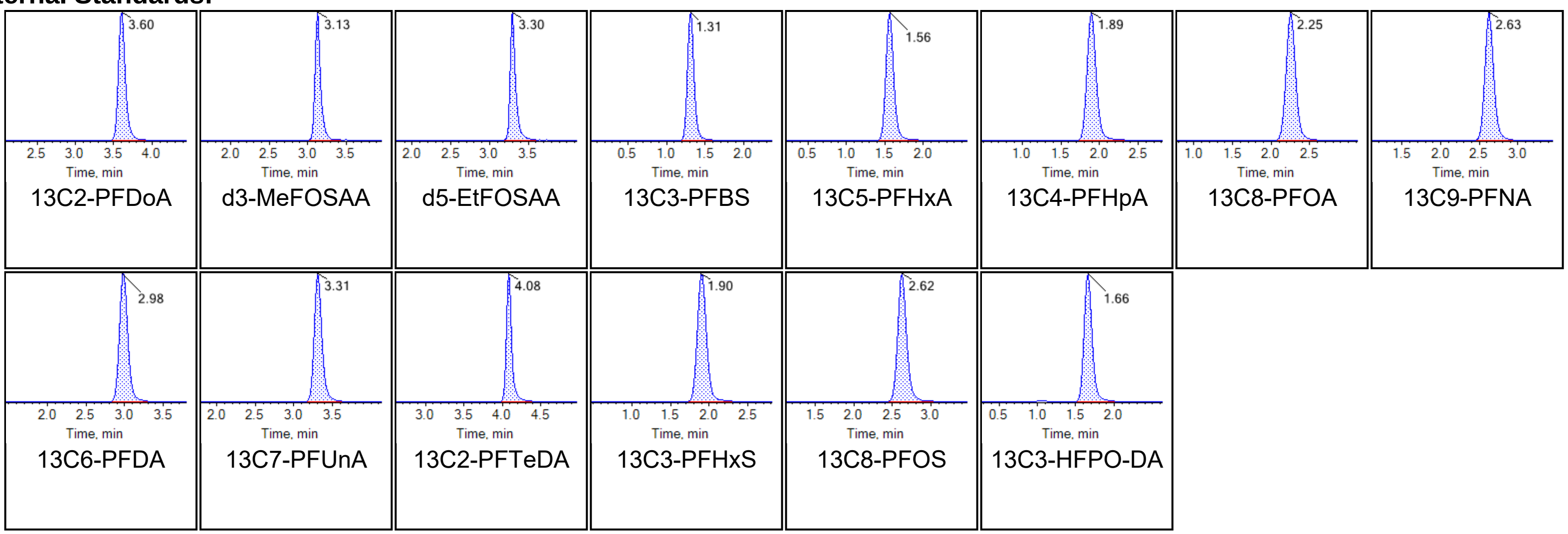


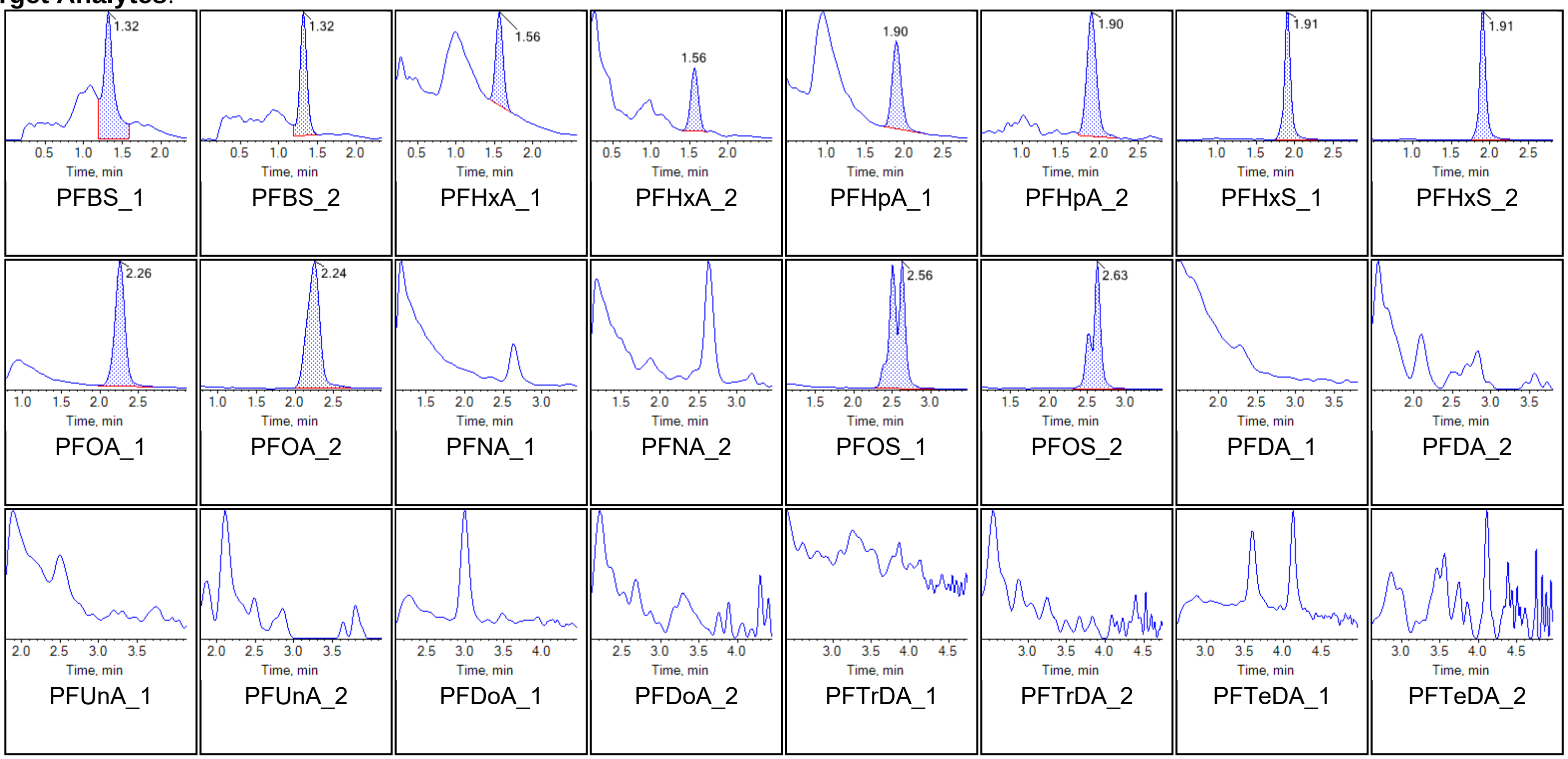
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4971-FS(0)	**Injection Vial**	29
Sample ID	POL-MW0043I-025.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:34:39 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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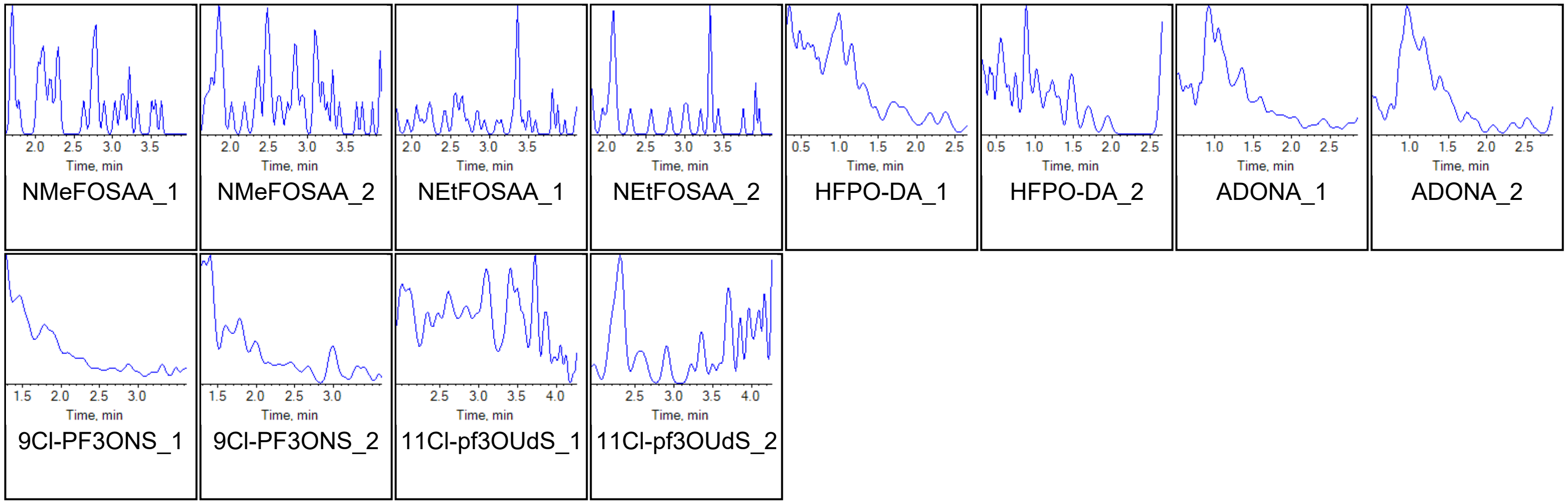
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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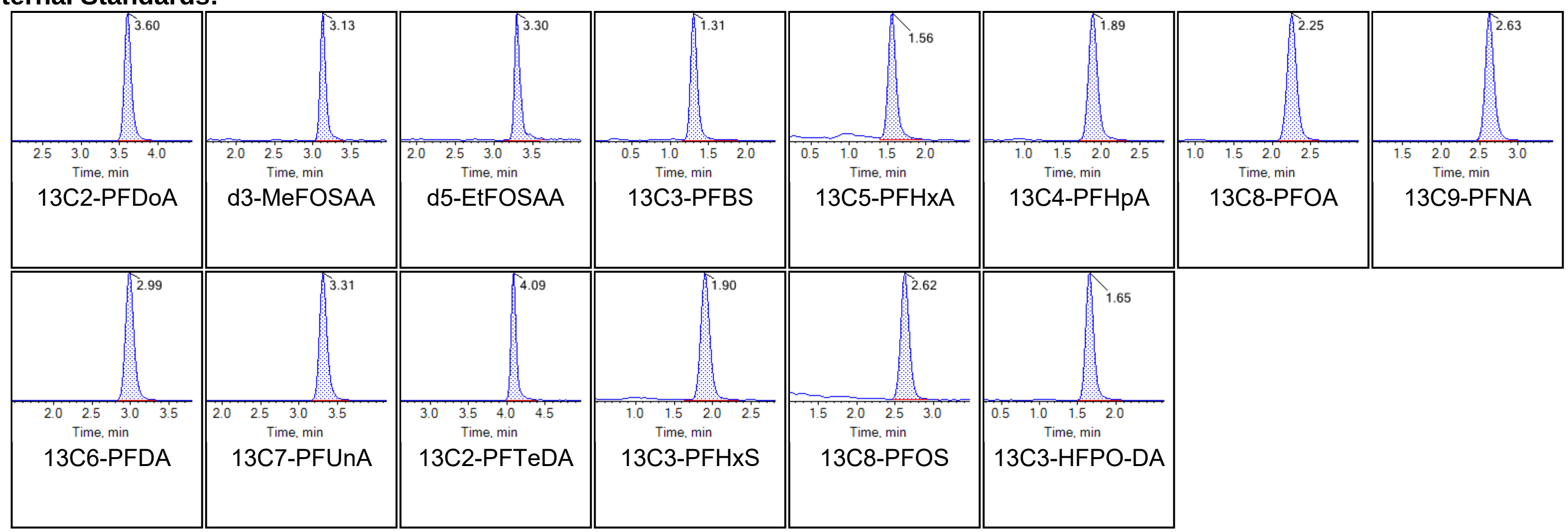


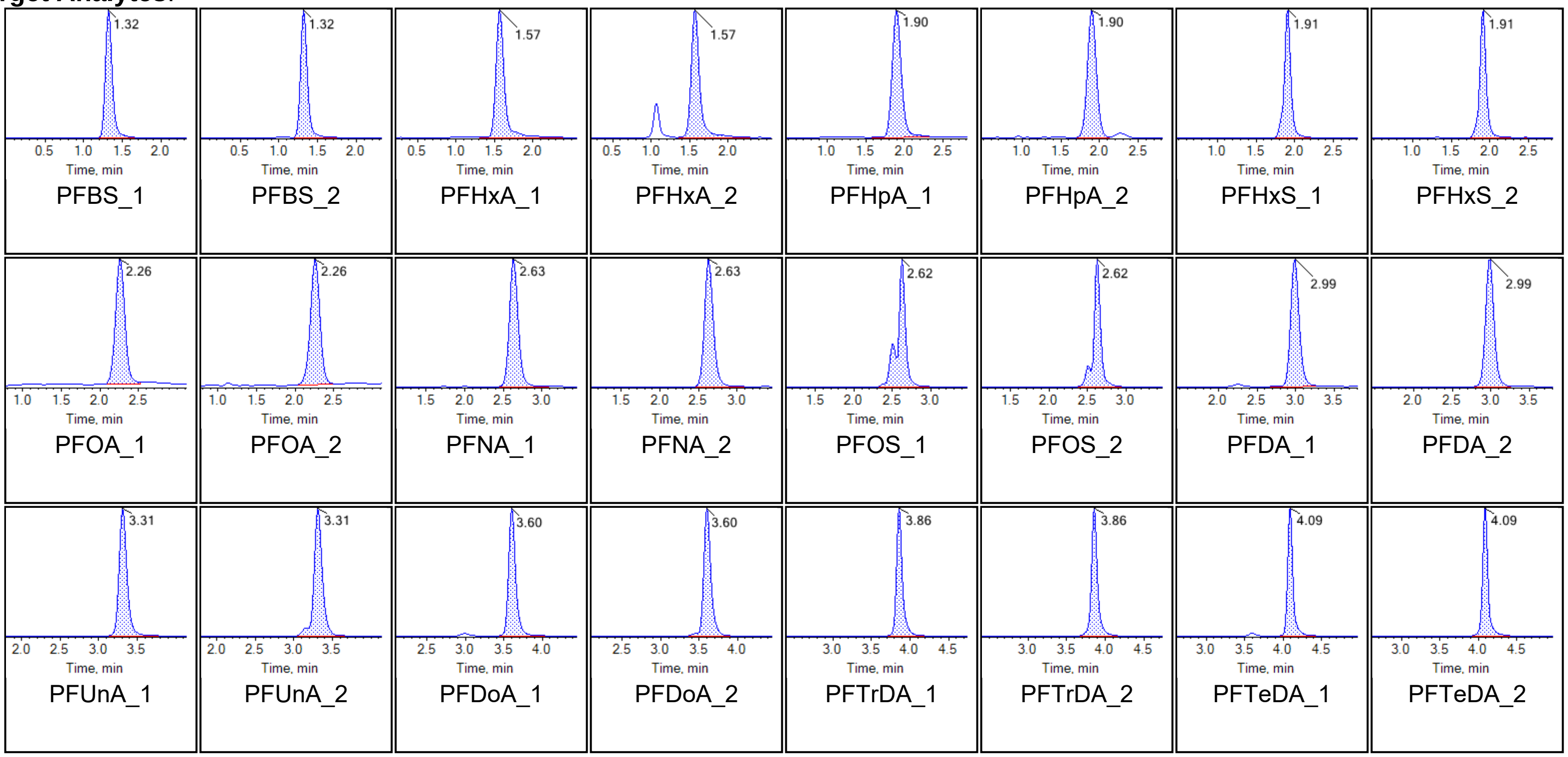
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY36 CCV	**Injection Vial**	32
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:55:45 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

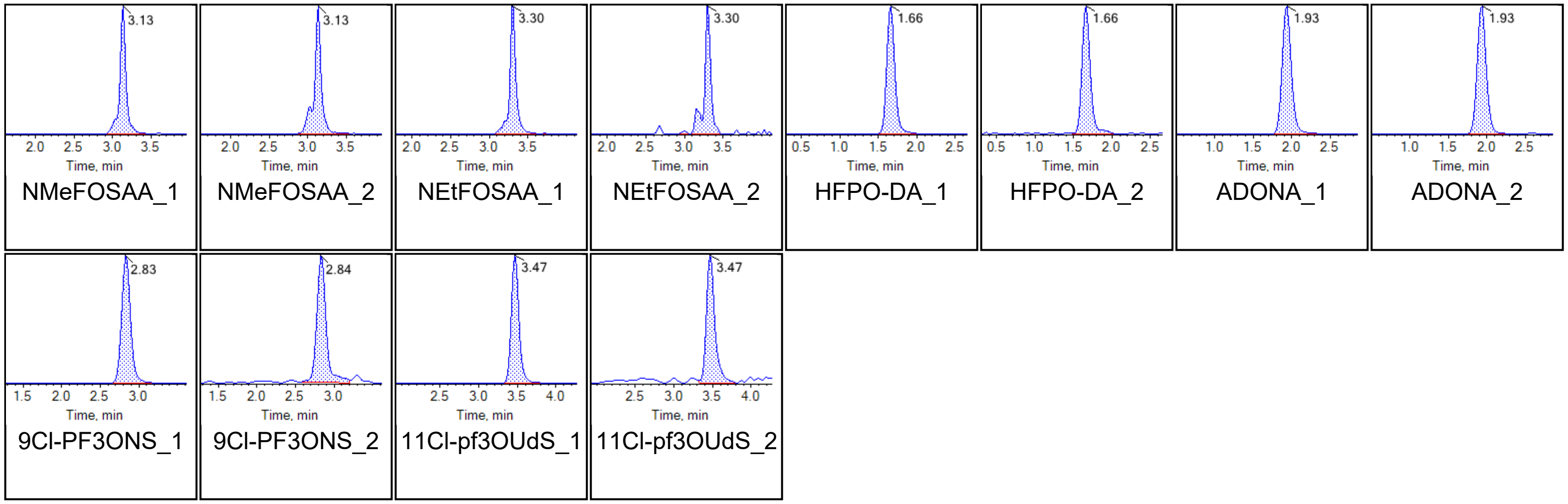
Target Analytes:



BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



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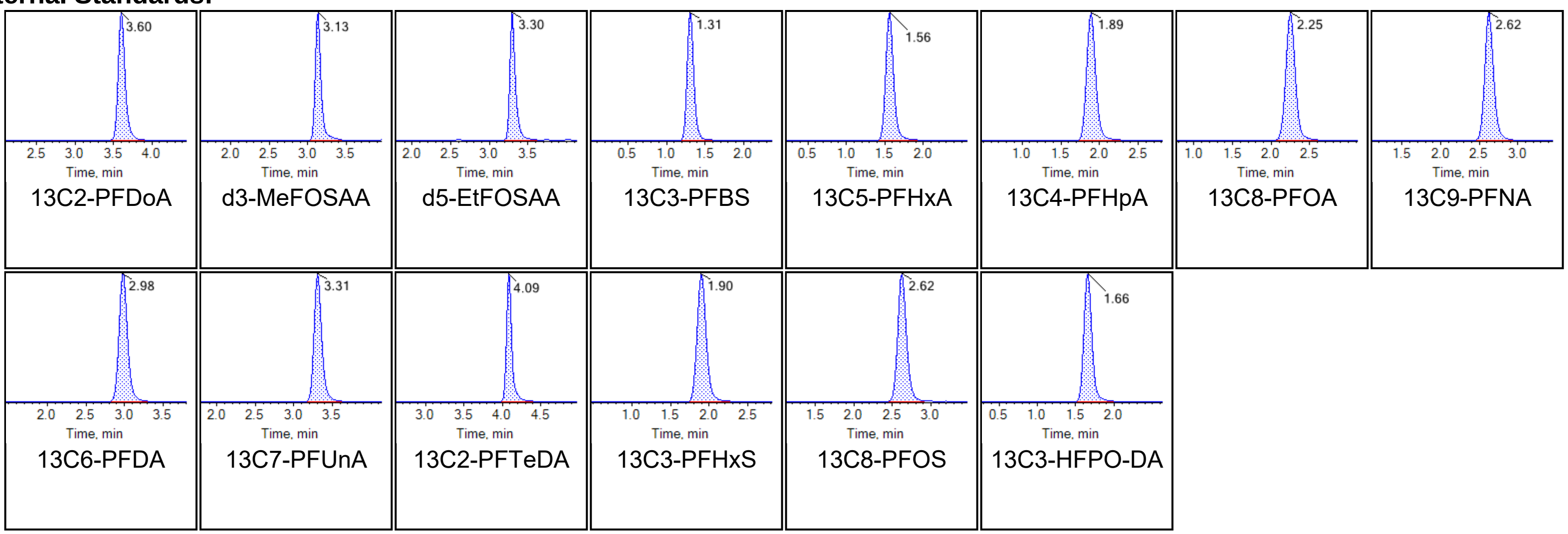


BATTELLE

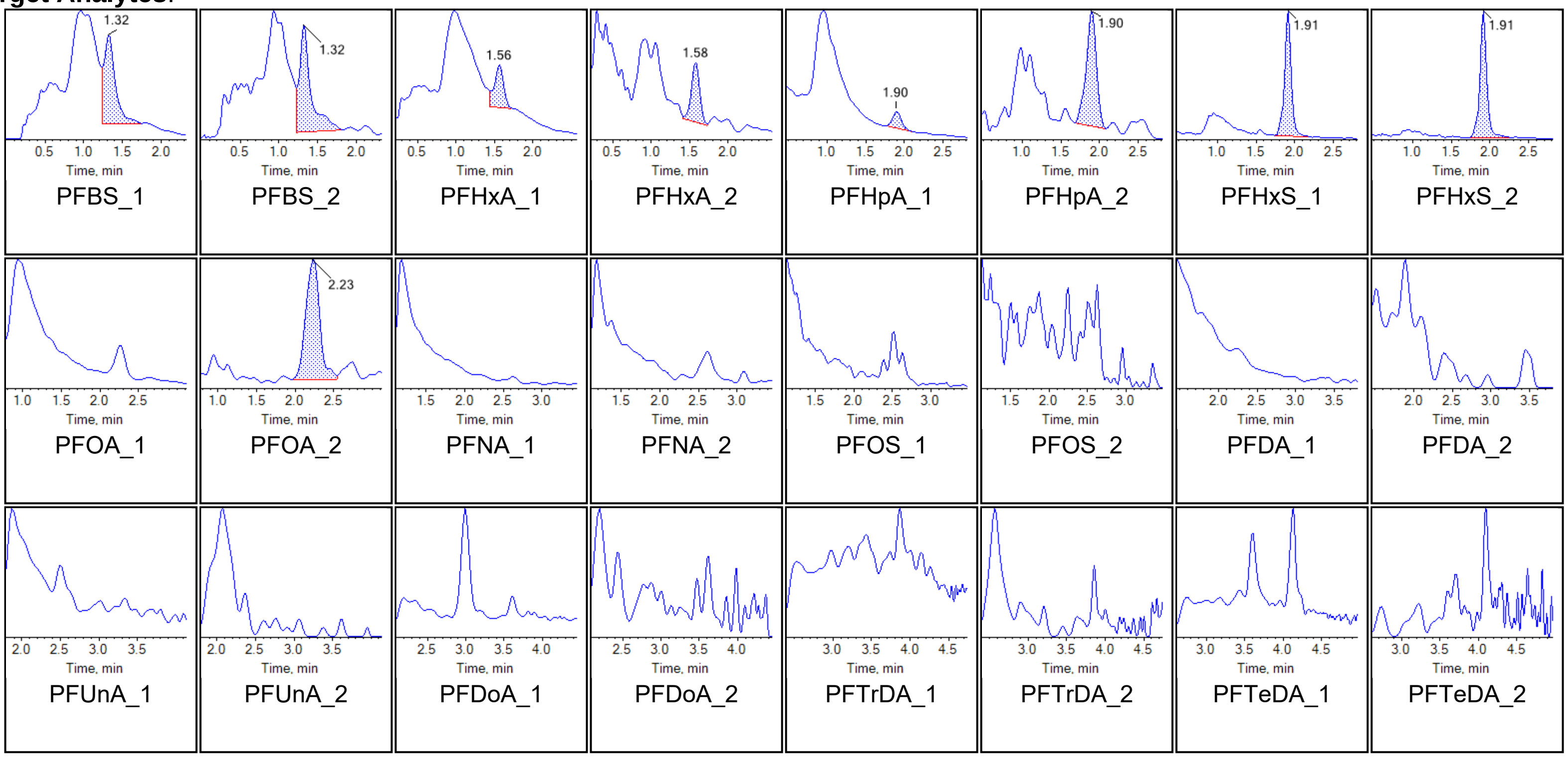
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4972-FS(0)	**Injection Vial**	30
Sample ID	POL-MW0043D-035.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:06:17 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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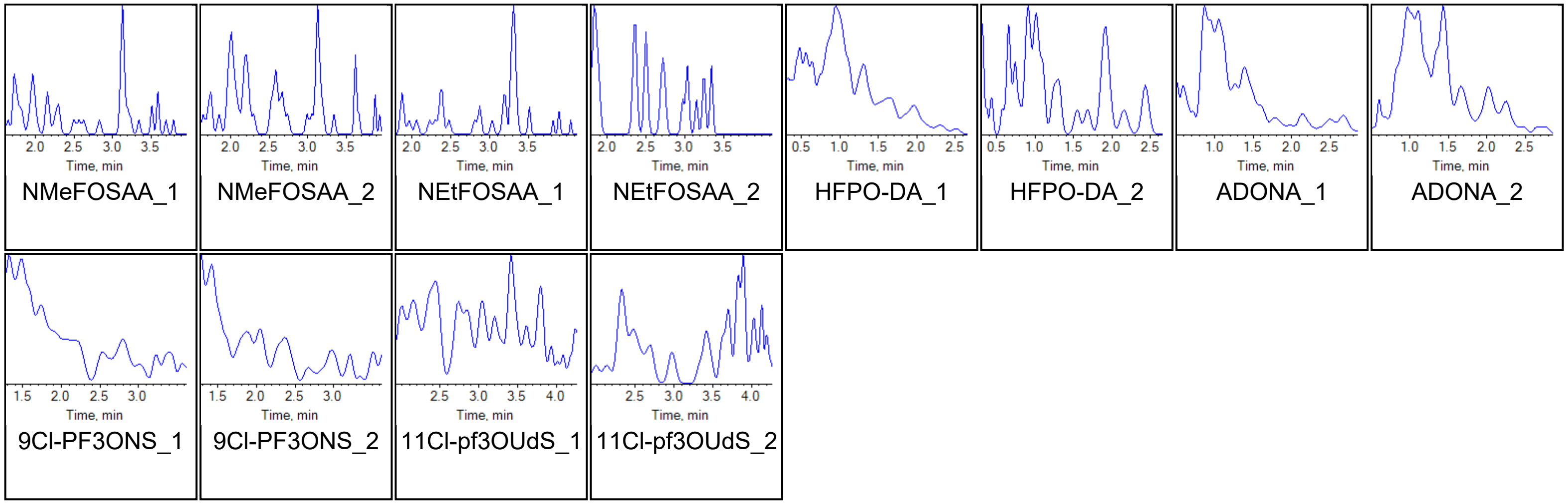
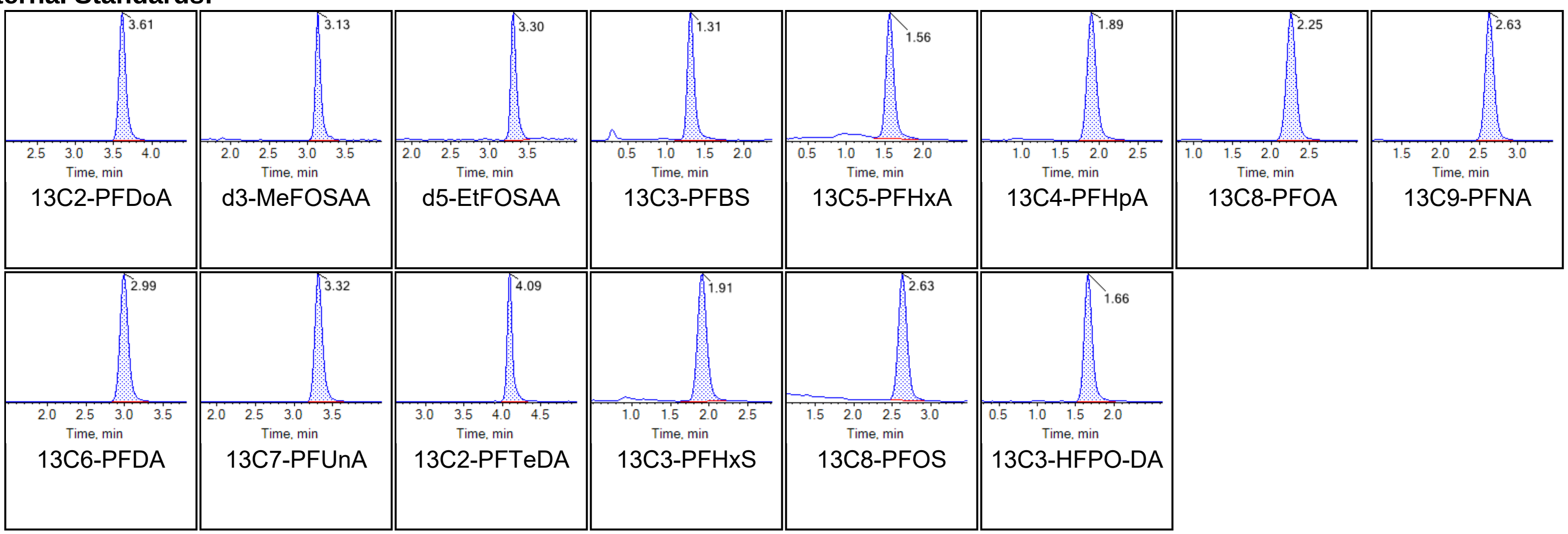
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



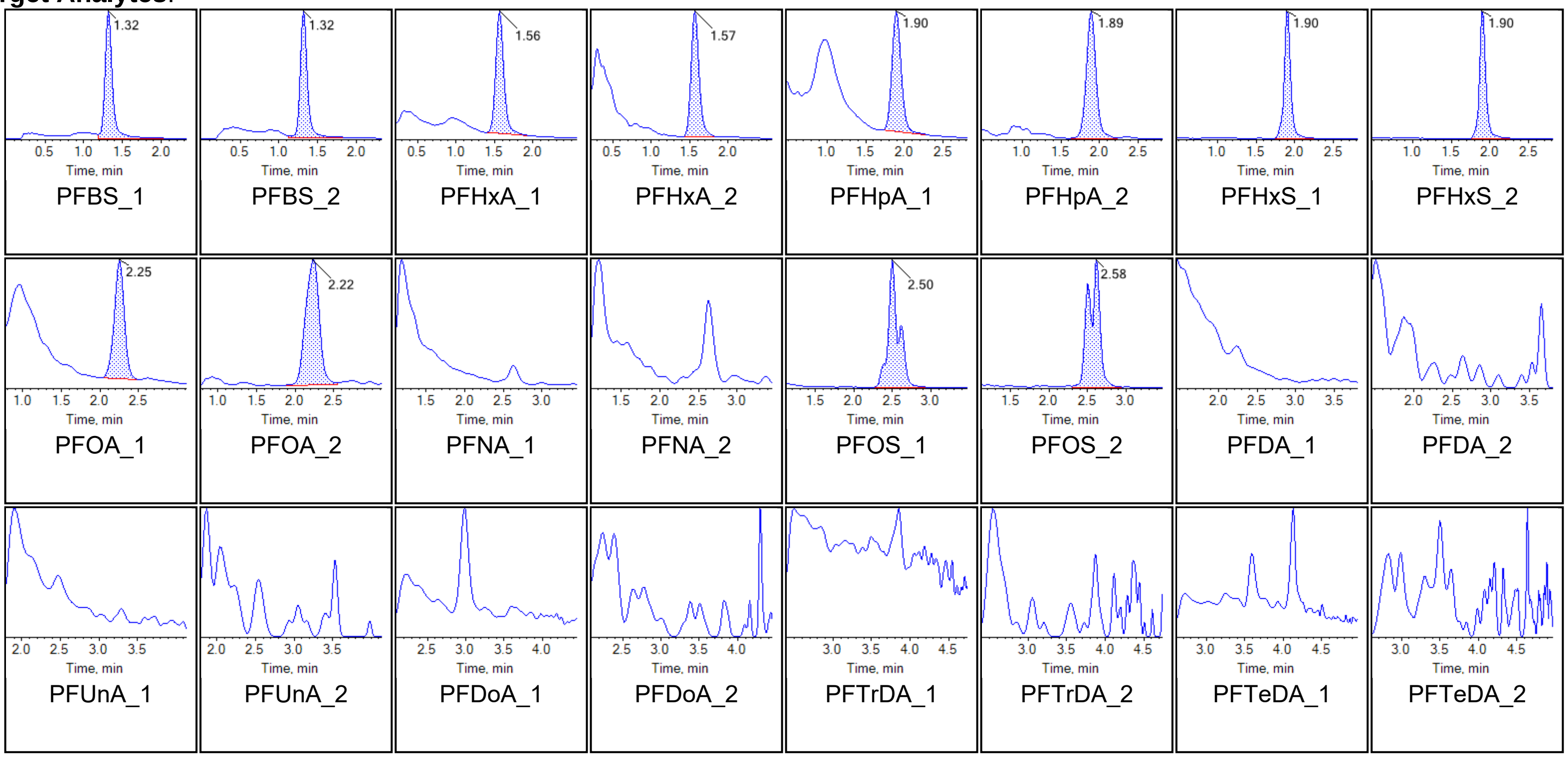
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4973-FS(0)	**Injection Vial**	33
Sample ID	POL-MW0011S-012.5-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:16:49 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

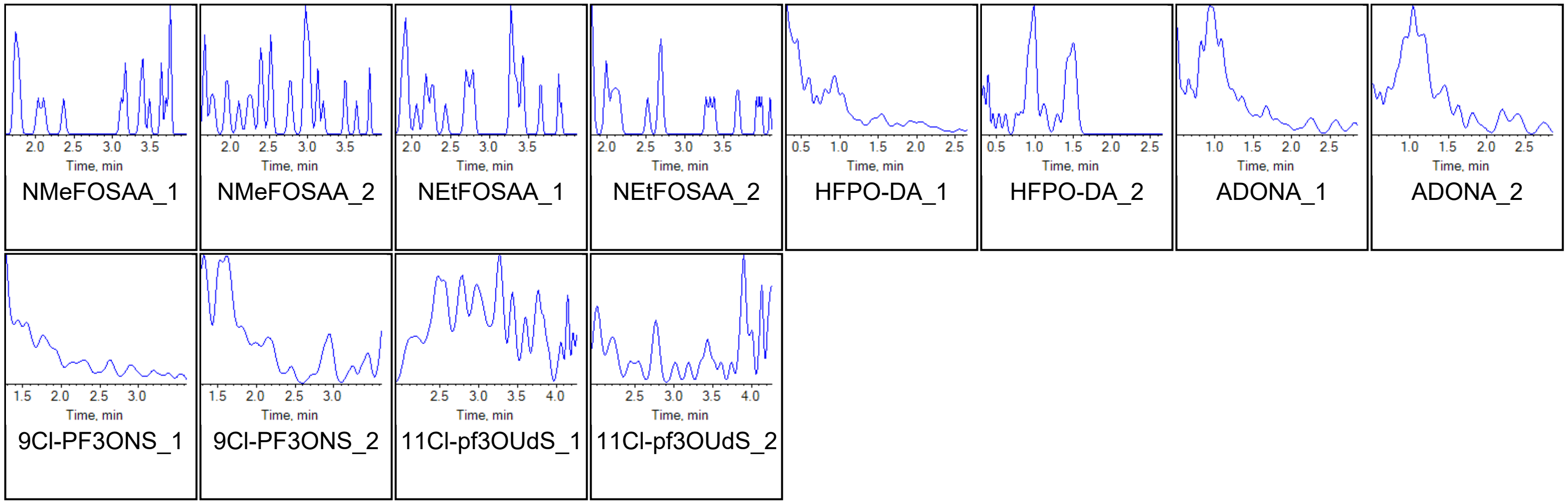
Target Analytes:



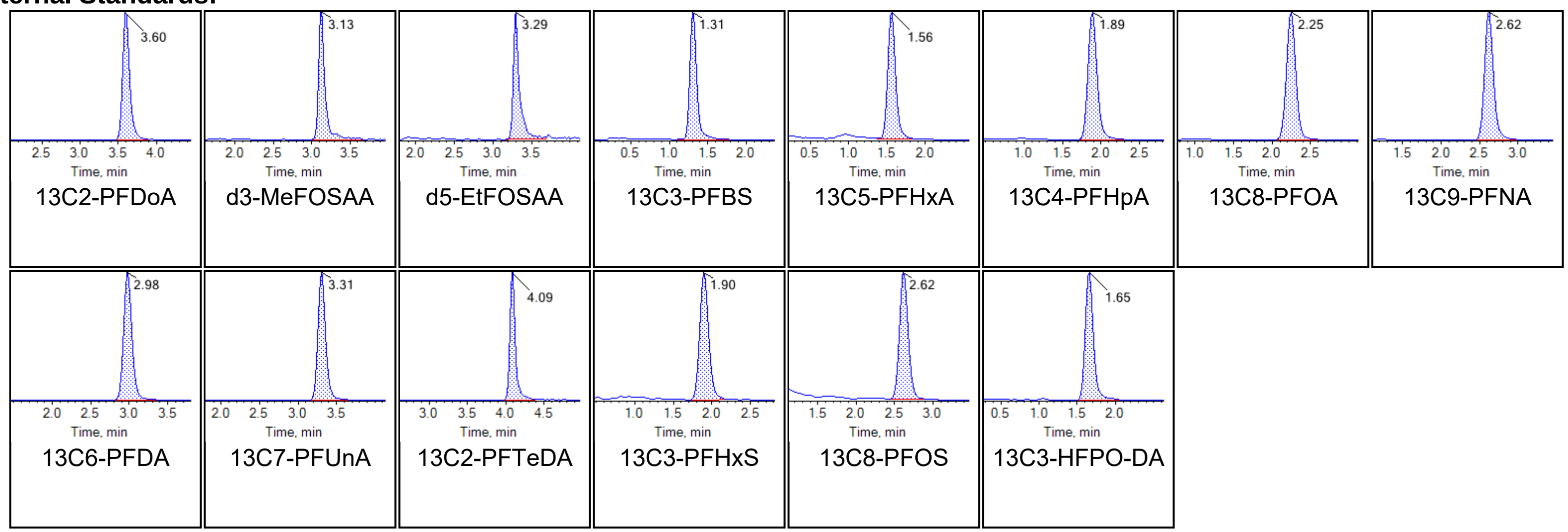
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



BATTELLE

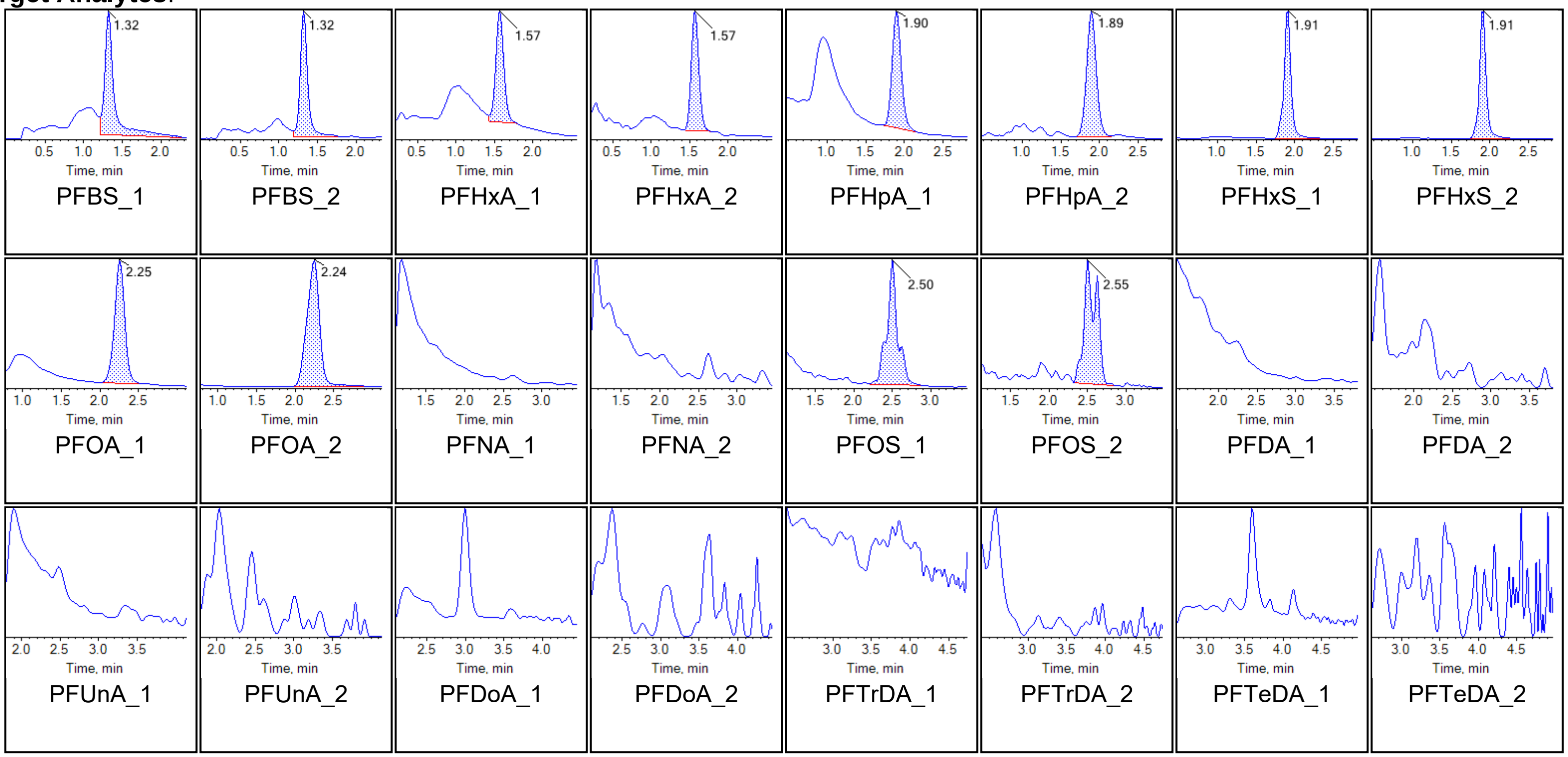
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4974-FS(0)	**Injection Vial**	34
Sample ID	POL-MW0011I-027.5-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:27:20 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

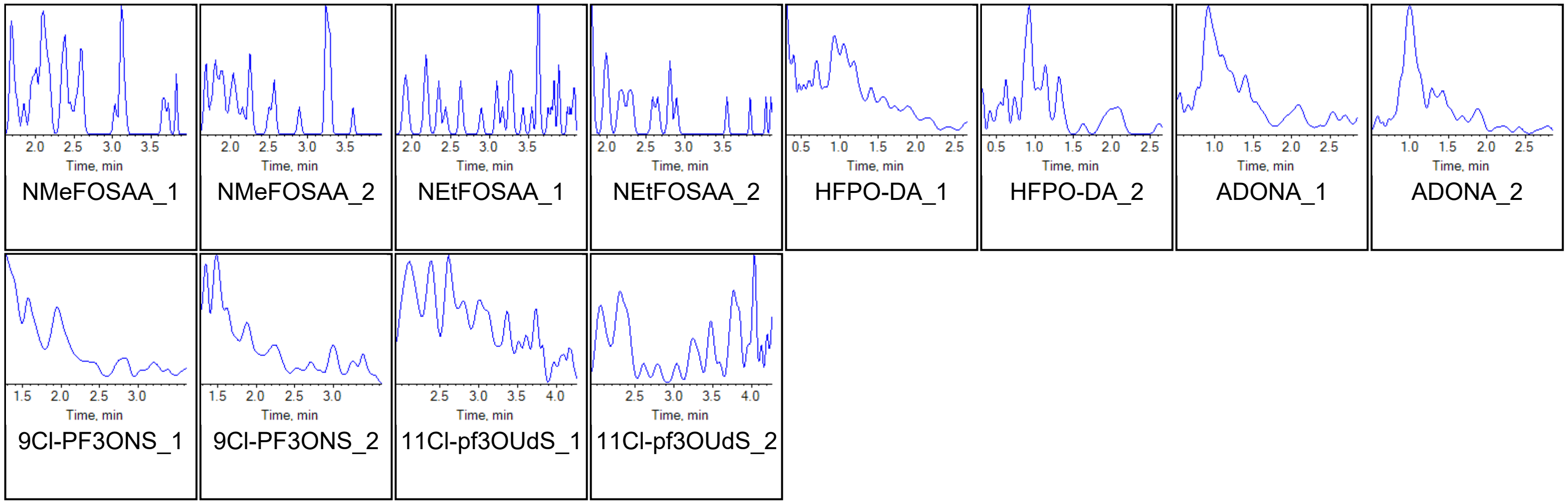
Target Analytes:



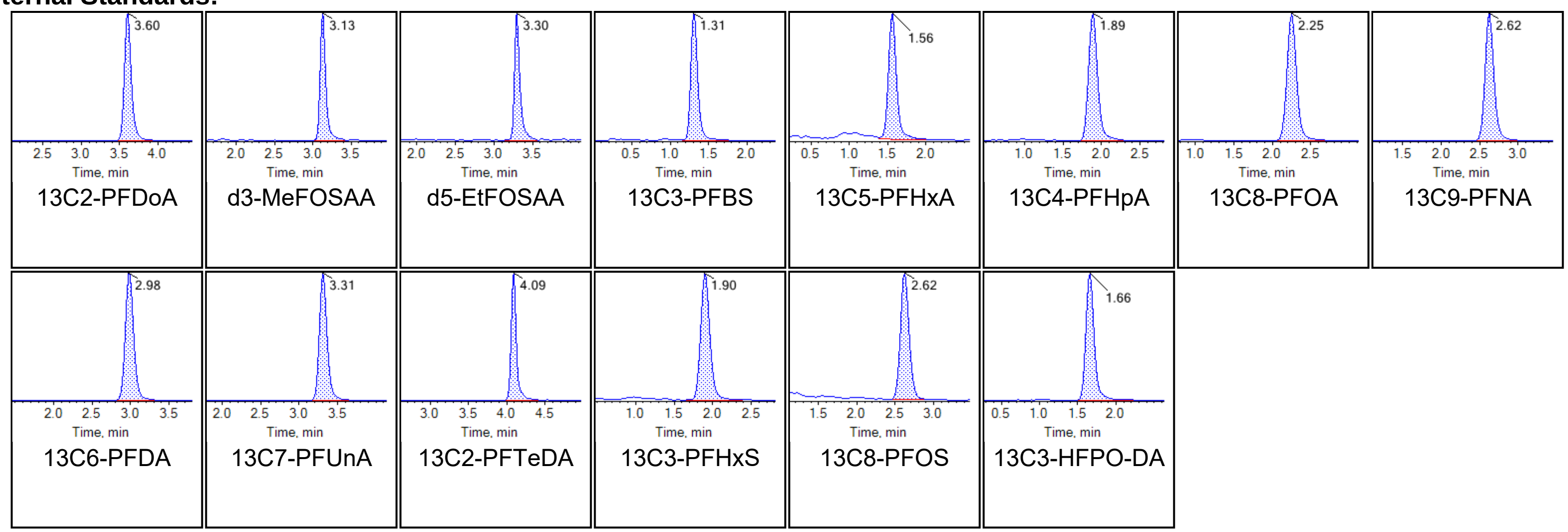
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



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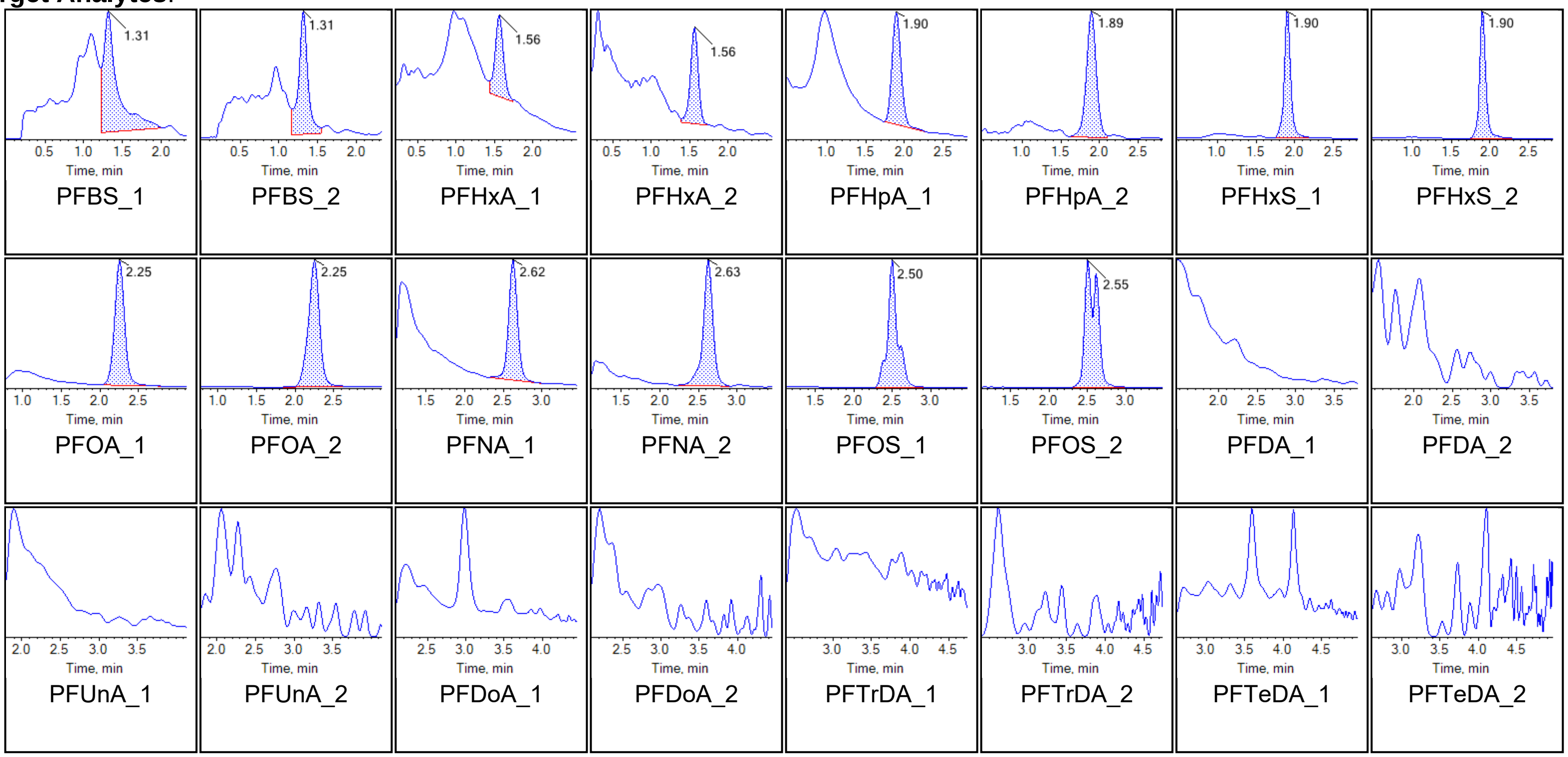
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4975-FS(0)	**Injection Vial**	35
Sample ID	POL-MW0044I-025.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:37:52 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

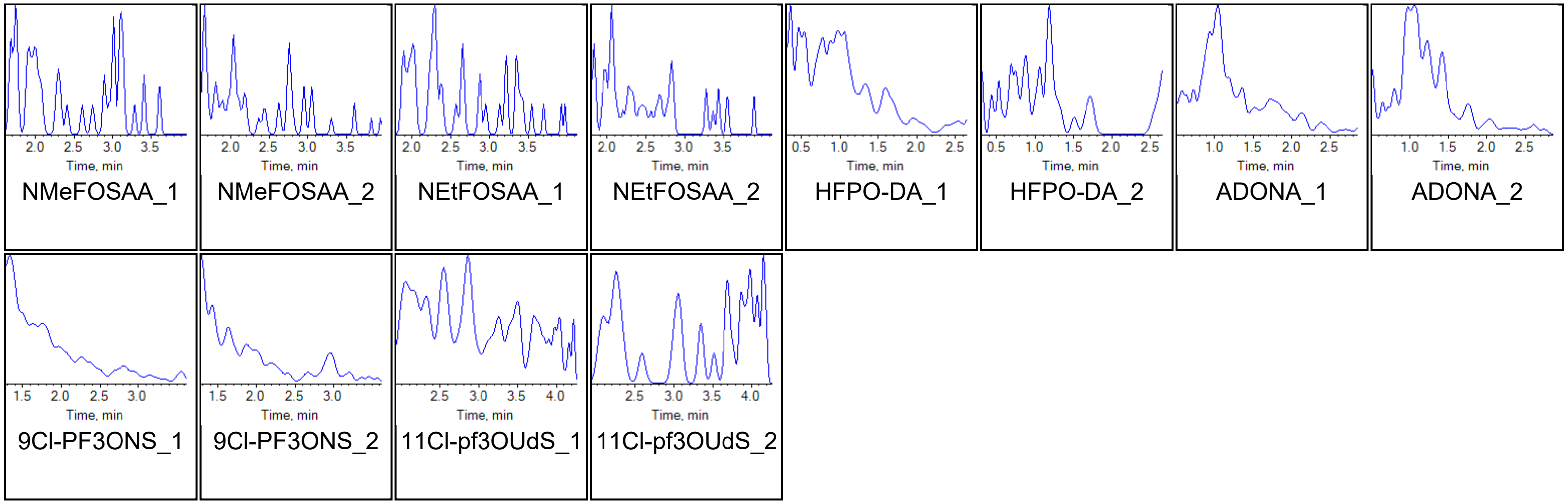
Target Analytes:



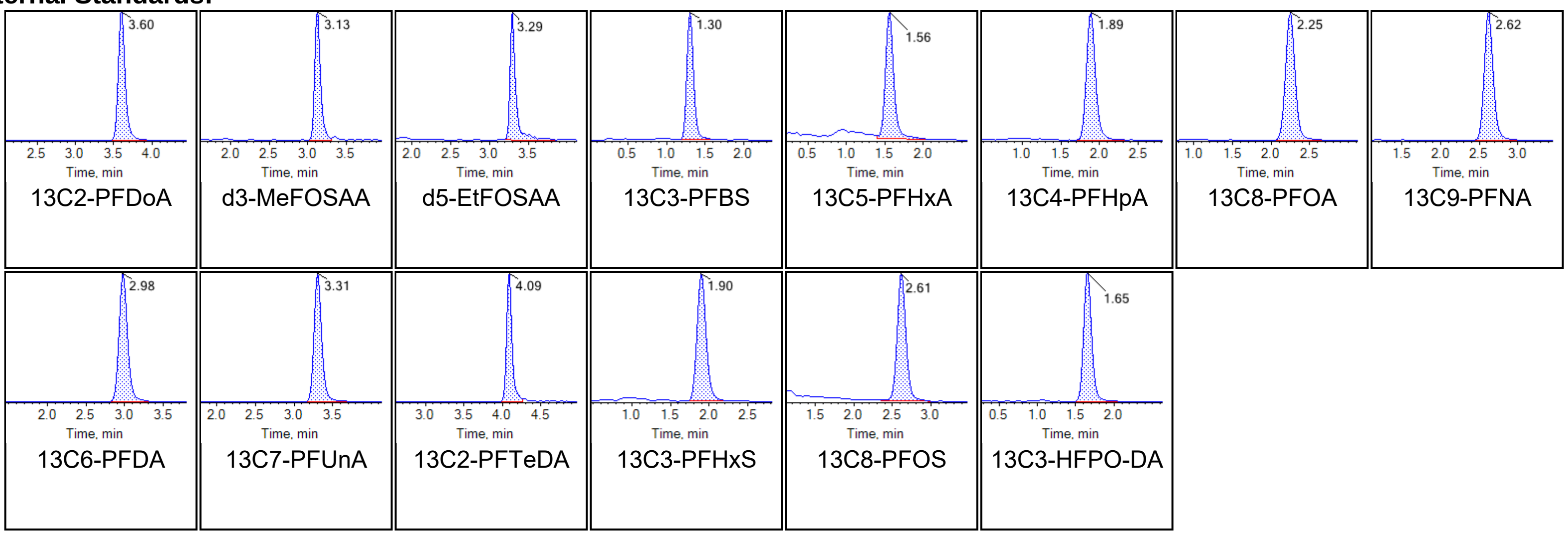
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



BATTELLE

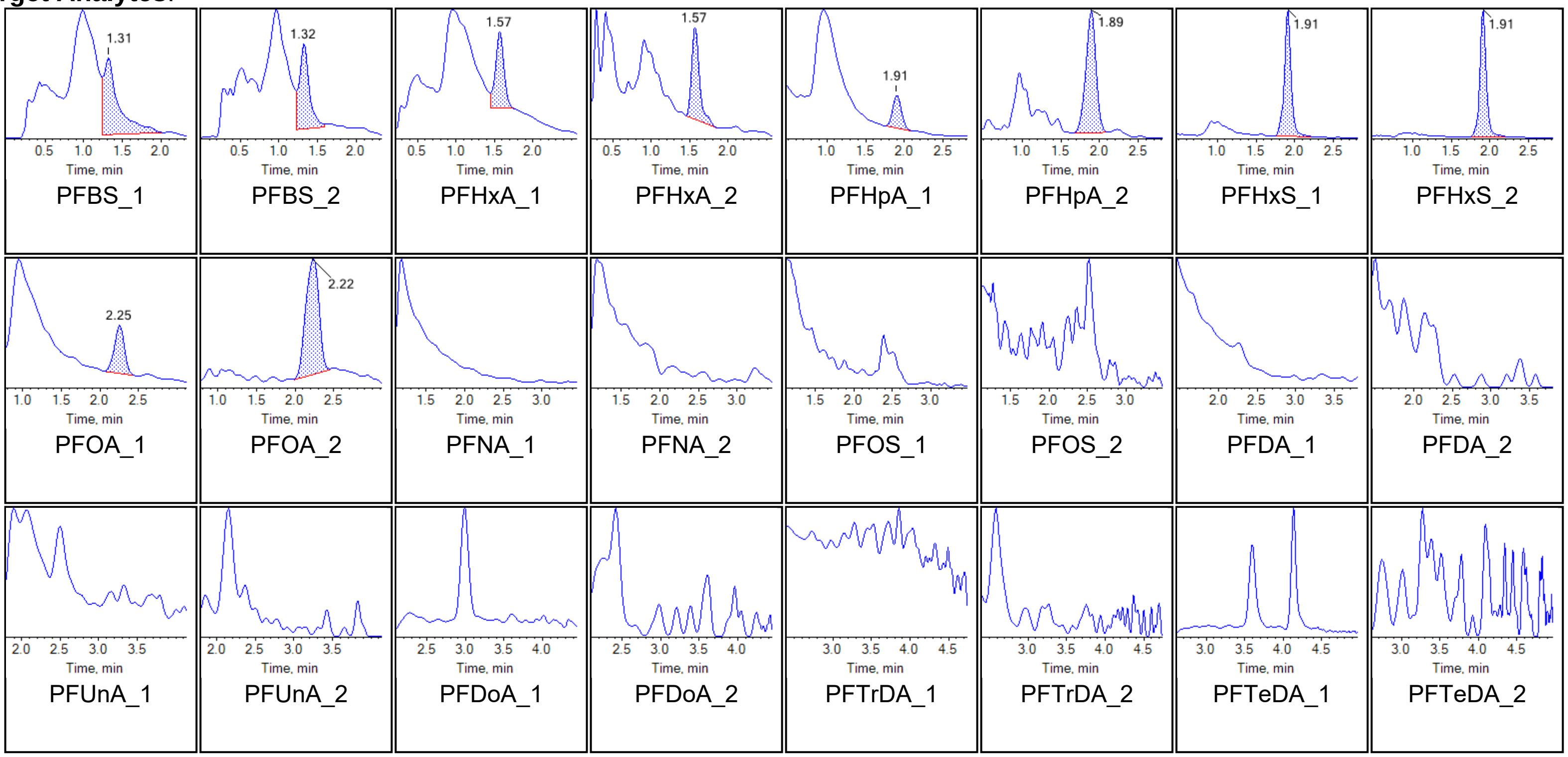
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4976-FS(0)	**Injection Vial**	36
Sample ID	POL-MW0044D-035.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:48:24 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

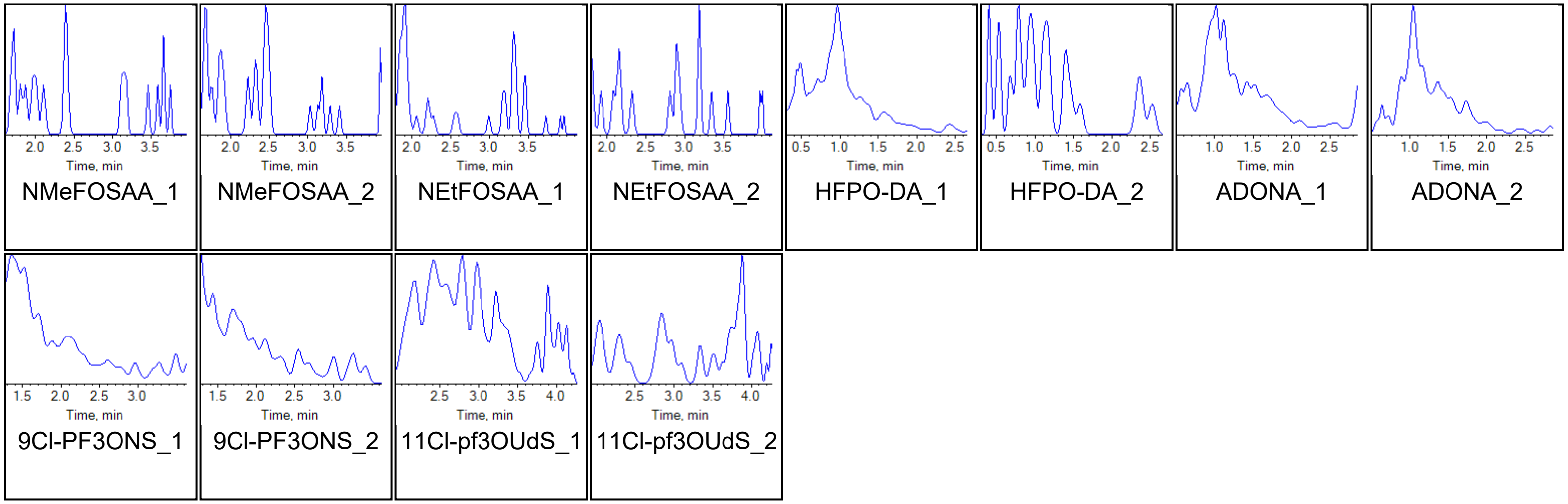
Target Analytes:



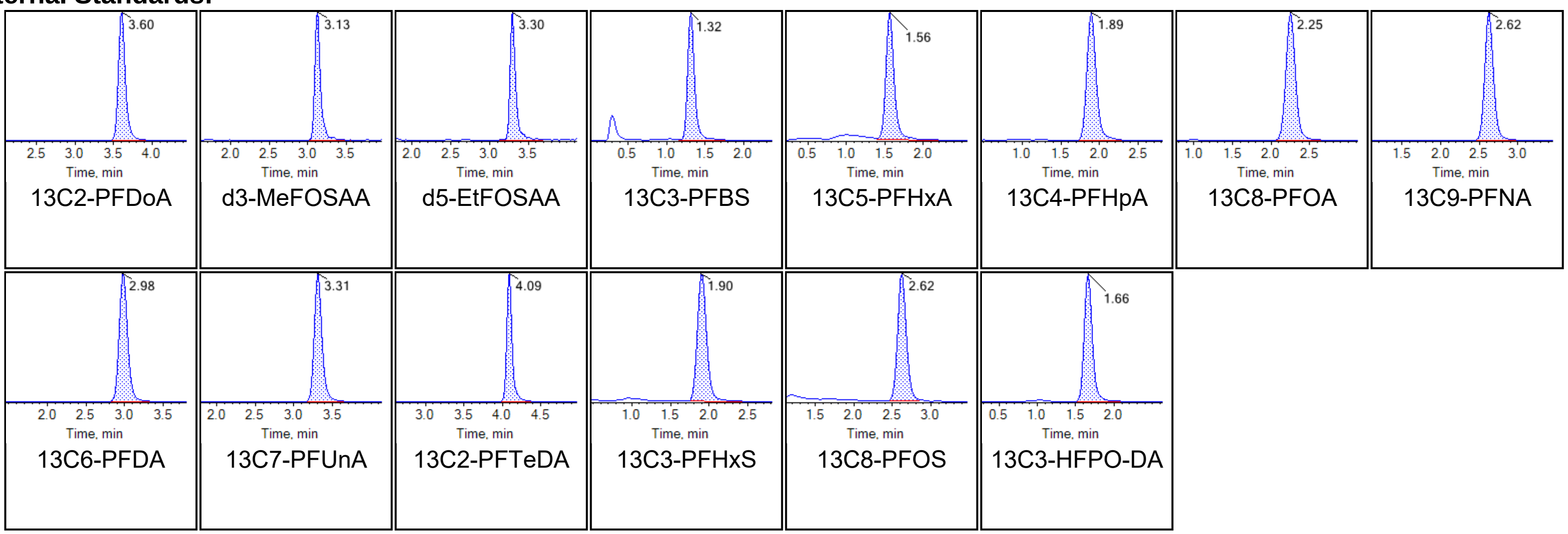
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



BATTELLE

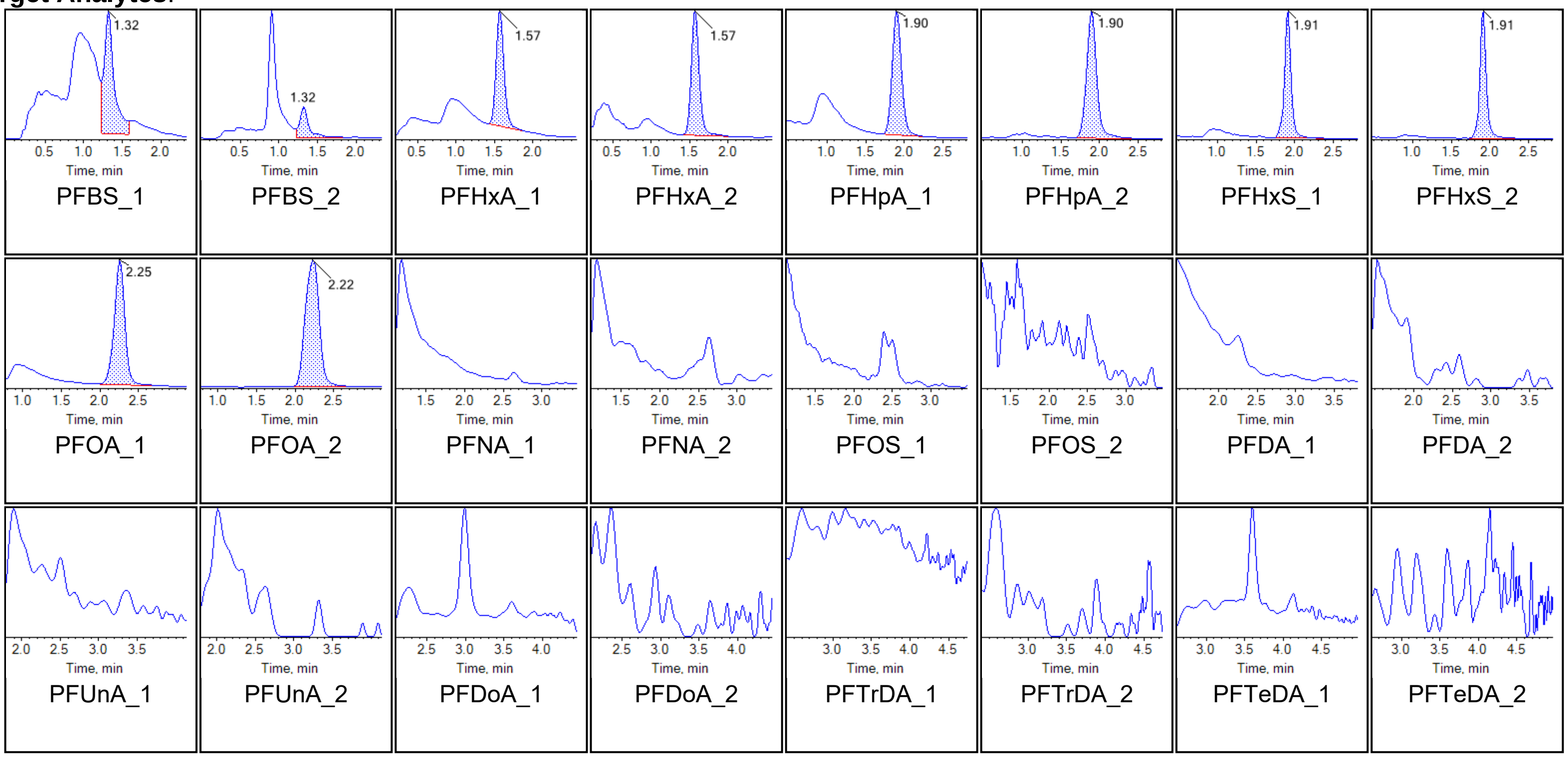
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4977-FS(0)	**Injection Vial**	37
Sample ID	SW3-MW0027-032.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:58:56 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

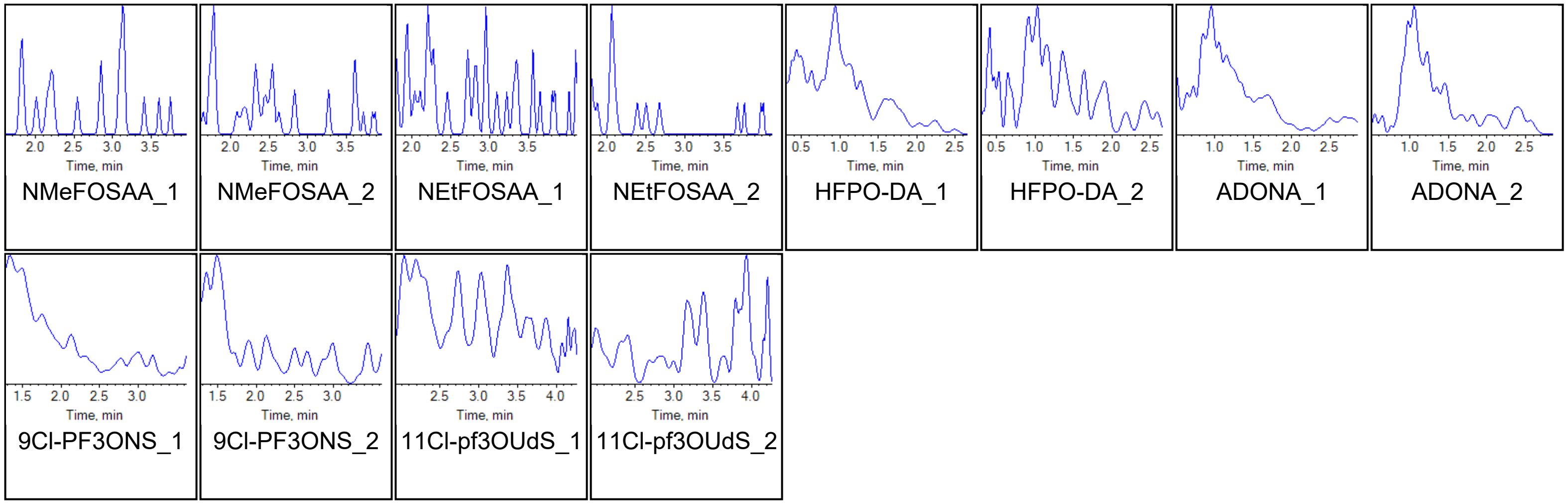
Target Analytes:



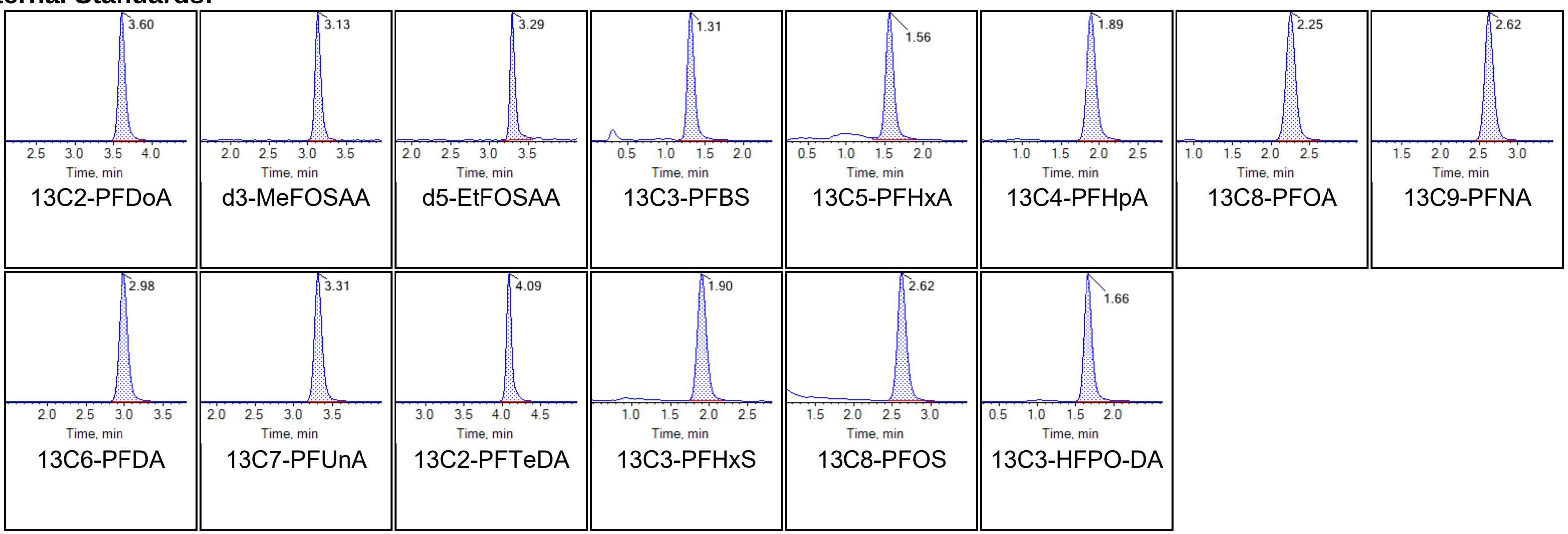
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



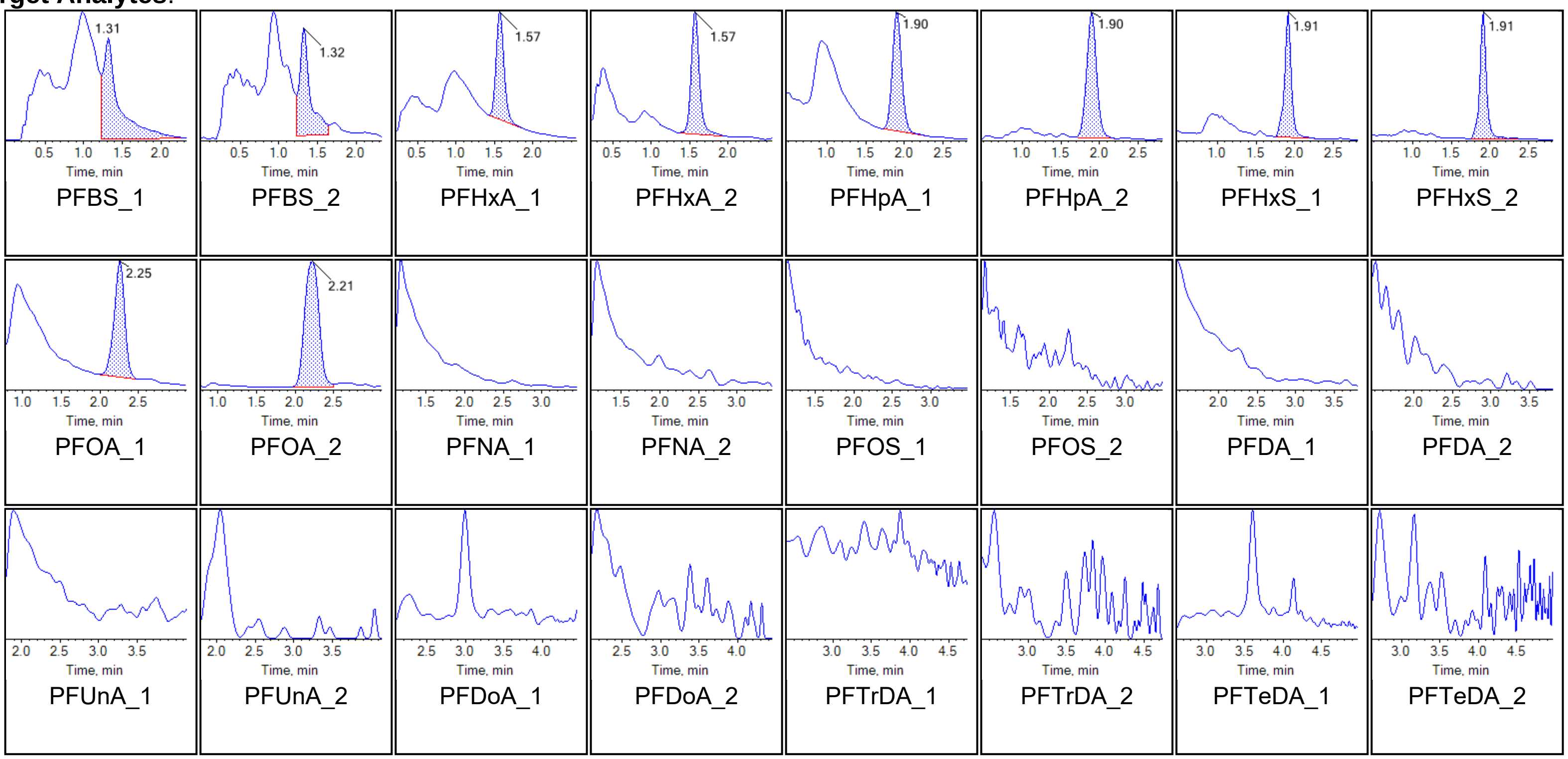
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	H4978-FS(0)	Injection Vial	38
Sample ID	SW3-MW0028-032.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:09:27 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502

Chromatograms

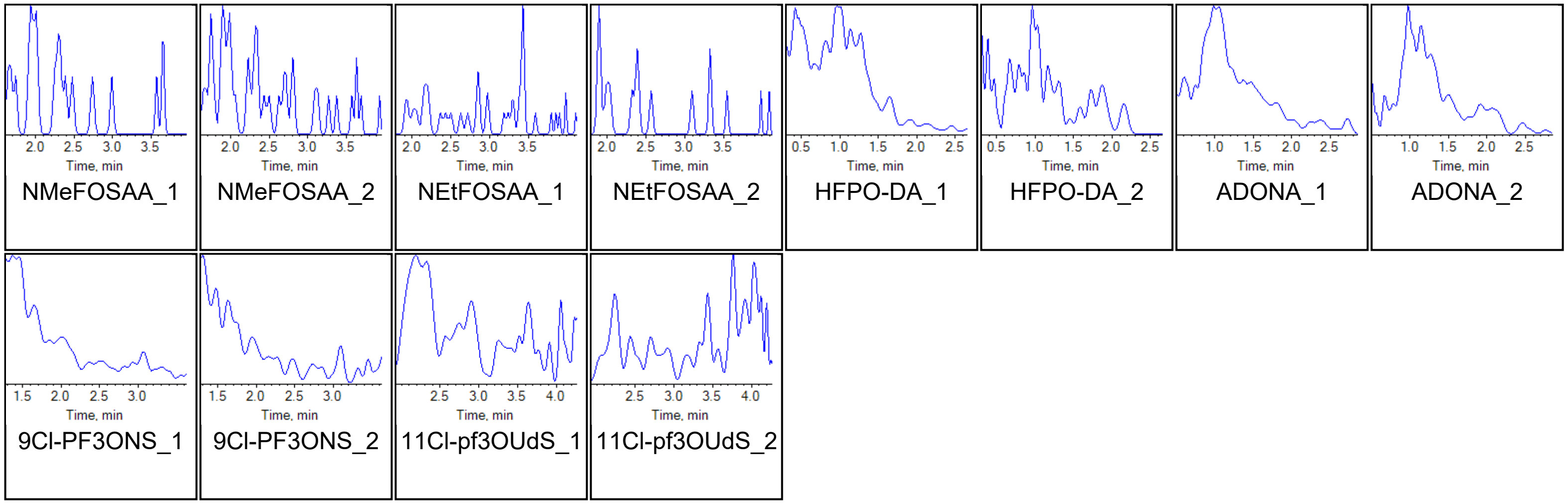
Target Analytes:



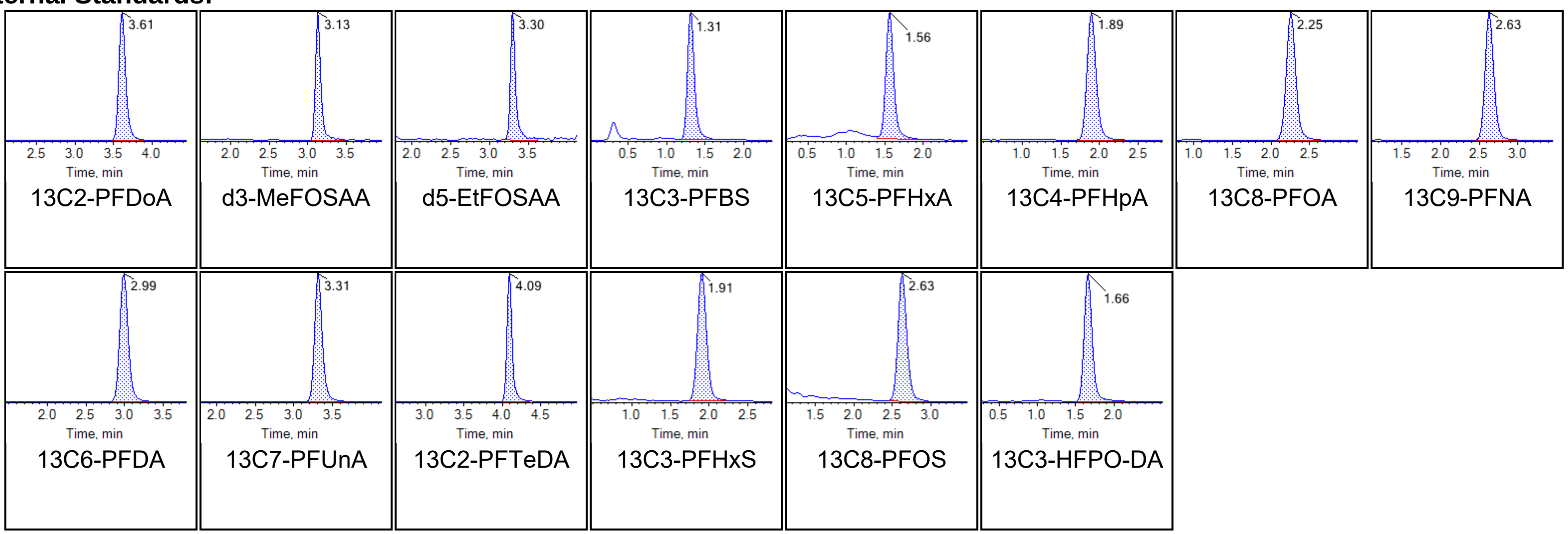
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



BATTELLE

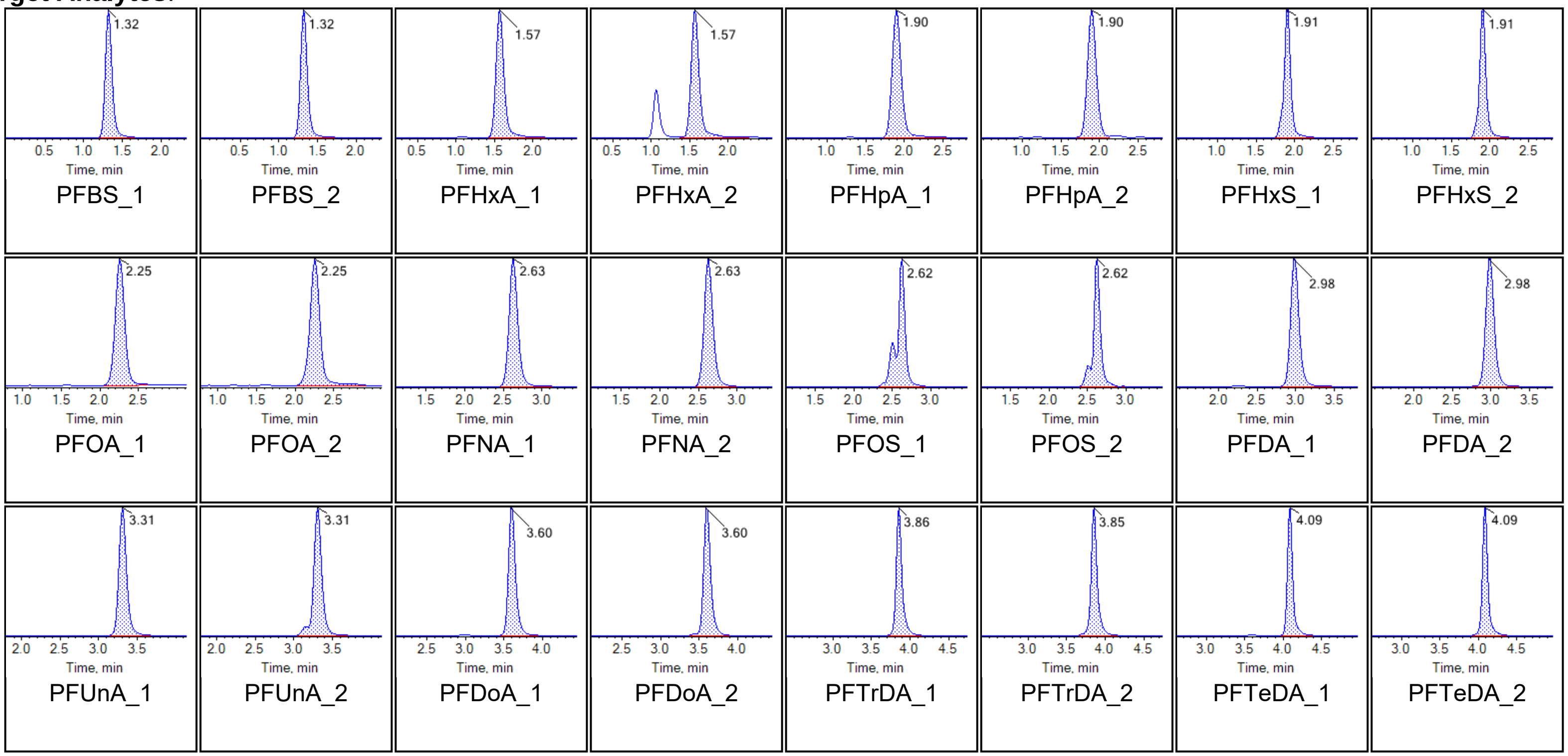
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM

Sample Name	KY37 CCV	**Injection Vial**	40
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:30:31 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502

Chromatograms

Target Analytes:



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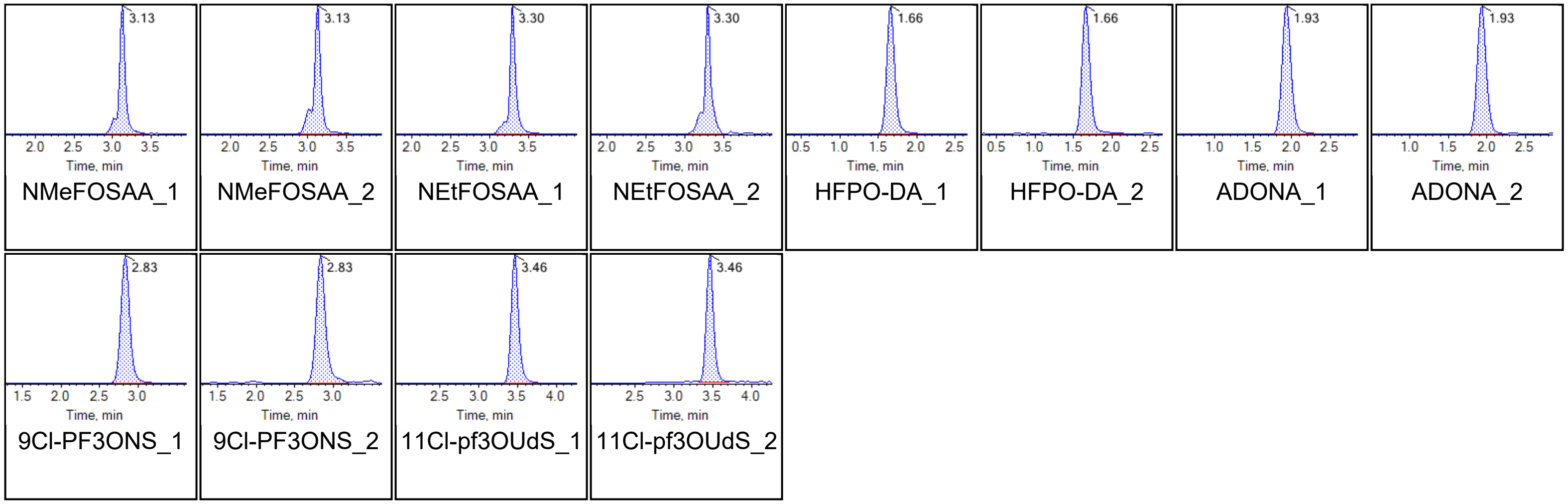
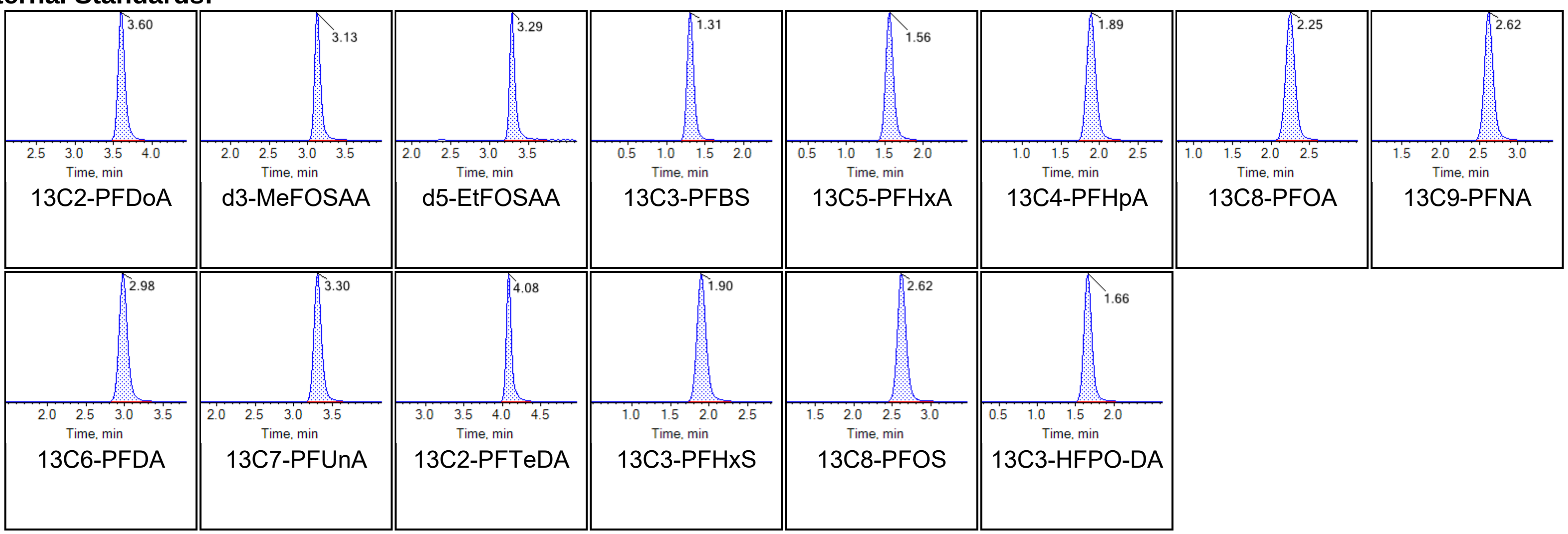
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 10:20:22 AM



Internal Standards:



BATTELLE

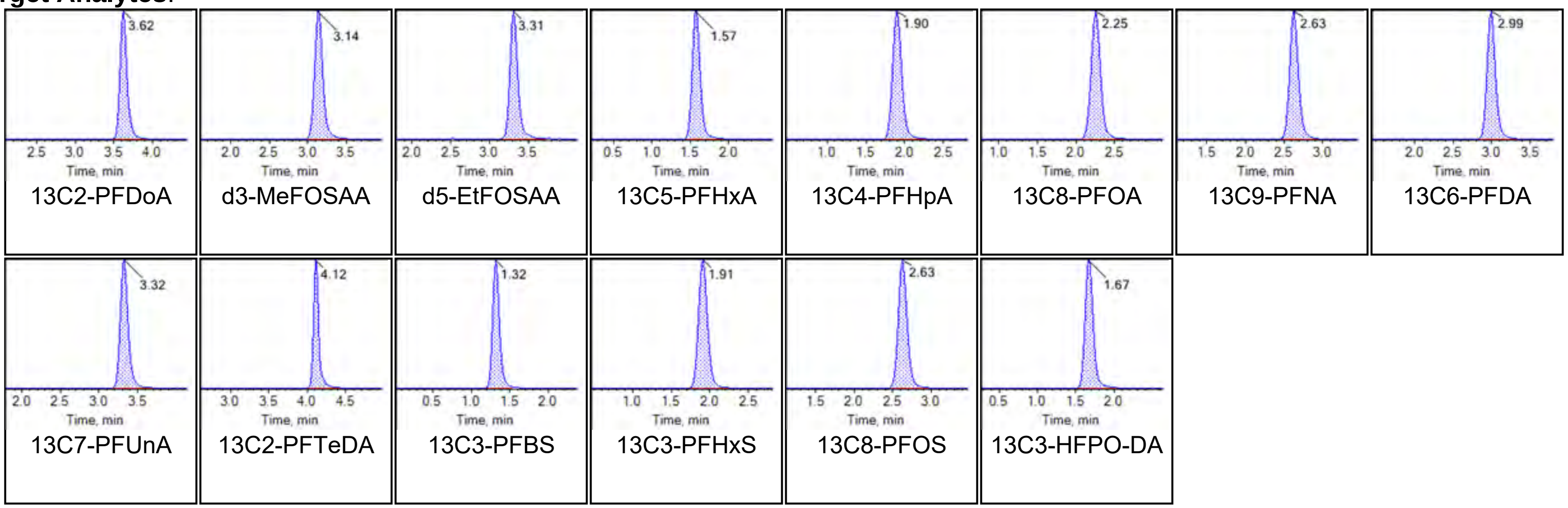
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

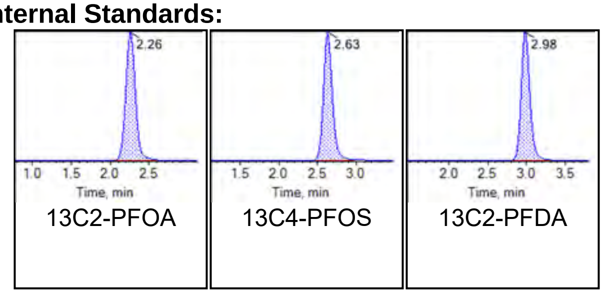
Sample Name	KY33	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:26:36 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

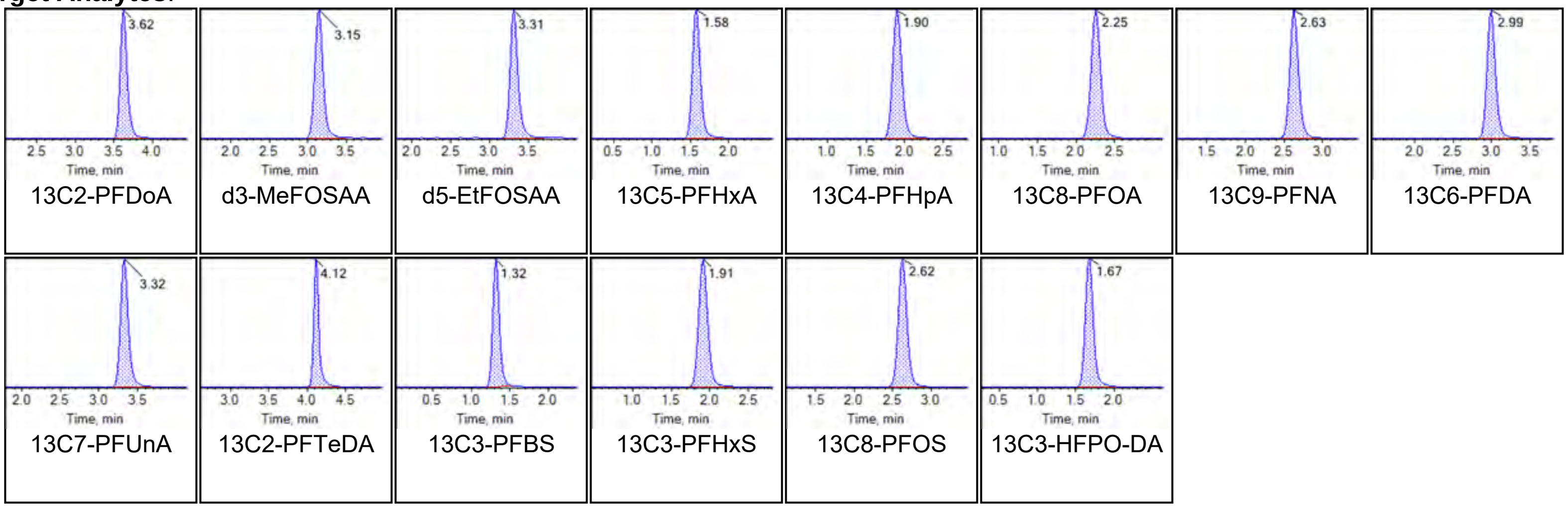
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

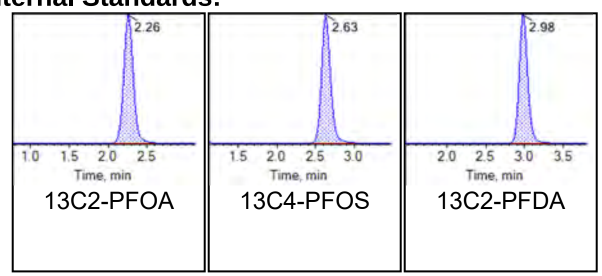
Sample Name	KY34	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:37:08 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

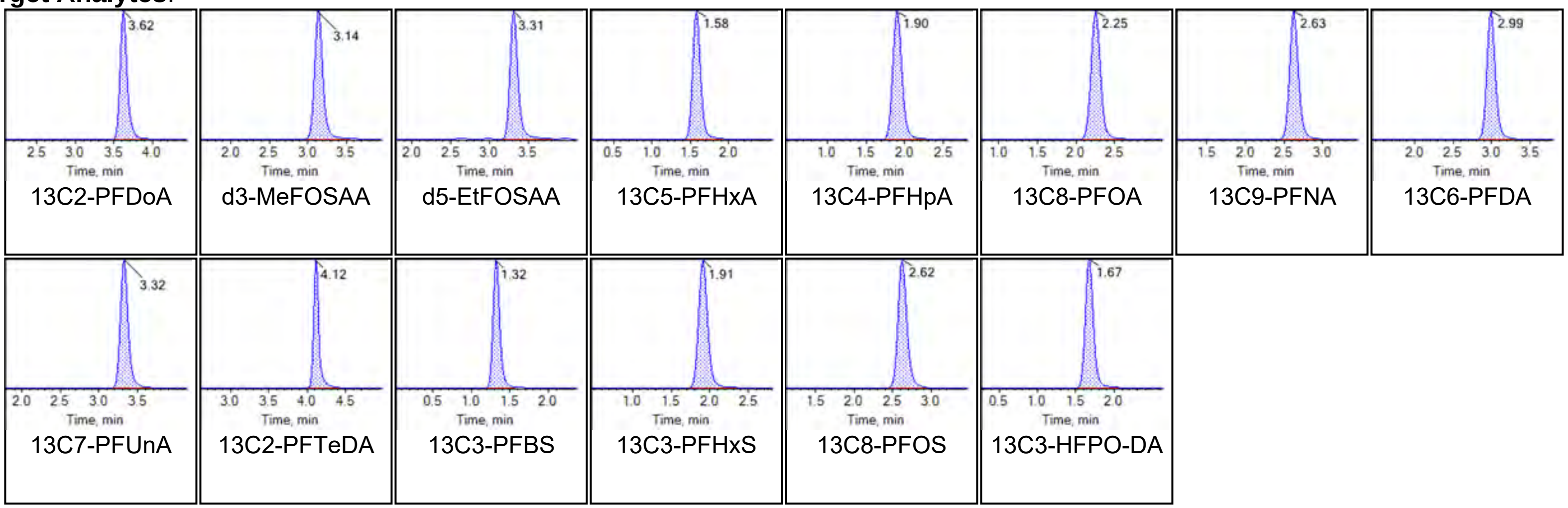
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

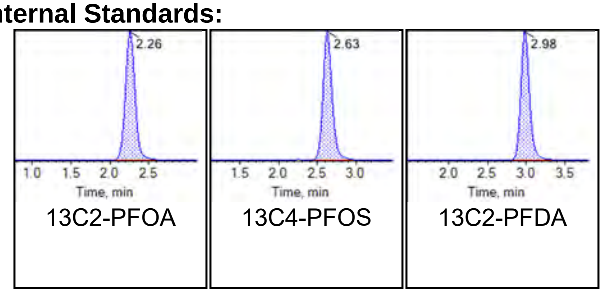
Sample Name	KY35	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:47:41 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

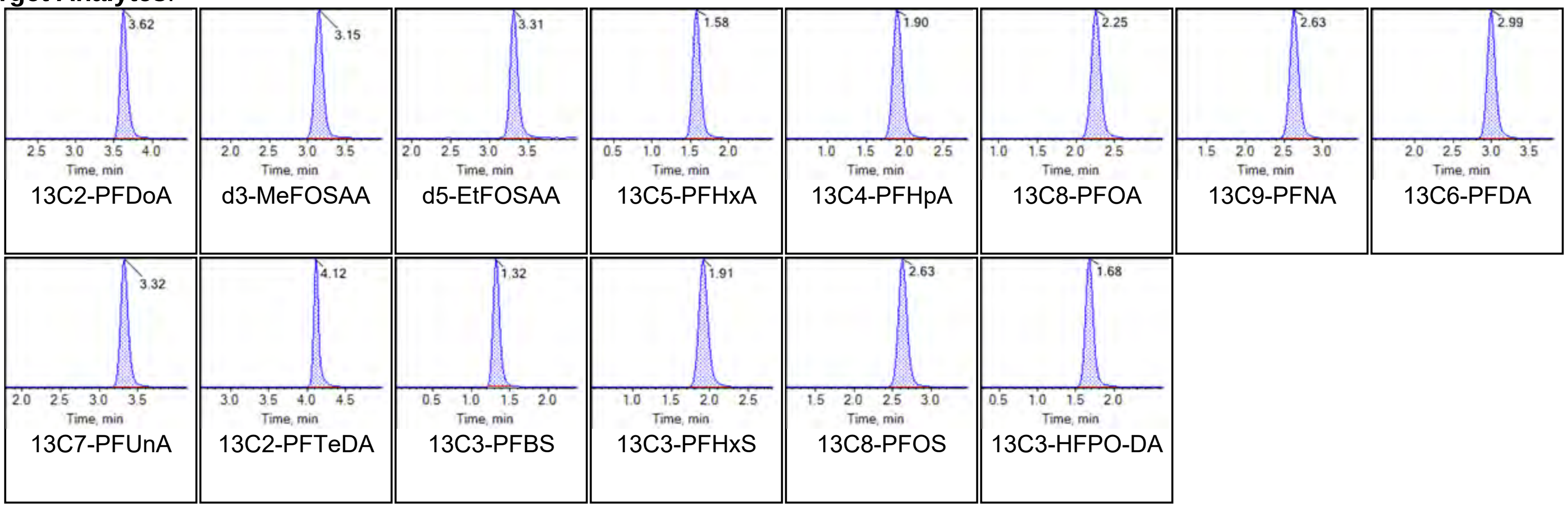
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

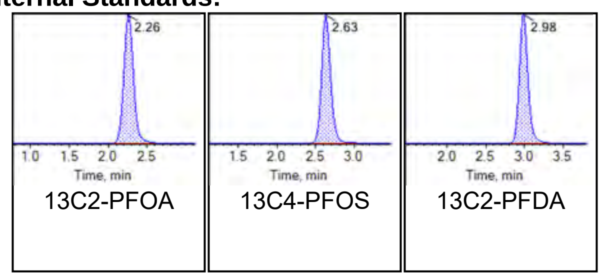
Sample Name	KY36	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 5:58:14 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

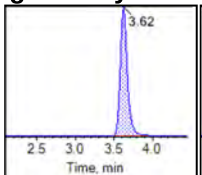
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

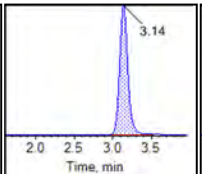
Sample Name	KY37	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:08:45 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

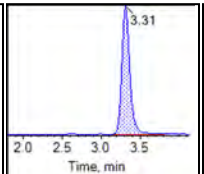
Target Analytes:



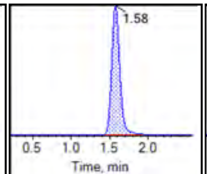
13C2-PFDoA



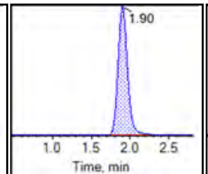
d3-MeFOSAA



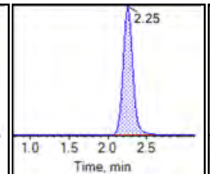
d5-EtFOSAA



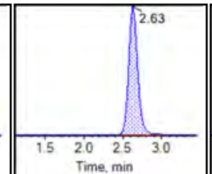
13C5-PFHxA



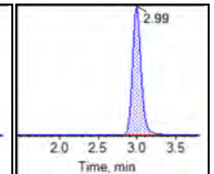
13C4-PFHpA



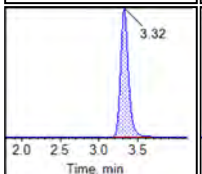
13C8-PFOA



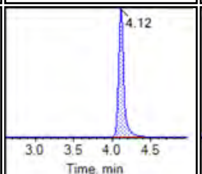
13C9-PFNA



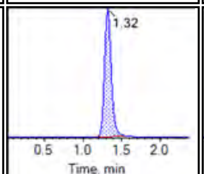
13C6-PFDA



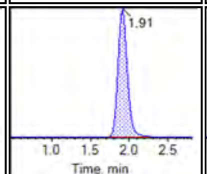
13C7-PFUnA



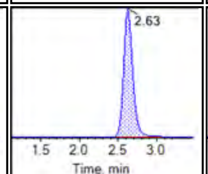
13C2-PFTeDA



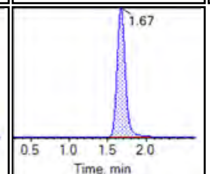
13C3-PFBS



13C3-PFHxS

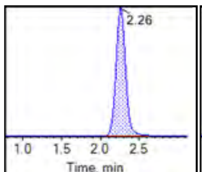


13C8-PFOS

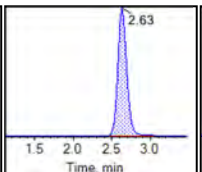


13C3-HFPO-DA

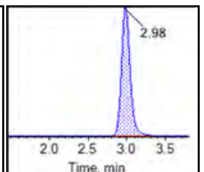
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

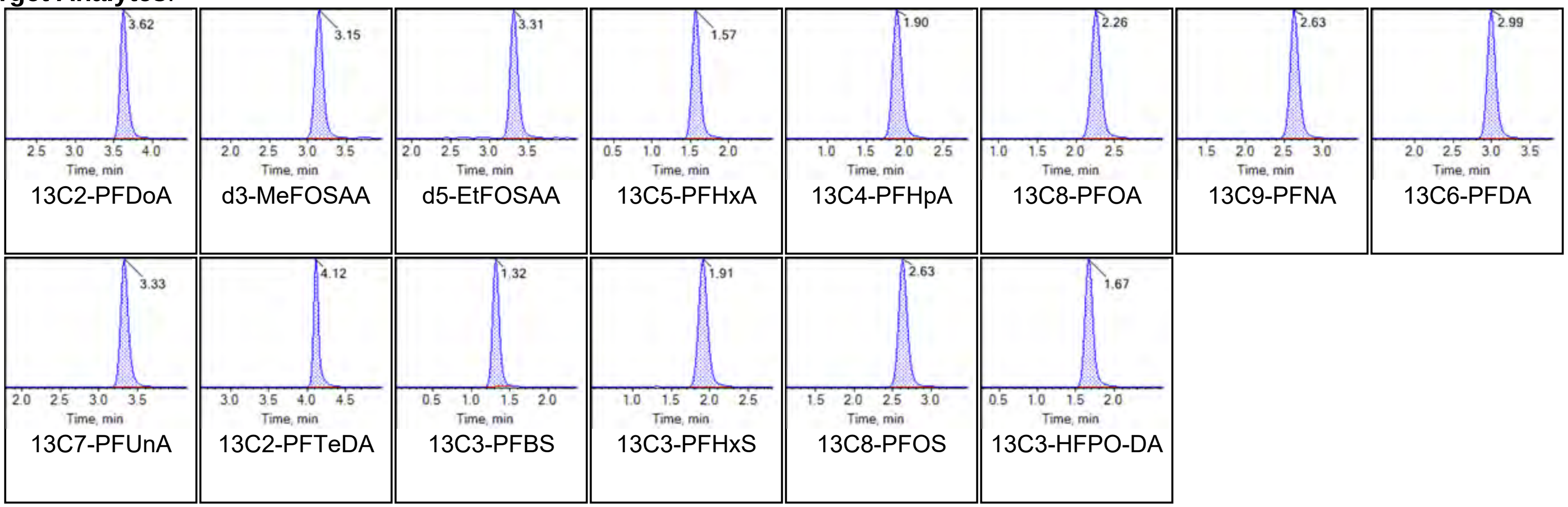
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

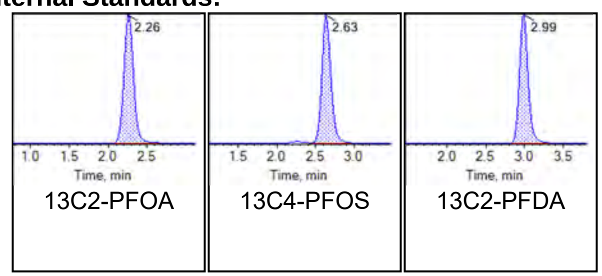
Sample Name	KY38	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:19:18 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

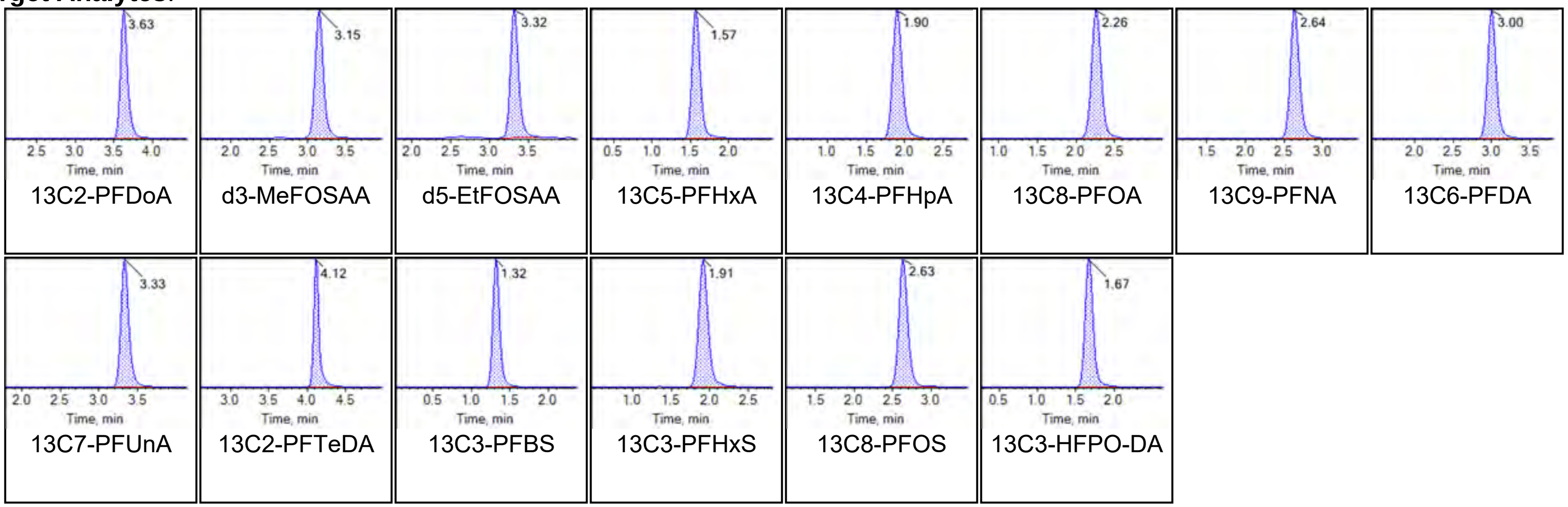
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

Sample Name	KY39	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:29:50 PM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS

Chromatograms

Target Analytes:



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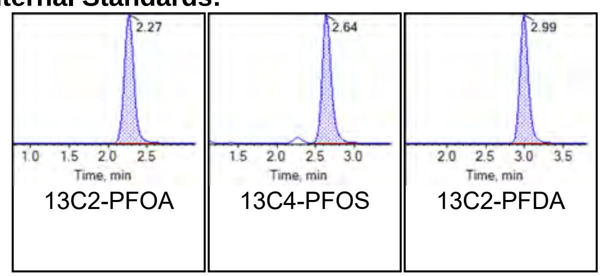


BATTELLE

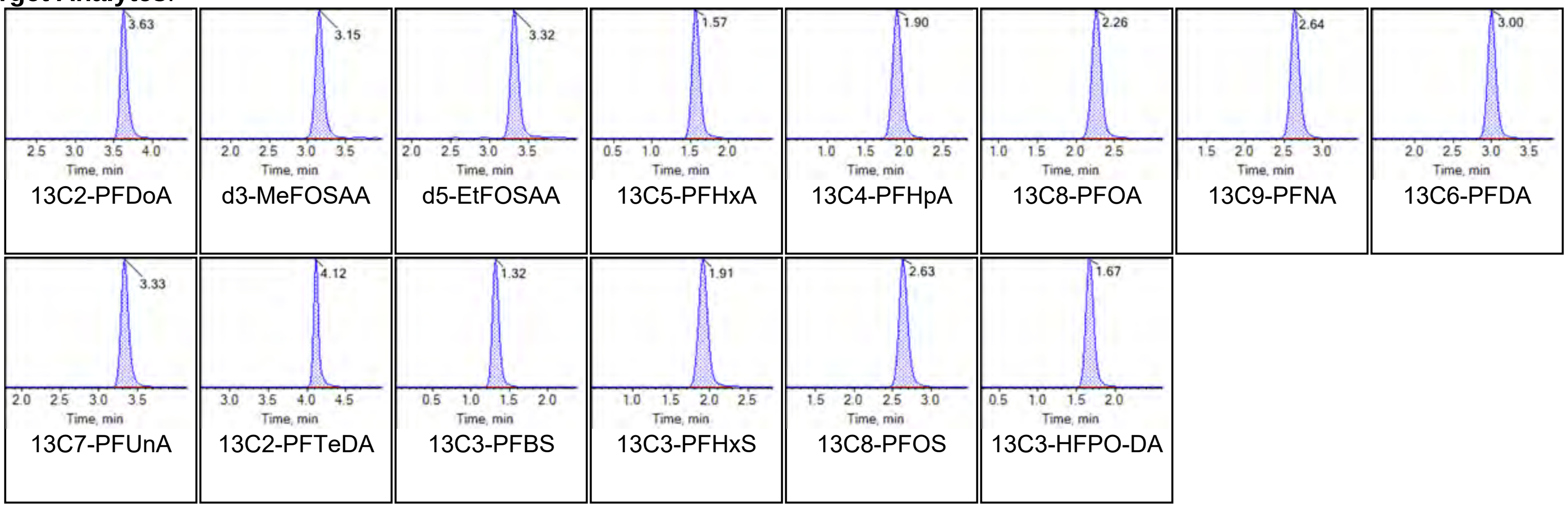
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

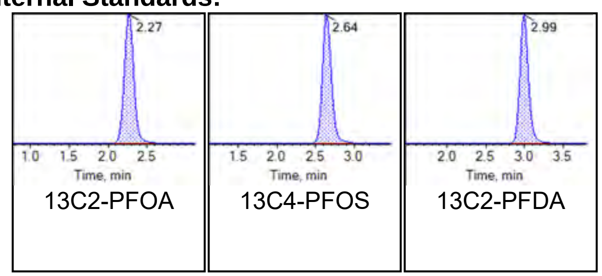
Sample Name	KY40 IB	**Injection Vial**	9
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:40:23 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

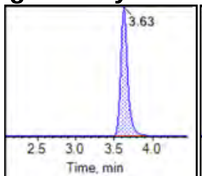
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

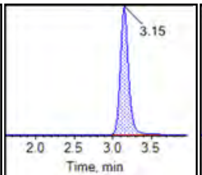
Sample Name	KY41 ICC	**Injection Vial**	10
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/28/2020 6:50:56 PM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

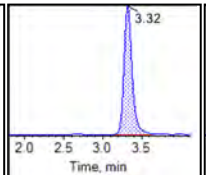
Target Analytes:



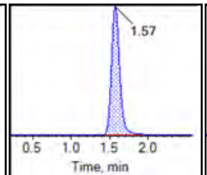
13C2-PFDoA



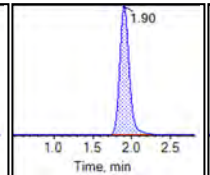
d3-MeFOSAA



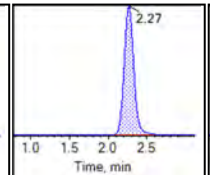
d5-EtFOSAA



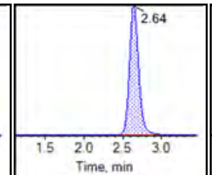
13C5-PFHxA



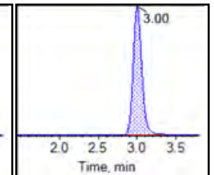
13C4-PFHpA



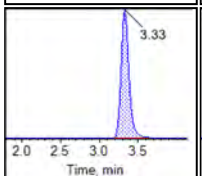
13C8-PFOA



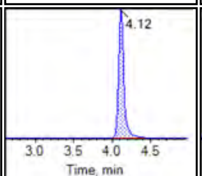
13C9-PFNA



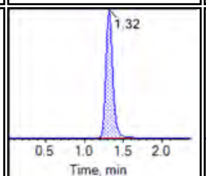
13C6-PFDA



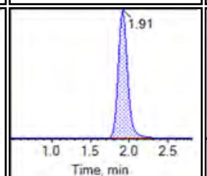
13C7-PFUnA



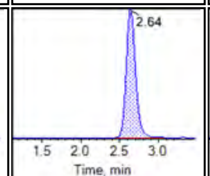
13C2-PFTeDA



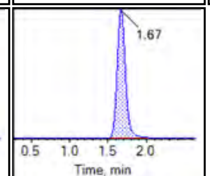
13C3-PFBS



13C3-PFHxS

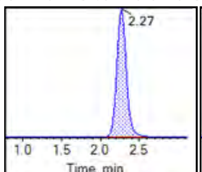


13C8-PFOS

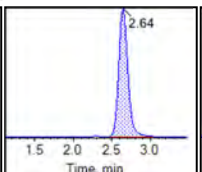


13C3-HFPO-DA

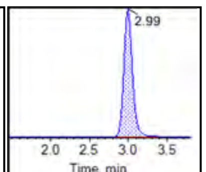
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

BATTELLE

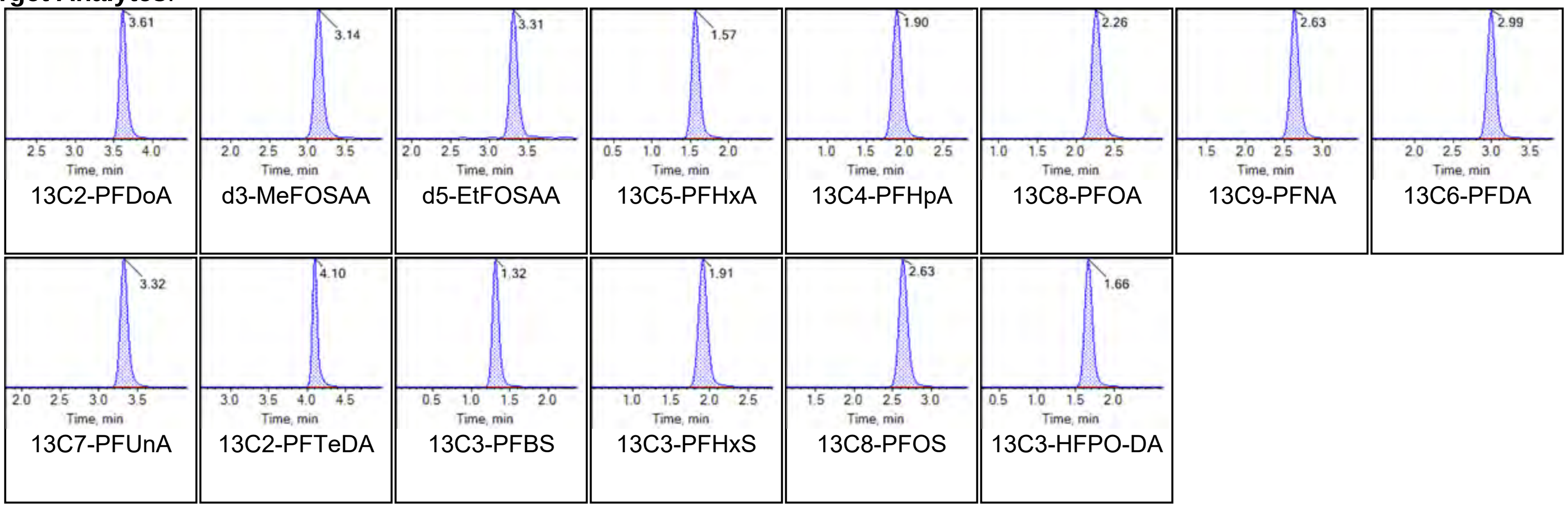
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

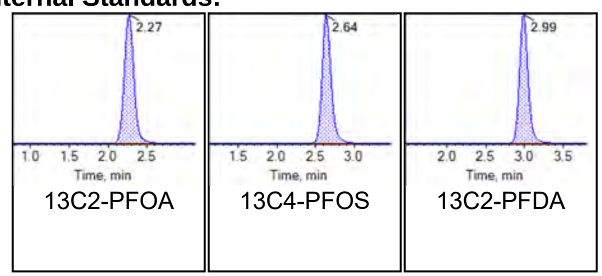
Sample Name	KY37 CCV	**Injection Vial**	20
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 12:59:44 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

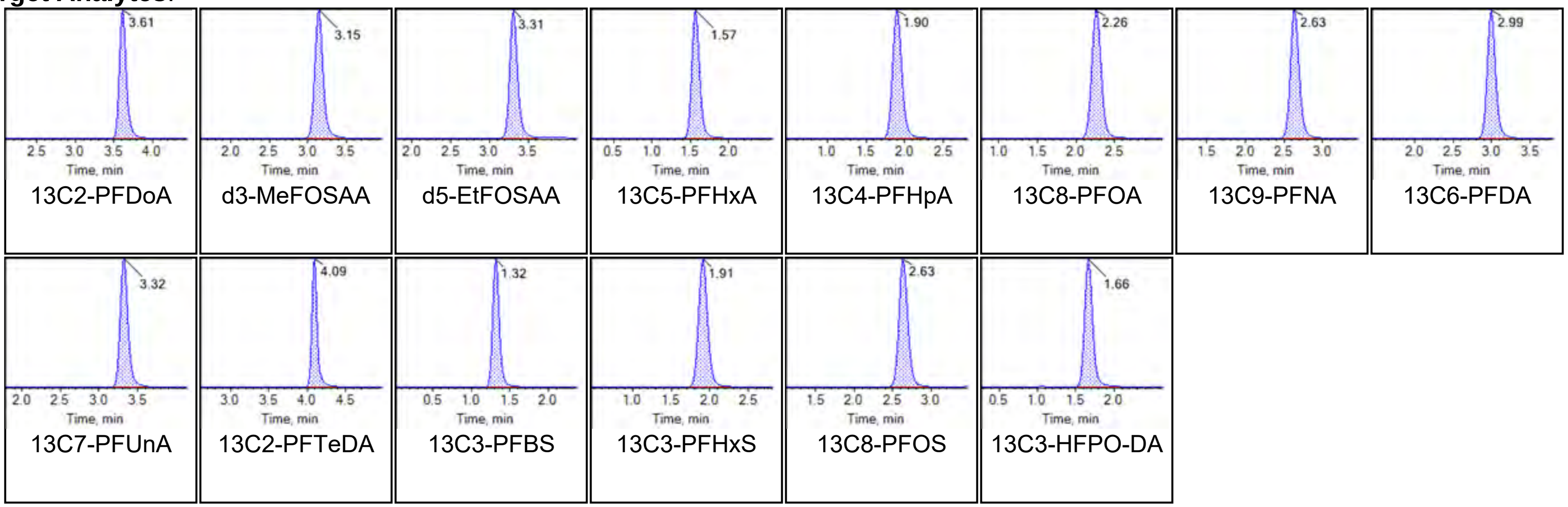
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

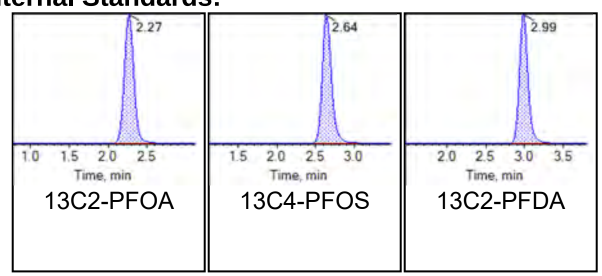
Sample Name	CY785PB-FS(0)	Injection Vial	22
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:20:48 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



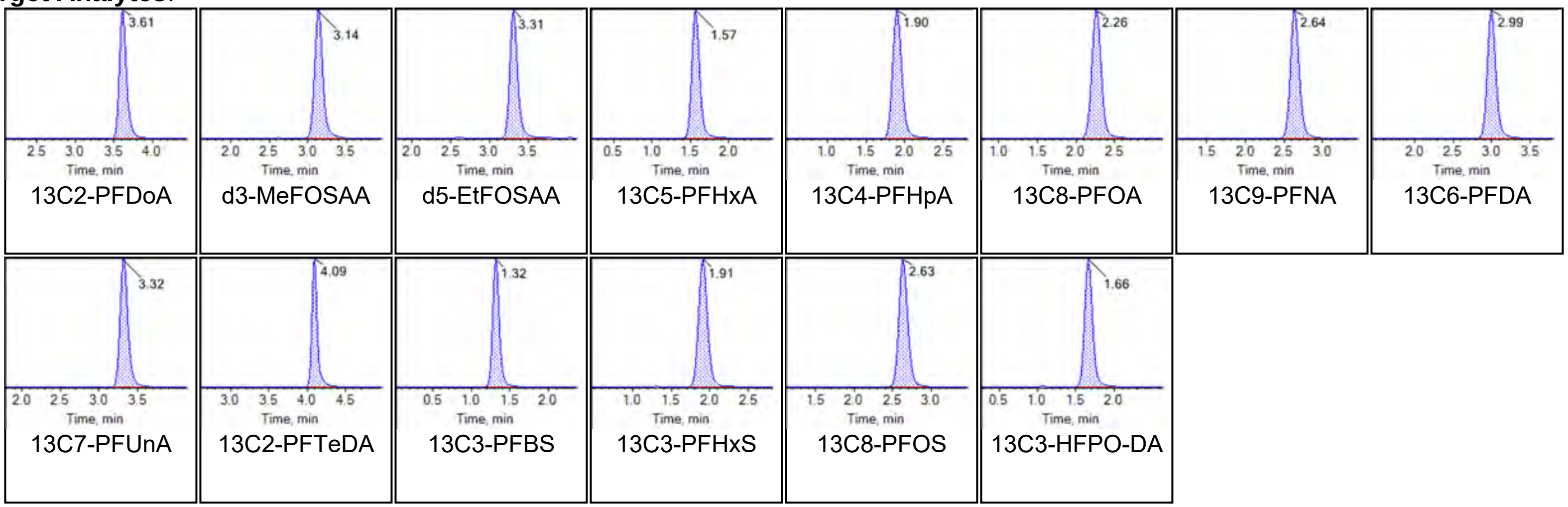
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

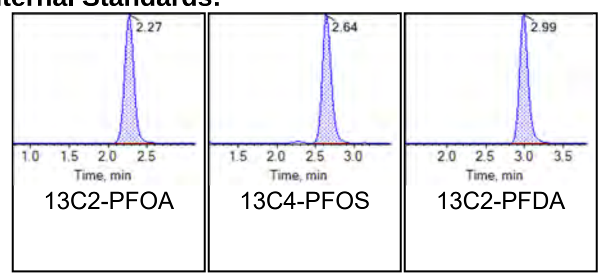
Sample Name	CY786LCS-FS(0)	**Injection Vial**	23
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:31:21 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



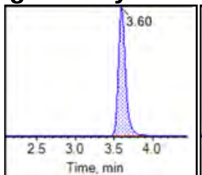
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

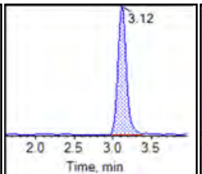
Sample Name	H4967-FS(0)	**Injection Vial**	24
Sample ID	POL-MW0045I-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:41:54 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

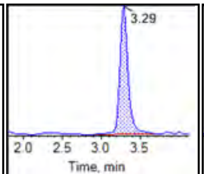
Target Analytes:



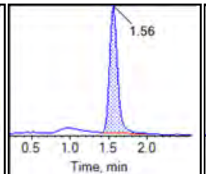
13C2-PFDoA



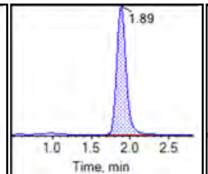
d3-MeFOSAA



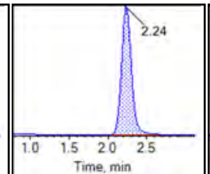
d5-EtFOSAA



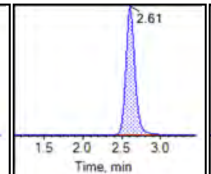
13C5-PFHxA



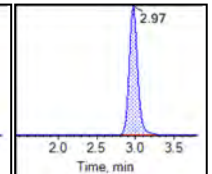
13C4-PFHpA



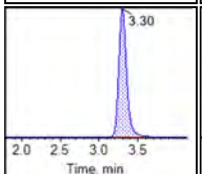
13C8-PFOA



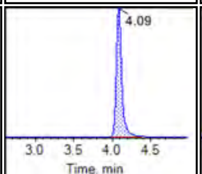
13C9-PFNA



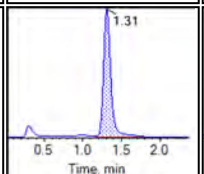
13C6-PFDA



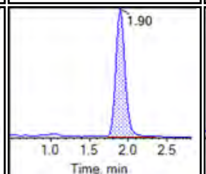
13C7-PFUnA



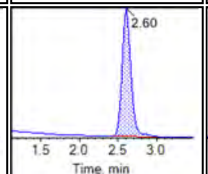
13C2-PFTeDA



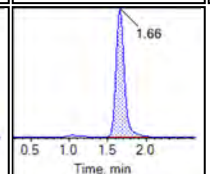
13C3-PFBS



13C3-PFHxS

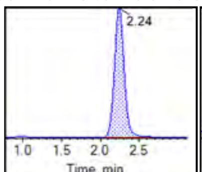


13C8-PFOS

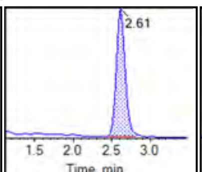


13C3-HFPO-DA

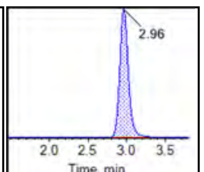
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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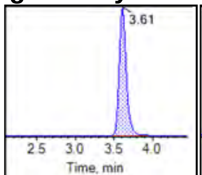
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

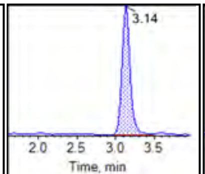
Sample Name	H4968-FS(0)	Injection Vial	25
Sample ID	POL-MW0043S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 1:52:27 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS

Chromatograms

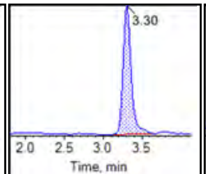
Target Analytes:



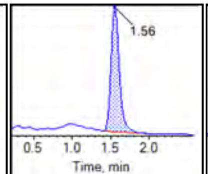
13C2-PFDoA



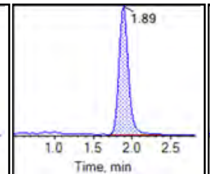
d3-MeFOSAA



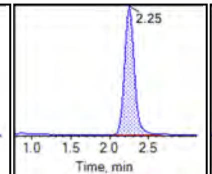
d5-EtFOSAA



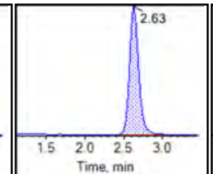
13C5-PFHxA



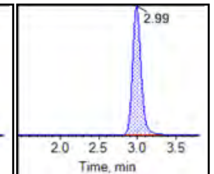
13C4-PFHpA



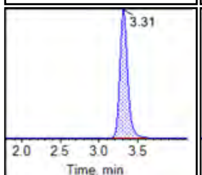
13C8-PFOA



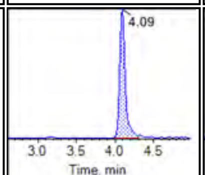
13C9-PFNA



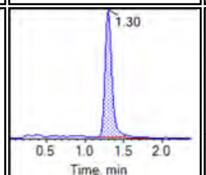
13C6-PFDA



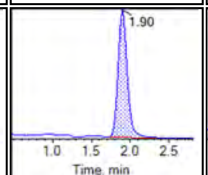
13C7-PFUnA



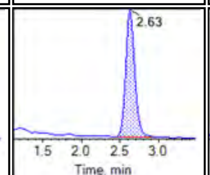
13C2-PFTeDA



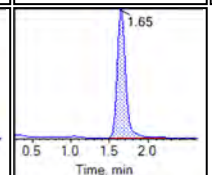
13C3-PFBS



13C3-PFHxS

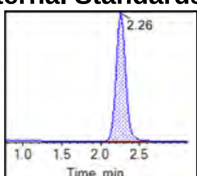


13C8-PFOS

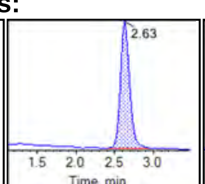


13C3-HFPO-DA

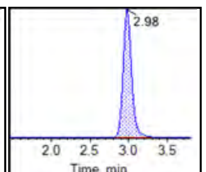
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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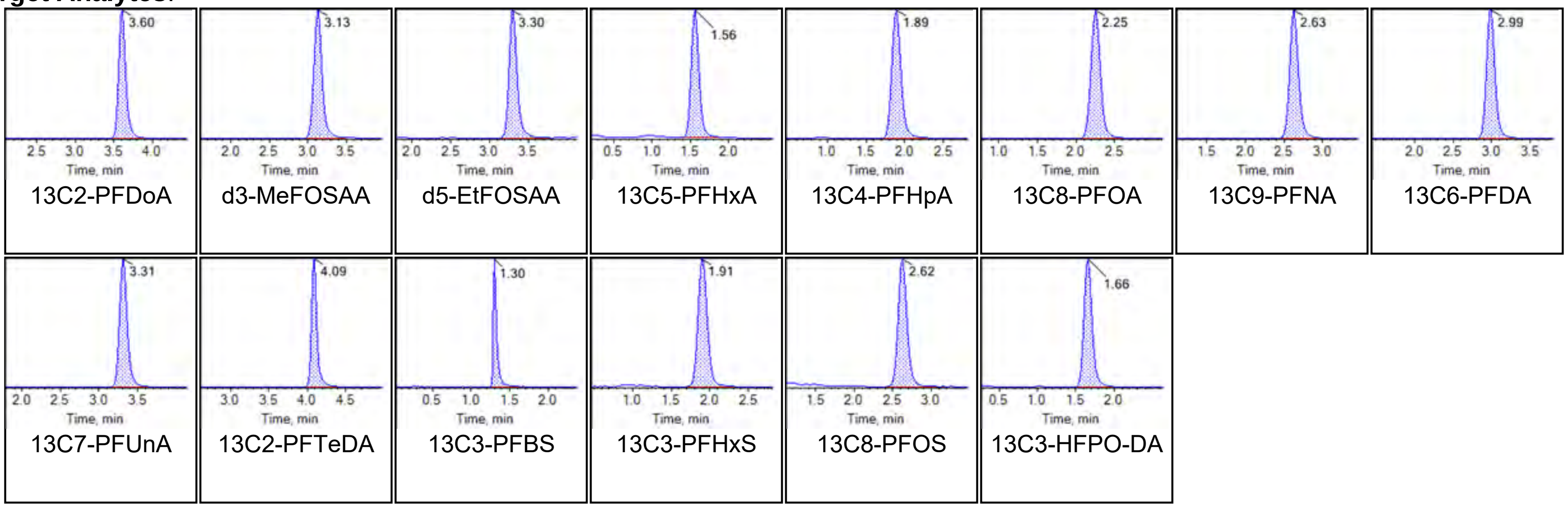
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

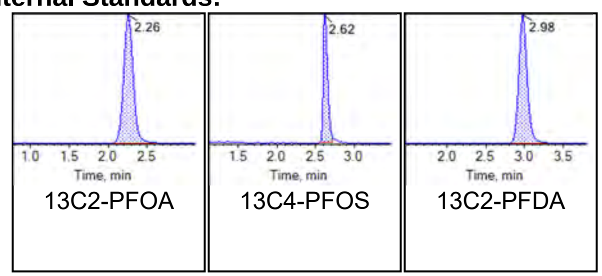
Sample Name	H4968-FS-D(3)	**Injection Vial**	26
Sample ID	POL-MW0043S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:03:00 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

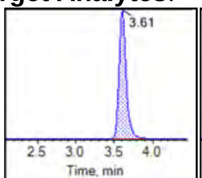
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

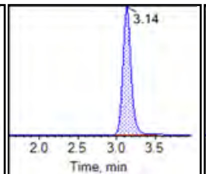
Sample Name	H4969-FS(0)	**Injection Vial**	27
Sample ID	POL-EB-20200423-01	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:13:33 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

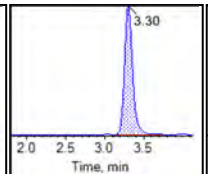
Target Analytes:



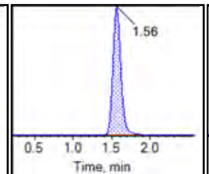
13C2-PFDoA



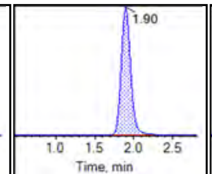
d3-MeFOSAA



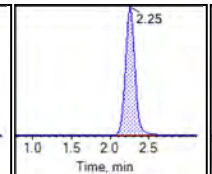
d5-EtFOSAA



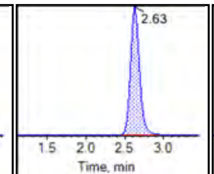
13C5-PFHxA



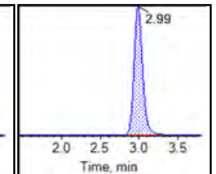
13C4-PFHpA



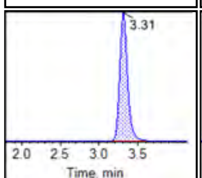
13C8-PFOA



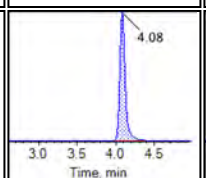
13C9-PFNA



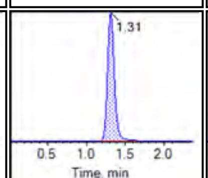
13C6-PFDA



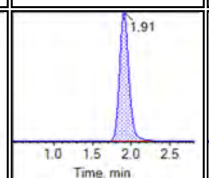
13C7-PFUnA



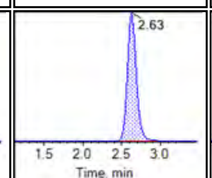
13C2-PFTeDA



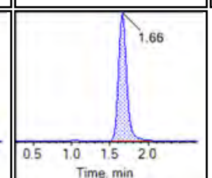
13C3-PFBS



13C3-PFHxS

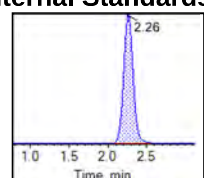


13C8-PFOS

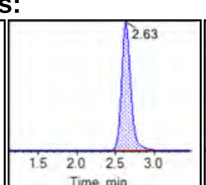


13C3-HFPO-DA

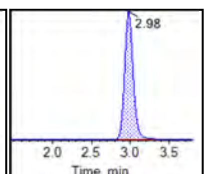
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

BATTELLE

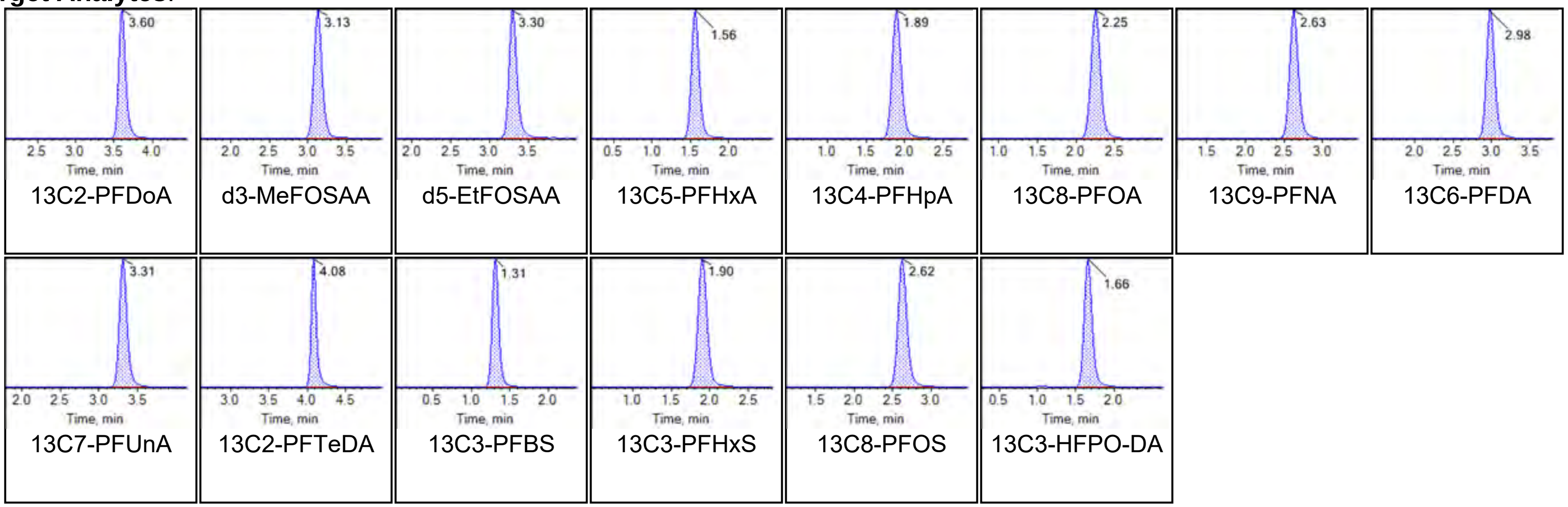
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

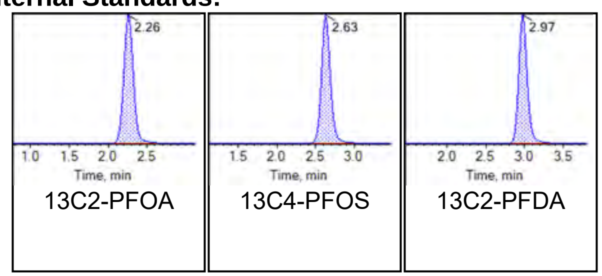
Sample Name	H4970-FS(0)	**Injection Vial**	28
Sample ID	POL-EB-20200423-02	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:24:06 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



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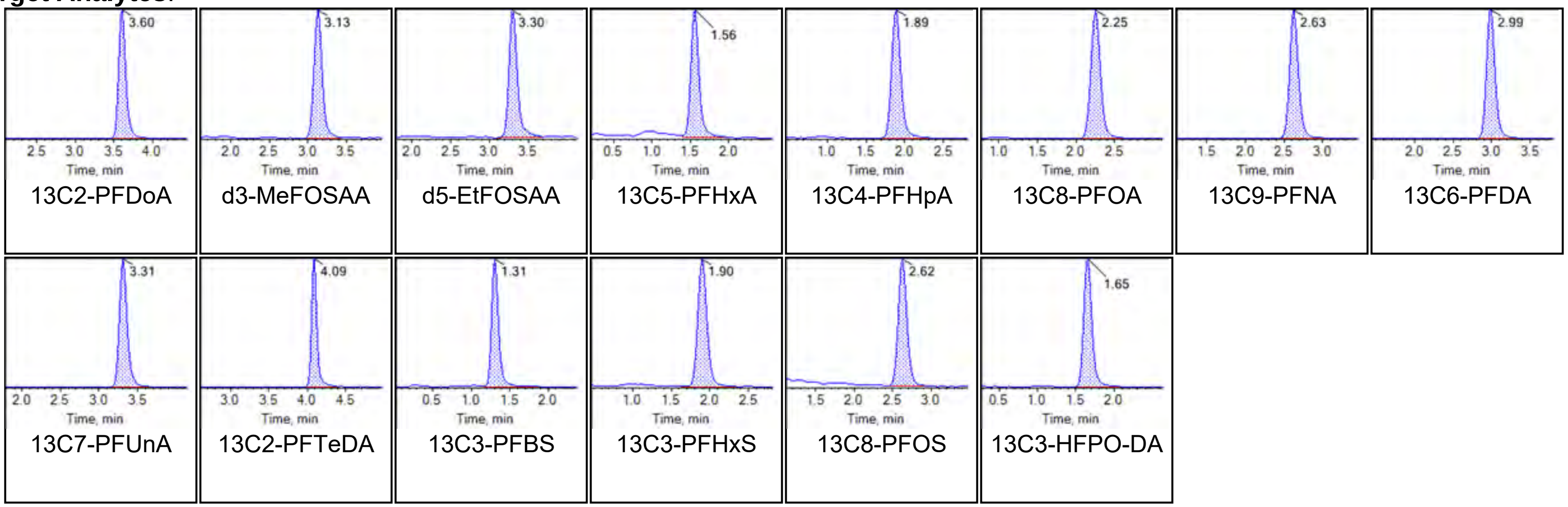
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

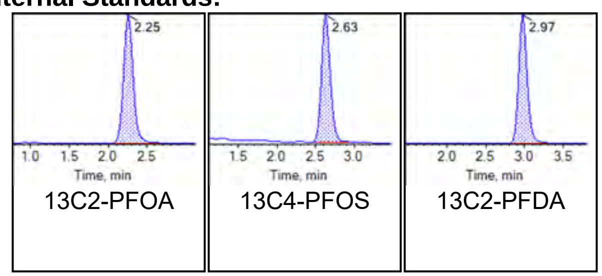
Sample Name	H4971-FS(0)	Injection Vial	29
Sample ID	POL-MW0043I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:34:39 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

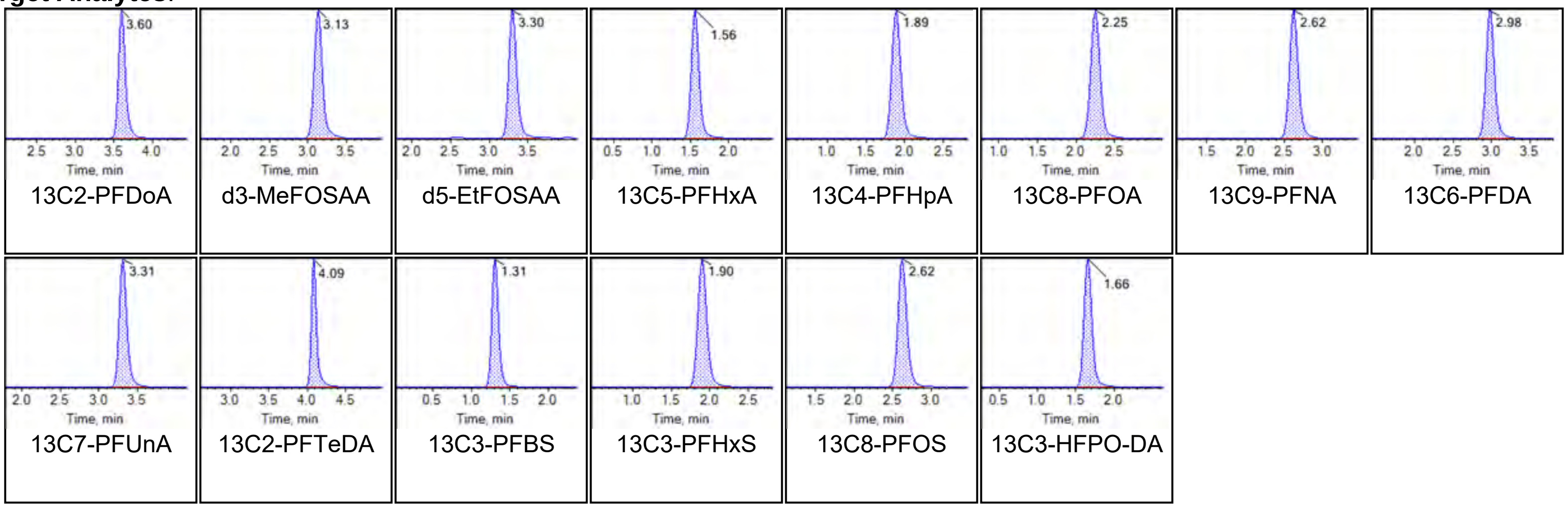
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

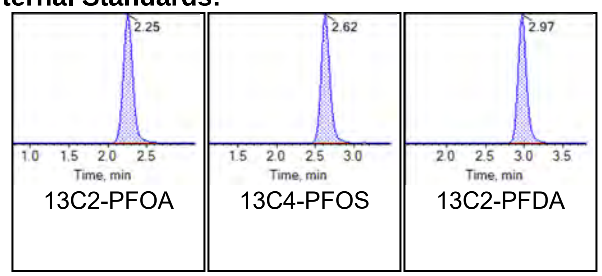
Sample Name	KY36 CCV	**Injection Vial**	32
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 2:55:45 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



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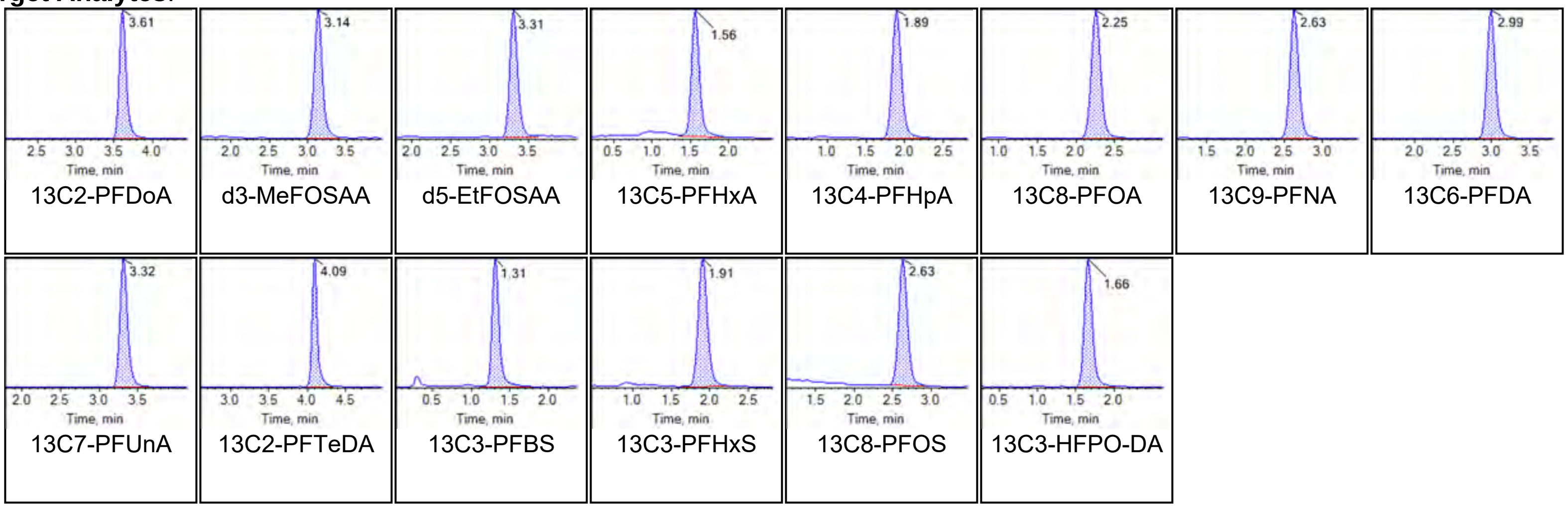
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

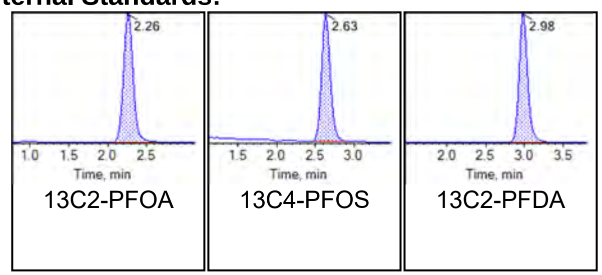
Sample Name	H4972-FS(0)	Injection Vial	30
Sample ID	POL-MW0043D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:06:17 AM	Data File	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

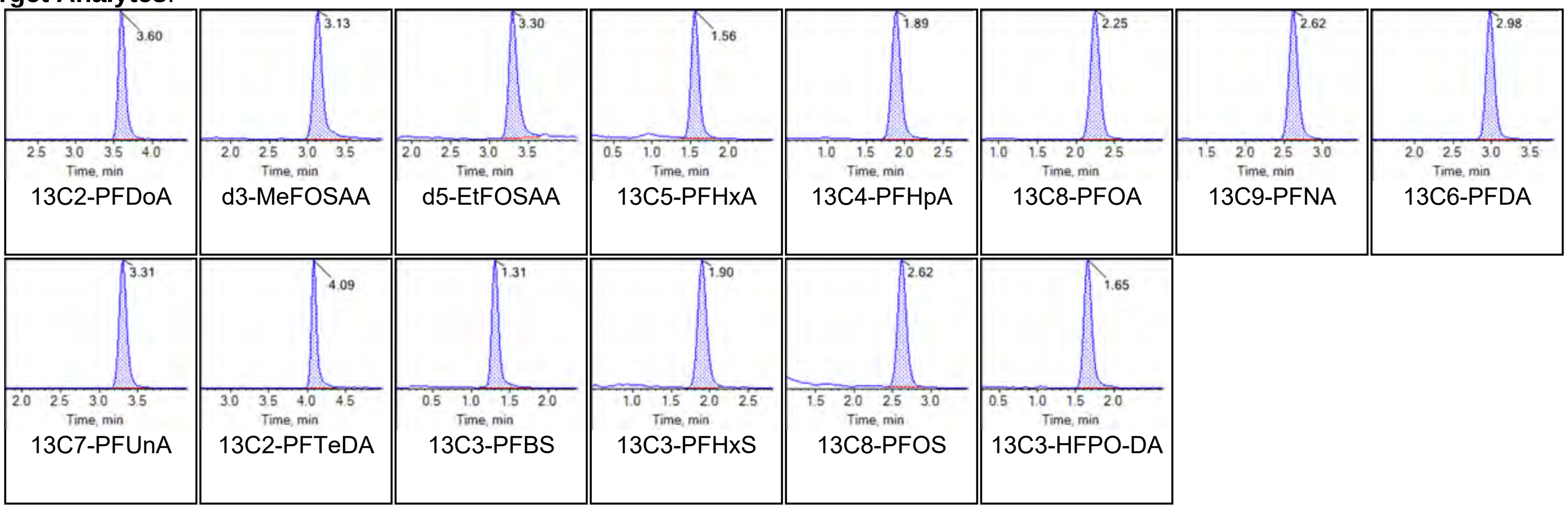
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

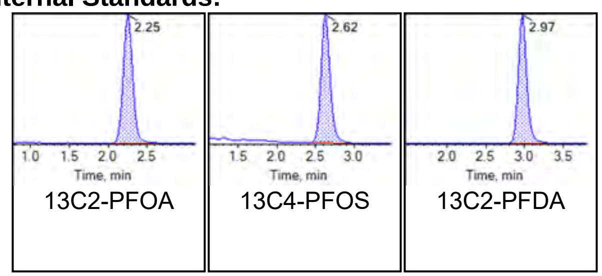
Sample Name	H4973-FS(0)	**Injection Vial**	33
Sample ID	POL-MW0011S-012.5-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:16:49 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



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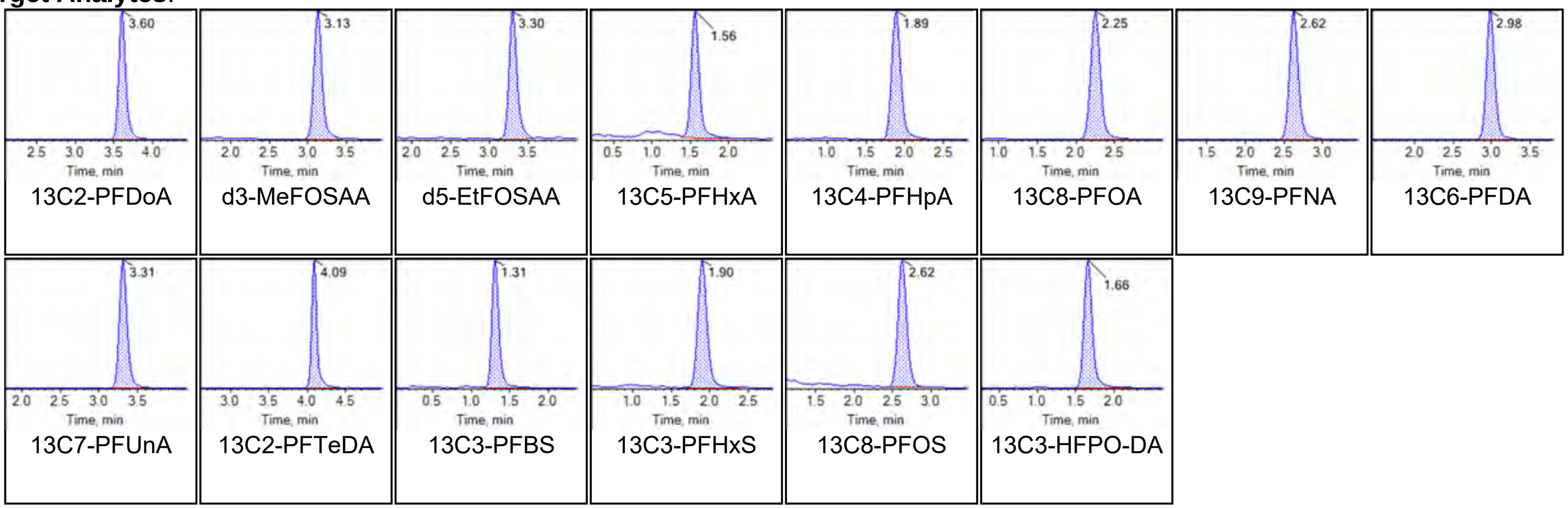
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

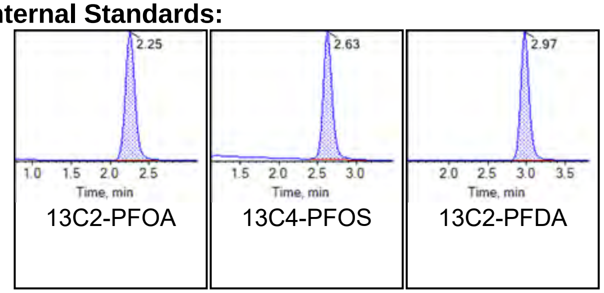
Sample Name	H4974-FS(0)	**Injection Vial**	34
Sample ID	POL-MW0011I-027.5-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:27:20 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

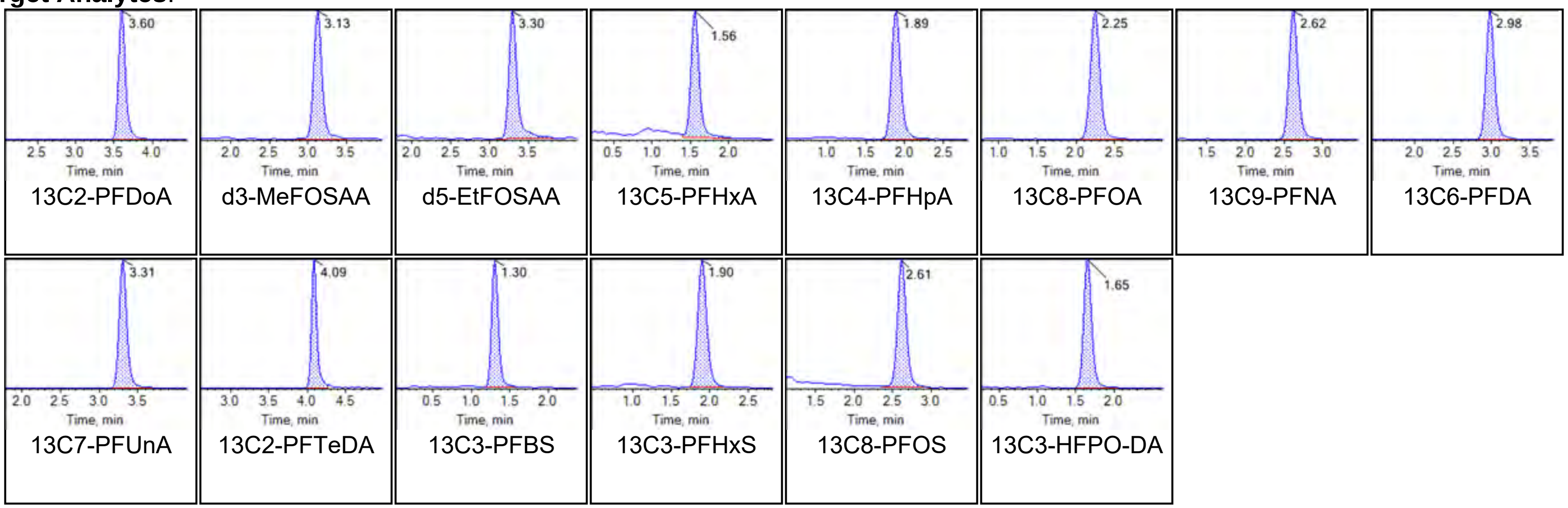
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

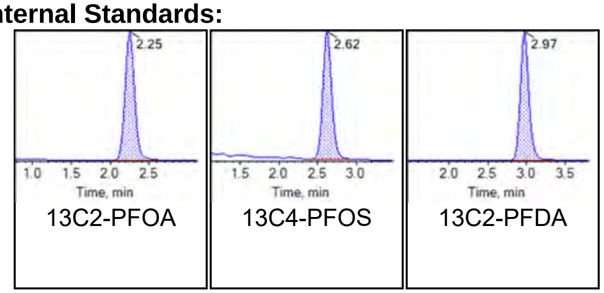
Sample Name	H4975-FS(0)	**Injection Vial**	35
Sample ID	POL-MW0044I-025.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:37:52 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

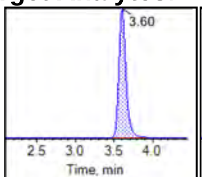
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

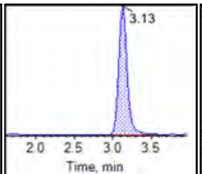
Sample Name	H4976-FS(0)	**Injection Vial**	36
Sample ID	POL-MW0044D-035.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:48:24 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

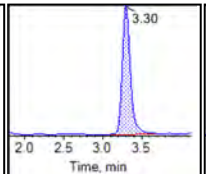
Target Analytes:



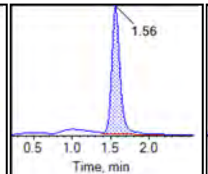
13C2-PFDoA



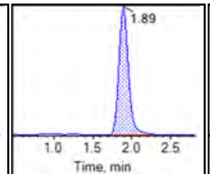
d3-MeFOSAA



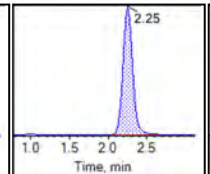
d5-EtFOSAA



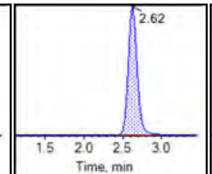
13C5-PFHxA



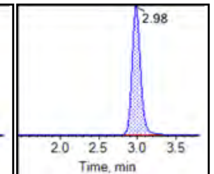
13C4-PFHpA



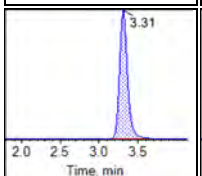
13C8-PFOA



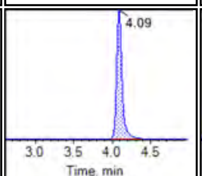
13C9-PFNA



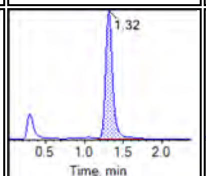
13C6-PFDA



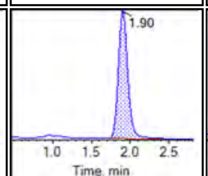
13C7-PFUnA



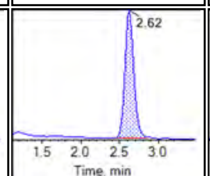
13C2-PFTeDA



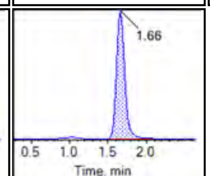
13C3-PFBS



13C3-PFHxS

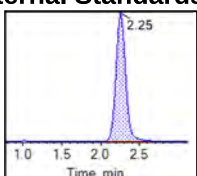


13C8-PFOS

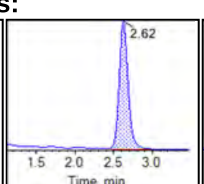


13C3-HFPO-DA

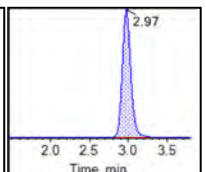
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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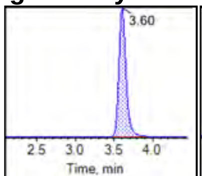
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

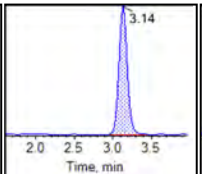
Sample Name	H4977-FS(0)	**Injection Vial**	37
Sample ID	SW3-MW0027-032.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 3:58:56 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

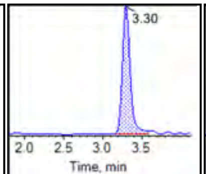
Target Analytes:



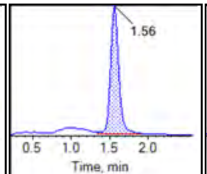
13C2-PFDoA



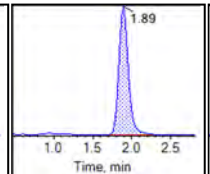
d3-MeFOSAA



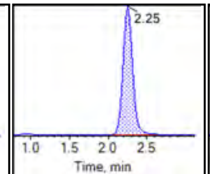
d5-EtFOSAA



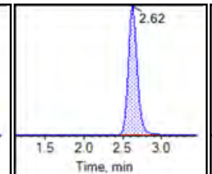
13C5-PFHxA



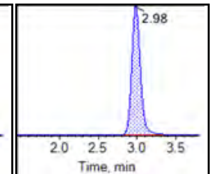
13C4-PFHpA



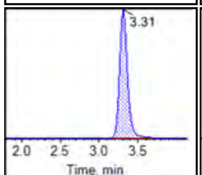
13C8-PFOA



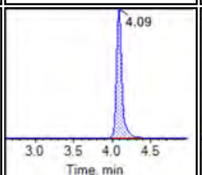
13C9-PFNA



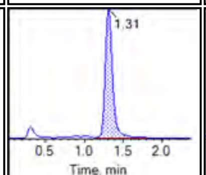
13C6-PFDA



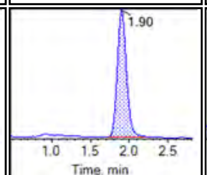
13C7-PFUnA



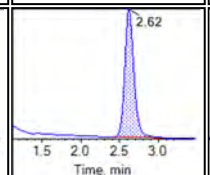
13C2-PFTeDA



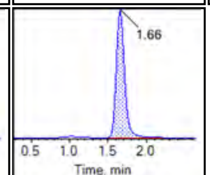
13C3-PFBS



13C3-PFHxS

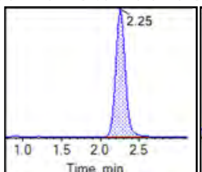


13C8-PFOS

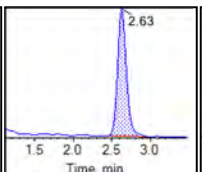


13C3-HFPO-DA

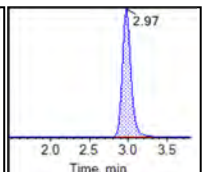
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

BATTELLE

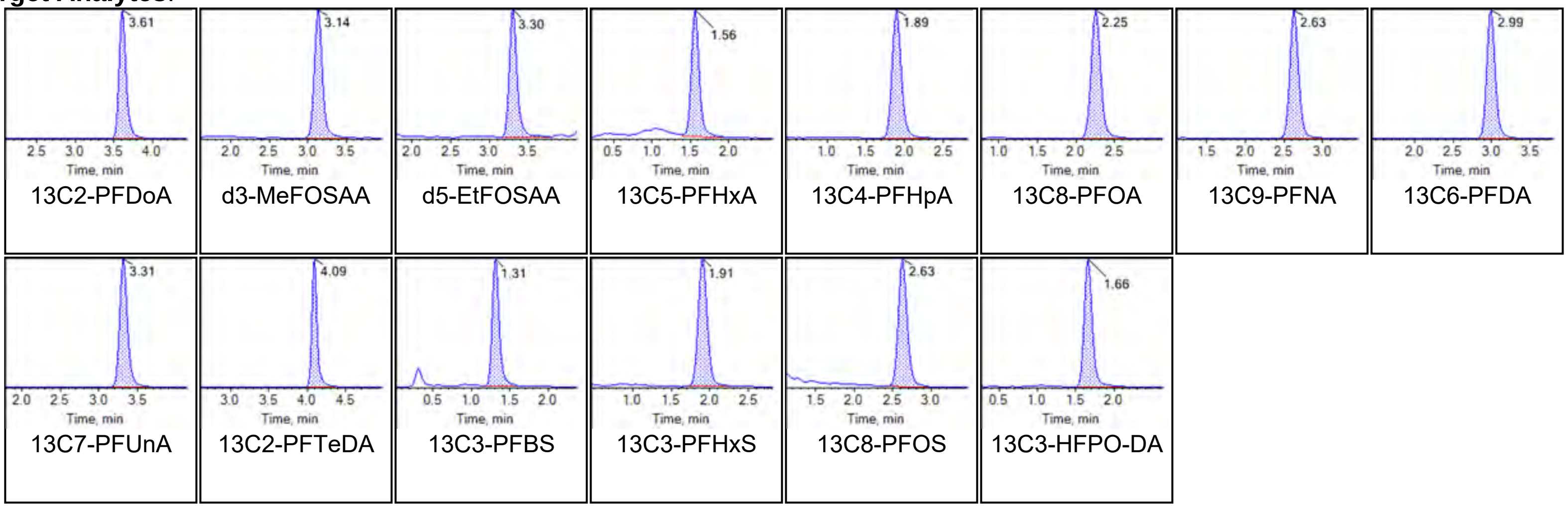
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

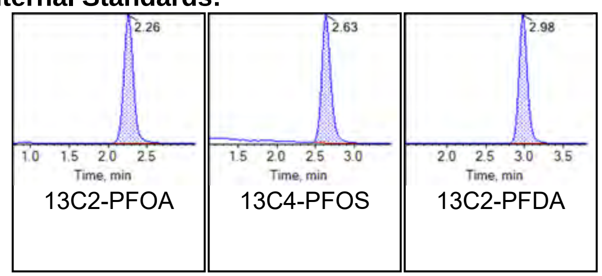
Sample Name	H4978-FS(0)	**Injection Vial**	38
Sample ID	SW3-MW0028-032.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:09:27 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



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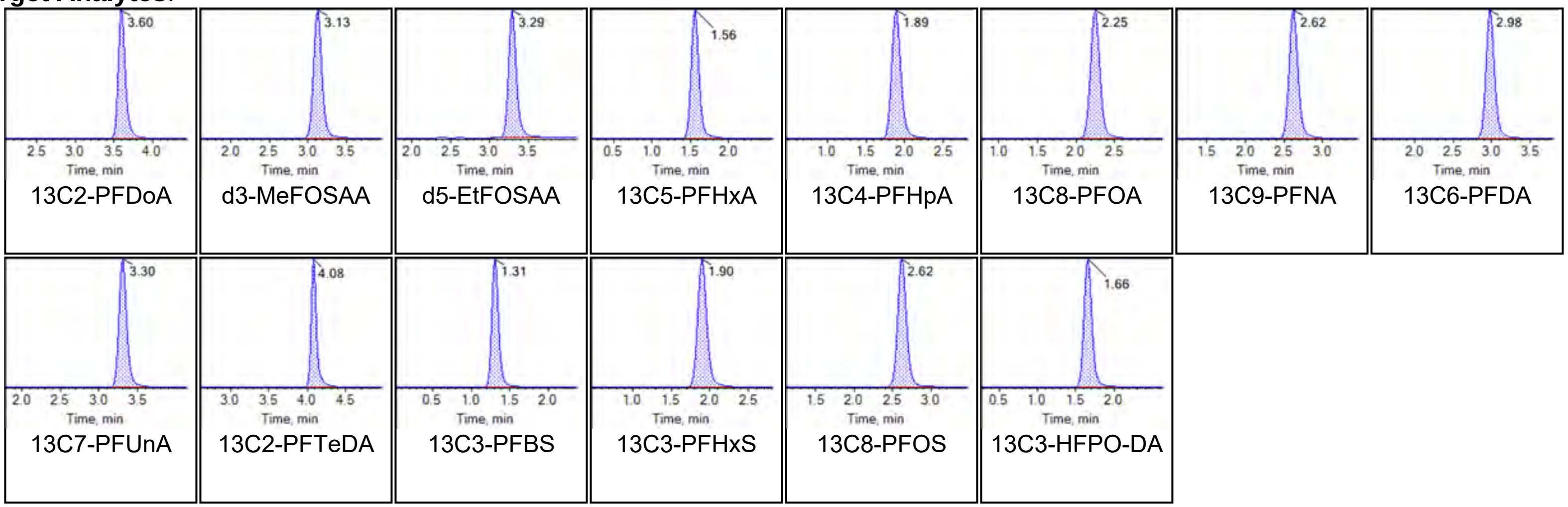
Chromatogram Report

Created with Analyst Reporter
Printed: 01/05/2020 2:05:51 PM

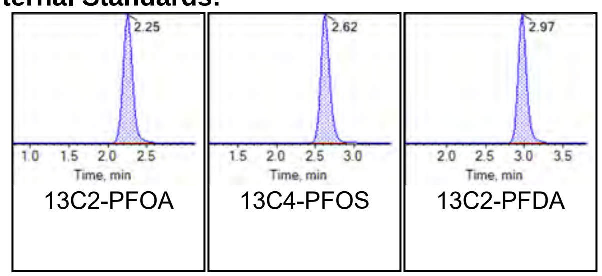
Sample Name	KY37 CCV	**Injection Vial**	40
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/29/2020 4:30:31 AM	**Data File**	AE_04282020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS

Chromatograms

Target Analytes:



Internal Standards:



Unused Data

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:06:59 PM

Sample Name	H4967-FS(0)	Injection Vial	1
Sample ID	POL-MW0043S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 3:42:57 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	671131.80	440.75	3534.2	False	13C2-PFDA	1125159.12	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.12	82453.15	561.69	1106.8	False	13C4-PFOS	249444.10	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.29	71332.47	446.40	541.1	False	13C4-PFOS	249444.10	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	318119.73	306.37	475.7	False	13C2-PFOA	712468.09	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	542510.91	551.36	891.1	False	13C2-PFOA	712468.09	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.23	1009674.90	926.53	973.5	False	13C2-PFOA	712468.09	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.60	1425592.65	1219.28	1205.4	False	13C2-PFOA	712468.09	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.96	1297415.73	1146.48	2154.2	False	13C2-PFDA	1125159.12	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.30	944581.05	791.23	2691.5	False	13C2-PFDA	1125159.12	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	85371.31	63.26	2747.0	False	13C2-PFDA	1125159.12	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	104011.58	476.45	1143.6	False	13C4-PFOS	249444.10	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	194496.69	861.14	486.6	False	13C4-PFOS	249444.10	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.60	255292.77	1211.63	418.2	False	13C4-PFOS	249444.10	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	299219.25	657.18	1168.4	False	13C2-PFOA	712468.09	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4968-FS(0)	Injection Vial	2
Sample ID	POL-MW0043S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 3:53:29 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.60	200973.92	156.79	2011.4	False	13C2-PFDA	947185.10	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.12	92292.68	804.80	542.6	False	13C4-PFOS	194867.68	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.29	70649.78	565.95	402.7	False	13C4-PFOS	194867.68	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	176275.32	230.82	284.9	False	13C2-PFOA	523999.00	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	345973.79	478.08	554.3	False	13C2-PFOA	523999.00	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.23	695879.01	868.25	687.6	False	13C2-PFOA	523999.00	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.60	906952.54	1054.70	850.7	False	13C2-PFOA	523999.00	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.96	924256.17	970.20	1614.8	False	13C2-PFDA	947185.10	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.30	476807.80	474.45	1897.8	False	13C2-PFDA	947185.10	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.10	22248.17	19.58	1830.1	False	13C2-PFDA	947185.10	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	66275.26	388.61	700.9	False	13C4-PFOS	194867.68	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.90	123852.68	701.94	354.5	False	13C4-PFOS	194867.68	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.59	185549.91	1127.27	334.0	False	13C4-PFOS	194867.68	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	157916.53	471.58	637.9	False	13C2-PFOA	523999.00	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Sample Name	H4971-FS(0)	Injection Vial	4
Sample ID	POL-MW0043I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 4:14:32 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	132285.37	100.29	1820.6	False	13C2-PFDA	974618.55	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.11	82137.75	568.87	508.0	False	13C4-PFOS	245354.14	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.28	67353.99	428.53	470.9	False	13C4-PFOS	245354.14	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	297156.38	274.26	411.9	False	13C2-PFOA	743421.51	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.88	508894.17	495.66	746.2	False	13C2-PFOA	743421.51	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	942457.06	828.84	1280.4	False	13C2-PFOA	743421.51	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1278334.15	1047.81	1173.3	False	13C2-PFOA	743421.51	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.96	918645.33	937.17	1782.9	False	13C2-PFDA	974618.55	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.29	400848.30	387.64	2113.7	False	13C2-PFDA	974618.55	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	9582.90	8.20	1130.3	False	13C2-PFDA	974618.55	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	89297.07	415.86	1000.1	False	13C4-PFOS	245354.14	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	198518.72	893.60	520.0	False	13C4-PFOS	245354.14	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.59	194985.91	940.84	305.5	False	13C4-PFOS	245354.14	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	255599.78	538.00	1078.1	False	13C2-PFOA	743421.51	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4972-FS(0)	Injection Vial	5
Sample ID	POL-MW0043D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 4:25:05 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	444725.18	280.02	2910.1	False	13C2-PFDA	1173574.43	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.11	98546.75	723.51	930.5	False	13C4-PFOS	231451.28	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.28	79618.77	536.99	443.3	False	13C4-PFOS	231451.28	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	304701.29	278.12	400.1	False	13C2-PFOA	751731.43	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.88	527648.37	508.24	822.2	False	13C2-PFOA	751731.43	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	1022411.31	889.21	1273.7	False	13C2-PFOA	751731.43	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1271043.38	1030.32	1118.0	False	13C2-PFOA	751731.43	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.95	1293031.88	1095.47	2150.2	False	13C2-PFDA	1173574.43	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.29	857679.69	688.80	2473.2	False	13C2-PFDA	1173574.43	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	10845.48	7.71	1348.1	False	13C2-PFDA	1173574.43	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	89447.80	441.59	1012.0	False	13C4-PFOS	231451.28	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	184010.24	878.05	493.4	False	13C4-PFOS	231451.28	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.59	222894.21	1140.10	314.5	False	13C4-PFOS	231451.28	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	258048.53	537.15	1187.1	False	13C2-PFOA	751731.43	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4973-FS(0)	Injection Vial	6
Sample ID	POL-MW0011S-012.5-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 4:35:37 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	71015.69	73.22	1437.0	False	13C2-PFDA	716651.55	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.11	60897.89	548.60	508.5	False	13C4-PFOS	188628.47	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.28	45769.19	378.77	304.8	False	13C4-PFOS	188628.47	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	299635.75	294.22	477.5	False	13C2-PFOA	698765.87	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.88	563302.46	583.71	784.5	False	13C2-PFOA	698765.87	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	1029670.42	963.40	1115.4	False	13C2-PFOA	698765.87	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1235361.77	1077.30	1099.6	False	13C2-PFOA	698765.87	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.96	718687.15	997.09	1295.8	False	13C2-PFDA	716651.55	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.29	288709.38	379.69	1720.5	False	13C2-PFDA	716651.55	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	11300.32	13.15	1225.2	False	13C2-PFDA	716651.55	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	87733.65	531.46	1193.6	False	13C4-PFOS	188628.47	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	180457.38	1056.58	457.4	False	13C4-PFOS	188628.47	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.59	166230.72	1043.30	300.3	False	13C4-PFOS	188628.47	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	249315.61	558.31	1143.5	False	13C2-PFOA	698765.87	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4974-FS(0)	Injection Vial	9
Sample ID	POL-MW0011I-027.5-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 5:07:15 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.58	623156.59	349.09	2632.6	False	13C2-PFDA	1319041.29	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.10	121547.11	787.46	671.7	False	13C4-PFOS	262287.79	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.27	98382.77	585.53	524.4	False	13C4-PFOS	262287.79	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	258312.21	250.71	351.1	False	13C2-PFOA	706952.92	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.88	444635.02	455.41	640.6	False	13C2-PFOA	706952.92	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	914849.66	846.06	1073.9	False	13C2-PFOA	706952.92	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1425463.12	1228.68	1044.6	False	13C2-PFOA	706952.92	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.95	1498935.77	1129.87	1789.5	False	13C2-PFDA	1319041.29	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.28	1022072.17	730.30	2479.7	False	13C2-PFDA	1319041.29	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	32245.45	20.38	2459.0	False	13C2-PFDA	1319041.29	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	82109.69	357.70	959.9	False	13C4-PFOS	262287.79	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	169135.43	712.18	584.7	False	13C4-PFOS	262287.79	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.58	244209.45	1102.27	357.9	False	13C4-PFOS	262287.79	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.65	225669.38	499.50	980.8	False	13C2-PFOA	706952.92	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4975-FS(0)	Injection Vial	10
Sample ID	POL-MW0044I-025.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 5:17:48 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.58	67411.24	74.15	1499.8	False	13C2-PFDA	671787.85	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.10	65832.47	622.77	591.2	False	13C4-PFOS	179628.71	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.27	44422.00	386.04	319.3	False	13C4-PFOS	179628.71	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	192904.60	241.77	293.9	False	13C2-PFOA	547455.55	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.88	355782.38	470.57	566.0	False	13C2-PFOA	547455.55	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	696750.74	832.09	835.8	False	13C2-PFOA	547455.55	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.58	1021879.72	1137.43	1342.0	False	13C2-PFOA	547455.55	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.95	701867.40	1038.79	1787.9	False	13C2-PFDA	671787.85	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.28	240360.96	337.22	1465.9	False	13C2-PFDA	671787.85	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	8159.10	10.13	928.8	False	13C2-PFDA	671787.85	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	65319.99	415.51	673.0	False	13C4-PFOS	179628.71	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	130248.87	800.82	445.9	False	13C4-PFOS	179628.71	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.58	154107.68	1015.67	255.8	False	13C4-PFOS	179628.71	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.65	179539.99	513.18	711.8	False	13C2-PFOA	547455.55	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:06:59 PM

Sample Name	H4976-FS(0)	Injection Vial	11
Sample ID	POL-MW0044D-035.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 5:28:21 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	900306.60	564.91	2834.3	False	13C2-PFDA	1177630.43	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.11	102331.94	749.00	647.2	False	13C4-PFOS	232162.10	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.28	96584.09	649.42	590.3	False	13C4-PFOS	232162.10	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	358772.00	334.90	479.3	False	13C2-PFOA	735044.81	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	576112.28	567.52	1030.9	False	13C2-PFOA	735044.81	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	1072155.79	953.64	1395.3	False	13C2-PFOA	735044.81	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1424806.06	1181.18	1229.0	False	13C2-PFOA	735044.81	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.95	1441016.91	1216.64	3064.6	False	13C2-PFDA	1177630.43	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.29	1123790.05	899.40	2541.6	False	13C2-PFDA	1177630.43	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	144384.91	102.22	3908.8	False	13C2-PFDA	1177630.43	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	108983.35	536.38	802.0	False	13C4-PFOS	232162.10	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	193398.92	920.02	506.1	False	13C4-PFOS	232162.10	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.59	240118.05	1224.44	319.6	False	13C4-PFOS	232162.10	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	295068.12	628.15	1216.5	False	13C2-PFOA	735044.81	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:06:59 PM

Sample Name	H4977-FS(0)	Injection Vial	12
Sample ID	SW3-MW0027-032.0-20200423	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 5:38:53 PM	Data File	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	151042.69	116.96	1854.2	False	13C2-PFDA	954283.70	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.11	78069.12	534.46	568.6	False	13C4-PFOS	248214.47	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.28	55779.18	350.80	497.9	False	13C4-PFOS	248214.47	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.56	341495.38	262.48	456.2	False	13C2-PFOA	892701.64	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.88	584112.49	473.78	731.5	False	13C2-PFOA	892701.64	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	1168638.94	855.89	1049.0	False	13C2-PFOA	892701.64	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1452802.09	991.69	1436.8	False	13C2-PFOA	892701.64	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.95	1070598.14	1115.46	2171.3	False	13C2-PFDA	954283.70	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.29	509835.35	503.54	2454.6	False	13C2-PFDA	954283.70	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.08	3687.86	3.22	674.8	False	13C2-PFDA	954283.70	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.31	100735.80	463.73	775.4	False	13C4-PFOS	248214.47	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	212353.85	944.86	543.4	False	13C4-PFOS	248214.47	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.58	228924.33	1091.87	358.2	False	13C4-PFOS	248214.47	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	315196.62	552.50	1140.4	False	13C2-PFOA	892701.64	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 01/05/2020 2:06:59 PM

Sample Name	H4978-FS(0)	**Injection Vial**	13
Sample ID	SW3-MW0028-032.0-20200423	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	4/30/2020 5:49:26 PM	**Data File**	AE_04302020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0502_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.59	317082.45	246.66	2333.8	False	13C2-PFDA	949880.78	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.11	66247.00	535.83	614.5	False	13C4-PFOS	210087.63	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.28	48096.17	357.37	367.1	False	13C4-PFOS	210087.63	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.57	260099.91	285.29	371.1	False	13C2-PFOA	625559.51	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.89	501755.60	580.78	803.7	False	13C2-PFOA	625559.51	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.22	956670.87	999.85	1106.8	False	13C2-PFOA	625559.51	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.59	1206419.16	1175.18	1401.5	False	13C2-PFOA	625559.51	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	2.96	979814.03	1025.60	1850.2	False	13C2-PFDA	949880.78	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.29	628387.49	623.50	2275.8	False	13C2-PFDA	949880.78	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.09	16525.63	14.51	1712.6	False	13C2-PFDA	949880.78	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.32	80437.92	437.49	729.1	False	13C4-PFOS	210087.63	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.89	168940.84	888.11	406.6	False	13C4-PFOS	210087.63	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.59	196872.59	1109.41	307.3	False	13C4-PFOS	210087.63	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.66	243009.04	607.87	812.1	False	13C2-PFOA	625559.51	1250.00		N/A	N/A	✓

PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW, QC

Batch 20-0519

Package DP-20-0450

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

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PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW, QC

Batch 20-0519

Package DP-20-0450

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

NELAP Accreditation Number: E87856 (Florida Department of Health)
DoD-ELAP Accreditation Number: 91667

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

Analyst Approval: Denise Schumitz — Digitally signed by Denise Schumitz Date: 2020.05.05 15:15:57 -04'00'

QC Chemist Approval: Carla Devine — Digitally signed by Carla Devine Date: 2020.05.11 12:43:03 -04'00'

Project Manager Approval: Digitally signed by Jonathan Thorn Date: 2020.05.11 12:53:42 -04'00'

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PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW, QC

Batch 20-0519

Package DP-20-0450

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Master Signature Page

Name (Printed)	Signature	Initials	Date
Jonathan Thorn	[signature]	JRT	1/9/2020
Robert Lizotte, Jr.	[signature]	RL	1.9.2020
Ellyn M Fitch	[signature]	EMF	1/9/2020
Carla Devine	[signature]	CRD	1/9/2020
Denise Schumitz	[signature]	DS	1/9/2020
Lauren Griffith	[signature]	LMG	1.9.2020
Carlee P McCarthy	[signature]	CPM	1/9/2020
Rich Restucci	[signature]	RR	1/9/2020
Sam Guimaraes	[signature]	SAG	1/9/2020
Jordan Tower	[signature]	JCT	1/9/2020
Christie Usher	[signature]	CU	1/9/2020
Kevin McInerney	[signature]	KM	1/14/2020
Matt Schumitz	[signature]	MDS	1/14/2020
Weidong Li	[signature]	W.L	1/14/2020
Kayla Lamarre	[signature]	KAL	1/14/2020
MUNAZ MUNTASIR	[signature]	MM	01/14/2020
Kristen Nichols	[signature]	KN	01/14/2020
Kelsey Harnden	[signature]	KH	01/30/2020
Kevin Bailey	[signature]	KB	1/30/2020
Stephanie Schultz	[signature]	SAS	1/30/2020

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Master Signature Page

Name (Printed)	Signature	Initials	Date
Chimiceo Brown	[signature]	CB	01/30/20
Ryan Kelly	[signature]	RK	01/30/20
KAREN HYPPOLITE	[signature]	K.H.	01/31/20
Gail DeRuzzo	[signature]	GD	01/31/2020
Tracy Stenner	[signature]	[illegible]	1/31/2020
Ashley Wellington	[signature]	AW	1/31/2020
Daniel Cooney	[signature]	DAC	1/31/2020
Peter Demers	[signature]	PD	1/31/2020
Zachary Willenberg	[signature]	ZW	2/3/2020

Sample Summary

Client: Tetra Tech
SDG: 20-0519
Project/Site: Nasa Kennedy Space Center
CTO: N/A

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
CY822PB-FS	Procedural Blank	WATER	4/30/2020	4/30/2020
CY823LCS-FS	Laboratory Control Sample	WATER	4/30/2020	4/30/2020
H4954-FS1	POL-MW0041SI-020.5-20200421	GW	4/21/2020	4/24/2020
H4955-FS1	POL-MW0008S-009.3-20200421	GW	4/21/2020	4/24/2020
H4956-FS1	POL-MW0008I-007.5-20200421	GW	4/21/2020	4/24/2020
H4957-FS1	POL-MW0036SI-020.5-20200421	GW	4/21/2020	4/24/2020
H4958-FS1	POL-MW0036I-027.5-20200421	GW	4/21/2020	4/24/2020
H4959-FS1	POL-MW0047I-025.0-20200422	GW	4/22/2020	4/24/2020
H4960-FS1	POL-FRB-0200422-01	QC	4/22/2020	4/24/2020
H4961-FS1	POL-MW0047D-035.0-20200422	GW	4/22/2020	4/24/2020
H4962-FS1	POL-MW0047DD-045.0-20200422	GW	4/22/2020	4/24/2020
H4963-FS1	POL-MW0046D-035.0-20200422	GW	4/22/2020	4/24/2020
H4964-FS1	POL-MW0046DD-045.0-20200422	GW	4/22/2020	4/24/2020
H4965-FS1	POL-MW0045S-015.0-20200422	GW	4/22/2020	4/24/2020
H4966-FS1	POL-MW0045I-025.0-20200422	GW	4/22/2020	4/24/2020

Work Plan

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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title:	PFAS: Nasa Kennedy Space Center
Project Number:	100137609
Client:	Tetra Tech 661 Anderson Drive Foster Plaza 7 Pittsburgh, PA 15220 USA
Client Contact Information:	Andrew Walters Chemical Engineer (412) 921-7351(V) NA andrew.walters@tetratech.com
Effective Date of QAPP:	1/28/2020
Version Number:	100137609(L)-01
Project Manager:	Thorn, Jonathan
Laboratory Task Manager:	Thorn, Jonathan
Deliverable Due Date:	2/18/2020

2.0 SCOPE OF WORK

Overview:	Analysis of non-potable water for PFAS.
Matrix:	Water

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

The list of samples for this project plan are presented in Attachment 1.

Storage Directions:	Store refrigerated.
Sub_Sampling:	None
Procedures:	NA
Contact:	NA
Comment:	NA
Archiving:	Samples will be stored for 6 months after delivery of final data, client will be notified prior to disposal. Extracts will be archived for1 year after delivery of final data, client will be notified prior to disposal.
Disposal:	Dispose of samples in the appropriate waste stream.

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WORK/QUALITY ASSURANCE PROJECT PLAN

2.1.2 Sample Preparation

NA

Samples Expected:	Samples Per Batch:	Batches Expected:
12	20	1

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

Type:	*Description:*	*Count:*	*Rgt:*	*Reference:*	*Comment:*
PB	Laboratory control reagent blank.	1 per batch	--	NA	
LCS	Laboratory Control Sample	1 per batch	No	NA	
MS	Spiked field sample for determining method accuracy in the presence of matrix.	1 per batch	--	NA	MS/MSD to be identified on the COC.
MSD	Spiked field sample for determining method accuracy and precision in the presence of matrix.	1 per batch	--	NA	

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	**5-370-09**
SOP Title:	*Extraction of Poly and Perfluoroalkyl Substances from Environmental Matrices*
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	None

Table 2: SIS and LCS/MS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	KU42 SIS	~ 1.13 - 1.25 ng	125 uL	NA

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Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Second Source LCS/MS Solution	KV40 LCS/MS	~ 10.0 ng	100 uL	NA

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Internal Standard Spiking Solution	KU43 RIS	~ 1.25 ng	125 uL	NA

2.1.4 Instrumental Analysis

The list of analytes along with data quality criteria are presented in Attachment 2.

1)	SOP_No-Rev:	**5-369-08**
	SOP_Title:	*Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)*
	Deviations:	None.
	Comments:	• Data censored at the MDL, MDL value reported for Non-Detects. • Special Florida Qualifiers are required (use Florida reporting template)

2.2. DELIVERABLES

Deliverables Due:	2/18/2020
LIMS Reports:	*Yes*
Histograms:	*No*
Excel Tables:	*Yes*
EICs:	*No*
Chromatograms:	*No*

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WORK/QUALITY ASSURANCE PROJECT PLAN

EDDs:	*Yes*
Comments:	• Excel tables for rush samples to Project Manager within 3-business days (full data package within 10 days). Select samples will be 21-day TAT. • Tetra Tech EDD format • Full validation packages (see SOW for details) • Florida reporting template and qualifiers (see SOW for details)

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

The project team is defined in Table 4. Supervisors may make substitutions with Project Manager concurrence.

Table 4: Project Team and Roles

Staff Member	Role	Comment
Jonathan R. Thorn	Project Manager	NA
Stephanie A. Schultz	Sample Preparation	NA
Denise M. Schumitz	LC-MS/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Carla R. Devine	Quality Control Officer	NA
Zachary J. Willenberg	Quality Assurance Officer	NA

4.2 COMMUNICATION

A kick-off meeting will be held to discuss project scope and goals.

5.0 SCHEDULE

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	01/28/2020	01/28/2020	0	NA

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Preparation	01/28/2020	02/04/2020	7	NA
Instrument Analysis	02/04/2020	02/11/2020	7	NA
Quality Control Review	02/11/2020	02/14/2020	3	NA
Quality Assurance Review	02/14/2020	02/18/2020	4	NA

6.0 BUDGET

The labor budget for the analytical task is presented in Table 6.

Table 6. Labor Budget (Laboratory Analytical Task)

Labor Activity:	Hours/ Batch:	Batches:	Total Hours:	Comment:
Sample Receipt	2	1	2	NA
Sample Preparation	8	1	8	NA
Instrument Analysis	8	1	8	NA
Quality Control Review	3	1	3	NA
Quality Assurance Review	1	1	1	NA

7.0 STAFF DEVELOPMENT

None anticipated.

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: **SHP-200128-02**
Status: Pending
Description: KSC-CCB
Range: H2271-H2271
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2271	CCB-DRUM209864-20200124	01/24/2020 5:10 pm	GW	R0119 (NA)			

Shipment: **SHP-200206-01**
Status: Pending
Description: PFAS IDW TRT
Range: H2631-H2633
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2631	IDWTRT-INFLUENT-20200205	02/05/2020 10:30 am	GW	R0119 (NA)			
2	H2632	IDWTRT-LEADGAC-20200205	02/05/2020 2:00 pm	GW	R0119 (NA)			
3	H2633	IDWTRT-EFFLUENT-20200205	02/05/2020 2:30 pm	GW	R0119 (NA)			

Shipment: **SHP-200210-01**
Status: Pending
Description: KSC-HMPN
Range: H2802-H2802
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2802	HMPN-TANK-20200206-01	02/06/2020 12:25 pm	GW	R0119 (NA)			

Shipment: **SHP-200219-01**
Status: Pending
Description: PFAS IDW TRT
Range: H3028-H3028
Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3028	IDWTRT-EFFLUENT-20200218	02/18/2020 2:00 pm	GW	R0119 (NA)			

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200227-03**

Status: Pending

Description: KSC-POL

Range: H3356-H3356

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3356	POL-TANK-20200226-01	02/26/2020 1:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200304-02**

Status: Pending

Description: KSC-HBF

Range: H3718-H3720

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3718	HBF-DRUM217600-20200303	03/03/2020 10:00 am	GW	R0119 (NA)			
2	H3719	SRLF-DRUM217510-20200303	03/03/2020 11:30 am	GW	R0119 (NA)			
3	H3720	SRLF-DRUM217511-20200303	03/03/2020 12:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200323-01**

Status: Pending

Description: HSC-KHCA

Range: H4571-H4572

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4571	KHQA-DRUM217966-20200320	03/20/2020 2:10 pm	WC	R0119 (NA)			
2	H4572	KHQA-DRUM216887-20200320	03/20/2020 2:20 pm	WC	R0119 (NA)			

Shipment: **SHP-200326-01**

Status: Pending

Description: PFAS

Range: H4626-H4628

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4626	IDWTRT2-INFLUENT-20200325	03/25/2020 1:30 pm	GW	R0119 (NA)			
2	H4627	IDWTRT2-LEADGAC-20200325	03/25/2020 2:30 pm	GW	R0119 (NA)			
3	H4628	IDWTRT2-EFFLUENT-20200325	03/25/2020 2:35 pm	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200410-02**

Status: Pending

Description: PFAS

Range: H4735-H4737

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4735	IDWTR-T3-INFLUENT-20200409	04/09/2020 11:00 am	GW	R0119 (NA)			
2	H4736	IDWTR-T3-LEADGAC-20200409	04/09/2020 2:00 pm	GW	R0119 (NA)			
3	H4737	IDWTR-T3-EFFLUENT-20200409	04/09/2020 2:15 pm	GW	R0119 (NA)			

Shipment: **SHP-200424-02**

Status: Pending

Description: KSC-POL/SW3

Range: H4954-H4978

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4954	POL-MW0041SI-020.5-20200421	04/21/2020 11:15 am	GW	R0119 (NA)			
2	H4955	POL-MW0008S-009.3-20200421	04/21/2020 12:40 pm	GW	R0119 (NA)			
3	H4956	POL-MW0008I-007.5-20200421	04/21/2020 1:00 pm	GW	R0119 (NA)			
4	H4957	POL-MW0036SI-020.5-20200421	04/21/2020 2:05 pm	GW	R0119 (NA)			
5	H4958	POL-MW0036I-027.5-20200421	04/21/2020 2:25 pm	GW	R0119 (NA)			
6	H4959	POL-MW0047I-025.0-20200422	04/22/2020 10:30 am	GW	R0119 (NA)			
7	H4960	POL-FRB-0200422-01	04/22/2020 10:50 am	QC	R0119 (NA)			
8	H4961	POL-MW0047D-035.0-20200422	04/22/2020 11:05 am	GW	R0119 (NA)			
9	H4962	POL-MW0047DD-045.0-20200422	04/22/2020 11:50 am	GW	R0119 (NA)			
10	H4963	POL-MW0046D-035.0-20200422	04/22/2020 12:25 pm	GW	R0119 (NA)			
11	H4964	POL-MW0046DD-045.0-20200422	04/22/2020 12:55 pm	GW	R0119 (NA)			
12	H4965	POL-MW0045S-015.0-20200422	04/22/2020 1:45 pm	GW	R0119 (NA)			
13	H4966	POL-MW0045I-025.0-20200422	04/22/2020 2:35 pm	GW	R0119 (NA)			
14	H4967	POL-MW0045I-035.0-20200422	04/22/2020 3:05 pm	GW	R0119 (NA)			
15	H4968	POL-MW0043S-015.0-20200422	04/22/2020 3:55 pm	GW	R0119 (NA)			
16	H4969	POL-EB-20200423-01	04/23/2020 9:15 am	QC	R0119 (NA)			
17	H4970	POL-EB-20200423-02	04/23/2020 9:25 am	QC	R0119 (NA)			
18	H4971	POL-MW0043I-025.0-20200423	04/23/2020 9:50 am	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200424-02**

Status: Pending

Description: KSC-POL/SW3

Range: H4954-H4978

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
19	H4972	POL-MW0043D-035.0-20200423	04/23/2020 10:20 am	GW	R0119 (NA)			
20	H4973	POL-MW0011S-012.5-20200423	04/23/2020 11:35 am	GW	R0119 (NA)			
21	H4974	POL-MW0011I-027.5-20200423	04/23/2020 12:05 pm	GW	R0119 (NA)			
22	H4975	POL-MW0044I-025.0-20200423	04/23/2020 12:45 pm	GW	R0119 (NA)			
23	H4976	POL-MW0044D-035.0-20200423	04/23/2020 1:20 pm	GW	R0119 (NA)			
24	H4977	SW3-MW0027-032.0-20200423	04/23/2020 2:10 pm	GW	R0119 (NA)			
25	H4978	SW3-MW0028-032.0-20200423	04/23/2020 2:50 pm	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name:	Master_369B
SOP Reference:	5-369 - Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)
Description:	PFAS by DoD QSM 5.1 Table B-15
Matrix:	L - Liquid Samples, like water or sea water, prepared and anlyzed under the same class of detection limits.
Detection Limit Study:	5-369
Instrument:	LC-MS/MS
MQO Criteria	Universal_LC
Standard Report:	Standard Result Report

Method Specific Reporting				Holding Times (days)		Data Flags	
Result Units:	ng/L	***Unit Conversion:***	(none)	***Sample:***	14	***DL_Flag:***	U
Weight Basis:	LIQUID	***Result Format:***	Fixed Digits	***Frozen:***	14	***RL_Flag:***	J
Standard Basis:	SIS	***# of Figures/Digits:***	2	***Extract:***	28	***PB_Flag:***	B
Oil Weight Basis:	No	***Oil Weight Source:***	Oil Weight			***DIL_Flag:***	D
U-Value Substition:	U-Flag=MD	***Histograms:***	No			***HT_Flag:***	T
ECD_Reporting:	No						

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
1	Perfluoro-n-hexanoic acid	PFHxA	T		13C5-PFHxA	No	No
2	Perfluoro-n-heptanoic Acid	PFHpA	T		13C4-PFHpA	No	No
3	Perfluoro-n-octanoic Acid	PFOA	T		13C8-PFOA	No	No
4	Perfluorononanoic Acid	PFNA	T		13C9-PFNA	No	No
5	Perfluoro-n-decanoic Acid	PFDA	T		13C6-PFDA	No	No
6	Perfluoro-n-undecanoic acid	PFUnA	T		13C7-PFUnA	No	No
7	Perfluoro-n-dodecanoic acid	PFDoA	T		13C2-PFDoA	No	No
8	Perfluoro-n-tridecanoic acid	PFTrDA	T		13C2-PFTeDA	No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T		13C2-PFTeDA	No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T		d3-MeFOSAA	No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T		d5-EtFOSAA	No	No
12	Perfluoro-1-butanesulfonate	PFBS	T		13C3-PFBS	No	No
13	Perfluoro-1-hexanesulfonate	PFHxS	T		13C3-PFHxS	No	No
14	Perfluoro-1-octanesulfonate	PFOS	T		13C8-PFOS	No	No
15	Hexafluoropropylene oxide dimer acid	HFPO-DA	T		13C3-HFPO-DA	No	No
16	Adona	Adona	T		13C3-PFHxS	No	No
17	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	T		13C2-PFDoA	No	No

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_369B

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
18	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	T		13C9-PFNA	No	No
1	13C5-PFHxA	13C5-PFHxA	SIS	13C2-PFOA		No	No
2	13C4-PFHpA	13C4-PFHpA	SIS	13C2-PFOA		No	No
3	13C8-PFOA	13C8-PFOA	SIS	13C2-PFOA		No	No
4	13C9-PFNA	13C9-PFNA	SIS	13C2-PFOA		No	No
5	13C6-PFDA	13C6-PFDA	SIS	13C2-PFDA		No	No
6	13C7-PFUnA	13C7-PFUnA	SIS	13C2-PFDA		No	No
7	13C2-PFDoA	13C2-PFDoA	SIS	13C2-PFDA		No	No
8	13C2-PFTeDA	13C2-PFTeDA	SIS	13C2-PFDA		No	No
9	d3-MeFOSAA	d3-MeFOSAA	SIS	13C4-PFOS		No	No
10	d5-EtFOSAA	d5-EtFOSAA	SIS	13C4-PFOS		No	No
11	13C3-PFBS	13C3-PFBS	SIS	13C4-PFOS		No	No
12	13C3-PFHxS	13C3-PFHxS	SIS	13C4-PFOS		No	No
13	13C8-PFOS	13C8-PFOS	SIS	13C4-PFOS		No	No
14	13C3-HFPO-DA	13C3-HFPO-DA	SIS	13C2-PFOA		No	No

Total Analytes: 32

Subtract Peaks:

None

Sum Peaks:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_369B

ICAL Acceptance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.99	N	5	N	y = Bx + C
Quadratic	NA	NA	0.99	N	6	N	y = Ax^2 + Bx + C

Continuing Calibration Verification Criteria:

CCV Name: 5-369

Frequency Hrs:		Mean PD(%):		Individual PD(%):		RIS/SIS RT Window (min):		Area Limit Low(%):	Area Limit High(%):		Comment:
12	(N)	30	(N)	30	(N)	0.04	(N)	-50	100	(N)	NA

Independent Calibration Verification:

ICC Name: 5-369

Mean PD Limit(%):		Ind. PD Limit(%):		RIS/SIS Window Limit (Secs):		Area Limit High(%):	Area Limit Low(%):		Comment:
30	(N)	30	(N)	0.04	(N)	-50	100	(N)	NA

Mass Discrimination Criteria:

None

Degredation Check Criteria:

None

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	***Universal_LC***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Procedural Blank	Samples must be greater than five times the blank concentration (>5xPB).	B	Review with Project Manager; re-analyze or justify results in project records.
PB Measurement Quality Objective	Organic results in the Procedural Blank are less than 1/2 times the LOQ (<1/2xLOQ)	N	Review with Project Manager; re-analyze or justify results in project records.
Laboratory Control Sample	Recovery values 70-130%.	N	Review with project manager; re-analyze or justify reporting the results in project records.
Matrix Spike / Matrix Spike Duplicate Recovery	Organics 70-130%. Analyte concentration in MS/MSD must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Matrix Spike/Spike Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration in MS/MSD must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Standard Reference Material Accuracy	Organics Percent Difference less than 30% from a range of certified values on average. Analyte concentration must be greater than five times the Method Detection Limit (>5xMDL).	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the MDL	n	
Analytical Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	***Universal_LC***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-369-8: R-squared greater than or equal to 0.990		Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-369-8: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-369-8: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.

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ShpNo SHP-200424-02

Battelle Project No:

Sample Receipt Form

Approved: ☐ **Authorized** ☐

Project Number: 112G09020
Client: Tetra Tech
Received by: Schumitz, Matt
Date/Time Received: Friday, April 24, 2020 10:00 AM
No. of Shipping Containers: 2

SHIPMENT

Method of Delivery: Commercial Carrier
Tracking Number: Fed Ex
COC Forms: ☑ **Shipped with samples** ☐ **No Forms**

Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 2	Cooler	7703 0866 4653	Custody Seals	Intact	Intact	Therm_1	1.0	13
2 of 2	Cooler	7703 0866 5134	Custody Seals	Intact	Intact	Therm_1	1.3	12

Samples

Sample Labels:
☑ Sample labels agree with COC forms
☐ Discrepancies (see Sample Custody Corrective Action Form)

Container Seals:
☐ Tape ☐ Custody Seals ☐ Other Seals (See sample Log)
☑ Seals intact for each shipping container
☐ Seals broken (See sample log for impacted samples)

Condition of Samples:
☑ Sample containers intact
☐ Sample containers broken/leaking (See Custody Corrective Action Form)

Temperature upon receipt (°C): 1.3 Temperature Blank used ☑ Yes ☐ No
(Note: If temperature upon receipt differs from required conditions, see sample log comment field)

Samples Acidified: ☐ Yes ☐ No ☑ Unknown

Initial pH 5-9?: ☐ Yes ☐ No ☑ NA
If no, individual sample adjustments on the Auxiliary Sample Receipt Form

Total Residual Chlorine Present?: ☐ Yes ☐ No ☑ NA
If yes, individual sample adjustments on the Auxiliary Sample Receipt Form

Head Space <1% in samples for water VOC analysis: ☐ Yes ☐ No ☑ NA
Individual sample deviations noted on sample log

Samples Containers:
Samples returned in PC-grade jars: ☐ Yes ☐ No ☑ Unknown /Lot No.: Unknown

Storage Location: Custody: Refrigerator - R0119 (NA)
BDO IDs Assigned: H4954 - H4978
Samples logged in by: Schumitz, Matt
Date/Time: 04/24/2020 10:00 AM
Approved By:
Approved On:
Authorized By:
Authorized On:

BATTELLE
It can be done

ShpNo SHP-200424-02

Battelle Project No: 100137609

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: 112G09020 **Client:** Tetra Tech

Received by: Schumitz, Matt **Date/Time Received:** Friday, April 24, 2020 10:00 AM

No. of Shipping Containers: 2

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
H4954	POL-MW0041SI-020.5-20200421	04/21/20 11:15	04/24/20 10:21	2	GW	1	NA	NA	NA	R0119 (NA)			
H4955	POL-MW0008S-009.3-20200421	04/21/20 12:40	04/24/20 10:21	2	GW	1	NA	NA	NA	R0119 (NA)			
H4956	POL-MW0008I-007.5-20200421	04/21/20 13:00	04/24/20 10:22	2	GW	1	NA	NA	NA	R0119 (NA)			
H4957	POL-MW0036SI-020.5-20200421	04/21/20 14:05	04/24/20 10:22	2	GW	1	NA	NA	NA	R0119 (NA)			
H4958	POL-MW0036I-027.5-20200421	04/21/20 14:25	04/24/20 10:23	2	GW	1	NA	NA	NA	R0119 (NA)			
H4959	POL-MW0047I-025.0-20200422	04/22/20 10:30	04/24/20 10:23	2	GW	1	NA	NA	NA	R0119 (NA)			
H4960	POL-FRB-0200422-01	04/22/20 10:50	04/24/20 10:23	2	QC	1	NA	NA	NA	R0119 (NA)			
H4961	POL-MW0047D-035.0-20200422	04/22/20 11:05	04/24/20 10:24	2	GW	1	NA	NA	NA	R0119 (NA)			
H4962	POL-MW0047DD-045.0-20200422	04/22/20 11:50	04/24/20 10:24	2	GW	1	NA	NA	NA	R0119 (NA)			
H4963	POL-MW0046D-035.0-20200422	04/22/20 12:25	04/24/20 10:25	2	GW	1	NA	NA	NA	R0119 (NA)			
H4964	POL-MW0046DD-045.0-20200422	04/22/20 12:55	04/24/20 10:25	2	GW	1	NA	NA	NA	R0119 (NA)			
H4965	POL-MW0045S-015.0-20200422	04/22/20 13:45	04/24/20 10:25	2	GW	1	NA	NA	NA	R0119 (NA)			
H4966	POL-MW0045I-025.0-20200422	04/22/20 14:35	04/24/20 10:26	2	GW	1	NA	NA	NA	R0119 (NA)			
H4967	POL-MW0045I-035.0-20200422	04/22/20 15:05	04/24/20 10:31	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4968	POL-MW0043S-015.0-20200422	04/22/20 15:55	04/24/20 10:32	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4969	POL-EB-20200423-01	04/23/20 9:15	04/24/20 10:32	2	QC	1.3	NA	NA	NA	R0119 (NA)			
H4970	POL-EB-20200423-02	04/23/20 9:25	04/24/20 10:33	2	QC	1.3	NA	NA	NA	R0119 (NA)			
H4971	POL-MW0043I-025.0-20200423	04/23/20 9:50	04/24/20 10:33	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4972	POL-MW0043D-035.0-20200423	04/23/20 10:20	04/24/20 10:33	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4973	POL-MW0011S-012.5-20200423	04/23/20 11:35	04/24/20 10:34	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4974	POL-MW0011I-027.5-20200423	04/23/20 12:05	04/24/20 10:34	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4975	POL-MW0044I-025.0-20200423	04/23/20 12:45	04/24/20 10:34	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4976	POL-MW0044D-035.0-20200423	04/23/20 13:20	04/24/20 10:35	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4977	SW3-MW0027-032.0-20200423	04/23/20 14:10	04/24/20 10:35	2	GW	1.3	NA	NA	NA	R0119 (NA)			
H4978	SW3-MW0028-032.0-20200423	04/23/20 14:50	04/24/20 10:36	2	GW	1.3	NA	NA	NA	R0119 (NA)			

Total Samples: 25

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 1298 | PAGE 1 OF 2

PROJECT NO:	112G09020
FACILITY:	KSC-POL/Swift
PROJECT MANAGER	Attn Mark Jonnet
PHONE NUMBER	(412) 921-8622
LABORATORY NAME AND CONTACT:	Battelle — Jon Thorn
SAMPLERS (SIGNATURE)	Chuck Sorden
FIELD OPERATIONS LEADER	Chuck Sorden
PHONE NUMBER	(321) 591-7580
ADDRESS	141 Longwater Dr. Suite 202
CARRIER/WAYBILL NUMBER	
CITY, STATE	Norwell, MA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: 4°C
TYPE OF ANALYSIS: EPA 537 MOD PFAS

DATE YEAR 2020	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	EPA 537 MOD PFAS	COMMENTS
04/21	1115	POL-MW0041SI-020.5-2020	0421	18	23	GW	G	2	X	H4954
	1240	POL-MW0008S-009.3-2020	0421	8.6	10					55
	1300	POL-MW0008I-027.5-2020	0421	25	30					56
	1405	POL-MW0036SI-020.5-2020	0421	18	23					57
04/21	1425	POL-MW0036I-027.5-2020	0421	25	30					58
04/22	1030	POL-MW0047I-025.0-2020	0422	20	30	GW				59
	1050	POL-FRB-20200422-01		—	—	QC				60
	1105	POL-MW0047D-035.0-2020	0422	30	40	GW				61
	1150	POL-MW0047DD-045.0-2020	0422	40	50					62
	1225	POL-MW0046D-035.0-2020	0422	30	40					63
	1255	POL-MW0046DD-045.0-2020	0422	40	50					64
	1345	POL-MW0045S-015.0-2020	0422	10	20					65
04/22	1435	POL-MW0045I-035.0-2020	0422	20	30	GW	G	2	X	H4966

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	04/23/2020	1700	1. RECEIVED BY [signature]	4.24.20	1000
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

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4/02R
FORM NO. TtNUS-001

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 1312 | PAGE 2 OF 2

PROJECT NO: 112G09020	FACILITY: KSC-POL/SW3	PROJECT MANAGER: Mark Johnct
PHONE NUMBER: (412) 921-8622	LABORATORY NAME AND CONTACT: Battelle — Jon Thorn	
SAMPLERS (SIGNATURE): Chuck Serda	FIELD OPERATIONS LEADER: Chuck Serda	PHONE NUMBER: (321) 591-7580
ADDRESS: 141 Longwater Dr. Ste. 202	CARRIER/WAYBILL NUMBER:	CITY, STATE: Norwell, MA

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: 4°C
TYPE OF ANALYSIS: EPA 537 MOD PFAS

DATE YEAR 2020	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	EPA 537 MOD PFAS								COMMENTS
04/22	1505	POL-MW0045I-035.0-20200422		30	40	GW	G	2	X								H4967
04/22	1555	POL-MW0043S-015.0-20200422		10	20												68
04/23	0915	POL-EB-20200423-01	—	—	—	QC											69
	0925	POL-EB-20200423-02	—	—	—	QC											70
	0950	POL-MW0043I-025.0-20200423		20	30	GW											71
	1020	POL-MW0043D-035.0-20200423		30	40												72
	1135	POL-MW0011S-012.5-20200423		10	15												73
	1205	POL-MW0011I-027.5-20200423		25	30												74
	1245	POL-MW0044I-025.0-20200423		20	30												75
	1320	POL-MW0044D-035.0-20200423		30	40												76
	1410	SW3-MW0027-032.0-20200423		27	37												77
04/23	1450	SW3-MW0028-032.0-20200423		27	37	GW	G	2	X								H4978

1. RELINQUISHED BY	DATE 04/23/2020	TIME 1700	1. RECEIVED BY	DATE 4.24.20	TIME 1000
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

ORIGIN ID:COIA (321) 591-7580
CHARLES SORDEN
TETRA TECH, INC.
11 RIVERSIDE DR
SUITE 204
COCOA, FL 32922
UNITED STATES US

SHIP DATE: 23APR20
ACTWGT: 57.00 LB
CAD: 100864341/INET4220

BILL SENDER

TO **MATTHEW SCHUMITZ**
BATTELLE
141 LONGWATER DR
SUITE 202
NORWELL MA 02061
(781) 681-5588 REF: 112G09020.3060
INV:
PO: DEPT:

1.0
Therm l
TB

56BJ4/7B3A/FE4A

FedEx Express

E

J201020011301uv

FRI - 24 APR 10:30A
PRIORITY OVERNIGHT

1 of 2
TRK# 0201 **7703 0866 4653**
MASTER

XE XPUA

02061
MA-US **BOS**

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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ORIGIN ID:COIA (321) 591-7580
CHARLES SORDEN
TETRA TECH, INC.
11 RIVERSIDE DR
SUITE 204
COCOA, FL 32922
UNITED STATES US

SHIP DATE: 23APR20
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CAD: 100864341/INET4220

BILL SENDER

TO MATTHEW SCHUMITZ
BATTELLE
141 LONGWATER DR
SUITE 202
NORWELL MA 02061
(781) 681-5588
INV:
PO:
REF: 112G09020.3060
DEPT:

1.3°
THERM I
JB

56BJ4/7B3A/FE4A

FedEx Express

E

J201020011201uv

2 of 2
MPS# 0263 7703 0866 5134
Mstr# 7703 0866 4653 0201

FRI - 24 APR 10:30A
PRIORITY OVERNIGHT

XE XPUA

02061
MA-US BOS

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Data Tables

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0041SI-020.5-20200421
Battelle ID		H4954-FS1
Sample Type		SA
Collection Date		04/21/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.275
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.48	U	H4954-FS1(0)	1.000	5/4/2020	0.48	1.36	4.55
PFHpA	375-85-9	0.24	U	H4954-FS1(0)	1.000	5/4/2020	0.24	0.91	4.55
PFOA	335-67-1	16.18		H4954-FS1(0)	1.000	5/4/2020	0.46	1.36	4.55
PFNA	375-95-1	1.37	I	H4954-FS1(0)	1.000	5/4/2020	0.28	0.91	4.55
PFDA	335-76-2	0.13	U	H4954-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFUnA	2058-94-8	0.20	U	H4954-FS1(0)	1.000	5/4/2020	0.20	0.45	4.55
PFDoA	307-55-1	0.17	U	H4954-FS1(0)	1.000	5/4/2020	0.17	0.45	4.55
PFTrDA	72629-94-8	0.14	U	H4954-FS1(0)	1.000	5/4/2020	0.14	0.45	4.55
PFTeDA	376-06-7	0.66	U	H4954-FS1(0)	1.000	5/4/2020	0.66	1.82	4.55
NMeFOSAA	2355-31-9	0.32	U	H4954-FS1(0)	1.000	5/4/2020	0.32	0.91	4.55
NEtFOSAA	2991-50-6	0.45	U	H4954-FS1(0)	1.000	5/4/2020	0.45	0.91	4.55
PFBS	375-73-5	2.46	I	H4954-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFHxS	355-46-4	10.18		H4954-FS1(0)	1.000	5/4/2020	0.10	0.36	4.55
PFOS	1763-23-1	56.85		H4954-FS1(0)	1.000	5/4/2020	0.40	0.91	4.55
HFPO-DA	13252-13-6	0.23	U	H4954-FS1(0)	1.000	5/4/2020	0.23	0.45	4.55
Adona	919005-14-4	0.25	U	H4954-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55
11Cl-PF3OUdS	763051-92-9	0.21	U	H4954-FS1(0)	1.000	5/4/2020	0.21	0.45	4.55
9Cl-PF3ONS	756426-58-1	0.25	U	H4954-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0041SI-020.5-20200421
Battelle ID	H4954-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	26	J	H4954-FS1(0)	5/4/2020
13C4-PFHpA	49	J	H4954-FS1(0)	5/4/2020
13C8-PFOA	76		H4954-FS1(0)	5/4/2020
13C9-PFNA	109		H4954-FS1(0)	5/4/2020
13C6-PFDA	92		H4954-FS1(0)	5/4/2020
13C7-PFUnA	74		H4954-FS1(0)	5/4/2020
13C2-PFDoA	40	J	H4954-FS1(0)	5/4/2020
13C2-PFTeDA	12	J	H4954-FS1(0)	5/4/2020
d3-MeFOSAA	89		H4954-FS1(0)	5/4/2020
d5-EtFOSAA	79		H4954-FS1(0)	5/4/2020
13C3-PFBS	29	J	H4954-FS1(0)	5/4/2020
13C3-PFHxS	68		H4954-FS1(0)	5/4/2020
13C8-PFOS	99		H4954-FS1(0)	5/4/2020
13C3-HFPO-DA	42	J	H4954-FS1(0)	5/4/2020

BATTELLE
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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0008S-009.3-20200421
Battelle ID		H4955-FS1
Sample Type		SA
Collection Date		04/21/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.275
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	3.61	I	H4955-FS1(0)	1.000	5/4/2020	0.48	1.36	4.55
PFHpA	375-85-9	0.24	U	H4955-FS1(0)	1.000	5/4/2020	0.24	0.91	4.55
PFOA	335-67-1	4.30	I	H4955-FS1(0)	1.000	5/4/2020	0.46	1.36	4.55
PFNA	375-95-1	0.60	I	H4955-FS1(0)	1.000	5/4/2020	0.28	0.91	4.55
PFDA	335-76-2	0.13	U	H4955-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFUnA	2058-94-8	0.20	U	H4955-FS1(0)	1.000	5/4/2020	0.20	0.45	4.55
PFDoA	307-55-1	0.17	U	H4955-FS1(0)	1.000	5/4/2020	0.17	0.45	4.55
PFTrDA	72629-94-8	0.14	U	H4955-FS1(0)	1.000	5/4/2020	0.14	0.45	4.55
PFTeDA	376-06-7	0.66	U	H4955-FS1(0)	1.000	5/4/2020	0.66	1.82	4.55
NMeFOSAA	2355-31-9	0.32	U	H4955-FS1(0)	1.000	5/4/2020	0.32	0.91	4.55
NEtFOSAA	2991-50-6	0.45	U	H4955-FS1(0)	1.000	5/4/2020	0.45	0.91	4.55
PFBS	375-73-5	0.69	I	H4955-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFHxS	355-46-4	4.55	I	H4955-FS1(0)	1.000	5/4/2020	0.10	0.36	4.55
PFOS	1763-23-1	20.47		H4955-FS1(0)	1.000	5/4/2020	0.40	0.91	4.55
HFPO-DA	13252-13-6	0.23	U	H4955-FS1(0)	1.000	5/4/2020	0.23	0.45	4.55
Adona	919005-14-4	0.25	U	H4955-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55
11Cl-PF3OUdS	763051-92-9	0.21	U	H4955-FS1(0)	1.000	5/4/2020	0.21	0.45	4.55
9Cl-PF3ONS	756426-58-1	0.25	U	H4955-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0008S-009.3-20200421
Battelle ID	H4955-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	24	J	H4955-FS1(0)	5/4/2020
13C4-PFHpA	45	J	H4955-FS1(0)	5/4/2020
13C8-PFOA	75		H4955-FS1(0)	5/4/2020
13C9-PFNA	108		H4955-FS1(0)	5/4/2020
13C6-PFDA	84		H4955-FS1(0)	5/4/2020
13C7-PFUnA	69		H4955-FS1(0)	5/4/2020
13C2-PFDoA	40	J	H4955-FS1(0)	5/4/2020
13C2-PFTeDA	7	J	H4955-FS1(0)	5/4/2020
d3-MeFOSAA	115		H4955-FS1(0)	5/4/2020
d5-EtFOSAA	94		H4955-FS1(0)	5/4/2020
13C3-PFBS	31	J	H4955-FS1(0)	5/4/2020
13C3-PFHxS	77		H4955-FS1(0)	5/4/2020
13C8-PFOS	111		H4955-FS1(0)	5/4/2020
13C3-HFPO-DA	35	J	H4955-FS1(0)	5/4/2020

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0008I-007.5-20200421
Battelle ID		H4956-FS1
Sample Type		SA
Collection Date		04/21/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.285
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	2.00	I	H4956-FS1(0)	1.000	5/4/2020	0.46	1.32	4.39
PFHpA	375-85-9	0.23	U	H4956-FS1(0)	1.000	5/4/2020	0.23	0.88	4.39
PFOA	335-67-1	2.36	I	H4956-FS1(0)	1.000	5/4/2020	0.45	1.32	4.39
PFNA	375-95-1	0.27	U	H4956-FS1(0)	1.000	5/4/2020	0.27	0.88	4.39
PFDA	335-76-2	0.12	U	H4956-FS1(0)	1.000	5/4/2020	0.12	0.44	4.39
PFUnA	2058-94-8	0.19	U	H4956-FS1(0)	1.000	5/4/2020	0.19	0.44	4.39
PFDoA	307-55-1	0.17	U	H4956-FS1(0)	1.000	5/4/2020	0.17	0.44	4.39
PFTrDA	72629-94-8	0.13	U	H4956-FS1(0)	1.000	5/4/2020	0.13	0.44	4.39
PFTeDA	376-06-7	0.64	U	H4956-FS1(0)	1.000	5/4/2020	0.64	1.75	4.39
NMeFOSAA	2355-31-9	0.31	U	H4956-FS1(0)	1.000	5/4/2020	0.31	0.88	4.39
NEtFOSAA	2991-50-6	0.44	U	H4956-FS1(0)	1.000	5/4/2020	0.44	0.88	4.39
PFBS	375-73-5	1.69	I	H4956-FS1(0)	1.000	5/4/2020	0.12	0.44	4.39
PFHxS	355-46-4	5.35		H4956-FS1(0)	1.000	5/4/2020	0.10	0.35	4.39
PFOS	1763-23-1	1.15	I	H4956-FS1(0)	1.000	5/4/2020	0.39	0.88	4.39
HFPO-DA	13252-13-6	0.22	U	H4956-FS1(0)	1.000	5/4/2020	0.22	0.44	4.39
Adona	919005-14-4	0.24	U	H4956-FS1(0)	1.000	5/4/2020	0.24	0.88	4.39
11Cl-PF3OUdS	763051-92-9	0.20	U	H4956-FS1(0)	1.000	5/4/2020	0.20	0.44	4.39
9Cl-PF3ONS	756426-58-1	0.24	U	H4956-FS1(0)	1.000	5/4/2020	0.24	0.88	4.39

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0008I-007.5-20200421
Battelle ID	H4956-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	39	J	H4956-FS1(0)	5/4/2020
13C4-PFHpA	63		H4956-FS1(0)	5/4/2020
13C8-PFOA	68		H4956-FS1(0)	5/4/2020
13C9-PFNA	81		H4956-FS1(0)	5/4/2020
13C6-PFDA	79		H4956-FS1(0)	5/4/2020
13C7-PFUnA	63		H4956-FS1(0)	5/4/2020
13C2-PFDoA	31	J	H4956-FS1(0)	5/4/2020
13C2-PFTeDA	12	J	H4956-FS1(0)	5/4/2020
d3-MeFOSAA	72		H4956-FS1(0)	5/4/2020
d5-EtFOSAA	58		H4956-FS1(0)	5/4/2020
13C3-PFBS	47	J	H4956-FS1(0)	5/4/2020
13C3-PFHxS	84		H4956-FS1(0)	5/4/2020
13C8-PFOS	84		H4956-FS1(0)	5/4/2020
13C3-HFPO-DA	50		H4956-FS1(0)	5/4/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0036SI-020.5-20200421
Battelle ID	H4957-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.270
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	14.46		H4957-FS1(0)	1.000	5/4/2020	0.49	1.39	4.63
PFHpA	375-85-9	11.73		H4957-FS1(0)	1.000	5/4/2020	0.24	0.93	4.63
PFOA	335-67-1	15.98		H4957-FS1(0)	1.000	5/4/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4957-FS1(0)	1.000	5/4/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4957-FS1(0)	1.000	5/4/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4957-FS1(0)	1.000	5/4/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4957-FS1(0)	1.000	5/4/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4957-FS1(0)	1.000	5/4/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4957-FS1(0)	1.000	5/4/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4957-FS1(0)	1.000	5/4/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4957-FS1(0)	1.000	5/4/2020	0.46	0.93	4.63
PFBS	375-73-5	7.74		H4957-FS1(0)	1.000	5/4/2020	0.13	0.46	4.63
PFHxS	355-46-4	51.77		H4957-FS1(0)	1.000	5/4/2020	0.10	0.37	4.63
PFOS	1763-23-1	2.15	I	H4957-FS1(0)	1.000	5/4/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4957-FS1(0)	1.000	5/4/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4957-FS1(0)	1.000	5/4/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4957-FS1(0)	1.000	5/4/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4957-FS1(0)	1.000	5/4/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0036SI-020.5-20200421
Battelle ID	H4957-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	Recovery		Extract ID	Analysis Date
13C5-PFHxA	29	J	H4957-FS1(0)	5/4/2020
13C4-PFHpA	47	J	H4957-FS1(0)	5/4/2020
13C8-PFOA	71		H4957-FS1(0)	5/4/2020
13C9-PFNA	99		H4957-FS1(0)	5/4/2020
13C6-PFDA	88		H4957-FS1(0)	5/4/2020
13C7-PFUnA	81		H4957-FS1(0)	5/4/2020
13C2-PFDoA	64		H4957-FS1(0)	5/4/2020
13C2-PFTeDA	33	J	H4957-FS1(0)	5/4/2020
d3-MeFOSAA	95		H4957-FS1(0)	5/4/2020
d5-EtFOSAA	82		H4957-FS1(0)	5/4/2020
13C3-PFBS	31	J	H4957-FS1(0)	5/4/2020
13C3-PFHxS	76		H4957-FS1(0)	5/4/2020
13C8-PFOS	105		H4957-FS1(0)	5/4/2020
13C3-HFPO-DA	41	J	H4957-FS1(0)	5/4/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0036I-027.5-20200421
Battelle ID	H4958-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.265
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	5.51		H4958-FS1(0)	1.000	5/4/2020	0.50	1.42	4.72
PFHpA	375-85-9	4.35	I	H4958-FS1(0)	1.000	5/4/2020	0.25	0.94	4.72
PFOA	335-67-1	3.30	I	H4958-FS1(0)	1.000	5/4/2020	0.48	1.42	4.72
PFNA	375-95-1	0.29	U	H4958-FS1(0)	1.000	5/4/2020	0.29	0.94	4.72
PFDA	335-76-2	0.13	U	H4958-FS1(0)	1.000	5/4/2020	0.13	0.47	4.72
PFUnA	2058-94-8	0.21	U	H4958-FS1(0)	1.000	5/4/2020	0.21	0.47	4.72
PFDoA	307-55-1	0.18	U	H4958-FS1(0)	1.000	5/4/2020	0.18	0.47	4.72
PFTrDA	72629-94-8	0.14	U	H4958-FS1(0)	1.000	5/4/2020	0.14	0.47	4.72
PFTeDA	376-06-7	0.69	U	H4958-FS1(0)	1.000	5/4/2020	0.69	1.89	4.72
NMeFOSAA	2355-31-9	0.33	U	H4958-FS1(0)	1.000	5/4/2020	0.33	0.94	4.72
NEtFOSAA	2991-50-6	0.47	U	H4958-FS1(0)	1.000	5/4/2020	0.47	0.94	4.72
PFBS	375-73-5	2.88	I	H4958-FS1(0)	1.000	5/4/2020	0.13	0.47	4.72
PFHxS	355-46-4	10.25		H4958-FS1(0)	1.000	5/4/2020	0.10	0.38	4.72
PFOS	1763-23-1	1.98	I	H4958-FS1(0)	1.000	5/4/2020	0.42	0.94	4.72
HFPO-DA	13252-13-6	0.24	U	H4958-FS1(0)	1.000	5/4/2020	0.24	0.47	4.72
Adona	919005-14-4	0.25	U	H4958-FS1(0)	1.000	5/4/2020	0.25	0.94	4.72
11Cl-PF3OUdS	763051-92-9	0.22	U	H4958-FS1(0)	1.000	5/4/2020	0.22	0.47	4.72
9Cl-PF3ONS	756426-58-1	0.25	U	H4958-FS1(0)	1.000	5/4/2020	0.25	0.94	4.72

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0036I-027.5-20200421
Battelle ID	H4958-FS1
Sample Type	SA
Collection Date	04/21/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	28	J	H4958-FS1(0)	5/4/2020
13C4-PFHpA	50		H4958-FS1(0)	5/4/2020
13C8-PFOA	70		H4958-FS1(0)	5/4/2020
13C9-PFNA	91		H4958-FS1(0)	5/4/2020
13C6-PFDA	82		H4958-FS1(0)	5/4/2020
13C7-PFUnA	73		H4958-FS1(0)	5/4/2020
13C2-PFDoA	41	J	H4958-FS1(0)	5/4/2020
13C2-PFTeDA	7	J	H4958-FS1(0)	5/4/2020
d3-MeFOSAA	93		H4958-FS1(0)	5/4/2020
d5-EtFOSAA	77		H4958-FS1(0)	5/4/2020
13C3-PFBS	32	J	H4958-FS1(0)	5/4/2020
13C3-PFHxS	69		H4958-FS1(0)	5/4/2020
13C8-PFOS	88		H4958-FS1(0)	5/4/2020
13C3-HFPO-DA	43	J	H4958-FS1(0)	5/4/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0047I-025.0-20200422
Battelle ID	H4959-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.270
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	49.22		H4959-FS1(0)	1.000	5/4/2020	0.49	1.39	4.63
PFHpA	375-85-9	19.06		H4959-FS1(0)	1.000	5/4/2020	0.24	0.93	4.63
PFOA	335-67-1	25.73		H4959-FS1(0)	1.000	5/4/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4959-FS1(0)	1.000	5/4/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4959-FS1(0)	1.000	5/4/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4959-FS1(0)	1.000	5/4/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4959-FS1(0)	1.000	5/4/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4959-FS1(0)	1.000	5/4/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4959-FS1(0)	1.000	5/4/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.92	I	H4959-FS1(0)	1.000	5/4/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	9.99		H4959-FS1(0)	1.000	5/4/2020	0.46	0.93	4.63
PFBS	375-73-5	11.26		H4959-FS1(0)	1.000	5/4/2020	0.13	0.46	4.63
PFHxS	355-46-4	87.36		H4959-FS1(0)	1.000	5/4/2020	0.10	0.37	4.63
PFOS	1763-23-1	7.68		H4959-FS1(0)	1.000	5/4/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4959-FS1(0)	1.000	5/4/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4959-FS1(0)	1.000	5/4/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4959-FS1(0)	1.000	5/4/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4959-FS1(0)	1.000	5/4/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0047I-025.0-20200422
Battelle ID	H4959-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	30	J	H4959-FS1(0)	5/4/2020
13C4-PFHpA	51		H4959-FS1(0)	5/4/2020
13C8-PFOA	66		H4959-FS1(0)	5/4/2020
13C9-PFNA	90		H4959-FS1(0)	5/4/2020
13C6-PFDA	73		H4959-FS1(0)	5/4/2020
13C7-PFUnA	74		H4959-FS1(0)	5/4/2020
13C2-PFDoA	72		H4959-FS1(0)	5/4/2020
13C2-PFTeDA	64		H4959-FS1(0)	5/4/2020
d3-MeFOSAA	77		H4959-FS1(0)	5/4/2020
d5-EtFOSAA	75		H4959-FS1(0)	5/4/2020
13C3-PFBS	43	J	H4959-FS1(0)	5/4/2020
13C3-PFHxS	83		H4959-FS1(0)	5/4/2020
13C8-PFOS	86		H4959-FS1(0)	5/4/2020
13C3-HFPO-DA	46	J	H4959-FS1(0)	5/4/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-FRB-0200422-01
Battelle ID	H4960-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	QC
Sample Size	0.285
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.46	U	H4960-FS1(0)	1.000	5/4/2020	0.46	1.32	4.39
PFHpA	375-85-9	0.23	U	H4960-FS1(0)	1.000	5/4/2020	0.23	0.88	4.39
PFOA	335-67-1	0.45	U	H4960-FS1(0)	1.000	5/4/2020	0.45	1.32	4.39
PFNA	375-95-1	0.27	U	H4960-FS1(0)	1.000	5/4/2020	0.27	0.88	4.39
PFDA	335-76-2	0.12	U	H4960-FS1(0)	1.000	5/4/2020	0.12	0.44	4.39
PFUnA	2058-94-8	0.19	U	H4960-FS1(0)	1.000	5/4/2020	0.19	0.44	4.39
PFDoA	307-55-1	0.17	U	H4960-FS1(0)	1.000	5/4/2020	0.17	0.44	4.39
PFTrDA	72629-94-8	0.13	U	H4960-FS1(0)	1.000	5/4/2020	0.13	0.44	4.39
PFTeDA	376-06-7	0.64	U	H4960-FS1(0)	1.000	5/4/2020	0.64	1.75	4.39
NMeFOSAA	2355-31-9	0.31	U	H4960-FS1(0)	1.000	5/4/2020	0.31	0.88	4.39
NEtFOSAA	2991-50-6	0.44	U	H4960-FS1(0)	1.000	5/4/2020	0.44	0.88	4.39
PFBS	375-73-5	0.12	U	H4960-FS1(0)	1.000	5/4/2020	0.12	0.44	4.39
PFHxS	355-46-4	0.10	U	H4960-FS1(0)	1.000	5/4/2020	0.10	0.35	4.39
PFOS	1763-23-1	0.39	U	H4960-FS1(0)	1.000	5/4/2020	0.39	0.88	4.39
HFPO-DA	13252-13-6	0.22	U	H4960-FS1(0)	1.000	5/4/2020	0.22	0.44	4.39
Adona	919005-14-4	0.24	U	H4960-FS1(0)	1.000	5/4/2020	0.24	0.88	4.39
11Cl-PF3OUdS	763051-92-9	0.20	U	H4960-FS1(0)	1.000	5/4/2020	0.20	0.44	4.39
9Cl-PF3ONS	756426-58-1	0.24	U	H4960-FS1(0)	1.000	5/4/2020	0.24	0.88	4.39

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-FRB-0200422-01
Battelle ID	H4960-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	99	H4960-FS1(0)	5/4/2020
13C4-PFHpA	101	H4960-FS1(0)	5/4/2020
13C8-PFOA	105	H4960-FS1(0)	5/4/2020
13C9-PFNA	104	H4960-FS1(0)	5/4/2020
13C6-PFDA	98	H4960-FS1(0)	5/4/2020
13C7-PFUnA	104	H4960-FS1(0)	5/4/2020
13C2-PFDoA	107	H4960-FS1(0)	5/4/2020
13C2-PFTeDA	112	H4960-FS1(0)	5/4/2020
d3-MeFOSAA	99	H4960-FS1(0)	5/4/2020
d5-EtFOSAA	101	H4960-FS1(0)	5/4/2020
13C3-PFBS	104	H4960-FS1(0)	5/4/2020
13C3-PFHxS	100	H4960-FS1(0)	5/4/2020
13C8-PFOS	99	H4960-FS1(0)	5/4/2020
13C3-HFPO-DA	79	H4960-FS1(0)	5/4/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0047D-035.0-20200422
Battelle ID		H4961-FS1
Sample Type		SA
Collection Date		04/22/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.270
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	52.19		H4961-FS1(0)	1.000	5/4/2020	0.49	1.39	4.63
PFHpA	375-85-9	20.38		H4961-FS1(0)	1.000	5/4/2020	0.24	0.93	4.63
PFOA	335-67-1	26.98		H4961-FS1(0)	1.000	5/4/2020	0.47	1.39	4.63
PFNA	375-95-1	0.29	U	H4961-FS1(0)	1.000	5/4/2020	0.29	0.93	4.63
PFDA	335-76-2	0.13	U	H4961-FS1(0)	1.000	5/4/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4961-FS1(0)	1.000	5/4/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4961-FS1(0)	1.000	5/4/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4961-FS1(0)	1.000	5/4/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4961-FS1(0)	1.000	5/4/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4961-FS1(0)	1.000	5/4/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	0.46	U	H4961-FS1(0)	1.000	5/4/2020	0.46	0.93	4.63
PFBS	375-73-5	10.34		H4961-FS1(0)	1.000	5/4/2020	0.13	0.46	4.63
PFHxS	355-46-4	162.87	D	H4961-FS1-D(3)	5.000	5/4/2020	0.51	1.85	23.15
PFOS	1763-23-1	7.51		H4961-FS1(0)	1.000	5/4/2020	0.41	0.93	4.63
HFPO-DA	13252-13-6	0.23	U	H4961-FS1(0)	1.000	5/4/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4961-FS1(0)	1.000	5/4/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4961-FS1(0)	1.000	5/4/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4961-FS1(0)	1.000	5/4/2020	0.25	0.93	4.63

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0047D-035.0-20200422
Battelle ID	H4961-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	32	J	H4961-FS1(0)	5/4/2020
13C4-PFHpA	48	J	H4961-FS1(0)	5/4/2020
13C8-PFOA	70		H4961-FS1(0)	5/4/2020
13C9-PFNA	94		H4961-FS1(0)	5/4/2020
13C6-PFDA	81		H4961-FS1(0)	5/4/2020
13C7-PFUnA	79		H4961-FS1(0)	5/4/2020
13C2-PFDoA	59		H4961-FS1(0)	5/4/2020
13C2-PFTeDA	16	J	H4961-FS1(0)	5/4/2020
d3-MeFOSAA	97		H4961-FS1(0)	5/4/2020
d5-EtFOSAA	81		H4961-FS1(0)	5/4/2020
13C3-PFBS	35	J	H4961-FS1(0)	5/4/2020
13C3-PFHxS	108	D	H4961-FS1-D(3)	5/4/2020
13C8-PFOS	98		H4961-FS1(0)	5/4/2020
13C3-HFPO-DA	44	J	H4961-FS1(0)	5/4/2020

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0047DD-045.0-20200422
Battelle ID	H4962-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	GW
Sample Size	0.275
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	5.13		H4962-FS1(0)	1.000	5/4/2020	0.48	1.36	4.55
PFHpA	375-85-9	1.30	I	H4962-FS1(0)	1.000	5/4/2020	0.24	0.91	4.55
PFOA	335-67-1	1.25	I	H4962-FS1(0)	1.000	5/4/2020	0.46	1.36	4.55
PFNA	375-95-1	0.28	U	H4962-FS1(0)	1.000	5/4/2020	0.28	0.91	4.55
PFDA	335-76-2	0.13	U	H4962-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFUnA	2058-94-8	0.20	U	H4962-FS1(0)	1.000	5/4/2020	0.20	0.45	4.55
PFDoA	307-55-1	0.17	U	H4962-FS1(0)	1.000	5/4/2020	0.17	0.45	4.55
PFTrDA	72629-94-8	0.14	U	H4962-FS1(0)	1.000	5/4/2020	0.14	0.45	4.55
PFTeDA	376-06-7	0.66	U	H4962-FS1(0)	1.000	5/4/2020	0.66	1.82	4.55
NMeFOSAA	2355-31-9	0.32	U	H4962-FS1(0)	1.000	5/4/2020	0.32	0.91	4.55
NEtFOSAA	2991-50-6	0.45	U	H4962-FS1(0)	1.000	5/4/2020	0.45	0.91	4.55
PFBS	375-73-5	2.25	I	H4962-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFHxS	355-46-4	19.70		H4962-FS1(0)	1.000	5/4/2020	0.10	0.36	4.55
PFOS	1763-23-1	0.40	U	H4962-FS1(0)	1.000	5/4/2020	0.40	0.91	4.55
HFPO-DA	13252-13-6	0.23	U	H4962-FS1(0)	1.000	5/4/2020	0.23	0.45	4.55
Adona	919005-14-4	0.25	U	H4962-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55
11Cl-PF3OUdS	763051-92-9	0.21	U	H4962-FS1(0)	1.000	5/4/2020	0.21	0.45	4.55
9Cl-PF3ONS	756426-58-1	0.25	U	H4962-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0047DD-045.0-20200422
Battelle ID	H4962-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	40	J	H4962-FS1(0)	5/4/2020
13C4-PFHpA	61		H4962-FS1(0)	5/4/2020
13C8-PFOA	80		H4962-FS1(0)	5/4/2020
13C9-PFNA	89		H4962-FS1(0)	5/4/2020
13C6-PFDA	84		H4962-FS1(0)	5/4/2020
13C7-PFUnA	61		H4962-FS1(0)	5/4/2020
13C2-PFDoA	33	J	H4962-FS1(0)	5/4/2020
13C2-PFTeDA	5	J	H4962-FS1(0)	5/4/2020
d3-MeFOSAA	69		H4962-FS1(0)	5/4/2020
d5-EtFOSAA	58		H4962-FS1(0)	5/4/2020
13C3-PFBS	43	J	H4962-FS1(0)	5/4/2020
13C3-PFHxS	86		H4962-FS1(0)	5/4/2020
13C8-PFOS	91		H4962-FS1(0)	5/4/2020
13C3-HFPO-DA	58		H4962-FS1(0)	5/4/2020

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0046D-035.0-20200422
Battelle ID		H4963-FS1
Sample Type		SA
Collection Date		04/22/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.275
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	38.36		H4963-FS1(0)	1.000	5/4/2020	0.48	1.36	4.55
PFHpA	375-85-9	18.72		H4963-FS1(0)	1.000	5/4/2020	0.24	0.91	4.55
PFOA	335-67-1	31.81		H4963-FS1(0)	1.000	5/4/2020	0.46	1.36	4.55
PFNA	375-95-1	0.28	U	H4963-FS1(0)	1.000	5/4/2020	0.28	0.91	4.55
PFDA	335-76-2	0.13	U	H4963-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFUnA	2058-94-8	0.20	U	H4963-FS1(0)	1.000	5/4/2020	0.20	0.45	4.55
PFDoA	307-55-1	0.17	U	H4963-FS1(0)	1.000	5/4/2020	0.17	0.45	4.55
PFTrDA	72629-94-8	0.14	U	H4963-FS1(0)	1.000	5/4/2020	0.14	0.45	4.55
PFTeDA	376-06-7	0.66	U	H4963-FS1(0)	1.000	5/4/2020	0.66	1.82	4.55
NMeFOSAA	2355-31-9	0.32	U	H4963-FS1(0)	1.000	5/4/2020	0.32	0.91	4.55
NEtFOSAA	2991-50-6	0.45	U	H4963-FS1(0)	1.000	5/4/2020	0.45	0.91	4.55
PFBS	375-73-5	8.21		H4963-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFHxS	355-46-4	157.56	D	H4963-FS1-D(3)	5.000	5/4/2020	0.50	1.82	22.73
PFOS	1763-23-1	10.19		H4963-FS1(0)	1.000	5/4/2020	0.40	0.91	4.55
HFPO-DA	13252-13-6	0.23	U	H4963-FS1(0)	1.000	5/4/2020	0.23	0.45	4.55
Adona	919005-14-4	0.25	U	H4963-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55
11Cl-PF3OUdS	763051-92-9	0.21	U	H4963-FS1(0)	1.000	5/4/2020	0.21	0.45	4.55
9Cl-PF3ONS	756426-58-1	0.25	U	H4963-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0046D-035.0-20200422
Battelle ID	H4963-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	29	J	H4963-FS1(0)	5/4/2020
13C4-PFHpA	47	J	H4963-FS1(0)	5/4/2020
13C8-PFOA	60		H4963-FS1(0)	5/4/2020
13C9-PFNA	88		H4963-FS1(0)	5/4/2020
13C6-PFDA	84		H4963-FS1(0)	5/4/2020
13C7-PFUnA	75		H4963-FS1(0)	5/4/2020
13C2-PFDoA	51		H4963-FS1(0)	5/4/2020
13C2-PFTeDA	11	J	H4963-FS1(0)	5/4/2020
d3-MeFOSAA	70		H4963-FS1(0)	5/4/2020
d5-EtFOSAA	56		H4963-FS1(0)	5/4/2020
13C3-PFBS	35	J	H4963-FS1(0)	5/4/2020
13C3-PFHxS	103	D	H4963-FS1-D(3)	5/4/2020
13C8-PFOS	94		H4963-FS1(0)	5/4/2020
13C3-HFPO-DA	40	J	H4963-FS1(0)	5/4/2020

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0046DD-045.0-20200422
Battelle ID		H4964-FS1
Sample Type		SA
Collection Date		04/22/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.275
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	4.32	I	H4964-FS1(0)	1.000	5/4/2020	0.48	1.36	4.55
PFHpA	375-85-9	1.79	I	H4964-FS1(0)	1.000	5/4/2020	0.24	0.91	4.55
PFOA	335-67-1	2.65	I	H4964-FS1(0)	1.000	5/4/2020	0.46	1.36	4.55
PFNA	375-95-1	0.28	U	H4964-FS1(0)	1.000	5/4/2020	0.28	0.91	4.55
PFDA	335-76-2	0.13	U	H4964-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFUnA	2058-94-8	0.20	U	H4964-FS1(0)	1.000	5/4/2020	0.20	0.45	4.55
PFDoA	307-55-1	0.17	U	H4964-FS1(0)	1.000	5/4/2020	0.17	0.45	4.55
PFTrDA	72629-94-8	0.14	U	H4964-FS1(0)	1.000	5/4/2020	0.14	0.45	4.55
PFTeDA	376-06-7	0.66	U	H4964-FS1(0)	1.000	5/4/2020	0.66	1.82	4.55
NMeFOSAA	2355-31-9	0.32	U	H4964-FS1(0)	1.000	5/4/2020	0.32	0.91	4.55
NEtFOSAA	2991-50-6	0.45	U	H4964-FS1(0)	1.000	5/4/2020	0.45	0.91	4.55
PFBS	375-73-5	1.59	I	H4964-FS1(0)	1.000	5/4/2020	0.13	0.45	4.55
PFHxS	355-46-4	19.16		H4964-FS1(0)	1.000	5/4/2020	0.10	0.36	4.55
PFOS	1763-23-1	0.40	U	H4964-FS1(0)	1.000	5/4/2020	0.40	0.91	4.55
HFPO-DA	13252-13-6	0.23	U	H4964-FS1(0)	1.000	5/4/2020	0.23	0.45	4.55
Adona	919005-14-4	0.25	U	H4964-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55
11Cl-PF3OUdS	763051-92-9	0.21	U	H4964-FS1(0)	1.000	5/4/2020	0.21	0.45	4.55
9Cl-PF3ONS	756426-58-1	0.25	U	H4964-FS1(0)	1.000	5/4/2020	0.25	0.91	4.55

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0046DD-045.0-20200422
Battelle ID	H4964-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	43	J	H4964-FS1(0)	5/4/2020
13C4-PFHpA	61		H4964-FS1(0)	5/4/2020
13C8-PFOA	76		H4964-FS1(0)	5/4/2020
13C9-PFNA	96		H4964-FS1(0)	5/4/2020
13C6-PFDA	85		H4964-FS1(0)	5/4/2020
13C7-PFUnA	89		H4964-FS1(0)	5/4/2020
13C2-PFDoA	85		H4964-FS1(0)	5/4/2020
13C2-PFTeDA	61		H4964-FS1(0)	5/4/2020
d3-MeFOSAA	92		H4964-FS1(0)	5/4/2020
d5-EtFOSAA	86		H4964-FS1(0)	5/4/2020
13C3-PFBS	40	J	H4964-FS1(0)	5/4/2020
13C3-PFHxS	76		H4964-FS1(0)	5/4/2020
13C8-PFOS	86		H4964-FS1(0)	5/4/2020
13C3-HFPO-DA	57		H4964-FS1(0)	5/4/2020

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0045S-015.0-20200422
Battelle ID		H4965-FS1
Sample Type		SA
Collection Date		04/22/2020
Extraction Date		04/30/2020
Analytical Instrument		Sciex 6500+ LC/MS/MS
% Moisture		NA
Matrix		GW
Sample Size		0.270
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	394.06		H4965-FS1(0)	1.000	5/5/2020	0.49	1.39	4.63
PFHpA	375-85-9	29.91		H4965-FS1(0)	1.000	5/5/2020	0.24	0.93	4.63
PFOA	335-67-1	45.01		H4965-FS1(0)	1.000	5/5/2020	0.47	1.39	4.63
PFNA	375-95-1	12.90		H4965-FS1(0)	1.000	5/5/2020	0.29	0.93	4.63
PFDA	335-76-2	6.32		H4965-FS1(0)	1.000	5/5/2020	0.13	0.46	4.63
PFUnA	2058-94-8	0.20	U	H4965-FS1(0)	1.000	5/5/2020	0.20	0.46	4.63
PFDoA	307-55-1	0.18	U	H4965-FS1(0)	1.000	5/5/2020	0.18	0.46	4.63
PFTrDA	72629-94-8	0.14	U	H4965-FS1(0)	1.000	5/5/2020	0.14	0.46	4.63
PFTeDA	376-06-7	0.68	U	H4965-FS1(0)	1.000	5/5/2020	0.68	1.85	4.63
NMeFOSAA	2355-31-9	0.32	U	H4965-FS1(0)	1.000	5/5/2020	0.32	0.93	4.63
NEtFOSAA	2991-50-6	4.92		H4965-FS1(0)	1.000	5/5/2020	0.46	0.93	4.63
PFBS	375-73-5	323.79		H4965-FS1(0)	1.000	5/5/2020	0.13	0.46	4.63
PFHxS	355-46-4	153.51	D	H4965-FS1-D(3)	12.500	5/5/2020	1.27	4.63	57.87
PFOS	1763-23-1	853.44	D	H4965-FS1-D(3)	12.500	5/5/2020	5.09	11.57	57.87
HFPO-DA	13252-13-6	0.23	U	H4965-FS1(0)	1.000	5/5/2020	0.23	0.46	4.63
Adona	919005-14-4	0.25	U	H4965-FS1(0)	1.000	5/5/2020	0.25	0.93	4.63
11Cl-PF3OUdS	763051-92-9	0.21	U	H4965-FS1(0)	1.000	5/5/2020	0.21	0.46	4.63
9Cl-PF3ONS	756426-58-1	0.25	U	H4965-FS1(0)	1.000	5/5/2020	0.25	0.93	4.63

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0045S-015.0-20200422
Battelle ID	H4965-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	23	J	H4965-FS1(0)	5/5/2020
13C4-PFHpA	46	J	H4965-FS1(0)	5/5/2020
13C8-PFOA	68		H4965-FS1(0)	5/5/2020
13C9-PFNA	67		H4965-FS1(0)	5/5/2020
13C6-PFDA	63		H4965-FS1(0)	5/5/2020
13C7-PFUnA	55		H4965-FS1(0)	5/5/2020
13C2-PFDoA	48	J	H4965-FS1(0)	5/5/2020
13C2-PFTeDA	15	J	H4965-FS1(0)	5/5/2020
d3-MeFOSAA	104	D	H4965-FS1-D(3)	5/5/2020
d5-EtFOSAA	111	D	H4965-FS1-D(3)	5/5/2020
13C3-PFBS	77	D	H4965-FS1-D(3)	5/5/2020
13C3-PFHxS	110	D	H4965-FS1-D(3)	5/5/2020
13C8-PFOS	104	D	H4965-FS1-D(3)	5/5/2020
13C3-HFPO-DA	37	J	H4965-FS1(0)	5/5/2020

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0045I-025.0-20200422							
Battelle ID		H4966-FS1							
Sample Type		SA							
Collection Date		04/22/2020							
Extraction Date		04/30/2020							
Analytical Instrument		Sciex 6500+ LC/MS/MS							
% Moisture		NA							
Matrix		GW							
Sample Size		0.260							
Size Unit-Basis		L							
Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	127.21		H4966-FS1(0)	1.000	5/5/2020	0.51	1.44	4.81
PFHpA	375-85-9	16.87		H4966-FS1(0)	1.000	5/5/2020	0.25	0.96	4.81
PFOA	335-67-1	47.98		H4966-FS1(0)	1.000	5/5/2020	0.49	1.44	4.81
PFNA	375-95-1	5.78		H4966-FS1(0)	1.000	5/5/2020	0.30	0.96	4.81
PFDA	335-76-2	0.13	U	H4966-FS1(0)	1.000	5/5/2020	0.13	0.48	4.81
PFUnA	2058-94-8	0.21	U	H4966-FS1(0)	1.000	5/5/2020	0.21	0.48	4.81
PFDoA	307-55-1	0.18	U	H4966-FS1(0)	1.000	5/5/2020	0.18	0.48	4.81
PFTrDA	72629-94-8	0.14	U	H4966-FS1(0)	1.000	5/5/2020	0.14	0.48	4.81
PFTeDA	376-06-7	0.70	U	H4966-FS1(0)	1.000	5/5/2020	0.70	1.92	4.81
NMeFOSAA	2355-31-9	0.34	U	H4966-FS1(0)	1.000	5/5/2020	0.34	0.96	4.81
NEtFOSAA	2991-50-6	0.48	U	H4966-FS1(0)	1.000	5/5/2020	0.48	0.96	4.81
PFBS	375-73-5	112.09		H4966-FS1(0)	1.000	5/5/2020	0.13	0.48	4.81
PFHxS	355-46-4	127.27		H4966-FS1(0)	1.000	5/5/2020	0.11	0.38	4.81
PFOS	1763-23-1	266.50	D	H4966-FS1-D(3)	12.500	5/5/2020	5.29	12.02	60.10
HFPO-DA	13252-13-6	0.24	U	H4966-FS1(0)	1.000	5/5/2020	0.24	0.48	4.81
Adona	919005-14-4	0.26	U	H4966-FS1(0)	1.000	5/5/2020	0.26	0.96	4.81
11Cl-PF3OUdS	763051-92-9	0.22	U	H4966-FS1(0)	1.000	5/5/2020	0.22	0.48	4.81
9Cl-PF3ONS	756426-58-1	0.26	U	H4966-FS1(0)	1.000	5/5/2020	0.26	0.96	4.81

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0045I-025.0-20200422
Battelle ID	H4966-FS1
Sample Type	SA
Collection Date	04/22/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	28	J	H4966-FS1(0)	5/5/2020
13C4-PFHpA	51		H4966-FS1(0)	5/5/2020
13C8-PFOA	62		H4966-FS1(0)	5/5/2020
13C9-PFNA	76		H4966-FS1(0)	5/5/2020
13C6-PFDA	73		H4966-FS1(0)	5/5/2020
13C7-PFUnA	58		H4966-FS1(0)	5/5/2020
13C2-PFDoA	22	J	H4966-FS1(0)	5/5/2020
13C2-PFTeDA	2	J	H4966-FS1(0)	5/5/2020
d3-MeFOSAA	98	D	H4966-FS1-D(3)	5/5/2020
d5-EtFOSAA	103	D	H4966-FS1-D(3)	5/5/2020
13C3-PFBS	92	D	H4966-FS1-D(3)	5/5/2020
13C3-PFHxS	108	D	H4966-FS1-D(3)	5/5/2020
13C8-PFOS	113	D	H4966-FS1-D(3)	5/5/2020
13C3-HFPO-DA	40	J	H4966-FS1(0)	5/5/2020

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	KY90 IB
Battelle ID	KY90 IB_05/04/2020
Sample Type	IB
Collection Date	NA
Extraction Date	NA
Analysis Date	05/04/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	Water
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		DL	LOD	LOQ
PFHxA	307-24-4	0.53	U	0.53	1.50	5.00
PFHpA	375-85-9	0.26	U	0.26	1.00	5.00
PFOA	335-67-1	0.51	U	0.51	1.50	5.00
PFNA	375-95-1	0.31	U	0.31	1.00	5.00
PFDA	335-76-2	0.14	U	0.14	0.50	5.00
PFUnA	2058-94-8	0.22	U	0.22	0.50	5.00
PFDoA	307-55-1	0.19	U	0.19	0.50	5.00
PFTrDA	72629-94-8	0.15	U	0.15	0.50	5.00
PFTeDA	376-06-7	0.73	U	0.73	2.00	5.00
NMeFOSAA	2355-31-9	0.35	U	0.35	1.00	5.00
NEtFOSAA	2991-50-6	0.50	U	0.50	1.00	5.00
PFBS	375-73-5	0.14	U	0.14	0.50	5.00
PFHxS	355-46-4	0.11	U	0.11	0.40	5.00
PFOS	1763-23-1	0.44	U	0.44	1.00	5.00
HFPO-DA	13252-13-6	0.25	U	0.25	0.50	5.00
Adona	919005-14-4	0.27	U	0.27	1.00	5.00
11Cl-PF3OUdS	763051-92-9	0.23	U	0.23	0.50	5.00
9Cl-PF3ONS	756426-58-1	0.27	U	0.27	1.00	5.00

Surrogate Recoveries (%)	
13C5-PFHxA	105
13C4-PFHpA	108
13C8-PFOA	100
13C9-PFNA	102
13C6-PFDA	100
13C7-PFUnA	93
13C2-PFDoA	96
13C2-PFTeDA	95
d3-MeFOSAA	97
d5-EtFOSAA	98
13C3-PFBS	88
13C3-PFHxS	102
13C8-PFOS	96
13C3-HFPO-DA	102

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It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Procedural Blank
Battelle ID	CY822PB-FS
Sample Type	PB
Collection Date	04/30/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	WATER
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)		Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	0.53	U	CY822PB-FS(0)	1.000	5/4/2020	0.53	1.50	5.00
PFHpA	375-85-9	0.26	U	CY822PB-FS(0)	1.000	5/4/2020	0.26	1.00	5.00
PFOA	335-67-1	0.51	U	CY822PB-FS(0)	1.000	5/4/2020	0.51	1.50	5.00
PFNA	375-95-1	0.31	U	CY822PB-FS(0)	1.000	5/4/2020	0.31	1.00	5.00
PFDA	335-76-2	0.14	U	CY822PB-FS(0)	1.000	5/4/2020	0.14	0.50	5.00
PFUnA	2058-94-8	0.22	U	CY822PB-FS(0)	1.000	5/4/2020	0.22	0.50	5.00
PFDoA	307-55-1	0.19	U	CY822PB-FS(0)	1.000	5/4/2020	0.19	0.50	5.00
PFTrDA	72629-94-8	0.15	U	CY822PB-FS(0)	1.000	5/4/2020	0.15	0.50	5.00
PFTeDA	376-06-7	0.73	U	CY822PB-FS(0)	1.000	5/4/2020	0.73	2.00	5.00
NMeFOSAA	2355-31-9	0.35	U	CY822PB-FS(0)	1.000	5/4/2020	0.35	1.00	5.00
NEtFOSAA	2991-50-6	0.50	U	CY822PB-FS(0)	1.000	5/4/2020	0.50	1.00	5.00
PFBS	375-73-5	0.14	U	CY822PB-FS(0)	1.000	5/4/2020	0.14	0.50	5.00
PFHxS	355-46-4	0.11	U	CY822PB-FS(0)	1.000	5/4/2020	0.11	0.40	5.00
PFOS	1763-23-1	0.44	U	CY822PB-FS(0)	1.000	5/4/2020	0.44	1.00	5.00
HFPO-DA	13252-13-6	0.25	U	CY822PB-FS(0)	1.000	5/4/2020	0.25	0.50	5.00
Adona	919005-14-4	0.27	U	CY822PB-FS(0)	1.000	5/4/2020	0.27	1.00	5.00
11Cl-PF3OUdS	763051-92-9	0.23	U	CY822PB-FS(0)	1.000	5/4/2020	0.23	0.50	5.00
9Cl-PF3ONS	756426-58-1	0.27	U	CY822PB-FS(0)	1.000	5/4/2020	0.27	1.00	5.00

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Procedural Blank
Battelle ID	CY822PB-FS
Sample Type	PB
Collection Date	04/30/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	103	CY822PB-FS(0)	5/4/2020
13C4-PFHpA	108	CY822PB-FS(0)	5/4/2020
13C8-PFOA	108	CY822PB-FS(0)	5/4/2020
13C9-PFNA	105	CY822PB-FS(0)	5/4/2020
13C6-PFDA	94	CY822PB-FS(0)	5/4/2020
13C7-PFUnA	99	CY822PB-FS(0)	5/4/2020
13C2-PFDoA	104	CY822PB-FS(0)	5/4/2020
13C2-PFTeDA	117	CY822PB-FS(0)	5/4/2020
d3-MeFOSAA	103	CY822PB-FS(0)	5/4/2020
d5-EtFOSAA	104	CY822PB-FS(0)	5/4/2020
13C3-PFBS	107	CY822PB-FS(0)	5/4/2020
13C3-PFHxS	105	CY822PB-FS(0)	5/4/2020
13C8-PFOS	104	CY822PB-FS(0)	5/4/2020
13C3-HFPO-DA	83	CY822PB-FS(0)	5/4/2020

BATTELLE
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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Laboratory Control Sample
Battelle ID	CY823LCS-FS
Sample Type	LCS
Collection Date	04/30/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS
% Moisture	NA
Matrix	WATER
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	Target	Recovery	Qual	Control Limits Lower	Control Limits Upper
PFHxA	307-24-4	42.86	CY823LCS-FS(0)	1.000	5/4/2020	40.40	106		72	129
PFHpA	375-85-9	41.20	CY823LCS-FS(0)	1.000	5/4/2020	40.00	103		72	130
PFOA	335-67-1	37.13	CY823LCS-FS(0)	1.000	5/4/2020	40.00	93		71	133
PFNA	375-95-1	46.01	CY823LCS-FS(0)	1.000	5/4/2020	40.00	115		69	130
PFDA	335-76-2	41.36	CY823LCS-FS(0)	1.000	5/4/2020	40.00	103		71	129
PFUnA	2058-94-8	39.10	CY823LCS-FS(0)	1.000	5/4/2020	40.00	98		69	133
PFDoA	307-55-1	44.75	CY823LCS-FS(0)	1.000	5/4/2020	40.00	112		72	134
PFTrDA	72629-94-8	34.21	CY823LCS-FS(0)	1.000	5/4/2020	40.00	86		65	144
PFTeDA	376-06-7	42.49	CY823LCS-FS(0)	1.000	5/4/2020	40.00	106		71	132
NMeFOSAA	2355-31-9	47.82	CY823LCS-FS(0)	1.000	5/4/2020	40.00	120		65	136
NEtFOSAA	2991-50-6	42.50	CY823LCS-FS(0)	1.000	5/4/2020	40.00	106		61	135
PFBS	375-73-5	39.79	CY823LCS-FS(0)	1.000	5/4/2020	40.00	99		72	130
PFHxS	355-46-4	44.96	CY823LCS-FS(0)	1.000	5/4/2020	40.40	111		68	131
PFOS	1763-23-1	47.80	CY823LCS-FS(0)	1.000	5/4/2020	40.40	118		65	140
HFPO-DA	13252-13-6	40.95	CY823LCS-FS(0)	1.000	5/4/2020	40.00	102		74	148
Adona	919005-14-4	41.58	CY823LCS-FS(0)	1.000	5/4/2020	40.00	104		61	143
11Cl-PF3OUdS	763051-92-9	39.55	CY823LCS-FS(0)	1.000	5/4/2020	40.00	99		52	158
9Cl-PF3ONS	756426-58-1	42.10	CY823LCS-FS(0)	1.000	5/4/2020	40.00	105		59	147

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Laboratory Control Sample
Battelle ID	CY823LCS-FS
Sample Type	LCS
Collection Date	04/30/2020
Extraction Date	04/30/2020
Analytical Instrument	Sciex 6500+ LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	78	CY823LCS-FS(0)	5/4/2020
13C4-PFHpA	85	CY823LCS-FS(0)	5/4/2020
13C8-PFOA	92	CY823LCS-FS(0)	5/4/2020
13C9-PFNA	83	CY823LCS-FS(0)	5/4/2020
13C6-PFDA	98	CY823LCS-FS(0)	5/4/2020
13C7-PFUnA	99	CY823LCS-FS(0)	5/4/2020
13C2-PFDoA	96	CY823LCS-FS(0)	5/4/2020
13C2-PFTeDA	119	CY823LCS-FS(0)	5/4/2020
d3-MeFOSAA	91	CY823LCS-FS(0)	5/4/2020
d5-EtFOSAA	88	CY823LCS-FS(0)	5/4/2020
13C3-PFBS	98	CY823LCS-FS(0)	5/4/2020
13C3-PFHxS	91	CY823LCS-FS(0)	5/4/2020
13C8-PFOS	80	CY823LCS-FS(0)	5/4/2020
13C3-HFPO-DA	78	CY823LCS-FS(0)	5/4/2020

Glossary of Data Qualifiers

Flag:	Application:
V	Analyte found in the sample at a concentration <10x the level found in the procedural blank
D	Dilution Run. Initial run outside the initial calibration range of the instrument
L	Estimate, result is greater than the highest concentration level in the calibration
I	The reported value is greater than or equal to the laboratory Detection Limit (DL) but less than the laboratoryLimit of Quantitation (LOQ)
*	Significant Matrix Interference - value could not be determined.
J	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not Applicable
Q	Holding Time (HT) exceeded
U	Analyte not detected or detected below the Detection Limit (DL) value, DL reported

Miscellaneous Documentation

QA/QC Summary
Batch 20-0519

Project:	Nasa Kennedy Space Center
Client Project Manager:	Andrew Walters
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW, QC
Data Set:	DP-20-0450
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.3 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
4/21 – 23/2020	4/24/2020	1.0, 1.3

Corrective Actions	None.
Sample Storage	The water samples were stored refrigerated until extraction.
Related samples	None.

	METHOD SUMMARIES
Sample Preparation	Water samples were fortified with surrogates in the original sample container from the field. The water was extracted using a Weak-anion exchange (WAX) solid phase extraction (SPE) cartridges. Target analytes are eluted from the WAX SPE using 0.5% NH_3 in methanol. Extracts were further refined using Envi-carb to remove co-extracted interferences. Extracts were concentrated to approximately 500 µL under nitrogen with a water bath set between 50 °C and 60 °C, reconstituted with methanol/water and fortified with internal standard. Extracts were transferred for LC-MS/MS analysis in 80:20 methanol/water (V/V).
Prep comments	pH verified between 6 and 8 prior to extraction. Samples H4954-FS1 (POL-MW0041SI-020.5-20200421), H4955-FS1 (POL-MW0008S-009.3-20200421), H4956-FS1 (POL-MW0008I-007.5-20200421), H4957-FS1 (POL-MW0036SI-020.5-20200421), H4958-FS1 (POL-MW0036I-027.5-20200421), H4959-FS1 (POL-MW0047I-025.0-20200422), H4961-FS1 (POL-MW0047D-035.0-20200422), H4962-FS1 (POL-MW0047DD-045.0-20200422), H4963-FS1 (POL-MW0046D-035.0-20200422), H4964-FS1 (POL-MW0046DD-045.0-20200422), H4965-FS1 (POL-MW0045S-015.0-20200422), and H4966-FS1 (POL-MW0045I-025.0-20200422) contained particulates.
Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations.
Analysis Comments	Samples analyzed on Sciex 6500+ LC-MS/MS.

QA/QC Summary
Batch 20-0519

	MeFOSAA, EtFOSAA, PFHxS, and PFOS in the LCS, and in field samples when detected, were found and reported as a combination of both linear and branched isomers. Due to the potential contribution of high concentration of native compounds to labelled analogs, in cases where the native PFOS is reported from a dilution, the extracted internal standards reported from 13C4-PFOS are reported from the same dilution level. In all other cases, the extracted internal standard is reported from the same dilution level as the native compound.

Holding Times	Extraction Date(s)	Analysis Date(s)
	4/30/2020	5/4 – 5/2020

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
≤ ½ the LOQ	No exceedances noted.
Samples >10x PB	No comments.

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery	No exceedances noted.
	No comments.

Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery and <30% RPD	MS/MSD not included in this batch.
	No comments.

QA/QC Summary
Batch 20-0519

Extracted Internal Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
50-150% of true value	Fifty-four (54) exceedances noted.
	Select samples had suppressed or enhanced recoveries for select extracted internal standards. The table below indicates if the extracted internal standard was within +/- 50% of the area of the L5 calibration point ("P") or if the area showed suppression ("↓"),or enhancement ("↑") for these extracted internal standards.

	13C5-PFHxA	13C4-PFHpA	13C2-PFDoA	13C2-PFTeDA	13C3-PFBS	13C3-HFPO-DA
H4954-FS1 (POL-MW0041SI-020.5-20200421)	↓	↓	↓	↓	↓	↓
H4955-FS1 (POL-MW0008S-009.3-20200421)	↓	↓	↓	↓	↓	↓
H4956-FS1 (POL-MW0008I-007.5-20200421)	↓		↓	↓	↓	
H4957-FS1 (POL-MW0036SI-020.5-20200421)	↓	↓		↓	↓	↓
H4958-FS1 (POL-MW0036I-027.5-20200421)	↓		↓	↓	↓	↓
H4959-FS1 (POL-MW0047I-025.0-20200422)	↓				↓	↓
H4961-FS1 (POL-MW0047D-035.0-20200422)	↓	↓		↓	↓	↓
H4962-FS1 (POL-MW0047DD-045.0-20200422)	↓		↓	↓	↓	
H4963-FS1 (POL-MW0046D-035.0-20200422)	↓	↓		↓	↓	↓
H4964-FS1 (POL-MW0046DD-045.0-20200422)	↓				↓	
H4965-FS1 (POL-MW0045S-015.0-20200422)	↓	↓	↓	↓		↓
H4966-FS1 (POL-MW0045I-025.0-20200422)	↓		↓	↓		↓

The remaining extracted internal standards in each impacted sample, fortified from the same solution, pass criteria, suggesting that the suppression is matrix related to these analytes only.

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
+/- 50% of the area of the L5 calibration point.	No exceedances noted.
	No comments.

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
+/- 30% of true value, $R^2 \geq 0.99$	No exceedances noted.
	No comments.

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
+/- 30% of true value	No exceedances noted.
	No comments.

QA/QC Summary
Batch 20-0519

Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
+/- 30% of true value	No exceedances noted.
	No comments.

Instrument Blank (IB)	Immediately following the highest standard analyzed and daily prior to sample analysis.
≤ ½ the LOQ	No exceedances noted.
	No comments.

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Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project Number: 100137609
Preparation Batch: 20-0519
Data Set: DP-20-0450
Test Code: Master_369B

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	NA	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	54	There are fifty four extracted internal standard analytes that do not meet passing criteria. A fresh aliquot was taken, run and the results confirm. DMS 5/5/2020
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	PFAS: Nasa Kennedy Space Center	**Data Set Number:**	DP-20-0450
Project Number:	100137609	**Prep Batch Number:**	20-0519
Entered By:	Denise Schumitz	**Entered On:**	05/06/2020
Test Code (Matrix Type):	Master_369B(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
DMS 05/06/2020

KY83 is not being used in the SIS calibration curve for 13C3-HFPO-DA. There is no impcat on the data once this point of the calibration is removed.
DMS 05/06/2020

KY83 is not being used for in the calibration curve for PFHxA. There is no impcat on the data once this point of the calibration is removed.
DMS 05/06/2020

Task Leader Approval:

SupervisorApproval:

PM Approval:

Digitally signed by Jonathan Thorn
Date: 2020.05.06 11:03:41 -04'00'

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Example Calculation for PFAS

Calculation of final concentration from area:

$$Concentration = \left[\frac{PA - b}{m}\right] * C_{IS} * PIV * DF/S$$

Where:

PA = Area of target / area of internal standard
b = y intercept from calibration curve
CIS = concentration of internal standard (ng/L)
m = slope of calibration
DF = dilution factor
S = Sample Size
PIV = Pre-injection volume (L)

Sample ID:	H4965-FS1-D(3)
Client Sample ID:	POL-MW0045S-015.0-20200422
Sample Size:	0.27
Units:	L
Dilution Factor:	12.500
PIV (L):	0.001
Target Analyte:	PFOS
MRM Transition:	499.0 / 80.0
Data file:	AE_05042020_5-369.wiff
Result table:	20-0519
Area:	11,848,244.12
IS Name:	13C8-PFOS
IS Area:	204,064.10
IS Amount (ng/L):	1196.25
y-intercept:	0.0178
slope:	3.76661

$$\text{Concentration} = \frac{[(11848244.12/204064.1) - 0.0178]}{3.76661} * 1196.25 * 0.001 * 12.5 / 0.27$$

ng/L = 853.44

*Final concentration may vary based on rounding.

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It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609
Preparation Batch: 20-0519
Data Set: DP-20-0450

		CY822PB-FS (Procedural Blank)	CY823LCS-FS (Laboratory Control Sample)	H4954-FS1 (POL-MW0041SI-020.5-20200421)	H4955-FS1 (POL-MW0008S-009.3-20200421)	H4956-FS1 (POL-MW0008I-007.5-20200421)	H4957-FS1 (POL-MW0036SI-020.5-20200421)	H4958-FS1 (POL-MW0036I-027.5-20200421)	H4959-FS1 (POL-MW0047I-025.0-20200422)	H4960-FS1 (POL-FRB-0200422-01)	H4961-FS1 (POL-MW0047D-035.0-20200422)	H4962-FS1 (POL-MW0047DD-045.0-20200422	H4963-FS1 (POL-MW0046D-035.0-20200422)	H4964-FS1 (POL-MW0046DD-045.0-20200422	H4965-FS1 (POL-MW0045S-015.0-20200422)	H4966-FS1 (POL-MW0045I-025.0-20200422)
PFHxA	307-24-4	-	L	-	L	L	L	L	L	-	L	L	L	L	L	L
PFHpA	375-85-9	-	L	-	-	-	L	L	L	-	L	L	L	L	L	L
PFOA	335-67-1	-	L	L	L	L	L	L	L	-	L	L	L	L	L	L
PFNA	375-95-1	-	L	L	L	-	-	-	-	-	-	-	-	-	L	L
PFDA	335-76-2	-	L	-	-	-	-	-	-	-	-	-	-	-	L	-
PFUnA	2058-94-8	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
PFDoA	307-55-1	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
PFTrDA	72629-94-8	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
PFTeDA	376-06-7	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
NMeFOSAA	2355-31-9	-	L/Br	-	-	-	-	-	L/Br	-	-	-	-	-	-	-
NEtFOSAA	2991-50-6	-	L/Br	-	-	-	-	-	L/Br	-	-	-	-	-	L/Br	-
PFBS	375-73-5	-	L	L	L	L	L	L	L	-	L	L	L	L	L	L
PFHxS	355-46-4	-	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	-	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br
PFOS	1763-23-1	-	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	L/Br	-	L/Br	-	L/Br	-	L/Br	L/Br
HFPO-DA	13252-13-6	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Adona	919005-14-4	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
11Cl-PF3OUdS	763051-92-9	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-
9Cl-PF3ONS	756426-58-1	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-

"L" :Linear
"Br": branched
"L/Br": Linear/Branched
"-": Not detected

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

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Passing criteria = 50% to 150% of internal standard area (compared to mid-point of calibration)

Sample Name	Sample ID	Analysis Date	13C3-PFBA	13C2-PFOA	13C2-PFDA	13C4-PFOS
KY87	L5	5/4/20 16:10	-	825,910.93	1,045,038.73	208,488.10
		Lower	-	412,955.47	522,519.37	104,244.05
		Upper	-	1,238,866.40	1,567,558.10	312,732.15

Sample Name	Sample ID	Analysis Date	13C3-PFBA	Qual	User	13C2-PFOA	Qual	User	13C2-PFDA	Qual	User	13C4-PFOS	Qual	User
KY83	L1	5/4/20 15:28	-			783,088.85			1,096,523.57			203,423.96		
KY84	L2	5/4/20 15:39	-			756,146.23			1,061,499.82			202,245.76		
KY85	L3	5/4/20 15:49	-			763,492.41			1,128,342.79			214,465.99		
KY86	L4	5/4/20 16:00	-			824,160.05			1,066,813.49			214,442.14		
KY87	L5	5/4/20 16:10	-			825,910.93			1,045,038.73			208,488.10		
KY88	L6	5/4/20 16:21	-			773,565.96			1,039,249.46			193,784.27		
KY89	L7	5/4/20 16:32	-			831,636.74			1,015,095.77			180,664.53		
KY90 IB	Instrument Blank	5/4/20 16:42	-			784,119.13			1,118,365.84			208,345.99		
KY91 ICC	ICC	5/4/20 16:53	-			764,339.76			1,027,618.11			192,151.95		
KY86 CCV	CCV	5/4/20 20:35	-			757,580.20			1,059,176.96			193,707.04		
CY822PB-FS(0)	Procedural Blank	5/4/20 20:56	-			814,414.45			1,081,964.31			195,032.58		
CY823LCS-FS(0)	Laboratory Control Sample	5/4/20 21:07	-			861,446.38			978,494.04			198,429.50		
H4954-FS1(0)	POL-MW0041SI-020.5-20200421	5/4/20 21:17	-			415,517.88			748,166.26			135,150.14		
H4955-FS1(0)	POL-MW0008S-009.3-20200421	5/4/20 21:28	-			480,794.00			952,354.90			139,683.02		
H4956-FS1(0)	POL-MW0008I-007.5-20200421	5/4/20 21:38	-			584,476.23			830,231.06			157,186.25		
H4957-FS1(0)	POL-MW0036SI-020.5-20200421	5/4/20 21:49	-			628,748.19			1,114,547.11			168,138.33		
H4958-FS1(0)	POL-MW0036I-027.5-20200421	5/4/20 21:59	-			591,414.88			994,297.67			170,470.94		
H4959-FS1(0)	POL-MW0047I-025.0-20200422	5/4/20 22:10	-			624,183.23			970,235.76			157,079.06		
H4960-FS1(0)	POL-FRB-0200422-01	5/4/20 22:20	-			824,301.96			1,113,360.70			210,709.73		
KY87 CCV	CCV	5/4/20 22:42	-			768,313.77			1,046,815.09			194,979.38		
H4961-FS1(0)	POL-MW0047D-035.0-20200422	5/4/20 23:03	-			563,744.43			970,556.02			165,242.46		
H4961-FS1-D(3)	POL-MW0047D-035.0-20200422	5/4/20 23:13	-			717,588.08			1,048,532.99			178,377.60		
H4962-FS1(0)	POL-MW0047DD-045.0-20200422	5/4/20 23:24	-			594,589.51			965,205.56			182,943.54		
H4963-FS1(0)	POL-MW0046D-035.0-20200422	5/4/20 23:34	-			660,083.76			1,024,581.84			171,979.26		
H4963-FS1-D(3)	POL-MW0046D-035.0-20200422	5/4/20 23:45	-			752,323.77			926,408.65			184,743.90		
H4964-FS1(0)	POL-MW0046DD-045.0-20200422	5/4/20 23:55	-			547,312.19			1,009,316.11			179,899.50		
H4966-FS1(0)	POL-MW0045I-025.0-20200422	5/5/20 0:06	-			558,704.11			820,157.00			149,636.89		
H4966-FS1-D(3)	POL-MW0045I-025.0-20200422	5/5/20 0:16	-			801,419.40			967,127.74			199,314.07		
KY86 CCV	CCV	5/5/20 0:37	-			775,890.87			1,093,346.88			201,624.92		
H4965-FS1(0)	POL-MW0045S-015.0-20200422	5/5/20 0:48	-			479,686.98			1,003,165.81			123,419.10		
H4965-FS1-D(3)	POL-MW0045S-015.0-20200422	5/5/20 0:58	-			856,507.23			1,111,043.69			208,465.80		
KY87 CCV	CCV	5/5/20 1:20	-			718,055.73			1,091,937.71			176,018.54		

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 06/05/2020 9:46:54 AM

Sample Name	KY88	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:21:30 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.36	1.47	0.8 – 1.5
PFHxA_1	313.0 / 269.0	1.62	1.23	0.8 – 1.5

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 06/05/2020 9:48:41 AM

Sample Name	KY89	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:32:03 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.35	57	>10
PFBS_2	298.9 / 99.0	1.35	55	>10
PFHxA_1	313.0 / 269.0	1.62	55	>10
PFHxA_2	313.0 / 119.0	1.62	46	>10
PFHpA_1	363.0 / 319.0	1.97	48	>10
PFHpA_2	363.0 / 169.0	1.97	51	>10
PFHxS_1	399.0 / 80.0	1.98	48	>10
PFHxS_2	399.0 / 99.0	1.98	46	>10
PFOA_1	413.0 / 369.0	2.36	51	>10
PFOA_2	413.0 / 169.0	2.36	51	>10
PFNA_1	463.0 / 419.0	2.75	52	>10
PFNA_2	463.0 / 219.0	2.75	51	>10
PFOS_1	499.0 / 80.0	2.74	60	>10
PFOS_2	499.0 / 99.0	2.74	52	>10
PFDA_1	513.0 / 469.0	3.11	53	>10
PFDA_2	513.0 / 219.0	3.11	41	>10
PFUnA_1	563.0 / 519.0	3.43	72	>10
PFUnA_2	563.0 / 269.0	3.43	45	>10
PFDoA_1	613.0 / 569.0	3.72	78	>10
PFDoA_2	613.0 / 319.0	3.72	76	>10
PFTrDA_1	663.0 / 619.0	3.98	97	>10
PFTrDA_2	663.0 / 169.0	3.98	83	>10
PFTeDA_1	713.0 / 669.0	4.21	141	>10
PFTeDA_2	713.0 / 169.0	4.21	94	>10
NMeFOSAA_1	570.0 / 419.0	3.25	51	>10
NMeFOSAA_2	570.0 / 512.0	3.25	61	>10
NEtFOSAA_1	584.0 / 419.0	3.42	62	>10
NEtFOSAA_2	584.0 / 483.0	3.42	44	>10
HFPO-DA_1	285.0 / 169.0	1.72	51	>10
HFPO-DA_2	285.0 / 118.8	1.72	36	>10
ADONA_1	377.0 / 251.0	2.01	49	>10
ADONA_2	377.0 / 85.0	2.01	40	>10
9Cl-PF3ONS_1	531.0 / 351.0	2.95	50	>10
9Cl-PF3ONS_2	531.0 / 83.0	2.95	28	>10
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	74	>10
11Cl-pf3OUdS_2	631.0 / 83.0	3.58	40	>10

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 06/05/2020 9:37:02 AM

Sample Name	KY89	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:32:03 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	3.72	65	>10
d3-MeFOSAA	573.0 / 419.0	3.25	48	>10
d5-EtFOSAA	589.0 / 419.0	3.42	50	>10
13C5-PFHxA	318.0 / 273.0	1.61	53	>10
13C4-PFHpA	367.0 / 322.0	1.96	21	>10
13C8-PFOA	421.0 / 376.0	2.35	44	>10
13C9-PFNA	472.0 / 427.0	2.74	49	>10
13C6-PFDA	519.0 / 474.0	3.10	55	>10
13C7-PFUnA	570.0 / 525.0	3.43	47	>10
13C2-PFTeDA	715.0 / 670.0	4.21	70	>10
13C3-PFBS	302.0 / 99.0	1.34	46	>10
13C3-PFHxS	402.0 / 99.0	1.98	33	>10
13C8-PFOS	507.0 / 99.0	2.74	47	>10
13C3-HFPO-DA	287.0 / 169.0	1.72	46	>10

Precision and Bias at the LOQ for PFAS in non-potable Water

Analyte	CAS No.	Average (ng/L)	ST DEV	2 Sigma	n [1]
PFBA	375-22-4	11.00	0.9226	1.85	14
PFPeA	2706-90-3	9.81	0.7228	1.45	11
PFHxA	307-24-4	9.88	1.1365	2.27	43
PFHpA	375-85-9	9.76	0.9225	1.85	43
PFOA	335-67-1	9.93	1.3923	2.78	44
PFNA	375-95-1	9.71	1.1236	2.25	43
PFDA	335-76-2	9.51	0.9842	1.97	43
PFUnA	2058-94-8	9.55	0.9267	1.85	43
PFDoA	307-55-1	10.22	0.9055	1.81	43
PFTrDA	72629-94-8	9.93	1.2752	2.55	43
PFTeDA	376-06-7	10.39	0.9707	1.94	43
NMeFOSAA	2355-31-9	10.02	1.5564	3.11	43
NEtFOSAA	2991-50-6	9.55	1.4218	2.84	43
PFOSA	754-91-6	10.06	0.8394	1.68	11
PFBS	375-73-5	9.63	1.1816	2.36	43
PFPeS	2706-91-4	9.88	0.9203	1.84	5
PFHxS	355-46-4	9.90	1.1346	2.27	43
PFHpS	375-92-8	10.13	1.0851	2.17	11
PFOS	1763-23-1	9.78	1.2383	2.48	44
PFNS	68259-12-1	9.45	1.0923	2.18	5
PFDS	335-77-3	9.55	1.3140	2.63	11
4:2FTS	757124-72-4	10.38	1.7353	3.47	6
6:2FTS	27619-97-2	10.08	1.1871	2.37	12
8:2FTS	39108-34-4	9.59	1.4345	2.87	12
HFPO-DA	13252-13-6	10.92	1.4420	2.88	25
Adona	919005-14-4	10.38	1.4862	2.97	25
11Cl-PF3OUdS	763051-92-9	9.80	1.5701	3.14	25
9Cl-PF3ONS	756426-58-1	9.52	1.0952	2.19	25

[1] Minimum of 20 samples required per QAM for determination of uncertainty, results including less than 20 data points are estimated.

BATTELLE DETECTION LIMITS FOR PFAS IN NON-POTABLE WATER

QSM 5.1.1 compliant with Table B-15 requirements

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
PFBA	375-22-4	0.45	1.0	5.0
PFPeA	2706-90-3	0.26	1.0	5.0
PFHxA	307-24-4	0.53	1.5	5.0
PFHpA	375-85-9	0.26	1.0	5.0
PFOA	335-67-1	0.51	1.5	5.0
PFNA	375-95-1	0.31	1.0	5.0
PFDA	335-76-2	0.14	0.5	5.0
PFUnA	2058-94-8	0.22	0.5	5.0
PFDoA	307-55-1	0.19	0.5	5.0
PFTrDA	72629-94-8	0.15	0.5	5.0
PFTeDA	376-06-7	0.73	2.0	5.0
NMeFOSAA	2355-31-9	0.35	1.0	5.0
NEtFOSAA	2991-50-6	0.50	1.0	5.0
PFOSA	754-91-6	0.46	1.0	5.0
PFBS	375-73-5	0.14	0.5	5.0
PFPeS	2706-91-4	0.26	1.0	5.0
PFHxS	355-46-4	0.11	0.4	5.0
PFHpS	375-92-8	0.85	2.0	5.0
PFOS	1763-23-1	0.44	1.0	5.0
PFNS	68259-12-1	0.36	1.0	5.0
PFDS	335-77-3	0.27	1.0	5.0
4:2FTS	747124-72-4	0.50	1.0	5.0
6:2FTS	27619-97-2	0.53	1.5	5.0
8:2FTS	39108-34-4	0.60	2.0	5.0
3:3 FTCA	356-02-5	1.32	3.0	5.0
5:3 FTCA	914637-49-3	1.59	3.0	5.0
7:3 FTCA	812-70-4	1.40	3.0	5.0
HFPO-DA	13252-13-6	0.25	0.5	5.0
Adona	919005-14-4	0.27	1.0	5.0
11Cl-PF3OUdS	763051-92-9	0.23	0.5	5.0
9Cl-PF3ONS	756426-58-1	0.27	1.0	5.0

Analytes on ELAP QSM 5.1.1 Scope of accreditation
MDL calculated based on 40 CFR 136 (2017)

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It can be done

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Analytical Transitions for PFAS in non-potable water, solid, and tissue

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFBA	375-22-4	Target	213.0 / 169.0	NA
PFPeA	2706-90-3	Target	263.0 / 219.0	NA
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
PFOSA	754-91-6	Target	498.0 / 78.0	498.0 / 83.0
PFBS	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
PFPeS	BDO-2114	Target	349.0 / 99.0	249.0 / 80.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFHpS	375-99-6	Target	449.0 / 80.0	449.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
PFNS	98789-57-2	Target	549.0 / 99.0	549.0 / 80.0
PFDS	2806-15-7	Target	599.0 / 80.0	599.0 / 99.0
4:2FTS	BDO-2205	Target	327.0 / 307.0	327.0 / 80.0
6:2FTS	27619-97-2	Target	427.0 / 407.0	427.0 / 81.0
8:2FTS	39108-34-4	Target	527.0 / 507.0	527.0 / 487.0
3:3 FTCA	356-02-5	Target	241.0 / 177.0	NA
5:3 FTCA	914637-49-3	Target	341.0 / 237.0	NA
7:3 FTCA	812-70-4	Target	441.0 / 337.0	NA
HFPO-DA	13252-13-6	Target	285.0 /169.0	285.0 /118.8
Adona	919005-14-4	Target	377.0 / 251.0	377.0 / 85.0
9Cl-PF3ONS	756426-58-1	Target	531.0 / 351.0	531.0 / 83.0
11Cl-PF3OUdS	763051-92-9	Target	631.0 / 451.0	631.0 / 83.0

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
13C4-PFBA	NA	SIS[1]	217.0 / 172.0	NA
13C5-PFPeA	NA	SIS[1]	268.0 / 223.0	NA
13C5-PFHxA	NA	SIS[1]	318.0 / 273.0	NA
13C4-PFHpA	NA	SIS[1]	367.0 / 322.0	NA
13C8-PFOA	NA	SIS[1]	421.0 / 376.0	NA
13C9-PFNA	NA	SIS[1]	472.0 / 427.0	NA
13C6-PFDA	NA	SIS[1]	519.0 / 474.0	NA
13C7-PFUnA	NA	SIS[1]	570.0 / 525.0	NA
13C2-PFDoA	NA	SIS[1]	615.0 / 570.0	NA
13C2-PFTeDA	NA	SIS[1]	715.0 / 670.0	NA
d3-MeFOSAA	NA	SIS[1]	573.0 / 419.0	NA
d5-EtFOSAA	NA	SIS[1]	589.0 / 419.0	NA
13C8-FOSA	NA	SIS[1]	506.0 / 78.0	NA
13C3-PFBS	NA	SIS[1]	302.0 / 99.0	NA
13C3-PFHxS	NA	SIS[1]	402.0 / 99.0	NA
13C8-PFOS	NA	SIS[1]	507.0 / 99.0	NA
13C2-4:2FTS	NA	SIS[1]	329.0 / 81.0	NA
13C2-6:2FTS	NA	SIS[1]	429.0 / 81.0	NA
13C2-8:2FTS	NA	SIS[1]	529.0 / 81.0	NA
$^{13}C_3$-HFPO-DA	NA	SIS	287.0 / 169.0	NA
13C3-PFBA	NA	IS[2]	216.0 / 172.0	NA
13C2-PFOA	NA	IS[2]	415.0 / 370.0	NA
13C2-PFDA	NA	IS[2]	515.0 / 470.0	NA
13C4-PFOS	NA	IS[2]	503.0 / 99.0	NA

[1] – extracted internal standard (surrogate)
[2] – injection internal standard

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Non-Potable Water Calibration to Sample Equivalents

ICAL (ng/L)	PIV (mL)	DF[1]	Sample Size (L)	Sample Equivalent (ng/L)[2]
125	1	1	0.250	0.5
250	1	1	0.250	1.0
500	1	1	0.250	2.0
1,000	1	1	0.250	4.0
2,500	1	1	0.250	10.0
10,000	1	1	0.250	40.0
25,000	1	1	0.250	100.0

[1] - base level dilution as part of the extraction procedure

[2] - calculated equivalent of a sample based on the ICAL concentration

Zef Scientific Inc.

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Suite 200
San Diego, CA
USA 92130

1975 Hymus Blvd.
Suite 230
Dorval, QC
Canada H9P 1J8

Phone: 1.866.854.7988

Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

Triple Quad 6500+ Preventive Maintenance Checklist

Preventive Maintenance Date:	28JAN2020

Request ID:	19004
Company Name:	Battelle
Instrument ID:	AE
Instrument Model:	Triple Quad 6500 Plus
Instrument Serial Number:	CF22921705

☑ **PASS** ☐ **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments: Q1 CHARGING. PULLED RAIL AND CLEANED. PROCEEDED WITH POST PM
ALL TESTS PASSED SPECS.

Performed By: Rami Haddad **Date:** 28JAN2020

Approved By : Kevin McInerney 2020.02.11 14:00:02 -05'00' **Date:** 02/11/2020

Zef Scientific Inc.

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Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

PRE-PM PPG PERFORMANCE EVALUATION:

☑ Consult the customer concerning the system overall performance.
☑ Check Logbook for services performed recently if available.
☑ Check Vacuum Pressure.

CAD Settings	Vacuum Reading (10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.6e-5	0.4 to 1.1 x 10^{-5} Torr
☑ CAD 12	3.4e-5	2.4 to 4.1 x 10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☐ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☑ No degradation or Sensitivity drop

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Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

PPG Performance Test

(Make printouts showing all the peaks, intensities, peak widths, and mass shift values.)

Positive Mode: Masses for the peaks of interest are: 59.050, 175.133, 500.380, 616.464, 906.673, 1254.925, 1545.134,1952.427.

High Mass Test

☑ Perform High Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 500.380	5.75e6	Read Only	0.5337	Read Only
Q1 616.464	1.06e7	Read Only	0.5337	Read Only
Q1 906.673	4.99e7	Read Only	0.6004	Read Only
Q1 1952.427	1.45e7	Read Only	1.1000	Read Only

☑ Perform High Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 500.380	7.90e7	Read Only	0.7207	Read Only
Q3 616.464	4.37e7	Read Only	0.7146	Read Only
Q3 906.673	1.60e8	Read Only	0.7456	Read Only
Q3 1952.427	2.61e7	Read Only	0.8245	Read Only

Low Mass Test

☑ Perform Low Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 175.133	5.26e6	Read Only	0.4602	Read Only
Q1 500.380	4.29e7	Read Only	0.5591	Read Only
Q1 616.464	1.52e7	Read Only	0.4467	Read Only
Q1 906.673	6.72e7	Read Only	0.6448	Read Only

☑ Perform Low Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 175.133	2.56e7	Read Only	0.7140	Read Only
Q3 500.380	1.15e8	Read Only	0.7393	Read Only
Q3 616.464	6.03e7	Read Only	0.7499	Read Only
Q3 906.673	2.09e8	Read Only	0.7733	Read Only

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Triple Quad 6500+

LC/MS/MS Detector System

Appendix ZEFPM003-1S

Preventive Maintenance Procedure

☑ Check cooling fans in mass spec if working. Replace them soon, if defective.
☑ Clean bench cooling fans if applicable. Replace them soon, if defective.

☑ Record AC input voltage while MS is OFF: ____________ (200 to 240 Vac).
Notify customer if input voltage is out of range.

☑ After venting, clean Interface region:
- ☑ Curtain Plate
- ☑ Orifice Plate atmosphere side
- ☑ Orifice Plate vacuum side
- ☑ Ion Drive QJet and IQ0.

☑ Check Q0 for signs of arcing and clean with cleaning solvent.
☐ Replace Roughing Pump Oil.

☐ Clean oil exhaust Filter.
Replace if necessary. ☑ N/A

☑ Adjust Multiplier Voltage if necessary.
☑ Clean or replace Air Filters.
☑ Clean the turbo pump filter screen if applicable.

☑ Check Orifice resistances.
Replace it soon if out of resistance specifications. ☐ N/A

☑ Replace Electrode if necessary in Ion Drive Turbo V source.

☑ Check Turbo heaters resistances and their physical conditions in Ion Drive Turbo V source.
Replace the defective heaters if necessary. ☐ N/A

☐ Check the APCI heater resistance. Verify Temperature reaches setpoint
Replace the heater if necessary. ☑ N/A

☑ Turn on the mass spec and rough pumps for pumping down.
☑ Verify Temperature reaches setpoint in both TIS and APCI modes if applicable.

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Appendix ZEFPM003-1S

POST- PM PPG PERFORMANCE TESTS:

☑ Set-up PPG standard for infusion.
☑ Check spray and adjust sprayer's position of the Ion Drive Turbo V source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.6e-5	0.4 to 1.1 x 10^{-5} Torr
☑ CAD 12	3.4e-5	2.4 to 4.1 x 10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☑ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7M for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification.

☑ No degradation or Sensitivity drop

PPG Performance Test

(Mass calibrate to less than 0.1 amu. Make printouts showing all the peaks, intensities, peak widths, and mass shift values.)

Positive Mode: Masses for the peaks of interest are: 59.050, 175.133, 500.380, 616.464, 906.673, 1254.925, 1545.134,1952.427.

Negative Mode: Masses for the peaks of interest are: 44.998, 411.259, 585.385, 933.636, 1223.845, 1572.097, 1863.306, 1979.389.

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Appendix ZEFPM003-1S

High Mass Test

☑ Perform High Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 500.380	1.04e8	≥ 3.2 e7	0.7477	0.6 to 0.8
Q1 616.464	5.82e7	≥ 2.0 e7	0.7311	0.6 to 0.8
Q1 906.673	1.92e8	≥ 9.6 e7	0.7359	0.6 to 0.8
Q1 1952.427	1.69e7	≥ 2.4 e6	0.7432	0.6 to 0.8

☑ Perform High Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 500.380	1.11e8	≥ 3.2 e7	0.7546	0.6 to 0.8
Q3 616.464	6.71e7	≥ 2.0 e7	0.7276	0.6 to 0.8
Q3 906.673	2.17e8	≥ 9.6 e7	0.7791	0.6 to 0.8
Q3 1952.427	2.13e7	≥ 2.4 e6	0.7277	0.6 to 0.8

☑ Perform MSMS POS in Product Ion scan with 907 parent and record daughter 175.1 using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
MS/MS 175.1	4.18e6	Read Only	0.7445	Read Only

☑ Perform Q1 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 933.636	2.01e7	≥ 1.8 e7	0.8006	0.6 to 0.8
Q1 1863.306	3.39e6	≥ 1.0 e6	0.7928	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 933.636	1.93e7	≥ 1.8 e7	0.7928	0.6 to 0.8
Q3 1863.306	4.94e6	≥ 1.0 e6	0.7029	0.6 to 0.8

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Appendix ZEFPM003-1S

Low Mass Test

☑ Perform Low Mass Q1 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Specs		
Q1 175.133	1.80e7	≥ 8.0 e6	0.7651	0.6 to 0.8
Q1 500.380	1.14e8	≥ 3.68 e7	0.7838	0.6 to 0.8
Q1 616.464	6.29e7	≥ 2.4 e7	0.7839	0.6 to 0.8
Q1 906.673	1.65e8	≥ 1.0 e8	0.7910	0.6 to 0.8

☑ Perform Low Mass Q3 POS using POS PPG 2e-7M (500:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Specs		
Q3 175.133	2.75e7	≥ 8.0 e6	0.7682	0.6 to 0.8
Q3 500.380	1.36e8	≥ 3.68 e7	0.7698	0.6 to 0.8
Q3 616.464	8.43e7	≥ 2.4 e7	0.7905	0.6 to 0.8
Q3 906.673	2.47e8	≥ 1.0 e8	0.7735	0.6 to 0.8

☑ Perform Q1 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	2.01e7	≥ 1.8 e7	0.7918	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3 x 10-5 M (10:1). Scan Rate 10 Da/s. Record 10 MCA.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	2.28e7	≥ 1.8 e7	0.7964	0.6 to 0.8

☑ Perform MSMS NEG in Product Ion scan with 933.6 parent and record daughter 45.0 using NEG PPG 3 x 10-5 M (10:1) at the scan rate of 10 Da/s for 10 MCA.

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
MS/MS 45.0	2.06e6	Read Only	0.7233	Read Only

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LC/MS/MS Detector System

Appendix ZEFPM003-1S

REVIEW:

☑ Attach all printouts to this checklist.
☑ If any parameter setting access modes were changed during the PM, ensure that they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
☐ Empty tuning cache folder, if necessary. ☑ N/A
☑ Fill and replaced PM Label.

END OF PREVENTIVE MAINTENANCE PROCEDURE

Document history:

04 OCT 2016: Appendix ZEFPM003-1S: New SOP Appendix.

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
KY44	PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	-	-	-	190926-12
KY44	PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	-	-	-	200326-03
KY48	PFAS - DoD Second Source LCS/MS Solution	-	-	-	200420-01
KY48	PFAS - DoD Second Source LCS/MS Solution	KV39	-	-	190926-13
KY48	PFAS - DoD Second Source LCS/MS Solution	KV39	-	-	190926-14
KY48	PFAS - DoD Second Source LCS/MS Solution	KV39	-	-	190926-15
KY45	PFAS - DoD Internal Standard Spiking Solution	-	-	-	200317-01
KY83	PFAS - DoD Calibration L1	KY80	KY79	-	190812-02
KY83	PFAS - DoD Calibration L1	KY80	KY79	KV39	190926-13
KY83	PFAS - DoD Calibration L1	KY80	KY79	KV39	190926-14
KY83	PFAS - DoD Calibration L1	KY80	KY79	KV39	190926-15
KY83	PFAS - DoD Calibration L1	KY81	-	-	190926-12
KY83	PFAS - DoD Calibration L1	KY81	-	-	200326-03
KY83	PFAS - DoD Calibration L1	KY82	-	-	200317-01
KY84	PFAS - DoD Calibration L2	KY80	KY79	-	190812-02
KY84	PFAS - DoD Calibration L2	KY80	KY79	KV39	190926-13
KY84	PFAS - DoD Calibration L2	KY80	KY79	KV39	190926-14
KY84	PFAS - DoD Calibration L2	KY80	KY79	KV39	190926-15
KY84	PFAS - DoD Calibration L2	KY81	-	-	190926-12
KY84	PFAS - DoD Calibration L2	KY81	-	-	200326-03
KY84	PFAS - DoD Calibration L2	KY82	-	-	200317-01
KY85	PFAS - DoD Calibration L3	KY80	KY79	-	190812-02
KY85	PFAS - DoD Calibration L3	KY80	KY79	KV39	190926-13
KY85	PFAS - DoD Calibration L3	KY80	KY79	KV39	190926-14
KY85	PFAS - DoD Calibration L3	KY80	KY79	KV39	190926-15
KY85	PFAS - DoD Calibration L3	KY81	-	-	190926-12
KY85	PFAS - DoD Calibration L3	KY81	-	-	200326-03
KY85	PFAS - DoD Calibration L3	KY82	-	-	200317-01
KY86	PFAS - DoD Calibration L4	KY79	-	-	190812-02
KY86	PFAS - DoD Calibration L4	KY79	KV39	-	190926-13
KY86	PFAS - DoD Calibration L4	KY79	KV39	-	190926-14
KY86	PFAS - DoD Calibration L4	KY79	KV39	-	190926-15
KY86	PFAS - DoD Calibration L4	KY81	-	-	190926-12
KY86	PFAS - DoD Calibration L4	KY81	-	-	200326-03
KY86	PFAS - DoD Calibration L4	KY82	-	-	200317-01
KY87	PFAS - DoD Calibration L5	KY79	-	-	190812-02
KY87	PFAS - DoD Calibration L5	KY79	KV39	-	190926-13
KY87	PFAS - DoD Calibration L5	KY79	KV39	-	190926-14
KY87	PFAS - DoD Calibration L5	KY79	KV39	-	190926-15
KY87	PFAS - DoD Calibration L5	KY81	-	-	190926-12
KY87	PFAS - DoD Calibration L5	KY81	-	-	200326-03
KY87	PFAS - DoD Calibration L5	KY82	-	-	200317-01
KY88	PFAS - DoD Calibration L6	KY79	-	-	190812-02
KY88	PFAS - DoD Calibration L6	KY79	KV39	-	190926-13
KY88	PFAS - DoD Calibration L6	KY79	KV39	-	190926-14
KY88	PFAS - DoD Calibration L6	KY79	KV39	-	190926-15
KY88	PFAS - DoD Calibration L6	KY81	-	-	190926-12
KY88	PFAS - DoD Calibration L6	KY81	-	-	200326-03
KY88	PFAS - DoD Calibration L6	KY82	-	-	200317-01
KY89	PFAS - DoD Calibration L7	KY79	-	-	190812-02
KY89	PFAS - DoD Calibration L7	KY79	KV39	-	190926-13
KY89	PFAS - DoD Calibration L7	KY79	KV39	-	190926-14
KY89	PFAS - DoD Calibration L7	KY79	KV39	-	190926-15
KY89	PFAS - DoD Calibration L7	KY81	-	-	190926-12
KY89	PFAS - DoD Calibration L7	KY81	-	-	200326-03
KY89	PFAS - DoD Calibration L7	KY82	-	-	200317-01
KY91	PFAS - DoD ICC	KY48	KV39	-	190926-13
KY91	PFAS - DoD ICC	KY48	KV39	-	190926-14

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
KY91	PFAS - DoD ICC	KY48	KV39	-	190926-15
KY91	PFAS - DoD ICC	KY48	-	-	200420-01
KY91	PFAS - DoD ICC	KY81	-	-	190926-12
KY91	PFAS - DoD ICC	KY81	-	-	200326-03
KY91	PFAS - DoD ICC	KY82	-	-	200317-01

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **KV39**

Description: PFAS - FTCA Stock

Stock Id: 190926-13

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-perfluoropropyl propanoic Acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 190926-14

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 190926-15

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoropentyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
3-Perfluoroheptyl propanoic acid	5.00000
3-Perfluoropentyl propanoic acid	5.00000
3-perfluoropropyl propanoic Acid	5.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190926-13	Pipette	B820865811
190926-14	Pipette	B820865811
190926-15	Pipette	B820865811

Solution Prepared By: Griffith, Lauren	**Date Prepared:** 1/17/2020	**Expiration Date:**	12/6/2020
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	LC Laboratory: Freezer - F0111	

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY44**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

Stock Id: 190926-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-HFPO-DA	20	50.00	1	98.000	1	100	0.01000

Stock Id: 200326-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	1000	0.94	1	100.000	1	100	0.00935
13C2-6:2FTS	1000	0.95	1	100.000	1	100	0.00949
13C2-8:2FTS	1000	0.96	1	100.000	1	100	0.00958
13C2-PFDoA	1000	1.00	1	100.000	1	100	0.01000
13C2-PFTeDA	1000	1.00	1	100.000	1	100	0.01000
13C3-PFBS	1000	0.93	1	100.000	1	100	0.00929
13C3-PFHxS	1000	0.95	1	100.000	1	100	0.00946
13C4-PFBA	1000	1.00	1	100.000	1	100	0.01000
13C4-PFHpA	1000	1.00	1	100.000	1	100	0.01000
13C5-PFHxA	1000	1.00	1	100.000	1	100	0.01000
13C5-PFPeA	1000	1.00	1	100.000	1	100	0.01000
13C6-PFDA	1000	1.00	1	100.000	1	100	0.01000
13C7-PFUnA	1000	1.00	1	100.000	1	100	0.01000
13C8-FOSA	1000	1.00	1	100.000	1	100	0.01000
13C8-PFOA	1000	1.00	1	100.000	1	100	0.01000
13C8-PFOS	1000	0.96	1	100.000	1	100	0.00957
13C9-PFNA	1000	1.00	1	100.000	1	100	0.01000
d3-MeFOSAA	1000	1.00	1	100.000	1	100	0.01000
d5-EtFOSAA	1000	1.00	1	100.000	1	100	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.00935
13C2-6:2FTS	.00949
13C2-8:2FTS	.00958
13C2-PFDoA	.01000
13C2-PFTeDA	.01000
13C3-HFPO-DA	.01000
13C3-PFBS	.00929
13C3-PFHxS	.00946
13C4-PFBA	.01000

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/13/2020	**Expiration Date:**	4/13/2021
Solution Volume 40 **mL X** 4 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 4/13/2020 2:41:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY44**

Description: PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)

13C4-PFHpA	.01000
13C5-PFHxA	.01000
13C5-PFPeA	.01000
13C6-PFDA	.01000
13C7-PFUnA	.01000
13C8-FOSA	.01000
13C8-PFOA	.01000
13C8-PFOS	.00957
13C9-PFNA	.01000
d3-MeFOSAA	.01000
d5-EtFOSAA	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190926-12	Pipette	B814659662
200326-03	Pipette	B909301606

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/13/2020	**Expiration Date:**	4/13/2021
Solution Volume 40 **mL X** 4 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Schumitz, Denise **Date:** 4/13/2020 2:41:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY45**

Description: PFAS - DoD Internal Standard Spiking Solution

Stock Id: 200317-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	2.00	1	100.000	1	100	0.01000
13C2-PFOA	500	2.00	1	100.000	1	100	0.01000
13C3-PFBA	500	2.00	1	100.000	1	100	0.01000
13C4-PFOS	500	1.91	1	100.000	1	100	0.00957

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.01000
13C2-PFOA	.01000
13C3-PFBA	.01000
13C4-PFOS	.00957

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200317-01	Pipette	B909301606

Solution Prepared By: Bailey, Kevin	**Date Prepared:** 4/20/2020	**Expiration Date:** 4/20/2021	
Solution Volume 40 **mL X** 4 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water

Approved By: Thorn, Jonathan **Date:** 4/20/2020 12:42:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY48

Description: PFAS - DoD Second Source LCS/MS Solution

Stock Id: 200420-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	20	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	20	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	20	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	20	0.10000
Adona	2000	1.00	1	100.000	1	20	0.10000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	20	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-hexanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-1-octanesulfonate	2000	1.01	1	100.000	1	20	0.10100
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-hexanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	20	0.10100
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	20	0.10000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	20	0.10000

Stock Id: KV39

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	20	0.10000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	20	0.10000

Final Concentrations:

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 4/20/2020	**Expiration Date:** 12/6/2020	
Solution Volume 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200420-6).

Approved By: Schumitz, Denise **Date:** 4/21/2020 9:40:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY48**

Description: PFAS - DoD Second Source LCS/MS Solution

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200420-01	Pipette	B906204506
KV39	Pipette	B909301606

Solution Prepared By:	Schultz, Stephanie			**Date Prepared:**	4/20/2020	**Expiration Date:**	12/6/2020	
Solution Volume	40	**mL X**	1	**Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200420-6).

Approved By: Schumitz, Denise **Date:** 4/21/2020 9:40:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY79**

Description: PFAS - DoD High ICAL Stock

Stock Id: 190812-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	1.00	1	100.000	1	10	0.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	1.01	1	100.000	1	10	0.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	1.00	1	100.000	1	10	0.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	1.00	1	100.000	1	10	0.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	1.00	1	100.000	1	10	0.10000
Adona	1000	1.00	1	100.000	1	10	0.10000
Hexafluoropropylene oxide dimer acid	1000	1.00	1	100.000	1	10	0.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	10	0.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-butanesulfonate	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-decanesulfonate	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-1-heptanesulfonate	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-hexanesulfonate	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-1-nonanesulfonate	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-1-octanesulfonamide	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-1-octanesulfonate	1000	1.01	1	100.000	1	10	0.10100
perfluoro-1-pentanesulfonate	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-butanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-decanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-dodecanoic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-heptanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-hexanoic acid	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-n-octanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluorononanoic Acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-pentanoic acid	1000	1.01	1	100.000	1	10	0.10100
Perfluoro-n-tetradecanoic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-tridecanoic acid	1000	1.00	1	100.000	1	10	0.10000
Perfluoro-n-undecanoic acid	1000	1.00	1	100.000	1	10	0.10000

Stock Id: KV39

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	200	5.00	---	---	1	10	0.10000
3-Perfluoropentyl propanoic acid	200	5.00	---	---	1	10	0.10000
3-perfluoropropyl propanoic Acid	200	5.00	---	---	1	10	0.10000

Final Concentrations:

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:42:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY79**

Description: PFAS - DoD High ICAL Stock

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.10000
1H,1H,2H,2H-Perfluorodecane sulfonate	.10100
1H,1H,2H,2H-Perfluorohexane sulfonate	.10000
1H,1H,2H,2H-Perfluorooctane sulfonate	.10000
3-Perfluoroheptyl propanoic acid	.10000
3-Perfluoropentyl propanoic acid	.10000
3-perfluoropropyl propanoic Acid	.10000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.10000
Adona	.10000
Hexafluoropropylene oxide dimer acid	.10000
N-ethylperfluoro-octanesulfonamidoacetic acid	.10000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.10000
Perfluoro-1-butanesulfonate	.10000
Perfluoro-1-decanesulfonate	.10100
Perfluoro-1-heptanesulfonate	.10000
Perfluoro-1-hexanesulfonate	.10100
Perfluoro-1-nonanesulfonate	.10100
Perfluoro-1-octanesulfonamide	.10000
Perfluoro-1-octanesulfonate	.10100
perfluoro-1-pentanesulfonate	.10000
Perfluoro-n-butanoic Acid	.10000
Perfluoro-n-decanoic Acid	.10000
Perfluoro-n-dodecanoic acid	.10000
Perfluoro-n-heptanoic Acid	.10000
Perfluoro-n-hexanoic acid	.10100
Perfluoro-n-octanoic Acid	.10000
Perfluorononanoic Acid	.10000
Perfluoro-n-pentanoic acid	.10100
Perfluoro-n-tetradecanoic acid	.10000
Perfluoro-n-tridecanoic acid	.10000
Perfluoro-n-undecanoic acid	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190812-02	Pipette	B820865811
KV39	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:42:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY80**

Description: PFAS - DoD Low Level ICAL Stock

Stock Id: KY79

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	500	0.10	---	---	1	5	0.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.10	---	---	1	5	0.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.10	---	---	1	5	0.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.10	---	---	1	5	0.01000
3-Perfluoroheptyl propanoic acid	500	0.10	---	---	1	5	0.01000
3-Perfluoropentyl propanoic acid	500	0.10	---	---	1	5	0.01000
3-perfluoropropyl propanoic Acid	500	0.10	---	---	1	5	0.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	500	0.10	---	---	1	5	0.01000
Adona	500	0.10	---	---	1	5	0.01000
Hexafluoropropylene oxide dimer acid	500	0.10	---	---	1	5	0.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.10	---	---	1	5	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-1-butanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-1-decanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-heptanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-1-hexanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-nonanesulfonate	500	0.10	---	---	1	5	0.01010
Perfluoro-1-octanesulfonamide	500	0.10	---	---	1	5	0.01000
Perfluoro-1-octanesulfonate	500	0.10	---	---	1	5	0.01010
perfluoro-1-pentanesulfonate	500	0.10	---	---	1	5	0.01000
Perfluoro-n-butanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-decanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-dodecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-heptanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-hexanoic acid	500	0.10	---	---	1	5	0.01010
Perfluoro-n-octanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluorononanoic Acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-pentanoic acid	500	0.10	---	---	1	5	0.01010
Perfluoro-n-tetradecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-tridecanoic acid	500	0.10	---	---	1	5	0.01000
Perfluoro-n-undecanoic acid	500	0.10	---	---	1	5	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	.01010

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:42:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY80**

Description: PFAS - DoD Low Level ICAL Stock

1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.01000
Adona	.01000
Hexafluoropropylene oxide dimer acid	.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanesulfonate	.01000
Perfluoro-1-decanesulfonate	.01010
Perfluoro-1-heptanesulfonate	.01000
Perfluoro-1-hexanesulfonate	.01010
Perfluoro-1-nonanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01010
perfluoro-1-pentanesulfonate	.01000
Perfluoro-n-butanoic Acid	.01000
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01010
Perfluoro-n-octanoic Acid	.01000
Perfluorononanoic Acid	.01000
Perfluoro-n-pentanoic acid	.01010
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY79	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:42:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY81**

Description: PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)

Stock Id: 190926-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-HFPO-DA	20	50.00	1	98.000	1	10	0.10000

Stock Id: 200326-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	1000	0.94	1	100.000	1	10	0.09350
13C2-6:2FTS	1000	0.95	1	100.000	1	10	0.09490
13C2-8:2FTS	1000	0.96	1	100.000	1	10	0.09580
13C2-PFDoA	1000	1.00	1	100.000	1	10	0.10000
13C2-PFTeDA	1000	1.00	1	100.000	1	10	0.10000
13C3-PFBS	1000	0.93	1	100.000	1	10	0.09290
13C3-PFHxS	1000	0.95	1	100.000	1	10	0.09460
13C4-PFBA	1000	1.00	1	100.000	1	10	0.10000
13C4-PFHpA	1000	1.00	1	100.000	1	10	0.10000
13C5-PFHxA	1000	1.00	1	100.000	1	10	0.10000
13C5-PFPeA	1000	1.00	1	100.000	1	10	0.10000
13C6-PFDA	1000	1.00	1	100.000	1	10	0.10000
13C7-PFUnA	1000	1.00	1	100.000	1	10	0.10000
13C8-FOSA	1000	1.00	1	100.000	1	10	0.10000
13C8-PFOA	1000	1.00	1	100.000	1	10	0.10000
13C8-PFOS	1000	0.96	1	100.000	1	10	0.09570
13C9-PFNA	1000	1.00	1	100.000	1	10	0.10000
d3-MeFOSAA	1000	1.00	1	100.000	1	10	0.10000
d5-EtFOSAA	1000	1.00	1	100.000	1	10	0.10000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.09350
13C2-6:2FTS	.09490
13C2-8:2FTS	.09580
13C2-PFDoA	.10000
13C2-PFTeDA	.10000
13C3-HFPO-DA	.10000
13C3-PFBS	.09290
13C3-PFHxS	.09460
13C4-PFBA	.10000

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 5/4/2021

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY81**

Description: PFAS - DoD High Level Labelled Extracted Internal Standards (SIS)

13C4-PFHpA	.10000
13C5-PFHxA	.10000
13C5-PFPeA	.10000
13C6-PFDA	.10000
13C7-PFUnA	.10000
13C8-FOSA	.10000
13C8-PFOA	.10000
13C8-PFOS	.09570
13C9-PFNA	.10000
d3-MeFOSAA	.10000
d5-EtFOSAA	.10000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
190926-12	Pipette	B814659662
200326-03	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 5/4/2021	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY82**

Description: PFAS - DoD Internal Standard Stock

Stock Id: 200317-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	250	2.00	1	100.000	1	5	0.10000
13C2-PFOA	250	2.00	1	100.000	1	5	0.10000
13C3-PFBA	250	2.00	1	100.000	1	5	0.10000
13C4-PFOS	250	1.91	1	100.000	1	5	0.09570

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.10000
13C2-PFOA	.10000
13C3-PFBA	.10000
13C4-PFOS	.09570

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
200317-01	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 5/4/2021	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 96/4 methanol/milli-q water (RP-200504-2)

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY83**

Description: PFAS - DoD Calibration L1

Stock Id: KY80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	125	0.01	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorodecane sulfonate	125	0.01	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorohexane sulfonate	125	0.01	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorooctane sulfonate	125	0.01	---	---	1	10	0.00013
3-Perfluoroheptyl propanoic acid	125	0.01	---	---	1	10	0.00013
3-Perfluoropentyl propanoic acid	125	0.01	---	---	1	10	0.00013
3-perfluoropropyl propanoic Acid	125	0.01	---	---	1	10	0.00013
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	125	0.01	---	---	1	10	0.00013
Adona	125	0.01	---	---	1	10	0.00013
Hexafluoropropylene oxide dimer acid	125	0.01	---	---	1	10	0.00013
N-ethylperfluoro-octanesulfonamidoacetic acid	125	0.01	---	---	1	10	0.00013
N-methylperfluoro-1-octanesulfonamidoacetic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-1-butanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-decanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-heptanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-hexanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-nonanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-1-octanesulfonamide	125	0.01	---	---	1	10	0.00013
Perfluoro-1-octanesulfonate	125	0.01	---	---	1	10	0.00013
perfluoro-1-pentanesulfonate	125	0.01	---	---	1	10	0.00013
Perfluoro-n-butanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-decanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-dodecanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-heptanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-hexanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-octanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluorononanoic Acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-pentanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-tetradecanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-tridecanoic acid	125	0.01	---	---	1	10	0.00013
Perfluoro-n-undecanoic acid	125	0.01	---	---	1	10	0.00013

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY83**

Description: PFAS - DoD Calibration L1

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00013
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY83**

Description: PFAS - DoD Calibration L1

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00013
1H,1H,2H,2H-Perfluorohexane sulfonate	.00013
1H,1H,2H,2H-Perfluorooctane sulfonate	.00013
3-Perfluoroheptyl propanoic acid	.00013
3-Perfluoropentyl propanoic acid	.00013
3-perfluoropropyl propanoic Acid	.00013
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00013
Adona	.00013
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00013
N-ethylperfluoro-octanesulfonamidoacetic acid	.00013
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00013
Perfluoro-1-butanesulfonate	.00013
Perfluoro-1-decanesulfonate	.00013
Perfluoro-1-heptanesulfonate	.00013
Perfluoro-1-hexanesulfonate	.00013
Perfluoro-1-nonanesulfonate	.00013
Perfluoro-1-octanesulfonamide	.00013
Perfluoro-1-octanesulfonate	.00013
perfluoro-1-pentanesulfonate	.00013
Perfluoro-n-butanoic Acid	.00013
Perfluoro-n-decanoic Acid	.00013
Perfluoro-n-dodecanoic acid	.00013
Perfluoro-n-heptanoic Acid	.00013
Perfluoro-n-hexanoic acid	.00013

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY83**

Description: PFAS - DoD Calibration L1

Perfluoro-n-octanoic Acid	.00013
Perfluorononanoic Acid	.00013
Perfluoro-n-pentanoic acid	.00013
Perfluoro-n-tetradecanoic acid	.00013
Perfluoro-n-tridecanoic acid	.00013
Perfluoro-n-undecanoic acid	.00013

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY80	Pipette	B814657482
KY81	Pipette	B814657482
KY82	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie		**Date Prepared:**	5/4/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121			

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY84**

Description: PFAS - DoD Calibration L2

Stock Id: KY80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	250	0.01	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorodecane sulfonate	250	0.01	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorohexane sulfonate	250	0.01	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorooctane sulfonate	250	0.01	---	---	1	10	0.00025
3-Perfluoroheptyl propanoic acid	250	0.01	---	---	1	10	0.00025
3-Perfluoropentyl propanoic acid	250	0.01	---	---	1	10	0.00025
3-perfluoropropyl propanoic Acid	250	0.01	---	---	1	10	0.00025
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	250	0.01	---	---	1	10	0.00025
Adona	250	0.01	---	---	1	10	0.00025
Hexafluoropropylene oxide dimer acid	250	0.01	---	---	1	10	0.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	250	0.01	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-1-butanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-decanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-heptanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-hexanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-nonanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-1-octanesulfonamide	250	0.01	---	---	1	10	0.00025
Perfluoro-1-octanesulfonate	250	0.01	---	---	1	10	0.00025
perfluoro-1-pentanesulfonate	250	0.01	---	---	1	10	0.00025
Perfluoro-n-butanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-decanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-dodecanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-heptanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-hexanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-octanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluorononanoic Acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-pentanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-tetradecanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-tridecanoic acid	250	0.01	---	---	1	10	0.00025
Perfluoro-n-undecanoic acid	250	0.01	---	---	1	10	0.00025

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY84**

Description: PFAS - DoD Calibration L2

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00025
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY84**

Description: PFAS - DoD Calibration L2

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00025
1H,1H,2H,2H-Perfluorohexane sulfonate	.00025
1H,1H,2H,2H-Perfluorooctane sulfonate	.00025
3-Perfluoroheptyl propanoic acid	.00025
3-Perfluoropentyl propanoic acid	.00025
3-perfluoropropyl propanoic Acid	.00025
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00025
Adona	.00025
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00025
Perfluoro-1-butanesulfonate	.00025
Perfluoro-1-decanesulfonate	.00025
Perfluoro-1-heptanesulfonate	.00025
Perfluoro-1-hexanesulfonate	.00025
Perfluoro-1-nonanesulfonate	.00025
Perfluoro-1-octanesulfonamide	.00025
Perfluoro-1-octanesulfonate	.00025
perfluoro-1-pentanesulfonate	.00025
Perfluoro-n-butanoic Acid	.00025
Perfluoro-n-decanoic Acid	.00025
Perfluoro-n-dodecanoic acid	.00025
Perfluoro-n-heptanoic Acid	.00025
Perfluoro-n-hexanoic acid	.00025

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY84**

Description: PFAS - DoD Calibration L2

Perfluoro-n-octanoic Acid	.00025
Perfluorononanoic Acid	.00025
Perfluoro-n-pentanoic acid	.00025
Perfluoro-n-tetradecanoic acid	.00025
Perfluoro-n-tridecanoic acid	.00025
Perfluoro-n-undecanoic acid	.00025

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY80	Pipette	B814657482
KY81	Pipette	B814657482
KY82	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:43:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY85**

Description: PFAS - DoD Calibration L3

Stock Id: KY80

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	500	0.01	---	---	1	10	0.00050
1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.01	---	---	1	10	0.00051
1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.01	---	---	1	10	0.00050
1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.01	---	---	1	10	0.00050
3-Perfluoroheptyl propanoic acid	500	0.01	---	---	1	10	0.00050
3-Perfluoropentyl propanoic acid	500	0.01	---	---	1	10	0.00050
3-perfluoropropyl propanoic Acid	500	0.01	---	---	1	10	0.00050
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	500	0.01	---	---	1	10	0.00050
Adona	500	0.01	---	---	1	10	0.00050
Hexafluoropropylene oxide dimer acid	500	0.01	---	---	1	10	0.00050
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-1-butanesulfonate	500	0.01	---	---	1	10	0.00050
Perfluoro-1-decanesulfonate	500	0.01	---	---	1	10	0.00051
Perfluoro-1-heptanesulfonate	500	0.01	---	---	1	10	0.00050
Perfluoro-1-hexanesulfonate	500	0.01	---	---	1	10	0.00051
Perfluoro-1-nonanesulfonate	500	0.01	---	---	1	10	0.00051
Perfluoro-1-octanesulfonamide	500	0.01	---	---	1	10	0.00050
Perfluoro-1-octanesulfonate	500	0.01	---	---	1	10	0.00051
perfluoro-1-pentanesulfonate	500	0.01	---	---	1	10	0.00050
Perfluoro-n-butanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-decanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-dodecanoic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-heptanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-hexanoic acid	500	0.01	---	---	1	10	0.00051
Perfluoro-n-octanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluorononanoic Acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-pentanoic acid	500	0.01	---	---	1	10	0.00051
Perfluoro-n-tetradecanoic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-tridecanoic acid	500	0.01	---	---	1	10	0.00050
Perfluoro-n-undecanoic acid	500	0.01	---	---	1	10	0.00050

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY85

Description: PFAS - DoD Calibration L3

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00050
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY85**

Description: PFAS - DoD Calibration L3

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00051
1H,1H,2H,2H-Perfluorohexane sulfonate	.00050
1H,1H,2H,2H-Perfluorooctane sulfonate	.00050
3-Perfluoroheptyl propanoic acid	.00050
3-Perfluoropentyl propanoic acid	.00050
3-perfluoropropyl propanoic Acid	.00050
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00050
Adona	.00050
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00050
N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
Perfluoro-1-butanesulfonate	.00050
Perfluoro-1-decanesulfonate	.00051
Perfluoro-1-heptanesulfonate	.00050
Perfluoro-1-hexanesulfonate	.00051
Perfluoro-1-nonanesulfonate	.00051
Perfluoro-1-octanesulfonamide	.00050
Perfluoro-1-octanesulfonate	.00051
perfluoro-1-pentanesulfonate	.00050
Perfluoro-n-butanoic Acid	.00050
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexanoic acid	.00051

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY85**

Description: PFAS - DoD Calibration L3

Perfluoro-n-octanoic Acid	.00050
Perfluorononanoic Acid	.00050
Perfluoro-n-pentanoic acid	.00051
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY80	Pipette	B820865811
KY81	Pipette	B814657482
KY82	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY86

Description: PFAS - DoD Calibration L4

Stock Id: KY79

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	400	0.10	---	---	1	40	0.00100
1H,1H,2H,2H-Perfluorodecane sulfonate	400	0.10	---	---	1	40	0.00101
1H,1H,2H,2H-Perfluorohexane sulfonate	400	0.10	---	---	1	40	0.00100
1H,1H,2H,2H-Perfluorooctane sulfonate	400	0.10	---	---	1	40	0.00100
3-Perfluoroheptyl propanoic acid	400	0.10	---	---	1	40	0.00100
3-Perfluoropentyl propanoic acid	400	0.10	---	---	1	40	0.00100
3-perfluoropropyl propanoic Acid	400	0.10	---	---	1	40	0.00100
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	400	0.10	---	---	1	40	0.00100
Adona	400	0.10	---	---	1	40	0.00100
Hexafluoropropylene oxide dimer acid	400	0.10	---	---	1	40	0.00100
N-ethylperfluoro-octanesulfonamidoacetic acid	400	0.10	---	---	1	40	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-1-butanesulfonate	400	0.10	---	---	1	40	0.00100
Perfluoro-1-decanesulfonate	400	0.10	---	---	1	40	0.00101
Perfluoro-1-heptanesulfonate	400	0.10	---	---	1	40	0.00100
Perfluoro-1-hexanesulfonate	400	0.10	---	---	1	40	0.00101
Perfluoro-1-nonanesulfonate	400	0.10	---	---	1	40	0.00101
Perfluoro-1-octanesulfonamide	400	0.10	---	---	1	40	0.00100
Perfluoro-1-octanesulfonate	400	0.10	---	---	1	40	0.00101
perfluoro-1-pentanesulfonate	400	0.10	---	---	1	40	0.00100
Perfluoro-n-butanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-decanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-dodecanoic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-heptanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-hexanoic acid	400	0.10	---	---	1	40	0.00101
Perfluoro-n-octanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluorononanoic Acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-pentanoic acid	400	0.10	---	---	1	40	0.00101
Perfluoro-n-tetradecanoic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-tridecanoic acid	400	0.10	---	---	1	40	0.00100
Perfluoro-n-undecanoic acid	400	0.10	---	---	1	40	0.00100

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	500	0.09	---	---	1	40	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY86**

Description: PFAS - DoD Calibration L4

13C2-6:2FTS	500	0.09	---	---	1	40	0.00119
13C2-8:2FTS	500	0.10	---	---	1	40	0.00120
13C2-PFDoA	500	0.10	---	---	1	40	0.00125
13C2-PFTeDA	500	0.10	---	---	1	40	0.00125
13C3-HFPO-DA	500	0.10	---	---	1	40	0.00125
13C3-PFBS	500	0.09	---	---	1	40	0.00116
13C3-PFHxS	500	0.09	---	---	1	40	0.00118
13C4-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFHpA	500	0.10	---	---	1	40	0.00125
13C5-PFHxA	500	0.10	---	---	1	40	0.00125
13C5-PFPeA	500	0.10	---	---	1	40	0.00125
13C6-PFDA	500	0.10	---	---	1	40	0.00125
13C7-PFUnA	500	0.10	---	---	1	40	0.00125
13C8-FOSA	500	0.10	---	---	1	40	0.00125
13C8-PFOA	500	0.10	---	---	1	40	0.00125
13C8-PFOS	500	0.10	---	---	1	40	0.00120
13C9-PFNA	500	0.10	---	---	1	40	0.00125
d3-MeFOSAA	500	0.10	---	---	1	40	0.00125
d5-EtFOSAA	500	0.10	---	---	1	40	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	40	0.00125
13C2-PFOA	500	0.10	---	---	1	40	0.00125
13C3-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFOS	500	0.10	---	---	1	40	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00100
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY86**

Description: PFAS - DoD Calibration L4

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00101
1H,1H,2H,2H-Perfluorohexane sulfonate	.00100
1H,1H,2H,2H-Perfluorooctane sulfonate	.00100
3-Perfluoroheptyl propanoic acid	.00100
3-Perfluoropentyl propanoic acid	.00100
3-perfluoropropyl propanoic Acid	.00100
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00100
Adona	.00100
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00100
N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
Perfluoro-1-butanesulfonate	.00100
Perfluoro-1-decanesulfonate	.00101
Perfluoro-1-heptanesulfonate	.00100
Perfluoro-1-hexanesulfonate	.00101
Perfluoro-1-nonanesulfonate	.00101
Perfluoro-1-octanesulfonamide	.00100
Perfluoro-1-octanesulfonate	.00101
perfluoro-1-pentanesulfonate	.00100
Perfluoro-n-butanoic Acid	.00100
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexanoic acid	.00101

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY86**

Description: PFAS - DoD Calibration L4

Perfluoro-n-octanoic Acid	.00100
Perfluorononanoic Acid	.00100
Perfluoro-n-pentanoic acid	.00101
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY79	Pipette	B820865811
KY81	Pipette	B820865811
KY82	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie	**Date Prepared:**	5/4/2020	**Expiration Date:**	12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121			

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY87**

Description: PFAS - DoD Calibration L5

Stock Id: KY79

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	0.10	---	---	1	40	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.10	---	---	1	40	0.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.10	---	---	1	40	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.10	---	---	1	40	0.00250
3-Perfluoroheptyl propanoic acid	1000	0.10	---	---	1	40	0.00250
3-Perfluoropentyl propanoic acid	1000	0.10	---	---	1	40	0.00250
3-perfluoropropyl propanoic Acid	1000	0.10	---	---	1	40	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	0.10	---	---	1	40	0.00250
Adona	1000	0.10	---	---	1	40	0.00250
Hexafluoropropylene oxide dimer acid	1000	0.10	---	---	1	40	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.10	---	---	1	40	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-butanesulfonate	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-decanesulfonate	1000	0.10	---	---	1	40	0.00253
Perfluoro-1-heptanesulfonate	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-hexanesulfonate	1000	0.10	---	---	1	40	0.00253
Perfluoro-1-nonanesulfonate	1000	0.10	---	---	1	40	0.00253
Perfluoro-1-octanesulfonamide	1000	0.10	---	---	1	40	0.00250
Perfluoro-1-octanesulfonate	1000	0.10	---	---	1	40	0.00253
perfluoro-1-pentanesulfonate	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-butanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-decanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-dodecanoic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-heptanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-hexanoic acid	1000	0.10	---	---	1	40	0.00253
Perfluoro-n-octanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluorononanoic Acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-pentanoic acid	1000	0.10	---	---	1	40	0.00253
Perfluoro-n-tetradecanoic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-tridecanoic acid	1000	0.10	---	---	1	40	0.00250
Perfluoro-n-undecanoic acid	1000	0.10	---	---	1	40	0.00250

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	500	0.09	---	---	1	40	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY87

Description: PFAS - DoD Calibration L5

13C2-6:2FTS	500	0.09	---	---	1	40	0.00119
13C2-8:2FTS	500	0.10	---	---	1	40	0.00120
13C2-PFDoA	500	0.10	---	---	1	40	0.00125
13C2-PFTeDA	500	0.10	---	---	1	40	0.00125
13C3-HFPO-DA	500	0.10	---	---	1	40	0.00125
13C3-PFBS	500	0.09	---	---	1	40	0.00116
13C3-PFHxS	500	0.09	---	---	1	40	0.00118
13C4-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFHpA	500	0.10	---	---	1	40	0.00125
13C5-PFHxA	500	0.10	---	---	1	40	0.00125
13C5-PFPeA	500	0.10	---	---	1	40	0.00125
13C6-PFDA	500	0.10	---	---	1	40	0.00125
13C7-PFUnA	500	0.10	---	---	1	40	0.00125
13C8-FOSA	500	0.10	---	---	1	40	0.00125
13C8-PFOA	500	0.10	---	---	1	40	0.00125
13C8-PFOS	500	0.10	---	---	1	40	0.00120
13C9-PFNA	500	0.10	---	---	1	40	0.00125
d3-MeFOSAA	500	0.10	---	---	1	40	0.00125
d5-EtFOSAA	500	0.10	---	---	1	40	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	500	0.10	---	---	1	40	0.00125
13C2-PFOA	500	0.10	---	---	1	40	0.00125
13C3-PFBA	500	0.10	---	---	1	40	0.00125
13C4-PFOS	500	0.10	---	---	1	40	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY87**

Description: PFAS - DoD Calibration L5

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00253
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00253
perfluoro-1-pentanesulfonate	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexanoic acid	.00253

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY87**

Description: PFAS - DoD Calibration L5

Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY79	Pipette	B820865811
KY81	Pipette	B820865811
KY82	Pipette	B820865811

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY88

Description: PFAS - DoD Calibration L6

Stock Id: KY79

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	0.10	---	---	1	10	0.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.10	---	---	1	10	0.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.10	---	---	1	10	0.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.10	---	---	1	10	0.01000
3-Perfluoroheptyl propanoic acid	1000	0.10	---	---	1	10	0.01000
3-Perfluoropentyl propanoic acid	1000	0.10	---	---	1	10	0.01000
3-perfluoropropyl propanoic Acid	1000	0.10	---	---	1	10	0.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	0.10	---	---	1	10	0.01000
Adona	1000	0.10	---	---	1	10	0.01000
Hexafluoropropylene oxide dimer acid	1000	0.10	---	---	1	10	0.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.10	---	---	1	10	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-butanesulfonate	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-decanesulfonate	1000	0.10	---	---	1	10	0.01010
Perfluoro-1-heptanesulfonate	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-hexanesulfonate	1000	0.10	---	---	1	10	0.01010
Perfluoro-1-nonanesulfonate	1000	0.10	---	---	1	10	0.01010
Perfluoro-1-octanesulfonamide	1000	0.10	---	---	1	10	0.01000
Perfluoro-1-octanesulfonate	1000	0.10	---	---	1	10	0.01010
perfluoro-1-pentanesulfonate	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-butanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-decanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-dodecanoic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-heptanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-hexanoic acid	1000	0.10	---	---	1	10	0.01010
Perfluoro-n-octanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluorononanoic Acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-pentanoic acid	1000	0.10	---	---	1	10	0.01010
Perfluoro-n-tetradecanoic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-tridecanoic acid	1000	0.10	---	---	1	10	0.01000
Perfluoro-n-undecanoic acid	1000	0.10	---	---	1	10	0.01000

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY88**

Description: PFAS - DoD Calibration L6

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.01000
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY88**

Description: PFAS - DoD Calibration L6

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.01010
1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.01000
Adona	.01000
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
Perfluoro-1-butanesulfonate	.01000
Perfluoro-1-decanesulfonate	.01010
Perfluoro-1-heptanesulfonate	.01000
Perfluoro-1-hexanesulfonate	.01010
Perfluoro-1-nonanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01010
perfluoro-1-pentanesulfonate	.01000
Perfluoro-n-butanoic Acid	.01000
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexanoic acid	.01010

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY88**

Description: PFAS - DoD Calibration L6

Perfluoro-n-octanoic Acid	.01000
Perfluorononanoic Acid	.01000
Perfluoro-n-pentanoic acid	.01010
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY79	Pipette	B820865811
KY81	Pipette	B814657482
KY82	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY89

Description: PFAS - DoD Calibration L7

Stock Id: KY79

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2500	0.10	---	---	1	10	0.02500
1H,1H,2H,2H-Perfluorodecane sulfonate	2500	0.10	---	---	1	10	0.02525
1H,1H,2H,2H-Perfluorohexane sulfonate	2500	0.10	---	---	1	10	0.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	2500	0.10	---	---	1	10	0.02500
3-Perfluoroheptyl propanoic acid	2500	0.10	---	---	1	10	0.02500
3-Perfluoropentyl propanoic acid	2500	0.10	---	---	1	10	0.02500
3-perfluoropropyl propanoic Acid	2500	0.10	---	---	1	10	0.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2500	0.10	---	---	1	10	0.02500
Adona	2500	0.10	---	---	1	10	0.02500
Hexafluoropropylene oxide dimer acid	2500	0.10	---	---	1	10	0.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	2500	0.10	---	---	1	10	0.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-butanesulfonate	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-decanesulfonate	2500	0.10	---	---	1	10	0.02525
Perfluoro-1-heptanesulfonate	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-hexanesulfonate	2500	0.10	---	---	1	10	0.02525
Perfluoro-1-nonanesulfonate	2500	0.10	---	---	1	10	0.02525
Perfluoro-1-octanesulfonamide	2500	0.10	---	---	1	10	0.02500
Perfluoro-1-octanesulfonate	2500	0.10	---	---	1	10	0.02525
perfluoro-1-pentanesulfonate	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-butanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-decanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-dodecanoic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-heptanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-hexanoic acid	2500	0.10	---	---	1	10	0.02525
Perfluoro-n-octanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluorononanoic Acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-pentanoic acid	2500	0.10	---	---	1	10	0.02525
Perfluoro-n-tetradecanoic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-tridecanoic acid	2500	0.10	---	---	1	10	0.02500
Perfluoro-n-undecanoic acid	2500	0.10	---	---	1	10	0.02500

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY89**

Description: PFAS - DoD Calibration L7

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.02500
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY89**

Description: PFAS - DoD Calibration L7

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.02525
1H,1H,2H,2H-Perfluorohexane sulfonate	.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	.02500
3-Perfluoroheptyl propanoic acid	.02500
3-Perfluoropentyl propanoic acid	.02500
3-perfluoropropyl propanoic Acid	.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.02500
Adona	.02500
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.02500
Perfluoro-1-butanesulfonate	.02500
Perfluoro-1-decanesulfonate	.02525
Perfluoro-1-heptanesulfonate	.02500
Perfluoro-1-hexanesulfonate	.02525
Perfluoro-1-nonanesulfonate	.02525
Perfluoro-1-octanesulfonamide	.02500
Perfluoro-1-octanesulfonate	.02525
perfluoro-1-pentanesulfonate	.02500
Perfluoro-n-butanoic Acid	.02500
Perfluoro-n-decanoic Acid	.02500
Perfluoro-n-dodecanoic acid	.02500
Perfluoro-n-heptanoic Acid	.02500
Perfluoro-n-hexanoic acid	.02525

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY89**

Description: PFAS - DoD Calibration L7

Perfluoro-n-octanoic Acid	.02500
Perfluorononanoic Acid	.02500
Perfluoro-n-pentanoic acid	.02525
Perfluoro-n-tetradecanoic acid	.02500
Perfluoro-n-tridecanoic acid	.02500
Perfluoro-n-undecanoic acid	.02500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY79	Pipette	B906204506
KY81	Pipette	B814657482
KY82	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie		**Date Prepared:**	5/4/2020	**Expiration Date:**	12/6/2020
Solution Volume : 40 **mL X** 1 **Vials**		**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: KY91

Description: PFAS - DoD ICC

Stock Id: KY48

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	250	0.10	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	250	0.10	---	---	1	10	0.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	250	0.10	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	250	0.10	---	---	1	10	0.00250
3-Perfluoroheptyl propanoic acid	250	0.10	---	---	1	10	0.00250
3-Perfluoropentyl propanoic acid	250	0.10	---	---	1	10	0.00250
3-perfluoropropyl propanoic Acid	250	0.10	---	---	1	10	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	250	0.10	---	---	1	10	0.00250
Adona	250	0.10	---	---	1	10	0.00250
Hexafluoropropylene oxide dimer acid	250	0.10	---	---	1	10	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	250	0.10	---	---	1	10	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-1-butanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-1-decanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-heptanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-1-hexanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-nonanesulfonate	250	0.10	---	---	1	10	0.00253
Perfluoro-1-octanesulfonamide	250	0.10	---	---	1	10	0.00250
Perfluoro-1-octanesulfonate	250	0.10	---	---	1	10	0.00253
perfluoro-1-pentanesulfonate	250	0.10	---	---	1	10	0.00250
Perfluoro-n-butanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-decanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-dodecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-heptanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-hexanoic acid	250	0.10	---	---	1	10	0.00253
Perfluoro-n-octanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluorononanoic Acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-pentanoic acid	250	0.10	---	---	1	10	0.00253
Perfluoro-n-tetradecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-tridecanoic acid	250	0.10	---	---	1	10	0.00250
Perfluoro-n-undecanoic acid	250	0.10	---	---	1	10	0.00250

Stock Id: KY81

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	125	0.09	---	---	1	10	0.00117

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY91**

Description: PFAS - DoD ICC

13C2-6:2FTS	125	0.09	---	---	1	10	0.00119
13C2-8:2FTS	125	0.10	---	---	1	10	0.00120
13C2-PFDoA	125	0.10	---	---	1	10	0.00125
13C2-PFTeDA	125	0.10	---	---	1	10	0.00125
13C3-HFPO-DA	125	0.10	---	---	1	10	0.00125
13C3-PFBS	125	0.09	---	---	1	10	0.00116
13C3-PFHxS	125	0.09	---	---	1	10	0.00118
13C4-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFHpA	125	0.10	---	---	1	10	0.00125
13C5-PFHxA	125	0.10	---	---	1	10	0.00125
13C5-PFPeA	125	0.10	---	---	1	10	0.00125
13C6-PFDA	125	0.10	---	---	1	10	0.00125
13C7-PFUnA	125	0.10	---	---	1	10	0.00125
13C8-FOSA	125	0.10	---	---	1	10	0.00125
13C8-PFOA	125	0.10	---	---	1	10	0.00125
13C8-PFOS	125	0.10	---	---	1	10	0.00120
13C9-PFNA	125	0.10	---	---	1	10	0.00125
d3-MeFOSAA	125	0.10	---	---	1	10	0.00125
d5-EtFOSAA	125	0.10	---	---	1	10	0.00125

Stock Id: KY82

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	125	0.10	---	---	1	10	0.00125
13C2-PFOA	125	0.10	---	---	1	10	0.00125
13C3-PFBA	125	0.10	---	---	1	10	0.00125
13C4-PFOS	125	0.10	---	---	1	10	0.00120

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00117
13C2-6:2FTS	.00119
13C2-8:2FTS	.00120
13C2-PFDA	.00125
13C2-PFDoA	.00125
13C2-PFOA	.00125
13C2-PFTeDA	.00125
13C3-HFPO-DA	.00125
13C3-PFBA	.00125

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY91**

Description: PFAS - DoD ICC

13C3-PFBS	.00116
13C3-PFHxS	.00118
13C4-PFBA	.00125
13C4-PFHpA	.00125
13C4-PFOS	.00120
13C5-PFHxA	.00125
13C5-PFPeA	.00125
13C6-PFDA	.00125
13C7-PFUnA	.00125
13C8-FOSA	.00125
13C8-PFOA	.00125
13C8-PFOS	.00120
13C9-PFNA	.00125
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSAA	.00125
d5-EtFOSAA	.00125
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00253
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00253
perfluoro-1-pentanesulfonate	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexanoic acid	.00253

Solution Prepared By: Schultz, Stephanie **Date Prepared:** 5/4/2020 **Expiration Date:** 12/6/2020

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **KY91**

Description: PFAS - DoD ICC

Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
KY48	Pipette	B814657482
KY81	Pipette	B814657482
KY82	Pipette	B814657482

Solution Prepared By: Schultz, Stephanie	**Date Prepared:** 5/4/2020	**Expiration Date:** 12/6/2020	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 80/20 methanol/milli-q water (RP-200504-1).

Approved By: Schumitz, Denise **Date:** 5/5/2020 11:44:00 AM

BATTELLE

It can be done

BDO Id: 190812-02

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name: PFAS-ICAL Mix (28 components)

Vendor: ABSOLUTE STANDARDS

Catalogue No: 64029

Type: Solution

Lot No: 080719

Quantity: 2 ea ML **% Moisture:**

Received: 8/12/2019

Custodian: Schumitz, Matt

Expires: 8/7/2024

Consumed:

Stored In: VOC Laboratory - F0122

Description: PFAS-ICAL Mix (28 components)

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfo	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	0.7200	100.00	--	--	☐			1
N-methylperfluoro-1-octanesulfonami	2355-31-9	0.6800	100.00	--	--	☐			2
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0000	100.00	--	--	☐	0		3
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	0.7600	100.00	--	--	☐			4
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	0.8800	100.00	--	--	☐			5
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

	Analyte:	Comment:
1	N-ethylperfluoro-octanesulfonamidoacetic acid	Linear, 1.00 Branched

Approved by: **Approved on:**

Authorized by: **Authorized on:**

BATTELLE
It can be done

BDO Id: 190812-02

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name: PFAS-ICAL Mix (28 components)
Vendor: ABSOLUTE STANDARDS
Catalogue No: 64029
Type: Solution
Lot No: 080719
Quantity: 2 ea ML **% Moisture:**
Received: 8/12/2019
Custodian: Schumitz, Matt
Expires: 8/7/2024
Consumed:
Stored In: VOC Laboratory - F0122
Description: PFAS-ICAL Mix (28 components)

Analyte:		CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
2	N-methylperfluoro-1-octanesulfonamidoacetic acid	Linear, 1.00 Branched								
3	Perfluoro-1-hexanesulfonate	Linear, 1.01 Branched								
4	Perfluoro-1-octanesulfonate	Linear, 1.01 Branched								
5	Perfluoro-n-octanoic Acid	Linear, 1.00 Branched								

Approved by: **Approved on:**
Authorized by: **Authorized on:**

Absolute Standards, Inc.
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Scopes: http://AbsoluteStandards.com

2nd Source

CERTIFIED WEIGHT REPORT

Part Number:	64029				
Lot Number:	080719				
Description:	PFOA - DOD				
	28 components		Solvent(s):	Lot#	
Expiration Date:	080724		Methanol (1 mM KOH)	070919	(98%)
Recommended Storage:	Freezer (0 °C)		2-Propanol	23214	(2%)
Nominal Concentration (µg/mL):	1.0				
NIST Test ID#:	6UTB		5E-05	Balance Uncertainty	
Volume(s) shown below were combined and diluted to (mL):		50.0	0.007	Flask Uncertainty	

Gabriel Helland		080719
Formulated By:	Gabriel Helland	DATE
Pedro Rentas		080719
Reviewed By:	Pedro L. Rentas	DATE

Note: All assigned values are anion concentrations.

	Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(µg/mL)	Final Conc.(µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	Perfluoro-n-butanoic acid (linear)	99542	110317	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2.	Perfluoro-n-pentanoic acid	99543	110317	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3.	Perfluorohexanoic acid	99199	022119	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4.	Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5.	Perfluorooctanoic acid (branched)*	99202	100918	0.02	1.00	0.004	50.2	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6.	Perfluorononanoic acid	99200	020419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7.	Perfluorodecanoic acid	99195	020419	0.02	1.00	0.004	50.1	1.00	0.01	335-78-2	N/A	orl-rat 57mg/kg
8.	Perfluoroundecanoic acid	99205	020419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9.	Tricosafluorododecanoic acid	99196	022119	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10.	Perfluorotridecanoic acid	99204	020419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11.	Perfluorotetradecanoic acid	99203	022119	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12.	Perfluoro-1-octanesulfonamide	3877	FOSA0219I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13.	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14.	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0219	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15.	Perfluorobutanesulfonic acid	99194	122618	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16.	Perfluoro-1-pentanesulfonate	99544	111017	0.02	0.98	0.004	51.3	1.00	0.02	830402-22-1	N/A	N/A
17.	Perfluorohexanesulfonic acid (branched)*	99198	010419	0.02	1.00	0.004	50.6	1.01	0.01	3871-99-6	N/A	N/A
18.	Perfluoro-1-heptanesulfonic acid	3872	LPFHpS0418	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19.	Heptadecafluorooctanesulfonic acid (branched)*	99201	100918	0.02	1.00	0.004	50.3	1.01	0.01	1763-23-1	N/A	N/A
20.	Perfluoro-1-nonanesulfonic acid	3957	LPFNS0718	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21.	Perfluoro-1-decanesulfonic acid	3871	LPFDS1018	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22.	1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS0718	0.0214	1.07	0.004	48.7	1.00	0.05	27819-93-8	N/A	N/A
23.	1H,1H,2H,2H-Perfluorooctane sulfonic acid	3881	62FTS0418	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24.	1H,1H,2H,2H-Perfluorodecane sulfonic acid	3882	82FTS0118	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25.	2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	4185	11ClPF3OUdS1118	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	4164	9ClPF3ONS1118	0.021	1.07	0.004	48.6	1.00	0.05	73606-19-6	N/A	N/A
28.	Dodecafluoro-3H-4,8-dioxanonanoate (ADONA)	4103	NaDONA0119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
	Perfluorooctanoic acid (linear)*	99202	100918	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorooctanoic acid (branched isomer)*	99202	100918	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorohexanesulfonic acid (linear)*	99198	030617	0.02	1.00	0.004	50.0	1.00	0.01	3871-99-6	N/A	N/A
	Perfluorohexanesulfonic acid (branched isomer)*	99198	030617	0.02	1.00	0.004	0.6	0.01	0.0002	3871-99-6	N/A	N/A
	Heptadecafluorooctanesulfonic acid (linear)*	99201	100918	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	100918	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	100918	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	100918	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0718	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0718	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4183	brNEtFOSAA0718	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0718	0.02	1.00	0.004	0.8	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

BATTELLE

It can be done

BDO Id: 190926-12

Reagent Receipt Report

Approved: ☑ Authorized ☐

Name:	2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-he	**Received:**	9/26/2019
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	M3HFPO-DA	**Expires:**	4/18/2022
Type:	Solution	**Consumed:**	
Lot No:	M3HFPODA0419	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ml	**% Moisture:**	
Description:	M3HFPO-DA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-HFPO-DA	BDO-2276	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	Thorn, Jonathan	**Approved on:**	9/27/2019 11:57:00 AM
Authorized by:		**Authorized on:**	

WELLINGTON LABORATORIES

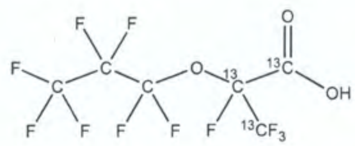
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA

LOT NUMBER: M3HFPODA0419

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-$^{13}C_3$-propanoic acid

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_3{}^{12}C_3HF_{11}O_3$

CONCENTRATION: 50 ± 2.5 μg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 04/18/2019

EXPIRY DATE: (mm/dd/yyyy) 04/18/2022

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: $\geq$99% ^{13}C ($^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.9% of the linear M3HFPO-DA isomer.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 07/05/2019 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE

It can be done

BDO Id: 190926-13

Reagent Receipt Report

Approved: ☑ Authorized ☐

Name:	3-Perfluoropropyl propanoic acid	**Received:**	9/26/2019
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	FPrPA	**Expires:**	12/6/2020
Type:	Solution	**Consumed:**	
Lot No:	FPrPA0310	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ML	**% Moisture:**	

Description: FPrPA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-perfluoropropyl propanoic Acid	356-02-5	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	Thorn, Jonathan	**Approved on:**	9/27/2019 11:57:00 AM
Authorized by:		**Authorized on:**	

WELLINGTON LABORATORIES

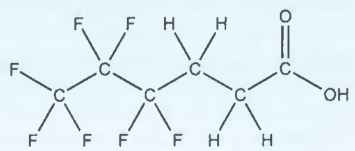
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FPrPA

COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0310

STRUCTURE:



CAS #: 356-02-5

MOLECULAR FORMULA: $C_6H_5F_7O_2$

CONCENTRATION: 50 ± 2.5 µg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/06/2017

EXPIRY DATE: (mm/dd/yyyy) 12/06/2020

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/08/2017
(mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 190926-14

Reagent Receipt Report

Approved: ☑ Authorized: ☐

Name:	3-Perfluoroheptyl Propanoic Acid	**Received:**	9/26/2019
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	FHpPA	**Expires:**	12/6/2020
Type:	Solution	**Consumed:**	
Lot No:	FHpPA1217	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ml	**% Moisture:**	

Description: FHpPA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoroheptyl propanoic acid	812-70-4	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

Approved by:	Thorn, Jonathan	**Approved on:**	9/27/2019 11:57:00 AM
Authorized by:		**Authorized on:**	

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

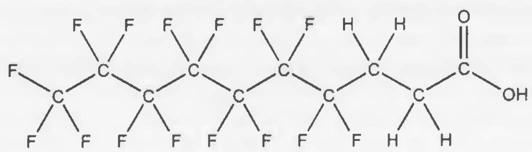
PRODUCT CODE: FHpPA

COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1217

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: $C_{10}H_5F_{15}O_2$

CONCENTRATION: 50 ± 2.5 µg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/06/2017

EXPIRY DATE: (mm/dd/yyyy) 12/06/2020

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: B.G. Chittim, General Manager

Date: 12/14/2017 (mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 190926-15

Reagent Receipt Report

Approved: ☑ Authorized: ☐

Name:	3-Perfluoropentyl propanoic acid	**Received:**	9/26/2019
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	FPePA	**Expires:**	12/6/2020
Type:	Solution	**Consumed:**	
Lot No:	FPePA0310	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ml	**% Moisture:**	

Description: FPePA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoropentyl propanoic acid	914637-49-3	50.0000	98.00	--	--	☐	50	47.5	52.5

Total Analytes: 1

Notes:

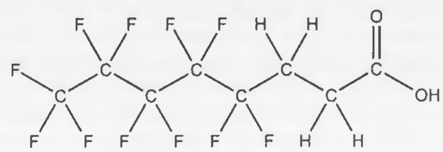
Approved by: Thorn, Jonathan **Approved on:** 9/27/2019 11:57:00 AM

Authorized by: **Authorized on:**

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPePA
LOT NUMBER: FPePA0310
COMPOUND: 3-Perfluoropentyl propanoic acid
STRUCTURE:
CAS #: 914637-49-3



MOLECULAR FORMULA: $C_8H_5F_{11}O_2$
MOLECULAR WEIGHT: 342.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/06/2017
EXPIRY DATE: (mm/dd/yyyy) 12/06/2020
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

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Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/08/2017
(mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 200317-01

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	MPFAC-C-IS	**Received:**	3/17/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	MPFAC-C-IS	**Expires:**	8/23/2023
Type:	Solution	**Consumed:**	
Lot No:	MPFACCIS0516	**Stored In:**	VOC Laboratory - R0123
Quantity:	2 ea ml	**% Moisture:**	
Description:	MPFAC-C-IS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDA	BDO-2110	2.0000	100.00	--	--	☐			
13C2-PFOA	BDO-2107	2.0000	100.00	--	--	☐			
13C3-PFBA	BDO-2231	2.0000	100.00	--	--	☐			
13C4-PFOS	BDO-2121	1.9140	100.00	--	--	☐			

Total Analytes: 4

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-C-IS

Mass-Labelled Perfluorinated Compound Injection Standards Solution

PRODUCT CODE:	MPFAC-C-IS
LOT NUMBER:	MPFACCIS0516
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	05/24/2016
LAST TESTED: (mm/dd/yyyy)	08/23/2018
EXPIRY DATE: (mm/dd/yyyy)	08/23/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

MPFAC-C-IS is a solution/mixture of mass-labelled (^{13}C) perfluoroalkylcarboxylic acids and a mass-labelled (^{13}C) perfluoroalkylsulfonate. The components and their concentrations are given in Table A.

MPFAC-C-IS was designed for, and prepared to be used with, PFC-CVS-C.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkylsulfonate all have chemical purities of >98% and isotopic purities of $\geq$99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The mass-labelled perfluoroalkylsulfonate compound concentration is reported as the salt.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Table A: **MPFAC-C-IS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid	M3PFBA	2000	A
Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid	M2PFOA	2000	B
Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid	MPFDA	2000	D
Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate	MPFOS	2000	C

Certified By: ____________________
B.G. Chittim, General Manager

Date: 10/19/2018
(mm/dd/yyyy)

BATTELLE
It can be done

BDO Id: 200326-03

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	MPFAC-24ES	**Received:**	3/26/2020
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	MPFAC-24ES	**Expires:**	9/17/2024
Type:	Solution	**Consumed:**	
Lot No:	MPFAC24ES0218	**Stored In:**	VOC Laboratory - R0123
Quantity:	3 ea Ml	**% Moisture:**	

Description: MPFAC-24ES

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-4:2FTS	BDO-2229	0.9350	100.00	--	--	☐			
13C2-6:2FTS	BDO-2230	0.9490	100.00	--	--	☐			
13C2-8:2FTS	BDO-2220	0.9580	100.00	--	--	☐			
13C2-PFDoA	BDO-2112	1.0000	100.00	--	--	☐			
13C2-PFTeDA	BDO-2224	1.0000	100.00	--	--	☐			
13C3-PFBS	BDO-2226	0.9290	100.00	--	--	☐			
13C3-PFHxS	BDO-2227	0.9460	100.00	--	--	☐			
13C4-PFBA	BDO-2105	1.0000	100.00	--	--	☐			
13C4-PFHpA	BDO-2218	1.0000	100.00	--	--	☐			
13C5-PFHxA	BDO-2217	1.0000	100.00	--	--	☐			
13C5-PFPeA	BDO-2216	1.0000	100.00	--	--	☐			
13C6-PFDA	BDO-2222	1.0000	100.00	--	--	☐			
13C7-PFUnA	BDO-2223	1.0000	100.00	--	--	☐			
13C8-FOSA	BDO-2225	1.0000	100.00	--	--	☐			
13C8-PFOA	BDO-2219	1.0000	100.00	--	--	☐			
13C8-PFOS	BDO-2228	0.9570	100.00	--	--	☐			
13C9-PFNA	BDO-2221	1.0000	100.00	--	--	☐			
d3-MeFOSAA	BDO-1838	1.0000	100.00	--	--	☐			
d5-EtFOSAA	BDO-1839	1.0000	100.00	--	--	☐			

Total Analytes: 19

Notes:

Approved by: ______ **Approved on:** ______

Authorized by: ______ **Authorized on:** ______

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-24ES

Mass-Labelled Per- and Poly-fluoroalkyl Substance Extraction Standard Solution

PRODUCT CODE:	MPFAC-24ES
LOT NUMBER:	MPFAC24ES0218
SOLVENT(S):	Methanol / Isopropanol (2%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/07/2018
LAST TESTED: (mm/dd/yyyy)	09/17/2019
EXPIRY DATE: (mm/dd/yyyy)	09/17/2024
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

MPFAC-24ES is a solution/mixture of ten mass-labelled (^{13}C) perfluoroalkylcarboxylic acids (C_4-C_{12} and C_{14}), three mass-labelled (^{13}C) perfluoroalkylsulfonates (C_4, C_6, and C_8), three mass-labelled (^{13}C) telomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (^2H) perfluorooctanesulfonamidoacetic acids, and perfluoro-1-[$^{13}C_8$]octanesulfonamide. The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids, mass-labelled perfluoroalkylsulfonates, mass-labelled telomer sulfonates, and perfluoro-1-[$^{13}C_8$]octanesulfonamide all have chemical purities of >98% and isotopic purities of $\geq$99%. The individual mass-labelled perfluorooctanesulfonamidoacetic acids all have chemical purities of >98% and isotopic purities of $\geq$98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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Table A: **MPFAC-24ES; Components and Concentrations (ng/ml, ± 5% in Methanol / Isopropanol (2%) / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-$[^{13}C_4]$butanoic acid	MPFBA	1000	A
Perfluoro-n-$[^{13}C_5]$pentanoic acid	M5PFPeA	1000	B
Perfluoro-n-$[1,2,3,4,6\text{-}^{13}C_5]$hexanoic acid	M5PFHxA	1000	E
Perfluoro-n-$[1,2,3,4\text{-}^{13}C_4]$heptanoic acid	M4PFHpA	1000	F
Perfluoro-n-$[^{13}C_8]$octanoic acid	M8PFOA	1000	I
Perfluoro-n-$[^{13}C_9]$nonanoic acid	M9PFNA	1000	J
Perfluoro-n-$[1,2,3,4,5,6\text{-}^{13}C_6]$decanoic acid	M6PFDA	1000	M
Perfluoro-n-$[1,2,3,4,5,6,7\text{-}^{13}C_7]$undecanoic acid	M7PFUdA	1000	Q
Perfluoro-n-$[1,2\text{-}^{13}C_2]$dodecanoic acid	MPFDoA	1000	R
Perfluoro-n-$[1,2\text{-}^{13}C_2]$tetradecanoic acid	M2PFTeDA	1000	S
Perfluoro-1-$[^{13}C_8]$octanesulfonamide	M8FOSA	1000	O
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000	N
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000	P

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Sodium perfluoro-1-$[2,3,4\text{-}^{13}C_3]$butanesulfonate	M3PFBS	1000	929	C
Sodium perfluoro-1-$[1,2,3\text{-}^{13}C_3]$hexanesulfonate	M3PFHxS	1000	946	G
Sodium perfluoro-1-$[^{13}C_8]$octanesulfonate	M8PFOS	1000	957	K
Sodium 1H,1H,2H,2H-perfluoro-1-$[1,2\text{-}^{13}C_2]$hexanesulfonate	M2-4:2FTS	1000	935	D
Sodium 1H,1H,2H,2H-perfluoro-1-$[1,2\text{-}^{13}C_2]$octanesulfonate	M2-6:2FTS	1000	949	H
Sodium 1H,1H,2H,2H-perfluoro-1-$[1,2\text{-}^{13}C_2]$decanesulfonate	M2-8:2FTS	1000	958	L

Certified By: ______________ **Date:** 09/30/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

BATTELLE
It can be done

BDO Id: 200420-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: PFOA-DOD
Received: 4/20/2020
Vendor: ABSOLUTE STANDARDS
Custodian: Schumitz, Matt
Catalogue No: 64029
Expires: 4/16/2025
Type: Solution
Consumed:
Lot No: 041620
Stored In: LC Laboratory - F0111
Quantity: 5 ea ml **% Moisture:**

Description: PFOA-DOD

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0100	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0100	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0100	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number:	64029			
Lot Number:	041620			
Description:	PFOA - DOD			
	28 components	**Solvent(s):**	**Lot#**	
Expiration Date:	041625	Methanol (1 mM KOH)	030920	(98%)
Recommended Storage:	Freezer (0 °C)	2-Propanol	23214	(2%)
Nominal Concentration (µg/mL):	1.0			
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty	

Volume(s) shown below were combined and diluted to (mL): 50.0 — 0.007 Flask Uncertainty

Formulated By:	Prashant Chauhan	041620 DATE
Reviewed By:	Pedro L. Rentas	041620 DATE

Note: All assigned values are anion concentrations.

SDS Information (Solvent Safety Info. On Attached pg.)

	Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	CAS#	OSHA PEL (TWA)	LD50
1.	Perfluoro-n-butanoic acid (linear)	99542	110419	0.02	1.00	0.004	50.2	1.00	0.01	375-22-4	N/A	N/A
2.	Perfluoro-n-pentanoic acid	99543	110419	0.02	1.00	0.004	50.7	1.01	0.02	2706-90-3	N/A	N/A
3.	Perfluorohexanoic acid	99199	010820	0.02	1.00	0.004	50.3	1.01	0.01	307-24-4	N/A	N/A
4.	Perfluoroheptanoic acid	99197	071219	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5.	Perfluorooctanoic acid (branched)*	99202	021620	0.02	1.00	0.004	50.3	1.01	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6.	Perfluorononanoic acid	99200	110419	0.02	1.00	0.004	50.1	1.00	0.01	375-95-1	N/A	N/A
7.	Perfluorodecanoic acid	99195	110419	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg
8.	Perfluoroundecanoic acid	99205	110419	0.02	1.00	0.004	50.1	1.00	0.01	2058-94-8	N/A	N/A
9.	Tricosafluorododecanoic acid	99196	010820	0.02	1.00	0.004	50.1	1.00	0.01	307-55-1	N/A	N/A
10.	Perfluorotridecanoic acid	99204	110419	0.02	1.00	0.004	50.1	1.00	0.01	72629-94-8	N/A	N/A
11.	Perfluorotetradecanoic acid	99203	120319	0.02	1.00	0.004	50.1	1.00	0.01	376-06-7	N/A	N/A
12.	Perfluoro-1-octanesulfonamide	3677	FOSA02191	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13.	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14.	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15.	Perfluorobutanesulfonic acid	99194	021620	0.02	1.00	0.004	50.2	1.00	0.01	375-73-5	N/A	N/A
16.	Perfluoro-1-pentanesulfonic acid	99544	011420	0.02	0.98	0.004	51.3	1.00	0.02	630402-22-1	N/A	N/A
17.	Perfluorohexanesulfonic acid (branched)*	99198	091219	0.02	1.00	0.004	50.6	1.01	0.01	355-46-4	N/A	N/A
18.	Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0819	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19.	Heptadecafluorooctanesulfonic acid (branched)*	99201	021620	0.02	1.00	0.004	50.2	1.00	0.01	1763-23-1	N/A	N/A
20.	Perfluoro-1-nonanesulfonic acid	3957	LPFNS1119	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21.	Perfluoro-1-decanesulfonic acid	3671	LPFDS0419	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22.	1H,1H,2H,2H-Perfluorohexane sulfonic acid	3955	42FTS1019	0.0214	1.07	0.004	46.7	1.00	0.05	27619-93-8	N/A	N/A
23.	1H,1H,2H,2H-Perfluorooctane sulfonic acid	3661	62FTS0919	0.021	1.05	0.004	47.4	1.00	0.05	27619-94-9	N/A	N/A
24.	1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0919	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25.	2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	071219	0.020	1.00	0.004	50.1	1.00	0.01	13252-13-6	N/A	N/A
26.	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS1019	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27.	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS1019	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28.	Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1119	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
	Perfluorooctanoic acid (linear)*	99202	021620	0.02	1.00	0.004	44.2	0.88	0.012	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorooctanoic acid (branched isomer)*	99202	021620	0.02	1.00	0.004	6.0	0.12	0.002	335-67-1	N/A	ipr-rat 189mg/kg
	Perfluorohexanesulfonic acid (linear)*	99198	091219	0.02	1.00	0.004	50.0	1.00	0.01	355-46-4	N/A	N/A
	Perfluorohexanesulfonic acid (branched isomer)*	99198	091219	0.02	1.00	0.004	0.6	0.01	0.0002	355-46-4	N/A	N/A
	Heptadecafluorooctanesulfonic acid (linear)*	99201	021620	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021620	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021620	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
	Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	021620	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	34.2	0.68	0.03	2355-31-9	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	10.5	0.21	0.011	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	5.1	0.10	0.005	00-00-0	N/A	N/A
	N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0119	0.02	1.00	0.004	0.3	0.005	0.00026	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	36.2	0.72	0.04	2991-50-6	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	8.7	0.17	0.009	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	4.5	0.09	0.005	00-00-0	N/A	N/A
	N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA0819	0.02	1.00	0.004	0.6	0.012	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

Absolute Standards Inc.
PO Box 5585
Hamden, CT 06518-0585
Phone: 203-281-2917
FAX: 203-281-2922

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

IDENTITY **ANALYTICAL STANDARD DISSOLVED IN METHANOL**

Manufacturer's Name	ABSOLUTE STANDARDS INC	Emergency Telephone USA & CANADA	**1-800-535-5053**
Address	44 Rossotto Dr.	Emergency Telephone International	**1-352-323-3500**
	Hamden CT, 06514	Date Prepared/Revised	May 1, 2015

Section II - Hazards Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H225	**Highly Flammable Liquid and Vapor**	**H301, 311, 331**	**Toxic if swallowed, skin contact, inhaled**
H370	**Cause damage to organs**	**H351**	**Suspected of causing cancer**
P271	**Use in ventilated area**	**P280**	**Use gloves, eye protection/face sheild**
P302,332	**If on skin, wash with soap and water**	**P305,351,338**	**If in eyes, remove contacts, rinse with water**

Signal Word: DANGER

Section III - Composition

Components (Specific Chemical Identity; Common Name(s))			% (optional)
Methanol	METHYL ALCOHOL	CAS#: 67-56-1	> 97

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

Section IV. FIRST AID MEASURES

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.Move to safe area.
If inhaled	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Wash with soap and water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Do NOT induce vomiting. Rinse mouth with water. Consult a physician.

Section V. FIREFIGHTING MEASURES

Flammability	Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Protective equipment for fire	Wear self contained breathing apparatus for fire fighting if necessary.

Section VI. ACCIDENTAL RELEASE MEASURES

Personal precautions	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Clean up	Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).

Section VII. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge.
Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Methanol 67-56-1 TWA 200 ppm
Skin notation TWA 200 ppm
Potential for skin absorption , ingestion and inhalation.
Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection.
Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

Section IX - Physical/Chemical Characteristics

Absolute Standards Inc.
PO Box 5585
Hamden, CT 06518-0585
Phone: 203-281-2917
FAX: 203-281-2922

Boiling Point	65°C	Specific Gravity (H2O = 1)	0.79
Vapor Pressure (mm Hg)	96	Melting Point	-98°C
Vapor Density (AIR = 1)	1.11	Evaporation rate (Butyl Acetate = 1)	4.6

Solubility in Water COMPLETE

Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Vapours may form explosive mixture with air.
Conditions to avoid	Heat, flames, sparks, extreme temperature and sunlight.
Materials to avoid	Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg
LC50 Inhalation - rat - 4 h - 64000 ppm
LD50 Dermal - rabbit - 15,800 mg/kg
Toxic if absorbed through skin. Causes skin irritation.
Eye damage/eye irritation
Toxic if inhaled. Causes respiratory tract irritation.
Toxic if swallowed.

Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50	15,400 mg/l - 96 h
EC50	24,500.00 mg/l - 48 h
EC100	10,000.00 mg/l - 24 h

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

DOT (US)
UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol

IATA
UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol

Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

ACCREDITATIONS

Accrediting Authority	Laboratory ID
U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP)	91667
State of Florida Department of Health	E87856
State of New York Department of Health	12105
State of Washington Department of Ecology	C1050
State of California	3045
Commonwealth of Massachusetts	E87856
State of Maine	MA00056
State of Vermont	VT 87856
State of New Hampshire	2137
Commonwealth of Pennsylvania Department of Environmental Protection	68-05687
State of Alaska Department of Environmental Conservation	19-005
State of Rhode Island	E87856

Current certificates and lists of accredited parameters are available upon request.

Sample Preparation

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It can be done

BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

SOP Numbers (see workplan for modifications)

ExtractionSOP No. 5-370

This Batch Contains The Following Samples:		
CY822PB-FS	H4958-FS1	H4964-FS1
CY823LCS-FS	H4959-FS1	H4965-FS1
H4954-FS1	H4960-FS1	H4966-FS1
H4955-FS1	H4961-FS1	
H4956-FS1	H4962-FS1	
H4957-FS1	H4963-FS1	

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Kelsey Harnden

Approved By:	Date	Initials
Denise Schumitz	05/08/2020	DMS

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BATTELLE - NORWELL OPERATIONS
SAMPLE IDENTIFICATION PAGE

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID	Description
CY822PB-FS	Procedural Blank
CY823LCS-FS	Laboratory Control Sample
H4954-FS1	POL-MW0041SI-020.5-20200421
H4955-FS1	POL-MW0008S-009.3-20200421
H4956-FS1	POL-MW0008I-007.5-20200421
H4957-FS1	POL-MW0036SI-020.5-20200421
H4958-FS1	POL-MW0036I-027.5-20200421
H4959-FS1	POL-MW0047I-025.0-20200422
H4960-FS1	POL-FRB-0200422-01
H4961-FS1	POL-MW0047D-035.0-20200422
H4962-FS1	POL-MW0047DD-045.0-20200422
H4963-FS1	POL-MW0046D-035.0-20200422
H4964-FS1	POL-MW0046DD-045.0-20200422
H4965-FS1	POL-MW0045S-015.0-20200422
H4966-FS1	POL-MW0045I-025.0-20200422

Samples Assigned By: Kelsey Harnden Date : April 29, 2020

Comments:

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BATTELLE - NORWELL OPERATIONS
SAMPLE CUSTODY LOG

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Requested On/By: 04/30/2020 AW **Purpose:** Sample Preparation

Relinquished On/By: 04/30/2020 MDS **Last Activity:** Transfer

Accepted On/By: 04/30/2020 AW
Stored In Facility: Sample Preparation
Stored Until
Stored Comment: NA

Returned On/To:
Returned To Facility:
Returned Comment: NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	H4954	2	C	Consumed	NA
2	H4955	2	C	Consumed	NA
3	H4956	2	C	Consumed	NA
4	H4957	2	C	Consumed	NA
5	H4958	2	C	Consumed	NA
6	H4959	2	C	Consumed	NA
7	H4960	2	C	Consumed	NA
8	H4961	2	C	Consumed	NA
9	H4962	2	C	Consumed	NA
10	H4963	2	C	Consumed	NA
11	H4964	2	C	Consumed	NA
12	H4965	2	C	Consumed	NA
13	H4966	2	C	Consumed	NA

Total Samples 13 * "C" = Consumed Container

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BATTELLE - NORWELL OPERATIONS
LIQUID SAMPLE ID FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID	Description	Volume (mL)	Bottles	*	Date Initials
CY822PB-FS	Procedural Blank	250.0	NA	--	04/30/20 AW
CY823LCS-FS	Laboratory Control Sample	250.0	NA	--	04/30/20 AW
H4954-FS1	POL-MW0041SI-020.5-20200421	275.0	2	C	05/04/20 SAS
H4955-FS1	POL-MW0008S-009.3-20200421	275.0	2	C	05/04/20 SAS
H4956-FS1	POL-MW0008I-007.5-20200421	285.0	2	C	05/04/20 SAS
H4957-FS1	POL-MW0036SI-020.5-20200421	270.0	2	C	05/04/20 SAS
H4958-FS1	POL-MW0036I-027.5-20200421	265.0	2	C	05/04/20 SAS
H4959-FS1	POL-MW0047I-025.0-20200422	270.0	2	C	05/04/20 SAS
H4960-FS1	POL-FRB-0200422-01	285.0	2	C	05/04/20 SAS
H4961-FS1	POL-MW0047D-035.0-20200422	270.0	2	C	05/04/20 SAS
H4962-FS1	POL-MW0047DD-045.0-20200422	275.0	2	C	05/04/20 SAS
H4963-FS1	POL-MW0046D-035.0-20200422	275.0	2	C	05/04/20 SAS
H4964-FS1	POL-MW0046DD-045.0-20200422	275.0	2	C	05/04/20 SAS
H4965-FS1	POL-MW0045S-015.0-20200422	270.0	2	C	05/04/20 SAS
H4966-FS1	POL-MW0045I-025.0-20200422	260.0	2	C	05/04/20 SAS

Comments:

Sample ID:	Comments:
H4955-FS1	30 ul of 10.0 N NaOH (200103-01) was added to sample to achieve a pH between 6 and 8. AW
H4965-FS1	10 ul of 10.0 N NaOH (200103-01) was added to sample to achieve a pH between 6 and 8. AW

Samples Assigned By: Kelsey Harnden Date : April 29, 2020

* - "C" = Sample is Consumed

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BATTELLE - NORWELL OPERATIONS
SURROGATE SPIKE FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
CY822PB-FS	KY44	SIS	3	125	04/30/20 AW	KB	NA
CY823LCS-FS	KY44	SIS	3	125	04/30/20 AW	KB	NA
CY823LCS-FS	KY48	LCS/MS	1	100	04/30/20 AW	KB	NA
H4954-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4955-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4956-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4957-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4958-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4959-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4960-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4961-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4962-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4963-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4964-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4965-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA
H4966-FS1	KY44	SIS	3	125	04/30/20 AW	KB	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
KY44	Pipette	B909301860
KY48	Pipette	B814659662

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BATTELLE - NORWELL OPERATIONS
SAMPLE EXTRACTION FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519
PFAS: Nasa Kennedy Space Center
GW, QC

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Conc. ID	Turbo °C	Turbo PSI	KD °C	Comment
CY822PB-FS	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
CY823LCS-FS	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4954-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4955-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4956-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4957-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4958-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4959-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4960-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4961-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4962-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4963-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4964-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4965-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA
H4966-FS1	04/30/20 AW	NA	NA	NEVAP_4	NA	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Whatman Indicator paper pH 0-14	200217-01	02/17/24	10D0391	NA	
Phenomenex Strata X-AW 33um Polymeric Weak Anion	200312-01	03/12/25	S308-0109/S20-001194	NA	
0.5% NH3 in Methanol (w/v)	RP-200430-1	04/30/20	10224584	Per 100 mL, 4.25 mL ammonia solution brought to 100 mL with methanol	
0.5% NH3 in Methanol (w/v)	RP-200430-1	04/30/20	196258	Per 100 mL, 4.25 mL ammonia solution brought to 100 mL with methanol	

Solvents/Reagents:

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519
PFAS: Nasa Kennedy Space Center
GW, QC

Extract Id	Date	Init.	Comments
CY822PB-FS(0)	04/30/20	AW	NA
CY823LCS-FS(0)	04/30/20	AW	NA
H4954-FS1(0)	04/30/20	AW	NA
H4955-FS1(0)	04/30/20	AW	NA
H4956-FS1(0)	04/30/20	AW	NA
H4957-FS1(0)	04/30/20	AW	NA
H4958-FS1(0)	04/30/20	AW	NA
H4959-FS1(0)	04/30/20	AW	NA
H4960-FS1(0)	04/30/20	AW	NA
H4961-FS1(0)	04/30/20	AW	NA
H4962-FS1(0)	04/30/20	AW	NA
H4963-FS1(0)	04/30/20	AW	NA
H4964-FS1(0)	04/30/20	AW	NA
H4965-FS1(0)	04/30/20	AW	NA
H4966-FS1(0)	04/30/20	AW	NA

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519
PFAS: Nasa Kennedy Space Center
GW, QC

Extract Id	Date	Init.	Comments

Cleanup:
Envi-Carb

Reagents:

Reagent Prep	Name	Expires	Lot No	Procedure
191209-01	Supelclean ENVI-Carb SPE Bulk Packing	12/09/24	122395	NA

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519
PFAS: Nasa Kennedy Space Center
GW, QC

Extract Id	Date	Init.	Comments

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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519
PFAS: Nasa Kennedy Space Center
GW, QC

(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
CY822PB-FS(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
CY823LCS-FS(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4954-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4955-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4956-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4957-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4958-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4959-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4960-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4961-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4961-FS1-D(3)	900	100	KY45	125	3	1000	5.000	05/04/20 KB	KH
H4962-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4963-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4963-FS1-D(3)	900	100	KY45	125	3	1000	5.000	05/04/20 KB	KH
H4964-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4965-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH
H4965-FS1-D(3)	885	115	KY45	125	3	1000	12.500	05/04/20 KB	KH
H4965-FS1-D(5)	885	115	KY45	125	3	1000	156.250	05/04/20 KB	KH
H4966-FS1(0)	875	125	KY45	125	3	1000	1.000	05/04/20 KB	KH

* - Final Dilution is any HPLC, dilutions, or other manipulation
^ - Pre Injection Volume (PIV) includes any RIS spikes.

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BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
H4966-FS1-D(3)	885	115	KY45	125	3	1000	12.500	05/04/20 KB	KH

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
KY44	Pipette	B814657482
KY45	Pipette	B814657482

* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.

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BATTELLE - NORWELL OPERATIONS
EXTRACT SPIKE FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Extract Id	DF	Std. ID	Type	Vial No.	Vol. Added (uL)	Conc (ug/mL)	Added (ng)	Date Spiked/ Spiked By	Witn'd By
H4961-FS1-D(3)	5	KY44	SIS	3	100	0	0	05/04/20 KB	KH
H4963-FS1-D(3)	5	KY44	SIS	3	100	0	0	05/04/20 KB	KH
H4965-FS1-D(3)	12.5	KY44	SIS	3	115	0	0	05/04/20 KB	KH
H4965-FS1-D(5)	156.25	KY44	SIS	3	115	0	0	05/04/20 KB	KH
H4966-FS1-D(3)	12.5	KY44	SIS	3	115	0	0	05/04/20 KB	KH

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
KY44	Pipette	B814657482
KY45	Pipette	B814657482

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
CY822PB-FS	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
CY823LCS-FS	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4954-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4955-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4956-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4957-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4958-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4959-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4960-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4961-FS1	0	C	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4961-FS1	2	--	5/4/2020 2:21:00 PM	H4961-FS1	0	1000	800	1.250	1.250	05/04/20 KB
H4961-FS1-D	3	--	5/4/2020 2:21:00 PM	H4961-FS1	0	1000	200	5.000	5.000	05/04/20 KB
H4962-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4963-FS1	0	C	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]

Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor

* - "C" = Extract is Consumed

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
H4963-FS1	2	--	5/4/2020 2:21:00 PM	H4963-FS1	0	1000	800	1.250	1.250	05/04/20 KB
H4963-FS1-D	3	--	5/4/2020 2:21:00 PM	H4963-FS1	0	1000	200	5.000	5.000	05/04/20 KB
H4964-FS1	0	--	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4965-FS1	0	C	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4965-FS1	2	--	5/4/2020 2:21:00 PM	H4965-FS1	0	1000	920	1.087	1.087	05/04/20 KB
H4965-FS1-D	3	C	5/4/2020 2:21:00 PM	H4965-FS1	0	1000	80	12.500	12.500	05/04/20 KB
H4965-FS1-D	4	--	5/4/2020 2:25:00 PM	H4965-FS1-D	3	1000	920	1.087	13.587	05/04/20 KB
H4965-FS1-D	5	--	5/4/2020 2:25:00 PM	H4965-FS1-D	3	1000	80	12.500	156.250	05/04/20 KB
H4966-FS1	0	C	4/30/2020 10:09:00 AM	NA		NA	NA	1.000	1.000	04/30/20 AW
H4966-FS1	2	--	5/4/2020 2:21:00 PM	H4966-FS1	0	1000	920	1.087	1.087	05/04/20 KB
H4966-FS1-D	3	--	5/4/2020 2:21:00 PM	H4966-FS1	0	1000	80	12.500	12.500	05/04/20 KB

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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BATTELLE - NORWELL OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	May 4 2020 2:52PM KH	**Received On/By:**	May 4 2020 2:52PM DMS
Relinquished From:	Sample Preparation: NA	**Received Location:**	LC Laboratory: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	CY822PB-FS(0)	1000	1	Intact	NA
2	CY823LCS-FS(0)	1000	1	Intact	NA
3	H4954-FS1(0)	1000	1	Intact	NA
4	H4955-FS1(0)	1000	1	Intact	NA
5	H4956-FS1(0)	1000	1	Intact	NA
6	H4957-FS1(0)	1000	1	Intact	NA
7	H4958-FS1(0)	1000	1	Intact	NA
8	H4959-FS1(0)	1000	1	Intact	NA
9	H4960-FS1(0)	1000	1	Intact	NA
10	H4961-FS1(0)	1000	1	Intact	NA
11	H4961-FS1-D(3)	1000	5	Intact	NA
12	H4962-FS1(0)	1000	1	Intact	NA
13	H4963-FS1(0)	1000	1	Intact	NA
14	H4963-FS1-D(3)	1000	5	Intact	NA
15	H4964-FS1(0)	1000	1	Intact	NA
16	H4965-FS1(0)	1000	1	Intact	NA
17	H4965-FS1-D(3)	1000	12.5	Intact	NA
18	H4965-FS1-D(5)	1000	156.25	Intact	NA
19	H4966-FS1(0)	1000	1	Intact	NA
20	H4966-FS1-D(3)	1000	12.5	Intact	NA

Total Extracts: 20

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BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Sample ID:	Comment:	Date/Initials:
CY822PB-FS	Extraction started at 10:09 AM, manifold 2, ended at 12:00 PM	04/30/20 AW
CY823LCS-FS	Extraction started at 10:09 AM, manifold 2, ended at 11:52 AM	04/30/20 AW
H4954-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:10 PM	04/30/20 AW
H4954-FS1	Sample contains particulates	04/30/20 AW
H4955-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:27 PM	04/30/20 AW
H4955-FS1	Sample contains particulates	04/30/20 AW
H4956-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:38 PM	04/30/20 AW
H4956-FS1	Sample contains particulates	04/30/20 AW
H4957-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:09 PM	04/30/20 AW
H4957-FS1	Sample contains particulates	04/30/20 AW
H4958-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:14 PM	04/30/20 AW
H4958-FS1	Sample contains particulates	04/30/20 AW
H4959-FS1	Extraction started at 10:09 AM, manifold 4, ended at 1:40 PM	04/30/20 AW
H4959-FS1	Sample contains particulates	04/30/20 AW
H4960-FS1	Extraction started at 10:09 AM, manifold 2, ended at 12:00 PM	04/30/20 AW
H4961-FS1	Extraction started at 10:09 AM, manifold 2, ended at 12:04 PM	04/30/20 AW
H4961-FS1	Sample contains particulates	04/30/20 AW
H4962-FS1	Extraction started at 10:09 AM, manifold 2, ended at 12:25 PM	04/30/20 AW
H4962-FS1	Sample contains particulates	04/30/20 AW
H4963-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:22 PM	04/30/20 AW
H4963-FS1	Sample contains particulates	04/30/20 AW
H4964-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:24 PM	04/30/20 AW
H4964-FS1	Sample contains particulates	04/30/20 AW
H4965-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:27 PM	04/30/20 AW
H4965-FS1	Sample contains particulates	04/30/20 AW
H4966-FS1	Extraction started at 10:09 AM, manifold 4, ended at 12:06 PM	04/30/20 AW
H4966-FS1	Sample contains particulates	04/30/20 AW

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BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title(s)	Project No.(s)
PFAS: Nasa Kennedy Space Center	100137609

20-0519

PFAS: Nasa Kennedy Space Center

GW, QC

Entered By: On:

Task Leader Approval: On:

SupervisorApproval: On:

PM Approval: On:

Analytical Calibrations

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Sequence Report

Created with Analyst Reporter
Printed: 06/05/2020 9:52:27 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
2	KY83	L1	5/4/2020 3:28:48 PM	5-369.dam	AE_05042020_5-369.wiff
3	KY84	L2	5/4/2020 3:39:19 PM	5-369.dam	AE_05042020_5-369.wiff
4	KY85	L3	5/4/2020 3:49:51 PM	5-369.dam	AE_05042020_5-369.wiff
5	KY86	L4	5/4/2020 4:00:24 PM	5-369.dam	AE_05042020_5-369.wiff
6	KY87	L5	5/4/2020 4:10:57 PM	5-369.dam	AE_05042020_5-369.wiff
7	KY88	L6	5/4/2020 4:21:30 PM	5-369.dam	AE_05042020_5-369.wiff
8	KY89	L7	5/4/2020 4:32:03 PM	5-369.dam	AE_05042020_5-369.wiff
9	KY90 IB	Instrument Blank	5/4/2020 4:42:36 PM	5-369.dam	AE_05042020_5-369.wiff
10	KY91 ICC	ICC	5/4/2020 4:53:09 PM	5-369.dam	AE_05042020_5-369.wiff
11	KY42 Branch	Branch Standard	5/4/2020 5:03:41 PM	5-369.dam	AE_05042020_5-369.wiff
~~12~~	~~MeOH~~		~~5/4/2020 5:14:14 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~ 1
~~13~~	~~KY81 (1) CHK~~		~~5/4/2020 5:24:47 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~14~~	~~KY81 (2)CHK~~		~~5/4/2020 5:35:19 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~15~~	~~KY87 CCV~~	~~CCV~~	~~5/4/2020 5:45:51 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~1~~	~~MeOH~~		~~5/4/2020 5:56:23 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~2~~	~~H4206-FS-D(9)~~		~~5/4/2020 6:06:55 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~3~~	~~H4206-FS-D(11)~~		~~5/4/2020 6:17:26 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~4~~	~~H4206-FS-D(13)~~		~~5/4/2020 6:27:58 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~5~~	~~H4207-FS-D(9)~~		~~5/4/2020 6:38:30 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~6~~	~~H4207-FS-D(11)~~		~~5/4/2020 6:49:02 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~7~~	~~H4207-FS-D(13)~~		~~5/4/2020 6:59:34 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~8~~	~~KY87 CCV~~	~~CCV~~	~~5/4/2020 7:10:06 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~9~~	~~MeOH~~		~~5/4/2020 7:20:38 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~10~~	~~H4208-FS-D(7)~~		~~5/4/2020 7:31:10 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~11~~	~~H4209-FS-D(7)~~		~~5/4/2020 7:41:42 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~12~~	~~H4209-FS-D(9)~~		~~5/4/2020 7:53:14 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~13~~	~~H4209-FS-D(11)~~		~~5/4/2020 8:03:46 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~14~~	~~H4210-FS-D(7)~~		~~5/4/2020 8:14:19 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
~~15~~	~~H4211-FS-D(7)~~		~~5/4/2020 8:24:52 PM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~
16	KY86 CCV	CCV	5/4/2020 8:35:24 PM	5-369.dam	AE_05042020_5-369.wiff
17	MeOH		5/4/2020 8:45:57 PM	5-369.dam	AE_05042020_5-369.wiff
18	CY822PB-FS(0)	Procedural Blank	5/4/2020 8:56:30 PM	5-369.dam	AE_05042020_5-369.wiff
19	CY823LCS-FS(0)	Laboratory Control Sample	5/4/2020 9:07:03 PM	5-369.dam	AE_05042020_5-369.wiff
20	H4954-FS1(0)	POL-MW0041SI-020.5-20200421	5/4/2020 9:17:36 PM	5-369.dam	AE_05042020_5-369.wiff
21	H4955-FS1(0)	POL-MW0008S-009.3-20200421	5/4/2020 9:28:09 PM	5-369.dam	AE_05042020_5-369.wiff
22	H4956-FS1(0)	POL-MW0008I-007.5-20200421	5/4/2020 9:38:42 PM	5-369.dam	AE_05042020_5-369.wiff
23	H4957-FS1(0)	POL-MW0036SI-020.5-20200421	5/4/2020 9:49:15 PM	5-369.dam	AE_05042020_5-369.wiff
24	H4958-FS1(0)	POL-MW0036I-027.5-20200421	5/4/2020 9:59:49 PM	5-369.dam	AE_05042020_5-369.wiff
25	H4959-FS1(0)	POL-MW0047I-025.0-20200422	5/4/2020 10:10:22 PM	5-369.dam	AE_05042020_5-369.wiff

1 Samples from another batch, not reported with this one. DMS 5/6/2020

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 06/05/2020 9:52:27 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File	
26	H4960-FS1(0)	POL-FRB-0200422-01	5/4/2020 10:20:54 PM	5-369.dam	AE_05042020_5-369.wiff	
27	MeOH		5/4/2020 10:31:27 PM	5-369.dam	AE_05042020_5-369.wiff	
28	KY87 CCV	CCV	5/4/2020 10:42:01 PM	5-369.dam	AE_05042020_5-369.wiff	
29	MeOH		5/4/2020 10:52:32 PM	5-369.dam	AE_05042020_5-369.wiff	
30	H4961-FS1(0)	POL-MW0047D-035.0-20200422	5/4/2020 11:03:04 PM	5-369.dam	AE_05042020_5-369.wiff	
31	H4961-FS1-D(3)	POL-MW0047D-035.0-20200422	5/4/2020 11:13:36 PM	5-369.dam	AE_05042020_5-369.wiff	
32	H4962-FS1(0)	POL-MW0047DD-045.0-20200422	5/4/2020 11:24:08 PM	5-369.dam	AE_05042020_5-369.wiff	
33	H4963-FS1(0)	POL-MW0046D-035.0-20200422	5/4/2020 11:34:39 PM	5-369.dam	AE_05042020_5-369.wiff	
34	H4963-FS1-D(3)	POL-MW0046D-035.0-20200422	5/4/2020 11:45:11 PM	5-369.dam	AE_05042020_5-369.wiff	
35	H4964-FS1(0)	POL-MW0046DD-045.0-20200422	5/4/2020 11:55:42 PM	5-369.dam	AE_05042020_5-369.wiff	
36	H4966-FS1(0)	POL-MW0045I-025.0-20200422	5/5/2020 12:06:14 AM	5-369.dam	AE_05042020_5-369.wiff	
37	H4966-FS1-D(3)	POL-MW0045I-025.0-20200422	5/5/2020 12:16:46 AM	5-369.dam	AE_05042020_5-369.wiff	
38	MeOH		5/5/2020 12:27:17 AM	5-369.dam	AE_05042020_5-369.wiff	
39	KY86 CCV	CCV	5/5/2020 12:37:49 AM	5-369.dam	AE_05042020_5-369.wiff	
40	H4965-FS1(0)	POL-MW0045S-015.0-20200422	5/5/2020 12:48:22 AM	5-369.dam	AE_05042020_5-369.wiff	
41	H4965-FS1-D(3)	POL-MW0045S-015.0-20200422	5/5/2020 12:58:55 AM	5-369.dam	AE_05042020_5-369.wiff	
~~42~~	~~H4965-FS1-D(5)~~	~~POL-MW0045S-015.0-20200422~~	~~5/5/2020 1:09:27 AM~~	~~5-369.dam~~	~~AE_05042020_5-369.wiff~~	1
43	KY87 CCV	CCV	5/5/2020 1:20:01 AM	5-369.dam	AE_05042020_5-369.wiff	

1 Dilution made and run but was not needed. DMS 5/6/2020

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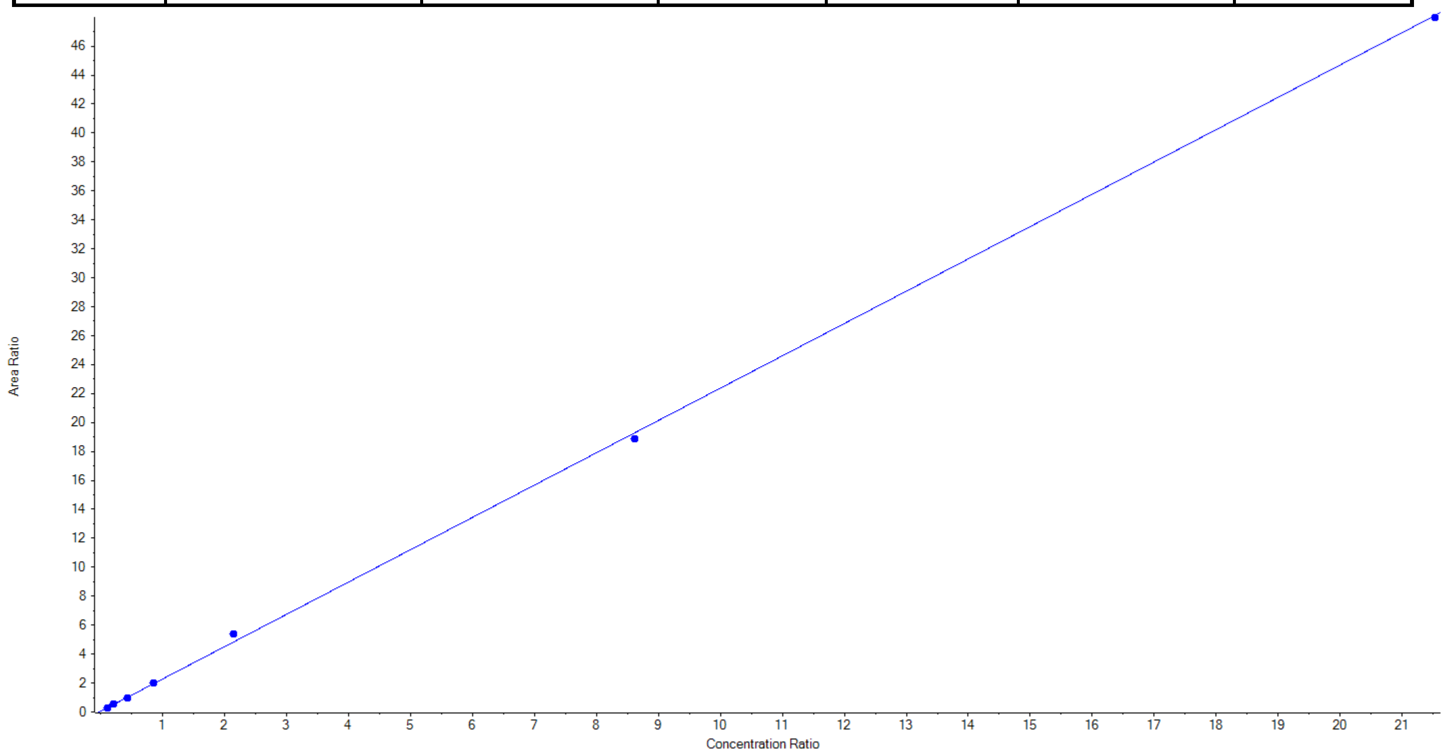
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFBS_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	298.9 / 80.0	**Result Table**	20-0519
Internal Standard	13C3-PFBS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 2.23299\ x + 0.04455$ ($r = 0.99941$) (weighting: 1 / x) r^2:0.9988

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	113.88	91.1
3	KY84	L2	True	250.00	253.60	101.4
4	KY85	L3	True	500.00	479.76	96.0
5	KY86	L4	True	1000.00	1020.91	102.1
6	KY87	L5	True	2500.00	2797.15	111.9
7	KY88	L6	True	10000.00	9781.72	97.8
8	KY89	L7	True	25000.00	24927.98	99.7



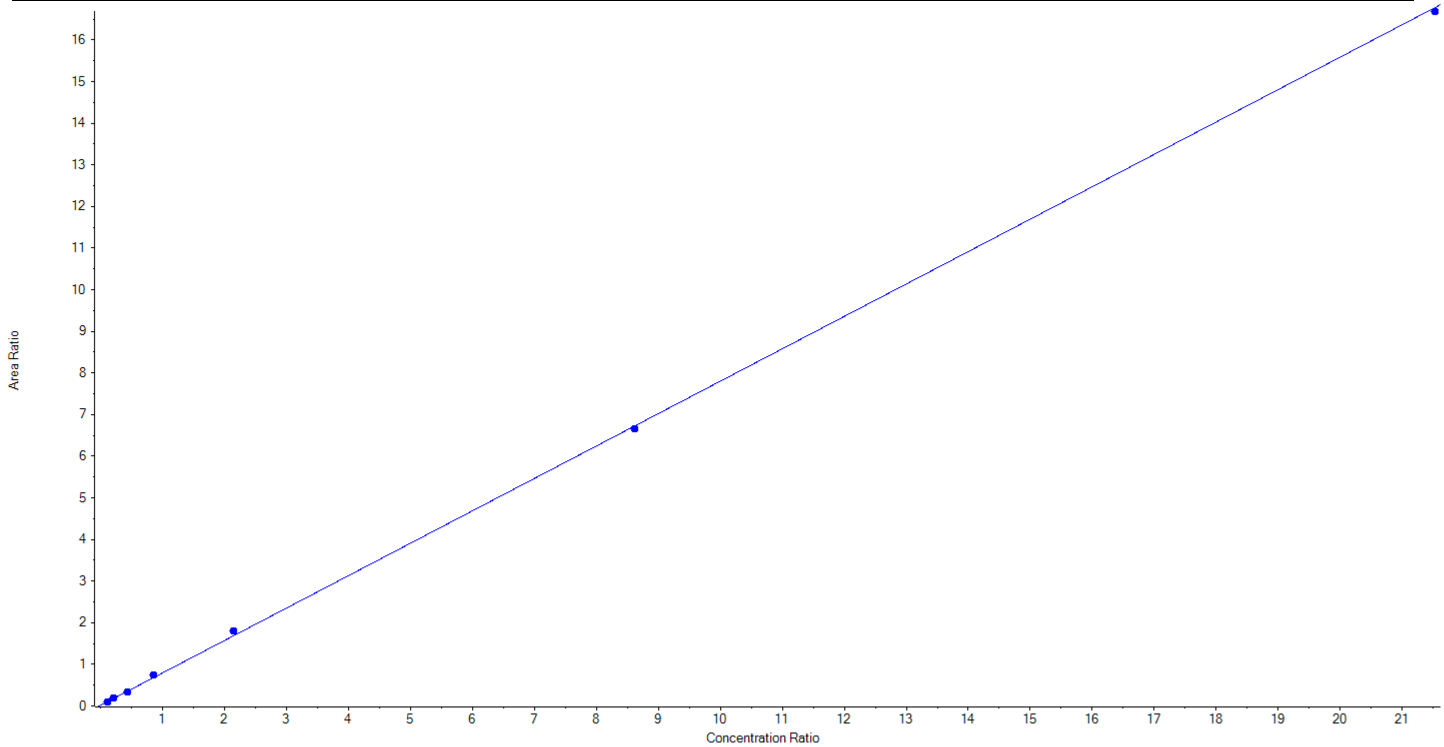
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFBS_2	Data File	AE_05042020_5-369.wiff
MRM Transition	298.9 / 99.0	Result Table	20-0519
Internal Standard	13C3-PFBS	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Acquisition Method	5-369.dam

Regression Equation: y = 0.77855 x + 0.01521 (r = 0.99969) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	105.48	84.4
3	KY84	L2	True	250.00	258.61	103.5
4	KY85	L3	True	500.00	496.32	99.3
5	KY86	L4	True	1000.00	1074.23	107.4
6	KY87	L5	True	2500.00	2674.29	107.0
7	KY88	L6	True	10000.00	9908.04	99.1
8	KY89	L7	True	25000.00	24858.03	99.4



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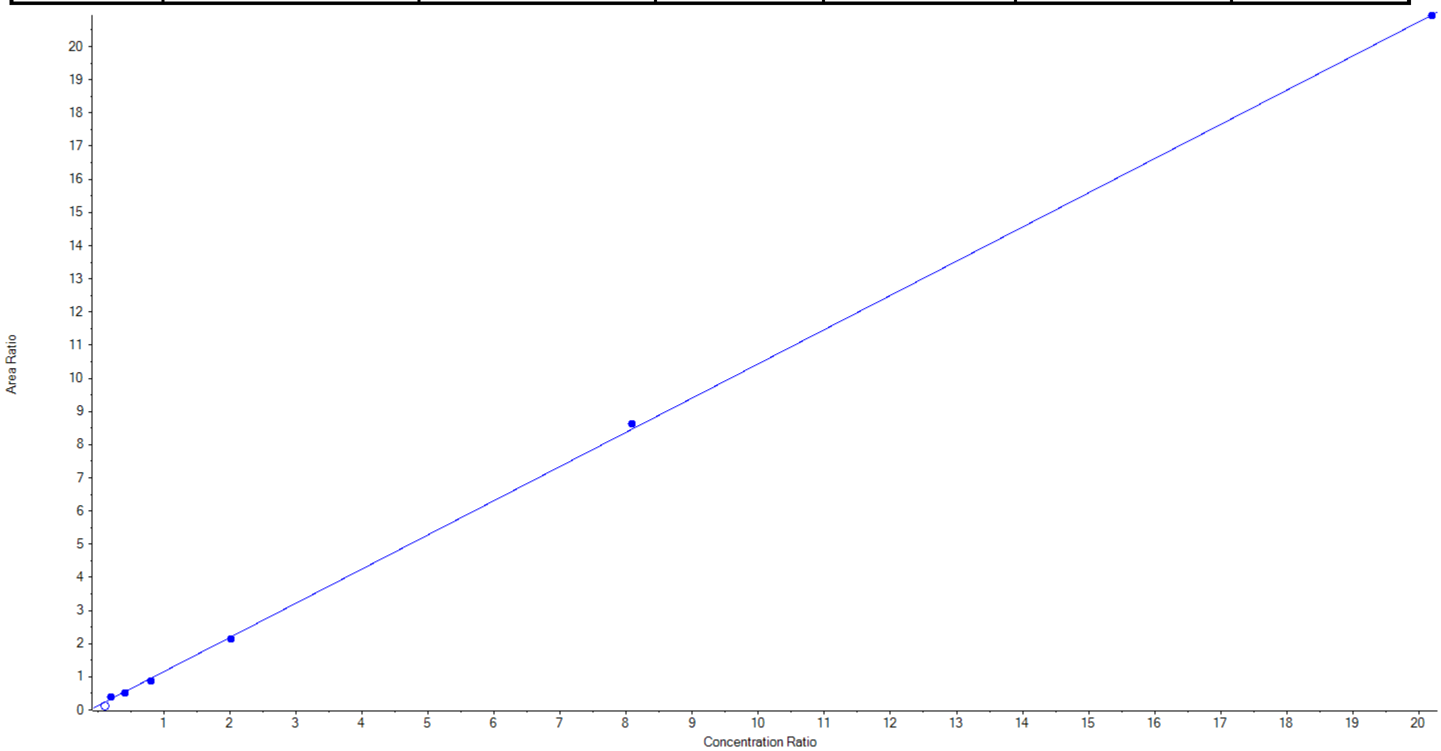
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFHxA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	313.0 / 269.0	**Result Table**	20-0519
Internal Standard	13C5-PFHxA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.03090 x + 0.12835 (r = 0.99955) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	False	126.25	< 0	N/A
3	KY84	L2	True	252.50	303.13	120.1
4	KY85	L3	True	505.00	464.58	92.0
5	KY86	L4	True	1010.00	898.67	89.0
6	KY87	L5	True	2525.00	2452.89	97.1
7	KY88	L6	True	10100.00	10292.70	101.9
8	KY89	L7	True	25250.00	25230.53	99.9



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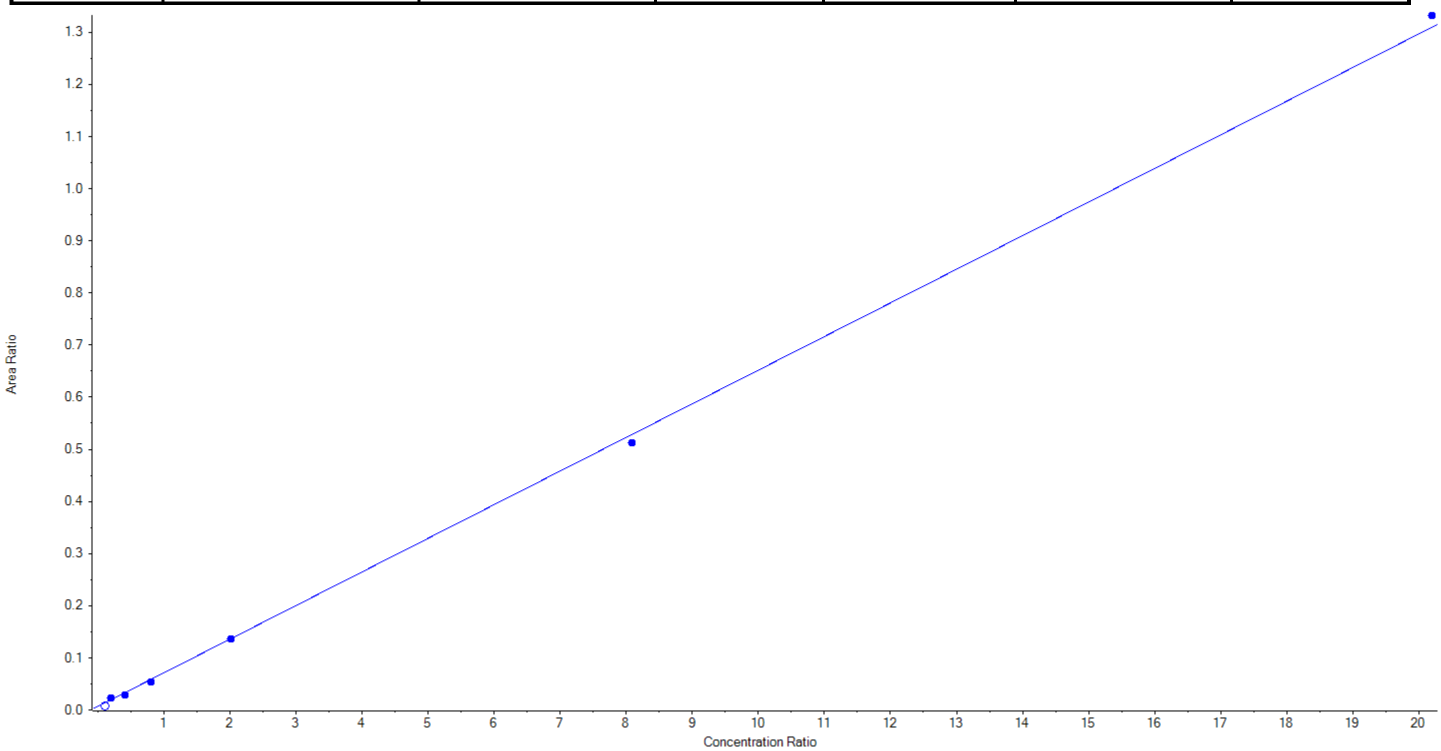
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFHxA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	313.0 / 119.0	**Result Table**	20-0519
Internal Standard	13C5-PFHxA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.06449 x + 0.00697 (r = 0.99911) (weighting: 1 / x) r^2:0.9982

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	False	126.25	4.53	3.6
3	KY84	L2	True	252.50	325.21	128.8
4	KY85	L3	True	505.00	419.36	83.0
5	KY86	L4	True	1010.00	910.34	90.1
6	KY87	L5	True	2525.00	2508.26	99.3
7	KY88	L6	True	10100.00	9793.76	97.0
8	KY89	L7	True	25250.00	25685.56	101.7



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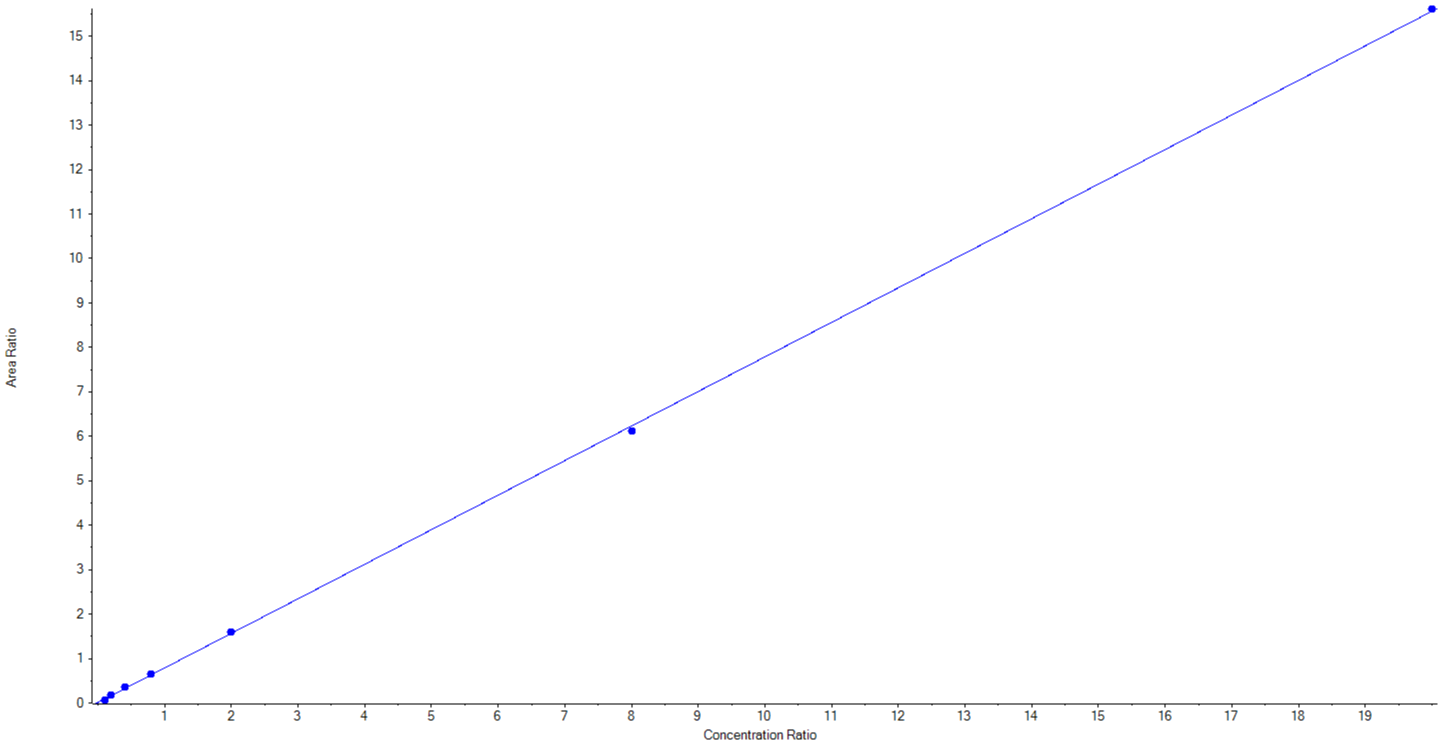
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFHpA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	363.0 / 319.0	**Result Table**	20-0519
Internal Standard	13C4-PFHpA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.77742 x + 0.01249 (r = 0.99982) (weighting: 1 / x) r^2:0.9996

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	105.87	84.7
3	KY84	L2	True	250.00	259.12	103.7
4	KY85	L3	True	500.00	547.81	109.6
5	KY86	L4	True	1000.00	1016.30	101.6
6	KY87	L5	True	2500.00	2549.82	102.0
7	KY88	L6	True	10000.00	9814.71	98.2
8	KY89	L7	True	25000.00	25081.37	100.3



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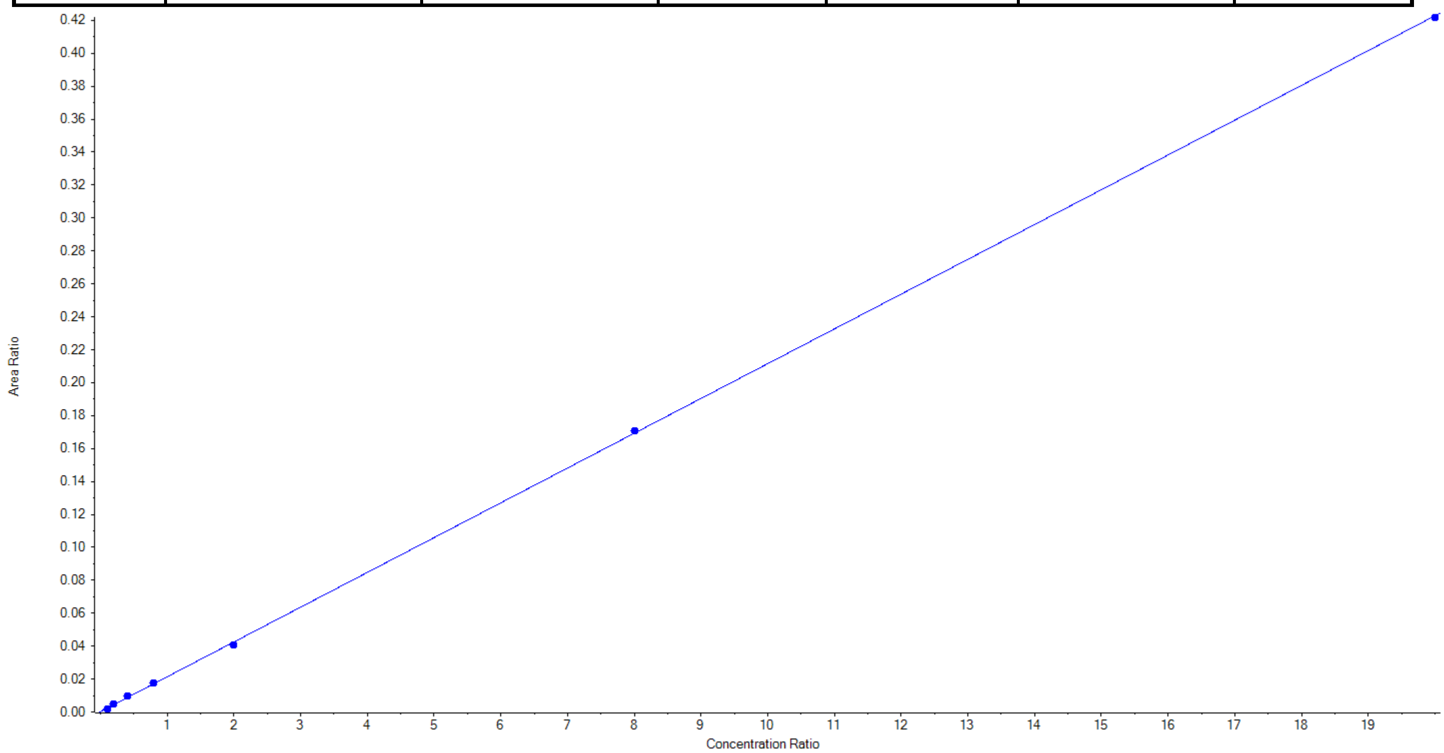
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFHpA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	363.0 / 169.0	**Result Table**	20-0519
Internal Standard	13C4-PFHpA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.02112 x + 2.95273e-4 (r = 0.99965) (weighting: 1 / x) r^2:0.9993

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	96.20	77.0
3	KY84	L2	True	250.00	280.36	112.1
4	KY85	L3	True	500.00	565.26	113.1
5	KY86	L4	True	1000.00	1016.76	101.7
6	KY87	L5	True	2500.00	2387.69	95.5
7	KY88	L6	True	10000.00	10091.20	100.9
8	KY89	L7	True	25000.00	24937.53	99.8



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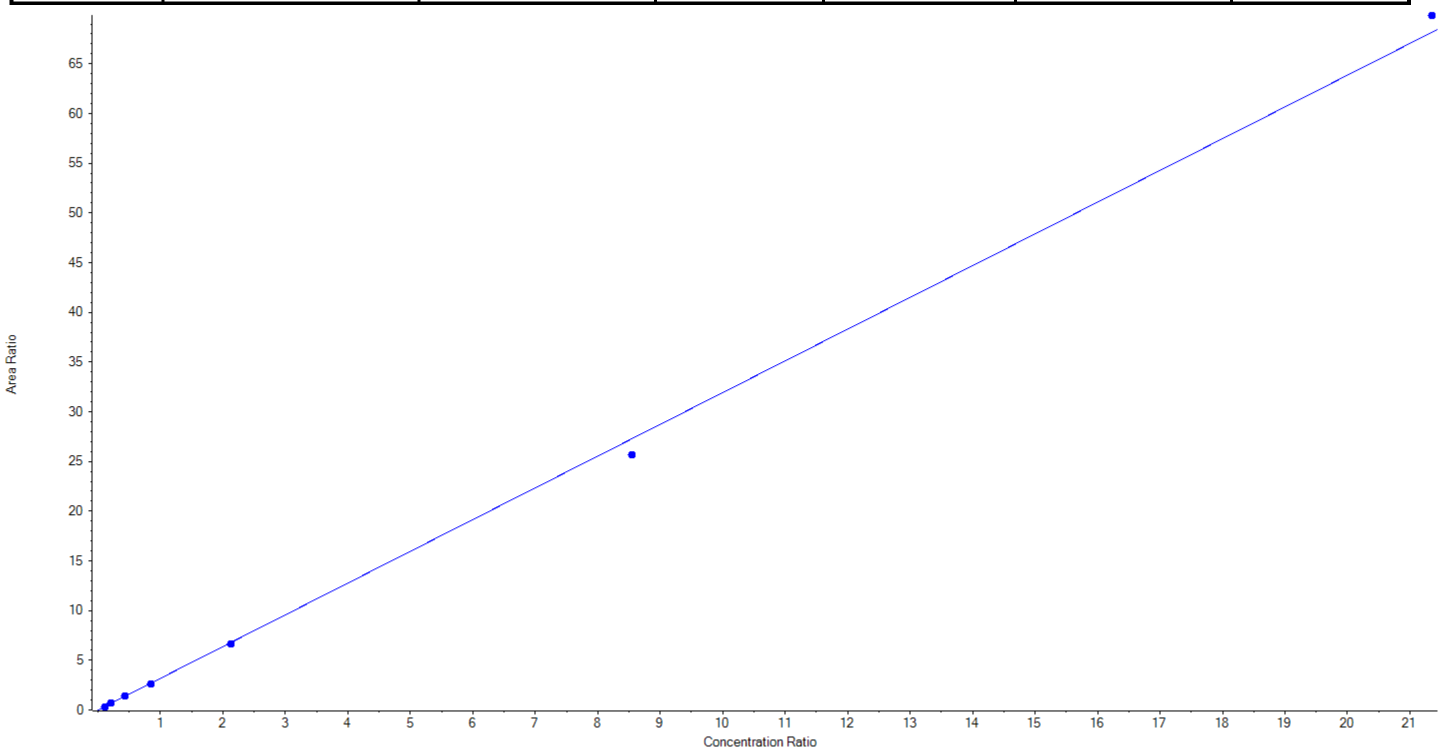
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFHxS_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	399.0 / 80.0	**Result Table**	20-0519
Internal Standard	13C3-PFHxS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 3.19308 x + -0.00544 (r = 0.99930) (weighting: 1 / x) r^2:0.9986

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	126.25	126.15	99.9
3	KY84	L2	True	252.50	265.16	105.0
4	KY85	L3	True	505.00	518.80	102.7
5	KY86	L4	True	1010.00	983.97	97.4
6	KY87	L5	True	2525.00	2478.48	98.2
7	KY88	L6	True	10100.00	9522.71	94.3
8	KY89	L7	True	25250.00	25873.48	102.5



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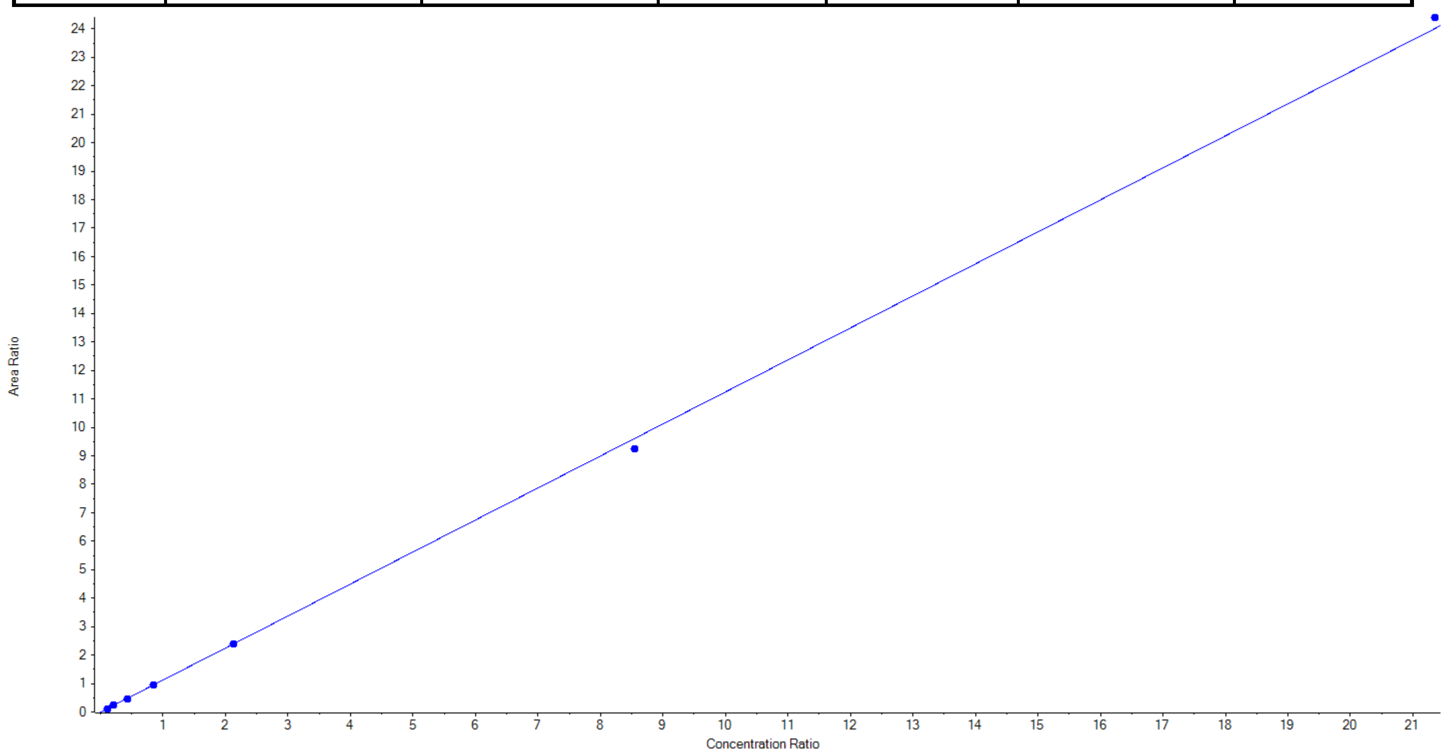
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFHxS_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	399.0 / 99.0	**Result Table**	20-0519
Internal Standard	13C3-PFHxS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.12471 x + -0.00141 (r = 0.99968) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	126.25	127.24	100.8
3	KY84	L2	True	252.50	266.87	105.7
4	KY85	L3	True	505.00	484.49	95.9
5	KY86	L4	True	1010.00	1012.24	100.2
6	KY87	L5	True	2525.00	2516.35	99.7
7	KY88	L6	True	10100.00	9706.10	96.1
8	KY89	L7	True	25250.00	25655.46	101.6



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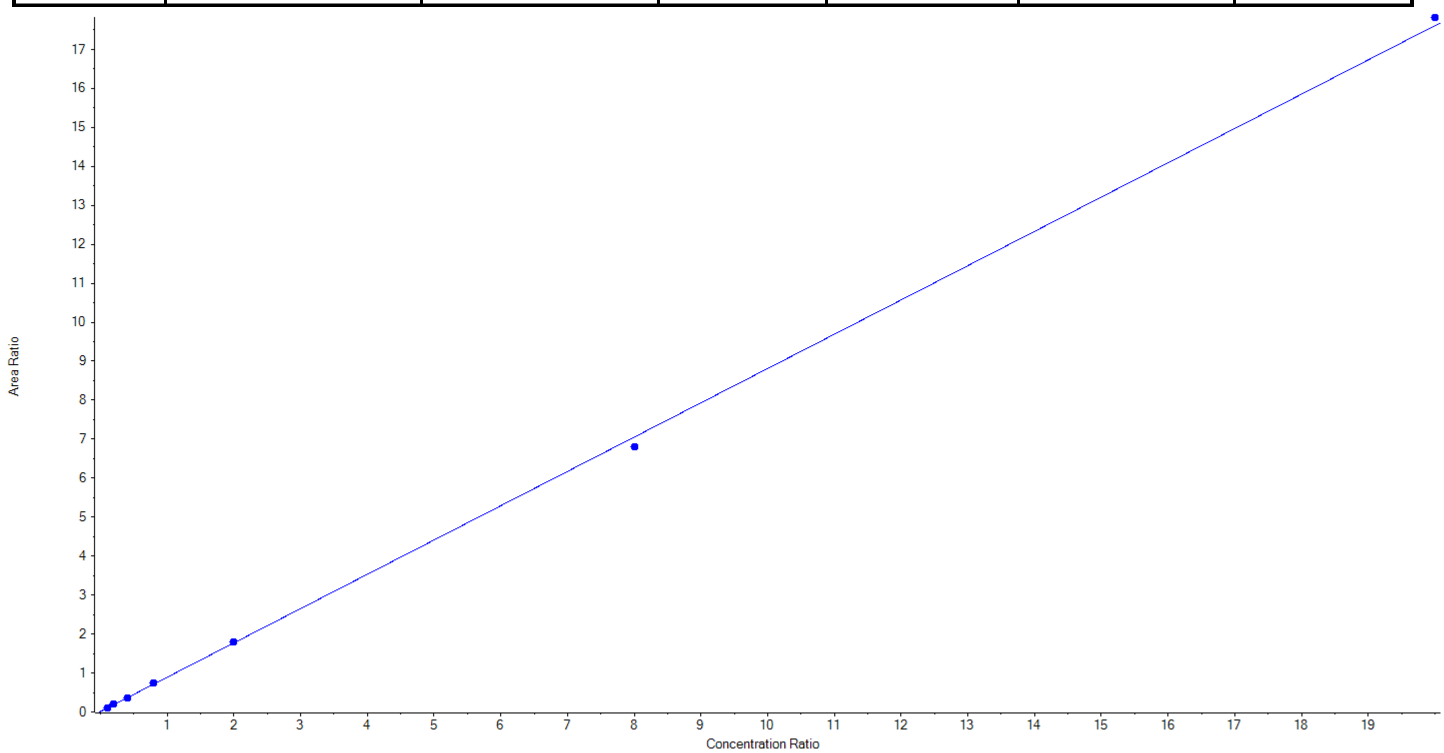
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFOA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	413.0 / 369.0	**Result Table**	20-0519
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.88000 x + 0.01280 (r = 0.99968) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	113.69	91.0
3	KY84	L2	True	250.00	271.22	108.5
4	KY85	L3	True	500.00	483.61	96.7
5	KY86	L4	True	1000.00	1050.74	105.1
6	KY87	L5	True	2500.00	2532.15	101.3
7	KY88	L6	True	10000.00	9630.17	96.3
8	KY89	L7	True	25000.00	25293.42	101.2



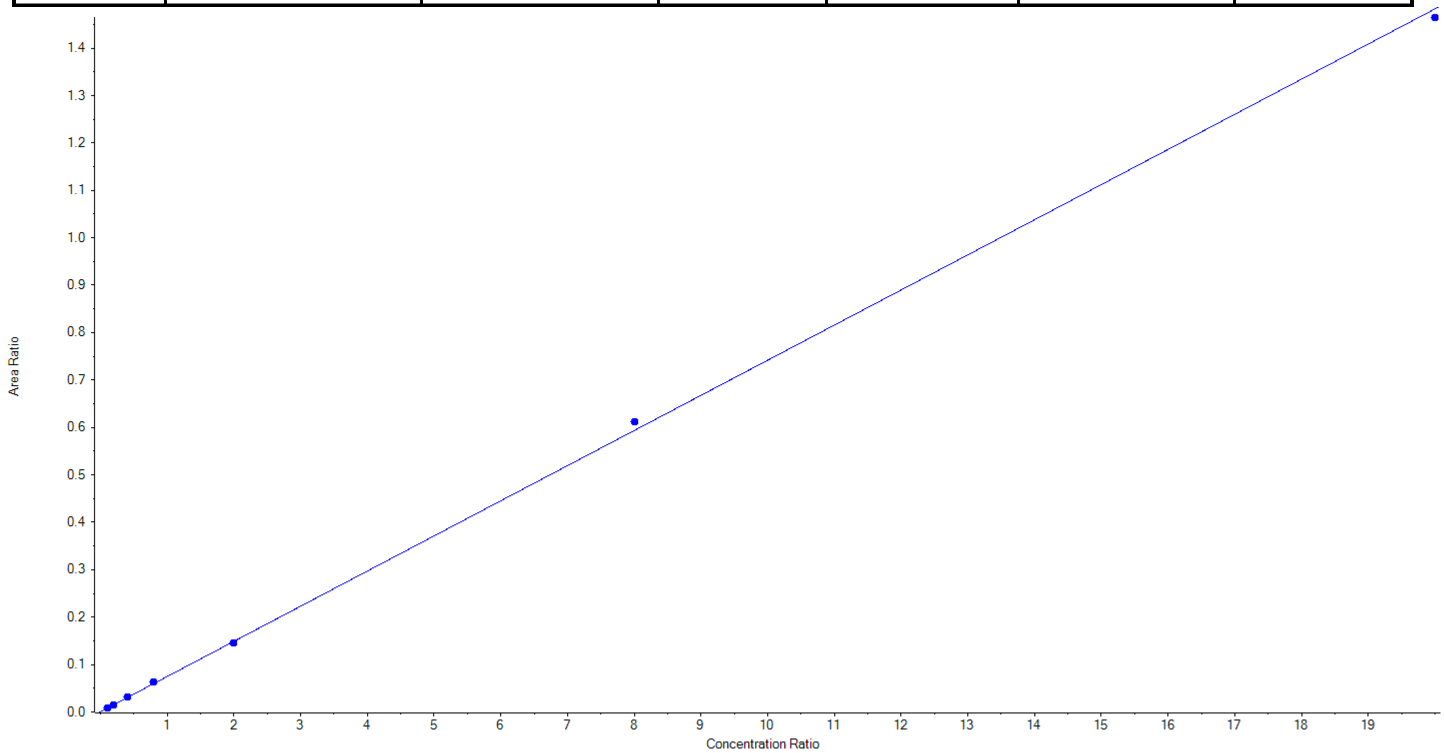
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFOA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	413.0 / 169.0	**Result Table**	20-0519
Internal Standard	13C8-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.07409 x + 7.91561e-4 (r = 0.99974) (weighting: 1 / x) r^2:0.9995

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	118.48	94.8
3	KY84	L2	True	250.00	248.71	99.5
4	KY85	L3	True	500.00	507.61	101.5
5	KY86	L4	True	1000.00	1048.60	104.9
6	KY87	L5	True	2500.00	2433.00	97.3
7	KY88	L6	True	10000.00	10326.19	103.3
8	KY89	L7	True	25000.00	24692.42	98.8



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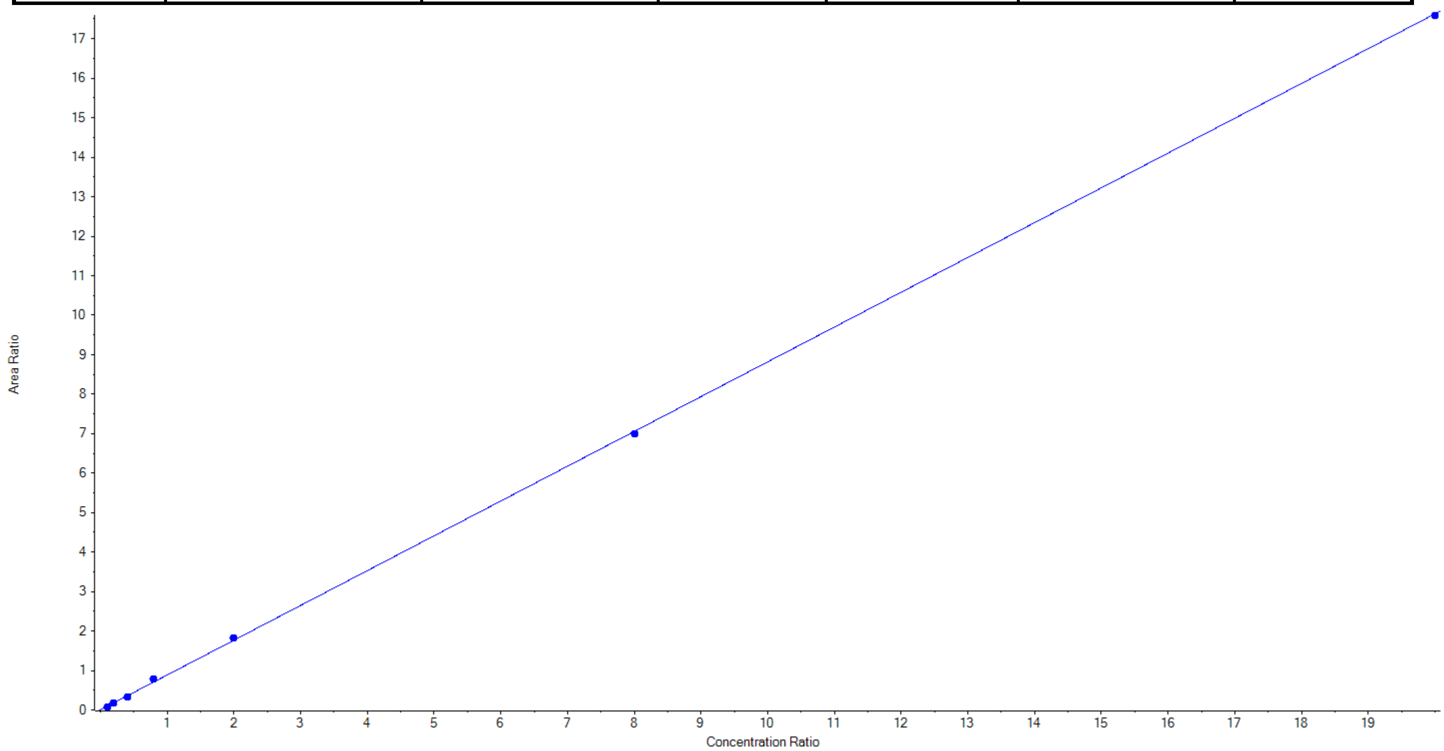
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFNA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	463.0 / 419.0	**Result Table**	20-0519
Internal Standard	13C9-PFNA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.88128 x + 0.00589 (r = 0.99973) (weighting: 1 / x) r^2:0.9995

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	116.20	93.0
3	KY84	L2	True	250.00	253.48	101.4
4	KY85	L3	True	500.00	461.93	92.4
5	KY86	L4	True	1000.00	1115.20	111.5
6	KY87	L5	True	2500.00	2569.78	102.8
7	KY88	L6	True	10000.00	9919.20	99.2
8	KY89	L7	True	25000.00	24939.20	99.8



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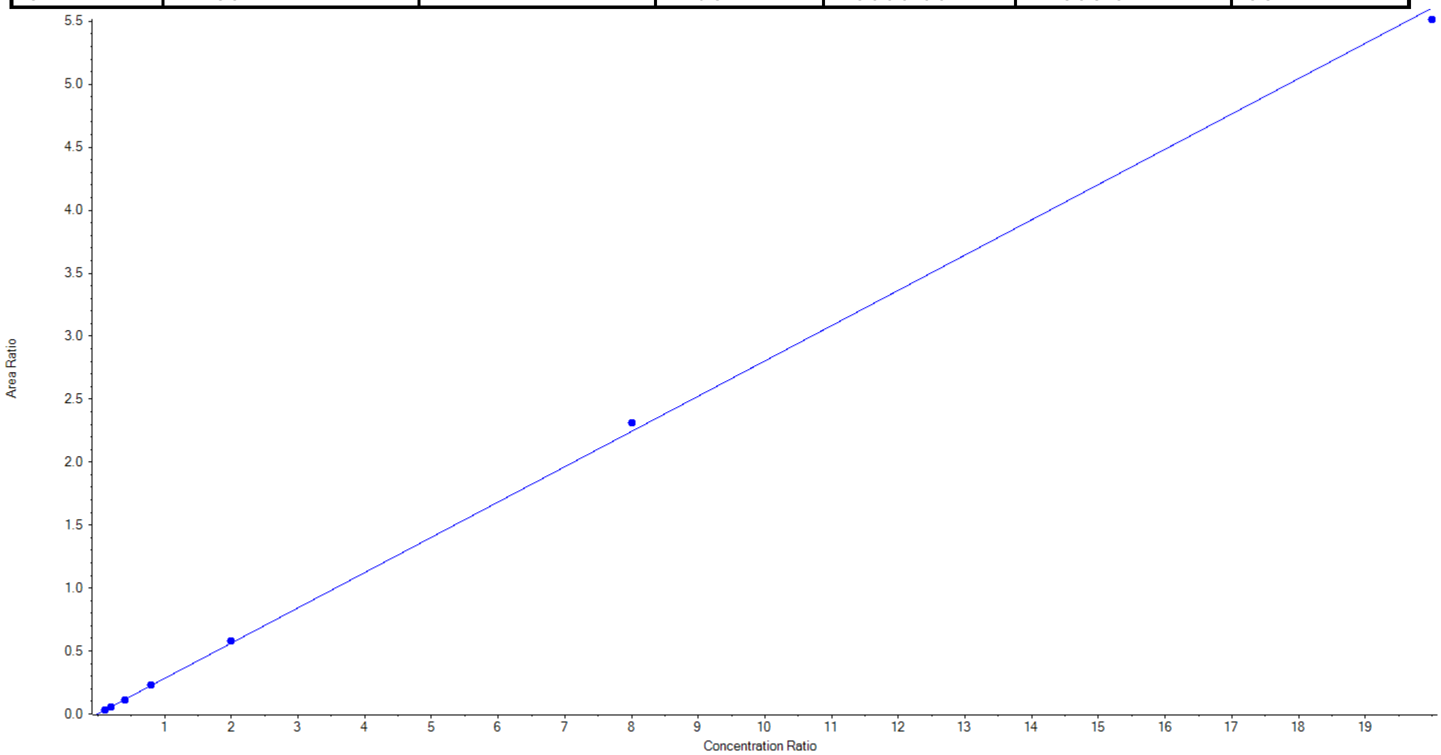
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFNA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	463.0 / 219.0	**Result Table**	20-0519
Internal Standard	13C9-PFNA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.28014 x + 0.00264$ ($r = 0.99970$) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	118.50	94.8
3	KY84	L2	True	250.00	253.85	101.5
4	KY85	L3	True	500.00	481.58	96.3
5	KY86	L4	True	1000.00	1020.97	102.1
6	KY87	L5	True	2500.00	2593.65	103.8
7	KY88	L6	True	10000.00	10312.93	103.1
8	KY89	L7	True	25000.00	24593.52	98.4



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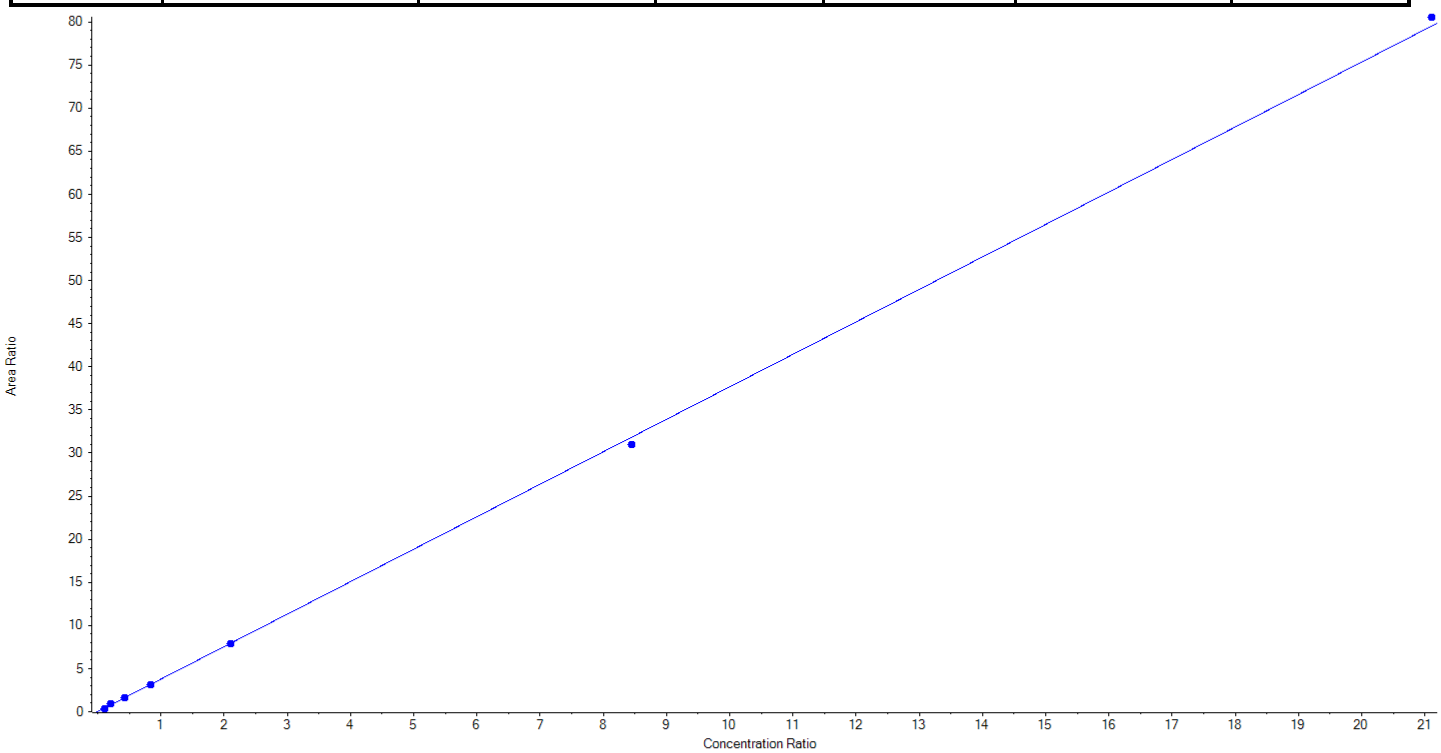
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFOS_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	499.0 / 80.0	**Result Table**	20-0519
Internal Standard	13C8-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 3.76661 x + 0.01780$ ($r = 0.99978$) (weighting: $1 / x$) r^2:0.9996

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	126.25	123.20	97.6
3	KY84	L2	True	252.50	278.69	110.4
4	KY85	L3	True	505.00	497.61	98.5
5	KY86	L4	True	1010.00	972.83	96.3
6	KY87	L5	True	2525.00	2487.55	98.5
7	KY88	L6	True	10100.00	9837.20	97.4
8	KY89	L7	True	25250.00	25571.67	101.3



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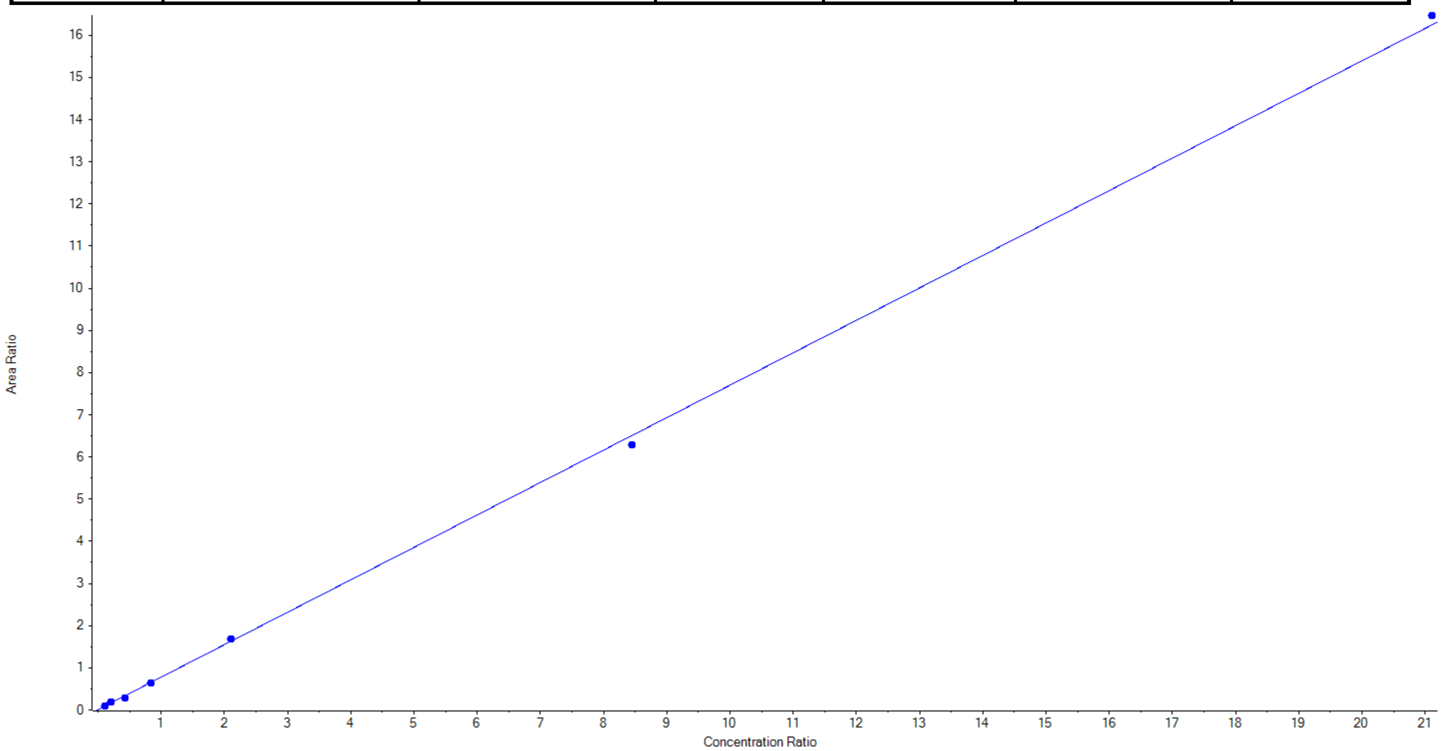
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFOS_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	499.0 / 99.0	**Result Table**	20-0519
Internal Standard	13C8-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.76911 x + 0.01047$ ($r = 0.99955$) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	126.25	134.12	106.2
3	KY84	L2	True	252.50	277.07	109.7
4	KY85	L3	True	505.00	438.73	86.9
5	KY86	L4	True	1010.00	970.22	96.1
6	KY87	L5	True	2525.00	2606.77	103.2
7	KY88	L6	True	10100.00	9745.40	96.5
8	KY89	L7	True	25250.00	25596.45	101.4



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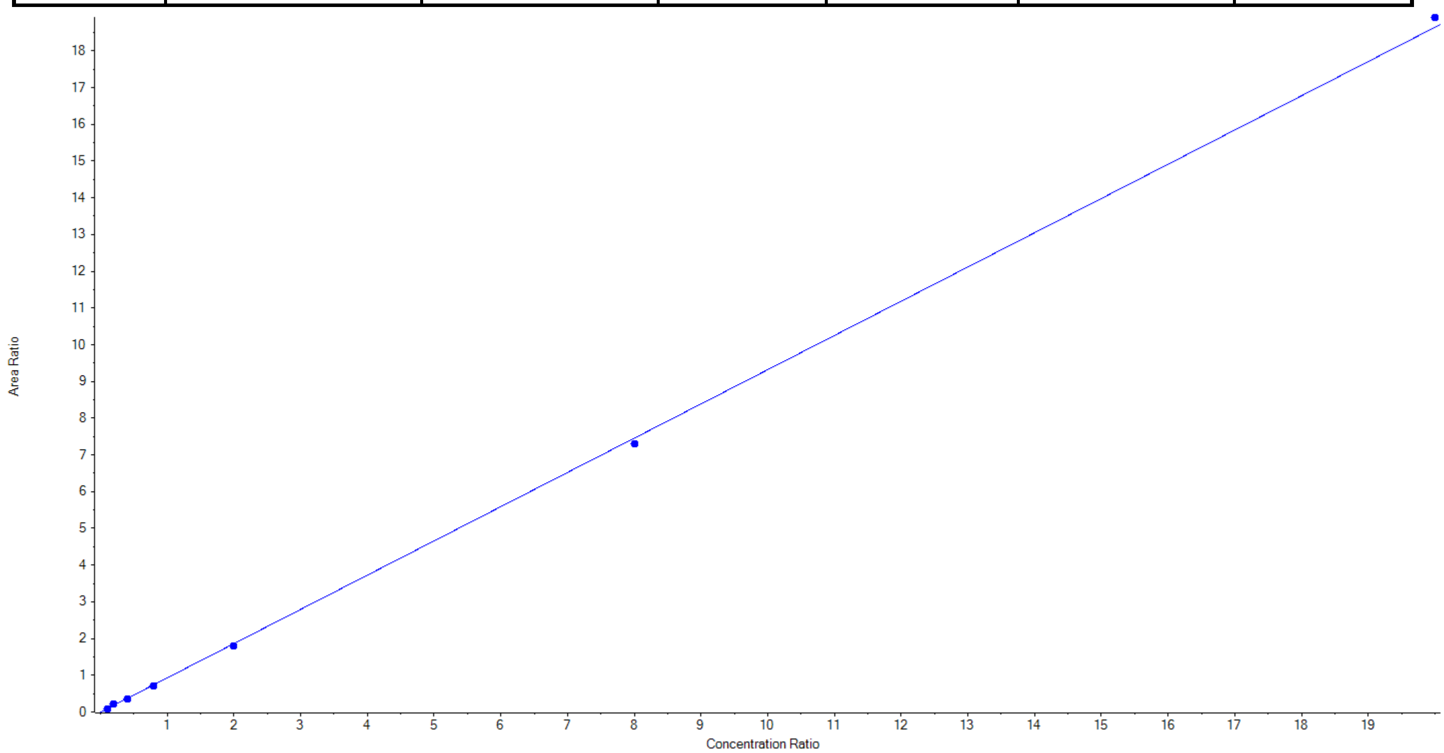
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFDA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	513.0 / 469.0	**Result Table**	20-0519
Internal Standard	13C6-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.93220\ x + -0.00260$ ($r = 0.99970$) (weighting: $1 / x$) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	129.27	103.4
3	KY84	L2	True	250.00	280.79	112.3
4	KY85	L3	True	500.00	471.27	94.3
5	KY86	L4	True	1000.00	947.60	94.8
6	KY87	L5	True	2500.00	2397.31	95.9
7	KY88	L6	True	10000.00	9793.71	97.9
8	KY89	L7	True	25000.00	25355.04	101.4



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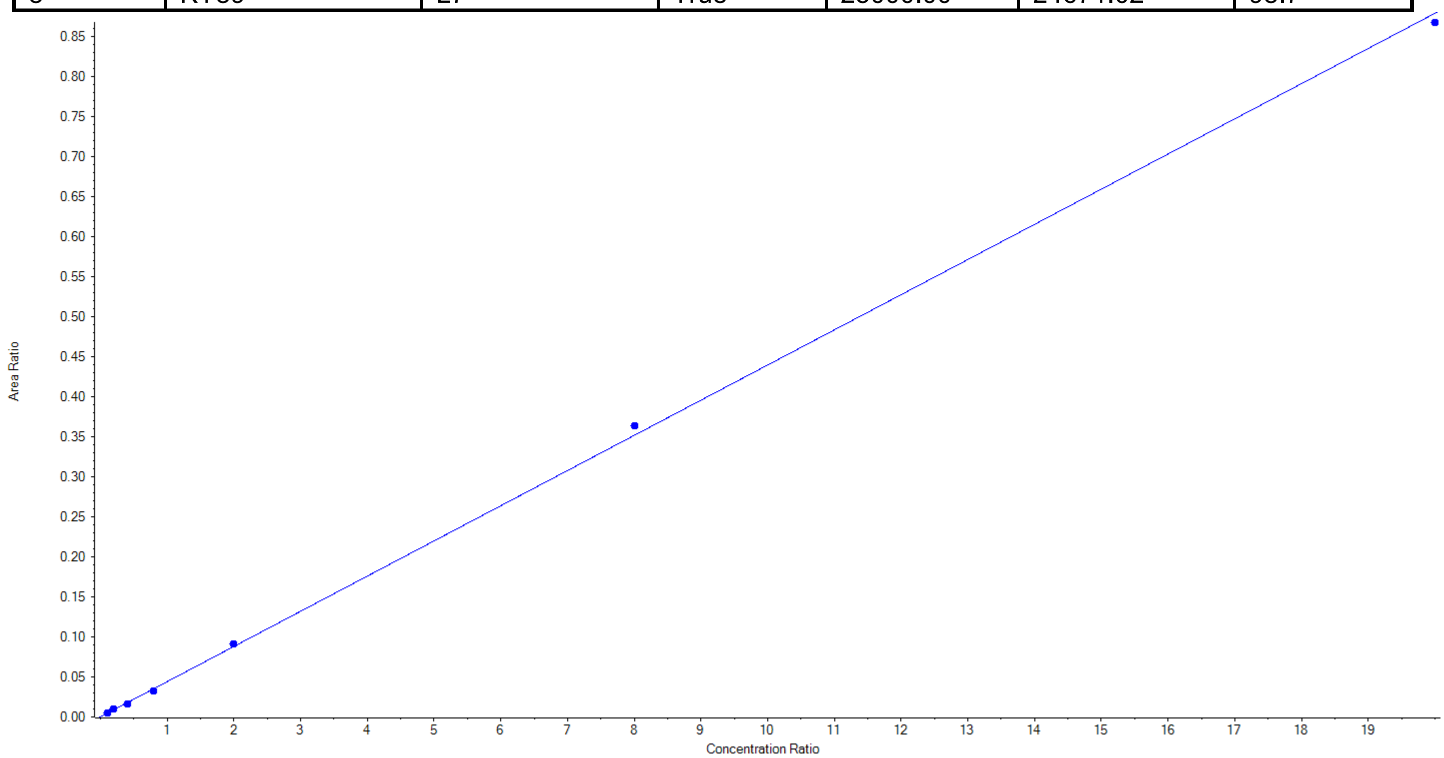
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFDA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	513.0 / 219.0	**Result Table**	20-0519
Internal Standard	13C6-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.04397 x + 2.58618e-4$ ($r = 0.99951$) (weighting: 1 / x) r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	124.63	99.7
3	KY84	L2	True	250.00	283.61	113.5
4	KY85	L3	True	500.00	444.69	88.9
5	KY86	L4	True	1000.00	924.22	92.4
6	KY87	L5	True	2500.00	2584.68	103.4
7	KY88	L6	True	10000.00	10342.15	103.4
8	KY89	L7	True	25000.00	24671.02	98.7



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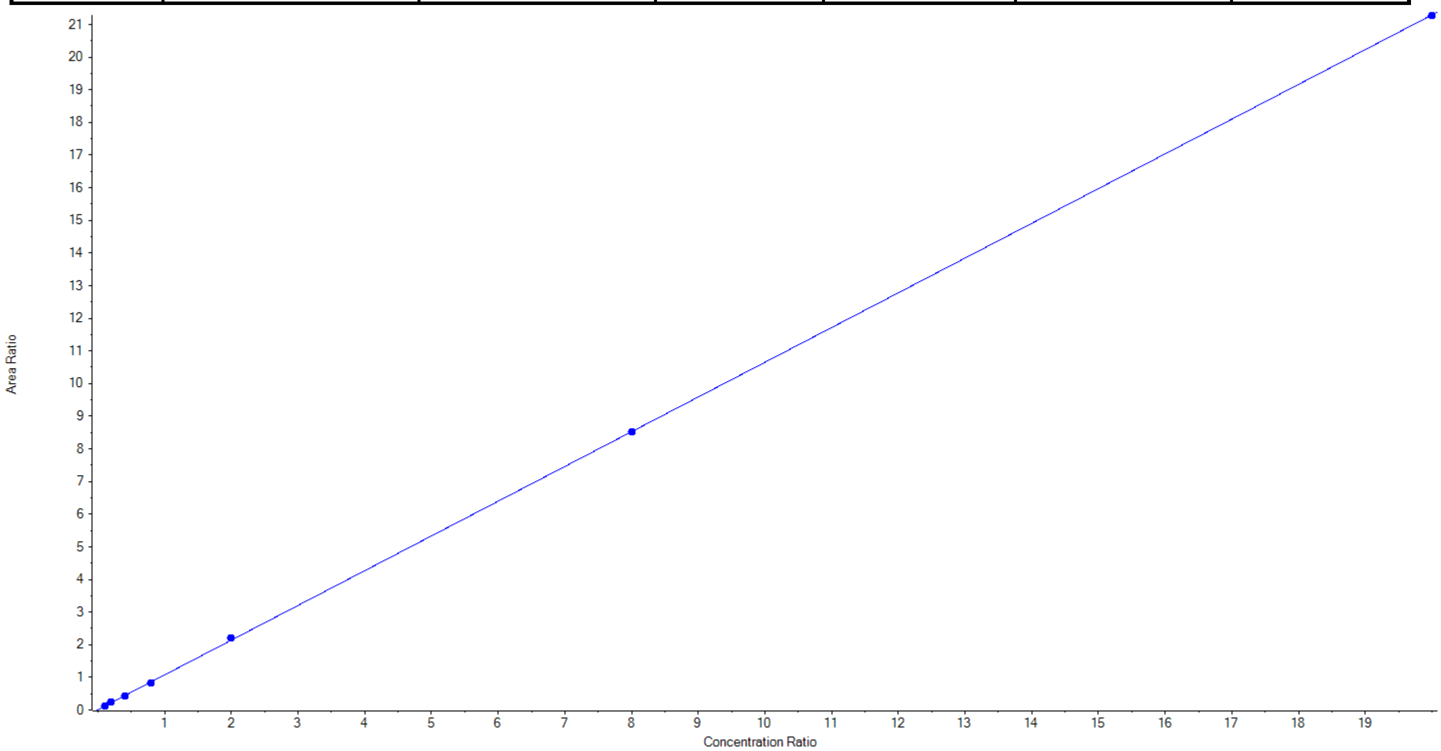
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFUnA_1	Data File	AE_05042020_5-369.wiff
MRM Transition	563.0 / 519.0	Result Table	20-0519
Internal Standard	13C7-PFUnA	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Acquisition Method	5-369.dam

Regression Equation: $y = 1.06408\ x + 0.01229$ ($r = 0.99991$) (weighting: 1 / x) r^2:0.9998

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	121.68	97.3
3	KY84	L2	True	250.00	267.63	107.1
4	KY85	L3	True	500.00	488.41	97.7
5	KY86	L4	True	1000.00	949.15	94.9
6	KY87	L5	True	2500.00	2579.57	103.2
7	KY88	L6	True	10000.00	9991.75	99.9
8	KY89	L7	True	25000.00	24976.81	99.9



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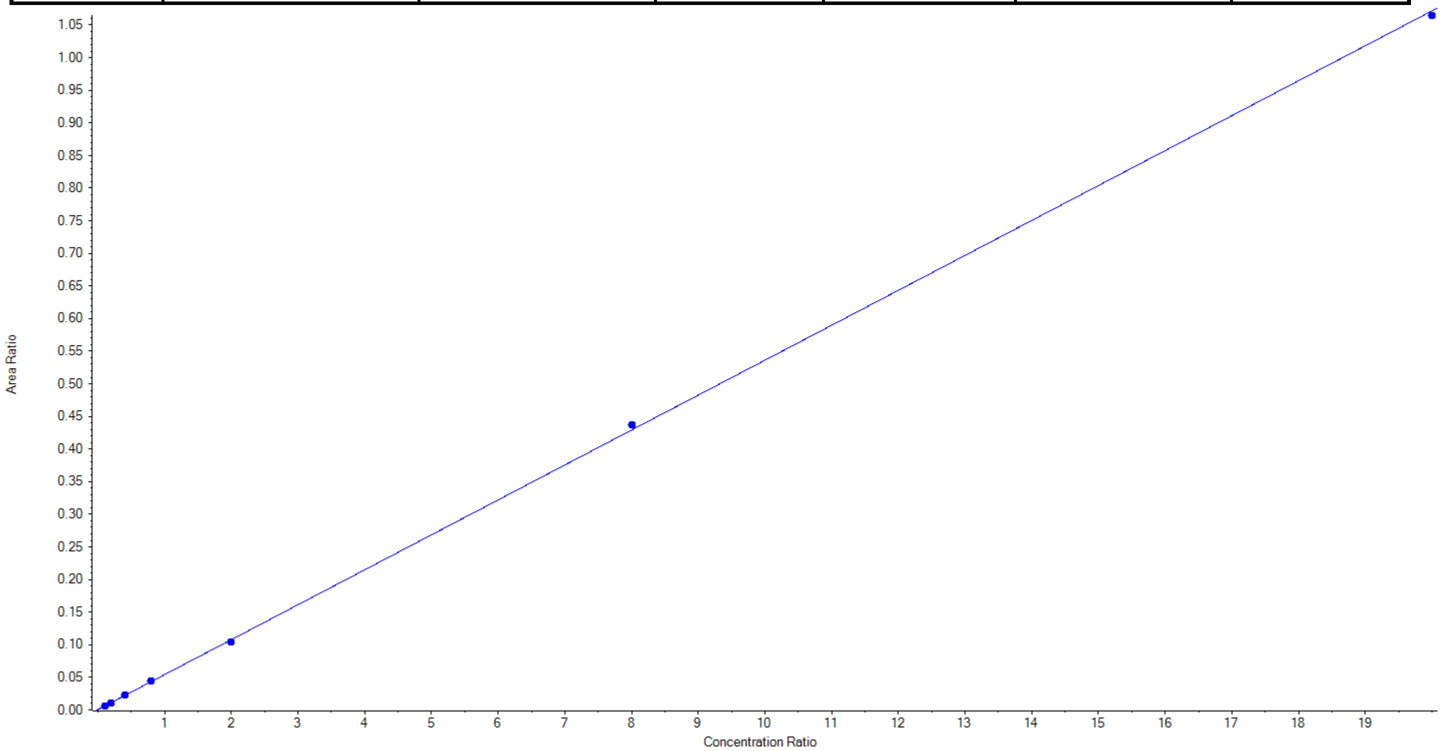
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFUnA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	563.0 / 269.0	**Result Table**	20-0519
Internal Standard	13C7-PFUnA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.05355 x + 7.79777e-4 (r = 0.99985) (weighting: 1 / x) r^2:0.9997

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	127.35	101.9
3	KY84	L2	True	250.00	227.84	91.1
4	KY85	L3	True	500.00	524.94	105.0
5	KY86	L4	True	1000.00	1033.50	103.4
6	KY87	L5	True	2500.00	2434.18	97.4
7	KY88	L6	True	10000.00	10195.95	102.0
8	KY89	L7	True	25000.00	24831.25	99.3



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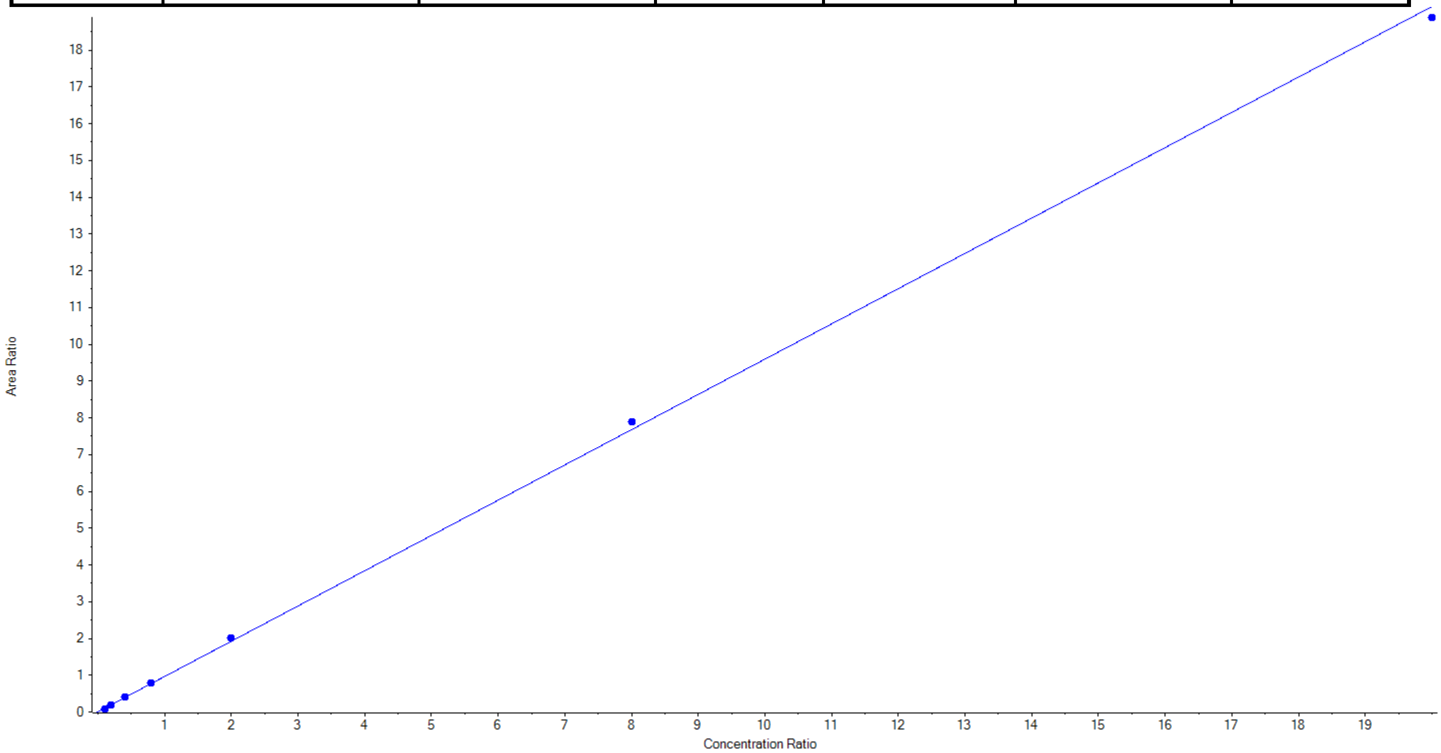
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFDoA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	613.0 / 569.0	**Result Table**	20-0519
Internal Standard	13C2-PFDoA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.95901 x + 0.00742 (r = 0.99973) (weighting: 1 / x) r^2:0.9995

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	113.87	91.1
3	KY84	L2	True	250.00	252.62	101.1
4	KY85	L3	True	500.00	508.29	101.7
5	KY86	L4	True	1000.00	1009.13	100.9
6	KY87	L5	True	2500.00	2601.11	104.0
7	KY88	L6	True	10000.00	10280.34	102.8
8	KY89	L7	True	25000.00	24609.64	98.4



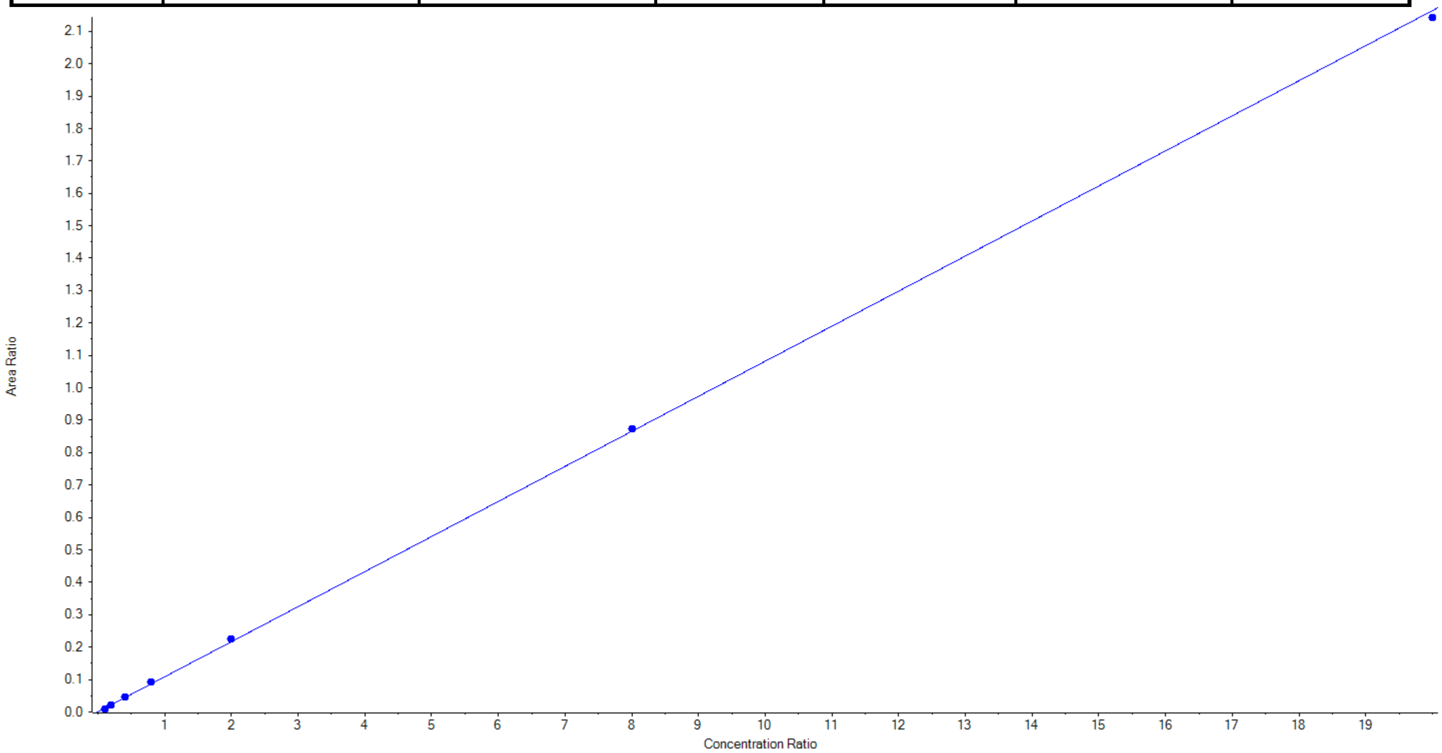
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFDoA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	613.0 / 319.0	**Result Table**	20-0519
Internal Standard	13C2-PFDoA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.10816\ x + 5.70106e\text{-}4$ (r = 0.99981) (weighting: 1 / x) r^2:0.9996

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	110.73	88.6
3	KY84	L2	True	250.00	242.92	97.2
4	KY85	L3	True	500.00	519.36	103.9
5	KY86	L4	True	1000.00	1066.28	106.6
6	KY87	L5	True	2500.00	2596.93	103.9
7	KY88	L6	True	10000.00	10086.65	100.9
8	KY89	L7	True	25000.00	24752.14	99.0



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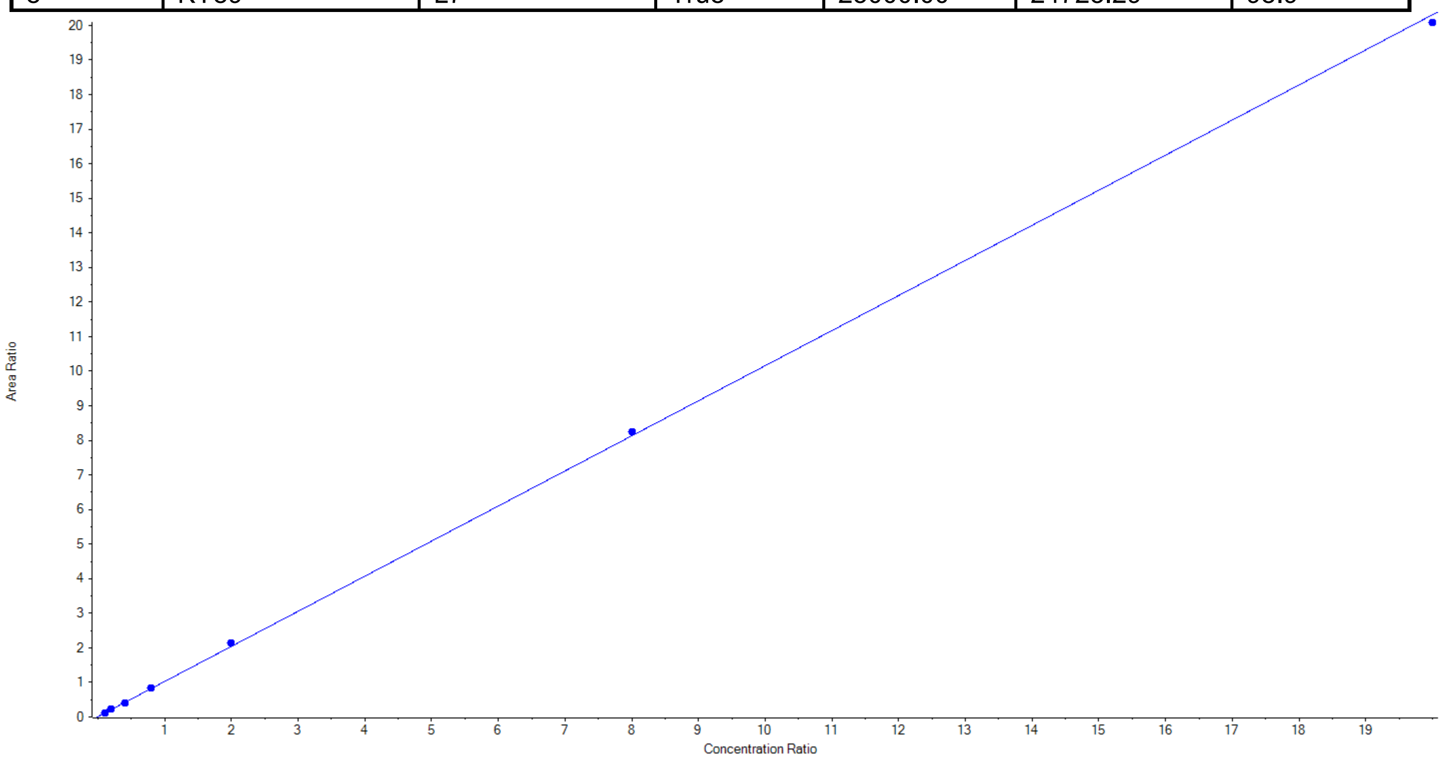
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFTrDA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	663.0 / 619.0	**Result Table**	20-0519
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 1.01482\,x + 0.01353$ ($r = 0.99982$) (weighting: 1 / x) r^2:0.9996

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	114.70	91.8
3	KY84	L2	True	250.00	257.69	103.1
4	KY85	L3	True	500.00	494.03	98.8
5	KY86	L4	True	1000.00	1009.25	100.9
6	KY87	L5	True	2500.00	2626.15	105.1
7	KY88	L6	True	10000.00	10149.89	101.5
8	KY89	L7	True	25000.00	24723.29	98.9



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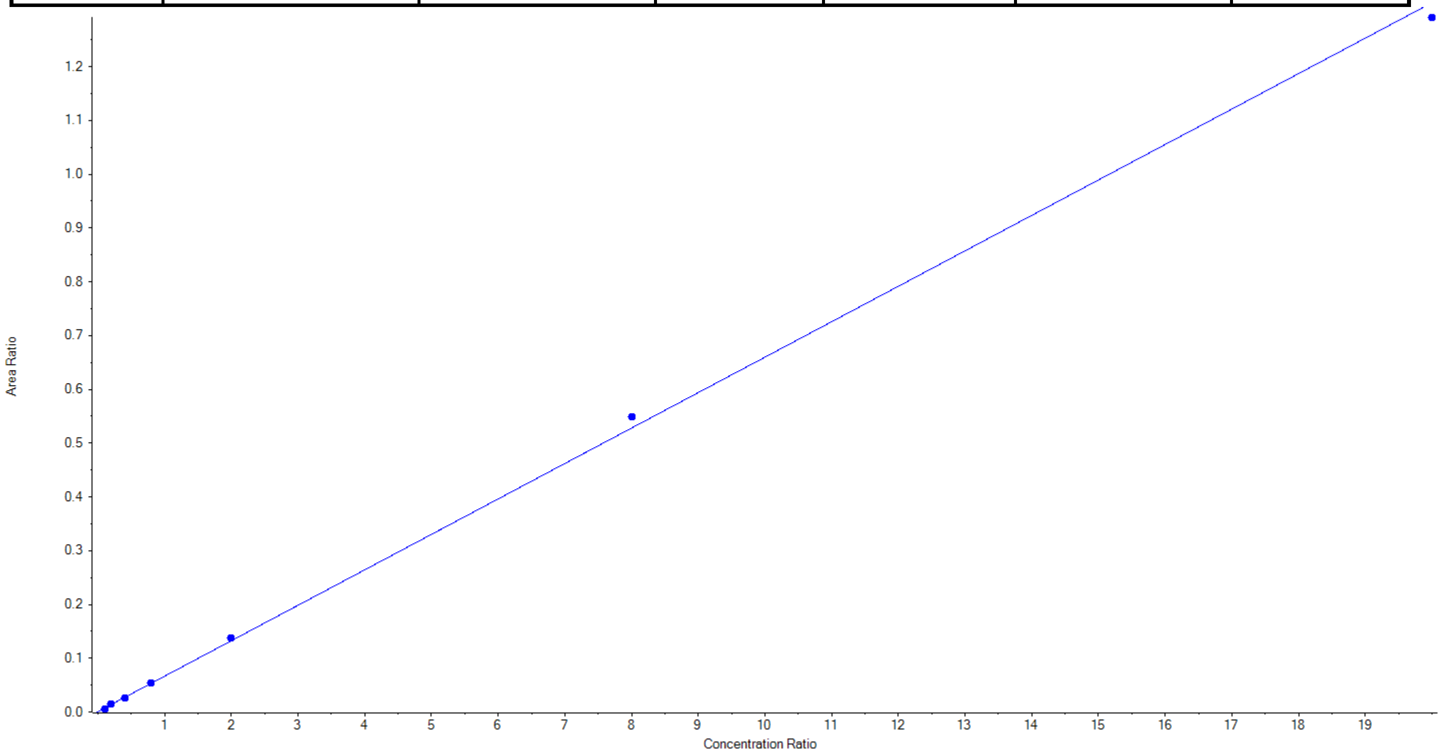
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFTrDA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	663.0 / 169.0	**Result Table**	20-0519
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.06591 x + 7.68543e-4 (r = 0.99947) (weighting: 1 / x) r^2:0.9989

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	103.39	82.7
3	KY84	L2	True	250.00	277.16	110.9
4	KY85	L3	True	500.00	491.66	98.3
5	KY86	L4	True	1000.00	1026.10	102.6
6	KY87	L5	True	2500.00	2585.99	103.4
7	KY88	L6	True	10000.00	10413.66	104.1
8	KY89	L7	True	25000.00	24477.04	97.9



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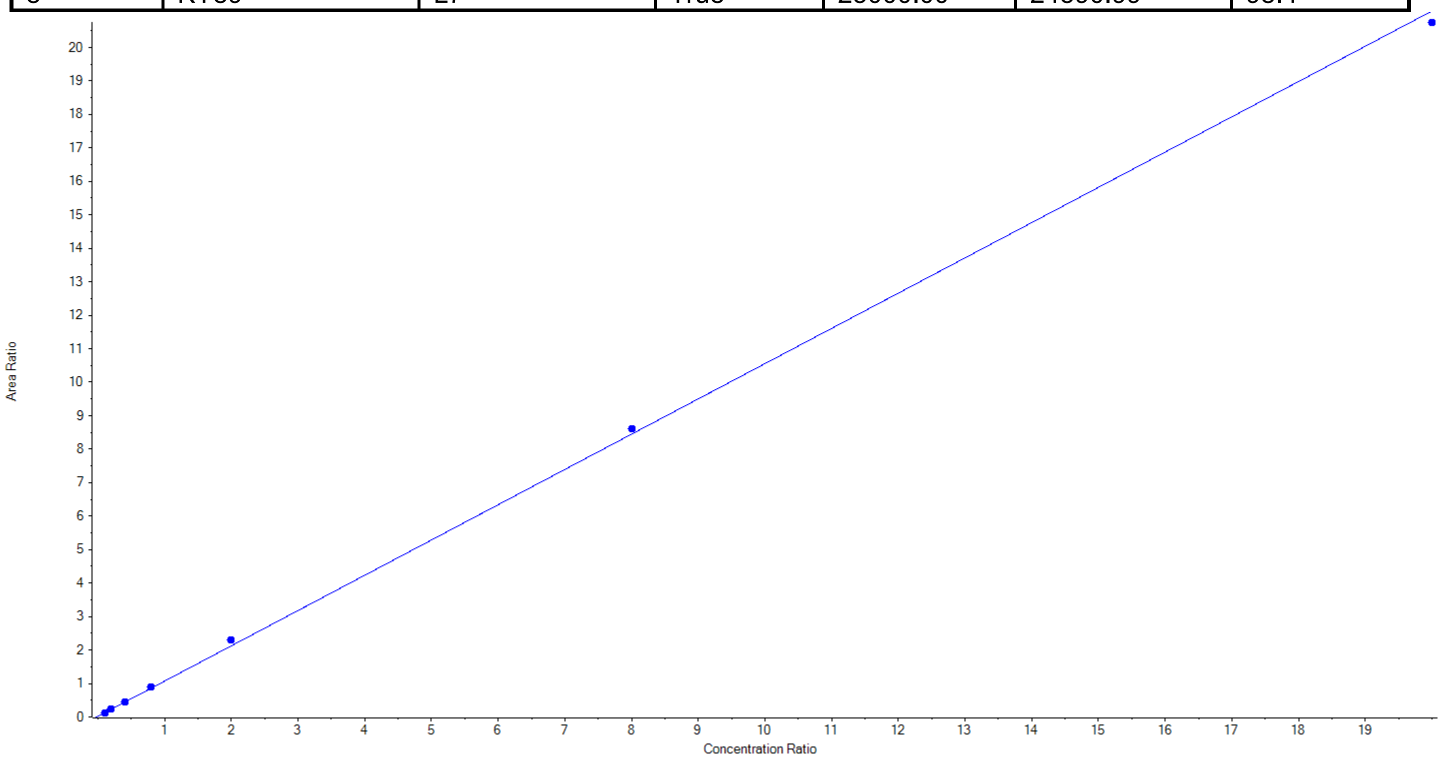
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFTeDA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	713.0 / 669.0	**Result Table**	20-0519
Internal Standard	13C2-PFTeDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 1.05351\ x + 0.01945$ ($r = 0.99960$) (weighting: 1 / x) r^2:0.9992

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	111.00	88.8
3	KY84	L2	True	250.00	250.24	100.1
4	KY85	L3	True	500.00	493.14	98.6
5	KY86	L4	True	1000.00	1045.11	104.5
6	KY87	L5	True	2500.00	2691.95	107.7
7	KY88	L6	True	10000.00	10192.57	101.9
8	KY89	L7	True	25000.00	24590.99	98.4



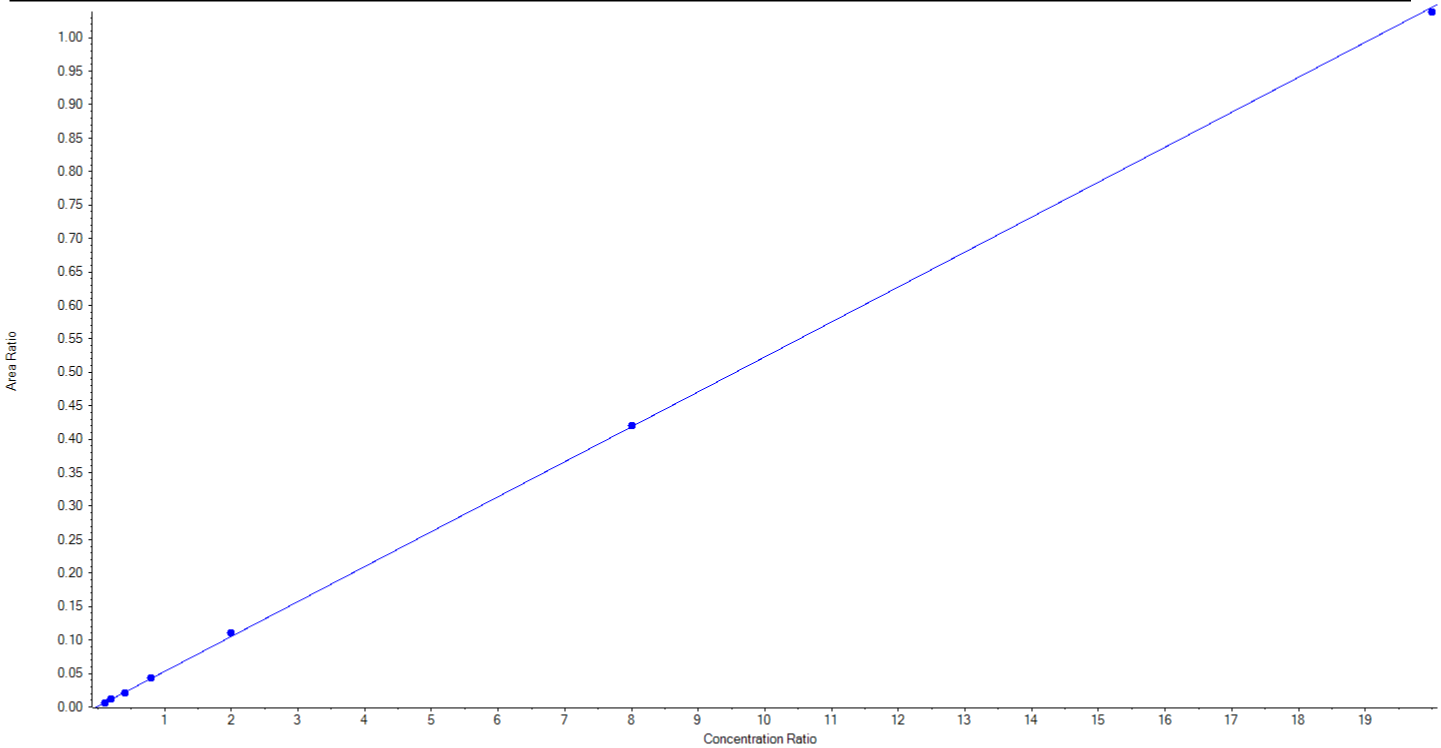
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	PFTeDA_2	Data File	AE_05042020_5-369.wiff
MRM Transition	713.0 / 169.0	Result Table	20-0519
Internal Standard	13C2-PFTeDA	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Acquisition Method	5-369.dam

Regression Equation: y = 0.05223 x + 8.67021e-4 (r = 0.99987) (weighting: 1 / x) r^2:0.9997

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	119.21	95.4
3	KY84	L2	True	250.00	253.50	101.4
4	KY85	L3	True	500.00	485.52	97.1
5	KY86	L4	True	1000.00	1009.06	100.9
6	KY87	L5	True	2500.00	2637.76	105.5
7	KY88	L6	True	10000.00	10038.78	100.4
8	KY89	L7	True	25000.00	24831.17	99.3



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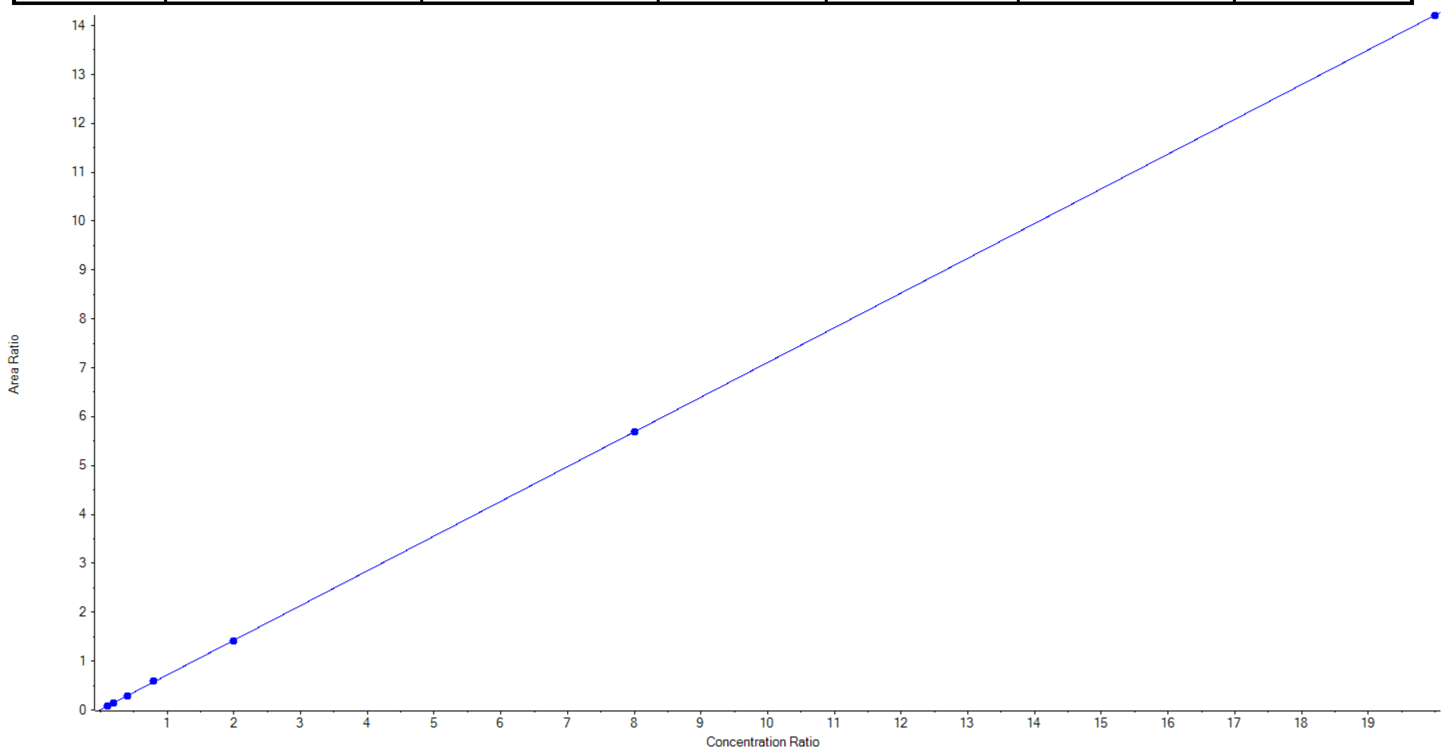
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	NMeFOSAA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	570.0 / 419.0	**Result Table**	20-0519
Internal Standard	d3-MeFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.71034 x + 0.00642 (r = 0.99998) (weighting: 1 / x) r^2:1.0000

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	122.14	97.7
3	KY84	L2	True	250.00	249.81	99.9
4	KY85	L3	True	500.00	502.43	100.5
5	KY86	L4	True	1000.00	1027.82	102.8
6	KY87	L5	True	2500.00	2476.10	99.0
7	KY88	L6	True	10000.00	10010.41	100.1
8	KY89	L7	True	25000.00	24986.28	100.0



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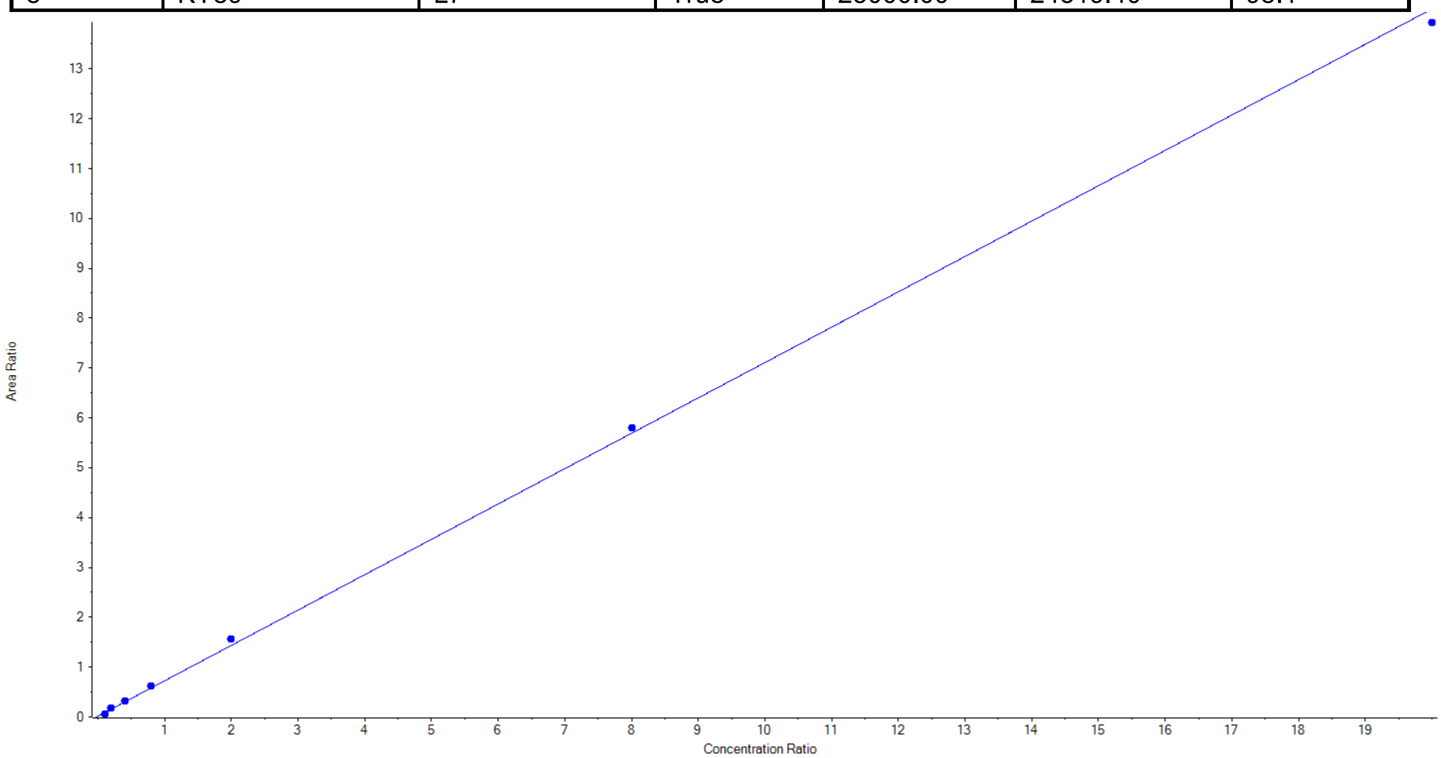
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	NMeFOSAA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	570.0 / 512.0	**Result Table**	20-0519
Internal Standard	d3-MeFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.70916 x + 0.01792 (r = 0.99933) (weighting: 1 / x) r^2:0.9987

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	89.53	71.6
3	KY84	L2	True	250.00	272.23	108.9
4	KY85	L3	True	500.00	529.24	105.9
5	KY86	L4	True	1000.00	1048.23	104.8
6	KY87	L5	True	2500.00	2719.07	108.8
7	KY88	L6	True	10000.00	10197.30	102.0
8	KY89	L7	True	25000.00	24519.40	98.1



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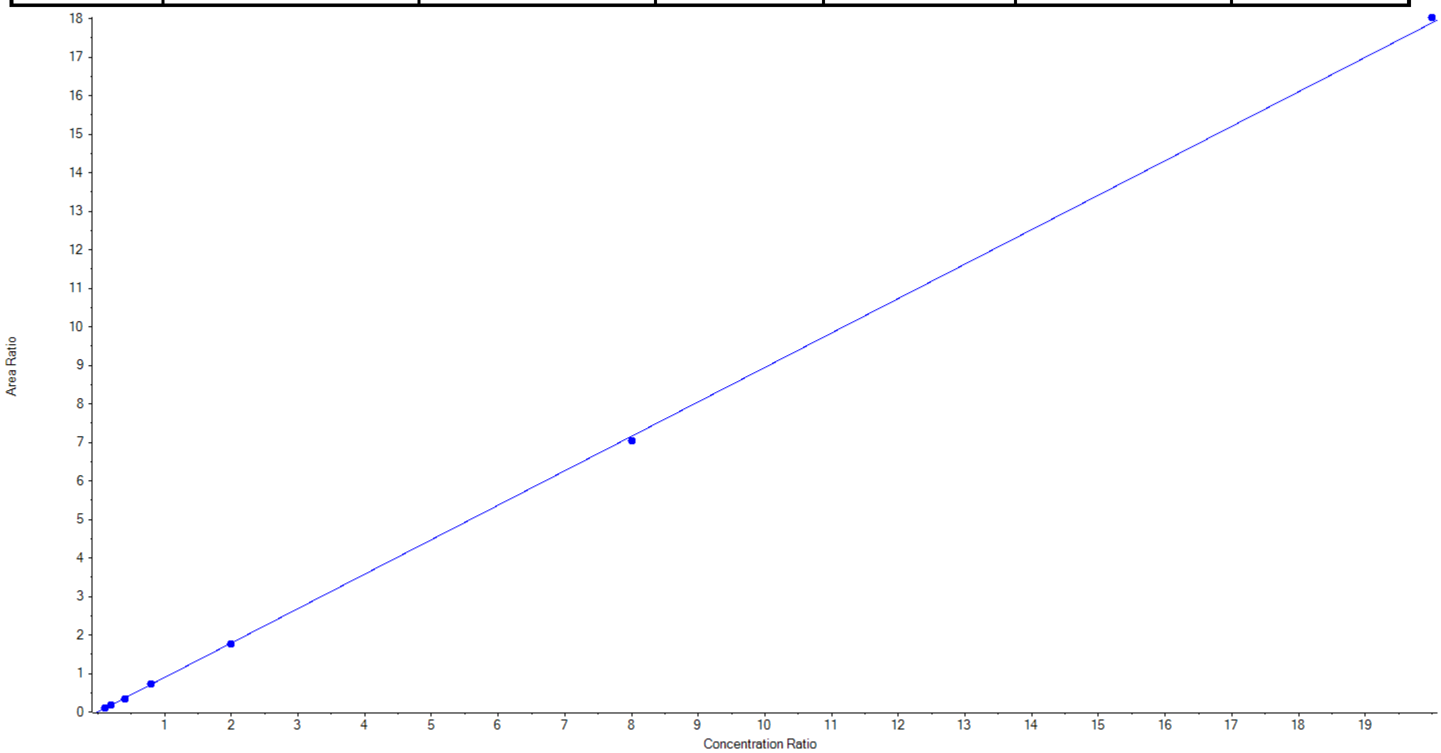
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	NEtFOSAA_1	Data File	AE_05042020_5-369.wiff
MRM Transition	584.0 / 419.0	Result Table	20-0519
Internal Standard	d5-EtFOSAA	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Acquisition Method	5-369.dam

Regression Equation: $y = 0.89435 x + 0.00234$ ($r = 0.99992$) (weighting: 1 / x) r^2:0.9998

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	124.65	99.7
3	KY84	L2	True	250.00	261.09	104.4
4	KY85	L3	True	500.00	486.76	97.4
5	KY86	L4	True	1000.00	1009.04	100.9
6	KY87	L5	True	2500.00	2460.47	98.4
7	KY88	L6	True	10000.00	9839.47	98.4
8	KY89	L7	True	25000.00	25193.52	100.8



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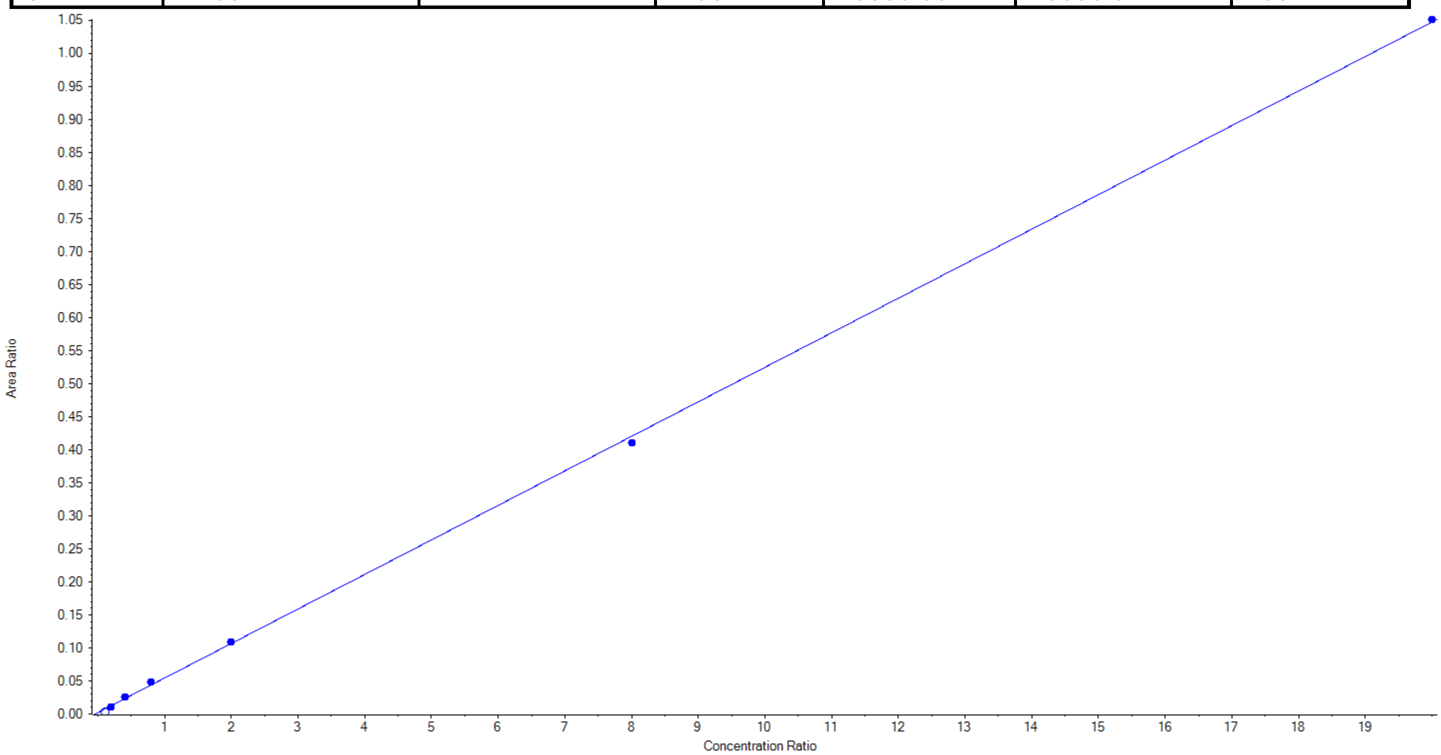
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	NEtFOSAA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	584.0 / 483.0	**Result Table**	20-0519
Internal Standard	d5-EtFOSAA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.05227\ x + 0.00222$ ($r = 0.99957$) (weighting: 1 / x) r^2:0.9991

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	False	125.00	24.92	19.9
3	KY84	L2	True	250.00	202.56	81.0
4	KY85	L3	True	500.00	546.62	109.3
5	KY86	L4	True	1000.00	1090.11	109.0
6	KY87	L5	True	2500.00	2569.18	102.8
7	KY88	L6	True	10000.00	9751.48	97.5
8	KY89	L7	True	25000.00	25090.04	100.4



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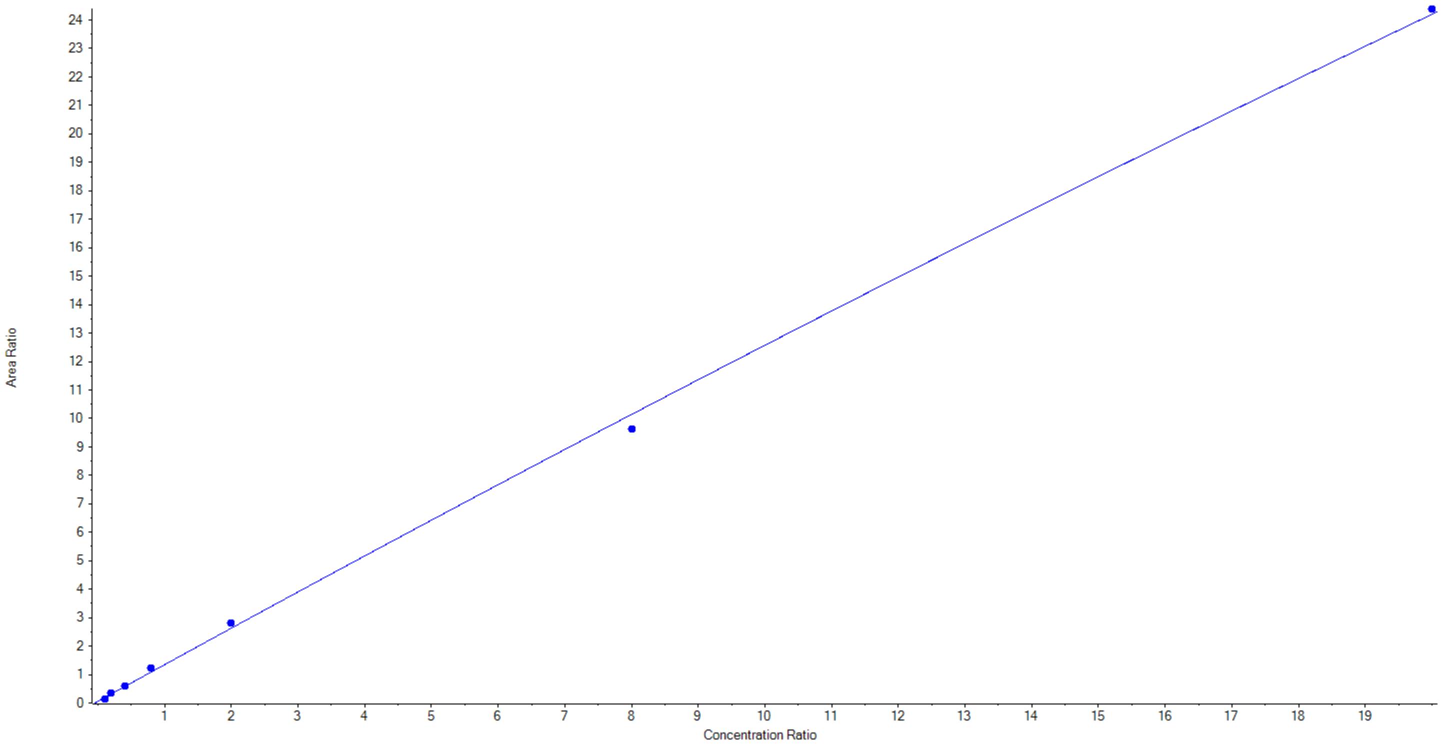
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	HFPO-DA_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	285.0 / 169.0	**Result Table**	20-0519
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = -0.00443 x^2 + 1.29584 x + 0.05766 (r = 0.99888) (weighting: 1 / x) r^2:0.9978

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	87.94	70.4
3	KY84	L2	True	250.00	269.94	108.0
4	KY85	L3	True	500.00	524.33	104.9
5	KY86	L4	True	1000.00	1139.98	114.0
6	KY87	L5	True	2500.00	2683.52	107.3
7	KY88	L6	True	10000.00	9466.51	94.7
8	KY89	L7	True	25000.00	25206.18	100.8



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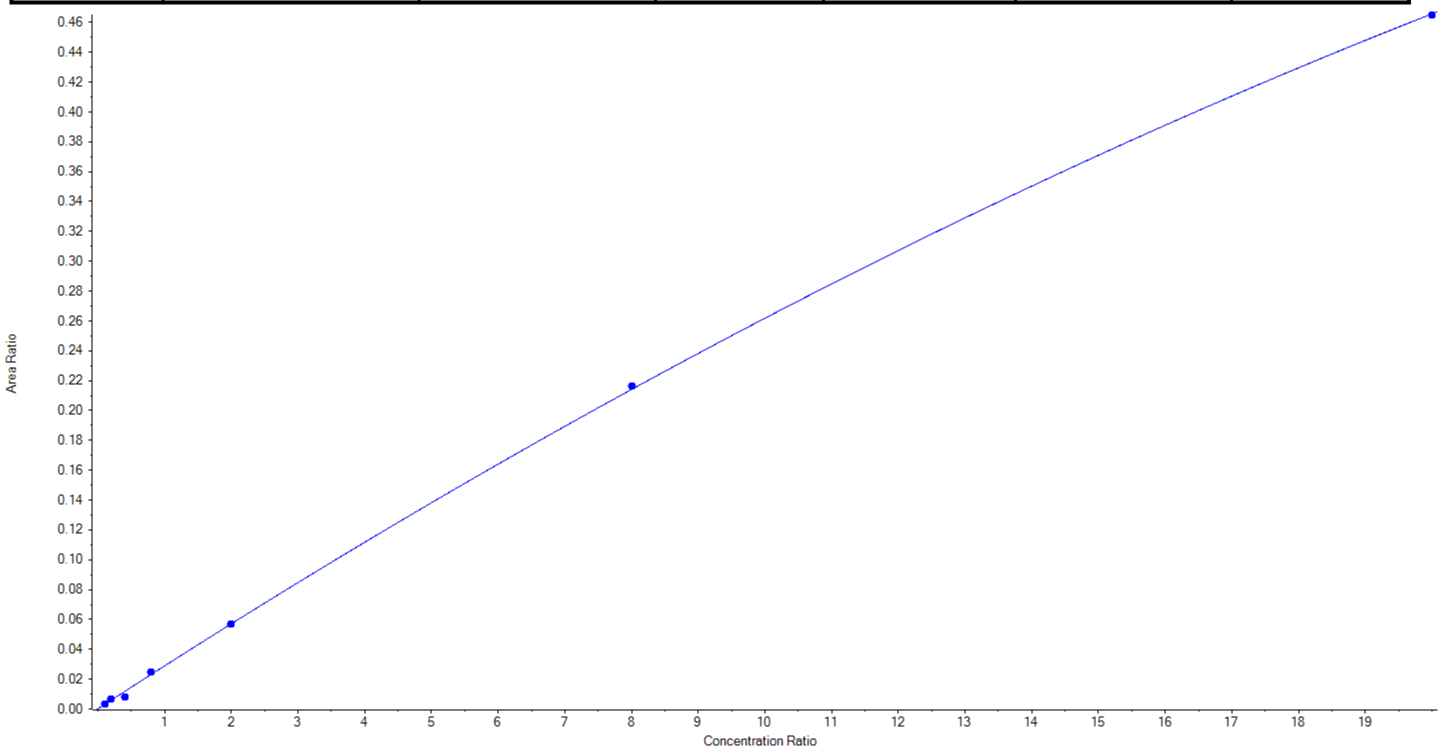
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	HFPO-DA_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	285.0 / 118.8	**Result Table**	20-0519
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = -2.88779e{-4}\ x^2 + 0.02905\ x + 1.60471e{-4}$ (r = 0.99896) (weighting: 1 / x)
r^2:0.9979

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	143.68	115.0
3	KY84	L2	True	250.00	268.20	107.3
4	KY85	L3	True	500.00	351.25	70.3
5	KY86	L4	True	1000.00	1074.31	107.4
6	KY87	L5	True	2500.00	2482.40	99.3
7	KY88	L6	True	10000.00	10105.84	101.1
8	KY89	L7	True	25000.00	24943.40	99.8



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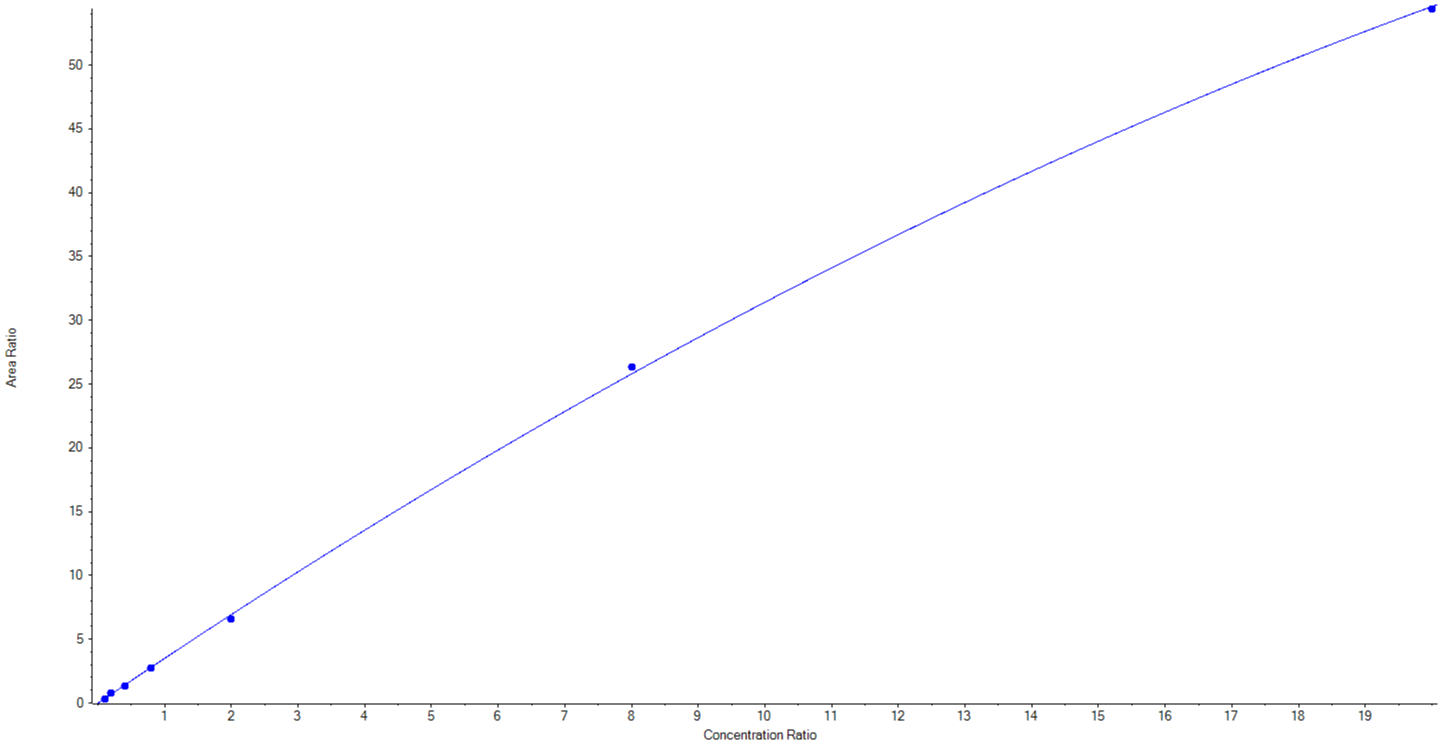
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	ADONA_1	Data File	AE_05042020_5-369.wiff
MRM Transition	377.0 / 251.0	Result Table	20-0519
Internal Standard	13C3-HFPO-DA	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Acquisition Method	5-369.dam

Regression Equation: $y = -0.04130 x^2 + 3.55599 x + -0.01289$ (r = 0.99972) (weighting: 1 / x) r^2:0.9994

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	123.40	98.7
3	KY84	L2	True	250.00	271.48	108.6
4	KY85	L3	True	500.00	486.66	97.3
5	KY86	L4	True	1000.00	988.11	98.8
6	KY87	L5	True	2500.00	2363.15	94.5
7	KY88	L6	True	10000.00	10250.84	102.5
8	KY89	L7	True	25000.00	24873.54	99.5



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Calibration Summary Report

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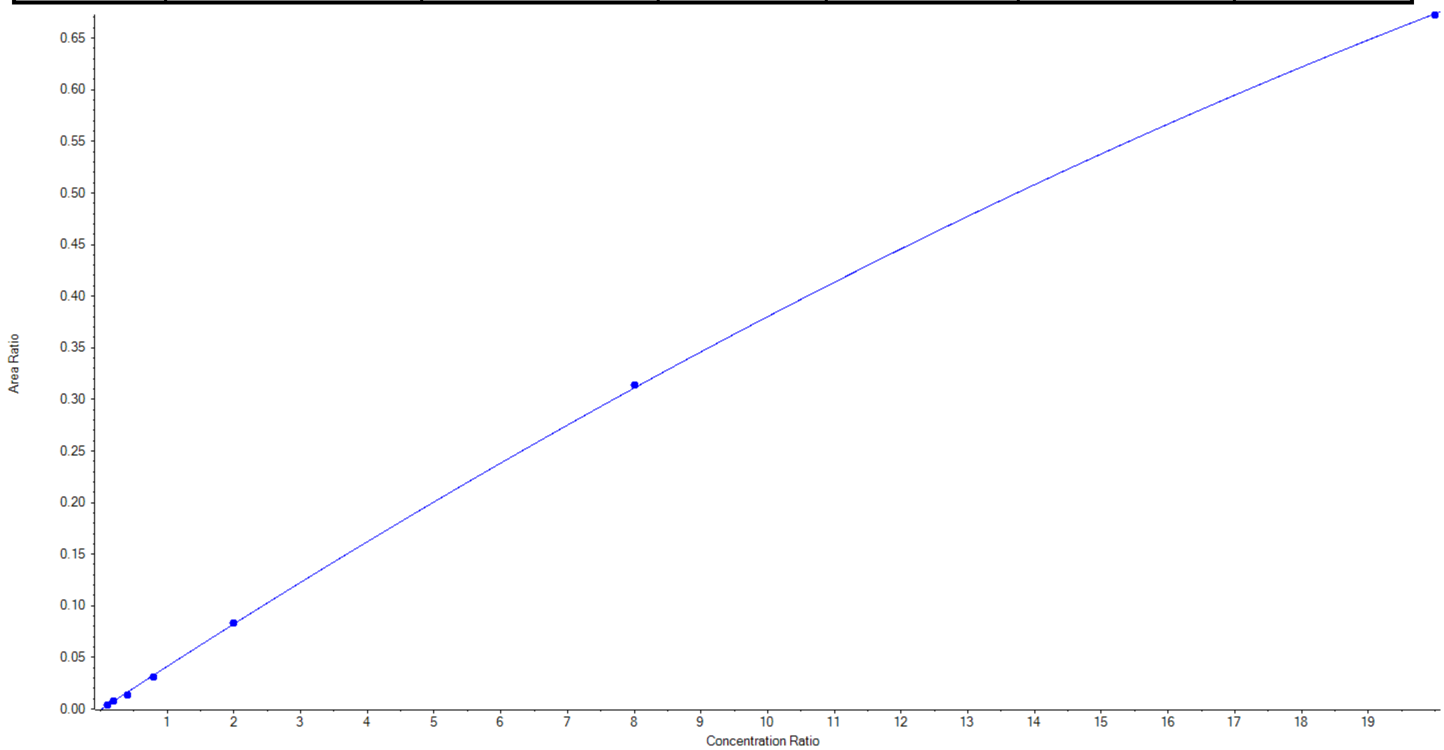
Printed: 06/05/2020 9:47:55 AM

Analyte Name	ADONA_2	Data File	AE_05042020_5-369.wiff
MRM Transition	377.0 / 85.0	Result Table	20-0519
Internal Standard	13C3-HFPO-DA	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Acquisition Method	5-369.dam

Regression Equation: y = -4.37780e-4 x^2 + 0.04247 x + -7.50123e-4 (r = 0.99973) (weighting: 1 / x)
r^2:0.9995

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	140.29	112.2
3	KY84	L2	True	250.00	257.90	103.2
4	KY85	L3	True	500.00	434.21	86.8
5	KY86	L4	True	1000.00	955.73	95.6
6	KY87	L5	True	2500.00	2534.44	101.4
7	KY88	L6	True	10000.00	10106.13	101.1
8	KY89	L7	True	25000.00	24939.10	99.8



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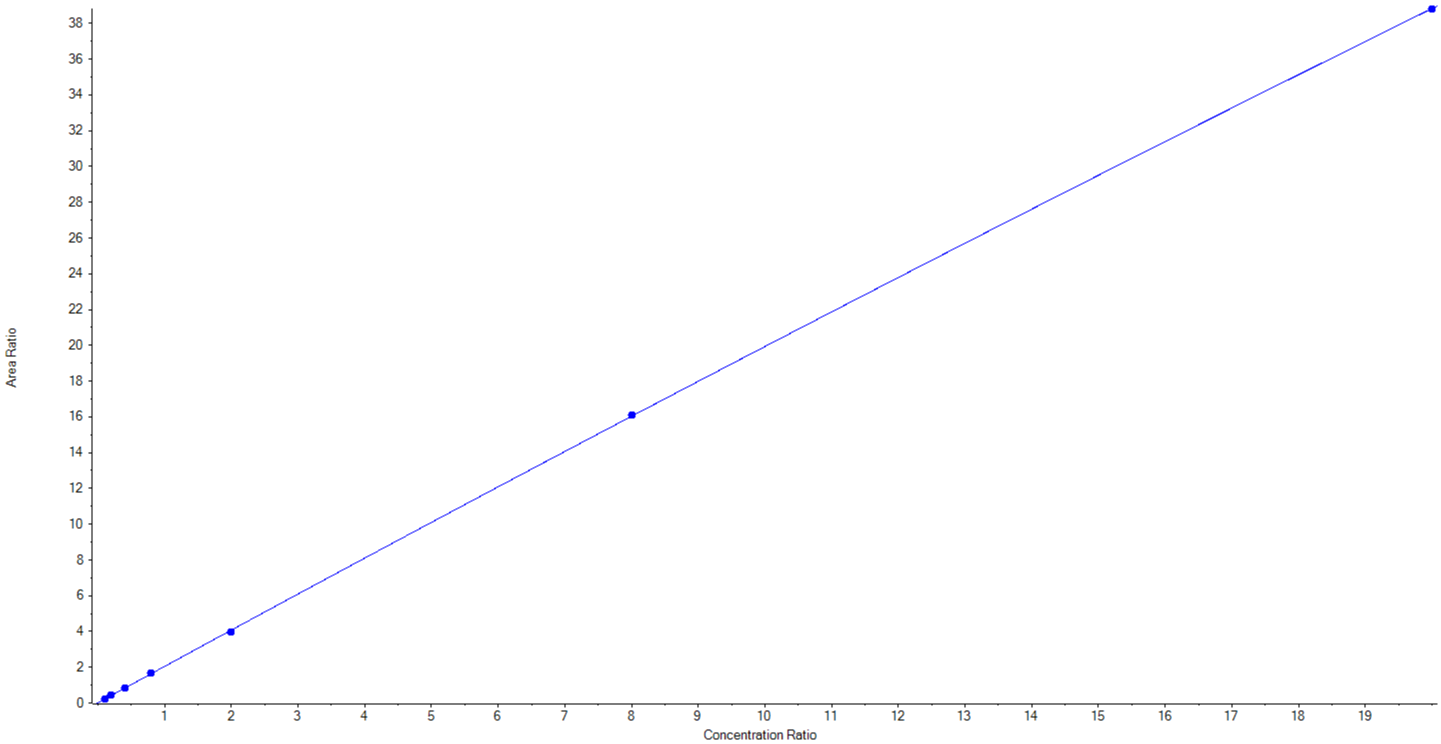
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	9Cl-PF3ONS_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	531.0 / 351.0	**Result Table**	20-0519
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = -0.00514 x^2 + 2.04350 x + 0.01172 (r = 0.99995) (weighting: 1 / x) r^2:0.9999

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	120.61	96.5
3	KY84	L2	True	250.00	253.43	101.4
4	KY85	L3	True	500.00	513.00	102.6
5	KY86	L4	True	1000.00	1018.27	101.8
6	KY87	L5	True	2500.00	2430.41	97.2
7	KY88	L6	True	10000.00	10056.97	100.6
8	KY89	L7	True	25000.00	24982.24	99.9



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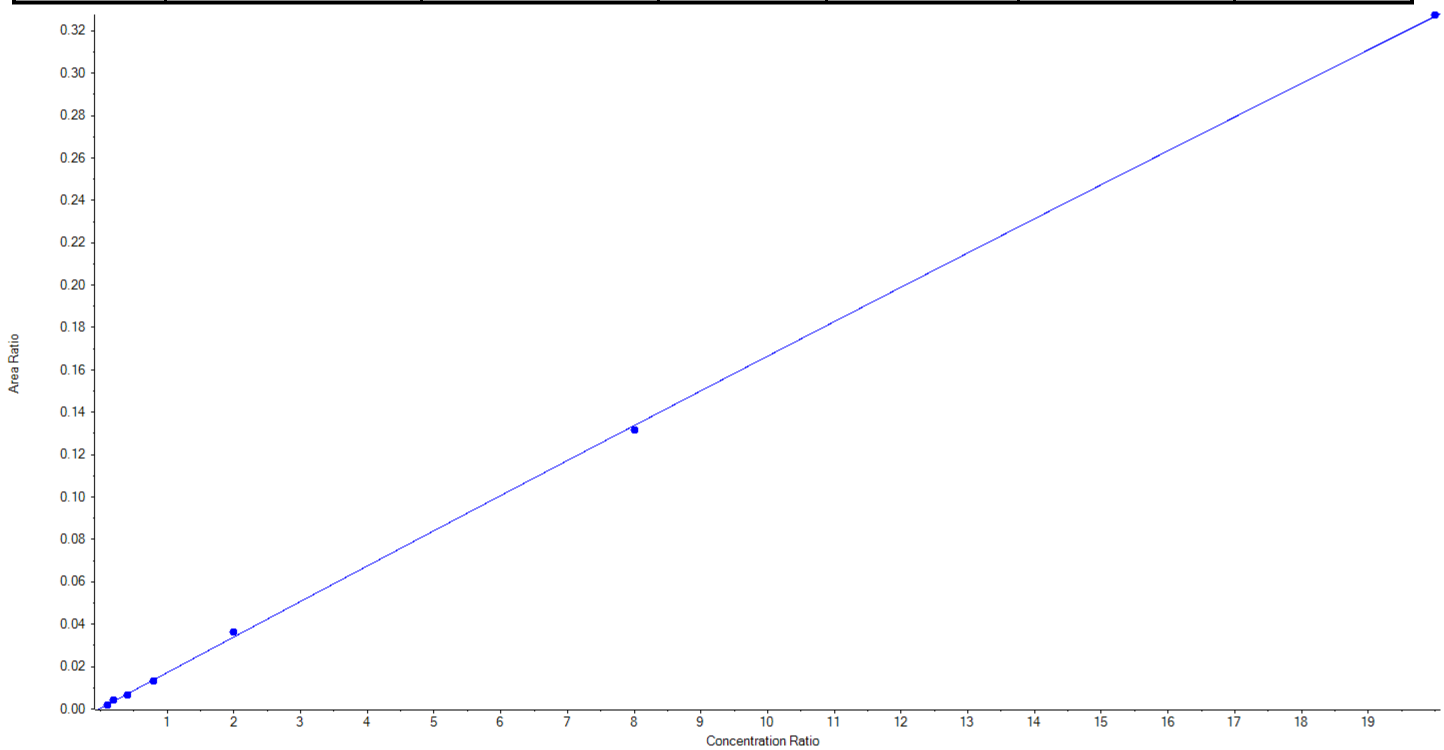
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	9Cl-PF3ONS_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	531.0 / 83.0	**Result Table**	20-0519
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = -2.98659e-5\ x^2 + 0.01692\ x + 2.95581e-4$ ($r = 0.99949$) (weighting: $1 / x$)
r^2:0.9990

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	112.36	89.9
3	KY84	L2	True	250.00	298.09	119.2
4	KY85	L3	True	500.00	455.34	91.1
5	KY86	L4	True	1000.00	938.15	93.8
6	KY87	L5	True	2500.00	2687.09	107.5
7	KY88	L6	True	10000.00	9829.85	98.3
8	KY89	L7	True	25000.00	25054.36	100.2



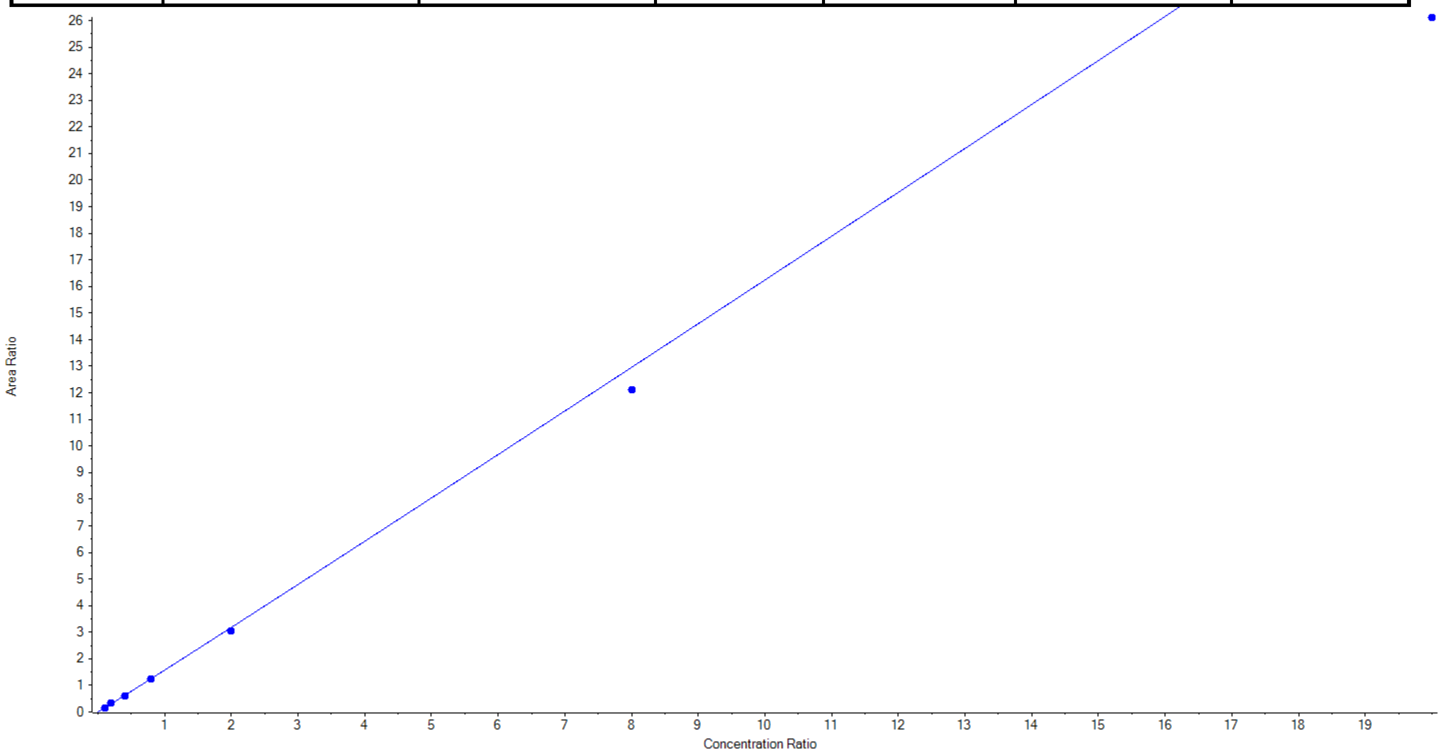
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	11Cl-pf3OUdS_1	**Data File**	AE_05042020_5-369.wiff
MRM Transition	631.0 / 451.0	**Result Table**	20-0519
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.57585 x^1.01319 (r = 0.99668) (weighting: 1 / x) r^2:0.9934

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	121.21	97.0
3	KY84	L2	True	250.00	272.91	109.2
4	KY85	L3	True	500.00	487.62	97.5
5	KY86	L4	True	1000.00	979.95	98.0
6	KY87	L5	True	2500.00	2388.23	95.5
7	KY88	L6	True	10000.00	9358.00	93.6
8	KY89	L7	True	25000.00	19968.13	79.9



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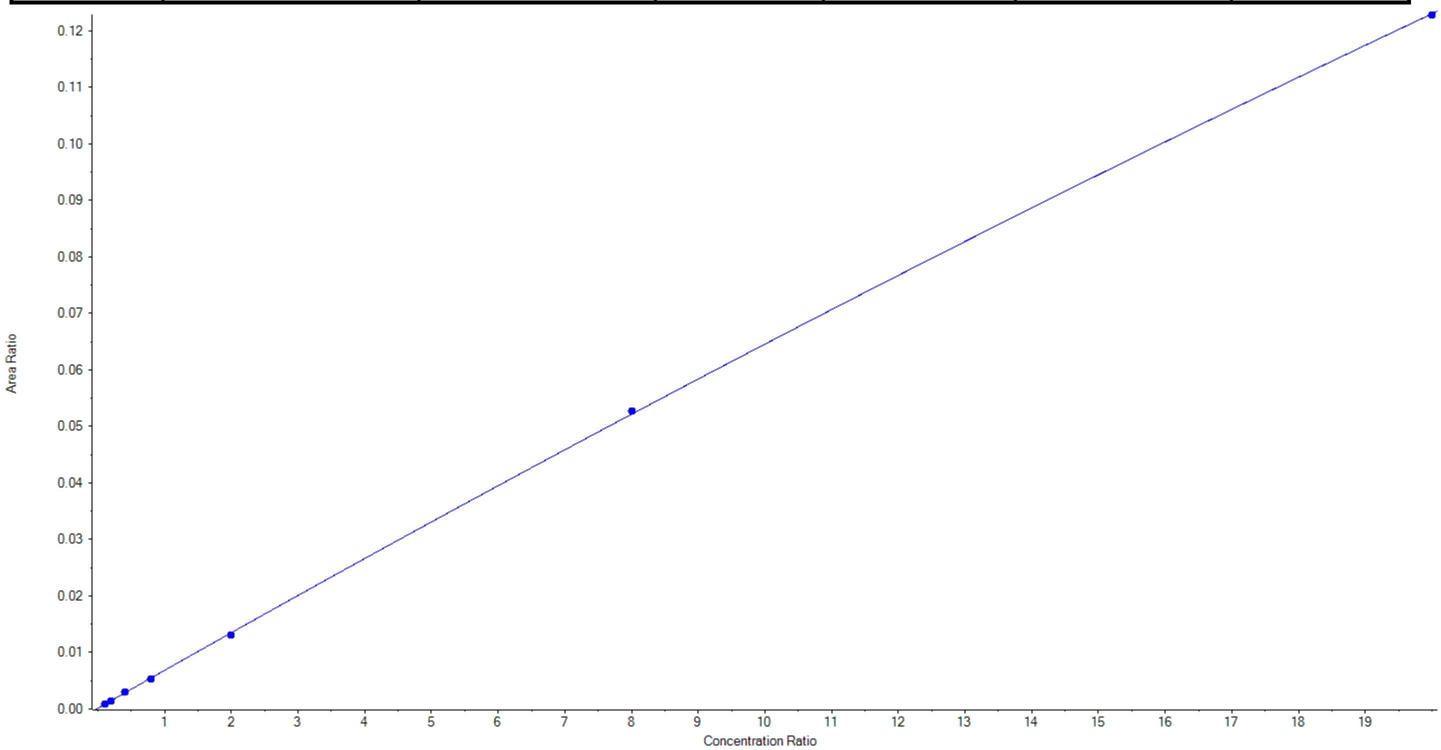
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:55 AM

Analyte Name	11Cl-pf3OUdS_2	**Data File**	AE_05042020_5-369.wiff
MRM Transition	631.0 / 83.0	**Result Table**	20-0519
Internal Standard	13C3-HFPO-DA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = -2.99136e-5 x^2 + 0.00674 x + 1.42617e-4 (r = 0.99992) (weighting: 1 / x)
r^2:0.9998

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	125.00	130.90	104.7
3	KY84	L2	True	250.00	240.65	96.3
4	KY85	L3	True	500.00	516.08	103.2
5	KY86	L4	True	1000.00	973.42	97.3
6	KY87	L5	True	2500.00	2434.83	97.4
7	KY88	L6	True	10000.00	10126.79	101.3
8	KY89	L7	True	25000.00	24951.51	99.8



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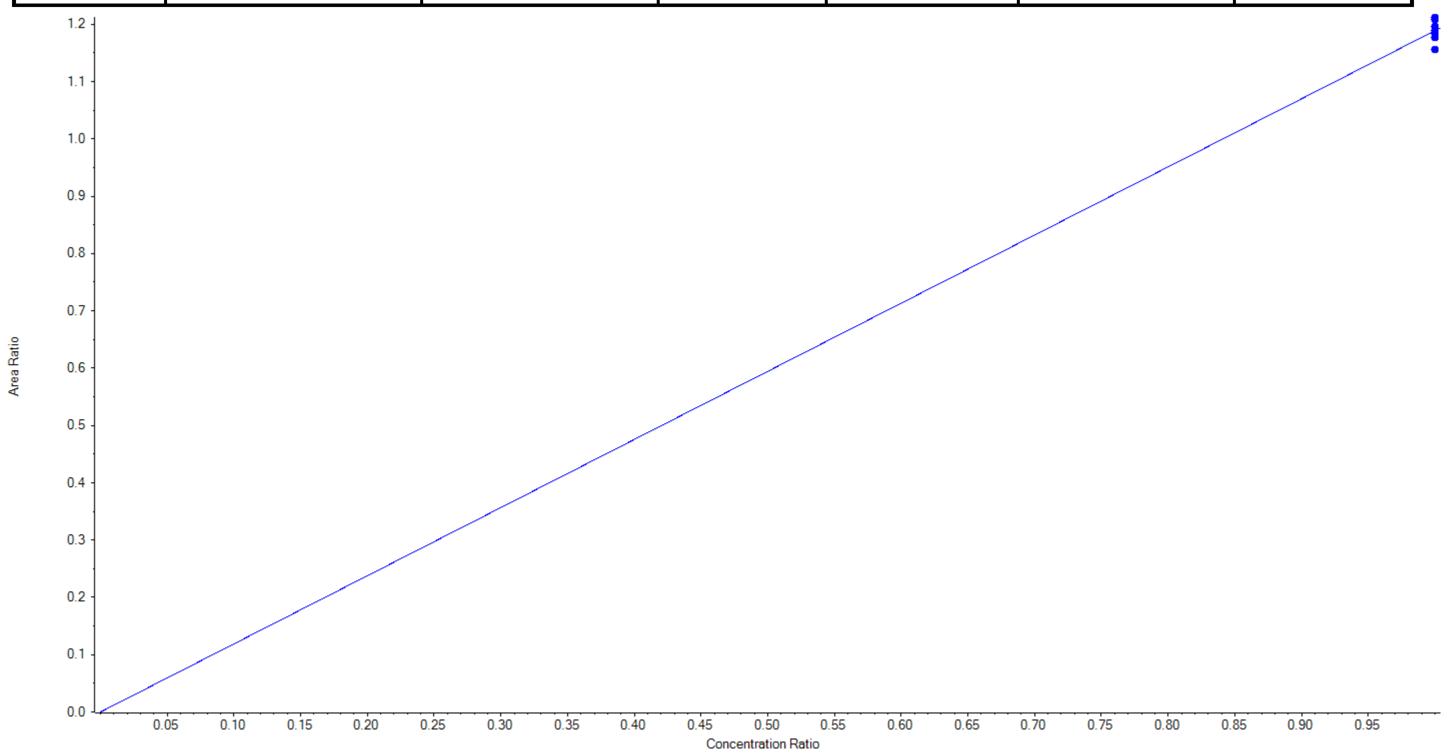
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C2-PFDoA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	615.0 / 570.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.18886 x (std. dev. = 0.01894) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1215.98	97.3
3	KY84	L2	True	1250.00	1249.46	100.0
4	KY85	L3	True	1250.00	1237.50	99.0
5	KY86	L4	True	1250.00	1270.19	101.6
6	KY87	L5	True	1250.00	1257.61	100.6
7	KY88	L6	True	1250.00	1274.03	101.9
8	KY89	L7	True	1250.00	1245.24	99.6



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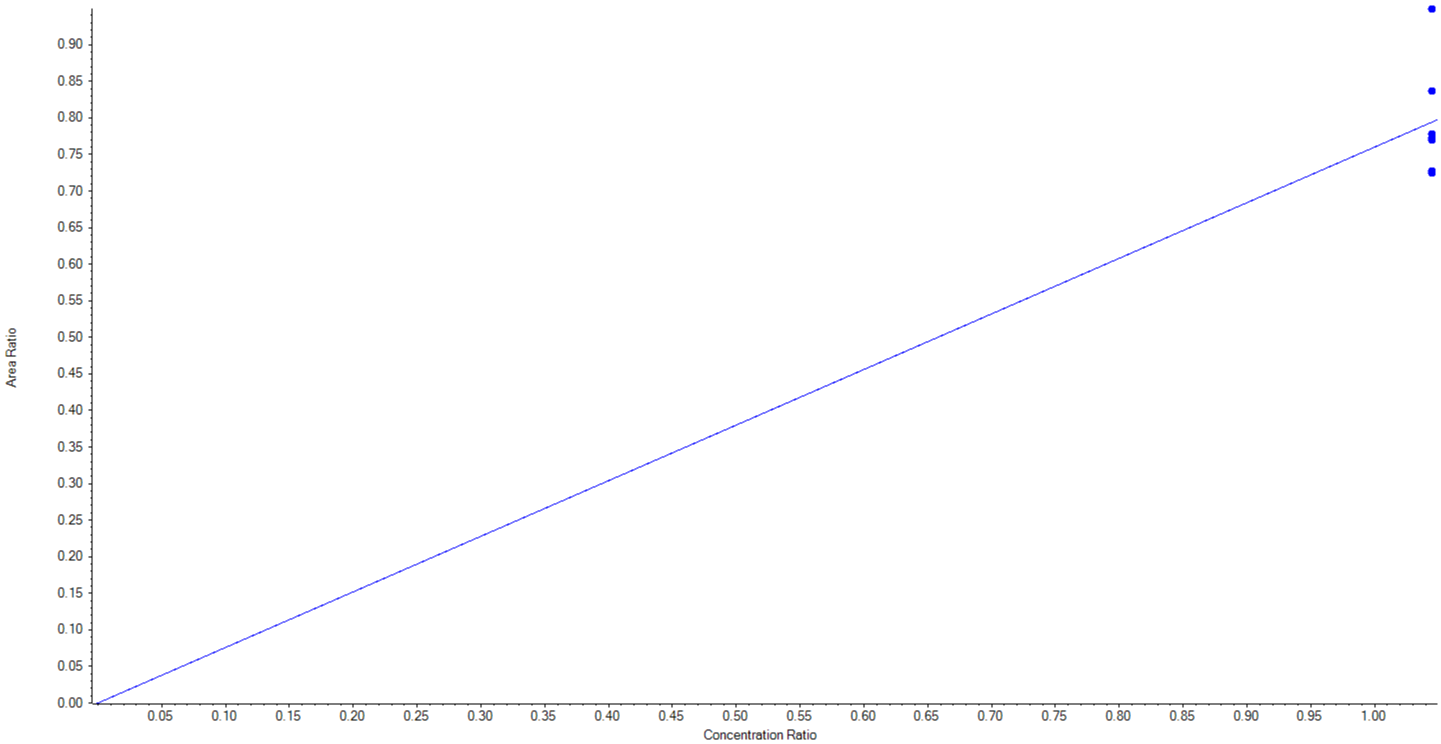
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	d3-MeFOSAA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	573.0 / 419.0	**Result Table**	20-0519_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.75999 x (std. dev. = 0.07444) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1211.78	96.9
3	KY84	L2	True	1250.00	1216.09	97.3
4	KY85	L3	True	1250.00	1140.70	91.3
5	KY86	L4	True	1250.00	1145.17	91.6
6	KY87	L5	True	1250.00	1225.24	98.0
7	KY88	L6	True	1250.00	1317.72	105.4
8	KY89	L7	True	1250.00	1493.31	119.5



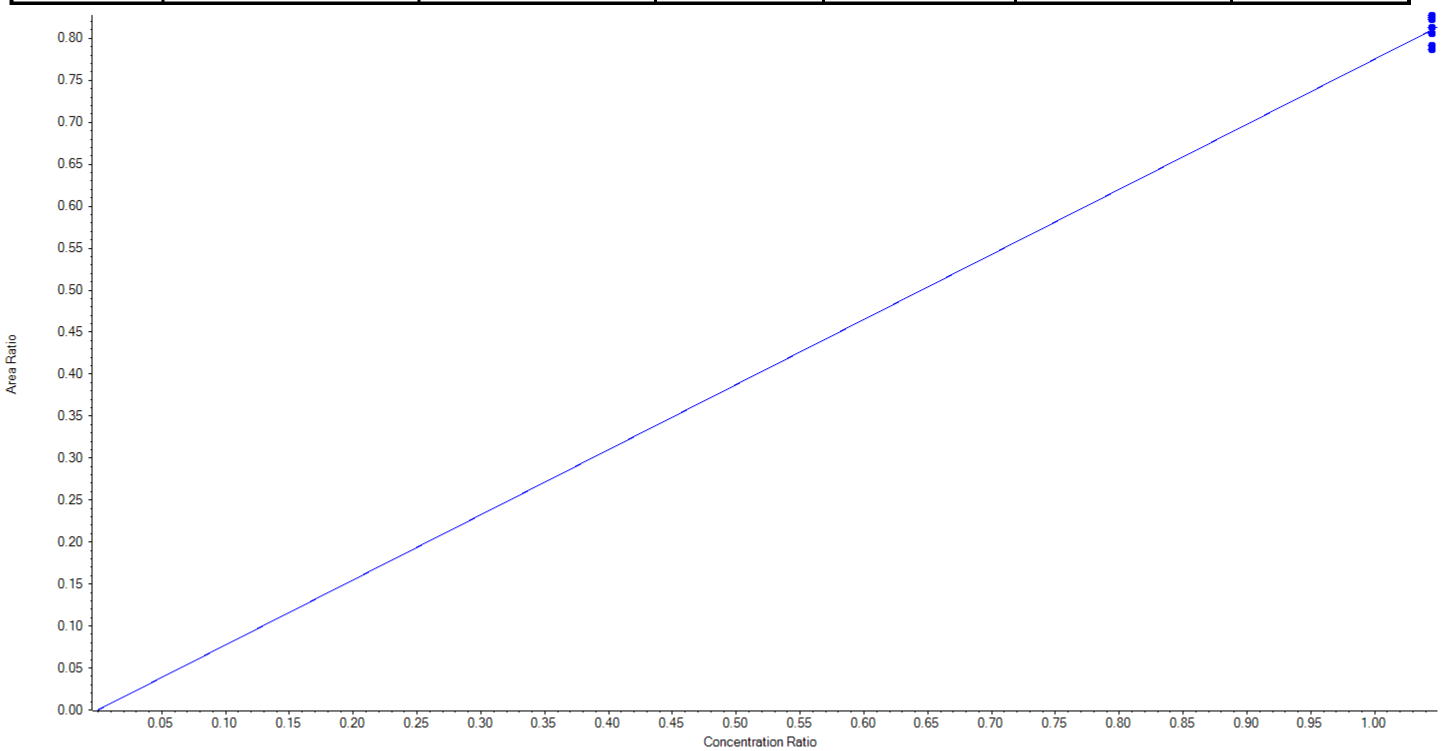
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	d5-EtFOSAA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	589.0 / 419.0	**Result Table**	20-0519_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.77521\ x$ (std. dev. = 0.01558) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1213.29	97.1
3	KY84	L2	True	1250.00	1255.19	100.4
4	KY85	L3	True	1250.00	1272.05	101.8
5	KY86	L4	True	1250.00	1220.85	97.7
6	KY87	L5	True	1250.00	1268.28	101.5
7	KY88	L6	True	1250.00	1243.82	99.5
8	KY89	L7	True	1250.00	1276.51	102.1



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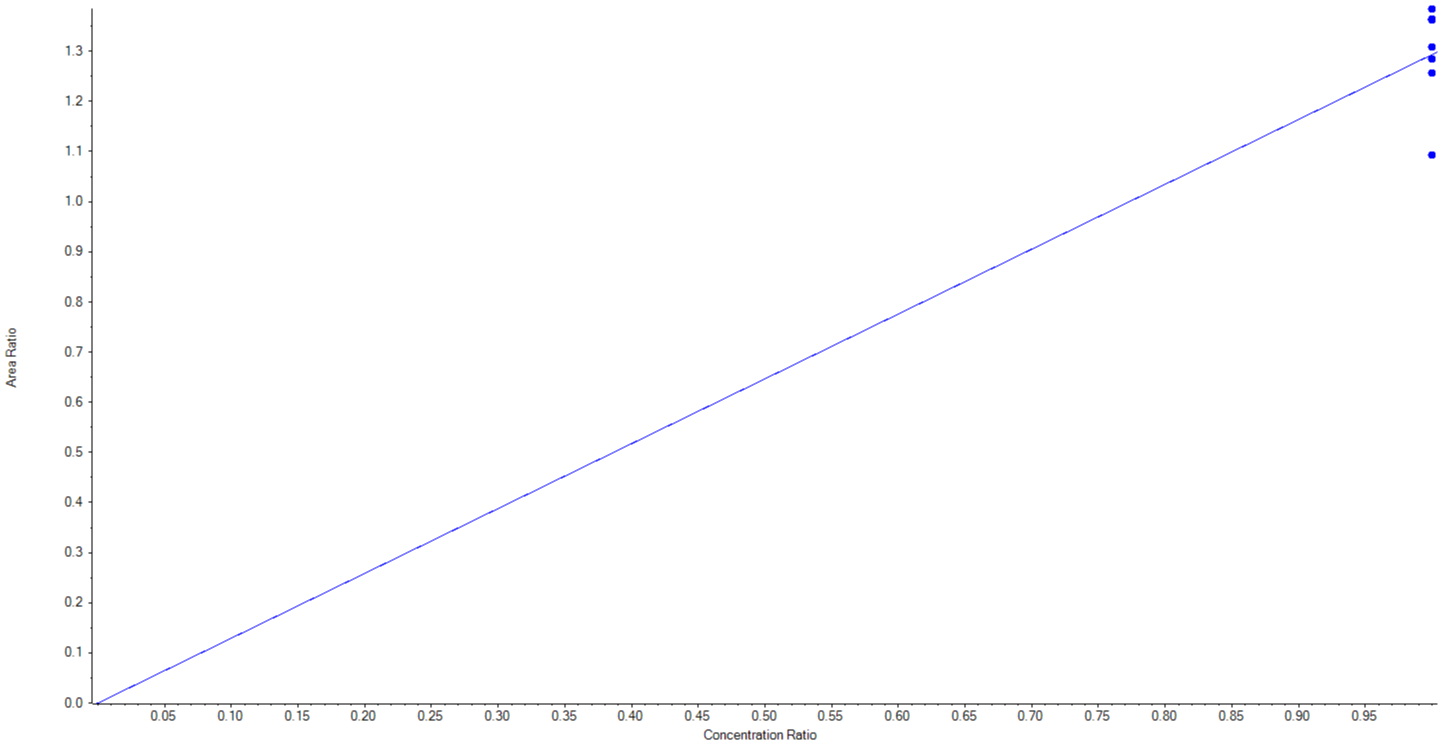
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C5-PFHxA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	318.0 / 273.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.29323 x (std. dev. = 0.09973) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1337.88	107.0
3	KY84	L2	True	1250.00	1317.83	105.4
4	KY85	L3	True	1250.00	1316.58	105.3
5	KY86	L4	True	1250.00	1241.30	99.3
6	KY87	L5	True	1250.00	1264.66	101.2
7	KY88	L6	True	1250.00	1215.41	97.2
8	KY89	L7	True	1250.00	1056.34	84.5



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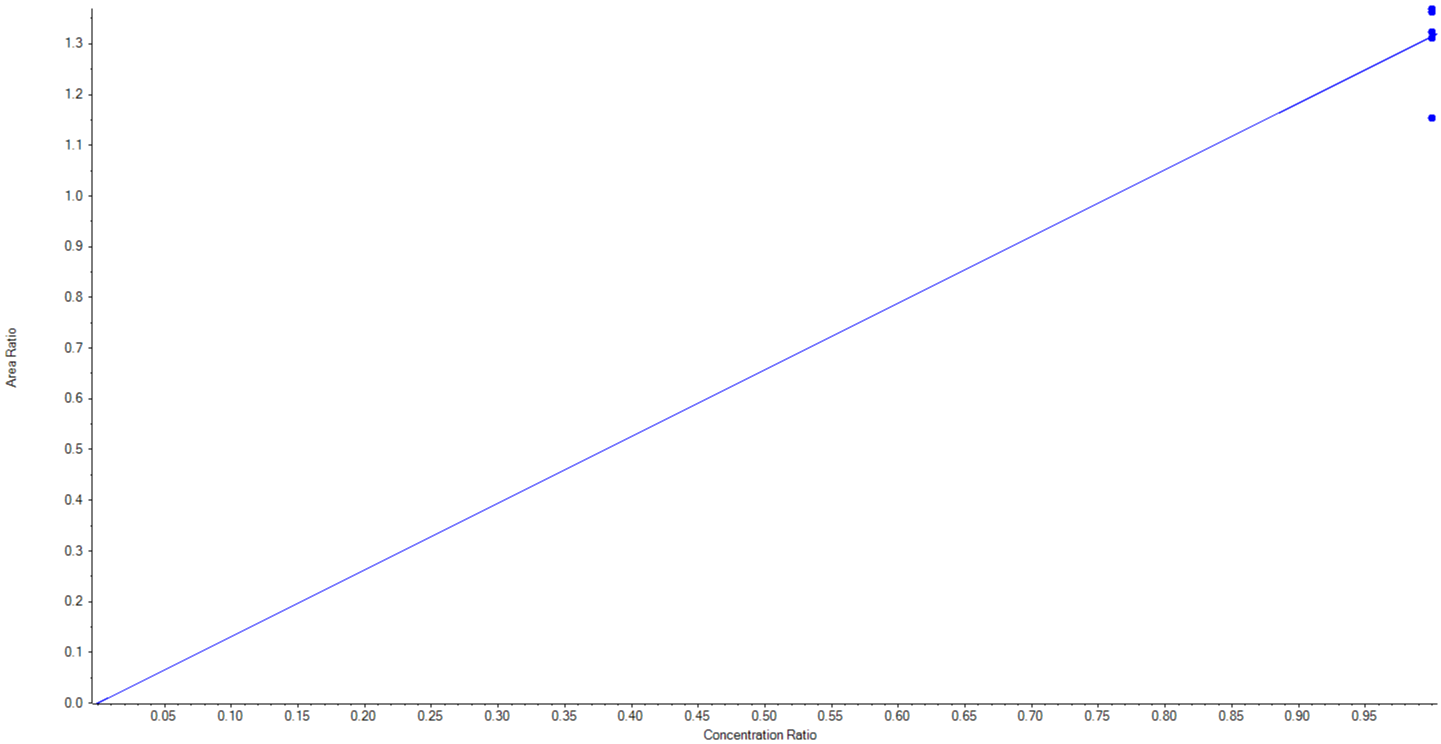
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C4-PFHpA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	367.0 / 322.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.31445 x (std. dev. = 0.07524) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1259.23	100.7
3	KY84	L2	True	1250.00	1301.56	104.1
4	KY85	L3	True	1250.00	1296.79	103.7
5	KY86	L4	True	1250.00	1301.00	104.1
6	KY87	L5	True	1250.00	1246.90	99.8
7	KY88	L6	True	1250.00	1246.72	99.7
8	KY89	L7	True	1250.00	1097.79	87.8



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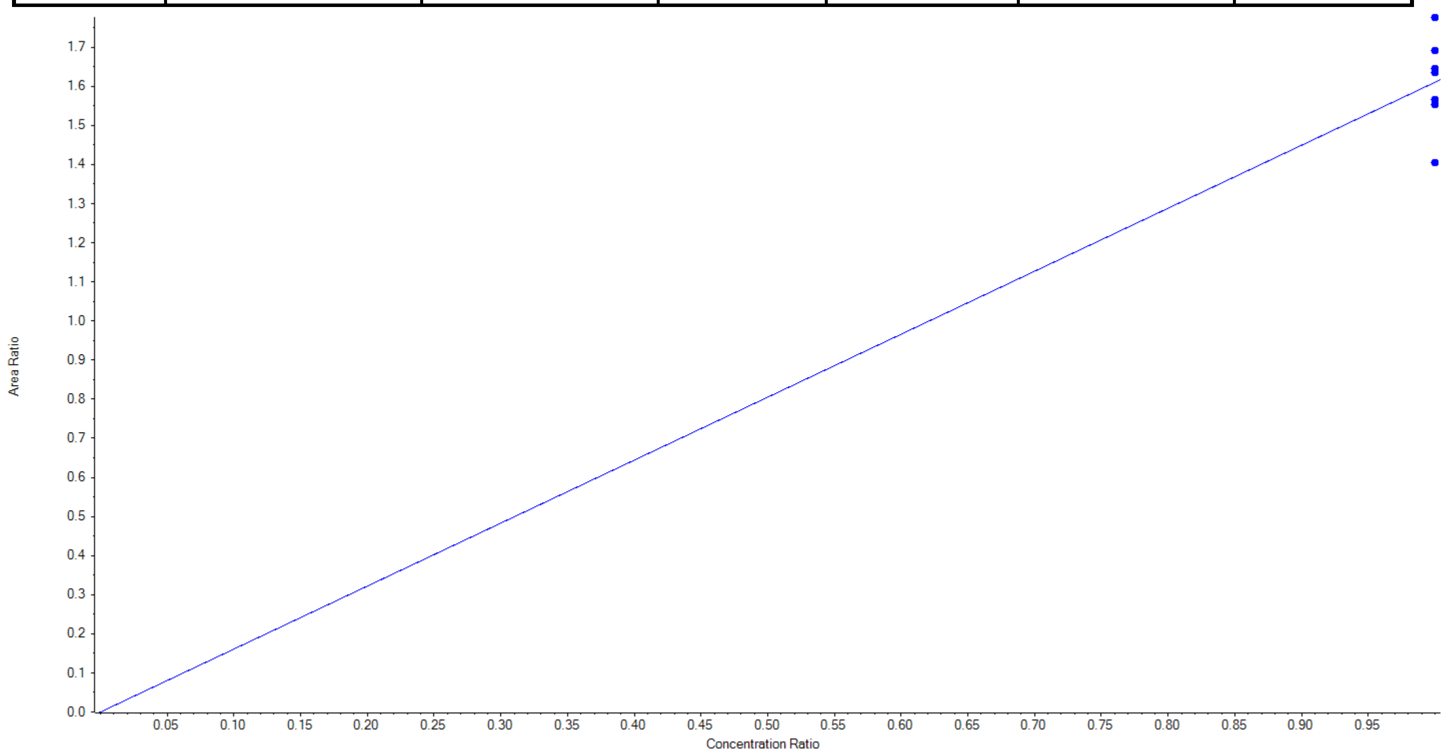
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C8-PFOA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	421.0 / 376.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.61014 x (std. dev. = 0.11803) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1269.95	101.6
3	KY84	L2	True	1250.00	1313.14	105.1
4	KY85	L3	True	1250.00	1378.56	110.3
5	KY86	L4	True	1250.00	1216.29	97.3
6	KY87	L5	True	1250.00	1205.58	96.5
7	KY88	L6	True	1250.00	1276.64	102.1
8	KY89	L7	True	1250.00	1089.85	87.2



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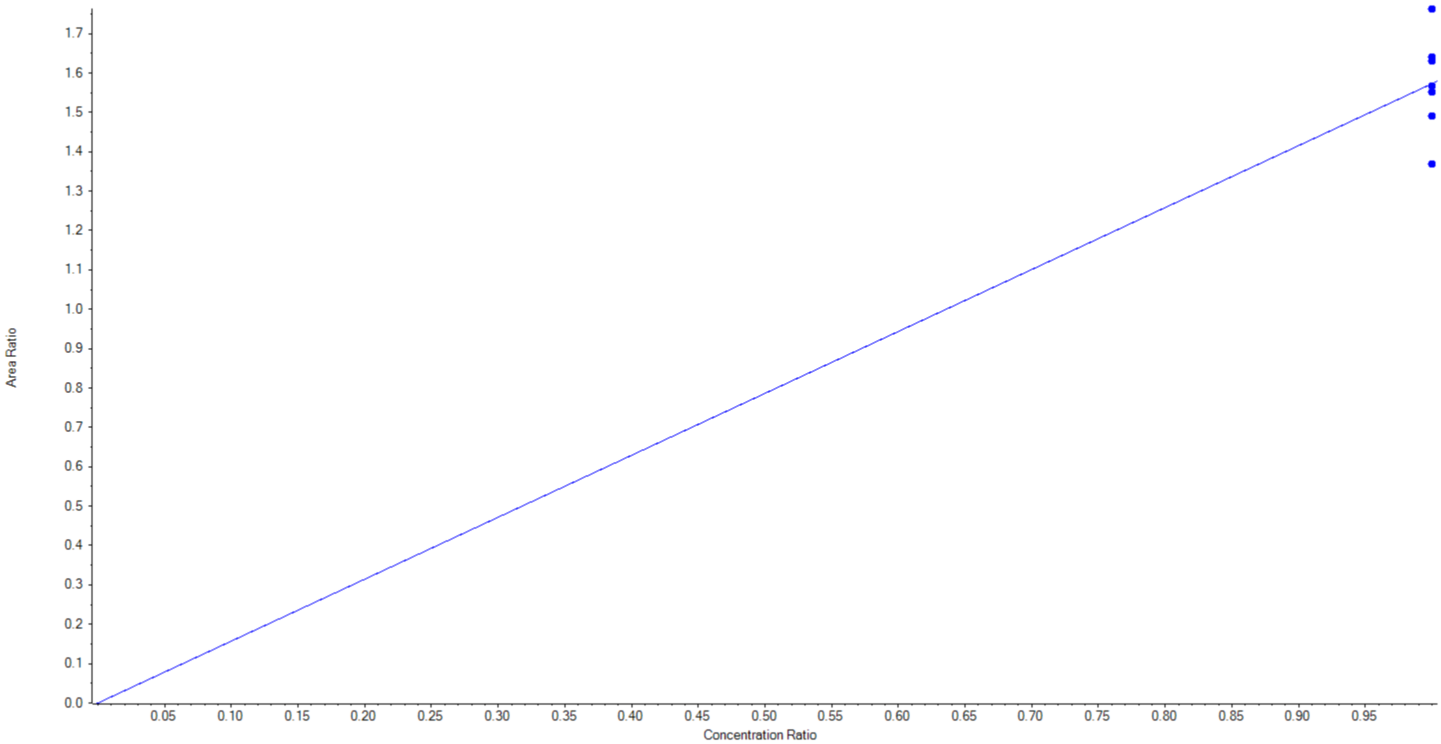
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C9-PFNA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	472.0 / 427.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.57268 x (std. dev. = 0.12417) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1303.12	104.3
3	KY84	L2	True	1250.00	1295.50	103.6
4	KY85	L3	True	1250.00	1400.70	112.1
5	KY86	L4	True	1250.00	1183.85	94.7
6	KY87	L5	True	1250.00	1233.21	98.7
7	KY88	L6	True	1250.00	1245.35	99.6
8	KY89	L7	True	1250.00	1088.27	87.1



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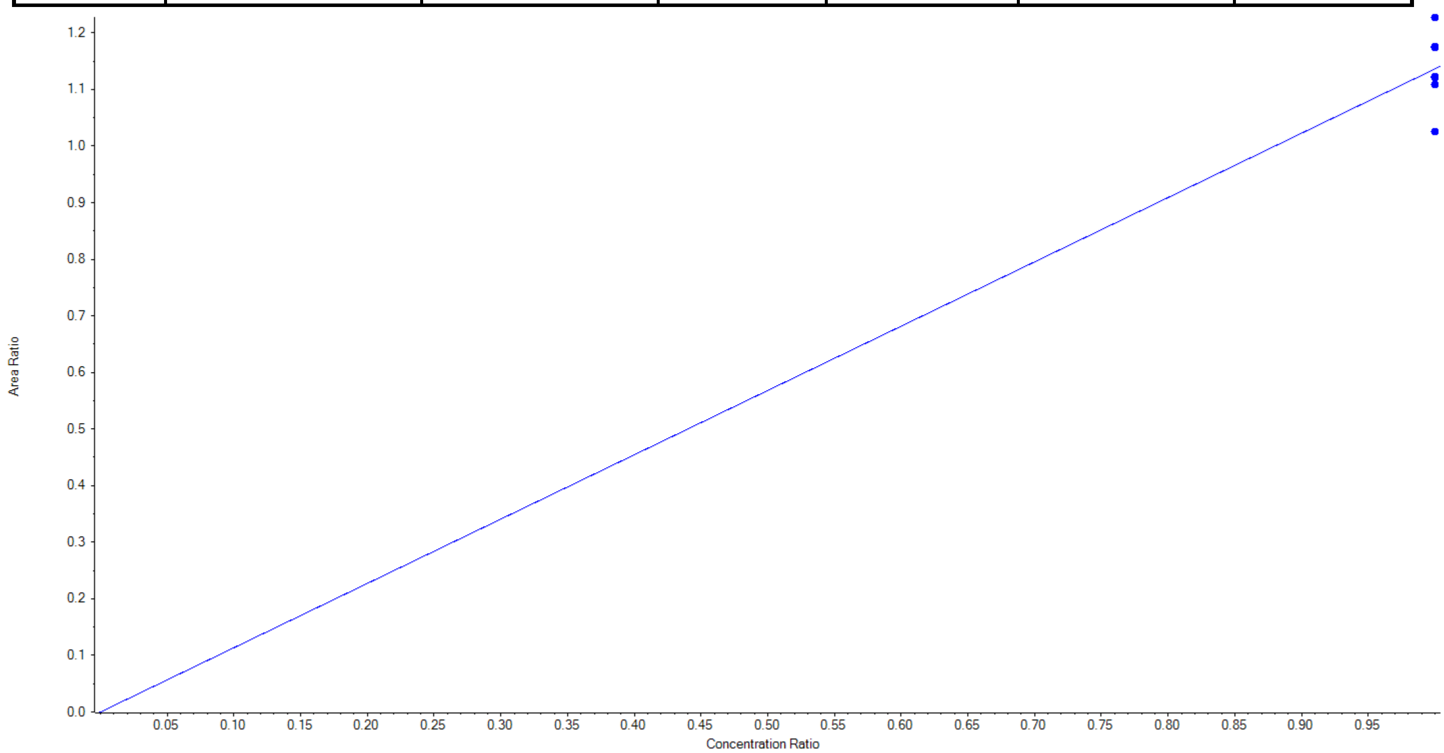
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C6-PFDA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	519.0 / 474.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.13620 x (std. dev. = 0.06392) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1291.29	103.3
3	KY84	L2	True	1250.00	1218.77	97.5
4	KY85	L3	True	1250.00	1234.83	98.8
5	KY86	L4	True	1250.00	1349.88	108.0
6	KY87	L5	True	1250.00	1292.65	103.4
7	KY88	L6	True	1250.00	1233.84	98.7
8	KY89	L7	True	1250.00	1128.75	90.3



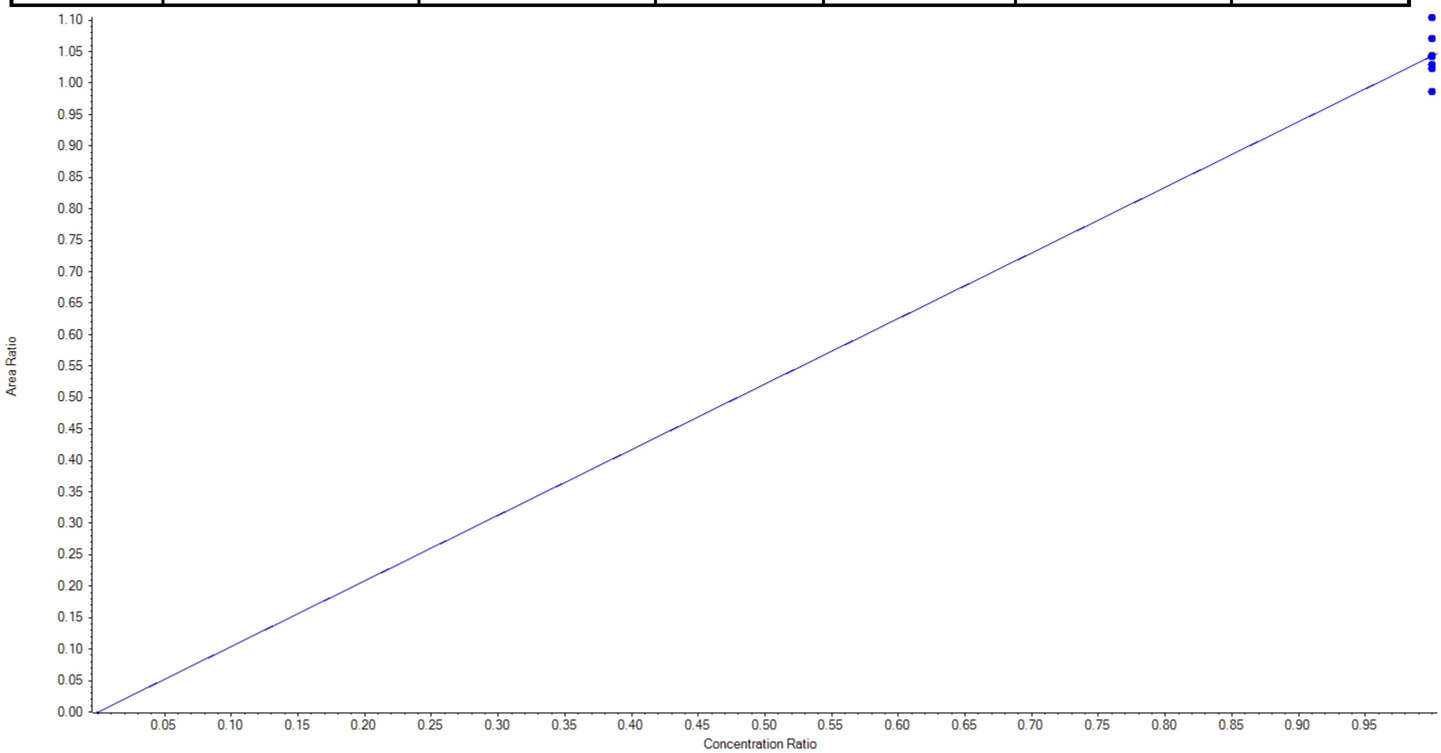
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C7-PFUnA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	570.0 / 525.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.04294 x (std. dev. = 0.03712) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1226.38	98.1
3	KY84	L2	True	1250.00	1251.56	100.1
4	KY85	L3	True	1250.00	1283.22	102.7
5	KY86	L4	True	1250.00	1249.84	100.0
6	KY87	L5	True	1250.00	1323.42	105.9
7	KY88	L6	True	1250.00	1232.90	98.6
8	KY89	L7	True	1250.00	1182.68	94.6



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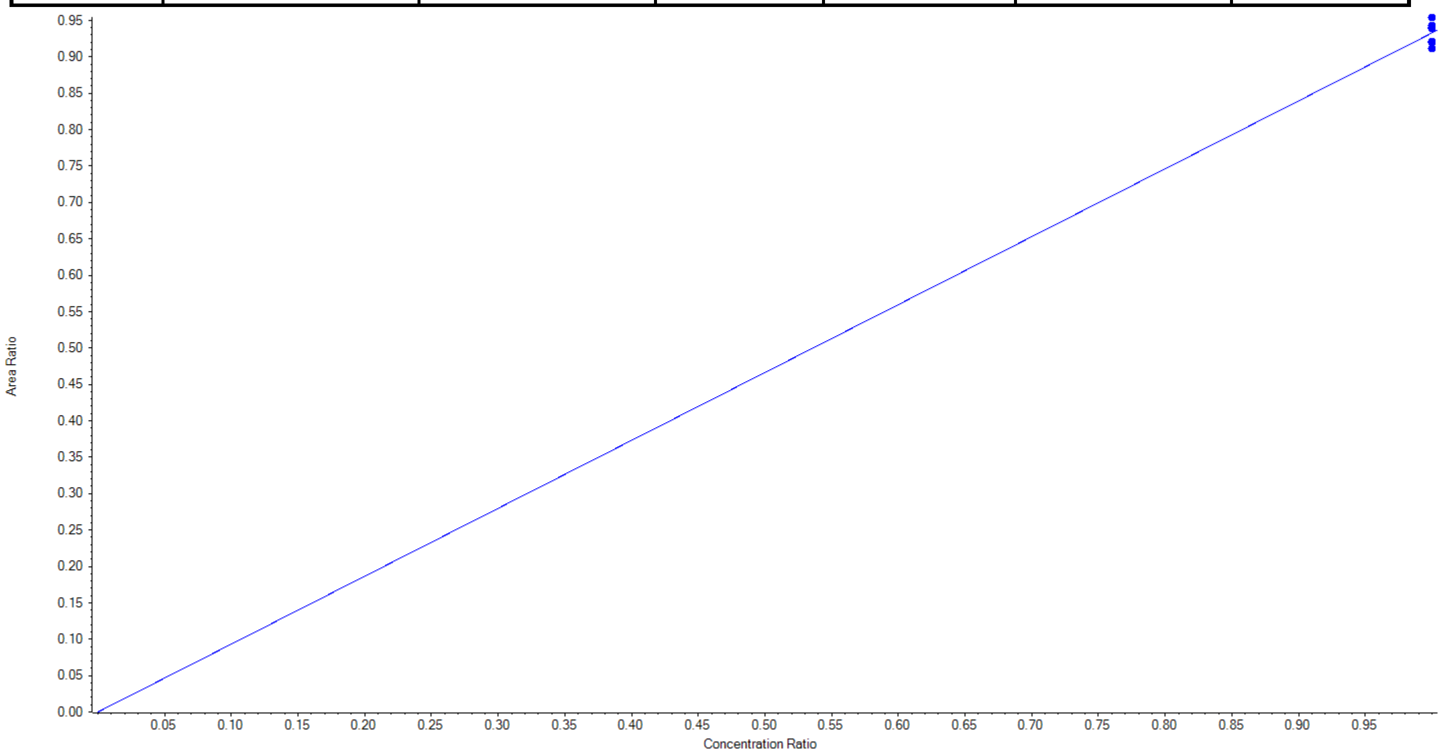
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C2-PFTeDA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	715.0 / 670.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.93285 x (std. dev. = 0.01524) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1250.00	1234.82	98.8
3	KY84	L2	True	1250.00	1233.08	98.7
4	KY85	L3	True	1250.00	1221.42	97.7
5	KY86	L4	True	1250.00	1263.97	101.1
6	KY87	L5	True	1250.00	1278.38	102.3
7	KY88	L6	True	1250.00	1258.97	100.7
8	KY89	L7	True	1250.00	1259.35	100.8



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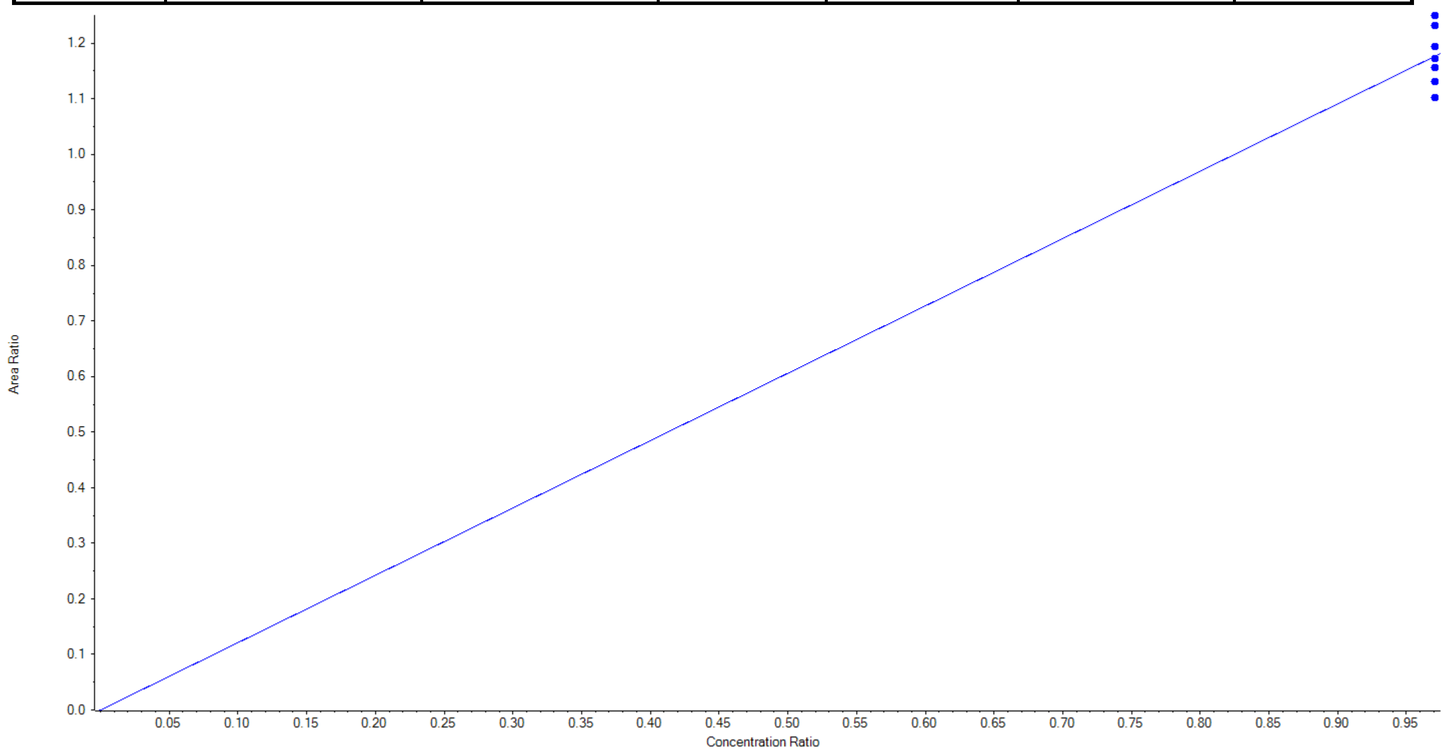
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C3-PFBS	**Data File**	AE_05042020_5-369.wiff
MRM Transition	302.0 / 99.0	**Result Table**	20-0519_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.21209 x (std. dev. = 0.05464) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1161.25	1157.76	99.7
3	KY84	L2	True	1161.25	1140.19	98.2
4	KY85	L3	True	1161.25	1178.10	101.5
5	KY86	L4	True	1161.25	1115.59	96.1
6	KY87	L5	True	1161.25	1087.70	93.7
7	KY88	L6	True	1161.25	1215.97	104.7
8	KY89	L7	True	1161.25	1233.44	106.2



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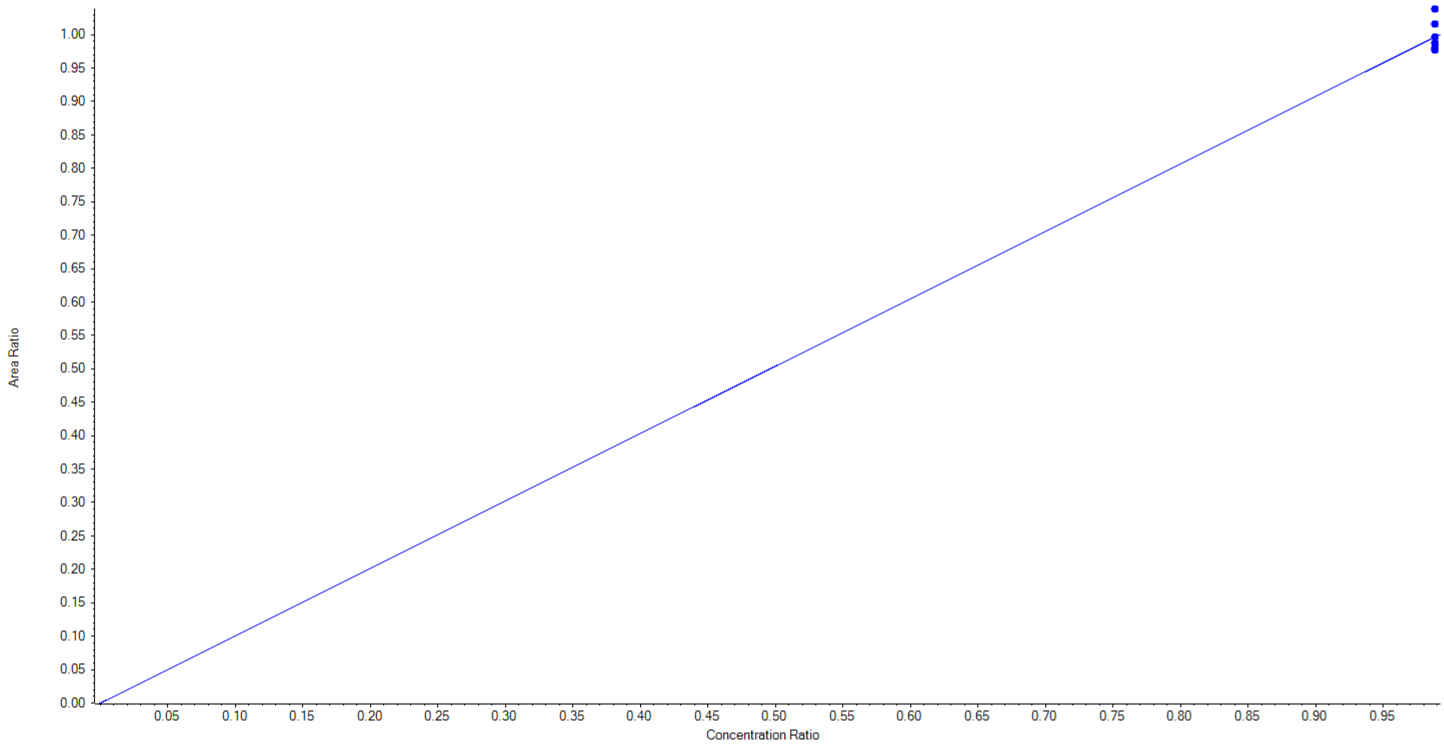
Calibration Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C3-PFHxS	**Data File**	AE_05042020_5-369.wiff
MRM Transition	402.0 / 99.0	**Result Table**	20-0519_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 1.00806 x (std. dev. = 0.02333) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1182.50	1206.37	102.0
3	KY84	L2	True	1182.50	1162.92	98.3
4	KY85	L3	True	1182.50	1171.90	99.1
5	KY86	L4	True	1182.50	1162.21	98.3
6	KY87	L5	True	1182.50	1182.79	100.0
7	KY88	L6	True	1182.50	1232.20	104.2
8	KY89	L7	True	1182.50	1159.11	98.0



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Calibration Summary Report

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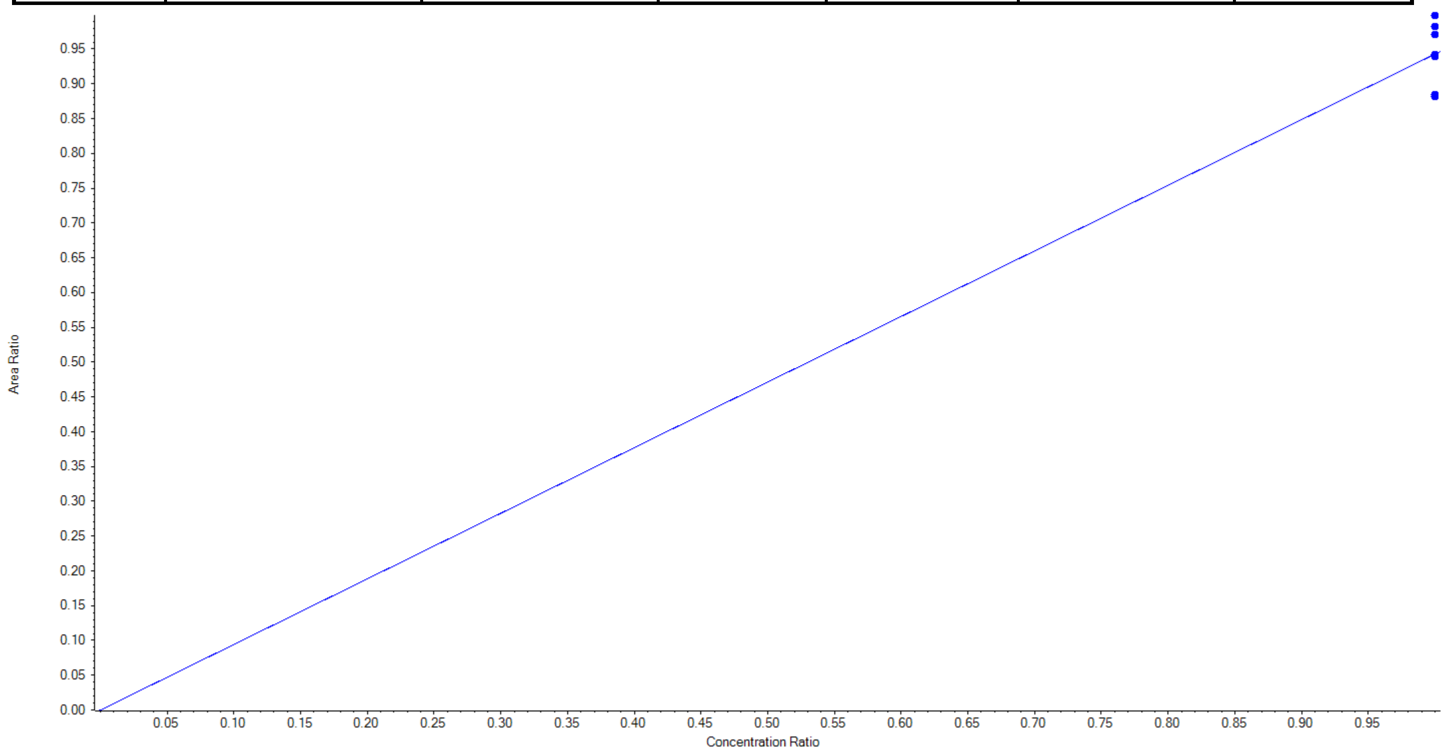
Printed: 06/05/2020 9:36:26 AM

Analyte Name	13C8-PFOS	**Data File**	AE_05042020_5-369.wiff
MRM Transition	507.0 / 99.0	**Result Table**	20-0519_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: y = 0.94273 x (std. dev. = 0.04572) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	True	1196.25	1232.63	103.0
3	KY84	L2	True	1196.25	1122.30	93.8
4	KY85	L3	True	1196.25	1195.68	100.0
5	KY86	L4	True	1196.25	1119.33	93.6
6	KY87	L5	True	1196.25	1190.86	99.6
7	KY88	L6	True	1196.25	1266.57	105.9
8	KY89	L7	True	1196.25	1246.38	104.2



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Calibration Summary Report

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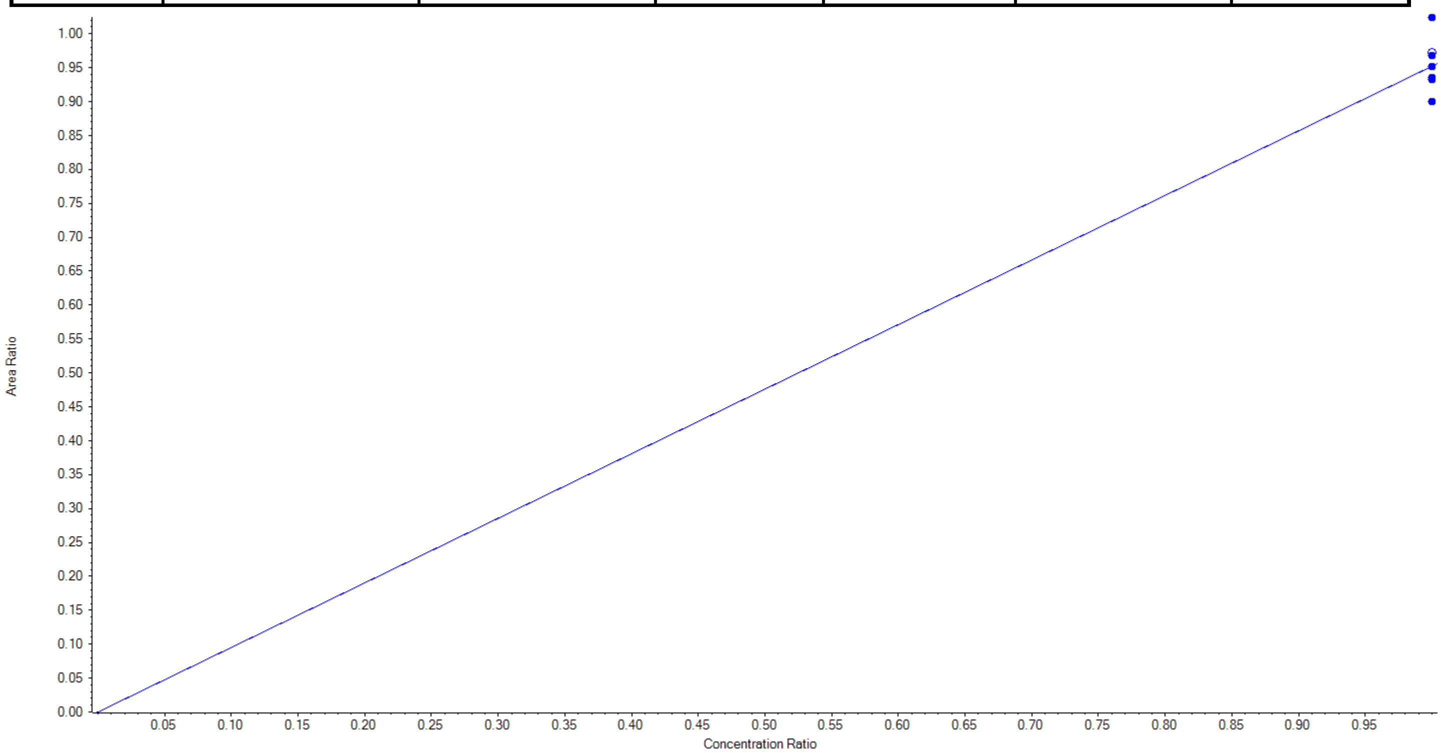
Analyte Name	13C3-HFPO-DA	**Data File**	AE_05042020_5-369.wiff
MRM Transition	287.0 / 169.0	**Result Table**	20-0519_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Acquisition Method**	5-369.dam

Regression Equation: $y = 0.95222\ x$ (std. dev. = 0.04178) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/L)	Calculated Conc. (ng/L)	Recovery (%)
2	KY83	L1	False	1250.00	1276.98	102.2
3	KY84	L2	True	1250.00	1224.58	98.0
4	KY85	L3	True	1250.00	1344.25	107.5
5	KY86	L4	True	1250.00	1182.34	94.6
6	KY87	L5	True	1250.00	1228.00	98.2
7	KY88	L6	True	1250.00	1249.66	100.0
8	KY89	L7	True	1250.00	1271.18	101.7



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	Isotope Dilution Calibration Curve Concentrations (ng/L)							ICC (ng/L)
	KY83	KY84	KY85	KY86	KY87	KY88	KY89	KY91
PFBA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFPeA	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFHxA	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFHpA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFOA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFNA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFDA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFUnA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFDoA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFTrDA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFTeDA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
NMeFOSAA (Branched)	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
NEtFOSAA (Branched)	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFOSA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFBS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFPeS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFHxS (Branched)	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFHpS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
PFOS (Branched)	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFDS	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
PFNS	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
4:2FTS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
6:2FTS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
8:2FTS	126.25	252.50	505.00	1,010.00	2,525.00	10,100.00	25,250.00	2,525.00
3:3 FTCA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
5:3 FTCA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
7:3 FTCA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
HFPO-DA	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
Adona	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
9Cl-PF3ONS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
11Cl-PF3OUdS	125.00	250.00	500.00	1,000.00	2,500.00	10,000.00	25,000.00	2,500.00
	Surrogates / Extracted Internal Standards							
13C4-PFBA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C5-PFPeA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C5-PFHxA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C4-PFHpA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C8-PFOA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C9-PFNA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C6-PFDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C7-PFUnA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFDoA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFTeDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
d3-MeFOSAA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
d5-EtFOSAA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C8-FOSA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C3-PFBS	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25	1,161.25
13C3-PFHxS	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50	1,182.50
13C8-PFOS	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25
13C2-4:2FTS	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75	1,168.75
13C2-6:2FTS	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25	1,186.25
13C2-8:2FTS	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50	1,197.50
13C3-HFPO-DA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
	Internal Standards							
13C3-PFBA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFOA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C2-PFDA	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00	1,250.00
13C4-PFOS	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25	1,196.25

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PFAS Calibration Quant Report

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Sample Name	KY83	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.36	62885.75	113.88	1092.4	False	13C3-PFBS	238635.91	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.36	20505.26	105.48	555.6	False	13C3-PFBS	238635.91	1161.25	PFBS	0.326	0.349	✓
PFHxA_1	313.0 / 269.0	1.63	122172.24	< 0	486.9	True	13C5-PFHxA	1083909.93	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.63	7803.79	4.53	322.3	True	13C5-PFHxA	1083909.93	1250.00	PFHxA	0.064	0.061	✓
PFHpA_1	363.0 / 319.0	1.98	83970.56	105.87	266.5	False	13C4-PFHpA	1071914.16	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.98	2059.03	96.20	10923.7	False	13C4-PFHpA	1071914.16	1250.00	PFHpA	0.025	0.027	✓
PFHxS_1	399.0 / 80.0	1.99	69317.22	126.15	1080.1	False	13C3-PFHxS	206798.51	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.99	24735.92	127.24	401.2	False	13C3-PFHxS	206798.51	1182.50	PFHxS	0.357	0.353	✓
PFOA_1	413.0 / 369.0	2.37	118926.78	113.69	148.5	False	13C8-PFOA	1281001.64	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.37	10009.76	118.48	85.1	False	13C8-PFOA	1281001.64	1250.00	PFOA	0.084	0.084	✓
PFNA_1	463.0 / 419.0	2.76	112739.26	116.20	310.8	False	13C9-PFNA	1283883.48	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.76	37484.32	118.50	677.7	False	13C9-PFNA	1283883.48	1250.00	PFNA	0.332	0.321	✓
PFOS_1	499.0 / 80.0	2.75	80168.64	123.20	720.5	False	13C8-PFOS	197606.15	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.75	19107.64	134.12	370.9	False	13C8-PFOS	197606.15	1196.25	PFOS	0.238	0.209	✓
PFDA_1	513.0 / 469.0	3.12	120727.08	129.27	196.4	False	13C6-PFDA	1287022.63	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.13	5974.78	124.63	29271.9	False	13C6-PFDA	1287022.63	1250.00	PFDA	0.049	0.048	✓
PFUnA_1	563.0 / 519.0	3.44	130002.53	121.68	365.7	False	13C7-PFUnA	1121994.86	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.44	6996.03	127.35	2281.1	False	13C7-PFUnA	1121994.86	1250.00	PFUnA	0.054	0.051	✓
PFDoA_1	613.0 / 569.0	3.73	120200.40	113.87	263.0	False	13C2-PFDoA	1268135.48	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.73	12873.03	110.73	633.4	False	13C2-PFDoA	1268135.48	1250.00	PFDoA	0.107	0.112	✓
PFTrDA_1	663.0 / 619.0	3.99	107760.44	114.70	774.9	False	13C2-PFTeDA	1010468.96	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.99	6284.68	103.39	975.6	False	13C2-PFTeDA	1010468.96	1250.00	PFTrDA	0.058	0.065	✓
PFTeDA_1	713.0 / 669.0	4.22	114181.20	111.00	804.3	False	13C2-PFTeDA	1010468.96	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.22	5909.18	119.21	1452.6	False	13C2-PFTeDA	1010468.96	1250.00	PFTeDA	0.052	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.26	11910.76	122.14	1494.8	False	d3-MeFOSAA	157071.71	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.26	10791.87	89.53	307.7	False	d3-MeFOSAA	157071.71	1250.00	NMeFOSAA	0.906	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.43	14759.61	124.65	533.0	False	d5-EtFOSAA	161257.21	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.44	525.55	24.92	12460.6	False	d5-EtFOSAA	161257.21	1250.00	NEtFOSAA	0.036	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	113350.00	87.94	1435.8	False	13C3-HFPO-DA	761767.94	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.73	2663.27	143.68	744.9	False	13C3-HFPO-DA	761767.94	1250.00	HFPO-DA	0.023	0.020	✓
ADONA_1	377.0 / 251.0	2.02	257284.64	123.40	2027.2	False	13C3-HFPO-DA	761767.94	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	3055.42	140.29	117.1	False	13C3-HFPO-DA	761767.94	1250.00	ADONA	0.012	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.96	159091.90	120.61	564.6	False	13C3-HFPO-DA	761767.94	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	1383.53	112.36	1124.3	False	13C3-HFPO-DA	761767.94	1250.00	9Cl-PF3ONS	0.009	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.60	112872.65	121.21	703.9	False	13C3-HFPO-DA	761767.94	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.58	646.29	130.90	518.0	False	13C3-HFPO-DA	761767.94	1250.00	11Cl-PF3OUdS	0.006	0.005	✓

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PFAS Calibration Quant Report

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Printed: 06/05/2020 9:46:16 AM

Sample Name	KY84	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:39:19 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	124350.53	253.60	33826.7	False	13C3-PFBS	233652.38	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	44066.08	258.61	981.8	False	13C3-PFBS	233652.38	1161.25	PFBS	0.354	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	390047.76	303.13	999.9	True	13C5-PFHxA	1030931.25	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	24478.84	325.21	530.2	True	13C5-PFHxA	1030931.25	1250.00	PFHxA	0.063	0.061	✓
PFHpA_1	363.0 / 319.0	1.98	185043.27	259.12	390.4	False	13C4-PFHpA	1065622.29	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.97	5363.10	280.36	1611.7	False	13C4-PFHpA	1065622.29	1250.00	PFHpA	0.029	0.027	✓
PFHxS_1	399.0 / 80.0	1.99	140833.40	265.16	826.8	False	13C3-PFHxS	198194.79	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.99	50027.61	266.87	630.7	False	13C3-PFHxS	198194.79	1182.50	PFHxS	0.355	0.353	✓
PFOA_1	413.0 / 369.0	2.36	260581.35	271.22	282.4	False	13C8-PFOA	1278992.77	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	19867.29	248.71	213.5	False	13C8-PFOA	1278992.77	1250.00	PFOA	0.076	0.084	✓
PFNA_1	463.0 / 419.0	2.75	227511.55	253.48	349.0	False	13C9-PFNA	1232457.07	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	73367.35	253.85	2658.1	False	13C9-PFNA	1232457.07	1250.00	PFNA	0.322	0.321	✓
PFOS_1	499.0 / 80.0	2.74	160151.21	278.69	1754.1	False	13C8-PFOS	178876.84	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.74	33736.29	277.07	11189.7	False	13C8-PFOS	178876.84	1196.25	PFOS	0.211	0.209	✓
PFDA_1	513.0 / 469.0	3.11	243184.65	280.79	304.1	False	13C6-PFDA	1175943.41	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	12035.42	283.61	18839.5	False	13C6-PFDA	1175943.41	1250.00	PFDA	0.049	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	266158.58	267.63	404.6	False	13C7-PFUnA	1108467.08	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	11683.74	227.84	213.9	False	13C7-PFUnA	1108467.08	1250.00	PFUnA	0.044	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	253843.30	252.62	509.0	False	13C2-PFDoA	1261427.70	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	27233.76	242.92	813.7	False	13C2-PFDoA	1261427.70	1250.00	PFDoA	0.107	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	217568.03	257.69	991.1	False	13C2-PFTeDA	976813.65	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	15024.88	277.16	1302.5	False	13C2-PFTeDA	976813.65	1250.00	PFTrDA	0.069	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	225015.36	250.24	1128.3	False	13C2-PFTeDA	976813.65	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	11193.43	253.50	1736.5	False	13C2-PFTeDA	976813.65	1250.00	PFTeDA	0.050	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	23185.04	249.81	763.1	False	d3-MeFOSAA	156254.15	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	26932.00	272.23	173623.9	False	d3-MeFOSAA	156254.15	1250.00	NMeFOSAA	1.162	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	31134.20	261.09	968.2	False	d5-EtFOSAA	164600.79	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.41	1759.01	202.56	143.7	False	d5-EtFOSAA	164600.79	1250.00	NEtFOSAA	0.056	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	237915.88	269.94	2750.4	False	13C3-HFPO-DA	705375.81	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	4500.90	268.20	113117.5	False	13C3-HFPO-DA	705375.81	1250.00	HFPO-DA	0.019	0.020	✓
ADONA_1	377.0 / 251.0	2.01	534298.85	271.48	3382.0	False	13C3-HFPO-DA	705375.81	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.02	5638.91	257.90	289505.6	False	13C3-HFPO-DA	705375.81	1250.00	ADONA	0.011	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.96	300355.55	253.43	667.0	False	13C3-HFPO-DA	705375.81	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.96	3053.51	298.09	118.0	False	13C3-HFPO-DA	705375.81	1250.00	9Cl-PF3ONS	0.010	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	237863.19	272.91	1158.6	False	13C3-HFPO-DA	705375.81	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.58	1015.51	240.65	754.4	False	13C3-HFPO-DA	705375.81	1250.00	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	KY85	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:49:51 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	247579.97	479.76	12598.9	False	13C3-PFBS	256007.95	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	89082.23	496.32	2242.8	False	13C3-PFBS	256007.95	1161.25	PFBS	0.360	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	531936.77	464.58	1230.6	False	13C5-PFHxA	1039959.06	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	29745.29	419.36	666.2	False	13C5-PFHxA	1039959.06	1250.00	PFHxA	0.056	0.061	✓
PFHpA_1	363.0 / 319.0	1.98	376309.38	547.81	506.0	False	13C4-PFHpA	1065434.62	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.98	10491.72	565.26	304.3	False	13C4-PFHpA	1065434.62	1250.00	PFHpA	0.028	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	295553.13	518.80	61570.7	False	13C3-PFHxS	211794.30	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.99	97298.61	484.49	866.2	False	13C3-PFHxS	211794.30	1182.50	PFHxS	0.329	0.353	✓
PFOA_1	413.0 / 369.0	2.36	478932.70	483.61	317.8	False	13C8-PFOA	1355758.67	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	41864.55	507.61	377.7	False	13C8-PFOA	1355758.67	1250.00	PFOA	0.087	0.084	✓
PFNA_1	463.0 / 419.0	2.75	446115.43	461.93	503.3	False	13C9-PFNA	1345490.76	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	148765.34	481.58	2176.2	False	13C9-PFNA	1345490.76	1250.00	PFNA	0.333	0.321	✓
PFOS_1	499.0 / 80.0	2.74	320228.17	497.61	1209.8	False	13C8-PFOS	202087.10	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.74	59119.04	438.73	4085.2	False	13C8-PFOS	202087.10	1196.25	PFOS	0.185	0.209	✓
PFDA_1	513.0 / 469.0	3.11	441812.72	471.27	424.3	False	13C6-PFDA	1266468.55	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	20137.66	444.69	43577.0	False	13C6-PFDA	1266468.55	1250.00	PFDA	0.046	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	517118.84	488.41	564.7	False	13C7-PFUnA	1208068.99	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	28110.10	524.94	3364.6	False	13C7-PFUnA	1208068.99	1250.00	PFUnA	0.054	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	527747.51	508.29	727.1	False	13C2-PFDoA	1328033.13	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	60438.80	519.36	2020.6	False	13C2-PFDoA	1328033.13	1250.00	PFDoA	0.115	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	426429.07	494.03	1355.1	False	13C2-PFTeDA	1028506.53	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	27451.90	491.66	1858.8	False	13C2-PFTeDA	1028506.53	1250.00	PFTrDA	0.064	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	447478.99	493.14	1560.5	False	13C2-PFTeDA	1028506.53	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	21756.47	485.52	2621.0	False	13C2-PFTeDA	1028506.53	1250.00	PFTeDA	0.049	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	45417.02	502.43	298795.3	False	d3-MeFOSAA	155572.94	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	49498.18	529.24	310.8	False	d3-MeFOSAA	155572.94	1250.00	NMeFOSAA	1.090	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	61901.53	486.76	1600.0	False	d5-EtFOSAA	176552.48	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.42	4426.68	546.62	262.0	False	d5-EtFOSAA	176552.48	1250.00	NEtFOSAA	0.072	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	455355.18	524.33	3772.0	False	13C3-HFPO-DA	758377.62	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	6295.72	351.25	818.9	False	13C3-HFPO-DA	758377.62	1250.00	HFPO-DA	0.014	0.020	✓
ADONA_1	377.0 / 251.0	2.02	1035415.83	486.66	4083.4	False	13C3-HFPO-DA	758377.62	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.02	10579.60	434.21	15235.1	False	13C3-HFPO-DA	758377.62	1250.00	ADONA	0.010	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.96	644252.11	513.00	863.2	False	13C3-HFPO-DA	758377.62	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	4895.46	455.34	169.5	False	13C3-HFPO-DA	758377.62	1250.00	9Cl-PF3ONS	0.008	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	460448.78	487.62	1132.0	False	13C3-HFPO-DA	758377.62	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.59	2215.62	516.08	9640.6	False	13C3-HFPO-DA	758377.62	1250.00	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	KY86	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:00:24 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	486652.43	1020.91	19881.9	False	13C3-PFBS	242396.78	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	178263.90	1074.23	2631.1	False	13C3-PFBS	242396.78	1161.25	PFBS	0.366	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	920291.51	898.67	1992.8	False	13C5-PFHxA	1058410.12	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	57083.84	910.34	925.1	False	13C5-PFHxA	1058410.12	1250.00	PFHxA	0.062	0.061	✓
PFHpA_1	363.0 / 319.0	1.97	746855.99	1016.30	812.2	False	13C4-PFHpA	1158687.64	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.97	20250.25	1016.76	62798.6	False	13C4-PFHpA	1158687.64	1250.00	PFHpA	0.027	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	556880.65	983.97	344550.0	False	13C3-PFHxS	210020.01	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	201905.01	1012.24	1393.5	False	13C3-PFHxS	210020.01	1182.50	PFHxS	0.363	0.353	✓
PFOA_1	413.0 / 369.0	2.36	971671.16	1050.74	467.2	False	13C8-PFOA	1291224.04	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	81276.16	1048.60	406.9	False	13C8-PFOA	1291224.04	1250.00	PFOA	0.084	0.084	✓
PFNA_1	463.0 / 419.0	2.75	972380.01	1115.20	861.3	False	13C9-PFNA	1227548.50	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	284116.62	1020.97	1844.3	False	13C9-PFNA	1227548.50	1250.00	PFNA	0.292	0.321	✓
PFOS_1	499.0 / 80.0	2.74	582798.15	972.83	3663.0	False	13C8-PFOS	189163.14	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.74	119977.09	970.22	1803.8	False	13C8-PFOS	189163.14	1196.25	PFOS	0.206	0.209	✓
PFDA_1	513.0 / 469.0	3.11	921625.18	947.60	873.6	False	13C6-PFDA	1308968.98	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	42892.20	924.22	15439.4	False	13C6-PFDA	1308968.98	1250.00	PFDA	0.047	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	912533.55	949.15	917.8	False	13C7-PFUnA	1112477.93	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	50123.41	1033.50	2732.8	False	13C7-PFUnA	1112477.93	1250.00	PFUnA	0.055	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	1007362.01	1009.13	1026.5	False	13C2-PFDoA	1288775.18	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	119642.75	1066.28	2135.4	False	13C2-PFDoA	1288775.18	1250.00	PFDoA	0.119	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	838137.61	1009.25	1516.8	False	13C2-PFTeDA	1006296.32	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	55214.28	1026.10	2561.3	False	13C2-PFTeDA	1006296.32	1250.00	PFTrDA	0.066	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	905943.31	1045.11	2400.0	False	13C2-PFTeDA	1006296.32	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	43299.93	1009.06	3082.8	False	13C2-PFTeDA	1006296.32	1250.00	PFTeDA	0.048	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	92347.52	1027.82	5262846.6	False	d3-MeFOSAA	156387.82	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	95803.58	1048.23	3468.6	False	d3-MeFOSAA	156387.82	1250.00	NMeFOSAA	1.037	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	123253.66	1009.04	3208.9	False	d5-EtFOSAA	170170.69	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.42	8133.88	1090.11	905074.6	False	d5-EtFOSAA	170170.69	1250.00	NEtFOSAA	0.066	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	917305.05	1139.98	4076.7	False	13C3-HFPO-DA	742303.18	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	18495.80	1074.31	265519.0	False	13C3-HFPO-DA	742303.18	1250.00	HFPO-DA	0.020	0.020	✓
ADONA_1	377.0 / 251.0	2.01	2057857.45	988.11	4643.1	False	13C3-HFPO-DA	742303.18	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	23358.31	955.73	19559.3	False	13C3-HFPO-DA	742303.18	1250.00	ADONA	0.011	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.95	1241861.58	1018.27	1036.1	False	13C3-HFPO-DA	742303.18	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	9633.35	938.15	1127.6	False	13C3-HFPO-DA	742303.18	1250.00	9Cl-PF3ONS	0.008	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.58	914108.24	979.95	1687.3	False	13C3-HFPO-DA	742303.18	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.58	3990.31	973.42	12944.4	False	13C3-HFPO-DA	742303.18	1250.00	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS Calibration Quant Report

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Printed: 06/05/2020 9:46:16 AM

Sample Name	KY87	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:10:57 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	1246126.54	2797.15	242269.2	False	13C3-PFBS	229775.07	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	415472.46	2674.29	4912.3	False	13C3-PFBS	229775.07	1161.25	PFBS	0.333	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	2324725.40	2452.89	3136.2	False	13C5-PFHxA	1080615.37	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	147370.91	2508.26	1750.5	False	13C5-PFHxA	1080615.37	1250.00	PFHxA	0.063	0.061	✓
PFHpA_1	363.0 / 319.0	1.97	1781261.14	2549.82	1231.3	False	13C4-PFHpA	1114456.66	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.97	45295.45	2387.69	112896.2	False	13C4-PFHpA	1114456.66	1250.00	PFHpA	0.025	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	1389609.62	2478.48	1383550.7	False	13C3-PFHxS	207803.42	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	497057.87	2516.35	2088.5	False	13C3-PFHxS	207803.42	1182.50	PFHxS	0.358	0.353	✓
PFOA_1	413.0 / 369.0	2.36	2302759.52	2532.15	710.0	False	13C8-PFOA	1282568.28	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	185975.50	2433.00	790.4	False	13C8-PFOA	1282568.28	1250.00	PFOA	0.081	0.084	✓
PFNA_1	463.0 / 419.0	2.75	2329228.81	2569.78	1184.0	False	13C9-PFNA	1281447.40	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	748246.55	2593.65	394.5	False	13C9-PFNA	1281447.40	1250.00	PFNA	0.321	0.321	✓
PFOS_1	499.0 / 80.0	2.74	1536018.64	2487.55	3910.3	False	13C8-PFOS	195663.69	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.74	329974.48	2606.77	1500.9	False	13C8-PFOS	195663.69	1196.25	PFOS	0.215	0.209	✓
PFDA_1	513.0 / 469.0	3.11	2192060.23	2397.31	1317.6	False	13C6-PFDA	1227890.95	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	111952.07	2584.68	457.5	False	13C6-PFDA	1227890.95	1250.00	PFDA	0.051	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	2548090.23	2579.57	1354.6	False	13C7-PFUnA	1153928.74	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	121233.82	2434.18	27829615.8	False	13C7-PFUnA	1153928.74	1250.00	PFUnA	0.048	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	2503716.56	2601.11	1412.7	False	13C2-PFDoA	1249967.56	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	281593.27	2596.93	2411.5	False	13C2-PFDoA	1249967.56	1250.00	PFDoA	0.112	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	2139132.87	2626.15	1909.1	False	13C2-PFTeDA	996991.40	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	136700.59	2585.99	2407.4	False	13C2-PFTeDA	996991.40	1250.00	PFTrDA	0.064	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	2281361.55	2691.95	3024.2	False	13C2-PFTeDA	996991.40	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	110747.23	2637.76	3694.9	False	13C2-PFTeDA	996991.40	1250.00	PFTeDA	0.049	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	229703.24	2476.10	623171.4	False	d3-MeFOSAA	162504.35	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	253589.52	2719.07	318.9	False	d3-MeFOSAA	162504.35	1250.00	NMeFOSAA	1.104	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	304713.09	2460.47	1180.6	False	d5-EtFOSAA	172860.78	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.42	18953.07	2569.18	1311763.0	False	d5-EtFOSAA	172860.78	1250.00	NEtFOSAA	0.062	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	2178100.52	2683.52	5494.6	False	13C3-HFPO-DA	772604.13	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	43821.06	2482.40	5108.4	False	13C3-HFPO-DA	772604.13	1250.00	HFPO-DA	0.020	0.020	✓
ADONA_1	377.0 / 251.0	2.01	5069974.56	2363.15	9284.7	False	13C3-HFPO-DA	772604.13	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	64562.03	2534.44	116477.8	False	13C3-HFPO-DA	772604.13	1250.00	ADONA	0.013	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.95	3063789.04	2430.41	1872.8	False	13C3-HFPO-DA	772604.13	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	28223.54	2687.09	515.7	False	13C3-HFPO-DA	772604.13	1250.00	9Cl-PF3ONS	0.009	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.58	2346108.47	2388.23	2563.9	False	13C3-HFPO-DA	772604.13	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.59	10170.40	2434.83	1922.1	False	13C3-HFPO-DA	772604.13	1250.00	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	KY88	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:21:30 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.36	4501530.12	9781.72	30945.6	False	13C3-PFBS	238757.51	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.36	1589644.17	9908.04	7785.3	False	13C3-PFBS	238757.51	1161.25	PFBS	0.353	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	8381805.98	10292.70	5105.5	False	13C5-PFHxA	972709.08	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	498283.97	9793.76	3146.7	False	13C5-PFHxA	972709.08	1250.00	PFHxA	0.059	0.061	✓
PFHpA_1	363.0 / 319.0	1.98	6418619.01	9814.71	2110.8	False	13C4-PFHpA	1049370.90	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.98	179254.51	10091.20	65607.2	False	13C4-PFHpA	1049370.90	1250.00	PFHpA	0.028	0.027	✓
PFHxS_1	399.0 / 80.0	1.99	5172967.67	9522.71	1415775.8	False	13C3-PFHxS	201216.11	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.99	1857295.51	9706.10	6109.3	False	13C3-PFHxS	201216.11	1182.50	PFHxS	0.359	0.353	✓
PFOA_1	413.0 / 369.0	2.37	8640630.51	9630.17	1093.7	False	13C8-PFOA	1272096.15	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	779609.88	10326.19	1431.1	False	13C8-PFOA	1272096.15	1250.00	PFOA	0.090	0.084	✓
PFNA_1	463.0 / 419.0	2.75	8483296.23	9919.20	2063.2	False	13C9-PFNA	1212039.54	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	2804528.29	10312.93	5280.9	False	13C9-PFNA	1212039.54	1250.00	PFNA	0.331	0.321	✓
PFOS_1	499.0 / 80.0	2.74	5994664.10	9837.20	4555.7	False	13C8-PFOS	193426.27	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.75	1213959.83	9745.40	2075.3	False	13C8-PFOS	193426.27	1196.25	PFOS	0.203	0.209	✓
PFDA_1	513.0 / 469.0	3.11	8509758.87	9793.71	2073.7	False	13C6-PFDA	1165530.86	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	424302.26	10342.15	460.0	False	13C6-PFDA	1165530.86	1250.00	PFDA	0.050	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	9106087.44	9991.75	1834.9	False	13C7-PFUnA	1069048.23	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	467796.58	10195.95	2952.1	False	13C7-PFUnA	1069048.23	1250.00	PFUnA	0.051	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	9941474.12	10280.34	1989.5	False	13C2-PFDoA	1259272.83	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	1099800.31	10086.65	3407.6	False	13C2-PFDoA	1259272.83	1250.00	PFDoA	0.111	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	8059122.51	10149.89	3052.6	False	13C2-PFTeDA	976415.74	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	536854.02	10413.66	3169.2	False	13C2-PFTeDA	976415.74	1250.00	PFTrDA	0.067	0.065	✓
PFTeDA_1	713.0 / 669.0	4.22	8406771.20	10192.57	3356.1	False	13C2-PFTeDA	976415.74	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	410407.13	10038.78	3852.2	False	13C2-PFTeDA	976415.74	1250.00	PFTeDA	0.049	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	925749.55	10010.41	405.3	False	d3-MeFOSAA	162552.88	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	943310.83	10197.30	4508.6	False	d3-MeFOSAA	162552.88	1250.00	NMeFOSAA	1.019	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	1116216.76	9839.47	2204.5	False	d5-EtFOSAA	158501.62	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.42	64979.43	9751.48	1290.6	False	d5-EtFOSAA	158501.62	1250.00	NEtFOSAA	0.058	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	7082196.43	9466.51	11011.5	False	13C3-HFPO-DA	736400.95	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	159187.97	10105.84	3184.2	False	13C3-HFPO-DA	736400.95	1250.00	HFPO-DA	0.022	0.020	✓
ADONA_1	377.0 / 251.0	2.02	19419973.49	10250.84	30158.6	False	13C3-HFPO-DA	736400.95	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	231241.73	10106.13	544026.2	False	13C3-HFPO-DA	736400.95	1250.00	ADONA	0.012	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.96	11871083.85	10056.97	3219.1	False	13C3-HFPO-DA	736400.95	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	96841.71	9829.85	18360.0	False	13C3-HFPO-DA	736400.95	1250.00	9Cl-PF3ONS	0.008	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	8921499.64	9358.00	5128.8	False	13C3-HFPO-DA	736400.95	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.59	38888.00	10126.79	23056.6	False	13C3-HFPO-DA	736400.95	1250.00	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	KY89	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:32:03 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	10833212.30	24927.98	128091.8	False	13C3-PFBS	225790.64	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	3766437.92	24858.03	12184.6	False	13C3-PFBS	225790.64	1161.25	PFBS	0.348	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	19028569.10	25230.53	8154.9	False	13C5-PFHxA	908869.00	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	1210780.48	25685.56	5186.7	False	13C5-PFHxA	908869.00	1250.00	PFHxA	0.064	0.061	✓
PFHpA_1	363.0 / 319.0	1.97	15364664.05	25081.37	2884.3	False	13C4-PFHpA	984185.43	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.97	415031.66	24937.53	1113484.0	False	13C4-PFHpA	984185.43	1250.00	PFHpA	0.027	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	12328002.46	25873.48	22075.8	False	13C3-PFHxS	176466.84	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	4305836.27	25655.46	4572.4	False	13C3-PFHxS	176466.84	1182.50	PFHxS	0.349	0.353	✓
PFOA_1	413.0 / 369.0	2.36	20803852.35	25293.42	2324.5	False	13C8-PFOA	1167486.33	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	1709646.88	24692.42	1875.1	False	13C8-PFOA	1167486.33	1250.00	PFOA	0.082	0.084	✓
PFNA_1	463.0 / 419.0	2.75	20027729.34	24939.20	2955.7	False	13C9-PFNA	1138670.71	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	6279021.43	24593.52	7845.8	False	13C9-PFNA	1138670.71	1250.00	PFNA	0.314	0.321	✓
PFOS_1	499.0 / 80.0	2.74	14291360.34	25571.67	4584.7	False	13C8-PFOS	177455.76	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.74	2922202.28	25596.45	8131.0	False	13C8-PFOS	177455.76	1196.25	PFOS	0.204	0.209	✓
PFDA_1	513.0 / 469.0	3.11	19690409.95	25355.04	3171.2	False	13C6-PFDA	1041475.38	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	904061.05	24671.02	4790.0	False	13C6-PFDA	1041475.38	1250.00	PFDA	0.046	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	21309780.52	24976.81	2888.5	False	13C7-PFUnA	1001671.34	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	1066349.41	24831.25	3895.9	False	13C7-PFUnA	1001671.34	1250.00	PFUnA	0.050	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	22707652.54	24609.64	2098.2	False	13C2-PFDoA	1202212.87	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	2575567.96	24752.14	2327.7	False	13C2-PFDoA	1202212.87	1250.00	PFDoA	0.113	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	19161650.48	24723.29	2169.7	False	13C2-PFTeDA	954014.17	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	1231920.48	24477.04	2135.9	False	13C2-PFTeDA	954014.17	1250.00	PFTrDA	0.064	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	19790945.21	24590.99	3360.9	False	13C2-PFTeDA	954014.17	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	990643.44	24831.17	3955.5	False	13C2-PFTeDA	954014.17	1250.00	PFTeDA	0.050	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	2425402.64	24986.28	5053.3	False	d3-MeFOSAA	170737.43	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	2378096.67	24519.40	3313.8	False	d3-MeFOSAA	170737.43	1250.00	NMeFOSAA	0.980	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	2693697.23	25193.52	1894.1	False	d5-EtFOSAA	149418.72	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.42	157086.82	25090.04	2364.1	False	d5-EtFOSAA	149418.72	1250.00	NEtFOSAA	0.058	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	19639669.81	25206.18	26606.2	False	13C3-HFPO-DA	805317.61	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	374406.69	24943.40	4868.2	False	13C3-HFPO-DA	805317.61	1250.00	HFPO-DA	0.019	0.020	✓
ADONA_1	377.0 / 251.0	2.01	43805787.98	24873.54	34735.3	False	13C3-HFPO-DA	805317.61	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	541463.66	24939.10	779.2	False	13C3-HFPO-DA	805317.61	1250.00	ADONA	0.012	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.95	31247339.02	24982.24	5588.2	False	13C3-HFPO-DA	805317.61	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	263690.09	25054.36	1495.7	False	13C3-HFPO-DA	805317.61	1250.00	9Cl-PF3ONS	0.008	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	21027522.68	19968.13	7444.7	False	13C3-HFPO-DA	805317.61	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.58	98912.52	24951.51	1945.4	False	13C3-HFPO-DA	805317.61	1250.00	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Calibration Quant Report

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Sample Name	KY83	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.73	1268135.48	1215.98	6437.6	False	13C2-PFDA	1096523.57	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.26	156607.84	1211.78	997.2	False	13C4-PFOS	203423.96	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.43	159943.35	1213.29	1272.5	False	13C4-PFOS	203423.96	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.62	1083909.93	1337.88	118493.7	False	13C2-PFOA	783088.85	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.97	1036933.34	1259.23	9977.9	True	13C2-PFOA	783088.85	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.36	1281001.64	1269.95	1801089.5	False	13C2-PFOA	783088.85	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.75	1283883.48	1303.12	9736.8	False	13C2-PFOA	783088.85	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.11	1287022.63	1291.29	10588.3	False	13C2-PFDA	1096523.57	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.44	1121994.86	1226.38	4858.3	False	13C2-PFDA	1096523.57	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.22	1010468.96	1234.82	3134.9	False	13C2-PFDA	1096523.57	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.35	238635.91	1157.76	11718.2	False	13C4-PFOS	203423.96	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	206798.51	1206.37	2876.1	False	13C4-PFOS	203423.96	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.75	197606.15	1232.63	1231.8	False	13C4-PFOS	203423.96	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	761767.94	1276.98	5053.8	False	13C2-PFOA	783088.85	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY84	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:39:19 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1261427.70	1249.46	7314.0	False	13C2-PFDA	1061499.82	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	156254.76	1216.09	1203.2	False	13C4-PFOS	202245.76	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	164508.39	1255.19	975.1	False	13C4-PFOS	202245.76	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	1030931.25	1317.83	123550.4	False	13C2-PFOA	756146.23	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	1034918.28	1301.56	8459.5	True	13C2-PFOA	756146.23	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	1278992.77	1313.14	115201.3	False	13C2-PFOA	756146.23	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1232457.07	1295.50	455761.5	False	13C2-PFOA	756146.23	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1175943.41	1218.77	10296.3	False	13C2-PFDA	1061499.82	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1108467.08	1251.56	5149.5	False	13C2-PFDA	1061499.82	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	976813.65	1233.08	3385.9	False	13C2-PFDA	1061499.82	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	233652.38	1140.19	43665.1	False	13C4-PFOS	202245.76	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	198194.79	1162.92	5050.9	False	13C4-PFOS	202245.76	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	178876.84	1122.30	1081.6	False	13C4-PFOS	202245.76	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	705375.81	1224.58	7870.3	False	13C2-PFOA	756146.23	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Printed: 06/05/2020 9:35:30 AM

Sample Name	KY85	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:49:51 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1328033.13	1237.50	7807.6	False	13C2-PFDA	1128342.79	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	155423.99	1140.70	979.0	False	13C4-PFOS	214465.99	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	176792.41	1272.05	973.6	False	13C4-PFOS	214465.99	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	1039959.06	1316.58	15220.2	False	13C2-PFOA	763492.41	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.97	1041138.21	1296.79	18025.2	True	13C2-PFOA	763492.41	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.36	1355758.67	1378.56	659.9	False	13C2-PFOA	763492.41	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1345490.76	1400.70	5197.0	False	13C2-PFOA	763492.41	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1266468.55	1234.83	562.9	False	13C2-PFDA	1128342.79	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1208068.99	1283.22	3349.3	False	13C2-PFDA	1128342.79	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	1028506.53	1221.42	3396.3	False	13C2-PFDA	1128342.79	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	256007.95	1178.10	40838.3	False	13C4-PFOS	214465.99	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	211794.30	1171.90	34759.9	False	13C4-PFOS	214465.99	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	202087.10	1195.68	1609.6	False	13C4-PFOS	214465.99	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	781826.07	1344.25	7846.2	False	13C2-PFOA	763492.41	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY86	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:00:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1288775.18	1270.19	8247.1	False	13C2-PFDA	1066813.49	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	156015.31	1145.17	1140.2	False	13C4-PFOS	214442.14	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	169656.92	1220.85	1016.3	False	13C4-PFOS	214442.14	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	1058410.12	1241.30	99320.2	False	13C2-PFOA	824160.05	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	1127514.09	1301.00	26831.7	True	13C2-PFOA	824160.05	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	1291224.04	1216.29	78152.0	False	13C2-PFOA	824160.05	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1227548.50	1183.85	156257.7	False	13C2-PFOA	824160.05	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1308968.98	1349.88	9521.2	False	13C2-PFDA	1066813.49	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1112477.93	1249.84	7395.5	False	13C2-PFDA	1066813.49	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	1006296.32	1263.97	3812.2	False	13C2-PFDA	1066813.49	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	242396.78	1115.59	40781.9	False	13C4-PFOS	214442.14	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	210020.01	1162.21	3449.1	False	13C4-PFOS	214442.14	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	189163.14	1119.33	1190.1	False	13C4-PFOS	214442.14	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	742303.18	1182.34	4395.1	False	13C2-PFOA	824160.05	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY87	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:10:57 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1249967.56	1257.61	5450.2	False	13C2-PFDA	1045038.73	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	162288.80	1225.24	1000.8	False	13C4-PFOS	208488.10	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	171355.32	1268.28	1041.8	False	13C4-PFOS	208488.10	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	1080615.37	1264.66	13739.8	False	13C2-PFOA	825910.93	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	1082931.71	1246.90	209816.6	True	13C2-PFOA	825910.93	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	1282568.28	1205.58	10042.7	False	13C2-PFOA	825910.93	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1281447.40	1233.21	3725.2	False	13C2-PFOA	825910.93	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1227890.95	1292.65	7093.9	False	13C2-PFDA	1045038.73	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1153928.74	1323.42	5473.8	False	13C2-PFDA	1045038.73	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	996991.40	1278.38	4039.8	False	13C2-PFDA	1045038.73	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	229775.07	1087.70	44615.8	False	13C4-PFOS	208488.10	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	207803.42	1182.79	5044.4	False	13C4-PFOS	208488.10	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	195663.69	1190.86	1199.2	False	13C4-PFOS	208488.10	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	772604.13	1228.00	6857.7	False	13C2-PFOA	825910.93	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	KY88	Injection Vial	7
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:21:30 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1259272.83	1274.03	10627.9	False	13C2-PFDA	1039249.46	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	162228.92	1317.72	1024.3	False	13C4-PFOS	193784.27	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	156198.20	1243.82	839.3	False	13C4-PFOS	193784.27	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	972709.08	1215.41	50503.6	False	13C2-PFOA	773565.96	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.97	1014149.80	1246.72	20269595.0	True	13C2-PFOA	773565.96	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.36	1272096.15	1276.64	11672316.0	False	13C2-PFOA	773565.96	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1212039.54	1245.35	3492.0	False	13C2-PFOA	773565.96	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.11	1165530.86	1233.84	8961.3	False	13C2-PFDA	1039249.46	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1069048.23	1232.90	4284.6	False	13C2-PFDA	1039249.46	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	976415.74	1258.97	3488.6	False	13C2-PFDA	1039249.46	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.35	238757.51	1215.97	11538.1	False	13C4-PFOS	193784.27	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	201216.11	1232.20	35545.6	False	13C4-PFOS	193784.27	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	193426.27	1266.57	1190.9	False	13C4-PFOS	193784.27	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	736400.95	1249.66	6158.9	False	13C2-PFOA	773565.96	1250.00		N/A	N/A	✓

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PFAS Calibration Quant Report

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Printed: 06/05/2020 9:35:30 AM

Sample Name	KY89	Injection Vial	8
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:32:03 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1202212.87	1245.24	5861.7	False	13C2-PFDA	1015095.77	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	171399.52	1493.31	982.6	False	13C4-PFOS	180664.53	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	149450.37	1276.51	981.3	False	13C4-PFOS	180664.53	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	908869.00	1056.34	235002.1	False	13C2-PFOA	831636.74	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	960038.93	1097.79	63052.8	True	13C2-PFOA	831636.74	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	1167486.33	1089.85	69840.8	False	13C2-PFOA	831636.74	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1138670.71	1088.27	2962.7	False	13C2-PFOA	831636.74	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1041475.38	1128.75	10176.5	False	13C2-PFDA	1015095.77	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1001671.34	1182.68	4738.9	False	13C2-PFDA	1015095.77	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	954014.17	1259.35	3847.8	False	13C2-PFDA	1015095.77	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	225790.64	1233.44	202114.6	False	13C4-PFOS	180664.53	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	176466.84	1159.11	16603.5	False	13C4-PFOS	180664.53	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	177455.76	1246.38	1034.9	False	13C4-PFOS	180664.53	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	805317.61	1271.18	6979.1	False	13C2-PFOA	831636.74	1250.00		N/A	N/A	✓

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QC Summary Report

Created with Analyst Reporter
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Sample Name	KY91 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:53:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.36	2502.19	2500.00	100.09
PFBS_2	298.9 / 99.0	1.36	2387.96	2500.00	95.52
PFHxA_1	313.0 / 269.0	1.62	2416.10	2525.00	95.69
PFHxA_2	313.0 / 119.0	1.62	2304.55	2525.00	91.27
PFHpA_1	363.0 / 319.0	1.98	2510.86	2500.00	100.43
PFHpA_2	363.0 / 169.0	1.98	2429.68	2500.00	97.19
PFHxS_1	399.0 / 80.0	1.99	2401.22	2525.00	95.10
PFHxS_2	399.0 / 99.0	1.99	2411.97	2525.00	95.52
PFOA_1	413.0 / 369.0	2.36	2337.14	2500.00	93.49
PFOA_2	413.0 / 169.0	2.36	2429.65	2500.00	97.19
PFNA_1	463.0 / 419.0	2.75	2620.39	2500.00	104.82
PFNA_2	463.0 / 219.0	2.75	2644.79	2500.00	105.79
PFOS_1	499.0 / 80.0	2.74	2413.71	2525.00	95.59
PFOS_2	499.0 / 99.0	2.74	2416.43	2525.00	95.70
PFDA_1	513.0 / 469.0	3.11	2376.49	2500.00	95.06
PFDA_2	513.0 / 219.0	3.11	2316.53	2500.00	92.66
PFUnA_1	563.0 / 519.0	3.43	2541.73	2500.00	101.67
PFUnA_2	563.0 / 269.0	3.43	2452.89	2500.00	98.12
PFDoA_1	613.0 / 569.0	3.72	2374.77	2500.00	94.99
PFDoA_2	613.0 / 319.0	3.72	2407.63	2500.00	96.31
PFTrDA_1	663.0 / 619.0	3.98	2462.18	2500.00	98.49
PFTrDA_2	663.0 / 169.0	3.98	2477.45	2500.00	99.10
PFTeDA_1	713.0 / 669.0	4.21	2477.50	2500.00	99.10
PFTeDA_2	713.0 / 169.0	4.21	2455.01	2500.00	98.20
NMeFOSAA_1	570.0 / 419.0	3.25	2262.16	2500.00	90.49
NMeFOSAA_2	570.0 / 512.0	3.25	2441.89	2500.00	97.68
NEtFOSAA_1	584.0 / 419.0	3.42	2468.56	2500.00	98.74
NEtFOSAA_2	584.0 / 483.0	3.42	2198.59	2500.00	87.94
HFPO-DA_1	285.0 / 169.0	1.72	2583.82	2500.00	103.35
HFPO-DA_2	285.0 / 118.8	1.72	2186.83	2500.00	87.47
ADONA_1	377.0 / 251.0	2.02	2120.84	2500.00	84.83
ADONA_2	377.0 / 85.0	2.01	2249.63	2500.00	89.99
9Cl-PF3ONS_1	531.0 / 351.0	2.96	2366.99	2500.00	94.68
9Cl-PF3ONS_2	531.0 / 83.0	2.95	2625.20	2500.00	105.01
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	2284.99	2500.00	91.40
11Cl-pf3OUdS_2	631.0 / 83.0	3.59	2177.87	2500.00	87.11

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QC Summary Report

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Printed: 06/05/2020 9:47:24 AM

Sample Name	KY86 CCV	Injection Vial	16
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:35:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.35	1089.65	1000.00	108.96
PFBS_2	298.9 / 99.0	1.35	1058.44	1000.00	105.84
PFHxA_1	313.0 / 269.0	1.61	915.75	1010.00	90.67
PFHxA_2	313.0 / 119.0	1.61	848.72	1010.00	84.03
PFHpA_1	363.0 / 319.0	1.96	1038.14	1000.00	103.81
PFHpA_2	363.0 / 169.0	1.96	972.70	1000.00	97.27
PFHxS_1	399.0 / 80.0	1.97	1049.76	1010.00	103.94
PFHxS_2	399.0 / 99.0	1.97	1031.03	1010.00	102.08
PFOA_1	413.0 / 369.0	2.35	1136.05	1000.00	113.61
PFOA_2	413.0 / 169.0	2.34	1148.44	1000.00	114.84
PFNA_1	463.0 / 419.0	2.74	1052.43	1000.00	105.24
PFNA_2	463.0 / 219.0	2.74	1019.08	1000.00	101.91
PFOS_1	499.0 / 80.0	2.73	1083.64	1010.00	107.29
PFOS_2	499.0 / 99.0	2.73	1075.56	1010.00	106.49
PFDA_1	513.0 / 469.0	3.09	992.48	1000.00	99.25
PFDA_2	513.0 / 219.0	3.09	941.73	1000.00	94.17
PFUnA_1	563.0 / 519.0	3.41	996.59	1000.00	99.66
PFUnA_2	563.0 / 269.0	3.42	1101.95	1000.00	110.20
PFDoA_1	613.0 / 569.0	3.70	1094.95	1000.00	109.49
PFDoA_2	613.0 / 319.0	3.70	1069.89	1000.00	106.99
PFTrDA_1	663.0 / 619.0	3.96	1051.35	1000.00	105.14
PFTrDA_2	663.0 / 169.0	3.96	1032.58	1000.00	103.26
PFTeDA_1	713.0 / 669.0	4.19	1065.53	1000.00	106.55
PFTeDA_2	713.0 / 169.0	4.19	1014.07	1000.00	101.41
NMeFOSAA_1	570.0 / 419.0	3.23	1025.15	1000.00	102.52
NMeFOSAA_2	570.0 / 512.0	3.23	1009.17	1000.00	100.92
NEtFOSAA_1	584.0 / 419.0	3.40	1024.59	1000.00	102.46
NEtFOSAA_2	584.0 / 483.0	3.40	958.08	1000.00	95.81
HFPO-DA_1	285.0 / 169.0	1.71	1166.90	1000.00	116.69
HFPO-DA_2	285.0 / 118.8	1.71	1101.57	1000.00	110.16
ADONA_1	377.0 / 251.0	2.00	1023.73	1000.00	102.37
ADONA_2	377.0 / 85.0	2.00	940.92	1000.00	94.09
9Cl-PF3ONS_1	531.0 / 351.0	2.94	1093.04	1000.00	109.30
9Cl-PF3ONS_2	531.0 / 83.0	2.94	1262.70	1000.00	126.27
11Cl-pf3OUdS_1	631.0 / 451.0	3.57	1058.28	1000.00	105.83
11Cl-pf3OUdS_2	631.0 / 83.0	3.57	999.85	1000.00	99.99

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QC Summary Report

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Printed: 06/05/2020 9:47:24 AM

Sample Name	KY87 CCV	Injection Vial	28
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:42:01 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.35	2654.44	2500.00	106.18
PFBS_2	298.9 / 99.0	1.35	2648.84	2500.00	105.95
PFHxA_1	313.0 / 269.0	1.61	2419.30	2525.00	95.81
PFHxA_2	313.0 / 119.0	1.61	2383.34	2525.00	94.39
PFHpA_1	363.0 / 319.0	1.96	2619.48	2500.00	104.78
PFHpA_2	363.0 / 169.0	1.96	2532.80	2500.00	101.31
PFHxS_1	399.0 / 80.0	1.97	2636.96	2525.00	104.43
PFHxS_2	399.0 / 99.0	1.97	2421.05	2525.00	95.88
PFOA_1	413.0 / 369.0	2.35	2613.94	2500.00	104.56
PFOA_2	413.0 / 169.0	2.35	2454.18	2500.00	98.17
PFNA_1	463.0 / 419.0	2.74	2357.09	2500.00	94.28
PFNA_2	463.0 / 219.0	2.74	2674.34	2500.00	106.97
PFOS_1	499.0 / 80.0	2.73	2396.19	2525.00	94.90
PFOS_2	499.0 / 99.0	2.73	2481.23	2525.00	98.27
PFDA_1	513.0 / 469.0	3.09	2502.88	2500.00	100.12
PFDA_2	513.0 / 219.0	3.09	2666.99	2500.00	106.68
PFUnA_1	563.0 / 519.0	3.41	2541.76	2500.00	101.67
PFUnA_2	563.0 / 269.0	3.41	2622.69	2500.00	104.91
PFDoA_1	613.0 / 569.0	3.70	2656.13	2500.00	106.25
PFDoA_2	613.0 / 319.0	3.70	2579.28	2500.00	103.17
PFTrDA_1	663.0 / 619.0	3.96	2579.69	2500.00	103.19
PFTrDA_2	663.0 / 169.0	3.95	2554.60	2500.00	102.18
PFTeDA_1	713.0 / 669.0	4.19	2608.86	2500.00	104.35
PFTeDA_2	713.0 / 169.0	4.19	2593.65	2500.00	103.75
NMeFOSAA_1	570.0 / 419.0	3.23	2354.84	2500.00	94.19
NMeFOSAA_2	570.0 / 512.0	3.23	2636.67	2500.00	105.47
NEtFOSAA_1	584.0 / 419.0	3.40	2649.86	2500.00	105.99
NEtFOSAA_2	584.0 / 483.0	3.40	2492.13	2500.00	99.69
HFPO-DA_1	285.0 / 169.0	1.71	2673.16	2500.00	106.93
HFPO-DA_2	285.0 / 118.8	1.71	2622.64	2500.00	104.91
ADONA_1	377.0 / 251.0	2.00	2631.35	2500.00	105.25
ADONA_2	377.0 / 85.0	2.00	2566.19	2500.00	102.65
9Cl-PF3ONS_1	531.0 / 351.0	2.94	2879.75	2500.00	115.19
9Cl-PF3ONS_2	531.0 / 83.0	2.94	2689.72	2500.00	107.59
11Cl-pf3OUdS_1	631.0 / 451.0	3.57	2678.46	2500.00	107.14
11Cl-pf3OUdS_2	631.0 / 83.0	3.56	2898.20	2500.00	115.93

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QC Summary Report

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Sample Name	KY86 CCV	Injection Vial	39
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:37:49 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.34	1139.26	1000.00	113.93
PFBS_2	298.9 / 99.0	1.34	1048.63	1000.00	104.86
PFHxA_1	313.0 / 269.0	1.60	956.56	1010.00	94.71
PFHxA_2	313.0 / 119.0	1.60	1040.90	1010.00	103.06
PFHpA_1	363.0 / 319.0	1.96	1069.90	1000.00	106.99
PFHpA_2	363.0 / 169.0	1.96	1063.63	1000.00	106.36
PFHxS_1	399.0 / 80.0	1.97	1016.69	1010.00	100.66
PFHxS_2	399.0 / 99.0	1.96	980.85	1010.00	97.11
PFOA_1	413.0 / 369.0	2.34	978.80	1000.00	97.88
PFOA_2	413.0 / 169.0	2.34	1025.27	1000.00	102.53
PFNA_1	463.0 / 419.0	2.73	1014.48	1000.00	101.45
PFNA_2	463.0 / 219.0	2.73	976.87	1000.00	97.69
PFOS_1	499.0 / 80.0	2.72	1020.73	1010.00	101.06
PFOS_2	499.0 / 99.0	2.72	1038.11	1010.00	102.78
PFDA_1	513.0 / 469.0	3.08	971.60	1000.00	97.16
PFDA_2	513.0 / 219.0	3.08	1029.82	1000.00	102.98
PFUnA_1	563.0 / 519.0	3.41	997.20	1000.00	99.72
PFUnA_2	563.0 / 269.0	3.40	1006.29	1000.00	100.63
PFDoA_1	613.0 / 569.0	3.69	1014.02	1000.00	101.40
PFDoA_2	613.0 / 319.0	3.69	1022.83	1000.00	102.28
PFTrDA_1	663.0 / 619.0	3.95	997.78	1000.00	99.78
PFTrDA_2	663.0 / 169.0	3.95	950.89	1000.00	95.09
PFTeDA_1	713.0 / 669.0	4.18	1025.26	1000.00	102.53
PFTeDA_2	713.0 / 169.0	4.18	996.30	1000.00	99.63
NMeFOSAA_1	570.0 / 419.0	3.22	1022.43	1000.00	102.24
NMeFOSAA_2	570.0 / 512.0	3.23	1007.68	1000.00	100.77
NEtFOSAA_1	584.0 / 419.0	3.39	977.23	1000.00	97.72
NEtFOSAA_2	584.0 / 483.0	3.39	762.52	1000.00	76.25
HFPO-DA_1	285.0 / 169.0	1.70	1197.65	1000.00	119.76
HFPO-DA_2	285.0 / 118.8	1.70	1001.98	1000.00	100.20
ADONA_1	377.0 / 251.0	1.99	1032.11	1000.00	103.21
ADONA_2	377.0 / 85.0	2.00	1204.31	1000.00	120.43
9Cl-PF3ONS_1	531.0 / 351.0	2.93	1118.34	1000.00	111.83
9Cl-PF3ONS_2	531.0 / 83.0	2.93	1238.65	1000.00	123.86
11Cl-pf3OUdS_1	631.0 / 451.0	3.56	1058.04	1000.00	105.80
11Cl-pf3OUdS_2	631.0 / 83.0	3.56	1245.76	1000.00	124.58

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QC Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:47:24 AM

Sample Name	KY87 CCV	Injection Vial	43
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 1:20:01 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
PFBS_1	298.9 / 80.0	1.35	2598.80	2500.00	103.95
PFBS_2	298.9 / 99.0	1.35	2510.71	2500.00	100.43
PFHxA_1	313.0 / 269.0	1.61	2535.48	2525.00	100.42
PFHxA_2	313.0 / 119.0	1.61	2374.98	2525.00	94.06
PFHpA_1	363.0 / 319.0	1.96	2407.12	2500.00	96.28
PFHpA_2	363.0 / 169.0	1.96	2673.33	2500.00	106.93
PFHxS_1	399.0 / 80.0	1.97	2387.60	2525.00	94.56
PFHxS_2	399.0 / 99.0	1.97	2437.28	2525.00	96.53
PFOA_1	413.0 / 369.0	2.34	2760.58	2500.00	110.42
PFOA_2	413.0 / 169.0	2.34	2743.32	2500.00	109.73
PFNA_1	463.0 / 419.0	2.73	2399.97	2500.00	96.00
PFNA_2	463.0 / 219.0	2.73	2442.14	2500.00	97.69
PFOS_1	499.0 / 80.0	2.72	2444.97	2525.00	96.83
PFOS_2	499.0 / 99.0	2.72	2462.45	2525.00	97.52
PFDA_1	513.0 / 469.0	3.08	2410.43	2500.00	96.42
PFDA_2	513.0 / 219.0	3.08	2622.22	2500.00	104.89
PFUnA_1	563.0 / 519.0	3.40	2668.56	2500.00	106.74
PFUnA_2	563.0 / 269.0	3.40	2667.34	2500.00	106.69
PFDoA_1	613.0 / 569.0	3.69	2577.24	2500.00	103.09
PFDoA_2	613.0 / 319.0	3.69	2487.33	2500.00	99.49
PFTrDA_1	663.0 / 619.0	3.95	2456.46	2500.00	98.26
PFTrDA_2	663.0 / 169.0	3.95	2463.37	2500.00	98.53
PFTeDA_1	713.0 / 669.0	4.18	2614.10	2500.00	104.56
PFTeDA_2	713.0 / 169.0	4.18	2542.19	2500.00	101.69
NMeFOSAA_1	570.0 / 419.0	3.22	2653.05	2500.00	106.12
NMeFOSAA_2	570.0 / 512.0	3.22	2783.58	2500.00	111.34
NEtFOSAA_1	584.0 / 419.0	3.39	2450.17	2500.00	98.01
NEtFOSAA_2	584.0 / 483.0	3.39	2274.03	2500.00	90.96
HFPO-DA_1	285.0 / 169.0	1.70	3199.04	2500.00	127.96
HFPO-DA_2	285.0 / 118.8	1.70	2856.26	2500.00	114.25
ADONA_1	377.0 / 251.0	2.00	2798.73	2500.00	111.95
ADONA_2	377.0 / 85.0	2.00	2797.20	2500.00	111.89
9Cl-PF3ONS_1	531.0 / 351.0	2.93	2688.42	2500.00	107.54
9Cl-PF3ONS_2	531.0 / 83.0	2.93	2697.04	2500.00	107.88
11Cl-pf3OUdS_1	631.0 / 451.0	3.56	2804.57	2500.00	112.18
11Cl-pf3OUdS_2	631.0 / 83.0	3.56	3148.70	2500.00	125.95

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QC Summary Report

Sample Name	KY91 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:53:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.72	1304.68	1250.00	104.37
d3-MeFOSAA	573.0 / 419.0	3.25	1288.72	1250.00	103.10
d5-EtFOSAA	589.0 / 419.0	3.42	1241.81	1250.00	99.34
13C5-PFHxA	318.0 / 273.0	1.61	1240.17	1250.00	99.21
13C4-PFHpA	367.0 / 322.0	1.97	1292.49	1250.00	103.40
13C8-PFOA	421.0 / 376.0	2.36	1170.10	1250.00	93.61
13C9-PFNA	472.0 / 427.0	2.74	1250.11	1250.00	100.01
13C6-PFDA	519.0 / 474.0	3.10	1261.92	1250.00	100.95
13C7-PFUnA	570.0 / 525.0	3.43	1242.30	1250.00	99.38
13C2-PFTeDA	715.0 / 670.0	4.21	1227.21	1250.00	98.18
13C3-PFBS	302.0 / 99.0	1.35	1178.79	1161.25	101.51
13C3-PFHxS	402.0 / 99.0	1.98	1265.07	1182.50	106.98
13C8-PFOS	507.0 / 99.0	2.74	1210.48	1196.25	101.19
13C3-HFPO-DA	287.0 / 169.0	1.72	1214.29	1250.00	97.14

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QC Summary Report

Sample Name	KY86 CCV	Injection Vial	16
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:35:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.70	1210.28	1250.00	96.82
d3-MeFOSAA	573.0 / 419.0	3.23	1263.39	1250.00	101.07
d5-EtFOSAA	589.0 / 419.0	3.40	1253.58	1250.00	100.29
13C5-PFHxA	318.0 / 273.0	1.60	1344.21	1250.00	107.54
13C4-PFHpA	367.0 / 322.0	1.95	1291.16	1250.00	103.29
13C8-PFOA	421.0 / 376.0	2.34	1208.59	1250.00	96.69
13C9-PFNA	472.0 / 427.0	2.73	1266.11	1250.00	101.29
13C6-PFDA	519.0 / 474.0	3.09	1220.49	1250.00	97.64
13C7-PFUnA	570.0 / 525.0	3.41	1257.04	1250.00	100.56
13C2-PFTeDA	715.0 / 670.0	4.19	1215.18	1250.00	97.21
13C3-PFBS	302.0 / 99.0	1.34	1119.65	1161.25	96.42
13C3-PFHxS	402.0 / 99.0	1.96	1187.91	1182.50	100.46
13C8-PFOS	507.0 / 99.0	2.72	1147.30	1196.25	95.91
13C3-HFPO-DA	287.0 / 169.0	1.71	1190.96	1250.00	95.28

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QC Summary Report

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Sample Name	KY87 CCV	Injection Vial	28
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:42:01 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.70	1282.26	1250.00	102.58
d3-MeFOSAA	573.0 / 419.0	3.23	1319.38	1250.00	105.55
d5-EtFOSAA	589.0 / 419.0	3.40	1282.00	1250.00	102.56
13C5-PFHxA	318.0 / 273.0	1.60	1368.07	1250.00	109.45
13C4-PFHpA	367.0 / 322.0	1.95	1357.96	1250.00	108.64
13C8-PFOA	421.0 / 376.0	2.34	1267.74	1250.00	101.42
13C9-PFNA	472.0 / 427.0	2.73	1302.44	1250.00	104.19
13C6-PFDA	519.0 / 474.0	3.08	1253.30	1250.00	100.26
13C7-PFUnA	570.0 / 525.0	3.41	1324.11	1250.00	105.93
13C2-PFTeDA	715.0 / 670.0	4.18	1269.35	1250.00	101.55
13C3-PFBS	302.0 / 99.0	1.34	1253.63	1161.25	107.96
13C3-PFHxS	402.0 / 99.0	1.96	1237.99	1182.50	104.69
13C8-PFOS	507.0 / 99.0	2.72	1290.77	1196.25	107.90
13C3-HFPO-DA	287.0 / 169.0	1.71	1210.42	1250.00	96.83

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QC Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:35:57 AM

Sample Name	KY86 CCV	Injection Vial	39
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:37:49 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.69	1271.91	1250.00	101.75
d3-MeFOSAA	573.0 / 419.0	3.22	1209.01	1250.00	96.72
d5-EtFOSAA	589.0 / 419.0	3.39	1296.96	1250.00	103.76
13C5-PFHxA	318.0 / 273.0	1.60	1302.64	1250.00	104.21
13C4-PFHpA	367.0 / 322.0	1.95	1257.16	1250.00	100.57
13C8-PFOA	421.0 / 376.0	2.33	1248.23	1250.00	99.86
13C9-PFNA	472.0 / 427.0	2.72	1262.92	1250.00	101.03
13C6-PFDA	519.0 / 474.0	3.08	1240.79	1250.00	99.26
13C7-PFUnA	570.0 / 525.0	3.40	1292.17	1250.00	103.37
13C2-PFTeDA	715.0 / 670.0	4.18	1301.09	1250.00	104.09
13C3-PFBS	302.0 / 99.0	1.33	1132.82	1161.25	97.55
13C3-PFHxS	402.0 / 99.0	1.96	1236.19	1182.50	104.54
13C8-PFOS	507.0 / 99.0	2.72	1184.30	1196.25	99.00
13C3-HFPO-DA	287.0 / 169.0	1.70	1158.51	1250.00	92.68

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QC Summary Report

Created with Analyst Reporter
Printed: 06/05/2020 9:35:57 AM

Sample Name	KY87 CCV	Injection Vial	43
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 1:20:01 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/L)	Target Conc. (ng/L)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	3.69	1233.33	1250.00	98.67
d3-MeFOSAA	573.0 / 419.0	3.22	1341.18	1250.00	107.29
d5-EtFOSAA	589.0 / 419.0	3.39	1451.46	1250.00	116.12
13C5-PFHxA	318.0 / 273.0	1.60	1413.18	1250.00	113.05
13C4-PFHpA	367.0 / 322.0	1.95	1474.20	1250.00	117.94
13C8-PFOA	421.0 / 376.0	2.33	1238.86	1250.00	99.11
13C9-PFNA	472.0 / 427.0	2.72	1323.40	1250.00	105.87
13C6-PFDA	519.0 / 474.0	3.08	1138.82	1250.00	91.11
13C7-PFUnA	570.0 / 525.0	3.40	1199.11	1250.00	95.93
13C2-PFTeDA	715.0 / 670.0	4.18	1249.54	1250.00	99.96
13C3-PFBS	302.0 / 99.0	1.34	1385.57	1161.25	119.32
13C3-PFHxS	402.0 / 99.0	1.96	1378.69	1182.50	116.59
13C8-PFOS	507.0 / 99.0	2.72	1349.34	1196.25	112.80
13C3-HFPO-DA	287.0 / 169.0	1.70	1221.73	1250.00	97.74

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:44:39 AM

Sample Name	KY91 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:53:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.36	1114495.02	2502.19	63373.7	False	13C3-PFBS	229506.50	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.36	370929.38	2387.96	3664.4	False	13C3-PFBS	229506.50	1161.25	PFBS	0.333	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	2080001.19	2416.10	2478.5	False	13C5-PFHxA	980689.45	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	123436.03	2304.55	1264.0	False	13C5-PFHxA	980689.45	1250.00	PFHxA	0.059	0.061	✓
PFHpA_1	363.0 / 319.0	1.98	1635223.89	2510.86	1153.4	False	13C4-PFHpA	1038836.14	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.98	42959.03	2429.68	269737.4	False	13C4-PFHpA	1038836.14	1250.00	PFHpA	0.026	0.027	✓
PFHxS_1	399.0 / 80.0	1.99	1327087.27	2401.22	29350.2	False	13C3-PFHxS	204844.27	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.99	469643.09	2411.97	2076.9	False	13C3-PFHxS	204844.27	1182.50	PFHxS	0.354	0.353	✓
PFOA_1	413.0 / 369.0	2.36	1910217.77	2337.14	673.6	False	13C8-PFOA	1152021.83	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.36	166817.16	2429.65	680.2	False	13C8-PFOA	1152021.83	1250.00	PFOA	0.087	0.084	✓
PFNA_1	463.0 / 419.0	2.75	2228016.43	2620.39	1175.8	False	13C9-PFNA	1202169.63	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.75	715734.49	2644.79	2785.2	False	13C9-PFNA	1202169.63	1250.00	PFNA	0.321	0.321	✓
PFOS_1	499.0 / 80.0	2.74	1396360.28	2413.71	4611.2	False	13C8-PFOS	183302.32	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.74	286697.23	2416.43	3201.4	False	13C8-PFOS	183302.32	1196.25	PFOS	0.205	0.209	✓
PFDA_1	513.0 / 469.0	3.11	2085966.65	2376.49	1274.1	False	13C6-PFDA	1178717.05	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.11	96351.12	2316.53	2692.0	False	13C6-PFDA	1178717.05	1250.00	PFDA	0.046	0.048	✓
PFUnA_1	563.0 / 519.0	3.43	2317731.72	2541.73	1195.0	False	13C7-PFUnA	1065143.64	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.43	112760.05	2452.89	1380.6	False	13C7-PFUnA	1065143.64	1250.00	PFUnA	0.049	0.051	✓
PFDoA_1	613.0 / 569.0	3.72	2332714.00	2374.77	1450.2	False	13C2-PFDoA	1275141.07	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.72	266378.27	2407.63	3016.8	False	13C2-PFDoA	1275141.07	1250.00	PFDoA	0.114	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	1893996.33	2462.18	2575.1	False	13C2-PFTeDA	941134.68	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	123655.71	2477.45	3172.1	False	13C2-PFTeDA	941134.68	1250.00	PFTrDA	0.065	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	1983449.95	2477.50	2461.1	False	13C2-PFTeDA	941134.68	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	97355.88	2455.01	3443.6	False	13C2-PFTeDA	941134.68	1250.00	PFTeDA	0.049	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	203634.84	2262.16	487.4	False	d3-MeFOSAA	157618.98	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.25	221180.54	2441.89	10466.9	False	d3-MeFOSAA	157618.98	1250.00	NMeFOSAA	1.086	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	275846.00	2468.56	1470.7	False	d5-EtFOSAA	155972.88	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.42	14684.50	2198.59	7307.3	False	d5-EtFOSAA	155972.88	1250.00	NEtFOSAA	0.053	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.72	1921207.90	2583.82	4285.1	False	13C3-HFPO-DA	707028.44	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.72	35424.96	2186.83	4071.4	False	13C3-HFPO-DA	707028.44	1250.00	HFPO-DA	0.018	0.020	✓
ADONA_1	377.0 / 251.0	2.02	4172588.39	2120.84	6563.9	False	13C3-HFPO-DA	707028.44	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	52510.24	2249.63	9424.2	False	13C3-HFPO-DA	707028.44	1250.00	ADONA	0.013	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.96	2731157.98	2366.99	2006.6	False	13C3-HFPO-DA	707028.44	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.95	25240.15	2625.20	2471.8	False	13C3-HFPO-DA	707028.44	1250.00	9Cl-PF3ONS	0.009	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.59	2052968.22	2284.99	2561.3	False	13C3-HFPO-DA	707028.44	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.59	8343.14	2177.87	1075.5	False	13C3-HFPO-DA	707028.44	1250.00	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS QC Sample Quant Report

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Sample Name	KY86 CCV	Injection Vial	16
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:35:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	470245.63	1089.65	3430739.9	False	13C3-PFBS	219756.32	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	159286.66	1058.44	2713.6	False	13C3-PFBS	219756.32	1161.25	PFBS	0.339	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	930914.05	915.75	1414.1	False	13C5-PFHxA	1053561.02	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	53472.68	848.72	1554.5	False	13C5-PFHxA	1053561.02	1250.00	PFHxA	0.057	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	676971.42	1038.14	684.1	False	13C4-PFHpA	1028593.64	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	17210.81	972.70	1904.6	False	13C4-PFHpA	1028593.64	1250.00	PFHpA	0.025	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	548602.75	1049.76	2139.5	False	13C3-PFHxS	193907.46	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	189880.96	1031.03	1062.0	False	13C3-PFHxS	193907.46	1182.50	PFHxS	0.346	0.353	✓
PFOA_1	413.0 / 369.0	2.35	958355.67	1136.05	471.5	False	13C8-PFOA	1179400.78	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	81217.14	1148.44	510.3	False	13C8-PFOA	1179400.78	1250.00	PFOA	0.085	0.084	✓
PFNA_1	463.0 / 419.0	2.74	902529.01	1052.43	776.7	False	13C9-PFNA	1206786.86	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.74	278799.71	1019.08	2990.1	False	13C9-PFNA	1206786.86	1250.00	PFNA	0.309	0.321	✓
PFOS_1	499.0 / 80.0	2.73	600706.28	1083.64	1115.3	False	13C8-PFOS	175141.78	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.73	122945.59	1075.56	1262.6	False	13C8-PFOS	175141.78	1196.25	PFOS	0.205	0.209	✓
PFDA_1	513.0 / 469.0	3.09	866641.29	992.48	673.5	False	13C6-PFDA	1175029.72	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.09	39226.85	941.73	93468.9	False	13C6-PFDA	1175029.72	1250.00	PFDA	0.045	0.048	✓
PFUnA_1	563.0 / 519.0	3.41	956083.52	996.59	794.2	False	13C7-PFUnA	1110881.52	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.42	53309.23	1101.95	2937.3	False	13C7-PFUnA	1110881.52	1250.00	PFUnA	0.056	0.051	✓
PFDoA_1	613.0 / 569.0	3.70	1033249.54	1094.95	946.0	False	13C2-PFDoA	1219202.36	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.70	113564.79	1069.89	1919.0	False	13C2-PFDoA	1219202.36	1250.00	PFDoA	0.110	0.112	✓
PFTrDA_1	663.0 / 619.0	3.96	832844.04	1051.35	1699.2	False	13C2-PFTeDA	960523.05	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.96	53030.83	1032.58	2767.7	False	13C2-PFTeDA	960523.05	1250.00	PFTrDA	0.064	0.065	✓
PFTeDA_1	713.0 / 669.0	4.19	881267.00	1065.53	2386.2	False	13C2-PFTeDA	960523.05	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.19	41531.35	1014.07	2951.2	False	13C2-PFTeDA	960523.05	1250.00	PFTeDA	0.047	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.23	91724.17	1025.15	459.8	False	d3-MeFOSAA	155732.29	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.23	91950.96	1009.17	382.2	False	d3-MeFOSAA	155732.29	1250.00	NMeFOSAA	1.002	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.40	116317.22	1024.59	2420.7	False	d5-EtFOSAA	158164.19	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.40	6686.83	958.08	1039.2	False	d5-EtFOSAA	158164.19	1250.00	NEtFOSAA	0.057	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.71	868411.14	1166.90	3757.0	False	13C3-HFPO-DA	687311.88	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.71	17553.49	1101.57	3645.0	False	13C3-HFPO-DA	687311.88	1250.00	HFPO-DA	0.020	0.020	✓
ADONA_1	377.0 / 251.0	2.00	1973755.03	1023.73	95746.6	False	13C3-HFPO-DA	687311.88	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.00	21287.54	940.92	545.4	False	13C3-HFPO-DA	687311.88	1250.00	ADONA	0.011	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.94	1233515.66	1093.04	1353.0	False	13C3-HFPO-DA	687311.88	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.94	11929.82	1262.70	1205.6	False	13C3-HFPO-DA	687311.88	1250.00	9Cl-PF3ONS	0.010	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.57	914969.12	1058.28	1655.0	False	13C3-HFPO-DA	687311.88	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.57	3792.02	999.85	1200.1	False	13C3-HFPO-DA	687311.88	1250.00	11Cl-PF3OUdS	0.004	0.005	✓

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:44:39 AM

Sample Name	KY87 CCV	Injection Vial	28
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:42:01 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	1275206.12	2654.44	84284.6	False	13C3-PFBS	247669.66	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	443602.24	2648.84	4479.3	False	13C3-PFBS	247669.66	1161.25	PFBS	0.348	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	2309319.33	2419.30	1594.7	False	13C5-PFHxA	1087454.04	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	141294.33	2383.34	1291.1	False	13C5-PFHxA	1087454.04	1250.00	PFHxA	0.061	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	1801117.12	2619.48	973.1	False	13C4-PFHpA	1097137.92	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	47281.88	2532.80	325416.5	False	13C4-PFHpA	1097137.92	1250.00	PFHpA	0.026	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	1447278.30	2636.96	7372.1	False	13C3-PFHxS	203409.75	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	468112.25	2421.05	1698.8	False	13C3-PFHxS	203409.75	1182.50	PFHxS	0.323	0.353	✓
PFOA_1	413.0 / 369.0	2.35	2324877.21	2613.94	612.5	False	13C8-PFOA	1254646.78	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.35	183502.29	2454.18	712.3	False	13C8-PFOA	1254646.78	1250.00	PFOA	0.079	0.084	✓
PFNA_1	463.0 / 419.0	2.74	2099630.17	2357.09	1073.6	False	13C9-PFNA	1258997.21	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.74	757903.94	2674.34	3193.2	False	13C9-PFNA	1258997.21	1250.00	PFNA	0.361	0.321	✓
PFOS_1	499.0 / 80.0	2.73	1499951.60	2396.19	1936.2	False	13C8-PFOS	198337.17	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.73	318474.95	2481.23	1287.9	False	13C8-PFOS	198337.17	1196.25	PFOS	0.212	0.209	✓
PFDA_1	513.0 / 469.0	3.09	2222827.55	2502.88	1195.8	False	13C6-PFDA	1192533.05	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.09	112181.03	2666.99	7989.9	False	13C6-PFDA	1192533.05	1250.00	PFDA	0.050	0.048	✓
PFUnA_1	563.0 / 519.0	3.41	2516544.39	2541.76	1235.8	False	13C7-PFUnA	1156498.24	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.41	130843.60	2622.69	339100.7	False	13C7-PFUnA	1156498.24	1250.00	PFUnA	0.052	0.051	✓
PFDoA_1	613.0 / 569.0	3.70	2611025.37	2656.13	1024.1	False	13C2-PFDoA	1276637.79	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.70	285652.11	2579.28	2012.5	False	13C2-PFDoA	1276637.79	1250.00	PFDoA	0.109	0.112	✓
PFTrDA_1	663.0 / 619.0	3.96	2090231.28	2579.69	1857.4	False	13C2-PFTeDA	991634.55	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.95	134324.72	2554.60	2539.5	False	13C2-PFTeDA	991634.55	1250.00	PFTrDA	0.064	0.065	✓
PFTeDA_1	713.0 / 669.0	4.19	2199663.26	2608.86	3302.1	False	13C2-PFTeDA	991634.55	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.19	108324.50	2593.65	3924.9	False	13C2-PFTeDA	991634.55	1250.00	PFTeDA	0.049	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.23	220135.19	2354.84	426210.3	False	d3-MeFOSAA	163716.75	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.23	247828.56	2636.67	2671.8	False	d3-MeFOSAA	163716.75	1250.00	NMeFOSAA	1.126	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.40	312241.56	2649.86	1749.6	False	d5-EtFOSAA	164487.25	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.40	17505.01	2492.13	2056.6	False	d5-EtFOSAA	164487.25	1250.00	NEtFOSAA	0.056	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.71	1989706.75	2673.16	3824.2	False	13C3-HFPO-DA	708436.69	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.71	42397.09	2622.64	4169.0	False	13C3-HFPO-DA	708436.69	1250.00	HFPO-DA	0.021	0.020	✓
ADONA_1	377.0 / 251.0	2.00	5164328.64	2631.35	9962.4	False	13C3-HFPO-DA	708436.69	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.00	59932.13	2566.19	20752128.0	False	13C3-HFPO-DA	708436.69	1250.00	ADONA	0.012	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.94	3324180.01	2879.75	1832.0	False	13C3-HFPO-DA	708436.69	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.94	25904.45	2689.72	528.3	False	13C3-HFPO-DA	708436.69	1250.00	9Cl-PF3ONS	0.008	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.57	2416342.68	2678.46	3031.1	False	13C3-HFPO-DA	708436.69	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.56	11063.03	2898.20	959.8	False	13C3-HFPO-DA	708436.69	1250.00	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:44:39 AM

Sample Name	KY86 CCV	**Injection Vial**	39
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:37:49 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	517301.00	1139.26	22469.5	False	13C3-PFBS	231429.36	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	166225.09	1048.63	2559.3	False	13C3-PFBS	231429.36	1161.25	PFBS	0.321	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	959125.64	956.56	1313.9	False	13C5-PFHxA	1045657.43	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	63439.69	1040.90	829.8	False	13C5-PFHxA	1045657.43	1250.00	PFHxA	0.066	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	695332.90	1069.90	582.6	False	13C4-PFHpA	1025708.82	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	18738.61	1063.63	1035.6	False	13C4-PFHpA	1025708.82	1250.00	PFHpA	0.027	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	575477.65	1016.69	4137.9	False	13C3-PFHxS	210035.50	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.96	195648.92	980.85	2372.2	False	13C3-PFHxS	210035.50	1182.50	PFHxS	0.340	0.353	✓
PFOA_1	413.0 / 369.0	2.34	875603.58	978.80	385.3	False	13C8-PFOA	1247522.06	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	76800.46	1025.27	454.8	False	13C8-PFOA	1247522.06	1250.00	PFOA	0.088	0.084	✓
PFNA_1	463.0 / 419.0	2.73	889027.54	1014.48	721.5	False	13C9-PFNA	1232841.02	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.73	273156.30	976.87	1746.9	False	13C9-PFNA	1232841.02	1250.00	PFNA	0.307	0.321	✓
PFOS_1	499.0 / 80.0	2.72	608145.61	1020.73	1548.8	False	13C8-PFOS	188179.30	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.72	127566.91	1038.11	891.4	False	13C8-PFOS	188179.30	1196.25	PFOS	0.210	0.209	✓
PFDA_1	513.0 / 469.0	3.08	890279.34	971.60	648.9	False	13C6-PFDA	1233114.34	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.08	44986.98	1029.82	38747.7	False	13C6-PFDA	1233114.34	1250.00	PFDA	0.051	0.048	✓
PFUnA_1	563.0 / 519.0	3.41	1015116.36	997.20	817.8	False	13C7-PFUnA	1178766.04	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.40	51736.32	1006.29	1238.6	False	13C7-PFUnA	1178766.04	1250.00	PFUnA	0.051	0.051	✓
PFDoA_1	613.0 / 569.0	3.69	1038775.31	1014.02	934.5	False	13C2-PFDoA	1322622.99	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.69	117812.87	1022.83	1896.7	False	13C2-PFDoA	1322622.99	1250.00	PFDoA	0.113	0.112	✓
PFTrDA_1	663.0 / 619.0	3.95	874328.31	997.78	1484.2	False	13C2-PFTeDA	1061613.85	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.95	54039.68	950.89	2273.9	False	13C2-PFTeDA	1061613.85	1250.00	PFTrDA	0.062	0.065	✓
PFTeDA_1	713.0 / 669.0	4.18	937986.99	1025.26	2456.6	False	13C2-PFTeDA	1061613.85	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.18	45114.11	996.30	2977.1	False	13C2-PFTeDA	1061613.85	1250.00	PFTeDA	0.048	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.22	90727.90	1022.43	323.5	False	d3-MeFOSAA	154447.12	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.23	91061.56	1007.68	6121.1	False	d3-MeFOSAA	154447.12	1250.00	NMeFOSAA	1.004	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.39	118104.31	977.23	1148.2	False	d5-EtFOSAA	168352.27	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.39	5740.90	762.52	336.1	False	d5-EtFOSAA	168352.27	1250.00	NEtFOSAA	0.049	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.70	886850.73	1197.65	5053.3	False	13C3-HFPO-DA	684744.83	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.70	15929.46	1001.98	2438.9	False	13C3-HFPO-DA	684744.83	1250.00	HFPO-DA	0.018	0.020	✓
ADONA_1	377.0 / 251.0	1.99	1982392.78	1032.11	8349.2	False	13C3-HFPO-DA	684744.83	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.00	27227.63	1204.31	10634.2	False	13C3-HFPO-DA	684744.83	1250.00	ADONA	0.014	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.93	1257100.03	1118.34	1378.6	False	13C3-HFPO-DA	684744.83	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.93	11663.06	1238.65	55431.7	False	13C3-HFPO-DA	684744.83	1250.00	9Cl-PF3ONS	0.009	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.56	911337.31	1058.04	1621.4	False	13C3-HFPO-DA	684744.83	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.56	4678.97	1245.76	536.5	False	13C3-HFPO-DA	684744.83	1250.00	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS QC Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:44:39 AM

Sample Name	KY87 CCV	**Injection Vial**	43
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 1:20:01 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	1245914.80	2598.80	13326.4	False	13C3-PFBS	247116.26	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	419727.04	2510.71	3706.0	False	13C3-PFBS	247116.26	1161.25	PFBS	0.337	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	2330018.73	2535.48	1533.1	False	13C5-PFHxA	1049834.42	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	135953.77	2374.98	1184.9	False	13C5-PFHxA	1049834.42	1250.00	PFHxA	0.058	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	1680367.85	2407.12	810.4	False	13C4-PFHpA	1113140.87	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	50614.90	2673.33	4897.7	False	13C4-PFHpA	1113140.87	1250.00	PFHpA	0.030	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	1317326.46	2387.60	5771.7	False	13C3-PFHxS	204498.37	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	473772.72	2437.28	2079.1	False	13C3-PFHxS	204498.37	1182.50	PFHxS	0.360	0.353	✓
PFOA_1	413.0 / 369.0	2.34	2241595.80	2760.58	584.7	False	13C8-PFOA	1145866.62	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	187230.47	2743.32	677.1	False	13C8-PFOA	1145866.62	1250.00	PFOA	0.084	0.084	✓
PFNA_1	463.0 / 419.0	2.73	2030014.66	2399.97	1000.5	False	13C9-PFNA	1195583.72	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.73	657513.84	2442.14	2954.2	False	13C9-PFNA	1195583.72	1250.00	PFNA	0.324	0.321	✓
PFOS_1	499.0 / 80.0	2.72	1444278.04	2444.97	2200.8	False	13C8-PFOS	187174.19	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.72	298290.06	2462.45	3128.0	False	13C8-PFOS	187174.19	1196.25	PFOS	0.207	0.209	✓
PFDA_1	513.0 / 469.0	3.08	2028928.42	2410.43	991.6	False	13C6-PFDA	1130315.75	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.08	104548.27	2622.22	9252.8	False	13C6-PFDA	1130315.75	1250.00	PFDA	0.052	0.048	✓
PFUnA_1	563.0 / 519.0	3.40	2495117.36	2668.56	1196.1	False	13C7-PFUnA	1092459.49	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.40	125688.33	2667.34	2052.4	False	13C7-PFUnA	1092459.49	1250.00	PFUnA	0.050	0.051	✓
PFDoA_1	613.0 / 569.0	3.69	2542116.51	2577.24	1369.1	False	13C2-PFDoA	1280850.04	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.69	276403.53	2487.33	2154.1	False	13C2-PFDoA	1280850.04	1250.00	PFDoA	0.109	0.112	✓
PFTrDA_1	663.0 / 619.0	3.95	2044424.47	2456.46	2040.4	False	13C2-PFTeDA	1018232.28	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.95	133030.08	2463.37	2760.0	False	13C2-PFTeDA	1018232.28	1250.00	PFTrDA	0.065	0.065	✓
PFTeDA_1	713.0 / 669.0	4.18	2263155.89	2614.10	3034.7	False	13C2-PFTeDA	1018232.28	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.18	109040.53	2542.19	3938.4	False	13C2-PFTeDA	1018232.28	1250.00	PFTeDA	0.048	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.22	227193.23	2653.05	11152.3	False	d3-MeFOSAA	150053.84	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.22	239652.65	2783.58	10016.9	False	d3-MeFOSAA	150053.84	1250.00	NMeFOSAA	1.055	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.39	291595.38	2450.17	1774.9	False	d5-EtFOSAA	166113.72	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.39	16163.18	2274.03	134457.2	False	d5-EtFOSAA	166113.72	1250.00	NEtFOSAA	0.055	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.70	2235401.38	3199.04	4421.7	False	13C3-HFPO-DA	668282.76	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.70	43464.65	2856.26	1570.9	False	13C3-HFPO-DA	668282.76	1250.00	HFPO-DA	0.019	0.020	✓
ADONA_1	377.0 / 251.0	2.00	5173773.19	2798.73	7994.1	False	13C3-HFPO-DA	668282.76	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.00	61548.70	2797.20	6599118.9	False	13C3-HFPO-DA	668282.76	1250.00	ADONA	0.012	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.93	2929076.46	2688.42	2216.4	False	13C3-HFPO-DA	668282.76	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.93	24501.92	2697.04	1513.3	False	13C3-HFPO-DA	668282.76	1250.00	9Cl-PF3ONS	0.008	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.56	2388155.02	2804.57	2678.9	False	13C3-HFPO-DA	668282.76	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.56	11319.68	3148.70	785.6	False	13C3-HFPO-DA	668282.76	1250.00	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:34:52 AM

Sample Name	KY91 ICC	Injection Vial	10
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:53:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1275141.07	1304.68	7478.9	False	13C2-PFDA	1027618.11	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	157322.37	1288.72	904.7	False	13C4-PFOS	192151.95	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	154632.33	1241.81	1190.6	False	13C4-PFOS	192151.95	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	980689.45	1240.17	25814.1	False	13C2-PFOA	764339.76	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.97	1038836.14	1292.49	5034278.7	False	13C2-PFOA	764339.76	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.36	1152021.83	1170.10	53264.7	False	13C2-PFOA	764339.76	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1202169.63	1250.11	4975.4	False	13C2-PFOA	764339.76	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1178717.05	1261.92	10824.5	False	13C2-PFDA	1027618.11	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1065143.64	1242.30	4610.9	False	13C2-PFDA	1027618.11	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	941134.68	1227.21	3298.7	False	13C2-PFDA	1027618.11	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.35	229506.50	1178.79	31733.1	False	13C4-PFOS	192151.95	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	204844.27	1265.07	3998.5	False	13C4-PFOS	192151.95	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	183302.32	1210.48	973.7	False	13C4-PFOS	192151.95	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	707028.44	1214.29	6680.2	False	13C2-PFOA	764339.76	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:34:52 AM

Sample Name	KY86 CCV	Injection Vial	16
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:35:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1219202.36	1210.28	5982.4	False	13C2-PFDA	1059176.96	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	155479.12	1263.39	971.5	False	13C4-PFOS	193707.04	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	157360.67	1253.58	1038.8	False	13C4-PFOS	193707.04	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	1053561.02	1344.21	3951.0	False	13C2-PFOA	757580.20	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	1028593.64	1291.16	231062.3	False	13C2-PFOA	757580.20	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1179400.78	1208.59	66628.1	False	13C2-PFOA	757580.20	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1206786.86	1266.11	3925.3	False	13C2-PFOA	757580.20	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	1175029.72	1220.49	4934.5	False	13C2-PFDA	1059176.96	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1110881.52	1257.04	10353.3	False	13C2-PFDA	1059176.96	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	960523.05	1215.18	3281.1	False	13C2-PFDA	1059176.96	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	219756.32	1119.65	209280.9	False	13C4-PFOS	193707.04	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	193907.46	1187.91	14719.6	False	13C4-PFOS	193707.04	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	175141.78	1147.30	1202.6	False	13C4-PFOS	193707.04	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	687311.88	1190.96	4611.0	False	13C2-PFOA	757580.20	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:34:52 AM

Sample Name	KY87 CCV	Injection Vial	28
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:42:01 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1276637.79	1282.26	5332.2	False	13C2-PFDA	1046815.09	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	163435.07	1319.38	1048.3	False	13C4-PFOS	194979.38	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	161985.53	1282.00	863.9	False	13C4-PFOS	194979.38	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	1087454.04	1368.07	19942.5	False	13C2-PFOA	768313.77	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	1097137.92	1357.96	1872.9	False	13C2-PFOA	768313.77	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1254646.78	1267.74	67769.0	False	13C2-PFOA	768313.77	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1258997.21	1302.44	4118.4	False	13C2-PFOA	768313.77	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	1192533.05	1253.30	10202.1	False	13C2-PFDA	1046815.09	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1156498.24	1324.11	5288.5	False	13C2-PFDA	1046815.09	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	991634.55	1269.35	3839.8	False	13C2-PFDA	1046815.09	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	247669.66	1253.63	11689.8	False	13C4-PFOS	194979.38	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	203409.75	1237.99	13041.8	False	13C4-PFOS	194979.38	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	198337.17	1290.77	1238.7	False	13C4-PFOS	194979.38	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	708436.69	1210.42	3767.4	False	13C2-PFOA	768313.77	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:34:52 AM

Sample Name	KY86 CCV	**Injection Vial**	39
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:37:49 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.69	1322622.99	1271.91	6686.9	False	13C2-PFDA	1093346.88	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.22	154868.56	1209.01	1037.1	False	13C4-PFOS	201624.92	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	169460.77	1296.96	957.1	False	13C4-PFOS	201624.92	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	1045657.43	1302.64	18456.6	False	13C2-PFOA	775890.87	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	1025708.82	1257.16	6515.9	False	13C2-PFOA	775890.87	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.33	1247522.06	1248.23	11780.5	False	13C2-PFOA	775890.87	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	1232841.02	1262.92	21275.6	False	13C2-PFOA	775890.87	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	1233114.34	1240.79	2801.4	False	13C2-PFDA	1093346.88	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	1178766.04	1292.17	4245.6	False	13C2-PFDA	1093346.88	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	1061613.85	1301.09	4127.2	False	13C2-PFDA	1093346.88	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	231429.36	1132.82	37978.5	False	13C4-PFOS	201624.92	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	210035.50	1236.19	12157.4	False	13C4-PFOS	201624.92	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	188179.30	1184.30	1134.5	False	13C4-PFOS	201624.92	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	684744.83	1158.51	4061.7	False	13C2-PFOA	775890.87	1250.00		N/A	N/A	✓

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PFAS QC Sample Quant Report

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Printed: 06/05/2020 9:34:52 AM

Sample Name	KY87 CCV	Injection Vial	43
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 1:20:01 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.69	1280850.04	1233.33	5786.6	False	13C2-PFDA	1091937.71	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.22	149979.66	1341.18	799.6	False	13C4-PFOS	176018.54	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	165562.83	1451.46	937.6	False	13C4-PFOS	176018.54	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	1049834.42	1413.18	9504.5	False	13C2-PFOA	718055.73	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	1113140.87	1474.20	12866.3	False	13C2-PFOA	718055.73	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.33	1145866.62	1238.86	50014.4	False	13C2-PFOA	718055.73	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	1195583.72	1323.40	382867.3	False	13C2-PFOA	718055.73	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	1130315.75	1138.82	60848.2	False	13C2-PFDA	1091937.71	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	1092459.49	1199.11	4488.7	False	13C2-PFDA	1091937.71	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	1018232.28	1249.54	4056.7	False	13C2-PFDA	1091937.71	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	247116.26	1385.57	224079.6	False	13C4-PFOS	176018.54	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	204498.37	1378.69	2786.5	False	13C4-PFOS	176018.54	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	187174.19	1349.34	1079.4	False	13C4-PFOS	176018.54	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	668282.76	1221.73	6682.1	False	13C2-PFOA	718055.73	1250.00		N/A	N/A	✓

Raw Analytical Data

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:42:13 AM

Sample Name	KY90 IB	Injection Vial	9
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:42:36 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.32	1719.89	< 0	435.4	False	13C3-PFBS	216604.54	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	216604.54	1161.25	PFBS	N/A	0.349	
PFHxA_1	313.0 / 269.0	1.62	32170.37	< 0	209.0	True	13C5-PFHxA	1067006.37	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	1904.87	< 0	87.4	True	13C5-PFHxA	1067006.37	1250.00	PFHxA	0.059	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1117703.28	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1117703.28	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	1380.24	4.42	184.2	False	13C3-PFHxS	212703.50	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	212703.50	1182.50	PFHxS	N/A	0.353	
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1268697.91	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1268697.91	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1254349.18	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1254349.18	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.74	2916.14	< 0	322.2	True	13C8-PFOS	188175.22	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	188175.22	1196.25	PFOS	N/A	0.209	
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1266353.24	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1266353.24	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1079308.53	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1079308.53	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1272430.49	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1272430.49	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	3.98	6342.39	< 0	98.5	False	13C2-PFTeDA	992917.83	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.98	582.90	< 0	106.7	False	13C2-PFTeDA	992917.83	1250.00	PFTrDA	0.092	0.065	✓
PFTeDA_1	713.0 / 669.0	4.21	11725.98	< 0	151.3	False	13C2-PFTeDA	992917.83	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.21	447.53	< 0	108.4	False	13C2-PFTeDA	992917.83	1250.00	PFTeDA	0.038	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.25	2338.60	14.33	71.2	True	d3-MeFOSAA	160581.95	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.26	2164.98	< 0	129.8	False	d3-MeFOSAA	160581.95	1250.00	NMeFOSAA	0.926	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.42	5016.05	38.56	208.0	False	d5-EtFOSAA	167568.16	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.40	335.20	< 0	6460.2	False	d5-EtFOSAA	167568.16	1250.00	NEtFOSAA	0.067	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	2.01	4112.37	6.43	110.5	False	13C3-HFPO-DA	760784.70	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	ADONA	N/A	0.012	
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	760784.70	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:42:13 AM

Sample Name	CY822PB-FS(0)	Injection Vial	18
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:56:30 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	10880.95	< 0	609.5	False	13C3-PFBS	246372.56	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	3979.95	1.41	148.7	True	13C3-PFBS	246372.56	1161.25	PFBS	0.366	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	27680.00	< 0	152.6	True	13C5-PFHxA	1089540.59	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	1215.15	< 0	25.3	True	13C5-PFHxA	1089540.59	1250.00	PFHxA	0.044	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1157980.25	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1157980.25	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	205014.61	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	205014.61	1182.50	PFHxS	N/A	0.353	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1415784.10	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1415784.10	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1342545.76	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1342545.76	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.65	4705.66	2.17	75.3	True	13C8-PFOS	191133.24	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	191133.24	1196.25	PFOS	N/A	0.209	
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1153726.18	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1153726.18	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1114167.39	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1114167.39	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1336020.12	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1336020.12	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1177454.48	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1177454.48	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1177454.48	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1177454.48	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	159199.04	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	159199.04	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	164228.14	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	164228.14	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	644294.46	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	CY823LCS-FS(0)	**Injection Vial**	19
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:07:03 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	4397941.60	9947.21	162727.6	False	13C3-PFBS	229391.53	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	1495202.25	9699.42	7774.7	False	13C3-PFBS	229391.53	1161.25	PFBS	0.340	0.349	✓
PFHxA_1	313.0 / 269.0	1.62	7770640.38	10714.22	3976.8	False	13C5-PFHxA	866813.44	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.62	456976.15	10083.08	1761.8	False	13C5-PFHxA	866813.44	1250.00	PFHxA	0.059	0.061	✓
PFHpA_1	363.0 / 319.0	1.97	6192197.25	10298.80	2361.6	False	13C4-PFHpA	964860.71	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.97	163960.16	10038.57	1796.8	False	13C4-PFHpA	964860.71	1250.00	PFHpA	0.026	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	5483819.33	11240.18	5698.7	False	13C3-PFHxS	180708.69	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	1908629.00	11106.08	3271.9	False	13C3-PFHxS	180708.69	1182.50	PFHxS	0.348	0.353	✓
PFOA_1	413.0 / 369.0	2.35	8358560.41	9283.46	1323.3	False	13C8-PFOA	1276437.40	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.35	735610.43	9709.46	1013.0	False	13C8-PFOA	1276437.40	1250.00	PFOA	0.088	0.084	✓
PFNA_1	463.0 / 419.0	2.74	9103487.39	11502.19	2292.0	False	13C9-PFNA	1121776.64	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.74	2818332.97	11198.61	4741.2	False	13C9-PFNA	1121776.64	1250.00	PFNA	0.310	0.321	✓
PFOS_1	499.0 / 80.0	2.73	5641753.63	11950.36	3328.0	False	13C8-PFOS	149864.68	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.73	1136484.21	11778.77	2303.7	False	13C8-PFOS	149864.68	1196.25	PFOS	0.201	0.209	✓
PFDA_1	513.0 / 469.0	3.09	8382627.52	10339.53	1600.4	False	13C6-PFDA	1087488.88	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.09	379020.48	9901.10	2205.6	False	13C6-PFDA	1087488.88	1250.00	PFDA	0.045	0.048	✓
PFUnA_1	563.0 / 519.0	3.42	8418500.22	9773.97	1723.0	False	13C7-PFUnA	1010315.76	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	3.42	457208.27	10545.10	3009.1	False	13C7-PFUnA	1010315.76	1250.00	PFUnA	0.054	0.051	✓
PFDoA_1	613.0 / 569.0	3.70	9595385.86	11187.13	2005.5	False	13C2-PFDoA	1117000.46	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	3.70	1092380.59	11295.46	2010.2	False	13C2-PFDoA	1117000.46	1250.00	PFDoA	0.114	0.112	✓
PFTrDA_1	663.0 / 619.0	3.96	7569669.12	8553.53	2443.7	False	13C2-PFTeDA	1087945.70	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	3.96	494511.62	8606.45	3179.6	False	13C2-PFTeDA	1087945.70	1250.00	PFTrDA	0.065	0.065	✓
PFTeDA_1	713.0 / 669.0	4.19	9761628.25	10622.93	3670.7	False	13C2-PFTeDA	1087945.70	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.19	475920.21	10448.71	4966.5	False	13C2-PFTeDA	1087945.70	1250.00	PFTeDA	0.049	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.24	970566.88	11956.06	158111.3	False	d3-MeFOSAA	142715.18	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.24	880354.73	10841.58	3052.2	False	d3-MeFOSAA	142715.18	1250.00	NMeFOSAA	0.907	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.41	1076608.61	10624.77	1774.8	False	d5-EtFOSAA	141581.33	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.40	57527.63	9664.47	33388.4	False	d5-EtFOSAA	141581.33	1250.00	NEtFOSAA	0.053	0.062	✓
HFPO-DA_1	285.0 / 169.0	1.71	6598772.28	10237.58	6854.9	False	13C3-HFPO-DA	636112.09	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	1.71	146901.95	10868.36	3382.4	False	13C3-HFPO-DA	636112.09	1250.00	HFPO-DA	0.022	0.020	✓
ADONA_1	377.0 / 251.0	2.01	16986387.27	10395.23	162251.6	False	13C3-HFPO-DA	636112.09	1250.00	ADONA			
ADONA_2	377.0 / 85.0	2.01	215944.41	11013.44	1672.6	False	13C3-HFPO-DA	636112.09	1250.00	ADONA	0.013	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	2.94	10721303.36	10525.35	5185.2	False	13C3-HFPO-DA	636112.09	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	2.94	97602.47	11500.22	1620.6	False	13C3-HFPO-DA	636112.09	1250.00	9Cl-PF3ONS	0.009	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	3.57	8148187.51	9887.16	4595.0	False	13C3-HFPO-DA	636112.09	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	3.57	38373.85	11636.97	17301.4	False	13C3-HFPO-DA	636112.09	1250.00	11Cl-PF3OUdS	0.005	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4954-FS1(0)	**Injection Vial**	20
Sample ID	POL-MW0041SI-020.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:17:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	62387.15	675.95	103.7	True	13C3-PFBS	46407.47	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.33	9963.38	297.54	108.9	False	13C3-PFBS	46407.47	1161.25	PFBS	0.160	0.349	
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	140071.26	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	140071.26	1250.00	PFHxA	N/A	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	268840.06	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	268840.06	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	687259.17	2799.31	211.2	False	13C3-PFHxS	90985.73	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	227488.26	2630.21	249.5	False	13C3-PFHxS	90985.73	1182.50	PFHxS	0.331	0.353	✓
PFOA_1	413.0 / 369.0	2.35	1607097.68	4450.44	143.4	False	13C8-PFOA	510853.93	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	158965.51	5236.53	296.6	False	13C8-PFOA	510853.93	1250.00	PFOA	0.099	0.084	✓
PFNA_1	463.0 / 419.0	2.74	192718.82	375.69	89.8	False	13C9-PFNA	711780.69	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.74	73345.01	448.01	168.8	False	13C9-PFNA	711780.69	1250.00	PFNA	0.381	0.321	✓
PFOS_1	499.0 / 80.0	2.62	6224775.29	15634.17	379.5	False	13C8-PFOS	126404.72	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.69	994820.24	12224.72	536.3	False	13C8-PFOS	126404.72	1196.25	PFOS	0.160	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	786178.00	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	786178.00	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	576721.76	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	576721.76	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	354261.55	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	354261.55	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	83010.35	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	83010.35	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	83010.35	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	83010.35	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	95792.27	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	95792.27	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	87775.32	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	87775.32	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	166723.89	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4955-FS1(0)	Injection Vial	21
Sample ID	POL-MW0008S-009.3-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:28:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	20846.46	190.84	82.3	True	13C3-PFBS	50657.76	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	4734.85	116.72	66.1	True	13C3-PFBS	50657.76	1161.25	PFBS	0.227	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	140387.29	992.58	46.0	False	13C5-PFHxA	148252.47	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	9288.88	1079.39	38.2	False	13C5-PFHxA	148252.47	1250.00	PFHxA	0.066	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	282690.79	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	282690.79	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	359441.92	1250.19	131.8	False	13C3-PFHxS	106646.27	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	115866.24	1143.76	142.1	False	13C3-PFHxS	106646.27	1182.50	PFHxS	0.322	0.353	✓
PFOA_1	413.0 / 369.0	2.35	491315.98	1182.37	95.5	False	13C8-PFOA	581310.33	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.33	58117.08	1673.35	210.6	False	13C8-PFOA	581310.33	1250.00	PFOA	0.118	0.084	✓
PFNA_1	463.0 / 419.0	2.74	100329.16	165.41	58.6	False	13C9-PFNA	818985.68	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.73	35909.43	183.87	60.2	False	13C9-PFNA	818985.68	1250.00	PFNA	0.358	0.321	✓
PFOS_1	499.0 / 80.0	2.67	2584183.12	5628.86	248.6	False	13C8-PFOS	145659.42	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.73	472273.02	5026.73	362.8	False	13C8-PFOS	145659.42	1196.25	PFOS	0.183	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	912983.22	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	912983.22	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	689125.68	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	689125.68	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	458468.96	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	458468.96	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	64427.05	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	64427.05	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	64427.05	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	64427.05	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	127627.89	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	127627.89	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	106796.26	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	106796.26	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	161896.23	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:42:13 AM

Sample Name	H4956-FS1(0)	Injection Vial	22
Sample ID	POL-MW0008I-007.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:38:42 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.33	84331.73	481.83	120.2	False	13C3-PFBS	86843.90	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	14672.93	229.32	101.8	False	13C3-PFBS	86843.90	1161.25	PFBS	0.174	0.349	
PFHxA_1	313.0 / 269.0	1.61	176590.07	569.90	46.9	True	13C5-PFHxA	295124.94	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	12578.57	691.08	52.5	True	13C5-PFHxA	295124.94	1250.00	PFHxA	0.071	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	482373.62	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	482373.62	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	537638.71	1523.78	152.7	False	13C3-PFHxS	130838.44	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	179612.45	1444.80	203.8	False	13C3-PFHxS	130838.44	1182.50	PFHxS	0.334	0.353	✓
PFOA_1	413.0 / 369.0	2.35	311456.63	672.10	60.8	False	13C8-PFOA	640914.58	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.35	28229.32	729.74	91.9	True	13C8-PFOA	640914.58	1250.00	PFOA	0.091	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	743134.34	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	743134.34	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.61	130020.55	327.24	98.3	False	13C8-PFOS	124043.80	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.65	14847.80	169.90	38.3	True	13C8-PFOS	124043.80	1196.25	PFOS	0.114	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	748236.91	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	748236.91	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	543057.03	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	543057.03	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	305584.19	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	305584.19	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	90543.29	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	90543.29	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	90543.29	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	90543.29	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	89293.22	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	89293.22	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	75538.20	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	75538.20	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	279029.35	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4957-FS1(0)	Injection Vial	23
Sample ID	POL-MW0036SI-020.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:49:15 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	249229.15	2089.23	219.1	False	13C3-PFBS	61356.87	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	51713.96	1234.45	284.0	False	13C3-PFBS	61356.87	1161.25	PFBS	0.207	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	776905.01	3905.53	123.8	False	13C5-PFHxA	231958.59	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	36952.99	2952.73	83.8	False	13C5-PFHxA	231958.59	1250.00	PFHxA	0.048	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	767717.42	3168.36	103.0	False	13C4-PFHpA	387145.94	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	27047.89	4116.92	206.4	False	13C4-PFHpA	387145.94	1250.00	PFHpA	0.035	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	4790359.06	13978.03	336.0	False	13C3-PFHxS	126933.44	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	1574905.63	13046.32	387.0	False	13C3-PFHxS	126933.44	1182.50	PFHxS	0.329	0.353	✓
PFOA_1	413.0 / 369.0	2.34	2183291.59	4314.10	156.3	False	13C8-PFOA	715852.09	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	153799.98	3611.39	252.9	True	13C8-PFOA	715852.09	1250.00	PFOA	0.070	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	979234.92	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	979234.92	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.56	306985.94	580.54	80.1	False	13C8-PFOS	166322.39	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	32941.52	291.78	87.7	False	13C8-PFOS	166322.39	1196.25	PFOS	0.107	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1110836.11	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1110836.11	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	943910.60	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	943910.60	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	843683.61	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	843683.61	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	348077.19	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	348077.19	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	348077.19	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	348077.19	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	126367.31	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	126367.31	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	111667.10	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	111667.10	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	246190.05	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4958-FS1(0)	**Injection Vial**	24
Sample ID	POL-MW0036I-027.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:59:49 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	97612.53	763.54	200.8	False	13C3-PFBS	64525.67	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	20280.08	446.10	176.4	False	13C3-PFBS	64525.67	1161.25	PFBS	0.208	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	284846.39	1460.40	67.6	True	13C5-PFHxA	213724.92	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	18025.99	1499.72	72.1	False	13C5-PFHxA	213724.92	1250.00	PFHxA	0.063	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	280944.13	1153.65	56.3	False	13C4-PFHpA	384857.55	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	9972.86	1515.99	108.0	False	13C4-PFHpA	384857.55	1250.00	PFHpA	0.035	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	859888.48	2716.82	253.0	False	13C3-PFHxS	117298.97	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	299033.66	2681.80	298.9	False	13C3-PFHxS	117298.97	1182.50	PFHxS	0.348	0.353	✓
PFOA_1	413.0 / 369.0	2.35	418652.37	874.65	55.5	False	13C8-PFOA	666058.21	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.35	39576.43	989.11	119.2	True	13C8-PFOA	666058.21	1250.00	PFOA	0.095	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	850264.10	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	850264.10	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.61	235416.22	524.11	178.6	False	13C8-PFOS	141131.80	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.63	27086.84	282.24	65.6	False	13C8-PFOS	141131.80	1196.25	PFOS	0.115	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	926468.62	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	926468.62	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	759123.90	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	759123.90	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	485726.89	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	485726.89	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	63968.26	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	63968.26	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	63968.26	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	63968.26	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	125550.53	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	125550.53	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	106778.30	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	106778.30	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	242267.39	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4959-FS1(0)	**Injection Vial**	25
Sample ID	POL-MW0047I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:10:22 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	472271.31	3039.87	543.6	False	13C3-PFBS	80182.22	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	146205.93	2697.04	707.8	False	13C3-PFBS	80182.22	1161.25	PFBS	0.310	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	2674010.70	13288.99	318.7	False	13C5-PFHxA	241160.81	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	125527.40	9953.65	340.4	False	13C5-PFHxA	241160.81	1250.00	PFHxA	0.047	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	1335144.19	5147.53	152.6	False	13C4-PFHpA	415423.00	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	43507.46	6180.17	310.6	False	13C4-PFHpA	415423.00	1250.00	PFHpA	0.033	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	8268688.18	23588.54	683.0	False	13C3-PFHxS	129826.73	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	2724944.49	22069.02	746.9	False	13C3-PFHxS	129826.73	1182.50	PFHxS	0.330	0.353	✓
PFOA_1	413.0 / 369.0	2.34	3253394.66	6946.12	186.8	False	13C8-PFOA	663569.96	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	266189.84	6754.46	386.9	True	13C8-PFOA	663569.96	1250.00	PFOA	0.082	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	879636.75	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	879636.75	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.60	837929.18	2072.41	221.6	False	13C8-PFOS	128061.86	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.67	133127.62	1600.62	209.7	False	13C8-PFOS	128061.86	1196.25	PFOS	0.159	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	805737.91	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	805737.91	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	752806.56	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	752806.56	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	831794.85	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	831794.85	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575935.80	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575935.80	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575935.80	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575935.80	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	3.23	14142.76	249.12	999.1	False	d3-MeFOSAA	95567.68	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.23	14263.35	231.50	180.2	False	d3-MeFOSAA	95567.68	1250.00	NMeFOSAA	1.009	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.40	183279.70	2696.54	1222.2	False	d5-EtFOSAA	94881.45	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.39	10702.44	2644.63	356.7	False	d5-EtFOSAA	94881.45	1250.00	NEtFOSAA	0.058	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	272604.55	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4960-FS1(0)	Injection Vial	26
Sample ID	POL-FRB-0200422-01	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:20:54 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	9677.34	< 0	637.3	False	13C3-PFBS	258147.08	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	5149.78	7.07	121.9	False	13C3-PFBS	258147.08	1161.25	PFBS	0.532	0.349	
PFHxA_1	313.0 / 269.0	1.61	12152.23	< 0	48.1	True	13C5-PFHxA	1060788.56	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	1060788.56	1250.00	PFHxA	N/A	0.061	
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1092849.81	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1092849.81	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	2705.58	6.78	52.4	False	13C3-PFHxS	210056.82	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	210056.82	1182.50	PFHxS	N/A	0.353	
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1393895.71	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1393895.71	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1351624.79	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1351624.79	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.66	8137.46	7.45	77.9	False	13C8-PFOS	197318.84	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	197318.84	1196.25	PFOS	N/A	0.209	
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1245114.78	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1245114.78	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1206287.17	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1206287.17	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1417272.77	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1417272.77	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1164932.16	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1164932.16	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1164932.16	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1164932.16	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	165790.65	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	165790.65	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	174824.01	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	174824.01	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	624220.55	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4961-FS1(0)	Injection Vial	30
Sample ID	POL-MW0047D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:03:04 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	372098.87	2790.87	496.1	False	13C3-PFBS	68765.02	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	128203.97	2758.13	646.3	False	13C3-PFBS	68765.02	1161.25	PFBS	0.345	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	2731078.95	14091.46	291.8	False	13C5-PFHxA	232434.27	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	131460.00	10827.13	307.0	False	13C5-PFHxA	232434.27	1250.00	PFHxA	0.048	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	1229622.95	5502.60	143.1	False	13C4-PFHpA	357993.10	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	44438.88	7328.37	348.1	False	13C4-PFHpA	357993.10	1250.00	PFHpA	0.036	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	16982495.50	54382.39	1053.1	False	13C3-PFHxS	115651.39	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	5621866.03	51109.60	1051.0	False	13C3-PFHxS	115651.39	1182.50	PFHxS	0.331	0.353	✓
PFOA_1	413.0 / 369.0	2.34	3287232.02	7283.74	199.7	False	13C8-PFOA	639471.37	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.35	226288.98	5956.81	447.3	True	13C8-PFOA	639471.37	1250.00	PFOA	0.069	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	834697.48	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	834697.48	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.59	974948.15	2028.90	283.1	False	13C8-PFOS	152189.11	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.61	128864.07	1300.71	254.3	False	13C8-PFOS	152189.11	1196.25	PFOS	0.132	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	894554.08	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	894554.08	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	798890.35	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	798890.35	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	686522.78	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	686522.78	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	142356.53	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	142356.53	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	142356.53	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	142356.53	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	127903.67	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	127903.67	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	108419.24	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	108419.24	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	234217.39	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4961-FS1-D(3)	Injection Vial	31
Sample ID	POL-MW0047D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:13:36 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	173855.62	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	173855.62	1161.25	PFBS	N/A	0.349	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	629045.17	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	629045.17	1250.00	PFHxA	N/A	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	859291.12	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	859291.12	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	4542919.96	8794.91	872.7	False	13C3-PFHxS	191335.20	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	1512260.00	8311.31	940.6	False	13C3-PFHxS	191335.20	1182.50	PFHxS	0.333	0.353	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1159776.25	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1159776.25	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1164957.12	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1164957.12	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	180219.97	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	180219.97	1196.25	PFOS	N/A	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1101893.87	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1101893.87	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1014689.21	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1014689.21	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1169963.62	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1169963.62	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	914893.35	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	914893.35	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	914893.35	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	914893.35	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	148793.18	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	148793.18	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	158549.60	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	158549.60	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	510769.31	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4962-FS1(0)	Injection Vial	32
Sample ID	POL-MW0047DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:24:08 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	113434.52	618.83	236.4	False	13C3-PFBS	91885.98	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	33581.56	522.43	216.2	False	13C3-PFBS	91885.98	1161.25	PFBS	0.296	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	397323.80	1409.45	98.0	True	13C5-PFHxA	307824.14	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	17681.86	978.33	97.5	False	13C5-PFHxA	307824.14	1250.00	PFHxA	0.045	0.061	✓
PFHpA_1	363.0 / 319.0	1.95	111530.55	356.77	30.9	False	13C4-PFHpA	475844.73	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.94	4497.38	541.83	55.3	False	13C4-PFHpA	475844.73	1250.00	PFHpA	0.040	0.027	✓
PFHxS_1	399.0 / 80.0	1.96	2278844.84	5418.10	499.5	False	13C3-PFHxS	155819.01	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.96	776195.86	5238.83	539.4	False	13C3-PFHxS	155819.01	1182.50	PFHxS	0.341	0.353	✓
PFOA_1	413.0 / 369.0	2.33	193750.87	342.39	45.7	False	13C8-PFOA	763273.00	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	11941.10	250.59	54.3	True	13C8-PFOA	763273.00	1250.00	PFOA	0.062	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	828814.33	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	828814.33	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.59	25438.41	45.84	22.5	False	13C8-PFOS	156903.35	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.60	6411.81	47.28	24.8	False	13C8-PFOS	156903.35	1196.25	PFOS	0.252	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	918211.10	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	918211.10	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	612281.71	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	612281.71	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	376716.20	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	376716.20	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	47735.04	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	47735.04	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	47735.04	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	47735.04	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	100935.23	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	100935.23	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	87018.07	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	87018.07	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	327290.03	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4963-FS1(0)	Injection Vial	33
Sample ID	POL-MW0046D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:34:39 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	309981.86	2257.78	431.4	False	13C3-PFBS	70674.26	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	83369.93	1736.80	455.2	False	13C3-PFBS	70674.26	1161.25	PFBS	0.269	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	2206991.69	10547.69	284.6	False	13C5-PFHxA	250019.86	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	109520.38	8355.27	270.3	False	13C5-PFHxA	250019.86	1250.00	PFHxA	0.050	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	1301453.60	5149.20	145.0	False	13C4-PFHpA	404809.85	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.95	41434.79	6039.66	307.2	False	13C4-PFHpA	404809.85	1250.00	PFHpA	0.032	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	16365699.57	44939.85	874.0	False	13C3-PFHxS	134869.55	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	5557982.90	43328.98	1116.5	False	13C3-PFHxS	134869.55	1182.50	PFHxS	0.340	0.353	✓
PFOA_1	413.0 / 369.0	2.34	3908417.62	8747.46	216.2	False	13C8-PFOA	633351.94	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	290043.48	7712.77	405.7	True	13C8-PFOA	633351.94	1250.00	PFOA	0.074	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	915559.48	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	915559.48	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.54	1343684.19	2801.20	243.7	False	13C8-PFOS	152036.96	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.60	192721.23	1955.31	303.4	False	13C8-PFOS	152036.96	1196.25	PFOS	0.143	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	975490.27	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	975490.27	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	804408.20	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	804408.20	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	620528.39	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	620528.39	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	100402.11	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	100402.11	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	100402.11	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	100402.11	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	96738.23	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	96738.23	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	78418.64	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	78418.64	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	248966.65	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Sample Name	H4963-FS1-D(3)	Injection Vial	34
Sample ID	POL-MW0046D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:45:11 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	159030.69	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	159030.69	1161.25	PFBS	N/A	0.349	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	612205.56	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	612205.56	1250.00	PFHxA	N/A	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	838809.66	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	838809.66	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.97	4438574.68	8665.68	715.1	False	13C3-PFHxS	189728.74	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.98	1491718.41	8267.84	1061.9	False	13C3-PFHxS	189728.74	1182.50	PFHxS	0.336	0.353	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1174433.61	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1174433.61	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1242881.64	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1242881.64	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	199531.40	1196.25	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	199531.40	1196.25	PFOS	N/A	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1138821.44	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1138821.44	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1013022.76	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1013022.76	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1145777.56	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1145777.56	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	992525.32	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	992525.32	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	992525.32	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	992525.32	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	138747.12	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	138747.12	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	135957.70	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	135957.70	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	486140.41	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:42:13 AM

Sample Name	H4964-FS1(0)	**Injection Vial**	35
Sample ID	POL-MW0046DD-045.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:55:42 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.35	74192.35	437.07	153.0	True	13C3-PFBS	83832.67	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.35	19098.24	317.11	178.7	False	13C3-PFBS	83832.67	1161.25	PFBS	0.257	0.349	✓
PFHxA_1	313.0 / 269.0	1.61	334045.99	1186.68	84.8	True	13C5-PFHxA	301750.50	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.61	17546.24	992.03	82.2	False	13C5-PFHxA	301750.50	1250.00	PFHxA	0.053	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	139867.74	491.93	38.9	False	13C4-PFHpA	439221.83	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.96	5511.50	725.10	75.3	True	13C4-PFHpA	439221.83	1250.00	PFHpA	0.039	0.027	✓
PFHxS_1	399.0 / 80.0	1.98	1931904.16	5269.95	361.4	False	13C3-PFHxS	135811.57	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.97	606793.14	4698.95	452.5	False	13C3-PFHxS	135811.57	1182.50	PFHxS	0.314	0.353	✓
PFOA_1	413.0 / 369.0	2.34	354728.33	728.80	57.8	False	13C8-PFOA	674554.63	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.34	23731.42	580.19	88.6	True	13C8-PFOA	674554.63	1250.00	PFOA	0.067	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	823153.09	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	823153.09	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.58	28178.06	55.42	21.3	False	13C8-PFOS	146527.97	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.61	3673.67	22.72	16.8	False	13C8-PFOS	146527.97	1196.25	PFOS	0.130	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	980218.33	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	980218.33	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	940425.35	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	940425.35	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1024607.57	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1024607.57	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575906.36	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575906.36	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575906.36	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	575906.36	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	132110.22	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	132110.22	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	125222.07	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	125222.07	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	296318.85	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:42:13 AM

Sample Name	H4966-FS1(0)	**Injection Vial**	36
Sample ID	POL-MW0045I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:06:14 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	3761144.39	29144.49	1178.3	False	13C3-PFBS	67059.10	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	1251750.12	27819.15	1575.9	False	13C3-PFBS	67059.10	1161.25	PFBS	0.333	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	5477422.71	33073.41	351.1	False	13C5-PFHxA	199871.37	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	273044.35	26342.94	405.7	False	13C5-PFHxA	199871.37	1250.00	PFHxA	0.050	0.061	✓
PFHpA_1	363.0 / 319.0	1.96	1034511.06	4386.60	132.3	False	13C4-PFHpA	377464.40	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.95	38404.80	6003.45	208.5	False	13C4-PFHpA	377464.40	1250.00	PFHpA	0.037	0.027	✓
PFHxS_1	399.0 / 80.0	1.96	10453216.59	33090.52	766.6	False	13C3-PFHxS	116994.19	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.96	3476455.16	31243.04	868.3	False	13C3-PFHxS	116994.19	1182.50	PFHxS	0.333	0.353	✓
PFOA_1	413.0 / 369.0	2.34	4888636.39	12475.43	236.8	False	13C8-PFOA	555811.21	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.33	594317.84	18026.59	667.5	False	13C8-PFOA	555811.21	1250.00	PFOA	0.122	0.084	✓
PFNA_1	463.0 / 419.0	2.73	710513.31	1502.36	178.8	False	13C9-PFNA	667092.93	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.73	248753.64	1652.09	358.6	False	13C9-PFNA	667092.93	1250.00	PFNA	0.350	0.321	✓
PFOS_1	499.0 / 80.0	2.64	44051199.09	126721.21	902.1	False	13C8-PFOS	110397.85	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.72	7431968.14	104691.48	1558.2	False	13C8-PFOS	110397.85	1196.25	PFOS	0.169	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	681764.16	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	681764.16	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	496125.82	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	496125.82	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	218132.74	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	218132.74	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	14530.24	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	14530.24	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	14530.24	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	14530.24	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	82558.28	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	82558.28	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	75051.37	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	75051.37	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	211476.15	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:42:13 AM

Sample Name	H4966-FS1-D(3)	Injection Vial	37
Sample ID	POL-MW0045I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:16:46 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	215400.80	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	215400.80	1161.25	PFBS	N/A	0.349	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	866677.44	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	866677.44	1250.00	PFHxA	N/A	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1067418.86	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1067418.86	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	214069.86	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	214069.86	1182.50	PFHxS	N/A	0.353	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1393983.76	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1393983.76	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1279859.48	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1279859.48	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.64	3713736.19	5543.27	653.7	False	13C8-PFOS	212556.43	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.72	641024.14	4674.40	985.4	False	13C8-PFOS	212556.43	1196.25	PFOS	0.173	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1227636.36	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1227636.36	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1181703.97	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1181703.97	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1327389.88	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1327389.88	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1150894.54	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1150894.54	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1150894.54	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1150894.54	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	155287.83	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	155287.83	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	166318.16	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	166318.16	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	588287.32	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:42:13 AM

Sample Name	H4965-FS1(0)	Injection Vial	40
Sample ID	POL-MW0045S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:48:22 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.34	8991573.79	87422.80	2021.8	False	13C3-PFBS	53473.08	1161.25	PFBS			
PFBS_2	298.9 / 99.0	1.34	2962488.71	82611.45	1787.7	False	13C3-PFBS	53473.08	1161.25	PFBS	0.329	0.349	✓
PFHxA_1	313.0 / 269.0	1.60	12713076.47	106397.12	459.5	False	13C5-PFHxA	144669.87	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	1.60	664924.78	88948.26	576.7	False	13C5-PFHxA	144669.87	1250.00	PFHxA	0.052	0.061	✓
PFHpA_1	363.0 / 319.0	1.95	1466978.00	8076.67	126.2	False	13C4-PFHpA	291316.78	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	1.94	54163.09	10985.02	274.0	False	13C4-PFHpA	291316.78	1250.00	PFHpA	0.037	0.027	✓
PFHxS_1	399.0 / 80.0	1.96	13971845.23	57025.81	917.3	False	13C3-PFHxS	90737.99	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.96	4804989.44	55676.91	911.5	False	13C3-PFHxS	90737.99	1182.50	PFHxS	0.344	0.353	✓
PFOA_1	413.0 / 369.0	2.34	4501628.64	12152.40	227.0	False	13C8-PFOA	525395.22	1250.00	PFOA			
PFOA_2	413.0 / 169.0	2.33	469521.96	15063.60	664.0	False	13C8-PFOA	525395.22	1250.00	PFOA	0.104	0.084	✓
PFNA_1	463.0 / 419.0	2.73	1241965.71	3483.26	196.9	False	13C9-PFNA	504520.05	1250.00	PFNA			
PFNA_2	463.0 / 219.0	2.73	420861.29	3710.39	488.3	False	13C9-PFNA	504520.05	1250.00	PFNA	0.339	0.321	✓
PFOS_1	499.0 / 80.0	2.70	109701719.20	342699.49	1667.5	False	13C8-PFOS	101663.34	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.72	21862422.72	334463.27	2274.4	False	13C8-PFOS	101663.34	1196.25	PFOS	0.199	0.209	✓
PFDA_1	513.0 / 469.0	3.08	905922.47	1707.65	248.0	False	13C6-PFDA	712818.72	1250.00	PFDA			
PFDA_2	513.0 / 219.0	3.08	48573.82	1929.92	384.8	False	13C6-PFDA	712818.72	1250.00	PFDA	0.054	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	577028.62	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	577028.62	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	575971.41	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	575971.41	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	140628.14	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	140628.14	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	140628.14	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	140628.14	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	109053.34	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	109053.34	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	3.24	96784.13	1328.33	535.8	False	d5-EtFOSAA	101585.30	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.25	6450.57	1465.61	181.3	False	d5-EtFOSAA	101585.30	1250.00	NEtFOSAA	0.067	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	170190.76	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:42:13 AM

Sample Name	H4965-FS1-D(3)	Injection Vial	41
Sample ID	POL-MW0045S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:58:55 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	188560.20	1161.25	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	188560.20	1161.25	PFBS	N/A	0.349	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	796191.56	1250.00	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	796191.56	1250.00	PFHxA	N/A	0.061	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1065519.39	1250.00	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	1065519.39	1250.00	PFHpA	N/A	0.027	✓
PFHxS_1	399.0 / 80.0	1.96	2051112.75	3315.86	835.8	False	13C3-PFHxS	229217.85	1182.50	PFHxS			
PFHxS_2	399.0 / 99.0	1.96	666383.92	3058.07	696.3	False	13C3-PFHxS	229217.85	1182.50	PFHxS	0.325	0.353	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1387874.99	1250.00	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	1387874.99	1250.00	PFOA	N/A	0.084	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1353406.36	1250.00	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	1353406.36	1250.00	PFNA	N/A	0.321	✓
PFOS_1	499.0 / 80.0	2.71	11848244.12	18434.26	1266.5	False	13C8-PFOS	204064.10	1196.25	PFOS			
PFOS_2	499.0 / 99.0	2.72	2256484.83	17182.65	1566.9	False	13C8-PFOS	204064.10	1196.25	PFOS	0.190	0.209	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1383582.20	1250.00	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	1383582.20	1250.00	PFDA	N/A	0.048	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1245594.29	1250.00	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	1245594.29	1250.00	PFUnA	N/A	0.051	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1348381.31	1250.00	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1348381.31	1250.00	PFDoA	N/A	0.112	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1133354.52	1250.00	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1133354.52	1250.00	PFTrDA	N/A	0.065	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1133354.52	1250.00	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1133354.52	1250.00	PFTeDA	N/A	0.049	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	172557.10	1250.00	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	172557.10	1250.00	NMeFOSAA	N/A	1.043	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	189118.60	1250.00	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	189118.60	1250.00	NEtFOSAA	N/A	0.062	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	HFPO-DA	N/A	0.020	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	ADONA	N/A	0.012	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	9Cl-PF3ONS	N/A	0.009	✓
11Cl-pf3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	559402.29	1250.00	11Cl-PF3OUdS	N/A	0.005	✓

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	KY90 IB	Injection Vial	9
Sample ID	Instrument Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:42:36 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	1272430.49	1196.27	9461.1	False	13C2-PFDA	1118365.84	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	160531.52	1212.80	1398.8	False	13C4-PFOS	208345.99	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	166120.50	1230.38	1095.2	False	13C4-PFOS	208345.99	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	1067006.37	1315.29	13574.0	False	13C2-PFOA	784119.13	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	1117703.28	1355.53	1138.3	False	13C2-PFOA	784119.13	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	1268697.91	1256.10	51149.6	False	13C2-PFOA	784119.13	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	1254349.18	1271.47	15309.1	False	13C2-PFOA	784119.13	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	1266353.24	1245.73	19917.7	False	13C2-PFDA	1118365.84	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	1079308.53	1156.68	6457.0	False	13C2-PFDA	1118365.84	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	992917.83	1189.68	4303.0	False	13C2-PFDA	1118365.84	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.35	216604.54	1026.05	2696.2	False	13C4-PFOS	208345.99	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	212703.50	1211.50	4851.0	False	13C4-PFOS	208345.99	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	188175.22	1146.07	1131.0	False	13C4-PFOS	208345.99	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	760784.70	1273.66	6720.6	False	13C2-PFOA	784119.13	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	CY822PB-FS(0)	Injection Vial	18
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:56:30 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1336020.12	1298.31	9321.6	False	13C2-PFDA	1081964.31	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	159607.05	1288.12	1089.3	False	13C4-PFOS	195032.58	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	163702.52	1295.24	898.9	False	13C4-PFOS	195032.58	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	1089540.59	1293.10	5922.4	False	13C2-PFOA	814414.45	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	1157980.25	1352.14	12209.9	False	13C2-PFOA	814414.45	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1415784.10	1349.58	33247.9	False	13C2-PFOA	814414.45	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1342545.76	1310.25	424004.8	False	13C2-PFOA	814414.45	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	1153726.18	1173.12	5843.7	False	13C2-PFDA	1081964.31	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1114167.39	1234.21	3701.0	False	13C2-PFDA	1081964.31	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	1177454.48	1458.25	4146.7	False	13C2-PFDA	1081964.31	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	246372.56	1246.73	3698.5	False	13C4-PFOS	195032.58	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	205014.61	1247.42	1524.5	False	13C4-PFOS	195032.58	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	191133.24	1243.55	1316.1	False	13C4-PFOS	195032.58	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	644294.46	1038.51	2844.8	False	13C2-PFOA	814414.45	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	CY823LCS-FS(0)	**Injection Vial**	19
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:07:03 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1117000.46	1200.26	4147.0	False	13C2-PFDA	978494.04	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	144074.59	1142.86	989.9	False	13C4-PFOS	198429.50	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	141407.41	1099.68	866.8	False	13C4-PFOS	198429.50	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	866813.44	972.60	7603.1	False	13C2-PFOA	861446.38	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	964860.71	1065.13	91040.5	False	13C2-PFOA	861446.38	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1276437.40	1150.32	15912.5	False	13C2-PFOA	861446.38	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1121776.64	1035.02	6831.2	False	13C2-PFOA	861446.38	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	1087488.88	1222.70	20636.9	False	13C2-PFDA	978494.04	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1010315.76	1237.51	4229.4	False	13C2-PFDA	978494.04	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	1087945.70	1489.87	3752.2	False	13C2-PFDA	978494.04	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	229391.53	1140.93	4069.5	False	13C4-PFOS	198429.50	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	180708.69	1080.71	1569.5	False	13C4-PFOS	198429.50	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	149864.68	958.35	1133.4	False	13C4-PFOS	198429.50	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	636112.09	969.35	3882.2	False	13C2-PFOA	861446.38	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4954-FS1(0)	**Injection Vial**	20
Sample ID	POL-MW0041SI-020.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:17:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	354261.55	497.86	2723.8	False	13C2-PFDA	748166.26	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	95329.74	1110.26	637.3	False	13C4-PFOS	135150.14	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	86379.20	986.26	516.3	False	13C4-PFOS	135150.14	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.59	140071.26	325.83	265.8	False	13C2-PFOA	415517.88	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	268840.06	615.28	440.3	False	13C2-PFOA	415517.88	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	510853.93	954.45	860.6	False	13C2-PFOA	415517.88	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	711780.69	1361.53	824.4	False	13C2-PFOA	415517.88	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	786178.00	1156.05	1725.5	False	13C2-PFDA	748166.26	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	576721.76	923.89	2225.6	False	13C2-PFDA	748166.26	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	83010.35	148.67	3171.9	False	13C2-PFDA	748166.26	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	46407.47	338.89	518.3	False	13C4-PFOS	135150.14	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	90985.73	798.90	340.6	False	13C4-PFOS	135150.14	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	126404.72	1186.81	247.3	False	13C4-PFOS	135150.14	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	166723.89	526.72	708.9	False	13C2-PFOA	415517.88	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4955-FS1(0)	Injection Vial	21
Sample ID	POL-MW0008S-009.3-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:28:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	458468.96	506.16	2418.6	False	13C2-PFDA	952354.90	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	127946.46	1441.77	870.9	False	13C4-PFOS	139683.02	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	106216.62	1173.41	671.1	False	13C4-PFOS	139683.02	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	148252.47	298.04	309.9	False	13C2-PFOA	480794.00	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	282690.79	559.14	557.6	False	13C2-PFOA	480794.00	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	581310.33	938.63	609.1	False	13C2-PFOA	480794.00	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	818985.68	1353.90	903.3	False	13C2-PFOA	480794.00	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	912983.22	1054.67	2242.0	False	13C2-PFDA	952354.90	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	689125.68	867.26	1892.5	False	13C2-PFDA	952354.90	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	64427.05	90.65	3369.7	False	13C2-PFDA	952354.90	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	50657.76	357.92	658.7	False	13C4-PFOS	139683.02	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	106646.27	906.02	364.2	False	13C4-PFOS	139683.02	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	145659.42	1323.21	232.4	False	13C4-PFOS	139683.02	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	161896.23	442.03	763.1	False	13C2-PFOA	480794.00	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4956-FS1(0)	Injection Vial	22
Sample ID	POL-MW0008I-007.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:38:42 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	305584.19	387.00	3364.7	False	13C2-PFDA	830231.06	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	89642.41	897.66	802.4	False	13C4-PFOS	157186.25	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	74224.64	728.68	549.8	False	13C4-PFOS	157186.25	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	295124.94	488.06	421.0	False	13C2-PFOA	584476.23	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	482373.62	784.84	846.1	False	13C2-PFOA	584476.23	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	640914.58	851.30	839.7	False	13C2-PFOA	584476.23	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	743134.34	1010.58	1369.3	False	13C2-PFOA	584476.23	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	748236.91	991.50	2765.4	False	13C2-PFDA	830231.06	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	543057.03	783.97	2538.9	False	13C2-PFDA	830231.06	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	90543.29	146.14	3111.2	False	13C2-PFDA	830231.06	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	86843.90	545.27	1164.3	False	13C4-PFOS	157186.25	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	130838.44	987.77	459.3	False	13C4-PFOS	157186.25	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	124043.80	1001.37	295.0	False	13C4-PFOS	157186.25	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	279029.35	626.70	1147.4	False	13C2-PFOA	584476.23	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Sample Name	H4957-FS1(0)	Injection Vial	23
Sample ID	POL-MW0036SI-020.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:49:15 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	843683.61	795.90	4493.6	False	13C2-PFDA	1114547.11	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	126527.30	1184.49	667.1	False	13C4-PFOS	168138.33	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	111693.43	1025.09	707.5	False	13C4-PFOS	168138.33	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	231958.59	356.59	413.7	False	13C2-PFOA	628748.19	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	387145.94	585.55	749.3	False	13C2-PFOA	628748.19	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	715852.09	883.88	850.7	False	13C2-PFOA	628748.19	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	979234.92	1237.89	1003.1	False	13C2-PFOA	628748.19	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	1110836.11	1096.49	2491.4	False	13C2-PFDA	1114547.11	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	943910.60	1015.04	3123.7	False	13C2-PFDA	1114547.11	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	348077.19	418.48	3891.9	False	13C2-PFDA	1114547.11	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	61356.87	360.15	800.7	False	13C4-PFOS	168138.33	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	126933.44	895.87	347.7	False	13C4-PFOS	168138.33	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	166322.39	1255.21	318.9	False	13C4-PFOS	168138.33	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	246190.05	514.00	658.4	False	13C2-PFOA	628748.19	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4958-FS1(0)	Injection Vial	24
Sample ID	POL-MW0036I-027.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:59:49 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	485726.89	513.63	3248.6	False	13C2-PFDA	994297.67	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	125683.86	1160.49	947.2	False	13C4-PFOS	170470.94	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	105852.80	958.19	691.8	False	13C4-PFOS	170470.94	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	213724.92	349.30	374.8	False	13C2-PFOA	591414.88	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	389248.57	625.89	584.9	True	13C2-PFOA	591414.88	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	666058.21	874.31	852.2	False	13C2-PFOA	591414.88	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	850264.10	1142.70	1185.5	False	13C2-PFOA	591414.88	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	926468.62	1025.11	2480.1	False	13C2-PFDA	994297.67	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	759123.90	915.05	2330.9	False	13C2-PFDA	994297.67	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	63968.26	86.21	3331.2	False	13C2-PFDA	994297.67	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	64525.67	373.57	1045.4	False	13C4-PFOS	170470.94	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	117298.97	816.54	548.6	False	13C4-PFOS	170470.94	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	141131.80	1050.53	287.1	False	13C4-PFOS	170470.94	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	242267.39	537.74	1186.5	False	13C2-PFOA	591414.88	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4959-FS1(0)	**Injection Vial**	25
Sample ID	POL-MW0047I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:10:22 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	831794.85	901.40	4071.6	False	13C2-PFDA	970235.76	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	96413.91	966.13	755.2	False	13C4-PFOS	157079.06	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	95339.27	936.60	804.8	False	13C4-PFOS	157079.06	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	241160.81	373.45	483.4	False	13C2-PFOA	624183.23	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	415423.00	632.91	843.1	False	13C2-PFOA	624183.23	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	663569.96	825.32	1119.7	False	13C2-PFOA	624183.23	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	879636.75	1120.11	977.9	False	13C2-PFOA	624183.23	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	805737.91	913.63	2407.0	False	13C2-PFDA	970235.76	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	752806.56	929.94	2770.8	False	13C2-PFDA	970235.76	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	575935.80	795.42	4339.1	False	13C2-PFDA	970235.76	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	80182.22	503.79	1132.2	False	13C4-PFOS	157079.06	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	129826.73	980.80	502.1	False	13C4-PFOS	157079.06	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	128061.86	1034.51	294.2	False	13C4-PFOS	157079.06	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	272604.55	573.32	1340.9	False	13C2-PFOA	624183.23	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4960-FS1(0)	Injection Vial	26
Sample ID	POL-FRB-0200422-01	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:20:54 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1417272.77	1338.43	6653.5	False	13C2-PFDA	1113360.70	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	166099.04	1240.78	1265.8	False	13C4-PFOS	210709.73	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	172475.57	1263.12	1155.9	False	13C4-PFOS	210709.73	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	1060788.56	1243.88	4513.9	False	13C2-PFOA	824301.96	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	1092849.81	1260.78	14755.2	False	13C2-PFOA	824301.96	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1393895.71	1312.78	21305.3	False	13C2-PFOA	824301.96	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1351624.79	1303.29	34878.8	False	13C2-PFOA	824301.96	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	1245114.78	1230.35	10906.5	False	13C2-PFDA	1113360.70	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1206287.17	1298.57	5528.1	False	13C2-PFDA	1113360.70	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	1164932.16	1402.05	4312.9	False	13C2-PFDA	1113360.70	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	258147.08	1209.12	5176.8	False	13C4-PFOS	210709.73	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	210056.82	1183.01	1679.9	False	13C4-PFOS	210709.73	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	197318.84	1188.28	1086.2	False	13C4-PFOS	210709.73	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	624220.55	994.09	3573.0	False	13C2-PFOA	824301.96	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4961-FS1(0)	Injection Vial	30
Sample ID	POL-MW0047D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:03:04 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	686522.78	743.73	4345.0	False	13C2-PFDA	970556.02	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	127948.11	1218.78	1198.8	False	13C4-PFOS	165242.46	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	108168.97	1010.14	970.5	False	13C4-PFOS	165242.46	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	232434.27	398.52	404.4	False	13C2-PFOA	563744.43	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	357993.10	603.89	786.7	False	13C2-PFOA	563744.43	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	639471.37	880.62	733.8	False	13C2-PFOA	563744.43	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	834697.48	1176.84	1275.9	False	13C2-PFOA	563744.43	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	894554.08	1014.01	2279.1	False	13C2-PFDA	970556.02	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	798890.35	986.55	3083.6	False	13C2-PFDA	970556.02	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	142356.53	196.54	4157.4	False	13C2-PFDA	970556.02	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	68765.02	410.71	1025.5	False	13C4-PFOS	165242.46	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	115651.39	830.55	487.8	False	13C4-PFOS	165242.46	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	152189.11	1168.68	369.5	False	13C4-PFOS	165242.46	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	234217.39	545.39	1164.3	False	13C2-PFOA	563744.43	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4961-FS1-D(3)	Injection Vial	31
Sample ID	POL-MW0047D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:13:36 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1169963.62	1173.19	5420.1	False	13C2-PFDA	1048532.99	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	150328.44	1326.52	1337.1	False	13C4-PFOS	178377.60	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	157965.18	1366.54	1047.4	False	13C4-PFOS	178377.60	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	629045.17	847.31	979.0	False	13C2-PFOA	717588.08	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	859291.12	1138.76	2002.1	False	13C2-PFOA	717588.08	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1159776.25	1254.72	1564.4	False	13C2-PFOA	717588.08	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1164957.12	1290.34	1851.8	False	13C2-PFOA	717588.08	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	1101893.87	1156.14	3965.5	False	13C2-PFDA	1048532.99	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1014689.21	1159.85	5483.9	False	13C2-PFDA	1048532.99	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	914893.35	1169.20	4322.9	False	13C2-PFDA	1048532.99	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	173855.62	961.91	3632.3	False	13C4-PFOS	178377.60	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	191335.20	1272.89	989.9	False	13C4-PFOS	178377.60	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	180219.97	1282.02	460.5	False	13C4-PFOS	178377.60	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	510769.31	934.38	2794.2	False	13C2-PFOA	717588.08	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4962-FS1(0)	Injection Vial	32
Sample ID	POL-MW0047DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:24:08 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.69	376716.20	410.37	3204.0	False	13C2-PFDA	965205.56	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.22	100568.32	865.28	816.8	False	13C4-PFOS	182943.54	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	86603.81	730.50	644.8	False	13C4-PFOS	182943.54	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.59	307824.14	500.40	521.0	False	13C2-PFOA	594589.51	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.94	475844.73	761.05	857.8	False	13C2-PFOA	594589.51	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.33	763273.00	996.58	996.1	False	13C2-PFOA	594589.51	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	828814.33	1107.93	930.8	False	13C2-PFOA	594589.51	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	918211.10	1046.59	2215.5	False	13C2-PFDA	965205.56	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	612281.71	760.29	3182.4	False	13C2-PFDA	965205.56	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	47735.04	66.27	2852.2	False	13C2-PFDA	965205.56	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	91885.98	495.70	1531.3	False	13C4-PFOS	182943.54	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	155819.01	1010.74	522.9	False	13C4-PFOS	182943.54	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.71	156903.35	1088.30	389.6	False	13C4-PFOS	182943.54	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	327290.03	722.58	1678.1	False	13C2-PFOA	594589.51	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4963-FS1(0)	Injection Vial	33
Sample ID	POL-MW0046D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:34:39 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	620528.39	636.79	3817.3	False	13C2-PFDA	1024581.84	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	96290.99	881.30	651.4	False	13C4-PFOS	171979.26	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	78058.07	700.39	686.3	False	13C4-PFOS	171979.26	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	250019.86	366.11	463.6	False	13C2-PFOA	660083.76	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	404809.85	583.20	683.8	False	13C2-PFOA	660083.76	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	633351.94	744.89	1062.5	False	13C2-PFOA	660083.76	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	915559.48	1102.45	905.5	False	13C2-PFOA	660083.76	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	975490.27	1047.44	2006.4	False	13C2-PFDA	1024581.84	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	804408.20	940.98	2716.9	False	13C2-PFDA	1024581.84	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	100402.11	131.31	2997.9	False	13C2-PFDA	1024581.84	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	70674.26	405.58	1115.1	False	13C4-PFOS	171979.26	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	134869.55	930.62	500.5	False	13C4-PFOS	171979.26	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	152036.96	1121.78	332.0	False	13C4-PFOS	171979.26	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	248966.65	495.13	1215.9	False	13C2-PFOA	660083.76	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4963-FS1-D(3)	Injection Vial	34
Sample ID	POL-MW0046D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:45:11 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1145777.56	1300.40	7026.0	False	13C2-PFDA	926408.65	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	139056.82	1184.77	1163.3	False	13C4-PFOS	184743.90	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	135368.18	1130.70	908.7	False	13C4-PFOS	184743.90	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	612205.56	786.55	826.4	False	13C2-PFOA	752323.77	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	838809.66	1060.29	1743.0	False	13C2-PFOA	752323.77	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1174433.61	1211.91	1475.1	False	13C2-PFOA	752323.77	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	1242881.64	1313.09	1859.4	False	13C2-PFOA	752323.77	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	1138821.44	1352.41	3488.0	False	13C2-PFDA	926408.65	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1013022.76	1310.59	4070.3	False	13C2-PFDA	926408.65	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	992525.32	1435.62	4176.3	False	13C2-PFDA	926408.65	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	159030.69	849.57	2575.5	False	13C4-PFOS	184743.90	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	189728.74	1218.70	778.5	False	13C4-PFOS	184743.90	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	199531.40	1370.49	602.0	False	13C4-PFOS	184743.90	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	486140.41	848.26	1661.3	False	13C2-PFOA	752323.77	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4964-FS1(0)	Injection Vial	35
Sample ID	POL-MW0046DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:55:42 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1024607.57	1067.36	6565.1	False	13C2-PFDA	1009316.11	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	132093.92	1155.75	936.7	False	13C4-PFOS	179899.50	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	125479.30	1076.32	850.8	False	13C4-PFOS	179899.50	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	301750.50	532.90	476.9	False	13C2-PFOA	547312.19	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	439221.83	763.16	957.8	False	13C2-PFOA	547312.19	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	674554.63	956.82	929.6	False	13C2-PFOA	547312.19	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	823153.09	1195.41	1119.3	False	13C2-PFOA	547312.19	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	980218.33	1068.44	3068.0	False	13C2-PFDA	1009316.11	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	940425.35	1116.73	3300.0	False	13C2-PFDA	1009316.11	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	575906.36	764.58	3539.6	False	13C2-PFDA	1009316.11	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	83832.67	459.91	1451.9	False	13C4-PFOS	179899.50	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	135811.57	895.86	623.2	False	13C4-PFOS	179899.50	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	146527.97	1033.53	357.4	False	13C4-PFOS	179899.50	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	296318.85	710.72	1168.4	False	13C2-PFOA	547312.19	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4966-FS1(0)	**Injection Vial**	36
Sample ID	POL-MW0045I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:06:14 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.69	218132.74	279.64	2630.3	False	13C2-PFDA	820157.00	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	82295.92	865.67	602.1	False	13C4-PFOS	149636.89	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	74762.31	770.98	558.1	False	13C4-PFOS	149636.89	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.59	199871.37	345.78	282.1	False	13C2-PFOA	558704.11	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.94	377464.40	642.48	663.9	False	13C2-PFOA	558704.11	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.33	555811.21	772.31	816.4	False	13C2-PFOA	558704.11	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	667092.93	949.02	717.0	False	13C2-PFOA	558704.11	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	681764.16	914.52	1383.0	False	13C2-PFDA	820157.00	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	496125.82	725.01	1990.9	False	13C2-PFDA	820157.00	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	14530.24	23.74	1508.0	False	13C2-PFDA	820157.00	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	67059.10	442.29	934.7	False	13C4-PFOS	149636.89	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	116994.19	927.81	420.3	False	13C4-PFOS	149636.89	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	110397.85	936.17	284.1	False	13C4-PFOS	149636.89	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	211476.15	496.88	1015.4	False	13C2-PFOA	558704.11	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4966-FS1-D(3)	Injection Vial	37
Sample ID	POL-MW0045I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:16:46 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.70	1327389.88	1443.09	5406.6	False	13C2-PFDA	967127.74	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.23	155101.74	1224.87	1334.7	False	13C4-PFOS	199314.07	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	165888.88	1284.34	1089.5	False	13C4-PFOS	199314.07	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	866677.44	1045.28	1261.9	False	13C2-PFOA	801419.40	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	1067418.86	1266.60	2021.5	False	13C2-PFOA	801419.40	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	1393983.76	1350.35	2301.0	False	13C2-PFOA	801419.40	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	1279859.48	1269.33	2020.9	False	13C2-PFOA	801419.40	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	1227636.36	1396.50	6902.6	False	13C2-PFDA	967127.74	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	1181703.97	1464.45	3757.2	False	13C2-PFDA	967127.74	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	1150894.54	1594.60	4095.8	False	13C2-PFDA	967127.74	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	215400.80	1066.59	2923.6	False	13C4-PFOS	199314.07	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	214069.86	1274.54	966.4	False	13C4-PFOS	199314.07	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	212556.43	1353.22	497.7	False	13C4-PFOS	199314.07	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	588287.32	963.61	2145.1	False	13C2-PFOA	801419.40	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4965-FS1(0)	Injection Vial	40
Sample ID	POL-MW0045S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:48:22 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.69	575971.41	603.68	3295.0	False	13C2-PFDA	1003165.81	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.22	109578.81	1397.52	677.6	False	13C4-PFOS	123419.10	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.39	101113.69	1264.24	537.8	False	13C4-PFOS	123419.10	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.59	144669.87	291.51	240.0	False	13C2-PFOA	479686.98	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.94	291316.78	577.53	437.7	False	13C2-PFOA	479686.98	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.33	525395.22	850.31	650.1	False	13C2-PFOA	479686.98	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	504520.05	835.97	527.6	False	13C2-PFOA	479686.98	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.08	712818.72	781.74	1530.3	False	13C2-PFDA	1003165.81	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	577028.62	689.41	1973.0	False	13C2-PFDA	1003165.81	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.18	140628.14	187.84	4327.5	False	13C2-PFDA	1003165.81	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	53473.08	427.60	612.2	False	13C4-PFOS	123419.10	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	90737.99	872.45	301.8	False	13C4-PFOS	123419.10	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.72	101663.34	1045.24	218.3	False	13C4-PFOS	123419.10	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	170190.76	465.75	645.9	False	13C2-PFOA	479686.98	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4965-FS1-D(3)	Injection Vial	41
Sample ID	POL-MW0045S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:58:55 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.69	1348381.31	1276.03	6944.7	False	13C2-PFDA	1111043.69	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.22	172376.72	1301.54	1229.8	False	13C4-PFOS	208465.80	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.38	188243.36	1393.43	991.3	False	13C4-PFOS	208465.80	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	796191.56	898.51	1279.9	False	13C2-PFOA	856507.23	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	1065519.39	1183.03	1409.3	False	13C2-PFOA	856507.23	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.33	1387874.99	1257.96	1641.2	False	13C2-PFOA	856507.23	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.72	1353406.36	1255.94	1606.0	False	13C2-PFOA	856507.23	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.07	1383582.20	1370.02	4685.3	False	13C2-PFDA	1111043.69	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.40	1245594.29	1343.68	5108.5	False	13C2-PFDA	1111043.69	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.17	1133354.52	1366.89	3305.1	False	13C2-PFDA	1111043.69	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	188560.20	892.69	2419.4	False	13C4-PFOS	208465.80	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	229217.85	1304.82	682.5	False	13C4-PFOS	208465.80	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.71	204064.10	1242.12	557.5	False	13C4-PFOS	208465.80	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	559402.29	857.37	1933.6	False	13C2-PFOA	856507.23	1250.00		N/A	N/A	✓

Chromatograms

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Chromatogram Report

Created with Analyst Reporter
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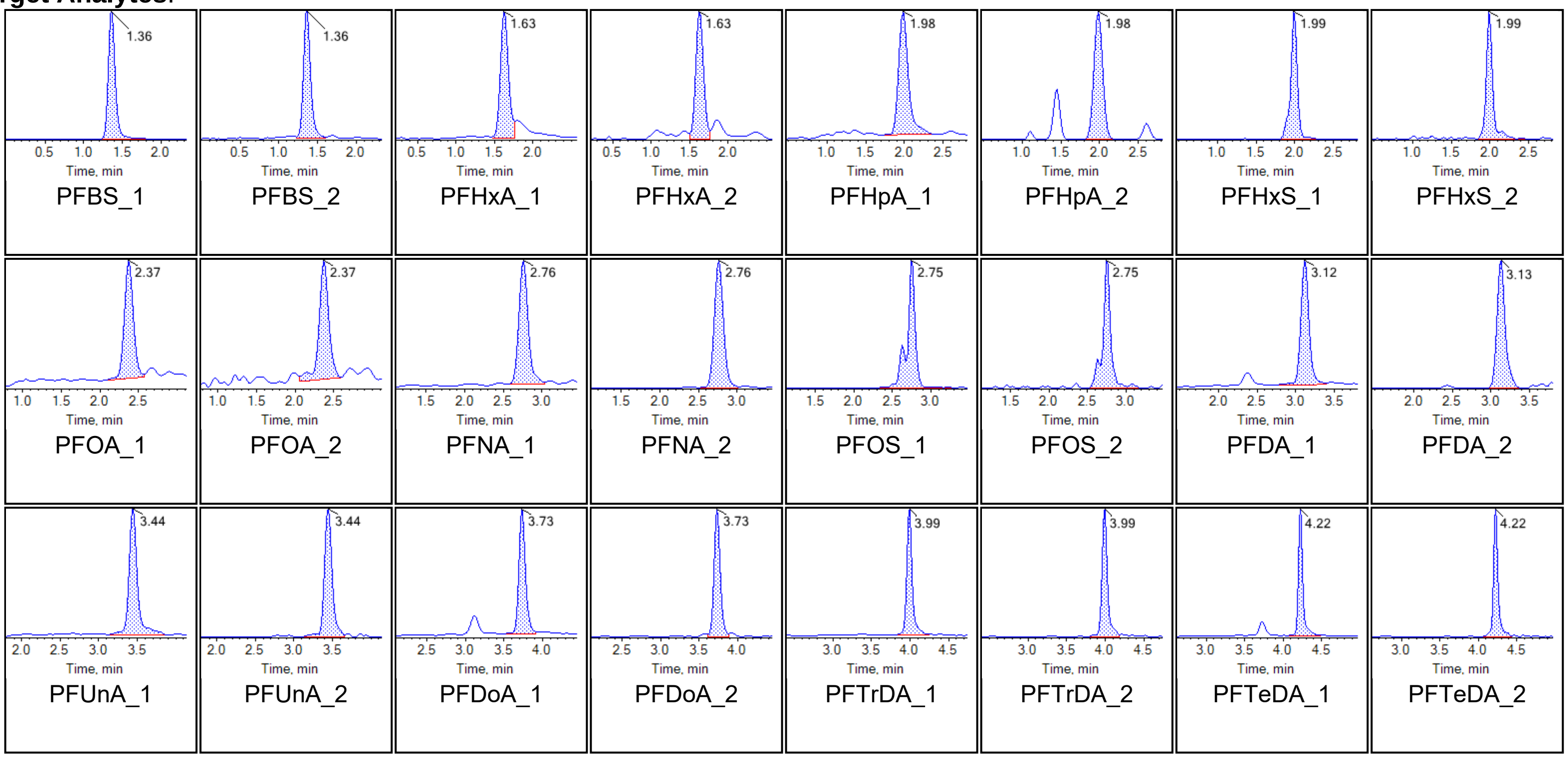
Sample Name	KY83	**Injection Vial**	2
Sample ID	L1	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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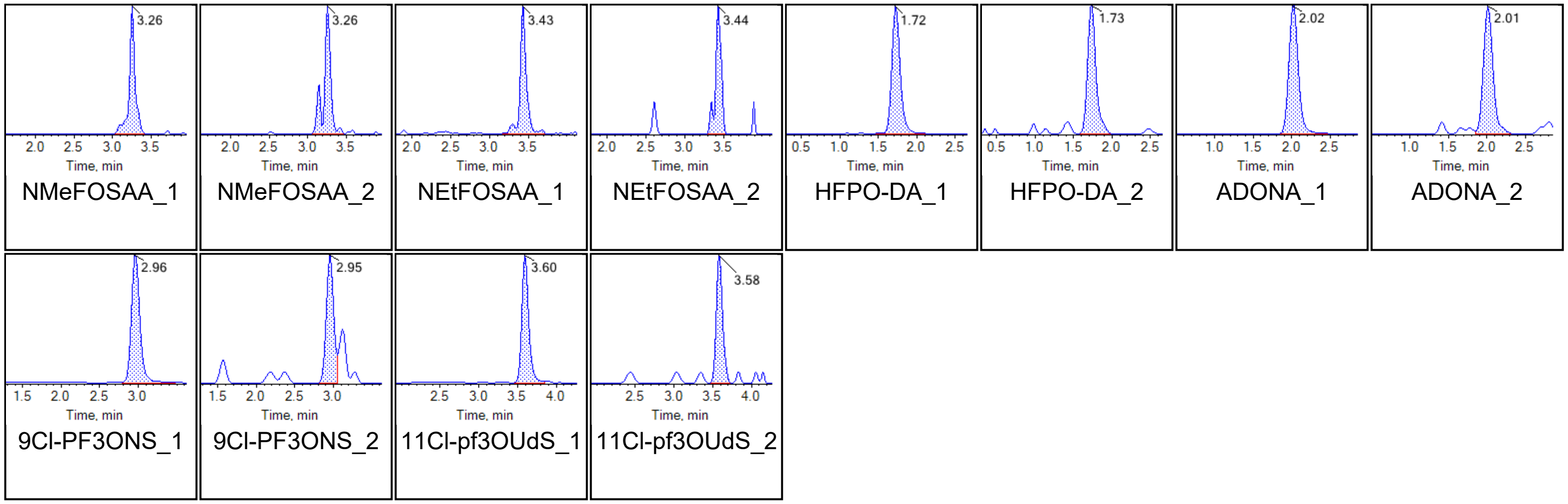
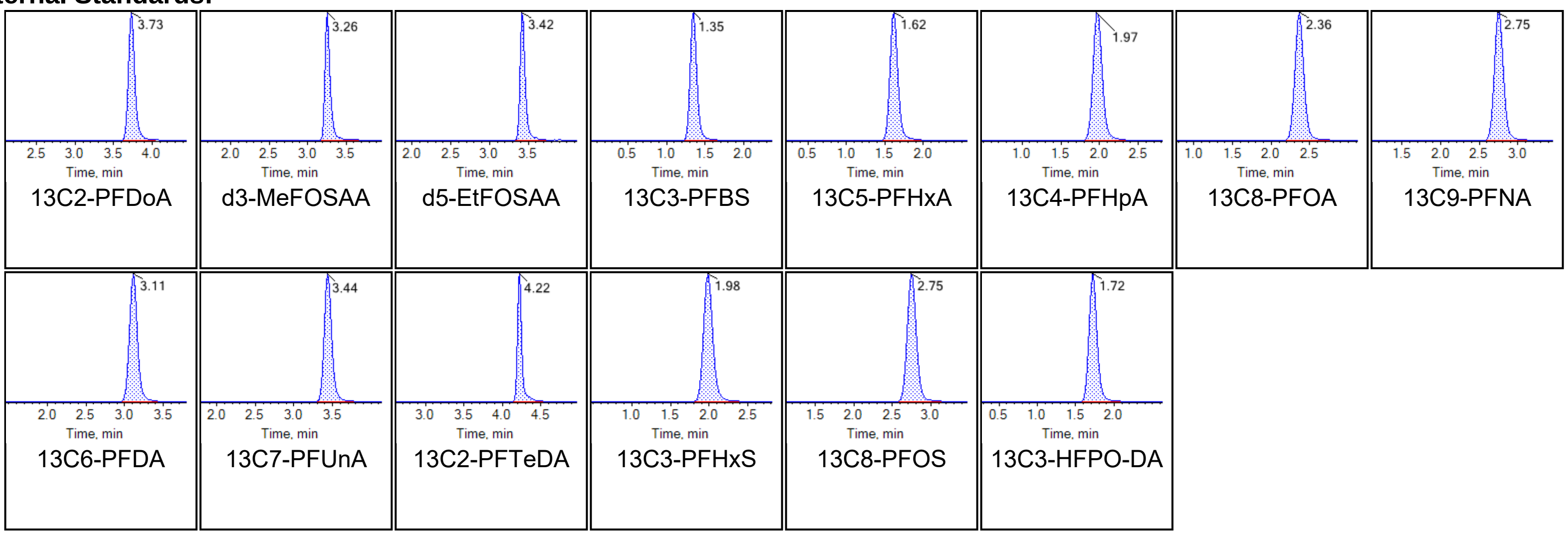
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



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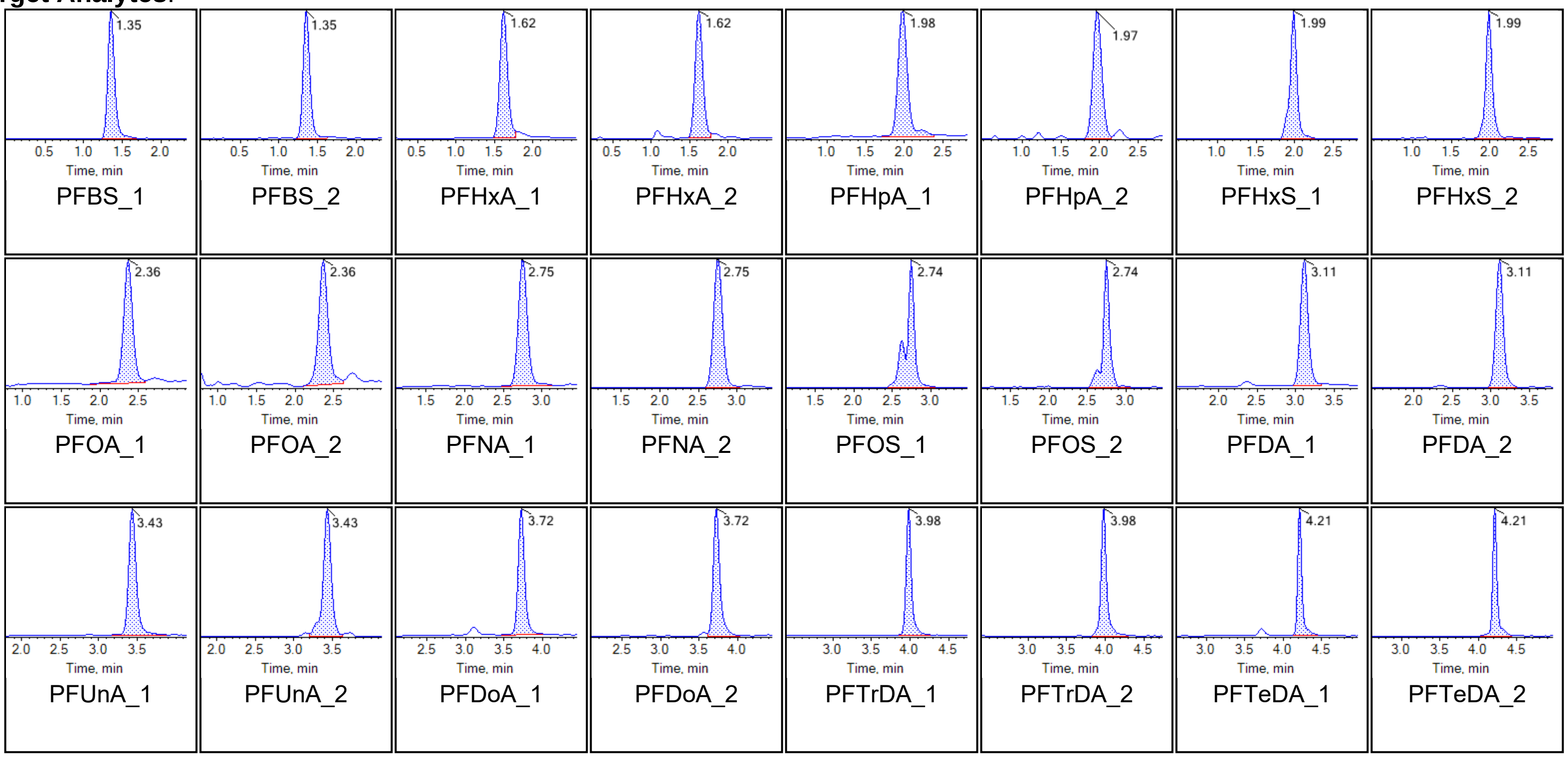
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY84	Injection Vial	3
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:39:19 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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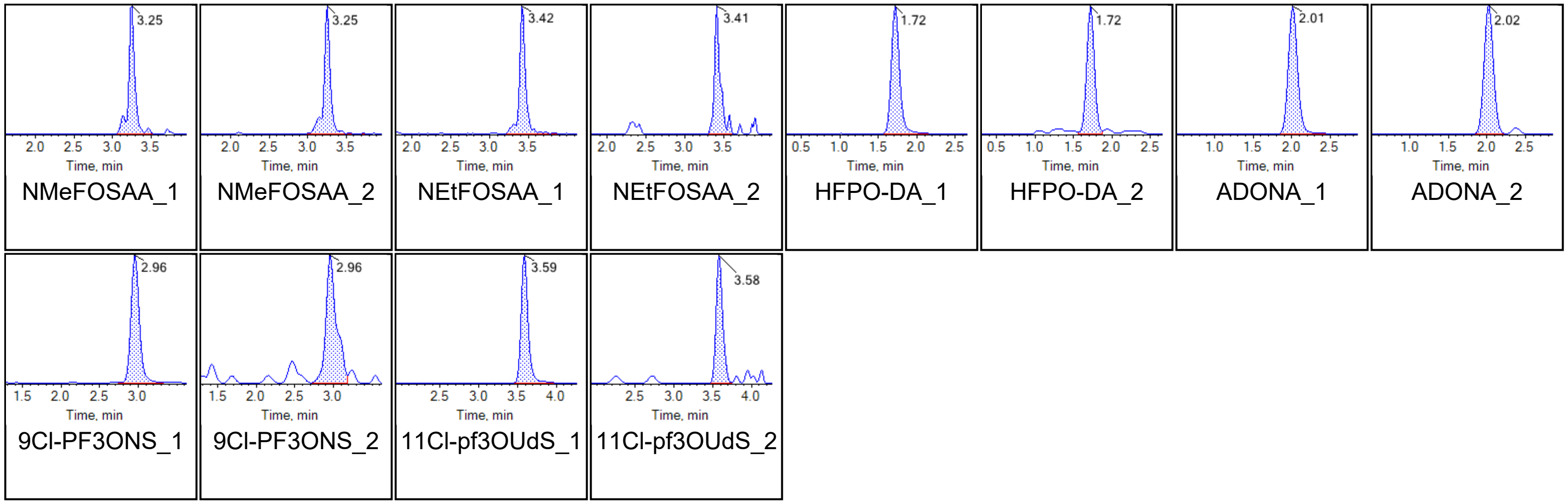
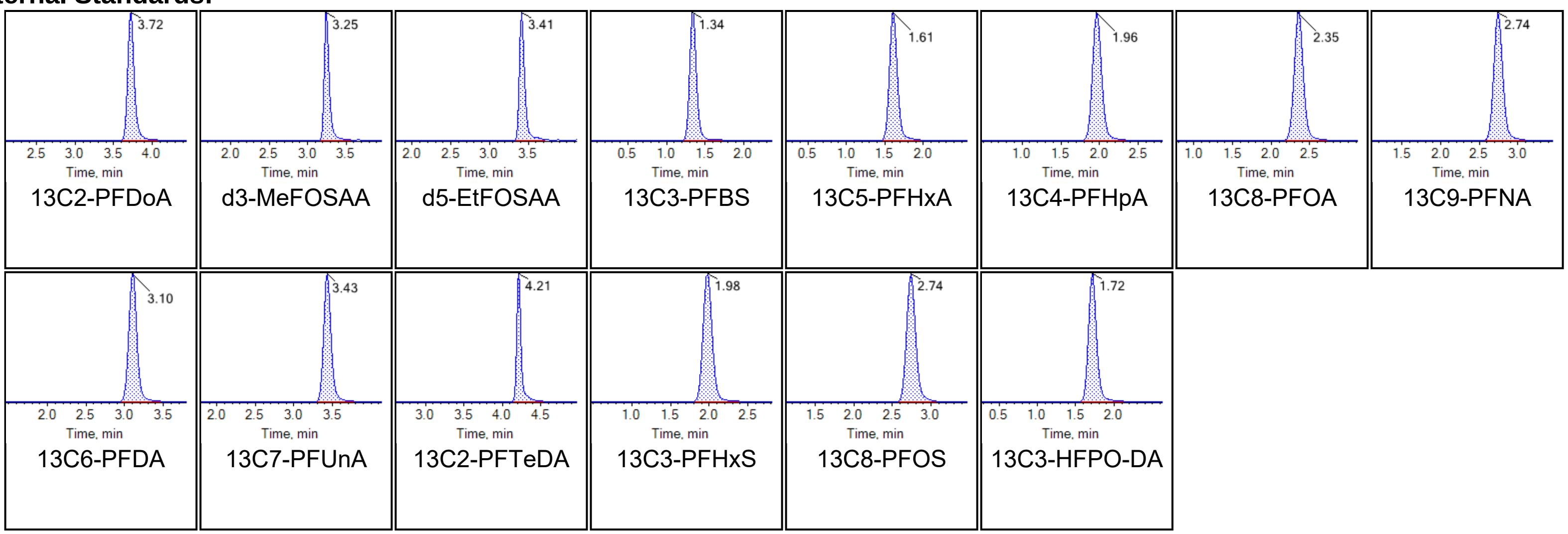
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



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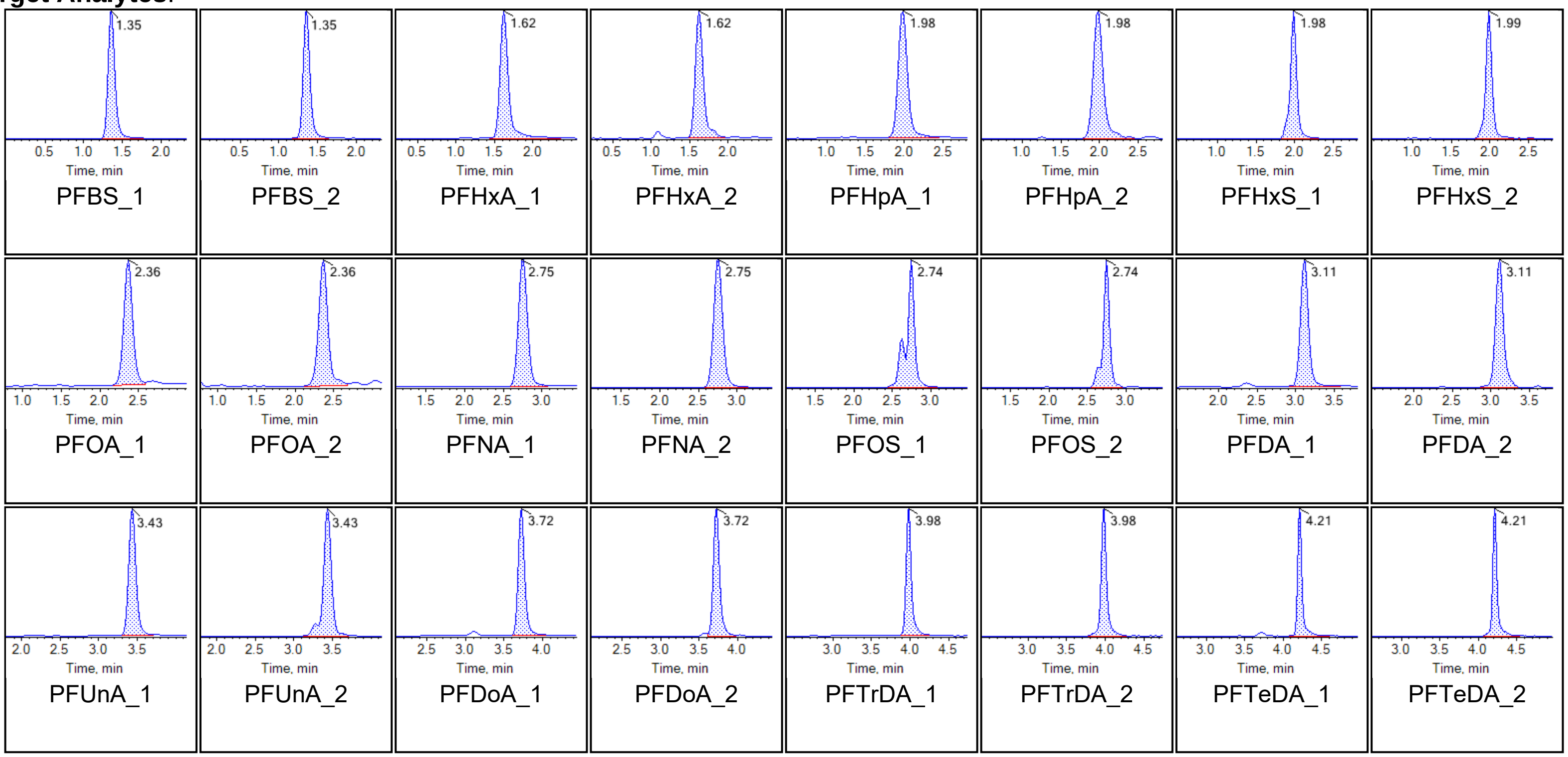
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY85	Injection Vial	4
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:49:51 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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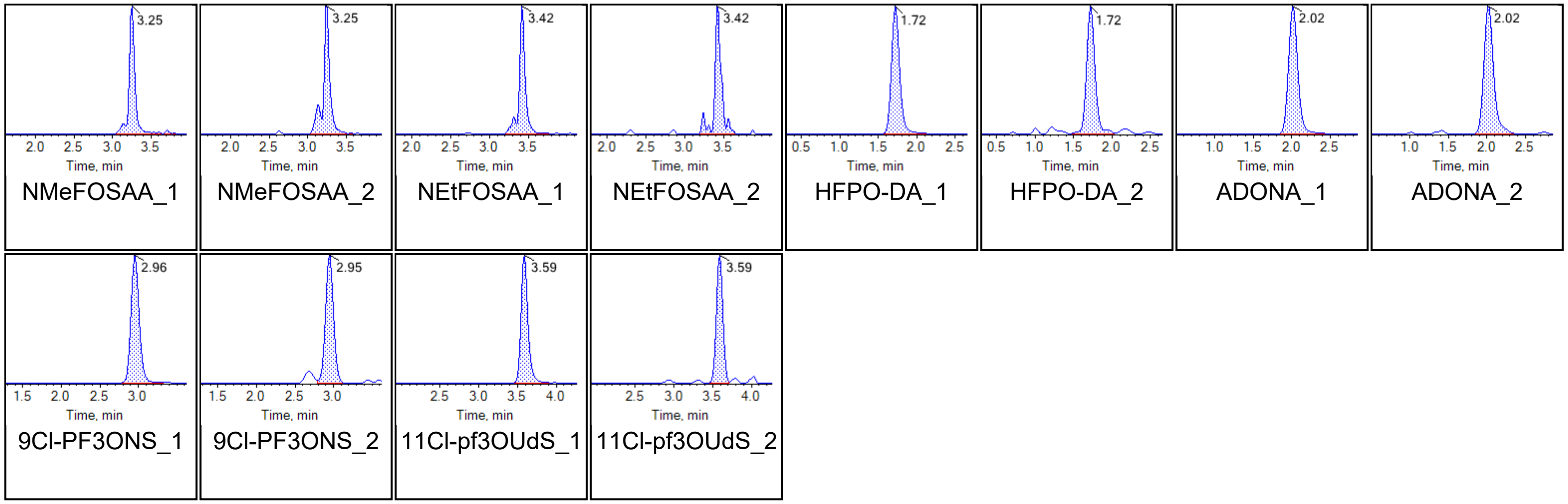
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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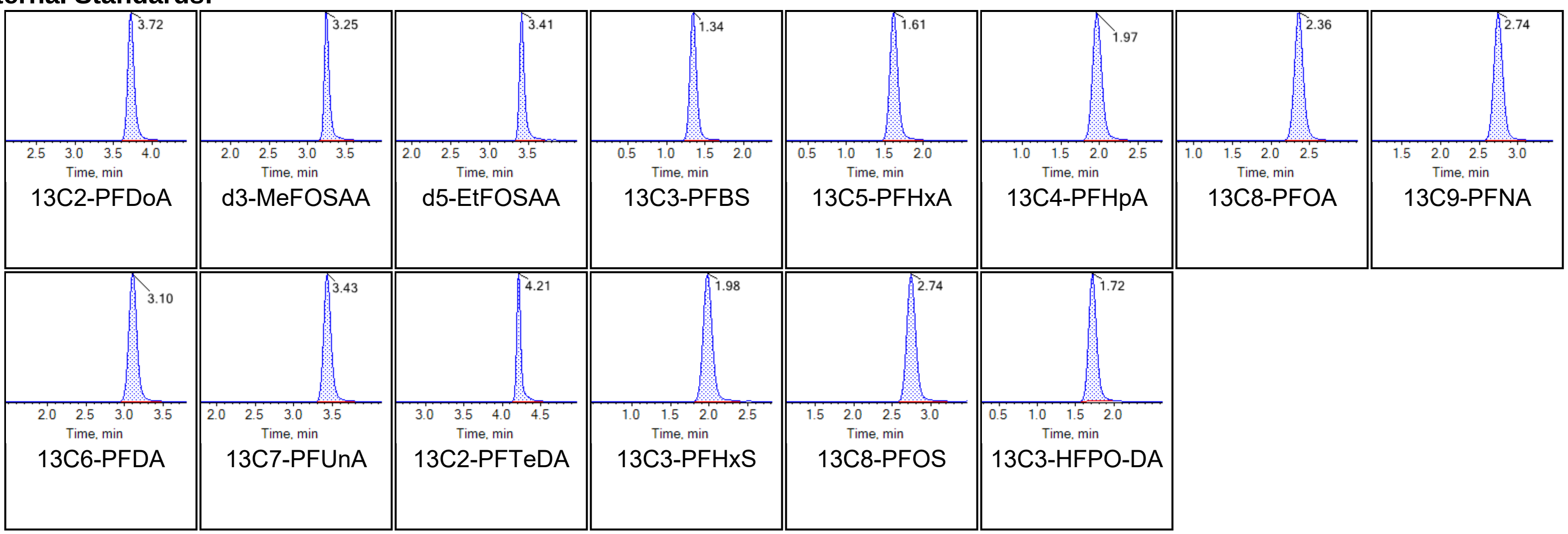

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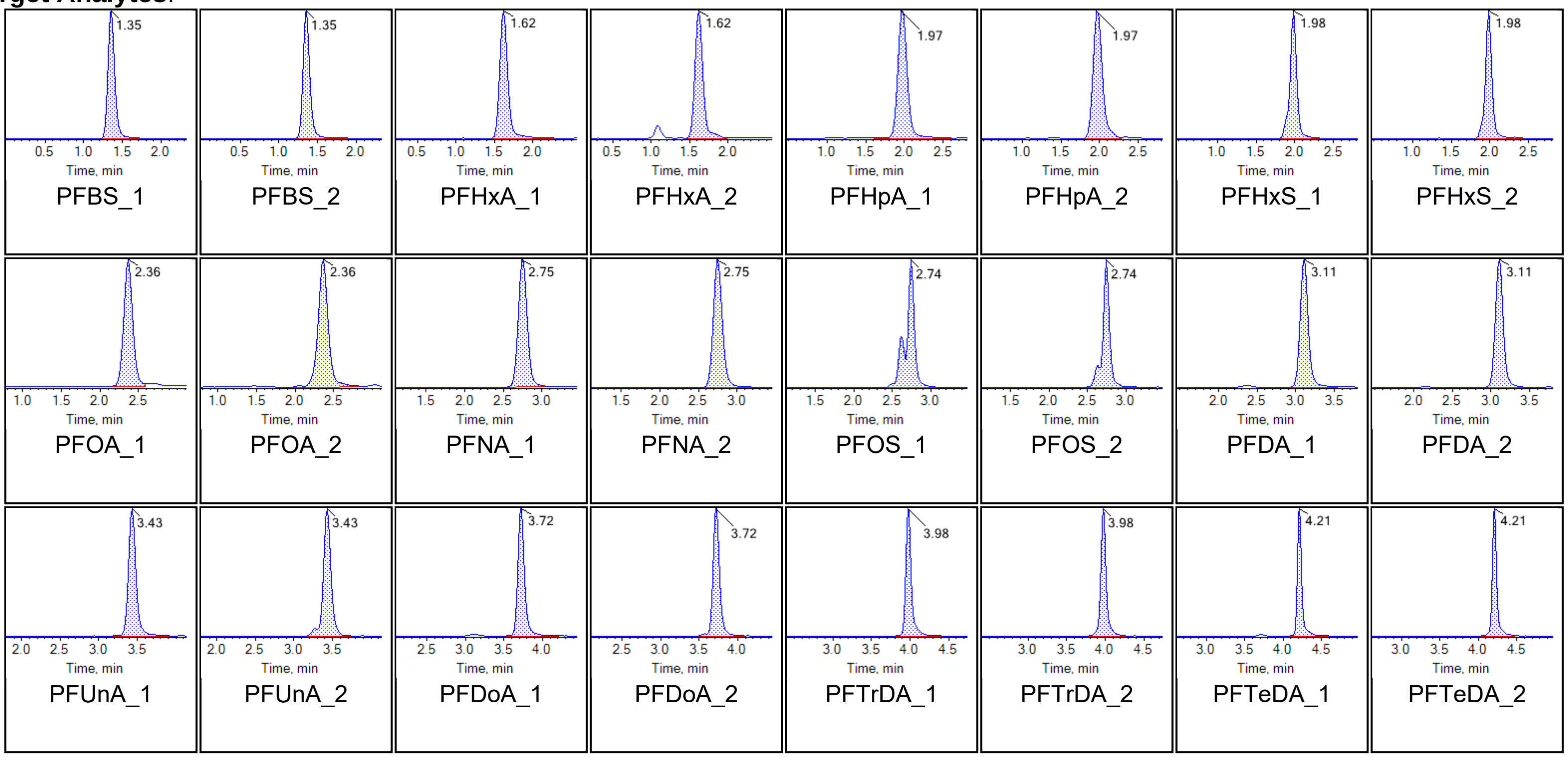
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY86	Injection Vial	5
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:00:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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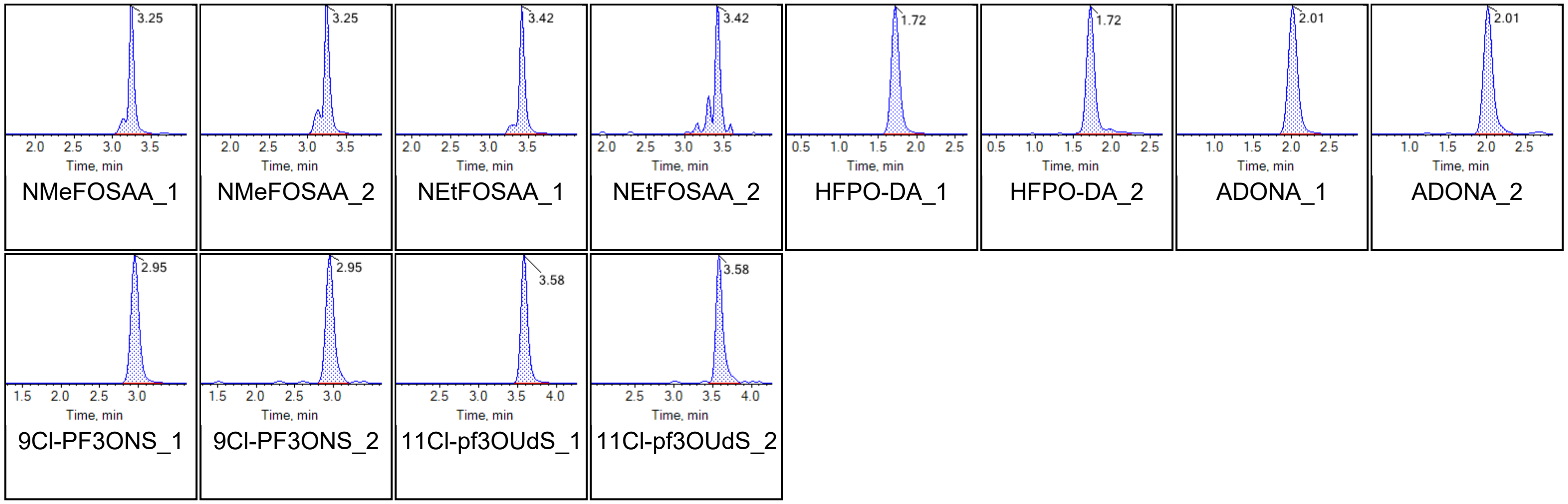
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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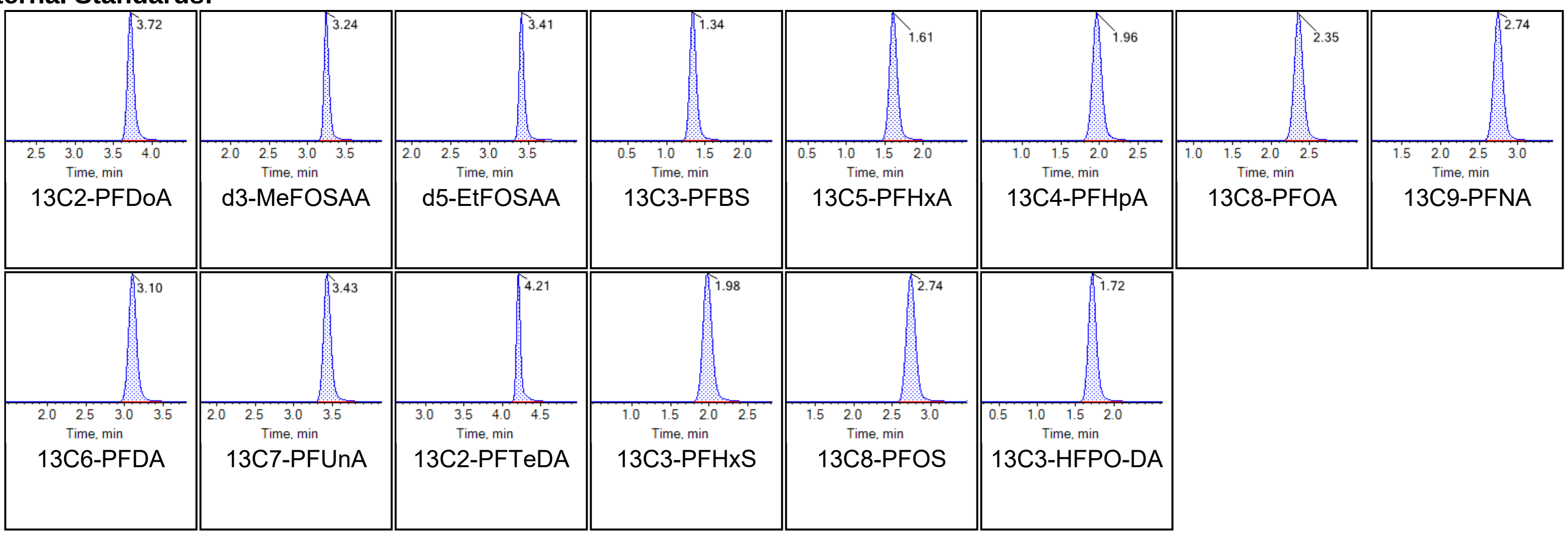

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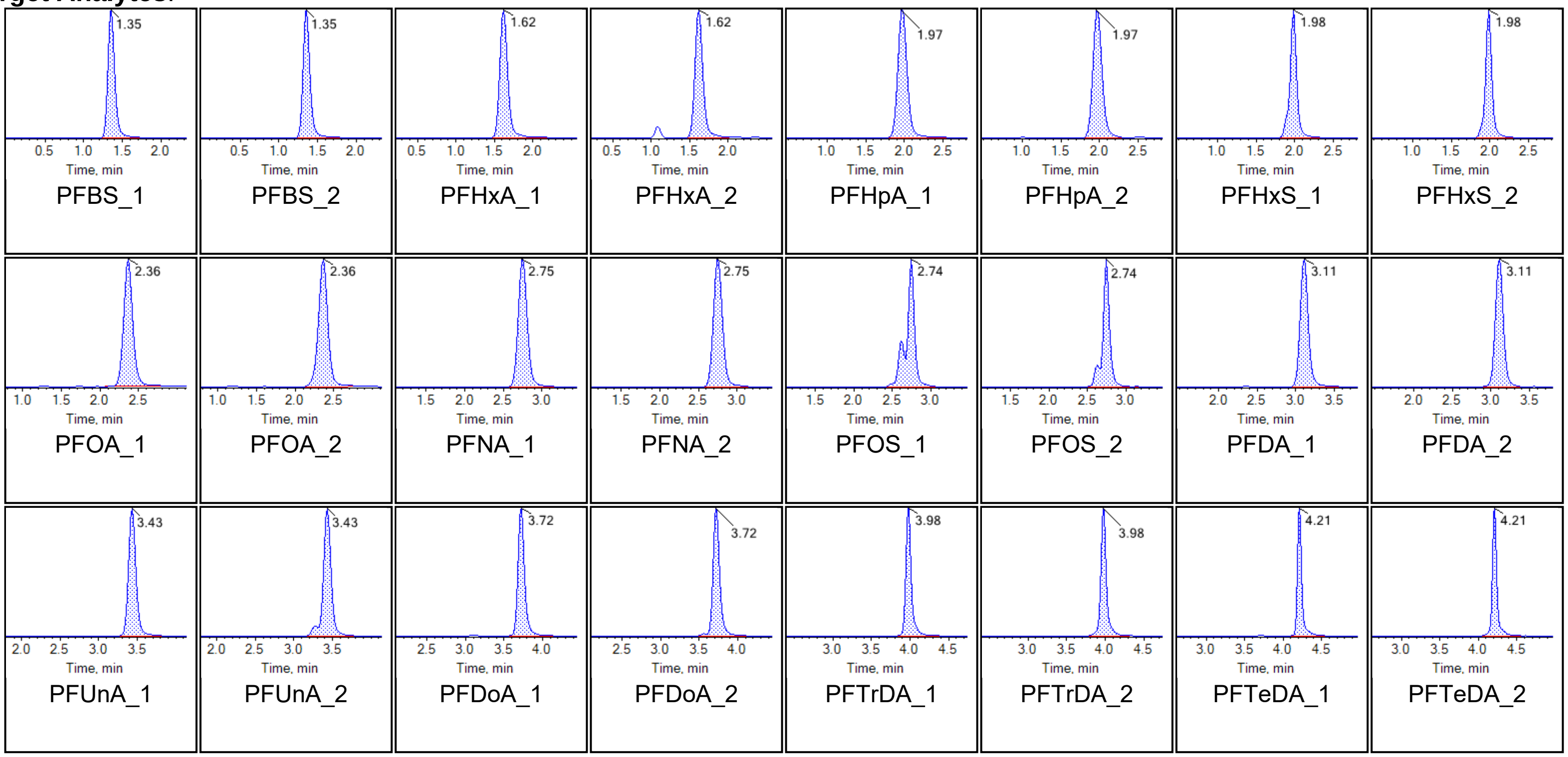
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY87	**Injection Vial**	6
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:10:57 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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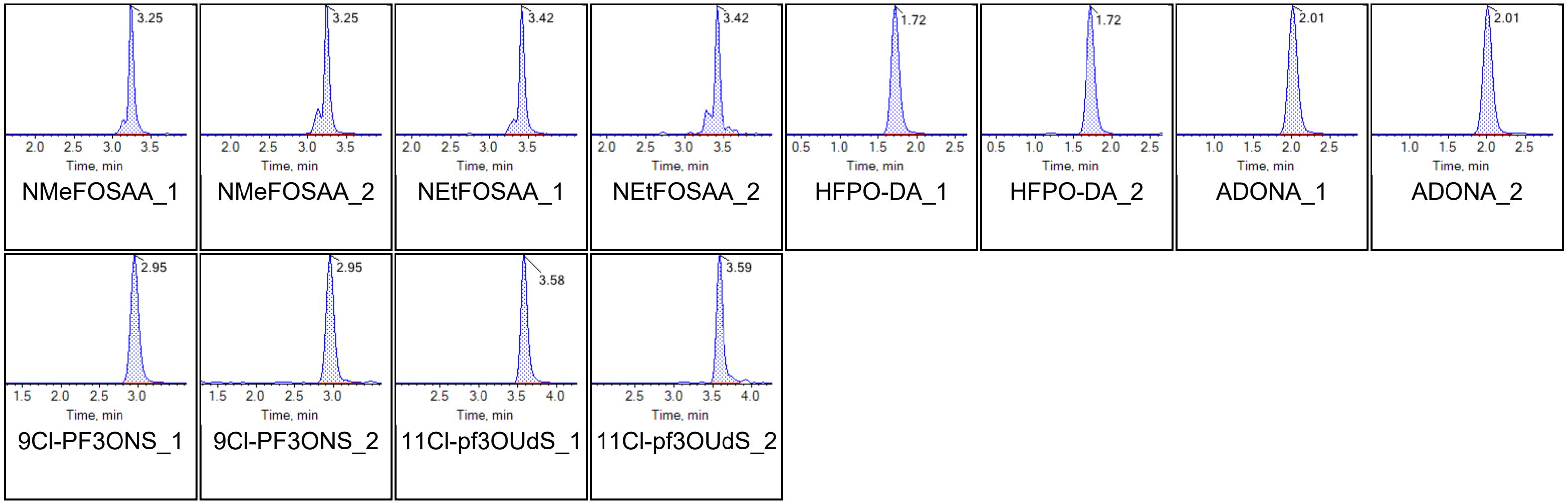
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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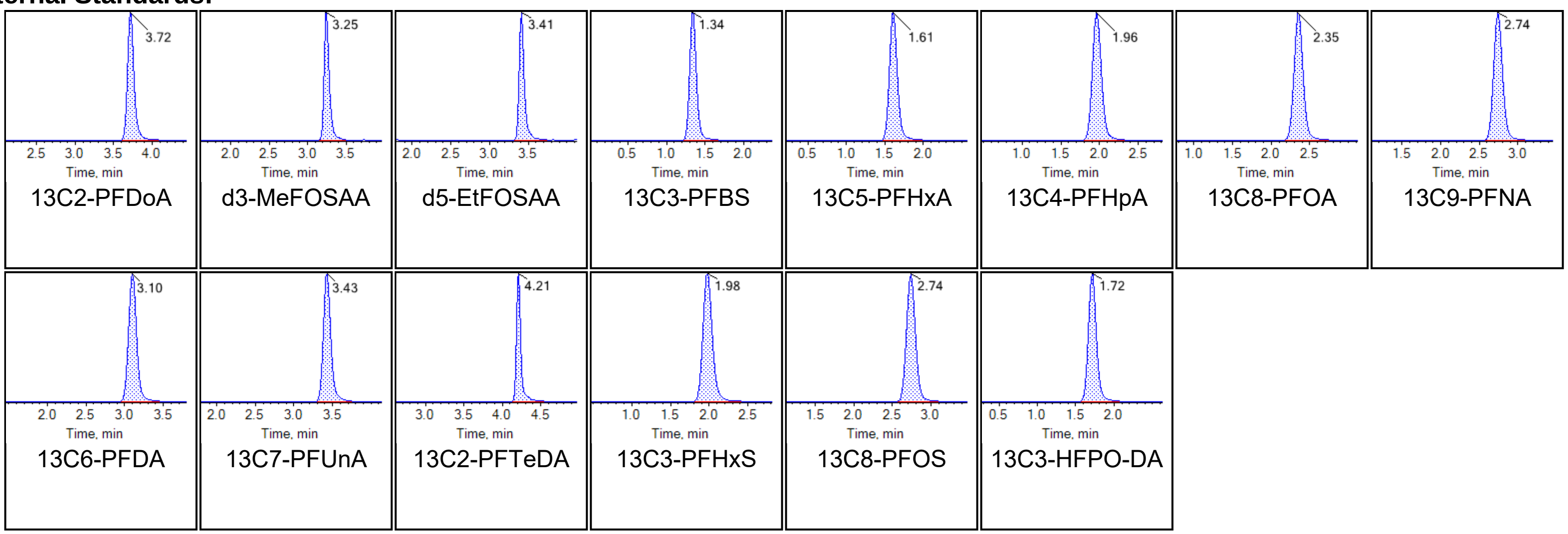

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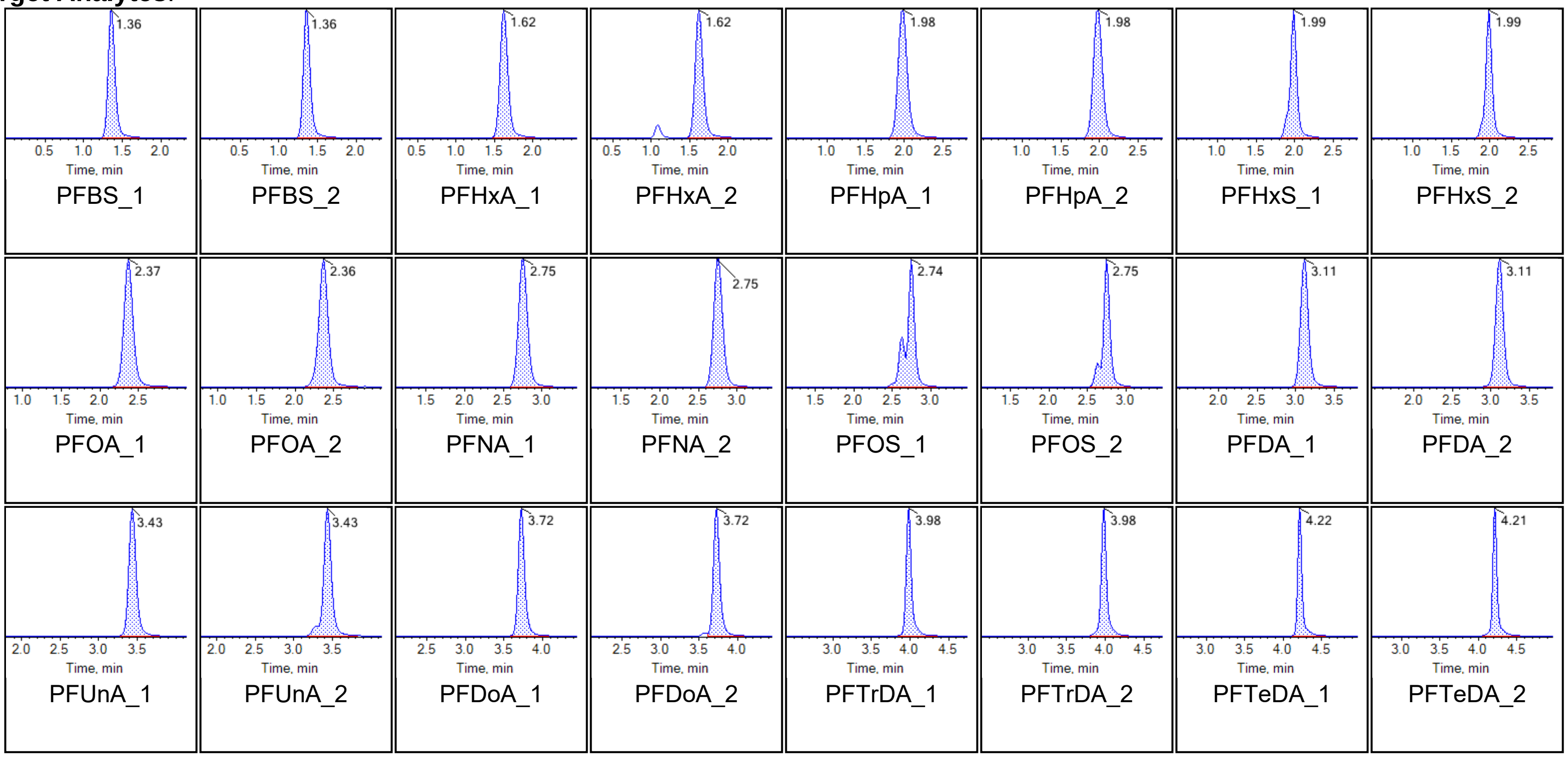
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY88	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:21:30 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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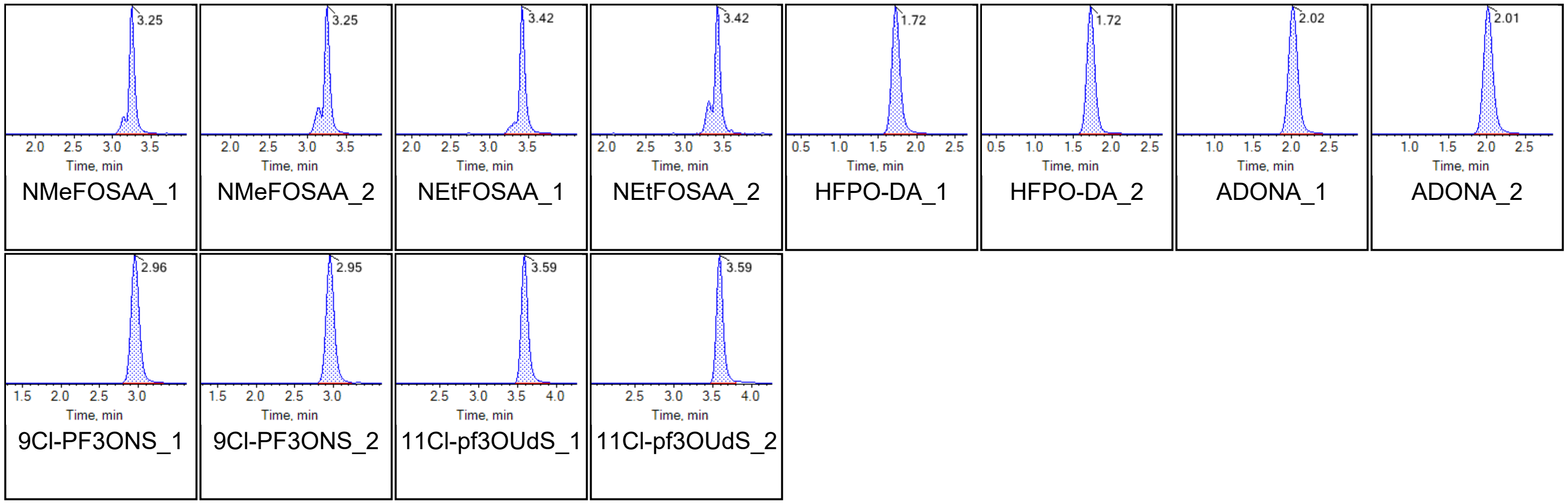
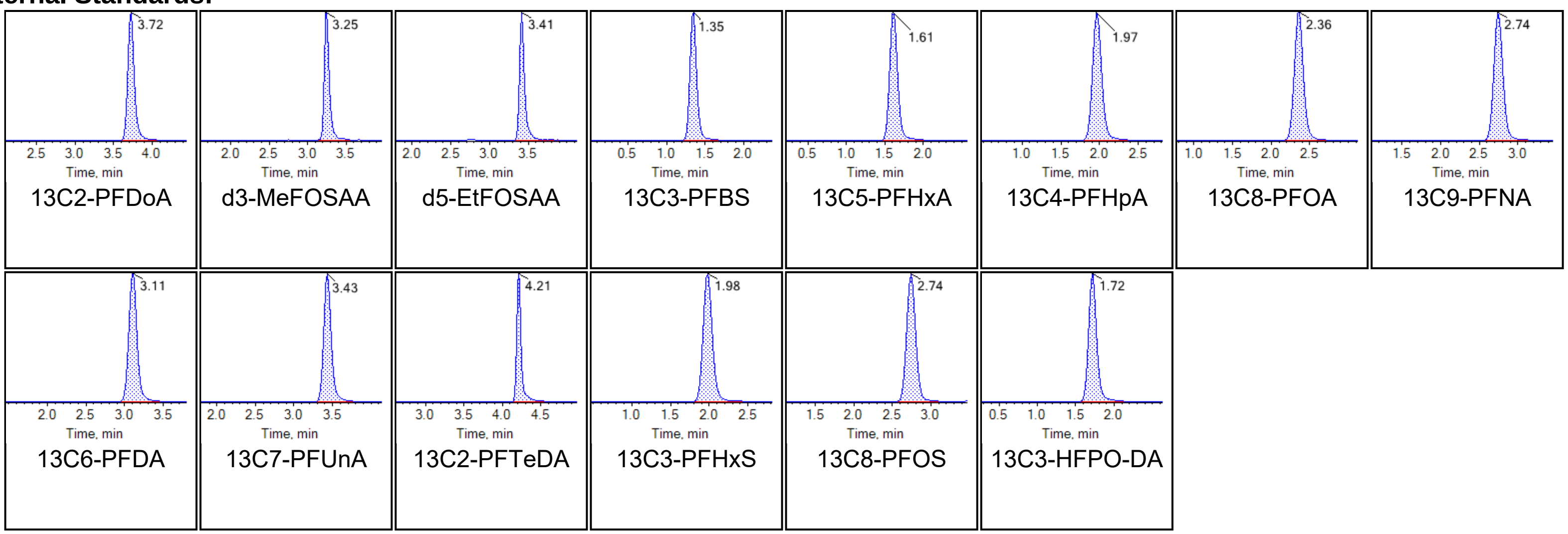
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



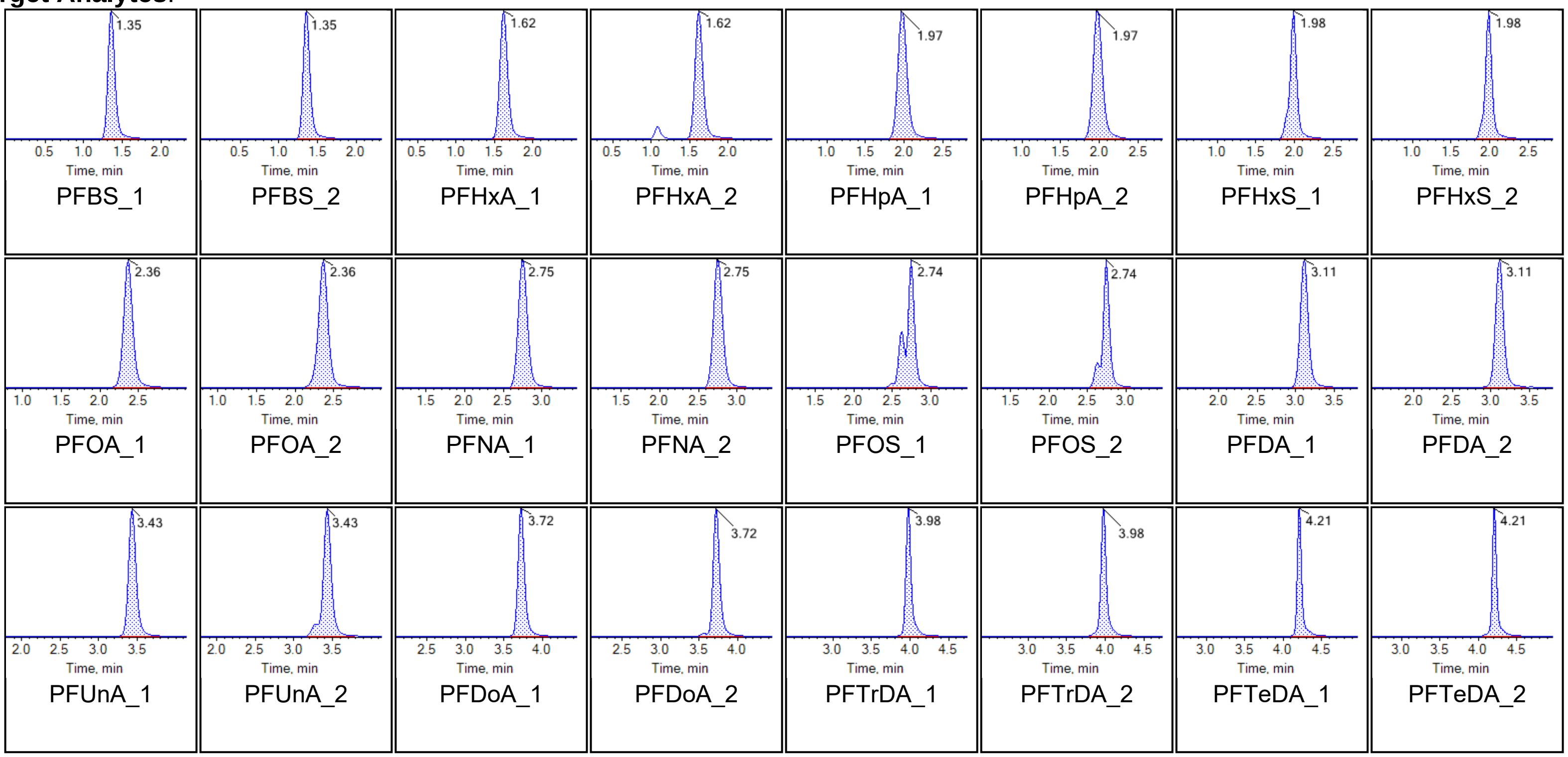
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY89	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:32:03 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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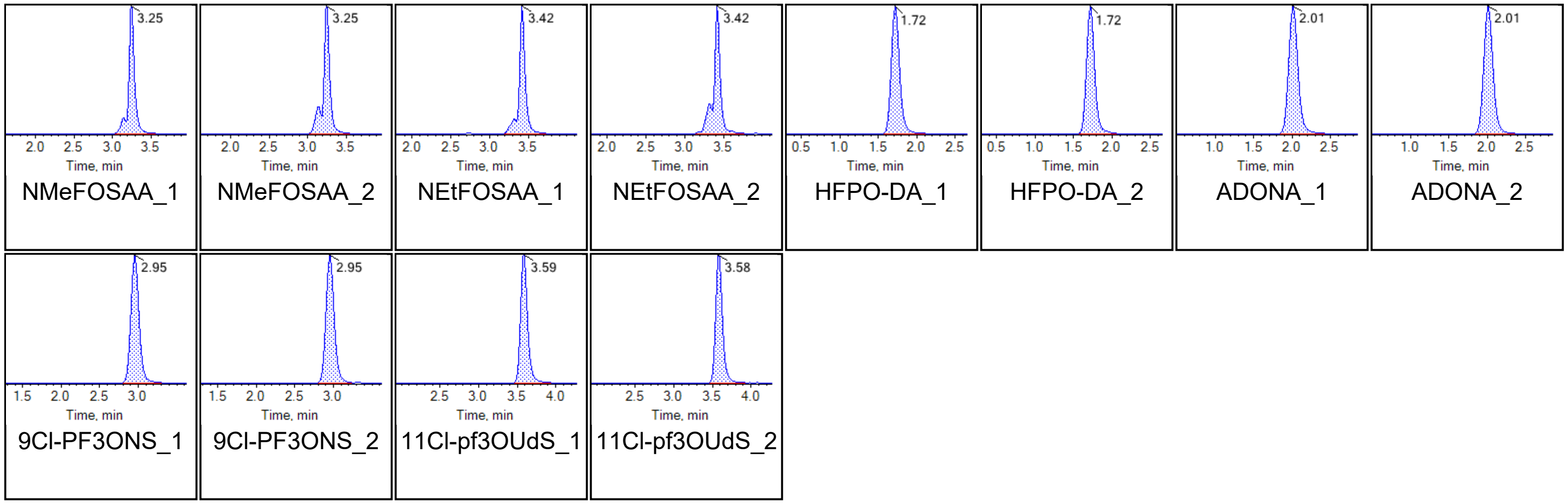
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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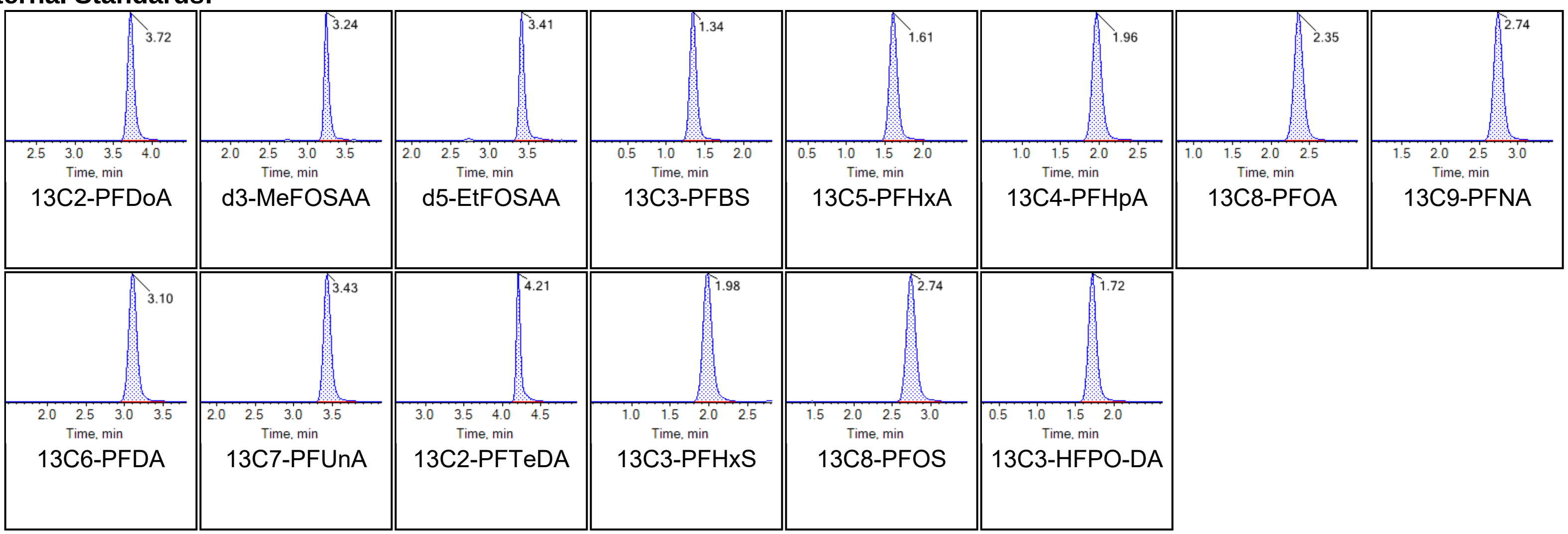

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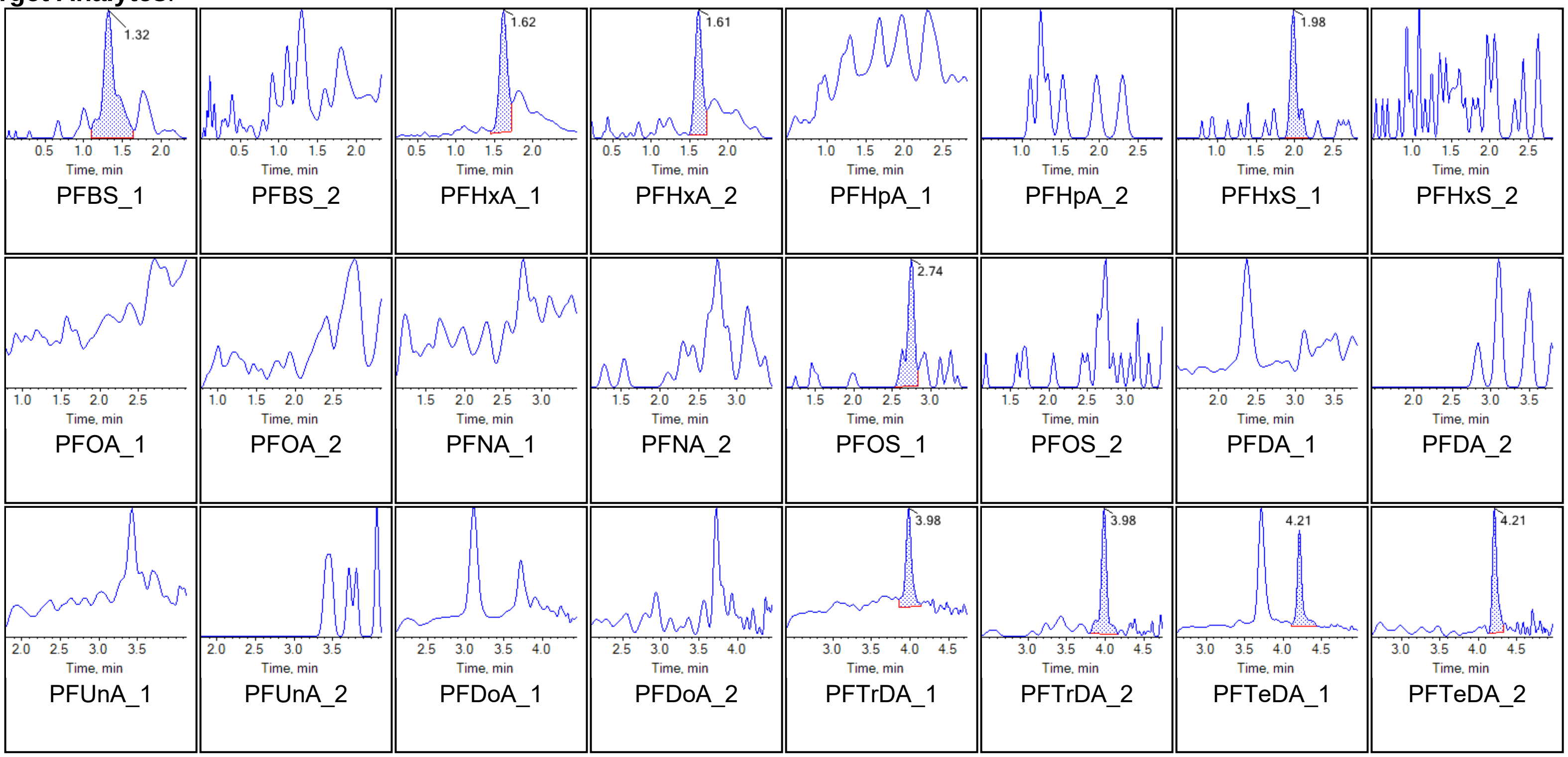
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY90 IB	**Injection Vial**	9
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:42:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



BATTELLE

Chromatogram Report

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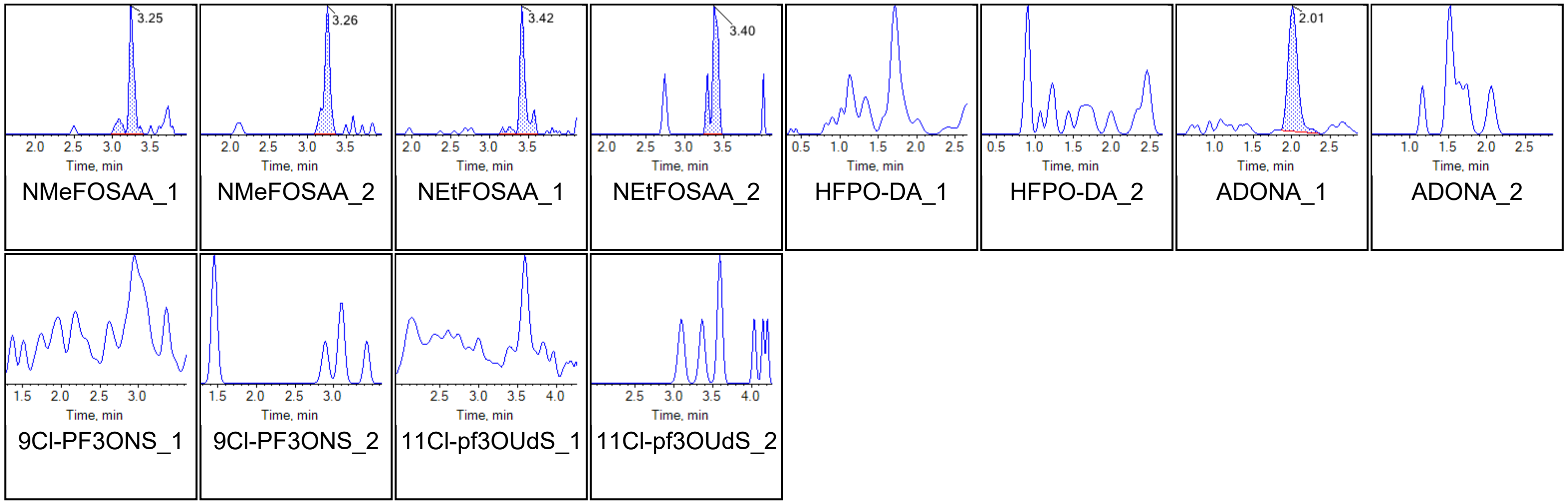

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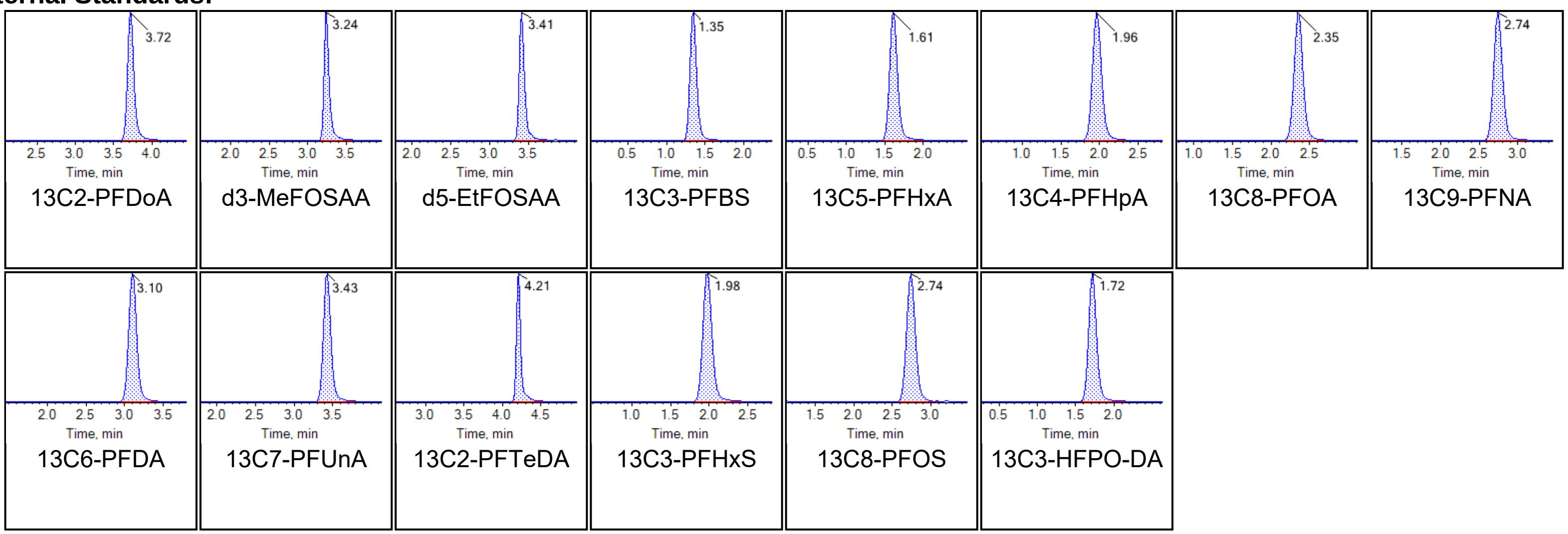

Chromatogram Report

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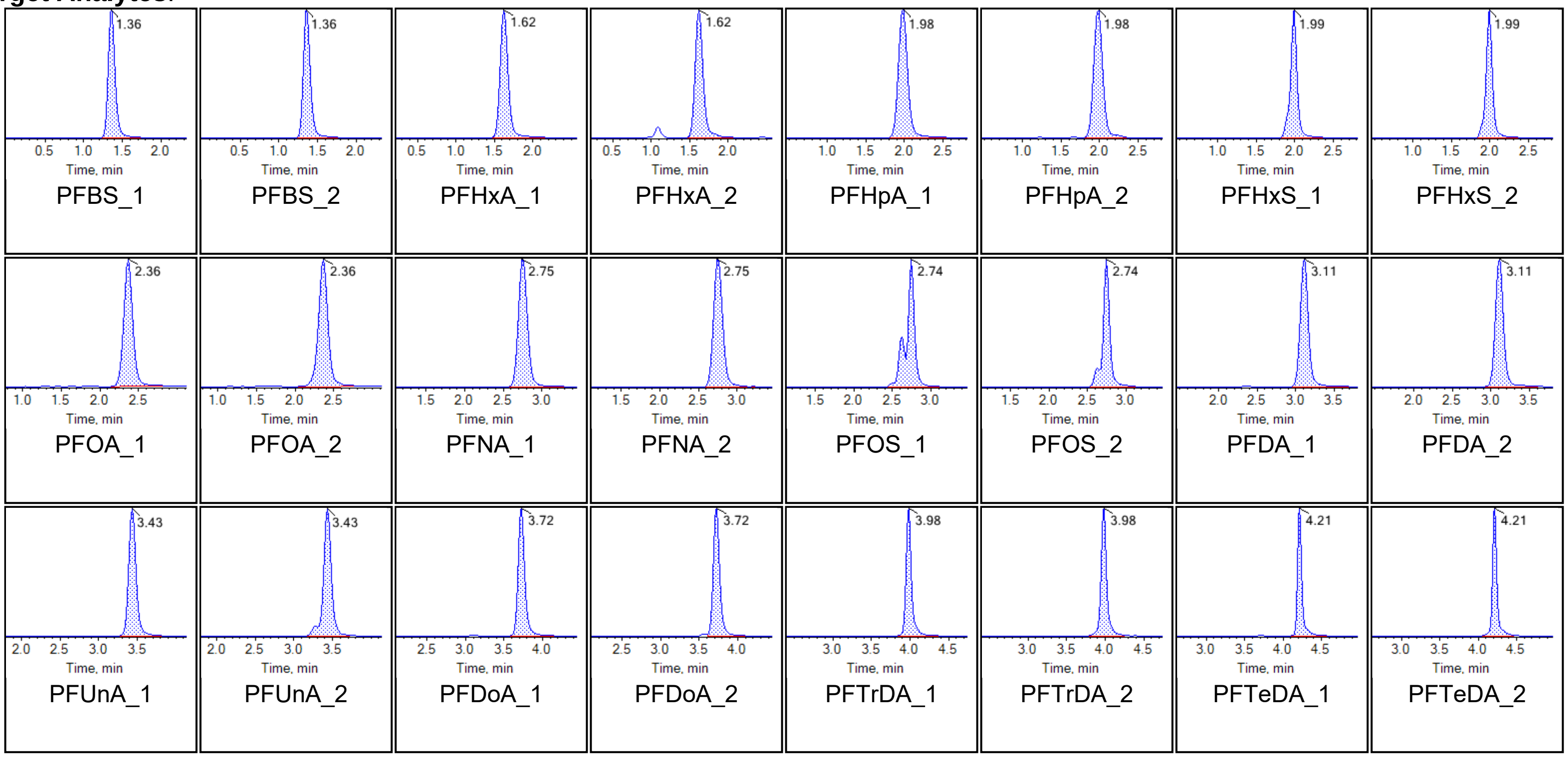
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY91 ICC	**Injection Vial**	10
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:53:09 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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Chromatogram Report

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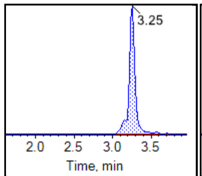
Printed: 06/05/2020 9:51:47 AM



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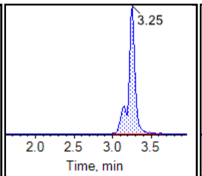
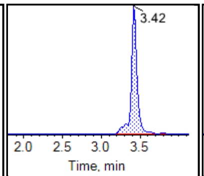


NMeFOSAA_2



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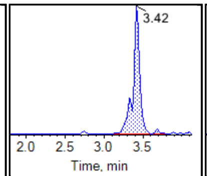

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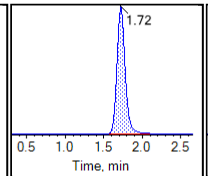
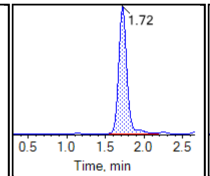


HFPO-DA_1



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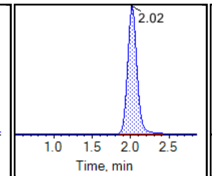
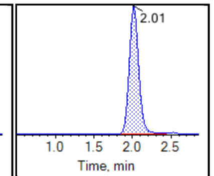
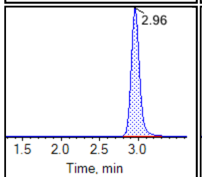


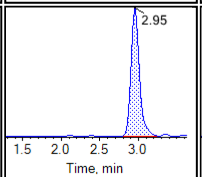
ADONA_1



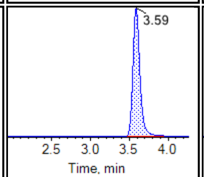
ADONA_2



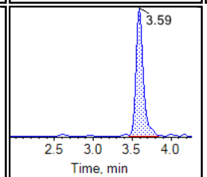
9Cl-PF3ONS_1



9Cl-PF3ONS_2



11Cl-pf3OUdS_1



11Cl-pf3OUdS_2

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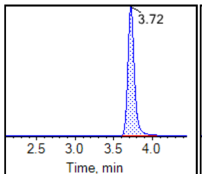
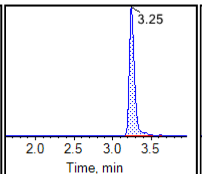
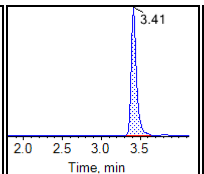


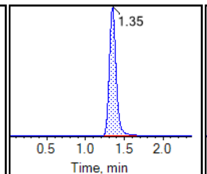
13C2-PFDoA



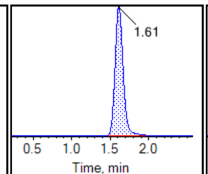
d3-MeFOSAA



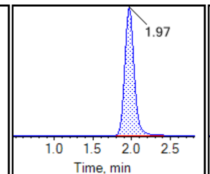
d5-EtFOSAA



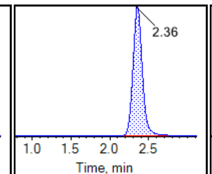
13C3-PFBS



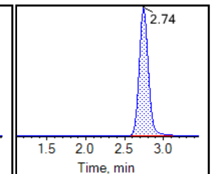
13C5-PFHxA



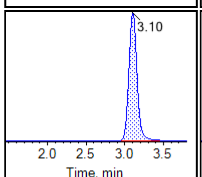
13C4-PFHpA



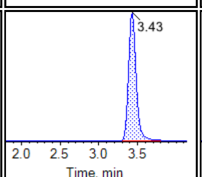
13C8-PFOA



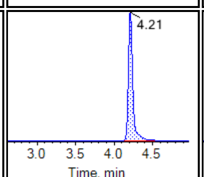
13C9-PFNA



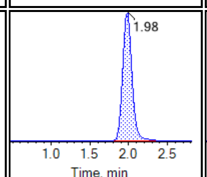
13C6-PFDA



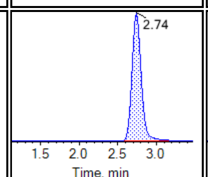
13C7-PFUnA



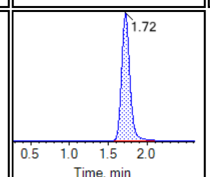
13C2-PFTeDA



13C3-PFHxS



13C8-PFOS



13C3-HFPO-DA

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Chromatogram Report

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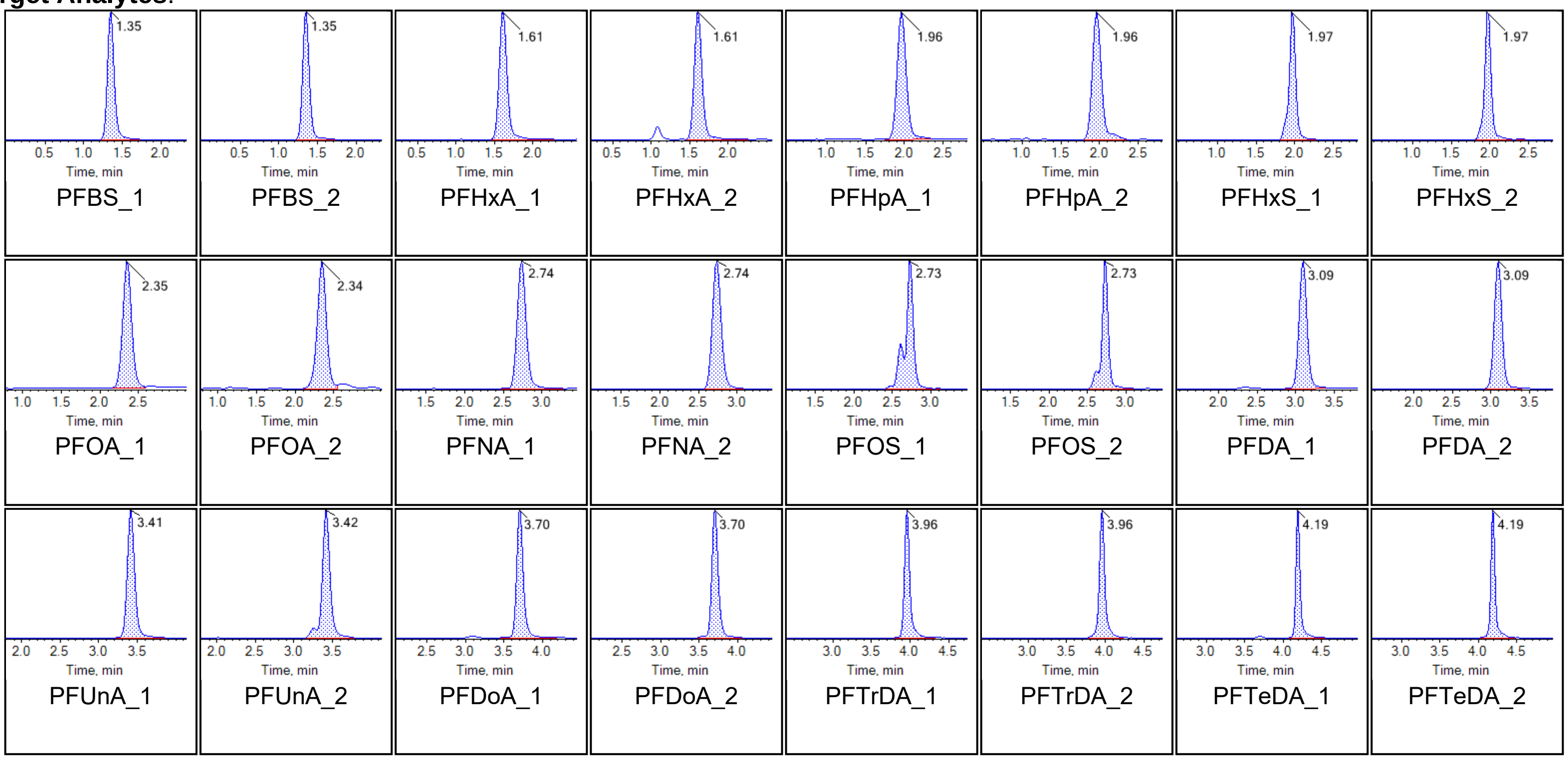
Sample Name	KY86 CCV	**Injection Vial**	16
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:35:24 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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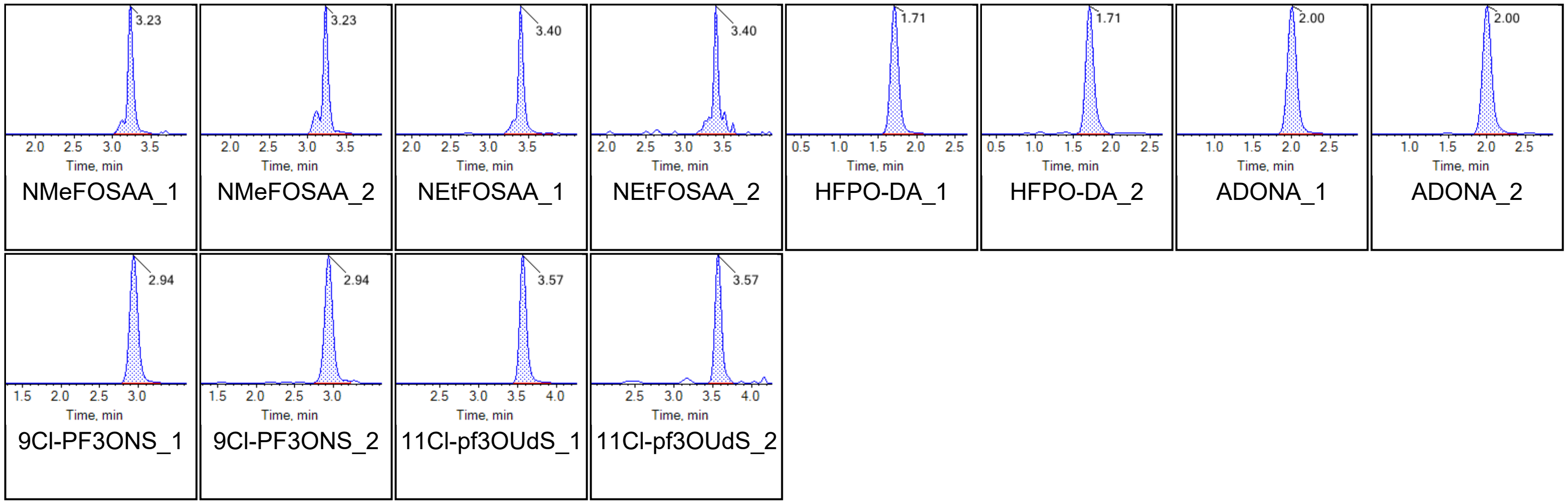
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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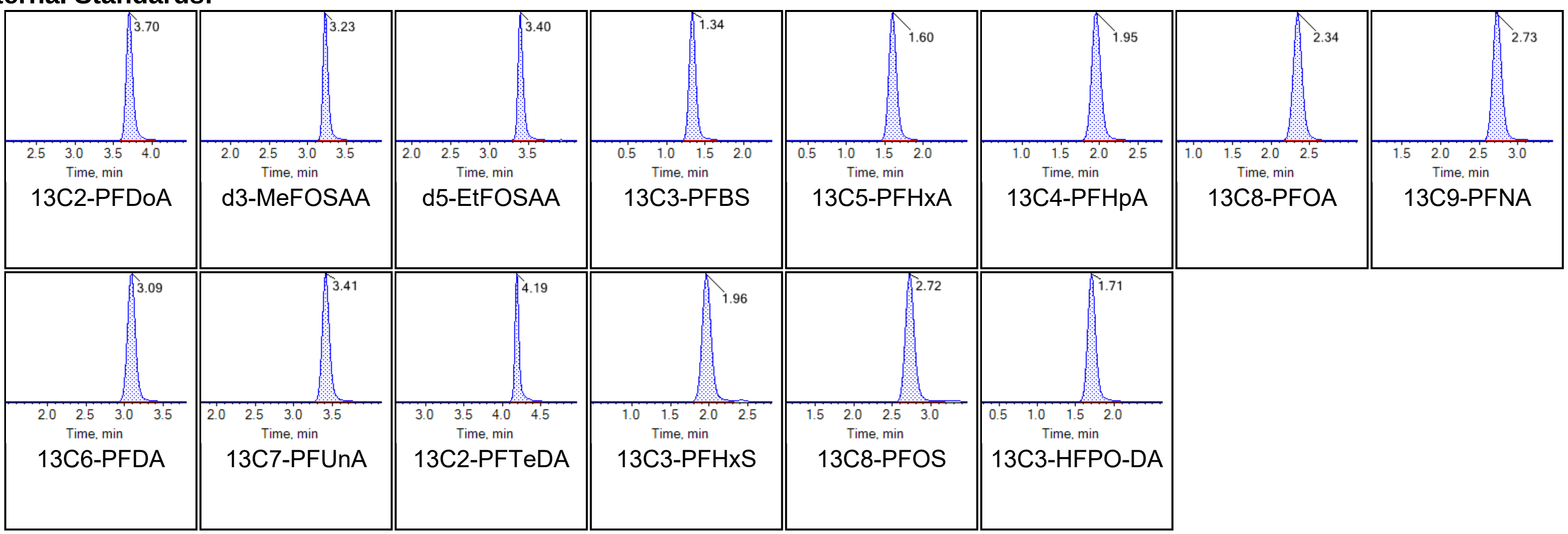

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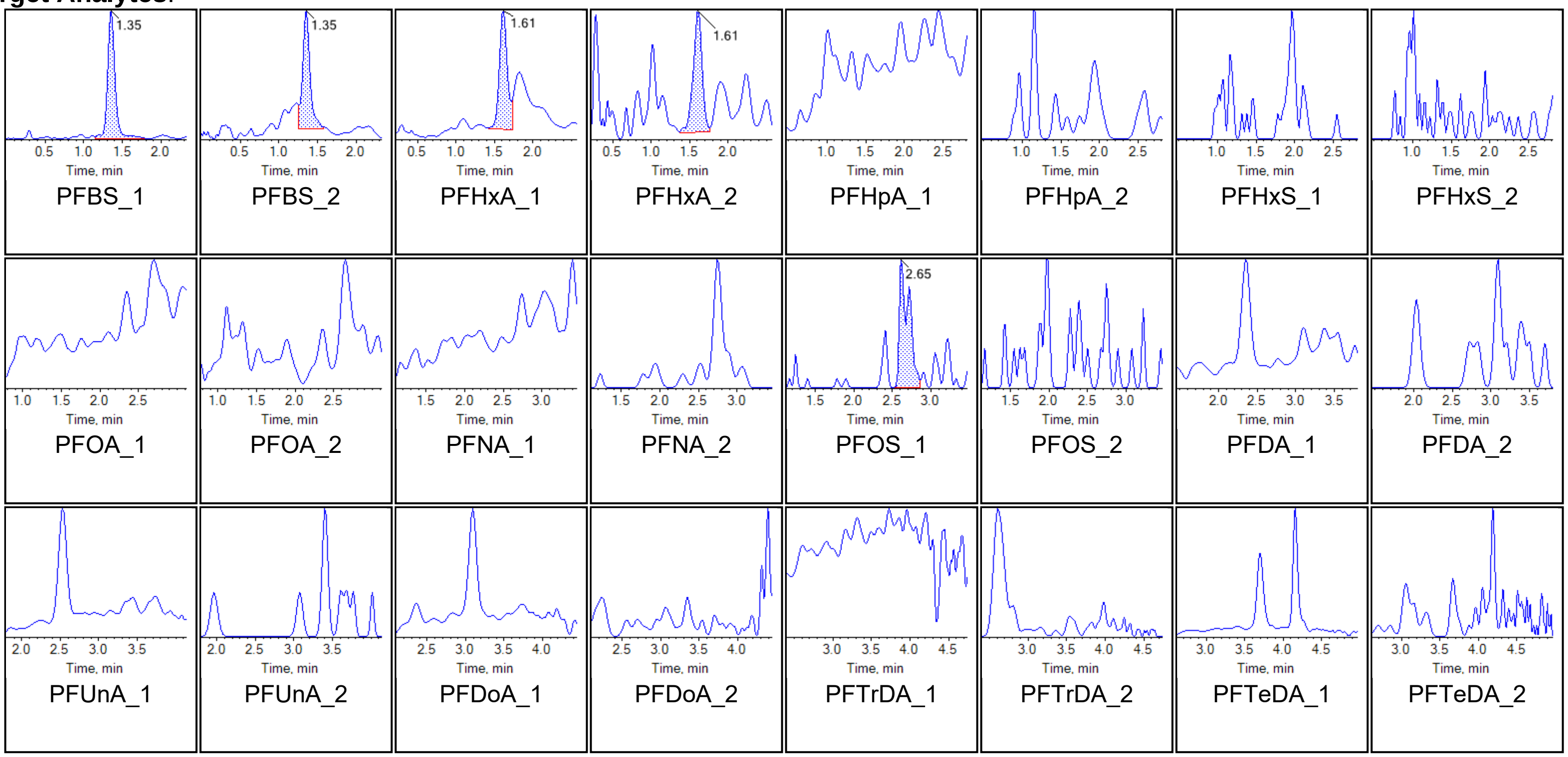
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	CY822PB-FS(0)	**Injection Vial**	18
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:56:30 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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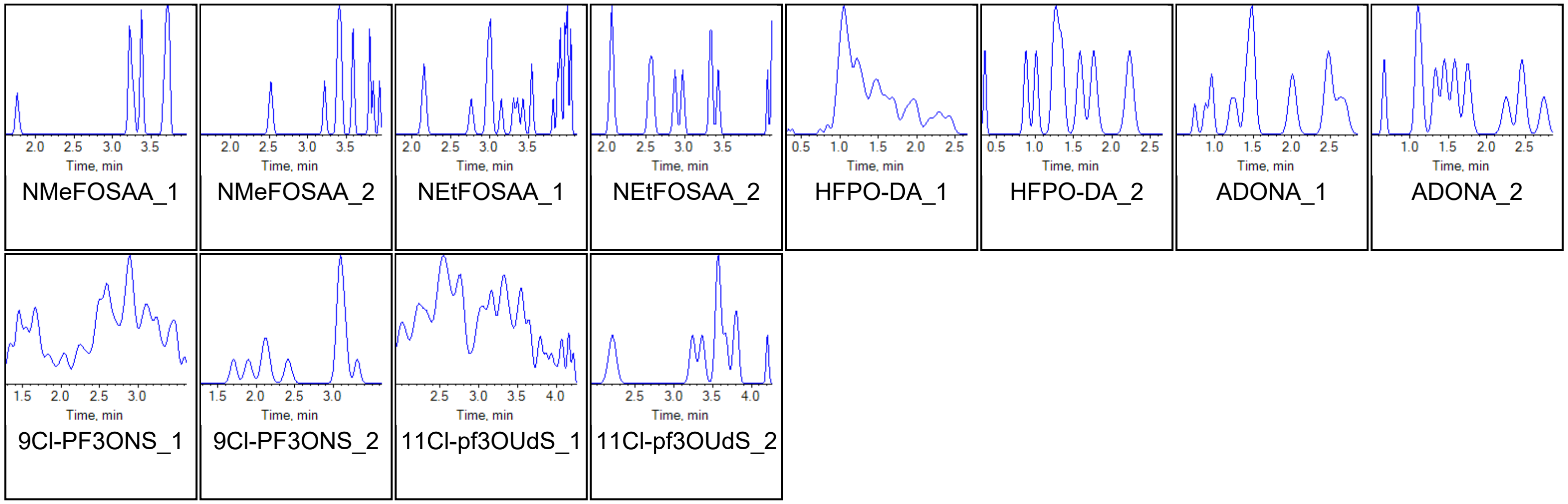
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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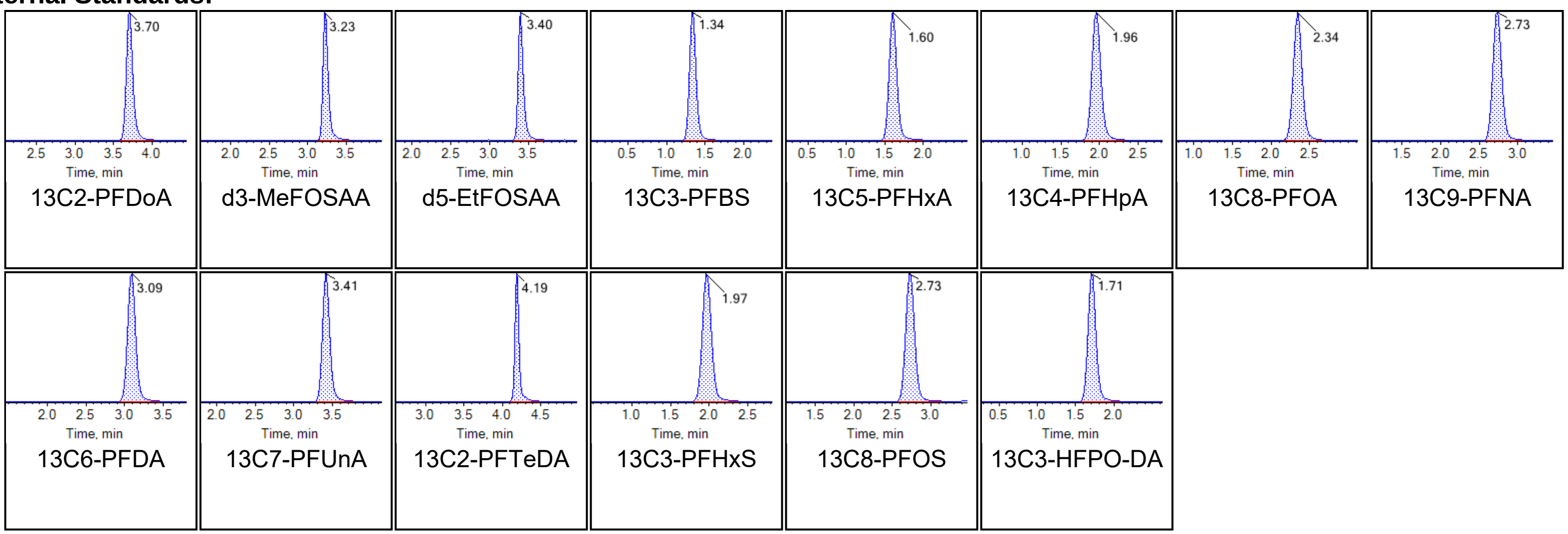

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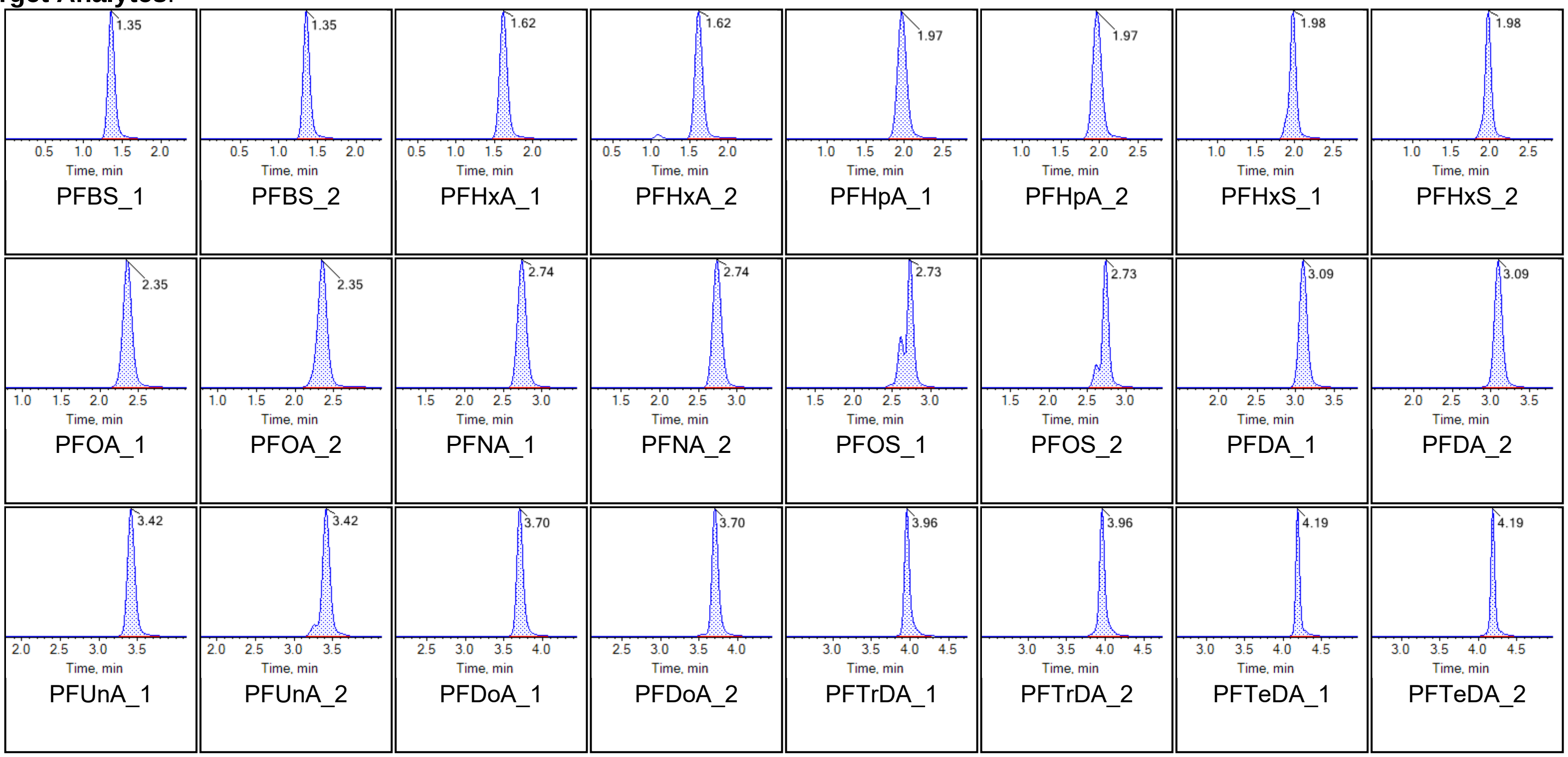
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	CY823LCS-FS(0)	**Injection Vial**	19
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:07:03 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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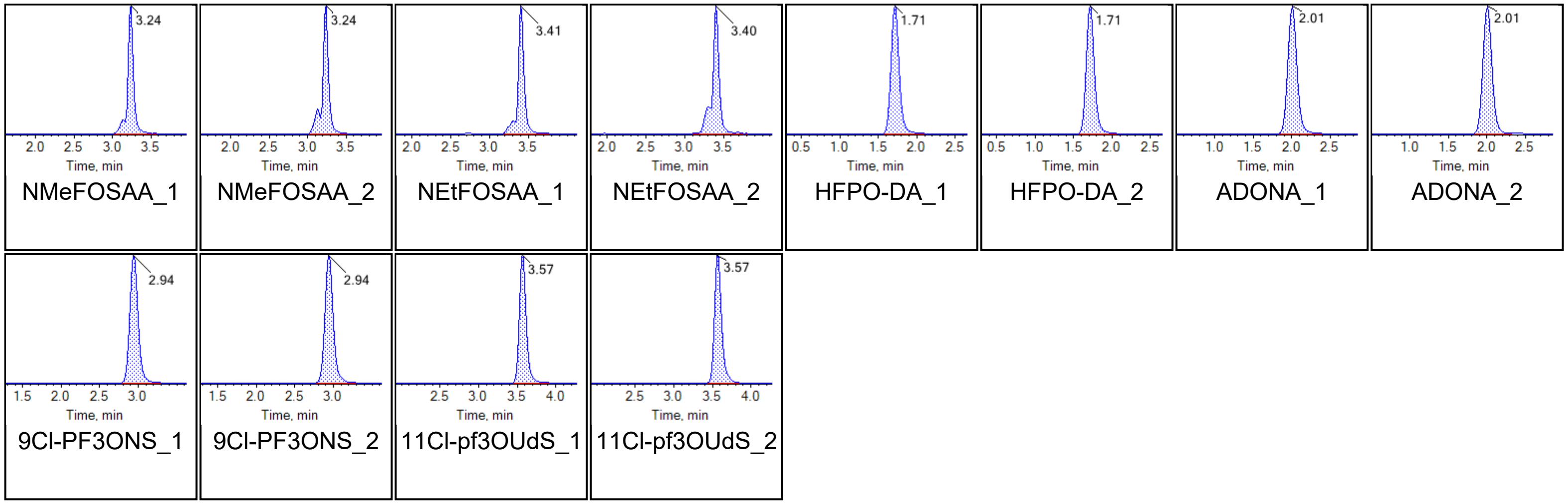
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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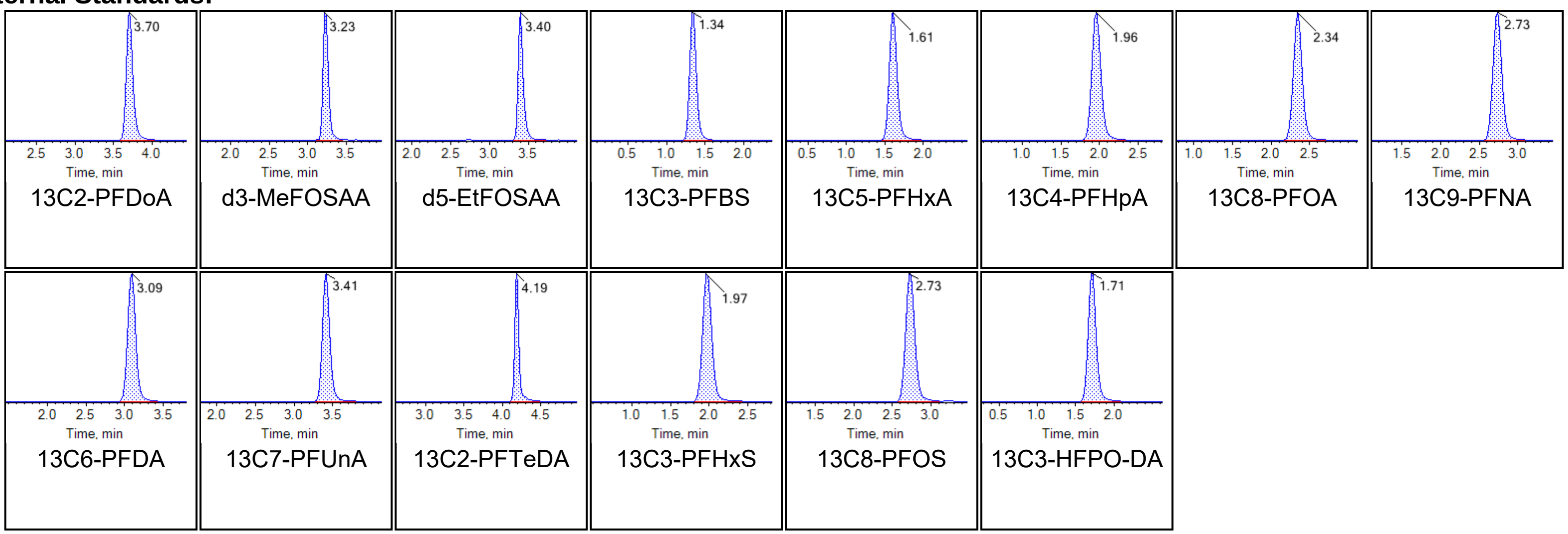


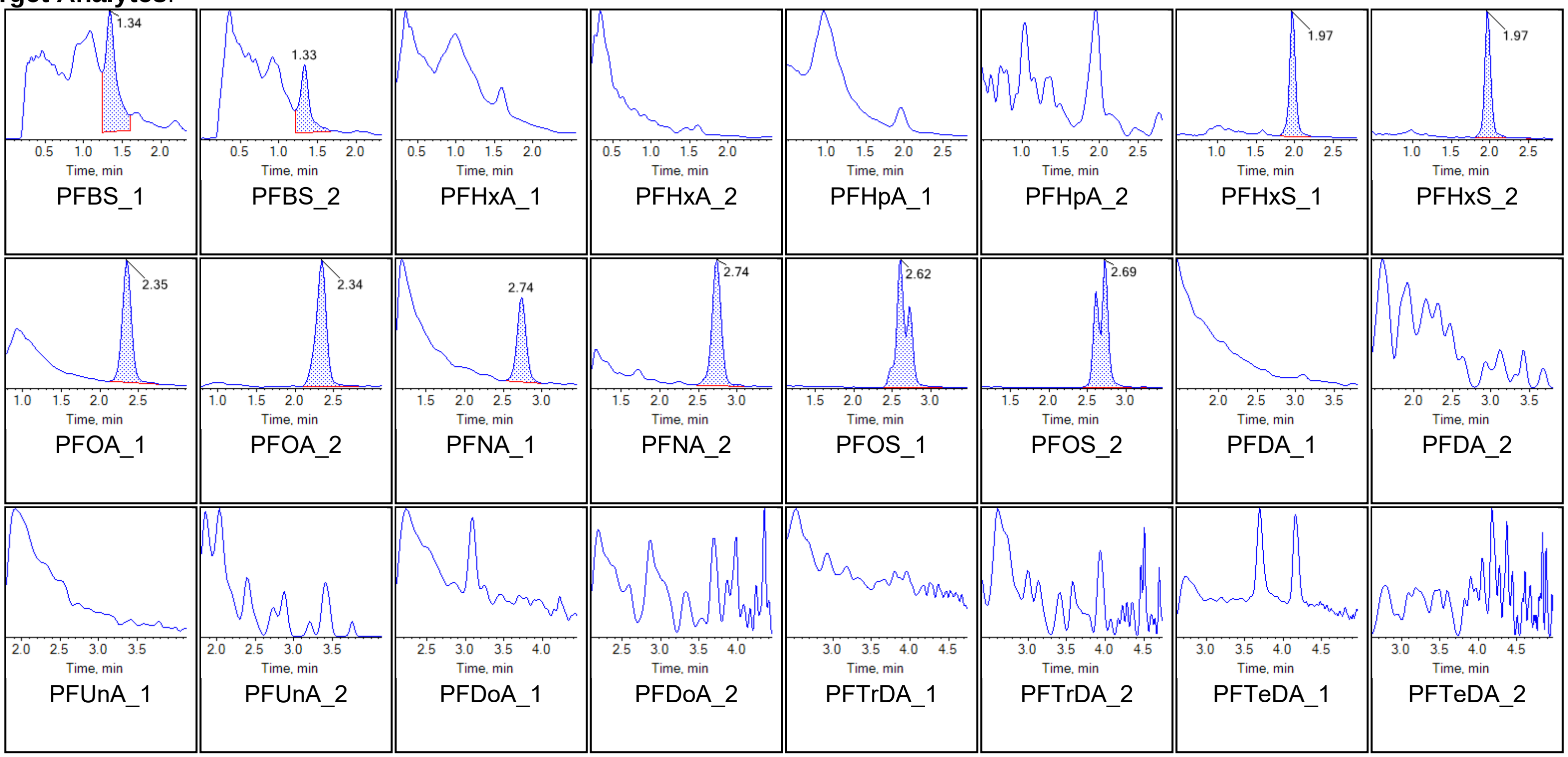
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4954-FS1(0)	**Injection Vial**	20
Sample ID	POL-MW0041SI-020.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:17:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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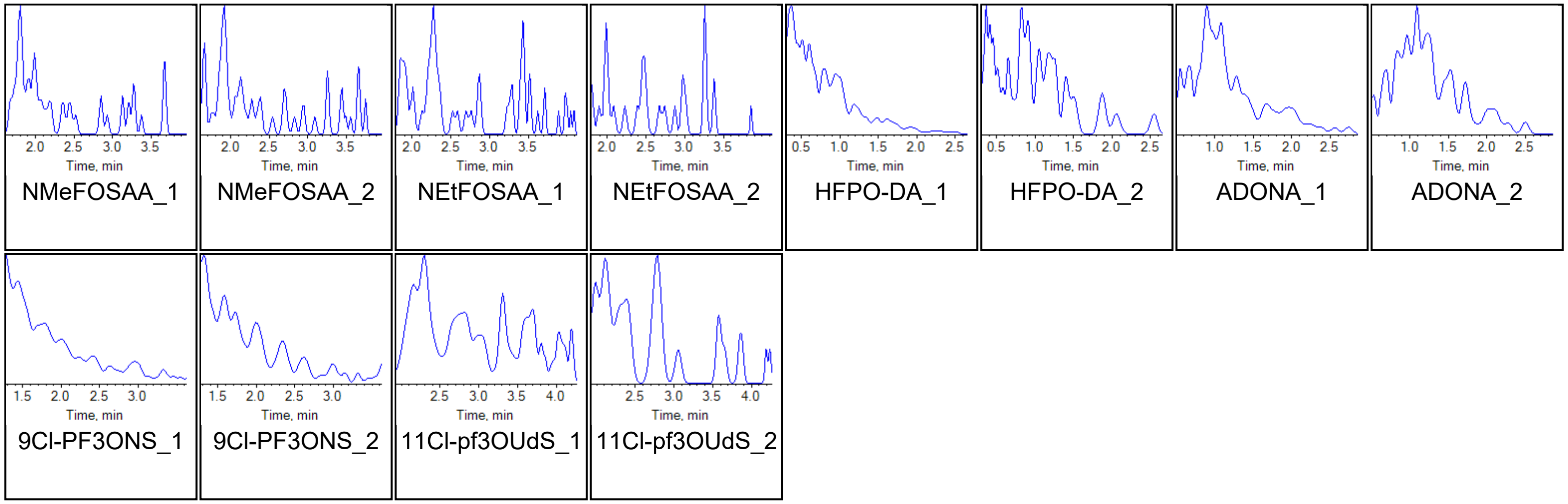
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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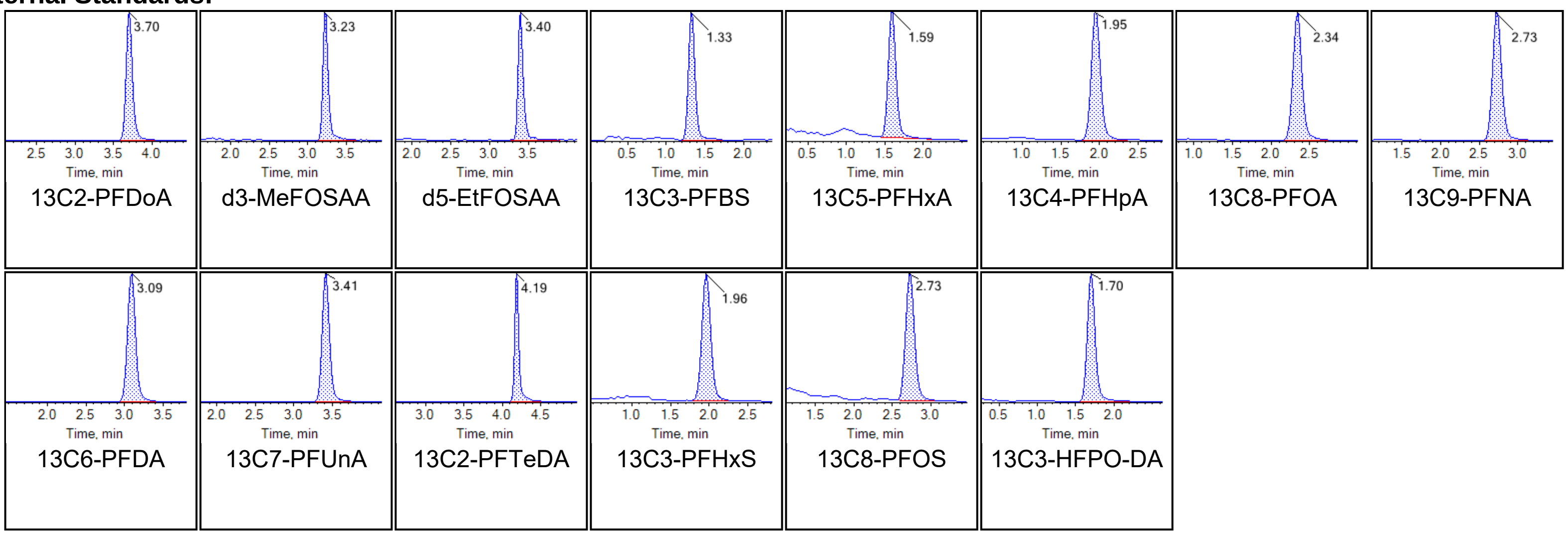


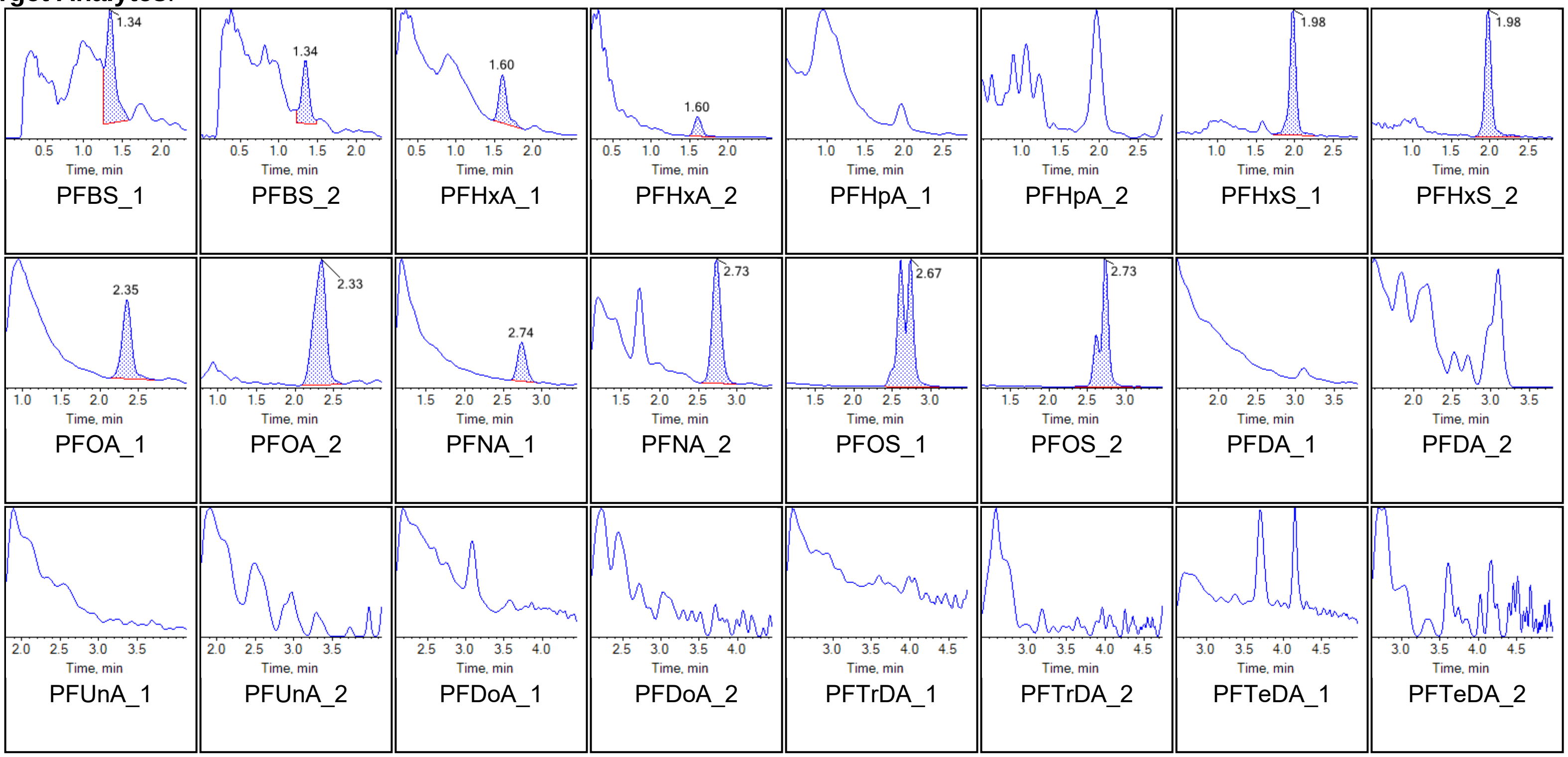
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4955-FS1(0)	Injection Vial	21
Sample ID	POL-MW0008S-009.3-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:28:09 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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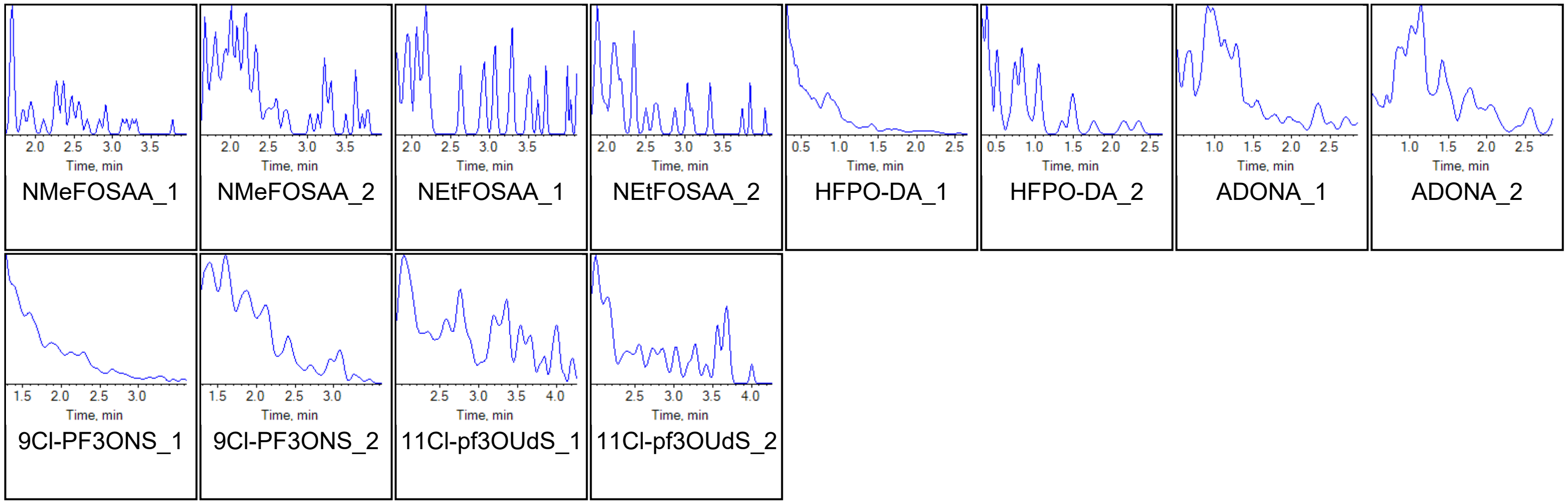
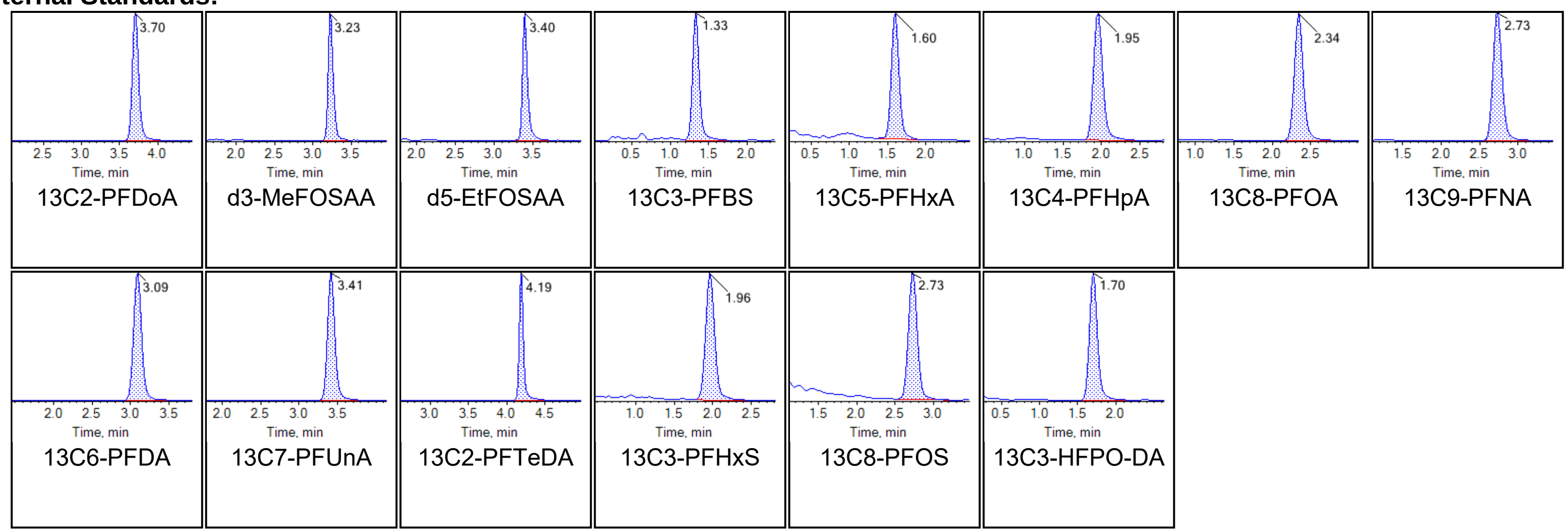
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



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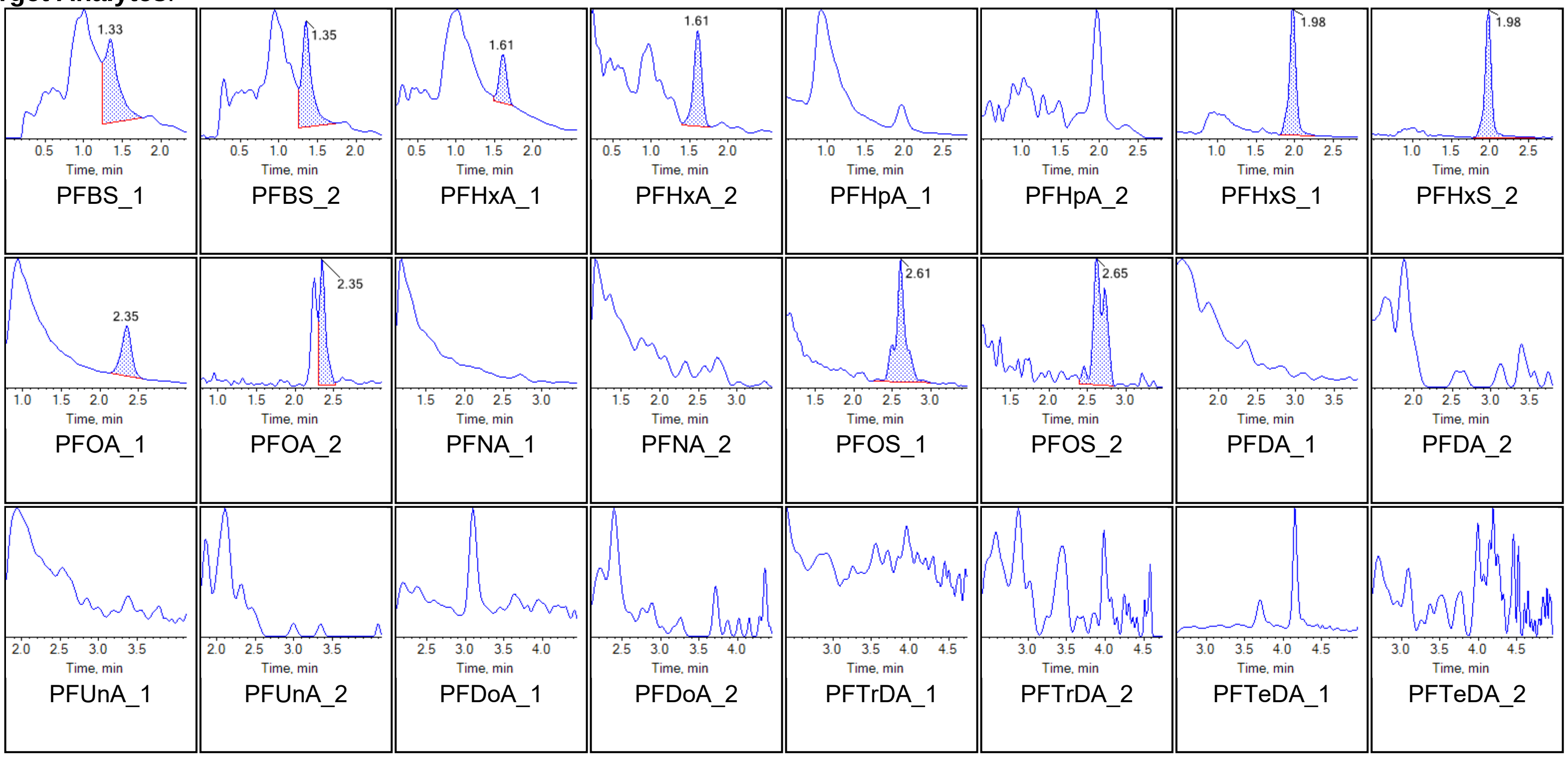
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4956-FS1(0)	**Injection Vial**	22
Sample ID	POL-MW0008I-007.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:38:42 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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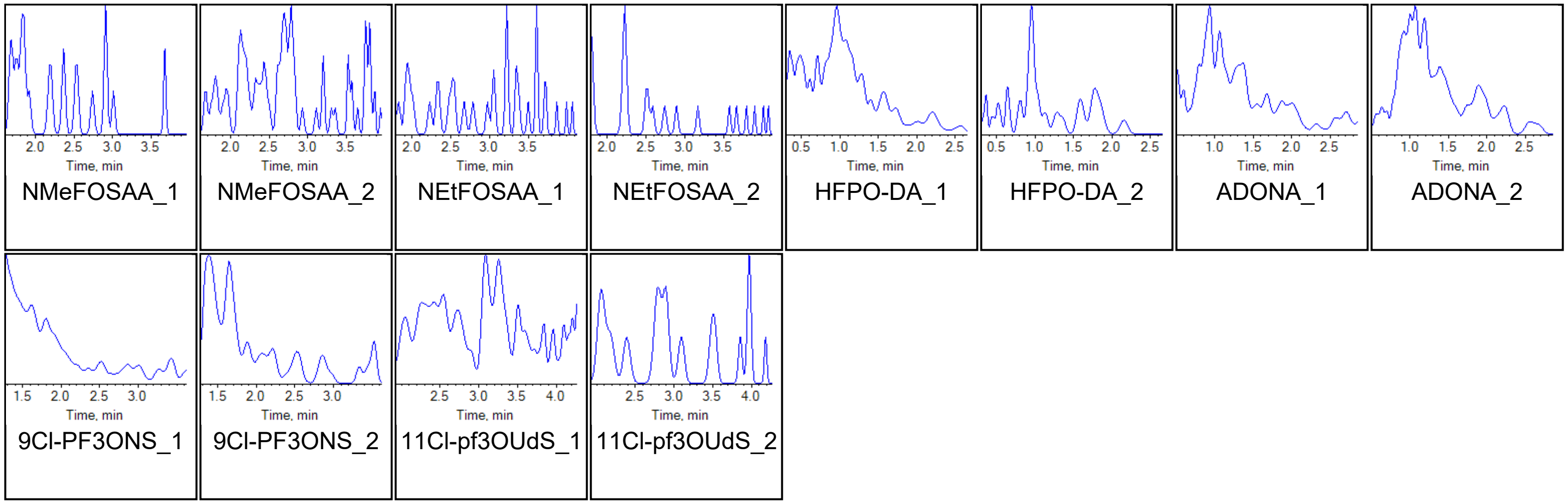
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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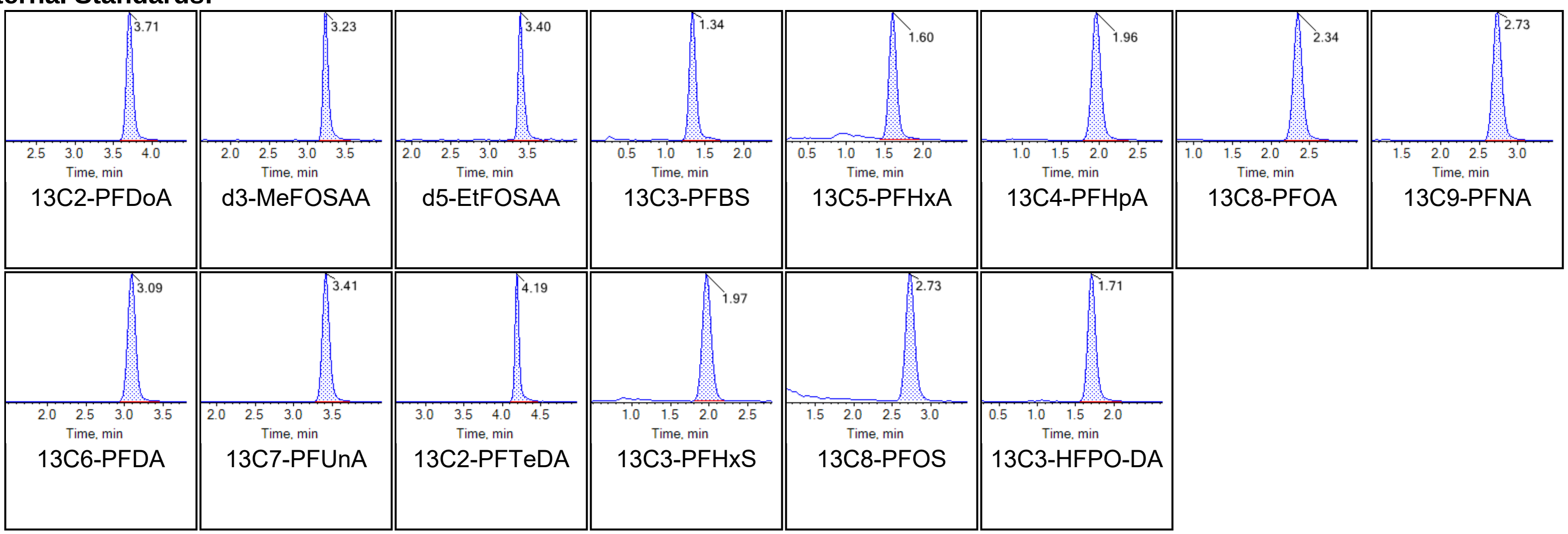


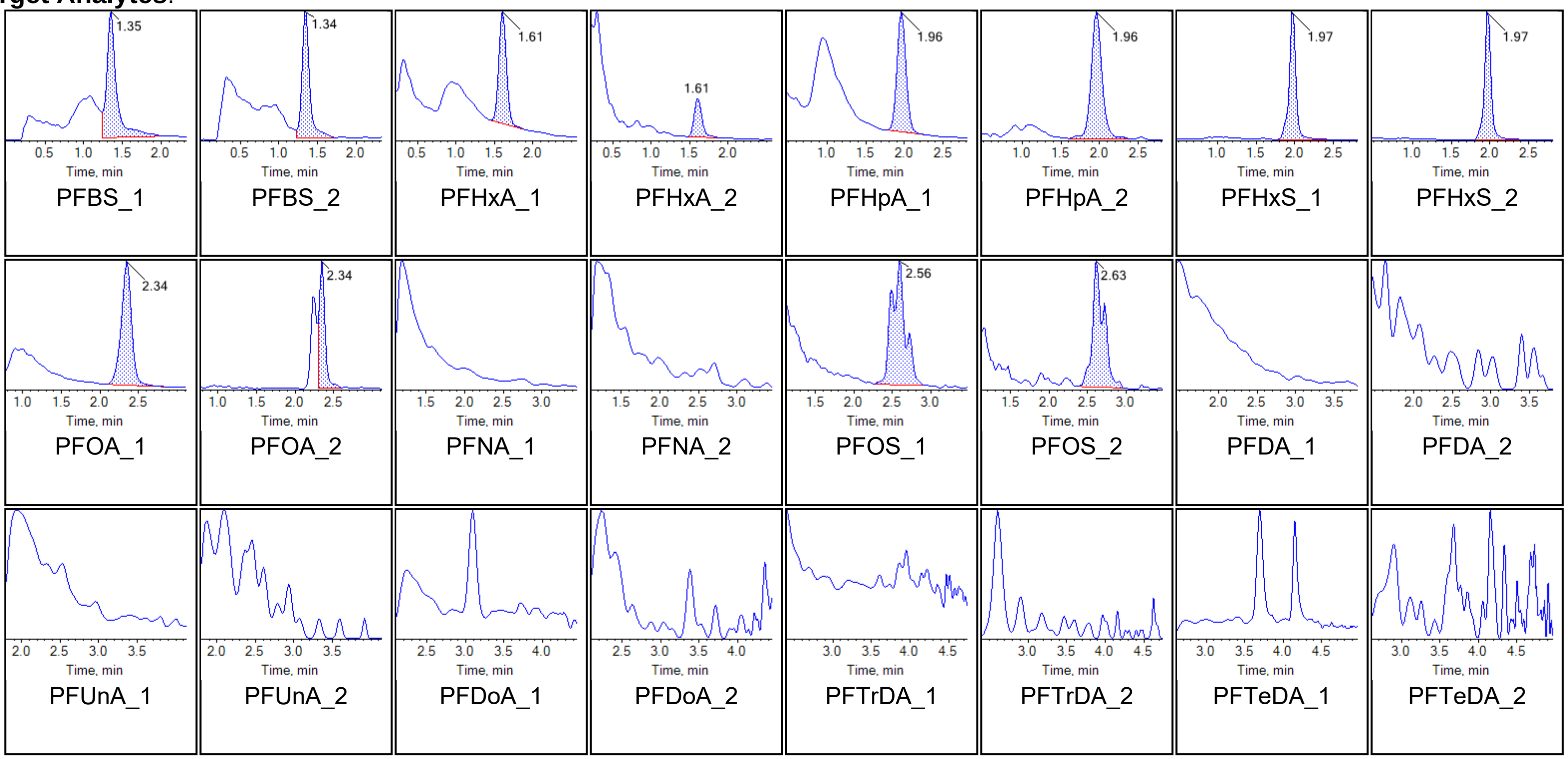
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4957-FS1(0)	**Injection Vial**	23
Sample ID	POL-MW0036SI-020.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:49:15 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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Chromatogram Report

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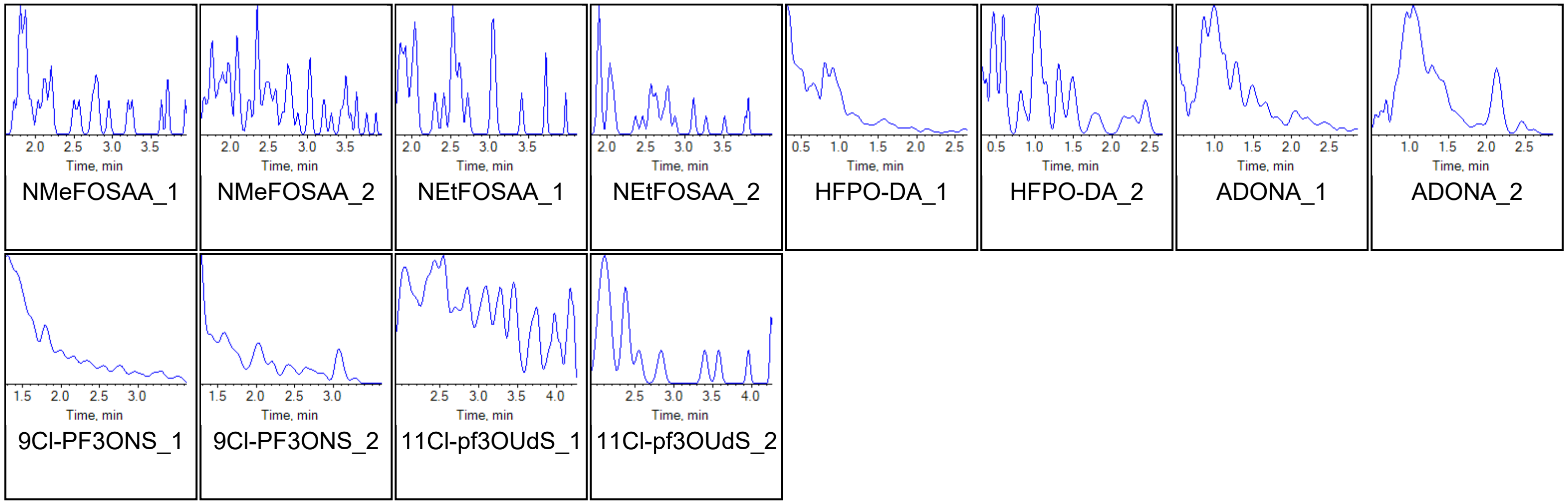
Printed: 06/05/2020 9:51:47 AM



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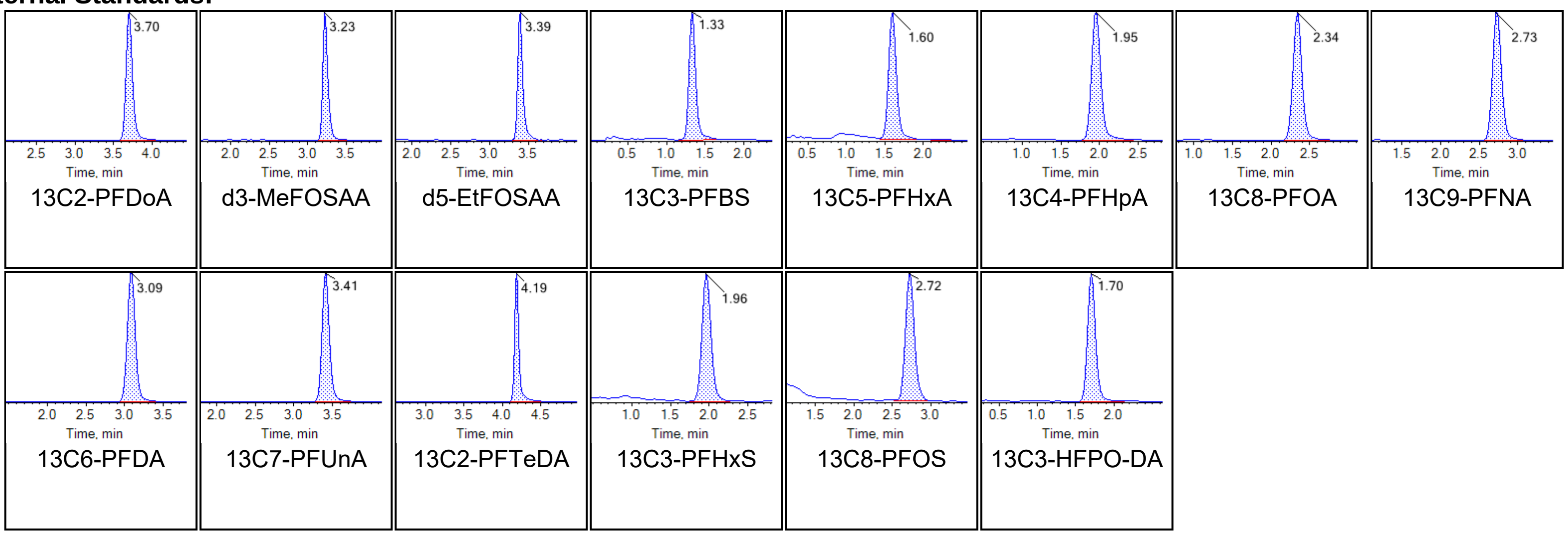

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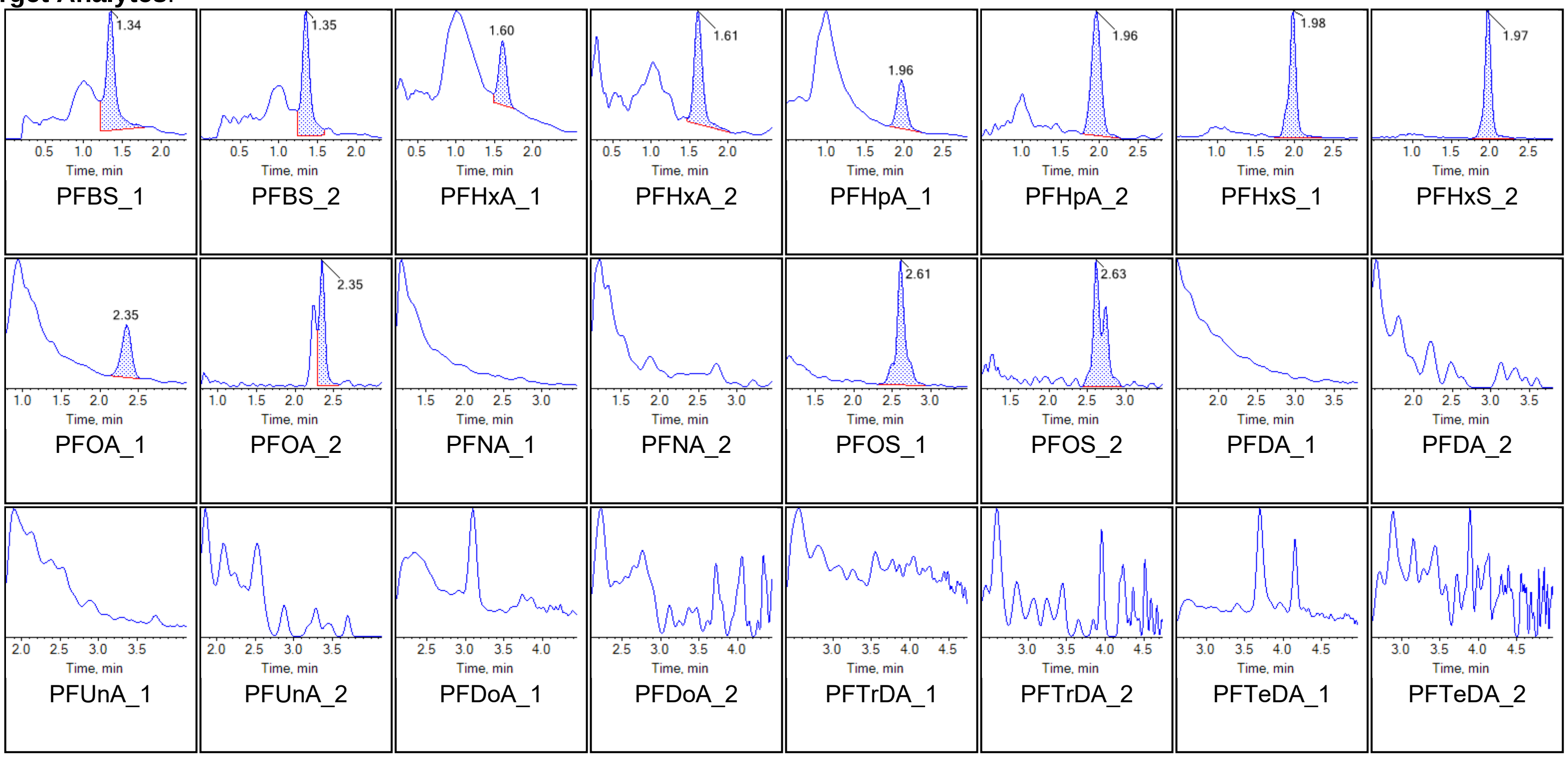
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4958-FS1(0)	Injection Vial	24
Sample ID	POL-MW0036I-027.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:59:49 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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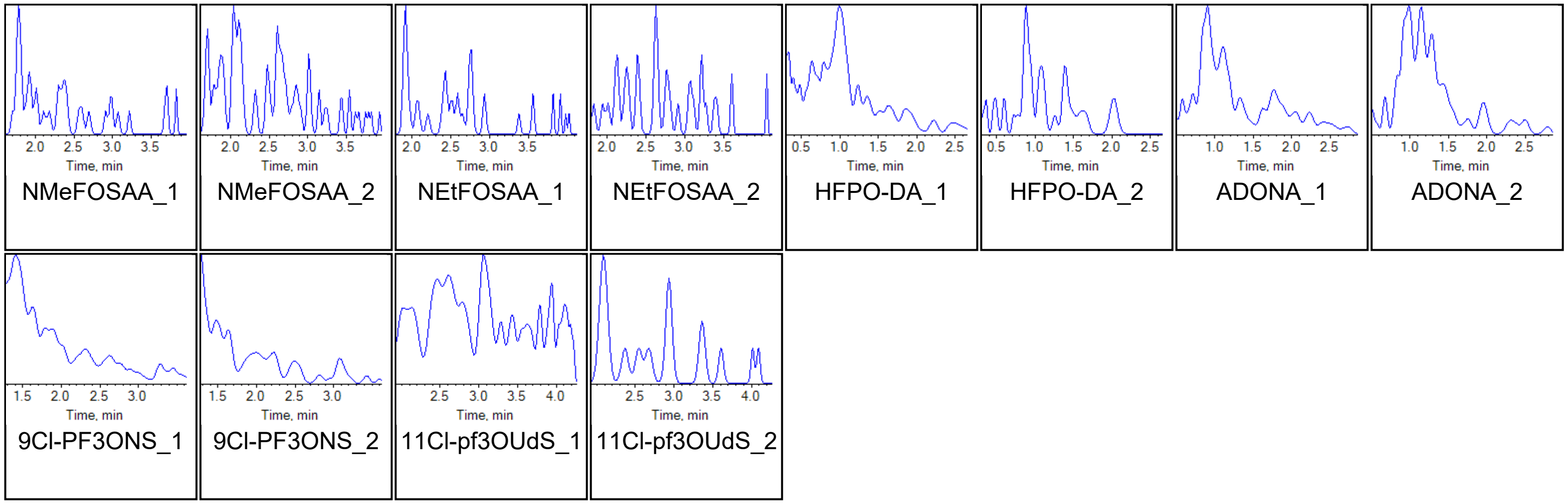
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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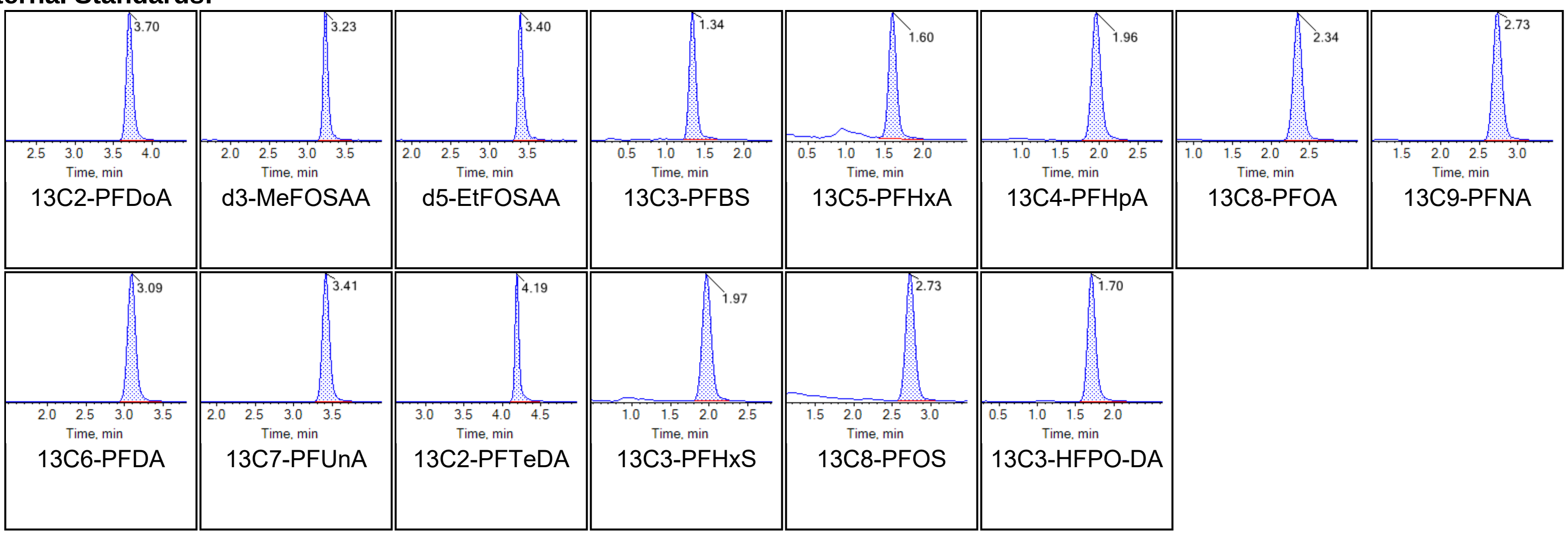

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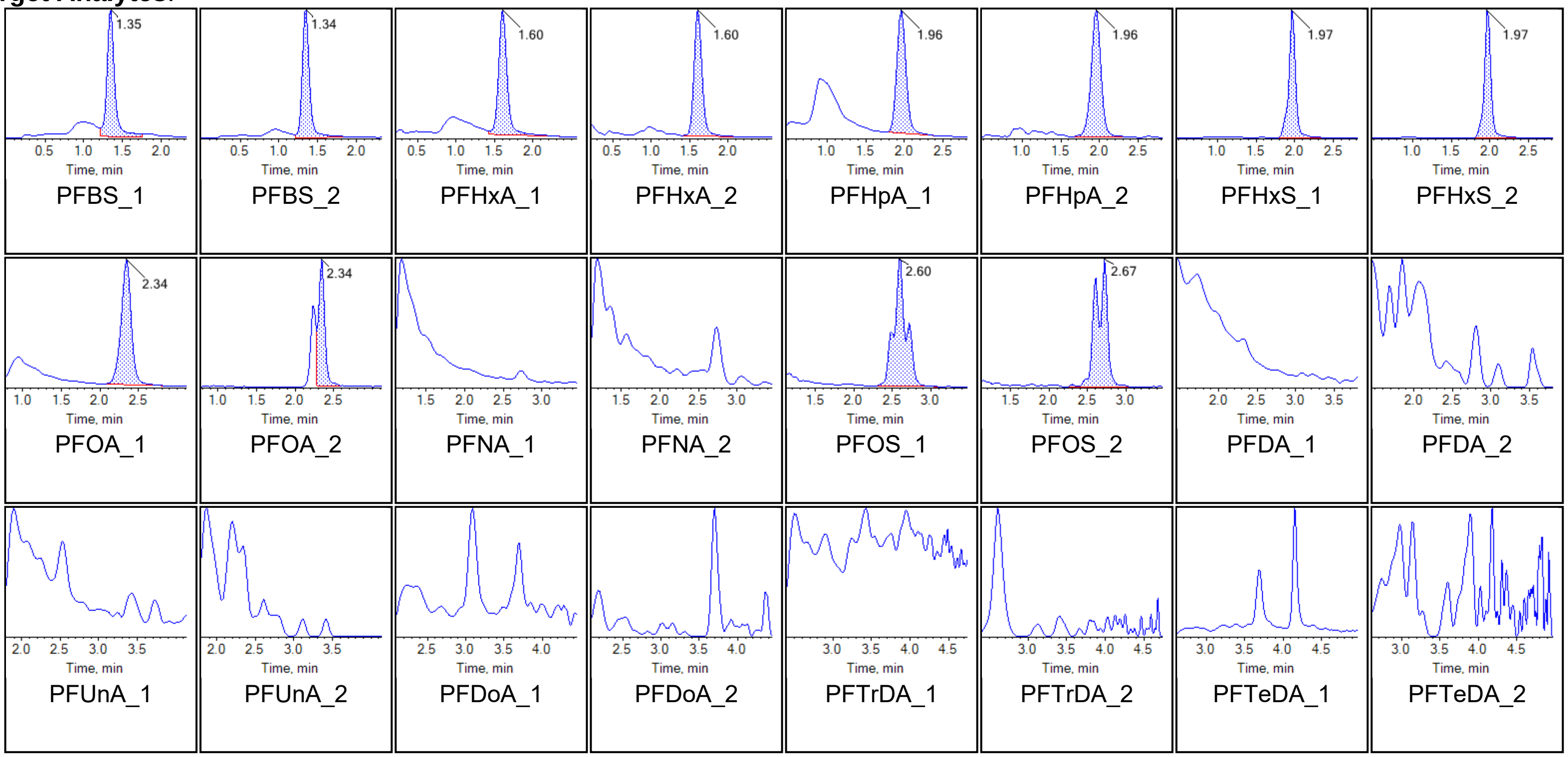
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4959-FS1(0)	**Injection Vial**	25
Sample ID	POL-MW0047I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:10:22 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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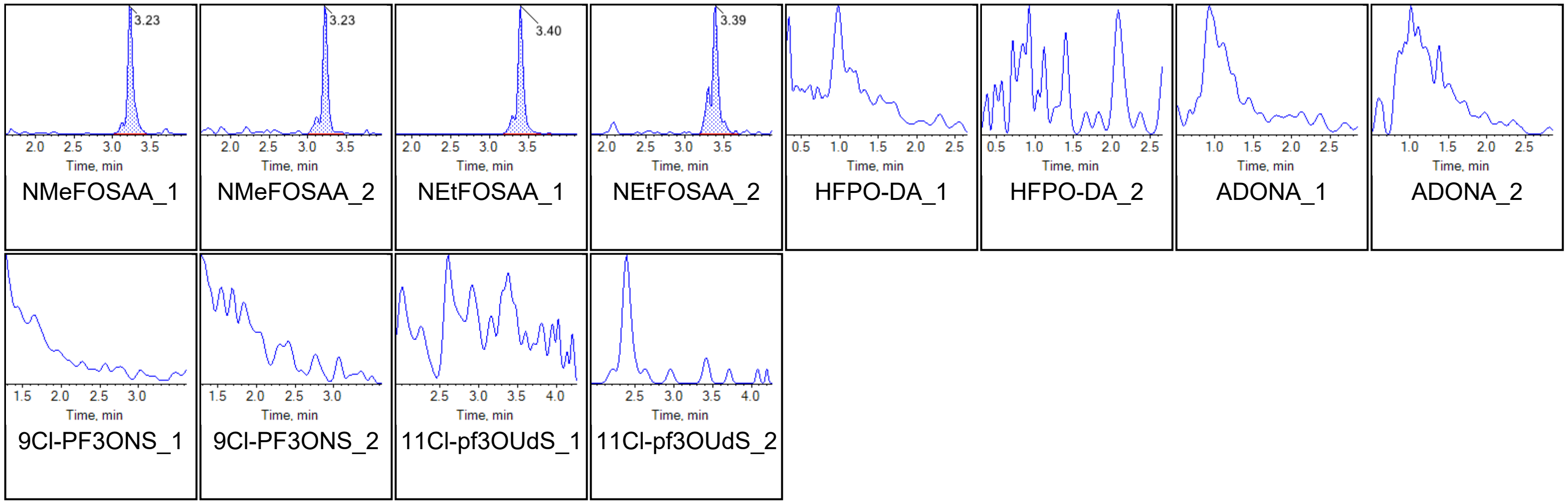
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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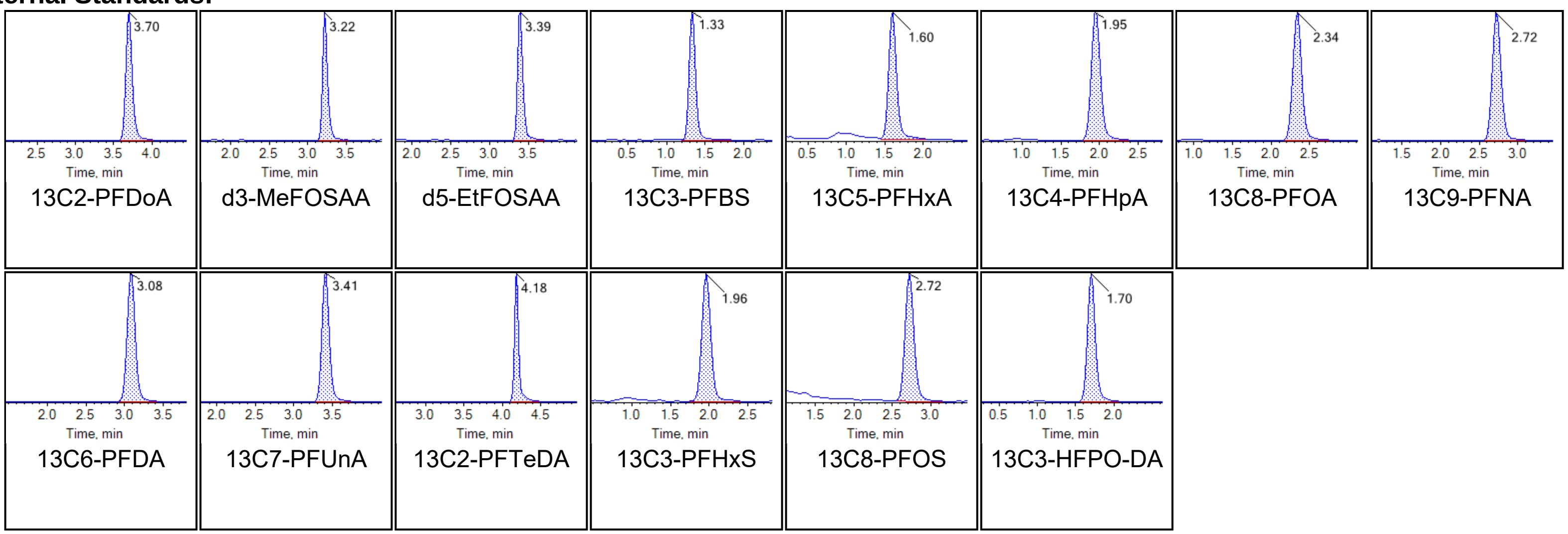


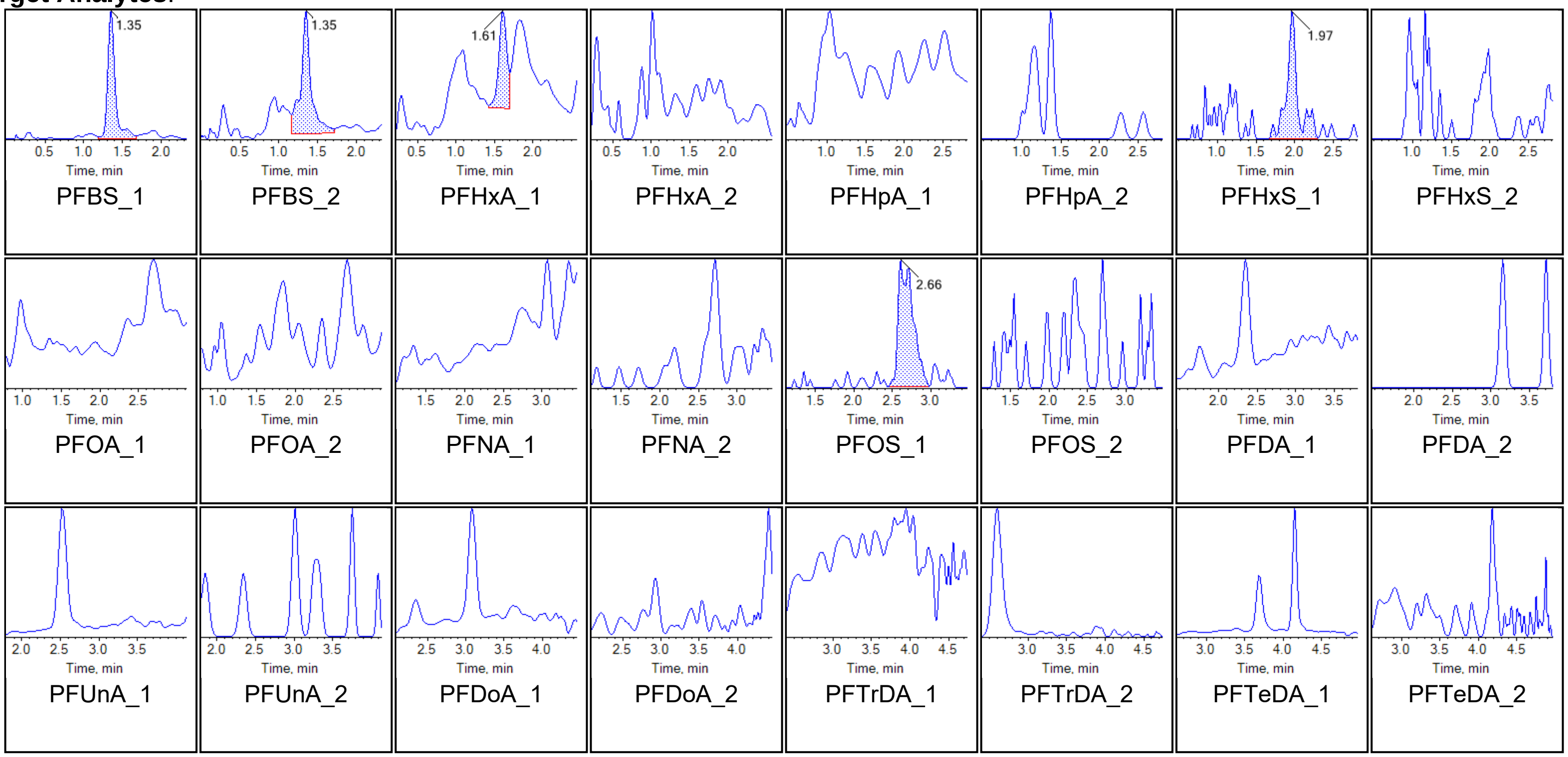
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4960-FS1(0)	**Injection Vial**	26
Sample ID	POL-FRB-0200422-01	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:20:54 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

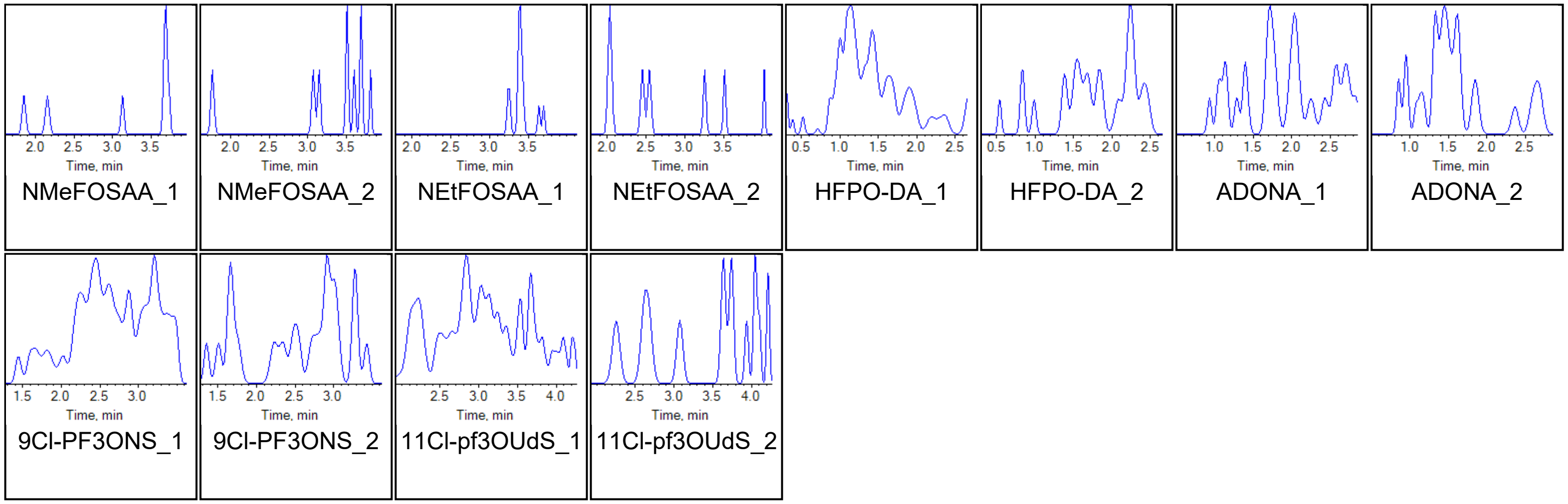
Target Analytes:



BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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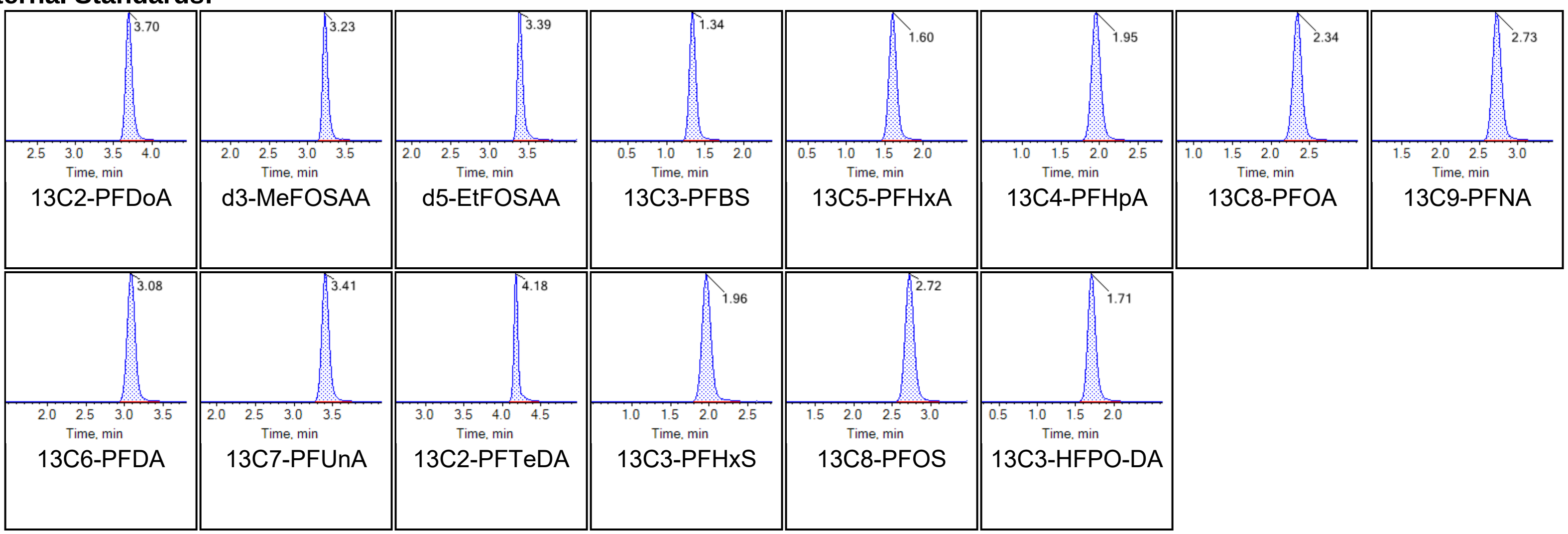


BATTELLE

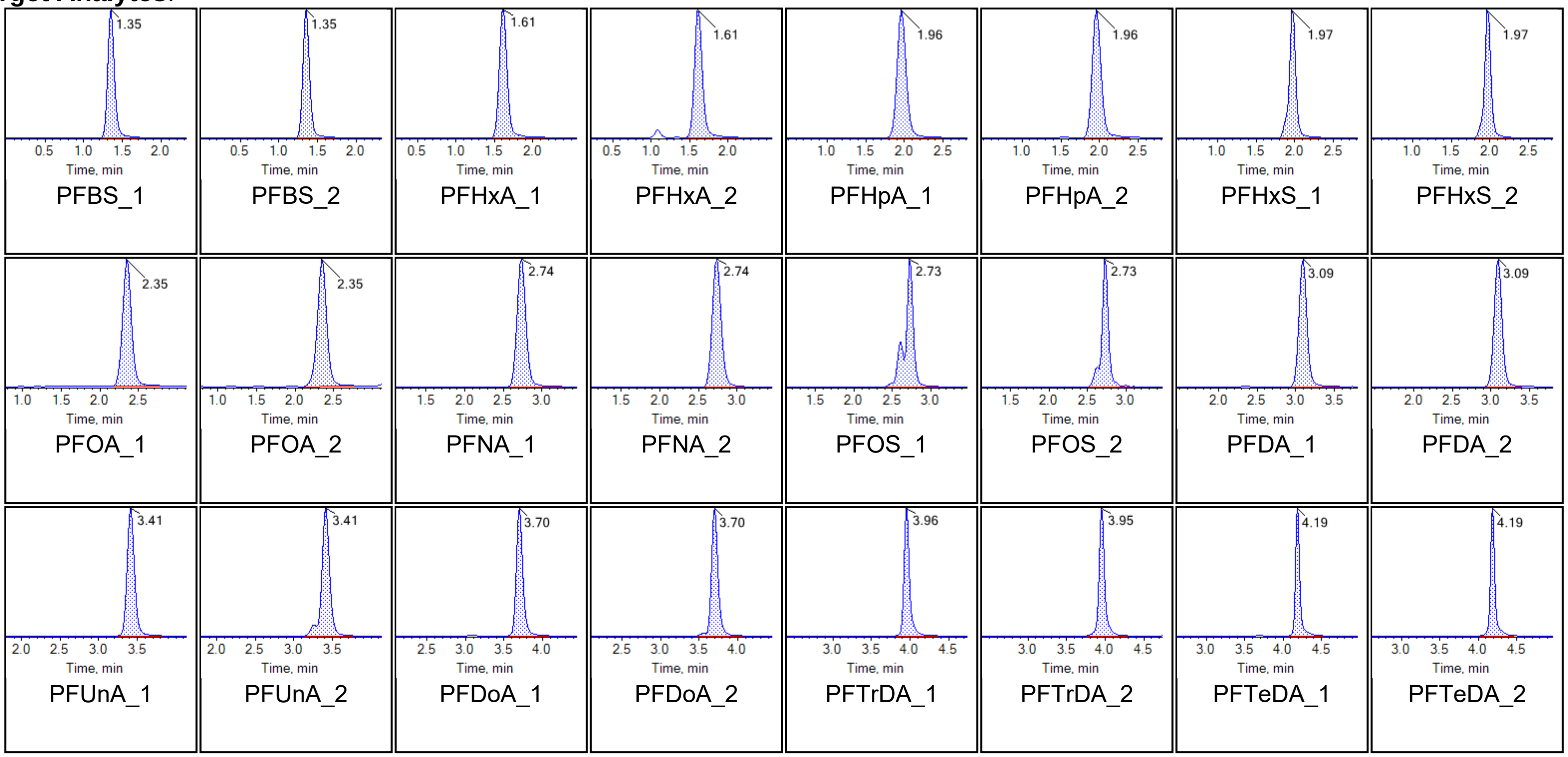
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY87 CCV	**Injection Vial**	28
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:42:01 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

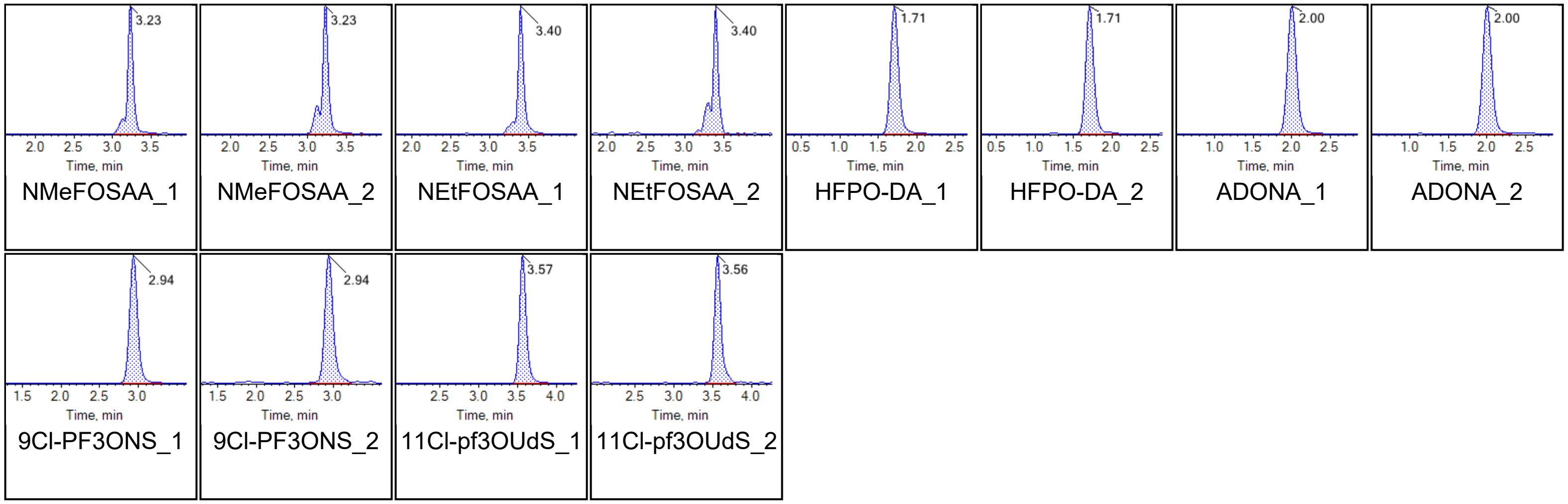
Chromatograms

Target Analytes:



Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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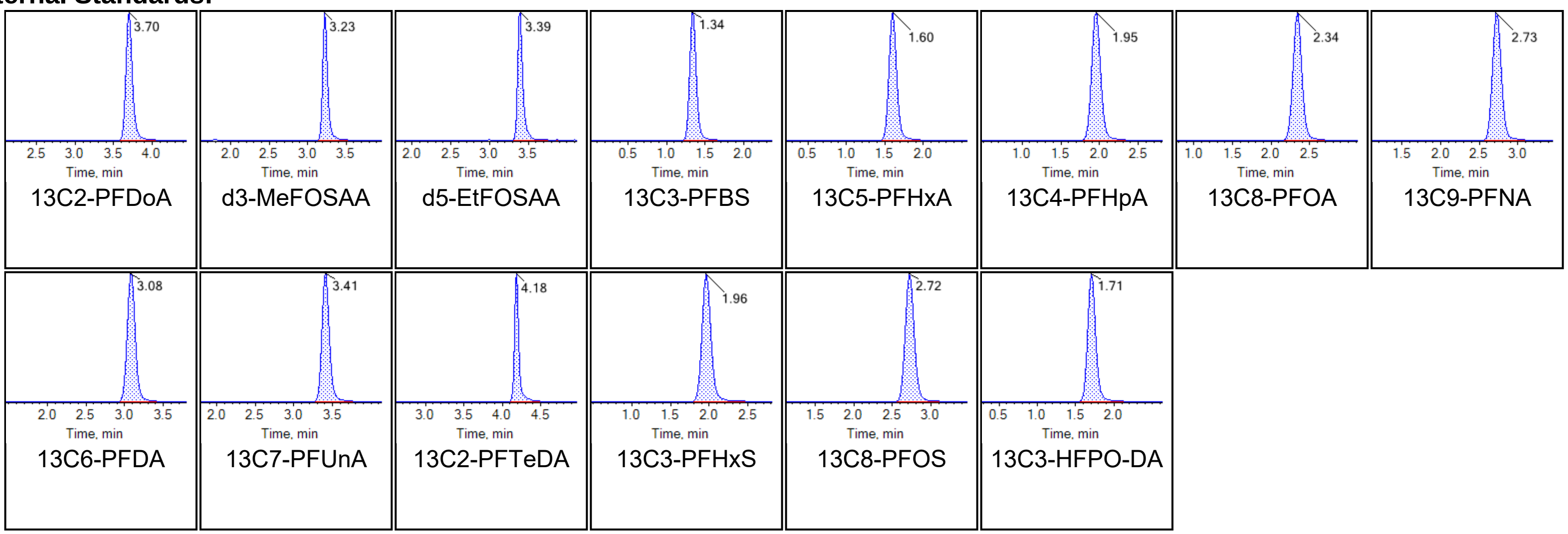

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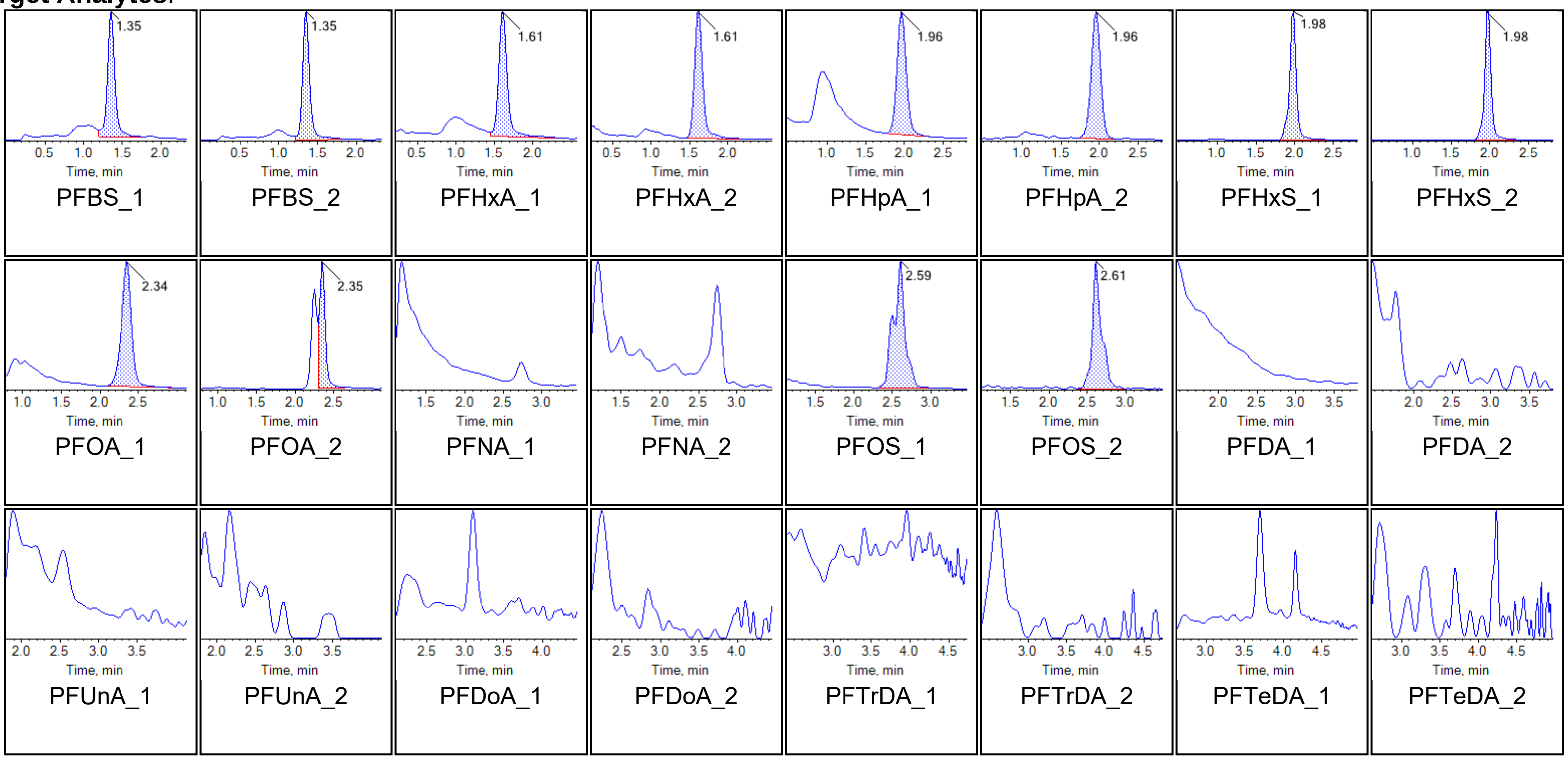
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4961-FS1(0)	Injection Vial	30
Sample ID	POL-MW0047D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:03:04 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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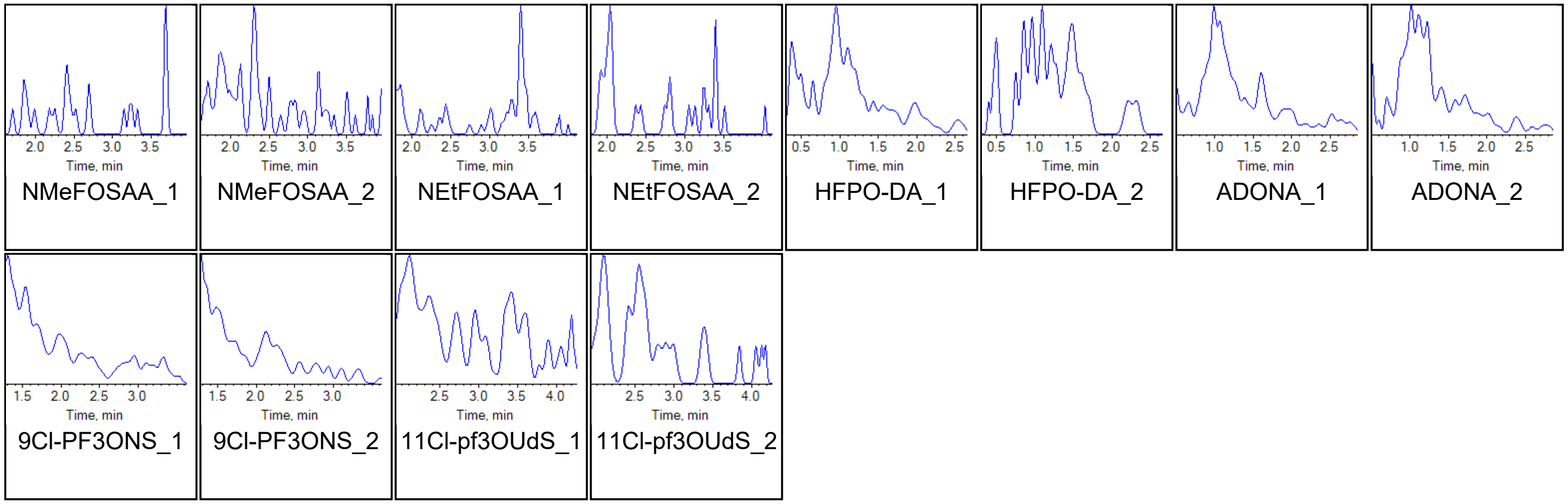
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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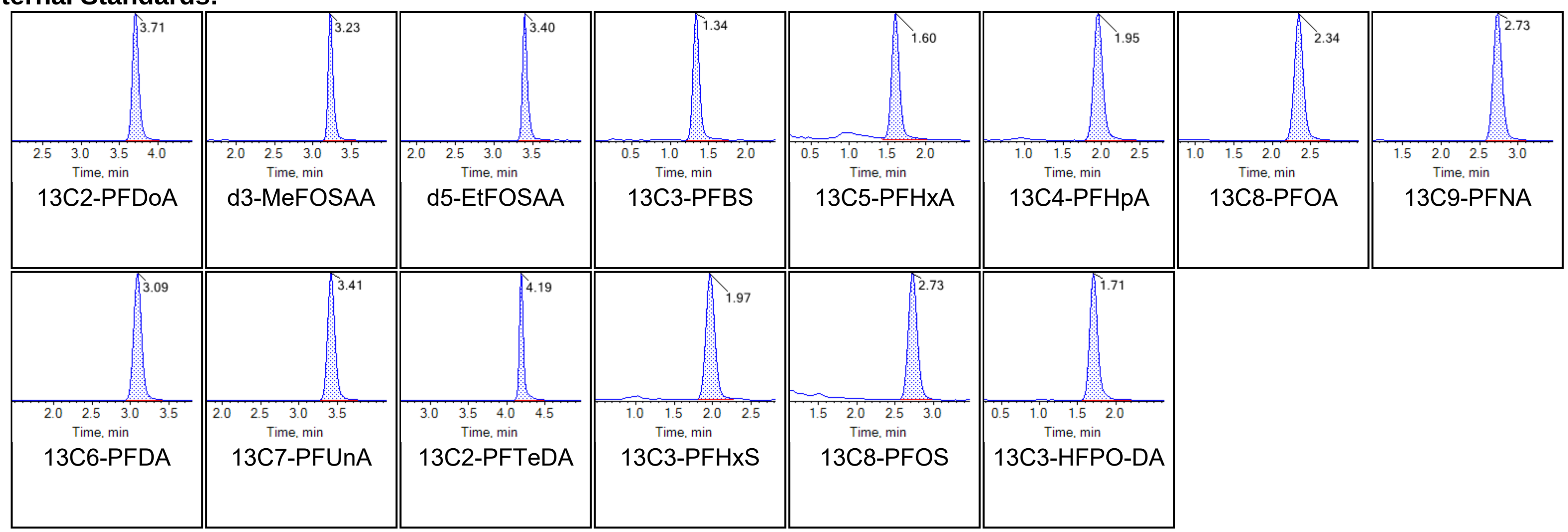


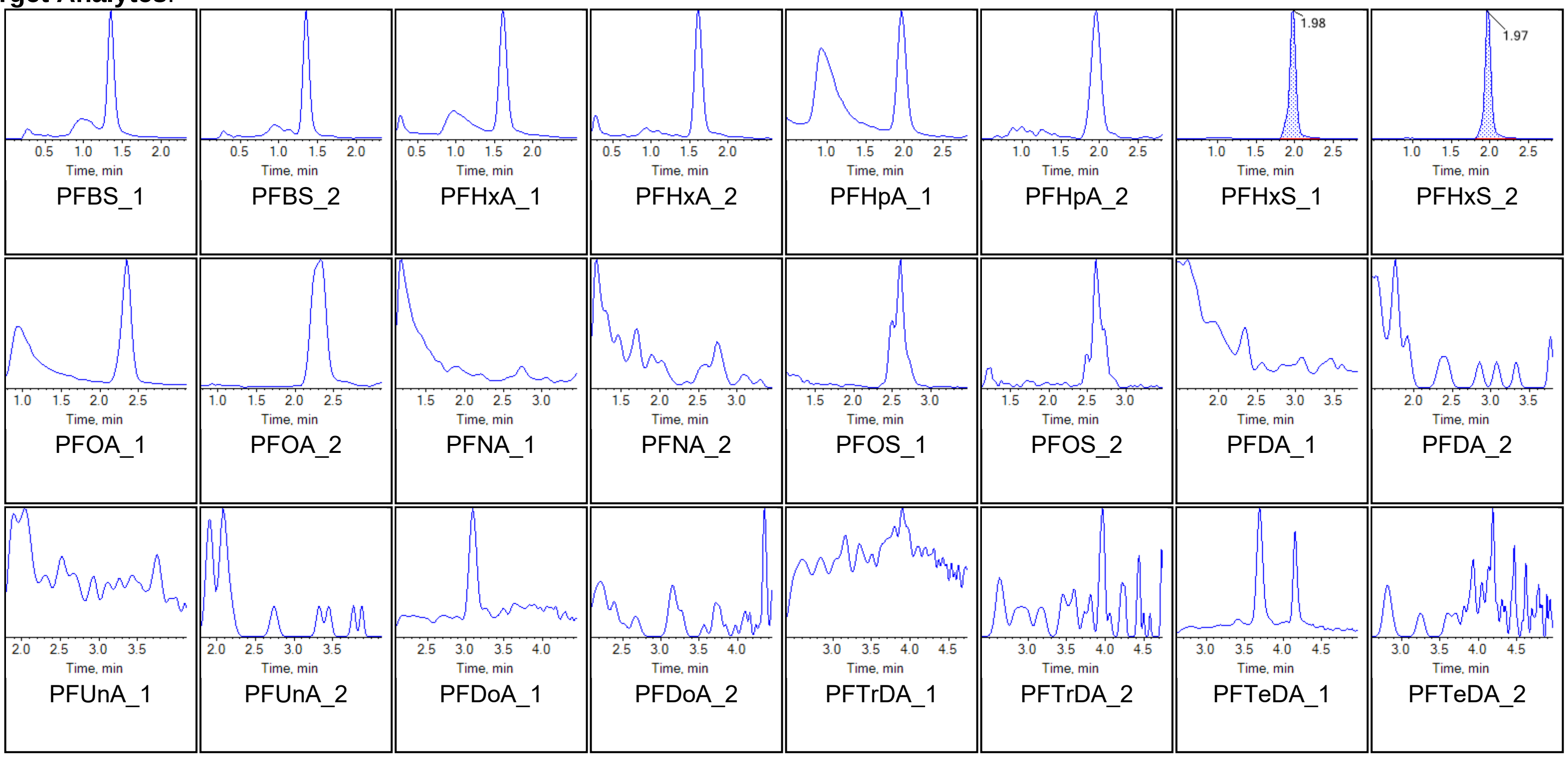
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4961-FS1-D(3)	**Injection Vial**	31
Sample ID	POL-MW0047D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:13:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

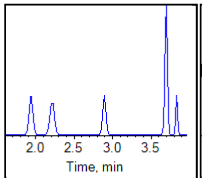
Chromatograms

Target Analytes:



Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Chromatogram Report



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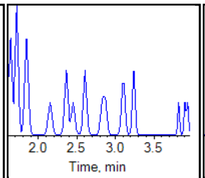

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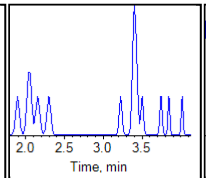

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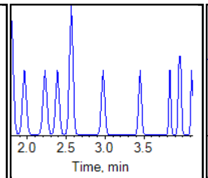

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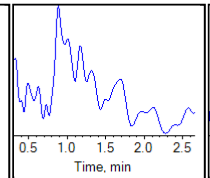
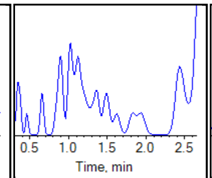
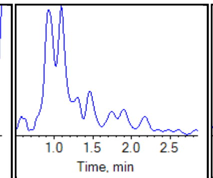


HFPO-DA_1



HFPO-DA_2



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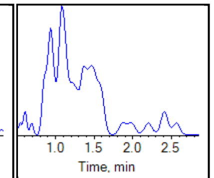

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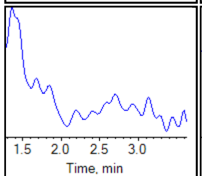

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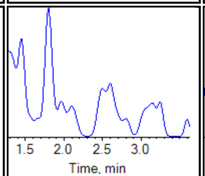
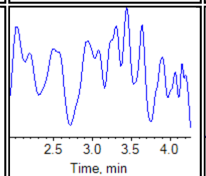


9Cl-PF3ONS_2



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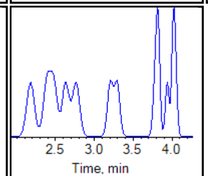

11Cl-pf3OUdS_2

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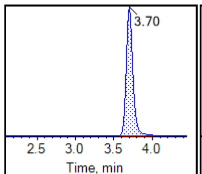

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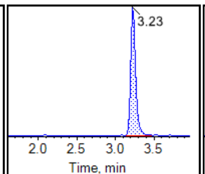

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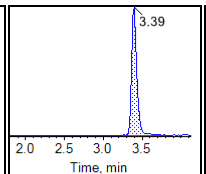

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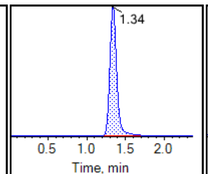

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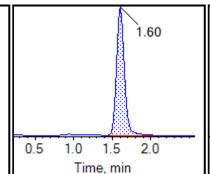

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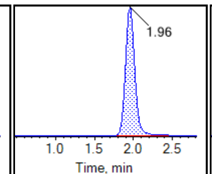

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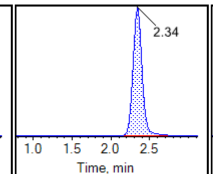
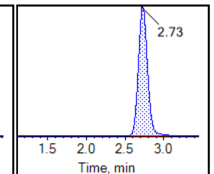
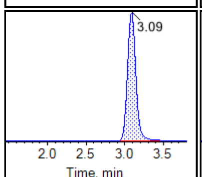


13C8-PFOA



13C9-PFNA



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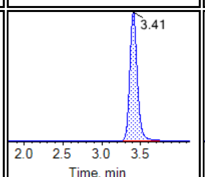
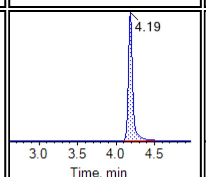
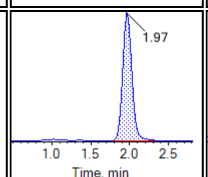


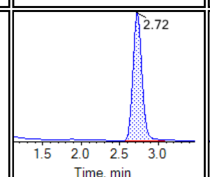
13C7-PFUnA



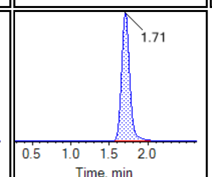
13C2-PFTeDA



13C3-PFHxS



13C8-PFOS



13C3-HFPO-DA

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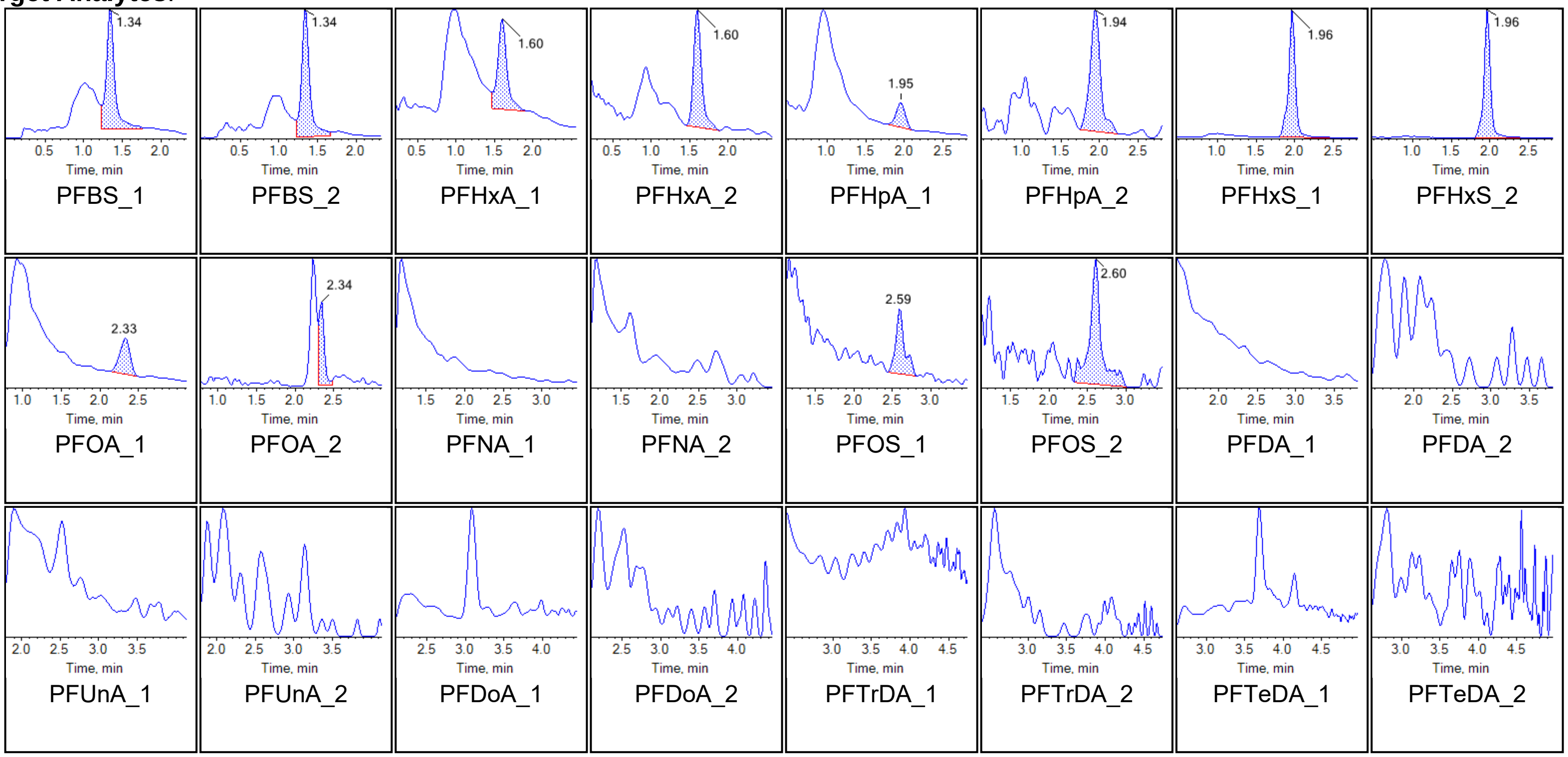
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4962-FS1(0)	Injection Vial	32
Sample ID	POL-MW0047DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:24:08 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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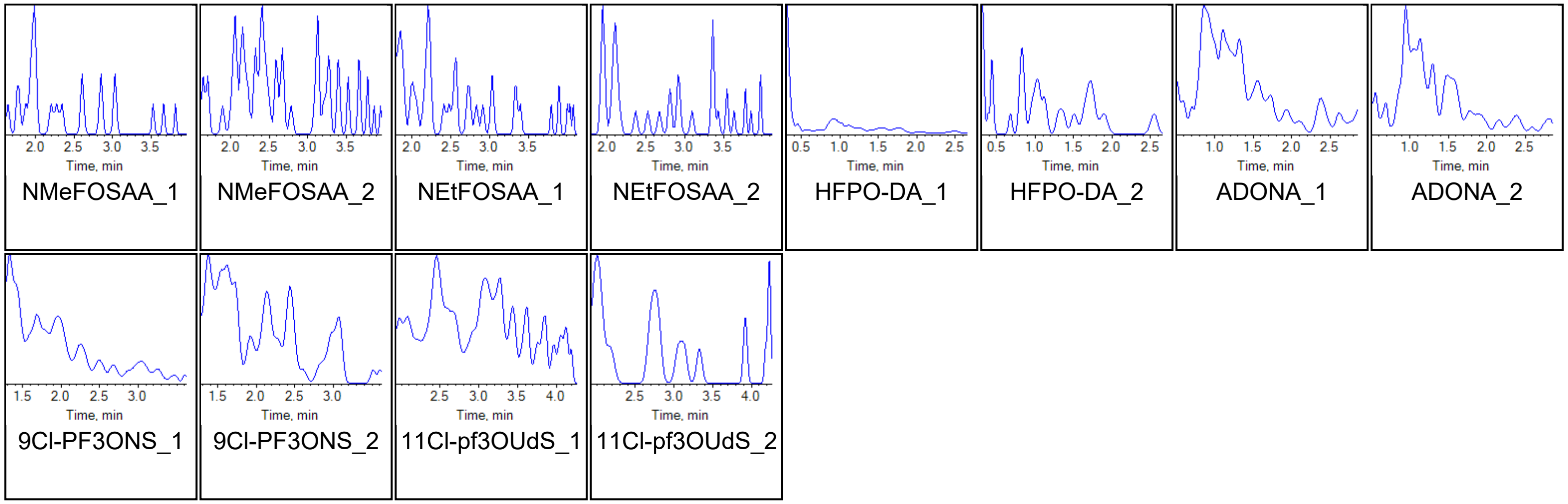
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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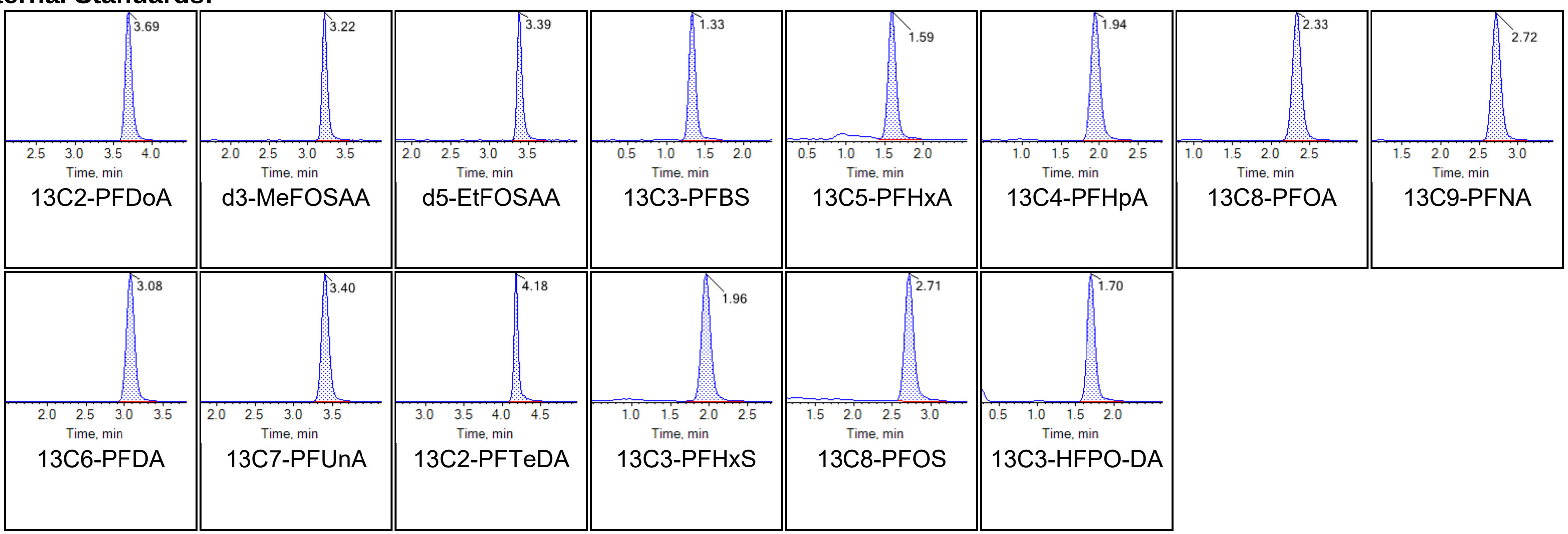

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4963-FS1(0)	**Injection Vial**	33
Sample ID	POL-MW0046D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:34:39 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

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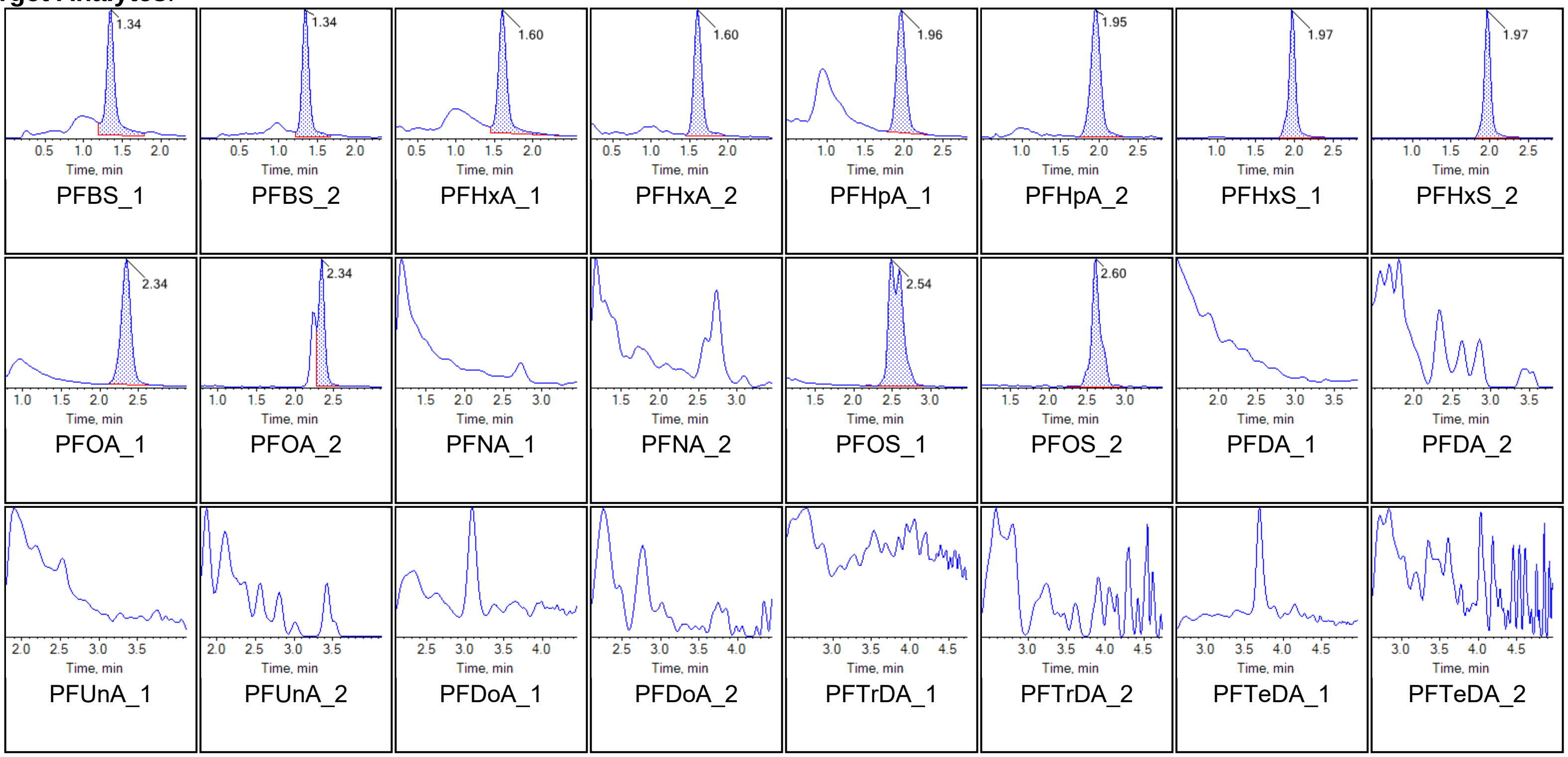

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Chromatogram Report

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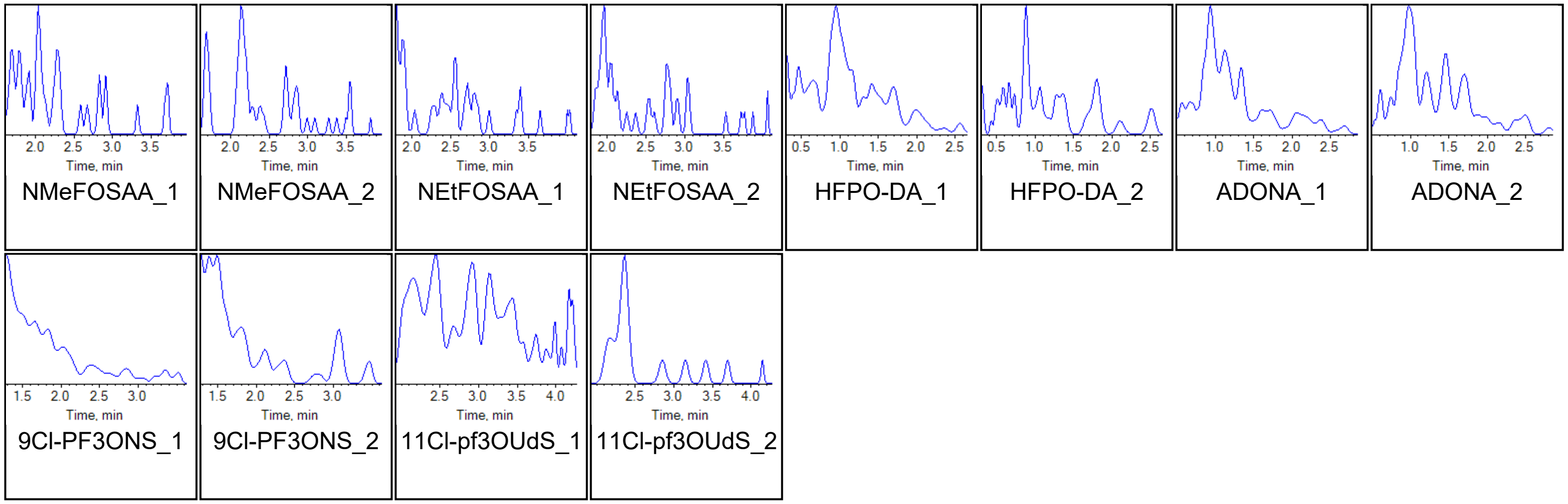
Printed: 06/05/2020 9:51:47 AM



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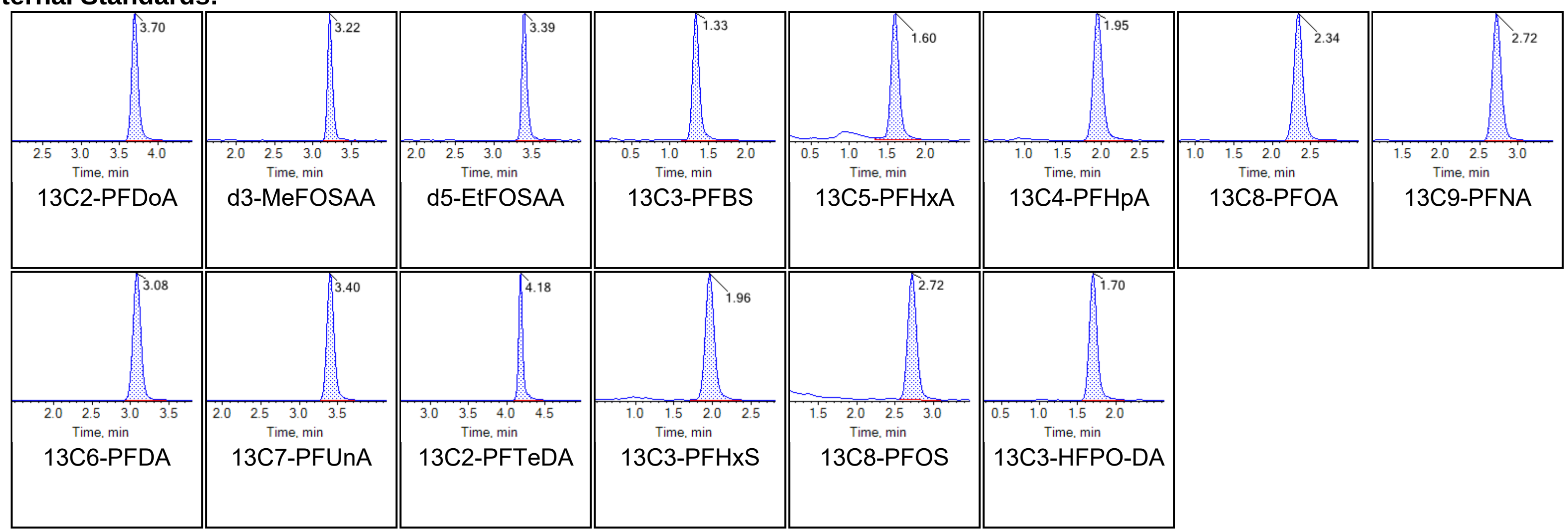

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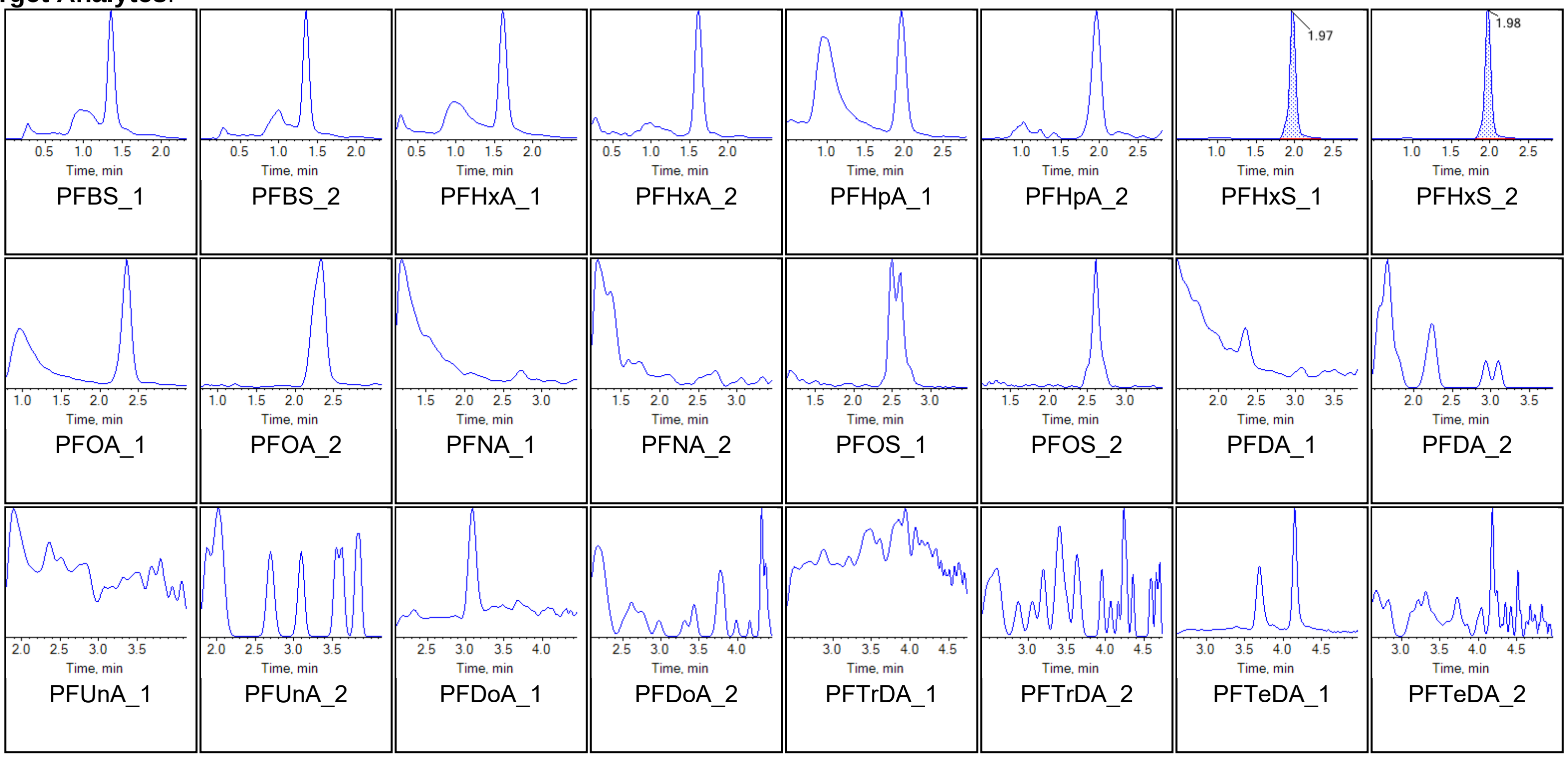
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4963-FS1-D(3)	**Injection Vial**	34
Sample ID	POL-MW0046D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:45:11 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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Chromatogram Report

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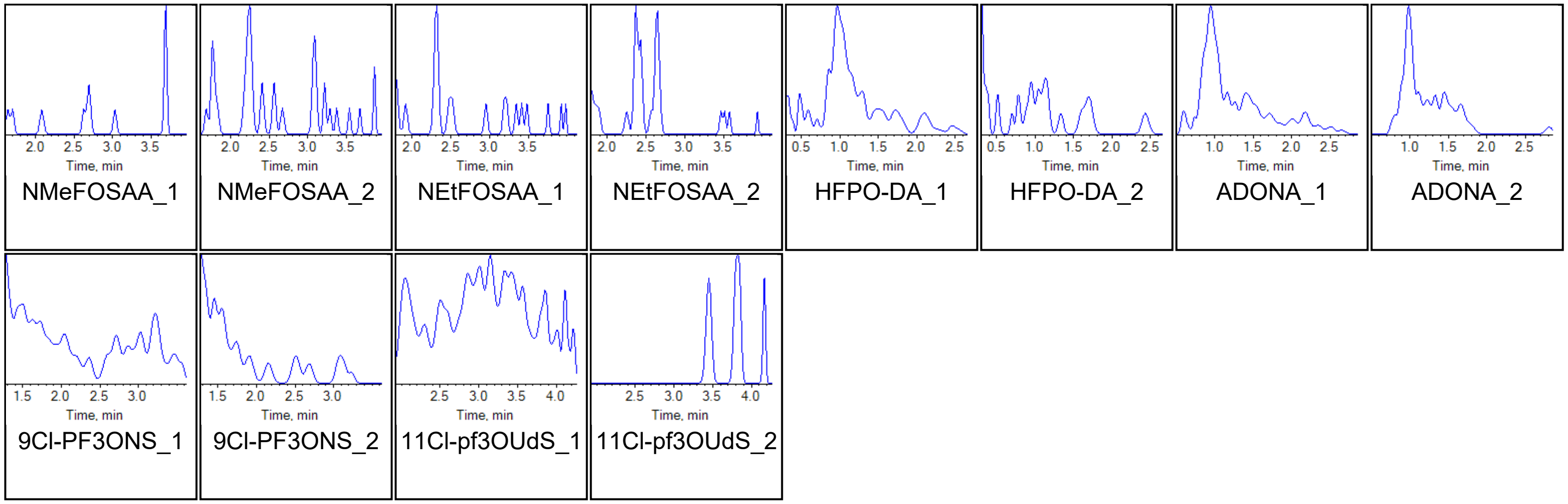

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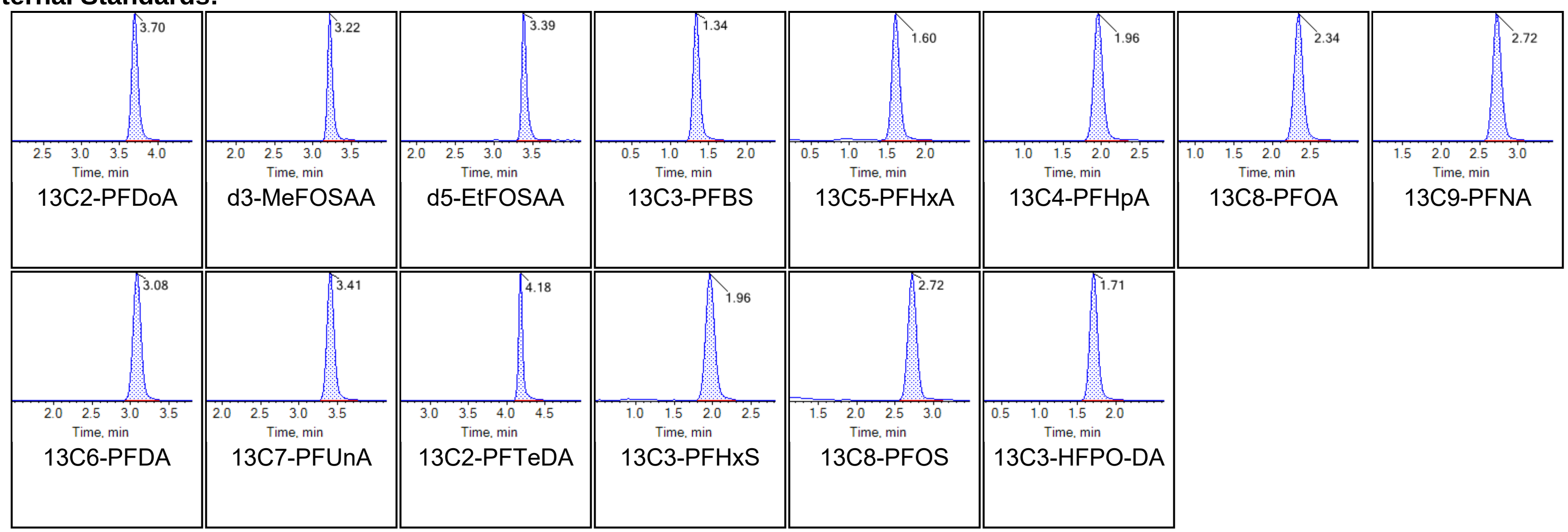


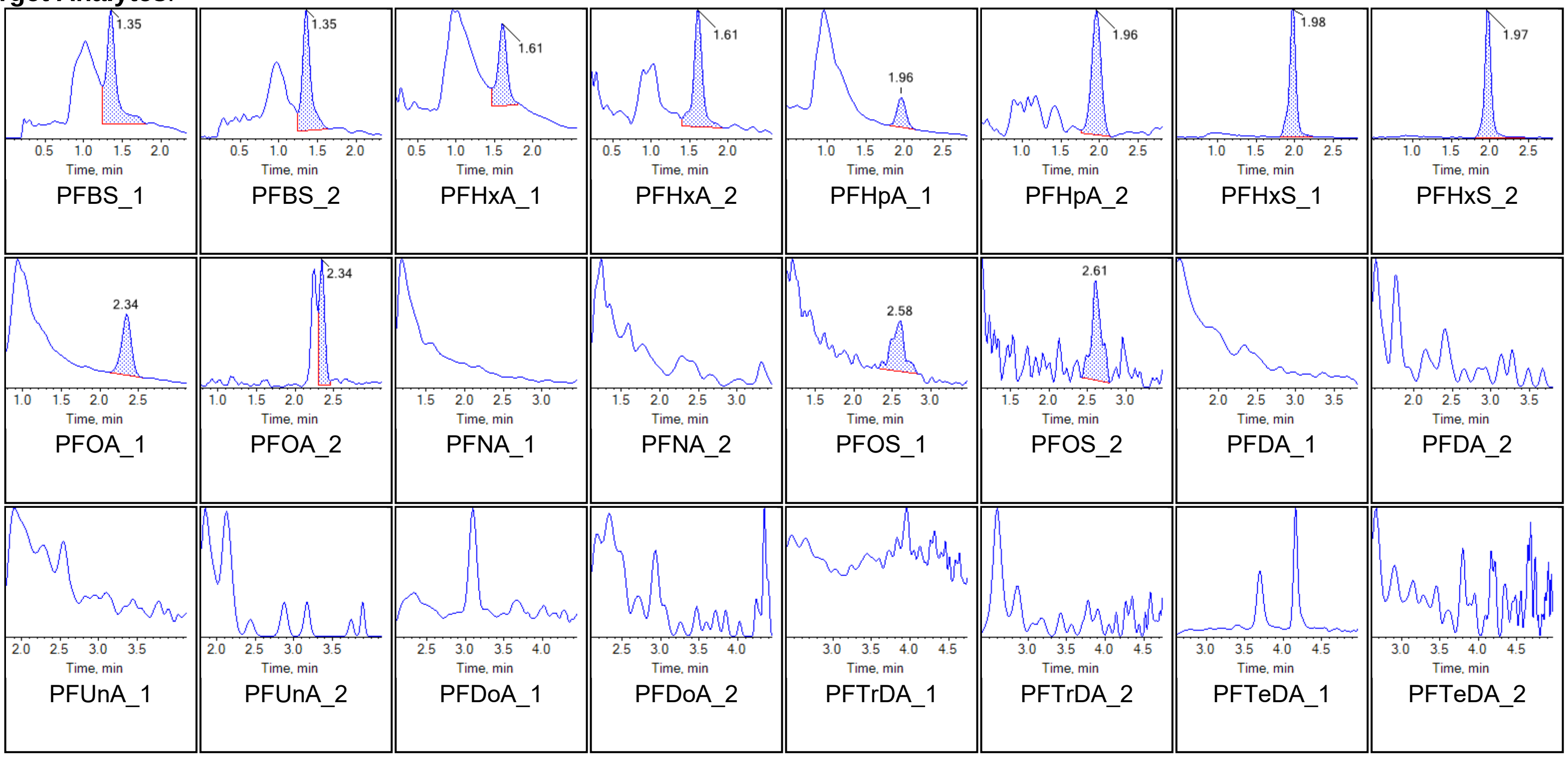
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4964-FS1(0)	**Injection Vial**	35
Sample ID	POL-MW0046DD-045.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:55:42 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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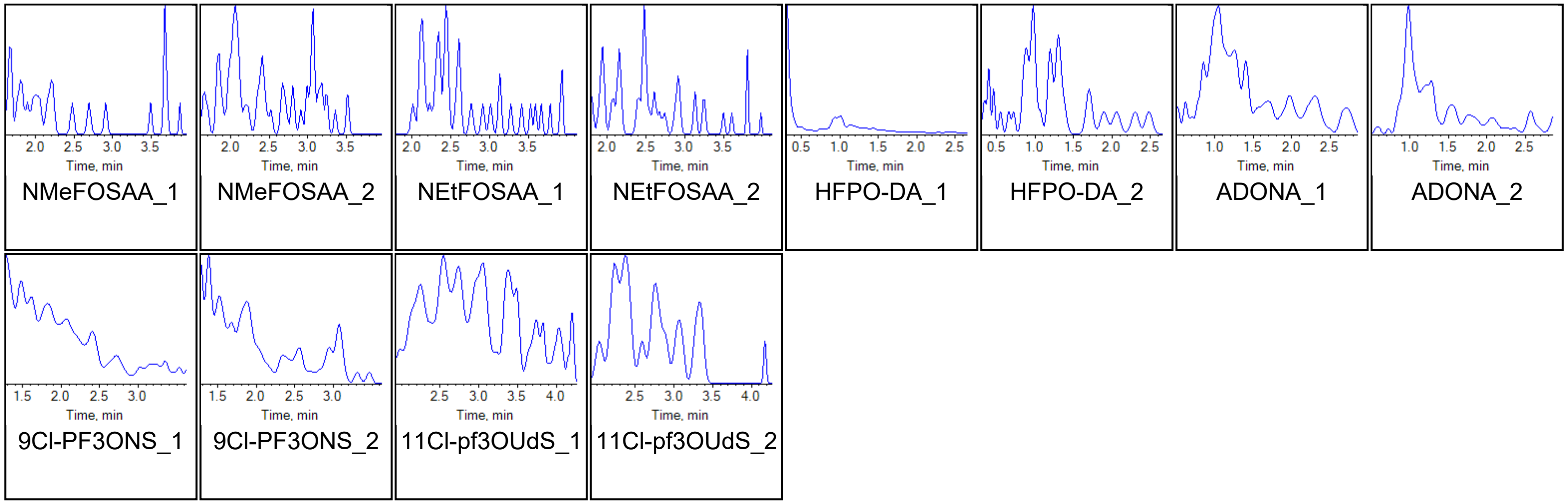
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



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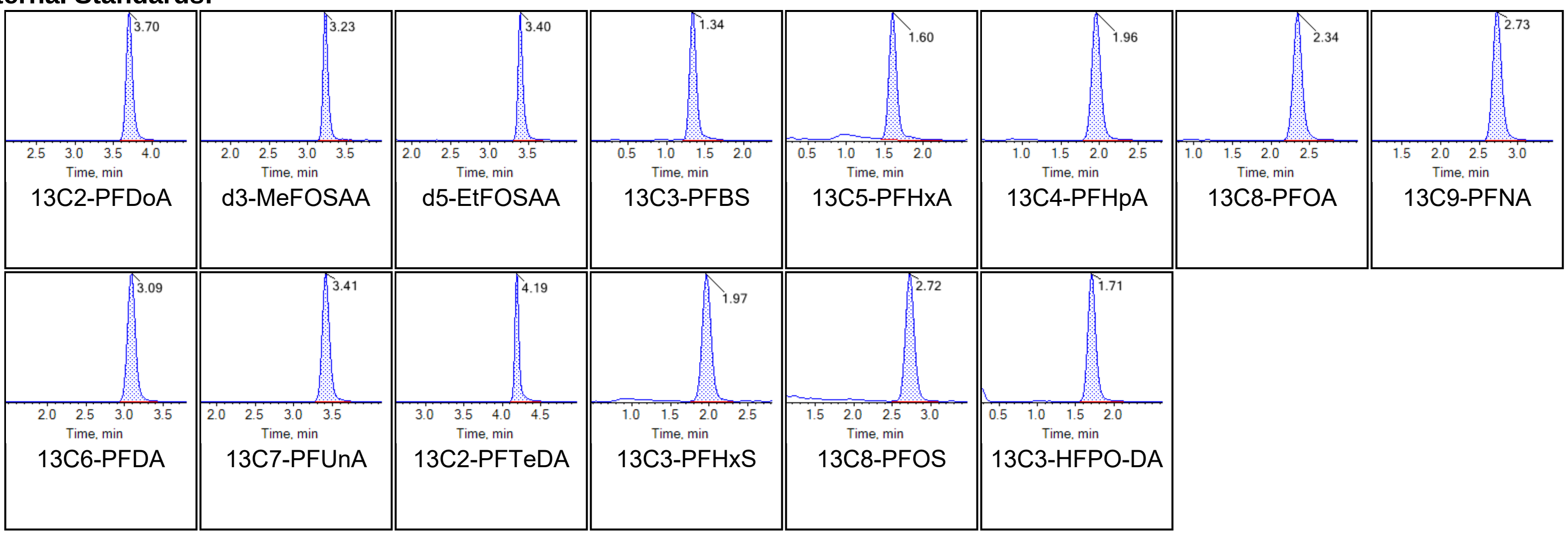

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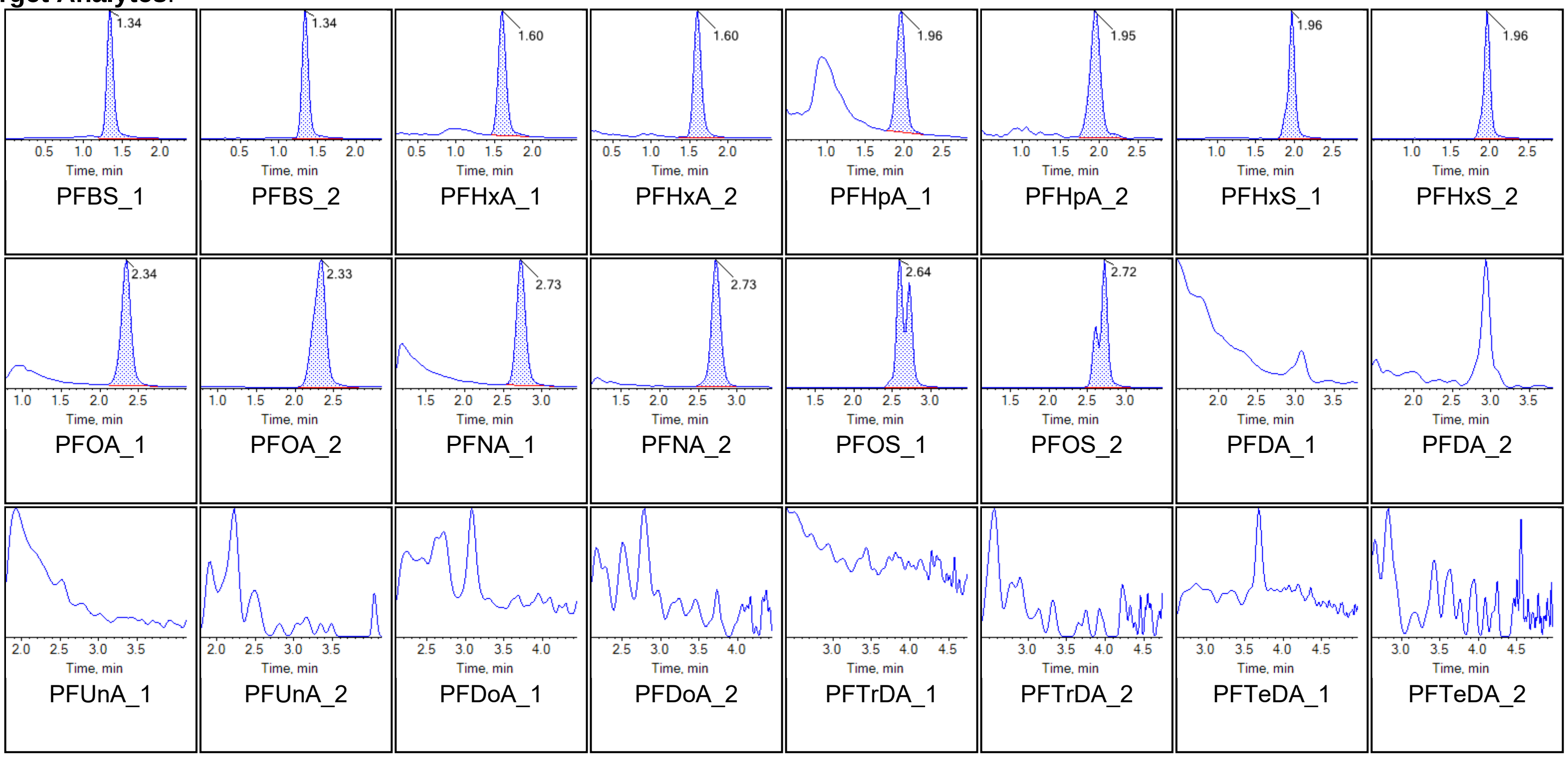
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4966-FS1(0)	**Injection Vial**	36
Sample ID	POL-MW0045I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:06:14 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

Target Analytes:



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Chromatogram Report

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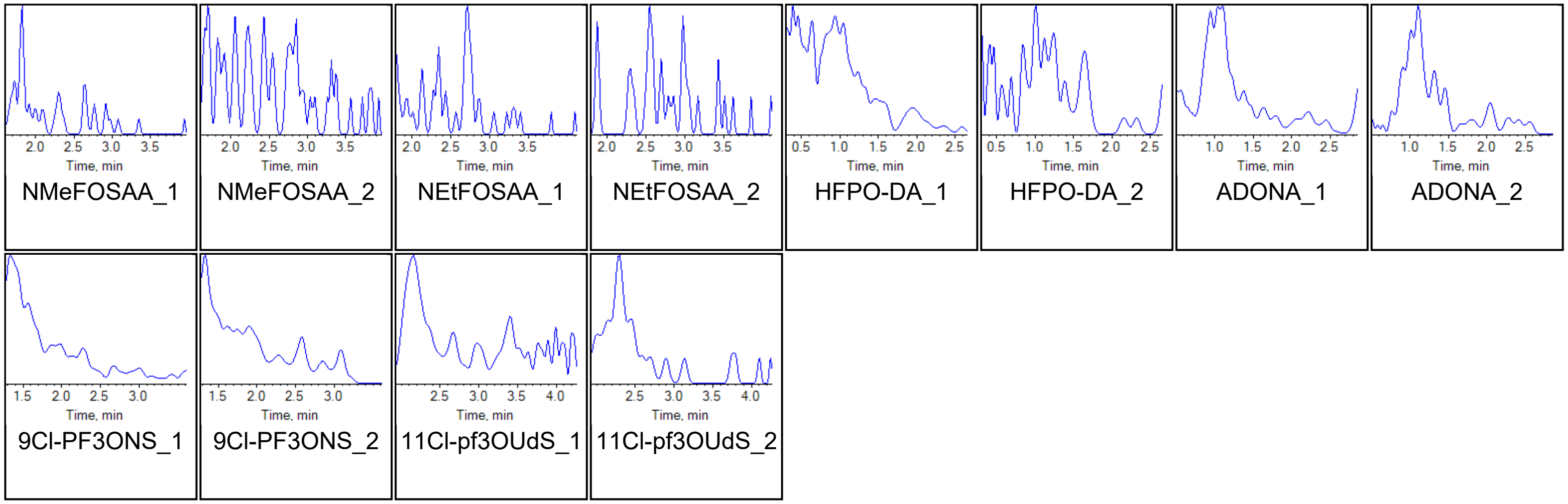
Printed: 06/05/2020 9:51:47 AM



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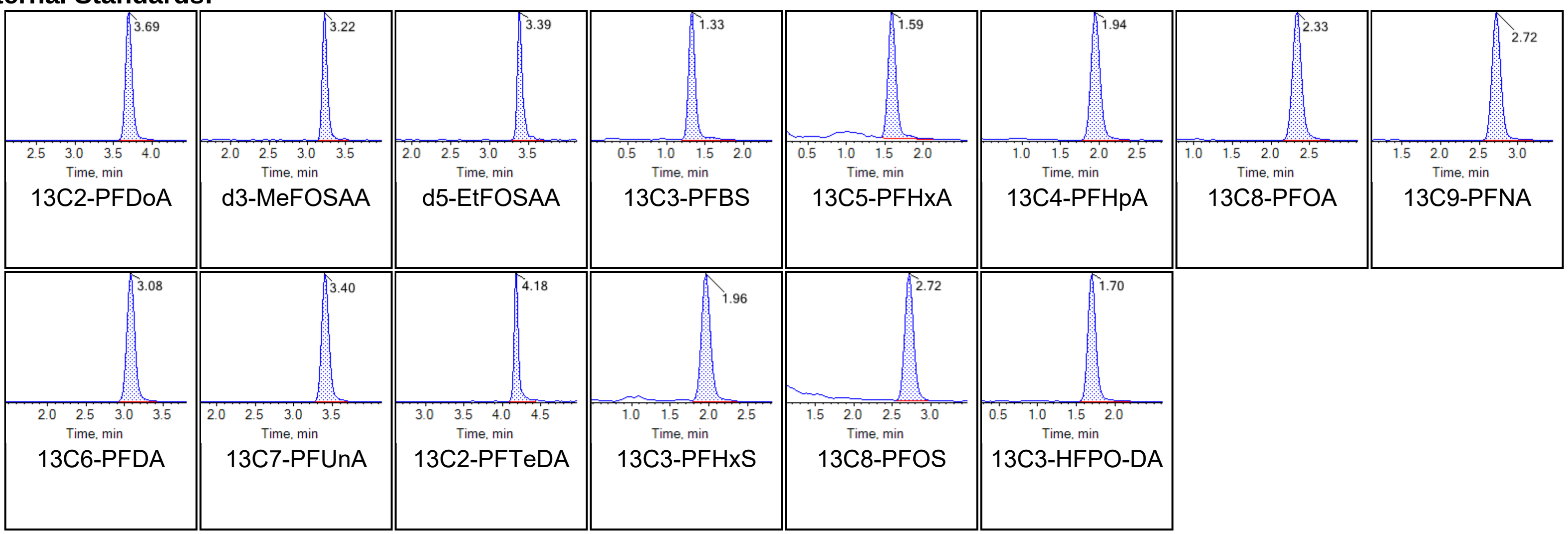


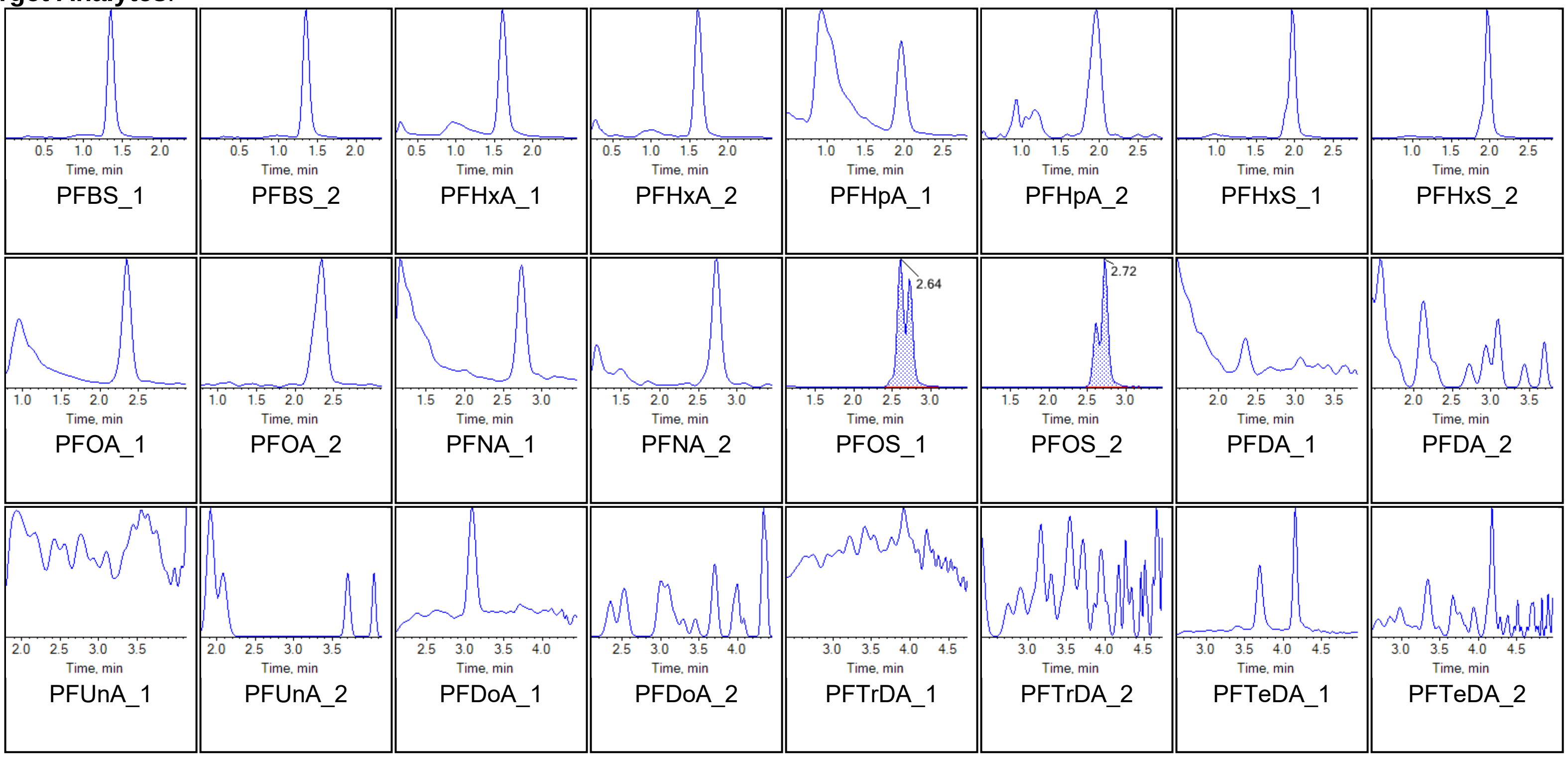
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4966-FS1-D(3)	Injection Vial	37
Sample ID	POL-MW0045I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:16:46 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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Chromatogram Report

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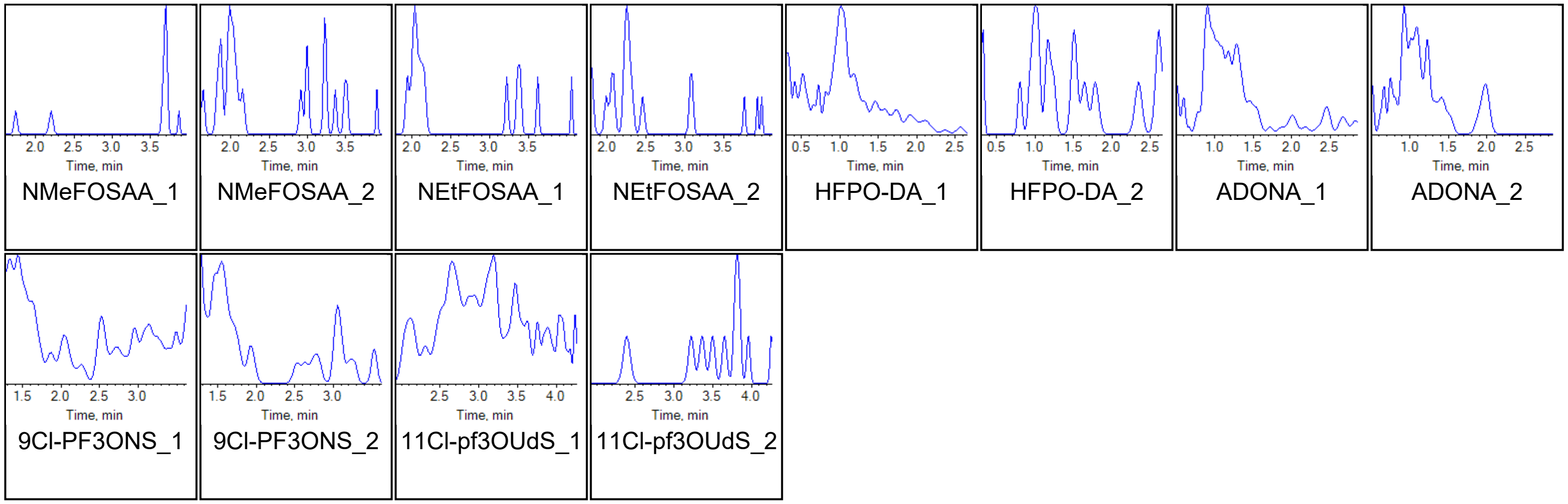
Printed: 06/05/2020 9:51:47 AM



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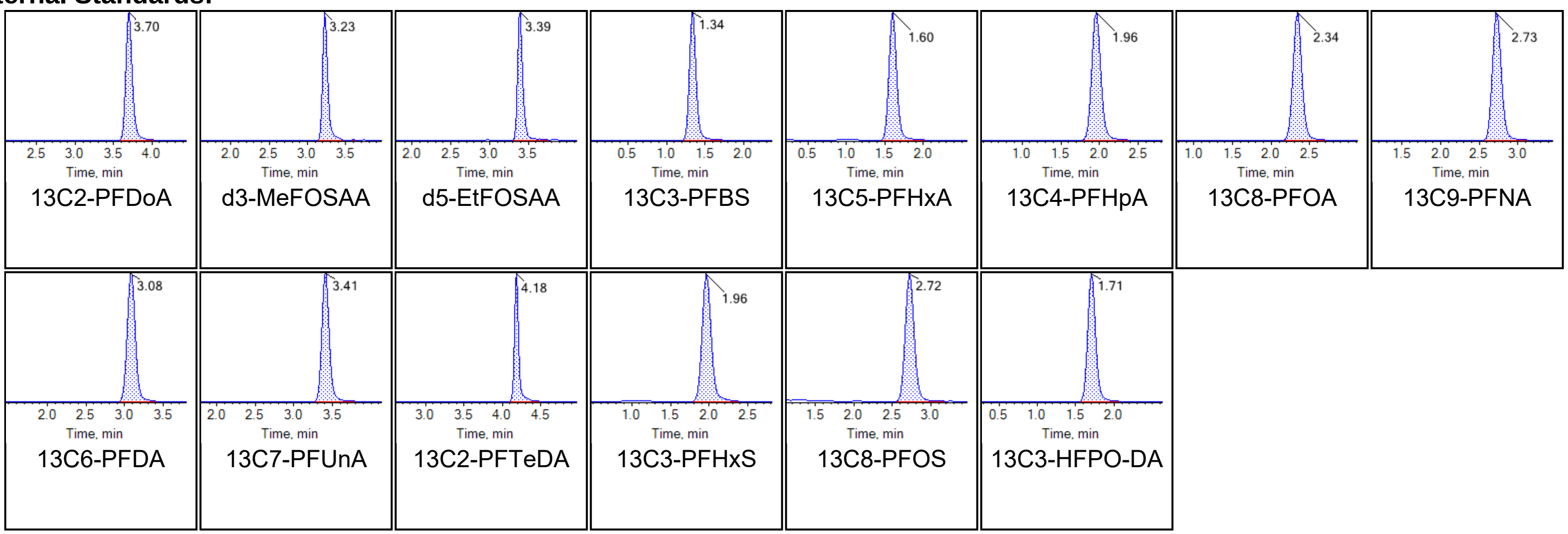

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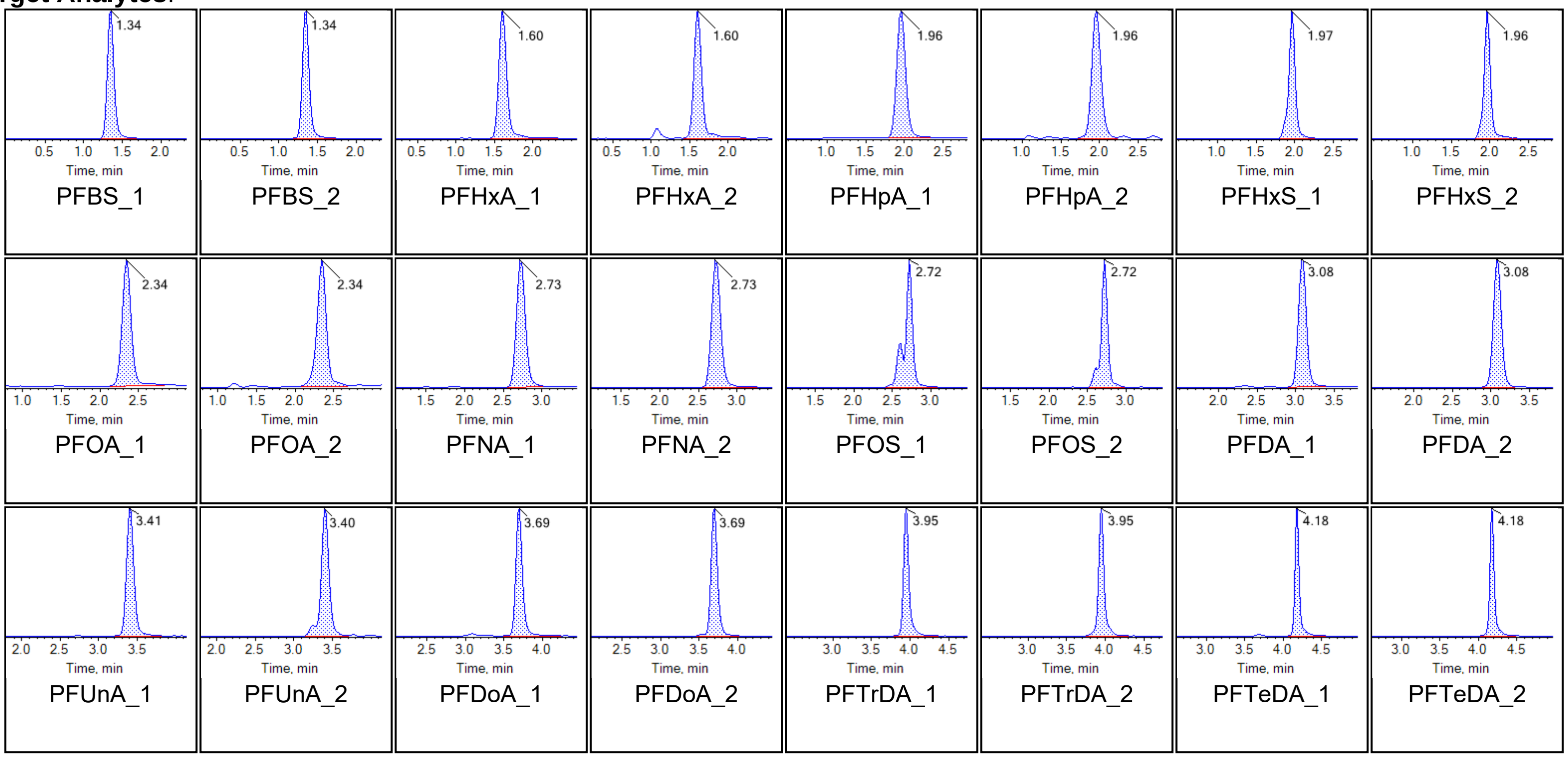
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY86 CCV	Injection Vial	39
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:37:49 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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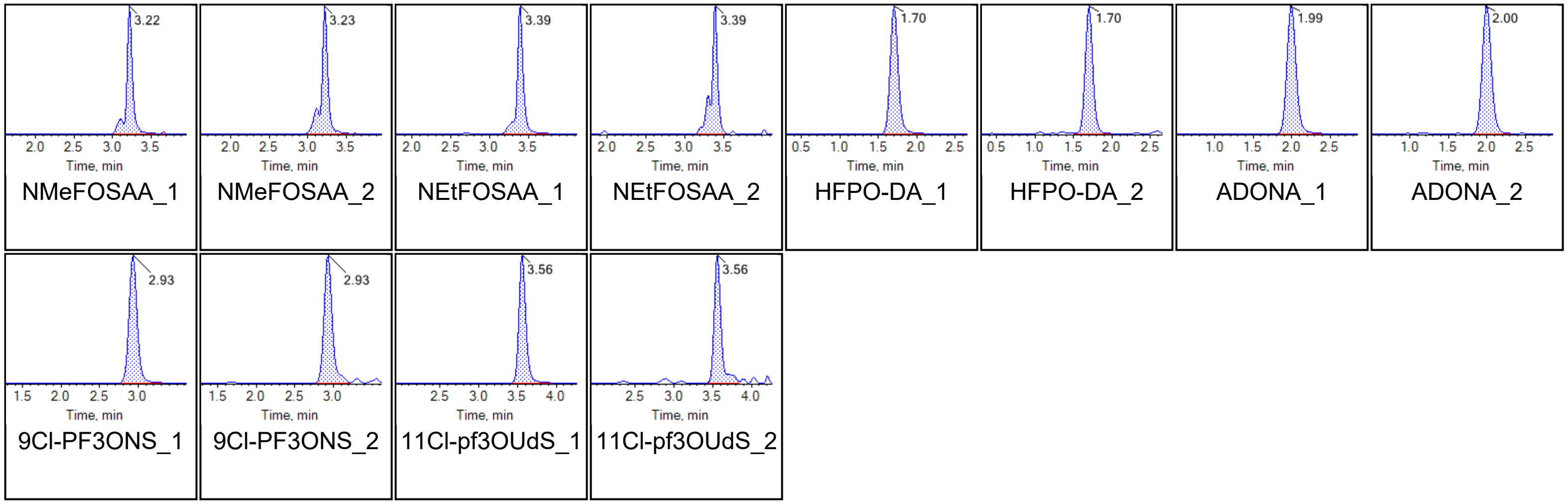
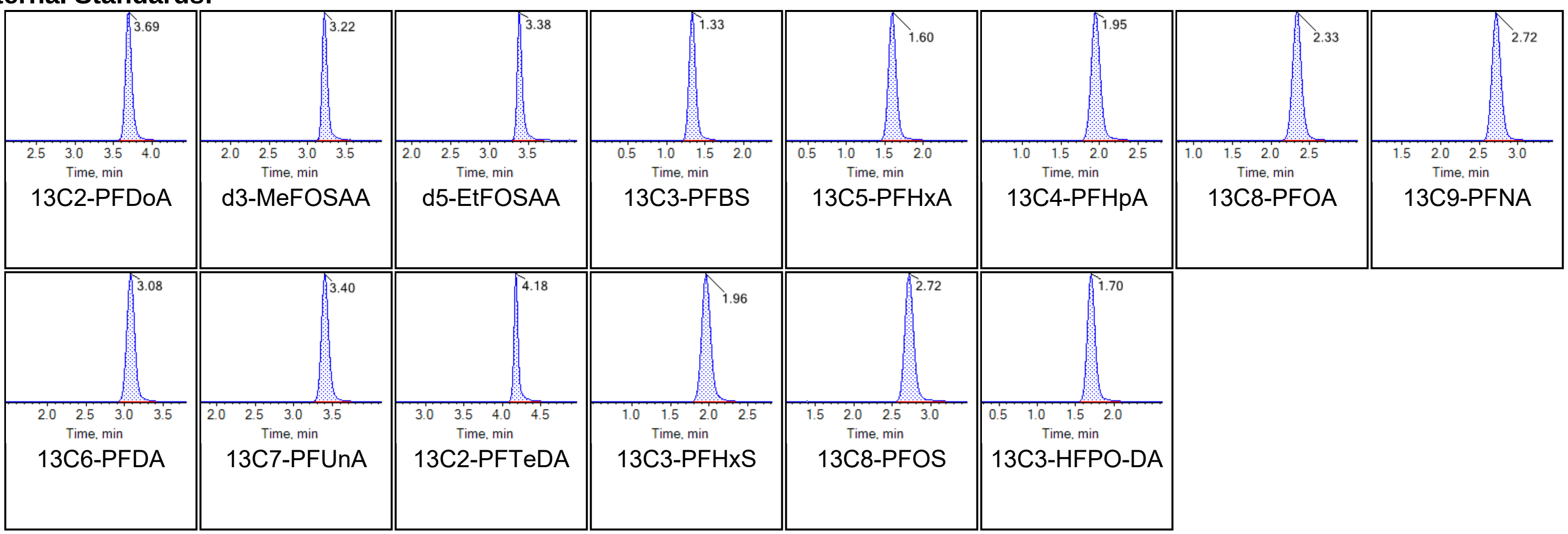
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



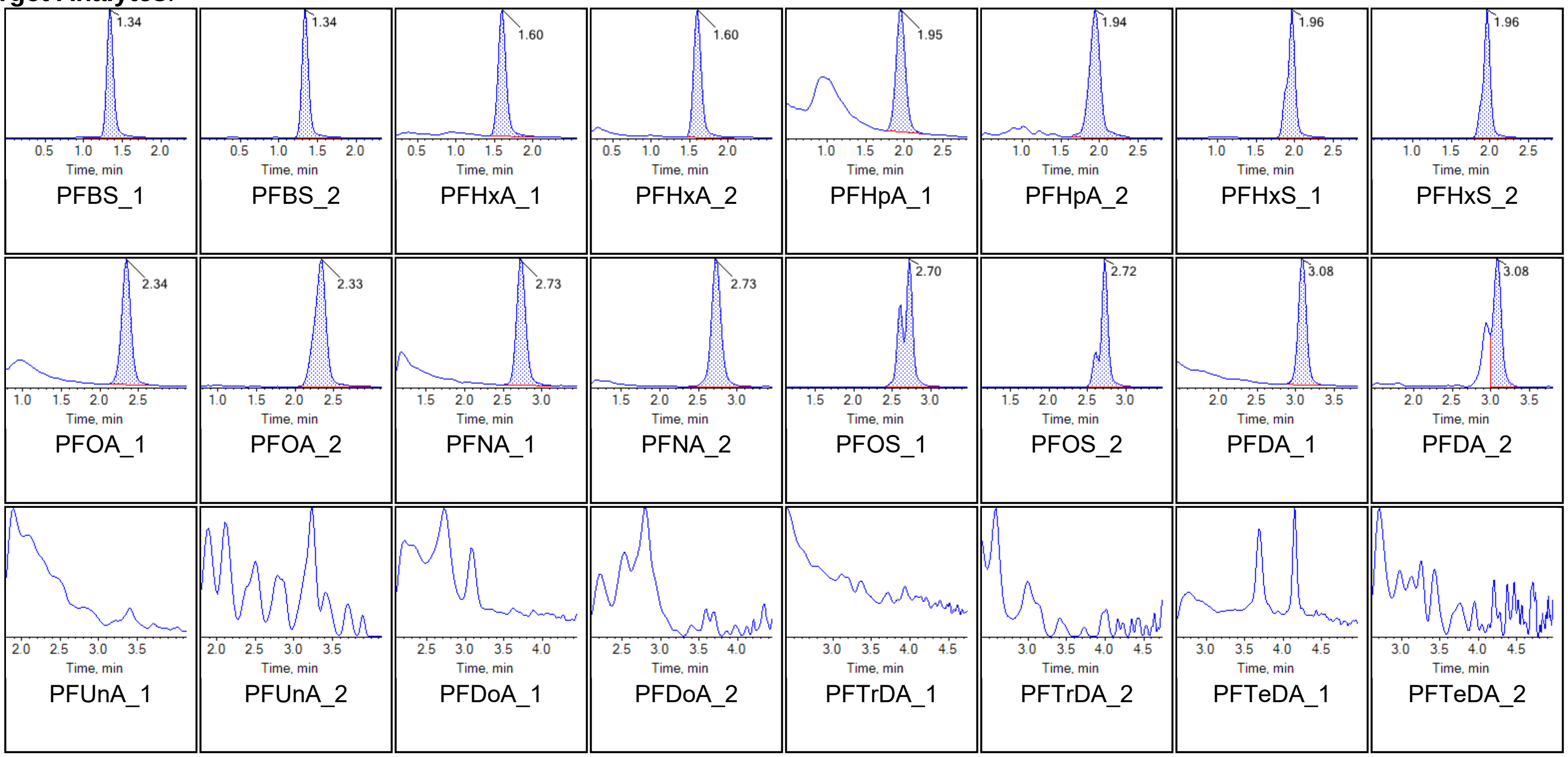
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4965-FS1(0)	**Injection Vial**	40
Sample ID	POL-MW0045S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:48:22 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

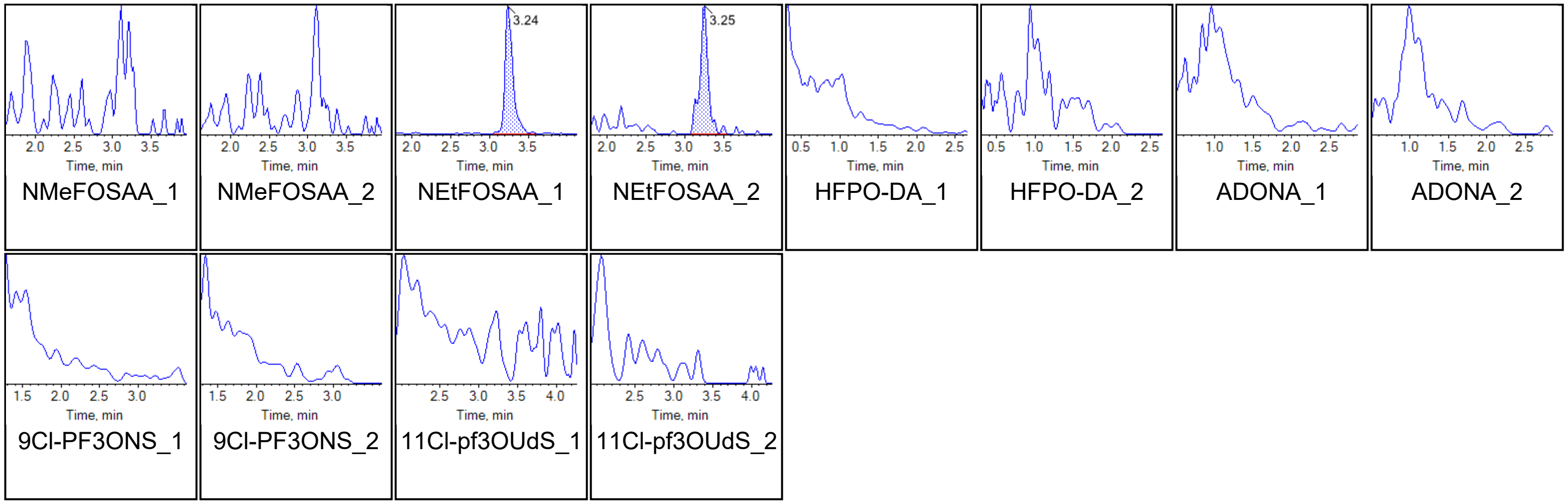
Chromatograms

Target Analytes:

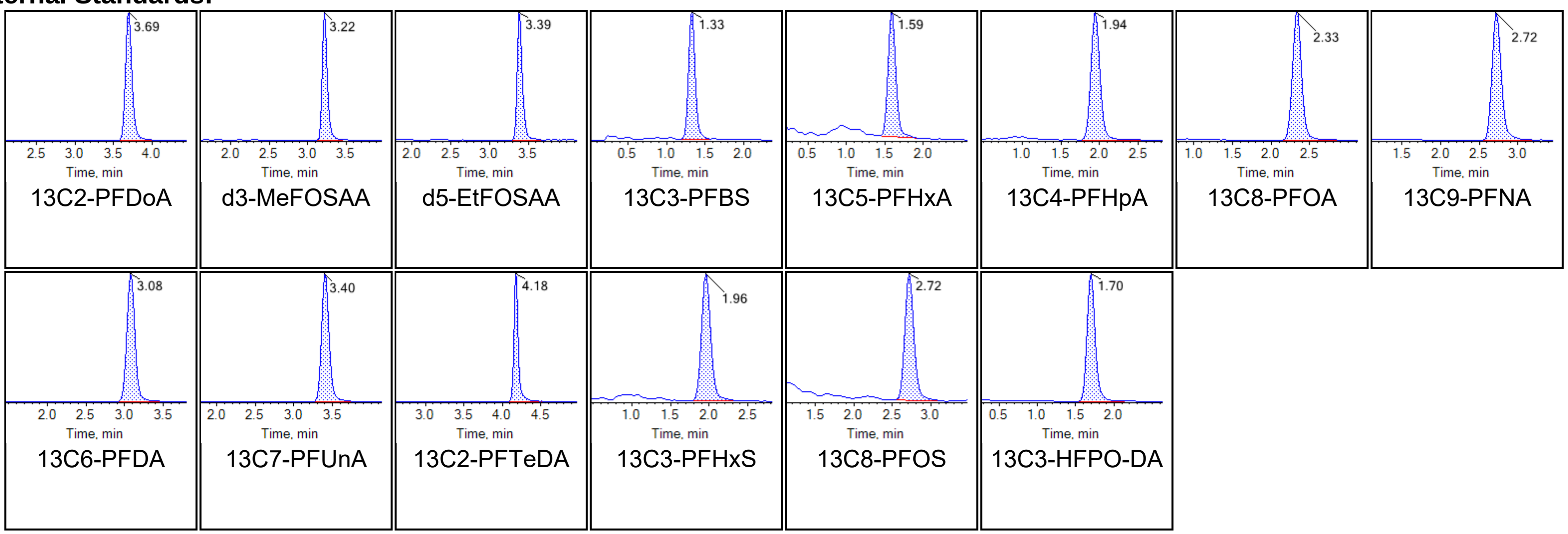


Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



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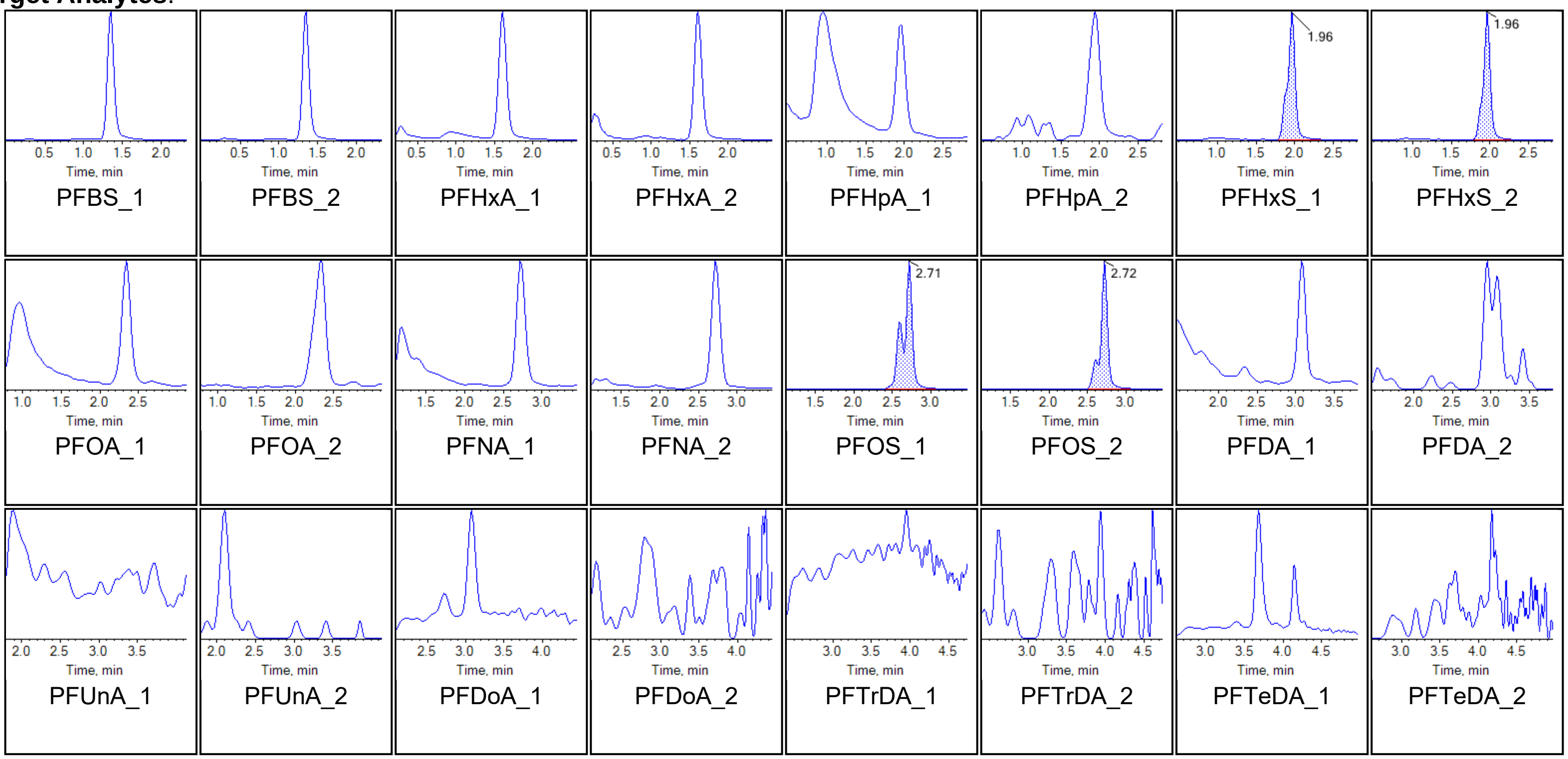
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	H4965-FS1-D(3)	**Injection Vial**	41
Sample ID	POL-MW0045S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:58:55 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519

Chromatograms

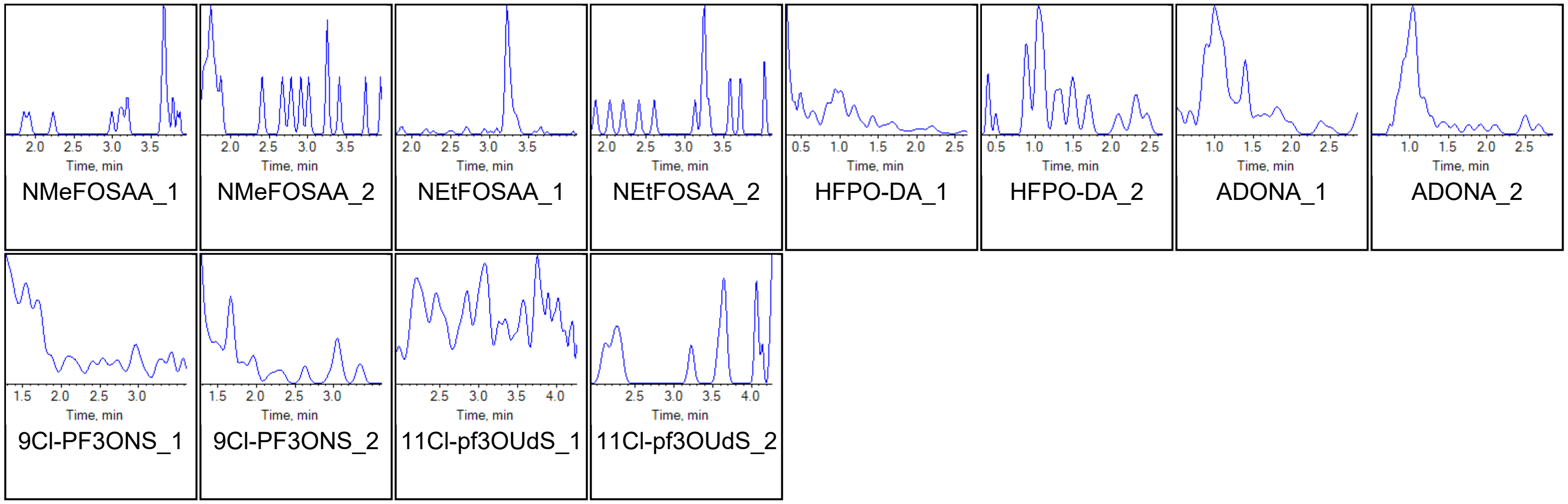
Target Analytes:



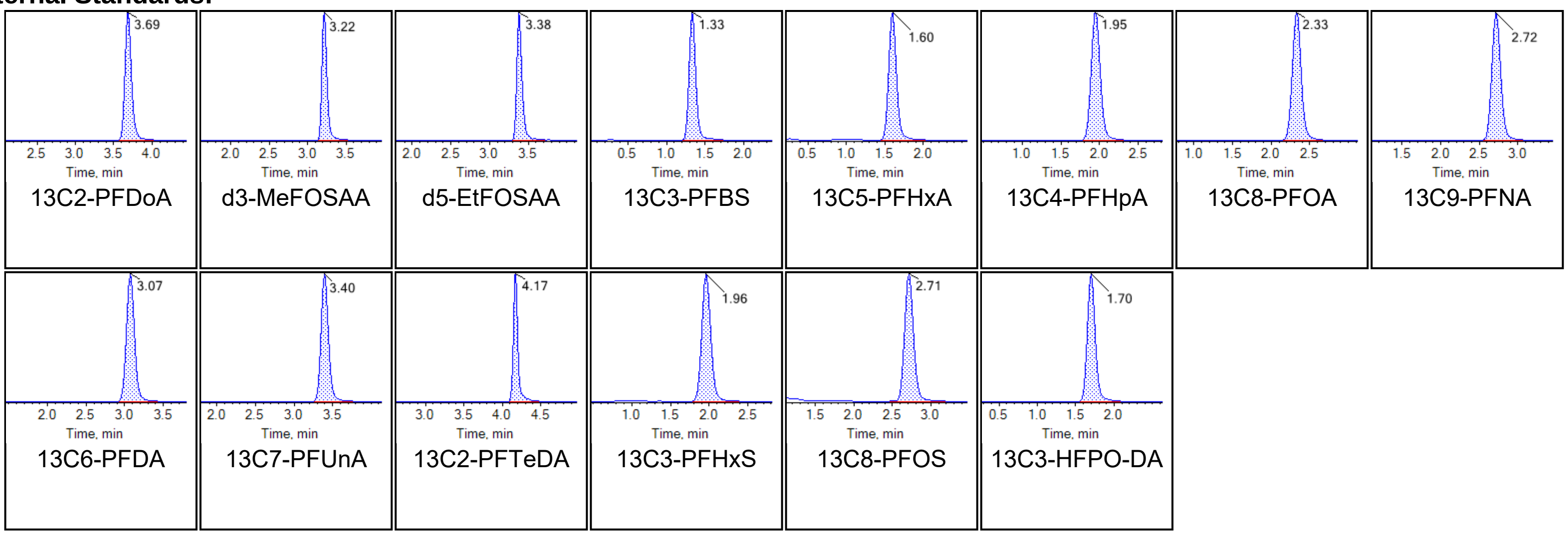
BATTELLE

Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



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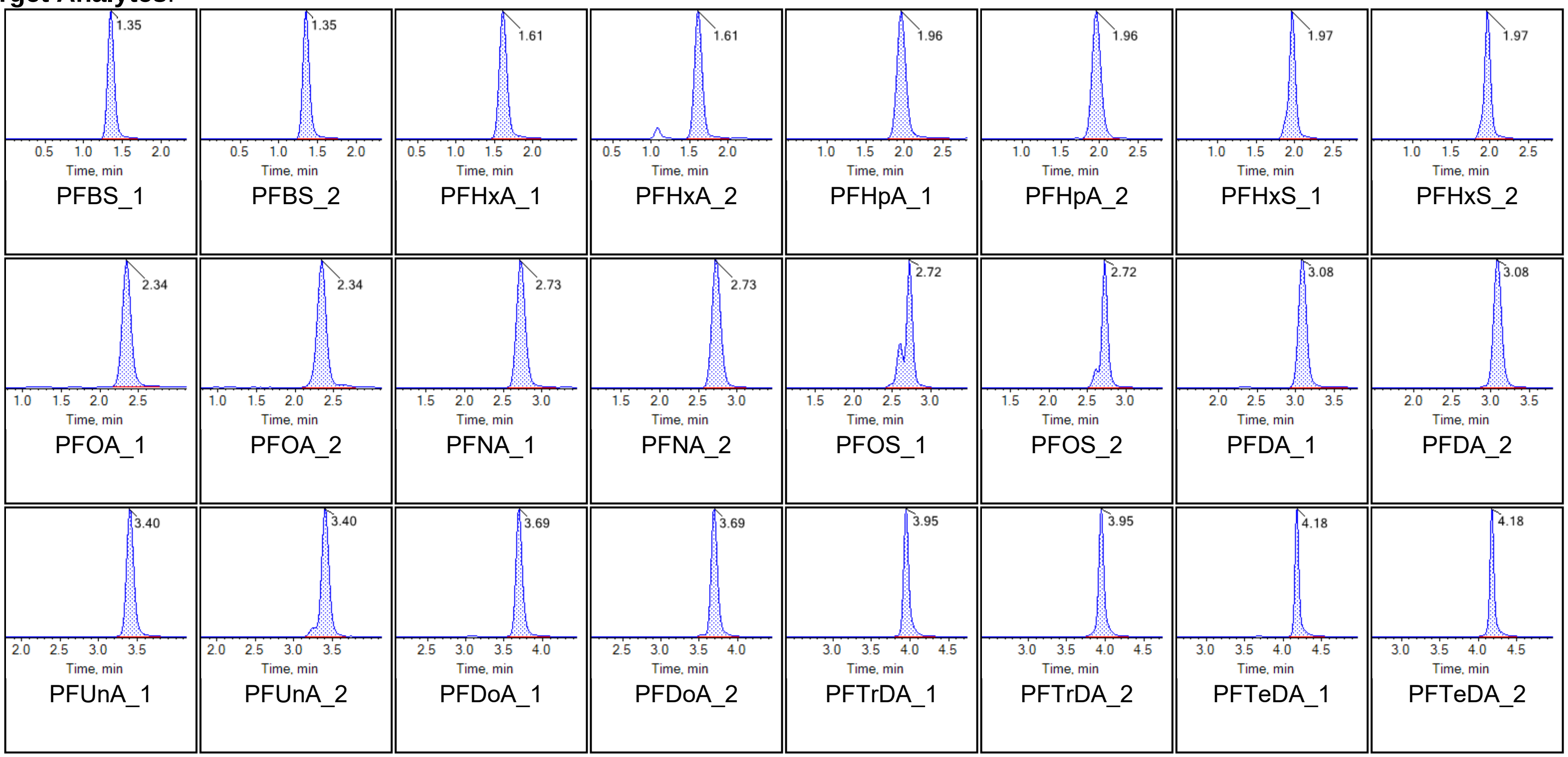
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM

Sample Name	KY87 CCV	Injection Vial	43
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 1:20:01 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519

Chromatograms

Target Analytes:



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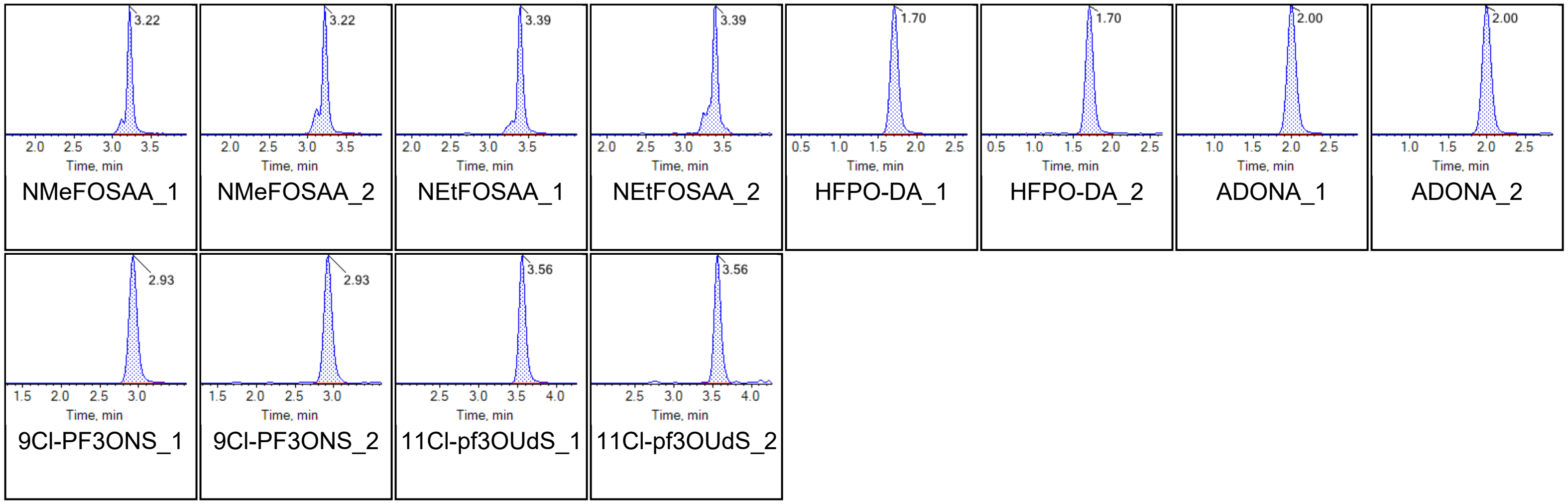
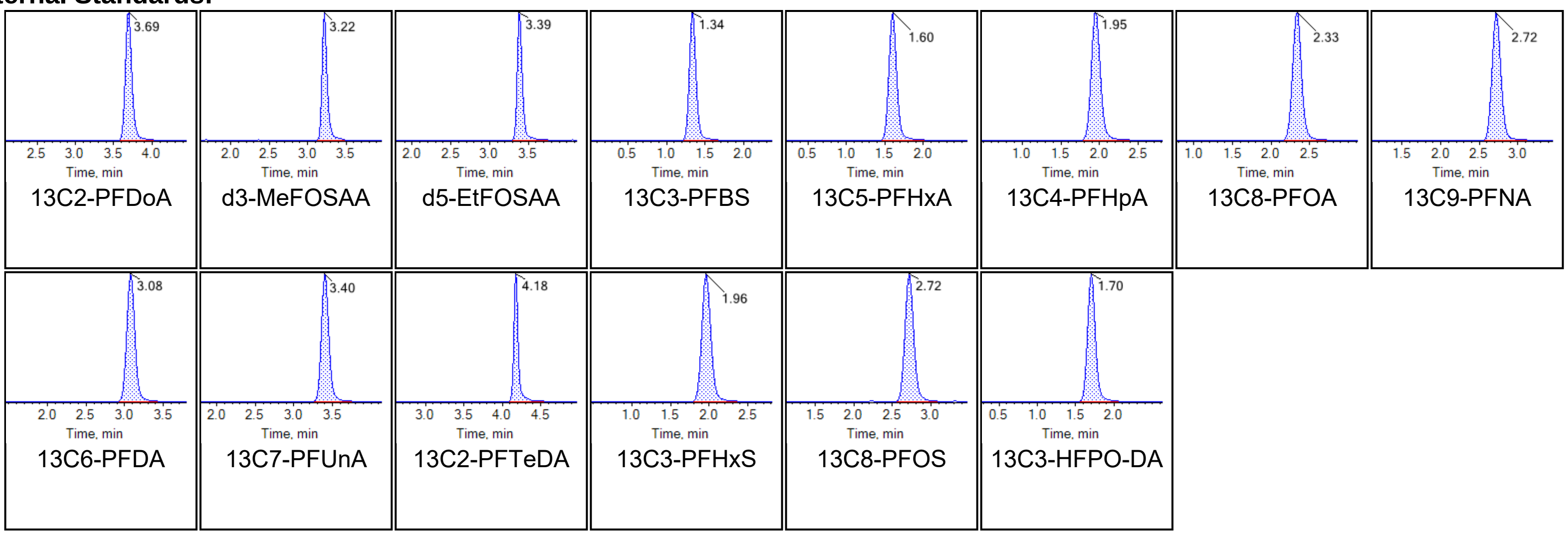
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:51:47 AM



Internal Standards:



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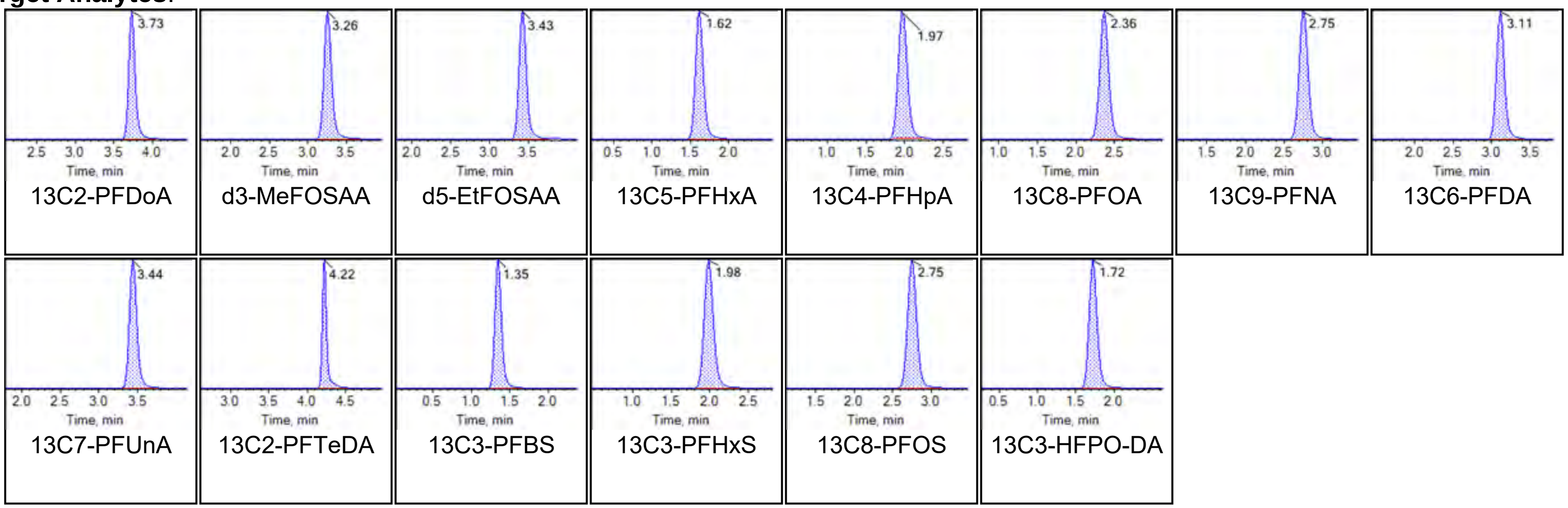
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

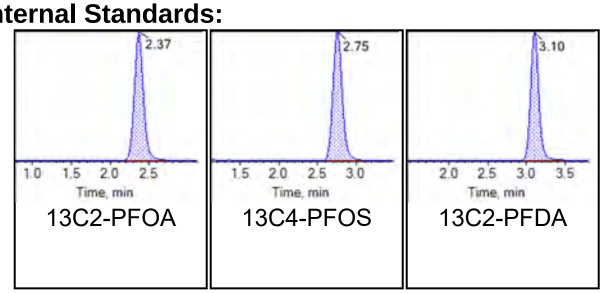
Sample Name	KY83	Injection Vial	2
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:28:48 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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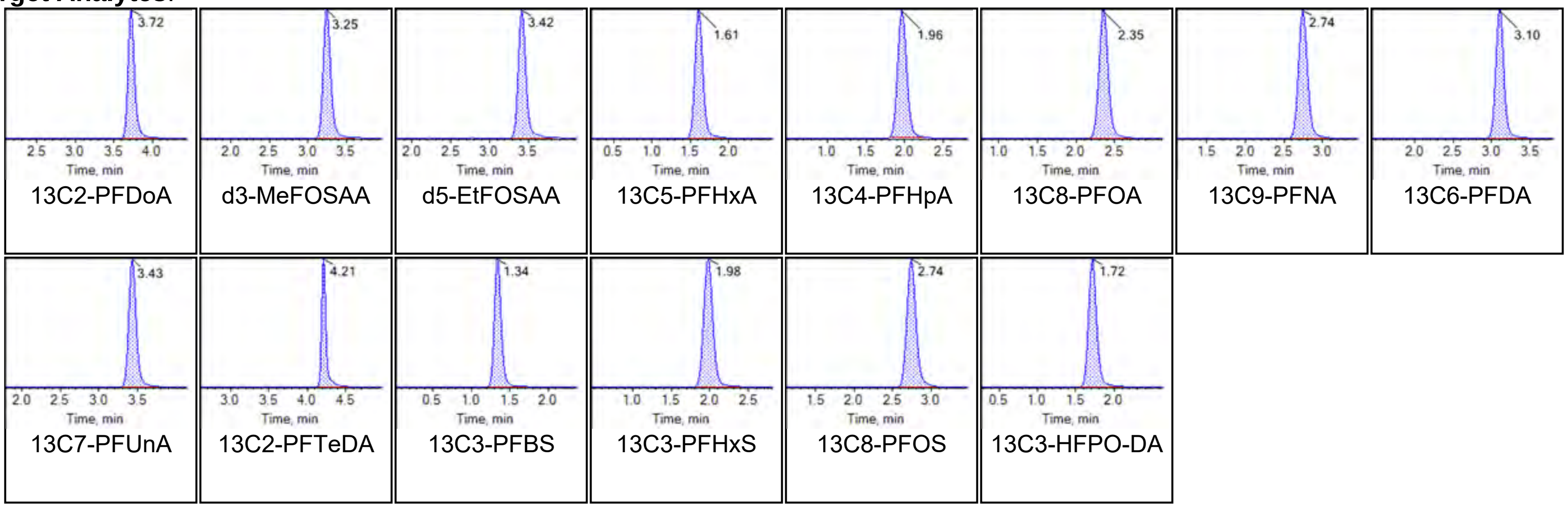
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

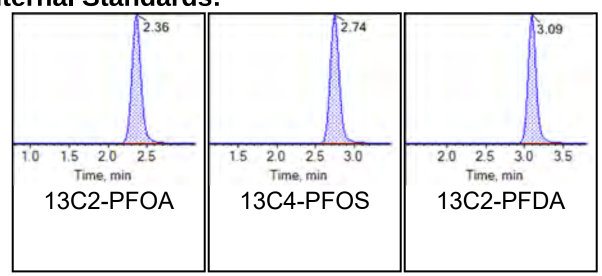
Sample Name	KY84	**Injection Vial**	3
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:39:19 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

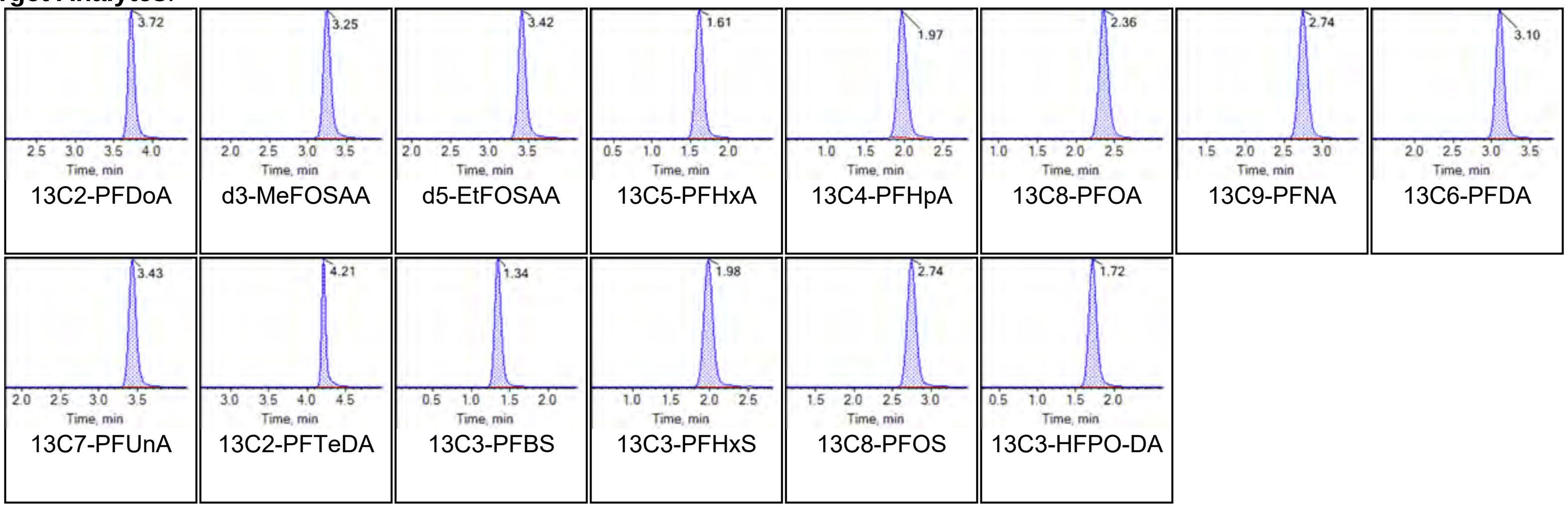
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

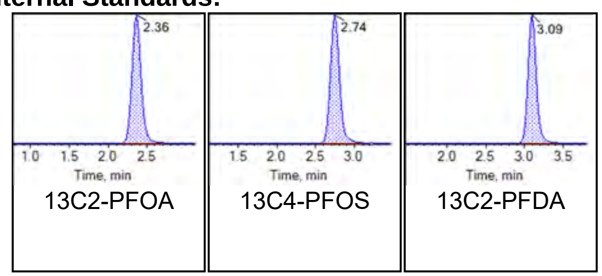
Sample Name	KY85	**Injection Vial**	4
Sample ID	L3	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 3:49:51 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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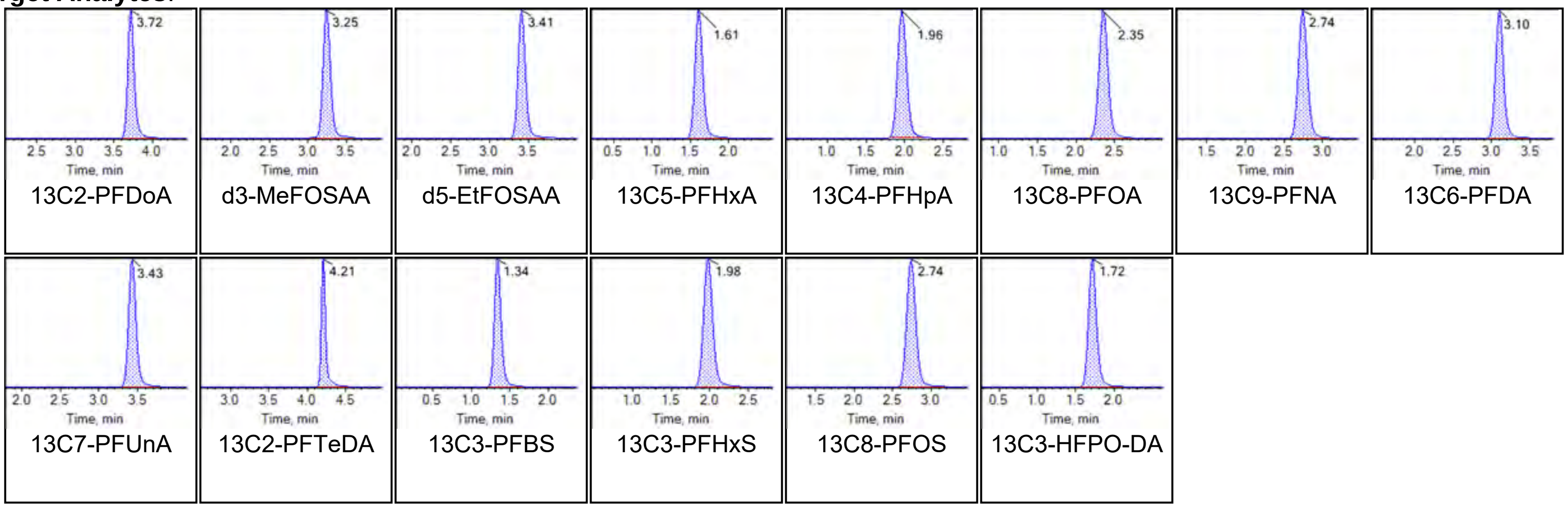
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

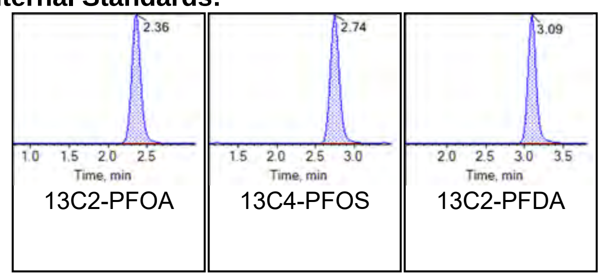
Sample Name	KY86	**Injection Vial**	5
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:00:24 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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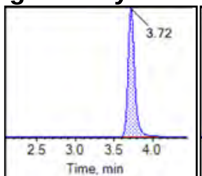
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

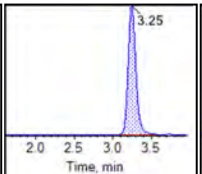
Sample Name	KY87	Injection Vial	6
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:10:57 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

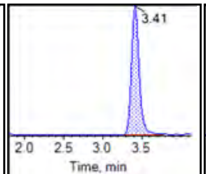
Target Analytes:



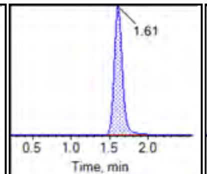
13C2-PFDoA



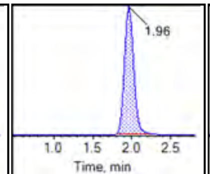
d3-MeFOSAA



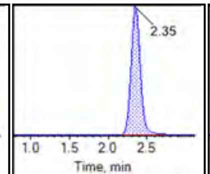
d5-EtFOSAA



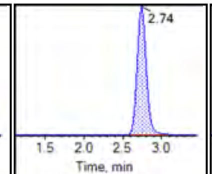
13C5-PFHxA



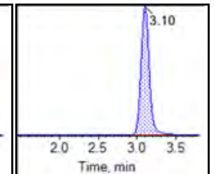
13C4-PFHpA



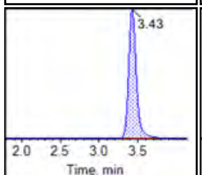
13C8-PFOA



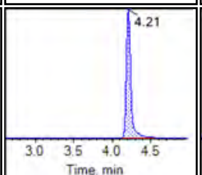
13C9-PFNA



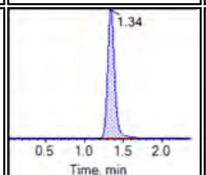
13C6-PFDA



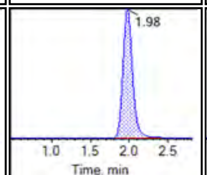
13C7-PFUnA



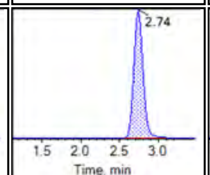
13C2-PFTeDA



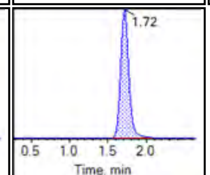
13C3-PFBS



13C3-PFHxS

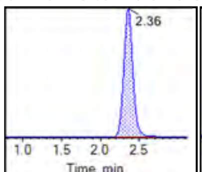


13C8-PFOS

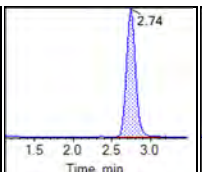


13C3-HFPO-DA

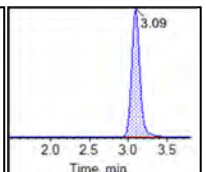
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

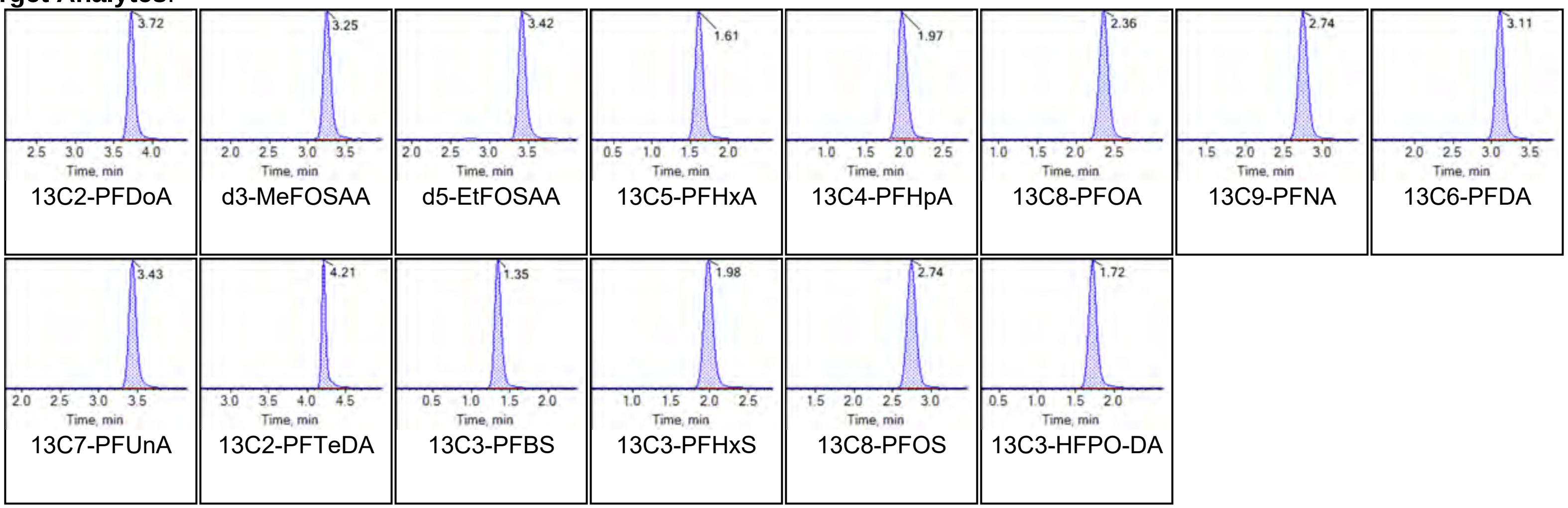
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

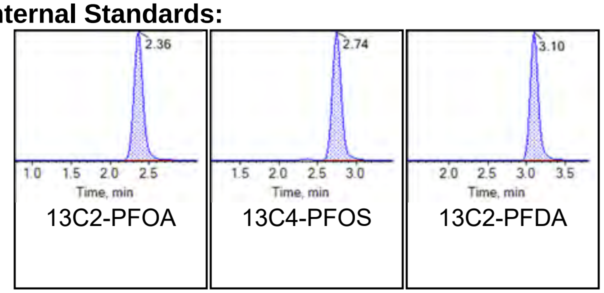
Sample Name	KY88	**Injection Vial**	7
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:21:30 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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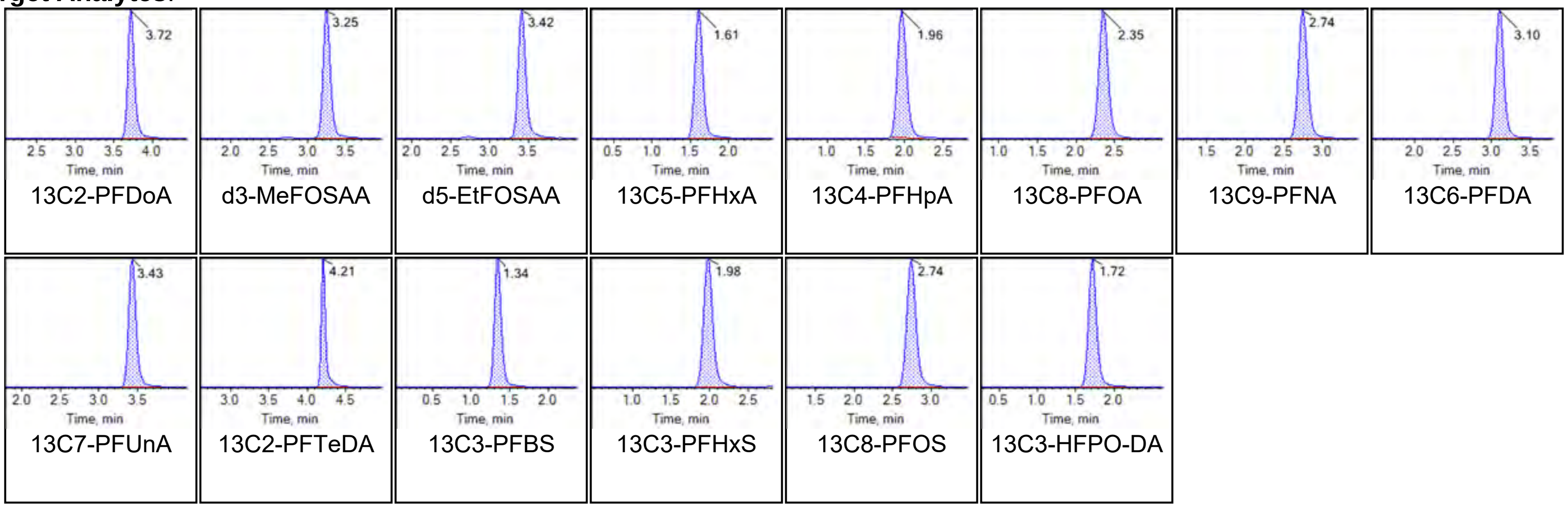
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

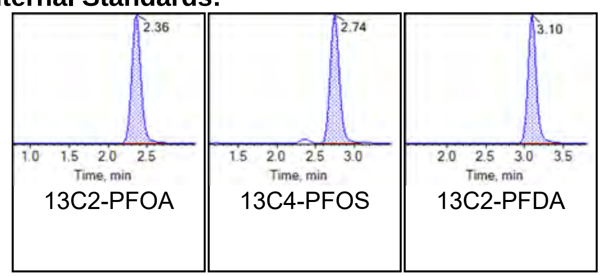
Sample Name	KY89	**Injection Vial**	8
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:32:03 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

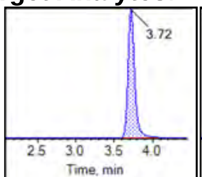
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

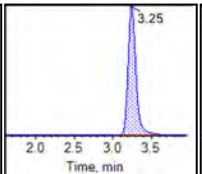
Sample Name	KY90 IB	**Injection Vial**	9
Sample ID	Instrument Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:42:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

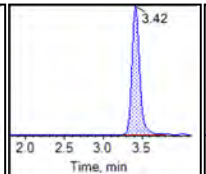
Target Analytes:



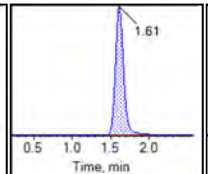
13C2-PFDoA



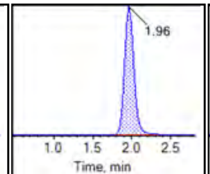
d3-MeFOSAA



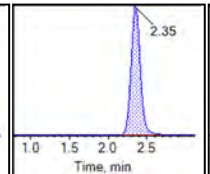
d5-EtFOSAA



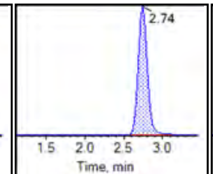
13C5-PFHxA



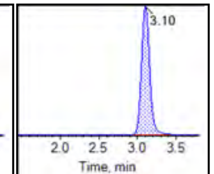
13C4-PFHpA



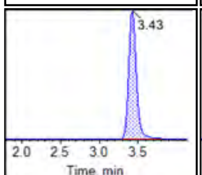
13C8-PFOA



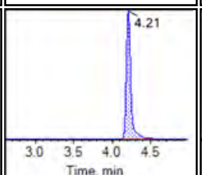
13C9-PFNA



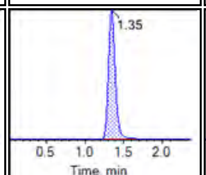
13C6-PFDA



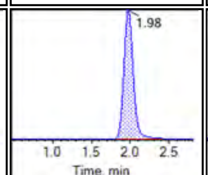
13C7-PFUnA



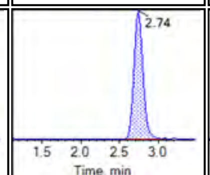
13C2-PFTeDA



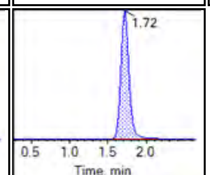
13C3-PFBS



13C3-PFHxS

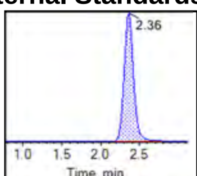


13C8-PFOS

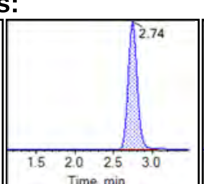


13C3-HFPO-DA

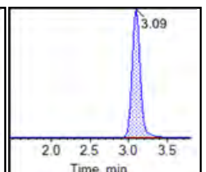
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

BATTELLE

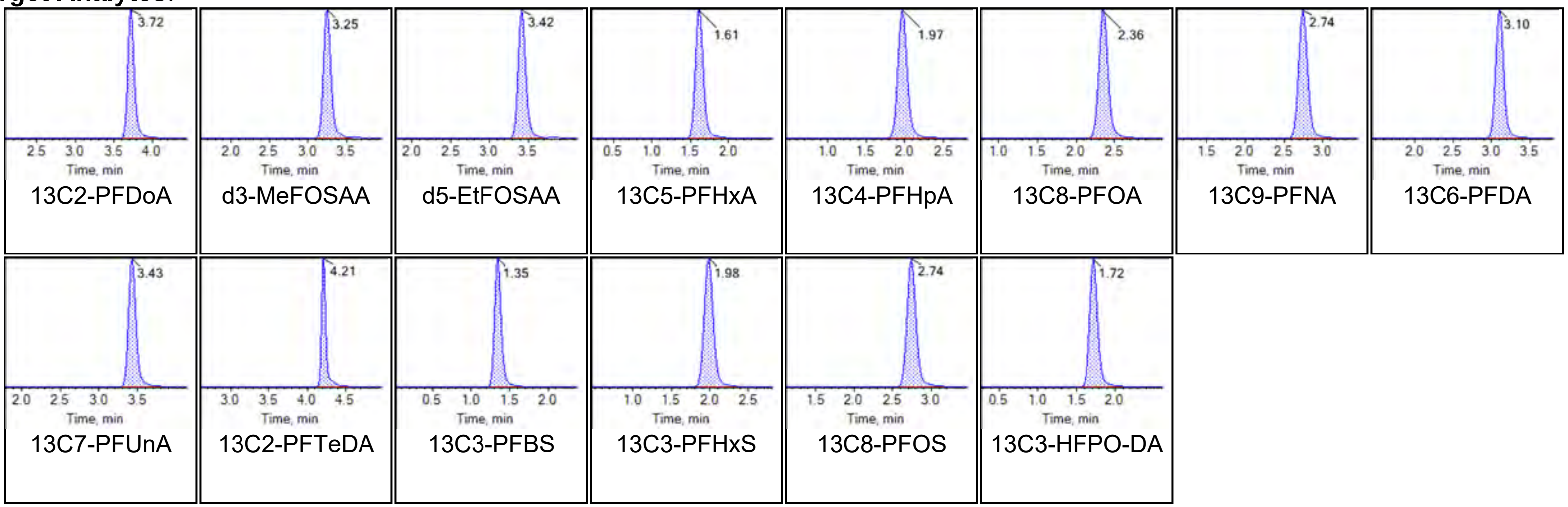
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

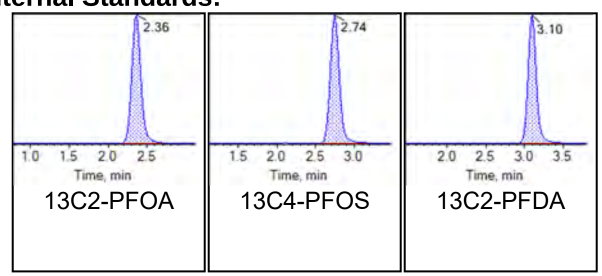
Sample Name	KY91 ICC	**Injection Vial**	10
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 4:53:09 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

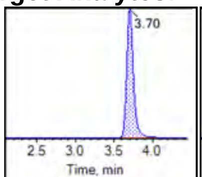
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

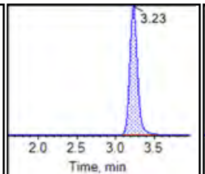
Sample Name	KY86 CCV	Injection Vial	16
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:35:24 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

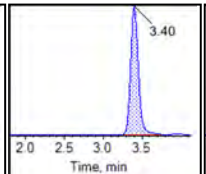
Target Analytes:



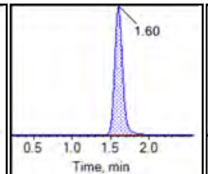
13C2-PFDoA



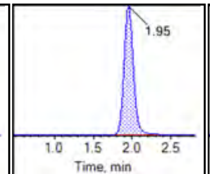
d3-MeFOSAA



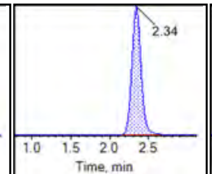
d5-EtFOSAA



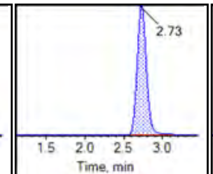
13C5-PFHxA



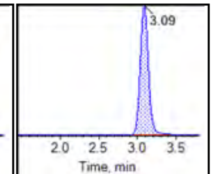
13C4-PFHpA



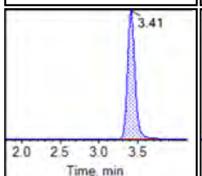
13C8-PFOA



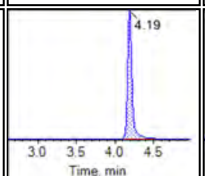
13C9-PFNA



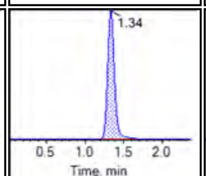
13C6-PFDA



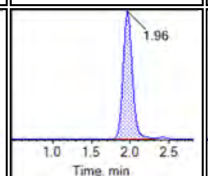
13C7-PFUnA



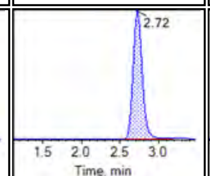
13C2-PFTeDA



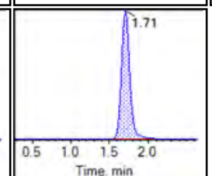
13C3-PFBS



13C3-PFHxS

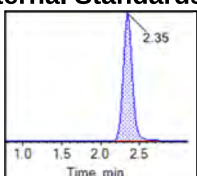


13C8-PFOS

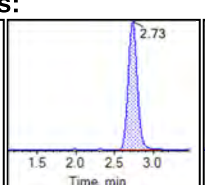


13C3-HFPO-DA

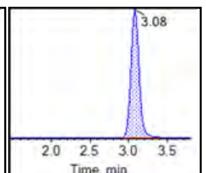
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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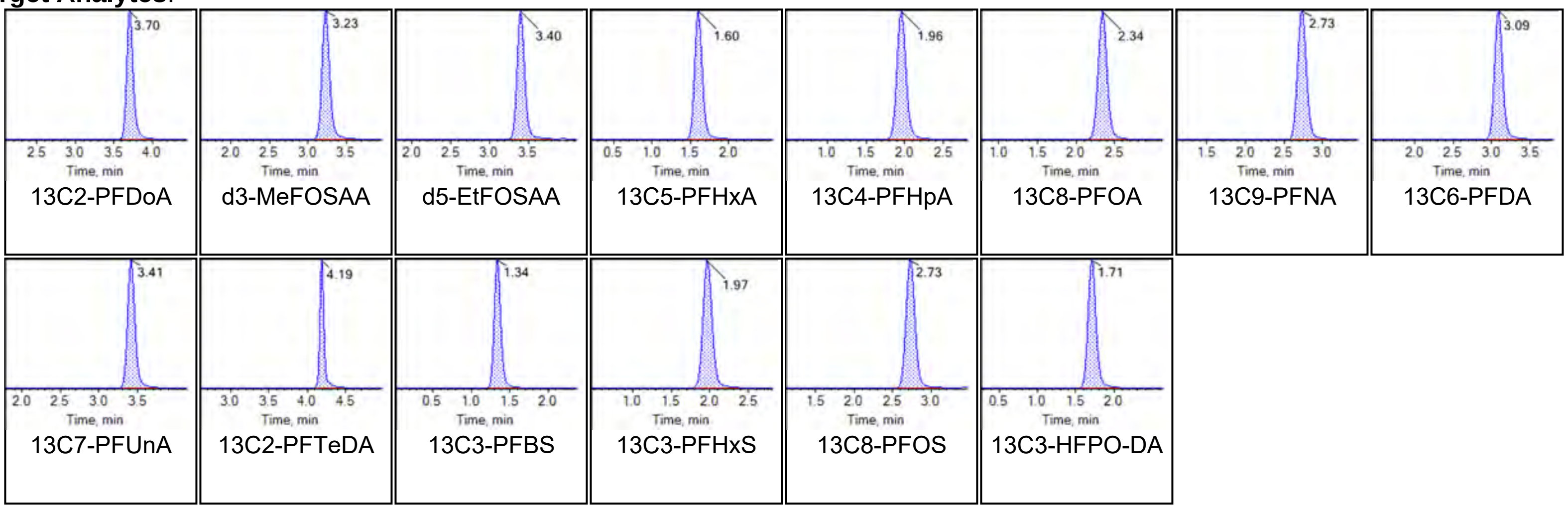
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

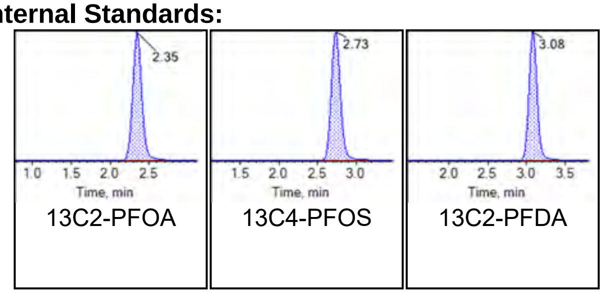
Sample Name	CY822PB-FS(0)	**Injection Vial**	18
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 8:56:30 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



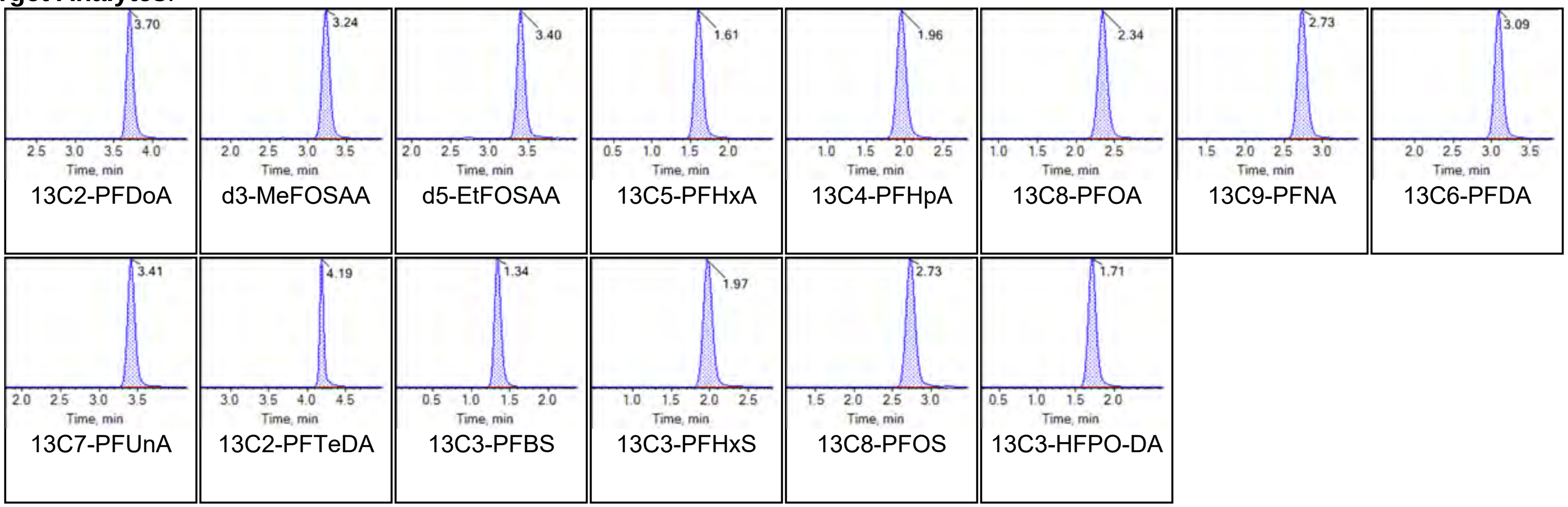
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

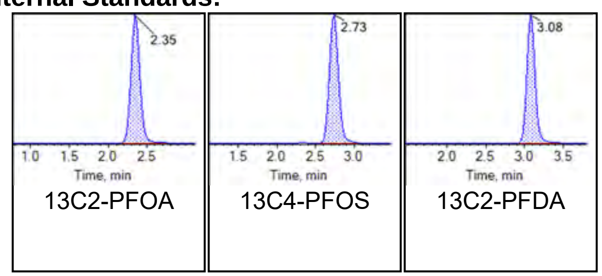
Sample Name	CY823LCS-FS(0)	Injection Vial	19
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:07:03 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

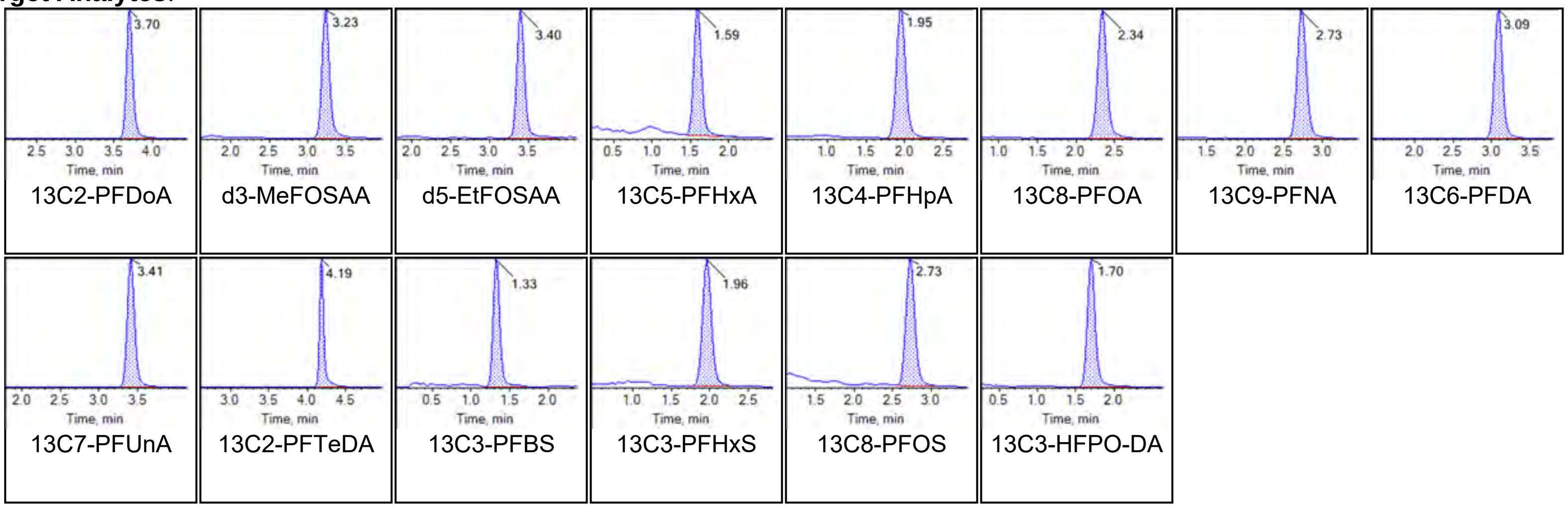
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

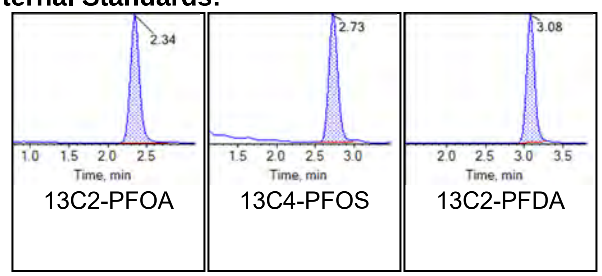
Sample Name	H4954-FS1(0)	**Injection Vial**	20
Sample ID	POL-MW0041SI-020.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:17:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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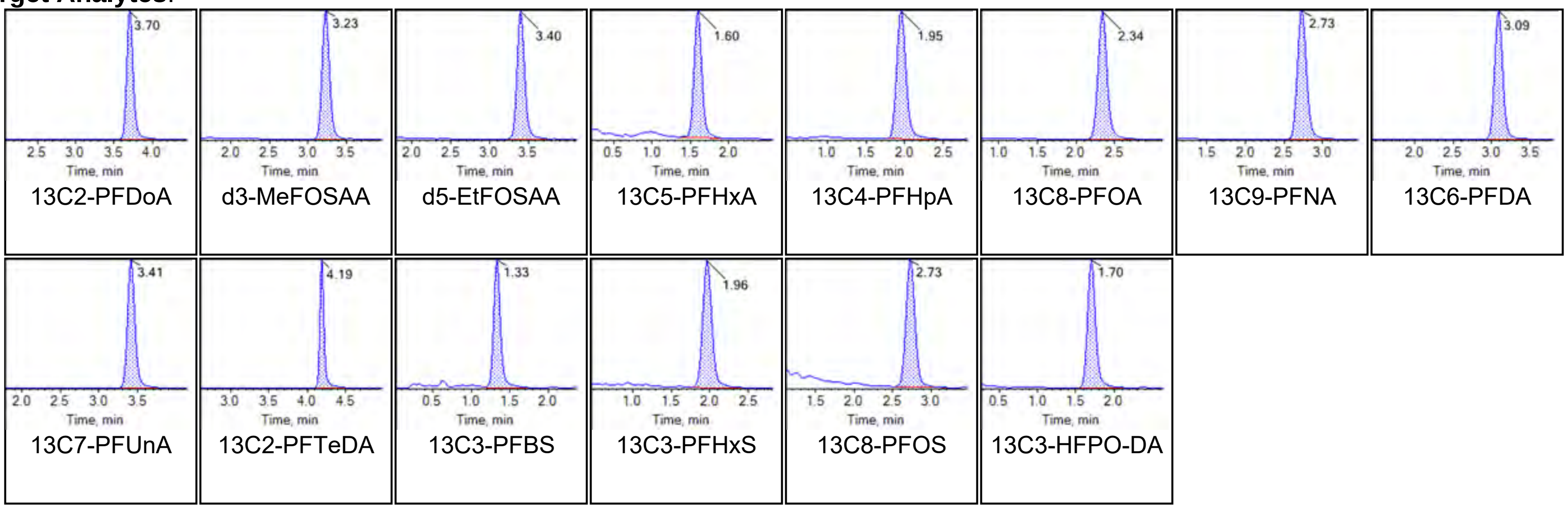
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

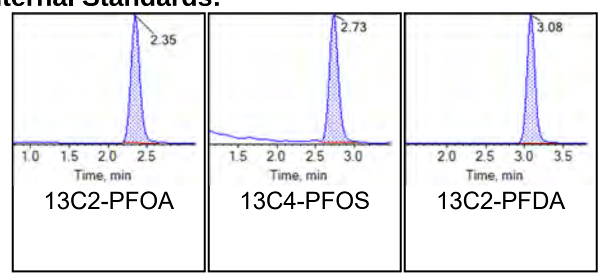
Sample Name	H4955-FS1(0)	**Injection Vial**	21
Sample ID	POL-MW0008S-009.3-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:28:09 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



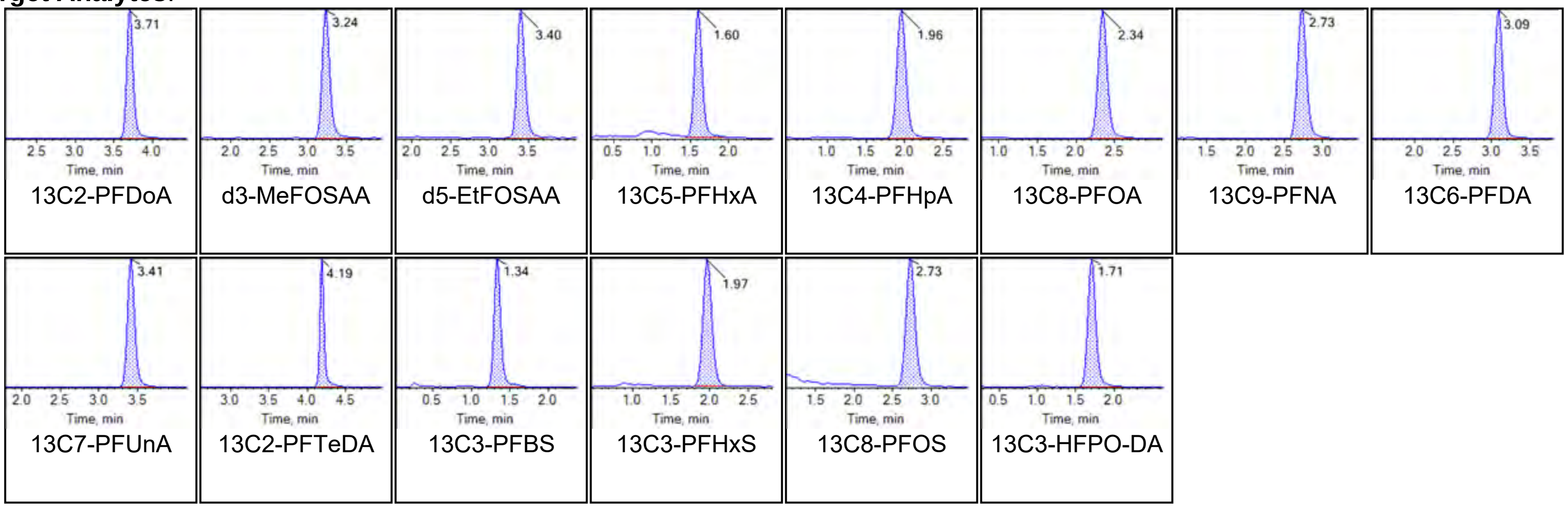
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

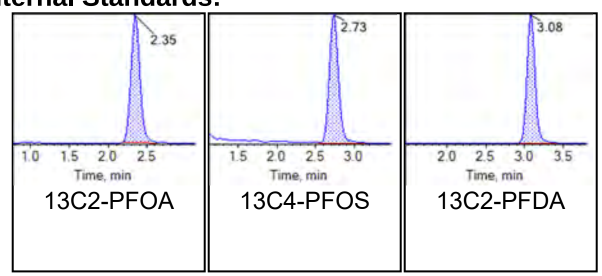
Sample Name	H4956-FS1(0)	**Injection Vial**	22
Sample ID	POL-MW0008I-007.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:38:42 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



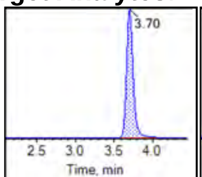
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

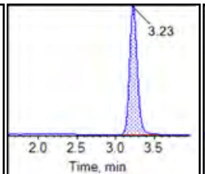
Sample Name	H4957-FS1(0)	Injection Vial	23
Sample ID	POL-MW0036SI-020.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:49:15 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

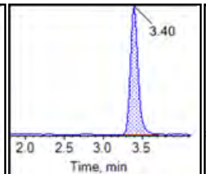
Target Analytes:



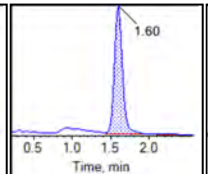
13C2-PFDoA



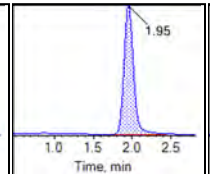
d3-MeFOSAA



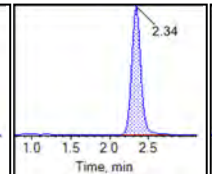
d5-EtFOSAA



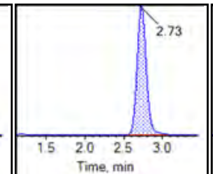
13C5-PFHxA



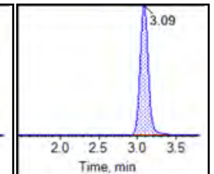
13C4-PFHpA



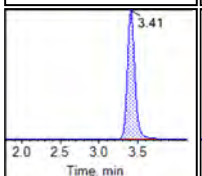
13C8-PFOA



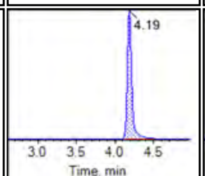
13C9-PFNA



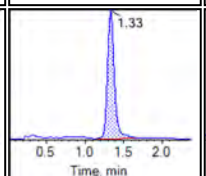
13C6-PFDA



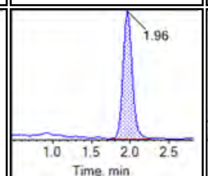
13C7-PFUnA



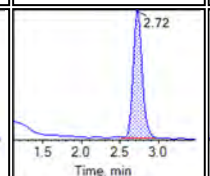
13C2-PFTeDA



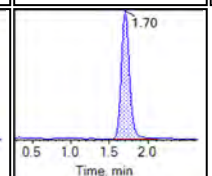
13C3-PFBS



13C3-PFHxS

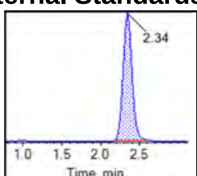


13C8-PFOS

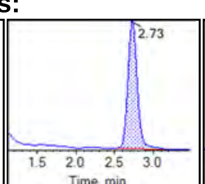


13C3-HFPO-DA

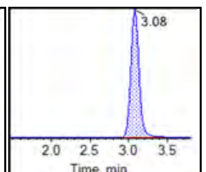
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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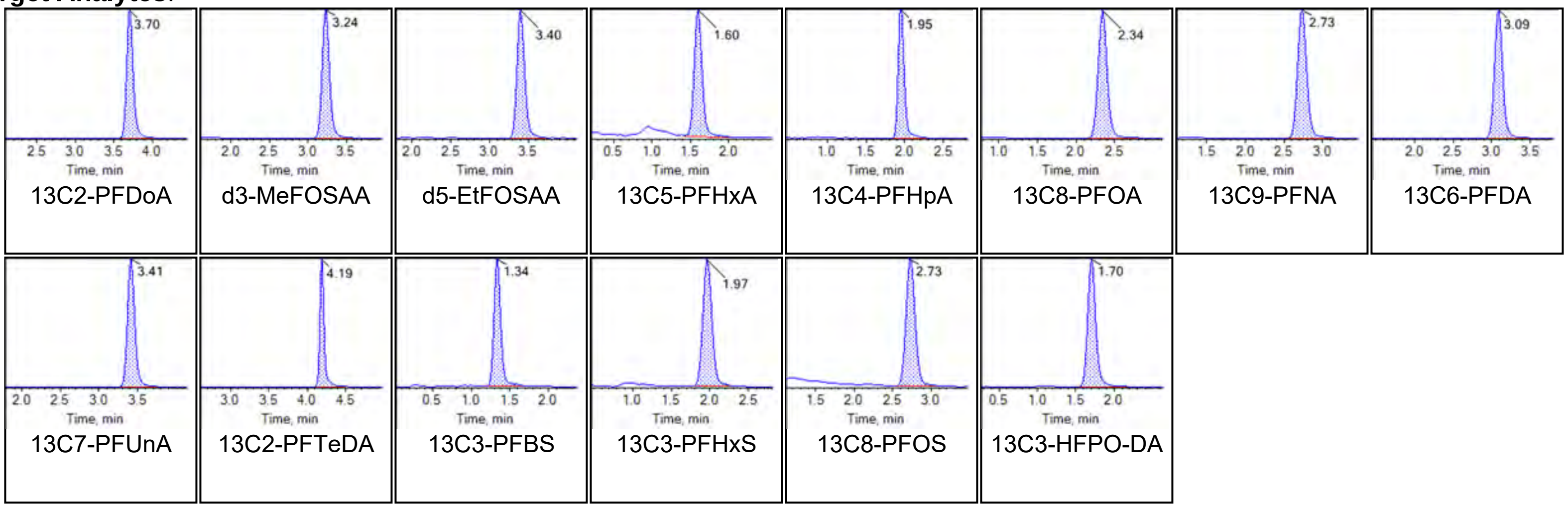
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

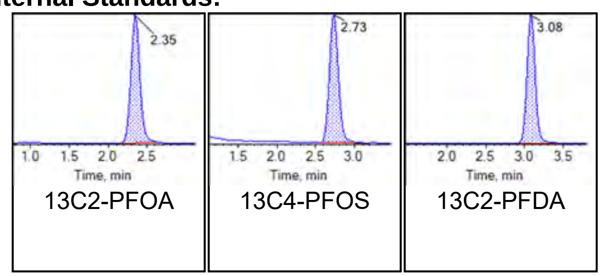
Sample Name	H4958-FS1(0)	**Injection Vial**	24
Sample ID	POL-MW0036I-027.5-20200421	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 9:59:49 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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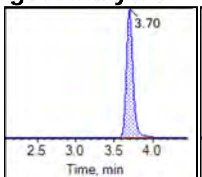
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

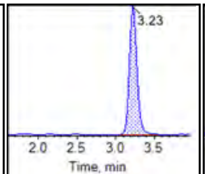
Sample Name	H4959-FS1(0)	Injection Vial	25
Sample ID	POL-MW0047I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:10:22 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

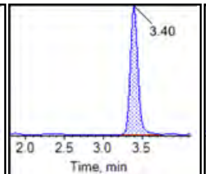
Target Analytes:



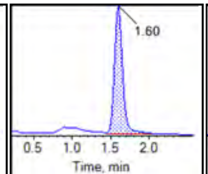
13C2-PFDoA



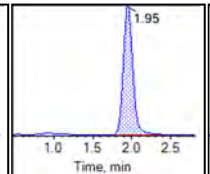
d3-MeFOSAA



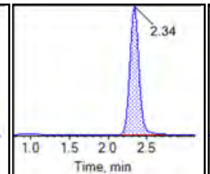
d5-EtFOSAA



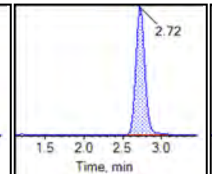
13C5-PFHxA



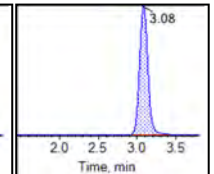
13C4-PFHpA



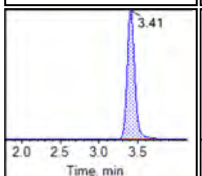
13C8-PFOA



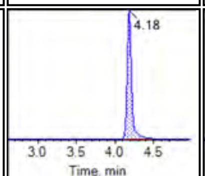
13C9-PFNA



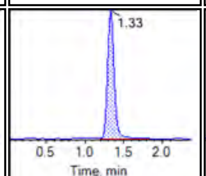
13C6-PFDA



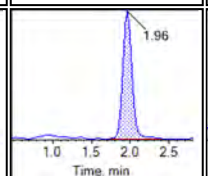
13C7-PFUnA



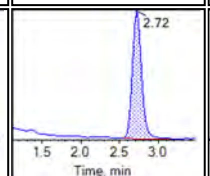
13C2-PFTeDA



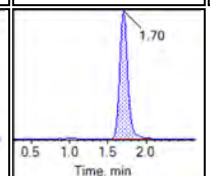
13C3-PFBS



13C3-PFHxS

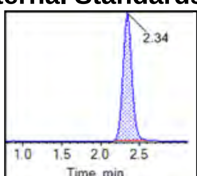


13C8-PFOS

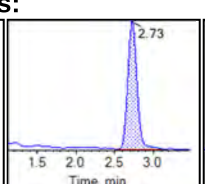


13C3-HFPO-DA

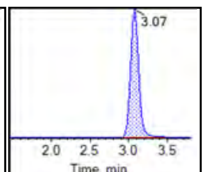
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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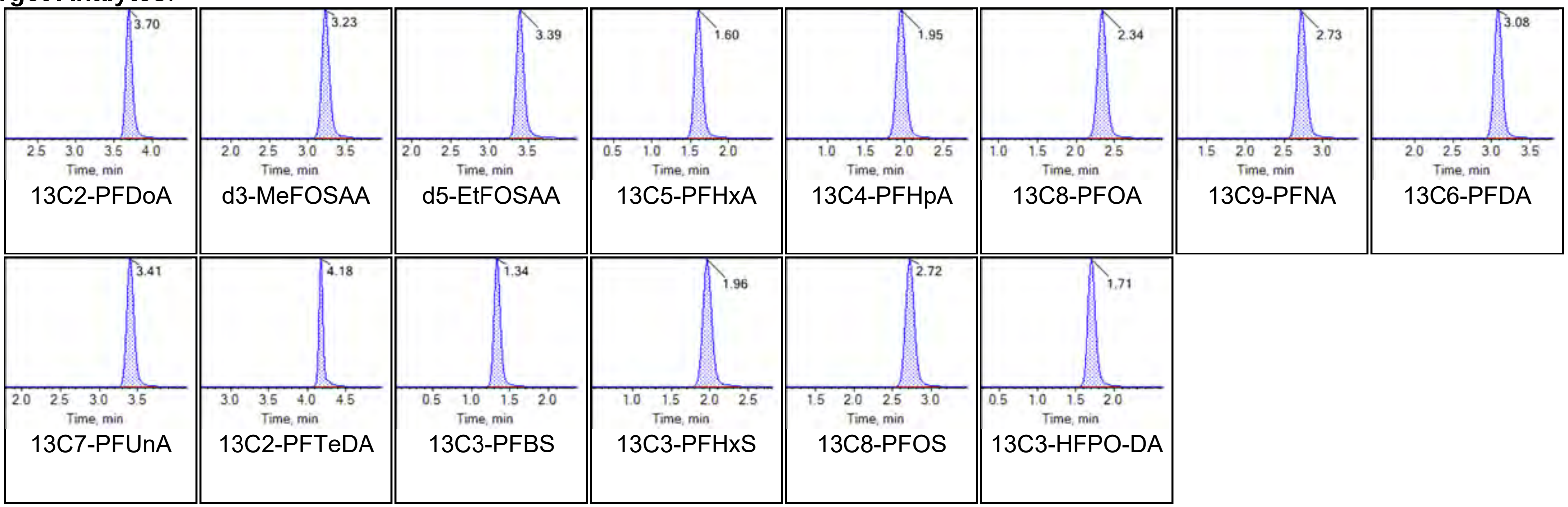
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

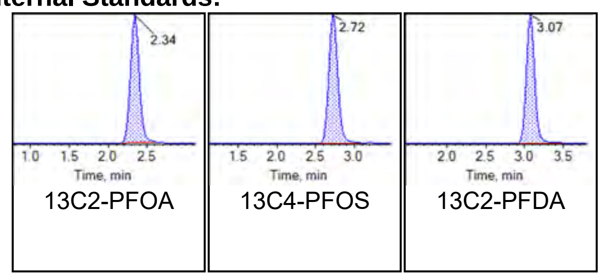
Sample Name	H4960-FS1(0)	**Injection Vial**	26
Sample ID	POL-FRB-0200422-01	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:20:54 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

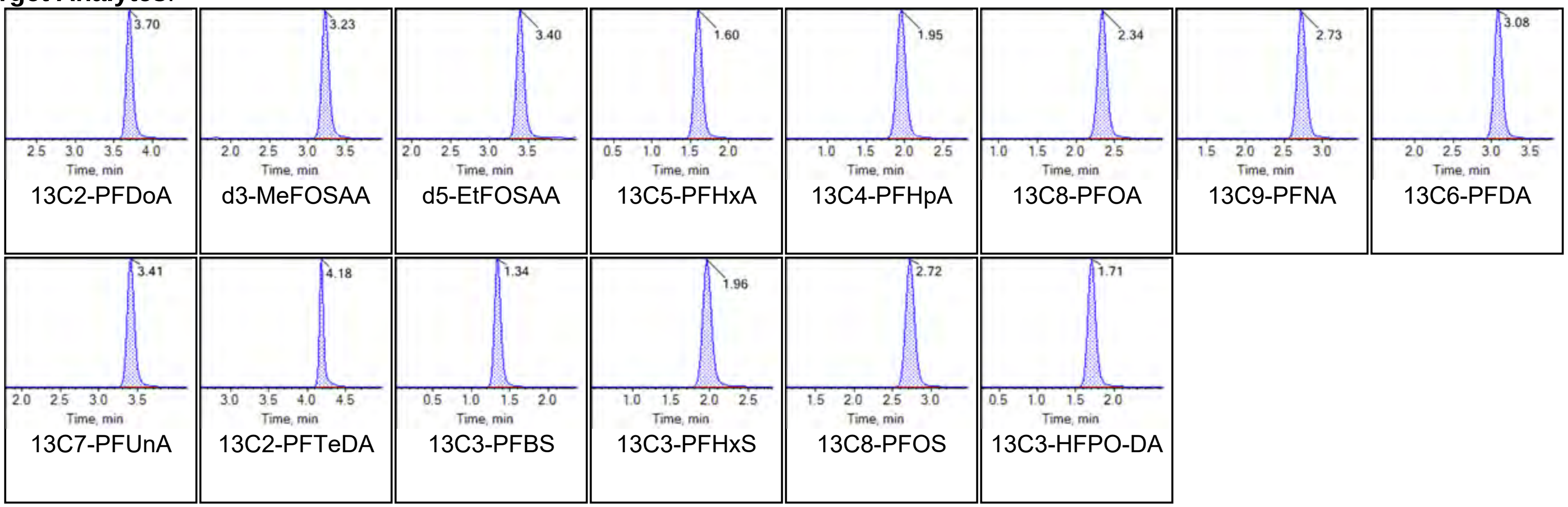
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

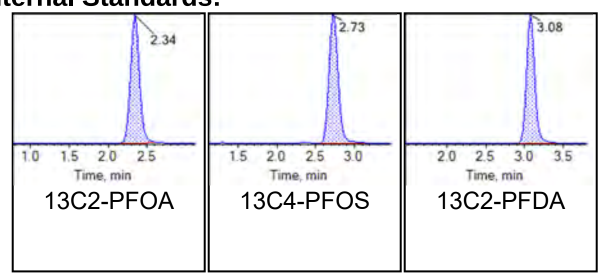
Sample Name	KY87 CCV	**Injection Vial**	28
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 10:42:01 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

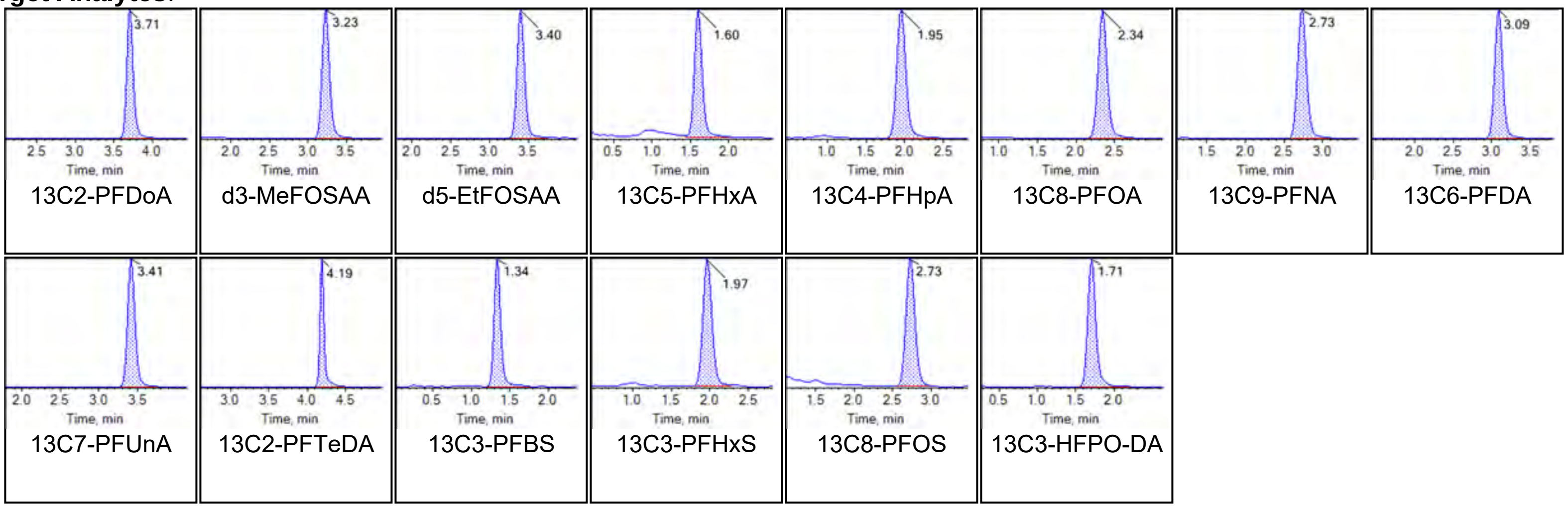
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

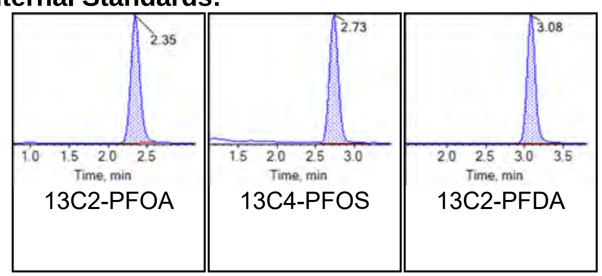
Sample Name	H4961-FS1(0)	**Injection Vial**	30
Sample ID	POL-MW0047D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:03:04 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

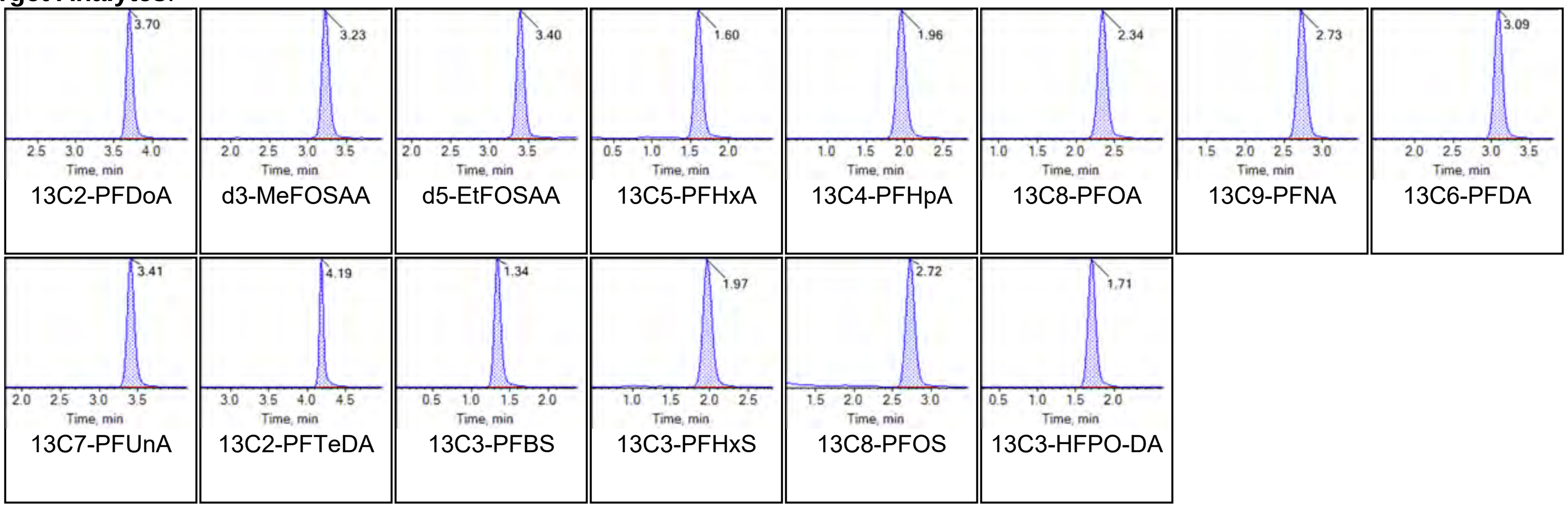
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

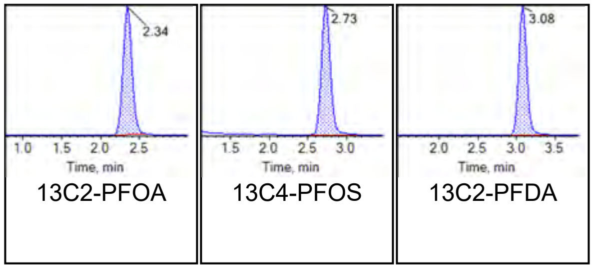
Sample Name	H4961-FS1-D(3)	**Injection Vial**	31
Sample ID	POL-MW0047D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:13:36 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

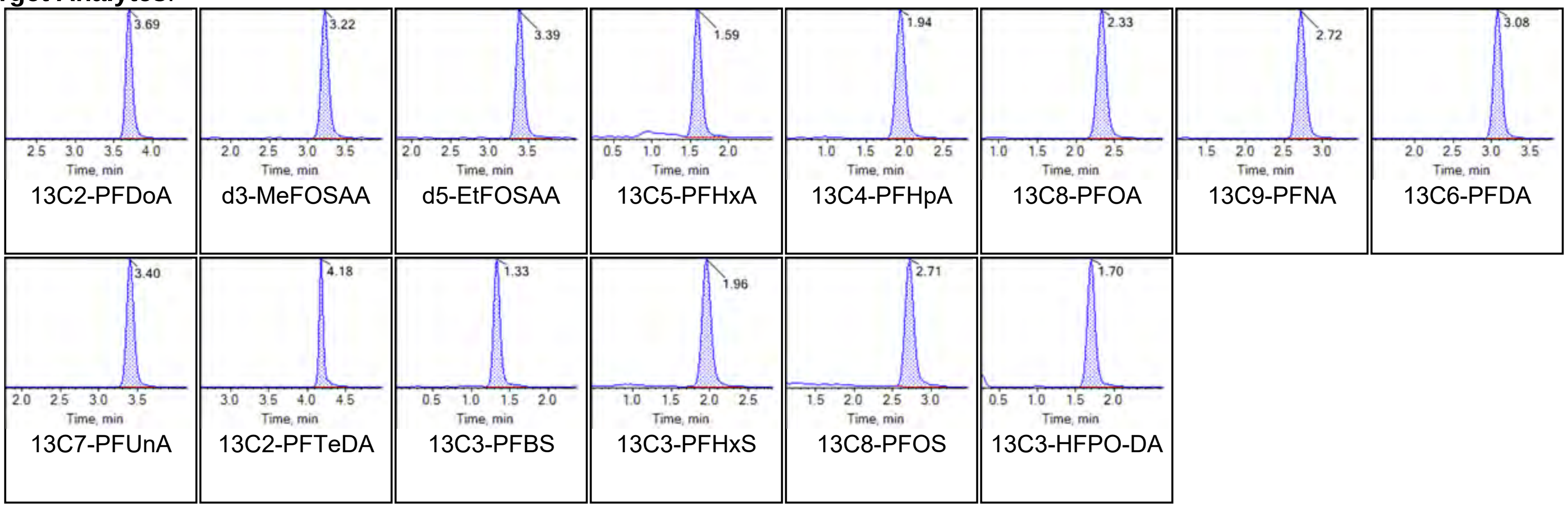
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

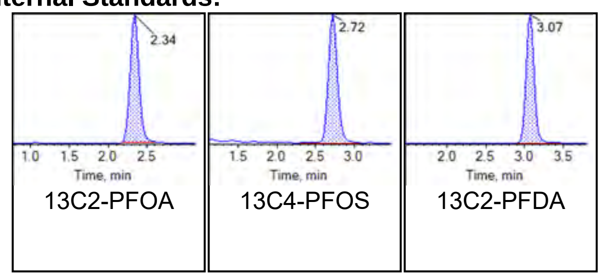
Sample Name	H4962-FS1(0)	Injection Vial	32
Sample ID	POL-MW0047DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:24:08 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

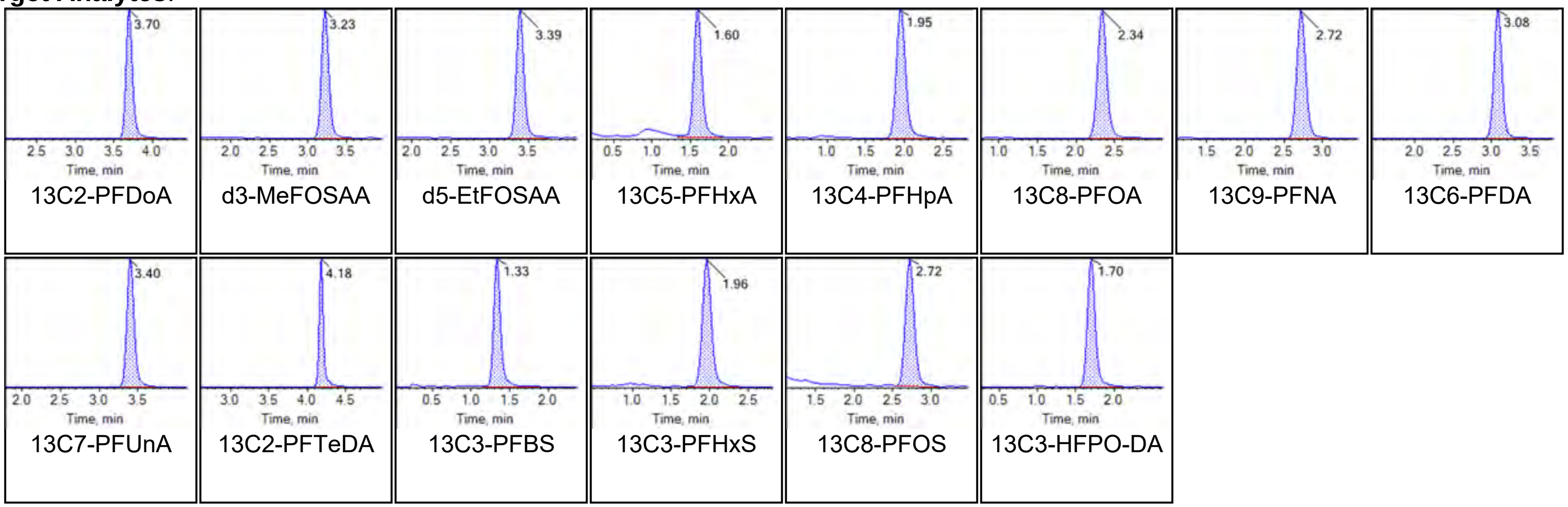
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

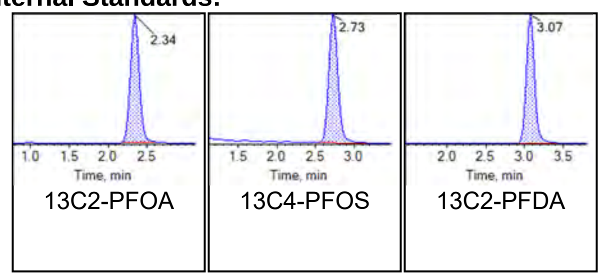
Sample Name	H4963-FS1(0)	Injection Vial	33
Sample ID	POL-MW0046D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:34:39 PM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



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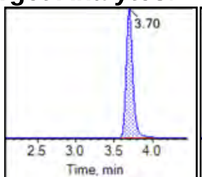
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

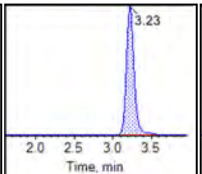
Sample Name	H4963-FS1-D(3)	**Injection Vial**	34
Sample ID	POL-MW0046D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:45:11 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

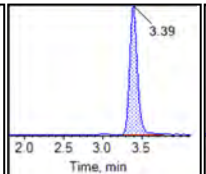
Target Analytes:



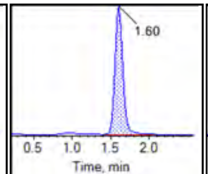
13C2-PFDoA



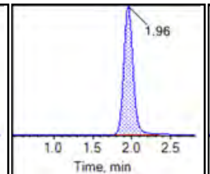
d3-MeFOSAA



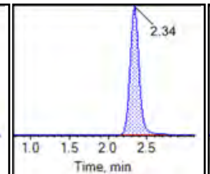
d5-EtFOSAA



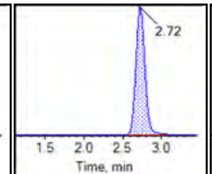
13C5-PFHxA



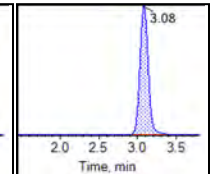
13C4-PFHpA



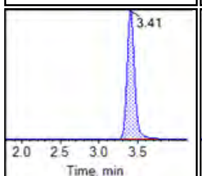
13C8-PFOA



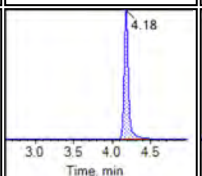
13C9-PFNA



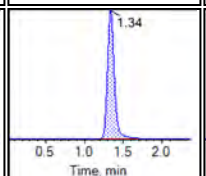
13C6-PFDA



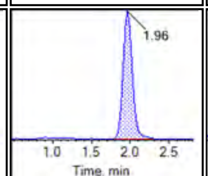
13C7-PFUnA



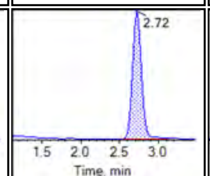
13C2-PFTeDA



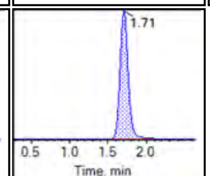
13C3-PFBS



13C3-PFHxS

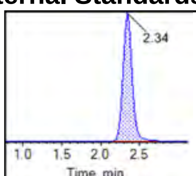


13C8-PFOS

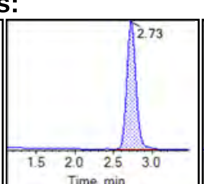


13C3-HFPO-DA

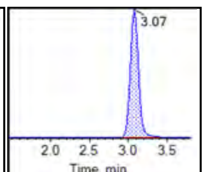
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

BATTELLE

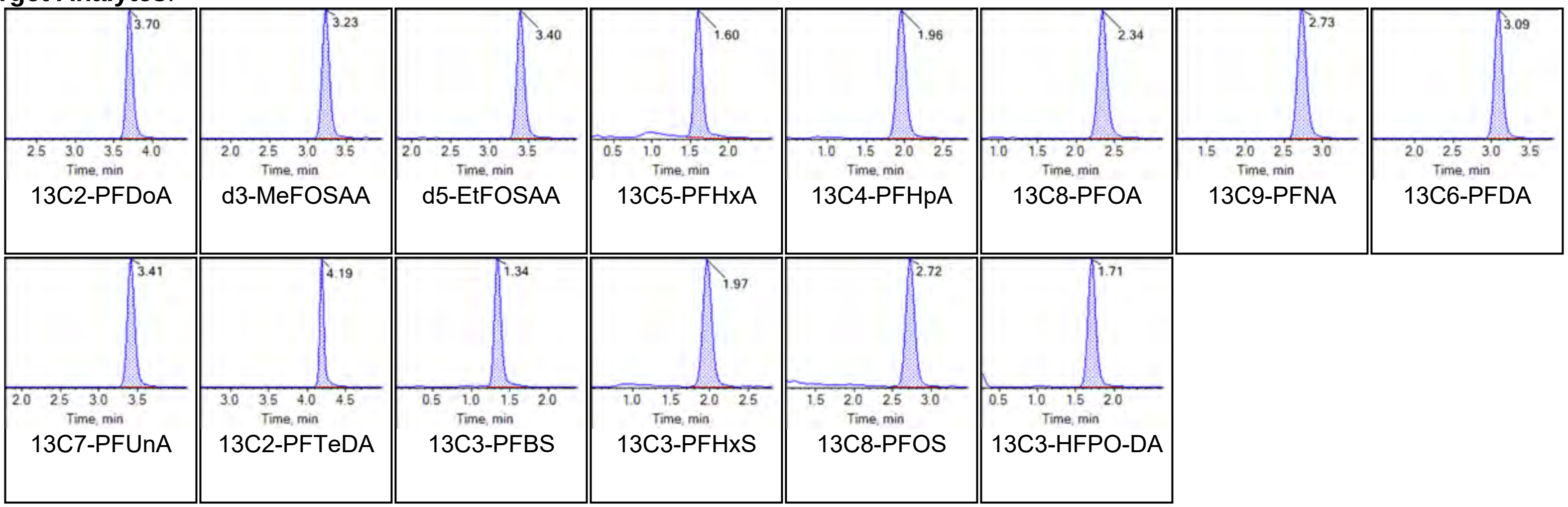
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

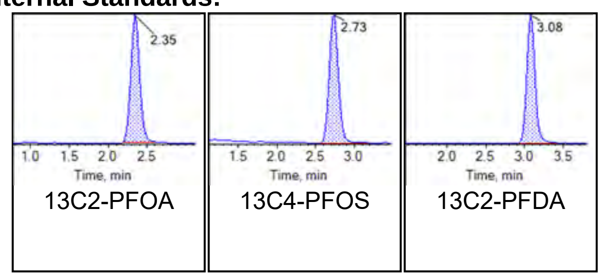
Sample Name	H4964-FS1(0)	**Injection Vial**	35
Sample ID	POL-MW0046DD-045.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/4/2020 11:55:42 PM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

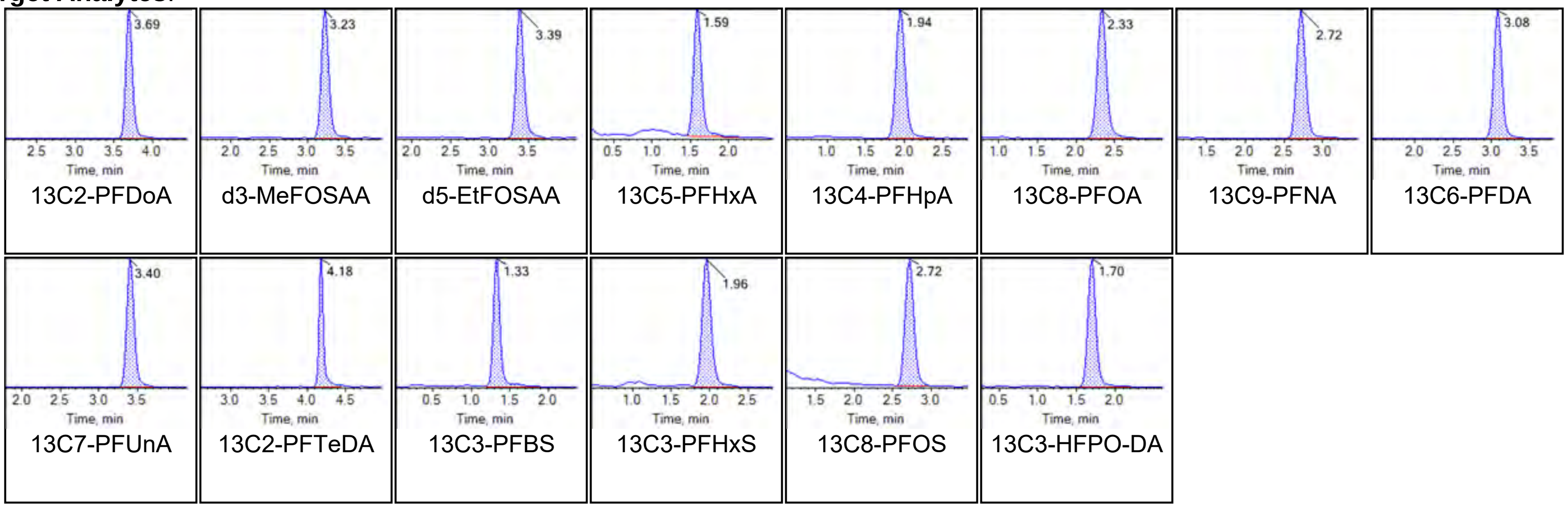
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

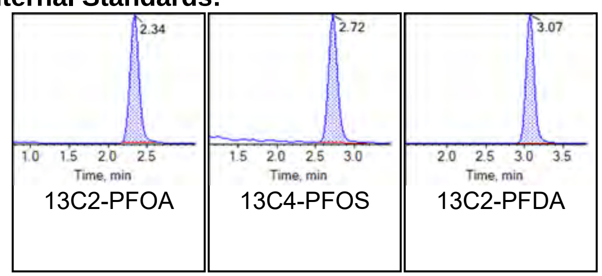
Sample Name	H4966-FS1(0)	**Injection Vial**	36
Sample ID	POL-MW0045I-025.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:06:14 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

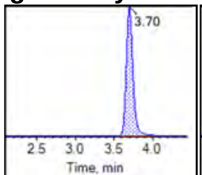
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

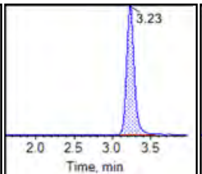
Sample Name	H4966-FS1-D(3)	Injection Vial	37
Sample ID	POL-MW0045I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:16:46 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

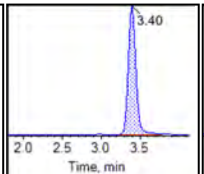
Target Analytes:



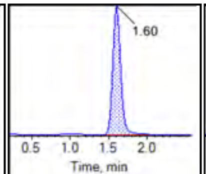
13C2-PFDoA



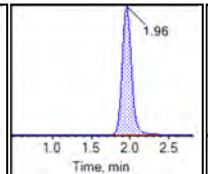
d3-MeFOSAA



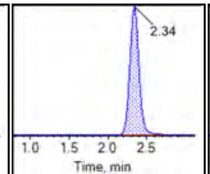
d5-EtFOSAA



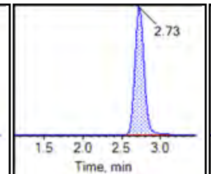
13C5-PFHxA



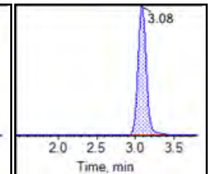
13C4-PFHpA



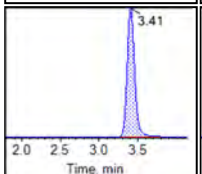
13C8-PFOA



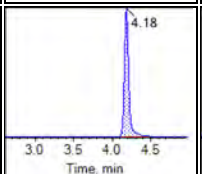
13C9-PFNA



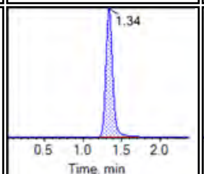
13C6-PFDA



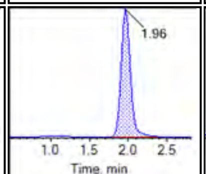
13C7-PFUnA



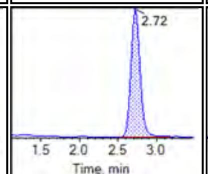
13C2-PFTeDA



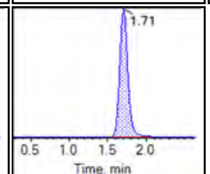
13C3-PFBS



13C3-PFHxS

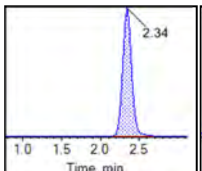


13C8-PFOS

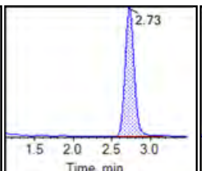


13C3-HFPO-DA

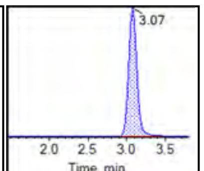
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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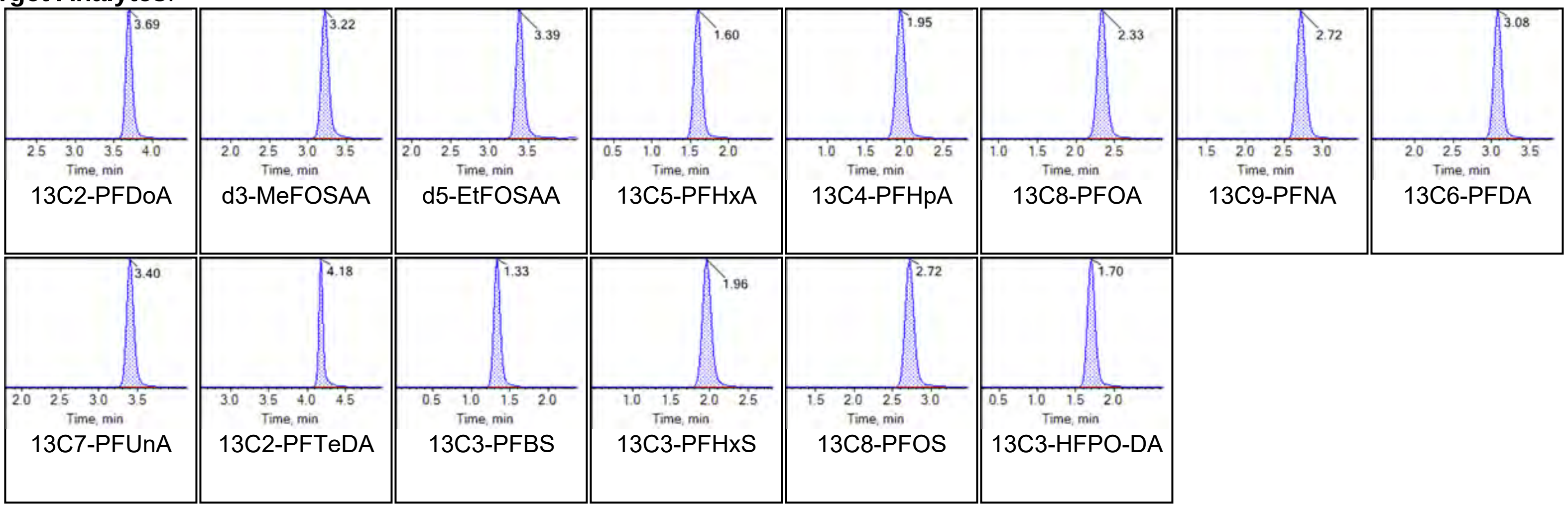
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

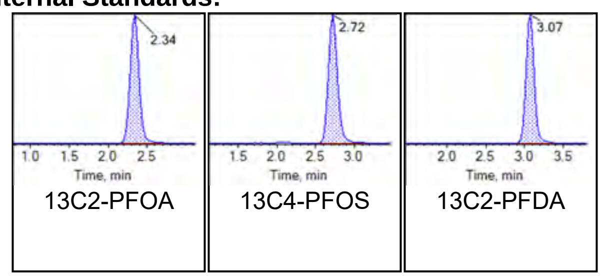
Sample Name	KY86 CCV	**Injection Vial**	39
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:37:49 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

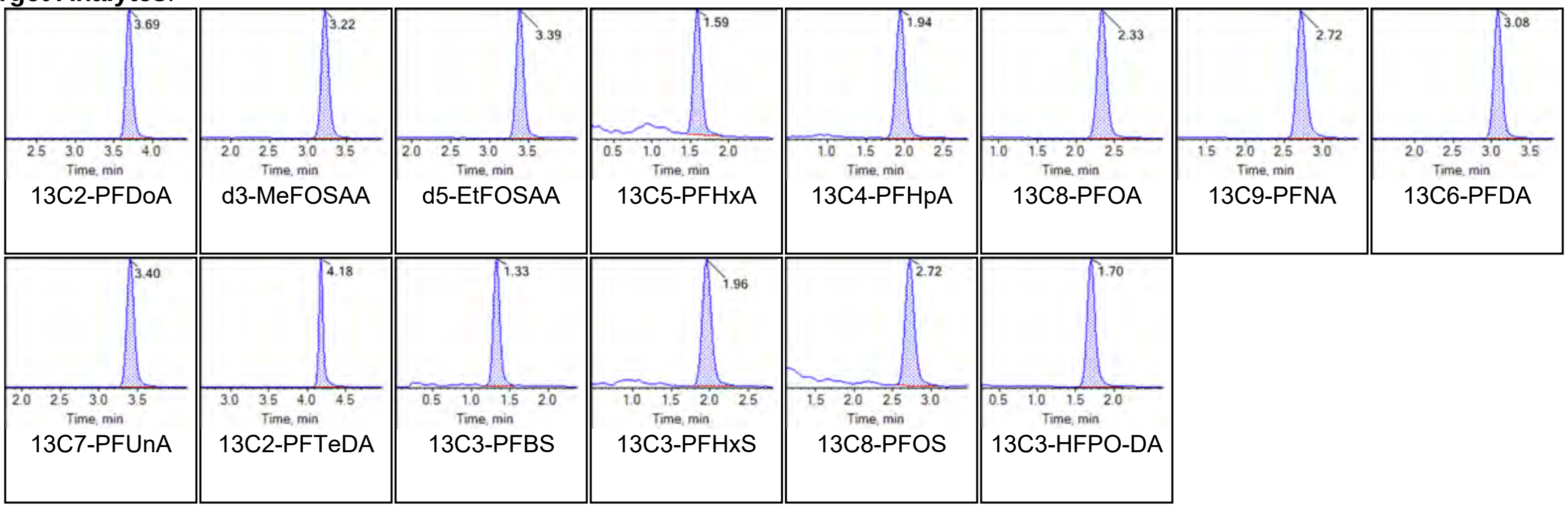
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

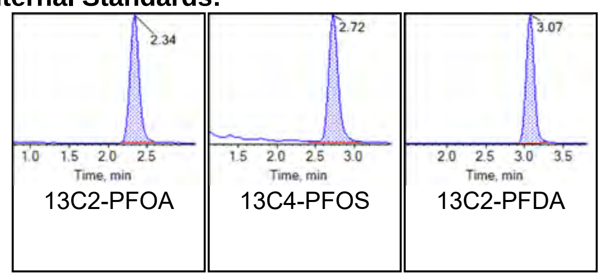
Sample Name	H4965-FS1(0)	**Injection Vial**	40
Sample ID	POL-MW0045S-015.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:48:22 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



BATTELLE

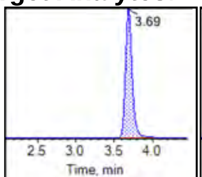
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

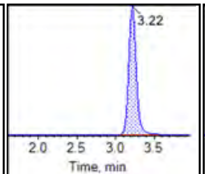
Sample Name	H4965-FS1-D(3)	Injection Vial	41
Sample ID	POL-MW0045S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 12:58:55 AM	Data File	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS

Chromatograms

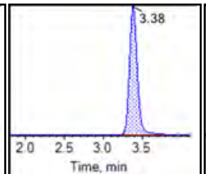
Target Analytes:



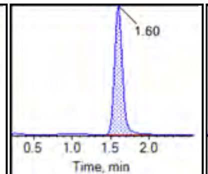
13C2-PFDoA



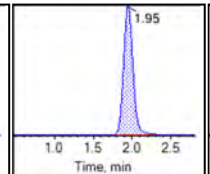
d3-MeFOSAA



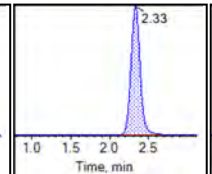
d5-EtFOSAA



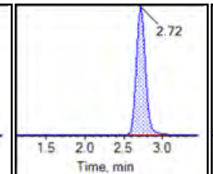
13C5-PFHxA



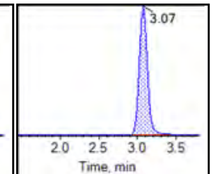
13C4-PFHpA



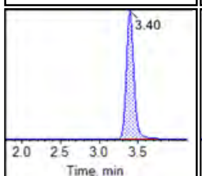
13C8-PFOA



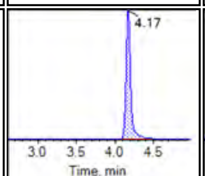
13C9-PFNA



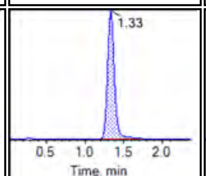
13C6-PFDA



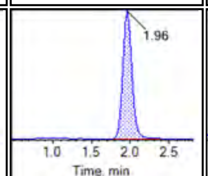
13C7-PFUnA



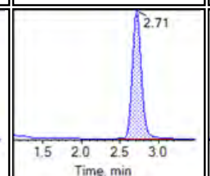
13C2-PFTeDA



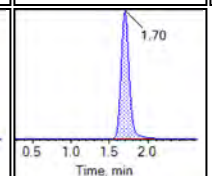
13C3-PFBS



13C3-PFHxS

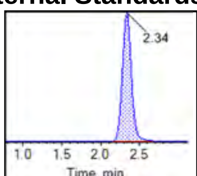


13C8-PFOS

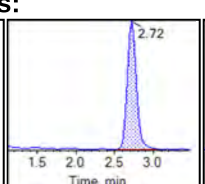


13C3-HFPO-DA

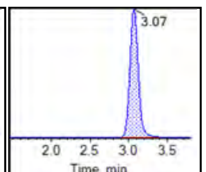
Internal Standards:



13C2-PFOA



13C4-PFOS



13C2-PFDA

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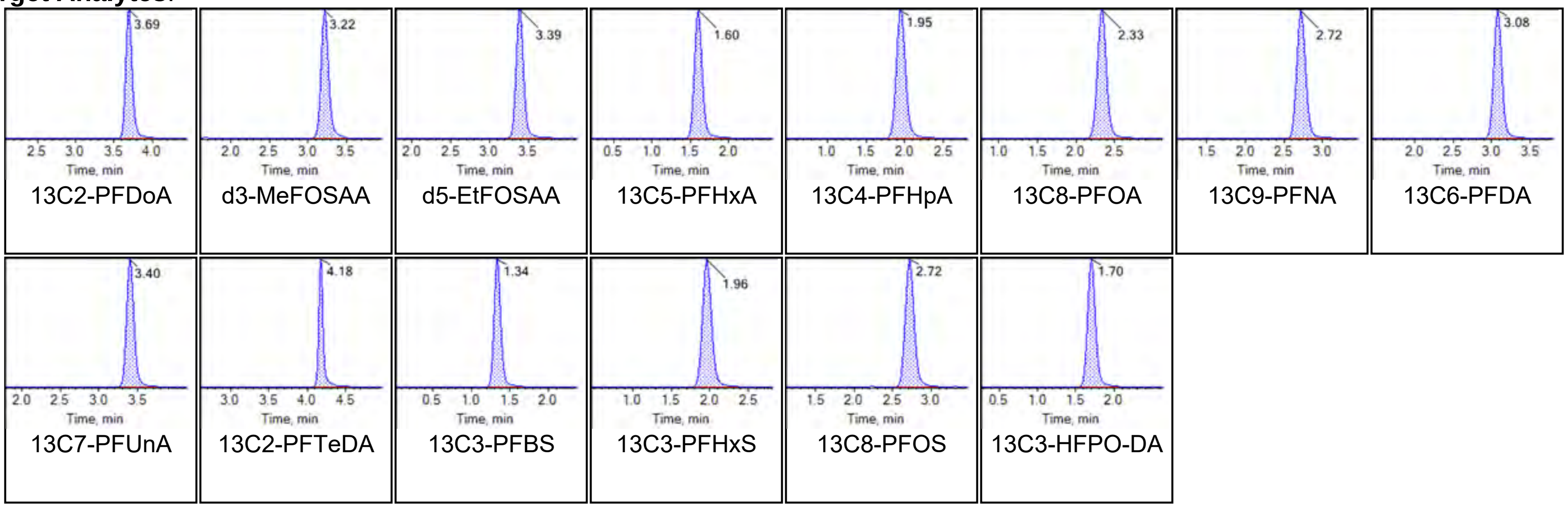
Chromatogram Report

Created with Analyst Reporter
Printed: 06/05/2020 9:39:12 AM

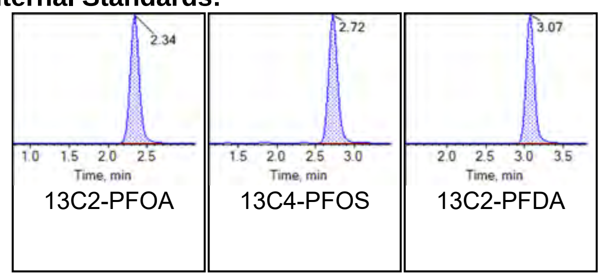
Sample Name	KY87 CCV	**Injection Vial**	43
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 1:20:01 AM	**Data File**	AE_05042020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS

Chromatograms

Target Analytes:



Internal Standards:



Unused Data

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4954-FS1(0)	Injection Vial	6
Sample ID	POL-MW0041SI-020.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 4:25:19 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.73	377093.89	541.68	2340.7	False	13C2-PFDA	731954.35	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.26	98447.30	1341.49	590.2	False	13C4-PFOS	115512.01	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.43	78407.49	1047.44	585.3	False	13C4-PFOS	115512.01	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	144126.69	343.81	226.8	False	13C2-PFOA	405187.47	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.97	273733.02	642.45	462.4	False	13C2-PFOA	405187.47	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.36	520169.53	996.64	932.3	False	13C2-PFOA	405187.47	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.75	664040.57	1302.59	747.6	False	13C2-PFOA	405187.47	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.11	747278.33	1123.19	1446.6	False	13C2-PFDA	731954.35	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.44	578885.60	947.89	1880.7	False	13C2-PFDA	731954.35	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.22	60311.85	110.41	3470.3	False	13C2-PFDA	731954.35	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	51810.02	442.66	647.9	False	13C4-PFOS	115512.01	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	94073.31	966.44	337.9	False	13C4-PFOS	115512.01	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.75	121482.28	1334.50	230.3	False	13C4-PFOS	115512.01	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	169348.37	548.65	688.3	False	13C2-PFOA	405187.47	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4955-FS1(0)	Injection Vial	7
Sample ID	POL-MW0008S-009.3-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 4:35:52 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.73	667803.47	793.77	2543.3	False	13C2-PFDA	884569.56	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.26	113554.26	1178.90	612.4	False	13C4-PFOS	151613.44	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	108630.31	1105.64	650.1	False	13C4-PFOS	151613.44	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	149436.43	310.43	281.5	False	13C2-PFOA	465302.16	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	298267.09	609.59	427.0	False	13C2-PFOA	465302.16	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	557025.82	929.37	785.1	False	13C2-PFOA	465302.16	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.75	772020.95	1318.76	829.9	False	13C2-PFOA	465302.16	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.11	860162.71	1069.80	2008.8	False	13C2-PFDA	884569.56	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	790145.10	1070.60	2241.2	False	13C2-PFDA	884569.56	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.22	126537.36	191.68	4104.6	False	13C2-PFDA	884569.56	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	50038.96	325.73	578.1	False	13C4-PFOS	151613.44	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	90005.76	704.48	297.6	False	13C4-PFOS	151613.44	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	141883.29	1187.48	210.8	False	13C4-PFOS	151613.44	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	173899.91	490.61	763.3	False	13C2-PFOA	465302.16	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4956-FS1(0)	Injection Vial	8
Sample ID	POL-MW0008I-007.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 4:46:25 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.73	317974.65	413.86	3147.4	False	13C2-PFDA	807829.36	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.26	89782.88	977.01	776.2	False	13C4-PFOS	144646.34	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	70458.23	751.67	557.9	False	13C4-PFOS	144646.34	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	279677.03	458.31	458.4	False	13C2-PFOA	589837.58	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.97	465484.07	750.48	801.9	False	13C2-PFOA	589837.58	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.36	647904.01	852.76	980.8	False	13C2-PFOA	589837.58	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.75	704040.89	948.72	919.5	False	13C2-PFOA	589837.58	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.11	691344.27	941.52	3556.4	False	13C2-PFDA	807829.36	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	496109.69	736.05	1732.5	False	13C2-PFDA	807829.36	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.22	88081.08	146.10	3783.1	False	13C2-PFDA	807829.36	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.35	82005.09	559.52	1116.7	False	13C4-PFOS	144646.34	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.98	134659.17	1104.75	465.6	False	13C4-PFOS	144646.34	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	114450.53	1004.02	257.6	False	13C4-PFOS	144646.34	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.72	282727.19	629.23	1246.4	False	13C2-PFOA	589837.58	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4957-FS1(0)	Injection Vial	9
Sample ID	POL-MW0036SI-020.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 4:56:58 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	643057.07	713.92	4460.9	False	13C2-PFDA	947065.15	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	118784.84	1175.99	626.9	False	13C4-PFOS	158989.66	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	114047.08	1106.92	580.9	False	13C4-PFOS	158989.66	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	231933.51	394.69	401.3	False	13C2-PFOA	567999.33	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	407915.10	682.95	593.8	False	13C2-PFOA	567999.33	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	668300.72	913.42	770.3	False	13C2-PFOA	567999.33	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	907599.73	1270.04	813.6	False	13C2-PFOA	567999.33	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	896320.32	1041.21	2159.8	False	13C2-PFDA	947065.15	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	802620.94	1015.74	3022.7	False	13C2-PFDA	947065.15	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	151383.08	214.19	2714.0	False	13C2-PFDA	947065.15	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	76219.93	473.14	635.3	False	13C4-PFOS	158989.66	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	135013.04	1007.73	305.7	False	13C4-PFOS	158989.66	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	151788.33	1211.44	261.0	False	13C4-PFOS	158989.66	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	252446.06	583.44	725.2	False	13C2-PFOA	567999.33	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4958-FS1(0)	Injection Vial	10
Sample ID	POL-MW0036I-027.5-20200421	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 5:07:31 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	569019.13	702.46	3865.9	False	13C2-PFDA	851698.26	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	112232.91	1200.62	661.2	False	13C4-PFOS	147138.24	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.42	106453.97	1116.44	625.9	False	13C4-PFOS	147138.24	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	226954.54	439.11	311.4	False	13C2-PFOA	499575.31	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	376859.62	717.37	621.4	False	13C2-PFOA	499575.31	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	623678.94	969.19	765.1	False	13C2-PFOA	499575.31	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	815958.97	1298.19	709.5	False	13C2-PFOA	499575.31	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	866885.81	1119.77	1874.8	False	13C2-PFDA	851698.26	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	729402.60	1026.44	1917.2	False	13C2-PFDA	851698.26	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	91066.06	143.28	3276.8	False	13C2-PFDA	851698.26	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	68971.53	462.63	1013.4	False	13C4-PFOS	147138.24	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	119823.64	966.39	458.8	False	13C4-PFOS	147138.24	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	142484.31	1228.78	259.7	False	13C4-PFOS	147138.24	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	228631.37	600.77	1053.9	False	13C2-PFOA	499575.31	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4959-FS1(0)	Injection Vial	11
Sample ID	POL-MW0047I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 5:18:02 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.72	784457.45	884.45	4957.2	False	13C2-PFDA	932560.37	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.25	100557.47	962.95	799.0	False	13C4-PFOS	164370.89	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	94092.82	883.35	770.8	False	13C4-PFOS	164370.89	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.61	271940.65	451.05	463.9	False	13C2-PFOA	582754.44	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	419593.87	684.71	712.0	False	13C2-PFOA	582754.44	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	667888.08	889.74	932.6	False	13C2-PFOA	582754.44	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	877034.92	1196.19	902.1	False	13C2-PFOA	582754.44	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	845470.70	997.41	2063.1	False	13C2-PFDA	932560.37	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.43	732084.27	940.88	3119.1	False	13C2-PFDA	932560.37	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.21	426964.05	613.50	3185.9	False	13C2-PFDA	932560.37	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	71617.53	430.01	1215.7	False	13C4-PFOS	164370.89	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	128050.86	924.47	511.1	False	13C4-PFOS	164370.89	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	134906.38	1041.46	296.9	False	13C4-PFOS	164370.89	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	289456.10	652.03	1310.8	False	13C2-PFOA	582754.44	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4961-FS1(0)	**Injection Vial**	14
Sample ID	POL-MW0047D-035.0-20200422	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 5:49:37 PM	**Data File**	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	**Result Table**	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	566812.43	616.09	3946.2	False	13C2-PFDA	967322.82	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	114674.59	1016.97	882.3	False	13C4-PFOS	177489.05	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	100448.38	873.32	691.1	False	13C4-PFOS	177489.05	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	234840.33	390.35	367.6	False	13C2-PFOA	581506.00	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	417281.92	682.40	775.1	False	13C2-PFOA	581506.00	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	670870.87	895.64	819.8	False	13C2-PFOA	581506.00	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	860769.91	1176.53	878.3	False	13C2-PFOA	581506.00	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	871022.93	990.63	1700.0	False	13C2-PFDA	967322.82	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.42	715230.30	886.19	2386.5	False	13C2-PFDA	967322.82	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.20	152998.70	211.94	4878.0	False	13C2-PFDA	967322.82	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	76038.84	422.81	1234.2	False	13C4-PFOS	177489.05	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	115842.68	774.52	493.6	False	13C4-PFOS	177489.05	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	144336.91	1031.90	352.4	False	13C4-PFOS	177489.05	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	275437.10	621.79	1198.9	False	13C2-PFOA	581506.00	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Sample Name	H4962-FS1(0)	Injection Vial	15
Sample ID	POL-MW0047DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 6:00:09 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	422364.98	549.62	3753.5	False	13C2-PFDA	807981.96	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	108507.38	1118.84	880.7	False	13C4-PFOS	152651.81	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	89752.34	907.29	629.0	False	13C4-PFOS	152651.81	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	334415.96	554.02	548.3	False	13C2-PFOA	583442.60	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	464299.27	756.77	878.3	False	13C2-PFOA	583442.60	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	667228.89	887.82	1057.0	False	13C2-PFOA	583442.60	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	806855.69	1099.18	1462.0	False	13C2-PFOA	583442.60	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	823417.68	1121.17	2683.2	False	13C2-PFDA	807981.96	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.42	645153.58	957.00	2612.7	False	13C2-PFDA	807981.96	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.20	52126.16	86.45	3717.1	False	13C2-PFDA	807981.96	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	97958.15	633.32	1478.5	False	13C4-PFOS	152651.81	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	137237.91	1066.86	506.4	False	13C4-PFOS	152651.81	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	134938.46	1121.67	393.0	False	13C4-PFOS	152651.81	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	317398.66	714.13	1181.9	False	13C2-PFOA	583442.60	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4963-FS1(0)	Injection Vial	16
Sample ID	POL-MW0046D-035.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 6:10:41 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	490860.50	601.60	3824.5	False	13C2-PFDA	857884.08	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	77891.88	777.98	737.1	False	13C4-PFOS	157592.85	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	59571.52	583.31	492.0	False	13C4-PFOS	157592.85	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	236645.15	393.08	411.0	False	13C2-PFOA	581907.02	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	391220.41	639.34	799.3	False	13C2-PFOA	581907.02	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	651739.73	869.50	889.5	False	13C2-PFOA	581907.02	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	785869.69	1073.41	832.8	False	13C2-PFOA	581907.02	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	781777.20	1002.56	1445.6	False	13C2-PFDA	857884.08	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.42	602800.40	842.16	1965.9	False	13C2-PFDA	857884.08	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.20	95359.01	148.95	4193.6	False	13C2-PFDA	857884.08	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	70932.14	444.21	1350.4	False	13C4-PFOS	157592.85	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	123757.52	931.90	453.4	False	13C4-PFOS	157592.85	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	132651.00	1068.09	322.9	False	13C4-PFOS	157592.85	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	247864.70	559.16	1500.9	False	13C2-PFOA	581907.02	1250.00		N/A	N/A	✓

PFAS Sample Quant Report

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Printed: 06/05/2020 9:41:28 AM

Sample Name	H4964-FS1(0)	Injection Vial	17
Sample ID	POL-MW0046DD-045.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 6:21:12 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	846189.55	883.01	6226.3	False	13C2-PFDA	1007578.27	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	132796.14	1223.14	816.1	False	13C4-PFOS	170891.37	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	128817.19	1163.20	939.3	False	13C4-PFOS	170891.37	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	287086.47	502.63	568.3	False	13C2-PFOA	552078.54	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	467797.28	805.79	1052.5	False	13C2-PFOA	552078.54	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.35	665889.20	936.37	1052.4	False	13C2-PFOA	552078.54	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	831948.45	1197.75	1059.2	False	13C2-PFOA	552078.54	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	962824.42	1051.29	2041.0	False	13C2-PFDA	1007578.27	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.42	867045.01	1031.37	3192.3	False	13C2-PFDA	1007578.27	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.20	428605.61	570.01	4350.1	False	13C2-PFDA	1007578.27	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.34	94707.72	546.95	1115.9	False	13C4-PFOS	170891.37	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	136102.37	945.11	533.4	False	13C4-PFOS	170891.37	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	153813.69	1142.11	386.1	False	13C4-PFOS	170891.37	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.71	288920.17	686.99	1197.6	False	13C2-PFOA	552078.54	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	H4965-FS1(0)	Injection Vial	18
Sample ID	POL-MW0045S-015.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 6:31:43 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	646610.53	745.07	2866.8	False	13C2-PFDA	912487.63	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	98462.76	1244.94	563.9	False	13C4-PFOS	124490.36	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.41	105420.78	1306.75	608.5	False	13C4-PFOS	124490.36	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.60	153824.16	310.00	253.1	False	13C2-PFOA	479628.23	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.96	298340.54	591.52	468.0	False	13C2-PFOA	479628.23	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	551096.38	892.01	724.2	False	13C2-PFOA	479628.23	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.74	521190.23	863.70	594.1	False	13C2-PFOA	479628.23	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.10	769236.80	927.44	1420.9	False	13C2-PFDA	912487.63	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.42	693772.30	911.26	1635.0	False	13C2-PFDA	912487.63	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.20	235696.08	346.12	4176.6	False	13C2-PFDA	912487.63	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	55552.30	440.41	634.4	False	13C4-PFOS	124490.36	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.97	90466.07	862.35	339.9	False	13C4-PFOS	124490.36	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.74	96242.05	980.99	270.5	False	13C4-PFOS	124490.36	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	189604.44	518.94	668.9	False	13C2-PFOA	479628.23	1250.00		N/A	N/A	✓

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PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 06/05/2020 9:41:28 AM

Sample Name	H4966-FS1(0)	Injection Vial	19
Sample ID	POL-MW0045I-025.0-20200422	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	Triple Quad 6500+ Low Mass
Acquisition Date	5/5/2020 6:42:15 PM	Data File	AE_05052020_5-369.wiff
Acquisition Method	5-369.dam	Result Table	20-0519_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/L)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/L)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	3.71	315079.48	370.64	2900.0	False	13C2-PFDA	893814.75	1250.00				
d3-MeFOSAA	573.0 / 419.0	3.24	85615.92	838.46	614.6	False	13C4-PFOS	160724.56	1196.25		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.40	72592.39	696.96	471.9	False	13C4-PFOS	160724.56	1196.25		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	1.59	210090.05	354.27	301.3	False	13C2-PFOA	573202.83	1250.00		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	1.95	346521.40	574.89	633.2	False	13C2-PFOA	573202.83	1250.00		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.34	623950.56	845.06	838.7	False	13C2-PFOA	573202.83	1250.00		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	2.73	683307.19	947.50	1155.4	False	13C2-PFOA	573202.83	1250.00		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.09	722721.00	889.56	2306.3	False	13C2-PFDA	893814.75	1250.00		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.41	569533.05	763.70	1723.7	False	13C2-PFDA	893814.75	1250.00		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.19	21890.22	32.82	2475.6	False	13C2-PFDA	893814.75	1250.00		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.33	68821.40	422.60	977.1	False	13C4-PFOS	160724.56	1196.25		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	1.96	114162.37	842.90	404.9	False	13C4-PFOS	160724.56	1196.25		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	2.73	119392.34	942.60	224.1	False	13C4-PFOS	160724.56	1196.25		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	1.70	230252.89	527.31	1003.5	False	13C2-PFOA	573202.83	1250.00		N/A	N/A	✓

PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW

Batch 21-1123

Package DP-21-1065

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

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PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW

Batch 21-1123

Package DP-21-1065

Submitted to:
Tetra Tech
661 Anderson Drive Foster Plaza 7
Pittsburgh, PA 15220 USA

NELAP Accreditation Number: E87856 (Florida Department of Health)
DoD-ELAP Accreditation Number: 91667

Submitted by:
Battelle Norwell Operations
141 Longwater Drive Suite 202
Norwell, MA 02061

Analyst Approval: Lauren M. Griffith — Lauren Griffith 2021.09.17 08:07:45 -04'00'

QC Chemist Approval: Digitally signed by Emily Reardon Date: 2021.09.20 14:11:49 -04'00'

Project Manager Approval: Digitally signed by Jonathan Thorn Date: 2021.09.20 14:20:23 -04'00'

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PFAS: Nasa Kennedy Space Center
Project No 100137609
PFAS by DoD QSM 5.3 Table B-15

GW

Batch 21-1123

Package DP-21-1065

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Master Signature Page

Name (Printed)	Signature	Initials	Date
Jonathan Thorn		JRT	1/9/2020
Robert Lizotte, Jr.		BL	1.9.2020
Ellyn M Fitch	Ellyn M Fitch	EMF	1/9/2020
Carla Devine	Carla Devine	CRD	1/9/2020
Denise Schmitz	Denise Schmitz	DS	1/9/2020
Lauren Griffith	Lauren Griffith	LMG	1.9.2020
Carole P McCarthy		CPM	1/9/2020
Rich Restucci		RR	1/9/2020
Sam Guimaraes		SAG	1/9/2020
Jordan Tower		JCT	1/9/2020
Christie Usher	Christie Usher	CU	1/9/2020
Kevin McInerney		KM	1/14/2020
Matt Schumitz		MDS	1/14/2020
Weidong Li	Weidong Li	W.L	1/14/2020
Kayla Lamarre		KAL	1/14/2020
MUNAZ MUNTASIR		MM	01/14/2020
Kristen Nichols	KNichols	KN	01/14/2020
Kelsey Harnden	Kelsey L Harnden	KH	01/30/2020
Kevin Bailey	Kevin Bailey	KB	1/30/2020
Stephanie Schultz		SAS	1/30/2020

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Master Signature Page

Name (Printed)	Signature	Initials	Date
Climiceo Brown		CB	01/30/20
Ryan Kelly		RK	01/30/20
KAREN HYPPOLITE		K.H.	01/31/20
Gail DeRuzzo		GD	01/31/2020
Tracy Stenner			1/31/2020
Ashley Wellington		AW	1/31/2020
Daniel Cooney		DAC	1/31/2020
Peter Demers		PD	1/31/2020
Andy Delman		AD	3/19/2021
Emily Reardon		ER	3/19/2021
Brenton Murphy		BM	3/19/2021
Haley Hart		HH	3/19/21
Allison Wamness		AW	3/19/21
Taylor Noonan		TN	3/19/21
FRANCO PALA		FP	3/19/21

Sample Summary

Client: Battelle
SDG: 21-1123
Project/Site: FY2020: PFAS Analytic IRAD
CTO: N/A

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Receipt Date
DE995PB-FS	Procedural Blank	WATER	9/1/2021	9/1/2021
DE996LCS-FS	Laboratory Control Sample	WATER	9/1/2021	9/1/2021
F2481-FS	POL-MW0011I-027.5-20210826	GW	8/26/2021	8/27/2021
F2482-FS	POL-MW0011S-012.5-20210826	GW	8/26/2021	8/27/2021

Work Plan

WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title:	PFAS: Nasa Kennedy Space Center
Project Number:	100137609
Client:	Tetra Tech 661 Anderson Drive Foster Plaza 7 Pittsburgh, PA 15220 USA
Client Contact Information:	Andrew Walters Chemical Engineer (412) 921-7351(V) NA andrew.walters@tetratech.com
Effective Date of QAPP:	1/28/2020
Version Number:	100137609(L)-01
Project Manager:	Thorn, Jonathan
Laboratory Task Manager:	Thorn, Jonathan
Deliverable Due Date:	2/18/2020

2.0 SCOPE OF WORK

Overview:	Analysis of non-potable water for PFAS.
Matrix:	Water

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

The list of samples for this project plan are presented in Attachment 1.

Storage Directions:	Store refrigerated.
Sub_Sampling:	None
Procedures:	NA
Contact:	NA
Comment:	NA
Archiving:	Samples will be stored for 6 months after delivery of final data, client will be notified prior to disposal. Extracts will be archived for1 year after delivery of final data, client will be notified prior to disposal.
Disposal:	Dispose of samples in the appropriate waste stream.

2.1.2 Sample Preparation

NA

Samples Expected:	Samples Per Batch:	Batches Expected:
12	20	1

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

Type:	*Description:*	*Count:*	*Rgt:*	*Reference:*	*Comment:*
PB	Laboratory control reagent blank.	1 per batch	--	NA	
LCS	Laboratory Control Sample	1 per batch	No	NA	
MS	Spiked field sample for determining method accuracy in the presence of matrix.	1 per batch	--	NA	MS/MSD to be identified on the COC.
MSD	Spiked field sample for determining method accuracy and precision in the presence of matrix.	1 per batch	--	NA	

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	**5-370-09**
SOP Title:	*Extraction of Poly and Perfluoroalkyl Substances from Environmental Matrices*
Sample Size:	250 ml
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	None
Comments:	None

Table 2: SIS and LCS/MS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Low Level Labelled Extracted Internal Standards (SIS)	KU42 SIS	~ 1.13 - 1.25 ng	125 uL	NA

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Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Second Source LCS/MS Solution	KV40 LCS/MS	~ 10.0 ng	100 uL	NA

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): 1000

Table 3: RIS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
PFAS - DoD Internal Standard Spiking Solution	KU43 RIS	~ 1.25 ng	125 uL	NA

2.1.4 Instrumental Analysis

The list of analytes along with data quality criteria are presented in Attachment 2.

1) SOP_No-Rev: **5-369-08**

SOP_Title: *Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)*

Deviations: None.

Comments:
- Data censored at the MDL, MDL value reported for Non-Detects.
- Special Florida Qualifiers are required (use Florida reporting template)

2.2. DELIVERABLES

Deliverables Due:	2/18/2020
LIMS Reports:	*Yes*
Histograms:	*No*
Excel Tables:	*Yes*
EICs:	*No*
Chromatograms:	*No*

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EDDs:	*Yes*
Comments:	• Excel tables for rush samples to Project Manager within 3-business days (full data package within 10 days). Select samples will be 21-day TAT. • Tetra Tech EDD format • Full validation packages (see SOW for details) • Florida reporting template and qualifiers (see SOW for details)

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

The project team is defined in Table 4. Supervisors may make substitutions with Project Manager concurrence.

Table 4: Project Team and Roles

Staff Member	Role	Comment
Jonathan R. Thorn	Project Manager	NA
Stephanie A. Schultz	Sample Preparation	NA
Denise M. Schumitz	LC-MS/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Carla R. Devine	Quality Control Officer	NA
Zachary J. Willenberg	Quality Assurance Officer	NA

4.2 COMMUNICATION

A kick-off meeting will be held to discuss project scope and goals.

5.0 SCHEDULE

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	01/28/2020	01/28/2020	0	NA

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WORK/QUALITY ASSURANCE PROJECT PLAN

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Preparation	01/28/2020	02/04/2020	7	NA
Instrument Analysis	02/04/2020	02/11/2020	7	NA
Quality Control Review	02/11/2020	02/14/2020	3	NA
Quality Assurance Review	02/14/2020	02/18/2020	4	NA

6.0 BUDGET

The labor budget for the analytical task is presented in Table 6.

Table 6. Labor Budget (Laboratory Analytical Task)

Labor Activity:	Hours/ Batch:	Batches:	Total Hours:	Comment:
Sample Receipt	2	1	2	NA
Sample Preparation	8	1	8	NA
Instrument Analysis	8	1	8	NA
Quality Control Review	3	1	3	NA
Quality Assurance Review	1	1	1	NA

7.0 STAFF DEVELOPMENT

None anticipated.

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: **SHP-200128-02**

Status: Pending

Description: KSC-CCB

Range: H2271-H2271

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2271	CCB-DRUM209864-20200124	01/24/2020 5:10 pm	GW	R0119 (NA)			

Shipment: **SHP-200206-01**

Status: Pending

Description: PFAS IDW TRT

Range: H2631-H2633

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2631	IDWTRT-INFLUENT-20200205	02/05/2020 10:30 am	GW	R0119 (NA)			
2	H2632	IDWTRT-LEADGAC-20200205	02/05/2020 2:00 pm	GW	R0119 (NA)			
3	H2633	IDWTRT-EFFLUENT-20200205	02/05/2020 2:30 pm	GW	R0119 (NA)			

Shipment: **SHP-200210-01**

Status: Pending

Description: KSC-HMPN

Range: H2802-H2802

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H2802	HMPN-TANK-20200206-01	02/06/2020 12:25 pm	GW	R0119 (NA)			

Shipment: **SHP-200219-01**

Status: Pending

Description: PFAS IDW TRT

Range: H3028-H3028

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3028	IDWTRT-EFFLUENT-20200218	02/18/2020 2:00 pm	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200227-03**

Status: Pending

Description: KSC-POL

Range: H3356-H3356

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3356	POL-TANK-20200226-01	02/26/2020 1:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200304-02**

Status: Pending

Description: KSC-HBF

Range: H3718-H3720

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H3718	HBF-DRUM217600-20200303	03/03/2020 10:00 am	GW	R0119 (NA)			
2	H3719	SRLF-DRUM217510-20200303	03/03/2020 11:30 am	GW	R0119 (NA)			
3	H3720	SRLF-DRUM217511-20200303	03/03/2020 12:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200323-01**

Status: Pending

Description: HSC-KHCA

Range: H4571-H4572

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4571	KHQA-DRUM217966-20200320	03/20/2020 2:10 pm	WC	R0119 (NA)			
2	H4572	KHQA-DRUM216887-20200320	03/20/2020 2:20 pm	WC	R0119 (NA)			

Shipment: **SHP-200326-01**

Status: Pending

Description: PFAS

Range: H4626-H4628

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4626	IDWTRT2-INFLUENT-20200325	03/25/2020 1:30 pm	GW	R0119 (NA)			
2	H4627	IDWTRT2-LEADGAC-20200325	03/25/2020 2:30 pm	GW	R0119 (NA)			
3	H4628	IDWTRT2-EFFLUENT-20200325	03/25/2020 2:35 pm	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200410-02**

Status: Pending

Description: PFAS

Range: H4735-H4737

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4735	IDWTR-T3-INFLUENT-20200409	04/09/2020 11:00 am	GW	R0119 (NA)			
2	H4736	IDWTR-T3-LEADGAC-20200409	04/09/2020 2:00 pm	GW	R0119 (NA)			
3	H4737	IDWTR-T3-EFFLUENT-20200409	04/09/2020 2:15 pm	GW	R0119 (NA)			

Shipment: **SHP-200424-02**

Status: Pending

Description: KSC-POL/SW3

Range: H4954-H4978

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H4954	POL-MW0041SI-020.5-20200421	04/21/2020 11:15 am	GW	R0119 (NA)			
2	H4955	POL-MW0008S-009.3-20200421	04/21/2020 12:40 pm	GW	R0119 (NA)			
3	H4956	POL-MW0008I-007.5-20200421	04/21/2020 1:00 pm	GW	R0119 (NA)			
4	H4957	POL-MW0036SI-020.5-20200421	04/21/2020 2:05 pm	GW	R0119 (NA)			
5	H4958	POL-MW0036I-027.5-20200421	04/21/2020 2:25 pm	GW	R0119 (NA)			
6	H4959	POL-MW0047I-025.0-20200422	04/22/2020 10:30 am	GW	R0119 (NA)			
7	H4960	POL-FRB-0200422-01	04/22/2020 10:50 am	QC	R0119 (NA)			
8	H4961	POL-MW0047D-035.0-20200422	04/22/2020 11:05 am	GW	R0119 (NA)			
9	H4962	POL-MW0047DD-045.0-20200422	04/22/2020 11:50 am	GW	R0119 (NA)			
10	H4963	POL-MW0046D-035.0-20200422	04/22/2020 12:25 pm	GW	R0119 (NA)			
11	H4964	POL-MW0046DD-045.0-20200422	04/22/2020 12:55 pm	GW	R0119 (NA)			
12	H4965	POL-MW0045S-015.0-20200422	04/22/2020 1:45 pm	GW	R0119 (NA)			
13	H4966	POL-MW0045I-025.0-20200422	04/22/2020 2:35 pm	GW	R0119 (NA)			
14	H4967	POL-MW0045I-035.0-20200422	04/22/2020 3:05 pm	GW	R0119 (NA)			
15	H4968	POL-MW0043S-015.0-20200422	04/22/2020 3:55 pm	GW	R0119 (NA)			
16	H4969	POL-EB-20200423-01	04/23/2020 9:15 am	QC	R0119 (NA)			
17	H4970	POL-EB-20200423-02	04/23/2020 9:25 am	QC	R0119 (NA)			
18	H4971	POL-MW0043I-025.0-20200423	04/23/2020 9:50 am	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200424-02**

Status: Pending

Description: KSC-POL/SW3

Range: H4954-H4978

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
19	H4972	POL-MW0043D-035.0-20200423	04/23/2020 10:20 am	GW	R0119 (NA)			
20	H4973	POL-MW0011S-012.5-20200423	04/23/2020 11:35 am	GW	R0119 (NA)			
21	H4974	POL-MW0011I-027.5-20200423	04/23/2020 12:05 pm	GW	R0119 (NA)			
22	H4975	POL-MW0044I-025.0-20200423	04/23/2020 12:45 pm	GW	R0119 (NA)			
23	H4976	POL-MW0044D-035.0-20200423	04/23/2020 1:20 pm	GW	R0119 (NA)			
24	H4977	SW3-MW0027-032.0-20200423	04/23/2020 2:10 pm	GW	R0119 (NA)			
25	H4978	SW3-MW0028-032.0-20200423	04/23/2020 2:50 pm	GW	R0119 (NA)			

Shipment: **SHP-200429-01**

Status: Pending

Description: PFAS IDW

Range: H5046-H5046

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H5046	IDW-TR4-EFFLUENT-20200428	04/28/2020 12:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200513-01**

Status: Pending

Description: POL

Range: H5453-H5457

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H5453	POLIDW-FIRSTGAC-1-20200512	05/12/2020 1:00 pm	GW	R0119 (NA)			
2	H5454	POLIDW-EFF-1-20200512	05/12/2020 1:10 pm	GW	R0119 (NA)			
3	H5455	POLIDW-FIRSTGAC-2-20200512	05/12/2020 2:00 pm	GW	R0119 (NA)			
4	H5456	POLIDW-EFF-2-20200512	05/12/2020 2:10 pm	GW	R0119 (NA)			
5	H5457	POLIDW-BLANK-20200512	05/12/2020 2:30 pm	GW	R0119 (NA)			

WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200622-02**

Status: Pending

Description: Nasa Kennedy Space Center

Range: H6301-H6303

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H6301	39A-DRUM209859-20200617	06/17/2020 5:30 pm	GW	R0119 (NA)			
2	H6302	39B-DRUM209861-20200617	06/17/2020 5:35 pm	GW	R0119 (NA)			
3	H6303	HMFN-DRUM209857-20200618	06/18/2020 3:50 pm	GW	R0119 (NA)			

Shipment: **SHP-200625-01**

Status: Pending

Description: NASA KSC HBF

Range: H6451-H6476

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H6451	HBF-EB01-20200623	06/23/2020 7:15 am	QC	R0119 (NA)			
2	H6452	HBF-SW0040-000.5-20200623	06/23/2020 9:30 am	SW	R0119 (NA)			
3	H6453	HBF-SW0041-000.5-20200623	06/23/2020 10:00 am	SW	R0119 (NA)			
4	H6454	HBF-SW0042-000.5-20200623	06/23/2020 10:15 am	SW	R0119 (NA)			
5	H6455	HBF-PW0001-002.5-20200623	06/23/2020 10:30 am	PW	R0119 (NA)			
6	H6457	HBF-SW0043-000.5-20200623	06/23/2020 11:15 am	SW	R0119 (NA)			
7	H6458	HBF-PW0002-001.5-20200623	06/23/2020 11:30 am	PW	R0119 (NA)			
8	H6460	HBF-SW0044-000.5-20200623	06/23/2020 12:10 pm	SW	R0119 (NA)			
9	H6461	HBF-PW0003-002.5-20200623	06/23/2020 12:25 pm	PW	R0119 (NA)			
10	H6463	HBF-SW0045-000.5-20200623	06/23/2020 1:15 pm	SW	R0119 (NA)			
11	H6464	HBF-PW0004-002.0-20200623	06/23/2020 1:30 pm	PW	R0119 (NA)			
12	H6466	HBF-SW0046-000.5-20200623	06/23/2020 1:45 pm	SW	R0119 (NA)			
13	H6467	HBF-PW0005-001.0-20200623	06/23/2020 2:00 pm	PW	R0119 (NA)			
14	H6469	HBF-SW0047-000.5-20200623	06/23/2020 2:40 pm	SW	R0119 (NA)			
15	H6470	HBF-PW0006-001.5-20200623	06/23/2020 2:50 pm	PW	R0119 (NA)			
16	H6472	HBF-SW0048-000.5-20200623	06/23/2020 3:15 pm	SW	R0119 (NA)			
17	H6473	HBF-SW0049-000.5-20200623	06/23/2020 3:30 pm	SW	R0119 (NA)			

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200625-01**

Status: Pending

Description: NASA KSC HBF

Range: H6451-H6476

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
18	H6474	HBF-FB01-20200623	06/23/2020 4:30 pm	QC	R0119 (NA)			
19	H6475	HBF-EB02-20200623	06/23/2020 4:35 pm	QC	R0119 (NA)			
20	H6476	HBF-EB03-20200623	06/23/2020 4:40 pm	QC	R0119 (NA)			

Shipment: **SHP-200720-01**

Status: Pending

Description: HBF

Range: H7403-H7415

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H7403	HBF-FB01-20200716	07/16/2020 11:30 am	W	R0119 (NA)			
2	H7404	HBF-EB01-20200716	07/16/2020 11:50 am	W	R0119 (NA)			
3	H7405	HBF-SW050-000.6-20200716	07/16/2020 12:45 pm	SW	R0119 (NA)			
4	H7406	HBF-PW007-002.0-20200716	07/16/2020 1:10 pm	PW	R0119 (NA)			
5	H7408	HBF-SW051-000.25-20200716	07/16/2020 3:00 pm	SW	R0119 (NA)			
6	H7409	HBF-PW008-001.5-20200716	07/16/2020 3:10 pm	PW	R0119 (NA)			
7	H7411	HBF-SW052-000.25-20200716	07/16/2020 3:55 pm	SW	R0119 (NA)			
8	H7412	HBF-PW009-001.5-20200716	07/16/2020 4:20 pm	PW	R0119 (NA)			
9	H7414	HBF-SW053-000.25-20200716	07/16/2020 5:10 pm	SW	R0119 (NA)			
10	H7415	HBF-PW010-001.5-20200716	07/16/2020 5:20 pm	PW	R0119 (NA)			

Shipment: **SHP-200728-05**

Status: Pending

Description: KSC-CHP

Range: H7663-H7663

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H7663	CHP-TANK-000.0-20200724	07/24/2020 10:10 am	GW	R0119 (NA)			

WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-200904-01**

Status: Pending

Description: KSC-39A

Range: H9343-H9345

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	H9343	39A-DRUM222017-20200903	09/03/2020 1:10 pm	GW	R0119 (NA)			
2	H9344	39A-DRUM222016-20200903	09/03/2020 1:20 pm	GW	R0119 (NA)			
3	H9345	39A-DRUM222023-20200903	09/03/2020 1:00 pm	GW	R0119 (NA)			

Shipment: **SHP-200918-03**

Status: Pending

Description: KSC-39B

Range: G0165-G0165

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G0165	39B-DRUM222024-20200917	09/17/2020 8:45 am	GW	R0119 (NA)			

Shipment: **SHP-201102-02**

Status: Pending

Description: HMFN

Range: G2423-G2423

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G2423	HMFN-DRUM220284-20201029	10/29/2020 2:00 pm	GW	R0118 (NA)			

Shipment: **SHP-201110-02**

Status: Pending

Description: PFAS

Range: G2942-G2944

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G2942	IDW-TRT1-INFLUENT-20201109	11/09/2020 9:15 am	GW	R0119 (NA)			
2	G2943	IDW-TRT1-LEADGAC-20201109	11/09/2020 12:00 pm	GW	R0119 (NA)			
3	G2944	IDW-TRT1-EFFLUENT-20201109	11/09/2020 12:05 pm	GW	R0119 (NA)			

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-201113-02**

Status: Pending

Description: KSC-CHP

Range: G3103-G3103

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G3103	CHP-TANK-20201111	11/11/2020 5:00 pm	GW	R0119 (NA)			

Shipment: **SHP-201209-04**

Status: Pending

Description: KSC-HBF

Range: G4327-G4350

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G4327	HBF-MW0085I-017.5-20201203	12/03/2020 2:10 pm	GW	R0119 (NA)			Client Bottles
2	G4328	HBF-MW0085LI-028.0-20201203	12/03/2020 3:00 pm	GW	R0119 (NA)			Client Bottles
3	G4329	HBF-MW0089S-007.0-20201204	12/04/2020 11:00 am	GW	R0119 (NA)			Client Bottles
4	G4330	HBF-MW0088S-006.5-20201204	12/04/2020 12:35 pm	GW	R0119 (NA)			Client Bottles
5	G4331	HBF-MW0085S-006.8-20201203	12/03/2020 3:45 pm	GW	R0119 (NA)			Client Bottles
6	G4332	HBF-MW0084I-017.5-20201203	12/03/2020 11:35 am	GW	R0119 (NA)			Client Bottles
7	G4333	HBF-MW0084LI-033.0-20201203	12/03/2020 12:21 pm	GW	R0119 (NA)			Client Bottles
8	G4334	HBF-MW0084S-007.5-20201203	12/03/2020 1:13 pm	GW	R0119 (NA)			Client Bottles
9	G4335	HBF-MW0083I-017.5-20201203	12/03/2020 2:27 pm	GW	R0119 (NA)			Client Bottles
10	G4336	HBF-MW0083LI-032.0-20201203	12/03/2020 3:07 pm	GW	R0119 (NA)			Client Bottles
11	G4337	HBF-MW0089I-017.5-20201204	12/04/2020 10:20 am	GW	R0119 (NA)			Client Bottles
12	G4338	HBF-MW0089LI-032.0-20201204	12/04/2020 11:25 am	GW	R0119 (NA)			Client Bottles
13	G4339	SRLF-MW0012-031.0-20201204	12/04/2020 12:36 pm	GW	R0119 (NA)			Client Bottles
14	G4340	HBF-MW0083S-007.5-20201203	12/03/2020 4:00 pm	GW	R0119 (NA)			Client Bottles
15	G4341	HBF-MW0086LI-031.0-20201203	12/03/2020 3:45 pm	GW	R0119 (NA)			Client Bottles
16	G4342	HBF-MW0086I-022.5-20201203	12/03/2020 4:15 pm	GW	R0119 (NA)			Client Bottles
17	G4343	HBF-MW0086S-006.0-20201204	12/04/2020 10:20 am	GW	R0119 (NA)			Client Bottles
18	G4344	HBF-MW0082LI-030.0-20201204	12/04/2020 11:00 am	GW	R0119 (NA)			Client Bottles
19	G4345	HBF-MW0082I-017.5-20201204	12/04/2020 11:30 am	GW	R0119 (NA)			Client Bottles

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It can be done

WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-201209-04**

Status: Pending

Description: KSC-HBF

Range: G4327-G4350

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
20	G4346	HBF-MW0082S-006.5-20201204	12/04/2020 12:00 pm	GW	R0119 (NA)			Client Bottles
21	G4347	HBF-MW0087I-022.5-20201204	12/04/2020 12:50 pm	GW	R0119 (NA)			Client Bottles
22	G4348	HBF-MW0087LI-031.0-20201204	12/04/2020 1:20 pm	GW	R0119 (NA)			Client Bottles
23	G4349	HBF-MW0087S-007.0-20201204	12/04/2020 1:50 pm	GW	R0119 (NA)			Client Bottles
24	G4350	HBF-BLANK-20201207	12/07/2020 12:00 am	GW	R0119 (NA)			Client Bottles

Shipment: **SHP-210114-04**

Status: Pending

Description: CHP

Range: G5579-G5582

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G5579	CHP-FRAC1K-LEAD-20210113	01/13/2021 12:00 pm	GW	R0119 (NA)			
2	G5580	CHP-FRAC1K-EFF-20210113	01/13/2021 12:10 pm	GW	R0119 (NA)			
3	G5581	CHP-FRAC2K-LEAD-20210113	01/13/2021 1:30 pm	GW	R0119 (NA)			
4	G5582	CHP-FRAC2K-EFF-20210113	01/13/2021 1:40 pm	GW	R0119 (NA)			

Shipment: **SHP-210202-01**

Status: Pending

Description: CHP

Range: G6239-G6242

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G6239	CHP-FRAC3K-LEAD-20210128	01/28/2021 10:00 am	GW	R0119 (NA)			
2	G6240	CHP-FRAC3K-EFF-20210128	01/28/2021 10:05 am	GW	R0119 (NA)			
3	G6241	CHP-FRAC4K-LEAD-20210128	01/28/2021 12:00 pm	GW	R0119 (NA)			
4	G6242	CHP-FRAC4K-EFF-20210128	01/28/2021 12:05 pm	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-210226-01**

Status: Pending

Description: POL

Range: G6955-G6959

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G6955	POL-DRUM222800-20210223	02/23/2021 9:00 am	GW	R0119 (NA)			
2	G6956	POL-DRUM222802-20210223	02/23/2021 9:05 am	GW	R0119 (NA)			
3	G6957	POL-DRUM222798-20210223	02/23/2021 9:10 am	GW	R0119 (NA)			
4	G6958	POL-DRUM222801-20210223	02/23/2021 9:15 am	GW	R0119 (NA)			
5	G6959	POL-DRUM222029-20210223	02/23/2021 9:30 am	GW	R0119 (NA)			

Shipment: **SHP-210511-01**

Status: Pending

Description: CHP/HMFN

Range: G8737-G8738

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	G8737	CHP-DRUM216891-20210510	05/10/2021 1:30 pm	GW	R0119 (NA)			
2	G8738	HMPN-DRUM222803-20210510	05/10/2021 12:30 pm	GW	R0119 (NA)			

Shipment: **SHP-210630-06**

Status: Approved

Description: NASA

Range: F0627-F0632

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	F0627	AOSB-DRUM217978-20210628	06/28/2021 3:45 pm	W	R0119 (NA)			
2	F0628	POL-DRUM223915-20210628	06/28/2021 12:30 pm	W	R0119 (NA)			
3	F0629	POL-DRUM222810-20210628	06/28/2021 12:45 pm	W	R0119 (NA)			
4	F0630	CCF-DRUM220288-20210628	06/28/2021 2:00 pm	W	R0119 (NA)			
5	F0631	CCF-DRUM220289-20210628	06/28/2021 2:15 pm	W	R0119 (NA)			
6	F0632	CCF-DRUM220290-20210628	06/28/2021 2:30 pm	W	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Shipment: **SHP-210813-02**

Status: Approved

Description: KSC-HMFN, KSC-POL, PFAS-FIX

Range: F2069-F2072

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	F2069	HMPN-DRUM223937-20210812	08/12/2021 3:45 pm	GW	R0119 (NA)			KSC-HMFN
2	F2070	PFASFIX-BCH1-INFLUENT-20210812	08/12/2021 2:10 pm	GW	R0119 (NA)			PFAS-FIX
3	F2071	PFASFIX-BCH1-LEAD-20210812	08/12/2021 2:05 pm	GW	R0119 (NA)			PFAS-FIX
4	F2072	PFASFIX-BCH1-EFFLUENT-20210812	08/12/2021 2:00 pm	GW	R0119 (NA)			PFAS-FIX

Shipment: **SHP-210827-02**

Status: Pending

Description: KSC-POL

Range: F2481-F2482

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	F2481	POL-MW0011I-027.5-20210826	08/26/2021 1:35 pm	GW	R0119 (NA)			
2	F2482	POL-MW0011S-012.5-20210826	08/26/2021 2:45 pm	GW	R0119 (NA)			

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name:	Master_369B
SOP Reference:	5-369 - Analysis of Perfluoroalkyl Substances in Environmental Samples by Liquid Chromatography and Tandem Mass Spectrometry (LC-MS/MS)
Description:	PFAS by DoD QSM 5.3 Table B-15
Matrix:	L - Liquid Samples, like water or sea water, prepared and anlyzed under the same class of detection limits.
Detection Limit Study:	5-369
Instrument:	LC-MS/MS
MQO Criteria	Universal_LC
Standard Report:	Standard Result Report

Method Specific Reporting				Holding Times (days)		Data Flags	
Result Units:	ng/L	***Unit Conversion:***	(none)	***Sample:***	14	***DL_Flag:***	U
Weight Basis:	LIQUID	***Result Format:***	Fixed Digits	***Frozen:***	14	***RL_Flag:***	J
Standard Basis:	SIS	***# of Figures/Digits:***	2	***Extract:***	28	***PB_Flag:***	B
Oil Weight Basis:	No	***Oil Weight Source:***	Oil Weight			***DIL_Flag:***	D
U-Value Substition:	U-Flag=MD	***Histograms:***	No			***HT_Flag:***	T
ECD_Reporting:	No						

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
1	Perfluoro-n-hexanoic acid	PFHxA	T		13C5-PFHxA	No	No
2	Perfluoro-n-heptanoic Acid	PFHpA	T		13C4-PFHpA	No	No
3	Perfluoro-n-octanoic Acid	PFOA	T		13C8-PFOA	No	No
4	Perfluorononanoic Acid	PFNA	T		13C9-PFNA	No	No
5	Perfluoro-n-decanoic Acid	PFDA	T		13C6-PFDA	No	No
6	Perfluoro-n-undecanoic acid	PFUnA	T		13C7-PFUnA	No	No
7	Perfluoro-n-dodecanoic acid	PFDoA	T		13C2-PFDoA	No	No
8	Perfluoro-n-tridecanoic acid	PFTrDA	T		13C2-PFTeDA	No	No
9	Perfluoro-n-tetradecanoic acid	PFTeDA	T		13C2-PFTeDA	No	No
10	N-methylperfluoro-1-octanesulfonamidoacetic acid	NMeFOSAA	T		d3-MeFOSAA	No	No
11	N-ethylperfluoro-octanesulfonamidoacetic acid	NEtFOSAA	T		d5-EtFOSAA	No	No
12	Perfluoro-1-butanesulfonate	PFBS	T		13C3-PFBS	No	No
13	Perfluoro-1-hexanesulfonate	PFHxS	T		13C3-PFHxS	No	No
14	Perfluoro-1-octanesulfonate	PFOS	T		13C8-PFOS	No	No
15	Hexafluoropropylene oxide dimer acid	HFPO-DA	T		13C3-HFPO-DA	No	No
16	Adona	Adona	T		13C3-PFHxS	No	No
17	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	T		13C2-PFDoA	No	No

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_369B

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
18	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS	T		13C9-PFNA	No	No
1	13C5-PFHxA	13C5-PFHxA	SIS	13C2-PFOA		No	No
2	13C4-PFHpA	13C4-PFHpA	SIS	13C2-PFOA		No	No
3	13C8-PFOA	13C8-PFOA	SIS	13C2-PFOA		No	No
4	13C9-PFNA	13C9-PFNA	SIS	13C2-PFOA		No	No
5	13C6-PFDA	13C6-PFDA	SIS	13C2-PFDA		No	No
6	13C7-PFUnA	13C7-PFUnA	SIS	13C2-PFDA		No	No
7	13C2-PFDoA	13C2-PFDoA	SIS	13C2-PFDA		No	No
8	13C2-PFTeDA	13C2-PFTeDA	SIS	13C2-PFDA		No	No
9	d3-MeFOSAA	d3-MeFOSAA	SIS	13C4-PFOS		No	No
10	d5-EtFOSAA	d5-EtFOSAA	SIS	13C4-PFOS		No	No
11	13C3-PFBS	13C3-PFBS	SIS	13C4-PFOS		No	No
12	13C3-PFHxS	13C3-PFHxS	SIS	13C4-PFOS		No	No
13	13C8-PFOS	13C8-PFOS	SIS	13C4-PFOS		No	No
14	13C3-HFPO-DA	13C3-HFPO-DA	SIS	13C2-PFOA		No	No

Total Analytes: 32

Subtract Peaks:

None

Sum Peaks:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 2: Test Codes

Project Test Code Name: Master_369B

ICAL Acceptance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.99	N	5	N	y = Bx + C
Quadratic	NA	NA	0.99	N	6	N	y = Ax^2 + Bx + C

Continuing Calibration Verification Criteria:

CCV Name: 5-369

Frequency Hrs:		Mean PD(%):		Individual PD(%):		RIS/SIS RT Window (min):		Area Limit Low(%):	Area Limit High(%):		Comment:
12	(N)	30	(N)	30	(N)	0.04	(N)	-50	100	(N)	NA

Independent Calibration Verification:

ICC Name: 5-369

Mean PD Limit(%):		Ind. PD Limit(%):		RIS/SIS Window Limit (Secs):		Area Limit High(%):	Area Limit Low(%):		Comment:
30	(N)	30	(N)	0.04	(N)	-50	100	(N)	NA

Mass Discrimination Criteria:

None

Degredation Check Criteria:

None

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WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	***Universal_LC***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Procedural Blank	Samples must be greater than five times the blank concentration (>5xPB).	B	Review with Project Manager; re-analyze or justify results in project records.
PB Measurement Quality Objective	Organic results in the Procedural Blank are less than 1/2 times the LOQ (<1/2xLOQ)	N	Review with Project Manager; re-analyze or justify results in project records.
Laboratory Control Sample	Recovery values 70-130%.	N	Review with project manager; re-analyze or justify reporting the results in project records.
Matrix Spike / Matrix Spike Duplicate Recovery	Organics 70-130%. Analyte concentration in MS/MSD must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Matrix Spike/Spike Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration in MS/MSD must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Standard Reference Material Accuracy	Organics Percent Difference less than 30% from a range of certified values on average. Analyte concentration must be greater than five times the Method Detection Limit (>5xMDL).	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the MDL	n	
Analytical Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 3: Method Quality Objectives

MQO Application:	***Universal_LC***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration must be > 5x MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	
Surrogate Compound Recovery	Recovery results between 50% and 150%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-369-8: R-squared greater than or equal to 0.990		Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-369-8: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-369-8: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 30%.	N	Review with Project Manager; re-analyze or justify in project records.

BATTELLE
It can be done

ShpNo SHP-210827-02

Battelle Project No: 100137609

Sample Receipt Form

Approved: ☐ Authorized ☐

Project Number: 112G09020 **Client:** Tetra Tech
Received by: Schumitz, Matt **Date/Time Received:** Friday, August 27, 2021 9:30 AM
No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** Fed Ex
COC Forms: ☑ **Shipped with samples** ☐ **No Forms**

Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal	Container	Therm.	Temp C	Smps
1 of 1	Cooler	2830 1654 8948	Custody Seals	Intact	Intact	Therm_2	1.4	2

Samples

Sample Labels:
☑ Sample labels agree with COC forms
☐ Discrepancies (see Sample Custody Corrective Action Form)

Container Seals:
☐ Tape ☐ Custody Seals ☐ Other Seals (See sample Log)
☑ Seals intact for each shipping container
☐ Seals broken (See sample log for impacted samples)

Condition of Samples:
☑ Sample containers intact
☐ Sample containers broken/leaking (See Custody Corrective Action Form)

Temperature upon receipt (°C): 1.4 Temperature Blank used ☑ Yes ☐ No
(Note: If temperature upon receipt differs from required conditions, see sample log comment field)

Samples Acidified: ☐ Yes ☐ No ☑ Unknown

Initial pH 5-9?: ☐ Yes ☐ No ☑ NA
If no, individual sample adjustments on the Auxiliary Sample Receipt Form

Total Residual Chlorine Present?: ☐ Yes ☐ No ☑ NA
If yes, individual sample adjustments on the Auxiliary Sample Receipt Form

Head Space <1% in samples for water VOC analysis: ☐ Yes ☐ No ☑ NA
Individual sample deviations noted on sample log

Samples Containers:
Samples returned in PC-grade jars: ☐ Yes ☐ No ☑ Unknown /Lot No.: Unknown

Storage Location: Custody: Refrigerator - R0119 (NA) **BDO IDs Assigned:** F2481 - F2482
Samples logged in by: Schumitz, Matt **Date/Time:** 08/27/2021 9:30 AM
Approved By: **Approved On:**
Authorized By: **Authorized On:**

BATTELLE

It can be done

ShpNo SHP-210827-02

Battelle Project No: 100137609

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: 112G09020 **Client:** Tetra Tech

Received by: Schumitz, Matt **Date/Time Received:** Friday, August 27, 2021 9:30 AM

No. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
F2481	POL-MW0011I-027.5-20210826	08/26/21 13:35	08/27/21 10:32	2	GW	1.4	NA	NA	NA	R0119 (NA)			
F2482	POL-MW0011S-012.5-20210826	08/26/21 14:45	08/27/21 10:32	2	GW	1.4	NA	NA	NA	R0119 (NA)			

Total Samples: 2

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2481 | PAGE 1 OF 1

PROJECT NO: 112G09020	FACILITY: KSC-POL	PROJECT MANAGER: Alex Murphy	PHONE NUMBER: (321) 252-0842	LABORATORY NAME AND CONTACT: Battelle — Jon Thorn
SAMPLERS (SIGNATURE) Chuck Sorden		FIELD OPERATIONS LEADER: Chuck Sorden	PHONE NUMBER: (321) 591-7580	ADDRESS: 141 Longwater Dr. Ste. 202
		CARRIER/WAYBILL NUMBER		CITY, STATE: Norwell, MA

STANDARD TAT ☒ RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: 4°C
TYPE OF ANALYSIS: EPA 537 MOD PFAS

DATE YEAR 2021	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	EPA 537 MOD PFAS	COMMENTS
08/26	~~1335~~ 1335	POL-MW0011I-027.5-20210826		25	30	GW	G	2	X	F2481
08/26	1445	POL-MW0011S-012.5-20210826		10	15	GW	G	2	X	F2482

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	08/26/21	1600	1. RECEIVED BY FEDEX	08/26/21	1600
2. RELINQUISHED BY FEDEX			2. RECEIVED BY BNC	8/27/21	930
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R FORM NO. TtNUS-001

ORIGIN ID:COIA (321) 591-7580
TETRA TECH

11 RIVERSIDE DR STE 204

COCOA, FL 32922
UNITED STATES US

SHIP DATE: 26AUG21
ACTWGT: 21.65 LB
CAD: 6993929/SSFE2220
DIMS: 14x12x10 IN

BILL THIRD PARTY

Part # 156297-435 RRDB2 EXP 05/22

TO BATTELLE
ATTN: MATTHEW SCHUMITZ
141 LONGWATER DR
STE 202
NORWELL MA 02061

1.4°

(555) 555-5555 REF: 112609020.3061
INV:
PO: DEPT:

FedEx
Express

E

J212021070901uv

SGDJ1/BAF3/FE4A

FRI - 27 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 2830 1654 8948

AHS
02061

NB XPUA

MA-US BOS

Therm 2 8/27/21 930
MDS

Data Tables

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0011I-027.5-20210826						
Battelle ID		F2481-FS						
Sample Type		SA						
Collection Date		08/26/2021						
Extraction Date		09/01/2021						
Analytical Instrument		Sciex 5500 (AC) LC/MS/MS						
% Moisture		NA						
Matrix		GW						
Sample Size		0.252						
Size Unit-Basis		L						
Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	21.2	F2481-FS(0)	1.000	9/15/2021	0.523	1.49	4.96
PFHpA	375-85-9	16.4	F2481-FS(0)	1.000	9/15/2021	0.261	0.992	4.96
PFOA	335-67-1	30.5	F2481-FS(0)	1.000	9/15/2021	0.507	1.49	4.96
PFNA	375-95-1	0.992 U	F2481-FS(0)	1.000	9/15/2021	0.307	0.992	4.96
PFDA	335-76-2	0.496 U	F2481-FS(0)	1.000	9/15/2021	0.141	0.496	4.96
PFUnA	2058-94-8	0.496 U	F2481-FS(0)	1.000	9/15/2021	0.217	0.496	4.96
PFDoA	307-55-1	0.496 U	F2481-FS(0)	1.000	9/15/2021	0.190	0.496	4.96
PFTrDA	72629-94-8	0.496 U	F2481-FS(0)	1.000	9/15/2021	0.153	0.496	4.96
PFTeDA	376-06-7	1.98 U	F2481-FS(0)	1.000	9/15/2021	0.727	1.98	4.96
NMeFOSAA	2355-31-9	0.992 U	F2481-FS(0)	1.000	9/15/2021	0.347	0.992	4.96
NEtFOSAA	2991-50-6	0.992 U	F2481-FS(0)	1.000	9/15/2021	0.496	0.992	4.96
PFBS	375-73-5	3.08 I	F2481-FS(0)	1.000	9/15/2021	0.143	0.496	4.96
PFHxS	355-46-4	111	F2481-FS(0)	1.000	9/15/2021	0.111	0.397	4.96
PFOS	1763-23-1	18.9	F2481-FS(0)	1.000	9/15/2021	0.434	0.992	4.96
HFPO-DA	13252-13-6	0.496 U	F2481-FS(0)	1.000	9/15/2021	0.246	0.496	4.96
Adona	919005-14-4	0.992 U	F2481-FS(0)	1.000	9/15/2021	0.263	0.992	4.96
9Cl-PF3ONS	756426-58-1	0.992 U	F2481-FS(0)	1.000	9/15/2021	0.266	0.992	4.96
11Cl-PF3OUdS	763051-92-9	0.496 U	F2481-FS(0)	1.000	9/15/2021	0.229	0.496	4.96

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0011I-027.5-20210826
Battelle ID	F2481-FS
Sample Type	SA
Collection Date	08/26/2021
Extraction Date	09/01/2021
Analytical Instrument	Sciex 5500 (AC) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	88		F2481-FS(0)	9/15/2021
13C4-PFHpA	94		F2481-FS(0)	9/15/2021
13C8-PFOA	82		F2481-FS(0)	9/15/2021
13C9-PFNA	64		F2481-FS(0)	9/15/2021
13C6-PFDA	43	J	F2481-FS(0)	9/15/2021
13C7-PFUnA	20	J	F2481-FS(0)	9/15/2021
13C2-PFDoA	11	J	F2481-FS(0)	9/15/2021
13C2-PFTeDA	8	J	F2481-FS(0)	9/15/2021
d3-MeFOSAA	13	J	F2481-FS(0)	9/15/2021
d5-EtFOSAA	9	J	F2481-FS(0)	9/15/2021
13C3-PFBS	85		F2481-FS(0)	9/15/2021
13C3-PFHxS	88		F2481-FS(0)	9/15/2021
13C8-PFOS	53		F2481-FS(0)	9/15/2021
13C3-HFPO-DA	89		F2481-FS(0)	9/15/2021

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		POL-MW0011S-012.5-20210826						
Battelle ID		F2482-FS						
Sample Type		SA						
Collection Date		08/26/2021						
Extraction Date		09/01/2021						
Analytical Instrument		Sciex 5500 (AC) LC/MS/MS						
% Moisture		NA						
Matrix		GW						
Sample Size		0.282						
Size Unit-Basis		L						
Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	4.53	F2482-FS(0)	1.000	9/15/2021	0.467	1.33	4.43
PFHpA	375-85-9	3.94 I	F2482-FS(0)	1.000	9/15/2021	0.233	0.887	4.43
PFOA	335-67-1	23.7	F2482-FS(0)	1.000	9/15/2021	0.453	1.33	4.43
PFNA	375-95-1	0.887 U	F2482-FS(0)	1.000	9/15/2021	0.274	0.887	4.43
PFDA	335-76-2	0.443 U	F2482-FS(0)	1.000	9/15/2021	0.126	0.443	4.43
PFUnA	2058-94-8	0.443 U	F2482-FS(0)	1.000	9/15/2021	0.194	0.443	4.43
PFDoA	307-55-1	0.443 U	F2482-FS(0)	1.000	9/15/2021	0.170	0.443	4.43
PFTrDA	72629-94-8	0.443 U	F2482-FS(0)	1.000	9/15/2021	0.137	0.443	4.43
PFTeDA	376-06-7	1.77 U	F2482-FS(0)	1.000	9/15/2021	0.650	1.77	4.43
NMeFOSAA	2355-31-9	0.887 U	F2482-FS(0)	1.000	9/15/2021	0.310	0.887	4.43
NEtFOSAA	2991-50-6	0.887 U	F2482-FS(0)	1.000	9/15/2021	0.443	0.887	4.43
PFBS	375-73-5	4.61	F2482-FS(0)	1.000	9/15/2021	0.128	0.443	4.43
PFHxS	355-46-4	102	F2482-FS(0)	1.000	9/15/2021	0.0993	0.355	4.43
PFOS	1763-23-1	72.2	F2482-FS(0)	1.000	9/15/2021	0.387	0.887	4.43
HFPO-DA	13252-13-6	0.443 U	F2482-FS(0)	1.000	9/15/2021	0.220	0.443	4.43
Adona	919005-14-4	0.887 U	F2482-FS(0)	1.000	9/15/2021	0.235	0.887	4.43
9Cl-PF3ONS	756426-58-1	0.887 U	F2482-FS(0)	1.000	9/15/2021	0.238	0.887	4.43
11Cl-PF3OUdS	763051-92-9	0.443 U	F2482-FS(0)	1.000	9/15/2021	0.205	0.443	4.43

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	POL-MW0011S-012.5-20210826
Battelle ID	F2482-FS
Sample Type	SA
Collection Date	08/26/2021
Extraction Date	09/01/2021
Analytical Instrument	Sciex 5500 (AC) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**		**Extract ID**	**Analysis Date**
13C5-PFHxA	85		F2482-FS(0)	9/15/2021
13C4-PFHpA	99		F2482-FS(0)	9/15/2021
13C8-PFOA	84		F2482-FS(0)	9/15/2021
13C9-PFNA	78		F2482-FS(0)	9/15/2021
13C6-PFDA	63		F2482-FS(0)	9/15/2021
13C7-PFUnA	45	J	F2482-FS(0)	9/15/2021
13C2-PFDoA	25	J	F2482-FS(0)	9/15/2021
13C2-PFTeDA	22	J	F2482-FS(0)	9/15/2021
d3-MeFOSAA	28	J	F2482-FS(0)	9/15/2021
d5-EtFOSAA	21	J	F2482-FS(0)	9/15/2021
13C3-PFBS	75		F2482-FS(0)	9/15/2021
13C3-PFHxS	88		F2482-FS(0)	9/15/2021
13C8-PFOS	69		F2482-FS(0)	9/15/2021
13C3-HFPO-DA	89		F2482-FS(0)	9/15/2021

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		LM24 IB
Battelle ID		LM24 IB_09/14/2021
Sample Type		IB
Collection Date		NA
Extraction Date		NA
Analysis Date		09/14/2021
Analytical Instrument		Sciex 5500 (AC) LC/MS/MS
% Moisture		NA
Matrix		Water
Sample Size		0.250
Size Unit-Basis		L

Analyte	CAS No.	Result (ng/L)		DL	LOD	LOQ
PFHxA	307-24-4	1.50	U	0.527	1.50	5.00
PFHpA	375-85-9	1.00	U	0.263	1.00	5.00
PFOA	335-67-1	1.50	U	0.511	1.50	5.00
PFNA	375-95-1	1.00	U	0.309	1.00	5.00
PFDA	335-76-2	0.500	U	0.142	0.500	5.00
PFUnA	2058-94-8	0.500	U	0.219	0.500	5.00
PFDoA	307-55-1	0.500	U	0.192	0.500	5.00
PFTrDA	72629-94-8	0.500	U	0.154	0.500	5.00
PFTeDA	376-06-7	2.00	U	0.733	2.00	5.00
NMeFOSAA	2355-31-9	1.00	U	0.350	1.00	5.00
NEtFOSAA	2991-50-6	1.00	U	0.500	1.00	5.00
PFBS	375-73-5	0.500	U	0.144	0.500	5.00
PFHxS	355-46-4	0.400	U	0.112	0.400	5.00
PFOS	1763-23-1	1.00	U	0.437	1.00	5.00
HFPO-DA	13252-13-6	0.500	U	0.248	0.500	5.00
Adona	919005-14-4	1.00	U	0.265	1.00	5.00
9Cl-PF3ONS	756426-58-1	1.00	U	0.268	1.00	5.00
11Cl-PF3OUdS	763051-92-9	0.500	U	0.231	0.500	5.00

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	LM24 IB
Battelle ID	LM24 IB_09/14/2021
Sample Type	IB
Collection Date	NA
Extraction Date	NA
Analysis Date	09/14/2021
Analytical Instrument	Sciex 5500 (AC) LC/MS/MS
% Moisture	NA
Matrix	Water
Sample Size	0.250
Size Unit-Basis	L

Surrogate Recoveries (%)	
13C5-PFHxA	87
13C4-PFHpA	86
13C8-PFOA	92
13C9-PFNA	85
13C6-PFDA	93
13C7-PFUnA	83
13C2-PFDoA	80
13C2-PFTeDA	85
d3-MeFOSAA	84
d5-EtFOSAA	91
13C3-PFBS	90
13C3-PFHxS	92
13C8-PFOS	91
13C3-HFPO-DA	85

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID		Procedural Blank						
Battelle ID		DE995PB-FS						
Sample Type		PB						
Collection Date		09/01/2021						
Extraction Date		09/01/2021						
Analytical Instrument		Sciex 5500 (AC) LC/MS/MS						
% Moisture		NA						
Matrix		WATER						
Sample Size		0.254						
Size Unit-Basis		L						
Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	DL	LOD	LOQ
PFHxA	307-24-4	1.48 U	DE995PB-FS(0)	1.000	9/15/2021	0.519	1.48	4.92
PFHpA	375-85-9	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.259	0.984	4.92
PFOA	335-67-1	1.48 U	DE995PB-FS(0)	1.000	9/15/2021	0.503	1.48	4.92
PFNA	375-95-1	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.304	0.984	4.92
PFDA	335-76-2	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.140	0.492	4.92
PFUnA	2058-94-8	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.216	0.492	4.92
PFDoA	307-55-1	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.189	0.492	4.92
PFTrDA	72629-94-8	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.152	0.492	4.92
PFTeDA	376-06-7	1.97 U	DE995PB-FS(0)	1.000	9/15/2021	0.721	1.97	4.92
NMeFOSAA	2355-31-9	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.344	0.984	4.92
NEtFOSAA	2991-50-6	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.492	0.984	4.92
PFBS	375-73-5	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.142	0.492	4.92
PFHxS	355-46-4	0.394 U	DE995PB-FS(0)	1.000	9/15/2021	0.110	0.394	4.92
PFOS	1763-23-1	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.430	0.984	4.92
HFPO-DA	13252-13-6	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.244	0.492	4.92
Adona	919005-14-4	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.261	0.984	4.92
9Cl-PF3ONS	756426-58-1	0.984 U	DE995PB-FS(0)	1.000	9/15/2021	0.264	0.984	4.92
11Cl-PF3OUdS	763051-92-9	0.492 U	DE995PB-FS(0)	1.000	9/15/2021	0.227	0.492	4.92

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Procedural Blank
Battelle ID	DE995PB-FS
Sample Type	PB
Collection Date	09/01/2021
Extraction Date	09/01/2021
Analytical Instrument	Sciex 5500 (AC) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	108	DE995PB-FS(0)	9/15/2021
13C4-PFHpA	108	DE995PB-FS(0)	9/15/2021
13C8-PFOA	101	DE995PB-FS(0)	9/15/2021
13C9-PFNA	108	DE995PB-FS(0)	9/15/2021
13C6-PFDA	116	DE995PB-FS(0)	9/15/2021
13C7-PFUnA	113	DE995PB-FS(0)	9/15/2021
13C2-PFDoA	107	DE995PB-FS(0)	9/15/2021
13C2-PFTeDA	108	DE995PB-FS(0)	9/15/2021
d3-MeFOSAA	96	DE995PB-FS(0)	9/15/2021
d5-EtFOSAA	109	DE995PB-FS(0)	9/15/2021
13C3-PFBS	107	DE995PB-FS(0)	9/15/2021
13C3-PFHxS	109	DE995PB-FS(0)	9/15/2021
13C8-PFOS	114	DE995PB-FS(0)	9/15/2021
13C3-HFPO-DA	110	DE995PB-FS(0)	9/15/2021

BATTELLE
It can be done

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Laboratory Control Sample
Battelle ID	DE996LCS-FS
Sample Type	LCS
Collection Date	09/01/2021
Extraction Date	09/01/2021
Analytical Instrument	Sciex 5500 (AC) LC/MS/MS
% Moisture	NA
Matrix	WATER
Sample Size	0.250
Size Unit-Basis	L

Analyte	CAS No.	Result (ng/L)	Extract ID	DF	Analysis Date	Target	Recovery	Qual	Control Limits Lower	Control Limits Upper
PFHxA	307-24-4	80.9	DE996LCS-FS(0)	1.000	9/15/2021	80.0	101		72	129
PFHpA	375-85-9	95.7	DE996LCS-FS(0)	1.000	9/15/2021	80.0	120		72	130
PFOA	335-67-1	81.9	DE996LCS-FS(0)	1.000	9/15/2021	80.0	102		71	133
PFNA	375-95-1	94.7	DE996LCS-FS(0)	1.000	9/15/2021	80.0	118		69	130
PFDA	335-76-2	88.1	DE996LCS-FS(0)	1.000	9/15/2021	80.0	110		71	129
PFUnA	2058-94-8	87.9	DE996LCS-FS(0)	1.000	9/15/2021	80.0	110		69	133
PFDoA	307-55-1	98.1	DE996LCS-FS(0)	1.000	9/15/2021	80.0	123		72	134
PFTrDA	72629-94-8	85.8	DE996LCS-FS(0)	1.000	9/15/2021	80.0	107		65	144
PFTeDA	376-06-7	80.3	DE996LCS-FS(0)	1.000	9/15/2021	80.0	100		71	132
NMeFOSAA	2355-31-9	94.0	DE996LCS-FS(0)	1.000	9/15/2021	80.0	118		65	136
NEtFOSAA	2991-50-6	88.3	DE996LCS-FS(0)	1.000	9/15/2021	80.0	110		61	135
PFBS	375-73-5	90.4	DE996LCS-FS(0)	1.000	9/15/2021	80.0	113		72	130
PFHxS	355-46-4	91.4	DE996LCS-FS(0)	1.000	9/15/2021	80.0	114		68	131
PFOS	1763-23-1	107	DE996LCS-FS(0)	1.000	9/15/2021	80.0	134		65	140
HFPO-DA	13252-13-6	81.7	DE996LCS-FS(0)	1.000	9/15/2021	80.0	102		60	126
Adona	919005-14-4	89.3	DE996LCS-FS(0)	1.000	9/15/2021	80.0	112		61	130
9Cl-PF3ONS	756426-58-1	78.6	DE996LCS-FS(0)	1.000	9/15/2021	80.0	98		60	126
11Cl-PF3OUdS	763051-92-9	87.2	DE996LCS-FS(0)	1.000	9/15/2021	80.0	109		56	125

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

Client ID	Laboratory Control Sample
Battelle ID	DE996LCS-FS
Sample Type	LCS
Collection Date	09/01/2021
Extraction Date	09/01/2021
Analytical Instrument	Sciex 5500 (AC) LC/MS/MS

Surrogate Recoveries (%)	**Recovery**	**Extract ID**	**Analysis Date**
13C5-PFHxA	100	DE996LCS-FS(0)	9/15/2021
13C4-PFHpA	100	DE996LCS-FS(0)	9/15/2021
13C8-PFOA	106	DE996LCS-FS(0)	9/15/2021
13C9-PFNA	98	DE996LCS-FS(0)	9/15/2021
13C6-PFDA	106	DE996LCS-FS(0)	9/15/2021
13C7-PFUnA	105	DE996LCS-FS(0)	9/15/2021
13C2-PFDoA	97	DE996LCS-FS(0)	9/15/2021
13C2-PFTeDA	99	DE996LCS-FS(0)	9/15/2021
d3-MeFOSAA	103	DE996LCS-FS(0)	9/15/2021
d5-EtFOSAA	93	DE996LCS-FS(0)	9/15/2021
13C3-PFBS	114	DE996LCS-FS(0)	9/15/2021
13C3-PFHxS	119	DE996LCS-FS(0)	9/15/2021
13C8-PFOS	114	DE996LCS-FS(0)	9/15/2021
13C3-HFPO-DA	98	DE996LCS-FS(0)	9/15/2021

Glossary of Data Qualifiers

Flag:	Application:
V	Analyte found in the sample at a concentration <10x the level found in the procedural blank
D	Dilution Run. Initial run outside the initial calibration range of the instrument
L	Estimate, result is greater than the highest concentration level in the calibration
I	The reported value is greater than or equal to the Detection Limit (DL) but less than the laboratoryLimit of Quantitation (LOQ)
*	Significant Matrix Interference - value could not be determined.
J	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not Applicable
Q	Holding Time (HT) exceeded
U	Analyte not detected or detected below the Detection Limit (DL) value, Limit of Detection (LOD) reported
X	Ion ratio outside of criteria (50% difference from calibration expected ratio)

Miscellaneous Documentation

QA/QC Summary
Batch 21-1123

Project:	Nasa Kennedy Space Center
Client Project Manager:	Andrew Walters
Parameters:	PFAS
Laboratory:	Battelle, Norwell, MA
Matrix:	GW
Data Set:	DP-21-1065
Analytical SOP:	5-369
Method Reference:	PFAS to QSM 5.3 Table B-15

Sample Custody		
Collection Date	Receipt Date	Temp (°C)
8/26/2021	8/27/2021	1.4
Corrective Actions	None.	
Sample Storage	The samples were stored refrigerated until extraction.	
Related samples	None.	

	METHOD SUMMARIES
Sample Preparation	Water samples were fortified with surrogates in the original sample container from the field. The water was extracted using a Weak-anion exchange (WAX) solid phase extraction (SPE) cartridge. Target analytes are eluted from the WAX SPE using methanol followed by 1% NH_3OH in methanol. Extracts were acidified with acetic acid and further refined using dispersive Envi-carb to remove co-extracted interferences. Extracts were fortified with internal standards and transferred to LC-MS/MS for analysis.
Prep comments	pH of all samples prior to SPE extraction was verified between 6 and 8. Samples DE995PB-FS (Procedural Blank), DE996LCS-FS (Laboratory Control Sample), F2481-FS (POL-MW0011I-027.5-20210826), and F2482-FS (POL-MW0011S-012.5-20210826) were fortified with extracted internal standards, shaken, and transferred to a new HDPE bottle. The samples were centrifuged at 3,500 RPM for five minutes. The supernatant was then decanted back into the original sample container prior to extraction. This procedure was performed due to the level of particulate matter present in the field samples centrifuged. Samples F2481-FS (POL-MW0011I-027.5-20210826) and F2482-FS (POL-MW0011S-012.5-20210826) clogged the top filter of the SPE. A new SPE cartridge was conditioned, and the remaining sample was moved to the new column. Both SPE were dried and eluted per the SOP. Post elution, the extracts were combined, carbon cleaned, and fortified with internal standard. To account for the use of two columns, a 1 mL of extract was taken and concentrated to 0.5 mL prior to submission for analysis. Samples F2481-FS (POL-MW0011I-027.5-20210826) and F2482-FS (POL-MW0011S-012.5-20210826) clogged column 1. Per PM, sample was ceased and filtered through a metal funnel with 150mm diameter filter inside. After sample passed through, extraction with column2 began.

QA/QC Summary
Batch 21-1123

Analysis	PFAS were measured by liquid chromatography tandem mass spectrometry (LC-MS/MS) in the multiple reaction monitoring (MRM). An initial calibration consisting of representative target analytes, labelled analogs, and internal standards was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was performed at the beginning and end of 10 injections and at the end of each sequence. Target PFAS were quantified using the isotope dilution method. Samples are reported in ng/L concentrations to three (3) significant figures.
Analysis Comments	Samples analyzed on Sciex 5500 (AC) LC-MS/MS. MeFOSAA, EtFOSAA, PFHxS, and PFOS in the LCS, and client samples when detected, were found and reported as a combination of the linear and branched isomers. ADONA, 9Cl-PF3ONS and 11Cl-PF3OUdS are quantified using 13C8-PFOA. d5-EtFOSAA is quantified using 13C2-PFDA. The following calibration points were not used in the primary or secondary transitions, when applicable, for the calibration: • PFHxA, PFOA, PFUnA, EtFOSAA and 9Cl-PF3ONS in the level one. • PFBS, PFHpA, MeFOSAA, EtFOSAA, ADONA and 11Cl-PF3OUdS in the level eight As these points are below the LOQ concentration equivalent, the reported concentrations are not above the high point of the calibrations, and these analytes use a minimum of five points for linear and six points for quadratic, there is no impact on the reported data excluding these points. Points in the middle of calibration points are not excluded from use. The following secondary transitions were not used in the calibration: • PFHpA and PFDA in the level one. The secondary transition is monitored solely for peak identification, not quantification. There is no impact on the reported data.

Holding Times	Extraction Date(s)	Analysis Date(s)
	9/1/2021	9/14 – 15/2021

Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
≤ ½ the LOQ	No exceedances noted.
Samples >10x PB	No comments.

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery	No exceedances noted.
	No comments.

QA/QC Summary
Batch 21-1123

Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A MS/MSD was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
Laboratory derived control limits for recovery and <30% RPD	Project specific MS/MSD not included in this SDG.
	No comments.

Extracted Internal Standard Analytes	Labelled analog compounds were added prior to extraction. The recoveries are calculated to measure extraction efficiency.
50-150% of true value	Eleven (11) exceedances noted.
	Two samples had suppressed or enhanced recoveries for select extracted internal standards. The table below indicates if the extracted internal standard was within +/- 50% of the area of the L5 calibration point ("P") or if the area showed suppression ("↓") or enhancement ("↑") for these extracted internal standards.

	13C2-PFDA	13C2-PFUnA	13C2-PFDoA	13C2-PFTeDA	d3-MeFOSAA	D5-EtFOSAA
F2481-FS (POL-MW0011I-027.5-20210826)	↓	↓	↓	↓	↓	↓
F2482-FS (POL-MW0011S-012.5-20210826)		↓	↓	↓	↓	↓

The remaining extracted internal standards in each impacted sample, fortified from the same solution, pass all criteria, suggesting that the suppression is matrix related to these analytes only. The sample extracts were re-analyzed for confirmation and reported from the reanalysis. The quant report for the original analysis is included in the unused data section of the full data package.

Internal Standard Analytes	Labelled analog compounds were added prior to analysis.
+/- 50% of the area of the L5 calibration point.	No exceedances noted.
	No comments.

Initial Calibration (ICAL)	The LC-MS/MS was calibrated with multi-level calibration curve for all compounds using linear or quadradic curve fitting.
+/- 30% of true value, $R^2 \geq 0.99$	No exceedances noted.
	No comments.

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
+/- 30% of true value	No exceedances noted.
	No Comments.

QA/QC Summary
Batch 21-1123

Continuing Calibration Verification (CCV)	Continuing calibration standards were run at the beginning and end of 10 injections and at the end of the sequence to ensure that initial calibration is still valid.
+/- 30% of true value	No exceedances noted.
	No comments.

Instrument Blank (IB)	Immediately following the highest standard analyzed and daily prior to sample analysis.
≤ ½ the LOQ	No exceedances noted.
	No comments.

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project Number: 100137609
Preparation Batch: 21-1123
Data Set: DP-21-1065
Test Code: Master_369B

QC Parameter:	Exceed:	Justification:
Procedural Blank	0	None
PB Measurement Quality Objective	0	None
Laboratory Control Sample	0	None
Matrix Spike / Matrix Spike Duplicate Recovery	NA	None
Matrix Spike / Matrix Spike Duplicate Precision	NA	None
Extracted Internal Standard Analytes (Surrogates)	11	Exceedances were confirmed by analysis of a fresh aliquot of the samples. LMG 09/16/2021
Instrument Calibration	0	None
Instrument Blank	0	None
Independent Calibration Check	0	None
Continuing Calibration Verification	0	None

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	PFAS: Nasa Kennedy Space Center	**Data Set Number:**	DP-21-1065
Project Number:	100137609	**Prep Batch Number:**	21-1123
Entered By:	Lauren Griffith	**Entered On:**	09/16/2021
Test Code (Matrix Type):	Master_369B(L)		

Samples that were manually integrated are noted on the quant reports with the comment (TRUE).
LMG 9/16/2021

ADONA, 9Cl-PF3ONS and 11Cl-PF3OUdS are quantified using 13C8-PFOA
d5-EtFOSAA is quantified using 13C2-PFDA

The following calibration points were not used in the primary or secondary transitions, when applicable, for the calibration:
- PFHxA, PFOA, PFUnA, NEtFOSAA and 9Cl-PF3ONS in the level one.
- PFBS, PFHpA, NMeFOSAA, NEtFOSAA, ADONA and 11Cl-PF3OUdS in the level eight

As these points are below the LOQ concentration equivalent, the reported concentrations are not above the high point of the calibrations, and these analytes use a minimum of five points for linear and six points for quadratic, there is no impact on the reported data excluding these points. Points in the middle of calibration points are not excluded from use.

The following secondary transitions were not used in the calibration:
- PFHpA and PFDA in the level one.

The secondary transition is monitored solely for peak identification, not quantification. There is no impact on the reported data.

Task Leader Approval:

SupervisorApproval:

PM Approval:

Robert Lizotte, Jr.
2021.09.17 13:33:54 -04'00'

Example Calculation for PFAS

Calculation of final concentration from area:

$$Concentration = \left[\frac{PA - b}{m}\right] * C_{IS} * DF/S$$

Where:

PA = Area of target / area of internal standard
b = y intercept from calibration curve
CIS = concentration of internal standard (ng)
m = slope of calibration
DF = dilution factor
S = Sample Size

Sample ID:	F2482-FS(0)
Client Sample ID:	POL-MW0011S-012.5-20210826
Sample Size:	0.282
Units:	L
Dilution Factor:	1.000
Target Analyte:	PFHxS
MRM Transition:	399.0 / 80.0
Data file:	AC_09142021_05-369.wiff
Result table:	21-1123
Area:	5,443,159.59
IS Name:	13C3-PFHxS
IS Area:	1,264,684.53
IS Amount (ng):	23.7
y-intercept:	-0.00447
slope:	3.53435

$$\text{Concentration} = \frac{[(5443159.59/1264684.53) - -0.00447]}{3.53435} * 23.7 * 1 / 0.282$$

ng/L = 102

*Final concentration may vary based on rounding.

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609
Preparation Batch: 21-1123
Data Set: DP-21-1065

		DE995PB-FS (Procedural Blank)	DE996LCS-FS (Laboratory Control Sample)	F2481-FS (POL-MW0011I-027.5-20210826)	F2482-FS (POL-MW0011S-012.5-20210826)
PFHxA	307-24-4	-	L	L	L
PFHpA	375-85-9	-	L	L	L
PFOA	335-67-1	-	L	L	L
PFNA	375-95-1	-	L	-	-
PFDA	335-76-2	-	L	-	-
PFUnA	2058-94-8	-	L	-	-
PFDoA	307-55-1	-	L	-	-
PFTrDA	72629-94-8	-	L	-	-
PFTeDA	376-06-7	-	L	-	-
NMeFOSAA	2355-31-9	-	L/Br	-	-
NEtFOSAA	2991-50-6	-	L/Br	-	-
PFBS	375-73-5	-	L	L	L
PFHxS	355-46-4	-	L/Br	L/Br	L/Br
PFOS	1763-23-1	-	L/Br	L/Br	L/Br
HFPO-DA	13252-13-6	-	L	-	-
Adona	919005-14-4	-	L	-	-
9Cl-PF3ONS	756426-58-1	-	L	-	-
11Cl-PF3OUdS	763051-92-9	-	L	-	-

"L" :Linear
"Br": branched
"L/Br": Linear/Branched
"-": Not detected

Project Client: Tetra Tech
Project Name: PFAS: Nasa Kennedy Space Center
Project No.: 100137609

			Passing criteria = 50% to 150% of internal standard area (compared to mid-point of calibration)							
Sample Name	Sample ID	Analysis Date	13C3-PFBA		13C2-PFOA		13C2-PFDA		13C4-PFOS	
LM21	L5	9/14/21 21:38	-		11,935,422.89		11,638,329.39		1,615,233.97	
		Lower	-		5,967,711.45		5,819,164.70		807,616.99	
		Upper	-		17,903,134.34		17,457,494.09		2,422,850.96	

Sample Name	Sample ID	Analysis Date	13C3-PFBA	Qual	User	13C2-PFOA	Qual	User	13C2-PFDA	Qual	User	13C4-PFOS	Qual	User
LL90	L1	9/14/21 20:46	-			9,128,579.84			8,924,501.75			1,253,125.08		
LM19	L2	9/14/21 20:59	-			12,334,897.44			12,221,241.08			1,559,152.09		
LL94	L3	9/14/21 21:12	-			9,513,599.80			9,370,145.05			1,395,802.24		
LM20	L4	9/14/21 21:25	-			11,322,554.75			11,524,623.30			1,621,092.73		
LM21	L5	9/14/21 21:38	-			11,935,422.89			11,638,329.39			1,615,233.97		
LL97	L6	9/14/21 21:51	-			8,729,410.39			8,853,199.28			1,426,850.02		
LL98	L7	9/14/21 22:04	-			8,846,718.95			9,237,863.93			1,281,548.15		
LM22	L8	9/14/21 22:16	-			9,072,267.11			9,943,902.73			1,494,031.20		
LM24 IB	IB	9/14/21 22:29	-			11,127,625.72			11,544,594.21			1,574,729.85		
LM09 ICC	ICC	9/14/21 22:42	-			9,221,387.96			9,066,571.99			1,329,005.39		
LM21 CCV	CCV	9/15/21 6:52	-			10,802,644.90			10,564,682.13			1,434,120.46		
DE995PB-FS(0)	Procedural Blank	9/15/21 7:17	-			8,571,957.61			7,698,877.45			1,221,395.72		
DE996LCS-FS(0)	Laboratory Control Sample	9/15/21 7:30	-			9,145,059.14			8,640,367.75			1,195,677.01		
F2481-FS(0)	POL-MW0011I-027.5-20210826	9/15/21 7:43	-			8,479,832.47			9,928,816.69			1,227,369.85		
F2482-FS(0)	POL-MW0011S-012.5-20210826	9/15/21 8:09	-			8,518,634.27			10,230,077.65			1,324,053.28		
LM19 CCV	CCV	9/15/21 8:48	-			10,331,382.16			10,647,924.89			1,410,542.84		
~~LM20 CCV~~	~~CCV~~	~~9/16/21 13:05~~	~~-~~			~~10,287,390.77~~			~~10,554,898.67~~			~~1,554,751.90~~		
~~F2481-FS(0)~~	~~POL-MW0011I-027.5-20210826~~	~~9/16/21 13:31~~	~~-~~			~~8,488,963.88~~			~~9,798,499.14~~			~~1,269,386.75~~		1
~~F2482-FS(0)~~	~~POL-MW0011S-012.5-20210826~~	~~9/16/21 13:44~~	~~-~~			~~8,353,448.47~~			~~9,457,560.58~~			~~1,255,749.01~~		1
~~LM21 CCV~~	~~CCV~~	~~9/16/21 14:10~~	~~-~~			~~11,577,745.61~~			~~11,090,593.89~~			~~1,663,890.95~~		

1 Sample was reanalyzed for confirmation only. Data is included in the Unused Data section. LMG 09/17/2021

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Summary Asymmetry Report

Created with Analyst Reporter
Printed: 16/09/2021 1:44:04 PM

Sample Name	LM21	Injection Vial	7
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:38:21 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Asymmetry Factor	Passing Range
PFBS_1	298.9 / 80.0	1.76	1.07	0.8 – 1.5
PFHxA_1	313.0 / 269.0	2.09	1.42	0.8 – 1.5

Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 16/09/2021 1:44:04 PM

Sample Name	LL97	Injection Vial	8
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:51:13 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
PFBS_1	298.9 / 80.0	1.76	71	>10
PFBS_2	298.9 / 99.0	1.76	50	>10
PFHxA_1	313.0 / 269.0	2.08	50	>10
PFHxA_2	313.0 / 119.0	2.08	42	>10
PFHpA_1	363.0 / 319.0	2.46	58	>10
PFHpA_2	363.0 / 169.0	2.46	40	>10
PFHxS_1	399.0 / 80.0	2.47	54	>10
PFHxS_2	399.0 / 99.0	2.47	46	>10
PFOA_1	413.0 / 369.0	2.86	51	>10
PFOA_2	413.0 / 169.0	2.86	51	>10
PFNA_1	463.0 / 419.0	3.26	49	>10
PFNA_2	463.0 / 219.0	3.26	46	>10
PFOS_1	499.0 / 80.0	3.25	60	>10
PFOS_2	499.0 / 99.0	3.25	45	>10
PFDA_1	513.0 / 469.0	3.63	54	>10
PFDA_2	513.0 / 219.0	3.63	58	>10
PFUnA_1	563.0 / 519.0	3.98	55	>10
PFUnA_2	563.0 / 269.0	3.97	58	>10
PFDoA_1	613.0 / 569.0	4.28	50	>10
PFDoA_2	613.0 / 319.0	4.28	63	>10
PFTrDA_1	663.0 / 619.0	4.56	80	>10
PFTrDA_2	663.0 / 169.0	4.56	61	>10
PFTeDA_1	713.0 / 669.0	4.81	78	>10
PFTeDA_2	713.0 / 169.0	4.80	42	>10
NMeFOSAA_1	570.0 / 419.0	3.81	52	>10
NMeFOSAA_2	570.0 / 512.0	3.81	47	>10
NEtFOSAA_1	584.0 / 419.0	3.98	59	>10
NEtFOSAA_2	584.0 / 483.0	3.98	44	>10
HFPO-DA_1	285.0 / 169.0	2.18	56	>10
HFPO-DA_2	285.0 / 118.8	2.19	53	>10
ADONA_1	377.0 / 251.0	2.49	59	>10
ADONA_2	377.0 / 85.0	2.49	39	>10
9Cl-PF3ONS_1	531.0 / 351.0	3.46	49	>10
9Cl-PF3ONS_2	531.0 / 83.0	3.46	18	>10
11Cl-PF3OUdS_1	631.0 / 451.0	4.12	44	>10
11Cl-pf3OUdS_2	631.0 / 83.0	4.12	55	>10

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Mass Spectral Acquisition Rate Report

Created with Analyst Reporter
Printed: 16/09/2021 1:44:04 PM

Sample Name	LL97	Injection Vial	8
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:51:13 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Spectra Acquisition Rate	Passing Range
13C2-PFDoA	615.0 / 570.0	4.28	55	>10
d3-MeFOSAA	573.0 / 419.0	3.81	37	>10
d5-EtFOSAA	589.0 / 419.0	3.97	47	>10
13C5-PFHxA	318.0 / 273.0	2.07	51	>10
13C4-PFHpA	367.0 / 322.0	2.45	54	>10
13C8-PFOA	421.0 / 376.0	2.85	45	>10
13C9-PFNA	472.0 / 427.0	3.25	56	>10
13C6-PFDA	519.0 / 474.0	3.62	58	>10
13C7-PFUnA	570.0 / 525.0	3.97	45	>10
13C2-PFTeDA	715.0 / 670.0	4.80	57	>10
13C3-PFBS	302.0 / 99.0	1.75	45	>10
13C3-PFHxS	402.0 / 99.0	2.46	48	>10
13C8-PFOS	507.0 / 99.0	3.24	49	>10
13C3-HFPO-DA	287.0 / 169.0	2.18	49	>10

Precision and Bias at the LOQ for PFAS in non-potable Water

Analyte	CAS No.	Average (ng/L)	ST DEV	2 Sigma	n [1]
PFBA	375-22-4	11.00	0.9226	1.85	14
PFPeA	2706-90-3	9.81	0.7228	1.45	11
PFHxA	307-24-4	9.88	1.1365	2.27	43
PFHpA	375-85-9	9.76	0.9225	1.85	43
PFOA	335-67-1	9.93	1.3923	2.78	44
PFNA	375-95-1	9.71	1.1236	2.25	43
PFDA	335-76-2	9.51	0.9842	1.97	43
PFUnA	2058-94-8	9.55	0.9267	1.85	43
PFDoA	307-55-1	10.22	0.9055	1.81	43
PFTrDA	72629-94-8	9.93	1.2752	2.55	43
PFTeDA	376-06-7	10.39	0.9707	1.94	43
NMeFOSAA	2355-31-9	10.02	1.5564	3.11	43
NEtFOSAA	2991-50-6	9.55	1.4218	2.84	43
PFOSA	754-91-6	10.06	0.8394	1.68	11
PFBS	375-73-5	9.63	1.1816	2.36	43
PFPeS	2706-91-4	9.88	0.9203	1.84	5
PFHxS	355-46-4	9.90	1.1346	2.27	43
PFHpS	375-92-8	10.13	1.0851	2.17	11
PFOS	1763-23-1	9.78	1.2383	2.48	44
PFNS	68259-12-1	9.45	1.0923	2.18	5
PFDS	335-77-3	9.55	1.3140	2.63	11
4:2FTS	757124-72-4	10.38	1.7353	3.47	6
6:2FTS	27619-97-2	10.08	1.1871	2.37	12
8:2FTS	39108-34-4	9.59	1.4345	2.87	12
HFPO-DA	13252-13-6	10.92	1.4420	2.88	25
Adona	919005-14-4	10.38	1.4862	2.97	25
11Cl-PF3OUdS	763051-92-9	9.80	1.5701	3.14	25
9Cl-PF3ONS	756426-58-1	9.52	1.0952	2.19	25

[1] Minimum of 20 samples required per QAM for determination of uncertainty, results including less than 20 data points are estimated.

MDL Values calculated based on 40 CFR 136 (2017)
Compliant with DoD QSM 5.3 Table B-15
Recalculated 9/16/2021
Matrix: Non-potable water (based on 250 mL sample with no dilution)
Calculated to 3 significant figures

Analyte	**CAS No.**	**MDL (ng/L)**	**LOD (ng/L)**	**LOQ (ng/L)**
NFDHA	151772-58-6	0.770	2.50	5.00
PFEESA	113507-82-7	0.695	2.50	5.00
PFMPA	377-73-1	1.09	2.50	5.00
PFMBA	863090-89-5	0.931	2.50	5.00
PFBA	375-22-4	1.51	3.50	5.00
PFPeA	2706-90-3	1.28	3.50	5.00
PFHxA	307-24-4	0.913	2.50	5.00
PFHpA	375-85-9	0.941	2.50	5.00
PFOA	335-67-1	1.01	2.50	5.00
PFNA	375-95-1	0.833	2.50	5.00
PFDA	335-76-2	0.784	2.50	5.00
PFUnA	2058-94-8	0.752	2.50	5.00
PFDoA	307-55-1	0.760	2.50	5.00
PFTrDA	72629-94-8	0.742	2.50	5.00
PFTeDA	376-06-7	0.791	2.50	5.00
PFHxDA	67905-19-5	0.762	2.50	5.00
PFODA	16517-11-6	0.942	2.50	5.00
NMeFOSAA	2355-31-9	1.03	2.50	5.00
NEtFOSAA	2991-50-6	0.990	2.50	5.00
NMeFOSA	31506-32-8	1.06	2.50	5.00
NEtFOSA	4151-50-2	1.26	3.50	5.00
NMeFOSE	24448-09-7	1.07	2.50	5.00
NEtFOSE	1691-99-2	1.37	3.50	5.00
PFOSA	754-91-6	1.58	3.50	5.00
PFBS	375-73-5	0.866	2.50	5.00
PFPeS	2706-91-4	1.02	2.50	5.00
PFHxS	355-46-4	0.997	2.50	5.00
PFHpS	375-92-8	0.841	2.50	5.00
PFOS	1763-23-1	1.07	2.50	5.00
PFNS	68259-12-1	0.701	2.50	5.00
PFDS	335-77-3	0.779	2.50	5.00
PFDoS	79780-39-5	0.803	2.50	5.00
4:2FTS	757124-72-4	1.02	2.50	5.00
6:2FTS	27619-97-2	1.47	3.50	5.00

Analyte	CAS No.	MDL (ng/L)	LOD (ng/L)	LOQ (ng/L)
8:2FTS	39108-34-4	1.01	2.50	5.00
10:2FTS	108026-35-3	1.02	2.50	5.00
3:3 FTCA	356-02-5	1.51	3.50	5.00
5:3 FTCA	914637-49-3	1.12	2.50	5.00
7:3 FTCA	812-70-4	1.01	2.50	5.00
HFPO-DA	13252-13-6	0.865	2.50	5.00
Adona	919005-14-4	0.869	2.50	5.00
9Cl-PF3ONS	756426-58-1	1.03	2.50	5.00
11Cl-PF3OUdS	763051-92-9	0.901	2.50	5.00

Analytes italicized in bold are included on our DoD ELAP scope of accreditation.

Analytical Transitions for PFAS in non-potable water, solid, and tissue

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
NFDHA	151772-58-6	Target	295.0 / 201.0	NA
PFEESA	113507-82-7	Target	315.0 / 135.0	NA
PFMPA	377-73-1	Target	229.0 / 85.0	NA
PFMBA	863090-89-5	Target	279.0 / 85.0	NA
PFBA	375-22-4	Target	213.0 / 169.0	NA
PFPeA	2706-90-3	Target	263.0 / 219.0	NA
PFHxA	307-24-4	Target	313.0 / 269.0	313.0 / 119.0
PFHpA	375-85-9	Target	363.0 / 319.0	363.0 / 169.0
PFOA	335-67-1	Target	413.0 / 369.0	413.0 / 169.0
PFNA	375-95-1	Target	463.0 / 419.0	463.0 / 219.0
PFDA	335-76-2	Target	513.0 / 469.0	513.0 / 219.0
PFUnA	2058-94-8	Target	563.0 / 519.0	563.0 / 269.0
PFDoA	307-55-1	Target	613.0 / 569.0	613.0 / 319.0
PFTrDA	72629-94-8	Target	663.0 / 619.0	663.0 / 169.0
PFTeDA	376-06-7	Target	713.0 / 669.0	713.0 / 169.0
PFHxDA	67905-19-5	Target	813.0 / 769.0	813.0 /119.0
PFODA	16517-11-6	Target	913.0 / 869.0	913.0 / 319.0
NMeFOSAA	2355-31-9	Target	570.0 / 419.0	570.0 / 512.0
NEtFOSAA	2991-50-6	Target	584.0 / 419.0	584.0 / 483.0
NMeFOSA	31506-32-8	Target	512.0 / 219.0	512.0 / 169.0
NEtFOSA	4151-50-2	Target	526.0 / 219.0	526.0 / 169.0
NMeFOSE	24448-09-7	Target	616.0 / 59.0	NA
NEtFOSE	1691-99-2	Target	630.0 / 59.0	NA
PFOSA	754-91-6	Target	498.0 / 78.0	498.0 / 83.0
PFBS	375-73-5	Target	299.0 / 80.0	299.0 / 99.0
PFPeS	2706-91-4	Target	349.0 / 99.0	349.0 / 80.0
PFHxS	355-46-4	Target	399.0 / 80.0	399.0 / 99.0
PFHpS	375-99-6	Target	449.0 / 80.0	449.0 / 99.0
PFOS	1763-23-1	Target	499.0 / 80.0	499.0 / 99.0
PFNS	98789-57-2	Target	549.0 / 99.0	549.0 / 80.0
PFDS	2806-15-7	Target	599.0 / 80.0	599.0 / 99.0

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
PFDoS	79780-39-5	Target	669.0 / 80.0	699.0 / 99.0
4:2FTS	757124-72-4	Target	327.0 / 307.0	327.0 / 80.0
6:2FTS	27619-97-2	Target	427.0 / 407.0	427.0 / 81.0
8:2FTS	39108-34-4	Target	527.0 / 507.0	527.0 / 487.0
10:2FTS	120226-60-0	Target	627.0 / 607.0	NA
3:3 FTCA	356-02-5	Target	241.0 / 177.0	NA
5:3 FTCA	914637-49-3	Target	341.0 / 237.0	NA
7:3 FTCA	812-70-4	Target	441.0 / 337.0	NA
HFPO-DA	13252-13-6	Target	285.0 /169.0	285.0 /118.8
Adona	919005-14-4	Target	377.0 / 251.0	377.0 / 85.0
9Cl-PF3ONS	756426-58-1	Target	531.0 / 351.0	531.0 / 83.0
11Cl-PF3OUdS	763051-92-9	Target	631.0 / 451.0	631.0 / 83.0
$^{13}C_4$-PFBA	NA	SIS[1]	217.0 / 172.0	NA
$^{13}C_5$-PFPeA	NA	SIS[1]	268.0 / 223.0	NA
$^{13}C_5$-PFHxA	NA	SIS[1]	318.0 / 273.0	NA
$^{13}C_4$-PFHpA	NA	SIS[1]	367.0 / 322.0	NA
$^{13}C_8$-PFOA	NA	SIS[1]	421.0 / 376.0	NA
$^{13}C_9$-PFNA	NA	SIS[1]	472.0 / 427.0	NA
$^{13}C_6$-PFDA	NA	SIS[1]	519.0 / 474.0	NA
$^{13}C_7$-PFUnA	NA	SIS[1]	570.0 / 525.0	NA
$^{13}C_2$-PFDoA	NA	SIS[1]	615.0 / 570.0	NA
$^{13}C_2$-PFTeDA	NA	SIS[1]	715.0 / 670.0	NA
$^{13}C_2$-PFHxDA	NA	SIS[1]	815.0 / 770.0	NA
d_3-MeFOSAA	NA	SIS[1]	573.0 / 41//9.0	NA
d_5-EtFOSAA	NA	SIS[1]	589.0 / 419.0	NA
d_3-MeFOSA	NA	SIS[1]	515.0 / 219.0	NA
d_5-EtFOSA	NA	SIS[1]	531.0 / 219.0	NA
d_7-MeFOSE	NA	SIS[1]	623.0 / 59.0	NA
d_9-EtFOSE	NA	SIS[1]	639.0 / 59.0	NA
$^{13}C_8$-FOSA	NA	SIS[1]	506.0 / 78.0	NA
$^{13}C_3$-PFBS	NA	SIS[1]	302.0 / 99.0	NA

Analyte	CAS No.	Type	Primary Transition	Secondary Transition
$^{13}C_3$-PFHxS	NA	SIS[1]	402.0 / 99.0	NA
$^{13}C_8$-PFOS	NA	SIS[1]	507.0 / 99.0	NA
$^{13}C_2$-4:2FTS	NA	SIS[1]	329.0 / 81.0	NA
$^{13}C_2$-6:2FTS	NA	SIS[1]	429.0 / 81.0	NA
$^{13}C_2$-8:2FTS	NA	SIS[1]	529.0 / 81.0	NA
$^{13}C_3$-HFPO-DA	NA	SIS[1]	287.0 / 169.0	NA
$^{13}C_3$-PFBA	NA	IS[2]	216.0 / 172.0	NA
$^{13}C_2$-PFOA	NA	IS[2]	415.0 / 370.0	NA
$^{13}C_2$-PFDA	NA	IS[2]	515.0 / 470.0	NA
$^{13}C_4$-PFOS	NA	IS[2]	503.0 / 99.0	NA

[1] – extracted internal standard (surrogate)
[2] – injection internal standard

BATTELLE

Non-Potable Water Calibration to Sample Equivalents

ICAL (ng/mL)	PIV (mL)[1]	DF[2]	Sample Size (L)	Sample Equivalent (ng/L)[3]
0.050	5	1	0.250	1.0
0.125	5	1	0.250	2.5
0.250	5	1	0.250	5.0
0.500	5	1	0.250	10.0
1.000	5	1	0.250	20.0
2.500	5	1	0.250	50.0
10.000	5	1	0.250	200.0
25.000	5	1	0.250	500.0
50.000	5	1	0.250	1000.0

[1] - Nominal PIV, not used in final calculations

[2] - base level dilution as part of the extraction procedure

[3] - calculated equivalent of a sample based on the ICAL concentration

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

QTRAP 5500
Preventive Maintenance Checklist

Preventive Maintenance Date:	28SEPT2020

Request ID:	22955
Company Name:	Battelle Memorial Institute
Instrument ID:	Instrument AC
Instrument Model:	QTRAP 5500
Instrument Serial Number:	AU 23051004

☑ **PASS** ☐ **FAIL**

Any failure will lead to an automatic Service Call being open to investigate fault.

Preventive Maintenance is performed twice every year unless specified in the Service Contract. It is designed to help maintain optimum system performance and to help diagnose any system deficiencies.

Engineer is required the assigned Request ID for this PM otherwise making this job invalid.

Comments:________________________________

Performed By: C. LAFLAMME **Date:** 28SEPT2020

Approved By : K. McInerney **Date:** 28SEPT2020

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PRE PM PPG PERFORMANCE EVALUATION:

☑ Consult Customer concerning the unit overall performance.
☑ Check Logbook for Services recently performed.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	0.8	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.5	Read Only
☑ CAD Medium	3.7	Read Only
☑ CAD High	4.5	Read Only
☑ CAD 12	4.5	2.4 to 4.5 x10^{-5} Torr

☑ Check for Front end contamination symptoms. Run Q1 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

☑ Check for Q3 contamination symptoms. Run Q3 POS PPG using PPG 2e-7for a few minutes and check for any TIC signal degradation or huge sensitivity drop where the sensitivity result can't pass specification

☑ No degradation or Sensitivity drop

Pre PM PPG Test: Perform each of the following tests. Optimize ion source position only. The specifications listed for these Pre PM tests are guidelines only, not required to be met.

☑ Perform Q1 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 175.133	2.77 E7	Read Only	0.7700	Read Only
Q1 500.380	4.38 E7	Read Only	0.8181	Read Only
Q1 906.673	8.6 E7	Read Only	0.8941	Read Only

☑ Perform Q3 POS using POS PPG 2e-7M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 175.133	1.89 E7	Read Only	0.8878	Read Only
Q3 500.380	2.114 E7	Read Only	0.8879	Read Only
Q3 906.673	3.99 E7	Read Only	0.9981	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

☑ Perform MSMS POS in Product Ion scan with 609.3 parent and record daughter 195.1 using Reserpine 0.167 pmol/ul at the scan rate of 10 Da/s for 10 MCA. Calculate transmission efficiency comparing Q1POS 609 intensity. Transmission Efficiency: :___27.1%___ (Read Only)

Mass	MSMS Intensity		MSMS Width Value	Width Specs
	Value	Spec		
Q1 609.3	1.87 E7	Read Only	0.9991	Read Only
MS/MS 195.1	5.07 E6	Read Only	0.6970	Read Only

☑ Perform Q1 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q1 Intensity		Q1 Width Value	Width Specs
	Value	Spec		
Q1 933.636	1.15 E6	Read Only	0.7894	Read Only

☑ Perform Q3 NEG using NEG PPG 3e-5M. Scan Rate 10 Da/s. Record 10 mca.

Mass	Q3 Intensity		Q3 Width Value	Width Specs
	Value	Spec		
Q3 933.636	1.11 E6	Read Only	0.7765	Read Only

☑ Perform Product Ion scan using NEG PPG 3e-5M. Record10mca.

Mass	Scan Rate	MCA	MSMS Intensity		MSMS Width Value	Width Specs
			Value	Spec		
MSMS 45	10	10	1.03 E5	Read Only	0.6710	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

PREVENTIVE MAINTENANCE CHECKLIST:

☑ Check Cooling Fans for Turbo Pumps while MS is ON.
☑ Check QJet and QPS tuning voltage for reference.
☐ Record AC input Voltage while MS is OFF: ____230____(200-240VAC).
If Out-of-Range, notify customer.

☑ Clean Interface
- ☑ Curtain Plate
- ☑ Orifice Plate
- ☑ QJet
- ☑ Q0 Rods.

☑ Replace Roughing Pump Oil.
☑ Inspect Oil Exhaust Filter, if Applicable. ☐ N/A
☑ Clean and inspect built-in divert valve if used. ☐ N/A
☑ Check Multiplier Voltage, optimize if necessary.
☑ Replace four Air Filters at the bottom of the mass spectrometer.

☑ Pump down overnight if possible. ☐ N/A

☑ Perform Maintenance on Turbo V source.

☑ Replace Electrode, if necessary. ☐ N/A
☑ Check Turbo heaters resistances.
☑ Check if Temperature is reached at 500C with TIS Probe installed.
☐ Check if Temperature is reached at 500C with APCI Probe installed. ☑ N/A

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

POST PM PPG PERFORMANCE TESTS:

☑ Set-up Sample for Infusion.
☑ Check spray and adjust sprayer's position of the TIS source.
☑ Check Vacuum Pressure:

CAD Settings	Vacuum Reading (x 10^{-5} Torr)	Acceptance Criteria
☑ CAD 0	1.0	0.4 to 1.1 x10^{-5} Torr
☑ CAD Low	1.5	Read Only
☑ CAD Medium	3.7	Read Only
☑ CAD High	4.5	Read Only
☑ CAD 12	4.5	2.4 to 4.5 x10^{-5} Torr

☑ Perform Q1 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q1 Intensity		Q1 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q1 175.133	6.64 E6	≥1.2^{e}6	0.7993	0.6 to 0.8
Q1 500.380	2.19 E7	≥9.0^{e}6	0.7455	0.6 to 0.8
Q1 906.673	1.66 E7	≥1.4^{e}7	0.7930	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q1 906.673	8.96 E7	≥6.8^{e}7	0.7903	0.6 to 0.8

☑ Perform Q3 POS using POS PPG 2e-7M. Mass calibrate to less than 0.1 amu.

Mass	Q3 Intensity		Q3 Width	Width Specs
	Value	Spec	Value	
Scan Rate 10 Da/s Record 10 mca				
Q3 175.133	3.79 E6	≥1.2^{e}6	0.7183	0.6 to 0.8
Q3 500.380	2.3 E7	≥9.0^{e}6	0.7599	0.6 to 0.8
Q3 906.673	1.989 E7	≥1.4^{e}7	0.7523	0.6 to 0.8
Scan Rate 1000 Da/s Record 50 mca				
Q3 906.673	8.43 E7	≥6.8^{e}7	0.6984	0.6 to 0.8

☑ Perform "Product of 609.3" POS and record product ion 195.1 using Reserpine 0.167pmol/uL. Record 10 mca. Calculate Transmission efficiency comparing Q1POS 609 intensity.
Transmission Efficiency:__17.14%__ (≥ 10.0%)

Mass	MSMS Intensity		Width	Width Specs
	Value	Spec	Value	
Q1 609.3	4.23 E7	N/A	0.7619	Read Only
MS/MS 195.1	7.25 E6	N/A	0.7360	Read Only

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

☑ Perform Q1 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q1 Intensity		Q1 Width	Width Specs
			Value	Spec	Value	
Q1 933.636	10	10	1.27 E7	$\geq 1.0^{e}7$	0.7344	0.6 to 0.8
Q1 933.636	1000	50	8.26 E7	$\geq 4.0^{e}7$	0.7028	0.6 to 0.8

☑ Perform Q3 NEG using NEG PPG 3e-5M. Mass calibrate to less than 0.1 amu.

Mass	Scan Rate	Mca	Q3 Intensity		Q3 Width	Width Specs
			Value	Spec	Value	
Q3 933.636	10	10	1.52 E7	$\geq 8.0^{e}6$	0.7090	0.6 to 0.8
Q3 933.636	1000	50	6.25 E7	$\geq 4.0^{e}7$	0.7265	0.6 to 0.8

☑ Perform Product Ion scan using NEG PPG 3e-5M.

Mass	Scan Rate	Mca	MSMS Intensity		MSMS Width	Width Specs
			Value	Spec	Value	
MSMS 45	10	10	2.07 E6	Read Only	0.6914	Read Only

☑ Perform ER POS 118.087 and 922.01 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width	Width Specs
		Value	Spec	Value	
ScanRate : 1000 Da/s ; 50 Mca					
ER 118.087	0.05	1.42 E7	$\geq 7.2\ ^{e}6$	0.1576	<0.35
ER 922.010	0.05	1.86 E8	$\geq 2.8\ ^{e}6$	0.2239	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 118.087	0.05	2.89 E7	$\geq 2.4\ ^{e}7$	0.2612	<0.65
ER 922.010	0.05	4.00 E8	$\geq 6.8\ ^{e}7$	0.4280	<0.65

☑ Perform ER NEG 431.982 and 601.978 using ESI Tuning Mix 1:100 in ES Tuning Dilution Solvent. Apply suggested Scan Rate and Record number of MCA. Mass calibrate to less than 0.1 amu.

Mass	Fill Time (ms)	ER Intensity		ER Width	Width Specs
		Value	Spec	Value	
ScanRate : 1000 Da/s ; 50 Mca					
ER 431.982	0.05	2.59 E8	$\geq 4.4\ ^{e}7$	0.1973	<0.35
ER 601.978	0.05	3.34 E8	$\geq 5.6\ ^{e}7$	0.1776	<0.35
ScanRate : 10000 Da/s ; 50 Mca					
ER 431.982	0.05	8.86 E8	$\geq 1.2\ ^{e}8$	0.3873	<0.65
ER 601.978	0.05	1.27 E9	$\geq 1.6\ ^{e}8$	0.3687	<0.65

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QTRAP 5500

LC/MS/MS Detector System

Appendix ZEFPM003-2L

☑ Perform EPI POS 397.2 using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Q0 Trapping OFF		Q0 Trapping ON	
		Intensity	Spec	Intensity	Spec
EPI 397.2	10000	2.25 E6	≥2.0 ^{e}6	1.23 E7	≥6.4 ^{e}6

☑ Perform MS3 POS full scan Fragmentation ON & OFF using Reserpine 0.167pmol/uL. Record 20 mca.

Mass	Scan Rate (Da/s)	Fragamentation OFF		Fragmentation ON	
		Intensity	Spec	Intensity	Spec
MS3 397.2	1000	3.43 E7	Contains only 397.2	N/A	N/A
☐ 236 OR ☑ 365	1000	YES	Fragment Intensity	3.74 E6	≥1.6x 10^{e}6

REVIEW:

☑ Attach all spectrums printouts to this procedure.
☑ If any parameter setting access modes were changed during the PM, ensure they are returned to their normal access mode and that their offsets are adjusted to match optimized values from the post-PM acquisition files.
☐ Empty tuning cache folder, if necessary. ☑ N/A
☑ Update Service Work Order status
☑ Fill and replace PM Label.

END OF PREVENTIVE MAINTENANCE CHECKLIST

Document history:

06 OCT 2016: Appendix ZEFPM003-2L: Removed requirements to fit Manufacturer's testing criteria.

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-03
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-04
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-05
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-06
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-07
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-08
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-09
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-10
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-12
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-13
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-14
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-18
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-19
LL41	PFAS DoD Surrogates (18 Targets)	-	-	-	210802-21
LK74	PFAS DoD Second Source 18 ANALYTES LCS/MS	-	-	-	210628-04
LL42	PFAS DoD Internal Standard	-	-	-	210802-20
LL42	PFAS DoD Internal Standard	-	-	-	210802-22
LL42	PFAS DoD Internal Standard	-	-	-	210802-23
LL42	PFAS DoD Internal Standard	-	-	-	210802-24
LL90	PFAS DoD ICAL L2	LJ46	-	-	210407-05
LL90	PFAS DoD ICAL L2	LJ46	-	-	210407-06
LL90	PFAS DoD ICAL L2	LJ46	-	-	210407-07
LL90	PFAS DoD ICAL L2	LJ46	-	-	210407-08
LL90	PFAS DoD ICAL L2	LJ46	-	-	210407-09
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-03
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-04
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-05
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-06
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-07
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-08
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-09
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-10
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-12
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-13
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-14
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-18
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-19
LL90	PFAS DoD ICAL L2	LL41	-	-	210802-21
LL90	PFAS DoD ICAL L2	LL42	-	-	210802-20
LL90	PFAS DoD ICAL L2	LL42	-	-	210802-22
LL90	PFAS DoD ICAL L2	LL42	-	-	210802-23
LL90	PFAS DoD ICAL L2	LL42	-	-	210802-24
LL90	PFAS DoD ICAL L2	LL55	-	-	210802-01
LL90	PFAS DoD ICAL L2	LL55	-	-	210802-02
LL90	PFAS DoD ICAL L2	LL55	-	-	210802-11
LL90	PFAS DoD ICAL L2	LL55	-	-	210802-15
LL90	PFAS DoD ICAL L2	LL55	-	-	210802-16
LL90	PFAS DoD ICAL L2	LL55	-	-	210802-17
LL90	PFAS DoD ICAL L2	LL88	LL87	LL86	210714-01
LM19	PFAS DoD ICAL L3	LJ46	-	-	210407-05
LM19	PFAS DoD ICAL L3	LJ46	-	-	210407-06
LM19	PFAS DoD ICAL L3	LJ46	-	-	210407-07
LM19	PFAS DoD ICAL L3	LJ46	-	-	210407-08
LM19	PFAS DoD ICAL L3	LJ46	-	-	210407-09
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-03
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-04
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-05
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-06

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-07
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-08
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-09
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-10
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-12
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-13
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-14
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-18
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-19
LM19	PFAS DoD ICAL L3	LL41	-	-	210802-21
LM19	PFAS DoD ICAL L3	LL42	-	-	210802-20
LM19	PFAS DoD ICAL L3	LL42	-	-	210802-22
LM19	PFAS DoD ICAL L3	LL42	-	-	210802-23
LM19	PFAS DoD ICAL L3	LL42	-	-	210802-24
LM19	PFAS DoD ICAL L3	LL55	-	-	210802-01
LM19	PFAS DoD ICAL L3	LL55	-	-	210802-02
LM19	PFAS DoD ICAL L3	LL55	-	-	210802-11
LM19	PFAS DoD ICAL L3	LL55	-	-	210802-15
LM19	PFAS DoD ICAL L3	LL55	-	-	210802-16
LM19	PFAS DoD ICAL L3	LL55	-	-	210802-17
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-01
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-02
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-03
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-04
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-05
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-06
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-07
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-08
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-09
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-10
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-11
LM19	PFAS DoD ICAL L3	LL87	LL86	LH59	210216-12
LM19	PFAS DoD ICAL L3	LL87	LL86	LK59	210628-13
LM19	PFAS DoD ICAL L3	LL87	LL86	LK59	210628-14
LM19	PFAS DoD ICAL L3	LL87	LL86	LK59	210628-15
LM19	PFAS DoD ICAL L3	LL87	LL86	-	210714-01
LL94	PFAS DoD ICAL L4	LJ46	-	-	210407-05
LL94	PFAS DoD ICAL L4	LJ46	-	-	210407-06
LL94	PFAS DoD ICAL L4	LJ46	-	-	210407-07
LL94	PFAS DoD ICAL L4	LJ46	-	-	210407-08
LL94	PFAS DoD ICAL L4	LJ46	-	-	210407-09
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-03
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-04
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-05
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-06
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-07
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-08
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-09
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-10
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-12
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-13
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-14
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-18
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-19
LL94	PFAS DoD ICAL L4	LL41	-	-	210802-21
LL94	PFAS DoD ICAL L4	LL42	-	-	210802-20
LL94	PFAS DoD ICAL L4	LL42	-	-	210802-22
LL94	PFAS DoD ICAL L4	LL42	-	-	210802-23

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LL94	PFAS DoD ICAL L4	LL42	-	-	210802-24
LL94	PFAS DoD ICAL L4	LL55	-	-	210802-01
LL94	PFAS DoD ICAL L4	LL55	-	-	210802-02
LL94	PFAS DoD ICAL L4	LL55	-	-	210802-11
LL94	PFAS DoD ICAL L4	LL55	-	-	210802-15
LL94	PFAS DoD ICAL L4	LL55	-	-	210802-16
LL94	PFAS DoD ICAL L4	LL55	-	-	210802-17
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-01
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-02
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-03
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-04
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-05
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-06
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-07
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-08
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-09
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-10
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-11
LL94	PFAS DoD ICAL L4	LL87	LL86	LH59	210216-12
LL94	PFAS DoD ICAL L4	LL87	LL86	LK59	210628-13
LL94	PFAS DoD ICAL L4	LL87	LL86	LK59	210628-14
LL94	PFAS DoD ICAL L4	LL87	LL86	LK59	210628-15
LL94	PFAS DoD ICAL L4	LL87	LL86	-	210714-01
LM20	PFAS DoD ICAL L5	LJ46	-	-	210407-05
LM20	PFAS DoD ICAL L5	LJ46	-	-	210407-06
LM20	PFAS DoD ICAL L5	LJ46	-	-	210407-07
LM20	PFAS DoD ICAL L5	LJ46	-	-	210407-08
LM20	PFAS DoD ICAL L5	LJ46	-	-	210407-09
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-03
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-04
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-05
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-06
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-07
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-08
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-09
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-10
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-12
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-13
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-14
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-18
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-19
LM20	PFAS DoD ICAL L5	LL41	-	-	210802-21
LM20	PFAS DoD ICAL L5	LL42	-	-	210802-20
LM20	PFAS DoD ICAL L5	LL42	-	-	210802-22
LM20	PFAS DoD ICAL L5	LL42	-	-	210802-23
LM20	PFAS DoD ICAL L5	LL42	-	-	210802-24
LM20	PFAS DoD ICAL L5	LL55	-	-	210802-01
LM20	PFAS DoD ICAL L5	LL55	-	-	210802-02
LM20	PFAS DoD ICAL L5	LL55	-	-	210802-11
LM20	PFAS DoD ICAL L5	LL55	-	-	210802-15
LM20	PFAS DoD ICAL L5	LL55	-	-	210802-16
LM20	PFAS DoD ICAL L5	LL55	-	-	210802-17
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-01
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-02
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-03
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-04
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-05
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-06

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-07
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-08
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-09
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-10
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-11
LM20	PFAS DoD ICAL L5	LL87	LL86	LH59	210216-12
LM20	PFAS DoD ICAL L5	LL87	LL86	LK59	210628-13
LM20	PFAS DoD ICAL L5	LL87	LL86	LK59	210628-14
LM20	PFAS DoD ICAL L5	LL87	LL86	LK59	210628-15
LM20	PFAS DoD ICAL L5	LL87	LL86	-	210714-01
LM21	PFAS DoD ICAL L6	LJ46	-	-	210407-05
LM21	PFAS DoD ICAL L6	LJ46	-	-	210407-06
LM21	PFAS DoD ICAL L6	LJ46	-	-	210407-07
LM21	PFAS DoD ICAL L6	LJ46	-	-	210407-08
LM21	PFAS DoD ICAL L6	LJ46	-	-	210407-09
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-03
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-04
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-05
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-06
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-07
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-08
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-09
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-10
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-12
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-13
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-14
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-18
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-19
LM21	PFAS DoD ICAL L6	LL41	-	-	210802-21
LM21	PFAS DoD ICAL L6	LL42	-	-	210802-20
LM21	PFAS DoD ICAL L6	LL42	-	-	210802-22
LM21	PFAS DoD ICAL L6	LL42	-	-	210802-23
LM21	PFAS DoD ICAL L6	LL42	-	-	210802-24
LM21	PFAS DoD ICAL L6	LL55	-	-	210802-01
LM21	PFAS DoD ICAL L6	LL55	-	-	210802-02
LM21	PFAS DoD ICAL L6	LL55	-	-	210802-11
LM21	PFAS DoD ICAL L6	LL55	-	-	210802-15
LM21	PFAS DoD ICAL L6	LL55	-	-	210802-16
LM21	PFAS DoD ICAL L6	LL55	-	-	210802-17
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-01
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-02
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-03
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-04
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-05
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-06
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-07
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-08
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-09
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-10
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-11
LM21	PFAS DoD ICAL L6	LL86	LH59	-	210216-12
LM21	PFAS DoD ICAL L6	LL86	LK59	-	210628-13
LM21	PFAS DoD ICAL L6	LL86	LK59	-	210628-14
LM21	PFAS DoD ICAL L6	LL86	LK59	-	210628-15
LM21	PFAS DoD ICAL L6	LL86	-	-	210714-01
LL97	PFAS DoD ICAL L7	LJ46	-	-	210407-05
LL97	PFAS DoD ICAL L7	LJ46	-	-	210407-06
LL97	PFAS DoD ICAL L7	LJ46	-	-	210407-07

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LL97	PFAS DoD ICAL L7	LJ46	-	-	210407-08
LL97	PFAS DoD ICAL L7	LJ46	-	-	210407-09
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-03
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-04
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-05
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-06
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-07
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-08
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-09
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-10
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-12
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-13
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-14
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-18
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-19
LL97	PFAS DoD ICAL L7	LL41	-	-	210802-21
LL97	PFAS DoD ICAL L7	LL42	-	-	210802-20
LL97	PFAS DoD ICAL L7	LL42	-	-	210802-22
LL97	PFAS DoD ICAL L7	LL42	-	-	210802-23
LL97	PFAS DoD ICAL L7	LL42	-	-	210802-24
LL97	PFAS DoD ICAL L7	LL55	-	-	210802-01
LL97	PFAS DoD ICAL L7	LL55	-	-	210802-02
LL97	PFAS DoD ICAL L7	LL55	-	-	210802-11
LL97	PFAS DoD ICAL L7	LL55	-	-	210802-15
LL97	PFAS DoD ICAL L7	LL55	-	-	210802-16
LL97	PFAS DoD ICAL L7	LL55	-	-	210802-17
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-01
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-02
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-03
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-04
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-05
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-06
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-07
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-08
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-09
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-10
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-11
LL97	PFAS DoD ICAL L7	LL86	LH59	-	210216-12
LL97	PFAS DoD ICAL L7	LL86	LK59	-	210628-13
LL97	PFAS DoD ICAL L7	LL86	LK59	-	210628-14
LL97	PFAS DoD ICAL L7	LL86	LK59	-	210628-15
LL97	PFAS DoD ICAL L7	LL86	-	-	210714-01
LL98	PFAS DoD ICAL L8	LJ46	-	-	210407-05
LL98	PFAS DoD ICAL L8	LJ46	-	-	210407-06
LL98	PFAS DoD ICAL L8	LJ46	-	-	210407-07
LL98	PFAS DoD ICAL L8	LJ46	-	-	210407-08
LL98	PFAS DoD ICAL L8	LJ46	-	-	210407-09
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-03
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-04
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-05
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-06
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-07
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-08
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-09
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-10
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-12
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-13
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-14

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-18
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-19
LL98	PFAS DoD ICAL L8	LL41	-	-	210802-21
LL98	PFAS DoD ICAL L8	LL42	-	-	210802-20
LL98	PFAS DoD ICAL L8	LL42	-	-	210802-22
LL98	PFAS DoD ICAL L8	LL42	-	-	210802-23
LL98	PFAS DoD ICAL L8	LL42	-	-	210802-24
LL98	PFAS DoD ICAL L8	LL55	-	-	210802-01
LL98	PFAS DoD ICAL L8	LL55	-	-	210802-02
LL98	PFAS DoD ICAL L8	LL55	-	-	210802-11
LL98	PFAS DoD ICAL L8	LL55	-	-	210802-15
LL98	PFAS DoD ICAL L8	LL55	-	-	210802-16
LL98	PFAS DoD ICAL L8	LL55	-	-	210802-17
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-01
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-02
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-03
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-04
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-05
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-06
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-07
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-08
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-09
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-10
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-11
LL98	PFAS DoD ICAL L8	LL86	LH59	-	210216-12
LL98	PFAS DoD ICAL L8	LL86	LK59	-	210628-13
LL98	PFAS DoD ICAL L8	LL86	LK59	-	210628-14
LL98	PFAS DoD ICAL L8	LL86	LK59	-	210628-15
LL98	PFAS DoD ICAL L8	LL86	-	-	210714-01
LM22	PFAS DoD ICAL L9	LJ46	-	-	210407-05
LM22	PFAS DoD ICAL L9	LJ46	-	-	210407-06
LM22	PFAS DoD ICAL L9	LJ46	-	-	210407-07
LM22	PFAS DoD ICAL L9	LJ46	-	-	210407-08
LM22	PFAS DoD ICAL L9	LJ46	-	-	210407-09
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-03
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-04
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-05
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-06
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-07
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-08
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-09
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-10
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-12
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-13
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-14
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-18
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-19
LM22	PFAS DoD ICAL L9	LL41	-	-	210802-21
LM22	PFAS DoD ICAL L9	LL42	-	-	210802-20
LM22	PFAS DoD ICAL L9	LL42	-	-	210802-22
LM22	PFAS DoD ICAL L9	LL42	-	-	210802-23
LM22	PFAS DoD ICAL L9	LL42	-	-	210802-24
LM22	PFAS DoD ICAL L9	LL55	-	-	210802-01
LM22	PFAS DoD ICAL L9	LL55	-	-	210802-02
LM22	PFAS DoD ICAL L9	LL55	-	-	210802-11
LM22	PFAS DoD ICAL L9	LL55	-	-	210802-15
LM22	PFAS DoD ICAL L9	LL55	-	-	210802-16
LM22	PFAS DoD ICAL L9	LL55	-	-	210802-17

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-01
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-02
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-03
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-04
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-05
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-06
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-07
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-08
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-09
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-10
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-11
LM22	PFAS DoD ICAL L9	LL86	LH59	-	210216-12
LM22	PFAS DoD ICAL L9	LL86	LK59	-	210628-13
LM22	PFAS DoD ICAL L9	LL86	LK59	-	210628-14
LM22	PFAS DoD ICAL L9	LL86	LK59	-	210628-15
LM22	PFAS DoD ICAL L9	LL86	-	-	210714-01
LM09	PFAS DoD ICC	LJ46	-	-	210407-05
LM09	PFAS DoD ICC	LJ46	-	-	210407-06
LM09	PFAS DoD ICC	LJ46	-	-	210407-07
LM09	PFAS DoD ICC	LJ46	-	-	210407-08
LM09	PFAS DoD ICC	LJ46	-	-	210407-09
LM09	PFAS DoD ICC	LL41	-	-	210802-03
LM09	PFAS DoD ICC	LL41	-	-	210802-04
LM09	PFAS DoD ICC	LL41	-	-	210802-05
LM09	PFAS DoD ICC	LL41	-	-	210802-06
LM09	PFAS DoD ICC	LL41	-	-	210802-07
LM09	PFAS DoD ICC	LL41	-	-	210802-08
LM09	PFAS DoD ICC	LL41	-	-	210802-09
LM09	PFAS DoD ICC	LL41	-	-	210802-10
LM09	PFAS DoD ICC	LL41	-	-	210802-12
LM09	PFAS DoD ICC	LL41	-	-	210802-13
LM09	PFAS DoD ICC	LL41	-	-	210802-14
LM09	PFAS DoD ICC	LL41	-	-	210802-18
LM09	PFAS DoD ICC	LL41	-	-	210802-19
LM09	PFAS DoD ICC	LL41	-	-	210802-21
LM09	PFAS DoD ICC	LL42	-	-	210802-20
LM09	PFAS DoD ICC	LL42	-	-	210802-22
LM09	PFAS DoD ICC	LL42	-	-	210802-23
LM09	PFAS DoD ICC	LL42	-	-	210802-24
LM09	PFAS DoD ICC	LL55	-	-	210802-01
LM09	PFAS DoD ICC	LL55	-	-	210802-02
LM09	PFAS DoD ICC	LL55	-	-	210802-11
LM09	PFAS DoD ICC	LL55	-	-	210802-15
LM09	PFAS DoD ICC	LL55	-	-	210802-16
LM09	PFAS DoD ICC	LL55	-	-	210802-17
LM09	PFAS DoD ICC	LM08	LH61	-	210216-01
LM09	PFAS DoD ICC	LM08	LH61	-	210216-02
LM09	PFAS DoD ICC	LM08	LH61	-	210216-03
LM09	PFAS DoD ICC	LM08	LH61	-	210216-04
LM09	PFAS DoD ICC	LM08	LH61	-	210216-05
LM09	PFAS DoD ICC	LM08	LH61	-	210216-06
LM09	PFAS DoD ICC	LM08	LH61	-	210216-07
LM09	PFAS DoD ICC	LM08	LH61	-	210216-08
LM09	PFAS DoD ICC	LM08	LH61	-	210216-09
LM09	PFAS DoD ICC	LM08	LH61	-	210216-10
LM09	PFAS DoD ICC	LM08	LH61	-	210216-11
LM09	PFAS DoD ICC	LM08	LH61	-	210216-12
LM09	PFAS DoD ICC	LM08	LK59	-	210628-13

Battelle Standard ID	Description	Intermediate Solutions			Battelle Reagent ID (purchased solutions)
LM09	PFAS DoD ICC	LM08	LK59	-	210628-14
LM09	PFAS DoD ICC	LM08	LK59	-	210628-15
LM09	PFAS DoD ICC	LM08	-	-	210819-02

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LH59**

Description: PFAS - IRAD ICAL Stock 1

Stock Id: 210216-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-1-dodecanesulfonate	400	48.50	1	98.000	1	5	3.88000

Stock Id: 210216-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro (2-ethoxyethane) sulfonic acid	400	44.60	1	98.000	1	5	3.56800

Stock Id: 210216-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
1H,1H,2H,2H-perfluorododecane sulfonate	400	48.30	1	98.000	1	5	3.86400

Stock Id: 210216-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-methylperfluoro-1-octanesulfonamide	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-05

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-1-octanesulfonamide	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-3-methoxypropanoic acid	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-09

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
nonafluoro-3,6-dioxaheptanoic acid	400	50.00	1	98.000	1	5	4.00000

Solution Prepared By: Wamness, Allison **Date Prepared:** 2/25/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LH59**

Description: PFAS - IRAD ICAL Stock 1

Stock Id: 210216-10

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-4-methoxybutanoic acid	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-11

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-n-hexadecanoic acid	400	50.00	1	98.000	1	5	4.00000

Stock Id: 210216-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-n-octadecanoic acid	400	50.00	1	98.000	1	5	4.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
1H,1H,2H,2H-perfluorododecane sulfonate	3.86400
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	4.00000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	4.00000
N-ethylperfluoro-1-octanesulfonamide	4.00000
N-methylperfluoro-1-octanesulfonamide	4.00000
nonafluoro-3,6-dioxaheptanoic acid	4.00000
Perfluoro (2-ethoxyethane) sulfonic acid	3.56800
Perfluoro-1-dodecanesulfonate	3.88000
Perfluoro-3-methoxypropanoic acid	4.00000
Perfluoro-4-methoxybutanoic acid	4.00000
Perfluoro-n-hexadecanoic acid	4.00000
Perfluoro-n-octadecanoic acid	4.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210216-01	Pipette	B909301606
210216-02	Pipette	B909301606
210216-03	Pipette	B909301606
210216-04	Pipette	B909301606
210216-05	Pipette	B909301606
210216-06	Pipette	B909301606
210216-07	Pipette	B909301606

Solution Prepared By: Wamness, Allison **Date Prepared:** 2/25/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035

Comment:

Approved By: ______________ **Date:** ______________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LH59**

Description: PFAS - IRAD ICAL Stock 1

210216-08	Pipette	B909301606
210216-09	Pipette	B909301606
210216-10	Pipette	B909301606
210216-11	Pipette	B909301606
210216-12	Pipette	B909301606

Solution Prepared By: Wamness, Allison	**Date Prepared:** 2/25/2021	**Expiration Date:** 2/25/2022	
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035		

Comment:

Approved By: ______________ **Date:** ______________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LH61**

Description: PFAS IRAD MS Stock

Stock Id: 210216-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-1-dodecanesulfonate	600	48.50	1	98.000	1	7.5	3.88000

Stock Id: 210216-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro (2-ethoxyethane) sulfonic acid	600	44.60	1	98.000	1	7.5	3.56800

Stock Id: 210216-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
1H,1H,2H,2H-perfluorododecane sulfonate	600	48.30	1	98.000	1	7.5	3.86400

Stock Id: 210216-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-methylperfluoro-1-octanesulfonamide	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-05

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
N-ethylperfluoro-1-octanesulfonamide	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-3-methoxypropanoic acid	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-09

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
nonafluoro-3,6-dioxaheptanoic acid	600	50.00	1	98.000	1	7.5	4.00000

Solution Prepared By: Kelly, Ryan **Date Prepared:** 2/25/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035

Comment:

Approved By: ________________ **Date:** ________________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LH61**

Description: PFAS IRAD MS Stock

Stock Id: 210216-10

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-4-methoxybutanoic acid	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-11

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-n-hexadecanoic acid	600	50.00	1	98.000	1	7.5	4.00000

Stock Id: 210216-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
Perfluoro-n-octadecanoic acid	600	50.00	1	98.000	1	7.5	4.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
1H,1H,2H,2H-perfluorododecane sulfonate	3.86400
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	4.00000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	4.00000
N-ethylperfluoro-1-octanesulfonamide	4.00000
N-methylperfluoro-1-octanesulfonamide	4.00000
nonafluoro-3,6-dioxaheptanoic acid	4.00000
Perfluoro (2-ethoxyethane) sulfonic acid	3.56800
Perfluoro-1-dodecanesulfonate	3.88000
Perfluoro-3-methoxypropanoic acid	4.00000
Perfluoro-4-methoxybutanoic acid	4.00000
Perfluoro-n-hexadecanoic acid	4.00000
Perfluoro-n-octadecanoic acid	4.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210216-01	Pipette	B820865811
210216-02	Pipette	B820865811
210216-03	Pipette	B820865811
210216-04	Pipette	B820865811
210216-05	Pipette	B820865811
210216-06	Pipette	B820865811
210216-07	Pipette	B820865811

Solution Prepared By: Kelly, Ryan	**Date Prepared:** 2/25/2021	**Expiration Date:**	2/25/2022
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035		

Comment:

Approved By: ______________ **Date:** ______________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LH61**

Description: PFAS IRAD MS Stock

210216-08	Pipette	B820865811
210216-09	Pipette	B820865811
210216-10	Pipette	B820865811
210216-11	Pipette	B820865811
210216-12	Pipette	B820865811

Solution Prepared By: Kelly, Ryan	**Date Prepared:** 2/25/2021	**Expiration Date:** 2/25/2022	
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035		

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LJ46**

Description: PFAS-DoD Surrogate (43 Targets)

Stock Id: 210407-05

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210407-06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d5-EtFOSA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210407-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d3-MeFOSA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210407-08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d7-MeFOSE	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210407-09

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d9-EtFOSE	1000	50.00	1	98.000	1	100	0.50000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFHxDA	.50000
d3-MeFOSA	.50000
d5-EtFOSA	.50000
d7-MeFOSE	.50000
d9-EtFOSE	.50000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210407-05	Pipette	B820865811
210407-06	Pipette	B820865811
210407-07	Pipette	B820865811
210407-08	Pipette	B820865811
210407-09	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 5/4/2021 **Expiration Date:** 5/4/2022

Solution Volume : 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** Sample Preparation: Freezer - F0035

Comment:

Approved By: Schumitz, Denise **Date:** 5/7/2021 9:50:00 AM

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LK59**

Description: PFAS - FTCA Stock

Stock Id: 210628-13

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-perfluoropropyl propanoic Acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 210628-14

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Stock Id: 210628-15

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoropentyl propanoic acid	1000	50.00	1	98.000	1	10	5.00000

Final Concentrations:

Analyte:	Conc (ug/mL):
3-Perfluoroheptyl propanoic acid	5.00000
3-Perfluoropentyl propanoic acid	5.00000
3-perfluoropropyl propanoic Acid	5.00000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210628-13	Pipette	B820865811
210628-14	Pipette	B820865811
210628-15	Pipette	B820865811

Solution Prepared By: Bailey, Kevin **Date Prepared:** 6/30/2021 **Expiration Date:** 6/30/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Schumitz, Denise **Date:** 7/2/2021 1:18:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: LK74

Description: PFAS DoD Second Source 18 ANALYTES LCS/MS

Stock Id: 210628-04

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	4000	2.00	1	100.000	1	20	0.40000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	4000	2.00	1	100.000	1	20	0.40000
Adona	4000	2.00	1	100.000	1	20	0.40000
Hexafluoropropylene oxide dimer acid	4000	2.00	1	100.000	1	20	0.40000
N-ethylperfluoro-octanesulfonamidoacetic acid	4000	2.00	1	100.000	1	20	0.40000
N-methylperfluoro-1-octanesulfonamidoacetic acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-1-butanesulfonate	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-1-hexanesulfonate	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-1-octanesulfonate	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-decanoic Acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-dodecanoic acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-heptanoic Acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-hexanoic acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-octanoic Acid	4000	2.00	1	100.000	1	20	0.40000
Perfluorononanoic Acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-tetradecanoic acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-tridecanoic acid	4000	2.00	1	100.000	1	20	0.40000
Perfluoro-n-undecanoic acid	4000	2.00	1	100.000	1	20	0.40000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.40000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.40000
Adona	.40000
Hexafluoropropylene oxide dimer acid	.40000
N-ethylperfluoro-octanesulfonamidoacetic acid	.40000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.40000
Perfluoro-1-butanesulfonate	.40000
Perfluoro-1-hexanesulfonate	.40000
Perfluoro-1-octanesulfonate	.40000
Perfluoro-n-decanoic Acid	.40000
Perfluoro-n-dodecanoic acid	.40000
Perfluoro-n-heptanoic Acid	.40000
Perfluoro-n-hexanoic acid	.40000
Perfluoro-n-octanoic Acid	.40000
Perfluorononanoic Acid	.40000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 7/2/2021 **Expiration Date:** 7/2/2022

Solution Volume : 40 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: 15.2mL Methanol + 800ul PFAS Free Water

Approved By: Schumitz, Denise **Date:** 7/7/2021 1:53:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LK74**

Description: PFAS DoD Second Source 18 ANALYTES LCS/MS

Perfluoro-n-tetradecanoic acid	.40000
Perfluoro-n-tridecanoic acid	.40000
Perfluoro-n-undecanoic acid	.40000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210628-04	Pipette	B909301606

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 7/2/2021	**Expiration Date:** 7/2/2022	
Solution Volume : 40 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: 15.2mL Methanol + 800ul PFAS Free Water

Approved By: Schumitz, Denise **Date:** 7/7/2021 1:53:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL41**

Description: PFAS DoD Surrogates (18 Targets)

Stock Id: 210802-03

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C5-PFHxA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-04

Chemical Name	Stock Amount ul	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C4-PFHpA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-05

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C8-PFOA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-06

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C9-PFNA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-07

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C6-PFDA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C7-PFUnA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-09

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-10

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFTeDA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-12

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-PFBS	1000	46.60	1	98.000	1	100	0.46600

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/2/2021 **Expiration Date:** 8/2/2022

Solution Volume : 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Schumitz, Denise **Date:** 8/3/2021 12:07:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL41**

Description: PFAS DoD Surrogates (18 Targets)

Stock Id: 210802-13

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-PFHxS	1000	47.40	1	98.000	1	100	0.47400

Stock Id: 210802-14

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C8-PFOS	1000	47.90	1	98.000	1	100	0.47900

Stock Id: 210802-18

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d5-EtFOSAA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-19

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
d3-MeFOSAA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-21

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-HFPO-DA	1000	50.00	1	98.000	1	100	0.50000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDoA	.50000
13C2-PFTeDA	.50000
13C3-HFPO-DA	.50000
13C3-PFBS	.46600
13C3-PFHxS	.47400
13C4-PFHpA	.50000
13C5-PFHxA	.50000
13C6-PFDA	.50000
13C7-PFUnA	.50000
13C8-PFOA	.50000
13C8-PFOS	.47900
13C9-PFNA	.50000
d3-MeFOSAA	.50000
d5-EtFOSAA	.50000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/2/2021 **Expiration Date:** 8/2/2022

Solution Volume : 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Schumitz, Denise **Date:** 8/3/2021 12:07:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL41**

Description: PFAS DoD Surrogates (18 Targets)

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210802-03	Pipette	B820865811
210802-04	Pipette	B820865811
210802-05	Pipette	B820865811
210802-06	Pipette	B820865811
210802-07	Pipette	B820865811
210802-08	Pipette	B820865811
210802-09	Pipette	B820865811
210802-10	Pipette	B820865811
210802-12	Pipette	B820865811
210802-13	Pipette	B820865811
210802-14	Pipette	B820865811
210802-18	Pipette	B820865811
210802-19	Pipette	B820865811
210802-21	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/2/2021 **Expiration Date:** 8/2/2022

Solution Volume : 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Schumitz, Denise **Date:** 8/3/2021 12:07:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL42**

Description: PFAS DoD Internal Standard

Stock Id: 210802-20

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C4-PFOS	1000	47.90	1	98.000	1	100	0.47900

Stock Id: 210802-22

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C3-PFBA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-23

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFOA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-24

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	1000	50.00	1	98.000	1	100	0.50000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-PFDA	.50000
13C2-PFOA	.50000
13C3-PFBA	.50000
13C4-PFOS	.47900

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210802-20	Pipette	B820865811
210802-22	Pipette	B820865811
210802-23	Pipette	B820865811
210802-24	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/2/2021 **Expiration Date:** 8/2/2022

Solution Volume : 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Schumitz, Denise **Date:** 8/3/2021 12:07:00 PM

BATTELLE
It can be done

Standard Solution Prep Form II

Approved: ☑

Standard Laboratory ID Number: **LL55**

Description: PFAS DoD Surrogate (28 targets)

Assigned Lab ID (from receipt log)	Chemical Name:	Source	Stock (ug/mL)	Expir. Date	Purity (%)	Density (g/mL)	Amount Taken	Conv. Fact.	Final Vol. (mL)	Std. Conc. (ug/mL)
210802-01	13C4-PFBA	Neat	~50.000000	05/13/25	---	---	1000 uL	1	100	~0.5000
210802-02	13C5-PFPeA	Neat	~50.000000	12/23/25	---	---	1000 uL	1	100	~0.5000
210802-11	13C8-FOSA-I	Neat	~50.000000	03/02/26	---	---	1000 uL	1	100	~0.5000
210802-15	13C2-4:2FTS	Neat	~50.000000	06/24/26	---	---	1000 uL	1	100	~0.5000
210802-16	13C2-6:2FTS	Neat	~50.000000	05/14/26	---	---	1000 uL	1	100	~0.5000
210802-17	13C2-8:2FTS	Neat	~50.000000	07/09/26	---	---	1000 uL	1	100	~0.5000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/9/2021 **Expiration Date:** 8/9/2022

Solution Volume 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Balance ID:

Comment:

Solvent:	Lot:
HPLC Grade Methanol	211780

Approved By: Schumitz, Denise **Date:** 8/11/2021 3:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL55**

Description: PFAS DoD Surrogate (28 targets)

Stock Id: 210802-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C4-PFBA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C5-PFPeA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-11

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C8-FOSA	1000	50.00	1	98.000	1	100	0.50000

Stock Id: 210802-15

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	1000	46.90	1	98.000	1	100	0.46900

Stock Id: 210802-16

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-6:2FTS	1000	47.60	1	98.000	1	100	0.47600

Stock Id: 210802-17

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-8:2FTS	1000	48.00	1	98.000	1	100	0.48000

Final Concentrations:

Analyte:	Conc (ug/mL):
13C2-4:2FTS	.46900
13C2-6:2FTS	.47600
13C2-8:2FTS	.48000
13C4-PFBA	.50000
13C5-PFPeA	.50000
13C8-FOSA	.50000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210802-01	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/9/2021 **Expiration Date:** 8/9/2022

Solution Volume 40 **mL X** 4 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Schumitz, Denise **Date:** 8/11/2021 3:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL55**

Description: PFAS DoD Surrogate (28 targets)

210802-02	Pipette	B820865811
210802-11	Pipette	B820865811
210802-15	Pipette	B820865811
210802-16	Pipette	B820865811
210802-17	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey		**Date Prepared:**	8/9/2021	**Expiration Date:**	8/9/2022
Solution Volume 40 **mL X** 4 **Vials**		**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121		

Comment:

Approved By: Schumitz, Denise **Date:** 8/11/2021 3:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL86**

Description: PFAS DoD High ICAL Stock

Stock Id: 210714-01

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	4	0.50000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	4	0.50500
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	4	0.50000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	4	0.50000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	4	0.50000
Adona	2000	1.00	1	100.000	1	4	0.50000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	4	0.50000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	4	0.50000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	4	0.50500
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-1-hexanesulfonate	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	4	0.50500
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-1-octanesulfonate	2000	1.00	1	100.000	1	4	0.50000
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-hexanoic acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-octanoic Acid	2000	1.01	1	100.000	1	4	0.50500
Perfluorononanoic Acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	4	0.50500
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	4	0.50000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	4	0.50000

Stock Id: LH59

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
1H,1H,2H,2H-perfluorododecane sulfonate	500	3.86	---	---	1	4	0.48300
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	500	4.00	---	---	1	4	0.50000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	500	4.00	---	---	1	4	0.50000
N-ethylperfluoro-1-octanesulfonamide	500	4.00	---	---	1	4	0.50000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL86**

Description: PFAS DoD High ICAL Stock

N-methylperfluoro-1-octanesulfonamide	500	4.00	---	---	1	4	0.50000
nonafluoro-3,6-dioxaheptanoic acid	500	4.00	---	---	1	4	0.50000
Perfluoro (2-ethoxyethane) sulfonic acid	500	3.57	---	---	1	4	0.44600
Perfluoro-1-dodecanesulfonate	500	3.88	---	---	1	4	0.48500
Perfluoro-3-methoxypropanoic acid	500	4.00	---	---	1	4	0.50000
Perfluoro-4-methoxybutanoic acid	500	4.00	---	---	1	4	0.50000
Perfluoro-n-hexadecanoic acid	500	4.00	---	---	1	4	0.50000
Perfluoro-n-octadecanoic acid	500	4.00	---	---	1	4	0.50000

Stock Id: LK59

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	4	0.50000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	4	0.50000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	4	0.50000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.50000
1H,1H,2H,2H-Perfluorodecane sulfonate	.50500
1H,1H,2H,2H-perfluorododecane sulfonate	.48300
1H,1H,2H,2H-Perfluorohexane sulfonate	.50000
1H,1H,2H,2H-Perfluorooctane sulfonate	.50000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.50000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.50000
3-Perfluoroheptyl propanoic acid	.50000
3-Perfluoropentyl propanoic acid	.50000
3-perfluoropropyl propanoic Acid	.50000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.50000
Adona	.50000
Hexafluoropropylene oxide dimer acid	.50000
N-ethylperfluoro-1-octanesulfonamide	.50000
N-ethylperfluoro-octanesulfonamidoacetic acid	.50000
N-methylperfluoro-1-octanesulfonamide	.50000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.50000
nonafluoro-3,6-dioxaheptanoic acid	.50000
Perfluoro (2-ethoxyethane) sulfonic acid	.44600
Perfluoro-1-butanesulfonate	.50000
Perfluoro-1-decanesulfonate	.50500
Perfluoro-1-dodecanesulfonate	.48500

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: ______________ **Date:** ______________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL86**

Description: PFAS DoD High ICAL Stock

Perfluoro-1-heptanesulfonate	.50000
Perfluoro-1-hexanesulfonate	.50000
Perfluoro-1-nonanesulfonate	.50500
Perfluoro-1-octanesulfonamide	.50000
Perfluoro-1-octanesulfonate	.50000
perfluoro-1-pentanesulfonate	.50000
Perfluoro-3-methoxypropanoic acid	.50000
Perfluoro-4-methoxybutanoic acid	.50000
Perfluoro-n-butanoic Acid	.50000
Perfluoro-n-decanoic Acid	.50000
Perfluoro-n-dodecanoic acid	.50000
Perfluoro-n-heptanoic Acid	.50000
Perfluoro-n-hexadecanoic acid	.50000
Perfluoro-n-hexanoic acid	.50000
Perfluoro-n-octadecanoic acid	.50000
Perfluoro-n-octanoic Acid	.50500
Perfluorononanoic Acid	.50000
Perfluoro-n-pentanoic acid	.50500
Perfluoro-n-tetradecanoic acid	.50000
Perfluoro-n-tridecanoic acid	.50000
Perfluoro-n-undecanoic acid	.50000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210714-01	Pipette	B820865811
LH59	Pipette	B820865811
LK59	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 8/20/2021	**Expiration Date:**	2/25/2022
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL87**

Description: PFAS DoD ICAL Low Stock

Stock Id: LL86

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	0.50	---	---	1	10	0.05000
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.51	---	---	1	10	0.05050
1H,1H,2H,2H-perfluorododecane sulfonate	1000	0.48	---	---	1	10	0.04830
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.50	---	---	1	10	0.05000
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.50	---	---	1	10	0.05000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	1000	0.50	---	---	1	10	0.05000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	1000	0.50	---	---	1	10	0.05000
3-Perfluoroheptyl propanoic acid	1000	0.50	---	---	1	10	0.05000
3-Perfluoropentyl propanoic acid	1000	0.50	---	---	1	10	0.05000
3-perfluoropropyl propanoic Acid	1000	0.50	---	---	1	10	0.05000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	0.50	---	---	1	10	0.05000
Adona	1000	0.50	---	---	1	10	0.05000
Hexafluoropropylene oxide dimer acid	1000	0.50	---	---	1	10	0.05000
N-ethylperfluoro-1-octanesulfonamide	1000	0.50	---	---	1	10	0.05000
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.50	---	---	1	10	0.05000
N-methylperfluoro-1-octanesulfonamide	1000	0.50	---	---	1	10	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.50	---	---	1	10	0.05000
nonafluoro-3,6-dioxaheptanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro (2-ethoxyethane) sulfonic acid	1000	0.45	---	---	1	10	0.04460
Perfluoro-1-butanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-decanesulfonate	1000	0.51	---	---	1	10	0.05050
Perfluoro-1-dodecanesulfonate	1000	0.49	---	---	1	10	0.04850
Perfluoro-1-heptanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-hexanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-nonanesulfonate	1000	0.51	---	---	1	10	0.05050
Perfluoro-1-octanesulfonamide	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-octanesulfonate	1000	0.50	---	---	1	10	0.05000
perfluoro-1-pentanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-3-methoxypropanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-4-methoxybutanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-butanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-decanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-dodecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-heptanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-hexadecanoic acid	1000	0.50	---	---	1	10	0.05000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL87**

Description: PFAS DoD ICAL Low Stock

Perfluoro-n-hexanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-octadecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-octanoic Acid	1000	0.51	---	---	1	10	0.05050
Perfluorononanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-pentanoic acid	1000	0.51	---	---	1	10	0.05050
Perfluoro-n-tetradecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-tridecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-undecanoic acid	1000	0.50	---	---	1	10	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.05000
1H,1H,2H,2H-Perfluorodecane sulfonate	.05050
1H,1H,2H,2H-perfluorododecane sulfonate	.04830
1H,1H,2H,2H-Perfluorohexane sulfonate	.05000
1H,1H,2H,2H-Perfluorooctane sulfonate	.05000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.05000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.05000
3-Perfluoroheptyl propanoic acid	.05000
3-Perfluoropentyl propanoic acid	.05000
3-perfluoropropyl propanoic Acid	.05000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.05000
Adona	.05000
Hexafluoropropylene oxide dimer acid	.05000
N-ethylperfluoro-1-octanesulfonamide	.05000
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamide	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
nonafluoro-3,6-dioxaheptanoic acid	.05000
Perfluoro (2-ethoxyethane) sulfonic acid	.04460
Perfluoro-1-butanesulfonate	.05000
Perfluoro-1-decanesulfonate	.05050
Perfluoro-1-dodecanesulfonate	.04850
Perfluoro-1-heptanesulfonate	.05000
Perfluoro-1-hexanesulfonate	.05000
Perfluoro-1-nonanesulfonate	.05050
Perfluoro-1-octanesulfonamide	.05000
Perfluoro-1-octanesulfonate	.05000
perfluoro-1-pentanesulfonate	.05000

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 8/20/2021	**Expiration Date:** 2/25/2022	
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL87**

Description: PFAS DoD ICAL Low Stock

Perfluoro-3-methoxypropanoic acid	.05000
Perfluoro-4-methoxybutanoic acid	.05000
Perfluoro-n-butanoic Acid	.05000
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexadecanoic acid	.05000
Perfluoro-n-hexanoic acid	.05000
Perfluoro-n-octadecanoic acid	.05000
Perfluoro-n-octanoic Acid	.05050
Perfluorononanoic Acid	.05000
Perfluoro-n-pentanoic acid	.05050
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LL86	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: ____________ **Date:** ____________

It can be done

Standard Solution Concentrations

Approved:

Standard Laboratory ID Number: **LL88**

Description: PFAS DoD ICAL LOWER Stock

Stock Id: **LL87**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	0.05	---	---	1	4	0.02500
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	0.05	---	---	1	4	0.02525
1H,1H,2H,2H-perfluorododecane sulfonate	2000	0.05	---	---	1	4	0.02415
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	0.05	---	---	1	4	0.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	0.05	---	---	1	4	0.02500
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	2000	0.05	---	---	1	4	0.02500
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	2000	0.05	---	---	1	4	0.02500
3-Perfluoroheptyl propanoic acid	2000	0.05	---	---	1	4	0.02500
3-Perfluoropentyl propanoic acid	2000	0.05	---	---	1	4	0.02500
3-perfluoropropyl propanoic Acid	2000	0.05	---	---	1	4	0.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	0.05	---	---	1	4	0.02500
Adona	2000	0.05	---	---	1	4	0.02500
Hexafluoropropylene oxide dimer acid	2000	0.05	---	---	1	4	0.02500
N-ethylperfluoro-1-octanesulfonamide	2000	0.05	---	---	1	4	0.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	0.05	---	---	1	4	0.02500
N-methylperfluoro-1-octanesulfonamide	2000	0.05	---	---	1	4	0.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	0.05	---	---	1	4	0.02500
nonafluoro-3,6-dioxaheptanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro (2-ethoxyethane) sulfonic acid	2000	0.04	---	---	1	4	0.02230
Perfluoro-1-butanesulfonate	2000	0.05	---	---	1	4	0.02500
Perfluoro-1-decanesulfonate	2000	0.05	---	---	1	4	0.02525
Perfluoro-1-dodecanesulfonate	2000	0.05	---	---	1	4	0.02425
Perfluoro-1-heptanesulfonate	2000	0.05	---	---	1	4	0.02500
Perfluoro-1-hexanesulfonate	2000	0.05	---	---	1	4	0.02500
Perfluoro-1-nonanesulfonate	2000	0.05	---	---	1	4	0.02525
Perfluoro-1-octanesulfonamide	2000	0.05	---	---	1	4	0.02500
Perfluoro-1-octanesulfonate	2000	0.05	---	---	1	4	0.02500
perfluoro-1-pentanesulfonate	2000	0.05	---	---	1	4	0.02500
Perfluoro-3-methoxypropanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-4-methoxybutanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-butanoic Acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-decanoic Acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-dodecanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-heptanoic Acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-hexadecanoic acid	2000	0.05	---	---	1	4	0.02500

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL88**

Description: PFAS DoD ICAL LOWER Stock

Perfluoro-n-hexanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-octadecanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-octanoic Acid	2000	0.05	---	---	1	4	0.02525
Perfluorononanoic Acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-pentanoic acid	2000	0.05	---	---	1	4	0.02525
Perfluoro-n-tetradecanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-tridecanoic acid	2000	0.05	---	---	1	4	0.02500
Perfluoro-n-undecanoic acid	2000	0.05	---	---	1	4	0.02500

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.02500
1H,1H,2H,2H-Perfluorodecane sulfonate	.02525
1H,1H,2H,2H-perfluorododecane sulfonate	.02415
1H,1H,2H,2H-Perfluorohexane sulfonate	.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	.02500
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.02500
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.02500
3-Perfluoroheptyl propanoic acid	.02500
3-Perfluoropentyl propanoic acid	.02500
3-perfluoropropyl propanoic Acid	.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.02500
Adona	.02500
Hexafluoropropylene oxide dimer acid	.02500
N-ethylperfluoro-1-octanesulfonamide	.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	.02500
N-methylperfluoro-1-octanesulfonamide	.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.02500
nonafluoro-3,6-dioxaheptanoic acid	.02500
Perfluoro (2-ethoxyethane) sulfonic acid	.02230
Perfluoro-1-butanesulfonate	.02500
Perfluoro-1-decanesulfonate	.02525
Perfluoro-1-dodecanesulfonate	.02425
Perfluoro-1-heptanesulfonate	.02500
Perfluoro-1-hexanesulfonate	.02500
Perfluoro-1-nonanesulfonate	.02525
Perfluoro-1-octanesulfonamide	.02500
Perfluoro-1-octanesulfonate	.02500
perfluoro-1-pentanesulfonate	.02500

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 8/20/2021	**Expiration Date:**	2/25/2022
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121	

Comment:

Approved By: ____________________ **Date:** ____________________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☐

Standard Laboratory ID Number: **LL88**

Description: PFAS DoD ICAL LOWER Stock

Perfluoro-3-methoxypropanoic acid	.02500
Perfluoro-4-methoxybutanoic acid	.02500
Perfluoro-n-butanoic Acid	.02500
Perfluoro-n-decanoic Acid	.02500
Perfluoro-n-dodecanoic acid	.02500
Perfluoro-n-heptanoic Acid	.02500
Perfluoro-n-hexadecanoic acid	.02500
Perfluoro-n-hexanoic acid	.02500
Perfluoro-n-octadecanoic acid	.02500
Perfluoro-n-octanoic Acid	.02525
Perfluorononanoic Acid	.02500
Perfluoro-n-pentanoic acid	.02525
Perfluoro-n-tetradecanoic acid	.02500
Perfluoro-n-tridecanoic acid	.02500
Perfluoro-n-undecanoic acid	.02500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LL87	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 8/20/2021	**Expiration Date:**	2/25/2022
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment:

Approved By: ____________ **Date:** ____________

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL90**

Description: PFAS DoD ICAL L2

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	100	0.50	---	---	1	10	0.00500
d3-MeFOSA	100	0.50	---	---	1	10	0.00500
d5-EtFOSA	100	0.50	---	---	1	10	0.00500
d7-MeFOSE	100	0.50	---	---	1	10	0.00500
d9-EtFOSE	100	0.50	---	---	1	10	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	100	0.50	---	---	1	10	0.00500
13C2-PFTeDA	100	0.50	---	---	1	10	0.00500
13C3-HFPO-DA	100	0.50	---	---	1	10	0.00500
13C3-PFBS	100	0.47	---	---	1	10	0.00466
13C3-PFHxS	100	0.47	---	---	1	10	0.00474
13C4-PFHpA	100	0.50	---	---	1	10	0.00500
13C5-PFHxA	100	0.50	---	---	1	10	0.00500
13C6-PFDA	100	0.50	---	---	1	10	0.00500
13C7-PFUnA	100	0.50	---	---	1	10	0.00500
13C8-PFOA	100	0.50	---	---	1	10	0.00500
13C8-PFOS	100	0.48	---	---	1	10	0.00479
13C9-PFNA	100	0.50	---	---	1	10	0.00500
d3-MeFOSAA	100	0.50	---	---	1	10	0.00500
d5-EtFOSAA	100	0.50	---	---	1	10	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	100	0.50	---	---	1	10	0.00500
13C2-PFOA	100	0.50	---	---	1	10	0.00500
13C3-PFBA	100	0.50	---	---	1	10	0.00500
13C4-PFOS	100	0.48	---	---	1	10	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	100	0.47	---	---	1	10	0.00469
13C2-6:2FTS	100	0.48	---	---	1	10	0.00476
13C2-8:2FTS	100	0.48	---	---	1	10	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:57:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL90**

Description: PFAS DoD ICAL L2

13C4-PFBA	100	0.50	---	---	1	10	0.00500
13C5-PFPeA	100	0.50	---	---	1	10	0.00500
13C8-FOSA	100	0.50	---	---	1	10	0.00500

Stock Id: LL88

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	50	0.03	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorodecane sulfonate	50	0.03	---	---	1	10	0.00013
1H,1H,2H,2H-perfluorododecane sulfonate	50	0.02	---	---	1	10	0.00012
1H,1H,2H,2H-Perfluorohexane sulfonate	50	0.03	---	---	1	10	0.00013
1H,1H,2H,2H-Perfluorooctane sulfonate	50	0.03	---	---	1	10	0.00013
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	50	0.03	---	---	1	10	0.00013
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	50	0.03	---	---	1	10	0.00013
3-Perfluoroheptyl propanoic acid	50	0.03	---	---	1	10	0.00013
3-Perfluoropentyl propanoic acid	50	0.03	---	---	1	10	0.00013
3-perfluoropropyl propanoic Acid	50	0.03	---	---	1	10	0.00013
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	50	0.03	---	---	1	10	0.00013
Adona	50	0.03	---	---	1	10	0.00013
Hexafluoropropylene oxide dimer acid	50	0.03	---	---	1	10	0.00013
N-ethylperfluoro-1-octanesulfonamide	50	0.03	---	---	1	10	0.00013
N-ethylperfluoro-octanesulfonamidoacetic acid	50	0.03	---	---	1	10	0.00013
N-methylperfluoro-1-octanesulfonamide	50	0.03	---	---	1	10	0.00013
N-methylperfluoro-1-octanesulfonamidoacetic acid	50	0.03	---	---	1	10	0.00013
nonafluoro-3,6-dioxaheptanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro (2-ethoxyethane) sulfonic acid	50	0.02	---	---	1	10	0.00011
Perfluoro-1-butanesulfonate	50	0.03	---	---	1	10	0.00013
Perfluoro-1-decanesulfonate	50	0.03	---	---	1	10	0.00013
Perfluoro-1-dodecanesulfonate	50	0.02	---	---	1	10	0.00012
Perfluoro-1-heptanesulfonate	50	0.03	---	---	1	10	0.00013
Perfluoro-1-hexanesulfonate	50	0.03	---	---	1	10	0.00013
Perfluoro-1-nonanesulfonate	50	0.03	---	---	1	10	0.00013
Perfluoro-1-octanesulfonamide	50	0.03	---	---	1	10	0.00013
Perfluoro-1-octanesulfonate	50	0.03	---	---	1	10	0.00013
perfluoro-1-pentanesulfonate	50	0.03	---	---	1	10	0.00013
Perfluoro-3-methoxypropanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-4-methoxybutanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-butanoic Acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-decanoic Acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-dodecanoic acid	50	0.03	---	---	1	10	0.00013

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:57:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL90**

Description: PFAS DoD ICAL L2

Perfluoro-n-heptanoic Acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-hexadecanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-hexanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-octadecanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-octanoic Acid	50	0.03	---	---	1	10	0.00013
Perfluorononanoic Acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-pentanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-tetradecanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-tridecanoic acid	50	0.03	---	---	1	10	0.00013
Perfluoro-n-undecanoic acid	50	0.03	---	---	1	10	0.00013

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00013
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.00013
1H,1H,2H,2H-perfluorododecane sulfonate	.00012

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:57:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL90**

Description: PFAS DoD ICAL L2

1H,1H,2H,2H-Perfluorohexane sulfonate	.00013
1H,1H,2H,2H-Perfluorooctane sulfonate	.00013
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.00013
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.00013
3-Perfluoroheptyl propanoic acid	.00013
3-Perfluoropentyl propanoic acid	.00013
3-perfluoropropyl propanoic Acid	.00013
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00013
Adona	.00013
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.00013
N-ethylperfluoro-1-octanesulfonamide	.00013
N-ethylperfluoro-octanesulfonamidoacetic acid	.00013
N-methylperfluoro-1-octanesulfonamide	.00013
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00013
nonafluoro-3,6-dioxaheptanoic acid	.00013
Perfluoro (2-ethoxyethane) sulfonic acid	.00011
Perfluoro-1-butanesulfonate	.00013
Perfluoro-1-decanesulfonate	.00013
Perfluoro-1-dodecanesulfonate	.00012
Perfluoro-1-heptanesulfonate	.00013
Perfluoro-1-hexanesulfonate	.00013
Perfluoro-1-nonanesulfonate	.00013
Perfluoro-1-octanesulfonamide	.00013
Perfluoro-1-octanesulfonate	.00013
perfluoro-1-pentanesulfonate	.00013
Perfluoro-3-methoxypropanoic acid	.00013
Perfluoro-4-methoxybutanoic acid	.00013
Perfluoro-n-butanoic Acid	.00013
Perfluoro-n-decanoic Acid	.00013
Perfluoro-n-dodecanoic acid	.00013
Perfluoro-n-heptanoic Acid	.00013
Perfluoro-n-hexadecanoic acid	.00013
Perfluoro-n-hexanoic acid	.00013

Solution Prepared By: Harnden, Kelsey		**Date Prepared:**	8/20/2021	**Expiration Date:**	2/25/2022
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:**	VOC Laboratory: Refrigerator - R0121			

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:57:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL90**

Description: PFAS DoD ICAL L2

Perfluoro-n-octadecanoic acid	.00013
Perfluoro-n-octanoic Acid	.00013
Perfluorononanoic Acid	.00013
Perfluoro-n-pentanoic acid	.00013
Perfluoro-n-tetradecanoic acid	.00013
Perfluoro-n-tridecanoic acid	.00013
Perfluoro-n-undecanoic acid	.00013

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LL88	Pipette	B814659662

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:57:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL94**

Description: PFAS DoD ICAL L4

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	200	0.50	---	---	1	20	0.00500
d3-MeFOSA	200	0.50	---	---	1	20	0.00500
d5-EtFOSA	200	0.50	---	---	1	20	0.00500
d7-MeFOSE	200	0.50	---	---	1	20	0.00500
d9-EtFOSE	200	0.50	---	---	1	20	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	200	0.50	---	---	1	20	0.00500
13C2-PFTeDA	200	0.50	---	---	1	20	0.00500
13C3-HFPO-DA	200	0.50	---	---	1	20	0.00500
13C3-PFBS	200	0.47	---	---	1	20	0.00466
13C3-PFHxS	200	0.47	---	---	1	20	0.00474
13C4-PFHpA	200	0.50	---	---	1	20	0.00500
13C5-PFHxA	200	0.50	---	---	1	20	0.00500
13C6-PFDA	200	0.50	---	---	1	20	0.00500
13C7-PFUnA	200	0.50	---	---	1	20	0.00500
13C8-PFOA	200	0.50	---	---	1	20	0.00500
13C8-PFOS	200	0.48	---	---	1	20	0.00479
13C9-PFNA	200	0.50	---	---	1	20	0.00500
d3-MeFOSAA	200	0.50	---	---	1	20	0.00500
d5-EtFOSAA	200	0.50	---	---	1	20	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	200	0.50	---	---	1	20	0.00500
13C2-PFOA	200	0.50	---	---	1	20	0.00500
13C3-PFBA	200	0.50	---	---	1	20	0.00500
13C4-PFOS	200	0.48	---	---	1	20	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	200	0.47	---	---	1	20	0.00469
13C2-6:2FTS	200	0.48	---	---	1	20	0.00476
13C2-8:2FTS	200	0.48	---	---	1	20	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:58:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL94**

Description: PFAS DoD ICAL L4

13C4-PFBA	200	0.50	---	---	1	20	0.00500
13C5-PFPeA	200	0.50	---	---	1	20	0.00500
13C8-FOSA	200	0.50	---	---	1	20	0.00500

Stock Id: LL87

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	200	0.05	---	---	1	20	0.00050
1H,1H,2H,2H-Perfluorodecane sulfonate	200	0.05	---	---	1	20	0.00051
1H,1H,2H,2H-perfluorododecane sulfonate	200	0.05	---	---	1	20	0.00048
1H,1H,2H,2H-Perfluorohexane sulfonate	200	0.05	---	---	1	20	0.00050
1H,1H,2H,2H-Perfluorooctane sulfonate	200	0.05	---	---	1	20	0.00050
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	200	0.05	---	---	1	20	0.00050
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	200	0.05	---	---	1	20	0.00050
3-Perfluoroheptyl propanoic acid	200	0.05	---	---	1	20	0.00050
3-Perfluoropentyl propanoic acid	200	0.05	---	---	1	20	0.00050
3-perfluoropropyl propanoic Acid	200	0.05	---	---	1	20	0.00050
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	200	0.05	---	---	1	20	0.00050
Adona	200	0.05	---	---	1	20	0.00050
Hexafluoropropylene oxide dimer acid	200	0.05	---	---	1	20	0.00050
N-ethylperfluoro-1-octanesulfonamide	200	0.05	---	---	1	20	0.00050
N-ethylperfluoro-octanesulfonamidoacetic acid	200	0.05	---	---	1	20	0.00050
N-methylperfluoro-1-octanesulfonamide	200	0.05	---	---	1	20	0.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	200	0.05	---	---	1	20	0.00050
nonafluoro-3,6-dioxaheptanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro (2-ethoxyethane) sulfonic acid	200	0.04	---	---	1	20	0.00045
Perfluoro-1-butanesulfonate	200	0.05	---	---	1	20	0.00050
Perfluoro-1-decanesulfonate	200	0.05	---	---	1	20	0.00051
Perfluoro-1-dodecanesulfonate	200	0.05	---	---	1	20	0.00049
Perfluoro-1-heptanesulfonate	200	0.05	---	---	1	20	0.00050
Perfluoro-1-hexanesulfonate	200	0.05	---	---	1	20	0.00050
Perfluoro-1-nonanesulfonate	200	0.05	---	---	1	20	0.00051
Perfluoro-1-octanesulfonamide	200	0.05	---	---	1	20	0.00050
Perfluoro-1-octanesulfonate	200	0.05	---	---	1	20	0.00050
perfluoro-1-pentanesulfonate	200	0.05	---	---	1	20	0.00050
Perfluoro-3-methoxypropanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-4-methoxybutanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-butanoic Acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-decanoic Acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-dodecanoic acid	200	0.05	---	---	1	20	0.00050

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:58:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL94**

Description: PFAS DoD ICAL L4

Perfluoro-n-heptanoic Acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-hexadecanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-hexanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-octadecanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-octanoic Acid	200	0.05	---	---	1	20	0.00051
Perfluorononanoic Acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-pentanoic acid	200	0.05	---	---	1	20	0.00051
Perfluoro-n-tetradecanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-tridecanoic acid	200	0.05	---	---	1	20	0.00050
Perfluoro-n-undecanoic acid	200	0.05	---	---	1	20	0.00050

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00050
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.00051
1H,1H,2H,2H-perfluorododecane sulfonate	.00048

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:58:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL94**

Description: PFAS DoD ICAL L4

1H,1H,2H,2H-Perfluorohexane sulfonate	.00050
1H,1H,2H,2H-Perfluorooctane sulfonate	.00050
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.00050
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.00050
3-Perfluoroheptyl propanoic acid	.00050
3-Perfluoropentyl propanoic acid	.00050
3-perfluoropropyl propanoic Acid	.00050
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00050
Adona	.00050
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.00050
N-ethylperfluoro-1-octanesulfonamide	.00050
N-ethylperfluoro-octanesulfonamidoacetic acid	.00050
N-methylperfluoro-1-octanesulfonamide	.00050
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00050
nonafluoro-3,6-dioxaheptanoic acid	.00050
Perfluoro (2-ethoxyethane) sulfonic acid	.00045
Perfluoro-1-butanesulfonate	.00050
Perfluoro-1-decanesulfonate	.00051
Perfluoro-1-dodecanesulfonate	.00049
Perfluoro-1-heptanesulfonate	.00050
Perfluoro-1-hexanesulfonate	.00050
Perfluoro-1-nonanesulfonate	.00051
Perfluoro-1-octanesulfonamide	.00050
Perfluoro-1-octanesulfonate	.00050
perfluoro-1-pentanesulfonate	.00050
Perfluoro-3-methoxypropanoic acid	.00050
Perfluoro-4-methoxybutanoic acid	.00050
Perfluoro-n-butanoic Acid	.00050
Perfluoro-n-decanoic Acid	.00050
Perfluoro-n-dodecanoic acid	.00050
Perfluoro-n-heptanoic Acid	.00050
Perfluoro-n-hexadecanoic acid	.00050
Perfluoro-n-hexanoic acid	.00050

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:58:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL94**

Description: PFAS DoD ICAL L4

Perfluoro-n-octadecanoic acid	.00050
Perfluoro-n-octanoic Acid	.00051
Perfluorononanoic Acid	.00050
Perfluoro-n-pentanoic acid	.00051
Perfluoro-n-tetradecanoic acid	.00050
Perfluoro-n-tridecanoic acid	.00050
Perfluoro-n-undecanoic acid	.00050

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LL87	Pipette	B814659662

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% Ammonium Hydroxide and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:58:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL97**

Description: PFAS DoD ICAL L7

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	200	0.50	---	---	1	20	0.00500
d3-MeFOSA	200	0.50	---	---	1	20	0.00500
d5-EtFOSA	200	0.50	---	---	1	20	0.00500
d7-MeFOSE	200	0.50	---	---	1	20	0.00500
d9-EtFOSE	200	0.50	---	---	1	20	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	200	0.50	---	---	1	20	0.00500
13C2-PFTeDA	200	0.50	---	---	1	20	0.00500
13C3-HFPO-DA	200	0.50	---	---	1	20	0.00500
13C3-PFBS	200	0.47	---	---	1	20	0.00466
13C3-PFHxS	200	0.47	---	---	1	20	0.00474
13C4-PFHpA	200	0.50	---	---	1	20	0.00500
13C5-PFHxA	200	0.50	---	---	1	20	0.00500
13C6-PFDA	200	0.50	---	---	1	20	0.00500
13C7-PFUnA	200	0.50	---	---	1	20	0.00500
13C8-PFOA	200	0.50	---	---	1	20	0.00500
13C8-PFOS	200	0.48	---	---	1	20	0.00479
13C9-PFNA	200	0.50	---	---	1	20	0.00500
d3-MeFOSAA	200	0.50	---	---	1	20	0.00500
d5-EtFOSAA	200	0.50	---	---	1	20	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	200	0.50	---	---	1	20	0.00500
13C2-PFOA	200	0.50	---	---	1	20	0.00500
13C3-PFBA	200	0.50	---	---	1	20	0.00500
13C4-PFOS	200	0.48	---	---	1	20	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	200	0.47	---	---	1	20	0.00469
13C2-6:2FTS	200	0.48	---	---	1	20	0.00476
13C2-8:2FTS	200	0.48	---	---	1	20	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL97**

Description: PFAS DoD ICAL L7

13C4-PFBA	200	0.50	---	---	1	20	0.00500
13C5-PFPeA	200	0.50	---	---	1	20	0.00500
13C8-FOSA	200	0.50	---	---	1	20	0.00500

Stock Id: LL86

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	400	0.50	---	---	1	20	0.01000
1H,1H,2H,2H-Perfluorodecane sulfonate	400	0.51	---	---	1	20	0.01010
1H,1H,2H,2H-perfluorododecane sulfonate	400	0.48	---	---	1	20	0.00966
1H,1H,2H,2H-Perfluorohexane sulfonate	400	0.50	---	---	1	20	0.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	400	0.50	---	---	1	20	0.01000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	400	0.50	---	---	1	20	0.01000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	400	0.50	---	---	1	20	0.01000
3-Perfluoroheptyl propanoic acid	400	0.50	---	---	1	20	0.01000
3-Perfluoropentyl propanoic acid	400	0.50	---	---	1	20	0.01000
3-perfluoropropyl propanoic Acid	400	0.50	---	---	1	20	0.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	400	0.50	---	---	1	20	0.01000
Adona	400	0.50	---	---	1	20	0.01000
Hexafluoropropylene oxide dimer acid	400	0.50	---	---	1	20	0.01000
N-ethylperfluoro-1-octanesulfonamide	400	0.50	---	---	1	20	0.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	400	0.50	---	---	1	20	0.01000
N-methylperfluoro-1-octanesulfonamide	400	0.50	---	---	1	20	0.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	400	0.50	---	---	1	20	0.01000
nonafluoro-3,6-dioxaheptanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro (2-ethoxyethane) sulfonic acid	400	0.45	---	---	1	20	0.00892
Perfluoro-1-butanesulfonate	400	0.50	---	---	1	20	0.01000
Perfluoro-1-decanesulfonate	400	0.51	---	---	1	20	0.01010
Perfluoro-1-dodecanesulfonate	400	0.49	---	---	1	20	0.00970
Perfluoro-1-heptanesulfonate	400	0.50	---	---	1	20	0.01000
Perfluoro-1-hexanesulfonate	400	0.50	---	---	1	20	0.01000
Perfluoro-1-nonanesulfonate	400	0.51	---	---	1	20	0.01010
Perfluoro-1-octanesulfonamide	400	0.50	---	---	1	20	0.01000
Perfluoro-1-octanesulfonate	400	0.50	---	---	1	20	0.01000
perfluoro-1-pentanesulfonate	400	0.50	---	---	1	20	0.01000
Perfluoro-3-methoxypropanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-4-methoxybutanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-butanoic Acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-decanoic Acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-dodecanoic acid	400	0.50	---	---	1	20	0.01000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL97**

Description: PFAS DoD ICAL L7

Perfluoro-n-heptanoic Acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-hexadecanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-hexanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-octadecanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-octanoic Acid	400	0.51	---	---	1	20	0.01010
Perfluorononanoic Acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-pentanoic acid	400	0.51	---	---	1	20	0.01010
Perfluoro-n-tetradecanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-tridecanoic acid	400	0.50	---	---	1	20	0.01000
Perfluoro-n-undecanoic acid	400	0.50	---	---	1	20	0.01000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.01000
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.01010
1H,1H,2H,2H-perfluorododecane sulfonate	.00966

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

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It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL97**

Description: PFAS DoD ICAL L7

1H,1H,2H,2H-Perfluorohexane sulfonate	.01000
1H,1H,2H,2H-Perfluorooctane sulfonate	.01000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.01000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.01000
3-Perfluoroheptyl propanoic acid	.01000
3-Perfluoropentyl propanoic acid	.01000
3-perfluoropropyl propanoic Acid	.01000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.01000
Adona	.01000
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.01000
N-ethylperfluoro-1-octanesulfonamide	.01000
N-ethylperfluoro-octanesulfonamidoacetic acid	.01000
N-methylperfluoro-1-octanesulfonamide	.01000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.01000
nonafluoro-3,6-dioxaheptanoic acid	.01000
Perfluoro (2-ethoxyethane) sulfonic acid	.00892
Perfluoro-1-butanesulfonate	.01000
Perfluoro-1-decanesulfonate	.01010
Perfluoro-1-dodecanesulfonate	.00970
Perfluoro-1-heptanesulfonate	.01000
Perfluoro-1-hexanesulfonate	.01000
Perfluoro-1-nonanesulfonate	.01010
Perfluoro-1-octanesulfonamide	.01000
Perfluoro-1-octanesulfonate	.01000
perfluoro-1-pentanesulfonate	.01000
Perfluoro-3-methoxypropanoic acid	.01000
Perfluoro-4-methoxybutanoic acid	.01000
Perfluoro-n-butanoic Acid	.01000
Perfluoro-n-decanoic Acid	.01000
Perfluoro-n-dodecanoic acid	.01000
Perfluoro-n-heptanoic Acid	.01000
Perfluoro-n-hexadecanoic acid	.01000
Perfluoro-n-hexanoic acid	.01000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

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It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL97**

Description: PFAS DoD ICAL L7

Perfluoro-n-octadecanoic acid	.01000
Perfluoro-n-octanoic Acid	.01010
Perfluorononanoic Acid	.01000
Perfluoro-n-pentanoic acid	.01010
Perfluoro-n-tetradecanoic acid	.01000
Perfluoro-n-tridecanoic acid	.01000
Perfluoro-n-undecanoic acid	.01000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LL86	Pipette	B814657482

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL98**

Description: PFAS DoD ICAL L8

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	100	0.50	---	---	1	10	0.00500
d3-MeFOSA	100	0.50	---	---	1	10	0.00500
d5-EtFOSA	100	0.50	---	---	1	10	0.00500
d7-MeFOSE	100	0.50	---	---	1	10	0.00500
d9-EtFOSE	100	0.50	---	---	1	10	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	100	0.50	---	---	1	10	0.00500
13C2-PFTeDA	100	0.50	---	---	1	10	0.00500
13C3-HFPO-DA	100	0.50	---	---	1	10	0.00500
13C3-PFBS	100	0.47	---	---	1	10	0.00466
13C3-PFHxS	100	0.47	---	---	1	10	0.00474
13C4-PFHpA	100	0.50	---	---	1	10	0.00500
13C5-PFHxA	100	0.50	---	---	1	10	0.00500
13C6-PFDA	100	0.50	---	---	1	10	0.00500
13C7-PFUnA	100	0.50	---	---	1	10	0.00500
13C8-PFOA	100	0.50	---	---	1	10	0.00500
13C8-PFOS	100	0.48	---	---	1	10	0.00479
13C9-PFNA	100	0.50	---	---	1	10	0.00500
d3-MeFOSAA	100	0.50	---	---	1	10	0.00500
d5-EtFOSAA	100	0.50	---	---	1	10	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	100	0.50	---	---	1	10	0.00500
13C2-PFOA	100	0.50	---	---	1	10	0.00500
13C3-PFBA	100	0.50	---	---	1	10	0.00500
13C4-PFOS	100	0.48	---	---	1	10	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	100	0.47	---	---	1	10	0.00469
13C2-6:2FTS	100	0.48	---	---	1	10	0.00476
13C2-8:2FTS	100	0.48	---	---	1	10	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL98**

Description: PFAS DoD ICAL L8

13C4-PFBA	100	0.50	---	---	1	10	0.00500
13C5-PFPeA	100	0.50	---	---	1	10	0.00500
13C8-FOSA	100	0.50	---	---	1	10	0.00500

Stock Id: LL86

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	500	0.50	---	---	1	10	0.02500
1H,1H,2H,2H-Perfluorodecane sulfonate	500	0.51	---	---	1	10	0.02525
1H,1H,2H,2H-perfluorododecane sulfonate	500	0.48	---	---	1	10	0.02415
1H,1H,2H,2H-Perfluorohexane sulfonate	500	0.50	---	---	1	10	0.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	500	0.50	---	---	1	10	0.02500
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	500	0.50	---	---	1	10	0.02500
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	500	0.50	---	---	1	10	0.02500
3-Perfluoroheptyl propanoic acid	500	0.50	---	---	1	10	0.02500
3-Perfluoropentyl propanoic acid	500	0.50	---	---	1	10	0.02500
3-perfluoropropyl propanoic Acid	500	0.50	---	---	1	10	0.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	500	0.50	---	---	1	10	0.02500
Adona	500	0.50	---	---	1	10	0.02500
Hexafluoropropylene oxide dimer acid	500	0.50	---	---	1	10	0.02500
N-ethylperfluoro-1-octanesulfonamide	500	0.50	---	---	1	10	0.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	500	0.50	---	---	1	10	0.02500
N-methylperfluoro-1-octanesulfonamide	500	0.50	---	---	1	10	0.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	500	0.50	---	---	1	10	0.02500
nonafluoro-3,6-dioxaheptanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro (2-ethoxyethane) sulfonic acid	500	0.45	---	---	1	10	0.02230
Perfluoro-1-butanesulfonate	500	0.50	---	---	1	10	0.02500
Perfluoro-1-decanesulfonate	500	0.51	---	---	1	10	0.02525
Perfluoro-1-dodecanesulfonate	500	0.49	---	---	1	10	0.02425
Perfluoro-1-heptanesulfonate	500	0.50	---	---	1	10	0.02500
Perfluoro-1-hexanesulfonate	500	0.50	---	---	1	10	0.02500
Perfluoro-1-nonanesulfonate	500	0.51	---	---	1	10	0.02525
Perfluoro-1-octanesulfonamide	500	0.50	---	---	1	10	0.02500
Perfluoro-1-octanesulfonate	500	0.50	---	---	1	10	0.02500
perfluoro-1-pentanesulfonate	500	0.50	---	---	1	10	0.02500
Perfluoro-3-methoxypropanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-4-methoxybutanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-butanoic Acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-decanoic Acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-dodecanoic acid	500	0.50	---	---	1	10	0.02500

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL98**

Description: PFAS DoD ICAL L8

Perfluoro-n-heptanoic Acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-hexadecanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-hexanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-octadecanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-octanoic Acid	500	0.51	---	---	1	10	0.02525
Perfluorononanoic Acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-pentanoic acid	500	0.51	---	---	1	10	0.02525
Perfluoro-n-tetradecanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-tridecanoic acid	500	0.50	---	---	1	10	0.02500
Perfluoro-n-undecanoic acid	500	0.50	---	---	1	10	0.02500

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.02500
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.02525
1H,1H,2H,2H-perfluorododecane sulfonate	.02415

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL98**

Description: PFAS DoD ICAL L8

1H,1H,2H,2H-Perfluorohexane sulfonate	.02500
1H,1H,2H,2H-Perfluorooctane sulfonate	.02500
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.02500
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.02500
3-Perfluoroheptyl propanoic acid	.02500
3-Perfluoropentyl propanoic acid	.02500
3-perfluoropropyl propanoic Acid	.02500
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.02500
Adona	.02500
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.02500
N-ethylperfluoro-1-octanesulfonamide	.02500
N-ethylperfluoro-octanesulfonamidoacetic acid	.02500
N-methylperfluoro-1-octanesulfonamide	.02500
N-methylperfluoro-1-octanesulfonamidoacetic acid	.02500
nonafluoro-3,6-dioxaheptanoic acid	.02500
Perfluoro (2-ethoxyethane) sulfonic acid	.02230
Perfluoro-1-butanesulfonate	.02500
Perfluoro-1-decanesulfonate	.02525
Perfluoro-1-dodecanesulfonate	.02425
Perfluoro-1-heptanesulfonate	.02500
Perfluoro-1-hexanesulfonate	.02500
Perfluoro-1-nonanesulfonate	.02525
Perfluoro-1-octanesulfonamide	.02500
Perfluoro-1-octanesulfonate	.02500
perfluoro-1-pentanesulfonate	.02500
Perfluoro-3-methoxypropanoic acid	.02500
Perfluoro-4-methoxybutanoic acid	.02500
Perfluoro-n-butanoic Acid	.02500
Perfluoro-n-decanoic Acid	.02500
Perfluoro-n-dodecanoic acid	.02500
Perfluoro-n-heptanoic Acid	.02500
Perfluoro-n-hexadecanoic acid	.02500
Perfluoro-n-hexanoic acid	.02500

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LL98**

Description: PFAS DoD ICAL L8

Perfluoro-n-octadecanoic acid	.02500
Perfluoro-n-octanoic Acid	.02525
Perfluorononanoic Acid	.02500
Perfluoro-n-pentanoic acid	.02525
Perfluoro-n-tetradecanoic acid	.02500
Perfluoro-n-tridecanoic acid	.02500
Perfluoro-n-undecanoic acid	.02500

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LL86	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/20/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% Water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM08**

Description: PFAS IRAD LCS/MS

Stock Id: 210819-02

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	2000	1.00	1	100.000	1	10	0.20000
1H,1H,2H,2H-Perfluorodecane sulfonate	2000	1.01	1	100.000	1	10	0.20200
1H,1H,2H,2H-Perfluorohexane sulfonate	2000	1.00	1	100.000	1	10	0.20000
1H,1H,2H,2H-Perfluorooctane sulfonate	2000	1.00	1	100.000	1	10	0.20000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	2000	1.00	1	100.000	1	10	0.20000
Adona	2000	1.00	1	100.000	1	10	0.20000
Hexafluoropropylene oxide dimer acid	2000	1.00	1	100.000	1	10	0.20000
N-ethylperfluoro-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	10	0.20000
N-methylperfluoro-1-octanesulfonamidoacetic acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-1-butanesulfonate	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-1-decanesulfonate	2000	1.01	1	100.000	1	10	0.20200
Perfluoro-1-heptanesulfonate	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-1-hexanesulfonate	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-1-nonanesulfonate	2000	1.01	1	100.000	1	10	0.20200
Perfluoro-1-octanesulfonamide	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-1-octanesulfonate	2000	1.00	1	100.000	1	10	0.20000
perfluoro-1-pentanesulfonate	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-butanoic Acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-decanoic Acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-dodecanoic acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-heptanoic Acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-hexanoic acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-octanoic Acid	2000	1.00	1	100.000	1	10	0.20000
Perfluorononanoic Acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-pentanoic acid	2000	1.01	1	100.000	1	10	0.20200
Perfluoro-n-tetradecanoic acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-tridecanoic acid	2000	1.00	1	100.000	1	10	0.20000
Perfluoro-n-undecanoic acid	2000	1.00	1	100.000	1	10	0.20000

Stock Id: LH61

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
1H,1H,2H,2H-perfluorododecane sulfonate	500	3.86	---	---	1	10	0.19320
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	500	4.00	---	---	1	10	0.20000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	500	4.00	---	---	1	10	0.20000
N-ethylperfluoro-1-octanesulfonamide	500	4.00	---	---	1	10	0.20000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/23/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM08**

Description: PFAS IRAD LCS/MS

N-methylperfluoro-1-octanesulfonamide	500	4.00	---	---	1	10	0.20000
nonafluoro-3,6-dioxaheptanoic acid	500	4.00	---	---	1	10	0.20000
Perfluoro (2-ethoxyethane) sulfonic acid	500	3.57	---	---	1	10	0.17840
Perfluoro-1-dodecanesulfonate	500	3.88	---	---	1	10	0.19400
Perfluoro-3-methoxypropanoic acid	500	4.00	---	---	1	10	0.20000
Perfluoro-4-methoxybutanoic acid	500	4.00	---	---	1	10	0.20000
Perfluoro-n-hexadecanoic acid	500	4.00	---	---	1	10	0.20000
Perfluoro-n-octadecanoic acid	500	4.00	---	---	1	10	0.20000

Stock Id: **LK59**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
3-Perfluoroheptyl propanoic acid	400	5.00	---	---	1	10	0.20000
3-Perfluoropentyl propanoic acid	400	5.00	---	---	1	10	0.20000
3-perfluoropropyl propanoic Acid	400	5.00	---	---	1	10	0.20000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.20000
1H,1H,2H,2H-Perfluorodecane sulfonate	.20200
1H,1H,2H,2H-perfluorododecane sulfonate	.19320
1H,1H,2H,2H-Perfluorohexane sulfonate	.20000
1H,1H,2H,2H-Perfluorooctane sulfonate	.20000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.20000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.20000
3-Perfluoroheptyl propanoic acid	.20000
3-Perfluoropentyl propanoic acid	.20000
3-perfluoropropyl propanoic Acid	.20000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.20000
Adona	.20000
Hexafluoropropylene oxide dimer acid	.20000
N-ethylperfluoro-1-octanesulfonamide	.20000
N-ethylperfluoro-octanesulfonamidoacetic acid	.20000
N-methylperfluoro-1-octanesulfonamide	.20000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.20000
nonafluoro-3,6-dioxaheptanoic acid	.20000
Perfluoro (2-ethoxyethane) sulfonic acid	.17840
Perfluoro-1-butanesulfonate	.20000
Perfluoro-1-decanesulfonate	.20200
Perfluoro-1-dodecanesulfonate	.19400

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/23/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment:

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM08**

Description: PFAS IRAD LCS/MS

Perfluoro-1-heptanesulfonate	.20000
Perfluoro-1-hexanesulfonate	.20000
Perfluoro-1-nonanesulfonate	.20200
Perfluoro-1-octanesulfonamide	.20000
Perfluoro-1-octanesulfonate	.20000
perfluoro-1-pentanesulfonate	.20000
Perfluoro-3-methoxypropanoic acid	.20000
Perfluoro-4-methoxybutanoic acid	.20000
Perfluoro-n-butanoic Acid	.20000
Perfluoro-n-decanoic Acid	.20000
Perfluoro-n-dodecanoic acid	.20000
Perfluoro-n-heptanoic Acid	.20000
Perfluoro-n-hexadecanoic acid	.20000
Perfluoro-n-hexanoic acid	.20000
Perfluoro-n-octadecanoic acid	.20000
Perfluoro-n-octanoic Acid	.20000
Perfluorononanoic Acid	.20000
Perfluoro-n-pentanoic acid	.20200
Perfluoro-n-tetradecanoic acid	.20000
Perfluoro-n-tridecanoic acid	.20000
Perfluoro-n-undecanoic acid	.20000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
210819-02	Pipette	B820865811
LH61	Pipette	B820865811
LK59	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 8/23/2021	**Expiration Date:** 2/25/2022	
Solution Volume : 10 **mL X** 1 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment:

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM09**

Description: PFAS DoD ICC

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	100	0.50	---	---	1	10	0.00500
d3-MeFOSA	100	0.50	---	---	1	10	0.00500
d5-EtFOSA	100	0.50	---	---	1	10	0.00500
d7-MeFOSE	100	0.50	---	---	1	10	0.00500
d9-EtFOSE	100	0.50	---	---	1	10	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	100	0.50	---	---	1	10	0.00500
13C2-PFTeDA	100	0.50	---	---	1	10	0.00500
13C3-HFPO-DA	100	0.50	---	---	1	10	0.00500
13C3-PFBS	100	0.47	---	---	1	10	0.00466
13C3-PFHxS	100	0.47	---	---	1	10	0.00474
13C4-PFHpA	100	0.50	---	---	1	10	0.00500
13C5-PFHxA	100	0.50	---	---	1	10	0.00500
13C6-PFDA	100	0.50	---	---	1	10	0.00500
13C7-PFUnA	100	0.50	---	---	1	10	0.00500
13C8-PFOA	100	0.50	---	---	1	10	0.00500
13C8-PFOS	100	0.48	---	---	1	10	0.00479
13C9-PFNA	100	0.50	---	---	1	10	0.00500
d3-MeFOSAA	100	0.50	---	---	1	10	0.00500
d5-EtFOSAA	100	0.50	---	---	1	10	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	100	0.50	---	---	1	10	0.00500
13C2-PFOA	100	0.50	---	---	1	10	0.00500
13C3-PFBA	100	0.50	---	---	1	10	0.00500
13C4-PFOS	100	0.48	---	---	1	10	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	100	0.47	---	---	1	10	0.00469
13C2-6:2FTS	100	0.48	---	---	1	10	0.00476
13C2-8:2FTS	100	0.48	---	---	1	10	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/24/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM09**

Description: PFAS DoD ICC

13C4-PFBA	100	0.50	---	---	1	10	0.00500
13C5-PFPeA	100	0.50	---	---	1	10	0.00500
13C8-FOSA	100	0.50	---	---	1	10	0.00500

Stock Id: LM08

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	125	0.20	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	125	0.20	---	---	1	10	0.00253
1H,1H,2H,2H-perfluorododecane sulfonate	125	0.19	---	---	1	10	0.00242
1H,1H,2H,2H-Perfluorohexane sulfonate	125	0.20	---	---	1	10	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	125	0.20	---	---	1	10	0.00250
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	125	0.20	---	---	1	10	0.00250
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	125	0.20	---	---	1	10	0.00250
3-Perfluoroheptyl propanoic acid	125	0.20	---	---	1	10	0.00250
3-Perfluoropentyl propanoic acid	125	0.20	---	---	1	10	0.00250
3-perfluoropropyl propanoic Acid	125	0.20	---	---	1	10	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	125	0.20	---	---	1	10	0.00250
Adona	125	0.20	---	---	1	10	0.00250
Hexafluoropropylene oxide dimer acid	125	0.20	---	---	1	10	0.00250
N-ethylperfluoro-1-octanesulfonamide	125	0.20	---	---	1	10	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	125	0.20	---	---	1	10	0.00250
N-methylperfluoro-1-octanesulfonamide	125	0.20	---	---	1	10	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	125	0.20	---	---	1	10	0.00250
nonafluoro-3,6-dioxaheptanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro (2-ethoxyethane) sulfonic acid	125	0.18	---	---	1	10	0.00223
Perfluoro-1-butanesulfonate	125	0.20	---	---	1	10	0.00250
Perfluoro-1-decanesulfonate	125	0.20	---	---	1	10	0.00253
Perfluoro-1-dodecanesulfonate	125	0.19	---	---	1	10	0.00243
Perfluoro-1-heptanesulfonate	125	0.20	---	---	1	10	0.00250
Perfluoro-1-hexanesulfonate	125	0.20	---	---	1	10	0.00250
Perfluoro-1-nonanesulfonate	125	0.20	---	---	1	10	0.00253
Perfluoro-1-octanesulfonamide	125	0.20	---	---	1	10	0.00250
Perfluoro-1-octanesulfonate	125	0.20	---	---	1	10	0.00250
perfluoro-1-pentanesulfonate	125	0.20	---	---	1	10	0.00250
Perfluoro-3-methoxypropanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-4-methoxybutanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-butanoic Acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-decanoic Acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-dodecanoic acid	125	0.20	---	---	1	10	0.00250

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/24/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM09**

Description: PFAS DoD ICC

Perfluoro-n-heptanoic Acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-hexadecanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-hexanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-octadecanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-octanoic Acid	125	0.20	---	---	1	10	0.00250
Perfluorononanoic Acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-pentanoic acid	125	0.20	---	---	1	10	0.00253
Perfluoro-n-tetradecanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-tridecanoic acid	125	0.20	---	---	1	10	0.00250
Perfluoro-n-undecanoic acid	125	0.20	---	---	1	10	0.00250

Final Concentrations:

Analyte:	**Conc (ug/mL):**
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-perfluorododecane sulfonate	.00242

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/24/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM09**

Description: PFAS DoD ICC

1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.00250
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-1-octanesulfonamide	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamide	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
nonafluoro-3,6-dioxaheptanoic acid	.00250
Perfluoro (2-ethoxyethane) sulfonic acid	.00223
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-dodecanesulfonate	.00243
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00250
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00250
perfluoro-1-pentanesulfonate	.00250
Perfluoro-3-methoxypropanoic acid	.00250
Perfluoro-4-methoxybutanoic acid	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexadecanoic acid	.00250
Perfluoro-n-hexanoic acid	.00250

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/24/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM09**

Description: PFAS DoD ICC

Perfluoro-n-octadecanoic acid	.00250
Perfluoro-n-octanoic Acid	.00250
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LM08	Pipette	B814657482

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 8/24/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 8/25/2021 1:59:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM19**

Description: PFAS DoD ICAL L3

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	100	0.50	---	---	1	10	0.00500
d3-MeFOSA	100	0.50	---	---	1	10	0.00500
d5-EtFOSA	100	0.50	---	---	1	10	0.00500
d7-MeFOSE	100	0.50	---	---	1	10	0.00500
d9-EtFOSE	100	0.50	---	---	1	10	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	100	0.50	---	---	1	10	0.00500
13C2-PFTeDA	100	0.50	---	---	1	10	0.00500
13C3-HFPO-DA	100	0.50	---	---	1	10	0.00500
13C3-PFBS	100	0.47	---	---	1	10	0.00466
13C3-PFHxS	100	0.47	---	---	1	10	0.00474
13C4-PFHpA	100	0.50	---	---	1	10	0.00500
13C5-PFHxA	100	0.50	---	---	1	10	0.00500
13C6-PFDA	100	0.50	---	---	1	10	0.00500
13C7-PFUnA	100	0.50	---	---	1	10	0.00500
13C8-PFOA	100	0.50	---	---	1	10	0.00500
13C8-PFOS	100	0.48	---	---	1	10	0.00479
13C9-PFNA	100	0.50	---	---	1	10	0.00500
d3-MeFOSAA	100	0.50	---	---	1	10	0.00500
d5-EtFOSAA	100	0.50	---	---	1	10	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	100	0.50	---	---	1	10	0.00500
13C2-PFOA	100	0.50	---	---	1	10	0.00500
13C3-PFBA	100	0.50	---	---	1	10	0.00500
13C4-PFOS	100	0.48	---	---	1	10	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	100	0.47	---	---	1	10	0.00469
13C2-6:2FTS	100	0.48	---	---	1	10	0.00476
13C2-8:2FTS	100	0.48	---	---	1	10	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM19**

Description: PFAS DoD ICAL L3

13C4-PFBA	100	0.50	---	---	1	10	0.00500
13C5-PFPeA	100	0.50	---	---	1	10	0.00500
13C8-FOSA	100	0.50	---	---	1	10	0.00500

Stock Id: LL87

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	50	0.05	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorodecane sulfonate	50	0.05	---	---	1	10	0.00025
1H,1H,2H,2H-perfluorododecane sulfonate	50	0.05	---	---	1	10	0.00024
1H,1H,2H,2H-Perfluorohexane sulfonate	50	0.05	---	---	1	10	0.00025
1H,1H,2H,2H-Perfluorooctane sulfonate	50	0.05	---	---	1	10	0.00025
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	50	0.05	---	---	1	10	0.00025
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	50	0.05	---	---	1	10	0.00025
3-Perfluoroheptyl propanoic acid	50	0.05	---	---	1	10	0.00025
3-Perfluoropentyl propanoic acid	50	0.05	---	---	1	10	0.00025
3-perfluoropropyl propanoic Acid	50	0.05	---	---	1	10	0.00025
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	50	0.05	---	---	1	10	0.00025
Adona	50	0.05	---	---	1	10	0.00025
Hexafluoropropylene oxide dimer acid	50	0.05	---	---	1	10	0.00025
N-ethylperfluoro-1-octanesulfonamide	50	0.05	---	---	1	10	0.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	50	0.05	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamide	50	0.05	---	---	1	10	0.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	50	0.05	---	---	1	10	0.00025
nonafluoro-3,6-dioxaheptanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro (2-ethoxyethane) sulfonic acid	50	0.04	---	---	1	10	0.00022
Perfluoro-1-butanesulfonate	50	0.05	---	---	1	10	0.00025
Perfluoro-1-decanesulfonate	50	0.05	---	---	1	10	0.00025
Perfluoro-1-dodecanesulfonate	50	0.05	---	---	1	10	0.00024
Perfluoro-1-heptanesulfonate	50	0.05	---	---	1	10	0.00025
Perfluoro-1-hexanesulfonate	50	0.05	---	---	1	10	0.00025
Perfluoro-1-nonanesulfonate	50	0.05	---	---	1	10	0.00025
Perfluoro-1-octanesulfonamide	50	0.05	---	---	1	10	0.00025
Perfluoro-1-octanesulfonate	50	0.05	---	---	1	10	0.00025
perfluoro-1-pentanesulfonate	50	0.05	---	---	1	10	0.00025
Perfluoro-3-methoxypropanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-4-methoxybutanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-butanoic Acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-decanoic Acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-dodecanoic acid	50	0.05	---	---	1	10	0.00025

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM19**

Description: PFAS DoD ICAL L3

Perfluoro-n-heptanoic Acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-hexadecanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-hexanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-octadecanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-octanoic Acid	50	0.05	---	---	1	10	0.00025
Perfluorononanoic Acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-pentanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-tetradecanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-tridecanoic acid	50	0.05	---	---	1	10	0.00025
Perfluoro-n-undecanoic acid	50	0.05	---	---	1	10	0.00025

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00025
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.00025
1H,1H,2H,2H-perfluorododecane sulfonate	.00024

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM19**

Description: PFAS DoD ICAL L3

1H,1H,2H,2H-Perfluorohexane sulfonate	.00025
1H,1H,2H,2H-Perfluorooctane sulfonate	.00025
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.00025
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.00025
3-Perfluoroheptyl propanoic acid	.00025
3-Perfluoropentyl propanoic acid	.00025
3-perfluoropropyl propanoic Acid	.00025
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00025
Adona	.00025
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.00025
N-ethylperfluoro-1-octanesulfonamide	.00025
N-ethylperfluoro-octanesulfonamidoacetic acid	.00025
N-methylperfluoro-1-octanesulfonamide	.00025
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00025
nonafluoro-3,6-dioxaheptanoic acid	.00025
Perfluoro (2-ethoxyethane) sulfonic acid	.00022
Perfluoro-1-butanesulfonate	.00025
Perfluoro-1-decanesulfonate	.00025
Perfluoro-1-dodecanesulfonate	.00024
Perfluoro-1-heptanesulfonate	.00025
Perfluoro-1-hexanesulfonate	.00025
Perfluoro-1-nonanesulfonate	.00025
Perfluoro-1-octanesulfonamide	.00025
Perfluoro-1-octanesulfonate	.00025
perfluoro-1-pentanesulfonate	.00025
Perfluoro-3-methoxypropanoic acid	.00025
Perfluoro-4-methoxybutanoic acid	.00025
Perfluoro-n-butanoic Acid	.00025
Perfluoro-n-decanoic Acid	.00025
Perfluoro-n-dodecanoic acid	.00025
Perfluoro-n-heptanoic Acid	.00025
Perfluoro-n-hexadecanoic acid	.00025
Perfluoro-n-hexanoic acid	.00025

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM19**

Description: PFAS DoD ICAL L3

Perfluoro-n-octadecanoic acid	.00025
Perfluoro-n-octanoic Acid	.00025
Perfluorononanoic Acid	.00025
Perfluoro-n-pentanoic acid	.00025
Perfluoro-n-tetradecanoic acid	.00025
Perfluoro-n-tridecanoic acid	.00025
Perfluoro-n-undecanoic acid	.00025

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LL87	Pipette	B814659662

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE

It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM20**

Description: PFAS DoD ICAL L5

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	200	0.50	---	---	1	20	0.00500
d3-MeFOSA	200	0.50	---	---	1	20	0.00500
d5-EtFOSA	200	0.50	---	---	1	20	0.00500
d7-MeFOSE	200	0.50	---	---	1	20	0.00500
d9-EtFOSE	200	0.50	---	---	1	20	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	200	0.50	---	---	1	20	0.00500
13C2-PFTeDA	200	0.50	---	---	1	20	0.00500
13C3-HFPO-DA	200	0.50	---	---	1	20	0.00500
13C3-PFBS	200	0.47	---	---	1	20	0.00466
13C3-PFHxS	200	0.47	---	---	1	20	0.00474
13C4-PFHpA	200	0.50	---	---	1	20	0.00500
13C5-PFHxA	200	0.50	---	---	1	20	0.00500
13C6-PFDA	200	0.50	---	---	1	20	0.00500
13C7-PFUnA	200	0.50	---	---	1	20	0.00500
13C8-PFOA	200	0.50	---	---	1	20	0.00500
13C8-PFOS	200	0.48	---	---	1	20	0.00479
13C9-PFNA	200	0.50	---	---	1	20	0.00500
d3-MeFOSAA	200	0.50	---	---	1	20	0.00500
d5-EtFOSAA	200	0.50	---	---	1	20	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	200	0.50	---	---	1	20	0.00500
13C2-PFOA	200	0.50	---	---	1	20	0.00500
13C3-PFBA	200	0.50	---	---	1	20	0.00500
13C4-PFOS	200	0.48	---	---	1	20	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	200	0.47	---	---	1	20	0.00469
13C2-6:2FTS	200	0.48	---	---	1	20	0.00476
13C2-8:2FTS	200	0.48	---	---	1	20	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM20**

Description: PFAS DoD ICAL L5

13C4-PFBA	200	0.50	---	---	1	20	0.00500
13C5-PFPeA	200	0.50	---	---	1	20	0.00500
13C8-FOSA	200	0.50	---	---	1	20	0.00500

Stock Id: LL87

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	400	0.05	---	---	1	20	0.00100
1H,1H,2H,2H-Perfluorodecane sulfonate	400	0.05	---	---	1	20	0.00101
1H,1H,2H,2H-perfluorododecane sulfonate	400	0.05	---	---	1	20	0.00097
1H,1H,2H,2H-Perfluorohexane sulfonate	400	0.05	---	---	1	20	0.00100
1H,1H,2H,2H-Perfluorooctane sulfonate	400	0.05	---	---	1	20	0.00100
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	400	0.05	---	---	1	20	0.00100
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	400	0.05	---	---	1	20	0.00100
3-Perfluoroheptyl propanoic acid	400	0.05	---	---	1	20	0.00100
3-Perfluoropentyl propanoic acid	400	0.05	---	---	1	20	0.00100
3-perfluoropropyl propanoic Acid	400	0.05	---	---	1	20	0.00100
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	400	0.05	---	---	1	20	0.00100
Adona	400	0.05	---	---	1	20	0.00100
Hexafluoropropylene oxide dimer acid	400	0.05	---	---	1	20	0.00100
N-ethylperfluoro-1-octanesulfonamide	400	0.05	---	---	1	20	0.00100
N-ethylperfluoro-octanesulfonamidoacetic acid	400	0.05	---	---	1	20	0.00100
N-methylperfluoro-1-octanesulfonamide	400	0.05	---	---	1	20	0.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	400	0.05	---	---	1	20	0.00100
nonafluoro-3,6-dioxaheptanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro (2-ethoxyethane) sulfonic acid	400	0.04	---	---	1	20	0.00089
Perfluoro-1-butanesulfonate	400	0.05	---	---	1	20	0.00100
Perfluoro-1-decanesulfonate	400	0.05	---	---	1	20	0.00101
Perfluoro-1-dodecanesulfonate	400	0.05	---	---	1	20	0.00097
Perfluoro-1-heptanesulfonate	400	0.05	---	---	1	20	0.00100
Perfluoro-1-hexanesulfonate	400	0.05	---	---	1	20	0.00100
Perfluoro-1-nonanesulfonate	400	0.05	---	---	1	20	0.00101
Perfluoro-1-octanesulfonamide	400	0.05	---	---	1	20	0.00100
Perfluoro-1-octanesulfonate	400	0.05	---	---	1	20	0.00100
perfluoro-1-pentanesulfonate	400	0.05	---	---	1	20	0.00100
Perfluoro-3-methoxypropanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-4-methoxybutanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-butanoic Acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-decanoic Acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-dodecanoic acid	400	0.05	---	---	1	20	0.00100

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM20**

Description: PFAS DoD ICAL L5

Perfluoro-n-heptanoic Acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-hexadecanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-hexanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-octadecanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-octanoic Acid	400	0.05	---	---	1	20	0.00101
Perfluorononanoic Acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-pentanoic acid	400	0.05	---	---	1	20	0.00101
Perfluoro-n-tetradecanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-tridecanoic acid	400	0.05	---	---	1	20	0.00100
Perfluoro-n-undecanoic acid	400	0.05	---	---	1	20	0.00100

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00100
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.00101
1H,1H,2H,2H-perfluorododecane sulfonate	.00097

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM20**

Description: PFAS DoD ICAL L5

1H,1H,2H,2H-Perfluorohexane sulfonate	.00100
1H,1H,2H,2H-Perfluorooctane sulfonate	.00100
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.00100
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.00100
3-Perfluoroheptyl propanoic acid	.00100
3-Perfluoropentyl propanoic acid	.00100
3-perfluoropropyl propanoic Acid	.00100
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00100
Adona	.00100
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.00100
N-ethylperfluoro-1-octanesulfonamide	.00100
N-ethylperfluoro-octanesulfonamidoacetic acid	.00100
N-methylperfluoro-1-octanesulfonamide	.00100
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00100
nonafluoro-3,6-dioxaheptanoic acid	.00100
Perfluoro (2-ethoxyethane) sulfonic acid	.00089
Perfluoro-1-butanesulfonate	.00100
Perfluoro-1-decanesulfonate	.00101
Perfluoro-1-dodecanesulfonate	.00097
Perfluoro-1-heptanesulfonate	.00100
Perfluoro-1-hexanesulfonate	.00100
Perfluoro-1-nonanesulfonate	.00101
Perfluoro-1-octanesulfonamide	.00100
Perfluoro-1-octanesulfonate	.00100
perfluoro-1-pentanesulfonate	.00100
Perfluoro-3-methoxypropanoic acid	.00100
Perfluoro-4-methoxybutanoic acid	.00100
Perfluoro-n-butanoic Acid	.00100
Perfluoro-n-decanoic Acid	.00100
Perfluoro-n-dodecanoic acid	.00100
Perfluoro-n-heptanoic Acid	.00100
Perfluoro-n-hexadecanoic acid	.00100
Perfluoro-n-hexanoic acid	.00100

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM20**

Description: PFAS DoD ICAL L5

Perfluoro-n-octadecanoic acid	.00100
Perfluoro-n-octanoic Acid	.00101
Perfluorononanoic Acid	.00100
Perfluoro-n-pentanoic acid	.00101
Perfluoro-n-tetradecanoic acid	.00100
Perfluoro-n-tridecanoic acid	.00100
Perfluoro-n-undecanoic acid	.00100

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814657482
LL41	Pipette	B814657482
LL42	Pipette	B814657482
LL55	Pipette	B814657482
LL87	Pipette	B814657482

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM21**

Description: PFAS DoD ICAL L6

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	200	0.50	---	---	1	20	0.00500
d3-MeFOSA	200	0.50	---	---	1	20	0.00500
d5-EtFOSA	200	0.50	---	---	1	20	0.00500
d7-MeFOSE	200	0.50	---	---	1	20	0.00500
d9-EtFOSE	200	0.50	---	---	1	20	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	200	0.50	---	---	1	20	0.00500
13C2-PFTeDA	200	0.50	---	---	1	20	0.00500
13C3-HFPO-DA	200	0.50	---	---	1	20	0.00500
13C3-PFBS	200	0.47	---	---	1	20	0.00466
13C3-PFHxS	200	0.47	---	---	1	20	0.00474
13C4-PFHpA	200	0.50	---	---	1	20	0.00500
13C5-PFHxA	200	0.50	---	---	1	20	0.00500
13C6-PFDA	200	0.50	---	---	1	20	0.00500
13C7-PFUnA	200	0.50	---	---	1	20	0.00500
13C8-PFOA	200	0.50	---	---	1	20	0.00500
13C8-PFOS	200	0.48	---	---	1	20	0.00479
13C9-PFNA	200	0.50	---	---	1	20	0.00500
d3-MeFOSAA	200	0.50	---	---	1	20	0.00500
d5-EtFOSAA	200	0.50	---	---	1	20	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	200	0.50	---	---	1	20	0.00500
13C2-PFOA	200	0.50	---	---	1	20	0.00500
13C3-PFBA	200	0.50	---	---	1	20	0.00500
13C4-PFOS	200	0.48	---	---	1	20	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	200	0.47	---	---	1	20	0.00469
13C2-6:2FTS	200	0.48	---	---	1	20	0.00476
13C2-8:2FTS	200	0.48	---	---	1	20	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM21**

Description: PFAS DoD ICAL L6

13C4-PFBA	200	0.50	---	---	1	20	0.00500
13C5-PFPeA	200	0.50	---	---	1	20	0.00500
13C8-FOSA	200	0.50	---	---	1	20	0.00500

Stock Id: LL86

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	100	0.50	---	---	1	20	0.00250
1H,1H,2H,2H-Perfluorodecane sulfonate	100	0.51	---	---	1	20	0.00253
1H,1H,2H,2H-perfluorododecane sulfonate	100	0.48	---	---	1	20	0.00242
1H,1H,2H,2H-Perfluorohexane sulfonate	100	0.50	---	---	1	20	0.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	100	0.50	---	---	1	20	0.00250
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	100	0.50	---	---	1	20	0.00250
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	100	0.50	---	---	1	20	0.00250
3-Perfluoroheptyl propanoic acid	100	0.50	---	---	1	20	0.00250
3-Perfluoropentyl propanoic acid	100	0.50	---	---	1	20	0.00250
3-perfluoropropyl propanoic Acid	100	0.50	---	---	1	20	0.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	100	0.50	---	---	1	20	0.00250
Adona	100	0.50	---	---	1	20	0.00250
Hexafluoropropylene oxide dimer acid	100	0.50	---	---	1	20	0.00250
N-ethylperfluoro-1-octanesulfonamide	100	0.50	---	---	1	20	0.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	100	0.50	---	---	1	20	0.00250
N-methylperfluoro-1-octanesulfonamide	100	0.50	---	---	1	20	0.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	100	0.50	---	---	1	20	0.00250
nonafluoro-3,6-dioxaheptanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro (2-ethoxyethane) sulfonic acid	100	0.45	---	---	1	20	0.00223
Perfluoro-1-butanesulfonate	100	0.50	---	---	1	20	0.00250
Perfluoro-1-decanesulfonate	100	0.51	---	---	1	20	0.00253
Perfluoro-1-dodecanesulfonate	100	0.49	---	---	1	20	0.00243
Perfluoro-1-heptanesulfonate	100	0.50	---	---	1	20	0.00250
Perfluoro-1-hexanesulfonate	100	0.50	---	---	1	20	0.00250
Perfluoro-1-nonanesulfonate	100	0.51	---	---	1	20	0.00253
Perfluoro-1-octanesulfonamide	100	0.50	---	---	1	20	0.00250
Perfluoro-1-octanesulfonate	100	0.50	---	---	1	20	0.00250
perfluoro-1-pentanesulfonate	100	0.50	---	---	1	20	0.00250
Perfluoro-3-methoxypropanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-4-methoxybutanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-butanoic Acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-decanoic Acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-dodecanoic acid	100	0.50	---	---	1	20	0.00250

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM21**

Description: PFAS DoD ICAL L6

Perfluoro-n-heptanoic Acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-hexadecanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-hexanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-octadecanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-octanoic Acid	100	0.51	---	---	1	20	0.00253
Perfluorononanoic Acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-pentanoic acid	100	0.51	---	---	1	20	0.00253
Perfluoro-n-tetradecanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-tridecanoic acid	100	0.50	---	---	1	20	0.00250
Perfluoro-n-undecanoic acid	100	0.50	---	---	1	20	0.00250

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.00250
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.00253
1H,1H,2H,2H-perfluorododecane sulfonate	.00242

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM21**

Description: PFAS DoD ICAL L6

1H,1H,2H,2H-Perfluorohexane sulfonate	.00250
1H,1H,2H,2H-Perfluorooctane sulfonate	.00250
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.00250
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.00250
3-Perfluoroheptyl propanoic acid	.00250
3-Perfluoropentyl propanoic acid	.00250
3-perfluoropropyl propanoic Acid	.00250
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.00250
Adona	.00250
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.00250
N-ethylperfluoro-1-octanesulfonamide	.00250
N-ethylperfluoro-octanesulfonamidoacetic acid	.00250
N-methylperfluoro-1-octanesulfonamide	.00250
N-methylperfluoro-1-octanesulfonamidoacetic acid	.00250
nonafluoro-3,6-dioxaheptanoic acid	.00250
Perfluoro (2-ethoxyethane) sulfonic acid	.00223
Perfluoro-1-butanesulfonate	.00250
Perfluoro-1-decanesulfonate	.00253
Perfluoro-1-dodecanesulfonate	.00243
Perfluoro-1-heptanesulfonate	.00250
Perfluoro-1-hexanesulfonate	.00250
Perfluoro-1-nonanesulfonate	.00253
Perfluoro-1-octanesulfonamide	.00250
Perfluoro-1-octanesulfonate	.00250
perfluoro-1-pentanesulfonate	.00250
Perfluoro-3-methoxypropanoic acid	.00250
Perfluoro-4-methoxybutanoic acid	.00250
Perfluoro-n-butanoic Acid	.00250
Perfluoro-n-decanoic Acid	.00250
Perfluoro-n-dodecanoic acid	.00250
Perfluoro-n-heptanoic Acid	.00250
Perfluoro-n-hexadecanoic acid	.00250
Perfluoro-n-hexanoic acid	.00250

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 2 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM21**

Description: PFAS DoD ICAL L6

Perfluoro-n-octadecanoic acid	.00250
Perfluoro-n-octanoic Acid	.00253
Perfluorononanoic Acid	.00250
Perfluoro-n-pentanoic acid	.00253
Perfluoro-n-tetradecanoic acid	.00250
Perfluoro-n-tridecanoic acid	.00250
Perfluoro-n-undecanoic acid	.00250

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814657482
LL41	Pipette	B814657482
LL42	Pipette	B814657482
LL55	Pipette	B814657482
LL86	Pipette	B814659662

Solution Prepared By: Harnden, Kelsey	**Date Prepared:** 9/2/2021	**Expiration Date:** 2/25/2022	
Solution Volume : 10 **mL X** 2 **Vials**	**Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121		

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM22**

Description: PFAS DoD ICAL L9

Stock Id: LJ46

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFHxDA	100	0.50	---	---	1	10	0.00500
d3-MeFOSA	100	0.50	---	---	1	10	0.00500
d5-EtFOSA	100	0.50	---	---	1	10	0.00500
d7-MeFOSE	100	0.50	---	---	1	10	0.00500
d9-EtFOSE	100	0.50	---	---	1	10	0.00500

Stock Id: LL41

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDoA	100	0.50	---	---	1	10	0.00500
13C2-PFTeDA	100	0.50	---	---	1	10	0.00500
13C3-HFPO-DA	100	0.50	---	---	1	10	0.00500
13C3-PFBS	100	0.47	---	---	1	10	0.00466
13C3-PFHxS	100	0.47	---	---	1	10	0.00474
13C4-PFHpA	100	0.50	---	---	1	10	0.00500
13C5-PFHxA	100	0.50	---	---	1	10	0.00500
13C6-PFDA	100	0.50	---	---	1	10	0.00500
13C7-PFUnA	100	0.50	---	---	1	10	0.00500
13C8-PFOA	100	0.50	---	---	1	10	0.00500
13C8-PFOS	100	0.48	---	---	1	10	0.00479
13C9-PFNA	100	0.50	---	---	1	10	0.00500
d3-MeFOSAA	100	0.50	---	---	1	10	0.00500
d5-EtFOSAA	100	0.50	---	---	1	10	0.00500

Stock Id: LL42

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-PFDA	100	0.50	---	---	1	10	0.00500
13C2-PFOA	100	0.50	---	---	1	10	0.00500
13C3-PFBA	100	0.50	---	---	1	10	0.00500
13C4-PFOS	100	0.48	---	---	1	10	0.00479

Stock Id: LL55

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
13C2-4:2FTS	100	0.47	---	---	1	10	0.00469
13C2-6:2FTS	100	0.48	---	---	1	10	0.00476
13C2-8:2FTS	100	0.48	---	---	1	10	0.00480

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM22**

Description: PFAS DoD ICAL L9

13C4-PFBA	100	0.50	---	---	1	10	0.00500
13C5-PFPeA	100	0.50	---	---	1	10	0.00500
13C8-FOSA	100	0.50	---	---	1	10	0.00500

Stock Id: **LL86**

Chemical Name	Stock Amount uL	Initial Conc. (ug/mL)	Density (g/mL)	Purity	Conv. Factor	Final Vol mL	Concentration (ug/mL)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic aci	1000	0.50	---	---	1	10	0.05000
1H,1H,2H,2H-Perfluorodecane sulfonate	1000	0.51	---	---	1	10	0.05050
1H,1H,2H,2H-perfluorododecane sulfonate	1000	0.48	---	---	1	10	0.04830
1H,1H,2H,2H-Perfluorohexane sulfonate	1000	0.50	---	---	1	10	0.05000
1H,1H,2H,2H-Perfluorooctane sulfonate	1000	0.50	---	---	1	10	0.05000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	1000	0.50	---	---	1	10	0.05000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	1000	0.50	---	---	1	10	0.05000
3-Perfluoroheptyl propanoic acid	1000	0.50	---	---	1	10	0.05000
3-Perfluoropentyl propanoic acid	1000	0.50	---	---	1	10	0.05000
3-perfluoropropyl propanoic Acid	1000	0.50	---	---	1	10	0.05000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic aci	1000	0.50	---	---	1	10	0.05000
Adona	1000	0.50	---	---	1	10	0.05000
Hexafluoropropylene oxide dimer acid	1000	0.50	---	---	1	10	0.05000
N-ethylperfluoro-1-octanesulfonamide	1000	0.50	---	---	1	10	0.05000
N-ethylperfluoro-octanesulfonamidoacetic acid	1000	0.50	---	---	1	10	0.05000
N-methylperfluoro-1-octanesulfonamide	1000	0.50	---	---	1	10	0.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	1000	0.50	---	---	1	10	0.05000
nonafluoro-3,6-dioxaheptanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro (2-ethoxyethane) sulfonic acid	1000	0.45	---	---	1	10	0.04460
Perfluoro-1-butanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-decanesulfonate	1000	0.51	---	---	1	10	0.05050
Perfluoro-1-dodecanesulfonate	1000	0.49	---	---	1	10	0.04850
Perfluoro-1-heptanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-hexanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-nonanesulfonate	1000	0.51	---	---	1	10	0.05050
Perfluoro-1-octanesulfonamide	1000	0.50	---	---	1	10	0.05000
Perfluoro-1-octanesulfonate	1000	0.50	---	---	1	10	0.05000
perfluoro-1-pentanesulfonate	1000	0.50	---	---	1	10	0.05000
Perfluoro-3-methoxypropanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-4-methoxybutanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-butanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-decanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-dodecanoic acid	1000	0.50	---	---	1	10	0.05000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM22**

Description: PFAS DoD ICAL L9

Perfluoro-n-heptanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-hexadecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-hexanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-octadecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-octanoic Acid	1000	0.51	---	---	1	10	0.05050
Perfluorononanoic Acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-pentanoic acid	1000	0.51	---	---	1	10	0.05050
Perfluoro-n-tetradecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-tridecanoic acid	1000	0.50	---	---	1	10	0.05000
Perfluoro-n-undecanoic acid	1000	0.50	---	---	1	10	0.05000

Final Concentrations:

Analyte:	Conc (ug/mL):
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	.05000
13C2-4:2FTS	.00469
13C2-6:2FTS	.00476
13C2-8:2FTS	.00480
13C2-PFDA	.00500
13C2-PFDoA	.00500
13C2-PFHxDA	.00500
13C2-PFOA	.00500
13C2-PFTeDA	.00500
13C3-HFPO-DA	.00500
13C3-PFBA	.00500
13C3-PFBS	.00466
13C3-PFHxS	.00474
13C4-PFBA	.00500
13C4-PFHpA	.00500
13C4-PFOS	.00479
13C5-PFHxA	.00500
13C5-PFPeA	.00500
13C6-PFDA	.00500
13C7-PFUnA	.00500
13C8-FOSA	.00500
13C8-PFOA	.00500
13C8-PFOS	.00479
13C9-PFNA	.00500
1H,1H,2H,2H-Perfluorodecane sulfonate	.05050
1H,1H,2H,2H-perfluorododecane sulfonate	.04830

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM22**

Description: PFAS DoD ICAL L9

1H,1H,2H,2H-Perfluorohexane sulfonate	.05000
1H,1H,2H,2H-Perfluorooctane sulfonate	.05000
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	.05000
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	.05000
3-Perfluoroheptyl propanoic acid	.05000
3-Perfluoropentyl propanoic acid	.05000
3-perfluoropropyl propanoic Acid	.05000
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	.05000
Adona	.05000
d3-MeFOSA	.00500
d3-MeFOSAA	.00500
d5-EtFOSA	.00500
d5-EtFOSAA	.00500
d7-MeFOSE	.00500
d9-EtFOSE	.00500
Hexafluoropropylene oxide dimer acid	.05000
N-ethylperfluoro-1-octanesulfonamide	.05000
N-ethylperfluoro-octanesulfonamidoacetic acid	.05000
N-methylperfluoro-1-octanesulfonamide	.05000
N-methylperfluoro-1-octanesulfonamidoacetic acid	.05000
nonafluoro-3,6-dioxaheptanoic acid	.05000
Perfluoro (2-ethoxyethane) sulfonic acid	.04460
Perfluoro-1-butanesulfonate	.05000
Perfluoro-1-decanesulfonate	.05050
Perfluoro-1-dodecanesulfonate	.04850
Perfluoro-1-heptanesulfonate	.05000
Perfluoro-1-hexanesulfonate	.05000
Perfluoro-1-nonanesulfonate	.05050
Perfluoro-1-octanesulfonamide	.05000
Perfluoro-1-octanesulfonate	.05000
perfluoro-1-pentanesulfonate	.05000
Perfluoro-3-methoxypropanoic acid	.05000
Perfluoro-4-methoxybutanoic acid	.05000
Perfluoro-n-butanoic Acid	.05000
Perfluoro-n-decanoic Acid	.05000
Perfluoro-n-dodecanoic acid	.05000
Perfluoro-n-heptanoic Acid	.05000
Perfluoro-n-hexadecanoic acid	.05000
Perfluoro-n-hexanoic acid	.05000

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

Standard Solution Concentrations

Approved: ☑

Standard Laboratory ID Number: **LM22**

Description: PFAS DoD ICAL L9

Perfluoro-n-octadecanoic acid	.05000
Perfluoro-n-octanoic Acid	.05050
Perfluorononanoic Acid	.05000
Perfluoro-n-pentanoic acid	.05050
Perfluoro-n-tetradecanoic acid	.05000
Perfluoro-n-tridecanoic acid	.05000
Perfluoro-n-undecanoic acid	.05000

Syringes/Pipettes:

Stock ID:	Type:	Battelle ID:
LJ46	Pipette	B814659662
LL41	Pipette	B814659662
LL42	Pipette	B814659662
LL55	Pipette	B814659662
LL86	Pipette	B820865811

Solution Prepared By: Harnden, Kelsey **Date Prepared:** 9/2/2021 **Expiration Date:** 2/25/2022

Solution Volume : 10 **mL X** 1 **Vials** **Refrigerator/Freezer No:** VOC Laboratory: Refrigerator - R0121

Comment: Methanol with 4% water, 1% NH3OH and 0.625% Acetic Acid

Approved By: Lizotte Jr, Robert **Date:** 9/8/2021 12:24:00 PM

BATTELLE
It can be done

BDO Id: 210216-01

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	L-PFDoS	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	L-PFDoS	Expires:	11/18/2025
Type:	Solution	Consumed:	
Lot No:	LPFDoS1120	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	L-PFDoS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-1-dodecanesulfonate	79780-39-5	48.5000	98.00	--	--	☐			1

Total Analytes: 1

Notes:

	Analyte:	Comment:
1	Perfluoro-1-dodecanesulfonate	Acid

Approved by: ______ Approved on: ______

Authorized by: ______ Authorized on: ______

WELLINGTON LABORATORIES

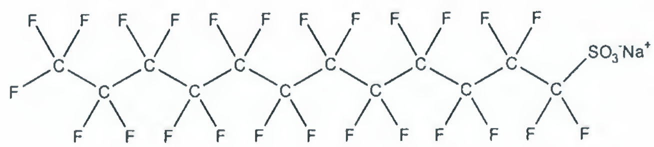
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFDoS

COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS1120

STRUCTURE:



CAS #: 1260224-54-1

MOLECULAR FORMULA: $C_{12}F_{25}SO_3Na$

CONCENTRATION: 50.0 ± 2.5 μg/mL (Na salt)
48.5 ± 2.4 μg/mL (PFDoS acid)
48.4 ± 2.4 μg/mL (PFDoS anion)

MOLECULAR WEIGHT: 722.14

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 11/18/2020

EXPIRY DATE: (mm/dd/yyyy) 11/18/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

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Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/15/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-02

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFEESA	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	PFEESA	Expires:	5/13/2025
Type:	Solution	Consumed:	
Lot No:	PFEESA0520	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	PFEESA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro (2-ethoxyethane) sulfonic a	113507-82-7	44.6000	98.00	--	--	☐			1

Total Analytes: 1

Notes:

	Analyte:	Comment:
1	Perfluoro (2-ethoxyethane) sulfonic acid	Acid

Approved by: ____________ Approved on: ____________

Authorized by: ____________ Authorized on: ____________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

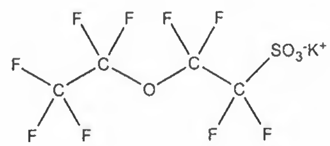
PRODUCT CODE: PFEESA

LOT NUMBER: PFEESA0520

COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE:

CAS #: 117205-07-9



MOLECULAR FORMULA: $C_4F_9SO_4K$

MOLECULAR WEIGHT: 354.19

CONCENTRATION: 50.0 ± 2.5 μg/ml (K salt)
44.6 ± 2.2 μg/ml (PFEESA acid)
44.5 ± 2.2 μg/ml (PFEESA anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 05/29/2020 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE
It can be done

BDO Id: 210216-03

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	10:2FTS	**Received:**	2/16/2021
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	10:2FTS	**Expires:**	8/17/2023
Type:	Solution	**Consumed:**	
Lot No:	102FTS0820	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL **% Moisture:**		
Description:	10:2FTS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
1H,1H,2H,2H-perfluorododecane sulf	BDO-2401	48.3000	98.00	--	--	☐			1

Total Analytes: 1

Notes:

	Analyte:	Comment:
1	1H,1H,2H,2H-perfluorododecane sulfonate	Acid

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

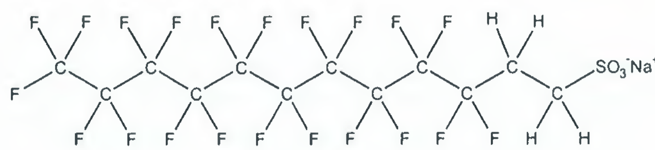
PRODUCT CODE: 10:2FTS

LOT NUMBER: 102FTS0820

COMPOUND: Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

STRUCTURE:

CAS #: 108026-35-3



MOLECULAR FORMULA: $C_{12}H_4F_{21}SO_3Na$

MOLECULAR WEIGHT: 650.18

CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
48.3 ± 2.4 µg/ml (10:2FTS acid)
48.2 ± 2.4 µg/ml (10:2FTS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 08/17/2020

EXPIRY DATE: (mm/dd/yyyy) 08/17/2023

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 08/28/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-04

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	N-MeFOSA-M	**Received:**	2/16/2021
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	N-MeFOSA-M	**Expires:**	10/20/2025
Type:	Solution	**Consumed:**	
Lot No:	NMeFOSA1020M	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	N-MeFOSA-M		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-methylperfluoro-1-octanesulfonami	31506-32-8	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

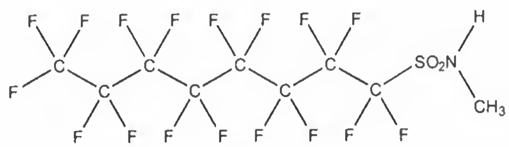
PRODUCT CODE: N-MeFOSA-M

COMPOUND: N-methylperfluoro-1-octanesulfonamide

LOT NUMBER: NMeFOSA1020M

STRUCTURE:

CAS #: 31506-32-8



MOLECULAR FORMULA: $C_9H_4F_{17}NO_2S$

CONCENTRATION: 50.0 ± 2.5 μg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 10/20/2020

EXPIRY DATE: (mm/dd/yyyy) 10/20/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 513.17

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 10/21/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-05

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	N-EtFOSA-M	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	N-EtFOSA-M	Expires:	11/23/2025
Type:	Solution	Consumed:	
Lot No:	N-EtFOSA-M	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	N-EtFOSA-M		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-ethylperfluoro-1-octanesulfonamid	4151-50-2	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: Approved on:

Authorized by: Authorized on:

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

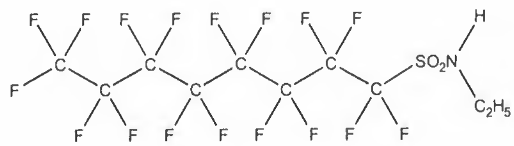
PRODUCT CODE: N-EtFOSA-M

LOT NUMBER: NEtFOSA1120M

COMPOUND: N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA: $C_{10}H_6F_{17}NO_2S$

MOLECULAR WEIGHT: 527.20

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 11/23/2020

EXPIRY DATE: (mm/dd/yyyy) 11/23/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.5% branched isomers of N-ethylperfluorooctanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 12/15/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-06

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	N-MeFOSE-M	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	N-MeFOSE-M	Expires:	10/9/2025
Type:	Solution	Consumed:	
Lot No:	N-MeFOSE-M	Stored In:	VOC Laboratory - R0121
Quantity:	1 ea mL	% Moisture:	
Description:	N-MeFOSE-M		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
2-(N-methylperfluoro-1-octanesulfon	24448-09-7	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________________ Approved on: ____________________

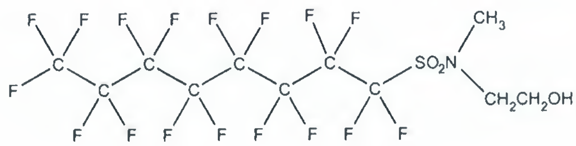
Authorized by: ____________________ Authorized on: ____________________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M
LOT NUMBER: NMeFOSE1020M
COMPOUND: 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE:
CAS #: 24448-09-7



MOLECULAR FORMULA: $C_{11}H_8F_{17}NO_3S$
MOLECULAR WEIGHT: 557.22
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/09/2020 (HRGC/LRMS)
10/09/2020 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy) 10/09/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (TIC and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager
Date: 10/09/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-07

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	N-EtFOSE-M	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	N-EtFOSE-M	Expires:	10/6/2025
Type:	Solution	Consumed:	
Lot No:	N-EtFOSE-M	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	N-EtFOSE-M		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
2-(N-ethylperfluoro-1-octanesulfona	1691-99-2	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ______ Approved on: ______

Authorized by: ______ Authorized on: ______

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

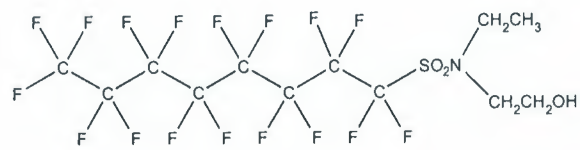
PRODUCT CODE: N-EtFOSE-M

LOT NUMBER: NEtFOSE1020M

COMPOUND: 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol

STRUCTURE:

CAS #: 1691-99-2



MOLECULAR FORMULA: $C_{12}H_{10}F_{17}NO_3S$

MOLECULAR WEIGHT: 571.25

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 10/05/2020 (HRGC/LRMS)
10/06/2020 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy) 10/06/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (TIC and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 10/20/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-08

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PF4OPeA	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	PF4OPeA	Expires:	3/31/2025
Type:	Solution	Consumed:	
Lot No:	PF4OPeA0320	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	PF4OPeA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-4-oxapentanoic acid	377-73-1	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

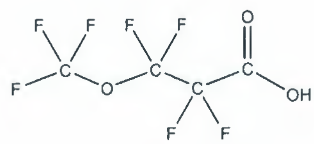
Approved by:		Approved on:	
Authorized by:		Authorized on:	

210216-08

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF4OPeA
LOT NUMBER: PF4OPeA0320
COMPOUND: Perfluoro-4-oxapentanoic acid
SYNONYM: Perfluoro-3-methoxypropanoic acid (PFMPA)
STRUCTURE:
CAS #: 377-73-1



MOLECULAR FORMULA: $C_4HF_7O_3$
MOLECULAR WEIGHT: 230.04
CONCENTRATION: 50.0 ± 2.5 μg/mL
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/31/2020
EXPIRY DATE: (mm/dd/yyyy) 03/31/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/21/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-09

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	3,6-OPFHpA	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	3,6-OPFHpA	Expires:	3/31/2025
Type:	Solution	Consumed:	
Lot No:	36OPFHpA0320	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL % Moisture:		
Description:	3,6-OPFHpA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-3,6-dioxaheptanoic acid	151772-58-6	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: Approved on:

Authorized by: Authorized on:

210216-09

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

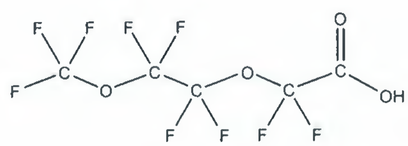
PRODUCT CODE: 3,6-OPFHpA

COMPOUND: Perfluoro-3,6-dioxaheptanoic acid

LOT NUMBER: 36OPFHpA0320

STRUCTURE:

CAS #: 151772-58-6



MOLECULAR FORMULA: $C_5HF_9O_4$

CONCENTRATION: 50.0 ± 2.5 μg/ml

MOLECULAR WEIGHT: 296.04

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/31/2020

EXPIRY DATE: (mm/dd/yyyy) 03/31/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 05/27/2020 (mm/dd/yyyy)

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It can be done

BDO Id: 210216-10

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PF5OHxA	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	PF5OHxA	Expires:	3/31/2025
Type:	Solution	Consumed:	
Lot No:	PF5OHxA0320	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	PF5OHxA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-5-oxahexanoic acid	863090-89-5	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ Approved on: ____________

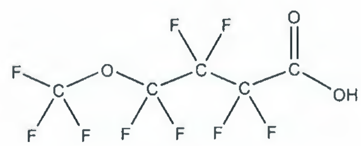
Authorized by: ____________ Authorized on: ____________

210216-10

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PF5OHxA
LOT NUMBER: PF5OHxA0320
COMPOUND: Perfluoro-5-oxahexanoic acid
SYNONYM: Perfluoro-4-methoxybutanoic acid (PFMBA)
STRUCTURE:
CAS #: 863090-89-5



MOLECULAR FORMULA: $C_5HF_9O_3$
MOLECULAR WEIGHT: 280.05
CONCENTRATION: 50.0 ± 2.5 µg/mL
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/31/2020
EXPIRY DATE: (mm/dd/yyyy) 03/31/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/21/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210216-11

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFHxDA	Received:	2/16/2021
Vendor:	Wellington Laboratories	Custodian:	Schumitz, Matt
Catalogue No:	PFHxDA	Expires:	8/25/2025
Type:	Solution	Consumed:	
Lot No:	PFHxDA0820	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea mL	% Moisture:	
Description:	PFHxDA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-n-hexadecanoic acid	67905-19-5	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: Approved on:

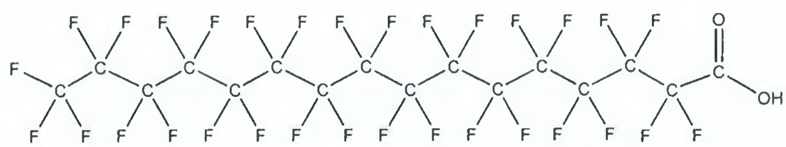
Authorized by: Authorized on:

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxDA
COMPOUND: Perfluoro-n-hexadecanoic acid
LOT NUMBER: PFHxDA0820

STRUCTURE:
CAS #: 67905-19-5



MOLECULAR FORMULA: $C_{16}HF_{31}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/ml
MOLECULAR WEIGHT: 814.13
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/25/2020
EXPIRY DATE: (mm/dd/yyyy) 08/25/2025
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager
Date: 08/27/2020 (mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 210216-12

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFODA	**Received:**	2/16/2021
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	PFODA	**Expires:**	11/13/2025
Type:	Solution	**Consumed:**	
Lot No:	PFODA1020	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	PFODA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
Perfluoro-n-octadecanoic acid	16517-11-6	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ______ **Approved on:** ______

Authorized by: ______ **Authorized on:** ______

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

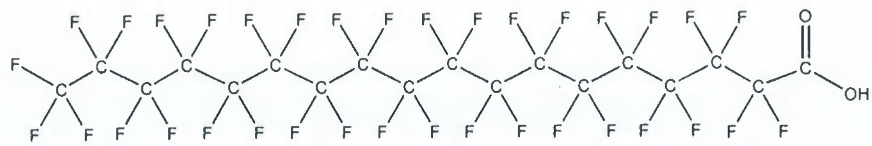
PRODUCT CODE: PFODA

LOT NUMBER: PFODA1020

COMPOUND: Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #: 16517-11-6



MOLECULAR FORMULA: $C_{18}HF_{35}O_2$

MOLECULAR WEIGHT: 914.14

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 11/13/2020

EXPIRY DATE: (mm/dd/yyyy) 11/13/2025

RECOMMENDED STORAGE: Store ampoule at ambient temperature in a dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 11/17/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210407-05**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: 13C2-PFHxDA
Vendor: Wellington Laboratories
Catalogue No: M2PFHxDA
Type: Solution
Lot No: M2PFHxDA1220
Quantity: 1 ea mL **% Moisture:**
Description: 13C2-PFHxDA

Received: 4/7/2021
Custodian: Harnden, Kelsey
Expires: 1/15/2026
Consumed:
Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFHxDA	BDO-2430	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

210407-05

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

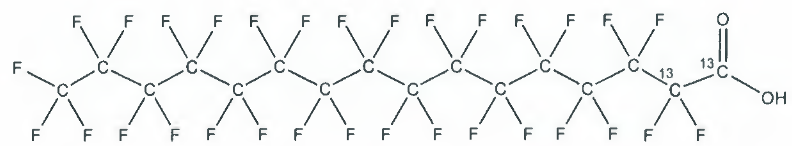
PRODUCT CODE: M2PFHxDA

COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)hexadecanoic acid

LOT NUMBER: M2PFHxDA1220

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_{14}HF_{31}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 01/15/2021

EXPIRY DATE: (mm/dd/yyyy) 01/15/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 816.11

SOLVENT(S): Methanol
Water (<1%)

ISOTOPIC PURITY: ≥99% ^{13}C
(1,2-$^{13}C_2$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.5% of native perfluoro-n-hexadecanoic acid and ~0.4% of perfluoro-n-($^{13}C_1$)pentadecanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 02/01/2021
(mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210407-06

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	d-N-EtFOSA-M	**Received:**	4/7/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	d-N-EtFOSA-M	**Expires:**	11/23/2025
Type:	Solution	**Consumed:**	
Lot No:	dNEtFOSA1120M	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	d-N-EtFOSA-M		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-ethylperfluoro-1-octanesulfonamid	4151-50-2	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____ **Approved on:** ____

Authorized by: ____ **Authorized on:** ____

210407-06

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

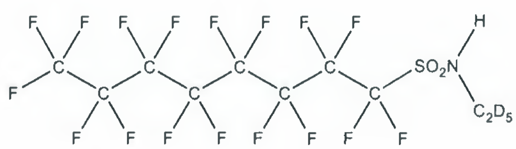
PRODUCT CODE: d-N-EtFOSA-M

LOT NUMBER: dNEtFOSA1120M

COMPOUND: N-ethyl-d_5-perfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$C_{10}D_5HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	532.23
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	$\geq$98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	11/23/2020		
EXPIRY DATE: (mm/dd/yyyy)	11/23/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 12/15/2020
(mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210407-07

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	d-N-MeFOSA-M	**Received:**	4/7/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	d-N-MeFOSA-M	**Expires:**	8/6/2025
Type:	Solution	**Consumed:**	
Lot No:	dNMeFOSA0820M	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL **% Moisture:**		
Description:	d-N-MeFOSA-M		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
N-methylperfluoro-1-octanesulfonami	31506-32-8	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210407-07

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

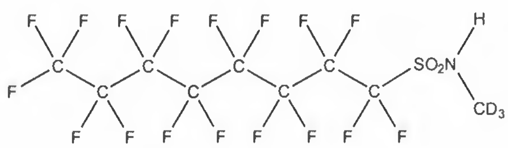
PRODUCT CODE: d-N-MeFOSA-M

LOT NUMBER: dNMeFOSA0820M

COMPOUND: N-methyl-d_3-perfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$C_9D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	516.19
CONCENTRATION:	50.0 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	$\geq$98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	08/06/2020		
EXPIRY DATE: (mm/dd/yyyy)	08/06/2025		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 08/07/2020
(mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210407-08**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	d7-N-MeFOSE-M	**Received:**	4/7/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	d7-N-MeFOSE-M	**Expires:**	1/6/2026
Type:	Solution	**Consumed:**	
Lot No:	d7NMeFOSE1220M	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	

Description: d7-N-MeFOSE-M

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
2-(N-methylperfluoro-1-octanesulfon	24448-09-7	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210407-08

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

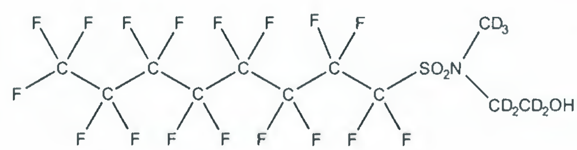
PRODUCT CODE: d7-N-MeFOSE-M

LOT NUMBER: d7NMeFOSE1220M

COMPOUND: 2-(N-methyl-d3-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE:

CAS #: 1265205-95-5



MOLECULAR FORMULA:	$C_{11}D_7HF_{17}NO_3S$	**MOLECULAR WEIGHT:**	564.27
CONCENTRATION:	50.0 ± 2.5 µg/mL	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	$\geq$98% $^2H_7$
LAST TESTED: (mm/dd/yyyy)	01/06/2021 (HRGC/LRMS) 12/23/2020 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	01/06/2026		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 01/18/2021 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE
It can be done

BDO Id: 210407-09

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: d9-N-EtFOSE-M
Vendor: Wellington Laboratories
Catalogue No: d9-N-EtFOSE-M
Type: Solution
Lot No: d9NEtFOSE1220M
Quantity: 1 ea mL **% Moisture:**
Description: d9-N-EtFOSE-M

Received: 4/7/2021
Custodian: Harnden, Kelsey
Expires: 12/30/2025
Consumed:
Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
2-(N-ethylperfluoro-1-octanesulfona	1691-99-2	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

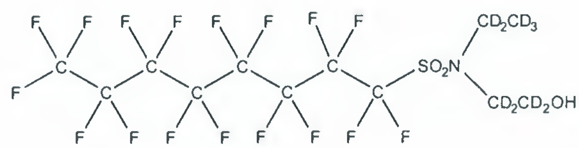
PRODUCT CODE: d9-N-EtFOSE-M

LOT NUMBER: d9NEtFOSE1220M

COMPOUND: 2-(N-ethyl-d5-perfluoro-1-octanesulfonamido)ethan-d4-ol

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $C_{12}D_9HF_{17}NO_3S$

CONCENTRATION: 50.0 ± 2.5 µg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 12/30/2020 (HRGC/LRMS)
12/23/2020 (LC/MS)

EXPIRY DATE: (mm/dd/yyyy) 12/30/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 580.31

SOLVENT(S): Methanol

ISOTOPIC PURITY: $\geq$98% $^2H_9$

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 01/11/2021 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE
It can be done

BDO Id: 210628-04

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	Method 537.1 Analyte Primary Dilutio	**Received:**	6/28/2021
Vendor:	Cambridge Isotope Laborat	**Custodian:**	Schumitz, Matt
Catalogue No:	ES-5631	**Expires:**	9/29/2025
Type:	Solution	**Consumed:**	
Lot No:	PR-31374	**Stored In:**	Sample Preparation - C0103
Quantity:	4 ea mL	**% Moisture:**	

Description: Method 537.1 Analyte Primary Dilution STD

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	2.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	2.0000	100.00	--	--	☐			
Adona	919005-14-4	2.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	2.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	2.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	2.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonate	375-73-5	2.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	2.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	2.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	2.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	2.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	2.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	2.0000	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	2.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	2.0000	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	2.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	2.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	2.0000	100.00	--	--	☐			

Total Analytes: 18

Notes:

Approved by:		**Approved on:**	
Authorized by:		**Authorized on:**	

210628-04

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Product Description: Method 537.1 Analyte Primary Dilution STD (PDS)
Catalog Number: ES-5631
Lot Number: PR-31374
Solvent: Methanol (w/ 4Molar Equivalents NaOH)
Volume per Ampoule: 1.2 mL
Storage Conditions: Store at room temperature away from light and moisture.
Intended Use: For Research Use Only. Not for use in diagnostic procedures.
QC Release Date: September 29, 2020
Expiration Date: September 29, 2025

Component	Acronym	Target Concentration (ng/mL)	Gravimetric Concentration of Salt ± Uncertainty, (k=2) (ng/mL)	Gravimetric Concentration of Free Acid ± Uncertainty (k=2) (ng/mL)
Perfluorohexanoic acid, sodium salt	PFHxA	2,000	2,140 ± 32	2,000 ± 32
Perfluoroheptanoic acid	PFHpA	2,000	-	2,000 ± 20
Perfluorooctanoic acid	PFOA	2,000	-	2,000 ± 20
Perfluorononanoic acid	PFNA	2,000	-	2,000 ± 20
Perfluorodecanoic acid, sodium salt	PFDA	2,000	2,086 ± 21	2,000 ± 21
Perfluoroundecanoic acid, sodium salt	PFUdA	2,000	2,078 ± 32	2,000 ± 32
Perfluorododecanoic acid, sodium salt	PFDoA	2,000	2,072 ± 34	2,000 ± 34
Perfluorotridecanoic acid	PFTrDA	2,000	-	2,000 ± 32
Perfluorotetradecanoic acid	PFTeDA	2,000	-	2,000 ± 31
Perfluorobutanesulfonate potassium salt	PFBS	2,000	2,254 ± 23	2,000 ± 23
Potassium perfluorohexanesulfonate (mixed isomers),	PFHxS	2,000	2,190 ± 22	2,000 ± 22
Perfluorooctanesulfonate (mixed isomers)	PFOS	2,000	-	2,000 ± 32
N-Ethylperfluorooctanesulfonamidoacetic acid (mixed isomers)	N-EtFOSAA	2,000	-	2,000 ± 32
N-Methylperfluorooctanesulfonamidoacetic acid (mixed isomers)	N-MeFOSAA	2,000	-	2,000 ± 20
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid "GENX"	HFPO-DA	2,000	-	2,000 ± 20
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid, potassium salt	11CL-PF3OUDS	2,000	2,121 ± 21	2,000 ± 21
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid, potassium salt	9CL-PF3ONS	2,000	2,143 ± 26	2,000 ± 26
Dodecafluoro-3H-4,8-dioxanonanoic acid, sodium salt	NaDONA	2,000	2,116 ± 106	2,000 ± 106

Notes:

- Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

CIL subscribes to the following standards for different products: ISO Guide 34, ISO/IEC 17025, ISO 13485 and cGMP as appropriate.

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Cambridge Isotope Laboratories certifies that this product meets the concentration specification stated above. Volumetric measurements are made with Class A glassware and syringes that are traceable to NIST.

Authorized Signature: Thomas Dorsey

Quality Review

BATTELLE
It can be done

BDO Id: 210628-13

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: FPrPA
Vendor: Wellington Laboratories
Catalogue No: FPrPA
Type: Solution
Lot No: FPrPA1020
Quantity: 1 ea Ml **% Moisture:**
Received: 6/28/2021
Custodian: Schumitz, Matt
Expires: 11/12/2025
Consumed:
Stored In: LC Laboratory - R0107
Description: FPrPA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-perfluoropropyl propanoic Acid	356-02-5	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:
Approved on:
Authorized by:
Authorized on:

210628-13

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

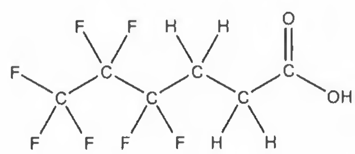
PRODUCT CODE: FPrPA

LOT NUMBER: FPrPA1020

COMPOUND: 3-Perfluoropropyl propanoic acid

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: $C_6H_5F_7O_2$

MOLECULAR WEIGHT: 242.09

CONCENTRATION: 50.0 ± 2.5 μg/mL

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 11/12/2020

EXPIRY DATE: (mm/dd/yyyy) 11/12/2025

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ($C_6H_3F_7O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 11/27/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210628-14

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	FHpPA	**Received:**	6/28/2021
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	FHpPA	**Expires:**	11/12/2025
Type:	Solution	**Consumed:**	
Lot No:	FHpPA1020	**Stored In:**	LC Laboratory - R0107
Quantity:	1 ea mL	**% Moisture:**	
Description:	FHpPA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoroheptyl propanoic acid	812-70-4	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

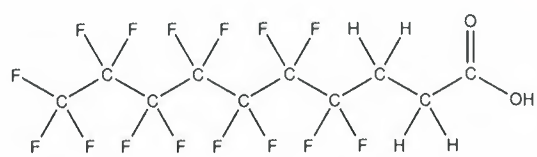
PRODUCT CODE: FHpPA

COMPOUND: 3-Perfluoroheptyl propanoic acid

LOT NUMBER: FHpPA1020

STRUCTURE:

CAS #: 812-70-4



MOLECULAR FORMULA: $C_{10}H_5F_{15}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 11/12/2020

EXPIRY DATE: (mm/dd/yyyy) 11/12/2025

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 442.12

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 11/27/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210628-15**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	FPePA	**Received:**	6/28/2021
Vendor:	Wellington Laboratories	**Custodian:**	Schumitz, Matt
Catalogue No:	FPePA	**Expires:**	10/5/2023
Type:	Solution	**Consumed:**	
Lot No:	FPePA0920	**Stored In:**	LC Laboratory - R0107
Quantity:	1 ea mL	**% Moisture:**	

Description: FPePA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
3-Perfluoropentyl propanoic acid	914637-49-3	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ______ **Approved on:** ______

Authorized by: ______ **Authorized on:** ______

WELLINGTON LABORATORIES

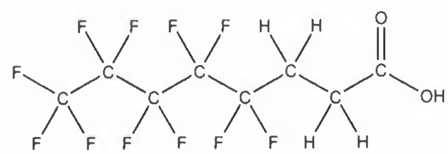
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPePA

COMPOUND: 3-Perfluoropentyl propanoic acid

LOT NUMBER: FPePA0920

STRUCTURE:



CAS #: 914637-49-3

MOLECULAR FORMULA: $C_8H_5F_{11}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 10/05/2020

EXPIRY DATE: (mm/dd/yyyy) 10/05/2023

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 342.11

SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid ($C_8H_3F_{11}O_2$) as an impurity determined by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: ______________
B.G. Chittim, General Manager

Date: 10/13/2020
(mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210714-01

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	PFOA DOD	**Received:**	7/14/2021
Vendor:	ABSOLUTE STANDARDS	**Custodian:**	Schumitz, Matt
Catalogue No:	64029	**Expires:**	4/30/2026
Type:	Solution	**Consumed:**	
Lot No:	043021	**Stored In:**	LC Laboratory - F0111
Quantity:	5 ea mL	**% Moisture:**	
Description:	PFOA DOD		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfon	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0000	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0000	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0000	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0100	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

Approved by: ____________________ **Approved on:** ____________________

Authorized by: ____________________ **Authorized on:** ____________________

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

210714-01

CERTIFIED WEIGHT REPORT

Part Number:	64029				
Lot Number:	043021	**Solvent(s):**	**Lot#**		
Description:	PFOA - DOD	Methanol (1 mM KOH)	043021	(98%)	
	28 components	2-Propanol	23214	(2%)	
Expiration Date:	043026				
Recommended Storage:	Freezer (0 °C)				
Nominal Concentration (µg/mL):	1.0				
NIST Test ID#:	6UTB		5E-05	Balance Uncertainty	
Volume(s) shown below were combined and diluted to (mL):		100.0	0.012	Flask Uncertainty	

		043021
Formulated By:	Benson Chan	DATE
		043021
Reviewed By:	Pedro L. Rentas	DATE

Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(µg/mL)	Final Conc.(µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (L-PFBA)	99542	042921	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	042021	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	042821	0.02	2.00	0.017	50.1	1.00	0.12	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	081920	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (branched)*	99202	021820	0.02	2.00	0.017	50.3	1.01	0.02	335-67-1	N/A	orl-rat 189mg/kg
6. Perfluorononanoic acid	99200	010721	0.02	2.00	0.017	50.2	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	101420	0.02	2.00	0.017	50.1	1.00	0.02	335-76-2	N/A	orl-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	042821	0.02	2.00	0.017	50.1	1.00	0.12	2058-94-8	N/A	N/A
9. Tricosafluorododecanoic acid	99196	042921	0.02	2.00	0.017	50.1	1.00	0.12	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	042821	0.02	2.00	0.017	50.1	1.00	0.12	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	042921	0.02	2.00	0.017	50.0	1.00	0.12	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3577	FOSA10201	0.02	2.00	0.017	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	2.00	0.017	50.0	1.00	0.05	00-00-0	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	2.00	0.017	50.0	1.00	0.05	00-00-0	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	042821	0.02	2.00	0.017	50.1	1.00	0.12	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	042921	0.02	2.00	0.017	50.1	1.00	0.02	630402-22-1	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)*	99198	081920	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0120	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)*	99201	010721	0.02	2.00	0.017	50.2	1.00	0.02	1763-23-1	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS0920	0.021	2.10	0.017	48.0	1.01	0.05	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3671	LPFDS0820	0.021	2.10	0.017	48.2	1.01	0.05	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	65271	042821	0.02	2.00	0.017	50.1	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	65272	042821	0.02	2.00	0.017	50.1	1.00	0.05	27619-97-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS0520	0.021	2.10	0.017	47.9	1.01	0.05	27619-96-1	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	031121	0.02	2.00	0.017	50.2	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS1220	0.021	2.12	0.017	47.1	1.00	0.05	83329-89-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS1020	0.021	2.14	0.017	46.6	1.00	0.05	73606-19-6	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1120	0.021	2.12	0.017	47.1	1.00	0.05	958445-44-8	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	021820	0.02	2.00	0.004	44.2	0.88	0.010	335-67-1	N/A	orl-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	021820	0.02	2.00	0.004	6.0	0.12	0.001	335-67-1	N/A	orl-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	081920	0.02	2.00	0.017	49.6	0.99	0.02	355-46-4	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	081920	0.02	2.00	0.017	0.6	0.01	0.0002	355-46-4	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	010721	0.02	2.00	0.017	38.2	0.76	0.02	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	010721	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	010721	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	010721	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA1119	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	2.00	0.017	6.5	0.13	0.011	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	2.00	0.017	5.0	0.10	0.005	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	2.00	0.017	2.5	0.05	0.0009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA1120	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	2.00	0.017	7.7	0.15	0.009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	2.00	0.017	5.3	0.11	0.005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	2.00	0.017	0.4	0.007	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

BATTELLE
It can be done

BDO Id: 210802-01

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	13C4-PFBA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	MPFBA	**Expires:**	5/13/2025
Type:	Solution	**Consumed:**	
Lot No:	MPFBA0420	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea mL	**% Moisture:**	
Description:	MPFBA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C4-PFBA	BDO-2105	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ______ **Approved on:** ______

Authorized by: ______ **Authorized on:** ______

210802-01

WELLINGTON LABORATORIES

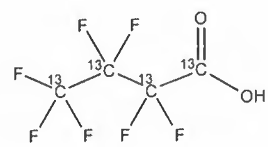
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFBA

COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid

LOT NUMBER: MPFBA0420

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_4HF_7O_2$

CONCENTRATION: 50.0 ± 2.5 μg/ml

MOLECULAR WEIGHT: 218.01

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2020

EXPIRY DATE: (mm/dd/yyyy) 05/13/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C
(1,2,3,4-$^{13}C_4$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 05/20/2020
(mm/dd/yyyy)

BATTELLE

It can be done

BDO Id: 210802-02

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name: 13C5-PFPeA

Vendor: Wellington Laboratories

Catalogue No: M5PFPeA

Type: Solution

Lot No: M5PFPeA1220

Quantity: 1 ea mL

% Moisture:

Description: M5PFPeA

Received: 8/2/2021

Custodian: Harnden, Kelsey

Expires: 12/23/2025

Consumed:

Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C5-PFPeA	BDO-2216	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:

Approved on:

Authorized by:

Authorized on:

210802-02

WELLINGTON LABORATORIES

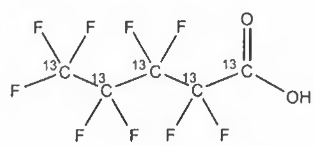
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M5PFPeA

LOT NUMBER: M5PFPeA1220

COMPOUND: Perfluoro-n-[$^{13}C_5$]pentanoic acid

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_5HF_9O_2$

MOLECULAR WEIGHT: 269.01

CONCENTRATION: 50.0 ± 2.5 μg/mL

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: $\geq$99% ^{13}C ($^{13}C_5$)

LAST TESTED: (mm/dd/yyyy) 12/23/2020

EXPIRY DATE: (mm/dd/yyyy) 12/23/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 01/19/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210802-03**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	13C5-PFHxA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M5PFHxA	**Expires:**	2/26/2026
Type:	Solution	**Consumed:**	
Lot No:	M5PFHxA0121	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea Ml	**% Moisture:**	
Description:	M5PFHxA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C5-PFHxA	BDO-2217	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

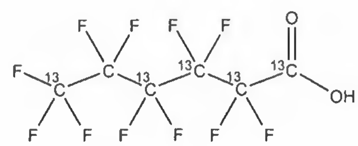
PRODUCT CODE: M5PFHxA

LOT NUMBER: M5PFHxA0121

COMPOUND: Perfluoro-n-(1,2,3,4,6-$^{13}C_5$)hexanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_5{}^{12}C_1HF_{11}O_2$

MOLECULAR WEIGHT: 319.02

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: $\geq$99% ^{13}C (1,2,3,4,6-$^{13}C_5$)

LAST TESTED: (mm/dd/yyyy) 02/02/2021

EXPIRY DATE: (mm/dd/yyyy) 02/02/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 02/05/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-04

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	13C4-PFHpA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M4PFHpA	**Expires:**	6/24/2026
Type:	Solution	**Consumed:**	
Lot No:	M4PFHpA0621	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea Ml	**% Moisture:**	
Description:	M4PFHpA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C4-PFHpA	BDO-2218	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:		**Approved on:**	
Authorized by:		**Authorized on:**	

211802-04

WELLINGTON LABORATORIES

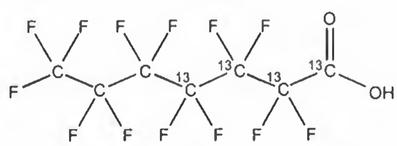
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M4PFHpA

COMPOUND: Perfluoro-n-(1,2,3,4-$^{13}C_4$)heptanoic acid

LOT NUMBER: M4PFHpA0621

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_4{}^{12}C_3HF_{13}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 368.03

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 06/24/2021

EXPIRY DATE: (mm/dd/yyyy) 06/24/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.03% of perfluoro-n-heptanoic acid (PFHpA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 07/12/2021 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE
It can be done

BDO Id: 210802-05

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	13C8-PFOA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M8PFOA	**Expires:**	2/3/2026
Type:	Solution	**Consumed:**	
Lot No:	M8PFOA0121	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M8PFOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C8-PFOA	BDO-2219	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210802-05

WELLINGTON LABORATORIES

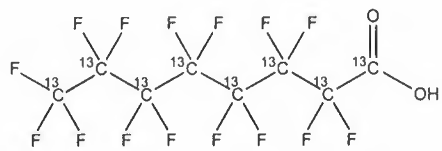
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M8PFOA

COMPOUND: Perfluoro-n-($^{13}C_8$)octanoic acid

LOT NUMBER: M8PFOA0121

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_8HF_{15}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 422.01

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 02/03/2021

EXPIRY DATE: (mm/dd/yyyy) 02/03/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C ($^{13}C_8$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~0.9% of (M+4) perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 02/12/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210802-06**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: 13C9-PFNA
Vendor: Wellington Laboratories
Catalogue No: M9PFNA
Type: Solution
Lot No: M9PFNA0320
Quantity: 1 ea ML **% Moisture:**

Received: 8/2/2021
Custodian: Harnden, Kelsey
Expires: 3/24/2025
Consumed:
Stored In: VOC Laboratory - R0123

Description: M9PFNA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C9-PFNA	BDO-2221	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: **Approved on:**

Authorized by: **Authorized on:**

2108802 06

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

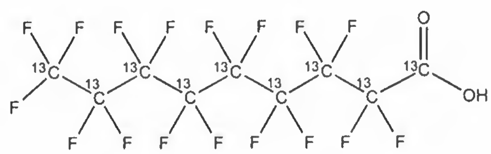
PRODUCT CODE: M9PFNA

COMPOUND: Perfluoro-n-[$^{13}C_9$]nonanoic acid

LOT NUMBER: M9PFNA0320

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_9HF_{17}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/ml

MOLECULAR WEIGHT: 473.01

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/24/2020

EXPIRY DATE: (mm/dd/yyyy) 03/24/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: $\geq$99% ^{13}C ($^{13}C_9$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of $^{13}C_5{}^{12}C_4HF_{17}O_2$ (MPFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 04/20/2020 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE
It can be done

BDO Id: 210802-07

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	13C6-PFDA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M6PFDA	**Expires:**	9/10/2025
Type:	Solution	**Consumed:**	
Lot No:	M6PFDA0820	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M6PFDA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C6-PFDA	BDO-2222	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____ **Approved on:** ____

Authorized by: ____ **Authorized on:** ____

210802-07

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

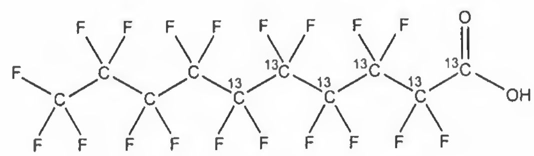
PRODUCT CODE: M6PFDA

COMPOUND: Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid

LOT NUMBER: M6PFDA0820

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_6{}^{12}C_4HF_{19}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 520.04

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 09/10/2020

EXPIRY DATE: (mm/dd/yyyy) 09/10/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4,5,6-$^{13}C_6$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 09/18/2020 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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BATTELLE
It can be done

BDO Id: 210802-08

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: 13C7-PFUdA
Received: 8/2/2021
Vendor: Wellington Laboratories
Custodian: Harnden, Kelsey
Catalogue No: M7PFUdA
Expires: 8/12/2025
Type: Solution
Consumed:
Lot No: M7PFUdA0820
Stored In: VOC Laboratory - R0123
Quantity: 1 ea ML **% Moisture:**
Description: M7PFUdA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C7-PFUnA	BDO-2223	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

210809-08

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

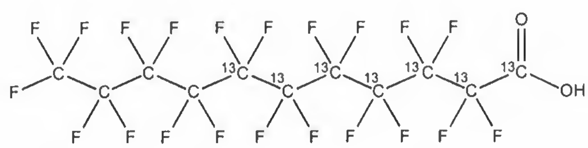
PRODUCT CODE: M7PFUdA

LOT NUMBER: M7PFUdA0820

COMPOUND: Perfluoro-n-[1,2,3,4,5,6,7-$^{13}C_7$]undecanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_7{}^{12}C_4HF_{21}O_2$

MOLECULAR WEIGHT: 571.04

CONCENTRATION: 50.0 ± 2.5 µg/ml

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: $\geq$99% ^{13}C (1,2,3,4,5,6,7-$^{13}C_7$)

LAST TESTED: (mm/dd/yyyy) 08/12/2020

EXPIRY DATE: (mm/dd/yyyy) 08/12/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 08/24/2020
(mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-09

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: 13C2-PFDoA
Vendor: Wellington Laboratories
Catalogue No: MPFDoA
Type: Solution
Lot No: MPFDoA0221
Quantity: 1 ea ML **% Moisture:**
Description: MPFDoA

Received: 8/2/2021
Custodian: Harnden, Kelsey
Expires: 2/10/2026
Consumed:
Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDoA	BDO-2112	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

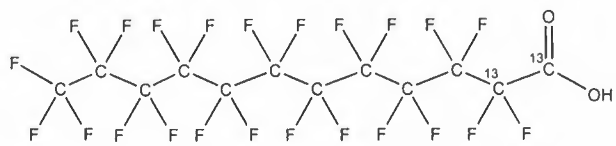
210802.09

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)dodecanoic acid
LOT NUMBER: MPFDoA0221

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_{10}HF_{23}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL
MOLECULAR WEIGHT: 616.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/10/2021
EXPIRY DATE: (mm/dd/yyyy) 02/10/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place
ISOTOPIC PURITY: $\geq$99% ^{13}C (1,2-$^{13}C_2$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager
Date: 03/09/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210802-10**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	13C2-PFTeDA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M2PFTeDA	**Expires:**	5/13/2026
Type:	Solution	**Consumed:**	
Lot No:	M2PFTeDA0521	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M2PFTeDA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFTeDA	BDO-2224	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

2108072-10

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

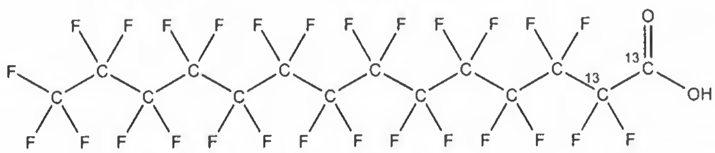
PRODUCT CODE: M2PFTeDA

LOT NUMBER: M2PFTeDA0521

COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)tetradecanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_{12}HF_{27}O_2$

MOLECULAR WEIGHT: 716.10

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)

LAST TESTED: (mm/dd/yyyy) 05/13/2021

EXPIRY DATE: (mm/dd/yyyy) 05/13/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By: [signature]
B.G. Chittim, General Manager

Date: 05/25/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-11

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	13C8-FOSA-I	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M8FOSA-I	**Expires:**	3/2/2026
Type:	Solution	**Consumed:**	
Lot No:	M8FOSA0221I	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	

Description: M8FOSA-I

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C8-FOSA	BDO-2225	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210802-11

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

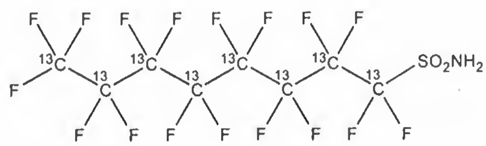
PRODUCT CODE: M8FOSA-I

COMPOUND: Perfluoro-1-($^{13}C_8$)octanesulfonamide

LOT NUMBER: M8FOSA0221I

STRUCTURE:

CAS #: 1365803-60-6



MOLECULAR FORMULA: $^{13}C_8H_2F_{17}NO_2S$

CONCENTRATION: 50.0 ± 2.5 µg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 03/02/2021

EXPIRY DATE: (mm/dd/yyyy) 03/02/2026

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 507.09

SOLVENT(S): Isopropanol

ISOTOPIC PURITY: $\geq$99% ($^{13}C_8$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~1.0% of perfluoro-1-($^{13}C_4$)octanesulfonamide and ~0.2% of perfluoro-1-($^{13}C_7$)heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: [signature]
B.G. Chittim, General Manager

Date: 03/17/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210802-12**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	13C3-PFBS	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M3PFBS	**Expires:**	3/26/2026
Type:	Solution	**Consumed:**	
Lot No:	M3PFBS0321	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M3PFBS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-PFBS	BDO-2226	46.6000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ______ **Approved on:** ______

Authorized by: ______ **Authorized on:** ______

210802-12

WELLINGTON LABORATORIES

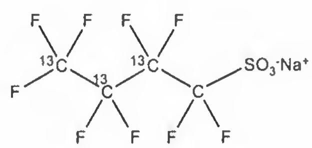
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFBS

LOT NUMBER: M3PFBS0321

COMPOUND: Sodium perfluoro-1-(2,3,4-$^{13}C_3$)butanesulfonate

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_3{}^{12}CF_9SO_3Na$

MOLECULAR WEIGHT: 325.06

CONCENTRATION: 50.0 ± 2.5 μg/mL (Na salt)
46.6 ± 2.3 μg/mL (M3PFBS acid)
46.5 ± 2.3 μg/mL (M3PFBS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ^{13}C (2,3,4-$^{13}C_3$)

LAST TESTED: (mm/dd/yyyy) 03/26/2021

EXPIRY DATE: (mm/dd/yyyy) 03/26/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: B.G. Chittim, General Manager

Date: 03/31/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: **210802-13**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name: 13C3-PFHxS
Received: 8/2/2021
Vendor: Wellington Laboratories
Custodian: Harnden, Kelsey
Catalogue No: M3PFHxS
Expires: 6/9/2026
Type: Solution
Consumed:
Lot No: M3PFHxS0621
Stored In: VOC Laboratory - R0123
Quantity: 1 ea ML **% Moisture:**
Description: M3PFHxS

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-PFHxS	BDO-2227	47.4000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: **Approved on:**
Authorized by: **Authorized on:**

210802-13

WELLINGTON LABORATORIES

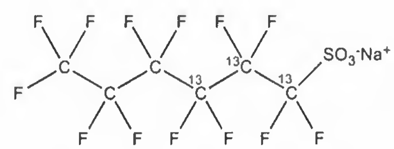
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFHxS

LOT NUMBER: M3PFHxS0621

COMPOUND: Sodium perfluoro-1-(1,2,3-$^{13}C_3$)hexanesulfonate

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_3{}^{12}C_3F_{13}SO_3Na$

MOLECULAR WEIGHT: 425.07

CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
47.4 ± 2.4 µg/mL (M3PFHxS acid)
47.3 ± 2.4 µg/mL (M3PFHxS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: $\geq$99% ^{13}C (1,2,3-$^{13}C_3$)

LAST TESTED: (mm/dd/yyyy) 06/09/2021

EXPIRY DATE: (mm/dd/yyyy) 06/09/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By: B.G. Chittim, General Manager

Date: 06/22/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-14

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	13C8-PFOS	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M8PFOS	**Expires:**	1/14/2026
Type:	Solution	**Consumed:**	
Lot No:	M8PFOS0121	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M8PFOS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C8-PFOS	BDO-2228	47.9000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210802-14

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

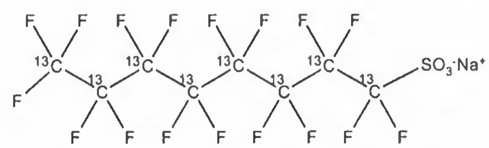
PRODUCT CODE: M8PFOS

LOT NUMBER: M8PFOS0121

COMPOUND: Sodium perfluoro-1-($^{13}C_8$)octanesulfonate

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_8F_{17}SO_3Na$

MOLECULAR WEIGHT: 530.05

CONCENTRATION: 50.0 ± 2.5 µg/mL (Na salt)
47.9 ± 2.4 µg/mL (M8PFOS acid)
47.8 ± 2.4 µg/mL (M8PFOS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: >99% ^{13}C ($^{13}C_8$)

LAST TESTED: (mm/dd/yyyy) 01/14/2021

EXPIRY DATE: (mm/dd/yyyy) 01/14/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.2% of sodium perfluoro-1-($^{13}C_7$)heptanesulfonate ($^{13}C_7$-PFHpS) and ~0.9% of sodium perfluoro-1-($^{13}C_4$)octanesulfonate (MPFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 02/03/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-15

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	13C2-4:2FTS	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M2-4:2FTS	**Expires:**	6/24/2026
Type:	Solution	**Consumed:**	
Lot No:	M242FTS0621	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M2-4:2FTS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-4:2FTS	BDO-2229	46.9000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210802-15

WELLINGTON LABORATORIES

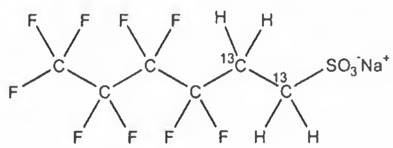
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-4:2FTS

LOT NUMBER: M242FTS0621

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)hexanesulfonate

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_2{}^{12}C_4H_4F_9SO_3Na$

MOLECULAR WEIGHT: 352.12

CONCENTRATION: 50.0 ± 2.5 μg/mL (Na salt)
46.9 ± 2.3 μg/mL (M2-4:2FTS acid)
46.7 ± 2.3 μg/mL (M2-4:2FTS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)

LAST TESTED: (mm/dd/yyyy) 06/24/2021

EXPIRY DATE: (mm/dd/yyyy) 06/24/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 4:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 4:2FTS and M2-4:2FTS will produce signals in the m/z 329 to m/z 309 channel during SRM analysis. We recommend using the m/z 329 to m/z 81 transition to monitor for M2-4:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 07/05/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-16

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	13C2-6:2FTS	Received:	8/2/2021
Vendor:	Wellington Laboratories	Custodian:	Harnden, Kelsey
Catalogue No:	M2-6:2FTS	Expires:	5/14/2026
Type:	Solution	Consumed:	
Lot No:	M262FTS0521	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea ML	% Moisture:	
Description:	M2-6:2FTS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-6:2FTS	BDO-2230	47.6000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:		Approved on:	
Authorized by:		Authorized on:	

210802-16

WELLINGTON LABORATORIES

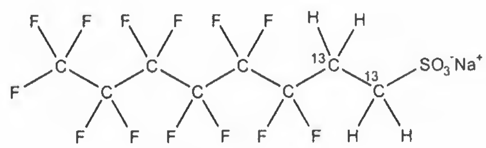
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-6:2FTS

LOT NUMBER: M262FTS0521

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)octanesulfonate

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$

MOLECULAR WEIGHT: 452.13

CONCENTRATION:
50.0 ± 2.5 µg/mL (Na salt)
47.6 ± 2.4 µg/mL (M2-6:2FTS acid)
47.5 ± 2.4 µg/mL (M2-6:2FTS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: $\geq$99% ^{13}C (1,2-$^{13}C_2$)

LAST TESTED: (mm/dd/yyyy) 05/14/2021

EXPIRY DATE: (mm/dd/yyyy) 05/14/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 05/26/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-17

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	13C2-8:2FTS	Received:	8/2/2021
Vendor:	Wellington Laboratories	Custodian:	Harnden, Kelsey
Catalogue No:	M2-8:2FTS	Expires:	7/9/2026
Type:	Solution	Consumed:	
Lot No:	M282FTS0621	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea ML	% Moisture:	

Description: M2-8:2FTS

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-8:2FTS	BDO-2220	48.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:		Approved on:	
Authorized by:		Authorized on:	

210802-17

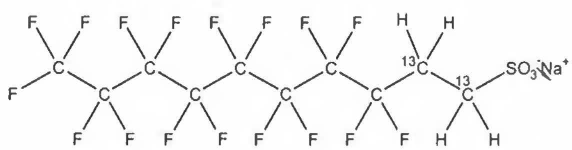
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0621

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-(1,2-$^{13}C_2$)decanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_8H_4F_{17}SO_3Na$ **MOLECULAR WEIGHT:** 552.15

CONCENTRATION: 50.0 ± 2.5 μg/mL (Na salt) **SOLVENT(S):** Methanol
48.0 ± 2.4 μg/mL (M2-8:2FTS acid)
47.9 ± 2.4 μg/mL (M2-8:2FTS anion)

CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ^{13}C (1,2-$^{13}C_2$)

LAST TESTED: (mm/dd/yyyy) 07/09/2021

EXPIRY DATE: (mm/dd/yyyy) 07/09/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 8:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager **Date:** 07/12/2021 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

BATTELLE
It can be done

BDO Id: **210802-18**

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	d5-N-EtFOSAA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	d5-N-EtFOSAA	**Expires:**	3/2/2026
Type:	Solution	**Consumed:**	
Lot No:	d5NEtFOSAA0321	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ml	**% Moisture:**	
Description:	d5-N-EtFOSAA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
d5-EtFOSAA	BDO-1839	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

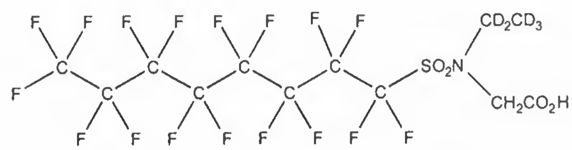
21080 2-18

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA
LOT NUMBER: d5NEtFOSAA0321
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA: $C_{12}D_5H_3F_{17}NO_4S$
MOLECULAR WEIGHT: 590.26
CONCENTRATION: 50.0 ± 2.5 μg/mL
SOLVENT(S): Methanol
Water (<1%)
CHEMICAL PURITY: >98%
ISOTOPIC PURITY: $\geq$98% $^2H_5$
LAST TESTED: (mm/dd/yyyy) 03/02/2021
EXPIRY DATE: (mm/dd/yyyy) 03/02/2026
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

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Certified By: [signature]
B.G. Chittim, General Manager

Date: 03/05/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-19

Reagent Receipt Report

Approved: ☐ **Authorized** ☐

Name:	d3-N-MeFOSAA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	d3-N-MeFOSAA	**Expires:**	6/8/2026
Type:	Solution	**Consumed:**	
Lot No:	d3NMeFOSAA0521	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ml	**% Moisture:**	

Description: d3-N-MeFOSAA

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
d3-MeFOSAA	BDO-1838	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:		**Approved on:**	
Authorized by:		**Authorized on:**	

210802-19

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

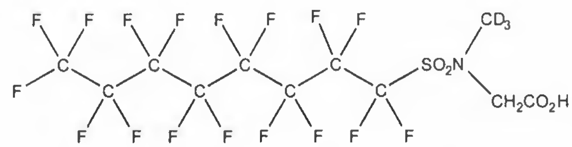
PRODUCT CODE: d3-N-MeFOSAA

LOT NUMBER: d3NMeFOSAA0521

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE:

CAS #: 1400690-70-1



MOLECULAR FORMULA: $C_{11}D_3H_3F_{17}NO_4S$

MOLECULAR WEIGHT: 574.23

CONCENTRATION: 50.0 ± 2.5 µg/mL

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: $\geq$98% $^2H_3$

LAST TESTED: (mm/dd/yyyy) 06/08/2021

EXPIRY DATE: (mm/dd/yyyy) 06/08/2026

RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 06/16/2021 (mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 210802-20

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	13C4-PFOS	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	MPFOS	**Expires:**	3/30/2026
Type:	Solution	**Consumed:**	
Lot No:	MPFOS0321	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	MPFOS		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C4-PFOS	BDO-2121	47.9000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____________ **Approved on:** ____________

Authorized by: ____________ **Authorized on:** ____________

210802-20

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

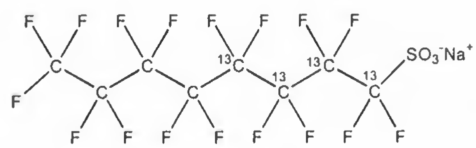
PRODUCT CODE: MPFOS

LOT NUMBER: MPFOS0321

COMPOUND: Sodium perfluoro-1-(1,2,3,4-$^{13}C_4$)octanesulfonate

STRUCTURE:

CAS #: 960315-53-1



MOLECULAR FORMULA: $^{13}C_4{}^{12}C_4F_{17}SO_3Na$

MOLECULAR WEIGHT: 526.08

CONCENTRATION: 50.0 ± 2.5 μg/mL (Na salt)
47.9 ± 2.4 μg/mL (MPFOS acid)
47.8 ± 2.4 μg/mL (MPFOS anion)

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ^{13}C (1,2,3,4-$^{13}C_4$)

LAST TESTED: (mm/dd/yyyy) 03/30/2021

EXPIRY DATE: (mm/dd/yyyy) 03/30/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~0.4% sodium perfluoro-1-(1,2,3-$^{13}C_3$)heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 04/08/2021 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-21

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	13C3-HFPO-DA	**Received:**	8/2/2021
Vendor:	Wellington Laboratories	**Custodian:**	Harnden, Kelsey
Catalogue No:	M3HFPO-DA	**Expires:**	5/13/2024
Type:	Solution	**Consumed:**	
Lot No:	M3HFPODA0521	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M3HFPO-DA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-HFPO-DA	BDO-2276	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: ____ **Approved on:** ____

Authorized by: ____ **Authorized on:** ____

210802-21

WELLINGTON LABORATORIES

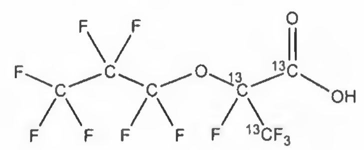
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3HFPO-DA

LOT NUMBER: M3HFPODA0521

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)($^{13}C_3$)propanoic acid

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_3{}^{12}C_3HF_{11}O_3$

CONCENTRATION: 50.0 ± 2.5 μg/mL

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 05/13/2021

EXPIRY DATE: (mm/dd/yyyy) 05/13/2024

RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: ≥99% ^{13}C ($^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 05/13/2021 (mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 210802-22

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	13C3-PFBA	Received:	8/2/2021
Vendor:	Wellington Laboratories	Custodian:	Harnden, Kelsey
Catalogue No:	M3PFBA	Expires:	2/24/2025
Type:	Solution	Consumed:	
Lot No:	M3PFBA0120	Stored In:	VOC Laboratory - R0123
Quantity:	1 ea ML	% Moisture:	
Description:	M3PFBA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C3-PFBA	BDO-2231	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:		Approved on:	
Authorized by:		Authorized on:	

210802-22

WELLINGTON LABORATORIES

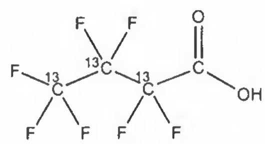
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFBA

COMPOUND: Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid

LOT NUMBER: M3PFBA0120

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_3{}^{12}CHF_7O_2$

CONCENTRATION: 50.0 ± 2.5 µg/ml

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 02/24/2020

EXPIRY DATE: (mm/dd/yyyy) 02/24/2025

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 217.02

SOLVENT(S): Methanol
Water (<1%)

ISOTOPIC PURITY: ≥99% ^{13}C (2,3,4-$^{13}C_3$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-[$^{13}C_3$]propanoic acid and also contains ~ 1.0% of perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid due to the naturally occurring isotopic abundance of ^{13}C in the unlabelled carbon atom.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 03/27/2020 (mm/dd/yyyy)

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BATTELLE
It can be done

BDO Id: 210802-23

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name:	13C2-PFOA	**Received:**	8/2/2021
Vendor:	M2PFOA	**Custodian:**	Harnden, Kelsey
Catalogue No:	M2PFOA	**Expires:**	5/5/2026
Type:	Solution	**Consumed:**	
Lot No:	M2PFOA0421	**Stored In:**	VOC Laboratory - R0123
Quantity:	1 ea ML	**% Moisture:**	
Description:	M2PFOA		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFOA	BDO-2107	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by:		**Approved on:**	
Authorized by:		**Authorized on:**	

210802-23

WELLINGTON LABORATORIES

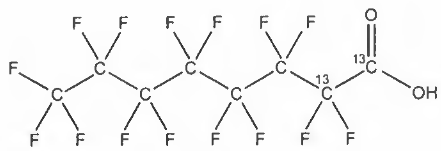
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFOA

LOT NUMBER: M2PFOA0421

COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)octanoic acid

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6HF_{15}O_2$

CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 416.05

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)

LAST TESTED: (mm/dd/yyyy) 05/05/2021

EXPIRY DATE: (mm/dd/yyyy) 05/05/2026

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: ______________ **Date:** 05/12/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

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BATTELLE

It can be done

BDO Id: 210802-24

Reagent Receipt Report

Approved: ☐ Authorized: ☐

Name: 13C2-PFDA
Vendor: Wellington Laboratories
Catalogue No: MPFDA
Type: Solution
Lot No: MPFDA0621
Quantity: 1 ea ML
% Moisture:
Description: MPFDA

Received: 8/2/2021
Custodian: Harnden, Kelsey
Expires: 6/8/2026
Consumed:
Stored In: VOC Laboratory - R0123

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
13C2-PFDA	BDO-2110	50.0000	98.00	--	--	☐			

Total Analytes: 1

Notes:

Approved by: Approved on:

Authorized by: Authorized on:

210802-24

WELLINGTON LABORATORIES

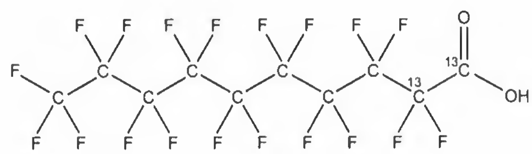
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA
COMPOUND: Perfluoro-n-(1,2-$^{13}C_2$)decanoic acid

LOT NUMBER: MPFDA0621

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_8HF_{19}O_2$
CONCENTRATION: 50.0 ± 2.5 µg/mL

MOLECULAR WEIGHT: 516.07
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 06/08/2021
EXPIRY DATE: (mm/dd/yyyy) 06/08/2026
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

ISOTOPIC PURITY: $\geq$99% ^{13}C (1,2-$^{13}C_2$)

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim, General Manager

Date: 06/18/2021 (mm/dd/yyyy)

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BATTELLE

It can be done

BDO Id: 210819-02

Reagent Receipt Report

Approved: ☐ Authorized ☐

Name:	PFOA DOD(062421)	Received:	8/19/2021
Vendor:	ABSOLUTE STANDARDS	Custodian:	Schumitz, Matt
Catalogue No:	64029	Expires:	6/24/2026
Type:	Solution	Consumed:	
Lot No:	062421	Stored In:	LC Laboratory - F0111
Quantity:	8 ea mL	% Moisture:	
Description:	PFOA DOD(062421)		

Analyte:	CAS No:	Concentration (ug/mL):	Purity:	Density:	Density Units:	Cert	Cert Val:	Lower Limit:	Upper Limit:
11-chloroeicosafluoro-3-oxaundecan	763051-92-9	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorodecane sulfo	39108-34-4	1.0100	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorohexane sulfon	757124-72-4	1.0000	100.00	--	--	☐			
1H,1H,2H,2H-Perfluorooctane sulfon	27619-97-2	1.0000	100.00	--	--	☐			
9-chlorohexadecafluoro-3-oxanonane	756426-58-1	1.0000	100.00	--	--	☐			
Adona	919005-14-4	1.0000	100.00	--	--	☐			
Hexafluoropropylene oxide dimer aci	13252-13-6	1.0000	100.00	--	--	☐			
N-ethylperfluoro-octanesulfonamidoa	2991-50-6	1.0000	100.00	--	--	☐			
N-methylperfluoro-1-octanesulfonami	2355-31-9	1.0000	100.00	--	--	☐			
Perfluoro-1-butanesulfonate	375-73-5	1.0000	100.00	--	--	☐			
Perfluoro-1-decanesulfonate	335-77-3	1.0100	100.00	--	--	☐			
Perfluoro-1-heptanesulfonate	375-92-8	1.0000	100.00	--	--	☐			
Perfluoro-1-hexanesulfonate	355-46-4	1.0000	100.00	--	--	☐			
Perfluoro-1-nonanesulfonate	68259-12-1	1.0100	100.00	--	--	☐			
Perfluoro-1-octanesulfonamide	754-91-6	1.0000	100.00	--	--	☐			
Perfluoro-1-octanesulfonate	1763-23-1	1.0000	100.00	--	--	☐			
perfluoro-1-pentanesulfonate	2706-91-4	1.0000	100.00	--	--	☐			
Perfluoro-n-butanoic Acid	375-22-4	1.0000	100.00	--	--	☐			
Perfluoro-n-decanoic Acid	335-76-2	1.0000	100.00	--	--	☐			
Perfluoro-n-dodecanoic acid	307-55-1	1.0000	100.00	--	--	☐			
Perfluoro-n-heptanoic Acid	375-85-9	1.0000	100.00	--	--	☐			
Perfluoro-n-hexanoic acid	307-24-4	1.0000	100.00	--	--	☐			
Perfluoro-n-octanoic Acid	335-67-1	1.0000	100.00	--	--	☐			
Perfluorononanoic Acid	375-95-1	1.0000	100.00	--	--	☐			
Perfluoro-n-pentanoic acid	2706-90-3	1.0100	100.00	--	--	☐			
Perfluoro-n-tetradecanoic acid	376-06-7	1.0000	100.00	--	--	☐			
Perfluoro-n-tridecanoic acid	72629-94-8	1.0000	100.00	--	--	☐			
Perfluoro-n-undecanoic acid	2058-94-8	1.0000	100.00	--	--	☐			

Total Analytes: 28

Notes:

Approved by: ____________ Approved on: ____________

Authorized by: ____________ Authorized on: ____________

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

CERTIFIED WEIGHT REPORT

210819-02

Part Number:	64029	Solvent(s):	Lot#	
Lot Number:	062421	Methanol (1 mM KOH)	043021	(98%)
Description:	PFOA - DOD	2-Propanol	23214	(2%)
	28 components			
Expiration Date:	062426			
Recommended Storage:	Freezer (0 °C)			
Nominal Concentration (µg/mL):	1.0			
NIST Test ID#:	6UTB	5E-05	Balance Uncertainty	
Volume(s) shown below were combined and diluted to (mL):	50.0	0.001	Flask Uncertainty	

Formulated By:	Benson Chan	062421 DATE
Reviewed By:	Pedro L. Rentas	062421 DATE

Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (L-PFBA)	99542	042921	0.02	1.00	0.004	50.1	1.00	0.01	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	042021	0.02	1.00	0.004	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid	99199	042821	0.02	1.00	0.004	50.1	1.00	0.12	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid	99197	081920	0.02	1.00	0.004	50.1	1.00	0.01	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (branched)*	99202	061621	0.02	1.00	0.004	50.3	1.00	0.01	335-67-1	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid	99200	010721	0.02	1.00	0.004	50.2	1.00	0.01	375-95-1	N/A	N/A
7. Perfluorodecanoic acid	99195	101420	0.02	1.00	0.004	50.1	1.00	0.01	335-76-2	N/A	orl-rat 57mg/kg
8. Perfluoroundecanoic acid	99205	042821	0.02	1.00	0.004	50.1	1.00	0.12	2058-94-8	N/A	N/A
9. Tricosafluorododecanoic acid	99196	042921	0.02	1.00	0.004	50.1	1.00	0.12	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid	99204	042821	0.02	1.00	0.004	50.1	1.00	0.12	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid	99203	042921	0.02	1.00	0.004	50.0	1.00	0.12	376-06-7	N/A	N/A
12. Perfluoro-1-octanesulfonamide	3677	FOSA1020I	0.02	1.00	0.004	50.0	1.00	0.05	754-91-6	N/A	N/A
13. N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
14. N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	1.00	0.004	50.0	1.00	0.05	00-00-0	N/A	N/A
15. Perfluorobutanesulfonic acid	99194	042821	0.02	1.00	0.004	50.1	1.00	0.12	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	042921	0.02	1.00	0.004	50.1	1.00	0.02	630402-22-1	N/A	N/A
17. Perfluorohexanesulfonic acid (branched)*	99198	081920	0.02	1.00	0.004	50.2	1.00	0.01	355-46-4	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid	3672	LPFHpS0120	0.021	1.05	0.004	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (branched)*	99201	010721	0.02	1.00	0.004	50.2	1.00	0.01	1763-23-1	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid	3957	LPFNS0920	0.021	1.05	0.004	48.0	1.01	0.05	98789-57-2	N/A	N/A
21. Perfluoro-1-decanesulfonic acid	3671	LPFDS0121	0.021	1.05	0.004	48.2	1.01	0.05	2806-15-7	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid	65271	042821	0.02	1.00	0.004	50.1	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid	65272	042821	0.02	1.00	0.004	50.1	1.00	0.05	27619-97-2	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid	3662	82FTS1120	0.021	1.05	0.004	47.9	1.01	0.05	27619-96-1	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropionic acid	99666	031121	0.02	1.00	0.004	50.2	1.00	0.01	13252-13-6	N/A	N/A
26. 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	4165	11ClPF3OUdS1220	0.021	1.06	0.004	47.1	1.00	0.05	83329-89-9	N/A	N/A
27. 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	4164	9ClPF3ONS0421	0.021	1.07	0.004	46.6	1.00	0.05	73606-19-6	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA1120	0.021	1.06	0.004	47.1	1.00	0.05	958445-44-8	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	061621	0.04	2.00	0.004	44.2	1.77	0.020	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	061621	0.04	2.00	0.004	6.0	0.24	0.003	335-67-1	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	081920	0.02	1.00	0.004	49.6	0.99	0.01	355-46-4	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	081920	0.02	1.00	0.004	0.6	0.01	0.0002	355-46-4	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	010721	0.02	1.00	0.004	38.2	0.76	0.01	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	010721	0.02	1.00	0.004	7.5	0.15	0.002	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	010721	0.02	1.00	0.004	4.0	0.08	0.001	1763-23-1	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	010721	0.02	1.00	0.004	0.5	0.010	0.0001	1763-23-1	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA1119	0.02	1.00	0.004	36.0	0.72	0.03	2355-31-9	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	1.00	0.004	6.5	0.13	0.011	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	1.00	0.004	5.0	0.10	0.005	00-00-0	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA1119	0.02	1.00	0.004	2.5	0.05	0.0005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEtFOSAA1120	0.02	1.00	0.004	36.6	0.73	0.04	2991-50-6	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	1.00	0.004	7.7	0.15	0.009	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	1.00	0.004	5.3	0.11	0.005	00-00-0	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEtFOSAA1120	0.02	1.00	0.004	0.4	0.007	0.0006	00-00-0	N/A	N/A

*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.1

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

ACCREDITATIONS

Accrediting Authority	Laboratory ID
U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP)	91667
State of Florida Department of Health	E87856
State of New York Department of Health	12105
State of Washington Department of Ecology	C1050
State of Maine	MA00056
State of Vermont	VT 87856
State of New Hampshire	2137
Commonwealth of Pennsylvania Department of Environmental Protection	68-05687
State of Alaska Department of Environmental Conservation	19-005
State of Rhode Island	E87856

Current certificates and lists of accredited parameters are available upon request.

Sample Preparation

BATTELLE - NORWELL OPERATIONS
SAMPLE PREPARATION RECORDS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

SOP Numbers (see workplan for modifications)

ExtractionSOP No. 5-370

This Batch Contains The Following Samples:
DE995PB-FS DE996LCS-FS F2481-FS F2482-FS

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Allison Wamness

Approved By:	Date	Initials
Denise Schumitz	09/20/2021	DMS

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SAMPLE IDENTIFICATION PAGE

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Sample ID	Description
DE995PB-FS	Procedural Blank
DE996LCS-FS	Laboratory Control Sample
F2481-FS	POL-MW0011I-027.5-20210826
F2482-FS	POL-MW0011S-012.5-20210826

Samples Assigned By: Matt Schumitz Date : August 27, 2021

Comments:

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BATTELLE - NORWELL OPERATIONS
SAMPLE CUSTODY LOG

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Requested On/By: 09/01/2021 AW **Purpose:** Sample Preparation

Relinquished On/By: 09/01/2021 BTM **Last Activity:** Transfer

Accepted On/By:	09/01/2021 AW	**Returned On/To:**	
Stored In Facility:	Sample Preparation	**Returned To Facility:**	
Stored Until	09/01/2021		
Stored Comment:	NA	**Returned Comment:**	NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	F2481	1	C	Consumed	NA
2	F2482	1	C	Consumed	NA

Total Samples 2 * "C" = Consumed Container

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BATTELLE - NORWELL OPERATIONS
SAMPLE VOLUME FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Sample ID	Bottles	*	Calc. By Wt.	pH Check	Initial Wt. (g)	Empty Wt. (g)	Volume (mL)	Vol. Recorded
DE995PB-FS	NA	--	Yes	Valid	284.93	30.64	254.0	NA
DE996LCS-FS	NA	--	Yes	Valid	280.26	30.73	250.0	NA
F2481-FS	1	C	Yes	Valid	285.69	33.29	252.0	NA
F2482-FS	1	C	Yes	Valid	317.32	34.96	282.0	NA

Balance Information:

Initial Wt. Balance:	Initial Wt Date/Initials:	Empty Wt. Balance:	Empty Wt Date/Initials:
BAL-009	09/01/21 AW	BAL-015	09/02/21 ZMD

Calc. by Wt. - if yes, volume is calculated as the total weight of the bottle - empty weight, assuming a Density of 1, value rounded to nearest whole number. If yes, Vol. Recorded Date/Initials will be "NA"

* - "C" = Sample is Consumed

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BATTELLE - NORWELL OPERATIONS
SURROGATE SPIKE FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Sample ID	Standard ID	Type	Vial No.	Vol Added (uL)	Date Spiked/ Spiked By	Witn'd By	Comment
DE995PB-FS	LL41	SIS	3	50	09/01/21 AW	KH	NA
DE996LCS-FS	LK74	LCS/MS	1	50	09/01/21 AW	KH	NA
DE996LCS-FS	LL41	SIS	3	50	09/01/21 AW	KH	NA
F2481-FS	LL41	SIS	3	50	09/01/21 AW	KH	NA
F2482-FS	LL41	SIS	3	50	09/01/21 AW	KH	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
LK74	Pipette	B814659662
LL41	Pipette	B814659662

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BATTELLE - NORWELL OPERATIONS
SAMPLE EXTRACTION FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Sample ID	1st Extraction	2nd Extraction	3rd Extraction	Comment
DE995PB-FS	09/01/21 AW	NA	NA	NA
DE996LCS-FS	09/01/21 AW	NA	NA	NA
F2481-FS	09/01/21 AW	NA	NA	NA
F2482-FS	09/01/21 AW	NA	NA	NA

Solvents/Reagent Preparations:

Name	ID	Expires	Lot No	Procedure	Comments
Whatman pH indicator strips 0-14	210723-01	07/23/26	10D0411	NA	
1% NH3OH in Methanol	RP-210901-4	09/01/21	R06G070	3.3 mL NH3OH + 97 mL Methanol	
1% NH3OH in Methanol	RP-210901-4	09/01/21	211792	3.3 mL NH3OH + 97 mL Methanol	
Pre-packed SPE Column	RP-210901-7	09/01/21	020831139A	Pre-packed SPE Column	

Solvents/Reagents:

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BATTELLE - NORWELL OPERATIONS
EXTRACT CLEANUP FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Extract Id	Date	Init.	Comments
DE995PB-FS(0)	09/03/21	KH	NA
DE996LCS-FS(0)	09/03/21	KH	NA
F2481-FS(0)	09/03/21	KH	NA
F2482-FS(0)	09/03/21	KH	NA

Cleanup:

Envi-Carb

Reagents:

Reagent Prep	Name	Expires	Lot No	Procedure
191209-01	Supelclean ENVI-Carb SPE Bulk Packing	12/09/24	122395	NA

It can be done

BATTELLE - NORWELL OPERATIONS
INTERNAL STANDARD SPIKING FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm . (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
DE995PB-FS(0)	4950	50	LL42	50	3	5000	1.000	09/03/21 KH	DMS
DE996LCS-FS(0)	4950	50	LL42	50	3	5000	1.000	09/03/21 KH	DMS
F2481-FS(0)	9950	50	LL42	50	3	10000	1.000	09/03/21 KH	DMS
F2481-FS-D(3)	4960	40	LL42	50	4	5000	5.000	09/14/21 TN	AW
F2482-FS(0)	9950	50	LL42	50	3	10000	1.000	09/03/21 KH	DMS
F2482-FS-D(3)	4960	40	LL42	50	4	5000	5.000	09/14/21 TN	AW

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
LL41	Pipette	B814659662
LL42	Pipette	B814659662

* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.

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BATTELLE - NORWELL OPERATIONS
EXTRACT SPIKE FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Extract Id	DF	Std. ID	Type	Vial No.	Vol. Added (uL)	Conc (ug/mL)	Added (ng)	Date Spiked/ Spiked By	Witn'd By
F2481-FS-D(3)	5	LL41	SIS	4	40	1	40	09/14/21 TN	AW
F2482-FS-D(3)	5	LL41	SIS	4	40	1	40	09/14/21 TN	AW

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip
LL41	Pipette	B814659662
LL42	Pipette	B814659662

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BATTELLE - NORWELL OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PFAS: Nasa Kennedy Space Center

Project No.(s)
100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
DE995PB-FS	0	--	9/1/2021 10:46:00 AM	NA		NA	NA	1.000	1.000	09/01/21 AW
DE996LCS-FS	0	--	9/1/2021 10:46:00 AM	NA		NA	NA	1.000	1.000	09/01/21 AW
F2481-FS	0	C	9/1/2021 10:46:00 AM	NA		NA	NA	1.000	1.000	09/01/21 AW
F2481-FS	2	--	9/14/2021 2:57:00 PM	F2481-FS	0	5000	4000	1.250	1.250	09/14/21 AW
F2481-FS-D	3	--	9/14/2021 2:57:00 PM	F2481-FS	0	5000	1000	5.000	5.000	09/14/21 TN
F2482-FS	0	C	9/1/2021 10:46:00 AM	NA		NA	NA	1.000	1.000	09/01/21 AW
F2482-FS	2	--	9/14/2021 2:57:00 PM	F2482-FS	0	5000	4000	1.250	1.250	09/14/21 AW
F2482-FS-D	3	--	9/14/2021 2:57:00 PM	F2482-FS	0	5000	1000	5.000	5.000	09/14/21 TN

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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It can be done

BATTELLE - NORWELL OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Purpose:	LC-MS/MS TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Sep 14 2021 5:02PM AW	**Received On/By:**	Sep 14 2021 5:02PM LMG
Relinquished From:	Sample Preparation: NA	**Received Location:**	LC Laboratory: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	DE995PB-FS(0)	5000	1	Intact	NA
2	DE996LCS-FS(0)	5000	1	Intact	NA
3	F2481-FS(0)	10000	1	Intact	NA
4	F2481-FS-D(3)	5000	5	Intact	NA
5	F2482-FS(0)	10000	1	Intact	NA
6	F2482-FS-D(3)	5000	5	Intact	NA

Total Extracts: 6

BATTELLE
It can be done

BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Sample ID:	Comment:	Date/Initials:
DE995PB-FS	Sample was fortified with extracted internal standards, shaken, and transferred to a new HDPE bottle. The sample was centrifuged at 3800 RPM for five minutes. The supernatant was then decanted back into the original sample container prior to extraction. This procedure was performed due to the level of particulate matter present in the field samples centrifuged.	09/01/21 AW
DE995PB-FS	Extraction started at 10:46 AM, manifold 1, ended at 12:07 PM	09/01/21 AW
DE996LCS-FS	Sample was fortified with extracted internal standards, shaken, and transferred to a new HDPE bottle. The sample was centrifuged at 3800 RPM for five minutes. The supernatant was then decanted back into the original sample container prior to extraction. This procedure was performed due to the level of particulate matter present in the field samples centrifuged.	09/01/21 AW
DE996LCS-FS	Extraction started at 10:46 AM, manifold 1, ended at 11:52 PM	09/01/21 AW
F2481-FS	Sample was fortified with extracted internal standards, shaken, and transferred to a new HDPE bottle. The sample was centrifuged at 3800 RPM for five minutes. The supernatant was then decanted back into the original sample container prior to extraction. This procedure was performed due to the level of particulate matter present in the field samples centrifuged.	09/01/21 AW
F2481-FS	Extraction with column 1 started at 10:46 AM, manifold 3, ended at 1:10 PM. Extraction with column 2 started at 1:58 PM, manifold 1, ended at 2:55 PM	09/01/21 AW
F2481-FS	Sample clogged the top filter of the SPE. A new SPE cartridge was conditioned and the remaining sample was moved to the new column. Both SPE were dried and eluted per the SOP. Post elution, the extracts were combined, carbon cleaned, and fortified with internal standard. To account for the use of two columns, a 1 mL of extract was taken and concentrated to 0.5 mL prior to submission for analysis.	09/01/21 AW
F2481-FS	The sample clogged column1, Per PM, sample was ceased and filtered through a metal funnel with 150 mm diameter filter inside. After sample passed through, extraction with column 2 began.	09/01/21 AW
F2482-FS	Sample was fortified with extracted internal standards, shaken, and transferred to a new HDPE bottle. The sample was centrifuged at 3800 RPM for five minutes. The supernatant was then decanted back into the original sample container prior to extraction. This procedure was performed due to the level of particulate matter present in the field samples centrifuged.	09/01/21 AW
F2482-FS	Extraction with column 1 started at 10:46 AM, manifold 3, ended at 1:10 PM. Extraction with column 2 started at 1:58 PM, manifold 1, ended at 2:51 PM	09/01/21 AW

BATTELLE - NORWELL OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Sample ID:	Comment:	Date/Initials:
F2482-FS	Sample clogged the top filter of the SPE. A new SPE cartridge was conditioned and the remaining sample was moved to the new column. Both SPE were dried and eluted per the SOP. Post elution, the extracts were combined, carbon cleaned, and fortified with internal standard. To account for the use of two columns, a 1 mL of extract was taken and concentrated to 0.5 mL prior to submission for analysis.	09/01/21 AW
F2482-FS	The sample clogged column1, Per PM, sample was ceased and filtered through a metal funnel with 150 mm diameter filter inside. After sample passed through, extraction with column 2 began.	09/01/21 AW

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It can be done

BATTELLE - NORWELL OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title(s)	**Project No.(s)**
PFAS: Nasa Kennedy Space Center	100137609

21-1123

PFAS: Nasa Kennedy Space Center

GW

Entered By: On:

Task Leader Approval: On:

SupervisorApproval: On:

PM Approval: On:

Analytical Calibrations

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Sequence Report

Created with Analyst Reporter
Printed: 17/09/2021 7:44:20 AM

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
3	LL90	L1	9/14/2021 8:46:52 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
4	LM19	L2	9/14/2021 8:59:45 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
5	LL94	L3	9/14/2021 9:12:37 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
6	LM20	L4	9/14/2021 9:25:29 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
7	LM21	L5	9/14/2021 9:38:21 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
8	LL97	L6	9/14/2021 9:51:13 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
9	LL98	L7	9/14/2021 10:04:05 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
10	LM22	L8	9/14/2021 10:16:56 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
11	LM24 IB	IB	9/14/2021 10:29:49 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
12	LM09 ICC	ICC	9/14/2021 10:42:43 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
13	LL61 BRANCHED	Branched Standard	9/14/2021 10:55:35 PM	5-0369_REV.dam	AC_09142021_05-369.wiff
1 ~~15~~	~~DE868PB-FS(0)~~		~~9/14/2021 11:08:28 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~16~~	~~DE869LCS-FS(0)~~		~~9/14/2021 11:21:20 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~17~~	~~F2192-FS(0)~~		~~9/14/2021 11:34:13 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~F2193-FS(0)~~		~~9/14/2021 11:47:05 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~19~~	~~F2194-FS(0)~~		~~9/14/2021 11:59:57 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~20~~	~~F2194MS-FS(0)~~		~~9/15/2021 12:12:50 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~21~~	~~F2194MSD-FS(0)~~		~~9/15/2021 12:25:43 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~22~~	~~F2195-FS(0)~~		~~9/15/2021 12:38:36 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~23~~	~~F2196-FS(0)~~		~~9/15/2021 12:51:28 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

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Sequence Report

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1

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~24~~	~~MEOH~~		~~9/15/2021 1:04:21 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~25~~	~~LM20 CCV~~		~~9/15/2021 1:17:12 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~26~~	~~MEOH~~		~~9/15/2021 1:30:04 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~27~~	~~DF066PB-FS(0)~~		~~9/15/2021 1:42:56 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~28~~	~~DF067LCS-FS(0)~~		~~9/15/2021 1:55:48 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~29~~	~~F2286-FS1(0)~~		~~9/15/2021 2:08:40 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~30~~	~~F2288-FS1(0)~~		~~9/15/2021 2:21:33 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~31~~	~~MEOH~~		~~9/15/2021 2:34:25 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~32~~	~~LM21 CCV~~		~~9/15/2021 2:47:18 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~33~~	~~MEOH~~		~~9/15/2021 3:00:10 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~34~~	~~DE973PB-FS(0)~~		~~9/15/2021 3:13:02 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~35~~	~~DE974LCS-FS(0)~~		~~9/15/2021 3:25:53 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~36~~	~~F2427-FS(0)~~		~~9/15/2021 3:38:45 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~37~~	~~F2427-FS-D(3)~~		~~9/15/2021 3:51:38 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~38~~	~~F2427-FS-D(5)~~		~~9/15/2021 4:04:30 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~39~~	~~F2427-FS-D(7)~~		~~9/15/2021 4:17:23 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~40~~	~~MEOH~~		~~9/15/2021 4:30:16 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~41~~	~~LM20 CCV~~		~~9/15/2021 4:43:09 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~42~~	~~F2427MS-FS(0)~~		~~9/15/2021 4:56:02 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~43~~	~~F2427MS-FS-D(3)~~		~~9/15/2021 5:08:55 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

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Sequence Report

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Printed: 17/09/2021 7:44:20 AM

	Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	~~44~~	~~F2427MS-FS-D(5)~~		~~9/15/2021 5:21:47 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~45~~	~~F2427MS-FS-D(7)~~		~~9/15/2021 5:34:40 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~46~~	~~F2427MSD-FS(0)~~		~~9/15/2021 5:47:33 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~47~~	~~F2427MSD-FS-D(3)~~		~~9/15/2021 6:00:27 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~48~~	~~F2427MSD-FS-D(5)~~		~~9/15/2021 6:13:20 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~49~~	~~F2427MSD-FS-D(7)~~		~~9/15/2021 6:26:12 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	50	MEOH		9/15/2021 6:39:07 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	51	LM21 CCV	CCV	9/15/2021 6:52:00 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	52	MEOH		9/15/2021 7:04:53 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	53	DE995PB-FS(0)	Procedural Blank	9/15/2021 7:17:46 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	54	DE996LCS-FS(0)	Laboratory Control Sample	9/15/2021 7:30:38 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	1	F2481-FS(0)	POL-MW0011I-027.5-20210826	9/15/2021 7:43:32 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
2	~~2~~	~~F2481-FS-D(3)~~	~~POL-MW0011I-027.5-20210826~~	~~9/15/2021 7:56:26 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	3	F2482-FS(0)	POL-MW0011S-012.5-20210826	9/15/2021 8:09:21 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
2	~~4~~	~~F2482-FS-D(3)~~	~~POL-MW0011S-012.5-20210826~~	~~9/15/2021 8:23:02 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	5	MEOH		9/15/2021 8:35:56 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	10	LM19 CCV	CCV	9/15/2021 8:48:51 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
	11	MEOH		9/15/2021 9:01:46 AM	5-0369_REV.dam	AC_09142021_05-369.wiff
1	~~12~~	~~DF045PB-FS(0)~~		~~9/15/2021 9:14:41 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
1	~~13~~	~~DF046LCS-FS(0)~~		~~9/15/2021 9:27:35 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

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Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~14~~	~~DF047LCS-FS(0)~~		~~9/15/2021 9:40:30 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~15~~	~~DF048LCS-FS(0)~~		~~9/15/2021 9:53:26 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~16~~	~~DF049LCS-FS(0)~~		~~9/15/2021 10:06:21 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~17~~	~~LM20-CCV~~		~~9/15/2021 10:19:15 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~MEOH~~		~~9/15/2021 10:32:09 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~8~~	~~DE969PB-FS(0)~~		~~9/15/2021 10:45:04 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~9~~	~~DE970LCS-FS(0)~~		~~9/15/2021 10:57:58 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~10~~	~~F2421-FS(0)~~		~~9/15/2021 11:10:52 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~11~~	~~F2421MS-FS(0)~~		~~9/15/2021 11:26:02 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~12~~	~~F2421MSD-FS(0)~~		~~9/15/2021 11:38:56 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~13~~	~~F2425-FS(0)~~		~~9/15/2021 11:51:52 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~14~~	~~F2420-FS-D(5)~~		~~9/15/2021 12:04:48 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~15~~	~~F2420-FS-D(3)~~		~~9/15/2021 12:17:42 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~16~~	~~F2420-FS(0)~~		~~9/15/2021 12:30:37 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~17~~	~~MEOH~~		~~9/15/2021 12:43:31 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~LM21-CCV~~		~~9/15/2021 12:56:26 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~19~~	~~F2422-FS-D(5)~~		~~9/15/2021 1:09:22 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~20~~	~~F2422-FS-D(3)~~		~~9/15/2021 1:22:18 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~21~~	~~F2422-FS(0)~~		~~9/15/2021 1:35:12 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~22~~	~~F2424-FS-D(5)~~		~~9/15/2021 1:48:07 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

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Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~23~~	~~F2424-FS-D(3)~~		~~9/15/2021 2:01:02 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~24~~	~~F2424-FS(0)~~		~~9/15/2021 2:13:57 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~25~~	~~F2423-FS-D(3)~~		~~9/15/2021 2:26:53 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~26~~	~~F2423-FS(0)~~		~~9/15/2021 2:39:47 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~27~~	~~MEOH~~		~~9/15/2021 2:52:42 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~28~~	~~LM20 CCV~~		~~9/15/2021 3:05:38 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~MEOH~~		~~9/15/2021 3:20:23 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~19~~	~~DF035PB-FS(0)~~		~~9/15/2021 3:33:17 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~20~~	~~DF036LCS-FS(0)~~		~~9/15/2021 3:46:12 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~21~~	~~F2259-FS1(0)~~		~~9/15/2021 3:59:07 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~22~~	~~F2260-FS1(0)~~		~~9/15/2021 4:12:01 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~23~~	~~F2264-FS1(0)~~		~~9/15/2021 4:24:57 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~24~~	~~F2266-FS1(0)~~		~~9/15/2021 4:37:52 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~25~~	~~F2267-FS1(0)~~		~~9/15/2021 4:50:47 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~26~~	~~F2269-FS1(0)~~		~~9/15/2021 5:03:42 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~27~~	~~MEOH~~		~~9/15/2021 5:16:37 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~28~~	~~LM21 CCV~~		~~9/15/2021 5:29:32 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~29~~	~~F2272-FS1(0)~~		~~9/15/2021 5:42:26 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~30~~	~~F2275-FS1(0)~~		~~9/15/2021 5:55:21 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~31~~	~~F2280-FS1(0)~~		~~9/15/2021 6:08:17 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

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Sequence Report

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Printed: 17/09/2021 7:44:20 AM

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Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~32~~	~~F2289 FS1(0)~~		~~9/15/2021 6:21:12 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~33~~	~~MEOH~~		~~9/15/2021 6:34:06 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~7~~	~~LM19 CCV~~		~~9/15/2021 6:47:03 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~29~~	~~MEOH~~		~~9/15/2021 7:00:00 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~30~~	~~DE975PB FS(0)~~		~~9/15/2021 7:12:56 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~31~~	~~DE976LCS FS(0)~~		~~9/15/2021 7:25:52 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~32~~	~~F2428 FS(0)~~		~~9/15/2021 7:38:49 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~33~~	~~F2429 FS(0)~~		~~9/15/2021 7:51:46 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~34~~	~~F2430 FS(0)~~		~~9/15/2021 8:04:41 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~35~~	~~F2431 FS(0)~~		~~9/15/2021 8:17:37 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~36~~	~~F2432 FS(0)~~		~~9/15/2021 8:30:31 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~37~~	~~F2433 FS(0)~~		~~9/15/2021 8:43:25 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~38~~	~~MEOH~~		~~9/15/2021 8:56:22 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~39~~	~~LM21 CCV~~		~~9/15/2021 9:09:17 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~40~~	~~F2434 FS(0)~~		~~9/15/2021 9:22:14 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~41~~	~~F2435 FS(0)~~		~~9/15/2021 9:35:11 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~42~~	~~F2436 FS(0)~~		~~9/15/2021 9:48:07 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~43~~	~~F2437 FS(0)~~		~~9/15/2021 10:01:04 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~44~~	~~F2438 FS(0)~~		~~9/15/2021 10:14:00 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~45~~	~~F2439 FS(0)~~		~~9/15/2021 10:26:56 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

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Printed: 17/09/2021 7:44:20 AM

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Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~46~~	~~F2440-FS(0)~~		~~9/15/2021 10:39:53 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~47~~	~~F2441-FS(0)~~		~~9/15/2021 10:52:50 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~48~~	~~MEOH~~		~~9/15/2021 11:05:47 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~49~~	~~LM19-CCV~~		~~9/15/2021 11:18:44 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~50~~	~~F2442-FS(0)~~		~~9/15/2021 11:31:41 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~51~~	~~F2443-FS(0)~~		~~9/15/2021 11:44:37 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~52~~	~~F2444-FS(0)~~		~~9/15/2021 11:57:34 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~53~~	~~F2445-FS(0)~~		~~9/16/2021 12:10:31 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~54~~	~~F2446-FS(0)~~		~~9/16/2021 12:23:28 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~1~~	~~F2447-FS(0)~~		~~9/16/2021 12:36:24 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~2~~	~~MEOH~~		~~9/16/2021 12:49:21 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~3~~	~~LM21-CCV~~		~~9/16/2021 1:02:18 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~4~~	~~MEOH~~		~~9/16/2021 1:15:17 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~5~~	~~DE969PB-FS(0)~~		~~9/16/2021 1:28:15 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~6~~	~~DE970LCS-FS(0)~~		~~9/16/2021 1:41:12 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~7~~	~~F2421-FS(0)~~		~~9/16/2021 1:54:10 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~8~~	~~F2421MS-FS(0)~~		~~9/16/2021 2:07:06 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~9~~	~~F2421MSD-FS(0)~~		~~9/16/2021 2:20:04 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~10~~	~~F2420-FS-D(5)~~		~~9/16/2021 2:32:59 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~11~~	~~F2420-FS-D(3)~~		~~9/16/2021 2:45:56 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 17/09/2021 7:44:20 AM

1

Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
~~12~~	~~F2420-FS(0)~~		~~9/16/2021 2:58:53 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~13~~	~~MEOH~~		~~9/16/2021 3:11:50 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~14~~	~~LM20-CCV~~		~~9/16/2021 3:24:48 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~15~~	~~MEOH~~		~~9/16/2021 3:37:45 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~16~~	~~F2425-FS(0)~~		~~9/16/2021 3:50:43 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~17~~	~~F2423-FS-D(5)~~		~~9/16/2021 4:03:40 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~MEOH~~		~~9/16/2021 4:16:36 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~19~~	~~LM21-CCV~~		~~9/16/2021 4:29:33 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
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~~21~~	~~DE985PB-FS(0)~~		~~9/16/2021 4:55:27 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~22~~	~~DE986LCS-FS(0)~~		~~9/16/2021 5:08:25 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~23~~	~~F2448-FS(0)~~		~~9/16/2021 5:21:21 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~24~~	~~F2449-FS(0)~~		~~9/16/2021 5:34:18 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~25~~	~~F2450-FS(0)~~		~~9/16/2021 5:47:14 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~26~~	~~F2451-FS(0)~~		~~9/16/2021 6:00:11 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~MEOH~~		~~9/16/2021 8:56:30 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~18~~	~~MEOH~~		~~9/16/2021 9:09:27 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~35~~	~~LM21-CCV~~		~~9/16/2021 9:22:22 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~20~~	~~MEOH~~		~~9/16/2021 10:07:43 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
~~21~~	~~DE985PB-FS(0)~~		~~9/16/2021 10:20:39 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

BATTELLE

Sequence Report

Created with Analyst Reporter
Printed: 17/09/2021 7:44:20 AM

	Vial	Laboratory Sample ID	Client Sample ID	Acquisition Date	Acquisition Method	Data File
1	~~22~~	~~DE986LCS-FS(0)~~		~~9/16/2021 10:33:34 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~23~~	~~F2448-FS(0)~~		~~9/16/2021 10:46:32 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~24~~	~~F2449-FS(0)~~		~~9/16/2021 10:59:28 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~25~~	~~F2450-FS(0)~~		~~9/16/2021 11:12:24 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~28~~	~~F2451-FS-D(3)~~		~~9/16/2021 11:27:15 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~26~~	~~F2451-FS(0)~~		~~9/16/2021 11:40:14 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~27~~	~~F2450-FS-D(3)~~		~~9/16/2021 11:53:10 AM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~29~~	~~MEOH~~		~~9/16/2021 12:06:07 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~30~~	~~LM20-CCV~~		~~9/16/2021 12:19:05 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~30~~	~~LM20-CCV~~	~~CCV~~	~~9/16/2021 1:05:20 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~31~~	~~MEOH~~		~~9/16/2021 1:18:18 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
3	~~32~~	~~F2481-FS(0)~~	~~POL-MW0011I-027.5-20210826~~	~~9/16/2021 1:31:16 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
3	~~33~~	~~F2482-FS(0)~~	~~POL-MW0011S-012.5-20210826~~	~~9/16/2021 1:44:13 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~34~~	~~MEOH~~		~~9/16/2021 1:57:09 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~
	~~35~~	~~LM21-CCV~~	~~CCV~~	~~9/16/2021 2:10:08 PM~~	~~5-0369_REV.dam~~	~~AC_09142021_05-369.wiff~~

1 Samples do not apply to this batch. LMG 09/17/2021

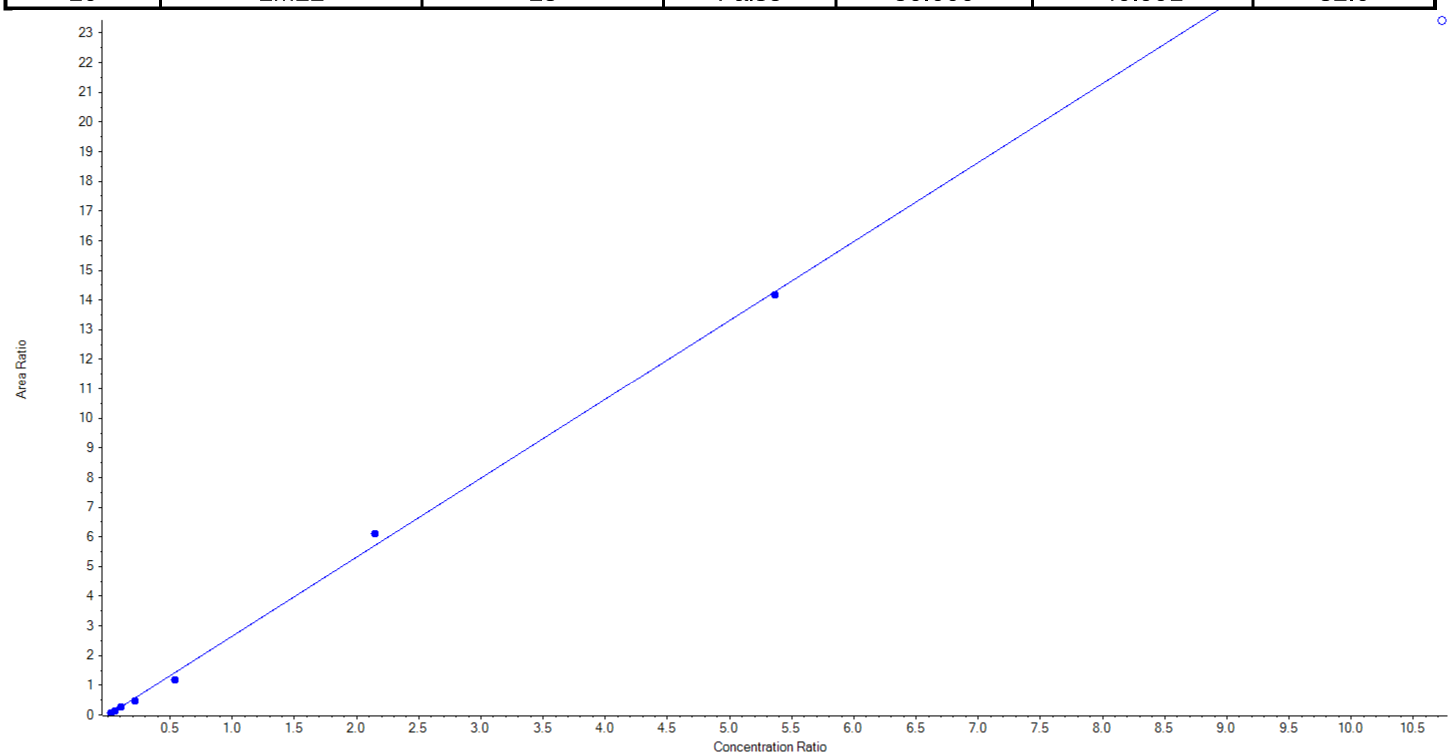
2 Dilution not needed. LMG 09/17/2021

3 Sample was reanalyzed for confirmation only. Data is included in the Unused Data section. LMG 09/17/2021

Analyte Name	PFBS_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	298.9 / 80.0	**Result Table**	21-1123
Internal Standard	13C3-PFBS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 2.66358 x + -0.00825 (r = 0.99802) (weighting: 1 / x) r^2:0.9960

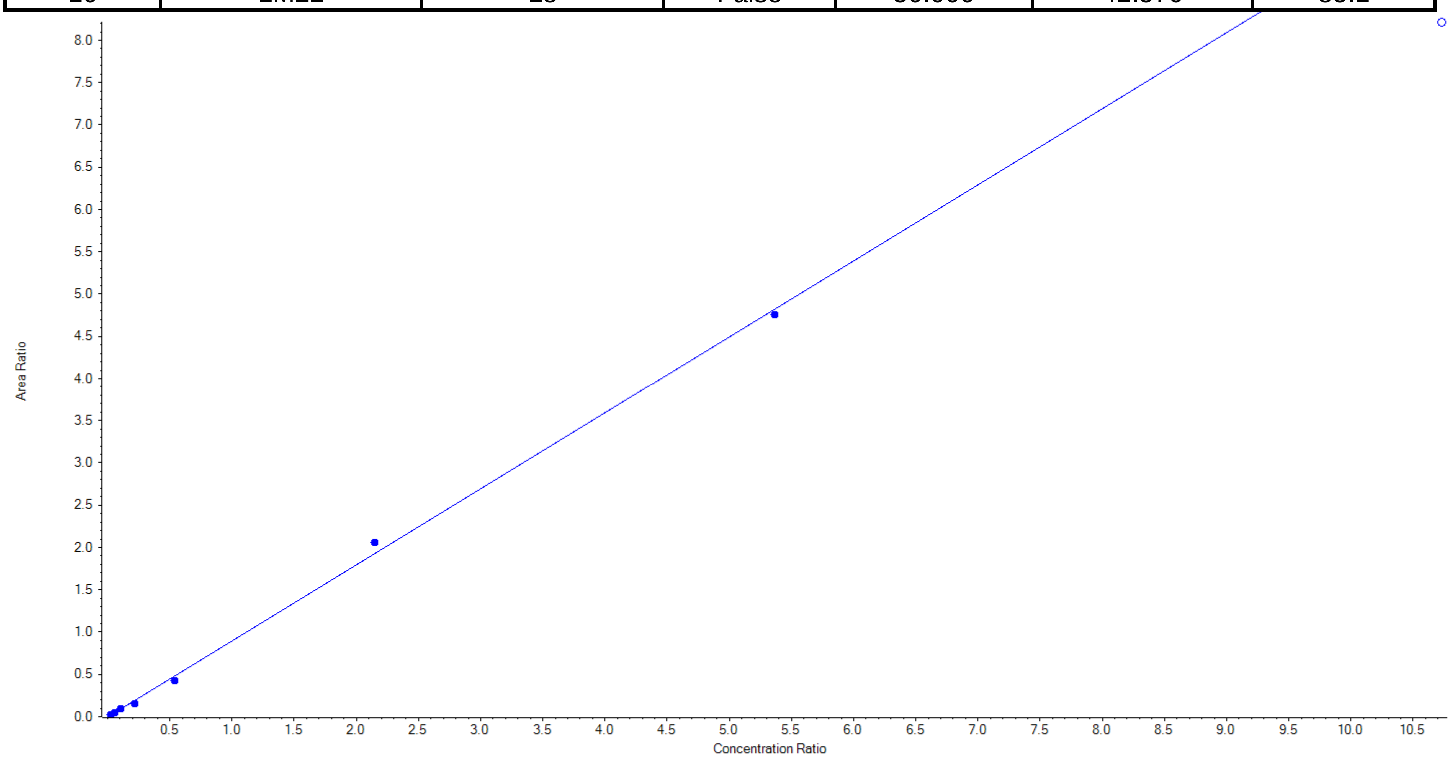
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.146	116.8
4	LM19	L2	True	0.250	0.261	104.5
5	LL94	L3	True	0.500	0.516	103.3
6	LM20	L4	True	1.000	0.855	85.5
7	LM21	L5	True	2.500	2.092	83.7
8	LL97	L6	True	10.000	10.710	107.1
9	LL98	L7	True	25.000	24.795	99.2
10	LM22	L8	False	50.000	40.991	82.0



Analyte Name	PFBS_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	298.9 / 99.0	**Result Table**	21-1123
Internal Standard	13C3-PFBS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.89948 x + -0.00394 (r = 0.99836) (weighting: 1 / x) r^2:0.9967

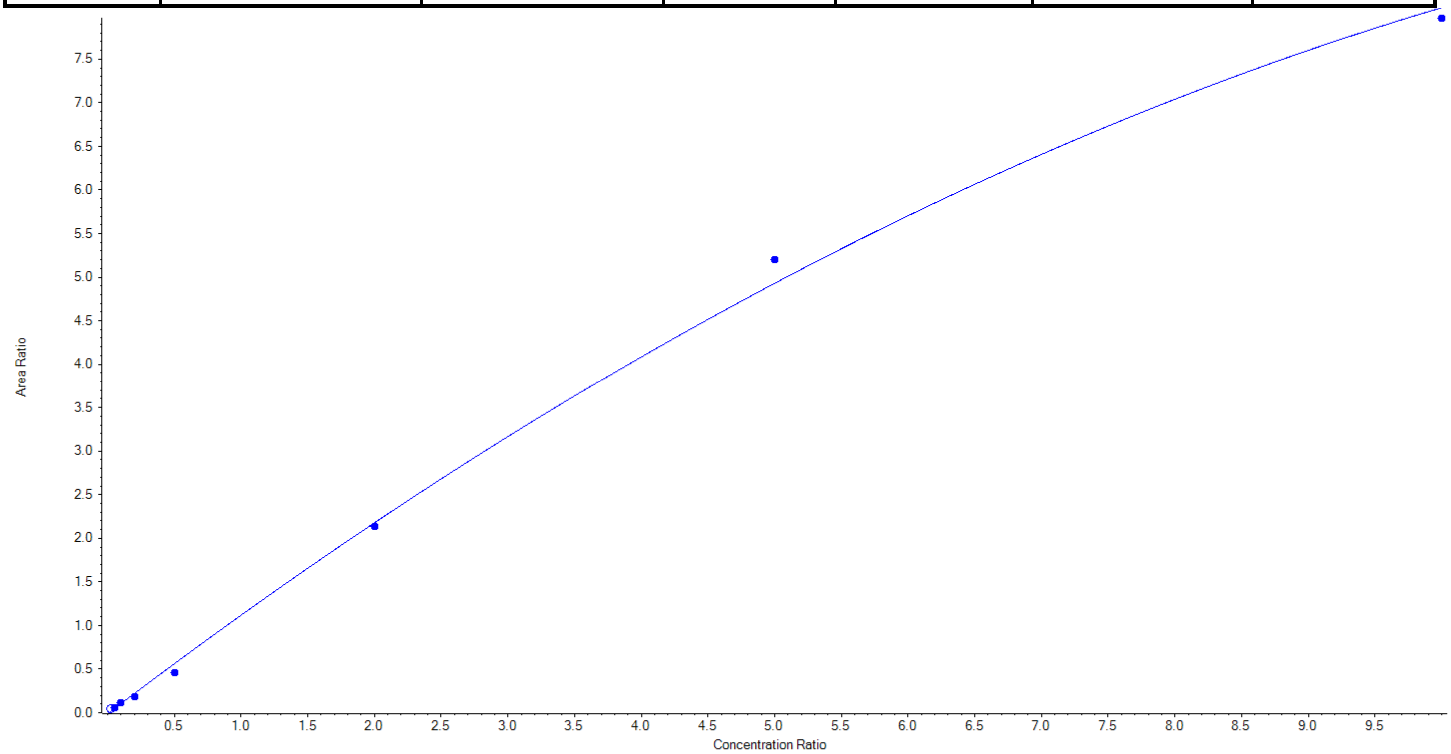
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.144	114.8
4	LM19	L2	True	0.250	0.268	107.4
5	LL94	L3	True	0.500	0.503	100.6
6	LM20	L4	True	1.000	0.814	81.4
7	LM21	L5	True	2.500	2.248	89.9
8	LL97	L6	True	10.000	10.716	107.2
9	LL98	L7	True	25.000	24.682	98.7
10	LM22	L8	False	50.000	42.570	85.1



Analyte Name	PFHxA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	313.0 / 269.0	**Result Table**	21-1123
Internal Standard	13C5-PFHxA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.03563 x^2 + 1.16656 x + -0.01236$ ($r = 0.99832$) (weighting: 1 / x) r^2:0.9966

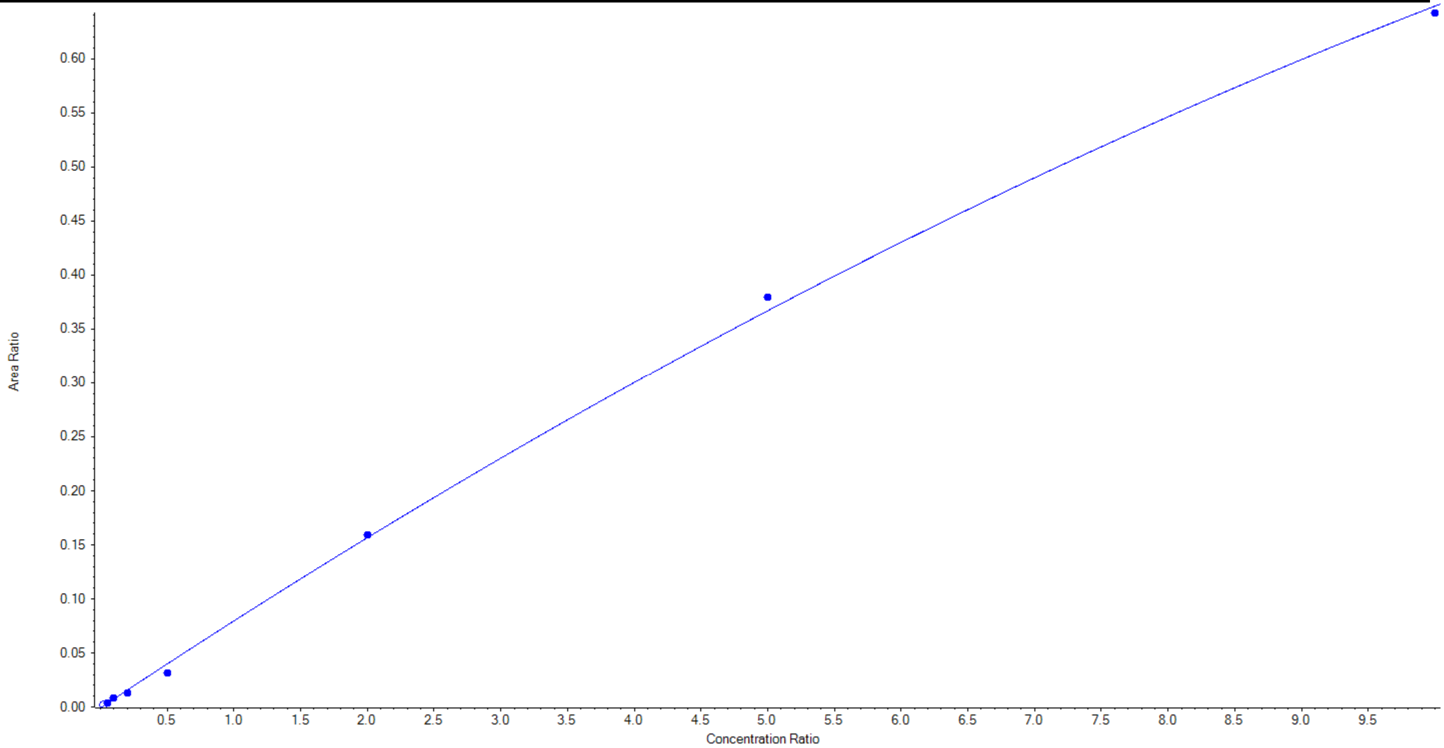
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.228	182.5
4	LM19	L2	True	0.250	0.294	117.7
5	LL94	L3	True	0.500	0.555	111.1
6	LM20	L4	True	1.000	0.864	86.4
7	LM21	L5	True	2.500	2.063	82.5
8	LL97	L6	True	10.000	9.791	97.9
9	LL98	L7	True	25.000	26.707	106.8
10	LM22	L8	True	50.000	48.681	97.4



Analyte Name	PFHxA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	313.0 / 119.0	**Result Table**	21-1123
Internal Standard	13C5-PFHxA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -0.00172 x^2 + 0.08214 x + -8.05937e-4 (r = 0.99858) (weighting: 1 / x) r^2:0.9972

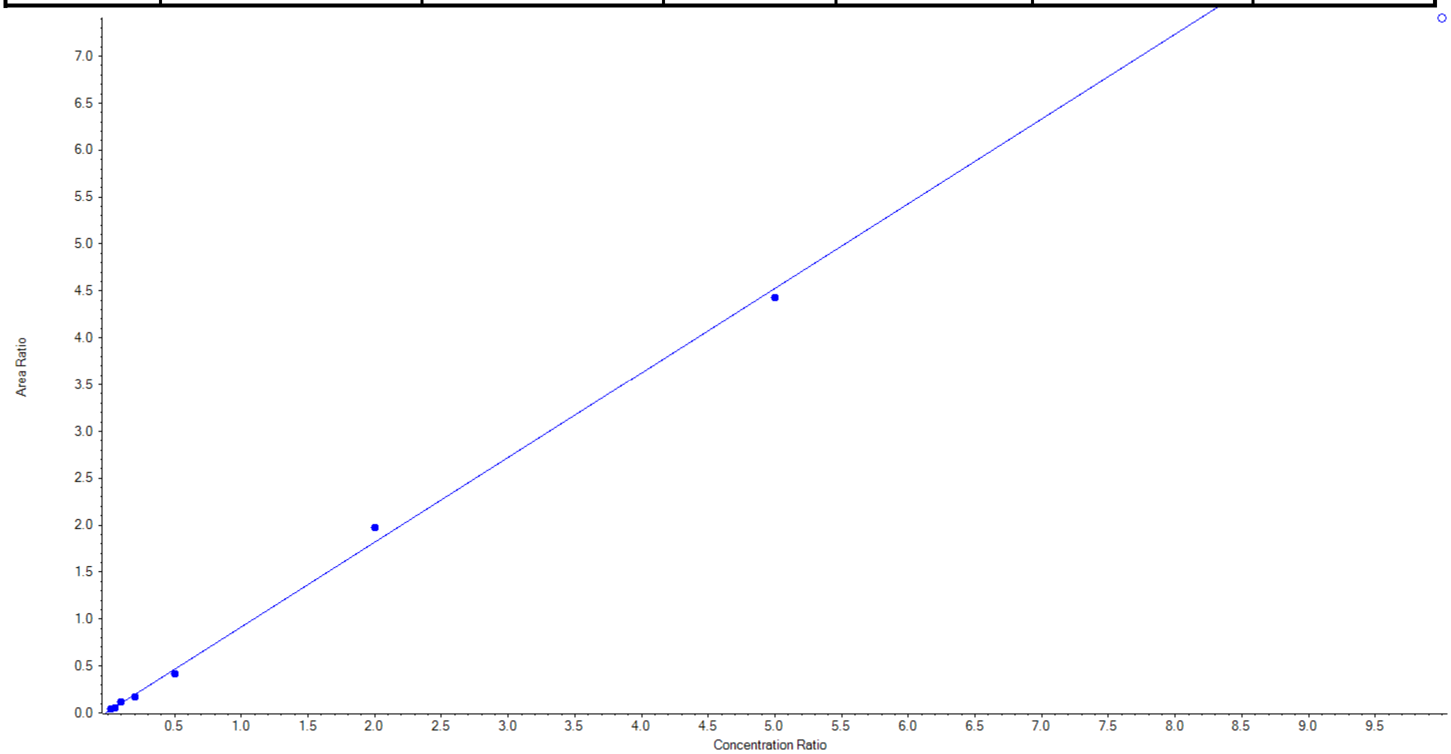
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.141	112.5
4	LM19	L2	True	0.250	0.287	114.6
5	LL94	L3	True	0.500	0.579	115.7
6	LM20	L4	True	1.000	0.861	86.2
7	LM21	L5	True	2.500	1.985	79.4
8	LL97	L6	True	10.000	10.151	101.5
9	LL98	L7	True	25.000	25.991	104.0
10	LM22	L8	True	50.000	49.331	98.7



Analyte Name	PFHpA_1	Data File	AC_09142021_05-369.wiff
MRM Transition	363.0 / 319.0	Result Table	21-1123
Internal Standard	13C4-PFHpA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: $y = 0.90261\ x + 0.01372$ ($r = 0.99813$) (weighting: $1 / x$) r^2:0.9963

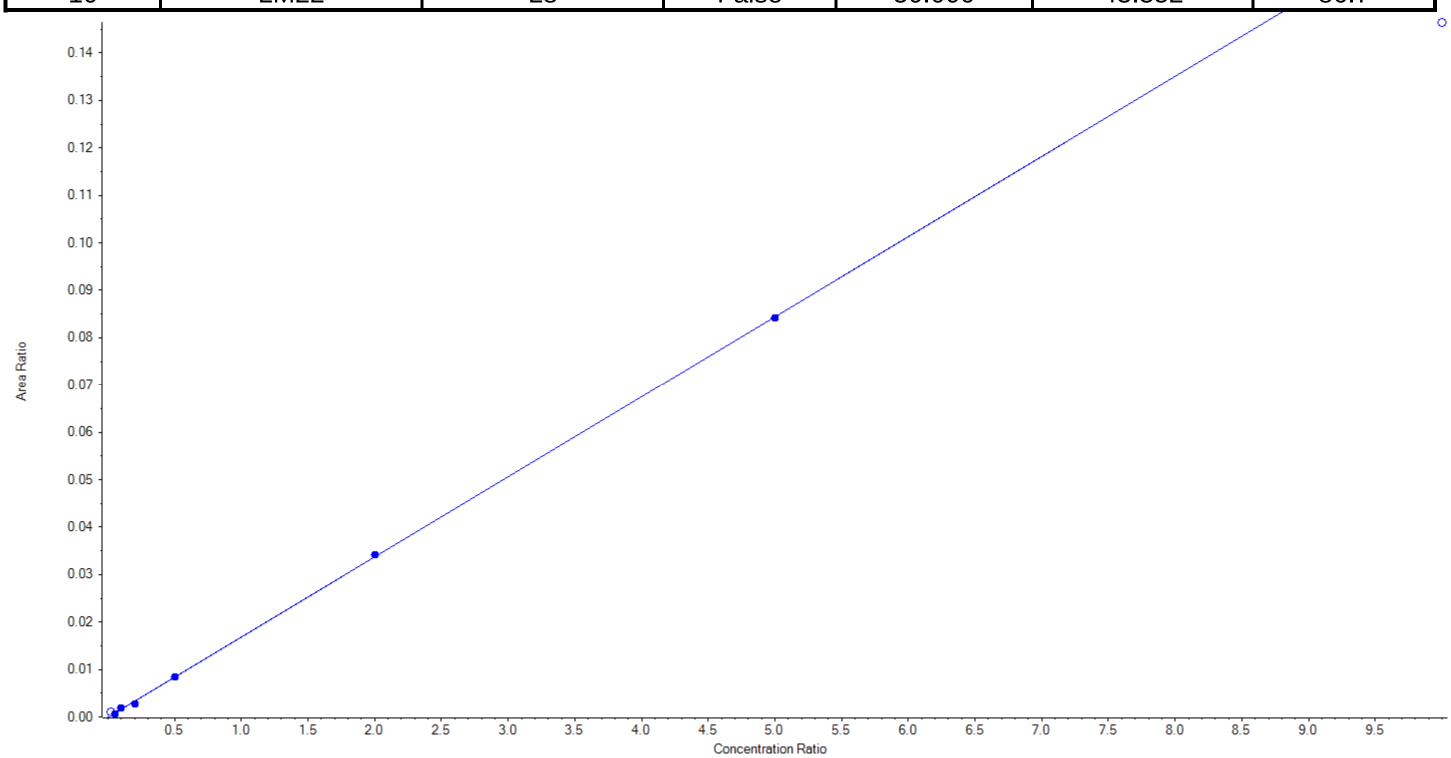
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.145	116.1
4	LM19	L2	True	0.250	0.224	89.4
5	LL94	L3	True	0.500	0.552	110.4
6	LM20	L4	True	1.000	0.882	88.2
7	LM21	L5	True	2.500	2.238	89.5
8	LL97	L6	True	10.000	10.852	108.5
9	LL98	L7	True	25.000	24.483	97.9
10	LM22	L8	False	50.000	40.951	81.9



Analyte Name	PFHpA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	363.0 / 169.0	**Result Table**	21-1123
Internal Standard	13C4-PFHpA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.01690 x + -6.47048e-5 (r = 0.99940) (weighting: 1 / x) r^2:0.9988

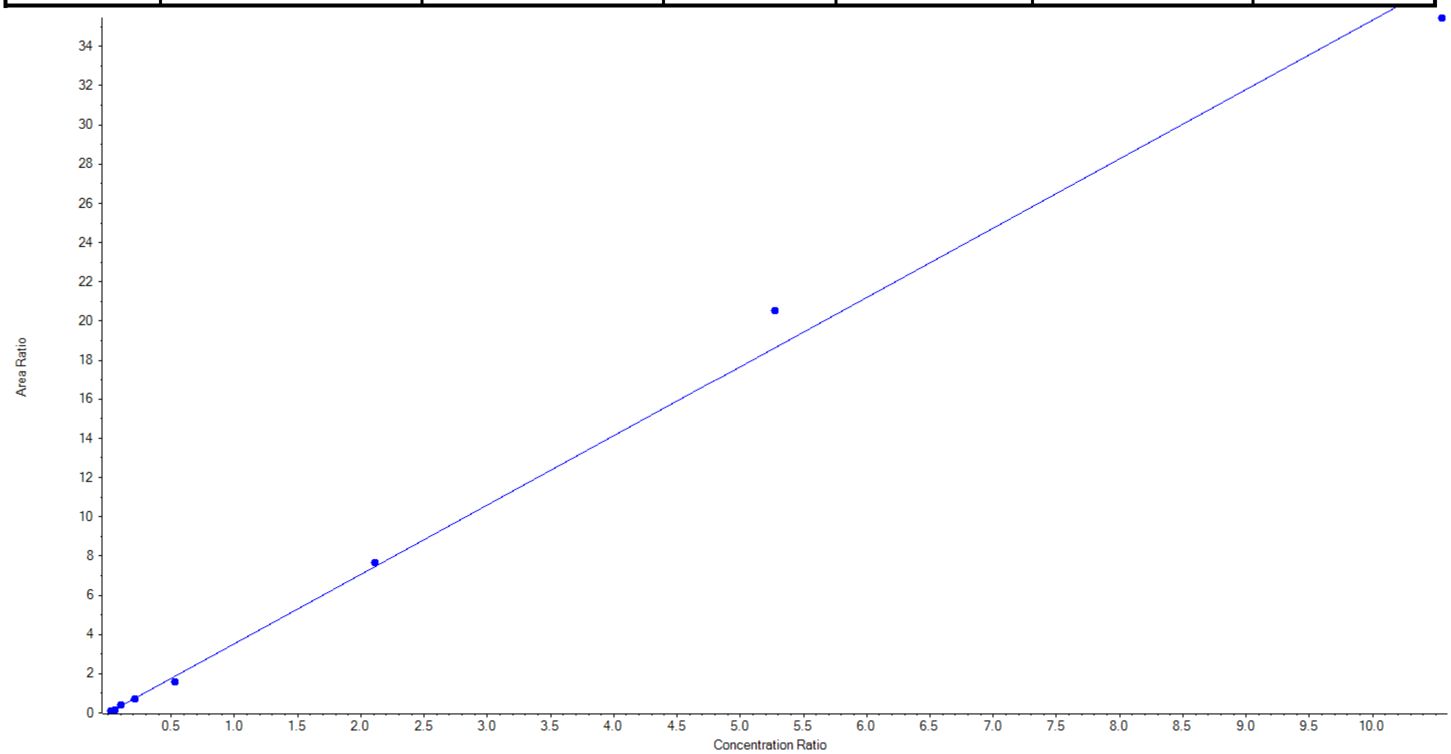
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.339	270.9
4	LM19	L2	True	0.250	0.236	94.4
5	LL94	L3	True	0.500	0.594	118.8
6	LM20	L4	True	1.000	0.854	85.4
7	LM21	L5	True	2.500	2.514	100.6
8	LL97	L6	True	10.000	10.123	101.2
9	LL98	L7	True	25.000	24.930	99.7
10	LM22	L8	False	50.000	43.352	86.7



Analyte Name	PFHxS_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	399.0 / 80.0	**Result Table**	21-1123
Internal Standard	13C3-PFHxS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 3.53435 x + -0.00447 (r = 0.99726) (weighting: 1 / x) r^2:0.9945

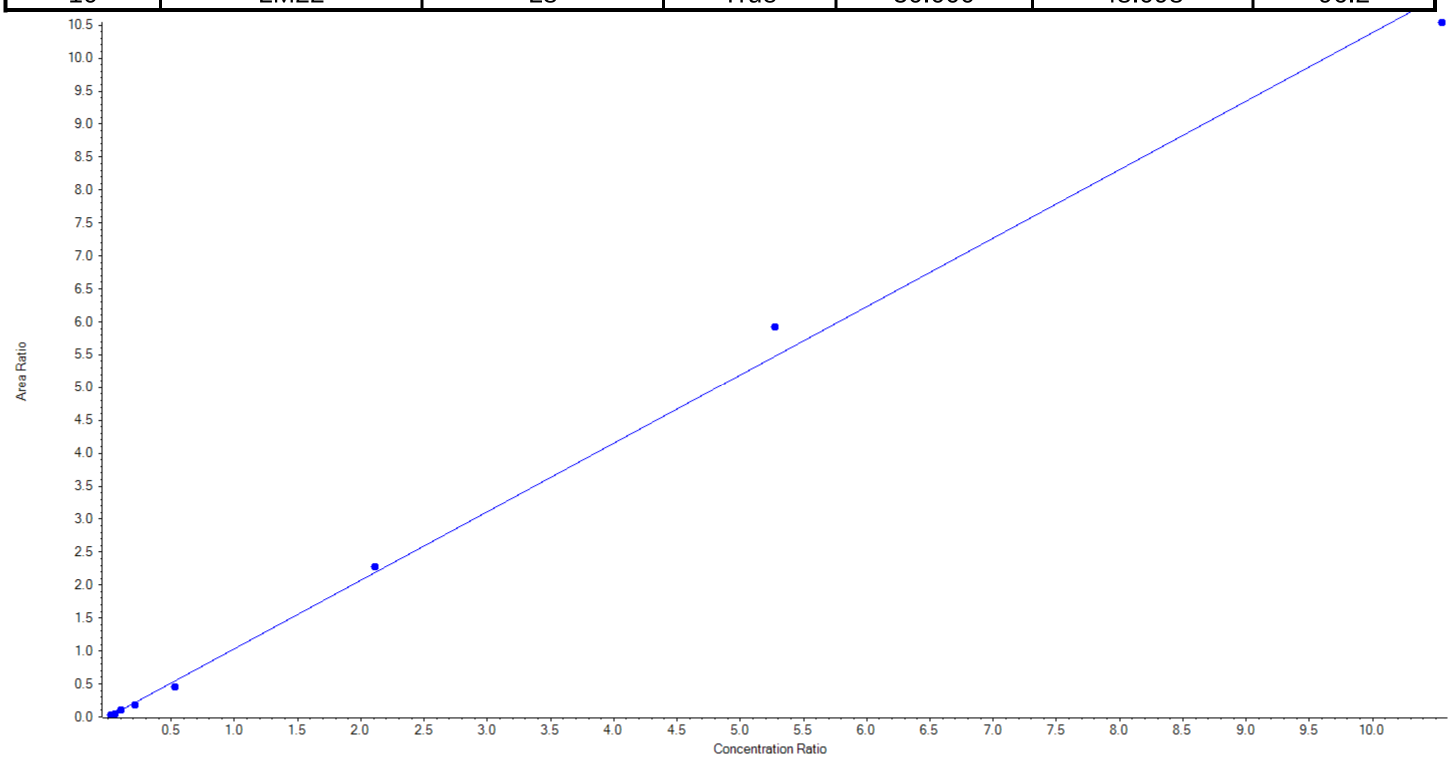
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.146	116.9
4	LM19	L2	True	0.250	0.215	86.1
5	LL94	L3	True	0.500	0.552	110.4
6	LM20	L4	True	1.000	0.935	93.5
7	LM21	L5	True	2.500	2.119	84.8
8	LL97	L6	True	10.000	10.301	103.0
9	LL98	L7	True	25.000	27.563	110.3
10	LM22	L8	True	50.000	47.544	95.1



Analyte Name	PFHxS_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	399.0 / 99.0	**Result Table**	21-1123
Internal Standard	13C3-PFHxS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.03921 x + -0.00464 (r = 0.99794) (weighting: 1 / x) r^2:0.9959

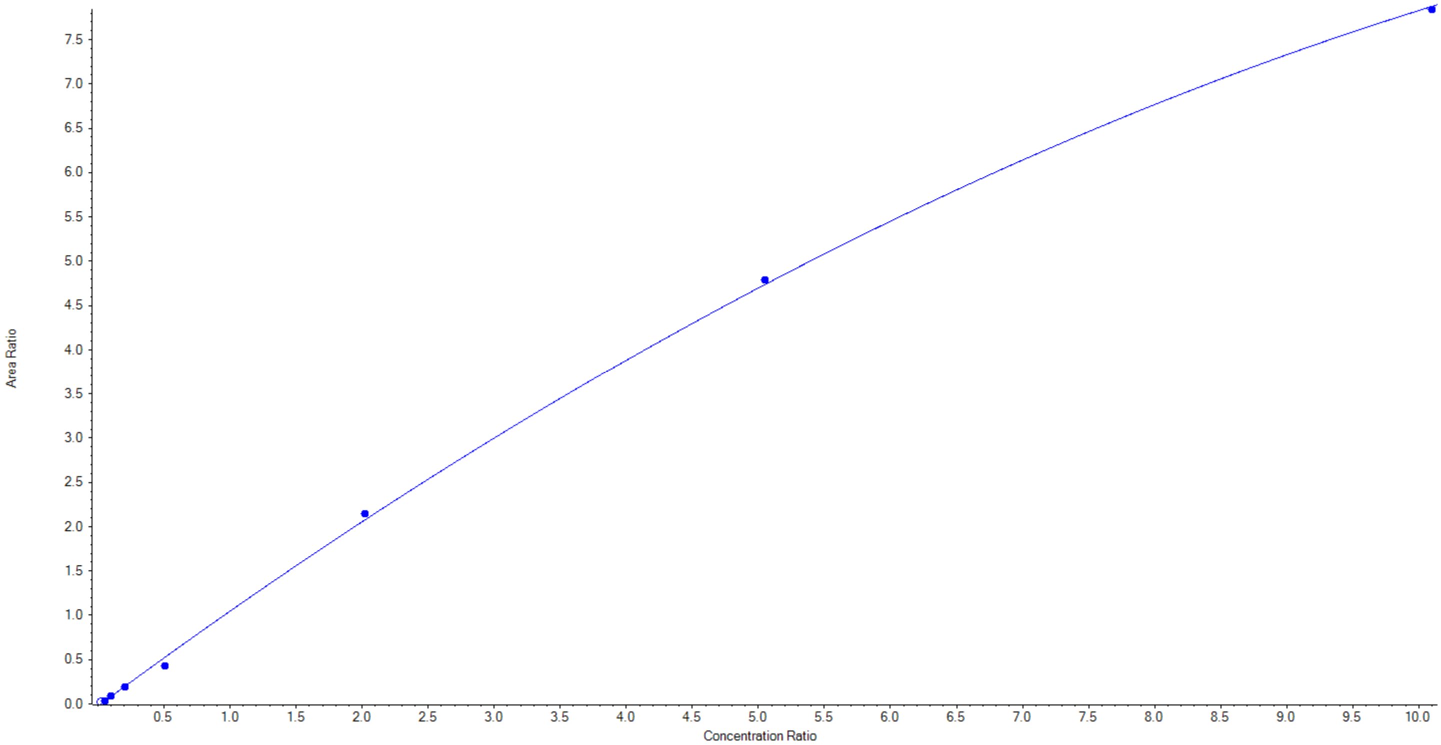
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.147	117.5
4	LM19	L2	True	0.250	0.245	97.9
5	LL94	L3	True	0.500	0.539	107.8
6	LM20	L4	True	1.000	0.856	85.6
7	LM21	L5	True	2.500	2.074	83.0
8	LL97	L6	True	10.000	10.394	103.9
9	LL98	L7	True	25.000	27.023	108.1
10	LM22	L8	True	50.000	48.098	96.2



Analyte Name	PFOA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	413.0 / 369.0	**Result Table**	21-1123
Internal Standard	13C8-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.03186\, x^2 + 1.10389\, x + -0.02496$ ($r = 0.99917$) (weighting: $1 / x$) r^2:0.9983

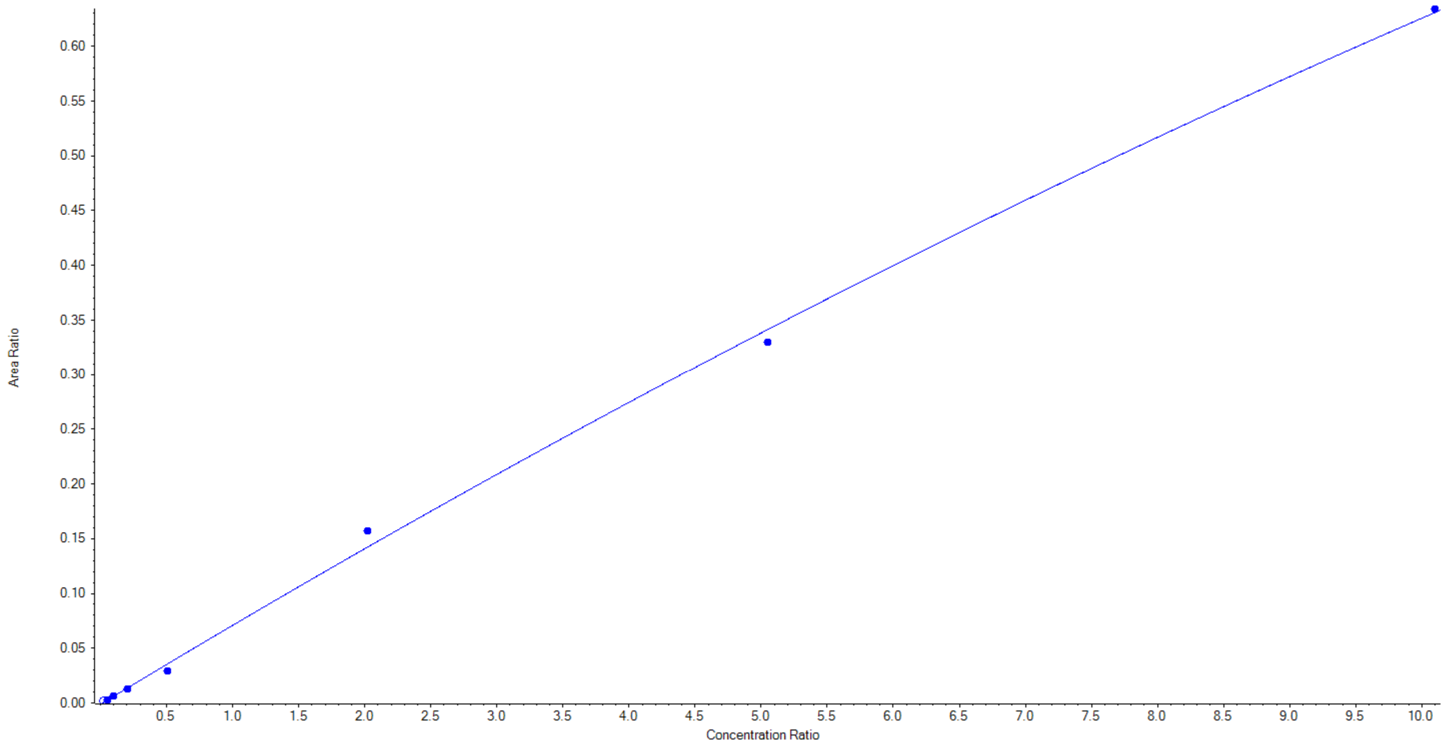
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.126	0.233	185.3
4	LM19	L2	True	0.253	0.280	110.6
5	LL94	L3	True	0.505	0.531	105.1
6	LM20	L4	True	1.010	0.979	96.9
7	LM21	L5	True	2.525	2.100	83.2
8	LL97	L6	True	10.100	10.465	103.6
9	LL98	L7	True	25.250	25.571	101.3
10	LM22	L8	True	50.500	50.126	99.3



Analyte Name	PFOA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	413.0 / 169.0	**Result Table**	21-1123
Internal Standard	13C8-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.00104 x^2 + 0.07308 x + -0.00115$ ($r = 0.99837$) (weighting: 1 / x) r^2:0.9967

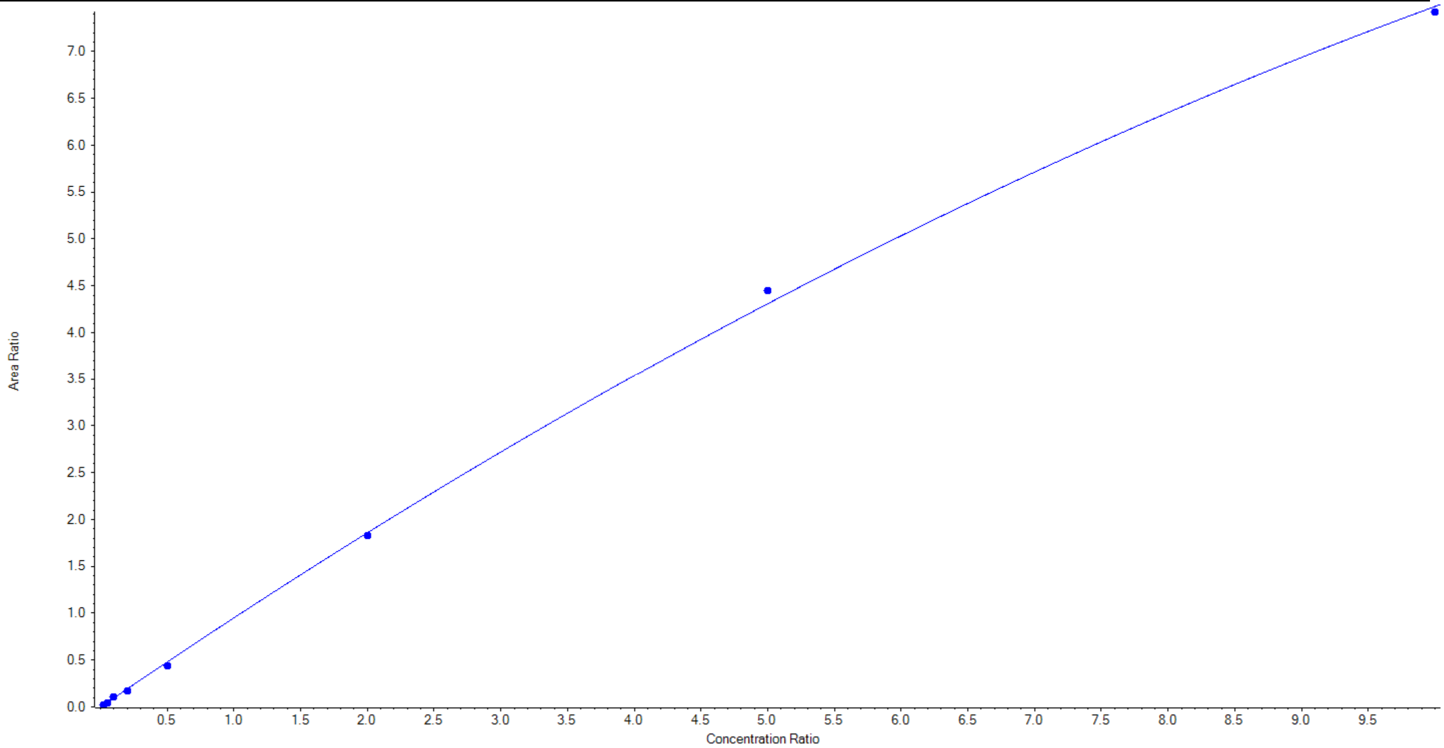
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.126	0.224	177.8
4	LM19	L2	True	0.253	0.280	110.5
5	LL94	L3	True	0.505	0.536	106.1
6	LM20	L4	True	1.010	0.942	93.3
7	LM21	L5	True	2.525	2.083	82.5
8	LL97	L6	True	10.100	11.201	110.9
9	LL98	L7	True	25.250	24.310	96.3
10	LM22	L8	True	50.500	50.808	100.6



Analyte Name	PFNA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	463.0 / 419.0	**Result Table**	21-1123
Internal Standard	13C9-PFNA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.02277 x^2 + 0.97600 x + -0.00236$ ($r = 0.99942$) (weighting: 1 / x) r^2:0.9988

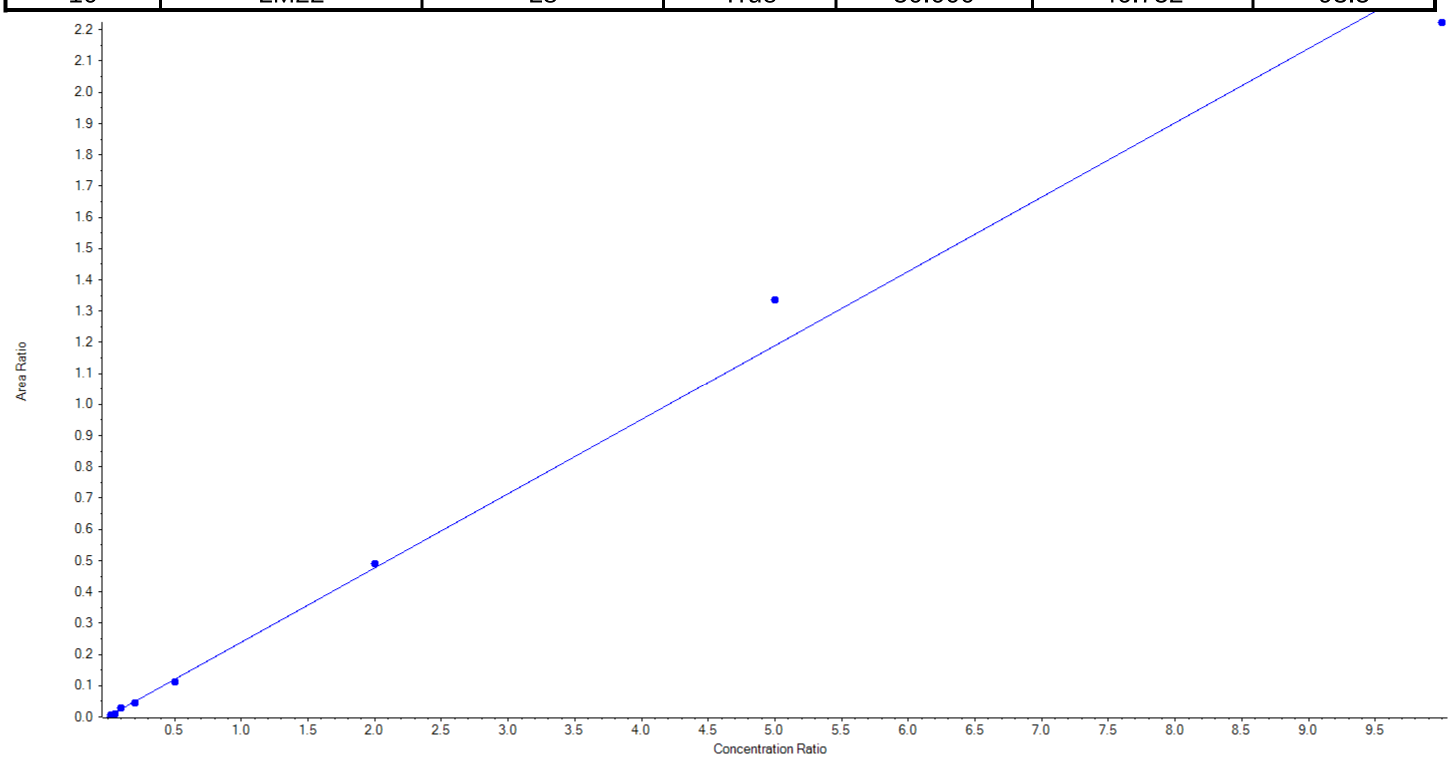
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.138	110.4
4	LM19	L2	True	0.250	0.224	89.4
5	LL94	L3	True	0.500	0.586	117.3
6	LM20	L4	True	1.000	0.903	90.3
7	LM21	L5	True	2.500	2.299	92.0
8	LL97	L6	True	10.000	9.808	98.1
9	LL98	L7	True	25.000	25.914	103.7
10	LM22	L8	True	50.000	49.435	98.9



Analyte Name	PFNA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	463.0 / 219.0	**Result Table**	21-1123
Internal Standard	13C9-PFNA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = 0.23761 x + 0.00148$ ($r = 0.99619$) (weighting: 1 / x) r^2:0.9924

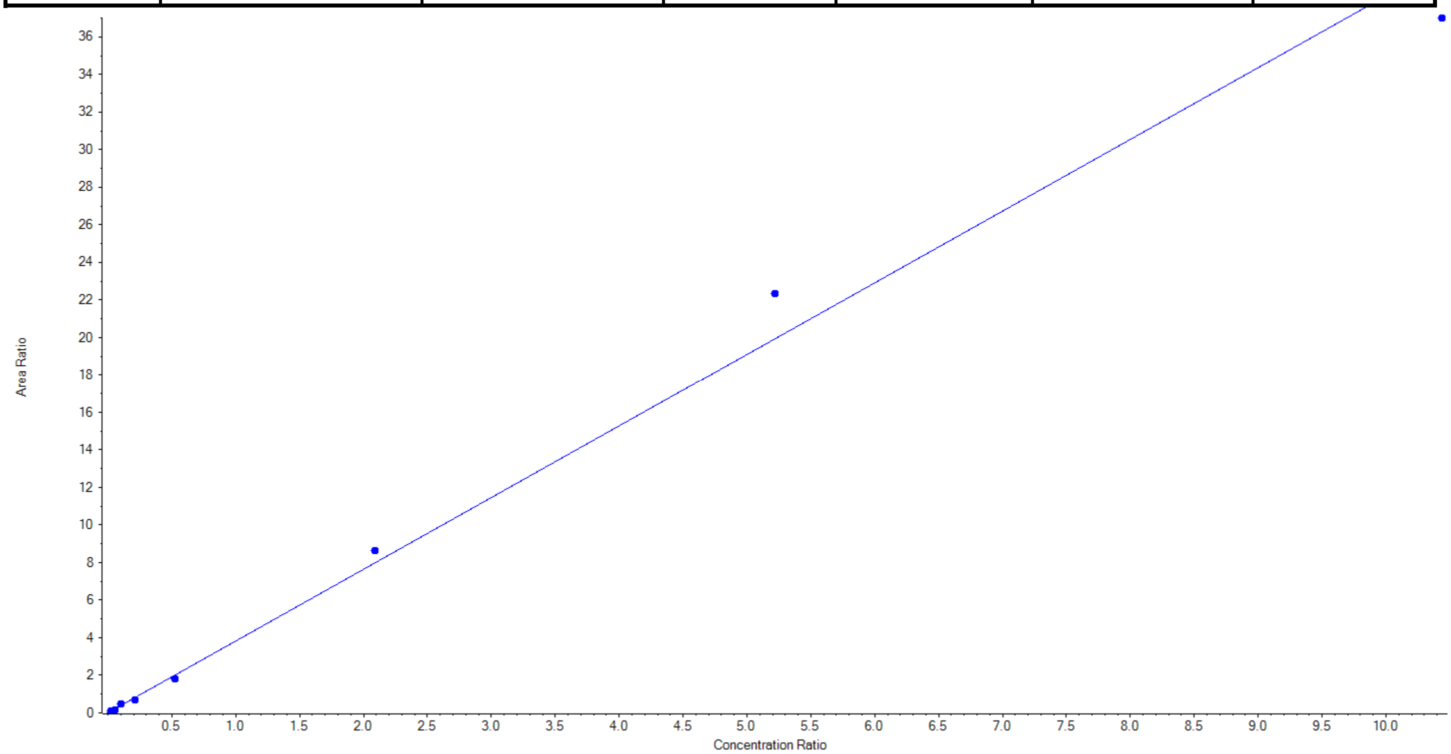
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.131	104.6
4	LM19	L2	True	0.250	0.198	79.1
5	LL94	L3	True	0.500	0.603	120.6
6	LM20	L4	True	1.000	0.925	92.5
7	LM21	L5	True	2.500	2.356	94.3
8	LL97	L6	True	10.000	10.302	103.0
9	LL98	L7	True	25.000	28.109	112.4
10	LM22	L8	True	50.000	46.752	93.5



Analyte Name	PFOS_1	Data File	AC_09142021_05-369.wiff
MRM Transition	499.0 / 80.0	Result Table	21-1123
Internal Standard	13C8-PFOS	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: $y = 3.81691\ x + 0.01128$ ($r = 0.99567$) (weighting: 1 / x) r^2:0.9914

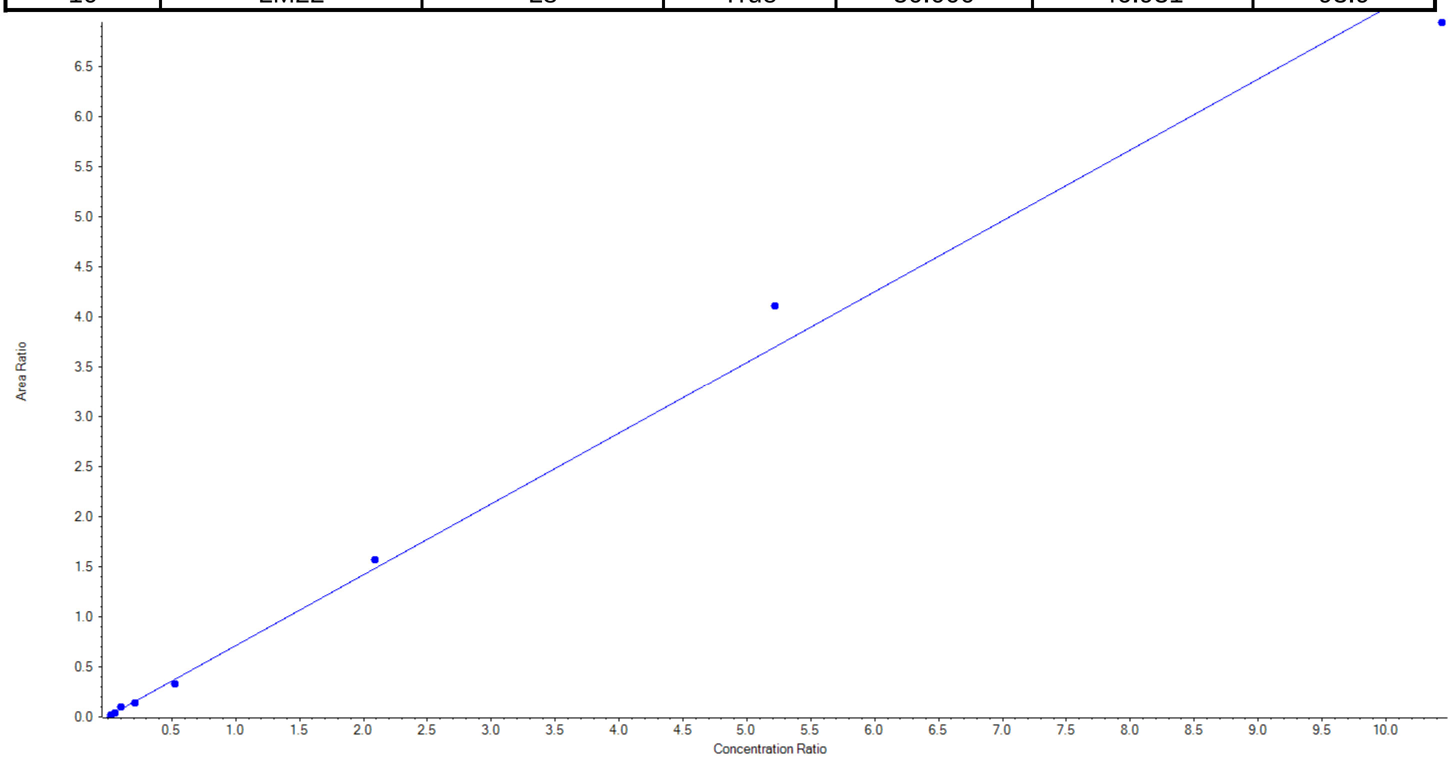
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.127	101.7
4	LM19	L2	True	0.250	0.213	85.1
5	LL94	L3	True	0.500	0.600	119.9
6	LM20	L4	True	1.000	0.884	88.4
7	LM21	L5	True	2.500	2.292	91.7
8	LL97	L6	True	10.000	10.835	108.4
9	LL98	L7	True	25.000	28.002	112.0
10	LM22	L8	True	50.000	46.422	92.8



Analyte Name	PFOS_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	499.0 / 99.0	**Result Table**	21-1123
Internal Standard	13C8-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = 0.70793 x + 0.00490$ ($r = 0.99645$) (weighting: 1 / x) r^2:0.9929

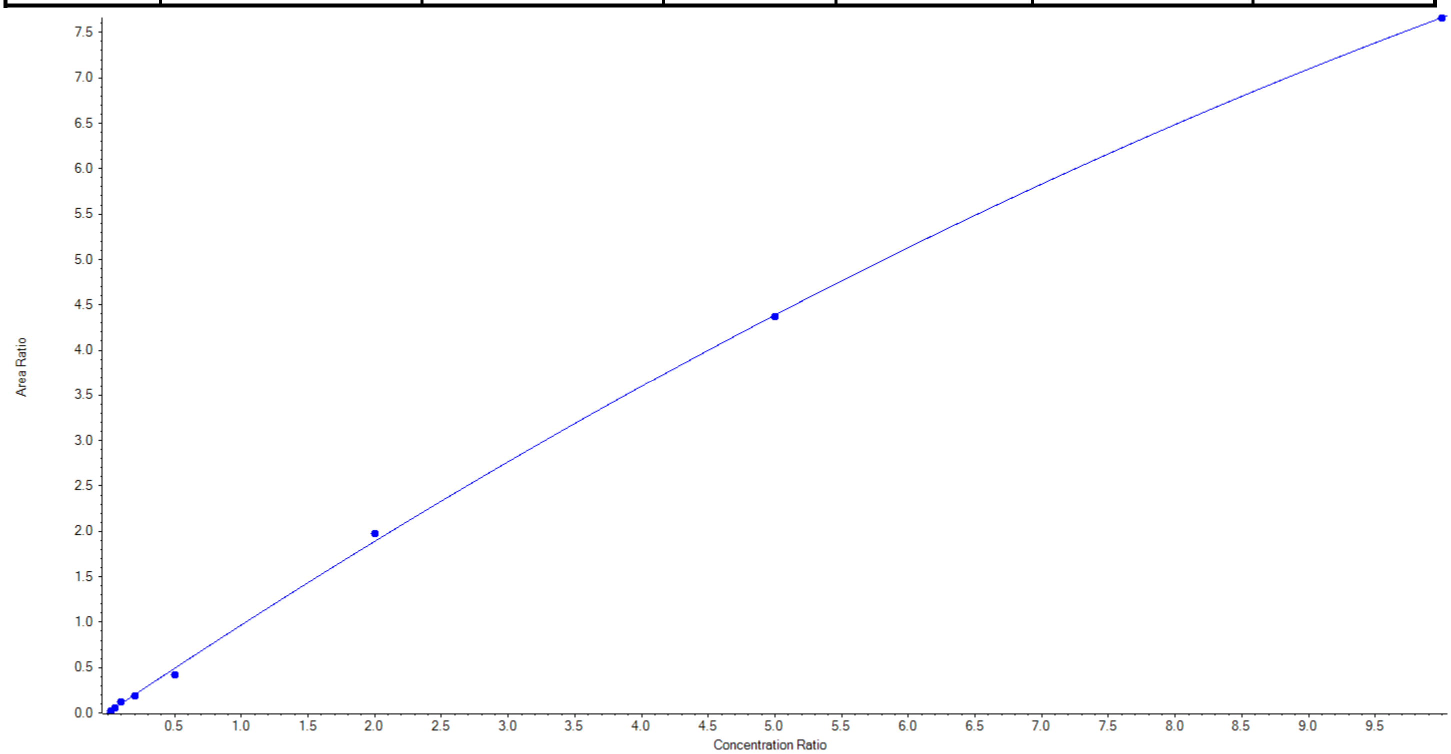
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.126	101.1
4	LM19	L2	True	0.250	0.210	84.2
5	LL94	L3	True	0.500	0.625	124.9
6	LM20	L4	True	1.000	0.902	90.2
7	LM21	L5	True	2.500	2.221	88.9
8	LL97	L6	True	10.000	10.576	105.8
9	LL98	L7	True	25.000	27.783	111.1
10	LM22	L8	True	50.000	46.931	93.9



Analyte Name	PFDA_1	Data File	AC_09142021_05-369.wiff
MRM Transition	513.0 / 469.0	Result Table	21-1123
Internal Standard	13C6-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = -0.02216 x^2 + 0.98764 x + 0.00326 (r = 0.99926) (weighting: 1 / x) r^2:0.9985

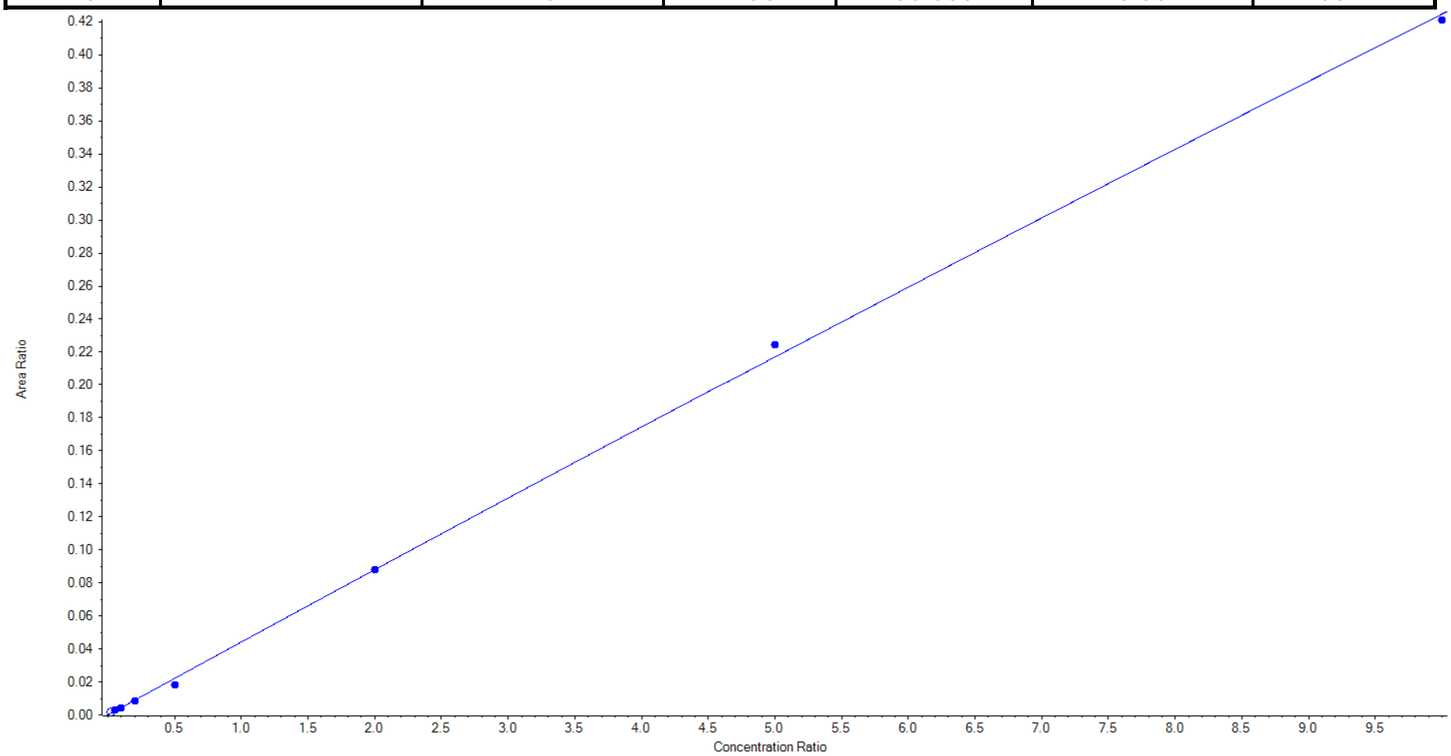
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.114	90.9
4	LM19	L2	True	0.250	0.270	108.2
5	LL94	L3	True	0.500	0.589	117.8
6	LM20	L4	True	1.000	0.931	93.1
7	LM21	L5	True	2.500	2.150	86.0
8	LL97	L6	True	10.000	10.469	104.7
9	LL98	L7	True	25.000	24.887	99.6
10	LM22	L8	True	50.000	49.957	99.9



Analyte Name	PFDA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	513.0 / 219.0	**Result Table**	21-1123
Internal Standard	13C6-PFDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -1.86966e-4 x^2 + 0.04434 x + 3.08815e-5$ (r = 0.99913) (weighting: 1 / x) r^2:0.9983

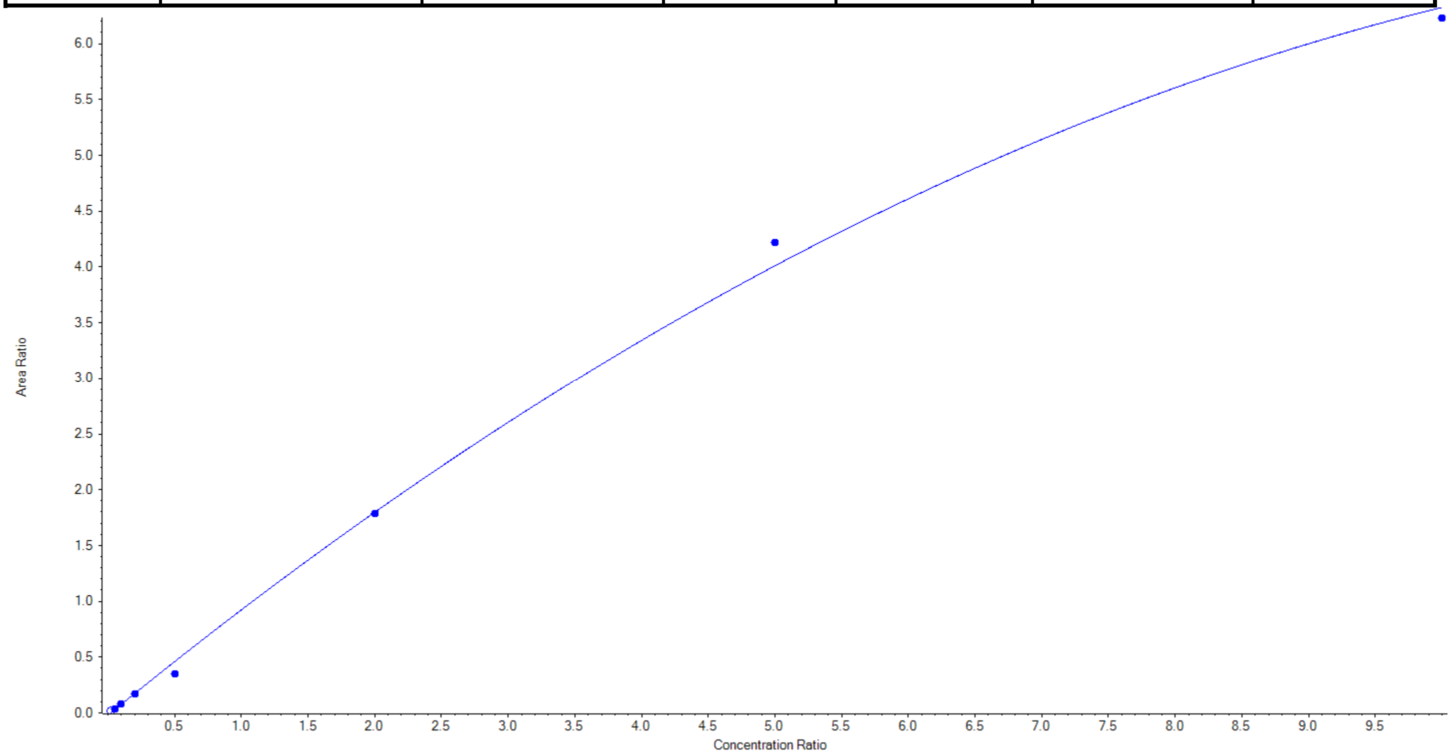
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.195	155.6
4	LM19	L2	True	0.250	0.319	127.8
5	LL94	L3	True	0.500	0.455	91.1
6	LM20	L4	True	1.000	0.961	96.1
7	LM21	L5	True	2.500	2.059	82.4
8	LL97	L6	True	10.000	9.994	99.9
9	LL98	L7	True	25.000	25.909	103.6
10	LM22	L8	True	50.000	49.552	99.1



Analyte Name	PFUnA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	563.0 / 519.0	**Result Table**	21-1123
Internal Standard	13C7-PFUnA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.03432 x^2 + 0.97778 x + -0.02024$ ($r = 0.99793$) (weighting: 1 / x) r^2:0.9959

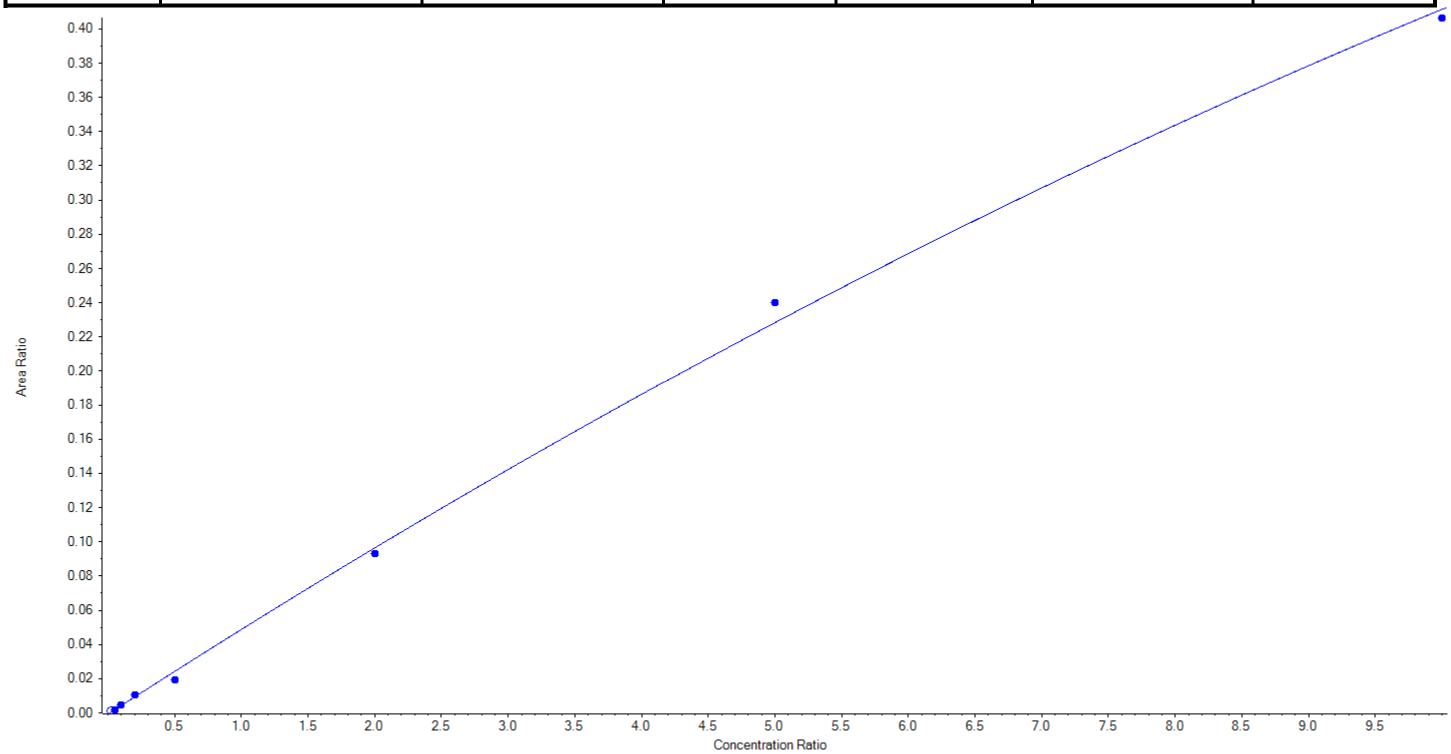
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.218	174.7
4	LM19	L2	True	0.250	0.283	113.2
5	LL94	L3	True	0.500	0.541	108.1
6	LM20	L4	True	1.000	0.991	99.1
7	LM21	L5	True	2.500	1.907	76.3
8	LL97	L6	True	10.000	9.937	99.4
9	LL98	L7	True	25.000	26.649	106.6
10	LM22	L8	True	50.000	48.426	96.9



Analyte Name	PFUnA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	563.0 / 269.0	**Result Table**	21-1123
Internal Standard	13C7-PFUnA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -9.20860e-4 x^2 + 0.05042 x + -7.45495e-4 (r = 0.99857) (weighting: 1 / x) r^2:0.9971

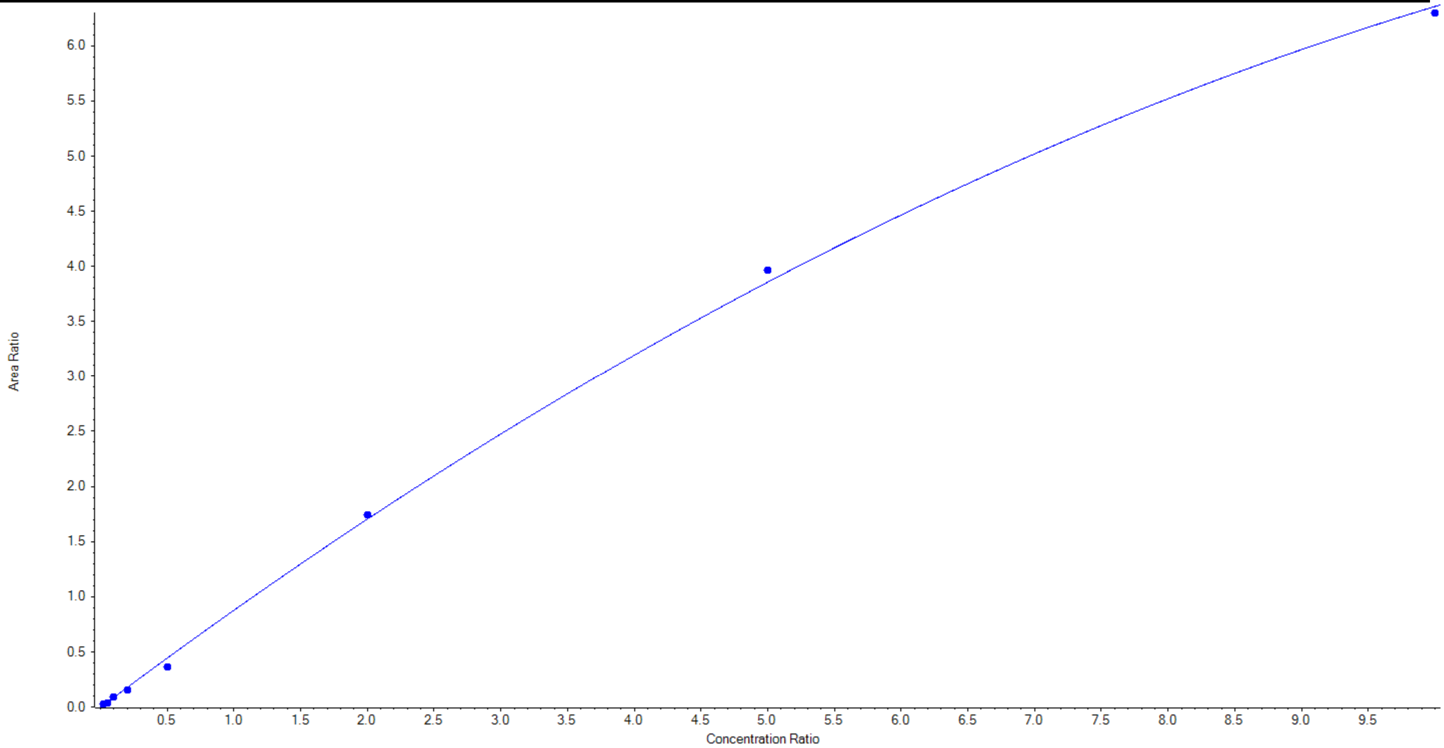
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.211	169.1
4	LM19	L2	True	0.250	0.265	105.9
5	LL94	L3	True	0.500	0.518	103.7
6	LM20	L4	True	1.000	1.096	109.6
7	LM21	L5	True	2.500	2.000	80.0
8	LL97	L6	True	10.000	9.669	96.7
9	LL98	L7	True	25.000	26.447	105.8
10	LM22	L8	True	50.000	49.210	98.4



Analyte Name	PFDoA_1	Data File	AC_09142021_05-369.wiff
MRM Transition	613.0 / 569.0	Result Table	21-1123
Internal Standard	13C2-PFDoA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = -0.02722 x^2 + 0.90819 x + -0.00386 (r = 0.99881) (weighting: 1 / x) r^2:0.9976

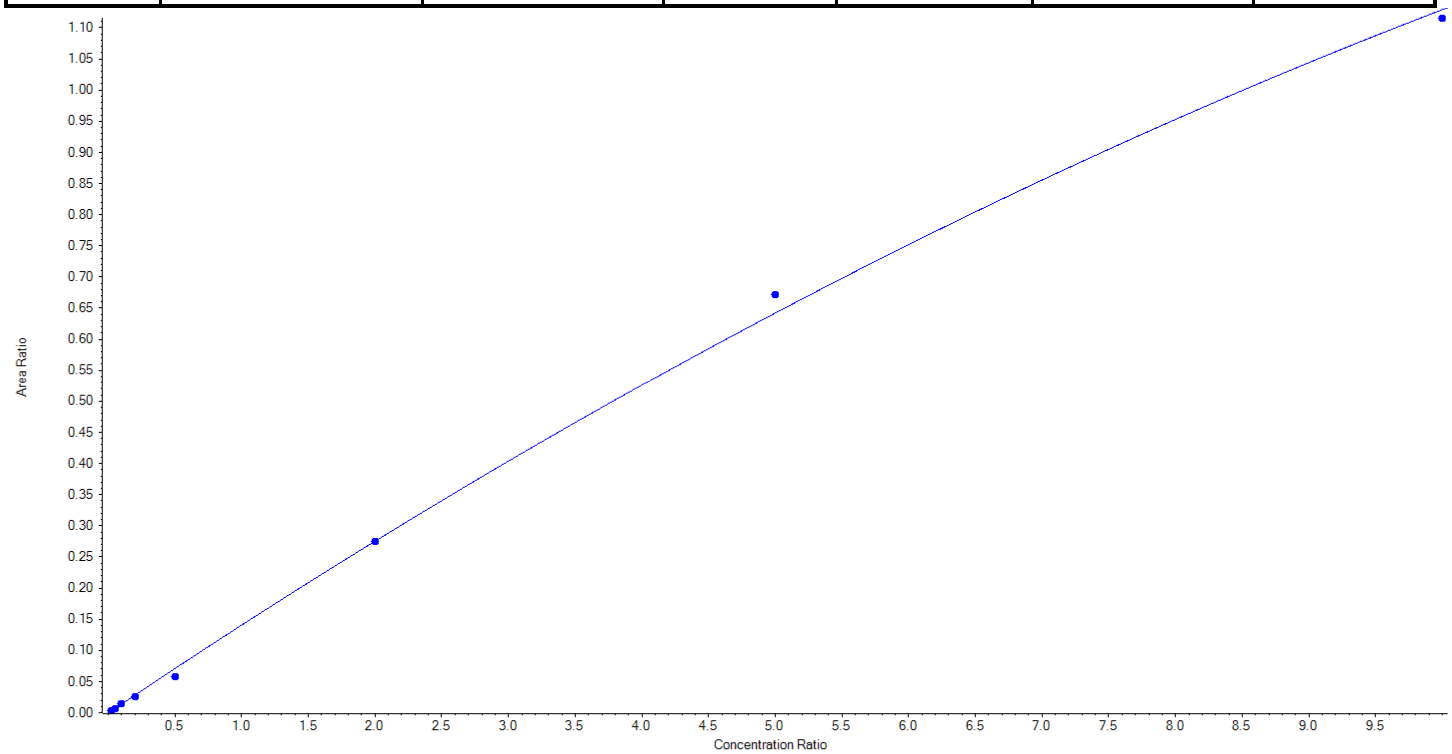
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.155	123.7
4	LM19	L2	True	0.250	0.239	95.6
5	LL94	L3	True	0.500	0.532	106.5
6	LM20	L4	True	1.000	0.878	87.8
7	LM21	L5	True	2.500	2.047	81.9
8	LL97	L6	True	10.000	10.256	102.6
9	LL98	L7	True	25.000	25.883	103.5
10	LM22	L8	True	50.000	49.192	98.4



Analyte Name	PFDoA_2	Data File	AC_09142021_05-369.wiff
MRM Transition	613.0 / 319.0	Result Table	21-1123
Internal Standard	13C2-PFDoA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = -0.00311 x^2 + 0.14405 x + -3.89486e-4 (r = 0.99875) (weighting: 1 / x) r^2:0.9975

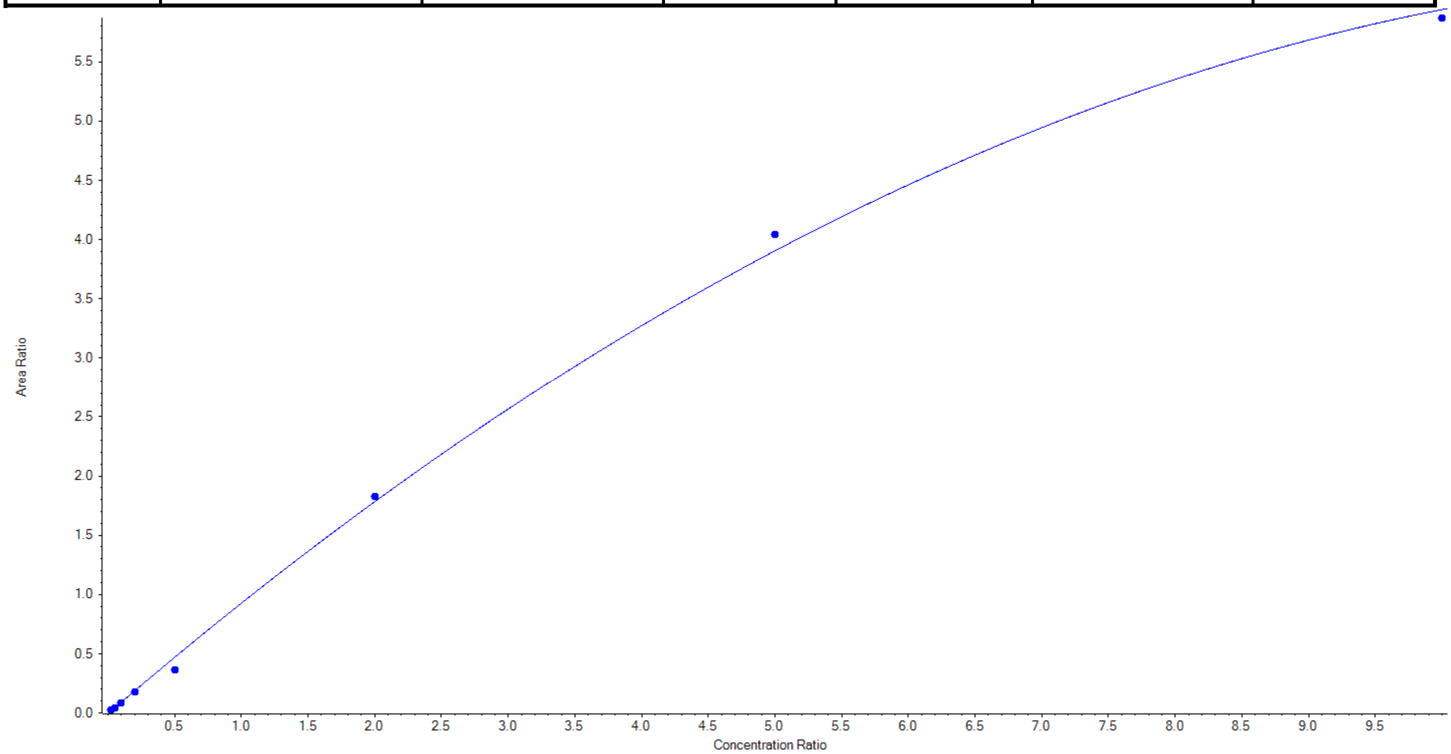
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.153	122.4
4	LM19	L2	True	0.250	0.242	96.9
5	LL94	L3	True	0.500	0.526	105.2
6	LM20	L4	True	1.000	0.917	91.7
7	LM21	L5	True	2.500	2.017	80.7
8	LL97	L6	True	10.000	9.965	99.7
9	LL98	L7	True	25.000	26.313	105.3
10	LM22	L8	True	50.000	49.161	98.3



Analyte Name	PFTrDA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	663.0 / 619.0	**Result Table**	21-1123
Internal Standard	13C2-PFTeDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -0.03749 x^2 + 0.96967 x + -0.00598 (r = 0.99835) (weighting: 1 / x) r^2:0.9967

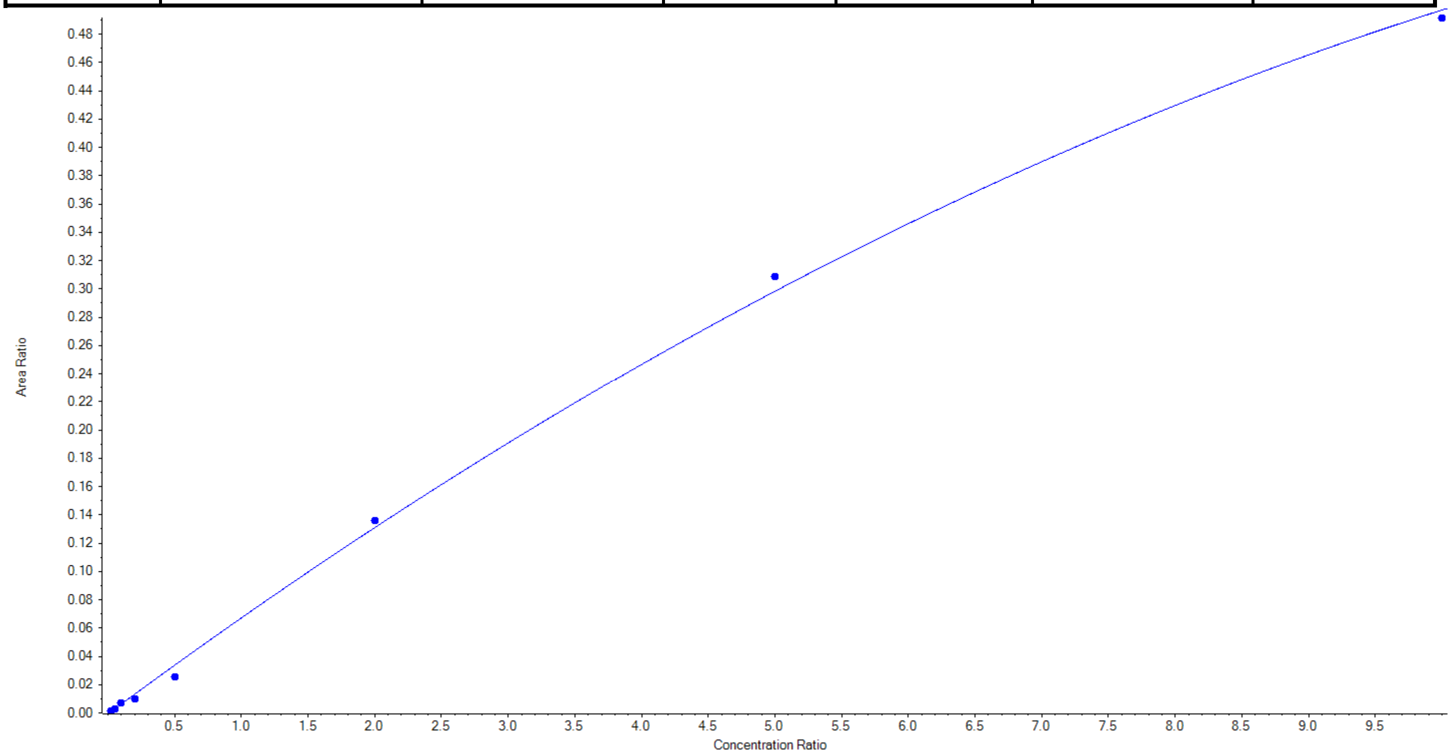
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.157	125.3
4	LM19	L2	True	0.250	0.244	97.5
5	LL94	L3	True	0.500	0.489	97.9
6	LM20	L4	True	1.000	0.960	96.0
7	LM21	L5	True	2.500	1.957	78.3
8	LL97	L6	True	10.000	10.249	102.5
9	LL98	L7	True	25.000	26.170	104.7
10	LM22	L8	True	50.000	48.456	96.9



Analyte Name	PFTrDA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	663.0 / 169.0	**Result Table**	21-1123
Internal Standard	13C2-PFTeDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.00201 x^2 + 0.06983 x + -6.76977e-4$ ($r = 0.99786$) (weighting: 1 / x) r^2:0.9957

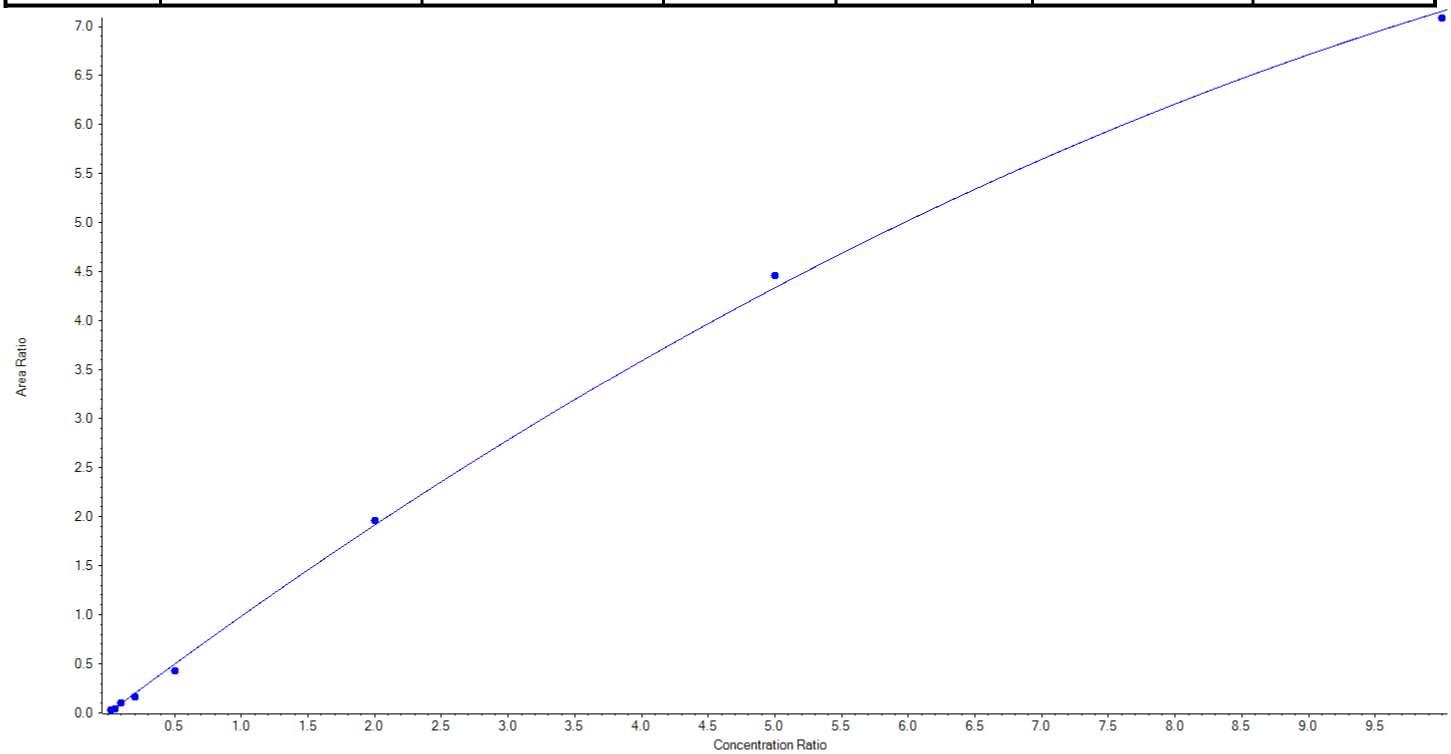
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.158	126.5
4	LM19	L2	True	0.250	0.256	102.3
5	LL94	L3	True	0.500	0.549	109.9
6	LM20	L4	True	1.000	0.780	78.0
7	LM21	L5	True	2.500	1.918	76.7
8	LL97	L6	True	10.000	10.431	104.3
9	LL98	L7	True	25.000	26.022	104.1
10	LM22	L8	True	50.000	49.060	98.1



Analyte Name	PFTeDA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	713.0 / 669.0	**Result Table**	21-1123
Internal Standard	13C2-PFTeDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -0.03053 x^2 + 1.02141 x + -0.00580 (r = 0.99887) (weighting: 1 / x) r^2:0.9977

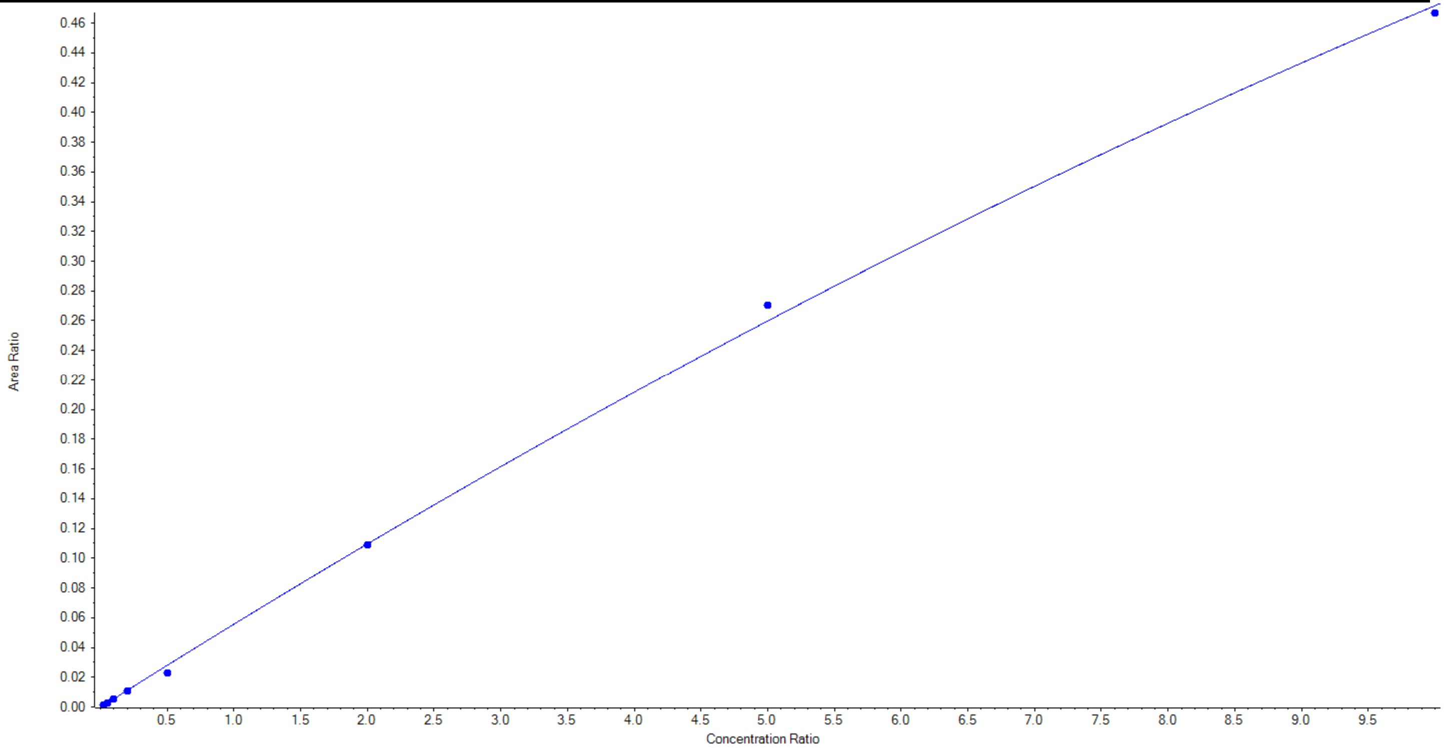
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.160	128.2
4	LM19	L2	True	0.250	0.248	99.0
5	LL94	L3	True	0.500	0.510	102.0
6	LM20	L4	True	1.000	0.808	80.8
7	LM21	L5	True	2.500	2.136	85.5
8	LL97	L6	True	10.000	10.235	102.4
9	LL98	L7	True	25.000	25.903	103.6
10	LM22	L8	True	50.000	49.179	98.4



Analyte Name	PFTeDA_2	Data File	AC_09142021_05-369.wiff
MRM Transition	713.0 / 169.0	Result Table	21-1123
Internal Standard	13C2-PFTeDA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = -9.62065e-4 x^2 + 0.05681 x + -1.71994e-4 (r = 0.99905) (weighting: 1 / x) r^2:0.9981

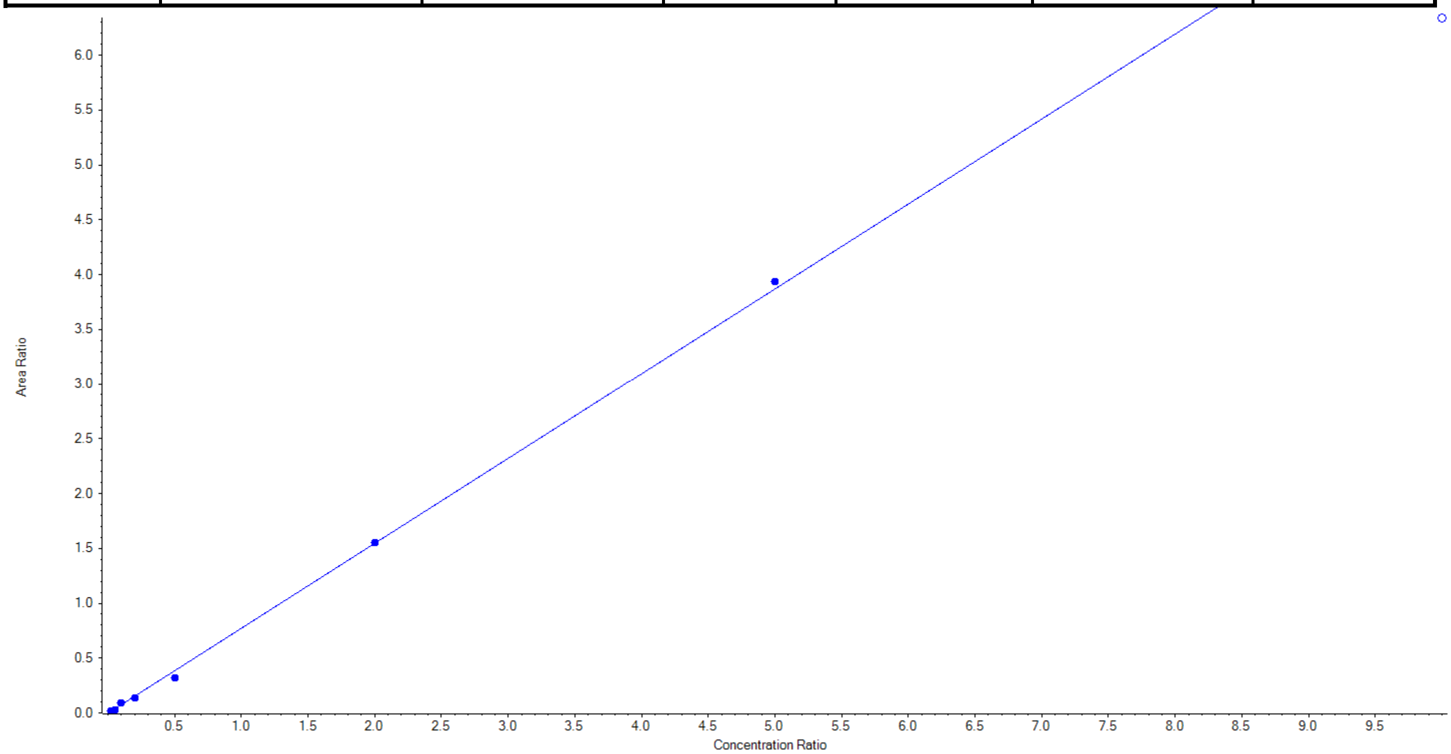
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.160	128.2
4	LM19	L2	True	0.250	0.234	93.7
5	LL94	L3	True	0.500	0.477	95.5
6	LM20	L4	True	1.000	0.972	97.3
7	LM21	L5	True	2.500	2.064	82.6
8	LL97	L6	True	10.000	9.968	99.7
9	LL98	L7	True	25.000	26.116	104.5
10	LM22	L8	True	50.000	49.347	98.7



Analyte Name	NMeFOSAA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	570.0 / 419.0	**Result Table**	21-1123
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.77431 x + -0.00251 (r = 0.99838) (weighting: 1 / x) r^2:0.9968

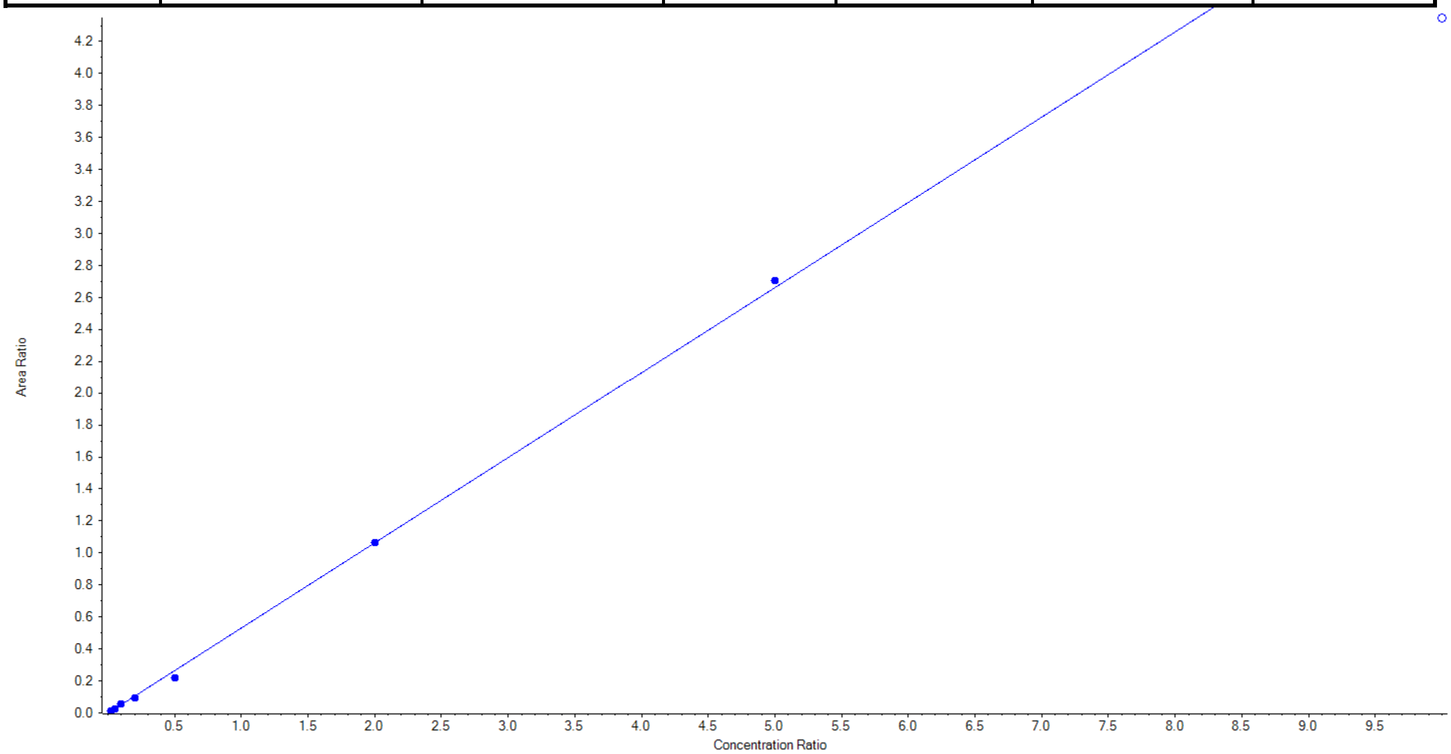
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.152	121.7
4	LM19	L2	True	0.250	0.221	88.5
5	LL94	L3	True	0.500	0.585	117.0
6	LM20	L4	True	1.000	0.876	87.6
7	LM21	L5	True	2.500	2.079	83.2
8	LL97	L6	True	10.000	10.024	100.2
9	LL98	L7	True	25.000	25.437	101.8
10	LM22	L8	False	50.000	40.944	81.9



Analyte Name	NMeFOSAA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	570.0 / 512.0	**Result Table**	21-1123
Internal Standard	d3-MeFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.53276 x + -0.00174 (r = 0.99867) (weighting: 1 / x) r^2:0.9973

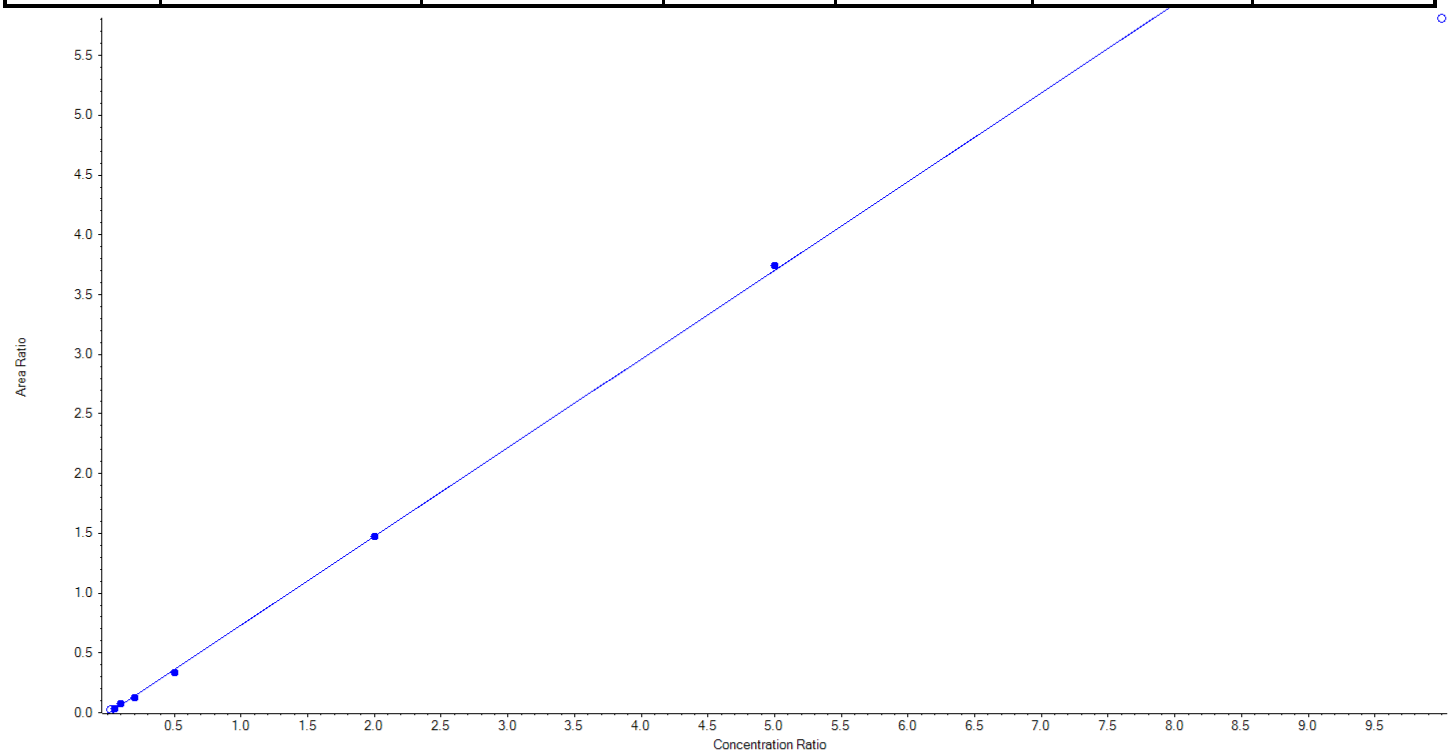
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.147	117.5
4	LM19	L2	True	0.250	0.252	100.9
5	LL94	L3	True	0.500	0.531	106.1
6	LM20	L4	True	1.000	0.906	90.6
7	LM21	L5	True	2.500	2.070	82.8
8	LL97	L6	True	10.000	10.033	100.3
9	LL98	L7	True	25.000	25.436	101.7
10	LM22	L8	False	50.000	40.814	81.6



Analyte Name	NEtFOSAA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	584.0 / 419.0	**Result Table**	21-1123
Internal Standard	d5-EtFOSAA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.74254 x + -0.00996 (r = 0.99949) (weighting: 1 / x) r^2:0.9990

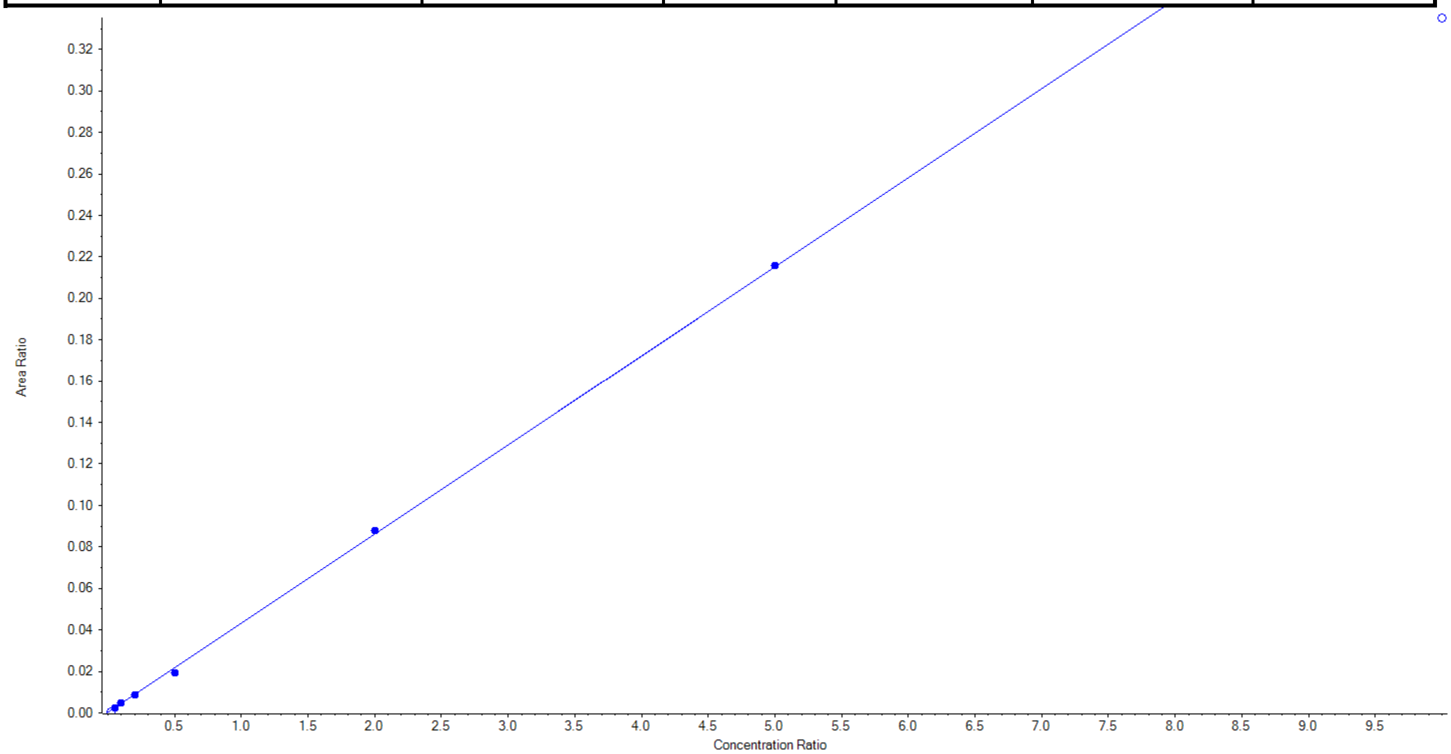
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.218	174.1
4	LM19	L2	True	0.250	0.271	108.5
5	LL94	L3	True	0.500	0.546	109.3
6	LM20	L4	True	1.000	0.892	89.2
7	LM21	L5	True	2.500	2.306	92.3
8	LL97	L6	True	10.000	9.973	99.7
9	LL98	L7	True	25.000	25.260	101.0
10	LM22	L8	False	50.000	39.196	78.4



Analyte Name	NEtFOSAA_2	Data File	AC_09142021_05-369.wiff
MRM Transition	584.0 / 483.0	Result Table	21-1123
Internal Standard	d5-EtFOSAA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = 0.04297 x + 3.02883e-4 (r = 0.99948) (weighting: 1 / x) r^2:0.9990

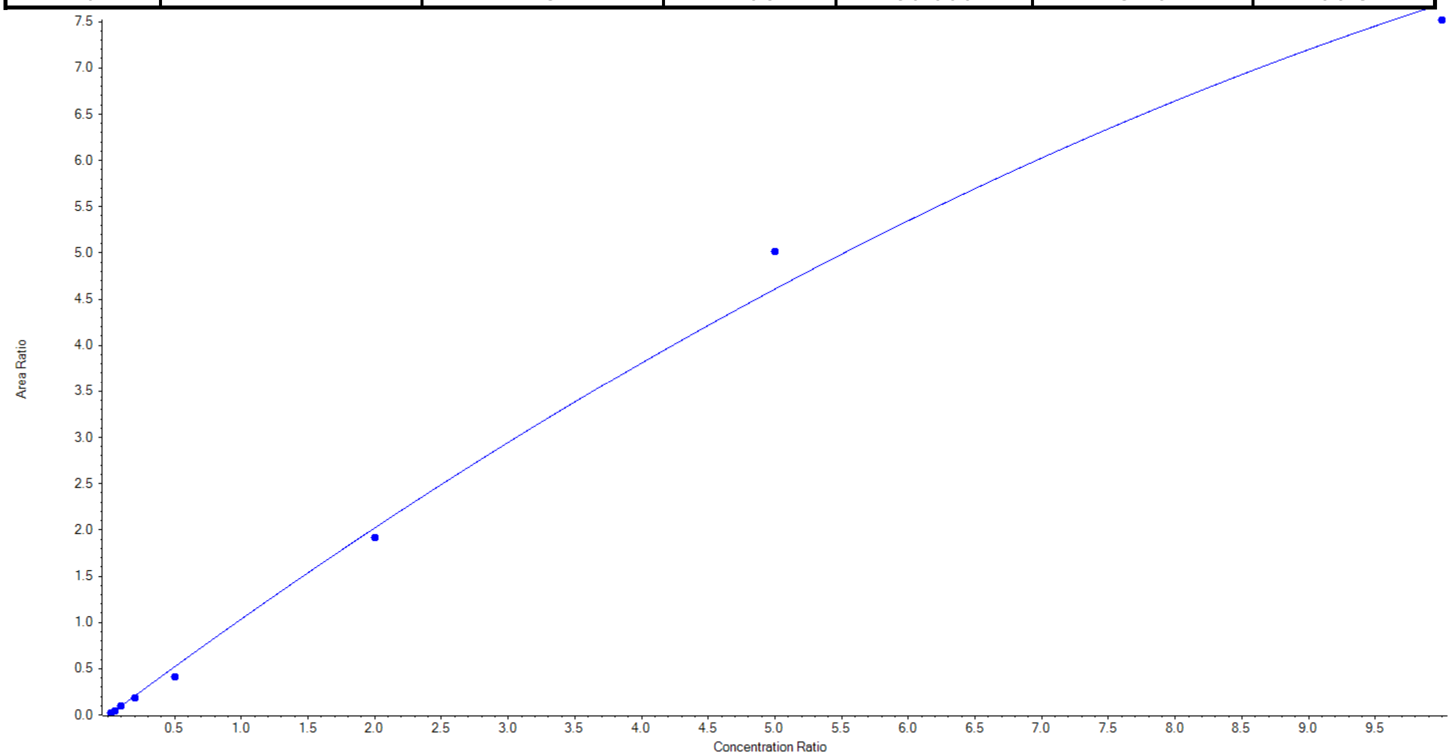
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.039	31.0
4	LM19	L2	True	0.250	0.268	107.4
5	LL94	L3	True	0.500	0.521	104.1
6	LM20	L4	True	1.000	0.972	97.2
7	LM21	L5	True	2.500	2.230	89.2
8	LL97	L6	True	10.000	10.186	101.9
9	LL98	L7	True	25.000	25.073	100.3
10	LM22	L8	False	50.000	38.956	77.9



Analyte Name	HFPO-DA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	285.0 / 169.0	**Result Table**	21-1123
Internal Standard	13C3-HFPO-DA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: $y = -0.03074 x^2 + 1.07751 x + -0.01018$ ($r = 0.99719$) (weighting: 1 / x) r^2:0.9944

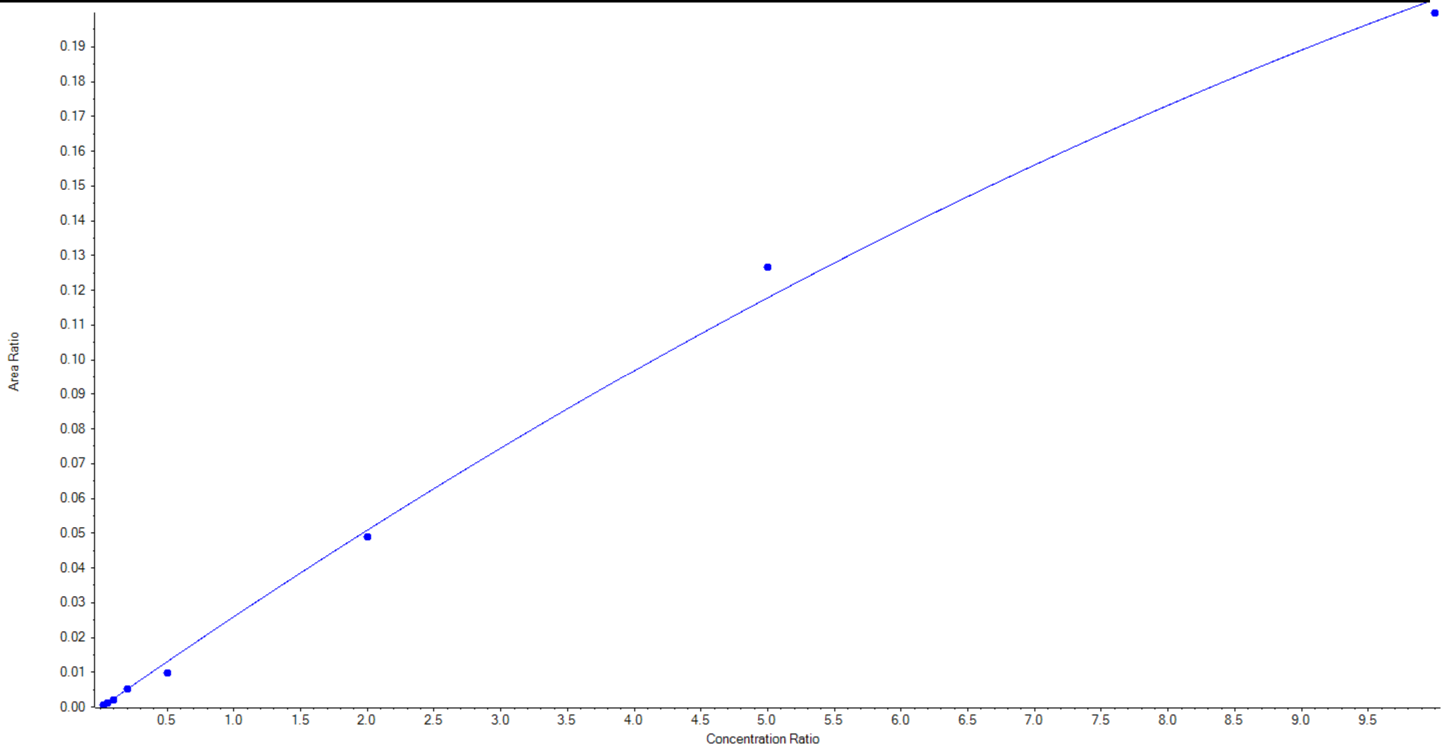
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.157	126.0
4	LM19	L2	True	0.250	0.255	101.8
5	LL94	L3	True	0.500	0.505	101.0
6	LM20	L4	True	1.000	0.911	91.1
7	LM21	L5	True	2.500	1.963	78.5
8	LL97	L6	True	10.000	9.452	94.5
9	LL98	L7	True	25.000	27.664	110.7
10	LM22	L8	True	50.000	48.167	96.3



Analyte Name	HFPO-DA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	285.0 / 118.8	**Result Table**	21-1123
Internal Standard	13C3-HFPO-DA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -6.44076e-4 x^2 + 0.02683 x + -2.21691e-4 (r = 0.99755) (weighting: 1 / x) r^2:0.9951

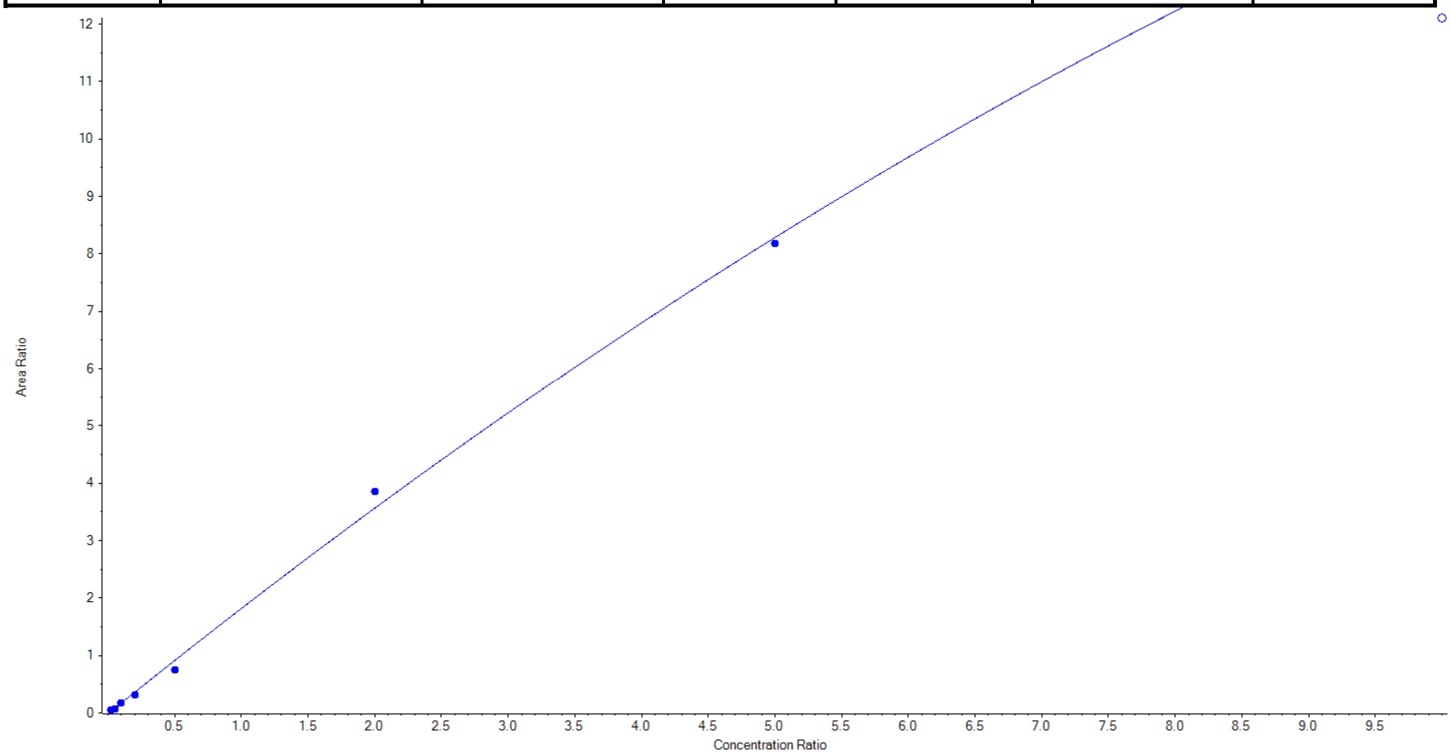
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.157	125.7
4	LM19	L2	True	0.250	0.271	108.4
5	LL94	L3	True	0.500	0.436	87.1
6	LM20	L4	True	1.000	1.002	100.2
7	LM21	L5	True	2.500	1.907	76.3
8	LL97	L6	True	10.000	9.628	96.3
9	LL98	L7	True	25.000	27.214	108.9
10	LM22	L8	True	50.000	48.609	97.2



Analyte Name	ADONA_1	**Data File**	AC_09142021_05-369.wiff
MRM Transition	377.0 / 251.0	**Result Table**	21-1123
Internal Standard	13C8-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -0.04338 x^2 + 1.87668 x + -0.01568 (r = 0.99736) (weighting: 1 / x) r^2:0.9947

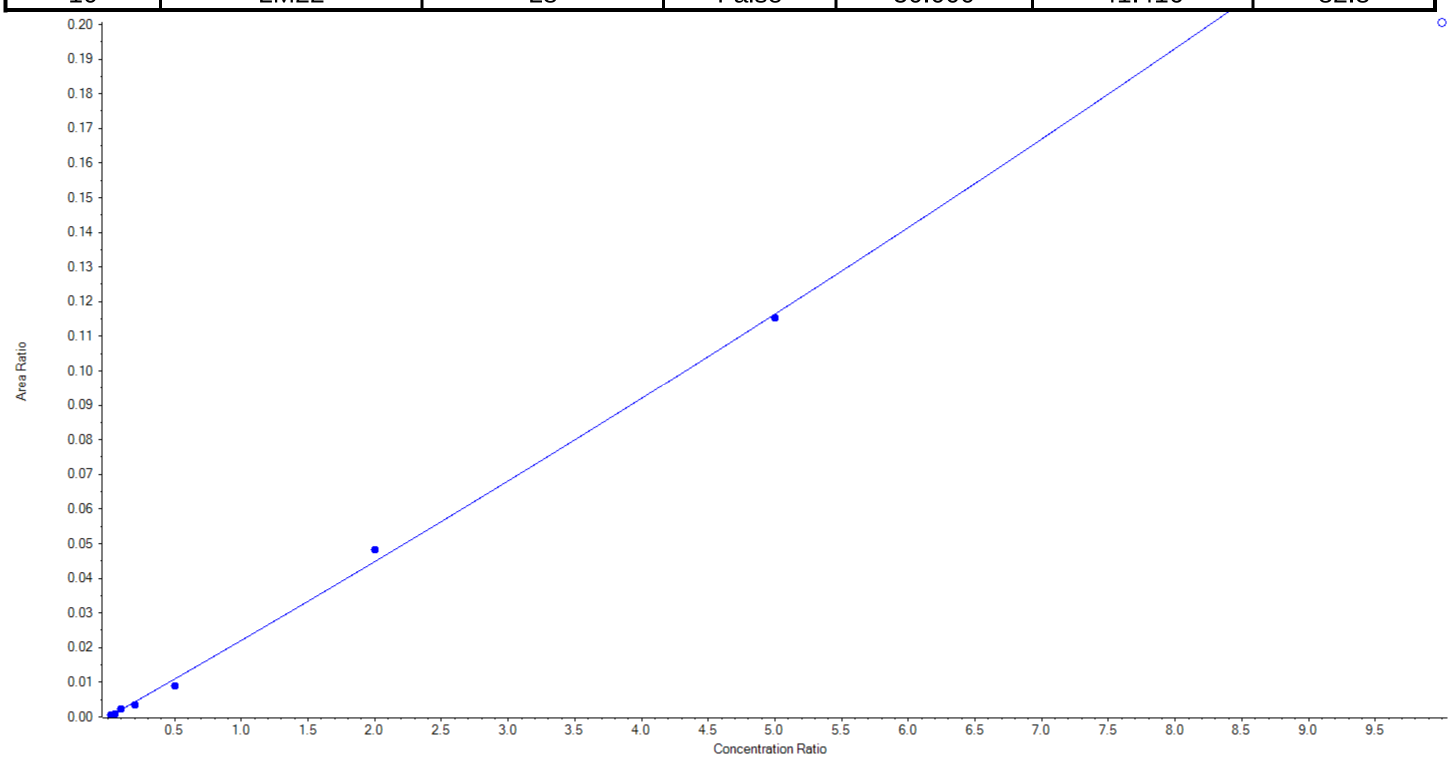
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.161	129.1
4	LM19	L2	True	0.250	0.235	93.8
5	LL94	L3	True	0.500	0.496	99.3
6	LM20	L4	True	1.000	0.874	87.4
7	LM21	L5	True	2.500	2.081	83.2
8	LL97	L6	True	10.000	10.870	108.7
9	LL98	L7	True	25.000	24.652	98.6
10	LM22	L8	False	50.000	39.502	79.0



Analyte Name	ADONA_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	377.0 / 85.0	**Result Table**	21-1123
Internal Standard	13C8-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 2.81644e-4 x^2 + 0.02189 x + -7.45311e-5 (r = 0.99764) (weighting: 1 / x) r^2:0.9953

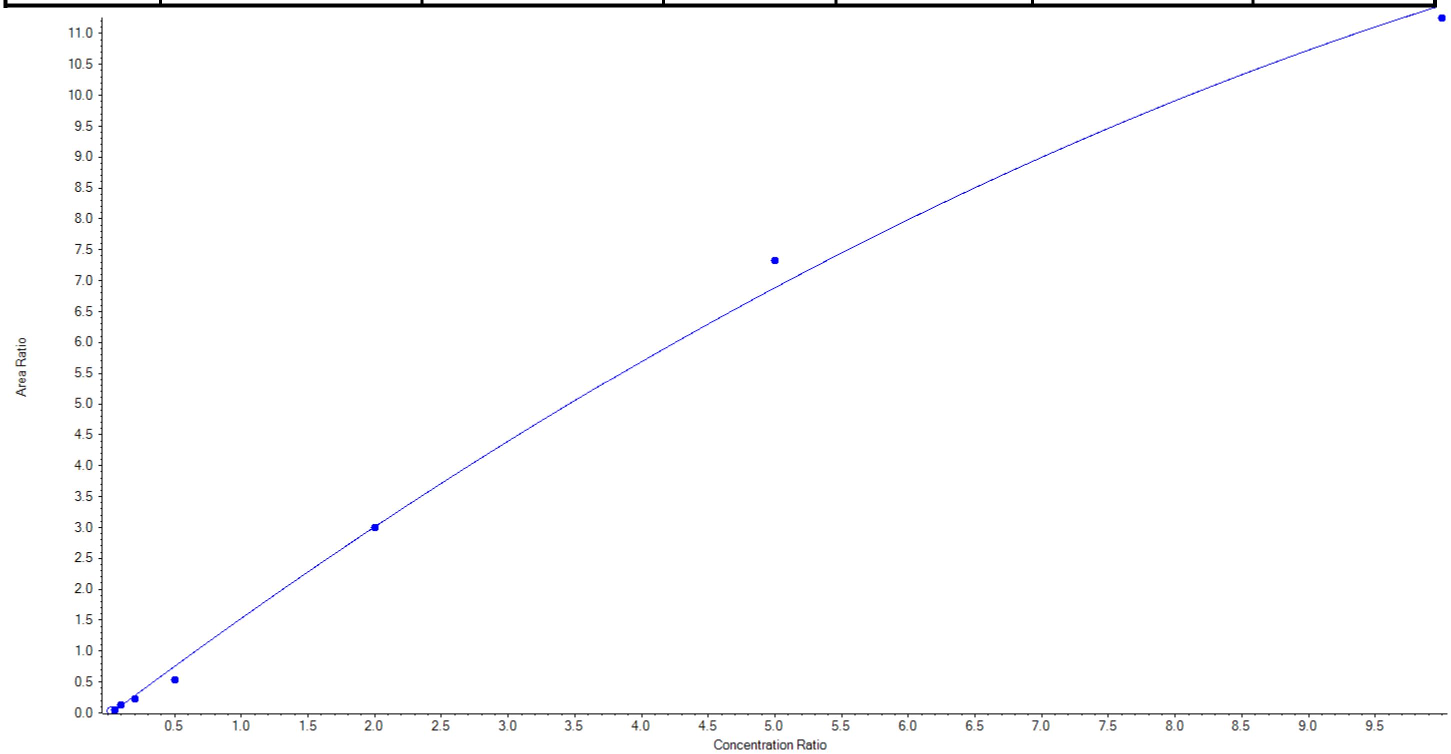
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.159	127.4
4	LM19	L2	True	0.250	0.213	85.2
5	LL94	L3	True	0.500	0.570	114.1
6	LM20	L4	True	1.000	0.835	83.5
7	LM21	L5	True	2.500	2.081	83.3
8	LL97	L6	True	10.000	10.750	107.5
9	LL98	L7	True	25.000	24.762	99.1
10	LM22	L8	False	50.000	41.416	82.8



Analyte Name	9Cl-PF3ONS_1	Data File	AC_09142021_05-369.wiff
MRM Transition	531.0 / 351.0	Result Table	21-1123
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = -0.04725 x^2 + 1.62257 x + -0.04546 (r = 0.99703) (weighting: 1 / x) r^2:0.9941

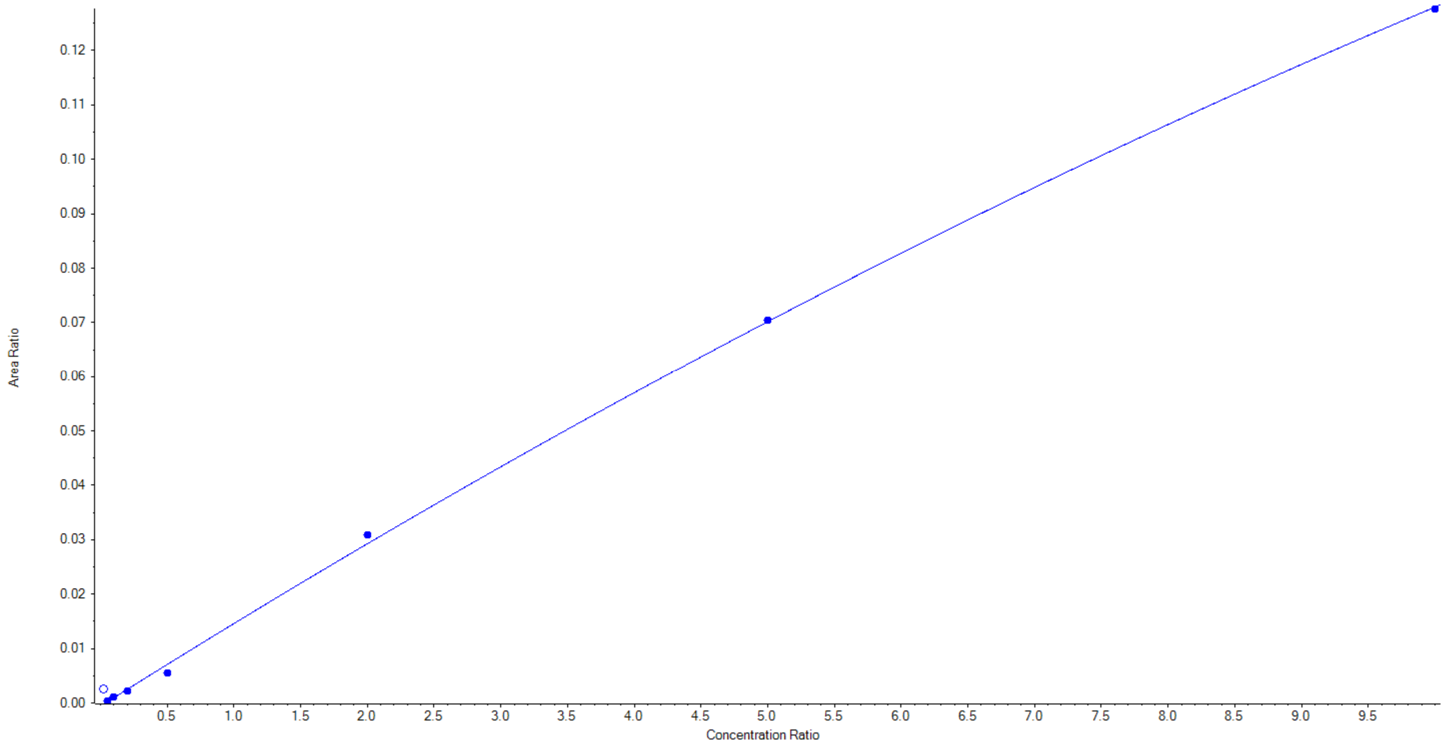
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	0.254	203.1
4	LM19	L2	True	0.250	0.311	124.4
5	LL94	L3	True	0.500	0.564	112.7
6	LM20	L4	True	1.000	0.859	85.9
7	LM21	L5	True	2.500	1.813	72.5
8	LL97	L6	True	10.000	9.962	99.6
9	LL98	L7	True	25.000	26.944	107.8
10	LM22	L8	True	50.000	48.509	97.0



Analyte Name	9Cl-PF3ONS_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	531.0 / 83.0	**Result Table**	21-1123
Internal Standard	13C8-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = -2.58653e-4 x^2 + 0.01544 x + -5.80003e-4 (r = 0.99889) (weighting: 1 / x) r^2:0.9978

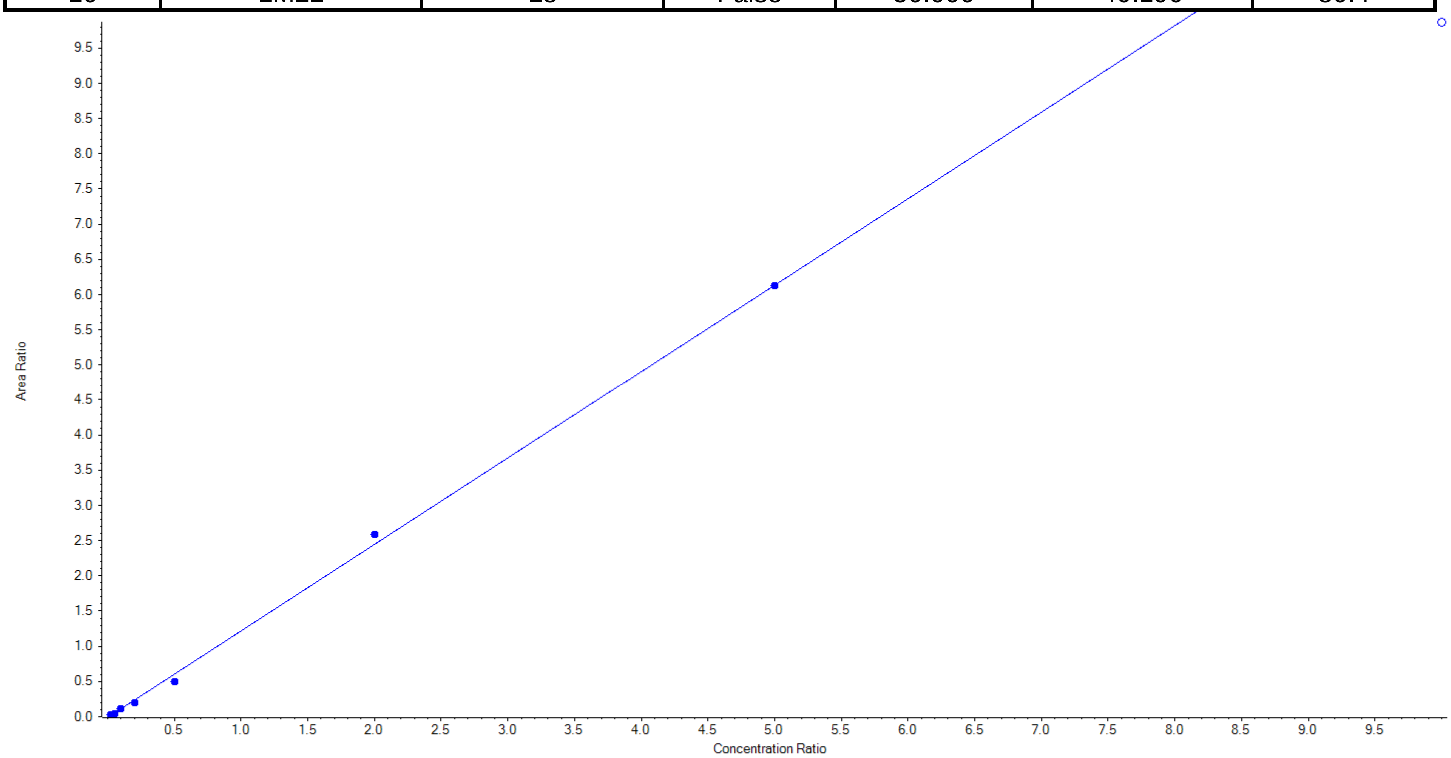
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	False	0.125	1.017	814.0
4	LM19	L2	True	0.250	0.281	112.6
5	LL94	L3	True	0.500	0.542	108.5
6	LM20	L4	True	1.000	0.934	93.4
7	LM21	L5	True	2.500	1.995	79.8
8	LL97	L6	True	10.000	10.581	105.8
9	LL98	L7	True	25.000	25.074	100.3
10	LM22	L8	True	50.000	49.830	99.7



Analyte Name	11Cl-PF3OUdS_1	Data File	AC_09142021_05-369.wiff
MRM Transition	631.0 / 451.0	Result Table	21-1123
Internal Standard	13C8-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = 1.22884 x + -0.01040 (r = 0.99815) (weighting: 1 / x) r^2:0.9963

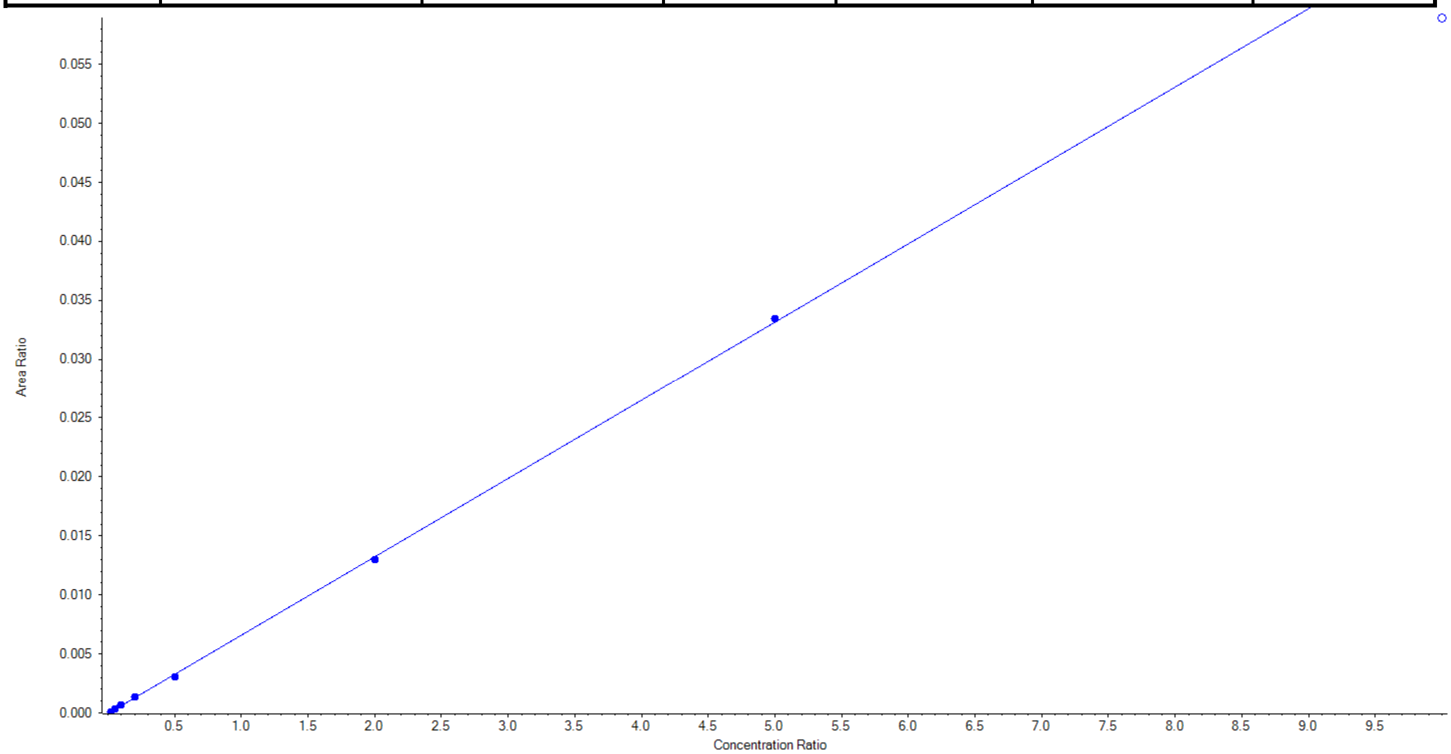
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.160	128.3
4	LM19	L2	True	0.250	0.234	93.5
5	LL94	L3	True	0.500	0.517	103.3
6	LM20	L4	True	1.000	0.867	86.7
7	LM21	L5	True	2.500	2.069	82.7
8	LL97	L6	True	10.000	10.552	105.5
9	LL98	L7	True	25.000	24.977	99.9
10	LM22	L8	False	50.000	40.190	80.4



Analyte Name	11Cl-pf3OUdS_2	**Data File**	AC_09142021_05-369.wiff
MRM Transition	631.0 / 83.0	**Result Table**	21-1123
Internal Standard	13C8-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.00664 x + -5.17425e-5 (r = 0.99950) (weighting: 1 / x) r^2:0.9990

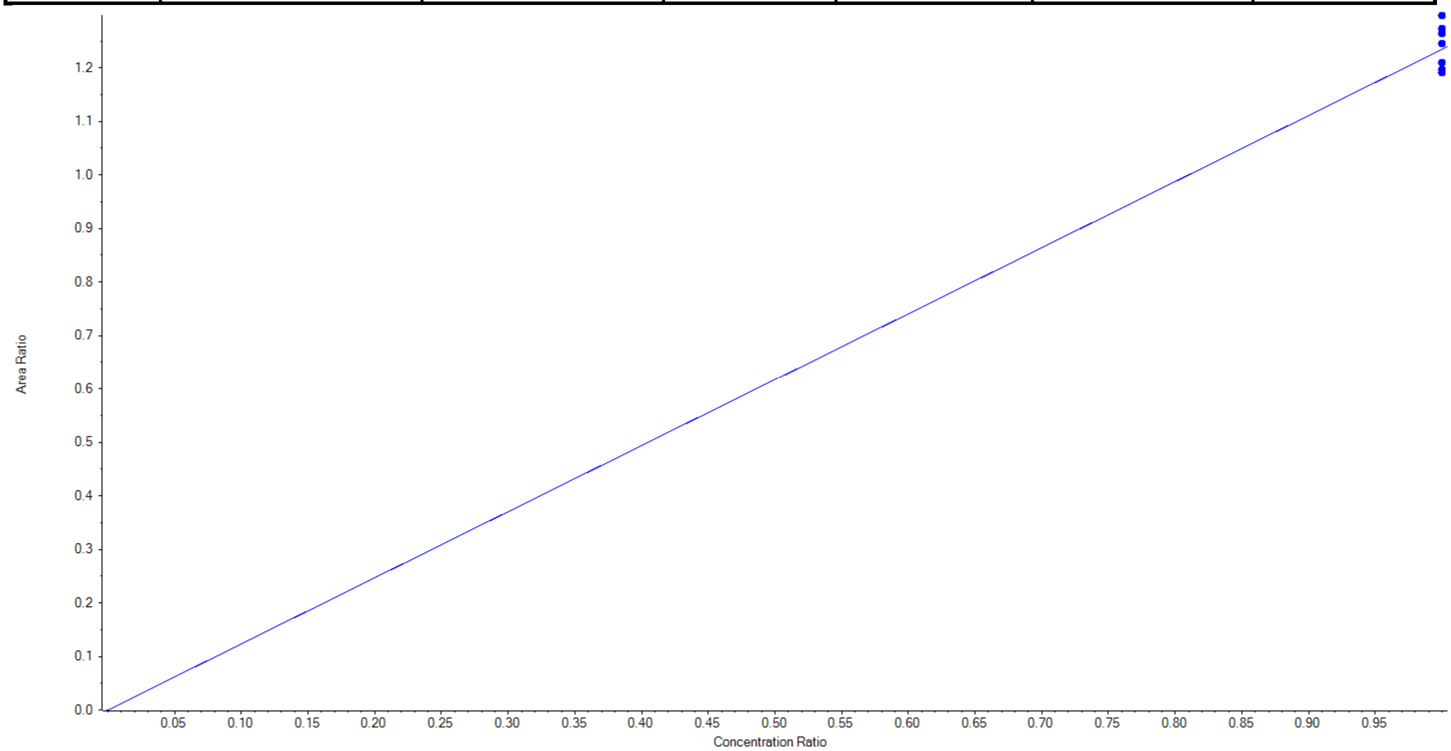
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	0.125	0.102	81.8
4	LM19	L2	True	0.250	0.272	108.8
5	LL94	L3	True	0.500	0.565	113.1
6	LM20	L4	True	1.000	1.046	104.6
7	LM21	L5	True	2.500	2.314	92.6
8	LL97	L6	True	10.000	9.827	98.3
9	LL98	L7	True	25.000	25.249	101.0
10	LM22	L8	False	50.000	44.403	88.8



Analyte Name	13C2-PFDoA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	615.0 / 570.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.23458 x (std. dev. = 0.04091) (weighting: None) r^2:N/A

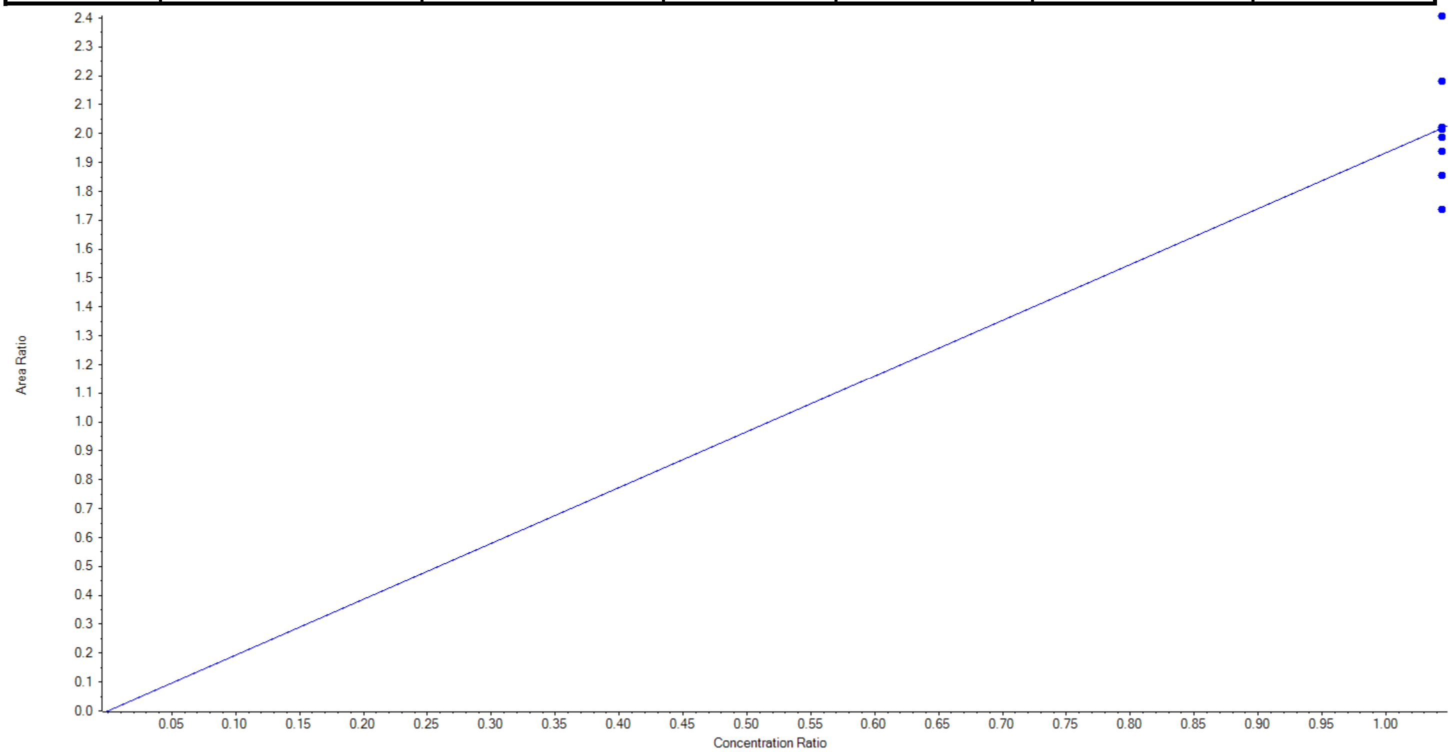
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	4.901	98.0
4	LM19	L2	True	5.000	5.256	105.1
5	LL94	L3	True	5.000	5.045	100.9
6	LM20	L4	True	5.000	4.826	96.5
7	LM21	L5	True	5.000	4.847	96.9
8	LL97	L6	True	5.000	5.158	103.2
9	LL98	L7	True	5.000	4.850	97.0
10	LM22	L8	True	5.000	5.117	102.4



Analyte Name	d3-MeFOSAA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	573.0 / 419.0	**Result Table**	21-1123_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.93356 x (std. dev. = 0.19511) (weighting: None) r^2:N/A

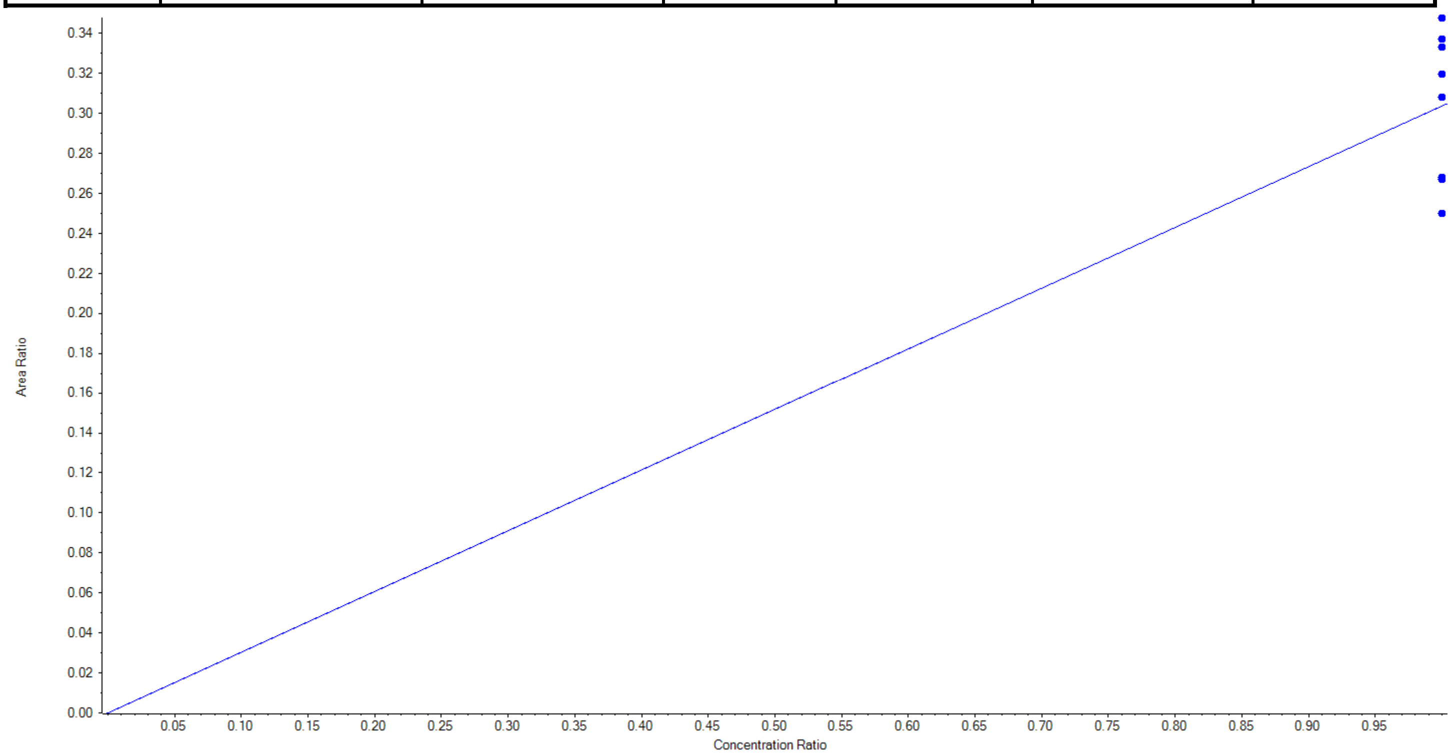
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	4.301	86.0
4	LM19	L2	True	5.000	5.962	119.2
5	LL94	L3	True	5.000	4.600	92.0
6	LM20	L4	True	5.000	4.993	99.9
7	LM21	L5	True	5.000	5.403	108.1
8	LL97	L6	True	5.000	4.926	98.5
9	LL98	L7	True	5.000	5.013	100.3
10	LM22	L8	True	5.000	4.802	96.0



Analyte Name	d5-EtFOSAA	Data File	AC_09142021_05-369.wiff
MRM Transition	589.0 / 419.0	Result Table	21-1123_SIS
Internal Standard	13C2-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = 0.30377 x (std. dev. = 0.03727) (weighting: None) r^2:N/A

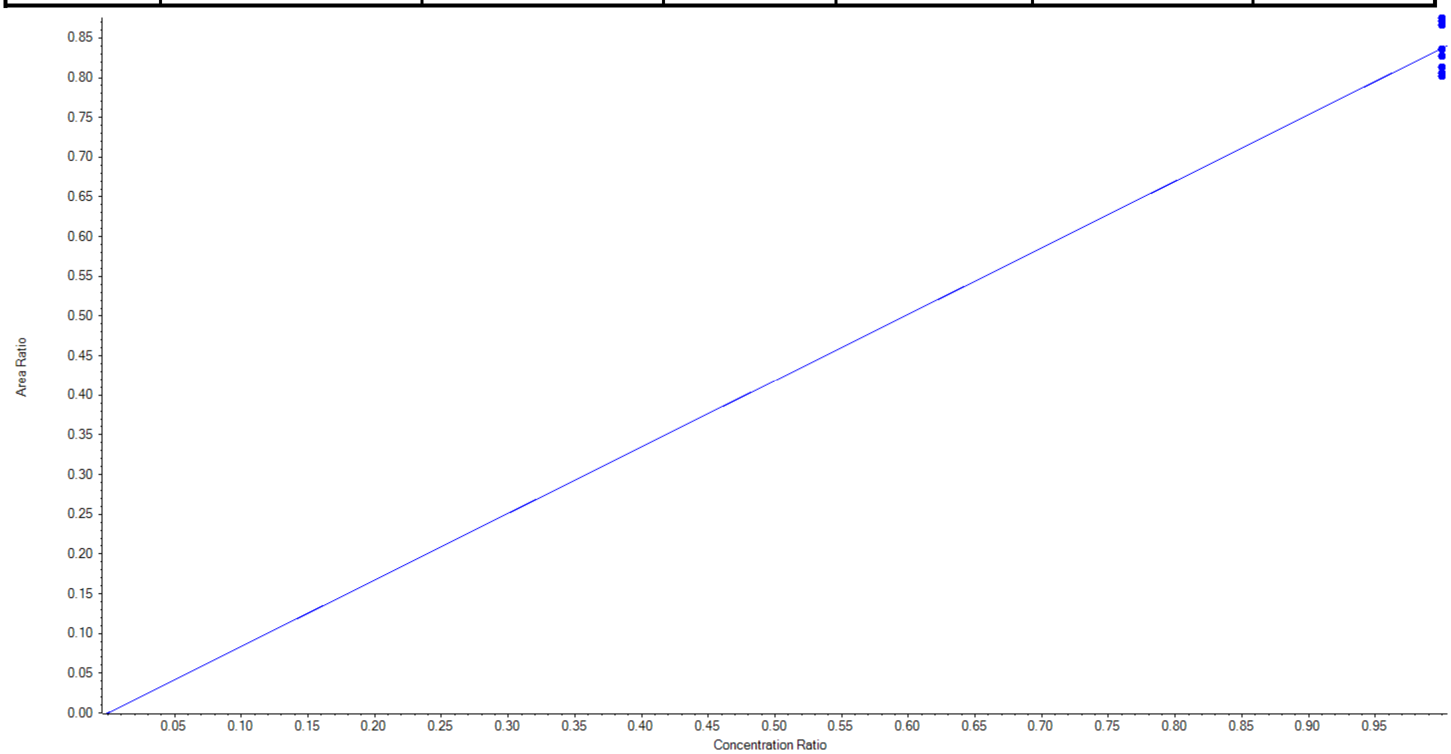
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	4.394	87.9
4	LM19	L2	True	5.000	5.723	114.5
5	LL94	L3	True	5.000	5.486	109.7
6	LM20	L4	True	5.000	5.258	105.2
7	LM21	L5	True	5.000	5.068	101.4
8	LL97	L6	True	5.000	5.547	110.9
9	LL98	L7	True	5.000	4.411	88.2
10	LM22	L8	True	5.000	4.112	82.2



Analyte Name	13C5-PFHxA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	318.0 / 273.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.83706 x (std. dev. = 0.03026) (weighting: None) r^2:N/A

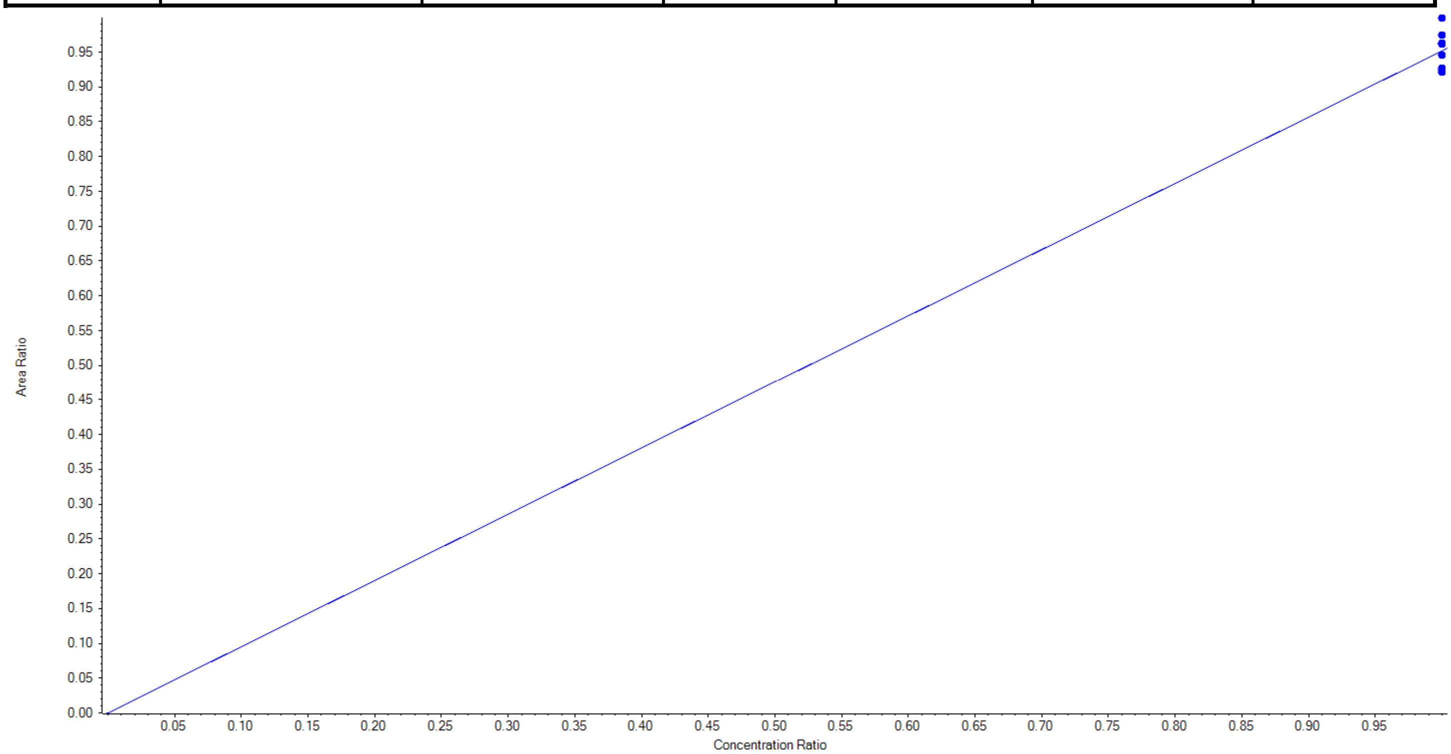
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	5.177	103.5
4	LM19	L2	True	5.000	4.856	97.1
5	LL94	L3	True	5.000	4.990	99.8
6	LM20	L4	True	5.000	4.815	96.3
7	LM21	L5	True	5.000	4.789	95.8
8	LL97	L6	True	5.000	5.227	104.5
9	LL98	L7	True	5.000	4.940	98.8
10	LM22	L8	True	5.000	5.206	104.1



Analyte Name	13C4-PFHpA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	367.0 / 322.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.95189 x (std. dev. = 0.02757) (weighting: None) r^2:N/A

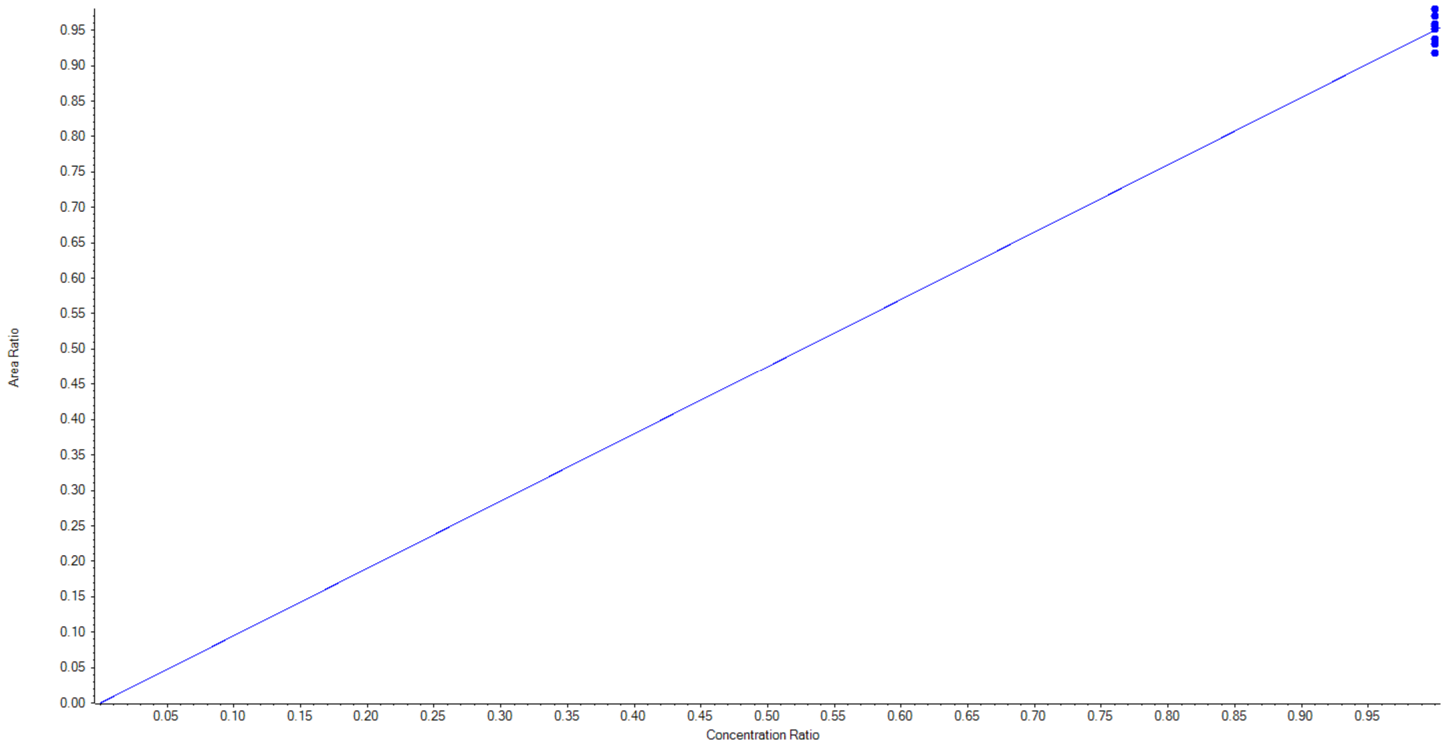
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	4.969	99.4
4	LM19	L2	True	5.000	4.851	97.0
5	LL94	L3	True	5.000	4.837	96.7
6	LM20	L4	True	5.000	5.050	101.0
7	LM21	L5	True	5.000	4.872	97.4
8	LL97	L6	True	5.000	5.247	104.9
9	LL98	L7	True	5.000	5.116	102.3
10	LM22	L8	True	5.000	5.058	101.2



Analyte Name	13C8-PFOA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	421.0 / 376.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.95009 x (std. dev. = 0.02077) (weighting: None) r^2:N/A

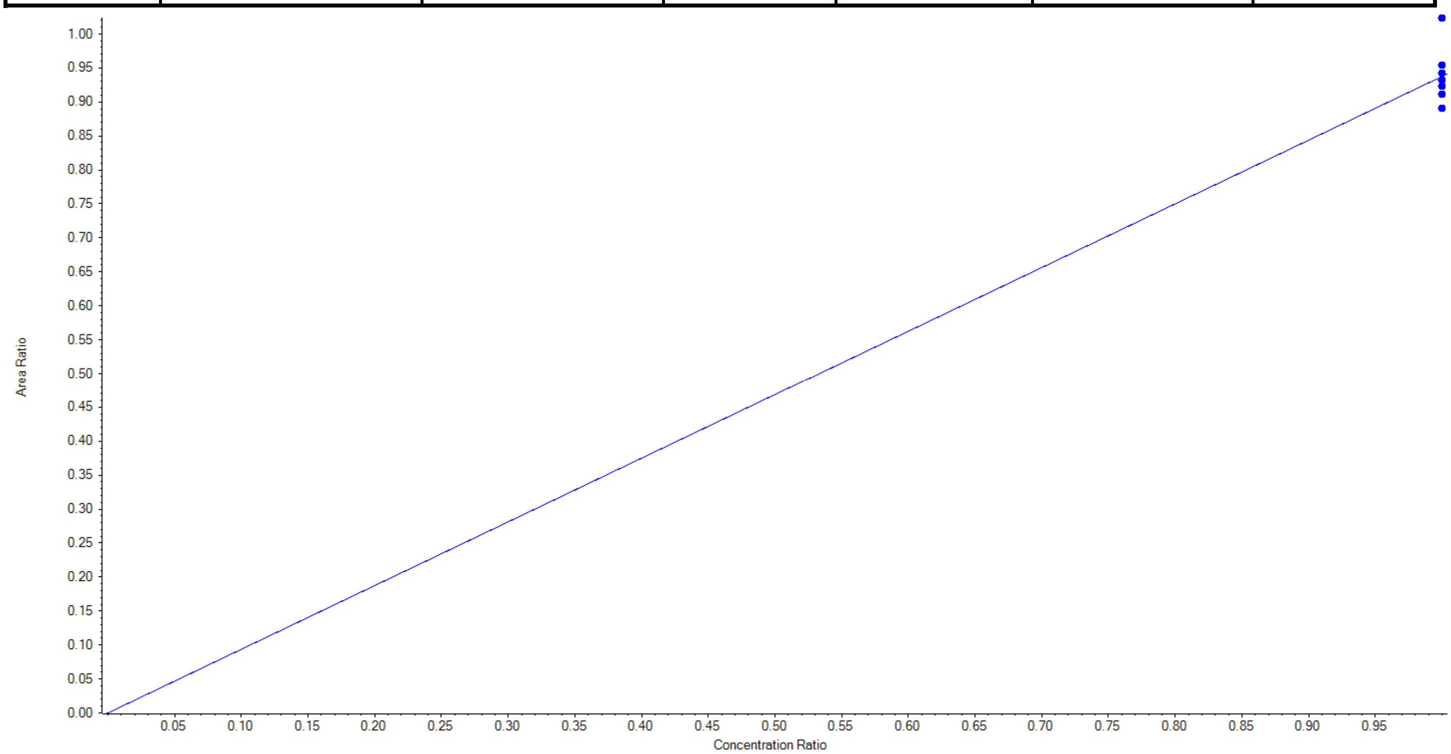
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	4.826	96.5
4	LM19	L2	True	5.000	5.006	100.1
5	LL94	L3	True	5.000	5.107	102.2
6	LM20	L4	True	5.000	4.899	98.0
7	LM21	L5	True	5.000	4.933	98.7
8	LL97	L6	True	5.000	5.029	100.6
9	LL98	L7	True	5.000	5.043	100.9
10	LM22	L8	True	5.000	5.156	103.1



Analyte Name	13C9-PFNA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	472.0 / 427.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFOA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.93754 x (std. dev. = 0.03967) (weighting: None) r^2:N/A

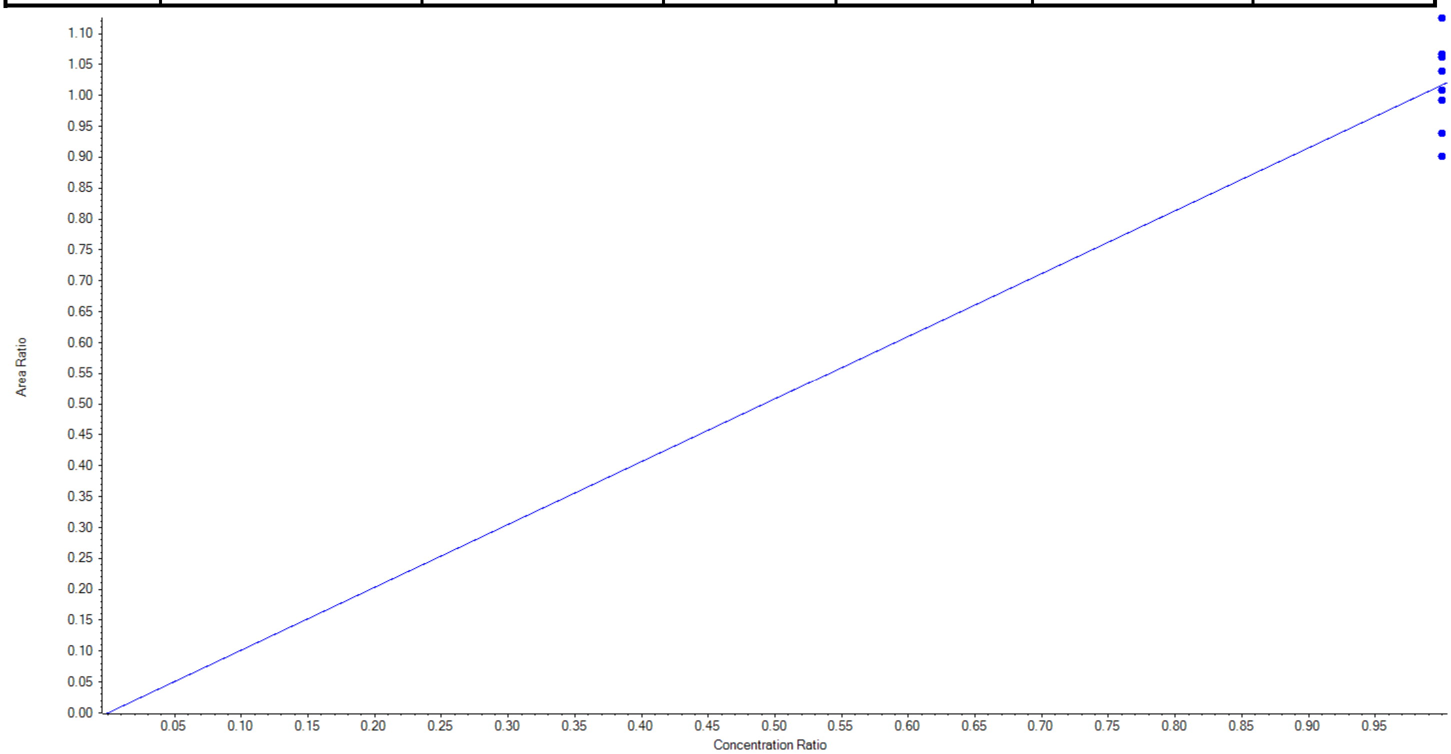
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	5.028	100.6
4	LM19	L2	True	5.000	4.858	97.2
5	LL94	L3	True	5.000	4.923	98.5
6	LM20	L4	True	5.000	4.968	99.4
7	LM21	L5	True	5.000	4.752	95.1
8	LL97	L6	True	5.000	5.458	109.2
9	LL98	L7	True	5.000	4.922	98.4
10	LM22	L8	True	5.000	5.090	101.8



Analyte Name	13C6-PFDA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	519.0 / 474.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.01674 x (std. dev. = 0.07263) (weighting: None) r^2:N/A

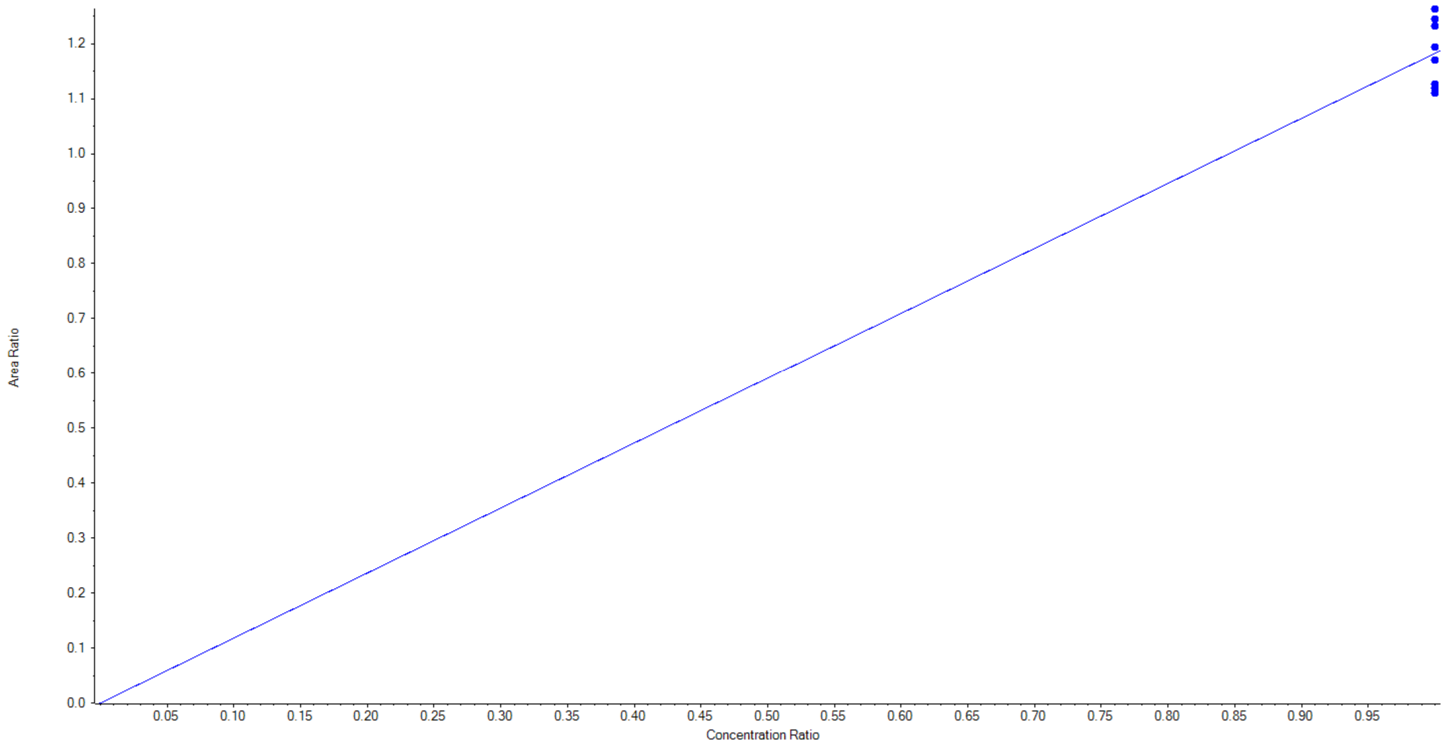
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	5.250	105.0
4	LM19	L2	True	5.000	4.615	92.3
5	LL94	L3	True	5.000	5.533	110.7
6	LM20	L4	True	5.000	4.876	97.5
7	LM21	L5	True	5.000	5.112	102.2
8	LL97	L6	True	5.000	5.221	104.4
9	LL98	L7	True	5.000	4.959	99.2
10	LM22	L8	True	5.000	4.434	88.7



Analyte Name	13C7-PFUnA	Data File	AC_09142021_05-369.wiff
MRM Transition	570.0 / 525.0	Result Table	21-1123_SIS
Internal Standard	13C2-PFDA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = 1.18251 x (std. dev. = 0.06006) (weighting: None) r^2:N/A

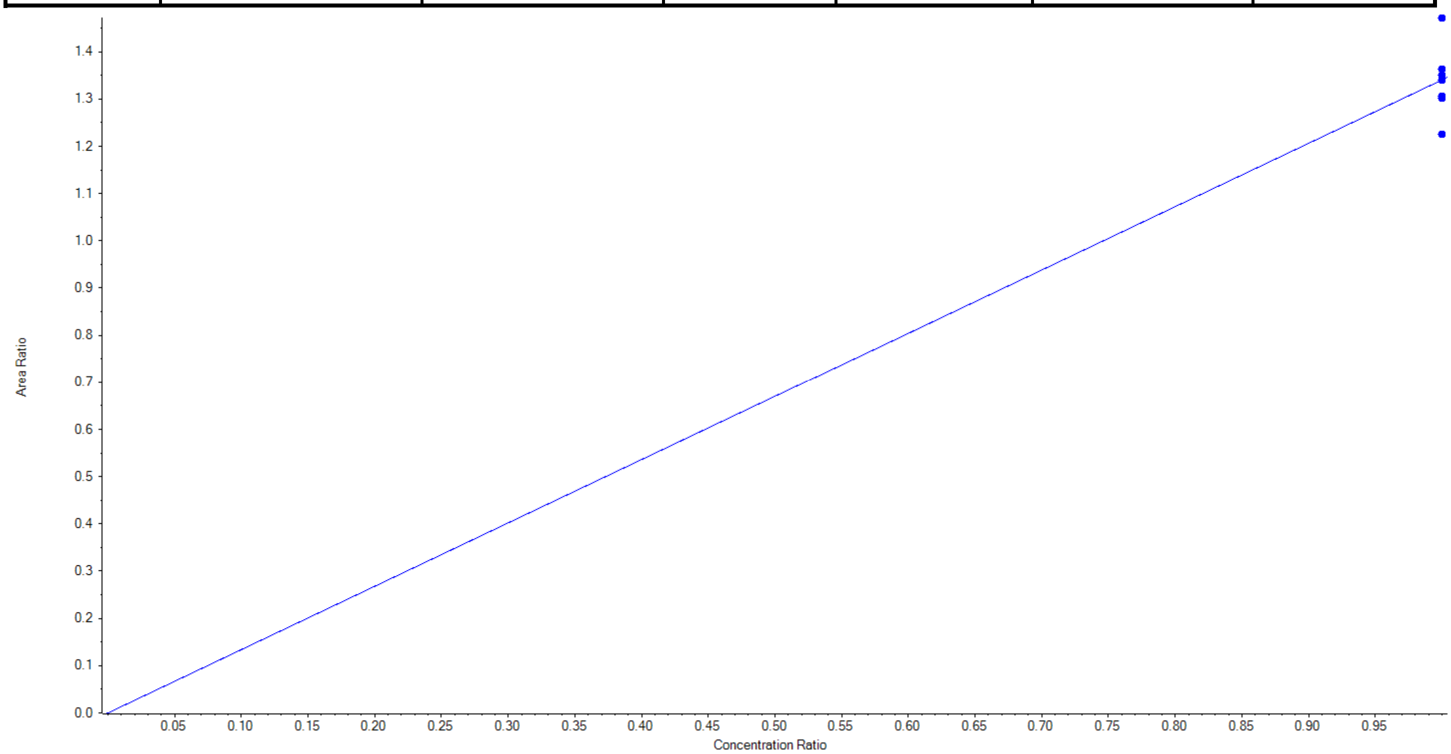
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	4.696	93.9
4	LM19	L2	True	5.000	5.051	101.0
5	LL94	L3	True	5.000	5.341	106.8
6	LM20	L4	True	5.000	4.946	98.9
7	LM21	L5	True	5.000	5.261	105.2
8	LL97	L6	True	5.000	5.208	104.2
9	LL98	L7	True	5.000	4.736	94.7
10	LM22	L8	True	5.000	4.761	95.2



Analyte Name	13C2-PFTeDA	**Data File**	AC_09142021_05-369.wiff
MRM Transition	715.0 / 670.0	**Result Table**	21-1123_SIS
Internal Standard	13C2-PFDA	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.34016 x (std. dev. = 0.06972) (weighting: None) r^2:N/A

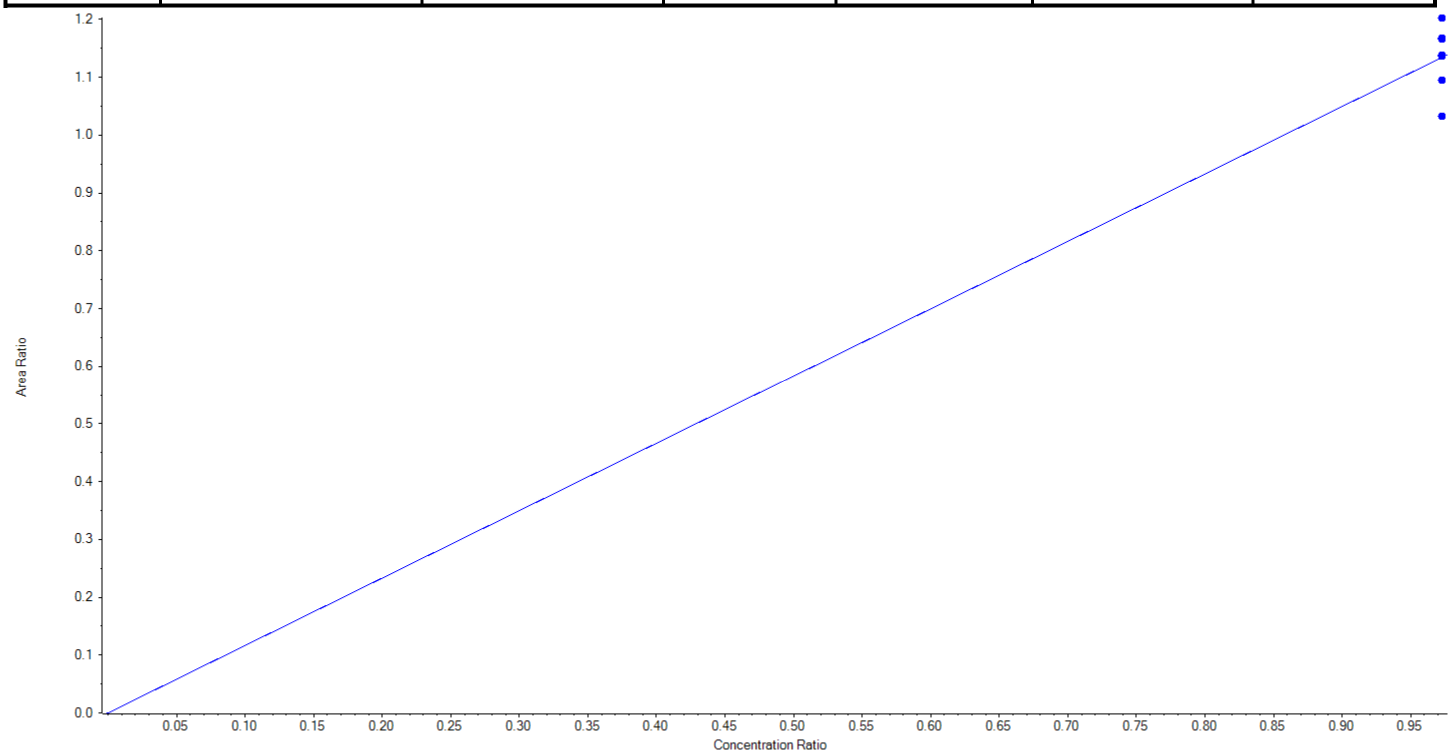
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	5.002	100.0
4	LM19	L2	True	5.000	4.574	91.5
5	LL94	L3	True	5.000	4.876	97.5
6	LM20	L4	True	5.000	4.852	97.1
7	LM21	L5	True	5.000	5.035	100.7
8	LL97	L6	True	5.000	5.084	101.7
9	LL98	L7	True	5.000	5.088	101.8
10	LM22	L8	True	5.000	5.489	109.8



Analyte Name	13C3-PFBS	**Data File**	AC_09142021_05-369.wiff
MRM Transition	302.0 / 99.0	**Result Table**	21-1123_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.16603 x (std. dev. = 0.05286) (weighting: None) r^2:N/A

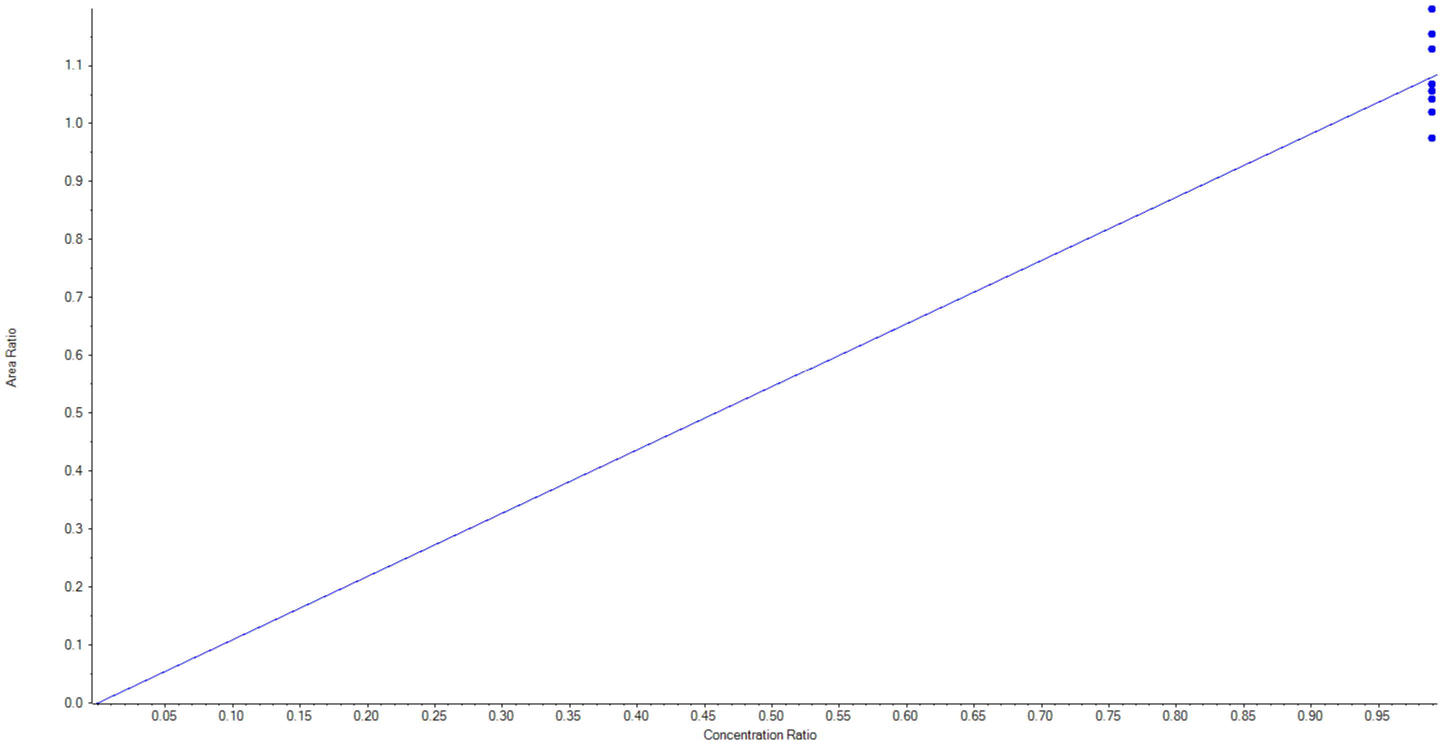
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	4.660	4.939	106.0
4	LM19	L2	True	4.660	4.798	103.0
5	LL94	L3	True	4.660	4.670	100.2
6	LM20	L4	True	4.660	4.671	100.2
7	LM21	L5	True	4.660	4.673	100.3
8	LL97	L6	True	4.660	4.245	91.1
9	LL98	L7	True	4.660	4.787	102.7
10	LM22	L8	True	4.660	4.497	96.5



Analyte Name	13C3-PFHxS	**Data File**	AC_09142021_05-369.wiff
MRM Transition	402.0 / 99.0	**Result Table**	21-1123_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 1.09151 x (std. dev. = 0.07496) (weighting: None) r^2:N/A

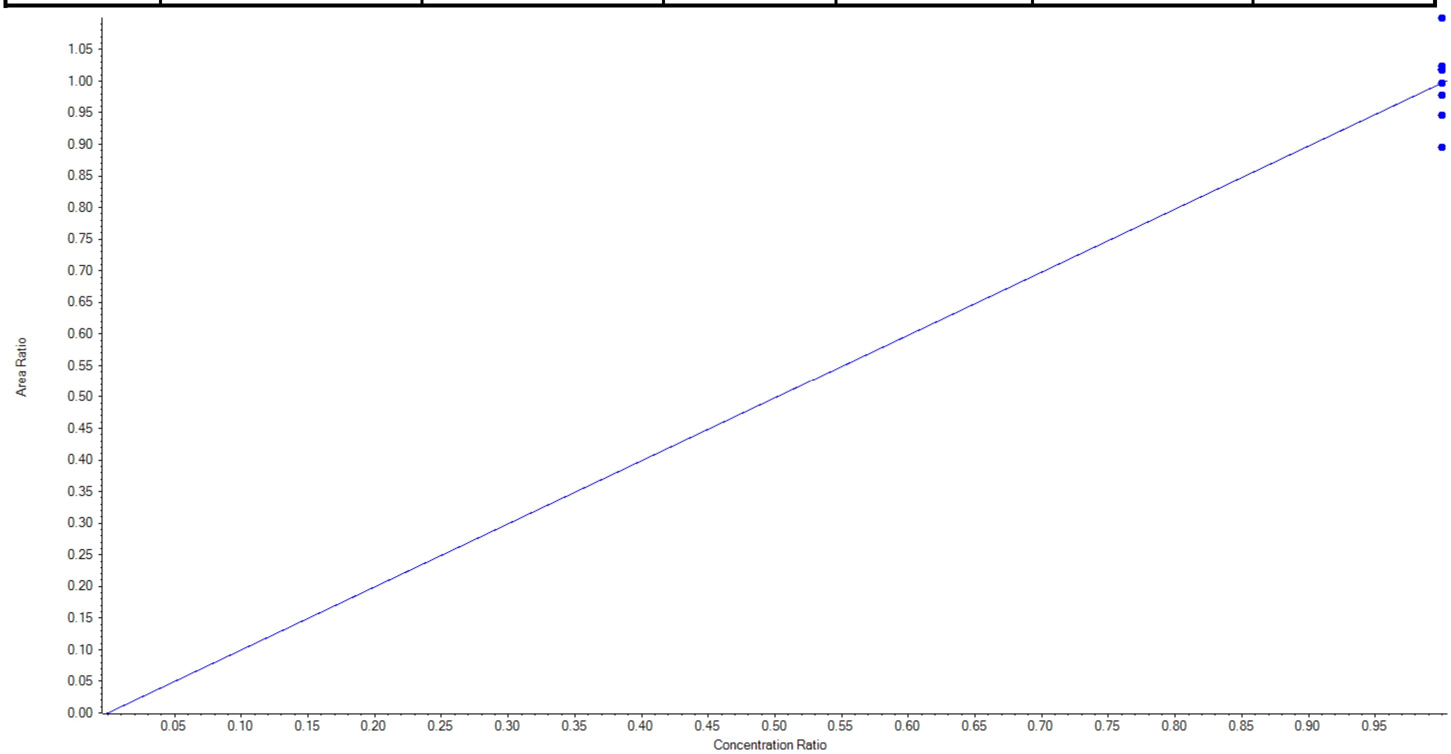
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	4.740	4.951	104.5
4	LM19	L2	True	4.740	5.255	110.9
5	LL94	L3	True	4.740	4.685	98.8
6	LM20	L4	True	4.740	4.573	96.5
7	LM21	L5	True	4.740	5.066	106.9
8	LL97	L6	True	4.740	4.478	94.5
9	LL98	L7	True	4.740	4.636	97.8
10	LM22	L8	True	4.740	4.276	90.2



Analyte Name	13C8-PFOS	**Data File**	AC_09142021_05-369.wiff
MRM Transition	507.0 / 99.0	**Result Table**	21-1123_SIS
Internal Standard	13C4-PFOS	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	**Acquisition Method**	5-0369_REV.dam

Regression Equation: y = 0.99704 x (std. dev. = 0.06020) (weighting: None) r^2:N/A

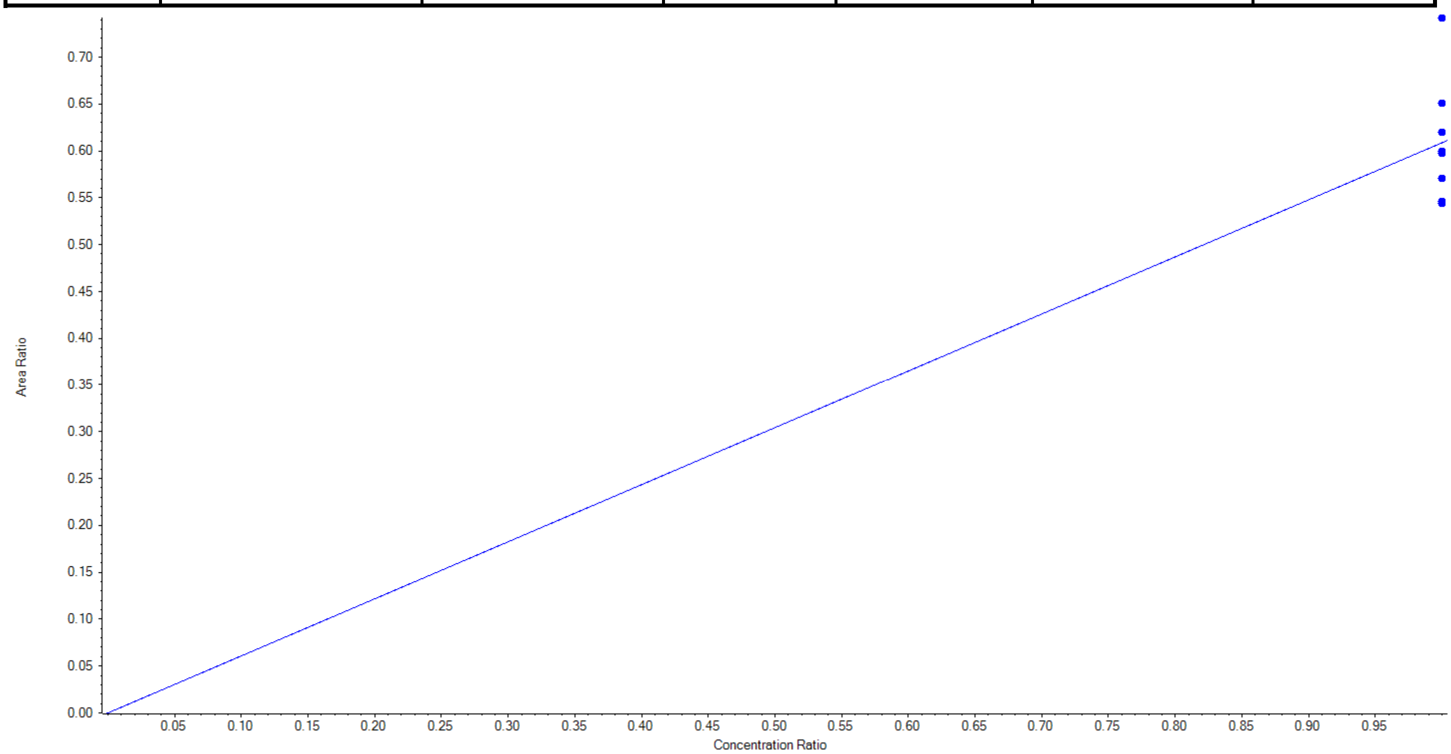
Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	4.790	4.786	99.9
4	LM19	L2	True	4.790	5.283	110.3
5	LL94	L3	True	4.790	4.303	89.8
6	LM20	L4	True	4.790	4.921	102.7
7	LM21	L5	True	4.790	4.886	102.0
8	LL97	L6	True	4.790	4.548	95.0
9	LL98	L7	True	4.790	4.896	102.2
10	LM22	L8	True	4.790	4.695	98.0



Analyte Name	13C3-HFPO-DA	Data File	AC_09142021_05-369.wiff
MRM Transition	287.0 / 169.0	Result Table	21-1123_SIS
Internal Standard	13C2-PFOA	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Acquisition Method	5-0369_REV.dam

Regression Equation: y = 0.60865 x (std. dev. = 0.06484) (weighting: None) r^2:N/A

Vial	Sample Name	Sample ID	Used for ICAL	Target Conc. (ng/mL)	Calculated Conc. (ng/mL)	Recovery (%)
3	LL90	L1	True	5.000	5.096	101.9
4	LM19	L2	True	5.000	4.685	93.7
5	LL94	L3	True	5.000	4.921	98.4
6	LM20	L4	True	5.000	4.469	89.4
7	LM21	L5	True	5.000	4.482	89.6
8	LL97	L6	True	5.000	5.344	106.9
9	LL98	L7	True	5.000	4.911	98.2
10	LM22	L8	True	5.000	6.093	121.9



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	Isotope Dilution Calibration Curve Concentrations (ng/mL)									IB (ng/mL)	ICC (ng/mL)
	LL89	LL90	LM19	LL94	LM20	LM21	LL97	LL98	LM22	LM24	LM09
PFMPA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFEESA	0.045	0.112	0.223	0.446	0.892	2.230	8.920	22.300	44.600	-	2.230
NFDHA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFMBA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFBA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFPeA	0.051	0.126	0.253	0.505	1.010	2.525	10.100	25.250	50.500	-	2.525
PFHxA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFHpA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFOA	0.051	0.126	0.253	0.505	1.010	2.525	10.100	25.250	50.500	-	2.500
PFNA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFDA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFUnA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFDoA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFTrDA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFTeDA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFHxDA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFODA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
NMeFOSAA (Branched)	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
NEtFOSAA (Branched)	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
NMeFOSA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
NEtFOSA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
NMeFOSE	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
NEtFOSE	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFOSA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFBS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFPeS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFHxS (Branched)	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFHpS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFOS (Branched)	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
PFNS	0.051	0.126	0.253	0.505	1.010	2.525	10.100	25.250	50.500	-	2.525
PFDS	0.051	0.126	0.253	0.505	1.010	2.525	10.100	25.250	50.500	-	2.525
PFDoS	0.049	0.121	0.243	0.485	0.970	2.425	9.700	24.250	48.500	-	2.425
4:2FTS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
6:2FTS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
8:2FTS	0.051	0.126	0.253	0.505	1.010	2.525	10.100	25.250	50.500	-	2.525
10:2FTS	0.048	0.121	0.242	0.483	0.966	2.415	9.660	24.150	48.300	-	2.415
3:3 FTCA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
5:3 FTCA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
7:3 FTCA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
HFPO-DA	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
Adona	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
9Cl-PF3ONS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
11Cl-PF3OUdS	0.050	0.125	0.250	0.500	1.000	2.500	10.000	25.000	50.000	-	2.500
			Surrogates / Extracted Internal Standards								
13C4-PFBA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C5-PFPeA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C5-PFHxA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C4-PFHpA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C8-PFOA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C9-PFNA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C6-PFDA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C7-PFUnA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C2-PFDoA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C2-PFTeDA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C2-PFHxDA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
d3-MeFOSAA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
d5-EtFOSAA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
D3-MeFOSA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
D5-EtFOSA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
D7-MeFOSE	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
D9-EtFOSE	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C8-FOSA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C3-PFBS	4.660	4.660	4.660	4.660	4.660	4.660	4.660	4.660	4.660	4.660	4.660
13C3-PFHxS	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740
13C8-PFOS	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790
13C2-4:2FTS	4.690	4.690	4.690	4.690	4.690	4.690	4.690	4.690	4.690	4.690	4.690
13C2-6:2FTS	4.760	4.760	4.760	4.760	4.760	4.760	4.760	4.760	4.760	4.760	4.760
13C2-8:2FTS	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800	4.800
13C3-HFPO-DA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
			Internal Standards								
13C3-PFBA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C2-PFOA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C2-PFDA	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
13C4-PFOS	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790	4.790

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PFAS Calibration Quant Report

Created with Analyst Reporter
Printed: 17/09/2021 8:02:32 AM

Sample Name	LL90	Injection Vial	3
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.76	113275.43	0.146	1516.4	False	13C3-PFBS	1506775.87	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	35810.58	0.144	492.6	False	13C3-PFBS	1506775.87	4.660	PFBS	0.316	0.334	✓
PFHxA_1	313.0 / 269.0	2.09	322659.32	0.228	601.0	False	13C5-PFHxA	7911977.02	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	11894.65	0.141	104.7	False	13C5-PFHxA	7911977.02	5.000	PFHxA	0.037	0.073	✓
PFHpA_1	363.0 / 319.0	2.47	344700.32	0.145	366.4	False	13C4-PFHpA	8635345.27	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.51	9322.51	0.339	178.4	False	13C4-PFHpA	8635345.27	5.000	PFHpA	0.027	0.017	
PFHxS_1	399.0 / 80.0	2.48	147756.67	0.146	635.6	False	13C3-PFHxS	1413770.97	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.48	38953.79	0.147	634.0	False	13C3-PFHxS	1413770.97	4.740	PFHxS	0.264	0.286	✓
PFOA_1	413.0 / 369.0	2.87	221854.83	0.233	91.2	False	13C8-PFOA	8371655.10	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.86	17755.33	0.224	49.4	False	13C8-PFOA	8371655.10	5.000	PFOA	0.080	0.073	✓
PFNA_1	463.0 / 419.0	3.27	211425.47	0.138	328.2	True	13C9-PFNA	8605726.90	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.26	66249.19	0.131	399.0	True	13C9-PFNA	8605726.90	5.000	PFNA	0.313	0.280	✓
PFOS_1	499.0 / 80.0	3.26	140593.48	0.127	337.2	False	13C8-PFOS	1248392.51	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.26	29426.79	0.126	318.0	False	13C8-PFOS	1248392.51	4.790	PFOS	0.209	0.192	✓
PFDA_1	513.0 / 469.0	3.66	244820.76	0.114	191.8	True	13C6-PFDA	9527714.59	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.71	16729.05	0.195	156.5	False	13C6-PFDA	9527714.59	5.000	PFDA	0.068	0.046	✓
PFUnA_1	563.0 / 519.0	4.00	222043.44	0.218	302.9	True	13C7-PFUnA	9912448.51	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.99	13720.78	0.211	139.7	False	13C7-PFUnA	9912448.51	5.000	PFUnA	0.062	0.057	✓
PFDoA_1	613.0 / 569.0	4.31	261222.30	0.155	82.8	True	13C2-PFDoA	10799317.35	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.30	43357.86	0.153	158.0	True	13C2-PFDoA	10799317.35	5.000	PFDoA	0.166	0.165	✓
PFTrDA_1	663.0 / 619.0	4.58	291457.02	0.157	234.0	True	13C2-PFTeDA	11965239.72	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.60	18300.15	0.158	101.3	True	13C2-PFTeDA	11965239.72	5.000	PFTrDA	0.063	0.072	✓
PFTeDA_1	713.0 / 669.0	4.82	322041.70	0.160	120.9	True	13C2-PFTeDA	11965239.72	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.82	19723.36	0.160	160.3	False	13C2-PFTeDA	11965239.72	5.000	PFTeDA	0.061	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.82	45802.24	0.152	668.5	False	d3-MeFOSAA	2175597.17	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.83	30267.79	0.147	821.1	True	d3-MeFOSAA	2175597.17	5.000	NMeFOSAA	0.661	0.693	✓
NEtFOSAA_1	584.0 / 419.0	4.00	53274.92	0.218	2708905.9	False	d5-EtFOSAA	2382253.19	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	4.01	1515.77	0.039	1555.0	False	d5-EtFOSAA	2382253.19	5.000	NEtFOSAA	0.029	0.067	
HFPO-DA_1	285.0 / 169.0	2.19	134328.61	0.157	851.0	False	13C3-HFPO-DA	5662884.77	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	3516.10	0.157	39980.2	True	13C3-HFPO-DA	5662884.77	5.000	HFPO-DA	0.026	0.026	✓
ADONA_1	377.0 / 251.0	2.50	375206.52	0.161	1302.5	False	13C8-PFOA	8371655.10	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.50	5215.60	0.159	796.4	False	13C8-PFOA	8371655.10	5.000	ADONA	0.014	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	308251.88	0.254	1687.2	False	13C8-PFOA	8371655.10	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	4.07	21363.25	1.017	332.5	False	13C8-PFOA	8371655.10	5.000	9Cl-PF3ONS	0.069	0.009	
11Cl-PF3OUdS_1	631.0 / 451.0	4.13	242911.49	0.160	2600.7	False	13C8-PFOA	8371655.10	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.11	703.31	0.102	67.8	False	13C8-PFOA	8371655.10	5.000	11Cl-PF3OUdS	0.003	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LM19	Injection Vial	4
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:59:45 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.77	256935.75	0.261	4120.5	False	13C3-PFBS	1821000.85	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	87154.97	0.268	1016.2	False	13C3-PFBS	1821000.85	4.660	PFBS	0.339	0.334	✓
PFHxA_1	313.0 / 269.0	2.10	563097.54	0.294	742.8	False	13C5-PFHxA	10026902.80	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	39057.46	0.287	281.3	False	13C5-PFHxA	10026902.80	5.000	PFHxA	0.069	0.073	✓
PFHpA_1	363.0 / 319.0	2.48	615912.88	0.224	664.2	False	13C4-PFHpA	11390529.26	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.49	8344.13	0.236	110.9	False	13C4-PFHpA	11390529.26	5.000	PFHpA	0.014	0.017	✓
PFHxS_1	399.0 / 80.0	2.49	291164.63	0.215	1092.2	False	13C3-PFHxS	1867184.77	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.49	91546.18	0.245	1070.4	False	13C3-PFHxS	1867184.77	4.740	PFHxS	0.314	0.286	✓
PFOA_1	413.0 / 369.0	2.88	430632.65	0.280	130.8	True	13C8-PFOA	11733865.55	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.88	34389.49	0.280	96.8	True	13C8-PFOA	11733865.55	5.000	PFOA	0.080	0.073	✓
PFNA_1	463.0 / 419.0	3.28	463346.94	0.224	895.4	True	13C9-PFNA	11236865.56	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.27	122301.74	0.198	531.1	True	13C9-PFNA	11236865.56	5.000	PFNA	0.264	0.280	✓
PFOS_1	499.0 / 80.0	3.27	309887.04	0.213	560.5	False	13C8-PFOS	1714637.93	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.27	61727.53	0.210	609.2	False	13C8-PFOS	1714637.93	4.790	PFOS	0.199	0.192	✓
PFDA_1	513.0 / 469.0	3.66	649339.87	0.270	439.0	True	13C6-PFDA	11469786.22	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.66	32833.01	0.319	297.6	False	13C6-PFDA	11469786.22	5.000	PFDA	0.051	0.046	✓
PFUnA_1	563.0 / 519.0	4.00	510891.70	0.283	550.0	True	13C7-PFUnA	14598230.79	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	4.00	28056.87	0.265	263.9	False	13C7-PFUnA	14598230.79	5.000	PFUnA	0.055	0.057	✓
PFDoA_1	613.0 / 569.0	4.31	625898.51	0.239	252.6	True	13C2-PFDoA	15860051.22	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.30	104394.36	0.242	344.5	True	13C2-PFDoA	15860051.22	5.000	PFDoA	0.167	0.165	✓
PFTrDA_1	663.0 / 619.0	4.58	617549.06	0.244	396.1	False	13C2-PFTeDA	14983313.09	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.57	43313.28	0.256	228.4	False	13C2-PFTeDA	14983313.09	5.000	PFTrDA	0.070	0.072	✓
PFTeDA_1	713.0 / 669.0	4.83	669672.60	0.248	279.7	False	13C2-PFTeDA	14983313.09	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.82	37255.93	0.234	197.8	False	13C2-PFTeDA	14983313.09	5.000	PFTeDA	0.056	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.83	119099.66	0.221	839.9	False	d3-MeFOSAA	3752455.71	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.83	94295.46	0.252	859.7	False	d3-MeFOSAA	3752455.71	5.000	NMeFOSAA	0.792	0.693	✓
NEtFOSAA_1	584.0 / 419.0	4.00	128854.15	0.271	5596416.3	False	d5-EtFOSAA	4249546.18	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	4.02	11088.90	0.268	56522.3	False	d5-EtFOSAA	4249546.18	5.000	NEtFOSAA	0.086	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.20	313697.70	0.255	1920.5	False	13C3-HFPO-DA	7034027.22	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	8652.72	0.271	5589.8	False	13C3-HFPO-DA	7034027.22	5.000	HFPO-DA	0.028	0.026	✓
ADONA_1	377.0 / 251.0	2.51	847799.93	0.235	2654.5	False	13C8-PFOA	11733865.55	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.51	10074.26	0.213	1412.0	False	13C8-PFOA	11733865.55	5.000	ADONA	0.012	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.47	648951.65	0.311	3155.0	False	13C8-PFOA	11733865.55	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.48	3384.90	0.281	34.2	True	13C8-PFOA	11733865.55	5.000	9Cl-PF3ONS	0.005	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.14	551797.18	0.234	6986.8	False	13C8-PFOA	11733865.55	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.13	3629.22	0.272	786.7	False	13C8-PFOA	11733865.55	5.000	11Cl-PF3OUdS	0.007	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LL94	Injection Vial	5
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:12:37 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.76	455191.19	0.516	4825.0	False	13C3-PFBS	1586770.77	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	147833.16	0.503	1714.3	False	13C3-PFBS	1586770.77	4.660	PFBS	0.325	0.334	✓
PFHxA_1	313.0 / 269.0	2.09	927951.00	0.555	1377.1	False	13C5-PFHxA	7947071.80	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	68951.35	0.579	567.0	False	13C5-PFHxA	7947071.80	5.000	PFHxA	0.074	0.073	✓
PFHpA_1	363.0 / 319.0	2.47	992961.00	0.552	1080.2	False	13C4-PFHpA	8760910.43	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.47	17009.95	0.594	357.9	False	13C4-PFHpA	8760910.43	5.000	PFHpA	0.017	0.017	✓
PFHxS_1	399.0 / 80.0	2.48	606608.96	0.552	2294.7	False	13C3-PFHxS	1490129.03	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.48	169237.96	0.539	1344.7	False	13C3-PFHxS	1490129.03	4.740	PFHxS	0.279	0.286	✓
PFOA_1	413.0 / 369.0	2.87	848296.72	0.531	279.2	False	13C8-PFOA	9232828.62	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.86	61531.55	0.536	145.9	True	13C8-PFOA	9232828.62	5.000	PFOA	0.073	0.073	✓
PFNA_1	463.0 / 419.0	3.26	981452.49	0.586	1288.9	True	13C9-PFNA	8781526.83	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.27	264589.37	0.603	1378.8	True	13C9-PFNA	8781526.83	5.000	PFNA	0.270	0.280	✓
PFOS_1	499.0 / 80.0	3.25	611569.28	0.600	1543.4	False	13C8-PFOS	1250285.79	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.26	121559.58	0.625	5020.0	False	13C8-PFOS	1250285.79	4.790	PFOS	0.199	0.192	✓
PFDA_1	513.0 / 469.0	3.64	1257359.30	0.589	783.5	False	13C6-PFDA	10542792.02	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.64	42880.75	0.455	1183.9	False	13C6-PFDA	10542792.02	5.000	PFDA	0.034	0.046	✓
PFUnA_1	563.0 / 519.0	3.98	1006783.02	0.541	1324.7	True	13C7-PFUnA	11835229.95	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.98	52933.31	0.518	791.8	False	13C7-PFUnA	11835229.95	5.000	PFUnA	0.053	0.057	✓
PFDoA_1	613.0 / 569.0	4.29	1080103.87	0.532	397.3	True	13C2-PFDoA	11671967.86	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.29	171839.58	0.526	549.0	True	13C2-PFDoA	11671967.86	5.000	PFDoA	0.159	0.165	✓
PFTrDA_1	663.0 / 619.0	4.57	1084299.54	0.489	478.2	False	13C2-PFTeDA	12244862.75	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.57	85379.68	0.549	463.0	False	13C2-PFTeDA	12244862.75	5.000	PFTrDA	0.079	0.072	✓
PFTeDA_1	713.0 / 669.0	4.82	1200918.53	0.510	428.2	False	13C2-PFTeDA	12244862.75	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.82	64202.53	0.477	417.1	False	13C2-PFTeDA	12244862.75	5.000	PFTeDA	0.054	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.82	228371.82	0.585	25947.4	False	d3-MeFOSAA	2591607.31	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.82	142017.50	0.531	5075.9	False	d3-MeFOSAA	2591607.31	5.000	NMeFOSAA	0.622	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.99	222311.09	0.546	558693.4	False	d5-EtFOSAA	3123244.16	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.99	14919.08	0.521	73593.7	False	d5-EtFOSAA	3123244.16	5.000	NEtFOSAA	0.067	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.19	560646.43	0.505	3739.3	False	13C3-HFPO-DA	5699240.48	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	12030.87	0.436	11530.0	False	13C3-HFPO-DA	5699240.48	5.000	HFPO-DA	0.022	0.026	✓
ADONA_1	377.0 / 251.0	2.50	1570964.66	0.496	3361.4	False	13C8-PFOA	9232828.62	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.50	22395.16	0.570	2716.2	False	13C8-PFOA	9232828.62	5.000	ADONA	0.014	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	1263393.61	0.564	5942.3	False	13C8-PFOA	9232828.62	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.48	10081.31	0.542	123.8	True	13C8-PFOA	9232828.62	5.000	9Cl-PF3ONS	0.008	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.13	1076418.43	0.517	10410.3	False	13C8-PFOA	9232828.62	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.14	6454.40	0.565	7615.6	False	13C8-PFOA	9232828.62	5.000	11Cl-PF3OUdS	0.006	0.006	✓

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PFAS Calibration Quant Report

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Printed: 17/09/2021 8:02:32 AM

Sample Name	LM20	**Injection Vial**	6
Sample ID	L4	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 9:25:29 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.76	885453.22	0.855	5804.6	False	13C3-PFBS	1843204.53	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	282222.68	0.814	2470.4	False	13C3-PFBS	1843204.53	4.660	PFBS	0.319	0.334	✓
PFHxA_1	313.0 / 269.0	2.09	1718205.20	0.864	2013.2	False	13C5-PFHxA	9127475.07	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	121355.38	0.861	937.3	False	13C5-PFHxA	9127475.07	5.000	PFHxA	0.071	0.073	✓
PFHpA_1	363.0 / 319.0	2.47	1882265.53	0.882	1443.9	False	13C4-PFHpA	10886622.14	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.47	30700.62	0.854	669.6	False	13C4-PFHpA	10886622.14	5.000	PFHpA	0.016	0.017	✓
PFHxS_1	399.0 / 80.0	2.48	1170152.39	0.935	3026.8	False	13C3-PFHxS	1689129.80	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.48	309066.16	0.856	3202.6	False	13C3-PFHxS	1689129.80	4.740	PFHxS	0.264	0.286	✓
PFOA_1	413.0 / 369.0	2.86	2002252.10	0.979	844.9	False	13C8-PFOA	10539718.53	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.86	132573.46	0.942	356.6	False	13C8-PFOA	10539718.53	5.000	PFOA	0.066	0.073	✓
PFNA_1	463.0 / 419.0	3.26	1826708.23	0.903	2128.4	False	13C9-PFNA	10548123.84	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.26	479271.60	0.925	2277.3	False	13C9-PFNA	10548123.84	5.000	PFNA	0.262	0.280	✓
PFOS_1	499.0 / 80.0	3.26	1187985.31	0.884	1914.9	False	13C8-PFOS	1660476.32	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.25	229489.16	0.902	8715.4	False	13C8-PFOS	1660476.32	4.790	PFOS	0.193	0.192	✓
PFDA_1	513.0 / 469.0	3.64	2129008.86	0.931	1398.7	False	13C6-PFDA	11426764.60	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.65	97702.42	0.961	1221.2	False	13C6-PFDA	11426764.60	5.000	PFDA	0.046	0.046	✓
PFUnA_1	563.0 / 519.0	3.98	2320449.13	0.991	2248.5	False	13C7-PFUnA	13481141.47	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.99	138305.61	1.096	843.1	False	13C7-PFUnA	13481141.47	5.000	PFUnA	0.060	0.057	✓
PFDoA_1	613.0 / 569.0	4.29	2126018.26	0.878	592.3	True	13C2-PFDoA	13733392.54	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.29	356026.93	0.917	942.1	False	13C2-PFDoA	13733392.54	5.000	PFDoA	0.168	0.165	✓
PFTrDA_1	663.0 / 619.0	4.57	2681396.47	0.960	1354.3	False	13C2-PFTeDA	14989200.13	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.57	152313.97	0.780	642.0	False	13C2-PFTeDA	14989200.13	5.000	PFTrDA	0.057	0.072	✓
PFTeDA_1	713.0 / 669.0	4.81	2375893.27	0.808	734.7	False	13C2-PFTeDA	14989200.13	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.82	162497.00	0.972	1080.7	False	13C2-PFTeDA	14989200.13	5.000	PFTeDA	0.068	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.82	435200.53	0.876	8148908.6	False	d3-MeFOSAA	3267388.81	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.82	309742.19	0.906	10722.1	False	d3-MeFOSAA	3267388.81	5.000	NMeFOSAA	0.712	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.98	451171.20	0.892	65090.7	False	d5-EtFOSAA	3681790.72	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.99	31855.95	0.972	63568.5	False	d5-EtFOSAA	3681790.72	5.000	NEtFOSAA	0.071	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.19	1140275.75	0.911	5851.6	False	13C3-HFPO-DA	6159216.14	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	31597.20	1.002	346219.6	False	13C3-HFPO-DA	6159216.14	5.000	HFPO-DA	0.028	0.026	✓
ADONA_1	377.0 / 251.0	2.50	3279052.51	0.874	5233.3	False	13C8-PFOA	10539718.53	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.49	37821.30	0.835	230464.1	False	13C8-PFOA	10539718.53	5.000	ADONA	0.012	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	2442688.33	0.859	6233.3	False	13C8-PFOA	10539718.53	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.46	24203.51	0.934	2130.5	False	13C8-PFOA	10539718.53	5.000	9Cl-PF3ONS	0.010	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.12	2137310.57	0.867	9120.5	False	13C8-PFOA	10539718.53	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.13	14088.42	1.046	1550.1	False	13C8-PFOA	10539718.53	5.000	11Cl-PF3OUdS	0.007	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LM21	**Injection Vial**	7
Sample ID	L5	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 9:38:21 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.76	2182150.58	2.092	12040.2	False	13C3-PFBS	1837351.28	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	790086.70	2.248	8354.1	False	13C3-PFBS	1837351.28	4.660	PFBS	0.362	0.334	✓
PFHxA_1	313.0 / 269.0	2.09	4429642.08	2.063	3790.3	False	13C5-PFHxA	9568708.72	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	301790.35	1.985	1911.7	False	13C5-PFHxA	9568708.72	5.000	PFHxA	0.068	0.073	✓
PFHpA_1	363.0 / 319.0	2.47	4623296.47	2.238	2575.4	False	13C4-PFHpA	11069542.53	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.47	93323.87	2.514	5704.3	False	13C4-PFHpA	11069542.53	5.000	PFHpA	0.020	0.017	✓
PFHxS_1	399.0 / 80.0	2.48	2938120.37	2.119	5814.4	False	13C3-PFHxS	1864565.26	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.48	839330.15	2.074	3495.3	False	13C3-PFHxS	1864565.26	4.740	PFHxS	0.286	0.286	✓
PFOA_1	413.0 / 369.0	2.86	4845141.65	2.100	1514.8	False	13C8-PFOA	11187396.66	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.86	325792.06	2.083	856.8	False	13C8-PFOA	11187396.66	5.000	PFOA	0.067	0.073	✓
PFNA_1	463.0 / 419.0	3.26	4696051.64	2.299	4259.5	False	13C9-PFNA	10635906.34	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.26	1206716.38	2.356	3713.6	False	13C9-PFNA	10635906.34	5.000	PFNA	0.257	0.280	✓
PFOS_1	499.0 / 80.0	3.25	3019218.74	2.292	4387.8	False	13C8-PFOS	1642884.46	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.25	547381.18	2.221	4662.2	False	13C8-PFOS	1642884.46	4.790	PFOS	0.181	0.192	✓
PFDA_1	513.0 / 469.0	3.64	5126986.61	2.150	2578.5	False	13C6-PFDA	12097894.47	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.64	220927.71	2.059	2890.6	False	13C6-PFDA	12097894.47	5.000	PFDA	0.043	0.046	✓
PFUnA_1	563.0 / 519.0	3.98	5035364.92	1.907	3798.7	False	13C7-PFUnA	14479714.97	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.98	279090.50	2.000	1907.1	False	13C7-PFUnA	14479714.97	5.000	PFUnA	0.055	0.057	✓
PFDoA_1	613.0 / 569.0	4.29	5061018.56	2.047	1464.7	False	13C2-PFDoA	13928899.88	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.29	796752.21	2.017	1834.4	False	13C2-PFDoA	13928899.88	5.000	PFDoA	0.157	0.165	✓
PFTrDA_1	663.0 / 619.0	4.57	5775757.45	1.957	1932.6	False	13C2-PFTeDA	15705901.19	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.57	405348.91	1.918	1644.6	False	13C2-PFTeDA	15705901.19	5.000	PFTrDA	0.070	0.072	✓
PFTeDA_1	713.0 / 669.0	4.81	6675092.34	2.136	2208.4	False	13C2-PFTeDA	15705901.19	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.81	362987.99	2.064	1829.5	False	13C2-PFTeDA	15705901.19	5.000	PFTeDA	0.054	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.82	1125528.80	2.079	85589.5	False	d3-MeFOSAA	3522841.53	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.81	770880.29	2.070	4062.9	False	d3-MeFOSAA	3522841.53	5.000	NMeFOSAA	0.685	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.99	1191712.07	2.306	22770.0	False	d5-EtFOSAA	3583584.92	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.98	69771.77	2.230	175565.4	False	d5-EtFOSAA	3583584.92	5.000	NEtFOSAA	0.059	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.19	2656995.43	1.963	9341.4	False	13C3-HFPO-DA	6511891.48	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	64583.70	1.907	816711.0	False	13C3-HFPO-DA	6511891.48	5.000	HFPO-DA	0.024	0.026	✓
ADONA_1	377.0 / 251.0	2.50	8478833.55	2.081	7274.3	False	13C8-PFOA	11187396.66	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.49	101659.60	2.081	2458.2	False	13C8-PFOA	11187396.66	5.000	ADONA	0.012	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	6002371.19	1.813	11507.2	False	13C8-PFOA	11187396.66	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.46	61988.76	1.995	578.6	False	13C8-PFOA	11187396.66	5.000	9Cl-PF3ONS	0.010	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.12	5571285.87	2.069	11893.4	False	13C8-PFOA	11187396.66	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.12	33800.44	2.314	5303.3	False	13C8-PFOA	11187396.66	5.000	11Cl-PF3OUdS	0.006	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LL97	Injection Vial	8
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:51:13 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.76	9013783.57	10.710	36148.9	False	13C3-PFBS	1474471.93	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	3043919.61	10.716	12910.7	False	13C3-PFBS	1474471.93	4.660	PFBS	0.338	0.334	✓
PFHxA_1	313.0 / 269.0	2.08	16310758.41	9.791	7346.1	False	13C5-PFHxA	7638511.34	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.08	1213563.11	10.151	6458.3	False	13C5-PFHxA	7638511.34	5.000	PFHxA	0.074	0.073	✓
PFHpA_1	363.0 / 319.0	2.46	17202082.21	10.852	5683.4	False	13C4-PFHpA	8720124.66	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.46	297714.22	10.123	4352.7	False	13C4-PFHpA	8720124.66	5.000	PFHpA	0.017	0.017	✓
PFHxS_1	399.0 / 80.0	2.47	11177995.37	10.301	12966.0	False	13C3-PFHxS	1456132.06	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.47	3311436.96	10.394	9836.6	False	13C3-PFHxS	1456132.06	4.740	PFHxS	0.296	0.286	✓
PFOA_1	413.0 / 369.0	2.86	17900446.42	10.465	2551.7	False	13C8-PFOA	8341702.81	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.86	1312592.46	11.201	2721.3	False	13C8-PFOA	8341702.81	5.000	PFOA	0.073	0.073	✓
PFNA_1	463.0 / 419.0	3.26	16301647.80	9.808	10409.1	False	13C9-PFNA	8934473.91	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.26	4387374.20	10.302	12805.7	False	13C9-PFNA	8934473.91	5.000	PFNA	0.269	0.280	✓
PFOS_1	499.0 / 80.0	3.25	11678344.11	10.835	9049.1	False	13C8-PFOS	1350798.60	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.25	2118042.36	10.576	31733.2	False	13C8-PFOS	1350798.60	4.790	PFOS	0.181	0.192	✓
PFDA_1	513.0 / 469.0	3.63	18552495.32	10.469	3931.2	False	13C6-PFDA	9398593.23	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.63	826248.02	9.994	9685.3	False	13C6-PFDA	9398593.23	5.000	PFDA	0.045	0.046	✓
PFUnA_1	563.0 / 519.0	3.98	19491056.34	9.937	7559.1	False	13C7-PFUnA	10904825.36	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.97	1017544.09	9.669	4852.7	False	13C7-PFUnA	10904825.36	5.000	PFUnA	0.052	0.057	✓
PFDoA_1	613.0 / 569.0	4.28	19669497.81	10.256	3306.6	False	13C2-PFDoA	11275389.09	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.28	3093290.86	9.965	3769.4	False	13C2-PFDoA	11275389.09	5.000	PFDoA	0.157	0.165	✓
PFTrDA_1	663.0 / 619.0	4.56	22006716.10	10.249	5068.4	False	13C2-PFTeDA	12063852.80	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.56	1643905.05	10.431	4631.8	False	13C2-PFTeDA	12063852.80	5.000	PFTrDA	0.075	0.072	✓
PFTeDA_1	713.0 / 669.0	4.81	23609916.76	10.235	5411.3	False	13C2-PFTeDA	12063852.80	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.80	1318152.32	9.968	4215.1	False	13C2-PFTeDA	12063852.80	5.000	PFTeDA	0.056	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.81	4397527.17	10.024	15892.9	False	d3-MeFOSAA	2837432.85	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.81	3028450.03	10.033	6216.3	False	d3-MeFOSAA	2837432.85	5.000	NMeFOSAA	0.689	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.98	4389471.60	9.973	9137.5	False	d5-EtFOSAA	2983636.85	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.98	262077.58	10.186	2347.3	False	d5-EtFOSAA	2983636.85	5.000	NEtFOSAA	0.060	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.18	10884857.49	9.452	23164.1	False	13C3-HFPO-DA	5678583.91	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	278563.72	9.628	3803502.9	False	13C3-HFPO-DA	5678583.91	5.000	HFPO-DA	0.026	0.026	✓
ADONA_1	377.0 / 251.0	2.49	32192527.62	10.870	17578.2	False	13C8-PFOA	8341702.81	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.49	402822.54	10.750	7532.1	False	13C8-PFOA	8341702.81	5.000	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	25022533.15	9.962	18440.5	False	13C8-PFOA	8341702.81	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.46	258105.78	10.581	2585.3	True	13C8-PFOA	8341702.81	5.000	9Cl-PF3ONS	0.010	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.12	21545683.09	10.552	26871.1	False	13C8-PFOA	8341702.81	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.12	108423.00	9.827	10372.1	False	13C8-PFOA	8341702.81	5.000	11Cl-PF3OUdS	0.005	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LL98	**Injection Vial**	9
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 10:04:05 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.76	21152722.33	24.795	35836.2	False	13C3-PFBS	1493424.17	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	7109071.57	24.682	17048.6	False	13C3-PFBS	1493424.17	4.660	PFBS	0.336	0.334	✓
PFHxA_1	313.0 / 269.0	2.09	38061145.90	26.707	11856.6	False	13C5-PFHxA	7316323.59	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	2778236.84	25.991	11303.5	False	13C5-PFHxA	7316323.59	5.000	PFHxA	0.073	0.073	✓
PFHpA_1	363.0 / 319.0	2.47	38202061.52	24.483	8069.8	False	13C4-PFHpA	8616660.67	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.47	725316.28	24.930	9433.2	False	13C4-PFHpA	8616660.67	5.000	PFHpA	0.019	0.017	✓
PFHxS_1	399.0 / 80.0	2.48	27815608.49	27.563	23942.9	False	13C3-PFHxS	1353729.66	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.48	8013913.65	27.023	14310.6	False	13C3-PFHxS	1353729.66	4.740	PFHxS	0.288	0.286	✓
PFOA_1	413.0 / 369.0	2.86	40585521.57	25.571	3821.8	False	13C8-PFOA	8477736.89	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.86	2794114.50	24.310	3401.9	False	13C8-PFOA	8477736.89	5.000	PFOA	0.069	0.073	✓
PFNA_1	463.0 / 419.0	3.26	36288578.15	25.914	12644.2	False	13C9-PFNA	8165038.70	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.26	10918931.81	28.109	10993.2	False	13C9-PFNA	8165038.70	5.000	PFNA	0.301	0.280	✓
PFOS_1	499.0 / 80.0	3.25	29158874.67	28.002	11943.4	False	13C8-PFOS	1306131.70	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.25	5369474.94	27.783	12953.9	False	13C8-PFOS	1306131.70	4.790	PFOS	0.184	0.192	✓
PFDA_1	513.0 / 469.0	3.64	40707834.90	24.887	7664.2	False	13C6-PFDA	9315034.91	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.64	2093819.73	25.909	8605.9	False	13C6-PFDA	9315034.91	5.000	PFDA	0.051	0.046	✓
PFUnA_1	563.0 / 519.0	3.98	43628030.08	26.649	8499.8	False	13C7-PFUnA	10347817.72	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.98	2485456.81	26.447	5406.8	False	13C7-PFUnA	10347817.72	5.000	PFUnA	0.057	0.057	✓
PFDoA_1	613.0 / 569.0	4.29	43897828.19	25.883	4640.4	False	13C2-PFDoA	11062640.26	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.29	7428816.14	26.313	5561.5	False	13C2-PFDoA	11062640.26	5.000	PFDoA	0.169	0.165	✓
PFTrDA_1	663.0 / 619.0	4.56	50926191.32	26.170	6687.9	False	13C2-PFTeDA	12598773.66	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.56	3885541.21	26.022	6494.4	False	13C2-PFTeDA	12598773.66	5.000	PFTrDA	0.076	0.072	✓
PFTeDA_1	713.0 / 669.0	4.81	56270993.93	25.903	8186.7	False	13C2-PFTeDA	12598773.66	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.81	3405525.09	26.116	8816.1	False	13C2-PFTeDA	12598773.66	5.000	PFTeDA	0.061	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.82	10208375.77	25.437	12584.1	False	d3-MeFOSAA	2593116.59	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.82	7023560.20	25.436	9389.6	False	d3-MeFOSAA	2593116.59	5.000	NMeFOSAA	0.688	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.99	9262538.81	25.260	5614.8	False	d5-EtFOSAA	2475674.74	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.98	534192.55	25.073	91215.6	False	d5-EtFOSAA	2475674.74	5.000	NEtFOSAA	0.058	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.19	26495936.05	27.664	24136.7	False	13C3-HFPO-DA	5288181.50	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	670170.22	27.214	170014.9	False	13C3-HFPO-DA	5288181.50	5.000	HFPO-DA	0.025	0.026	✓
ADONA_1	377.0 / 251.0	2.50	69369570.26	24.652	19279.2	False	13C8-PFOA	8477736.89	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.50	976999.45	24.762	14137.3	False	13C8-PFOA	8477736.89	5.000	ADONA	0.014	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	62108875.73	26.944	23105.0	False	13C8-PFOA	8477736.89	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.46	596459.58	25.074	4308.7	False	13C8-PFOA	8477736.89	5.000	9Cl-PF3ONS	0.010	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.12	51951700.75	24.977	16690.8	False	13C8-PFOA	8477736.89	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.12	283811.40	25.249	7794.1	False	13C8-PFOA	8477736.89	5.000	11Cl-PF3OUdS	0.006	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LM22	Injection Vial	10
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:16:56 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.77	38306664.84	40.991	54541.6	False	13C3-PFBS	1635517.64	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.76	13432360.01	42.570	29888.0	False	13C3-PFBS	1635517.64	4.660	PFBS	0.351	0.334	✓
PFHxA_1	313.0 / 269.0	2.09	63010910.89	48.681	13850.3	False	13C5-PFHxA	7907570.80	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.09	5078801.25	49.331	11923.2	False	13C5-PFHxA	7907570.80	5.000	PFHxA	0.081	0.073	✓
PFHpA_1	363.0 / 319.0	2.47	64699247.53	40.951	12320.3	False	13C4-PFHpA	8735753.33	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.47	1279152.87	43.352	10904.2	False	13C4-PFHpA	8735753.33	5.000	PFHpA	0.020	0.017	✓
PFHxS_1	399.0 / 80.0	2.48	51603477.58	47.544	18647.1	False	13C3-PFHxS	1455829.15	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.48	15345074.52	48.098	23842.3	False	13C3-PFHxS	1455829.15	4.740	PFHxS	0.297	0.286	✓
PFOA_1	413.0 / 369.0	2.86	69686257.40	50.126	4814.8	False	13C8-PFOA	8888985.68	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.87	5635930.27	50.808	4547.5	False	13C8-PFOA	8888985.68	5.000	PFOA	0.081	0.073	✓
PFNA_1	463.0 / 419.0	3.26	64256880.93	49.435	12329.6	False	13C9-PFNA	8658554.60	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.26	19250058.49	46.752	11652.9	False	13C9-PFNA	8658554.60	5.000	PFNA	0.300	0.280	✓
PFOS_1	499.0 / 80.0	3.25	54029374.15	46.422	17040.7	False	13C8-PFOS	1460138.51	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.25	10134836.80	46.931	14285.1	False	13C8-PFOS	1460138.51	4.790	PFOS	0.188	0.192	✓
PFDA_1	513.0 / 469.0	3.64	68672194.45	49.957	11665.6	False	13C6-PFDA	8966645.71	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.64	3775921.48	49.552	13596.4	False	13C6-PFDA	8966645.71	5.000	PFDA	0.055	0.046	✓
PFUnA_1	563.0 / 519.0	3.98	69758510.69	48.426	9204.7	False	13C7-PFUnA	11197161.99	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.98	4549463.78	49.210	7978.2	False	13C7-PFUnA	11197161.99	5.000	PFUnA	0.065	0.057	✓
PFDoA_1	613.0 / 569.0	4.29	79115928.97	49.192	5694.7	False	13C2-PFDoA	12564462.78	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.29	14011322.78	49.161	6751.3	False	13C2-PFDoA	12564462.78	5.000	PFDoA	0.177	0.165	✓
PFTrDA_1	663.0 / 619.0	4.57	85874056.53	48.456	6534.0	False	13C2-PFTeDA	14629103.35	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.57	7188379.05	49.060	6548.9	False	13C2-PFTeDA	14629103.35	5.000	PFTrDA	0.084	0.072	✓
PFTeDA_1	713.0 / 669.0	4.81	103678822.69	49.179	9687.5	False	13C2-PFTeDA	14629103.35	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.81	6828806.76	49.347	10872.6	False	13C2-PFTeDA	14629103.35	5.000	PFTeDA	0.066	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.82	18356361.38	40.944	11039.6	False	d3-MeFOSAA	2896144.04	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.81	12589770.82	40.814	7640.3	False	d3-MeFOSAA	2896144.04	5.000	NMeFOSAA	0.686	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.99	14435007.95	39.196	5167.9	False	d5-EtFOSAA	2484103.87	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.99	832387.00	38.956	22639.1	False	d5-EtFOSAA	2484103.87	5.000	NEtFOSAA	0.058	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.19	50579082.41	48.167	26832.8	False	13C3-HFPO-DA	6728607.18	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.19	1343986.57	48.609	34069.4	False	13C3-HFPO-DA	6728607.18	5.000	HFPO-DA	0.027	0.026	✓
ADONA_1	377.0 / 251.0	2.50	107586817.25	39.502	16318.5	False	13C8-PFOA	8888985.68	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.50	1782848.19	41.416	11076.8	False	13C8-PFOA	8888985.68	5.000	ADONA	0.017	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.46	99993657.17	48.509	33819.2	False	13C8-PFOA	8888985.68	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.46	1134515.36	49.830	6226.6	False	13C8-PFOA	8888985.68	5.000	9Cl-PF3ONS	0.011	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.13	87707550.80	40.190	19111.6	False	13C8-PFOA	8888985.68	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.12	523674.71	44.403	7096.8	False	13C8-PFOA	8888985.68	5.000	11Cl-PF3OUdS	0.006	0.006	✓

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PFAS Calibration Quant Report

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Sample Name	LL90	Injection Vial	3
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	10799317.35	4.901	17160.9	False	13C2-PFDA	8924501.75	5.000				
d3-MeFOSAA	573.0 / 419.0	3.82	2175597.17	4.301	6646.6	False	13C4-PFOS	1253125.08	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.99	2382253.19	4.394	8251.8	False	13C2-PFDA	8924501.75	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	7911977.02	5.177	10122.2	False	13C2-PFOA	9128579.84	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	8635345.27	4.969	9957.9	False	13C2-PFOA	9128579.84	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.86	8371655.10	4.826	7554.1	False	13C2-PFOA	9128579.84	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	8605726.90	5.028	13856.5	False	13C2-PFOA	9128579.84	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	9527714.59	5.250	10886.9	False	13C2-PFDA	8924501.75	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.98	9912448.51	4.696	14056.5	False	13C2-PFDA	8924501.75	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.81	11965239.72	5.002	20283.1	False	13C2-PFDA	8924501.75	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1506775.87	4.939	224205.8	False	13C4-PFOS	1253125.08	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1413770.97	4.951	19226.7	False	13C4-PFOS	1253125.08	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.25	1248392.51	4.786	15423.5	False	13C4-PFOS	1253125.08	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	5662884.77	5.096	14289.1	False	13C2-PFOA	9128579.84	5.000		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LM19	Injection Vial	4
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:59:45 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.30	15860051.22	5.256	18682.4	False	13C2-PFDA	12221241.08	5.000				
d3-MeFOSAA	573.0 / 419.0	3.83	3752455.71	5.962	12692.2	False	13C4-PFOS	1559152.09	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.99	4249546.18	5.723	9002.5	False	13C2-PFDA	12221241.08	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	10026902.80	4.856	11010.6	False	13C2-PFOA	12334897.44	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.47	11390529.26	4.851	10770.9	False	13C2-PFOA	12334897.44	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.87	11733865.55	5.006	7514.5	False	13C2-PFOA	12334897.44	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.26	11236865.56	4.858	9841.4	False	13C2-PFOA	12334897.44	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.64	11469786.22	4.615	13977.9	False	13C2-PFDA	12221241.08	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.98	14598230.79	5.051	12835.4	False	13C2-PFDA	12221241.08	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.82	14983313.09	4.574	15268.9	False	13C2-PFDA	12221241.08	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1821000.85	4.798	20293.6	False	13C4-PFOS	1559152.09	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.48	1867184.77	5.255	18453.5	False	13C4-PFOS	1559152.09	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.26	1714637.93	5.283	18440.2	False	13C4-PFOS	1559152.09	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.20	7034027.22	4.685	16551.6	False	13C2-PFOA	12334897.44	5.000		N/A	N/A	✓

PFAS Calibration Quant Report

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Sample Name	LL94	Injection Vial	5
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:12:37 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	11671967.86	5.045	12399.5	False	13C2-PFDA	9370145.05	5.000				
d3-MeFOSAA	573.0 / 419.0	3.81	2591607.31	4.600	7160.5	False	13C4-PFOS	1395802.24	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.98	3123244.16	5.486	11245.8	False	13C2-PFDA	9370145.05	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	7947071.80	4.990	11020.7	False	13C2-PFOA	9513599.80	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	8760910.43	4.837	9496.5	False	13C2-PFOA	9513599.80	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	9232828.62	5.107	6771.5	False	13C2-PFOA	9513599.80	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	8781526.83	4.923	15024.4	False	13C2-PFOA	9513599.80	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	10542792.02	5.533	9865.1	False	13C2-PFDA	9370145.05	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	11835229.95	5.341	11748.0	False	13C2-PFDA	9370145.05	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.81	12244862.75	4.876	19776.6	False	13C2-PFDA	9370145.05	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1586770.77	4.670	17935.4	False	13C4-PFOS	1395802.24	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1490129.03	4.685	17279.1	False	13C4-PFOS	1395802.24	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1250285.79	4.303	8054.9	False	13C4-PFOS	1395802.24	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	5699240.48	4.921	11521.1	False	13C2-PFOA	9513599.80	5.000		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LM20	Injection Vial	6
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:25:29 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	13733392.54	4.826	13782.2	False	13C2-PFDA	11524623.30	5.000				
d3-MeFOSAA	573.0 / 419.0	3.81	3267388.81	4.993	7552.2	False	13C4-PFOS	1621092.73	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.98	3681790.72	5.258	10165.1	False	13C2-PFDA	11524623.30	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	9127475.07	4.815	11382.2	False	13C2-PFOA	11322554.75	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	10886622.14	5.050	10349.7	False	13C2-PFOA	11322554.75	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	10539718.53	4.899	7193.2	False	13C2-PFOA	11322554.75	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	10548123.84	4.968	13812.7	False	13C2-PFOA	11322554.75	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	11426764.60	4.876	12565.2	False	13C2-PFDA	11524623.30	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	13481141.47	4.946	12019.4	False	13C2-PFDA	11524623.30	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.80	14989200.13	4.852	14389.2	False	13C2-PFDA	11524623.30	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1843204.53	4.671	28309.5	False	13C4-PFOS	1621092.73	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1689129.80	4.573	50703.2	False	13C4-PFOS	1621092.73	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1660476.32	4.921	9229.1	False	13C4-PFOS	1621092.73	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	6159216.14	4.469	13278.3	False	13C2-PFOA	11322554.75	5.000		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LM21	Injection Vial	7
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:38:21 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	13928899.88	4.847	16072.0	False	13C2-PFDA	11638329.39	5.000				
d3-MeFOSAA	573.0 / 419.0	3.81	3522841.53	5.403	7901.5	False	13C4-PFOS	1615233.97	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.98	3583584.92	5.068	10887.4	False	13C2-PFDA	11638329.39	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	9568708.72	4.789	12333.5	False	13C2-PFOA	11935422.89	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	11069542.53	4.872	9143.1	False	13C2-PFOA	11935422.89	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	11187396.66	4.933	7353.3	False	13C2-PFOA	11935422.89	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	10635906.34	4.752	10777.8	False	13C2-PFOA	11935422.89	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	12097894.47	5.112	11674.0	False	13C2-PFDA	11638329.39	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	14479714.97	5.261	10842.0	False	13C2-PFDA	11638329.39	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.81	15705901.19	5.035	13405.9	False	13C2-PFDA	11638329.39	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1837351.28	4.673	30654.3	False	13C4-PFOS	1615233.97	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1864565.26	5.066	23016.2	False	13C4-PFOS	1615233.97	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1642884.46	4.886	9809.3	False	13C4-PFOS	1615233.97	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	6511891.48	4.482	13754.7	False	13C2-PFOA	11935422.89	5.000		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LL97	Injection Vial	8
Sample ID	L6	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:51:13 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.28	11275389.09	5.158	14833.6	False	13C2-PFDA	8853199.28	5.000				
d3-MeFOSAA	573.0 / 419.0	3.81	2837432.85	4.926	8914.4	False	13C4-PFOS	1426850.02	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.97	2983636.85	5.547	9713.5	False	13C2-PFDA	8853199.28	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.07	7638511.34	5.227	11073.6	False	13C2-PFOA	8729410.39	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.45	8720124.66	5.247	10362.6	False	13C2-PFOA	8729410.39	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	8341702.81	5.029	6363.4	False	13C2-PFOA	8729410.39	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	8934473.91	5.458	10066.8	False	13C2-PFOA	8729410.39	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.62	9398593.23	5.221	12949.5	False	13C2-PFDA	8853199.28	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	10904825.36	5.208	13229.2	False	13C2-PFDA	8853199.28	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.80	12063852.80	5.084	12932.5	False	13C2-PFDA	8853199.28	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1474471.93	4.245	18613.8	False	13C4-PFOS	1426850.02	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.46	1456132.06	4.478	11359.8	False	13C4-PFOS	1426850.02	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1350798.60	4.548	11550.4	False	13C4-PFOS	1426850.02	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.18	5678583.91	5.344	11458.3	False	13C2-PFOA	8729410.39	5.000		N/A	N/A	✓

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PFAS Calibration Quant Report

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Sample Name	LL98	Injection Vial	9
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:04:05 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	11062640.26	4.850	12941.6	False	13C2-PFDA	9237863.93	5.000				
d3-MeFOSAA	573.0 / 419.0	3.81	2593116.59	5.013	7964.1	False	13C4-PFOS	1281548.15	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.98	2475674.74	4.411	8130.3	False	13C2-PFDA	9237863.93	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	7316323.59	4.940	10654.6	False	13C2-PFOA	8846718.95	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	8616660.67	5.116	7961.5	False	13C2-PFOA	8846718.95	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	8477736.89	5.043	6637.1	False	13C2-PFOA	8846718.95	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	8165038.70	4.922	14012.1	False	13C2-PFOA	8846718.95	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	9315034.91	4.959	8793.2	False	13C2-PFDA	9237863.93	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	10347817.72	4.736	10092.0	False	13C2-PFDA	9237863.93	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.80	12598773.66	5.088	13442.4	False	13C2-PFDA	9237863.93	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1493424.17	4.787	440040.5	False	13C4-PFOS	1281548.15	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1353729.66	4.636	28969.9	False	13C4-PFOS	1281548.15	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1306131.70	4.896	20196.4	False	13C4-PFOS	1281548.15	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	5288181.50	4.911	12756.9	False	13C2-PFOA	8846718.95	5.000		N/A	N/A	✓

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PFAS Calibration Quant Report

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Printed: 17/09/2021 8:02:27 AM

Sample Name	LM22	Injection Vial	10
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:16:56 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	12564462.78	5.117	11673.8	False	13C2-PFDA	9943902.73	5.000				
d3-MeFOSAA	573.0 / 419.0	3.81	2896144.04	4.802	6905.5	False	13C4-PFOS	1494031.20	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.98	2484103.87	4.112	8671.3	False	13C2-PFDA	9943902.73	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	7907570.80	5.206	10931.2	False	13C2-PFOA	9072267.11	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	8735753.33	5.058	7741.1	False	13C2-PFOA	9072267.11	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	8888985.68	5.156	6233.7	False	13C2-PFOA	9072267.11	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	8658554.60	5.090	11737.0	False	13C2-PFOA	9072267.11	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	8966645.71	4.434	9676.3	False	13C2-PFDA	9943902.73	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	11197161.99	4.761	12156.2	False	13C2-PFDA	9943902.73	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.81	14629103.35	5.489	19904.2	False	13C2-PFDA	9943902.73	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1635517.64	4.497	19527.0	False	13C4-PFOS	1494031.20	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1455829.15	4.276	14406.8	False	13C4-PFOS	1494031.20	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1460138.51	4.695	9261.8	False	13C4-PFOS	1494031.20	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	6728607.18	6.093	13202.0	False	13C2-PFOA	9072267.11	5.000		N/A	N/A	✓

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QC Summary Report

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Sample Name	LM09 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:42:43 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/mL)	Target Conc. (ng/mL)	Recovery (%)
PFBS_1	298.9 / 80.0	1.75	2.179	2.500	87.18
PFBS_2	298.9 / 99.0	1.75	2.052	2.500	82.09
PFHxA_1	313.0 / 269.0	2.08	1.953	2.500	78.13
PFHxA_2	313.0 / 119.0	2.07	2.093	2.500	83.73
PFHpA_1	363.0 / 319.0	2.45	2.209	2.500	88.34
PFHpA_2	363.0 / 169.0	2.45	2.363	2.500	94.52
PFHxS_1	399.0 / 80.0	2.46	2.144	2.500	85.76
PFHxS_2	399.0 / 99.0	2.46	2.190	2.500	87.62
PFOA_1	413.0 / 369.0	2.85	2.027	2.500	81.09
PFOA_2	413.0 / 169.0	2.85	1.907	2.500	76.30
PFNA_1	463.0 / 419.0	3.24	2.547	2.500	101.89
PFNA_2	463.0 / 219.0	3.25	2.641	2.500	105.65
PFOS_1	499.0 / 80.0	3.24	2.376	2.500	95.05
PFOS_2	499.0 / 99.0	3.24	2.366	2.500	94.64
PFDA_1	513.0 / 469.0	3.62	2.369	2.500	94.76
PFDA_2	513.0 / 219.0	3.62	2.317	2.500	92.67
PFUnA_1	563.0 / 519.0	3.97	1.929	2.500	77.17
PFUnA_2	563.0 / 269.0	3.97	1.862	2.500	74.49
PFDoA_1	613.0 / 569.0	4.27	1.961	2.500	78.42
PFDoA_2	613.0 / 319.0	4.27	1.899	2.500	75.94
PFTrDA_1	663.0 / 619.0	4.55	1.900	2.500	75.98
PFTrDA_2	663.0 / 169.0	4.55	1.934	2.500	77.38
PFTeDA_1	713.0 / 669.0	4.79	2.139	2.500	85.54
PFTeDA_2	713.0 / 169.0	4.79	1.982	2.500	79.28
NMeFOSAA_1	570.0 / 419.0	3.80	2.250	2.500	90.01
NMeFOSAA_2	570.0 / 512.0	3.80	2.319	2.500	92.75
NEtFOSAA_1	584.0 / 419.0	3.97	2.306	2.500	92.22
NEtFOSAA_2	584.0 / 483.0	3.96	2.225	2.500	88.99
HFPO-DA_1	285.0 / 169.0	2.18	2.130	2.500	85.20
HFPO-DA_2	285.0 / 118.8	2.18	2.141	2.500	85.62
ADONA_1	377.0 / 251.0	2.48	1.888	2.500	75.53
ADONA_2	377.0 / 85.0	2.48	1.899	2.500	75.97
9Cl-PF3ONS_1	531.0 / 351.0	3.44	1.851	2.500	74.03
9Cl-PF3ONS_2	531.0 / 83.0	3.44	1.797	2.500	71.90
11Cl-PF3OUdS_1	631.0 / 451.0	4.10	2.048	2.500	81.91
11Cl-pf3OUdS_2	631.0 / 83.0	4.11	1.927	2.500	77.10

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QC Summary Report

Sample Name	LM21 CCV	Injection Vial	51
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 6:52:00 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/mL)	Target Conc. (ng/mL)	Recovery (%)
PFBS_1	298.9 / 80.0	1.72	2.112	2.500	84.48
PFBS_2	298.9 / 99.0	1.72	2.074	2.500	82.95
PFHxA_1	313.0 / 269.0	2.03	1.937	2.500	77.48
PFHxA_2	313.0 / 119.0	2.03	1.841	2.500	73.65
PFHpA_1	363.0 / 319.0	2.40	2.176	2.500	87.03
PFHpA_2	363.0 / 169.0	2.40	2.465	2.500	98.61
PFHxS_1	399.0 / 80.0	2.42	2.229	2.500	89.15
PFHxS_2	399.0 / 99.0	2.41	2.115	2.500	84.60
PFOA_1	413.0 / 369.0	2.79	2.094	2.525	82.95
PFOA_2	413.0 / 169.0	2.79	1.892	2.525	74.95
PFNA_1	463.0 / 419.0	3.18	1.898	2.500	75.91
PFNA_2	463.0 / 219.0	3.18	2.272	2.500	90.87
PFOS_1	499.0 / 80.0	3.17	2.214	2.500	88.56
PFOS_2	499.0 / 99.0	3.17	2.267	2.500	90.68
PFDA_1	513.0 / 469.0	3.55	1.921	2.500	76.85
PFDA_2	513.0 / 219.0	3.55	1.961	2.500	78.45
PFUnA_1	563.0 / 519.0	3.89	1.798	2.500	71.93
PFUnA_2	563.0 / 269.0	3.89	1.755	2.500	70.21
PFDoA_1	613.0 / 569.0	4.19	2.016	2.500	80.66
PFDoA_2	613.0 / 319.0	4.19	2.076	2.500	83.03
PFTrDA_1	663.0 / 619.0	4.46	1.835	2.500	73.40
PFTrDA_2	663.0 / 169.0	4.46	1.854	2.500	74.16
PFTeDA_1	713.0 / 669.0	4.70	2.010	2.500	80.38
PFTeDA_2	713.0 / 169.0	4.70	1.991	2.500	79.62
NMeFOSAA_1	570.0 / 419.0	3.72	2.160	2.500	86.42
NMeFOSAA_2	570.0 / 512.0	3.72	2.135	2.500	85.40
NEtFOSAA_1	584.0 / 419.0	3.90	2.003	2.500	80.11
NEtFOSAA_2	584.0 / 483.0	3.90	2.421	2.500	96.84
HFPO-DA_1	285.0 / 169.0	2.13	1.946	2.500	77.85
HFPO-DA_2	285.0 / 118.8	2.13	1.923	2.500	76.90
ADONA_1	377.0 / 251.0	2.43	2.162	2.500	86.48
ADONA_2	377.0 / 85.0	2.43	1.821	2.500	72.85
9Cl-PF3ONS_1	531.0 / 351.0	3.37	1.904	2.500	76.14
9Cl-PF3ONS_2	531.0 / 83.0	3.37	1.971	2.500	78.82
11Cl-PF3OUdS_1	631.0 / 451.0	4.03	1.991	2.500	79.65
11Cl-pf3OUdS_2	631.0 / 83.0	4.04	1.753	2.500	70.13

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QC Summary Report

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Sample Name	LM19 CCV	Injection Vial	10
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 8:48:51 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/mL)	Target Conc. (ng/mL)	Recovery (%)
PFBS_1	298.9 / 80.0	1.71	0.239	0.250	95.74
PFBS_2	298.9 / 99.0	1.71	0.186	0.250	74.29
PFHxA_1	313.0 / 269.0	2.04	0.277	0.250	110.99
PFHxA_2	313.0 / 119.0	2.04	0.254	0.250	101.52
PFHpA_1	363.0 / 319.0	2.43	0.187	0.250	74.84
PFHpA_2	363.0 / 169.0	2.42	0.274	0.250	109.75
PFHxS_1	399.0 / 80.0	2.45	0.230	0.250	91.81
PFHxS_2	399.0 / 99.0	2.44	0.248	0.250	99.37
PFOA_1	413.0 / 369.0	2.83	0.328	0.253	129.74
PFOA_2	413.0 / 169.0	2.83	0.278	0.253	109.82
PFNA_1	463.0 / 419.0	3.22	0.273	0.250	109.02
PFNA_2	463.0 / 219.0	3.22	0.217	0.250	86.84
PFOS_1	499.0 / 80.0	3.21	0.225	0.250	89.81
PFOS_2	499.0 / 99.0	3.21	0.214	0.250	85.41
PFDA_1	513.0 / 469.0	3.59	0.225	0.250	90.07
PFDA_2	513.0 / 219.0	3.60	0.281	0.250	112.33
PFUnA_1	563.0 / 519.0	3.93	0.319	0.250	127.76
PFUnA_2	563.0 / 269.0	3.93	0.264	0.250	105.55
PFDoA_1	613.0 / 569.0	4.22	0.277	0.250	110.94
PFDoA_2	613.0 / 319.0	4.22	0.214	0.250	85.63
PFTrDA_1	663.0 / 619.0	4.49	0.290	0.250	115.81
PFTrDA_2	663.0 / 169.0	4.49	0.263	0.250	105.24
PFTeDA_1	713.0 / 669.0	4.72	0.242	0.250	96.91
PFTeDA_2	713.0 / 169.0	4.72	0.279	0.250	111.77
NMeFOSAA_1	570.0 / 419.0	3.76	0.232	0.250	92.98
NMeFOSAA_2	570.0 / 512.0	3.76	0.262	0.250	104.79
NEtFOSAA_1	584.0 / 419.0	3.93	0.286	0.250	114.60
NEtFOSAA_2	584.0 / 483.0	3.94	0.198	0.250	79.20
HFPO-DA_1	285.0 / 169.0	2.15	0.234	0.250	93.65
HFPO-DA_2	285.0 / 118.8	2.14	0.227	0.250	90.92
ADONA_1	377.0 / 251.0	2.46	0.232	0.250	92.89
ADONA_2	377.0 / 85.0	2.46	0.309	0.250	123.67
9Cl-PF3ONS_1	531.0 / 351.0	3.42	0.310	0.250	124.11
9Cl-PF3ONS_2	531.0 / 83.0	3.42	0.290	0.250	116.20
11Cl-PF3OUdS_1	631.0 / 451.0	4.06	0.232	0.250	92.75
11Cl-pf3OUdS_2	631.0 / 83.0	4.06	0.277	0.250	110.71

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QC Summary Report

Created with Analyst Reporter
Printed: 17/09/2021 8:02:22 AM

Sample Name	LM09 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:42:43 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/mL)	Target Conc. (ng/mL)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	4.27	5.893	5.000	117.86
d3-MeFOSAA	573.0 / 419.0	3.79	5.725	5.000	114.50
d5-EtFOSAA	589.0 / 419.0	3.96	6.238	5.000	124.76
13C5-PFHxA	318.0 / 273.0	2.06	5.603	5.000	112.07
13C4-PFHpA	367.0 / 322.0	2.44	6.006	5.000	120.13
13C8-PFOA	421.0 / 376.0	2.84	6.013	5.000	120.25
13C9-PFNA	472.0 / 427.0	3.23	5.379	5.000	107.58
13C6-PFDA	519.0 / 474.0	3.62	5.721	5.000	114.42
13C7-PFUnA	570.0 / 525.0	3.95	6.473	5.000	129.45
13C2-PFTeDA	715.0 / 670.0	4.79	5.919	5.000	118.37
13C3-PFBS	302.0 / 99.0	1.74	5.236	4.660	112.36
13C3-PFHxS	402.0 / 99.0	2.45	5.500	4.740	116.04
13C8-PFOS	507.0 / 99.0	3.23	5.495	4.790	114.72
13C3-HFPO-DA	287.0 / 169.0	2.17	5.616	5.000	112.31

QC Summary Report

Sample Name	LM21 CCV	Injection Vial	51
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 6:52:00 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/mL)	Target Conc. (ng/mL)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	4.19	4.810	5.000	96.21
d3-MeFOSAA	573.0 / 419.0	3.72	6.009	5.000	120.18
d5-EtFOSAA	589.0 / 419.0	3.89	6.280	5.000	125.60
13C5-PFHxA	318.0 / 273.0	2.02	5.113	5.000	102.26
13C4-PFHpA	367.0 / 322.0	2.39	4.905	5.000	98.11
13C8-PFOA	421.0 / 376.0	2.78	5.162	5.000	103.25
13C9-PFNA	472.0 / 427.0	3.17	4.777	5.000	95.55
13C6-PFDA	519.0 / 474.0	3.54	5.217	5.000	104.34
13C7-PFUnA	570.0 / 525.0	3.88	5.436	5.000	108.73
13C2-PFTeDA	715.0 / 670.0	4.69	4.931	5.000	98.62
13C3-PFBS	302.0 / 99.0	1.71	5.019	4.660	107.71
13C3-PFHxS	402.0 / 99.0	2.41	5.129	4.740	108.21
13C8-PFOS	507.0 / 99.0	3.16	5.023	4.790	104.85
13C3-HFPO-DA	287.0 / 169.0	2.13	4.788	5.000	95.75

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QC Summary Report

Created with Analyst Reporter
Printed: 17/09/2021 8:02:22 AM

Sample Name	LM19 CCV	Injection Vial	10
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 8:48:51 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Conc. (ng/mL)	Target Conc. (ng/mL)	Recovery (%)
13C2-PFDoA	615.0 / 570.0	4.22	5.100	5.000	101.99
d3-MeFOSAA	573.0 / 419.0	3.76	5.494	5.000	109.88
d5-EtFOSAA	589.0 / 419.0	3.93	6.487	5.000	129.73
13C5-PFHxA	318.0 / 273.0	2.03	5.363	5.000	107.25
13C4-PFHpA	367.0 / 322.0	2.42	5.065	5.000	101.29
13C8-PFOA	421.0 / 376.0	2.81	5.701	5.000	114.03
13C9-PFNA	472.0 / 427.0	3.21	5.161	5.000	103.23
13C6-PFDA	519.0 / 474.0	3.58	5.088	5.000	101.75
13C7-PFUnA	570.0 / 525.0	3.91	5.787	5.000	115.73
13C2-PFTeDA	715.0 / 670.0	4.71	4.359	5.000	87.18
13C3-PFBS	302.0 / 99.0	1.71	5.531	4.660	118.69
13C3-PFHxS	402.0 / 99.0	2.43	5.210	4.740	109.92
13C8-PFOS	507.0 / 99.0	3.20	4.836	4.790	100.97
13C3-HFPO-DA	287.0 / 169.0	2.15	5.245	5.000	104.91

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PFAS QC Sample Quant Report

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Printed: 20/09/2021 1:30:13 PM

Sample Name	LM09 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:42:43 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.75	2096158.45	2.179	23148.6	False	13C3-PFBS	1693905.78	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.75	664320.94	2.052	7003.9	False	13C3-PFBS	1693905.78	4.660	PFBS	0.317	0.334	✓
PFHxA_1	313.0 / 269.0	2.08	3788077.48	1.953	2736.6	False	13C5-PFHxA	8650112.64	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.07	287870.77	2.093	1734.5	False	13C5-PFHxA	8650112.64	5.000	PFHxA	0.076	0.073	✓
PFHpA_1	363.0 / 319.0	2.45	4348660.62	2.209	2431.7	False	13C4-PFHpA	10544465.40	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.45	83510.67	2.363	13226.5	False	13C4-PFHpA	10544465.40	5.000	PFHpA	0.019	0.017	✓
PFHxS_1	399.0 / 80.0	2.46	2655453.03	2.144	7218.5	False	13C3-PFHxS	1665732.35	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.46	792226.54	2.190	3589.1	False	13C3-PFHxS	1665732.35	4.740	PFHxS	0.298	0.286	✓
PFOA_1	413.0 / 369.0	2.85	4397176.78	2.027	1265.8	False	13C8-PFOA	10535571.17	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.85	280019.53	1.907	699.2	False	13C8-PFOA	10535571.17	5.000	PFOA	0.064	0.073	✓
PFNA_1	463.0 / 419.0	3.24	4547777.69	2.547	3414.7	False	13C9-PFNA	9300822.04	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.25	1181190.31	2.641	3560.1	False	13C9-PFNA	9300822.04	5.000	PFNA	0.260	0.280	✓
PFOS_1	499.0 / 80.0	3.24	2895568.99	2.376	3482.5	False	13C8-PFOS	1520099.00	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.24	539011.50	2.366	5425.5	False	13C8-PFOS	1520099.00	4.790	PFOS	0.186	0.192	✓
PFDA_1	513.0 / 469.0	3.62	4917594.31	2.369	2963.7	False	13C6-PFDA	10547775.31	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.62	216614.21	2.317	2243.5	False	13C6-PFDA	10547775.31	5.000	PFDA	0.044	0.046	✓
PFUnA_1	563.0 / 519.0	3.97	4884213.97	1.929	3285.7	False	13C7-PFUnA	13878934.48	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.97	248511.17	1.862	1642.8	False	13C7-PFUnA	13878934.48	5.000	PFUnA	0.051	0.057	✓
PFDoA_1	613.0 / 569.0	4.27	4592094.58	1.961	2203.1	False	13C2-PFDoA	13192932.32	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.27	710576.22	1.899	2406.9	False	13C2-PFDoA	13192932.32	5.000	PFDoA	0.155	0.165	✓
PFTrDA_1	663.0 / 619.0	4.55	5134435.57	1.900	2322.5	False	13C2-PFTeDA	14382745.11	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.55	374498.28	1.934	1380.6	False	13C2-PFTeDA	14382745.11	5.000	PFTrDA	0.073	0.072	✓
PFTeDA_1	713.0 / 669.0	4.79	6119688.50	2.139	2180.2	False	13C2-PFTeDA	14382745.11	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.79	319236.93	1.982	1402.6	False	13C2-PFTeDA	14382745.11	5.000	PFTeDA	0.052	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.80	1062562.82	2.250	24100.4	False	d3-MeFOSAA	3071393.08	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.80	753492.96	2.319	16438.3	False	d3-MeFOSAA	3071393.08	5.000	NMeFOSAA	0.709	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.97	1142282.25	2.306	5162.6	False	d5-EtFOSAA	3436007.30	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.96	66737.33	2.225	205530.6	False	d5-EtFOSAA	3436007.30	5.000	NEtFOSAA	0.058	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.18	2794220.30	2.130	5646.2	False	13C3-HFPO-DA	6303609.49	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.18	70263.30	2.141	2770.3	False	13C3-HFPO-DA	6303609.49	5.000	HFPO-DA	0.025	0.026	✓
ADONA_1	377.0 / 251.0	2.48	7236348.08	1.888	6254.4	False	13C8-PFOA	10535571.17	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.48	87250.19	1.899	3389.2	False	13C8-PFOA	10535571.17	5.000	ADONA	0.012	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.44	5780560.77	1.851	10096.2	False	13C8-PFOA	10535571.17	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.44	52026.03	1.797	515.5	False	13C8-PFOA	10535571.17	5.000	9Cl-PF3ONS	0.009	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.10	5193012.30	2.048	10829.6	False	13C8-PFOA	10535571.17	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.11	26421.28	1.927	2535.6	False	13C8-PFOA	10535571.17	5.000	11Cl-PF3OUdS	0.005	0.006	✓

PFAS QC Sample Quant Report

Created with Analyst Reporter
Printed: 20/09/2021 1:30:13 PM

Sample Name	LM21 CCV	Injection Vial	51
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 6:52:00 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.72	2100912.47	2.112	10254.0	False	13C3-PFBS	1752305.31	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.72	694483.49	2.074	5610.7	False	13C3-PFBS	1752305.31	4.660	PFBS	0.331	0.334	✓
PFHxA_1	313.0 / 269.0	2.03	4015096.35	1.937	2976.8	False	13C5-PFHxA	9246622.11	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.03	270077.13	1.841	2096.0	False	13C5-PFHxA	9246622.11	5.000	PFHxA	0.067	0.073	✓
PFHpA_1	363.0 / 319.0	2.40	4100742.58	2.176	2770.4	False	13C4-PFHpA	10088053.89	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.40	83383.58	2.465	2248.2	False	13C4-PFHpA	10088053.89	5.000	PFHpA	0.020	0.017	✓
PFHxS_1	399.0 / 80.0	2.42	2778007.09	2.229	8002.1	False	13C3-PFHxS	1676228.53	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.41	769491.73	2.115	4747.4	False	13C3-PFHxS	1676228.53	4.740	PFHxS	0.277	0.286	✓
PFOA_1	413.0 / 369.0	2.79	4576214.98	2.094	1679.3	False	13C8-PFOA	10596772.12	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.79	279349.25	1.892	560.8	False	13C8-PFOA	10596772.12	5.000	PFOA	0.061	0.073	✓
PFNA_1	463.0 / 419.0	3.18	3530404.72	1.898	4123.0	False	13C9-PFNA	9677194.19	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.18	1059081.07	2.272	4225.5	False	13C9-PFNA	9677194.19	5.000	PFNA	0.300	0.280	✓
PFOS_1	499.0 / 80.0	3.17	2661868.35	2.214	3085.8	False	13C8-PFOS	1499278.39	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.17	509688.92	2.267	9816.7	False	13C8-PFOS	1499278.39	4.790	PFOS	0.192	0.192	✓
PFDA_1	513.0 / 469.0	3.55	4253266.23	1.921	2258.7	False	13C6-PFDA	11207443.80	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.55	194959.37	1.961	4767.8	False	13C6-PFDA	11207443.80	5.000	PFDA	0.046	0.046	✓
PFUnA_1	563.0 / 519.0	3.89	4376878.87	1.798	3304.2	False	13C7-PFUnA	13384979.02	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.89	225411.42	1.755	2121.7	False	13C7-PFUnA	13384979.02	5.000	PFUnA	0.052	0.057	✓
PFDoA_1	613.0 / 569.0	4.19	4491886.34	2.016	2570.2	False	13C2-PFDoA	12548305.61	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.19	738804.01	2.076	3054.6	False	13C2-PFDoA	12548305.61	5.000	PFDoA	0.165	0.165	✓
PFTrDA_1	663.0 / 619.0	4.46	4815202.36	1.835	3315.6	False	13C2-PFTeDA	13963014.94	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.46	348243.27	1.854	2500.9	False	13C2-PFTeDA	13963014.94	5.000	PFTrDA	0.072	0.072	✓
PFTeDA_1	713.0 / 669.0	4.70	5582329.54	2.010	2986.9	False	13C2-PFTeDA	13963014.94	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.70	311256.46	1.991	2839.0	False	13C2-PFTeDA	13963014.94	5.000	PFTeDA	0.056	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.72	1155161.14	2.160	1570285.6	False	d3-MeFOSAA	3478757.75	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.72	785303.04	2.135	6428.7	False	d3-MeFOSAA	3478757.75	5.000	NMeFOSAA	0.680	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.90	1158747.56	2.003	137723.4	False	d5-EtFOSAA	4030778.29	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.90	85086.53	2.421	730.9	False	d5-EtFOSAA	4030778.29	5.000	NEtFOSAA	0.073	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.13	2547063.77	1.946	8728.8	False	13C3-HFPO-DA	6295605.03	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.13	62954.62	1.923	1923921.6	False	13C3-HFPO-DA	6295605.03	5.000	HFPO-DA	0.025	0.026	✓
ADONA_1	377.0 / 251.0	2.43	8346650.13	2.162	9950.0	False	13C8-PFOA	10596772.12	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.43	84102.75	1.821	2993.5	False	13C8-PFOA	10596772.12	5.000	ADONA	0.010	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.37	5991594.78	1.904	11305.9	False	13C8-PFOA	10596772.12	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.37	57920.37	1.971	1183.9	True	13C8-PFOA	10596772.12	5.000	9Cl-PF3ONS	0.010	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.03	5076022.74	1.991	15239.0	False	13C8-PFOA	10596772.12	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.04	24123.04	1.753	1050.5	False	13C8-PFOA	10596772.12	5.000	11Cl-PF3OUdS	0.005	0.006	✓

PFAS QC Sample Quant Report

Created with Analyst Reporter
Printed: 20/09/2021 1:30:13 PM

Sample Name	LM19 CCV	**Injection Vial**	10
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 8:48:51 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.71	244159.96	0.239	2095.0	False	13C3-PFBS	1899241.26	4.660	PFBS			
PFBS_2	298.9 / 99.0	1.71	60602.27	0.186	726.3	False	13C3-PFBS	1899241.26	4.660	PFBS	0.248	0.334	✓
PFHxA_1	313.0 / 269.0	2.04	484836.78	0.277	515.3	False	13C5-PFHxA	9275283.44	5.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.04	31155.17	0.254	218.6	False	13C5-PFHxA	9275283.44	5.000	PFHxA	0.064	0.073	✓
PFHpA_1	363.0 / 319.0	2.43	473117.72	0.187	546.0	False	13C4-PFHpA	9961401.92	5.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.42	8591.33	0.274	17283.4	True	13C4-PFHpA	9961401.92	5.000	PFHpA	0.018	0.017	✓
PFHxS_1	399.0 / 80.0	2.45	279110.21	0.230	868.8	False	13C3-PFHxS	1674679.96	4.740	PFHxS			
PFHxS_2	399.0 / 99.0	2.44	83442.04	0.248	620.3	False	13C3-PFHxS	1674679.96	4.740	PFHxS	0.299	0.286	✓
PFOA_1	413.0 / 369.0	2.83	530184.73	0.328	246.5	False	13C8-PFOA	11192607.66	5.000	PFOA			
PFOA_2	413.0 / 169.0	2.83	32533.38	0.278	64.4	True	13C8-PFOA	11192607.66	5.000	PFOA	0.061	0.073	✓
PFNA_1	463.0 / 419.0	3.22	507665.13	0.273	1128.9	False	13C9-PFNA	9998821.81	5.000	PFNA			
PFNA_2	463.0 / 219.0	3.22	117987.72	0.217	539.5	False	13C9-PFNA	9998821.81	5.000	PFNA	0.232	0.280	✓
PFOS_1	499.0 / 80.0	3.21	270067.32	0.225	552.0	False	13C8-PFOS	1419960.99	4.790	PFOS			
PFOS_2	499.0 / 99.0	3.21	51768.00	0.214	1097.5	False	13C8-PFOS	1419960.99	4.790	PFOS	0.192	0.192	✓
PFDA_1	513.0 / 469.0	3.59	525399.43	0.225	591.9	False	13C6-PFDA	11016039.42	5.000	PFDA			
PFDA_2	513.0 / 219.0	3.60	27767.89	0.281	467.9	False	13C6-PFDA	11016039.42	5.000	PFDA	0.053	0.046	✓
PFUnA_1	563.0 / 519.0	3.93	613180.82	0.319	1073.1	False	13C7-PFUnA	14572150.48	5.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.93	27874.60	0.264	347.6	False	13C7-PFUnA	14572150.48	5.000	PFUnA	0.046	0.057	✓
PFDoA_1	613.0 / 569.0	4.22	622516.94	0.277	659.1	False	13C2-PFDoA	13407398.69	5.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.22	77391.07	0.214	552.3	False	13C2-PFDoA	13407398.69	5.000	PFDoA	0.124	0.165	✓
PFTrDA_1	663.0 / 619.0	4.49	622514.26	0.290	1088.8	False	13C2-PFTeDA	12440264.70	5.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.49	37218.11	0.263	321.3	False	13C2-PFTeDA	12440264.70	5.000	PFTrDA	0.060	0.072	✓
PFTeDA_1	713.0 / 669.0	4.72	542658.37	0.242	405.9	False	13C2-PFTeDA	12440264.70	5.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.72	37318.10	0.279	345.4	False	13C2-PFTeDA	12440264.70	5.000	PFTeDA	0.069	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.76	104761.12	0.232	3485.7	False	d3-MeFOSAA	3128235.72	5.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.76	81874.84	0.262	891.1	False	d3-MeFOSAA	3128235.72	5.000	NMeFOSAA	0.782	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.93	136758.65	0.286	5940.6	False	d5-EtFOSAA	4196237.92	5.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.94	8411.30	0.198	262.4	False	d5-EtFOSAA	4196237.92	5.000	NEtFOSAA	0.062	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.15	265211.16	0.234	2058.1	False	13C3-HFPO-DA	6596829.49	5.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.14	6575.39	0.227	26186.7	False	13C3-HFPO-DA	6596829.49	5.000	HFPO-DA	0.025	0.026	✓
ADONA_1	377.0 / 251.0	2.46	798977.04	0.232	1978.0	False	13C8-PFOA	11192607.66	5.000	ADONA			
ADONA_2	377.0 / 85.0	2.46	14328.36	0.309	1324.7	False	13C8-PFOA	11192607.66	5.000	ADONA	0.018	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.42	616180.53	0.310	4332.3	False	13C8-PFOA	11192607.66	5.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.42	3540.29	0.290	21.9	True	13C8-PFOA	11192607.66	5.000	9Cl-PF3ONS	0.006	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.06	521436.74	0.232	6040.6	False	13C8-PFOA	11192607.66	5.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.06	3534.64	0.277	1417.7	True	13C8-PFOA	11192607.66	5.000	11Cl-PF3OUdS	0.007	0.006	✓

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PFAS QC Sample Quant Report

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Printed: 17/09/2021 8:02:28 AM

Sample Name	LM09 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:42:43 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.27	13192932.32	5.893	16922.5	False	13C2-PFDA	9066571.99	5.000				
d3-MeFOSAA	573.0 / 419.0	3.79	3071393.08	5.725	7292.8	False	13C4-PFOS	1329005.39	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.96	3436007.30	6.238	11461.3	False	13C2-PFDA	9066571.99	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.06	8650112.64	5.603	11212.2	False	13C2-PFOA	9221387.96	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.44	10544465.40	6.006	10694.5	False	13C2-PFOA	9221387.96	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.84	10535571.17	6.013	7389.3	False	13C2-PFOA	9221387.96	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.23	9300822.04	5.379	13136.0	False	13C2-PFOA	9221387.96	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.62	10547775.31	5.721	14231.4	False	13C2-PFDA	9066571.99	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.95	13878934.48	6.473	18105.6	False	13C2-PFDA	9066571.99	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.79	14382745.11	5.919	18498.2	False	13C2-PFDA	9066571.99	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.74	1693905.78	5.236	29126.4	False	13C4-PFOS	1329005.39	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.45	1665732.35	5.500	11443.9	False	13C4-PFOS	1329005.39	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.23	1520099.00	5.495	15531.1	False	13C4-PFOS	1329005.39	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.17	6303609.49	5.616	13281.7	False	13C2-PFOA	9221387.96	5.000		N/A	N/A	✓

PFAS QC Sample Quant Report

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Printed: 17/09/2021 8:02:28 AM

Sample Name	LM21 CCV	Injection Vial	51
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 6:52:00 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.19	12548305.61	4.810	18367.7	False	13C2-PFDA	10564682.13	5.000				
d3-MeFOSAA	573.0 / 419.0	3.72	3478757.75	6.009	9555.6	False	13C4-PFOS	1434120.46	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.89	4030778.29	6.280	10698.6	False	13C2-PFDA	10564682.13	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.02	9246622.11	5.113	9437.8	False	13C2-PFOA	10802644.90	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.39	10088053.89	4.905	9445.5	False	13C2-PFOA	10802644.90	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.78	10596772.12	5.162	6772.6	False	13C2-PFOA	10802644.90	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.17	9677194.19	4.777	10570.5	False	13C2-PFOA	10802644.90	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.54	11207443.80	5.217	10876.0	False	13C2-PFDA	10564682.13	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.88	13583225.01	5.436	16990.6	False	13C2-PFDA	10564682.13	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.69	13963014.94	4.931	14630.1	False	13C2-PFDA	10564682.13	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.71	1752305.31	5.019	25703.9	False	13C4-PFOS	1434120.46	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.41	1676228.53	5.129	10147.5	False	13C4-PFOS	1434120.46	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.16	1499278.39	5.023	20001.2	False	13C4-PFOS	1434120.46	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.13	6295605.03	4.788	9186.9	False	13C2-PFOA	10802644.90	5.000		N/A	N/A	✓

PFAS QC Sample Quant Report

Created with Analyst Reporter
Printed: 17/09/2021 8:02:28 AM

Sample Name	LM19 CCV	Injection Vial	10
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 8:48:51 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng/mL)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng/mL)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.22	13407398.69	5.100	8218.8	False	13C2-PFDA	10647924.89	5.000				
d3-MeFOSAA	573.0 / 419.0	3.76	3128235.72	5.494	8252.5	False	13C4-PFOS	1410542.84	4.790		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.93	4196237.92	6.487	10270.4	False	13C2-PFDA	10647924.89	5.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.03	9275283.44	5.363	9429.2	False	13C2-PFOA	10331382.16	5.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.42	9961401.92	5.065	8169.1	False	13C2-PFOA	10331382.16	5.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.81	11192607.66	5.701	5998.6	False	13C2-PFOA	10331382.16	5.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.21	9998821.81	5.161	8755.0	False	13C2-PFOA	10331382.16	5.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.58	11016039.42	5.088	8087.3	False	13C2-PFDA	10647924.89	5.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.91	14572150.48	5.787	8808.2	False	13C2-PFDA	10647924.89	5.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.71	12440264.70	4.359	9587.3	False	13C2-PFDA	10647924.89	5.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.71	1899241.26	5.531	19355.6	False	13C4-PFOS	1410542.84	4.790		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.43	1674679.96	5.210	16607.3	False	13C4-PFOS	1410542.84	4.790		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.20	1419960.99	4.836	13096.4	False	13C4-PFOS	1410542.84	4.790		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.15	6596829.49	5.245	11230.9	False	13C2-PFOA	10331382.16	5.000		N/A	N/A	✓

Raw Analytical Data

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PFAS Sample Quant Report

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Printed: 17/09/2021 8:02:29 AM

Sample Name	LM24 IB	Injection Vial	11
Sample ID	IB	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:29:49 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	1608173.98	23.300	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	1608173.98	23.300	PFBS	N/A	0.334	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	8142151.22	25.000	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	8142151.22	25.000	PFHxA	N/A	0.073	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	9116264.45	25.000	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	9116264.45	25.000	PFHpA	N/A	0.017	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	1573220.24	23.700	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	1573220.24	23.700	PFHxS	N/A	0.286	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	PFOA	N/A	0.073	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	8851925.63	25.000	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	8851925.63	25.000	PFNA	N/A	0.280	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	1424621.69	23.950	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	1424621.69	23.950	PFOS	N/A	0.192	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	10890532.25	25.000	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	10890532.25	25.000	PFDA	N/A	0.046	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	11330145.08	25.000	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	11330145.08	25.000	PFUnA	N/A	0.057	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	11448101.13	25.000	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	11448101.13	25.000	PFDoA	N/A	0.165	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	13173348.85	25.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	13173348.85	25.000	PFTrDA	N/A	0.072	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	13173348.85	25.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	13173348.85	25.000	PFTeDA	N/A	0.059	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	2672010.42	25.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	2672010.42	25.000	NMeFOSAA	N/A	0.693	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	3196337.61	25.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	3196337.61	25.000	NEtFOSAA	N/A	0.067	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	5734420.98	25.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	5734420.98	25.000	HFPO-DA	N/A	0.026	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	9Cl-PF3ONS	N/A	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	9677961.93	25.000	11Cl-PF3OUdS	N/A	0.006	✓

PFAS Sample Quant Report

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Printed: 17/09/2021 8:02:29 AM

Sample Name	DE995PB-FS(0)	Injection Vial	53
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 7:17:46 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	1486967.95	23.300	PFBS			
PFBS_2	298.9 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFBS	1486967.95	23.300	PFBS	N/A	0.334	✓
PFHxA_1	313.0 / 269.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	7731230.04	25.000	PFHxA			
PFHxA_2	313.0 / 119.0	N/A	N/A	N/A	N/A	True	13C5-PFHxA	7731230.04	25.000	PFHxA	N/A	0.073	✓
PFHpA_1	363.0 / 319.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	8826419.48	25.000	PFHpA			
PFHpA_2	363.0 / 169.0	N/A	N/A	N/A	N/A	True	13C4-PFHpA	8826419.48	25.000	PFHpA	N/A	0.017	✓
PFHxS_1	399.0 / 80.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	1433564.54	23.700	PFHxS			
PFHxS_2	399.0 / 99.0	N/A	N/A	N/A	N/A	True	13C3-PFHxS	1433564.54	23.700	PFHxS	N/A	0.286	✓
PFOA_1	413.0 / 369.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	PFOA			
PFOA_2	413.0 / 169.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	PFOA	N/A	0.073	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	8650502.79	25.000	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	8650502.79	25.000	PFNA	N/A	0.280	✓
PFOS_1	499.0 / 80.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	1390897.85	23.950	PFOS			
PFOS_2	499.0 / 99.0	N/A	N/A	N/A	N/A	True	13C8-PFOS	1390897.85	23.950	PFOS	N/A	0.192	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	9066989.54	25.000	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	9066989.54	25.000	PFDA	N/A	0.046	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	10282120.43	25.000	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	10282120.43	25.000	PFUnA	N/A	0.057	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	10132932.10	25.000	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	10132932.10	25.000	PFDoA	N/A	0.165	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	11116815.84	25.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	11116815.84	25.000	PFTrDA	N/A	0.072	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	11116815.84	25.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	11116815.84	25.000	PFTeDA	N/A	0.059	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	2371515.87	25.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	2371515.87	25.000	NMeFOSAA	N/A	0.693	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	2560014.87	25.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	2560014.87	25.000	NEtFOSAA	N/A	0.067	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	5733972.70	25.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	5733972.70	25.000	HFPO-DA	N/A	0.026	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	9Cl-PF3ONS	N/A	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	8246385.69	25.000	11Cl-PF3OUdS	N/A	0.006	✓

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PFAS Sample Quant Report

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Printed: 17/09/2021 8:02:29 AM

Sample Name	DE996LCS-FS(0)	Injection Vial	54
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 7:30:38 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.71	3968808.62	22.597	12570.0	False	13C3-PFBS	1541281.65	23.300	PFBS			
PFBS_2	298.9 / 99.0	1.71	1351947.69	22.824	7016.8	False	13C3-PFBS	1541281.65	23.300	PFBS	0.341	0.334	✓
PFHxA_1	313.0 / 269.0	2.03	6953539.45	20.237	4427.9	False	13C5-PFHxA	7652929.26	25.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.03	520284.86	21.317	3054.6	False	13C5-PFHxA	7652929.26	25.000	PFHxA	0.075	0.073	✓
PFHpA_1	363.0 / 319.0	2.41	7630852.60	23.930	3096.4	False	13C4-PFHpA	8694275.98	25.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.41	147273.36	25.160	3972.9	False	13C4-PFHpA	8694275.98	25.000	PFHpA	0.019	0.017	✓
PFHxS_1	399.0 / 80.0	2.42	5228064.11	22.860	8576.4	False	13C3-PFHxS	1535563.81	23.700	PFHxS			
PFHxS_2	399.0 / 99.0	2.42	1503550.52	22.436	5329.6	False	13C3-PFHxS	1535563.81	23.700	PFHxS	0.288	0.286	✓
PFOA_1	413.0 / 369.0	2.80	7876264.70	20.481	2374.6	False	13C8-PFOA	9179859.98	25.000	PFOA			
PFOA_2	413.0 / 169.0	2.80	500792.61	19.266	1256.3	False	13C8-PFOA	9179859.98	25.000	PFOA	0.064	0.073	✓
PFNA_1	463.0 / 419.0	3.20	7547928.39	23.675	5728.1	False	13C9-PFNA	8372835.10	25.000	PFNA			
PFNA_2	463.0 / 219.0	3.20	2054653.02	25.663	7509.1	False	13C9-PFNA	8372835.10	25.000	PFNA	0.272	0.280	✓
PFOS_1	499.0 / 80.0	3.19	5788532.32	26.658	5407.0	False	13C8-PFOS	1358875.06	23.950	PFOS			
PFOS_2	499.0 / 99.0	3.19	1186287.91	29.369	25975.0	False	13C8-PFOS	1358875.06	23.950	PFOS	0.205	0.192	✓
PFDA_1	513.0 / 469.0	3.57	7999295.96	22.035	3665.6	False	13C6-PFDA	9338850.14	25.000	PFDA			
PFDA_2	513.0 / 219.0	3.56	313831.13	18.990	4821.4	False	13C6-PFDA	9338850.14	25.000	PFDA	0.039	0.046	✓
PFUnA_1	563.0 / 519.0	3.90	8677737.30	21.971	3874.1	False	13C7-PFUnA	10679269.43	25.000	PFUnA			
PFUnA_2	563.0 / 269.0	3.90	462617.62	22.208	4694.4	False	13C7-PFUnA	10679269.43	25.000	PFUnA	0.053	0.057	✓
PFDoA_1	613.0 / 569.0	4.20	8935131.98	24.532	3872.2	False	13C2-PFDoA	10376113.00	25.000	PFDoA			
PFDoA_2	613.0 / 319.0	4.20	1322764.74	22.635	5239.4	False	13C2-PFDoA	10376113.00	25.000	PFDoA	0.148	0.165	✓
PFTrDA_1	663.0 / 619.0	4.47	9150404.09	21.439	5068.5	False	13C2-PFTeDA	11466518.98	25.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	4.46	677705.09	21.957	3998.2	False	13C2-PFTeDA	11466518.98	25.000	PFTrDA	0.074	0.072	✓
PFTeDA_1	713.0 / 669.0	4.70	9108072.63	20.065	4126.5	False	13C2-PFTeDA	11466518.98	25.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	4.69	515010.01	20.115	3646.2	False	13C2-PFTeDA	11466518.98	25.000	PFTeDA	0.057	0.059	✓
NMeFOSAA_1	570.0 / 419.0	3.73	1800424.16	23.503	42968.5	False	d3-MeFOSAA	2481851.76	25.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	3.73	1236311.75	23.457	8920.1	False	d3-MeFOSAA	2481851.76	25.000	NMeFOSAA	0.687	0.693	✓
NEtFOSAA_1	584.0 / 419.0	3.91	1575444.93	22.078	39455.7	False	d5-EtFOSAA	2439506.86	25.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	3.91	87109.02	20.599	4791.6	False	d5-EtFOSAA	2439506.86	25.000	NEtFOSAA	0.055	0.067	✓
HFPO-DA_1	285.0 / 169.0	2.13	4629314.13	20.420	14602.3	False	13C3-HFPO-DA	5450045.49	25.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	2.14	111404.21	19.623	82381.0	False	13C3-HFPO-DA	5450045.49	25.000	HFPO-DA	0.024	0.026	✓
ADONA_1	377.0 / 251.0	2.44	14928970.97	22.334	13402.1	False	13C8-PFOA	9179859.98	25.000	ADONA			
ADONA_2	377.0 / 85.0	2.44	187364.00	23.120	906725.0	False	13C8-PFOA	9179859.98	25.000	ADONA	0.013	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	3.39	11019316.94	19.645	9065.8	False	13C8-PFOA	9179859.98	25.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	3.39	102254.05	19.219	1350.4	False	13C8-PFOA	9179859.98	25.000	9Cl-PF3ONS	0.009	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	4.04	9740309.96	21.798	17045.5	False	13C8-PFOA	9179859.98	25.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	4.04	48597.33	20.128	39452.1	False	13C8-PFOA	9179859.98	25.000	11Cl-PF3OUdS	0.005	0.006	✓

PFAS Sample Quant Report

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Sample Name	F2481-FS(0)	**Injection Vial**	1
Sample ID	POL-MW0011I-027.5-20210826	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:43:32 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.81	95558.39	0.777	186.9	True	13C3-PFBS	1186787.65	23.300	PFBS			
PFBS_2	298.9 / 99.0	1.81	36363.70	0.896	240.1	False	13C3-PFBS	1186787.65	23.300	PFBS	0.381	0.334	✓
PFHxA_1	313.0 / 269.0	2.14	1472463.94	5.340	442.2	True	13C5-PFHxA	6261140.34	25.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.14	81904.73	4.242	373.3	False	13C5-PFHxA	6261140.34	25.000	PFHxA	0.056	0.073	✓
PFHpA_1	363.0 / 319.0	2.52	1233877.95	4.132	334.6	False	13C4-PFHpA	7575024.66	25.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.53	19683.82	3.941	196.5	False	13C4-PFHpA	7575024.66	25.000	PFHpA	0.016	0.017	✓
PFHxS_1	399.0 / 80.0	2.54	4825660.38	27.892	1752.9	False	13C3-PFHxS	1161416.54	23.700	PFHxS			
PFHxS_2	399.0 / 99.0	2.54	1425907.27	28.105	1351.7	False	13C3-PFHxS	1161416.54	23.700	PFHxS	0.296	0.286	✓
PFOA_1	413.0 / 369.0	2.92	2071673.45	7.698	458.9	False	13C8-PFOA	6641361.54	25.000	PFOA			
PFOA_2	413.0 / 169.0	2.92	131492.74	7.196	236.7	True	13C8-PFOA	6641361.54	25.000	PFOA	0.064	0.073	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	5115035.72	25.000	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	5115035.72	25.000	PFNA	N/A	0.280	✓
PFOS_1	499.0 / 80.0	3.10	503078.19	4.752	252.8	True	13C8-PFOS	654540.62	23.950	PFOS			
PFOS_2	499.0 / 99.0	3.17	49009.31	2.367	108.0	False	13C8-PFOS	654540.62	23.950	PFOS	0.097	0.192	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	4335439.72	25.000	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	4335439.72	25.000	PFDA	N/A	0.046	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	2357665.94	25.000	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	2357665.94	25.000	PFUnA	N/A	0.057	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1354720.76	25.000	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	1354720.76	25.000	PFDoA	N/A	0.165	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1058769.69	25.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1058769.69	25.000	PFTrDA	N/A	0.072	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1058769.69	25.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	1058769.69	25.000	PFTeDA	N/A	0.059	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	319384.23	25.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	319384.23	25.000	NMeFOSAA	N/A	0.693	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	270867.50	25.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	270867.50	25.000	NEtFOSAA	N/A	0.067	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	4581336.30	25.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	4581336.30	25.000	HFPO-DA	N/A	0.026	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6641361.54	25.000	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6641361.54	25.000	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6641361.54	25.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6641361.54	25.000	9Cl-PF3ONS	N/A	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6641361.54	25.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6641361.54	25.000	11Cl-PF3OUdS	N/A	0.006	✓

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PFAS Sample Quant Report

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Sample Name	F2482-FS(0)	Injection Vial	3
Sample ID	POL-MW0011S-012.5-20210826	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 8:09:21 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
PFBS_1	298.9 / 80.0	1.82	157246.24	1.301	590.3	False	13C3-PFBS	1119376.24	23.300	PFBS			
PFBS_2	298.9 / 99.0	1.81	42518.68	1.086	365.6	False	13C3-PFBS	1119376.24	23.300	PFBS	0.270	0.334	✓
PFHxA_1	313.0 / 269.0	2.14	286978.16	1.278	93.7	True	13C5-PFHxA	6084647.29	25.000	PFHxA			
PFHxA_2	313.0 / 119.0	2.14	27214.62	1.609	92.5	False	13C5-PFHxA	6084647.29	25.000	PFHxA	0.095	0.073	✓
PFHpA_1	363.0 / 319.0	2.53	434244.95	1.111	149.6	False	13C4-PFHpA	8063837.98	25.000	PFHpA			
PFHpA_2	363.0 / 169.0	2.54	9293.11	1.801	84.3	False	13C4-PFHpA	8063837.98	25.000	PFHpA	0.021	0.017	✓
PFHxS_1	399.0 / 80.0	2.54	5443159.59	28.891	2342.1	False	13C3-PFHxS	1264684.53	23.700	PFHxS			
PFHxS_2	399.0 / 99.0	2.54	1550042.88	28.057	1266.5	False	13C3-PFHxS	1264684.53	23.700	PFHxS	0.285	0.286	✓
PFOA_1	413.0 / 369.0	2.93	1823331.31	6.673	352.0	False	13C8-PFOA	6818744.96	25.000	PFOA			
PFOA_2	413.0 / 169.0	2.93	111881.35	6.027	123.6	True	13C8-PFOA	6818744.96	25.000	PFOA	0.061	0.073	✓
PFNA_1	463.0 / 419.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	6211468.84	25.000	PFNA			
PFNA_2	463.0 / 219.0	N/A	N/A	N/A	N/A	True	13C9-PFNA	6211468.84	25.000	PFNA	N/A	0.280	✓
PFOS_1	499.0 / 80.0	3.24	2952654.92	20.361	886.5	False	13C8-PFOS	906768.88	23.950	PFOS			
PFOS_2	499.0 / 99.0	3.31	403422.16	14.886	715.4	False	13C8-PFOS	906768.88	23.950	PFOS	0.137	0.192	✓
PFDA_1	513.0 / 469.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	6567603.57	25.000	PFDA			
PFDA_2	513.0 / 219.0	N/A	N/A	N/A	N/A	True	13C6-PFDA	6567603.57	25.000	PFDA	N/A	0.046	✓
PFUnA_1	563.0 / 519.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	5436980.46	25.000	PFUnA			
PFUnA_2	563.0 / 269.0	N/A	N/A	N/A	N/A	True	13C7-PFUnA	5436980.46	25.000	PFUnA	N/A	0.057	✓
PFDoA_1	613.0 / 569.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	3156522.48	25.000	PFDoA			
PFDoA_2	613.0 / 319.0	N/A	N/A	N/A	N/A	True	13C2-PFDoA	3156522.48	25.000	PFDoA	N/A	0.165	✓
PFTrDA_1	663.0 / 619.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	2958180.89	25.000	PFTrDA			
PFTrDA_2	663.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	2958180.89	25.000	PFTrDA	N/A	0.072	✓
PFTeDA_1	713.0 / 669.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	2958180.89	25.000	PFTeDA			
PFTeDA_2	713.0 / 169.0	N/A	N/A	N/A	N/A	True	13C2-PFTeDA	2958180.89	25.000	PFTeDA	N/A	0.059	✓
NMeFOSAA_1	570.0 / 419.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	740113.75	25.000	NMeFOSAA			
NMeFOSAA_2	570.0 / 512.0	N/A	N/A	N/A	N/A	True	d3-MeFOSAA	740113.75	25.000	NMeFOSAA	N/A	0.693	✓
NEtFOSAA_1	584.0 / 419.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	639747.32	25.000	NEtFOSAA			
NEtFOSAA_2	584.0 / 483.0	N/A	N/A	N/A	N/A	True	d5-EtFOSAA	639747.32	25.000	NEtFOSAA	N/A	0.067	✓
HFPO-DA_1	285.0 / 169.0	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	4607913.17	25.000	HFPO-DA			
HFPO-DA_2	285.0 / 118.8	N/A	N/A	N/A	N/A	True	13C3-HFPO-DA	4607913.17	25.000	HFPO-DA	N/A	0.026	✓
ADONA_1	377.0 / 251.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6818744.96	25.000	ADONA			
ADONA_2	377.0 / 85.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6818744.96	25.000	ADONA	N/A	0.013	✓
9Cl-PF3ONS_1	531.0 / 351.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6818744.96	25.000	9Cl-PF3ONS			
9Cl-PF3ONS_2	531.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6818744.96	25.000	9Cl-PF3ONS	N/A	0.009	✓
11Cl-PF3OUdS_1	631.0 / 451.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6818744.96	25.000	11Cl-PF3OUdS			
11Cl-pf3OUdS_2	631.0 / 83.0	N/A	N/A	N/A	N/A	True	13C8-PFOA	6818744.96	25.000	11Cl-PF3OUdS	N/A	0.006	✓

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PFAS Sample Quant Report

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Printed: 17/09/2021 8:02:28 AM

Sample Name	LM24 IB	Injection Vial	11
Sample ID	IB	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:29:49 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.29	11448101.13	20.081	12530.2	False	13C2-PFDA	11544594.21	25.000				
d3-MeFOSAA	573.0 / 419.0	3.81	2672010.42	21.017	6264.2	False	13C4-PFOS	1574729.85	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.98	3196337.61	22.786	10607.5	False	13C2-PFDA	11544594.21	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.08	8142151.22	21.854	10238.9	False	13C2-PFOA	11127625.72	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.46	9116264.45	21.516	8293.2	False	13C2-PFOA	11127625.72	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.85	9677961.93	22.885	8077.4	False	13C2-PFOA	11127625.72	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.25	8851925.63	21.212	11384.7	False	13C2-PFOA	11127625.72	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.63	10890532.25	23.195	10953.7	False	13C2-PFDA	11544594.21	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.97	11330145.08	20.749	10377.3	False	13C2-PFDA	11544594.21	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.81	13173348.85	21.286	19401.5	False	13C2-PFDA	11544594.21	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.75	1608173.98	20.976	25870.1	False	13C4-PFOS	1574729.85	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.47	1573220.24	21.921	16240.1	False	13C4-PFOS	1574729.85	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.24	1424621.69	21.731	15932.3	False	13C4-PFOS	1574729.85	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.19	5734420.98	21.167	11879.5	False	13C2-PFOA	11127625.72	25.000		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	DE995PB-FS(0)	Injection Vial	53
Sample ID	Procedural Blank	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 7:17:46 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.21	10132932.10	26.652	13844.7	False	13C2-PFDA	7698877.45	25.000				
d3-MeFOSAA	573.0 / 419.0	3.74	2371515.87	24.050	10598.2	False	13C4-PFOS	1221395.72	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.91	2560014.87	27.366	11784.2	False	13C2-PFDA	7698877.45	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.03	7731230.04	26.937	11335.6	False	13C2-PFOA	8571957.61	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.40	8826419.48	27.043	8199.6	False	13C2-PFOA	8571957.61	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.79	8246385.69	25.314	7669.7	False	13C2-PFOA	8571957.61	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.19	8650502.79	26.910	9637.4	False	13C2-PFOA	8571957.61	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.56	9066989.54	28.958	10421.4	False	13C2-PFDA	7698877.45	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.90	10282120.43	28.235	11071.4	False	13C2-PFDA	7698877.45	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.71	11116815.84	26.936	19388.8	False	13C2-PFDA	7698877.45	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.71	1486967.95	25.006	20830.5	False	13C4-PFOS	1221395.72	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.42	1433564.54	25.754	39028.3	False	13C4-PFOS	1221395.72	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.18	1390897.85	27.355	11155.9	False	13C4-PFOS	1221395.72	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.14	5733972.70	27.476	13306.2	False	13C2-PFOA	8571957.61	25.000		N/A	N/A	✓

PFAS Sample Quant Report

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Printed: 17/09/2021 8:02:28 AM

Sample Name	DE996LCS-FS(0)	**Injection Vial**	54
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:30:38 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.20	10376113.00	24.318	14526.3	False	13C2-PFDA	8640367.75	25.000				
d3-MeFOSAA	573.0 / 419.0	3.73	2481851.76	25.710	6428.5	False	13C4-PFOS	1195677.01	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	3.90	2439506.86	23.236	7505.4	False	13C2-PFDA	8640367.75	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.02	7652929.26	24.993	8011.4	False	13C2-PFOA	9145059.14	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.40	8694275.98	24.969	7339.6	False	13C2-PFOA	9145059.14	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.79	9179859.98	26.413	6732.3	False	13C2-PFOA	9145059.14	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.18	8372835.10	24.414	9754.5	False	13C2-PFOA	9145059.14	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.56	9338850.14	26.576	10878.3	False	13C2-PFDA	8640367.75	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	3.89	10679269.43	26.130	11950.8	False	13C2-PFDA	8640367.75	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.69	11466518.98	24.756	13655.1	False	13C2-PFDA	8640367.75	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.70	1541281.65	26.477	25659.5	False	13C4-PFOS	1195677.01	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.41	1535563.81	28.179	28590.4	False	13C4-PFOS	1195677.01	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.18	1358875.06	27.300	14177.5	False	13C4-PFOS	1195677.01	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.13	5450045.49	24.479	12316.4	False	13C2-PFOA	9145059.14	25.000		N/A	N/A	✓

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PFAS Sample Quant Report

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Sample Name	F2481-FS(0)	Injection Vial	1
Sample ID	POL-MW0011I-027.5-20210826	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 7:43:32 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.32	1354720.76	2.763	1856.8	False	13C2-PFDA	9928816.69	25.000				
d3-MeFOSAA	573.0 / 419.0	3.85	319384.23	3.223	1468.3	False	13C4-PFOS	1227369.85	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	4.02	270867.50	2.245	1195.4	False	13C2-PFDA	9928816.69	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.13	6261140.34	22.052	3835.6	False	13C2-PFOA	8479832.47	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.51	7575024.66	23.461	5510.6	False	13C2-PFOA	8479832.47	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.91	6641361.54	20.608	4473.4	False	13C2-PFOA	8479832.47	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.30	5115035.72	16.085	3585.1	False	13C2-PFOA	8479832.47	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.67	4335439.72	10.737	3327.3	False	13C2-PFDA	9928816.69	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	4.01	2357665.94	5.020	3334.2	False	13C2-PFDA	9928816.69	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.83	1058769.69	1.989	1834.1	False	13C2-PFDA	9928816.69	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.80	1186787.65	19.861	7247.4	False	13C4-PFOS	1227369.85	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.53	1161416.54	20.763	4571.5	False	13C4-PFOS	1227369.85	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.29	654540.62	12.810	2926.2	False	13C4-PFOS	1227369.85	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.24	4581336.30	22.191	6071.8	False	13C2-PFOA	8479832.47	25.000		N/A	N/A	✓

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PFAS Sample Quant Report

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Printed: 17/09/2021 8:02:28 AM

Sample Name	F2482-FS(0)	Injection Vial	3
Sample ID	POL-MW0011S-012.5-20210826	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 8:09:21 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

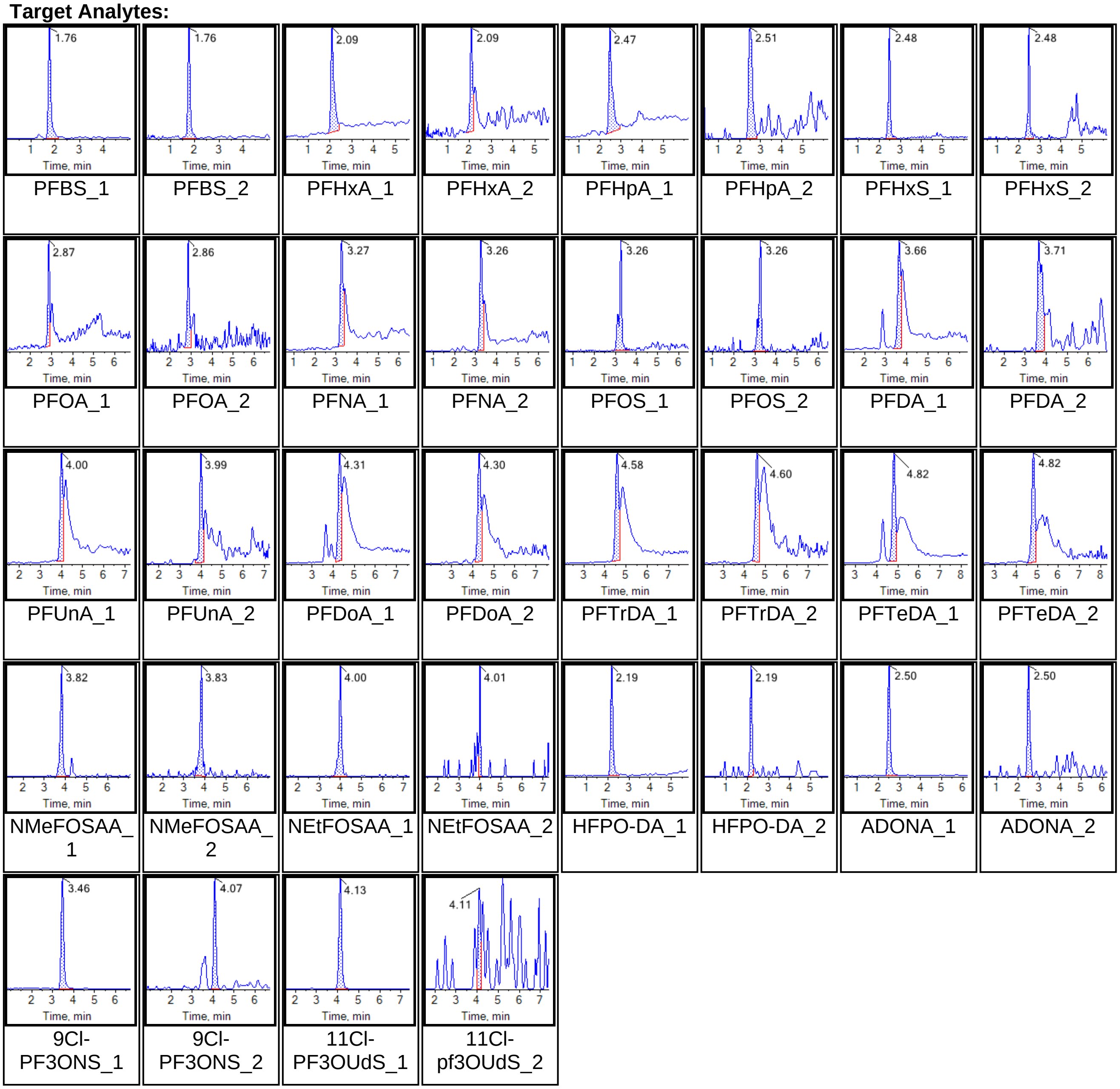
Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.33	3156522.48	6.248	3181.6	False	13C2-PFDA	10230077.65	25.000				
d3-MeFOSAA	573.0 / 419.0	3.86	740113.75	6.924	1774.5	False	13C4-PFOS	1324053.28	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	4.03	639747.32	5.147	2235.0	False	13C2-PFDA	10230077.65	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.13	6084647.29	21.333	5003.8	False	13C2-PFOA	8518634.27	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.52	8063837.98	24.861	4361.0	False	13C2-PFOA	8518634.27	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.92	6818744.96	21.063	4219.6	False	13C2-PFOA	8518634.27	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.31	6211468.84	19.444	5035.9	False	13C2-PFOA	8518634.27	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.68	6567603.57	15.785	3931.9	False	13C2-PFDA	10230077.65	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	4.02	5436980.46	11.236	3635.7	False	13C2-PFDA	10230077.65	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.84	2958180.89	5.394	4123.0	False	13C2-PFDA	10230077.65	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.80	1119376.24	17.365	7821.1	False	13C4-PFOS	1324053.28	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.53	1264684.53	20.958	4734.4	False	13C4-PFOS	1324053.28	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.30	906768.88	16.451	2563.3	False	13C4-PFOS	1324053.28	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.25	4607913.17	22.218	7873.3	False	13C2-PFOA	8518634.27	25.000		N/A	N/A	✓

Chromatograms

Sample Name	LL90	Injection Vial	3
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

Target Analytes:



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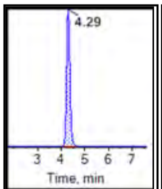
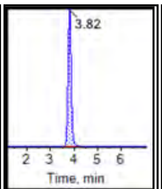


13C2-PFDoA



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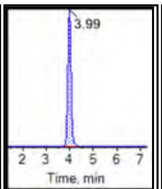
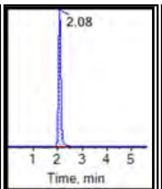
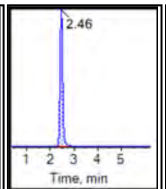


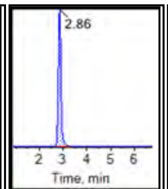
d5-EtFOSAA



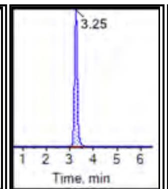
13C5-PFHxA



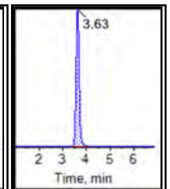
13C4-PFHpA



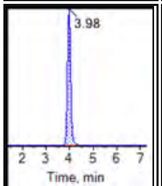
13C8-PFOA



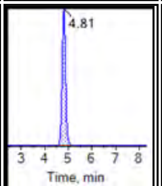
13C9-PFNA



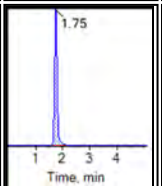
13C6-PFDA



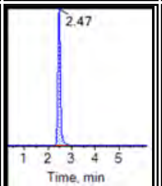
13C7-PFUnA



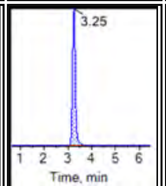
13C2-PFTeDA



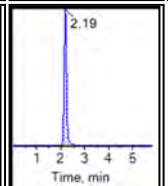
13C3-PFBS



13C3-PFHxS



13C8-PFOS

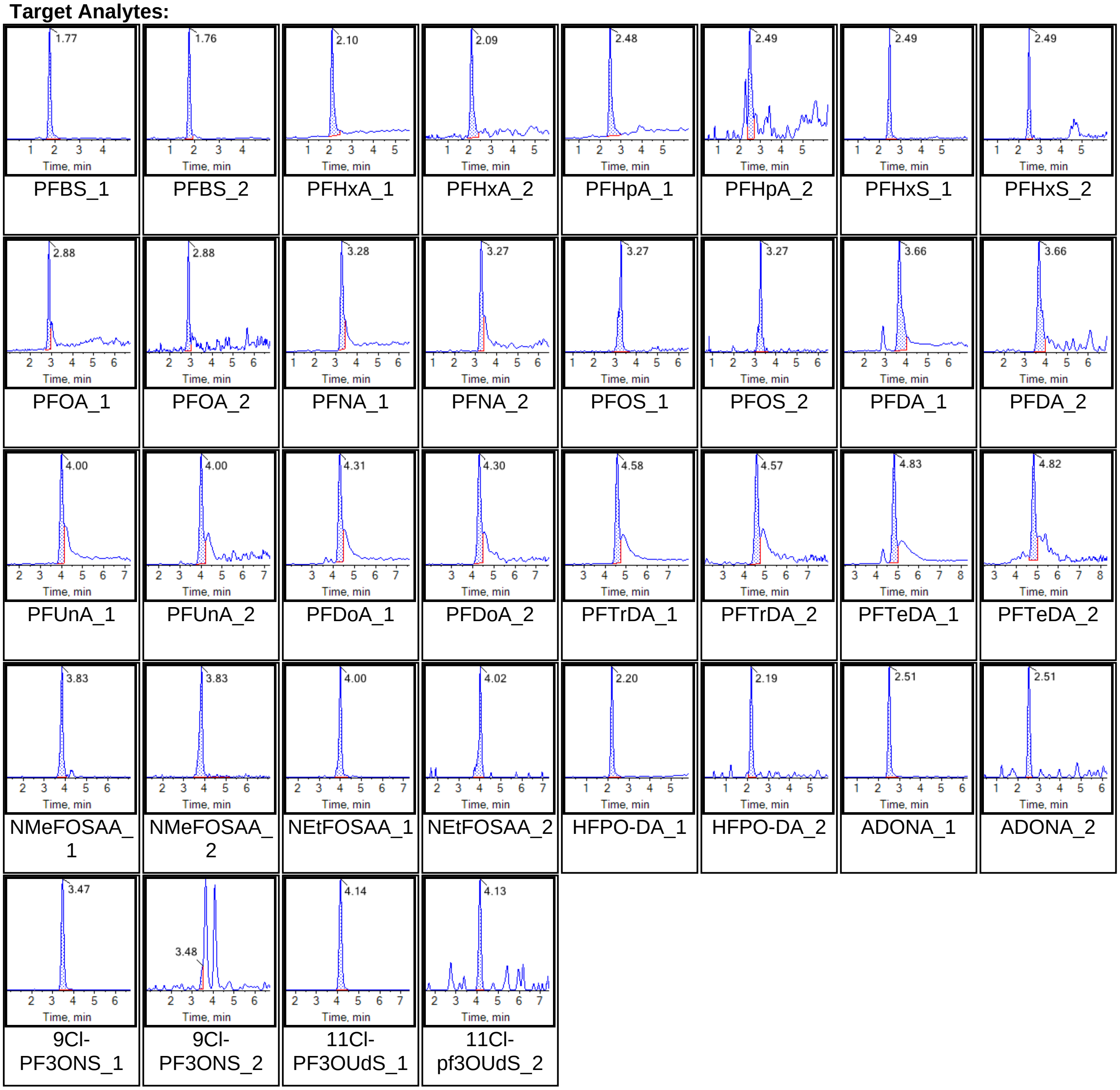


13C3-HFPO-DA

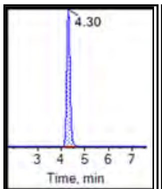
Sample Name	LM19	Injection Vial	4
Sample ID	L2	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:59:45 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

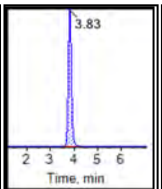
Target Analytes:



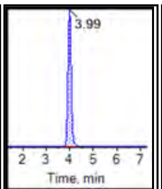
Internal Standards:



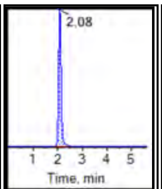
13C2-PFDoA



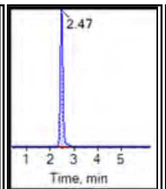
d3-MeFOSAA



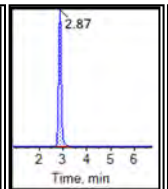
d5-EtFOSAA



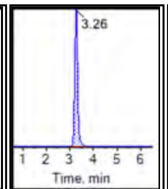
13C5-PFHxA



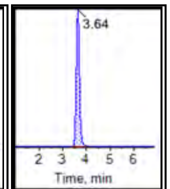
13C4-PFHpA



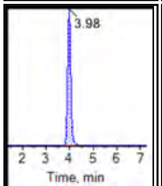
13C8-PFOA



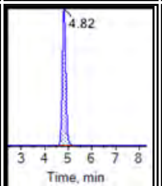
13C9-PFNA



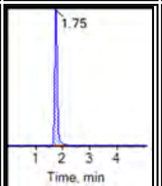
13C6-PFDA



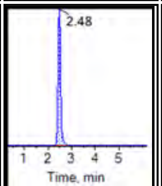
13C7-PFUnA



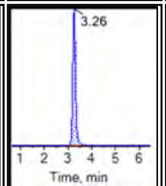
13C2-PFTeDA



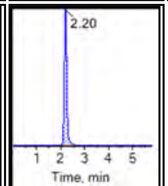
13C3-PFBS



13C3-PFHxS



13C8-PFOS

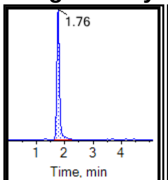


13C3-HFPO-DA

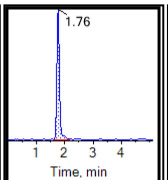
Sample Name	LL94	Injection Vial	5
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:12:37 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

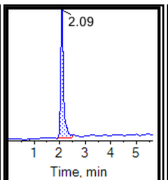
Target Analytes:



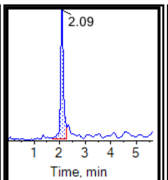
PFBS_1



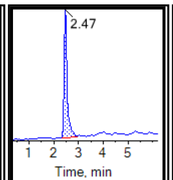
PFBS_2



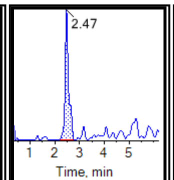
PFHxA_1



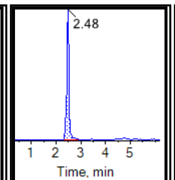
PFHxA_2



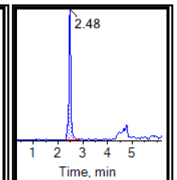
PFHpA_1



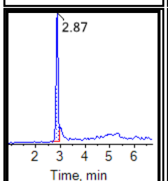
PFHpA_2



PFHxS_1



PFHxS_2



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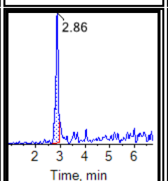

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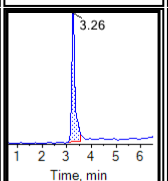
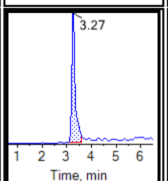
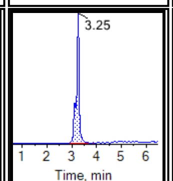


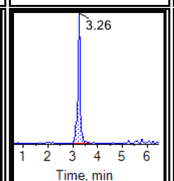
PFNA_1



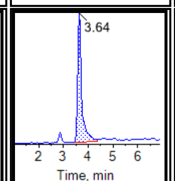
PFNA_2



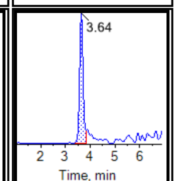
PFOS_1



PFOS_2



PFDA_1



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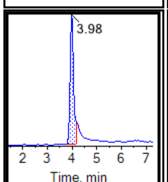
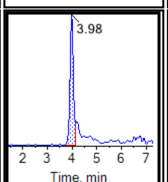
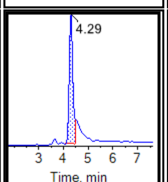


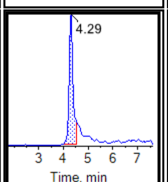
PFUnA_1



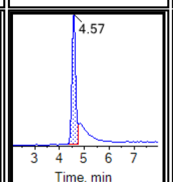
PFUnA_2



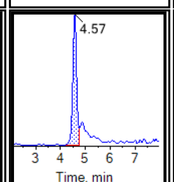
PFDoA_1



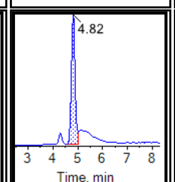
PFDoA_2



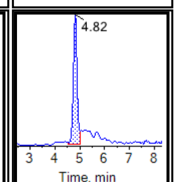
PFTrDA_1



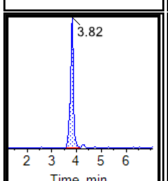
PFTrDA_2



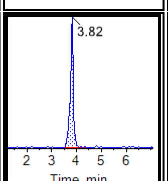
PFTeDA_1



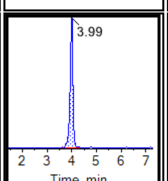
PFTeDA_2



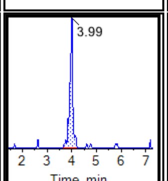
NMeFOSAA_1



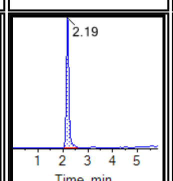
NMeFOSAA_2



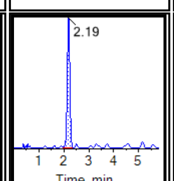
NEtFOSAA_1



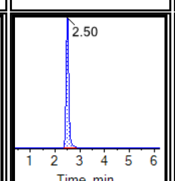
NEtFOSAA_2



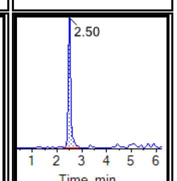
HFPO-DA_1



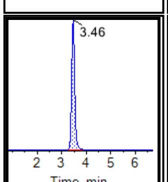
HFPO-DA_2



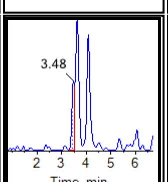
ADONA_1



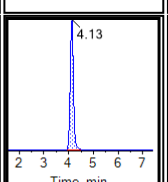
ADONA_2



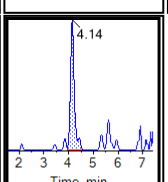
9Cl-PF3ONS_1



9Cl-PF3ONS_2

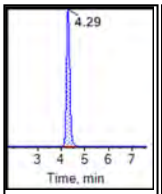


11Cl-PF3OUdS_1

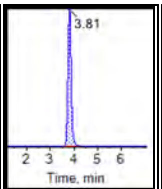


11Cl-pf3OUdS_2

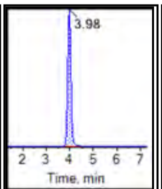
Internal Standards:



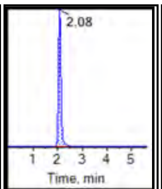
13C2-PFDoA



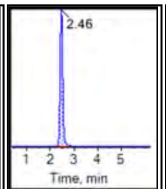
d3-MeFOSAA



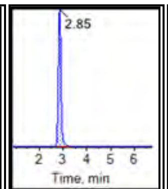
d5-EtFOSAA



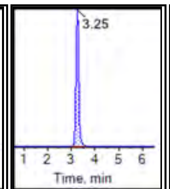
13C5-PFHxA



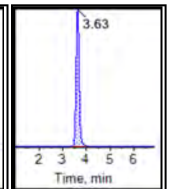
13C4-PFHpA



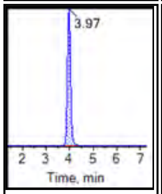
13C8-PFOA



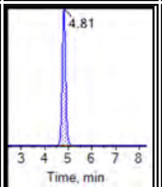
13C9-PFNA



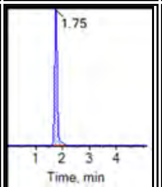
13C6-PFDA



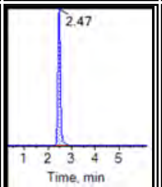
13C7-PFUnA



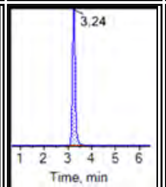
13C2-PFTeDA



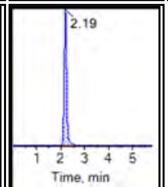
13C3-PFBS



13C3-PFHxS



13C8-PFOS

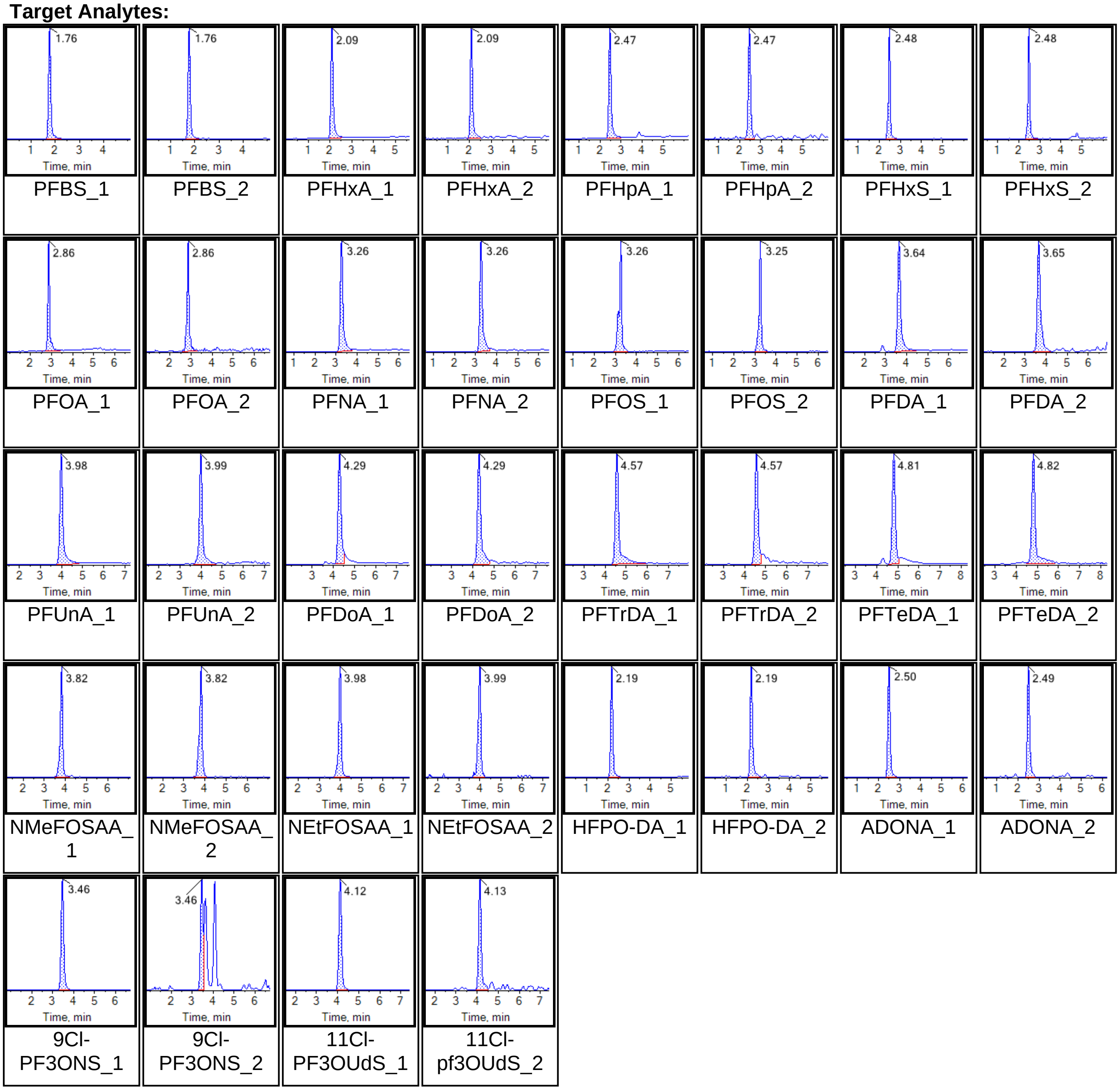


13C3-HFPO-DA

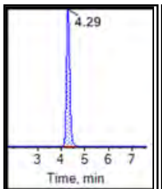
Sample Name	LM20	Injection Vial	6
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:25:29 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

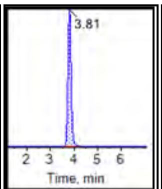
Target Analytes:



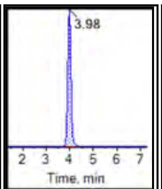
Internal Standards:



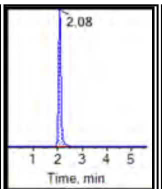
13C2-PFDoA



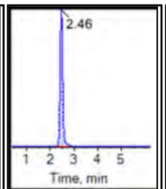
d3-MeFOSAA



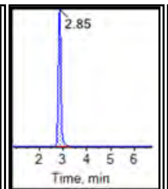
d5-EtFOSAA



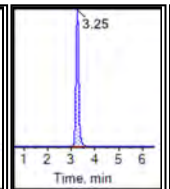
13C5-PFHxA



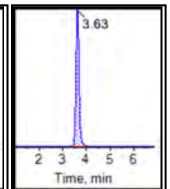
13C4-PFHpA



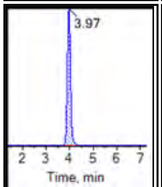
13C8-PFOA



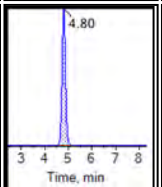
13C9-PFNA



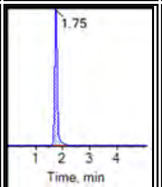
13C6-PFDA



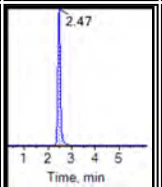
13C7-PFUnA



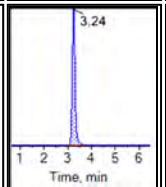
13C2-PFTeDA



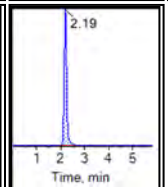
13C3-PFBS



13C3-PFHxS



13C8-PFOS

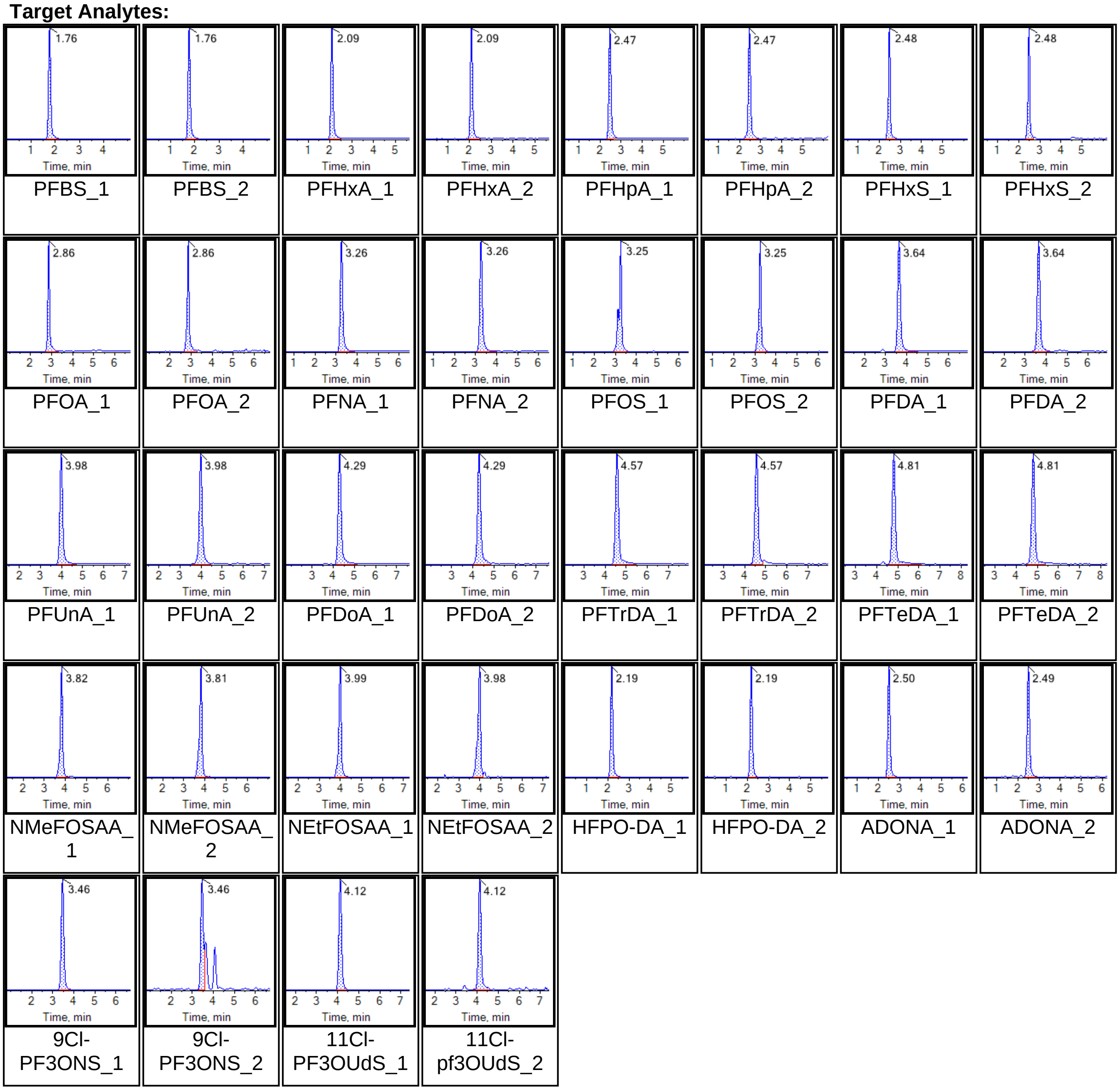


13C3-HFPO-DA

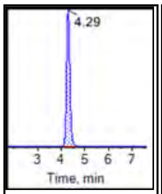
Sample Name	LM21	Injection Vial	7
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:38:21 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

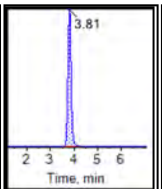
Target Analytes:



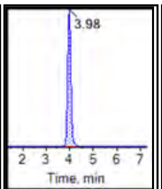
Internal Standards:



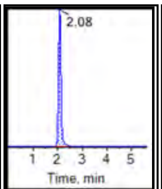
13C2-PFDoA



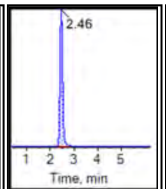
d3-MeFOSAA



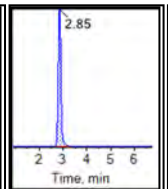
d5-EtFOSAA



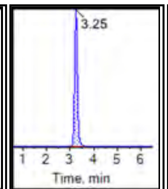
13C5-PFHxA



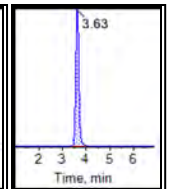
13C4-PFHpA



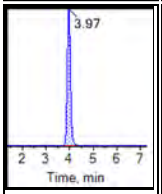
13C8-PFOA



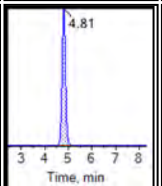
13C9-PFNA



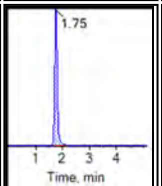
13C6-PFDA



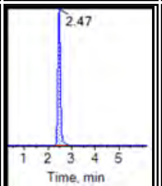
13C7-PFUnA



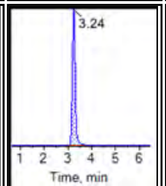
13C2-PFTeDA



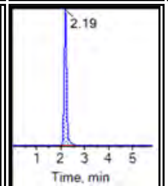
13C3-PFBS



13C3-PFHxS



13C8-PFOS

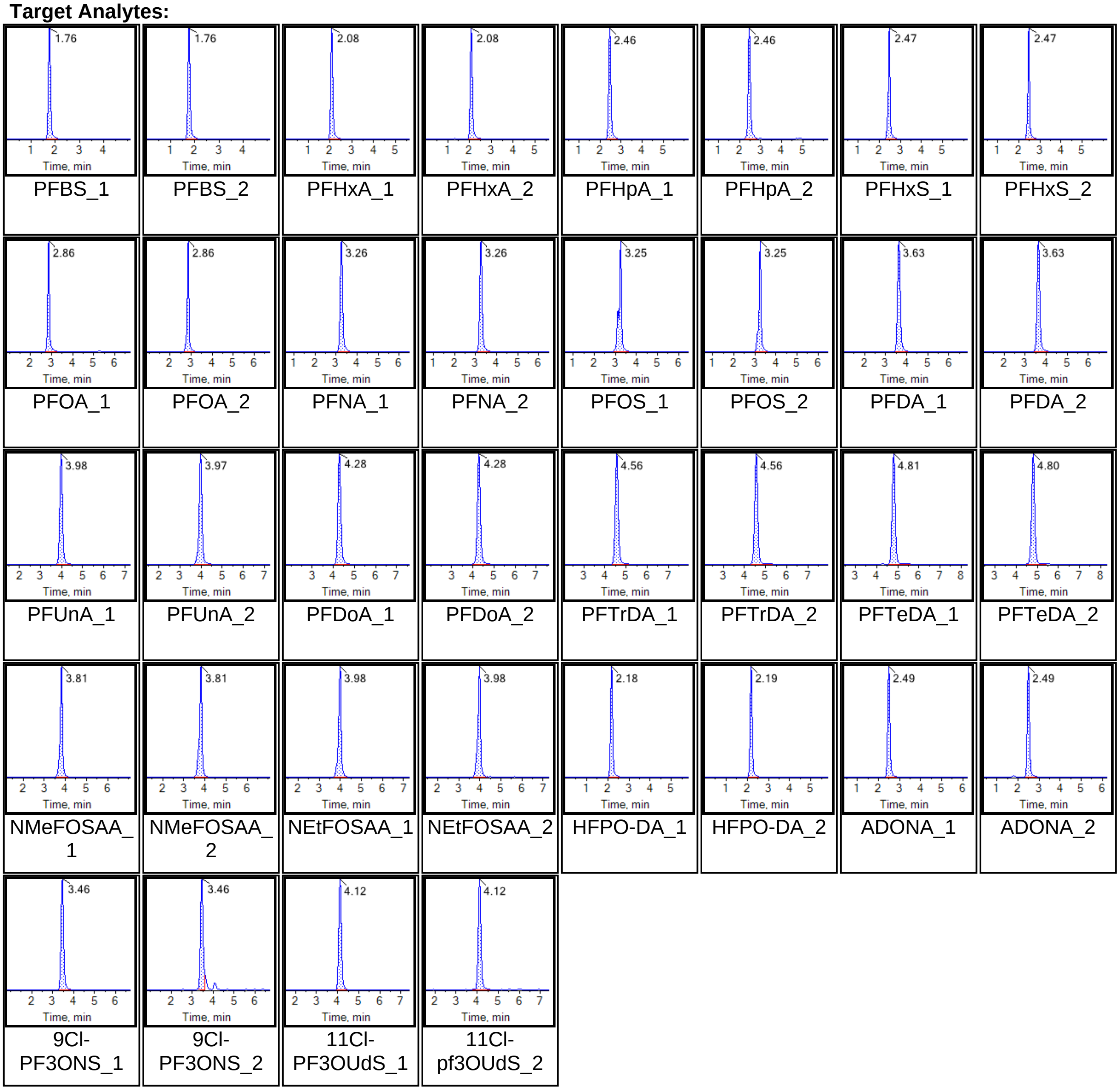


13C3-HFPO-DA

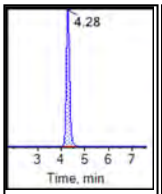
Sample Name	LL97	**Injection Vial**	8
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 9:51:13 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

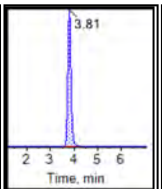
Target Analytes:



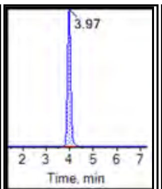
Internal Standards:



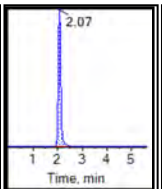
13C2-PFDoA



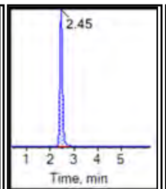
d3-MeFOSAA



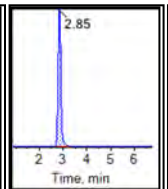
d5-EtFOSAA



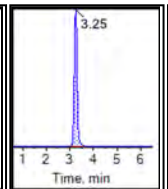
13C5-PFHxA



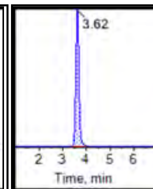
13C4-PFHpA



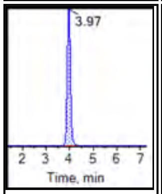
13C8-PFOA



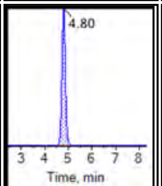
13C9-PFNA



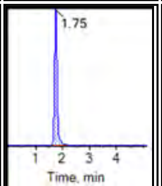
13C6-PFDA



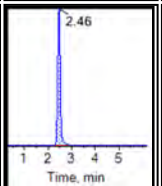
13C7-PFUnA



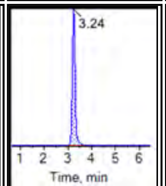
13C2-PFTeDA



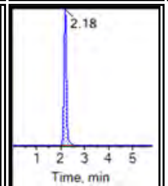
13C3-PFBS



13C3-PFHxS



13C8-PFOS

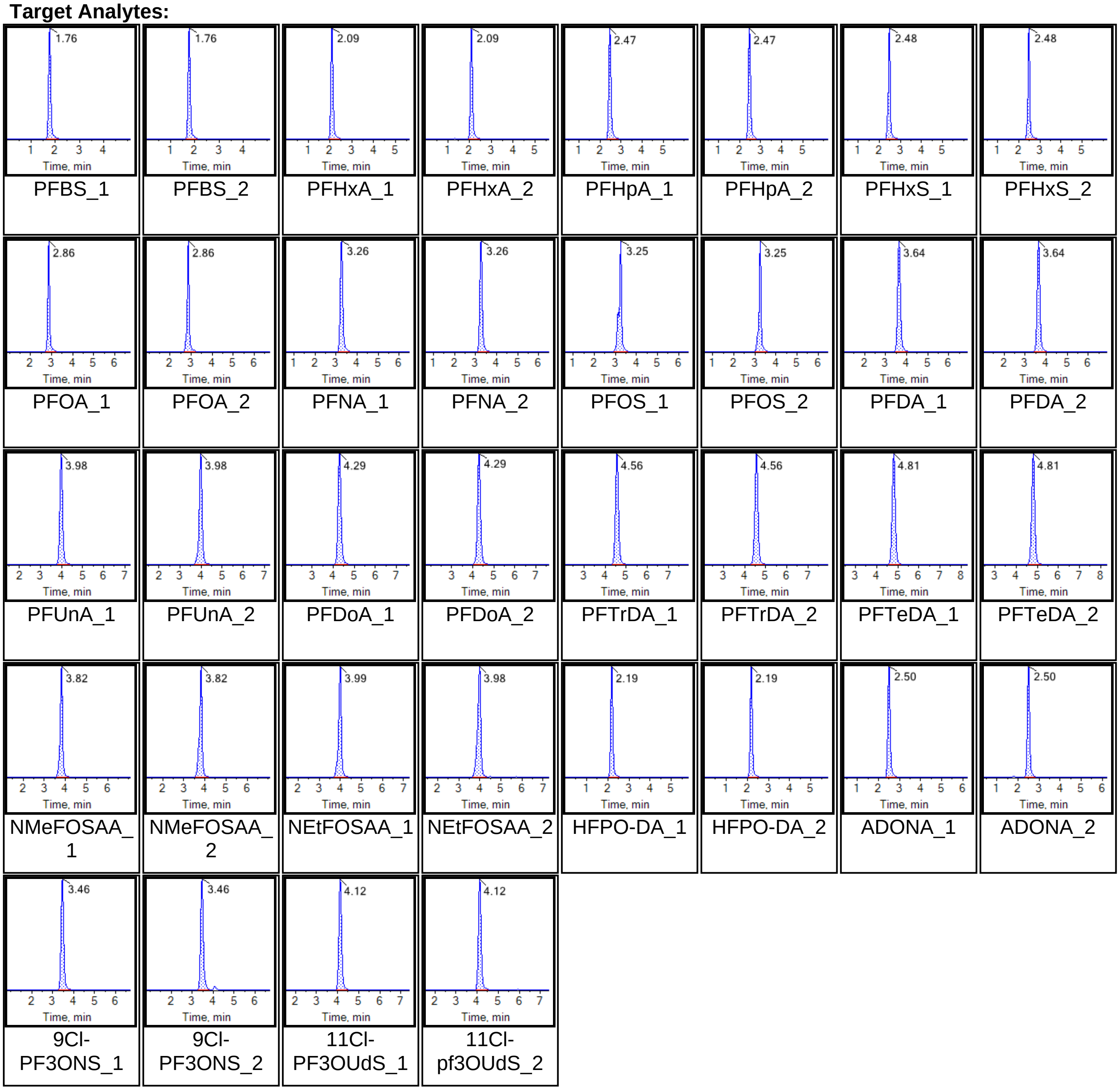


13C3-HFPO-DA

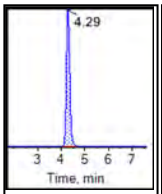
Sample Name	LL98	**Injection Vial**	9
Sample ID	L7	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 10:04:05 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

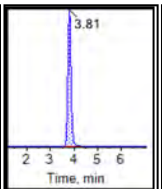
Target Analytes:



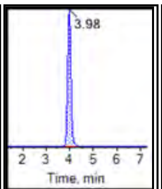
Internal Standards:



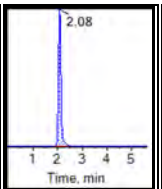
13C2-PFDoA



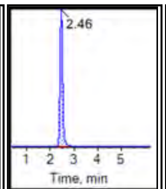
d3-MeFOSAA



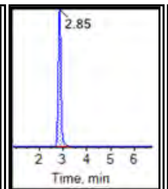
d5-EtFOSAA



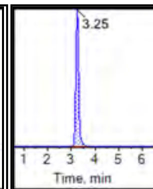
13C5-PFHxA



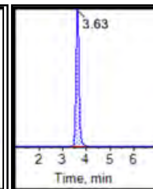
13C4-PFHpA



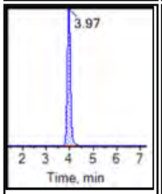
13C8-PFOA



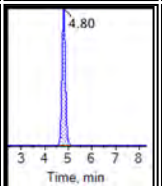
13C9-PFNA



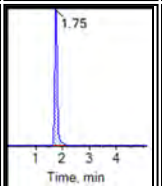
13C6-PFDA



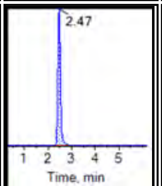
13C7-PFUnA



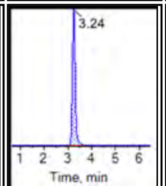
13C2-PFTeDA



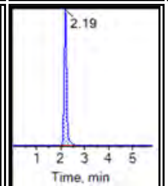
13C3-PFBS



13C3-PFHxS



13C8-PFOS

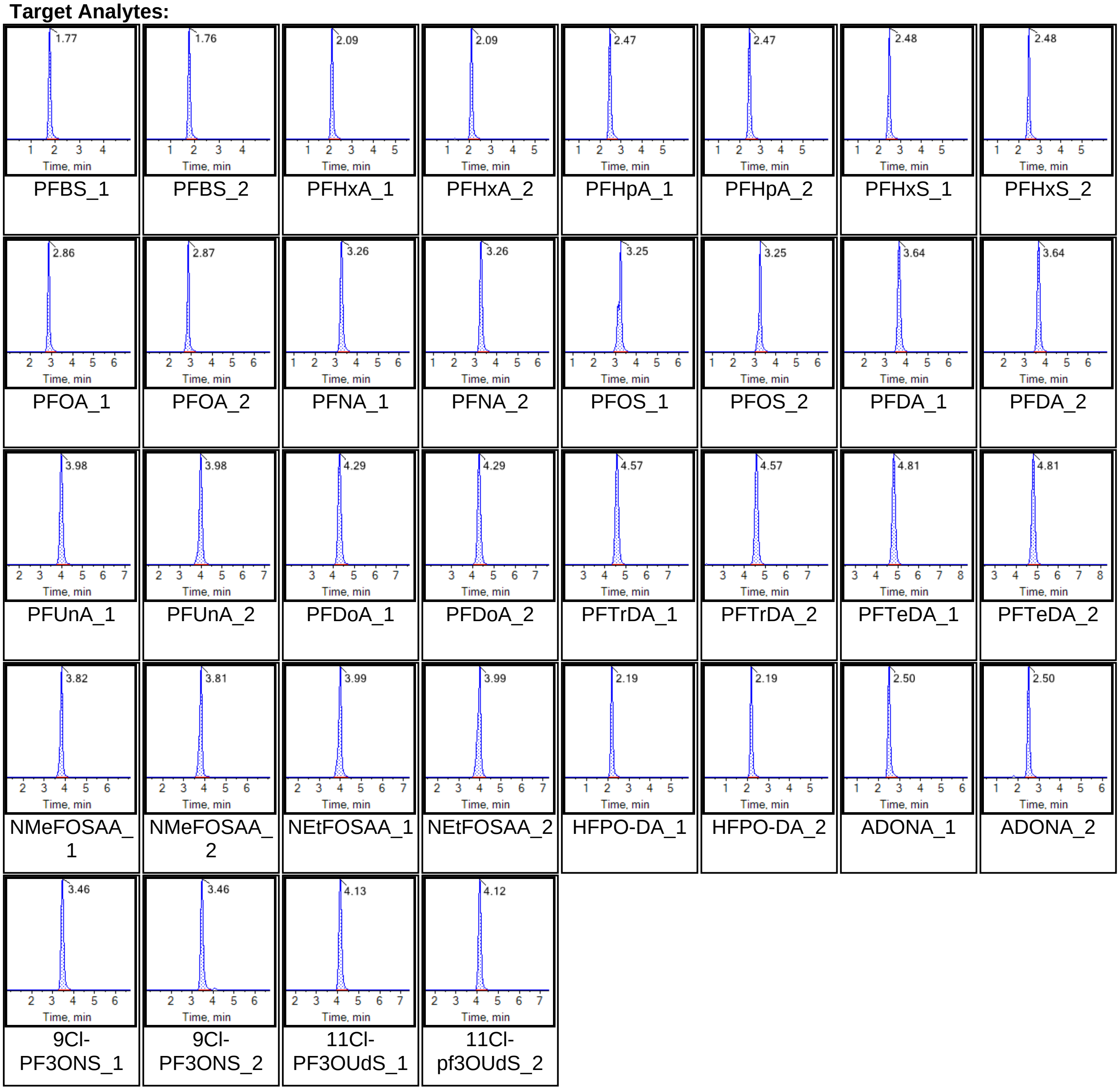


13C3-HFPO-DA

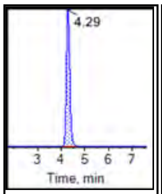
Sample Name	LM22	**Injection Vial**	10
Sample ID	L8	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 10:16:56 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

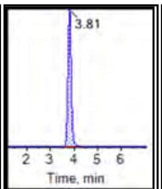
Target Analytes:



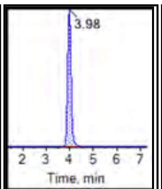
Internal Standards:



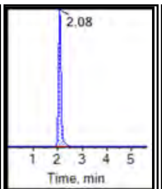
13C2-PFDoA



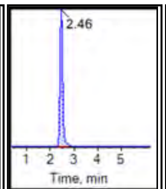
d3-MeFOSAA



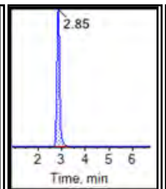
d5-EtFOSAA



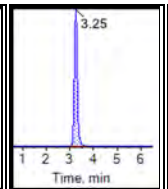
13C5-PFHxA



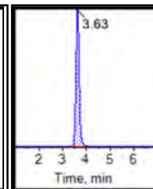
13C4-PFHpA



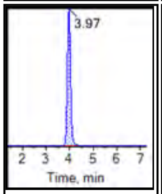
13C8-PFOA



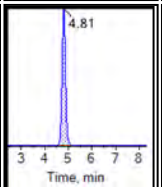
13C9-PFNA



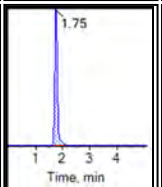
13C6-PFDA



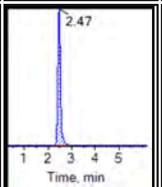
13C7-PFUnA



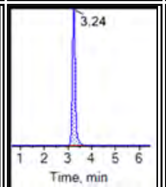
13C2-PFTeDA



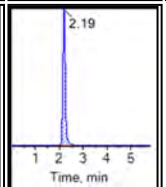
13C3-PFBS



13C3-PFHxS



13C8-PFOS

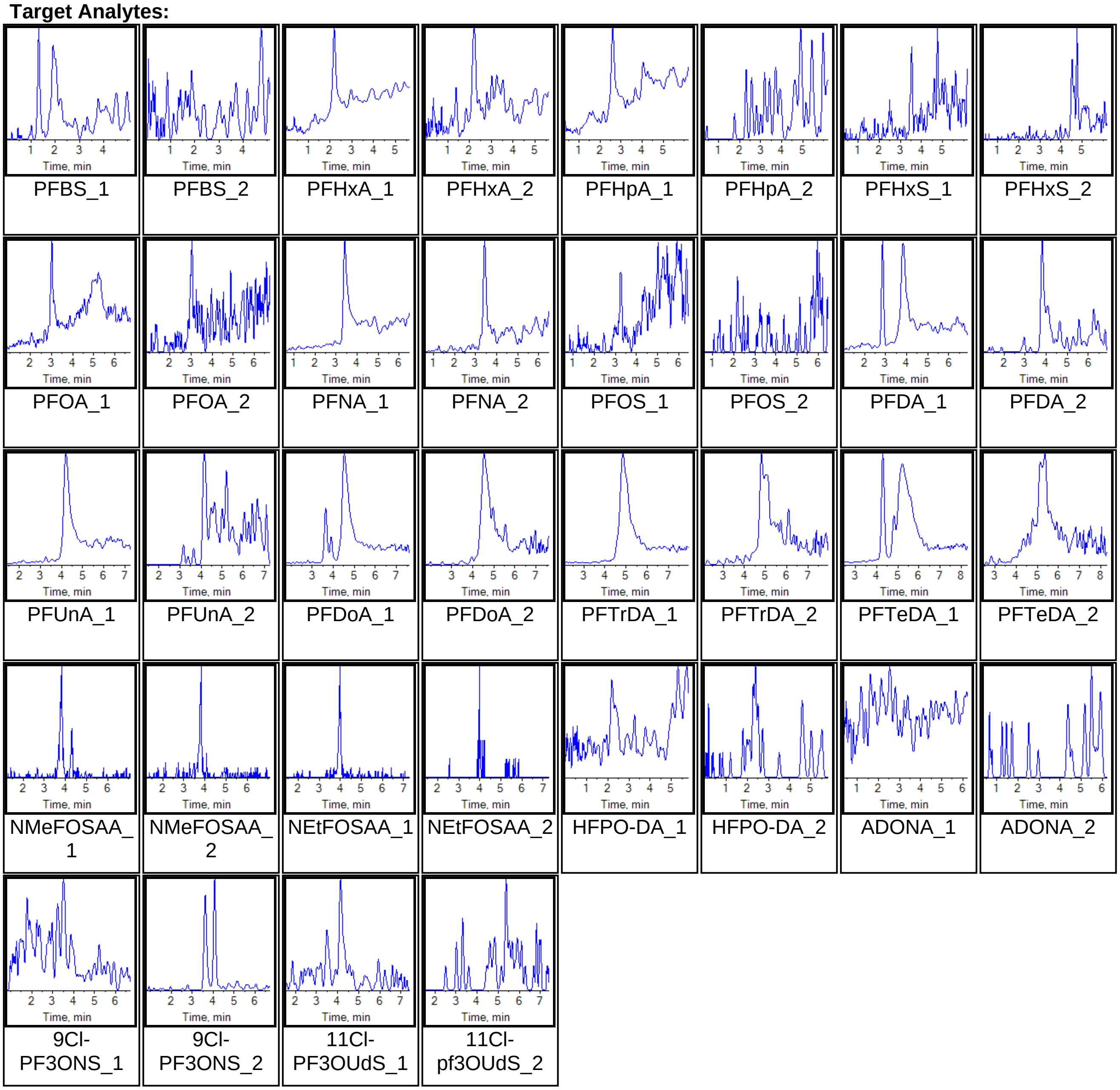


13C3-HFPO-DA

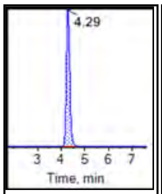
Sample Name	LM24 IB	Injection Vial	11
Sample ID	IB	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:29:49 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

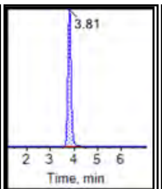
Target Analytes:



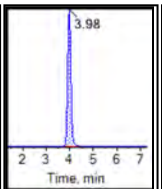
Internal Standards:



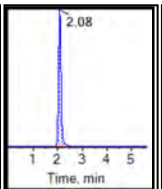
13C2-PFDoA



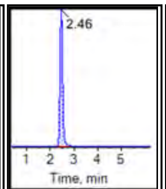
d3-MeFOSAA



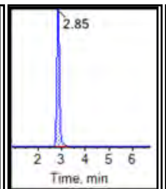
d5-EtFOSAA



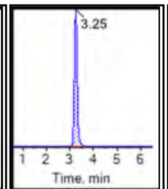
13C5-PFHxA



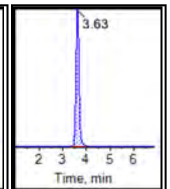
13C4-PFHpA



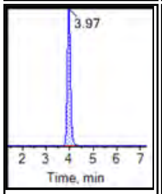
13C8-PFOA



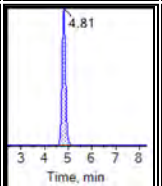
13C9-PFNA



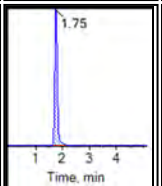
13C6-PFDA



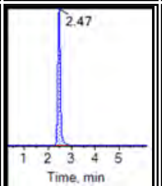
13C7-PFUnA



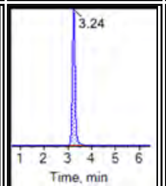
13C2-PFTeDA



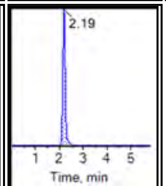
13C3-PFBS



13C3-PFHxS



13C8-PFOS

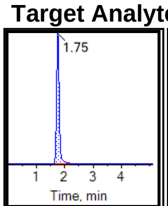


13C3-HFPO-DA

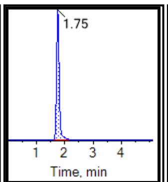
Sample Name	LM09 ICC	Injection Vial	12
Sample ID	ICC	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:42:43 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

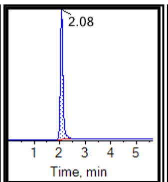
Target Analytes:



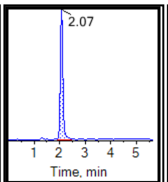
PFBS_1



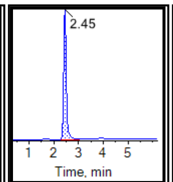
PFBS_2



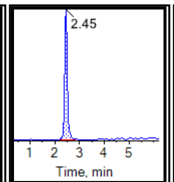
PFHxA_1



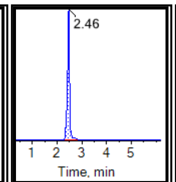
PFHxA_2



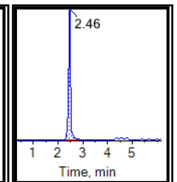
PFHpA_1



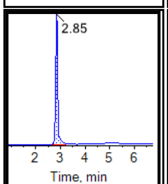
PFHpA_2



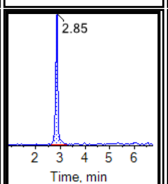
PFHxS_1



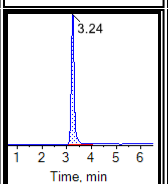
PFHxS_2



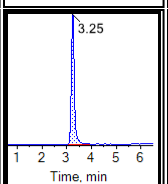
PFOA_1



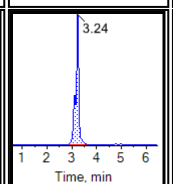
PFOA_2



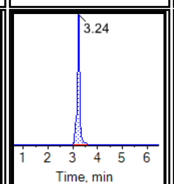
PFNA_1



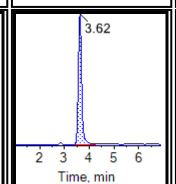
PFNA_2



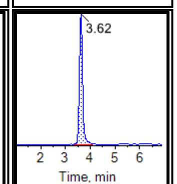
PFOS_1



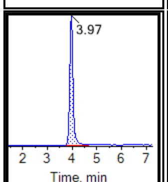
PFOS_2



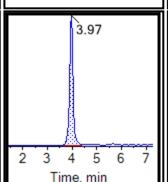
PFDA_1



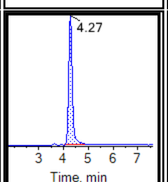
PFDA_2



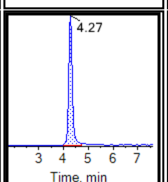
PFUnA_1



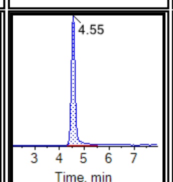
PFUnA_2



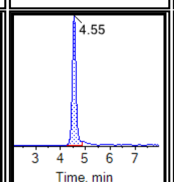
PFDoA_1



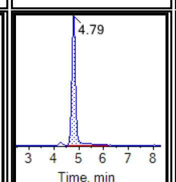
PFDoA_2



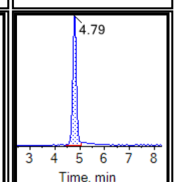
PFTrDA_1



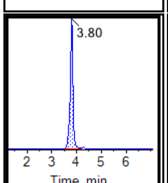
PFTrDA_2



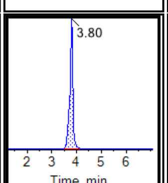
PFTeDA_1



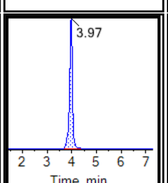
PFTeDA_2



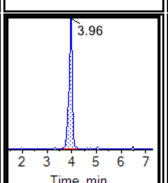
NMeFOSAA_1



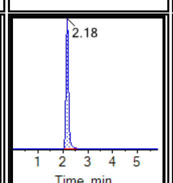
NMeFOSAA_2



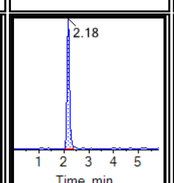
NEtFOSAA_1



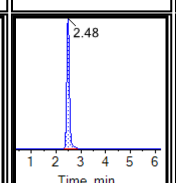
NEtFOSAA_2



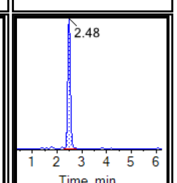
HFPO-DA_1



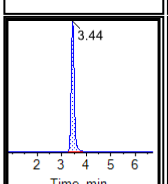
HFPO-DA_2



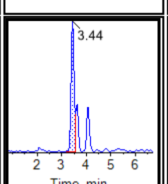
ADONA_1



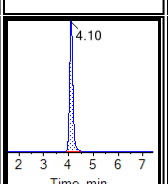
ADONA_2



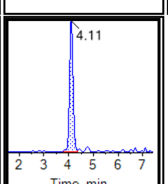
9Cl-PF3ONS_1



9Cl-PF3ONS_2

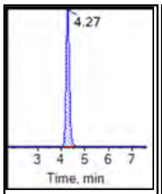


11Cl-PF3OUdS_1

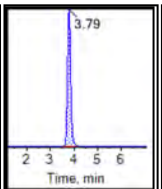


11Cl-pf3OUdS_2

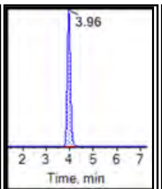
Internal Standards:



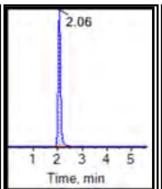
13C2-PFDoA



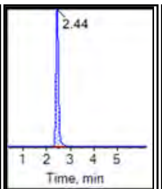
d3-MeFOSAA



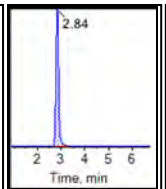
d5-EtFOSAA



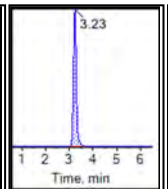
13C5-PFHxA



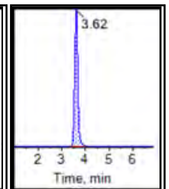
13C4-PFHpA



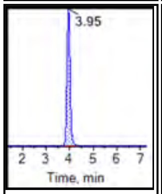
13C8-PFOA



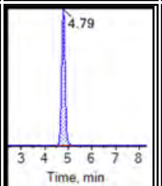
13C9-PFNA



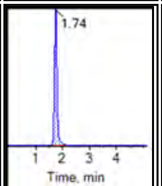
13C6-PFDA



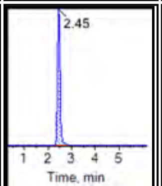
13C7-PFUnA



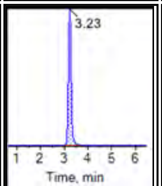
13C2-PFTeDA



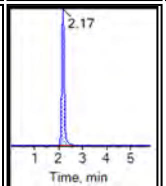
13C3-PFBS



13C3-PFHxS



13C8-PFOS

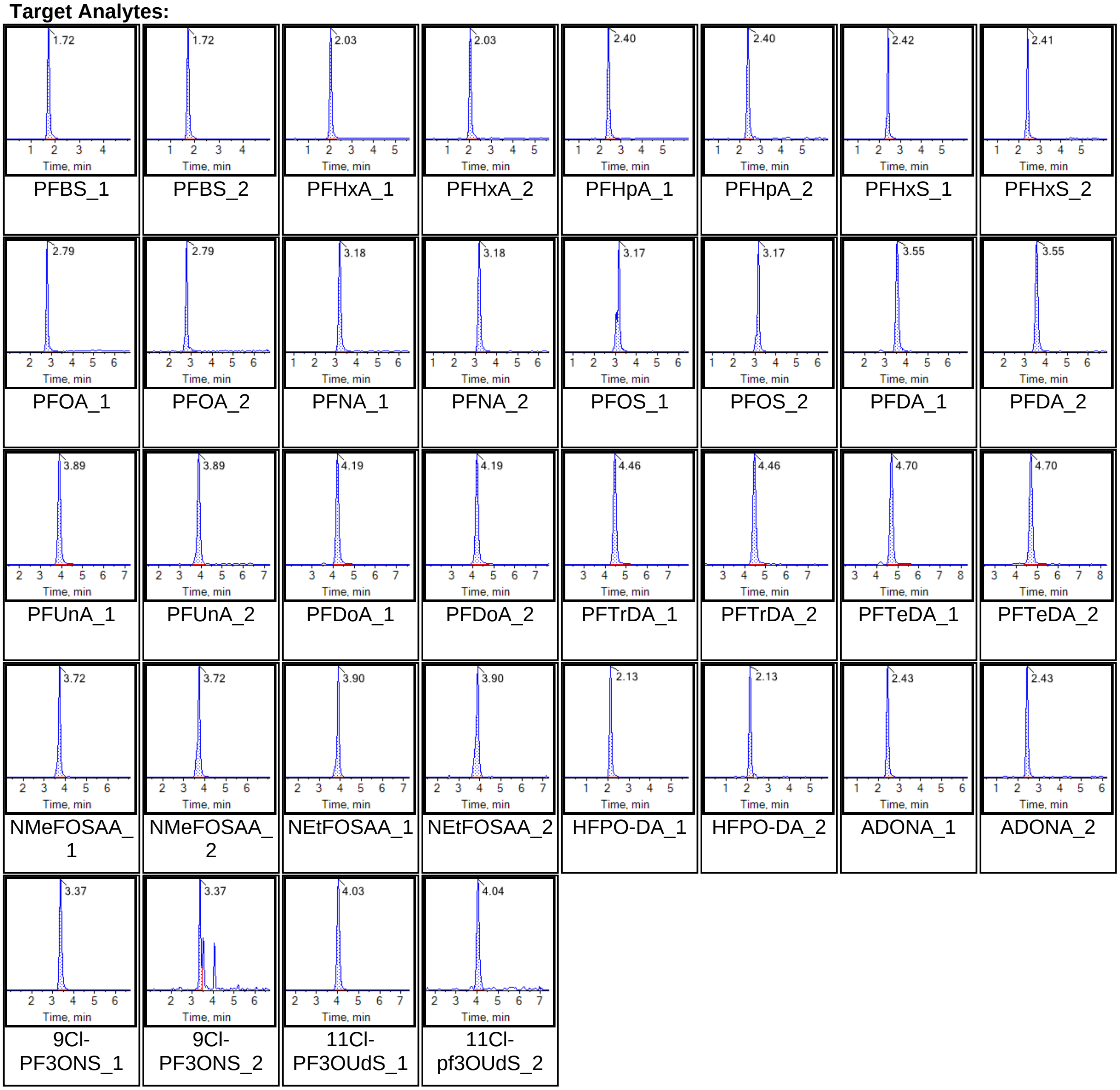


13C3-HFPO-DA

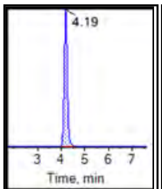
Sample Name	LM21 CCV	**Injection Vial**	51
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 6:52:00 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

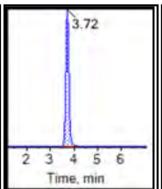
Target Analytes:



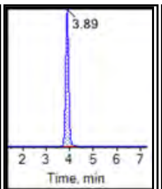
Internal Standards:



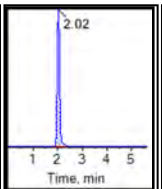
13C2-PFDoA



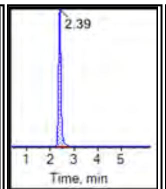
d3-MeFOSAA



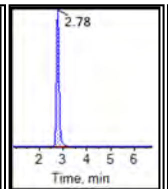
d5-EtFOSAA



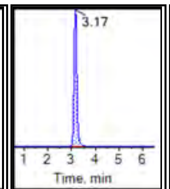
13C5-PFHxA



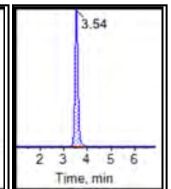
13C4-PFHpA



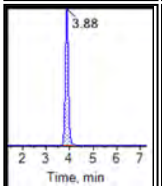
13C8-PFOA



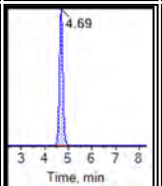
13C9-PFNA



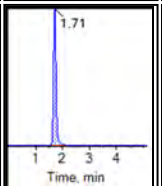
13C6-PFDA



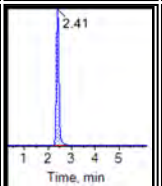
13C7-PFUnA



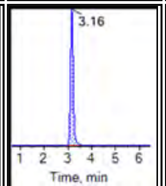
13C2-PFTeDA



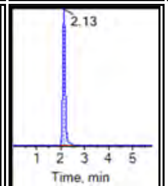
13C3-PFBS



13C3-PFHxS



13C8-PFOS

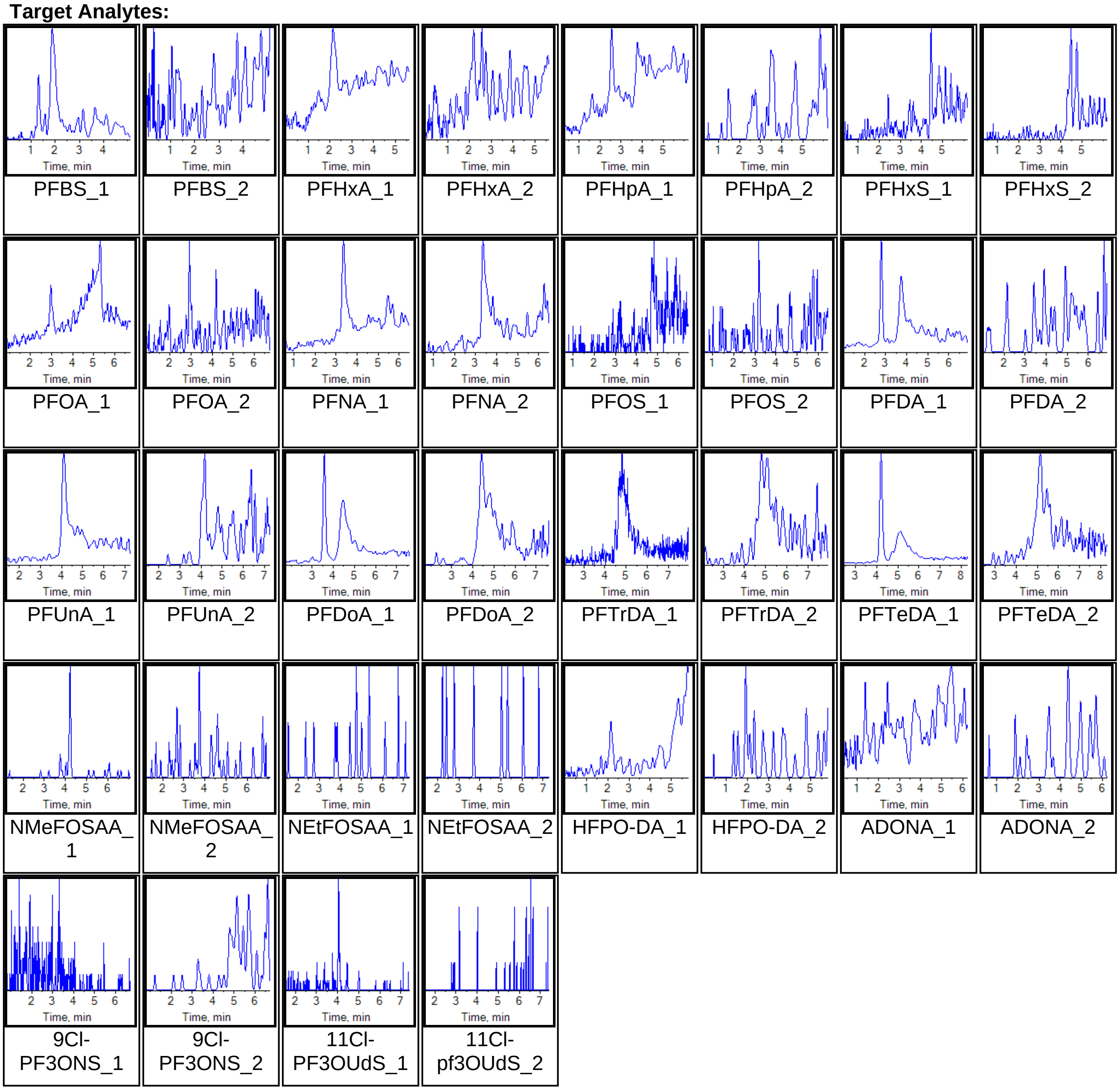


13C3-HFPO-DA

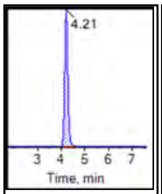
Sample Name	DE995PB-FS(0)	**Injection Vial**	53
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:17:46 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

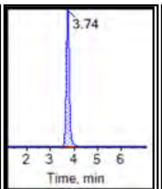
Target Analytes:



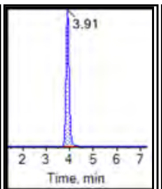
Internal Standards:



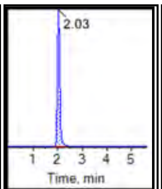
13C2-PFDoA



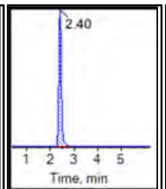
d3-MeFOSAA



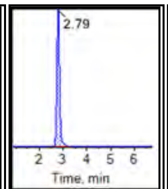
d5-EtFOSAA



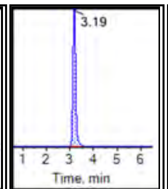
13C5-PFHxA



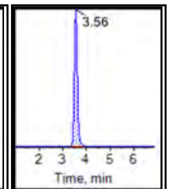
13C4-PFHpA



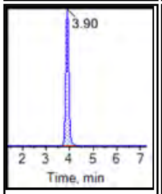
13C8-PFOA



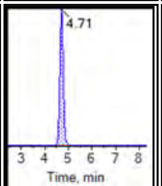
13C9-PFNA



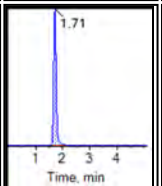
13C6-PFDA



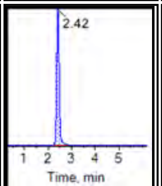
13C7-PFUnA



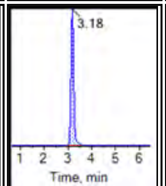
13C2-PFTeDA



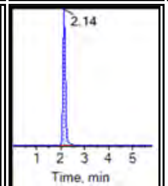
13C3-PFBS



13C3-PFHxS



13C8-PFOS

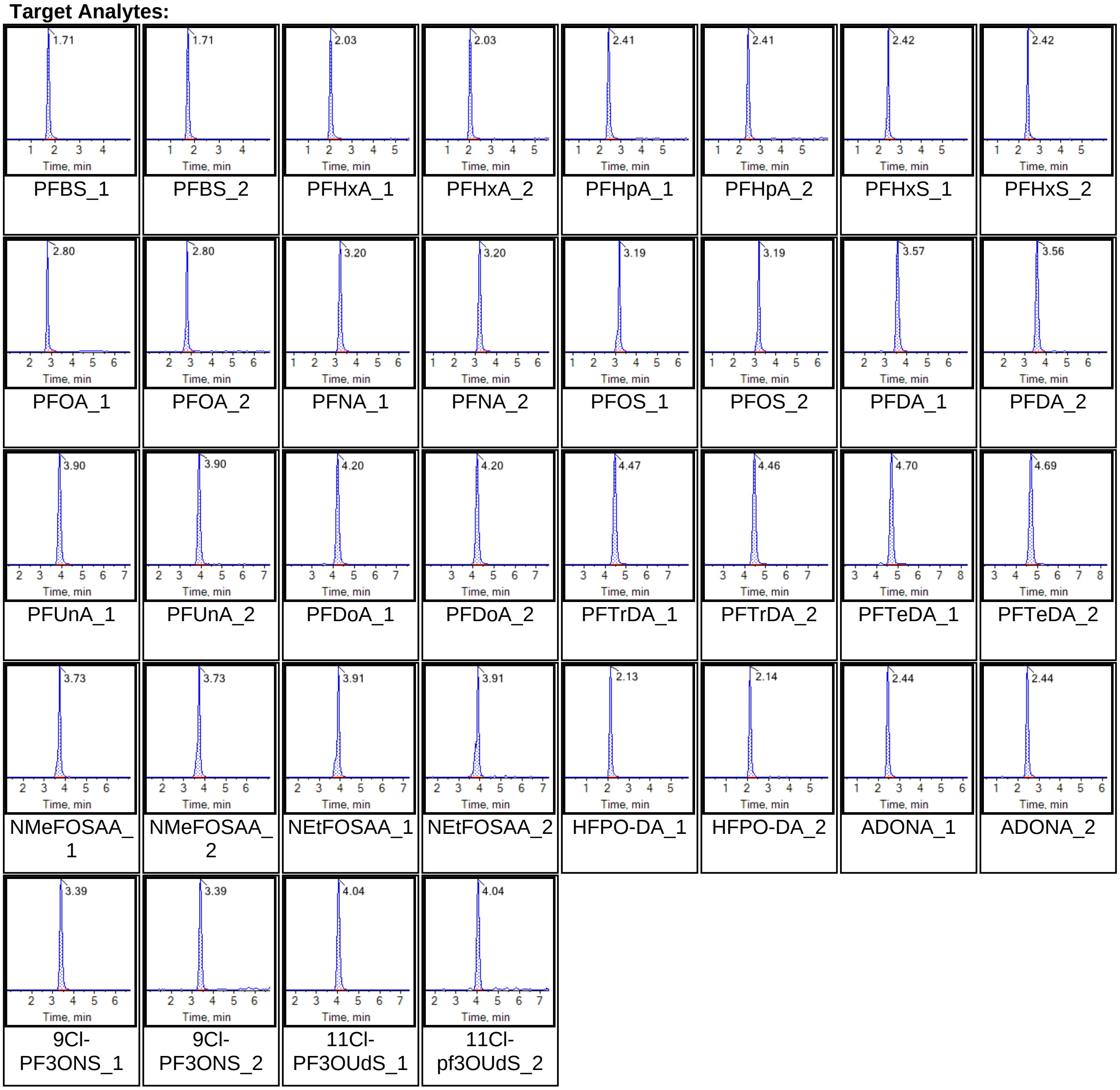


13C3-HFPO-DA

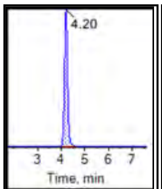
Sample Name	DE996LCS-FS(0)	**Injection Vial**	54
Sample ID	Laboratory Control Sample	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:30:38 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

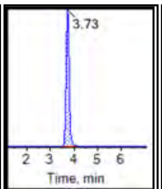
Target Analytes:



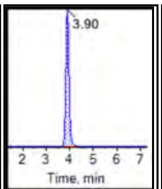
Internal Standards:



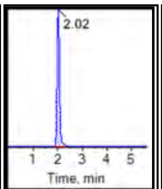
13C2-PFDoA



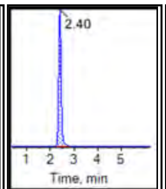
d3-MeFOSAA



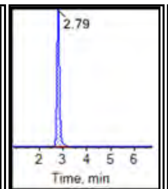
d5-EtFOSAA



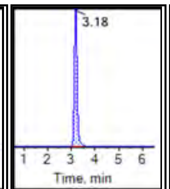
13C5-PFHxA



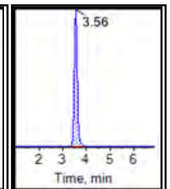
13C4-PFHpA



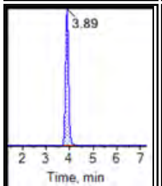
13C8-PFOA



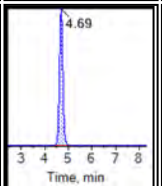
13C9-PFNA



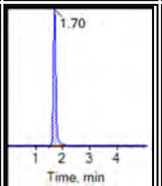
13C6-PFDA



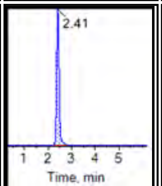
13C7-PFUnA



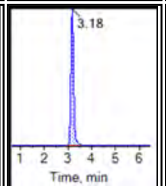
13C2-PFTeDA



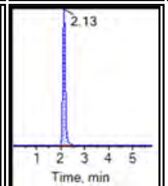
13C3-PFBS



13C3-PFHxS



13C8-PFOS

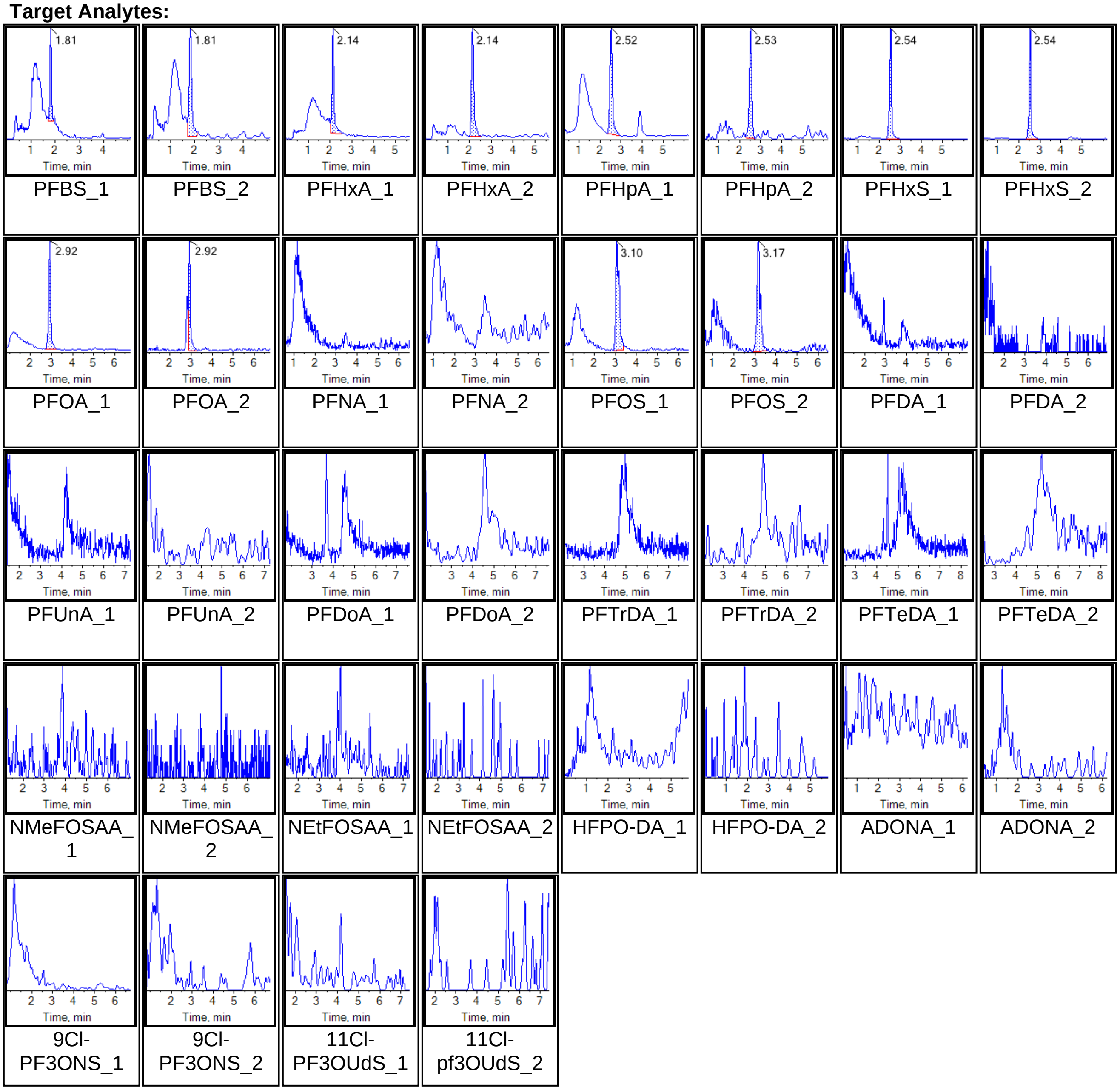


13C3-HFPO-DA

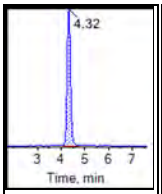
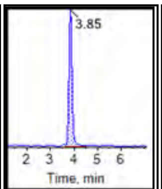
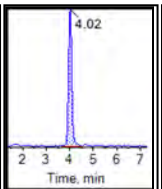
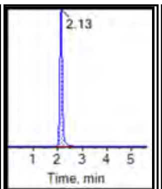
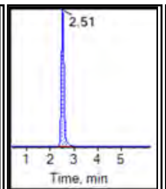
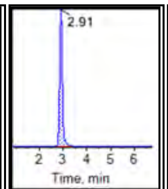
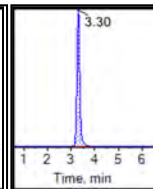
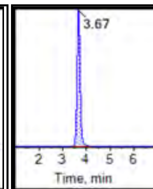
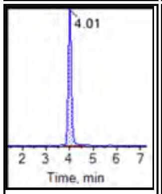
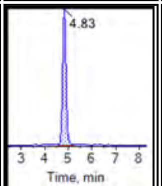
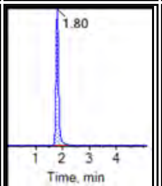
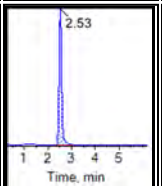
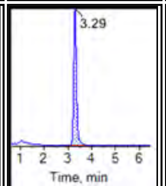
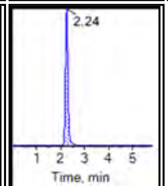
Sample Name	F2481-FS(0)	**Injection Vial**	1
Sample ID	POL-MW0011I-027.5-20210826	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:43:32 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

Target Analytes:



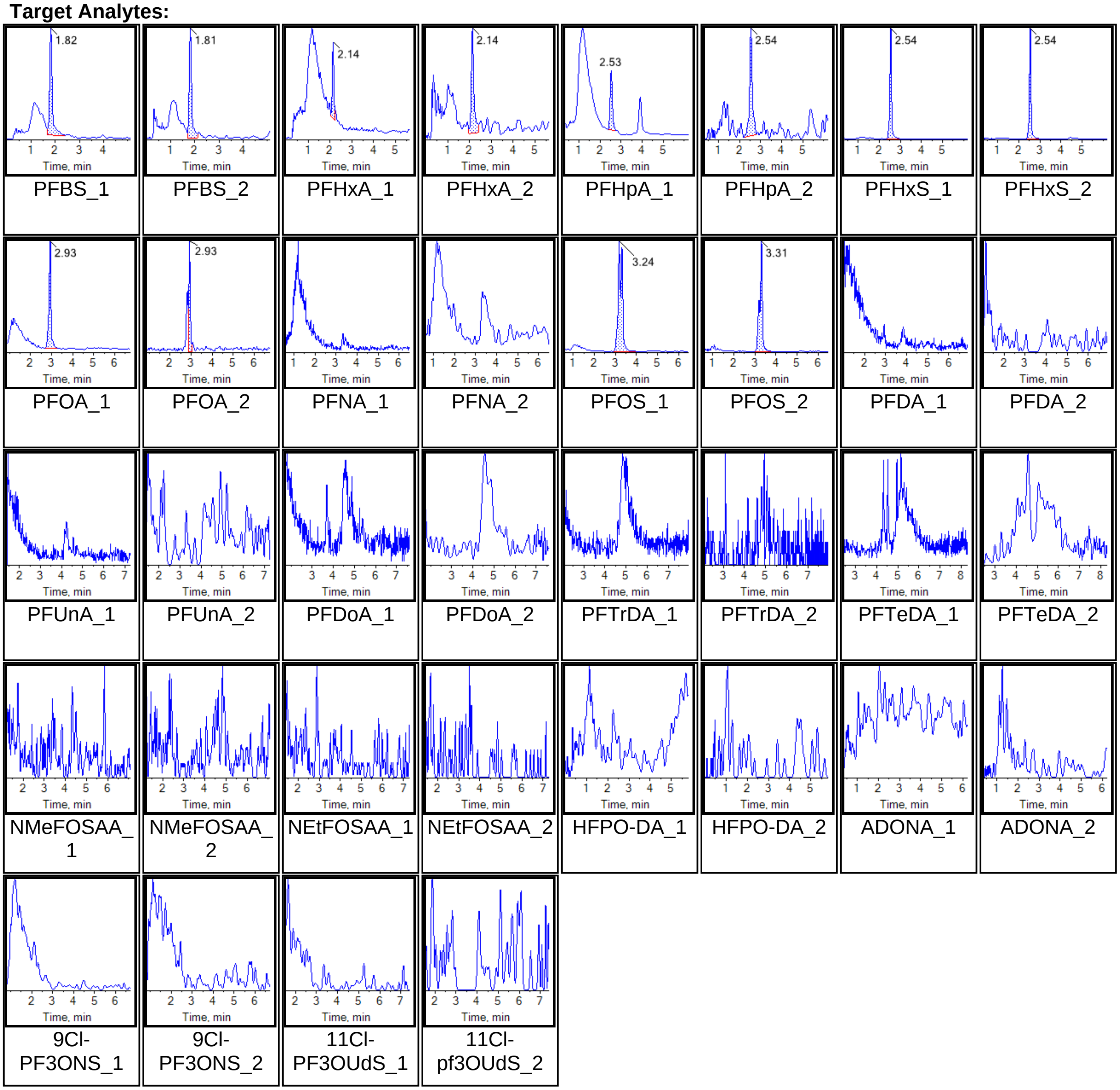
Internal Standards:

							
13C2-PFDoA	d3-MeFOSAA	d5-EtFOSAA	13C5-PFHxA	13C4-PFHpA	13C8-PFOA	13C9-PFNA	13C6-PFDA
							
13C7-PFUnA	13C2-PFTeDA	13C3-PFBS	13C3-PFHxS	13C8-PFOS	13C3-HFPO-DA		

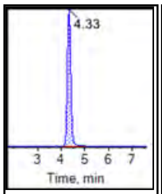
Sample Name	F2482-FS(0)	**Injection Vial**	3
Sample ID	POL-MW0011S-012.5-20210826	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 8:09:21 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123

Chromatograms

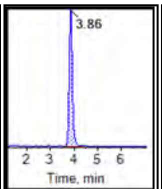
Target Analytes:



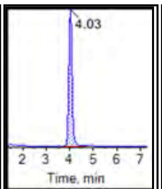
Internal Standards:



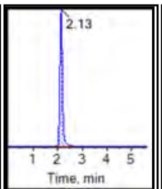
13C2-PFDoA



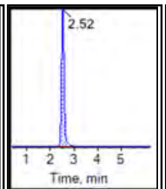
d3-MeFOSAA



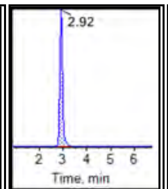
d5-EtFOSAA



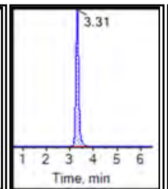
13C5-PFHxA



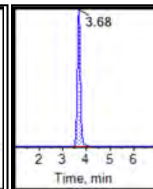
13C4-PFHpA



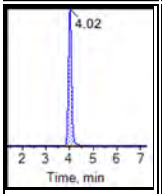
13C8-PFOA



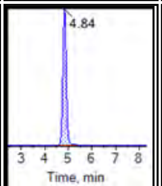
13C9-PFNA



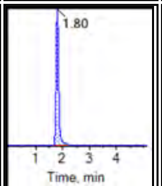
13C6-PFDA



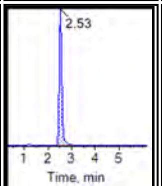
13C7-PFUnA



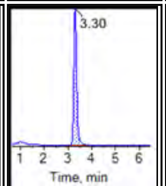
13C2-PFTeDA



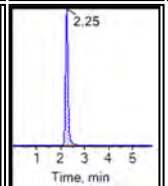
13C3-PFBS



13C3-PFHxS



13C8-PFOS

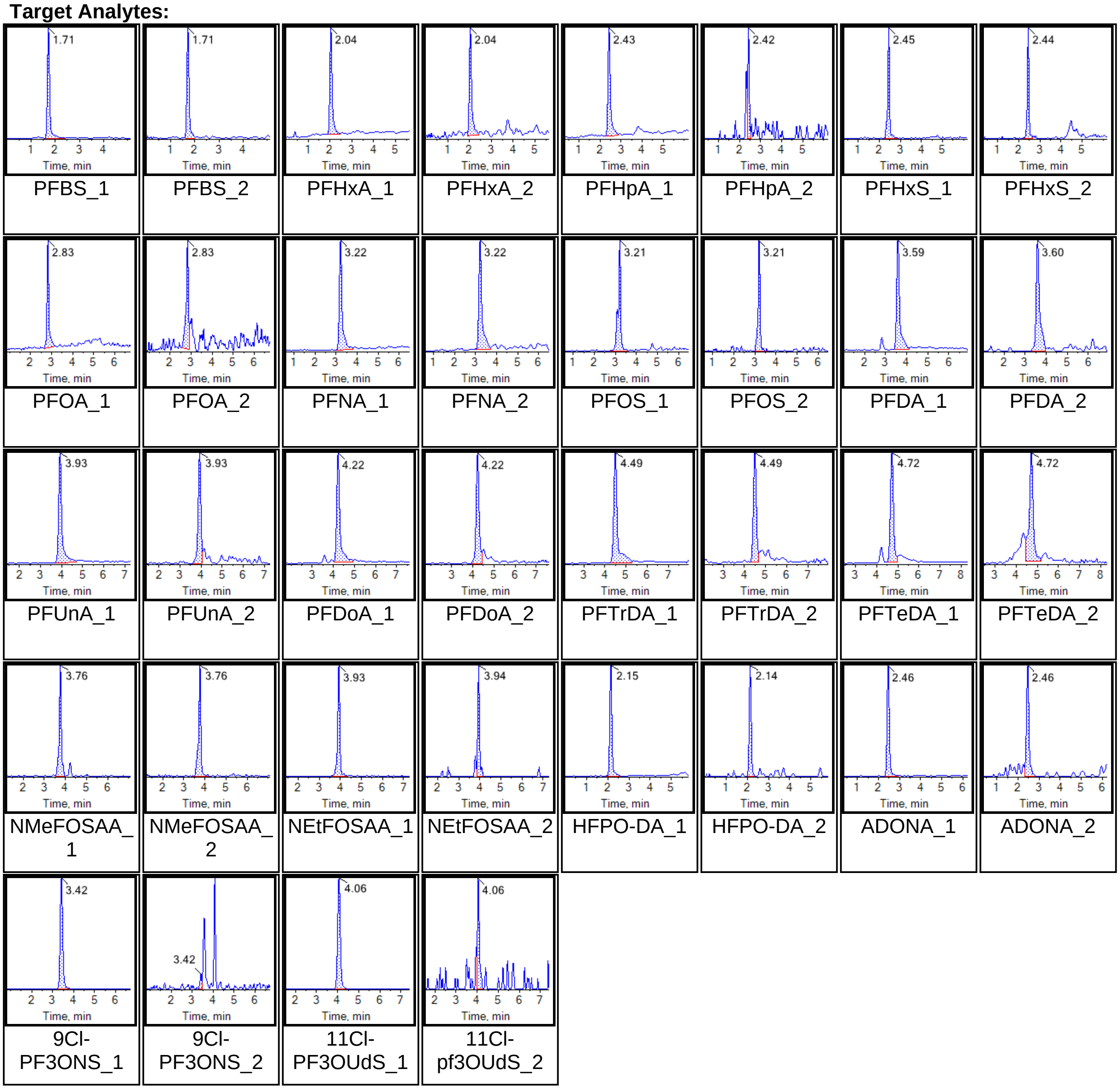


13C3-HFPO-DA

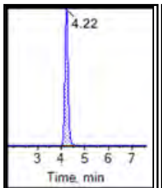
Sample Name	LM19 CCV	Injection Vial	10
Sample ID	CCV	Injection Volume	10.00
Sample Type	Quality Control	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 8:48:51 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123

Chromatograms

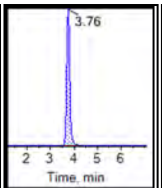
Target Analytes:



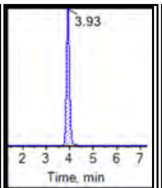
Internal Standards:



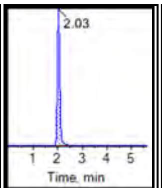
13C2-PFDoA



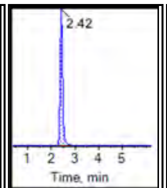
d3-MeFOSAA



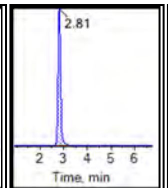
d5-EtFOSAA



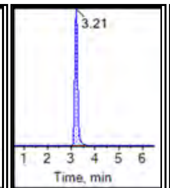
13C5-PFHxA



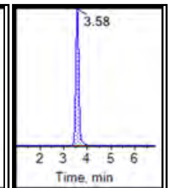
13C4-PFHpA



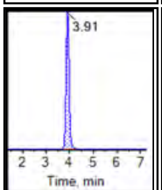
13C8-PFOA



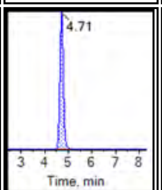
13C9-PFNA



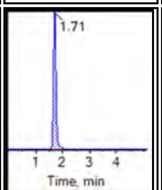
13C6-PFDA



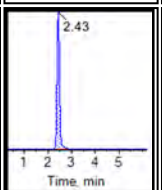
13C7-PFUnA



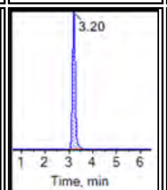
13C2-PFTeDA



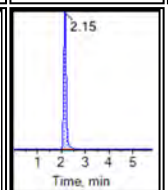
13C3-PFBS



13C3-PFHxS



13C8-PFOS

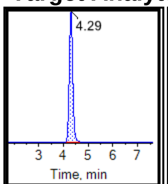


13C3-HFPO-DA

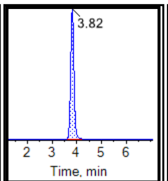
Sample Name	LL90	Injection Vial	3
Sample ID	L1	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 8:46:52 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

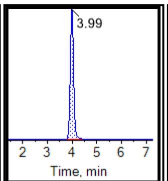
Target Analytes:



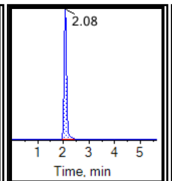
13C2-PFDoA



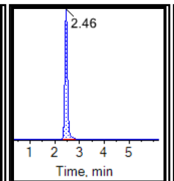
d3-MeFOSAA



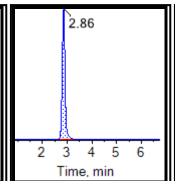
d5-EtFOSAA



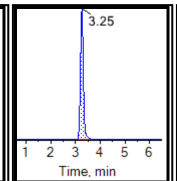
13C5-PFHxA



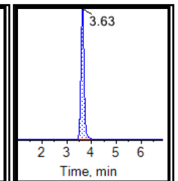
13C4-PFHpA



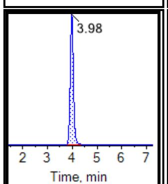
13C8-PFOA



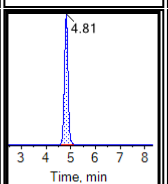
13C9-PFNA



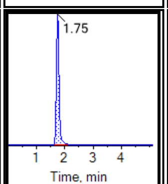
13C6-PFDA



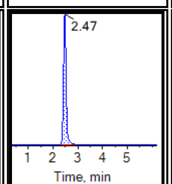
13C7-PFUnA



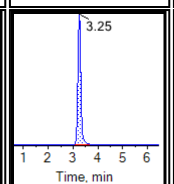
13C2-PFTeDA



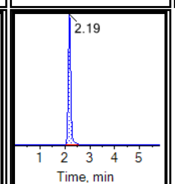
13C3-PFBS



13C3-PFHxS

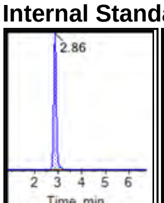


13C8-PFOS

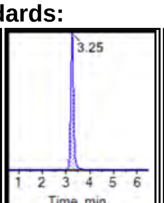


13C3-HFPO-DA

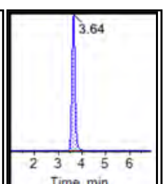
Internal Standards:



13C2-PFOA



13C4-PFOS

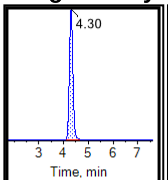


13C2-PFDA

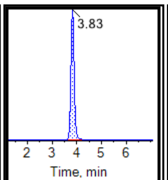
Sample Name	LM19	**Injection Vial**	4
Sample ID	L2	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 8:59:45 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

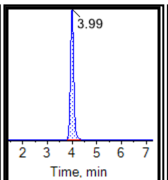
Target Analytes:



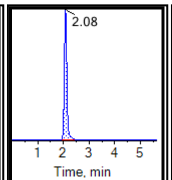
13C2-PFDoA



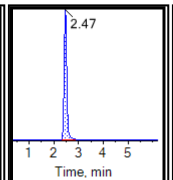
d3-MeFOSAA



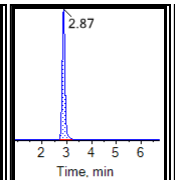
d5-EtFOSAA



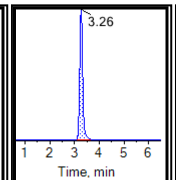
13C5-PFHxA



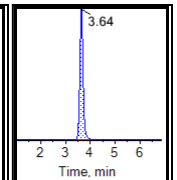
13C4-PFHpA



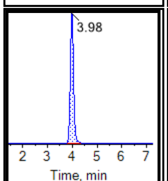
13C8-PFOA



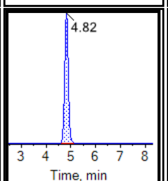
13C9-PFNA



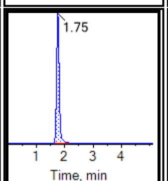
13C6-PFDA



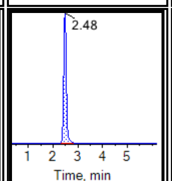
13C7-PFUnA



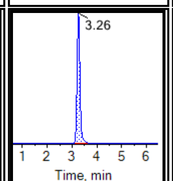
13C2-PFTeDA



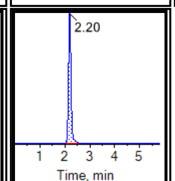
13C3-PFBS



13C3-PFHxS

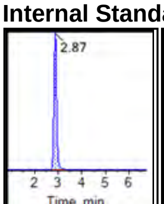


13C8-PFOS

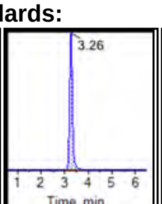


13C3-HFPO-DA

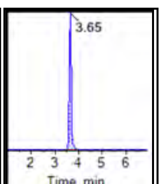
Internal Standards:



13C2-PFOA



13C4-PFOS

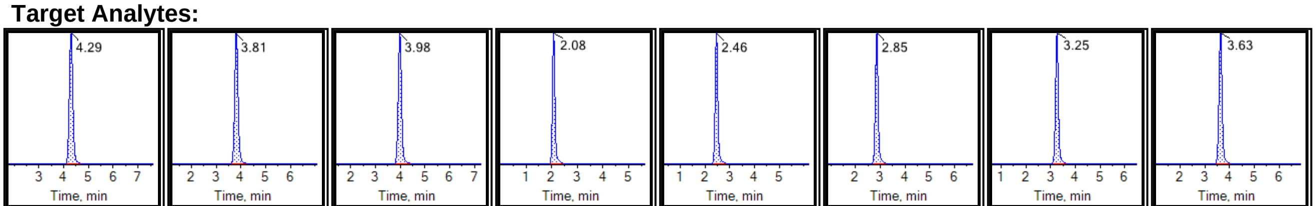


13C2-PFDA

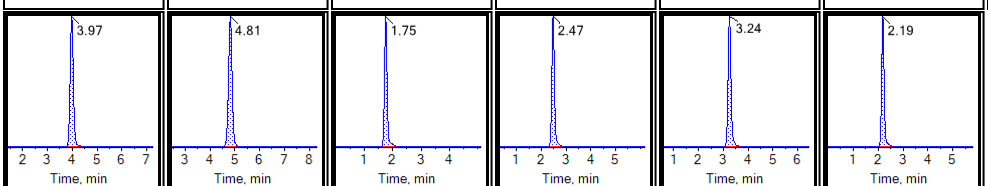
Sample Name	LL94	Injection Vial	5
Sample ID	L3	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:12:37 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

Target Analytes:

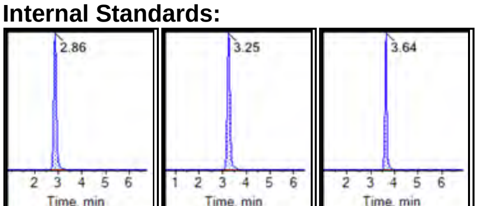


13C2-PFDoA | d3-MeFOSAA | d5-EtFOSAA | 13C5-PFHxA | 13C4-PFHpA | 13C8-PFOA | 13C9-PFNA | 13C6-PFDA



13C7-PFUnA | 13C2-PFTeDA | 13C3-PFBS | 13C3-PFHxS | 13C8-PFOS | 13C3-HFPO-DA

Internal Standards:

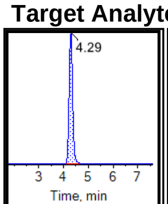


13C2-PFOA | 13C4-PFOS | 13C2-PFDA

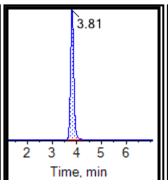
Sample Name	LM20	Injection Vial	6
Sample ID	L4	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:25:29 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

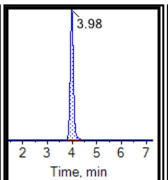
Target Analytes:



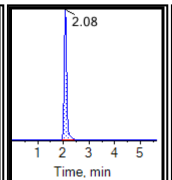
13C2-PFDoA



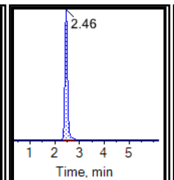
d3-MeFOSAA



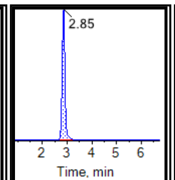
d5-EtFOSAA



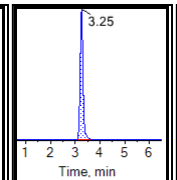
13C5-PFHxA



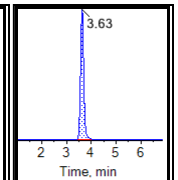
13C4-PFHpA



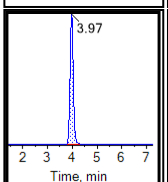
13C8-PFOA



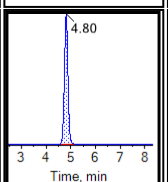
13C9-PFNA



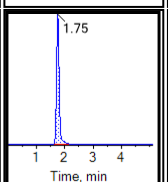
13C6-PFDA



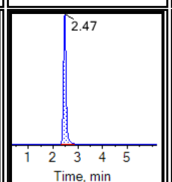
13C7-PFUnA



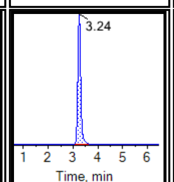
13C2-PFTeDA



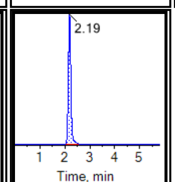
13C3-PFBS



13C3-PFHxS

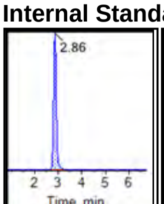


13C8-PFOS

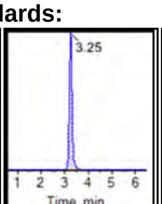


13C3-HFPO-DA

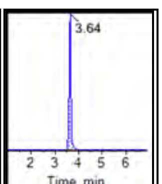
Internal Standards:



13C2-PFOA



13C4-PFOS

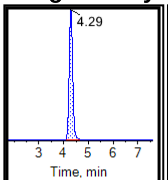


13C2-PFDA

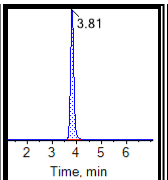
Sample Name	LM21	Injection Vial	7
Sample ID	L5	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 9:38:21 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

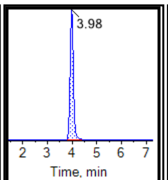
Target Analytes:



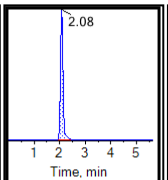
13C2-PFDoA



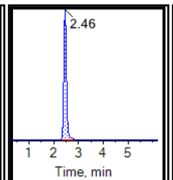
d3-MeFOSAA



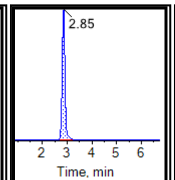
d5-EtFOSAA



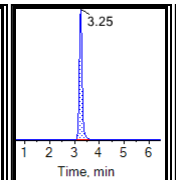
13C5-PFHxA



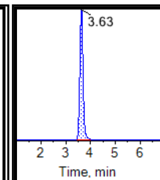
13C4-PFHpA



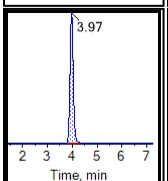
13C8-PFOA



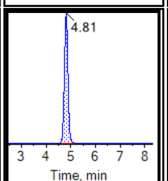
13C9-PFNA



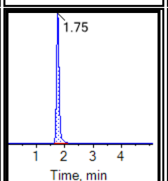
13C6-PFDA



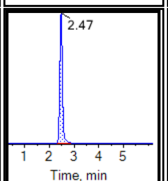
13C7-PFUnA



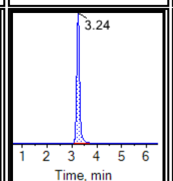
13C2-PFTeDA



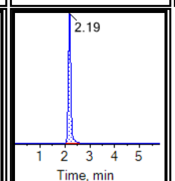
13C3-PFBS



13C3-PFHxS

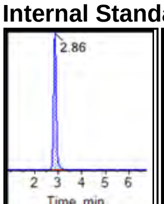


13C8-PFOS

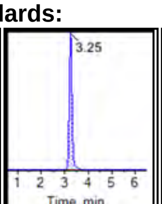


13C3-HFPO-DA

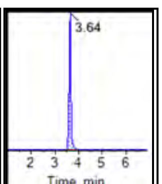
Internal Standards:



13C2-PFOA



13C4-PFOS

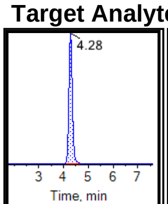


13C2-PFDA

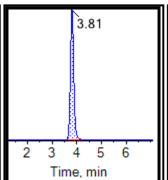
Sample Name	LL97	**Injection Vial**	8
Sample ID	L6	**Injection Volume**	10.00
Sample Type	Standard	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 9:51:13 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

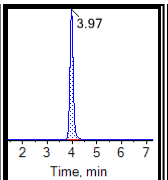
Target Analytes:



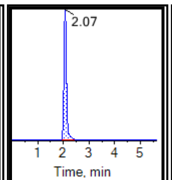
13C2-PFDoA



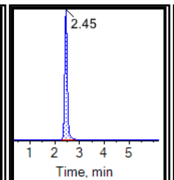
d3-MeFOSAA



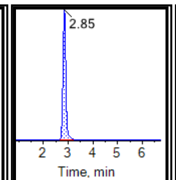
d5-EtFOSAA



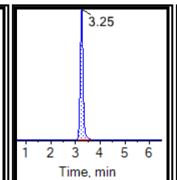
13C5-PFHxA



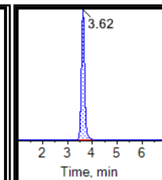
13C4-PFHpA



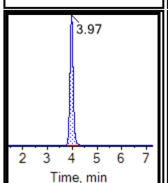
13C8-PFOA



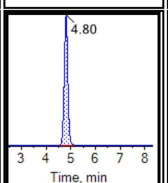
13C9-PFNA



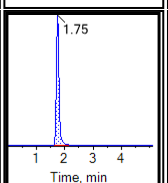
13C6-PFDA



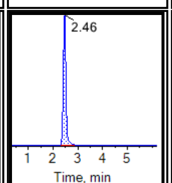
13C7-PFUnA



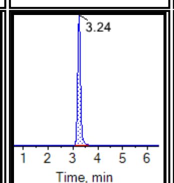
13C2-PFTeDA



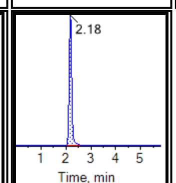
13C3-PFBS



13C3-PFHxS

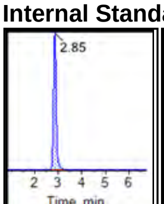


13C8-PFOS

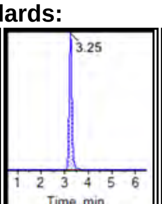


13C3-HFPO-DA

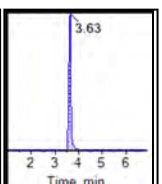
Internal Standards:



13C2-PFOA



13C4-PFOS

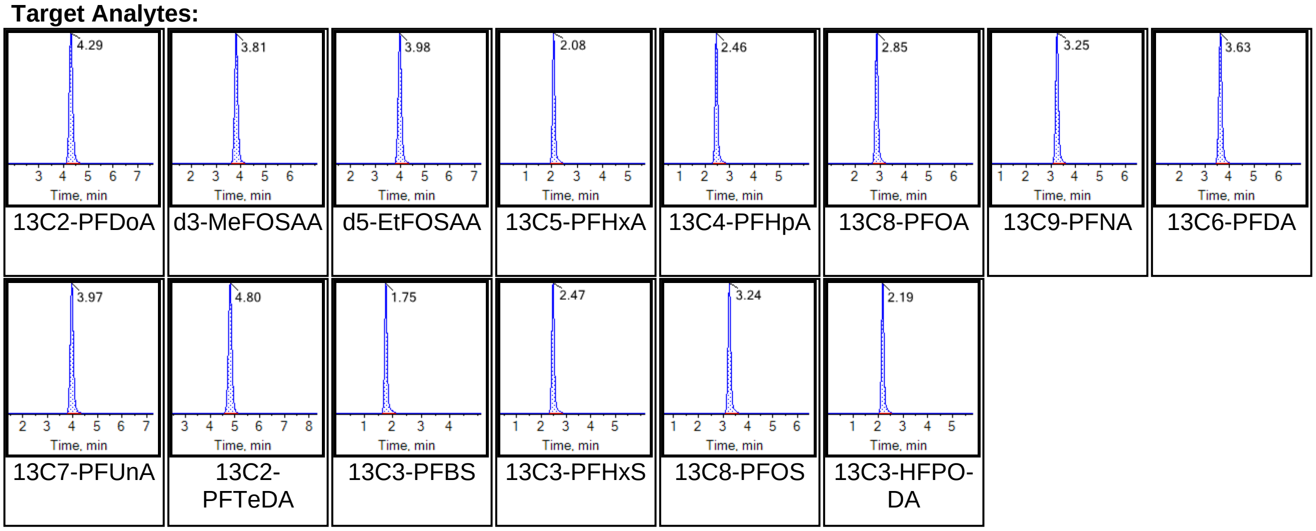


13C2-PFDA

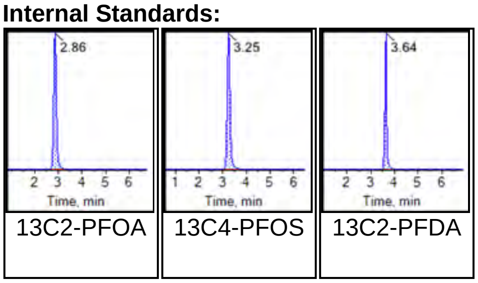
Sample Name	LL98	Injection Vial	9
Sample ID	L7	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:04:05 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

Target Analytes:



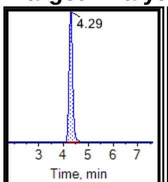
Internal Standards:



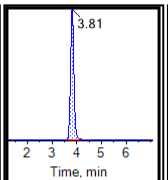
Sample Name	LM22	Injection Vial	10
Sample ID	L8	Injection Volume	10.00
Sample Type	Standard	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:16:56 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

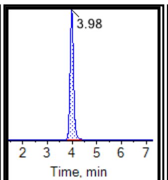
Target Analytes:



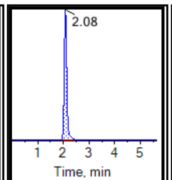
13C2-PFDoA



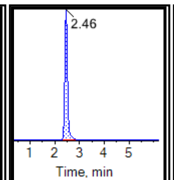
d3-MeFOSAA



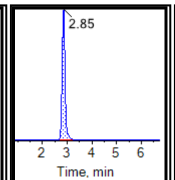
d5-EtFOSAA



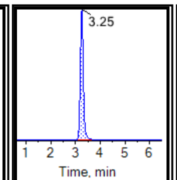
13C5-PFHxA



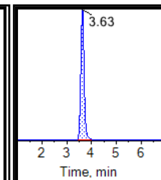
13C4-PFHpA



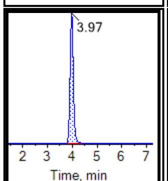
13C8-PFOA



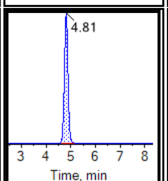
13C9-PFNA



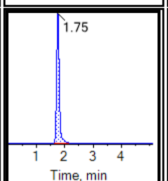
13C6-PFDA



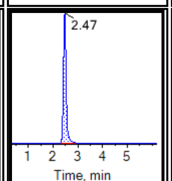
13C7-PFUnA



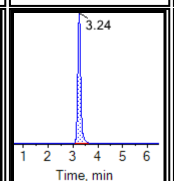
13C2-PFTeDA



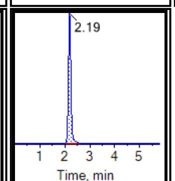
13C3-PFBS



13C3-PFHxS

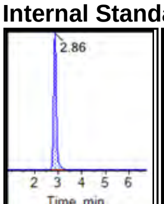


13C8-PFOS

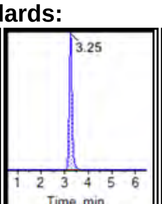


13C3-HFPO-DA

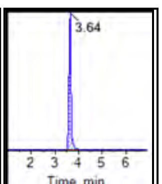
Internal Standards:



13C2-PFOA



13C4-PFOS

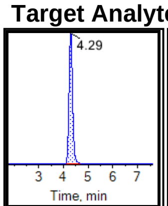


13C2-PFDA

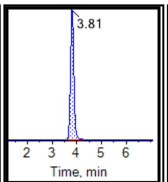
Sample Name	LM24 IB	Injection Vial	11
Sample ID	IB	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/14/2021 10:29:49 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

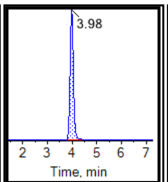
Target Analytes:



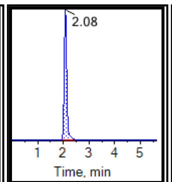
13C2-PFDoA



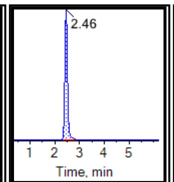
d3-MeFOSAA



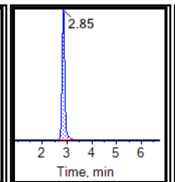
d5-EtFOSAA



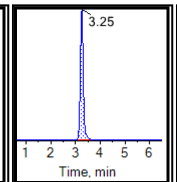
13C5-PFHxA



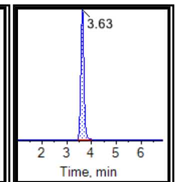
13C4-PFHpA



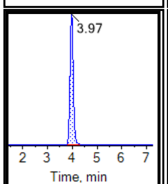
13C8-PFOA



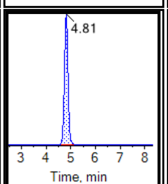
13C9-PFNA



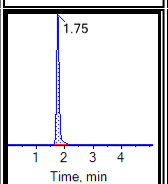
13C6-PFDA



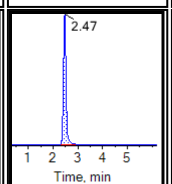
13C7-PFUnA



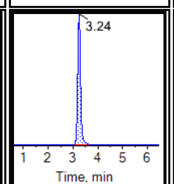
13C2-PFTeDA



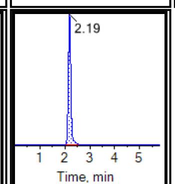
13C3-PFBS



13C3-PFHxS

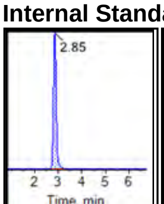


13C8-PFOS

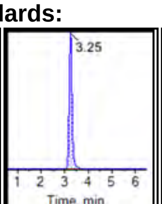


13C3-HFPO-DA

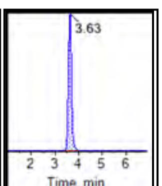
Internal Standards:



13C2-PFOA



13C4-PFOS

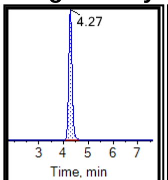


13C2-PFDA

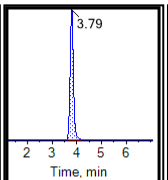
Sample Name	LM09 ICC	**Injection Vial**	12
Sample ID	ICC	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	9/14/2021 10:42:43 PM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

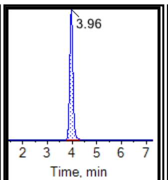
Target Analytes:



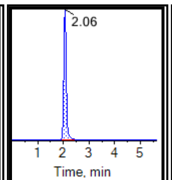
13C2-PFDoA



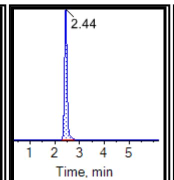
d3-MeFOSAA



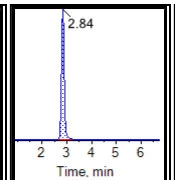
d5-EtFOSAA



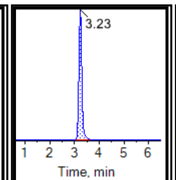
13C5-PFHxA



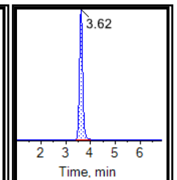
13C4-PFHpA



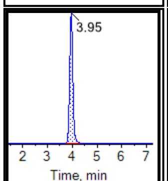
13C8-PFOA



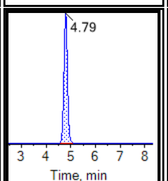
13C9-PFNA



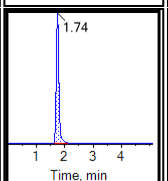
13C6-PFDA



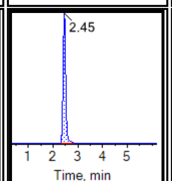
13C7-PFUnA



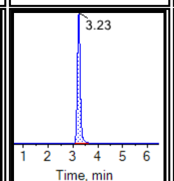
13C2-PFTeDA



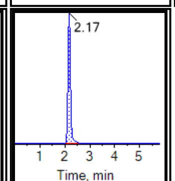
13C3-PFBS



13C3-PFHxS

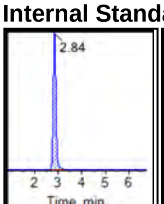


13C8-PFOS

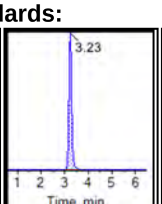


13C3-HFPO-DA

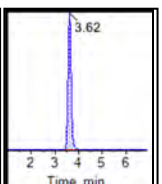
Internal Standards:



13C2-PFOA



13C4-PFOS

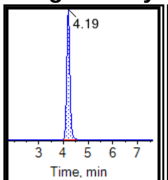


13C2-PFDA

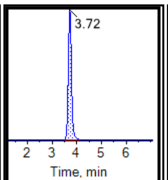
Sample Name	LM21 CCV	**Injection Vial**	51
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 6:52:00 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

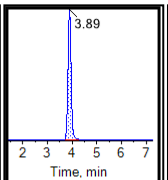
Target Analytes:



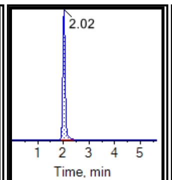
13C2-PFDoA



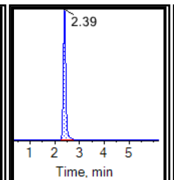
d3-MeFOSAA



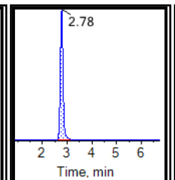
d5-EtFOSAA



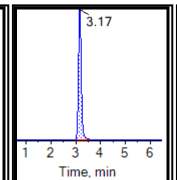
13C5-PFHxA



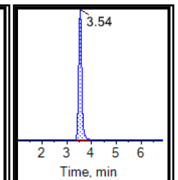
13C4-PFHpA



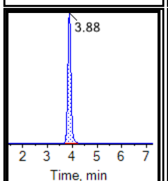
13C8-PFOA



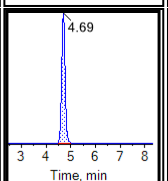
13C9-PFNA



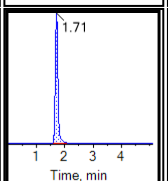
13C6-PFDA



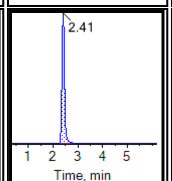
13C7-PFUnA



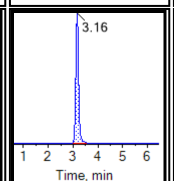
13C2-PFTeDA



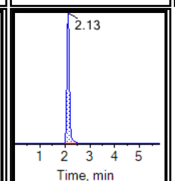
13C3-PFBS



13C3-PFHxS

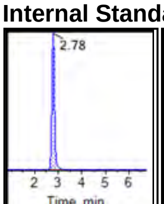


13C8-PFOS

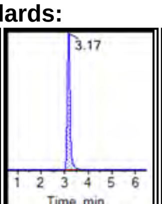


13C3-HFPO-DA

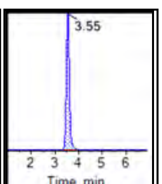
Internal Standards:



13C2-PFOA



13C4-PFOS

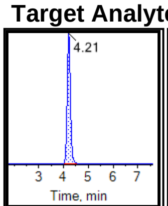


13C2-PFDA

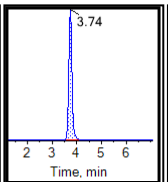
Sample Name	DE995PB-FS(0)	**Injection Vial**	53
Sample ID	Procedural Blank	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:17:46 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

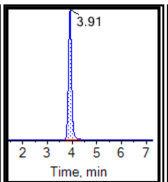
Target Analytes:



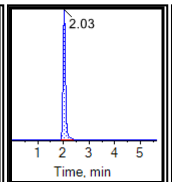
13C2-PFDoA



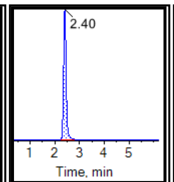
d3-MeFOSAA



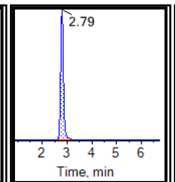
d5-EtFOSAA



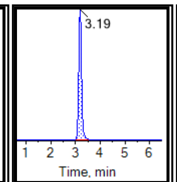
13C5-PFHxA



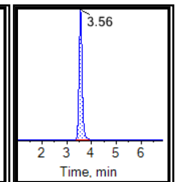
13C4-PFHpA



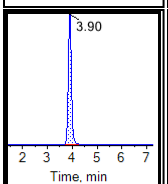
13C8-PFOA



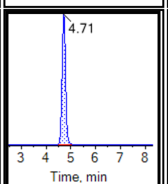
13C9-PFNA



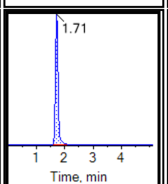
13C6-PFDA



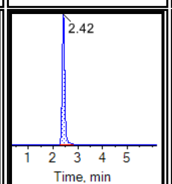
13C7-PFUnA



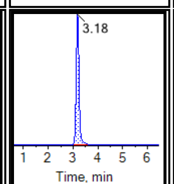
13C2-PFTeDA



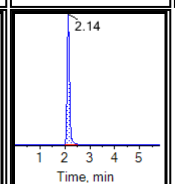
13C3-PFBS



13C3-PFHxS

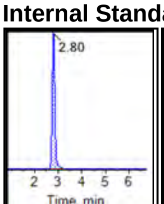


13C8-PFOS

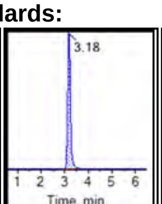


13C3-HFPO-DA

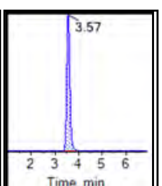
Internal Standards:



13C2-PFOA



13C4-PFOS



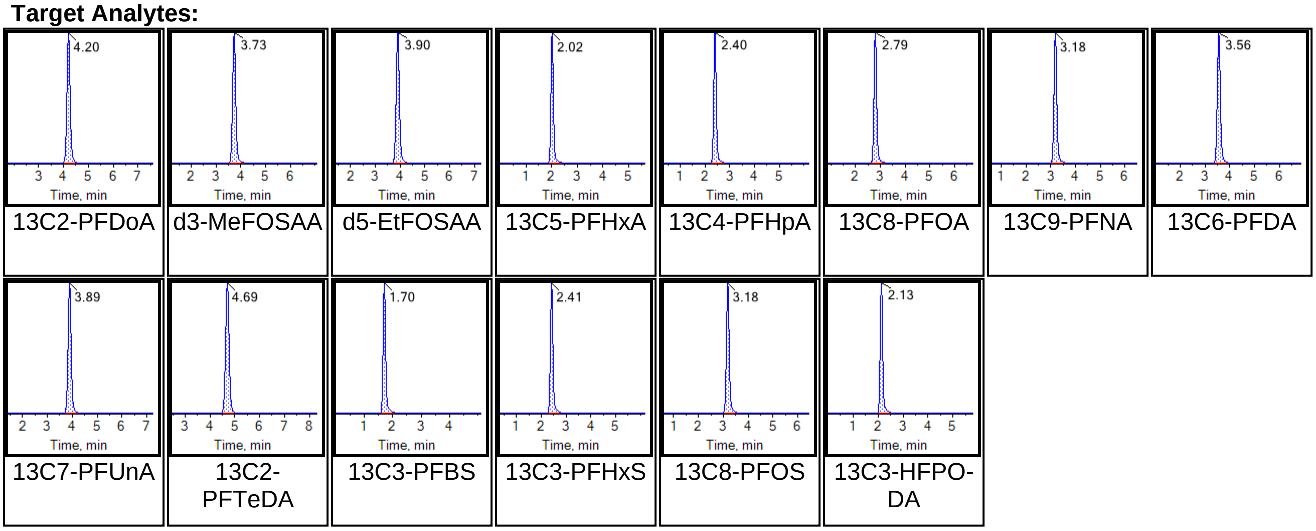
13C2-PFDA

Battelle | Chromatogram Report | Created with Analyst Reporter Printed: 17/09/2021 8:02:31 AM

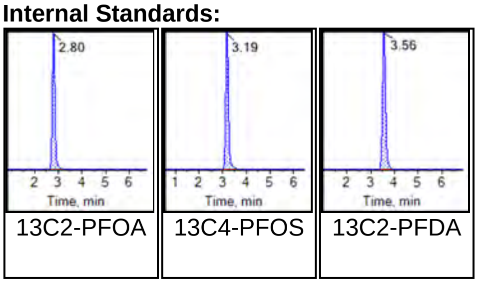
Sample Name	DE996LCS-FS(0)	Injection Vial	54
Sample ID	Laboratory Control Sample	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/15/2021 7:30:38 AM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS

Chromatograms

Target Analytes:



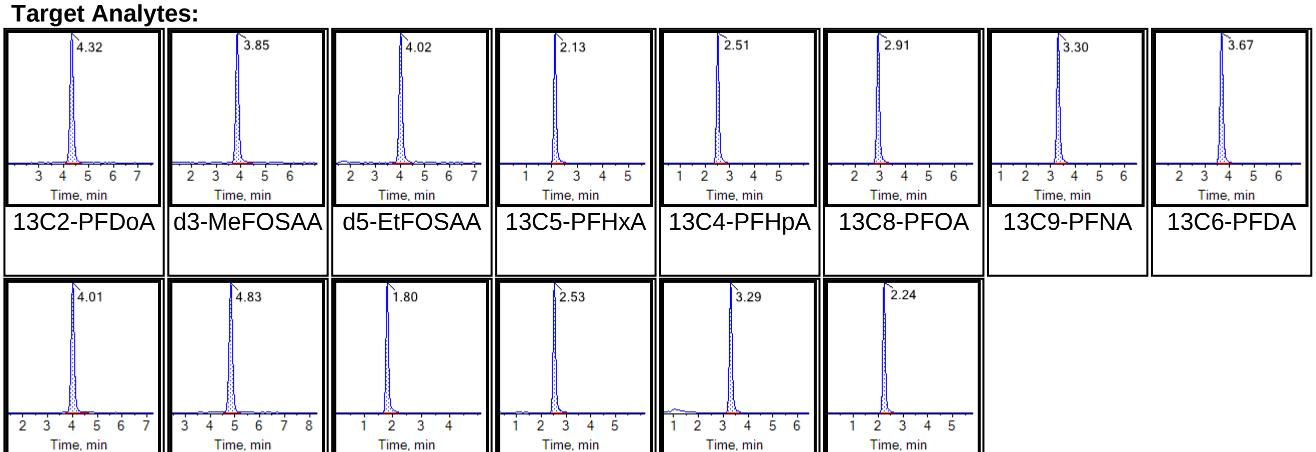
Internal Standards:



Sample Name	F2481-FS(0)	**Injection Vial**	1
Sample ID	POL-MW0011I-027.5-20210826	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 7:43:32 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

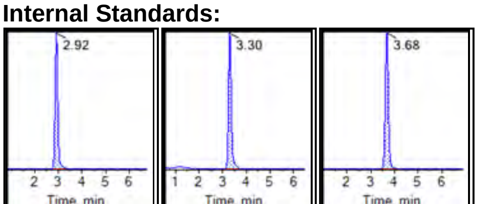
Target Analytes:



13C2-PFDoA | d3-MeFOSAA | d5-EtFOSAA | 13C5-PFHxA | 13C4-PFHpA | 13C8-PFOA | 13C9-PFNA | 13C6-PFDA

13C7-PFUnA | 13C2-PFTeDA | 13C3-PFBS | 13C3-PFHxS | 13C8-PFOS | 13C3-HFPO-DA

Internal Standards:

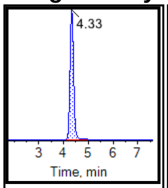


13C2-PFOA | 13C4-PFOS | 13C2-PFDA

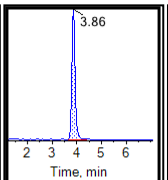
Sample Name	F2482-FS(0)	**Injection Vial**	3
Sample ID	POL-MW0011S-012.5-20210826	**Injection Volume**	10.00
Sample Type	Unknown	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 8:09:21 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

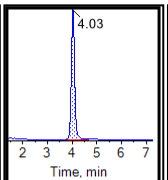
Target Analytes:



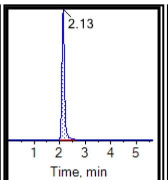
13C2-PFDoA



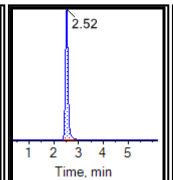
d3-MeFOSAA



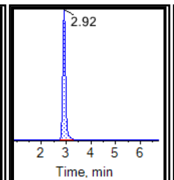
d5-EtFOSAA



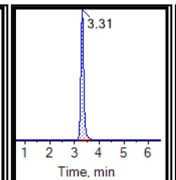
13C5-PFHxA



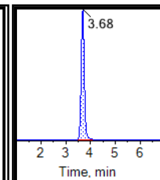
13C4-PFHpA



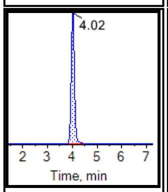
13C8-PFOA



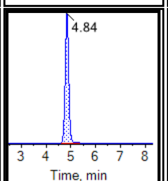
13C9-PFNA



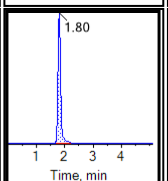
13C6-PFDA



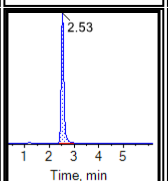
13C7-PFUnA



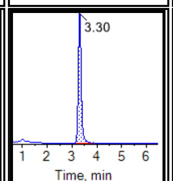
13C2-PFTeDA



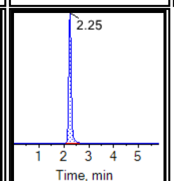
13C3-PFBS



13C3-PFHxS

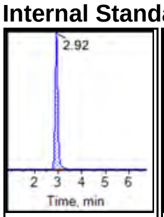


13C8-PFOS

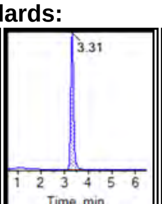


13C3-HFPO-DA

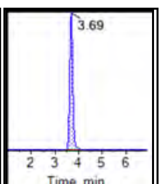
Internal Standards:



13C2-PFOA



13C4-PFOS

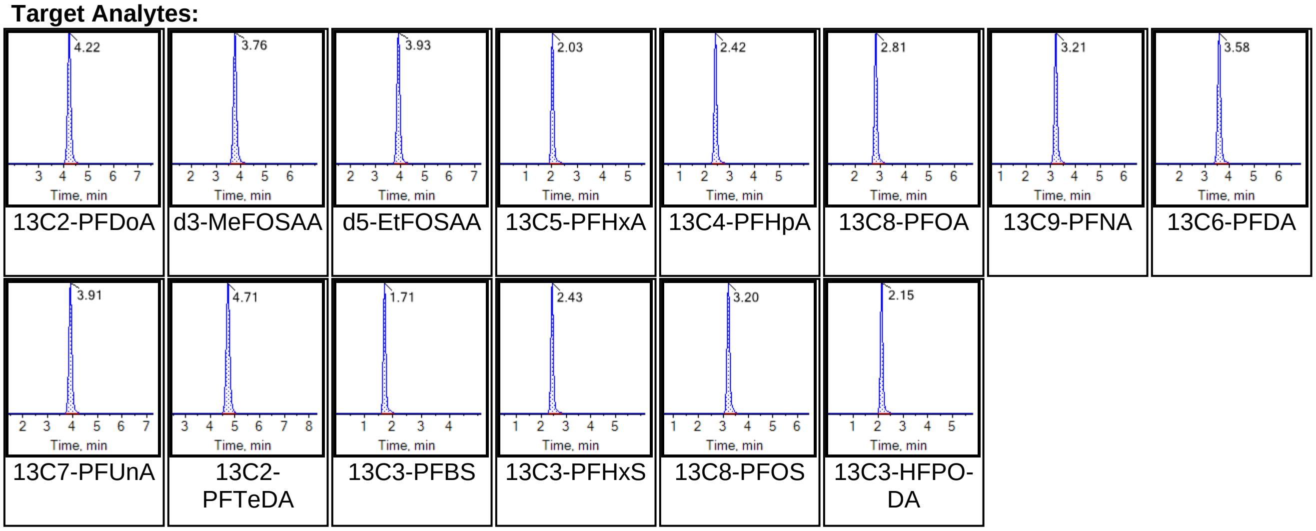


13C2-PFDA

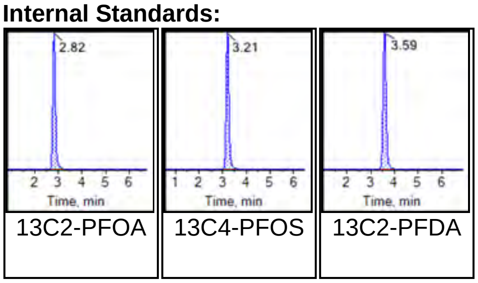
Sample Name	LM19 CCV	**Injection Vial**	10
Sample ID	CCV	**Injection Volume**	10.00
Sample Type	Quality Control	**Instrument Name**	QTRAP 5500
Acquisition Date	9/15/2021 8:48:51 AM	**Data File**	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	**Result Table**	21-1123_SIS

Chromatograms

Target Analytes:



Internal Standards:



Unused Data

BATTELLE

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 17/09/2021 7:39:10 AM

Sample Name	F2481-FS(0)	Injection Vial	32
Sample ID	POL-MW0011I-027.5-20210826	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/16/2021 1:31:16 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.32	1371441.44	2.834	2007.6	False	13C2-PFDA	9798499.14	25.000				
d3-MeFOSAA	573.0 / 419.0	3.84	382086.08	3.728	1377.5	False	13C4-PFOS	1269386.75	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	4.01	321607.30	2.701	1427.2	False	13C2-PFDA	9798499.14	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.13	6341205.93	22.310	5292.4	False	13C2-PFOA	8488963.88	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.50	7873875.29	24.361	4951.1	False	13C2-PFOA	8488963.88	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.89	7030168.23	21.791	4245.5	False	13C2-PFOA	8488963.88	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.28	5309554.82	16.678	3754.2	False	13C2-PFOA	8488963.88	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.66	4473372.23	11.225	4106.9	False	13C2-PFDA	9798499.14	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	4.00	2656597.40	5.732	3120.7	False	13C2-PFDA	9798499.14	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.83	1099868.21	2.094	2275.4	False	13C2-PFDA	9798499.14	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.80	1263471.95	20.444	8872.5	False	13C4-PFOS	1269386.75	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.51	1185941.73	20.500	3841.2	False	13C4-PFOS	1269386.75	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.27	714514.15	13.521	2608.4	False	13C4-PFOS	1269386.75	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.24	4824533.81	23.344	7486.8	False	13C2-PFOA	8488963.88	25.000		N/A	N/A	✓

BATTELLE

PFAS Sample Quant Report

Created with Analyst Reporter
Printed: 17/09/2021 7:39:10 AM

Sample Name	F2482-FS(0)	Injection Vial	33
Sample ID	POL-MW0011S-012.5-20210826	Injection Volume	10.00
Sample Type	Unknown	Instrument Name	QTRAP 5500
Acquisition Date	9/16/2021 1:44:13 PM	Data File	AC_09142021_05-369.wiff
Acquisition Method	5-0369_REV.dam	Result Table	21-1123_SIS
Sample Comment			

Results Summary

Analyte	MRM Transition	RT	Area	Conc. (ng)	S/N Ratio	Modified	IS	IS Area	IS Conc. (ng)	Ratio Group	Ion Ratio	Expected Ion Ratio	Ratio OK
13C2-PFDoA	615.0 / 570.0	4.34	3248864.91	6.956	2533.7	False	13C2-PFDA	9457560.58	25.000				
d3-MeFOSAA	573.0 / 419.0	3.86	827214.56	8.159	2315.4	False	13C4-PFOS	1255749.01	23.950		N/A	N/A	✓
d5-EtFOSAA	589.0 / 419.0	4.03	772077.80	6.719	2122.0	False	13C2-PFDA	9457560.58	25.000		N/A	N/A	✓
13C5-PFHxA	318.0 / 273.0	2.14	6305291.70	22.544	4719.1	False	13C2-PFOA	8353448.47	25.000		N/A	N/A	✓
13C4-PFHpA	367.0 / 322.0	2.51	7824310.47	24.600	5066.1	False	13C2-PFOA	8353448.47	25.000		N/A	N/A	✓
13C8-PFOA	421.0 / 376.0	2.90	7366831.03	23.206	4546.7	False	13C2-PFOA	8353448.47	25.000		N/A	N/A	✓
13C9-PFNA	472.0 / 427.0	3.30	6446718.10	20.579	3556.9	False	13C2-PFOA	8353448.47	25.000		N/A	N/A	✓
13C6-PFDA	519.0 / 474.0	3.68	5471989.42	14.226	3289.4	False	13C2-PFDA	9457560.58	25.000		N/A	N/A	✓
13C7-PFUnA	570.0 / 525.0	4.02	5598850.16	12.516	3358.4	False	13C2-PFDA	9457560.58	25.000		N/A	N/A	✓
13C2-PFTeDA	715.0 / 670.0	4.86	2943903.95	5.807	4768.2	False	13C2-PFDA	9457560.58	25.000		N/A	N/A	✓
13C3-PFBS	302.0 / 99.0	1.81	1196672.93	19.573	7765.2	False	13C4-PFOS	1255749.01	23.950		N/A	N/A	✓
13C3-PFHxS	402.0 / 99.0	2.52	1291512.46	22.567	4682.7	False	13C4-PFOS	1255749.01	23.950		N/A	N/A	✓
13C8-PFOS	507.0 / 99.0	3.29	874423.15	16.727	3733.9	False	13C4-PFOS	1255749.01	23.950		N/A	N/A	✓
13C3-HFPO-DA	287.0 / 169.0	2.25	5041858.65	24.791	8251.8	False	13C2-PFOA	8353448.47	25.000		N/A	N/A	✓

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Space Administration

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Felicia Grogan
Signature　　　　　　　　　　　　Date 5/13/2022

Company Name: Pace Analytical Services
Company Representative Name: Felicia Grogan
Company Representative Title: Director Laboratory Operations
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Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-POL

Project Number: 112G09020

Lot Number:**WJ25006**

Date Completed:11/03/2021

Kathy Smith

11/04/2021 4:54 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: WJ25006

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Samples WJ25006-001, WJ25006-002, WJ25006-003, WJ25006-004 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: WJ25006-001, WJ25006-002, WJ25006-003, WJ25006-004. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: WJ25006

Project Name: KSC-POL

Project Number: 112G09020

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	POL-DPT0127-012.0-20211021	Aqueous	10/21/2021 0955	10/22/2021
002	POL-DPT0127-022.0-20211021	Aqueous	10/21/2021 1020	10/22/2021
003	POL-DPT0127-032.0-20211021	Aqueous	10/21/2021 1110	10/22/2021
004	POL-DPT0127-042.0-20211021	Aqueous	10/21/2021 1210	10/22/2021

(4 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: WJ25006

Project Name: KSC-POL

Project Number: 112G09020

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	POL-DPT0127-012.0-20211021	Aqueous	6:2 FTS	PFAS by ID	4.4	I	ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFBS	PFAS by ID	20		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFHpS	PFAS by ID	2.9	I	ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFPeS	PFAS by ID	11		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFHxS	PFAS by ID	95		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFBA	PFAS by ID	40	Q	ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFHpA	PFAS by ID	14		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFHxA	PFAS by ID	29		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFNA	PFAS by ID	3.5		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFOA	PFAS by ID	26		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFPeA	PFAS by ID	41		ng/L	7
001	POL-DPT0127-012.0-20211021	Aqueous	PFOS	PFAS by ID	230		ng/L	7
002	POL-DPT0127-022.0-20211021	Aqueous	8:2 FTS	PFAS by ID	1.8	I	ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	6:2 FTS	PFAS by ID	26		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFBS	PFAS by ID	53		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFHpS	PFAS by ID	8.1		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFPeS	PFAS by ID	37		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFHxS	PFAS by ID	270		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFBA	PFAS by ID	55	Q	ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFDA	PFAS by ID	0.91	I	ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFHpA	PFAS by ID	33		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFHxA	PFAS by ID	73		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFNA	PFAS by ID	5.6		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFOA	PFAS by ID	64		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFPeA	PFAS by ID	81		ng/L	9
002	POL-DPT0127-022.0-20211021	Aqueous	PFOS	PFAS by ID	470		ng/L	9
003	POL-DPT0127-032.0-20211021	Aqueous	8:2 FTS	PFAS by ID	4.7	I	ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	6:2 FTS	PFAS by ID	24		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	EtFOSAA	PFAS by ID	2.6	I	ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFBS	PFAS by ID	54		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFHpS	PFAS by ID	6.5		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFPeS	PFAS by ID	38		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFHxS	PFAS by ID	270		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFBA	PFAS by ID	79	Q	ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFDA	PFAS by ID	1.6	I	ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFHpA	PFAS by ID	35		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFHxA	PFAS by ID	78		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFNA	PFAS by ID	5.3		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFOA	PFAS by ID	65		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFPeA	PFAS by ID	100		ng/L	11
003	POL-DPT0127-032.0-20211021	Aqueous	PFOS	PFAS by ID	500		ng/L	11
004	POL-DPT0127-042.0-20211021	Aqueous	8:2 FTS	PFAS by ID	11		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	6:2 FTS	PFAS by ID	160		ng/L	13

Detection Summary (Continued)

Lot Number: WJ25006

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	POL-DPT0127-042.0-20211021	Aqueous	4:2 FTS	PFAS by ID	7.0	Q	ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFBS	PFAS by ID	37		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFHpS	PFAS by ID	10		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFPeS	PFAS by ID	27		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFHxS	PFAS by ID	220		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFBA	PFAS by ID	20	Q	ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFHpA	PFAS by ID	30		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFHxA	PFAS by ID	82		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFNA	PFAS by ID	6.2		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFOA	PFAS by ID	96		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFPeA	PFAS by ID	56		ng/L	13
004	POL-DPT0127-042.0-20211021	Aqueous	PFOS	PFAS by ID	340		ng/L	13

(55 detections)

PFAS by LC/MS/MS

Client: **Tetra Tech**		Laboratory ID: **WJ25006-001**	
Description: **POL-DPT0127-012.0-20211021**		Matrix: **Aqueous**	
Date Sampled: **10/21/2021 0955**	Project Name: **KSC-POL**		
Date Received: **10/22/2021**	Project Number: **112G09020**		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/29/2021 1454	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**4.4**	**I**	**6.8**	3.4	**1.7**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**20**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**2.9**	**I**	**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**11**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**95**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**40**	**Q**	**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**14**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**29**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**3.5**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**26**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**41**		**3.4**	1.7	**0.85**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**230**		**3.4**	1.7	**0.85**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	163	50-150
13C2_6:2FTS		136	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		70	50-150
13C2_PFTeDA		50	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA	N	35	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		66	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**	Laboratory ID: **WJ25006-001**
Description: **POL-DPT0127-012.0-20211021**	Matrix: **Aqueous**
Date Sampled: **10/21/2021 0955**	Project Name: **KSC-POL**
Date Received: **10/22/2021**	Project Number: **112G09020**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		87	50-150
13C9_PFNA		87	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**		Laboratory ID: **WJ25006-002**	
Description: **POL-DPT0127-022.0-20211021**		Matrix: **Aqueous**	
Date Sampled: **10/21/2021 1020**	Project Name: **KSC-POL**		
Date Received: **10/22/2021**	Project Number: **112G09020**		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1748	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**1.8**	**I**	**6.8**	3.4	**1.7**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**26**		**6.8**	3.4	**1.7**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**53**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**8.1**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**37**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**270**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**55**	**Q**	**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**0.91**	**I**	**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**33**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**73**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**5.6**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**64**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**81**		**3.4**	1.7	**0.86**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	UQ	3.4	1.7	0.86	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**470**		**3.4**	1.7	**0.86**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		149	50-150
13C2_6:2FTS		141	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		63	50-150
13C2_PFTeDA	N	39	50-150
13C3_PFBS		68	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		68	50-150
13C4_PFBA	N	28	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		61	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		71	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**	Laboratory ID: **WJ25006-002**
Description: **POL-DPT0127-022.0-20211021**	Matrix: **Aqueous**
Date Sampled: **10/21/2021 1020**	Project Name: **KSC-POL**
Date Received: **10/22/2021**	Project Number: **112G09020**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	50-150
13C8_PFOS		82	50-150
13C9_PFNA		95	50-150
d-EtFOSA	N	39	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**	Laboratory ID: **WJ25006-003**
Description: **POL-DPT0127-032.0-20211021**	Matrix: **Aqueous**
Date Sampled: **10/21/2021 1110**	Project Name: **KSC-POL**
Date Received: **10/22/2021**	Project Number: **112G09020**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1759	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**4.7**	**I**	**7.1**	3.6	**1.8**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**24**		**7.1**	3.6	**1.8**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	**2991-50-6**	**PFAS by ID SOP**	**2.6**	**I**	**7.1**	3.6	**1.8**	**ng/L**	**1**
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**54**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**6.5**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**38**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**270**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**79**	**Q**	**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	**335-76-2**	**PFAS by ID SOP**	**1.6**	**I**	**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**35**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**78**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**5.3**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**65**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**100**		**3.5**	1.8	**0.88**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**500**		**3.5**	1.8	**0.88**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	158	50-150
13C2_6:2FTS		137	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	36	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	27	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		60	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**		Laboratory ID: **WJ25006-003**	
Description: **POL-DPT0127-032.0-20211021**		Matrix: **Aqueous**	
Date Sampled: **10/21/2021 1110**	Project Name: **KSC-POL**		
Date Received: **10/22/2021**	Project Number: **112G09020**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		76	50-150
13C9_PFNA		90	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**
Laboratory ID: **WJ25006-004**
Description: **POL-DPT0127-042.0-20211021**
Matrix: **Aqueous**
Date Sampled: **10/21/2021 1210**
Project Name: **KSC-POL**
Date Received: **10/22/2021**
Project Number: **112G09020**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1809	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	**39108-34-4**	**PFAS by ID SOP**	**11**		**6.7**	3.4	**1.7**	**ng/L**	**1**
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**160**		**6.7**	3.4	**1.7**	**ng/L**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	**757124-72-4**	**PFAS by ID SOP**	**7.0**	**Q**	**6.7**	3.4	**1.7**	**ng/L**	**1**
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	**375-73-5**	**PFAS by ID SOP**	**37**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	**375-92-8**	**PFAS by ID SOP**	**10**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	**2706-91-4**	**PFAS by ID SOP**	**27**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**PFAS by ID SOP**	**220**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-butanoic acid (PFBA)	**375-22-4**	**PFAS by ID SOP**	**20**	**Q**	**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	**375-85-9**	**PFAS by ID SOP**	**30**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**82**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-nonanoic acid (PFNA)	**375-95-1**	**PFAS by ID SOP**	**6.2**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-octanoic acid (PFOA)	**335-67-1**	**PFAS by ID SOP**	**96**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**56**		**3.3**	1.7	**0.83**	**ng/L**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**PFAS by ID SOP**	**340**		**3.3**	1.7	**0.83**	**ng/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	159	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		69	50-150
13C6_PFDA		86	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation | V = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure
U = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | I = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure
Q = Out of holding time | W = Reported on wet weight basis | LOD = Limit of Detection | D = Dilution > 1 | S = MS/MSD failure

PFAS by LC/MS/MS

Client: **Tetra Tech**		Laboratory ID: **WJ25006-004**	
Description: **POL-DPT0127-042.0-20211021**		Matrix: **Aqueous**	
Date Sampled: **10/21/2021 1210**	Project Name: **KSC-POL**		
Date Received: **10/22/2021**	Project Number: **112G09020**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	50-150
13C8_PFOS		83	50-150
13C9_PFNA		98	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	WQ20397-001	**Matrix:**	Aqueous
Batch:	20397	**Prep Method:**	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	**Prep Date:**	10/27/2021 1636

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		72	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		91	50-150

LOQ = Limit of Quantitation　　U = Not detected at or above the LOQ　　N = Recovery is out of criteria

DL = Detection Limit　　I = Estimated result < LOQ and ≥ DL　　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　　* = RSD is out of criteria　　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ20397-001
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		95	50-150
13C8_PFOS		80	50-150
13C9_PFNA		91	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ20397-002
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	102	70-150	10/28/2021 1541
11Cl-PF3OUdS	15	14		1	93	70-150	10/28/2021 1541
8:2 FTS	15	19		1	123	67-138	10/28/2021 1541
6:2 FTS	15	17		1	113	64-140	10/28/2021 1541
4:2 FTS	15	15		1	99	63-143	10/28/2021 1541
GenX	32	30		1	92	70-150	10/28/2021 1541
ADONA	15	15		1	99	70-150	10/28/2021 1541
EtFOSA	16	15		1	96	70-150	10/28/2021 1541
EtFOSAA	16	13		1	83	61-135	10/28/2021 1541
MeFOSAA	16	15		1	97	65-136	10/28/2021 1541
PFBS	14	14		1	97	72-130	10/28/2021 1541
PFDS	15	15		1	100	53-142	10/28/2021 1541
PFHpS	15	14		1	94	69-134	10/28/2021 1541
PFNS	15	15		1	97	69-127	10/28/2021 1541
PFPeS	15	16		1	110	71-127	10/28/2021 1541
PFHxS	15	14		1	97	68-131	10/28/2021 1541
PFBA	16	16		1	98	73-129	10/28/2021 1541
PFDA	16	17		1	107	71-129	10/28/2021 1541
PFDoA	16	15		1	96	72-134	10/28/2021 1541
PFHpA	16	15		1	93	72-130	10/28/2021 1541
PFHxA	16	16		1	98	72-129	10/28/2021 1541
PFNA	16	17		1	105	69-130	10/28/2021 1541
PFOA	16	18		1	110	71-133	10/28/2021 1541
PFPeA	16	16		1	100	72-129	10/28/2021 1541
PFTeDA	16	15		1	96	71-132	10/28/2021 1541
PFTrDA	16	16		1	100	65-144	10/28/2021 1541
PFUdA	16	16		1	101	69-133	10/28/2021 1541
PFOS	15	15		1	98	65-140	10/28/2021 1541

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		91	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		95	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ20397-002
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		90	50-150
13C8_PFOS		89	50-150
13C9_PFNA		92	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 3229 | PAGE 1 OF 1

PROJECT NO: 112G09020	FACILITY: KSC-POL
PROJECT MANAGER: Mark Jonnet	PHONE NUMBER: (412) 921 8622
LABORATORY NAME AND CONTACT: PACE Analytical - Kathy Smith	ADDRESS: 106 Vantage Point Dr.
CITY, STATE: West Columbia, SC	
SAMPLERS (SIGNATURE): Kyle Kercher, Robert Siegel	
FIELD OPERATIONS LEADER: Rob Seigel	PHONE NUMBER: (954) 649-3637
CARRIER/WAYBILL NUMBER:	

STANDARD TAT ☐
RUSH TAT ☒
☐ 24 hr. ☐ 48 hr. ☒ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: Ice 4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

WJ25006
KES2

DATE YEAR 2021	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
10/21	0955	POL-DPT0127-012.0-20211021		10	14	GW	G	2	X	
	1020	POL-DPT0127-022.0-20211021		20	24					
	1110	POL-DPT0127-032.0-20211021		30	34					
10/21	1210	POL-DPT0127-042.0-20211021		40	44	GW	G	2	X	
10/21 KK										

1. RELINQUISHED BY: Kyle Kercher Tt	DATE 10/21/2021	TIME 1730	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY Fedex	DATE 10/22/21	TIME 0948	3. RECEIVED BY Amy Antunes	DATE 10/22/21	TIME 0948

COMMENTS T=3.6°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH   Cooler Inspected by/date: JRG2 / 10/25/2021   Lot #: WJ25006

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ______

Yes	No	NA	Question
☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

3.6 / 3.6 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5   IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

Yes	No	NA	Question
☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ______
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA ______ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA ______ were received with bubbles >6 mm in diameter.

Samples(s) NA ______ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KDRW   Date: 10/25/2021

Comments:

PFAS

QC SUMMARY

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ25006-001
Description: POL-DPT0127-012.0-20211021			Matrix: Aqueous
Date Sampled: 10/21/2021 0955	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/29/2021 1454	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.4	I	6.8	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20		3.4	1.7	0.85	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.9	I	3.4	1.7	0.85	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.4	1.7	0.85	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	95		3.4	1.7	0.85	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	40	Q	3.4	1.7	0.85	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	14		3.4	1.7	0.85	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	29		3.4	1.7	0.85	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.5		3.4	1.7	0.85	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	26		3.4	1.7	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	41		3.4	1.7	0.85	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	230		3.4	1.7	0.85	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	163	50-150
13C2_6:2FTS		136	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		70	50-150
13C2_PFTeDA		50	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA	N	35	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		66	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ25006-001
Description: POL-DPT0127-012.0-20211021			Matrix: Aqueous
Date Sampled: 10/21/2021 0955	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		87	50-150
13C9_PFNA		87	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-002	
Description: POL-DPT0127-022.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1020	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1748	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.8	I	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	26		6.8	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	53		3.4	1.7	0.86	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	8.1		3.4	1.7	0.86	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	37		3.4	1.7	0.86	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.4	1.7	0.86	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	55	Q	3.4	1.7	0.86	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.91	I	3.4	1.7	0.86	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	33		3.4	1.7	0.86	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	73		3.4	1.7	0.86	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.6		3.4	1.7	0.86	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	64		3.4	1.7	0.86	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	81		3.4	1.7	0.86	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	UQ	3.4	1.7	0.86	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	470		3.4	1.7	0.86	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		149	50-150
13C2_6:2FTS		141	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		63	50-150
13C2_PFTeDA	N	39	50-150
13C3_PFBS		68	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		68	50-150
13C4_PFBA	N	28	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		61	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		71	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ25006-002
Description: POL-DPT0127-022.0-20211021			Matrix: Aqueous
Date Sampled: 10/21/2021 1020	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	50-150
13C8_PFOS		82	50-150
13C9_PFNA		95	50-150
d-EtFOSA	N	39	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ25006-003
Description: POL-DPT0127-032.0-20211021			Matrix: Aqueous
Date Sampled: 10/21/2021 1110	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1759	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.7	I	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	24		7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	2.6	I	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	54		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	6.5		3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	38		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	79	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.6	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	35		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	78		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.3		3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	65		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	100		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	500		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	158	50-150
13C2_6:2FTS		137	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	36	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	27	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		60	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-003	
Description: POL-DPT0127-032.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1110	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		76	50-150
13C9_PFNA		90	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-004	
Description: POL-DPT0127-042.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1210	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1809	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	11		6.7	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	160		6.7	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	7.0	Q	6.7	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	37		3.3	1.7	0.83	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.3	1.7	0.83	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	27		3.3	1.7	0.83	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	220		3.3	1.7	0.83	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	Q	3.3	1.7	0.83	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	30		3.3	1.7	0.83	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	82		3.3	1.7	0.83	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	6.2		3.3	1.7	0.83	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	96		3.3	1.7	0.83	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	56		3.3	1.7	0.83	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	340		3.3	1.7	0.83	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	159	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		69	50-150
13C6_PFDA		86	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-004	
Description: POL-DPT0127-042.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1210	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	50-150
13C8_PFOS		83	50-150
13C9_PFNA		98	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS - MB

Sample ID:	WQ20397-001	Matrix:	Aqueous
Batch:	20397	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	10/27/2021 1636

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		72	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		91	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ20397-001	Matrix:	Aqueous
Batch:	20397	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	10/27/2021 1636

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		95	50-150
13C8_PFOS		80	50-150
13C9_PFNA		91	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ20397-002
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	102	70-150	10/28/2021 1541
11Cl-PF3OUdS	15	14		1	93	70-150	10/28/2021 1541
8:2 FTS	15	19		1	123	67-138	10/28/2021 1541
6:2 FTS	15	17		1	113	64-140	10/28/2021 1541
4:2 FTS	15	15		1	99	63-143	10/28/2021 1541
GenX	32	30		1	92	70-150	10/28/2021 1541
ADONA	15	15		1	99	70-150	10/28/2021 1541
EtFOSA	16	15		1	96	70-150	10/28/2021 1541
EtFOSAA	16	13		1	83	61-135	10/28/2021 1541
MeFOSAA	16	15		1	97	65-136	10/28/2021 1541
PFBS	14	14		1	97	72-130	10/28/2021 1541
PFDS	15	15		1	100	53-142	10/28/2021 1541
PFHpS	15	14		1	94	69-134	10/28/2021 1541
PFNS	15	15		1	97	69-127	10/28/2021 1541
PFPeS	15	16		1	110	71-127	10/28/2021 1541
PFHxS	15	14		1	97	68-131	10/28/2021 1541
PFBA	16	16		1	98	73-129	10/28/2021 1541
PFDA	16	17		1	107	71-129	10/28/2021 1541
PFDoA	16	15		1	96	72-134	10/28/2021 1541
PFHpA	16	15		1	93	72-130	10/28/2021 1541
PFHxA	16	16		1	98	72-129	10/28/2021 1541
PFNA	16	17		1	105	69-130	10/28/2021 1541
PFOA	16	18		1	110	71-133	10/28/2021 1541
PFPeA	16	16		1	100	72-129	10/28/2021 1541
PFTeDA	16	15		1	96	71-132	10/28/2021 1541
PFTrDA	16	16		1	100	65-144	10/28/2021 1541
PFUdA	16	16		1	101	69-133	10/28/2021 1541
PFOS	15	15		1	98	65-140	10/28/2021 1541

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		91	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		95	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ20397-002	Matrix:	Aqueous
Batch:	20397	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	10/27/2021 1636

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		90	50-150
13C8_PFOS		89	50-150
13C9_PFNA		92	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC | Lot No.: WJ25006

Project No.: 112G09020

AnalyticalMethod: PFAS by ID SOP QSM B-15 | Matrix: Water

CLIENT SAMPLE ID	IDS1	IDS2	IDS3	IDS4	IDS5	IDS6	IDS7	IDS8	IDS9
POL-DPT0127-012.0-2021102	83	79	50	70	90	35 *	85	62	86
POL-DPT0127-022.0-2021102	68	71	39 *	63	90	28 *	72	39 *	76
POL-DPT0127-032.0-2021102	75	81	36 *	71	93	27 *	86	40 *	79
POL-DPT0127-042.0-2021102	75	85	67	79	96	43 *	93	62	84
WQ20397-001	104	87	72	94	94	92	94	81	88
WQ20397-002	105	90	84	92	100	92	104	75	88

	QC LIMITS
IDS1 = 13C3-HFPO-DA	50-150
IDS2 = 13C7_PFUdA	50-150
IDS3 = 13C2_PFTeDA	50-150
IDS4 = 13C2_PFDoA	50-150
IDS5 = d3-MeFOSAA	50-150
IDS6 = 13C4_PFBA	50-150
IDS7 = d5-EtFOSAA	50-150
IDS8 = d-EtFOSA	50-150
IDS9 = 13C5_PFHxA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WJ25006

Project No.: 112G09020

AnalyticalMethod: PFAS by ID SOP QSM B-15   Matrix: Water

CLIENT SAMPLE ID	IDS10	IDS11	IDS12	IDS13	IDS14	IDS15	IDS16	IDS17	
POL-DPT0127-012.0-20211021	89	87	91	95	82	87	86	66	
POL-DPT0127-022.0-20211021	83	95	87	84	68	82	82	61	
POL-DPT0127-032.0-20211021	84	90	88	84	67	76	86	60	
POL-DPT0127-042.0-20211021	93	98	85	86	79	83	88	69	
WQ20397-001	90	91	95	89	87	80	89	91	
WQ20397-002	89	92	90	77	86	89	90	95	

	QC LIMITS
IDS10 = 13C4_PFHpA	50-150
IDS11 = 13C9_PFNA	50-150
IDS12 = 13C8_PFOA	50-150
IDS13 = 13C6_PFDA	50-150
IDS14 = 13C3_PFBS	50-150
IDS15 = 13C8_PFOS	50-150
IDS16 = 13C3_PFHxS	50-150
IDS17 = 13C5_PFPeA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC Lot No.: WJ25006

Project No.: 112G09020

AnalyticalMethod: PFAS by ID SOP QSM B-15 Matrix: Water

CLIENT SAMPLE ID	IDS18	IDS19	IDS20						TOT OUT
POL-DPT0127-012.0-20211021	110	136	163 *						2
POL-DPT0127-022.0-20211021	113	141	149						3
POL-DPT0127-032.0-20211021	107	137	158 *						4
POL-DPT0127-042.0-20211021	101	135	159 *						2
WQ20397-001	96	109	87						0
WQ20397-002	100	100	91						0

	QC LIMITS
IDS18 = 13C2_8:2FTS	50-150
IDS19 = 13C2_6:2FTS	50-150
IDS20 = 13C2_4:2FTS	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 3

LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC Lot No.: WJ25006

Project No.: 112G09020

Analytical Method: PFAS by ID SOP QSM B-15 Matrix: Water

Client Sample ID: WQ20397-002 Lab Sample ID: WQ20397-002

Instrument ID: _Sciex 4500_LCMSMS1

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCS CONCENTRATION	LCS %REC #	QC LIMITS REC.
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	14	93	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	19	123	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	17	113	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	15	99	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	15	99	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	15	102	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	30	92	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	15	96	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	13	83	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	15	97	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	14	97	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	15	100	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	14	94	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	15	97	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	16	110	71-127
Perfluoro-n-butanoic acid (PFBA)	16	16	98	73-129
Perfluoro-n-decanoic acid (PFDA)	16	17	107	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	15	96	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	15	93	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	16	98	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	17	105	69-130
Perfluoro-n-octanoic acid (PFOA)	16	18	110	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	16	100	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	15	96	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	16	100	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	16	101	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	14	97	68-131
Perfluorooctanesulfonic acid (PFOS)	15	15	98	65-140

* Values outside of QC Limits

CLIENT SAMPLE ID

WQ20397-001

FORM 4
METHOD BLANK SUMMARY

Lab Name: Pace Analytical Services, LLC
Lot No.: WJ25006
Project No.: 112G09020
Lab Sample ID: WQ20397-001
Analytical Method: PFAS by ID SOP QSM B-15
Matrix: Water
Instrument ID: Sciex 4500_LCMSMS1
Lab File ID:
Extraction Type: SOP SPE
Date Extracted: 10/27/2021
LC Column: Gemini C18 ID: 2.00 (mm)
Date Analyzed: 10/28/2021
Time Analyzed: 15:30

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED
POL-DPT0127-012.0-20211021	WJ25006-001		14:54
POL-DPT0127-022.0-20211021	WJ25006-002		17:48
POL-DPT0127-032.0-20211021	WJ25006-003		17:59
POL-DPT0127-042.0-20211021	WJ25006-004		18:09
WQ20397-002	WQ20397-002		15:41

RAW SAMPLE DATA

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-001	
Description: POL-DPT0127-012.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 0955	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/29/2021 1454	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.4	I	6.8	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20		3.4	1.7	0.85	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.9	I	3.4	1.7	0.85	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.4	1.7	0.85	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	95		3.4	1.7	0.85	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	40	Q	3.4	1.7	0.85	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	14		3.4	1.7	0.85	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	29		3.4	1.7	0.85	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.5		3.4	1.7	0.85	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	26		3.4	1.7	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	41		3.4	1.7	0.85	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	230		3.4	1.7	0.85	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	163	50-150
13C2_6:2FTS		136	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		70	50-150
13C2_PFTeDA		50	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA	N	35	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		66	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-001	
Description: POL-DPT0127-012.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 0955	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		87	50-150
13C9_PFNA		87	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921026.d		
Injection Date:	29-Oct-2021 14:54:38	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	17
Lab Sample ID:	WJ25006-001	Lab Prep. Batch:	20397
Client ID:	POL-DPT0127-012.0-20211021	Sample Group:	WJ25006
Sample Info:	WJ25006-001 CONF	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0375052

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	293	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent: Istds	Conc. Level: Smp	Vol. Added:	0.0100 ml
Reagent: Surrogates	Conc. Level: Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.706	0	386770	17	>100:1			1001.00	431.13	35.4*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.706	1/1	448480	16	54:1			1074.11	40.285		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.077	0	666802	13	>100:1			1001.00	741.80	65.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.077	1/1	778677	15	38:1			1083.00	40.618		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.129	1	259232	14	>100:1			1001.00	868.47	81.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.129	1/0	189778	14	98:1	Target = 3.78		527.10	19.769		
298.9 > 99	44	2.131	2.129		49960	13	41:1	3.79 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.475	1/0	81066	13	48:1	Target = 3.45		303.40	11.379		
349 > 99	44	2.476	2.475		25968	14	35:1	3.12 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.397	1	524873	15	>100:1			5005.00	11745	162.9*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.397		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.440	1	782919	15	>100:1			1001.00	956.21	86.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.440	1/0	613507	12	68:1	Target = 16.37		763.66	28.641		M
313 > 119	49	2.441	2.440		36102	14	>100:1	16.99 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.562	1	598463	15	>100:1			5005.00	4136.25	82.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.562		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.828	2.827	1	822282	15	>100:1			1001.00	1026.20	88.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.828	2.827	1/0	297952	14	40:1	Target = 3.21		365.52	13.709		
363 > 169	47	2.820	2.827		91321	17	>100:1	3.26 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.837	2.836	1	236601	15	>100:1			1001.00	961.97	85.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.837	2.845	0/-1	721558	25	>100:1	Target = 3.47	4.85	2531.95	94.961		
399 > 99	45	2.837	2.845		187734	24	>100:1	3.84 (1.73-5.21)	7.19				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.871		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													J
449 > 80	45	3.208	3.208	0/-1	19801	18	96:1	Target = 3.62		77.150	2.8935		
449 > 99	45	3.208	3.208		4754	17	13:1	4.16 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.177	0	373633	21	>100:1			5005.00	8550.54	136.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													J
427 > 407	64	3.170	3.183	0/0	13887	18	>100:1	Target = 1.19		117.95	4.4236		
427 > 81	64	3.177	3.183		10332	19	25:1	1.34 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.202	0	783432	19	>100:1			1001.00	1035.37	91.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.202	3.202	0/0	556669	36	>100:1	Target = 2.34	5.11	706.44	26.495		
413 > 169	53	3.202	3.202		234920	34	>100:1	2.36 (1.17-3.51)	4.47				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.563	3.565	0	201352	16	>100:1			1001.00	888.69	86.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.563	3.572	0/0	1512799	38	>100:1	Target = 4.00	3.09	6230.00	233.66		
499 > 99	54	3.563	3.572		373793	35	>100:1	4.04 (2.00-6.01)	7.19				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.769		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.903		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.199		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.359		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.570	3.572	0	748982	19	>100:1			1001.00	965.87	86.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.570	3.572	0/0	60308	18	66:1	Target = 4.21		92.345	3.4634		
463 > 169	56	3.570	3.572		13762	17	74:1	4.38 (2.10-6.32)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.901	3.903	0	232344	17	>100:1			5005.00	6144.43	109.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.911		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.909	3.911	0	713033	17	>100:1			1001.00	1049.88	94.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.918		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.062	4.065	0	925614	15	>100:1			5005.00	4517.42	89.6	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.073		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.214	4.217	0	572734	16	>100:1			1001.00	906.02	78.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.217		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.214	4.217	0	803523	18	>100:1			5005.00	4680.45	85.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.217		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.442	1	34910	15	>100:1			1001.00	635.55	61.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.449		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.483	4.478	1	488336	18	>100:1			1001.00	813.04	69.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.485		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.721		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.927	4.935	0	439803	21	>100:1			1001.00	548.94	50.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.935		ND								
*** 37 13C2_PFDA**													
515 > 470		3.909	3.911	0	665702	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.440	1	657303	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.202	0	707948	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.706	1	330818	17	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.563	3.565	0	201929	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

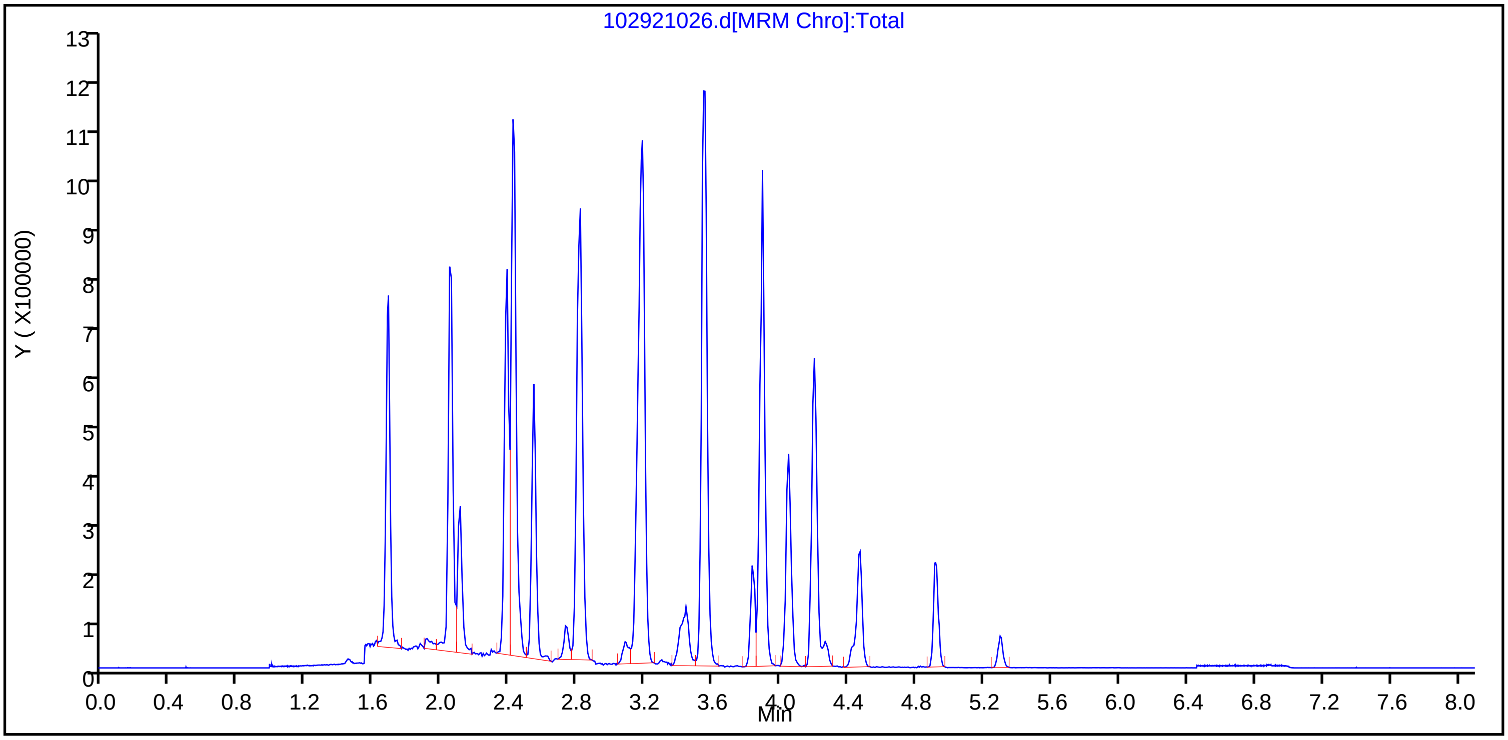
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

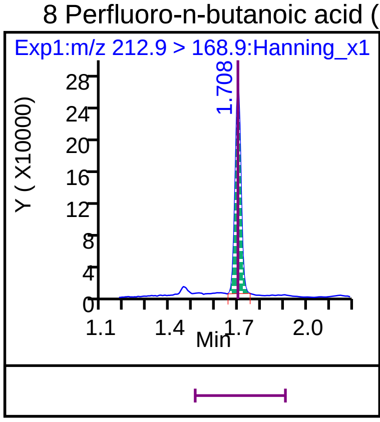
Report Date: 30-Oct-2021 15:06:29 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

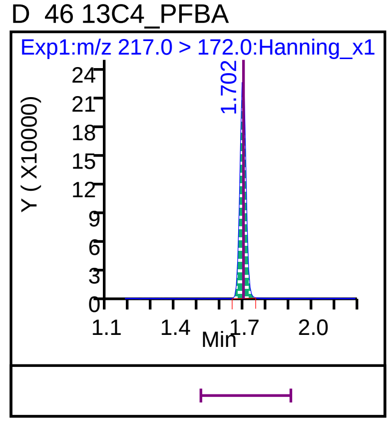
Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921026.d		
Injection Date:	29-Oct-2021 14:54:38	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-012.0-20211021	Lab ID:	WJ25006-001
Sample Info:	WJ25006-001 CONF		
Dil. Factor:	1	Operator:	Matthew M. Miller



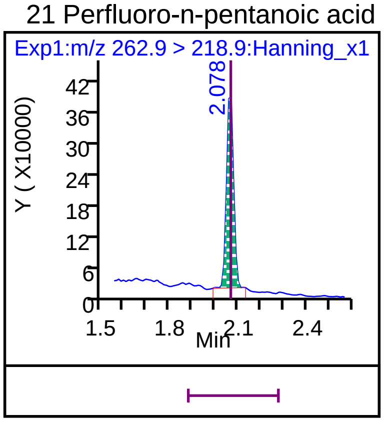
8 Perfluoro-n-butanoic acid (PFBA)



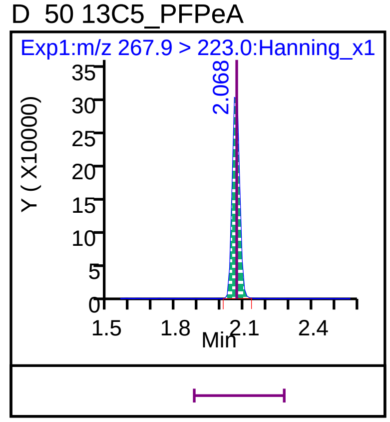
D 46 13C4_PFBA



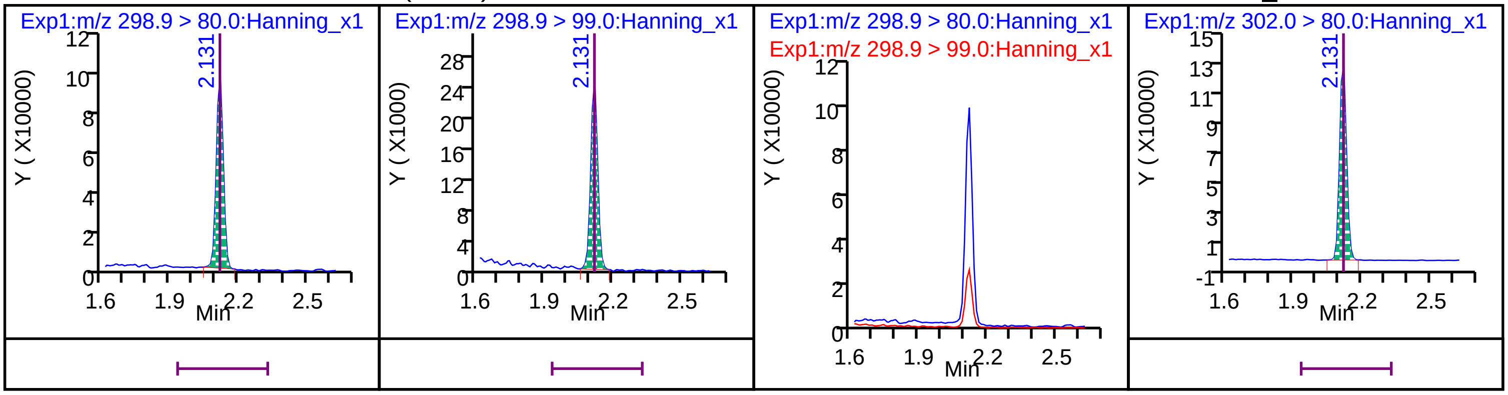
21 Perfluoro-n-pentanoic acid (PFPeA)



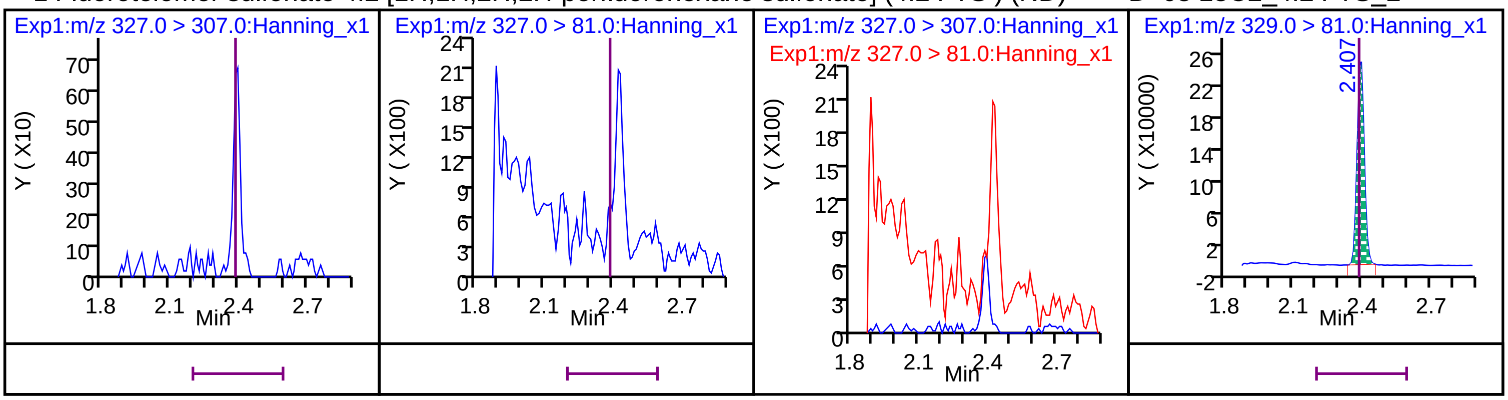
D 50 13C5_PFPeA



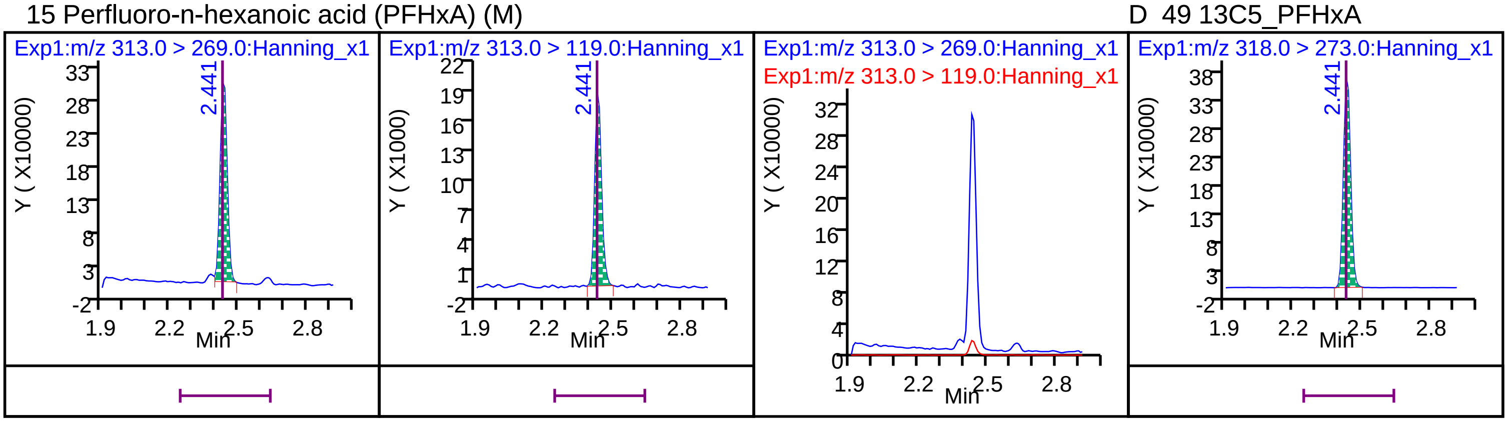
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



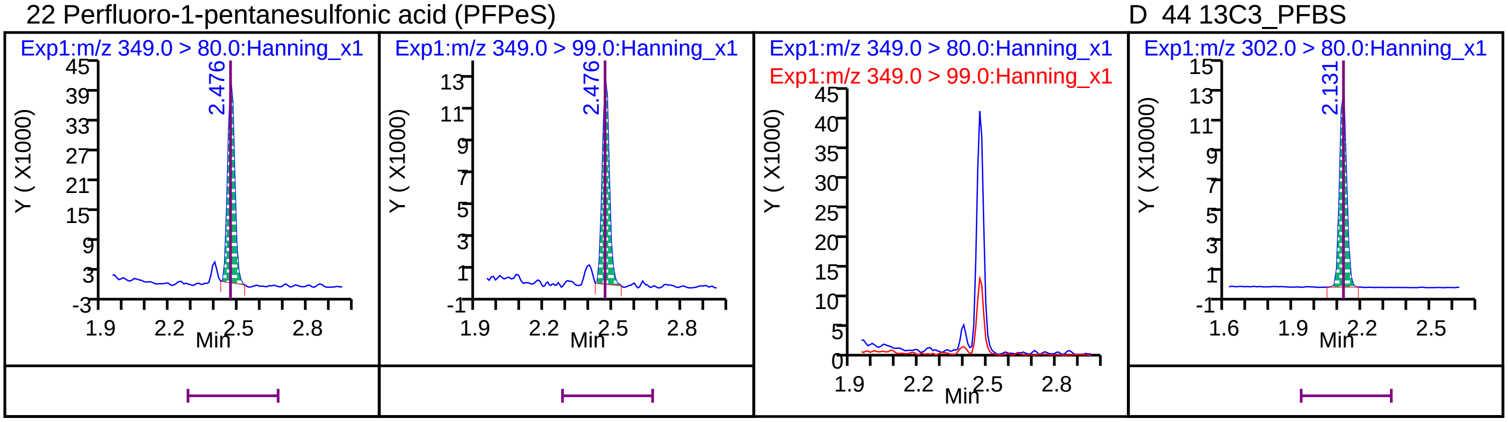
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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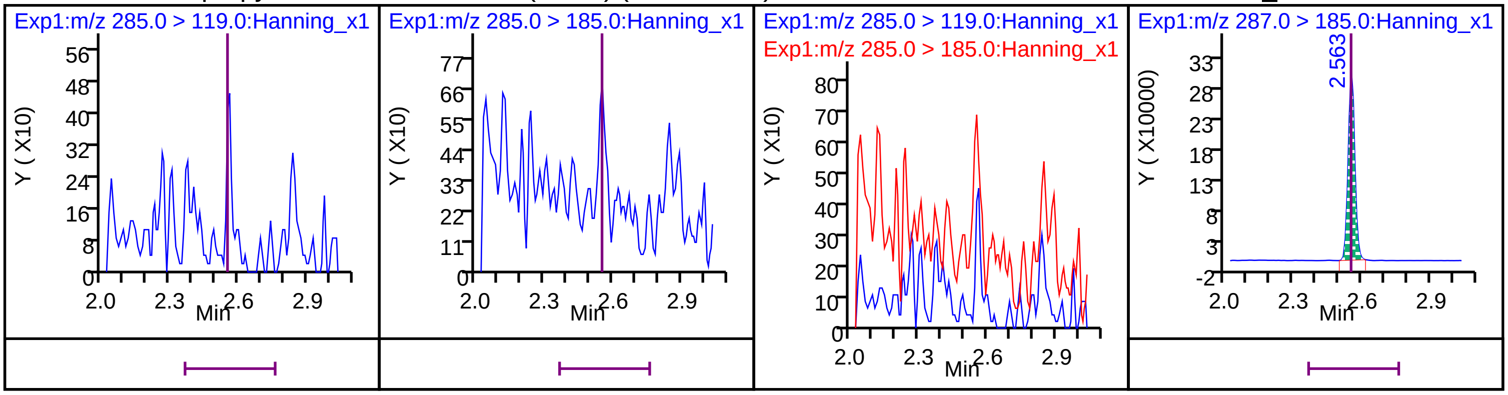
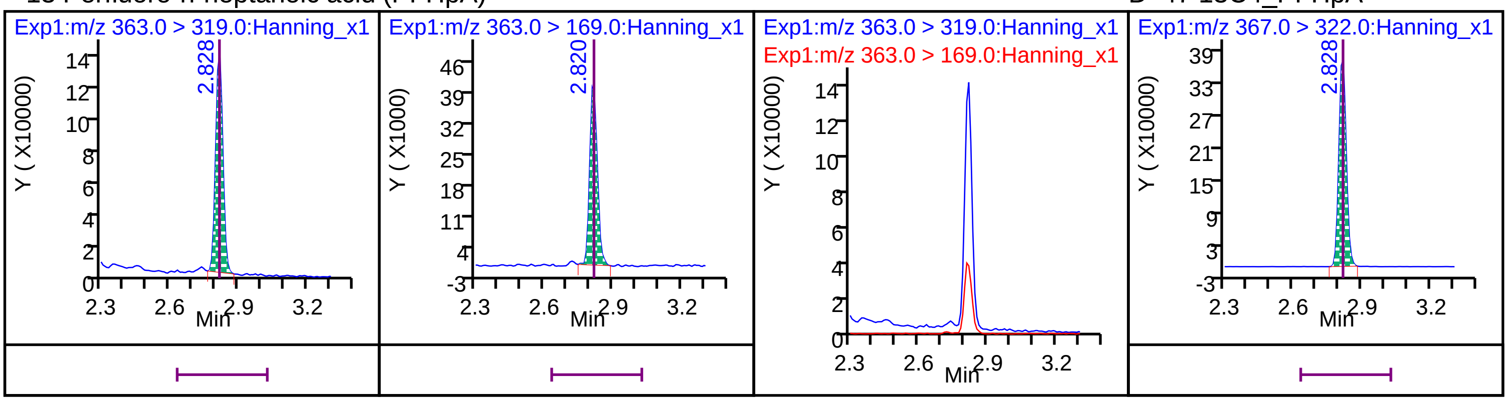
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921026.d

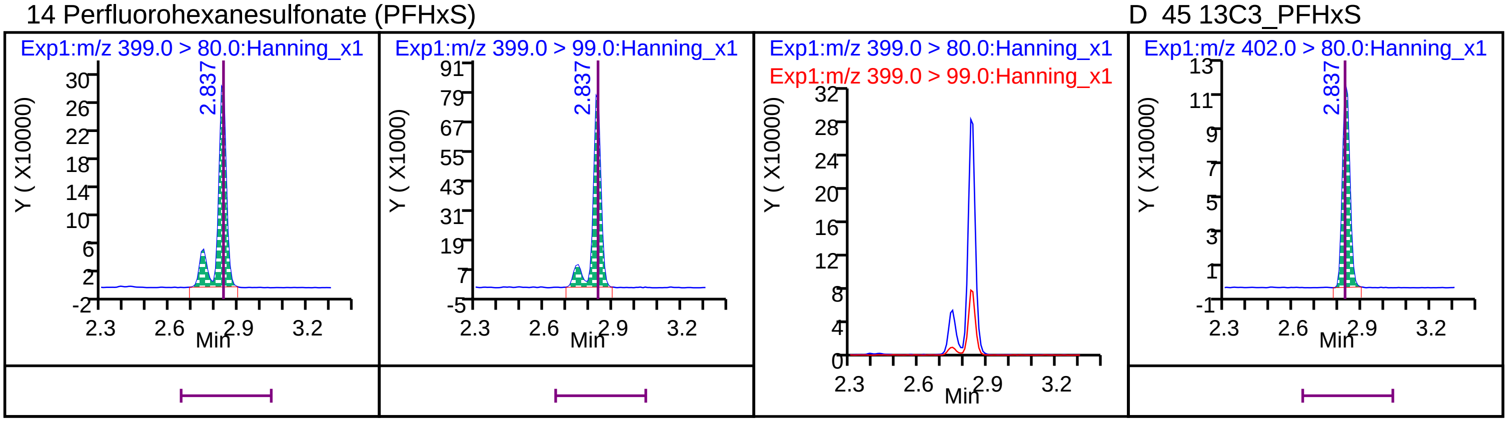
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



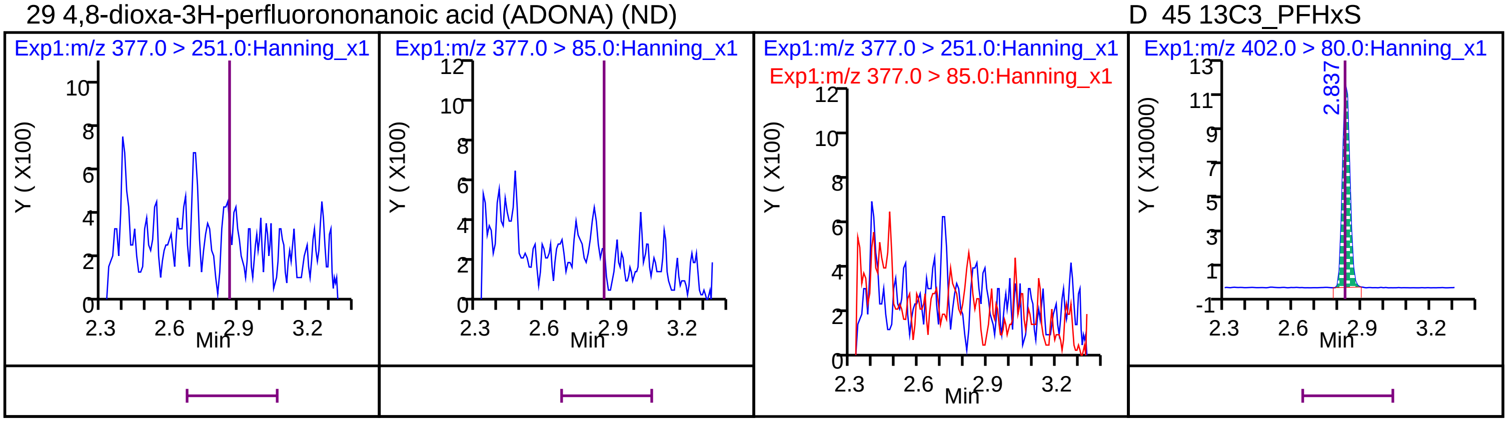
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



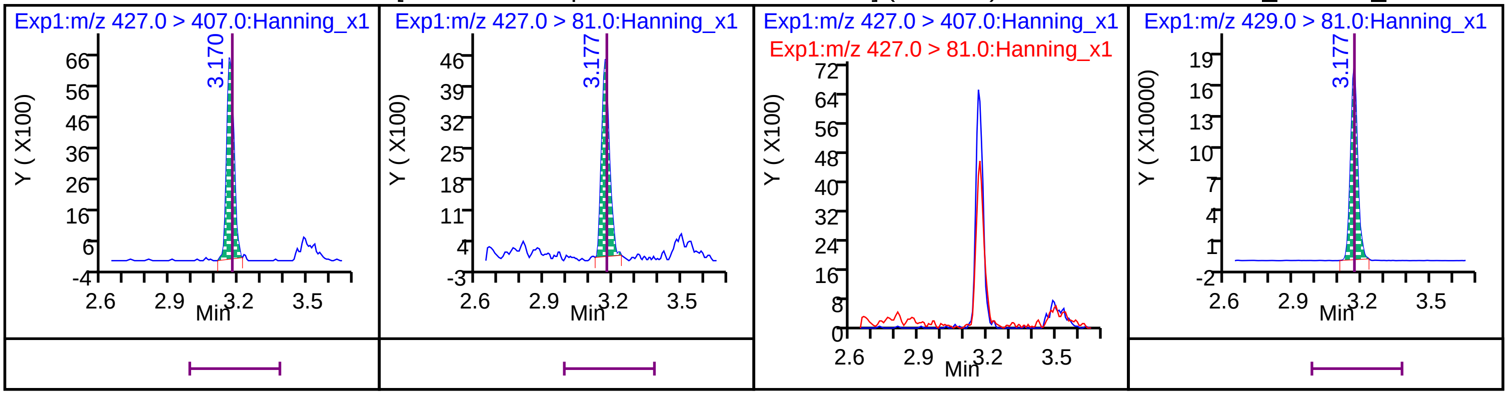
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



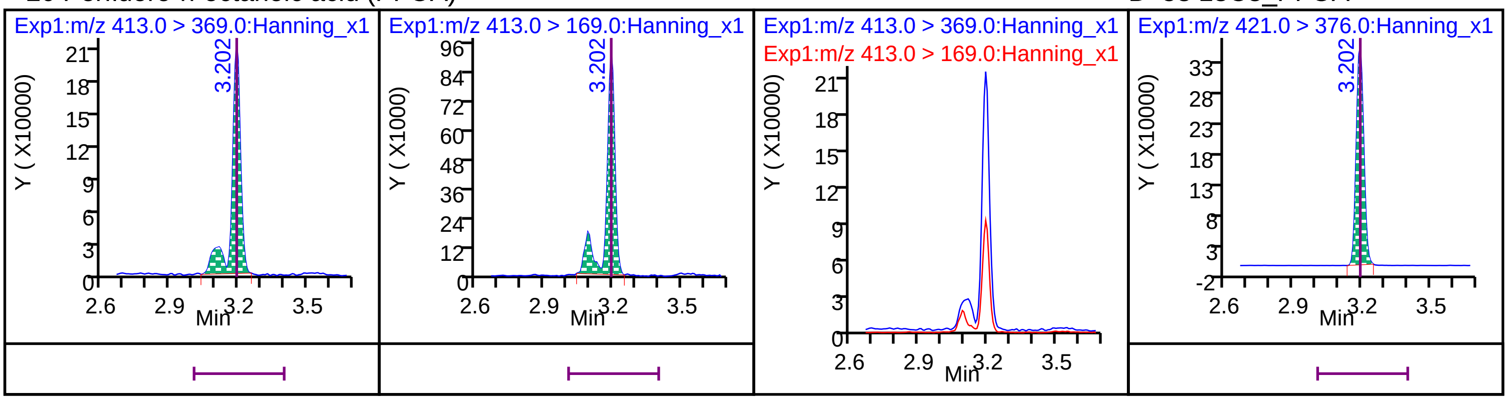
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



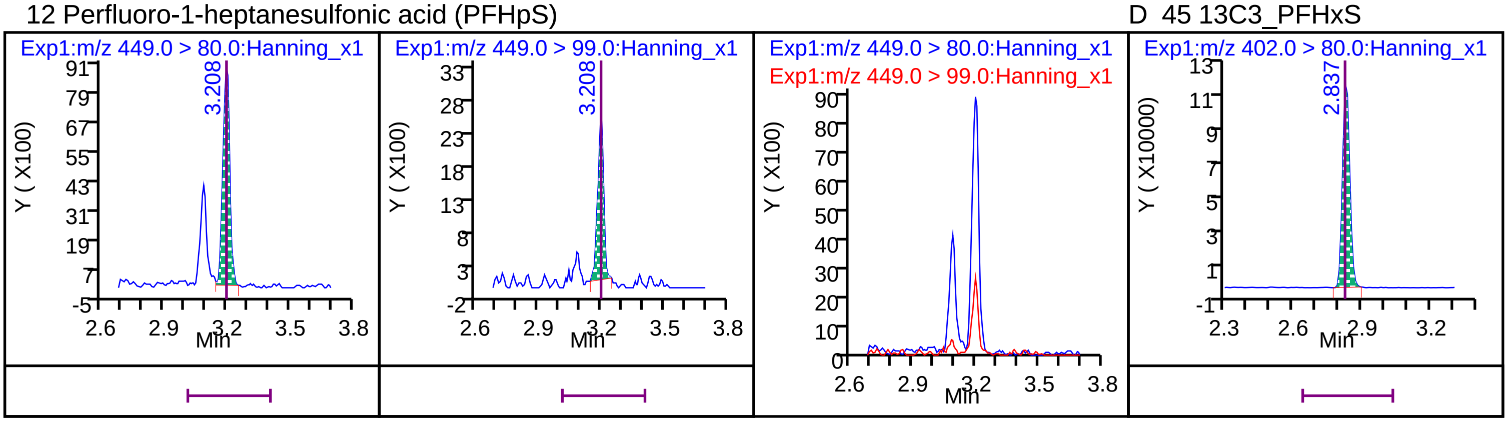
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



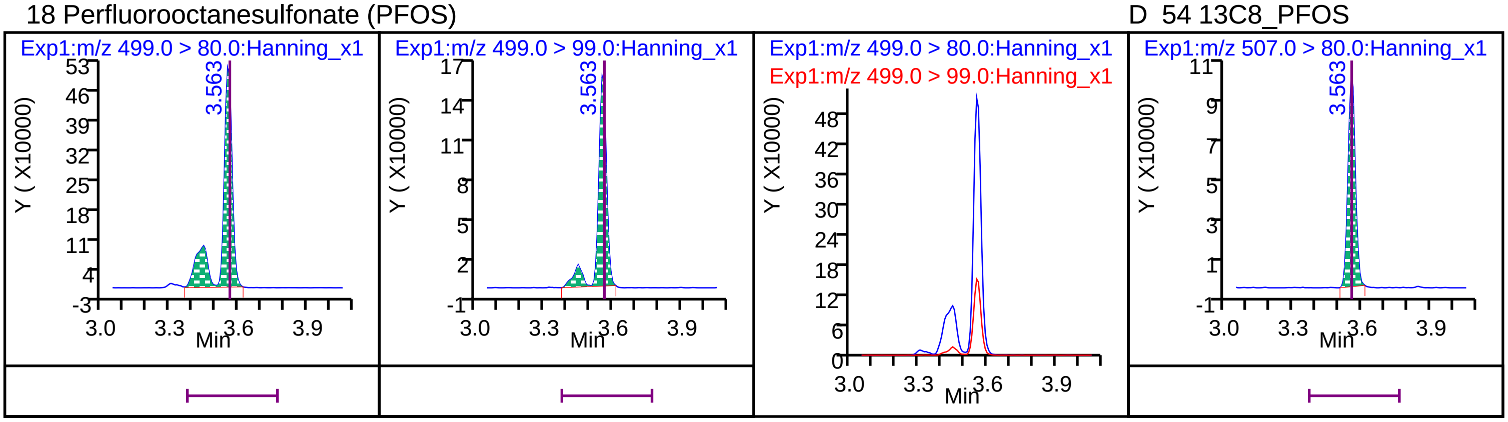
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



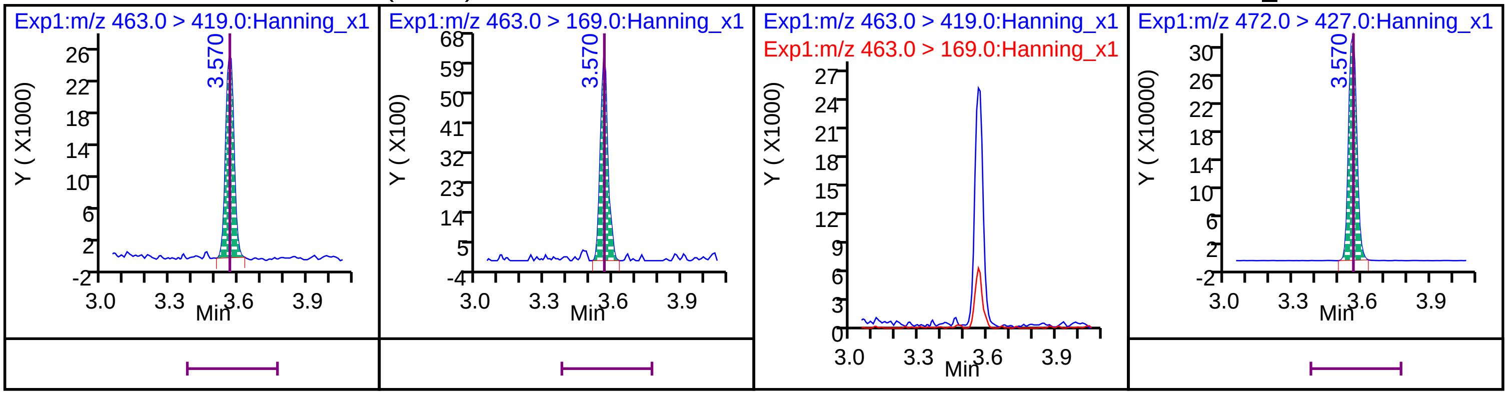
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



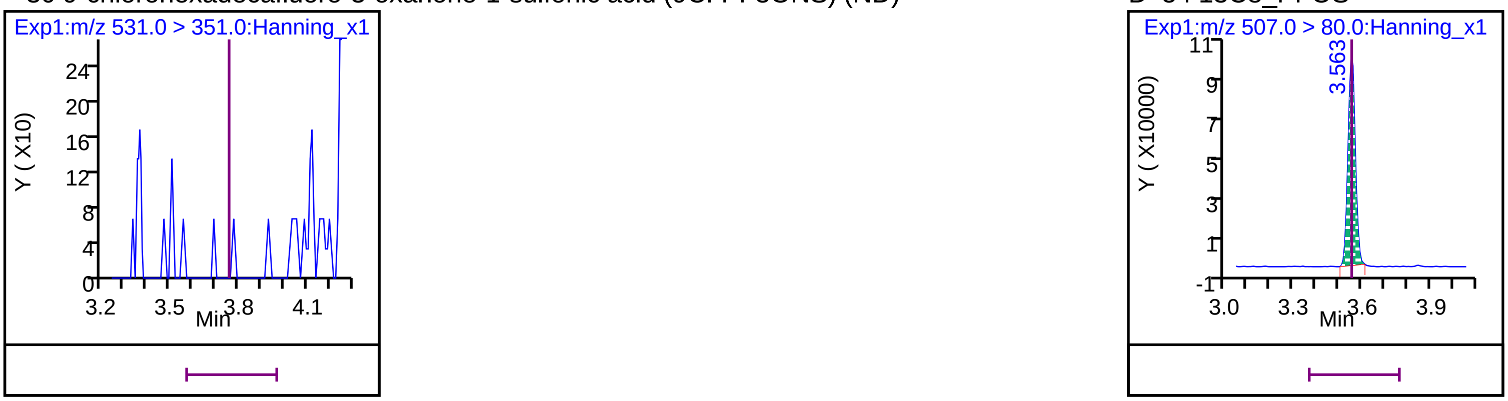
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



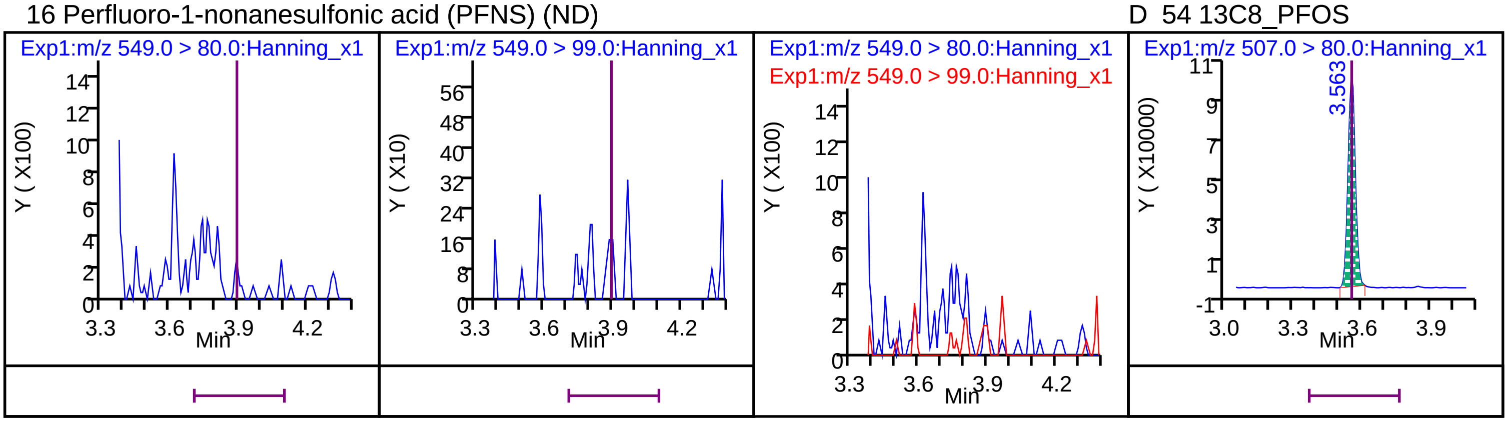
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



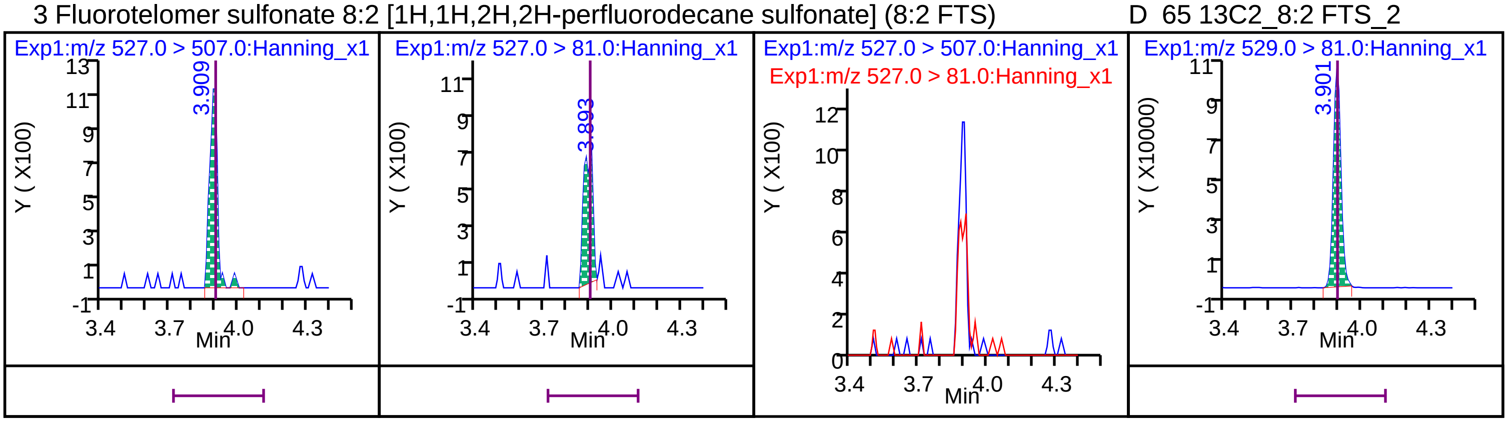
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



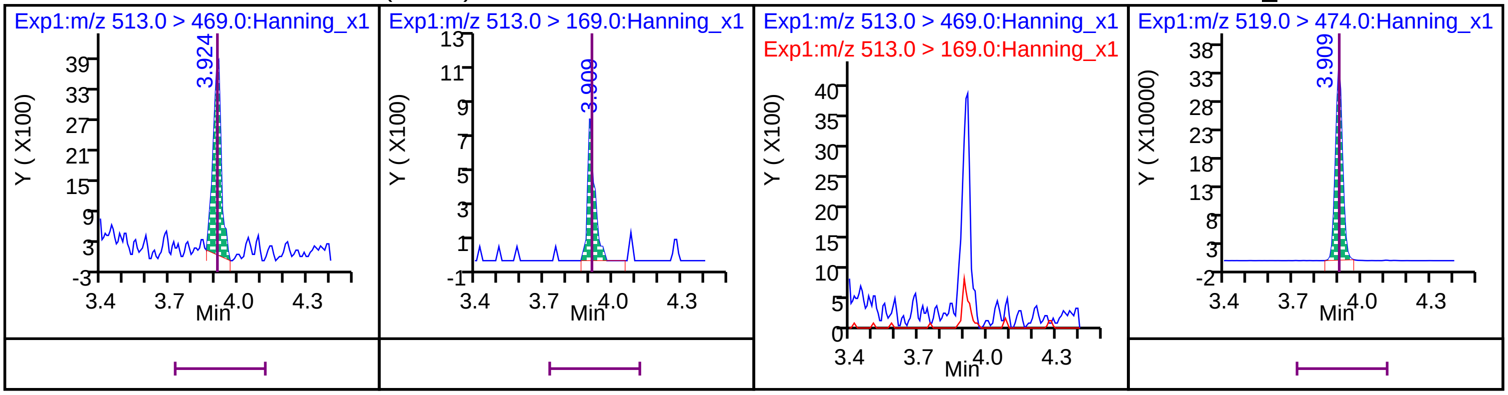
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



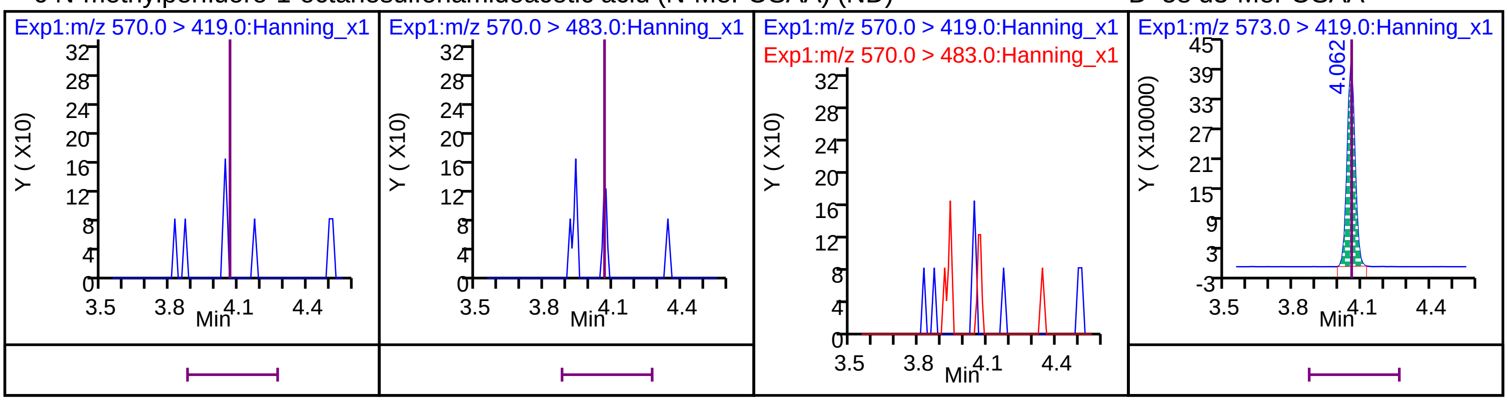
Report Date: 30-Oct-2021 15:06:29 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921026.d

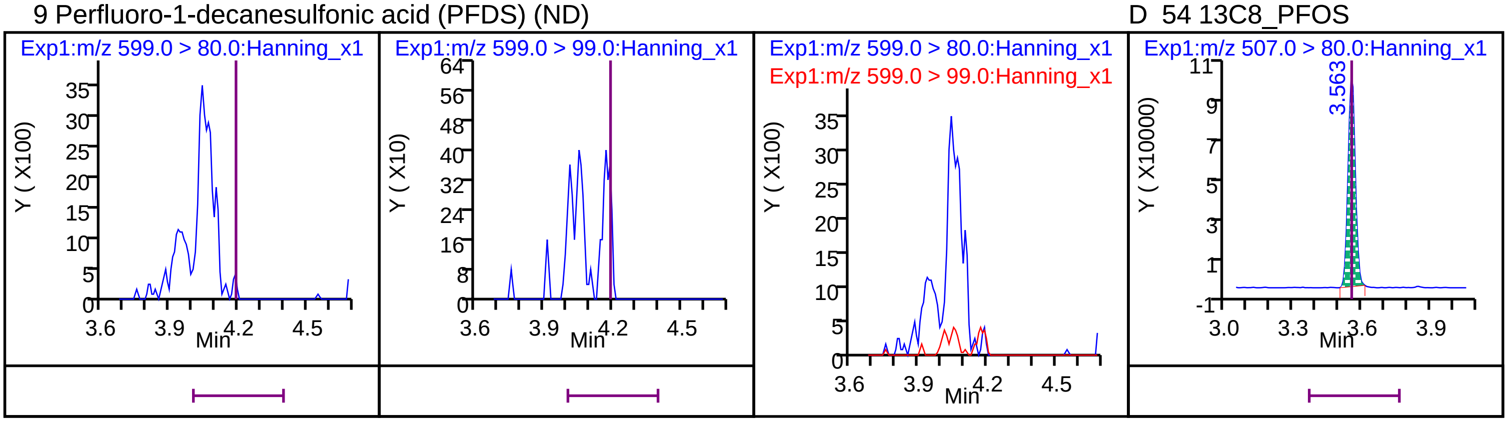
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



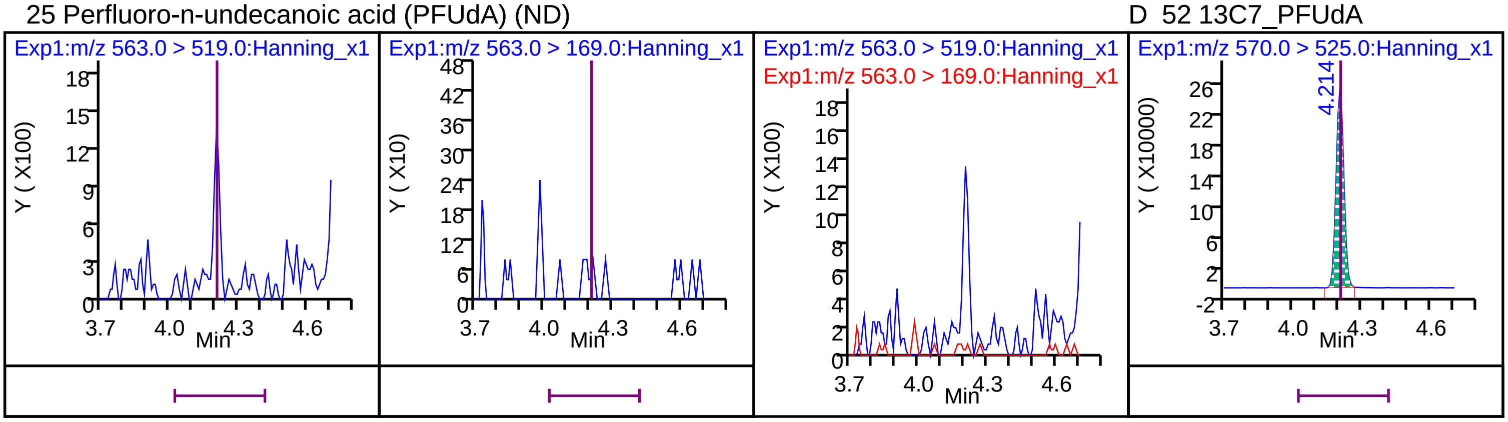
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

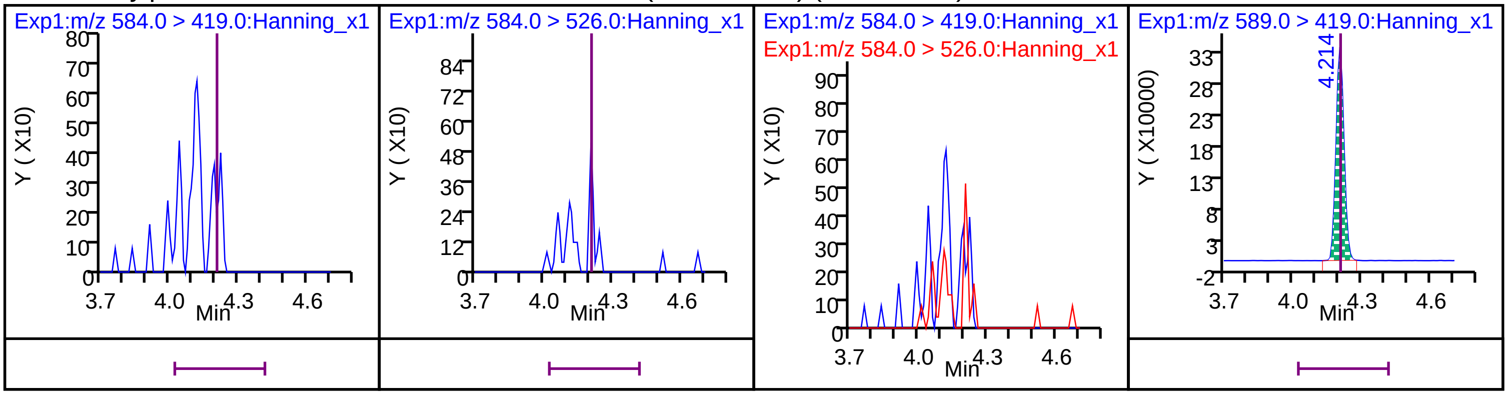


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



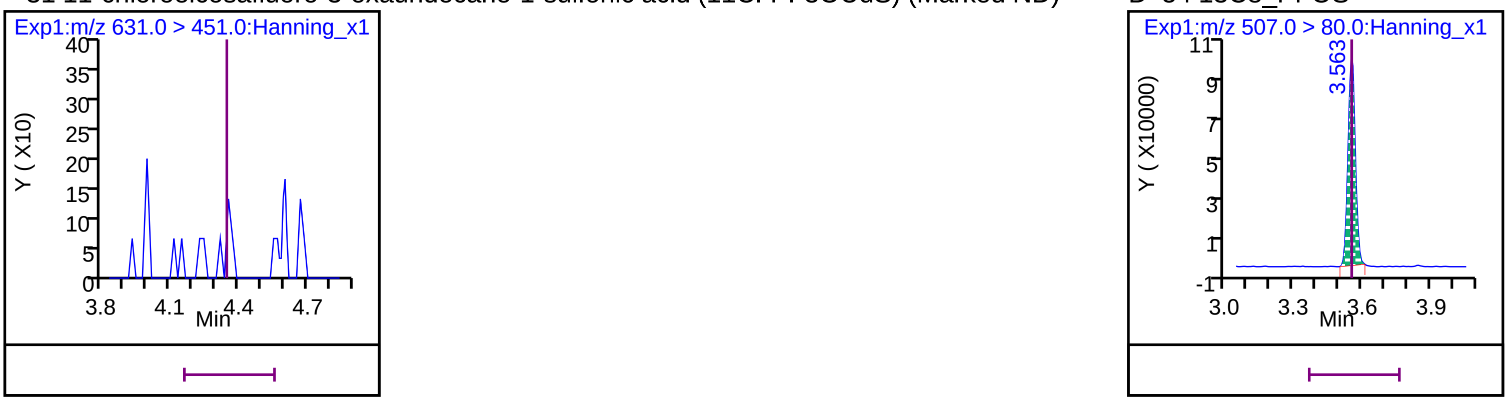
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND)

D 60 d5-EtFOSAA



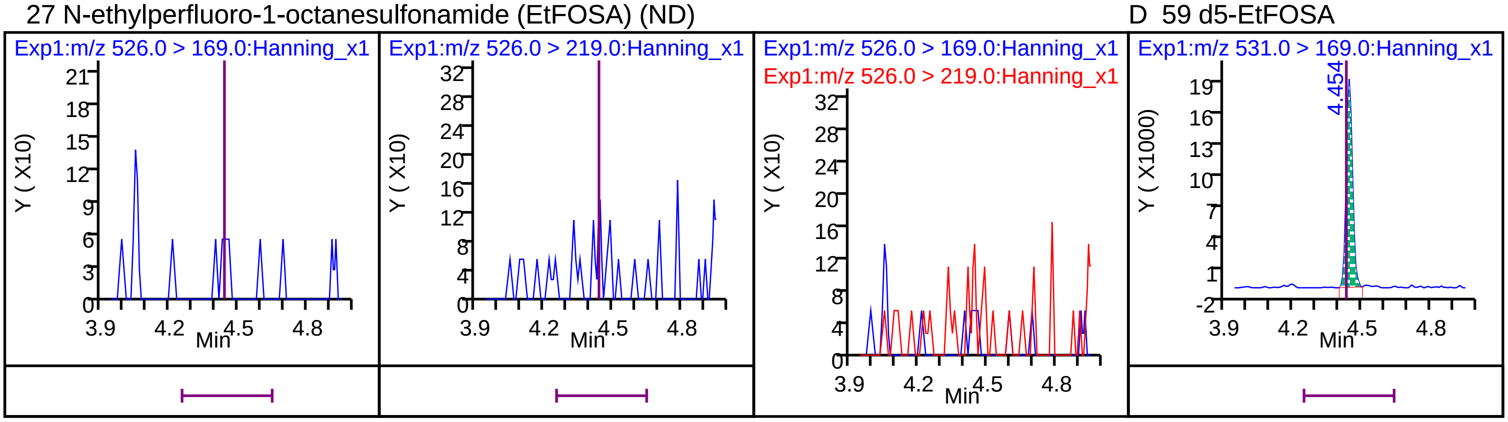
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

D 54 13C8_PFOS



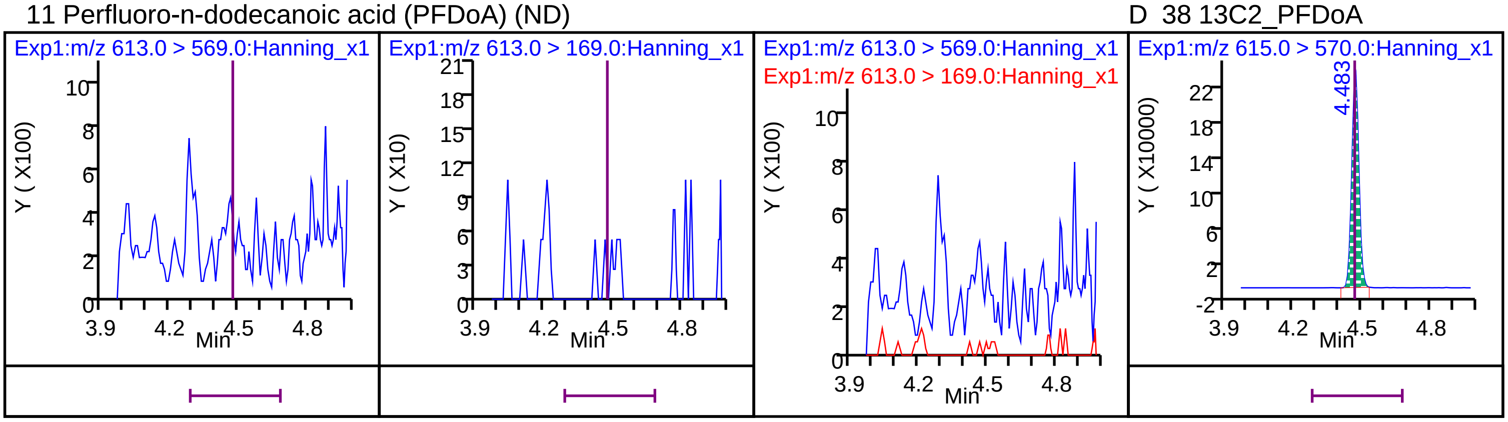
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

D 59 d5-EtFOSA

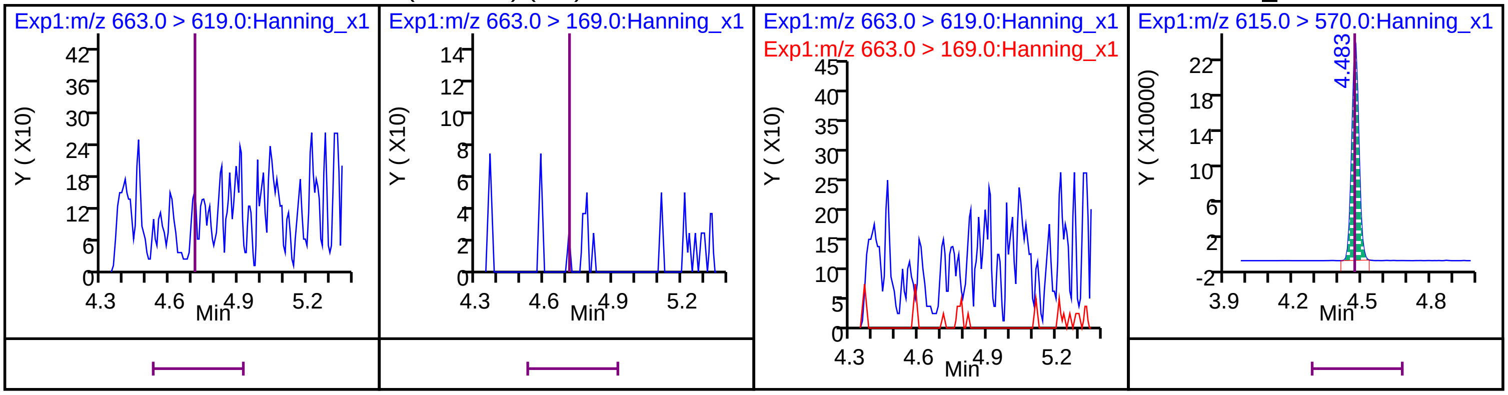


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

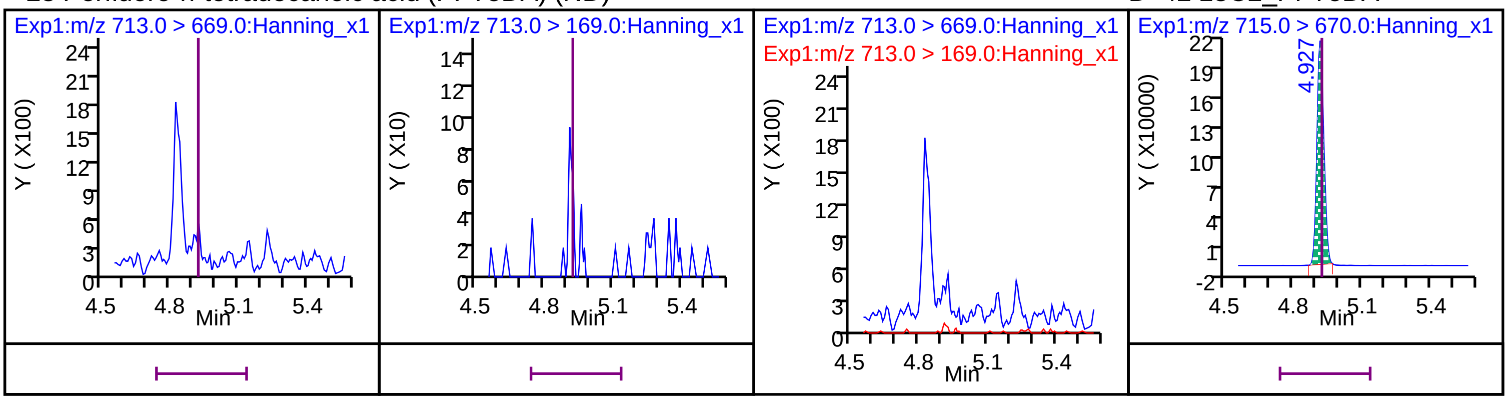
D 38 13C2_PFDoA



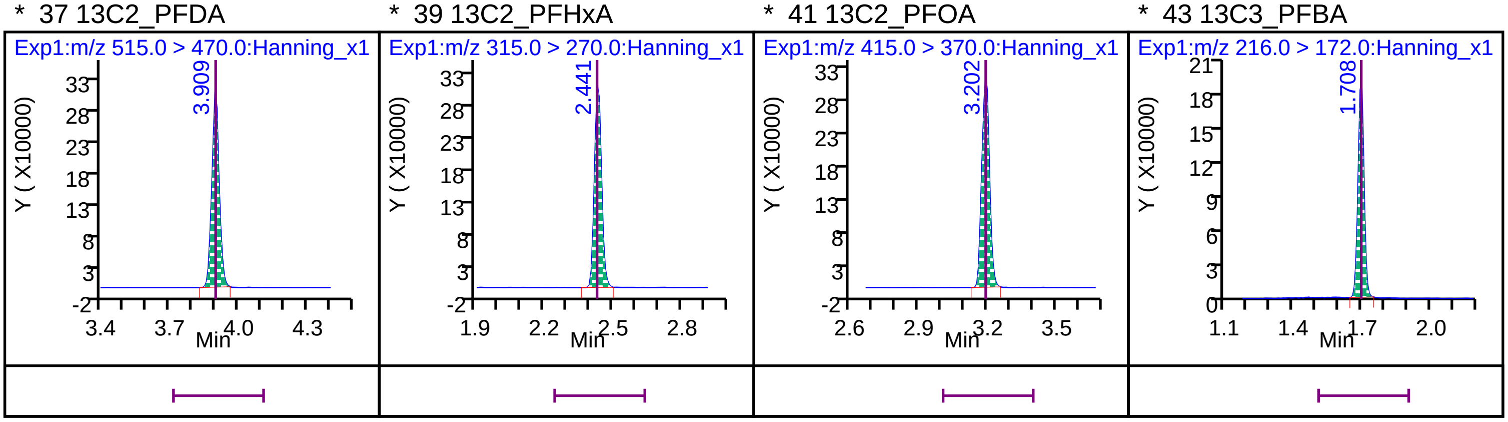
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



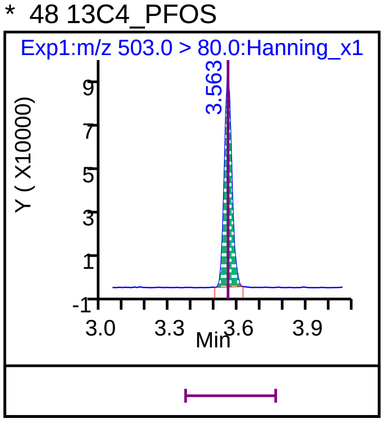
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Oct-2021 15:06:29 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

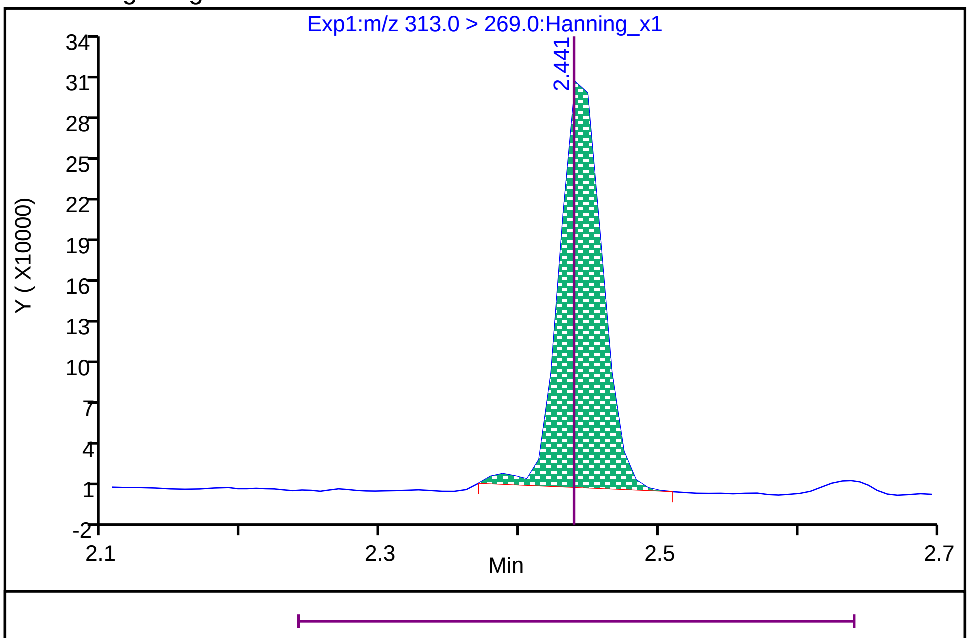
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921026.d		
Injection Date:	29-Oct-2021 14:54:38	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-012.0-20211021	Lab ID:	WJ25006-001
Sample Info:	WJ25006-001 CONF		
Dil. Factor:	1	Operator:	Matthew M. Miller

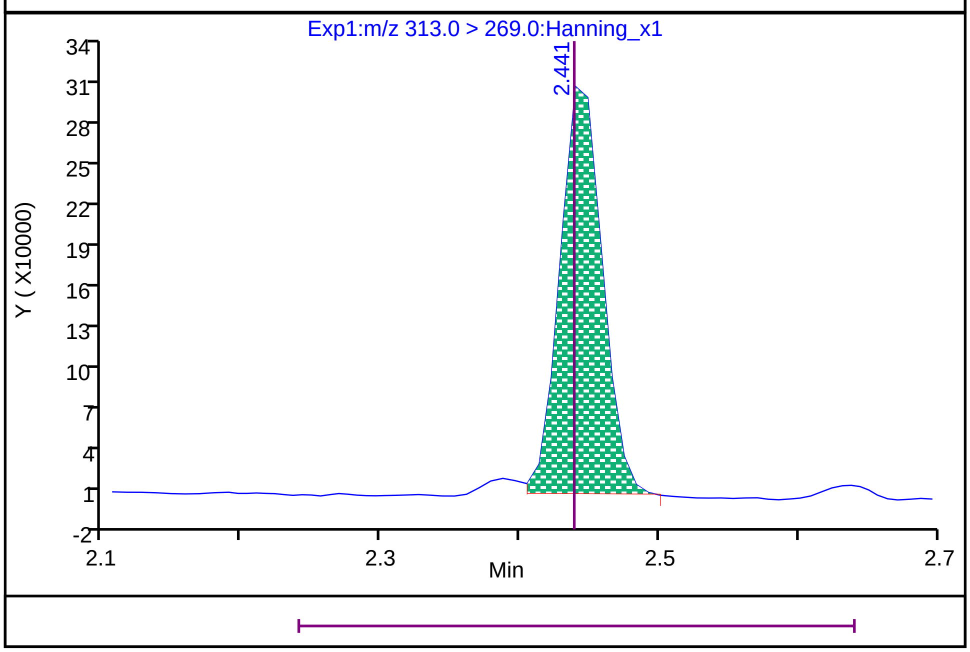
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.441
Area:	621738
Conc:	29.026
Conc Units:	ng/L



RT:	2.441
Area:	613507
Conc:	28.641
Conc Units:	ng/L



Data Editor: matthew.miller, 30-Oct-2021 14:53:28

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-002	
Description: POL-DPT0127-022.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1020	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1748	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.8	I	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	26		6.8	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	53		3.4	1.7	0.86	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	8.1		3.4	1.7	0.86	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	37		3.4	1.7	0.86	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.4	1.7	0.86	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	55	Q	3.4	1.7	0.86	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.91	I	3.4	1.7	0.86	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	33		3.4	1.7	0.86	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	73		3.4	1.7	0.86	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.6		3.4	1.7	0.86	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	64		3.4	1.7	0.86	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	81		3.4	1.7	0.86	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	UQ	3.4	1.7	0.86	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	470		3.4	1.7	0.86	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		149	50-150
13C2_6:2FTS		141	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		63	50-150
13C2_PFTeDA	N	39	50-150
13C3_PFBS		68	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		68	50-150
13C4_PFBA	N	28	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		76	50-150
13C5_PFPeA		61	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		71	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-002	
Description: POL-DPT0127-022.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1020	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		87	50-150
13C8_PFOS		82	50-150
13C9_PFNA		95	50-150
d-EtFOSA	N	39	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821042.d		
Injection Date:	28-Oct-2021 17:48:49	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	31
Lab Sample ID:	WJ25006-002	Lab Prep. Batch:	20397
Client ID:	POL-DPT0127-022.0-20211021	Sample Group:	WJ25006
Sample Info:	WJ25006-002	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0376336

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	292	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.707	0	307473	18	>100:1			1001.00	342.74	27.7*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.707	1/1	485951	16	>100:1			1464.01	55.096		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.079	0	619846	13	>100:1			1001.00	689.56	61.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.079	0/0	1430839	11	94:1			2140.80	80.566		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.130	2.131	0	236679	15	>100:1			1001.00	792.91	68.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.130	2.131	0/0	465486	13	>100:1	Target = 3.78		1416.07	53.292		
298.9 > 99	44	2.130	2.131		115856	14	92:1	4.01 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.477	0/0	239018	13	>100:1	Target = 3.45		979.81	36.874		
349 > 99	44	2.476	2.477		72975	13	>100:1	3.27 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.407	0	481109	15	>100:1			5005.00	10766	148.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.407		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.442	0	713807	17	>100:1			1001.00	871.80	75.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.451	0/0	1414176	13	>100:1	Target = 16.37		1930.73	72.660		M
313 > 119	49	2.441	2.451		74039	16	>100:1	19.10 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.572	0	484155	15	>100:1			5005.00	3346.21	67.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.572		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.828	2.831	0	784994	15	>100:1			1001.00	979.66	83.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.828	2.831	0/0	672802	13	>100:1	Target = 3.21		864.59	32.538		M
363 > 169	47	2.828	2.831		207447	14	>100:1	3.24 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.846	2.840	1	232022	15	>100:1			1001.00	943.35	81.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.846	2.840	1/0	2005293	26	>100:1	Target = 3.47	5.36	7175.44	270.04		
399 > 99	45	2.837	2.840		547648	25	>100:1	3.66 (1.73-5.21)	7.51				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.866		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.204	3.206	0/-1	53975	16	>100:1	Target = 3.62		214.45	8.0705		
449 > 99	45	3.204	3.206		20460	32		2.63 (1.81-5.43)					M
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.172	3.174	0	338756	20	>100:1			5005.00	7752.39	140.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.179	3.174	1/1	72762	18	>100:1	Target = 1.19		681.62	25.652		
427 > 81	64	3.179	3.174		57039	17	>100:1	1.27 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.198	3.199	0	750724	20	>100:1			1001.00	992.15	87.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.198	3.199	0/0	1293107	42	>100:1	Target = 2.34	4.82	1712.51	64.448		
413 > 169	53	3.198	3.199		532017	33	>100:1	2.43 (1.17-3.51)	4.04				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.558	3.562	0	198910	19	>100:1			1001.00	877.92	81.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.558	3.562	0/0	3018142	39	>100:1	Target = 4.00	1.94	12582	473.50		M
499 > 99	54	3.566	3.562		796649	39	>100:1	3.78 (2.00-6.01)	4.68				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.761		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.894		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.190		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.350		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.566	3.569	0	779438	19	>100:1			1001.00	1005.14	94.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.566	3.569	0/0	101445	16	>100:1	Target = 4.21		149.27	5.6174		
463 > 169	56	3.558	3.569		26375	23	71:1	3.84 (2.10-6.32)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.896	3.902	0	232670	17	>100:1			5005.00	6153.05	113	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.896	3.902	0/0	3226	26	20:1	Target = 1.27		46.999	1.7687		
527 > 81	65	3.888	3.902		1685	11	12:1	1.91 (0.63-1.91)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.904	3.902	1	636145	17	>100:1			1001.00	936.67	83.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													J
513 > 469	51	3.904	3.910	0/-1	15442	22	37:1	Target = 8.94		24.049	0.90504		
513 > 169	51	3.904	3.910		2491	20	17:1	6.19 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.055	4.053	1	823926	16	>100:1			5005.00	4021.14	90.3	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.063		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.207	4.206	1	530344	16	>100:1			1001.00	838.96	71.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.206		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.207	4.206	1	631240	17	>100:1			5005.00	3676.92	71.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.215		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.456	0	24679	15	>100:1			1001.00	449.29	39.2*	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.456		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.470	4.477	0	410655	17	>100:1			1001.00	683.71	63.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.477		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.713		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.923	4.923	0	350888	21	>100:1			1001.00	437.96	39.4*	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.929		ND								
*** 37 13C2_PFDA**													
515 > 470		3.904	3.902	1	669425	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.442	0	727192	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.198	3.206	0	760236	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.707	1	284234	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.558	3.562	0	216303	17	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

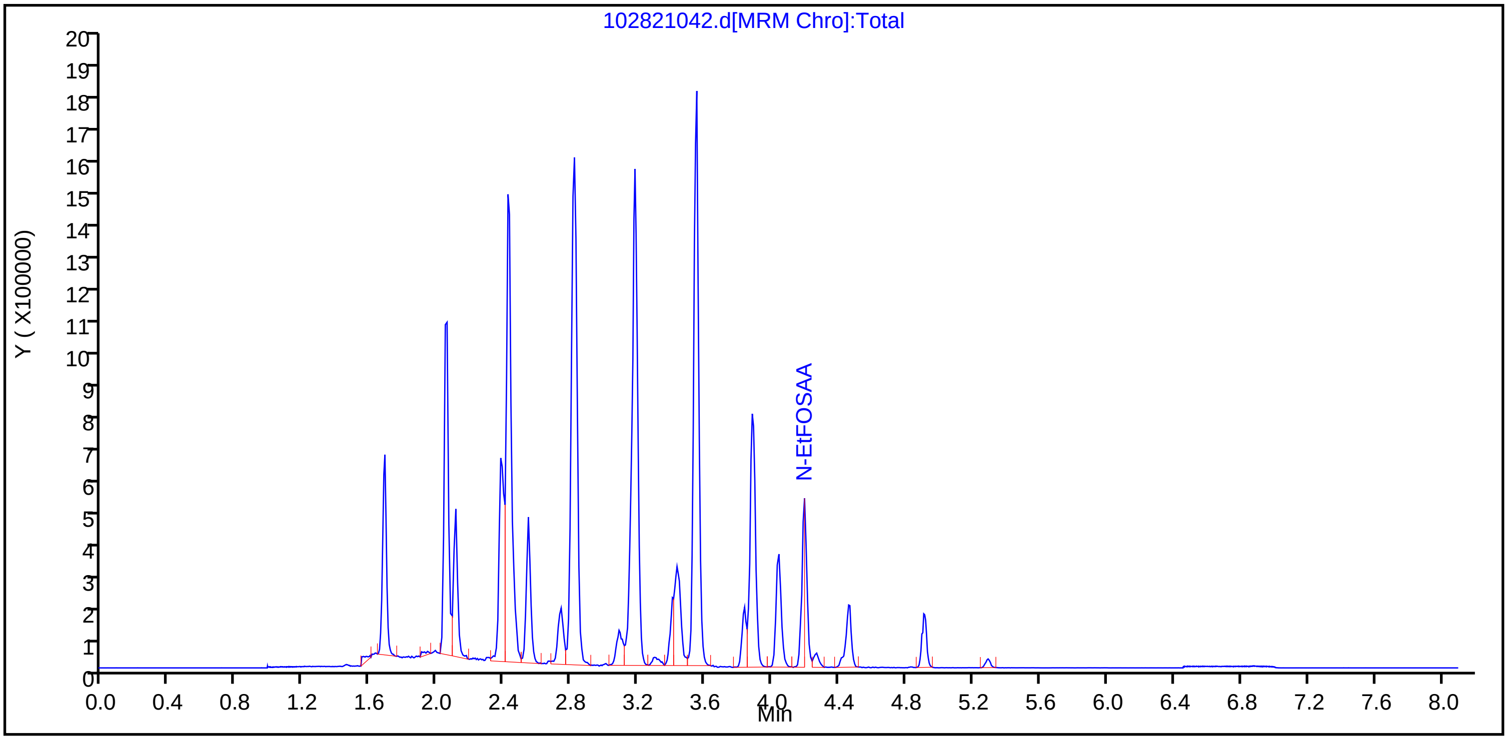
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

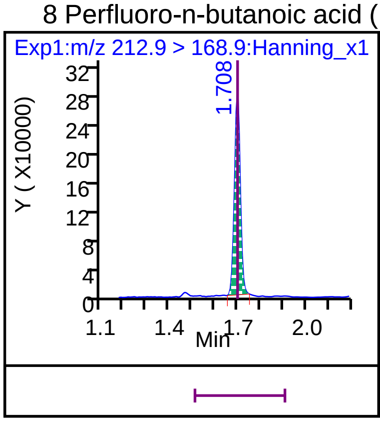
Report Date: 28-Oct-2021 20:18:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

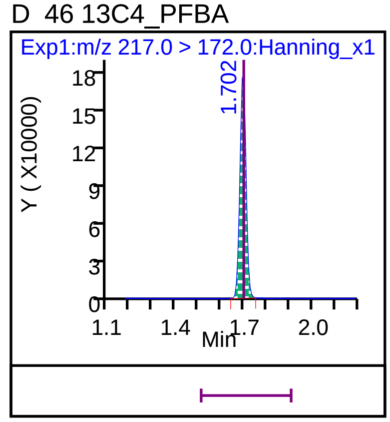
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821042.d		
Injection Date:	28-Oct-2021 17:48:49	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-022.0-20211021	Lab ID:	WJ25006-002
Sample Info:	WJ25006-002		
Dil. Factor:	1	Operator:	Matthew M. Miller



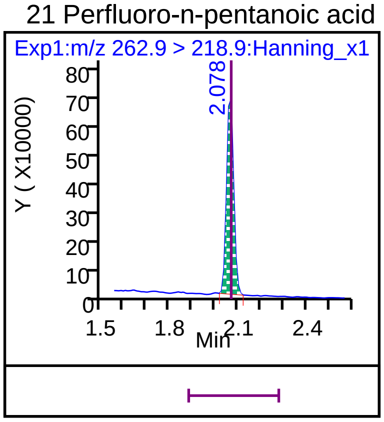
8 Perfluoro-n-butanoic acid (PFBA)



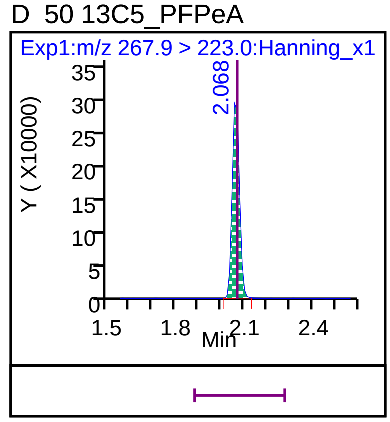
D 46 13C4_PFBA



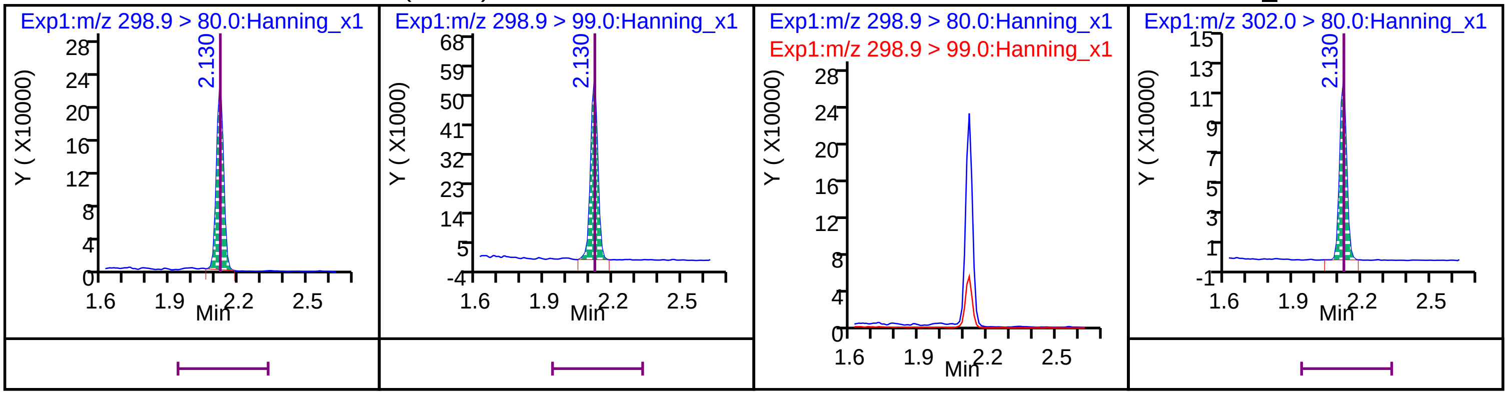
21 Perfluoro-n-pentanoic acid (PFPeA)



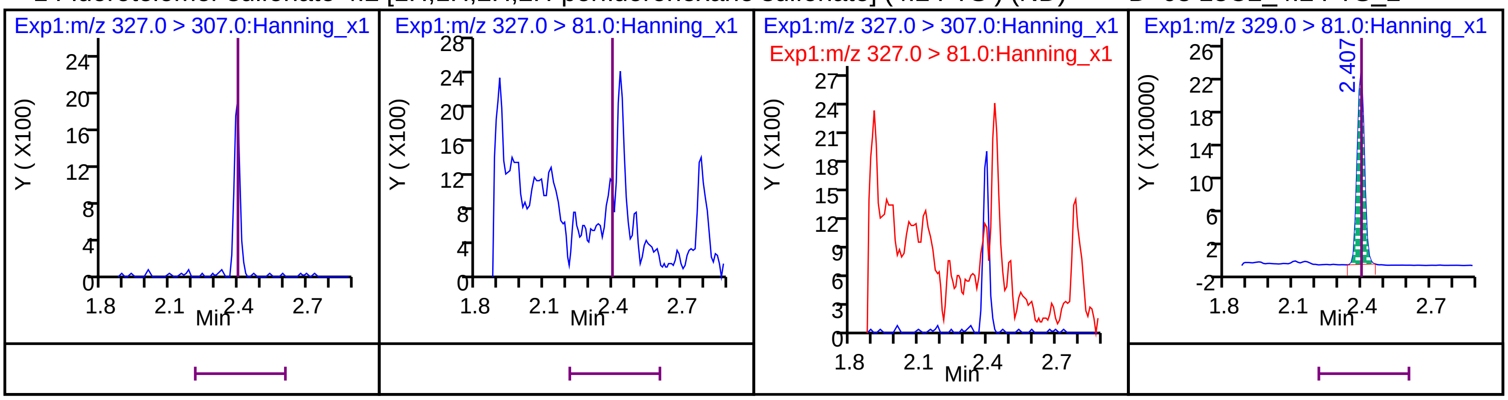
D 50 13C5_PFPeA



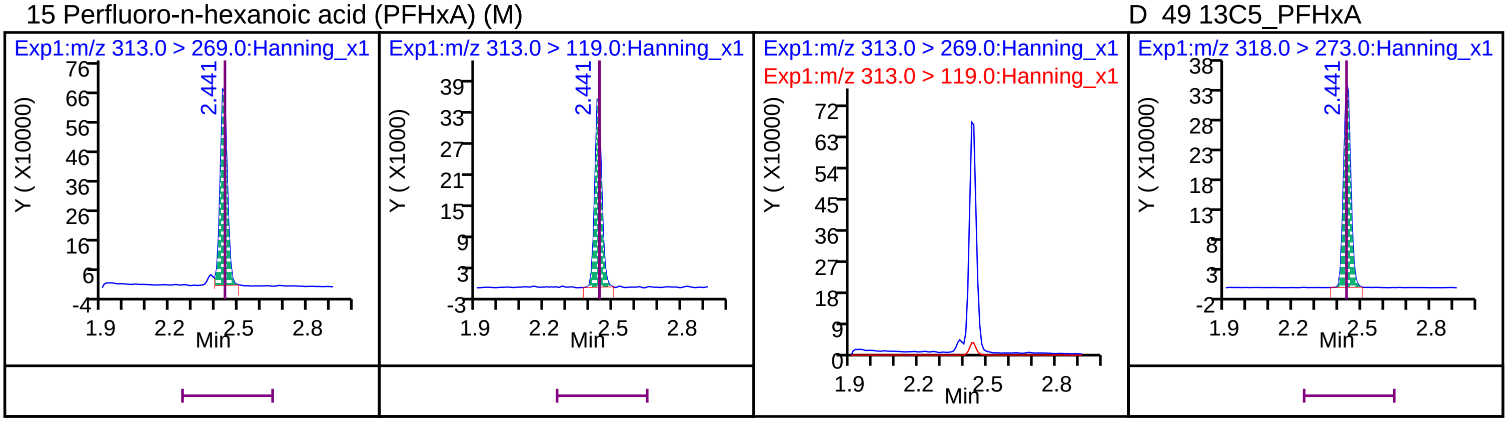
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



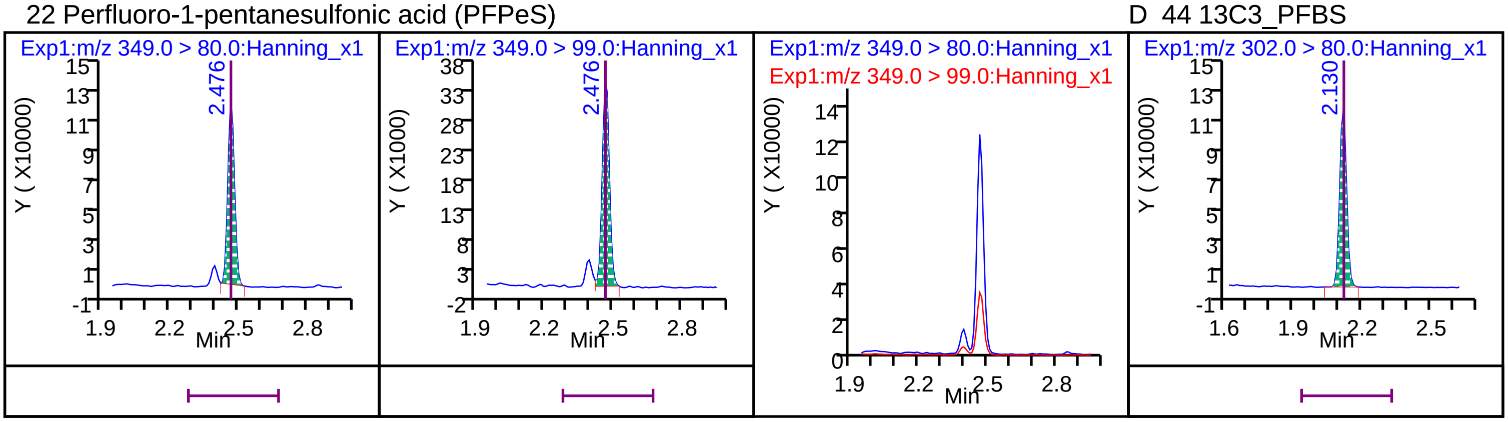
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



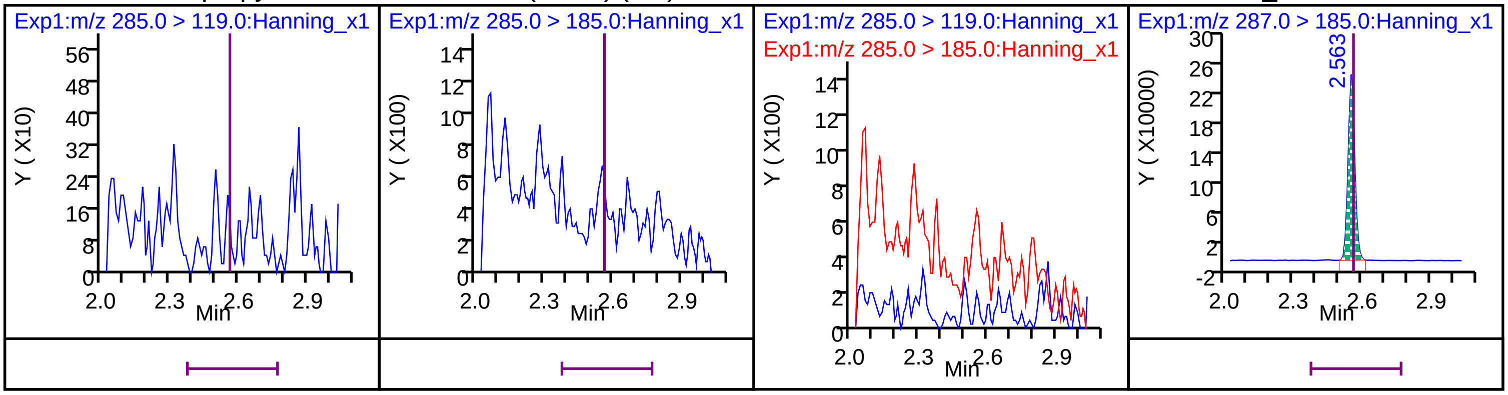
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



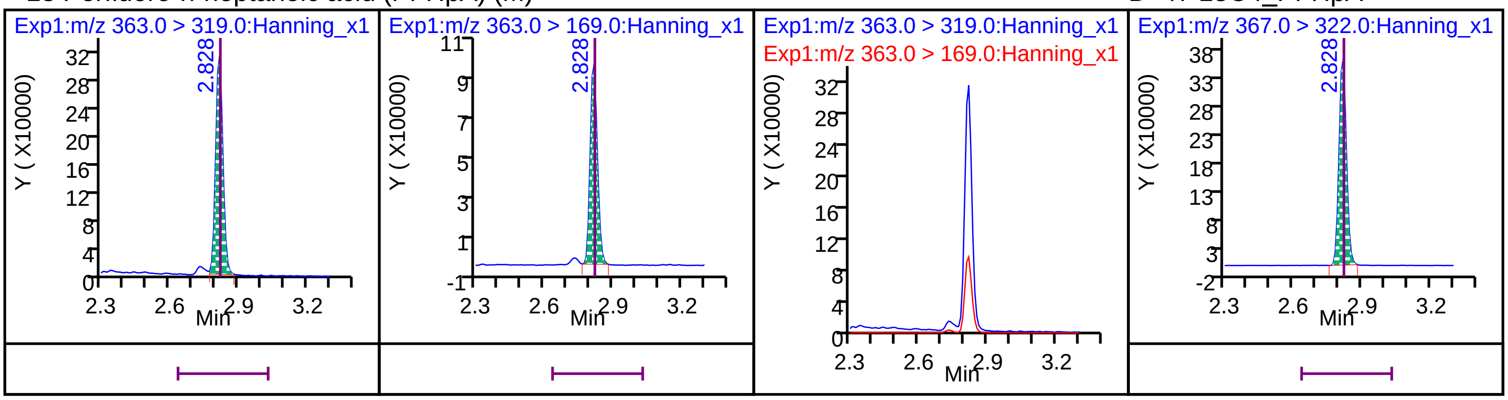
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



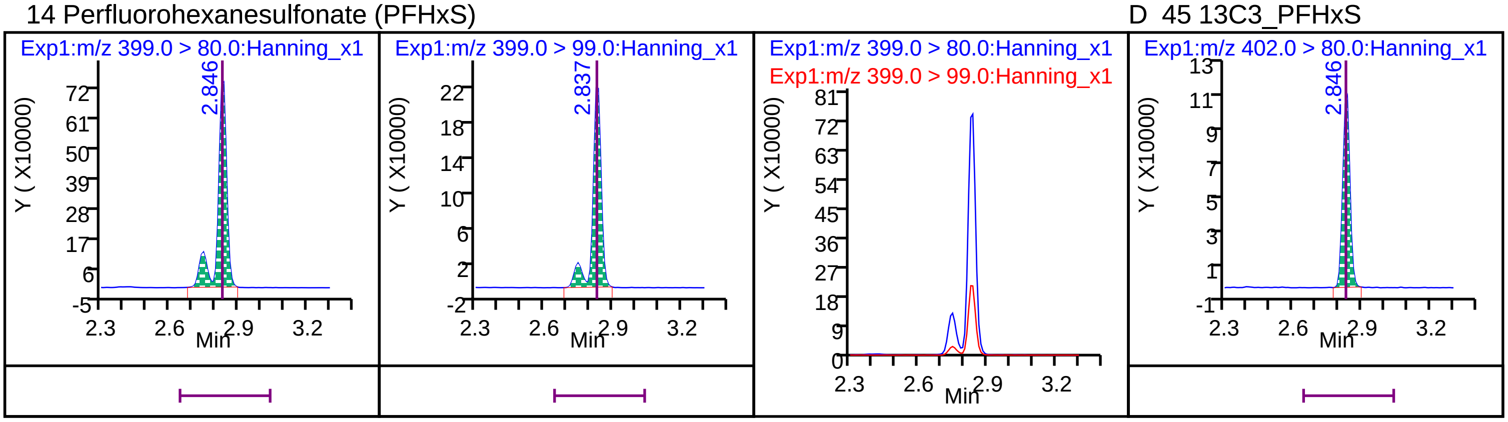
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



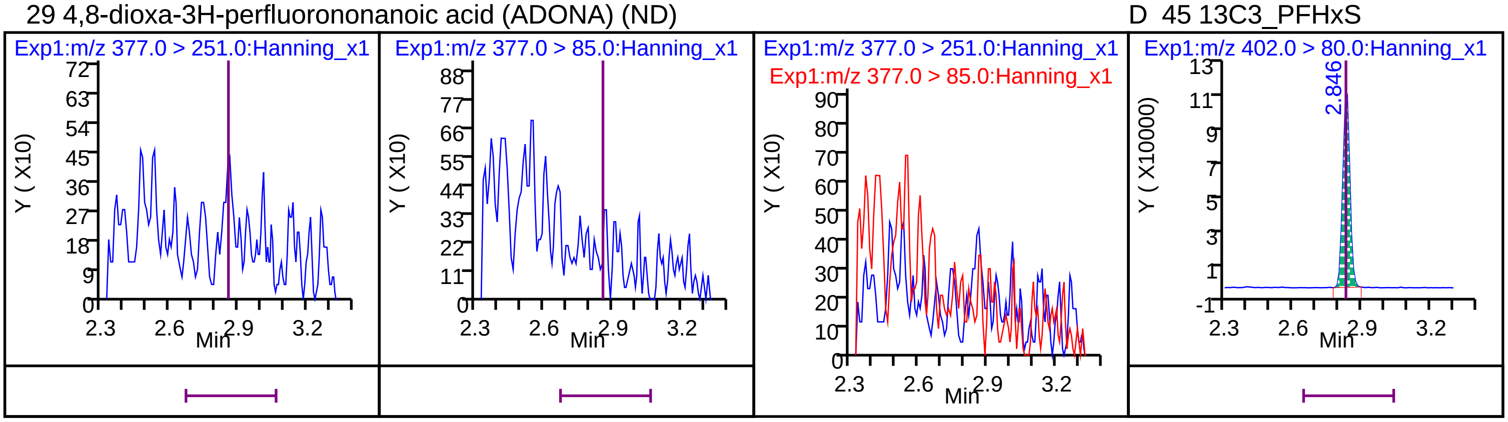
13 Perfluoro-n-heptanoic acid (PFHpA) (M) D 47 13C4_PFHpA



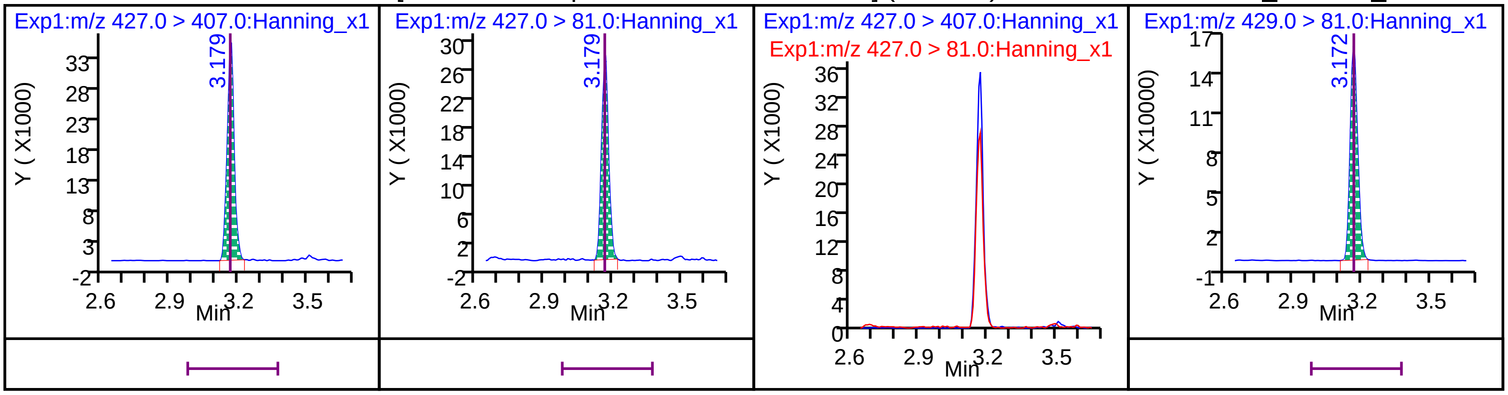
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



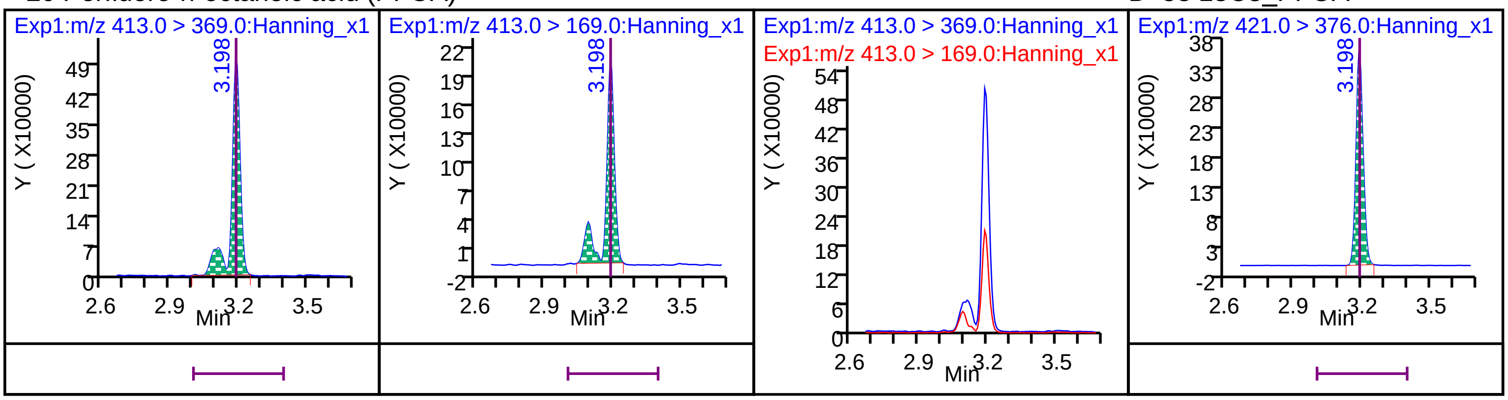
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



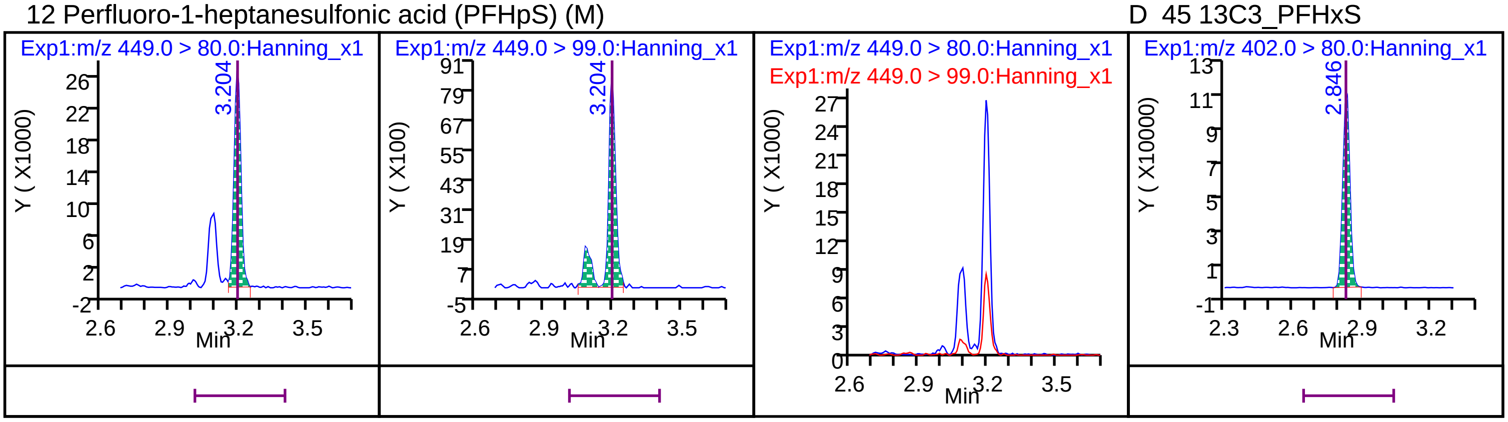
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



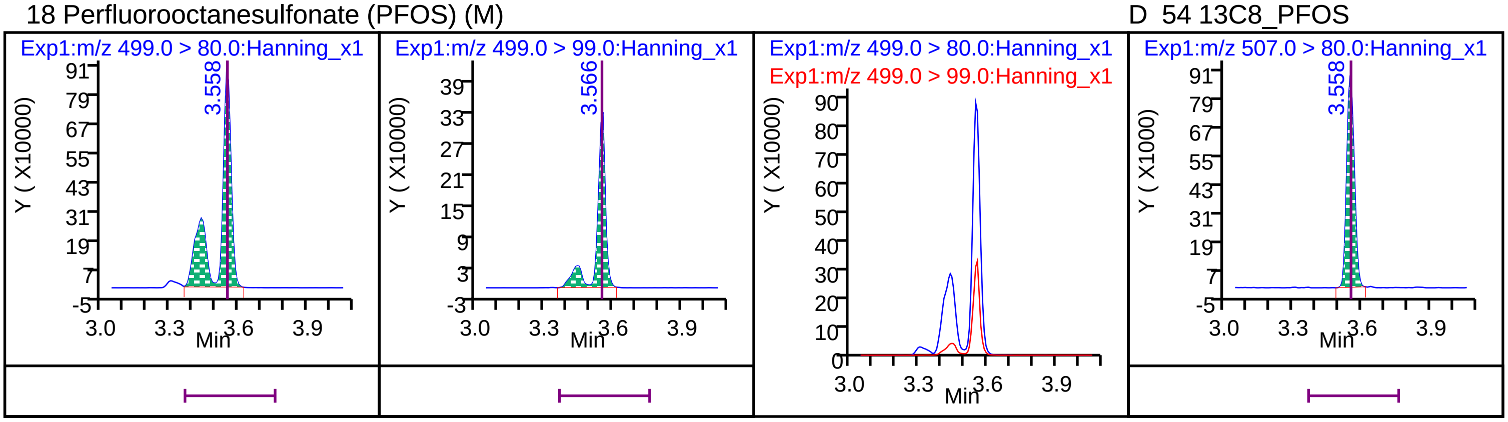
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



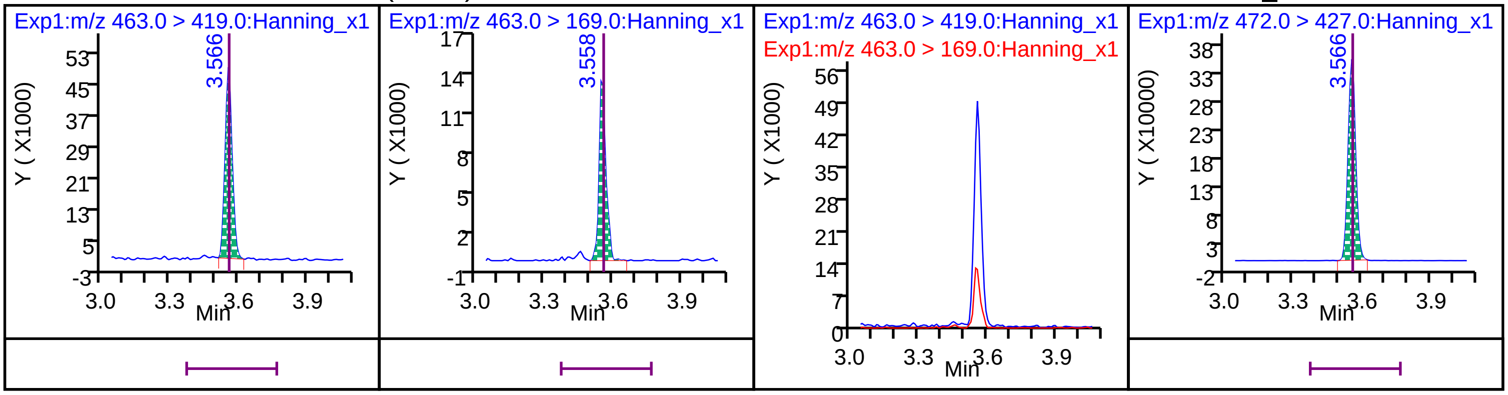
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS



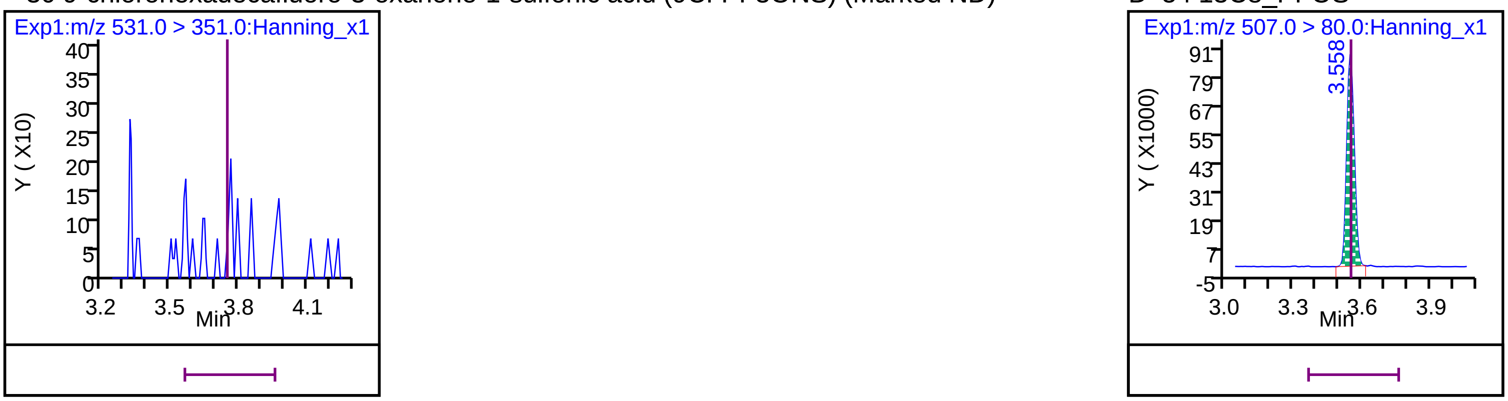
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



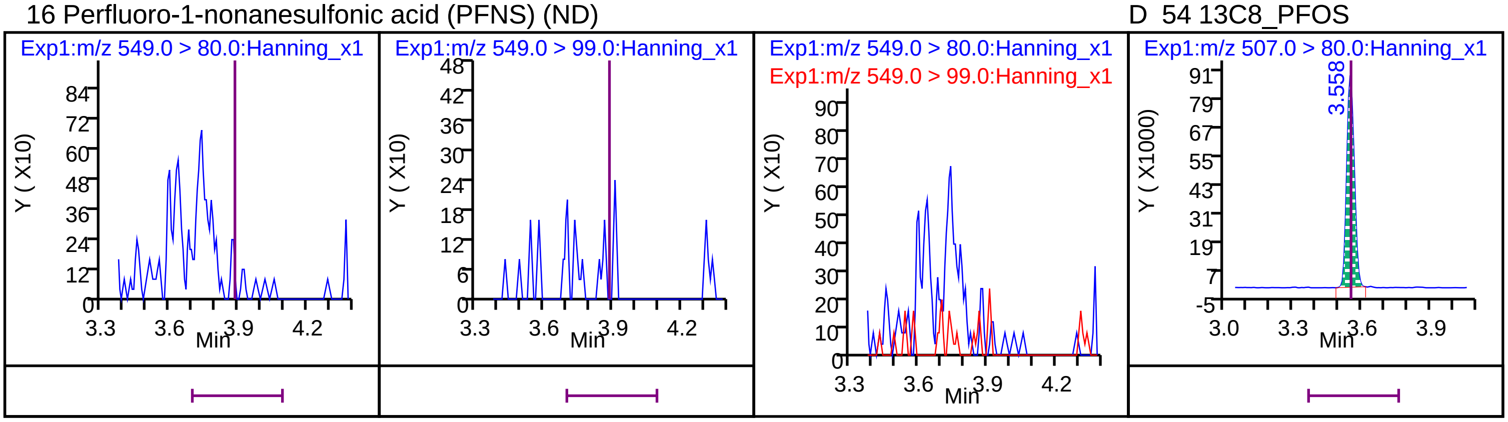
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



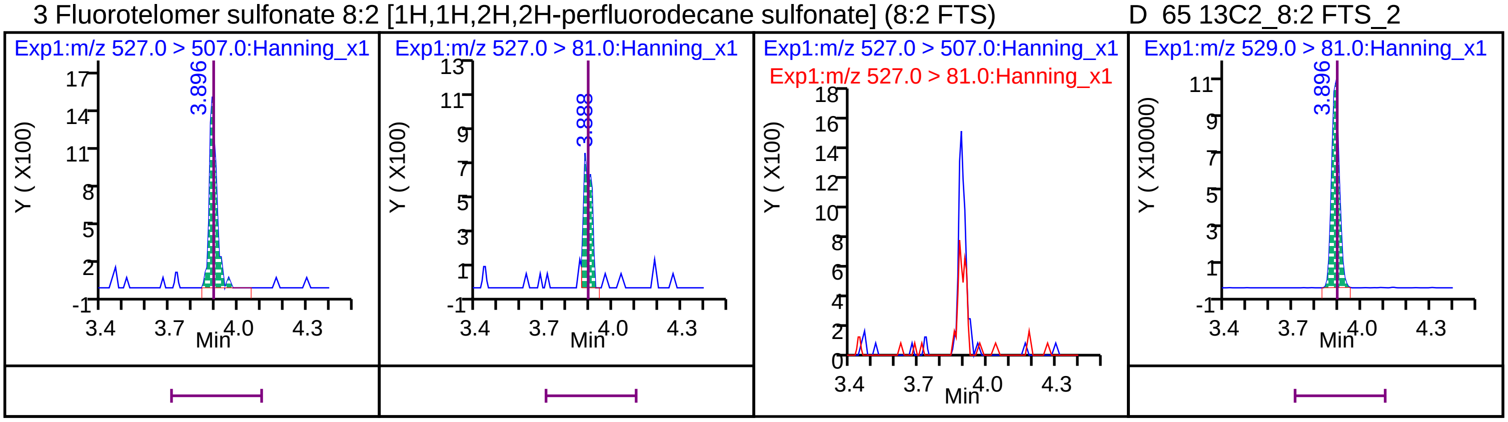
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



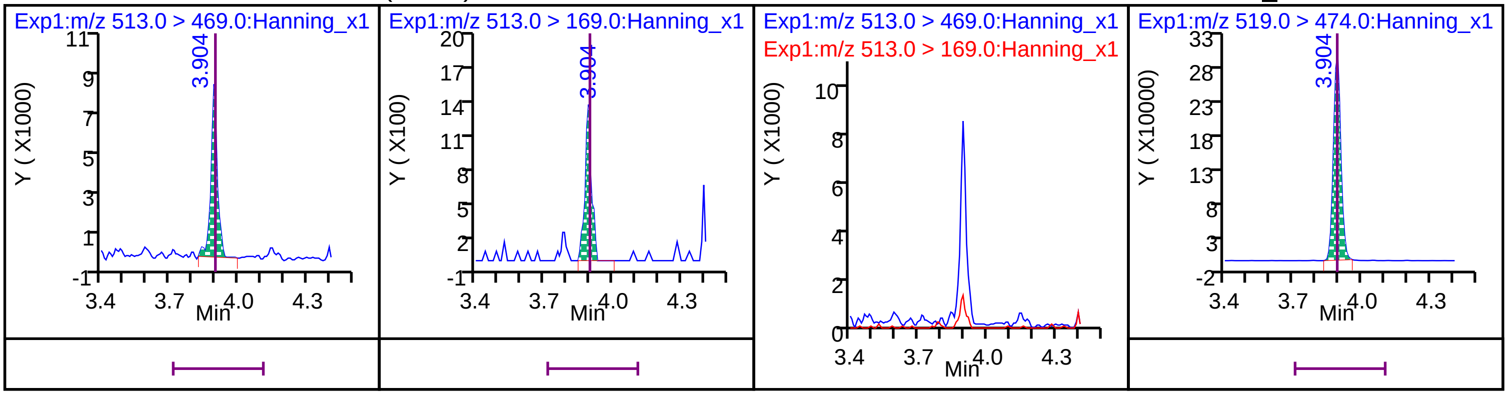
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



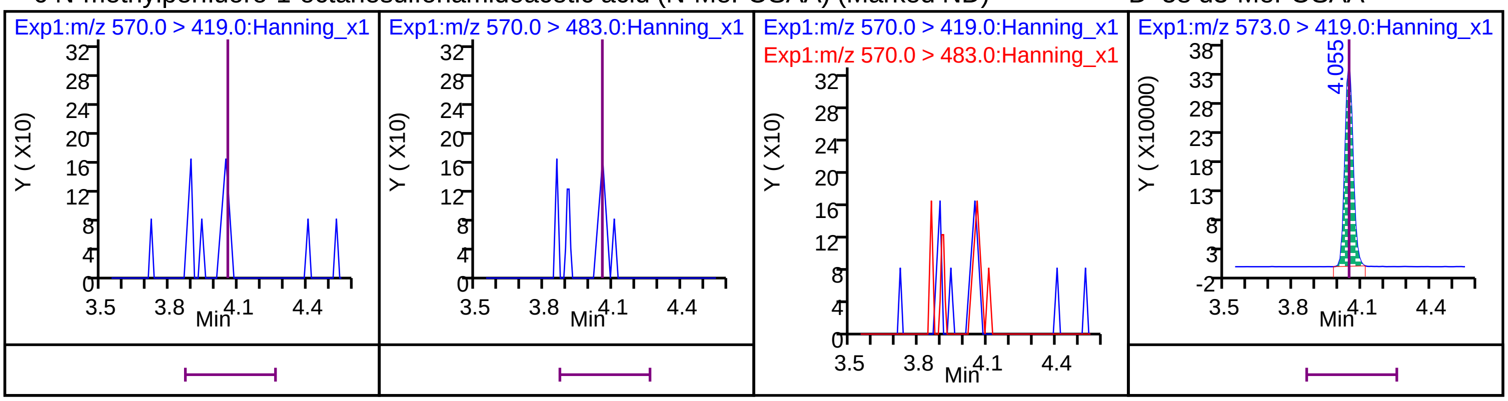
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



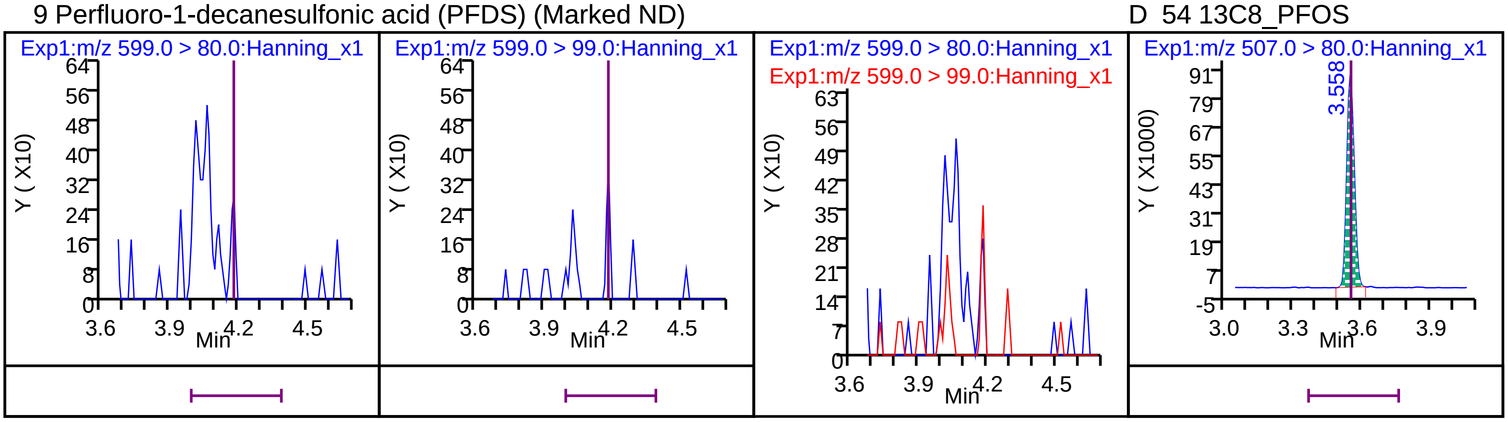
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



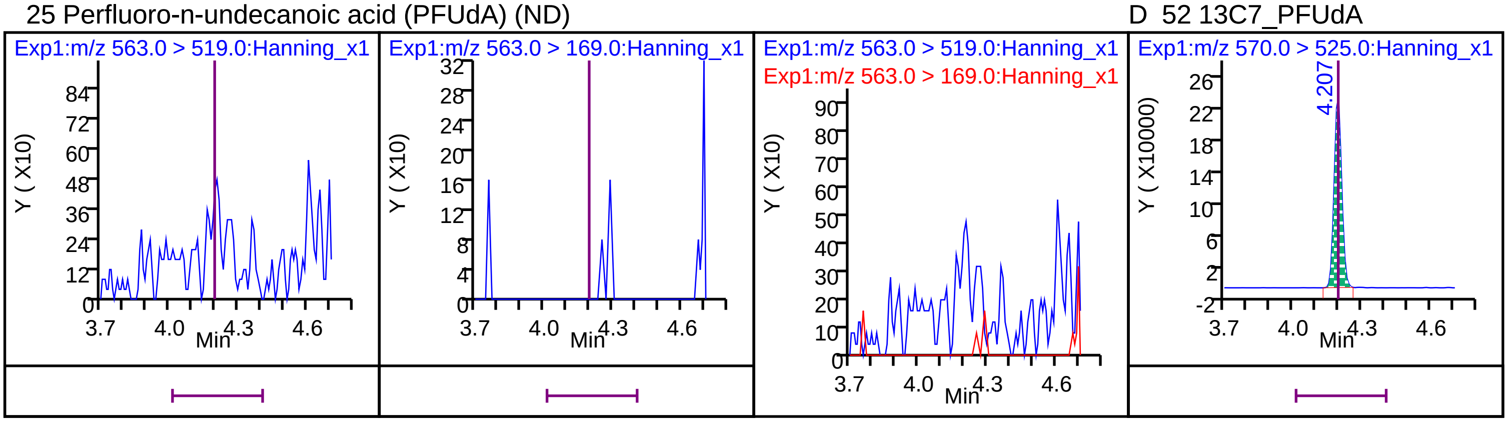
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



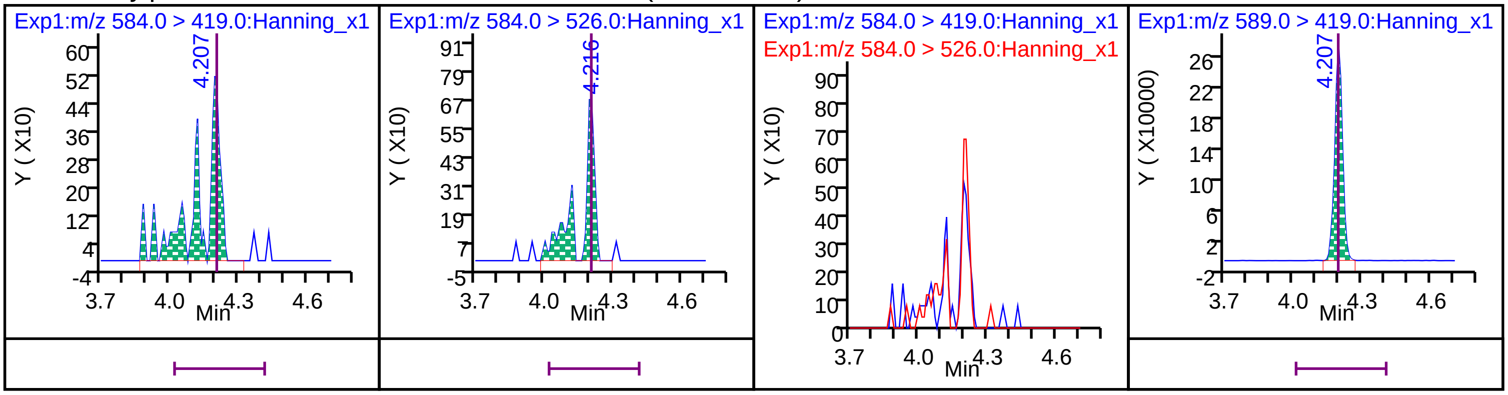
9 Perfluoro-1-decanesulfonic acid (PFDS) (Marked ND) D 54 13C8_PFOS



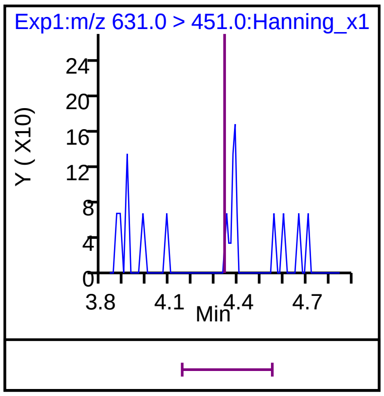
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

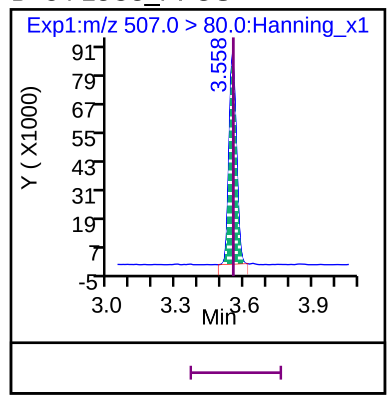


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

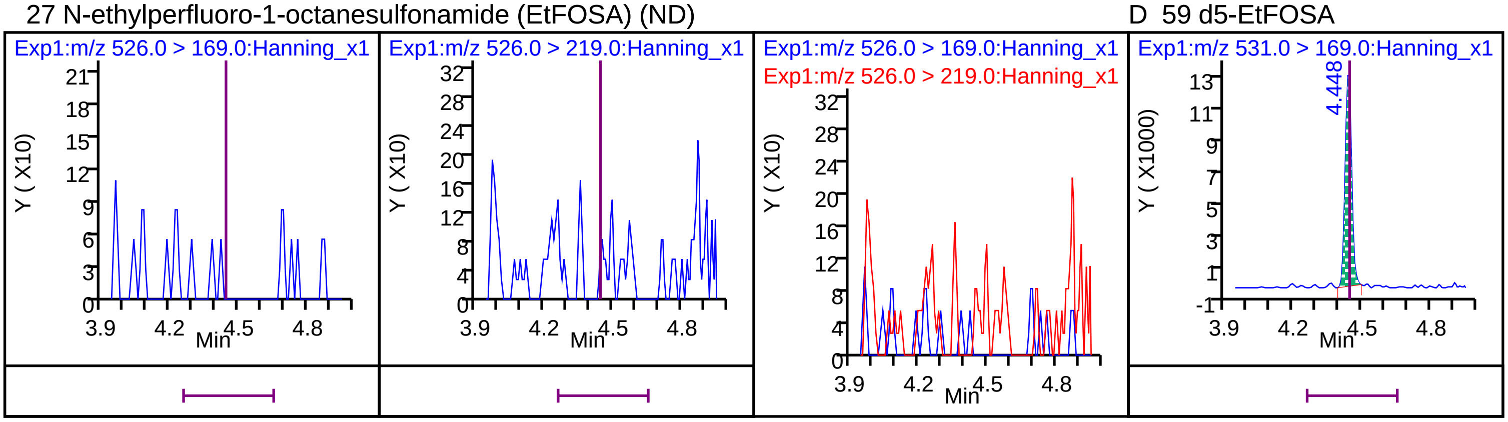


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

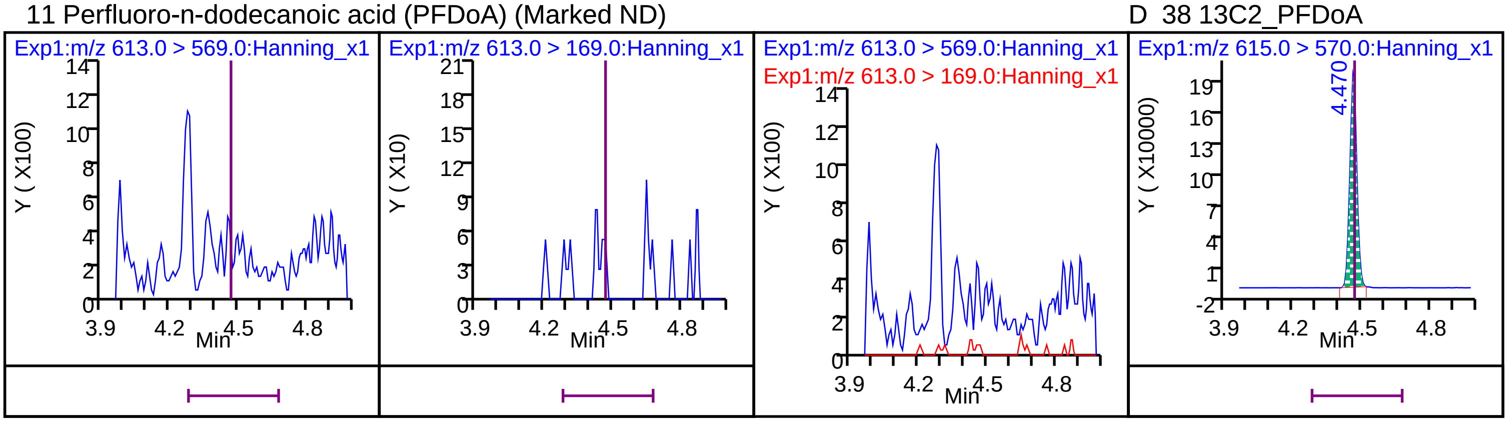




27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA

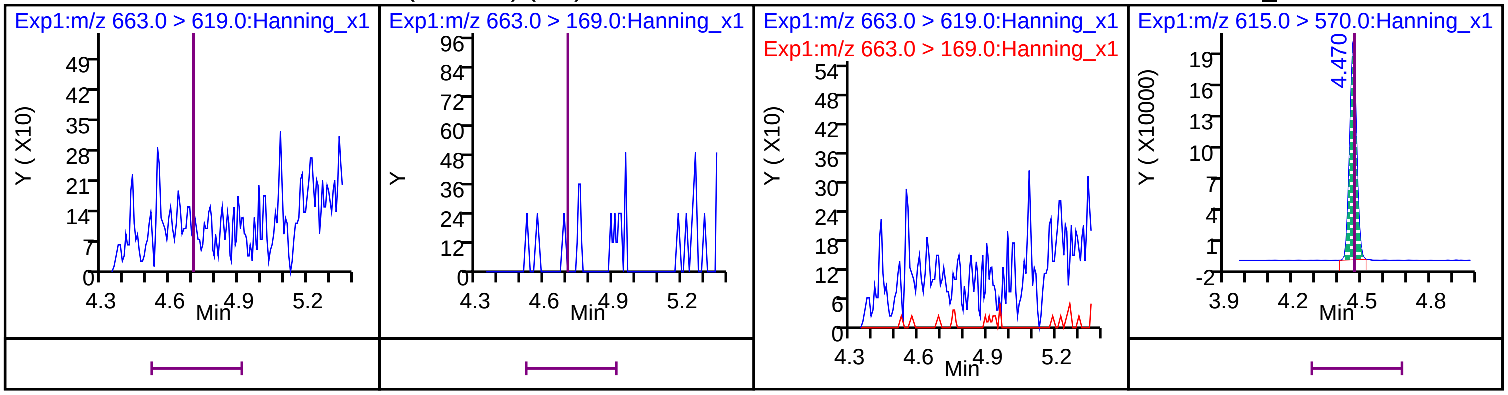


11 Perfluoro-n-dodecanoic acid (PFDoA) (Marked ND) D 38 13C2_PFDoA

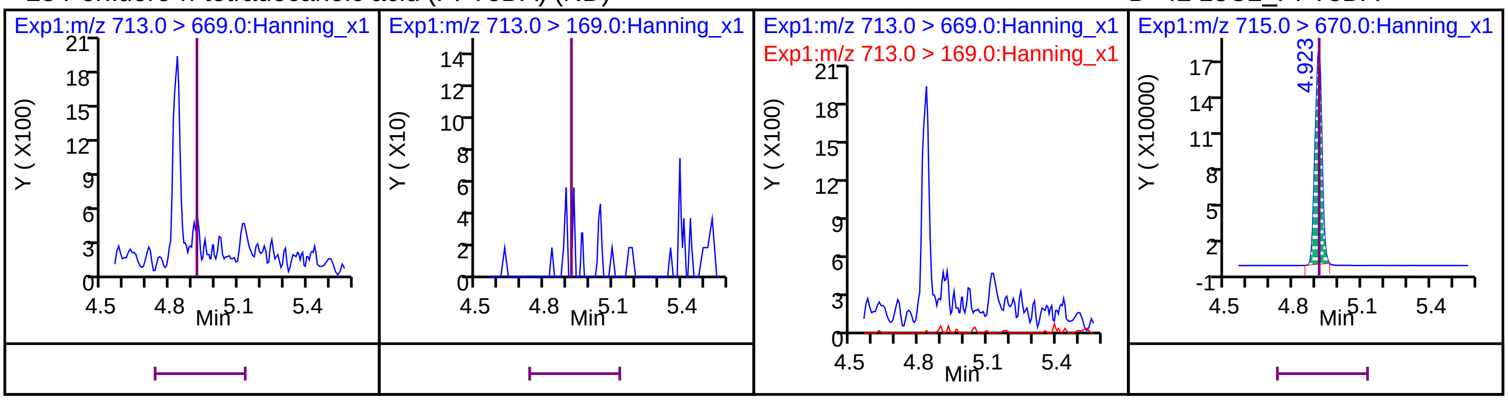


Report Date: 28-Oct-2021 20:18:19 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821042.d

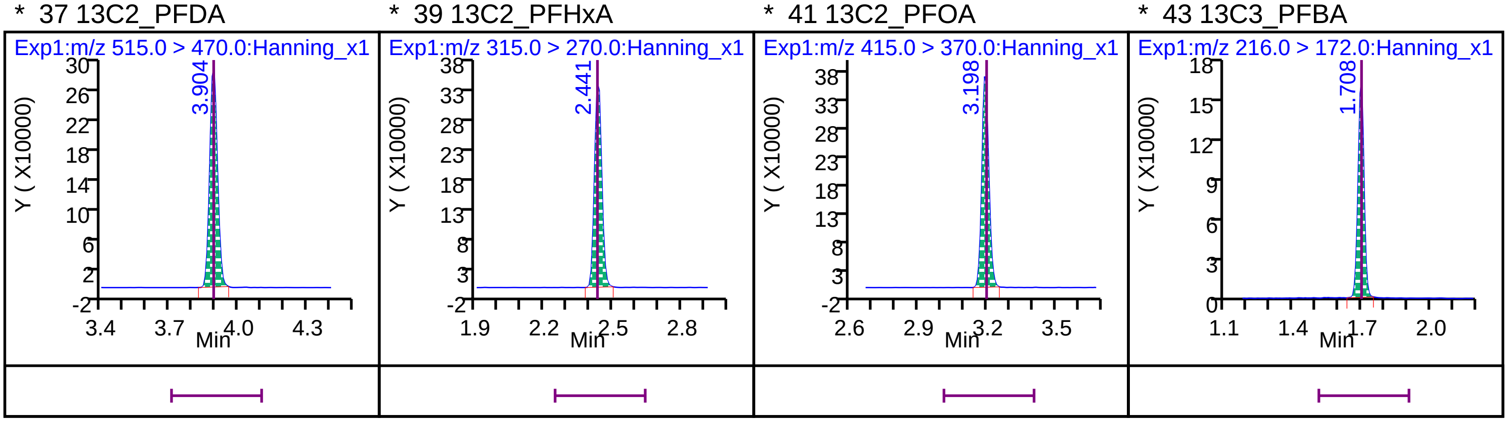
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



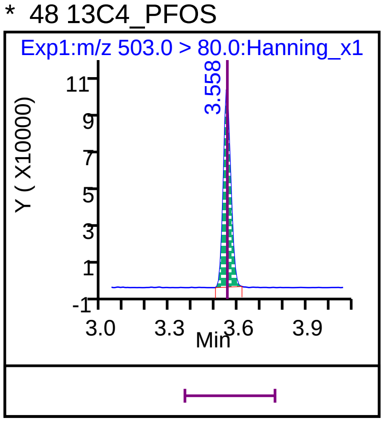
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 28-Oct-2021 20:18:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

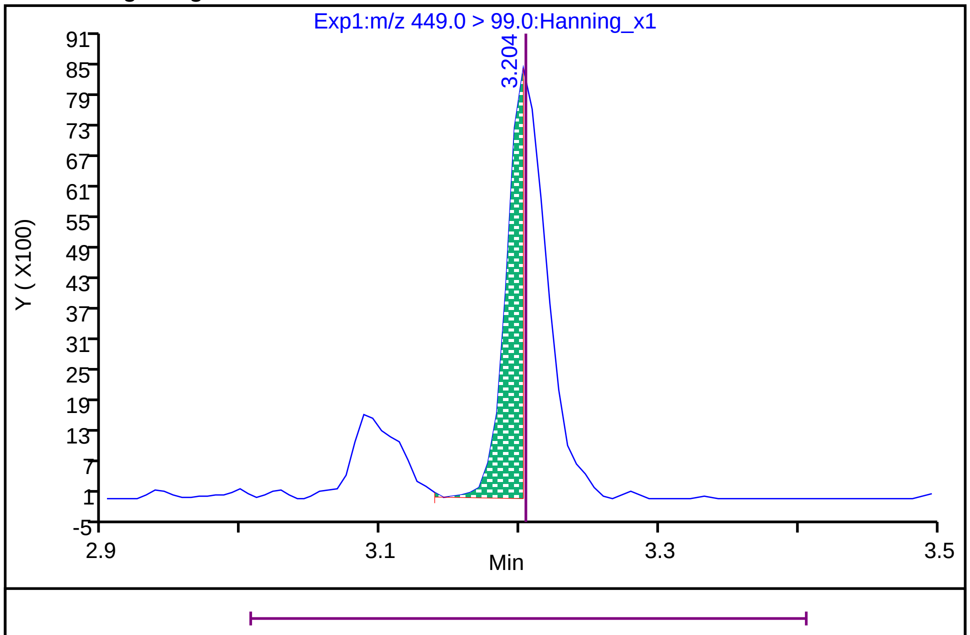
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821042.d		
Injection Date:	28-Oct-2021 17:48:49	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-022.0-20211021	Lab ID:	WJ25006-002
Sample Info:	WJ25006-002		
Dil. Factor:	1	Operator:	Matthew M. Miller

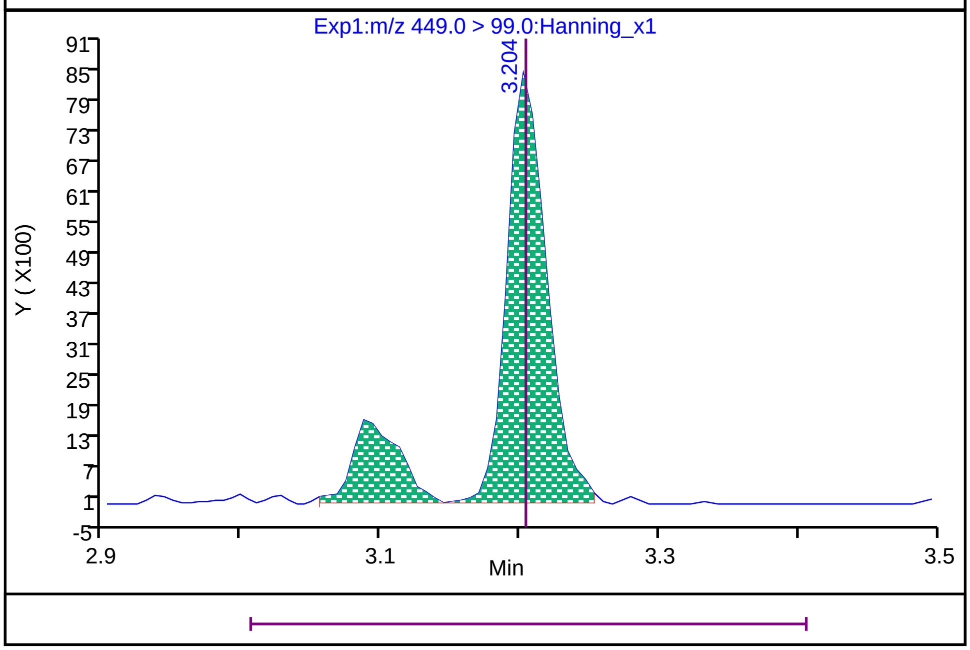
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT:	3.204
Area:	6923
Conc:	8.0705
Conc Units:	ng/L



RT:	3.204
Area:	20460
Conc:	8.0705
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:14:27

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 28-Oct-2021 20:18:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

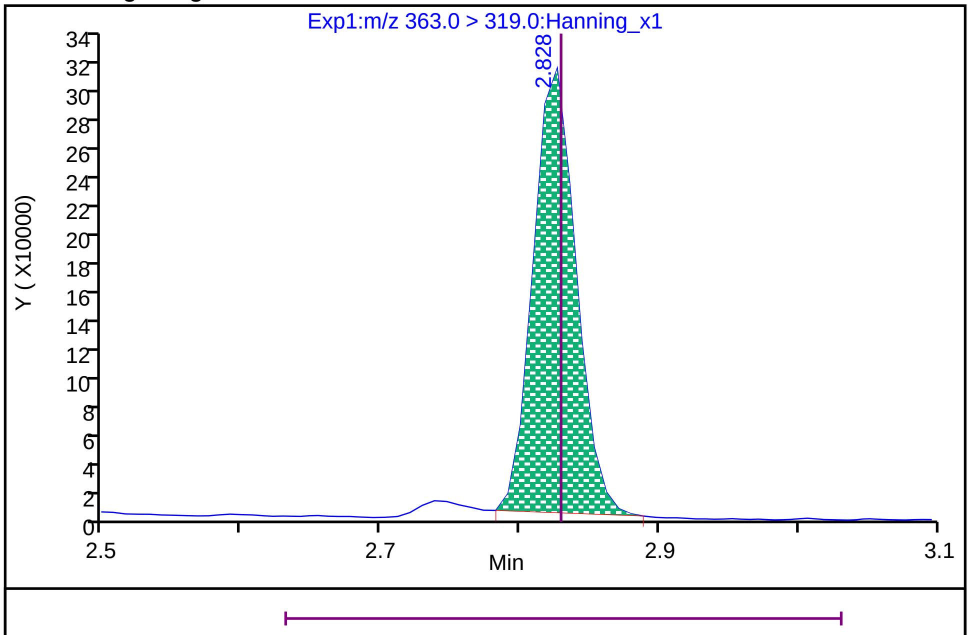
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821042.d		
Injection Date:	28-Oct-2021 17:48:49	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-022.0-20211021	Lab ID:	WJ25006-002
Sample Info:	WJ25006-002		
Dil. Factor:	1	Operator:	Matthew M. Miller

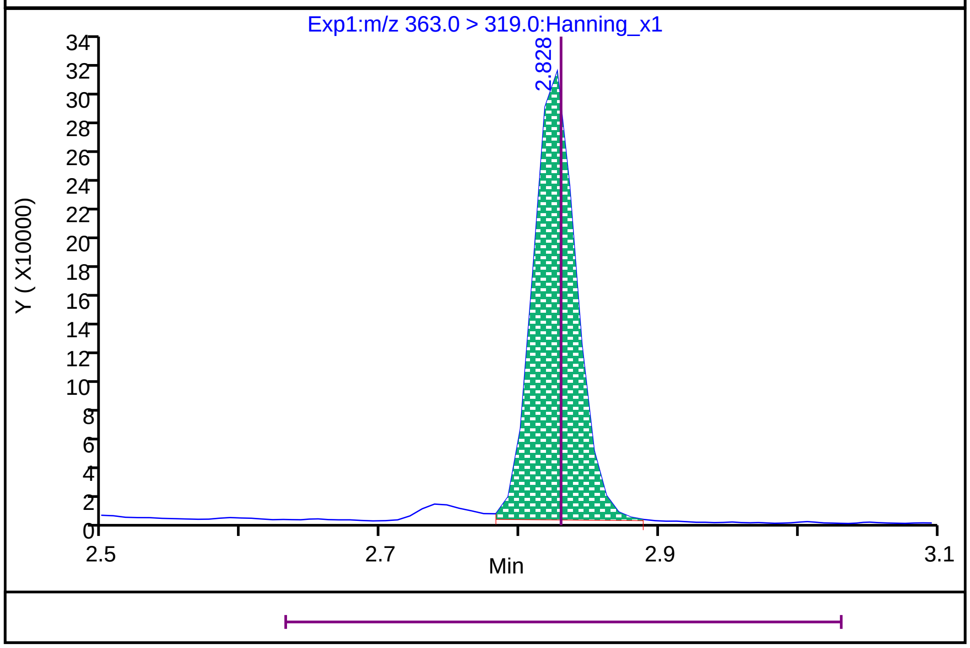
13 PFHpA, CAS: 375-85-9

Processing Integration Results

RT:	2.828
Area:	657630
Conc:	31.804
Conc Units:	ng/L



RT:	2.828
Area:	672802
Conc:	32.538
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:14:16

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Manual Integration Report

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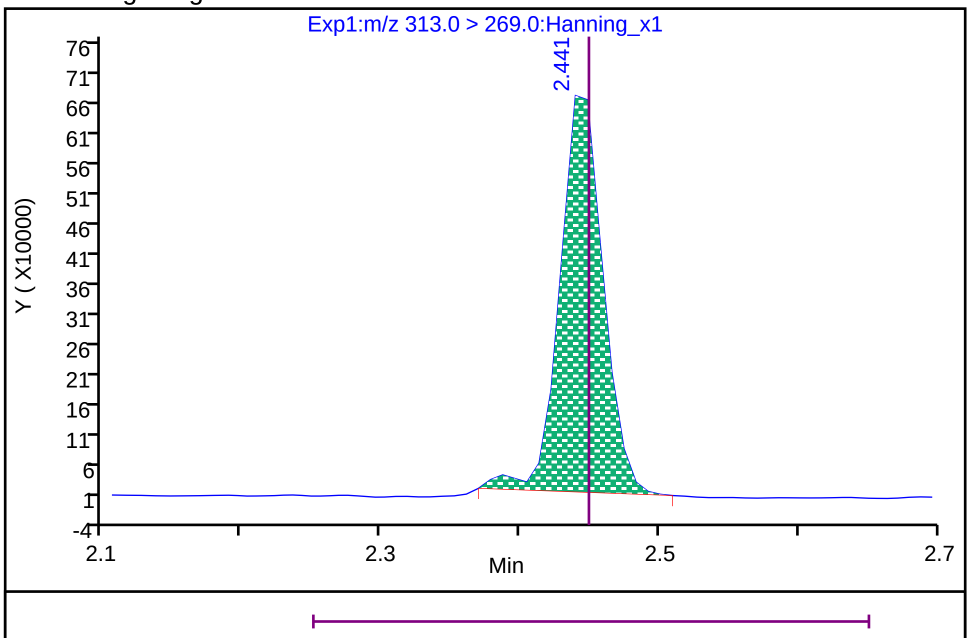
Injection Date:	28-Oct-2021 17:48:49	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-022.0-20211021	Lab ID:	WJ25006-002
Sample Info:	WJ25006-002		
Dil. Factor:	1	Operator:	Matthew M. Miller

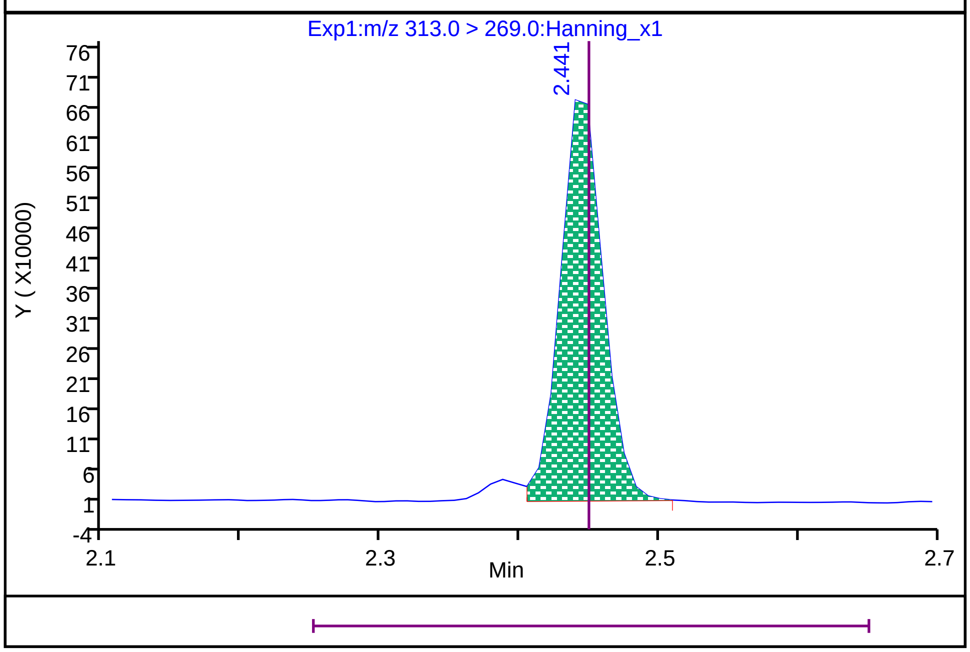
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.441
Area:	1408266
Conc:	72.357
Conc Units:	ng/L



RT:	2.441
Area:	1414176
Conc:	72.660
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:14:06

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Manual Integration Report

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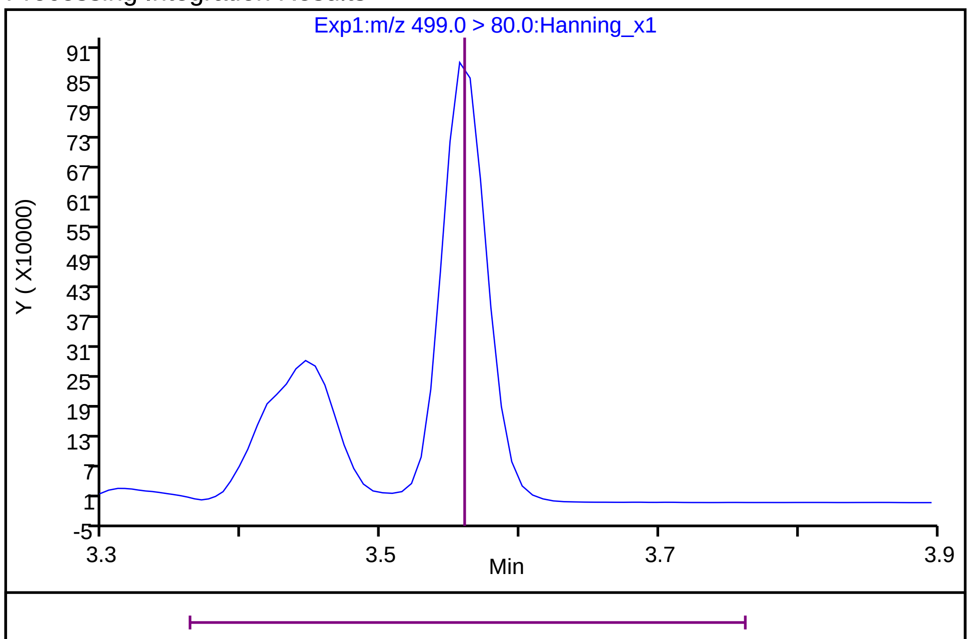
Injection Date:	28-Oct-2021 17:48:49	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-022.0-20211021	Lab ID:	WJ25006-002
Sample Info:	WJ25006-002		
Dil. Factor:	1	Operator:	Matthew M. Miller

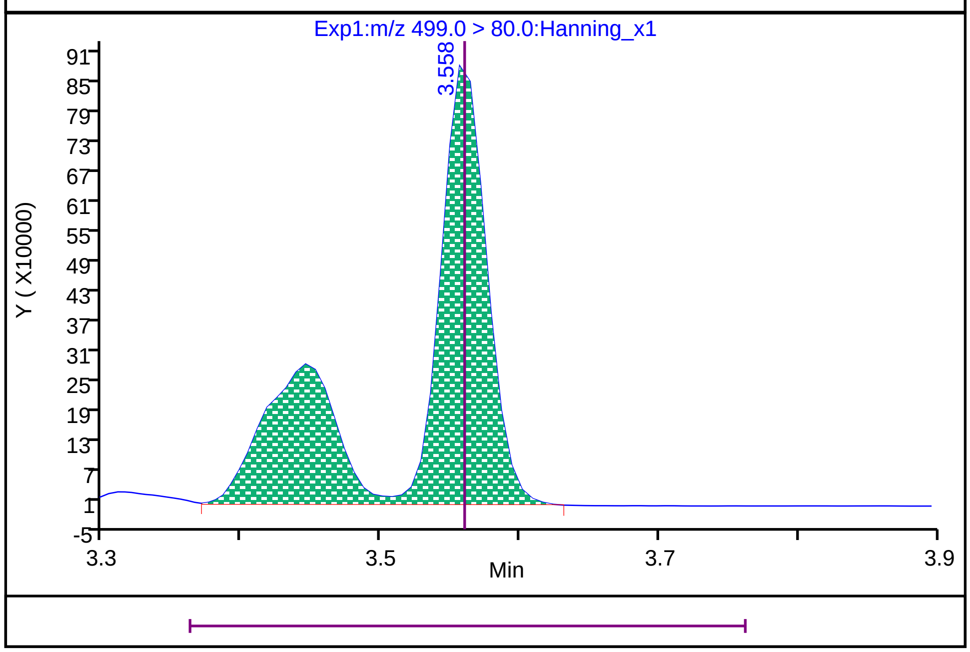
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.558
Area:	3126663
Conc:	490.53
Conc Units:	ng/L



RT:	3.558
Area:	3018142
Conc:	473.50
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:00:10

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ25006-003
Description: POL-DPT0127-032.0-20211021			Matrix: Aqueous
Date Sampled: 10/21/2021 1110		Project Name: KSC-POL	
Date Received: 10/22/2021		Project Number: 112G09020	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1759	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.7	I	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	24		7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	2.6	I	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	54		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	6.5		3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	38		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	79	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.6	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	35		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	78		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.3		3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	65		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	100		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	500		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	158	50-150
13C2_6:2FTS		137	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	36	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	27	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		60	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WJ25006-003	
Description: POL-DPT0127-032.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1110	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		76	50-150
13C9_PFNA		90	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d		
Injection Date:	28-Oct-2021 17:59:23	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	32
Lab Sample ID:	WJ25006-003	Lab Prep. Batch:	20397
Client ID:	POL-DPT0127-032.0-20211021	Sample Group:	WJ25006
Sample Info:	WJ25006-003	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0388304

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	283	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.707	1	302726	15	>100:1			1001.00	337.45	27.2*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.707	1/0	668567	16	94:1			2045.76	79.438		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.079	0	608912	12	>100:1			1001.00	677.40	60.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.079	0/0	1759885	15	>100:1			2680.39	104.08		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.131	0	233574	13	>100:1			1001.00	782.51	67.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.131	0/0	454290	14	>100:1	Target = 3.78		1400.38	54.377		
298.9 > 99	44	2.131	2.131		122861	14	98:1	3.69 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.477	0/0	234618	12	>100:1	Target = 3.45		974.55	37.842		
349 > 99	44	2.476	2.477		63653	12	92:1	3.68 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.407	0	511715	14	>100:1			5005.00	11451	158.2*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.407		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.442	0	744553	15	>100:1			1001.00	909.35	79.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.451	0/0	1532645	13	>100:1	Target = 16.37		2006.06	77.896		
313 > 119	49	2.441	2.451		100877	16	>100:1	15.19 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.572	0	535310	15	>100:1			5005.00	3699.77	74.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.572		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.831	0	794340	15	>100:1			1001.00	991.33	84.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.831	0/0	714595	13	>100:1	Target = 3.21		907.50	35.238		
363 > 169	47	2.827	2.831		236573	14	>100:1	3.02 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.845	2.840	1	244458	15	>100:1			1001.00	993.91	86.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.840	1/0	2075586	25	>100:1	Target = 3.47	4.99	7049.14	273.72		
399 > 99	45	2.845	2.840		563022	23	>100:1	3.68 (1.73-5.21)	7.83				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.866		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.206	1/0	44418	18	>100:1	Target = 3.62		167.50	6.5041		
449 > 99	45	3.201	3.206		13443	16	13:1	3.30 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.176	3.174	1	330729	20	>100:1			5005.00	7568.69	137.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.176	3.174	1/0	64512	19	>100:1	Target = 1.19		619.00	24.036		
427 > 81	64	3.176	3.174		45477	21	>100:1	1.41 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.201	3.199	1	759373	19	>100:1			1001.00	1003.58	88.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.201	3.199	1/0	1287857	35	>100:1	Target = 2.34	5.53	1686.13	65.473		
413 > 169	53	3.201	3.199		513402	34	>100:1	2.50 (1.17-3.51)	3.98				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.561	3.562	0	184934	19	>100:1			1001.00	816.23	76.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.561	3.562	0/0	2860280	38	>100:1	Target = 4.00	1.90	12825	498.00		M
499 > 99	54	3.561	3.562		676237	38	>100:1	4.22 (2.00-6.01)	4.60				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.761		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.894		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.190		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.350		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.569	3.569	0	740425	19	>100:1			1001.00	954.83	90	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.569	3.569	0/0	88192	17	>100:1	Target = 4.21		136.60	5.3043		
463 > 169	56	3.569	3.569		21222	16	53:1	4.15 (2.10-6.32)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.893	3.902	0	220529	18	>100:1			5005.00	5831.98	107.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.886	3.902	0/0	7815	15	55:1	Target = 1.27		120.12	4.6644		
527 > 81	65	3.901	3.902		4086	11	26:1	1.91 (0.63-1.91)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.901	3.902	0	636506	18	>100:1			1001.00	937.20	83.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													J
513 > 469	51	3.901	3.910	0/0	27247	16	36:1	Target = 8.94		42.409	1.6468		
513 > 169	51	3.893	3.910		3148	23	14:1	8.65 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.052	4.053	0	847041	16	>100:1			5005.00	4133.95	92.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.063		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.205	4.206	0	600638	17	>100:1			1001.00	950.16	80.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.206		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.205	4.206	0	760288	16	>100:1			5005.00	4428.61	86.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													J
584 > 419	60	4.052	4.215	-9/-9	10757	37	27:1	Target = 1.95		66.350	2.5764		M
584 > 526	60	4.214	4.215		4659	44		2.30 (0.97-2.92)	0.63				M
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.456	0	25332	15	>100:1			1001.00	461.18	40.3*	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.456		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.468	4.477	0	459794	19	>100:1			1001.00	765.52	70.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.477		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.713		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.922	4.923	0	324166	21	>100:1			1001.00	404.60	36.4*	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.929		ND								
*** 37 13C2_PFDA**													
515 > 470		3.901	3.902	0	662531	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.442	1	623252	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.201	3.206	0	679073	18	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.707	1	264650	15	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.561	3.562	0	204780	17	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

Report Date: 28-Oct-2021 20:18:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d		
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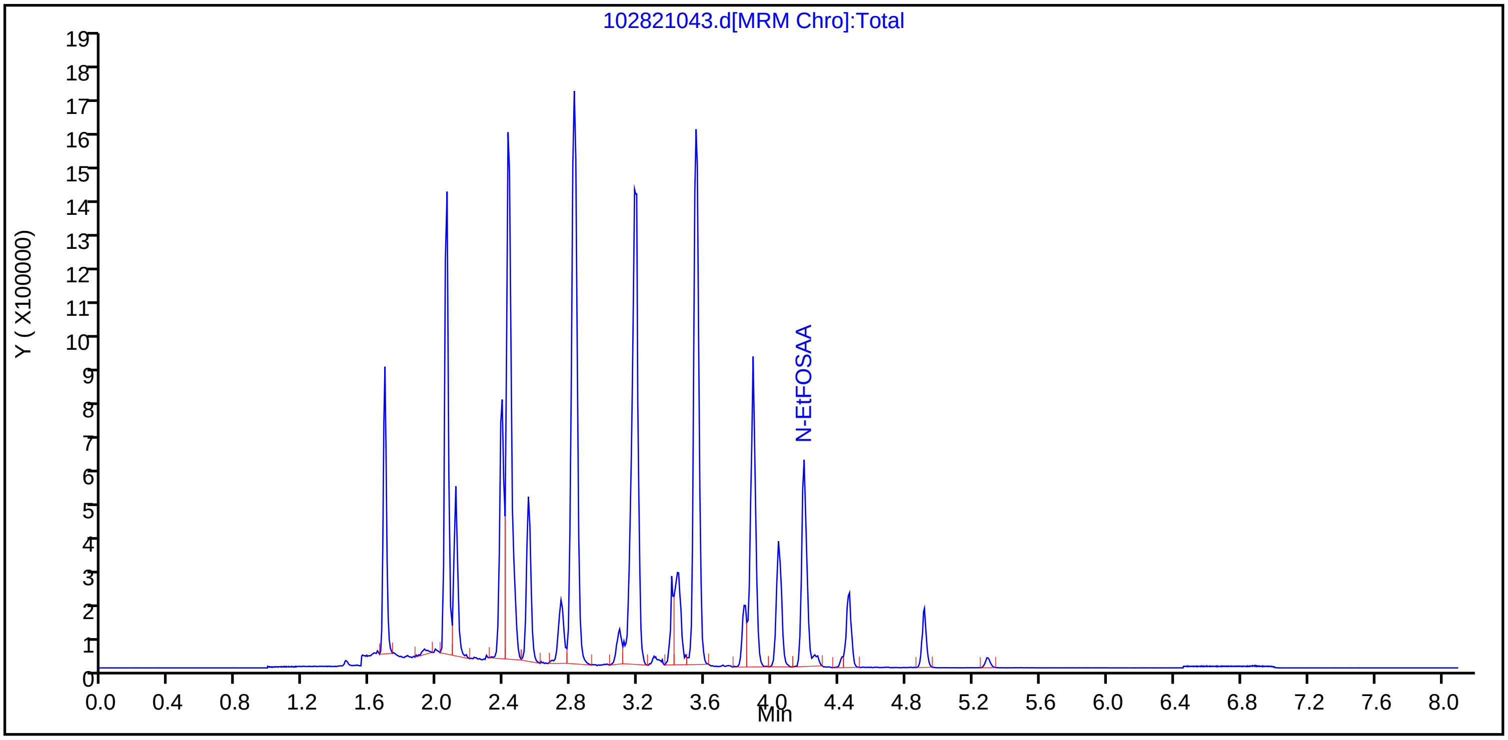
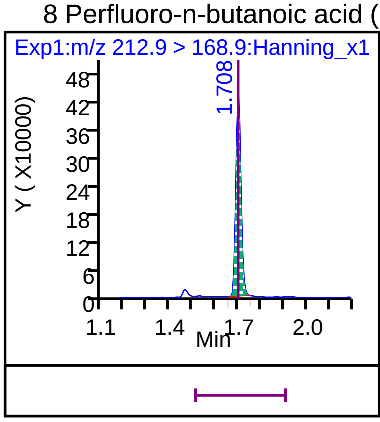
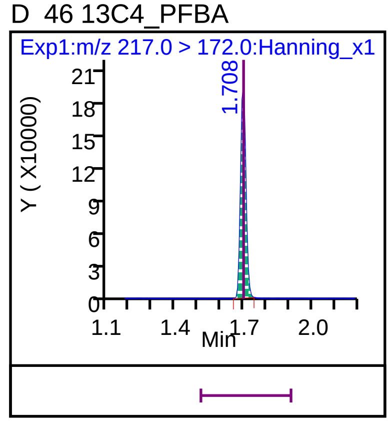
Client ID:	POL-DPT0127-032.0-20211021	Lab ID:	WJ25006-003
Sample Info:	WJ25006-003		
Dil. Factor:	1	Operator:	Matthew M. Miller



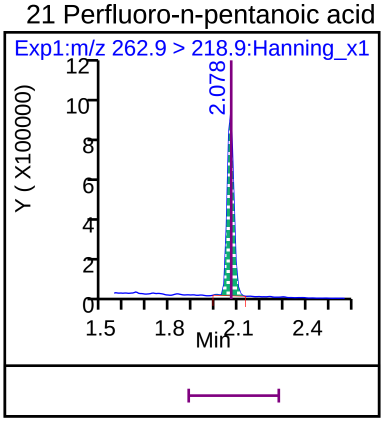
8 Perfluoro-n-butanoic acid (PFBA)



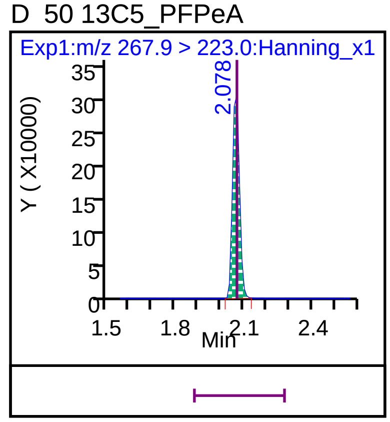
D 46 13C4_PFBA



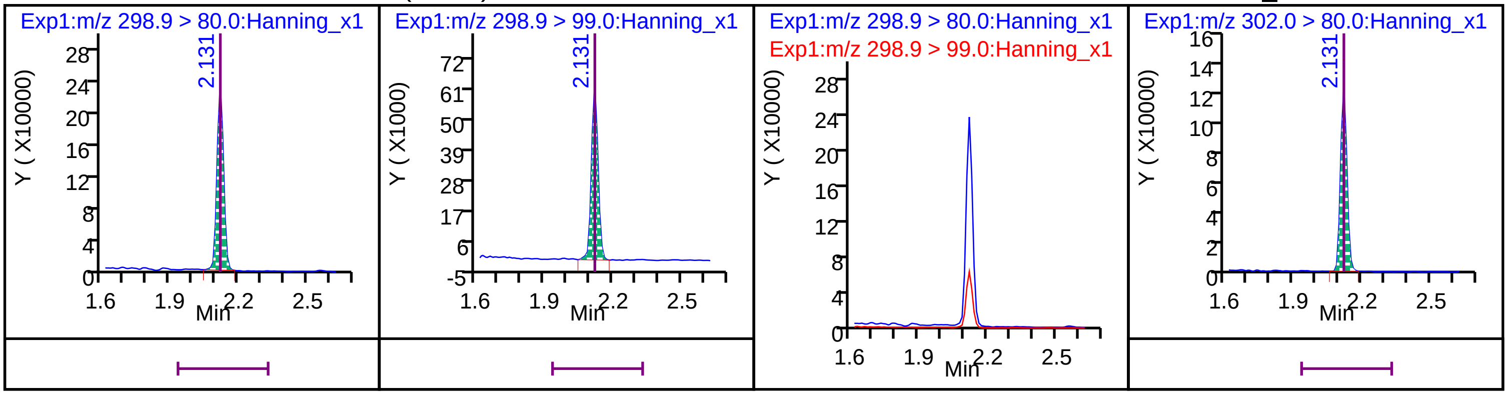
21 Perfluoro-n-pentanoic acid (PFPeA)



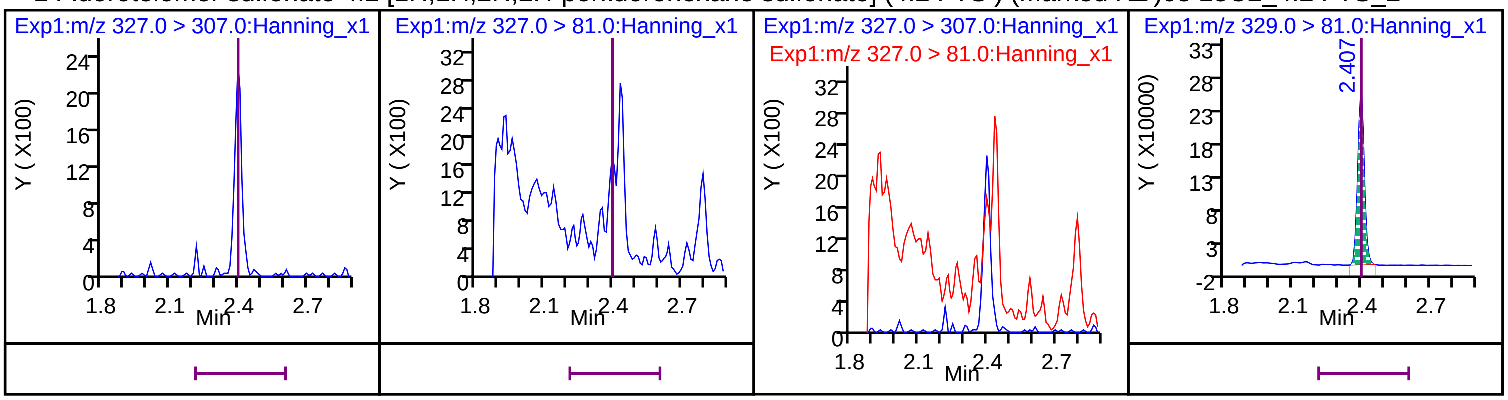
D 50 13C5_PFPeA



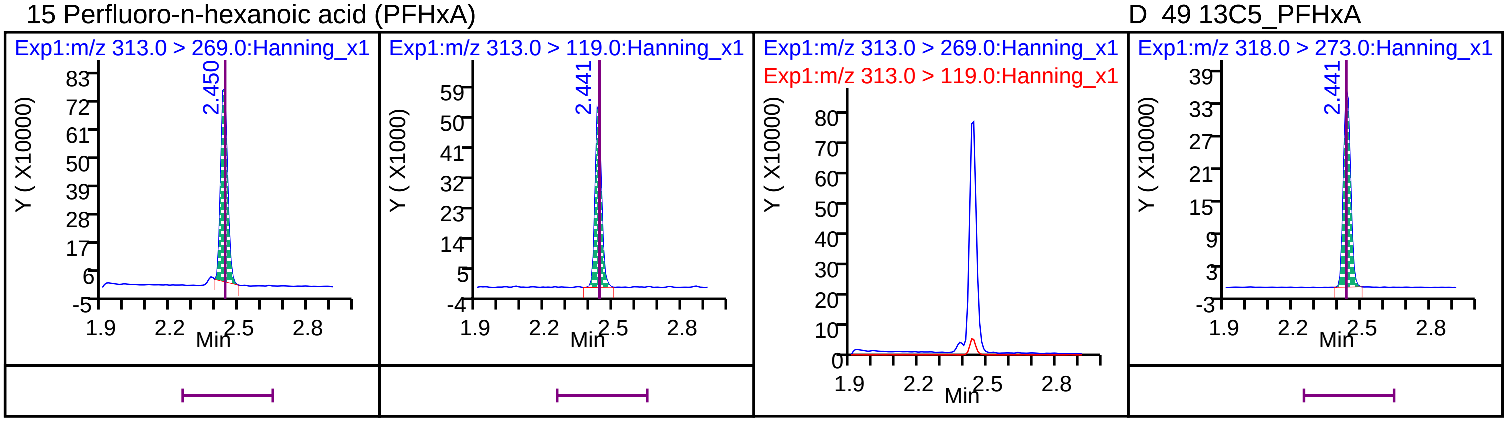
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



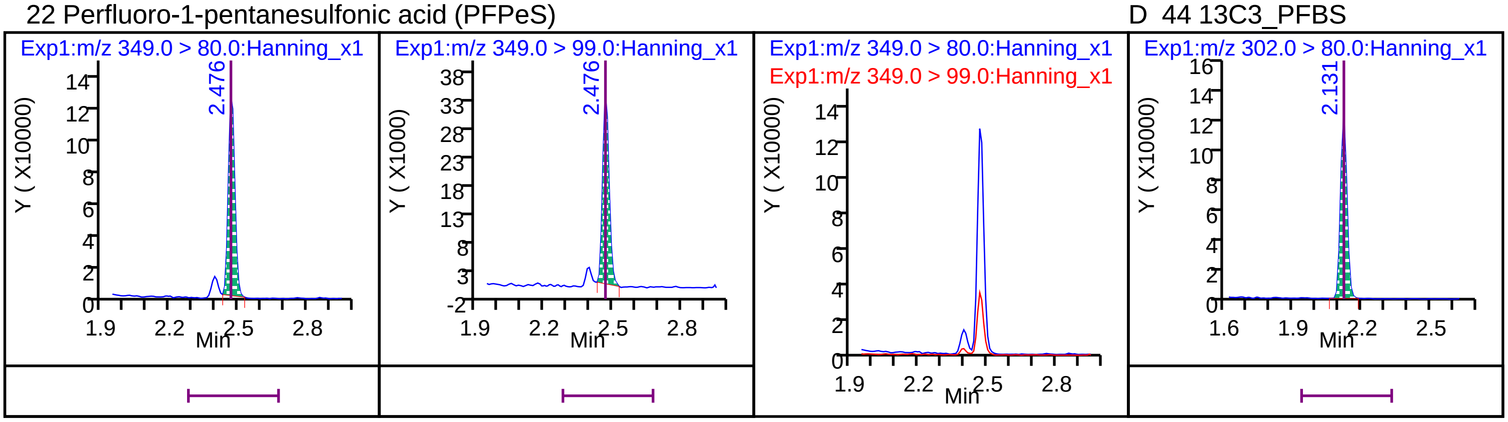
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (Marked ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

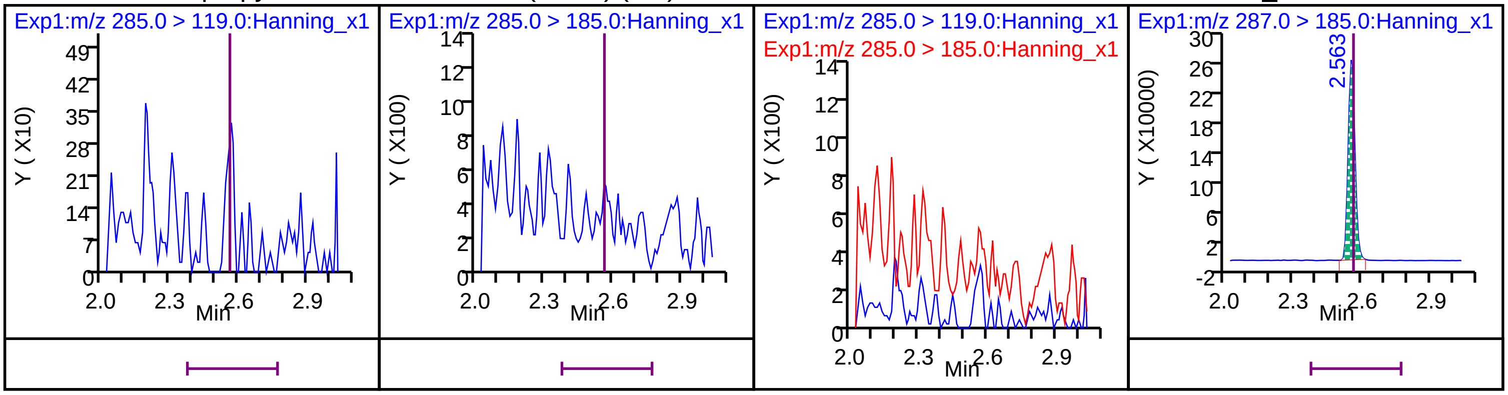


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

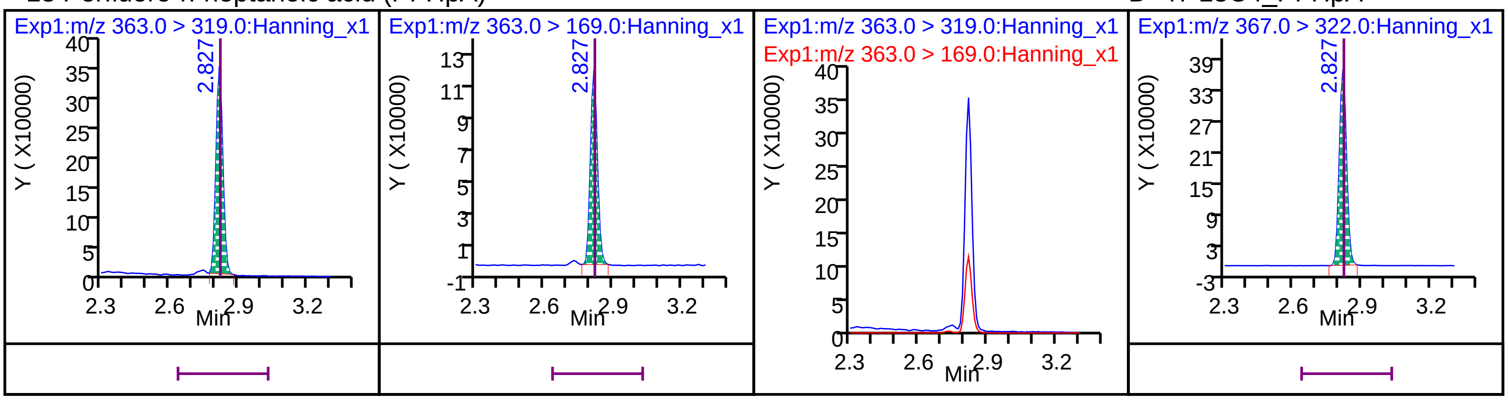


Report Date: 28-Oct-2021 20:18:20 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d

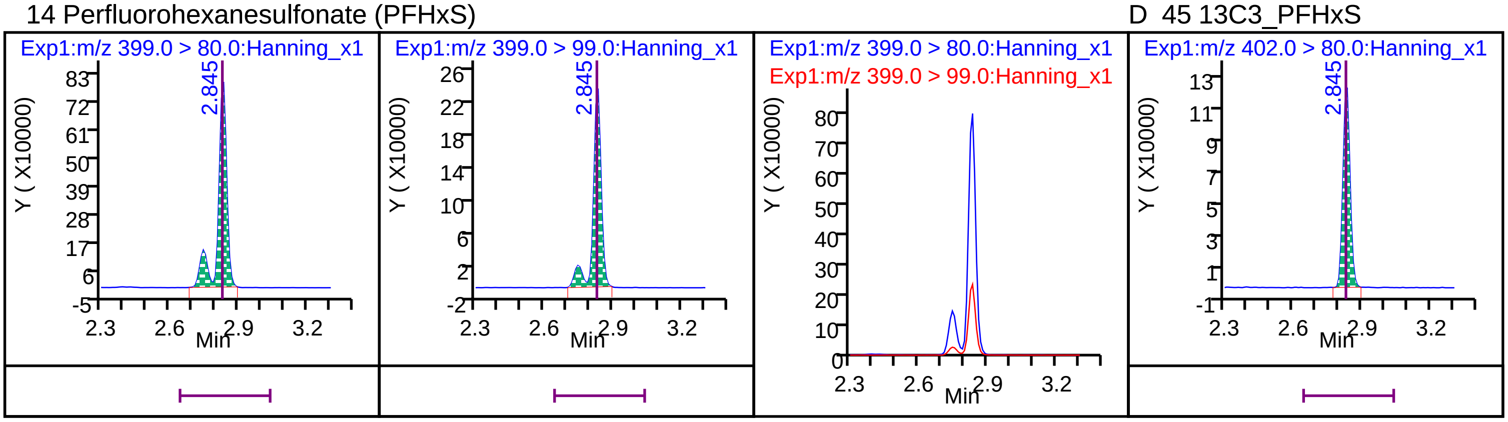
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



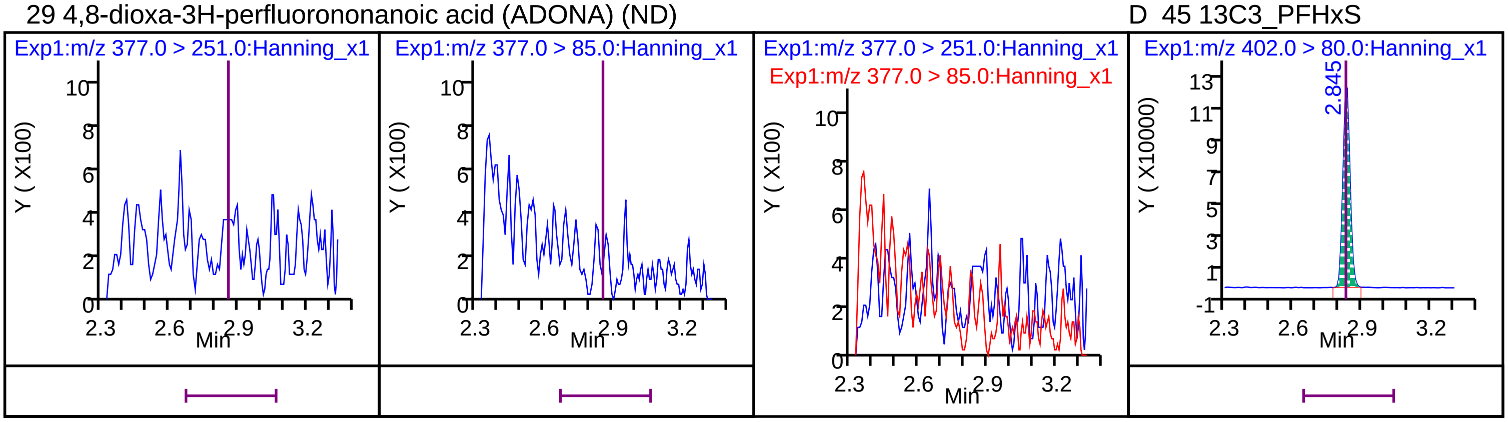
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



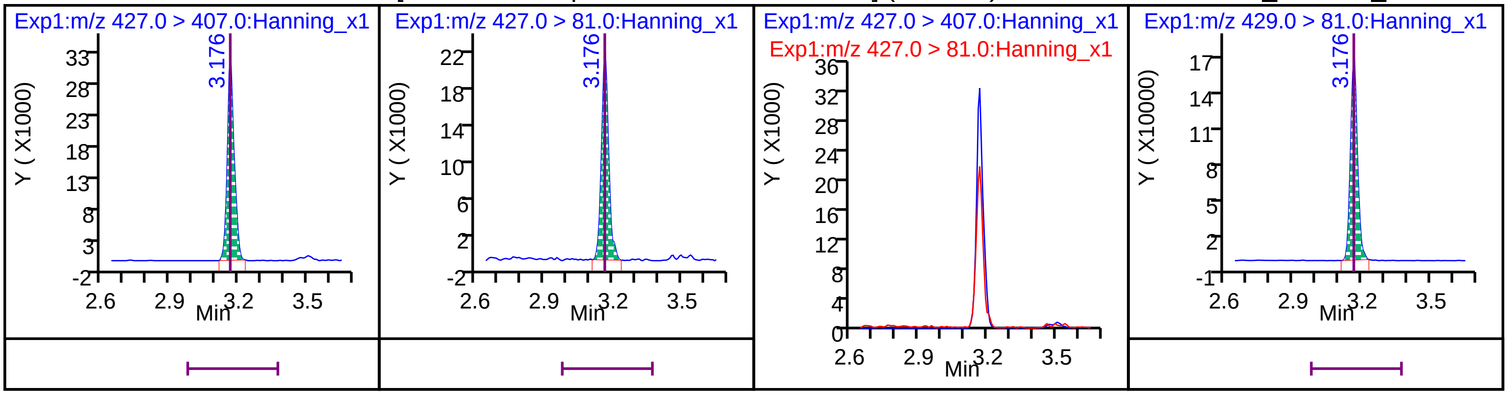
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



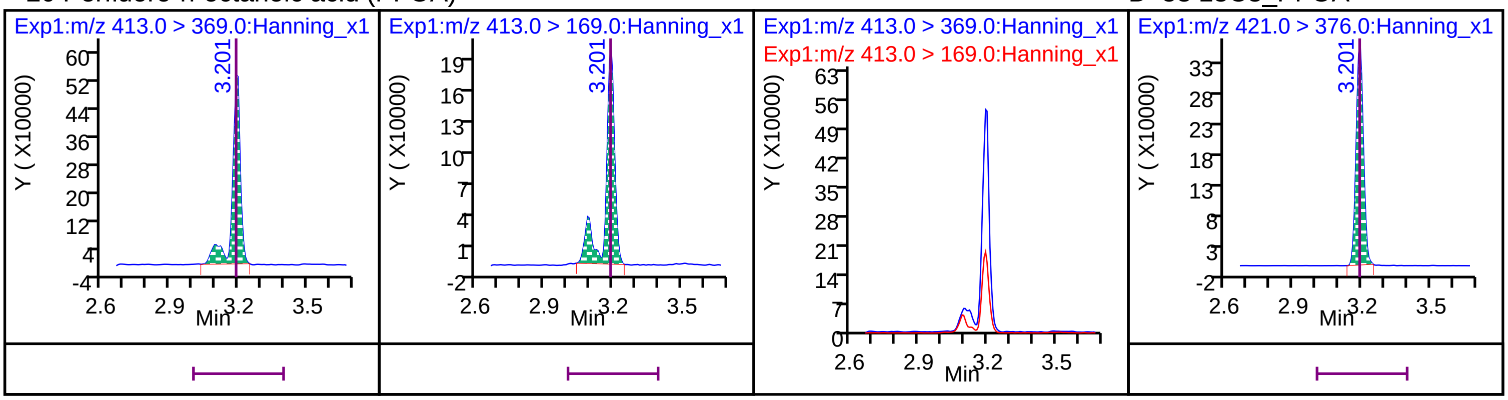
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



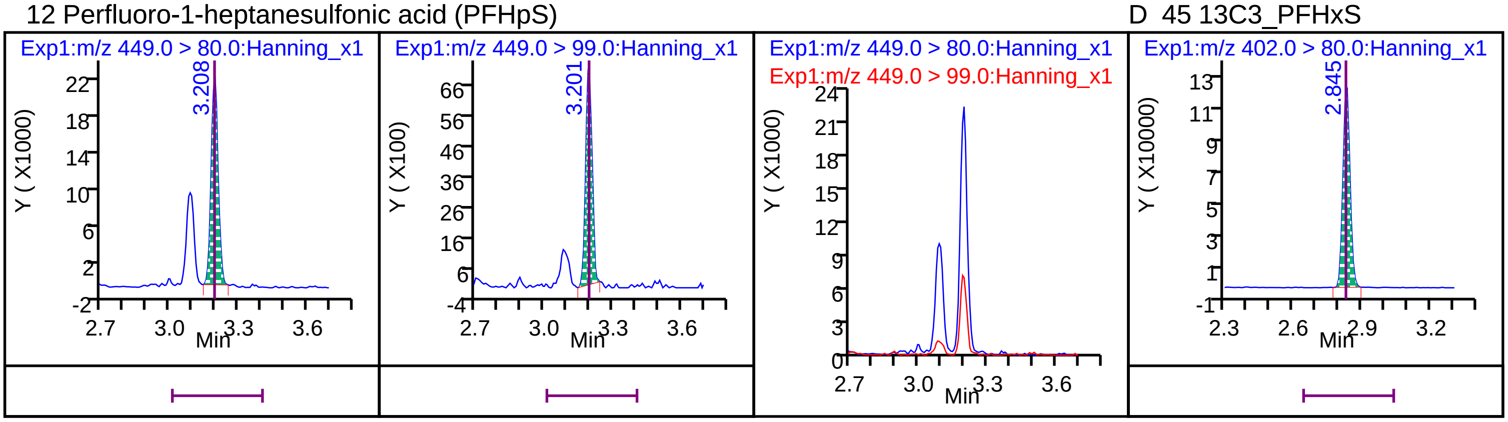
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



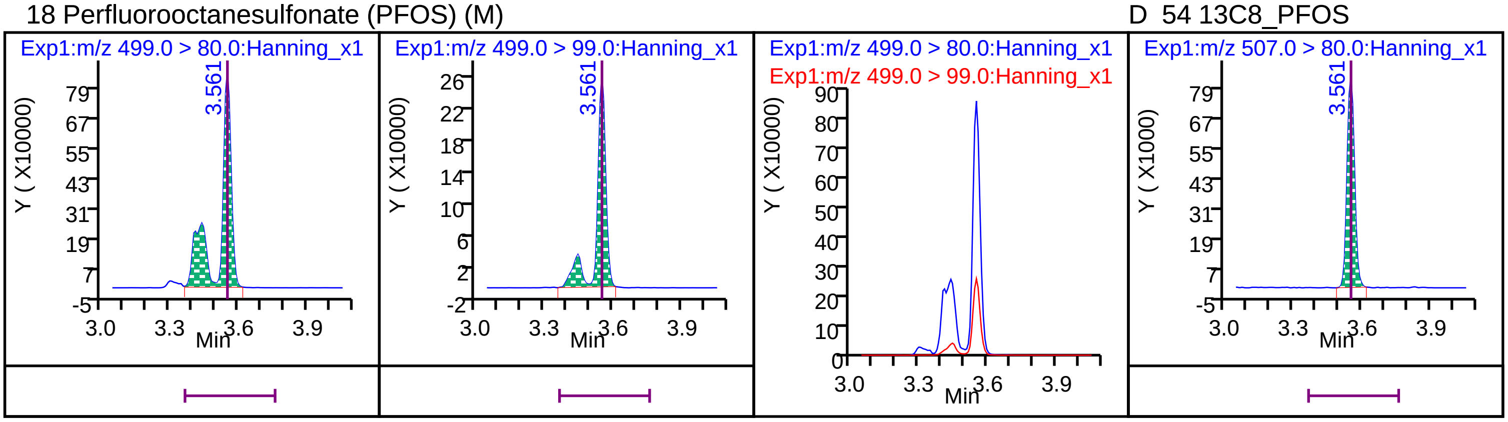
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



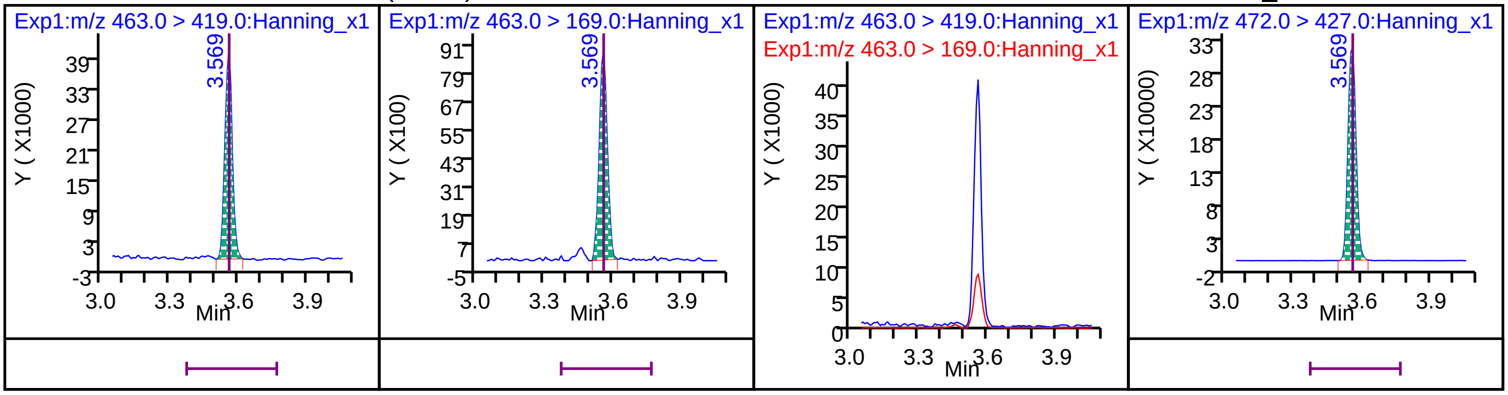
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



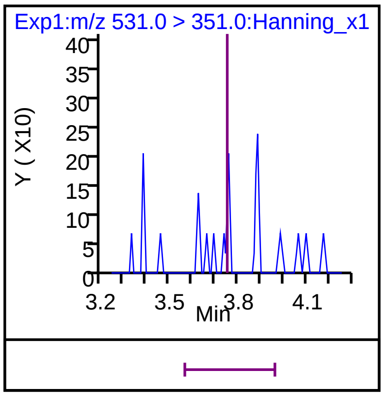
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

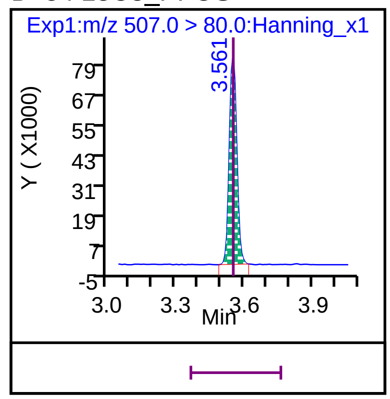


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

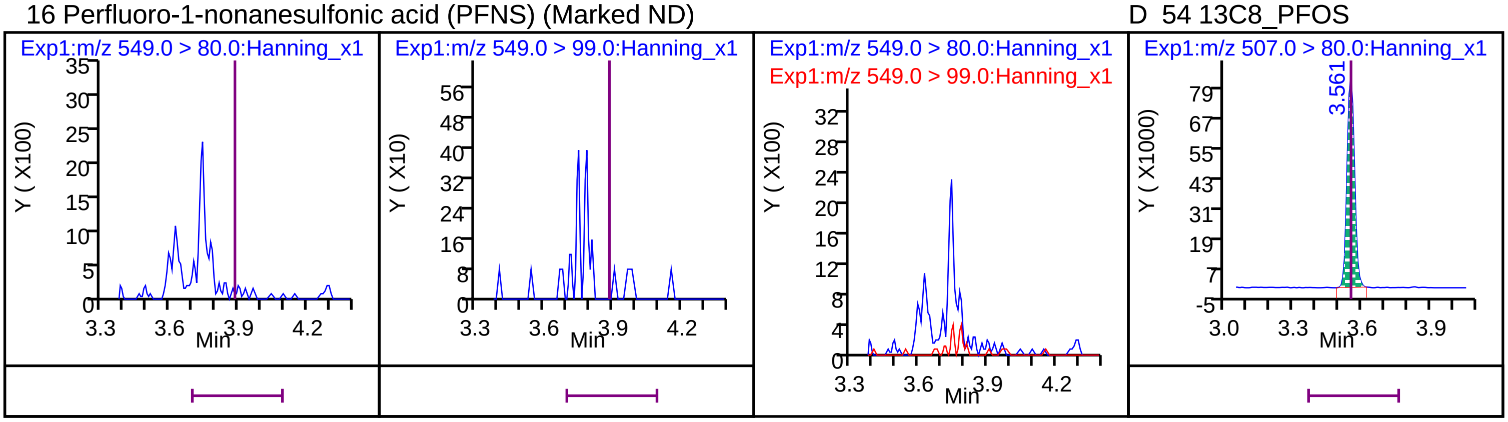


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

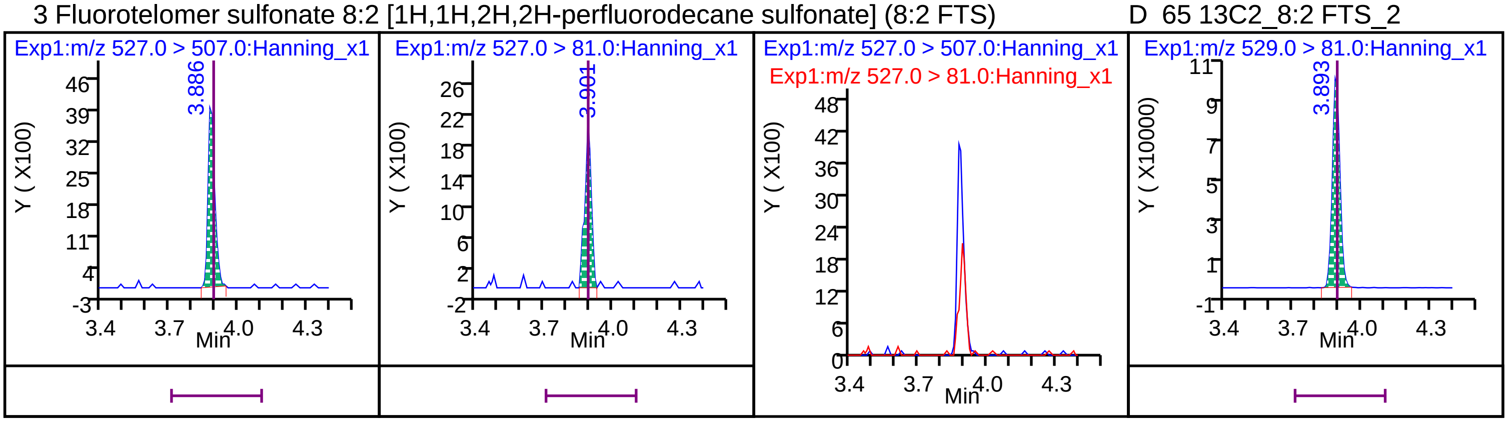




16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS



3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



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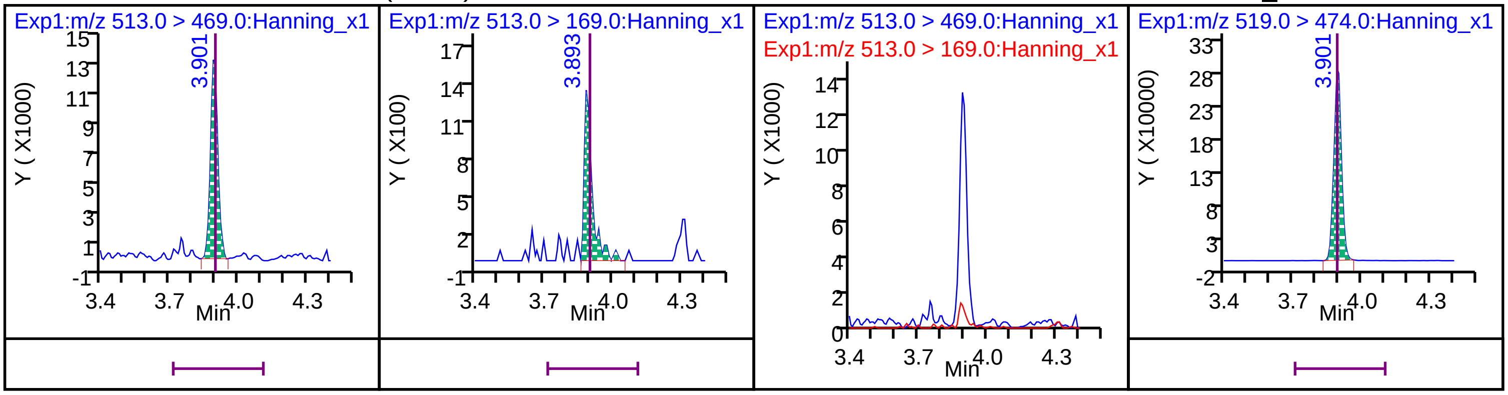
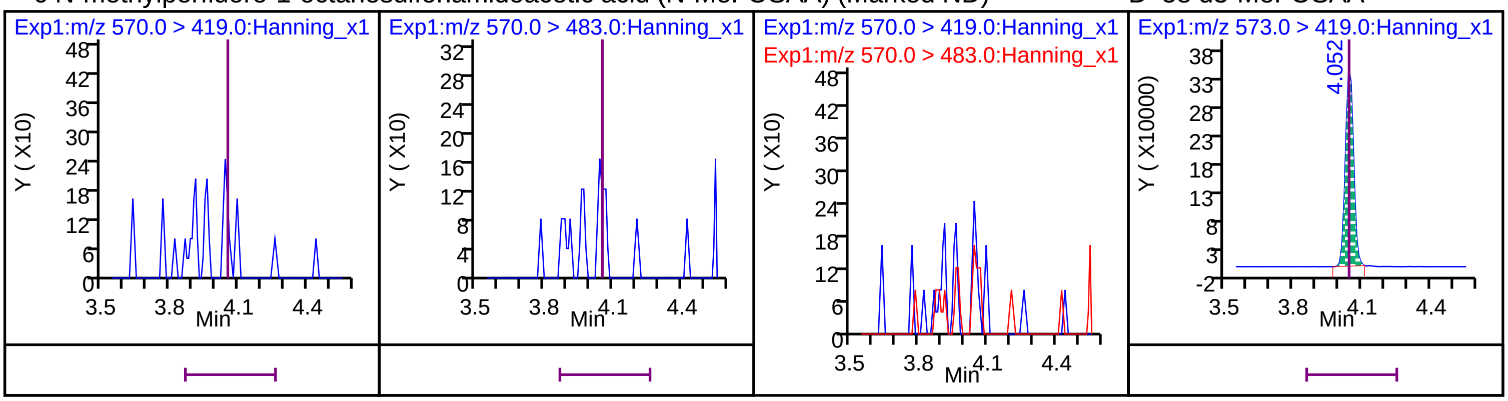
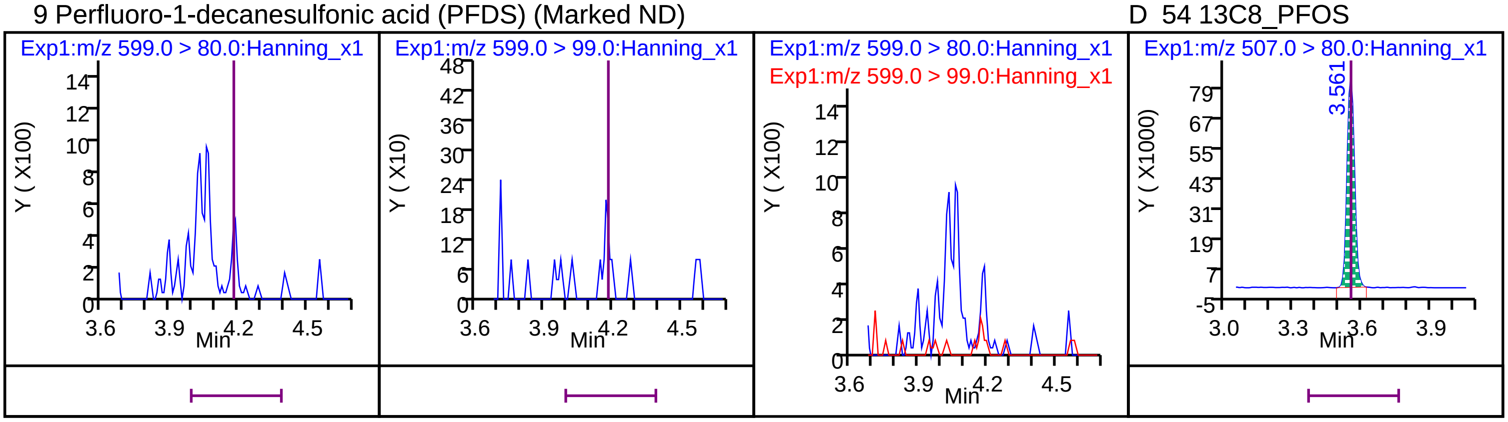
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



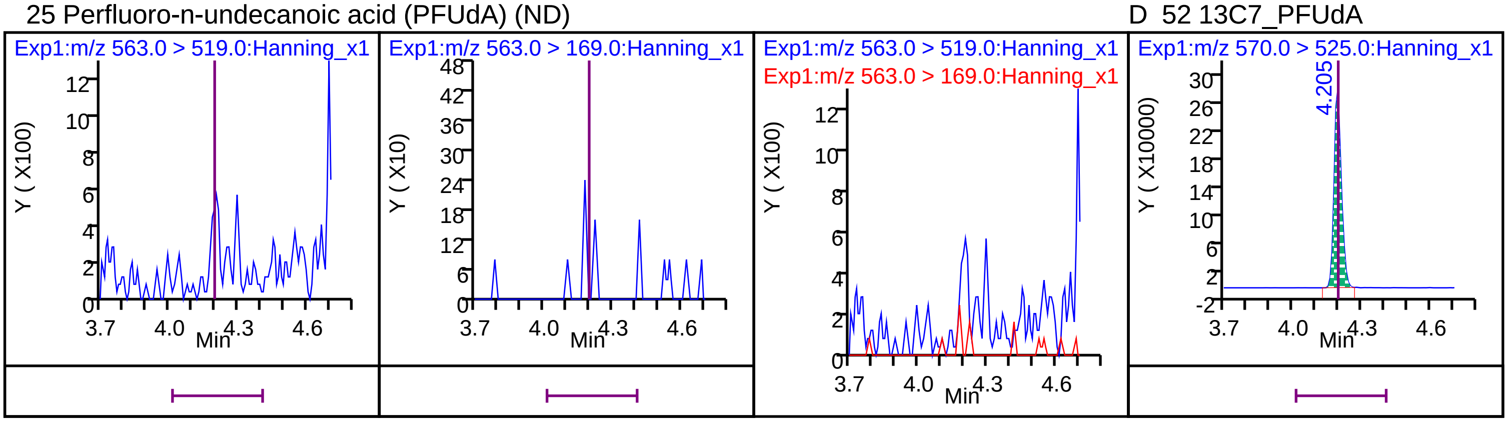
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



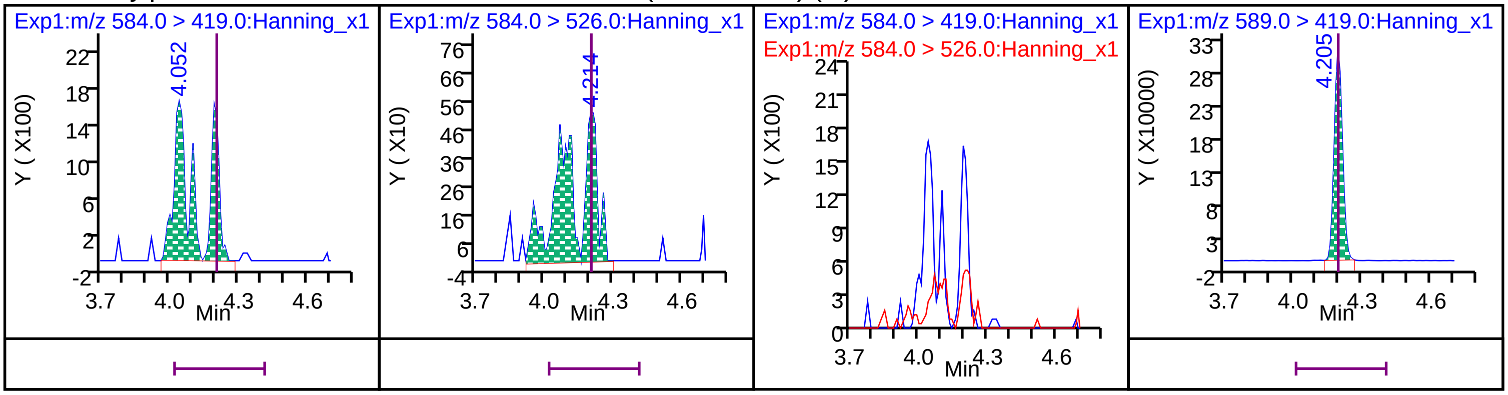
9 Perfluoro-1-decanesulfonic acid (PFDS) (Marked ND) D 54 13C8_PFOS



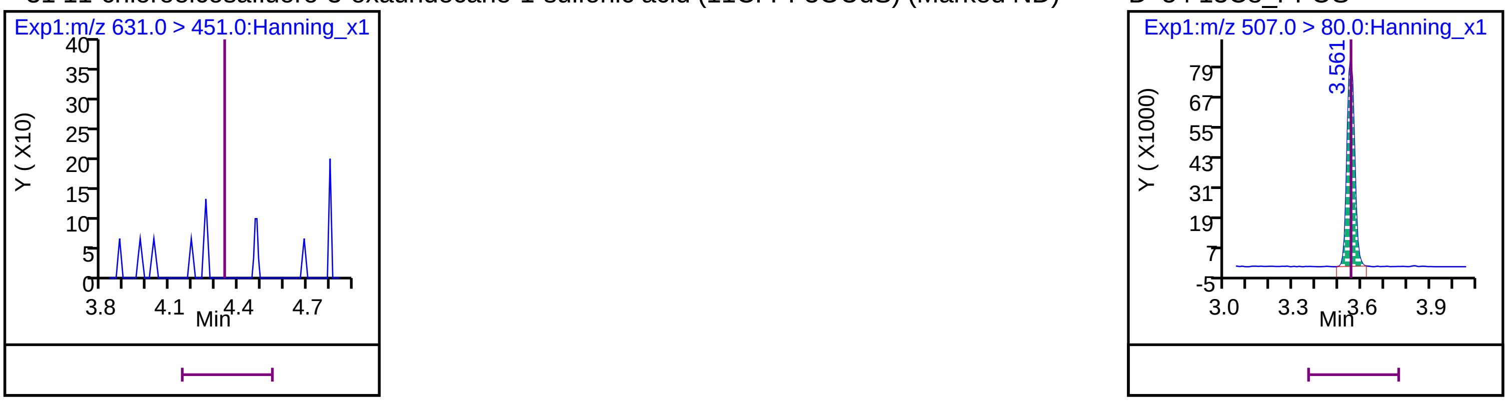
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



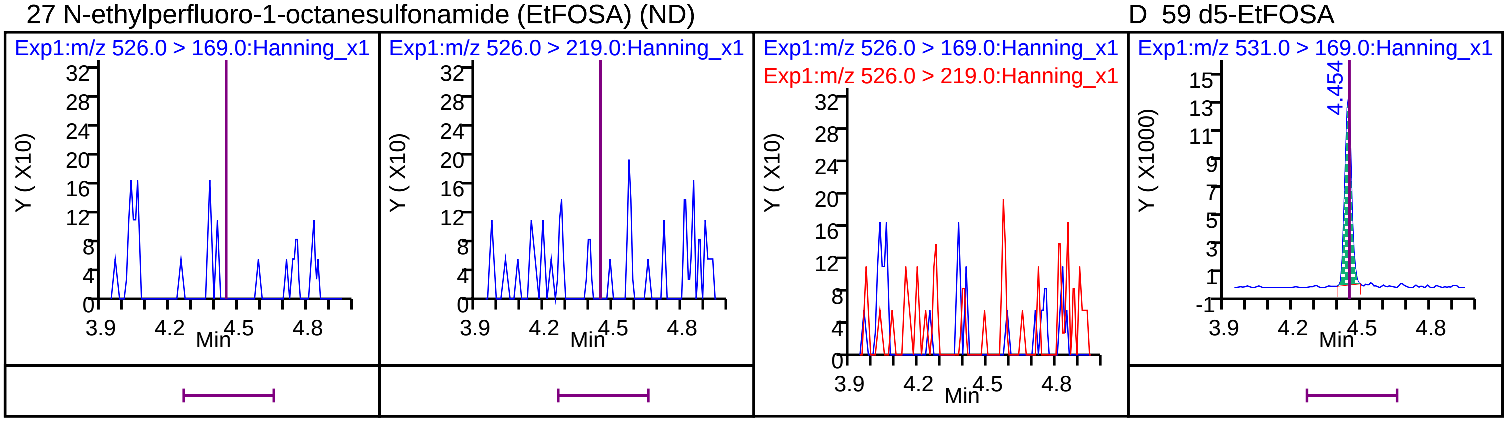
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



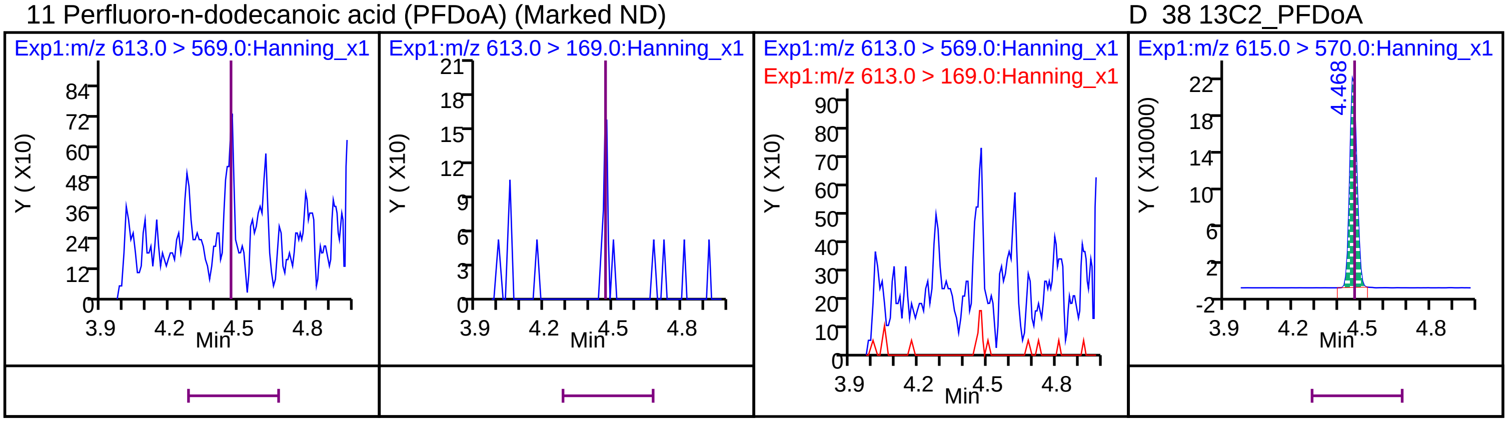
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA

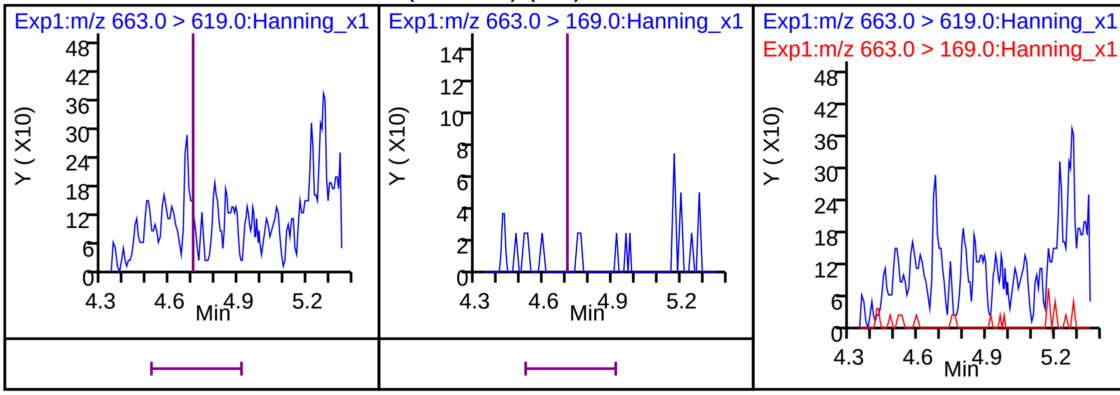


11 Perfluoro-n-dodecanoic acid (PFDoA) (Marked ND) D 38 13C2_PFDoA

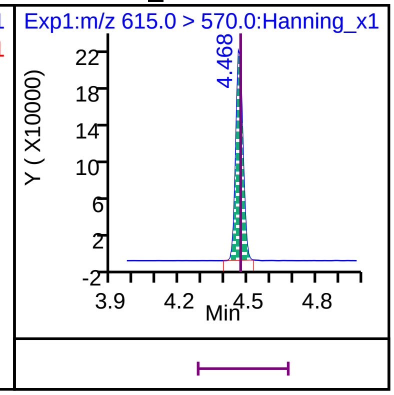


Report Date: 28-Oct-2021 20:18:20 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d

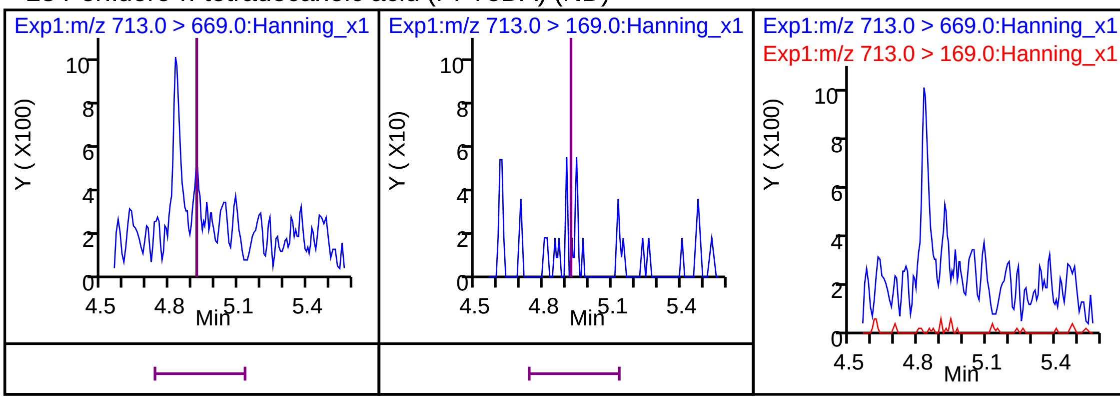
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



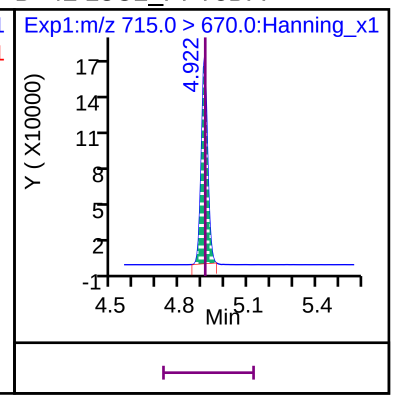
D 38 13C2_PFDoA



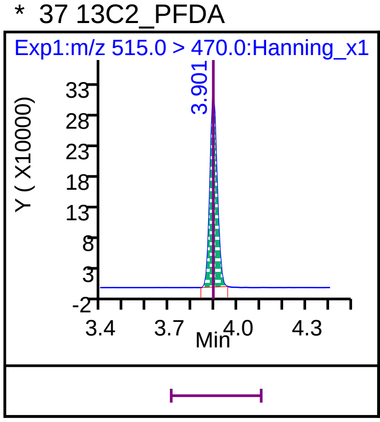
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



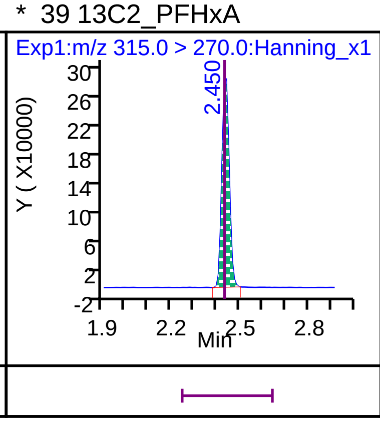
D 42 13C2_PFTeDA



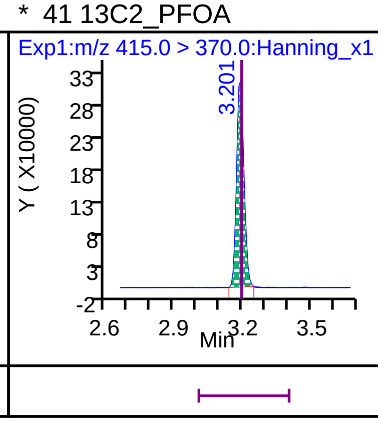
* 37 13C2_PFDA



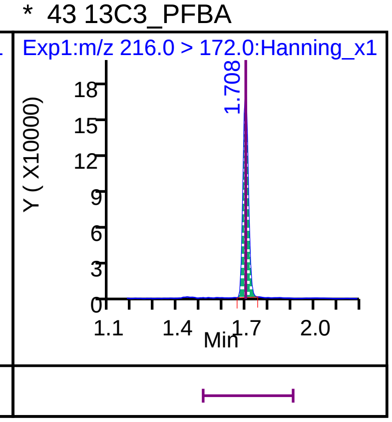
* 39 13C2_PFHxA



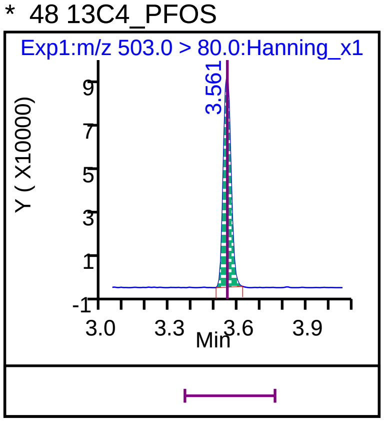
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 28-Oct-2021 20:18:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

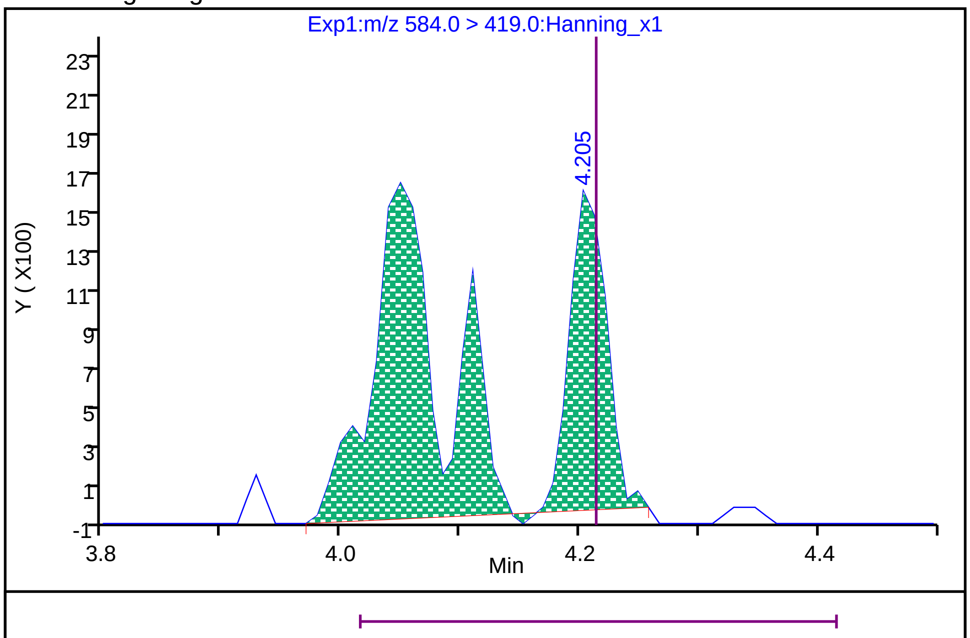
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d		
Injection Date:	28-Oct-2021 17:59:23	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-032.0-20211021	Lab ID:	WJ25006-003
Sample Info:	WJ25006-003		
Dil. Factor:	1	Operator:	Matthew M. Miller

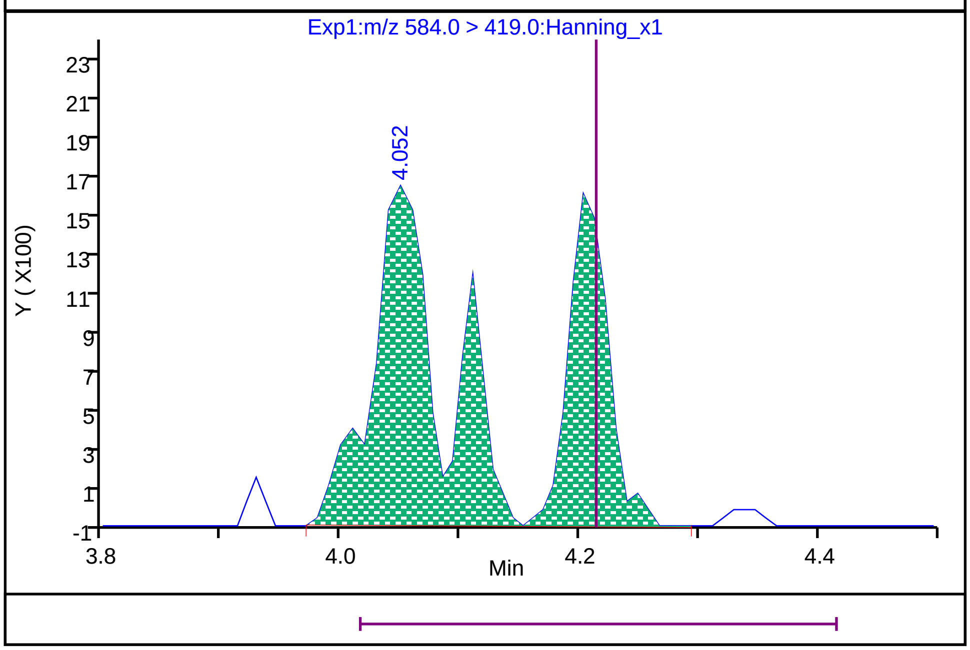
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.205
Area:	10019
Conc:	2.3996
Conc Units:	ng/L



RT:	4.052
Area:	10757
Conc:	2.5764
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:15:27

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 28-Oct-2021 20:18:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

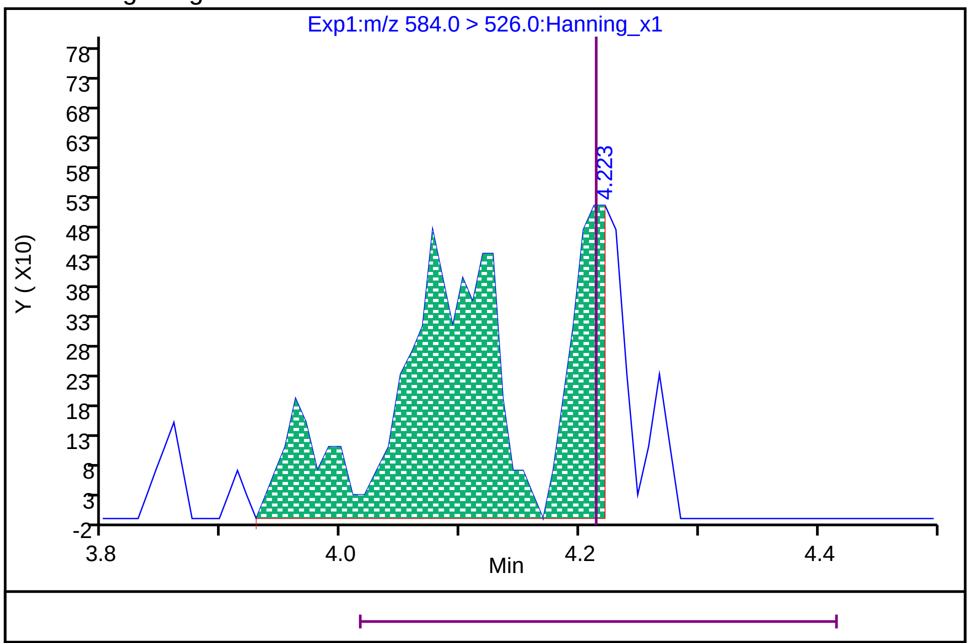
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d		
Injection Date:	28-Oct-2021 17:59:23	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-032.0-20211021	Lab ID:	WJ25006-003
Sample Info:	WJ25006-003		
Dil. Factor:	1	Operator:	Matthew M. Miller

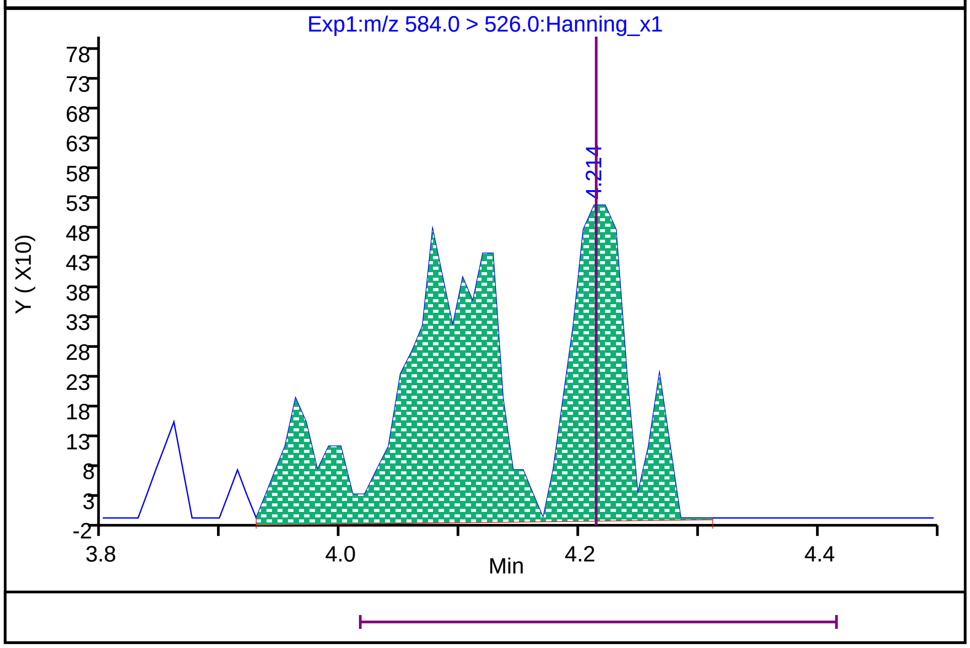
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.223
Area:	3685
Conc:	2.5764
Conc Units:	ng/L



RT:	4.214
Area:	4659
Conc:	2.5764
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:15:30

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

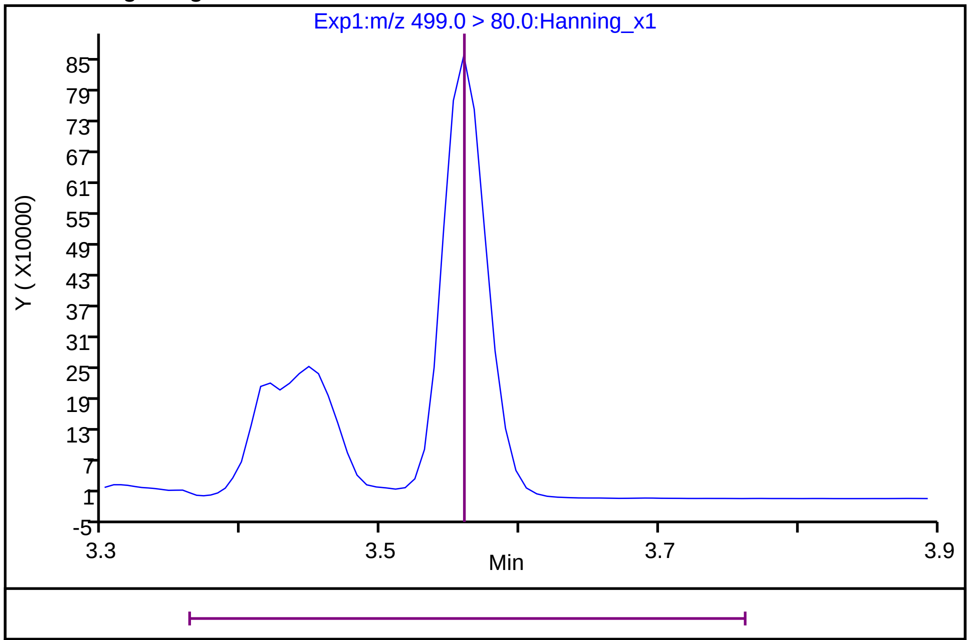
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821043.d		
Injection Date:	28-Oct-2021 17:59:23	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-032.0-20211021	Lab ID:	WJ25006-003
Sample Info:	WJ25006-003		
Dil. Factor:	1	Operator:	Matthew M. Miller

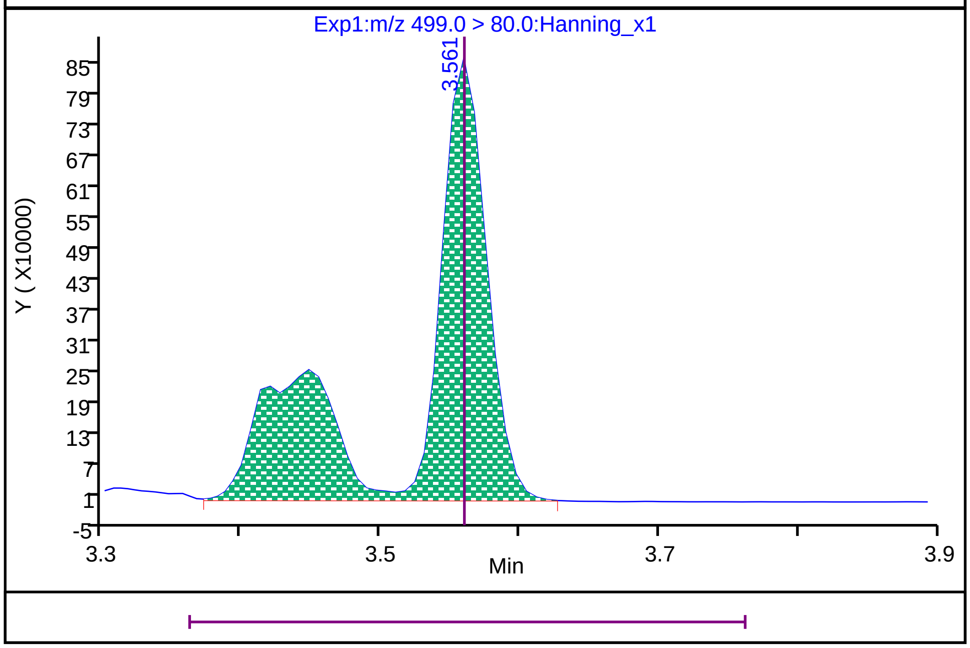
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.561
Area:	2936595
Conc:	511.28
Conc Units:	ng/L



RT:	3.561
Area:	2860280
Conc:	498.00
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:00:18

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ25006-004	
Description: POL-DPT0127-042.0-20211021		Matrix: Aqueous	
Date Sampled: 10/21/2021 1210	Project Name: KSC-POL		
Date Received: 10/22/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	10/28/2021 1809	MMM	10/27/2021 1636	20397

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	11		6.7	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	160		6.7	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	7.0	Q	6.7	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.7	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	37		3.3	1.7	0.83	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.3	1.7	0.83	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	27		3.3	1.7	0.83	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	220		3.3	1.7	0.83	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	Q	3.3	1.7	0.83	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	30		3.3	1.7	0.83	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	82		3.3	1.7	0.83	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	6.2		3.3	1.7	0.83	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	96		3.3	1.7	0.83	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	56		3.3	1.7	0.83	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.3	1.7	0.83	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	340		3.3	1.7	0.83	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	159	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		69	50-150
13C6_PFDA		86	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WJ25006-004
Description: POL-DPT0127-042.0-20211021	Matrix: Aqueous
Date Sampled: 10/21/2021 1210	Project Name: KSC-POL
Date Received: 10/22/2021	Project Number: 112G09020

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		85	50-150
13C8_PFOS		83	50-150
13C9_PFNA		98	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 28-Oct-2021 20:18:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821044.d		
Injection Date:	28-Oct-2021 18:09:57	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	33
Lab Sample ID:	WJ25006-004	Lab Prep. Batch:	20397
Client ID:	POL-DPT0127-042.0-20211021	Sample Group:	WJ25006
Sample Info:	WJ25006-004	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0366300

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	300	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.707	1	477263	16	>100:1			1001.00	532.00	42.9*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.707	1/0	275919	16	55:1			535.53	19.616		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.079	0	702573	12	>100:1			1001.00	781.59	69.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.079	2.079	1/1	1166334	12	86:1			1539.57	56.395		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.131	1	272540	13	>100:1			1001.00	913.05	78.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.131	1/0	385741	14	>100:1	Target = 3.78		1019.07	37.328		
298.9 > 99	44	2.131	2.131		103429	15	>100:1	3.72 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.477	0/-1	204703	13	>100:1	Target = 3.45		728.72	26.693		
349 > 99	44	2.476	2.477		61250	12	>100:1	3.34 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.407	0	514770	15	>100:1			5005.00	11519	159.1*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.407	2.407	0/0	37601	14	>100:1	Target = 1.43		190.81	6.9893		
327 > 81	63	2.407	2.407		24883	9	26:1	1.51 (0.71-2.15)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.442	2.442	0	792421	16	>100:1			1001.00	967.81	84.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.442	2.451	0/0	1809267	12	>100:1	Target = 16.37		2225.08	81.505		
313 > 119	49	2.442	2.451		109111	15	>100:1	16.58 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.572	0	536451	15	>100:1			5005.00	3707.66	75	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.572		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.829	2.831	0	873650	15	>100:1			1001.00	1090.31	92.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.829	2.831	0/0	701275	13	>100:1	Target = 3.21		809.73	29.661		
363 > 169	47	2.829	2.831		229720	14	>100:1	3.05 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.837	2.840	0	250046	17	>100:1			1001.00	1016.63	88.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.837	2.840	0/0	1801246	25	>100:1	Target = 3.47	6.30	5980.71	219.07		
399 > 99	45	2.837	2.840		491183	24	>100:1	3.66 (1.73-5.21)	8.70				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.866		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.206	1/1	77487	18	>100:1	Target = 3.62		285.67	10.464		
449 > 99	45	3.208	3.206		25374	19	13:1	3.05 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.174	1	325304	20	>100:1			5005.00	7444.54	135.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.177	3.174	1/0	445560	20	>100:1	Target = 1.19		4346.52	159.21		
427 > 81	64	3.177	3.174		345000	20	>100:1	1.29 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.199	1	732018	19	>100:1			1001.00	967.43	85.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.202	3.199	1/0	1929354	33	>100:1	Target = 2.34	7.73	2620.41	95.986		
413 > 169	53	3.202	3.199		788172	40	>100:1	2.44 (1.17-3.51)	6.27				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.562	3.562	1	200995	17	>100:1			1001.00	887.12	82.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.562	3.562	1/0	2281060	38	>100:1	Target = 4.00	1.03	9410.53	344.71		M
499 > 99	54	3.562	3.562		538709	38	>100:1	4.23 (2.00-6.01)	2.74				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.761		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.894		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.190		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.350		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.570	3.569	1	801938	18	>100:1			1001.00	1034.16	97.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.570	3.569	1/0	118292	17	>100:1	Target = 4.21		169.17	6.1967		
463 > 169	56	3.570	3.569		26615	19	76:1	4.44 (2.10-6.32)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.901	3.902	0	208630	17	>100:1			5005.00	5517.31	101.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.901	3.902	0/0	19100	23	>100:1	Target = 1.27		310.33	11.367		
527 > 81	65	3.901	3.902		13518	20	>100:1	1.41 (0.63-1.91)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.909	3.902	1	652604	17	>100:1			1001.00	960.90	85.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.910		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.063	4.053	1	875017	17	>100:1			5005.00	4270.49	95.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.063		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.205	4.206	0	633335	16	>100:1			1001.00	1001.89	85	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.206		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.205	4.206	0	822839	16	>100:1			5005.00	4792.96	93.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.215		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.447	4.456	0	39080	15	>100:1			1001.00	711.47	62.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.456		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.476	4.477	0	513958	17	>100:1			1001.00	855.70	79.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.477		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.713		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.922	4.923	0	598608	21	>100:1			1001.00	747.15	67.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.929		ND								
*** 37 13C2_PFDA**													
515 > 470		3.909	3.902	1	631527	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.442	2.442	0	720229	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.206	0	705667	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.707	1	411339	16	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.570	3.562	1	193446	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

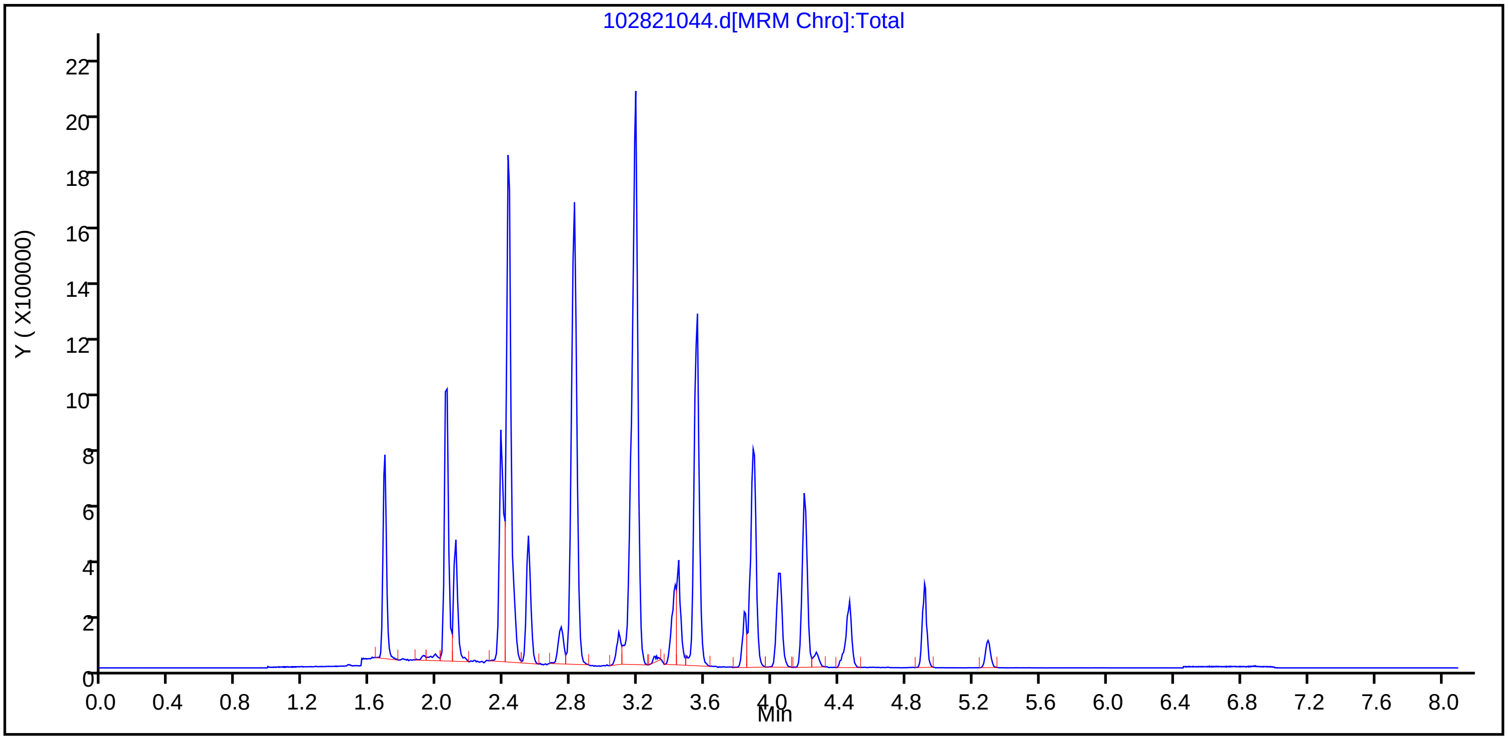
QC Flag Legend

U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated

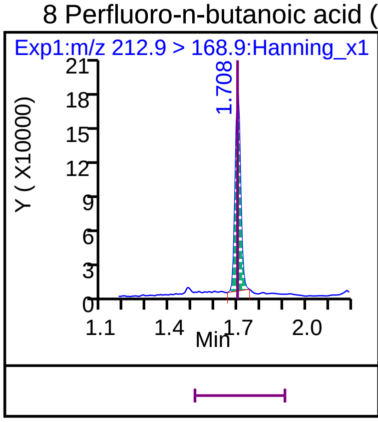
Report Date: 28-Oct-2021 20:18:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

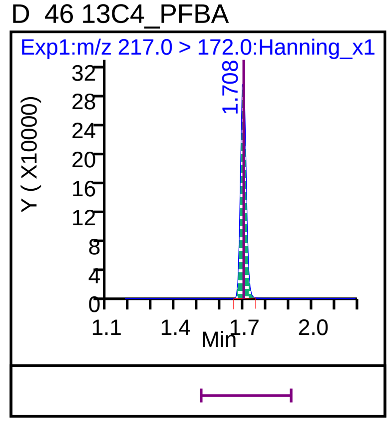
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821044.d		
Injection Date:	28-Oct-2021 18:09:57	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-042.0-20211021	Lab ID:	WJ25006-004
Sample Info:	WJ25006-004		
Dil. Factor:	1	Operator:	Matthew M. Miller



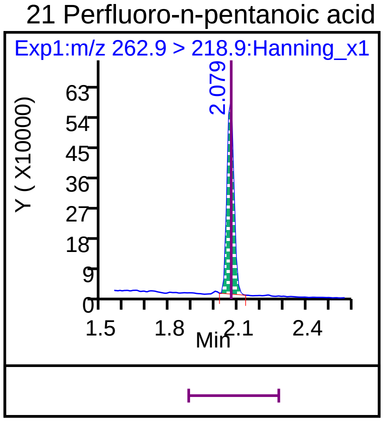
8 Perfluoro-n-butanoic acid (PFBA)



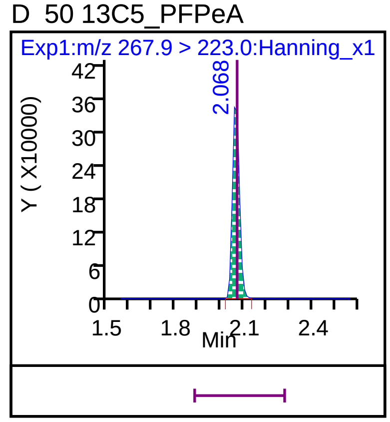
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

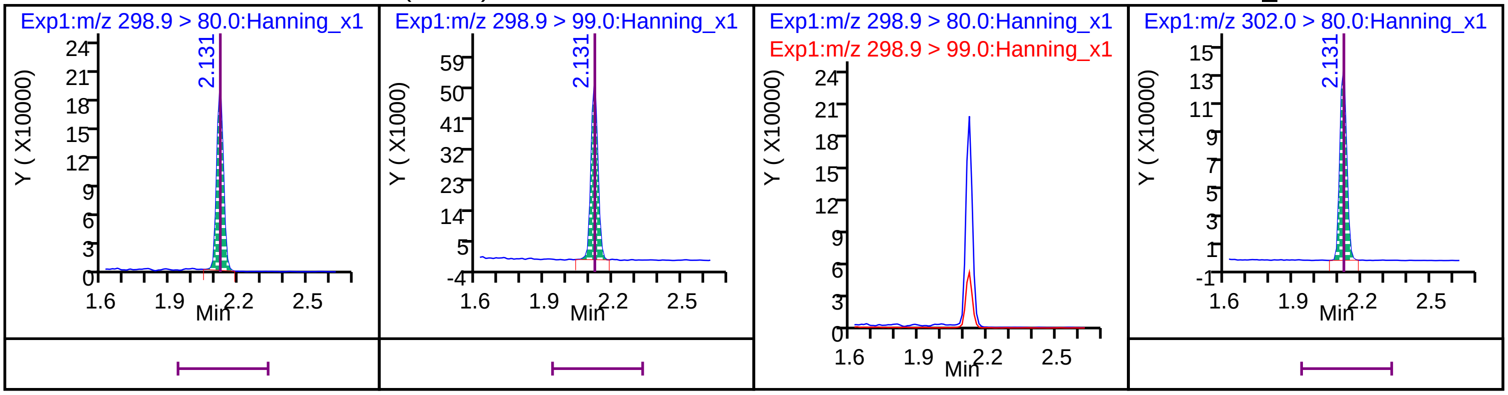


D 50 13C5_PFPeA

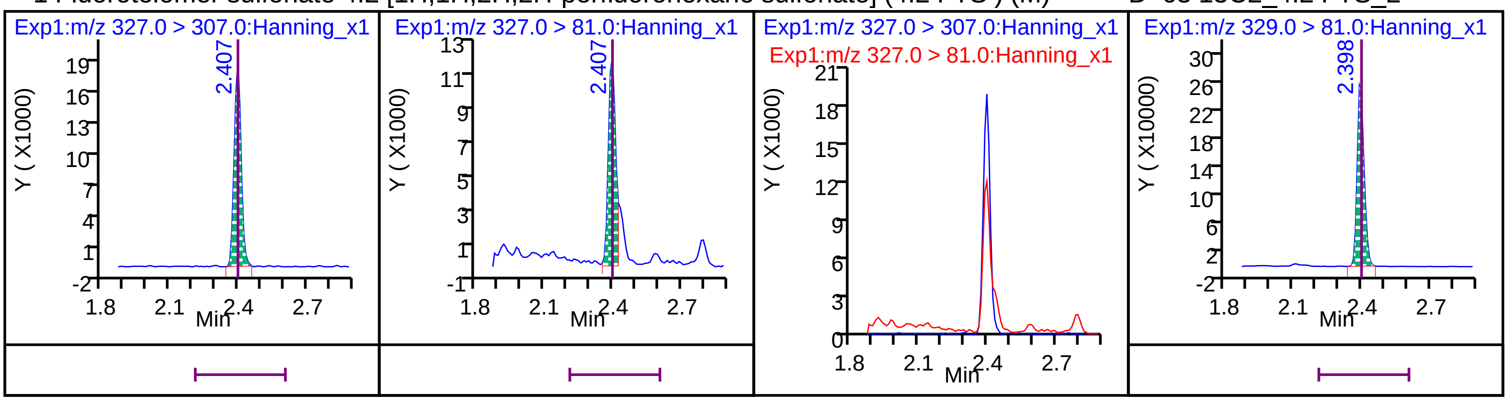


Report Date: 28-Oct-2021 20:18:21 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821044.d

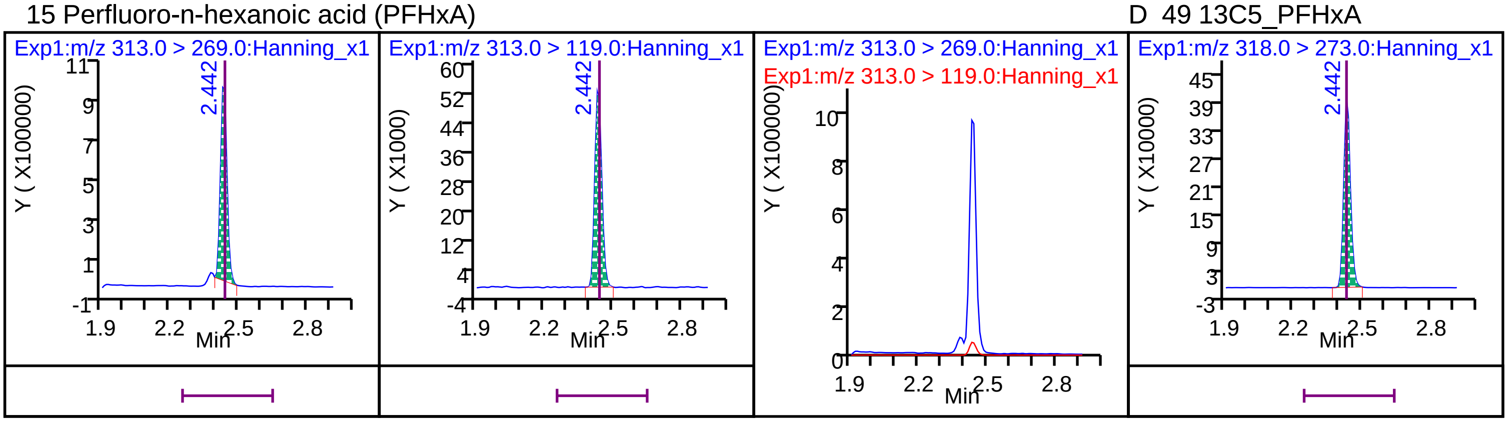
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



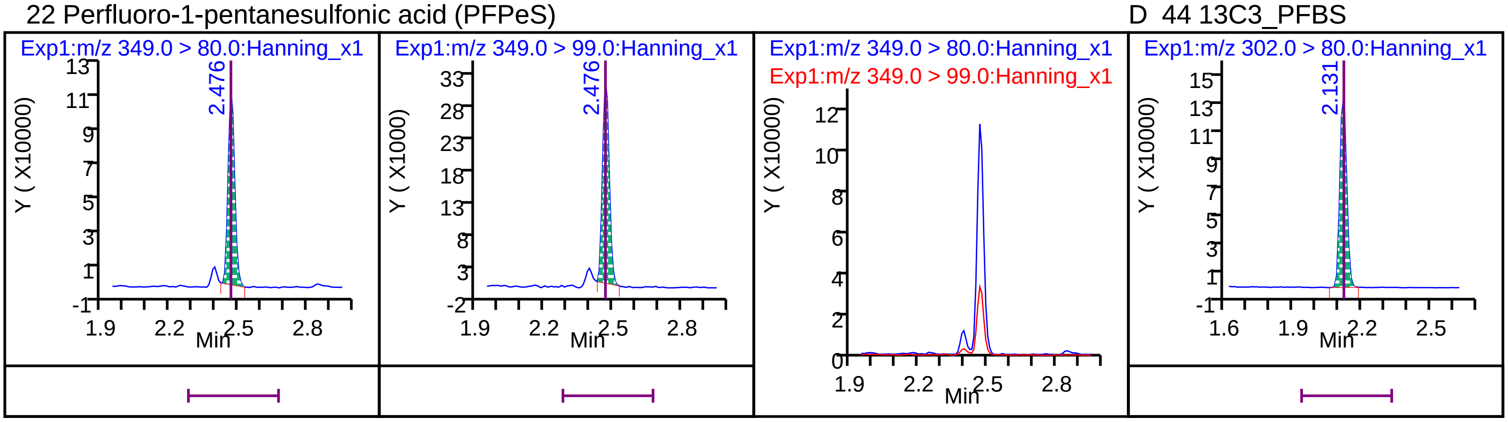
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

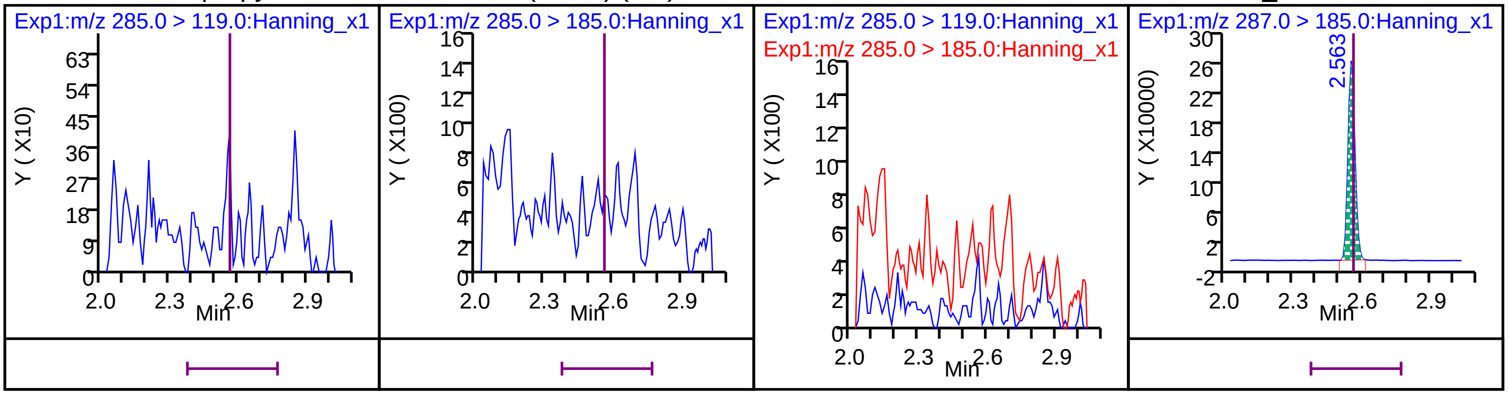


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

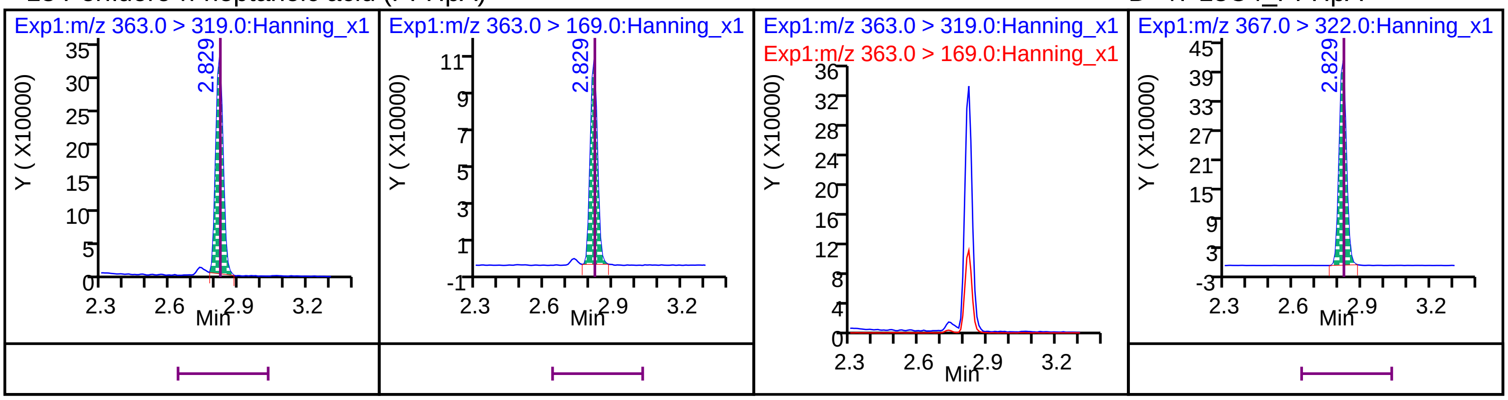


Report Date: 28-Oct-2021 20:18:21 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821044.d

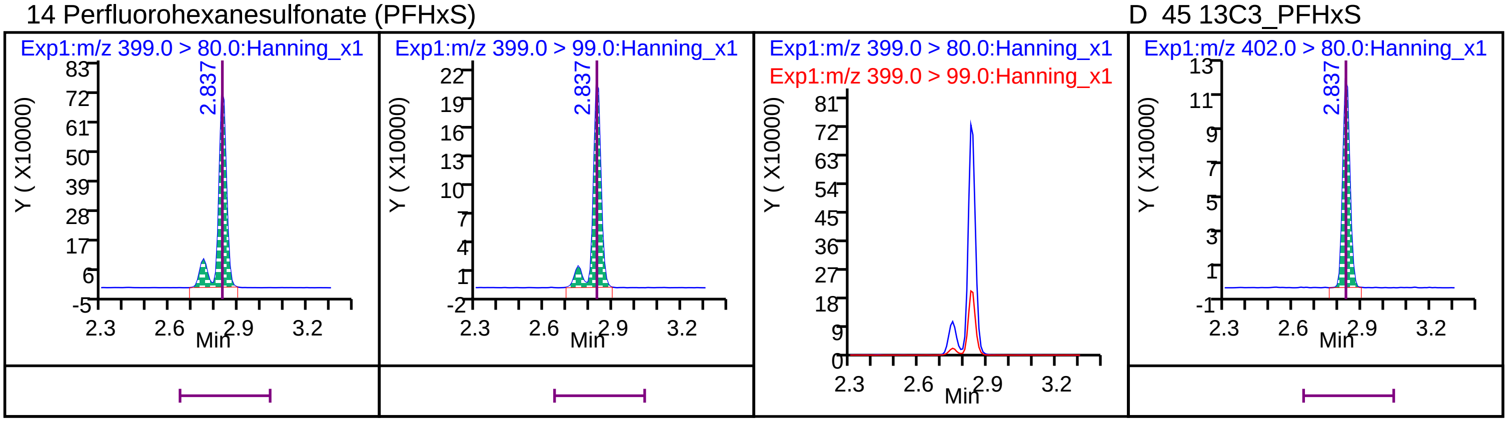
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



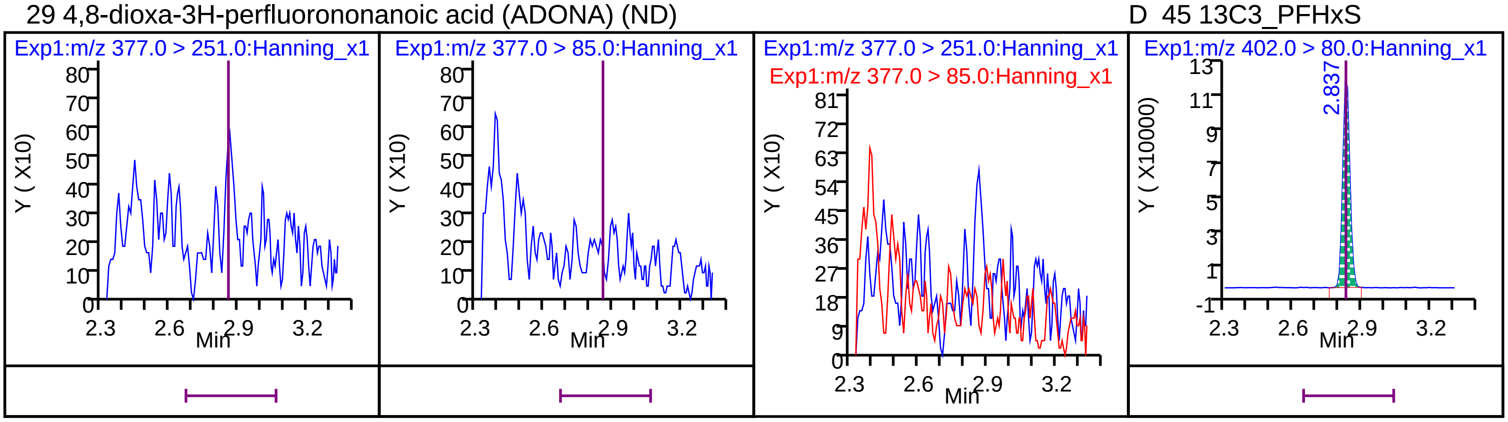
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



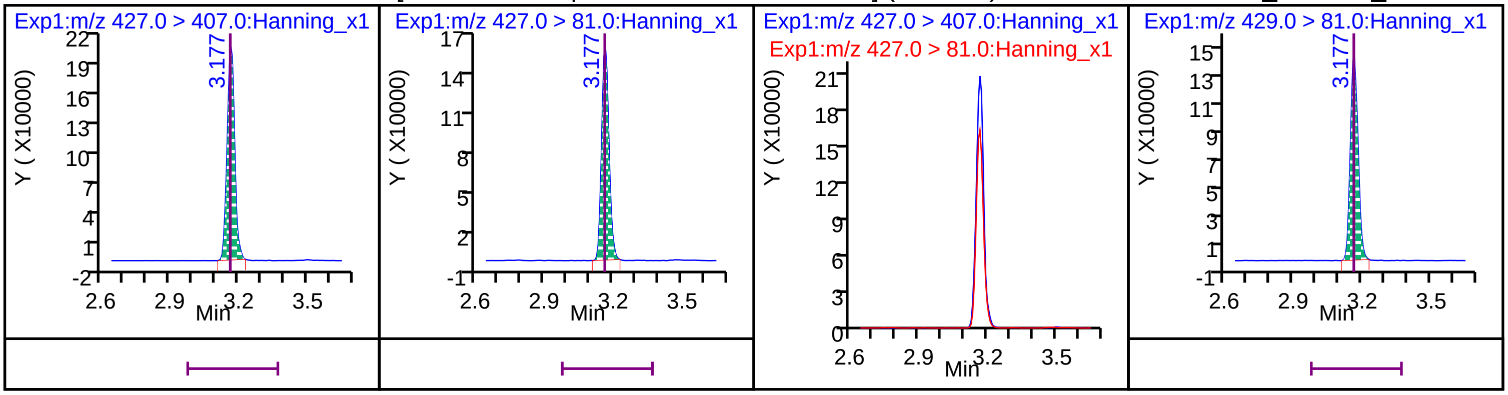
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



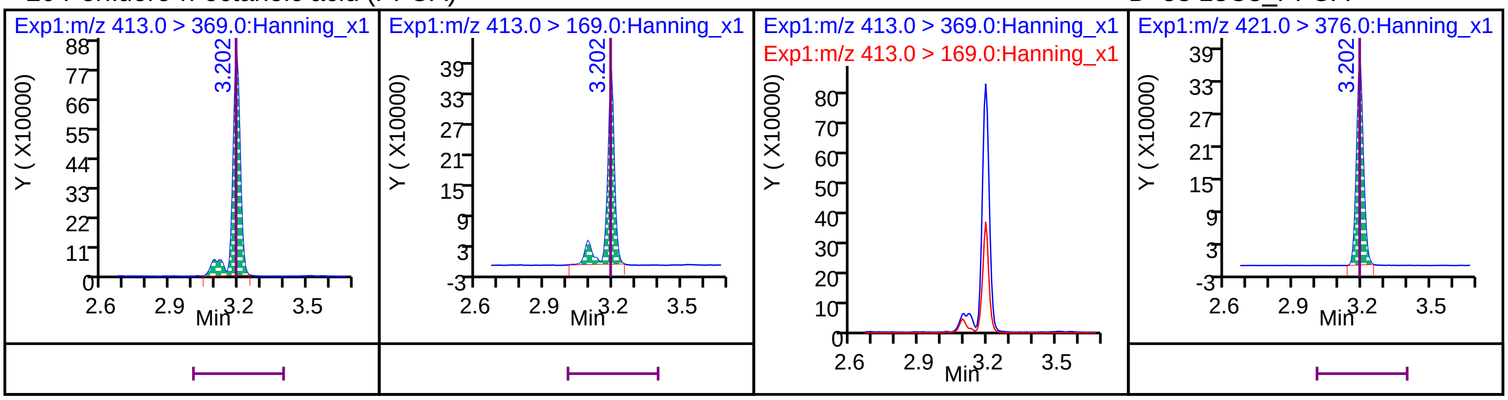
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



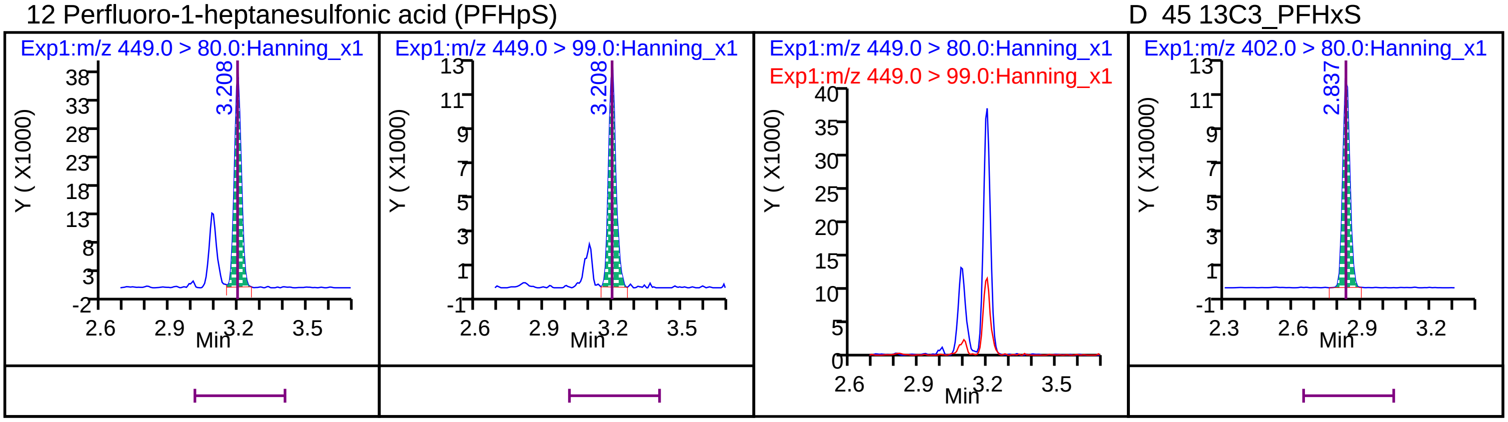
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



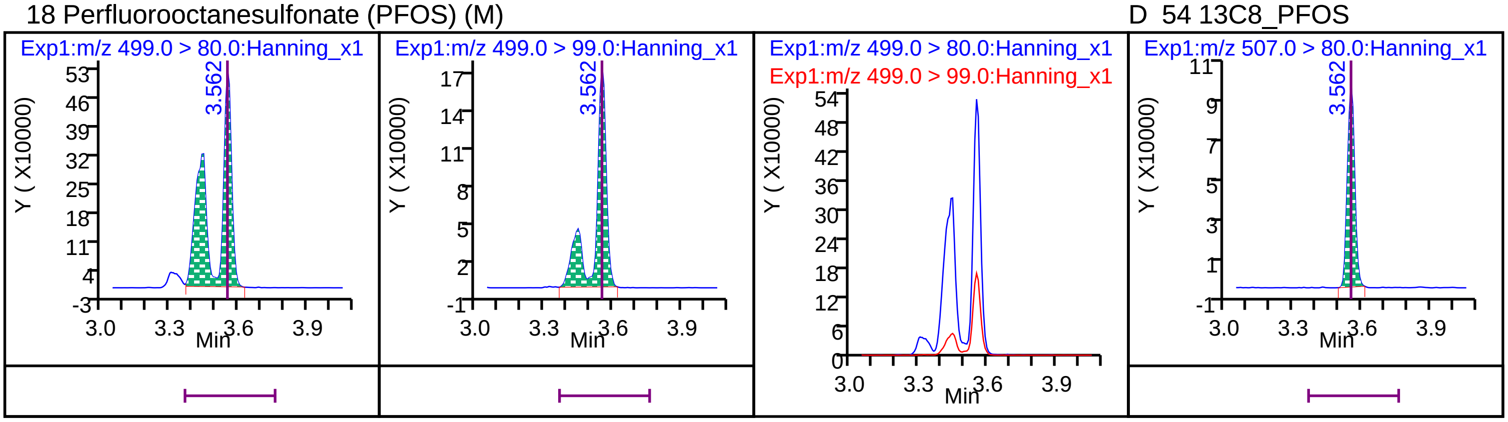
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



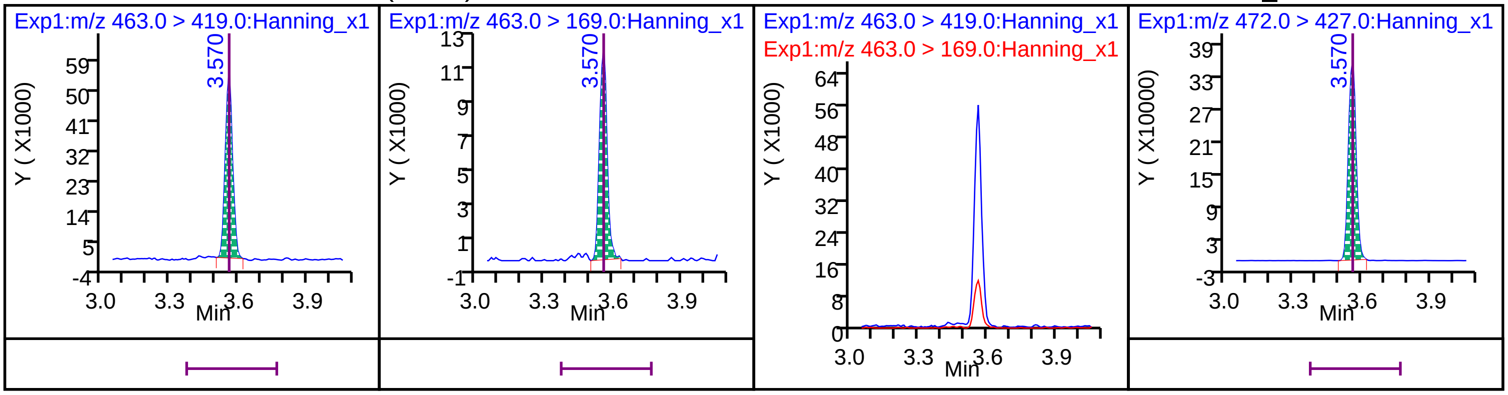
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



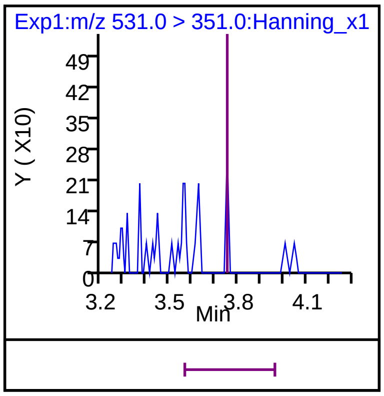
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

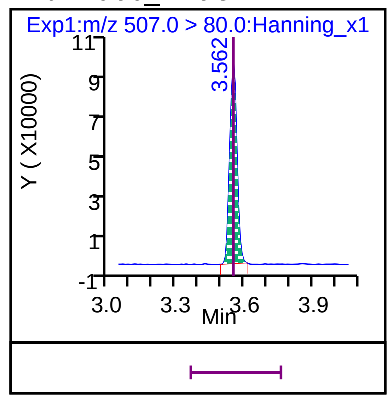


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

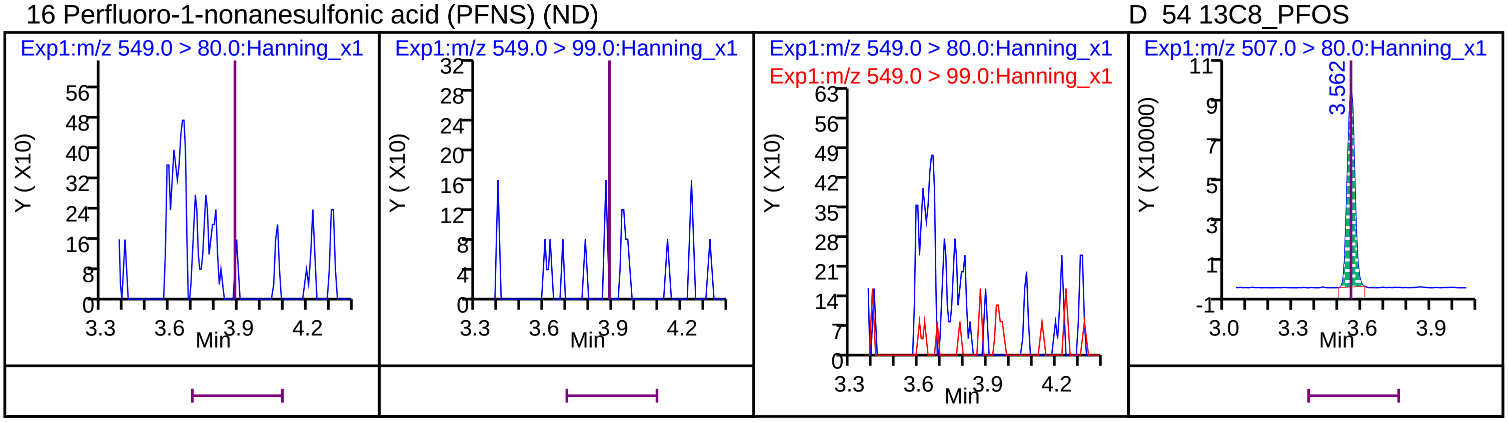


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

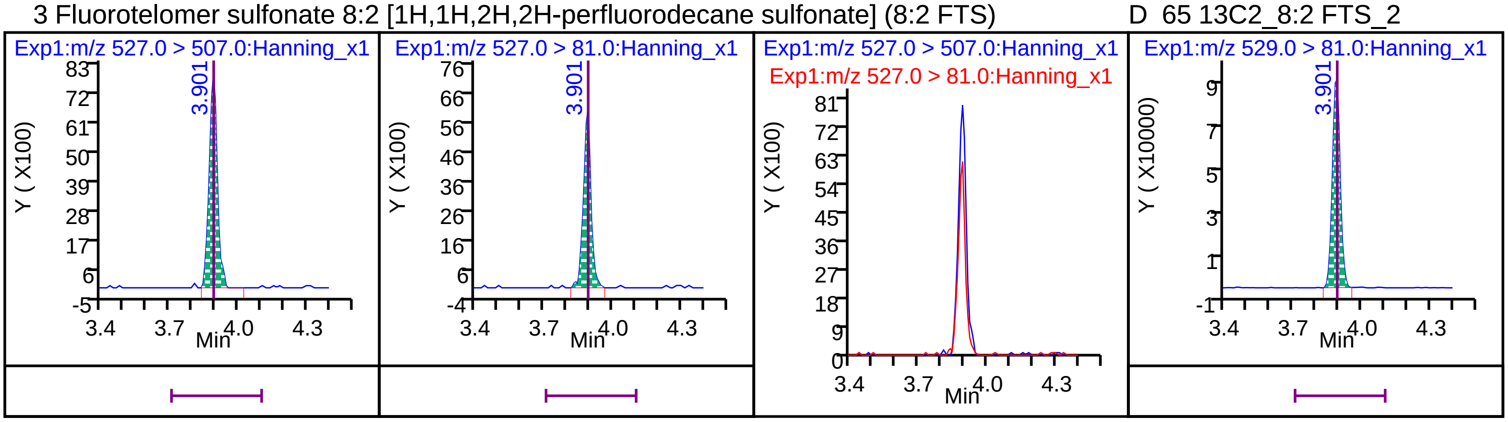




16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

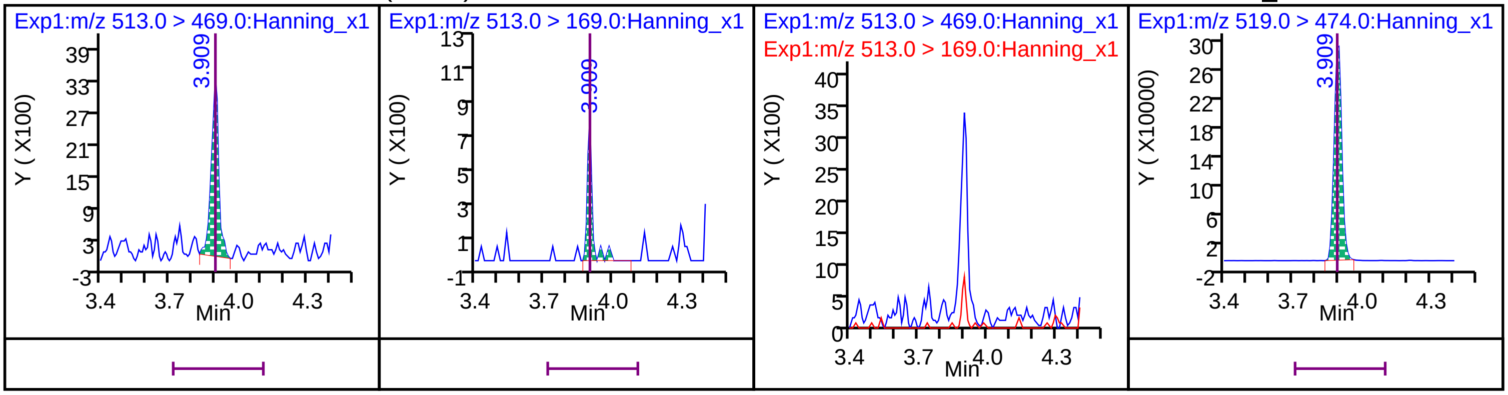


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

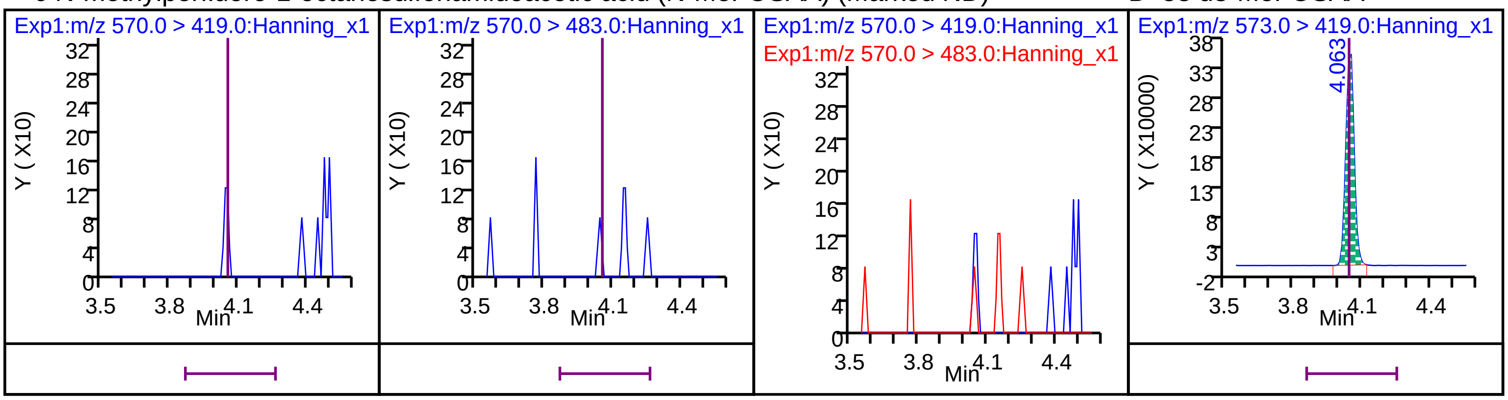


Report Date: 28-Oct-2021 20:18:21 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821044.d

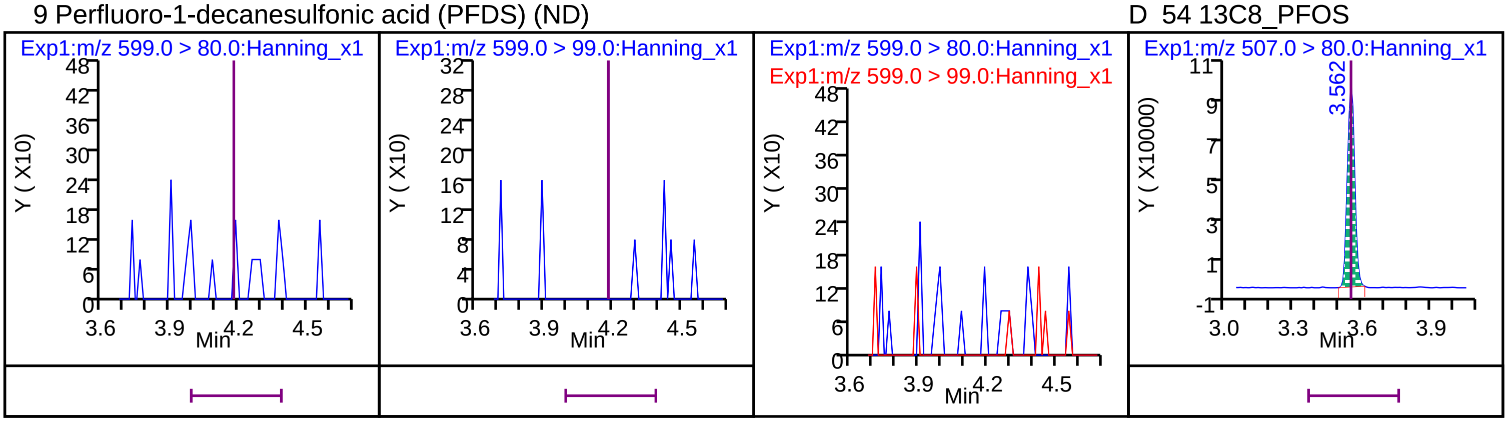
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



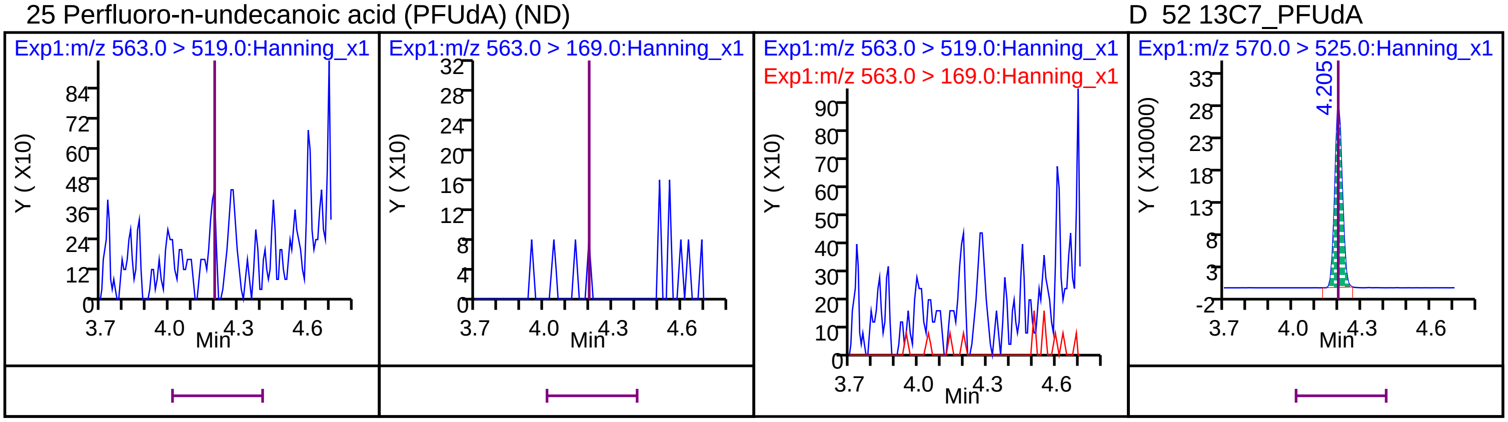
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



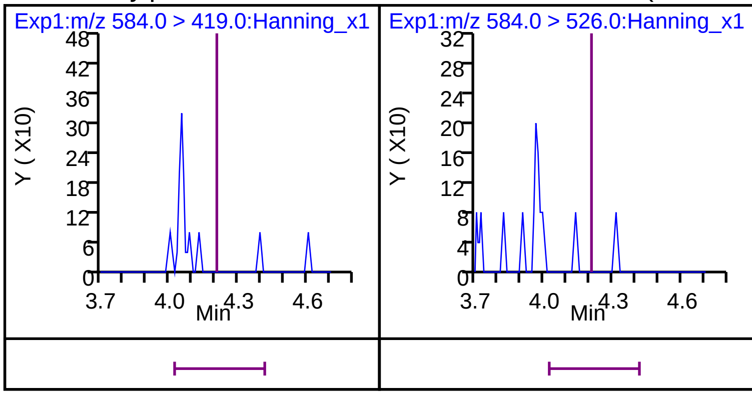
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



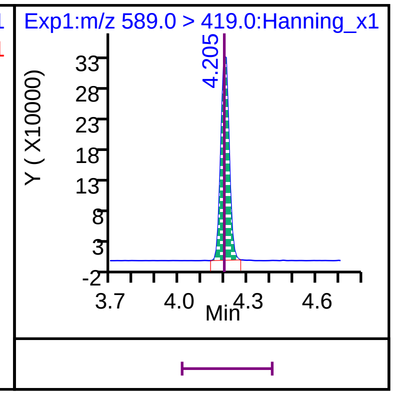
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



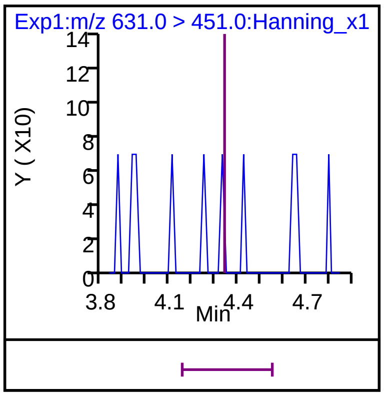
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)



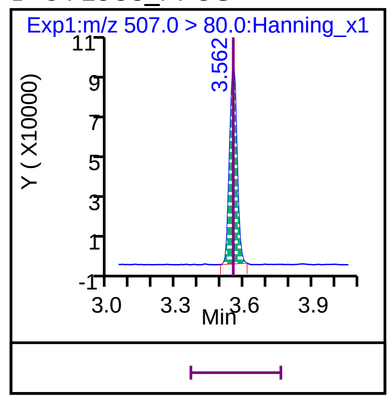
D 60 d5-EtFOSAA



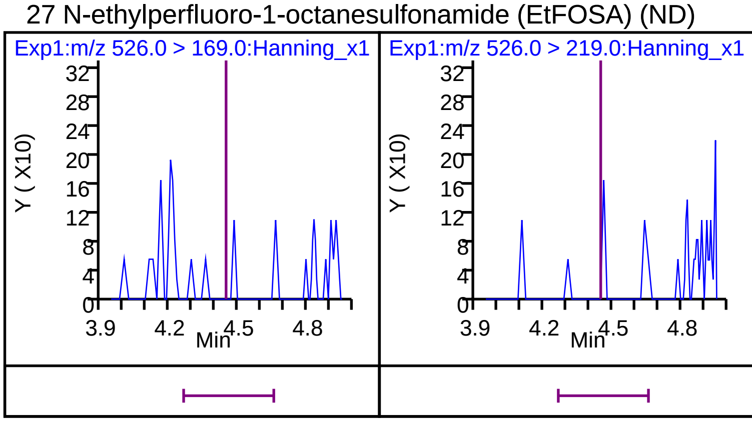
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ND)



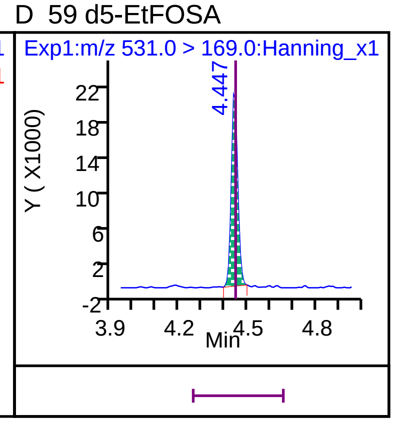
D 54 13C8_PFOS



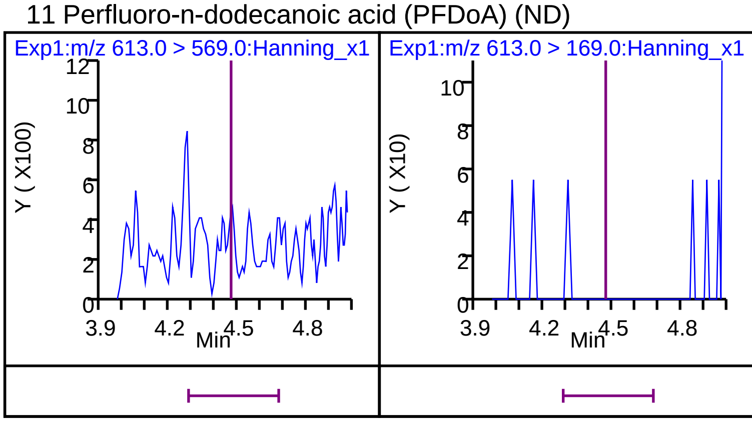
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



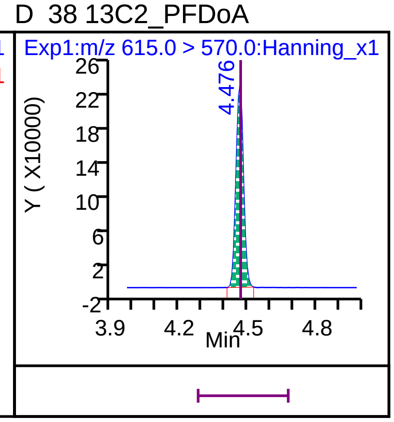
D 59 d5-EtFOSA



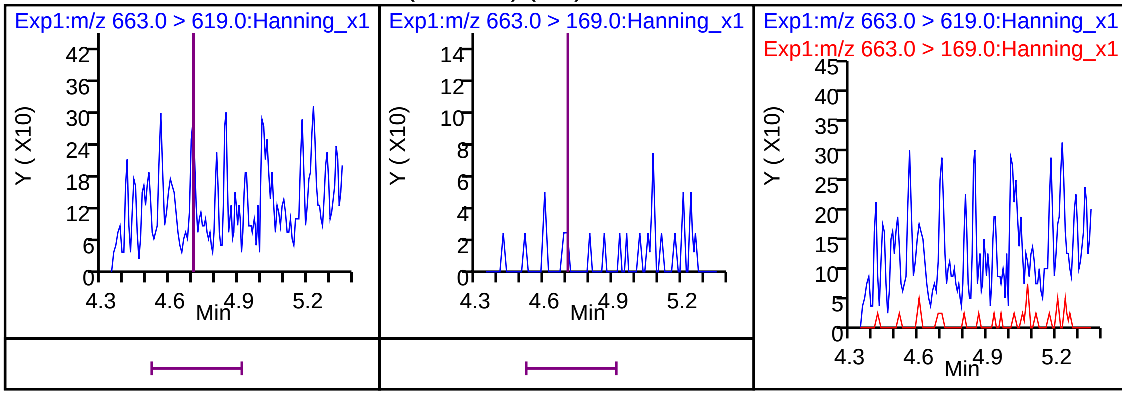
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



D 38 13C2_PFDoA



24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



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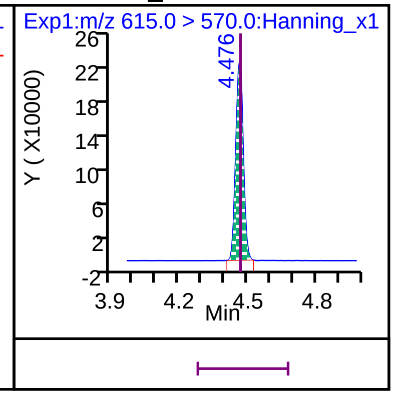
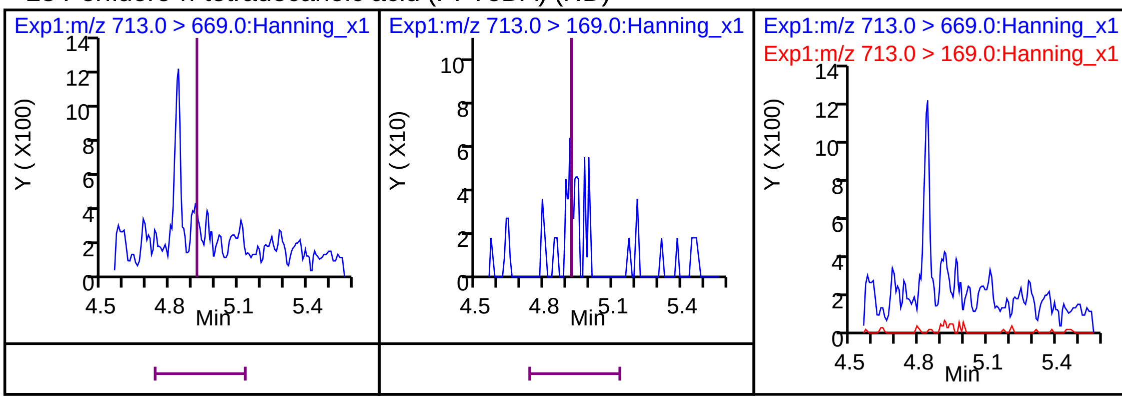
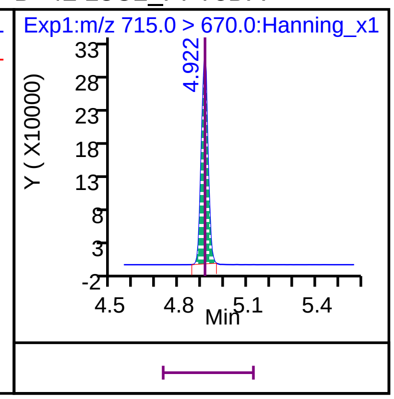


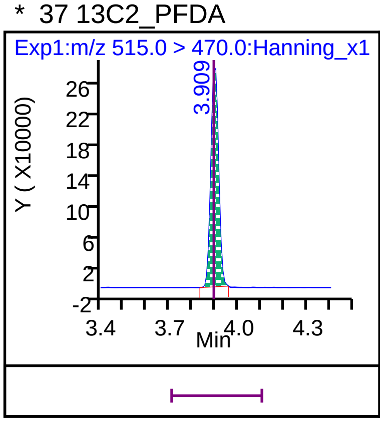
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



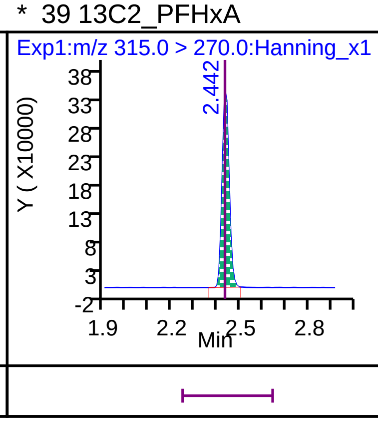
D 42 13C2_PFTeDA



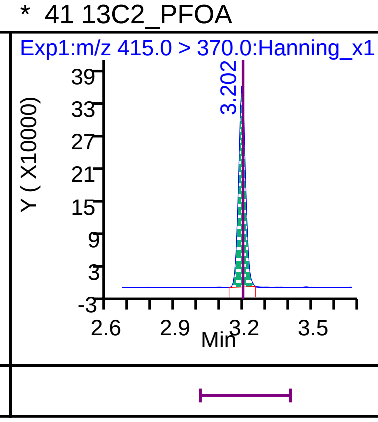
* 37 13C2_PFDA



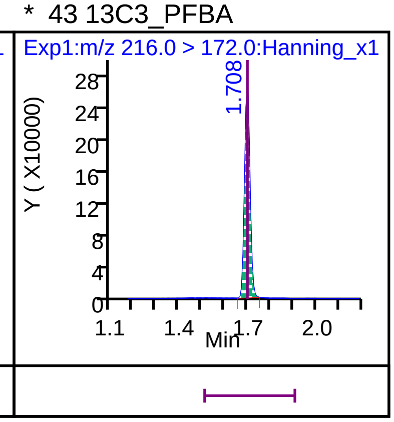
* 39 13C2_PFHxA



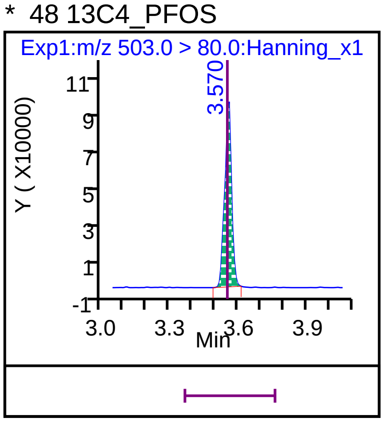
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

Manual Integration Report

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Injection Date:	28-Oct-2021 18:09:57	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-042.0-20211021	Lab ID:	WJ25006-004
Sample Info:	WJ25006-004		
Dil. Factor:	1	Operator:	Matthew M. Miller

1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

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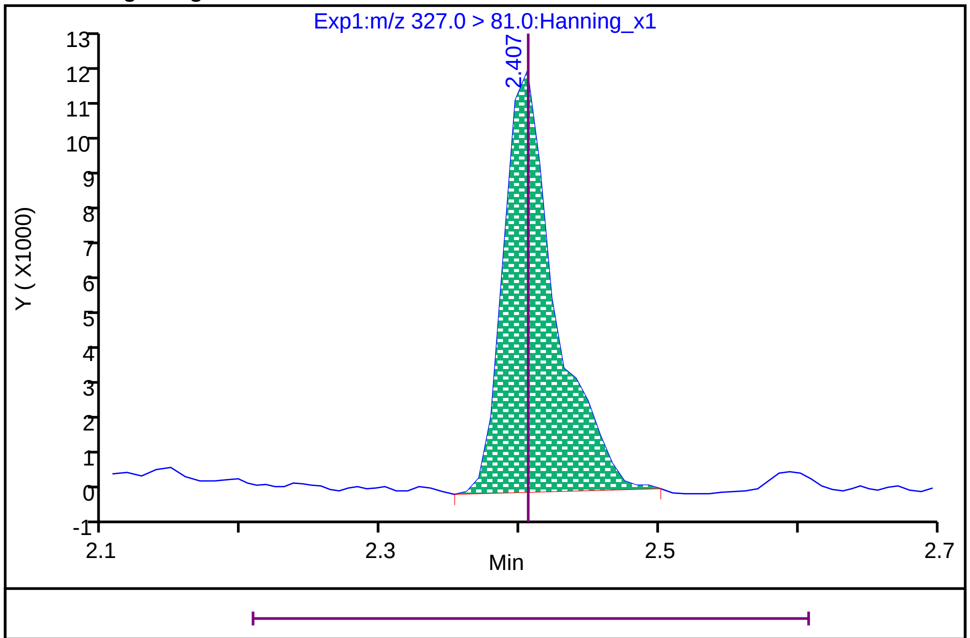
Conc:	6.9893
Conc Units:	ng/L



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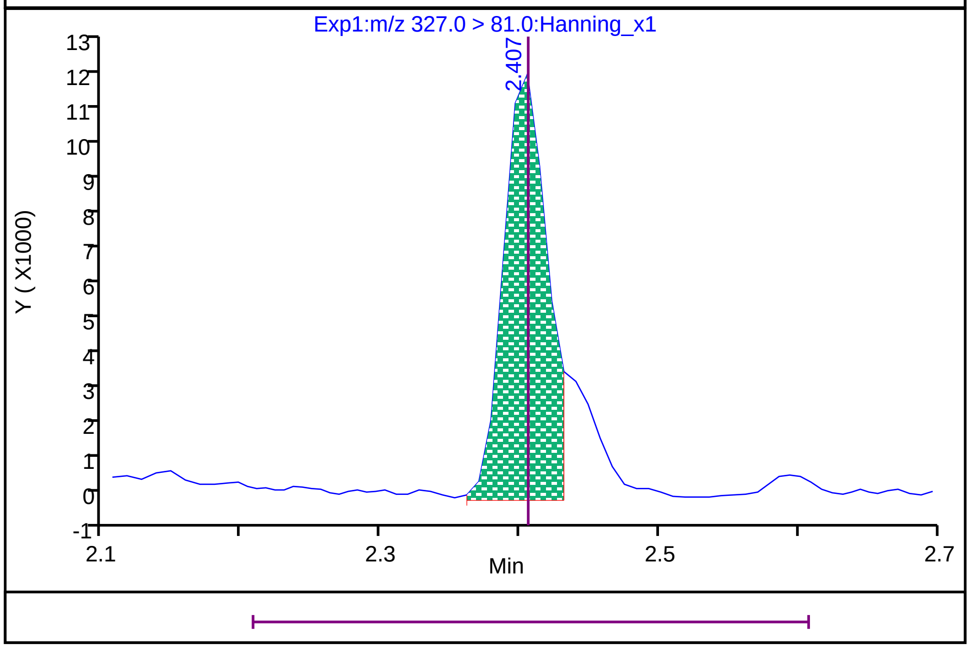
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:15:59

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 28-Oct-2021 20:18:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

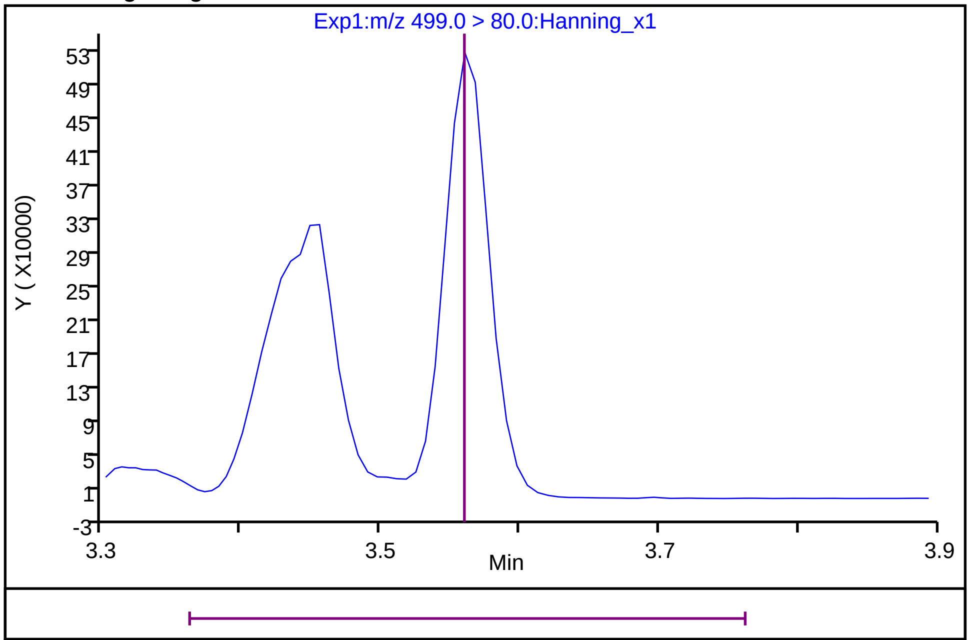
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821044.d		
Injection Date:	28-Oct-2021 18:09:57	Inst. ID:	LCMSMS01.i
Client ID:	POL-DPT0127-042.0-20211021	Lab ID:	WJ25006-004
Sample Info:	WJ25006-004		
Dil. Factor:	1	Operator:	Matthew M. Miller

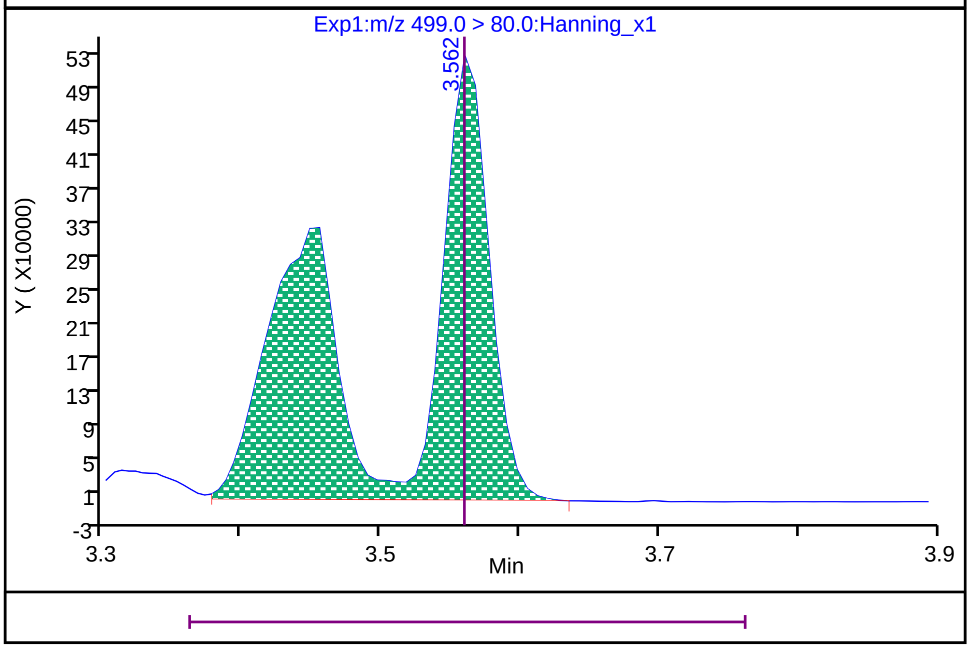
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.562
Area:	2415563
Conc:	365.03
Conc Units:	ng/L



RT:	3.562
Area:	2281060
Conc:	344.71
Conc Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:00:28

Audit Action: Mint

Audit Reason: Invalid Integration

CALIBRATION DATA

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 14-Oct-2021 11:07:26 Cal End Date: 14-Oct-2021 12:42:35

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	101421011.d	ICAL 50_SVLC-1655	14-Oct-2021 11:07:26
2	101421012.d	ICAL 100_SVLC-1656	14-Oct-2021 11:17:57
3	101421013.d	ICAL 200_SVLC-1641	14-Oct-2021 11:28:30
4	101421014.d	ICAL 500_SVLC-1642	14-Oct-2021 11:39:03
5	101421015.d	ICAL 1000_SVLC-1674	14-Oct-2021 11:49:36
6	101421016.d	ICAL 2000_SVLC-1643	14-Oct-2021 12:00:10
7	101421017.d	ICAL 5000_SVLC-1644	14-Oct-2021 12:10:44
8	101421018.d	ICAL 10000_SVLC-1645	14-Oct-2021 12:21:20
9	101421019.d	ICAL 15000_SVLC-1646	14-Oct-2021 12:31:57
10	101421020.d	ICAL 20000_SVLC-1647	14-Oct-2021 12:42:35

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.399	3.368	4.283	3.905	3.451	4.073	3.891	3.829	3.858	3.772	3.782	2.920-4.645	0.28745	1.891
1 4:2 FTS	1.530	1.016	1.196	1.469	1.430	1.507	1.570	1.539	1.468	1.650	1.437	0.825-2.049	0.20411	0.718
15 PFHxA	11.727	17.339	15.991	16.017	16.858	16.802	17.131	16.901	18.079	16.911	16.375	11.213-21.537	1.72072	8.187
22 PFPeS	3.069	4.093	3.421	3.152	3.336	3.308	3.408	3.678	3.708	3.381	3.455	2.577-4.333	0.29273	1.727
28 GenX	0.772	0.872	0.771	0.698	0.669	0.730	0.708	0.753	0.747	0.748	0.746	0.586-0.907	0.05349	0.373
13 PFHpA	3.412	3.124	3.202	3.537	3.261	3.117	3.171	3.048	3.245	3.028	3.214	2.744-3.684	0.15665	1.607
14 PFHxS	3.356	3.599	3.283	3.861	3.479	3.459	3.453	3.337	3.394	3.553	3.477	2.957-3.997	0.17328	1.738
29 ADONA	2.395	2.553	2.196	2.382	2.229	2.267	2.257	2.218	2.130	2.173	2.280	1.893-2.666	0.12876	1.140
2 6:2 FTS	1.260	1.115	1.126	1.241	1.304	1.181	1.159	1.183	1.192	1.210	1.197	1.006-1.387	0.06341	0.598
20 PFOA	2.083	2.357	2.370	2.565	2.332	2.303	2.455	2.339	2.339	2.297	2.344	1.963-2.724	0.12690	1.172
12 PFHpS	3.041	3.696	3.923	3.705	3.926	3.450	3.586	3.695	3.718	3.517	3.625	2.861-4.390	0.25489	1.812
17 PFNA	4.249	3.893	4.231	4.234	4.661	4.256	4.294	4.219	4.110	4.016	4.216	3.582-4.850	0.21132	2.108
18 PFOS	3.715	3.402	4.506	4.056	3.913	3.957	4.150	4.085	4.217	4.068	4.006	3.150-4.863	0.28557	2.003
19 PFOSA	55.883	62.741	47.601	47.342	48.159	38.463	46.981	45.421	49.622	48.313	49.052	29.581-68.523	6.49021	24.526
16 PFNS	4.403	3.407	4.260	3.917	3.693	3.622	3.607	3.650	3.950	3.870	3.837	2.893-4.781	0.31465	1.918
3 8:2 FTS	1.275	1.353	1.200	1.048	1.270	1.247	1.318	1.406	1.348	1.288	1.275	0.748-1.801	0.17556	0.637
10 PFDA	10.155	10.780	8.046	8.370	9.448	8.540	9.059	8.264	8.725	8.070	8.945	5.967-11.923	0.99272	4.472
6 N-MeFOSAA	1.413	1.332	1.572	1.551	1.230	1.329	1.351	1.330	1.333	1.443	1.388	1.011-1.765	0.12572	0.694
9 PFDS	3.699	3.951	3.143	4.293	4.321	3.969	3.921	3.907	3.852	3.677	3.873	2.899-4.846	0.32452	1.936
25 PFUdA	9.017	8.362	9.943	8.374	8.073	6.807	8.612	7.647	7.757	8.121	8.271	5.813-10.729	0.81933	4.135
5 N-EtFOSAA	2.533	1.701	2.068	1.925	1.814	2.092	1.809	1.936	1.762	1.893	1.953	1.187-2.718	0.25512	0.976
26 MeFOSA	Disabled	1.107	1.306	0.945	1.106	1.067	1.061	1.041	1.023	1.118	1.086	0.785-1.386	0.10012	0.543
27 EtFOSA	0.919	1.507	1.066	1.127	1.039	1.066	1.074	1.122	1.070	1.106	1.109	0.639-1.579	0.15678	0.554
11 PFDoA	5.650	6.190	5.843	6.054	6.397	5.986	5.708	5.906	5.924	5.701	5.935	5.218-6.653	0.23922	2.967
4 10:2 FTS	2.104	2.482	2.181	2.282	1.961	2.444	2.217	2.259	2.324	2.271	2.252	1.812-2.692	0.14670	1.126
34 PFDOS	3.039	3.746	4.071	3.835	3.752	3.684	3.565	3.654	3.460	3.764	3.657	2.822-4.491	0.27802	1.828
24 PFTrDA	3.380	2.710	2.558	2.831	2.654	2.924	2.824	2.912	3.120	3.097	2.901	2.168-3.633	0.24433	1.450
23 PFTeDA	6.026	6.591	6.221	6.507	6.383	6.418	6.460	6.312	6.309	6.205	6.343	5.772-6.914	0.19027	3.171
35 PFHxDA	12.611	13.040	13.089	12.984	12.464	12.255	12.570	12.178	12.232	11.926	12.534	11.331-13.738	0.40104	6.267
36 PFODA	118.963	121.229	147.016	144.567	154.748	143.977	158.373	166.095	182.249	184.364	152.158	85.765-218.551	22.13097	76.079

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 14-Oct-2021 11:07:26 Cal End Date: 14-Oct-2021 12:42:35

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
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9	101421019.d	ICAL 15000_SVLC-1646	14-Oct-2021 12:31:57
10	101421020.d	ICAL 20000_SVLC-1647	14-Oct-2021 12:42:35

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area

Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None

Org: Origin, F-Force, I-Include, N-Neither

Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	1012	1007	971	858	1060	832	822	812	798	799	Avg:A Wt:C2	897		RSD=11.5	
	112.9	112.3	108.3	95.6	118.2	92.7	91.6	90.6	88.9	89	Org:N Dep:R				
8 PFBA	1.058686	1.086834	1.150842	1.097713	0.982655	1.118496	1.111686	1.058005	1.082813	1.058514	Avg:A Wt:C2	1.080624		RSD=4.2	
	98	100.6	106.5	101.6	90.9	103.5	102.9	97.9	100.2	98	Org:N Dep:R				
D 50 13C5_PFPeA	979	1049	933	830	1065	834	799	823	832	844	Avg:A Wt:C2	899		RSD=11.1	
	109	116.7	103.8	92.3	118.5	92.8	88.9	91.5	92.6	93.9	Org:N Dep:R				
21 PFPeA	1.138010	0.988281	1.185053	1.090259	1.008922	1.139507	1.122438	1.076403	1.034045	1.010661	Avg:A Wt:C2	1.079358		RSD=6.2	
	105.4	91.6	109.8	101	93.5	105.6	104	99.7	95.8	93.6	Org:N Dep:R				
D 44 13C3_PFBS	332	321	316	276	350	284	277	276	271	283	Avg:A Wt:C2	298		RSD=9.5	
	111.3	107.6	105.7	92.3	117.1	95.1	92.8	92.6	90.8	94.7	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.383496	1.387814	1.492662	1.511867	1.260161	1.405813	1.368847	1.344190	1.416324	1.331464	Avg:A Wt:C2	1.390264		RSD=5.3	
	99.5	99.8	107.4	108.7	90.6	101.1	98.5	96.7	101.9	95.8	Org:N Dep:R				
1 4:2 FTS	1.657408	2.057920	2.118012	1.985125	1.746047	1.889478	2.096677	1.818750	1.884236	1.906311	Avg:A Wt:C2	1.915996		RSD=7.9	
	86.5	107.4	110.5	103.6	91.1	98.6	109.4	94.9	98.3	99.5	Org:N Dep:R				
D 63 13C2_4:2 FTS_2	49.7410	42.7918	45.1314	39.4152	53.5624	46.0830	41.5696	42.1660	41.8046	44.6208	Avg:A Wt:C2	44.6886		RSD=9.5	
	111.3	95.8	101	88.2	119.9	103.1	93	94.4	93.5	99.8	Org:N Dep:R				
D 49 13C5_PFHxA	931	897	839	782	997	769	732	771	717	753	Avg:A Wt:C2	819		RSD=11.5	
	113.7	109.5	102.5	95.5	121.8	93.9	89.4	94.1	87.5	91.9	Org:N Dep:R				
15 PFHxA	0.934695	1.048008	1.141024	1.009230	0.917796	1.059154	1.088741	0.972949	1.088813	1.011139	Avg:A Wt:C2	1.027155		RSD=7.0	
	91	102	111.1	98.3	89.4	103.1	106	94.7	106	98.4	Org:N Dep:R				
22 PFPeS	0.867413	1.079639	1.118272	1.053414	0.967573	1.031888	1.080021	1.029493	1.086867	1.002691	Avg:A Wt:C2	1.031727		RSD=7.0	
	84.1	104.6	108.4	102.1	93.8	100	104.7	99.8	105.3	97.2	Org:N Dep:R				
28 GenX	0.752588	0.903948	0.808690	0.711760	0.715072	0.741099	0.748246	0.730890	0.772695	0.795246	Avg:A Wt:C2	0.768023		RSD=7.5	
	98	117.7	105.3	92.7	93.1	96.5	97.4	95.2	100.6	103.5	Org:N Dep:R				
D 66 13C3_GenX	162	152	159	139	173	142	136	133	130	122	Avg:A Wt:C2	145		RSD=11.0	
	112	104.7	109.7	96.1	119.3	97.9	94	91.9	89.7	84.5	Org:N Dep:R				
13 PFHpA	0.975827	1.020141	1.037830	1.020224	0.913539	0.991899	1.033512	0.971091	1.013409	0.945538	Avg:A Wt:C2	0.992301		RSD=4.1	
	98.3	102.8	104.6	102.8	92.1	100	104.2	97.9	102.1	95.3	Org:N Dep:R				
D 47 13C4_PFHpA	884	843	879	765	975	783	731	716	705	731	Avg:A Wt:C2	801		RSD=11.2	
	110.3	105.2	109.7	95.4	121.7	97.8	91.2	89.4	88	91.2	Org:N Dep:R				
D 45 13C3_PFHxS	270	275	280	234	296	233	222	225	208	216	Avg:A Wt:C2	246		RSD=12.7	
	109.8	112	113.8	95.1	120.5	94.6	90.2	91.6	84.5	87.9	Org:N Dep:R				
14 PFHxS	1.038983	1.104029	1.210620	1.313223	1.093698	1.246745	1.294181	1.174609	1.334274	1.246497	Avg:A Wt:C2	1.205686		RSD=8.3	
	86.2	91.6	100.4	108.9	90.7	103.4	107.3	97.4	110.7	103.4	Org:N Dep:R				
29 ADONA	5.182709	5.463534	5.214999	5.686084	4.910829	5.526892	5.698609	5.547447	5.723924	5.409023	Avg:A Wt:C2	5.436405		RSD=4.8	
	95.3	100.5	95.9	104.6	90.3	101.7	104.8	102	105.3	99.5	Org:N Dep:R				
2 6:2 FTS	1.586724	1.489775	1.656891	1.737689	1.740607	1.581943	1.446958	1.606900	1.390326	1.533915	Avg:A Wt:C2	1.577173		RSD=7.4	
	100.6	94.5	105.1	110.2	110.4	100.3	91.7	101.9	88.2	97.3	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	48.5968	49.5714	49.9130	40.1984	54.3120	40.5116	40.9302	35.9234	39.1356	37.8776	Avg:A Wt:C2	43.6970		RSD=14.4	
	111.2	113.4	114.2	92	124.3	92.7	93.7	82.2	89.6	86.7	Org:N Dep:R				
D 53 13C8_PFOA	872	849	811	698	875	771	673	680	648	690	Avg:A Wt:C2	757		RSD=11.8	
	115.2	112.3	107.2	92.3	115.6	101.8	88.9	89.8	85.6	91.2	Org:N Dep:R				
20 PFOA	0.943833	0.973228	1.060039	1.156212	0.943113	0.941369	1.062877	1.013276	1.044193	0.930121	Avg:A Wt:C2	1.006826		RSD=7.3	
	93.7	96.7	105.3	114.8	93.7	93.5	105.6	100.6	103.7	92.4	Org:N Dep:R				
12 PFHpS	1.065551	1.059327	1.130154	1.149815	1.024119	1.091493	1.085454	1.075170	1.169229	1.008228	Avg:A Wt:C2	1.085854		RSD=4.8	
	98.1	97.6	104.1	105.9	94.3	100.5	100	99	107.7	92.9	Org:N Dep:R				
D 54 13C8_PFOS	256	244	251	221	266	229	199	206	185	207	Avg:A Wt:C2	227		RSD=12.0	
	113.1	107.8	110.8	97.6	117.6	101.2	88	91.1	81.5	91.2	Org:N Dep:R				
D 56 13C9_PFNA	837	854	798	807	918	737	721	681	667	736	Avg:A Wt:C2	775		RSD=10.4	
	107.9	110.1	102.9	104	118.4	95.1	92.9	87.8	86	94.9	Org:N Dep:R				
17 PFNA	0.858372	0.827667	0.964511	0.823515	0.836896	0.906470	0.924040	0.870514	0.877323	0.838863	Avg:A Wt:C2	0.872817		RSD=5.3	
	98.3	94.8	110.5	94.4	95.9	103.9	105.9	99.7	100.5	96.1	Org:N Dep:R				

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812
Method Path: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\LCMSMS01_PFAS-ID.m

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
18 PFOS	1.181194	1.250503	1.201240	1.102298	1.143142	1.168737	1.308185	1.169862	1.332266	1.214356	Avg:A Wt:C2	1.207178		RSD=6.0	
	97.8	103.6	99.5	91.3	94.7	96.8	108.4	96.9	110.4	100.6	Org:N Dep:R				
30 9Cl-PF3ONS	2.820388	2.809210	3.442409	2.929956	2.693513	2.848853	3.312569	3.069901	3.488704	3.100325	Avg:A Wt:C2	3.051583		RSD=9.2	
	92.4	92.1	112.8	96	88.3	93.4	108.6	100.6	114.3	101.6	Org:N Dep:R				
D 55 13C8_PFOSA	473	446	438	397	481	373	389	391	400	400	Avg:A Wt:C2	419		RSD=9.0	
	113	106.5	104.5	94.9	114.8	89.1	93	93.3	95.4	95.5	Org:N Dep:R				
19 PFOSA	1.112189	1.233520	1.285338	1.145087	1.056163	1.174299	1.110680	1.062952	1.106804	1.051061	Avg:A Wt:C2	1.133809		RSD=6.9	
	98.1	108.8	113.4	101	93.2	103.6	98	93.8	97.6	92.7	Org:N Dep:R				
16 PFNS	0.924331	0.938164	1.162568	1.049441	0.926550	0.954074	1.051411	0.980297	1.153717	0.970845	Avg:A Wt:C2	1.011140		RSD=8.9	
	91.4	92.8	115	103.8	91.6	94.4	104	96.9	114.1	96	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	45.8308	44.1006	39.5770	39.1818	45.7930	36.3866	34.7188	33.0070	30.5228	29.0190	Avg:A Wt:C2	37.8137		RSD=16.2	
	121.2	116.6	104.7	103.6	121.1	96.2	91.8	87.3	80.7	76.7	Org:N Dep:R				
D 51 13C6_PFDA	731	752	737	634	810	657	650	606	581	634	Avg:A Wt:C2	679		RSD=10.8	
	107.6	110.7	108.6	93.3	119.2	96.8	95.8	89.2	85.6	93.3	Org:N Dep:R				
3 8:2 FTS	1.266800	1.433665	1.665050	1.361833	1.368735	1.624460	1.479792	1.507319	1.544034	1.513509	Avg:A Wt:C2	1.476520		RSD=8.3	
	85.8	97.1	112.8	92.2	92.7	110	100.2	102.1	104.6	102.5	Org:N Dep:R				
10 PFDA	0.966347	0.988183	1.066481	1.060663	1.076979	1.064626	1.019472	0.963332	1.034721	0.863146	Avg:A Wt:C2	1.010395		RSD=6.6	
	95.6	97.8	105.6	105	106.6	105.4	100.9	95.3	102.4	85.4	Org:N Dep:R				
D 58 d3-MeFOSAA	215	222	217	197	243	190	197	186	189	192	Avg:A Wt:C2	205		RSD=9.0	
	105	108.5	106	96.3	118.4	92.6	95.9	90.9	92.5	93.9	Org:N Dep:R				
6 N-MeFOSAA	0.673836	0.690735	0.934573	0.829913	0.648373	0.780152	0.791972	0.732171	0.767684	0.789529	Avg:A Wt:C2	0.763894		RSD=11.0	
	88.2	90.4	122.3	108.6	84.9	102.1	103.7	95.8	100.5	103.4	Org:N Dep:R				
9 PFDS	0.952142	0.929175	0.922864	0.931896	0.936544	0.928541	1.043889	0.960014	1.076556	0.939522	Avg:A Wt:C2	0.962114		RSD=5.6	
	99	96.6	95.9	96.9	97.3	96.5	108.5	99.8	111.9	97.7	Org:N Dep:R				
D 60 d5-EtFOSAA	196	201	188	174	212	166	145	148	144	142	Avg:A Wt:C2	172		RSD=15.4	
	114.5	117	109.8	101.3	123.4	96.7	84.5	86.3	83.8	82.9	Org:N Dep:R				
D 52 13C7_PFUdA	710	709	688	626	724	591	605	572	547	550	Avg:A Wt:C2	632		RSD=11.0	
	112.3	112.1	108.9	99	114.6	93.5	95.7	90.4	86.6	87	Org:N Dep:R				
25 PFUdA	0.897500	0.891398	0.991086	0.925315	0.837212	0.838918	0.897778	0.850884	0.871617	0.867206	Avg:A Wt:C2	0.886891		RSD=5.2	
	101.2	100.5	111.7	104.3	94.4	94.6	101.2	95.9	98.3	97.8	Org:N Dep:R				
5 N-EtFOSAA	1.226378	0.845048	1.196506	1.108114	0.909024	1.110481	1.126595	1.070167	1.041933	1.038575	Avg:A Wt:C2	1.067282		RSD=11.0	
	114.9	79.2	112.1	103.8	85.2	104	105.6	100.3	97.6	97.3	Org:N Dep:R				
D 61 d7-MeFOSE	135	143	129	121	153	130	118	119	107	117	Avg:A Wt:C2	127		RSD=10.8	
	106.4	112.1	101.6	95.1	120.2	102.4	92.6	93.6	84	92	Org:N Dep:R				
32 MeFOSE	0.778086	1.098964	1.034052	0.994159	0.869499	0.936963	0.980889	1.042980	1.088841	1.038825	Avg:A Wt:C2	0.986326		RSD=10.2	
	78.9	111.4	104.8	100.8	88.2	95	99.4	105.7	110.4	105.3	Org:N Dep:R				
D 57 d3-MeFOSA	60.0530	64.8370	57.9960	52.9260	72.5990	59.4930	53.4460	43.6510	55.9970	60.2190	Avg:A Wt:C2	58.1217		RSD=13.2	
	103.3	111.6	99.8	91.1	124.9	102.4	92	75.1	96.3	103.6	Org:N Dep:R				
26 MeFOSA	Disabled	1.111865	1.200428	1.109360	0.886279	0.975636	1.087292	1.261907	0.985431	0.964397	Avg:A Wt:C2	1.064733		RSD=11.4	
	Disabled	104.4	112.7	104.2	83.2	91.6	102.1	118.5	92.6	90.6	Org:N Dep:R				
31 11Cl-PF3OUDS	2.441911	2.477135	2.608410	2.460221	2.382644	2.569084	2.705787	2.790626	3.011249	2.668925	Avg:A Wt:C2	2.611599		RSD=7.3	
	93.5	94.9	99.9	94.2	91.2	98.4	103.6	106.9	115.3	102.2	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 62 d9-EtFOSE	132	130	120	110	146	107	108	109	103	109	Avg:A Wt:C2	117		RSD=12.1	
	112.2	110.8	102.5	93.8	124.6	90.8	91.9	92.7	87.9	92.7	Org:N Dep:R				
33 EtFOSE	Disabled	0.964936	0.910125	0.826868	0.667491	0.869620	0.888289	0.836825	0.873318	0.832123	Avg:A Wt:C2	0.852177		RSD=9.6	
	Disabled	113.2	106.8	97	78.3	102	104.2	98.2	102.5	97.6	Org:N Dep:R				
D 59 d5-EtFOSA	62.4320	56.6620	59.2200	53.0150	65.7660	50.9050	48.2160	54.2670	49.7380	49.0670	Avg:A Wt:C2	54.9288		RSD=10.9	
	113.7	103.2	107.8	96.5	119.7	92.7	87.8	98.8	90.5	89.3	Org:N Dep:R				
27 EtFOSA	1.153575	1.375878	1.140155	1.116401	0.984886	1.200697	1.213191	1.008239	1.107292	1.141513	Avg:A Wt:C2	1.144183		RSD=9.6	
	100.8	120.2	99.6	97.6	86.1	104.9	106	88.1	96.8	99.8	Org:N Dep:R				
D 38 13C2_PFDoA	657	707	632	519	709	559	570	562	542	549	Avg:A Wt:C2	601		RSD=11.7	
	109.4	117.7	105.2	86.4	118	93	95	93.6	90.2	91.4	Org:N Dep:R				
11 PFDoA	0.987921	0.989919	1.081493	1.161711	0.985559	1.081553	1.004632	0.963379	1.012084	0.973948	Avg:A Wt:C2	1.024220		RSD=6.2	
	96.5	96.7	105.6	113.4	96.2	105.6	98.1	94.1	98.8	95.1	Org:N Dep:R				
4 10:2 FTS	1.327271	1.466141	1.676966	1.259317	1.350362	1.564087	1.505540	1.490577	1.663675	1.774308	Avg:A Wt:C2	1.507824		RSD=11.0	
	88	97.2	111.2	83.5	89.6	103.7	99.8	98.9	110.3	117.7	Org:N Dep:R				
34 PFDOS	0.722924	0.854826	0.897067	0.942438	0.871995	0.900347	1.017216	0.950107	1.023239	0.958003	Avg:A Wt:C2	0.913816		RSD=9.6	
	79.1	93.5	98.2	103.1	95.4	98.5	111.3	104	112	104.8	Org:N Dep:R				
24 PFTrDA	0.539082	0.497060	0.552513	0.578042	0.498896	0.570562	0.521853	0.518811	0.562769	0.570211	Avg:A Wt:C2	0.540980		RSD=5.6	
	99.6	91.9	102.1	106.9	92.2	105.5	96.5	95.9	104	105.4	Org:N Dep:R				
D 42 13C2_PFTeDA	861	857	848	757	925	747	763	750	736	769	Avg:A Wt:C2	801		RSD=8.2	
	107.5	106.9	105.9	94.5	115.4	93.2	95.2	93.6	91.8	96	Org:N Dep:R				
23 PFTeDA	0.855392	0.825540	0.879594	0.868291	0.799803	0.893353	0.864627	0.826454	0.853940	0.799364	Avg:A Wt:C2	0.846636		RSD=3.8	
	101	97.5	103.9	102.6	94.5	105.5	102.1	97.6	100.9	94.4	Org:N Dep:R				
D 40 13C2_PFHxDA	365	358	351	312	372	321	306	298	301	307	Avg:A Wt:C2	329		RSD=8.8	
	110.8	108.7	106.6	94.7	113.2	97.6	93.1	90.7	91.5	93.2	Org:N Dep:R				
35 PFHxDA	2.289703	2.105390	2.189121	2.069783	1.913296	1.984974	1.996924	1.918630	1.949261	1.844291	Avg:A Wt:C2	2.026137		RSD=6.8	
	113	103.9	108	102.2	94.4	98	98.6	94.7	96.2	91	Org:N Dep:R				
36 PFODA	1.429069	1.474511	1.538394	1.452463	1.453268	1.479099	1.519271	1.503787	1.512462	1.479951	Avg:A Wt:C2	1.484228		RSD=2.3	
	96.3	99.3	103.6	97.9	97.9	99.7	102.4	101.3	101.9	99.7	Org:N Dep:R				

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	14-Oct-2021 11:07:26	Cal End Date:	14-Oct-2021 12:42:35
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	101421011.d	ICAL 50_SVLC-1655	14-Oct-2021 11:07:26
2	101421012.d	ICAL 100_SVLC-1656	14-Oct-2021 11:17:57
3	101421013.d	ICAL 200_SVLC-1641	14-Oct-2021 11:28:30
4	101421014.d	ICAL 500_SVLC-1642	14-Oct-2021 11:39:03
5	101421015.d	ICAL 1000_SVLC-1674	14-Oct-2021 11:49:36
6	101421016.d	ICAL 2000_SVLC-1643	14-Oct-2021 12:00:10
7	101421017.d	ICAL 5000_SVLC-1644	14-Oct-2021 12:10:44
8	101421018.d	ICAL 10000_SVLC-1645	14-Oct-2021 12:21:20
9	101421019.d	ICAL 15000_SVLC-1646	14-Oct-2021 12:31:57
10	101421020.d	ICAL 20000_SVLC-1647	14-Oct-2021 12:42:35

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	734117	726409	761730	641644	714643	647574	634289	620478	570480	611009	4.57
* 39 13C2_PFHxA	855319	826350	863393	731170	885404	770720	765971	744003	674454	759708	2.96
* 41 13C2_PFOA	803016	769581	808121	741436	757844	701386	663213	667971	655263	666405	4.64
* 43 13C3_PFBA	874712	842879	914914	802383	892012	767329	762358	770295	724509	753243	3.73
* 48 13C4_PFOS	253465	249175	231548	217102	245422	223808	213048	214549	208782	220638	3.46

13C2_PFDA ((|611009 - 734117| / (611009 + 734117)) / 2) * 100 = 4.58

13C2_PFHxA ((|759708 - 855319| / (759708 + 855319)) / 2) * 100 = 2.96

13C2_PFOA ((|666405 - 803016| / (666405 + 803016)) / 2) * 100 = 4.65

13C3_PFBA ((|753243 - 874712| / (753243 + 874712)) / 2) * 100 = 3.73

13C4_PFOS ((|220638 - 253465| / (220638 + 253465)) / 2) * 100 = 3.46

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	14-Oct-2021 11:07:26	Cal End Date:	14-Oct-2021 12:42:35
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	101421011.d	ICAL 50_SVLC-1655	14-Oct-2021 11:07:26
2	101421012.d	ICAL 100_SVLC-1656	14-Oct-2021 11:17:57
3	101421013.d	ICAL 200_SVLC-1641	14-Oct-2021 11:28:30
4	101421014.d	ICAL 500_SVLC-1642	14-Oct-2021 11:39:03
5	101421015.d	ICAL 1000_SVLC-1674	14-Oct-2021 11:49:36
6	101421016.d	ICAL 2000_SVLC-1643	14-Oct-2021 12:00:10
7	101421017.d	ICAL 5000_SVLC-1644	14-Oct-2021 12:10:44
8	101421018.d	ICAL 10000_SVLC-1645	14-Oct-2021 12:21:20
9	101421019.d	ICAL 15000_SVLC-1646	14-Oct-2021 12:31:57
10	101421020.d	ICAL 20000_SVLC-1647	14-Oct-2021 12:42:35

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA	* 39 13C2_PFHxA	* 41 13C2_PFOA
* 43 13C3_PFBA	* 48 13C4_PFOS	D 38 13C2_PFDoA
D 40 13C2_PFHxDA	D 42 13C2_PFTeDA	D 44 13C3_PFBS
D 45 13C3_PFHxS	D 46 13C4_PFBA	D 47 13C4_PFHpA
D 49 13C5_PFHxA	D 50 13C5_PFPeA	D 51 13C6_PFDA
D 52 13C7_PFUdA	D 53 13C8_PFOA	D 54 13C8_PFOS
D 55 13C8_PFOSA	D 56 13C9_PFNA	D 57 d3-MeFOSA
D 58 d3-MeFOSAA	D 59 d5-EtFOSA	D 60 d5-EtFOSAA
D 61 d7-MeFOSE	D 62 d9-EtFOSE	D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2	D 65 13C2_8:2 FTS_2	D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	1012463	1007486	971176	857820	1060126	831540	821737	812373	797751	798557	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	53594	109497	223534	470820	1041738	1860149	4567568	8594951	12957232	16905679	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	979499	1049448	932912	829627	1065127	834336	798899	822567	832348	844213	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	55734	103715	221110	452254	1074630	1901463	4483574	8854139	12910276	17064256	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	332115	321072	315533	275595	349624	283816	276948	276478	271007	282743	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	20309	39390	83270	184165	389475	705418	1675620	3285289	5089636	6655850	
1 4:2 FTS	46.700	93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
	3850	8225	17856	36540	87350	162652	407028	716279	1103564	1588942	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	248705	213959	225657	197076	267812	230415	207848	210830	209023	223104	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	931213	896930	839496	781608	997159	768735	732352	770775	716768	752697	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	855319	826350	863393	731170	885404	770720	765971	744003	674454	759708	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	43520	93999	191577	394411	915189	1628417	3986709	7499248	11706392	15221625	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	13511	32515	66195	136158	317313	549417	1402824	2669851	4144300	5318531	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	12201	27392	51337	98972	246862	419953	1018034	1943747	3010071	3891149	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	810603	757566	793521	695262	863067	708328	680280	664856	649258	611627	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	43136	85980	182499	390027	890934	1554064	3776110	6955273	10723210	13826115	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	884091	842825	879234	764591	975256	783378	730734	716233	705422	731124	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	270129	275385	279922	234022	296300	232693	221797	225380	207745	216184	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	12770	27667	61676	139832	294897	527998	1306057	2409074	3783627	4904402	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	65940	141731	275025	626745	1370684	2422954	5953131	11777671	16802216	22030447	
2 6:2 FTS	47.400	94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
	3655	7001	15680	33110	89620	121509	280723	547236	773728	1101595	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	242984	247857	249565	200992	271560	202558	204651	179617	195678	189388	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	803016	769581	808121	741436	757844	701386	663213	667971	655263	666405	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	871743	849462	811239	698244	875082	770518	672545	679705	647829	690287	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	41139	82672	171989	403659	825301	1450683	3574163	6887291	10146880	12841007	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	13701	27772	60234	128083	288881	483583	1145972	2306903	3468632	4150011	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	256334	244238	250944	221215	266405	229352	199425	206453	184721	206619	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	253465	249175	231548	217102	245422	223808	213048	214549	208782	220638	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	836700	853532	798011	806567	917935	737081	720658	681163	666876	735977	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	35910	70644	153938	332110	768216	1336284	3329584	5929616	8775985	12347677	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	14049	28343	55948	113144	282612	497505	1210505	2241319	3425677	4656873	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	33690	63946	161022	302038	668771	1217919	3078438	5906926	9009229	11940525	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	473319	446073	437741	397479	480654	373192	389384	390803	399567	399931	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	26321	55024	112529	227574	507649	876478	2162405	4154047	6633635	8407036	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	11373	21997	56014	111433	236964	420132	1006453	1942899	3068867	3851426	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	229154	220503	197885	195909	228965	181933	173594	165035	152614	145095	
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	734117	726409	761730	641644	714643	647574	634289	620478	570480	611009	
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	730773	751976	737355	633630	809542	657494	650351	605583	581193	633686	
3 8:2 FTS	47.900	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	2781	6057	12626	25559	60046	113252	246094	476625	677233	841517	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	35309	74309	157275	336034	871860	1399971	3315074	5833775	9020593	10939268	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	1076227	1112076	1085870	986248	1212505	948799	982597	931289	947204	962117	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	7252	15363	40593	81850	157231	296083	778189	1363726	2181461	3038477	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	11764	21877	44650	99364	240518	410592	1003416	1910626	2875551	3742692	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	982487	1003967	942390	869495	1058921	829683	725169	740630	719059	712020	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	710128	708662	688235	625538	724388	590901	604834	571699	547295	549736	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	31867	63170	136420	289410	606466	991435	2715034	4864497	7155478	9534683	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	12049	16968	45103	96350	192517	368539	816972	1585195	2247634	2957945	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	135255	142607	129186	120868	152911	130169	117746	119026	106864	116979	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	5262	15672	26717	60081	132956	243927	577479	1241417	1745369	2430415	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	60053	64837	57996	52926	72599	59493	53446	43651	55997	60219	
26 MeFOSA	Disabled	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	Disabled	7209	13924	29357	64343	116087	290557	550835	827718	1161500	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	29482	56992	123320	256336	597933	1110099	2541523	5427174	7859685	10389331	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	131843	130133	120423	110211	146363	106696	107964	108840	103194	108900	
33 EtFOSE	Disabled	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	Disabled	12557	21920	45565	97696	185570	479516	910800	1351817	1812363	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	62432	56662	59220	53015	65766	50905	48216	54267	49738	49067	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	3601	7796	13504	29593	64772	122243	292476	547141	826117	1120212	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	657117	707078	631849	519184	709018	558824	570320	562201	541989	548691	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	32459	69995	136668	301571	698779	1208795	2864810	5416126	8228074	10687925	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	2932	6233	12796	23783	59611	109726	251944	474283	734279	992701	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	8969	20210	43582	100905	224870	399777	981834	1898755	2744480	3832151	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	17712	35146	69821	150055	353726	637687	1488115	2916759	4575216	6257390	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	860939	856712	848465	757214	924733	746652	762693	749898	735775	768834	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	36822	70725	149261	328741	739604	1334048	3297223	6197561	9424615	12291561	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	364615	357644	350723	311537	372371	321081	306412	298307	301069	306753	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	41743	75298	153555	322407	712456	1274675	3059407	5723408	8802933	11314834	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	26053	52735	107910	226248	541155	949821	2327614	4485903	6830333	9079591	

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	14-Oct-2021 11:07:26	Cal End Date:	14-Oct-2021 12:42:35
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	101421011.d	ICAL 50_SVLC-1655	14-Oct-2021 11:07:26
2	101421012.d	ICAL 100_SVLC-1656	14-Oct-2021 11:17:57
3	101421013.d	ICAL 200_SVLC-1641	14-Oct-2021 11:28:30
4	101421014.d	ICAL 500_SVLC-1642	14-Oct-2021 11:39:03
5	101421015.d	ICAL 1000_SVLC-1674	14-Oct-2021 11:49:36
6	101421016.d	ICAL 2000_SVLC-1643	14-Oct-2021 12:00:10
7	101421017.d	ICAL 5000_SVLC-1644	14-Oct-2021 12:10:44
8	101421018.d	ICAL 10000_SVLC-1645	14-Oct-2021 12:21:20
9	101421019.d	ICAL 15000_SVLC-1646	14-Oct-2021 12:31:57
10	101421020.d	ICAL 20000_SVLC-1647	14-Oct-2021 12:42:35

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.700	1.700	1.700	1.700	1.700	1.700	1.700	1.700	1.700	1.694	1.699	0.118
8 PFBA	1.700	1.700	1.700	1.700	1.700	1.700	1.706	1.700	1.700	1.700	1.700	0.127
D 50 13C5_PFPeA	2.066	2.066	2.066	2.066	2.066	2.066	2.066	2.067	2.067	2.067	2.066	0.015
21 PFPeA	2.066	2.066	2.066	2.066	2.066	2.066	2.066	2.067	2.067	2.067	2.066	0.015
D 44 13C3_PFBS	2.119	2.119	2.118	2.118	2.119	2.119	2.129	2.119	2.119	2.119	2.119	0.148
7 PFBS	2.129	2.119	2.118	2.118	2.129	2.119	2.129	2.119	2.119	2.119	2.121	0.240
1 4:2 FTS	2.388	2.406	2.397	2.397	2.406	2.406	2.405	2.398	2.406	2.397	2.400	0.248
D 63 13C2_4:2 FTS_2	2.397	2.397	2.397	2.397	2.406	2.397	2.405	2.398	2.406	2.397	2.399	0.176
D 49 13C5_PFHxA	2.440	2.440	2.440	2.440	2.440	2.440	2.449	2.441	2.441	2.441	2.441	0.103
* 39 13C2_PFHxA	2.440	2.440	2.440	2.440	2.440	2.440	2.449	2.441	2.441	2.441	2.441	0.103
15 PFHxA	2.440	2.440	2.440	2.440	2.440	2.440	2.449	2.441	2.441	2.441	2.441	0.103
22 PFPeS	2.475	2.475	2.475	2.475	2.475	2.475	2.484	2.476	2.475	2.475	2.476	0.104
28 GenX	2.562	2.562	2.562	2.562	2.562	2.562	2.571	2.563	2.562	2.562	2.563	0.103
D 66 13C3_GenX	2.562	2.562	2.562	2.562	2.562	2.562	2.562	2.563	2.562	2.562	2.562	0.019
13 PFHpA	2.827	2.827	2.827	2.818	2.827	2.827	2.827	2.829	2.827	2.819	2.825	0.137
D 47 13C4_PFHpA	2.827	2.818	2.827	2.818	2.827	2.818	2.827	2.829	2.827	2.819	2.823	0.167
D 45 13C3_PFHxS	2.845	2.836	2.845	2.845	2.845	2.836	2.845	2.838	2.836	2.836	2.840	0.153
14 PFHxS	2.836	2.845	2.845	2.836	2.845	2.845	2.845	2.838	2.845	2.836	2.841	0.151
29 ADONA	2.862	2.871	2.862	2.862	2.862	2.862	2.871	2.864	2.863	2.863	2.864	0.124
2 6:2 FTS	3.177	3.177	3.170	3.183	3.177	3.177	3.183	3.179	3.183	3.179	3.178	0.122
D 64 13C2_6:2 FTS_2	3.177	3.177	3.183	3.176	3.183	3.177	3.183	3.179	3.177	3.172	3.178	0.111
* 41 13C2_PFOA	3.202	3.202	3.202	3.202	3.208	3.208	3.208	3.204	3.209	3.198	3.204	0.123
D 53 13C8_PFOA	3.202	3.202	3.202	3.202	3.208	3.208	3.202	3.204	3.202	3.204	3.203	0.085
20 PFOA	3.208	3.209	3.202	3.208	3.208	3.208	3.208	3.204	3.202	3.204	3.206	0.089
12 PFHpS	3.208	3.209	3.215	3.208	3.215	3.215	3.215	3.211	3.209	3.204	3.210	0.112
D 54 13C8_PFOS	3.565	3.572	3.572	3.572	3.572	3.572	3.572	3.575	3.572	3.567	3.571	0.088
* 48 13C4_PFOS	3.572	3.565	3.580	3.572	3.572	3.572	3.572	3.575	3.572	3.575	3.572	0.104
D 56 13C9_PFNA	3.572	3.572	3.580	3.572	3.580	3.580	3.580	3.583	3.580	3.575	3.577	0.105
17 PFNA	3.572	3.580	3.580	3.580	3.580	3.580	3.580	3.583	3.580	3.575	3.578	0.081
18 PFOS	3.565	3.572	3.572	3.572	3.580	3.572	3.580	3.575	3.572	3.575	3.573	0.119
30 9Cl-PF3ONS	3.769	3.769	3.776	3.776	3.776	3.776	3.776	3.780	3.776	3.778	3.774	0.096
D 55 13C8_PFOSA	3.865	3.873	3.873	3.873	3.873	3.873	3.873	3.877	3.873	3.875	3.872	0.074

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
19 PFOSA	3.873	3.873	3.873	3.873	3.880	3.873	3.873	3.877	3.873	3.875	3.874	0.070
16 PFNS	3.895	3.903	3.903	3.911	3.911	3.911	3.911	3.907	3.903	3.905	3.905	0.127
D 65 13C2_8:2 FTS_2	3.903	3.911	3.918	3.911	3.911	3.911	3.911	3.915	3.911	3.913	3.911	0.098
* 37 13C2_PFDA	3.911	3.918	3.918	3.918	3.918	3.918	3.918	3.922	3.919	3.913	3.917	0.084
D 51 13C6_PFDA	3.911	3.918	3.918	3.918	3.918	3.918	3.918	3.922	3.919	3.921	3.918	0.078
3 8:2 FTS	3.911	3.911	3.911	3.911	3.918	3.911	3.911	3.915	3.911	3.913	3.912	0.069
10 PFDA	3.911	3.918	3.918	3.918	3.926	3.918	3.918	3.922	3.919	3.921	3.919	0.097
D 58 d3-MeFOSAA	4.065	4.073	4.073	4.073	4.073	4.073	4.073	4.077	4.073	4.076	4.072	0.084
6 N-MeFOSAA	4.073	4.073	4.081	4.073	4.081	4.073	4.081	4.077	4.073	4.076	4.076	0.097
9 PFDS	4.199	4.199	4.207	4.199	4.207	4.207	4.207	4.203	4.208	4.202	4.203	0.099
D 60 d5-EtFOSAA	4.216	4.216	4.225	4.216	4.226	4.226	4.226	4.230	4.226	4.229	4.223	0.125
D 52 13C7_PFUdA	4.216	4.216	4.225	4.226	4.226	4.226	4.226	4.221	4.226	4.220	4.222	0.090
25 PFUdA	4.216	4.216	4.225	4.216	4.226	4.217	4.226	4.221	4.226	4.229	4.221	0.119
5 N-EtFOSAA	4.226	4.226	4.225	4.226	4.235	4.226	4.235	4.230	4.235	4.238	4.230	0.121
D 61 d7-MeFOSE	4.297	4.297	4.297	4.297	4.298	4.298	4.297	4.302	4.298	4.301	4.298	0.044
32 MeFOSE	4.297	4.306	4.306	4.306	4.306	4.306	4.306	4.311	4.307	4.310	4.306	0.086
D 57 d3-MeFOSA	4.315	4.315	4.315	4.315	4.315	4.315	4.315	4.311	4.316	4.319	4.315	0.044
26 MeFOSA	Disabled	4.315	4.315	4.315	4.315	4.324	4.315	4.320	4.324	4.319	4.318	0.090
31 11Cl-PF3OUDS	4.359	4.359	4.359	4.359	4.359	4.359	4.359	4.365	4.359	4.364	4.360	0.049
D 62 d9-EtFOSE	4.456	4.456	4.456	4.456	4.463	4.456	4.463	4.461	4.456	4.459	4.458	0.071
33 EtFOSE	Disabled	4.471	4.470	4.470	4.471	4.471	4.470	4.468	4.471	4.474	4.470	0.039
D 59 d5-EtFOSA	4.478	4.471	4.478	4.478	4.485	4.485	4.478	4.482	4.478	4.481	4.479	0.101
27 EtFOSA	4.478	4.478	4.485	4.485	4.485	4.485	4.485	4.490	4.485	4.489	4.484	0.088
D 38 13C2_PFDoA	4.485	4.485	4.485	4.485	4.492	4.492	4.492	4.490	4.493	4.489	4.488	0.079
11 PFDoA	4.485	4.485	4.485	4.485	4.492	4.492	4.492	4.490	4.493	4.496	4.489	0.092
4 10:2 FTS	4.492	4.492	4.499	4.492	4.500	4.500	4.500	4.504	4.500	4.503	4.498	0.098
34 PFDOS	4.698	4.698	4.698	4.698	4.698	4.698	4.698	4.703	4.706	4.701	4.699	0.060
24 PFTrDA	4.721	4.721	4.721	4.721	4.728	4.728	4.727	4.732	4.727	4.730	4.725	0.094
D 42 13C2_PFTeDA	4.930	4.929	4.935	4.935	4.935	4.935	4.935	4.939	4.940	4.937	4.935	0.071
23 PFTeDA	4.930	4.929	4.935	4.935	4.940	4.940	4.940	4.939	4.940	4.942	4.937	0.095
D 40 13C2_PFHxDA	5.306	5.306	5.313	5.306	5.313	5.313	5.313	5.315	5.313	5.314	5.310	0.068
35 PFHxDA	5.306	5.313	5.313	5.313	5.319	5.319	5.313	5.322	5.319	5.321	5.315	0.098
36 PFODA	5.662	5.662	5.670	5.670	5.670	5.670	5.679	5.680	5.678	5.679	5.672	0.122

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d		
Injection Date:	14-Oct-2021 11:07:26	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	1
Sample Info:	ICAL 50_SVLC-1655	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	1012463	21	>100:1			1000.00	1128.59	95.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	0/0	53594	21	37:1			50.000	48.985		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	979499	17	>100:1			1000.00	1089.67	92	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	55734	17	82:1			50.000	52.717		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	0	332115	15	>100:1			1000.00	1112.64	95	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.129	2.129	0/0	20309	14	>100:1	Target = 3.78		44.200	43.985		
298.9 > 99	44	2.119	2.129		5974	14	47:1	3.39 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/0	13511	18	>100:1	Target = 3.45		46.900	39.431		
349 > 99	44	2.475	2.475		4401	21	38:1	3.06 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.406	0	248705	19	>100:1			5000.00	5565.29	92.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.388	2.406	-1/-1	3850	23	65:1	Target = 1.43		46.700	40.397		
327 > 81	63	2.423	2.406		2516	10	16:1	1.53 (0.71-2.15)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	931213	19	>100:1			1000.00	1137.33	93.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	43520	16	39:1	Target = 16.37		50.000	45.499		
313 > 119	49	2.440	2.440		3711	16	20:1	11.72 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	810603	18	>100:1			5000.00	5602.45	93.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/0	12201	18	65:1	Target = 0.74		100.00	97.990		
285 > 185	66	2.562	2.562		15800	16	46:1	0.77 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.827	0	884091	18	>100:1			1000.00	1103.34	90.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/0	43136	21	56:1	Target = 3.21		50.000	49.170		
363 > 169	47	2.818	2.827		12642	16	29:1	3.41 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.845	2.845	0	270129	18	>100:1			1000.00	1098.28	91.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.836	2.845	0/0	12770	26	28:1	Target = 3.47	4.47	45.500	39.209		
399 > 99	45	2.845	2.845		3805	33	21:1	3.35 (1.73-5.21)	33.89				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.862	2.862	0/0	65940	18	>100:1	Target = 2.28		47.100	44.902		
377 > 85	45	2.862	2.862		27529	17	59:1	2.39 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.215	0/0	13701	20	46:1	Target = 3.62		47.600	46.710		
449 > 99	45	3.215	3.215		4504	19	29:1	3.04 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.183	0	242984	23	>100:1			5000.00	5560.66	89.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.177	3.177	0/0	3655	18		Target = 1.19		47.400	47.687		
427 > 81	64	3.177	3.177		2900	23	27:1	1.26 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.208	0	871743	22	>100:1			1000.00	1152.09	99.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.208	0/0	41139	20	35:1	Target = 2.34		50.000	46.872		
413 > 169	53	3.196	3.208		19747	19	29:1	2.08 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.565	3.572	0	256334	20	>100:1			1000.00	1131.36	96.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.565	3.580	0/0	14049	37	50:1	Target = 4.00	3.67	46.400	45.401		
499 > 99	54	3.572	3.580		3781	36	47:1	3.71 (2.00-6.01)	25.61				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.769	3.776	0/0	33690	17	>100:1			46.600	43.069		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.895	3.911	0/0	11373	21	63:1	Target = 3.83		48.000	43.879		
549 > 99	54	3.888	3.911		2583	12	18:1	4.40 (1.91-5.75)					M
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.199	4.207	0/0	11764	18	56:1	Target = 3.87		48.200	47.700		
599 > 99	54	4.199	4.207		3180	20	18:1	3.69 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	29482	14	>100:1			47.100	44.040		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	8969	14	>100:1	Target = 3.65		48.400	38.289		
699 > 99	54	4.690	4.698		2951	21	66:1	3.03 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.580	0	836700	20	>100:1			1000.00	1078.99	91.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.572	3.580	0/0	35910	19	86:1	Target = 4.21		50.000	49.173		
463 > 169	56	3.565	3.580		8451	19	38:1	4.24 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.865	3.873	0	473319	19	>100:1			1000.00	1130.14	98.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/0	26321	18	40:1	Target = 49.05		50.000	49.047		
498>478	55	3.873	3.880		471	15	5.1:1	55.88 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.903	3.911	0	229154	19	>100:1			5000.00	6060.07	100.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/0	2781	21	13:1	Target = 1.27		47.900	41.096		
527 > 81	65	3.888	3.918		2180	10	16:1	1.27 (0.63-1.91)					M
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.492	4.500	0/0	2932	21	35:1	Target = 2.25		48.200	42.428		
627 > 80	65	4.485	4.500		1393	15	10:1	2.10 (1.12-3.37)					M
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.911	3.918	0	730773	18	>100:1			1000.00	1076.00	90.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.911	3.926	0/0	35309	18	>100:1	Target = 8.94		50.000	47.820		
513 > 169	51	3.918	3.926		3477	15	23:1	10.15 (4.47-13.41)					M
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.065	4.073	0	1076227	17	>100:1			5000.00	5252.48	88.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.073	4.081	0/0	7252	30	47:1	Target = 1.38	6.99	50.000	44.105		
570 > 483	58	4.073	4.081		5130	41	31:1	1.41 (0.69-2.08)	4.18				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.226	0	710128	16	>100:1			1000.00	1123.37	98	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.226	0/0	31867	17	76:1	Target = 8.27		50.000	50.598		
563 > 169	52	4.207	4.226		3534	18	19:1	9.01 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.226	0	982487	17	>100:1			5000.00	5722.90	92.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.226	4.235	0/0	12049	34	31:1	Target = 1.95	4.77	50.000	57.453		
584 > 526	60	4.235	4.235		4756	34	36:1	2.53 (0.97-2.92)	10.71				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.298	0	135255	15	>100:1			1000.00	1063.65	88.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.297	4.306	0/0	5262	11	15:1			50.000	39.444		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	0	60053	16	>100:1			1000.00	1033.23	82.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.315	0/0	4709	13	26:1	Target = 1.08		50.000	73.647		
512 > 219	57	4.315	4.315		3700	22	17:1	1.27 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.463	0	131843	17	>100:1			1000.00	1122.48	90.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.471	4.471	0/0	3833	14	18:1			50.000	34.116		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.485	0	62432	15	>100:1			1000.00	1136.60	94.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.478	4.485	0/0	3601	15	38:1	Target = 1.10		50.000	50.410		
526 > 219	59	4.492	4.485		3918	28	33:1	0.91 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.485	4.492	0	657117	17	>100:1			1000.00	1094.05	92.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.485	4.492	0/0	32459	19	25:1	Target = 5.93		50.000	48.228		
613 > 169	38	4.478	4.492		5744	12	69:1	5.65 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.721	4.728	0/0	17712	15	>100:1	Target = 2.90		50.000	49.825		
663 > 169	38	4.721	4.728		5239	17	96:1	3.38 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.930	4.935	0	860939	21	>100:1			1000.00	1074.57	93.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.930	4.940	0/0	36822	19	>100:1	Target = 6.34		50.000	50.517		
713 > 169	42	4.930	4.940		6110	25	>100:1	6.02 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.306	5.313	0	364615	19	>100:1			1000.00	1108.08	97.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.306	5.319	0/0	41743	20	>100:1	Target = 12.53		50.000	56.504		
813 > 269	40	5.306	5.319		3310	17	91:1	12.61 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.662	5.670	0/0	26053	19	>100:1	Target = 152.15		50.000	48.142		
913 > 319	40	5.678	5.670		219	23		118.96 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.911	3.918	0	734117	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	855319	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.208	0	803016	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	874712	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.572	3.572	0	253465	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

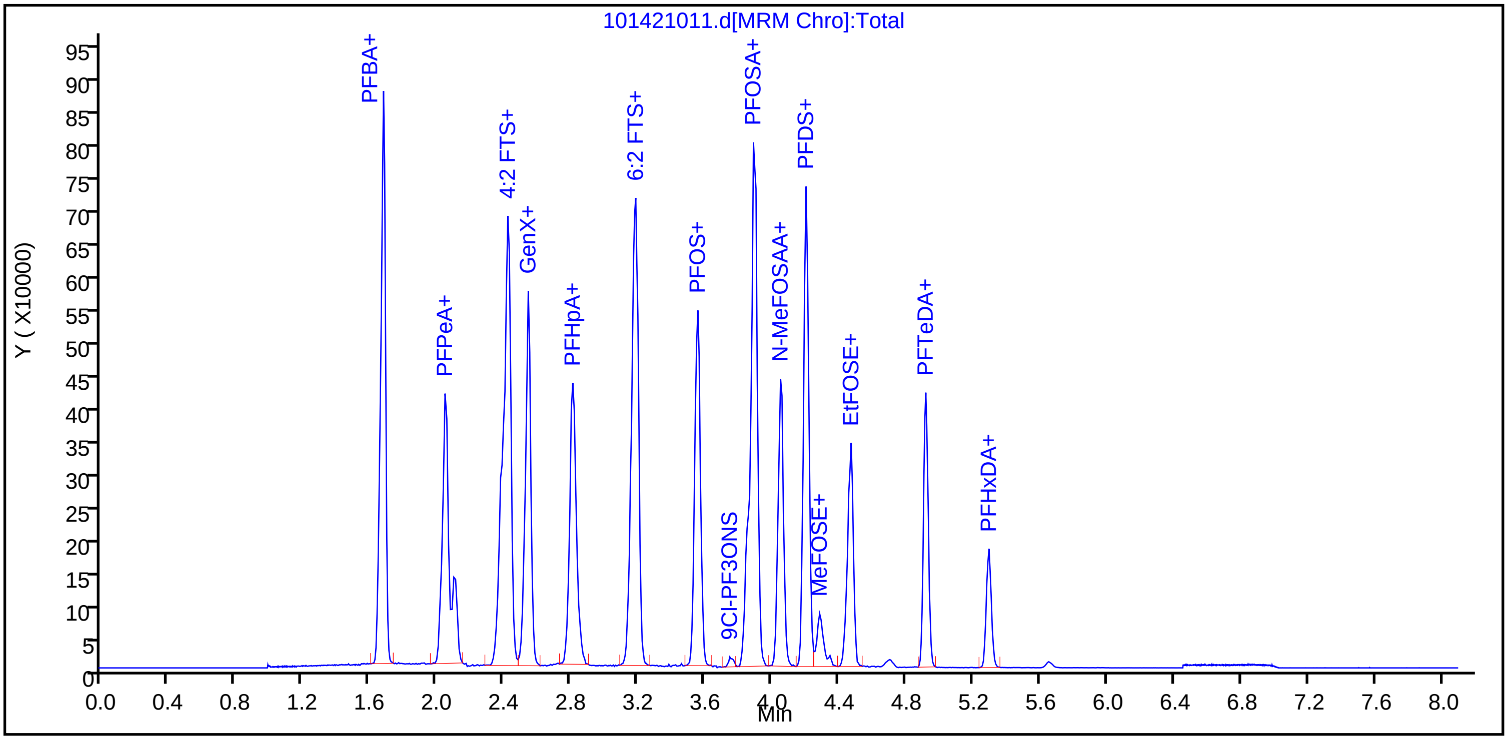
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

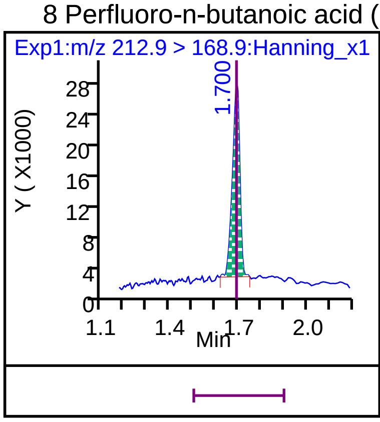
Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

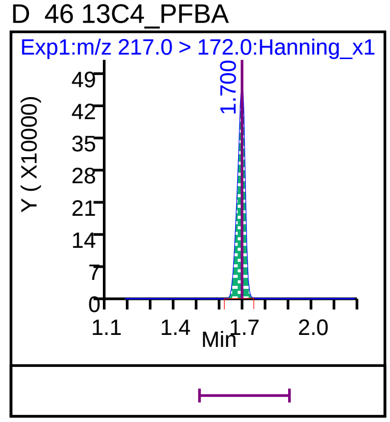
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d		
Injection Date:	14-Oct-2021 11:07:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller



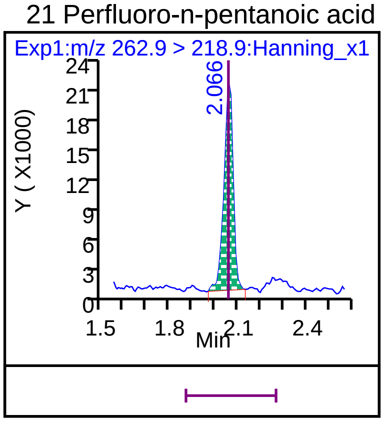
8 Perfluoro-n-butanoic acid (PFBA)



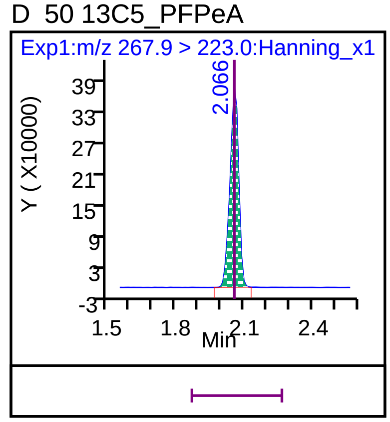
D 46 13C4_PFBA



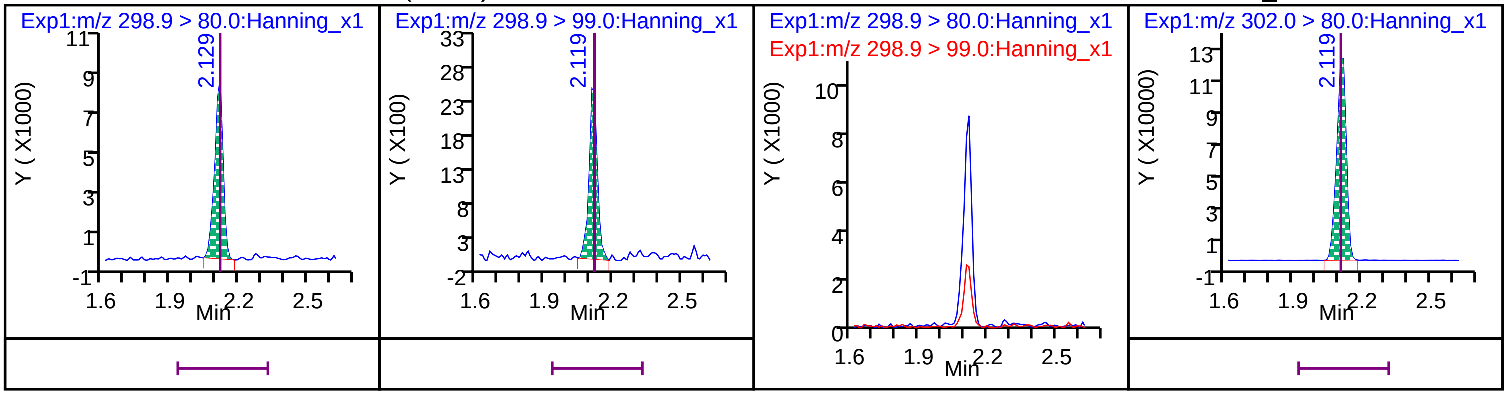
21 Perfluoro-n-pentanoic acid (PFPeA)



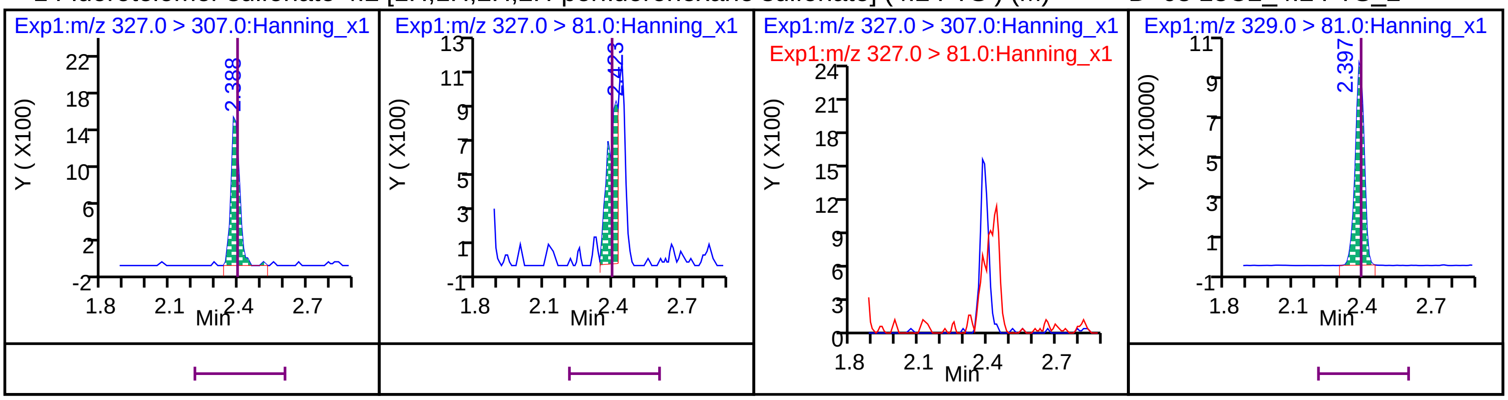
D 50 13C5_PFPeA



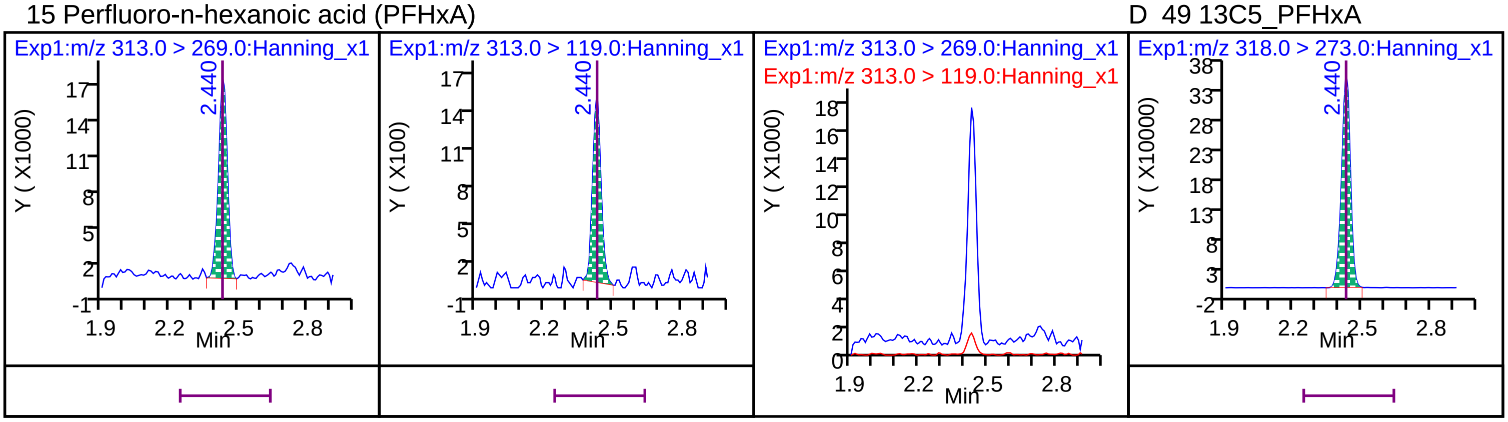
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



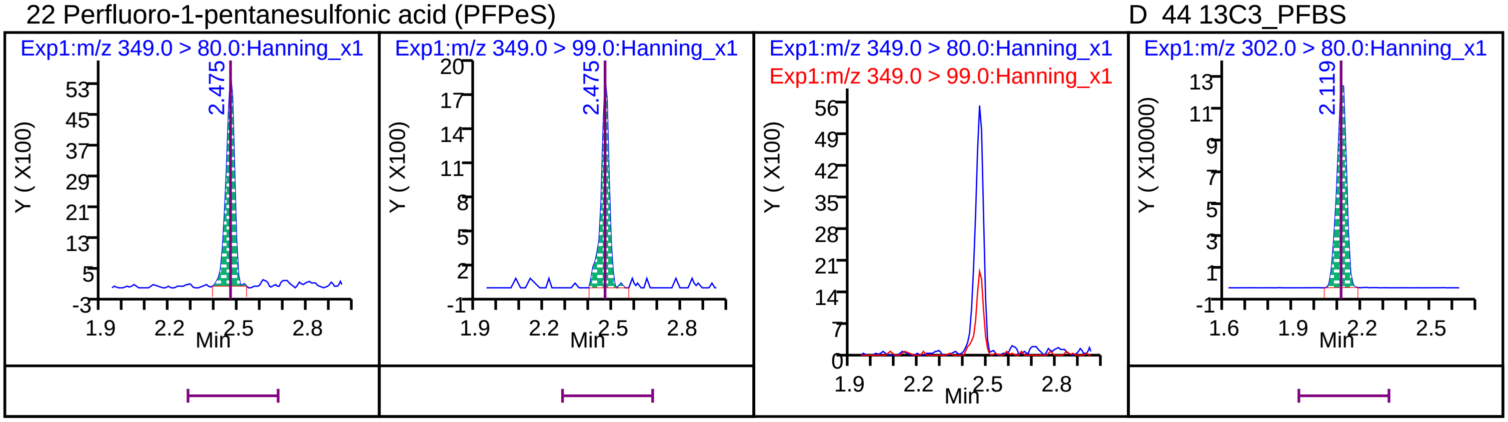
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



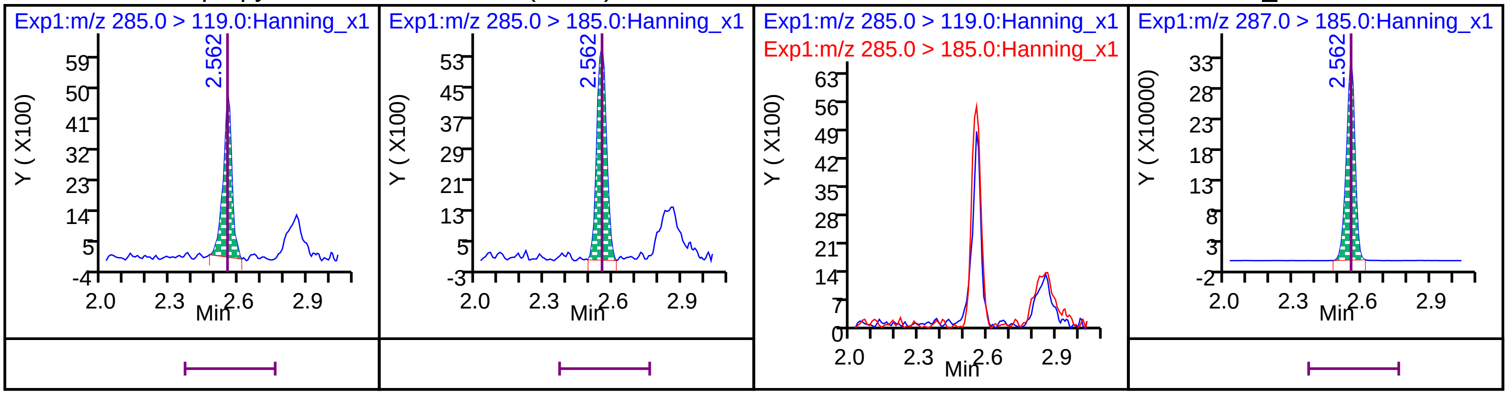
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



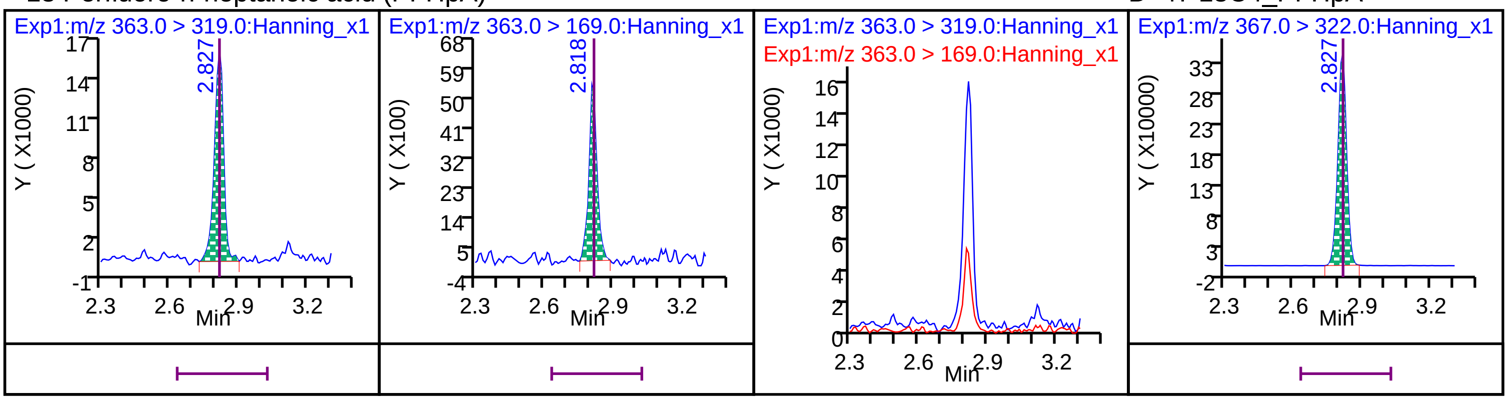
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



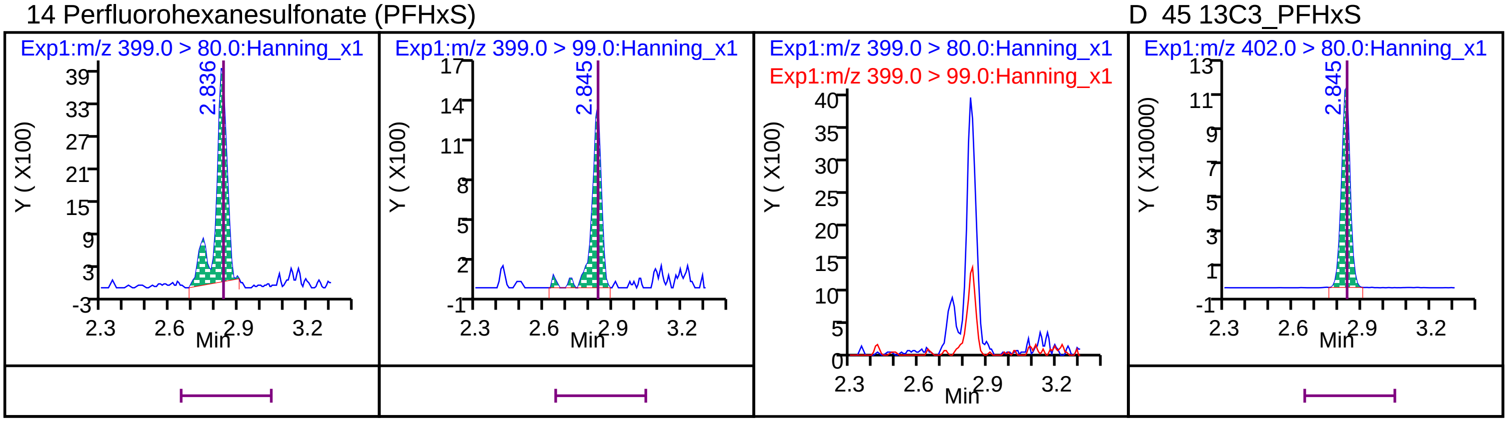
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



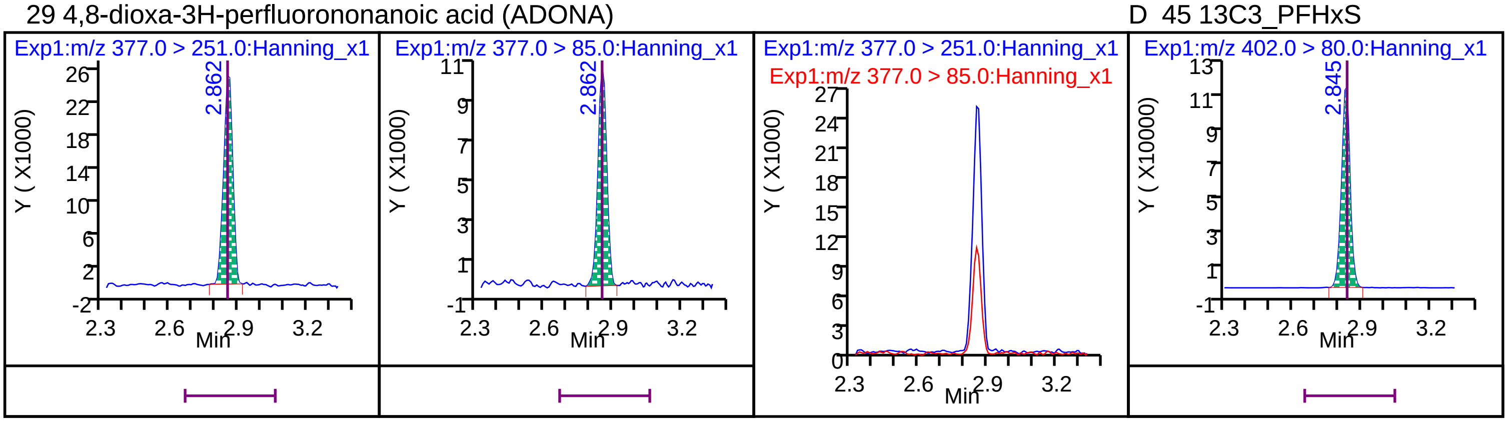
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

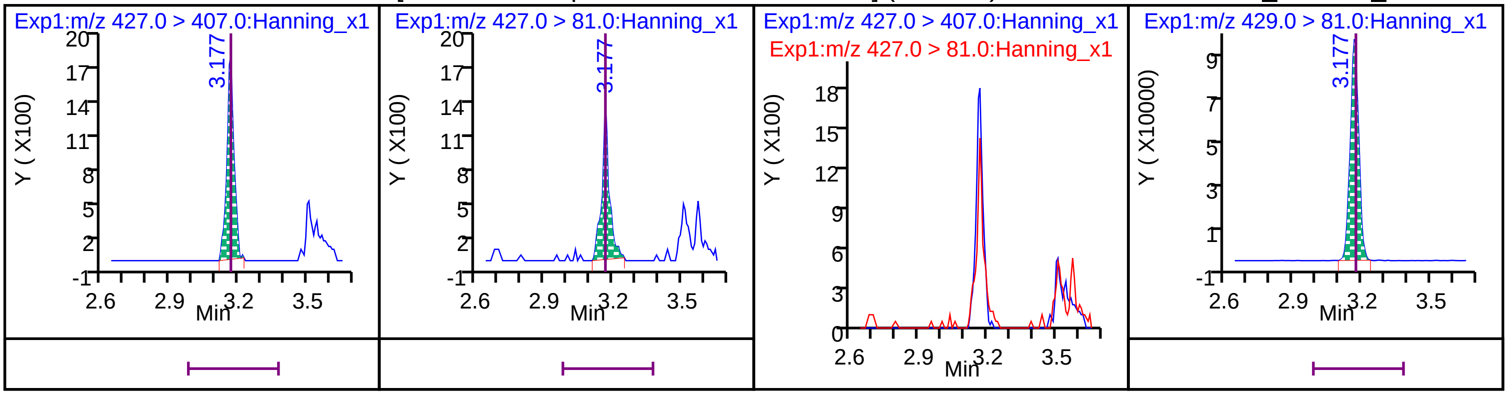


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

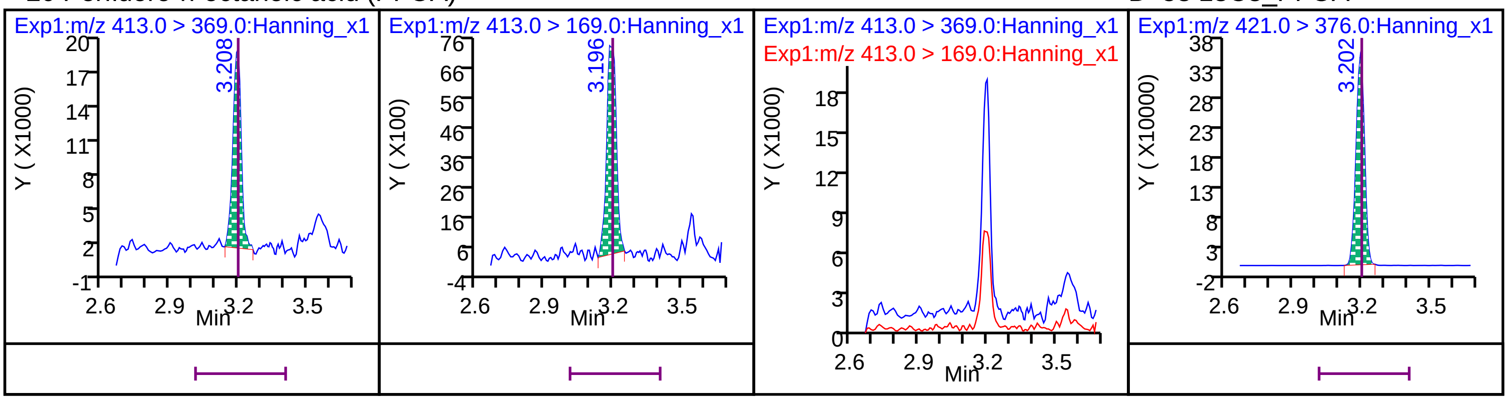


Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d

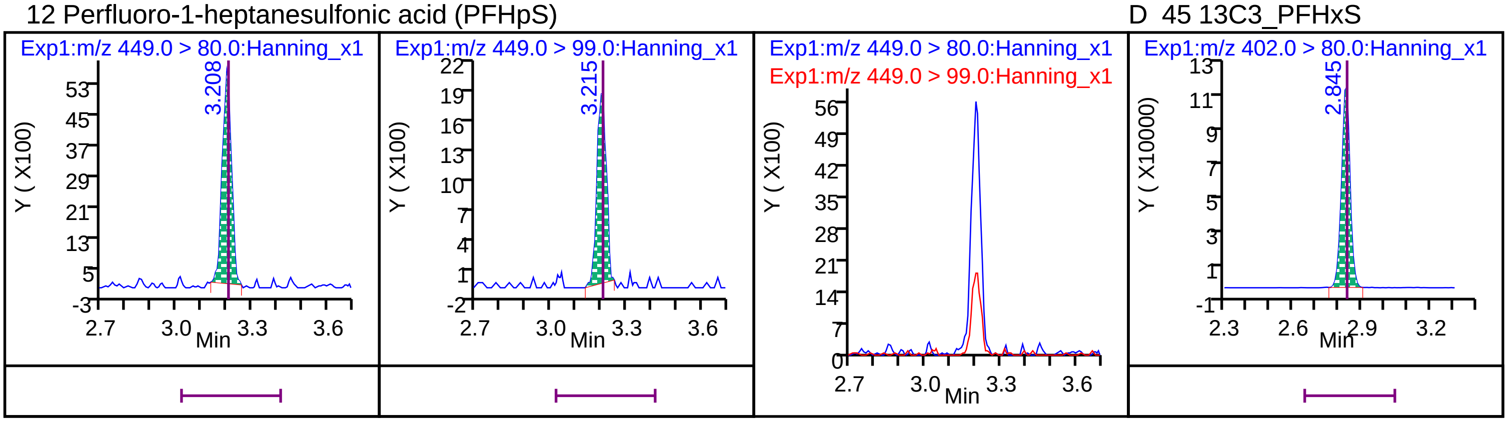
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



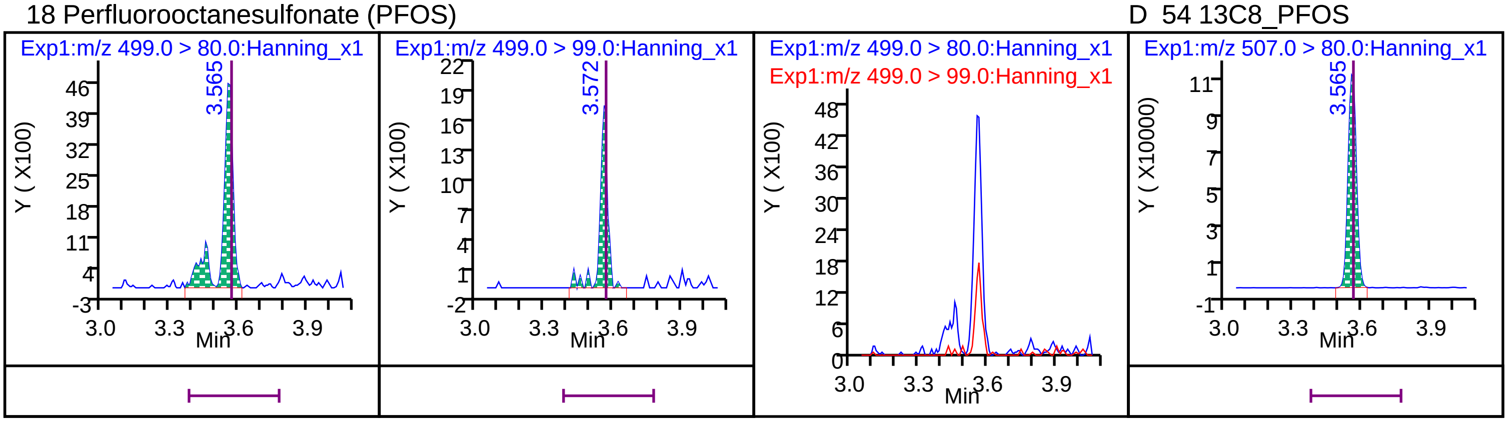
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

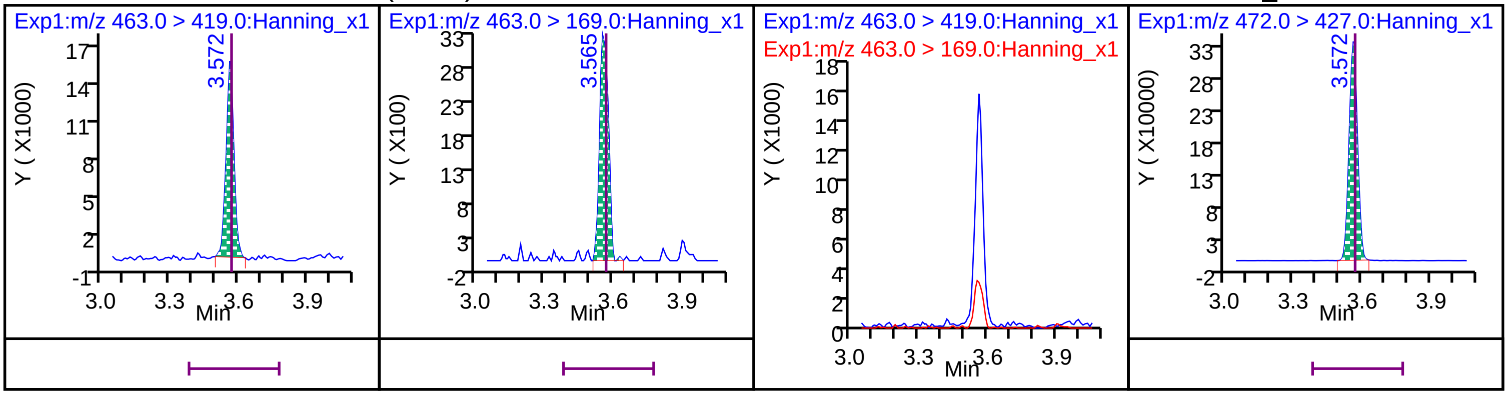


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

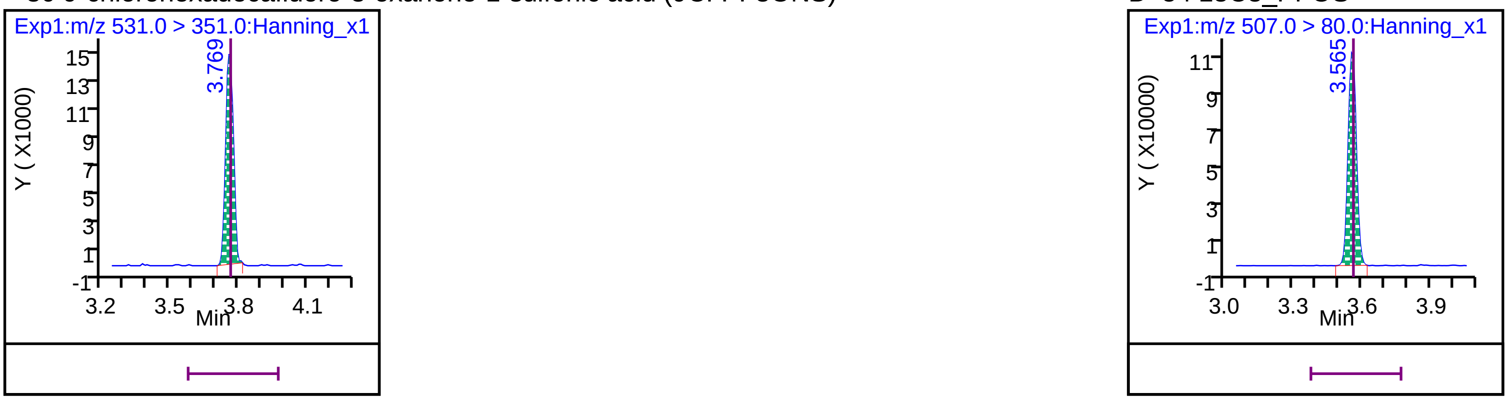


Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d

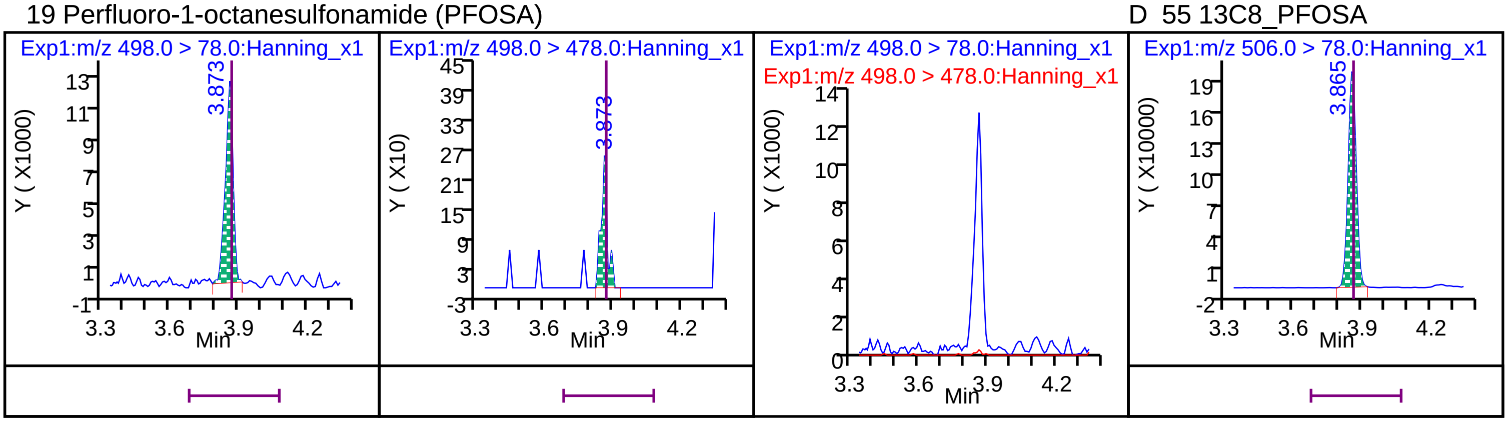
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



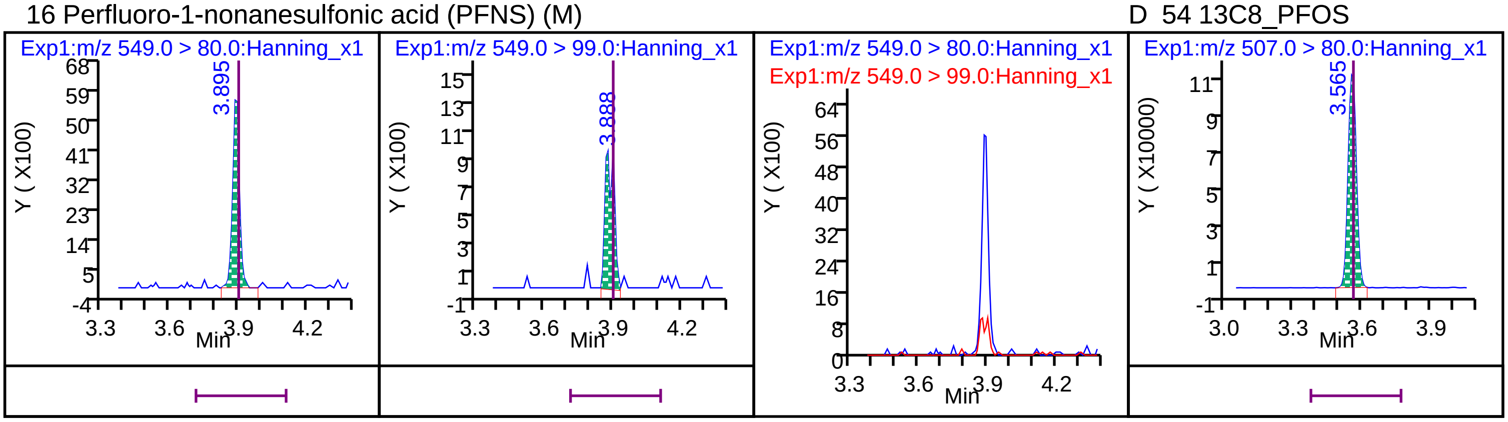
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



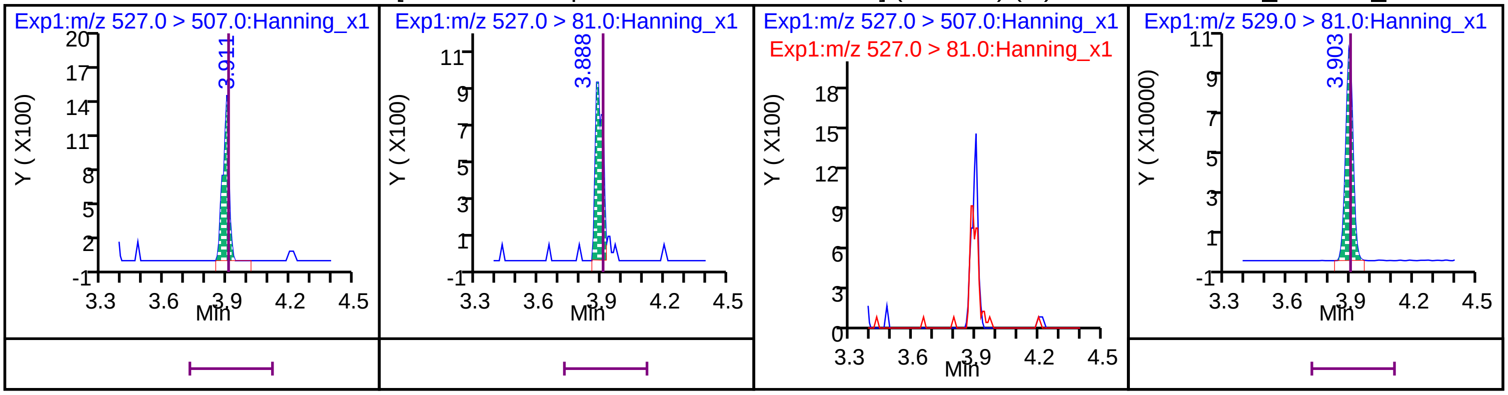
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



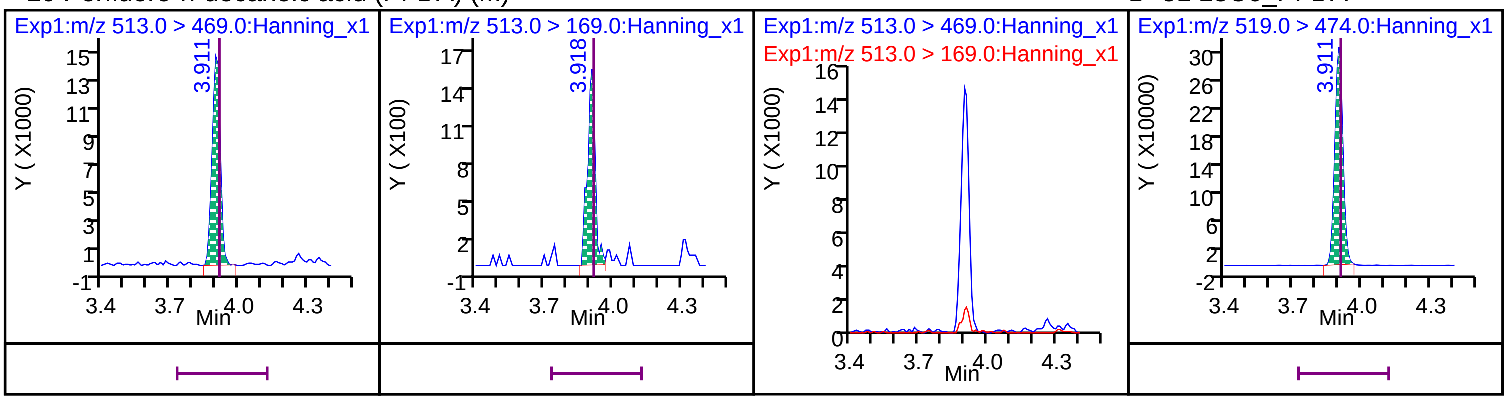
16 Perfluoro-1-nonanesulfonic acid (PFNS) (M) D 54 13C8_PFOS



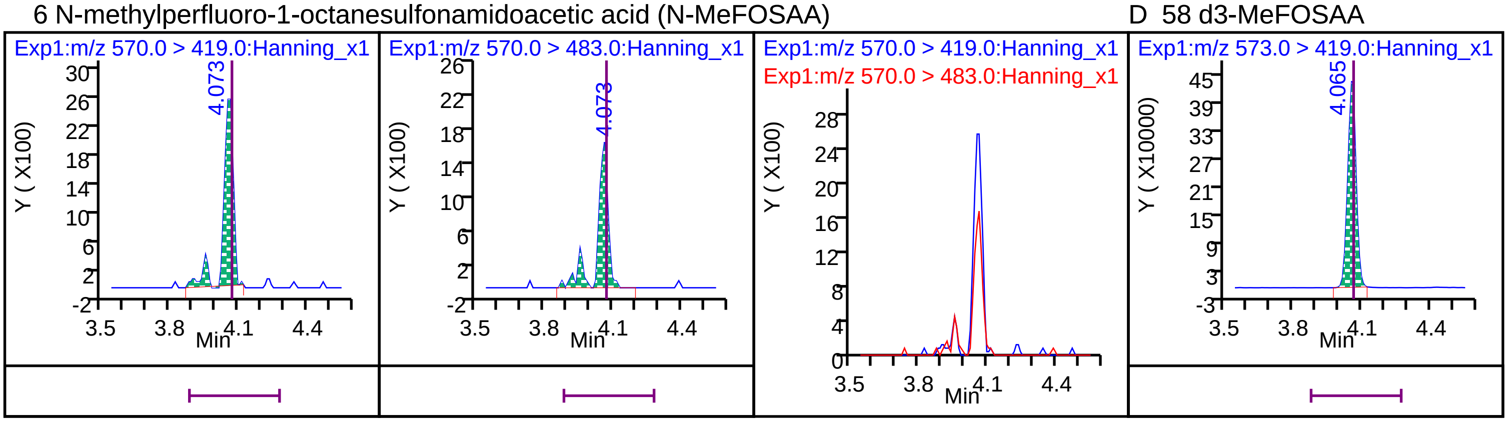
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



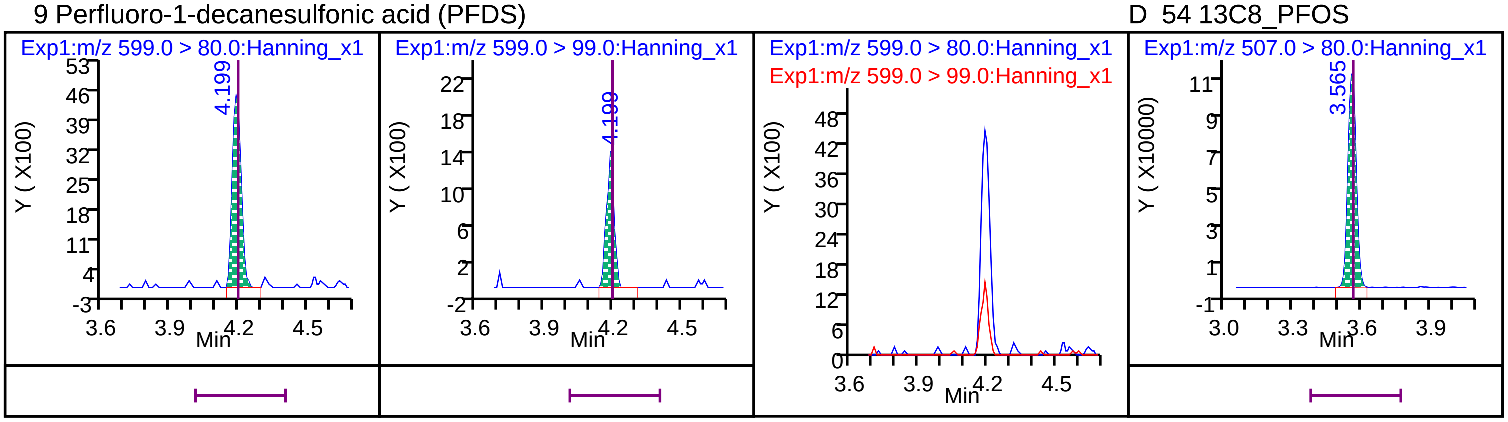
10 Perfluoro-n-decanoic acid (PFDA) (M) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

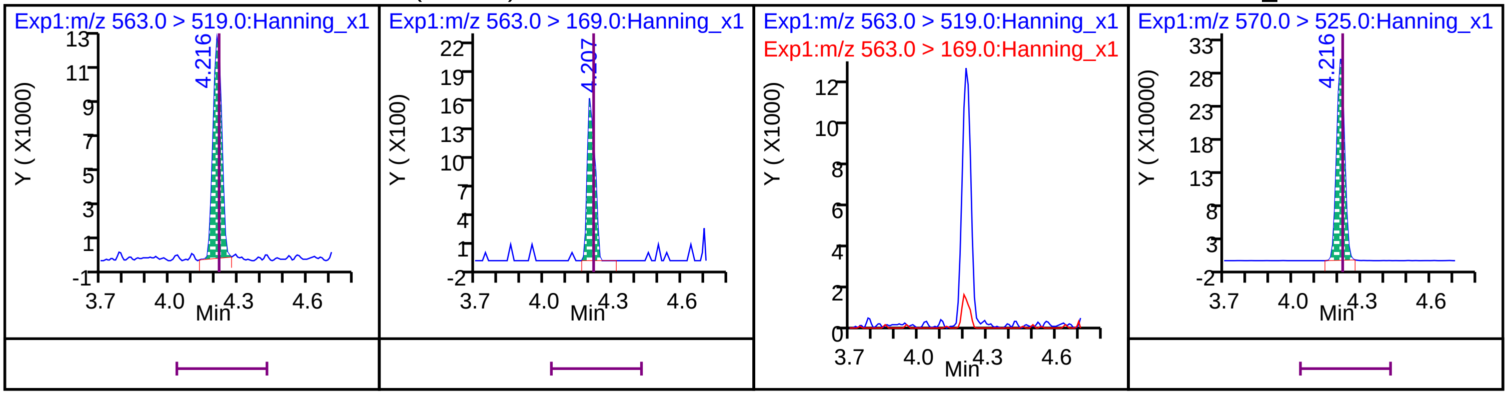


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

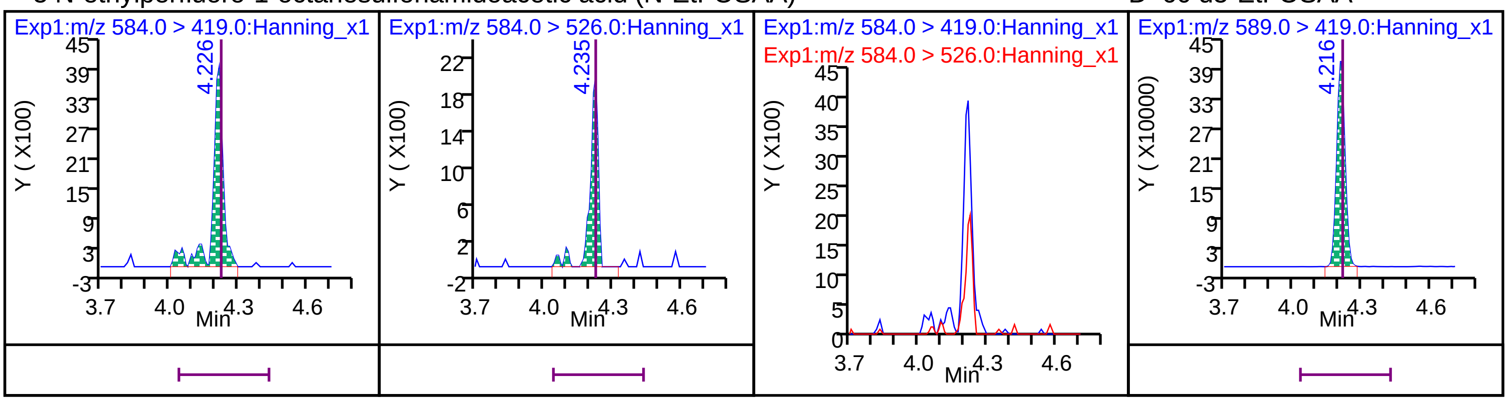


Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

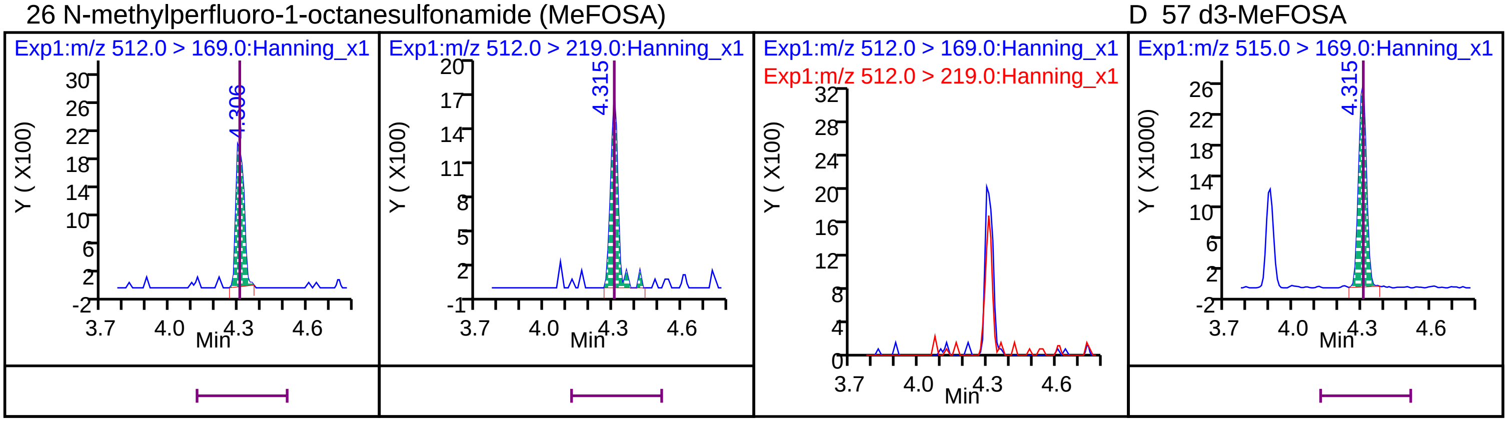


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

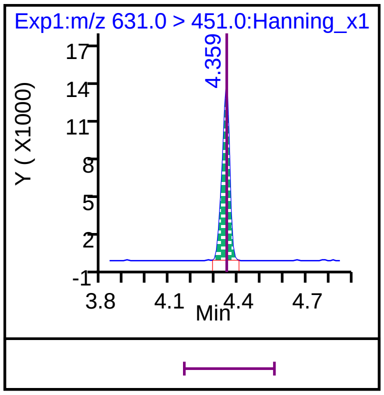


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

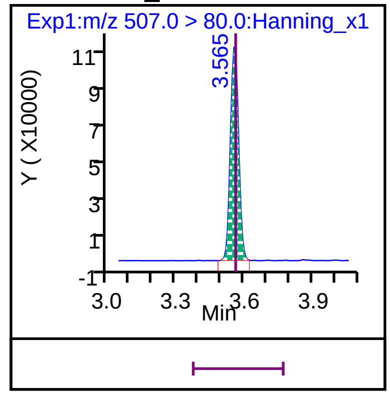
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



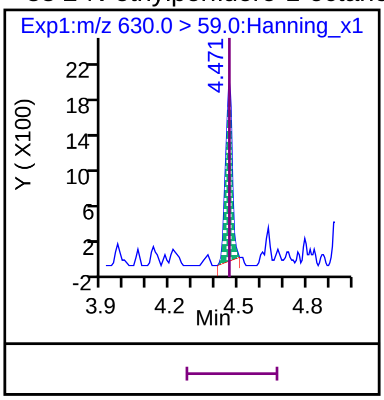
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



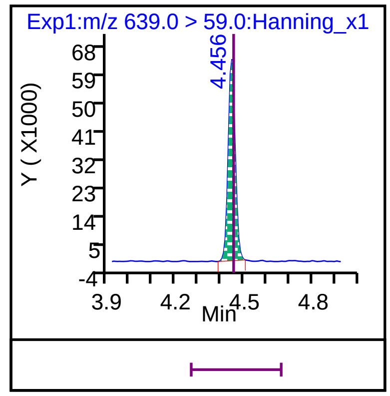
D 54 13C8_PFOS



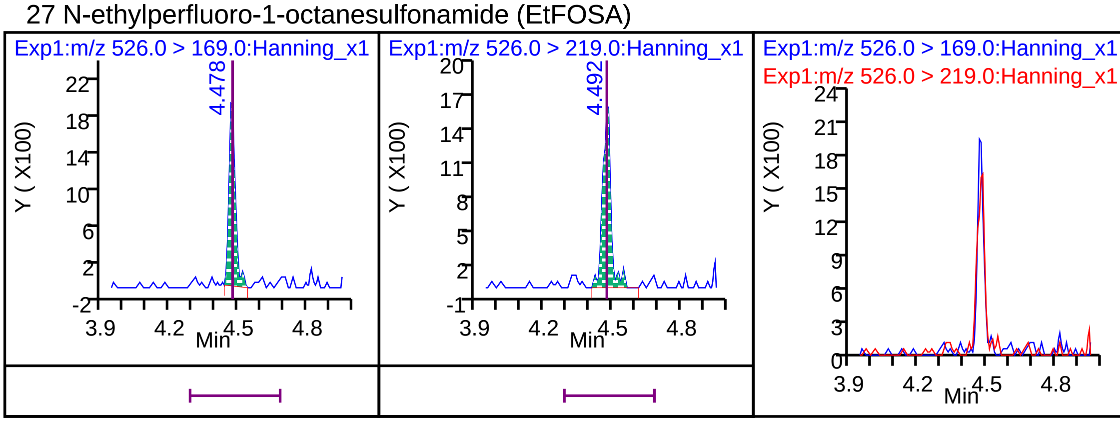
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



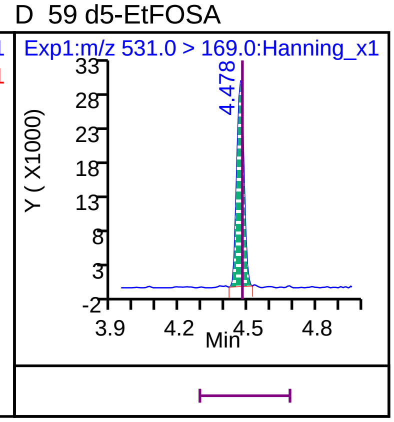
D 62 d9-EtFOSE



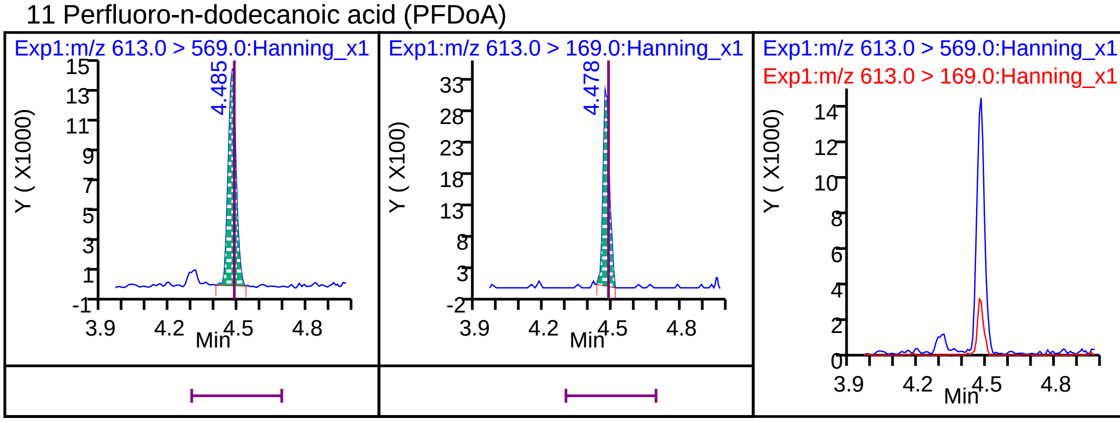
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



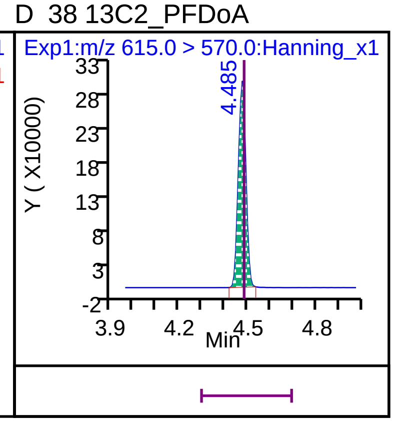
D 59 d5-EtFOSA



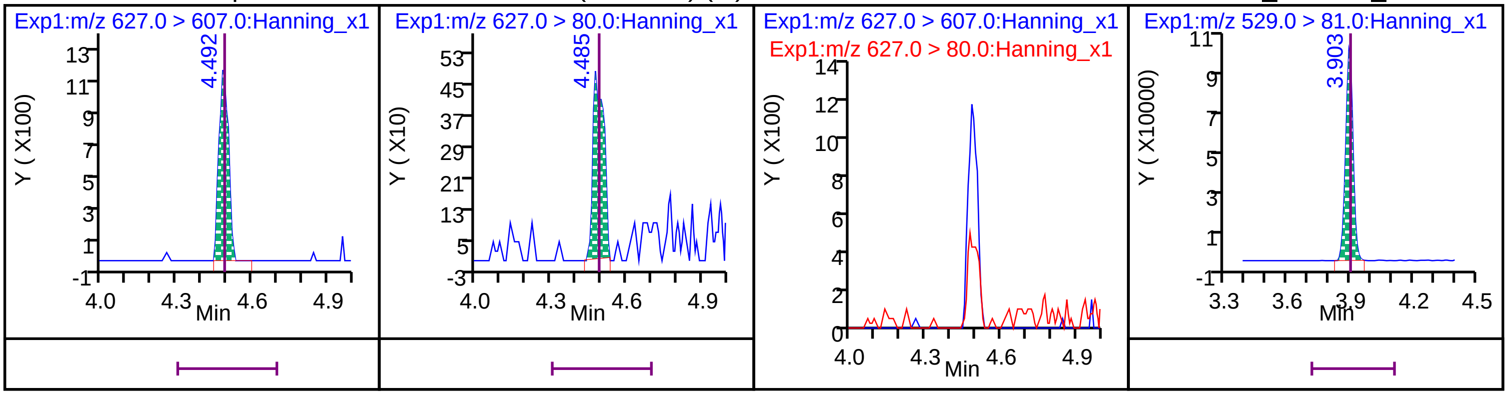
11 Perfluoro-n-dodecanoic acid (PFDoA)



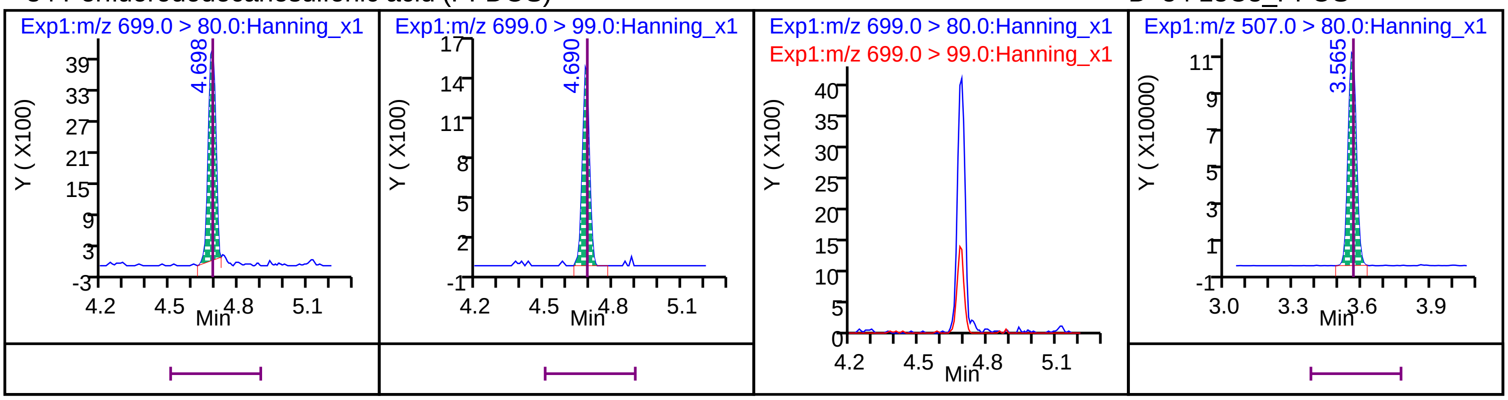
D 38 13C2_PFDoA



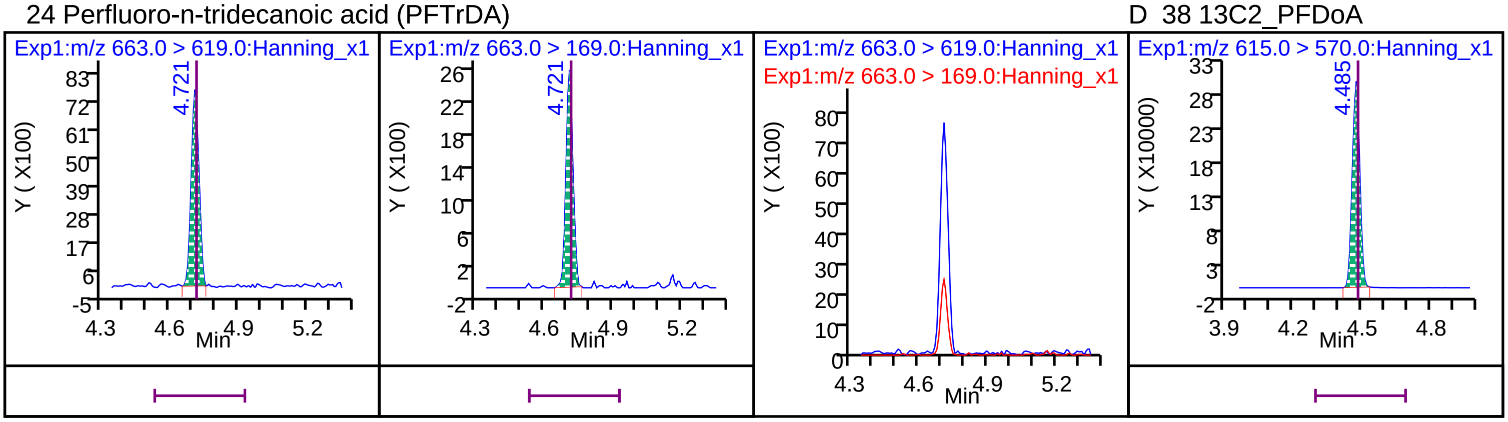
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (M)
D 65 13C2_8:2 FTS_2



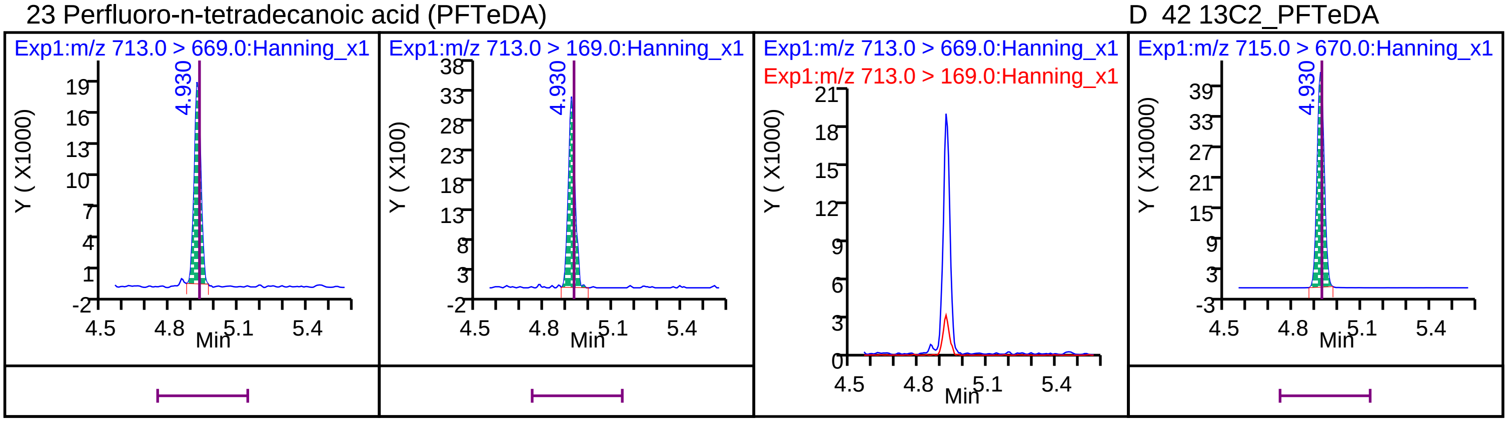
34 Perfluorododecanesulfonic acid (PFDOS)
D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA)
D 38 13C2_PFDoA



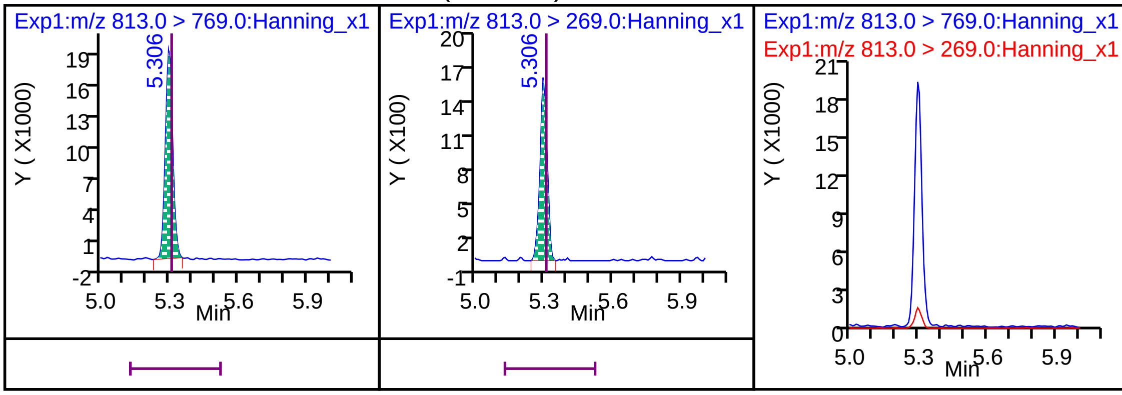
23 Perfluoro-n-tetradecanoic acid (PFTeDA)
D 42 13C2_PFTeDA



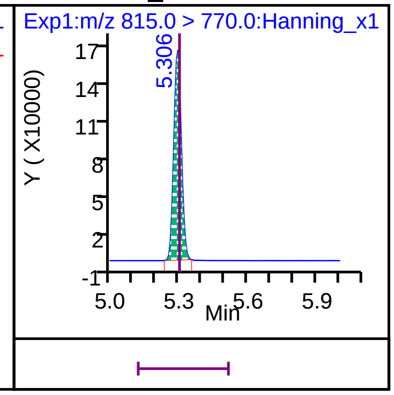
Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d

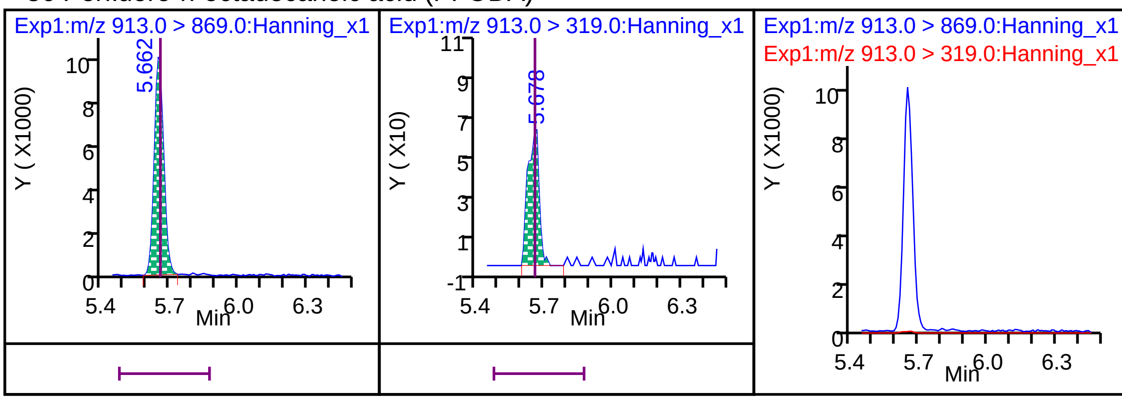
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



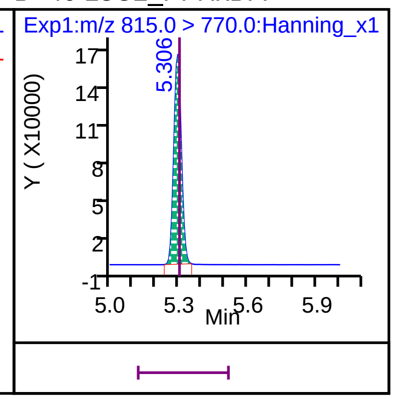
D 40 13C2_PFHxDA



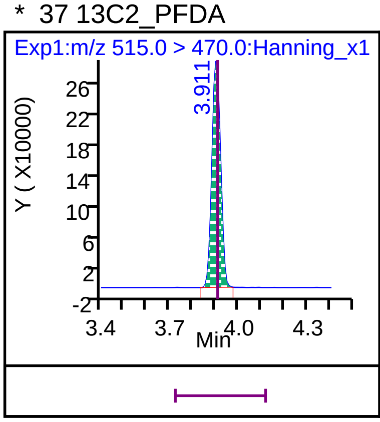
36 Perfluoro-n-octadecanoic acid (PFODA)



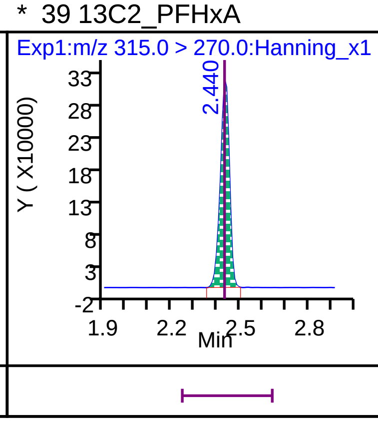
D 40 13C2_PFHxDA



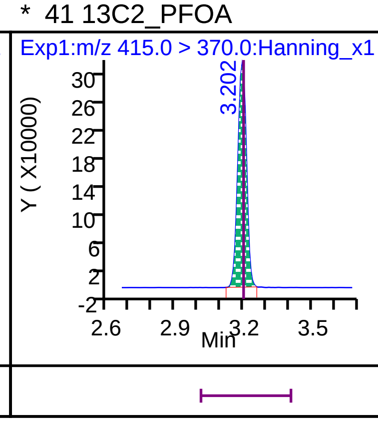
* 37 13C2_PFDA



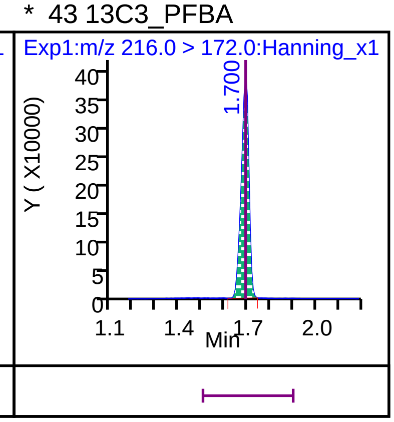
* 39 13C2_PFHxA



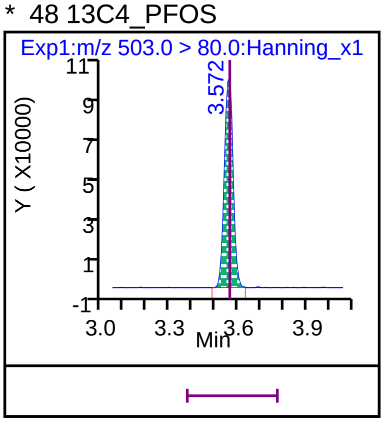
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

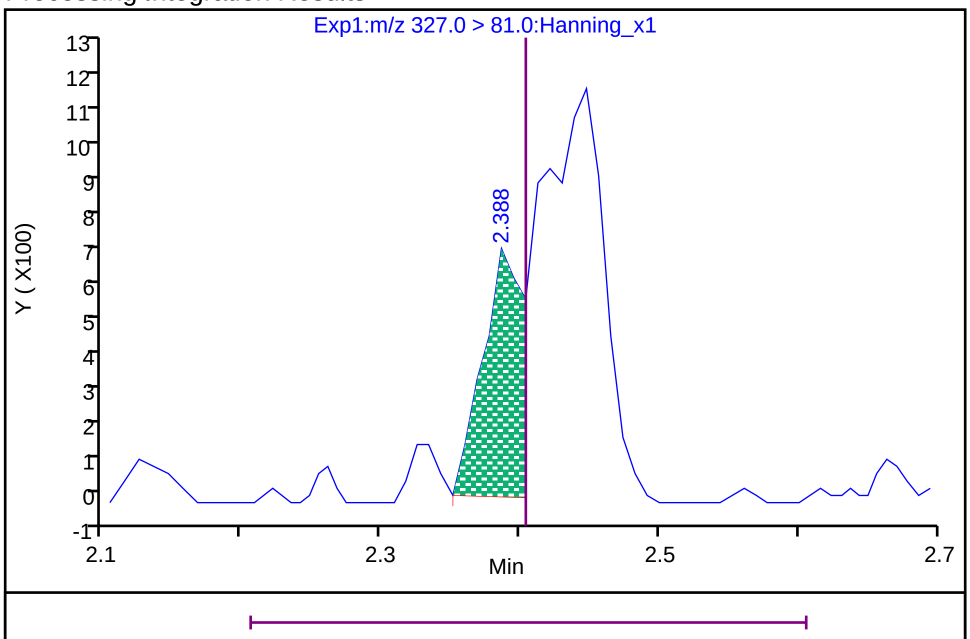
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d		
Injection Date:	14-Oct-2021 11:07:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller

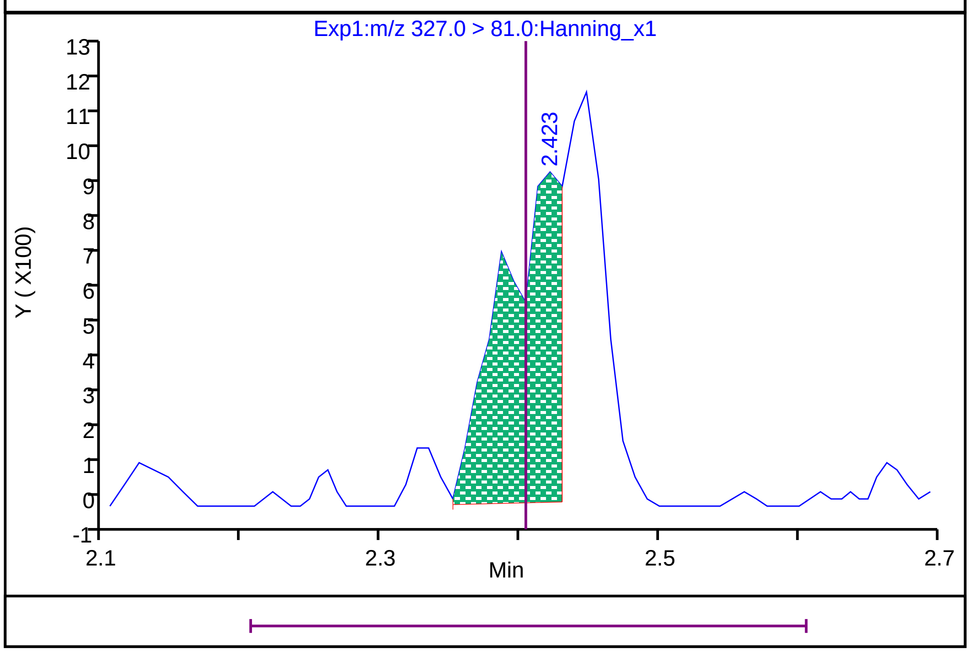
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT:	2.388
Area:	1238
Amount:	40.397
Amount Units:	ng/L



RT:	2.423
Area:	2516
Amount:	40.397
Amount Units:	ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:14:27

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d

Injection Date: 14-Oct-2021 11:07:26 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ICAL 50_SVLC-1655

Sample Info: ICAL 50_SVLC-1655

Dil. Factor: 1 Operator: Matthew M. Miller

3 8:2 FTS, CAS: 39108-34-4

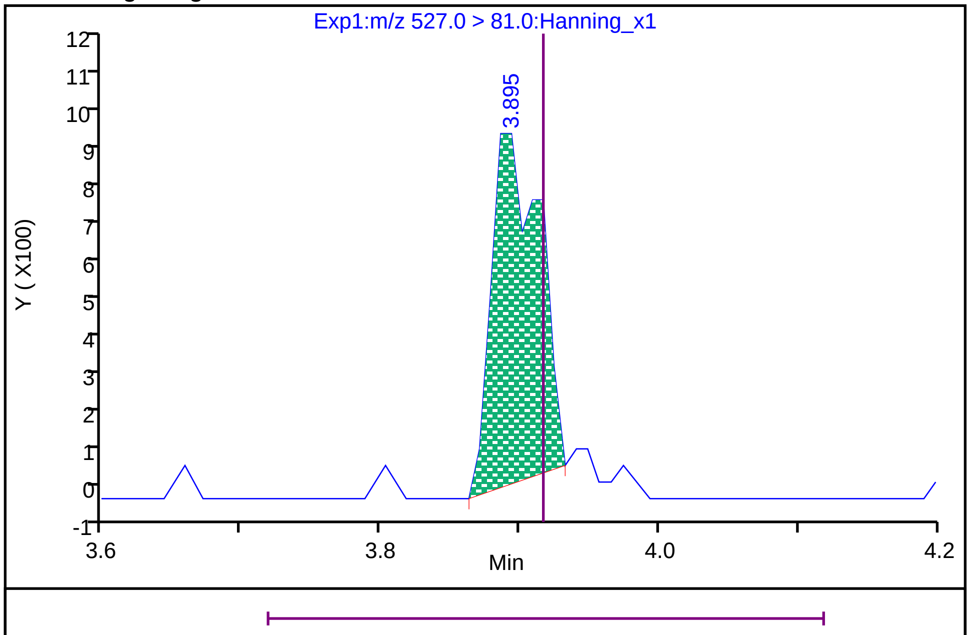
Processing Integration Results

RT: 3.895

Area: 2028

Amount: 41.096

Amount Units: ng/L

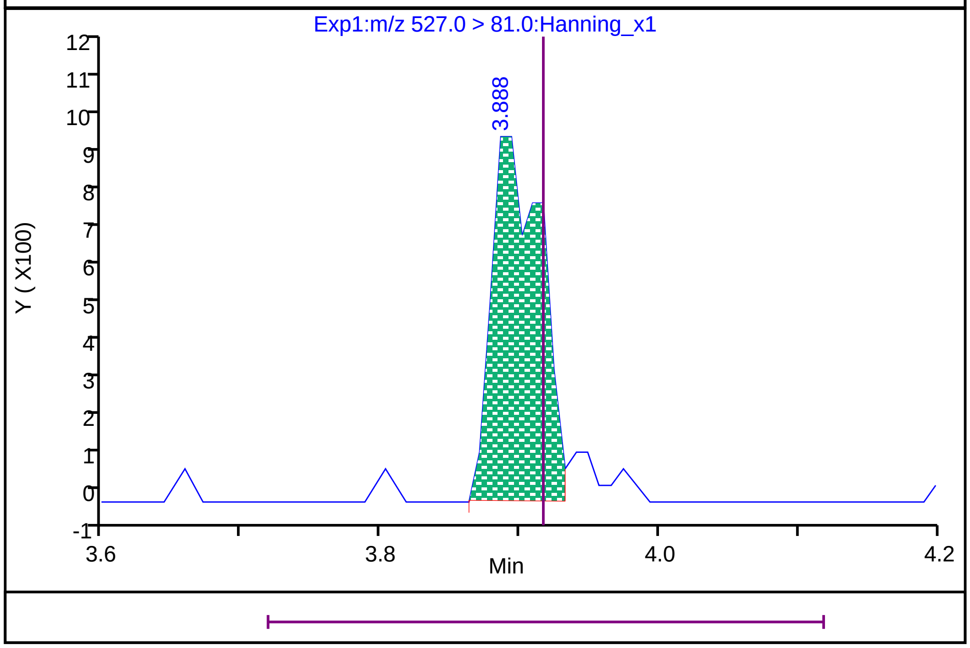


RT: 3.888

Area: 2180

Amount: 41.096

Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:14:47

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

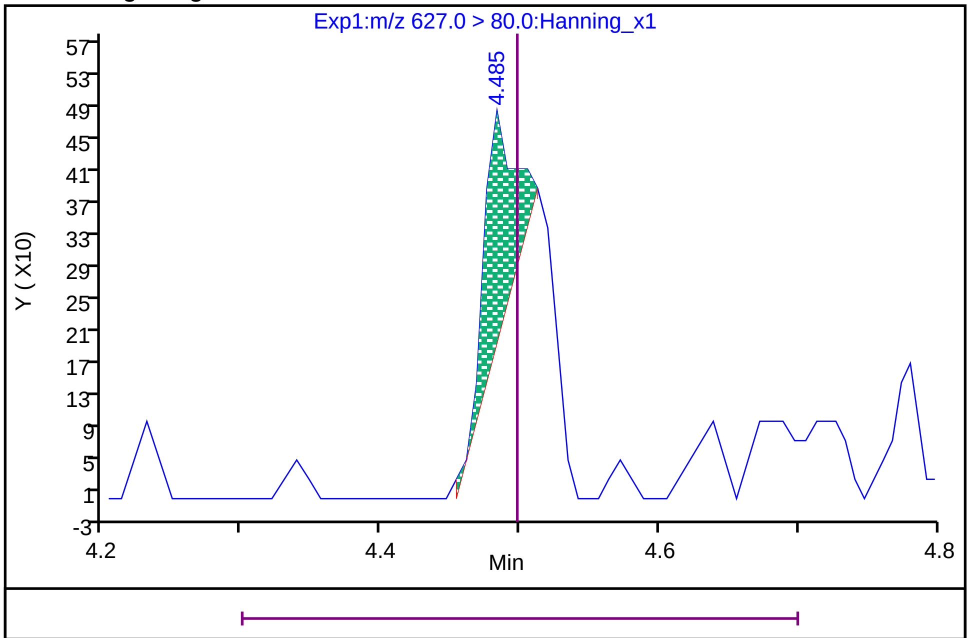
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d		
Injection Date:	14-Oct-2021 11:07:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller

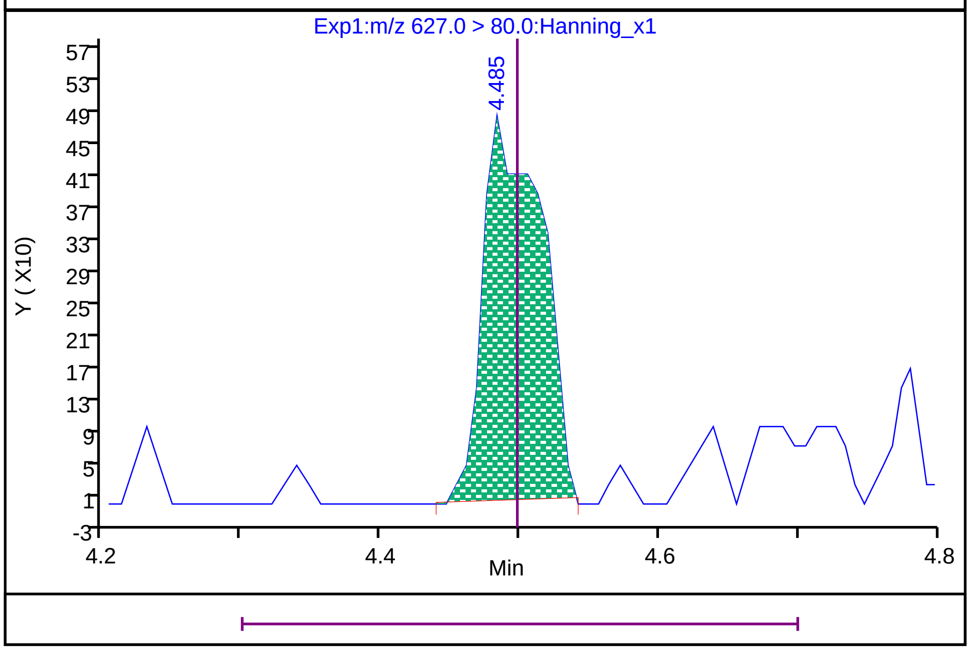
4 10:2 FTS, CAS: 120226-60-0

Processing Integration Results

RT:	4.485
Area:	413
Amount:	42.428
Amount Units:	ng/L



RT:	4.485
Area:	1393
Amount:	42.428
Amount Units:	ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:15:05

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

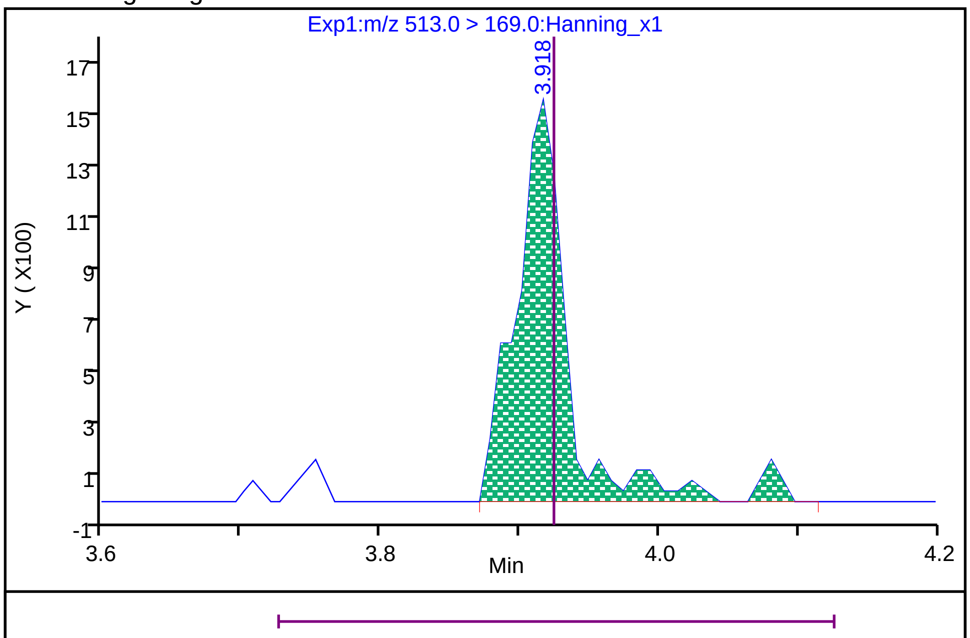
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d		
Injection Date:	14-Oct-2021 11:07:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller

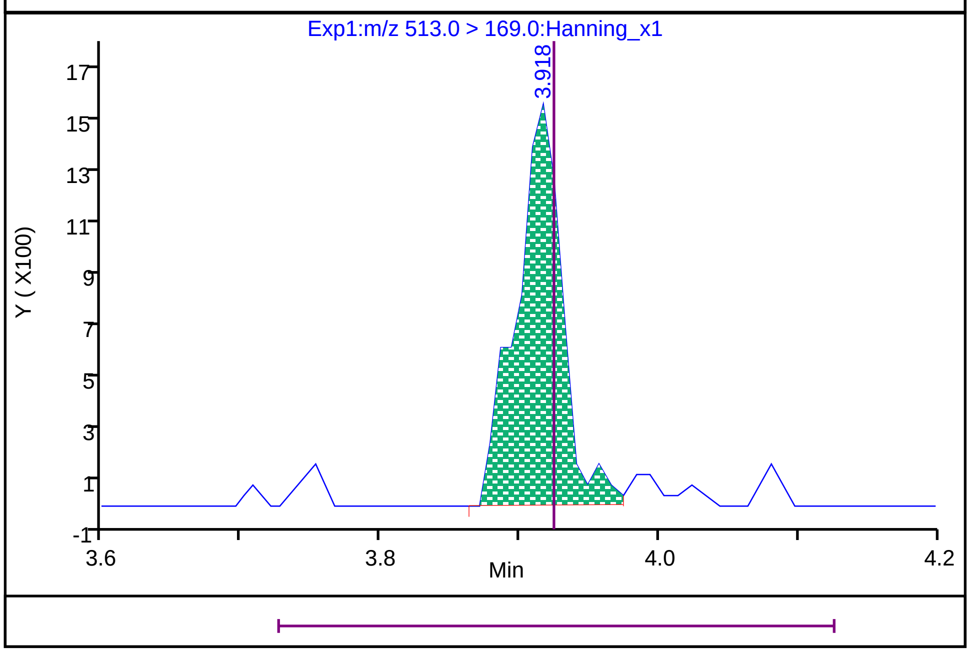
10 PFDA, CAS: 335-76-2

Processing Integration Results

RT:	3.918
Area:	3934
Amount:	47.820
Amount Units:	ng/L



RT:	3.918
Area:	3477
Amount:	47.820
Amount Units:	ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:14:54

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

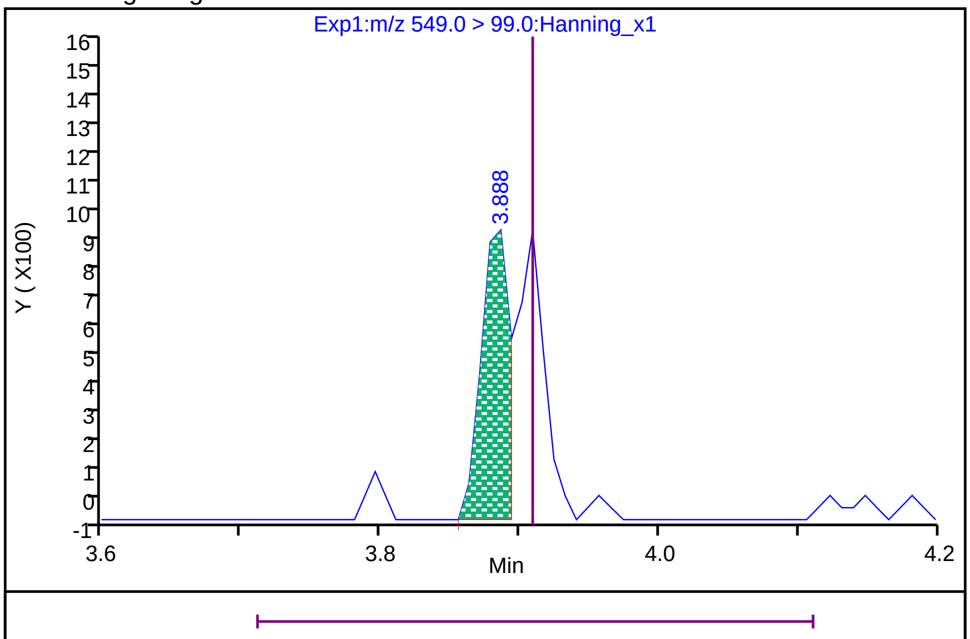
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421011.d		
Injection Date:	14-Oct-2021 11:07:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller

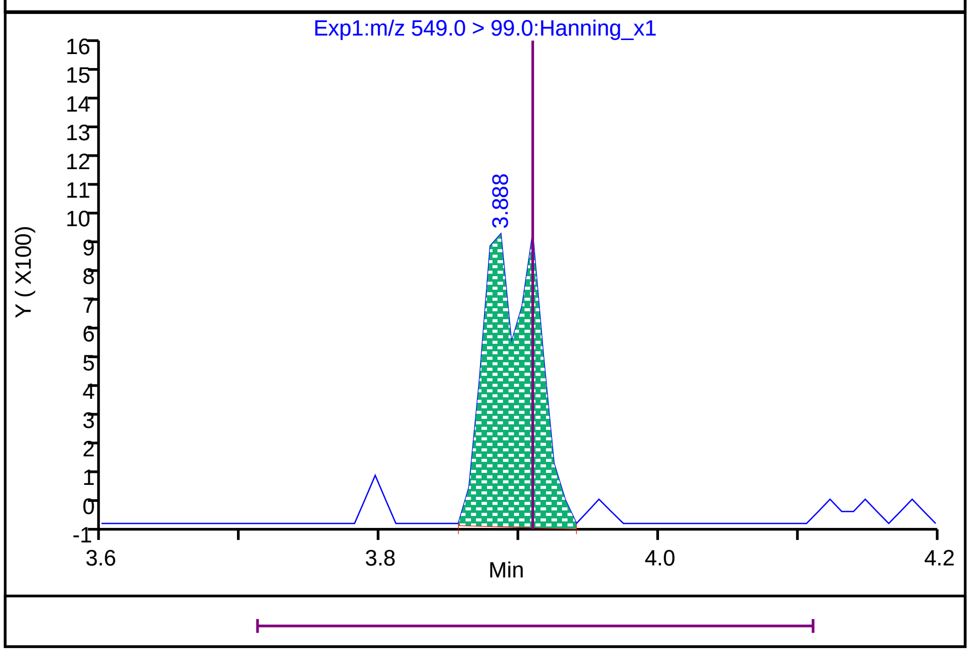
16 PFNS, CAS: 68259-12-1

Processing Integration Results

RT: 3.888
Area: 1247
Amount: 43.879
Amount Units: ng/L



RT: 3.888
Area: 2583
Amount: 43.879
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:14:41

Audit Action: Mint

Audit Reason: Assign Peak

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421012.d		
Injection Date:	14-Oct-2021 11:17:57	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	2
Sample Info:	ICAL 100_SVLC-1656	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	1007486	20	>100:1			1000.00	1123.04	95	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	0/0	109497	20	61:1			100.00	100.57		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	1049448	17	>100:1			1000.00	1167.48	98.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	103715	17	>100:1			100.00	91.562		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	0	321072	16	>100:1			1000.00	1075.64	91.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.129	0/0	39390	15	>100:1	Target = 3.78		88.400	88.244		
298.9 > 99	44	2.119	2.129		11693	17	73:1	3.36 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/0	32515	17	>100:1	Target = 3.45		93.800	98.156		
349 > 99	44	2.475	2.475		7944	16	80:1	4.09 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.406	0	213959	18	>100:1			5000.00	4787.78	79.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.406	2.406	0/0	8225	16	56:1	Target = 1.43		93.400	100.32		
327 > 81	63	2.388	2.406		8091	16	36:1	1.01 (0.71-2.15)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	896930	19	>100:1			1000.00	1095.46	89.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	93999	17	>100:1	Target = 16.37		100.00	102.03		
313 > 119	49	2.449	2.440		5421	14	14:1	17.33 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	757566	18	>100:1			5000.00	5235.88	87.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/0	27392	18	>100:1	Target = 0.74		200.00	235.40		
285 > 185	66	2.562	2.562		31382	18	>100:1	0.87 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.818	2.827	0	842825	19	>100:1			1000.00	1051.84	86.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/0	85980	17	>100:1	Target = 3.21		100.00	102.81		
363 > 169	47	2.818	2.827		27522	16	60:1	3.12 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.836	2.845	0	275385	17	>100:1			1000.00	1119.65	92.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	0/0	27667	23	57:1	Target = 3.47	5.23	91.000	83.327		
399 > 99	45	2.845	2.845		7686	28	61:1	3.59 (1.73-5.21)	6.62				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.871	2.862	1/1	141731	18	>100:1	Target = 2.28		94.200	94.670		
377 > 85	45	2.862	2.862		55500	17	>100:1	2.55 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.209	3.215	0/0	27772	28	>100:1	Target = 3.62		95.200	92.874		
449 > 99	45	3.209	3.215		7513	19	50:1	3.69 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.183	0	247857	22	>100:1			5000.00	5672.17	91.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.177	3.177	1/1	7001	23	74:1	Target = 1.19		94.800	89.547		
427 > 81	64	3.177	3.177		6277	22	58:1	1.11 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.208	0	849462	22	>100:1			1000.00	1122.64	97.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.209	3.208	1/1	82672	20	46:1	Target = 2.34		100.00	96.663		
413 > 169	53	3.202	3.208		35065	19	69:1	2.35 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	0	244238	21	>100:1			1000.00	1077.98	91.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.580	0/0	28343	38	73:1	Target = 4.00	4.08	92.800	96.130		M
499 > 99	54	3.572	3.580		8330	38	91:1	3.40 (2.00-6.01)	6.97				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.769	3.776	0/0	63946	18	>100:1			93.200	85.798		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.903	3.911	0/0	21997	24	>100:1	Target = 3.83		96.000	89.072		
549 > 99	54	3.895	3.911		6455	22	34:1	3.40 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.199	4.207	0/0	21877	13	>100:1	Target = 3.87		96.400	93.100		
599 > 99	54	4.207	4.207		5537	20	32:1	3.95 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	56992	18	>100:1			94.200	89.350		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	20210	16	>100:1	Target = 3.65		96.800	90.551		
699 > 99	54	4.690	4.698		5394	15	>100:1	3.74 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.580	0	853532	19	>100:1			1000.00	1100.69	93	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	0/0	70644	18	>100:1	Target = 4.21		100.00	94.827		
463 > 169	56	3.572	3.580		18146	18	85:1	3.89 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	446073	18	>100:1			1000.00	1065.09	92.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/0	55024	17	98:1	Target = 49.05		100.00	108.79		
498>478	55	3.873	3.880		877	17	6.7:1	62.74 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.911	3.911	0	220503	17	>100:1			5000.00	5831.29	96.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/0	6057	22	42:1	Target = 1.27		95.800	93.019		
527 > 81	65	3.903	3.918		4474	23		1.35 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.492	4.500	0/0	6233	17	94:1	Target = 2.25		96.400	93.735		
627 > 80	65	4.492	4.500		2511	19	14:1	2.48 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.918	0	751976	18	>100:1			1000.00	1107.22	92.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.918	3.926	0/0	74309	18	>100:1	Target = 8.94		100.00	97.802		
513 > 169	51	3.918	3.926		6893	16	47:1	10.78 (4.47-13.41)					M
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	0	1112076	17	>100:1			5000.00	5427.44	91.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.073	4.081	0/0	15363	31	66:1	Target = 1.38	13.31	100.00	90.423		
570 > 483	58	4.073	4.081		11531	33	69:1	1.33 (0.69-2.08)	3.67				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.226	0	708662	17	>100:1			1000.00	1121.05	97.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.226	0/0	63170	16	>100:1	Target = 8.27		100.00	100.51		
563 > 169	52	4.226	4.226		7554	25	58:1	8.36 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.226	0	1003967	17	>100:1			5000.00	5848.02	94.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.226	4.235	0/0	16968	29	78:1	Target = 1.95	10.84	100.00	79.178		
584 > 526	60	4.235	4.235		9975	37	37:1	1.70 (0.97-2.92)	5.52				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.298	0	142607	14	>100:1			1000.00	1121.47	93.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.306	0/0	15672	20	51:1			100.00	111.42		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	0	64837	13	>100:1			1000.00	1115.54	89.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.315	4.315	0/0	7209	18	70:1	Target = 1.08		100.00	104.43		
512 > 219	57	4.315	4.315		6508	24	56:1	1.10 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.463	0	130133	18	>100:1			1000.00	1107.92	88.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.471	4.471	0/0	12557	15	38:1			100.00	113.23		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.471	4.485	0	56662	17	>100:1			1000.00	1031.55	86.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.478	4.485	0/0	7796	24	74:1	Target = 1.10		100.00	120.25		
526 > 219	59	4.485	4.485		5170	16	46:1	1.50 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.485	4.492	0	707078	18	>100:1			1000.00	1177.23	99.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.485	4.492	0/0	69995	20	68:1	Target = 5.93		100.00	96.651		
613 > 169	38	4.485	4.492		11307	17	>100:1	6.19 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.721	4.728	0/0	35146	17	>100:1	Target = 2.90		100.00	91.881		
663 > 169	38	4.714	4.728		12965	17	>100:1	2.71 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.929	4.935	0	856712	22	>100:1			1000.00	1069.30	92.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.929	4.940	0/0	70725	18	>100:1	Target = 6.34		100.00	97.508		
713 > 169	42	4.929	4.940		10729	24	>100:1	6.59 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.306	5.313	0	357644	20	>100:1			1000.00	1086.89	96	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.313	5.319	1/1	75298	20	>100:1	Target = 12.53		100.00	103.91		
813 > 269	40	5.306	5.319		5774	17	>100:1	13.04 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.662	5.670	0/0	52735	20	>100:1	Target = 152.15		100.00	99.345		
913 > 319	40	5.678	5.670		435	23		121.22 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.918	0	726409	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	826350	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.208	0	769581	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	842879	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.565	3.572	0	249175	19	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 19-Oct-2021 08:48:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421012.d		
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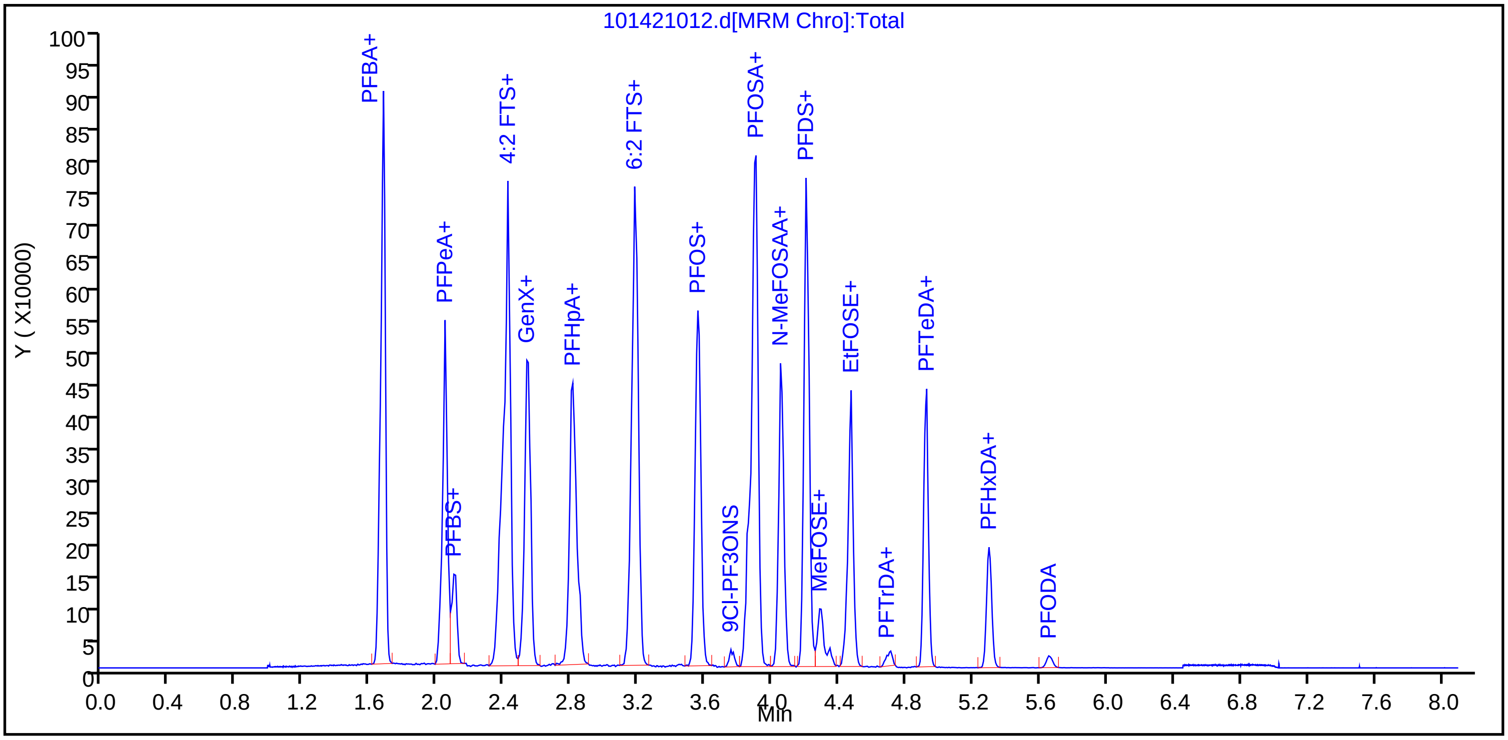
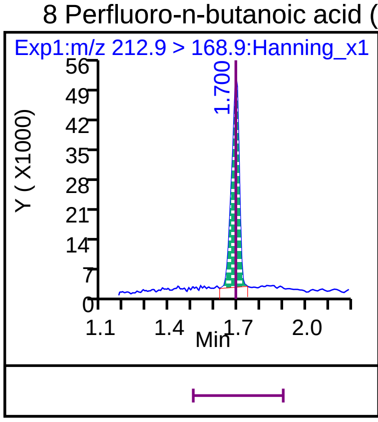
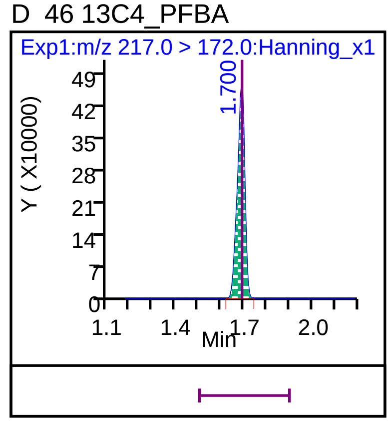
Client ID:		Lab ID:	ICAL 100_SVLC-1656
Sample Info:	ICAL 100_SVLC-1656		
Dil. Factor:	1	Operator:	Matthew M. Miller



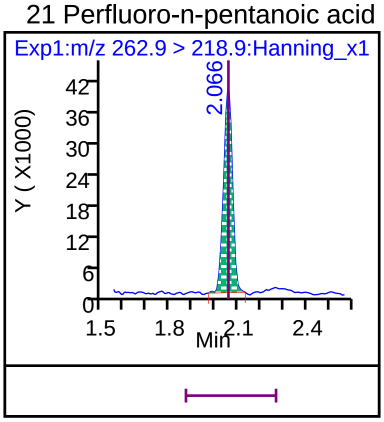
8 Perfluoro-n-butanoic acid (PFBA)



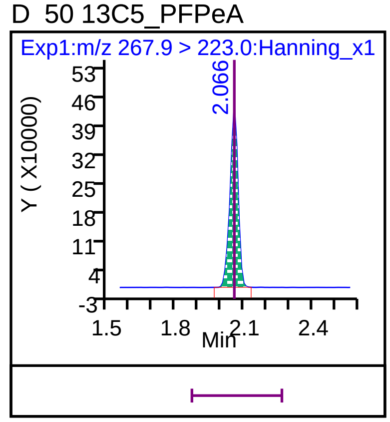
D 46 13C4_PFBA



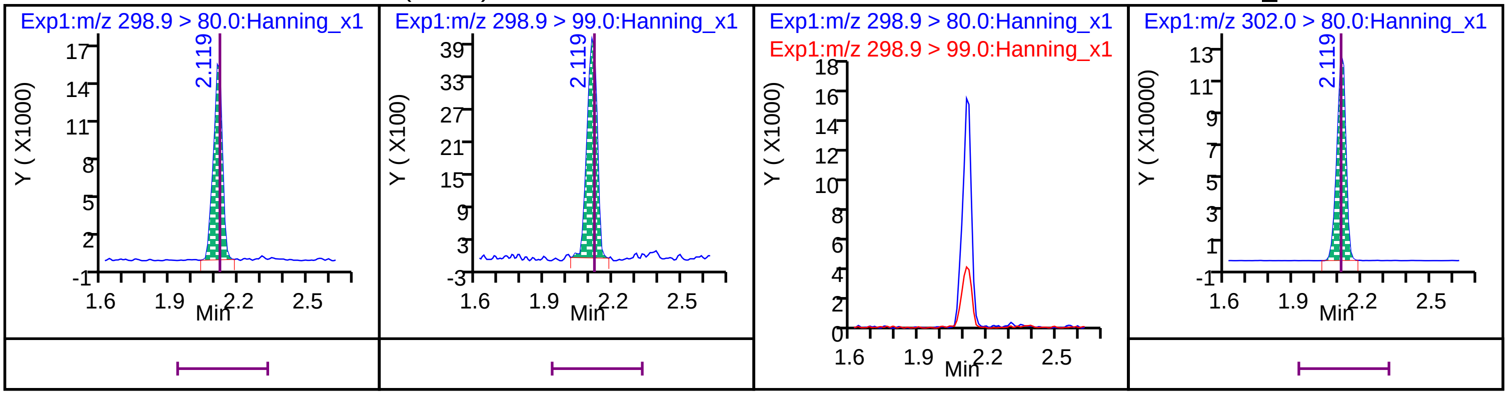
21 Perfluoro-n-pentanoic acid (PFPeA)



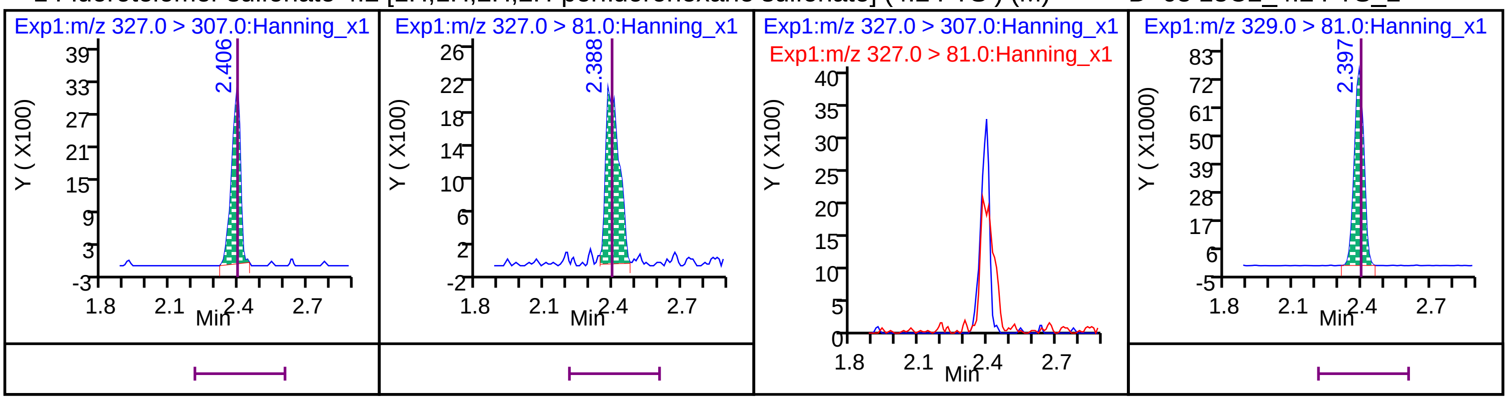
D 50 13C5_PFPeA



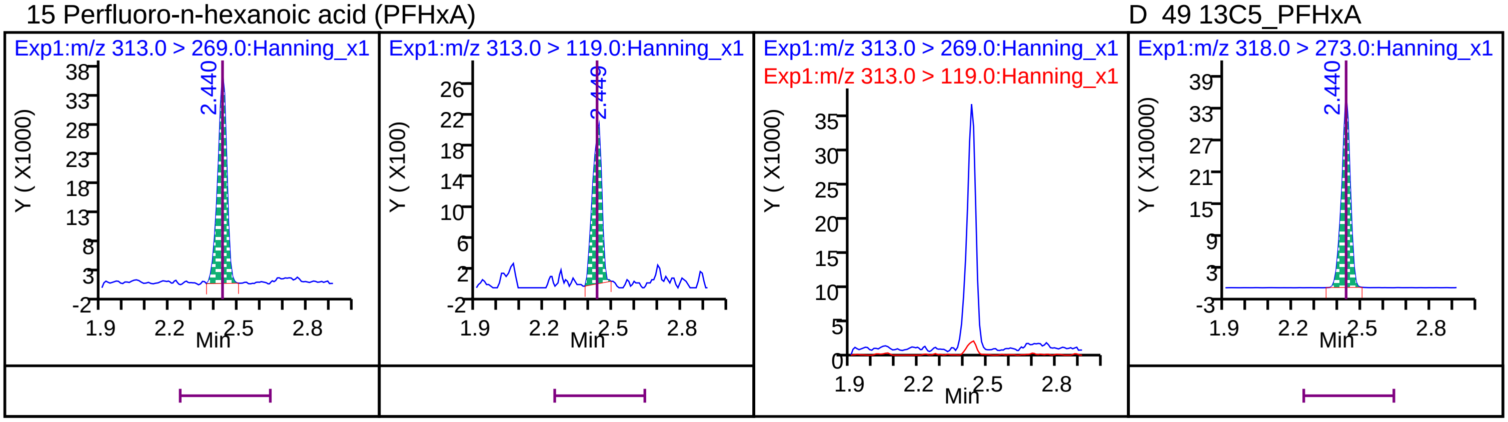
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



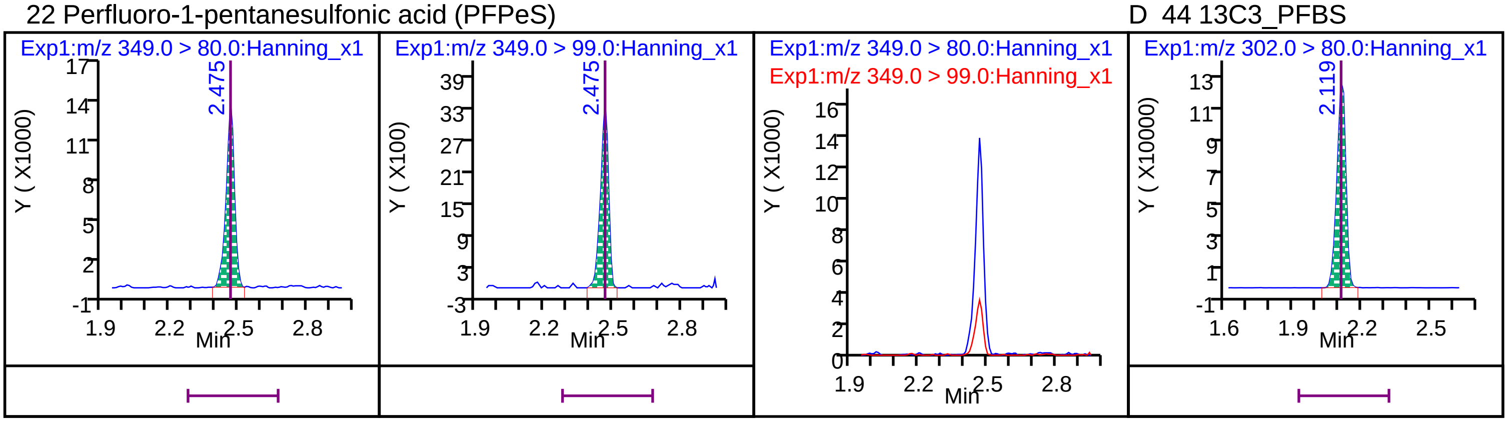
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



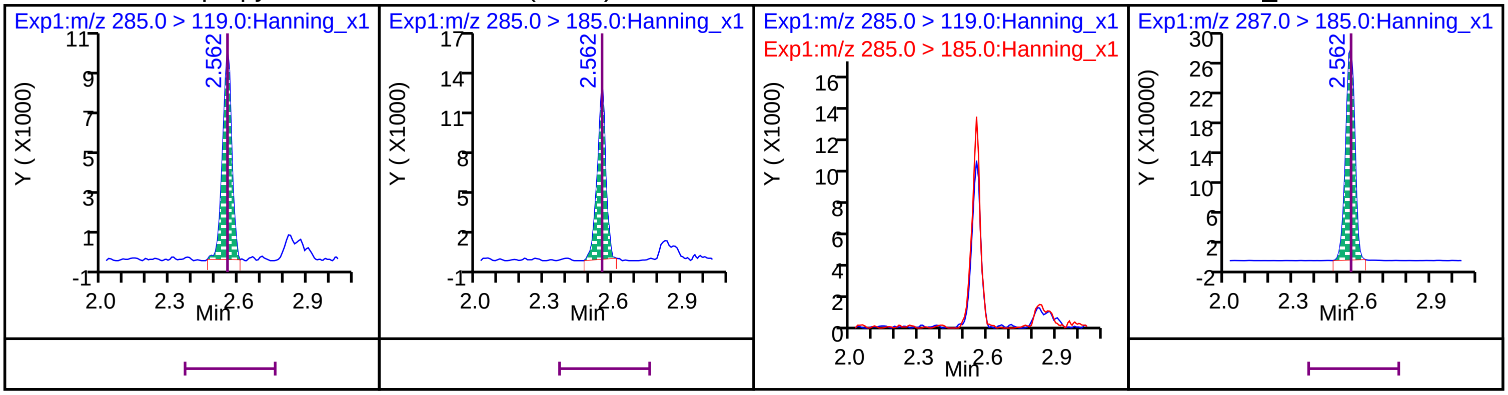
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



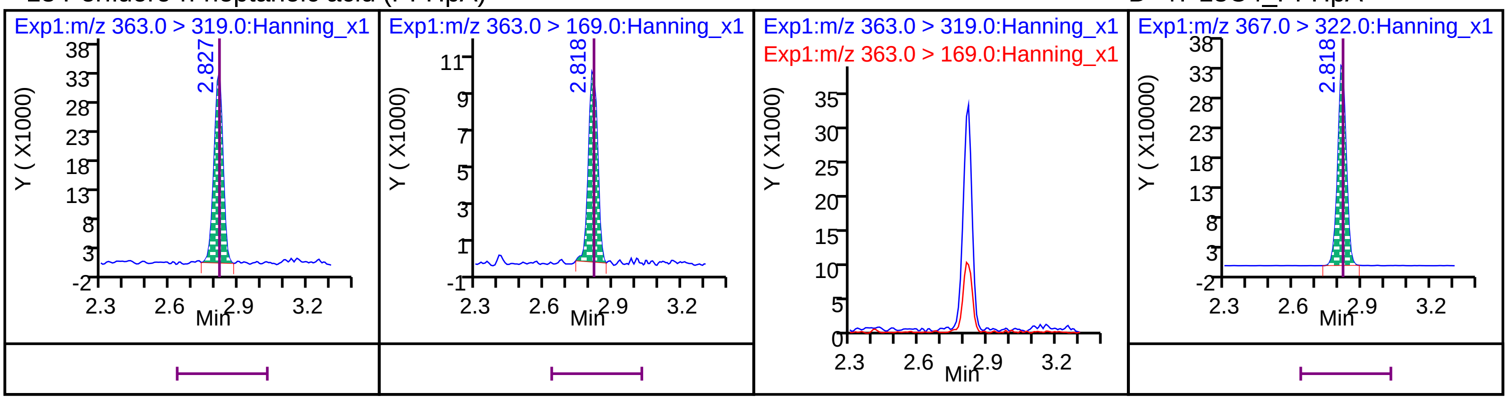
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



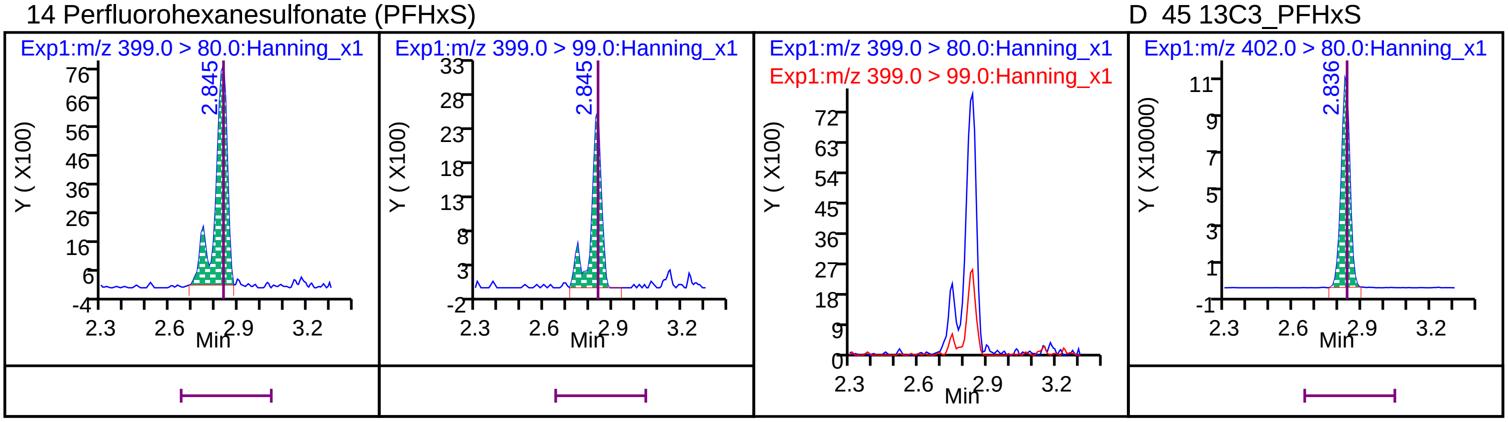
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



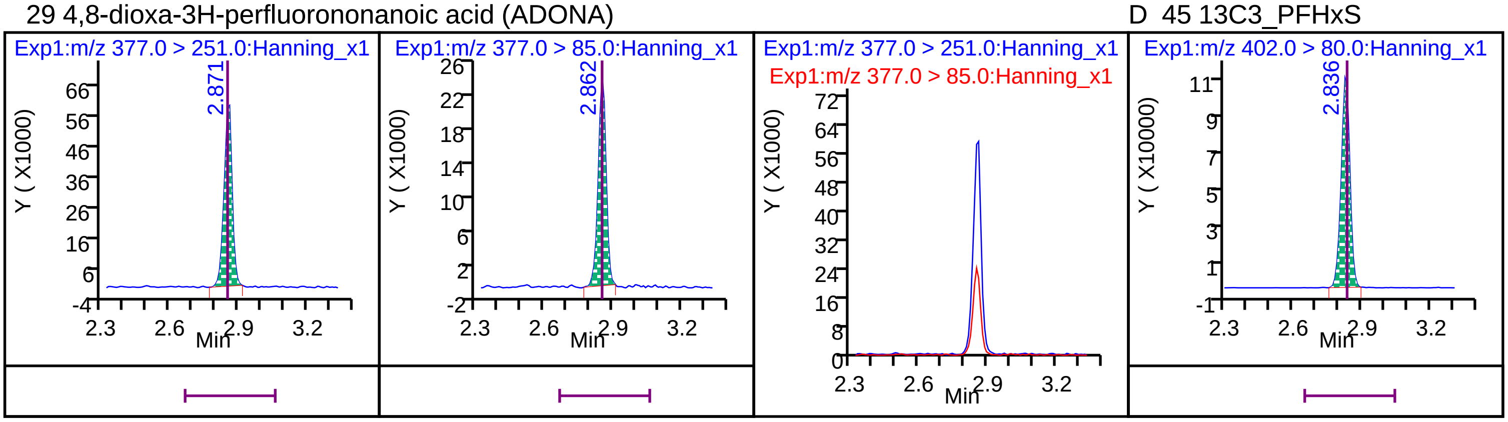
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

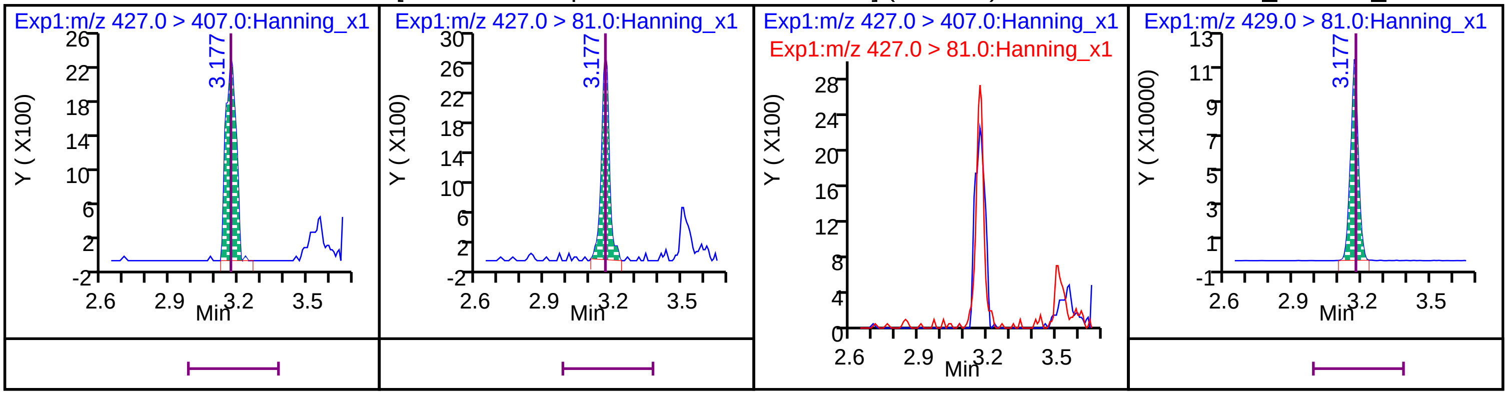


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

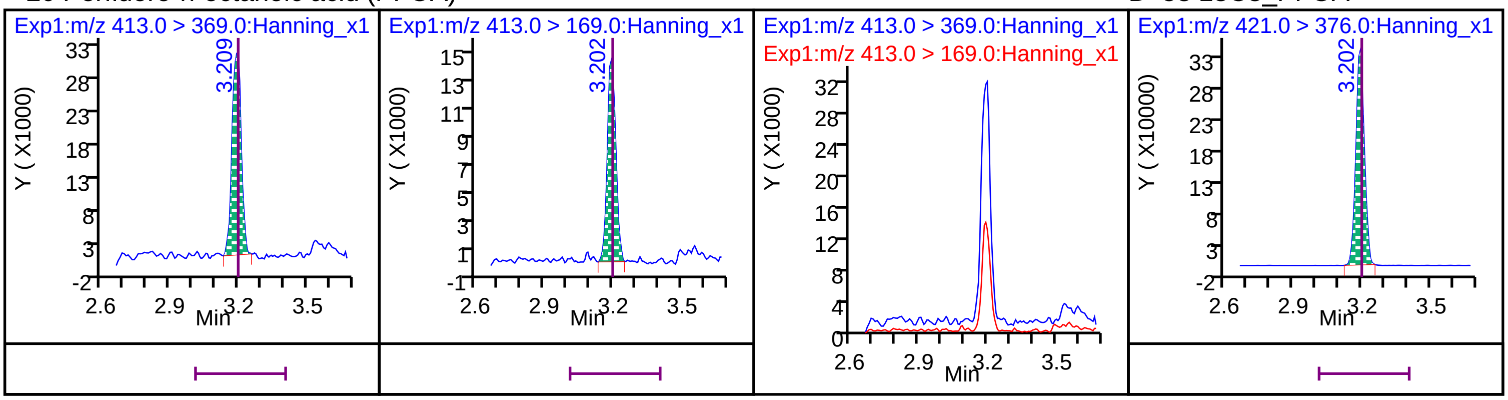


Report Date: 19-Oct-2021 08:48:50 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421012.d

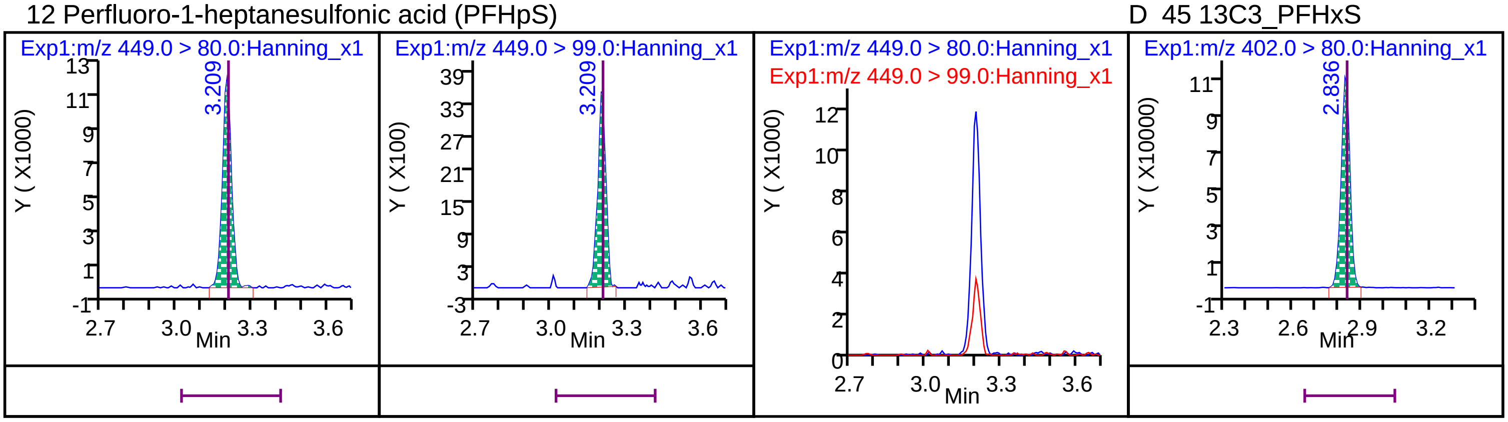
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



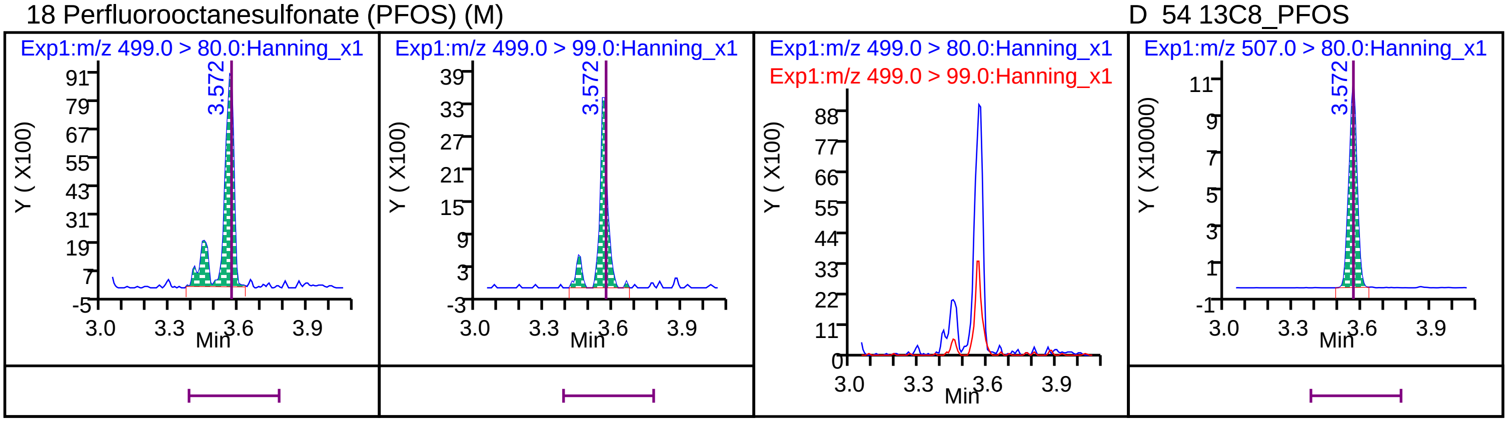
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



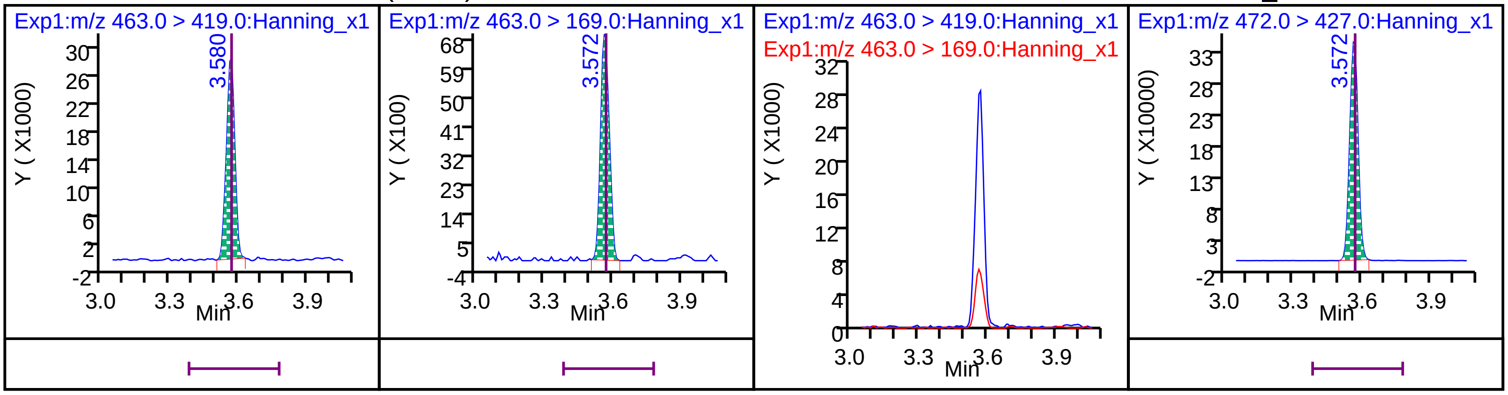
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



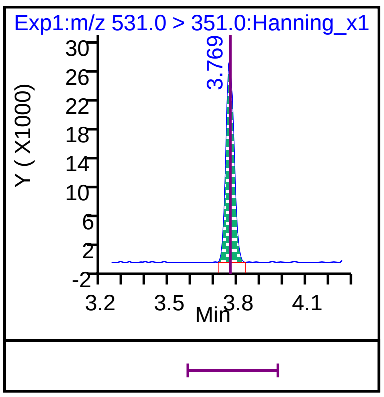
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



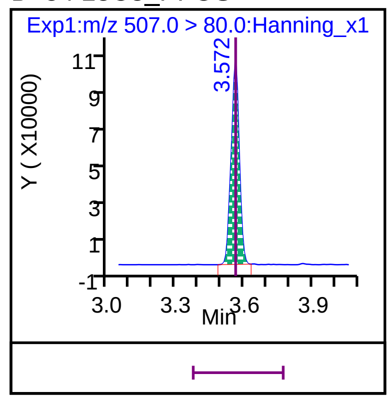
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



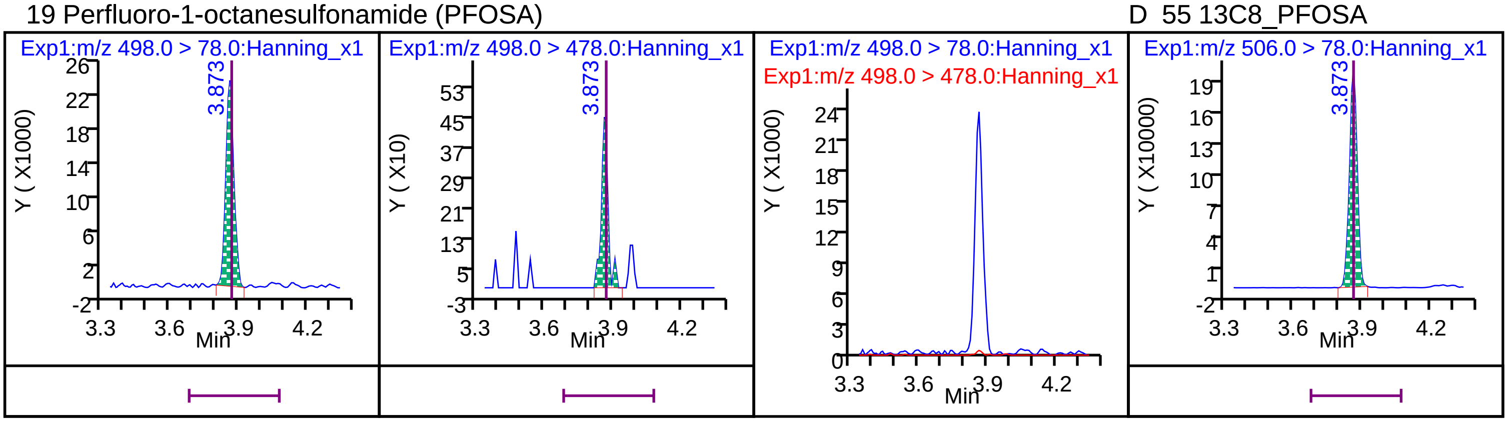
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



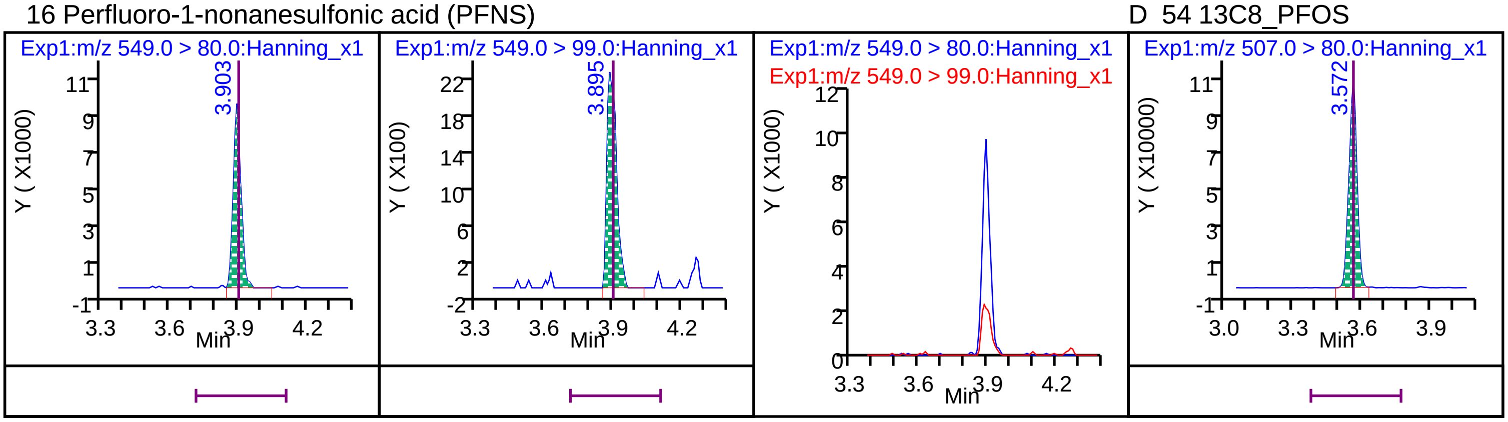
D 54 13C8_PFOS



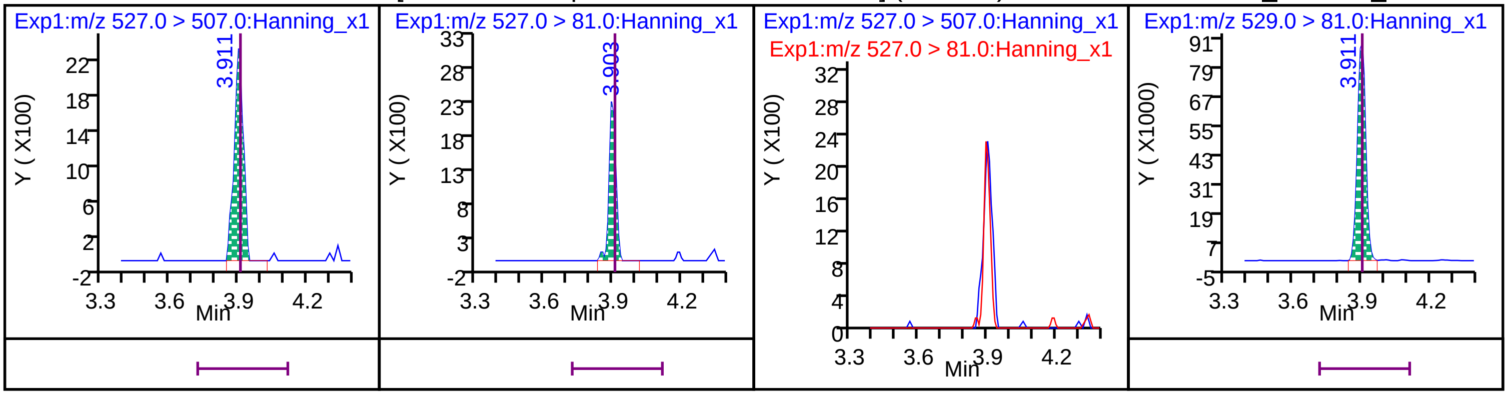
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



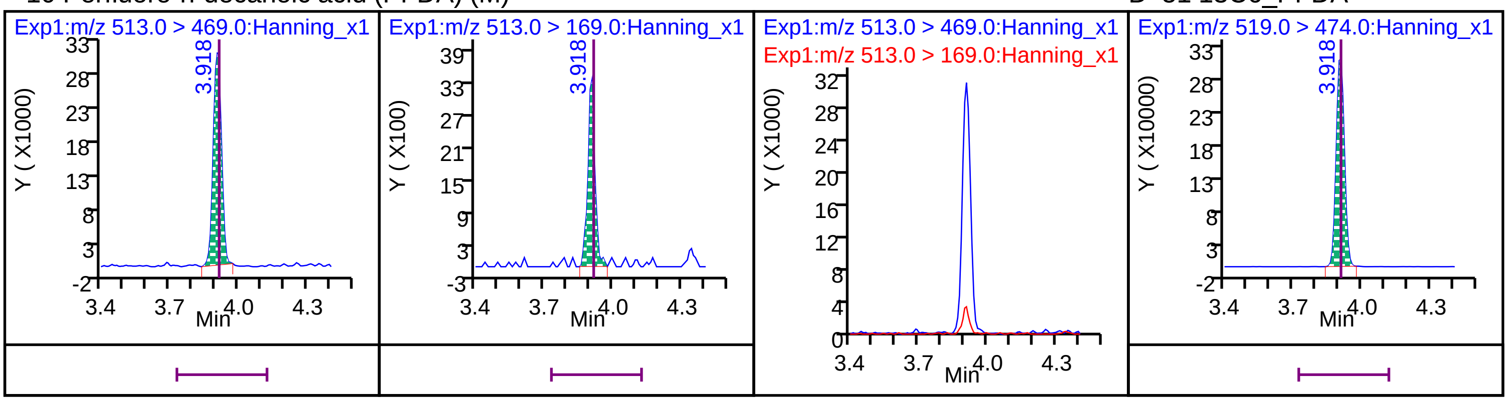
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



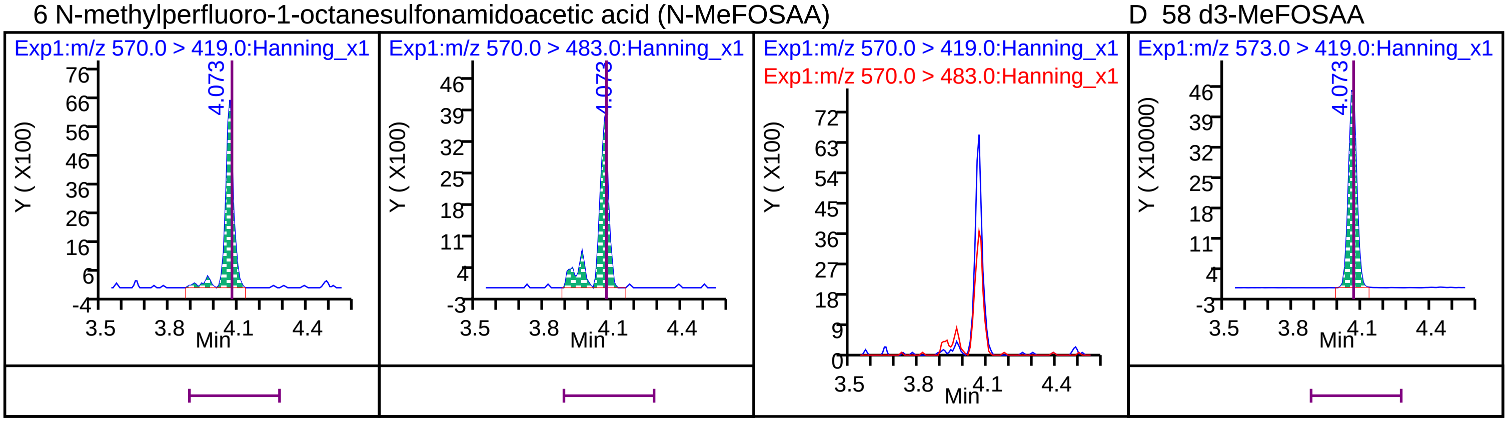
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



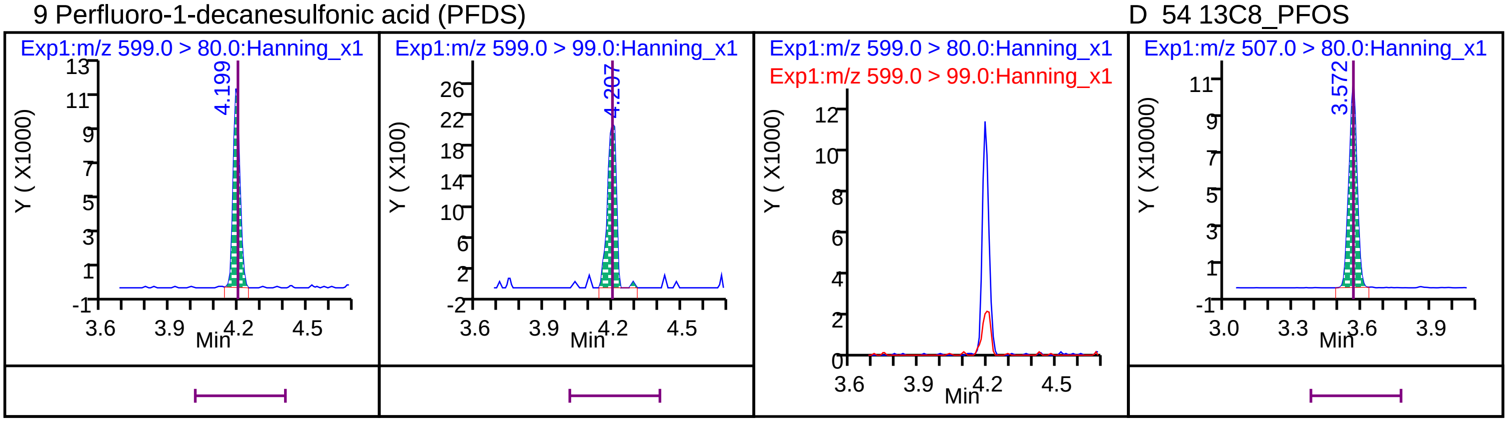
10 Perfluoro-n-decanoic acid (PFDA) (M) D 51 13C6_PFDA



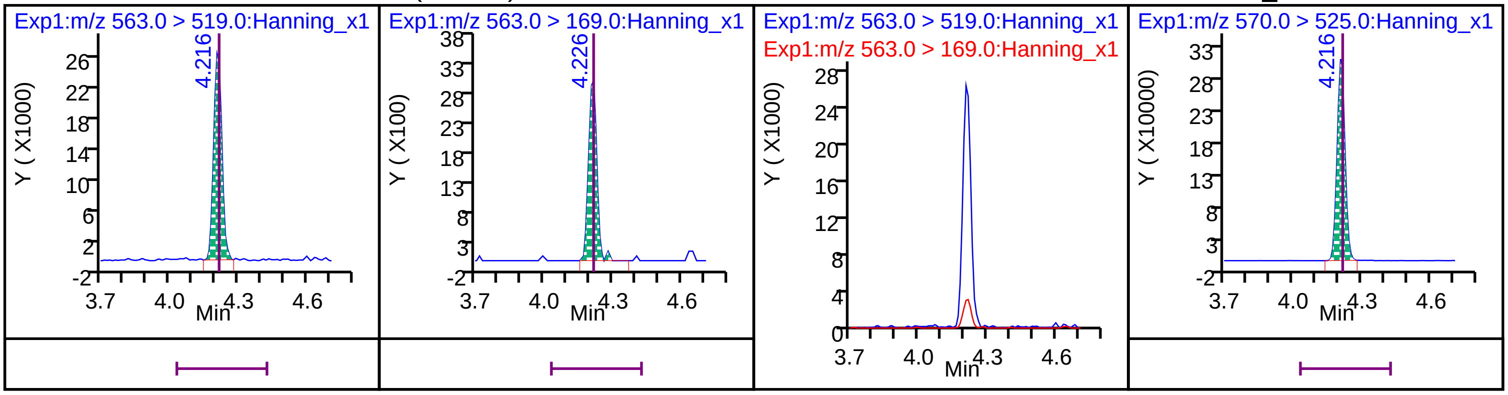
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



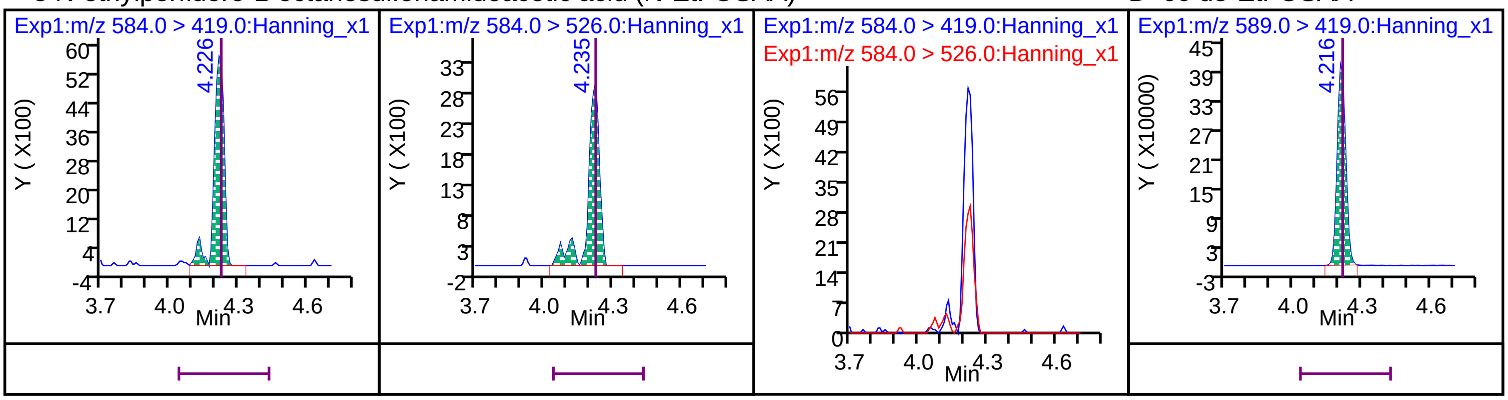
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



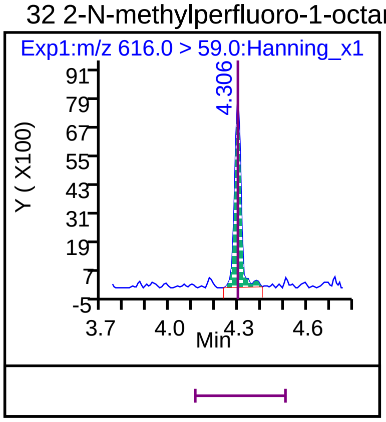
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

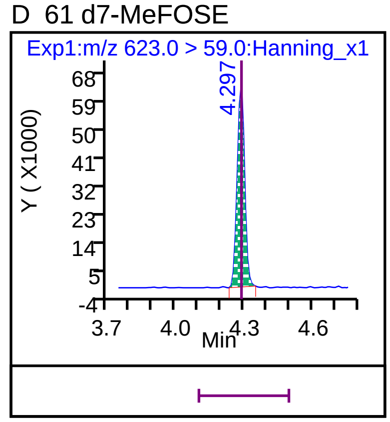


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

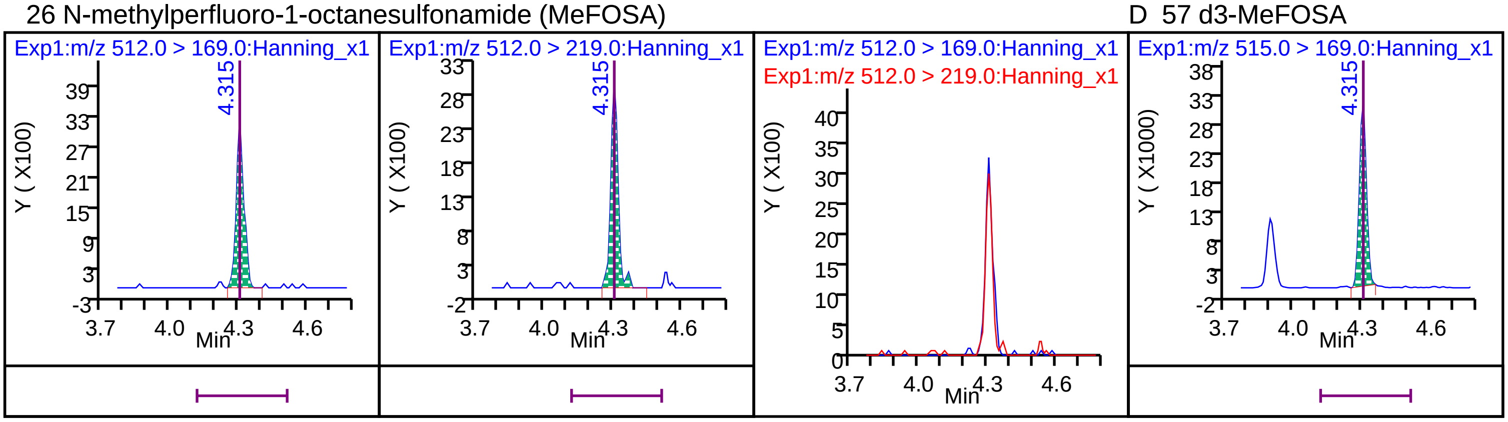


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

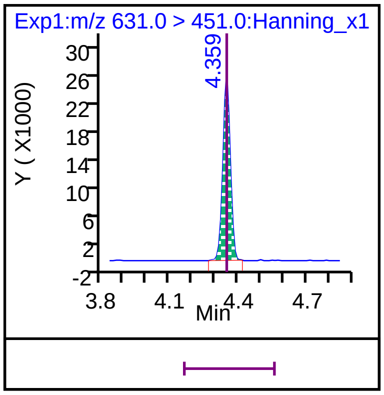




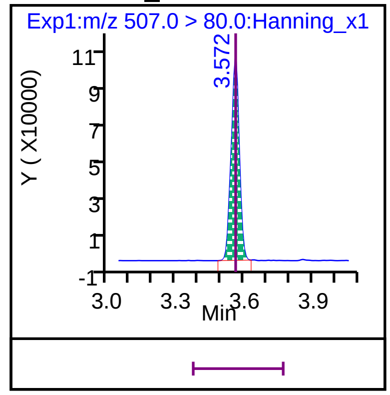
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



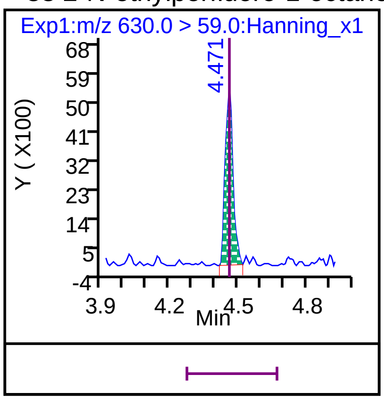
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



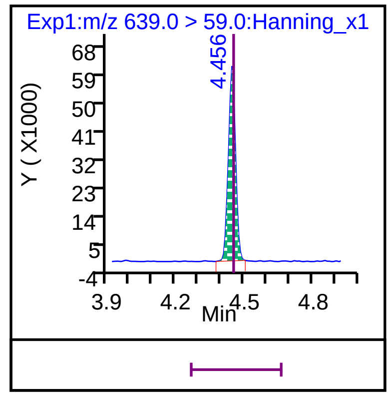
D 54 13C8_PFOS



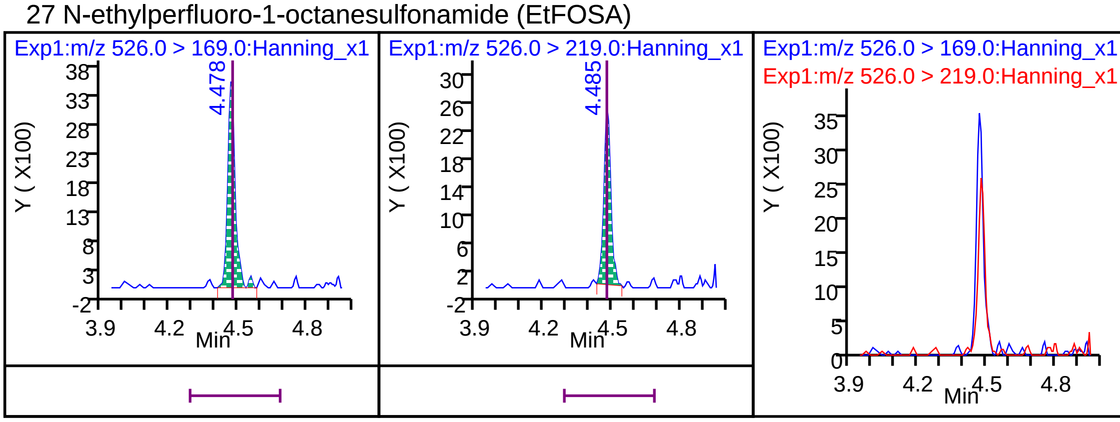
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



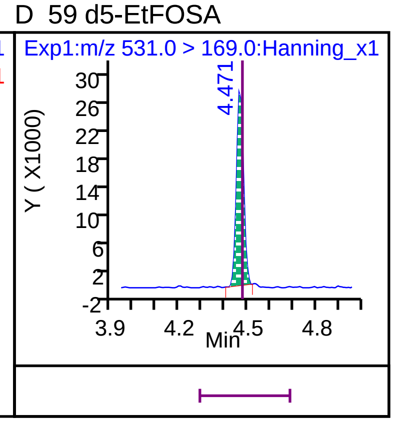
D 62 d9-EtFOSE



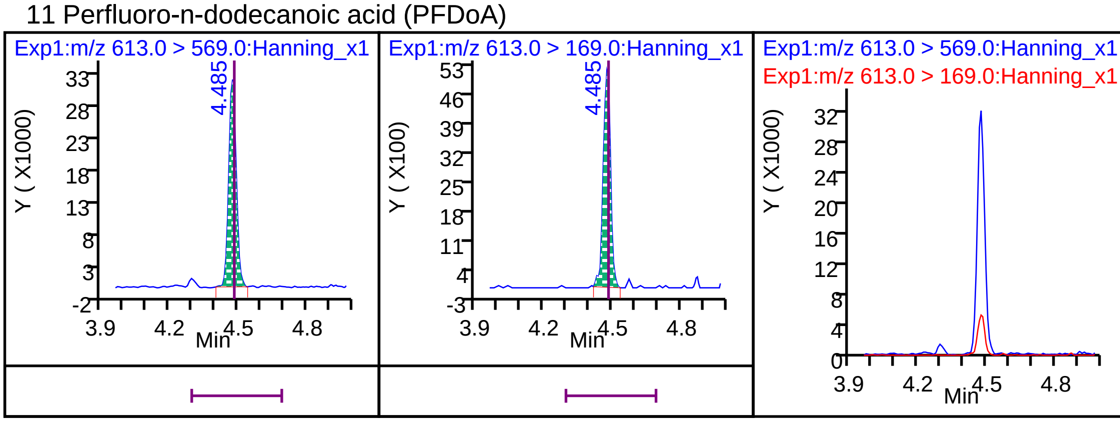
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



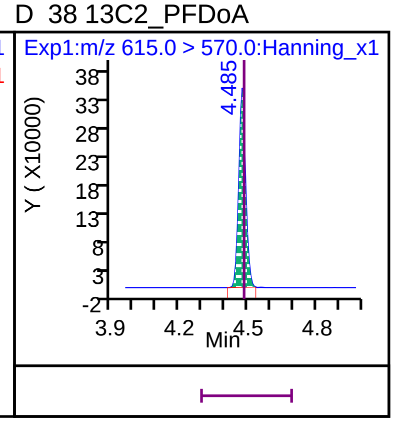
D 59 d5-EtFOSA



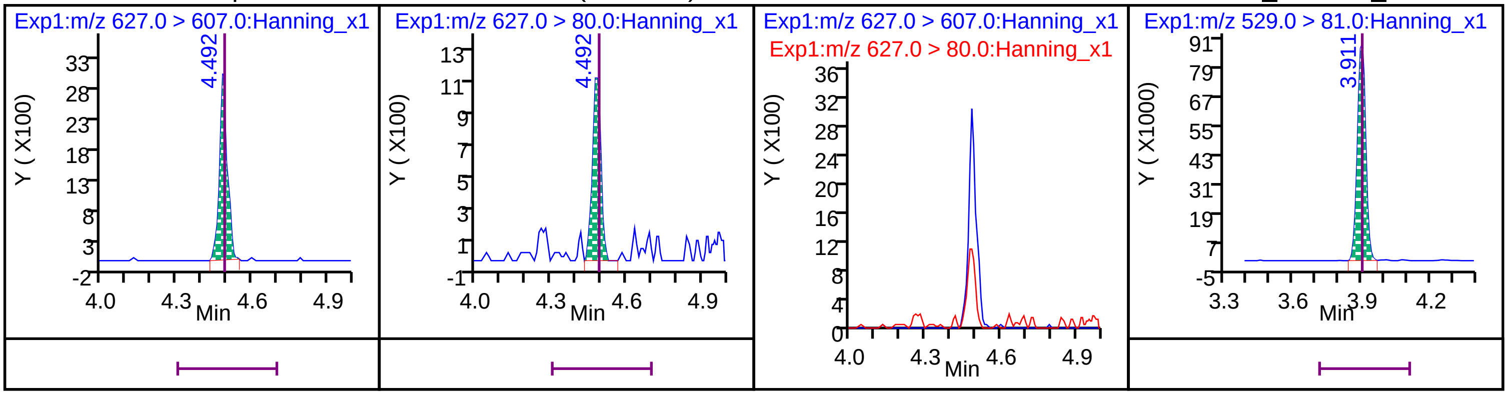
11 Perfluoro-n-dodecanoic acid (PFDoA)



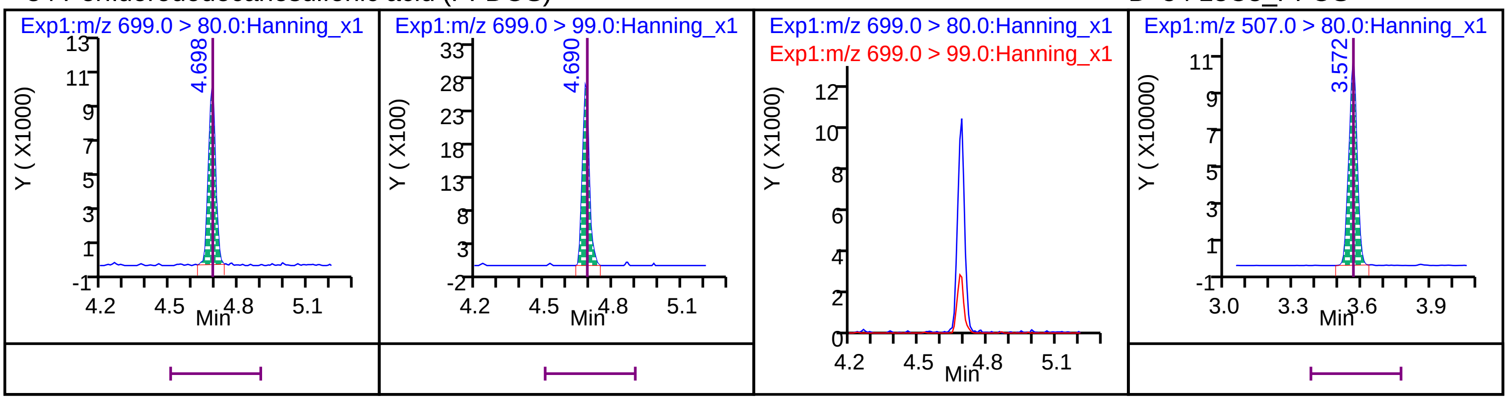
D 38 13C2_PFDoA



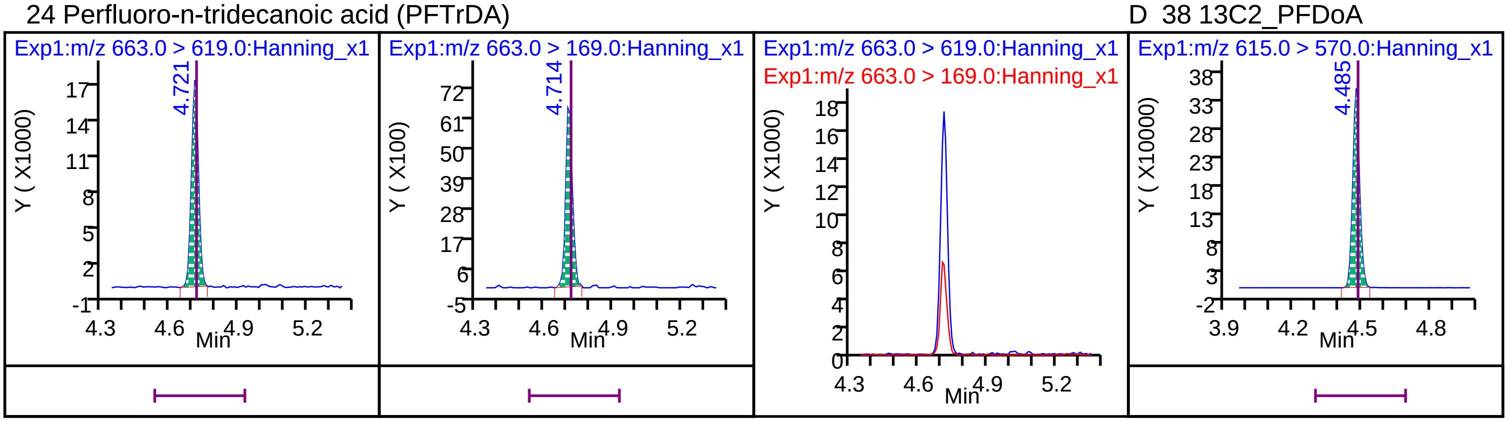
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



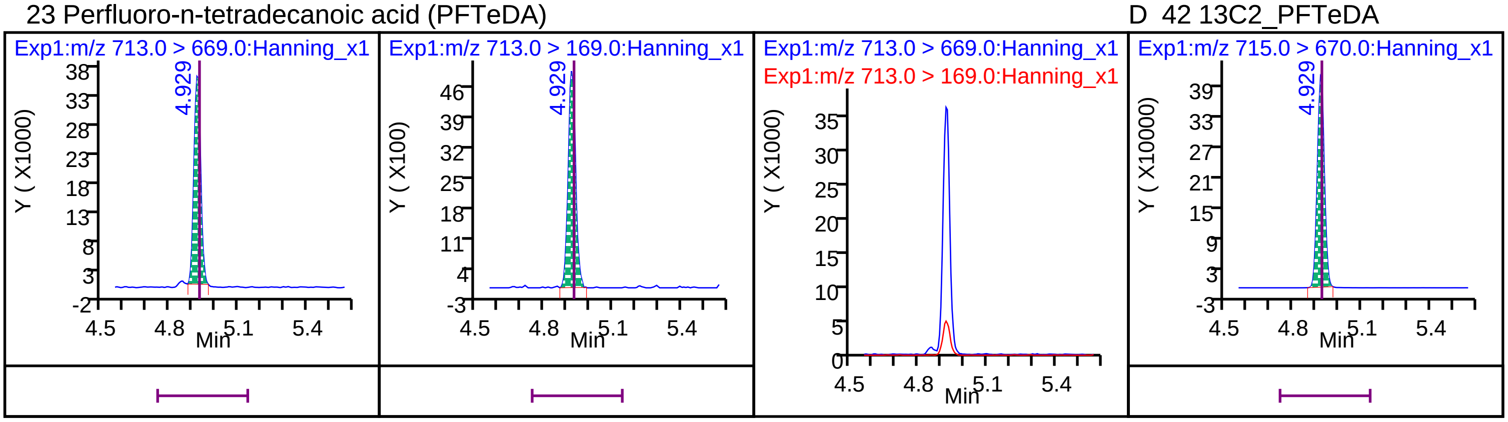
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



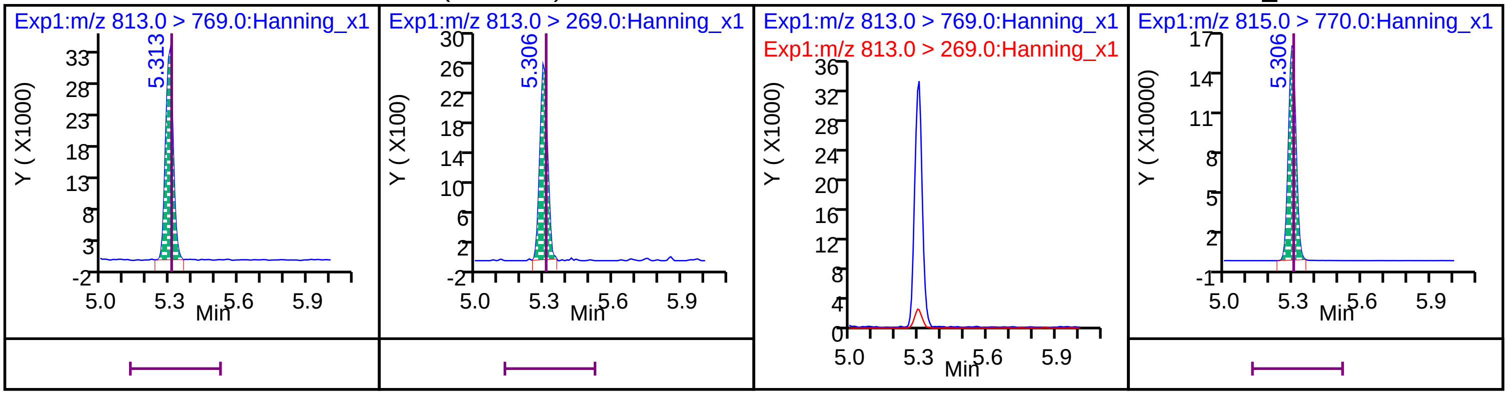
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



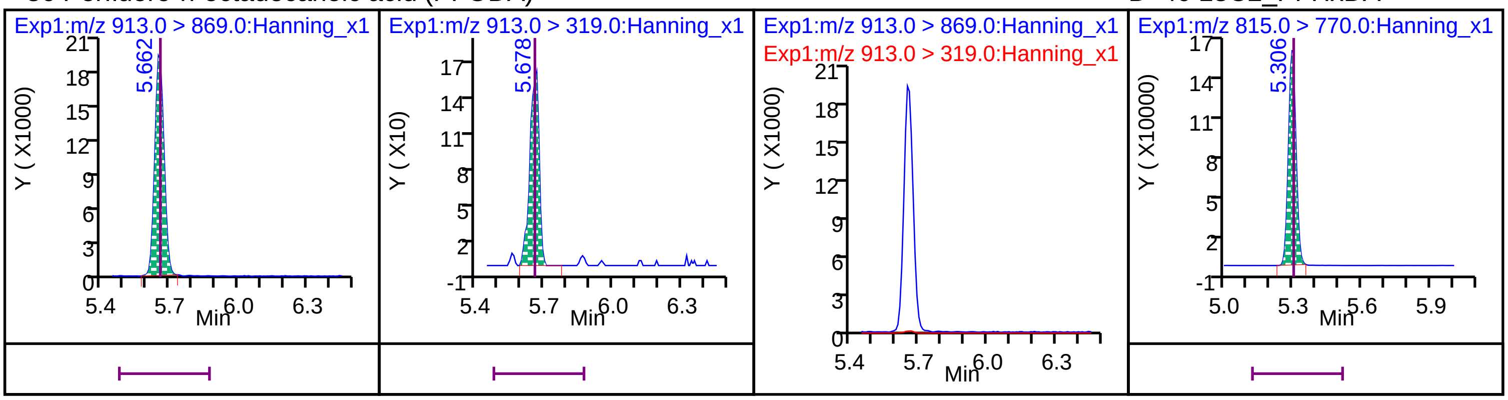
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



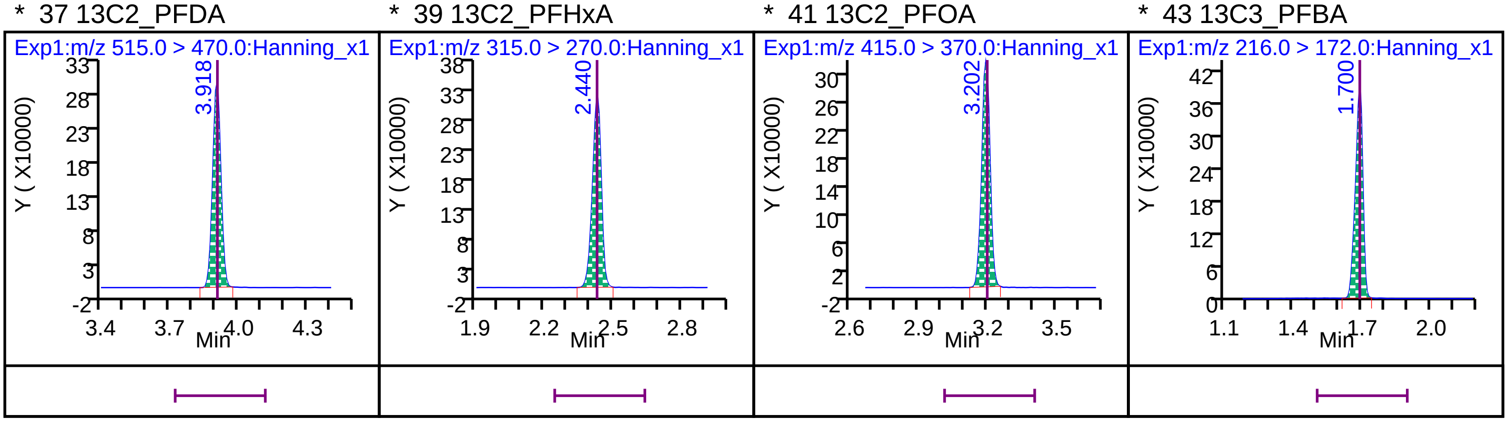
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



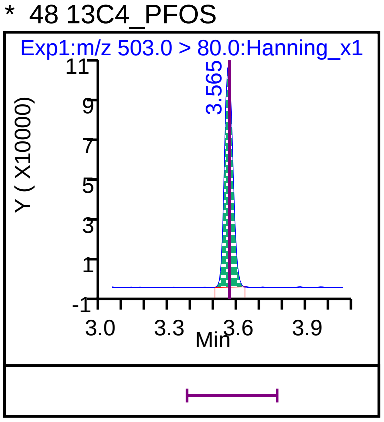
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

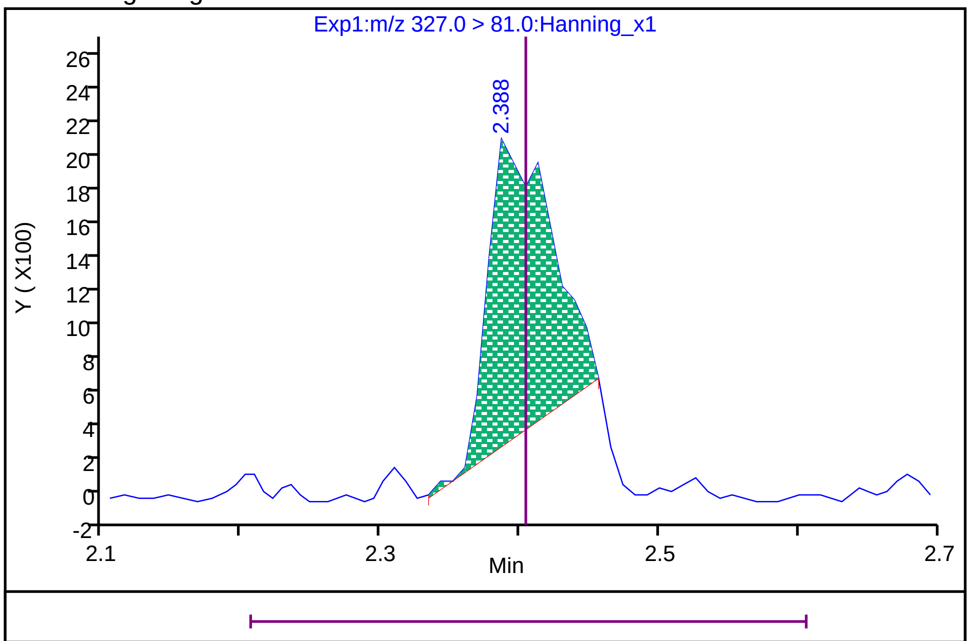
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421012.d		
Injection Date:	14-Oct-2021 11:17:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1656
Sample Info:	ICAL 100_SVLC-1656		
Dil. Factor:	1	Operator:	Matthew M. Miller

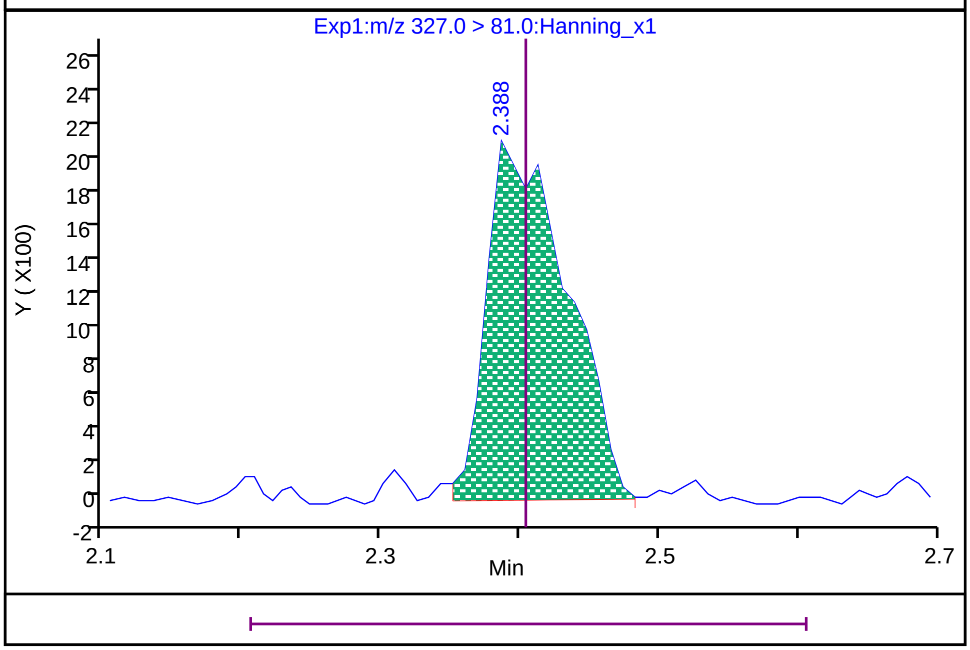
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.388
Area: 5364
Amount: 100.32
Amount Units: ng/L



RT: 2.388
Area: 8091
Amount: 100.32
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:15:25
Audit Action: Mint
Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421012.d

Injection Date: 14-Oct-2021 11:17:57 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ICAL 100_SVLC-1656

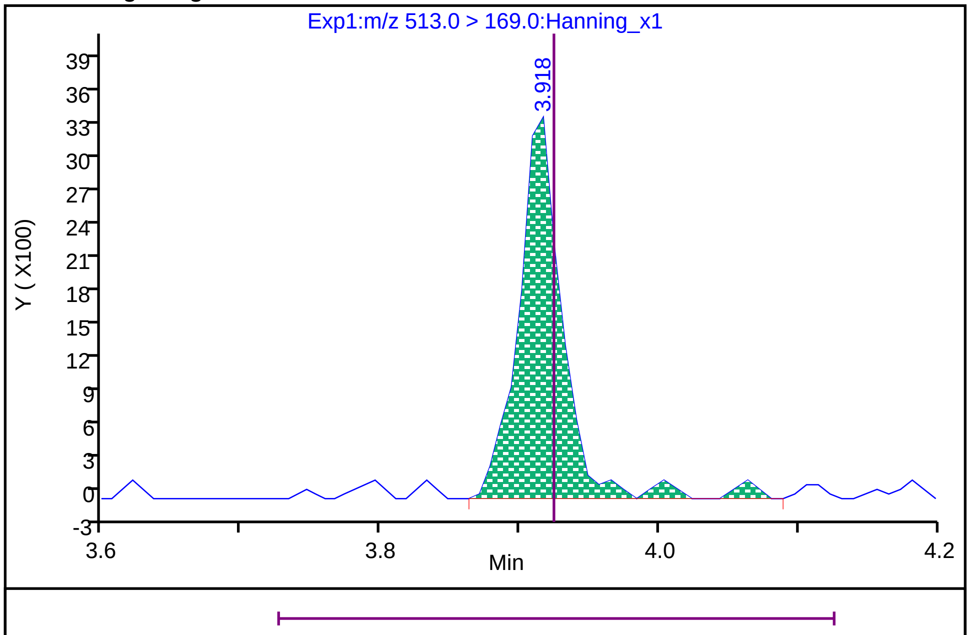
Sample Info: ICAL 100_SVLC-1656

Dil. Factor: 1 Operator: Matthew M. Miller

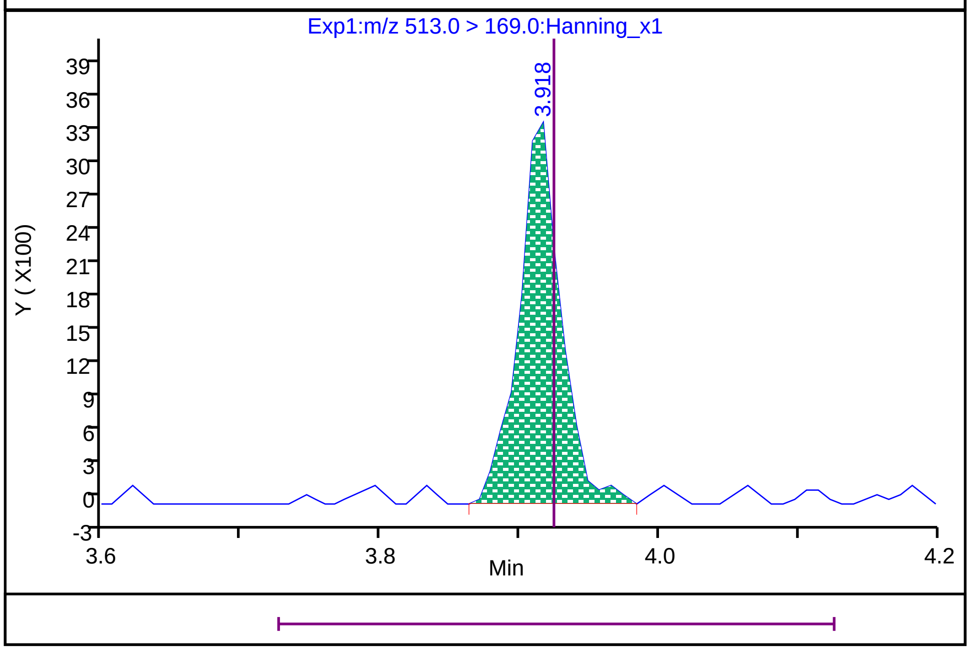
10 PFDA, CAS: 335-76-2

Processing Integration Results

RT: 3.918
Area: 7289
Amount: 97.802
Amount Units: ng/L



RT: 3.918
Area: 6893
Amount: 97.802
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:15:43

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421012.d

Injection Date: 14-Oct-2021 11:17:57 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ICAL 100_SVLC-1656

Sample Info: ICAL 100_SVLC-1656

Dil. Factor: 1 Operator: Matthew M. Miller

18 PFOS, CAS: 1763-23-1

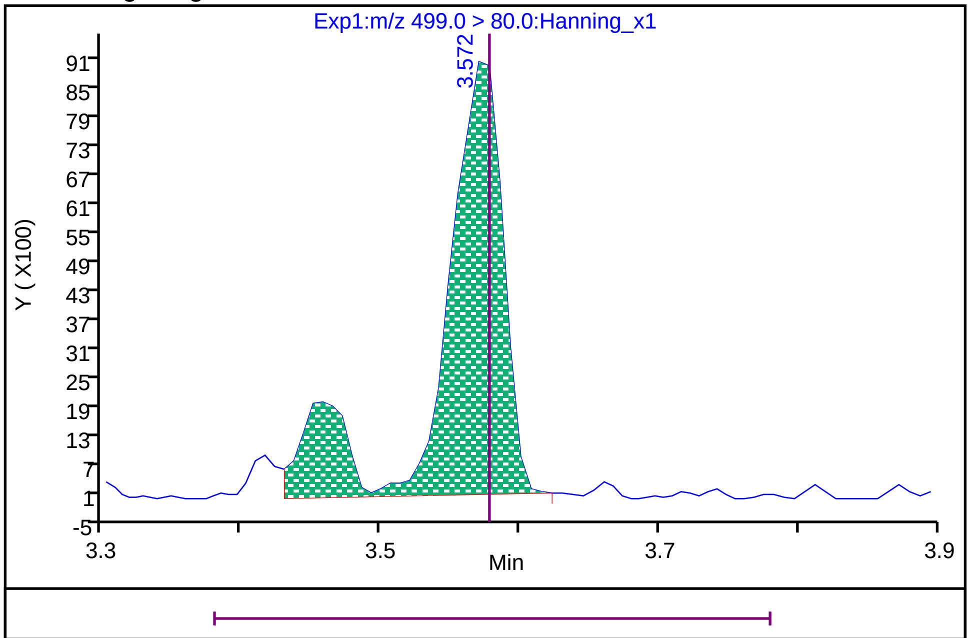
Processing Integration Results

RT: 3.572

Area: 26983

Amount: 92.580

Amount Units: ng/L

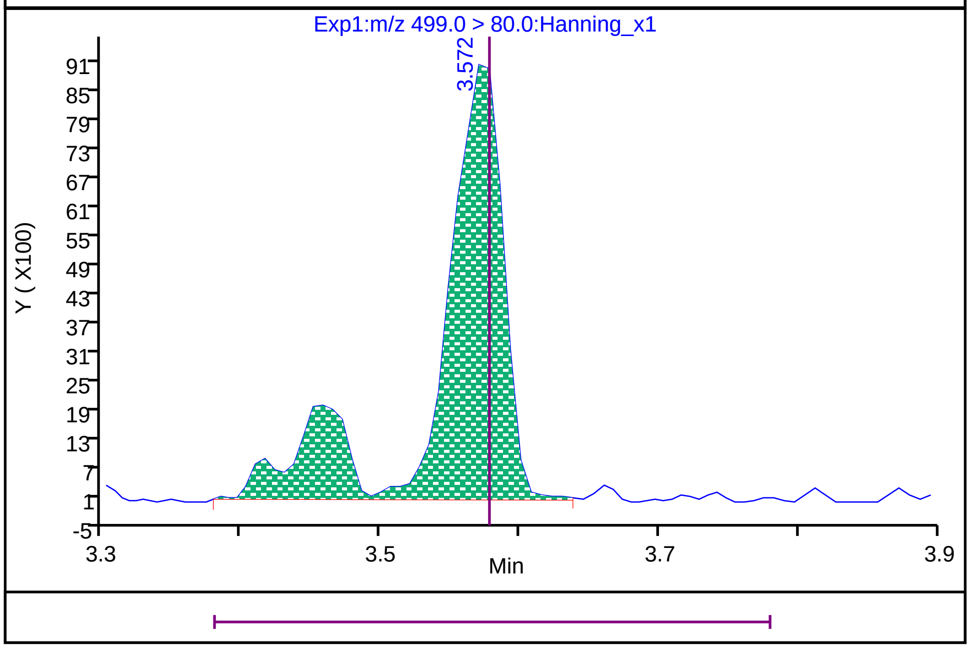


RT: 3.572

Area: 28343

Amount: 96.130

Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:15:34

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d		
Injection Date:	14-Oct-2021 11:28:30	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	3
Sample Info:	ICAL 200_SVLC-1641	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	971176	21	>100:1			1000.00	1082.57	91.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	0/0	223534	20	>100:1			200.00	213.00		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	932912	16	>100:1			1000.00	1037.84	87.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	221110	14	>100:1			200.00	219.58		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.118	2.119	0	315533	15	>100:1			1000.00	1057.09	90.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.118	2.129	0/0	83270	15	>100:1	Target = 3.78		176.80	189.82		
298.9 > 99	44	2.118	2.129		19438	14	>100:1	4.28 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/0	66195	18	>100:1	Target = 3.45		187.60	203.34		
349 > 99	44	2.475	2.475		19344	18	>100:1	3.42 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.406	0	225657	19	>100:1			5000.00	5049.55	84.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.397	2.406	0/0	17856	22	>100:1	Target = 1.43		186.80	206.50		
327 > 81	63	2.406	2.406		14925	26	56:1	1.19 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	839496	19	>100:1			1000.00	1025.31	84.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	191577	18	>100:1	Target = 16.37		200.00	222.17		
313 > 119	49	2.440	2.440		11980	17	42:1	15.99 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	793521	18	>100:1			5000.00	5484.38	91.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/0	51337	20	>100:1	Target = 0.74		400.00	421.18		
285 > 185	66	2.562	2.562		66534	24	>100:1	0.77 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.827	0	879234	19	>100:1			1000.00	1097.27	90.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/0	182499	17	>100:1	Target = 3.21		200.00	209.18		
363 > 169	47	2.818	2.827		56980	15	>100:1	3.20 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.845	2.845	0	279922	17	>100:1			1000.00	1138.10	94.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	0/0	61676	26	>100:1	Target = 3.47	5.28	182.00	182.74		
399 > 99	45	2.836	2.845		18781	24	>100:1	3.28 (1.73-5.21)	7.40				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.862	2.862	0/0	275025	20	>100:1	Target = 2.28		188.40	180.73		
377 > 85	45	2.862	2.862		125198	18	>100:1	2.19 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.215	3.215	0/0	60234	23	>100:1	Target = 3.62		190.40	198.17		
449 > 99	45	3.215	3.215		15354	20	>100:1	3.92 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.183	3.183	0	249565	22	>100:1			5000.00	5711.26	91.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.170	3.177	0/0	15680	21	>100:1	Target = 1.19		189.60	199.18		M
427 > 81	64	3.183	3.177		13921	20	92:1	1.12 (0.59-1.79)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.208	0	811239	22	>100:1			1000.00	1072.12	92.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.202	3.208	0/0	171989	22	>100:1	Target = 2.34		200.00	210.57		
413 > 169	53	3.202	3.208		72560	21	>100:1	2.37 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	0	250944	20	>100:1			1000.00	1107.58	94.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.580	0/0	55948	43	>100:1	Target = 4.00	3.64	185.60	184.69		
499 > 99	54	3.580	3.580		12414	32	>100:1	4.50 (2.00-6.01)	8.68				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.776	3.776	0/0	161022	19	>100:1			186.40	210.27		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.903	3.911	0/0	56014	22	>100:1	Target = 3.83		192.00	220.75		
549 > 99	54	3.903	3.911		13148	16	62:1	4.26 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.207	4.207	0/0	44650	15	>100:1	Target = 3.87		192.80	184.93		
599 > 99	54	4.199	4.207		14205	20	>100:1	3.14 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	123320	18	>100:1			188.40	188.17		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	43582	18	>100:1	Target = 3.65		193.60	190.05		
699 > 99	54	4.698	4.698		10704	21	>100:1	4.07 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.580	3.580	0	798011	21	>100:1			1000.00	1029.09	86.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	0/0	153938	21	>100:1	Target = 4.21		200.00	221.01		
463 > 169	56	3.580	3.580		36375	20	>100:1	4.23 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	437741	19	>100:1			1000.00	1045.19	91.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/0	112529	18	>100:1	Target = 49.05		200.00	226.73		
498>478	55	3.873	3.880		2364	22	15:1	47.60 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.918	3.911	1	197885	18	>100:1			5000.00	5233.15	86.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/-1	12626	16	>100:1	Target = 1.27		191.60	216.06		
527 > 81	65	3.911	3.918		10520	18	48:1	1.20 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.499	4.500	0/-1	12796	15	>100:1	Target = 2.25		192.80	214.43		
627 > 80	65	4.499	4.500		5865	20	36:1	2.18 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.918	0	737355	18	>100:1			1000.00	1085.69	91.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.918	3.926	0/0	157275	17	>100:1	Target = 8.94		200.00	211.10		
513 > 169	51	3.911	3.926		19545	25	94:1	8.04 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	0	1085870	17	>100:1			5000.00	5299.55	89.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.081	4.081	0/0	40593	23	60:1	Target = 1.38	8.88	200.00	244.69		
570 > 483	58	4.073	4.081		25807	33	93:1	1.57 (0.69-2.08)	2.82				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.225	4.226	0	688235	16	>100:1			1000.00	1088.74	95	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.225	4.226	0/0	136420	17	>100:1	Target = 8.27		200.00	223.50		
563 > 169	52	4.225	4.226		13719	14	>100:1	9.94 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.225	4.226	0	942390	17	>100:1			5000.00	5489.34	89	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.225	4.235	0/0	45103	32	>100:1	Target = 1.95	6.71	200.00	224.22		M
584 > 526	60	4.235	4.235		21801	30	>100:1	2.06 (0.97-2.92)	4.00				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.298	0	129186	16	>100:1			1000.00	1015.92	84.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.306	0/0	26717	14	>100:1			200.00	209.68		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	0	57996	14	>100:1			1000.00	997.84	79.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.315	4.315	0/0	13924	14	60:1	Target = 1.08		200.00	225.49		
512 > 219	57	4.324	4.315		10661	12	97:1	1.30 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.463	0	120423	22	>100:1			1000.00	1025.25	82.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.470	4.471	0/0	21920	15	>100:1			200.00	213.60		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.485	0	59220	15	>100:1			1000.00	1078.12	90	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.485	0/0	13504	25	>100:1	Target = 1.10		200.00	199.30		
526 > 219	59	4.485	4.485		12663	17	>100:1	1.06 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.485	4.492	0	631849	19	>100:1			1000.00	1051.98	89.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.485	4.492	0/0	136668	19	>100:1	Target = 5.93		200.00	211.18		
613 > 169	38	4.492	4.492		23387	16	>100:1	5.84 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.721	4.728	0/0	69821	19	>100:1	Target = 2.90		200.00	204.26		
663 > 169	38	4.721	4.728		27295	20	>100:1	2.55 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.935	4.935	0	848465	21	>100:1			1000.00	1059.00	91.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.935	4.940	0/0	149261	19	>100:1	Target = 6.34		200.00	207.79		
713 > 169	42	4.935	4.940		23992	21	>100:1	6.22 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.313	5.313	1	350723	20	>100:1			1000.00	1065.86	94.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.313	5.319	1/0	153555	20	>100:1	Target = 12.53		200.00	216.09		
813 > 269	40	5.313	5.319		11731	19	>100:1	13.08 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.670	5.670	1/0	107910	20	>100:1	Target = 152.15		200.00	207.30		
913 > 319	40	5.662	5.670		734	16		147.01 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.918	0	761730	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	863393	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.208	0	808121	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	914914	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.580	3.572	1	231548	20	>100:1			1000.00			

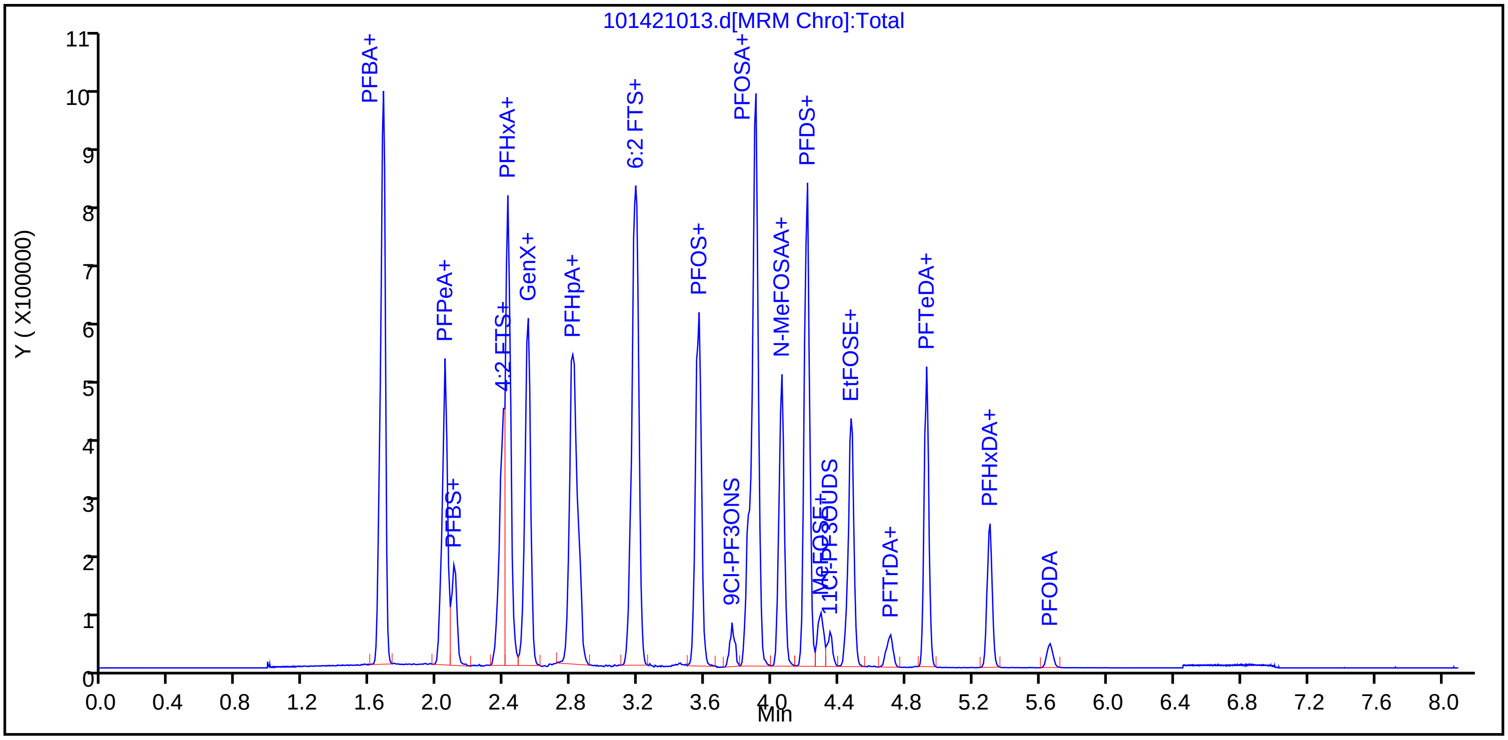
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

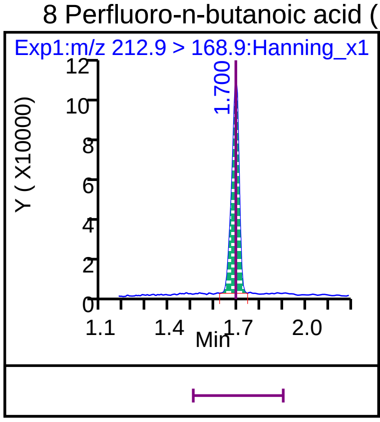
Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

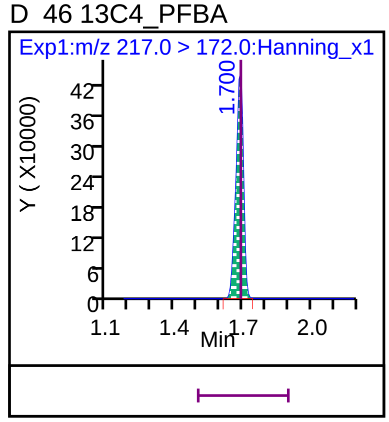
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d		
Injection Date:	14-Oct-2021 11:28:30	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1641
Sample Info:	ICAL 200_SVLC-1641		
Dil. Factor:	1	Operator:	Matthew M. Miller



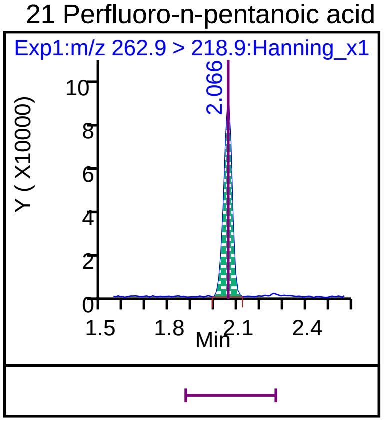
8 Perfluoro-n-butanoic acid (PFBA)



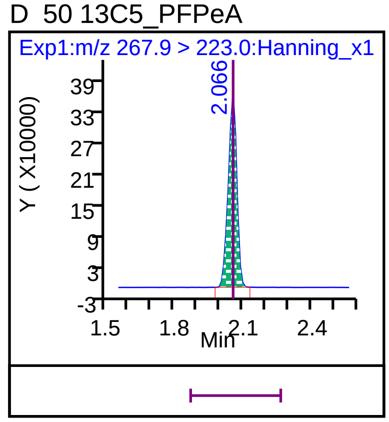
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

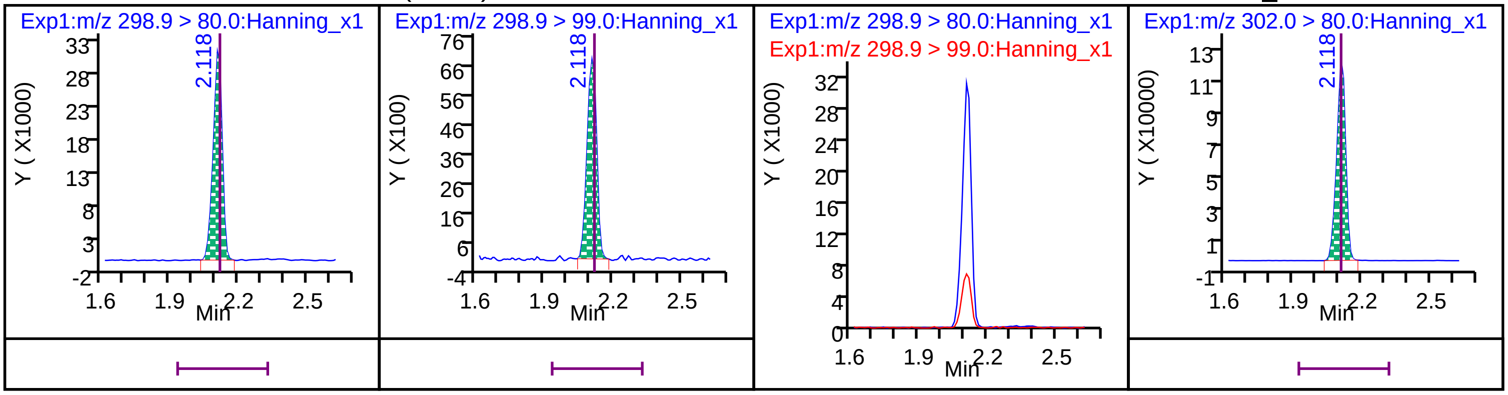


D 50 13C5_PFPeA

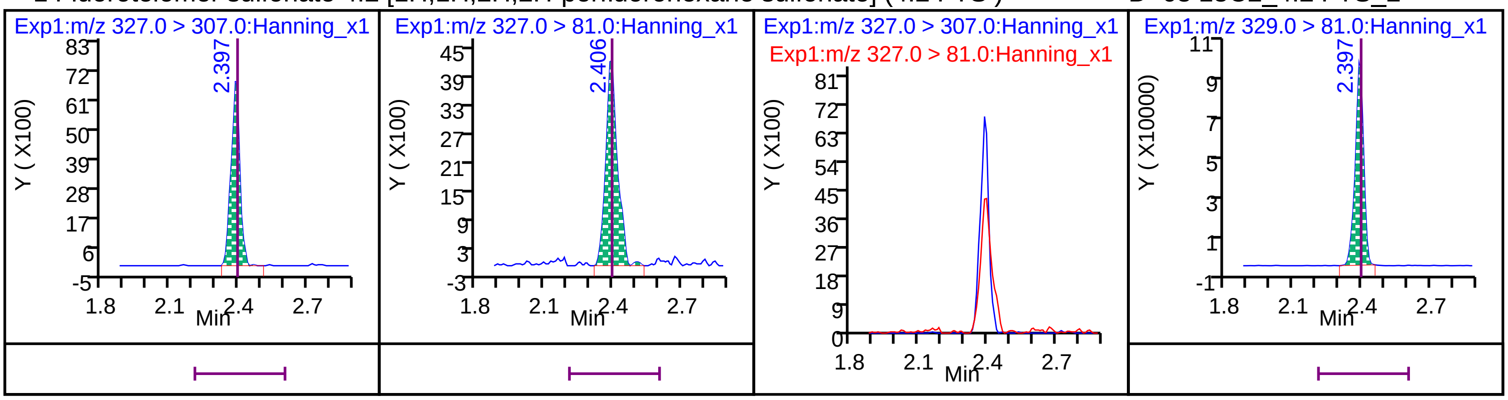


Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d

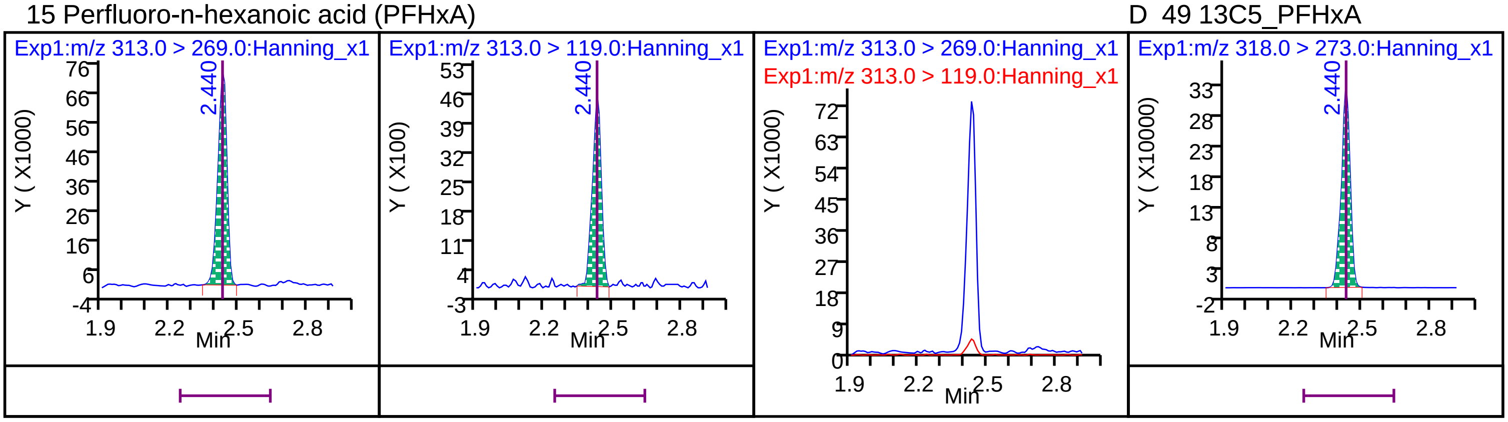
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



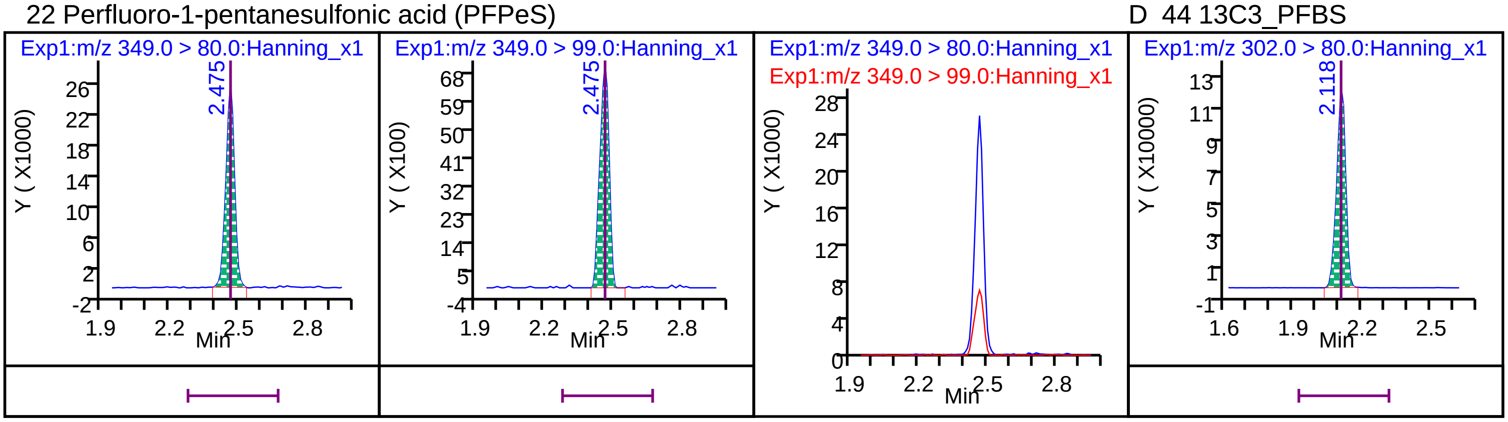
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

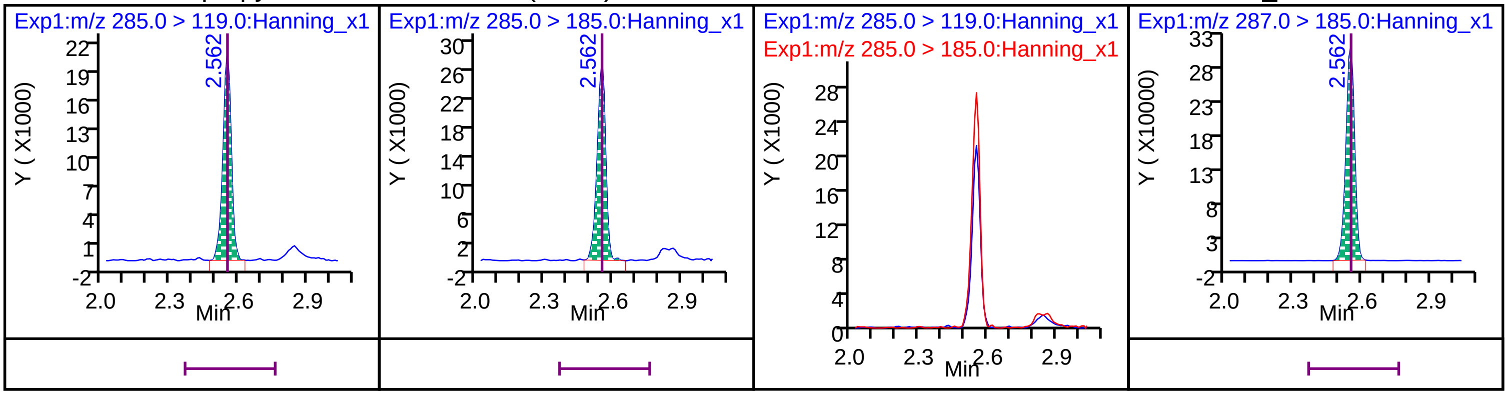


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

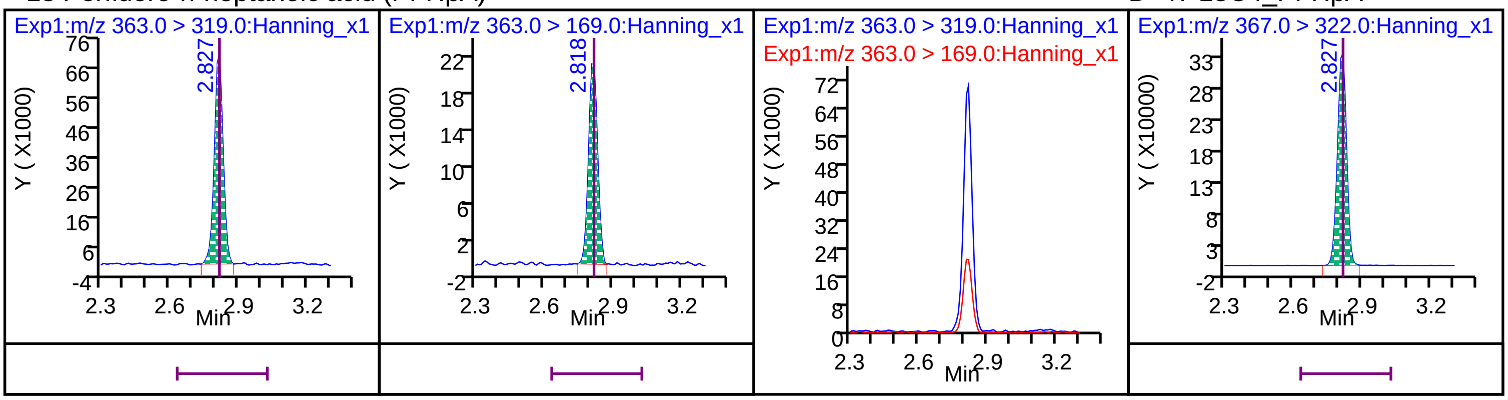


Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d

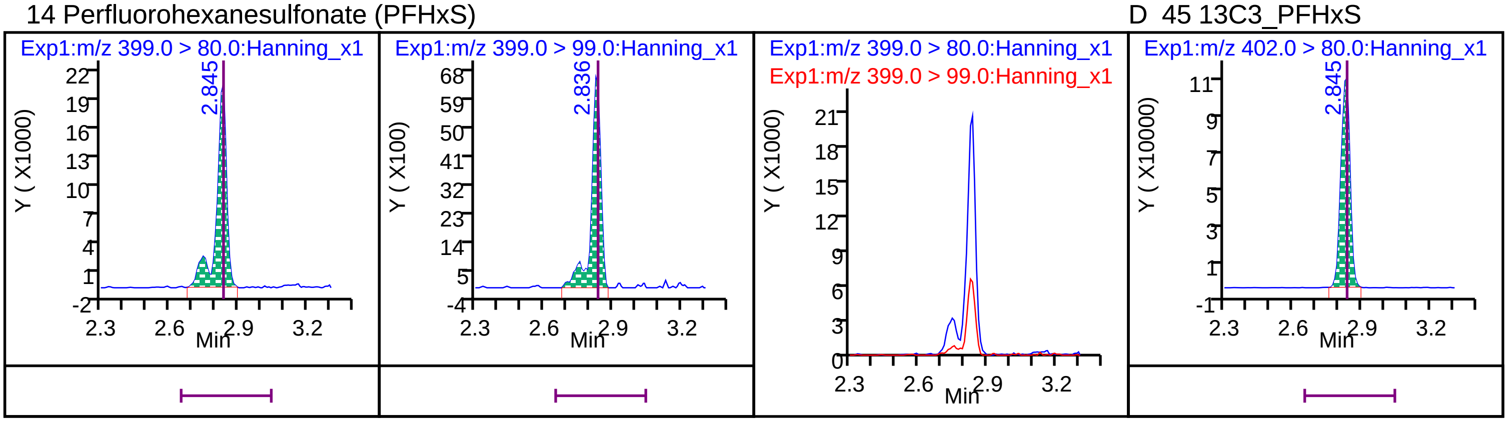
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



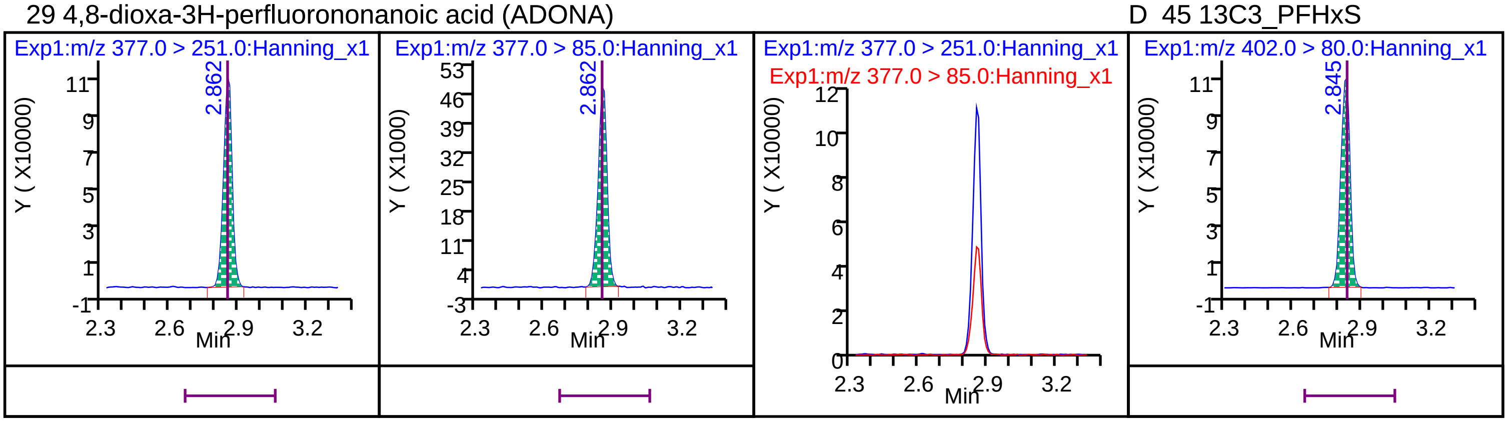
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



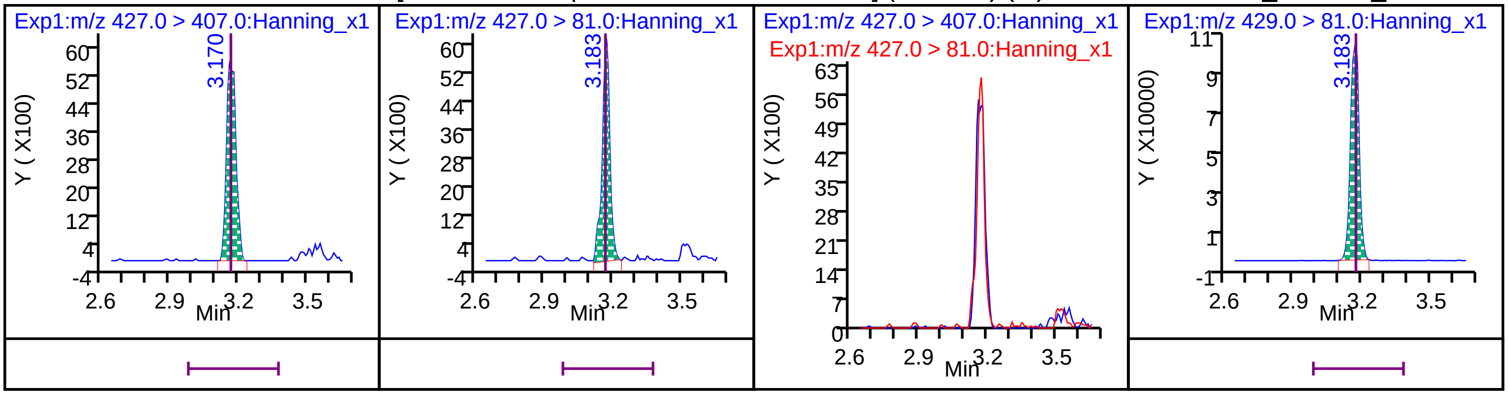
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



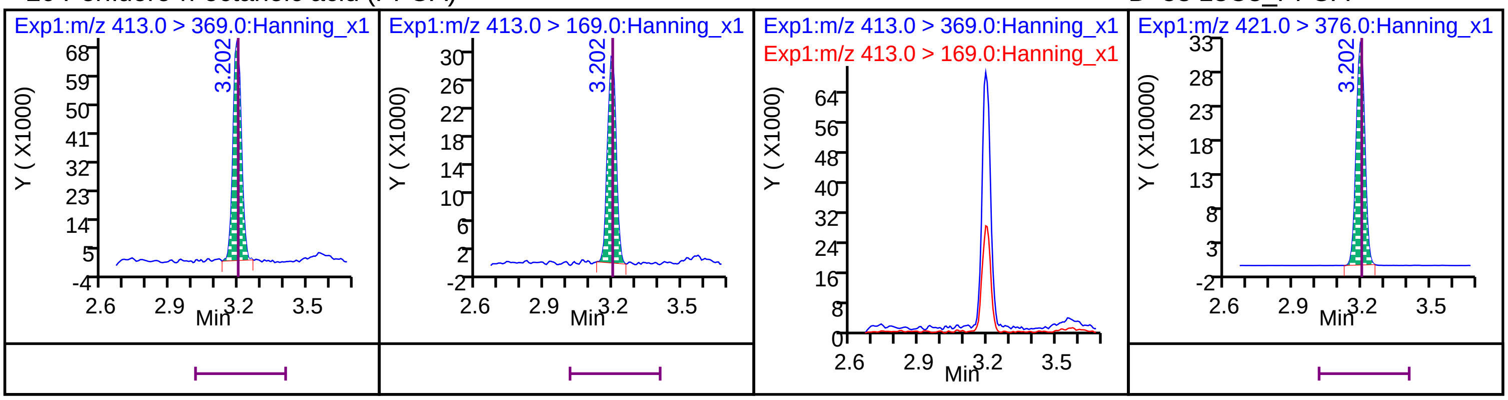
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



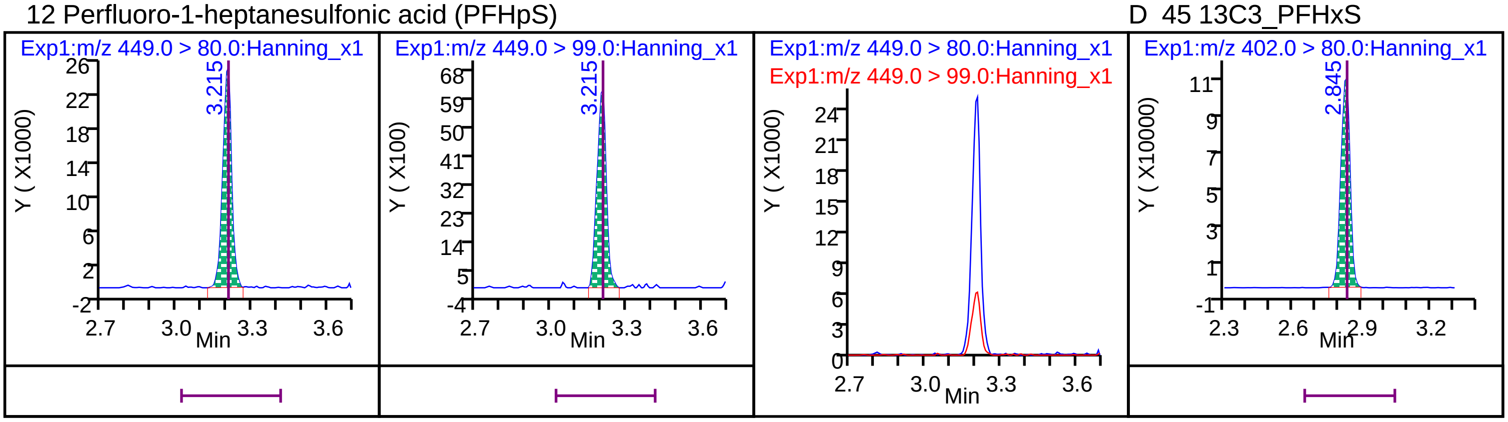
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



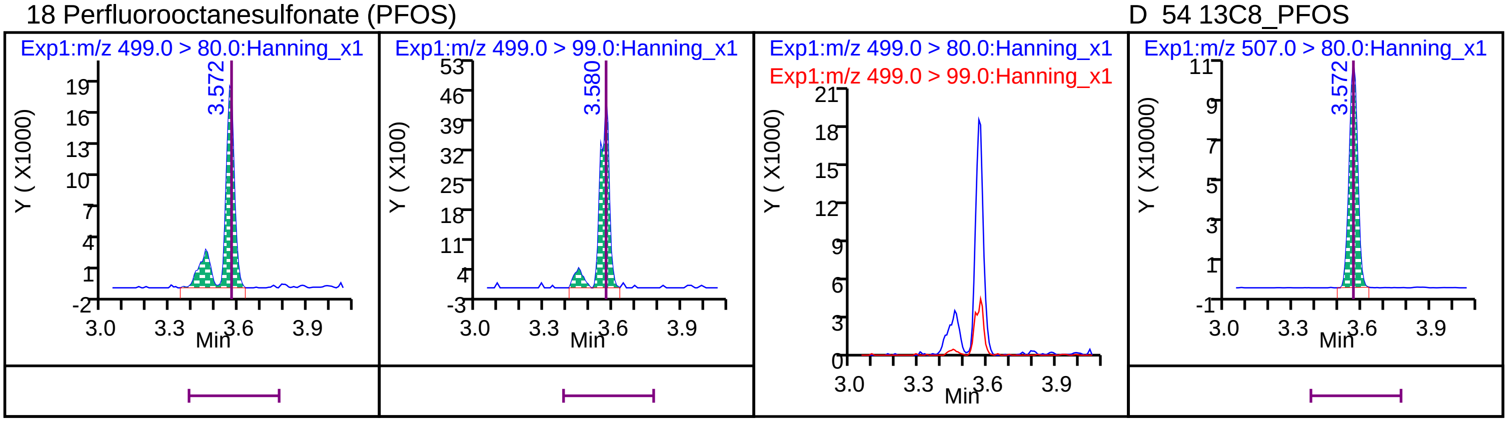
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

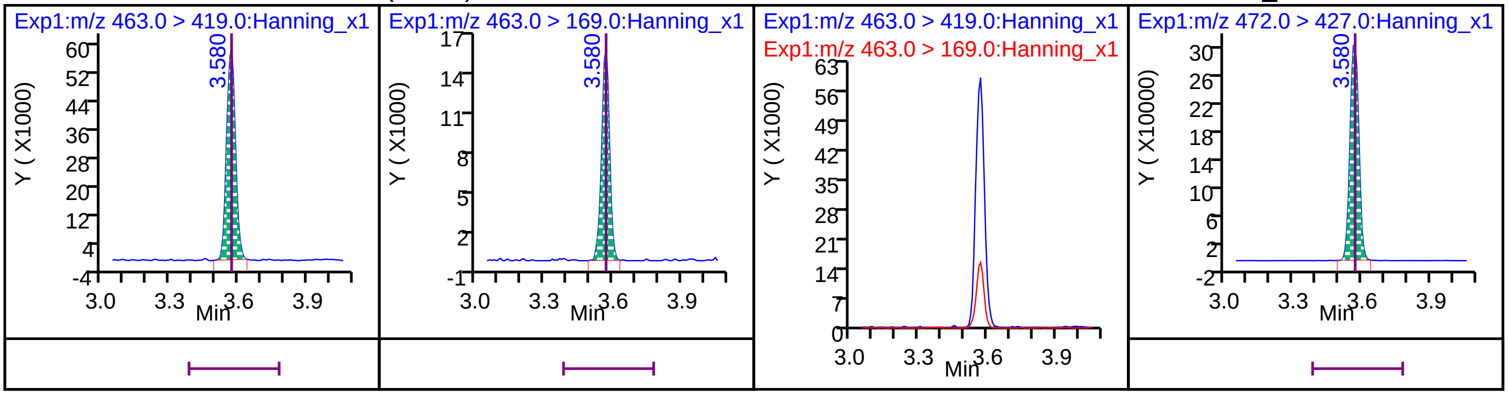


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

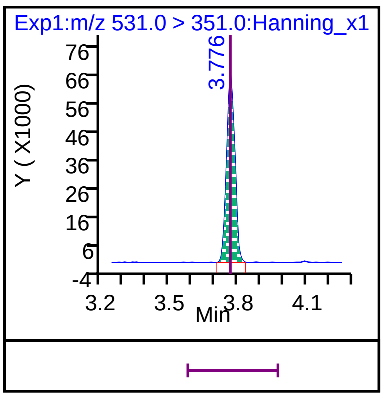


Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d

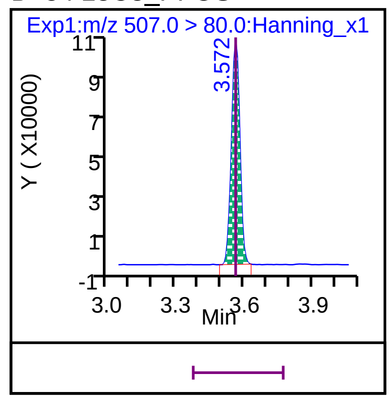
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



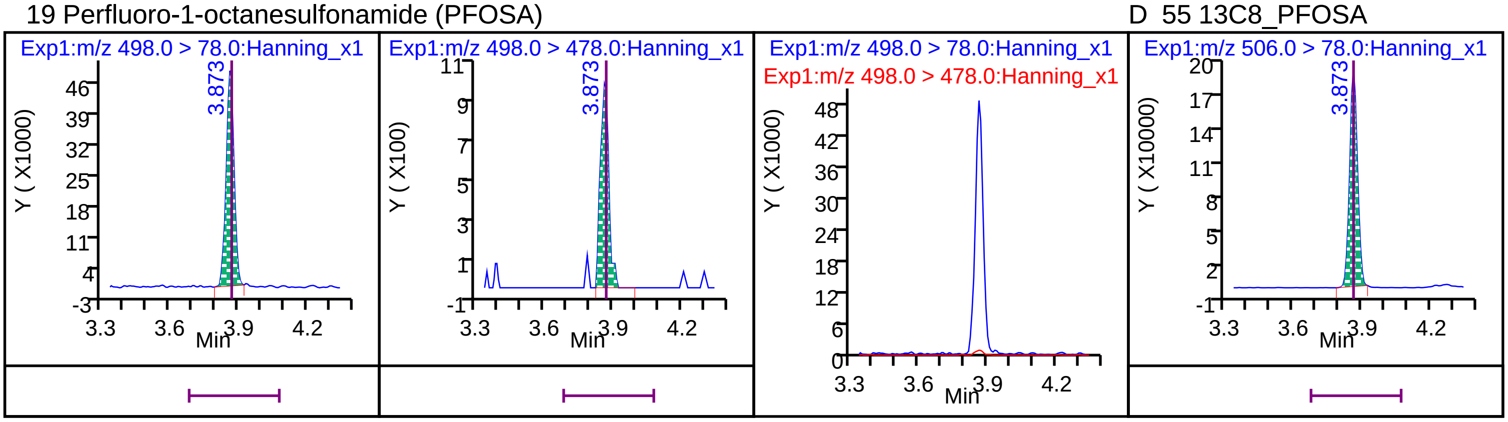
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



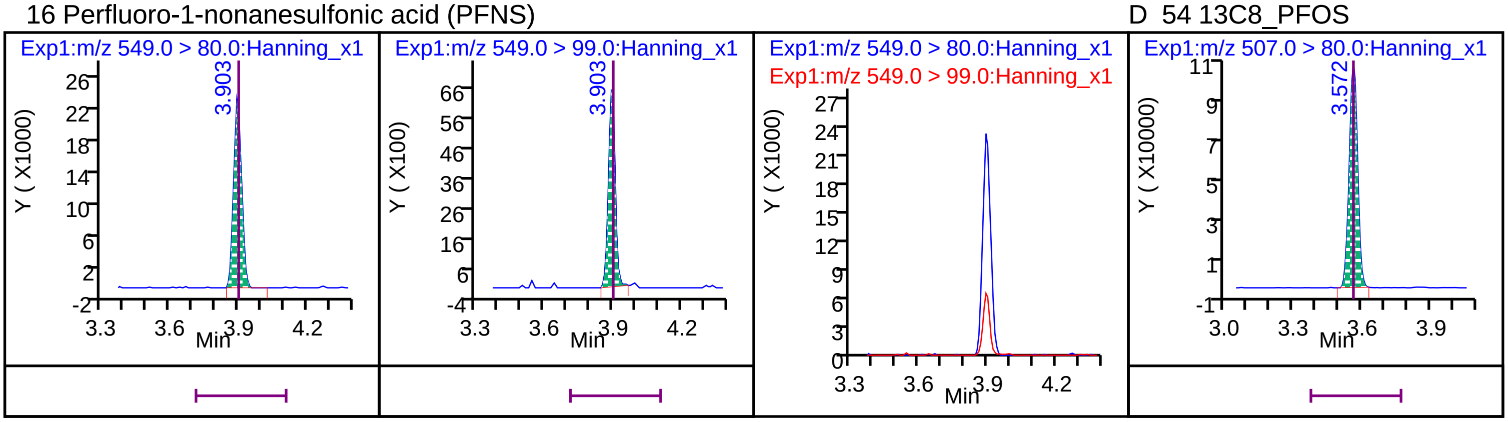
D 54 13C8_PFOS



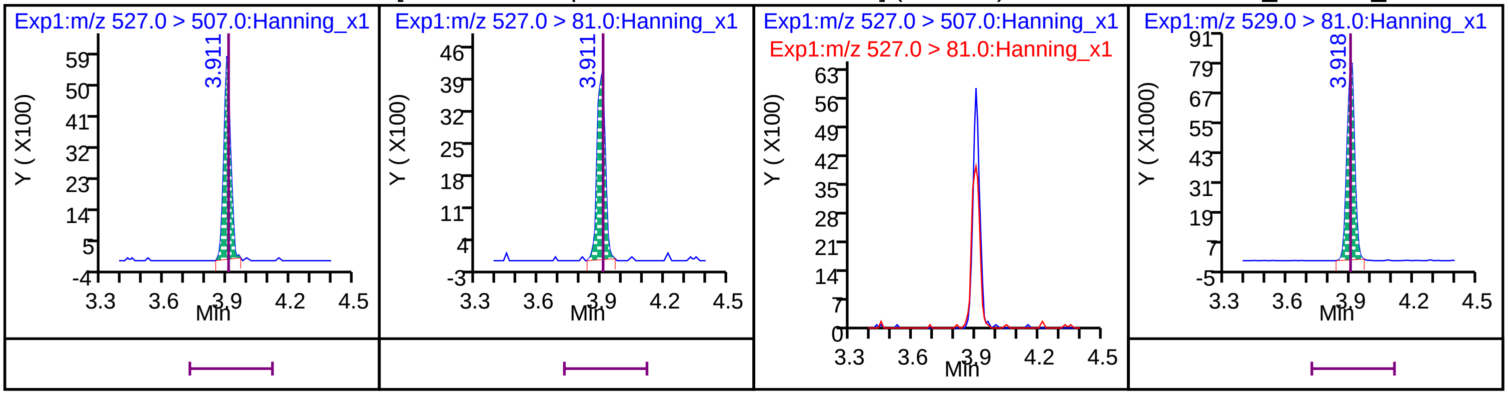
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



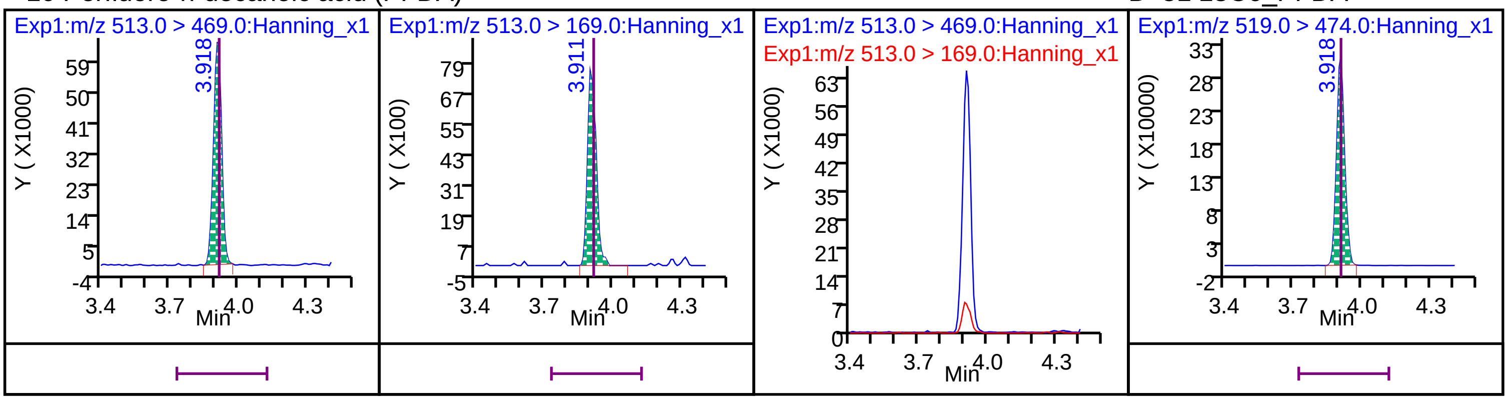
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



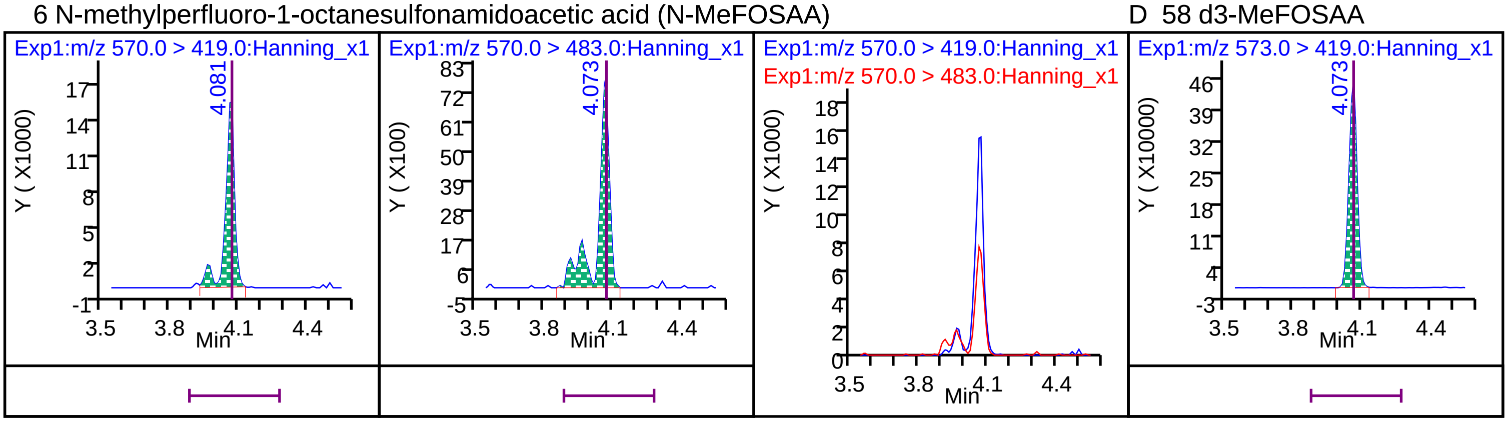
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



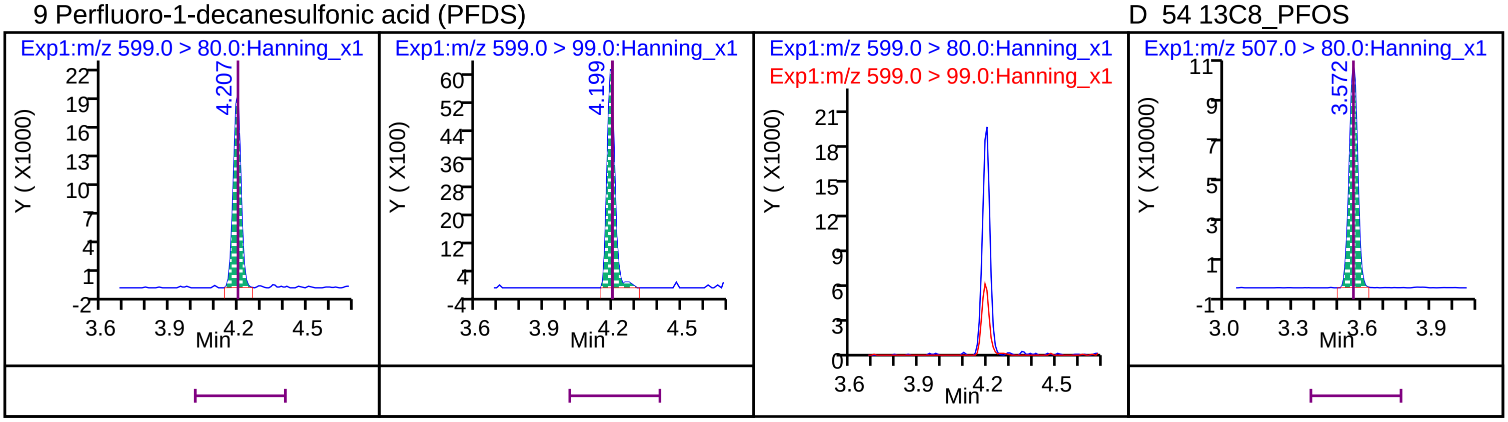
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



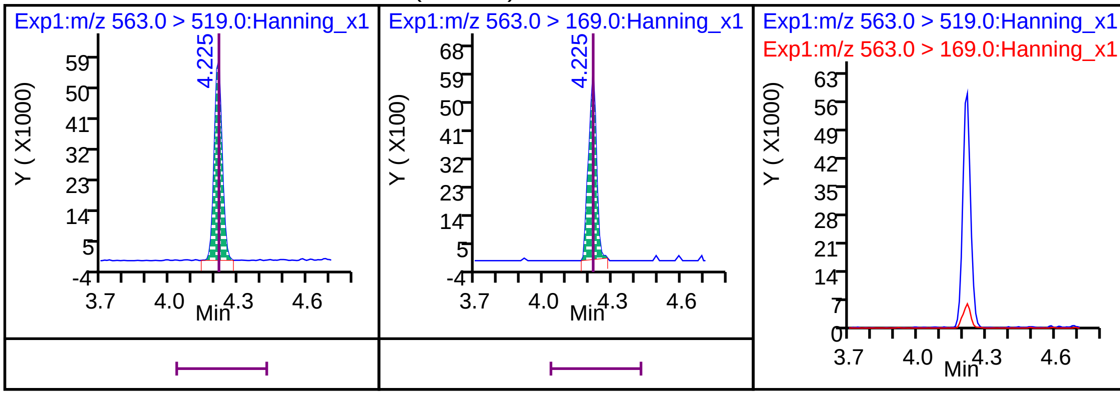
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



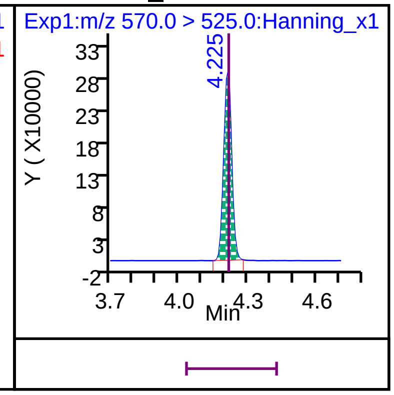
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



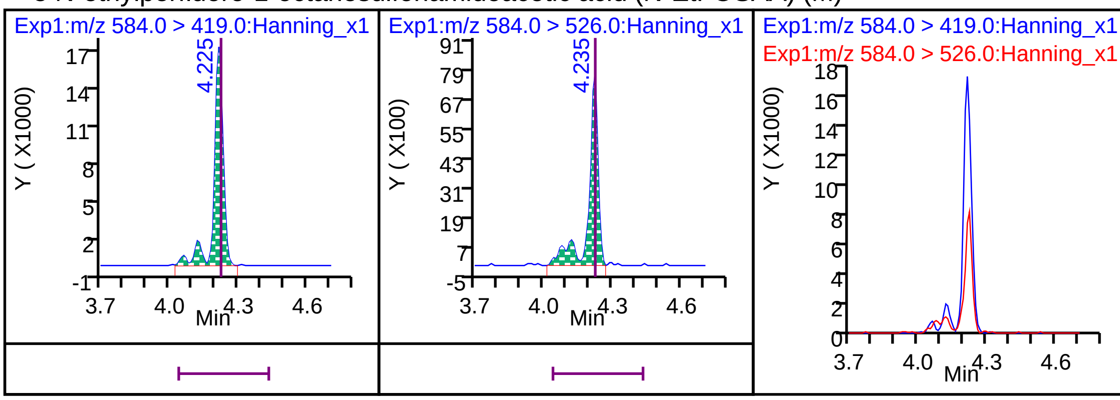
25 Perfluoro-n-undecanoic acid (PFUdA)



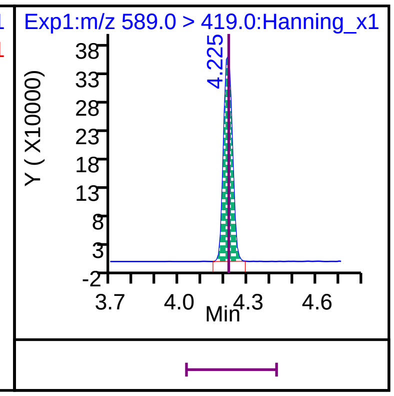
D 52 13C7_PFUdA



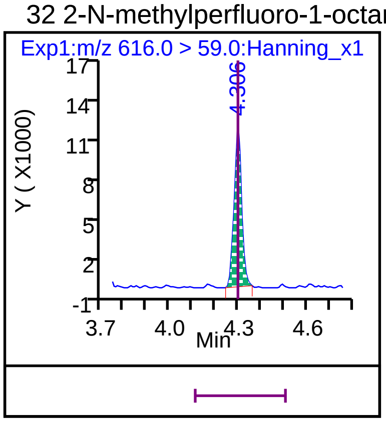
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)



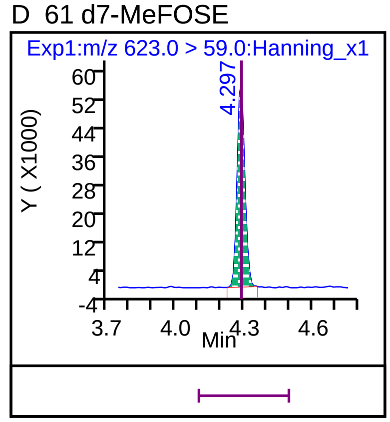
D 60 d5-EtFOSAA



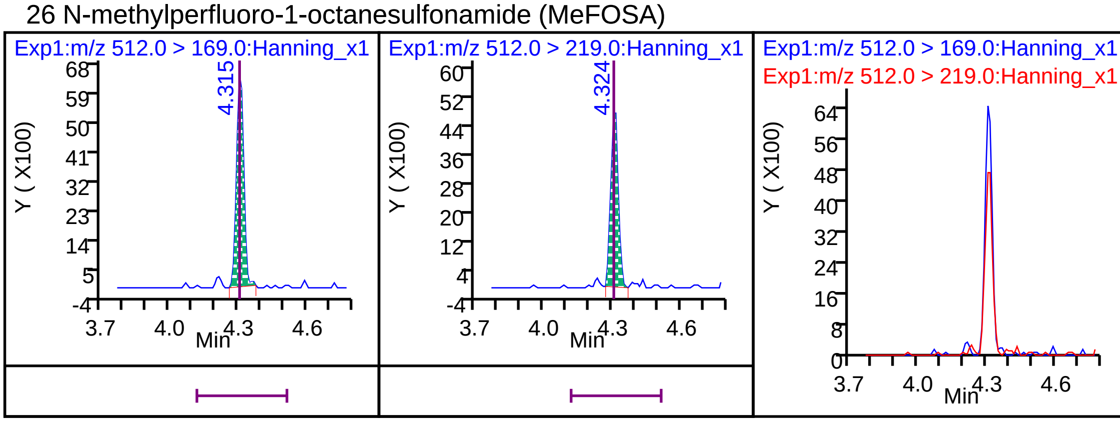
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



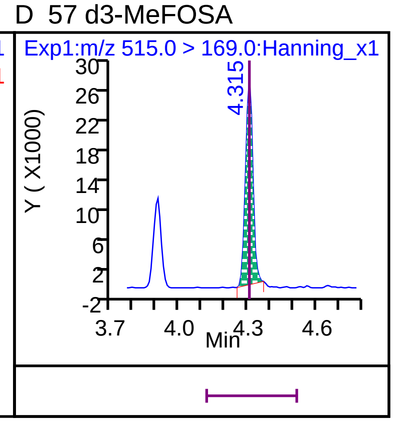
D 61 d7-MeFOSE



26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)

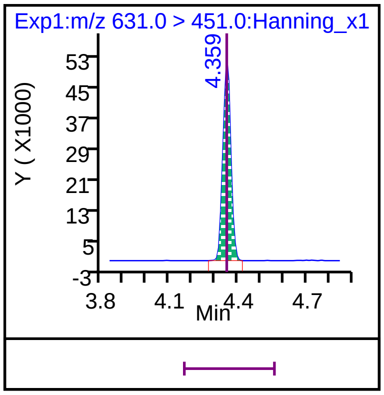


D 57 d3-MeFOSA

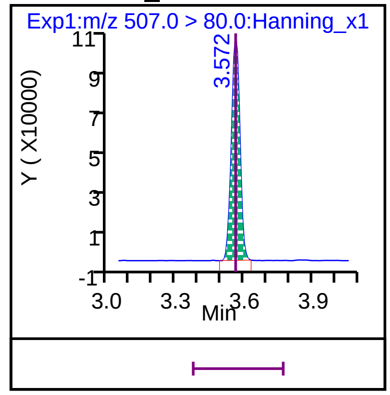


Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d

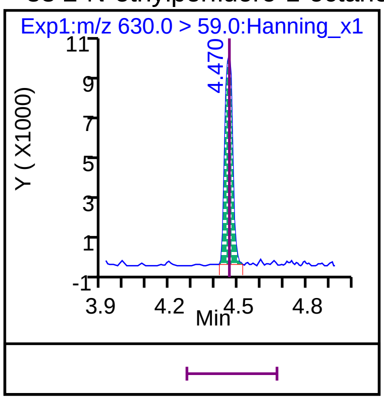
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



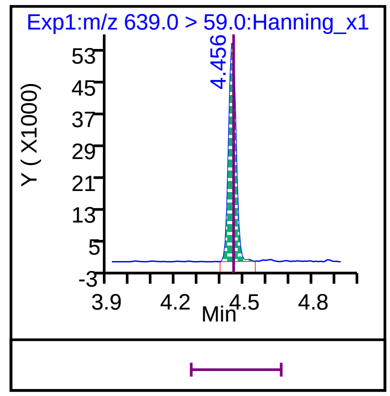
D 54 13C8_PFOS



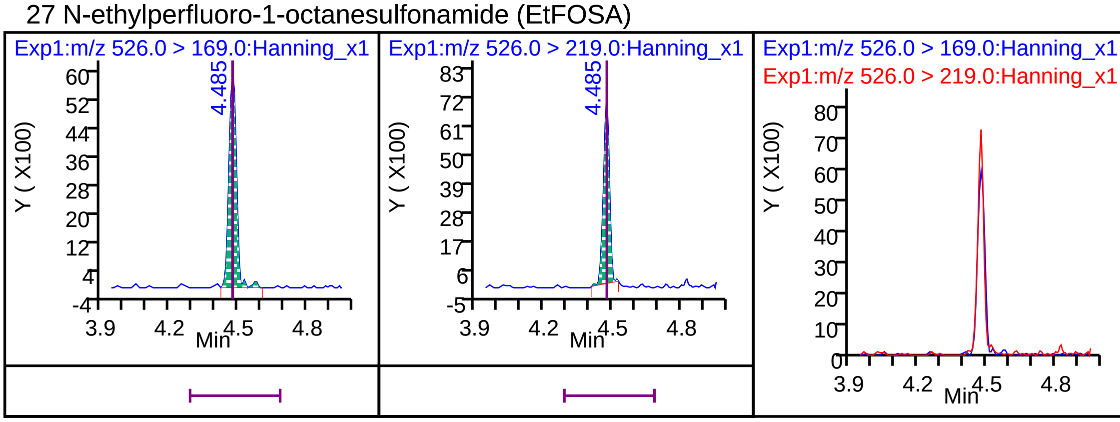
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



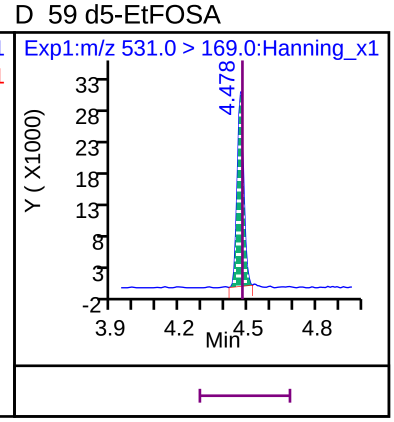
D 62 d9-EtFOSE



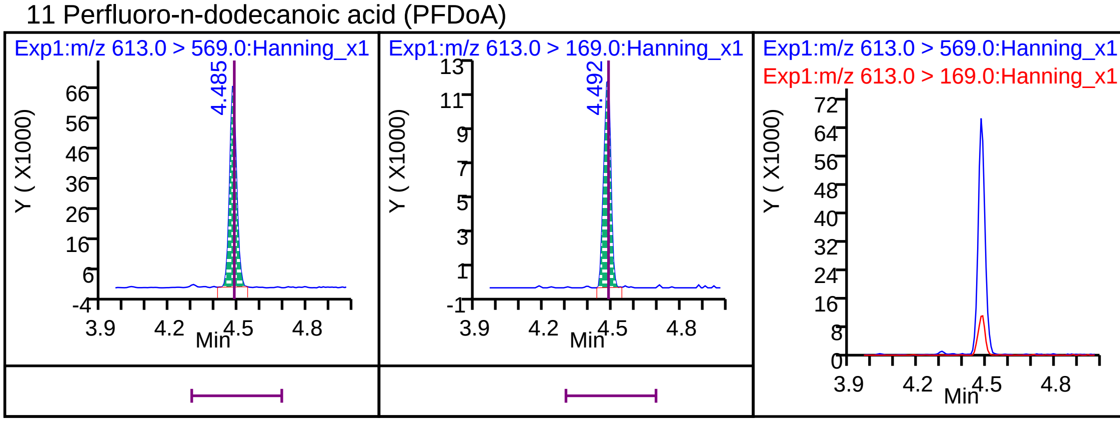
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



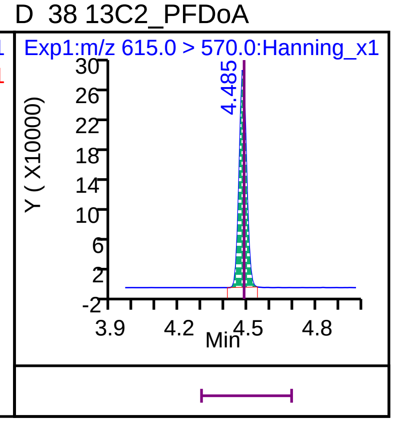
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA)



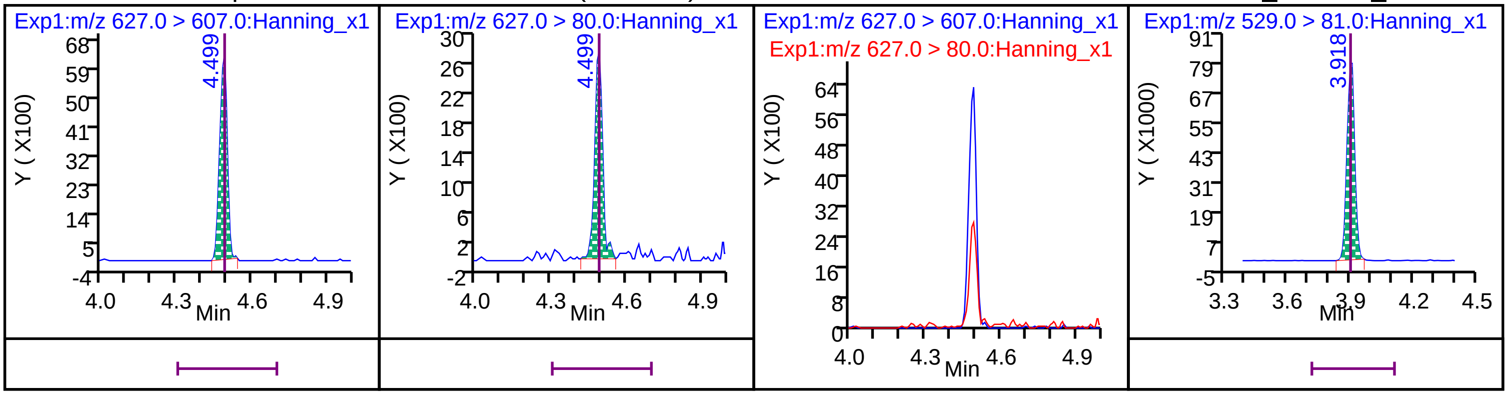
D 38 13C2_PFDoA



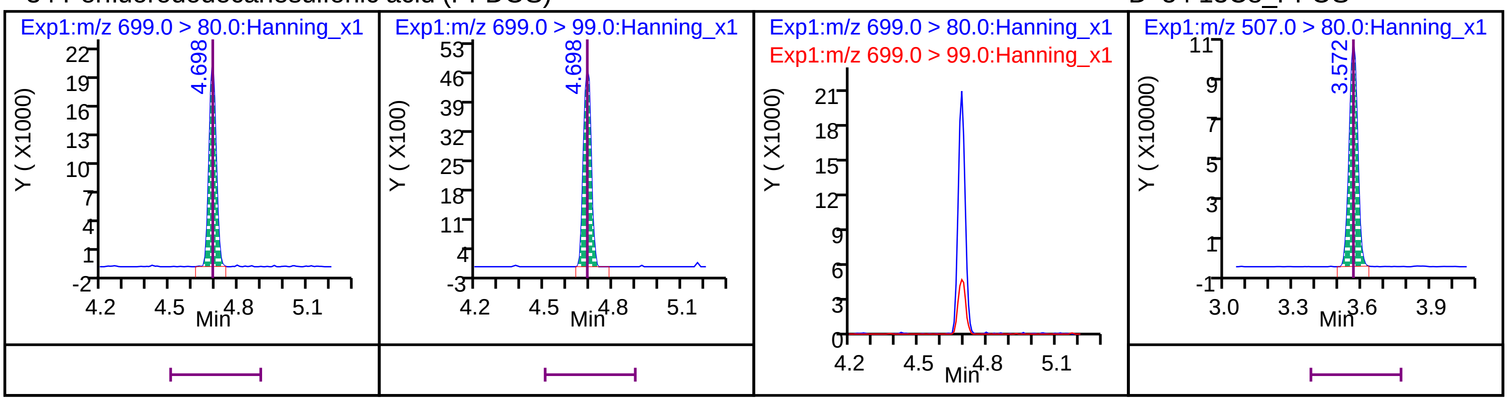
Report Date: 19-Oct-2021 08:48:51 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d

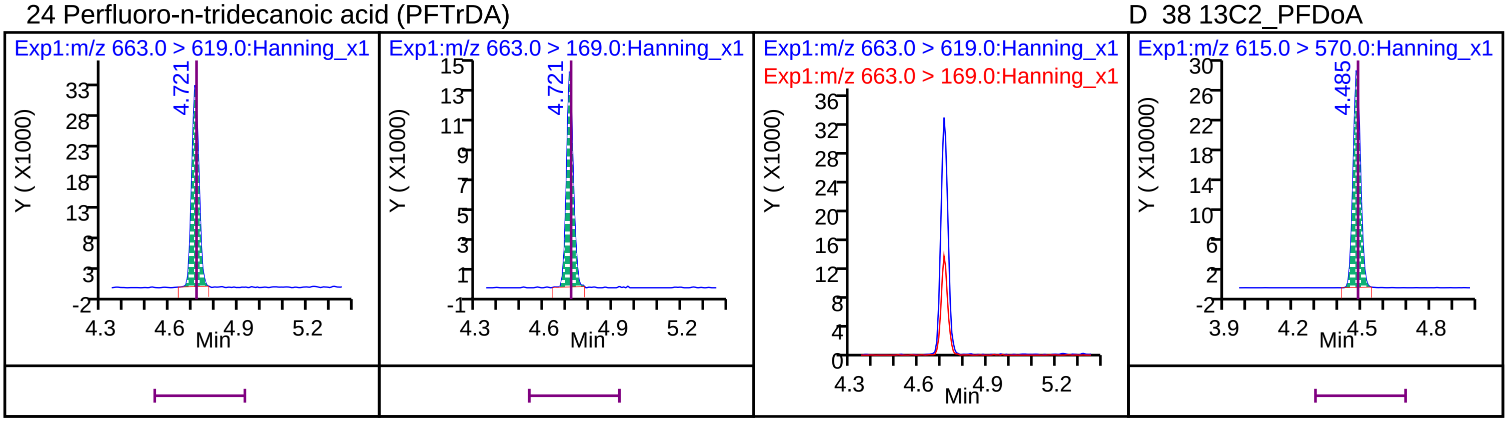
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



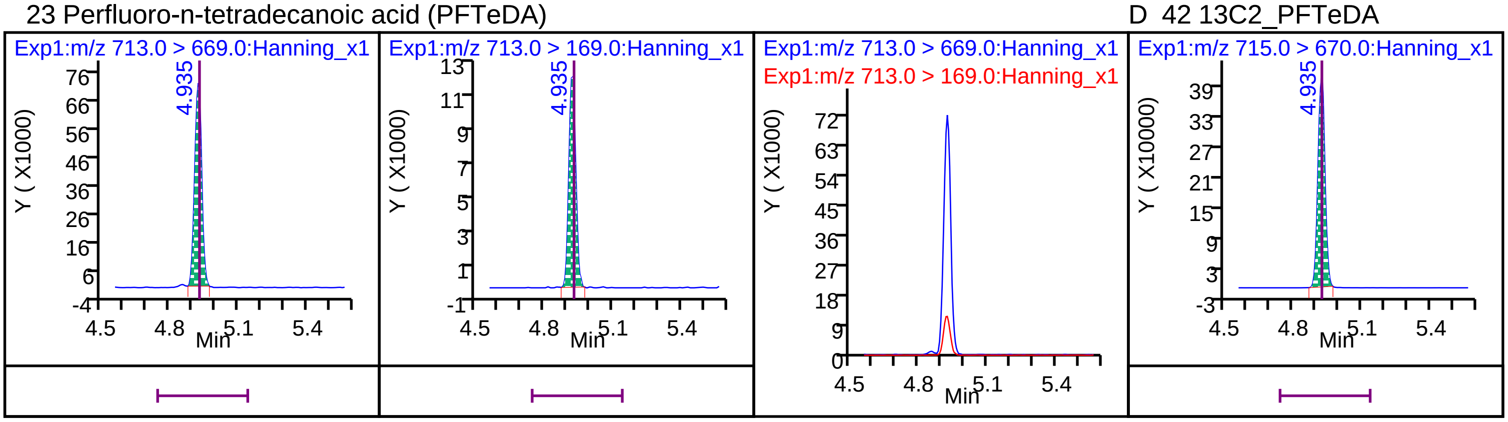
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



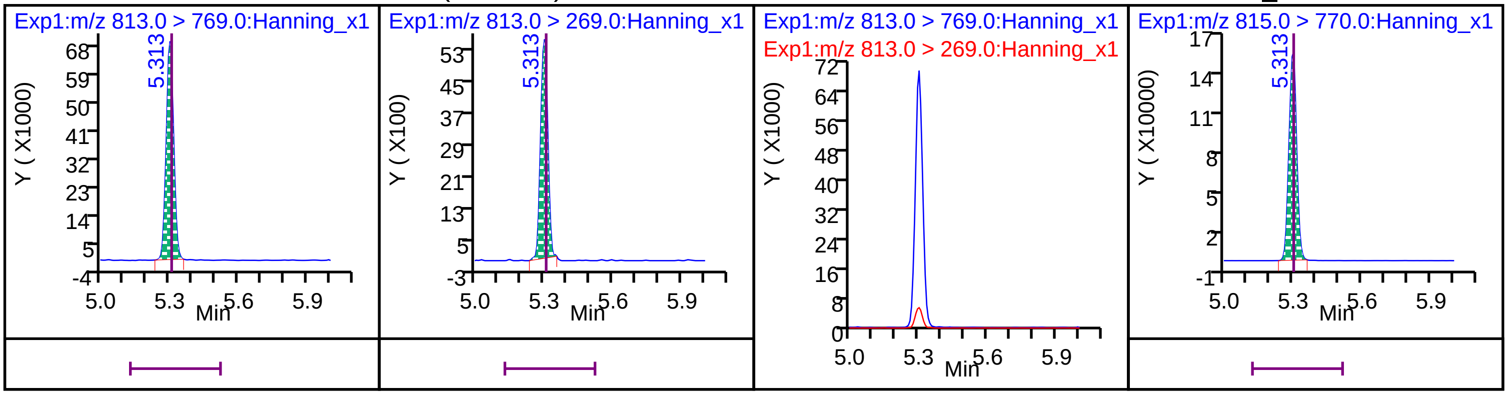
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



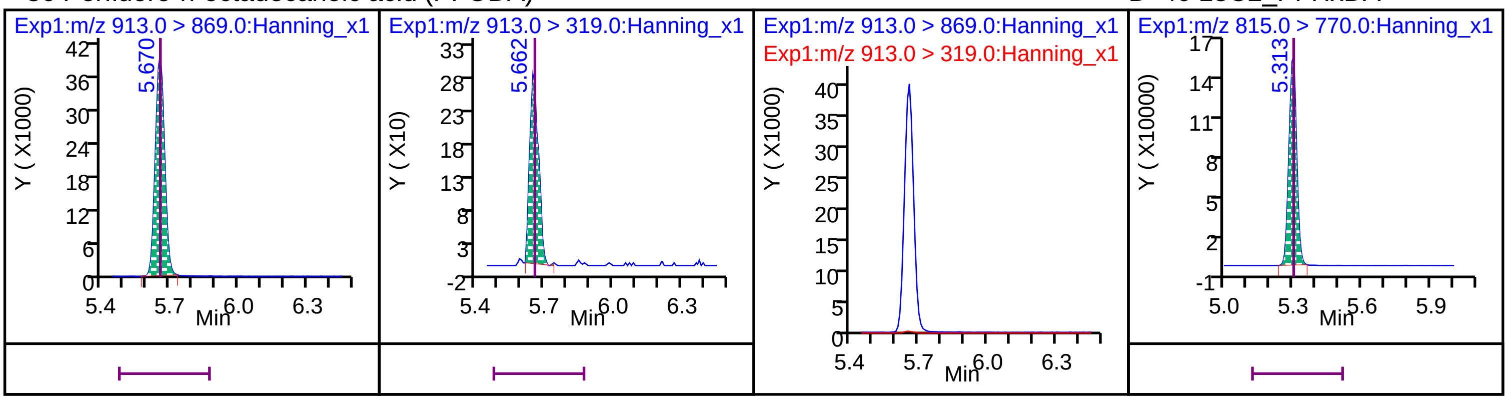
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



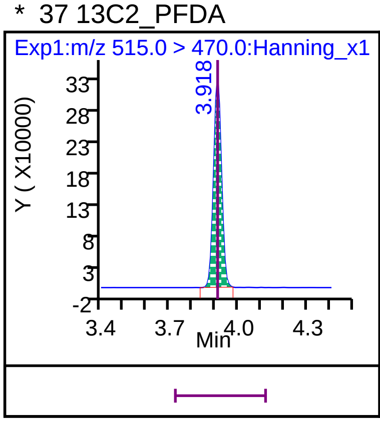
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



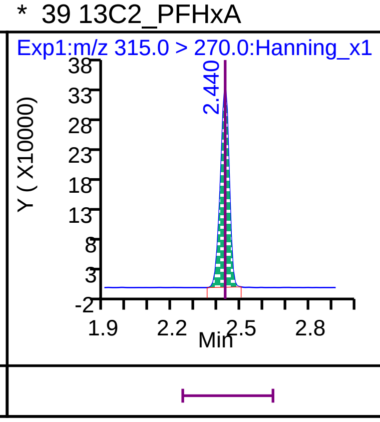
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



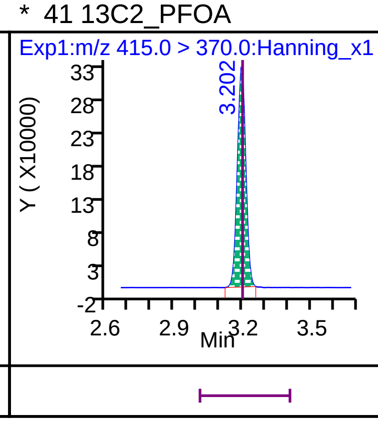
* 37 13C2_PFDA



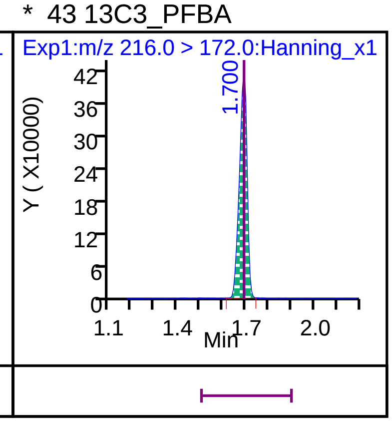
* 39 13C2_PFHxA



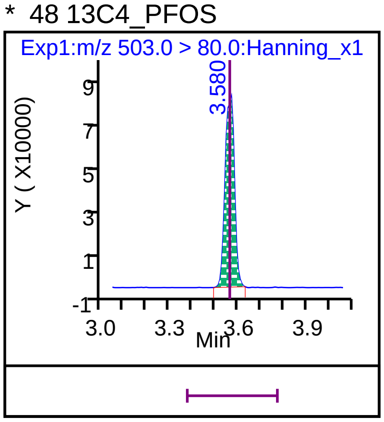
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d		
Injection Date:	14-Oct-2021 11:28:30	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1641
Sample Info:	ICAL 200_SVLC-1641		
Dil. Factor:	1	Operator:	Matthew M. Miller

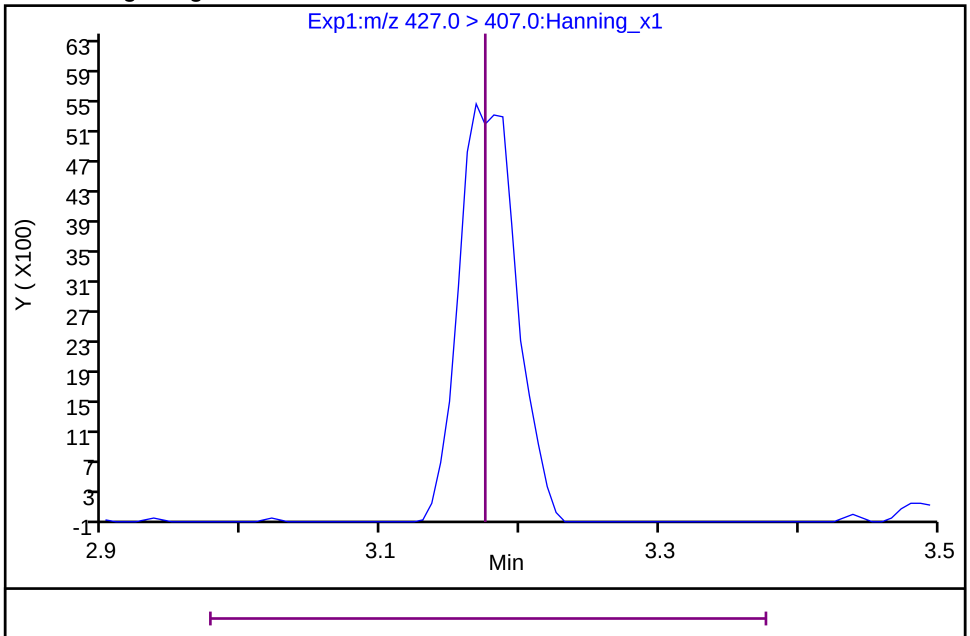
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected

Expected RT: 3.177

RT Window: 2.977-3.377

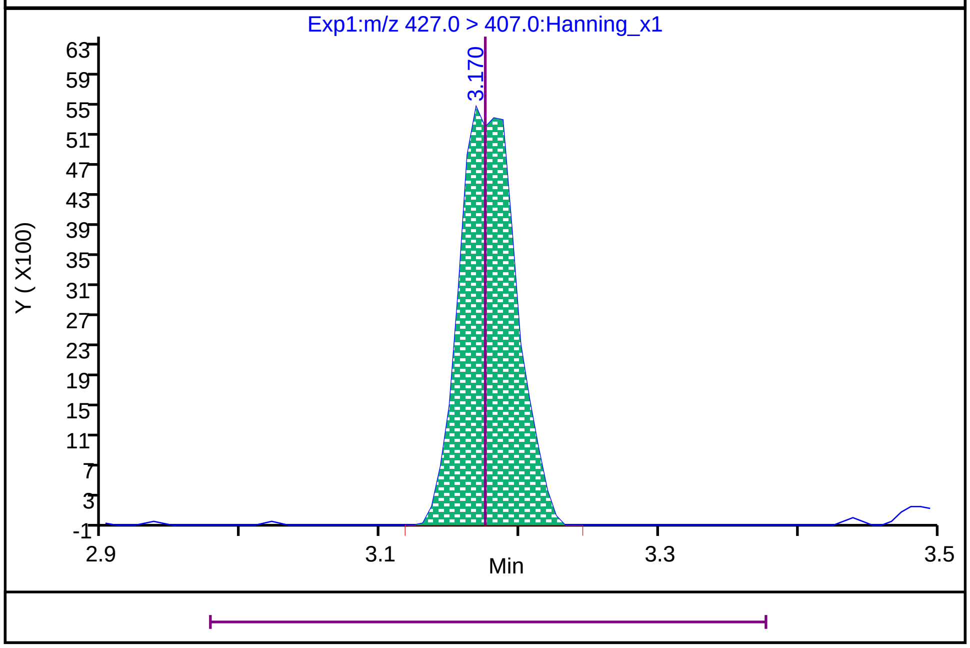


RT: 3.170

Area: 15680

Amount: 199.18

Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:11:37

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

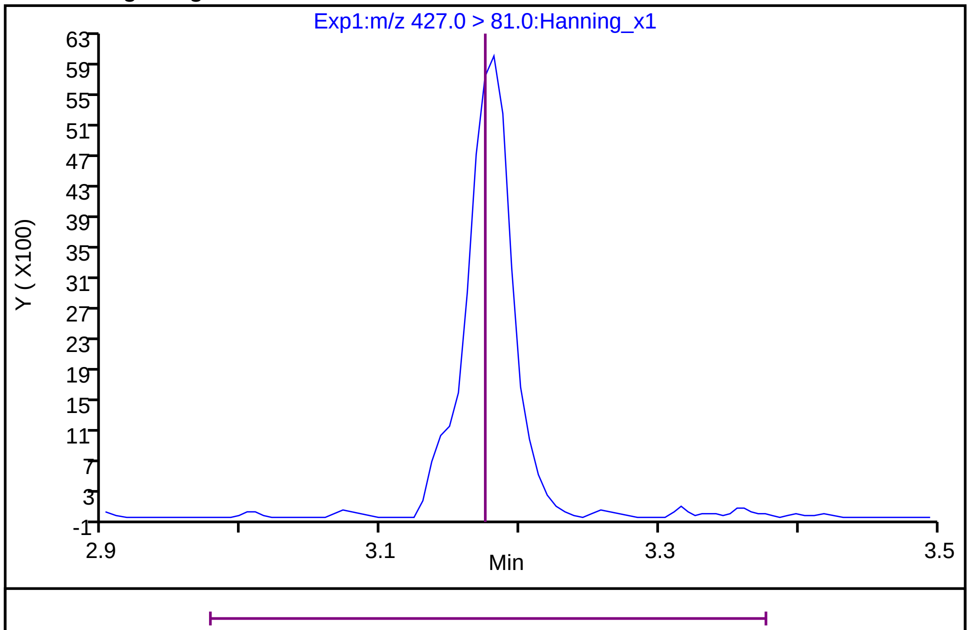
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d		
Injection Date:	14-Oct-2021 11:28:30	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1641
Sample Info:	ICAL 200_SVLC-1641		
Dil. Factor:	1	Operator:	Matthew M. Miller

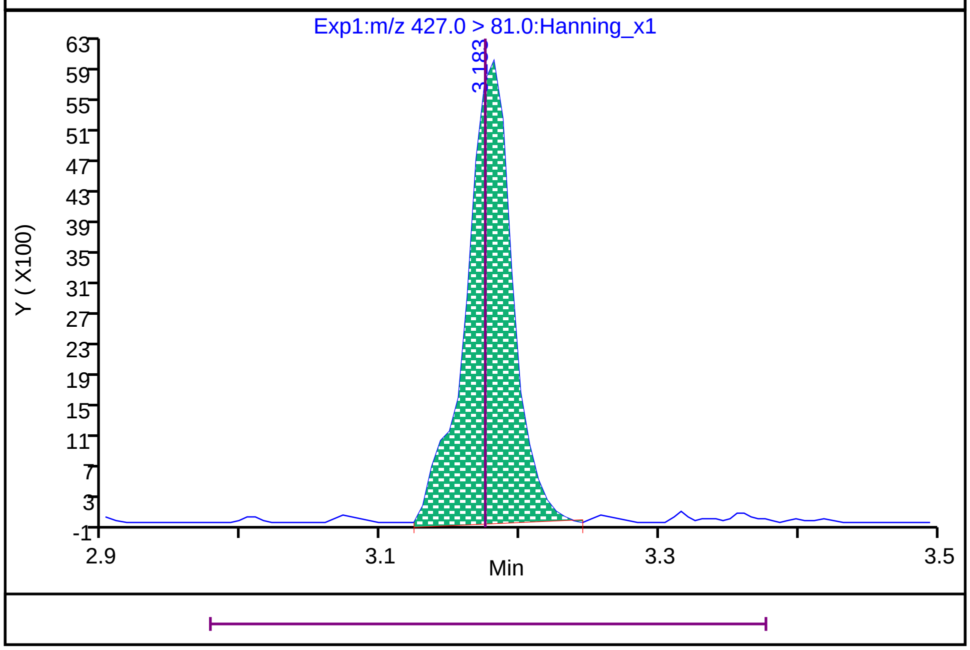
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected
Expected RT: 3.177
RT Window: 2.977-3.377



RT: 3.183
Area: 13921
Amount: 199.18
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:11:40

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

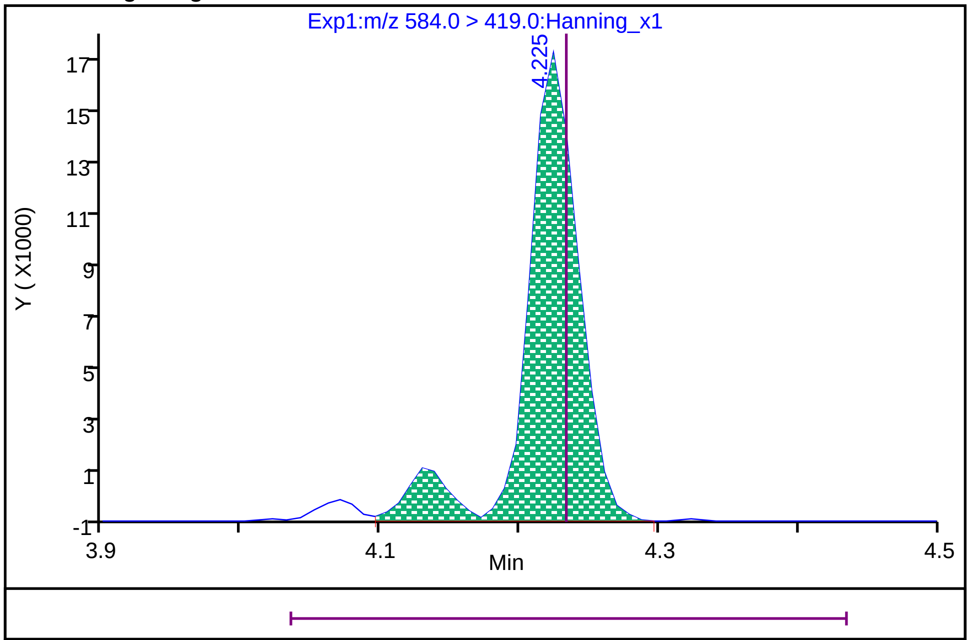
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421013.d		
Injection Date:	14-Oct-2021 11:28:30	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1641
Sample Info:	ICAL 200_SVLC-1641		
Dil. Factor:	1	Operator:	Matthew M. Miller

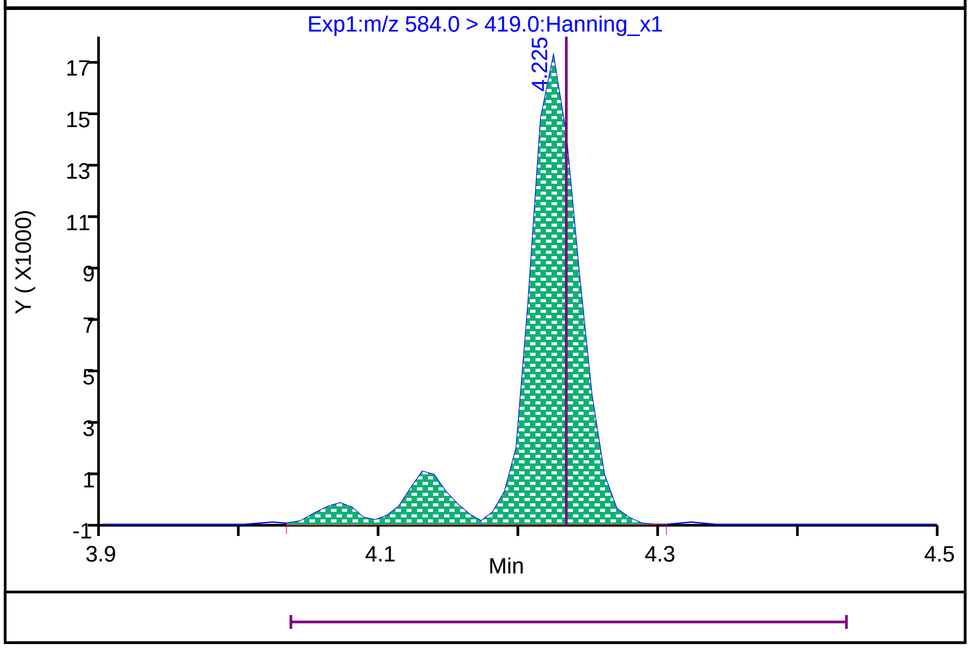
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.225
Area: 43237
Amount: 215.94
Amount Units: ng/L



RT: 4.225
Area: 45103
Amount: 224.22
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:16:19

Audit Action: Mint

Audit Reason: Assign Peak

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421014.d		
Injection Date:	14-Oct-2021 11:39:03	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	4
Sample Info:	ICAL 500_SVLC-1642	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	857820	20	>100:1			1000.00	956.21	80.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	0/0	470820	20	>100:1			500.00	507.91		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	829627	17	>100:1			1000.00	922.94	77.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	452254	15	>100:1			500.00	505.05		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.118	2.119	0	275595	17	>100:1			1000.00	923.29	78.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.118	2.129	0/0	184165	16	>100:1	Target = 3.78		442.00	480.66		
298.9 > 99	44	2.118	2.129		47160	15	>100:1	3.90 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/0	136158	17	>100:1	Target = 3.45		469.00	478.86		
349 > 99	44	2.475	2.475		43188	17	>100:1	3.15 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.406	0	197076	18	>100:1			5000.00	4409.99	73.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.397	2.406	0/0	36540	18	>100:1	Target = 1.43		467.00	483.85		
327 > 81	63	2.397	2.406		24867	27	>100:1	1.46 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	781608	18	>100:1			1000.00	954.61	78.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	394411	19	>100:1	Target = 16.37		500.00	491.27		
313 > 119	49	2.440	2.440		24623	20	>100:1	16.01 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	695262	19	>100:1			5000.00	4805.27	80.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/0	98972	20	>100:1	Target = 0.74		1000.00	926.74		
285 > 185	66	2.562	2.562		141617	18	>100:1	0.69 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.818	2.827	0	764591	19	>100:1			1000.00	954.20	78.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.818	2.827	0/0	390027	19	>100:1	Target = 3.21		500.00	514.07		
363 > 169	47	2.827	2.827		110253	18	>100:1	3.53 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.845	2.845	0	234022	18	>100:1			1000.00	951.48	79	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.836	2.845	0/0	139832	26	>100:1	Target = 3.47	6.10	455.00	495.58		
399 > 99	45	2.845	2.845		36208	26	>100:1	3.86 (1.73-5.21)	8.15				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.862	2.862	0/0	626745	18	>100:1	Target = 2.28		471.00	492.63		
377 > 85	45	2.862	2.862		263048	17	>100:1	2.38 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.215	0/0	128083	22	>100:1	Target = 3.62		476.00	504.04		
449 > 99	45	3.208	3.215		34567	21	>100:1	3.70 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.176	3.183	0	200992	23	>100:1			5000.00	4599.68	74	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.183	3.177	1/1	33110	23	>100:1	Target = 1.19		474.00	522.24		
427 > 81	64	3.176	3.177		26667	21	>100:1	1.24 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.208	0	698244	22	>100:1			1000.00	922.79	79.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.208	0/0	403659	22	>100:1	Target = 2.34		500.00	574.19		
413 > 169	53	3.202	3.208		157341	22	>100:1	2.56 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	0	221215	19	>100:1			1000.00	976.36	83	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.580	0/0	113144	40	>100:1	Target = 4.00	3.04	464.00	423.69		M
499 > 99	54	3.572	3.580		27890	37	>100:1	4.05 (2.00-6.01)	7.54				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.776	3.776	0/0	302038	20	>100:1			466.00	447.43		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.911	3.911	0/0	111433	19	>100:1	Target = 3.83		480.00	498.18		
549 > 99	54	3.903	3.911		28445	16	>100:1	3.91 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.199	4.207	0/0	99364	20	>100:1	Target = 3.87		482.00	466.86		
599 > 99	54	4.199	4.207		23144	15	>100:1	4.29 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	256336	16	>100:1			471.00	443.70		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	100905	16	>100:1	Target = 3.65		484.00	499.16		
699 > 99	54	4.698	4.698		26305	14	>100:1	3.83 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.580	0	806567	20	>100:1			1000.00	1040.13	87.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	0/0	332110	20	>100:1	Target = 4.21		500.00	471.76		
463 > 169	56	3.572	3.580		78425	17	>100:1	4.23 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	397479	20	>100:1			1000.00	949.06	82.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/0	227574	19	>100:1	Target = 49.05		500.00	504.97		
498>478	55	3.888	3.880		4807	16		47.34 (24.52-73.57)					M
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.911	3.911	0	195909	17	>100:1			5000.00	5180.89	85.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/0	25559	24	>100:1	Target = 1.27		479.00	441.79		
527 > 81	65	3.911	3.918		24384	17	>100:1	1.04 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.492	4.500	0/0	23783	22	>100:1	Target = 2.25		482.00	402.56		
627 > 80	65	4.499	4.500		10418	17	58:1	2.28 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.918	0	633630	18	>100:1			1000.00	932.96	78.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.918	3.926	0/0	336034	19	>100:1	Target = 8.94		500.00	524.88		
513 > 169	51	3.918	3.926		40143	17	>100:1	8.37 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	0	986248	17	>100:1			5000.00	4813.35	81.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.073	4.081	0/0	81850	31	>100:1	Target = 1.38	6.79	500.00	543.21		
570 > 483	58	4.073	4.081		52750	31	>100:1	1.55 (0.69-2.08)	4.06				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.226	4.226	0	625538	16	>100:1			1000.00	989.55	86.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.226	0/0	289410	16	>100:1	Target = 8.27		500.00	521.66		
563 > 169	52	4.226	4.226		34558	15	>100:1	8.37 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.226	0	869495	18	>100:1			5000.00	5064.73	82.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.226	4.235	0/0	96350	32	>100:1	Target = 1.95	5.97	500.00	519.13		
584 > 526	60	4.235	4.235		50043	31	>100:1	1.92 (0.97-2.92)	3.82				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.298	0	120868	17	>100:1			1000.00	950.51	79	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.306	0/0	60081	17	>100:1			500.00	503.97		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	0	52926	17	>100:1			1000.00	910.61	72.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.315	4.315	0/0	29357	16	>100:1	Target = 1.08		500.00	520.96		
512 > 219	57	4.315	4.315		31045	21	>100:1	0.94 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.463	0	110211	17	>100:1			1000.00	938.31	75.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.470	4.471	0/0	45565	23	>100:1			500.00	485.15		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.485	0	53015	18	>100:1			1000.00	965.16	80.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.485	0/0	29593	15	>100:1	Target = 1.10		500.00	487.86		
526 > 219	59	4.485	4.485		26235	19	>100:1	1.12 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.485	4.492	0	519184	18	>100:1			1000.00	864.40	73.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.485	4.492	0/0	301571	18	>100:1	Target = 5.93		500.00	567.12		
613 > 169	38	4.485	4.492		49806	17	>100:1	6.05 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.721	4.728	0/0	150055	18	>100:1	Target = 2.90		500.00	534.25		
663 > 169	38	4.721	4.728		52991	18	>100:1	2.83 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.935	4.935	0	757214	21	>100:1			1000.00	945.11	81.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.935	4.940	0/0	328741	21	>100:1	Target = 6.34		500.00	512.79		
713 > 169	42	4.935	4.940		50516	20	>100:1	6.50 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.306	5.313	0	311537	21	>100:1			1000.00	946.77	83.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.313	5.319	1/1	322407	20	>100:1	Target = 12.53		500.00	510.77		
813 > 269	40	5.313	5.319		24830	19	>100:1	12.98 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.670	5.670	1/1	226248	19	>100:1	Target = 152.15		500.00	489.30		
913 > 319	40	5.670	5.670		1565	24	>100:1	144.56 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.918	0	641644	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	731170	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.208	0	741436	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	802383	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.572	3.572	0	217102	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 19-Oct-2021 08:48:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

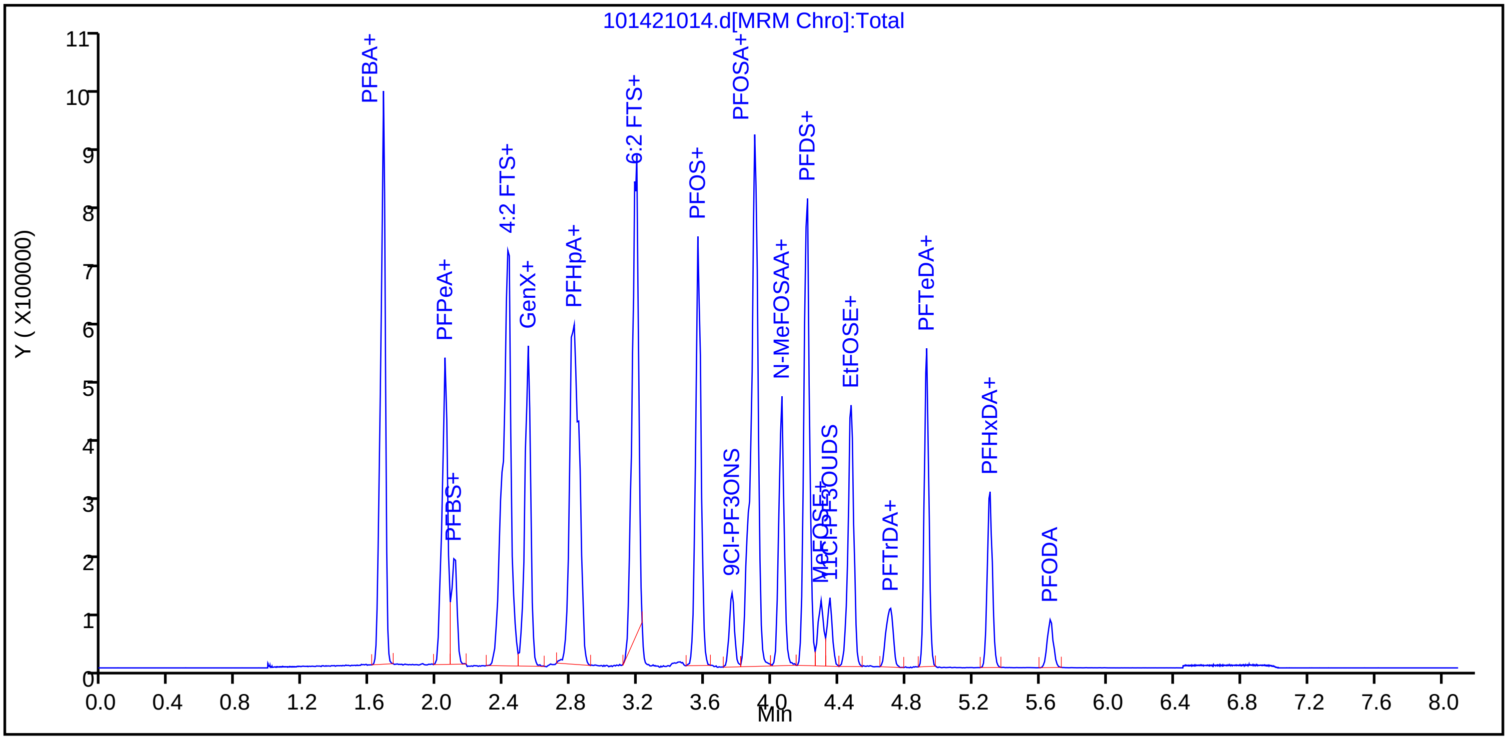
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421014.d

Injection Date: 14-Oct-2021 11:39:03 Inst. ID: LCMSMS01.i

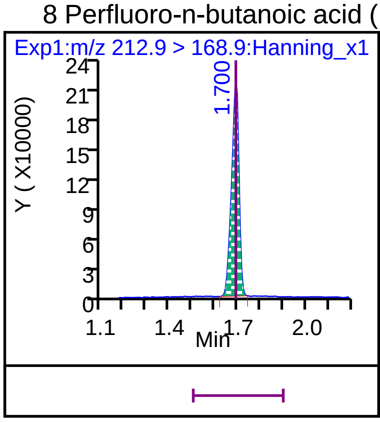
Client ID: Lab ID: ICAL 500_SVLC-1642

Sample Info: ICAL 500_SVLC-1642

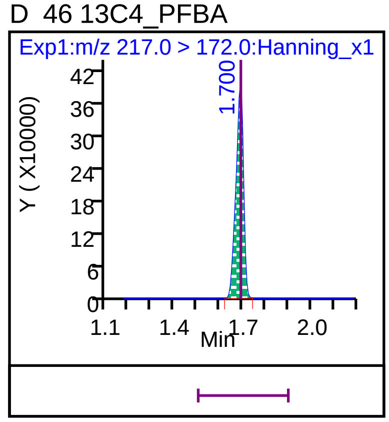
Dil. Factor: 1 Operator: Matthew M. Miller



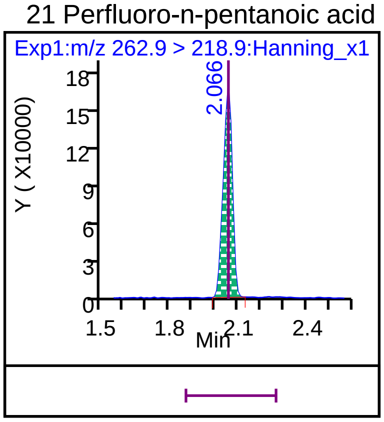
8 Perfluoro-n-butanoic acid (PFBA)



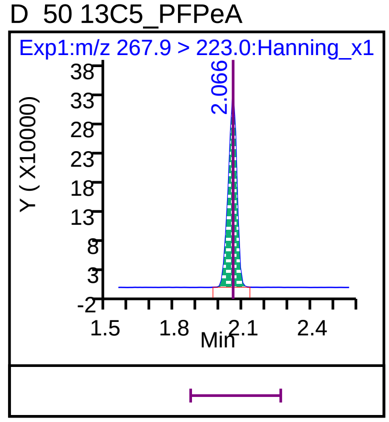
D 46 13C4_PFBA



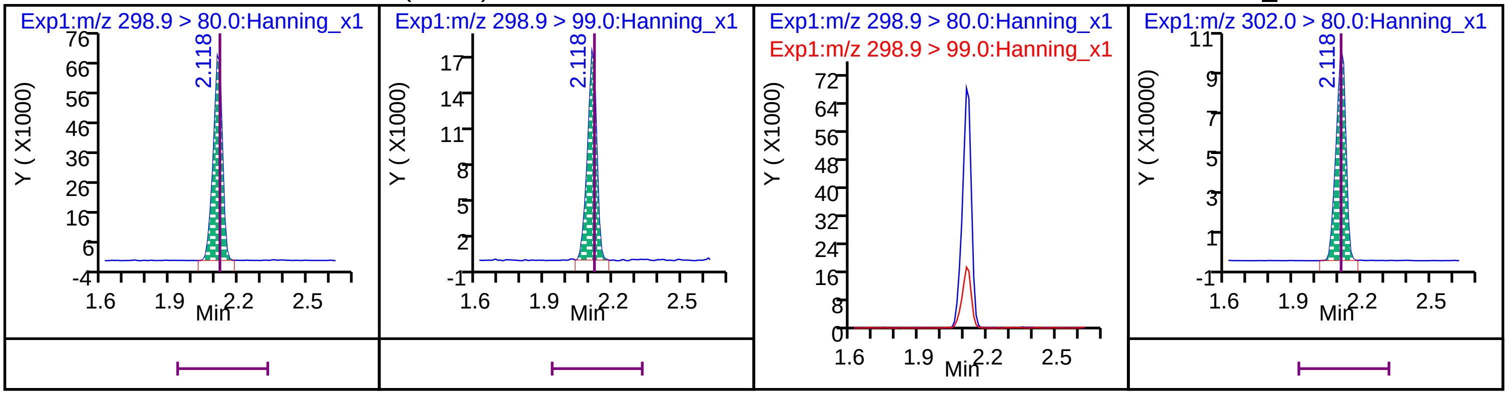
21 Perfluoro-n-pentanoic acid (PFPeA)



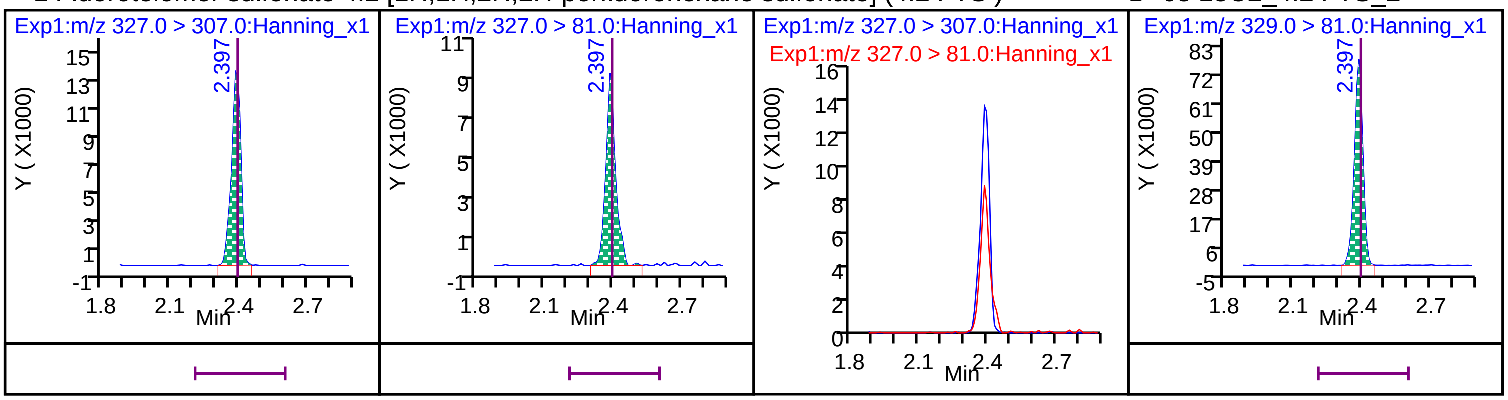
D 50 13C5_PFPeA



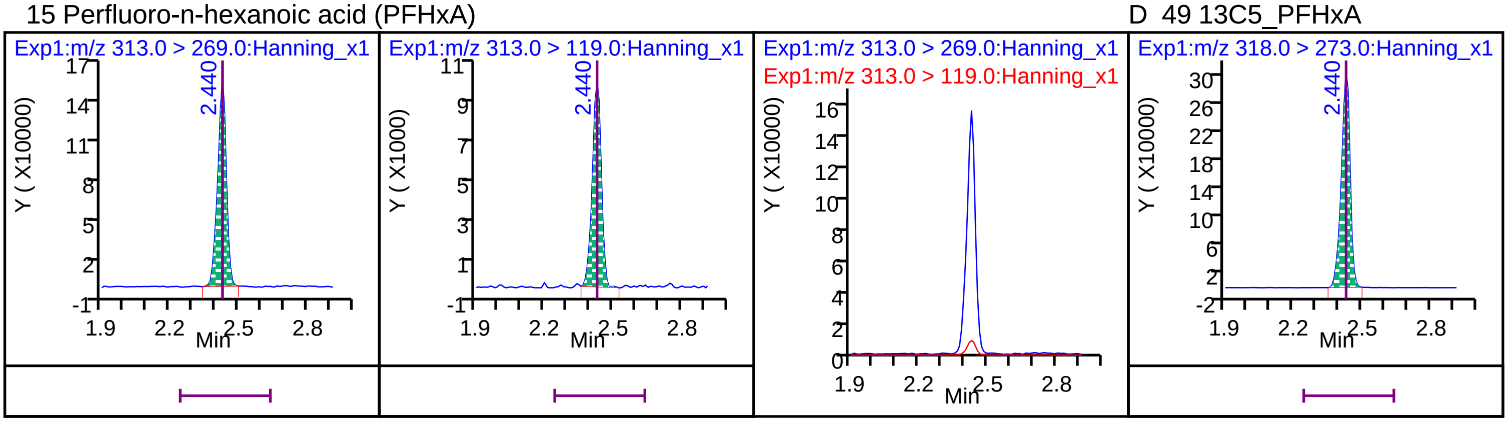
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



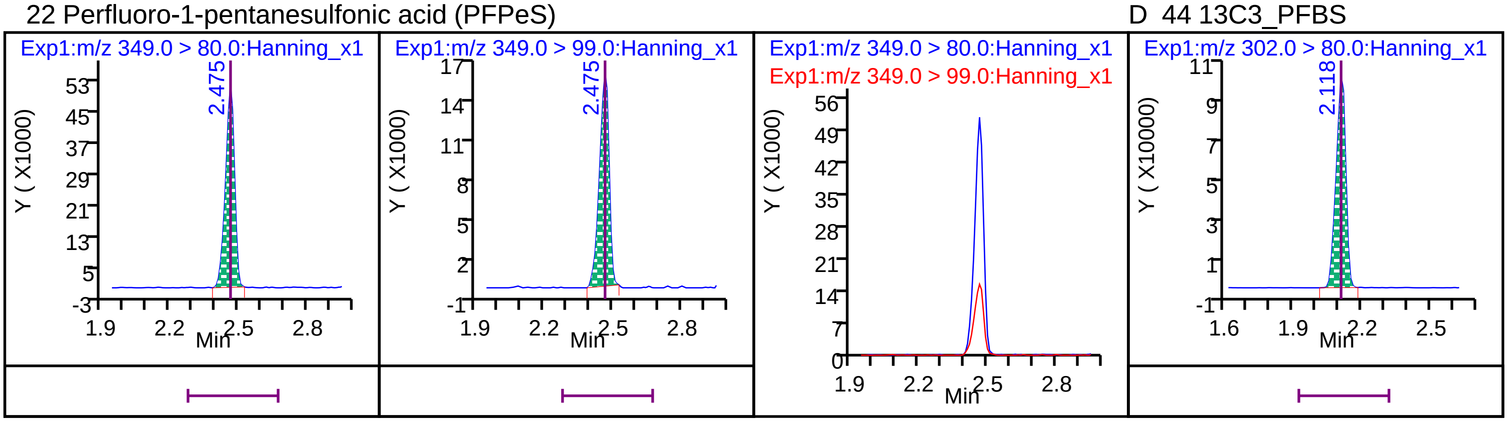
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



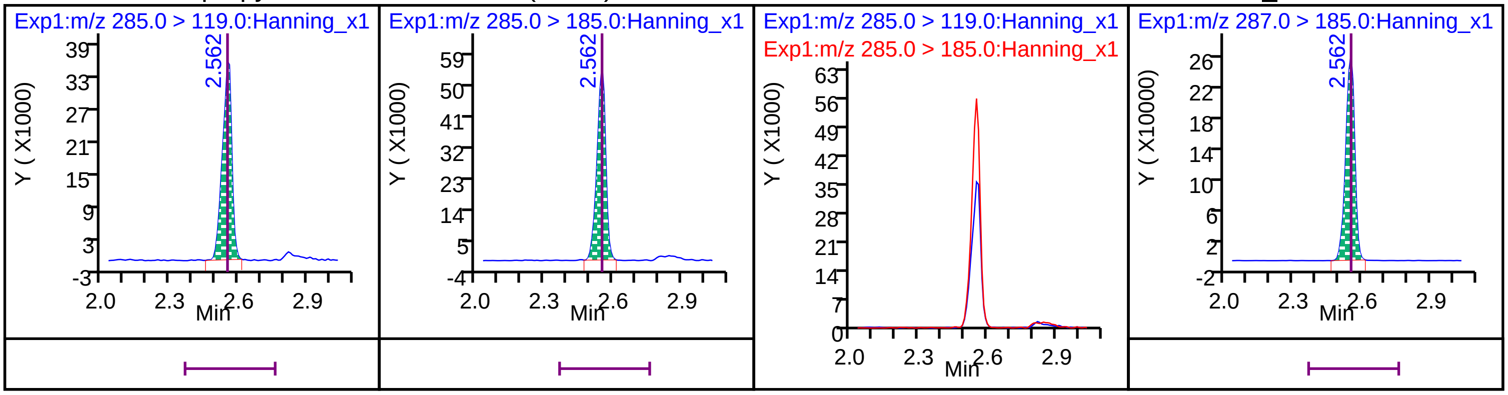
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



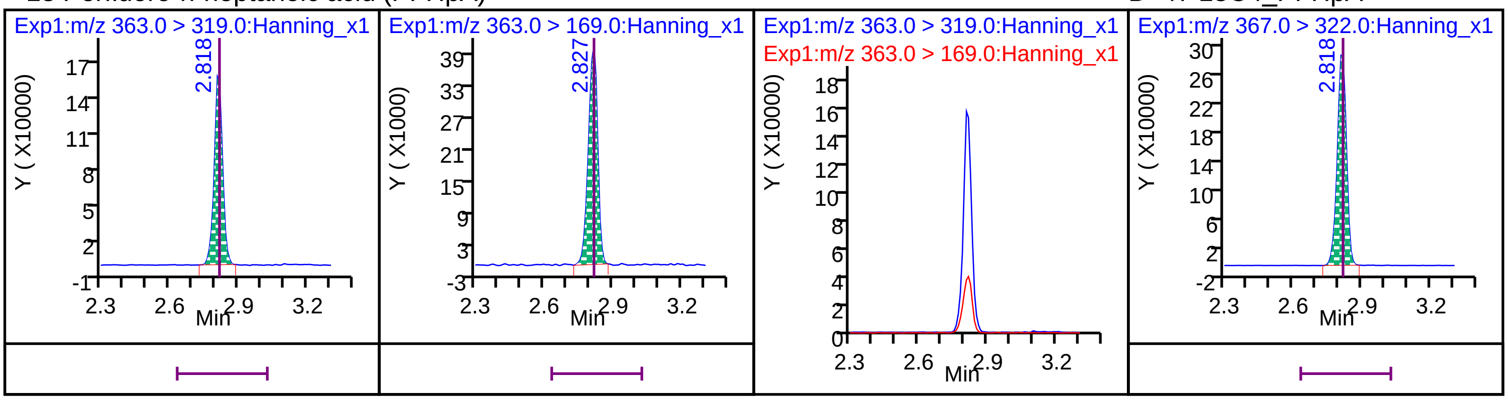
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



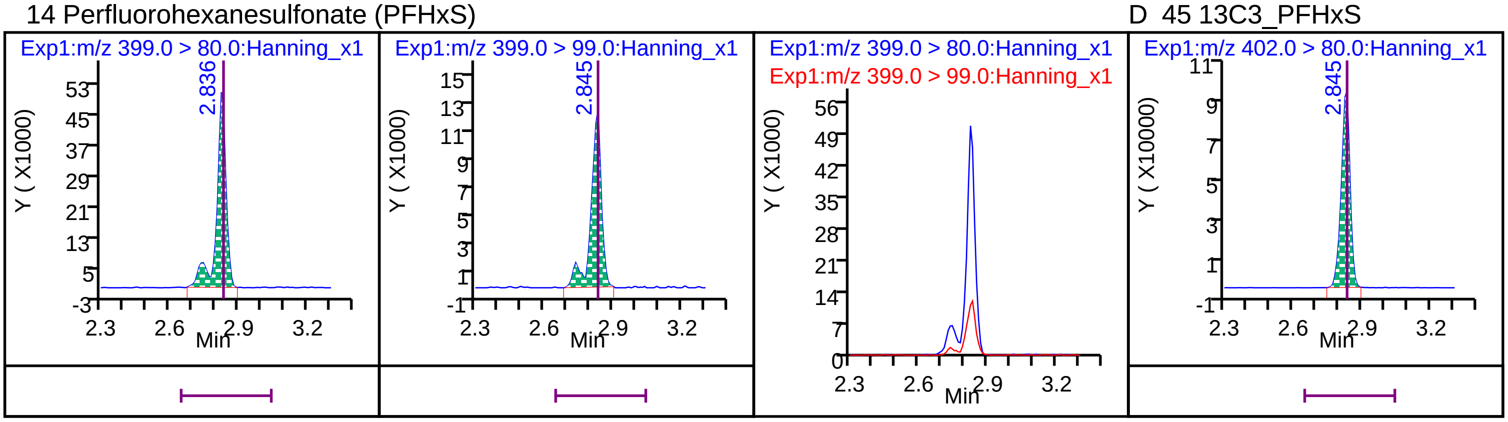
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



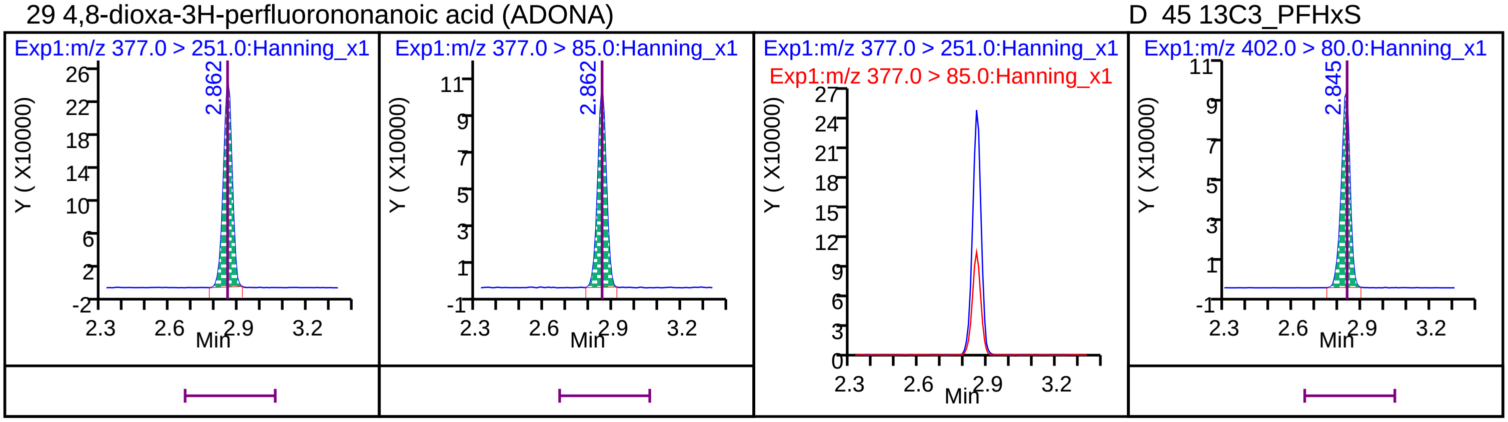
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

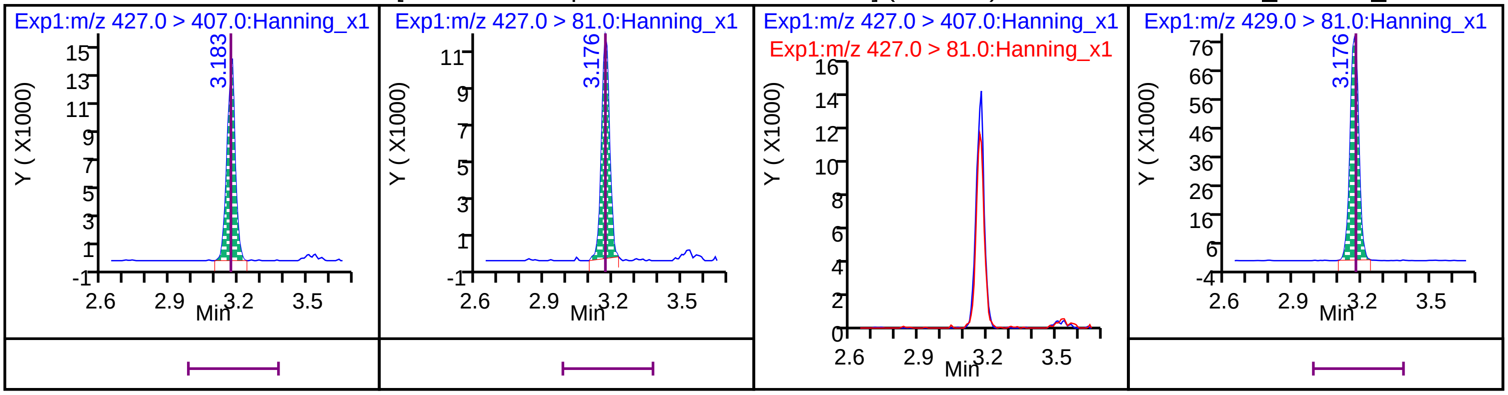


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

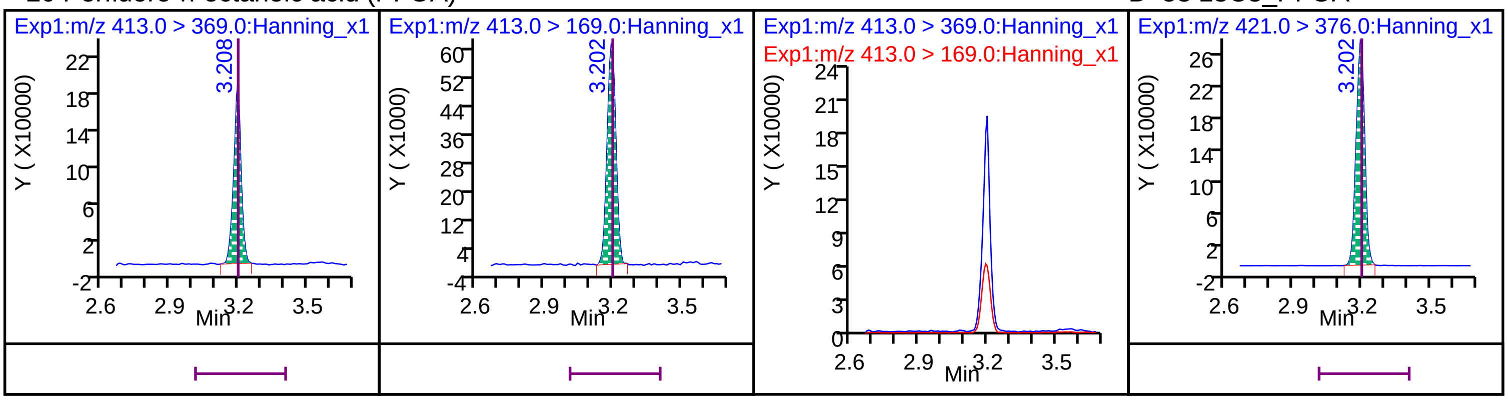


Report Date: 19-Oct-2021 08:48:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421014.d

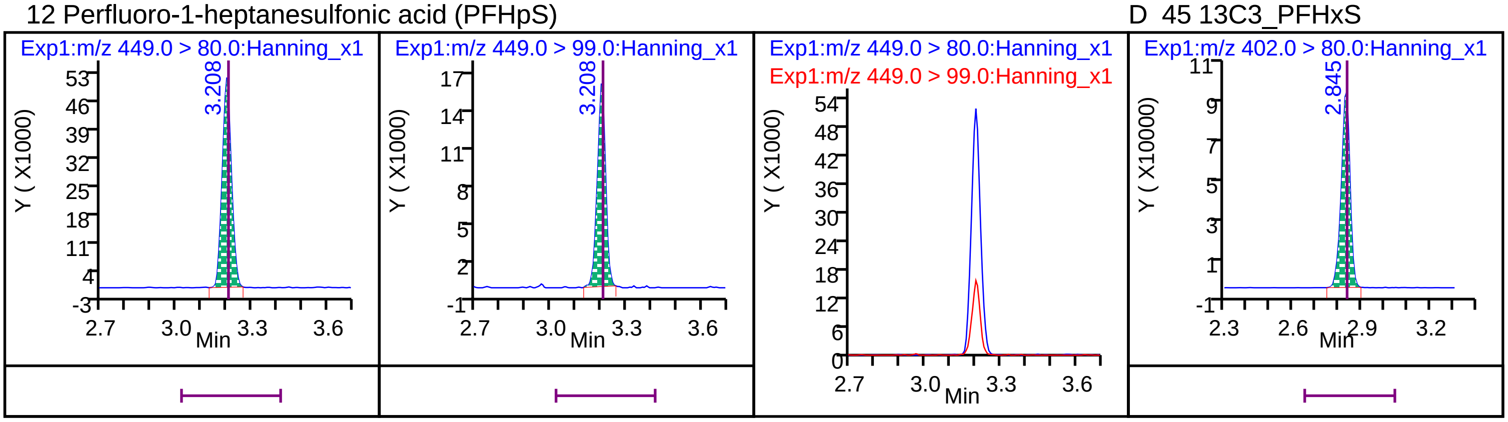
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



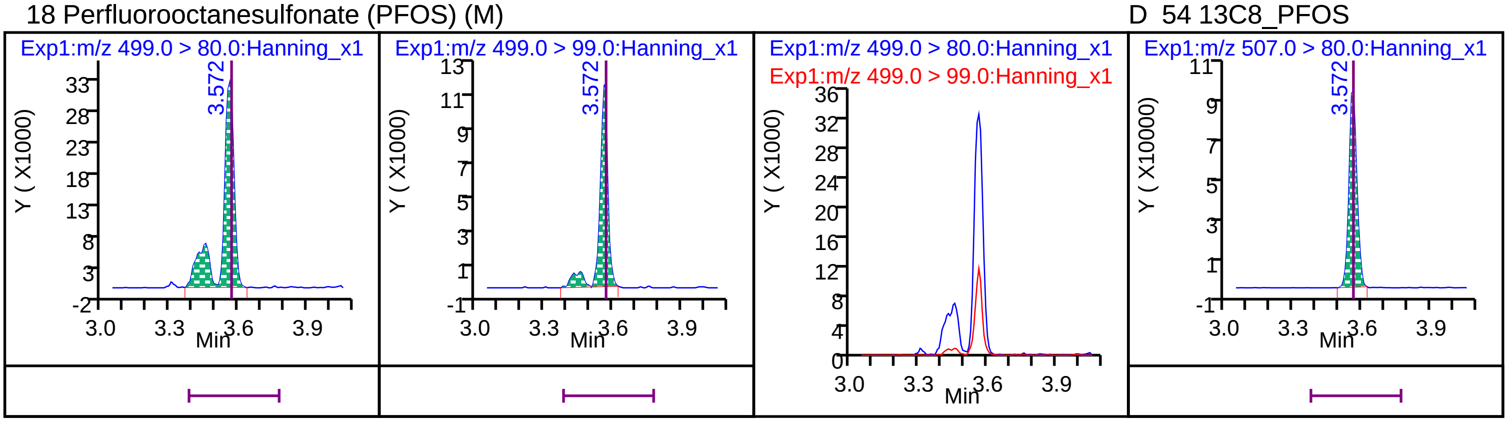
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



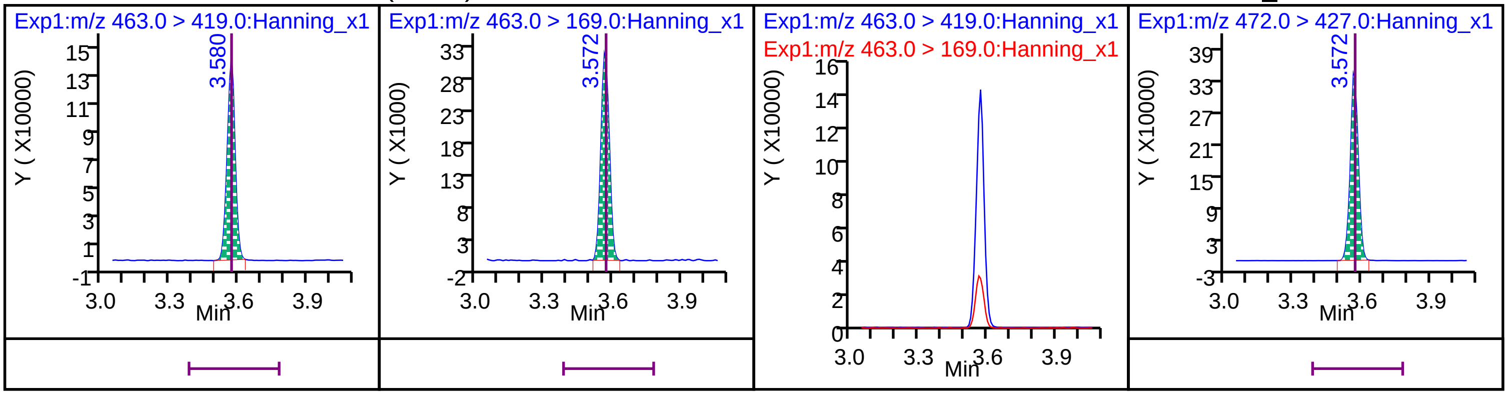
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



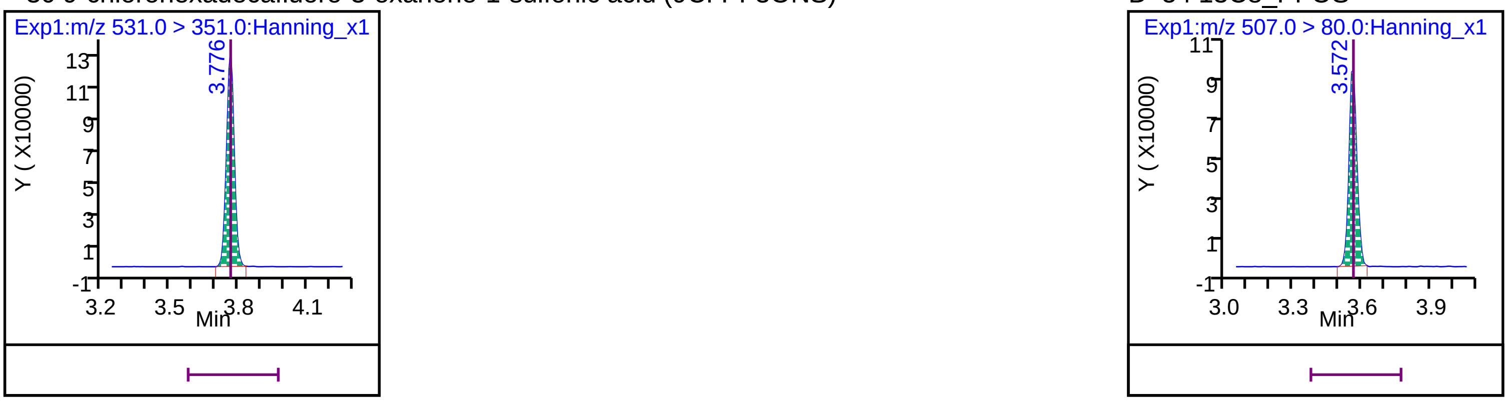
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



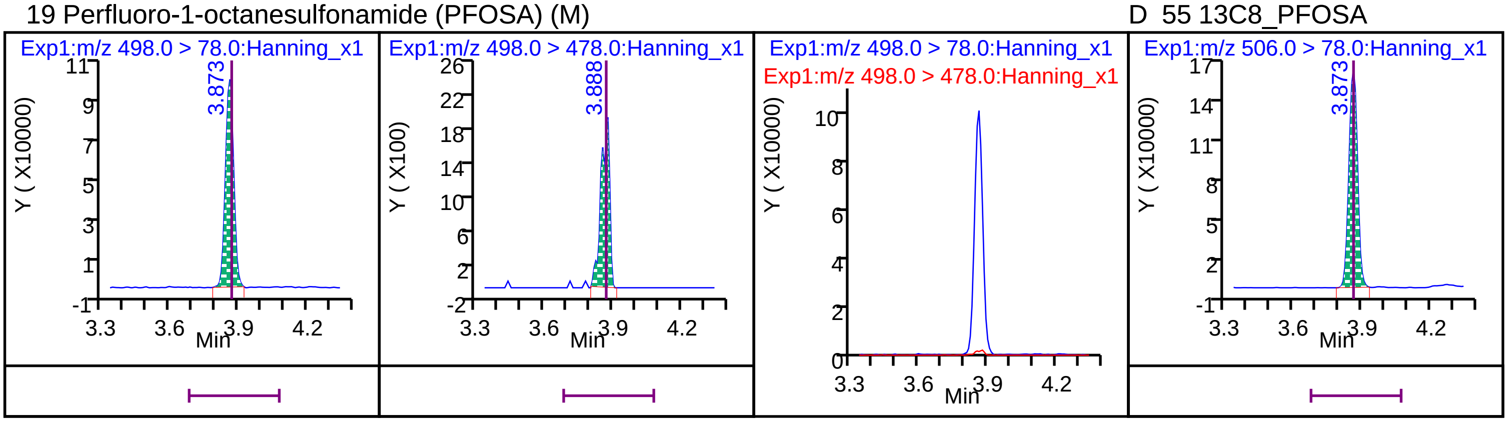
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



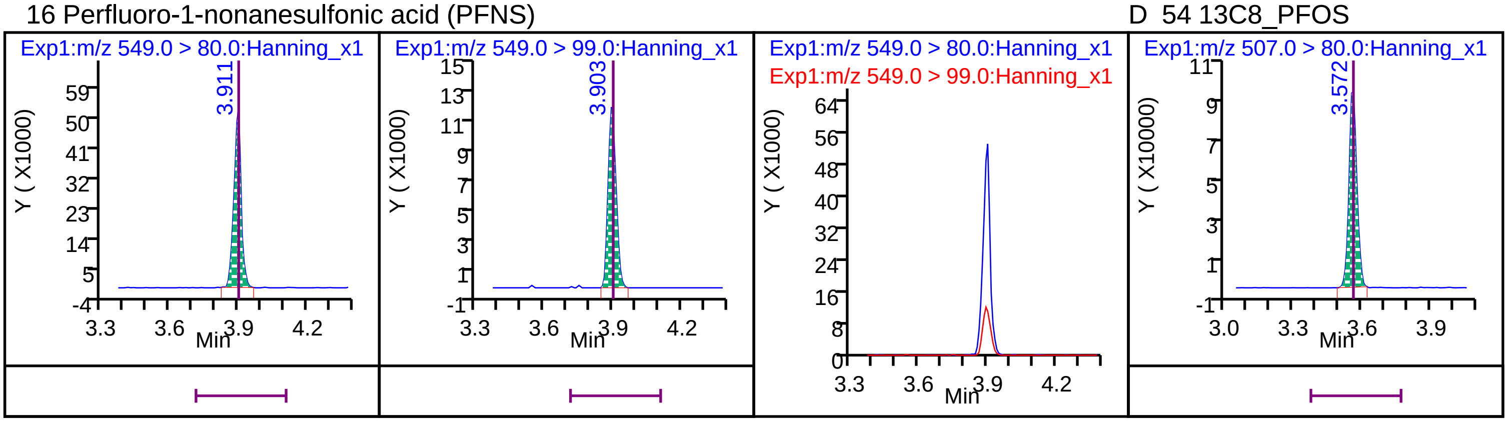
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



Report Date: 19-Oct-2021 08:48:53 AIM Revision: 2.0.2021.0812
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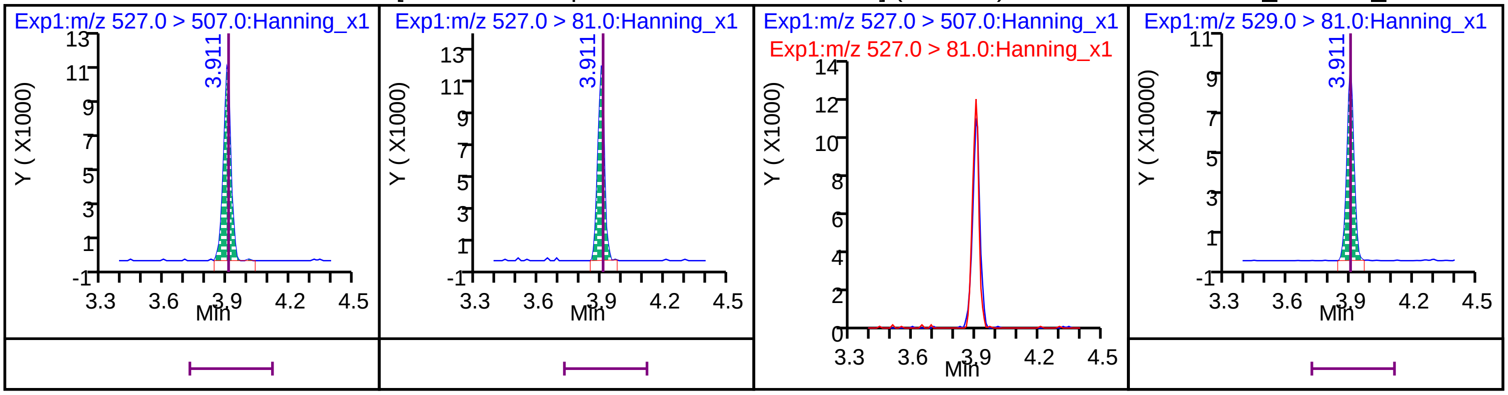
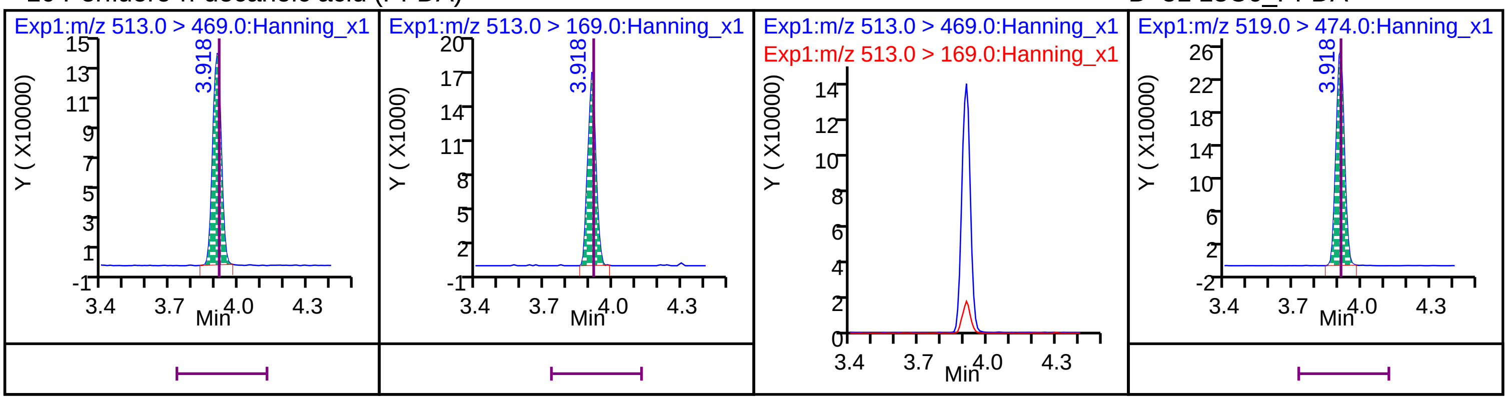
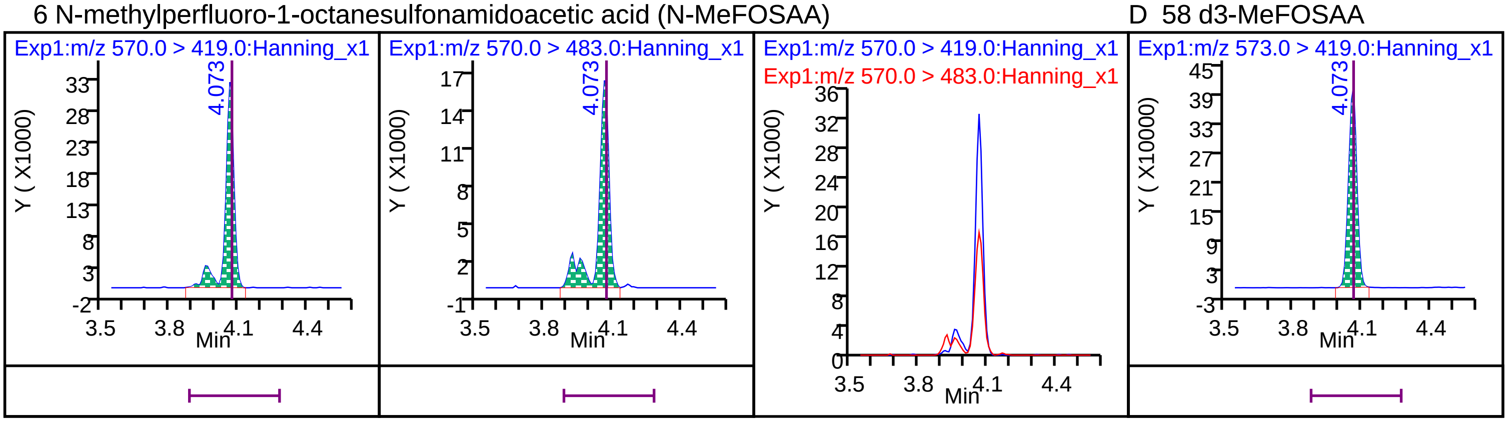
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



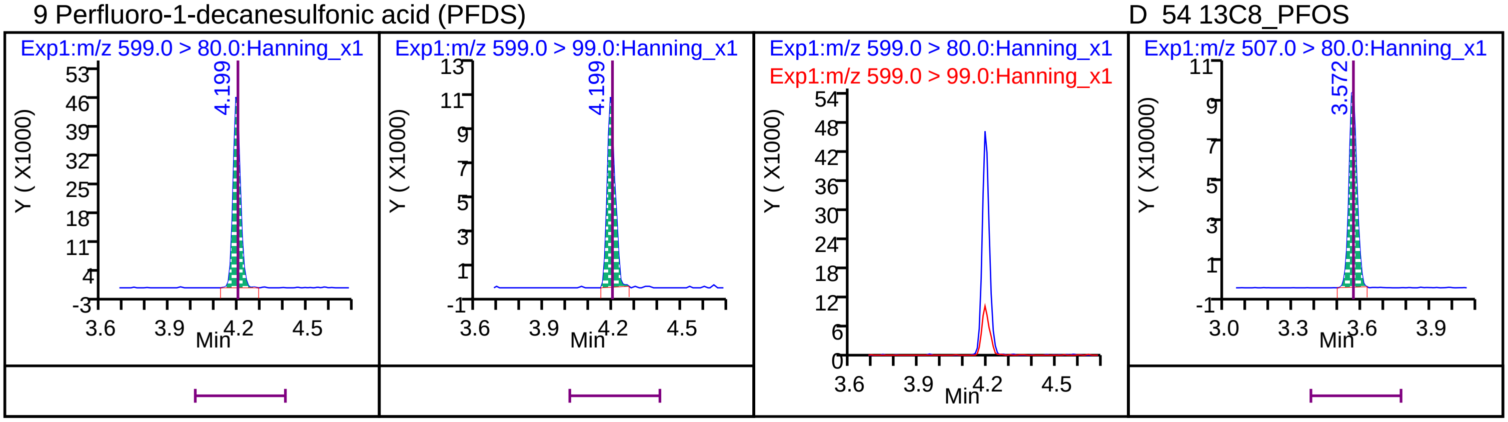
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



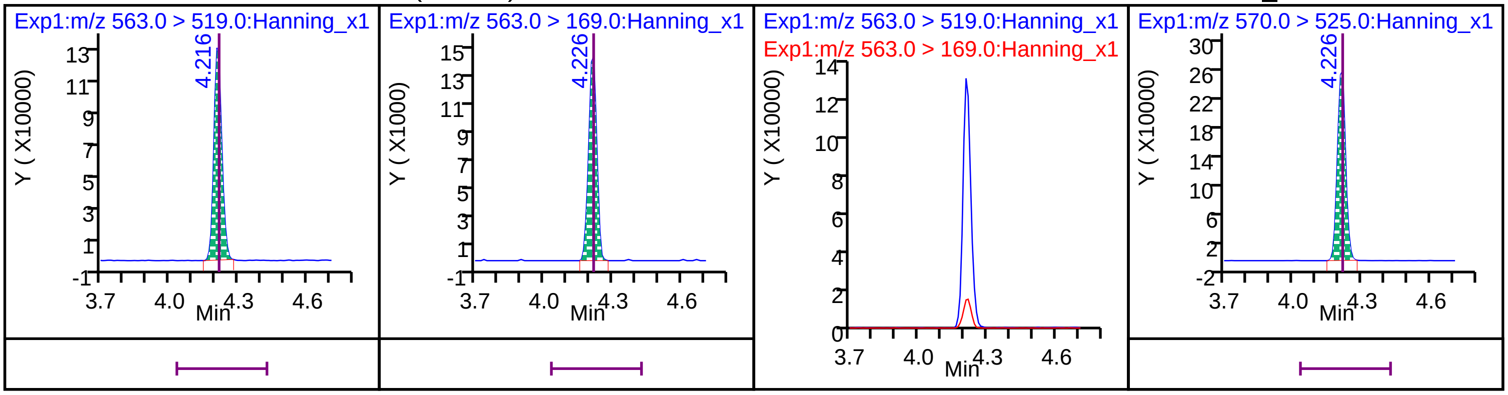
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



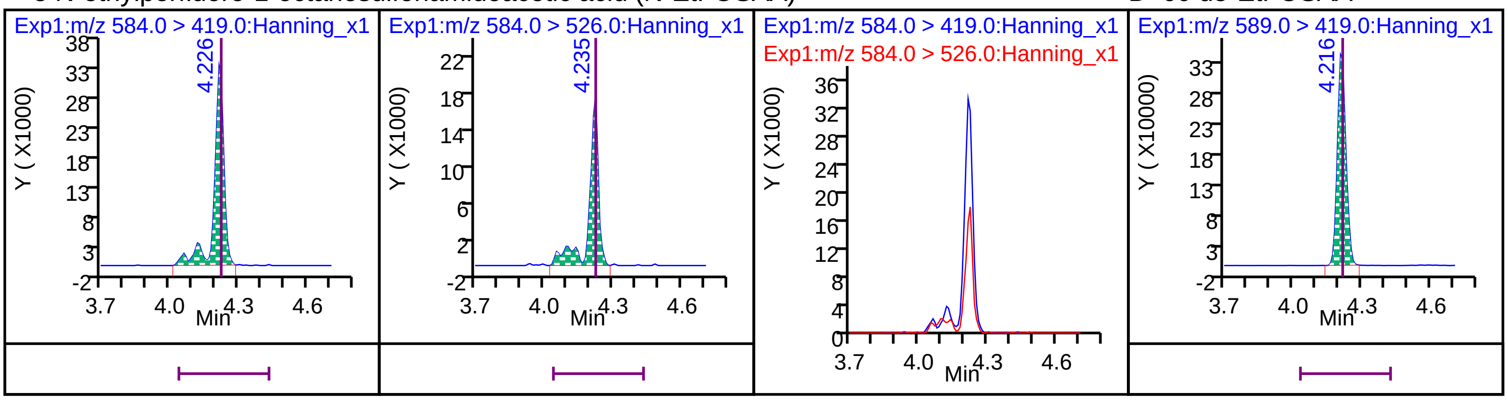
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

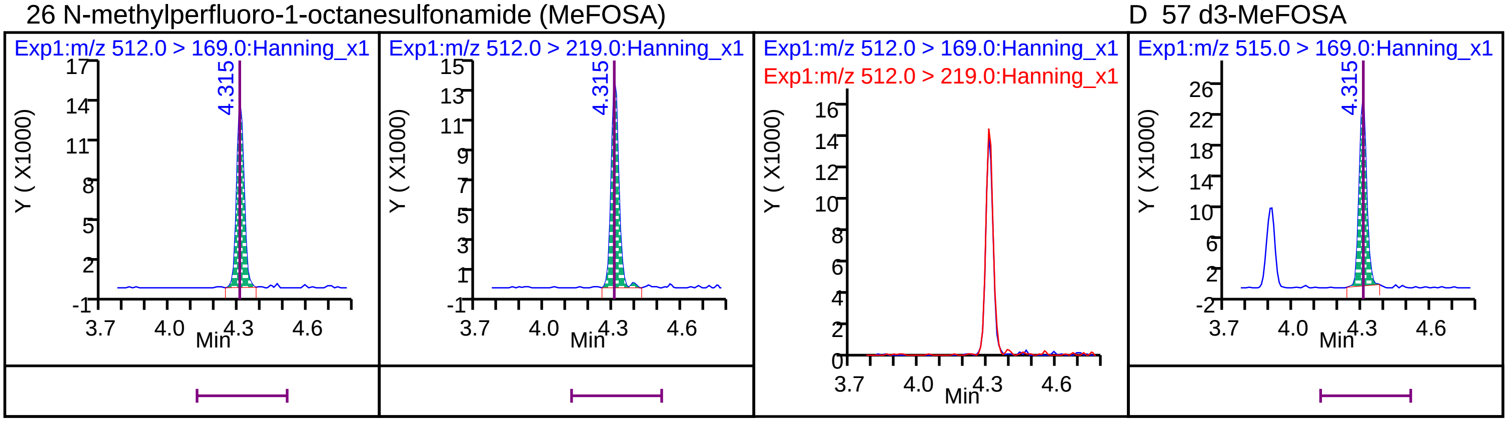


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

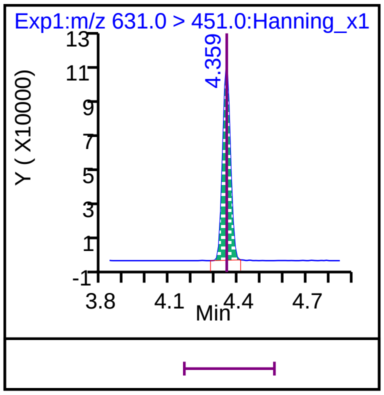


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

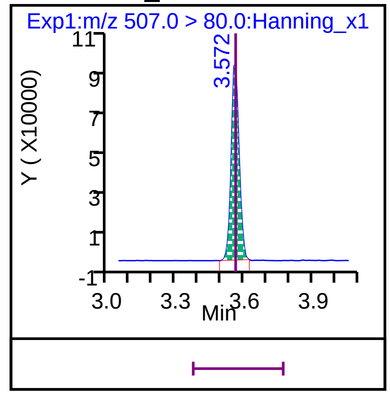
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



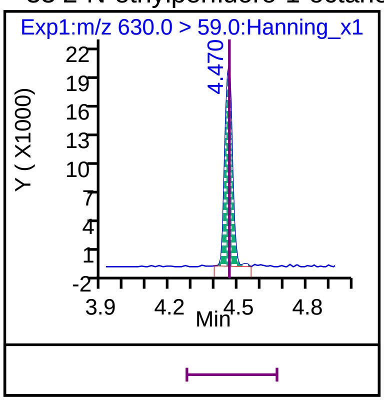
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



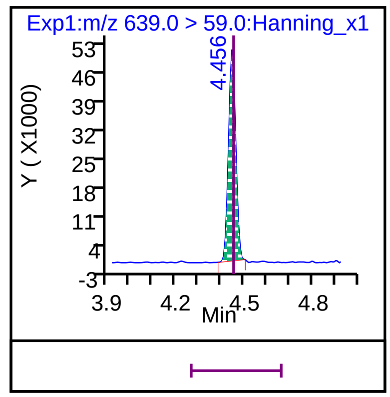
D 54 13C8_PFOS



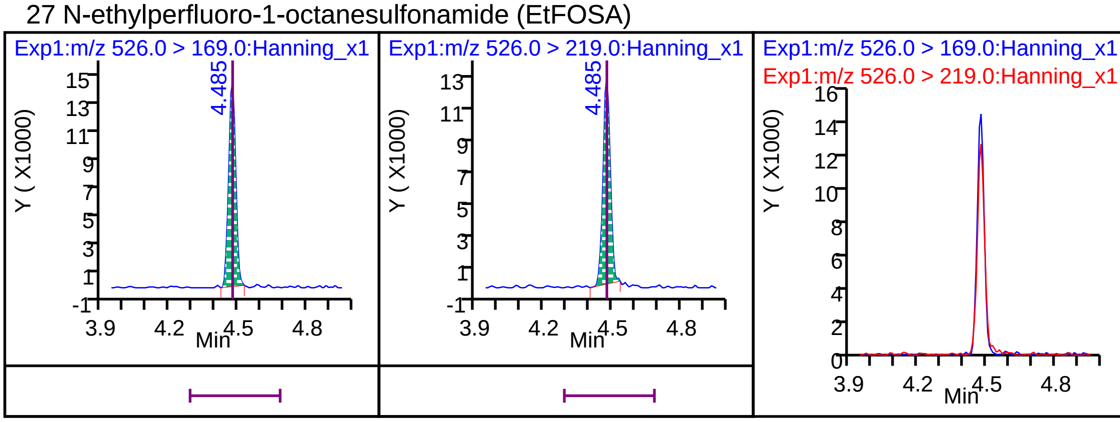
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



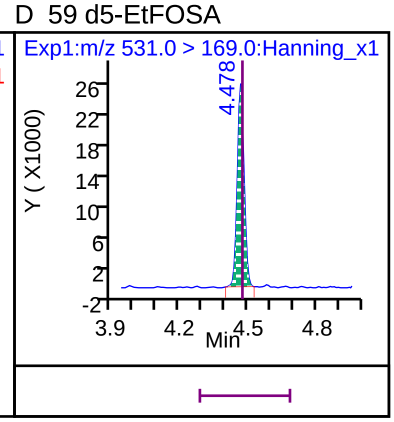
D 62 d9-EtFOSE



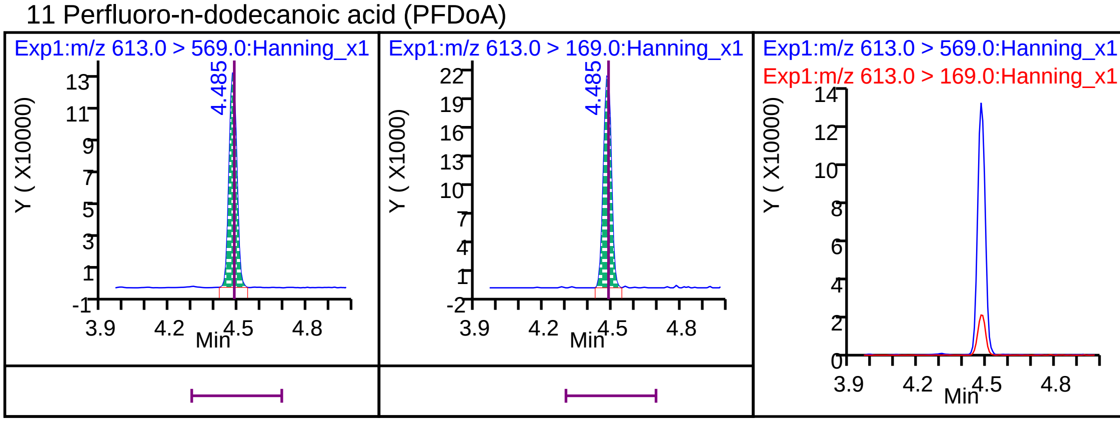
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



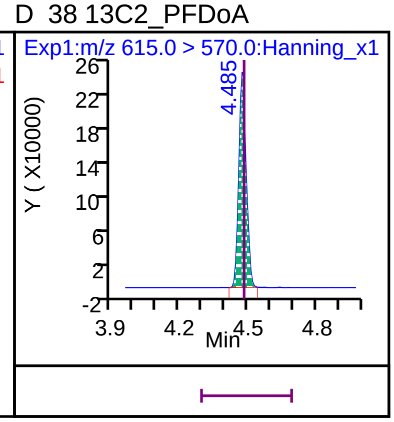
D 59 d5-EtFOSA



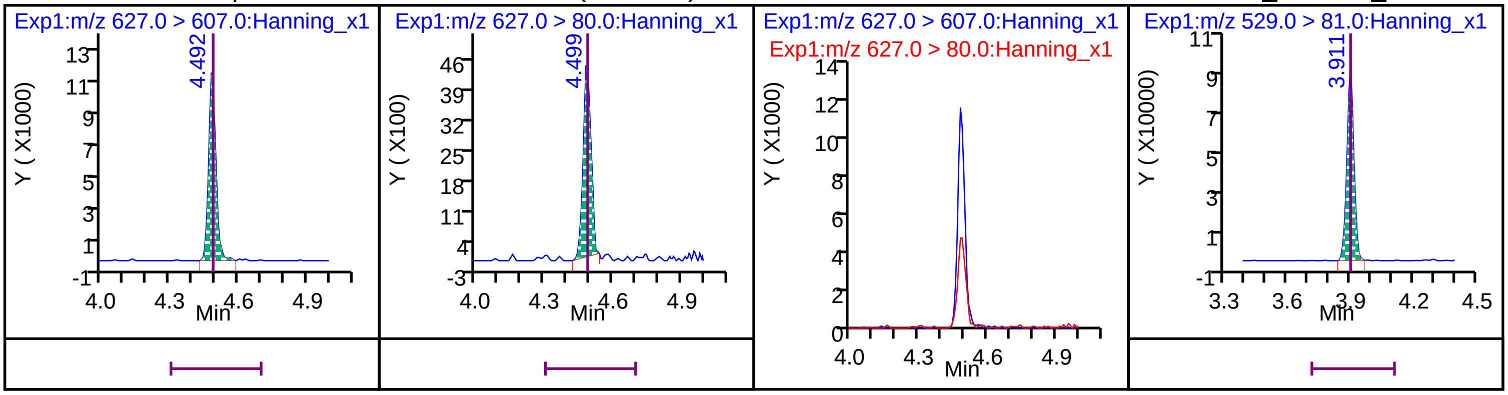
11 Perfluoro-n-dodecanoic acid (PFDoA)



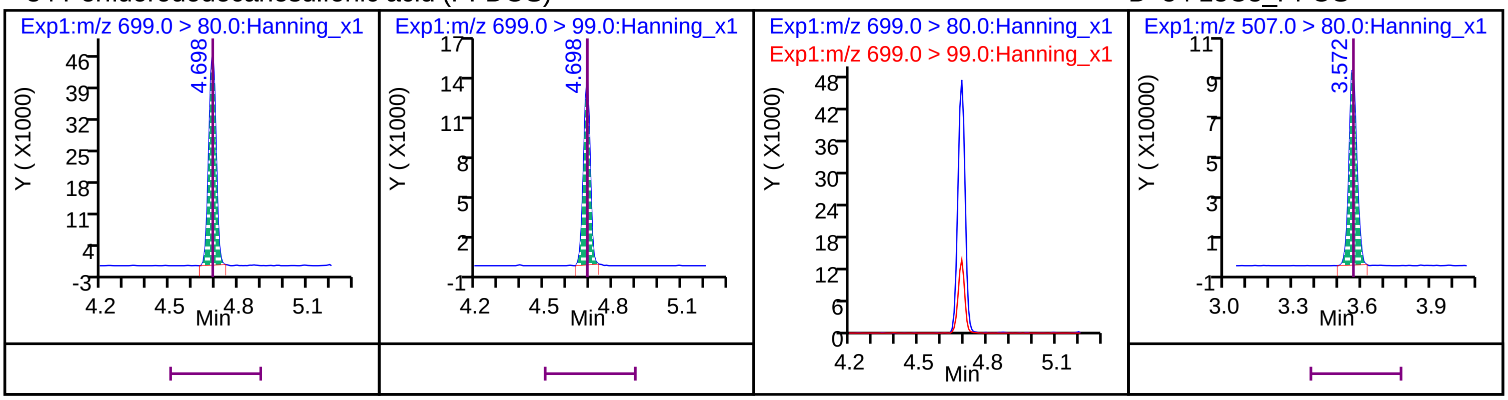
D 38 13C2_PFDoA



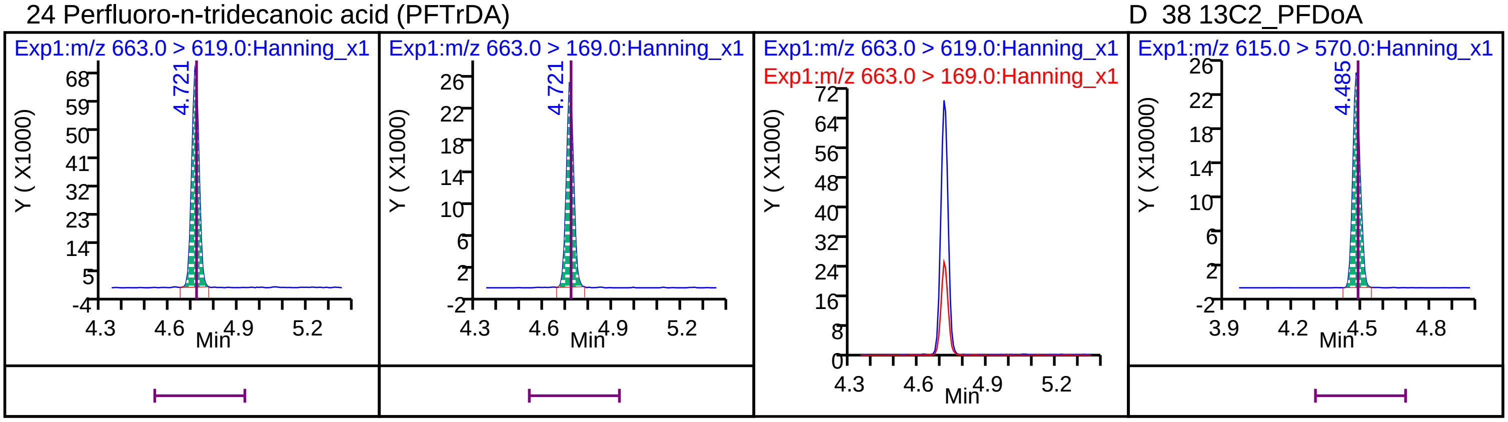
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



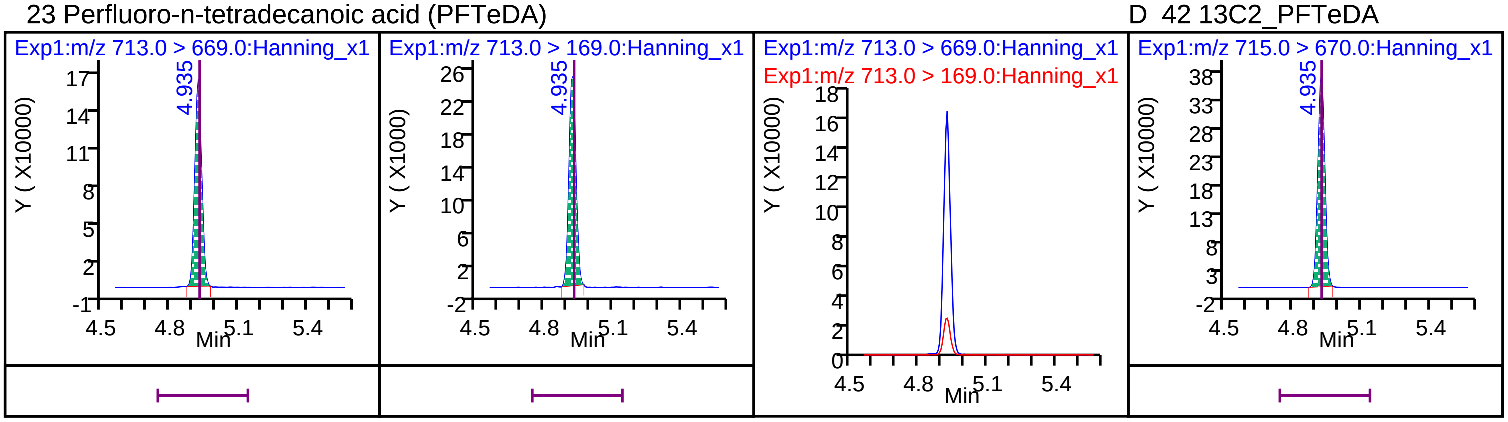
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



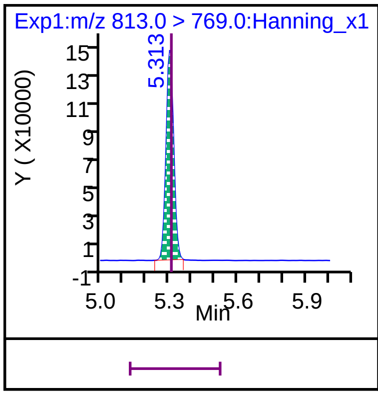
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

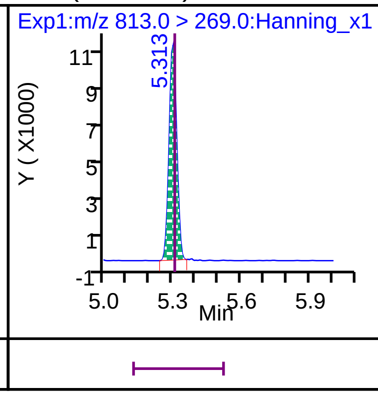


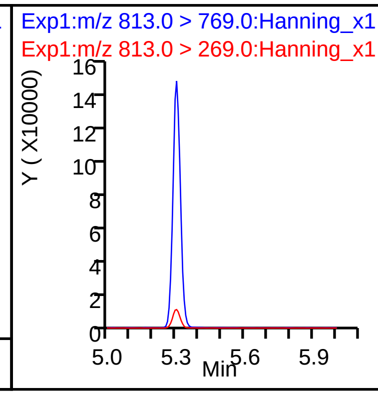
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



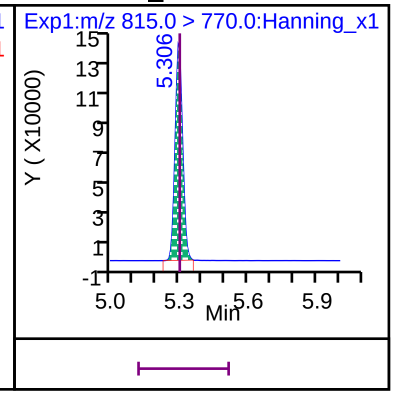
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



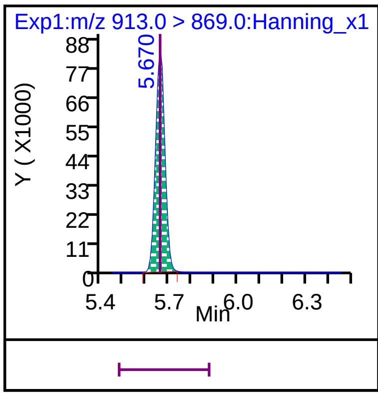


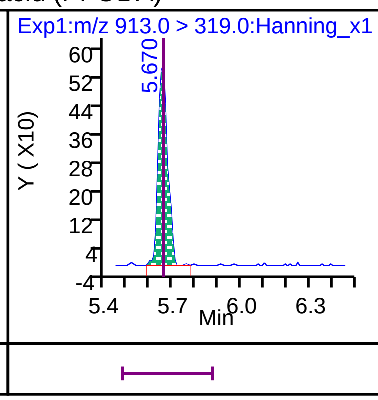


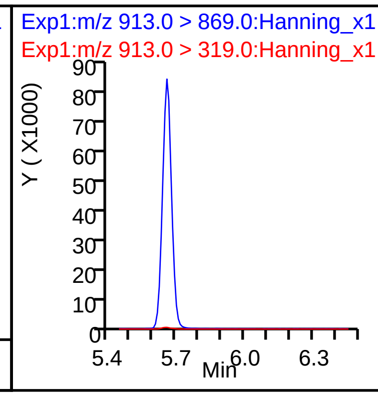
D 40 13C2_PFHxDA



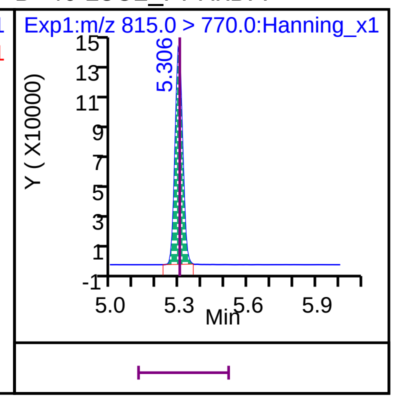
36 Perfluoro-n-octadecanoic acid (PFODA)



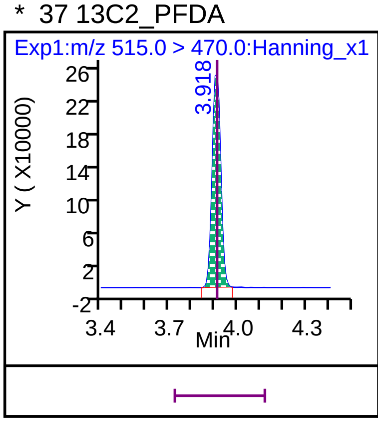




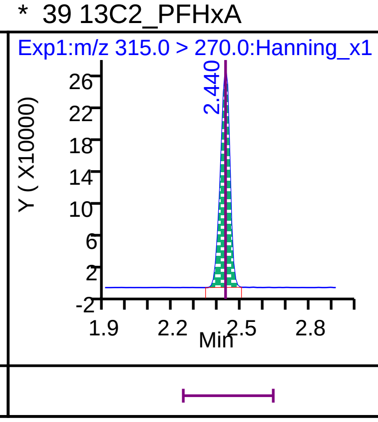
D 40 13C2_PFHxDA



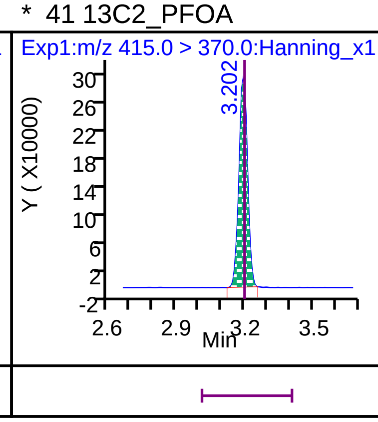
* 37 13C2_PFDA



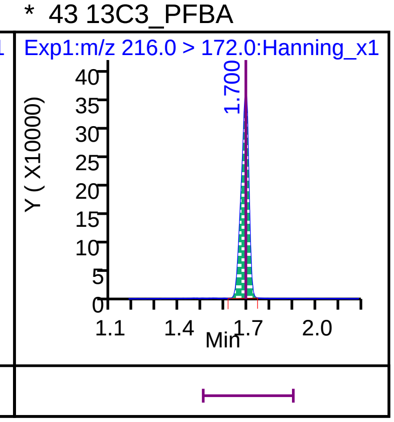
* 39 13C2_PFHxA



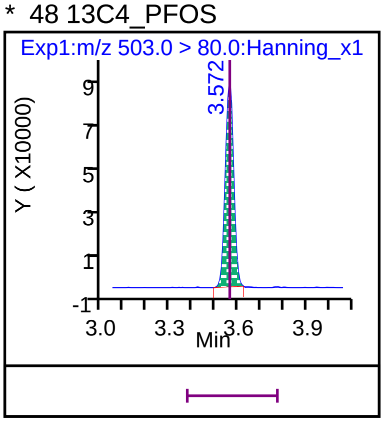
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

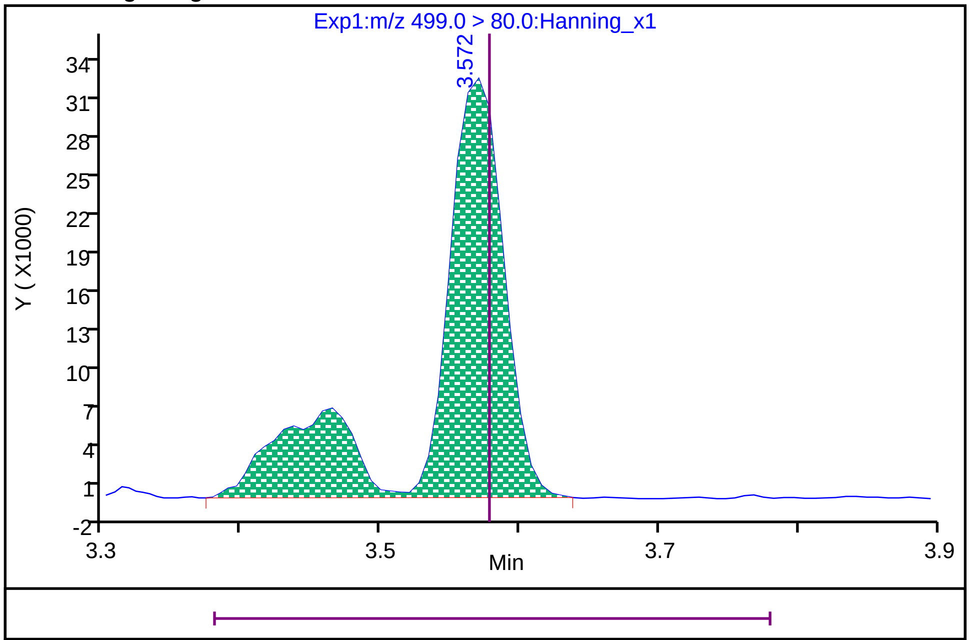
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421014.d		
Injection Date:	14-Oct-2021 11:39:03	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1642
Sample Info:	ICAL 500_SVLC-1642		
Dil. Factor:	1	Operator:	Matthew M. Miller

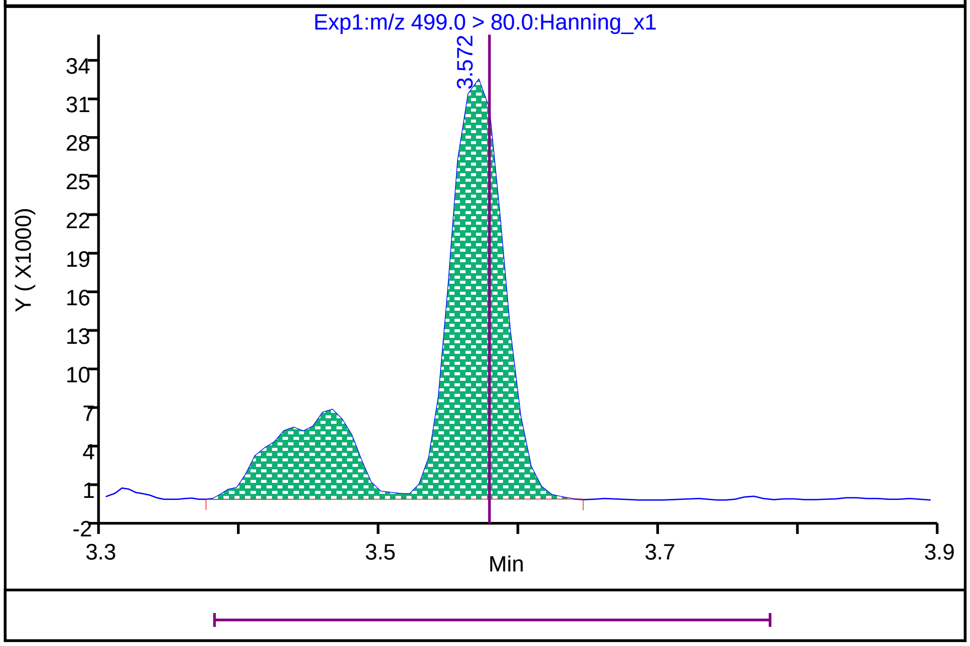
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.572
Area:	112924
Amount:	425.63
Amount Units:	ng/L



RT:	3.572
Area:	113144
Amount:	423.69
Amount Units:	ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:47:30

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 19-Oct-2021 08:48:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

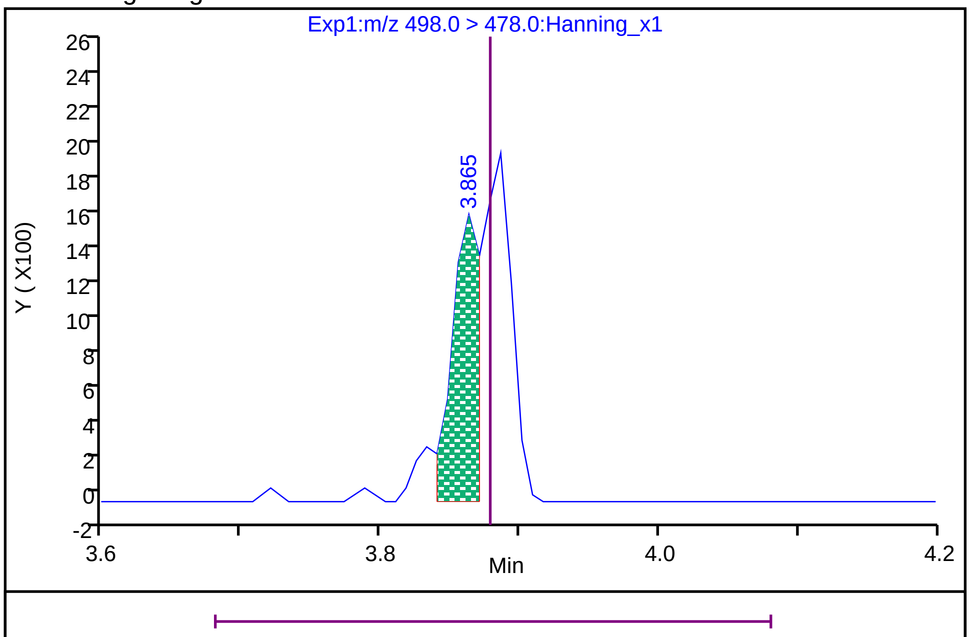
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421014.d		
Injection Date:	14-Oct-2021 11:39:03	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1642
Sample Info:	ICAL 500_SVLC-1642		
Dil. Factor:	1	Operator:	Matthew M. Miller

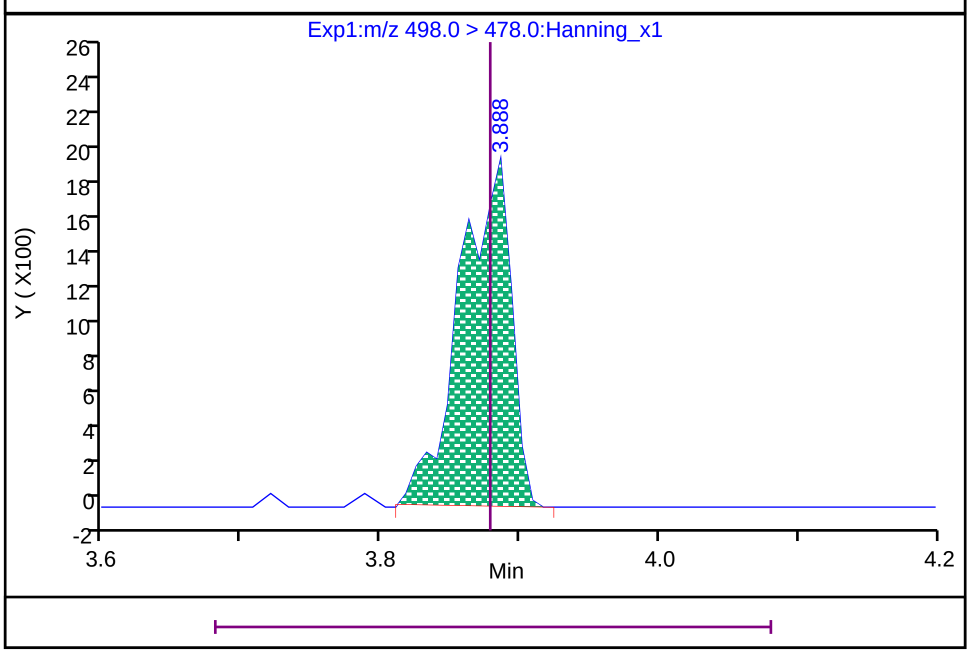
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT: 3.865
Area: 1916
Amount: 504.97
Amount Units: ng/L



RT: 3.888
Area: 4807
Amount: 504.97
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:16:51
Audit Action: Mint
Audit Reason: Assign Peak

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421015.d		
Injection Date:	14-Oct-2021 11:49:36	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	5
Sample Info:	ICAL 1000_SVLC-1674	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	1060126	20	>100:1			1000.00	1181.72	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	0/0	1041738	19	>100:1			1000.00	909.34		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	1065127	17	>100:1			1000.00	1184.93	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	1074630	16	>100:1			1000.00	934.74		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	0	349624	15	>100:1			1000.00	1171.30	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.129	2.129	0/0	389475	16	>100:1	Target = 3.78		884.00	801.27		
298.9 > 99	44	2.119	2.129		112834	14	>100:1	3.45 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/0	317313	18	>100:1	Target = 3.45		938.00	879.67		
349 > 99	44	2.475	2.475		95106	17	>100:1	3.33 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.406	2.406	0	267812	19	>100:1			5000.00	5992.85	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.406	2.406	0/0	87350	18	>100:1	Target = 1.43		934.00	851.15		
327 > 81	63	2.406	2.406		61082	20	>100:1	1.43 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	997159	18	>100:1			1000.00	1217.87	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	915189	18	>100:1	Target = 16.37		1000.00	893.53		
313 > 119	49	2.440	2.440		54285	18	>100:1	16.85 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	863067	18	>100:1			5000.00	5965.05	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/0	246862	18	>100:1	Target = 0.74		2000.00	1862.11		
285 > 185	66	2.562	2.562		368972	19	>100:1	0.66 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.827	0	975256	18	>100:1			1000.00	1217.11	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/0	890934	19	>100:1	Target = 3.21		1000.00	920.63		
363 > 169	47	2.827	2.827		273145	19	>100:1	3.26 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.845	2.845	0	296300	17	>100:1			1000.00	1204.69	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	0/0	294897	25	>100:1	Target = 3.47	4.99	910.00	825.48		
399 > 99	45	2.845	2.845		84761	27	>100:1	3.47 (1.73-5.21)	8.03				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.862	2.862	0/0	1370684	19	>100:1	Target = 2.28		942.00	850.93		
377 > 85	45	2.862	2.862		614818	19	>100:1	2.22 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.215	3.215	0/0	288881	21	>100:1	Target = 3.62		952.00	897.88		
449 > 99	45	3.215	3.215		73580	21	>100:1	3.92 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.183	3.183	0	271560	22	>100:1			5000.00	6214.61	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.177	3.177	0/0	89620	22	>100:1	Target = 1.19		948.00	1046.24		
427 > 81	64	3.183	3.177		68679	22	>100:1	1.30 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.208	3.208	0	875082	22	>100:1			1000.00	1156.50	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.208	0/0	825301	21	>100:1	Target = 2.34		1000.00	936.72		
413 > 169	53	3.208	3.208		353869	21	>100:1	2.33 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	0	266405	20	>100:1			1000.00	1175.81	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.580	3.580	0/0	282612	59	>100:1	Target = 4.00	3.58	928.00	878.77		M
499 > 99	54	3.572	3.580		72206	37		3.91 (2.00-6.01)	6.96				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.776	3.776	0/0	668771	20	>100:1			932.00	822.64		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.911	3.911	0/0	236964	17	>100:1	Target = 3.83		960.00	879.69		
549 > 99	54	3.911	3.911		64152	16	>100:1	3.69 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.207	4.207	0/0	240518	15	>100:1	Target = 3.87		964.00	938.38		
599 > 99	54	4.207	4.207		55651	15	>100:1	4.32 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	597933	16	>100:1			942.00	859.42		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	224870	18	>100:1	Target = 3.65		968.00	923.70		
699 > 99	54	4.698	4.698		59927	17	>100:1	3.75 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.580	3.580	0	917935	19	>100:1			1000.00	1183.74	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	0/0	768216	20	>100:1	Target = 4.21		1000.00	958.84		
463 > 169	56	3.587	3.580		164807	19	>100:1	4.66 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	480654	20	>100:1			1000.00	1147.65	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.880	3.880	0/0	507649	19	>100:1	Target = 49.05		1000.00	931.52		
498>478	55	3.880	3.880		10541	16	>100:1	48.15 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.911	3.911	0	228965	18	>100:1			5000.00	6055.07	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.918	3.918	0/0	60046	24	>100:1	Target = 1.27		958.00	888.07		
527 > 81	65	3.918	3.918		47244	17	>100:1	1.27 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.500	4.500	0/0	59611	19	>100:1	Target = 2.25		964.00	863.33		
627 > 80	65	4.500	4.500		30385	22	>100:1	1.96 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.918	0	809542	19	>100:1			1000.00	1191.98	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.926	3.926	0/0	871860	17	>100:1	Target = 8.94		1000.00	1065.90		
513 > 169	51	3.918	3.926		92273	17	>100:1	9.44 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	0	1212505	17	>100:1			5000.00	5917.58	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.081	4.081	0/0	157231	33		Target = 1.38	7.39	1000.00	848.77		
570 > 483	58	4.081	4.081		127817	31	>100:1	1.23 (0.69-2.08)	4.00				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.226	4.226	0	724388	18	>100:1			1000.00	1145.93	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.226	4.226	0/0	606466	17	>100:1	Target = 8.27		1000.00	943.98		
563 > 169	52	4.226	4.226		75120	14	>100:1	8.07 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.226	4.226	0	1058921	17	>100:1			5000.00	6168.12	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.235	4.235	0/0	192517	34	>100:1	Target = 1.95	6.77	1000.00	851.72		
584 > 526	60	4.226	4.235		106102	40	>100:1	1.81 (0.97-2.92)	4.10				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.298	4.298	0	152911	15	>100:1			1000.00	1202.50	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.306	0/0	132956	15	>100:1			1000.00	881.55		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	0	72599	15	>100:1			1000.00	1249.09	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.315	4.315	0/0	64343	14	>100:1	Target = 1.08		1000.00	832.40		
512 > 219	57	4.324	4.315		58166	15	>100:1	1.10 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	0	146363	17	>100:1			1000.00	1246.10	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.471	4.471	0/0	97696	16	>100:1			1000.00	783.28		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.485	4.485	0	65766	16	>100:1			1000.00	1197.30	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.485	0/0	64772	15	>100:1	Target = 1.10		1000.00	860.78		
526 > 219	59	4.492	4.485		62319	18	>100:1	1.03 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.492	4.492	0	709018	18	>100:1			1000.00	1180.46	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.492	4.492	0/0	698779	17	>100:1	Target = 5.93		1000.00	962.25		
613 > 169	38	4.492	4.492		109230	17	>100:1	6.39 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.728	4.728	0/0	353726	18	>100:1	Target = 2.90		1000.00	922.21		
663 > 169	38	4.728	4.728		133249	17	>100:1	2.65 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.935	4.935	0	924733	21	>100:1			1000.00	1154.20	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.940	4.940	0/0	739604	21	>100:1	Target = 6.34		1000.00	944.68		
713 > 169	42	4.935	4.940		115865	21	>100:1	6.38 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.313	5.313	1	372371	20	>100:1			1000.00	1131.65	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.319	5.319	1/0	712456	20	>100:1	Target = 12.53		1000.00	944.31		
813 > 269	40	5.319	5.319		57159	20	>100:1	12.46 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.670	5.670	1/0	541155	20	>100:1	Target = 152.15		1000.00	979.14		
913 > 319	40	5.670	5.670		3497	27		154.74 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.918	0	714643	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	885404	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.208	3.208	0	757844	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	892012	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.572	3.572	0	245422	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

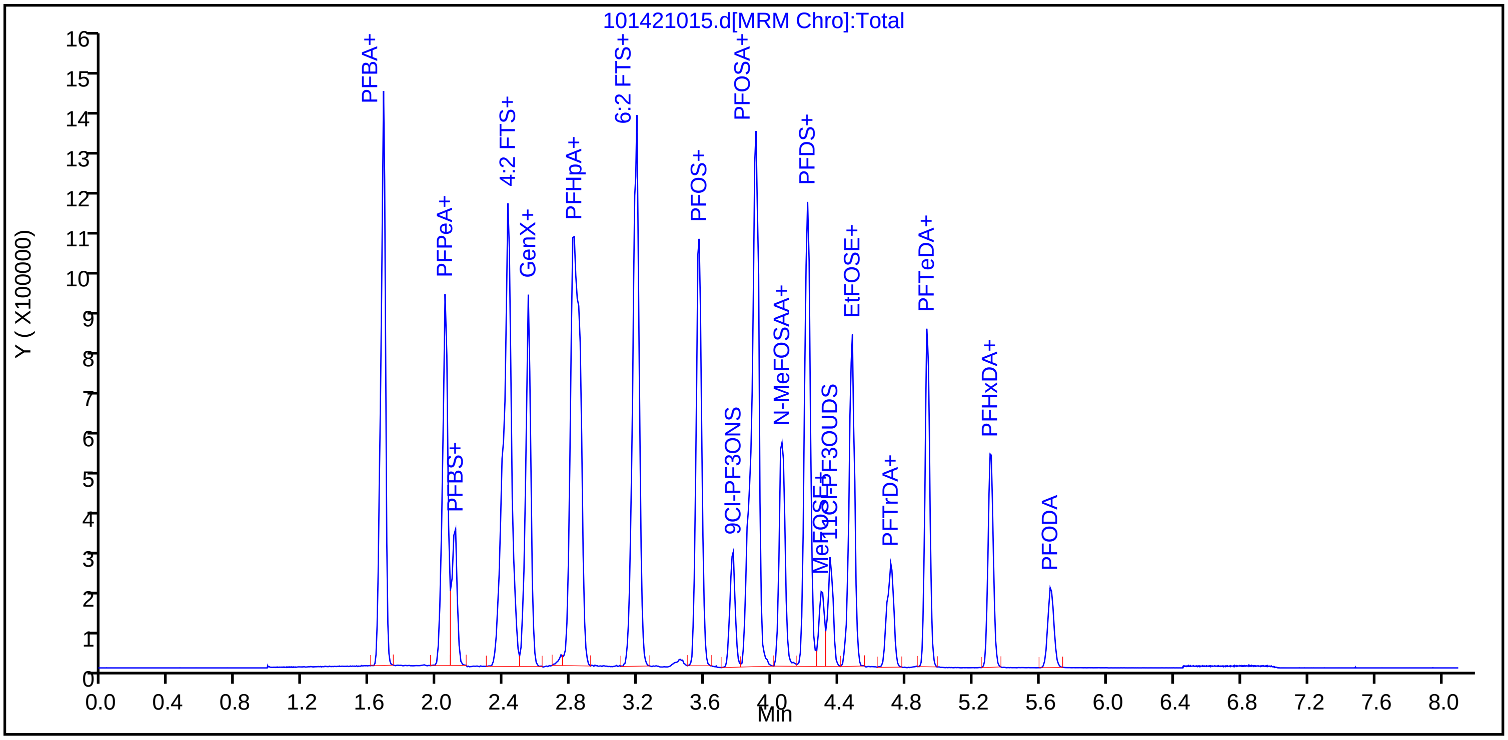
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

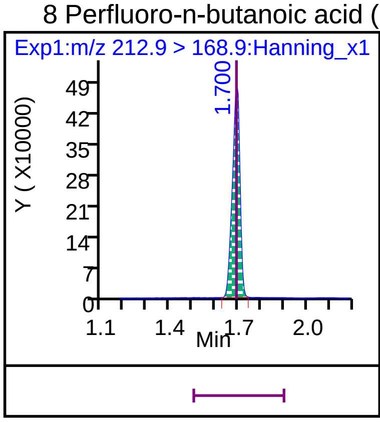
Report Date: 19-Oct-2021 08:48:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

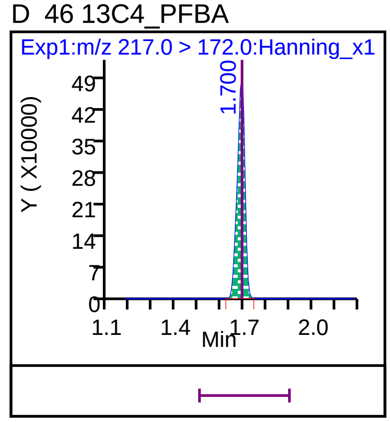
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421015.d		
Injection Date:	14-Oct-2021 11:49:36	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1674
Sample Info:	ICAL 1000_SVLC-1674		
Dil. Factor:	1	Operator:	Matthew M. Miller



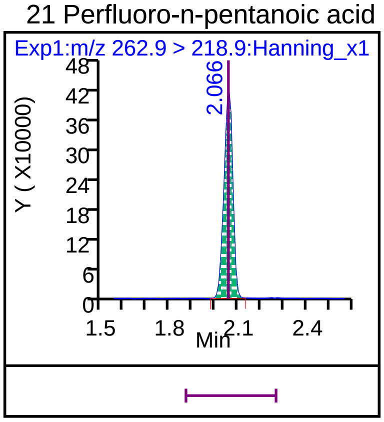
8 Perfluoro-n-butanoic acid (PFBA)



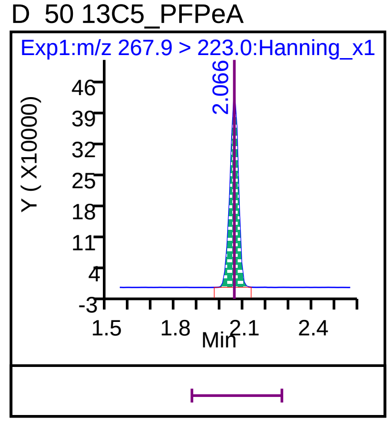
D 46 13C4_PFBA



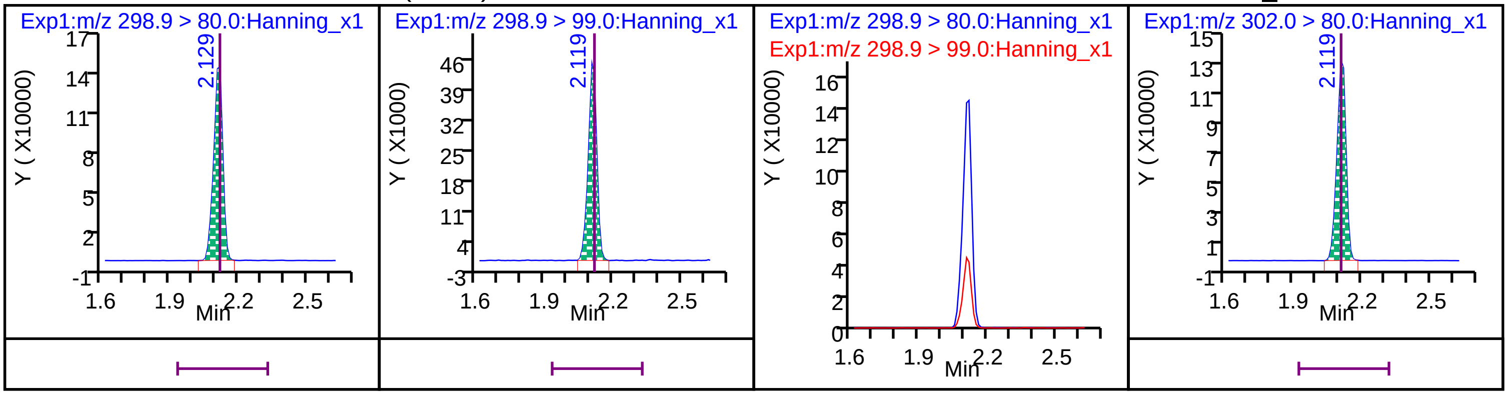
21 Perfluoro-n-pentanoic acid (PFPeA)



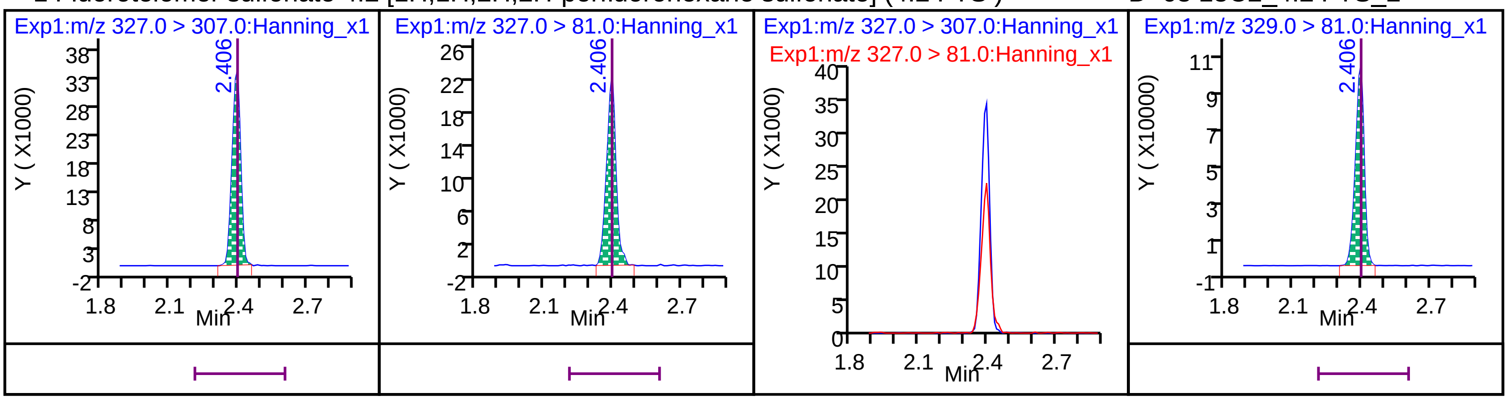
D 50 13C5_PFPeA



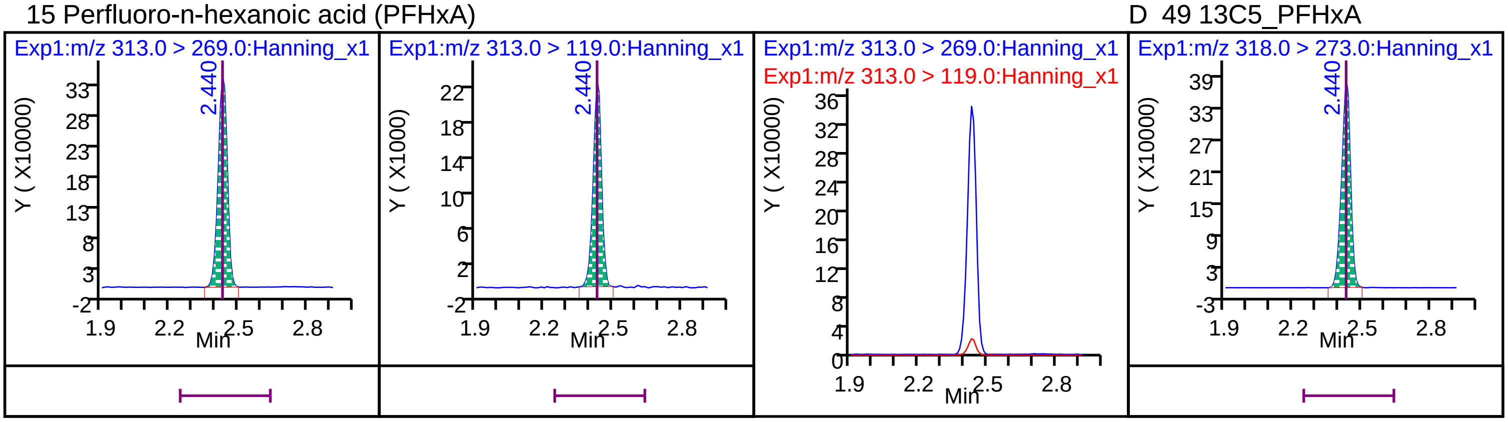
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



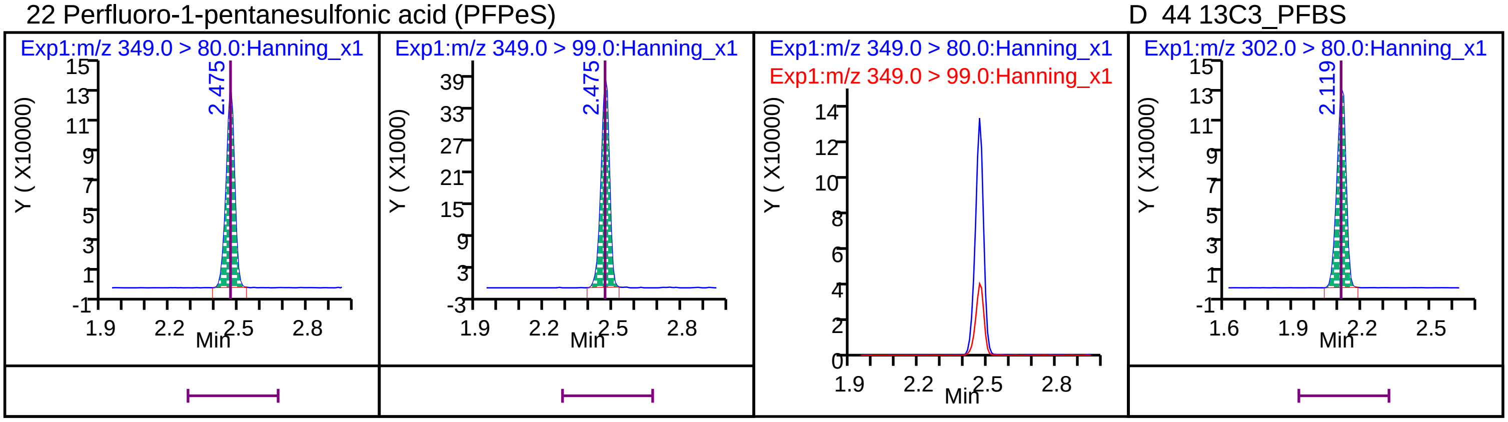
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



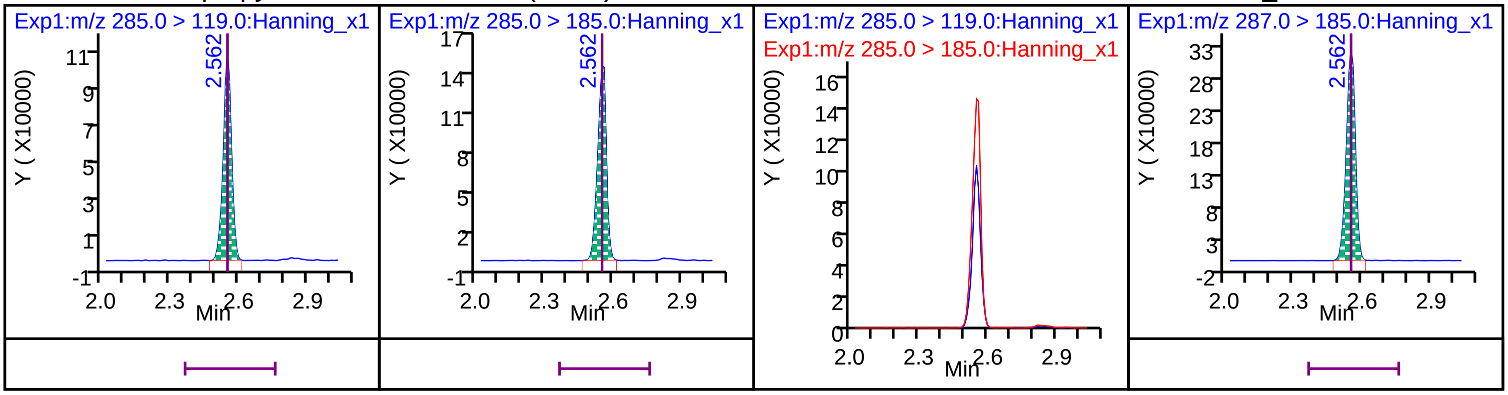
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



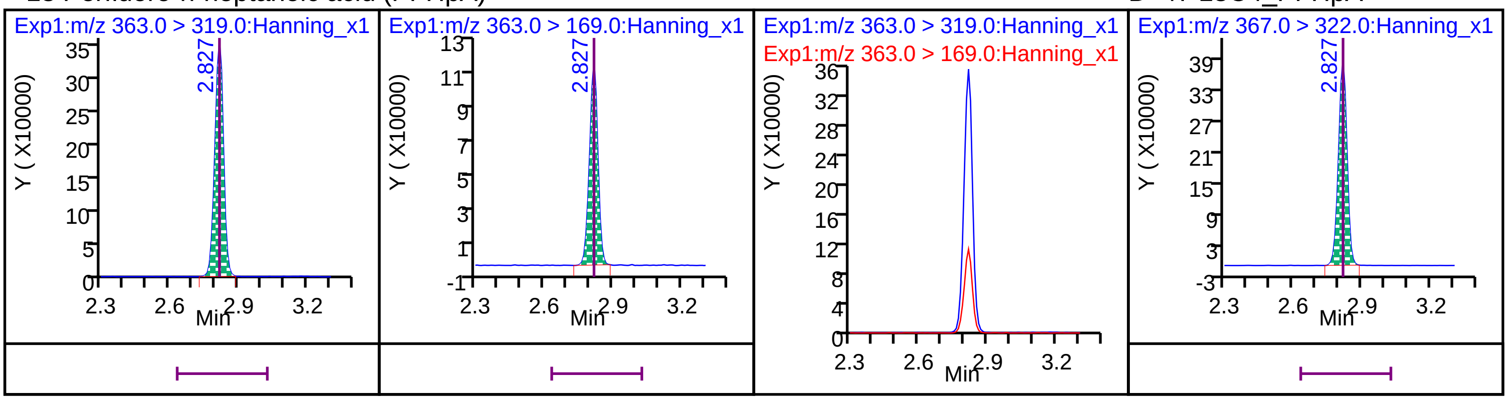
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



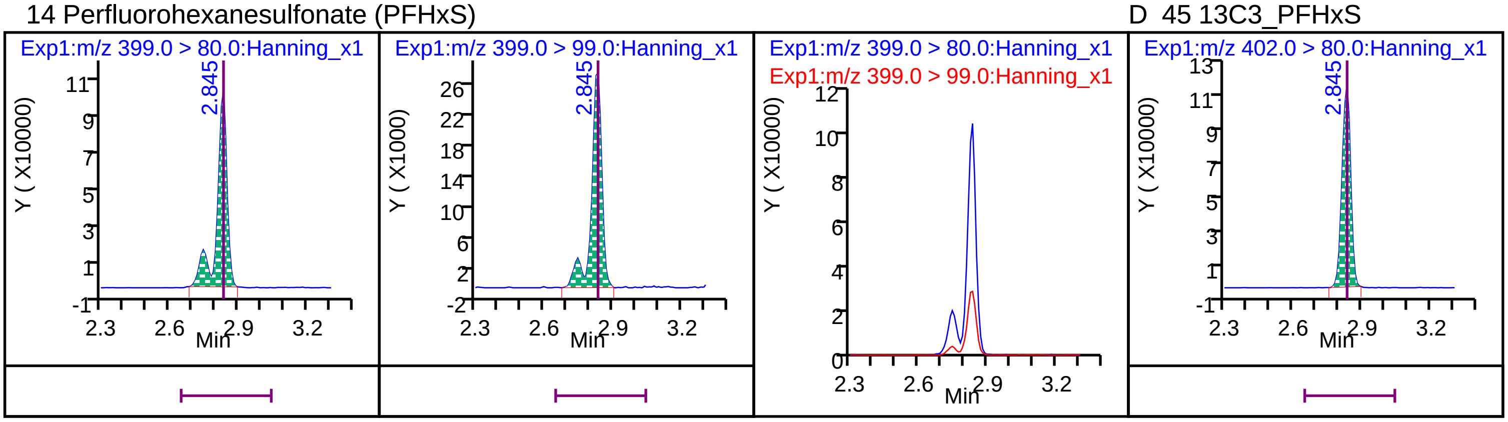
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



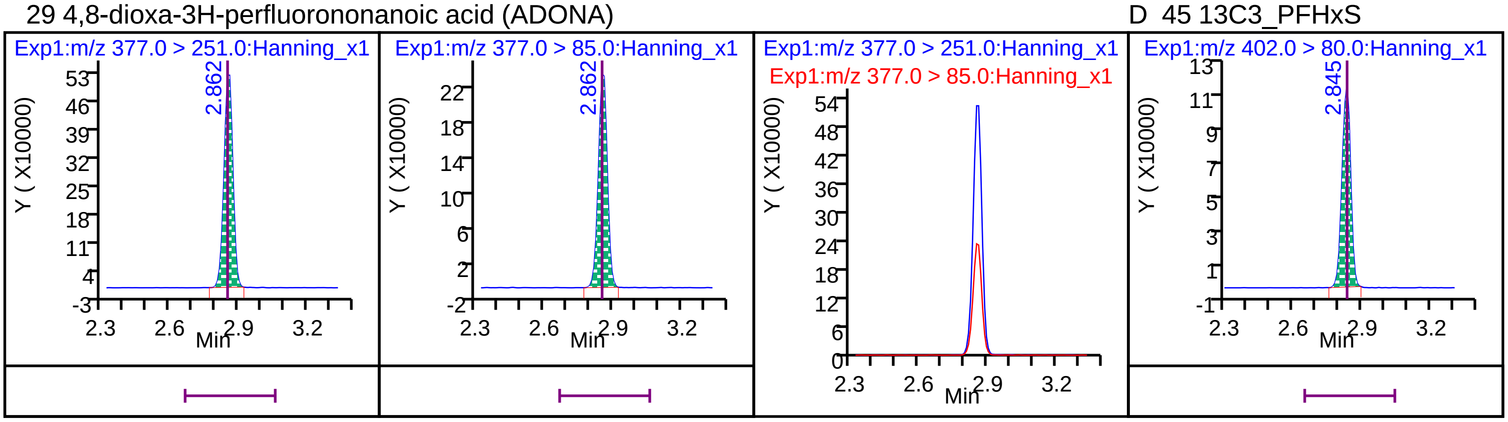
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



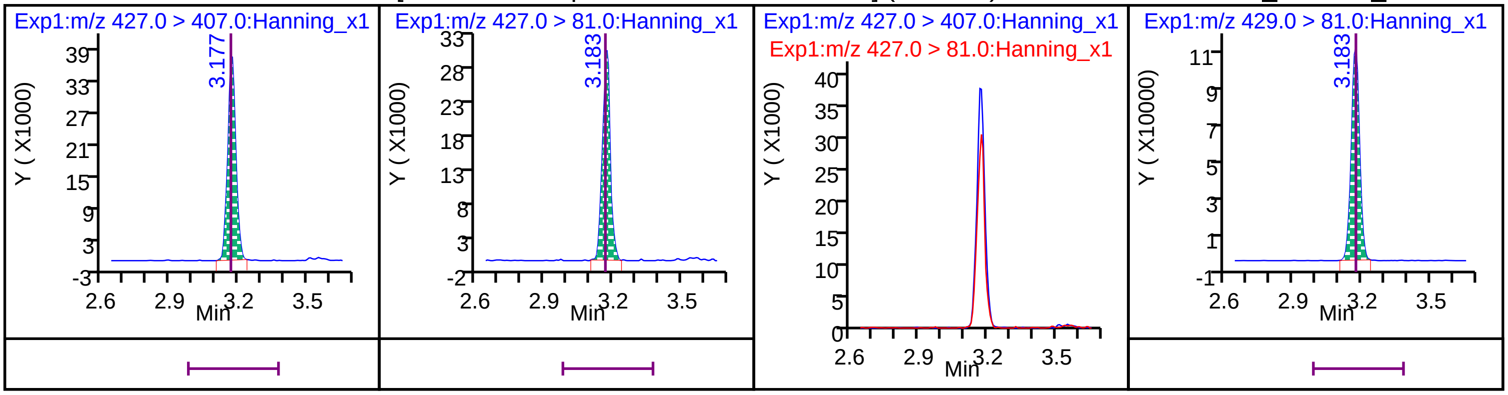
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



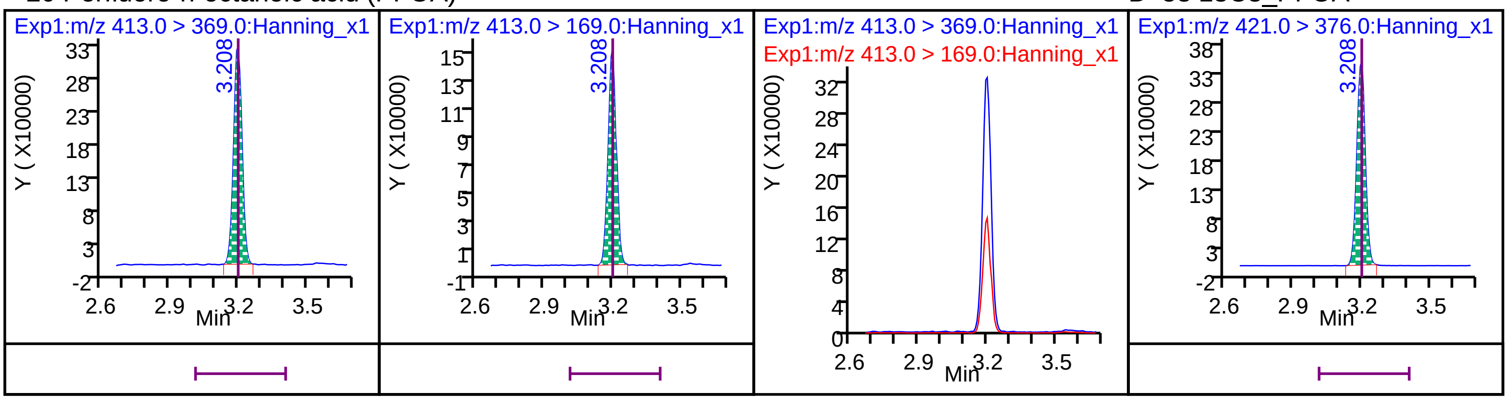
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



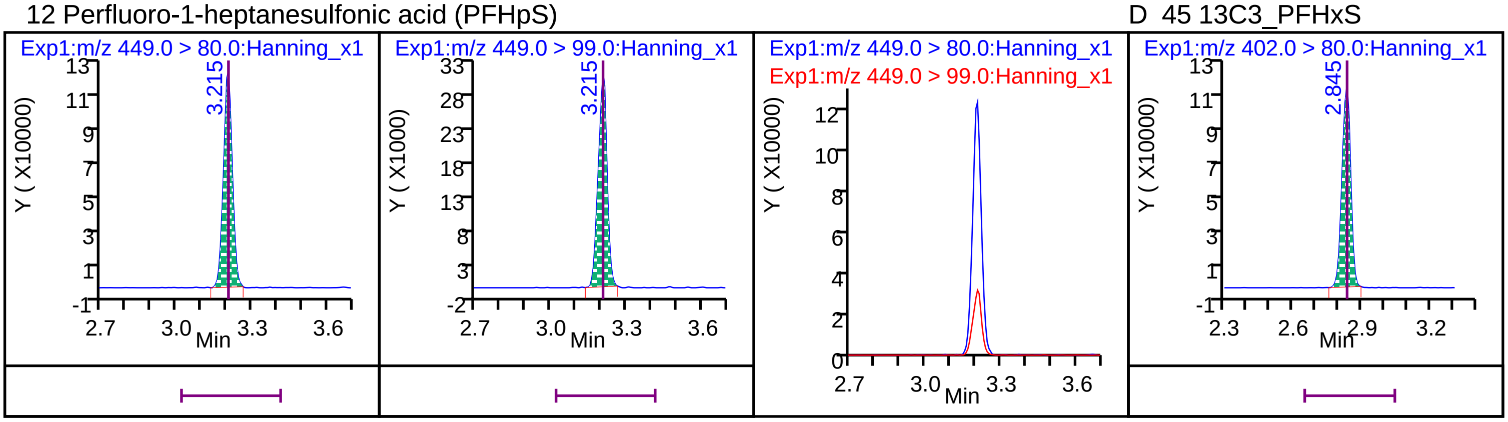
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



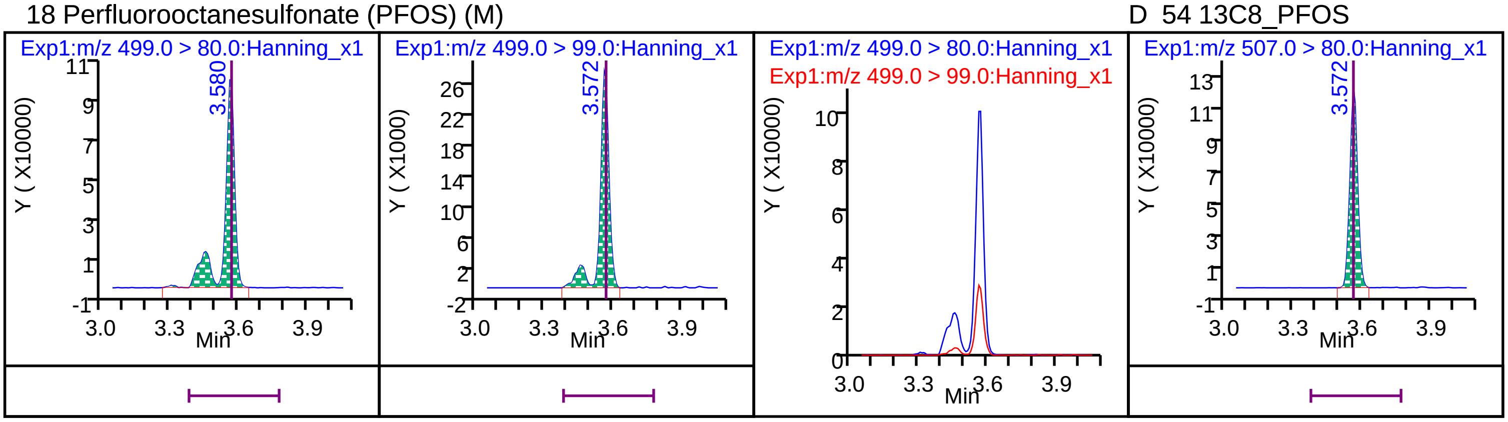
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



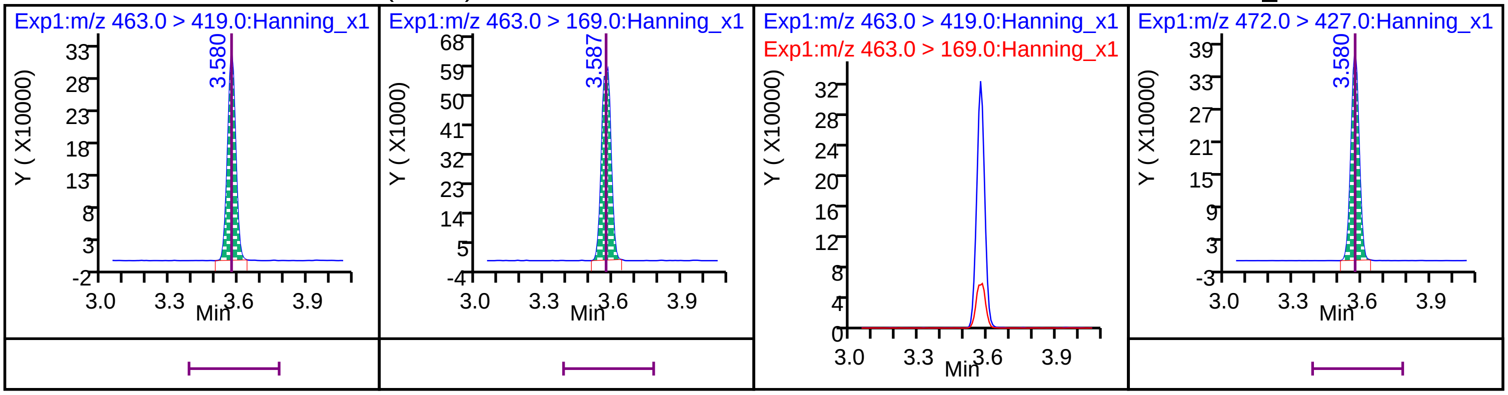
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



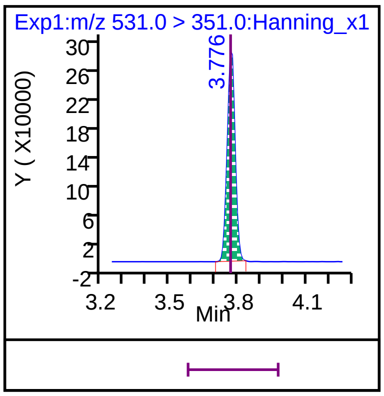
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

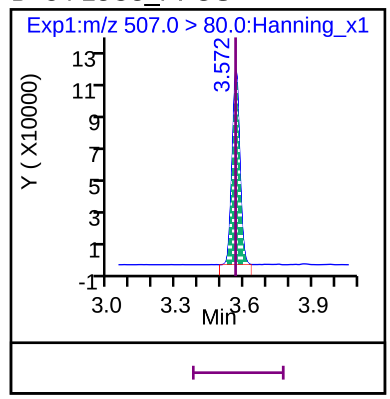


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

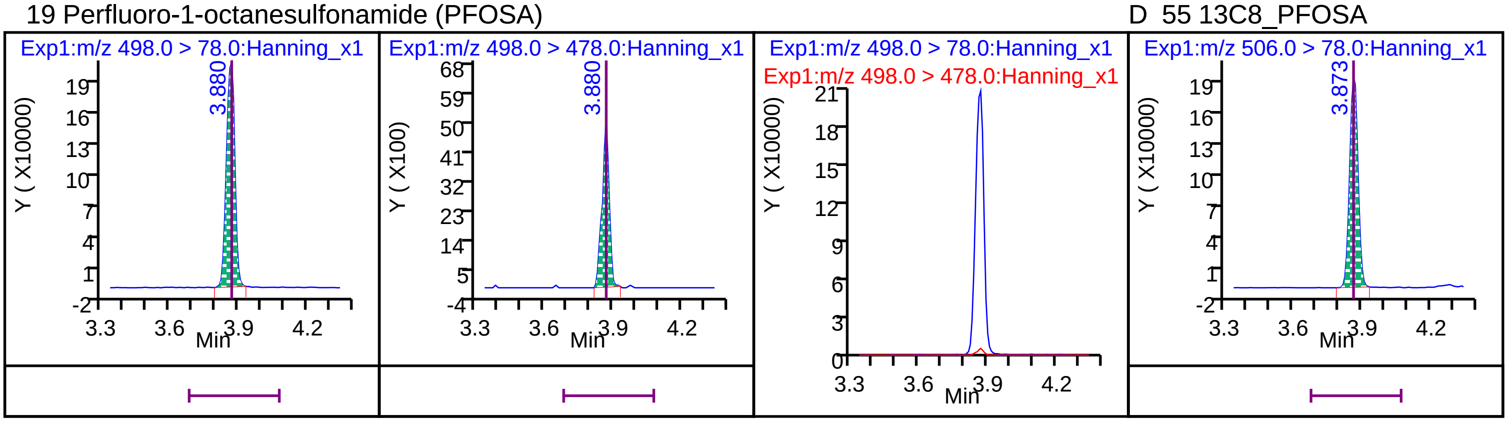


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

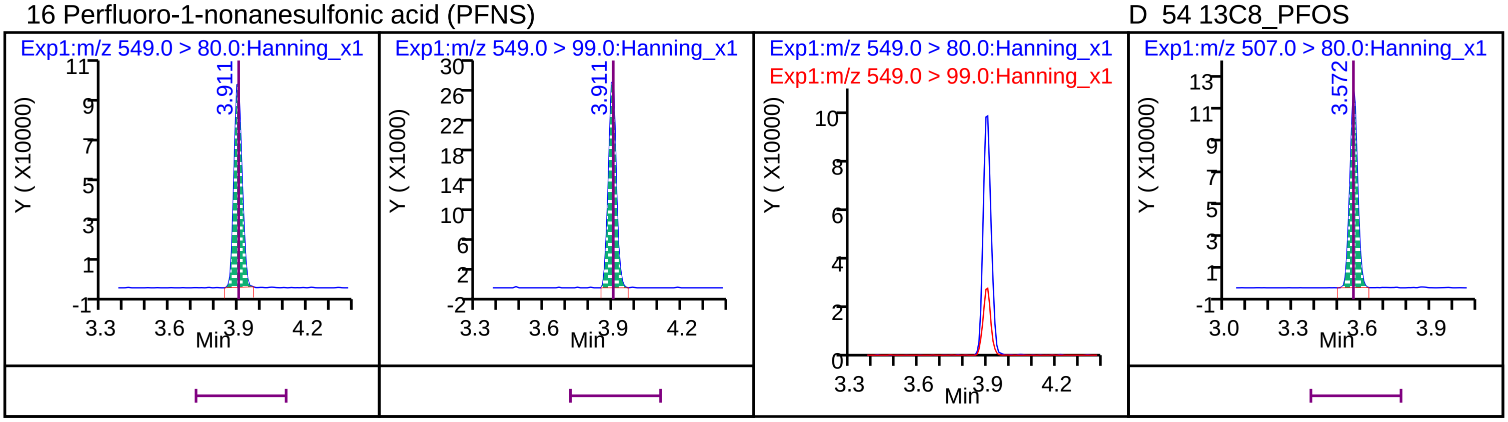




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

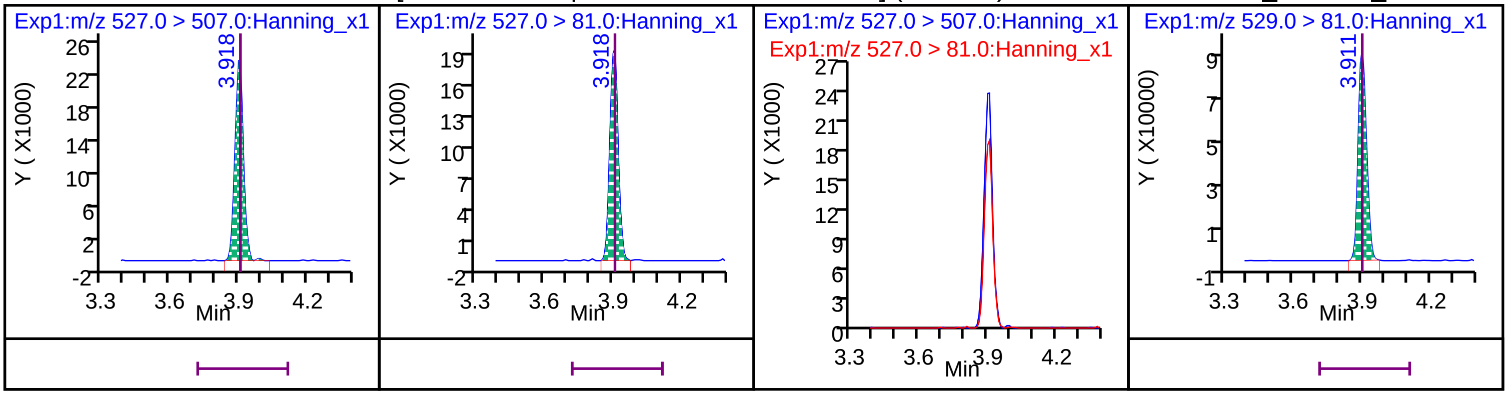


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

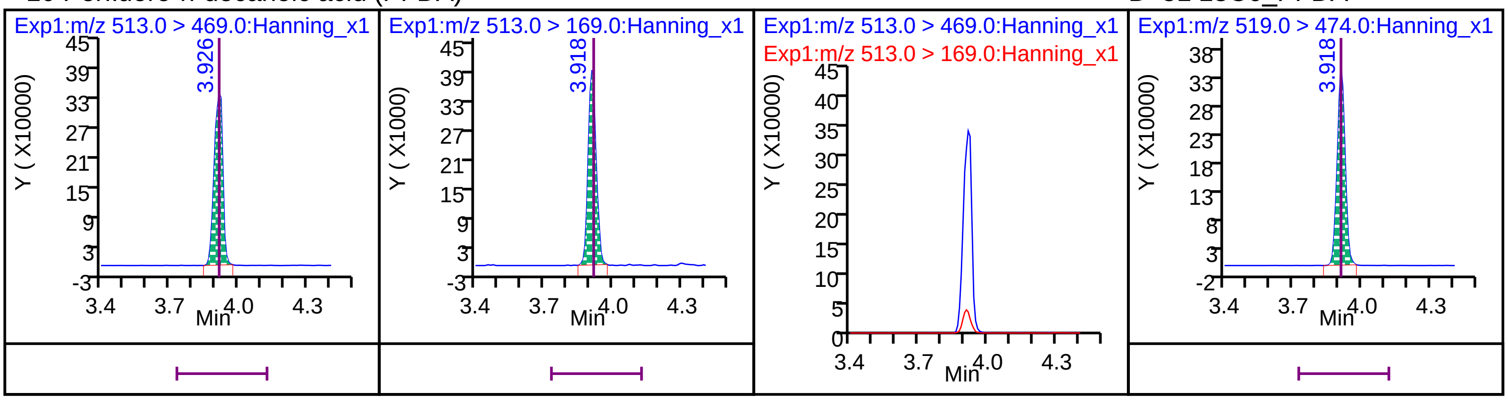


Report Date: 19-Oct-2021 08:48:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421015.d

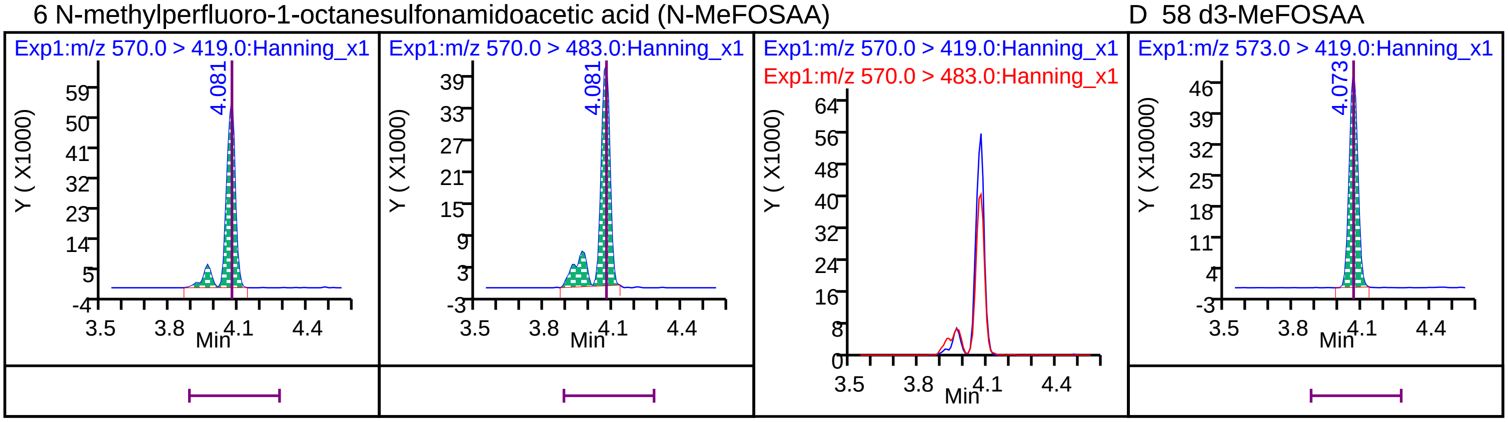
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



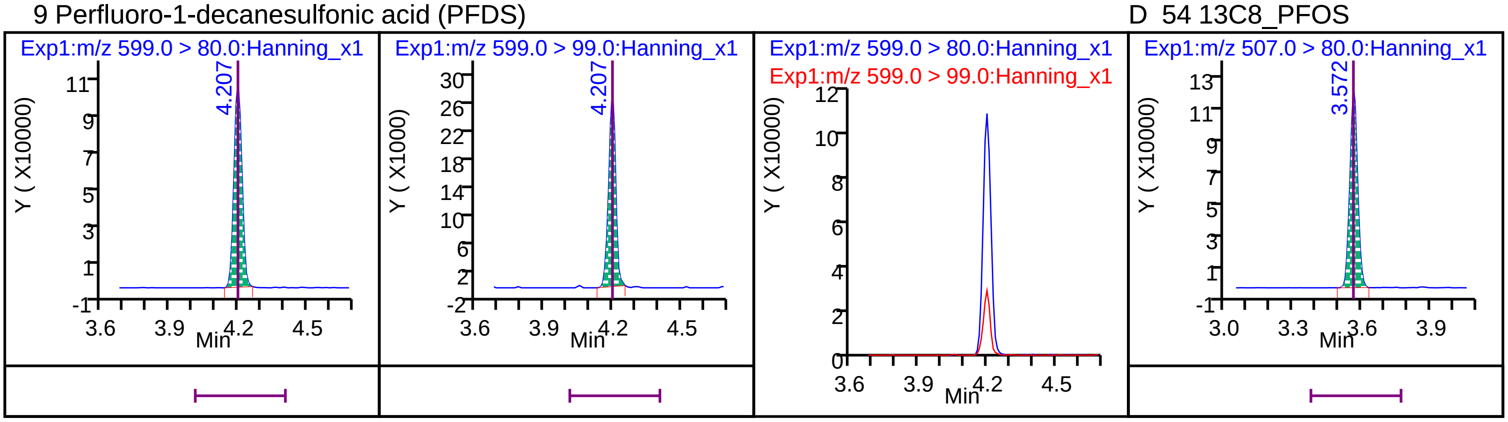
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



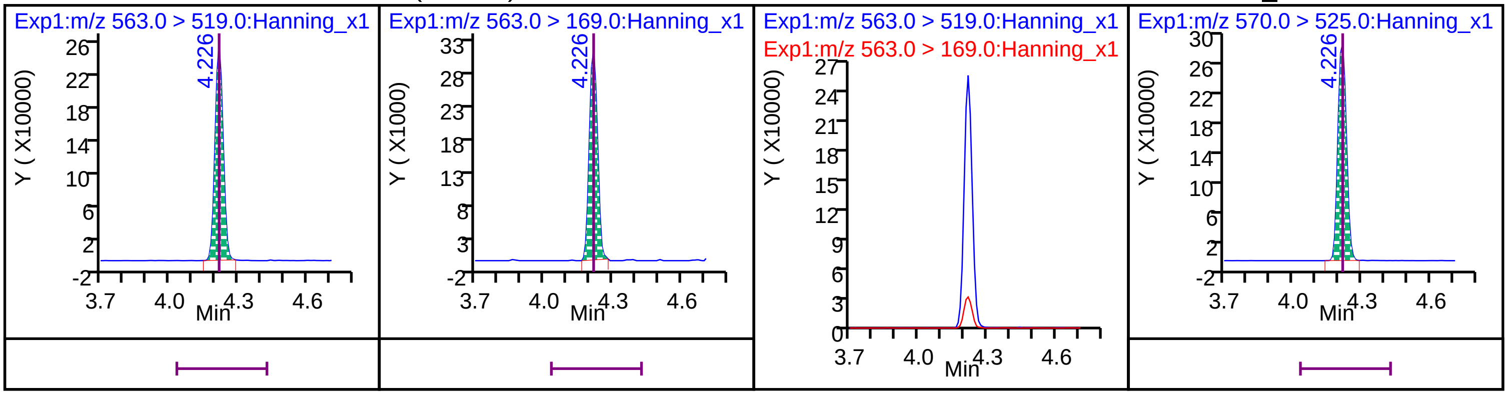
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



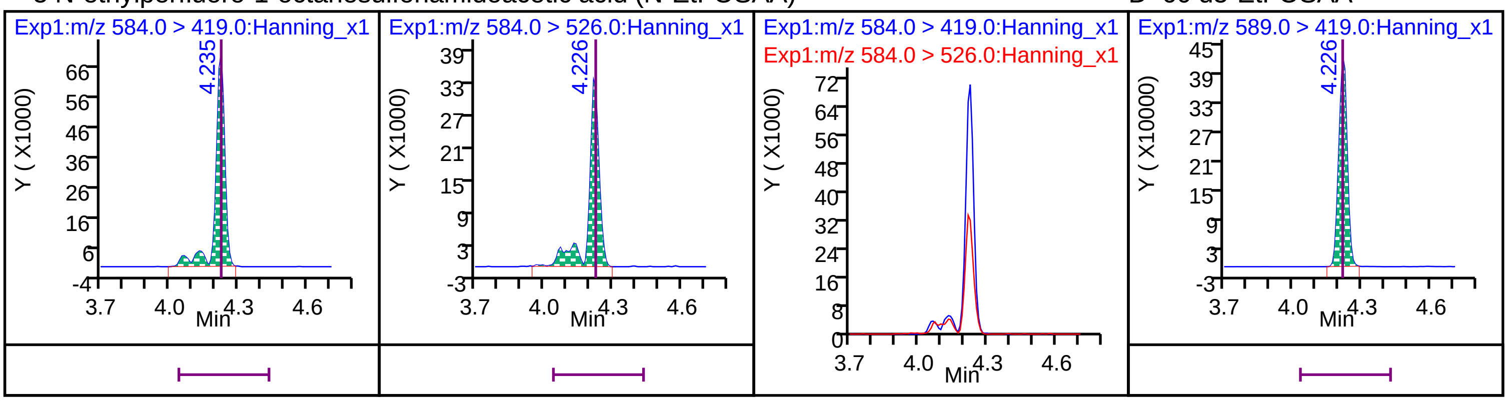
Report Date: 19-Oct-2021 08:48:46 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421015.d

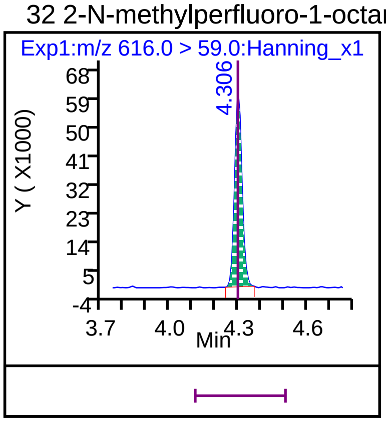
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



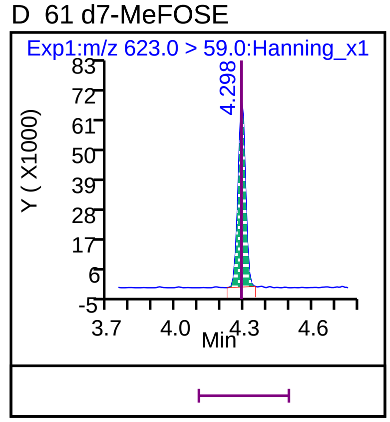
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



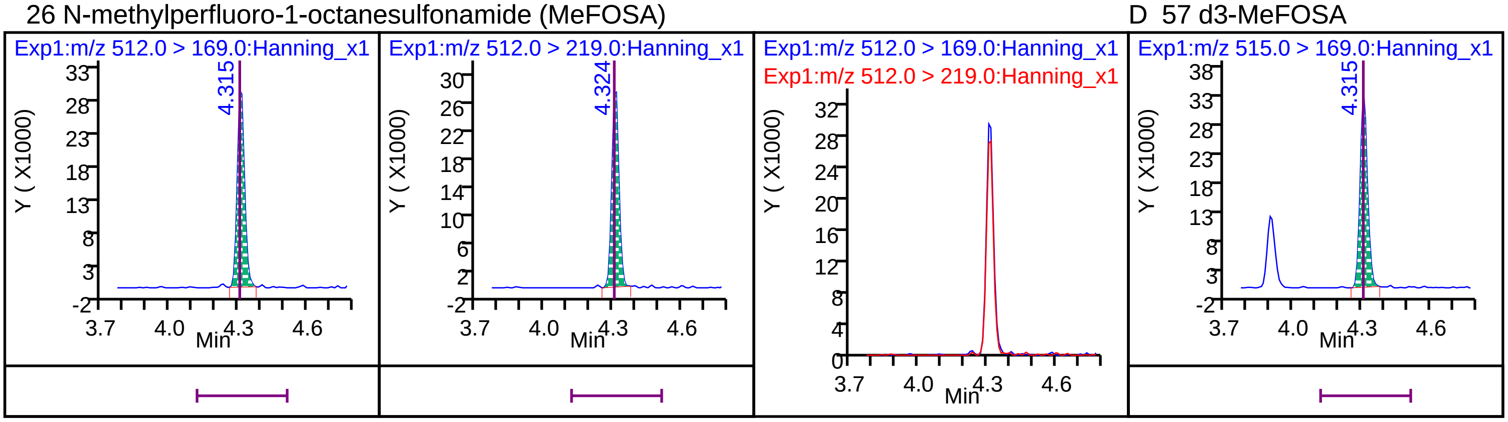
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



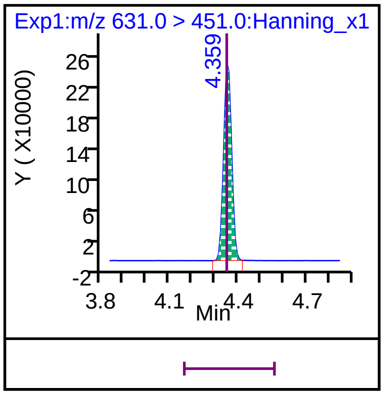
D 61 d7-MeFOSE



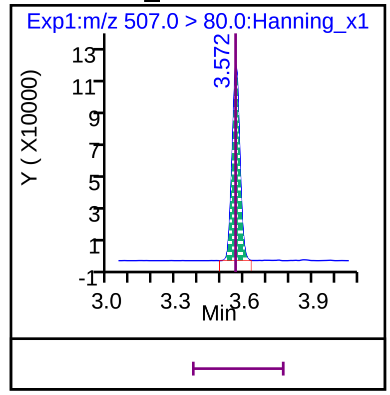
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



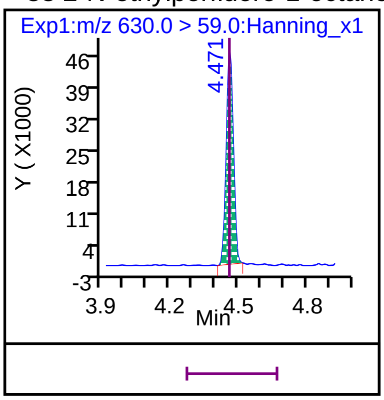
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



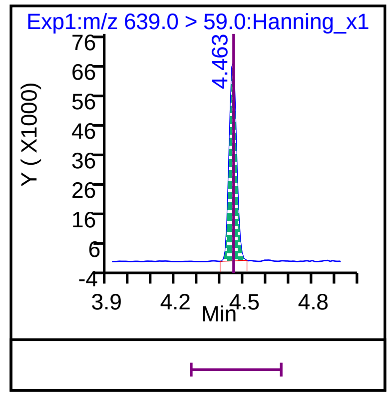
D 54 13C8_PFOS



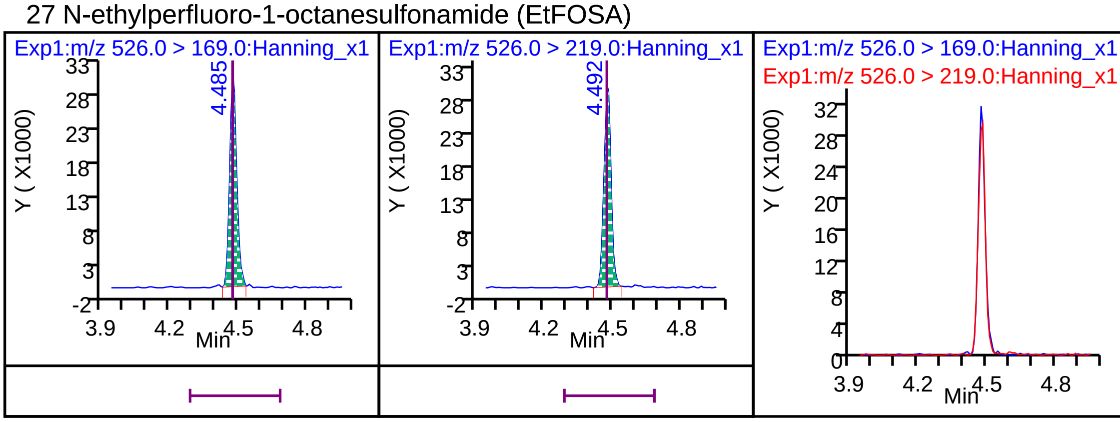
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



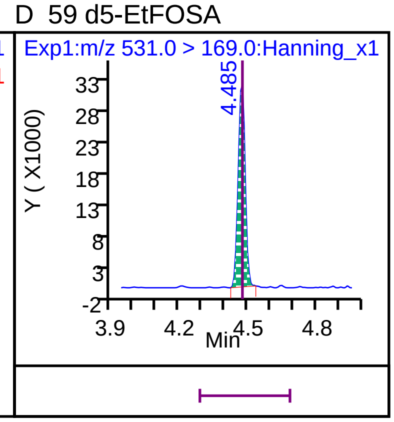
D 62 d9-EtFOSE



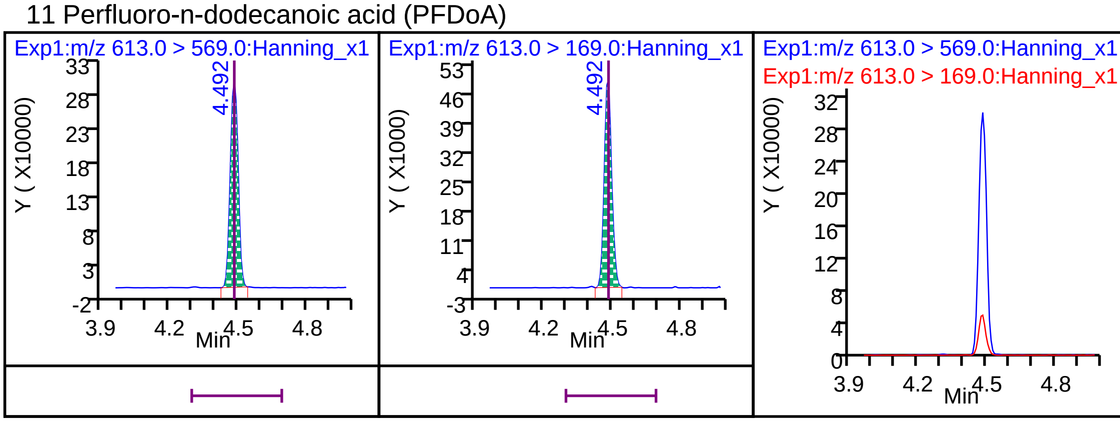
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



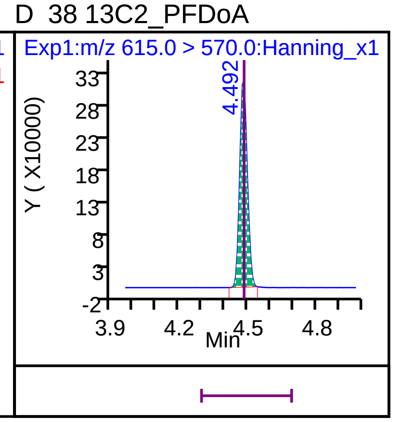
D 59 d5-EtFOSA



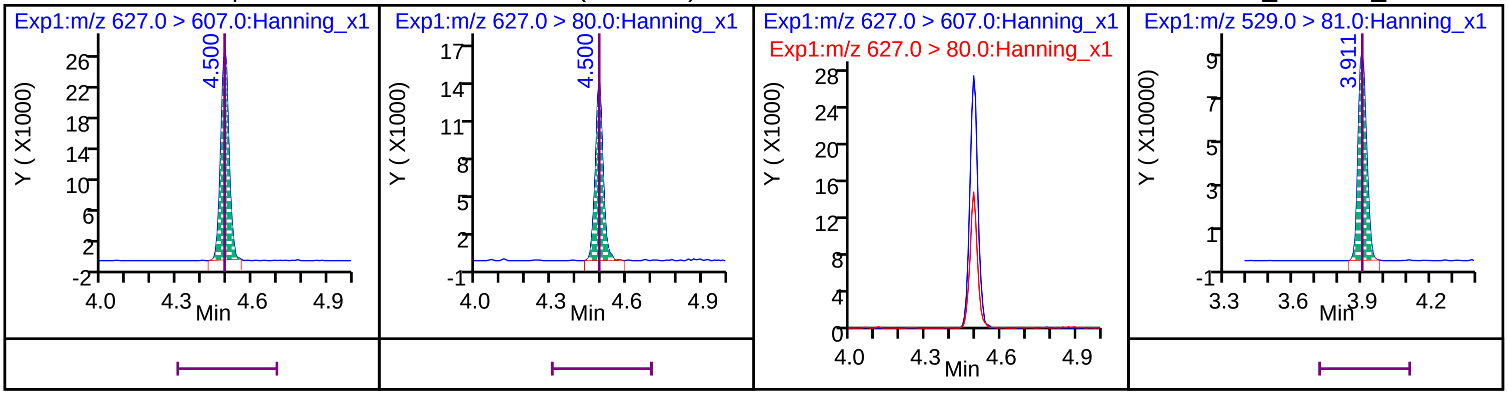
11 Perfluoro-n-dodecanoic acid (PFDoA)



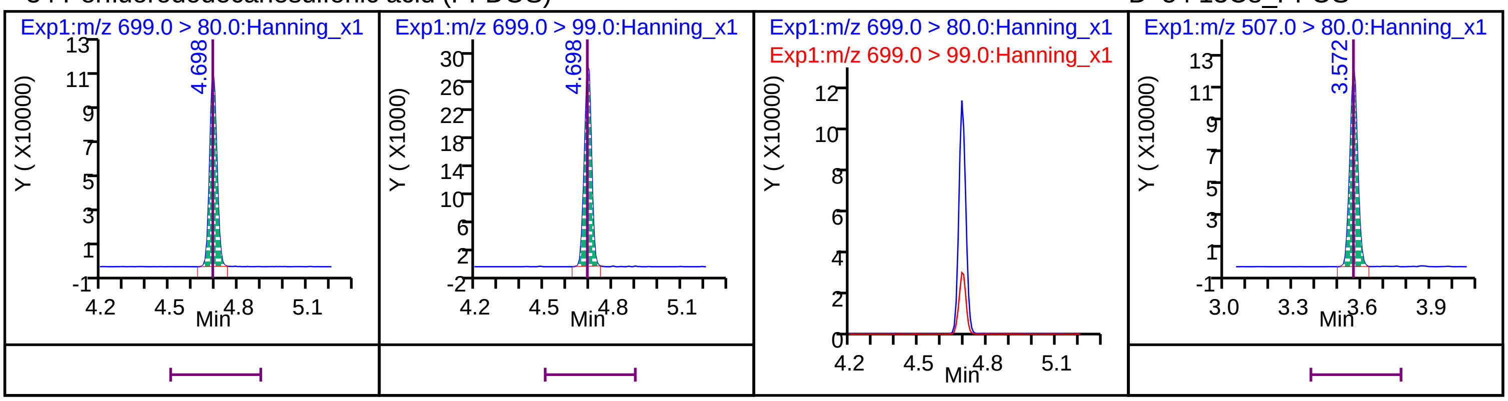
D 38 13C2_PFDoA



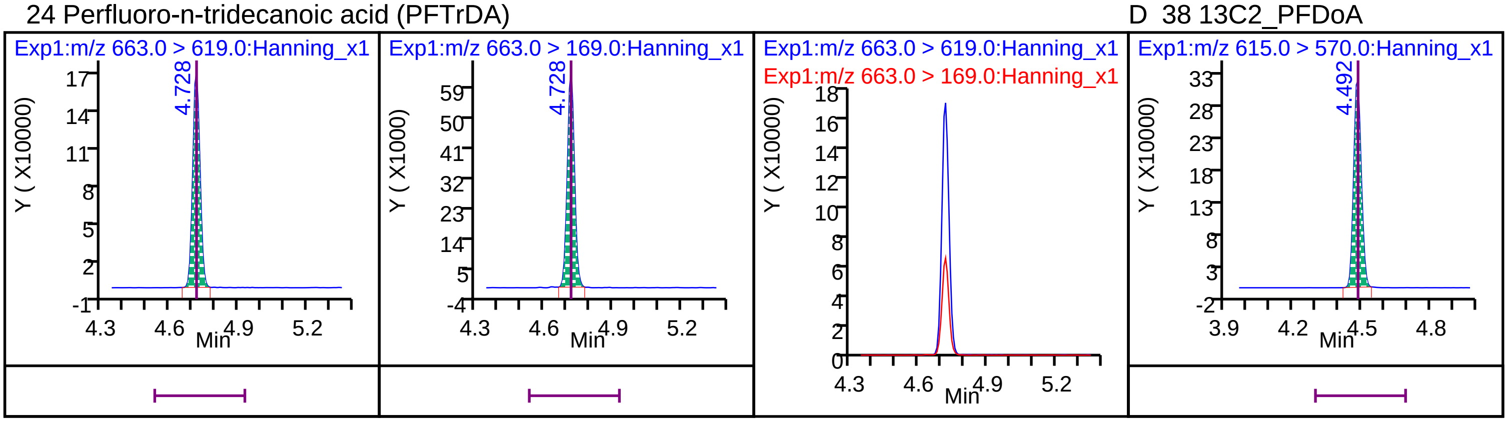
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



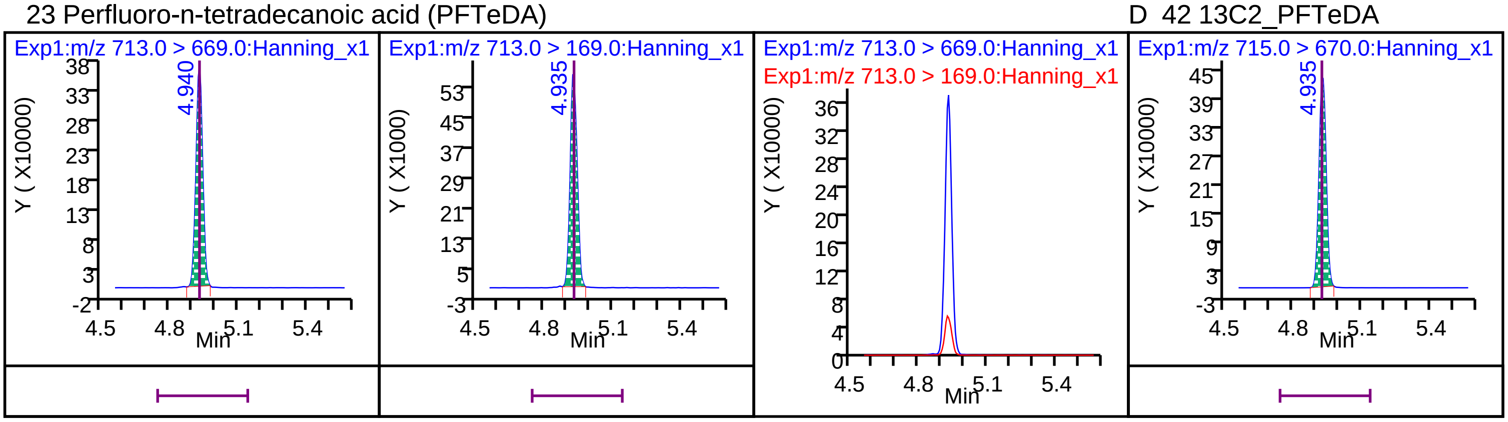
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



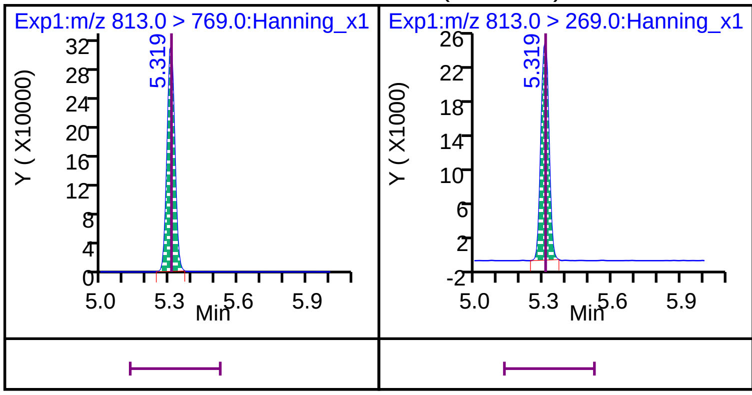
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



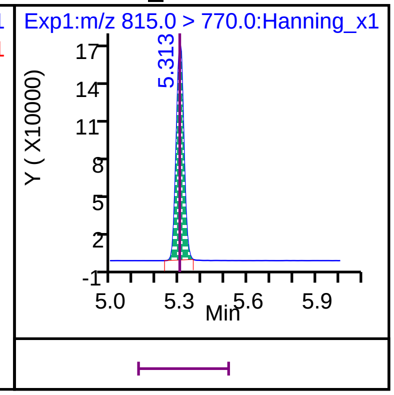
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



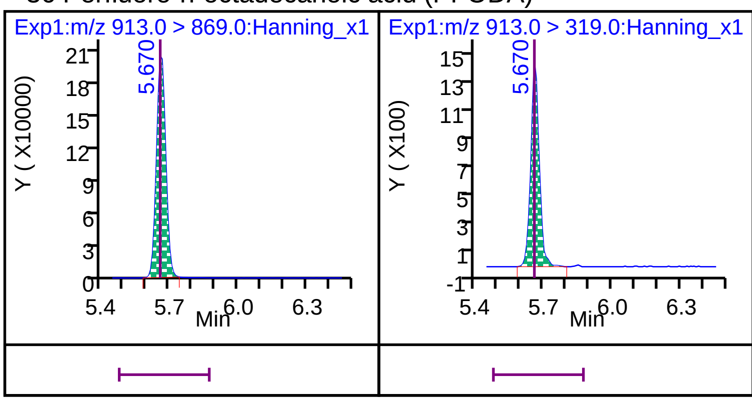
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



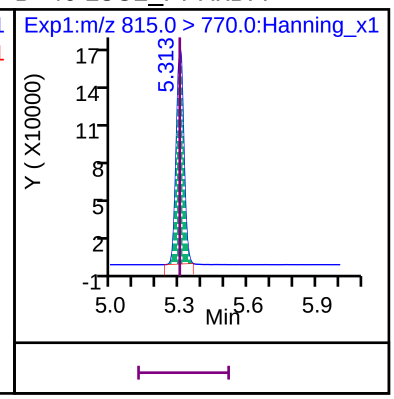
D 40 13C2_PFHxDA



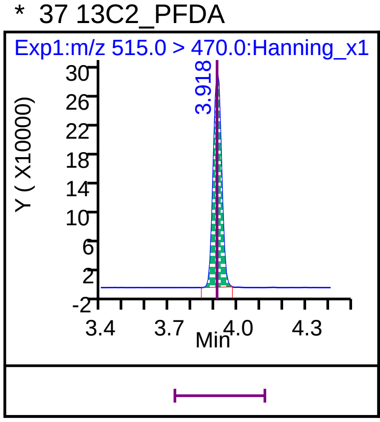
36 Perfluoro-n-octadecanoic acid (PFODA)



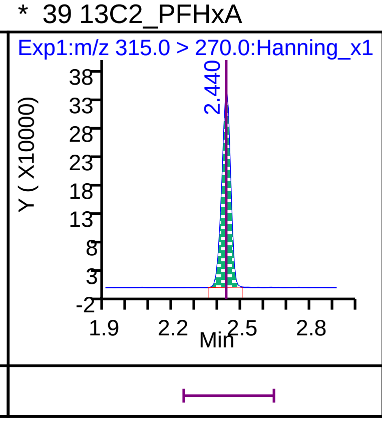
D 40 13C2_PFHxDA



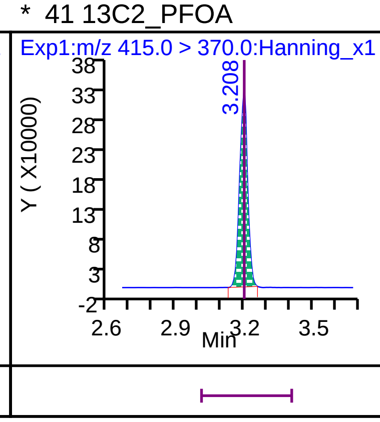
* 37 13C2_PFDA



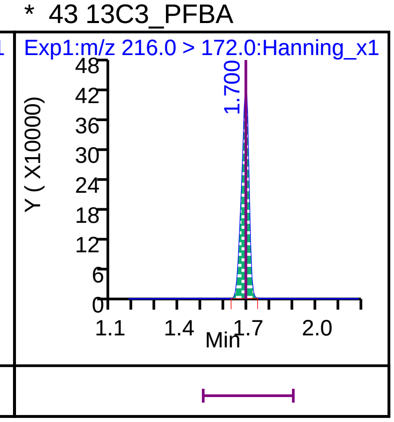
* 39 13C2_PFHxA



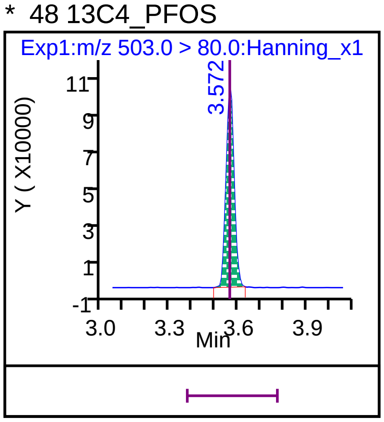
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

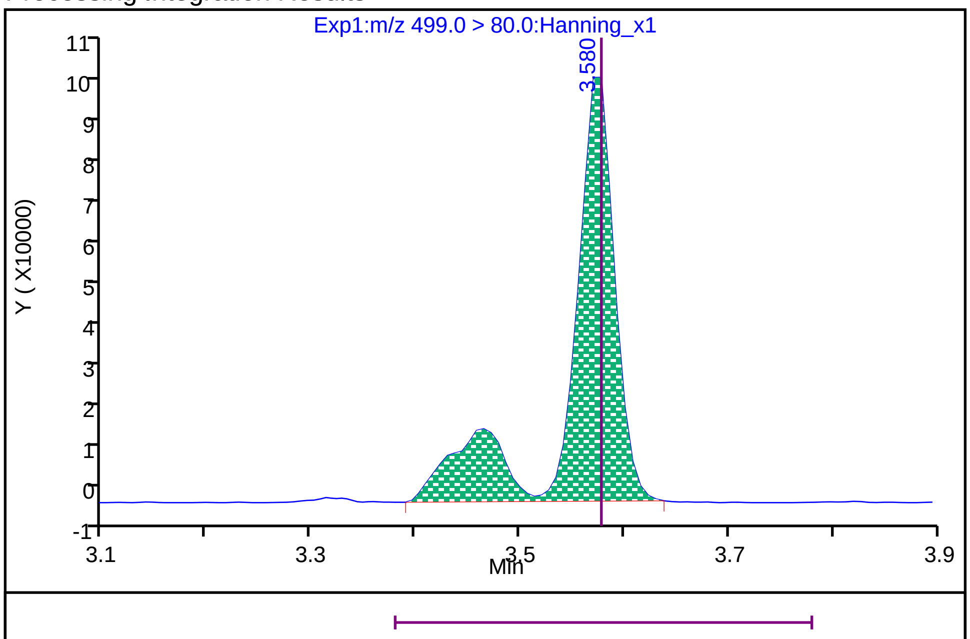
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421015.d		
Injection Date:	14-Oct-2021 11:49:36	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1674
Sample Info:	ICAL 1000_SVLC-1674		
Dil. Factor:	1	Operator:	Matthew M. Miller

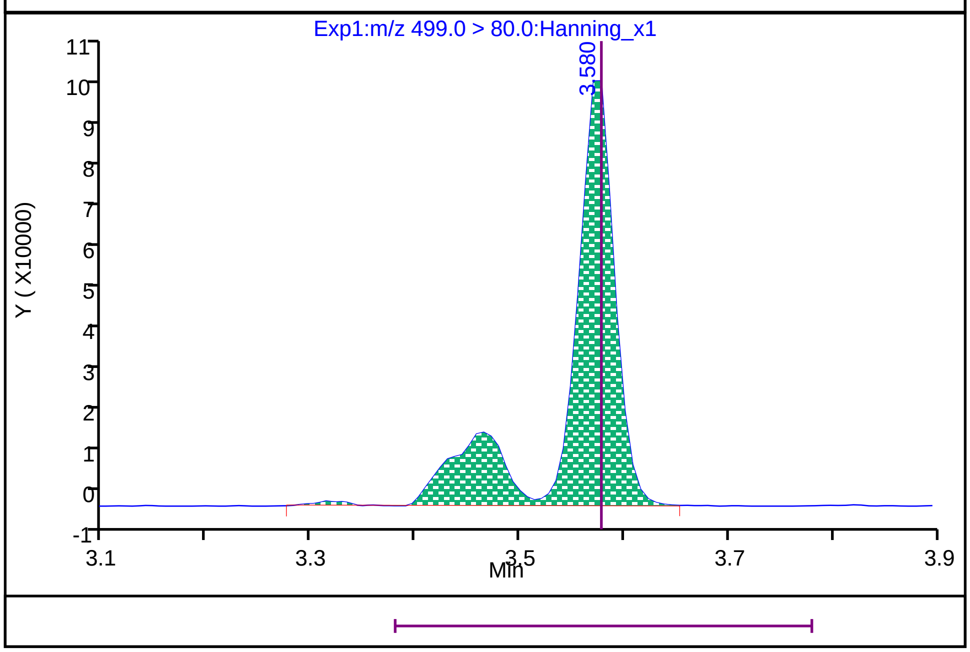
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.580
Area: 278890
Amount: 871.29
Amount Units: ng/L



RT: 3.580
Area: 282612
Amount: 878.77
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:17:22
Audit Action: Mint
Audit Reason: Assign Peak

Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d		
Injection Date:	14-Oct-2021 12:00:10	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	6
Sample Info:	ICAL 2000_SVLC-1643	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	831540	20	>100:1			1000.00	926.92	78.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	0/0	1860149	20	>100:1			2000.00	2070.09		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	834336	17	>100:1			1000.00	928.18	78.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	1901463	16	>100:1			2000.00	2111.45		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	0	283816	15	>100:1			1000.00	950.83	81.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.129	0/0	705418	16	>100:1	Target = 3.78		1768.00	1787.77		
298.9 > 99	44	2.119	2.129		173155	15	>100:1	4.07 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/0	549417	19	>100:1	Target = 3.45		1876.00	1876.29		
349 > 99	44	2.475	2.475		166087	18	>100:1	3.30 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.406	0	230415	18	>100:1			5000.00	5156.02	86	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.406	2.406	0/0	162652	18	>100:1	Target = 1.43		1868.00	1842.15		
327 > 81	63	2.397	2.406		107904	19	>100:1	1.50 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	768735	18	>100:1			1000.00	938.89	77.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	1628417	19	>100:1	Target = 16.37		2000.00	2062.31		
313 > 119	49	2.440	2.440		96913	18	>100:1	16.80 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	708328	18	>100:1			5000.00	4895.58	82.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/0	419953	18	>100:1	Target = 0.74		4000.00	3859.77		
285 > 185	66	2.562	2.562		574498	19	>100:1	0.73 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.818	2.827	0	783378	19	>100:1			1000.00	977.65	80.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/0	1554064	19	>100:1	Target = 3.21		2000.00	1999.19		
363 > 169	47	2.827	2.827		498568	19	>100:1	3.11 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.836	2.845	0	232693	19	>100:1			1000.00	946.08	78.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	0/0	527998	27	>100:1	Target = 3.47	5.71	1820.00	1881.98		
399 > 99	45	2.845	2.845		152642	25	>100:1	3.45 (1.73-5.21)	6.88				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.862	2.862	0/0	2422954	20	>100:1	Target = 2.28		1884.00	1915.36		
377 > 85	45	2.862	2.862		1068684	18	>100:1	2.26 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.215	3.215	0/0	483583	21	>100:1	Target = 3.62		1904.00	1913.89		
449 > 99	45	3.208	3.215		140133	22	>100:1	3.45 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.183	0	202558	22	>100:1			5000.00	4635.51	74.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.177	3.177	0/0	121509	22	>100:1	Target = 1.19		1896.00	1901.73		
427 > 81	64	3.177	3.177		102841	23	>100:1	1.18 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.208	3.208	0	770518	22	>100:1			1000.00	1018.31	88.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.208	0/0	1450683	23	>100:1	Target = 2.34		2000.00	1869.97		
413 > 169	53	3.208	3.208		629680	22	>100:1	2.30 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	1	229352	20	>100:1			1000.00	1012.28	86.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.580	0/-1	497505	41	>100:1	Target = 4.00	3.73	1856.00	1796.90		M
499 > 99	54	3.572	3.580		125715	37	>100:1	3.95 (2.00-6.01)	7.13				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.776	3.776	1/0	1217919	20	>100:1			1864.00	1740.17		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.911	3.911	1/0	420132	18	>100:1	Target = 3.83		1920.00	1811.64		
549 > 99	54	3.903	3.911		115993	18	>100:1	3.62 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.207	4.207	1/0	410592	15	>100:1	Target = 3.87		1928.00	1860.72		
599 > 99	54	4.207	4.207		103439	15	>100:1	3.96 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	1/0	1110099	16				1884.00	1853.33		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	1/0	399777	17	>100:1	Target = 3.65		1936.00	1907.46		
699 > 99	54	4.698	4.698		108495	17	>100:1	3.68 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.580	3.580	1	737081	21	>100:1			1000.00	950.52	80.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	1/0	1336284	20	>100:1	Target = 4.21		2000.00	2077.11		
463 > 169	56	3.580	3.580		313938	21	>100:1	4.25 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	1	373192	18	>100:1			1000.00	891.07	77.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/-1	876478	18	>100:1	Target = 49.05		2000.00	2071.42		
498>478	55	3.865	3.880		22787	17	>100:1	38.46 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.911	3.911	1	181933	19	>100:1			5000.00	4811.29	79.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/-1	113252	19	>100:1	Target = 1.27		1916.00	2107.97		
527 > 81	65	3.911	3.918		90773	18	>100:1	1.24 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.500	4.500	1/0	109726	19	>100:1	Target = 2.25		1928.00	1999.94		
627 > 80	65	4.500	4.500		44886	16	>100:1	2.44 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.918	1	657494	18	>100:1			1000.00	968.10	81.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.918	3.926	0/-1	1399971	19	>100:1	Target = 8.94		2000.00	2107.35		
513 > 169	51	3.918	3.926		163913	18	>100:1	8.54 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	1	948799	17	>100:1			5000.00	4630.58	78.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.073	4.081	0/-1	296083	34	>100:1	Target = 1.38	6.81	2000.00	2042.57		
570 > 483	58	4.073	4.081		222625	34	>100:1	1.32 (0.69-2.08)	3.77				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.226	4.226	1	590901	15	>100:1			1000.00	934.76	81.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.217	4.226	0/-1	991435	17	>100:1	Target = 8.27		2000.00	1891.82		
563 > 169	52	4.226	4.226		145646	17	>100:1	6.80 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.226	4.226	1	829683	17	>100:1			5000.00	4832.83	78.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.226	4.235	0/-1	368539	33	>100:1	Target = 1.95	6.59	2000.00	2080.95		
584 > 526	60	4.235	4.235		176134	35	>100:1	2.09 (0.97-2.92)	3.66				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.298	4.298	1	130169	15	>100:1			1000.00	1023.65	85.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.306	1/0	243927	17	>100:1			2000.00	1899.91		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	1	59493	16	>100:1			1000.00	1023.59	81.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.324	4.315	1/0	116087	14	>100:1	Target = 1.08		2000.00	1832.64		
512 > 219	57	4.324	4.315		108771	14	>100:1	1.06 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.463	0	106696	18	>100:1			1000.00	908.39	72.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.471	4.471	1/1	185570	17	>100:1			2000.00	2040.94		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.485	4.485	1	50905	16	>100:1			1000.00	926.75	77.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.485	1/0	122243	16	>100:1	Target = 1.10		2000.00	2098.79		
526 > 219	59	4.485	4.485		114583	16	>100:1	1.06 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.492	4.492	1	558824	18	>100:1			1000.00	930.40	78.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.492	4.492	1/0	1208795	17	>100:1	Target = 5.93		2000.00	2111.95		
613 > 169	38	4.492	4.492		201930	17	>100:1	5.98 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.728	4.728	1/0	637687	18	>100:1	Target = 2.90		2000.00	2109.36		
663 > 169	38	4.728	4.728		218057	18	>100:1	2.92 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.935	4.935	1	746652	21	>100:1			1000.00	931.93	80.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.940	4.940	1/0	1334048	22	>100:1	Target = 6.34		2000.00	2110.36		
713 > 169	42	4.940	4.940		207841	20	>100:1	6.41 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.313	5.313	1	321081	19	>100:1			1000.00	975.78	86.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.319	5.319	1/0	1274675	20	>100:1	Target = 12.53		2000.00	1959.37		
813 > 269	40	5.313	5.319		104006	19	>100:1	12.25 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.670	5.670	0/-1	949821	20	>100:1	Target = 152.15		2000.00	1993.09		
913 > 319	40	5.679	5.670		6597	19	>100:1	143.97 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.918	1	647574	20	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	770720	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.208	3.208	0	701386	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	767329	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.572	3.572	1	223808	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

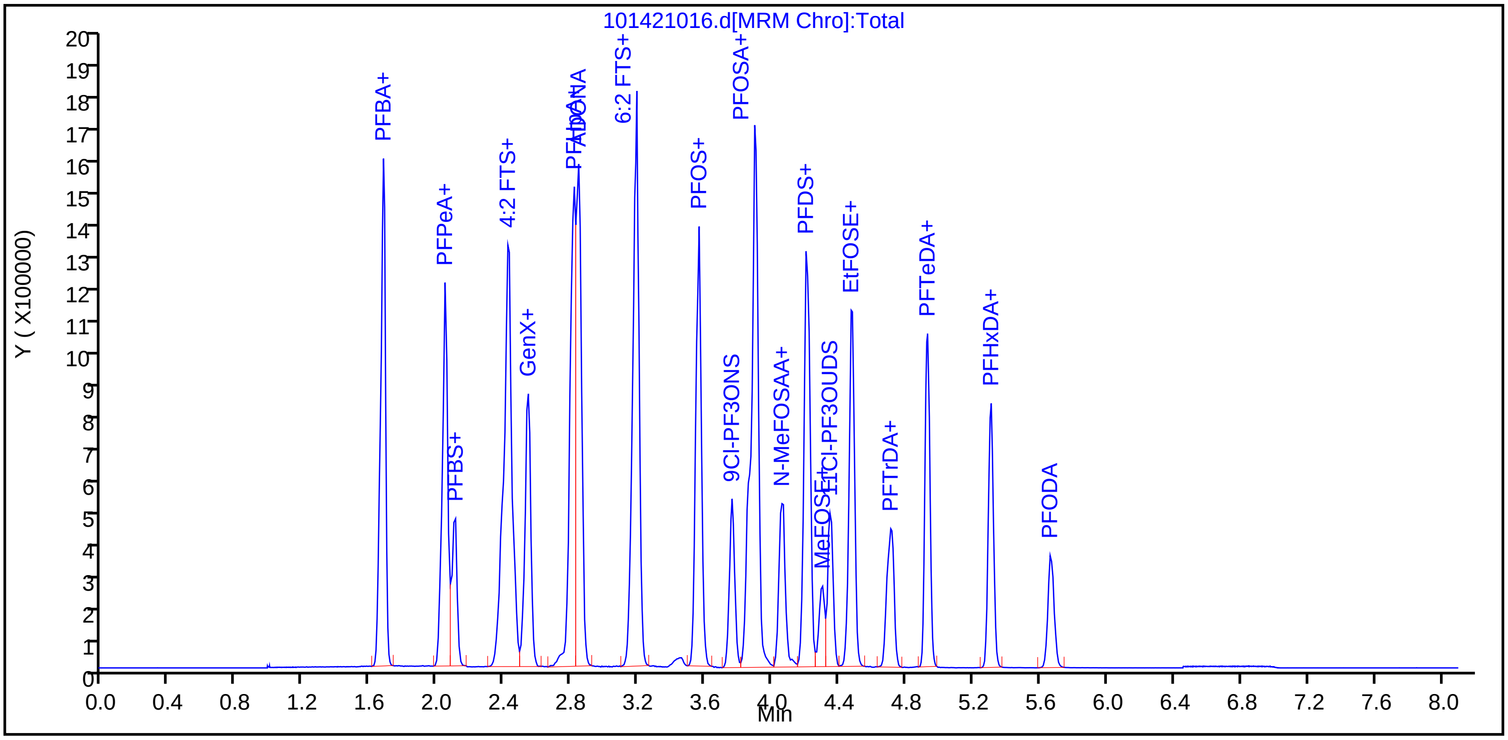
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

Injection Date: 14-Oct-2021 12:00:10 Inst. ID: LCMSMS01.i

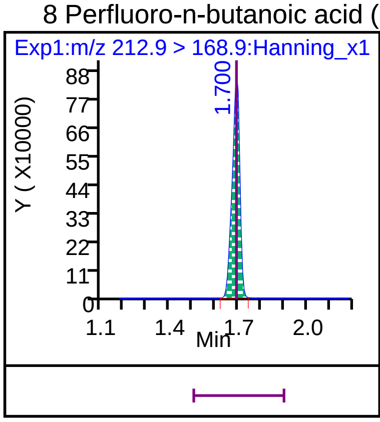
Client ID: Lab ID: ICAL 2000_SVLC-1643

Sample Info: ICAL 2000_SVLC-1643

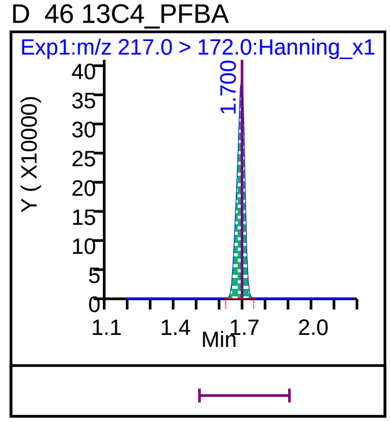
Dil. Factor: 1 Operator: Matthew M. Miller



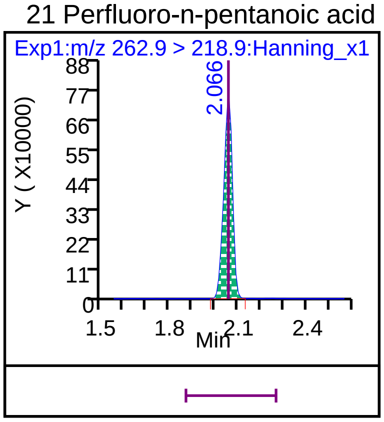
8 Perfluoro-n-butanoic acid (PFBA)



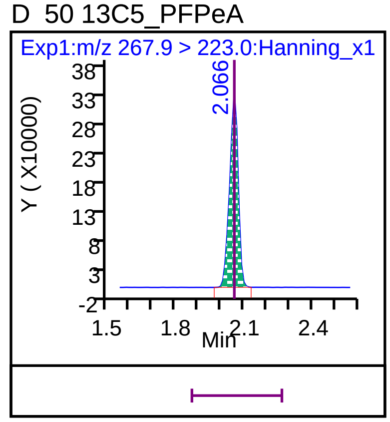
D 46 13C4_PFBA



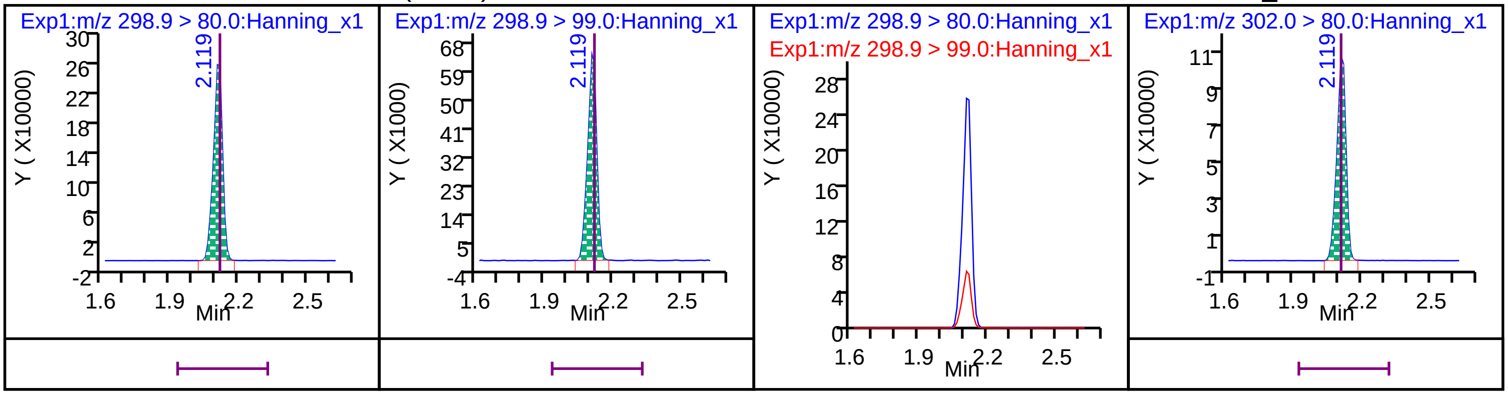
21 Perfluoro-n-pentanoic acid (PFPeA)



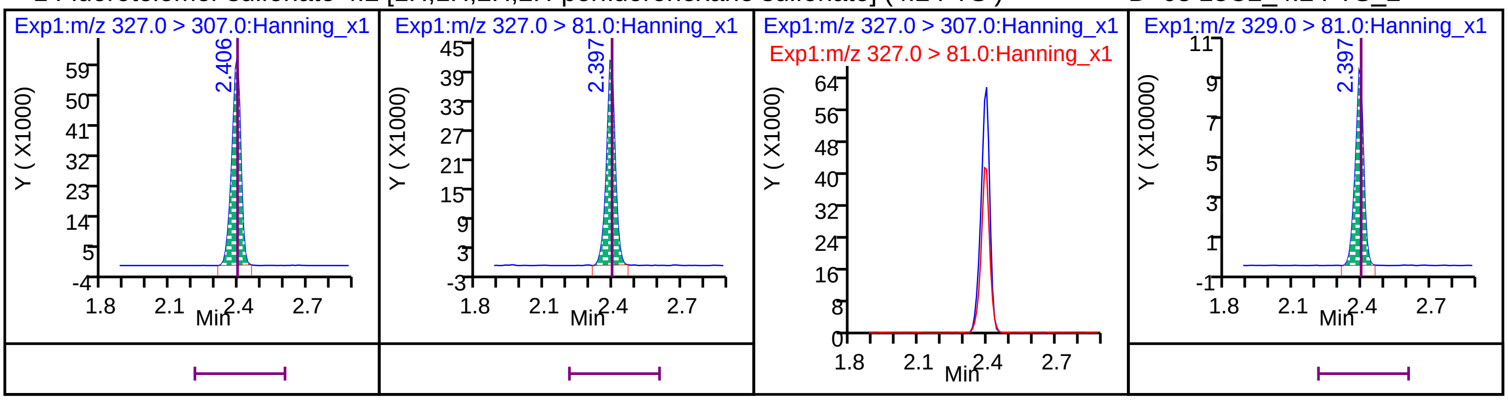
D 50 13C5_PFPeA



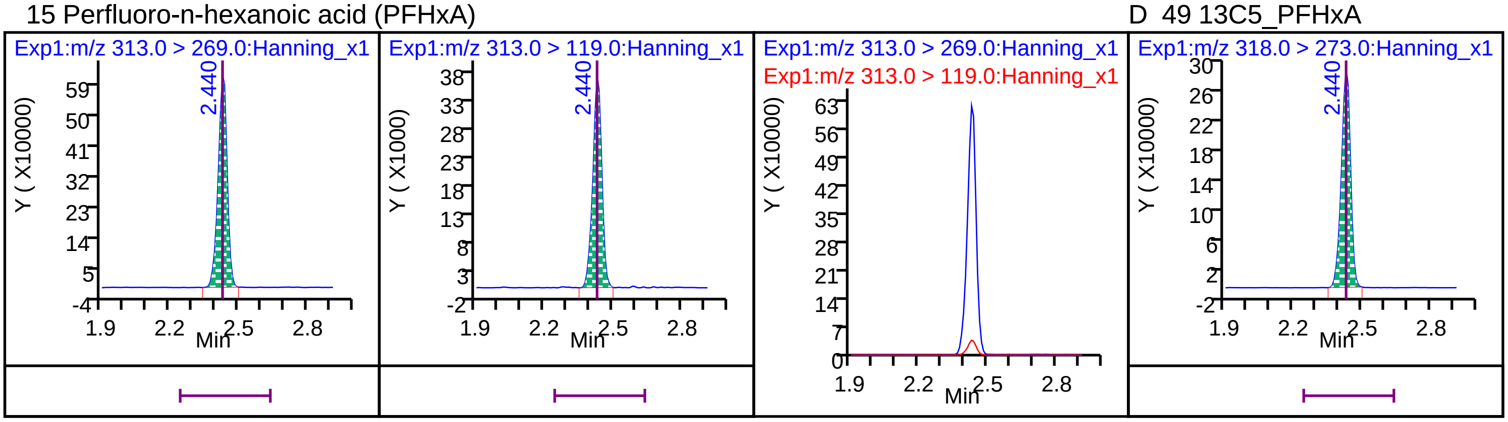
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



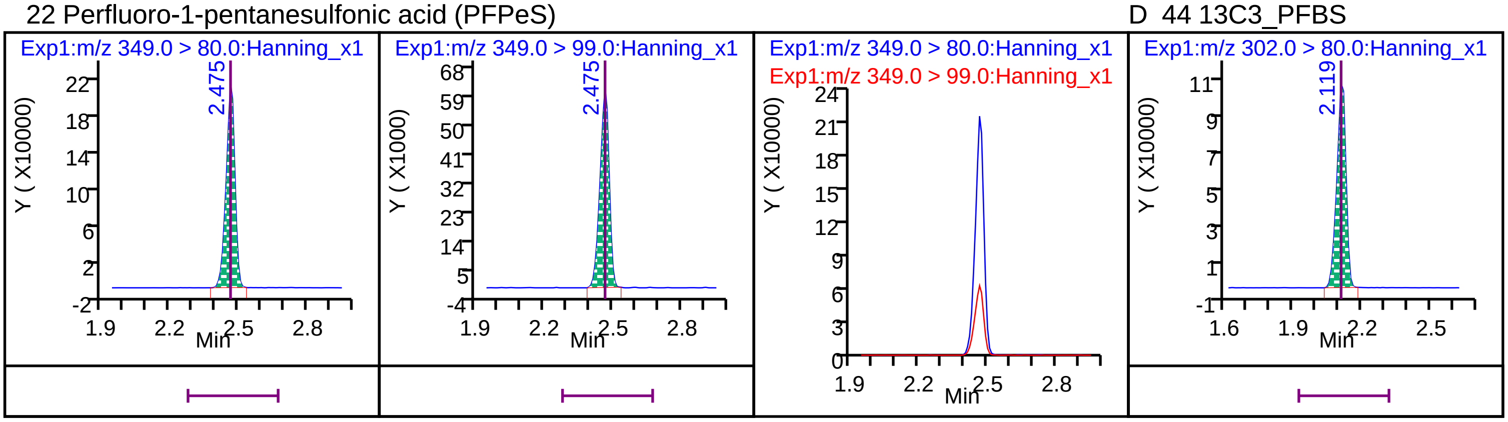
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

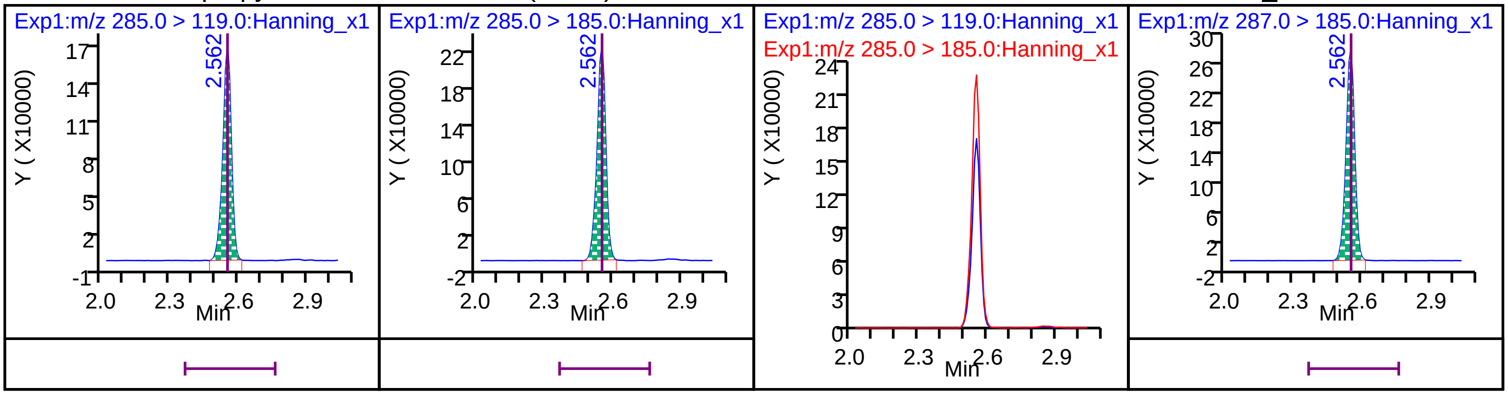


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

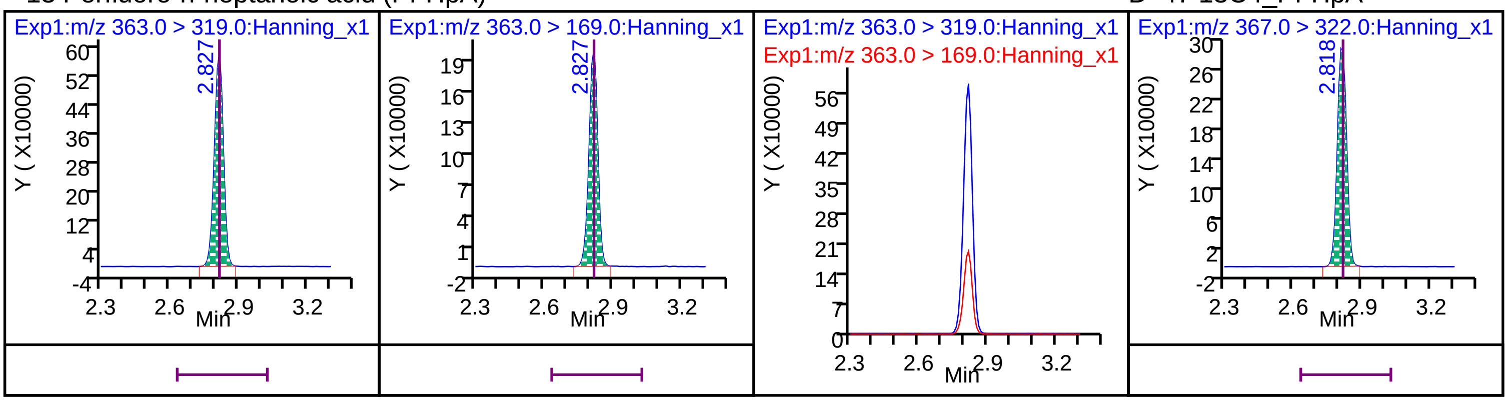


Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

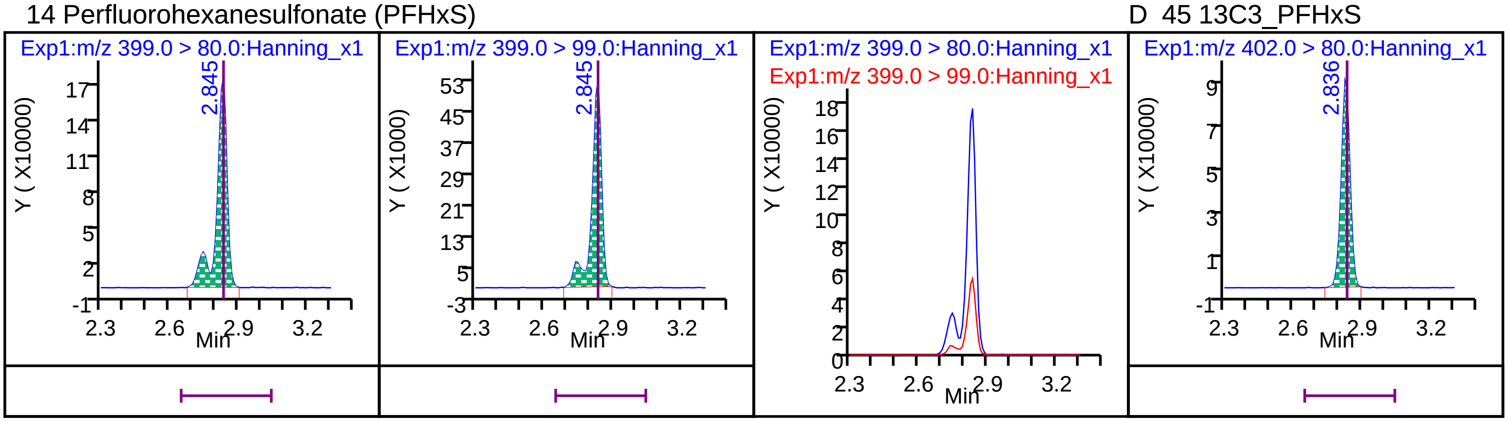
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



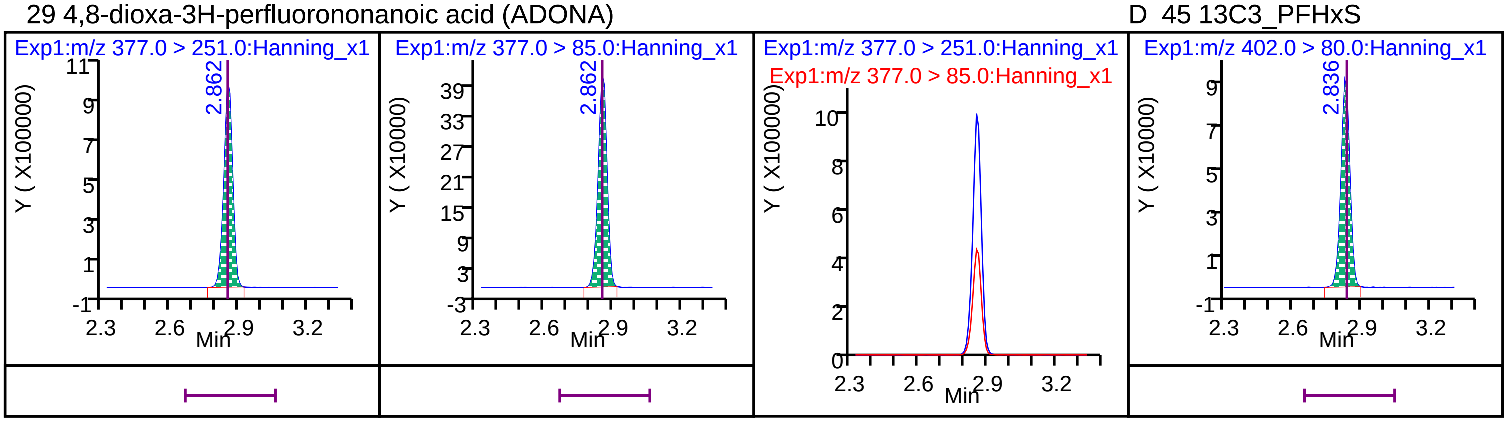
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



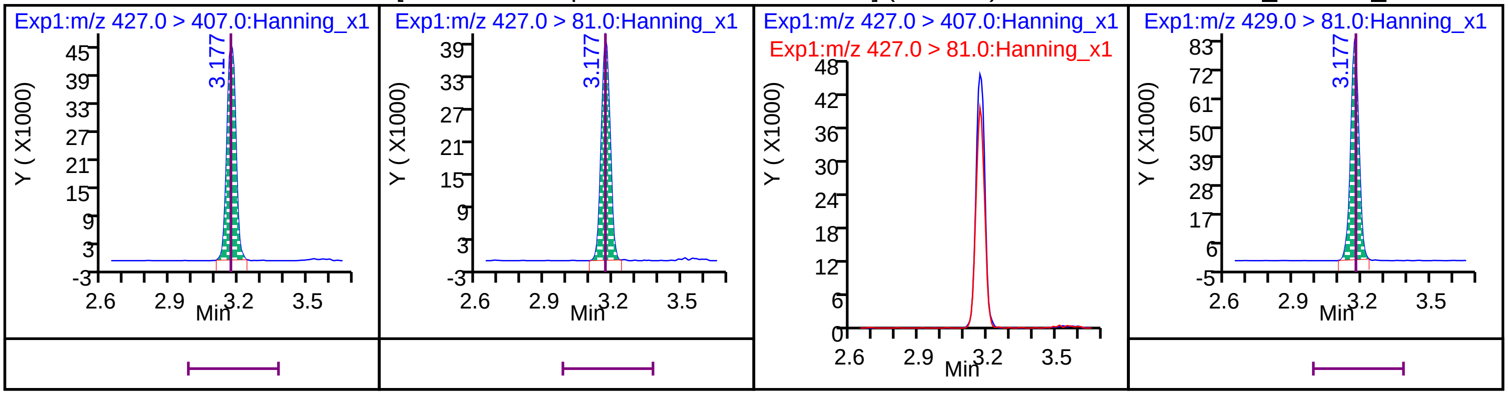
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



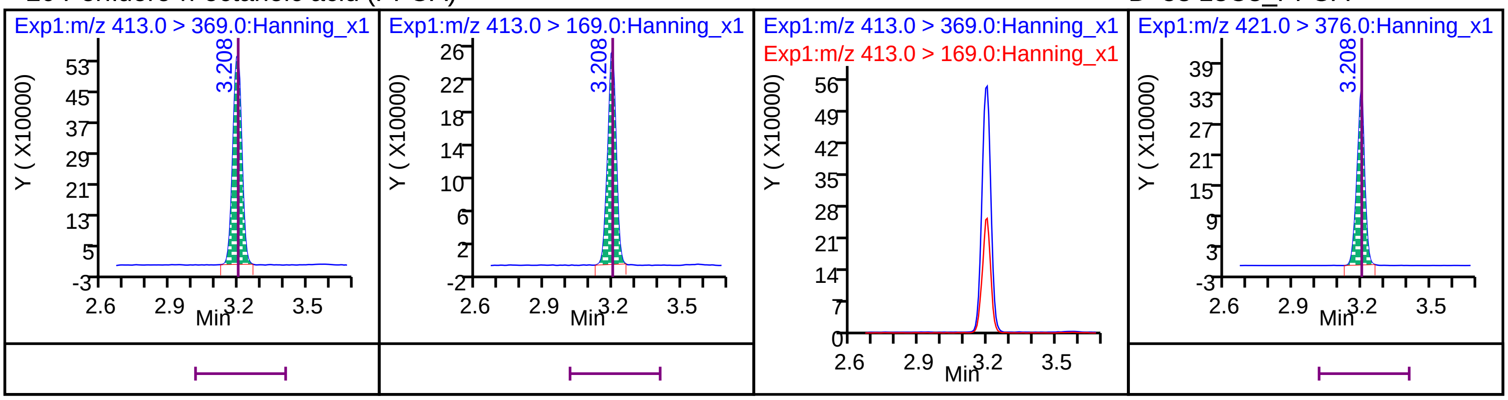
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



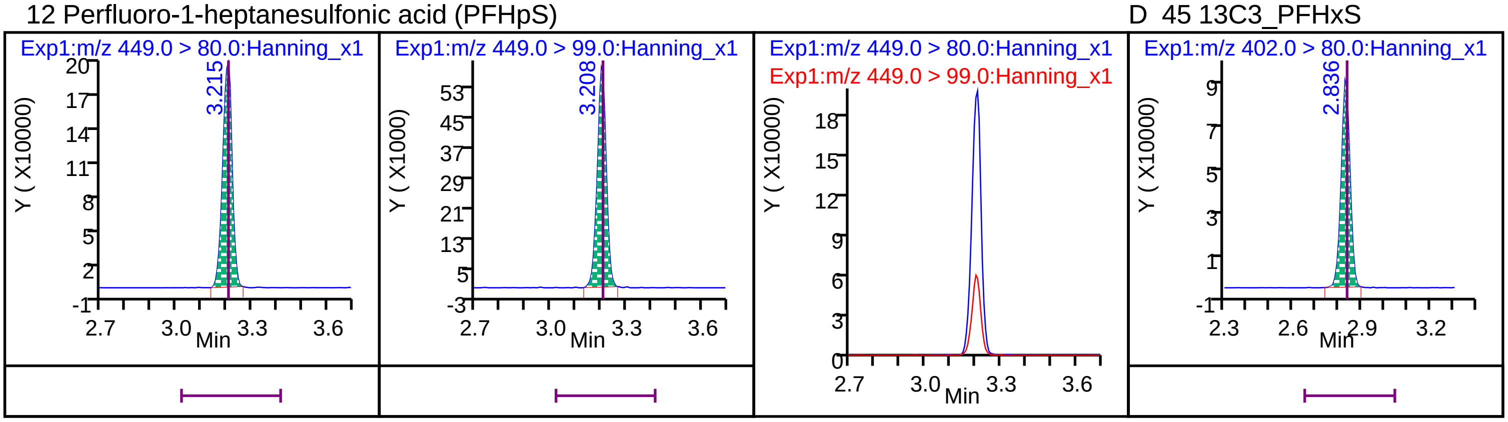
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



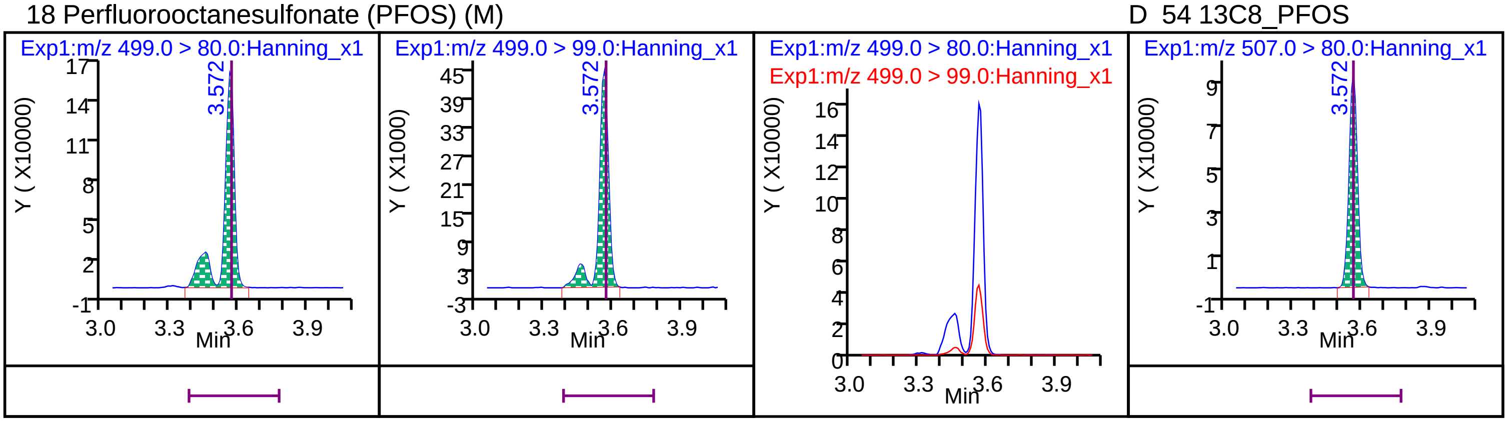
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

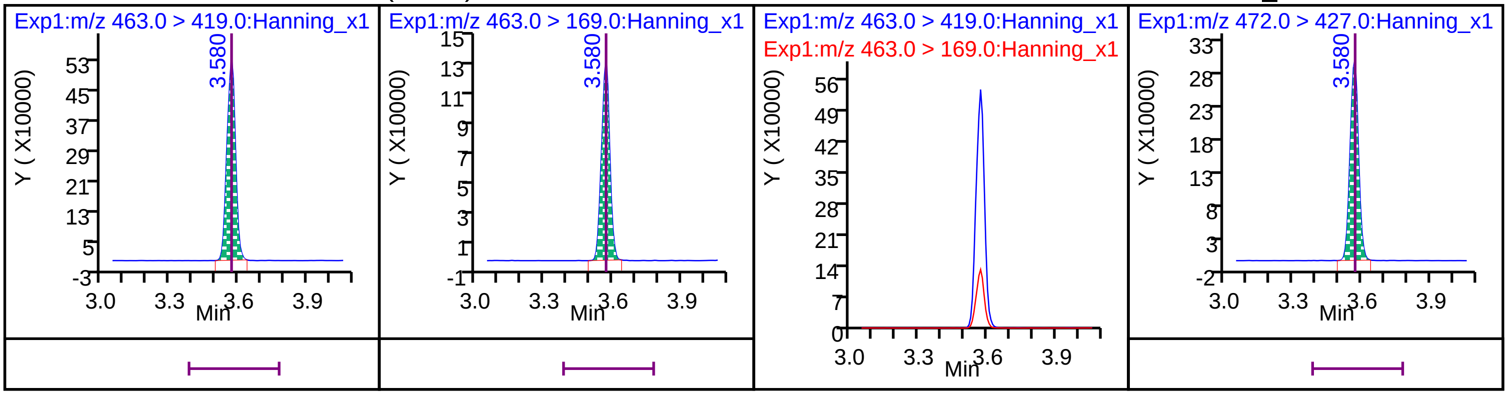


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

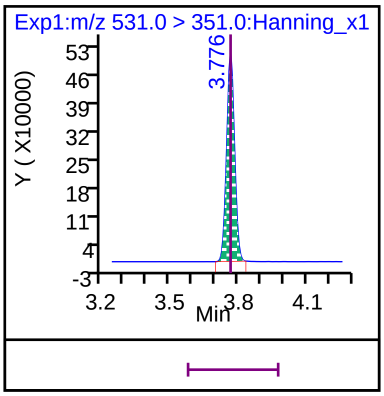


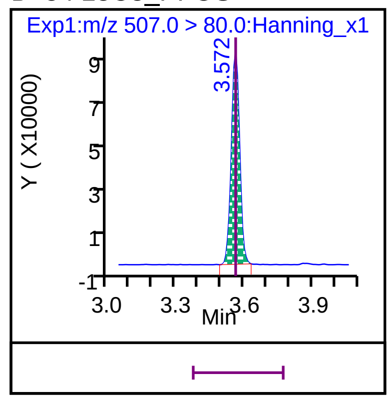
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

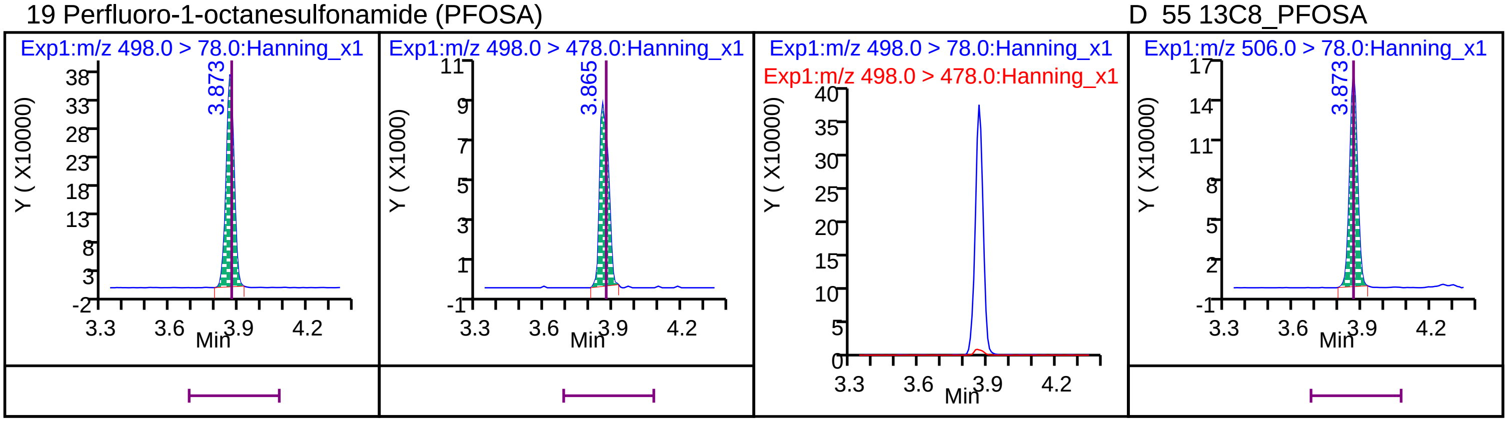


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

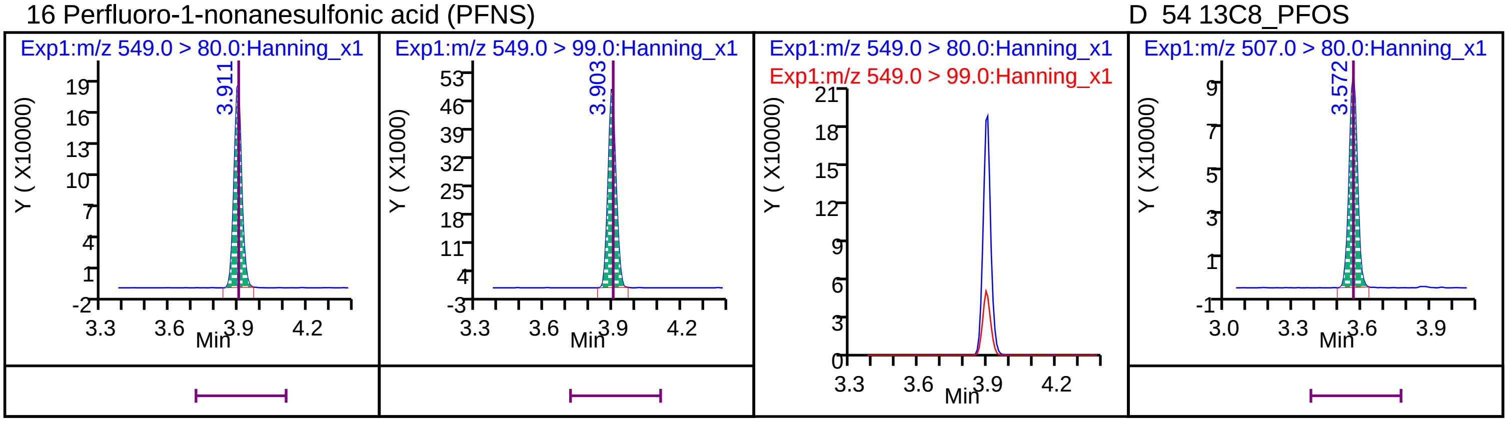




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

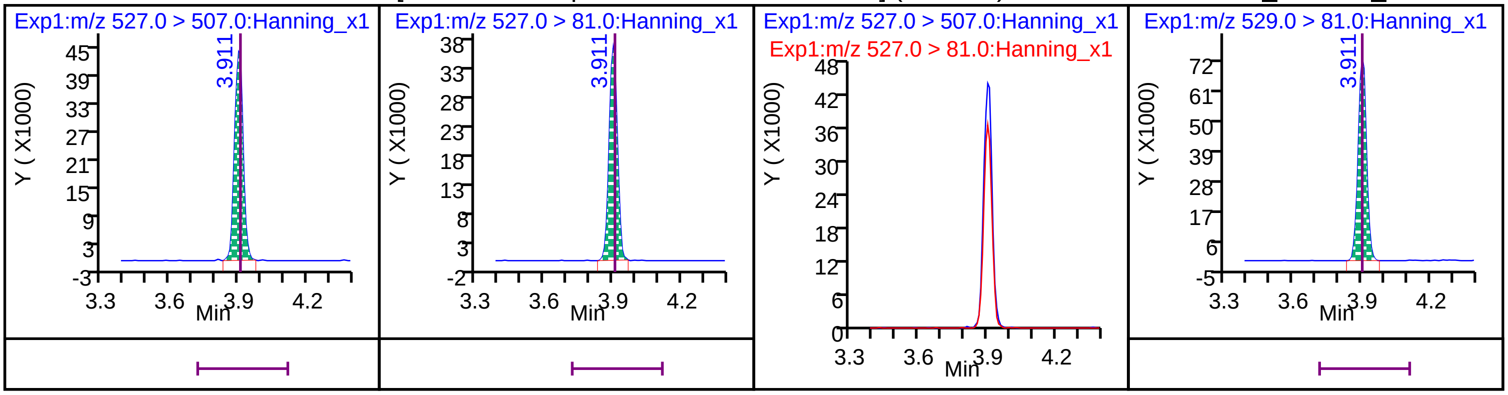


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

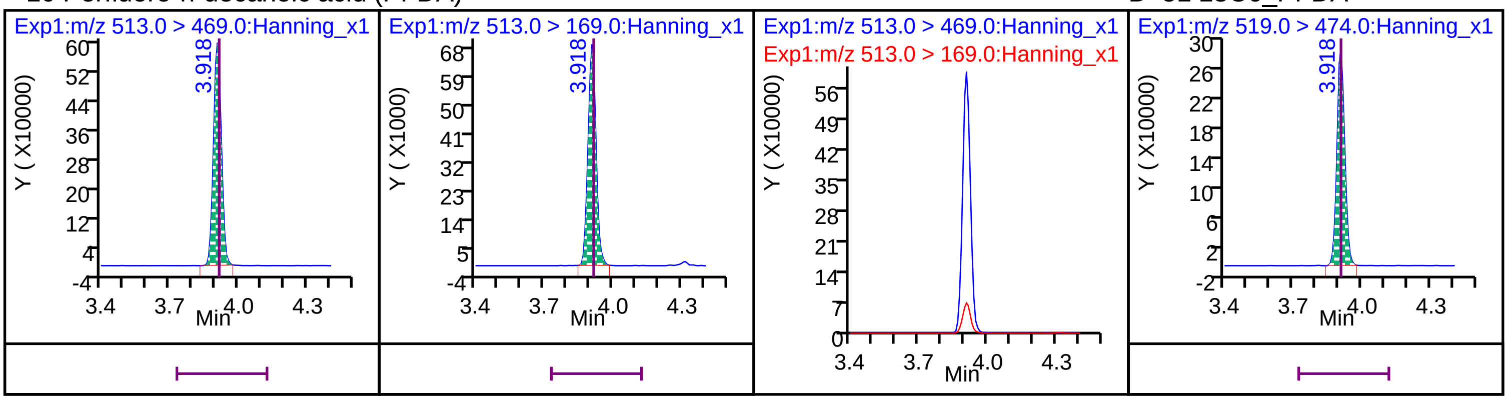


Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

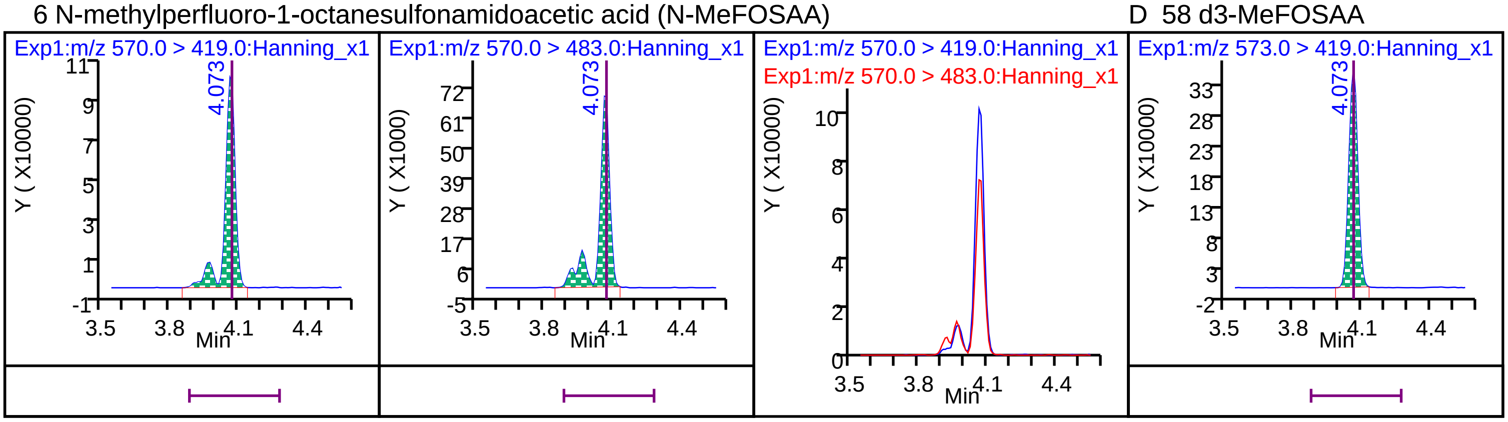
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



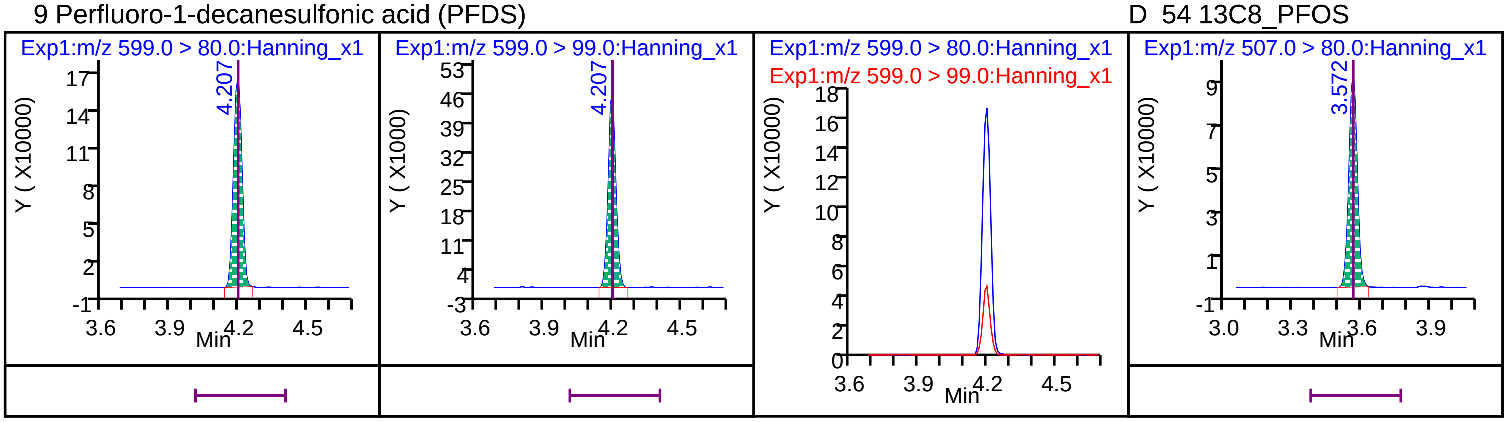
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

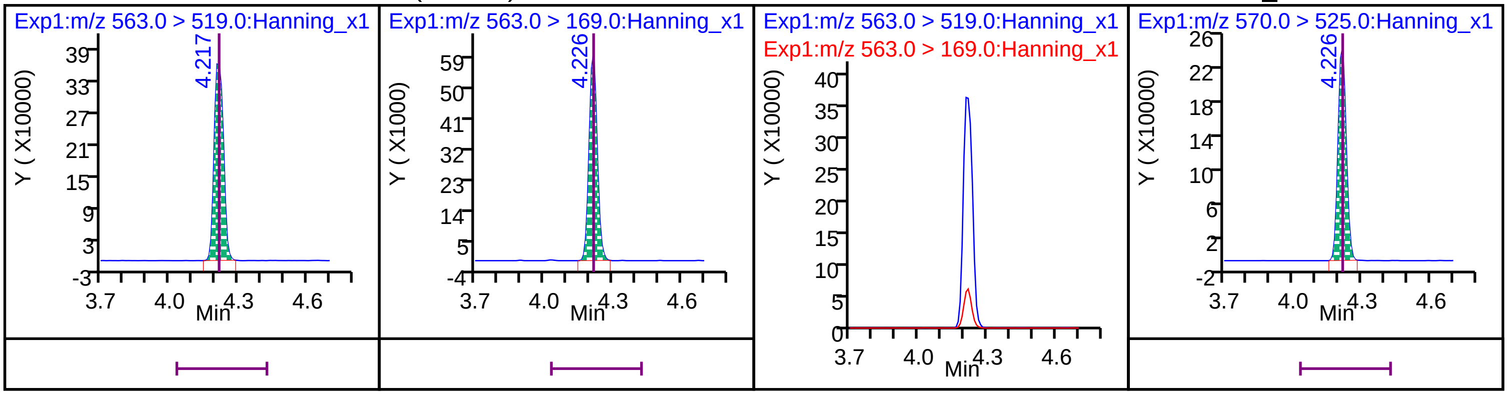


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

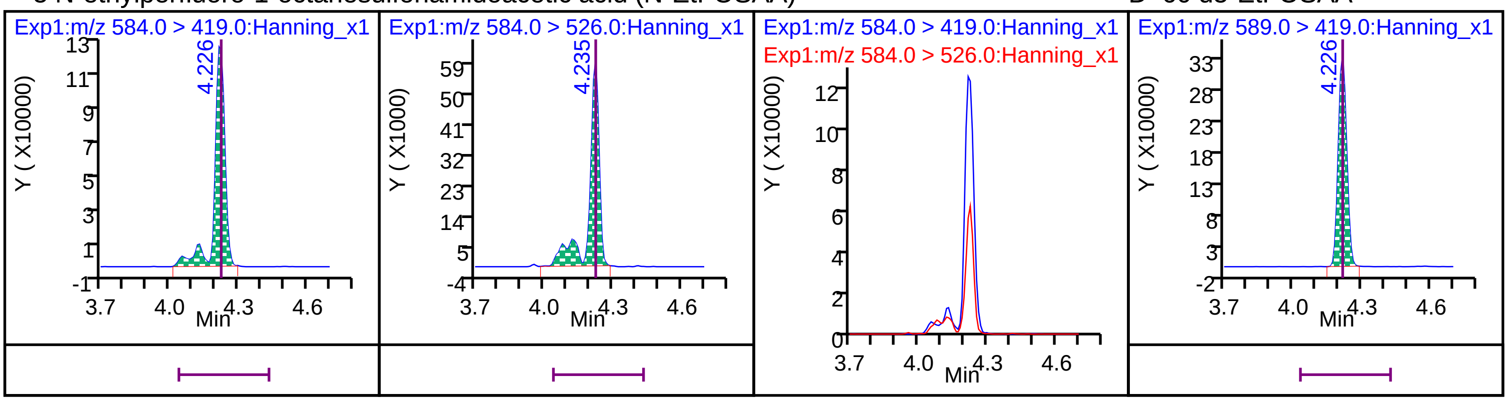


Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

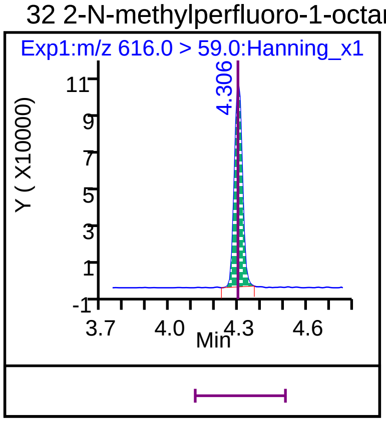
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



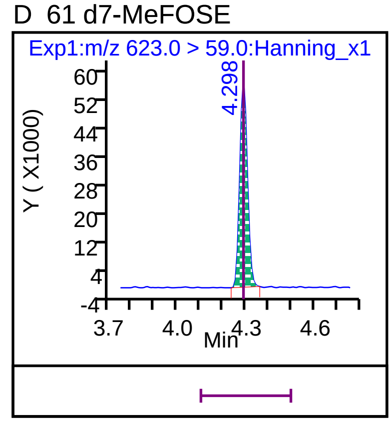
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



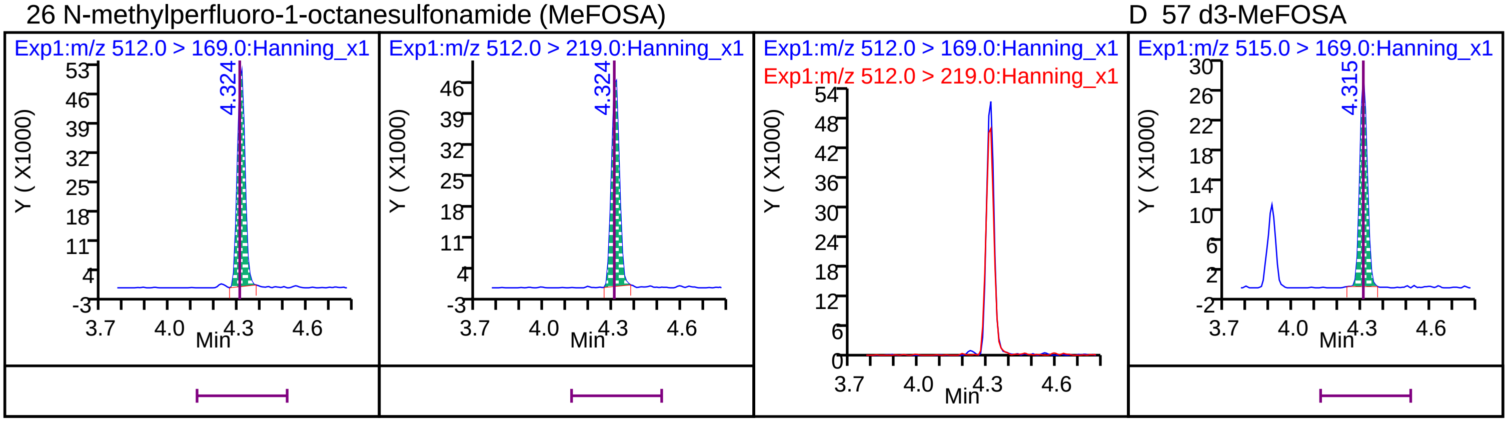
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



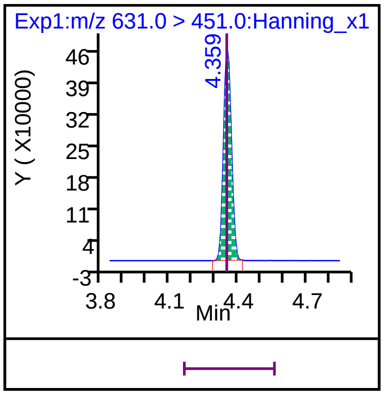
D 61 d7-MeFOSE



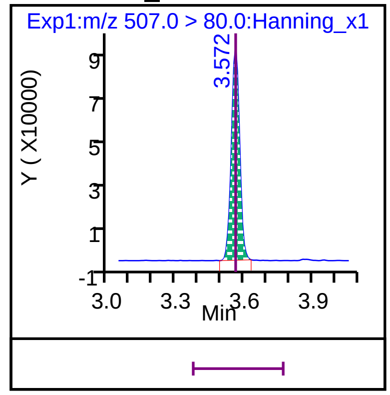
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



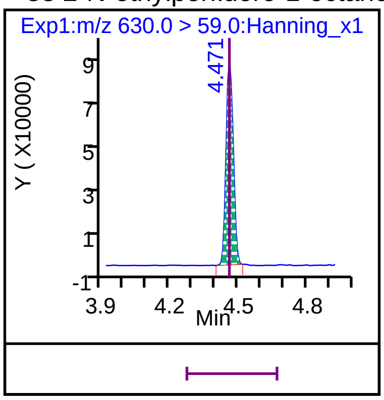
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



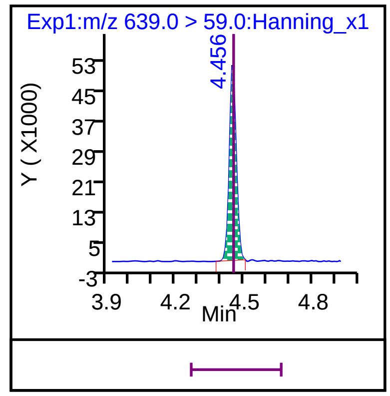
D 54 13C8_PFOS



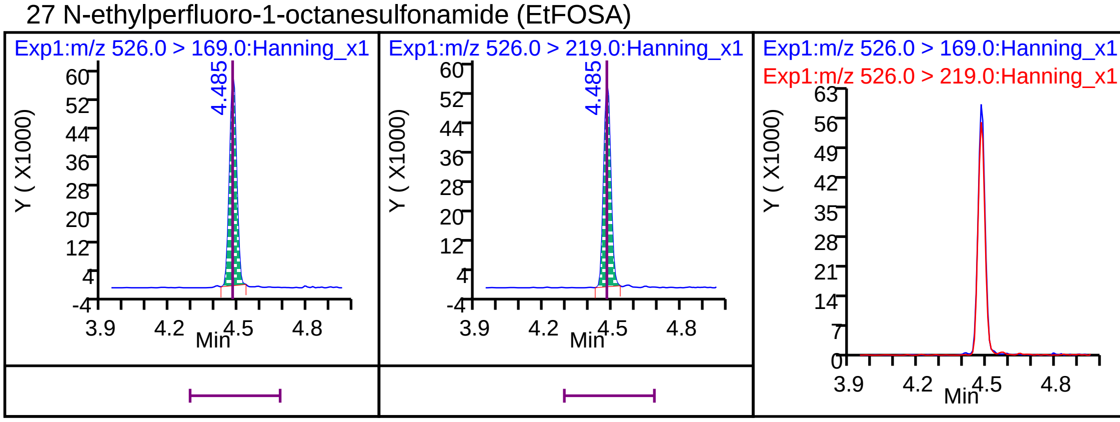
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



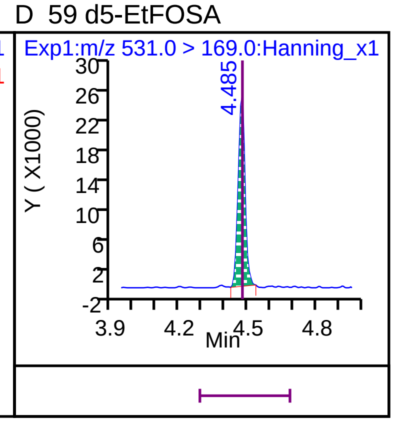
D 62 d9-EtFOSE



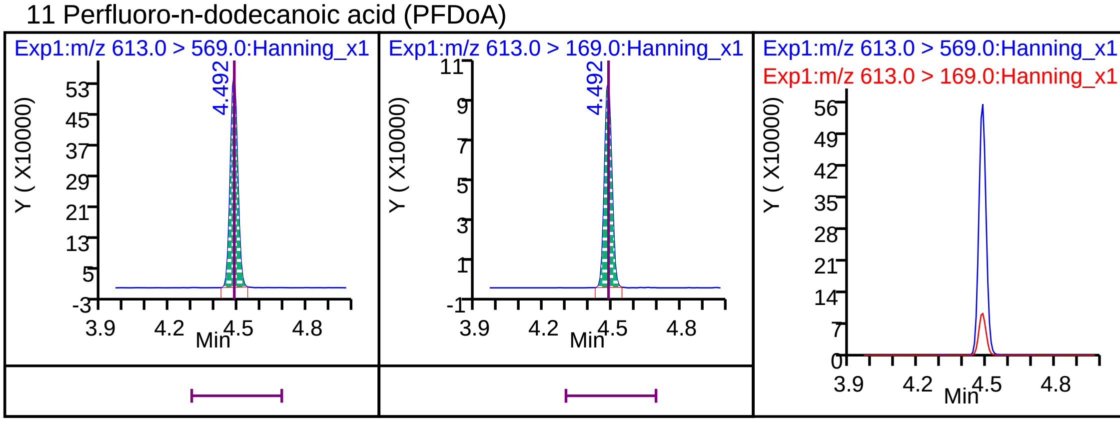
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



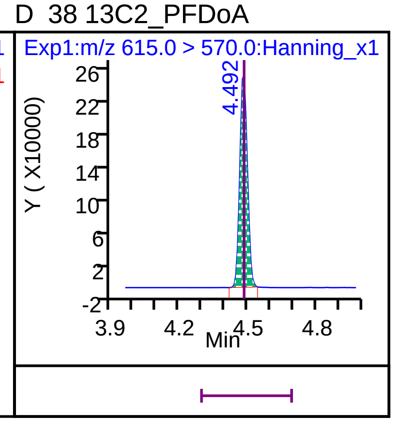
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA)



D 38 13C2_PFDoA



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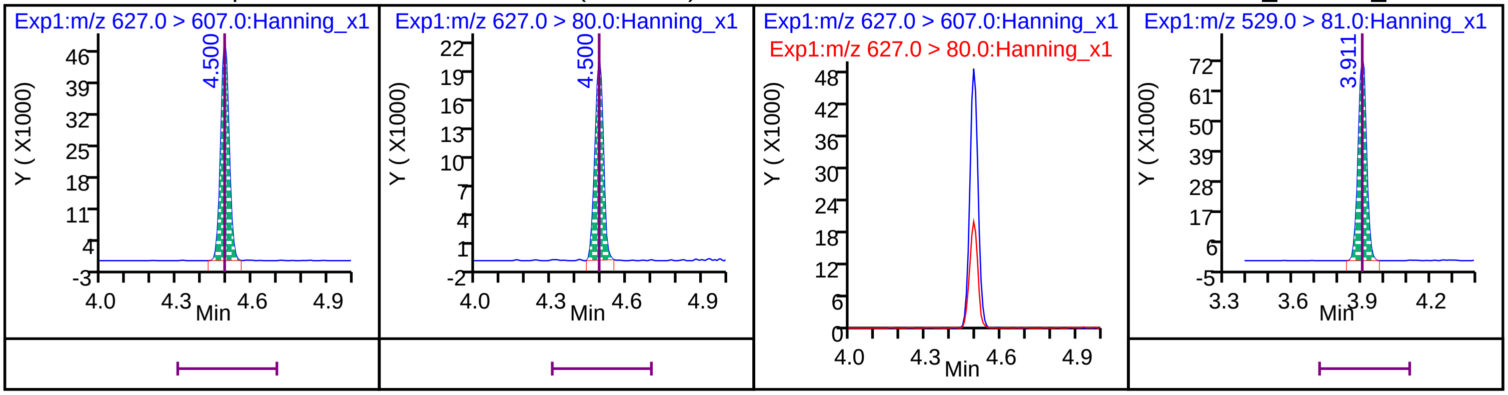
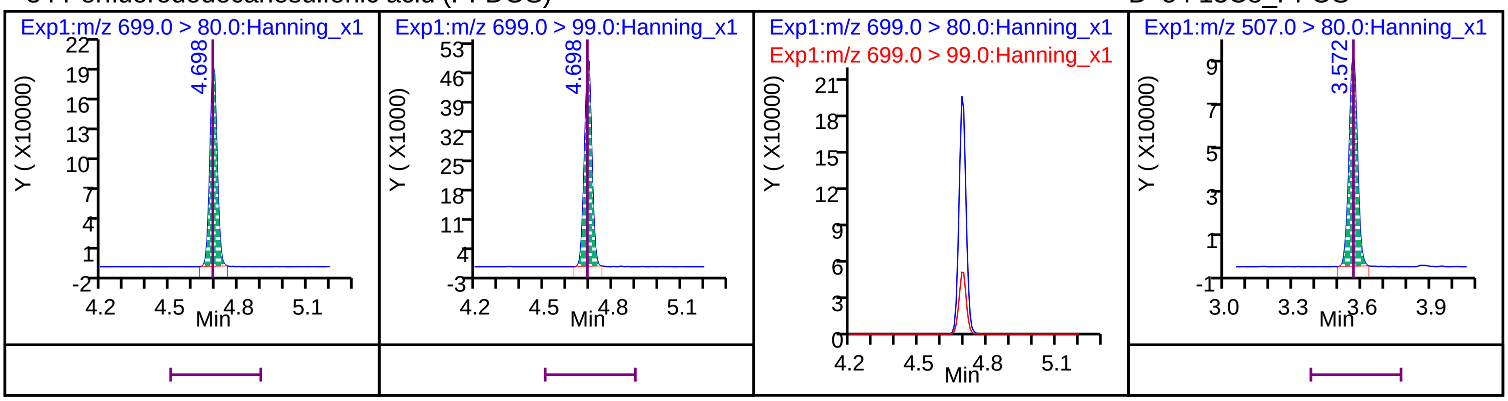
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

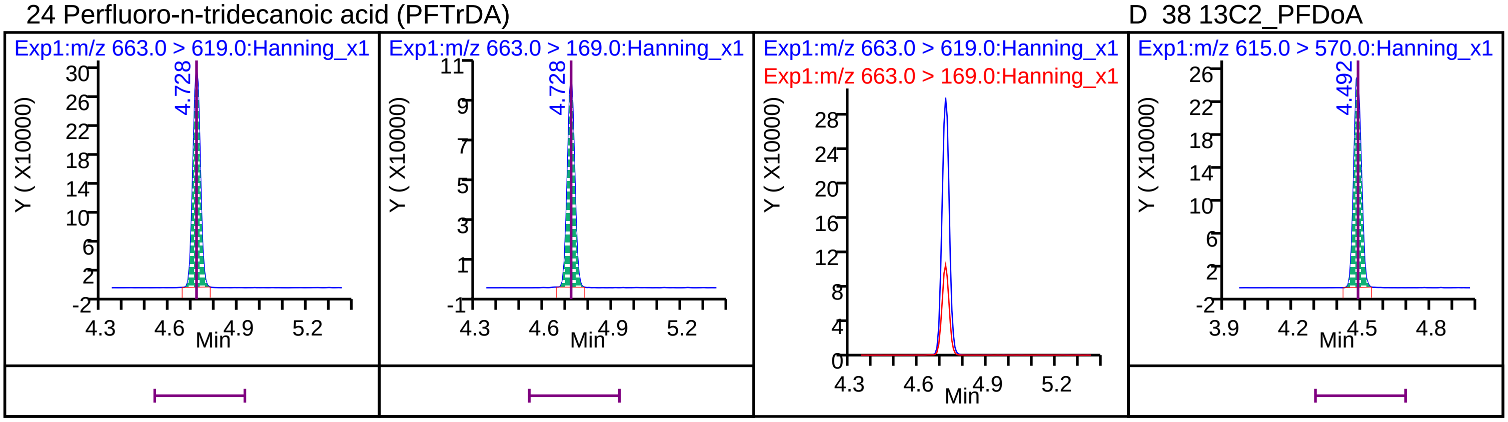
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



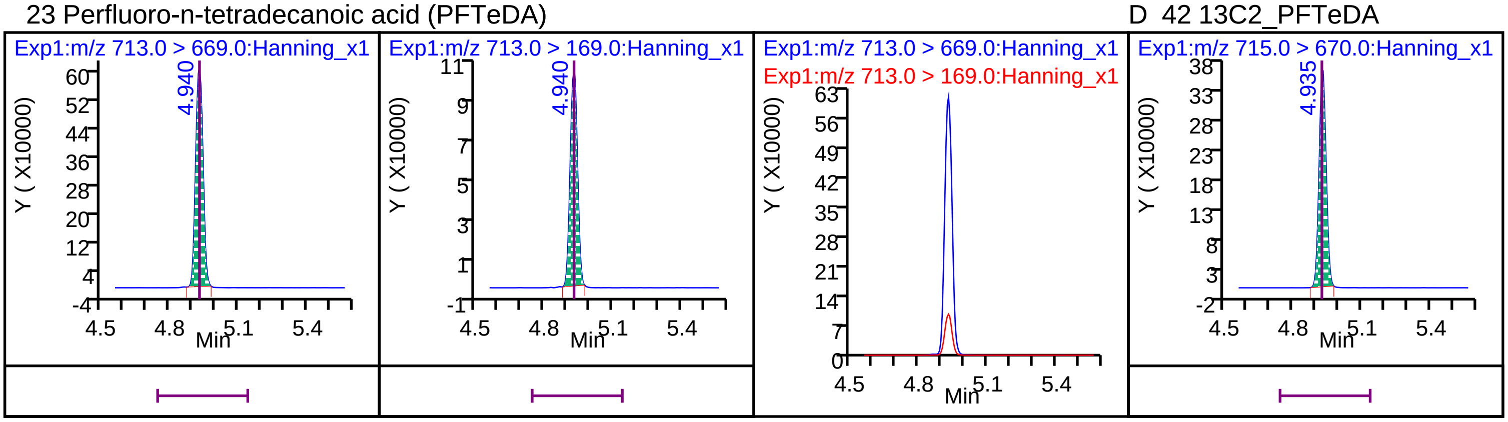
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

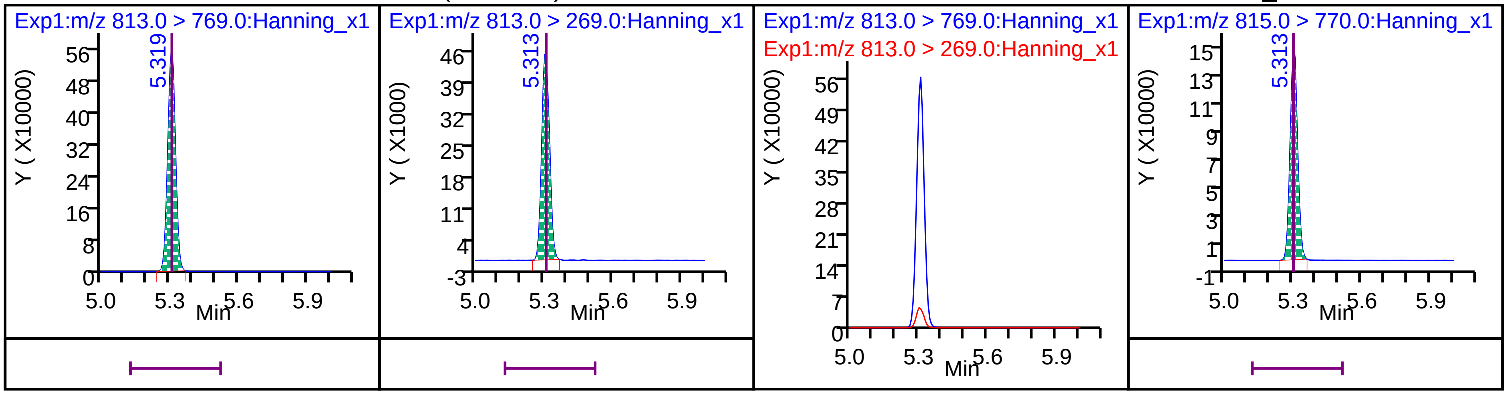


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

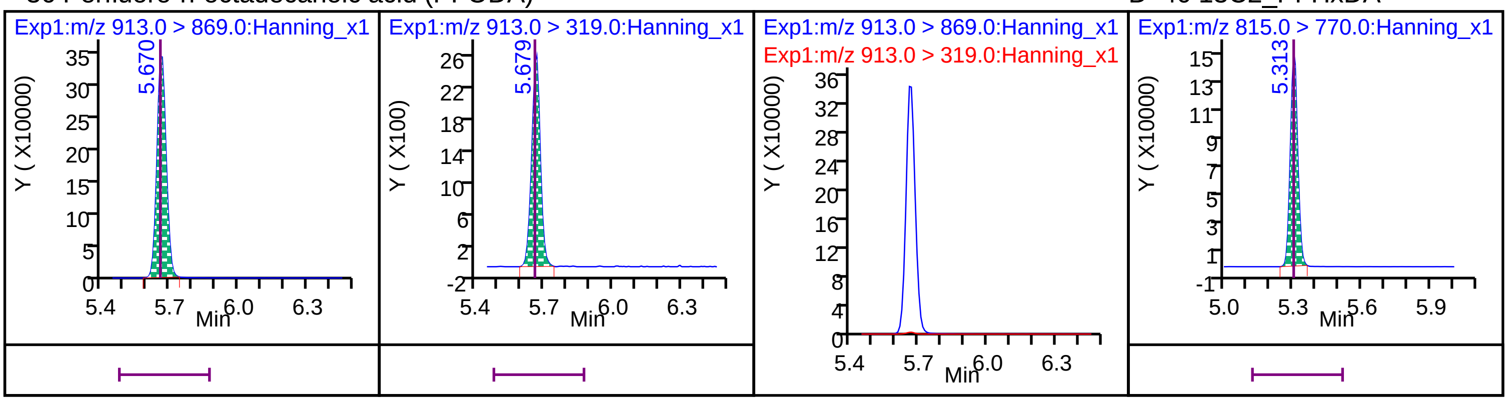


Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d

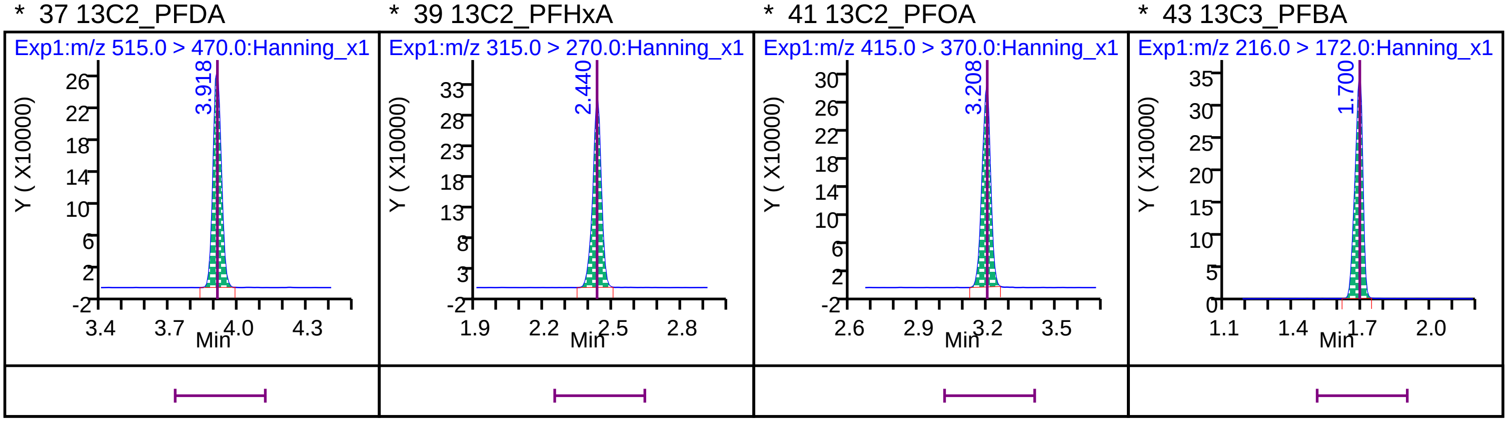
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



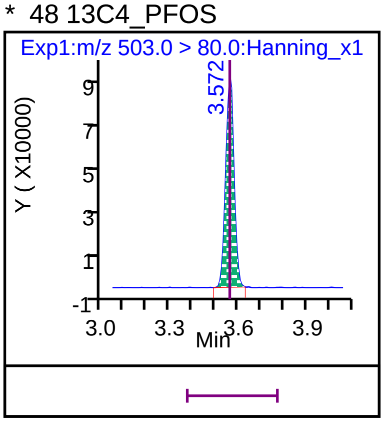
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

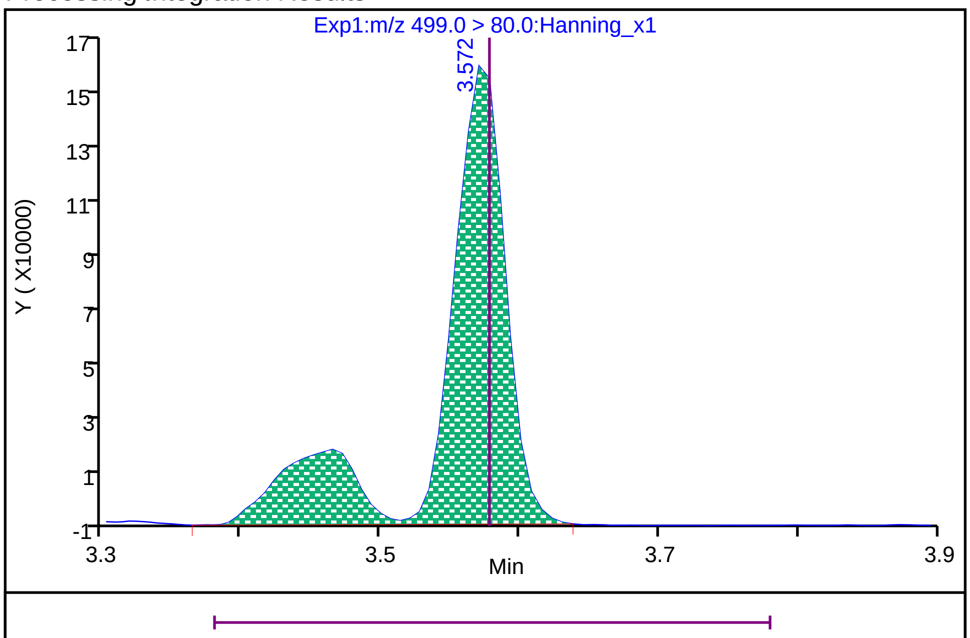
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421016.d		
Injection Date:	14-Oct-2021 12:00:10	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 2000_SVLC-1643
Sample Info:	ICAL 2000_SVLC-1643		
Dil. Factor:	1	Operator:	Matthew M. Miller

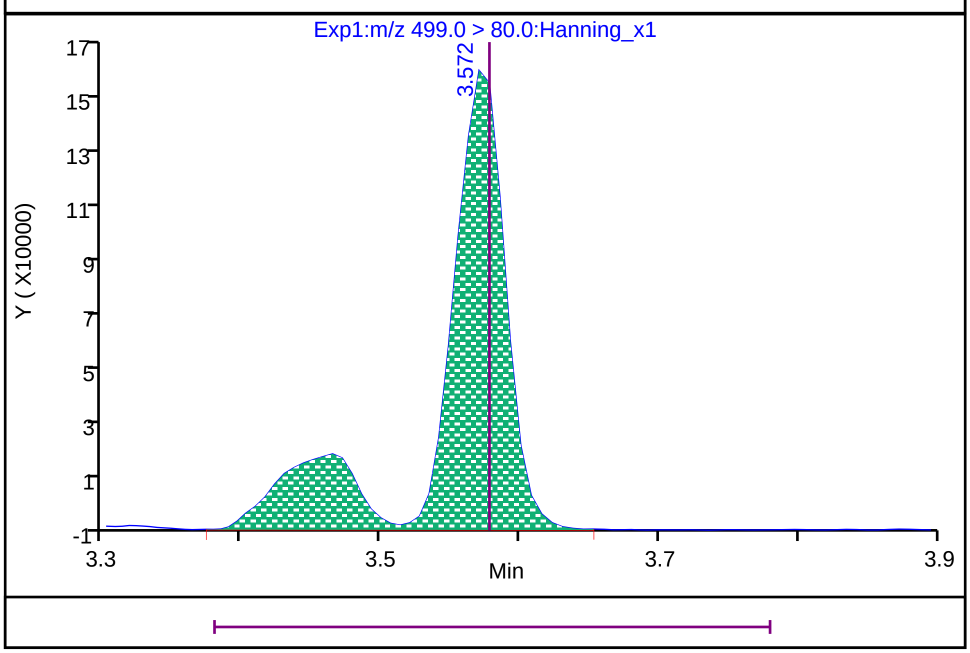
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.572
Area:	490501
Amount:	1777.73
Amount Units:	ng/L



RT:	3.572
Area:	497505
Amount:	1796.90
Amount Units:	ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:47:46

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421017.d		
Injection Date:	14-Oct-2021 12:10:44	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	7
Sample Info:	ICAL 5000_SVLC-1644	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	0	821737	21	>100:1			1000.00	915.99	77.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.706	1.700	1/1	4567568	21	>100:1			5000.00	5143.72		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.066	0	798899	17	>100:1			1000.00	888.75	75	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.066	0/0	4483574	17	>100:1			5000.00	5199.56		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.129	2.119	1	276948	15	>100:1			1000.00	927.82	79.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.129	2.129	0/-1	1675620	16	>100:1	Target = 3.78		4420.00	4351.91		
298.9 > 99	44	2.129	2.129		430587	16	>100:1	3.89 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.484	2.475	1/0	1402824	18	>100:1	Target = 3.45		4690.00	4909.53		
349 > 99	44	2.484	2.475		411579	18	>100:1	3.40 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.405	2.406	0	207848	18	>100:1			5000.00	4651.03	77.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.405	2.406	0/0	407028	19	>100:1	Target = 1.43		4670.00	5110.39		
327 > 81	63	2.405	2.406		259154	18	>100:1	1.57 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.449	2.440	1	732352	18	>100:1			1000.00	894.45	73.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.449	2.440	1/0	3986709	19	>100:1	Target = 16.37		5000.00	5299.79		
313 > 119	49	2.449	2.440		232707	20	>100:1	17.13 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	0	680280	18	>100:1			5000.00	4701.72	78.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.571	2.562	1/1	1018034	19	>100:1	Target = 0.74		10000	9742.49		
285 > 185	66	2.571	2.562		1437350	20	>100:1	0.70 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.827	0	730734	19	>100:1			1000.00	911.95	74.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/0	3776110	19	>100:1	Target = 3.21		5000.00	5207.65		
363 > 169	47	2.827	2.827		1190705	19	>100:1	3.17 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.845	2.845	0	221797	19	>100:1			1000.00	901.78	74.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	0/0	1306057	27	>100:1	Target = 3.47	4.78	4550.00	4883.96		
399 > 99	45	2.845	2.845		378152	28	>100:1	3.45 (1.73-5.21)	6.68				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.871	2.862	1/1	5953131	19	>100:1	Target = 2.28		4710.00	4937.17		
377 > 85	45	2.871	2.862		2637115	19	>100:1	2.25 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.215	3.215	0/0	1145972	23	>100:1	Target = 3.62		4760.00	4758.25		
449 > 99	45	3.215	3.215		319545	21	>100:1	3.58 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.183	3.183	0	204651	21	>100:1			5000.00	4683.41	75.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.183	3.177	1/1	280723	21	>100:1	Target = 1.19		4740.00	4348.65		
427 > 81	64	3.183	3.177		242206	21	>100:1	1.15 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.208	0	672545	23	>100:1			1000.00	888.83	76.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.208	0/0	3574163	22	>100:1	Target = 2.34		5000.00	5278.35		
413 > 169	53	3.208	3.208		1455412	23	>100:1	2.45 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	0	199425	19	>100:1			1000.00	880.19	74.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.580	3.580	0/0	1210505	43	>100:1	Target = 4.00	3.77	4640.00	5028.24		M
499 > 99	54	3.580	3.580		291651	37	>100:1	4.15 (2.00-6.01)	7.25				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.776	3.776	0/0	3078438	20	>100:1			4660.00	5058.55		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.911	3.911	0/0	1006453	18	>100:1	Target = 3.83		4800.00	4991.17		
549 > 99	54	3.903	3.911		278999	19	>100:1	3.60 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.207	4.207	0/0	1003416	16	>100:1	Target = 3.87		4820.00	5229.68		
599 > 99	54	4.207	4.207		255893	16	>100:1	3.92 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	2541523	16	>100:1			4710.00	4879.87		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	981834	17	>100:1	Target = 3.65		4840.00	5387.65		
699 > 99	54	4.698	4.698		275337	18	>100:1	3.56 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.580	3.580	0	720658	21	>100:1			1000.00	929.34	78.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	0/0	3329584	20	>100:1	Target = 4.21		5000.00	5293.43		
463 > 169	56	3.580	3.580		775298	20	>100:1	4.29 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	389384	20	>100:1			1000.00	929.73	81	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/0	2162405	20	>100:1	Target = 49.05		5000.00	4898.00		
498>478	55	3.873	3.880		46027	25		46.98 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.911	3.911	0	173594	17	>100:1			5000.00	4590.77	75.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/0	246094	18	>100:1	Target = 1.27		4790.00	4800.62		
527 > 81	65	3.911	3.918		186717	17	>100:1	1.31 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.500	4.500	0/0	251944	19	>100:1	Target = 2.25		4820.00	4812.70		
627 > 80	65	4.500	4.500		113627	16	>100:1	2.21 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.918	0	650351	17	>100:1			1000.00	957.58	80.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.918	3.926	0/0	3315074	19	>100:1	Target = 8.94		5000.00	5044.92		
513 > 169	51	3.918	3.926		365918	17	>100:1	9.05 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	0	982597	16	>100:1			5000.00	4795.53	81	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.081	4.081	0/0	778189	33	>100:1	Target = 1.38	7.53	5000.00	5183.78		
570 > 483	58	4.073	4.081		575619	34	>100:1	1.35 (0.69-2.08)	3.94				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.226	4.226	0	604834	17	>100:1			1000.00	956.80	83.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.226	4.226	0/0	2715034	18	>100:1	Target = 8.27		5000.00	5061.38		
563 > 169	52	4.226	4.226		315246	18	>100:1	8.61 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.226	4.226	0	725169	17	>100:1			5000.00	4224.05	68.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.235	4.235	0/0	816972	33	>100:1	Target = 1.95	6.44	5000.00	5277.87		
584 > 526	60	4.235	4.235		451423	35	>100:1	1.80 (0.97-2.92)	3.53				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.298	0	117746	17	>100:1			1000.00	925.96	77	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.306	0/0	577479	15	>100:1			5000.00	4972.44		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.315	0	53446	16	>100:1			1000.00	919.55	73.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.315	4.315	0/0	290557	14	>100:1	Target = 1.08		5000.00	5105.94		
512 > 219	57	4.324	4.315		273790	14	>100:1	1.06 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	0	107964	15	>100:1			1000.00	919.18	73.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.470	4.471	0/0	479516	19	>100:1			5000.00	5211.88		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.485	0	48216	16	>100:1			1000.00	877.79	73.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.485	0/0	292476	15	>100:1	Target = 1.10		5000.00	5301.56		
526 > 219	59	4.485	4.485		272249	17	>100:1	1.07 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.492	4.492	0	570320	18	>100:1			1000.00	949.54	80.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.492	4.492	0/0	2864810	17	>100:1	Target = 5.93		5000.00	4904.38		
613 > 169	38	4.492	4.492		501878	17	>100:1	5.70 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.728	0/0	1488115	17	>100:1	Target = 2.90		5000.00	4823.22		
663 > 169	38	4.727	4.728		526788	18	>100:1	2.82 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.935	4.935	1	762693	21	>100:1			1000.00	951.95	82.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.940	4.940	1/0	3297223	21	>100:1	Target = 6.34		5000.00	5106.25		
713 > 169	42	4.940	4.940		510392	21	>100:1	6.46 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.313	5.313	1	306412	20	>100:1			1000.00	931.20	82.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.313	5.319	0/-1	3059407	21	>100:1	Target = 12.53		5000.00	4927.91		
813 > 269	40	5.313	5.319		243381	19	>100:1	12.57 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.679	5.670	1/0	2327614	21	>100:1	Target = 152.15		5000.00	5118.05		
913 > 319	40	5.679	5.670		14697	21		158.37 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.918	0	634289	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.449	2.440	1	765971	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.208	3.208	0	663213	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	0	762358	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.572	3.572	0	213048	20	>100:1			1000.00			

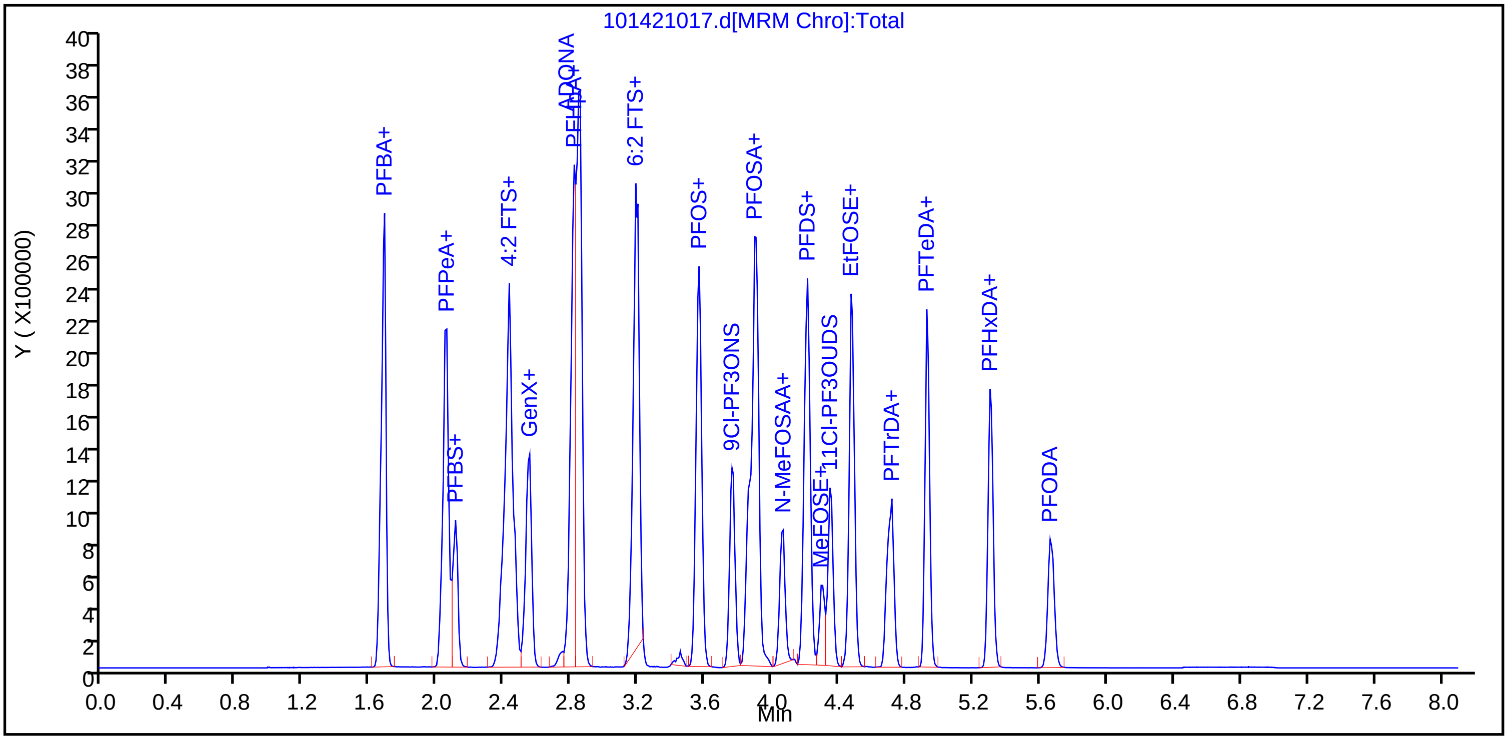
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

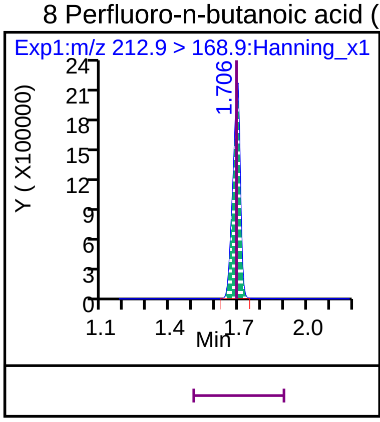
Report Date: 19-Oct-2021 08:48:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

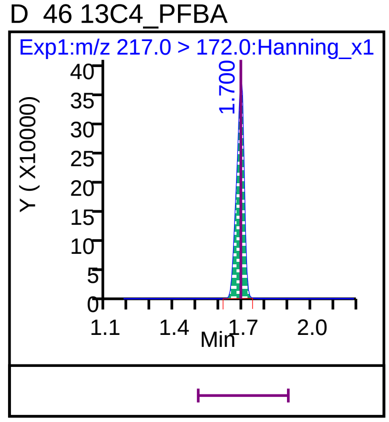
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421017.d		
Injection Date:	14-Oct-2021 12:10:44	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1644
Sample Info:	ICAL 5000_SVLC-1644		
Dil. Factor:	1	Operator:	Matthew M. Miller



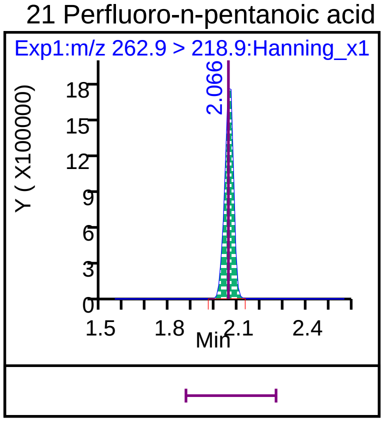
8 Perfluoro-n-butanoic acid (PFBA)



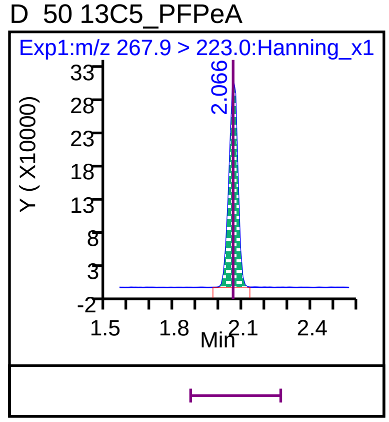
D 46 13C4_PFBA



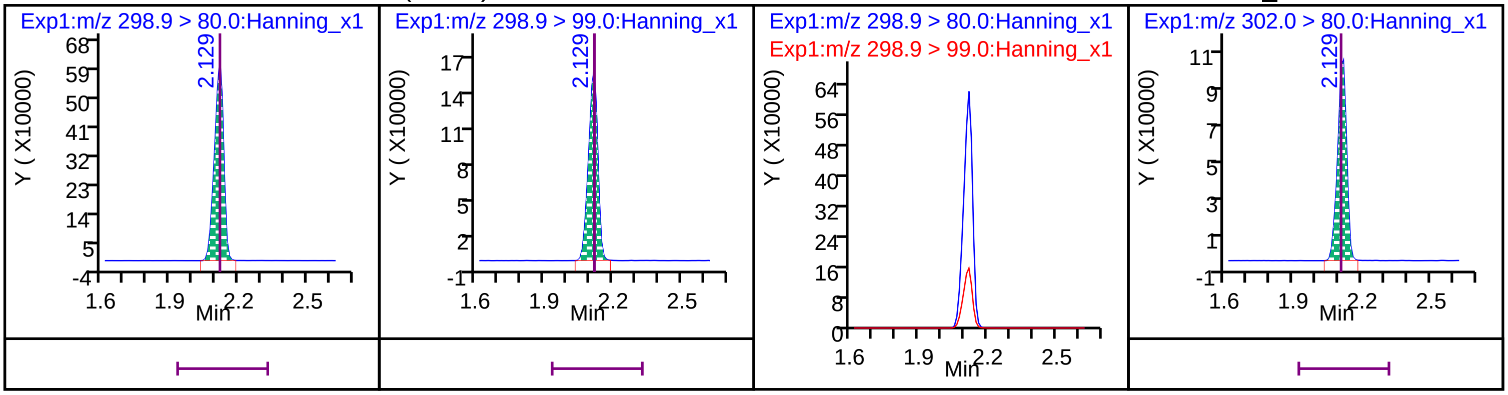
21 Perfluoro-n-pentanoic acid (PFPeA)



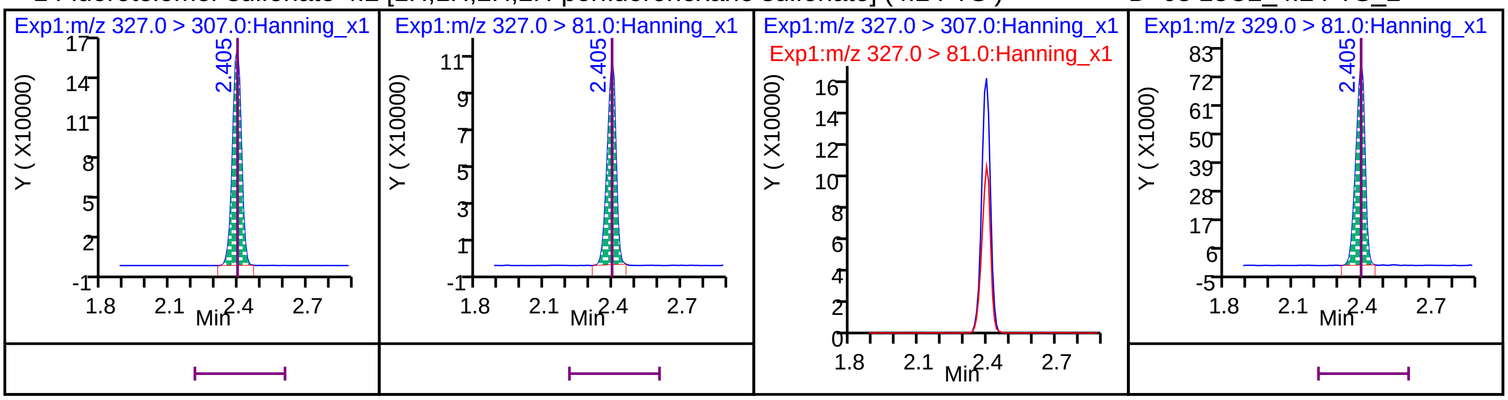
D 50 13C5_PFPeA



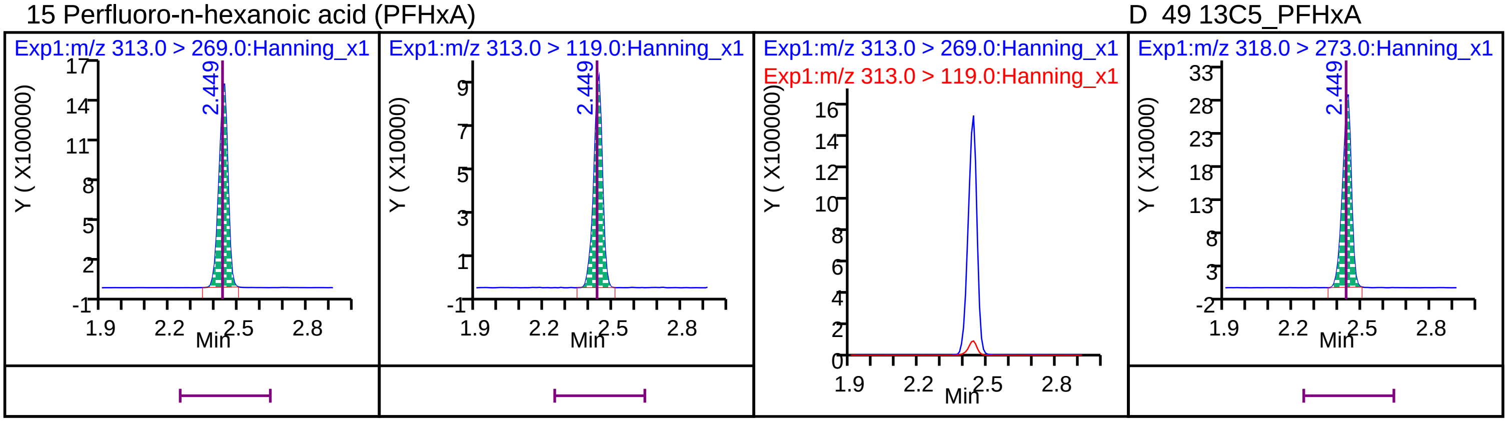
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



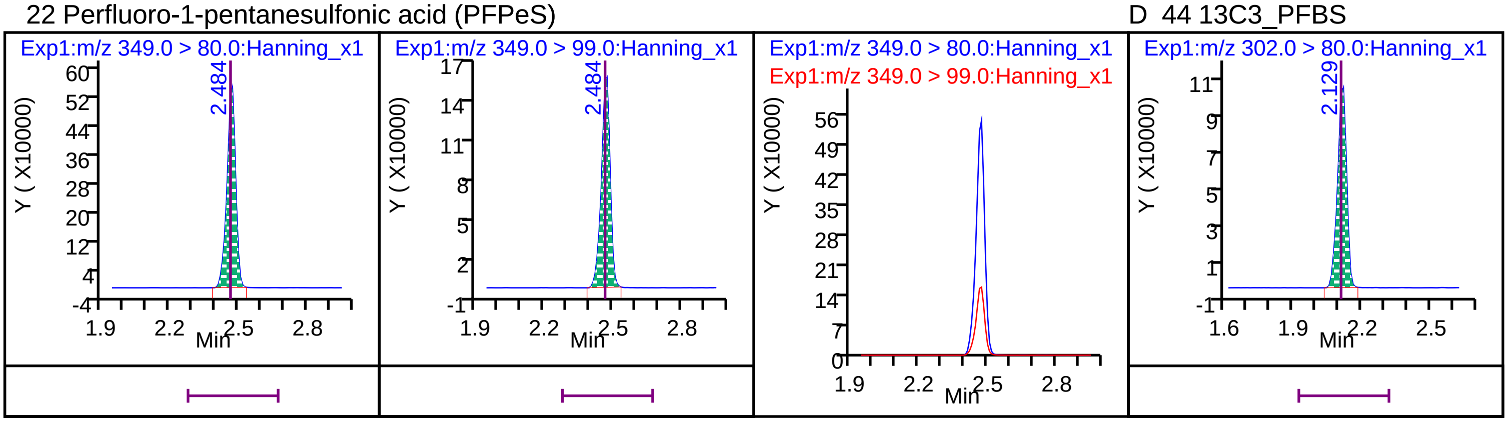
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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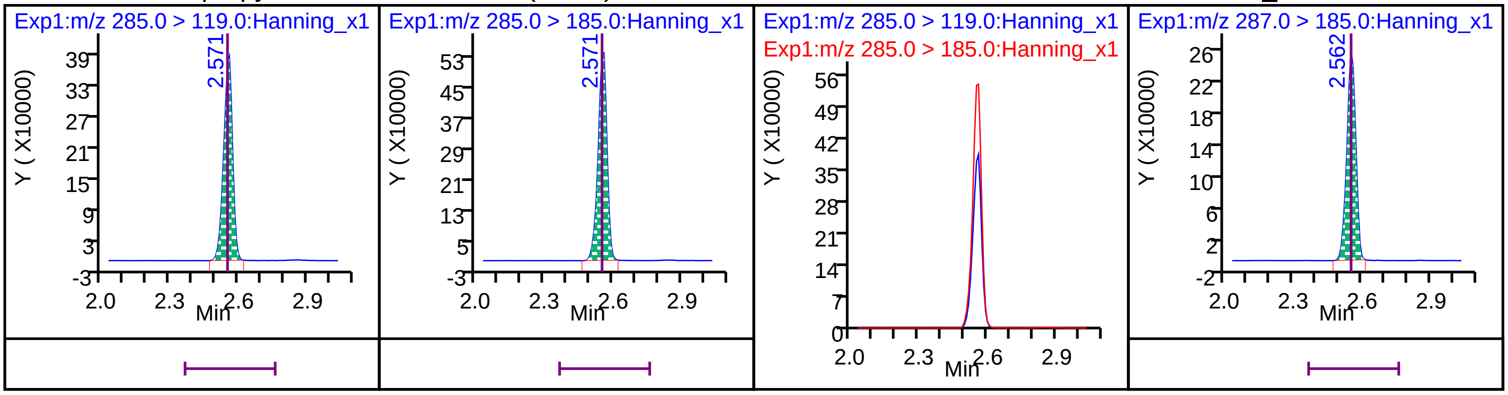
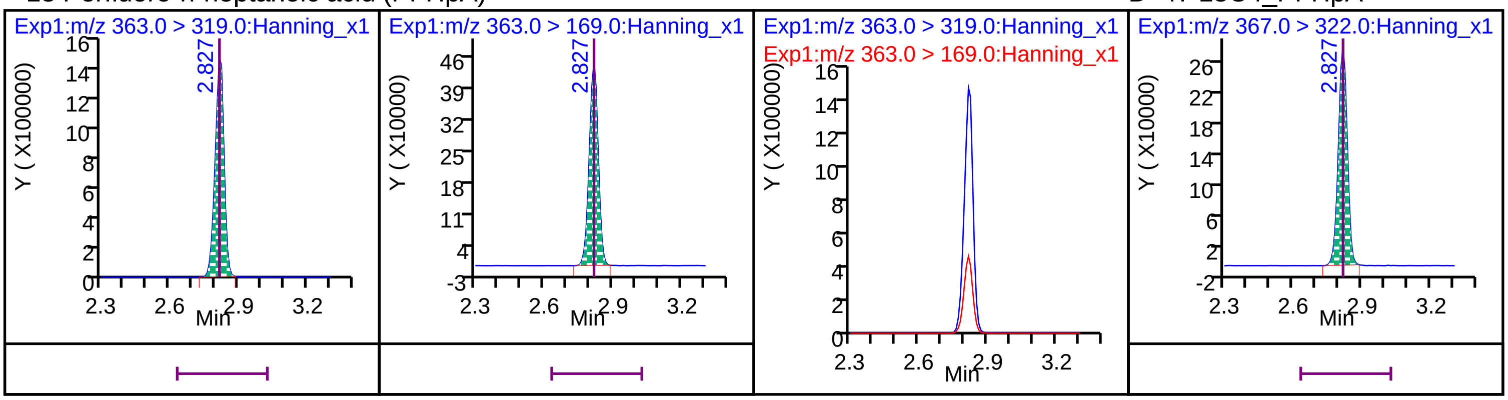
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421017.d

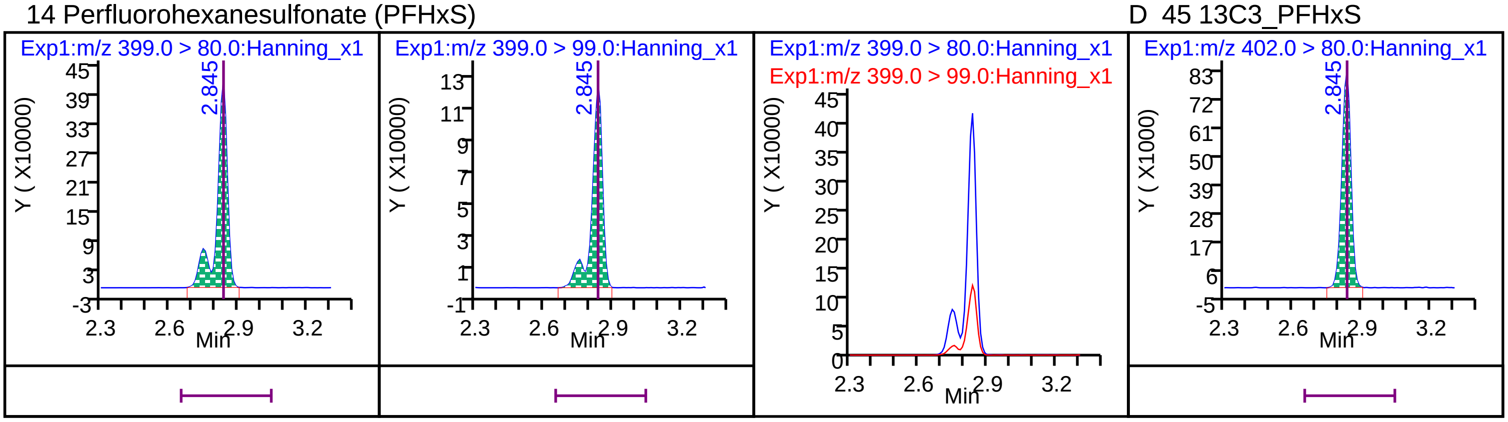
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



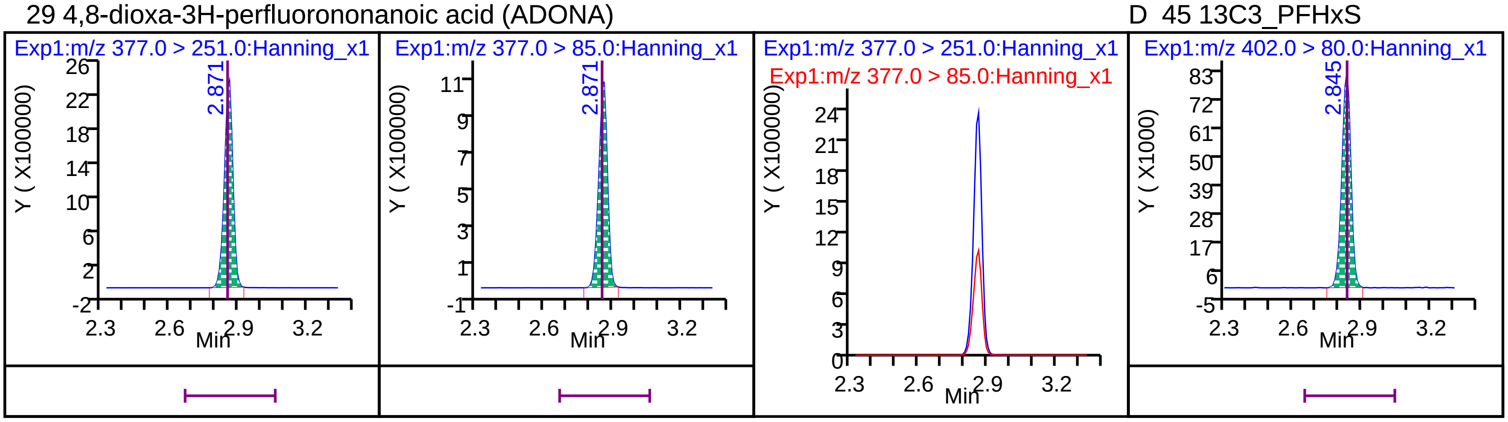
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



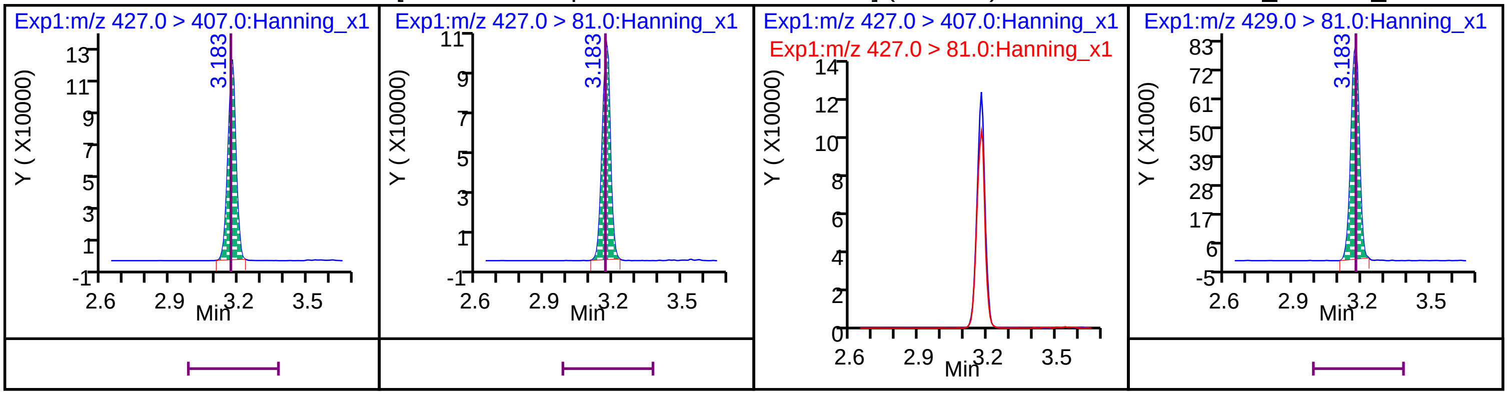
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



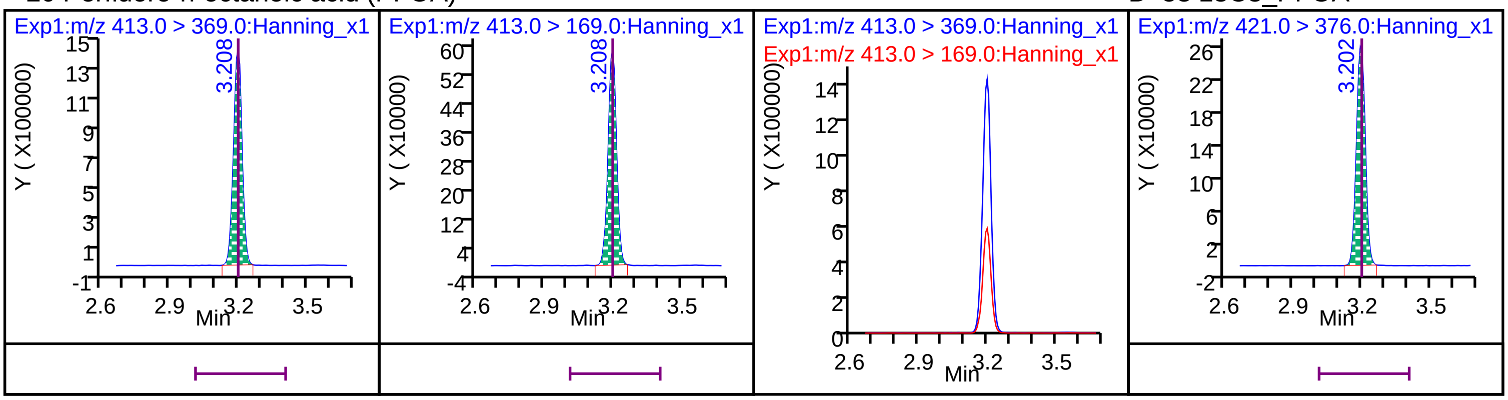
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



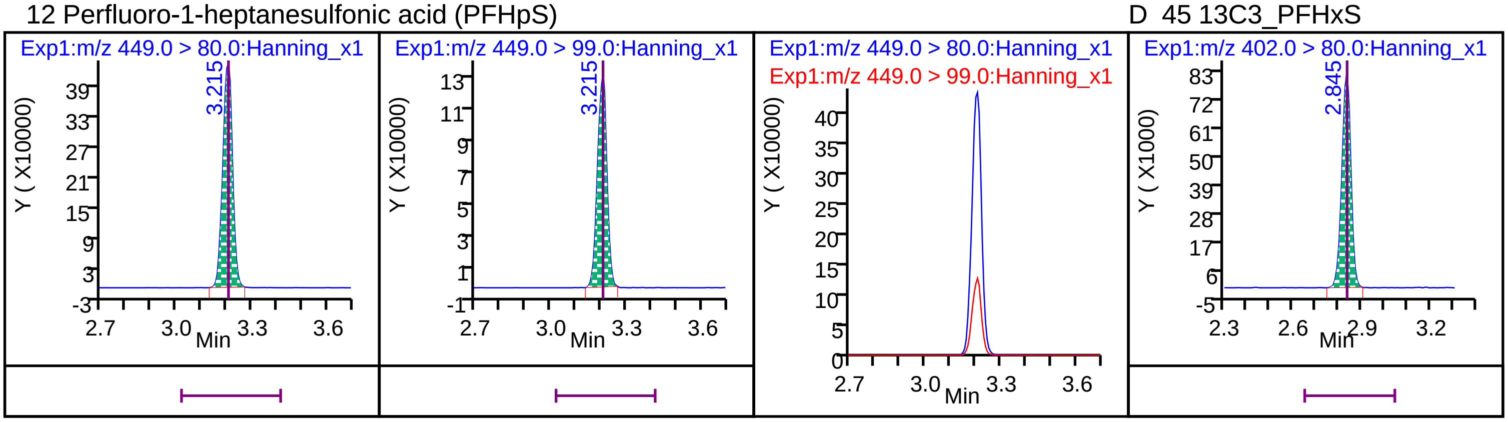
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



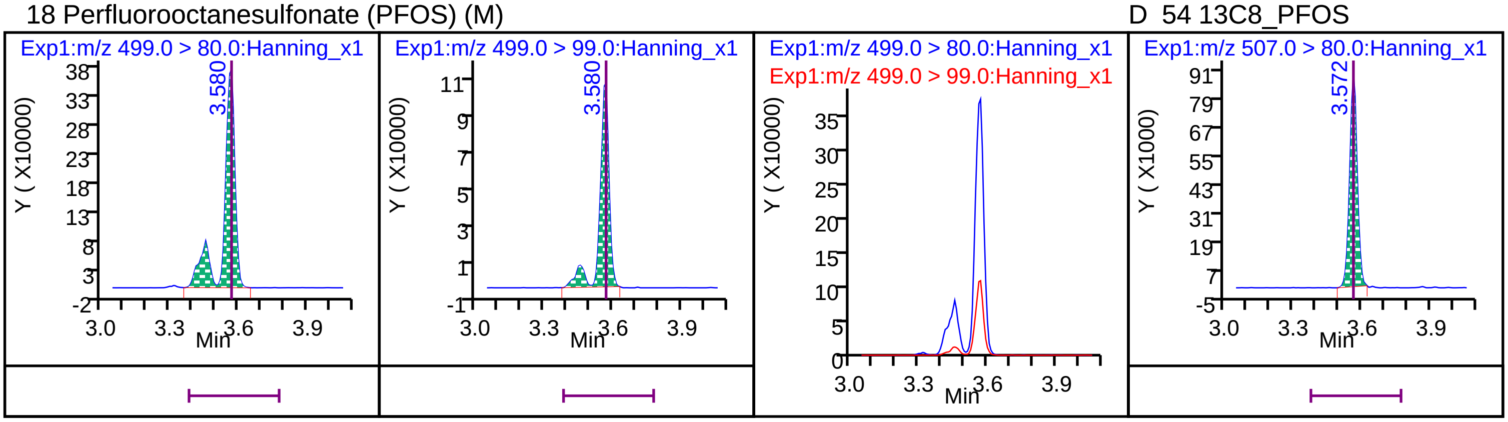
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



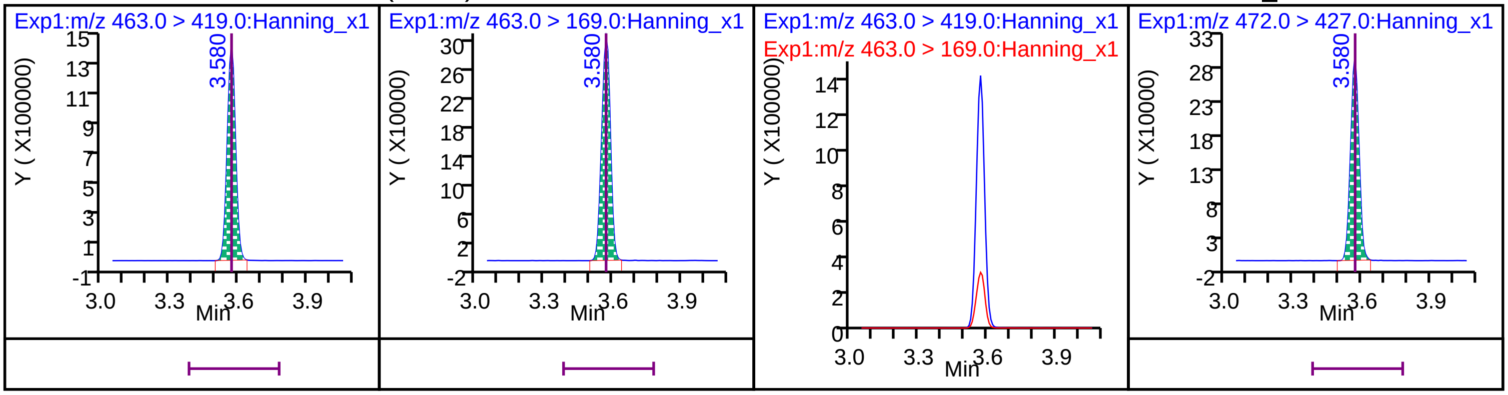
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



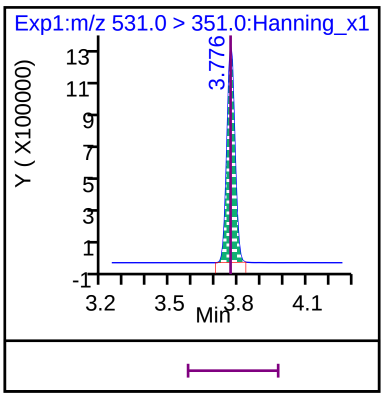
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

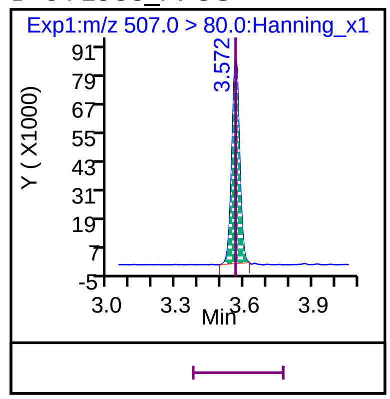


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

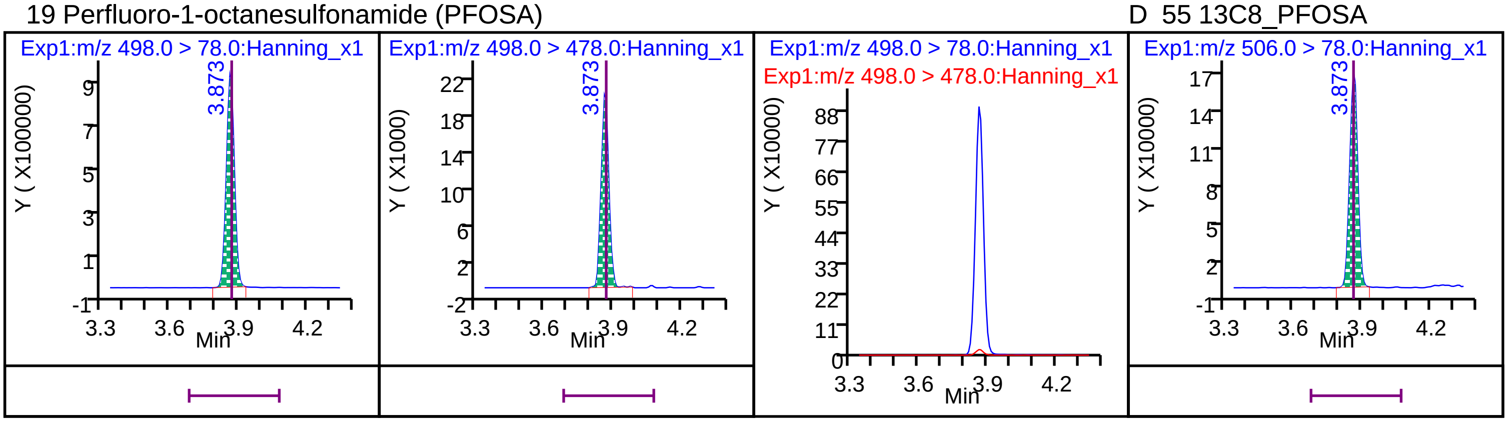


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

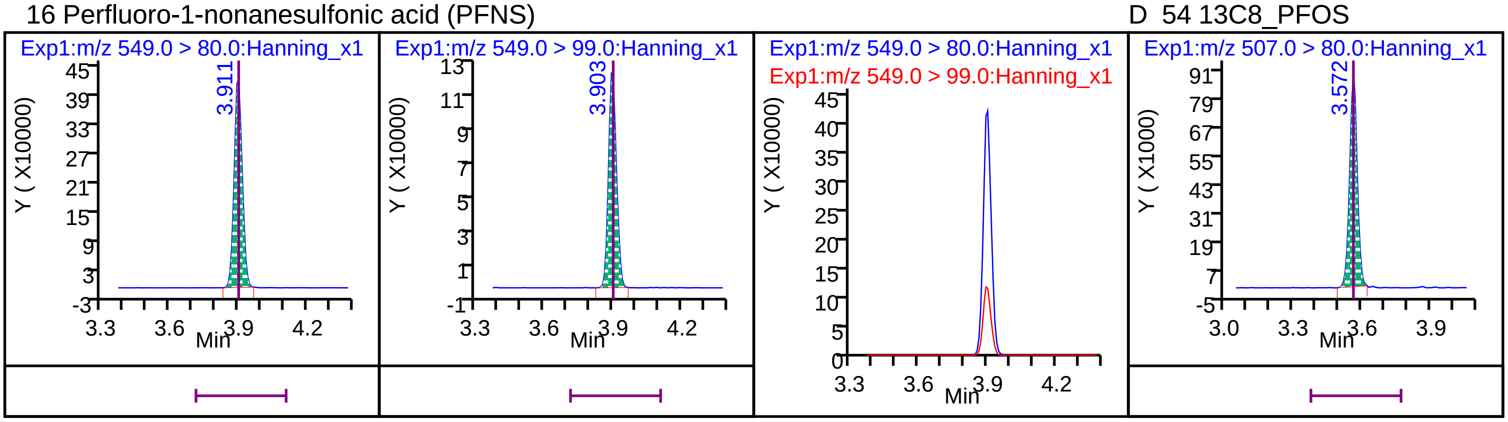




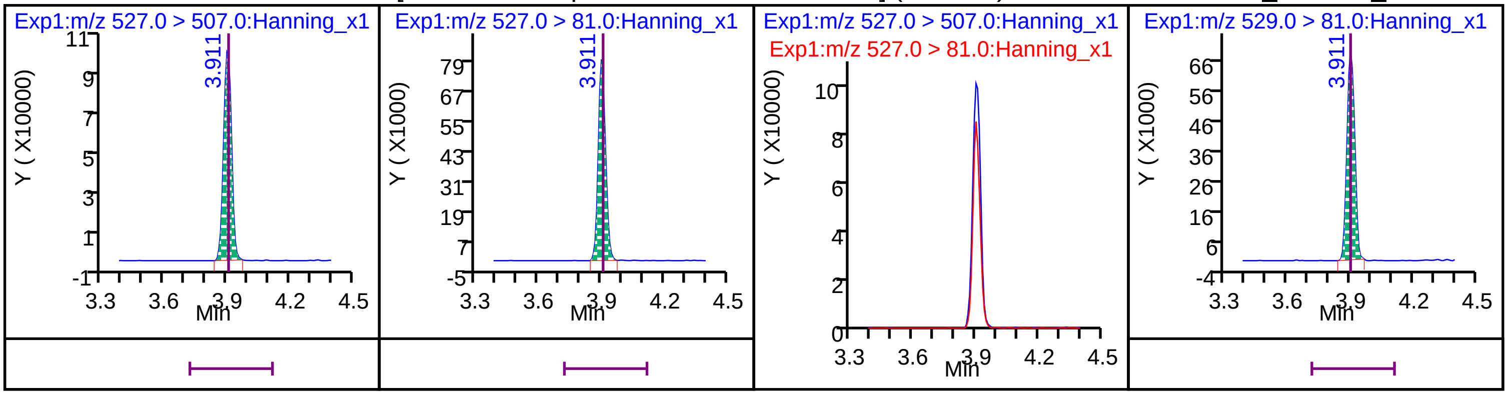
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



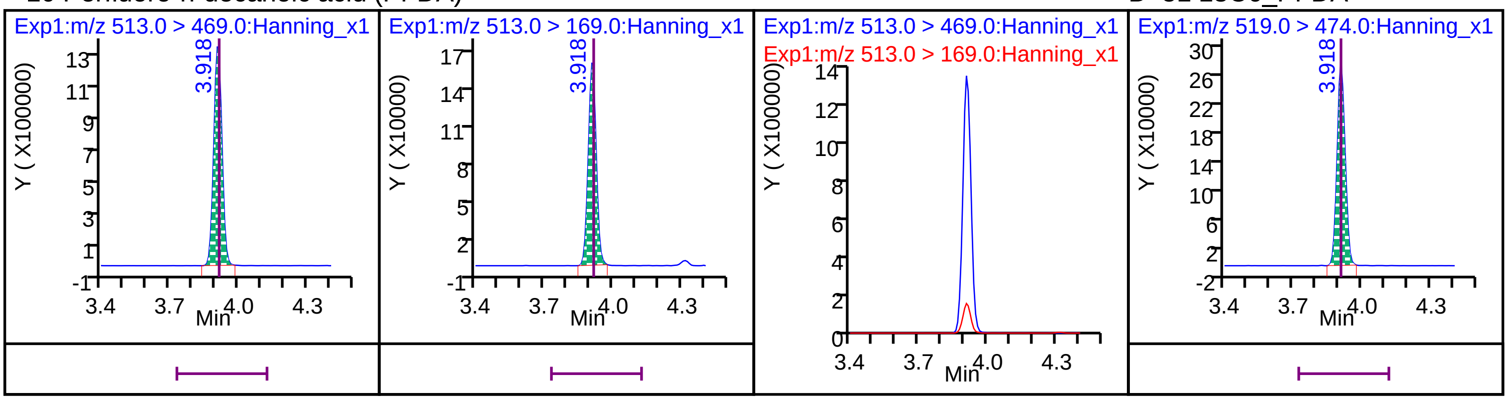
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



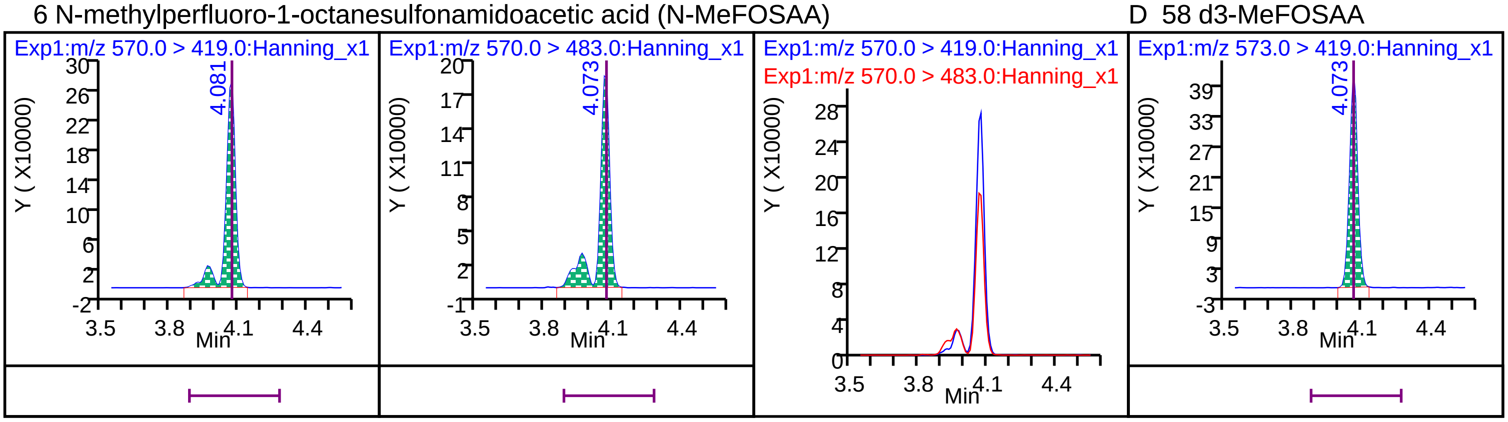
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



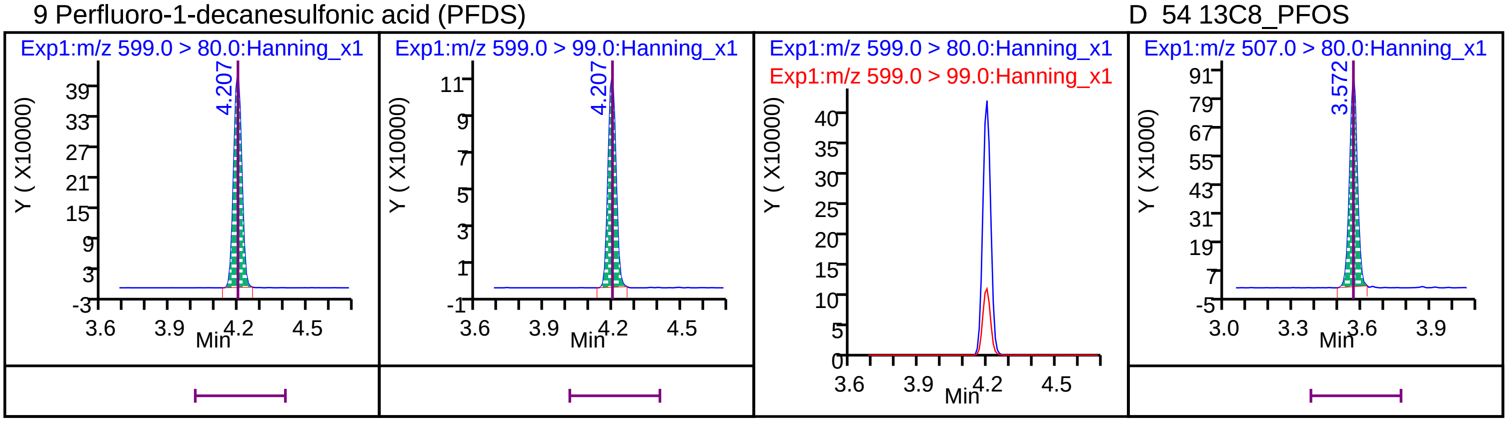
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



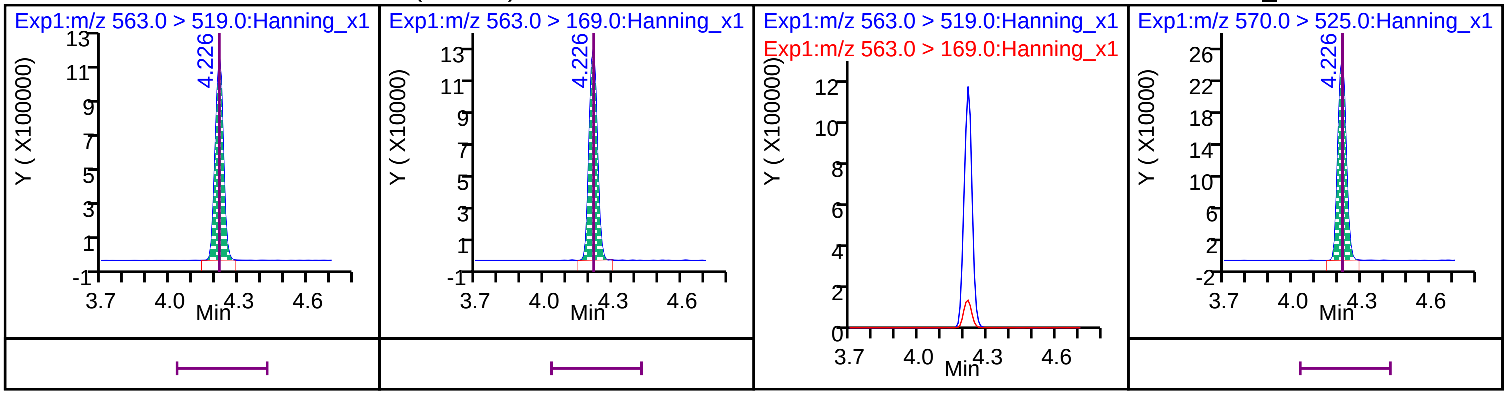
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



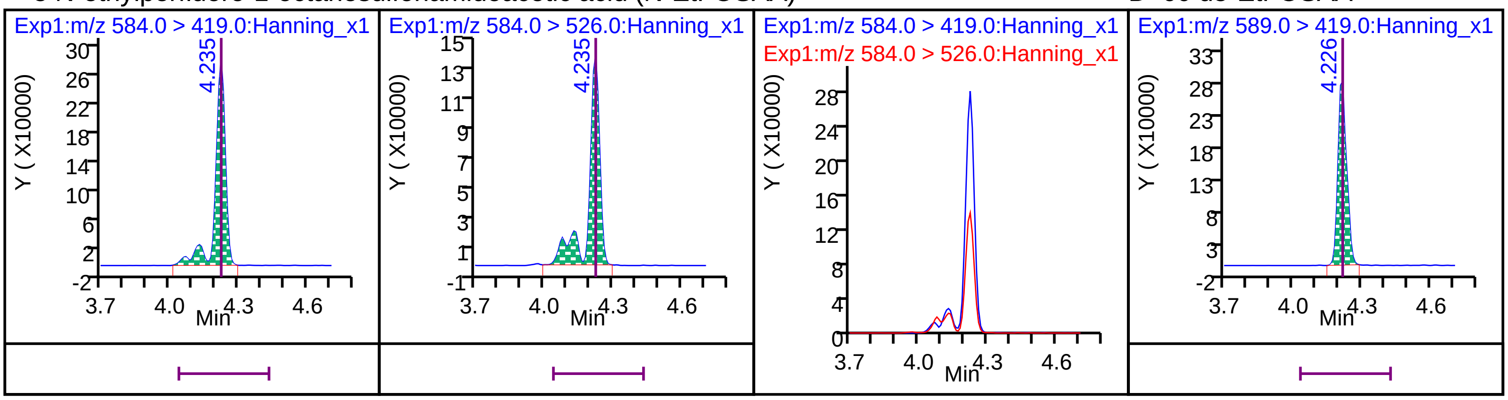
Report Date: 19-Oct-2021 08:48:55 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421017.d

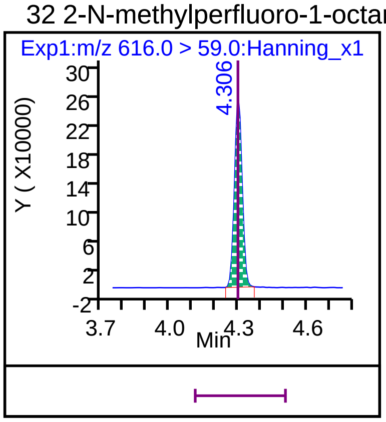
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

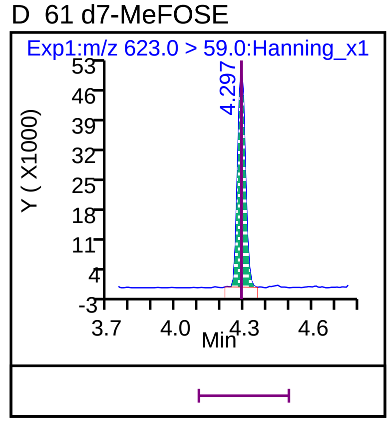


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

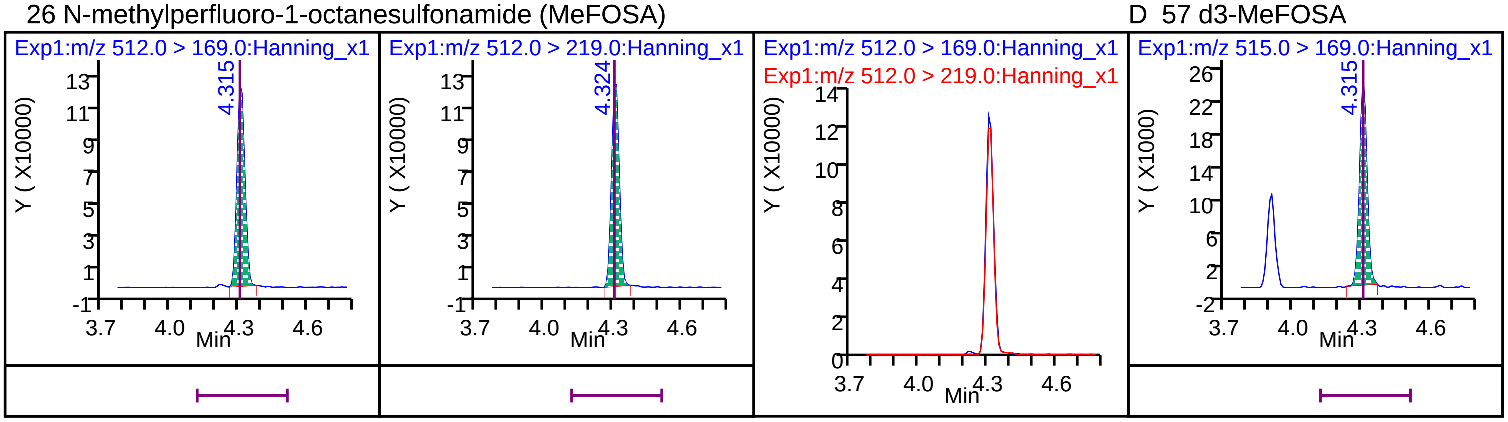


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



Report Date: 19-Oct-2021 08:48:55 AIM Revision: 2.0.2021.0812
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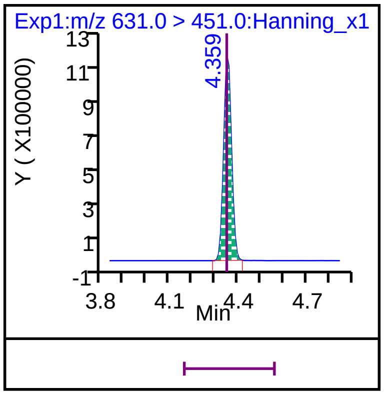
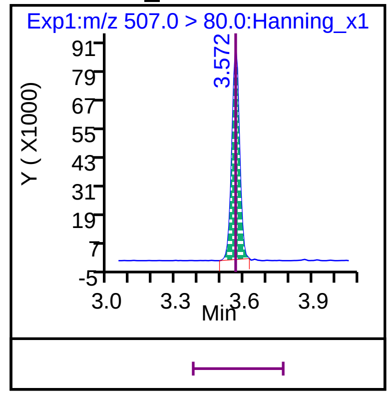
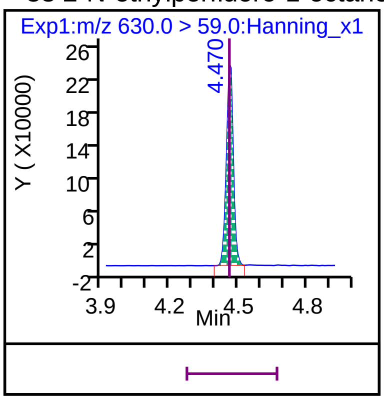
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



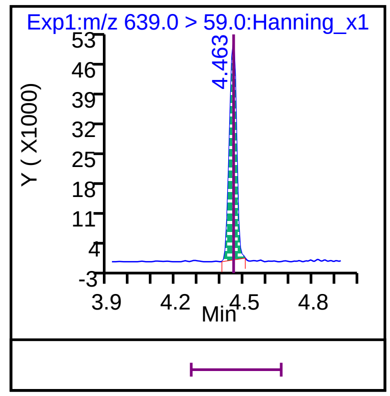
D 54 13C8_PFOS



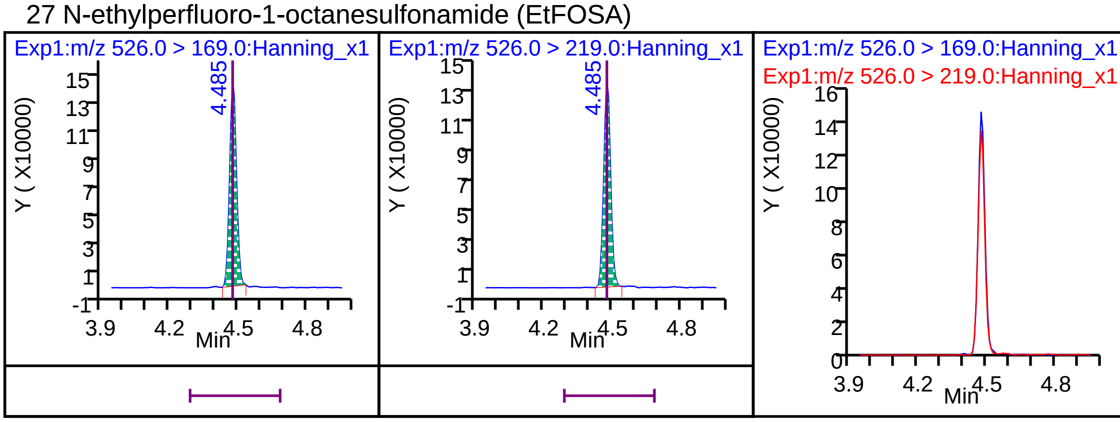
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



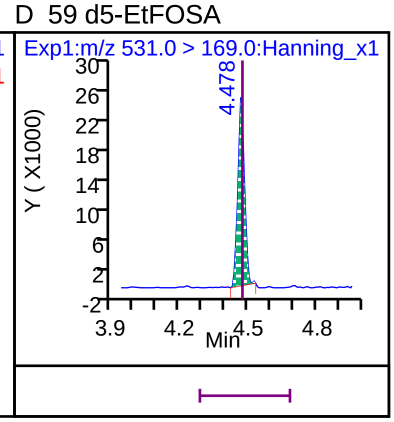
D 62 d9-EtFOSE



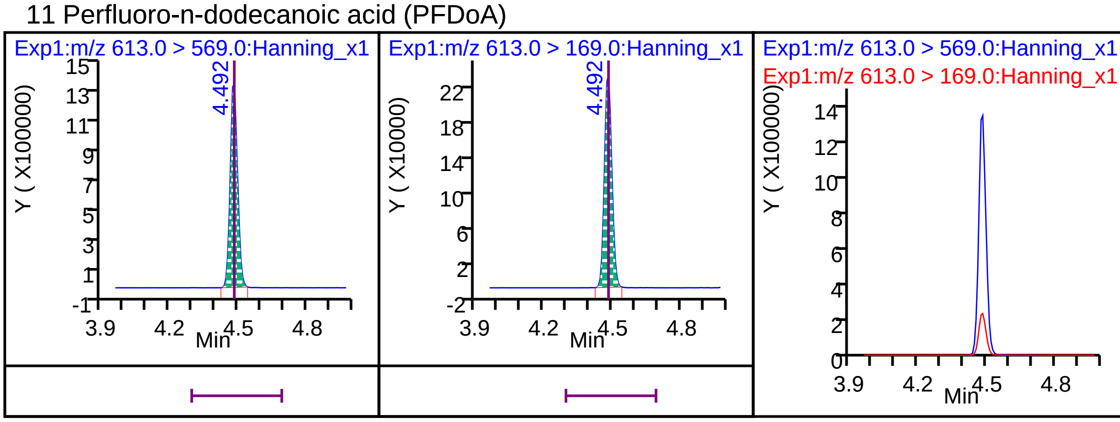
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



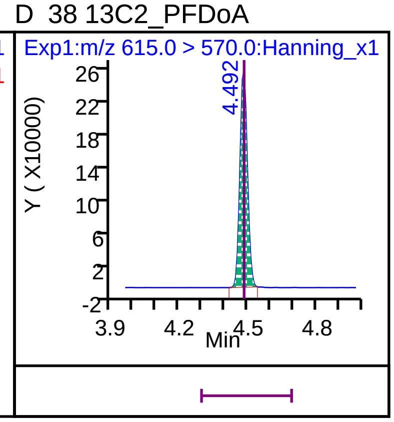
D 59 d5-EtFOSA



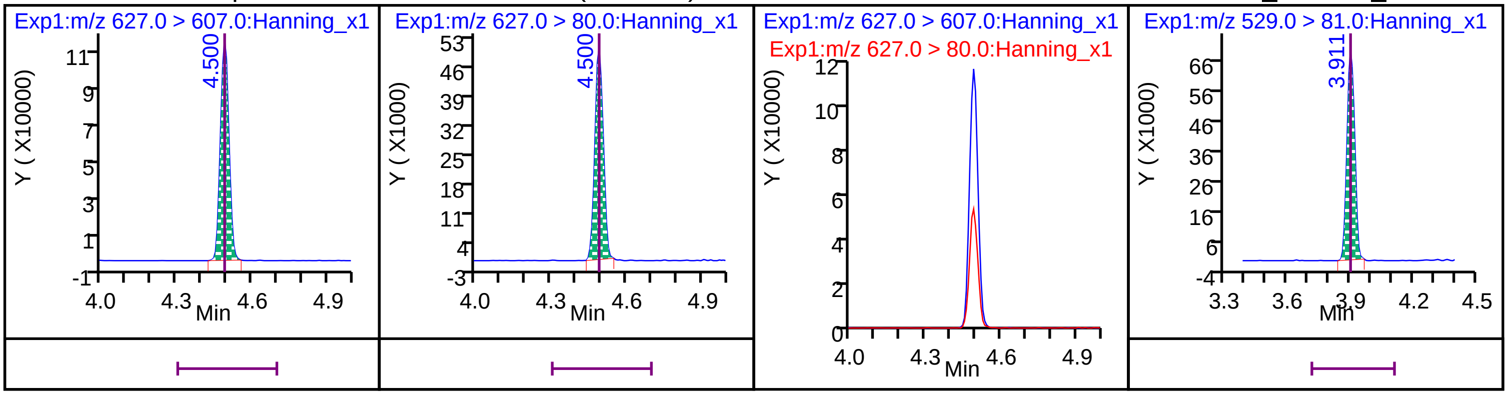
11 Perfluoro-n-dodecanoic acid (PFDoA)



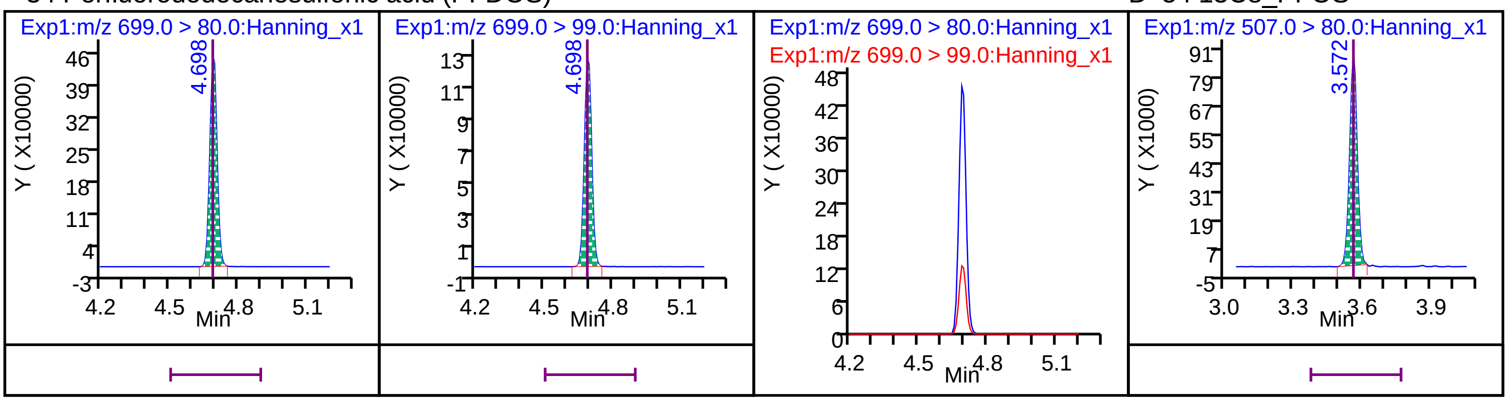
D 38 13C2_PFDoA



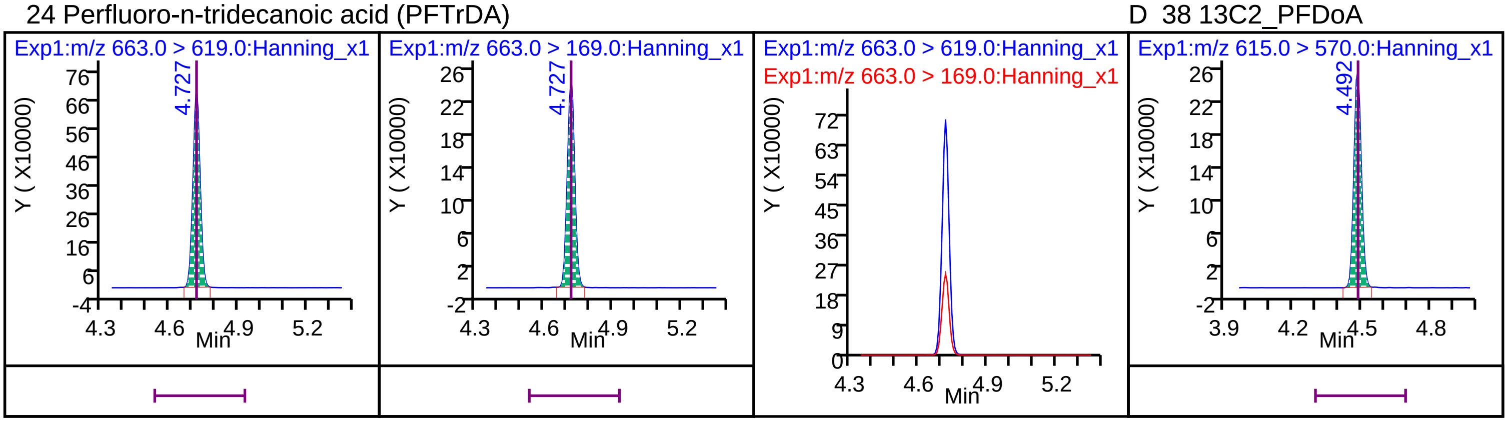
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



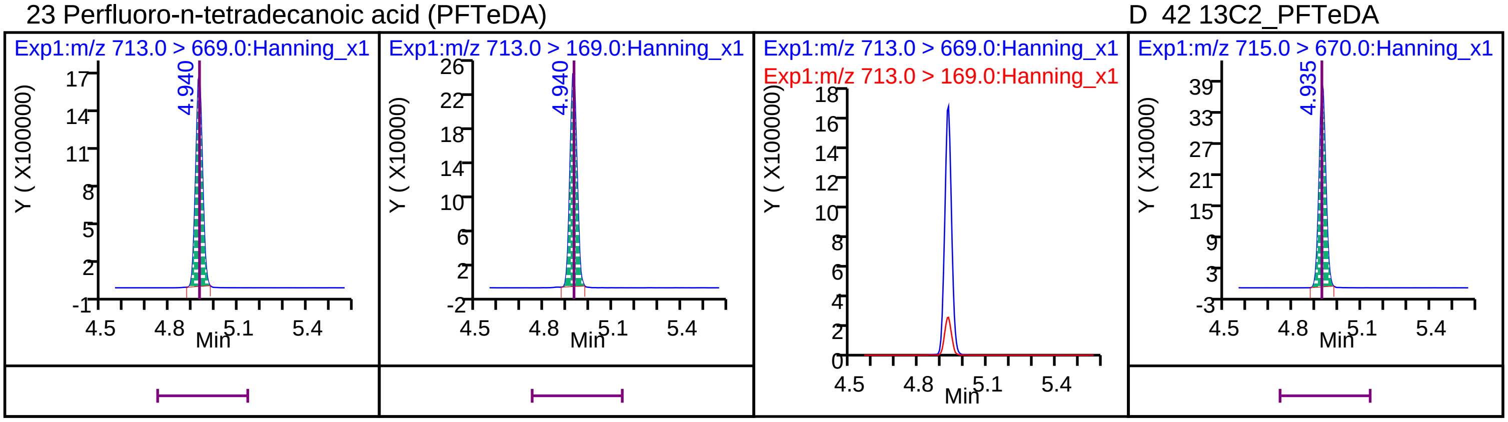
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



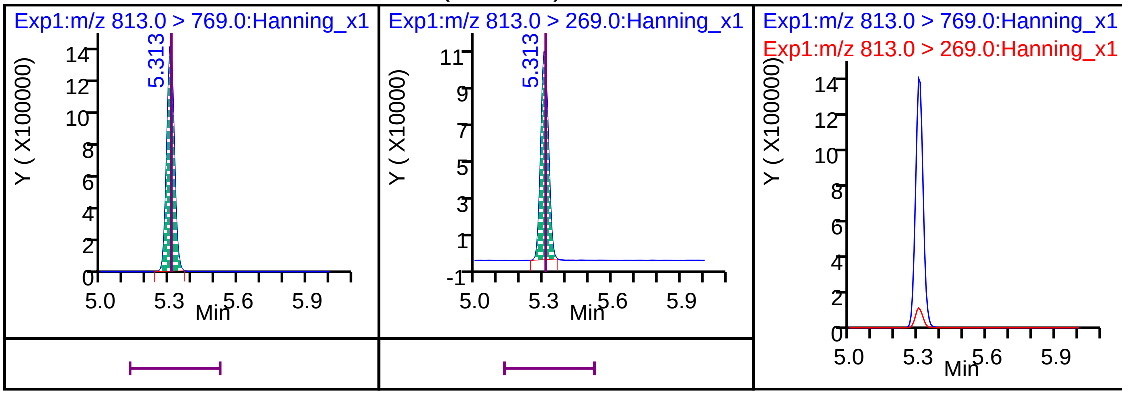
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



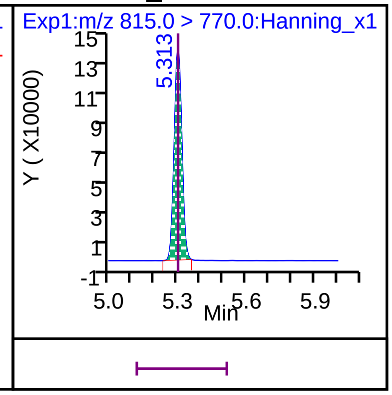
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



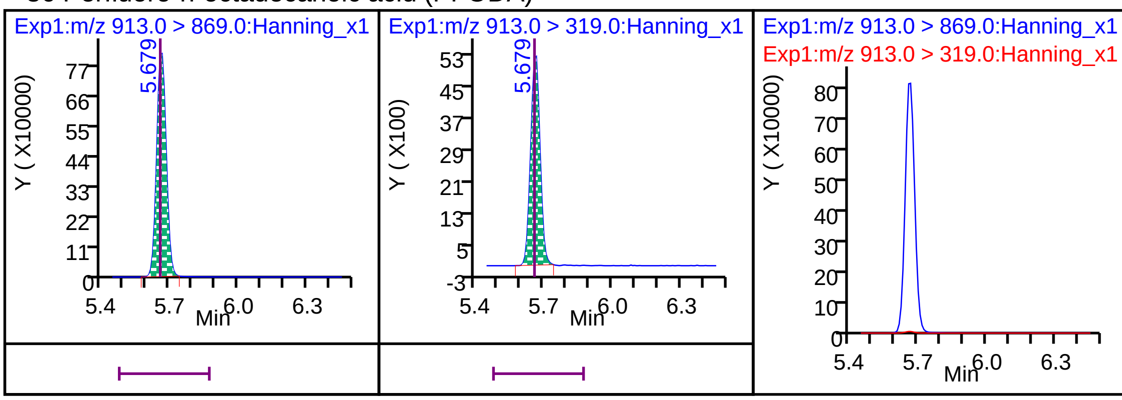
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



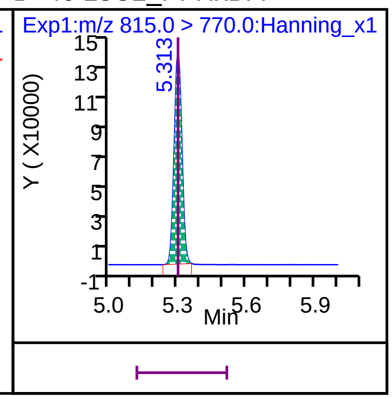
D 40 13C2_PFHxDA



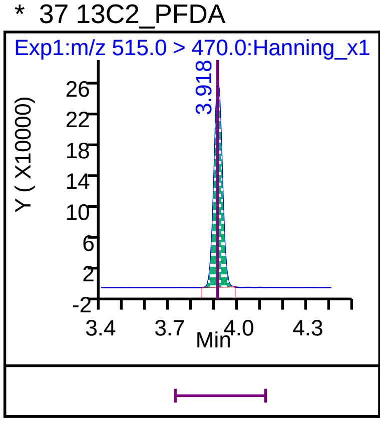
36 Perfluoro-n-octadecanoic acid (PFODA)



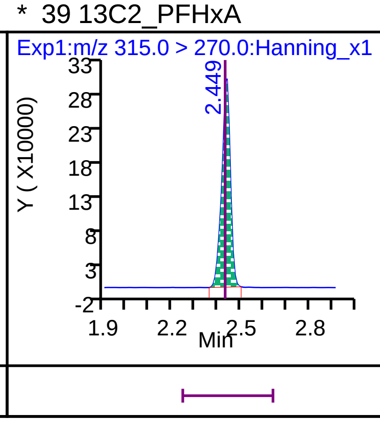
D 40 13C2_PFHxDA



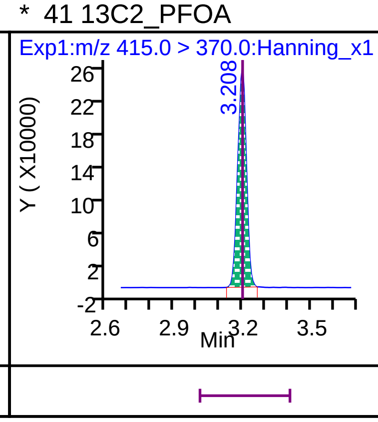
* 37 13C2_PFDA



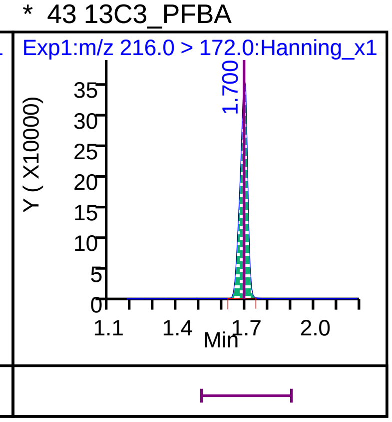
* 39 13C2_PFHxA



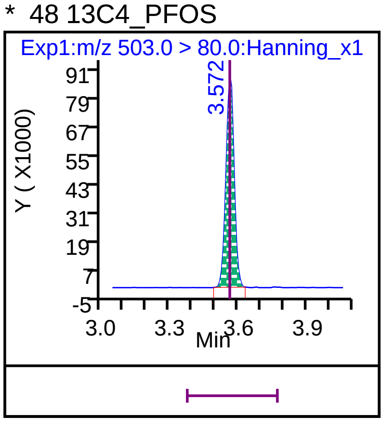
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

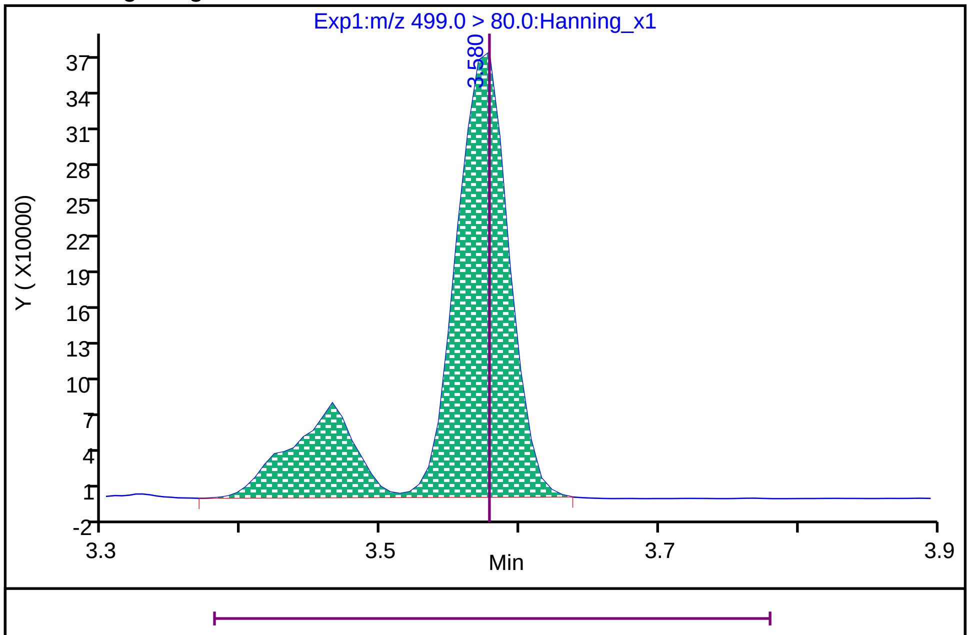
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421017.d		
Injection Date:	14-Oct-2021 12:10:44	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1644
Sample Info:	ICAL 5000_SVLC-1644		
Dil. Factor:	1	Operator:	Matthew M. Miller

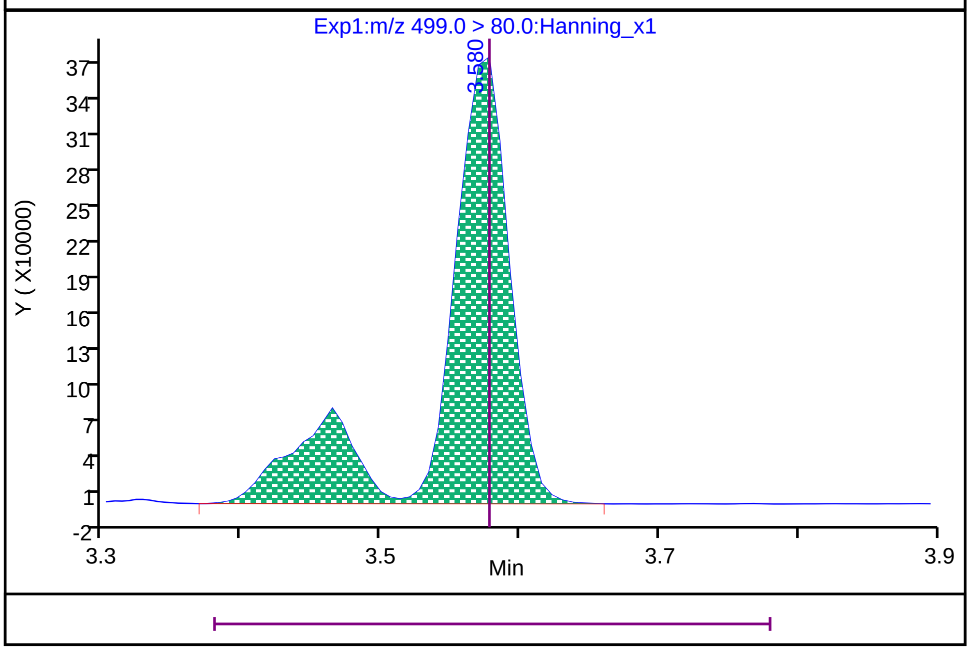
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.580
Area:	1199626
Amount:	4988.82
Amount Units:	ng/L



RT:	3.580
Area:	1210505
Amount:	5028.24
Amount Units:	ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:47:54

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421018.d		
Injection Date:	14-Oct-2021 12:21:20	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	8
Sample Info:	ICAL 10000_SVLC-1645	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	1	812373	20	>100:1			1000.00	905.55	76.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	1/0	8594951	20	>100:1			10000	9790.69		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.066	1	822567	18	>100:1			1000.00	915.08	77.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.066	1/0	8854139	16	>100:1			10000	9972.63		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	1	276478	17	>100:1			1000.00	926.25	79.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.129	0/-1	3285289	16	>100:1	Target = 3.78		8840.00	8547.04		
298.9 > 99	44	2.119	2.129		857806	15	>100:1	3.82 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.475	1/0	2669851	19	>100:1	Target = 3.45		9380.00	9359.69		
349 > 99	44	2.476	2.475		725893	19	>100:1	3.67 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.406	0	210830	19	>100:1			5000.00	4717.76	78.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.398	2.406	0/0	716279	18	>100:1	Target = 1.43		9340.00	8865.95		
327 > 81	63	2.407	2.406		465205	18	>100:1	1.53 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.440	1	770775	19	>100:1			1000.00	941.38	77.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.440	1/0	7499248	19	>100:1	Target = 16.37		10000	9472.27		
313 > 119	49	2.441	2.440		443707	19	>100:1	16.90 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.562	1	664856	19	>100:1			5000.00	4595.12	77	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.563	2.562	1/0	1943747	19	>100:1	Target = 0.74		20000	19033		
285 > 185	66	2.563	2.562		2579546	19	>100:1	0.75 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.829	2.827	1	716233	18	>100:1			1000.00	893.85	73.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.829	2.827	1/0	6955273	19	>100:1	Target = 3.21		10000	9786.25		
363 > 169	47	2.829	2.827		2281264	19	>100:1	3.04 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.838	2.845	0	225380	24	>100:1			1000.00	916.34	76.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.838	2.845	0/0	2409074	26	>100:1	Target = 3.47	5.15	9100.00	8865.45		
399 > 99	45	2.847	2.845		721880	25	>100:1	3.33 (1.73-5.21)	7.70				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.864	2.862	1/1	11777671	18	>100:1	Target = 2.28		9420.00	9612.41		
377 > 85	45	2.864	2.862		5307861	18	>100:1	2.21 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.211	3.215	0/0	2306903	22	>100:1	Target = 3.62		9520.00	9426.33		
449 > 99	45	3.211	3.215		624168	22	>100:1	3.69 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.179	3.183	0	179617	23	>100:1			5000.00	4110.51	66.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.179	3.177	1/1	547236	22	>100:1	Target = 1.19		9480.00	9658.68		
427 > 81	64	3.179	3.177		462471	22	>100:1	1.18 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.204	3.208	0	679705	21	>100:1			1000.00	898.29	77.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.204	3.208	0/0	6887291	22	>100:1	Target = 2.34		10000	10064		
413 > 169	53	3.211	3.208		2944466	22	>100:1	2.33 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.575	3.572	1	206453	20	>100:1			1000.00	911.21	77.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.575	3.580	0/-1	2241319	44	>100:1	Target = 4.00	3.37	9280.00	8993.13		M
499 > 99	54	3.575	3.580		548620	38	>100:1	4.08 (2.00-6.01)	7.11				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.780	3.776	1/0	5906926	20	>100:1			9320.00	9375.95		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.907	3.911	0/-1	1942899	18	>100:1	Target = 3.83		9600.00	9307.17		
549 > 99	54	3.907	3.911		532301	19	>100:1	3.65 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.203	4.207	0/-1	1910626	16	>100:1	Target = 3.87		9640.00	9618.95		
599 > 99	54	4.203	4.207		488997	18	>100:1	3.90 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.365	4.359	1/0	5427174	16	>100:1			9420.00	10066		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.703	4.698	1/0	1898755	16	>100:1	Target = 3.65		9680.00	10064		
699 > 99	54	4.703	4.698		519515	16		3.65 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.583	3.580	1	681163	21	>100:1			1000.00	878.41	74.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.583	3.580	1/0	5929616	19	>100:1	Target = 4.21		10000	9973.61		
463 > 169	56	3.583	3.580		1405127	21	>100:1	4.21 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.877	3.873	1	390803	18	>100:1			1000.00	933.12	81.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.877	3.880	0/-1	4154047	19	>100:1	Target = 49.05		10000	9375.05		
498>478	55	3.877	3.880		91456	17	>100:1	45.42 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.915	3.911	1	165035	18	>100:1			5000.00	4364.42	72.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.915	3.918	0/-1	476625	18	>100:1	Target = 1.27		9580.00	9779.83		
527 > 81	65	3.915	3.918		338966	25	>100:1	1.40 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.504	4.500	1/0	474283	18	>100:1	Target = 2.25		9640.00	9529.73		
627 > 80	65	4.504	4.500		209915	18	>100:1	2.25 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.922	3.918	1	605583	19	>100:1			1000.00	891.67	74.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.922	3.926	0/-1	5833775	18	>100:1	Target = 8.94		10000	9534.21		
513 > 169	51	3.922	3.926		705895	18	>100:1	8.26 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.077	4.073	1	931289	17	>100:1			5000.00	4545.12	76.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.077	4.081	0/-1	1363726	32	>100:1	Target = 1.38	7.26	10000	9584.73		
570 > 483	58	4.077	4.081		1024729	32	>100:1	1.33 (0.69-2.08)	3.63				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.221	4.226	0	571699	16	>100:1			1000.00	904.38	78.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.221	4.226	0/0	4864497	16	>100:1	Target = 8.27		10000	9594.01		
563 > 169	52	4.221	4.226		636092	16	>100:1	7.64 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.230	4.226	1	740630	18	>100:1			5000.00	4314.10	69.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.230	4.235	0/-1	1585195	33	>100:1	Target = 1.95	6.20	10000	10027		
584 > 526	60	4.230	4.235		818418	33	>100:1	1.93 (0.97-2.92)	3.02				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.302	4.298	1	119026	16	>100:1			1000.00	936.03	77.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.311	4.306	1/0	1241417	15	>100:1			10000	10574		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.311	4.315	0	43651	13	87:1			1000.00	751.03	60.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.320	4.315	1/1	550835	14	>100:1	Target = 1.08		10000	11852		
512 > 219	57	4.320	4.315		528962	16	>100:1	1.04 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.461	4.463	0	108840	19	>100:1			1000.00	926.64	74.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.468	4.471	0/0	910800	18	>100:1			10000	9819.84		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.485	0	54267	17	>100:1			1000.00	987.95	82.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.490	4.485	1/1	547141	17	>100:1	Target = 1.10		10000	8811.87		
526 > 219	59	4.490	4.485		487231	17	>100:1	1.12 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.490	4.492	0	562201	18	>100:1			1000.00	936.02	79.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.490	4.492	0/0	5416126	18	>100:1	Target = 5.93		10000	9405.98		
613 > 169	38	4.490	4.492		917008	18	>100:1	5.90 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.732	4.728	1/1	2916759	17	>100:1	Target = 2.90		10000	9590.21		
663 > 169	38	4.725	4.728		1001418	18	>100:1	2.91 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.939	4.935	1	749898	22	>100:1			1000.00	935.98	81.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.939	4.940	0/-1	6197561	22	>100:1	Target = 6.34		10000	9761.62		
713 > 169	42	4.939	4.940		981861	21	>100:1	6.31 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.315	5.313	1	298307	19	>100:1			1000.00	906.57	80.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.322	5.319	1/0	5723408	21	>100:1	Target = 12.53		10000	9469.40		
813 > 269	40	5.322	5.319		469948	21	>100:1	12.17 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.680	5.670	1/0	4485903	20	>100:1	Target = 152.15		10000	10132		
913 > 319	40	5.680	5.670		27008	27	>100:1	166.09 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.922	3.918	1	620478	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.440	1	744003	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.204	3.208	0	667971	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	1	770295	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.575	3.572	1	214549	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

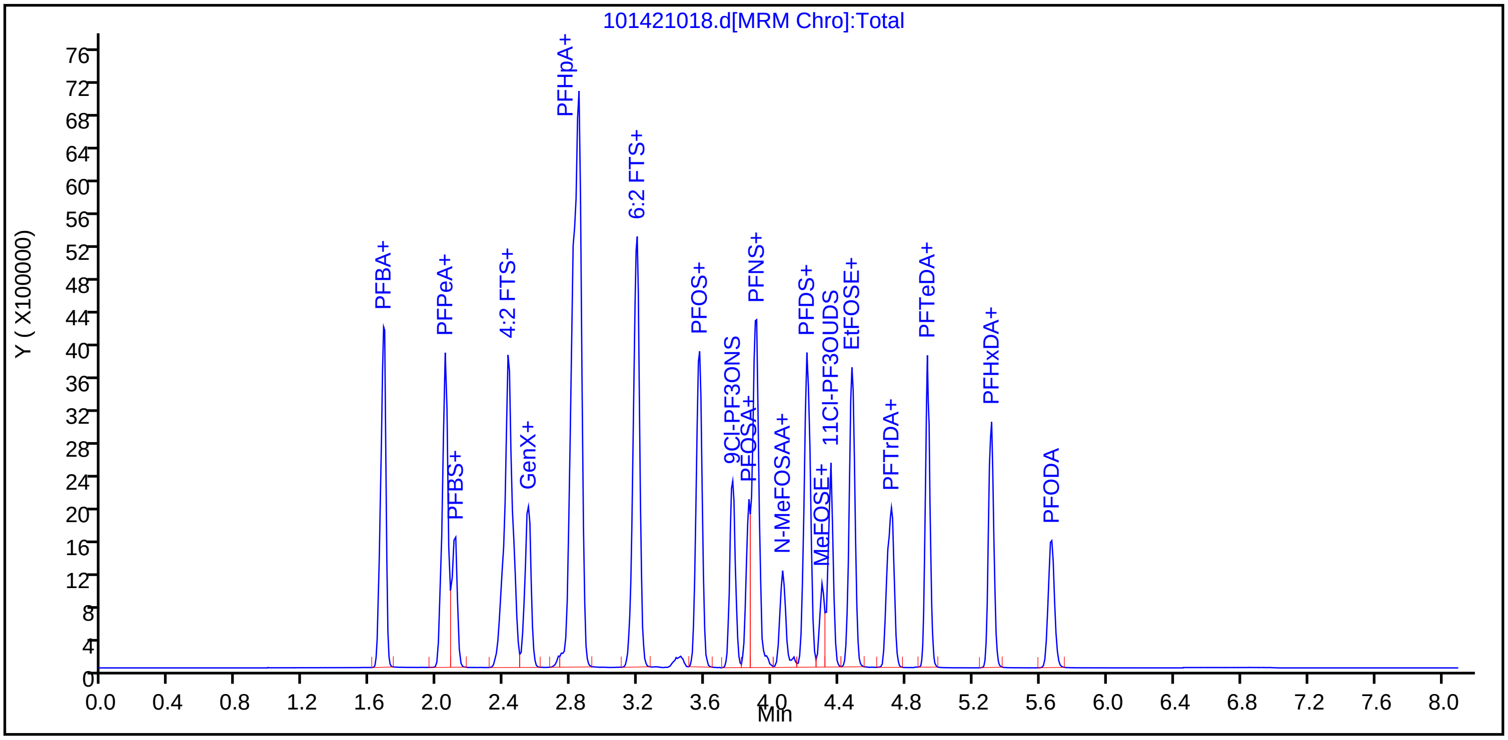
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

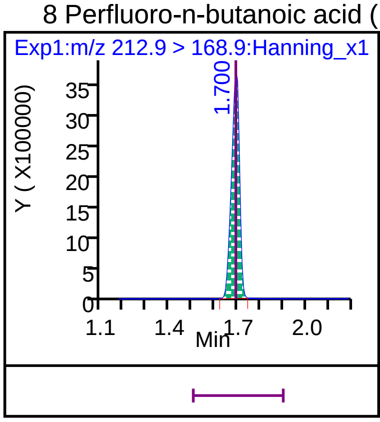
Report Date: 19-Oct-2021 08:48:57 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

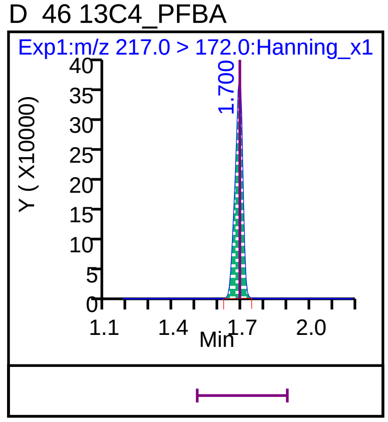
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421018.d		
Injection Date:	14-Oct-2021 12:21:20	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 10000_SVLC-1645
Sample Info:	ICAL 10000_SVLC-1645		
Dil. Factor:	1	Operator:	Matthew M. Miller



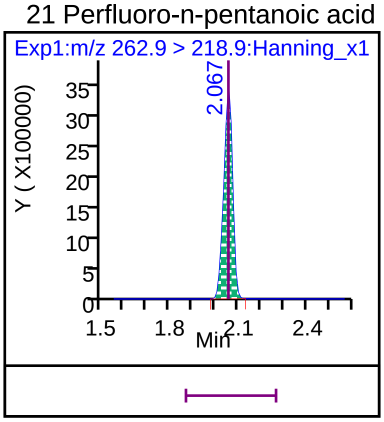
8 Perfluoro-n-butanoic acid (PFBA)



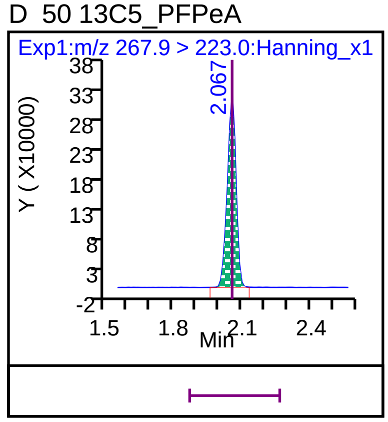
D 46 13C4_PFBA



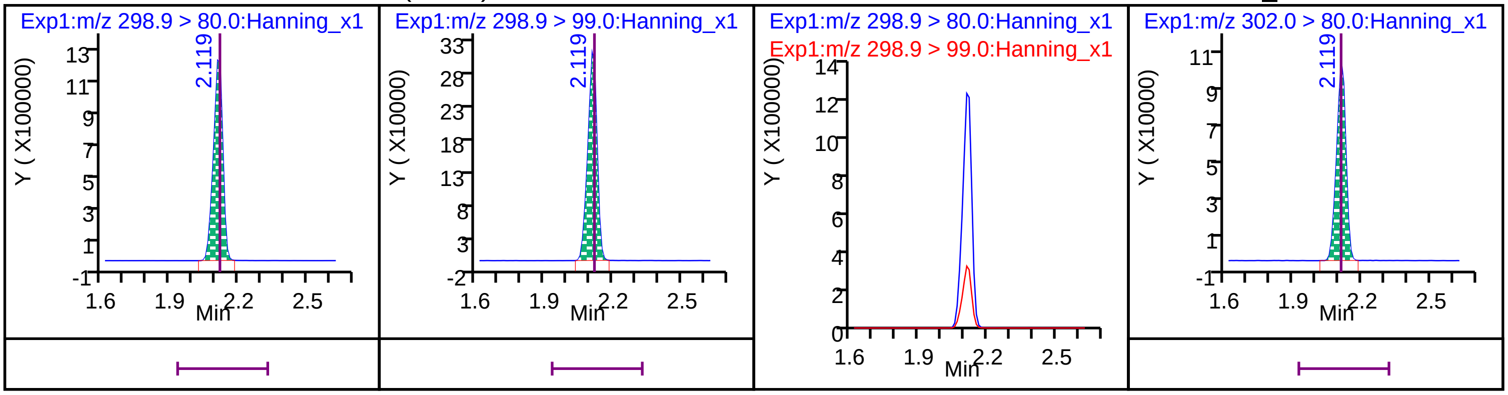
21 Perfluoro-n-pentanoic acid (PFPeA)



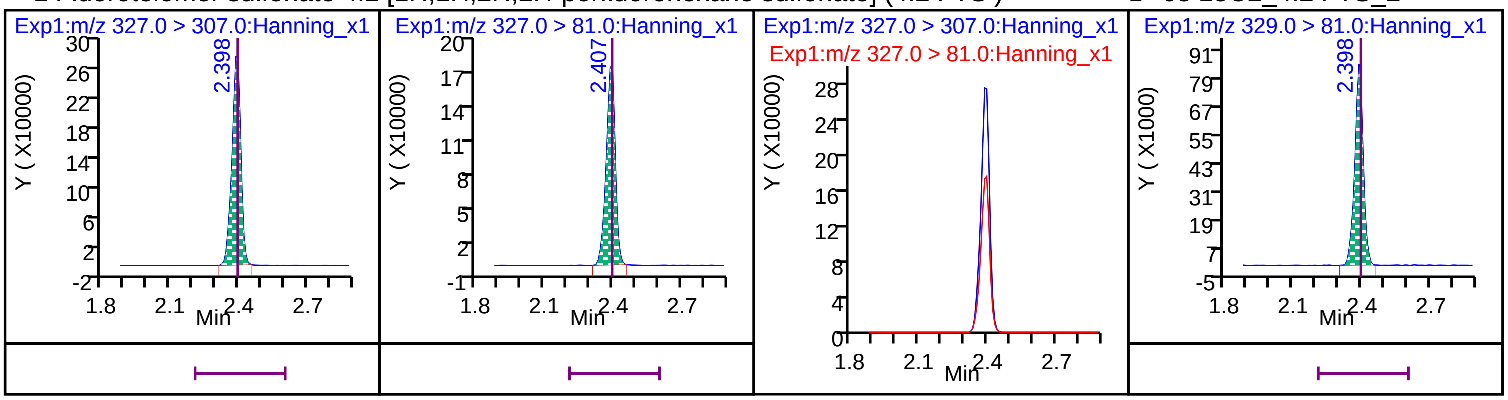
D 50 13C5_PFPeA



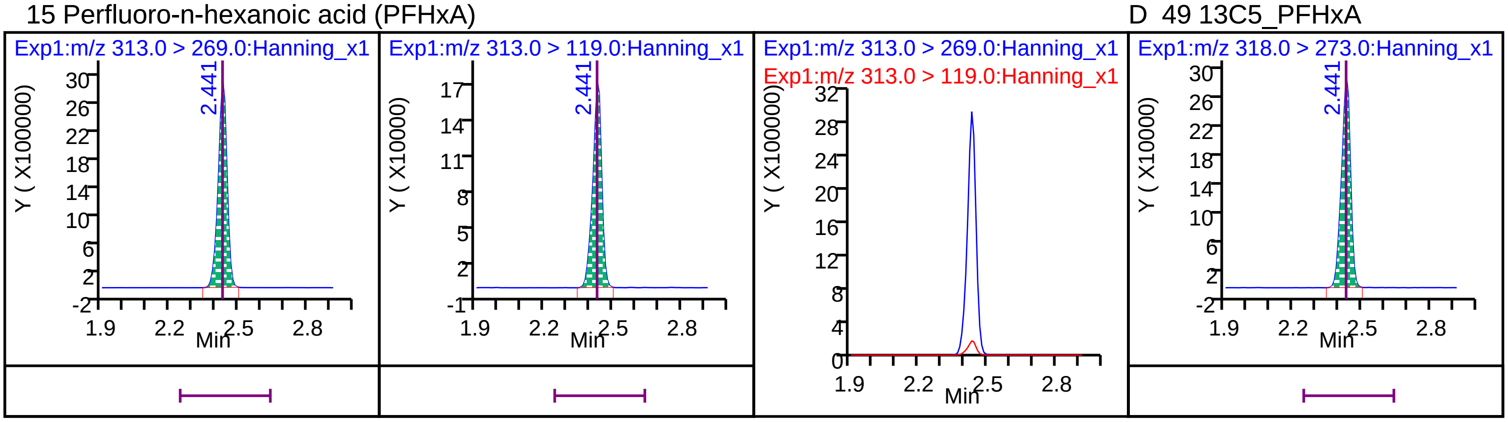
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



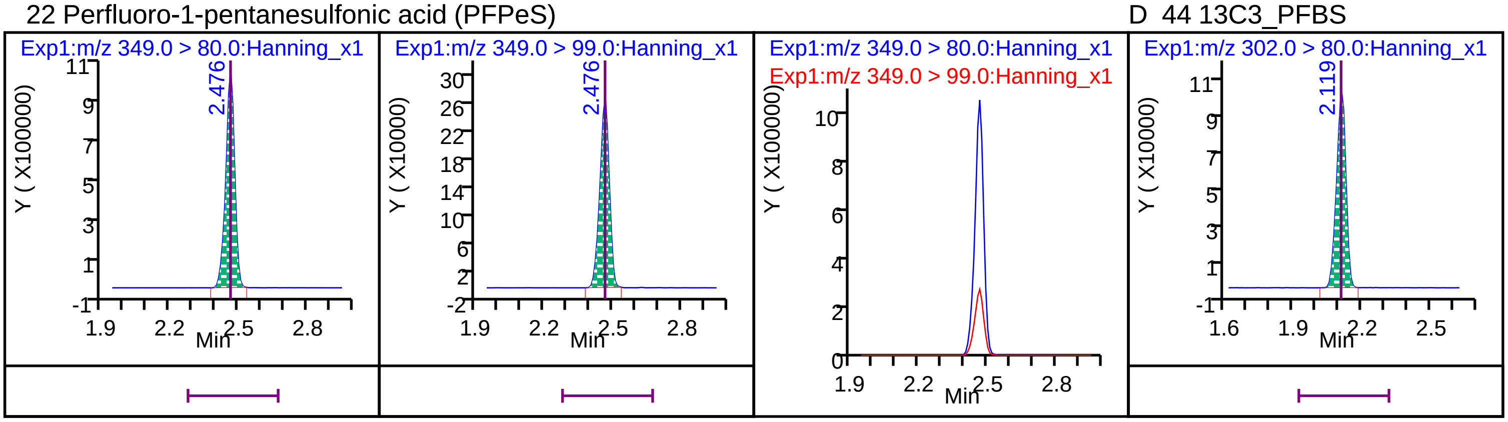
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



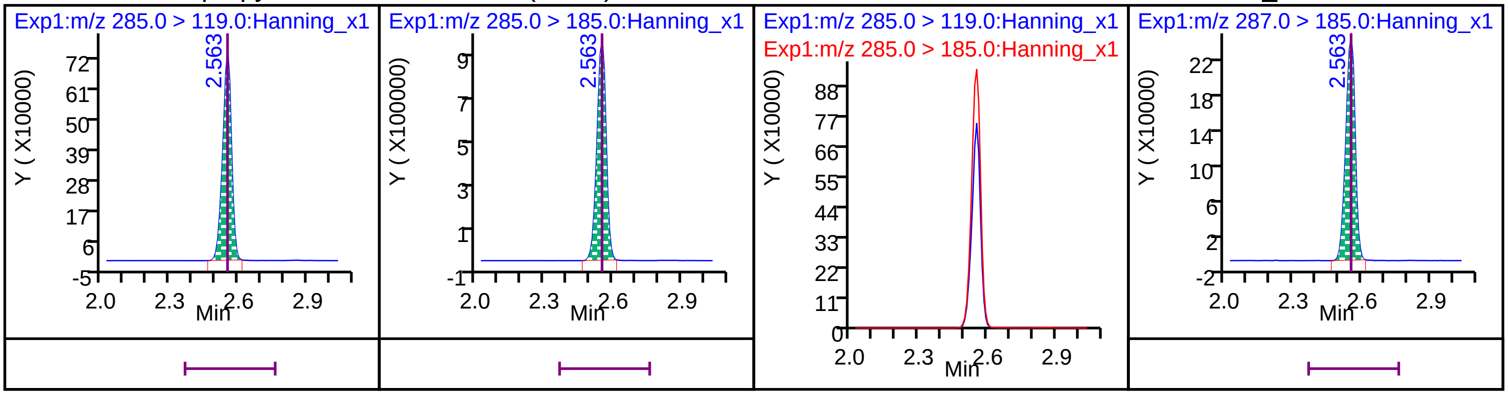
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



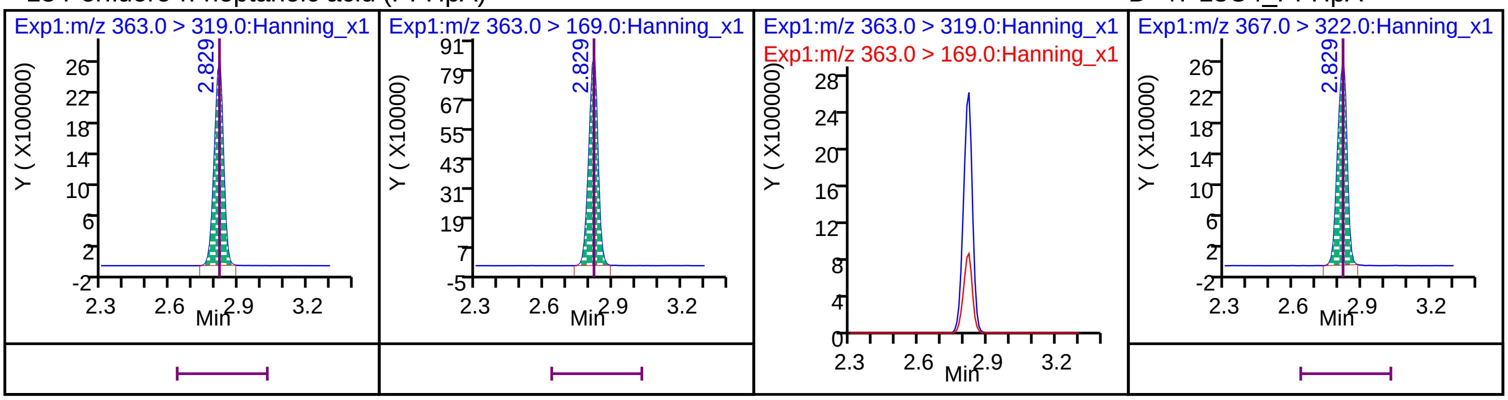
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



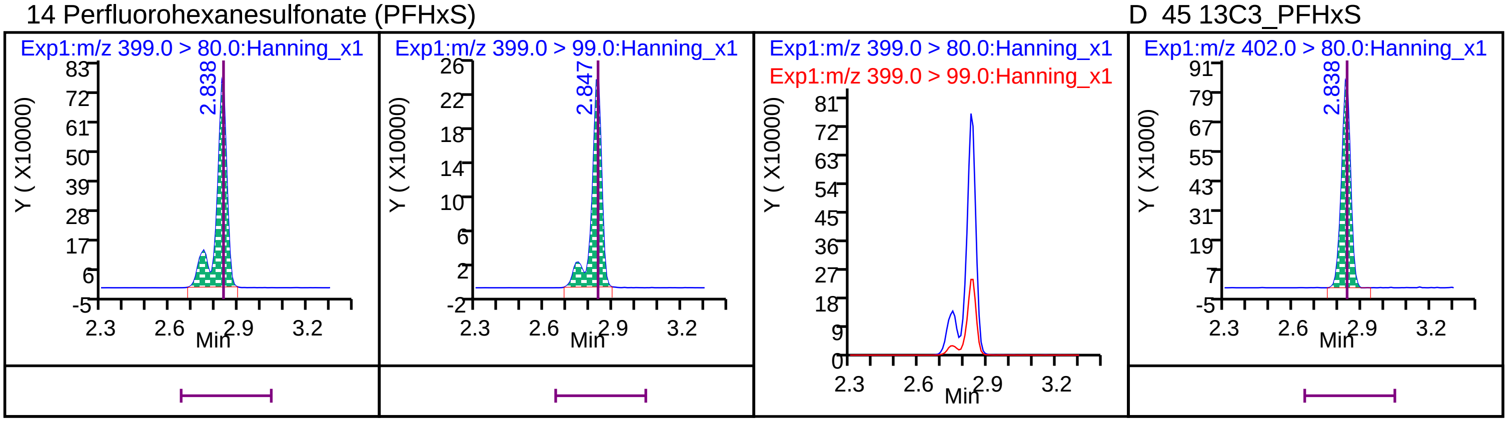
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



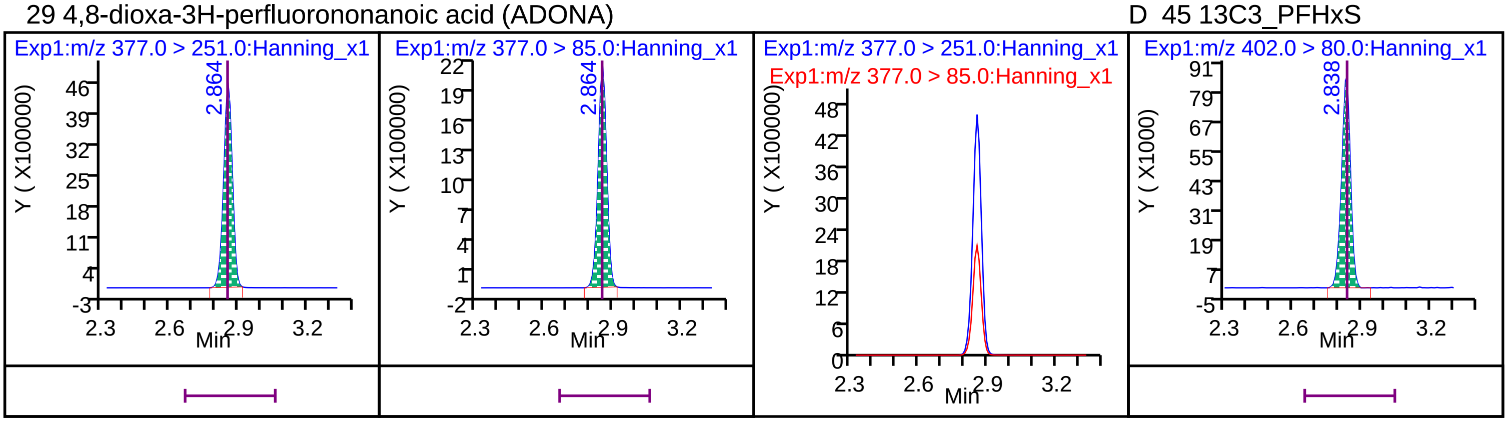
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

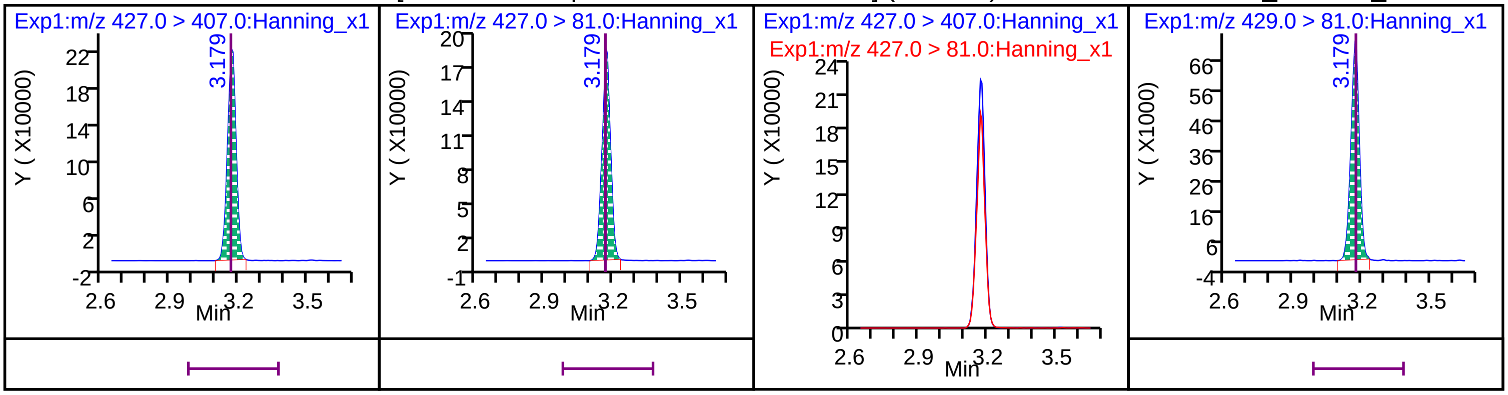


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

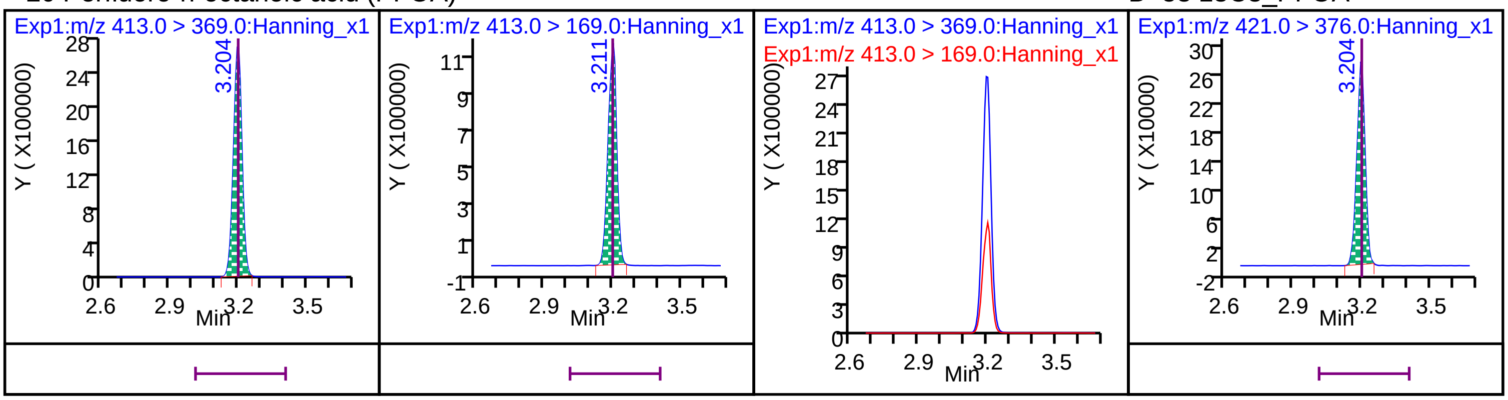


Report Date: 19-Oct-2021 08:48:57 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421018.d

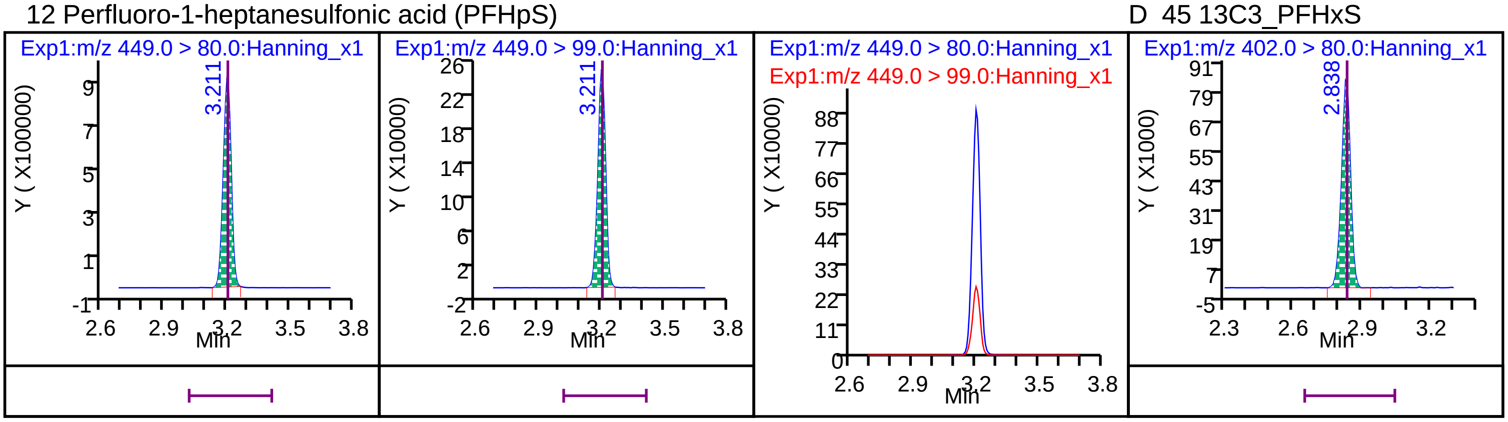
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



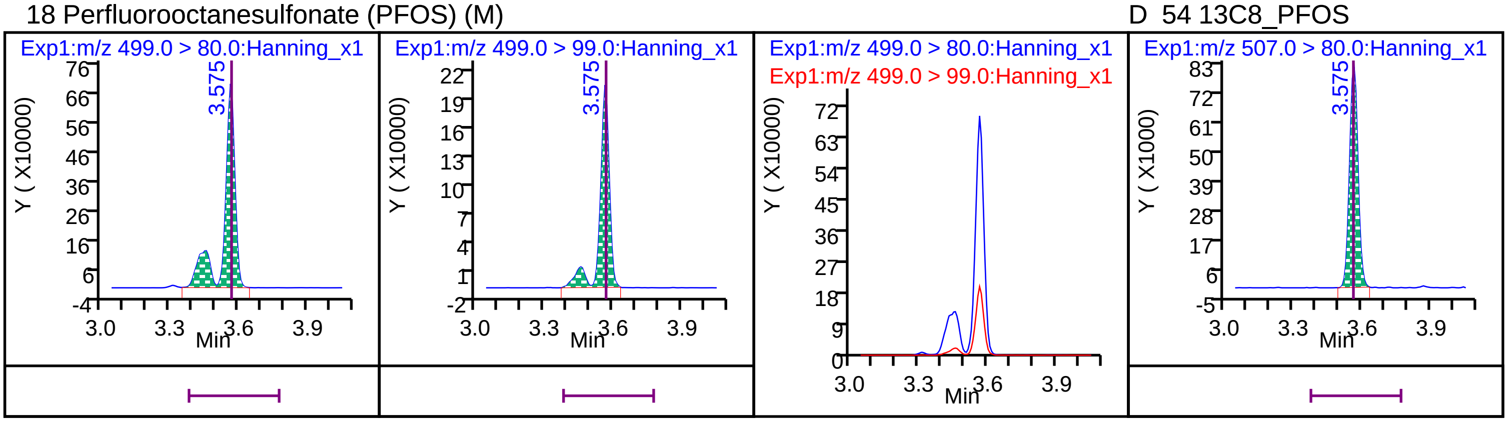
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



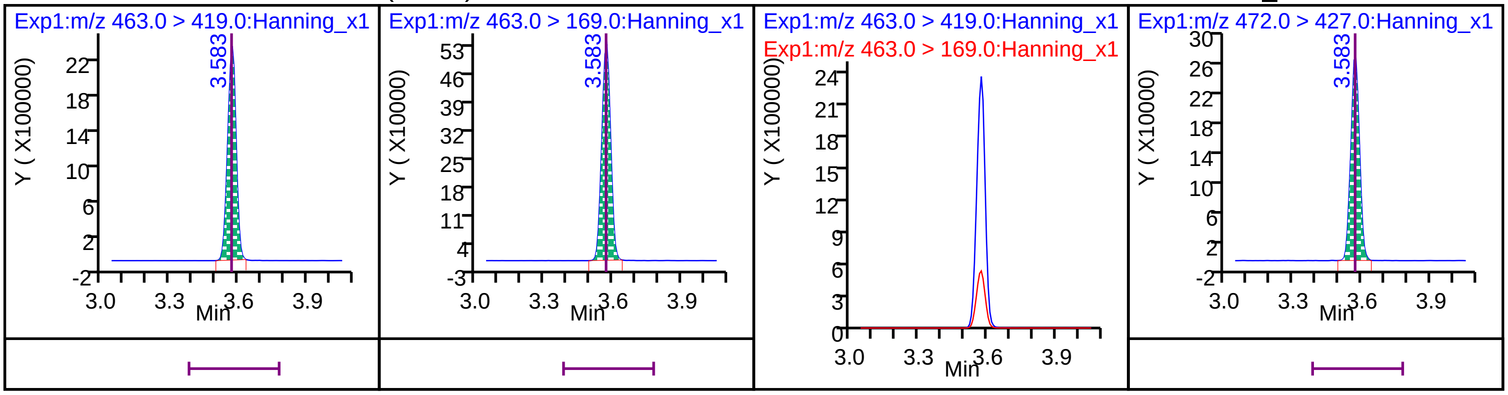
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



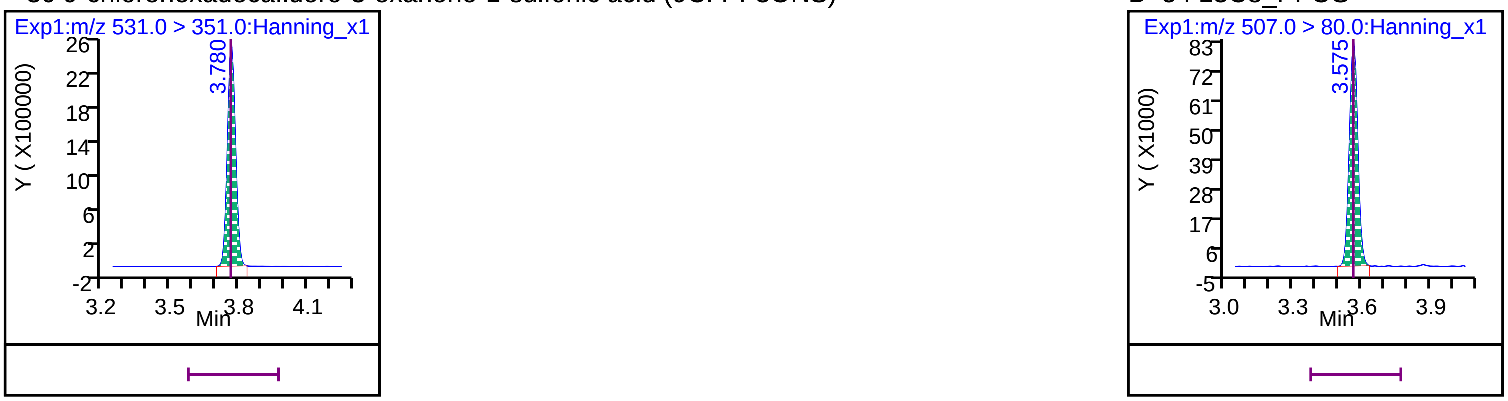
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



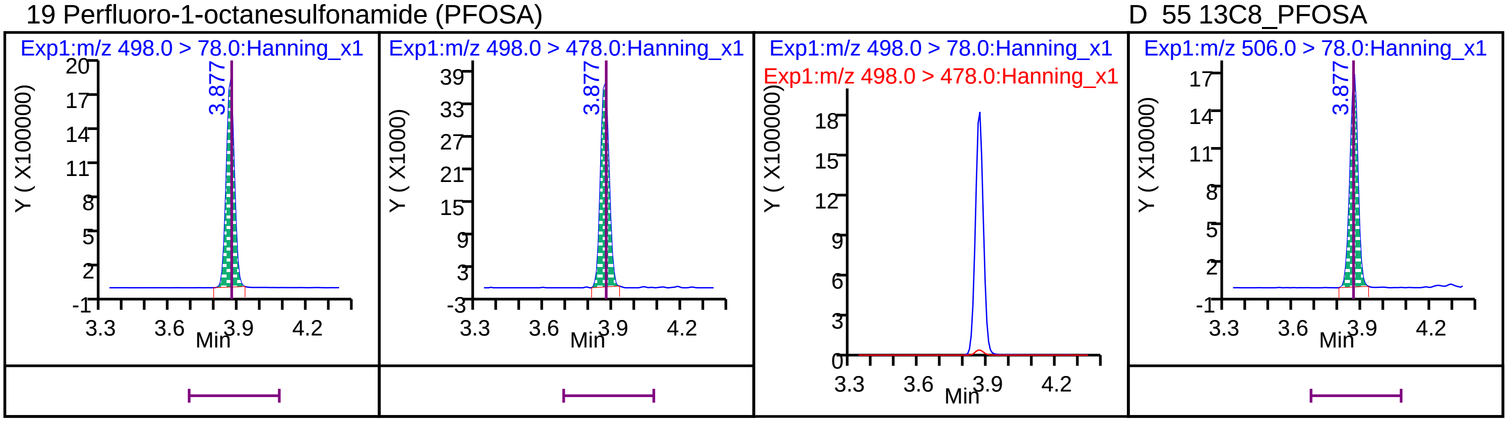
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



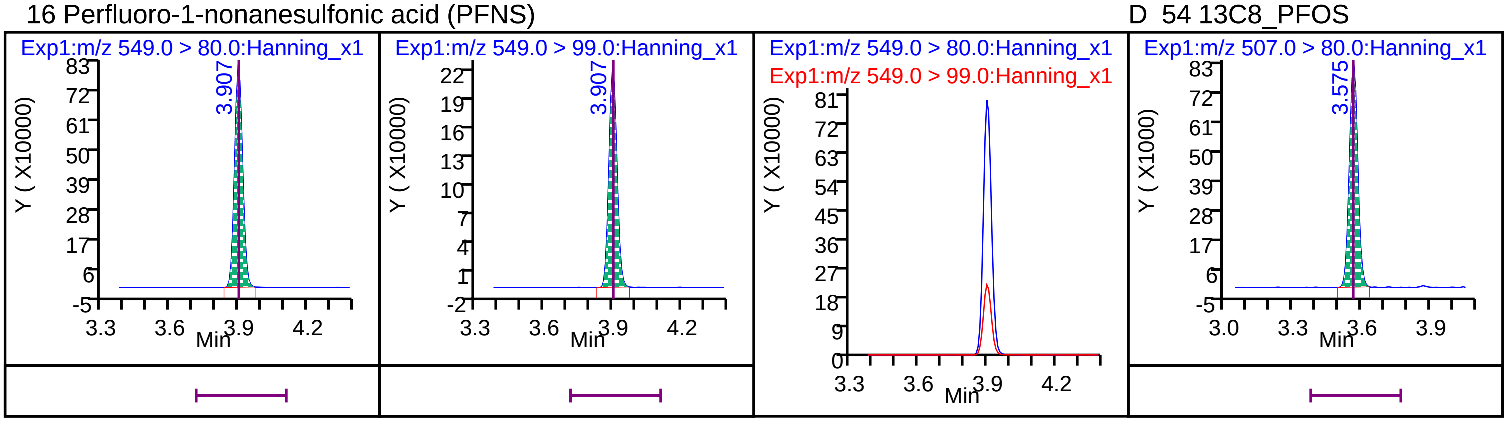
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

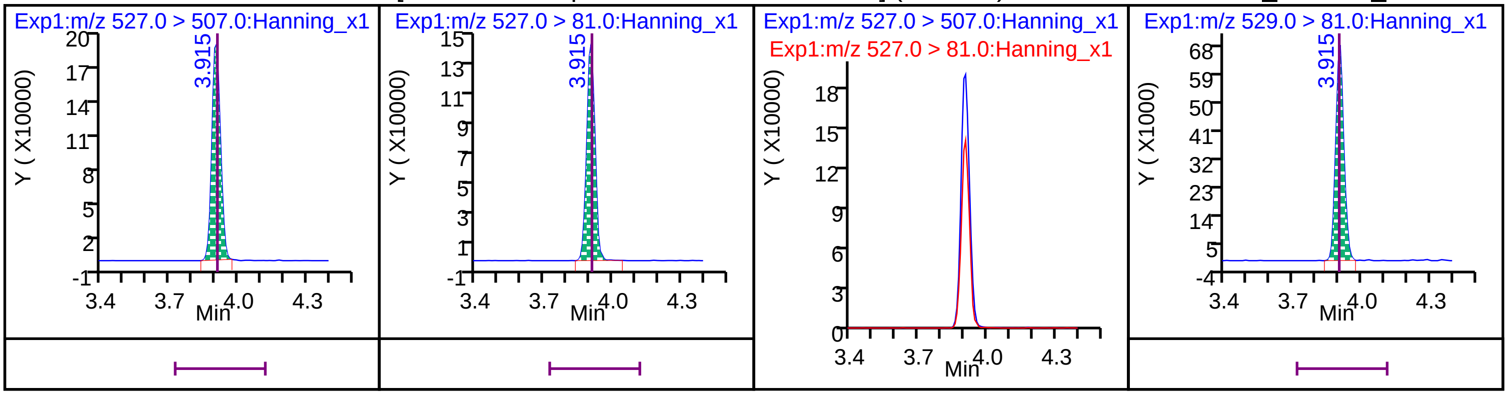


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

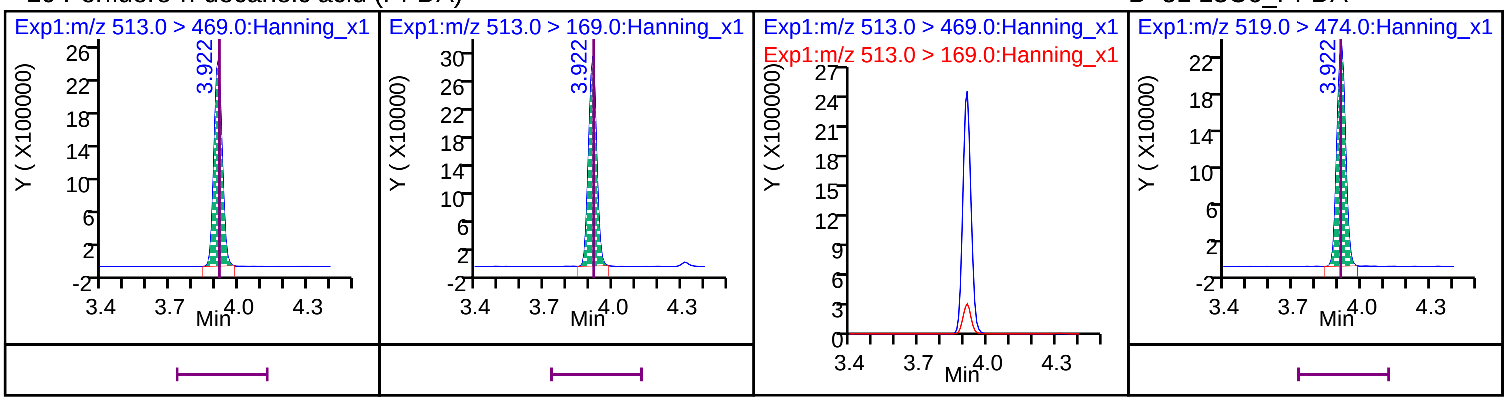


Report Date: 19-Oct-2021 08:48:57 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421018.d

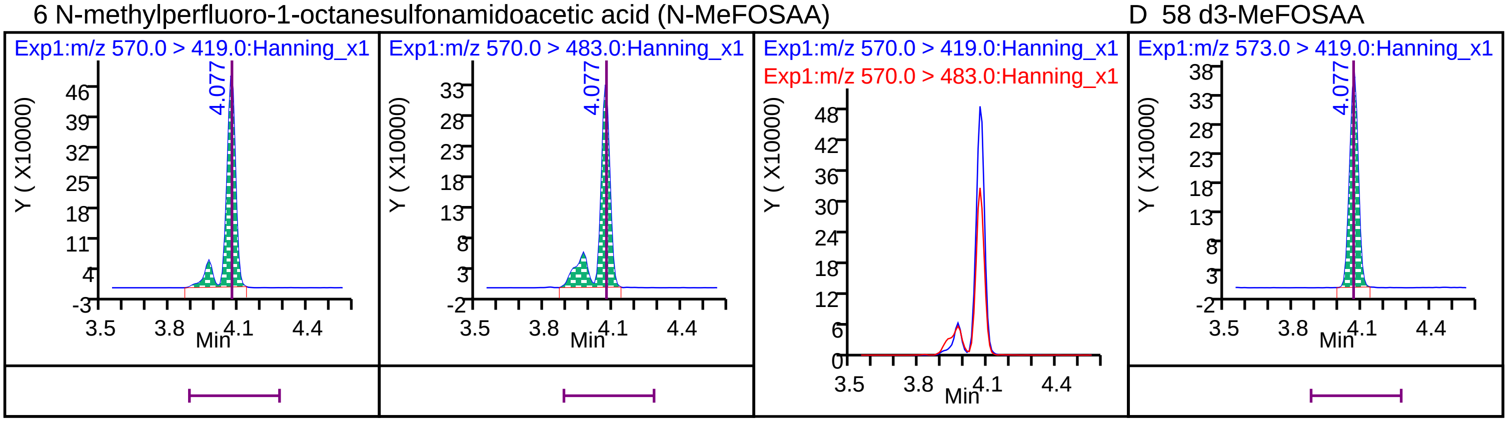
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



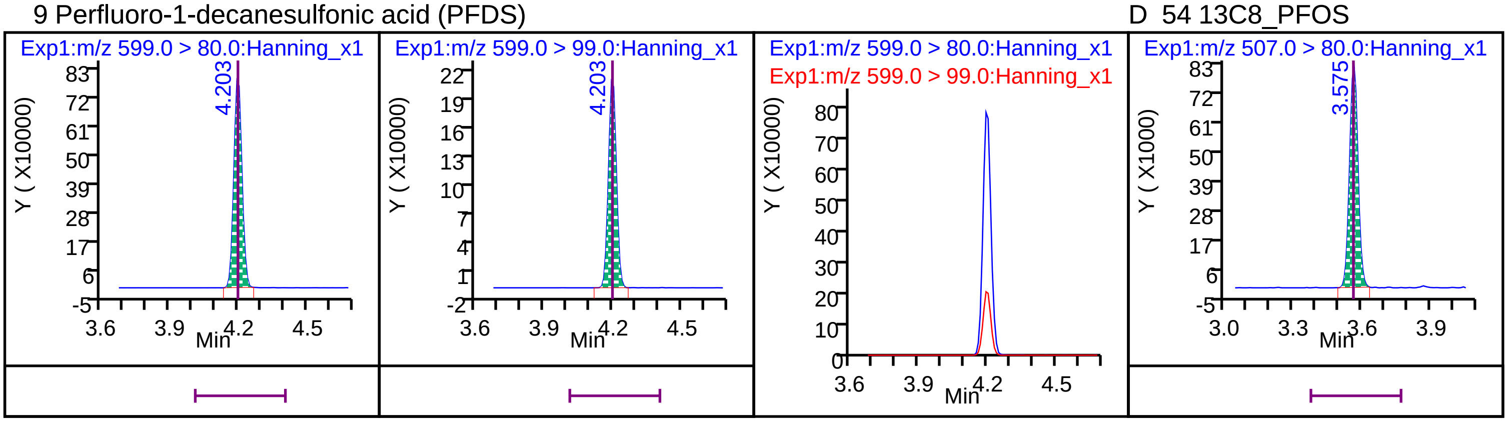
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



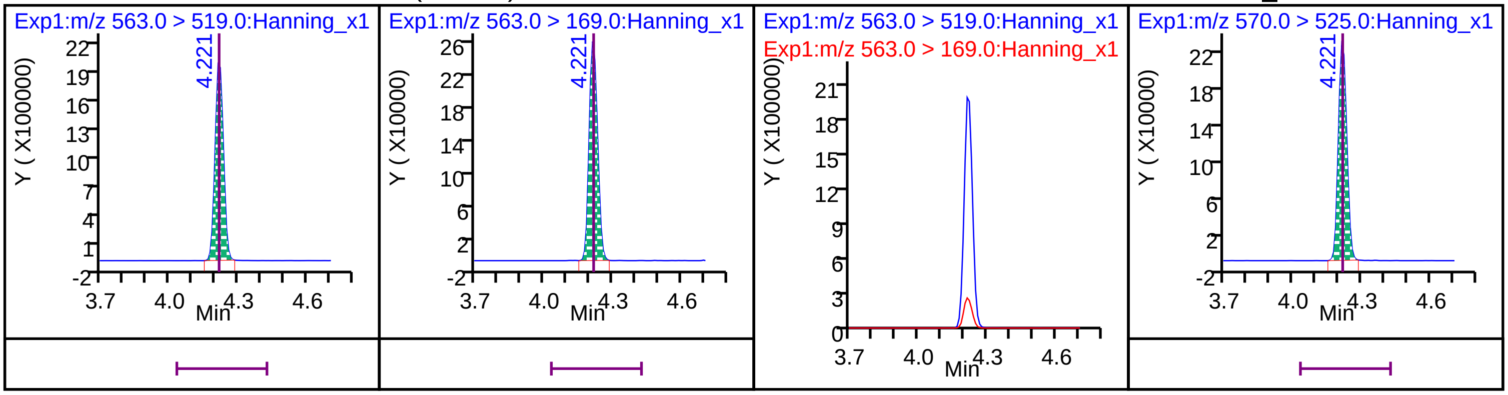
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



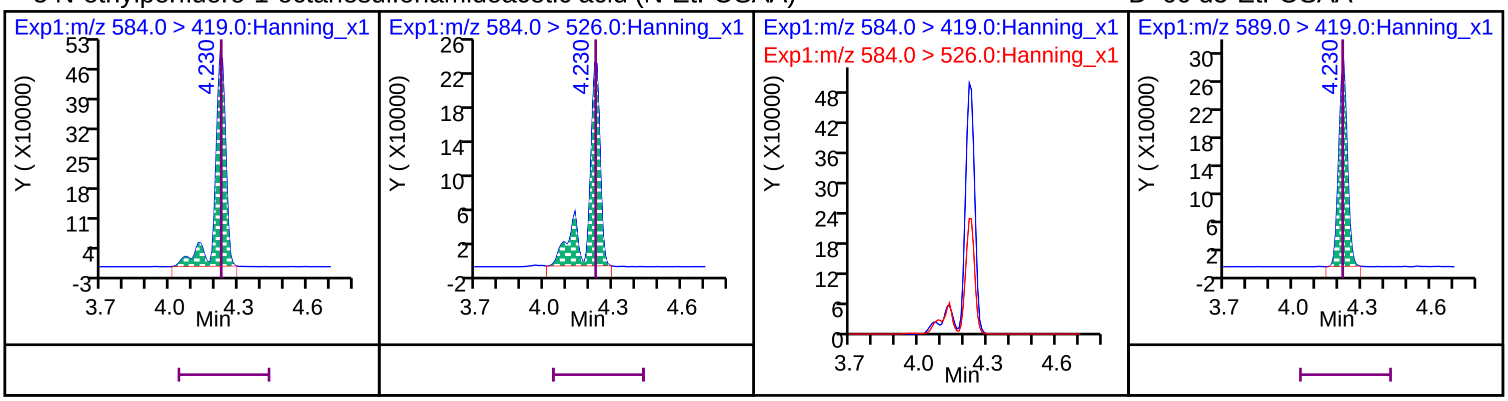
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

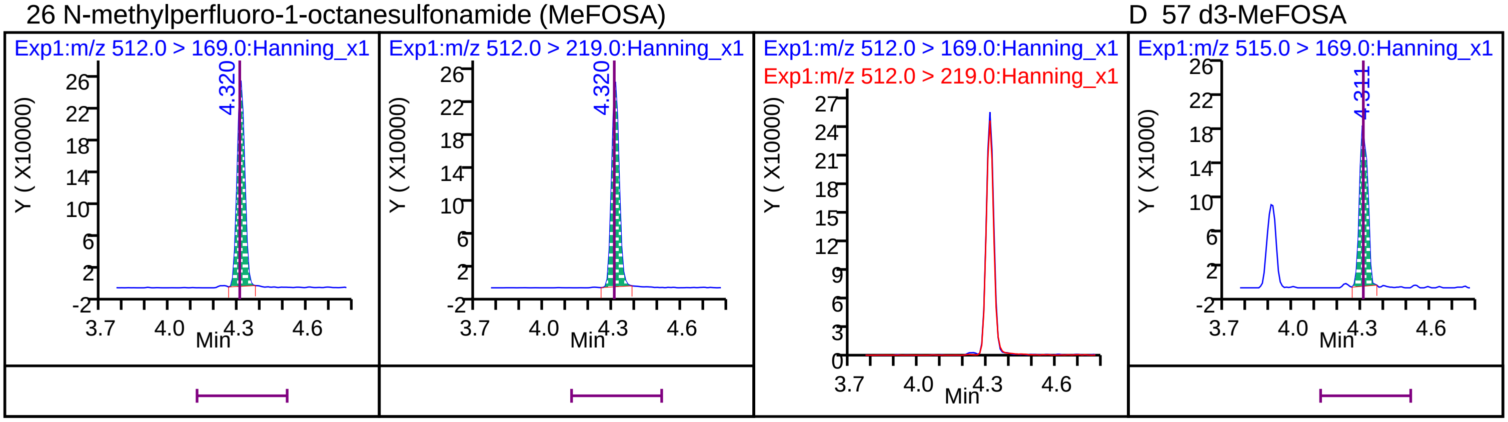


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

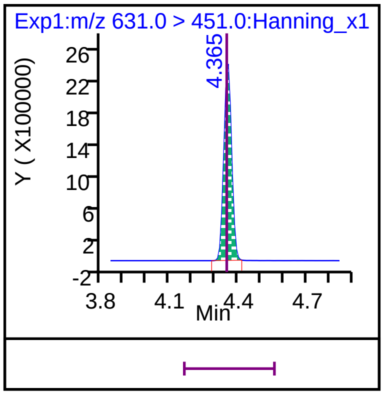


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

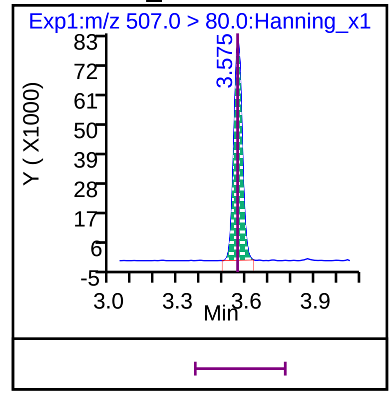
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



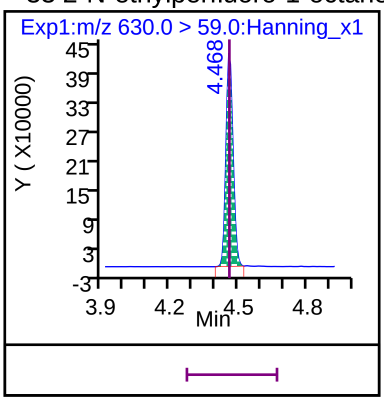
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



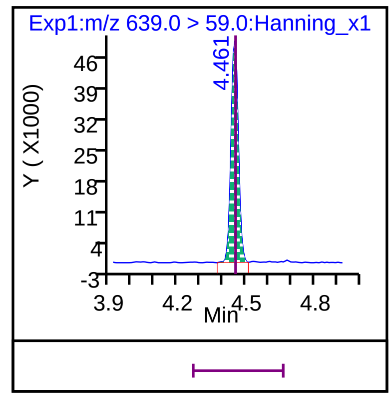
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

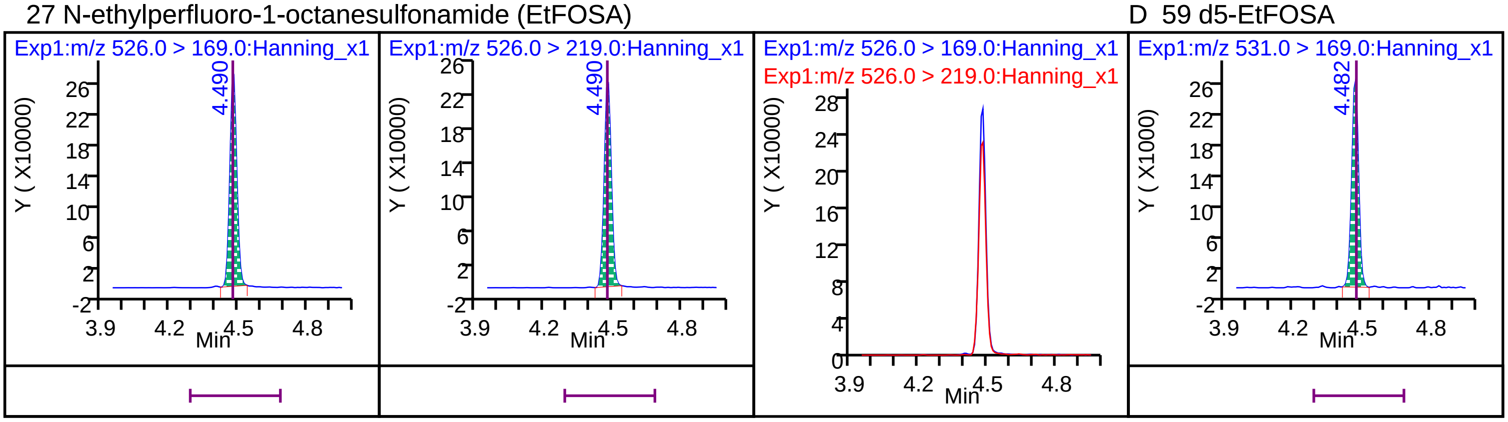


D 62 d9-EtFOSE



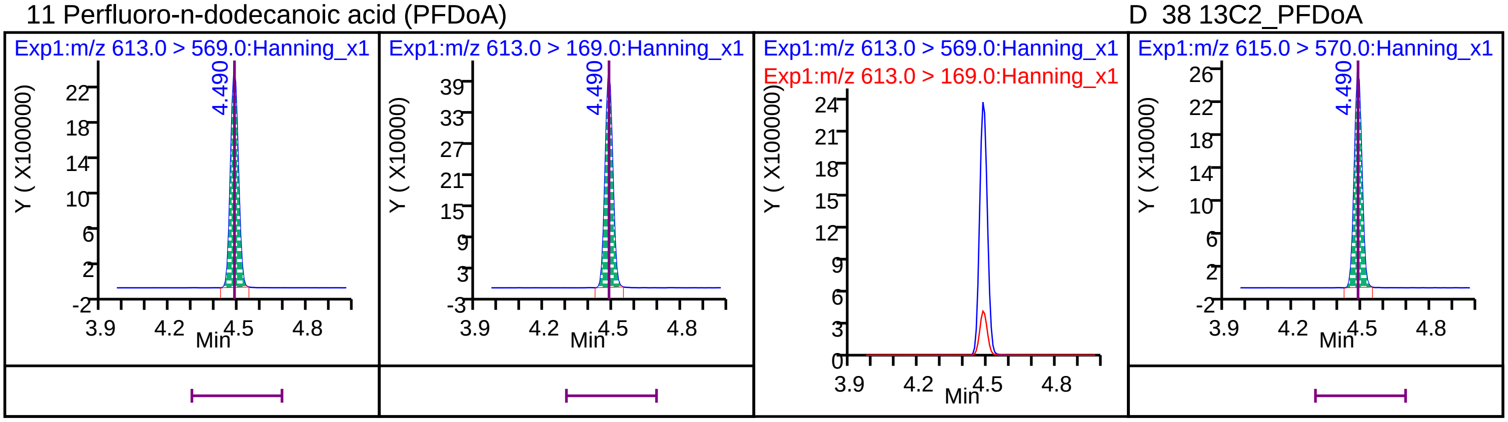
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

D 59 d5-EtFOSA

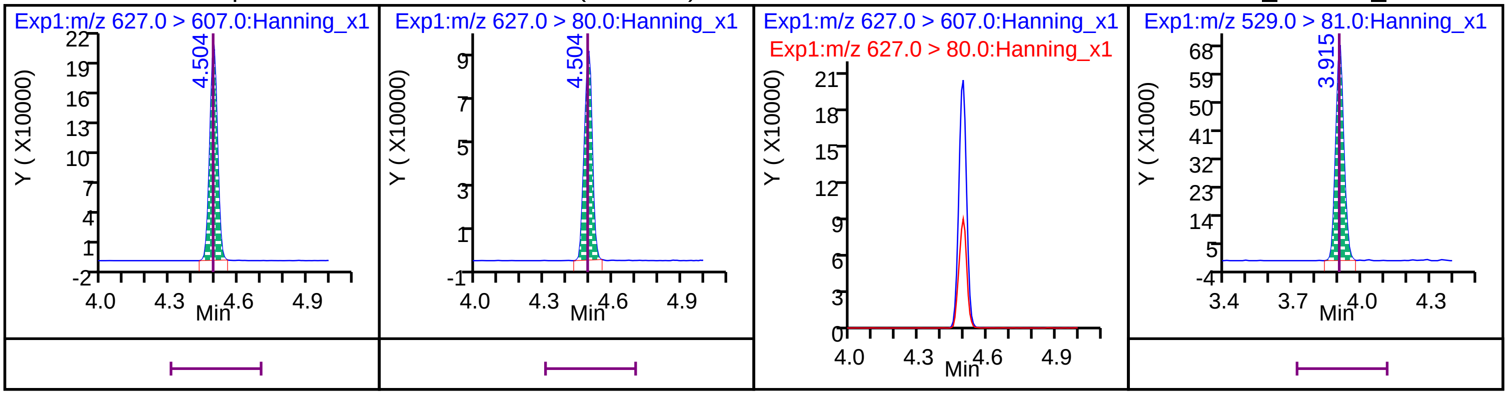


11 Perfluoro-n-dodecanoic acid (PFDoA)

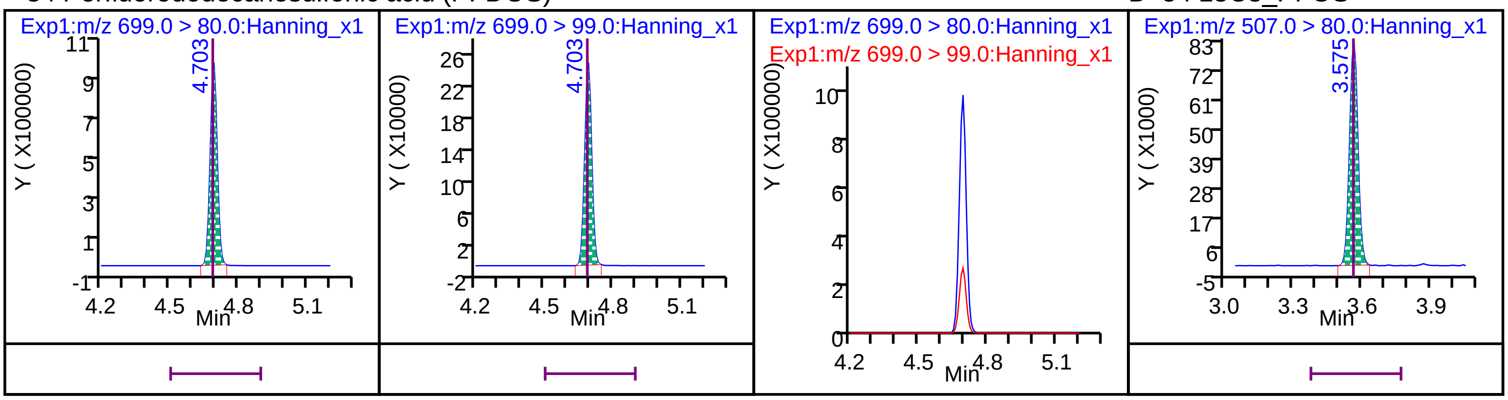
D 38 13C2_PFDoA



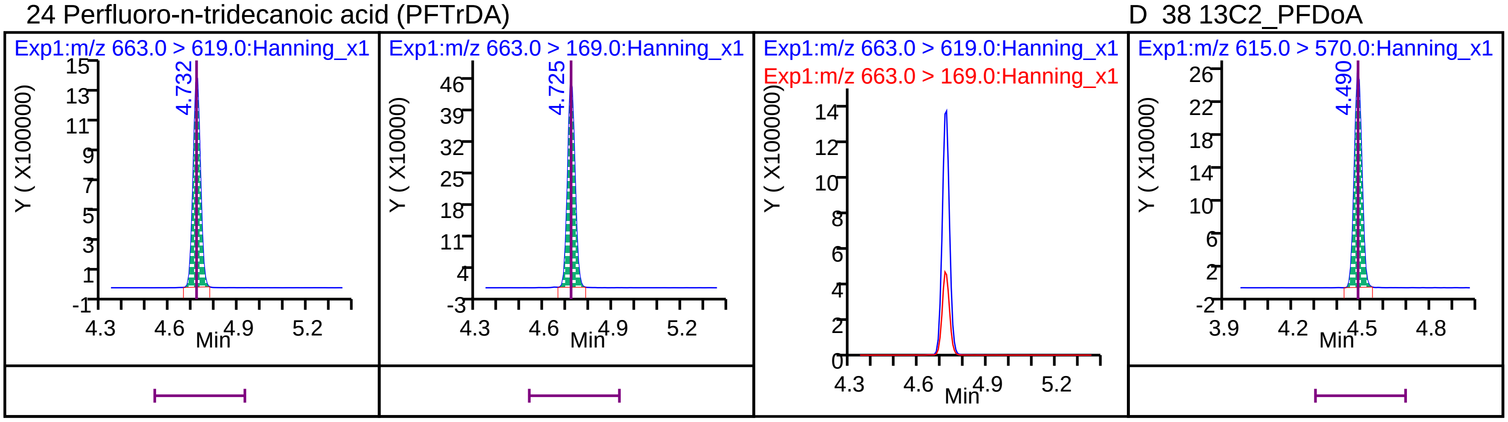
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



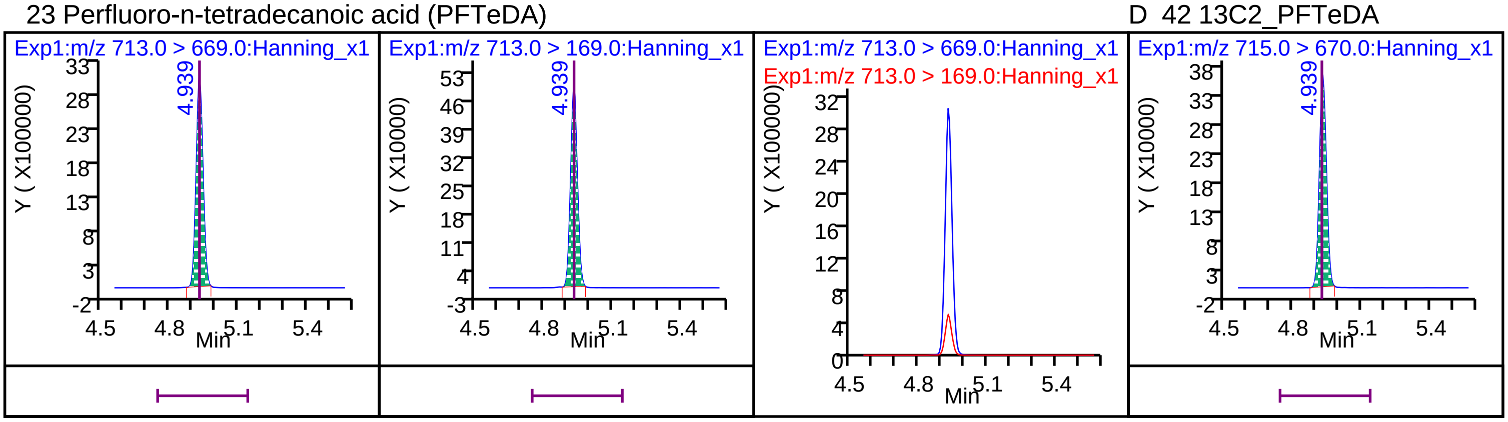
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



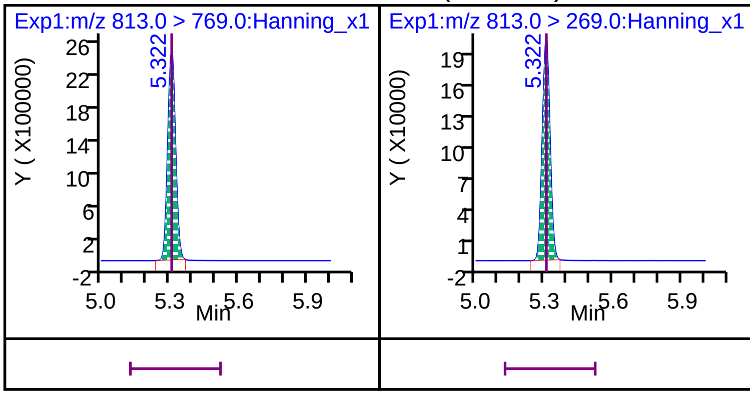
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



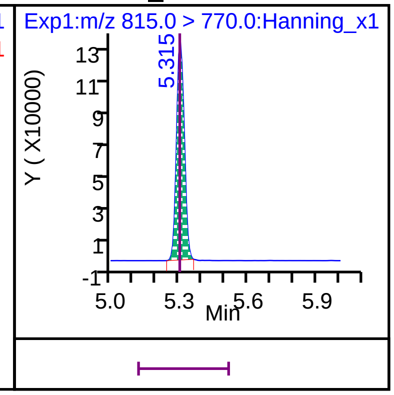
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



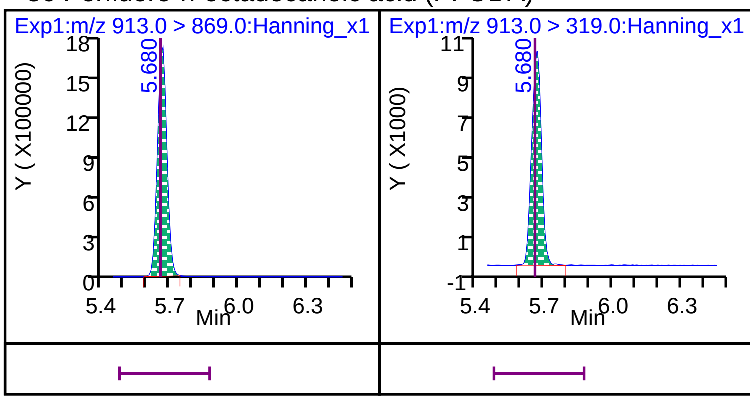
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA)



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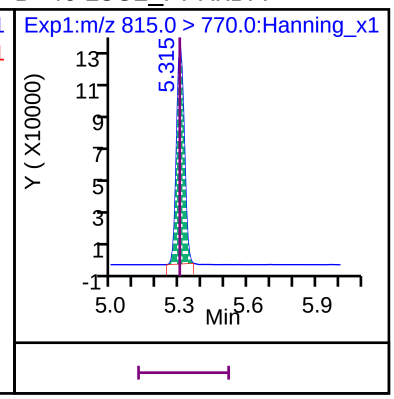
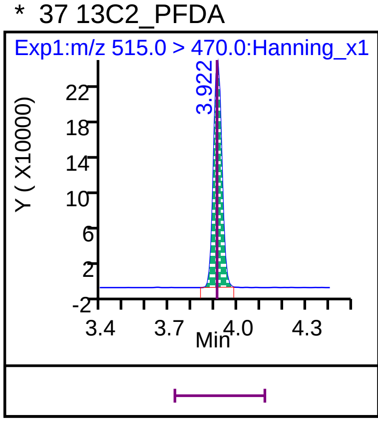


* 37 13C2_PFDA



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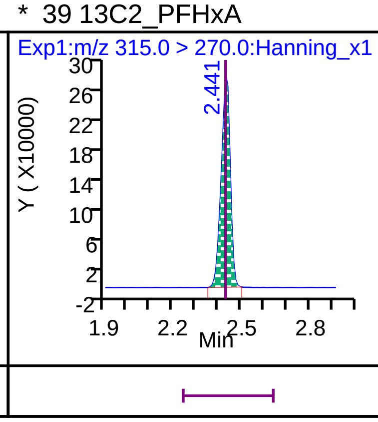
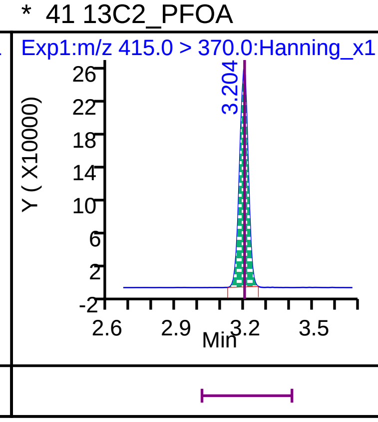
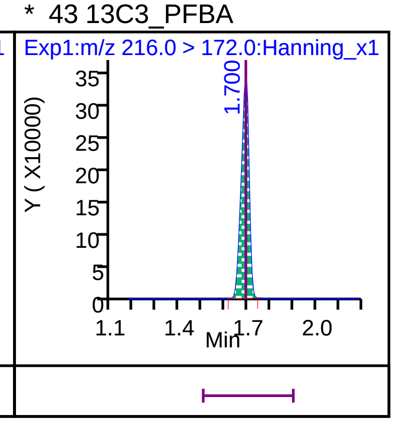


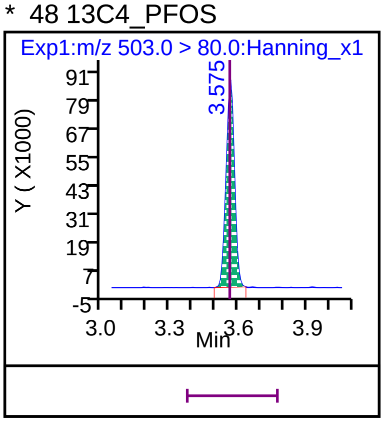
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:57 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

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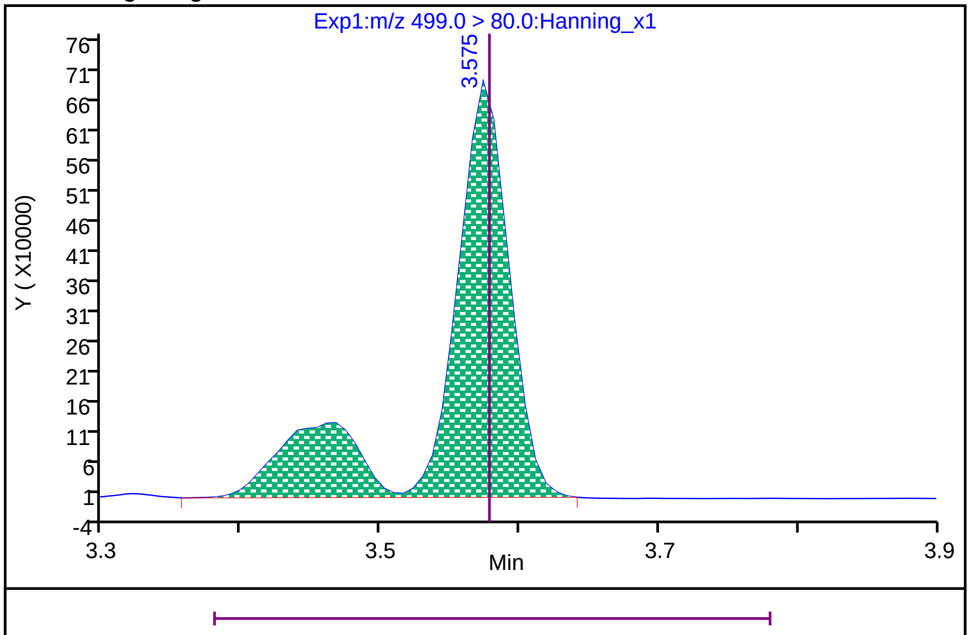
Injection Date:	14-Oct-2021 12:21:20	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 10000_SVLC-1645
Sample Info:	ICAL 10000_SVLC-1645		
Dil. Factor:	1	Operator:	Matthew M. Miller

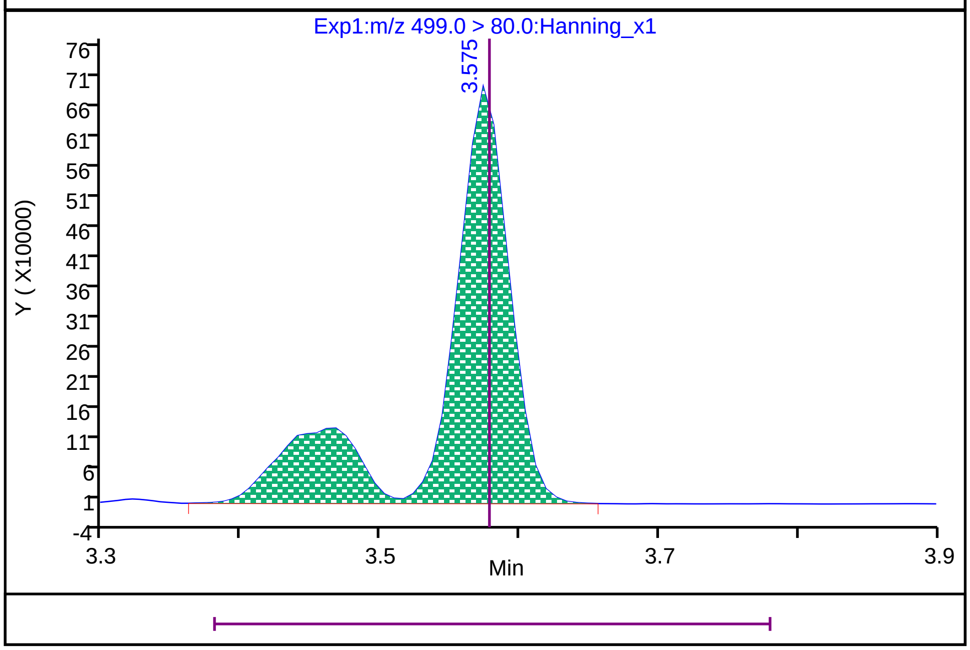
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.575
Area: 2218977
Amount: 8896.81
Amount Units: ng/L



RT: 3.575
Area: 2241319
Amount: 8993.13
Amount Units: ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:48:01

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421019.d		
Injection Date:	14-Oct-2021 12:31:57	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	9
Sample Info:	ICAL 15000_SVLC-1646	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-9 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.700	1	797751	21	>100:1			1000.00	889.25	75.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	1/0	12957232	20	>100:1			15000	15030		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.066	1	832348	17	>100:1			1000.00	925.97	78.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.066	1/0	12910276	16	>100:1			15000	14370		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	1	271007	16	>100:1			1000.00	907.92	77.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.129	0/-1	5089636	16	>100:1	Target = 3.78		13260	13509		
298.9 > 99	44	2.119	2.129		1319162	16	>100:1	3.85 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	1/0	4144300	19	>100:1	Target = 3.45		14070	14822		
349 > 99	44	2.475	2.475		1117636	19	>100:1	3.70 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.406	2.406	1	209023	19	>100:1			5000.00	4677.32	78	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.406	2.406	1/0	1103564	19	>100:1	Target = 1.43		14010	13778		
327 > 81	63	2.406	2.406		751622	19	>100:1	1.46 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.440	1	716768	19	>100:1			1000.00	875.42	71.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.440	1/0	11706392	19	>100:1	Target = 16.37		15000	15900		
313 > 119	49	2.441	2.440		647508	18	>100:1	18.07 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	1	649258	19	>100:1			5000.00	4487.32	75.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	1/0	3010071	18	>100:1	Target = 0.74		30000	30182		
285 > 185	66	2.562	2.562		4024919	20	>100:1	0.74 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.827	1	705422	19	>100:1			1000.00	880.36	72.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	1/0	10723210	19	>100:1	Target = 3.21		15000	15319		
363 > 169	47	2.827	2.827		3304303	19	>100:1	3.24 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.836	2.845	0	207745	19	>100:1			1000.00	844.64	70.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	1/1	3783627	27	>100:1	Target = 3.47	4.54	13650	15106		
399 > 99	45	2.845	2.845		1114555	23	>100:1	3.39 (1.73-5.21)	8.30				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.863	2.862	1/1	16802216	19	>100:1	Target = 2.28		14130	14877		
377 > 85	45	2.863	2.862		7888158	19	>100:1	2.13 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.209	3.215	0/0	3468632	22	>100:1	Target = 3.62		14280	15376		
449 > 99	45	3.209	3.215		932808	22	>100:1	3.71 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.183	0	195678	22	>100:1			5000.00	4478.06	72.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.183	3.177	1/1	773728	23	>100:1	Target = 1.19		14220	12535		
427 > 81	64	3.177	3.177		648849	23	>100:1	1.19 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.208	0	647829	22	>100:1			1000.00	856.16	74	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.202	3.208	0/0	10146880	23	>100:1	Target = 2.34		15000	15557		
413 > 169	53	3.202	3.208		4336705	23	>100:1	2.33 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.572	3.572	1	184721	20	>100:1			1000.00	815.29	69.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.580	0/-1	3425677	41	>100:1	Target = 4.00	3.49	13920	15362		M
499 > 99	54	3.572	3.580		812170	40	>100:1	4.21 (2.00-6.01)	6.72				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.776	3.776	1/0	9009229	20	>100:1			13980	15983		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.903	3.911	0/-1	3068867	18	>100:1	Target = 3.83		14400	16430		
549 > 99	54	3.911	3.911		776788	18	>100:1	3.95 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.208	4.207	1/0	2875551	16	>100:1	Target = 3.87		14460	16180		
599 > 99	54	4.208	4.207		746345	17	>100:1	3.85 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	1/0	7859685	16	>100:1			14130	16292		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.706	4.698	1/0	2744480	17	>100:1	Target = 3.65		14520	16259		
699 > 99	54	4.698	4.698		793151	17	>100:1	3.46 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.580	3.580	1	666876	21	>100:1			1000.00	859.99	72.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.580	3.580	1/0	8775985	21	>100:1	Target = 4.21		15000	15077		
463 > 169	56	3.580	3.580		2134931	20	>100:1	4.11 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	1	399567	18	>100:1			1000.00	954.04	83.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.880	0/-1	6633635	20	>100:1	Target = 49.05		15000	14643		
498>478	55	3.873	3.880		133682	18	>100:1	49.62 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.911	3.911	1	152614	19	>100:1			5000.00	4035.94	66.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.918	0/-1	677233	19	>100:1	Target = 1.27		14370	15027		
527 > 81	65	3.919	3.918		502254	19	>100:1	1.34 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.500	4.500	1/0	734279	19	>100:1	Target = 2.25		14460	15955		
627 > 80	65	4.500	4.500		315932	18	>100:1	2.32 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.919	3.918	1	581193	19	>100:1			1000.00	855.75	71.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.919	3.926	0/-1	9020593	19	>100:1	Target = 8.94		15000	15361		
513 > 169	51	3.919	3.926		1033791	18	>100:1	8.72 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.073	4.073	1	947204	16	>100:1			5000.00	4622.79	78.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.073	4.081	0/-1	2181461	32	>100:1	Target = 1.38	7.19	15000	15074		
570 > 483	58	4.073	4.081		1636209	33	>100:1	1.33 (0.69-2.08)	4.03				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.226	4.226	1	547295	16	>100:1			1000.00	865.78	75.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.226	4.226	1/0	7155478	17	>100:1	Target = 8.27		15000	14742		
563 > 169	52	4.226	4.226		922448	17	>100:1	7.75 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.226	4.226	1	719059	16	>100:1			5000.00	4188.46	67.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.235	4.235	1/0	2247634	33	>100:1	Target = 1.95	5.84	15000	14644		
584 > 526	60	4.235	4.235		1275361	33	>100:1	1.76 (0.97-2.92)	3.54				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.298	4.298	1	106864	14	>100:1			1000.00	840.38	69.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.307	4.306	1/0	1745369	17	>100:1			15000	16559		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.316	4.315	1	55997	14	>100:1			1000.00	963.44	77.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.324	4.315	1/0	827718	15	>100:1	Target = 1.08		15000	13883		
512 > 219	57	4.324	4.315		808528	15	>100:1	1.02 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.463	0	103194	17	>100:1			1000.00	878.57	70.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.471	4.471	1/1	1351817	16	>100:1			15000	15372		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.485	0	49738	16	>100:1			1000.00	905.50	75.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.485	1/1	826117	16	>100:1	Target = 1.10		15000	14516		
526 > 219	59	4.485	4.485		771788	16	>100:1	1.07 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.493	4.492	1	541989	19	>100:1			1000.00	902.37	76.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.493	4.492	1/0	8228074	18	>100:1	Target = 5.93		15000	14822		
613 > 169	38	4.493	4.492		1388860	18	>100:1	5.92 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.728	0/-1	4575216	18	>100:1	Target = 2.90		15000	15604		
663 > 169	38	4.727	4.728		1466317	17	>100:1	3.12 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.940	4.935	1	735775	22	>100:1			1000.00	918.35	79.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.940	4.940	0/-1	9424615	21	>100:1	Target = 6.34		15000	15129		
713 > 169	42	4.940	4.940		1493757	21	>100:1	6.30 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.313	5.313	0	301069	21	>100:1			1000.00	914.96	80.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.319	5.319	0/0	8802933	19	>100:1	Target = 12.53		15000	14431		
813 > 269	40	5.319	5.319		719626	19	>100:1	12.23 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.678	5.670	1/1	6830333	20	>100:1	Target = 152.15		15000	15285		
913 > 319	40	5.678	5.670		37478	19	>100:1	182.24 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.919	3.918	1	570480	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.440	1	674454	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.209	3.208	1	655263	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	1	724509	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.572	3.572	1	208782	19	>100:1			1000.00			

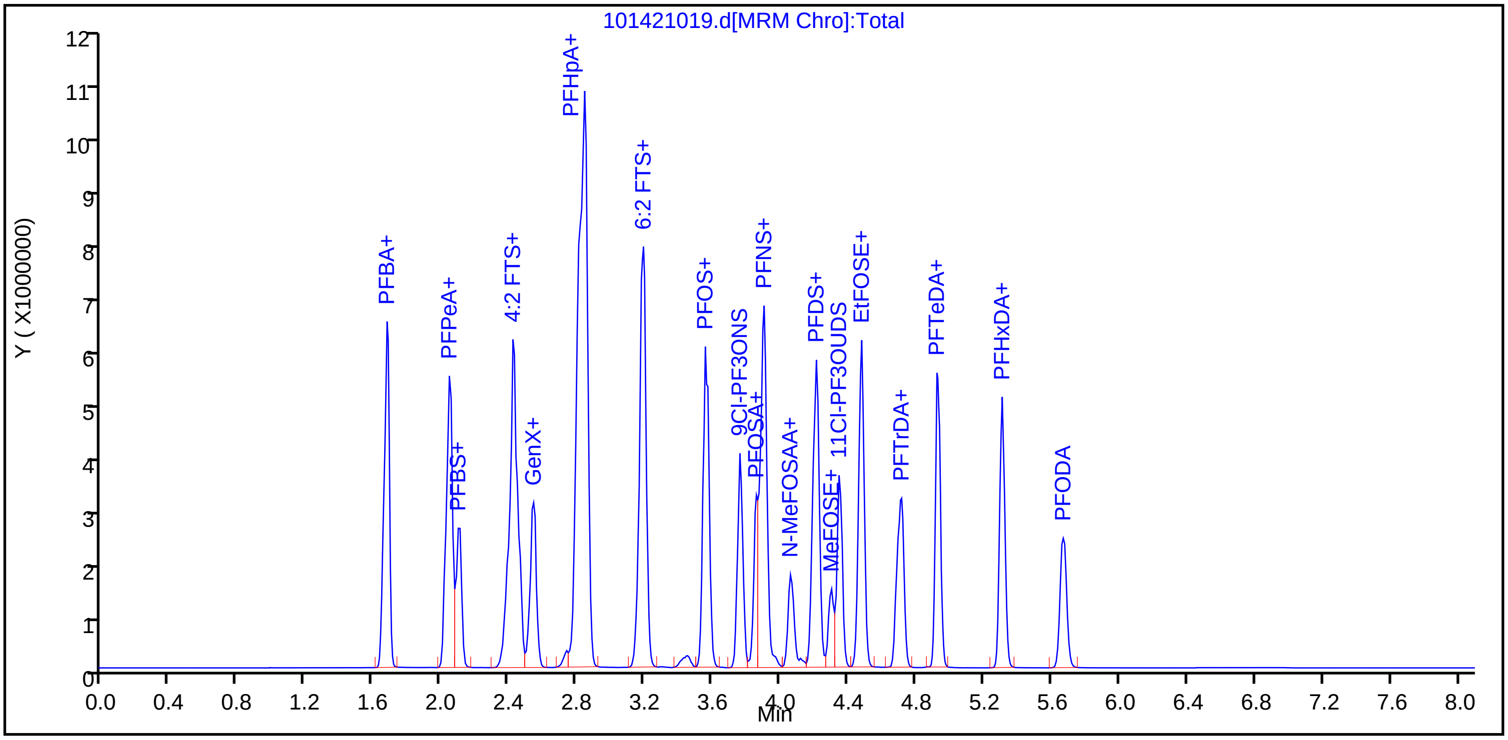
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

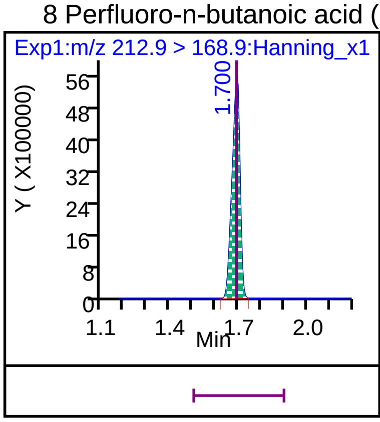
Report Date: 19-Oct-2021 08:48:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

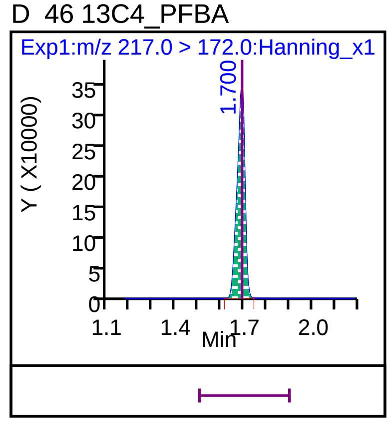
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421019.d		
Injection Date:	14-Oct-2021 12:31:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1646
Sample Info:	ICAL 15000_SVLC-1646		
Dil. Factor:	1	Operator:	Matthew M. Miller



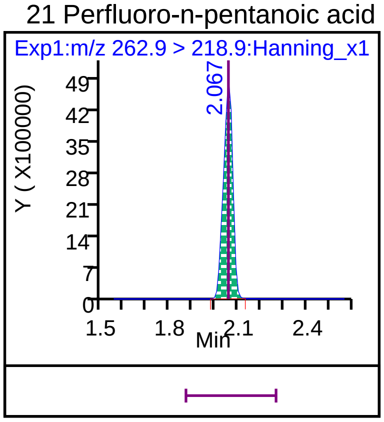
8 Perfluoro-n-butanoic acid (PFBA)



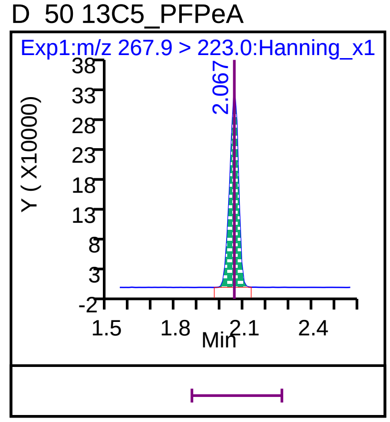
D 46 13C4_PFBA



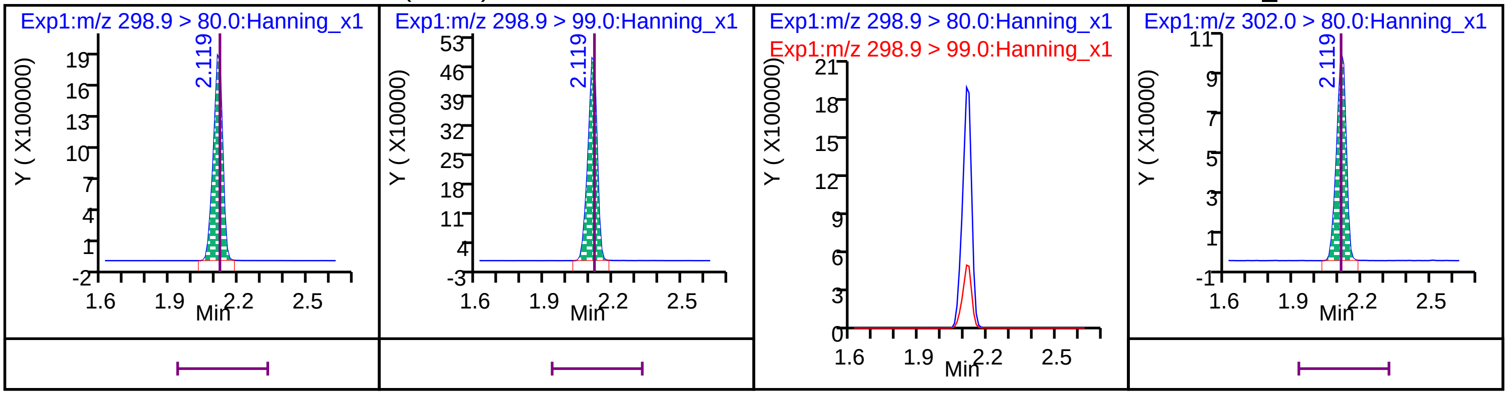
21 Perfluoro-n-pentanoic acid (PFPeA)



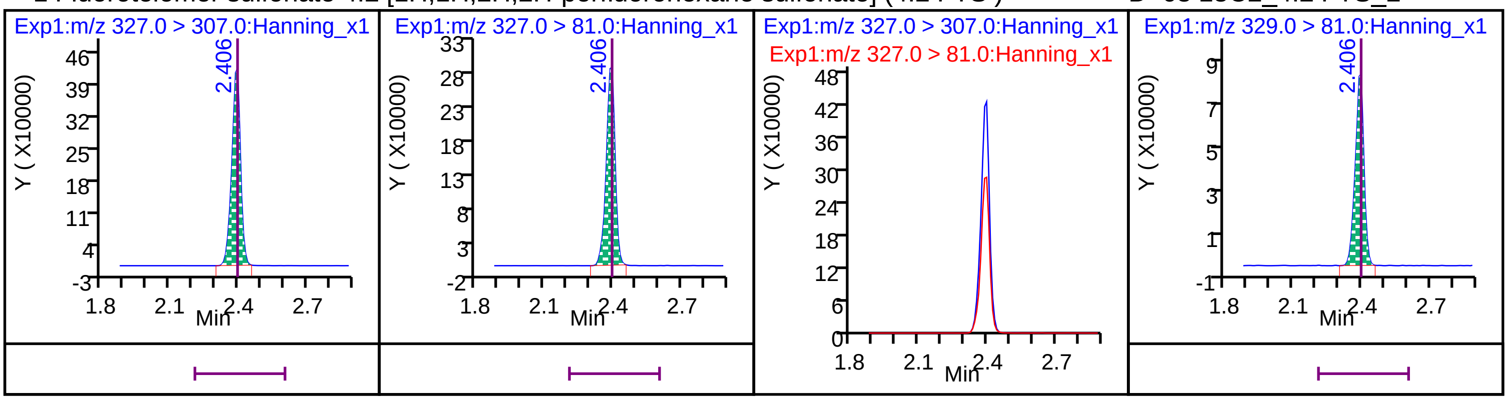
D 50 13C5_PFPeA



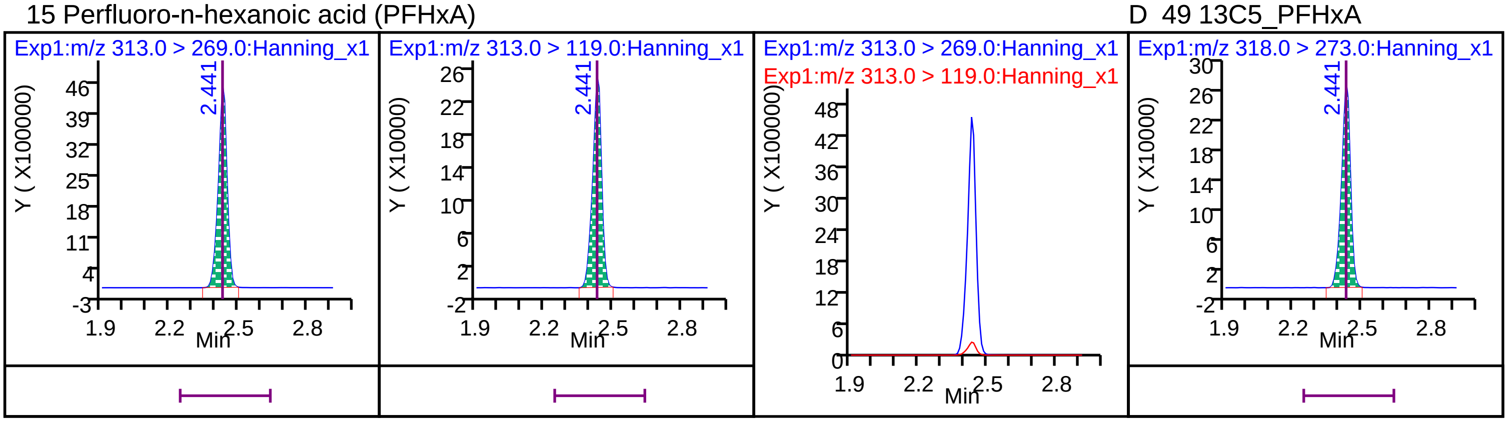
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



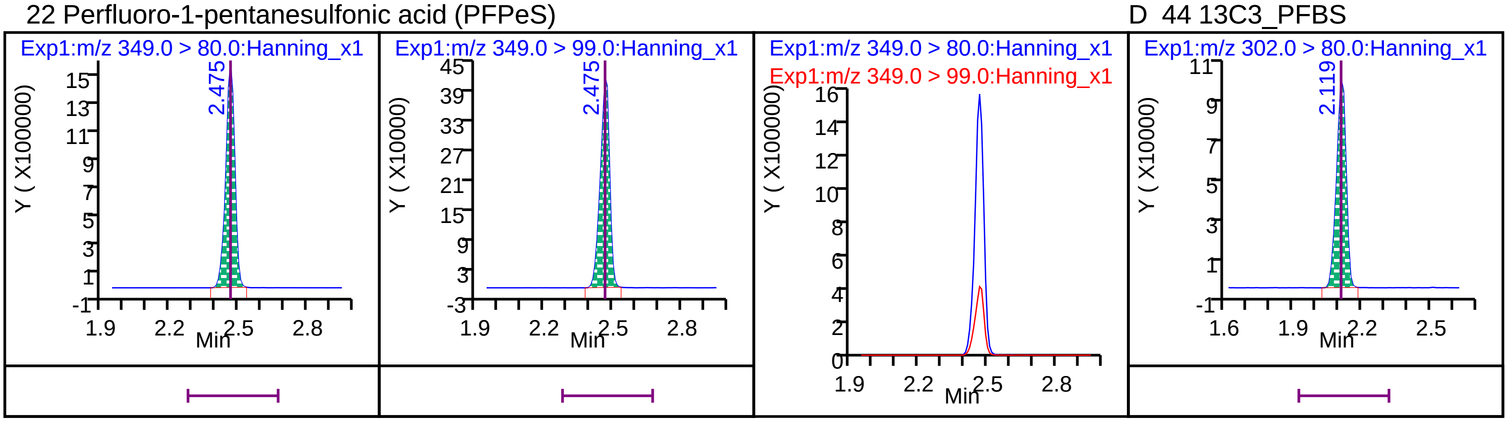
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

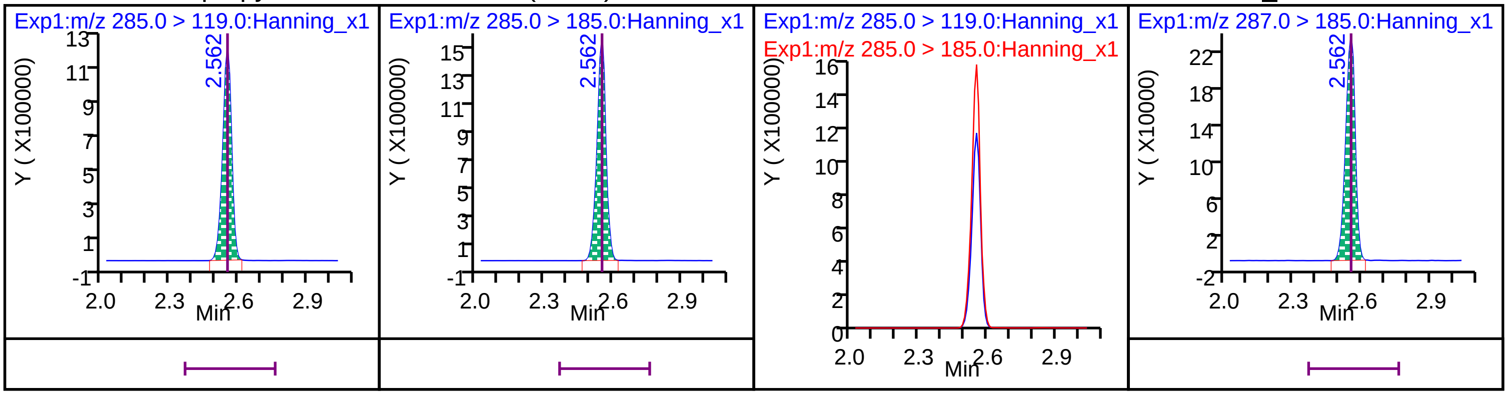


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

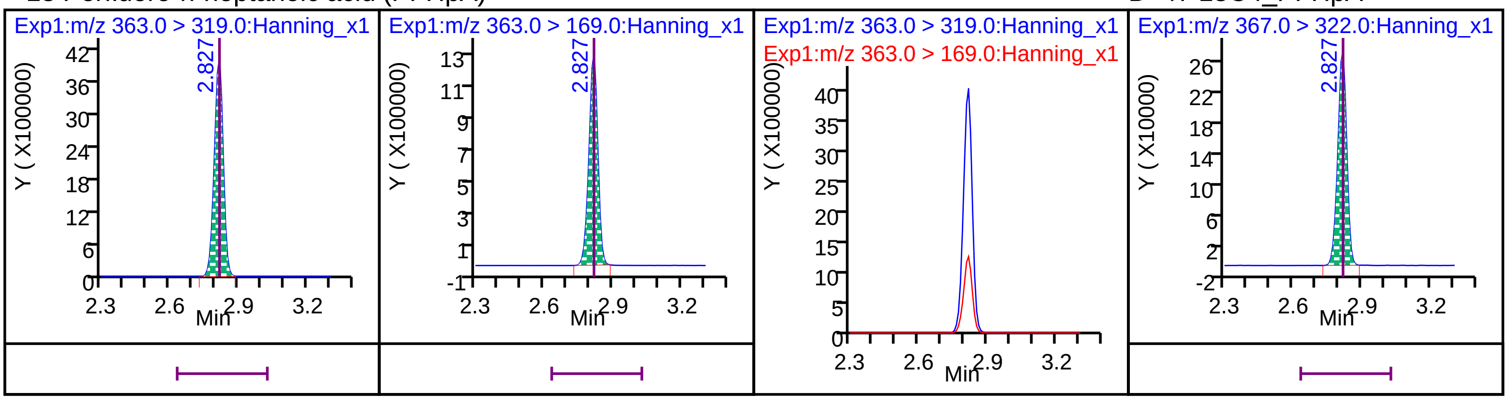


Report Date: 19-Oct-2021 08:48:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421019.d

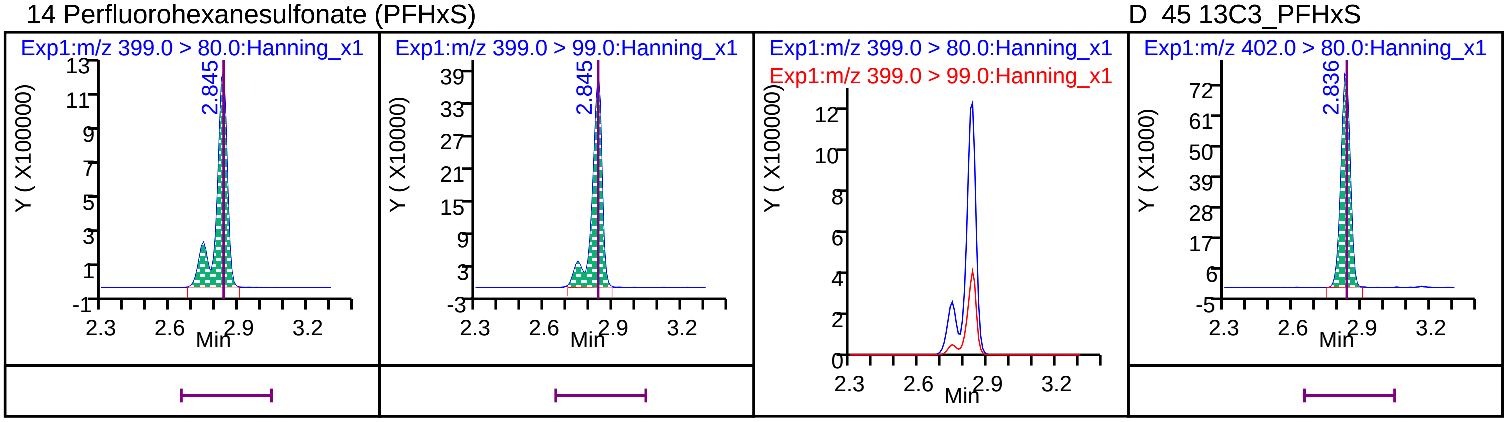
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



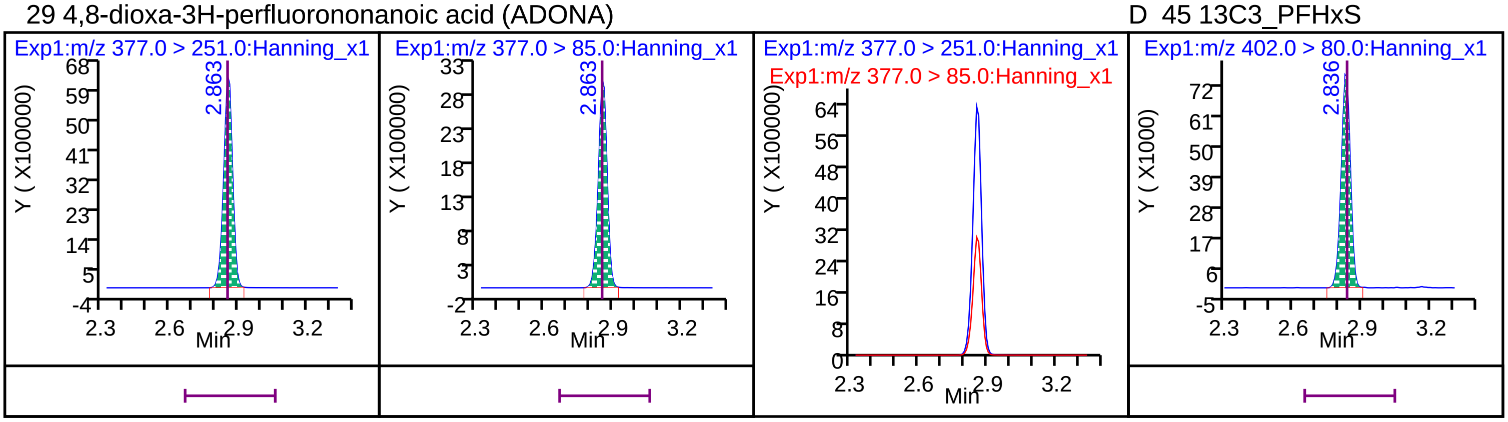
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



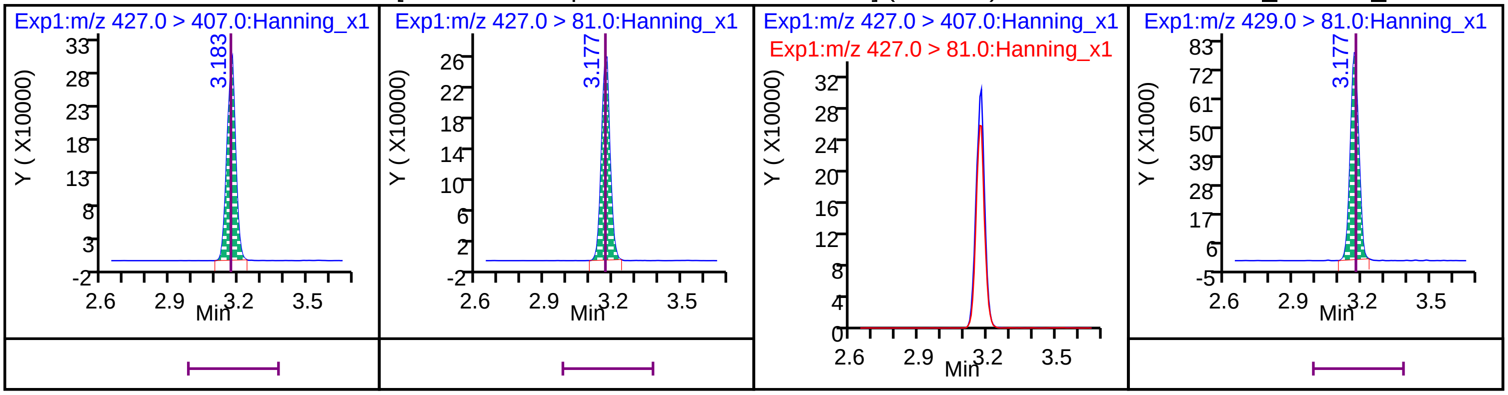
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



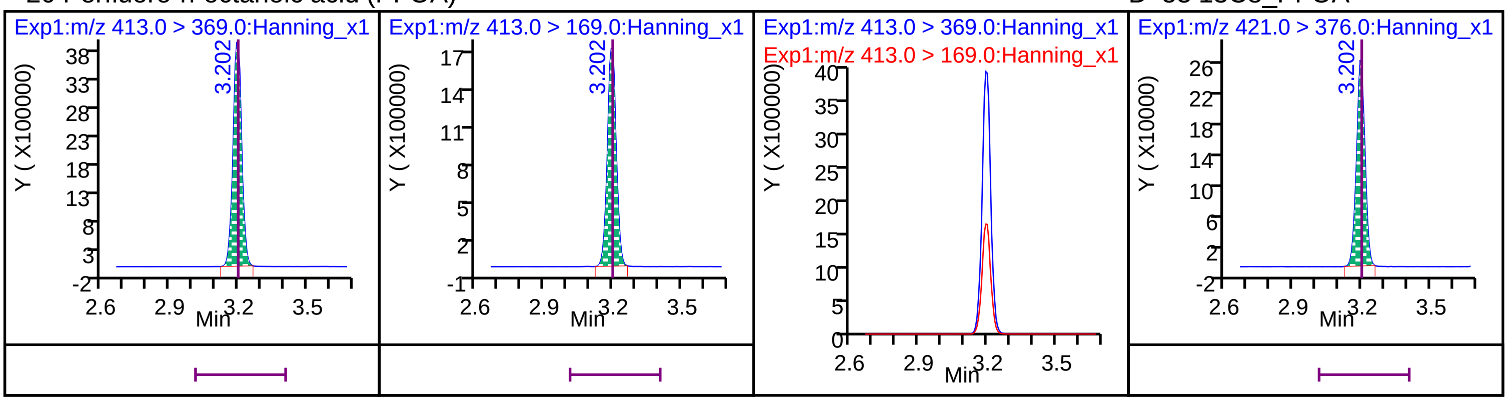
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



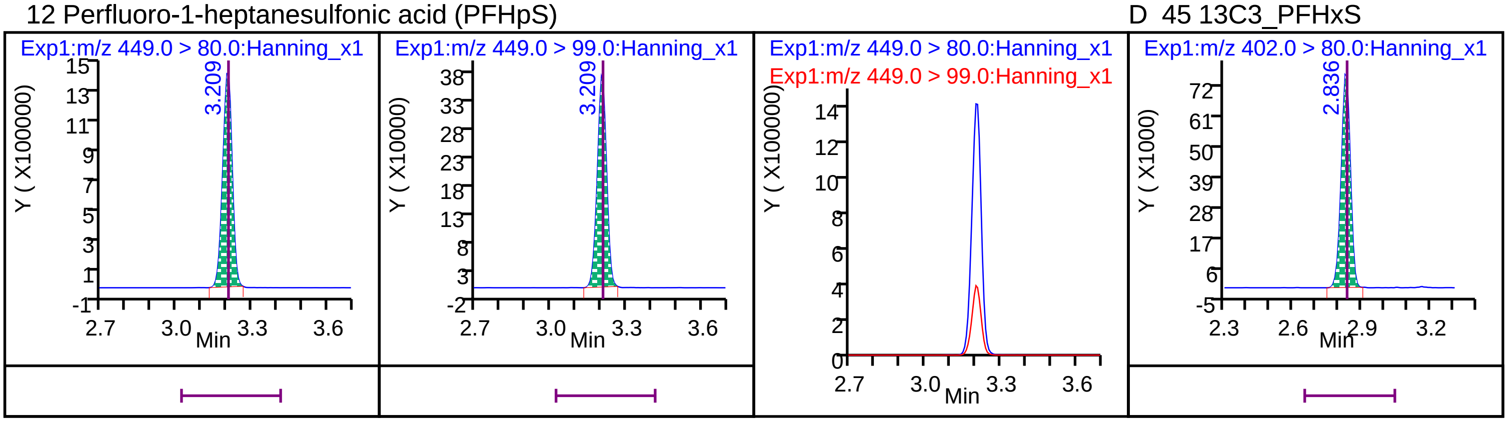
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



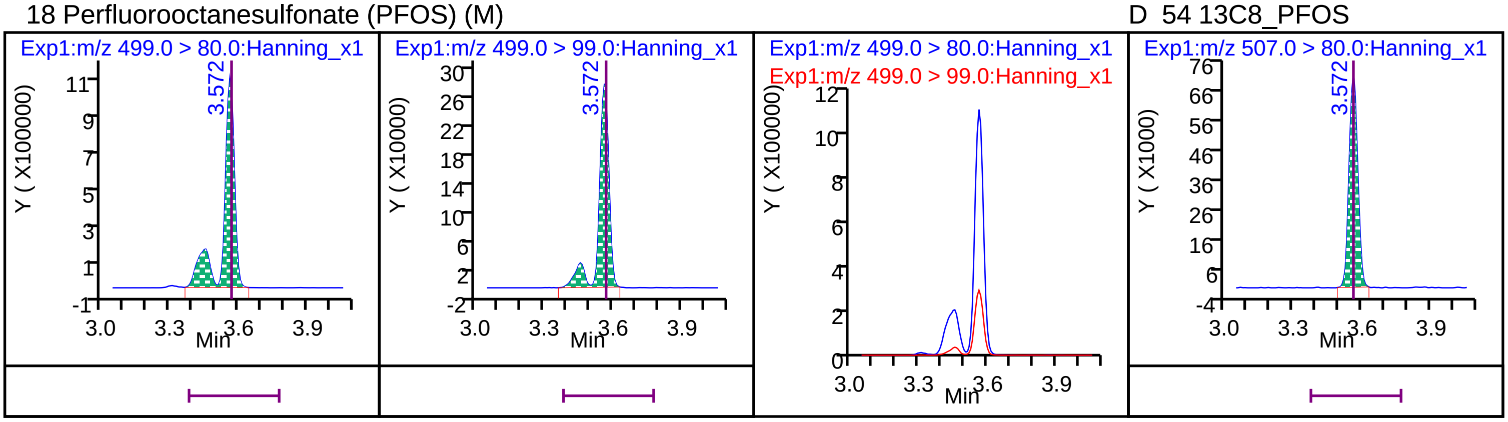
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



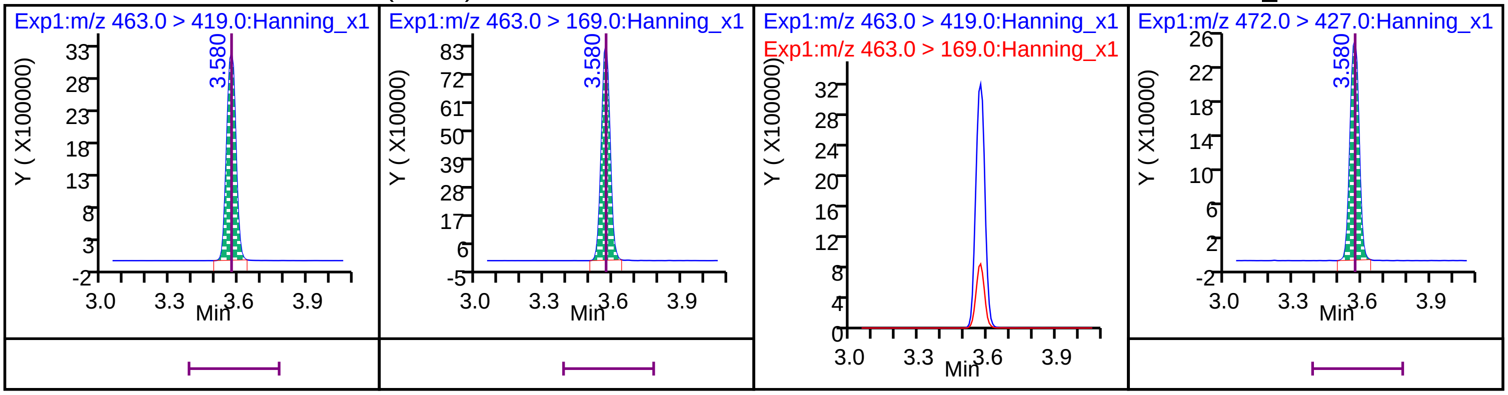
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



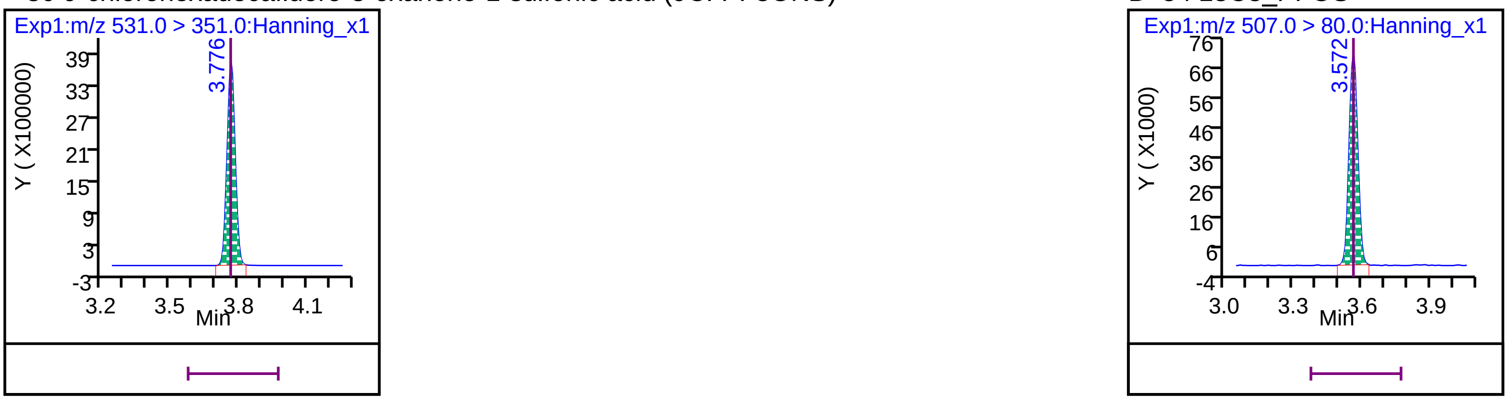
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



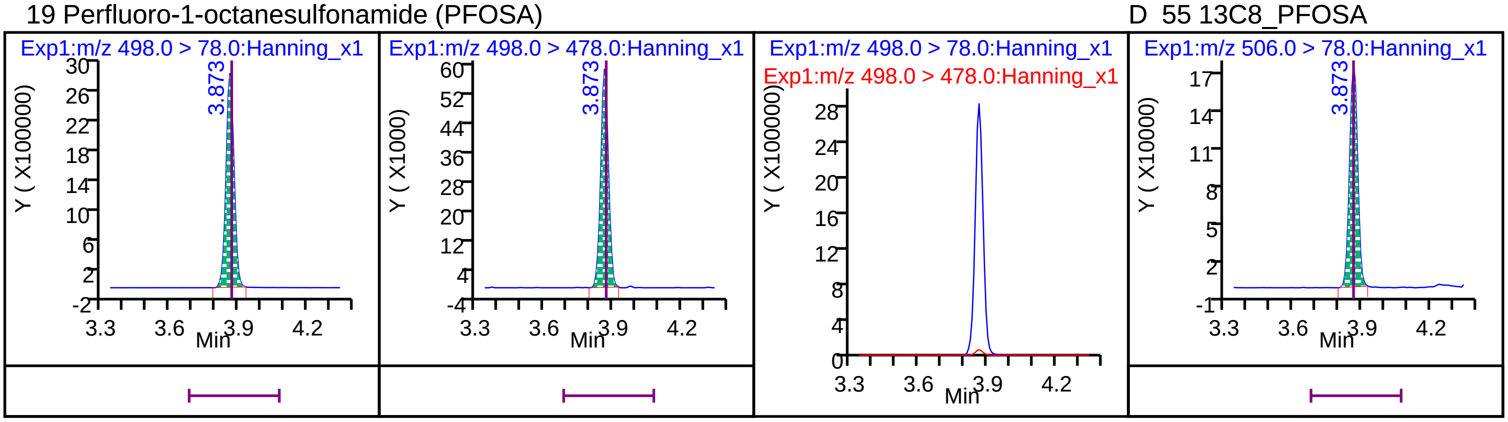
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



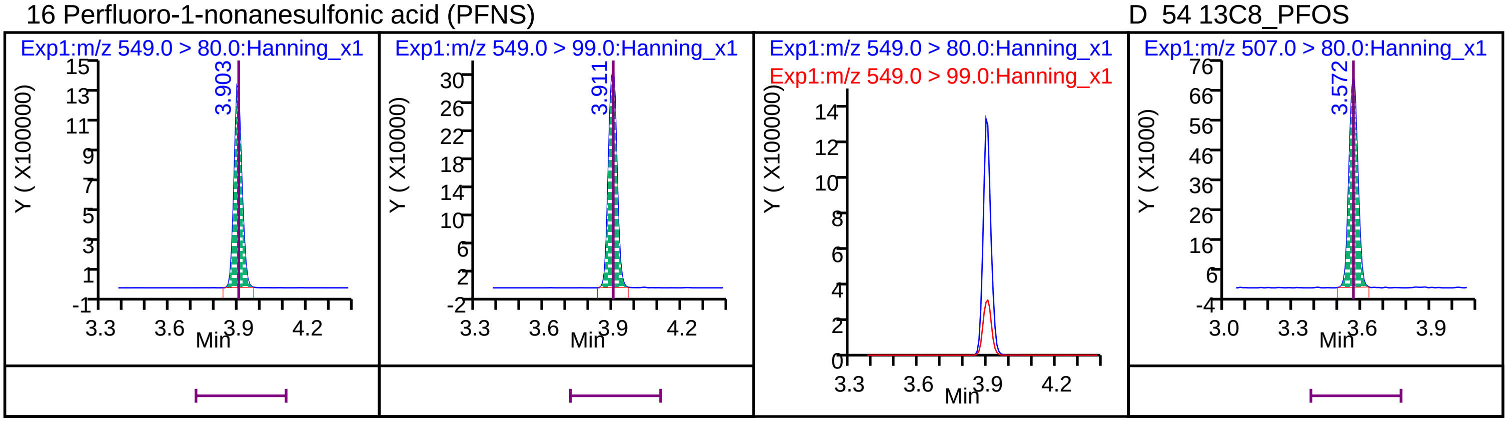
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



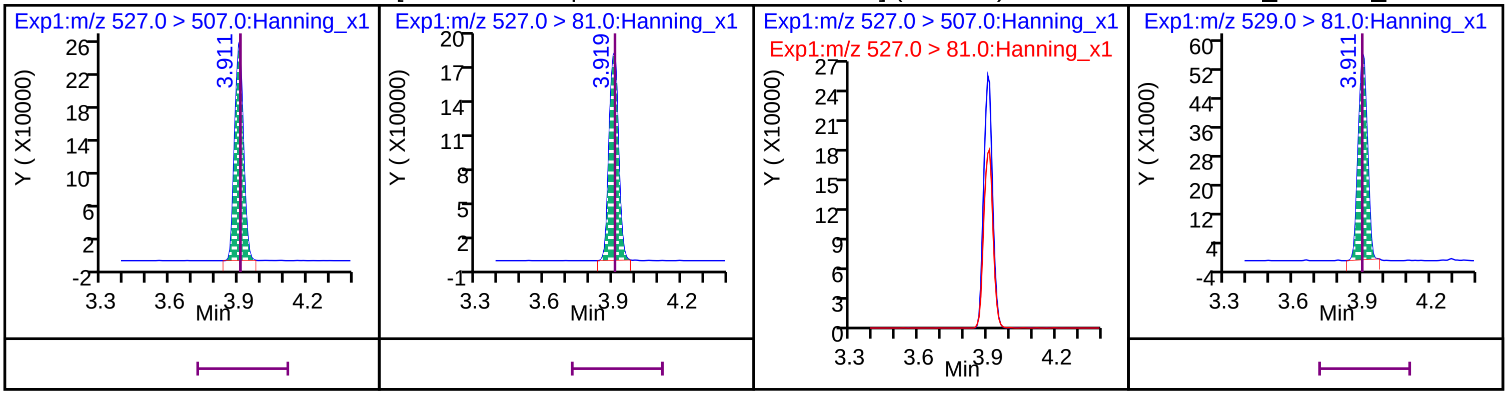
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



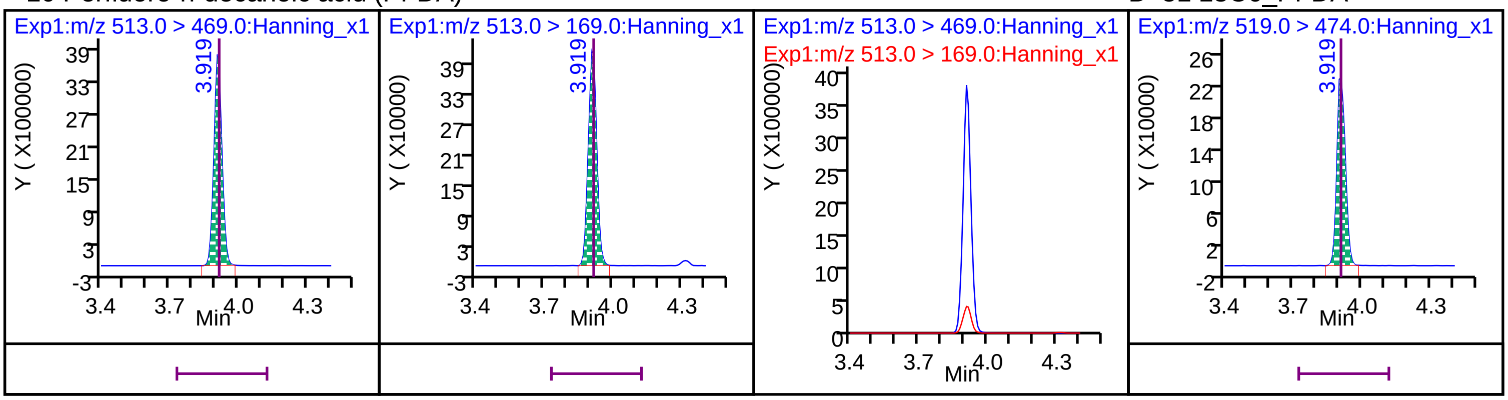
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



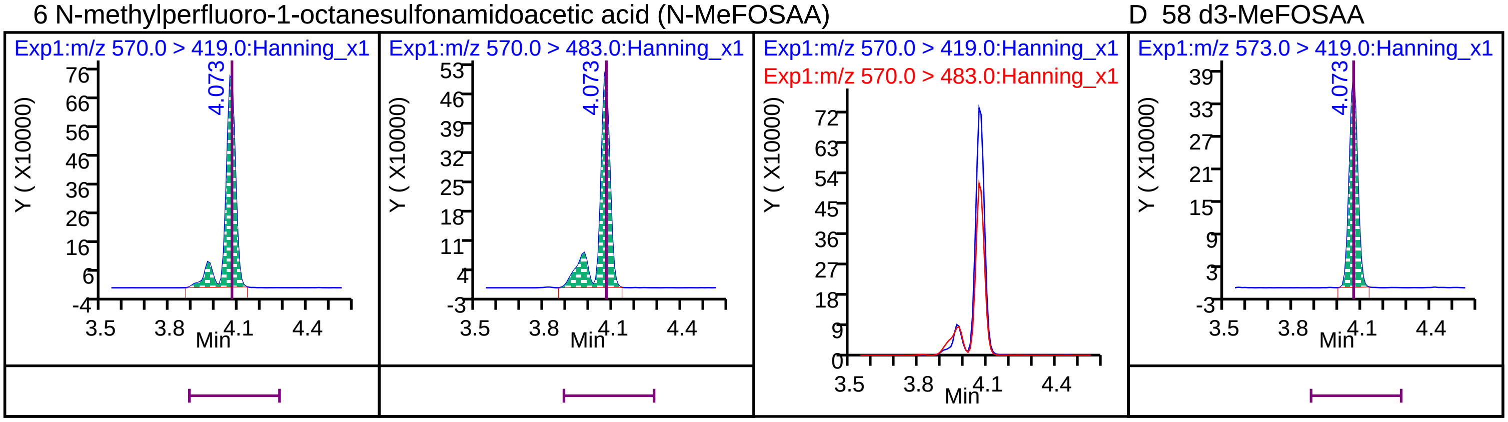
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



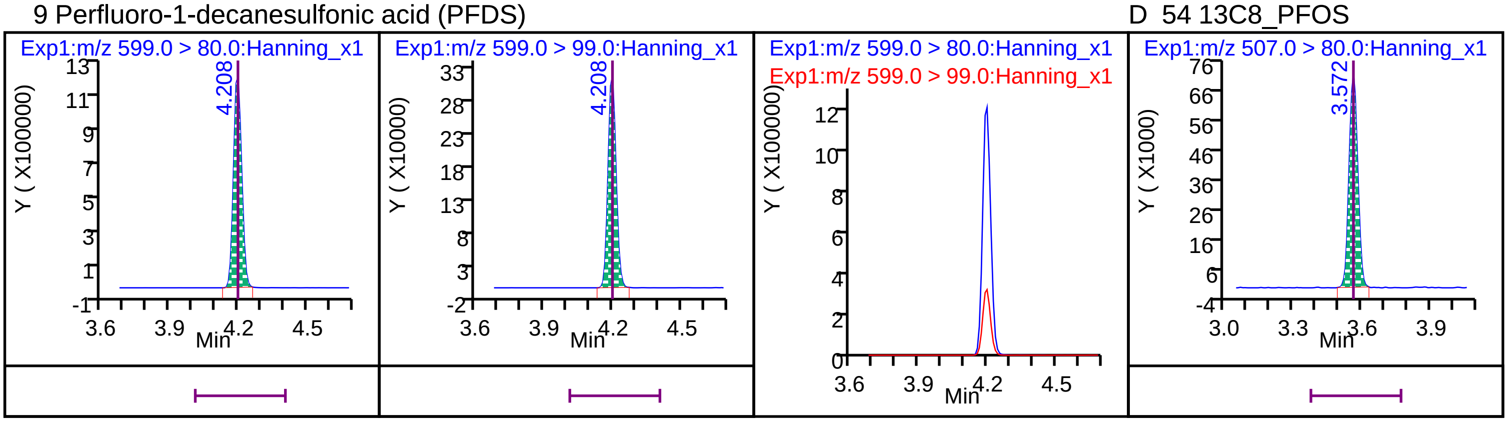
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



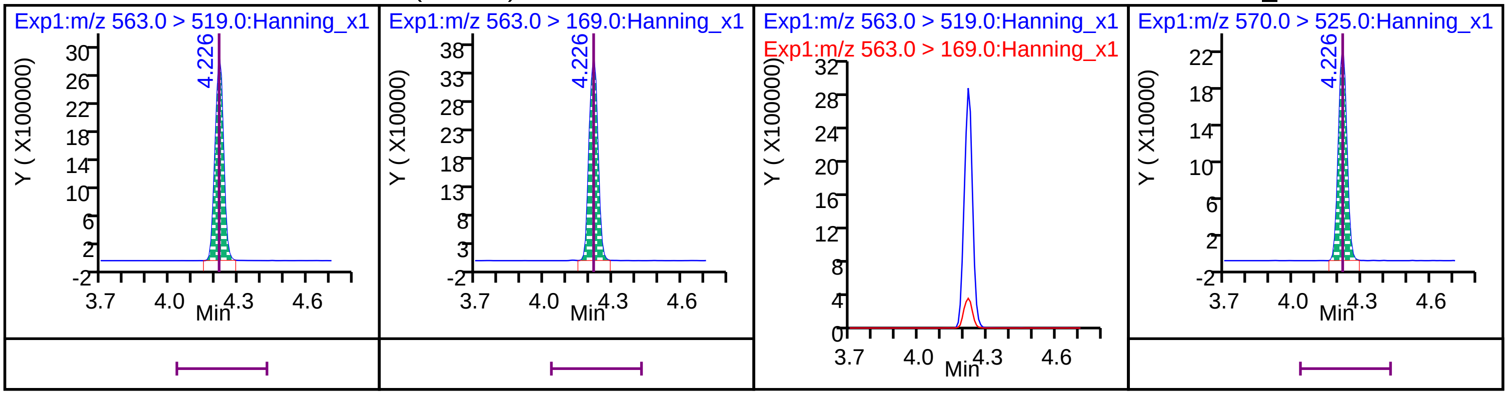
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



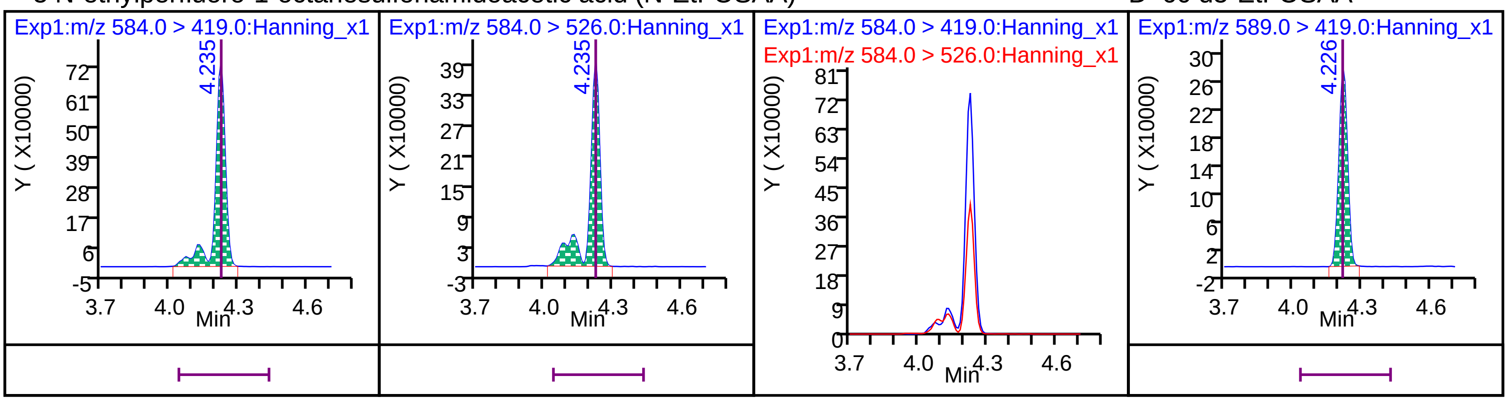
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

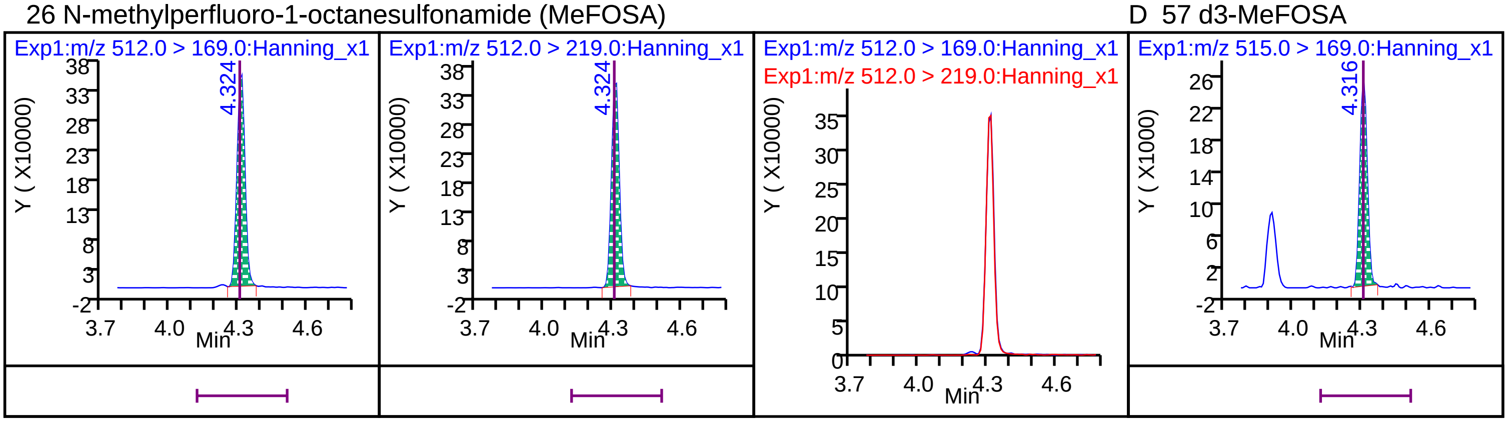


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

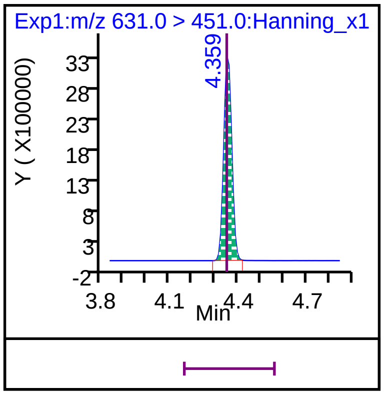


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

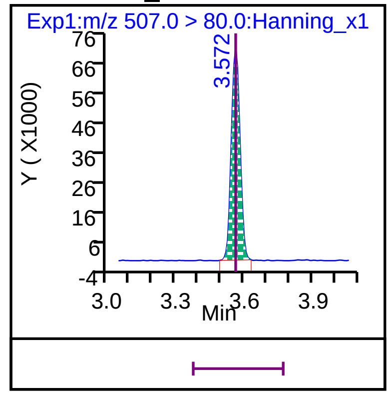
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



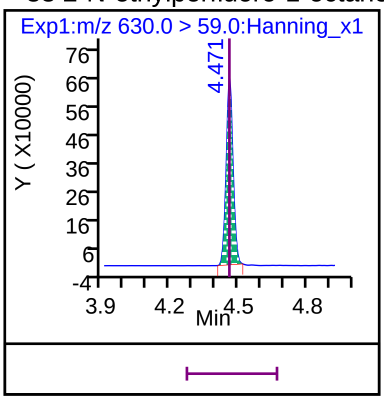
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



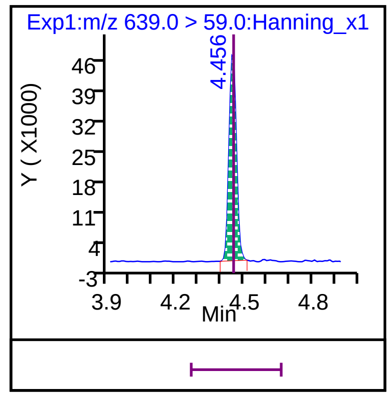
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

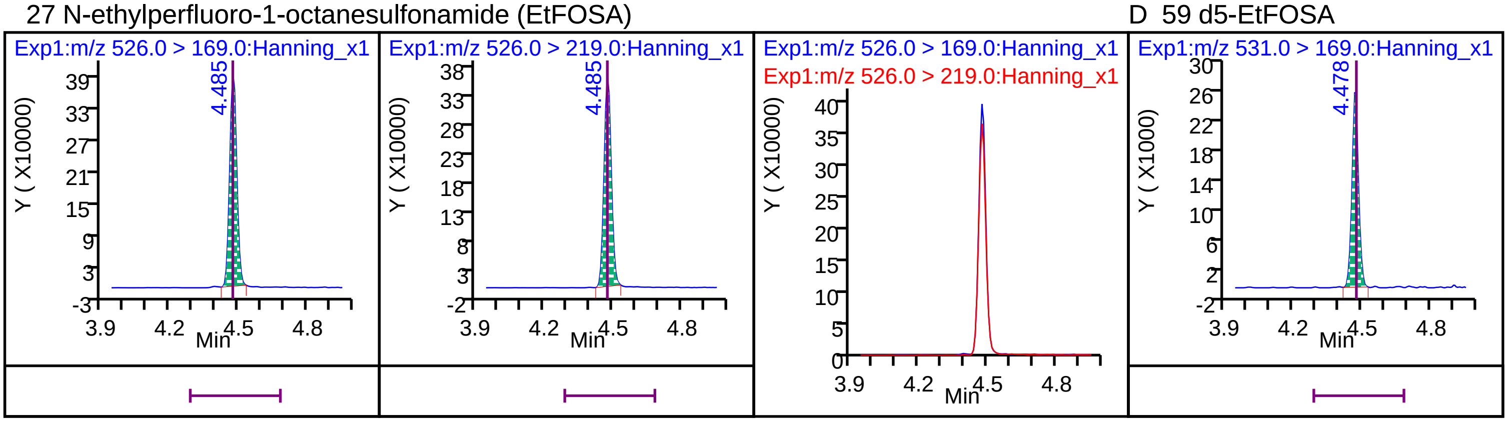


D 62 d9-EtFOSE



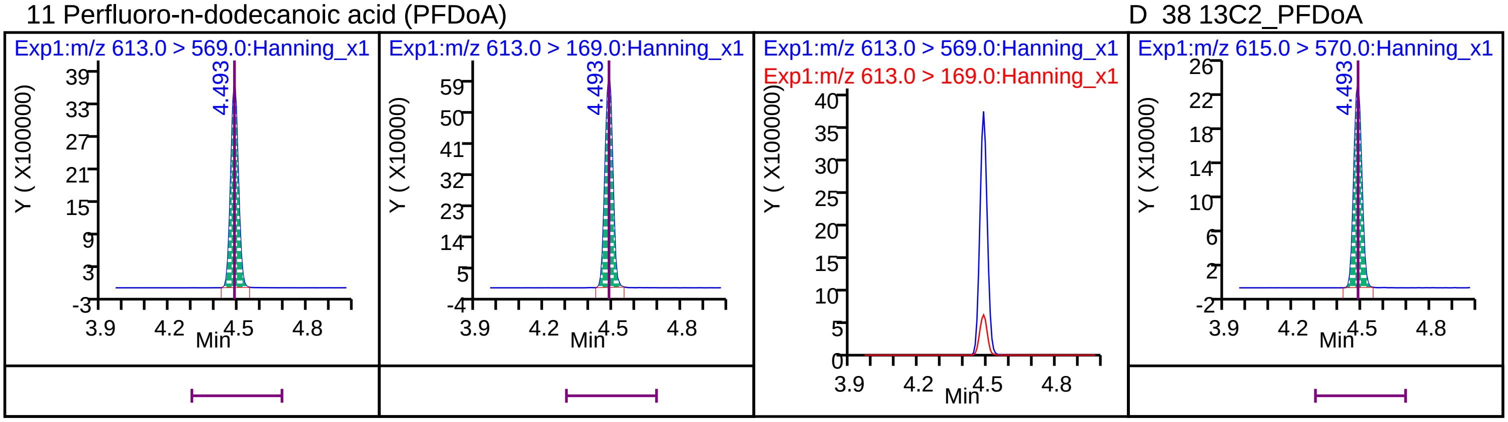
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

D 59 d5-EtFOSA

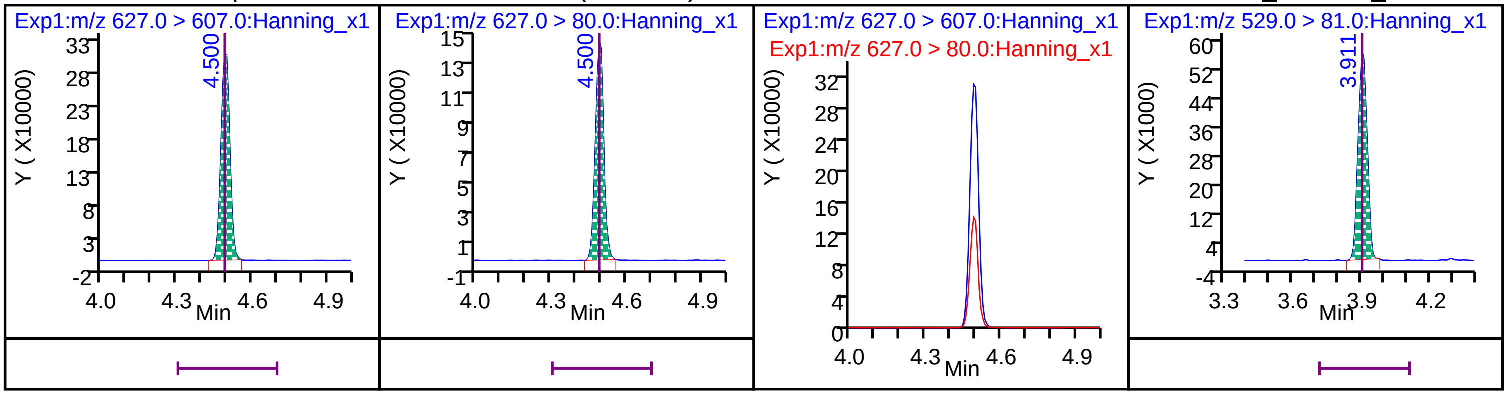


11 Perfluoro-n-dodecanoic acid (PFDoA)

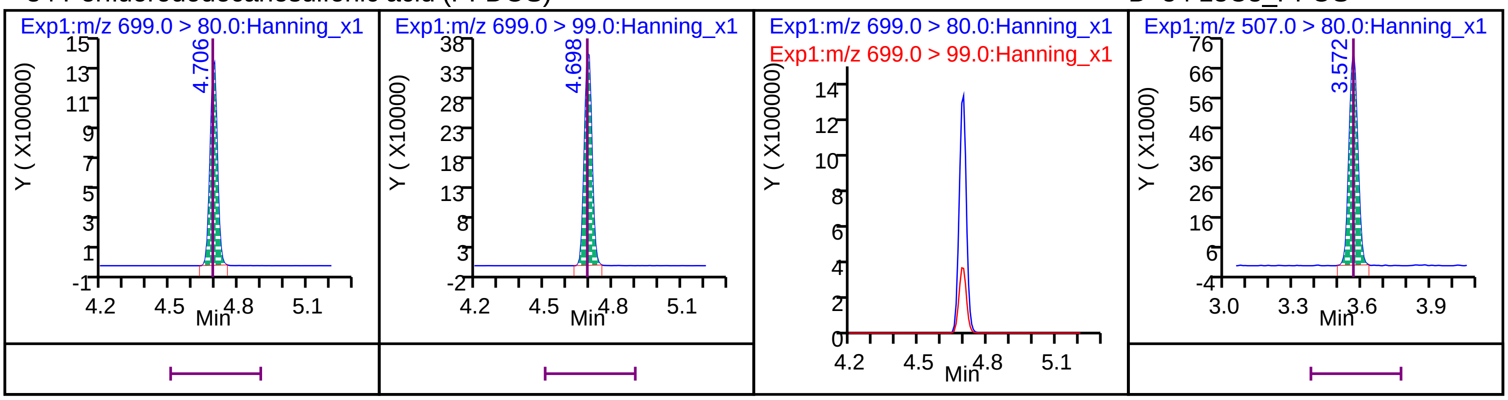
D 38 13C2_PFDoA



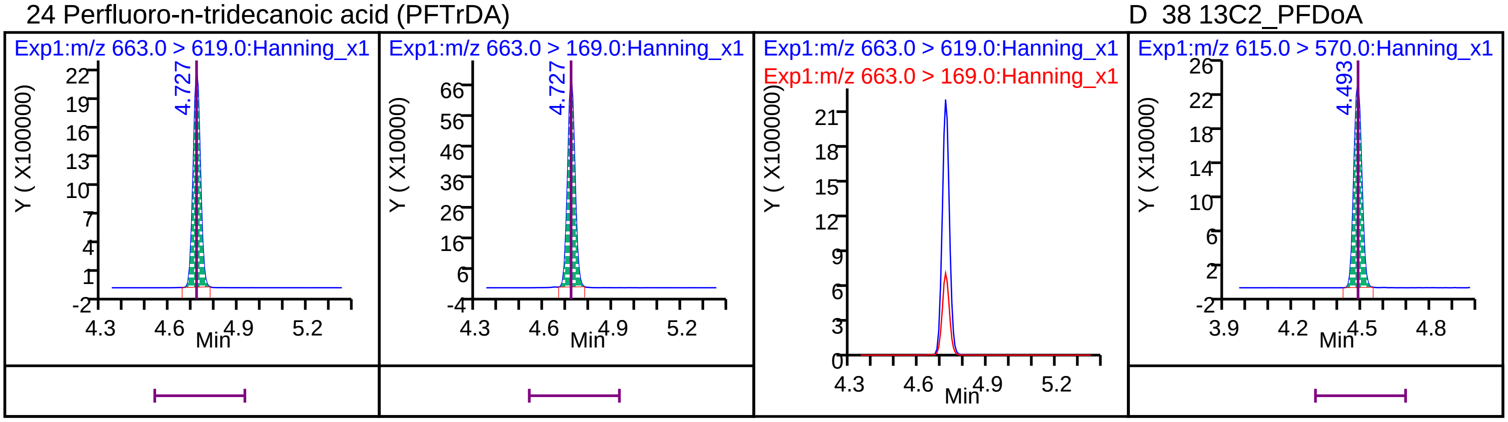
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



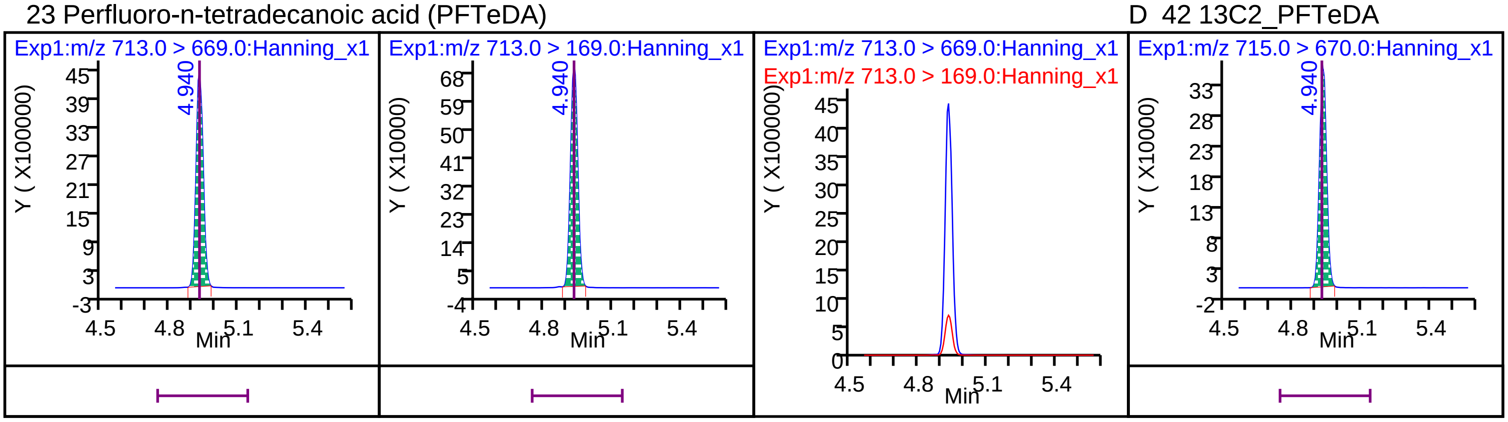
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

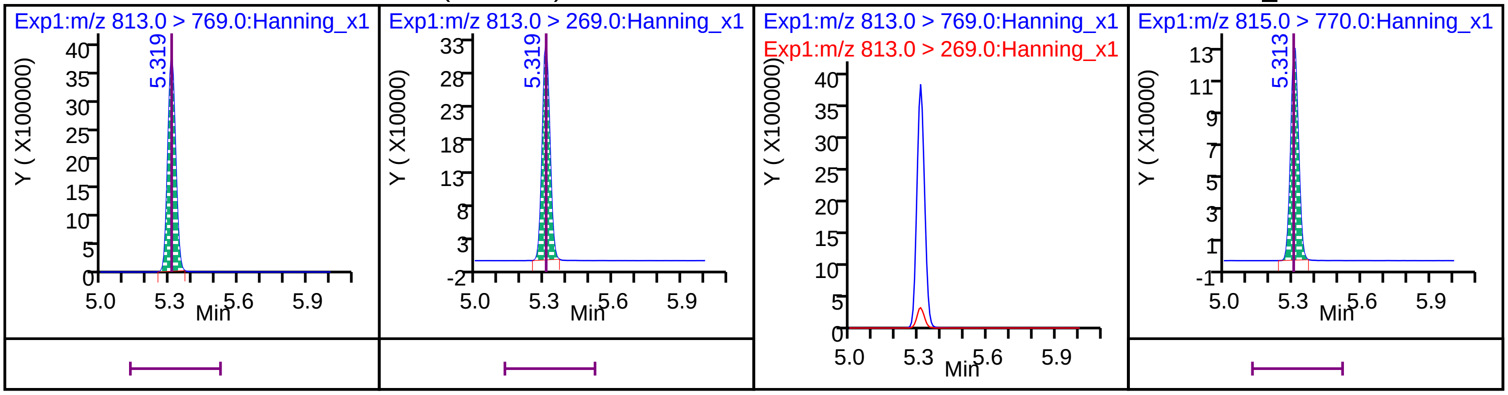


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

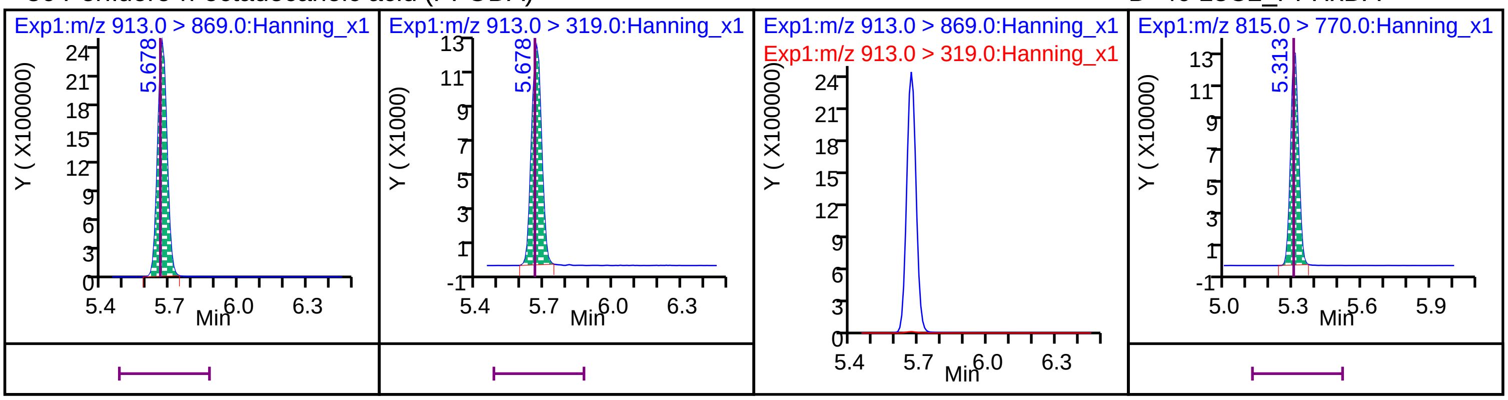


Report Date: 19-Oct-2021 08:48:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421019.d

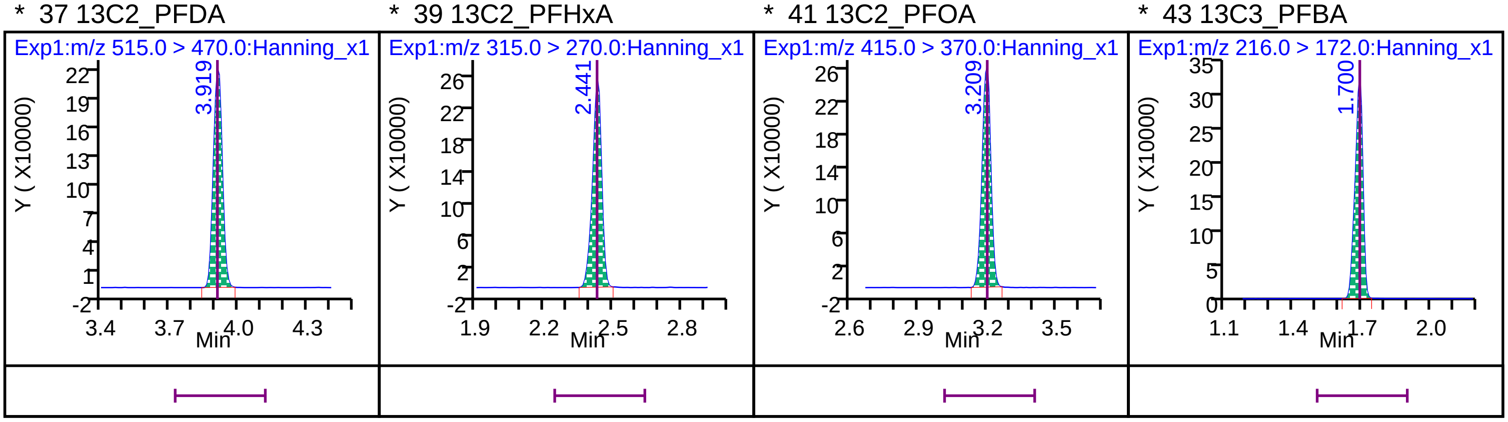
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



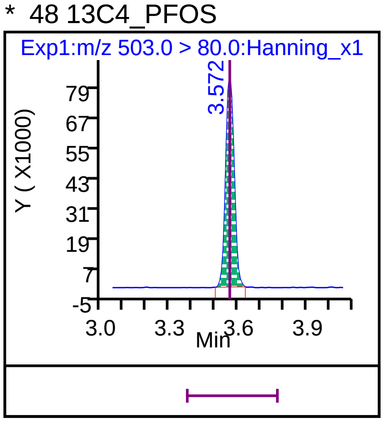
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

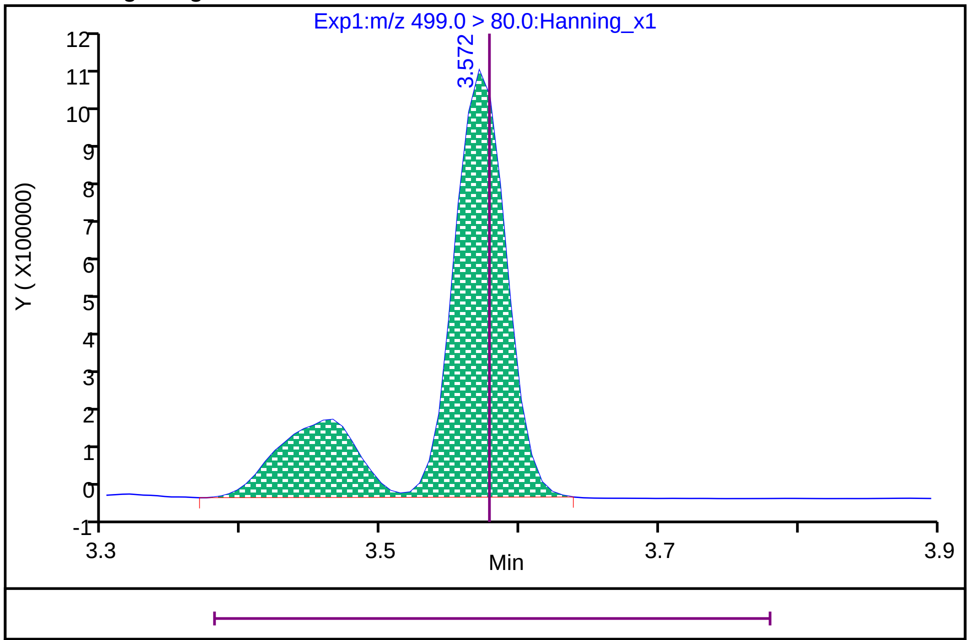
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421019.d		
Injection Date:	14-Oct-2021 12:31:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1646
Sample Info:	ICAL 15000_SVLC-1646		
Dil. Factor:	1	Operator:	Matthew M. Miller

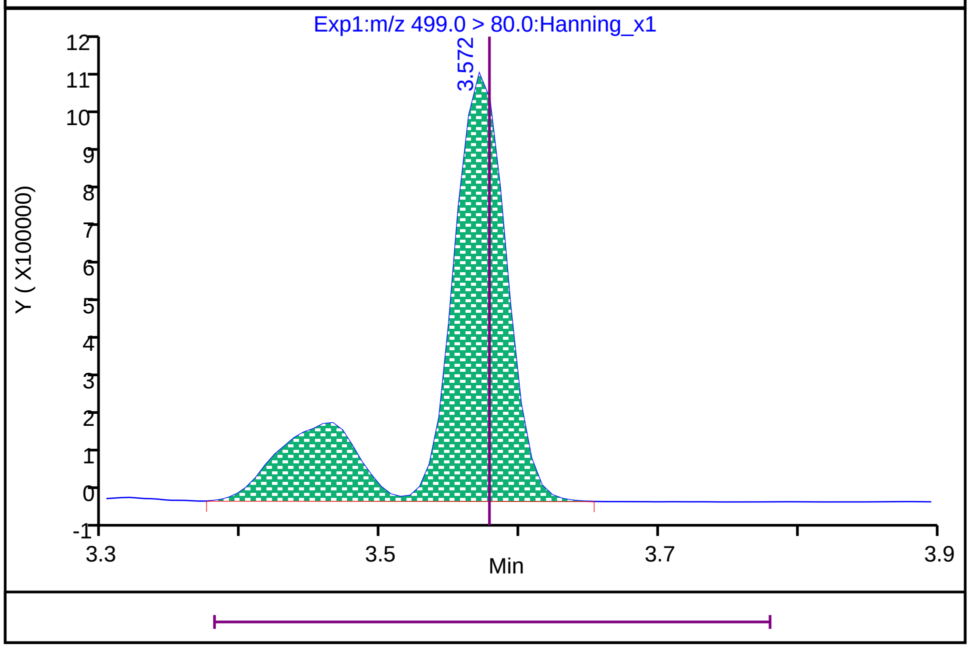
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.572
Area: 3398036
Amount: 15198
Amount Units: ng/L



RT: 3.572
Area: 3425677
Amount: 15362
Amount Units: ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:48:08

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 19-Oct-2021 08:48:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421020.d		
Injection Date:	14-Oct-2021 12:42:35	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	10
Sample Info:	ICAL 20000_SVLC-1647	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.694	1.700	0	798557	22	>100:1			1000.00	890.15	75.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.700	1.700	1/1	16905679	20	>100:1			20000	19591		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.066	1	844213	17	>100:1			1000.00	939.16	79.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.066	1/0	17064256	16	>100:1			20000	18727		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.119	1	282743	17	>100:1			1000.00	947.23	80.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.129	0/-1	6655850	16	>100:1	Target = 3.78		17680	16932		
298.9 > 99	44	2.119	2.129		1764520	16	>100:1	3.77 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	1/0	5318531	19	>100:1	Target = 3.45		18760	18232		
349 > 99	44	2.475	2.475		1572691	20	>100:1	3.38 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.406	0	223104	18	>100:1			5000.00	4992.42	83.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.397	2.406	0/0	1588942	19	>100:1	Target = 1.43		18680	18586		
327 > 81	63	2.397	2.406		962757	17	>100:1	1.65 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.440	1	752697	19	>100:1			1000.00	919.30	75.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.440	1/0	15221625	19	>100:1	Target = 16.37		20000	19688		
313 > 119	49	2.441	2.440		900057	18	>100:1	16.91 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	1	611627	20	>100:1			5000.00	4227.23	70.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	1/0	3891149	19	>100:1	Target = 0.74		40000	41418		
285 > 185	66	2.562	2.562		5196497	19	>100:1	0.74 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.819	2.827	0	731124	18	>100:1			1000.00	912.44	75	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.819	2.827	0/0	13826115	18	>100:1	Target = 3.21		20000	19057		
363 > 169	47	2.819	2.827		4565948	18	>100:1	3.02 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.836	2.845	0	216184	19	>100:1			1000.00	878.96	73	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.836	2.845	0/0	4904402	26	>100:1	Target = 3.47	4.78	18200	18816		
399 > 99	45	2.836	2.845		1379992	25	>100:1	3.55 (1.73-5.21)	7.17				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.863	2.862	1/1	22030447	18	>100:1	Target = 2.28		18840	18745		
377 > 85	45	2.863	2.862		10136674	19	>100:1	2.17 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.204	3.215	0/0	4150011	23	>100:1	Target = 3.62		19040	17679		
449 > 99	45	3.210	3.215		1179712	23	>100:1	3.51 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.172	3.183	0	189388	21	>100:1			5000.00	4334.12	69.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.179	3.177	1/1	1101595	22	>100:1	Target = 1.19		18960	18440		
427 > 81	64	3.179	3.177		910153	23	>100:1	1.21 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.204	3.208	0	690287	22	>100:1			1000.00	912.28	78.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.204	3.208	0/0	12841007	22	>100:1	Target = 2.34		20000	18476		
413 > 169	53	3.204	3.208		5589190	22	>100:1	2.29 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.567	3.572	0	206619	20	>100:1			1000.00	911.94	77.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.575	3.580	0/0	4656873	46	>100:1	Target = 4.00	3.52	18560	18670		M
499 > 99	54	3.575	3.580		1144612	38	>100:1	4.06 (2.00-6.01)	7.30				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.778	3.776	1/1	11940525	21	>100:1			18640	18938		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.905	3.911	0/0	3851426	18	>100:1	Target = 3.83		19200	18435		
549 > 99	54	3.905	3.911		995133	18	>100:1	3.87 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.202	4.207	0/0	3742692	16	>100:1	Target = 3.87		19280	18827		
599 > 99	54	4.202	4.207		1017693	16	>100:1	3.67 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.364	4.359	1/1	10389331	17	>100:1			18840	19254		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.701	4.698	1/1	3832151	16	>100:1	Target = 3.65		19360	20296		
699 > 99	54	4.701	4.698		1018045	17	>100:1	3.76 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.575	3.580	0	735977	20	>100:1			1000.00	949.10	80.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.575	3.580	0/0	12347677	21	>100:1	Target = 4.21		20000	19222		
463 > 169	56	3.575	3.580		3074025	20	>100:1	4.01 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.875	3.873	1	399931	19	>100:1			1000.00	954.91	83.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.875	3.880	0/-1	8407036	18	>100:1	Target = 49.05		20000	18540		
498>478	55	3.875	3.880		174009	17	>100:1	48.31 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.913	3.911	1	145095	17	>100:1			5000.00	3837.10	63.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.913	3.918	0/-1	841517	20	>100:1	Target = 1.27		19160	19640		
527 > 81	65	3.913	3.918		652949	20	>100:1	1.28 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.503	4.500	1/0	992701	19	>100:1	Target = 2.25		19280	22687		
627 > 80	65	4.503	4.500		437001	17	>100:1	2.27 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.921	3.918	1	633686	18	>100:1			1000.00	933.05	78.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.921	3.926	0/-1	10939268	18	>100:1	Target = 8.94		20000	17085		
513 > 169	51	3.921	3.926		1355507	19	>100:1	8.07 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.076	4.073	1	962117	18	>100:1			5000.00	4695.58	79.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.076	4.081	0/-1	3038477	31	>100:1	Target = 1.38	7.84	20000	20671		
570 > 483	58	4.076	4.081		2105510	32	>100:1	1.44 (0.69-2.08)	4.10				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.220	4.226	0	549736	16	>100:1			1000.00	869.64	75.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.229	4.226	1/1	9534683	16	>100:1	Target = 8.27		20000	19556		
563 > 169	52	4.229	4.226		1174032	16	>100:1	8.12 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.229	4.226	1	712020	18	>100:1			5000.00	4147.45	67.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.238	4.235	1/0	2957945	31	>100:1	Target = 1.95	5.15	20000	19462		
584 > 526	60	4.238	4.235		1562458	32	>100:1	1.89 (0.97-2.92)	3.29				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.301	4.298	1	116979	16	>100:1			1000.00	919.93	76.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.310	4.306	1/0	2430415	15	>100:1			20000	21065		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.319	4.315	1	60219	21	>100:1			1000.00	1036.08	82.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.319	4.315	1/0	1161500	15	>100:1	Target = 1.08		20000	18115		
512 > 219	57	4.319	4.315		1038502	16	>100:1	1.11 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.459	4.463	0	108900	16	>100:1			1000.00	927.15	74.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.471	1/1	1812363	17	>100:1			20000	19529		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.481	4.485	0	49067	16	>100:1			1000.00	893.28	74.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.489	4.485	1/1	1120212	16	>100:1	Target = 1.10		20000	19953		
526 > 219	59	4.489	4.485		1012070	17	>100:1	1.10 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.489	4.492	0	548691	18	>100:1			1000.00	913.53	77.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.496	4.492	1/1	10687925	18	>100:1	Target = 5.93		20000	19018		
613 > 169	38	4.489	4.492		1874593	18	>100:1	5.70 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.730	4.728	1/1	6257390	19	>100:1	Target = 2.90		20000	21081		
663 > 169	38	4.730	4.728		2020130	20	>100:1	3.09 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.937	4.935	1	768834	21	>100:1			1000.00	959.61	83.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.942	4.940	1/0	12291561	21	>100:1	Target = 6.34		20000	18883		
713 > 169	42	4.942	4.940		1980610	21	>100:1	6.20 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.314	5.313	1	306753	21	>100:1			1000.00	932.23	82.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.321	5.319	1/0	11314834	20	>100:1	Target = 12.53		20000	18205		
813 > 269	40	5.321	5.319		948715	20	>100:1	11.92 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.679	5.670	1/0	9079591	20	>100:1	Target = 152.15		20000	19942		
913 > 319	40	5.679	5.670		49248	22	>100:1	184.36 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.913	3.918	0	611009	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.440	1	759708	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.198	3.208	0	666405	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.700	1	753243	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.575	3.572	1	220638	20	>100:1			1000.00			

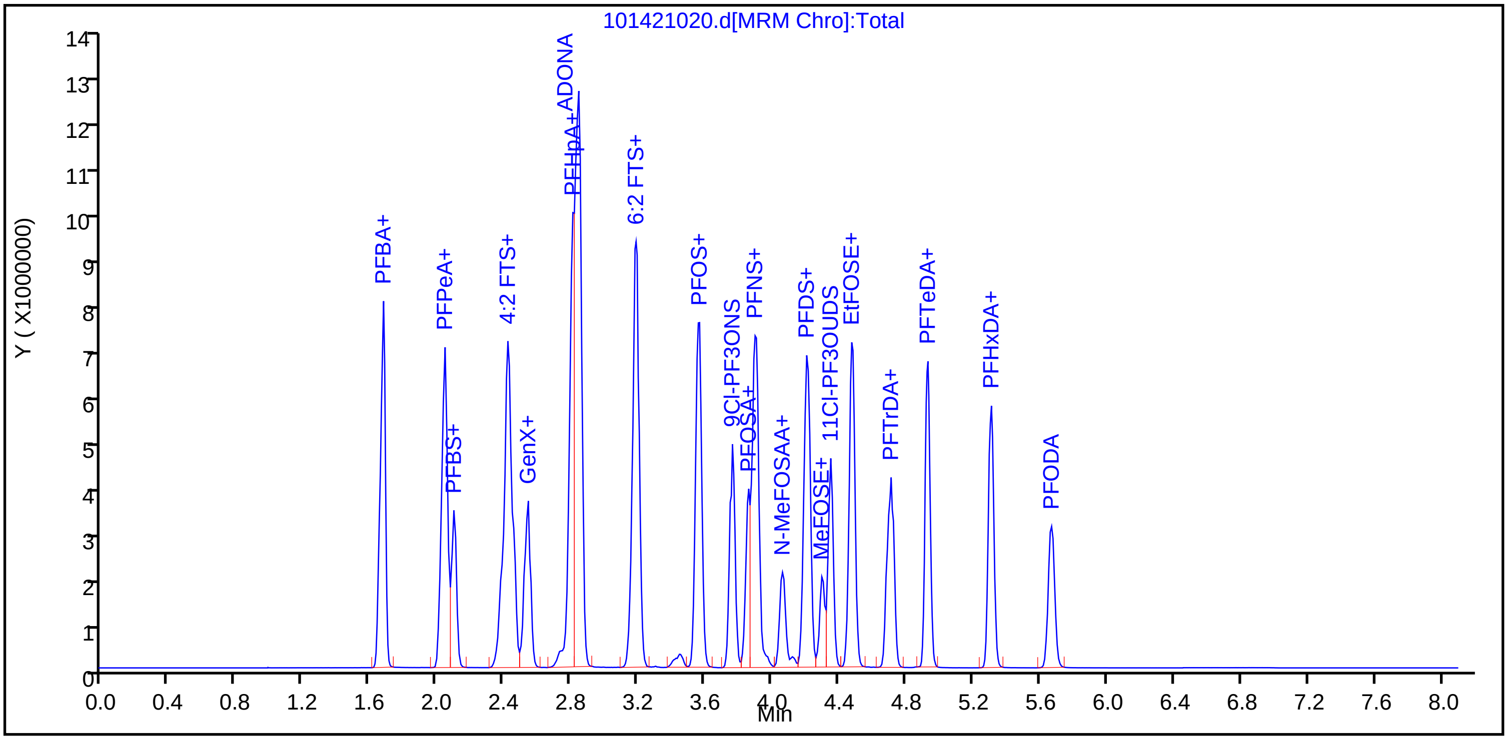
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

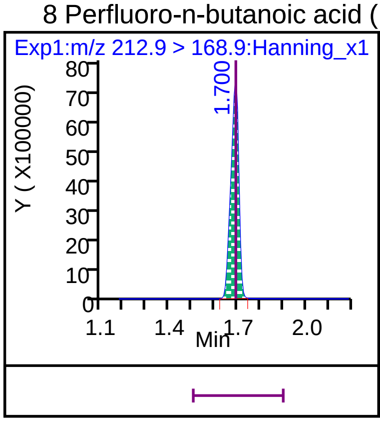
Report Date: 19-Oct-2021 08:48:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

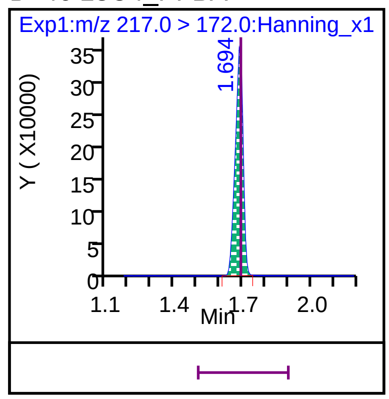
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421020.d		
Injection Date:	14-Oct-2021 12:42:35	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 20000_SVLC-1647
Sample Info:	ICAL 20000_SVLC-1647		
Dil. Factor:	1	Operator:	Matthew M. Miller



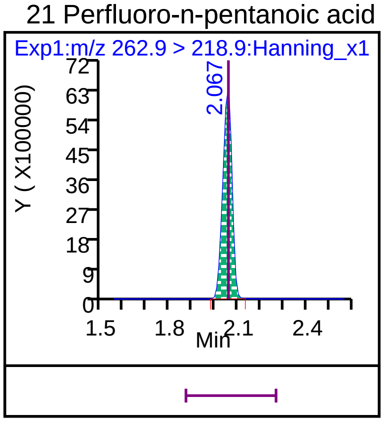
8 Perfluoro-n-butanoic acid (PFBA)



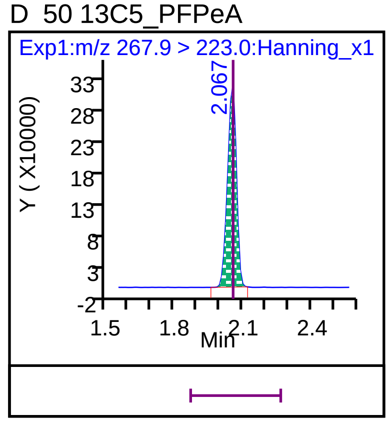
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

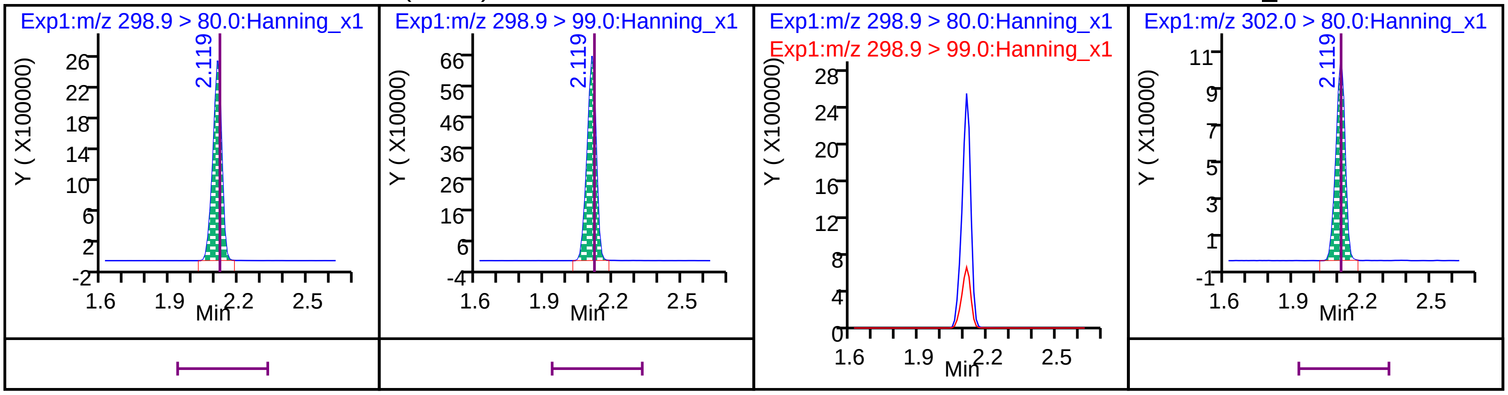


D 50 13C5_PFPeA

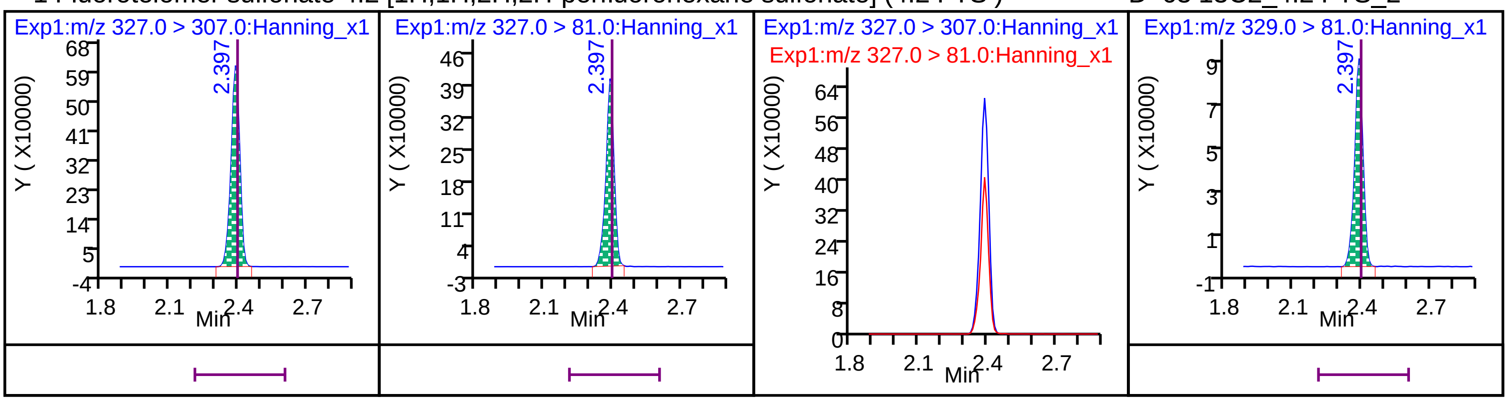


Report Date: 19-Oct-2021 08:48:59 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421020.d

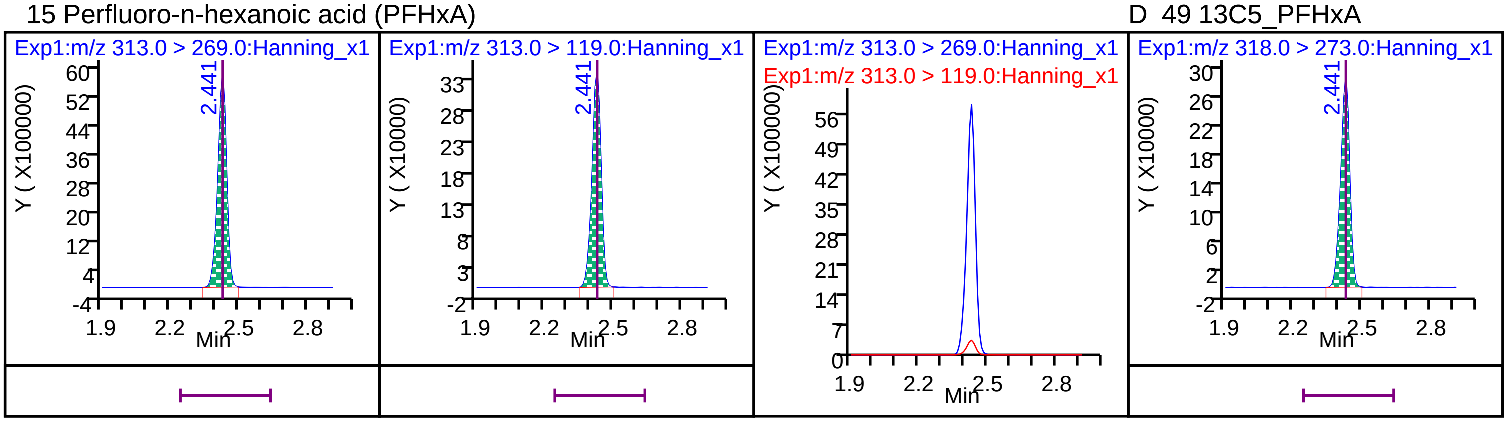
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



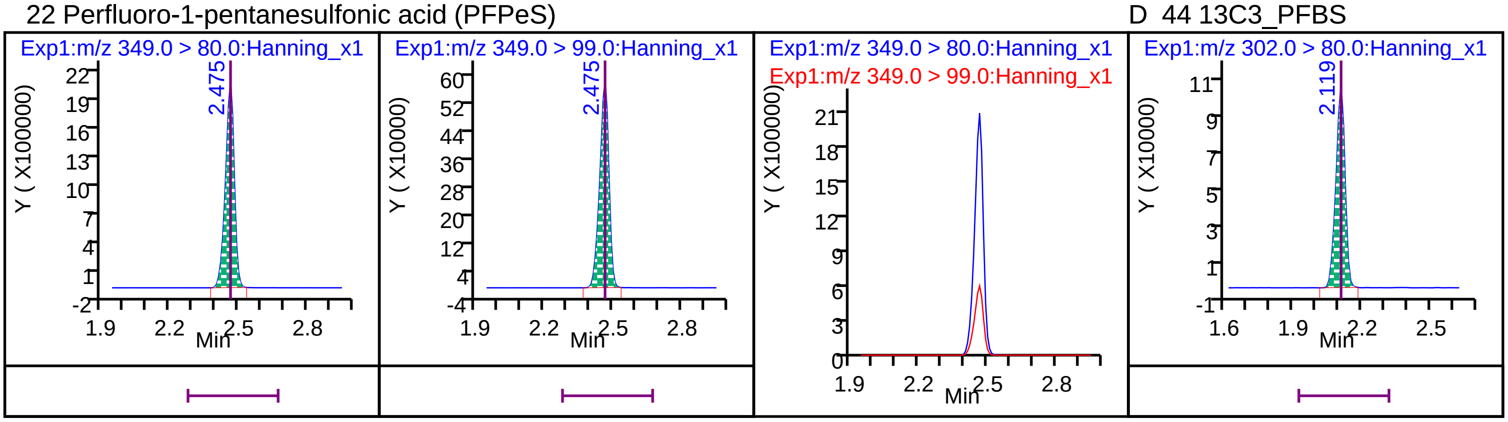
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



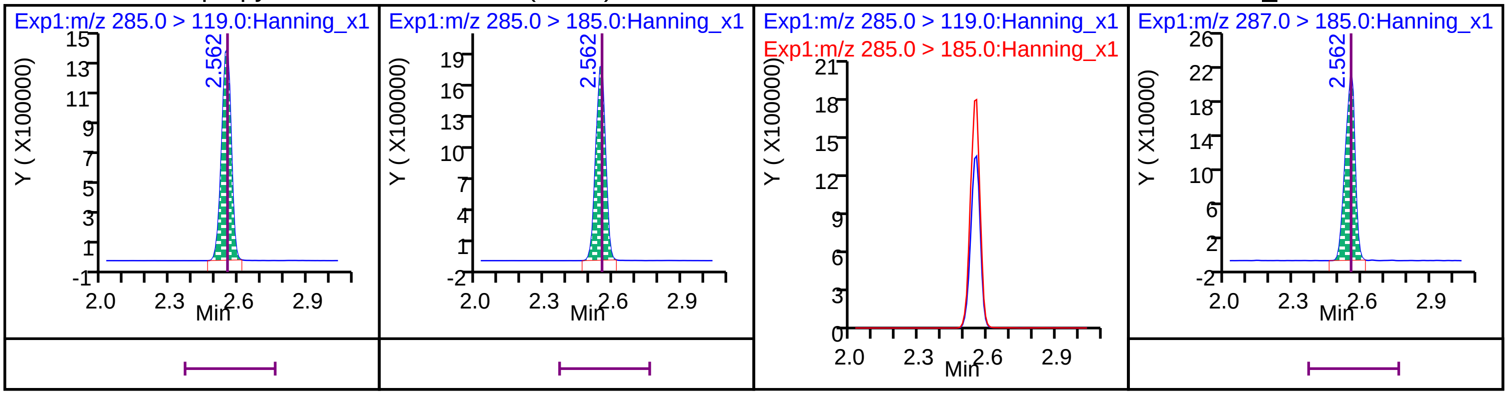
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



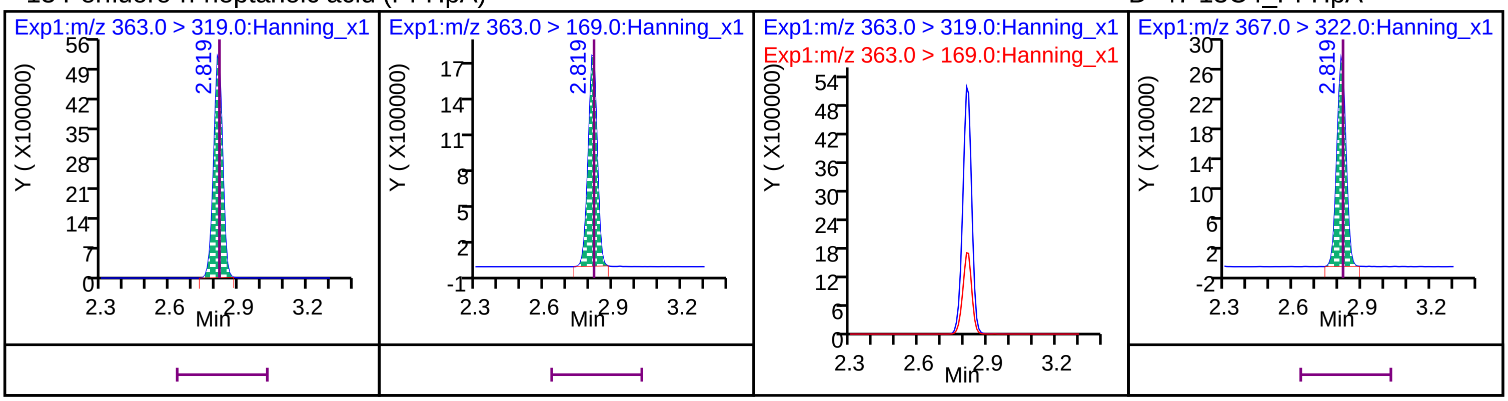
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



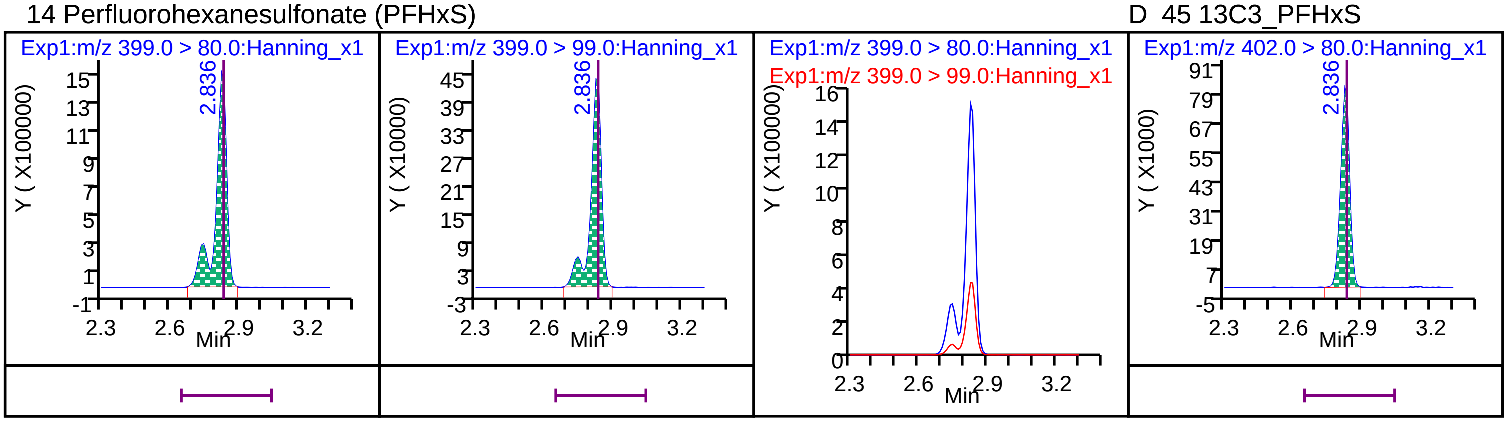
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



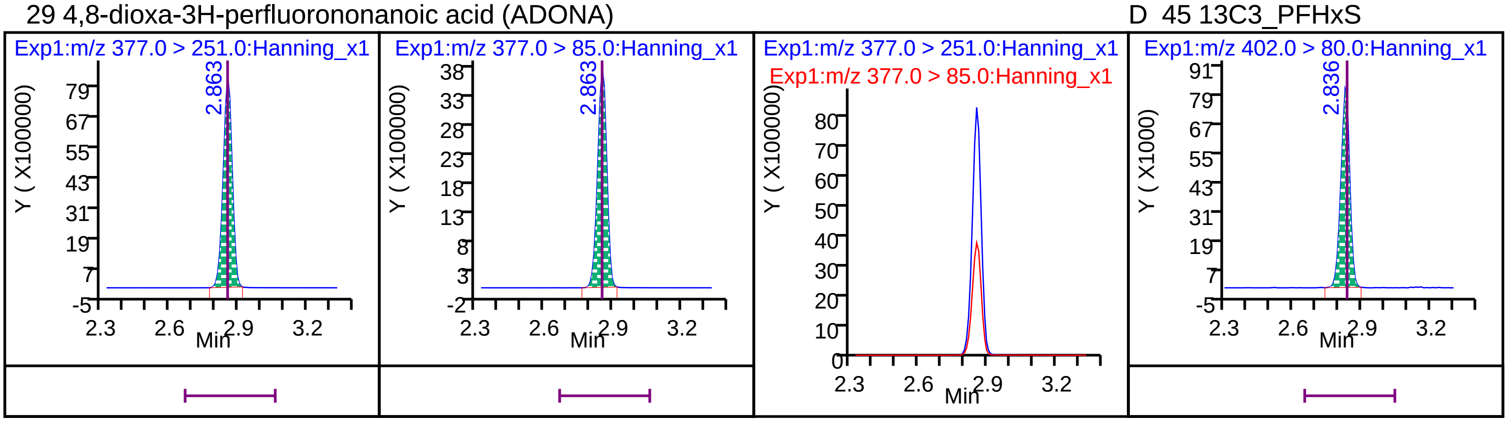
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



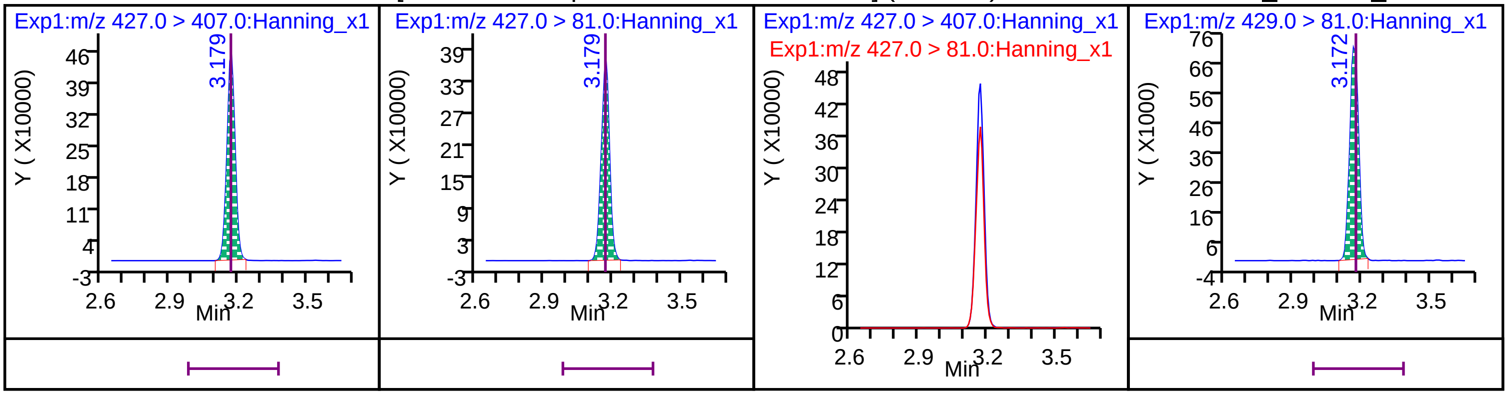
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



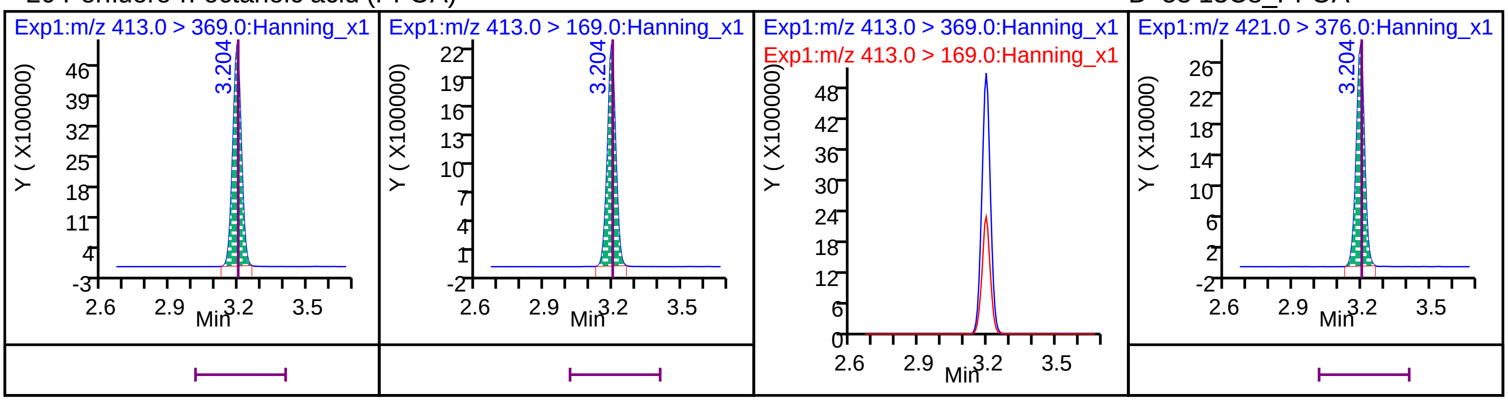
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



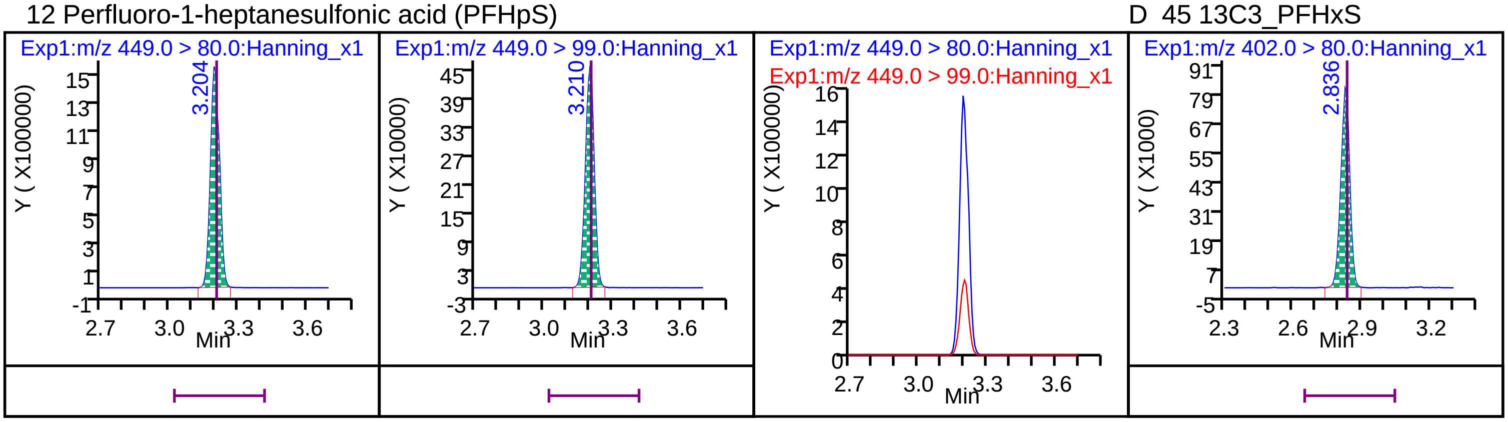
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



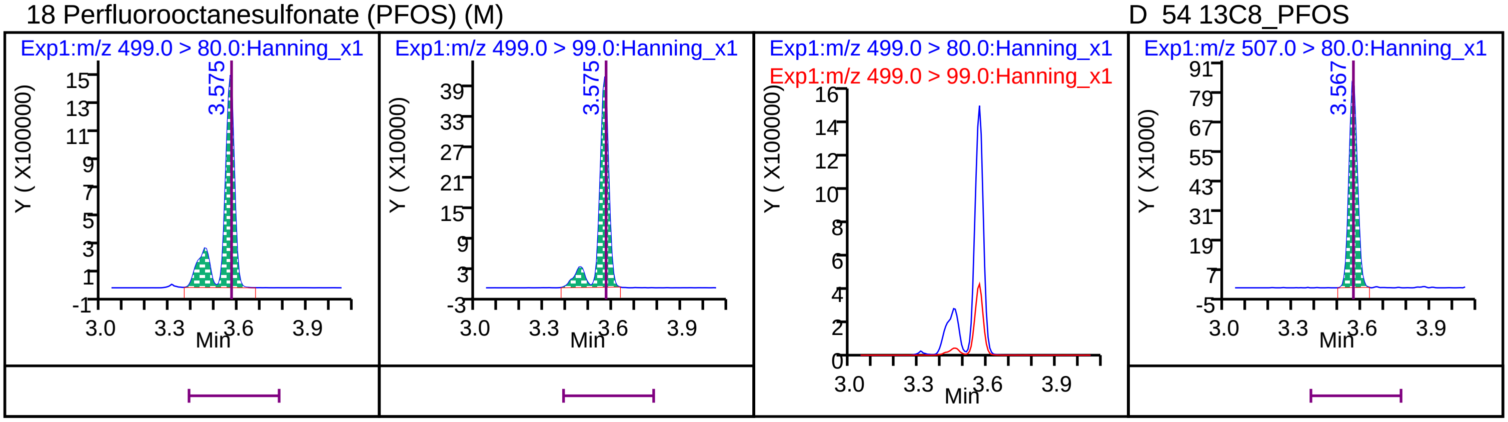
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



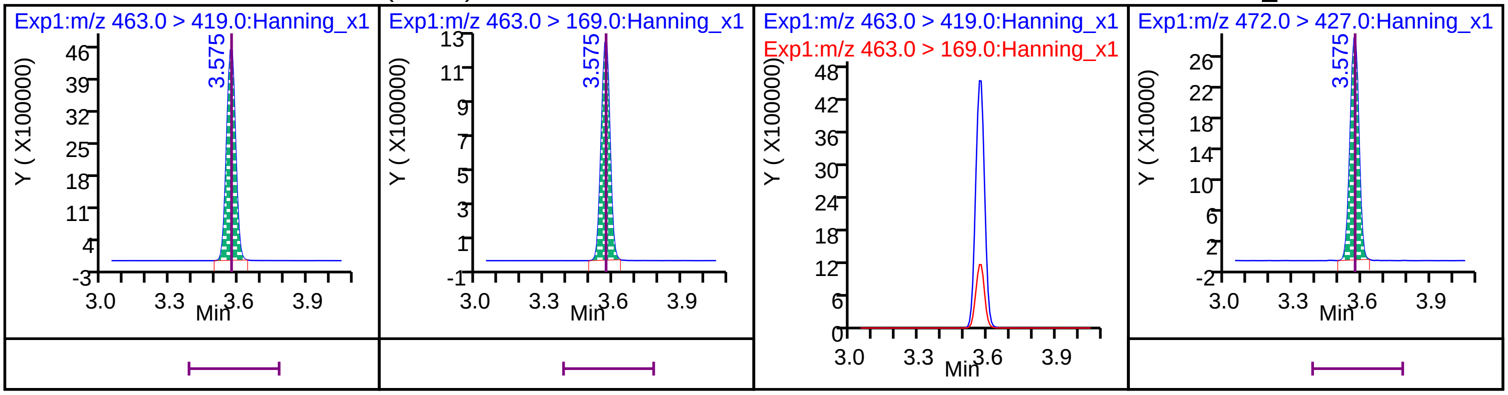
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



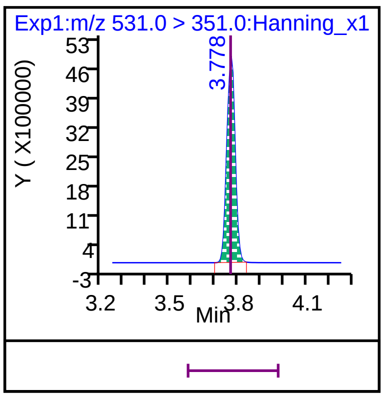
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



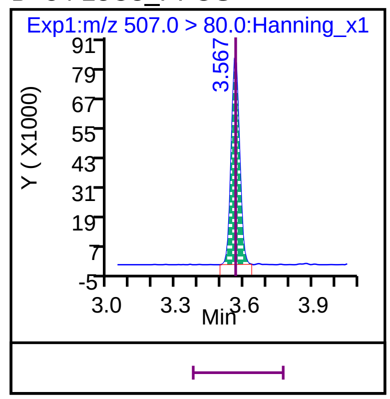
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



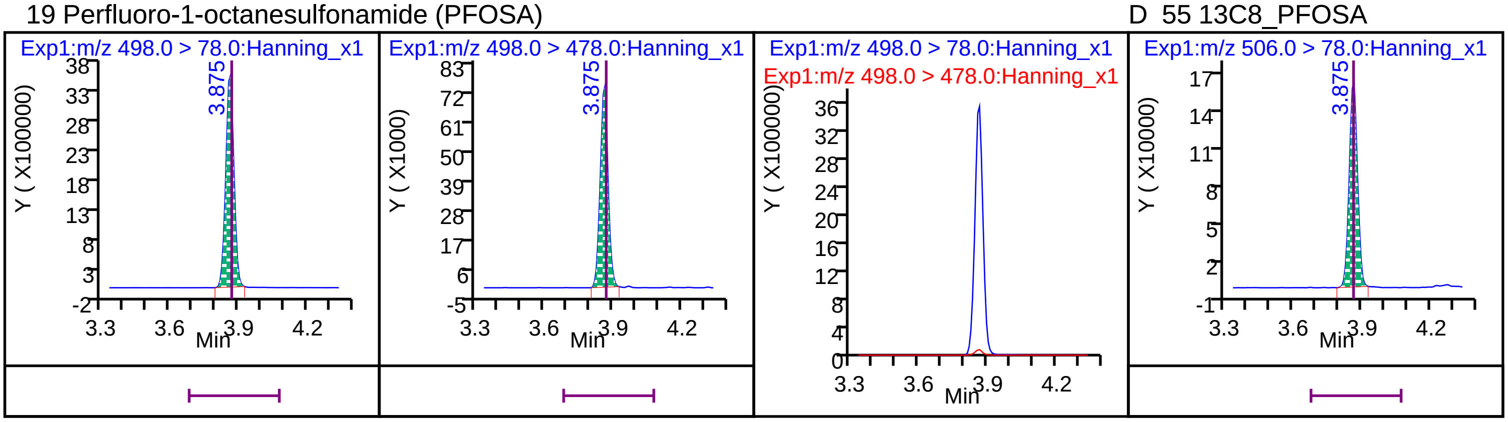
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



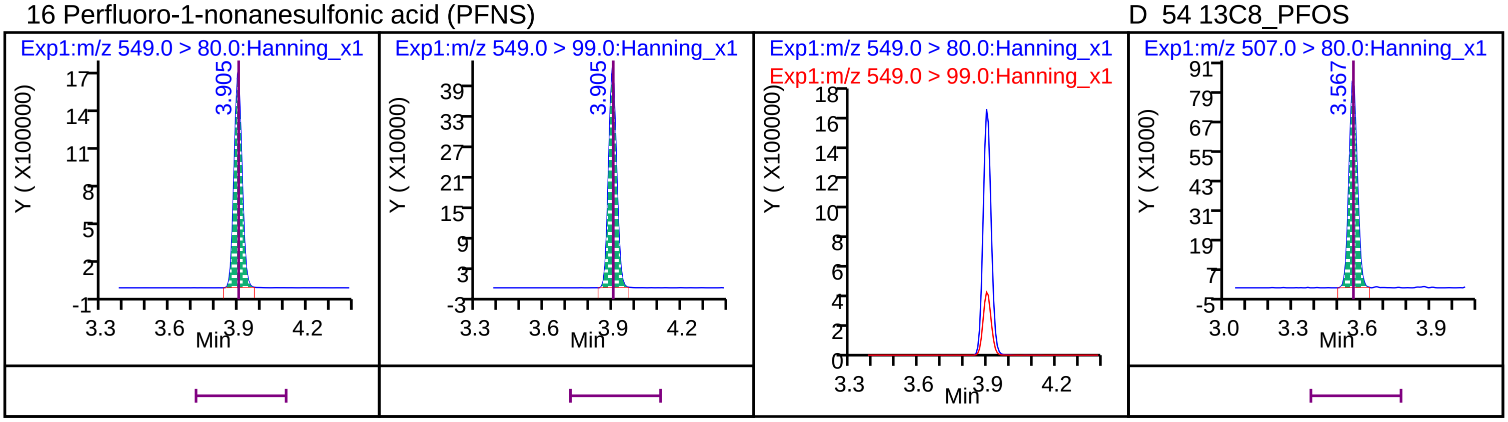
D 54 13C8_PFOS



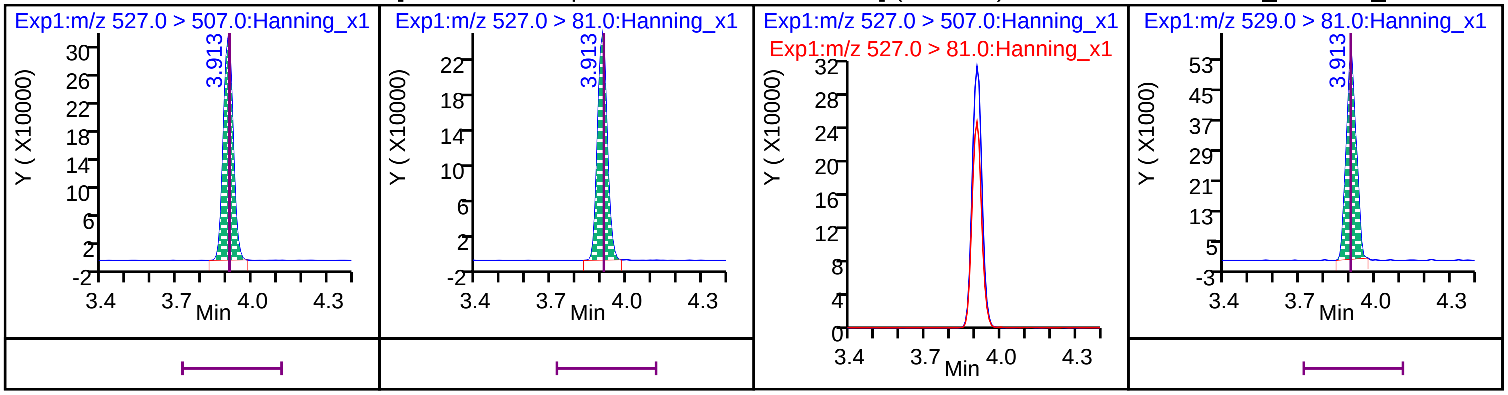
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



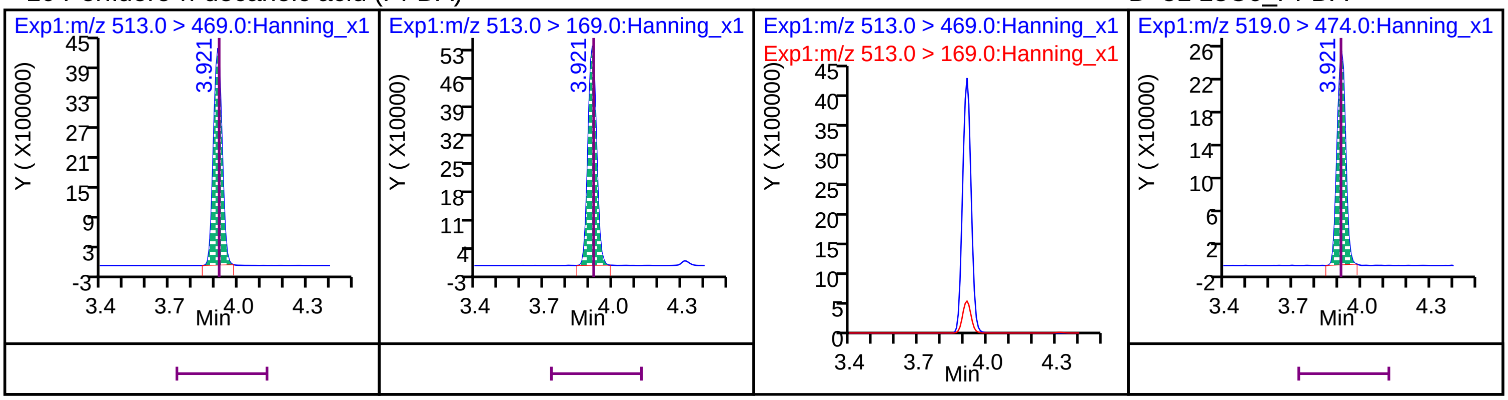
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



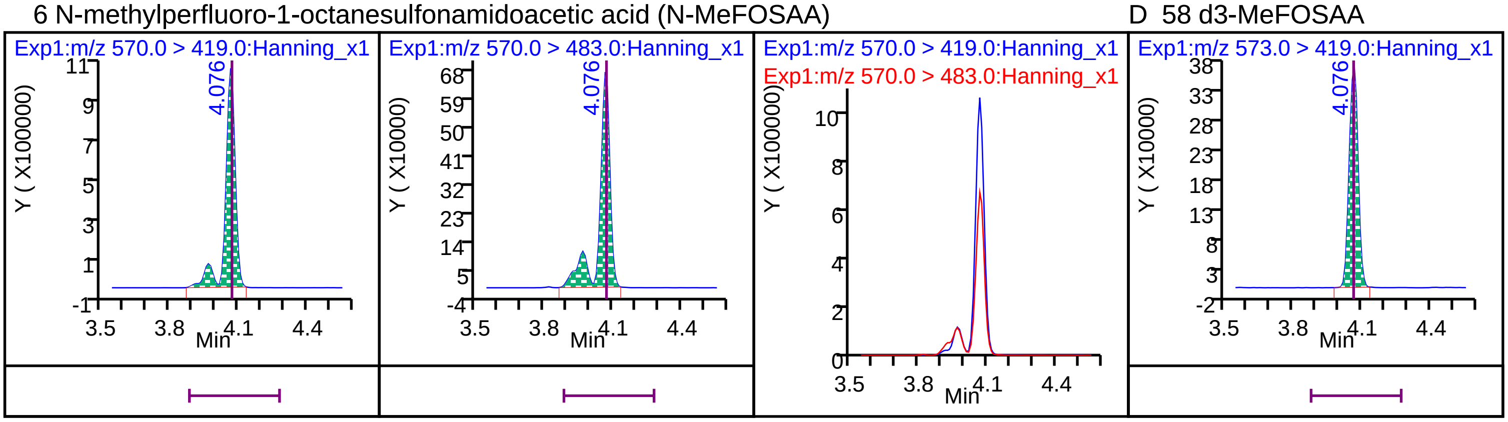
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



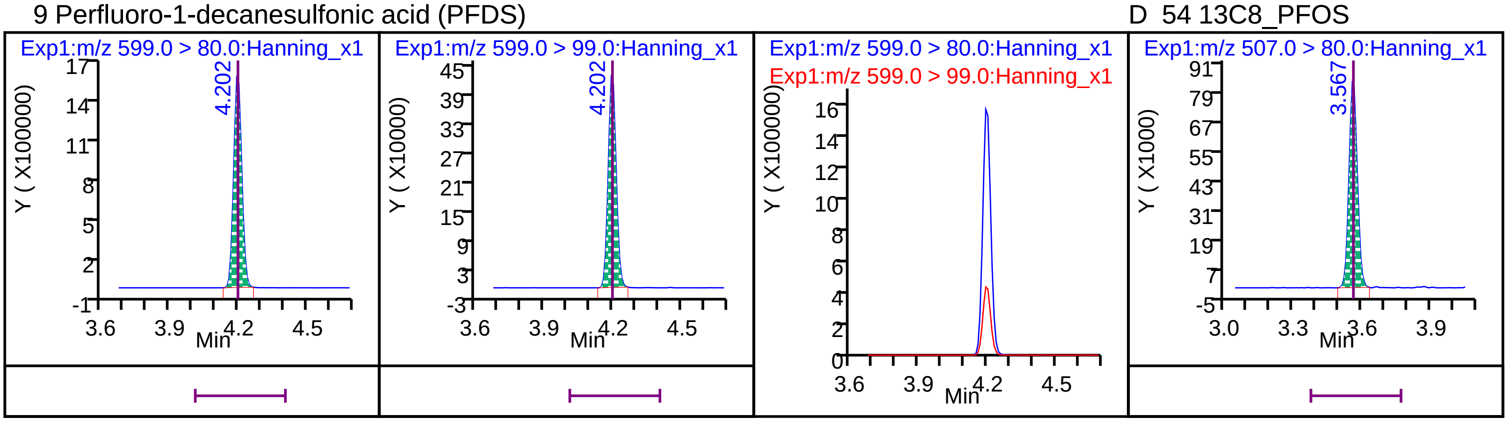
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



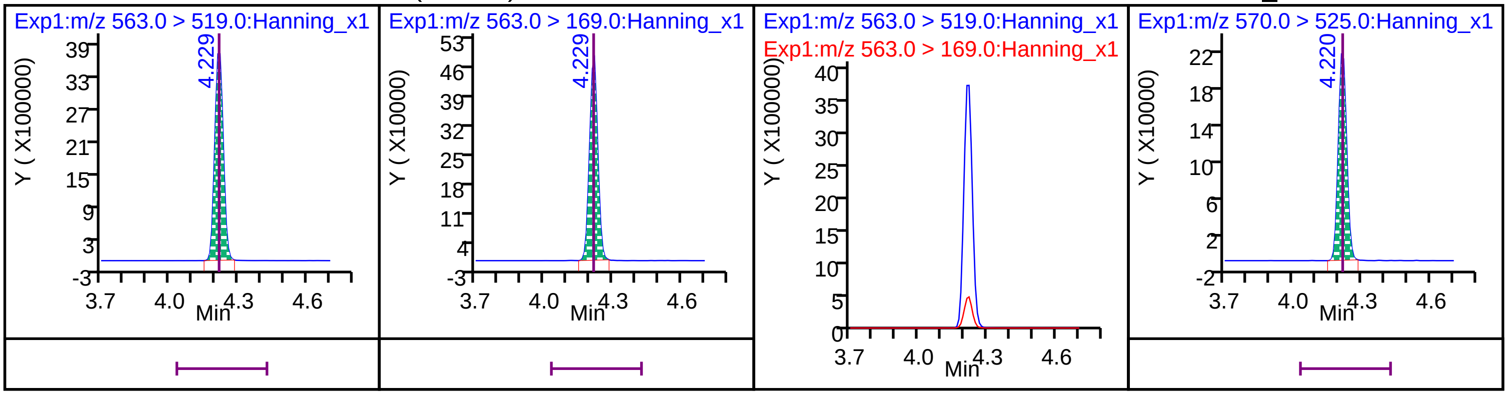
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



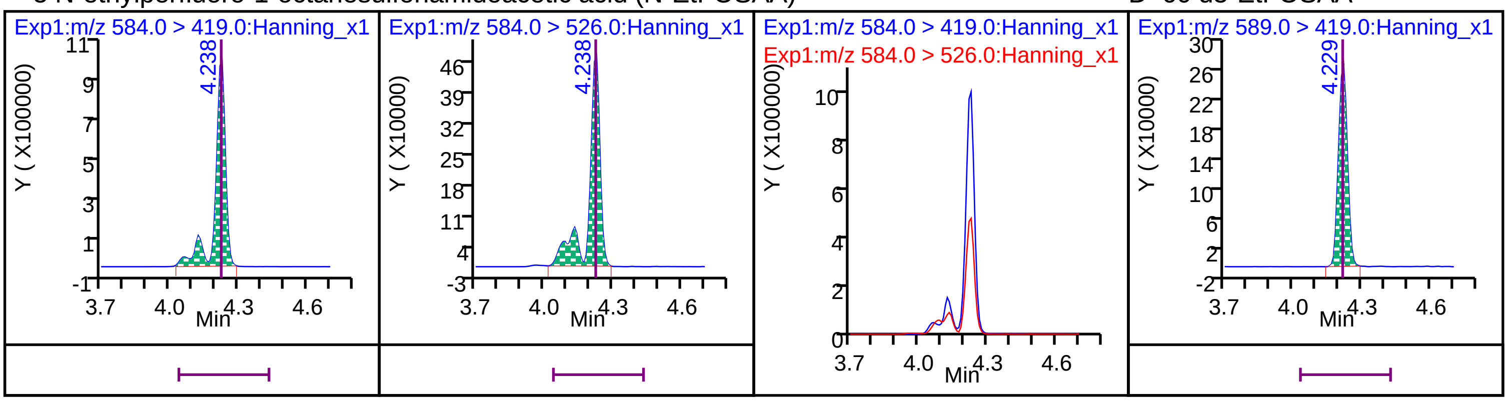
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

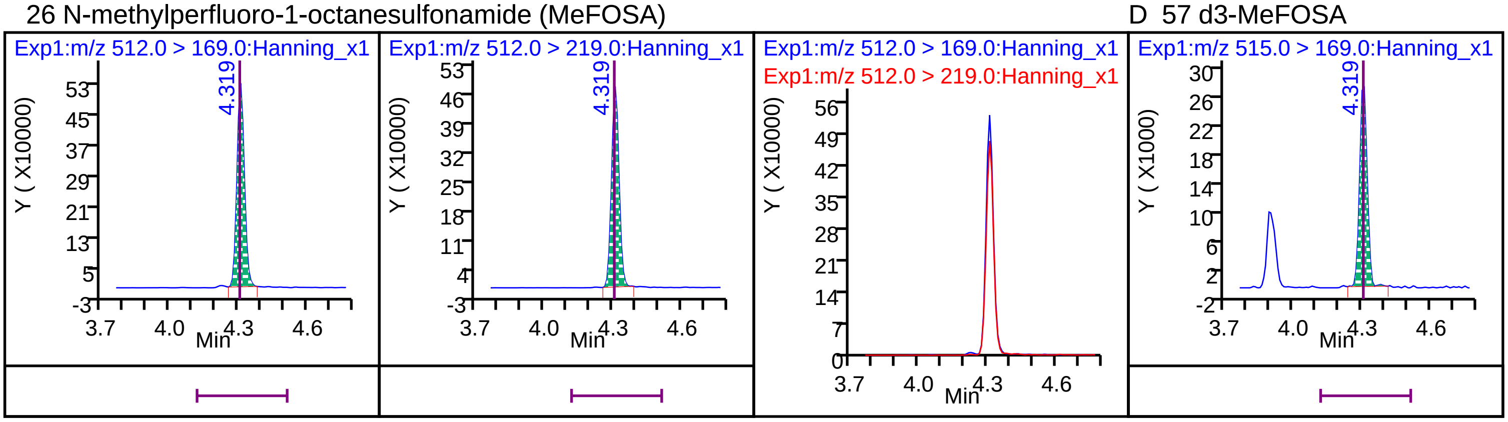


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

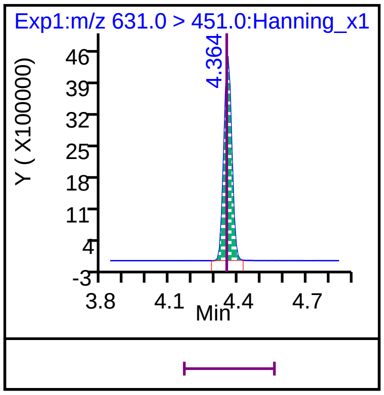


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

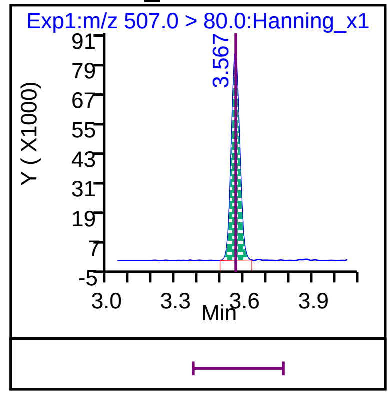
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



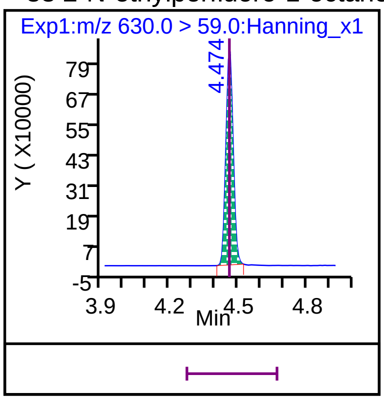
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



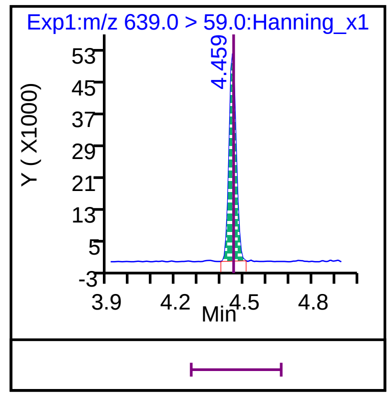
D 54 13C8_PFOS



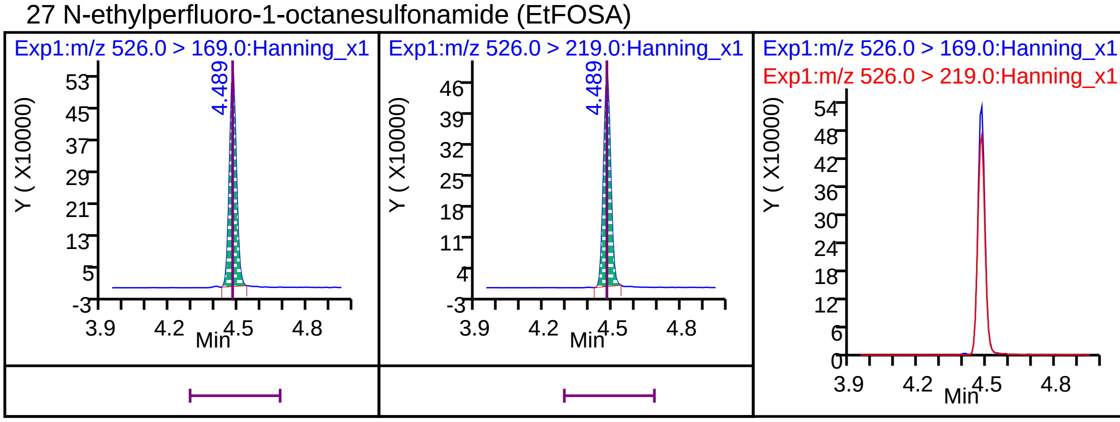
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



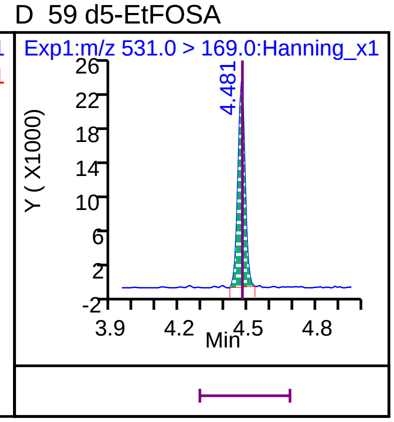
D 62 d9-EtFOSE



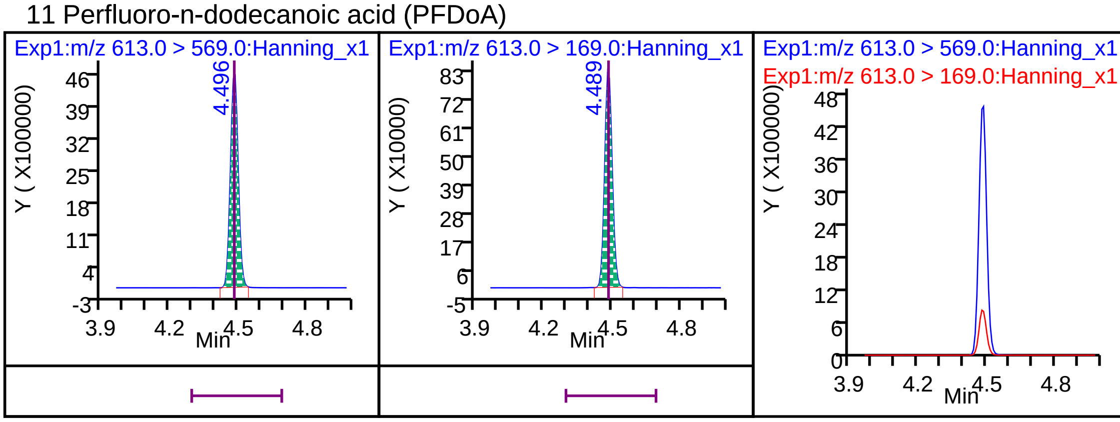
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



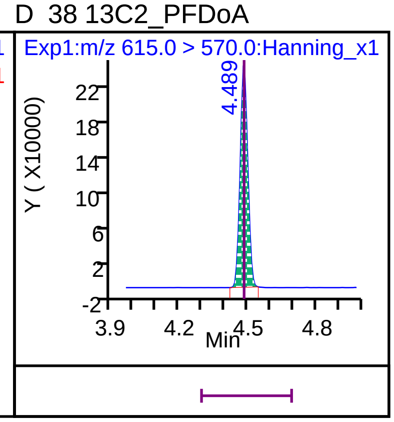
D 59 d5-EtFOSA



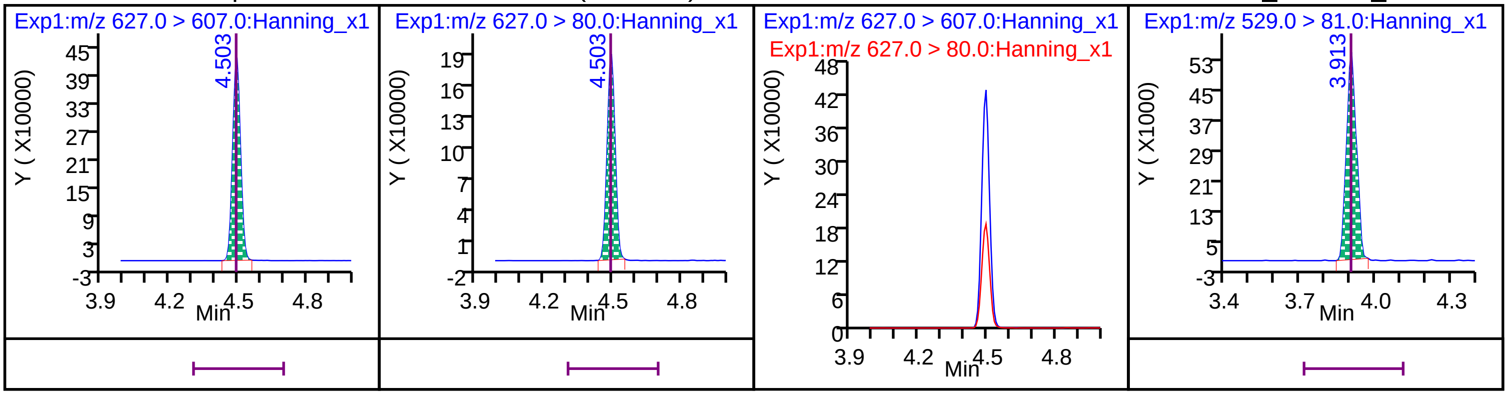
11 Perfluoro-n-dodecanoic acid (PFDoA)



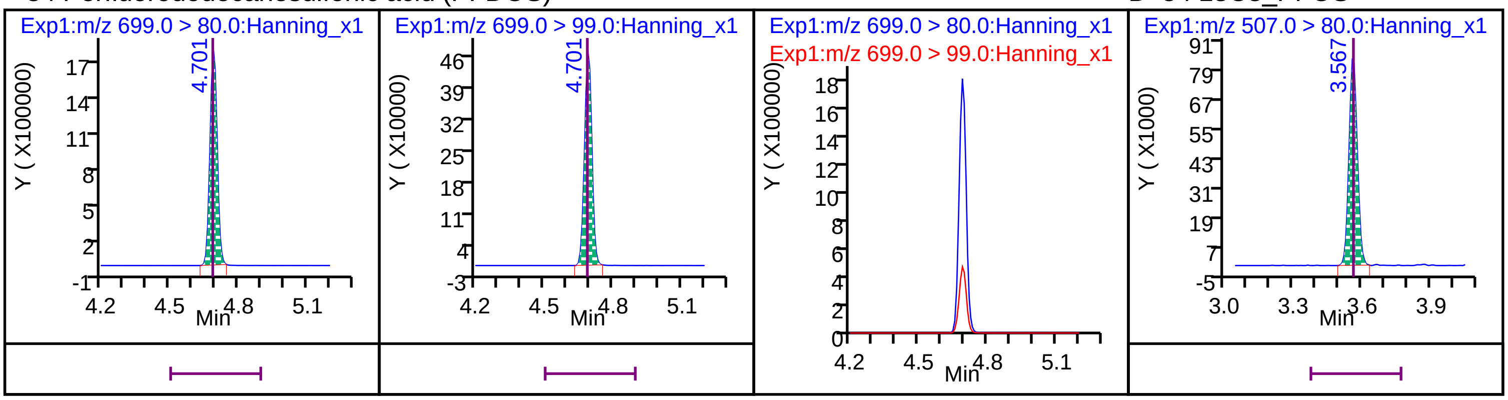
D 38 13C2_PFDoA



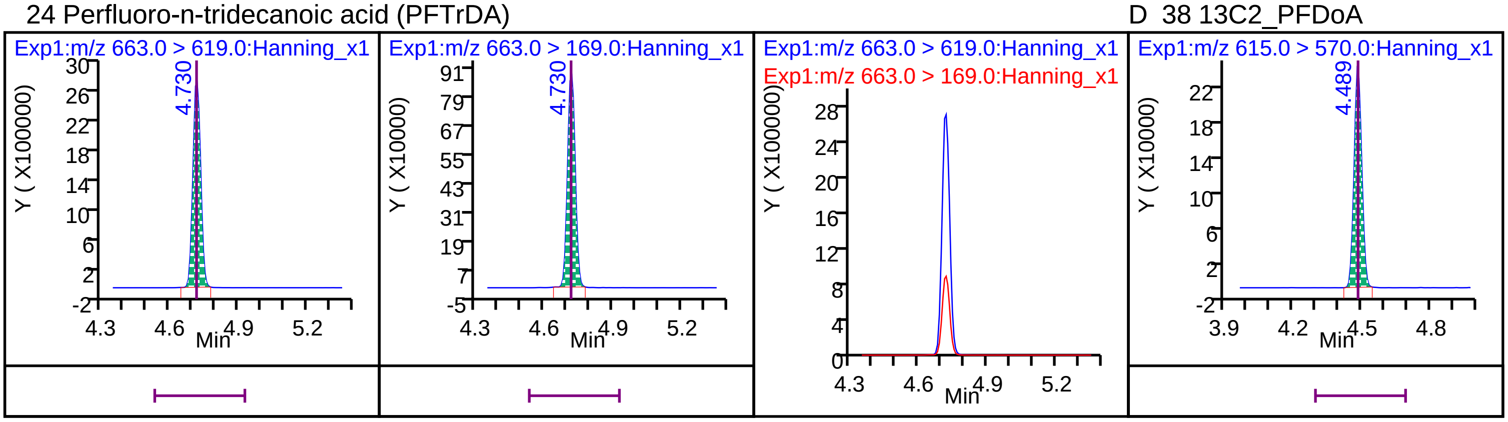
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



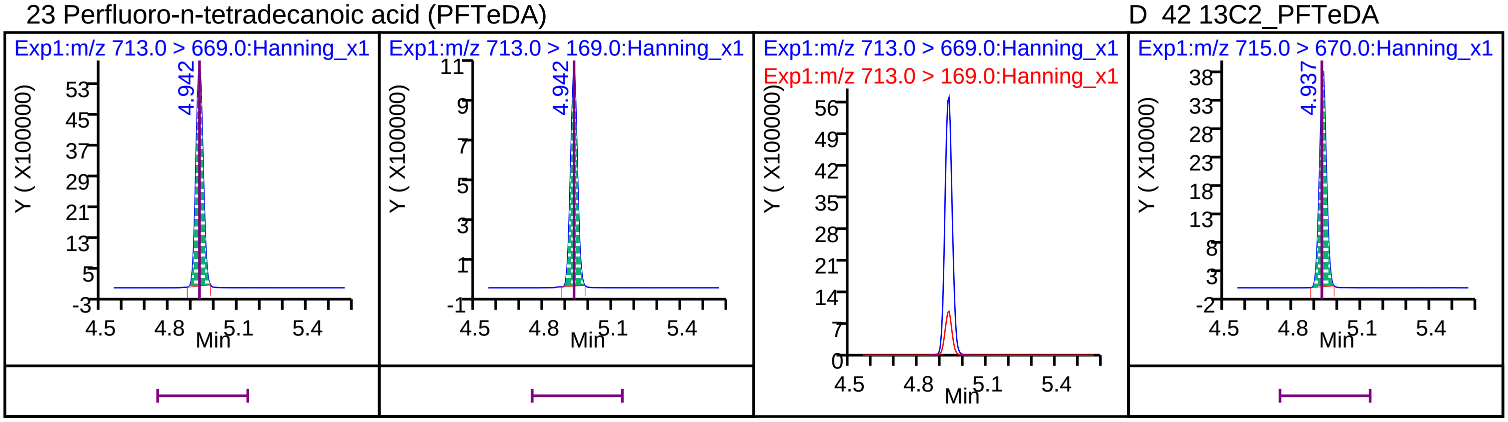
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



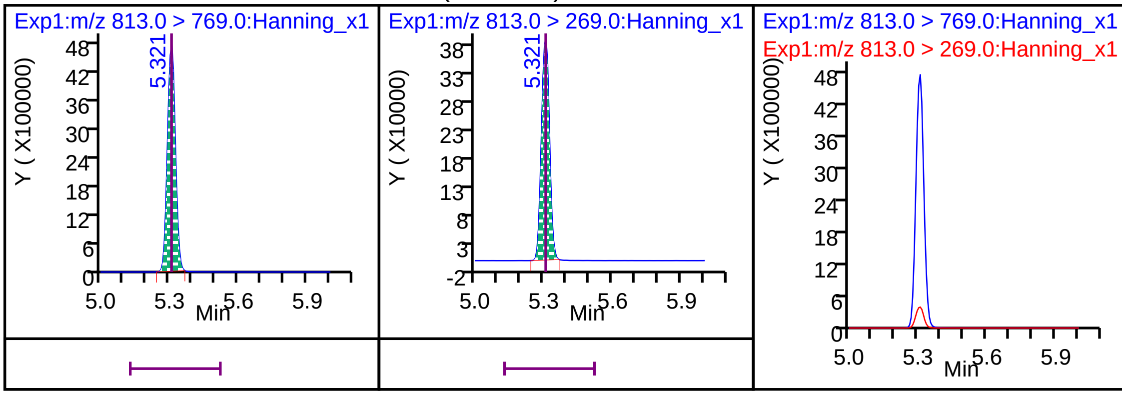
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



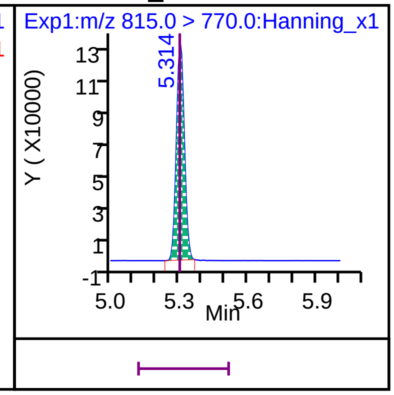
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



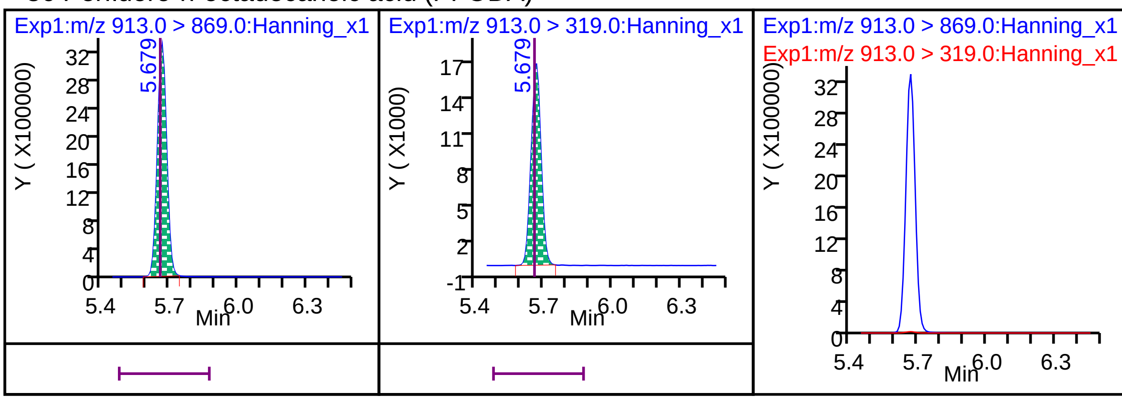
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



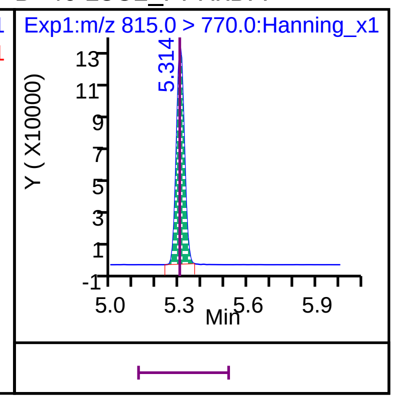
D 40 13C2_PFHxDA



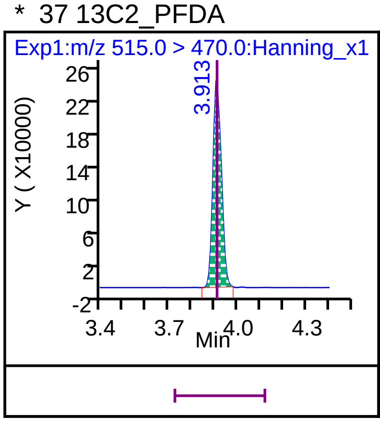
36 Perfluoro-n-octadecanoic acid (PFODA)



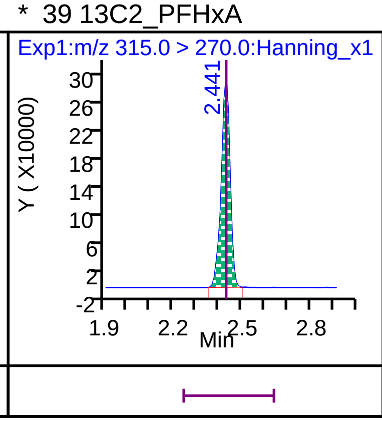
D 40 13C2_PFHxDA



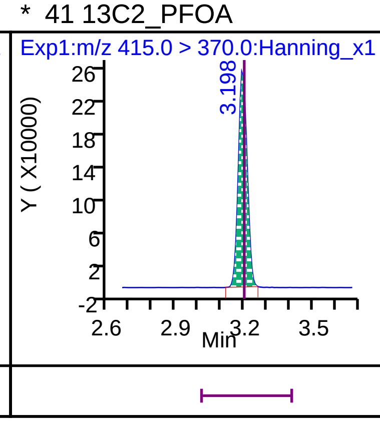
* 37 13C2_PFDA



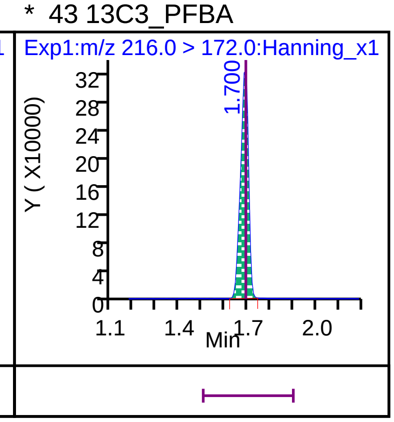
* 39 13C2_PFHxA



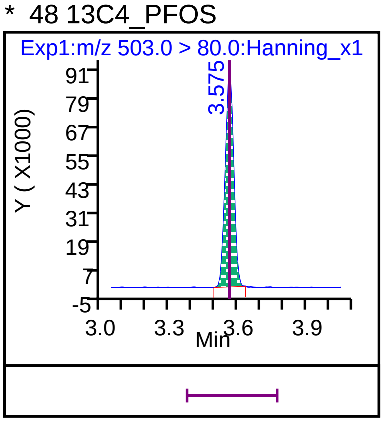
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:48:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

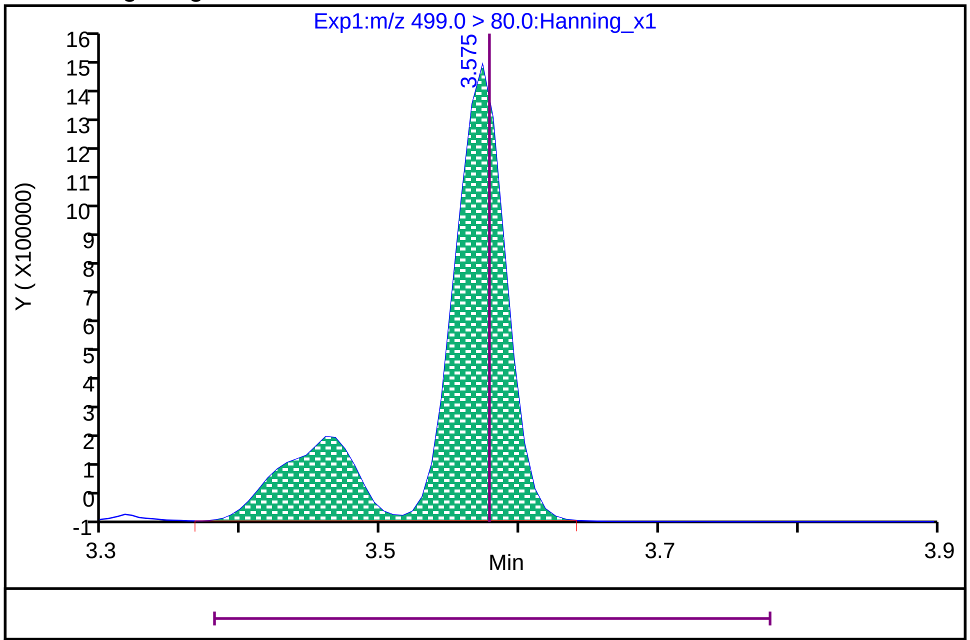
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421020.d		
Injection Date:	14-Oct-2021 12:42:35	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 20000_SVLC-1647
Sample Info:	ICAL 20000_SVLC-1647		
Dil. Factor:	1	Operator:	Matthew M. Miller

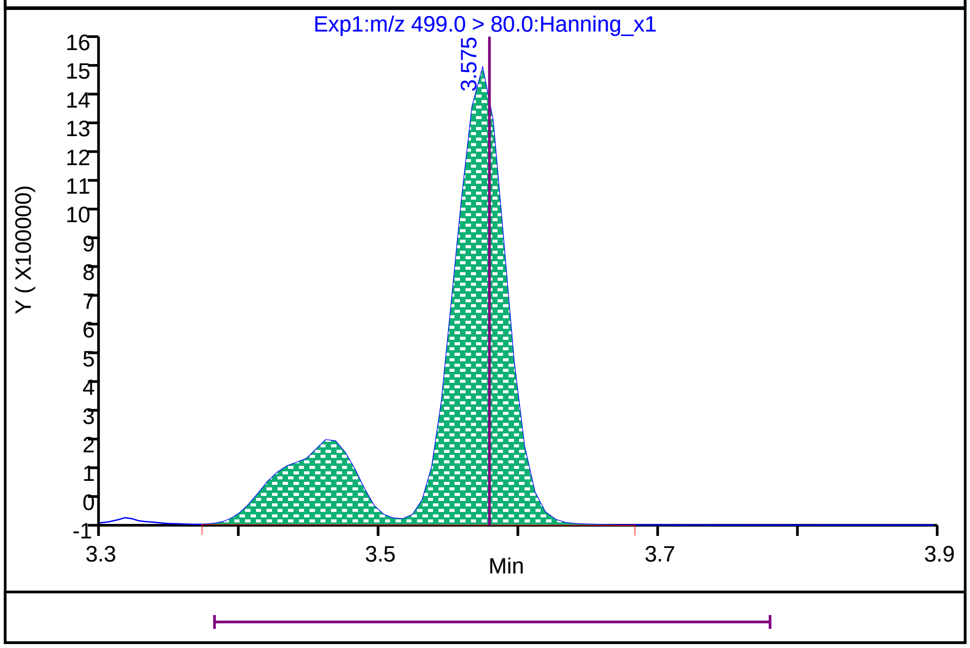
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.575
Area: 4615872
Amount: 18427
Amount Units: ng/L



RT: 3.575
Area: 4656873
Amount: 18670
Amount Units: ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:48:14

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421021.d		
Injection Date:	14-Oct-2021 12:53:14	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	100
Lab Sample ID:	ID BLK C1	Lab Prep. Batch:	
Sample Info:	ID BLK C1	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.694	1.700	0	1029411	20	>100:1			1001.00	1147.48	97.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.700		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.066	1	1017299	17	>100:1			1001.00	1131.72	95.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.066		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.119	1	360059	16	>100:1			1001.00	1206.26	103	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.129		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.475		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.406	0	283765	18	>100:1			5005.00	6349.83	106	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.406		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.433	2.440	0	968304	19	>100:1			1001.00	1182.63	97.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.440		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.554	2.562	0	842702	18	>100:1			5005.00	5824.30	97.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.562		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.820	2.827	0	898052	19	>100:1			1001.00	1120.76	92.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.827		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.838	2.845	0	277829	19	>100:1			1001.00	1129.59	93.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.845		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.862		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.215		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.179	3.183	0	232852	20	>100:1			5005.00	5328.79	85.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.177		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.205	3.208	0	810434	23	>100:1			1001.00	1071.06	92.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.208		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.575	3.572	1	226689	19	>100:1			1001.00	1000.52	85.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.580		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.776		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.911		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.207		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.356	4.359	0/-1	1999	16	15:1			3.3799	3.3799		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.698		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.575	3.580	0	806197	19	>100:1			1001.00	1039.65	87.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.580		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.877	3.873	1	460888	19	>100:1			1001.00	1100.46	95.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.880		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.915	3.911	1	227303	17	>100:1			5005.00	6011.12	99.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.918		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.500		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.922	3.918	1	677644	17	>100:1			1001.00	997.77	83.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.926		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.077	4.073	1	1154363	17	>100:1			5005.00	5633.82	95.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.077	4.081	0/-1	1063	19	11:1	Target = 1.38		6.0334	6.0334		
570 > 483	58	4.094	4.081		568	7		1.87 (0.69-2.08)					M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.222	4.226	0	682460	15	>100:1			1001.00	1079.60	94.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.212	4.226	0/0	2318	23	5.3:1	Target = 8.27		3.8335	3.8335		
563 > 169	52	4.203	4.226		678	11	4.5:1	3.41 (4.13-12.40)					J
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.222	4.226	0	1049348	16	>100:1			5005.00	6112.36	99.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.203	4.235	-1/-1	1621	24	7.1:1	Target = 1.95	4.26	7.2442	7.2442		
584 > 526	60	4.212	4.235		1638	65		0.98 (0.97-2.92)	1.63				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.294	4.298	0	142046	22	>100:1			1001.00	1117.06	92.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.303	4.306	0/0	2246	11	5.0:1			16.047	16.047		

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.320	4.315	1	70032	13	>100:1			1001.00	1204.92	96.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.315		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.454	4.463	0	120194	18	>100:1			1001.00	1023.30	82.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.471		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.475	4.485	0	61068	18	>100:1			1001.00	1111.77	92.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.468	4.485	-1/-1	1599	17	9.2:1	Target = 1.10		22.907	22.907		
526 > 219	59	4.483	4.485		2162	23	5.7:1	0.73 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.490	4.492	0	701831	18	>100:1			1001.00	1168.50	99	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.492		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.725	4.728	0/0	1642	12	18:1	Target = 2.90		4.3291	4.3291		
663 > 169	38	4.725	4.728		824	18	18:1	1.99 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.939	4.935	1	903558	22	>100:1			1001.00	1127.77	97.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.939	4.940	0/-1	4250	20	9.5:1	Target = 6.34		5.5612	5.5612		
713 > 169	42	4.934	4.940		833	18	23:1	5.10 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.315	5.313	1	394677	19	>100:1			1001.00	1199.44	106	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.322	5.319	1/0	11913	18	9.7:1	Target = 12.53		14.912	14.912		
813 > 269	40	5.315	5.319		808	18	9.8:1	14.74 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.680	5.670	1/0	8574	24	14:1	Target = 152.15		14.651	14.651		
913 > 319	40	5.672	5.670		113	17	13:1	75.87 (76.07-228.23)					J
*** 37 13C2_PFDA**													
515 > 470		3.922	3.918	1	576366	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.440	1	763935	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.198	3.208	0	714294	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.694	1.700	0	814407	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.575	3.572	1	215492	19	>100:1			200.00			

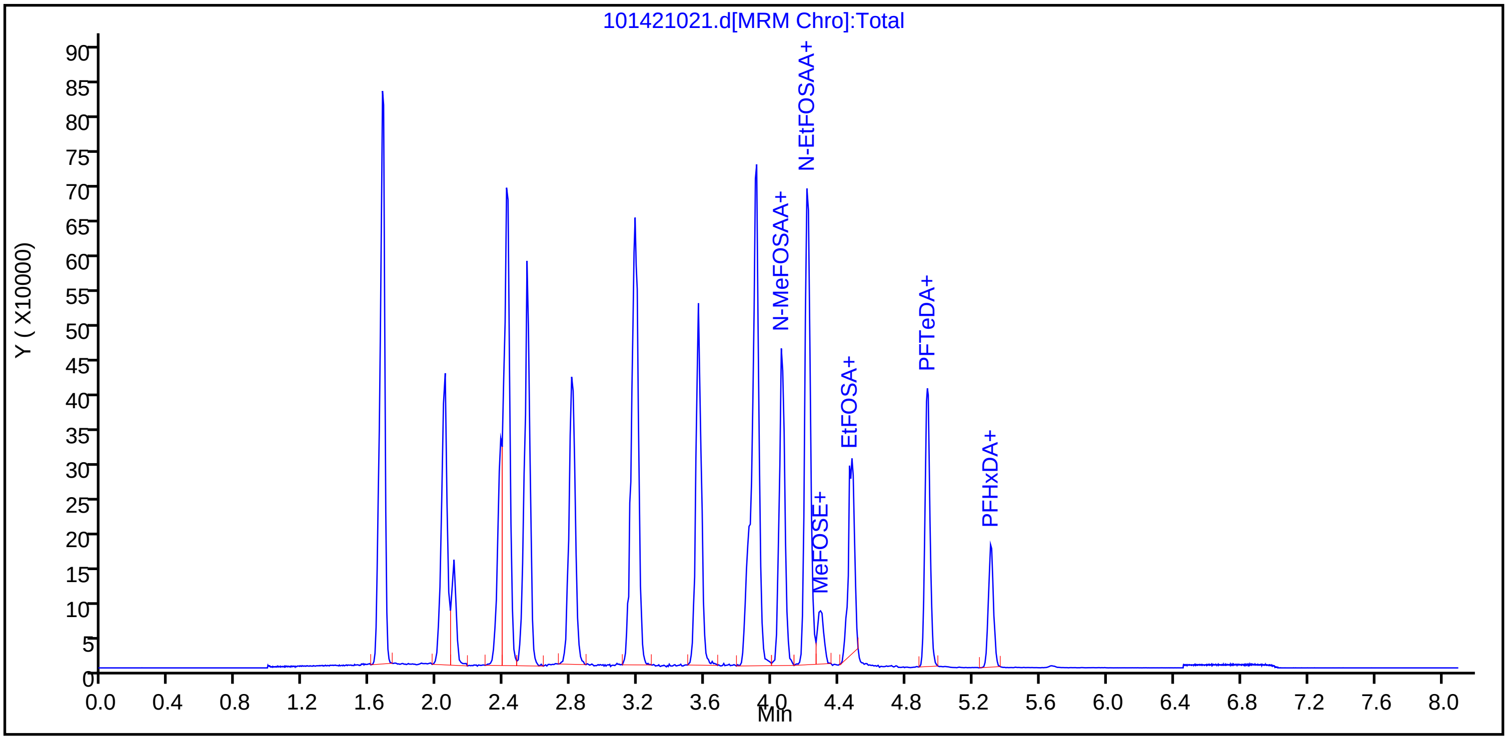
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated

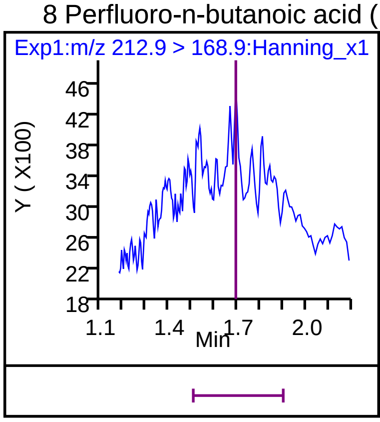
Report Date: 19-Oct-2021 08:49:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

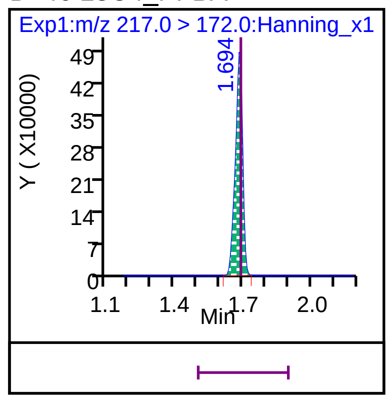
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421021.d		
Injection Date:	14-Oct-2021 12:53:14	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID BLK C1
Sample Info:	ID BLK C1		
Dil. Factor:	1	Operator:	Matthew M. Miller



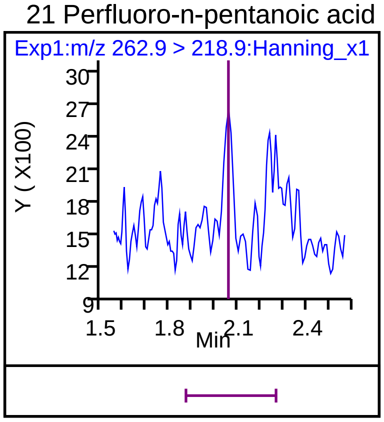
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



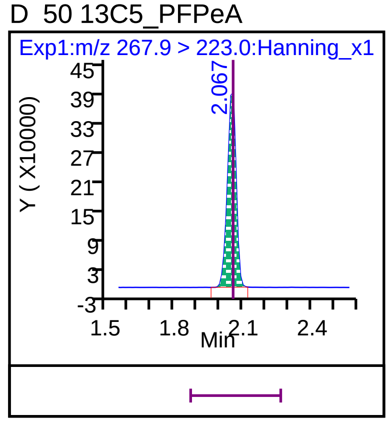
D 46 13C4_PFBA



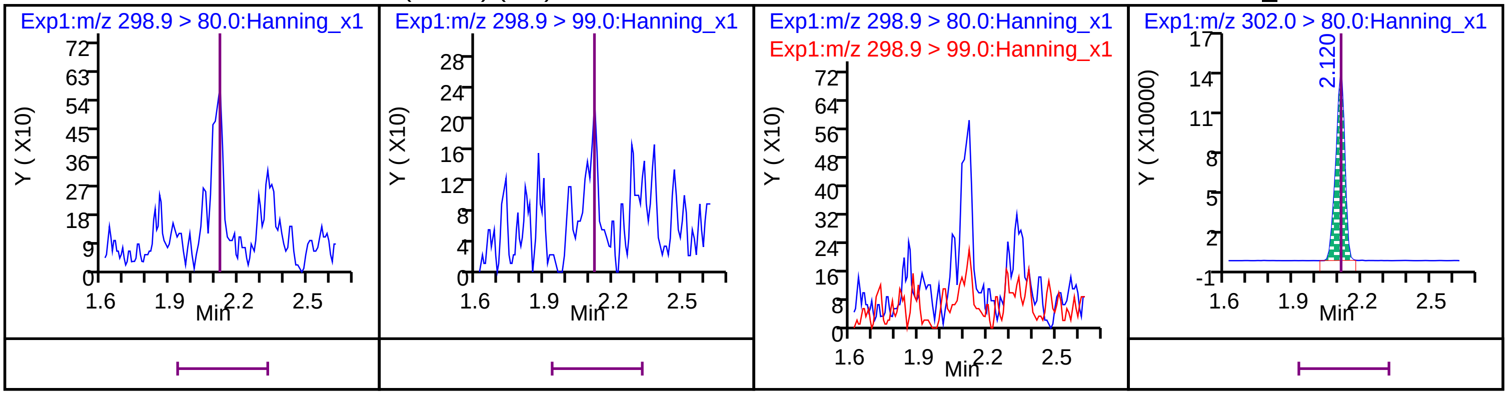
21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)



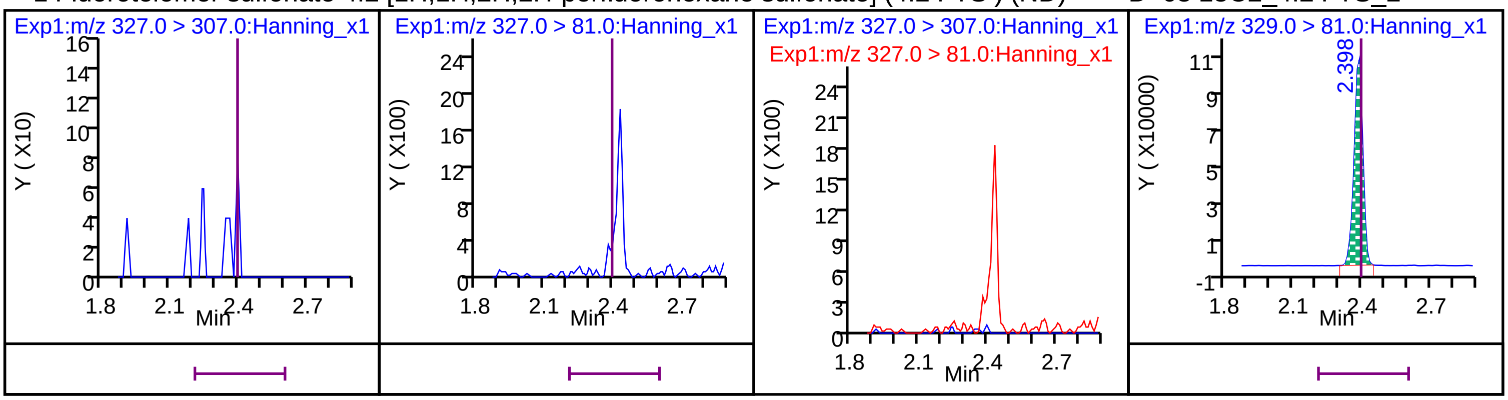
D 50 13C5_PFPeA



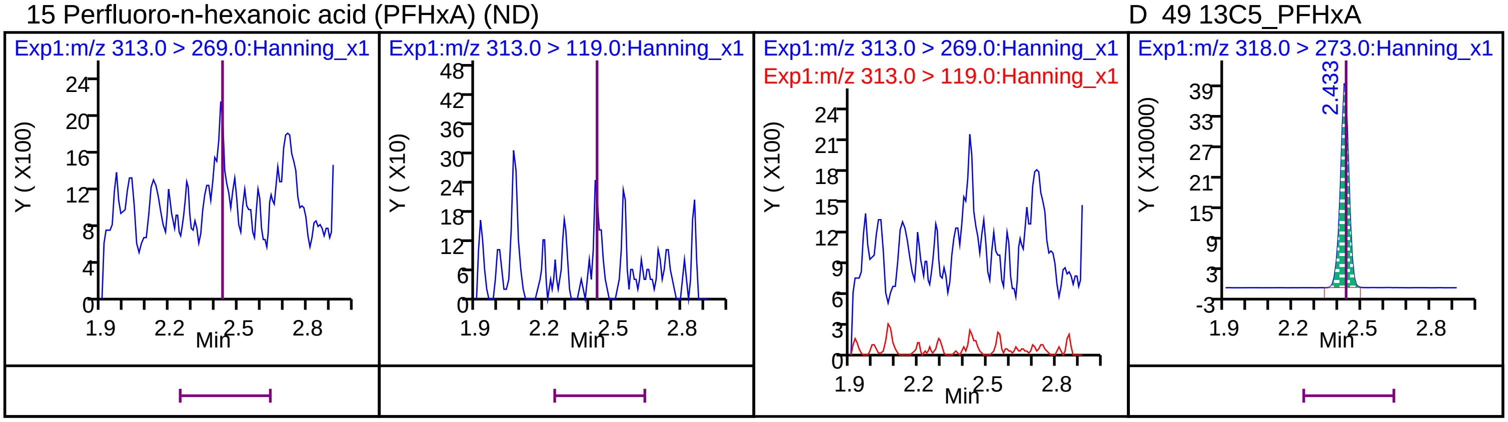
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



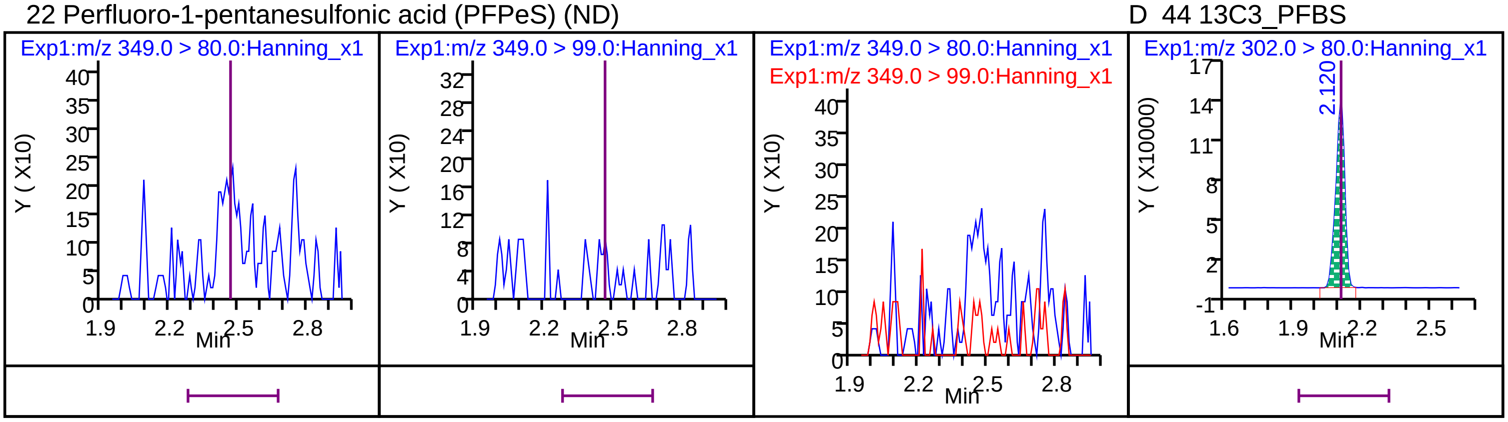
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



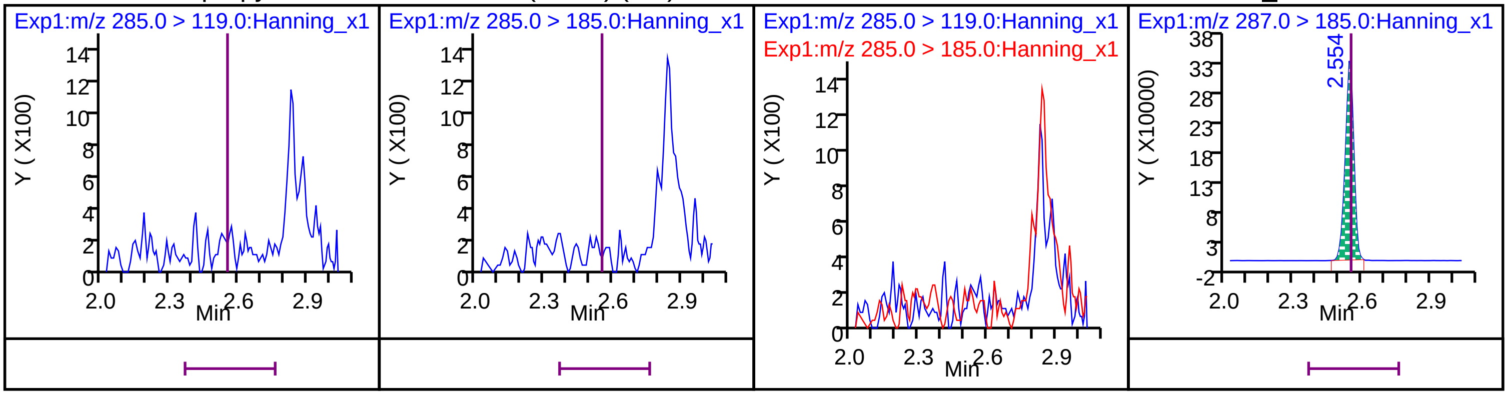
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



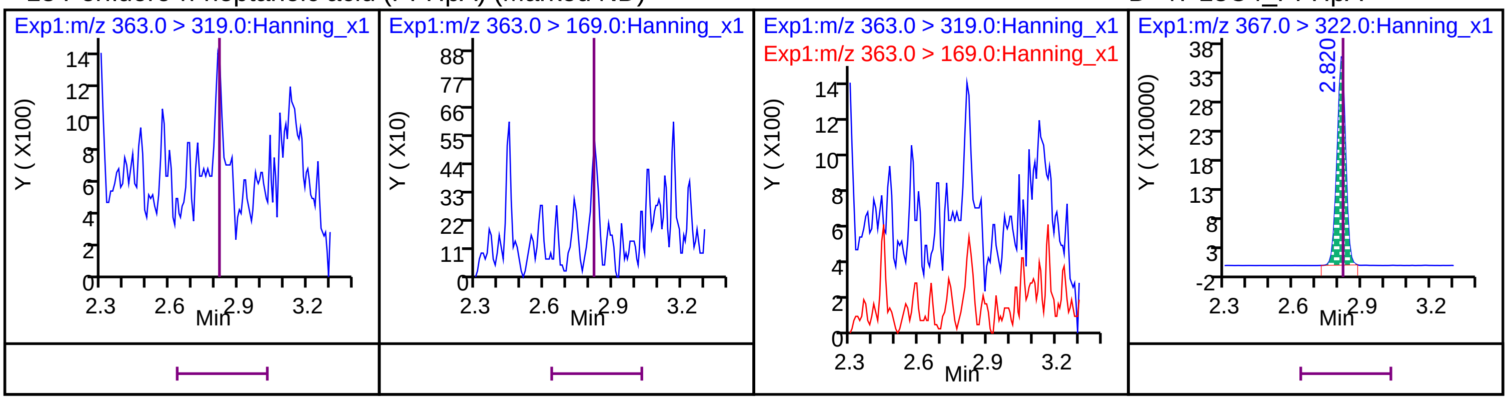
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



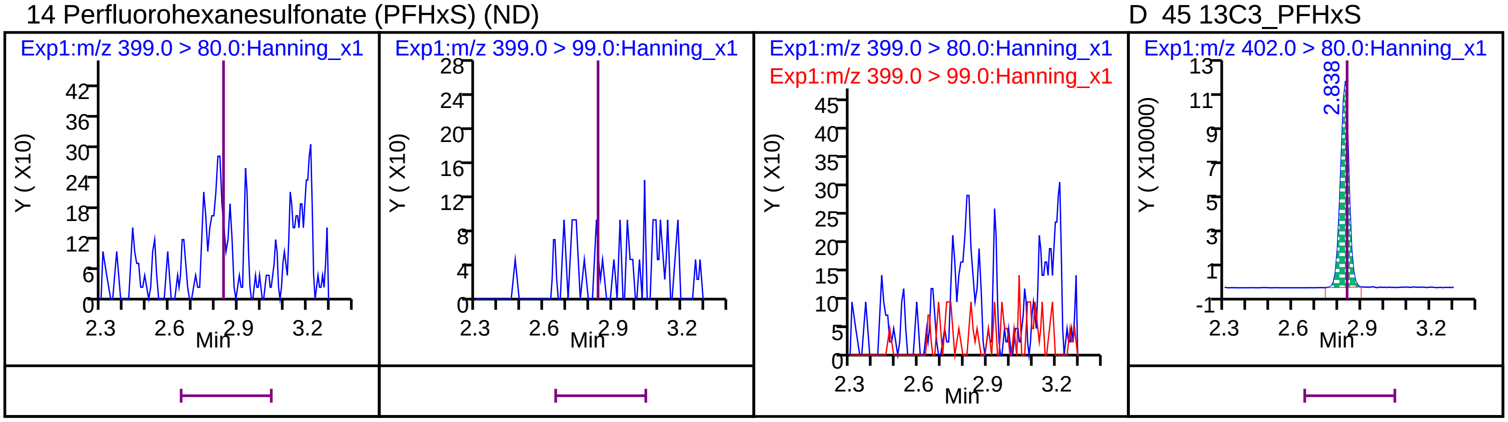
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



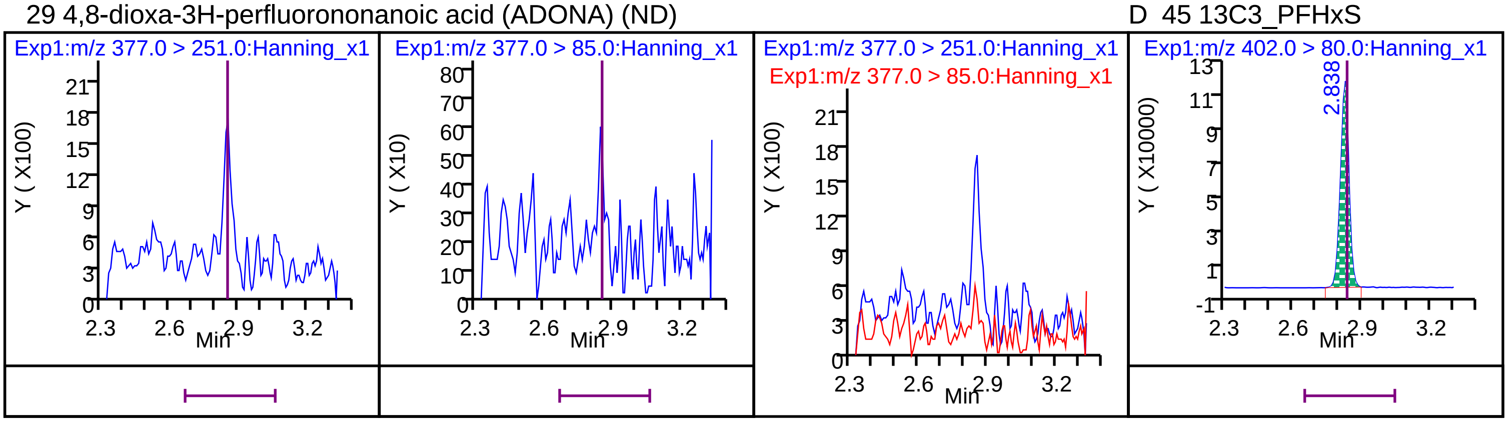
13 Perfluoro-n-heptanoic acid (PFHpA) (Marked ND) D 47 13C4_PFHpA



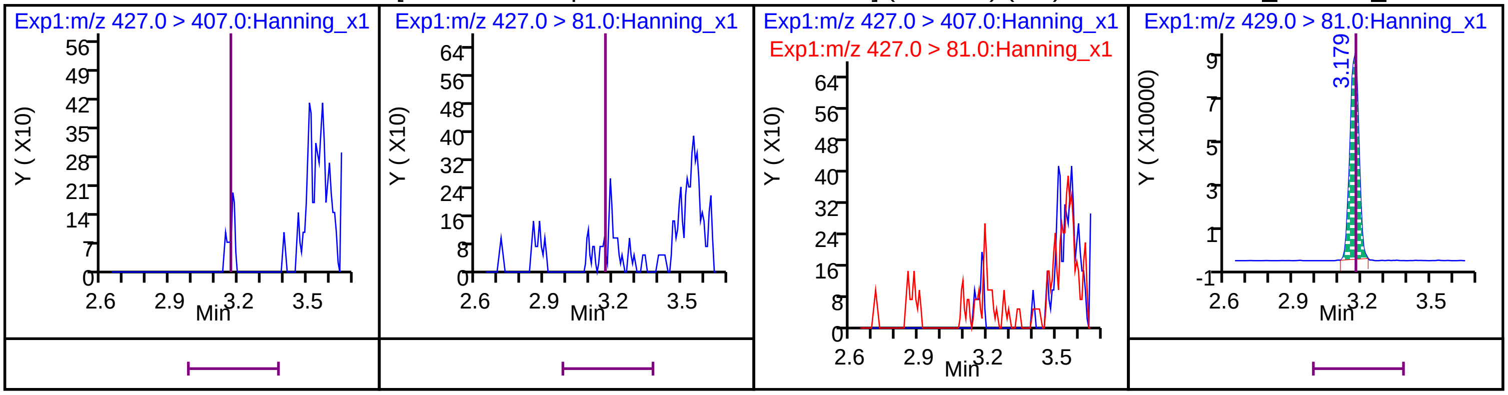
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



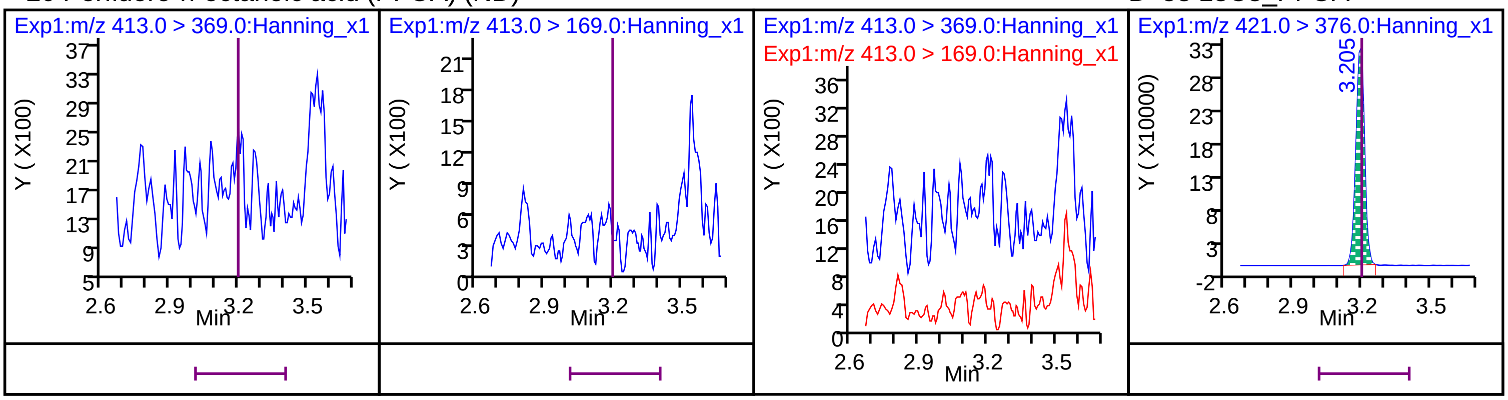
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



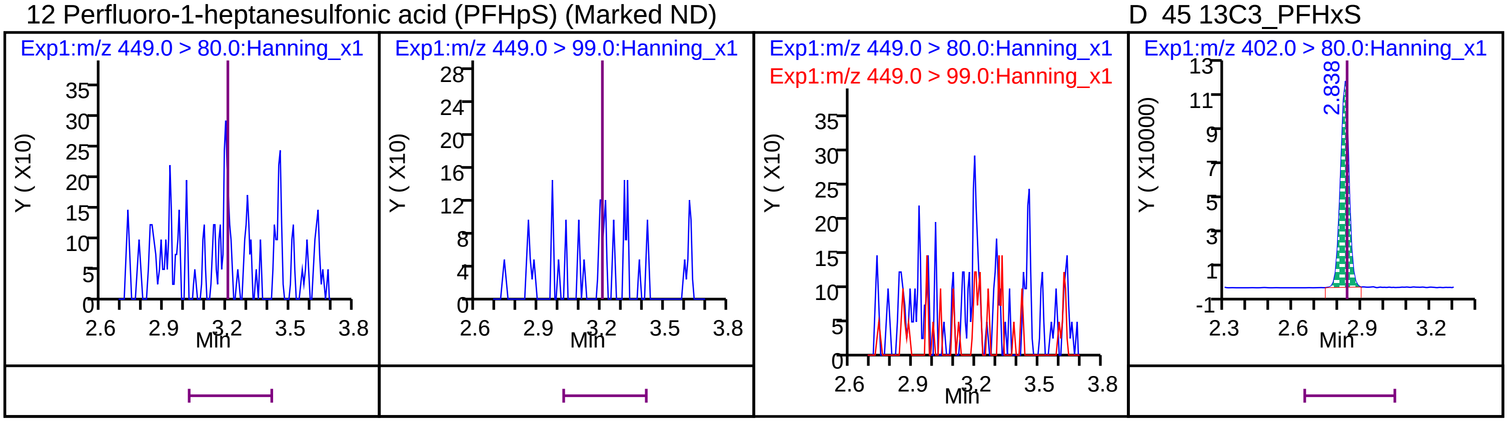
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



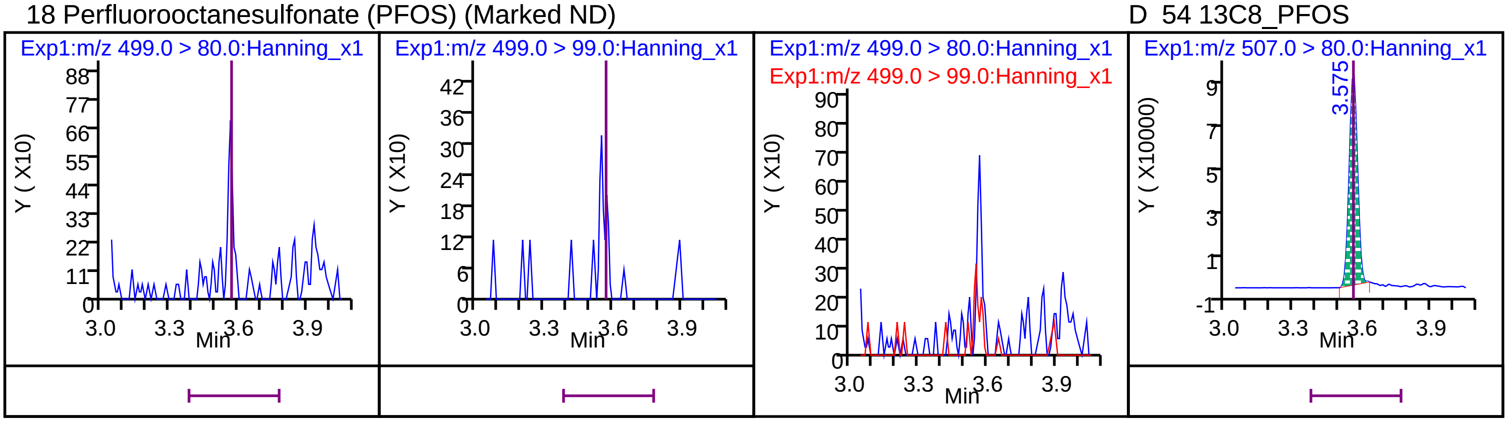
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (Marked ND) D 45 13C3_PFHxS

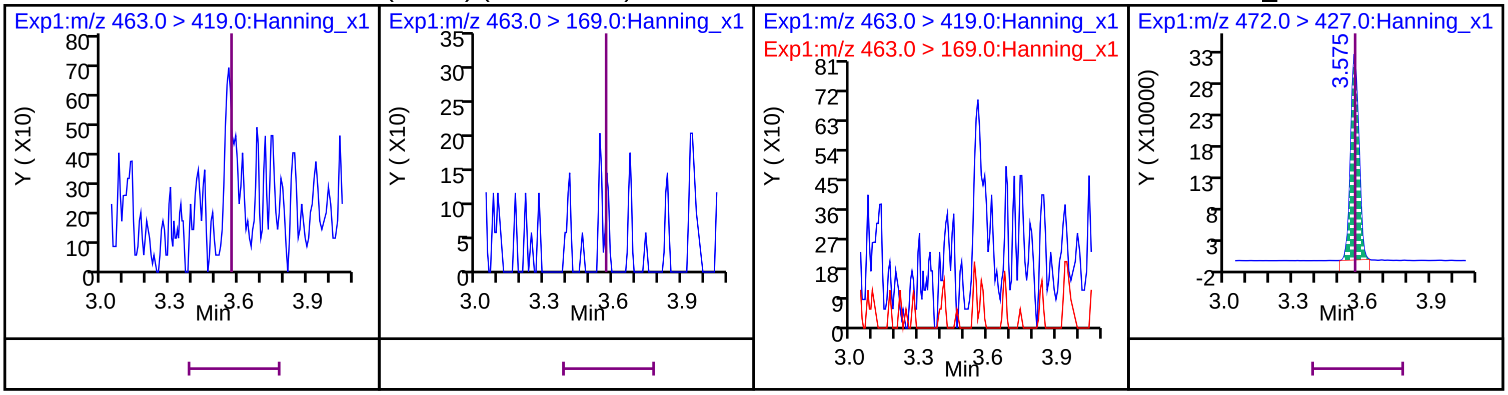


18 Perfluorooctanesulfonate (PFOS) (Marked ND) D 54 13C8_PFOS

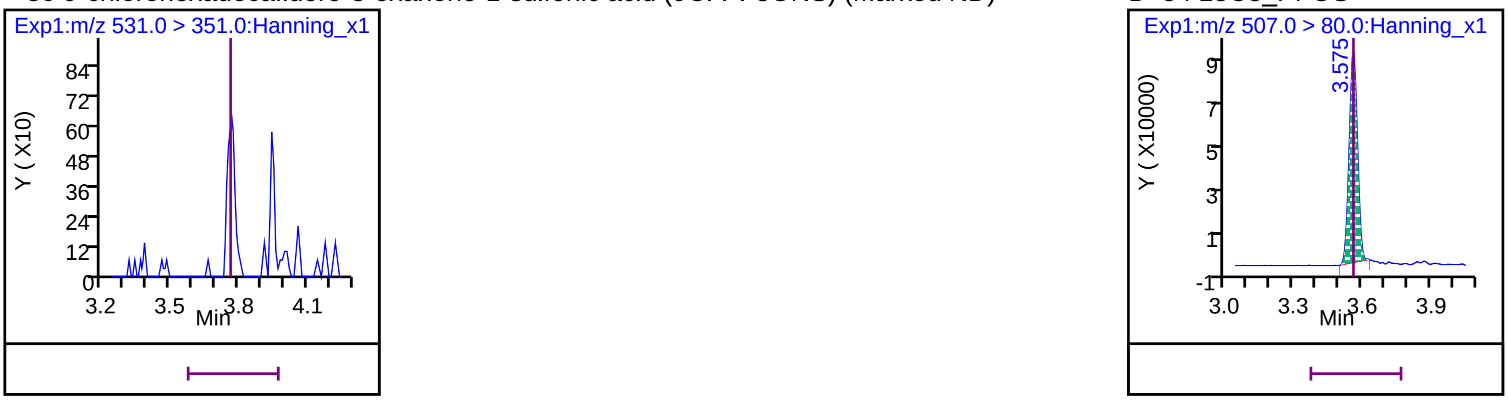


Report Date: 19-Oct-2021 08:49:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421021.d

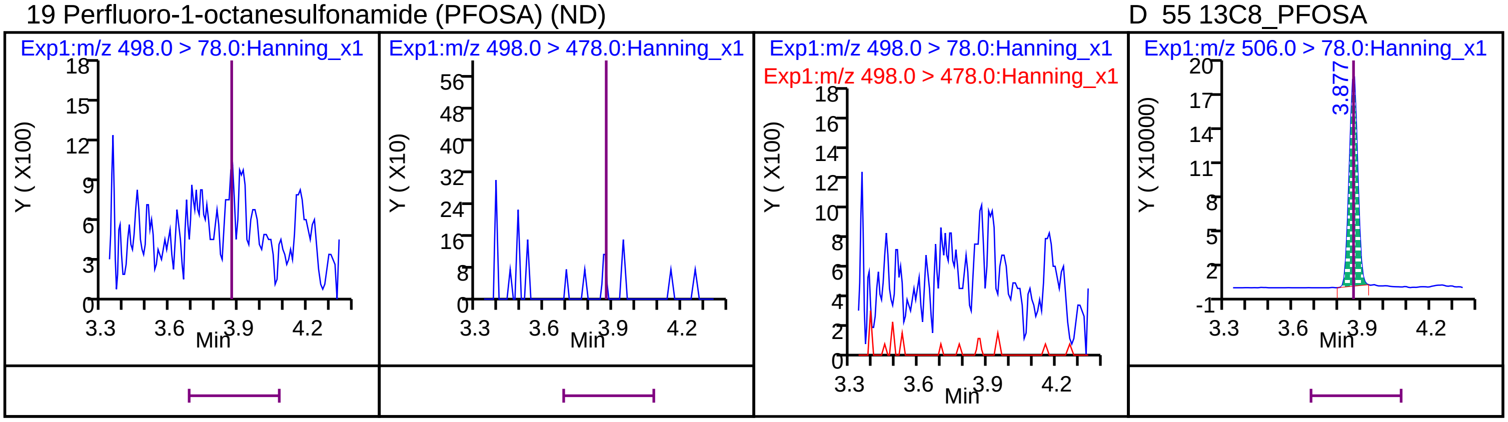
17 Perfluoro-n-nonanoic acid (PFNA) (Marked ND) D 56 13C9_PFNA



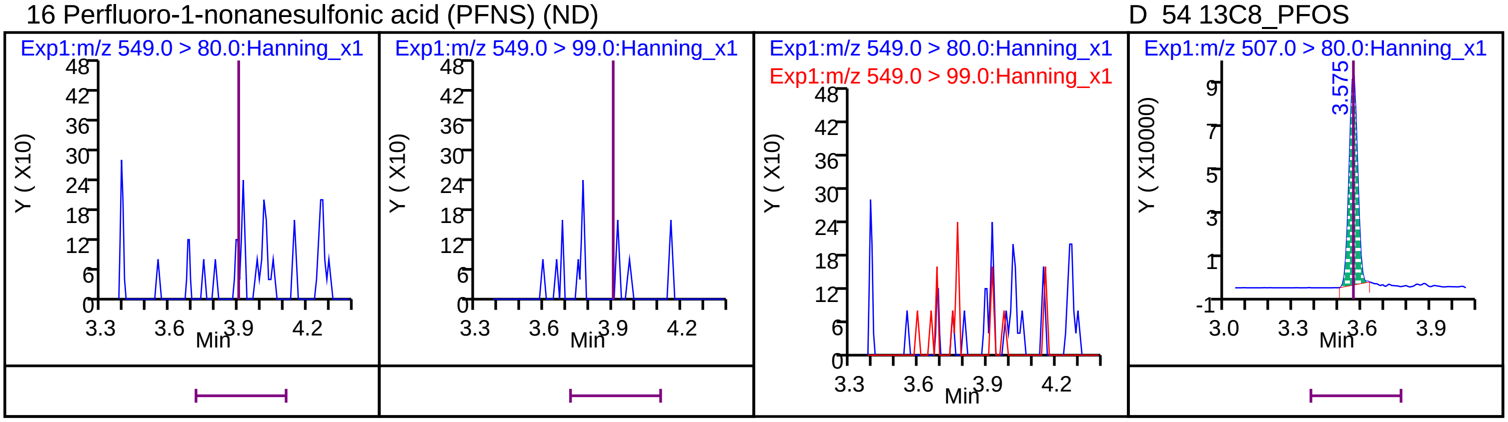
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA

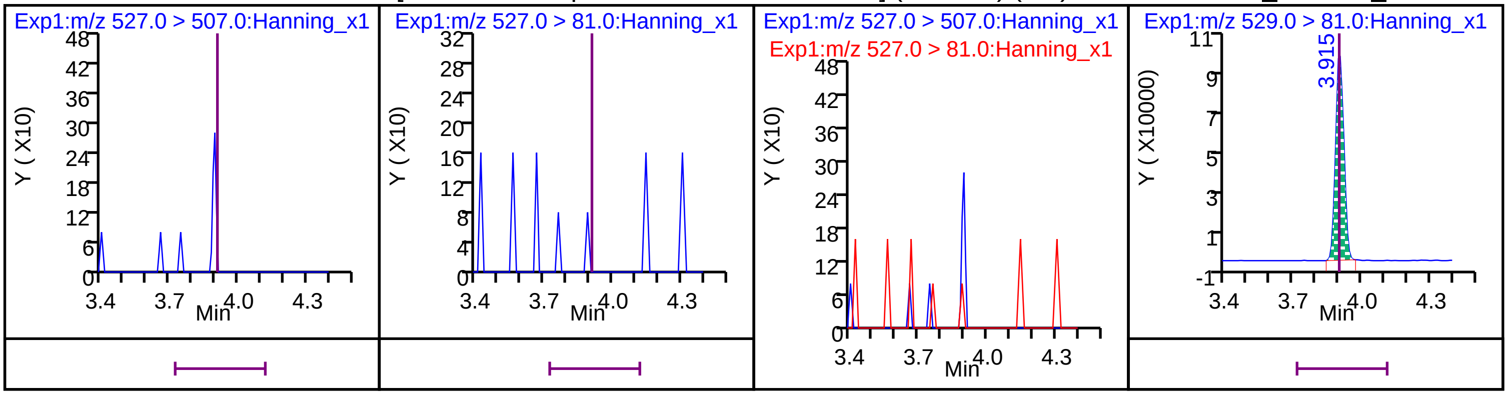


16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

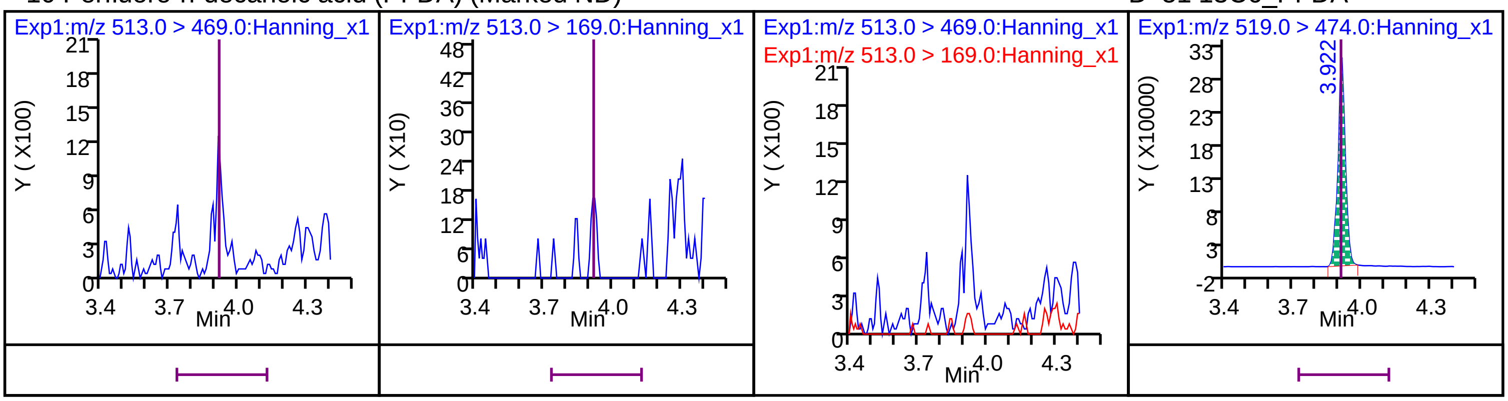


Report Date: 19-Oct-2021 08:49:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421021.d

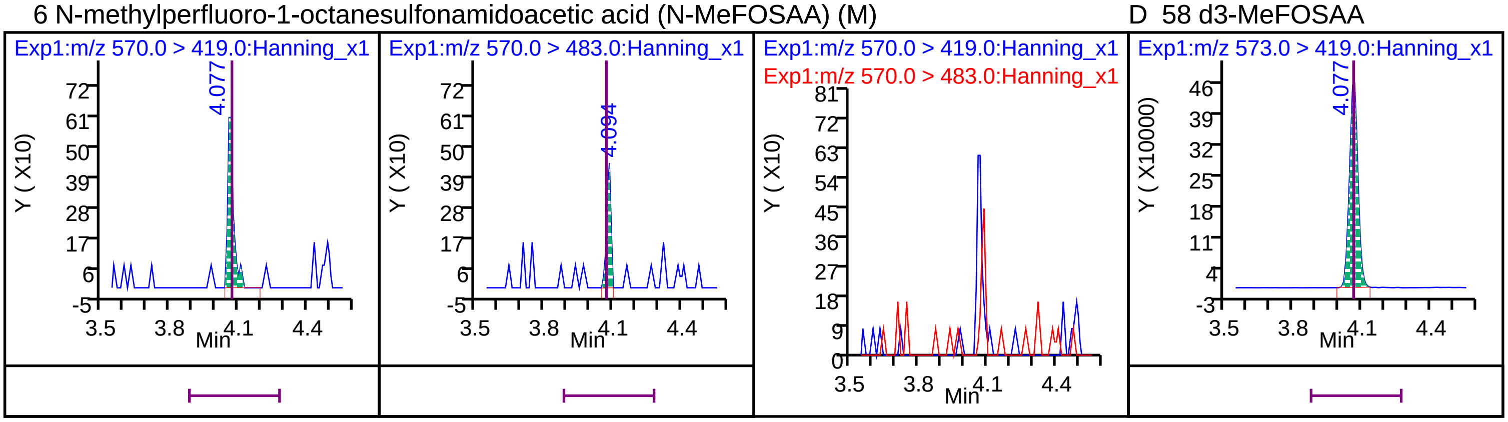
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



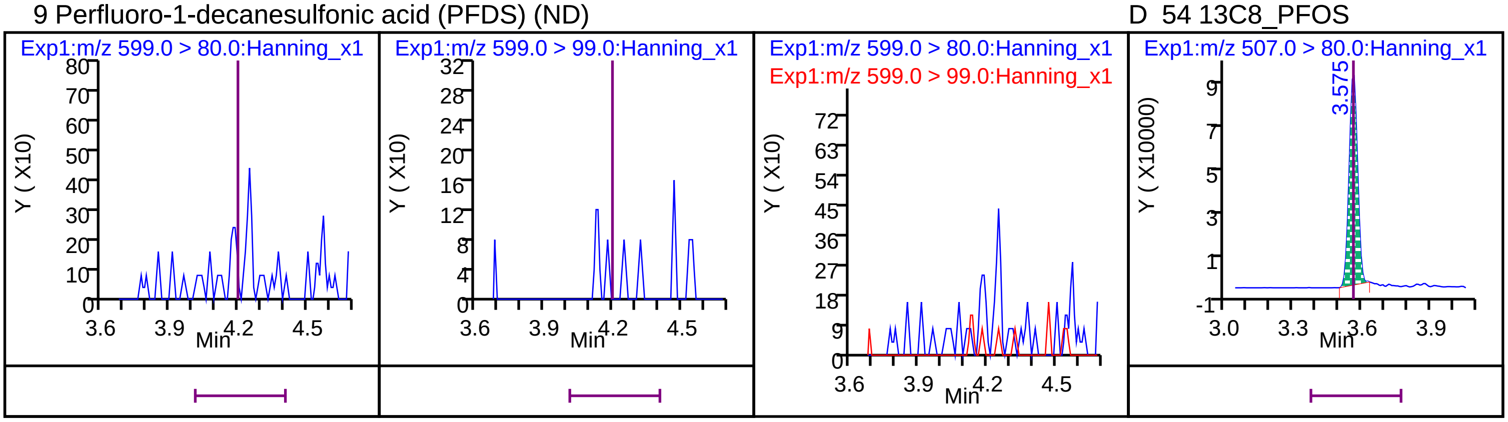
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



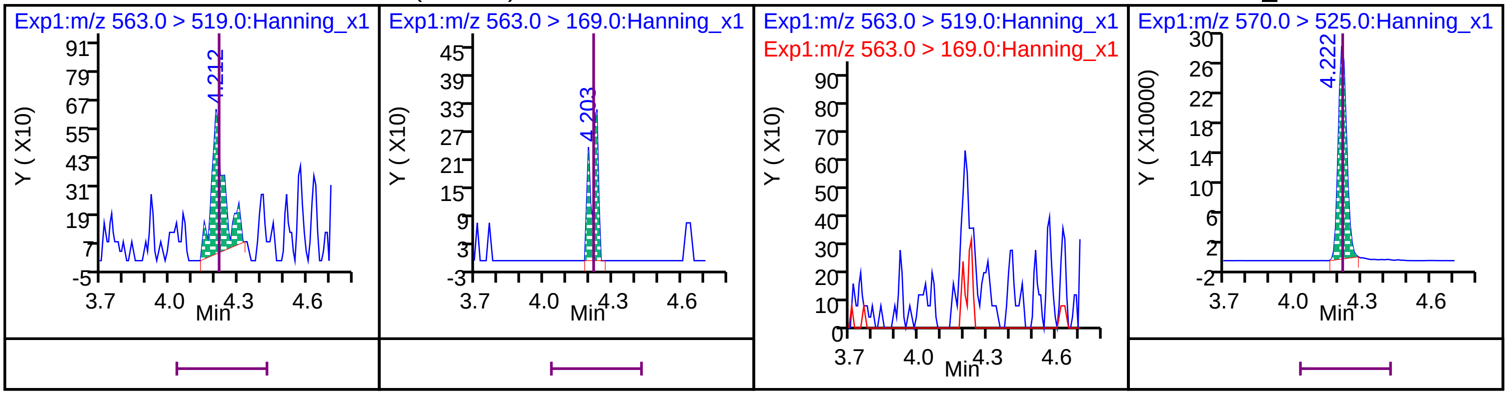
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



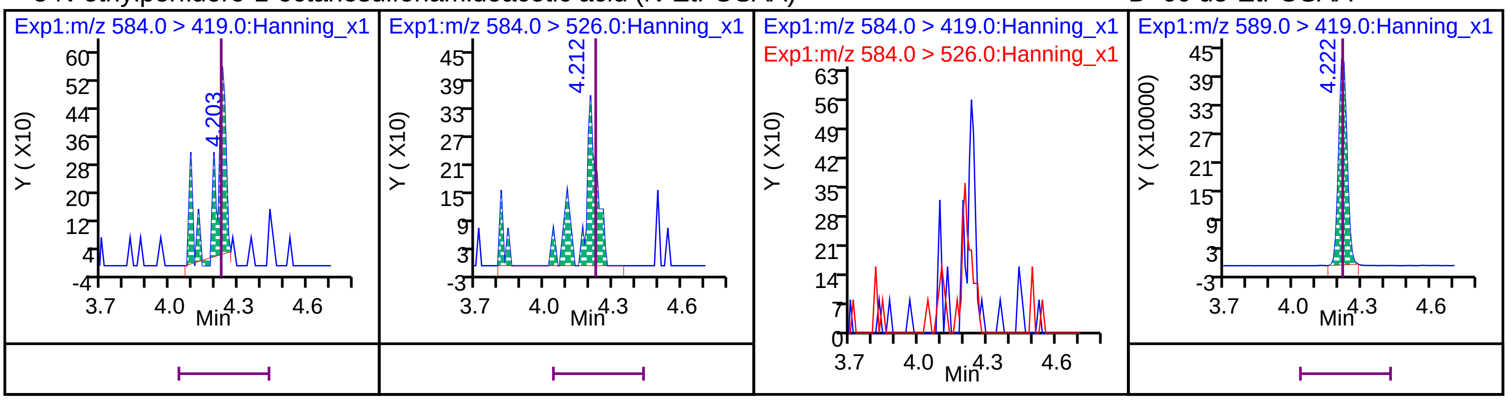
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

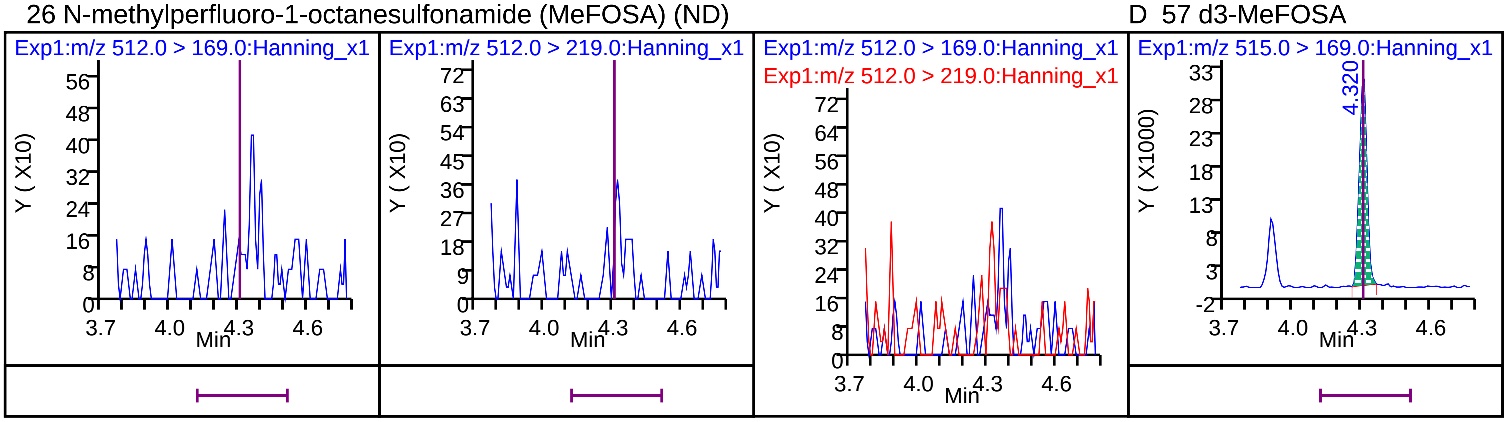


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

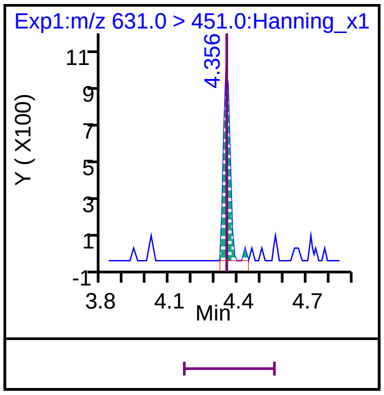


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

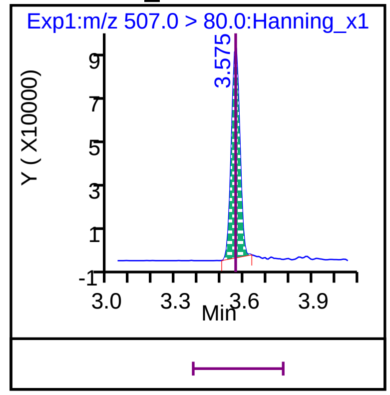
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



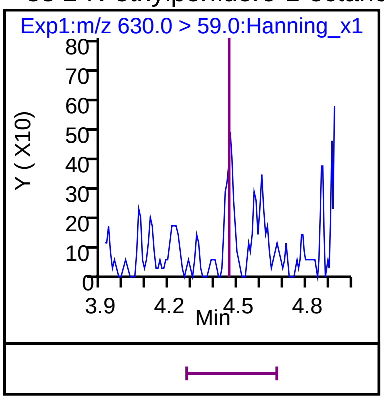
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



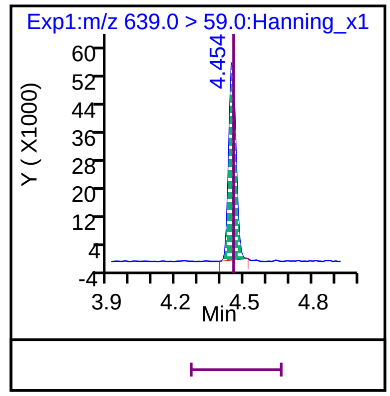
D 54 13C8_PFOS



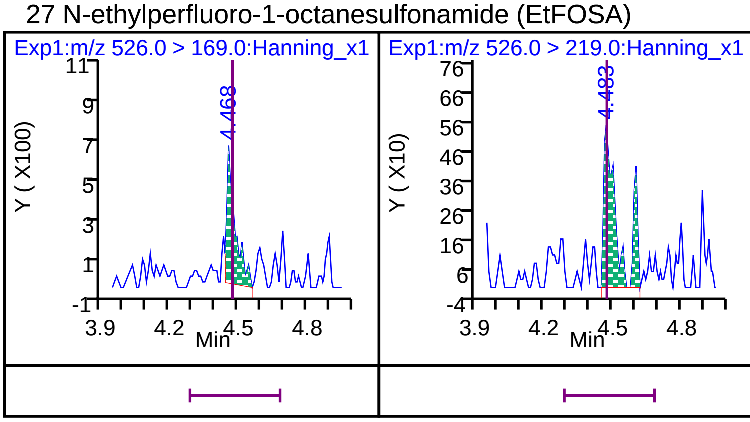
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)



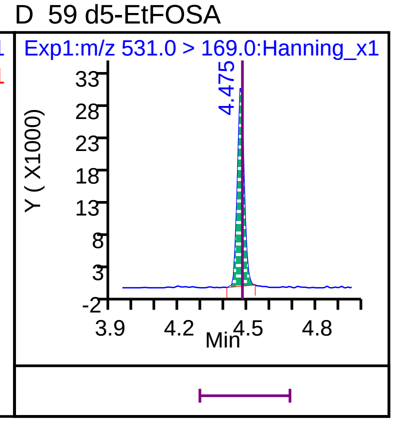
D 62 d9-EtFOSE



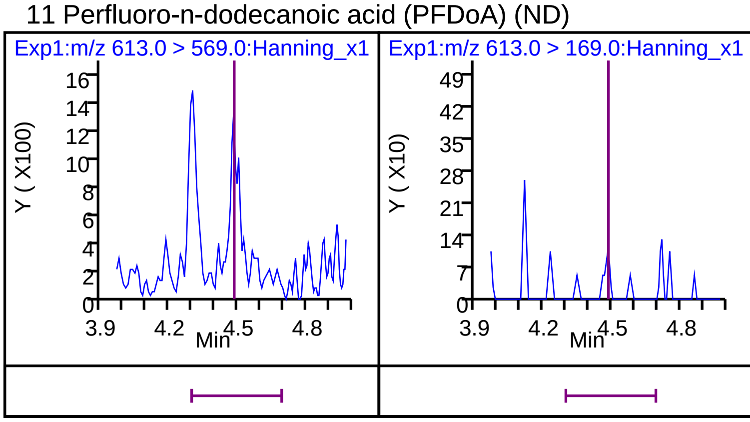
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



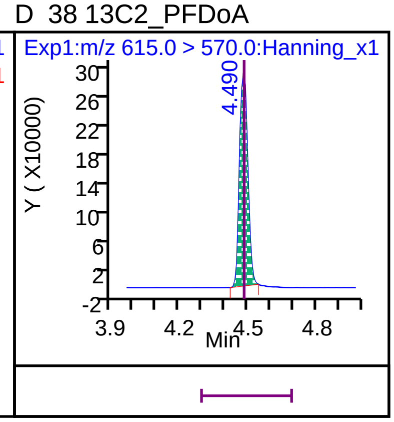
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



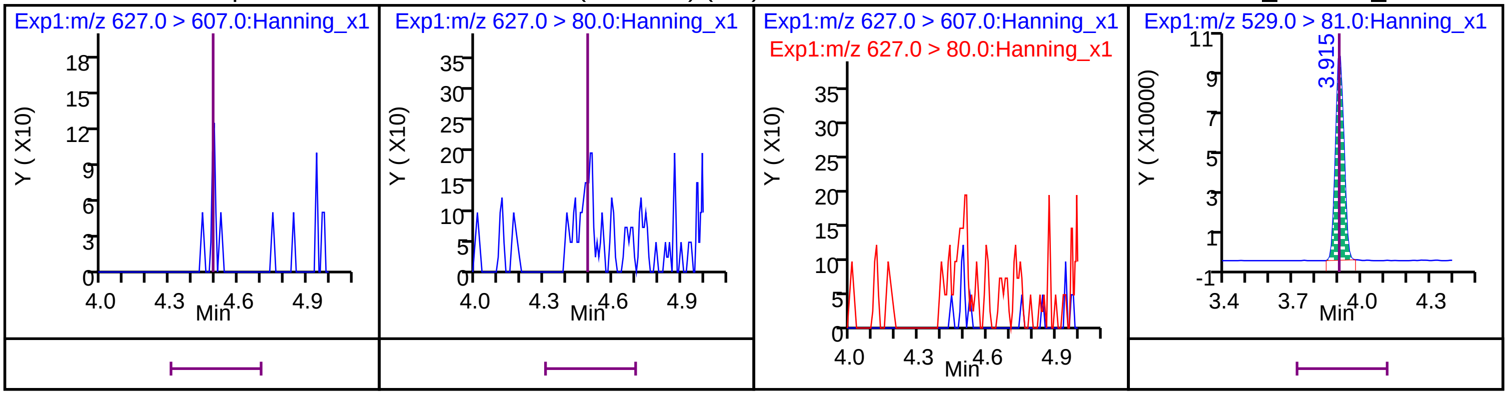
D 38 13C2_PFDoA



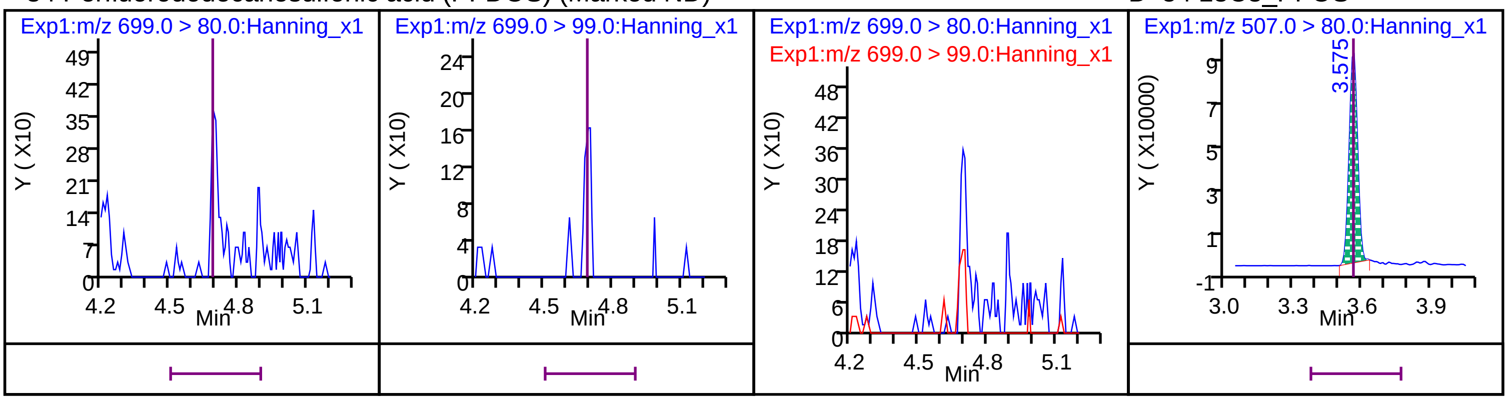
Report Date: 19-Oct-2021 08:49:00 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421021.d

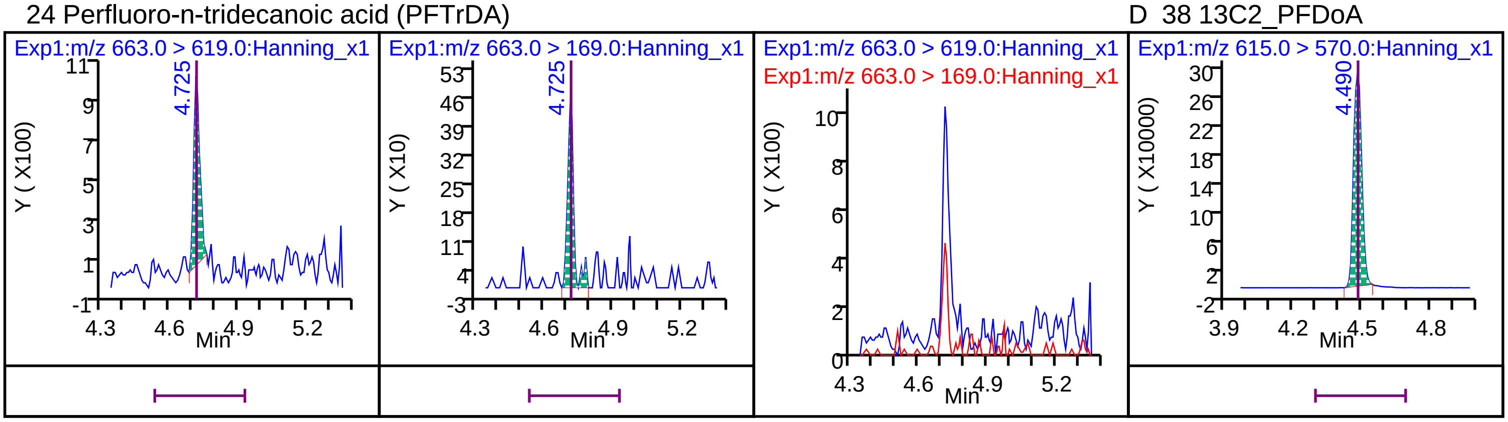
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



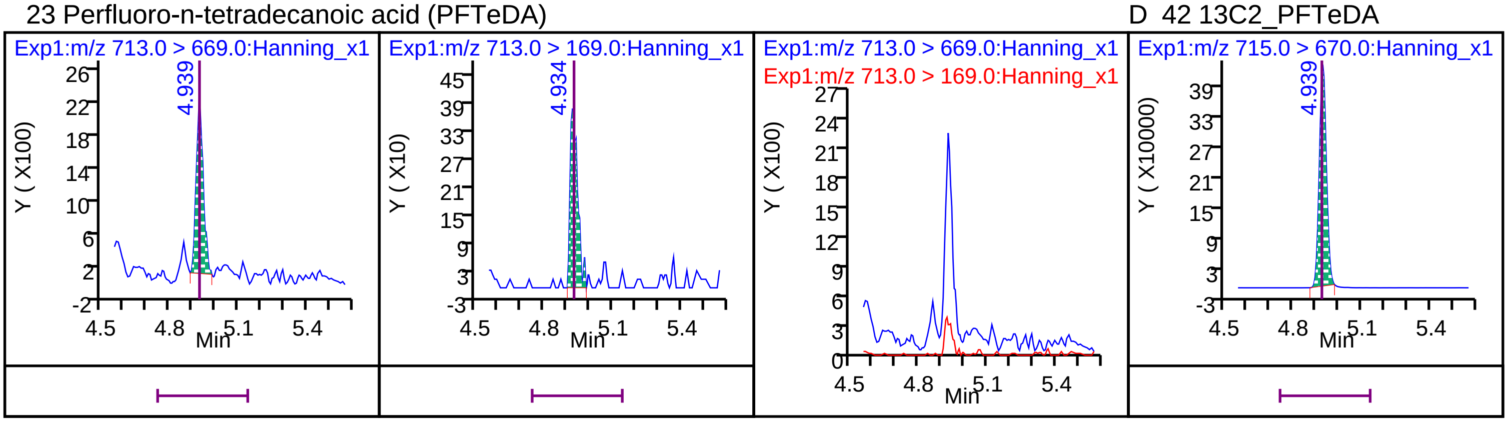
34 Perfluorododecanesulfonic acid (PFDOS) (Marked ND) D 54 13C8_PFOS



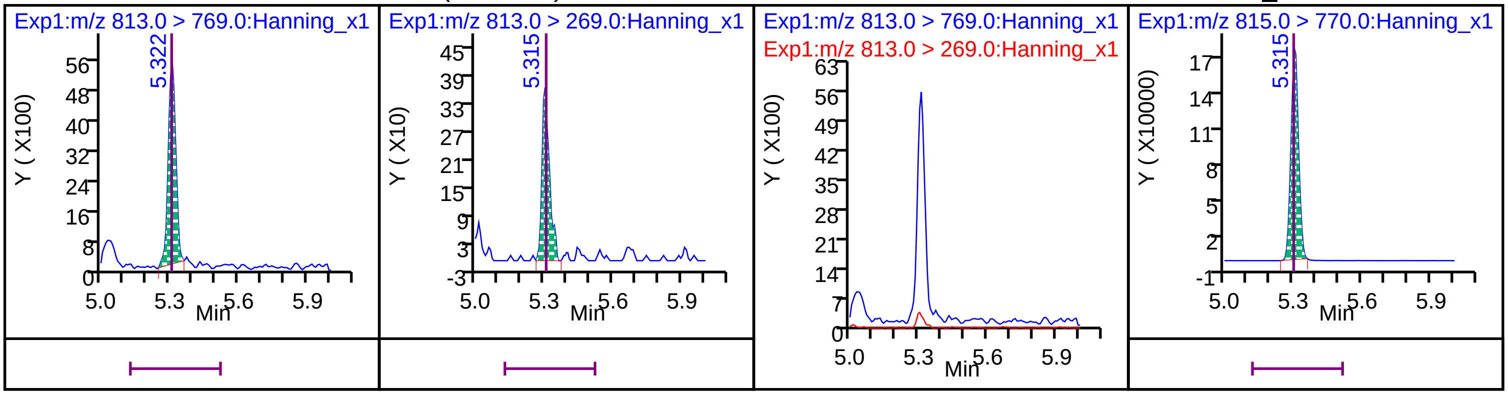
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



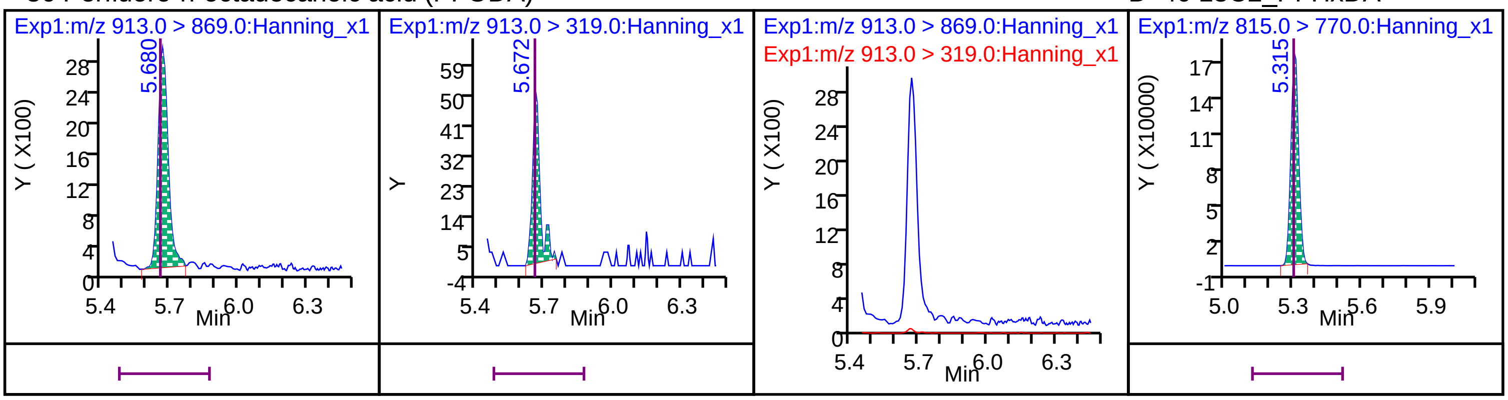
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



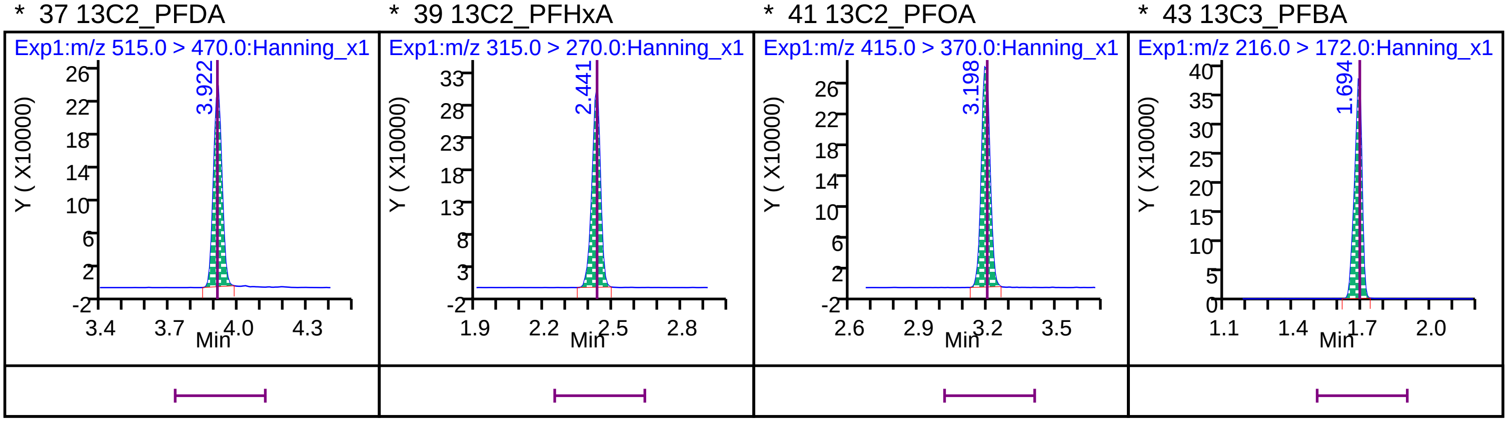
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



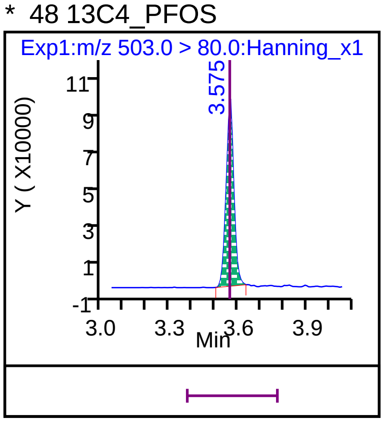
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 19-Oct-2021 08:49:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

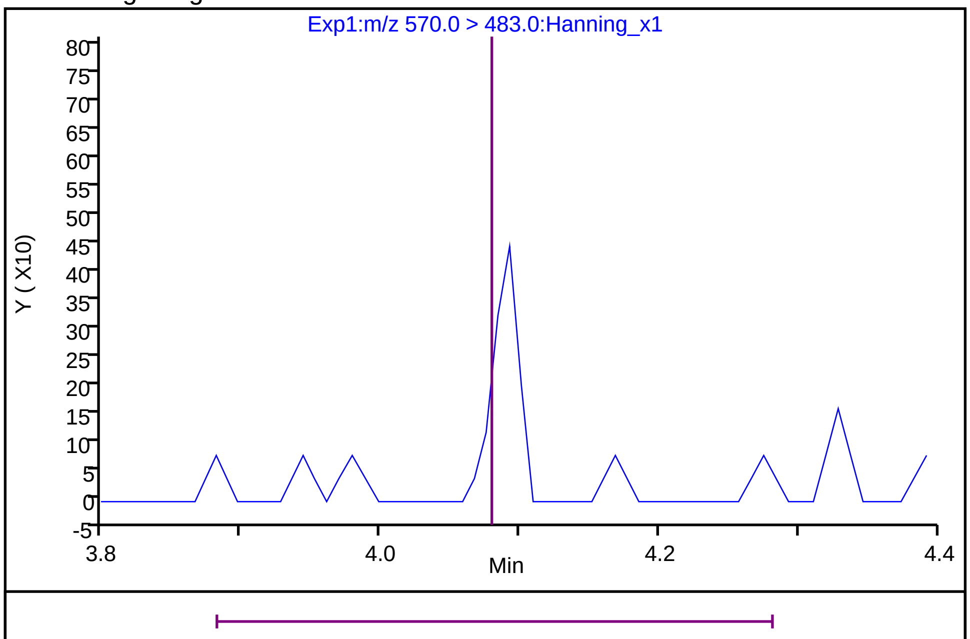
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421021.d		
Injection Date:	14-Oct-2021 12:53:14	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID BLK C1
Sample Info:	ID BLK C1		
Dil. Factor:	1	Operator:	Matthew M. Miller

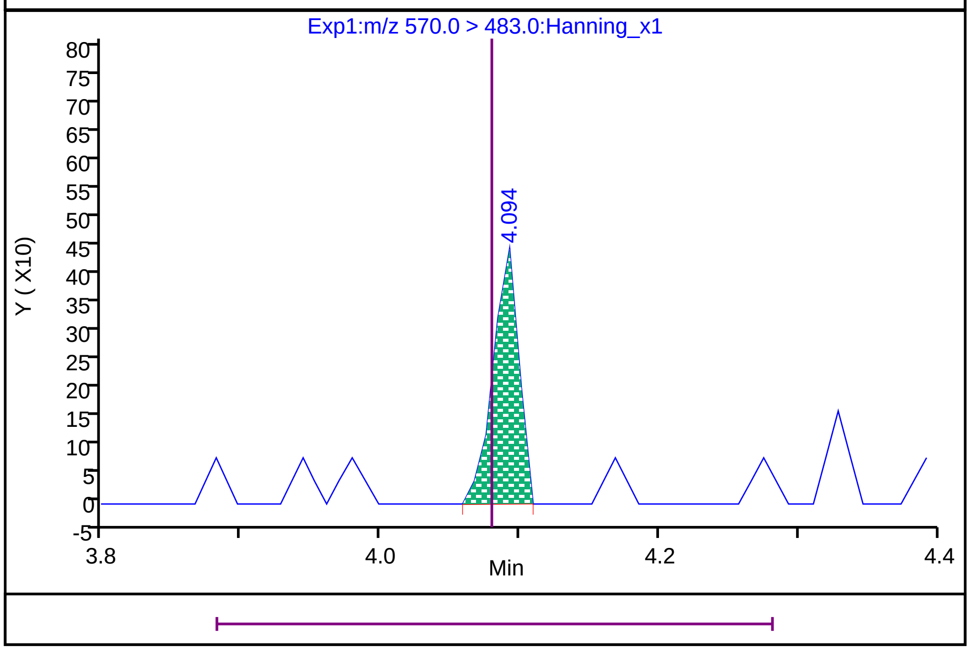
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.094
Area: 1132
Amount: 6.0334
Amount Units: ng/L



RT: 4.094
Area: 568
Amount: 6.0334
Amount Units: ng/L



Data Editor: matthew.miller, 14-Oct-2021 13:29:12

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 19-Oct-2021 08:49:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d

Injection Date:	14-Oct-2021 13:03:56	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	11
Sample Info:	ICV 500_SVLC-1712	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			500.00	413.64	82.7	70 - 130
D 46 13C4_PFBA	1060126	1016483			95.9	50 - 150
21 PFPeA			500.00	413.07	82.6	70 - 130
D 50 13C5_PFPeA	1065127	1007475			94.6	50 - 150
D 44 13C3_PFBS	349624	335782			96	50 - 150
7 PFBS			442.50	353.37	79.9	70 - 130
D 63 13C2_4:2 FTS_2	267812	257625			96.2	50 - 150
1 4:2 FTS			467.50	342.49	73.3	70 - 130
D 49 13C5_PFHxA	997159	918279			92.1	50 - 150
15 PFHxA			500.00	407.60	81.5	70 - 130
22 PFPeS			470.00	416.87	88.7	70 - 130
28 GenX			2500.00	2109.24	84.4	70 - 130
D 66 13C3_GenX	863067	805852			93.4	50 - 150
D 47 13C4_PFHpA	975256	908492			93.2	50 - 150
13 PFHpA			500.00	419.71	83.9	70 - 130
D 45 13C3_PFHxS	296300	275956			93.1	50 - 150
14 PFHxS			456.00	367.91	80.7	70 - 130
29 ADONA			2355.00	2009.70	85.3	70 - 130
2 6:2 FTS			475.00	425.87	89.7	70 - 130
D 64 13C2_6:2 FTS_2	271560	249677			91.9	50 - 150
D 53 13C8_PFOA	875082	908055			103.8	50 - 150
20 PFOA			500.00	405.27	81.1	70 - 130
12 PFHpS			475.00	413.04	87	70 - 130
D 54 13C8_PFOS	266405	255471			95.9	50 - 150
18 PFOS			462.75	393.64	85.1	70 - 130
17 PFNA			500.00	419.16	83.8	70 - 130
D 56 13C9_PFNA	917935	897681			97.8	50 - 150
30 9Cl-PF3ONS			2330.00	1898.41	81.5	70 - 130
D 55 13C8_PFOSA	480654	475678			99	50 - 150
19 PFOSA			500.00	424.13	84.8	70 - 130
16 PFNS			480.00	409.53	85.3	70 - 130
D 65 13C2_8:2 FTS_2	228965	228090			99.6	50 - 150
3 8:2 FTS			480.00	427.12	89	70 - 130
D 51 13C6_PFDA	809542	772125			95.4	50 - 150
10 PFDA			500.00	418.03	83.6	70 - 130
D 58 d3-MeFOSAA	1212505	1151569			95	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			500.00	482.23	96.4	70 - 130
9 PFDS			482.50	403.78	83.7	70 - 130
25 PFUdA			500.00	422.65	84.5	70 - 130
D 60 d5-EtFOSAA	1058921	1013351			95.7	50 - 150
D 52 13C7_PFUdA	724388	739456			102.1	50 - 150
5 N-EtFOSAA			500.00	363.64	72.7	70 - 130
D 61 d7-MeFOSE	152911	135887			88.9	50 - 150
D 57 d3-MeFOSA	72599	56524			77.9	50 - 150
31 11Cl-PF3OUDS			2355.00	1934.78	82.2	70 - 130
D 62 d9-EtFOSE	146363	128004			87.5	50 - 150
D 59 d5-EtFOSA	65766	63095			95.9	50 - 150
11 PFDoA			500.00	404.27	80.9	70 - 130
D 38 13C2_PFDoA	709018	682169			96.2	50 - 150
4 10:2 FTS			2410.00	1924.91	79.9	70 - 130
24 PFTrDA			500.00	434.50	86.9	70 - 130
D 42 13C2_PFTeDA	924733	912400			98.7	50 - 150
23 PFTeDA			500.00	446.19	89.2	70 - 130
D 40 13C2_PFHxDA	372371	389200			104.5	50 - 150

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d		
Injection Date:	14-Oct-2021 13:03:56	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	11
Sample Info:	ICV 500_SVLC-1712	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.694	1.700	0	1016483	20	>100:1			1000.00	1133.07	95.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.694	1.700	0/0	454353	18	>100:1			500.00	413.64		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.057	2.066	0	1007475	16	>100:1			1000.00	1120.79	94.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.057	2.066	0/0	449180	17	>100:1			500.00	413.07		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.119	1	335782	17	>100:1			1000.00	1124.92	96	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.129	0/-1	164961	17	>100:1	Target = 3.78		442.50	353.37		
298.9 > 99	44	2.120	2.129		43975	17	>100:1	3.75 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.468	2.475	0/-1	144419	17	>100:1	Target = 3.45		470.00	416.87		
349 > 99	44	2.468	2.475		40335	17	>100:1	3.58 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.406	0	257625	18	>100:1			5000.00	5764.90	96.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.398	2.406	0/0	33811	18		Target = 1.43		467.50	342.49		
327 > 81	63	2.389	2.406		28595	23	>100:1	1.18 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.433	2.440	0	918279	19	>100:1			1000.00	1121.53	92.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.442	2.440	1/1	384454	19	>100:1	Target = 16.37		500.00	407.60		
313 > 119	49	2.442	2.440		22957	19	>100:1	16.74 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.555	2.562	0	805852	18	>100:1			5000.00	5569.61	93.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.555	2.562	0/0	261087	19	>100:1	Target = 0.74		2500.00	2109.24		
285 > 185	66	2.555	2.562		367072	18	>100:1	0.71 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.822	2.827	0	908492	19	>100:1			1000.00	1133.79	93.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.822	2.827	0/0	378367	19	>100:1	Target = 3.21		500.00	419.71		
363 > 169	47	2.822	2.827		113715	18	>100:1	3.32 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.839	2.845	0	275956	17	>100:1			1000.00	1121.97	93.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.839	2.845	0/0	122408	27	>100:1	Target = 3.47	5.15	456.00	367.91		
399 > 99	45	2.839	2.845		37796	24	>100:1	3.23 (1.73-5.21)	8.42				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.866	2.862	1/1	3014971	19	>100:1	Target = 2.28		2355.00	2009.70		
377 > 85	45	2.866	2.862		1269037	18	>100:1	2.37 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.211	3.215	0/0	123768	22	>100:1	Target = 3.62		475.00	413.04		
449 > 99	45	3.211	3.215		34556	21	>100:1	3.58 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.173	3.183	0	249677	21	>100:1			5000.00	5713.82	91.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.180	3.177	1/1	33540	25		Target = 1.19		475.00	425.87		
427 > 81	64	3.180	3.177		26099	22	>100:1	1.28 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.199	3.208	0	908055	23	>100:1			1000.00	1200.07	103.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.205	3.208	0/0	370518	21	>100:1	Target = 2.34		500.00	405.27		
413 > 169	53	3.205	3.208		170226	22	>100:1	2.17 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.569	3.572	0	255471	18	>100:1			1000.00	1127.56	95.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.569	3.580	0/0	121398	42	>100:1	Target = 4.00	3.58	462.75	393.64		M
499 > 99	54	3.569	3.580		30305	34	>100:1	4.00 (2.00-6.01)	8.43				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.775	3.776	0/0	1479987	20	>100:1			2330.00	1898.41		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.909	3.911	0/0	105789	22	>100:1	Target = 3.83		480.00	409.53		
549 > 99	54	3.909	3.911		28410	16	>100:1	3.72 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.206	4.207	0/0	99246	15	>100:1	Target = 3.87		482.50	403.78		
599 > 99	54	4.206	4.207		24201	15	>100:1	4.10 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	0/0	1290860	16	>100:1			2355.00	1934.78		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.569	3.580	0	897681	20	>100:1			1000.00	1157.63	97.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.569	3.580	0/0	328419	20	>100:1	Target = 4.21		500.00	419.16		
463 > 169	56	3.577	3.580		72683	19	>100:1	4.51 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.873	0	475678	20	>100:1			1000.00	1135.77	99	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.871	3.880	0/0	228744	17	>100:1	Target = 49.05		500.00	424.13		
498>478	55	3.871	3.880		4181	22	35:1	54.71 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.909	3.911	0	228090	18	>100:1			5000.00	6031.93	99.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.917	3.918	0/0	28769	23	>100:1	Target = 1.27		480.00	427.12		
527 > 81	65	3.909	3.918		16387	17	77:1	1.75 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.499	4.500	0/0	132403	20	>100:1	Target = 2.25		2410.00	1924.91		
627 > 80	65	4.499	4.500		60705	18	>100:1	2.18 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.917	3.918	0	772125	18	>100:1			1000.00	1136.89	95.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.917	3.926	0/0	326127	17	>100:1	Target = 8.94		500.00	418.03		
513 > 169	51	3.917	3.926		41766	16	>100:1	7.80 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.072	4.073	0	1151569	16	>100:1			5000.00	5620.19	95	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.072	4.081	0/0	84841	15	>100:1	Target = 1.38		500.00	482.23		
570 > 483	58	4.072	4.081		54607	16	>100:1	1.55 (0.69-2.08)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.224	4.226	0	739456	17	>100:1			1000.00	1169.76	102.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.224	4.226	0/0	277180	15	>100:1	Target = 8.27		500.00	422.65		
563 > 169	52	4.224	4.226		35770	17	>100:1	7.74 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.224	4.226	0	1013351	17	>100:1			5000.00	5902.68	95.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.243	4.235	1/1	78658	16	>100:1	Target = 1.95		500.00	363.64		
584 > 526	60	4.234	4.235		49894	18	>100:1	1.57 (0.97-2.92)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.296	4.298	0	135887	14	>100:1			1000.00	1068.62	88.9	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.314	4.315	0	56524	14	>100:1			1000.00	972.51	77.9	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.463	0	128004	17	>100:1			1000.00	1089.80	87.5	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.477	4.485	0	63095	16	>100:1			1000.00	1148.67	95.9	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.485	4.492	0	682169	18	>100:1			1000.00	1135.76	96.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.492	4.492	0/0	282457	17	>100:1	Target = 5.93		500.00	404.27		
613 > 169	38	4.492	4.492		50088	16	>100:1	5.63 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.728	0/0	160349	17	>100:1	Target = 2.90		500.00	434.50		
663 > 169	38	4.727	4.728		58158	23	>100:1	2.75 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.940	4.935	1	912400	22	>100:1			1000.00	1138.80	98.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.940	4.940	0/-1	344670	21	>100:1	Target = 6.34		500.00	446.19		
713 > 169	42	4.940	4.940		51443	22	>100:1	6.70 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.316	5.313	1	389200	19	>100:1			1000.00	1182.79	104.5	
*** 37 13C2_PFDA**													
515 > 470		3.917	3.918	0	677389	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.442	2.440	1	819362	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.205	3.208	0	682755	22	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.694	1.700	0	783333	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.569	3.572	0	224159	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

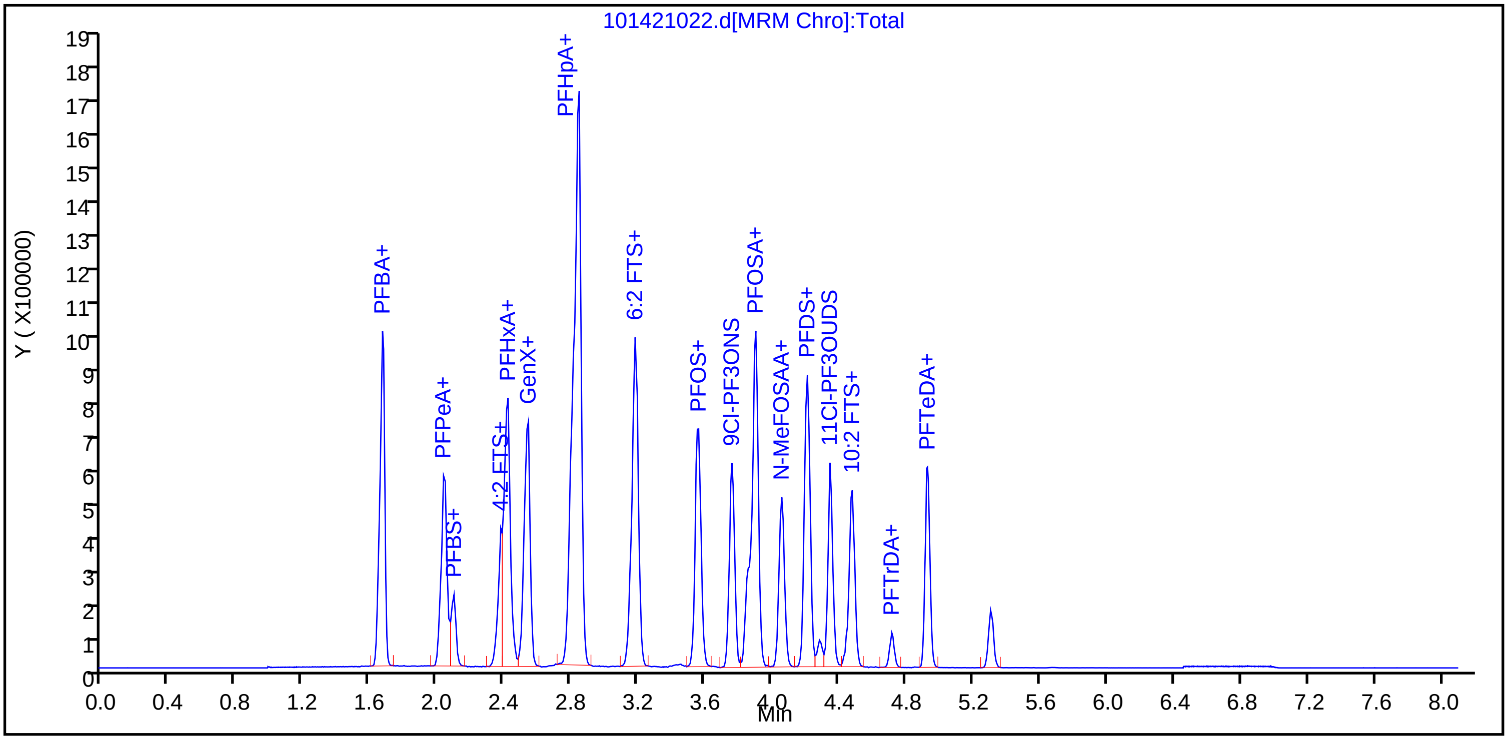
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

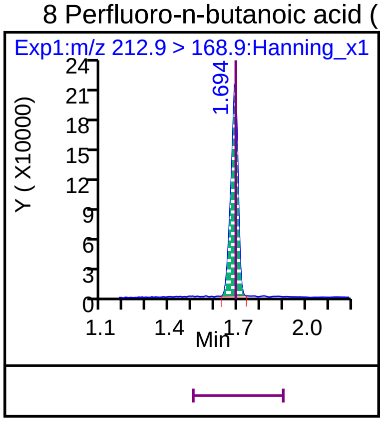
Report Date: 19-Oct-2021 08:49:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

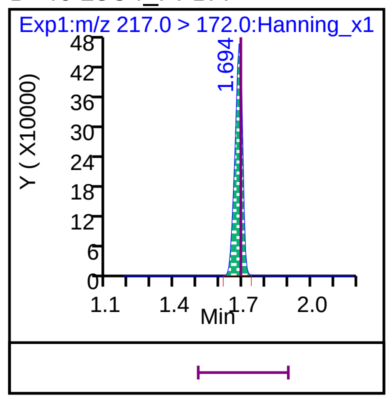
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d		
Injection Date:	14-Oct-2021 13:03:56	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICV 500_SVLC-1712
Sample Info:	ICV 500_SVLC-1712		
Dil. Factor:	1	Operator:	Matthew M. Miller



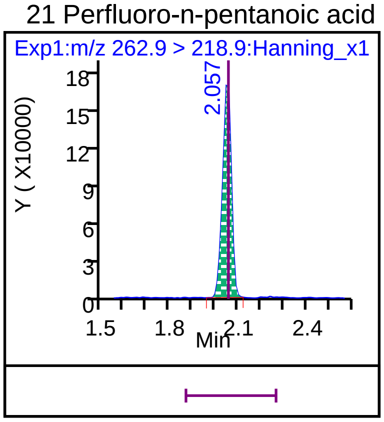
8 Perfluoro-n-butanoic acid (PFBA)



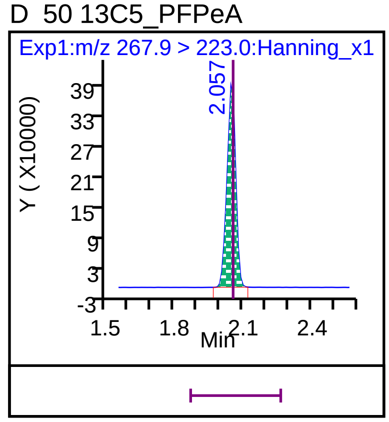
D 46 13C4_PFBA



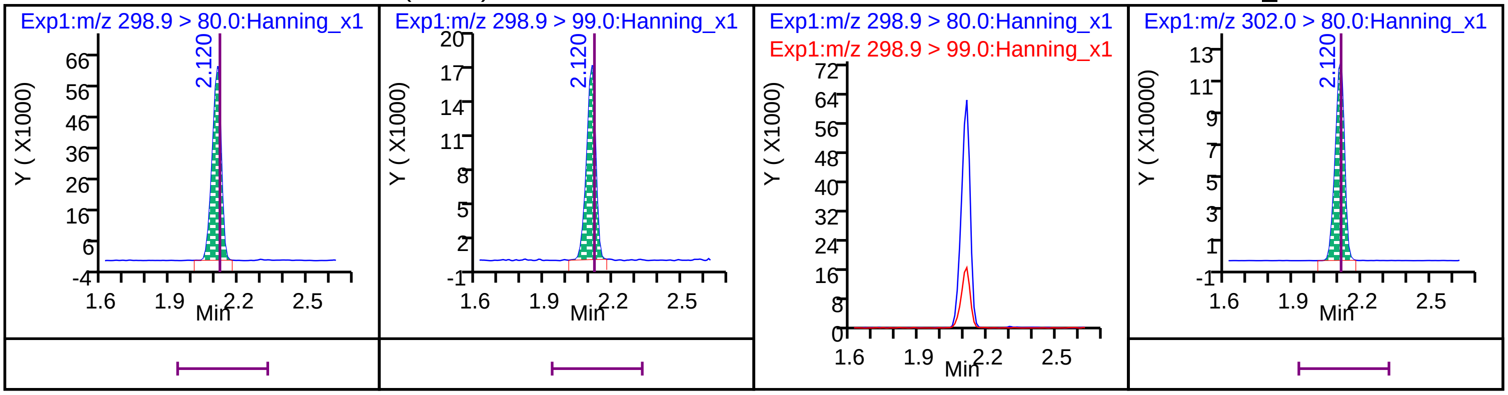
21 Perfluoro-n-pentanoic acid (PFPeA)



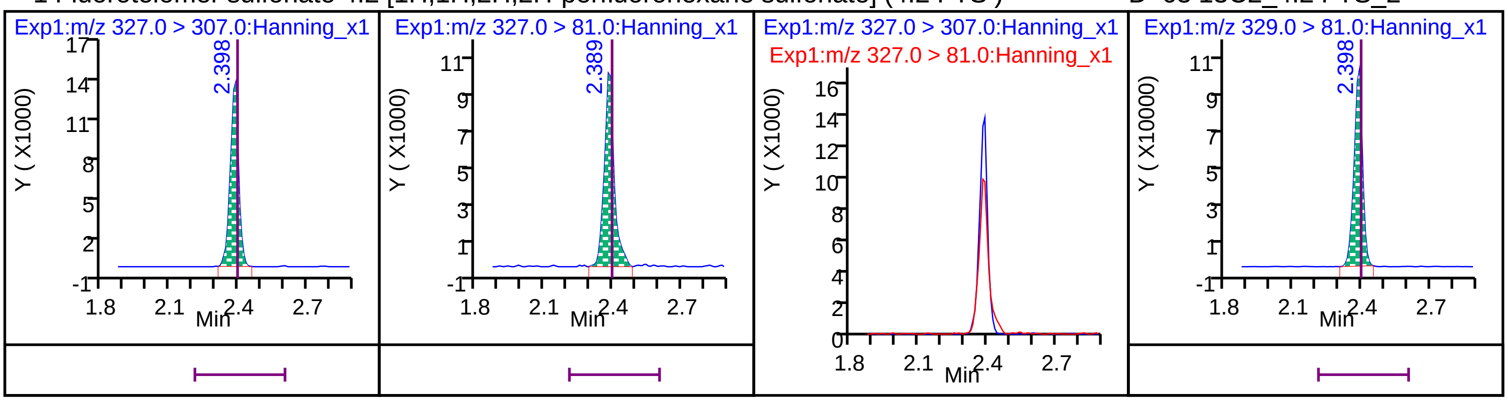
D 50 13C5_PFPeA



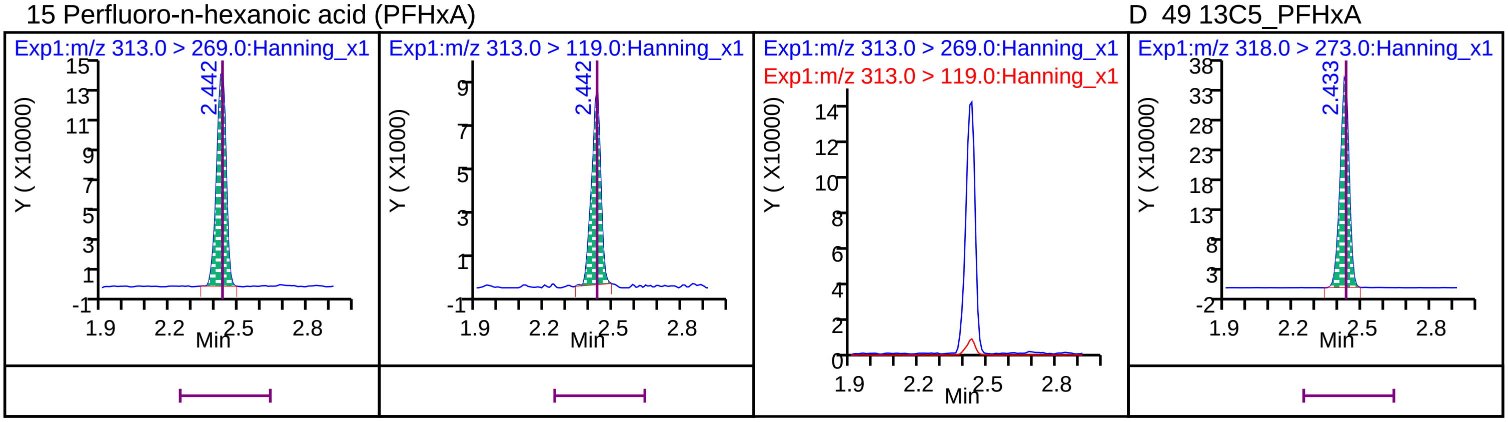
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



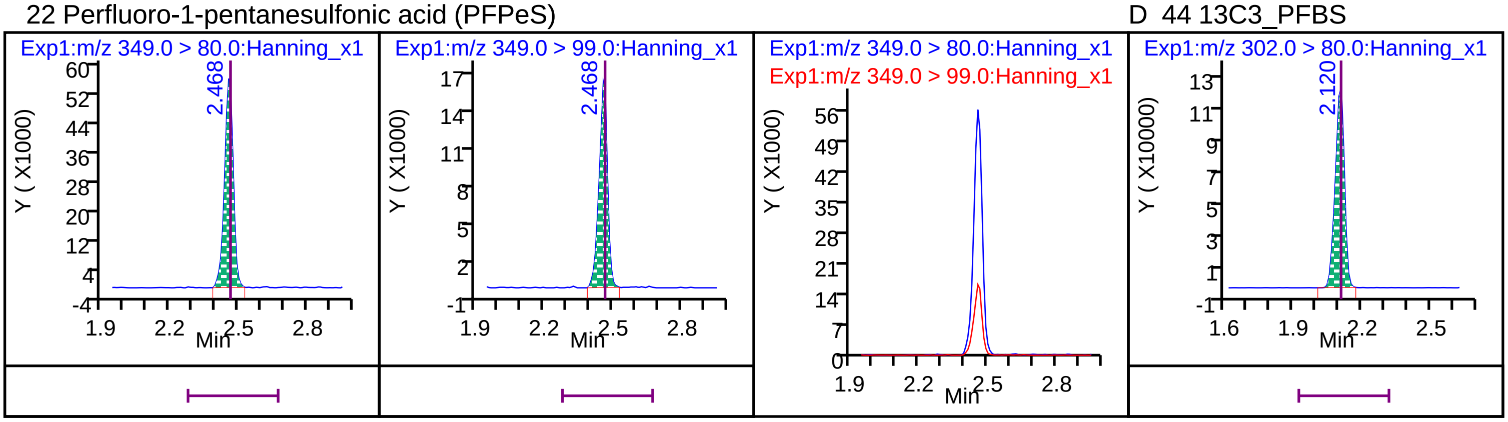
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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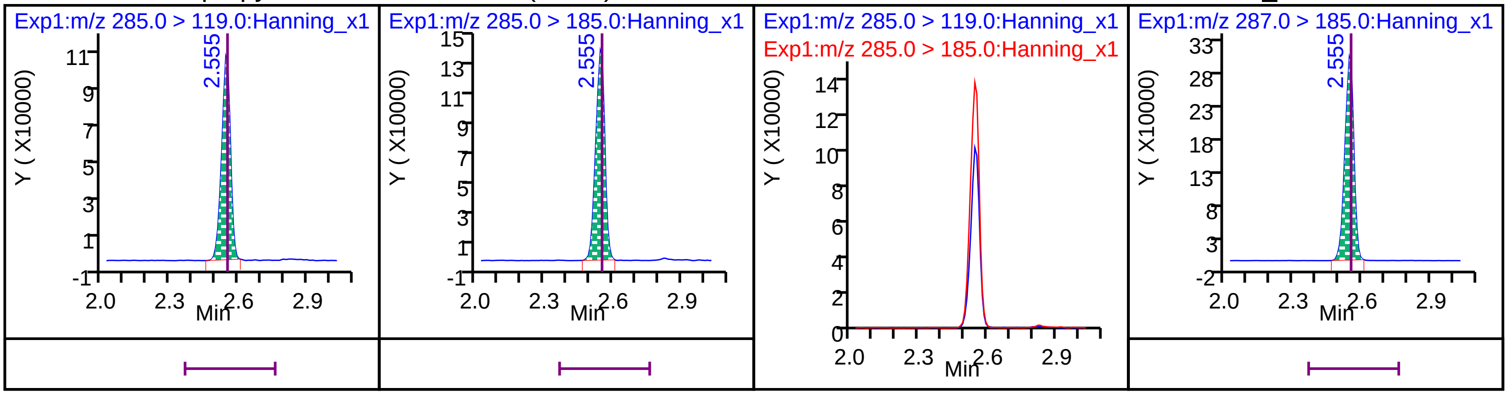
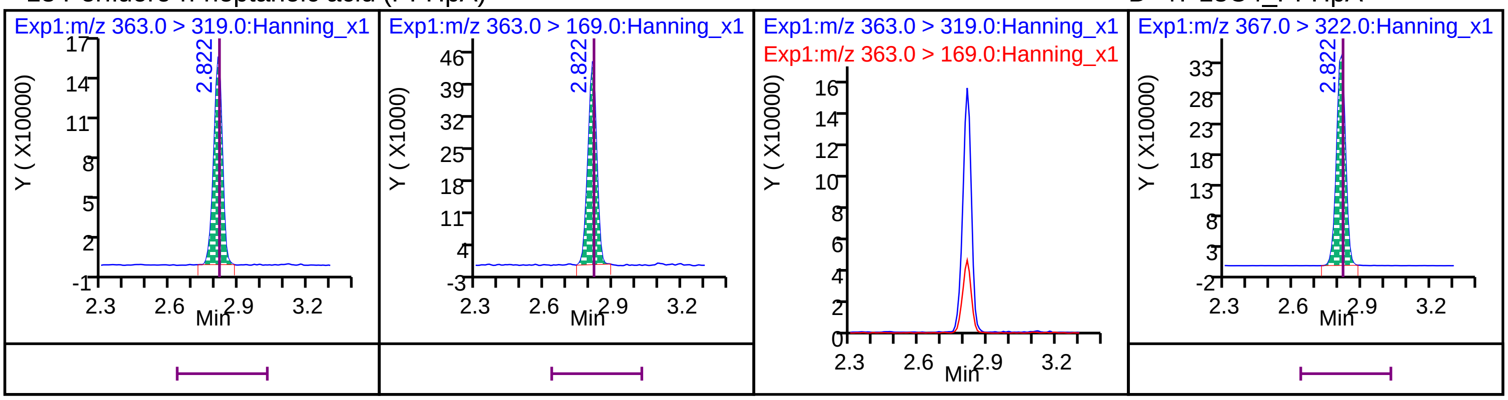
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d

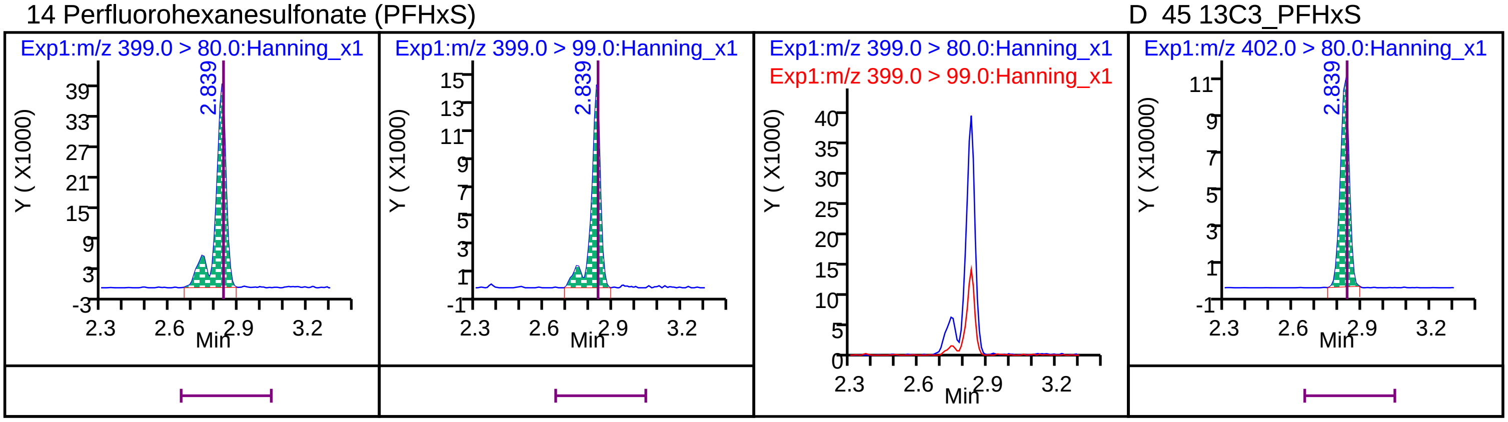
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



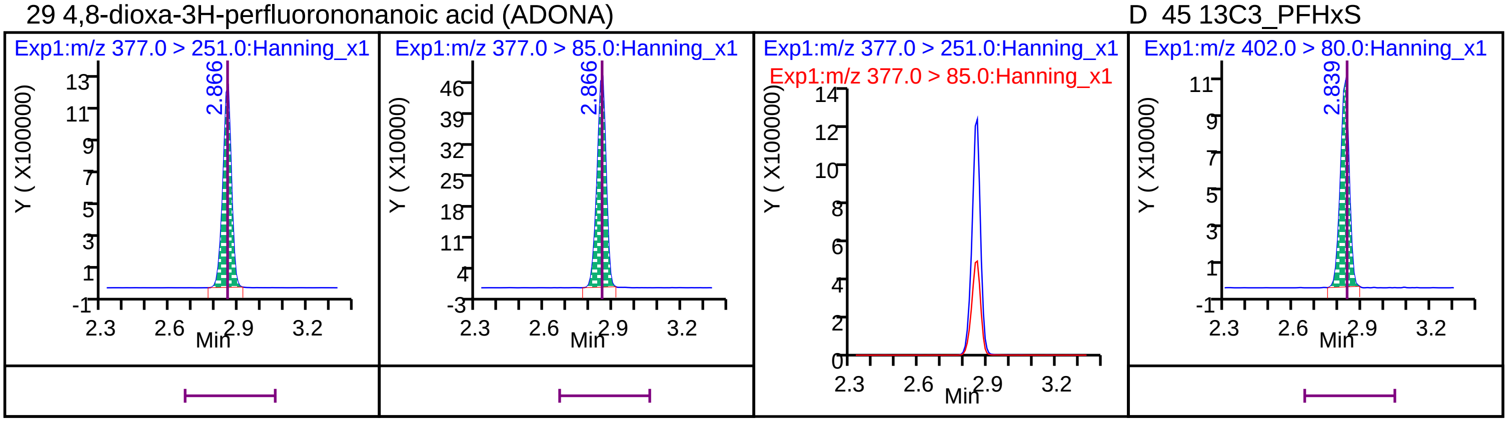
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

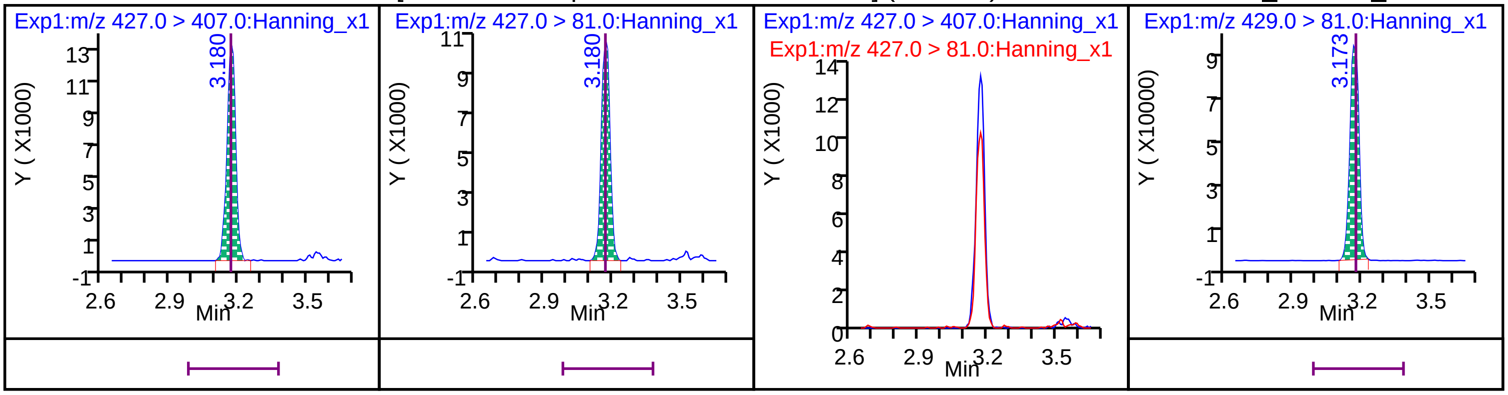


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

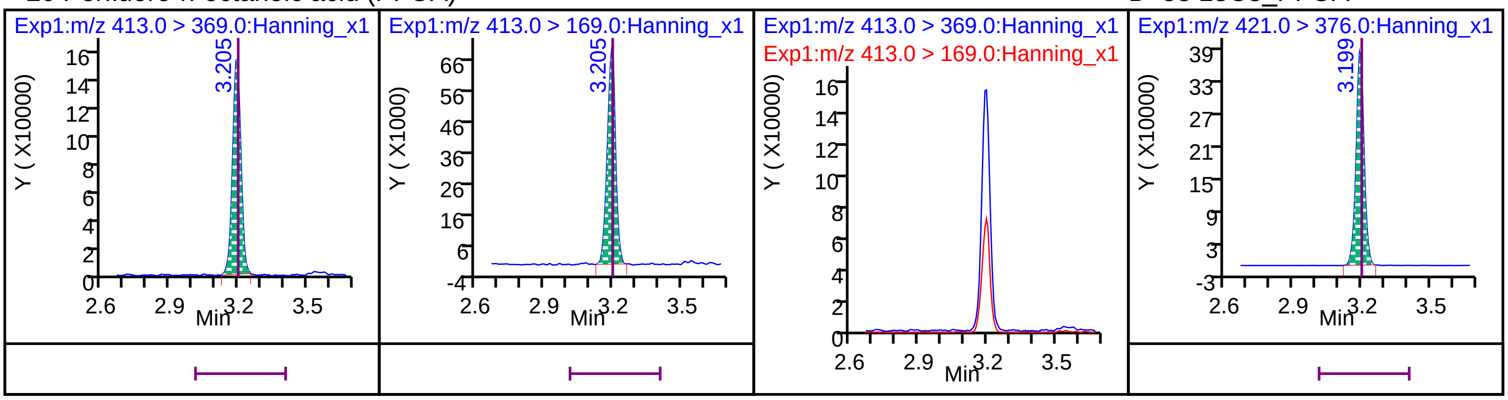


Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d

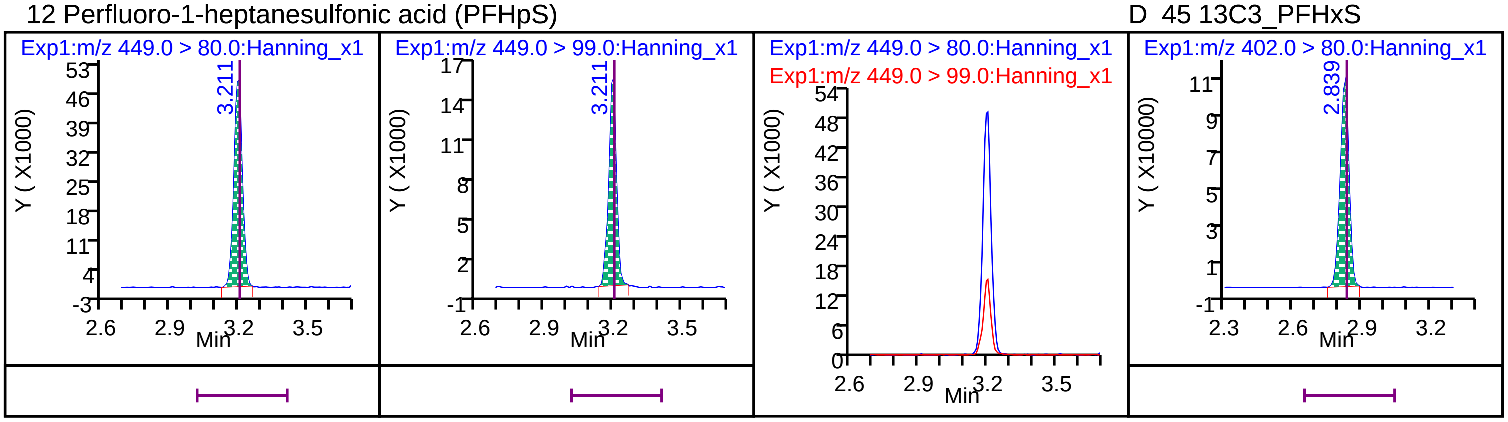
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



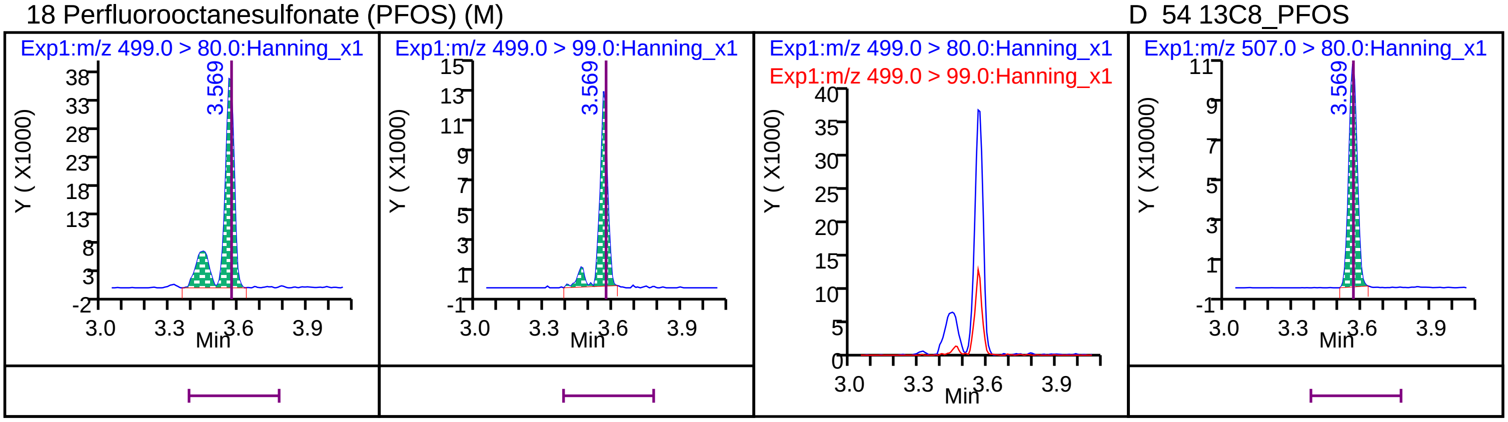
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

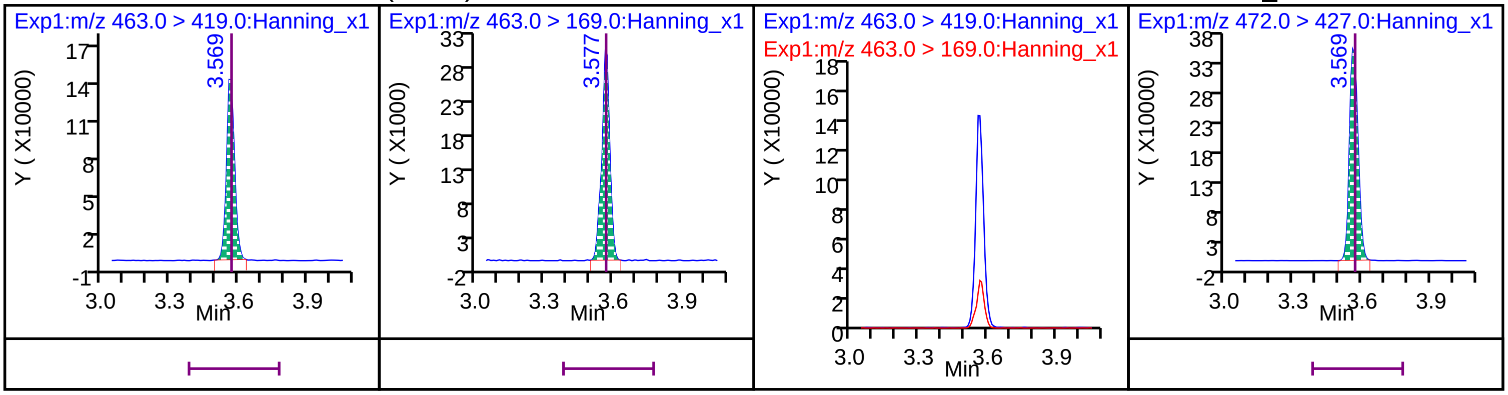


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

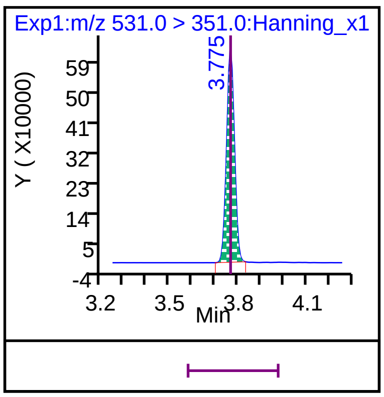


Report Date: 19-Oct-2021 08:49:01 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d

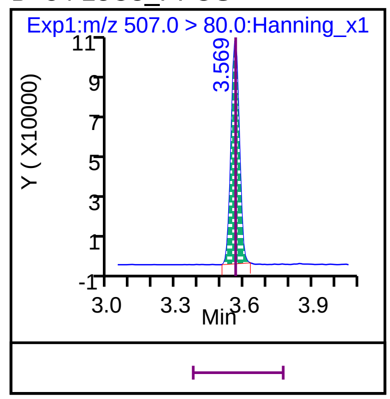
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



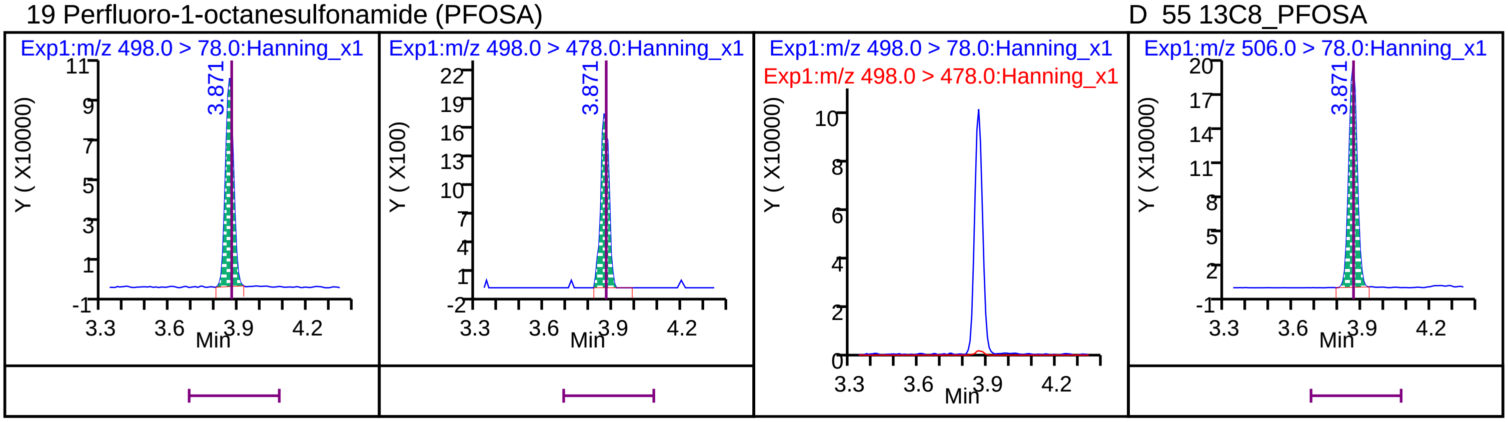
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



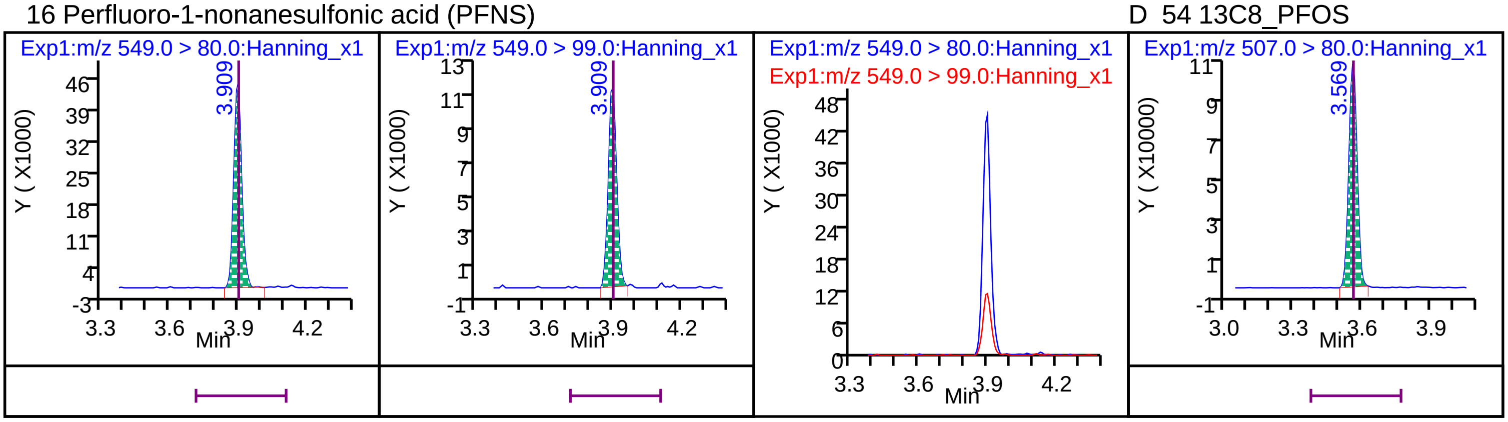
D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



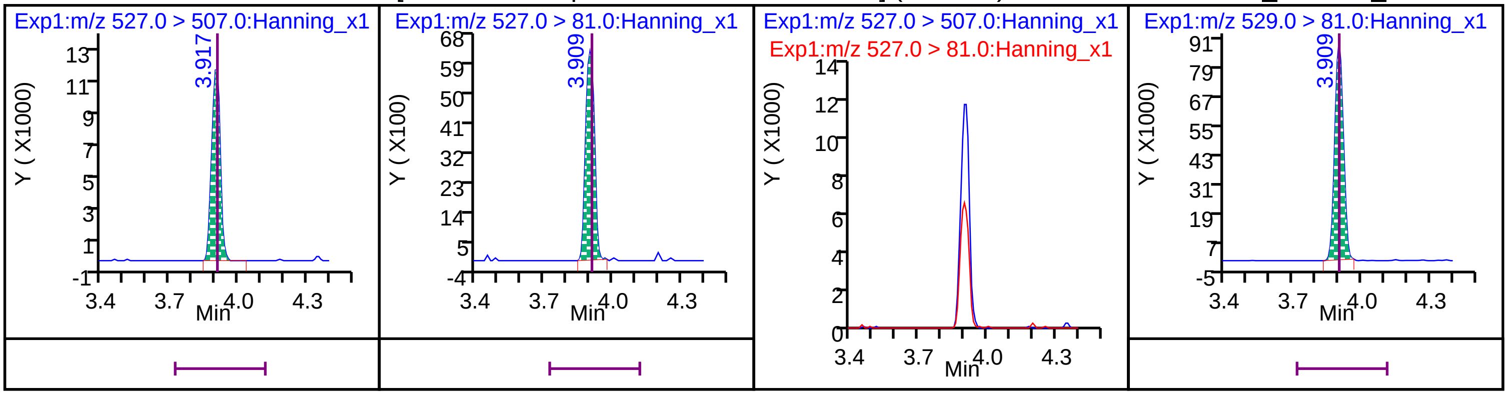
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



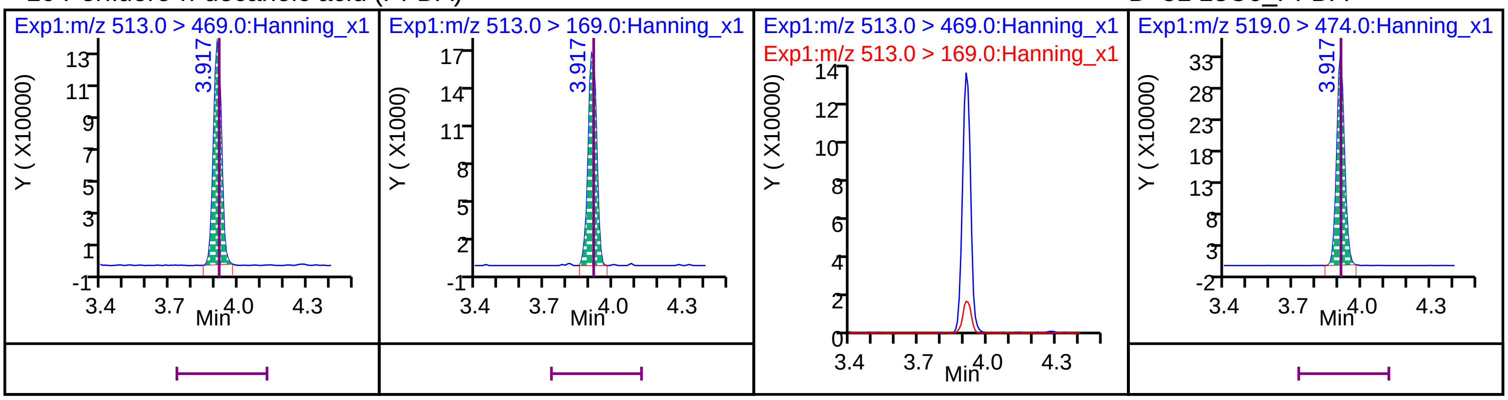
Report Date: 19-Oct-2021 08:49:01 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d

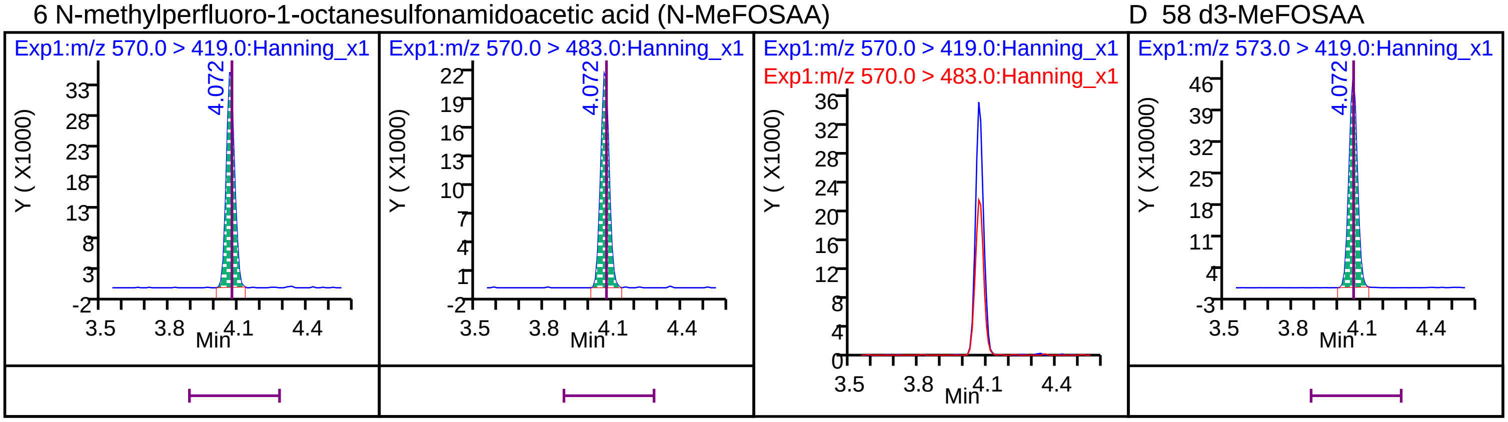
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



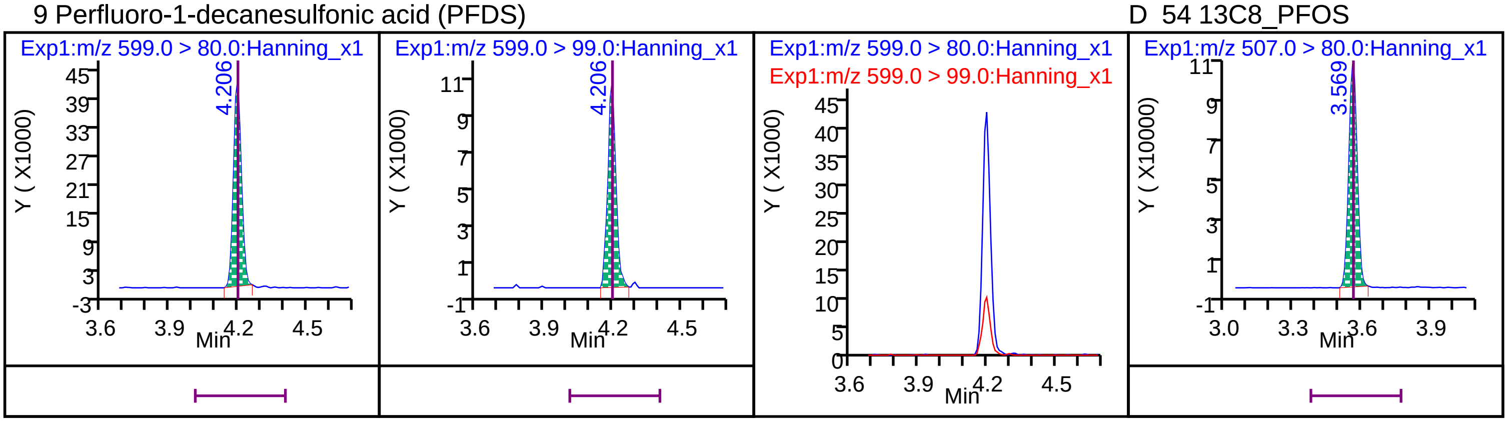
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



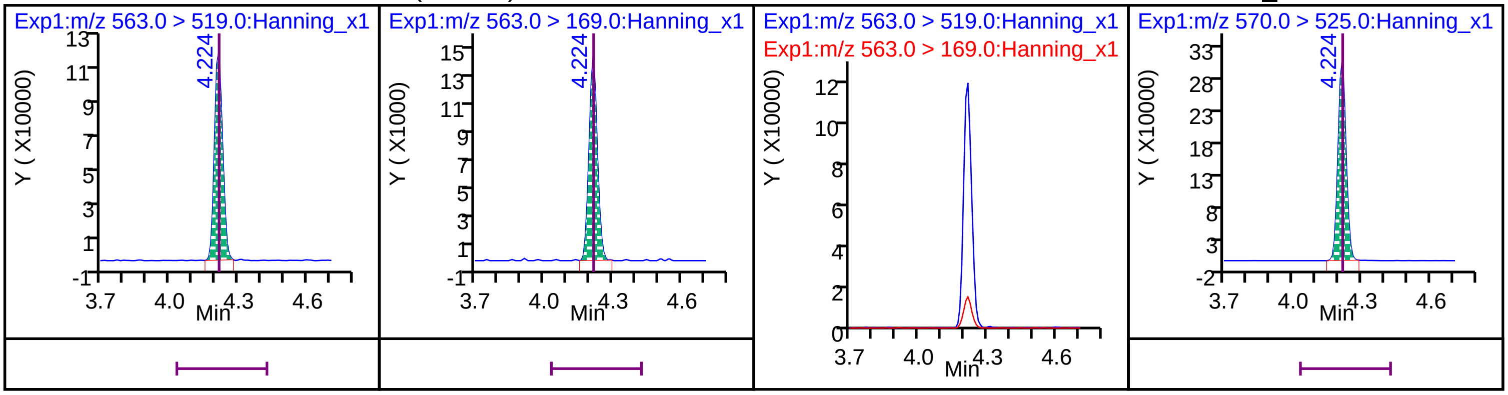
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



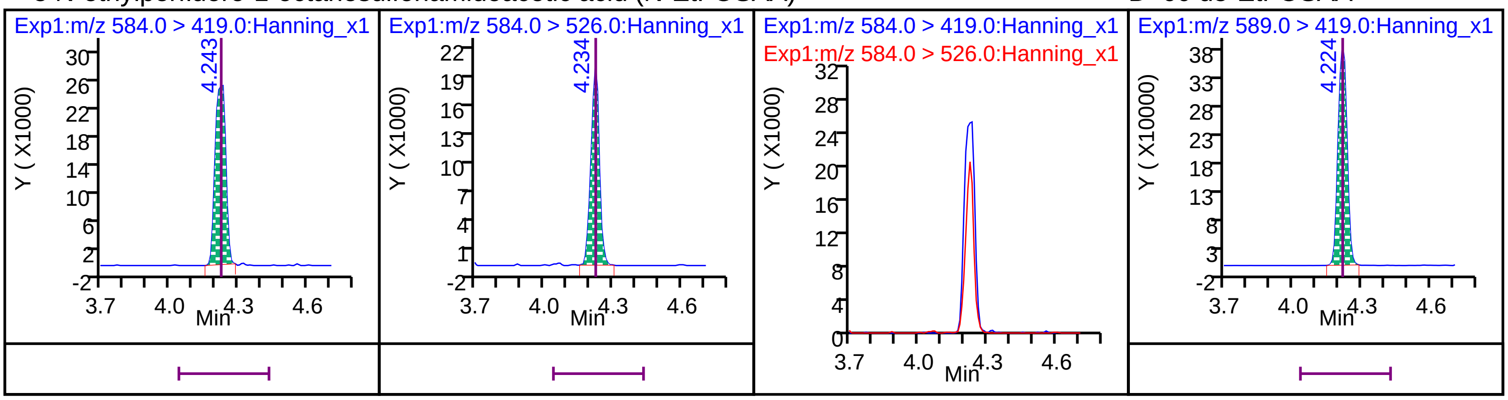
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



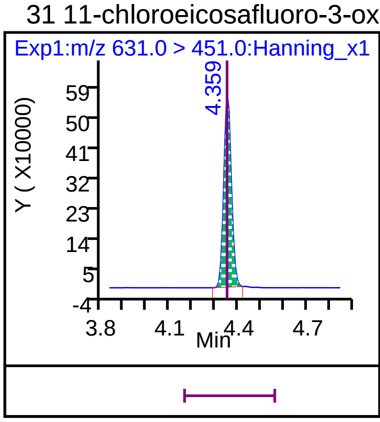
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

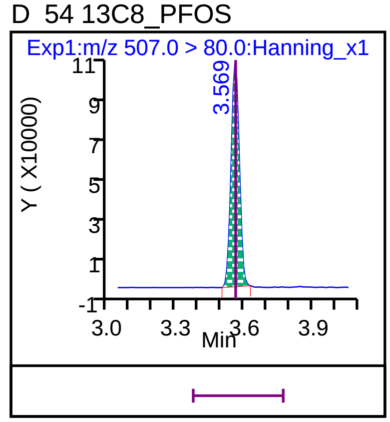


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

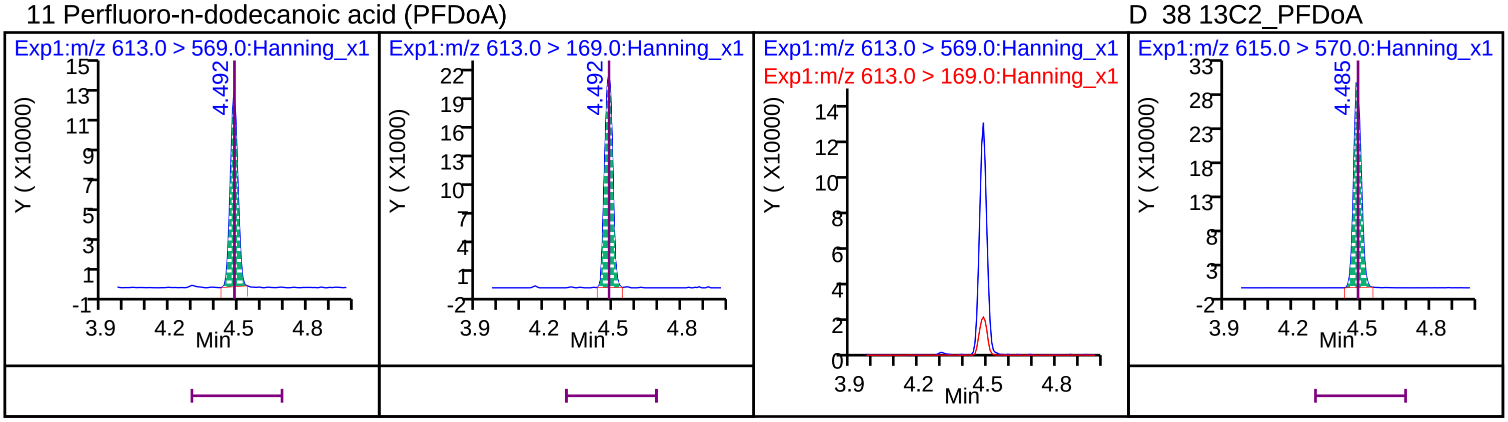


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS

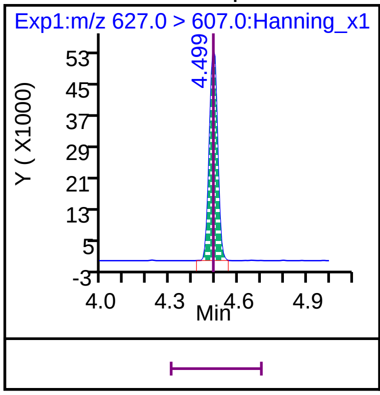


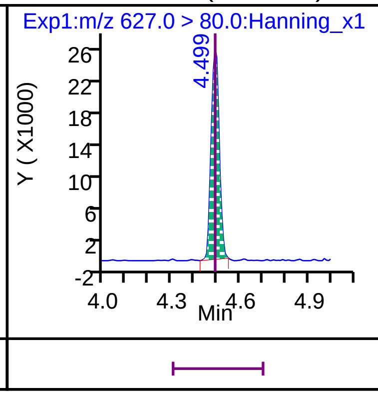


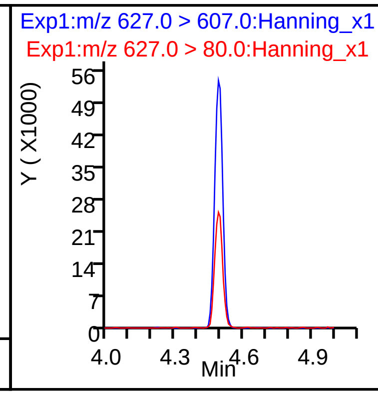
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



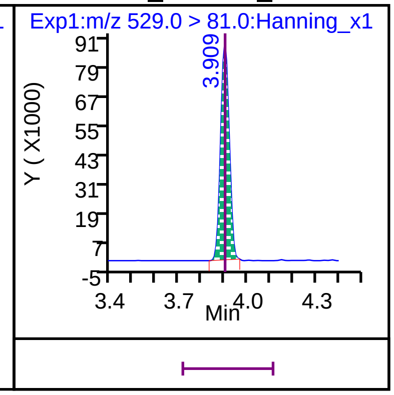
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS)



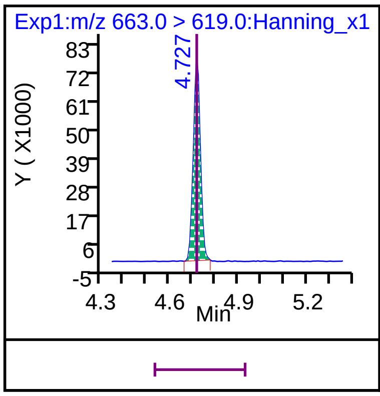


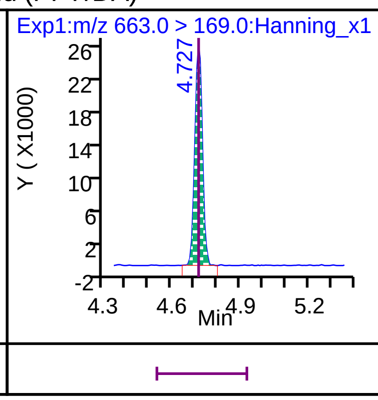


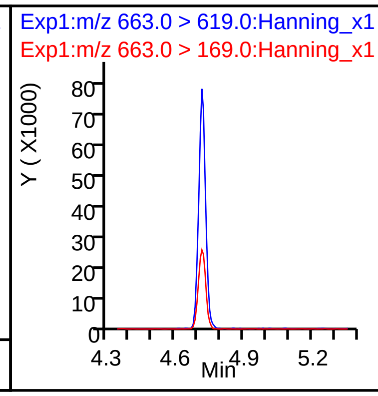
D 65 13C2_8:2 FTS_2



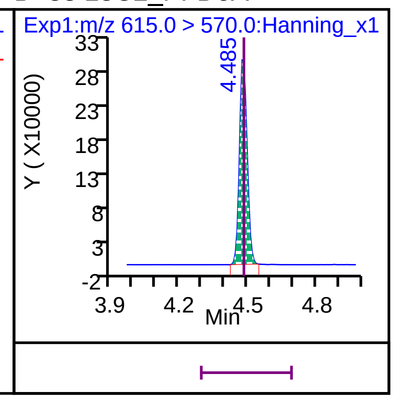
24 Perfluoro-n-tridecanoic acid (PFTrDA)



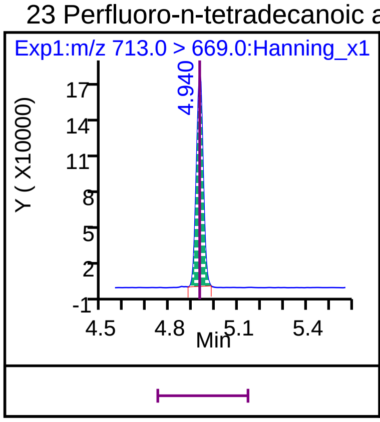


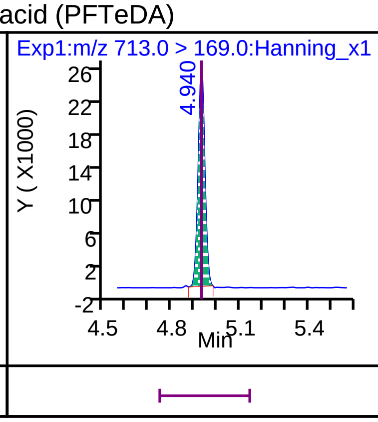


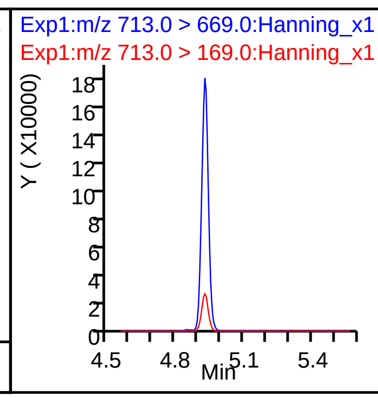
D 38 13C2_PFDoA



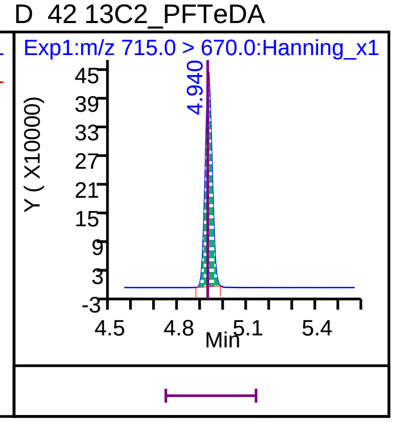
23 Perfluoro-n-tetradecanoic acid (PFTeDA)



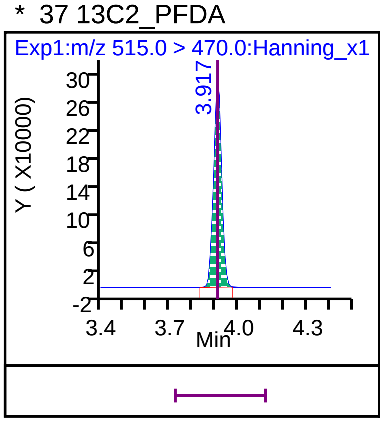




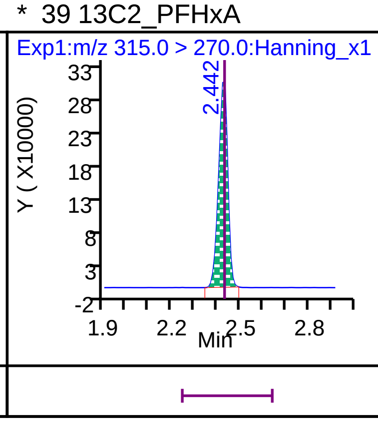
D 42 13C2_PFTeDA



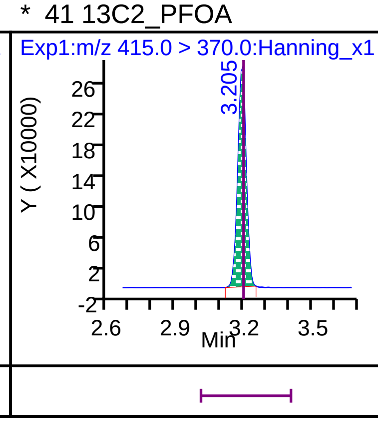
* 37 13C2_PFDA



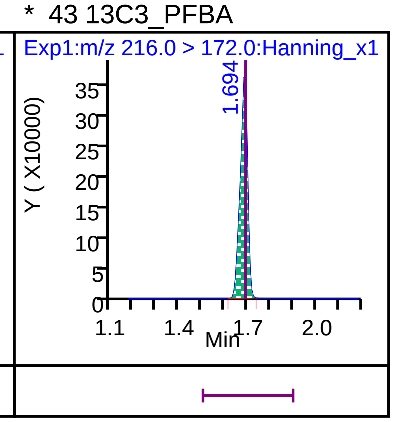
* 39 13C2_PFHxA



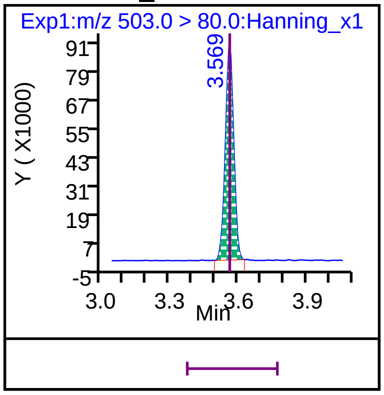
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS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3.569
Y (X1000)
91
79
67
55
43
31
19
7
-5
3.0
3.3
3.6
3.9
Min

Report Date: 19-Oct-2021 08:49:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

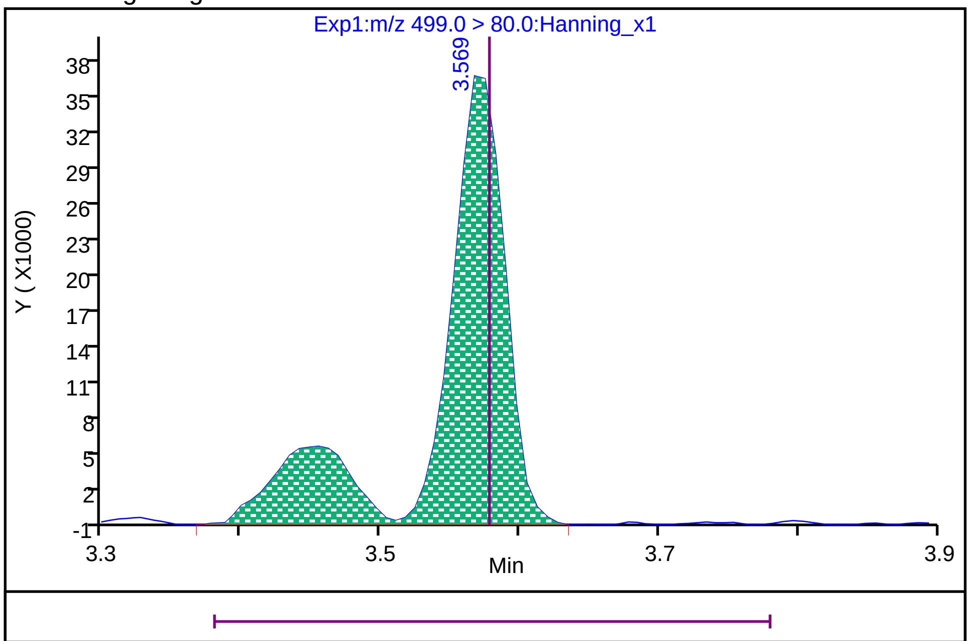
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421022.d		
Injection Date:	14-Oct-2021 13:03:56	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICV 500_SVLC-1712
Sample Info:	ICV 500_SVLC-1712		
Dil. Factor:	1	Operator:	Matthew M. Miller

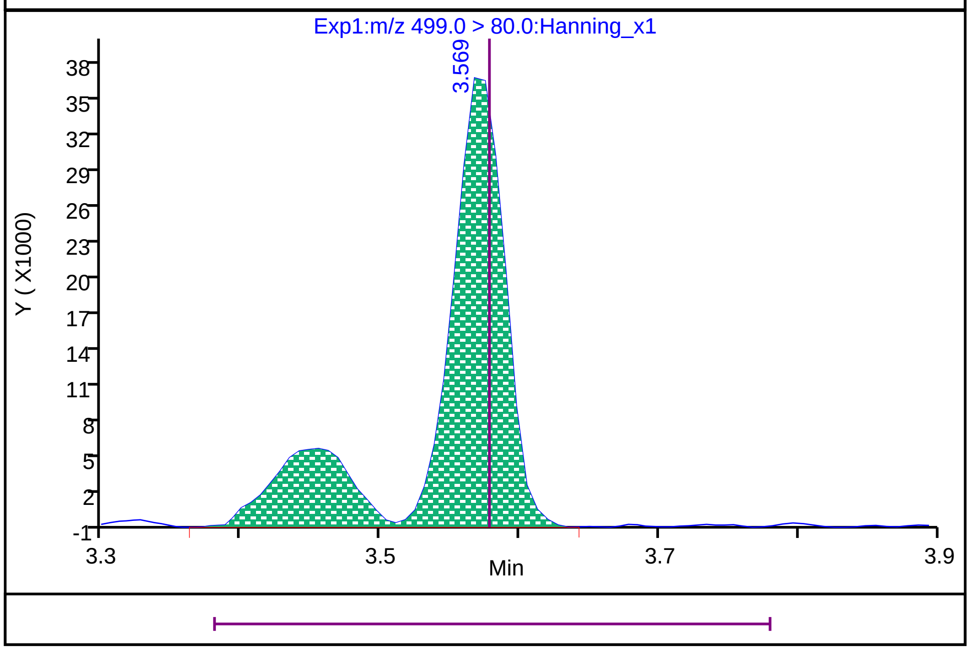
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.569
Area: 121241
Amount: 391.45
Amount Units: ng/L



RT: 3.569
Area: 121398
Amount: 393.64
Amount Units: ng/L



Data Editor: matthew.miller, 19-Oct-2021 08:48:24
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421023.d		
Injection Date:	14-Oct-2021 13:14:29	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	12
Sample Info:	ISOMERS_SVLC-1652	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Surrogates Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.699	1.700	0	978569	21	>100:1			100000	1090.81	92.3	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.065	2.066	0	894598	17	>100:1			100000	995.22	84	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.118	2.119	0	320623	15	>100:1			100000	1074.14	91.7	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.405	2.406	0	249952	17	>100:1			500000	5593.20	93.3	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.448	2.440	1	938631	18	>100:1			100000	1146.39	94.1	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.561	2.562	0	783512	18	>100:1			500000	5415.21	90.8	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.826	2.827	0	895146	19	>100:1			100000	1117.13	91.8	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.835	2.845	0	251166	19	>100:1			100000	1021.18	84.8	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.179	3.183	0	229405	22	>100:1			500000	5249.90	84.5	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.204	3.208	0	774642	22	>100:1			100000	1023.76	88.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.204	3.208	0/0	8963884	43	>100:1	Target = 2.34	5.32	0	1149319		
413 > 169	53	3.204	3.208		3995041	35	>100:1	2.24 (1.17-3.51)	4.10				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.575	3.572	1	219600	19	>100:1			100000	969.23	82.4	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.575	3.580	0	770371	20	>100:1			100000	993.45	83.9	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.875	3.873	1	447968	17	>100:1			100000	1069.61	93.2	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.913	3.911	1	214503	17	>100:1			500000	5672.62	93.7	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.921	3.918	1	769276	19	>100:1			100000	1132.69	95	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.076	4.073	1	1032757	16	>100:1			500000	5040.33	85.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.076	4.081	0/-1	2190624	32	>100:1	Target = 1.38	7.11	0	1388375		
570 > 483	58	4.076	4.081		1649802	32	>100:1	1.32 (0.69-2.08)	3.79				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.220	4.226	0	708331	17	>100:1			100000	1120.53	97.8	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.229	4.226	1	1000763	17	>100:1			500000	5829.36	94.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.229	4.235	0/-1	2366120	33	>100:1	Target = 1.95	6.78	0	1107634		
584 > 526	60	4.229	4.235		1308151	35	>100:1	1.80 (0.97-2.92)	4.18				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.292	4.298	0	133585	21	>100:1			100000	1050.52	87.4	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.319	4.315	1	62185	13	>100:1			100000	1069.91	85.7	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.460	4.463	0	126197	16	>100:1			100000	1074.41	86.2	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.481	4.485	0	61214	17	>100:1			100000	1114.42	93.1	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.489	4.492	0	725223	17	>100:1			100000	1207.44	102.3	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.938	4.935	1	884315	22	>100:1			100000	1103.75	95.6	
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.314	5.313	1	372116	19	>100:1			100000	1130.88	99.9	
*** 37 13C2_PFDA**													
515 > 470		3.921	3.918	1	701745	17	>100:1			0			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	830207	18	>100:1			0			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.204	3.208	0	731044	22	>100:1			0			
*** 43 13C3_PFBA**													
216 > 172		1.699	1.700	0	838971	20	>100:1			0			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.575	3.572	1	229926	18	>100:1			0			

Compound Type Legend

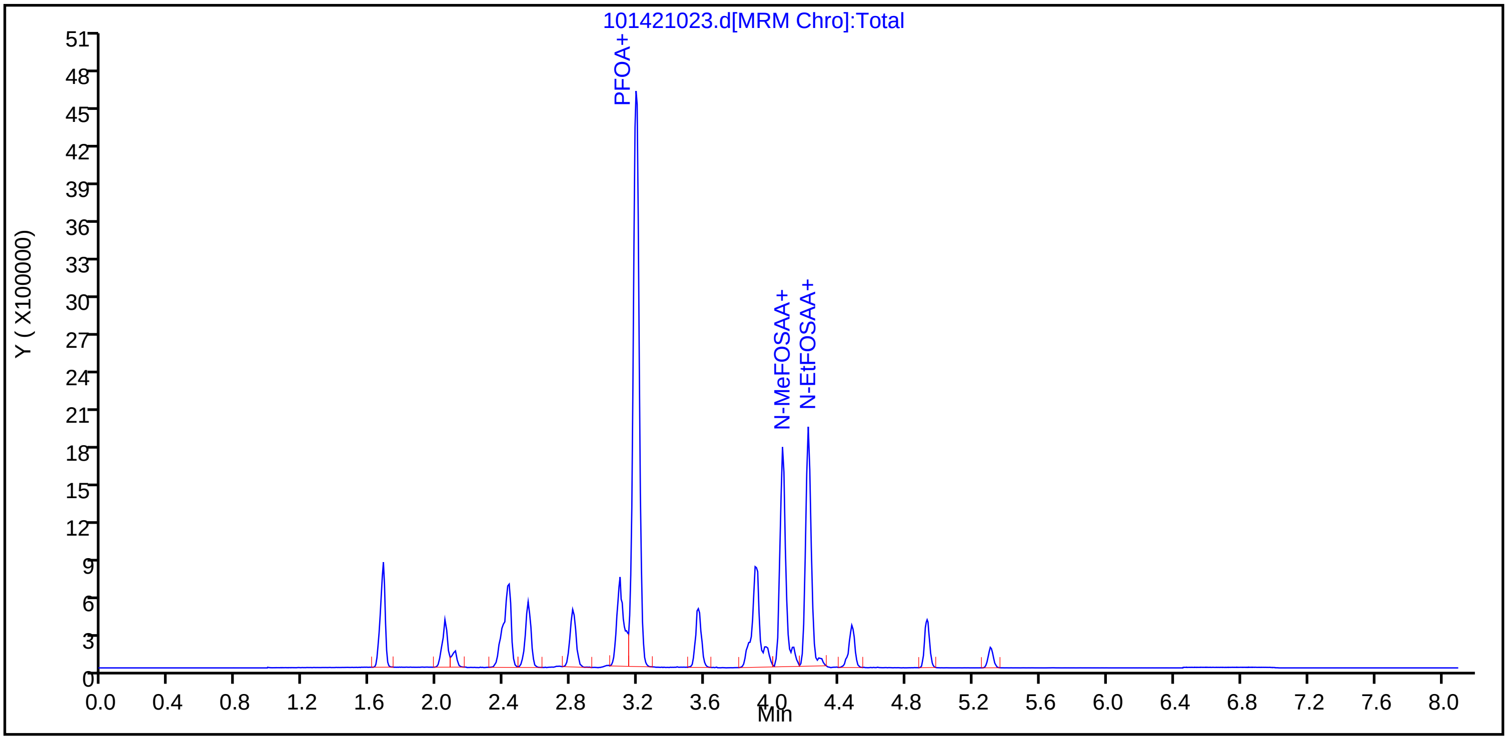
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

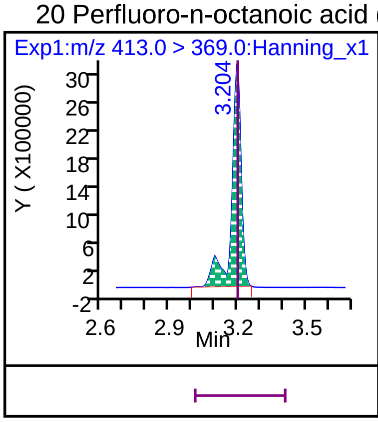
Report Date: 19-Oct-2021 08:49:03 AIM Revision: 2.0.2021.0812

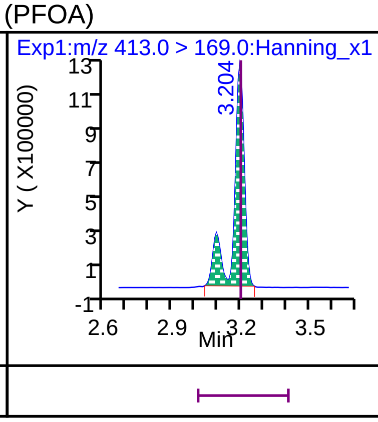
Pace Environmental Services, LLC

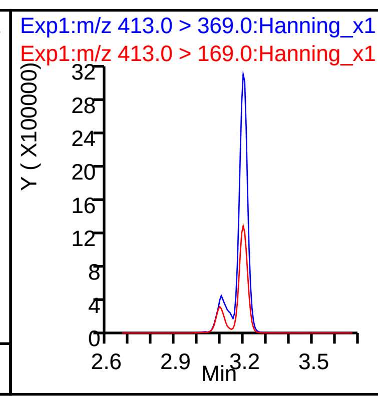
Data File:	\\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b\101421023.d		
Injection Date:	14-Oct-2021 13:14:29	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ISOMERS_SVLC-1652
Sample Info:	ISOMERS_SVLC-1652		
Dil. Factor:	1	Operator:	Matthew M. Miller



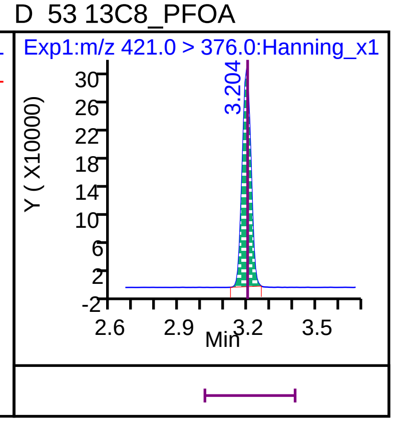
20 Perfluoro-n-octanoic acid (PFOA)



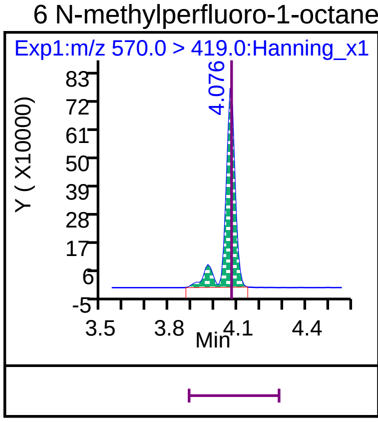


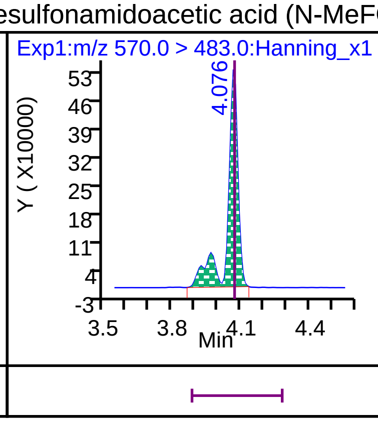


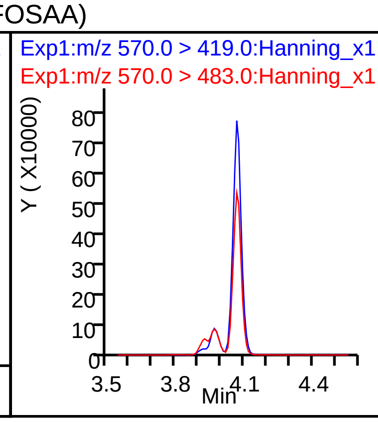
D 53 13C8_PFOA



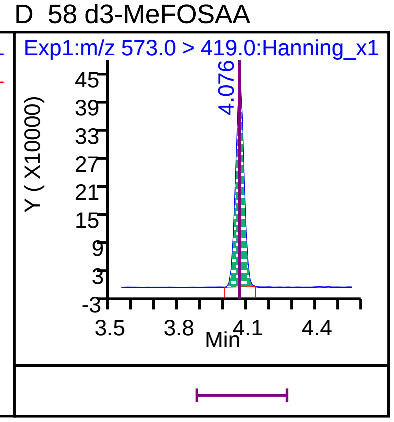
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)



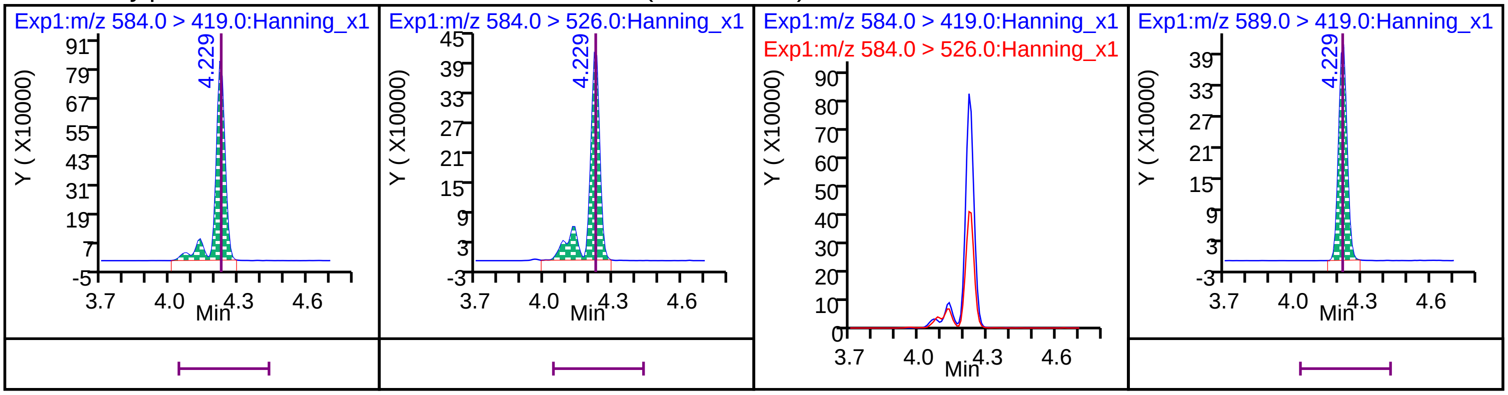




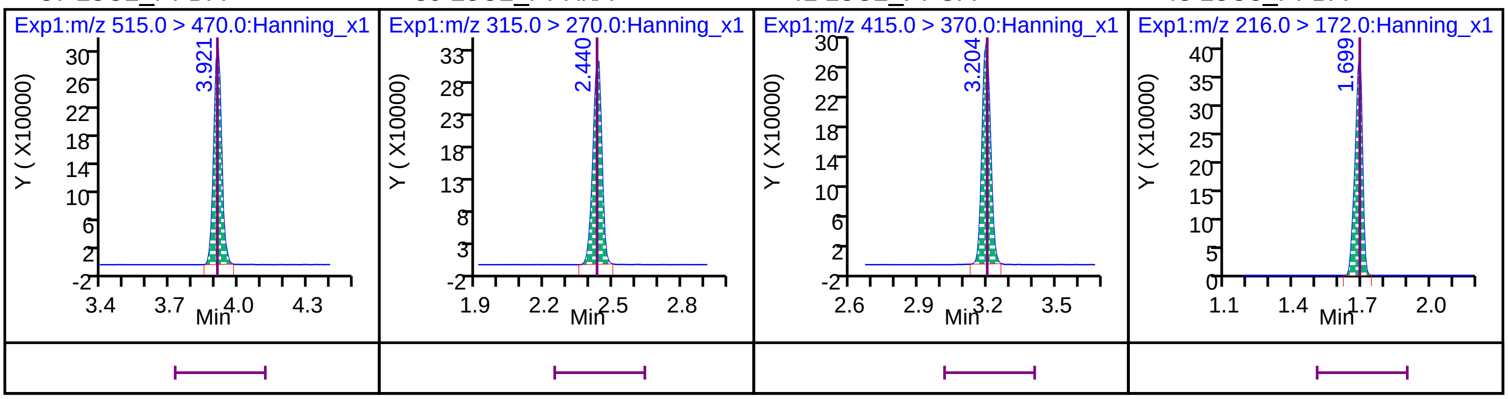
D 58 d3-MeFOSAA



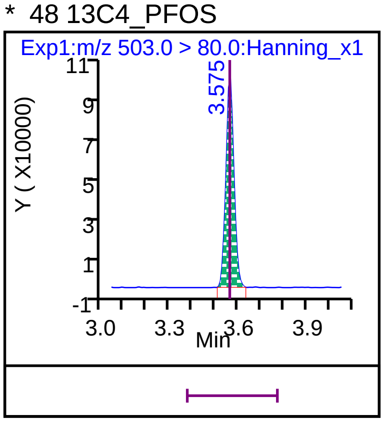
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d		
Injection Date:	28-Oct-2021 11:16:44	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	CCV 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	92.889	92.9	70 - 130
D 46 13C4_PFBA	1060126	1111250			104.8	50 - 150
21 PFPeA			100.00	103.50	103.5	70 - 130
D 50 13C5_PFPeA	1065127	1013844			95.2	50 - 150
D 44 13C3_PFBS	349624	346697			99.2	50 - 150
7 PFBS			88.400	78.035	88.3	70 - 130
D 63 13C2_4:2 FTS_2	267812	323537			120.8	50 - 150
1 4:2 FTS			93.400	86.152	92.2	70 - 130
D 49 13C5_PFHxA	997159	941740			94.4	50 - 150
15 PFHxA			100.00	95.083	95.1	70 - 130
22 PFPeS			93.800	82.240	87.7	70 - 130
28 GenX			200.00	188.81	94.4	70 - 130
D 66 13C3_GenX	863067	715165			82.9	50 - 150
D 47 13C4_PFHpA	975256	943546			96.7	50 - 150
13 PFHpA			100.00	94.655	94.7	70 - 130
D 45 13C3_PFHxS	296300	283170			95.6	50 - 150
14 PFHxS			91.000	88.464	97.2	70 - 130
29 ADONA			94.200	96.451	102.4	70 - 130
2 6:2 FTS			94.800	110.89	117	70 - 130
D 64 13C2_6:2 FTS_2	271560	240700			88.6	50 - 150
D 53 13C8_PFOA	875082	859711			98.2	50 - 150
20 PFOA			100.00	99.531	99.5	70 - 130
12 PFHpS			95.200	84.825	89.1	70 - 130
D 54 13C8_PFOS	266405	242805			91.1	50 - 150
18 PFOS			92.800	93.641	100.9	70 - 130
17 PFNA			100.00	100.44	100.4	70 - 130
D 56 13C9_PFNA	917935	822524			89.6	50 - 150
30 9Cl-PF3ONS			93.200	89.056	95.6	70 - 130
D 55 13C8_PFOSA	480654	455631			94.8	50 - 150
19 PFOSA			100.00	107.40	107.4	70 - 130
16 PFNS			96.000	106.42	110.8	70 - 130
D 65 13C2_8:2 FTS_2	228965	205992			90	50 - 150
3 8:2 FTS			95.800	119.30	124.5	70 - 130
D 51 13C6_PFDA	809542	761788			94.1	50 - 150
10 PFDA			100.00	98.675	98.7	70 - 130
D 58 d3-MeFOSAA	1212505	912247			75.2	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			100.00	134.85	134.8	70 - 130
9 PFDS			96.400	75.683	78.5	70 - 130
25 PFUdA			100.00	101.00	101	70 - 130
D 60 d5-EtFOSAA	1058921	882829			83.4	50 - 150
D 52 13C7_PFUdA	724388	745296			102.9	50 - 150
5 N-EtFOSAA			100.00	97.471	97.5	70 - 130
D 61 d7-MeFOSE	152911	136219			89.1	50 - 150
32 MeFOSE			100.00	121.95	122	70 - 130
D 57 d3-MeFOSA	72599	60817			83.8	50 - 150
26 MeFOSA			100.00	98.125	98.1	70 - 130
31 11Cl-PF3OUDS			94.200	94.066	99.9	70 - 130
D 62 d9-EtFOSE	146363	128617			87.9	50 - 150
33 EtFOSE			100.00	95.233	95.2	70 - 130
D 59 d5-EtFOSA	65766	62925			95.7	50 - 150
27 EtFOSA			100.00	101.49	101.5	70 - 130
11 PFDoA			100.00	95.966	96	70 - 130
D 38 13C2_PFDoA	709018	648927			91.5	50 - 150
4 10:2 FTS			96.400	113.81	118.1	70 - 130
34 PFDOS			96.800	94.669	97.8	70 - 130
24 PFTrDA			100.00	98.229	98.2	70 - 130
D 42 13C2_PFTeDA	924733	891082			96.4	50 - 150
23 PFTeDA			100.00	93.537	93.5	70 - 130
D 40 13C2_PFHxDA	372371	325837			87.5	50 - 150
35 PFHxDA			100.00	102.14	102.1	70 - 130
36 PFODA			100.00	95.361	95.4	70 - 130

Report Date: 28-Oct-2021 20:18:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d		
Injection Date:	28-Oct-2021 11:16:44	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	CCV 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.707	1.707	1	1111250	19	>100:1			1000.00	1238.71	104.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.707	1.707	1/0	111545	20	59:1			100.00	92.889		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.079	2.079	1	1013844	16	>100:1			1000.00	1127.87	95.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.079	2.079	1/0	113259	16	>100:1			100.00	103.50		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.131	1	346697	16	>100:1			1000.00	1161.49	99.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.131	1/0	37613	18	>100:1	Target = 3.78		88.400	78.035		
298.9 > 99	44	2.131	2.131		11124	15	89:1	3.38 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.477	2.477	1/0	29417	20	>100:1	Target = 3.45		93.800	82.240		
349 > 99	44	2.477	2.477		8810	21	>100:1	3.33 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.407	2	323537	17	>100:1			5000.00	7239.81	120.8	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.407	2.407	0/-2	10681	15	>100:1	Target = 1.43		93.400	86.152		
327 > 81	63	2.407	2.407		7788	11	50:1	1.37 (0.71-2.15)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.442	2.442	1	941740	18	>100:1			1000.00	1150.18	94.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.451	2.451	2/1	91975	17	58:1	Target = 16.37		100.00	95.083		
313 > 119	49	2.451	2.451		5200	15	12:1	17.68 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.572	2.572	2	715165	18	>100:1			5000.00	4942.83	82.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.572	2.572	2/0	20741	21	>100:1	Target = 0.74		200.00	188.81		
285 > 185	66	2.564	2.572		30986	18	>100:1	0.66 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.831	2.831	2	943546	18	>100:1			1000.00	1177.54	96.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.831	2.831	2/0	88624	17	>100:1	Target = 3.21		100.00	94.655		
363 > 169	47	2.831	2.831		27171	19	70:1	3.26 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.840	2.840	2	283170	17	>100:1			1000.00	1151.30	95.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.840	2.840	2/0	30203	25	>100:1	Target = 3.47	5.93	91.000	88.464		
399 > 99	45	2.840	2.840		8071	25	72:1	3.74 (1.73-5.21)	9.32				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.866	2.866	1/-1	148480	18	>100:1	Target = 2.28		94.200	96.451		
377 > 85	45	2.866	2.866		60192	18	>100:1	2.46 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.206	3.206	2/0	26082	20	>100:1	Target = 3.62		95.200	84.825		
449 > 99	45	3.199	3.206		5562	16	64:1	4.68 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.174	3.174	2	240700	23	>100:1			5000.00	5508.39	88.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.174	3.174	2/0	8419	19	72:1	Target = 1.19		94.800	110.89		
427 > 81	64	3.180	3.174		5222	18	48:1	1.61 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.199	3.199	2	859711	22	>100:1			1000.00	1136.18	98.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.199	3.199	2/0	86152	20	64:1	Target = 2.34		100.00	99.531		
413 > 169	53	3.199	3.199		30567	17	35:1	2.81 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.562	3.562	2	242805	19	>100:1			1000.00	1071.65	91.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.562	3.562	2/0	27447	37	>100:1	Target = 4.00	3.61	92.800	93.641		
499 > 99	54	3.577	3.562		5758	31	36:1	4.76 (2.00-6.01)	3.47				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.761	3.761	2/0	65985	17	>100:1			93.200	89.056		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.894	3.894	2/0	26126	24	>100:1	Target = 3.83		96.000	106.42		
549 > 99	54	3.894	3.894		5613	23		4.65 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.190	4.190	2/0	17680	21	90:1	Target = 3.87		96.400	75.683		
599 > 99	54	4.198	4.190		6380	22	46:1	2.77 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.350	4.350	2/0	59648	14	>100:1			94.200	94.066		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.689	4.689	2/0	21005	22	>100:1	Target = 3.65		96.800	94.669		
699 > 99	54	4.689	4.689		5287	24	>100:1	3.97 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.569	3.569	2	822524	18	>100:1			1000.00	1060.71	89.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.569	3.569	2/0	72107	17	>100:1	Target = 4.21		100.00	100.44		
463 > 169	56	3.569	3.569		15431	18	54:1	4.67 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.849	3.849	1	455631	18	>100:1			1000.00	1087.91	94.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.849	3.849	1/0	55484	18	93:1	Target = 49.05		100.00	107.40		
498>478	55	3.834	3.849		1397	13	13:1	39.71 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.902	3.902	2	205992	17	>100:1			5000.00	5447.54	90	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.902	3.902	2/0	7257	15	35:1	Target = 1.27		95.800	119.30		
527 > 81	65	3.894	3.902		5871	21	27:1	1.23 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.485	4.485	2/0	7070	19	>100:1	Target = 2.25		96.400	113.81		
627 > 80	65	4.477	4.485		2807	17	32:1	2.51 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.902	3.902	2	761788	18	>100:1			1000.00	1121.66	94.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.910	3.910	2/0	75951	18	>100:1	Target = 8.94		100.00	98.675		
513 > 169	51	3.902	3.910		6409	17	42:1	11.85 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.053	4.053	2	912247	15	>100:1			5000.00	4452.19	75.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.063	4.063	2/0	18794	36	>100:1	Target = 1.38	6.66	100.00	134.85		
570 > 483	58	4.063	4.063		13147	27	55:1	1.42 (0.69-2.08)	4.28				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.206	4.206	2	745296	16	>100:1			1000.00	1179.00	102.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.206	4.206	1/-1	66763	15	>100:1	Target = 8.27		100.00	101.00		
563 > 169	52	4.206	4.206		9356	18	54:1	7.13 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.206	4.206	1	882829	17	>100:1			5000.00	5142.40	83.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.215	4.215	0/-1	18368	31	>100:1	Target = 1.95	5.32	100.00	97.471		
584 > 526	60	4.215	4.215		9549	32	38:1	1.92 (0.97-2.92)	3.76				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.270	4.270	1	136219	15	>100:1			1000.00	1071.23	89.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.287	2/1	16385	16	89:1			100.00	121.95		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.287	1	60817	14	>100:1			1000.00	1046.37	83.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.287	4.287	1/0	6354	22	33:1	Target = 1.08		100.00	98.125		
512 > 219	57	4.296	4.287		5672	12	32:1	1.12 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.434	4.434	1	128617	16	>100:1			1000.00	1095.02	87.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.441	4.441	1/0	10438	19	31:1			100.00	95.233		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.456	4.456	1	62925	17	>100:1			1000.00	1145.57	95.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.456	4.456	1/0	7307	17	75:1	Target = 1.10		100.00	101.49		
526 > 219	59	4.456	4.456		6702	12	30:1	1.09 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.477	4.477	2	648927	17	>100:1			1000.00	1080.42	91.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.477	4.477	2/0	63783	18	60:1	Target = 5.93		100.00	95.966		
613 > 169	38	4.477	4.477		9709	18	84:1	6.56 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.713	4.713	2/0	34484	18	>100:1	Target = 2.90		100.00	98.229		
663 > 169	38	4.713	4.713		10945	21	>100:1	3.15 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.923	4.923	2	891082	21	>100:1			1000.00	1112.20	96.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.929	4.929	2/0	70566	19	>100:1	Target = 6.34		100.00	93.537		
713 > 169	42	4.923	4.929		10510	19	>100:1	6.71 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.302	5.302	2	325837	19	>100:1			1000.00	990.23	87.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.309	5.309	2/0	67432	18	>100:1	Target = 12.53		100.00	102.14		
813 > 269	40	5.309	5.309		5663	22	>100:1	11.90 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.672	5.672	3/1	46118	21	>100:1	Target = 152.15		100.00	95.361		
913 > 319	40	5.672	5.672		368	22	89:1	125.32 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.902	3.902	2	780168	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.442	2.442	1	918672	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.206	3.206	2	885768	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.707	1.707	1	1042366	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.562	3.562	2	254557	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

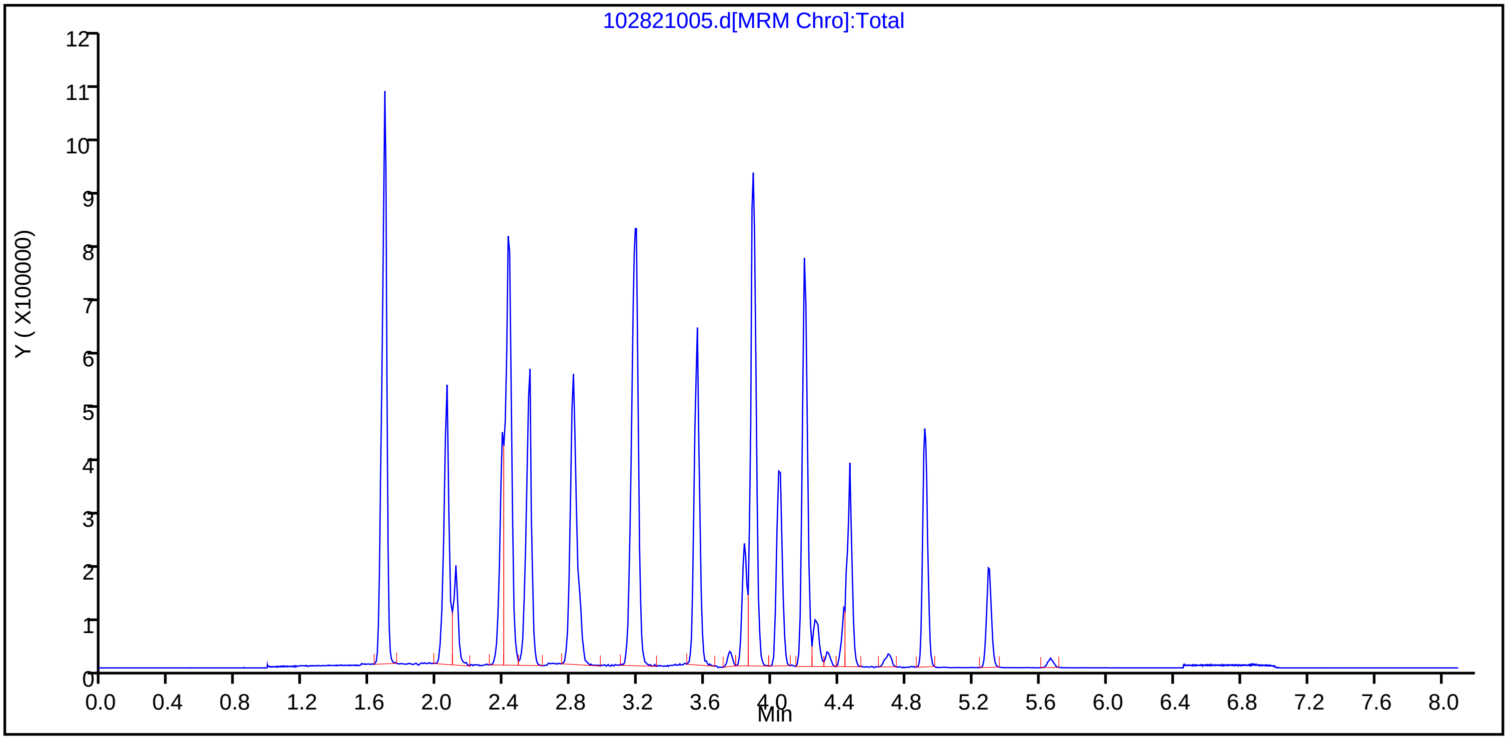
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

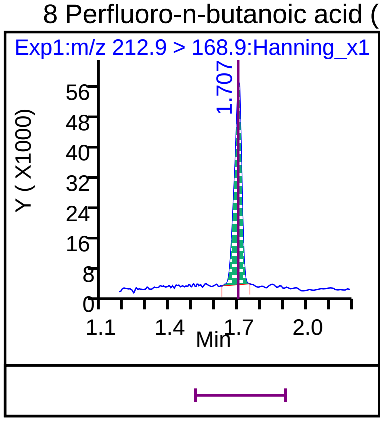
Report Date: 28-Oct-2021 20:18:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

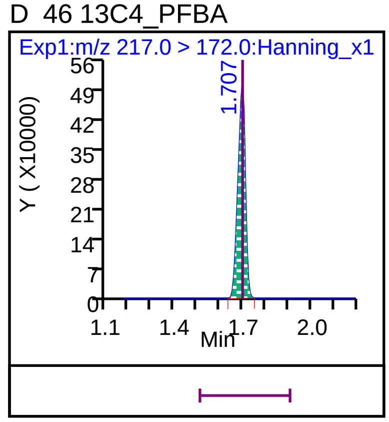
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d		
Injection Date:	28-Oct-2021 11:16:44	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller



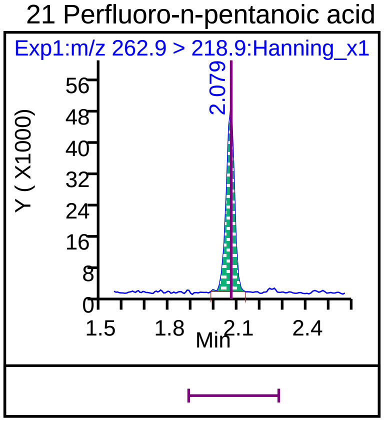
8 Perfluoro-n-butanoic acid (PFBA)



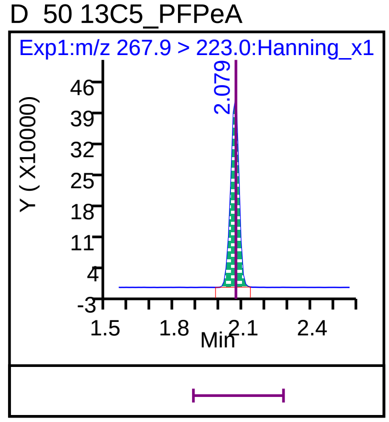
D 46 13C4_PFBA



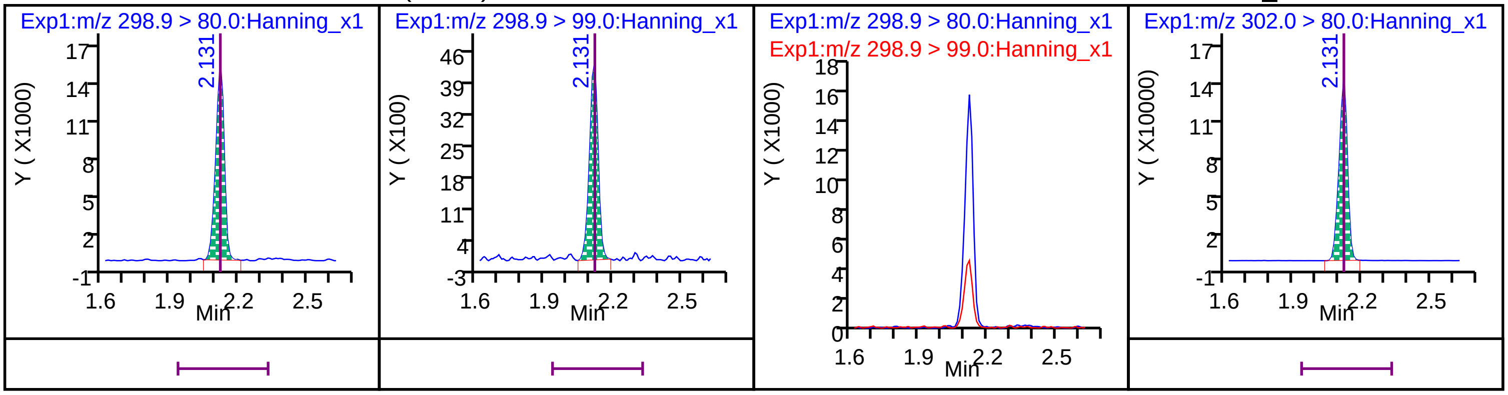
21 Perfluoro-n-pentanoic acid (PFPeA)



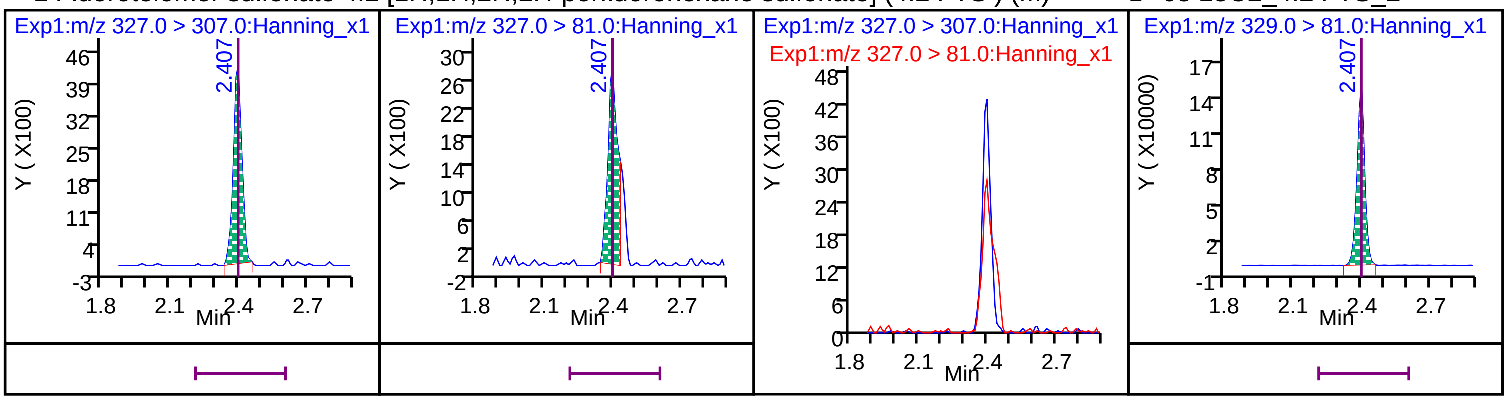
D 50 13C5_PFPeA



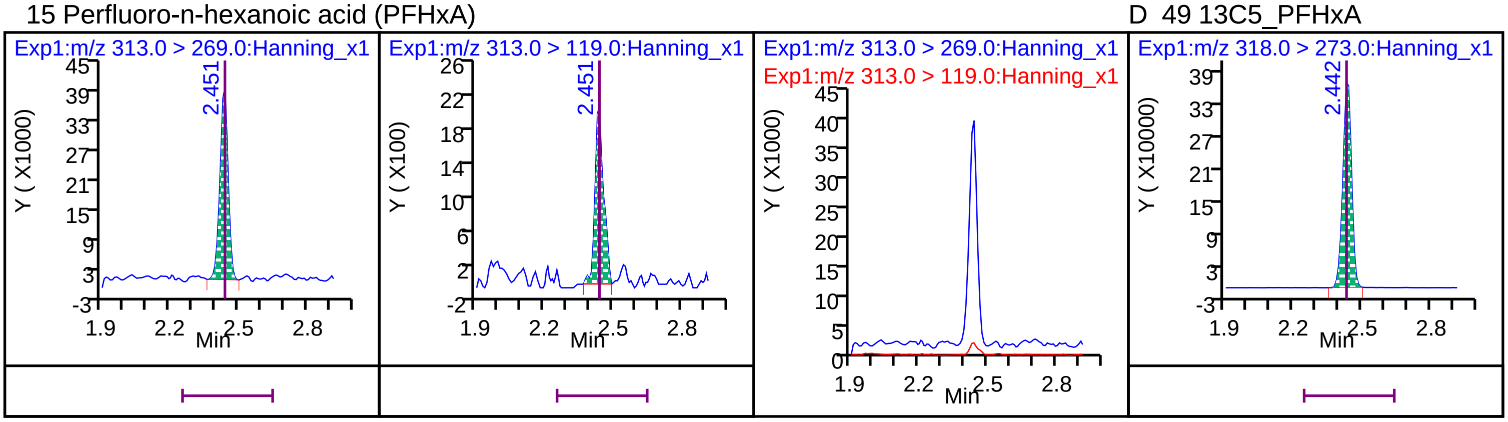
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



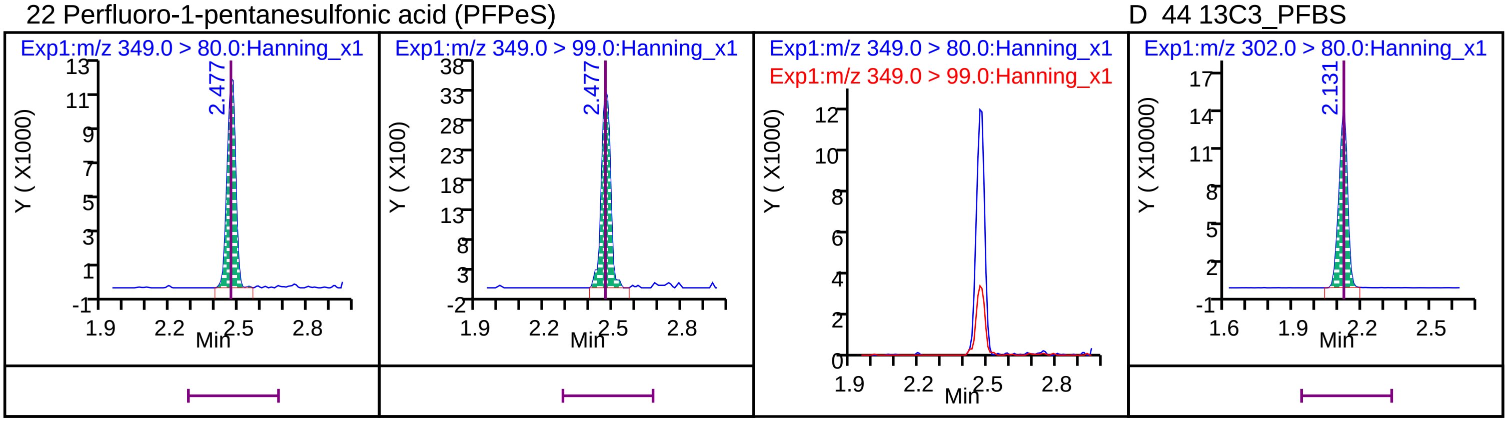
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



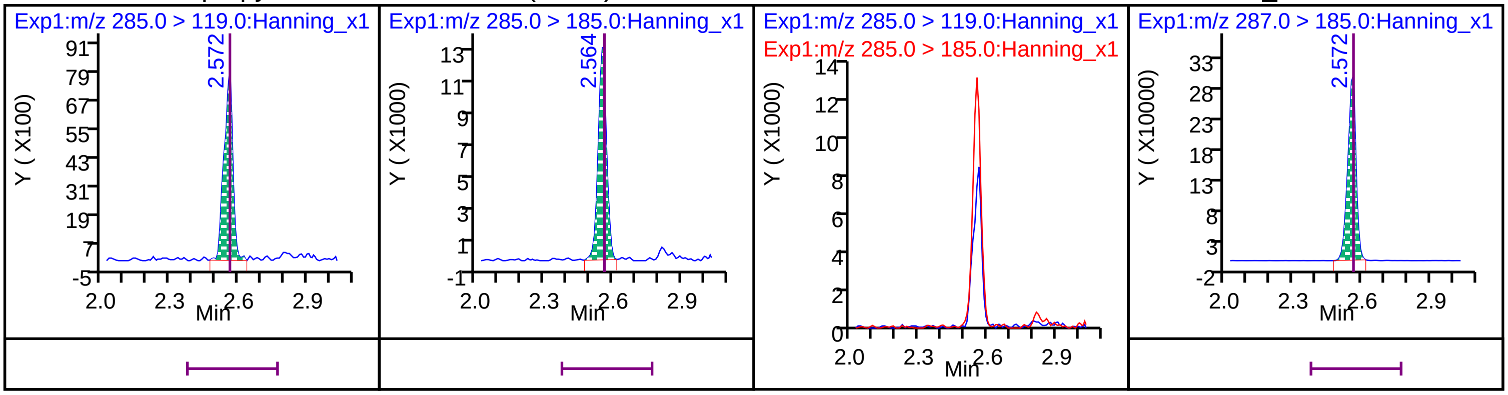
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



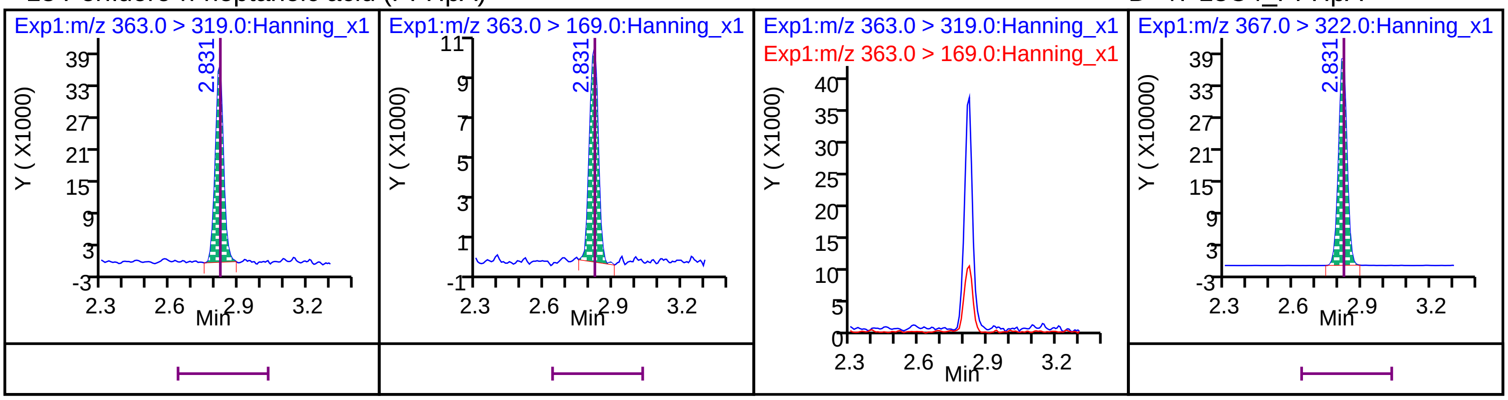
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



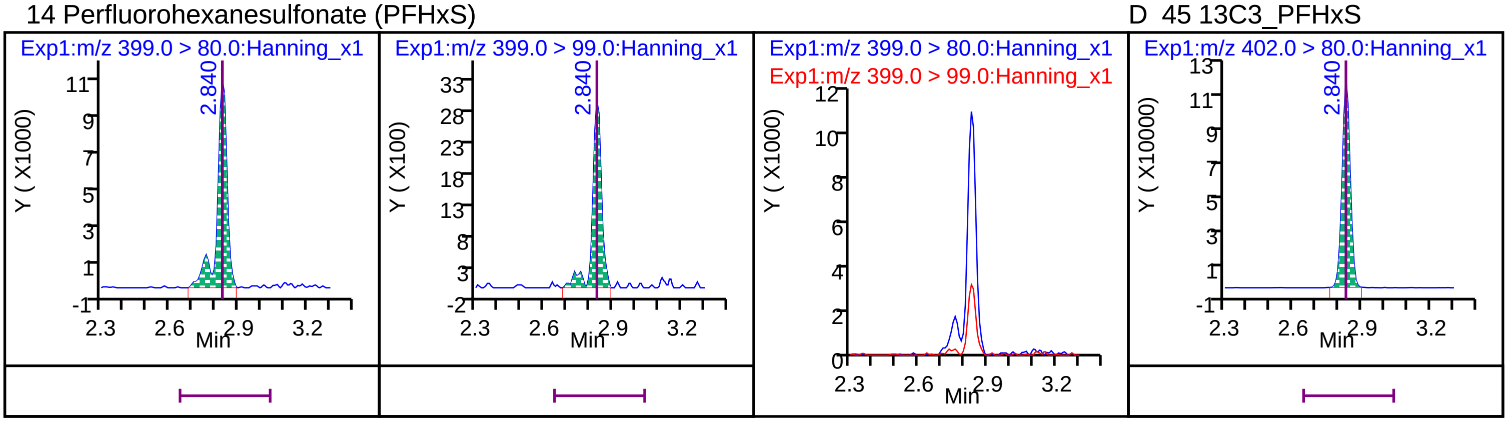
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



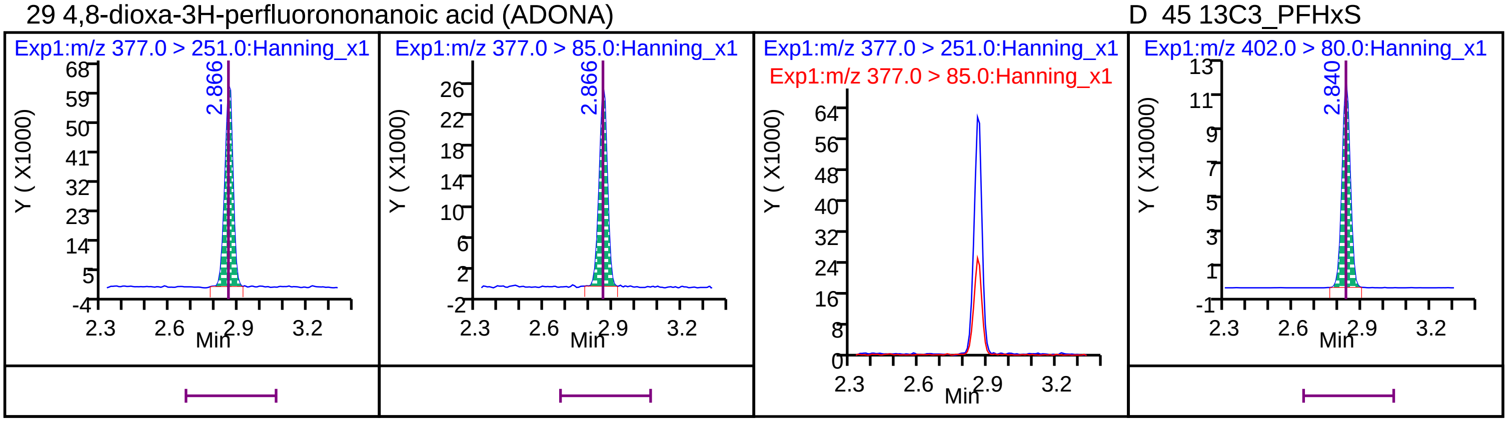
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

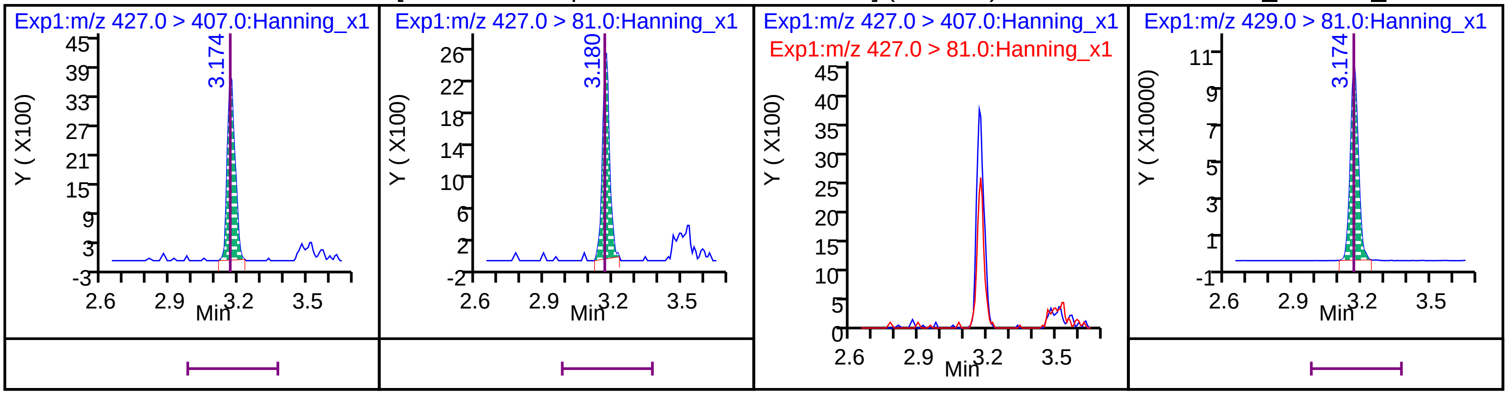


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

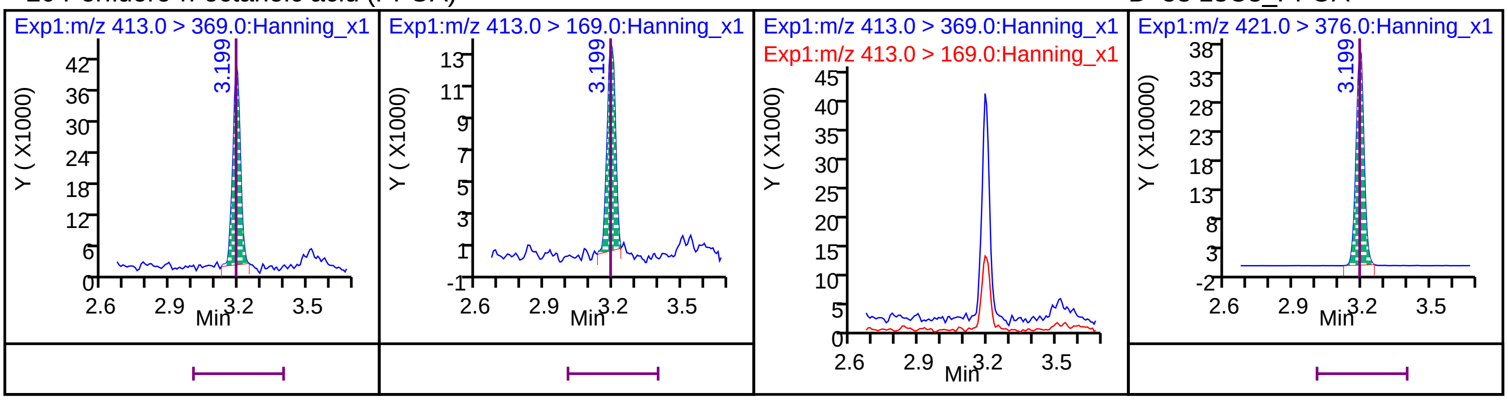


Report Date: 28-Oct-2021 20:18:01 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d

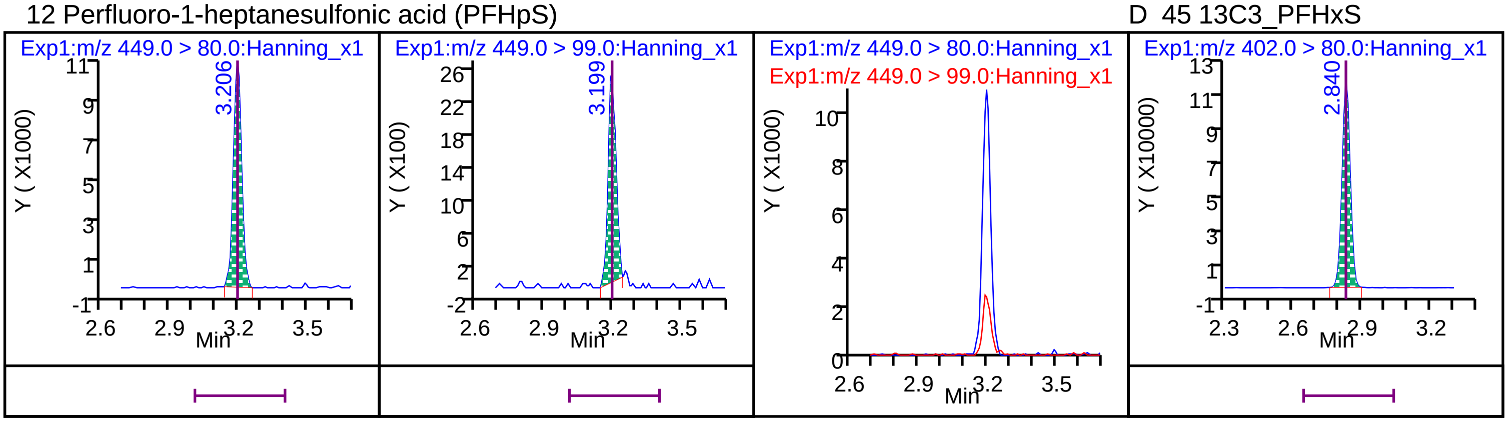
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



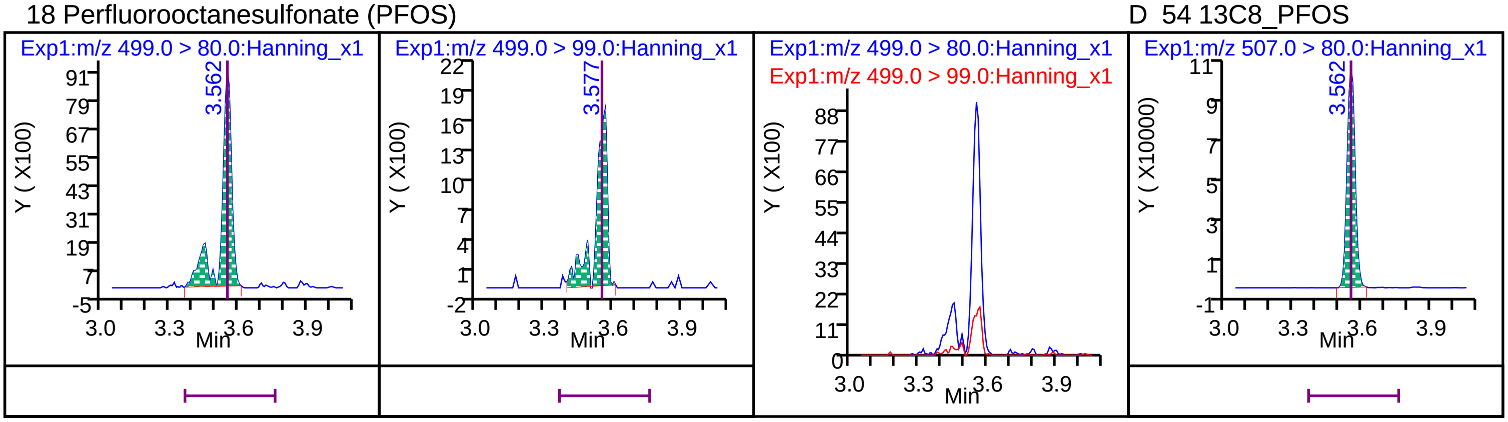
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

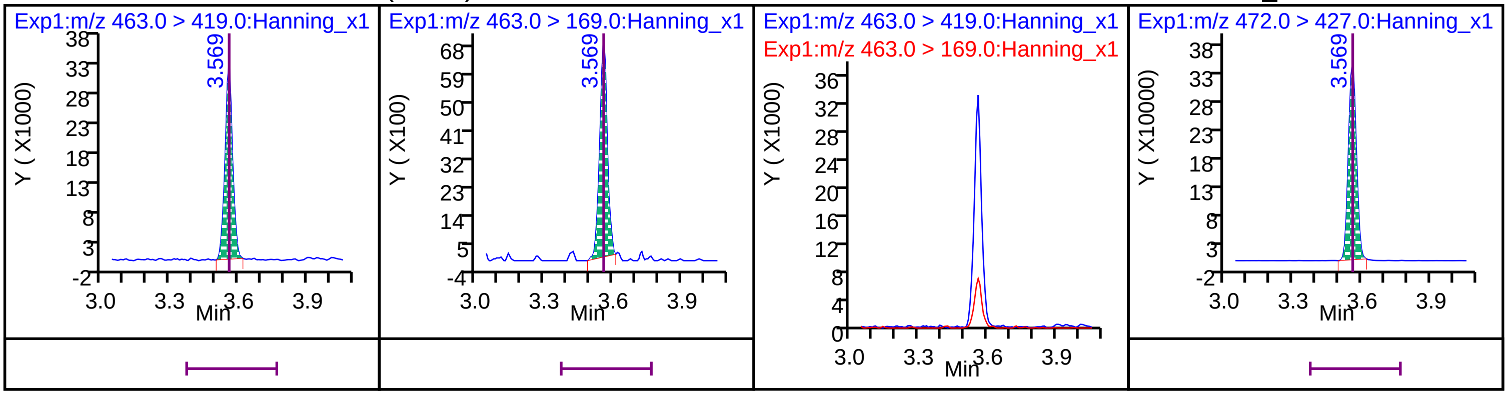


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

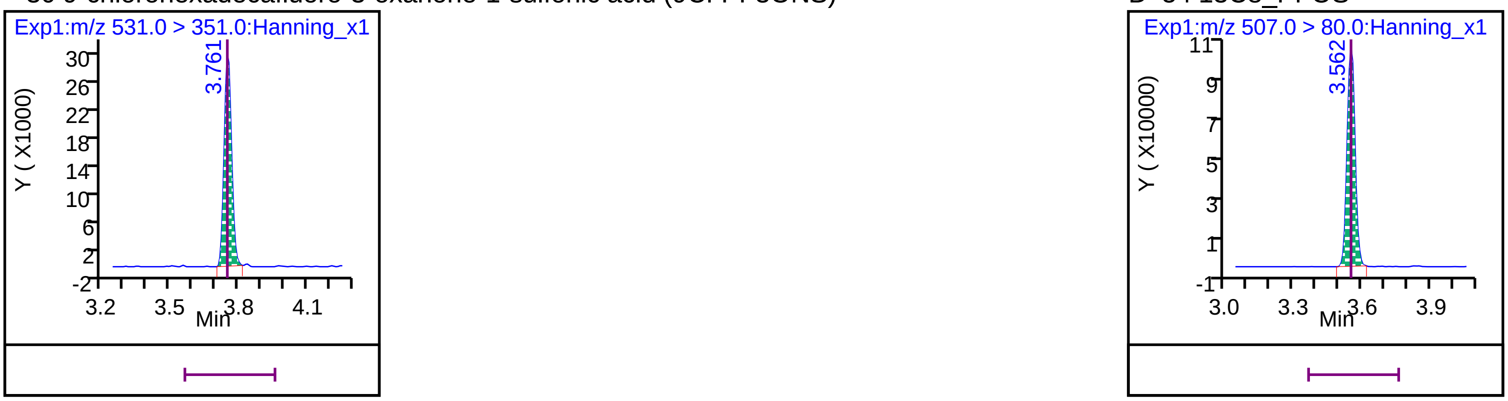


Report Date: 28-Oct-2021 20:18:01 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d

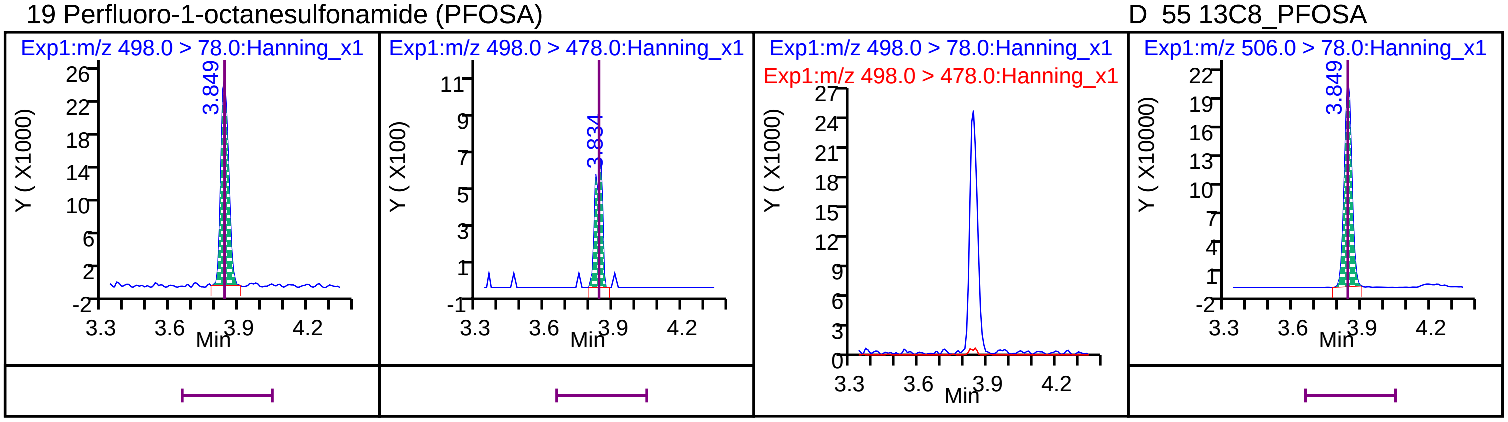
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



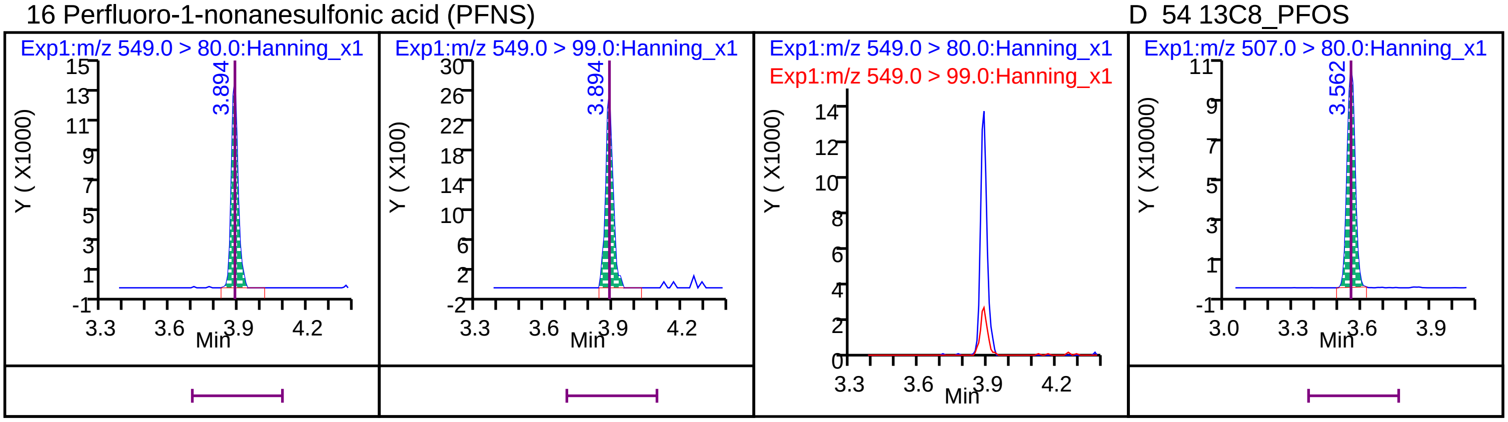
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

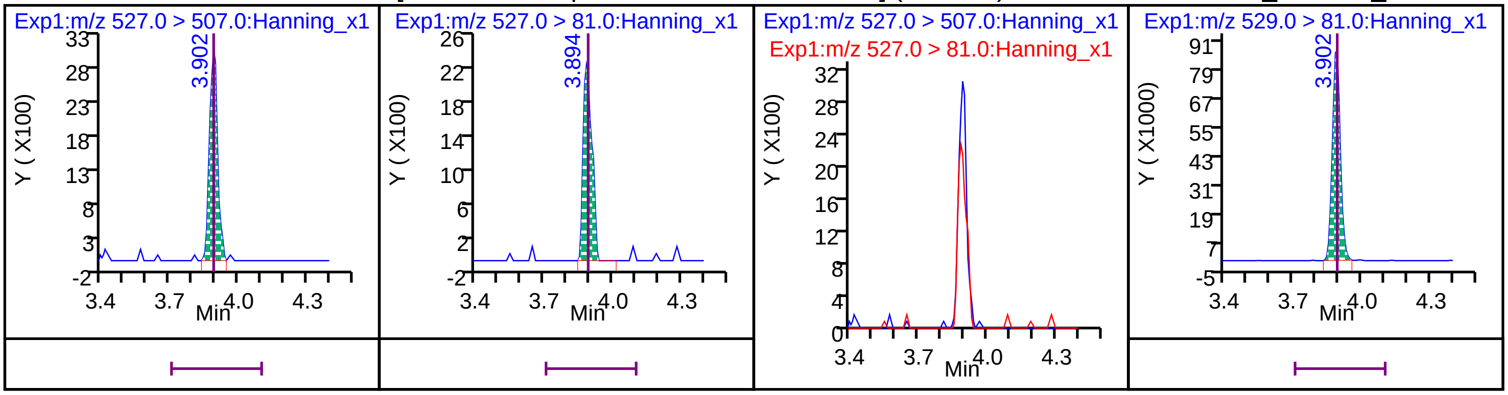


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

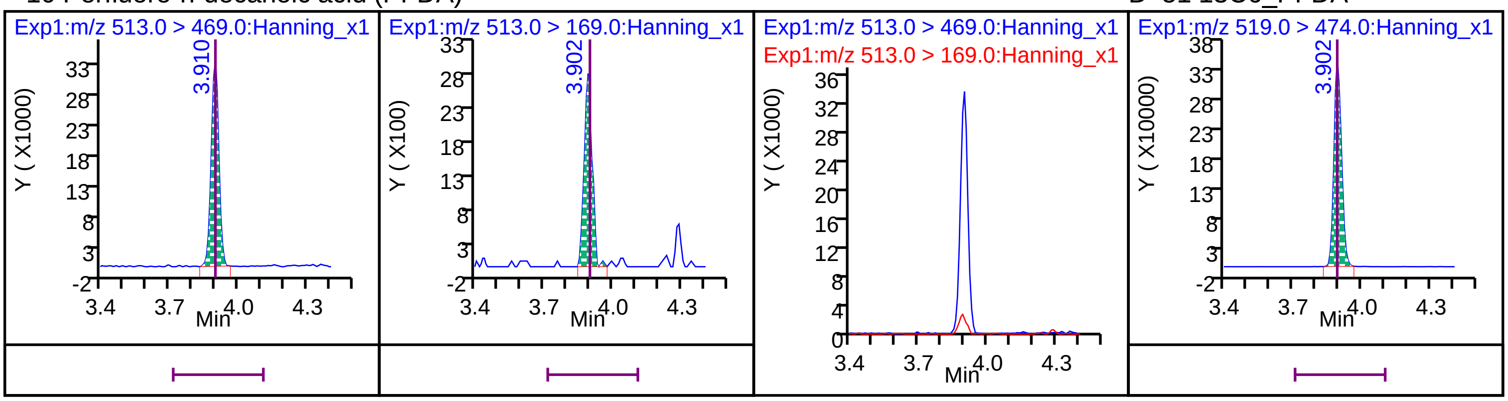


Report Date: 28-Oct-2021 20:18:01 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d

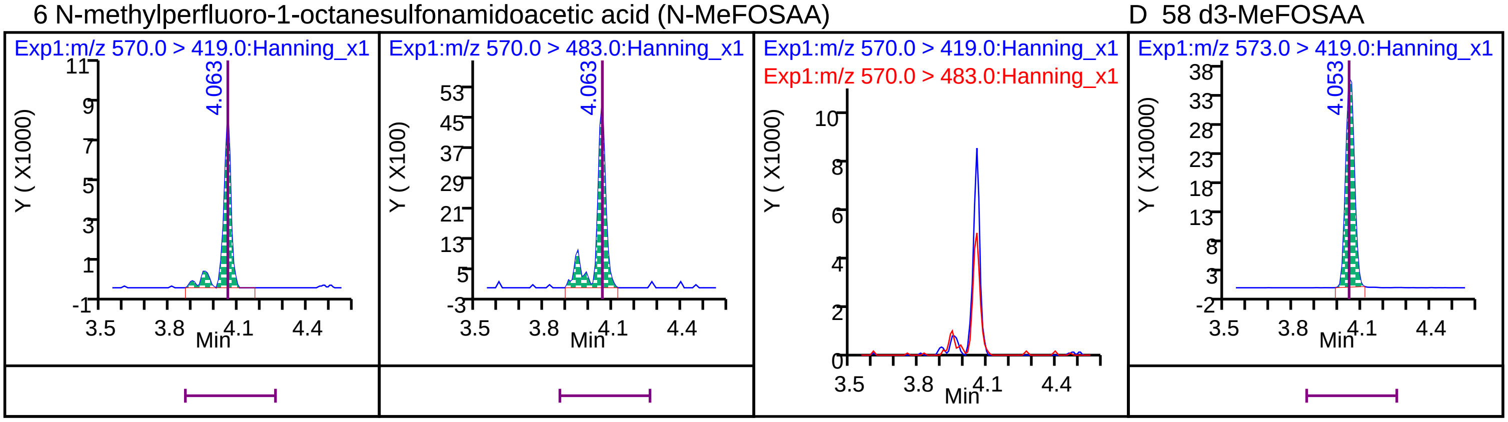
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



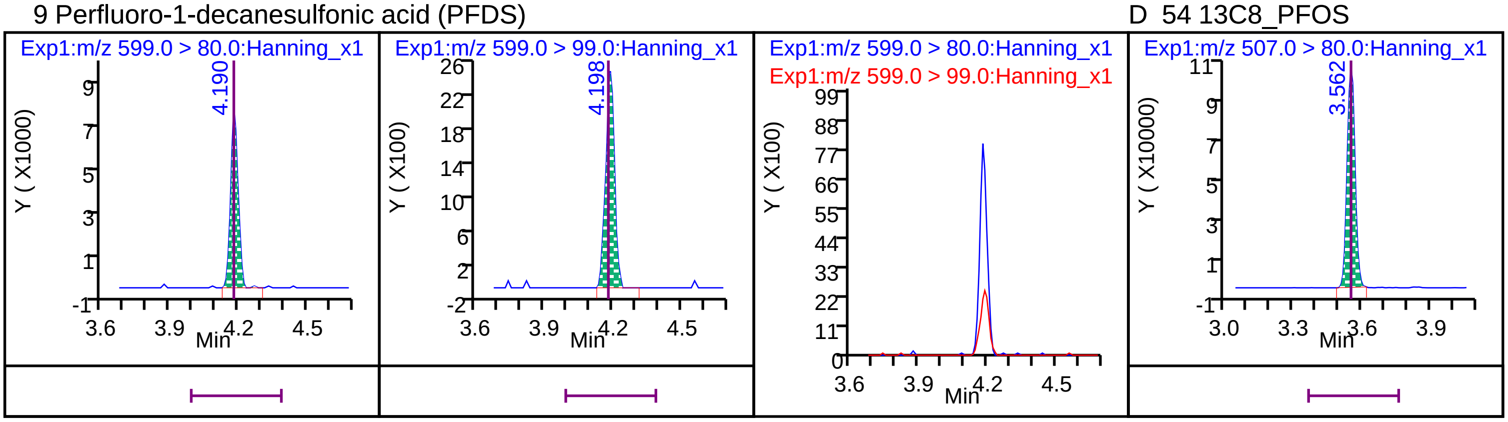
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



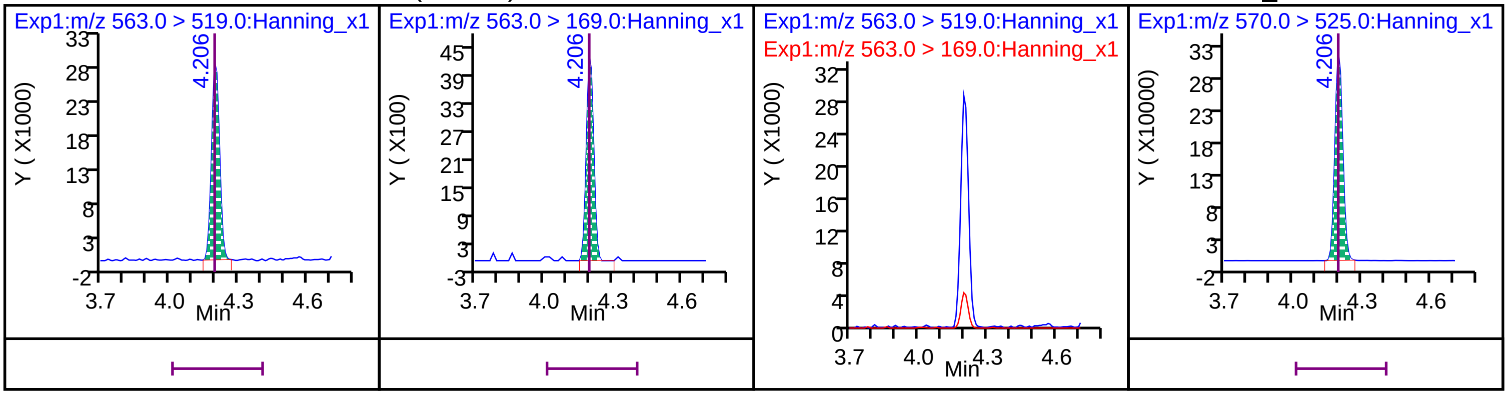
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



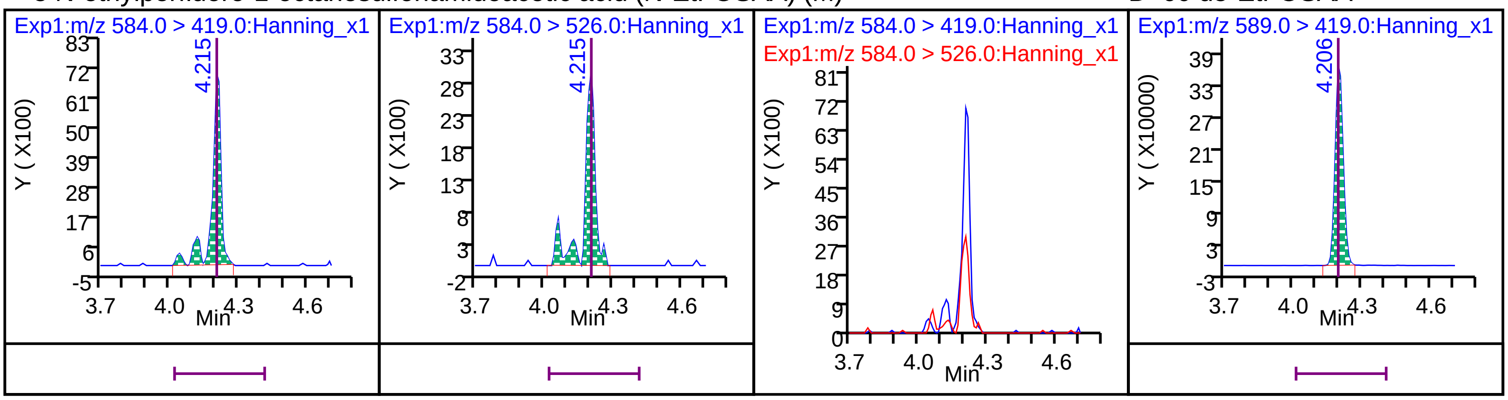
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



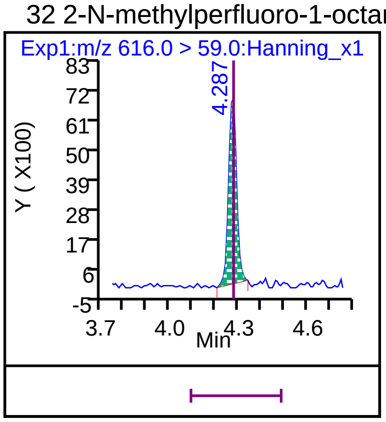
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

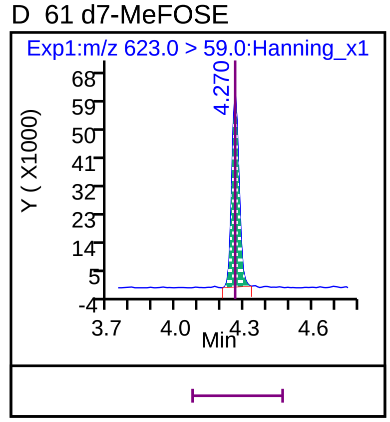


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

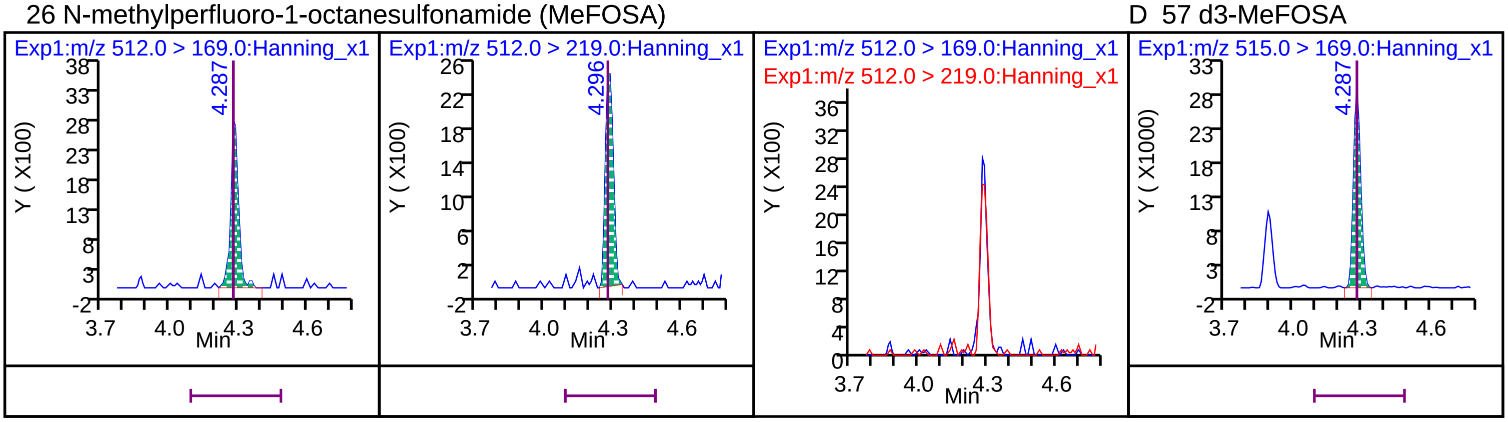


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

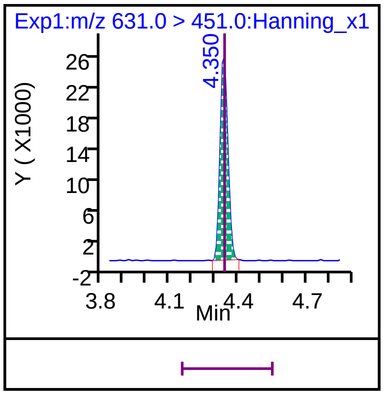




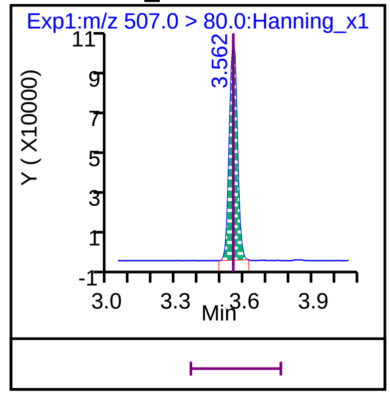
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



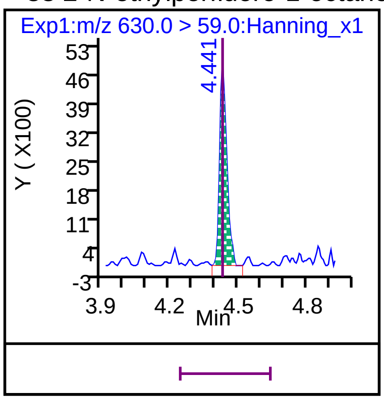
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



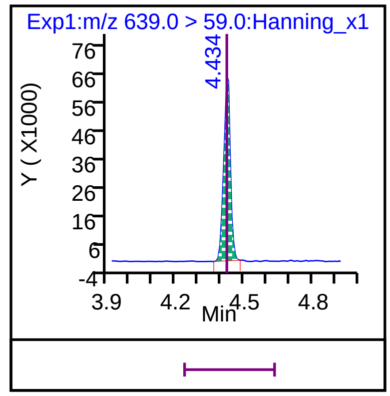
D 54 13C8_PFOS



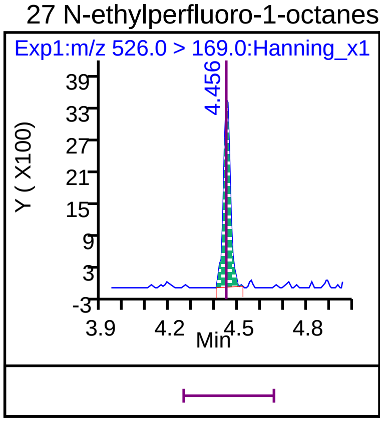
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

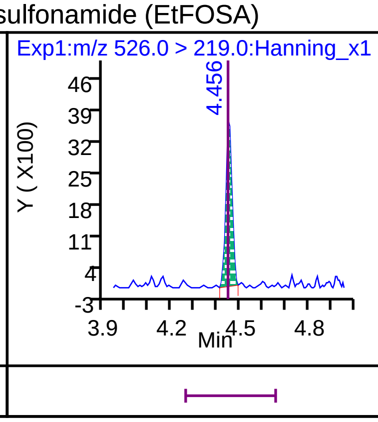


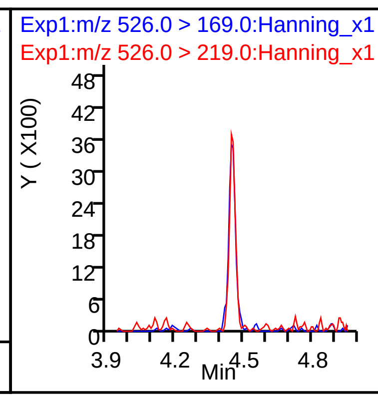
D 62 d9-EtFOSE



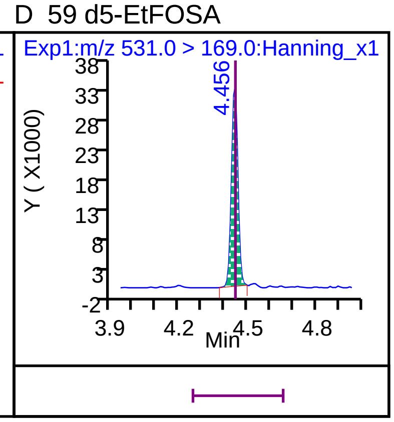
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



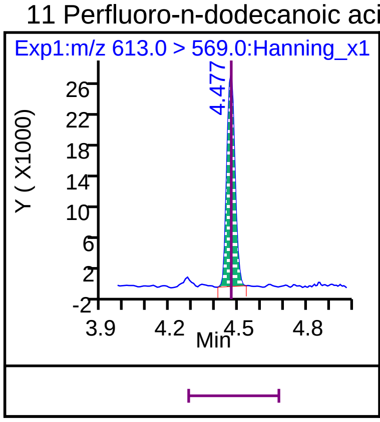


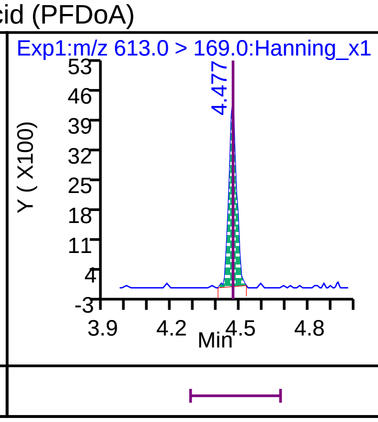


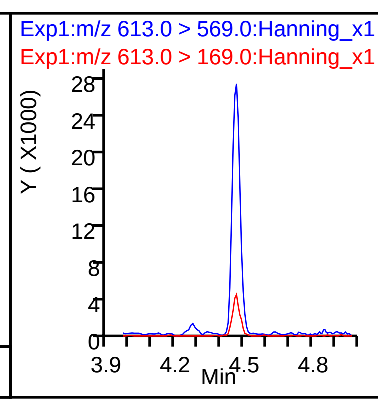
D 59 d5-EtFOSA



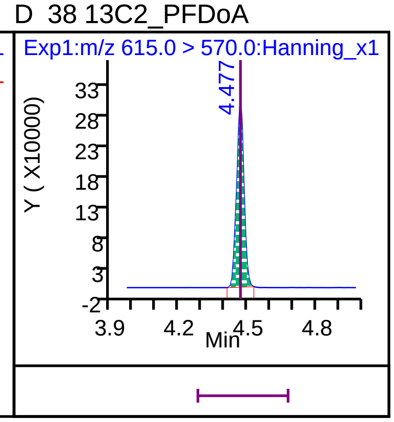
11 Perfluoro-n-dodecanoic acid (PFDoA)



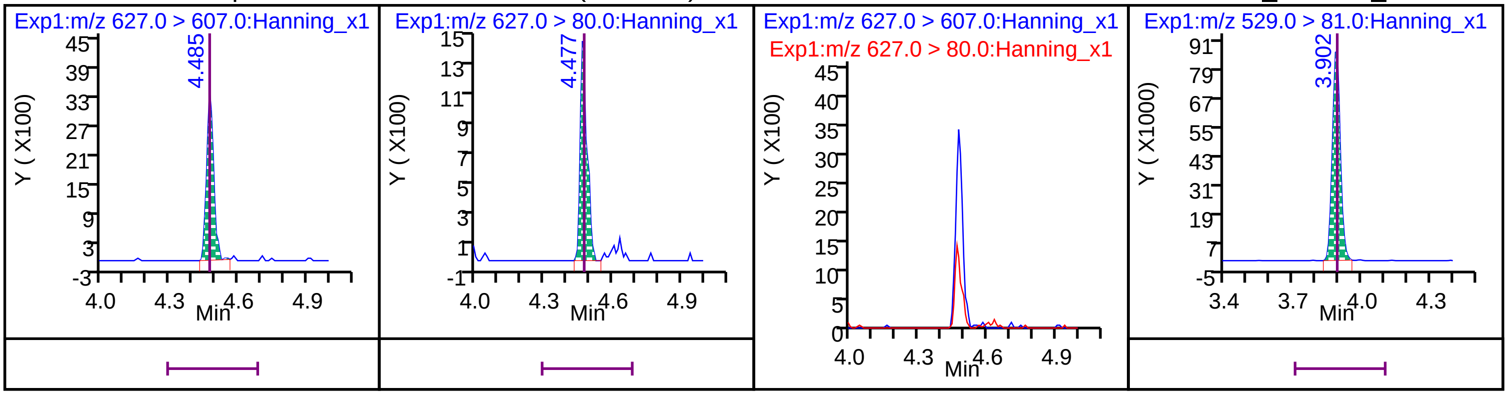




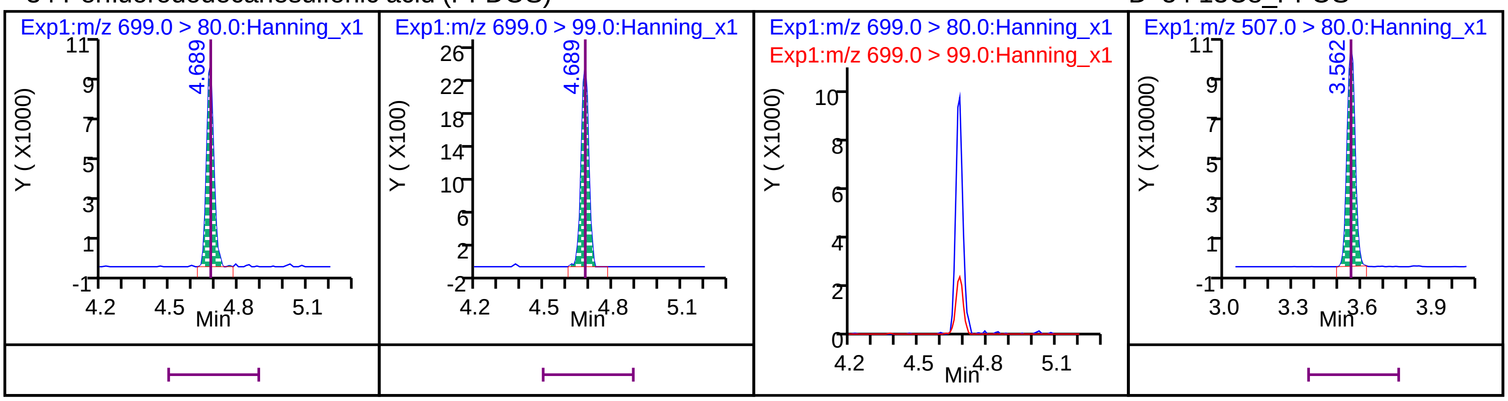
D 38 13C2_PFDoA



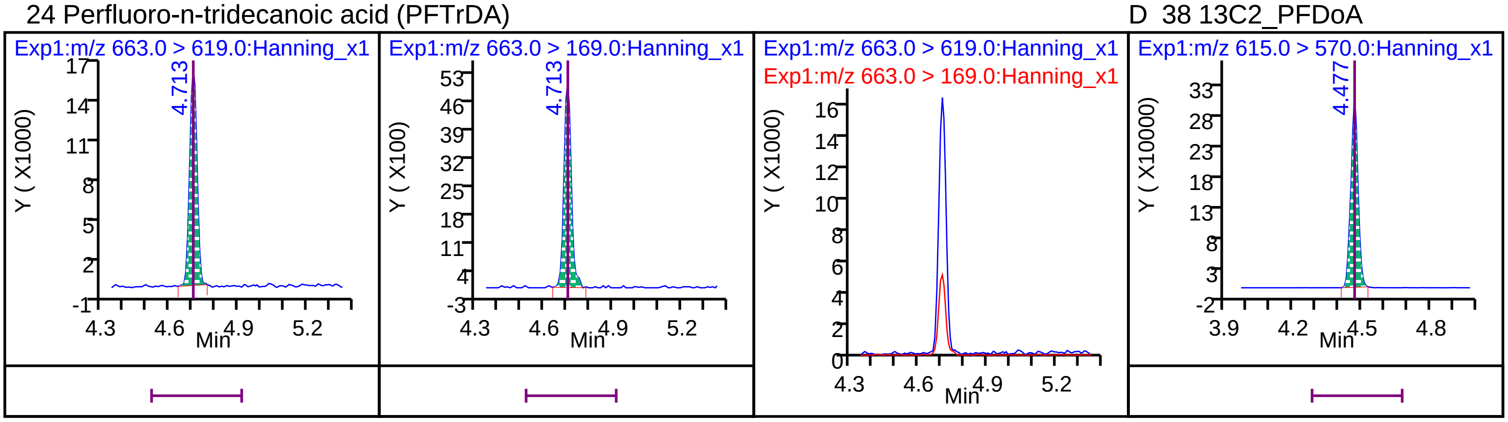
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



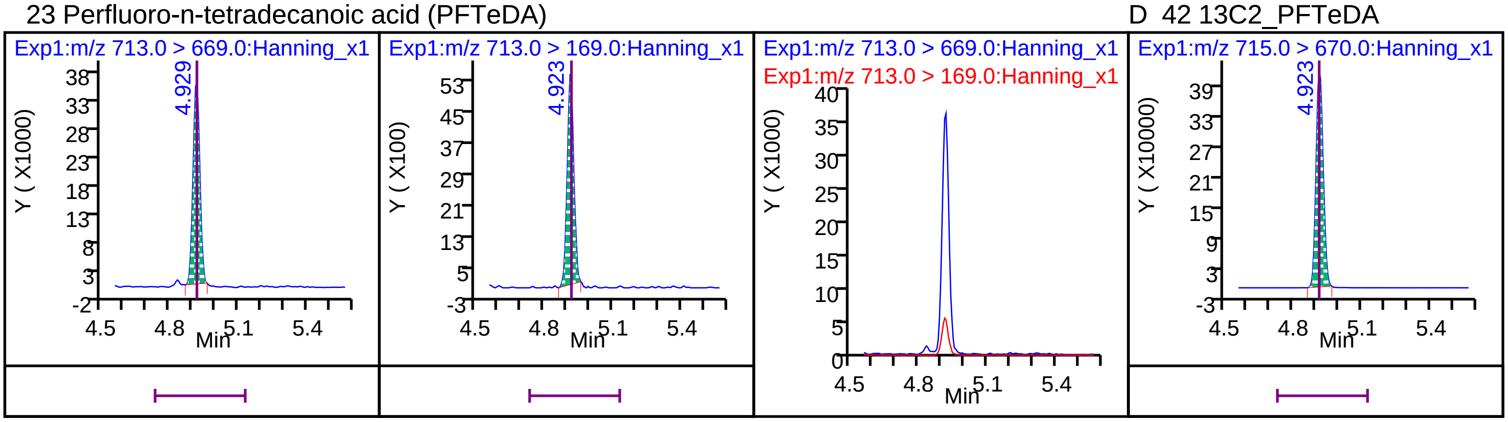
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



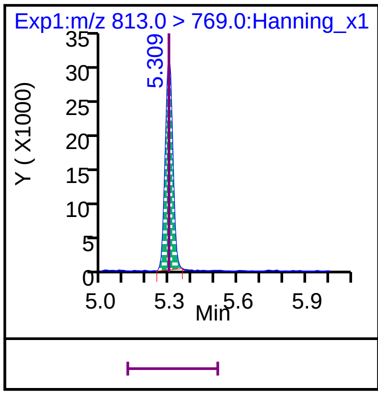
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

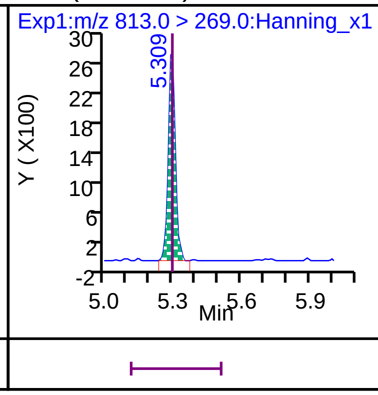


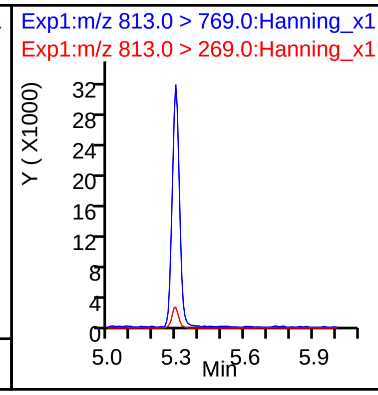
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



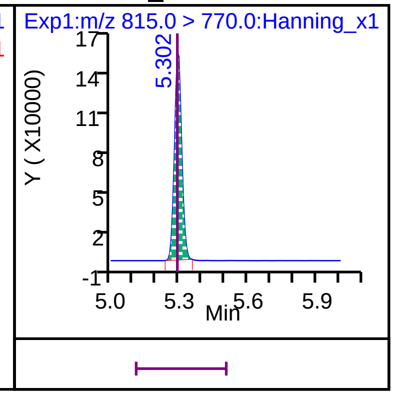
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



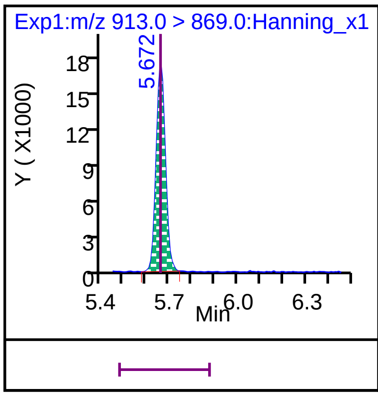


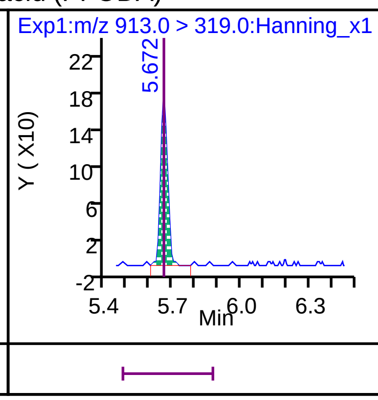


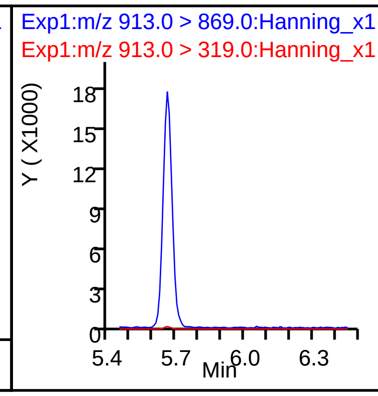
D 40 13C2_PFHxDA



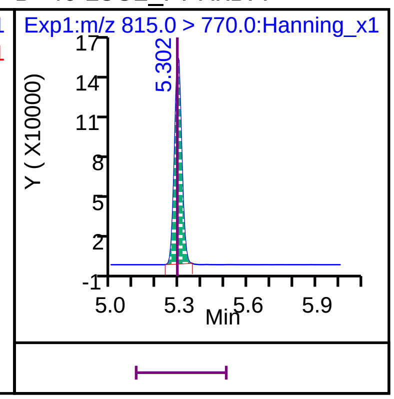
36 Perfluoro-n-octadecanoic acid (PFODA)



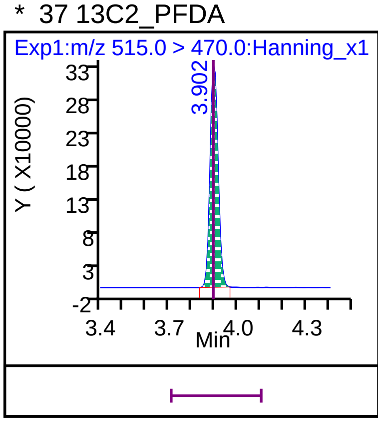




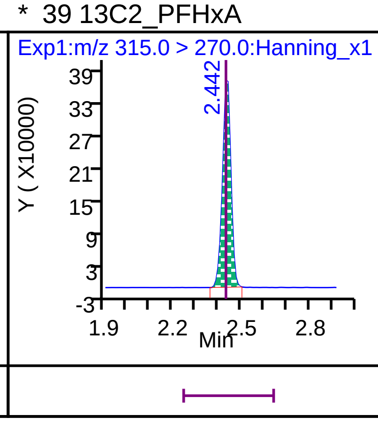
D 40 13C2_PFHxDA



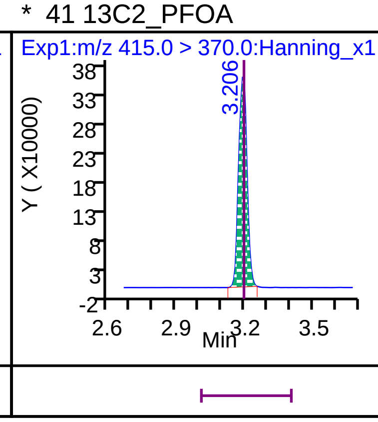
* 37 13C2_PFDA



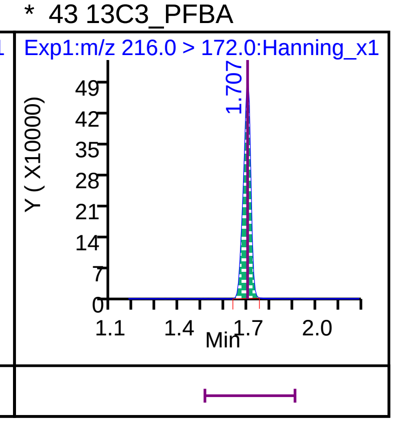
* 39 13C2_PFHxA



* 41 13C2_PFOA



* 43 13C3_PFBA



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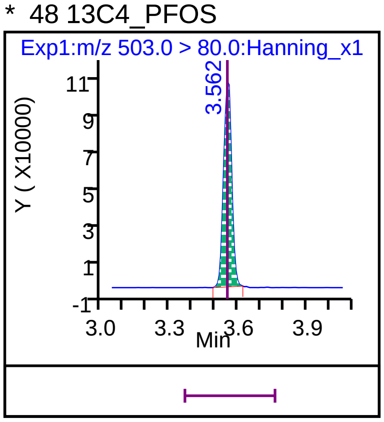


Report Date: 28-Oct-2021 20:18:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

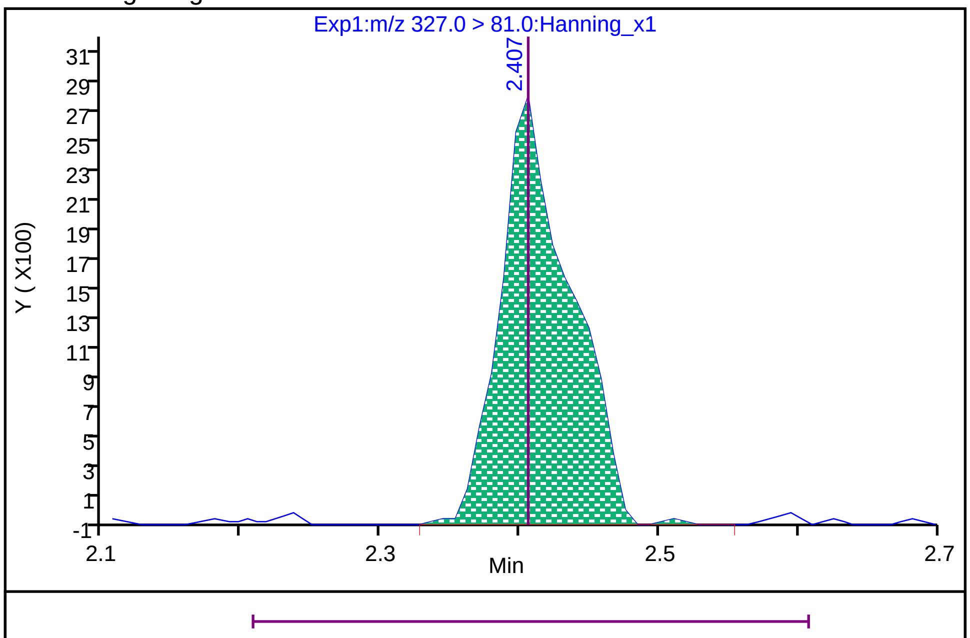
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d		
Injection Date:	28-Oct-2021 11:16:44	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.407
Area: 9787
Amount: 86.152
Amount Units: ng/L



RT: 2.407
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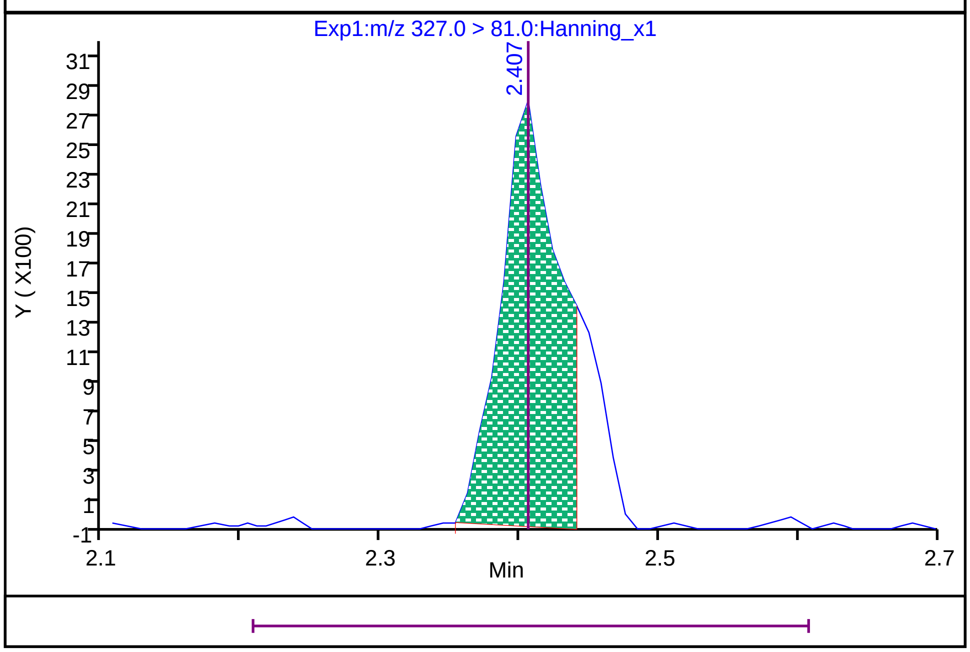

Data Editor: matthew.miller, 28-Oct-2021 11:30:51
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 28-Oct-2021 20:18:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821005.d

Injection Date: 28-Oct-2021 11:16:44 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 100_SVLC-1724

Sample Info: CCV 100_SVLC-1724

Dil. Factor: 1 Operator: Matthew M. Miller

5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

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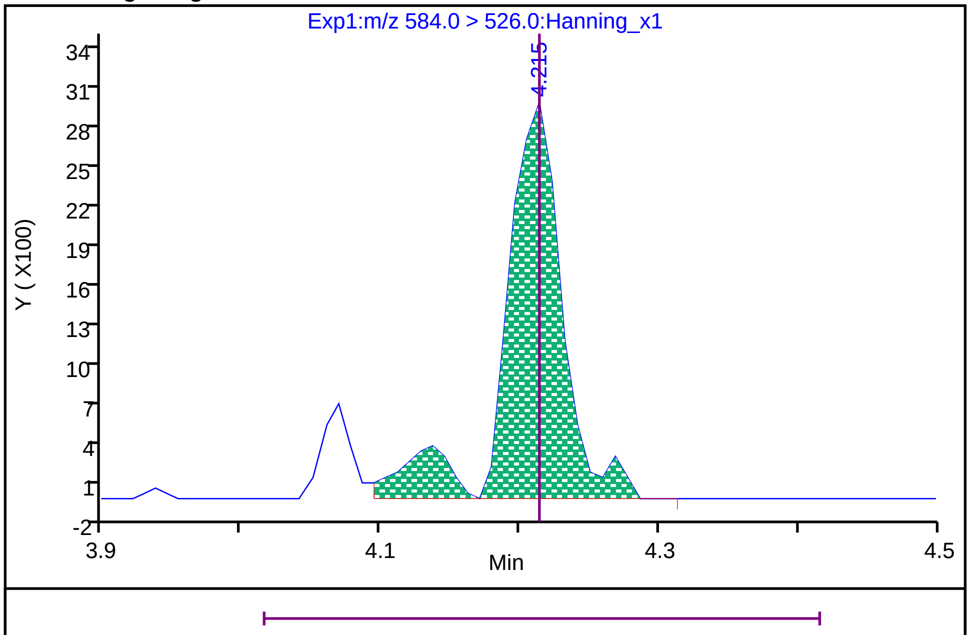
Amount Units: ng/L



RT: 4.215
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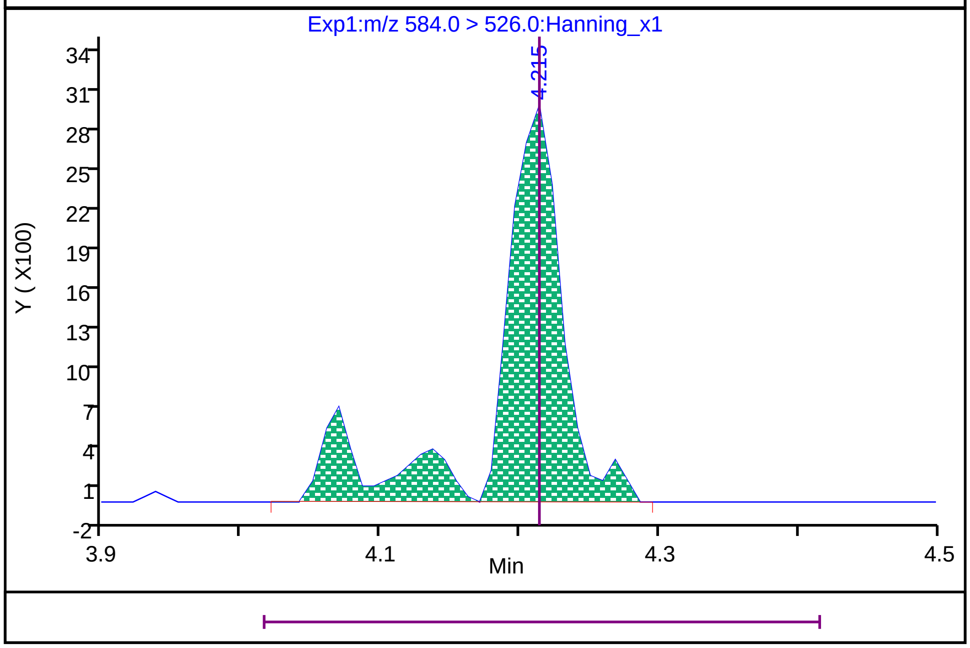
Amount: 97.471
Amount Units: ng/L



Data Editor: matthew.miller, 28-Oct-2021 11:31:13

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 28-Oct-2021 20:18:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d		
Injection Date:	28-Oct-2021 11:27:18	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	CCV 200_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	189.59	94.8	70 - 130
D 46 13C4_PFBA	1111250	1130484			101.7	50 - 150
21 PFPeA			200.00	189.70	94.8	70 - 130
D 50 13C5_PFPeA	1013844	1051914			103.8	50 - 150
D 44 13C3_PFBS	346697	345498			99.7	50 - 150
7 PFBS			176.80	159.01	89.9	70 - 130
D 63 13C2_4:2 FTS_2	323537	274689			84.9	50 - 150
1 4:2 FTS			186.80	204.66	109.6	70 - 130
D 49 13C5_PFHxA	941740	934600			99.2	50 - 150
15 PFHxA			200.00	194.12	97.1	70 - 130
22 PFPeS			187.60	162.56	86.7	70 - 130
28 GenX			400.00	379.08	94.8	70 - 130
D 66 13C3_GenX	715165	761492			106.5	50 - 150
D 47 13C4_PFHpA	943546	910463			96.5	50 - 150
13 PFHpA			200.00	187.63	93.8	70 - 130
D 45 13C3_PFHxS	283170	276016			97.5	50 - 150
14 PFHxS			182.00	177.53	97.5	70 - 130
29 ADONA			188.40	196.78	104.4	70 - 130
2 6:2 FTS			189.60	194.92	102.8	70 - 130
D 64 13C2_6:2 FTS_2	240700	262747			109.2	50 - 150
D 53 13C8_PFOA	859711	845806			98.4	50 - 150
20 PFOA			200.00	183.67	91.8	70 - 130
12 PFHpS			190.40	179.08	94.1	70 - 130
D 54 13C8_PFOS	242805	249586			102.8	50 - 150
18 PFOS			185.60	174.65	94.1	70 - 130
17 PFNA			200.00	198.52	99.3	70 - 130
D 56 13C9_PFNA	822524	809760			98.4	50 - 150
30 9Cl-PF3ONS			186.40	178.28	95.6	70 - 130
D 55 13C8_PFOSA	455631	452159			99.2	50 - 150
19 PFOSA			200.00	201.24	100.6	70 - 130
16 PFNS			192.00	177.79	92.6	70 - 130
D 65 13C2_8:2 FTS_2	205992	191882			93.2	50 - 150
3 8:2 FTS			191.60	223.46	116.6	70 - 130
D 51 13C6_PFDA	761788	775563			101.8	50 - 150
10 PFDA			200.00	173.52	86.8	70 - 130
D 58 d3-MeFOSAA	912247	952694			104.4	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			200.00	214.13	107.1	70 - 130
9 PFDS			192.80	182.31	94.6	70 - 130
25 PFUdA			200.00	195.33	97.7	70 - 130
D 60 d5-EtFOSAA	882829	875405			99.2	50 - 150
D 52 13C7_PFUdA	745296	759527			101.9	50 - 150
5 N-EtFOSAA			200.00	186.56	93.3	70 - 130
D 61 d7-MeFOSE	136219	124515			91.4	50 - 150
32 MeFOSE			200.00	195.01	97.5	70 - 130
D 57 d3-MeFOSA	60817	67786			111.5	50 - 150
26 MeFOSA			200.00	180.29	90.1	70 - 130
31 11Cl-PF3OUDS			188.40	191.65	101.7	70 - 130
D 62 d9-EtFOSE	128617	123381			95.9	50 - 150
33 EtFOSE			200.00	207.39	103.7	70 - 130
D 59 d5-EtFOSA	62925	64289			102.2	50 - 150
27 EtFOSA			200.00	170.82	85.4	70 - 130
11 PFDoA			200.00	188.94	94.5	70 - 130
D 38 13C2_PFDoA	648927	694646			107	50 - 150
4 10:2 FTS			192.80	215.83	111.9	70 - 130
34 PFDOS			193.60	185.01	95.6	70 - 130
24 PFTrDA			200.00	177.25	88.6	70 - 130
D 42 13C2_PFTeDA	891082	902837			101.3	50 - 150
23 PFTeDA			200.00	194.63	97.3	70 - 130
D 40 13C2_PFHxDA	325837	326632			100.2	50 - 150
35 PFHxDA			200.00	195.73	97.9	70 - 130
36 PFODA			200.00	195.43	97.7	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d		
Injection Date:	28-Oct-2021 11:27:18	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	CCV 200_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.707	0	1130484	20	>100:1			1000.00	1260.15	101.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.702	1.707	0/0	231614	21	>100:1			200.00	189.59		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.069	2.079	0	1051914	15	>100:1			1000.00	1170.23	103.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.069	2.079	0/0	215381	16	>100:1			200.00	189.70		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.121	2.131	0	345498	16	>100:1			1000.00	1157.47	99.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.121	2.131	0/0	76377	16	>100:1	Target = 3.78		176.80	159.01		
298.9 > 99	44	2.121	2.131		20121	14	>100:1	3.79 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.469	2.477	0/0	57947	18	>100:1	Target = 3.45		187.60	162.56		
349 > 99	44	2.469	2.477		18800	18	>100:1	3.08 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.391	2.407	0	274689	18	>100:1			5000.00	6146.74	84.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.400	2.407	0/0	21543	18	>100:1	Target = 1.43		186.80	204.66		
327 > 81	63	2.400	2.407		13603	13	96:1	1.58 (0.71-2.15)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.435	2.442	0	934600	18	>100:1			1000.00	1141.46	99.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.435	2.451	0/0	186347	17	>100:1	Target = 16.37		200.00	194.12		
313 > 119	49	2.435	2.451		9150	15	28:1	20.36 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.556	2.572	0	761492	18	>100:1			5000.00	5263.02	106.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.556	2.572	0/0	44340	17	>100:1	Target = 0.74		400.00	379.08		
285 > 185	66	2.556	2.572		64500	16	>100:1	0.68 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.814	2.831	-1	910463	18	>100:1			1000.00	1136.25	96.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.814	2.831	-1/0	169516	17	>100:1	Target = 3.21		200.00	187.63		
363 > 169	47	2.814	2.831		58580	17	>100:1	2.89 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.832	2.840	0	276016	19	>100:1			1000.00	1122.22	97.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.832	2.840	0/0	59080	26	>100:1	Target = 3.47	4.73	182.00	177.53		
399 > 99	45	2.832	2.840		14981	22	64:1	3.94 (1.73-5.21)	11.70				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.858	2.866	0/0	295279	19	>100:1	Target = 2.28		188.40	196.78		
377 > 85	45	2.858	2.866		114455	18	>100:1	2.57 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.194	3.206	0/0	53674	23	>100:1	Target = 3.62		190.40	179.08		
449 > 99	45	3.201	3.206		15061	25	>100:1	3.56 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.162	3.174	0	262747	20	>100:1			5000.00	6012.93	109.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.169	3.174	0/0	16155	20		Target = 1.19		189.60	194.92		
427 > 81	64	3.162	3.174		12680	18	80:1	1.27 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.188	3.199	0	845806	21	>100:1			1000.00	1117.81	98.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.194	3.199	0/0	156407	20	97:1	Target = 2.34		200.00	183.67		
413 > 169	53	3.194	3.199		59204	19	93:1	2.64 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.554	3.562	0	249586	19	>100:1			1000.00	1101.58	102.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.554	3.562	0/0	52622	39	>100:1	Target = 4.00	3.57	185.60	174.65		
499 > 99	54	3.554	3.562		13553	33	>100:1	3.88 (2.00-6.01)	9.08				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.754	3.761	0/0	135785	21	>100:1			186.40	178.28		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.886	3.894	0/0	44867	22	>100:1	Target = 3.83		192.00	177.79		
549 > 99	54	3.886	3.894		12965	22	>100:1	3.46 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.181	4.190	0/0	43777	13	>100:1	Target = 3.87		192.80	182.31		
599 > 99	54	4.181	4.190		12174	15		3.59 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.340	4.350	0/0	124921	16	>100:1			188.40	191.65		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.680	4.689	0/0	42196	18	>100:1	Target = 3.65		193.60	185.01		
699 > 99	54	4.680	4.689		11880	13	>100:1	3.55 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.554	3.569	0	809760	19	>100:1			1000.00	1044.25	98.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.561	3.569	0/0	140308	19	>100:1	Target = 4.21		200.00	198.52		
463 > 169	56	3.554	3.569		31289	17	>100:1	4.48 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.841	3.849	0	452159	17	>100:1			1000.00	1079.62	99.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.841	3.849	0/0	103166	17	>100:1	Target = 49.05		200.00	201.24		
498>478	55	3.848	3.849		2390	21	8.5:1	43.16 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.886	3.902	0	191882	17	>100:1			5000.00	5074.40	93.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.894	3.902	0/0	12662	22	85:1	Target = 1.27		191.60	223.46		
527 > 81	65	3.894	3.902		9208	17	68:1	1.37 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.477	4.485	0/0	12489	22	>100:1	Target = 2.25		192.80	215.83		
627 > 80	65	4.484	4.485		4985	19	74:1	2.50 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.902	3.902	0	775563	18	>100:1			1000.00	1141.95	101.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.894	3.910	0/0	135977	17	>100:1	Target = 8.94		200.00	173.52		
513 > 169	51	3.902	3.910		15590	23	>100:1	8.72 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.053	4.053	0	952694	16	>100:1			5000.00	4649.59	104.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.053	4.063	0/0	31167	31	>100:1	Target = 1.38	7.47	200.00	214.13		
570 > 483	58	4.053	4.063		19740	32	77:1	1.57 (0.69-2.08)	3.40				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.198	4.206	0	759527	17	>100:1			1000.00	1201.51	101.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.198	4.206	0/0	131580	16	>100:1	Target = 8.27		200.00	195.33		
563 > 169	52	4.198	4.206		15618	20	65:1	8.42 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.206	4.206	0	875405	16	>100:1			5000.00	5099.16	99.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.215	4.215	0/0	34861	31		Target = 1.95	5.79	200.00	186.56		
584 > 526	60	4.206	4.215		17539	29	>100:1	1.98 (0.97-2.92)	4.22				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.269	4.270	0	124515	16	>100:1			1000.00	979.19	91.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.269	4.287	-1/-1	23950	14	>100:1			200.00	195.01		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.287	0	67786	14	>100:1			1000.00	1166.28	111.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.287	4.287	0/0	13012	17	53:1	Target = 1.08		200.00	180.29		
512 > 219	57	4.287	4.287		9860	19	48:1	1.31 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.426	4.434	0	123381	16	>100:1			1000.00	1050.44	95.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.433	4.441	0/0	21806	16	>100:1			200.00	207.39		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.456	0	64289	16	>100:1			1000.00	1170.41	102.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.448	4.456	0/0	12565	21	96:1	Target = 1.10		200.00	170.82		
526 > 219	59	4.455	4.456		12805	18	>100:1	0.98 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.470	4.477	0	694646	18	>100:1			1000.00	1156.53	107	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.470	4.477	0/0	134426	18	>100:1	Target = 5.93		200.00	188.94		
613 > 169	38	4.462	4.477		20702	18	>100:1	6.49 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.705	4.713	0/0	66608	19	>100:1	Target = 2.90		200.00	177.25		
663 > 169	38	4.705	4.713		20446	19	>100:1	3.25 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.918	4.923	0	902837	20	>100:1			1000.00	1126.87	101.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.918	4.929	0/0	148773	20	>100:1	Target = 6.34		200.00	194.63		
713 > 169	42	4.918	4.929		21175	19	>100:1	7.02 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.296	5.302	0	326632	19	>100:1			1000.00	992.65	100.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.302	5.309	0/0	129535	19	>100:1	Target = 12.53		200.00	195.73		
813 > 269	40	5.302	5.309		9791	18	>100:1	13.23 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.664	5.672	0/0	94745	20	>100:1	Target = 152.15		200.00	195.43		
913 > 319	40	5.672	5.672		740	25	72:1	128.03 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.902	3.902	0	765764	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.435	2.442	0	1029718	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.188	3.206	-1	836025	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.702	1.707	0	1051337	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.554	3.562	0	256091	17	>100:1			1000.00			

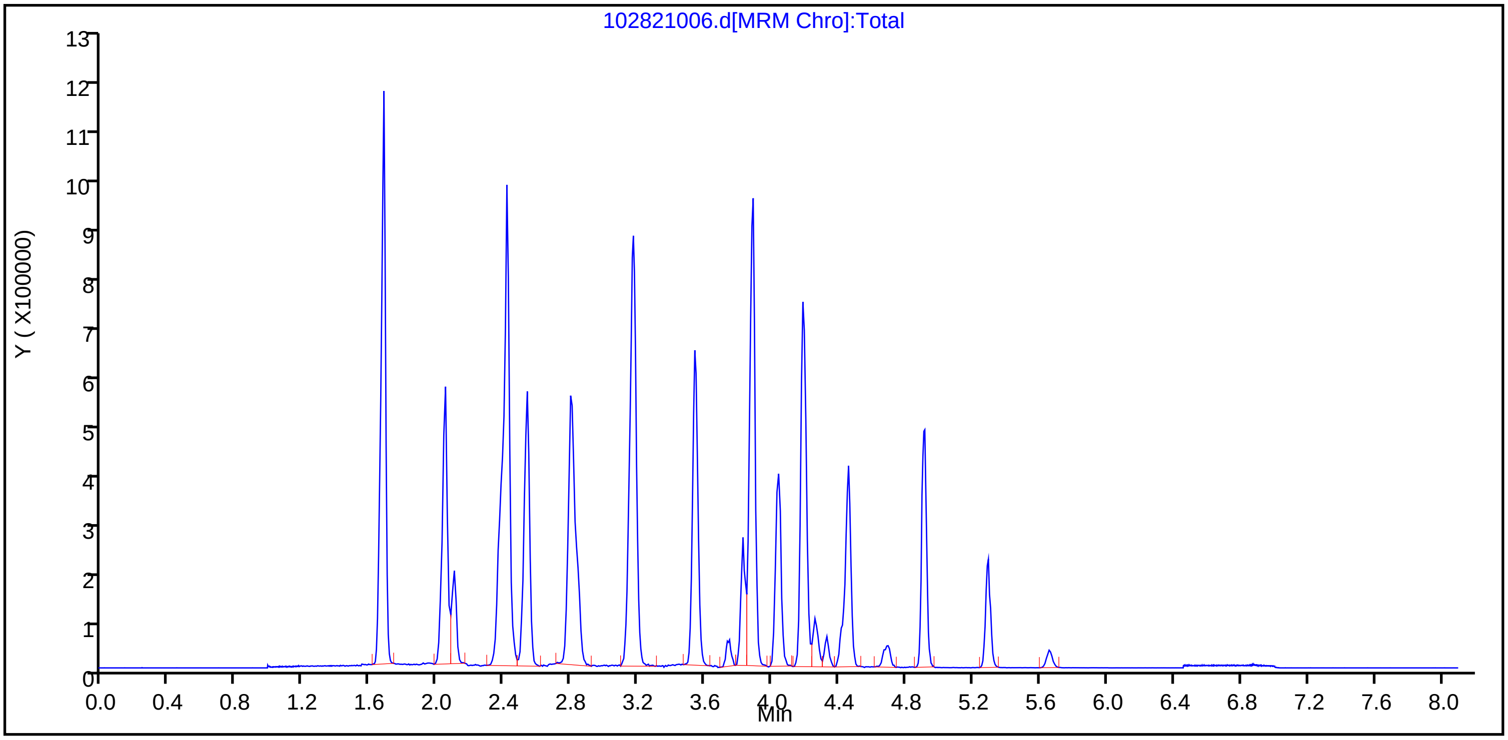
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

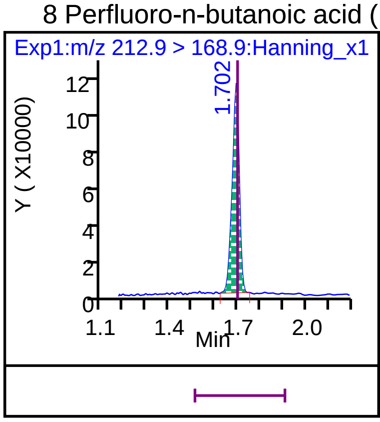
Report Date: 28-Oct-2021 20:18:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

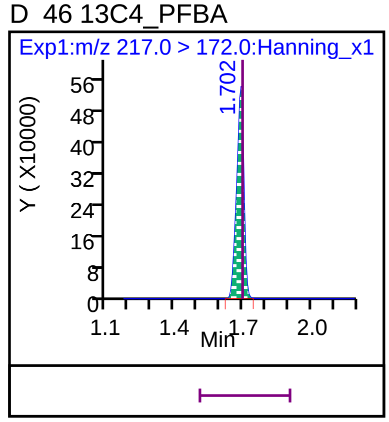
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d		
Injection Date:	28-Oct-2021 11:27:18	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200_SVLC-1725
Sample Info:	CCV 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller



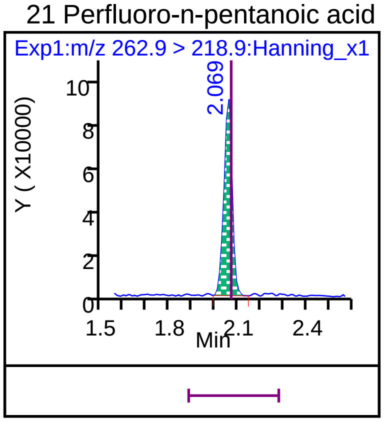
8 Perfluoro-n-butanoic acid (PFBA)



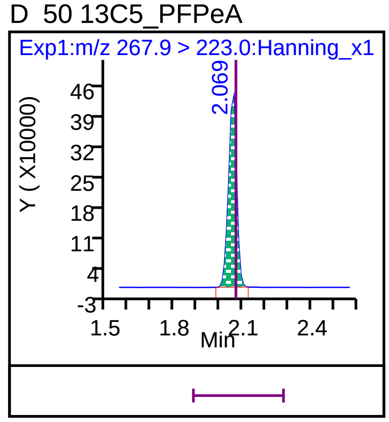
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

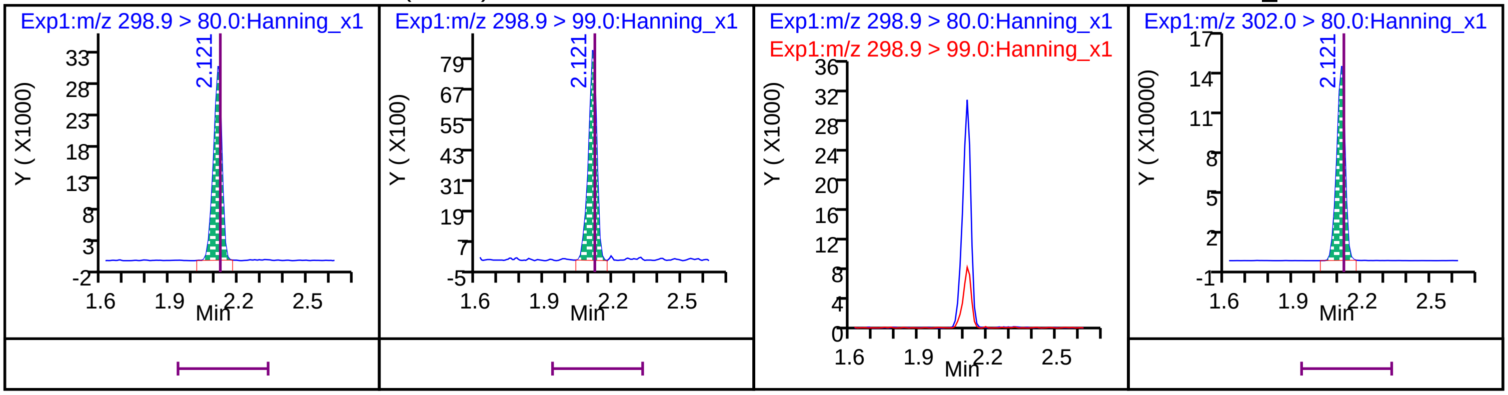


D 50 13C5_PFPeA

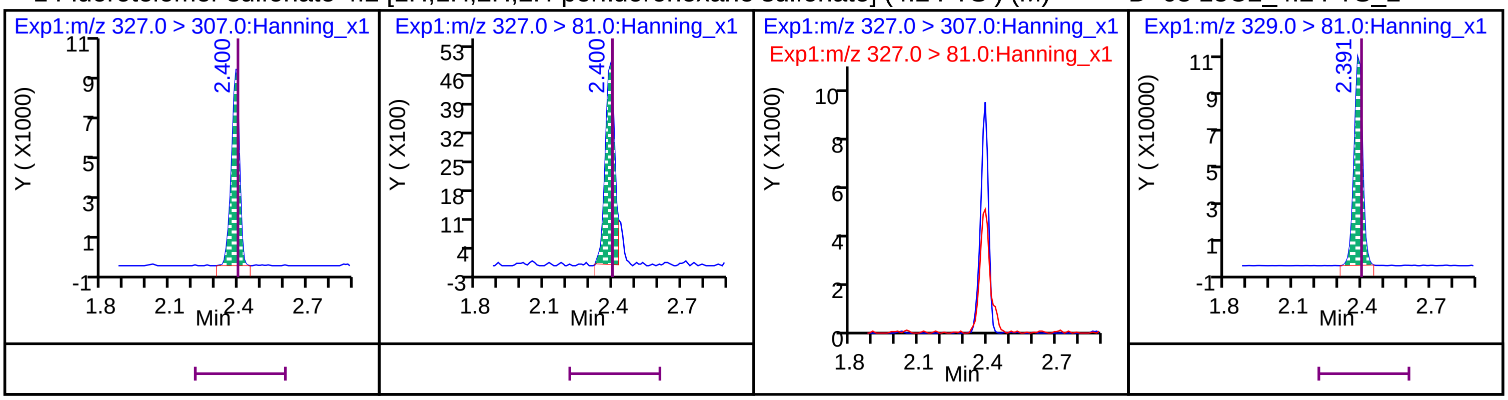


Report Date: 28-Oct-2021 20:18:03 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d

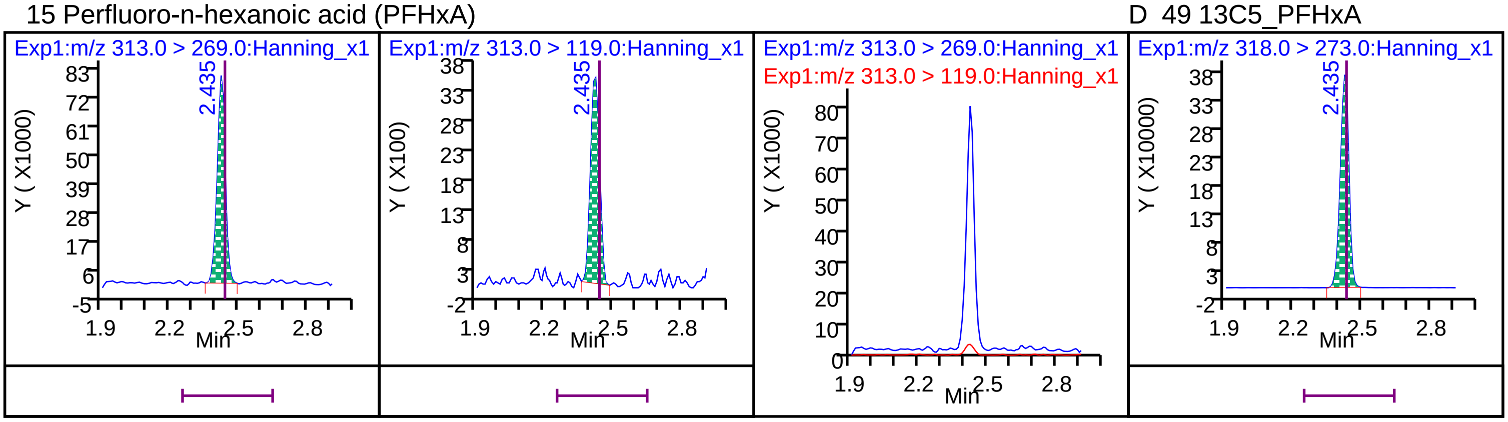
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



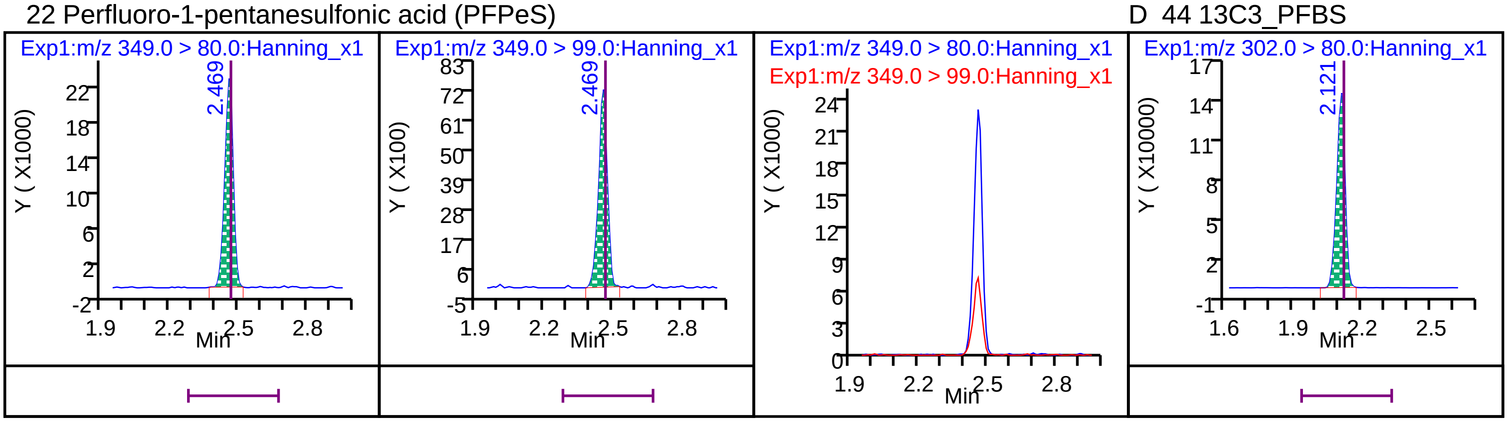
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



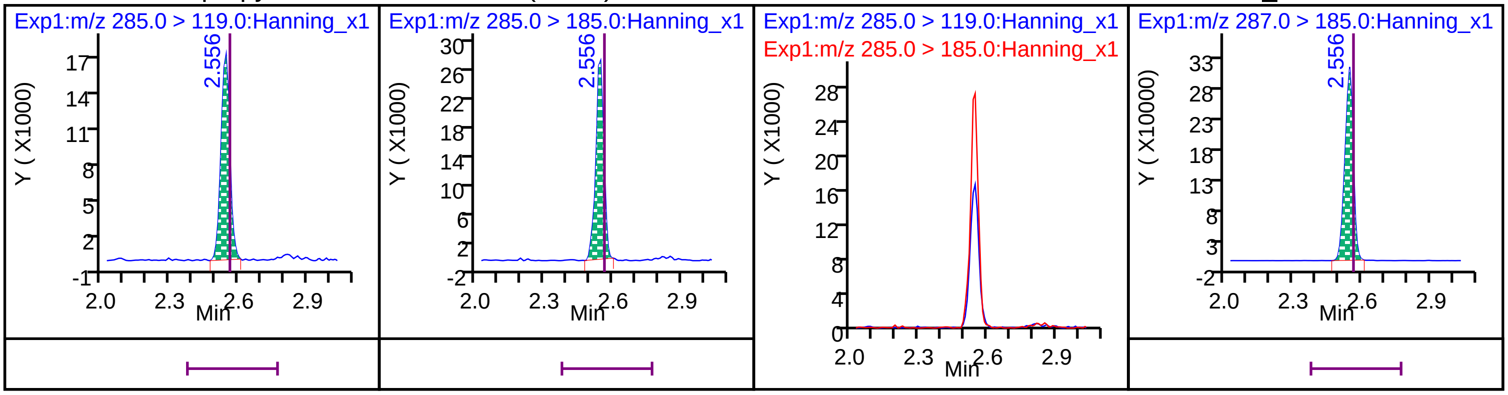
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



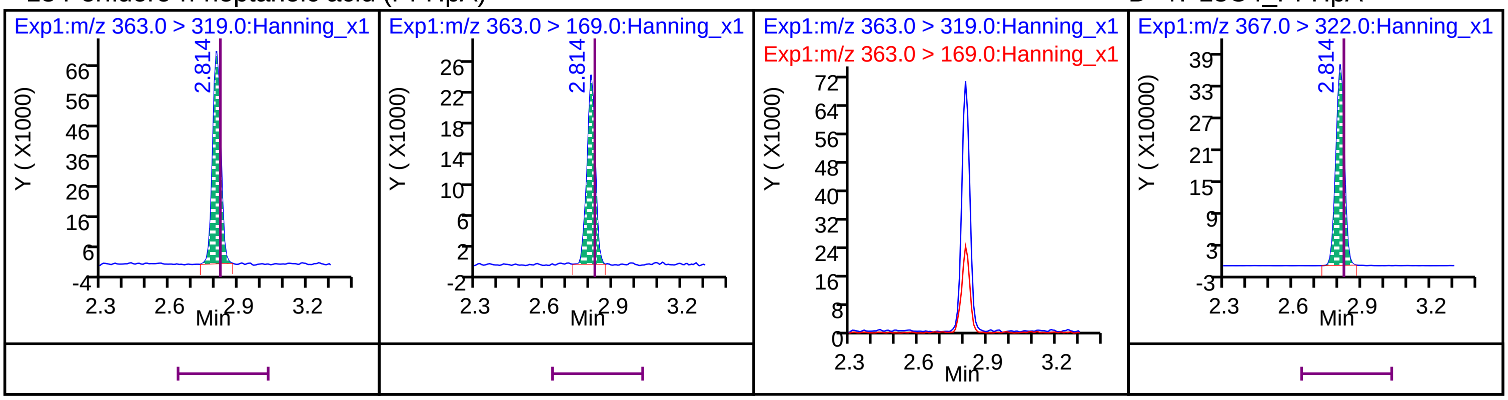
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



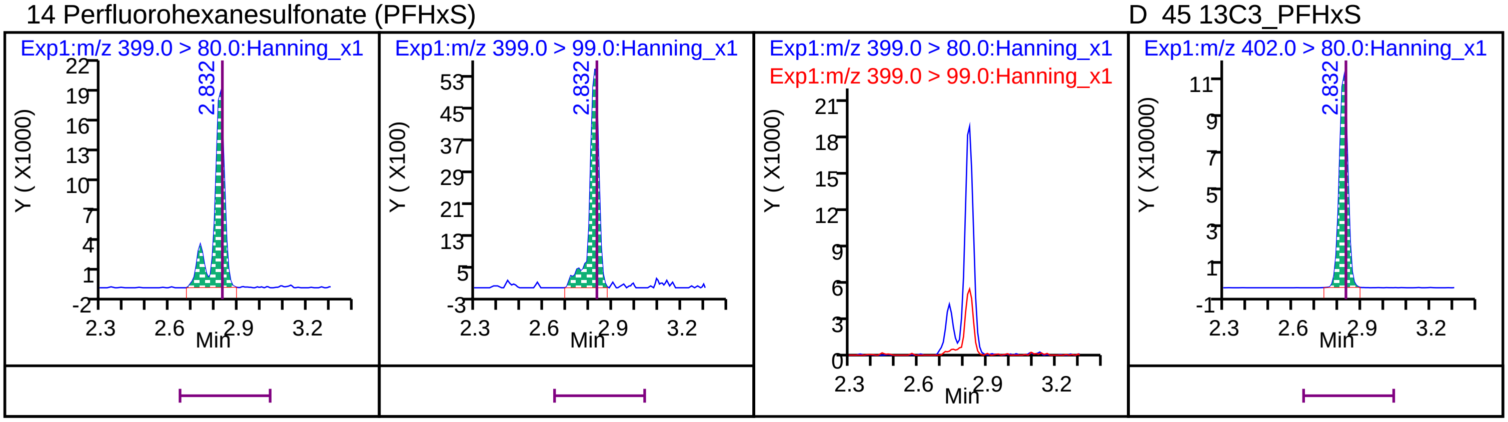
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



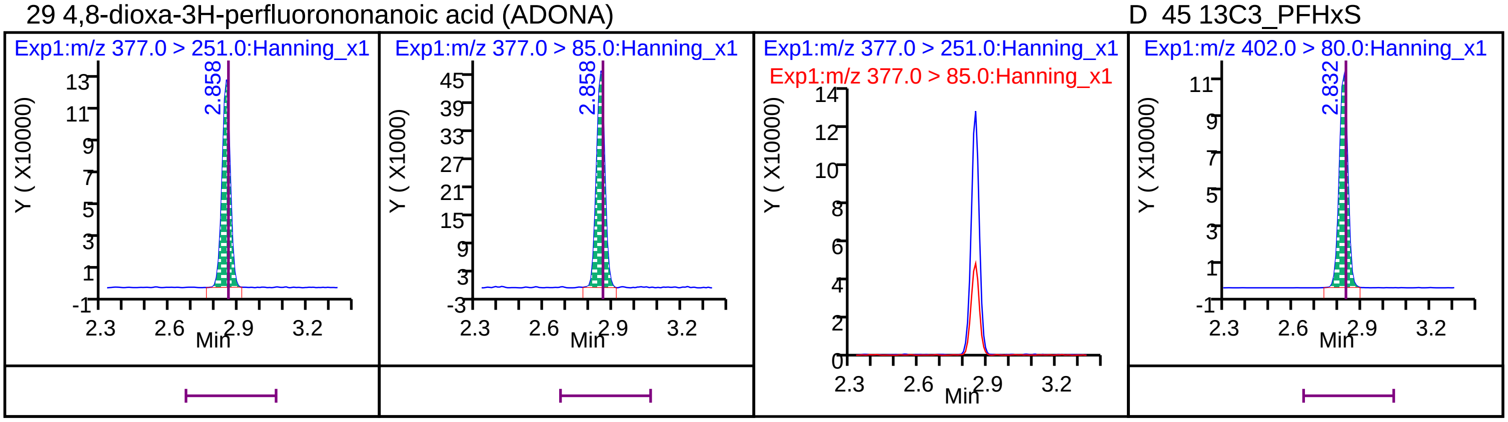
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

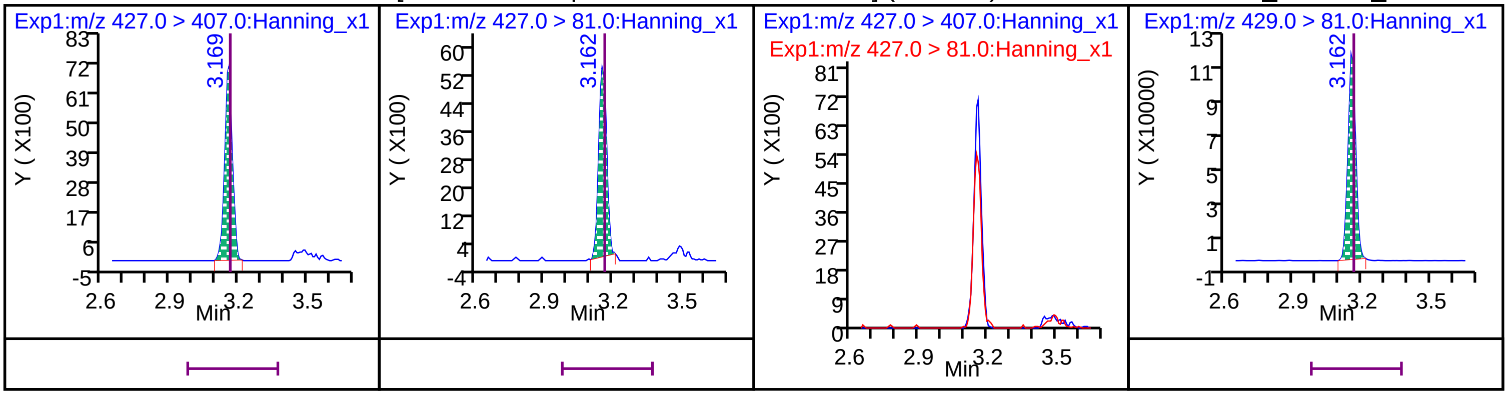


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

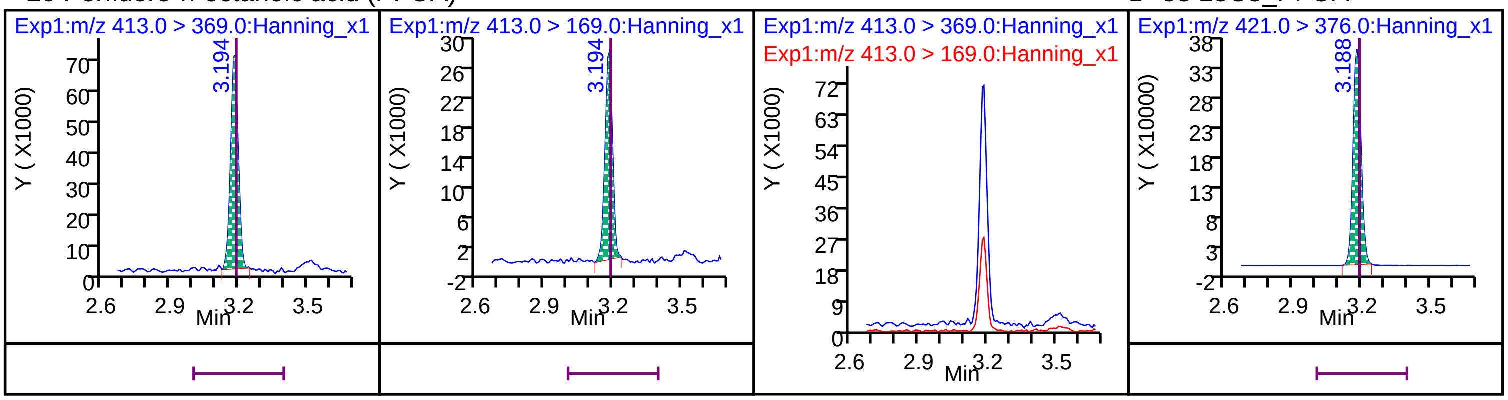


Report Date: 28-Oct-2021 20:18:03 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d

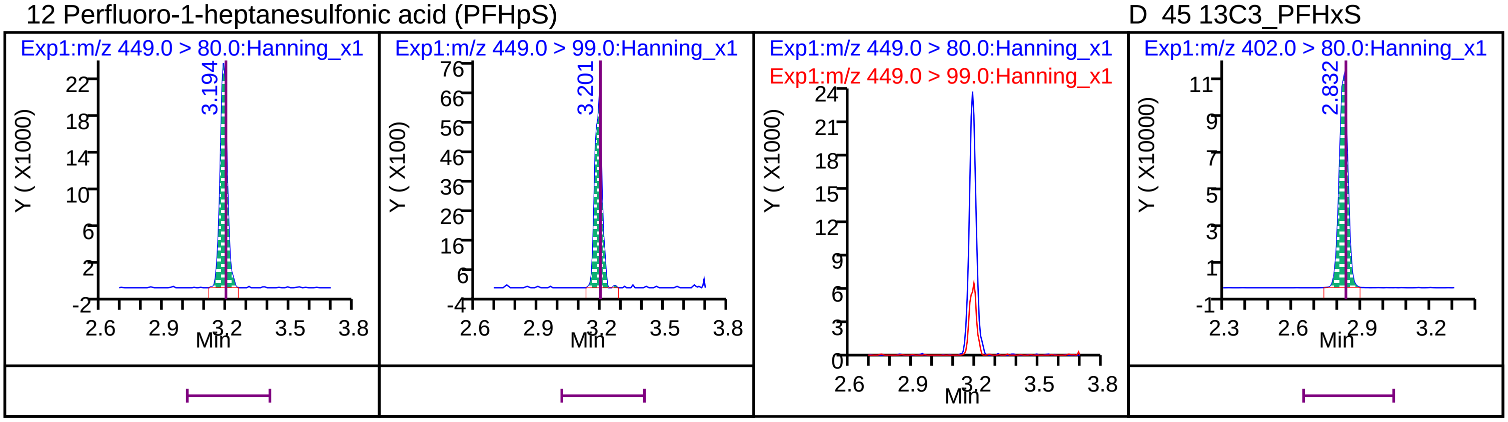
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



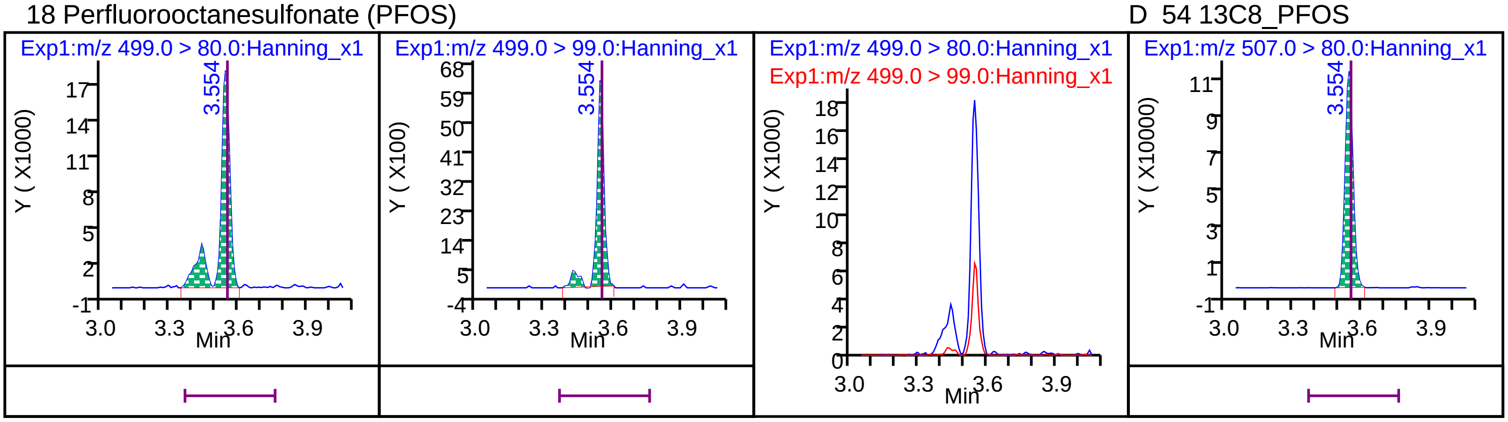
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



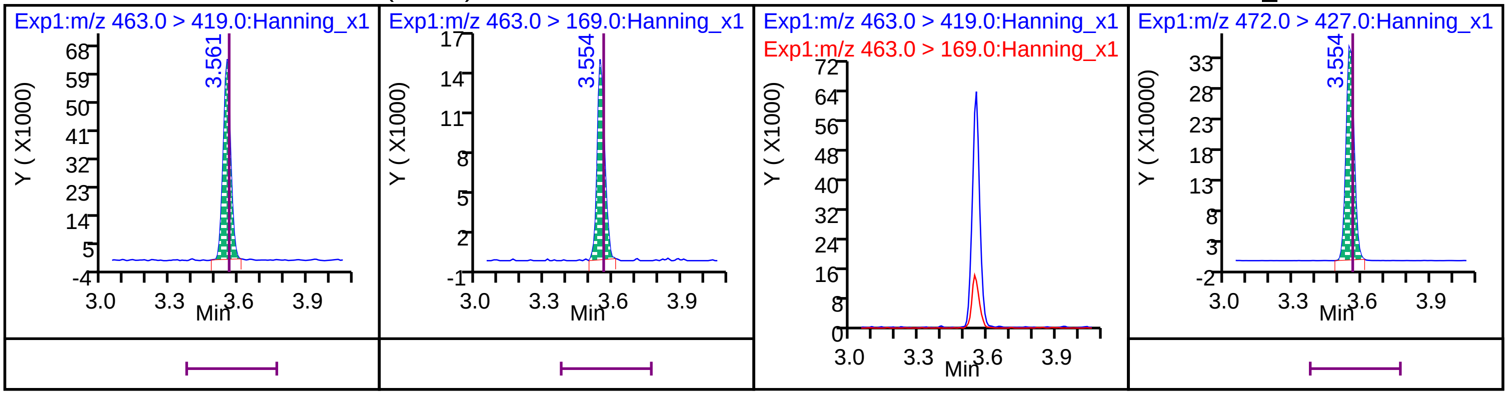
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



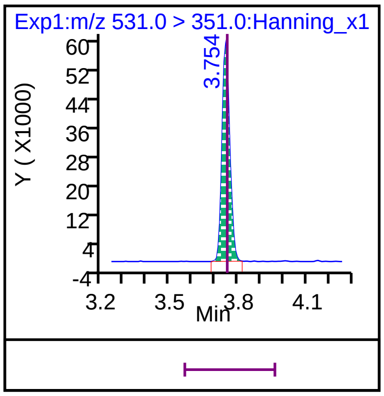
Report Date: 28-Oct-2021 20:18:03 AIM Revision: 2.0.2021.0812

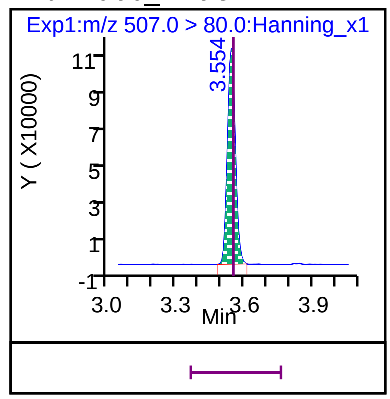
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

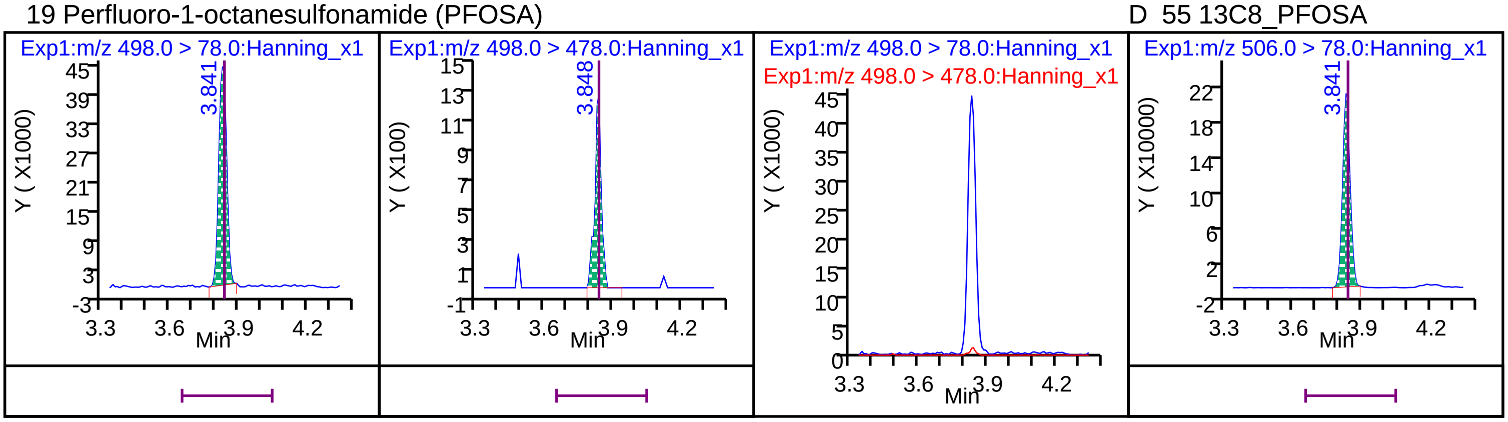


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

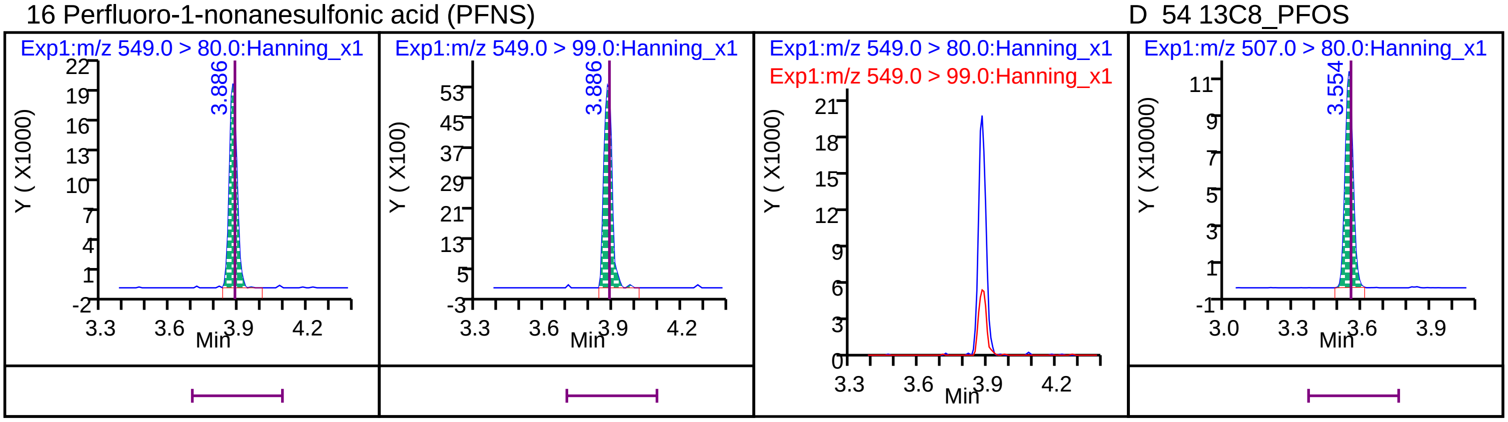




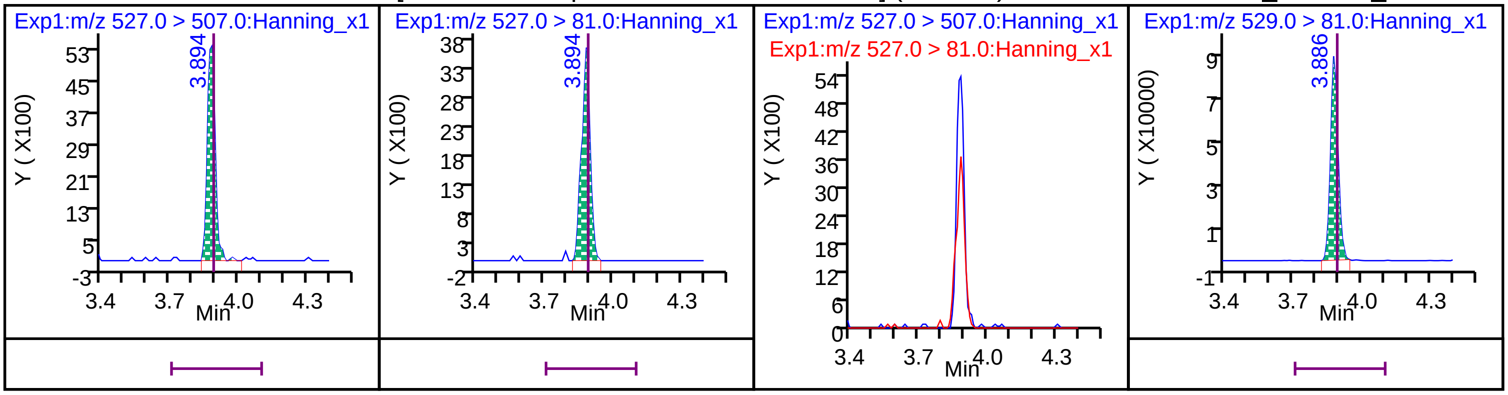
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



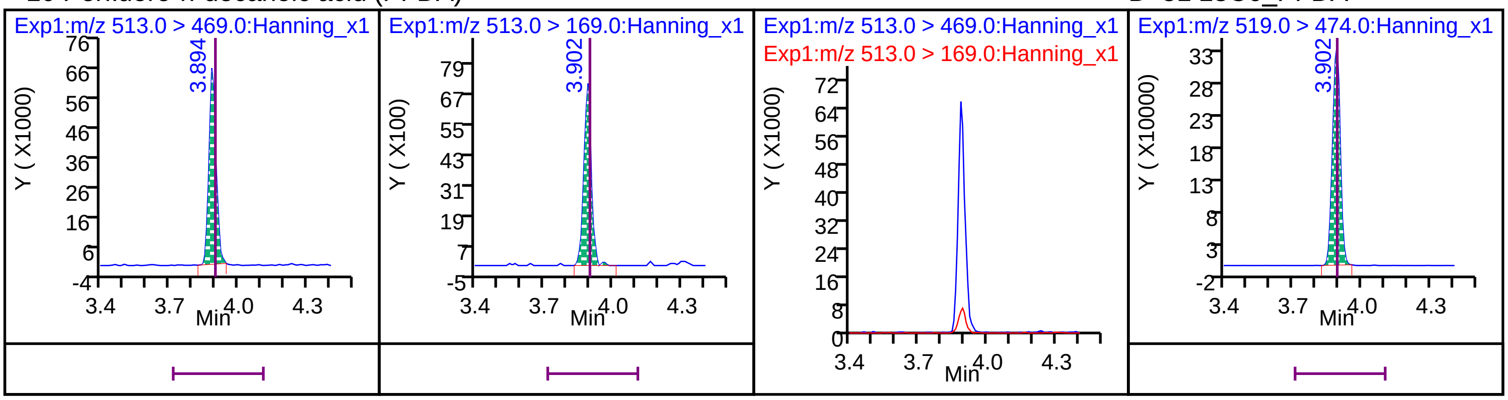
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



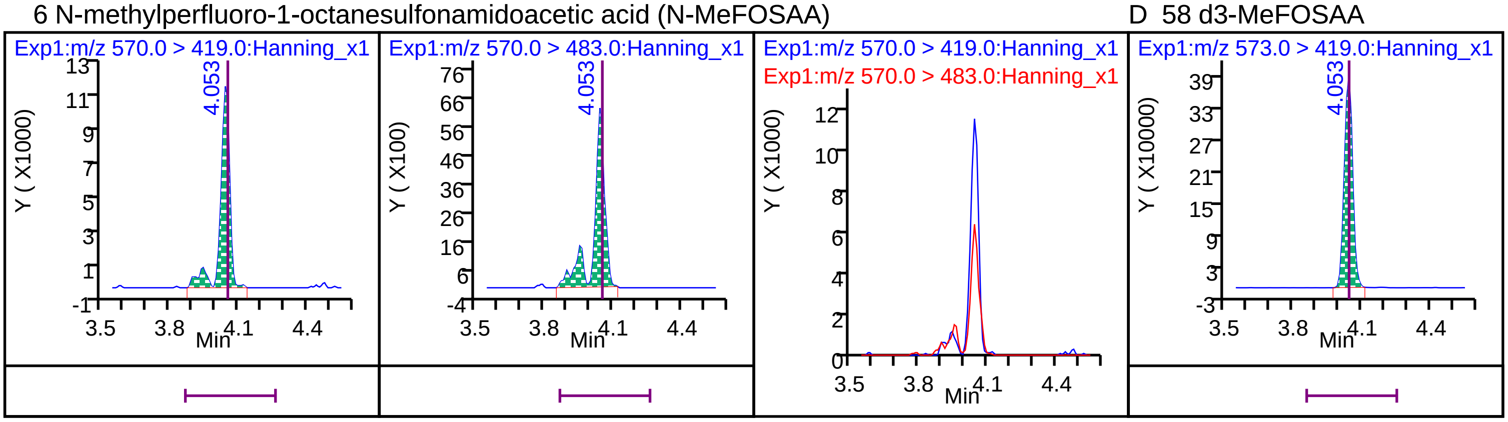
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



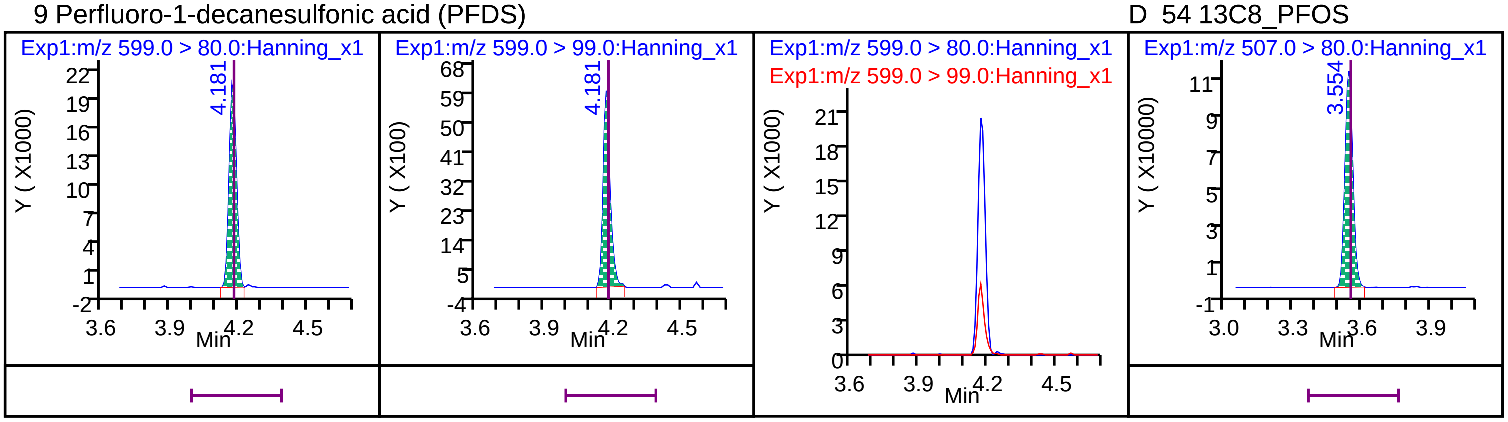
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



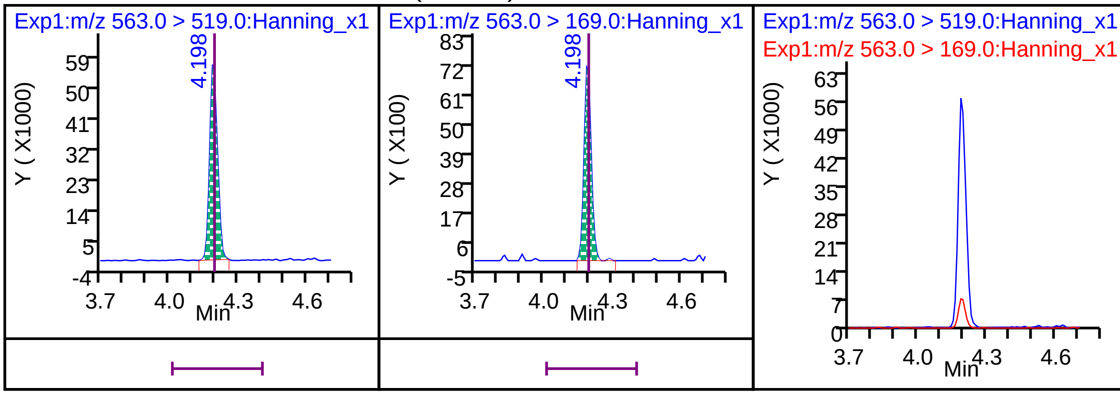
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



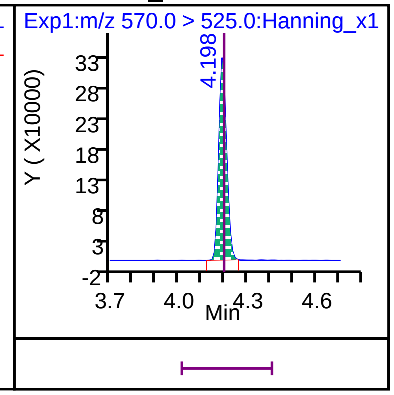
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



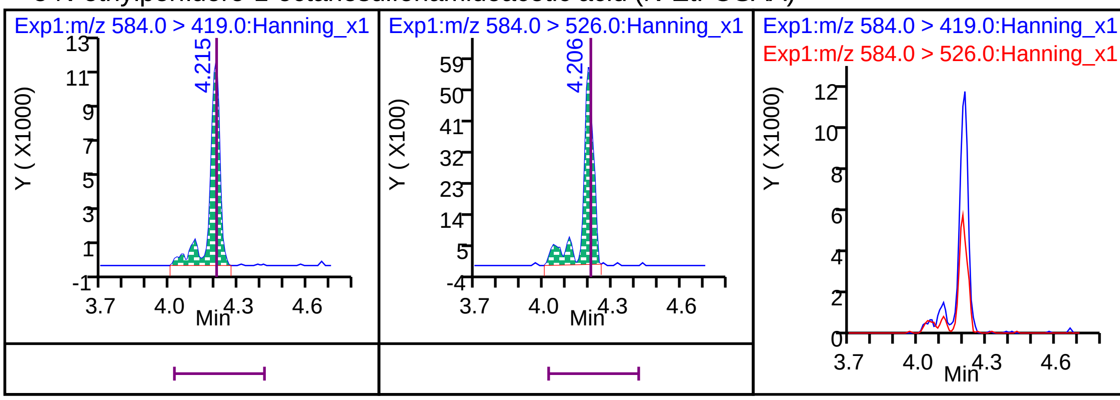
25 Perfluoro-n-undecanoic acid (PFUdA)



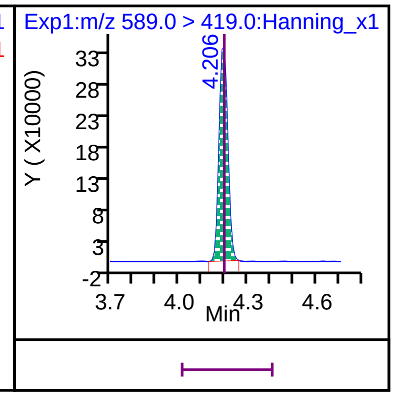
D 52 13C7_PFUdA



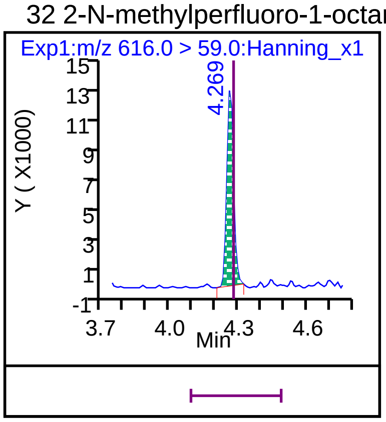
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



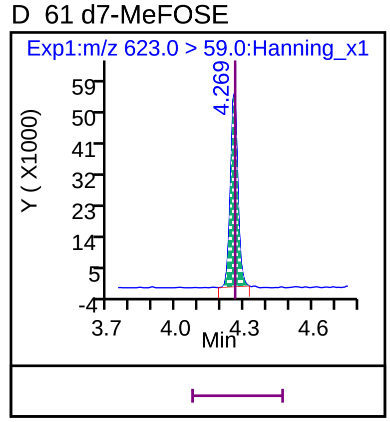
D 60 d5-EtFOSAA



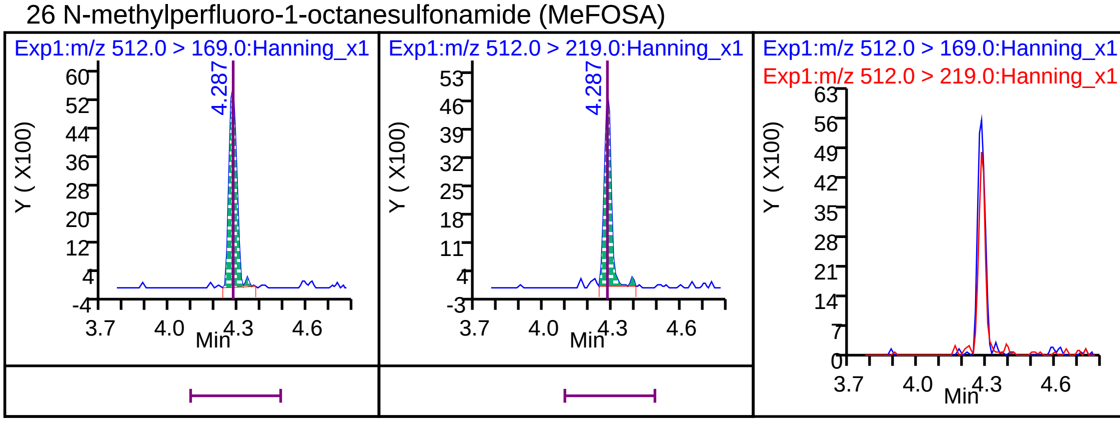
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



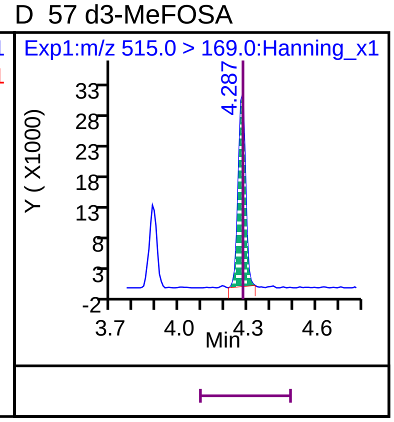
D 61 d7-MeFOSE



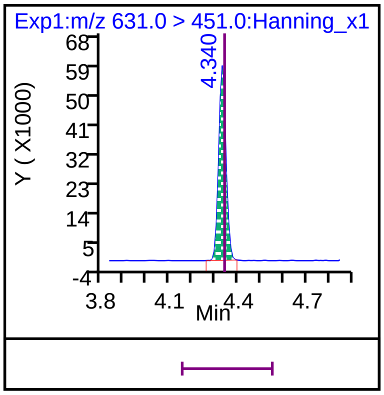
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)



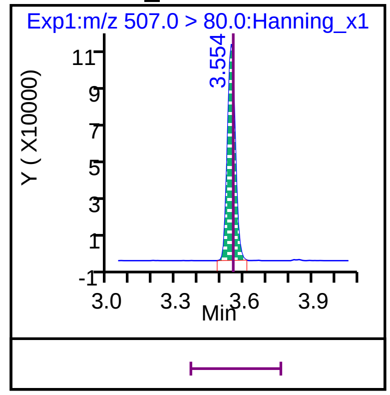
D 57 d3-MeFOSA



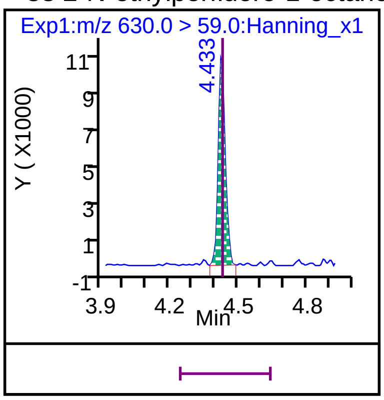
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



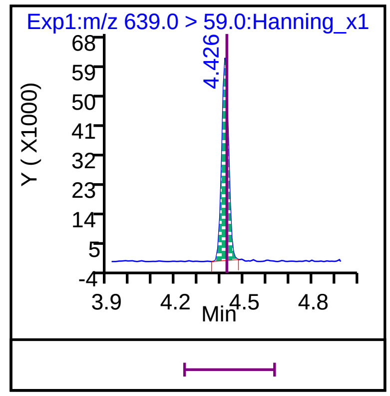
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

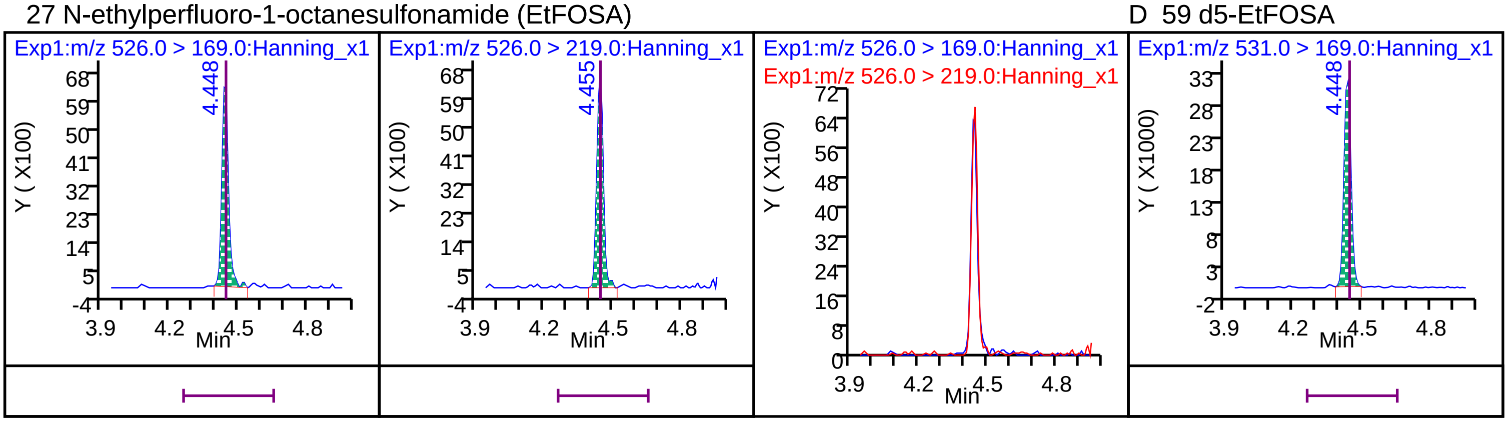


D 62 d9-EtFOSE



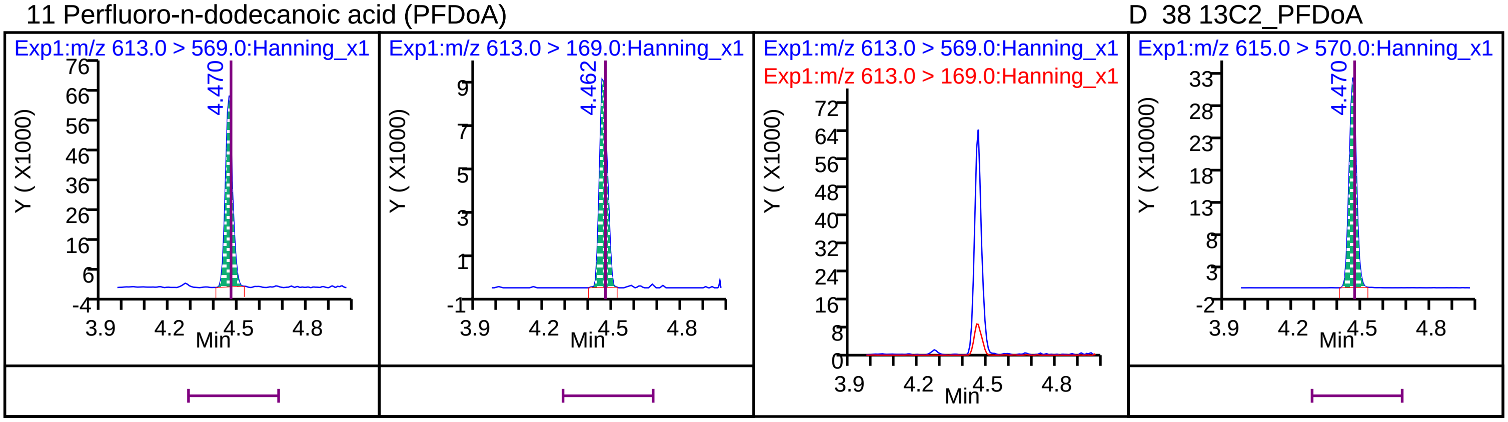
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

D 59 d5-EtFOSA



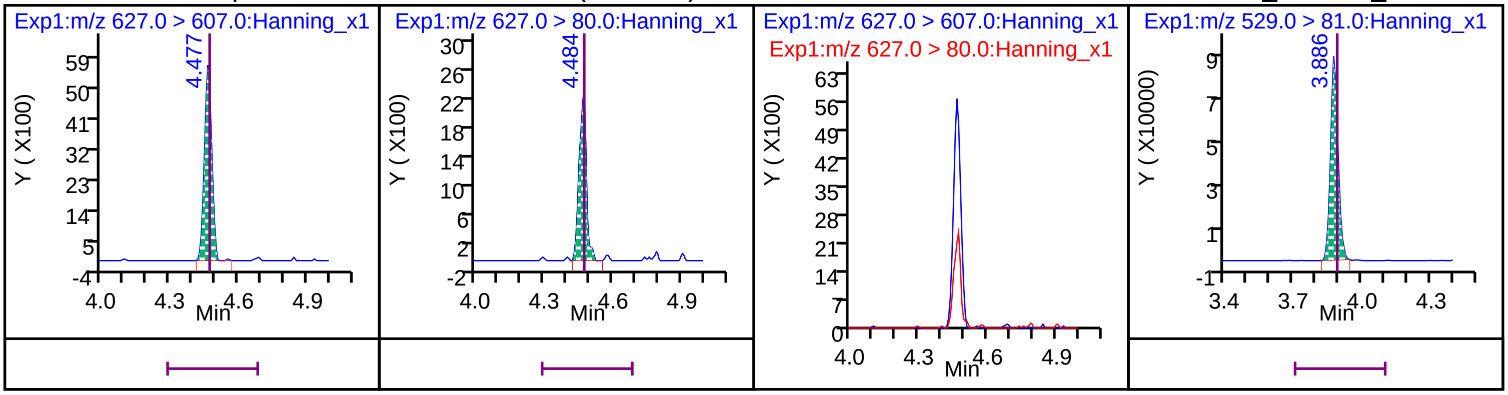
11 Perfluoro-n-dodecanoic acid (PFDoA)

D 38 13C2_PFDoA

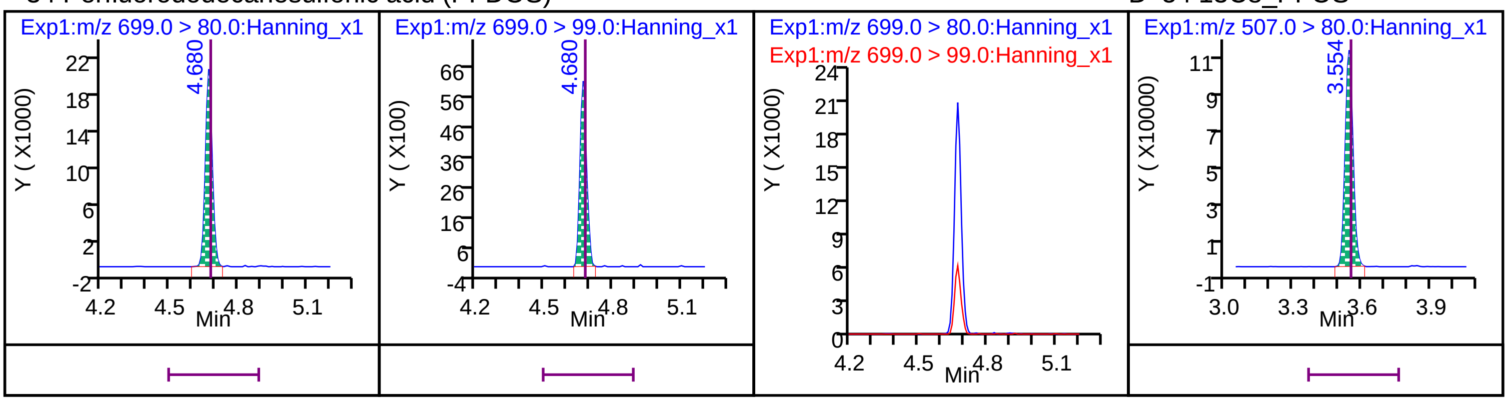


Report Date: 28-Oct-2021 20:18:03 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d

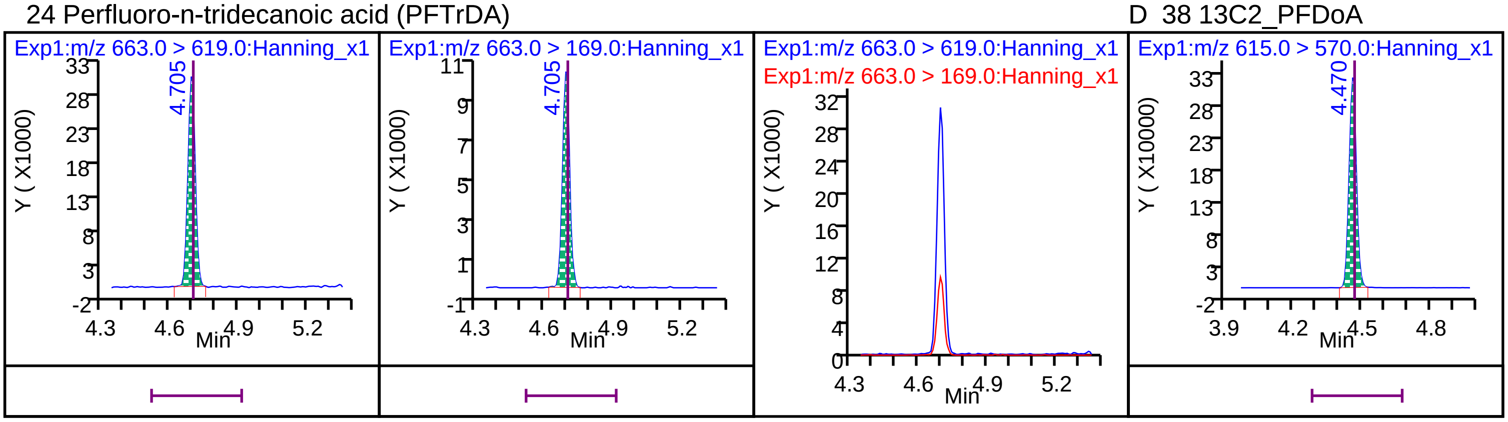
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



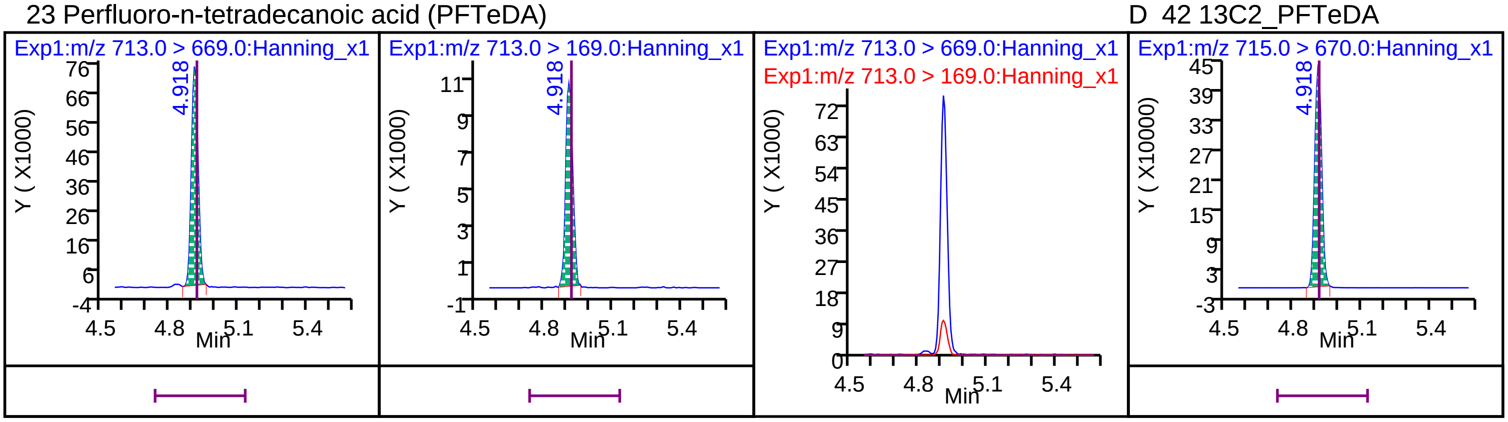
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



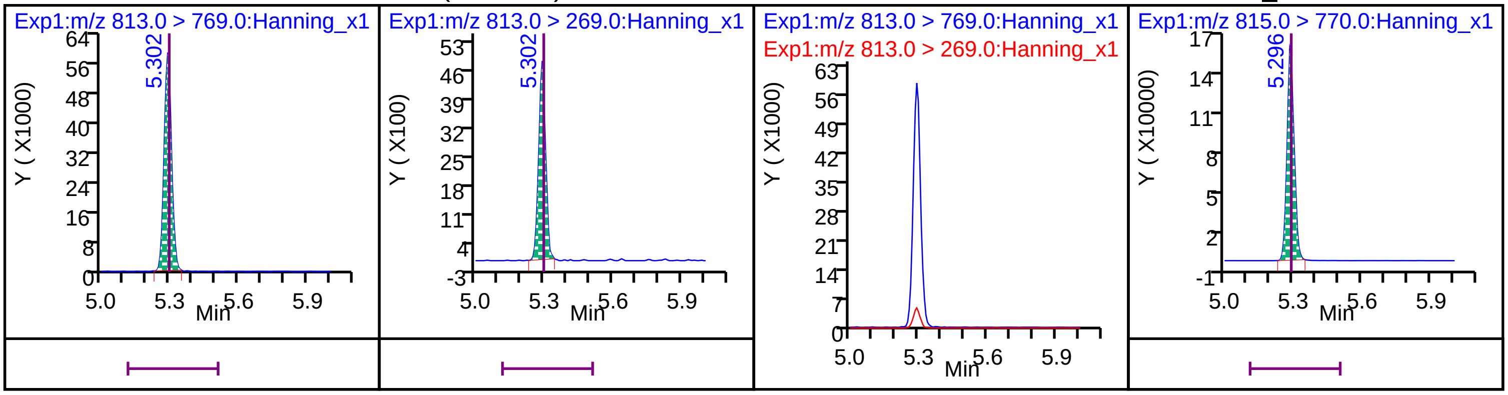
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



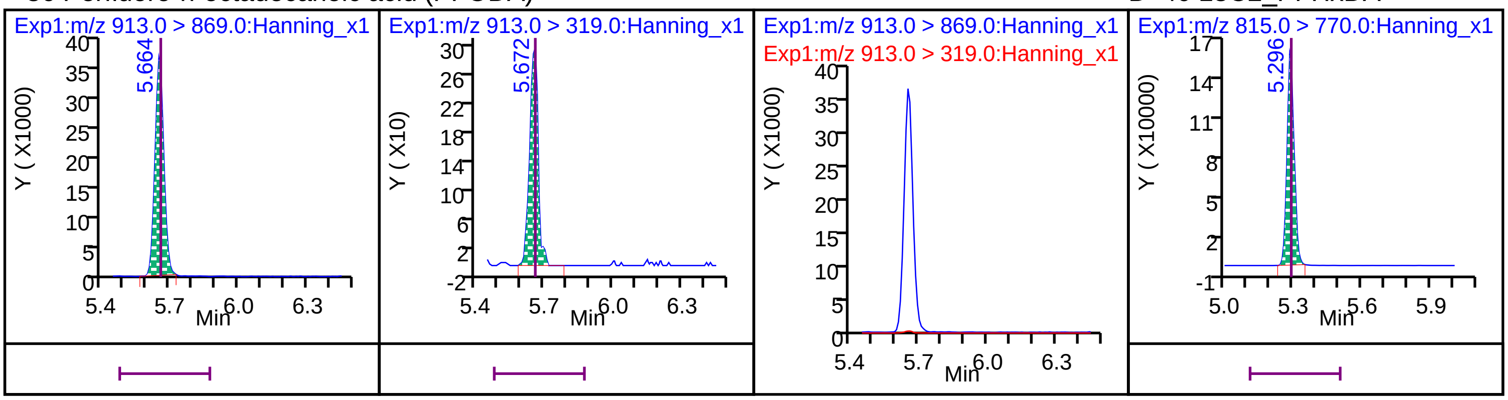
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



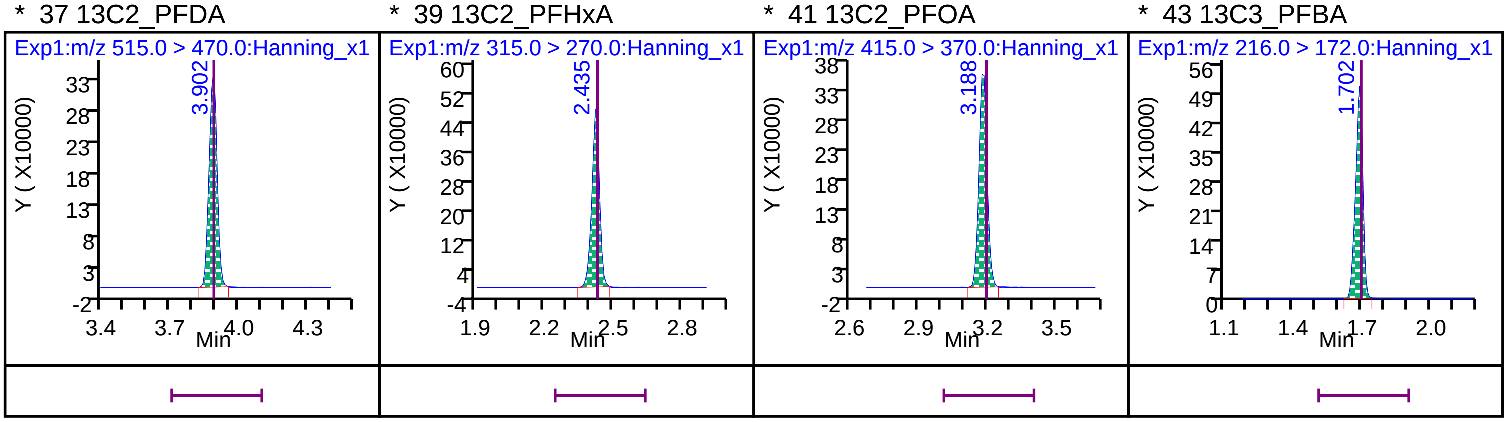
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



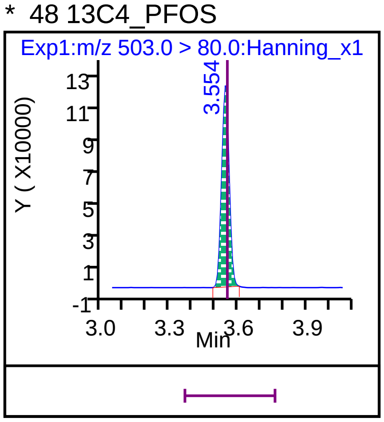
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 28-Oct-2021 20:18:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821006.d

Injection Date: 28-Oct-2021 11:27:18 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 200_SVLC-1725

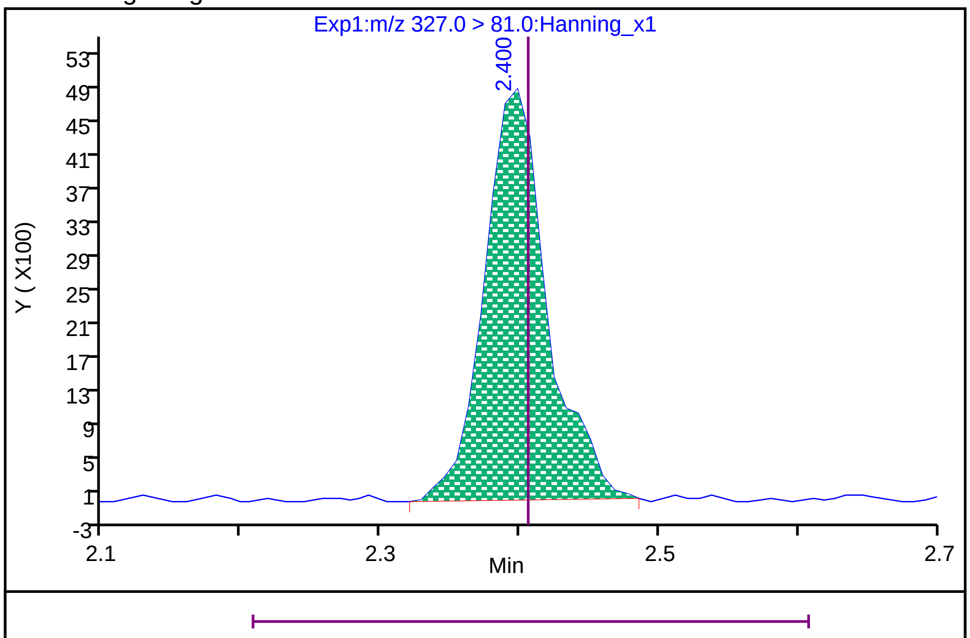
Sample Info: CCV 200_SVLC-1725

Dil. Factor: 1 Operator: Matthew M. Miller

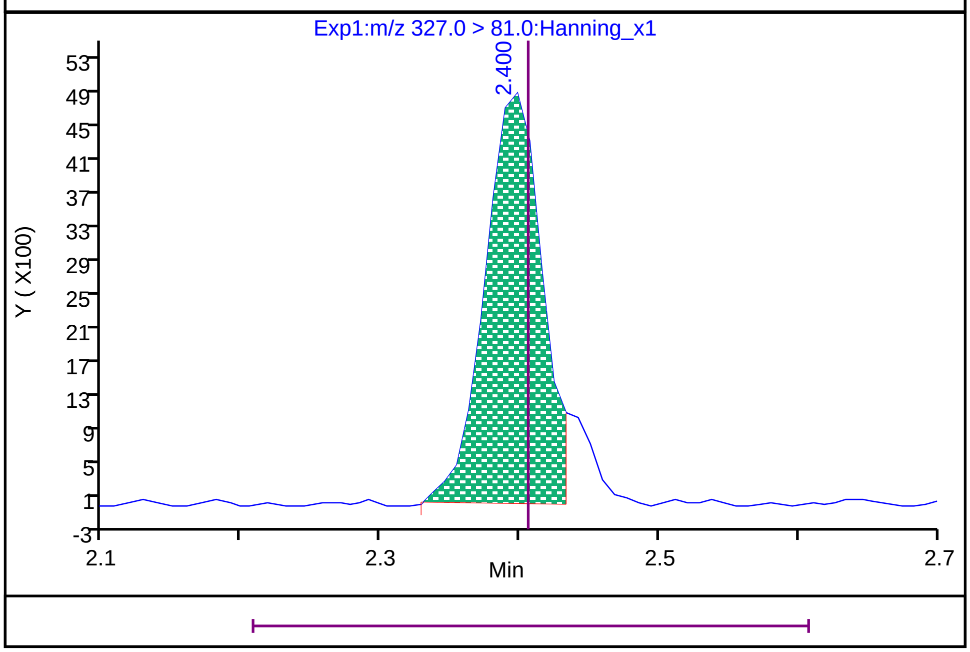
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.400
Area: 15125
Amount: 204.66
Amount Units: ng/L



RT: 2.400
Area: 13603
Amount: 204.66
Amount Units: ng/L



Data Editor: matthew.miller, 28-Oct-2021 11:42:58

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821022.d		
Injection Date:	28-Oct-2021 14:16:43	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	13
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	935.70	93.6	70 - 130
D 46 13C4_PFBA	1111250	1107953			99.7	50 - 150
21 PFPeA			1000.00	932.34	93.2	70 - 130
D 50 13C5_PFPeA	1013844	1027234			101.3	50 - 150
D 44 13C3_PFBS	346697	325907			94	50 - 150
7 PFBS			884.00	849.73	96.1	70 - 130
D 63 13C2_4:2 FTS_2	323537	255875			79.1	50 - 150
1 4:2 FTS			934.00	1070.50	114.6	70 - 130
D 49 13C5_PFHxA	941740	949344			100.8	50 - 150
15 PFHxA			1000.00	915.25	91.5	70 - 130
22 PFPeS			938.00	899.91	95.9	70 - 130
28 GenX			2000.00	2156.87	107.8	70 - 130
D 66 13C3_GenX	715165	669499			93.6	50 - 150
D 47 13C4_PFHpA	943546	902900			95.7	50 - 150
13 PFHpA			1000.00	946.67	94.7	70 - 130
D 45 13C3_PFHxS	283170	272518			96.2	50 - 150
14 PFHxS			910.00	879.75	96.7	70 - 130
29 ADONA			942.00	963.83	102.3	70 - 130
2 6:2 FTS			948.00	1086.06	114.6	70 - 130
D 64 13C2_6:2 FTS_2	240700	224239			93.2	50 - 150
D 53 13C8_PFOA	859711	829186			96.4	50 - 150
20 PFOA			1000.00	947.34	94.7	70 - 130
12 PFHpS			952.00	867.85	91.2	70 - 130
D 54 13C8_PFOS	242805	226995			93.5	50 - 150
18 PFOS			928.00	895.02	96.4	70 - 130
17 PFNA			1000.00	1028.69	102.9	70 - 130
D 56 13C9_PFNA	822524	768185			93.4	50 - 150
30 9Cl-PF3ONS			932.00	958.74	102.9	70 - 130
D 55 13C8_PFOSA	455631	452099			99.2	50 - 150
19 PFOSA			1000.00	964.15	96.4	70 - 130
16 PFNS			960.00	882.39	91.9	70 - 130
D 65 13C2_8:2 FTS_2	205992	197693			96	50 - 150
3 8:2 FTS			958.00	1183.58	123.5	70 - 130
D 51 13C6_PFDA	761788	773188			101.5	50 - 150
10 PFDA			1000.00	908.41	90.8	70 - 130
D 58 d3-MeFOSAA	912247	886496			97.2	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1146.98	114.7	70 - 130
9 PFDS			964.00	897.26	93.1	70 - 130
25 PFUdA			1000.00	1091.12	109.1	70 - 130
D 60 d5-EtFOSAA	882829	811559			91.9	50 - 150
D 52 13C7_PFUdA	745296	707924			95	50 - 150
5 N-EtFOSAA			1000.00	947.81	94.8	70 - 130
D 61 d7-MeFOSE	136219	112638			82.7	50 - 150
32 MeFOSE			1000.00	1120.76	112.1	70 - 130
D 57 d3-MeFOSA	60817	62474			102.7	50 - 150
26 MeFOSA			1000.00	991.32	99.1	70 - 130
31 11Cl-PF3OUDS			942.00	896.12	95.1	70 - 130
D 62 d9-EtFOSE	128617	116275			90.4	50 - 150
33 EtFOSE			1000.00	1138.76	113.9	70 - 130
D 59 d5-EtFOSA	62925	56500			89.8	50 - 150
27 EtFOSA			1000.00	1032.63	103.3	70 - 130
11 PFDoA			1000.00	989.54	99	70 - 130
D 38 13C2_PFDoA	648927	626169			96.5	50 - 150
4 10:2 FTS			964.00	1063.60	110.3	70 - 130
34 PFDOS			968.00	796.25	82.3	70 - 130
24 PFTrDA			1000.00	1001.83	100.2	70 - 130
D 42 13C2_PFTeDA	891082	828248			92.9	50 - 150
23 PFTeDA			1000.00	993.19	99.3	70 - 130
D 40 13C2_PFHxDA	325837	293807			90.2	50 - 150
35 PFHxDA			1000.00	1049.41	104.9	70 - 130
36 PFODA			1000.00	944.45	94.4	70 - 130

Report Date: 28-Oct-2021 20:18:07 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821022.d		
Injection Date:	28-Oct-2021 14:16:43	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	13
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.707	0	1107953	19	>100:1			1000.00	1235.03	99.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.706	1.707	0/0	1120301	19	>100:1			1000.00	935.70		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.079	0	1027234	17	>100:1			1000.00	1142.77	101.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.079	0/0	1033731	16	>100:1			1000.00	932.34		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.131	0	325907	15	>100:1			1000.00	1091.84	94	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.131	0/0	385012	15	>100:1	Target = 3.78		884.00	849.73		
298.9 > 99	44	2.119	2.131		95193	15	>100:1	4.04 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.467	2.477	0/0	302593	19	>100:1	Target = 3.45		938.00	899.91		
349 > 99	44	2.467	2.477		90920	17	>100:1	3.32 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.407	0	255875	19	>100:1			5000.00	5725.74	79.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.397	2.407	0/0	104964	18		Target = 1.43		934.00	1070.50		
327 > 81	63	2.397	2.407		68815	19	>100:1	1.52 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.432	2.442	0	949344	19	>100:1			1000.00	1159.47	100.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.432	2.451	-1/-1	892486	17	>100:1	Target = 16.37		1000.00	915.25		
313 > 119	49	2.432	2.451		49828	17	>100:1	17.91 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.554	2.572	-1	669499	19	>100:1			5000.00	4627.21	93.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.554	2.572	-1/0	221809	18	>100:1	Target = 0.74		2000.00	2156.87		
285 > 185	66	2.554	2.572		303890	18	>100:1	0.72 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.810	2.831	-1	902900	18	>100:1			1000.00	1126.81	95.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.818	2.831	0/1	848169	18	>100:1	Target = 3.21		1000.00	946.67		
363 > 169	47	2.818	2.831		260668	19	>100:1	3.25 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.827	2.840	0	272518	17				1000.00	1108.00	96.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.827	2.840	0/0	289061	25	>100:1	Target = 3.47	5.56	910.00	879.75		
399 > 99	45	2.827	2.840		83155	23	>100:1	3.47 (1.73-5.21)	8.80				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.854	2.866	0/0	1427938	18	>100:1	Target = 2.28		942.00	963.83		
377 > 85	45	2.854	2.866		581582	18	>100:1	2.45 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.190	3.206	0/0	256811	21	>100:1	Target = 3.62		952.00	867.85		
449 > 99	45	3.196	3.206		73962	21	>100:1	3.47 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.164	3.174	0	224239	21				5000.00	5131.68	93.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.164	3.174	0/0	76820	22		Target = 1.19		948.00	1086.06		
427 > 81	64	3.158	3.174		55250	22		1.39 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.190	3.199	0	829186	21	>100:1			1000.00	1095.84	96.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.190	3.199	0/0	790886	21	>100:1	Target = 2.34		1000.00	947.34		
413 > 169	53	3.190	3.199		315710	21	>100:1	2.50 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.544	3.562	-1	226995	19	>100:1			1000.00	1001.87	93.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.544	3.562	-1/0	245257	42	>100:1	Target = 4.00	3.44	928.00	895.02		
499 > 99	54	3.551	3.562		62098	39	>100:1	3.94 (2.00-6.01)	6.71				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.750	3.761	0/1	664116	20	>100:1			932.00	958.74		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.873	3.894	-1/0	202530	16	>100:1	Target = 3.83		960.00	882.39		
549 > 99	54	3.873	3.894		51698	20	>100:1	3.91 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.166	4.190	-1/0	195957	21	>100:1	Target = 3.87		964.00	897.26		
599 > 99	54	4.175	4.190		56160	15	>100:1	3.48 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.325	4.350	-1/0	531237	16	>100:1			942.00	896.12		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.665	4.689	-1/0	165168	16	>100:1	Target = 3.65		968.00	796.25		
699 > 99	54	4.665	4.689		44618	16		3.70 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.551	3.569	-1	768185	18	>100:1			1000.00	990.63	93.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.551	3.569	-1/0	689720	20	>100:1	Target = 4.21		1000.00	1028.69		
463 > 169	56	3.551	3.569		156002	19	>100:1	4.42 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.835	3.849	0	452099	18	>100:1			1000.00	1079.47	99.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.835	3.849	0/0	494220	18	>100:1	Target = 49.05		1000.00	964.15		
498>478	55	3.835	3.849		11263	22	89:1	43.87 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.881	3.902	-1	197693	19				5000.00	5228.07	96	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.881	3.902	-1/0	69097	19	>100:1	Target = 1.27		958.00	1183.58		
527 > 81	65	3.881	3.902		43607	18	>100:1	1.58 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.464	4.485	-1/0	63409	17	>100:1	Target = 2.25		964.00	1063.60		
627 > 80	65	4.464	4.485		25393	15	>100:1	2.49 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.888	3.902	0	773188	18	>100:1			1000.00	1138.45	101.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.888	3.910	-1/-1	709676	17	>100:1	Target = 8.94		1000.00	908.41		
513 > 169	51	3.888	3.910		80052	23	>100:1	8.86 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.035	4.053	-1	886496	16	>100:1			5000.00	4326.51	97.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.045	4.063	-1/0	155345	32	>100:1	Target = 1.38	6.70	1000.00	1146.98		
570 > 483	58	4.045	4.063		104996	32	>100:1	1.47 (0.69-2.08)	4.17				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.191	4.206	0	707924	17	>100:1			1000.00	1119.88	95	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.191	4.206	0/0	685061	15	>100:1	Target = 8.27		1000.00	1091.12		
563 > 169	52	4.183	4.206		65768	15	>100:1	10.41 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.191	4.206	0	811559	16	>100:1			5000.00	4727.26	91.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.200	4.215	0/0	164192	31	>100:1	Target = 1.95	7.93	1000.00	947.81		M
584 > 526	60	4.200	4.215		91351	33	>100:1	1.79 (0.97-2.92)	3.73				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.254	4.270	0	112638	15	>100:1			1000.00	885.79	82.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.263	4.287	-1/-1	124514	14	>100:1			1000.00	1120.76		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.272	4.287	0	62474	14	>100:1			1000.00	1074.88	102.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.272	4.287	0/0	65941	14	>100:1	Target = 1.08		1000.00	991.32		
512 > 219	57	4.272	4.287		61025	19	>100:1	1.08 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.413	4.434	-1	116275	16	>100:1			1000.00	989.94	90.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.428	4.441	0/1	112836	16	>100:1			1000.00	1138.76		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.435	4.456	-1	56500	15	>100:1			1000.00	1028.60	89.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.442	4.456	0/1	66756	15	>100:1	Target = 1.10		1000.00	1032.63		
526 > 219	59	4.442	4.456		59548	15	>100:1	1.12 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.457	4.477	-1	626169	19	>100:1			1000.00	1042.53	96.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.457	4.477	-1/0	634624	18	>100:1	Target = 5.93		1000.00	989.54		
613 > 169	38	4.457	4.477		101627	19	>100:1	6.24 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.690	4.713	-1/0	339364	17	>100:1	Target = 2.90		1000.00	1001.83		
663 > 169	38	4.690	4.713		114572	17	>100:1	2.96 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.902	4.923	-1	828248	20	>100:1			1000.00	1033.77	92.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.902	4.929	-1/0	696451	20	>100:1	Target = 6.34		1000.00	993.19		
713 > 169	42	4.902	4.929		97833	20	>100:1	7.11 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.280	5.302	-1	293807	19	>100:1			1000.00	892.89	90.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.287	5.309	-1/0	624704	19	>100:1	Target = 12.53		1000.00	1049.41		
813 > 269	40	5.280	5.309		49269	18	>100:1	12.67 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.646	5.672	-1/0	411854	20	>100:1	Target = 152.15		1000.00	944.45		
913 > 319	40	5.646	5.672		2712	20		151.86 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.888	3.902	0	675639	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.432	2.442	0	863299	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.196	3.206	0	690291	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.700	1.707	0	958662	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.544	3.562	-1	235488	20	>100:1			1000.00			

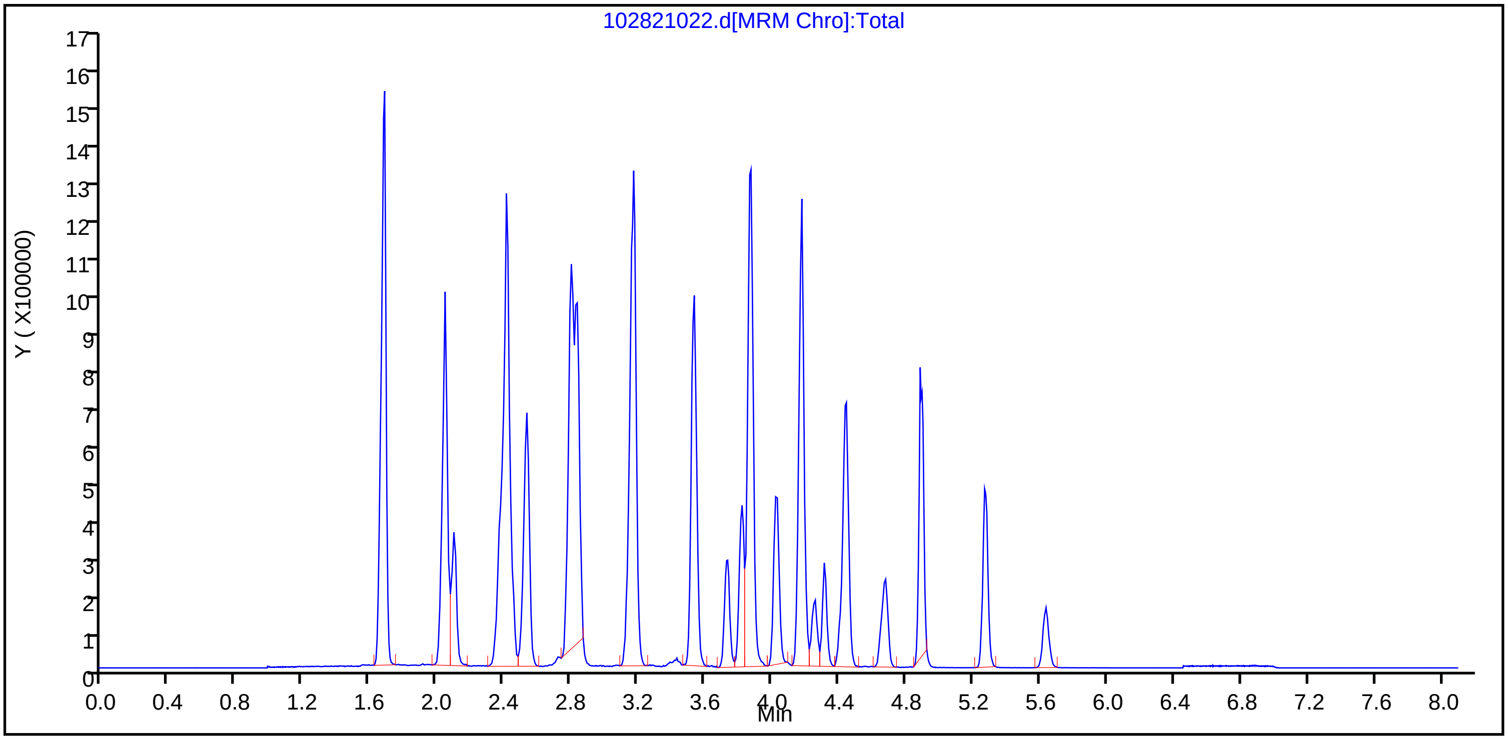
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

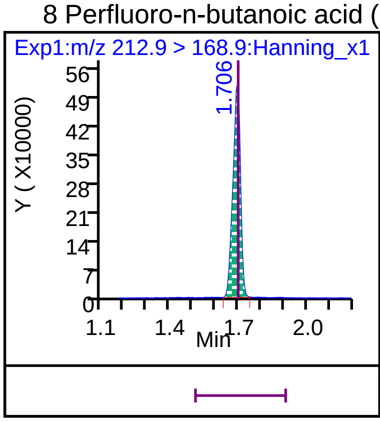
Report Date: 28-Oct-2021 20:18:07 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

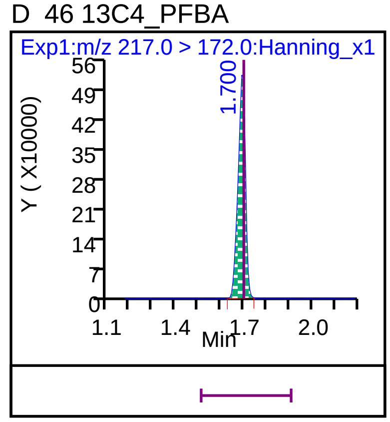
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821022.d		
Injection Date:	28-Oct-2021 14:16:43	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



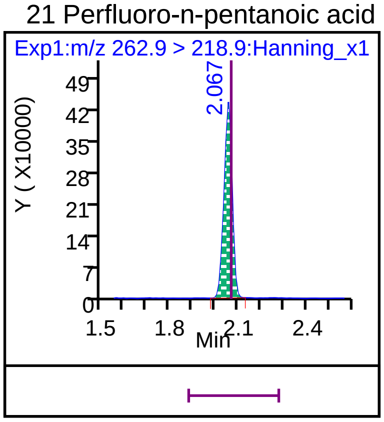
8 Perfluoro-n-butanoic acid (PFBA)



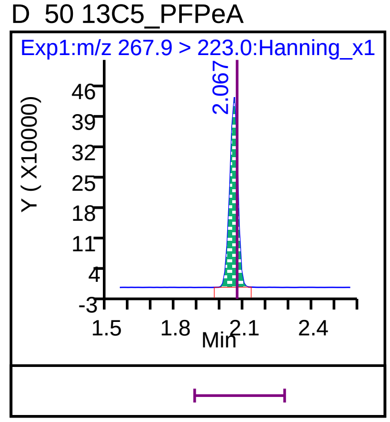
D 46 13C4_PFBA



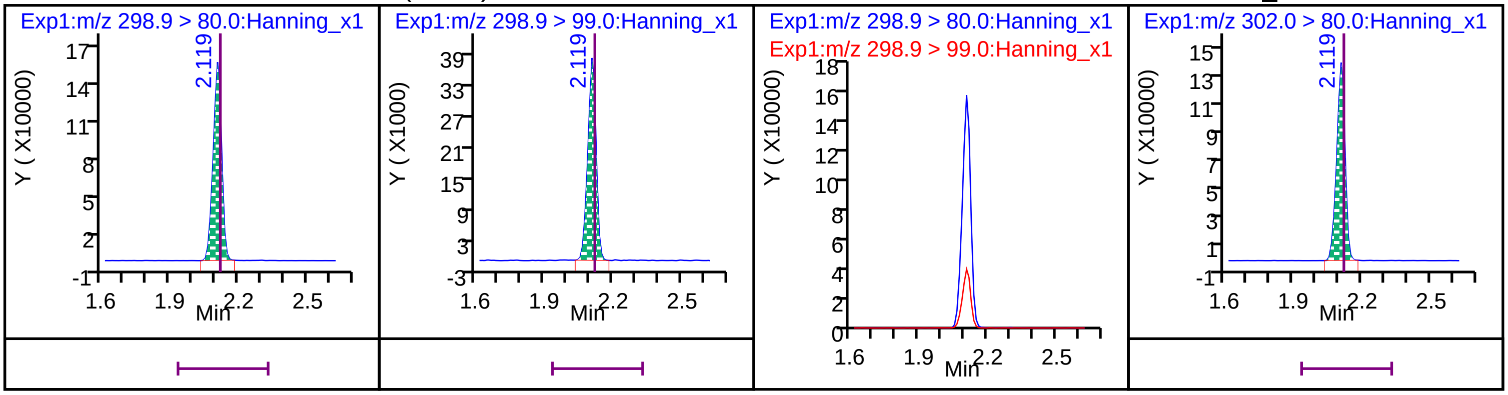
21 Perfluoro-n-pentanoic acid (PFPeA)



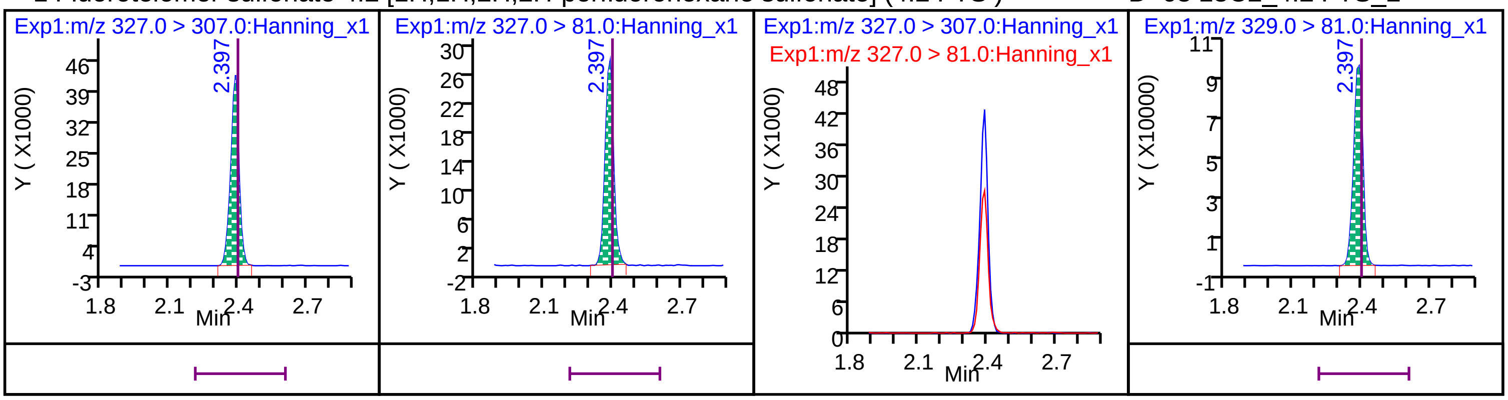
D 50 13C5_PFPeA



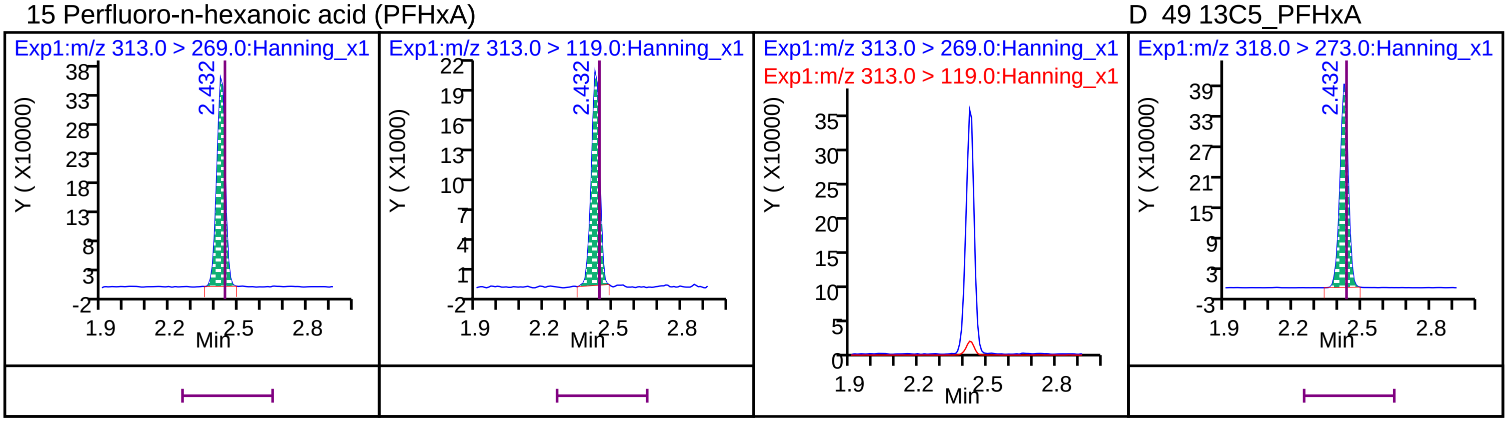
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



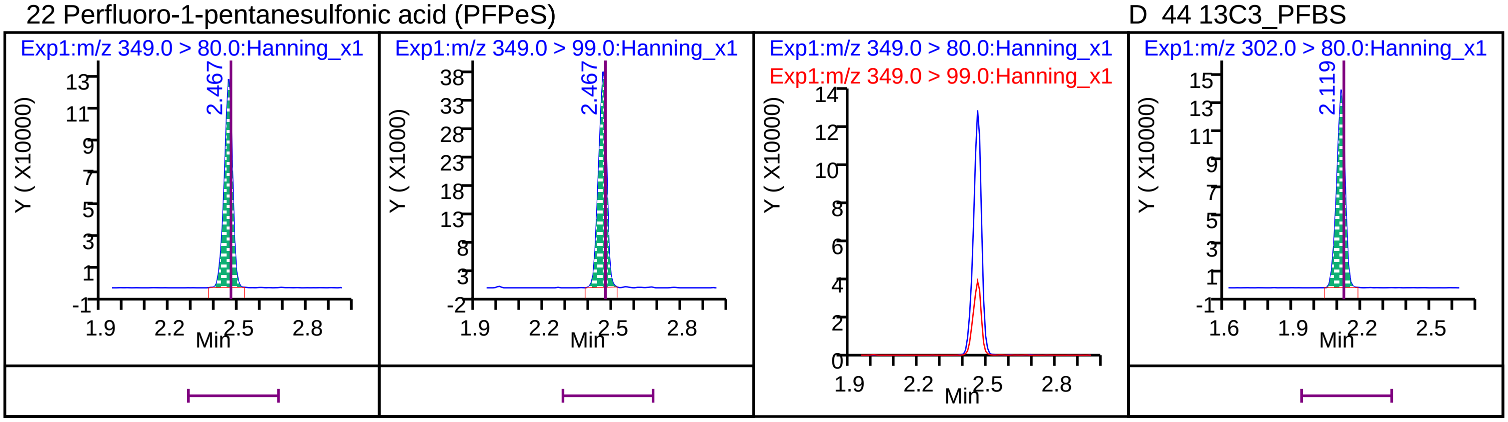
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

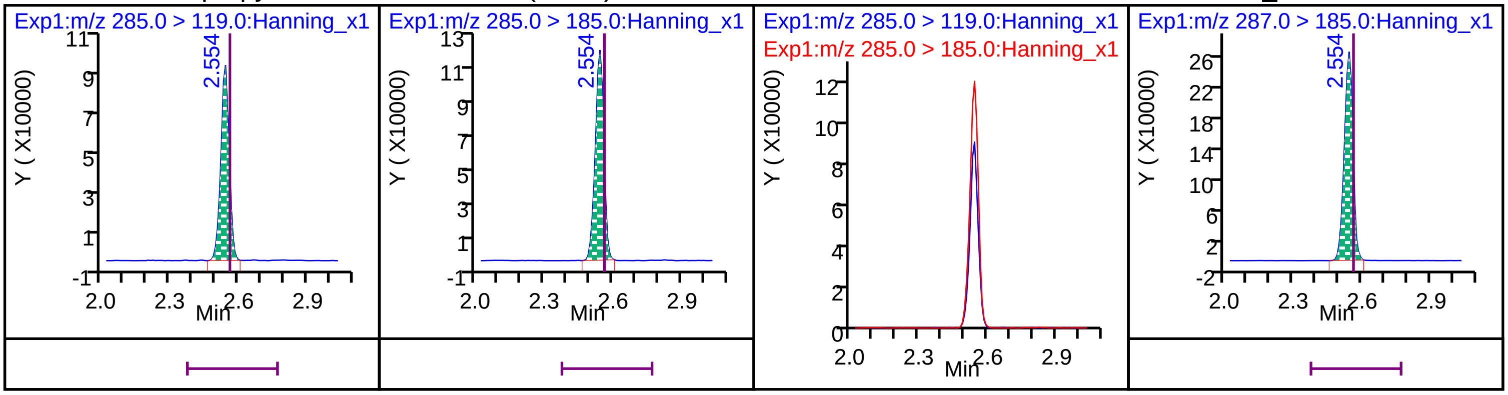


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

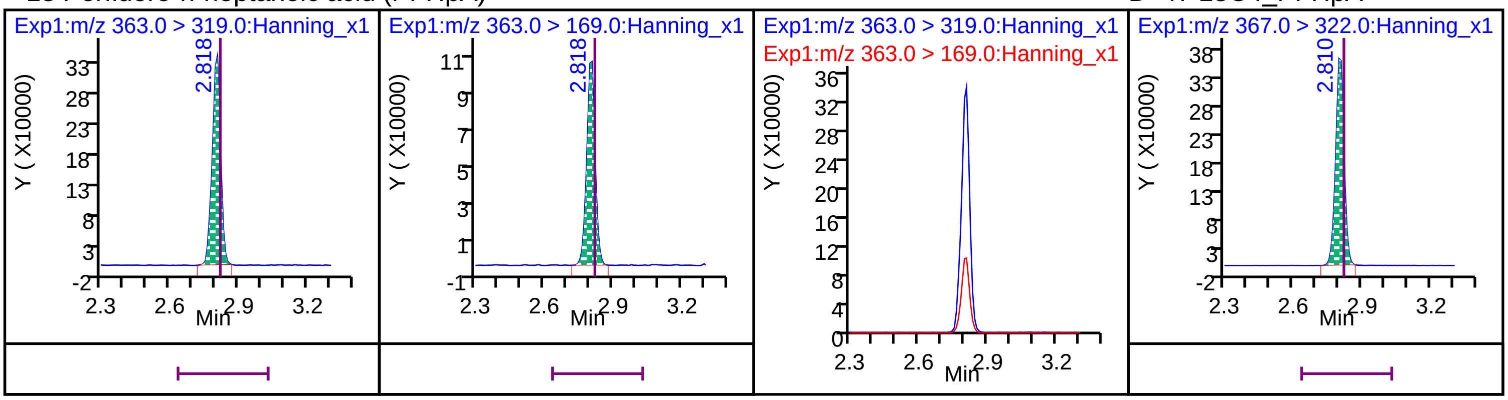


Report Date: 28-Oct-2021 20:18:07 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821022.d

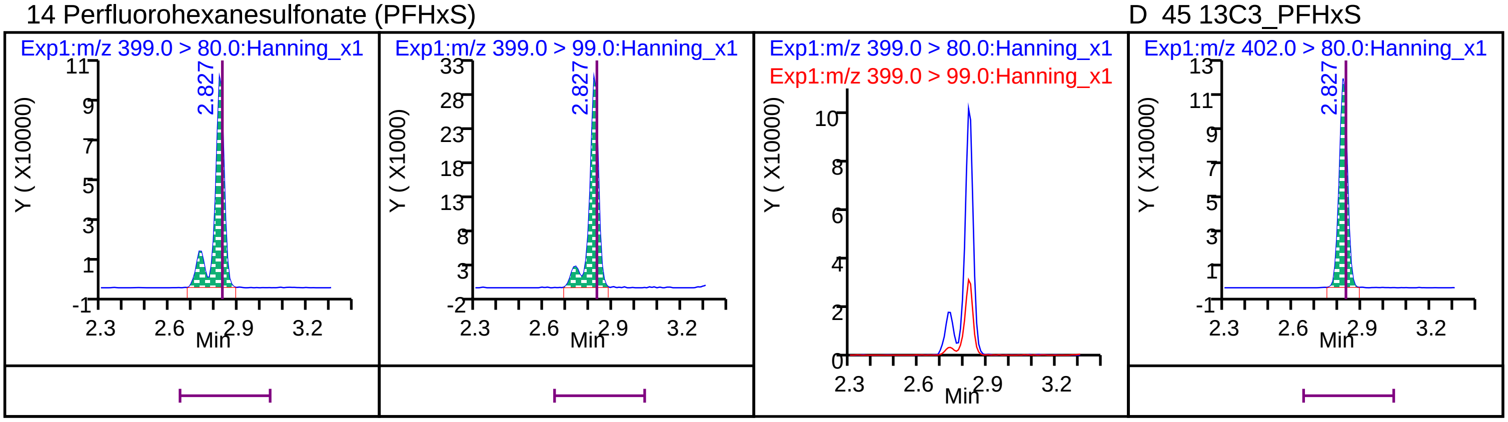
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



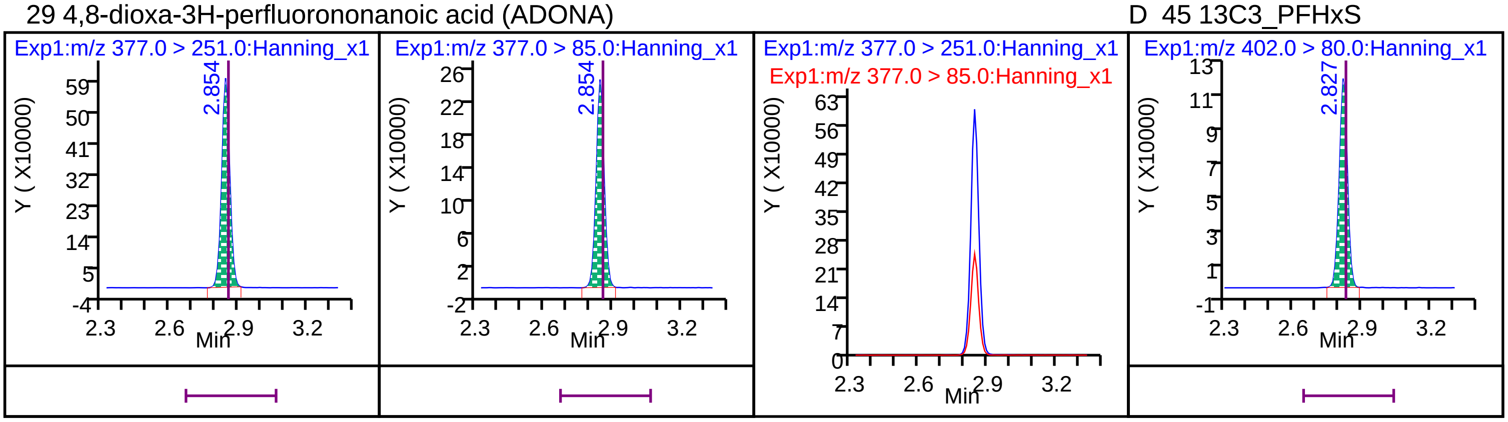
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



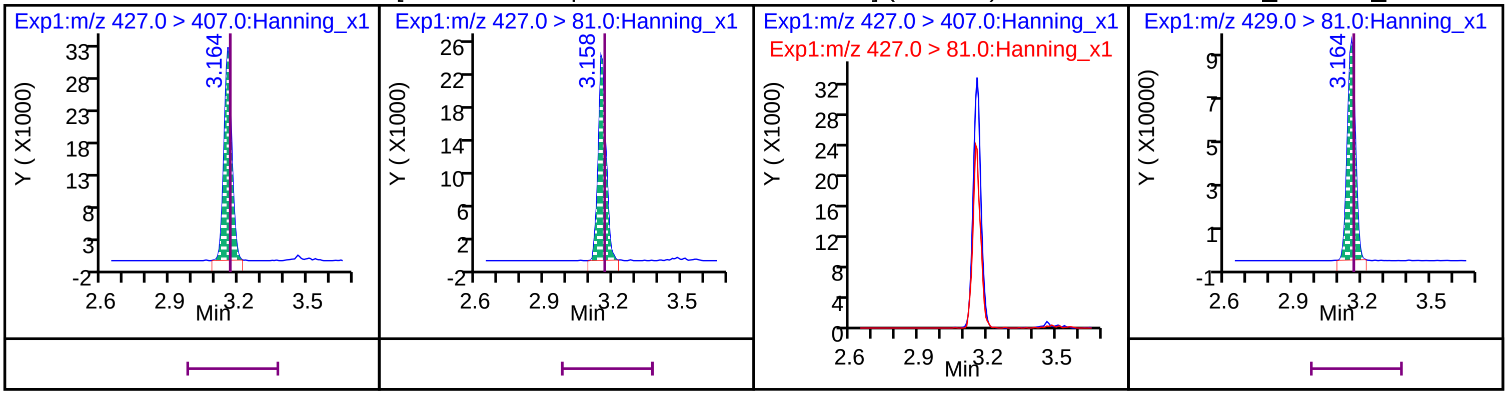
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



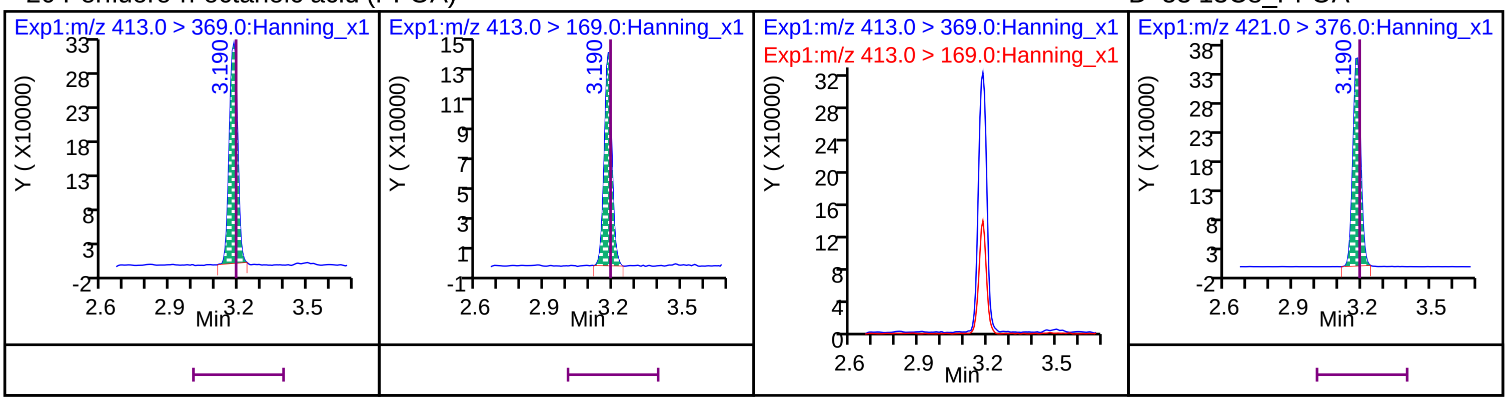
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



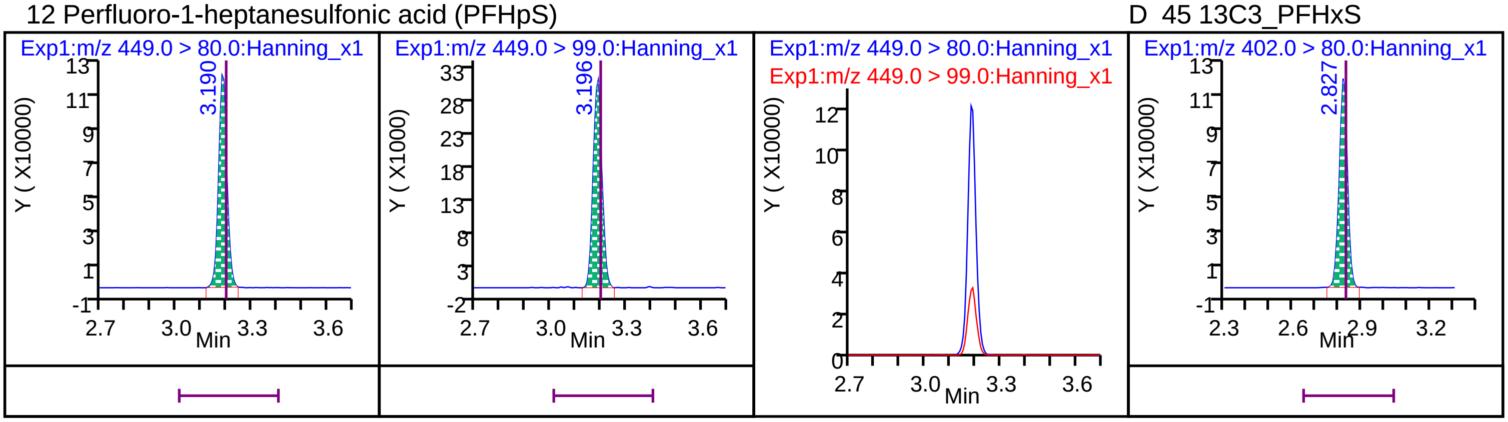
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



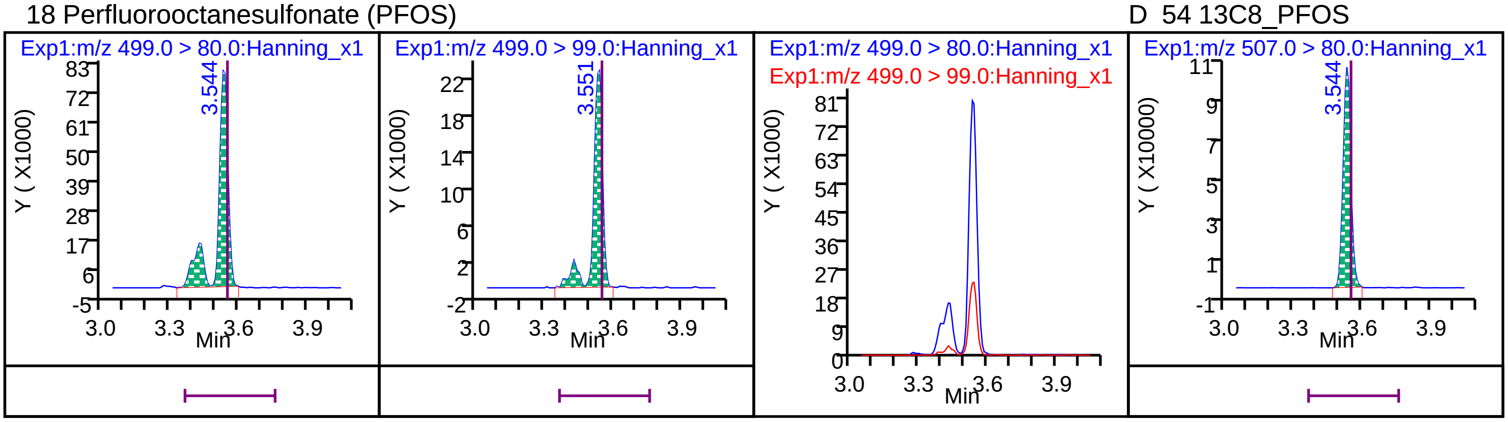
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



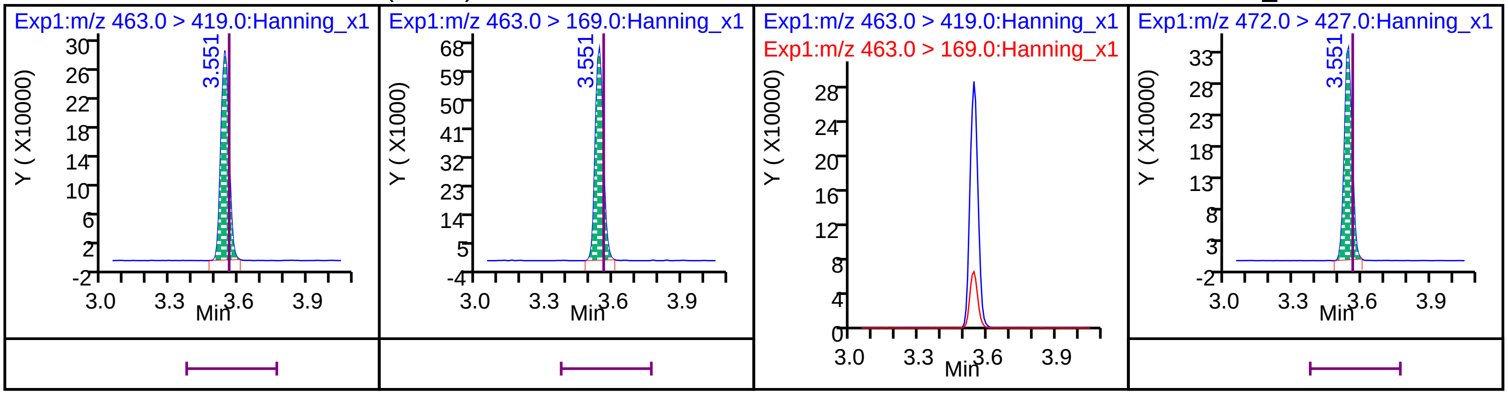
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



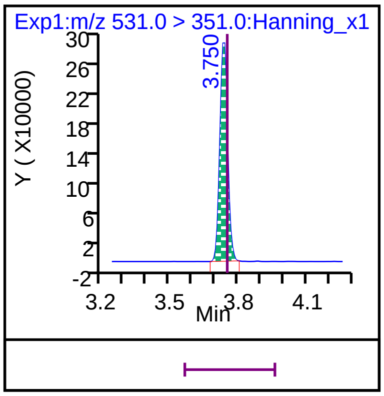
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

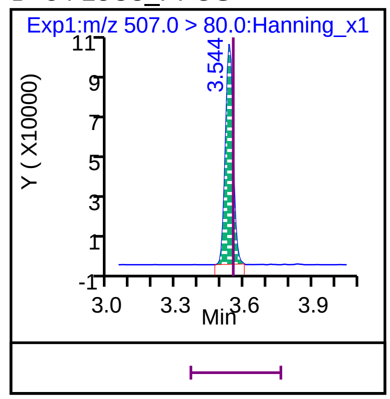


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

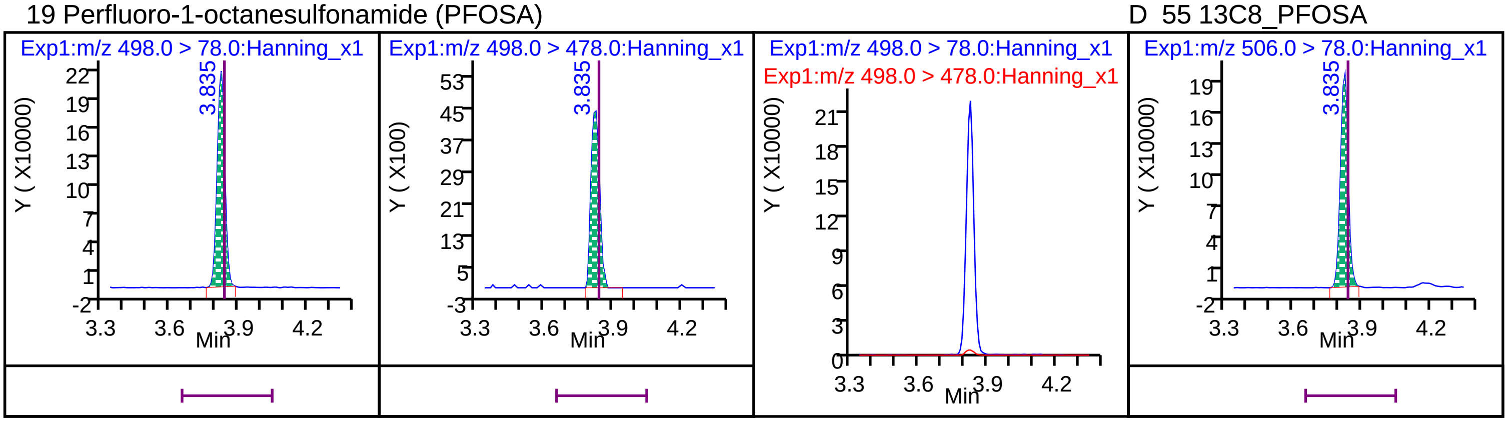


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

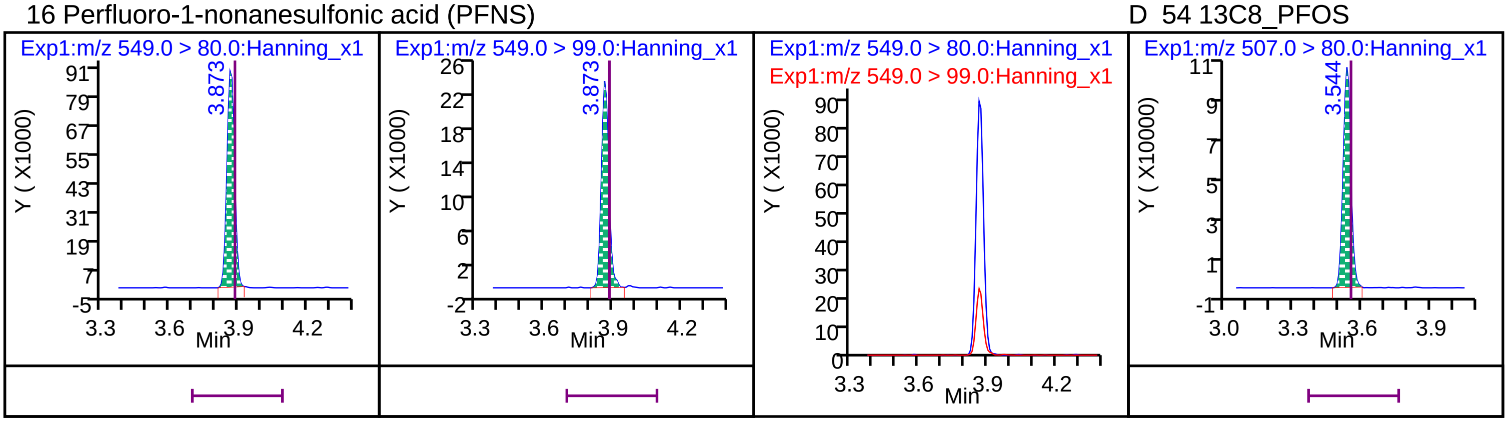




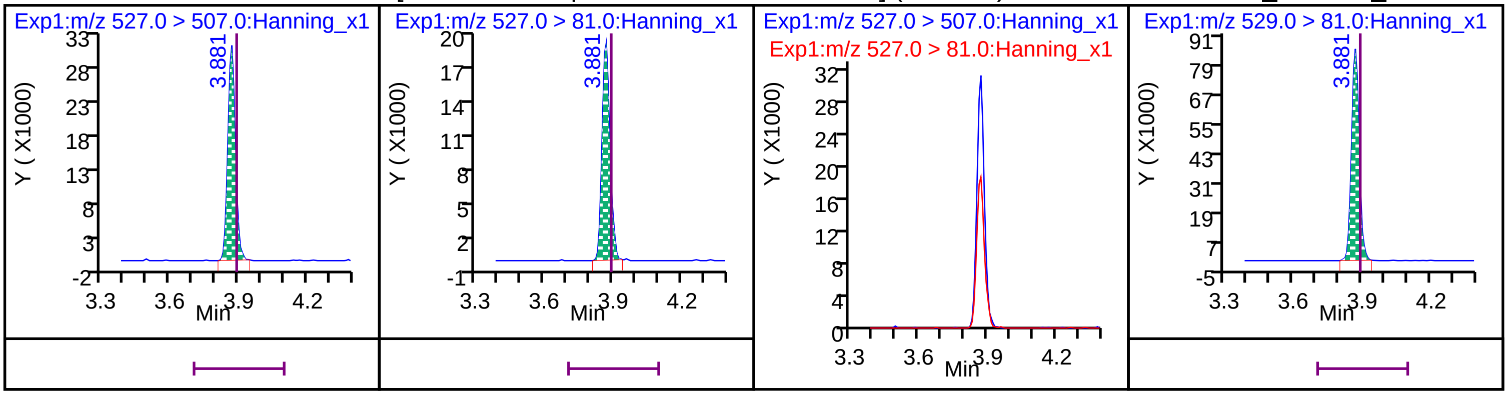
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



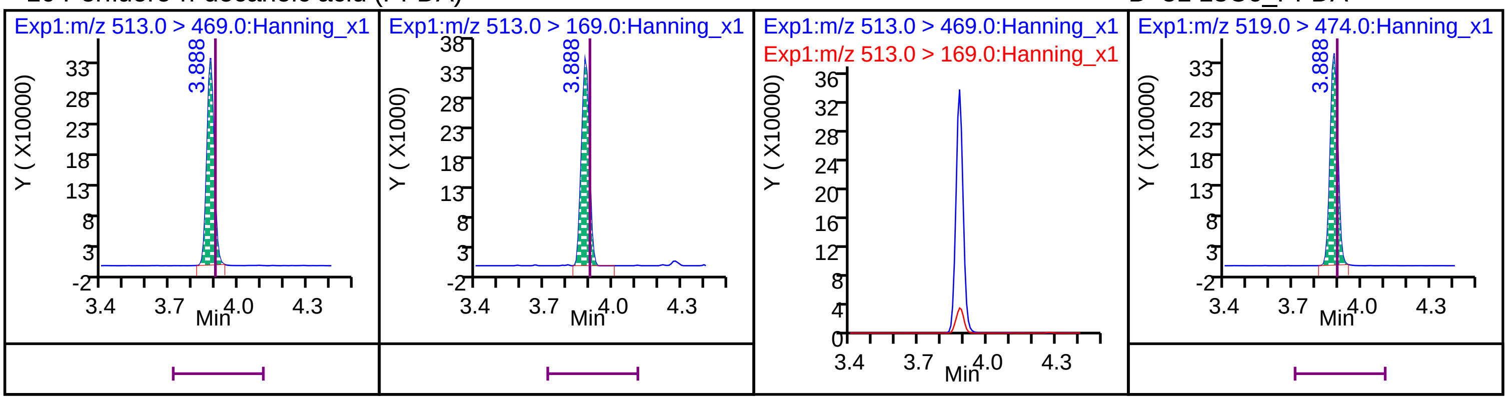
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



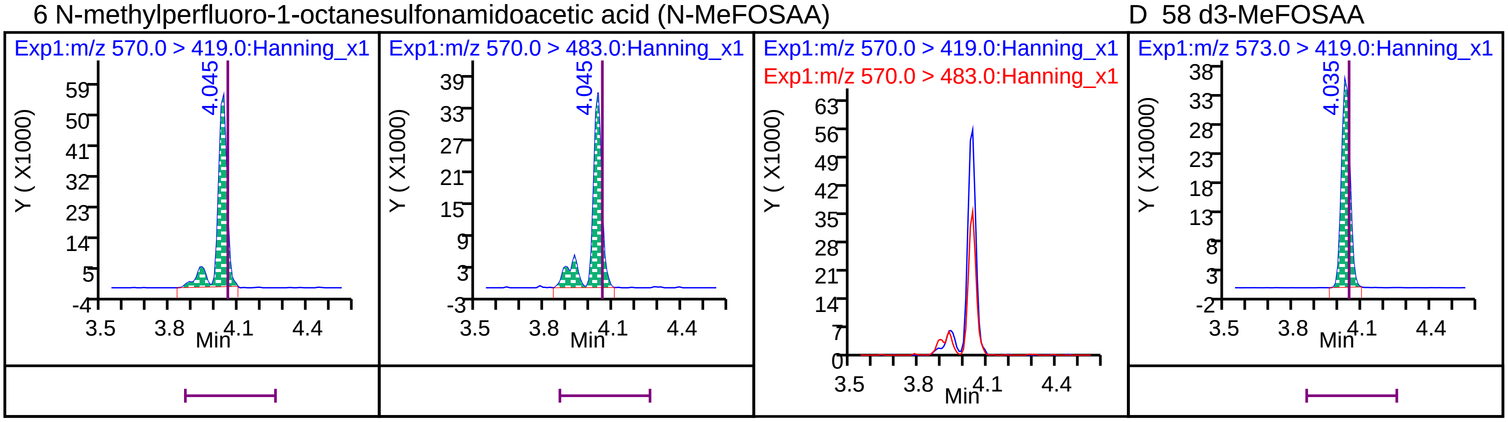
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



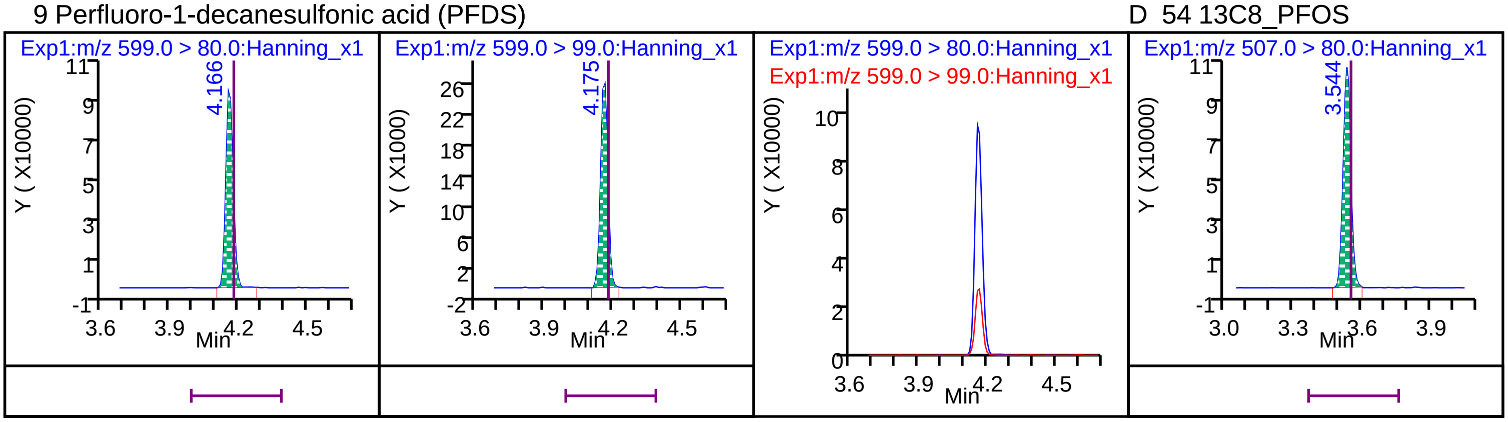
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



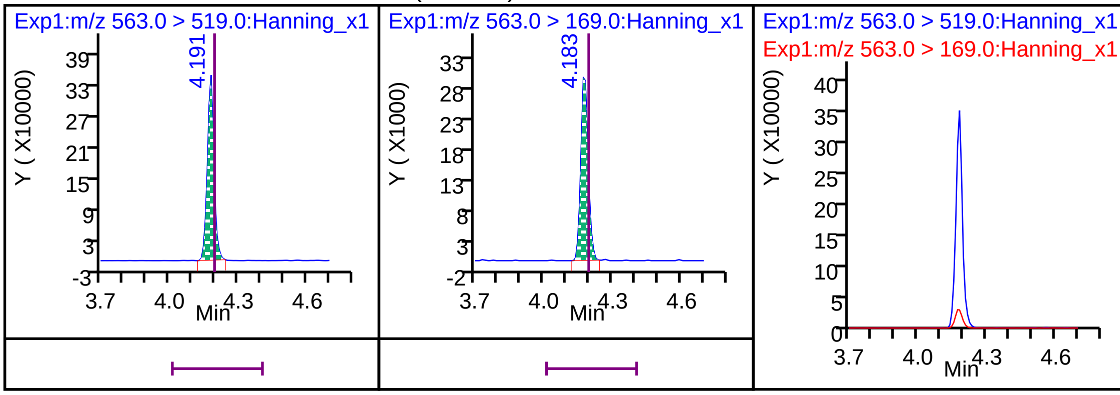
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



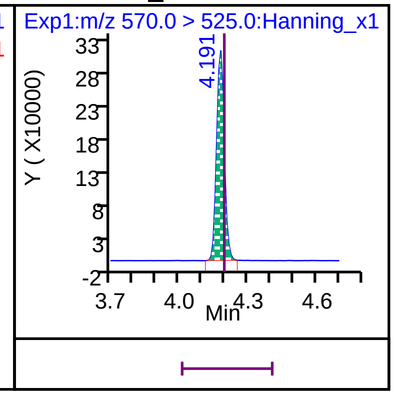
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



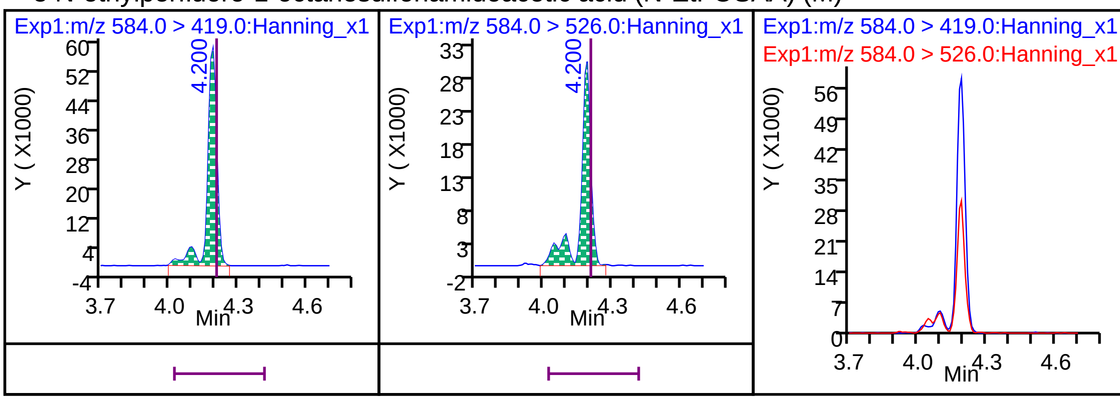
25 Perfluoro-n-undecanoic acid (PFUdA)



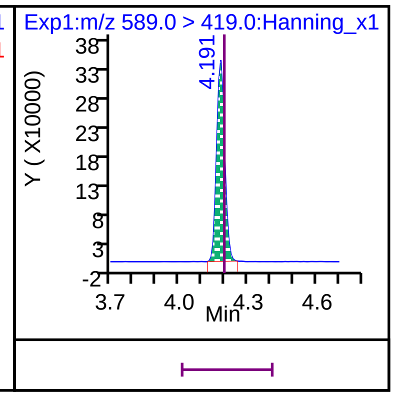
D 52 13C7_PFUdA



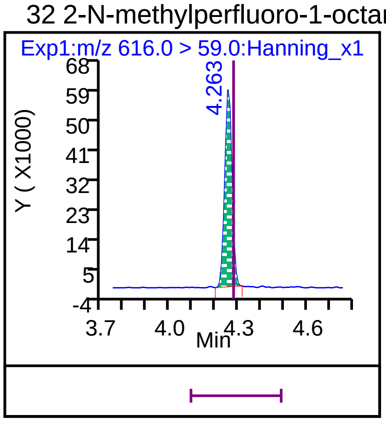
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)



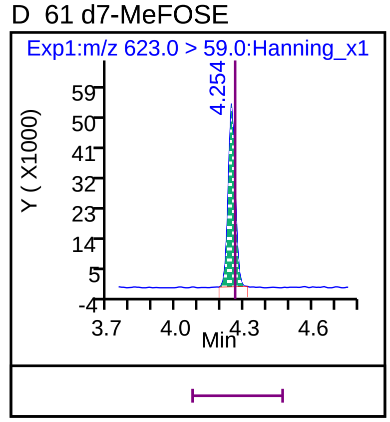
D 60 d5-EtFOSAA



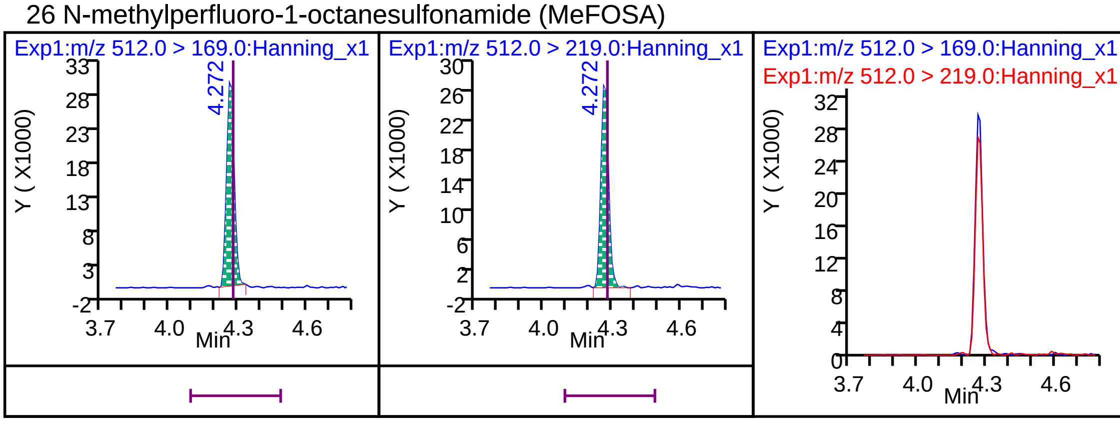
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



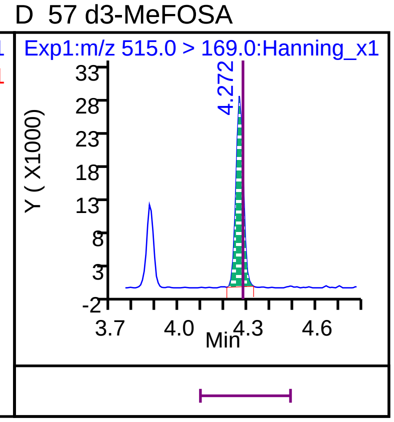
D 61 d7-MeFOSE



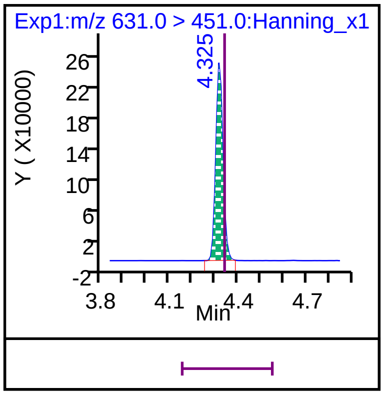
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)



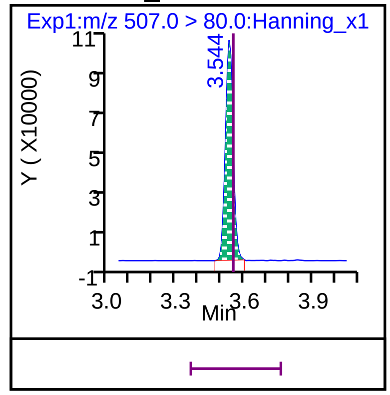
D 57 d3-MeFOSA



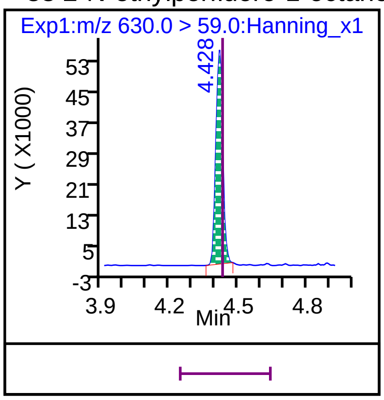
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



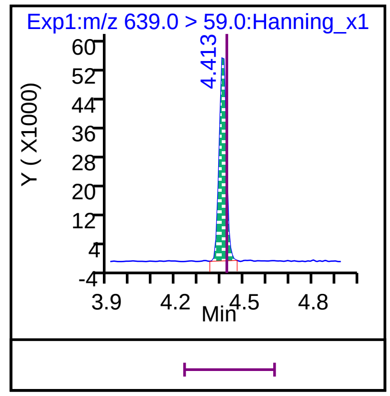
D 54 13C8_PFOS



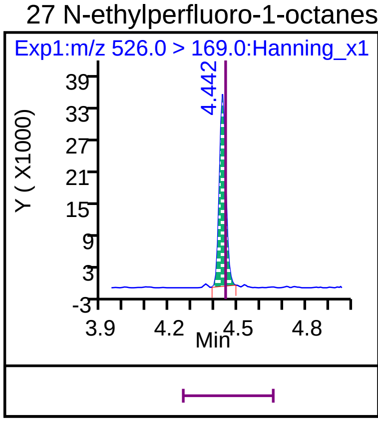
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

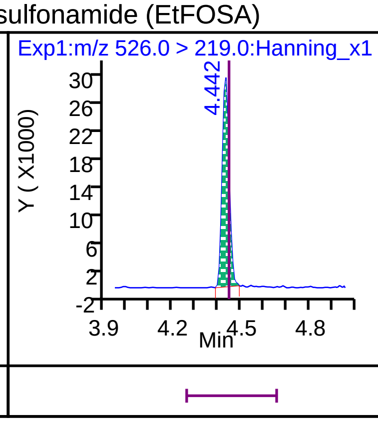


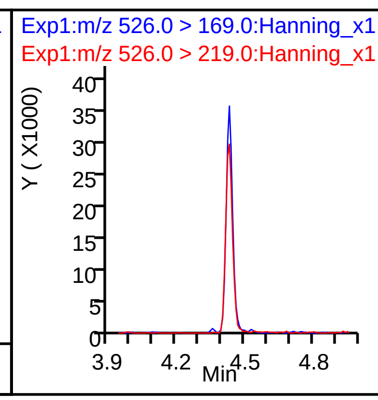
D 62 d9-EtFOSE



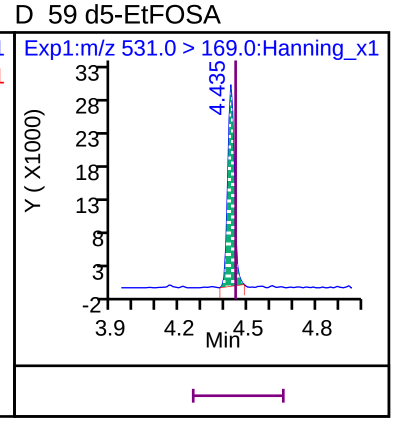
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



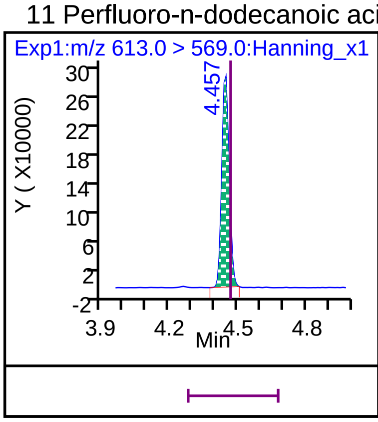


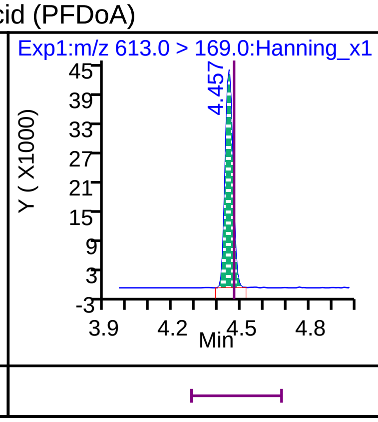


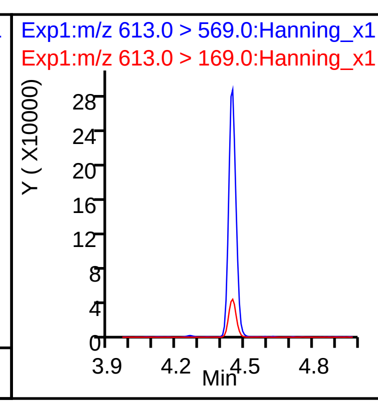
D 59 d5-EtFOSA



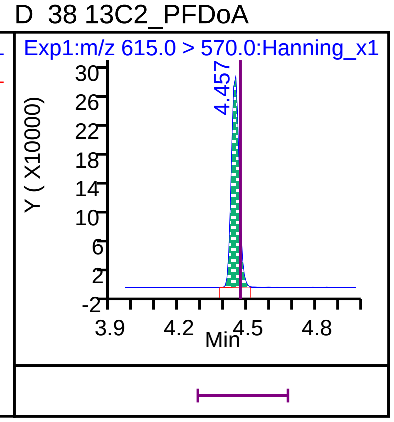
11 Perfluoro-n-dodecanoic acid (PFDoA)



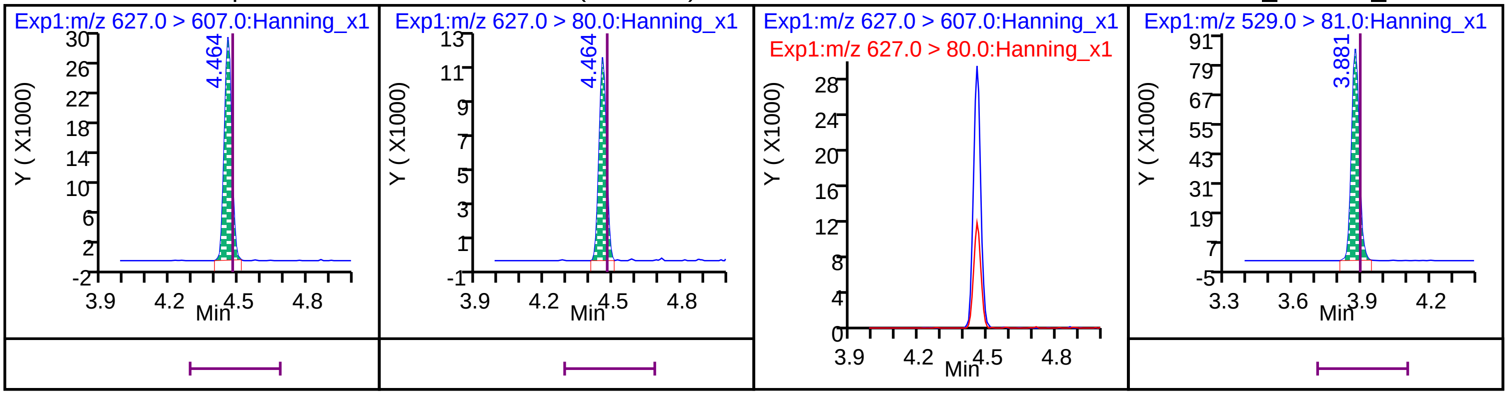




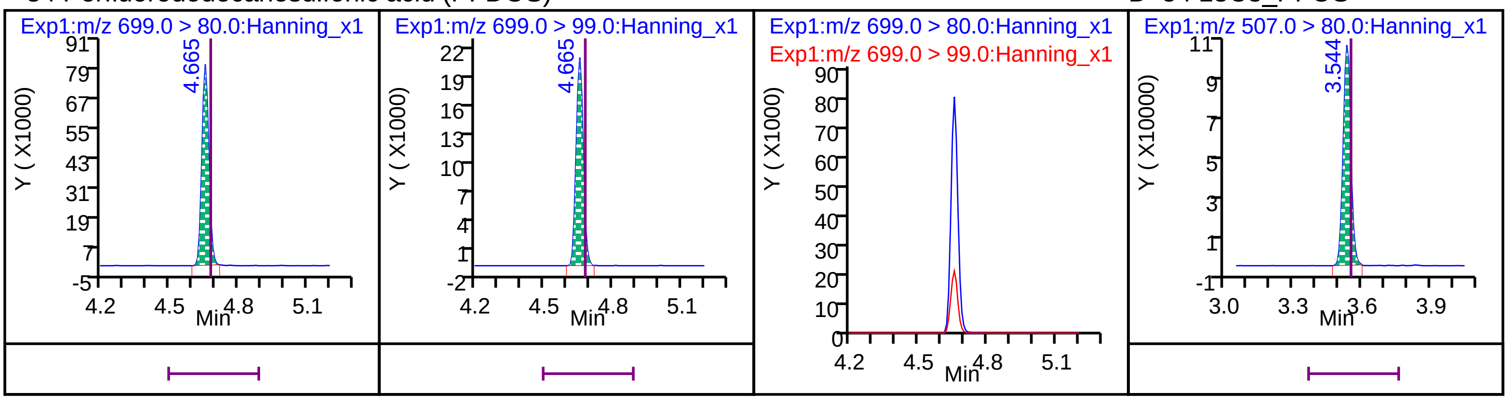
D 38 13C2_PFDoA



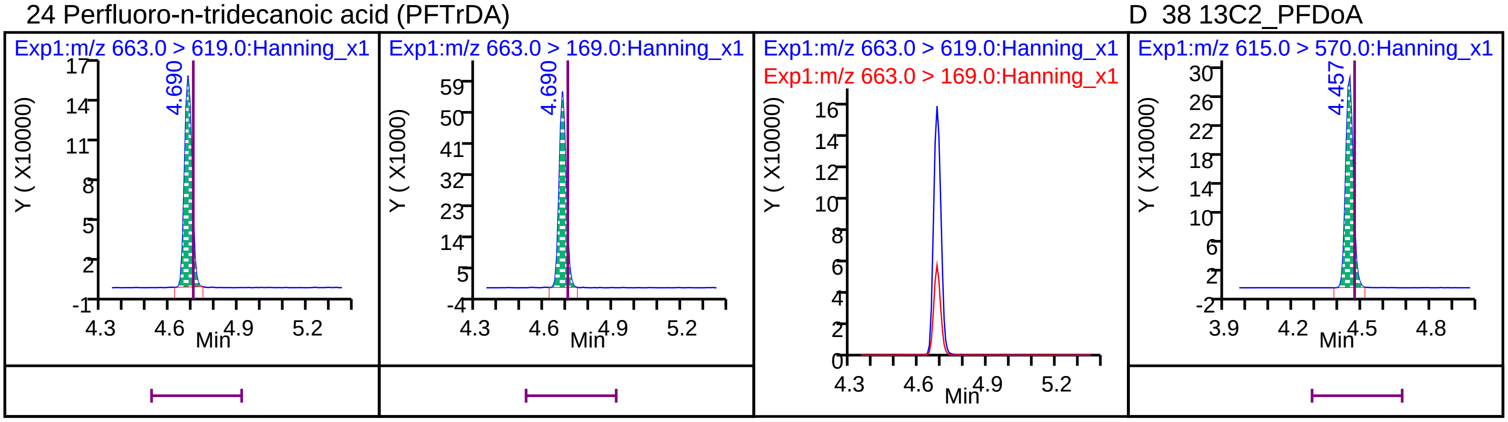
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



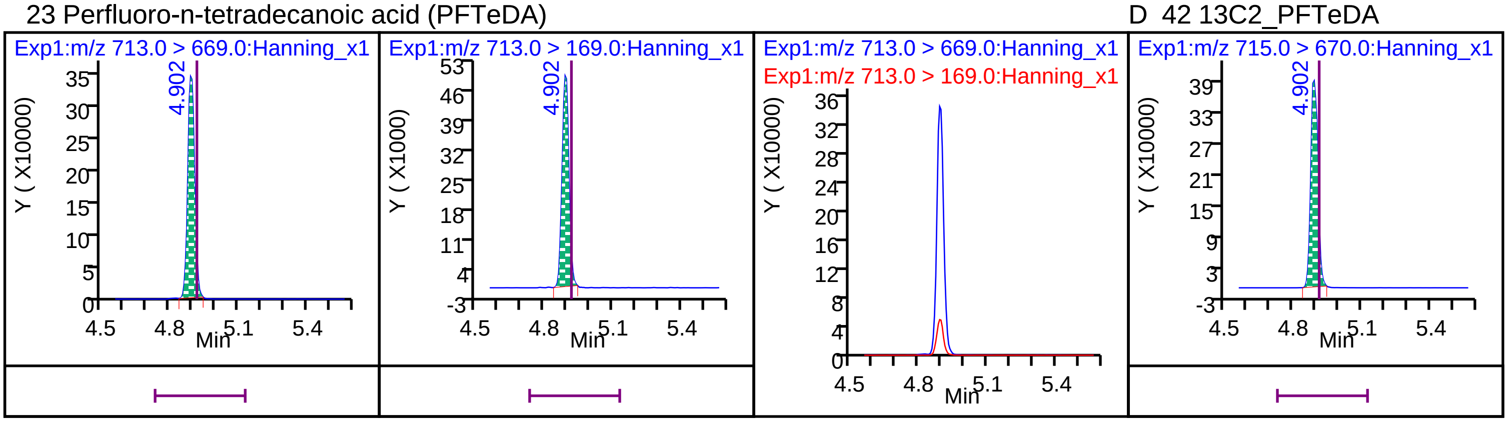
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



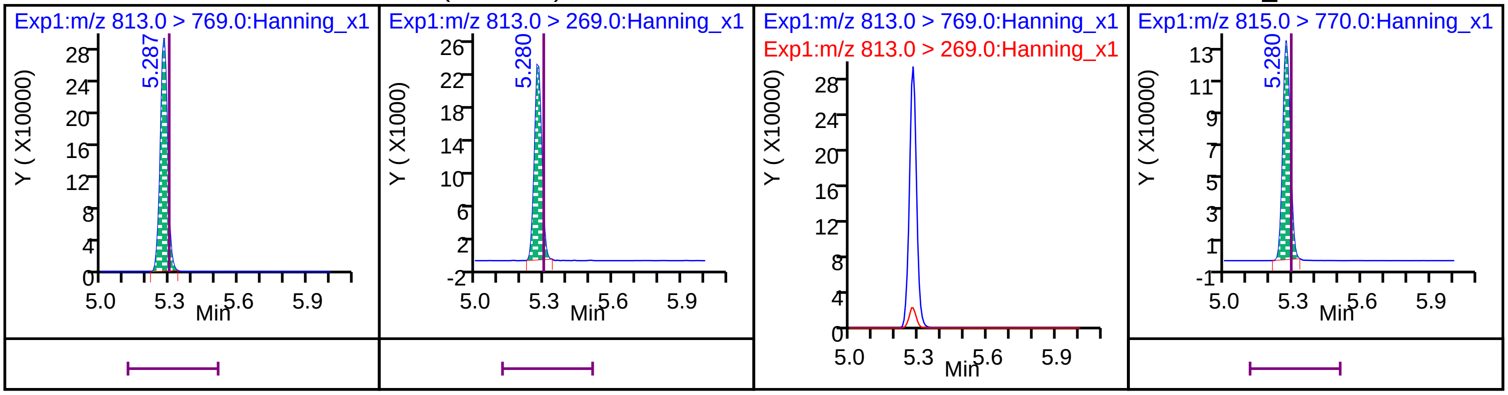
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



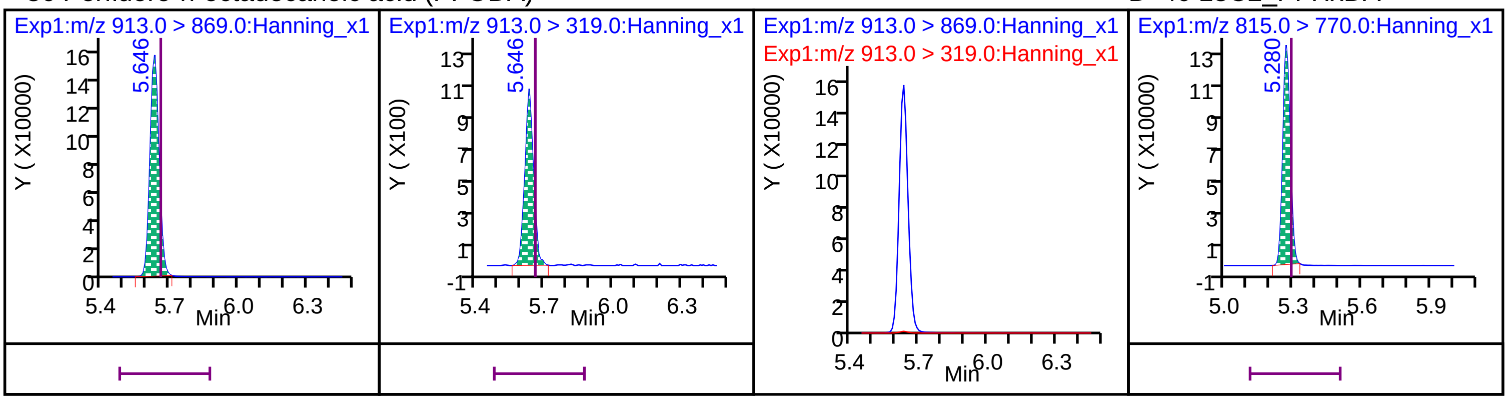
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



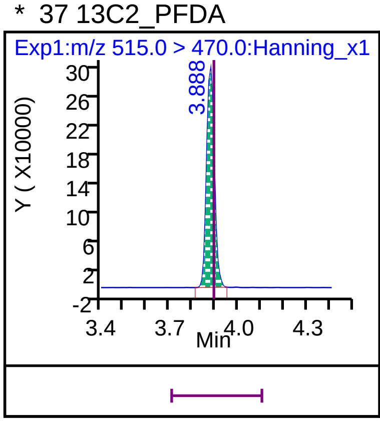
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



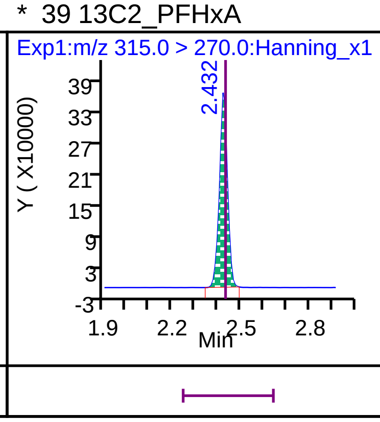
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



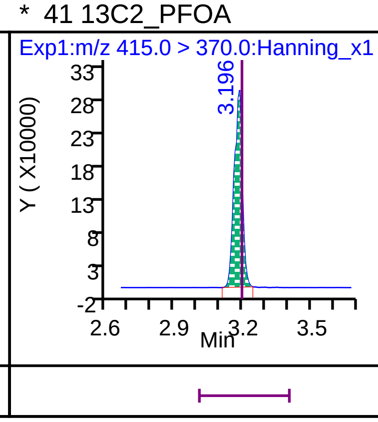
* 37 13C2_PFDA



* 39 13C2_PFHxA



* 41 13C2_PFOA



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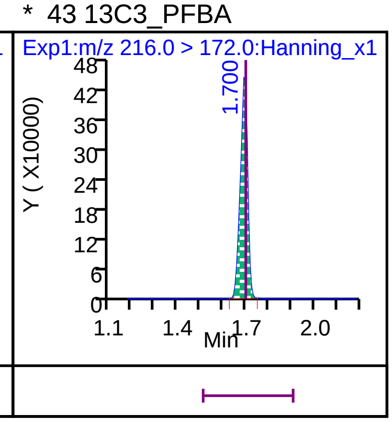
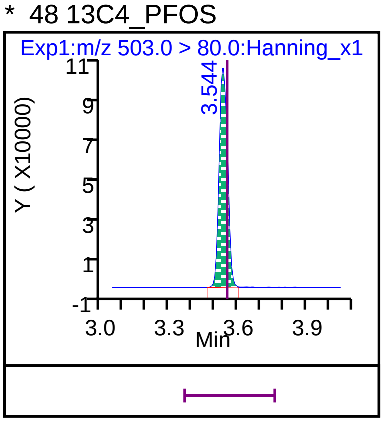


* 48 13C4_PFOS



Report Date: 28-Oct-2021 20:18:07 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

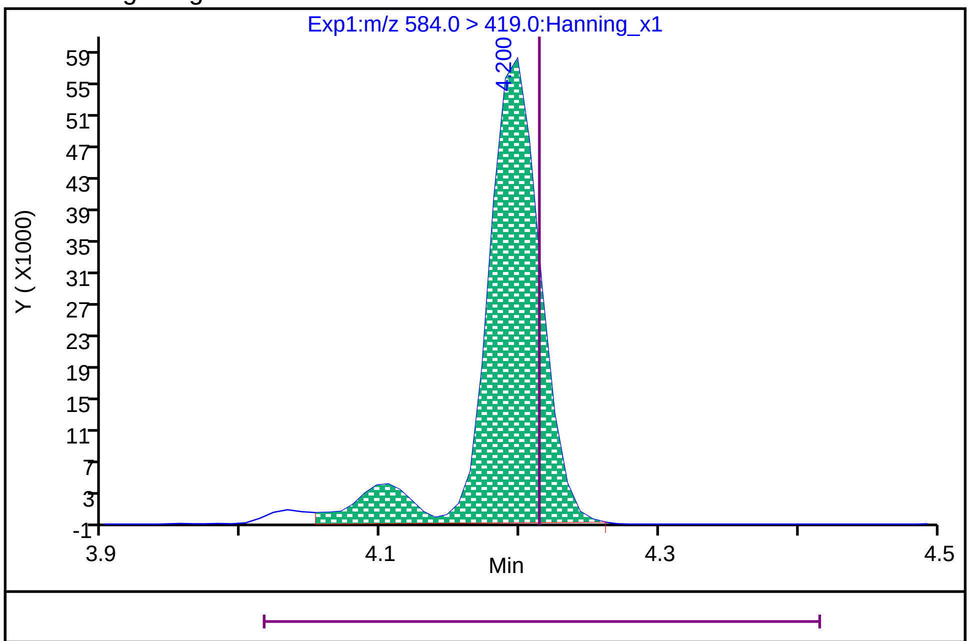
Manual Integration Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821022.d		
Injection Date:	28-Oct-2021 14:16:43	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

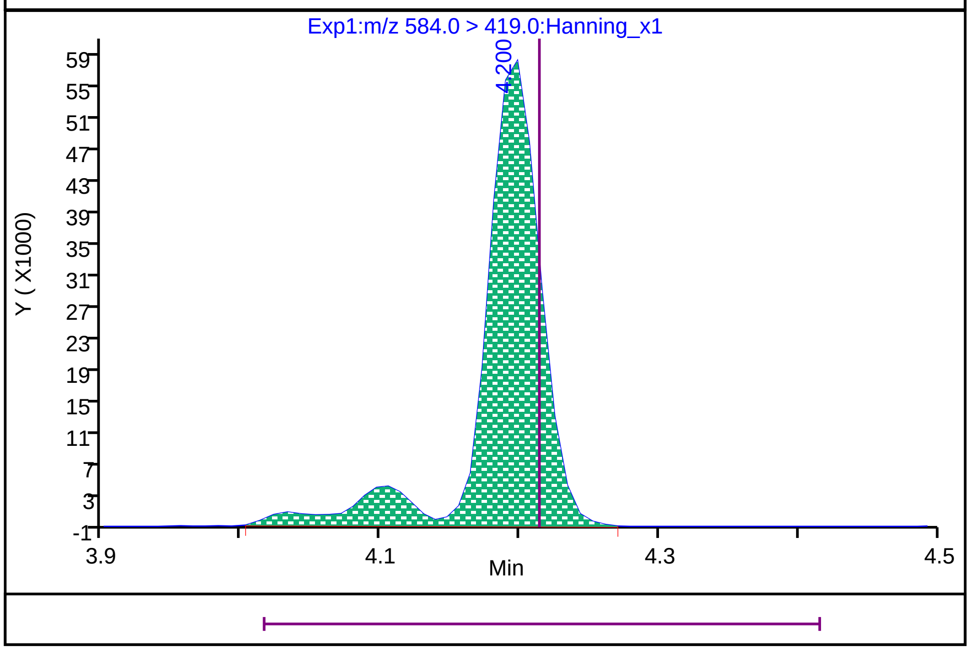
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.200
Area:	158495
Amount:	914.93
Amount Units:	ng/L



RT:	4.200
Area:	164192
Amount:	947.81
Amount Units:	ng/L



Data Editor: matthew.miller, 28-Oct-2021 20:00:49

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821036.d		
Injection Date:	28-Oct-2021 16:45:01	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	CCV 1000A_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	931.89	93.2	70 - 130
D 46 13C4_PFBA	1111250	1117032			100.5	50 - 150
21 PFPeA			1000.00	950.89	95.1	70 - 130
D 50 13C5_PFPeA	1013844	1037307			102.3	50 - 150
D 44 13C3_PFBS	346697	333762			96.3	50 - 150
7 PFBS			884.00	798.80	90.4	70 - 130
D 63 13C2_4:2 FTS_2	323537	281421			87	50 - 150
1 4:2 FTS			934.00	877.62	94	70 - 130
D 49 13C5_PFHxA	941740	924720			98.2	50 - 150
15 PFHxA			1000.00	935.74	93.6	70 - 130
22 PFPeS			938.00	853.45	91	70 - 130
28 GenX			2000.00	2065.46	103.3	70 - 130
D 66 13C3_GenX	715165	753665			105.4	50 - 150
D 47 13C4_PFHpA	943546	961019			101.9	50 - 150
13 PFHpA			1000.00	905.59	90.6	70 - 130
D 45 13C3_PFHxS	283170	278062			98.2	50 - 150
14 PFHxS			910.00	821.63	90.3	70 - 130
29 ADONA			942.00	959.60	101.9	70 - 130
2 6:2 FTS			948.00	1121.42	118.3	70 - 130
D 64 13C2_6:2 FTS_2	240700	223071			92.7	50 - 150
D 53 13C8_PFOA	859711	852475			99.2	50 - 150
20 PFOA			1000.00	928.11	92.8	70 - 130
12 PFHpS			952.00	836.15	87.8	70 - 130
D 54 13C8_PFOS	242805	229698			94.6	50 - 150
18 PFOS			928.00	923.71	99.5	70 - 130
17 PFNA			1000.00	996.77	99.7	70 - 130
D 56 13C9_PFNA	822524	825228			100.3	50 - 150
30 9Cl-PF3ONS			932.00	950.36	102	70 - 130
D 55 13C8_PFOSA	455631	442502			97.1	50 - 150
19 PFOSA			1000.00	976.59	97.7	70 - 130
16 PFNS			960.00	932.37	97.1	70 - 130
D 65 13C2_8:2 FTS_2	205992	199194			96.7	50 - 150
3 8:2 FTS			958.00	1142.92	119.3	70 - 130
D 51 13C6_PFDA	761788	741297			97.3	50 - 150
10 PFDA			1000.00	974.00	97.4	70 - 130
D 58 d3-MeFOSAA	912247	951935			104.4	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1136.87	113.7	70 - 130
9 PFDS			964.00	864.37	89.7	70 - 130
25 PFUdA			1000.00	926.76	92.7	70 - 130
D 60 d5-EtFOSAA	882829	892829			101.1	50 - 150
D 52 13C7_PFUdA	745296	704658			94.5	50 - 150
5 N-EtFOSAA			1000.00	1017.76	101.8	70 - 130
D 61 d7-MeFOSE	136219	119450			87.7	50 - 150
32 MeFOSE			1000.00	945.44	94.5	70 - 130
D 57 d3-MeFOSA	60817	68234			112.2	50 - 150
26 MeFOSA			1000.00	1028.40	102.8	70 - 130
31 11Cl-PF3OUDS			942.00	965.70	102.5	70 - 130
D 62 d9-EtFOSE	128617	105877			82.3	50 - 150
33 EtFOSE			1000.00	1186.47	118.6	70 - 130
D 59 d5-EtFOSA	62925	59068			93.9	50 - 150
27 EtFOSA			1000.00	1054.87	105.5	70 - 130
11 PFDoA			1000.00	984.62	98.5	70 - 130
D 38 13C2_PFDoA	648927	639321			98.5	50 - 150
4 10:2 FTS			964.00	955.80	99.1	70 - 130
34 PFDOS			968.00	775.75	80.1	70 - 130
24 PFTrDA			1000.00	909.41	90.9	70 - 130
D 42 13C2_PFTeDA	891082	847798			95.1	50 - 150
23 PFTeDA			1000.00	938.72	93.9	70 - 130
D 40 13C2_PFHxDA	325837	300022			92.1	50 - 150
35 PFHxDA			1000.00	1077.83	107.8	70 - 130
36 PFODA			1000.00	949.47	94.9	70 - 130

Report Date: 28-Oct-2021 20:18:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821036.d		
Injection Date:	28-Oct-2021 16:45:01	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	CCV 1000A_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.707	0	1117032	20	>100:1			1000.00	1245.15	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.702	1.707	0/0	1124872	19	>100:1			1000.00	931.89		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.057	2.079	-1	1037307	17	>100:1			1000.00	1153.98	102.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.057	2.079	-1/0	1064636	15	>100:1			1000.00	950.89		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.131	0	333762	15	>100:1			1000.00	1118.16	96.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.131	0/0	370659	15	>100:1	Target = 3.78		884.00	798.80		
298.9 > 99	44	2.120	2.131		98866	14	>100:1	3.74 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.467	2.477	0/0	293886	17	>100:1	Target = 3.45		938.00	853.45		
349 > 99	44	2.467	2.477		88517	17	>100:1	3.32 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.407	-1	281421	19	>100:1			5000.00	6297.38	87	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.407	-1/0	94643	18	>100:1	Target = 1.43		934.00	877.62		
327 > 81	63	2.389	2.407		68528	20	>100:1	1.38 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.433	2.442	0	924720	19	>100:1			1000.00	1129.40	98.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.433	2.451	-1/-1	888795	18	>100:1	Target = 16.37		1000.00	935.74		
313 > 119	49	2.433	2.451		51115	19	>100:1	17.38 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.554	2.572	-1	753665	18	>100:1			5000.00	5208.92	105.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.554	2.572	-1/0	239111	18	>100:1	Target = 0.74		2000.00	2065.46		
285 > 185	66	2.554	2.572		328913	19	>100:1	0.72 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.811	2.831	-1	961019	17	>100:1			1000.00	1199.34	101.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.811	2.831	-1/0	863591	18	>100:1	Target = 3.21		1000.00	905.59		
363 > 169	47	2.811	2.831		261770	17	>100:1	3.29 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.828	2.840	0	278062	16	>100:1			1000.00	1130.54	98.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.828	2.840	0/0	275456	26	>100:1	Target = 3.47	5.48	910.00	821.63		
399 > 99	45	2.828	2.840		81688	25	>100:1	3.37 (1.73-5.21)	6.64				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.855	2.866	0/0	1450589	18	>100:1	Target = 2.28		942.00	959.60		
377 > 85	45	2.855	2.866		606064	17	>100:1	2.39 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.191	3.206	0/0	252463	19	>100:1	Target = 3.62		952.00	836.15		
449 > 99	45	3.191	3.206		71221	21	>100:1	3.54 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.153	3.174	-1	223071	21	>100:1			5000.00	5104.95	92.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.160	3.174	0/1	78908	29	>100:1	Target = 1.19		948.00	1121.42		
427 > 81	64	3.166	3.174		56005	21	>100:1	1.40 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.185	3.199	0	852475	22	>100:1			1000.00	1126.62	99.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.185	3.199	0/0	796593	21	>100:1	Target = 2.34		1000.00	928.11		
413 > 169	53	3.185	3.199		320894	21	>100:1	2.48 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.545	3.562	-1	229698	20	>100:1			1000.00	1013.80	94.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.545	3.562	-1/0	256133	39	>100:1	Target = 4.00	3.62	928.00	923.71		
499 > 99	54	3.545	3.562		64417	39	>100:1	3.97 (2.00-6.01)	6.96				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.744	3.761	-1/0	666146	20	>100:1			932.00	950.36		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.881	3.894	0/1	216550	17	>100:1	Target = 3.83		960.00	932.37		
549 > 99	54	3.881	3.894		55081	23	>100:1	3.93 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.174	4.190	0/1	191023	17	>100:1	Target = 3.87		964.00	864.37		
599 > 99	54	4.174	4.190		53294	16	>100:1	3.58 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.333	4.350	-1/0	579304	15	>100:1			942.00	965.70		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.672	4.689	-1/0	162831	15	>100:1	Target = 3.65		968.00	775.75		
699 > 99	54	4.672	4.689		46837	15	>100:1	3.47 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.551	3.569	-1	825228	20	>100:1			1000.00	1064.19	100.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.551	3.569	-1/0	717945	20	>100:1	Target = 4.21		1000.00	996.77		
463 > 169	56	3.551	3.569		153129	19	>100:1	4.68 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.836	3.849	0	442502	18	>100:1			1000.00	1056.56	97.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.836	3.849	0/0	489969	18	>100:1	Target = 49.05		1000.00	976.59		
498>478	55	3.843	3.849		12117	22	>100:1	40.43 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.881	3.902	-1	199194	19	>100:1			5000.00	5267.77	96.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.889	3.902	0/1	67230	18	>100:1	Target = 1.27		958.00	1142.92		
527 > 81	65	3.889	3.902		42961	25		1.56 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.470	4.485	0/1	57415	18	>100:1	Target = 2.25		964.00	955.80		
627 > 80	65	4.463	4.485		19065	20	>100:1	3.01 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.889	3.902	0	741297	19	>100:1			1000.00	1091.49	97.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.889	3.910	-1/-1	729529	18	>100:1	Target = 8.94		1000.00	974.00		
513 > 169	51	3.889	3.910		80596	17	>100:1	9.05 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.053	0	951935	18	>100:1			5000.00	4645.88	104.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.045	4.063	-1/-1	165341	32	>100:1	Target = 1.38	7.26	1000.00	1136.87		
570 > 483	58	4.045	4.063		116146	29	>100:1	1.42 (0.69-2.08)	4.16				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.191	4.206	0	704658	17	>100:1			1000.00	1114.72	94.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.191	4.206	0/0	579184	17	>100:1	Target = 8.27		1000.00	926.76		
563 > 169	52	4.191	4.206		75394	16	>100:1	7.68 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.191	4.206	0	892829	16	>100:1			5000.00	5200.65	101.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.208	4.215	0/0	193965	36	>100:1	Target = 1.95	8.00	1000.00	1017.76		
584 > 526	60	4.191	4.215		90776	30	>100:1	2.13 (0.97-2.92)	3.46				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.253	4.270	-1	119450	16	>100:1			1000.00	939.36	87.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.271	4.287	0/1	111388	14	>100:1			1000.00	945.44		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.280	4.287	0	68234	17	>100:1			1000.00	1173.98	112.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.280	4.287	0/0	74714	14	>100:1	Target = 1.08		1000.00	1028.40		
512 > 219	57	4.280	4.287		65584	18	>100:1	1.13 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.419	4.434	0	105877	16	>100:1			1000.00	901.41	82.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.434	4.441	0/0	107050	18	>100:1			1000.00	1186.47		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.441	4.456	0	59068	19	>100:1			1000.00	1075.36	93.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.448	4.456	0/0	71293	16	>100:1	Target = 1.10		1000.00	1054.87		
526 > 219	59	4.448	4.456		64140	23	>100:1	1.11 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.463	4.477	0	639321	17	>100:1			1000.00	1064.42	98.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.456	4.477	-1/-1	644734	17	>100:1	Target = 5.93		1000.00	984.62		
613 > 169	38	4.456	4.477		113894	15	>100:1	5.66 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.697	4.713	0/0	314528	16	>100:1	Target = 2.90		1000.00	909.41		
663 > 169	38	4.697	4.713		100968	16	>100:1	3.11 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.906	4.923	-1	847798	21	>100:1			1000.00	1058.17	95.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.906	4.929	-1/0	673790	22	>100:1	Target = 6.34		1000.00	938.72		
713 > 169	42	4.906	4.929		103217	21	>100:1	6.52 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.288	5.302	0	300022	19	>100:1			1000.00	911.78	92.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.294	5.309	0/0	655200	20	>100:1	Target = 12.53		1000.00	1077.83		
813 > 269	40	5.288	5.309		47999	19	>100:1	13.65 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.653	5.672	-1/-1	422802	20	>100:1	Target = 152.15		1000.00	949.47		
913 > 319	40	5.653	5.672		2690	17	>100:1	157.17 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.889	3.902	0	675813	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.433	2.442	0	849974	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.185	3.206	-1	721738	21	>100:1			1000.00			

Report Date: 28-Oct-2021 20:18:16 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821036.d

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.702	1.707	0	950099	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.545	3.562	-1	241632	19	>100:1			1000.00			

Compound Type Legend

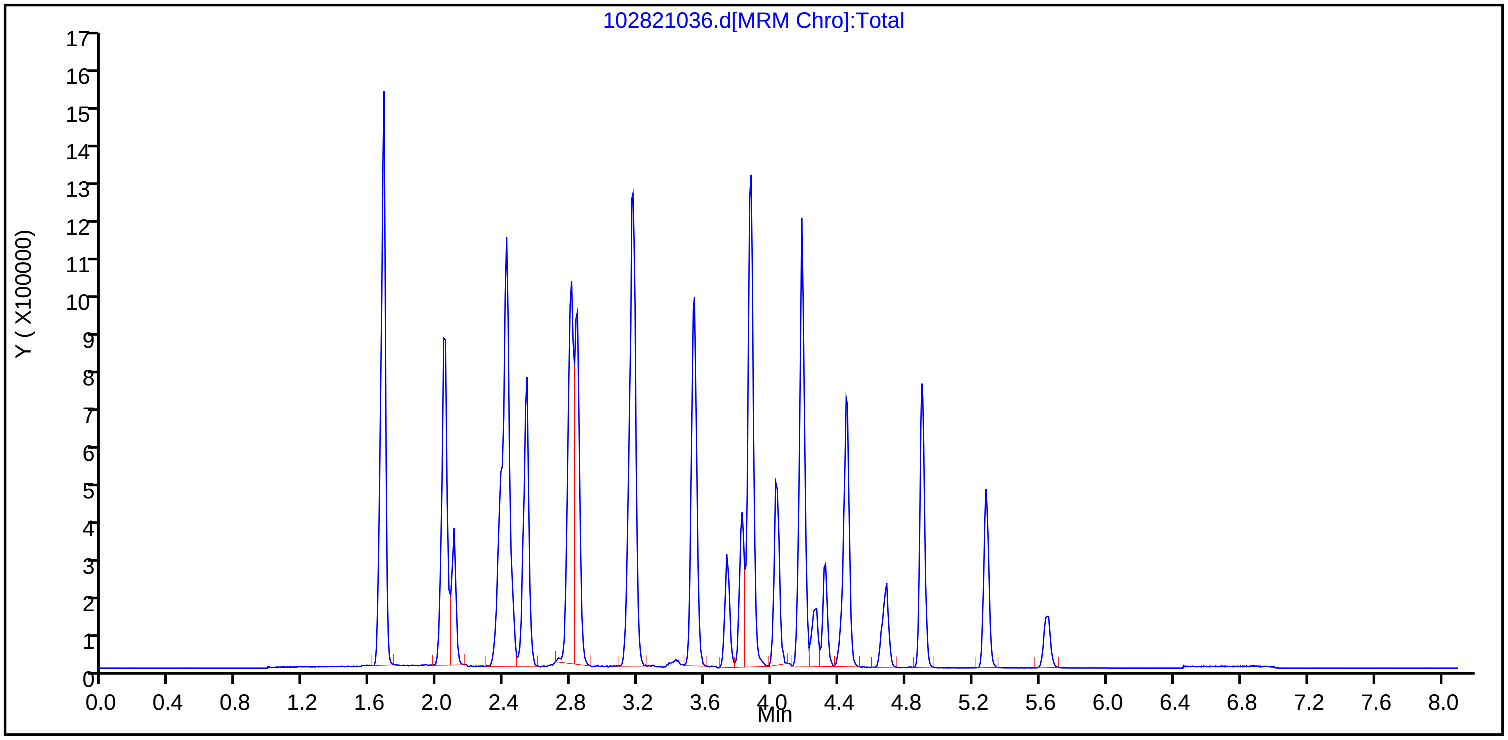
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

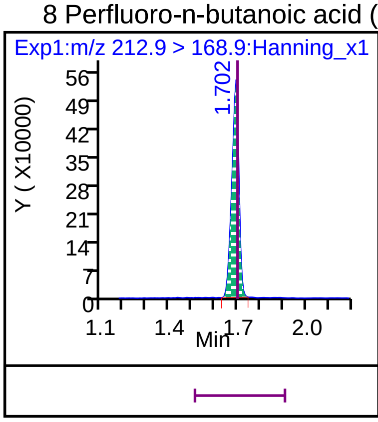
Report Date: 28-Oct-2021 20:18:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

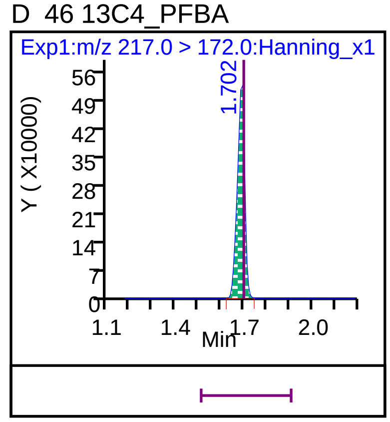
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821036.d		
Injection Date:	28-Oct-2021 16:45:01	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000A_SVLC-1717
Sample Info:	CCV 1000A_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



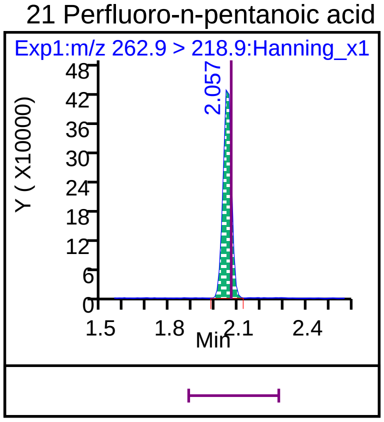
8 Perfluoro-n-butanoic acid (PFBA)



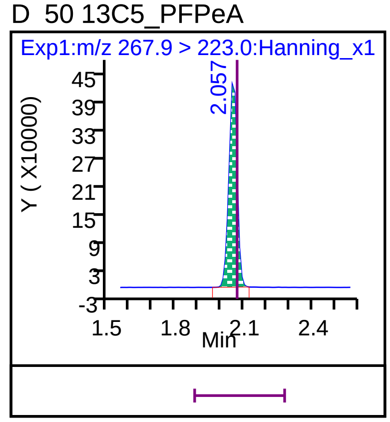
D 46 13C4_PFBA



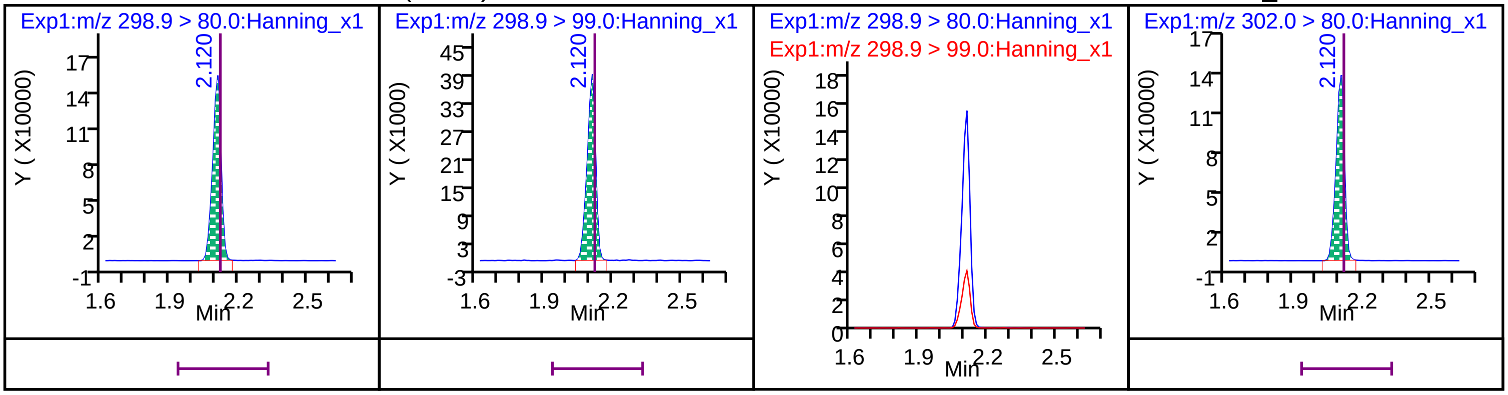
21 Perfluoro-n-pentanoic acid (PFPeA)



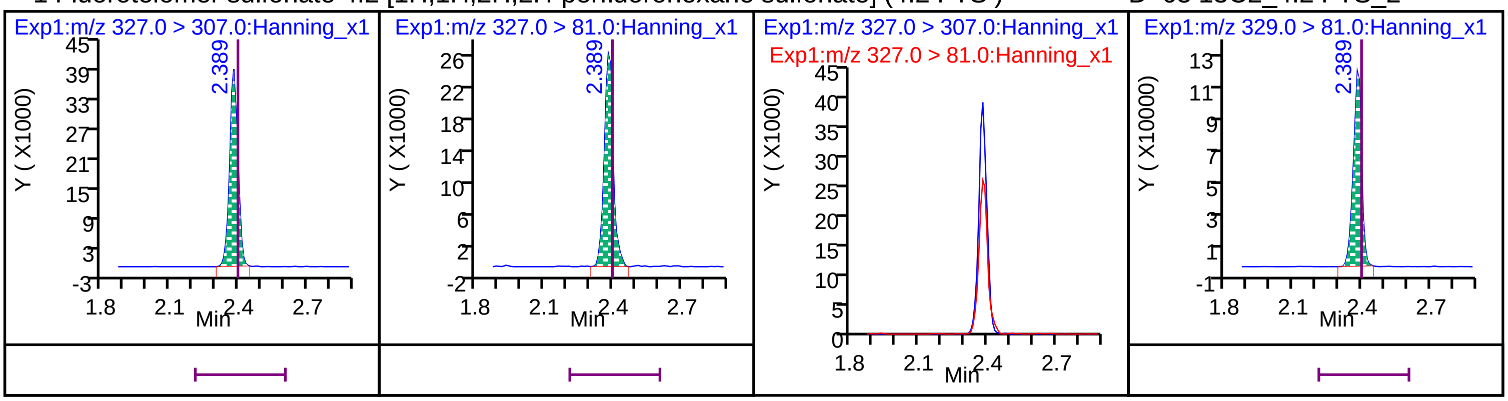
D 50 13C5_PFPeA



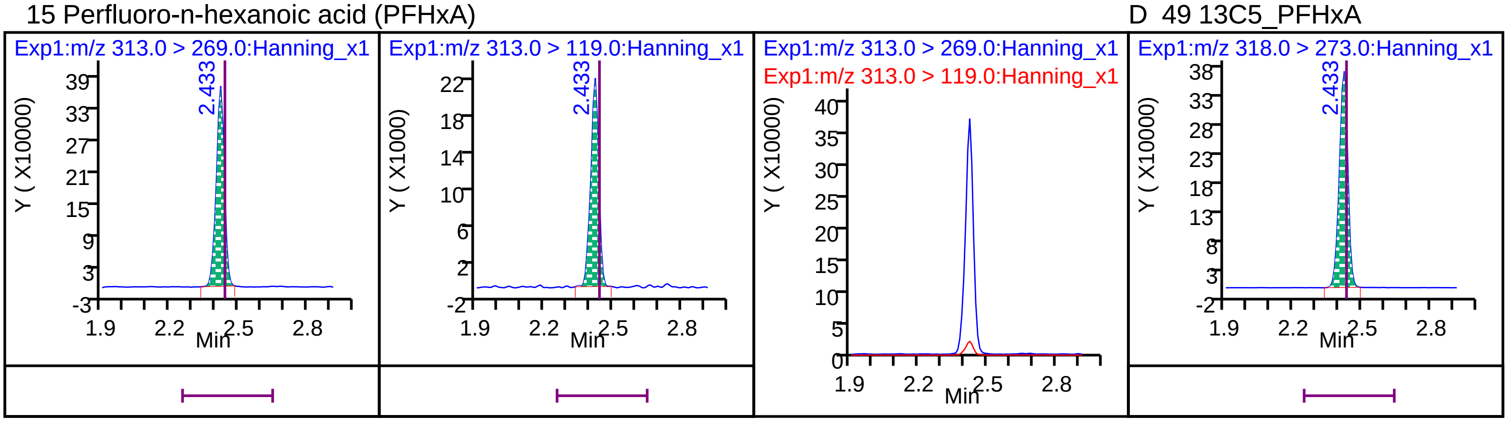
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



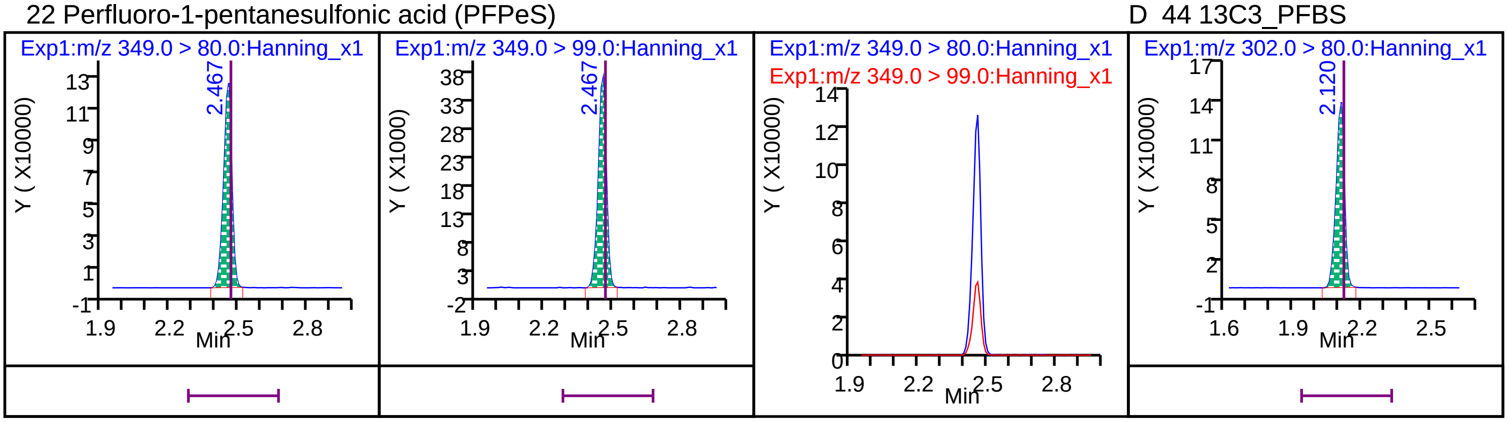
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



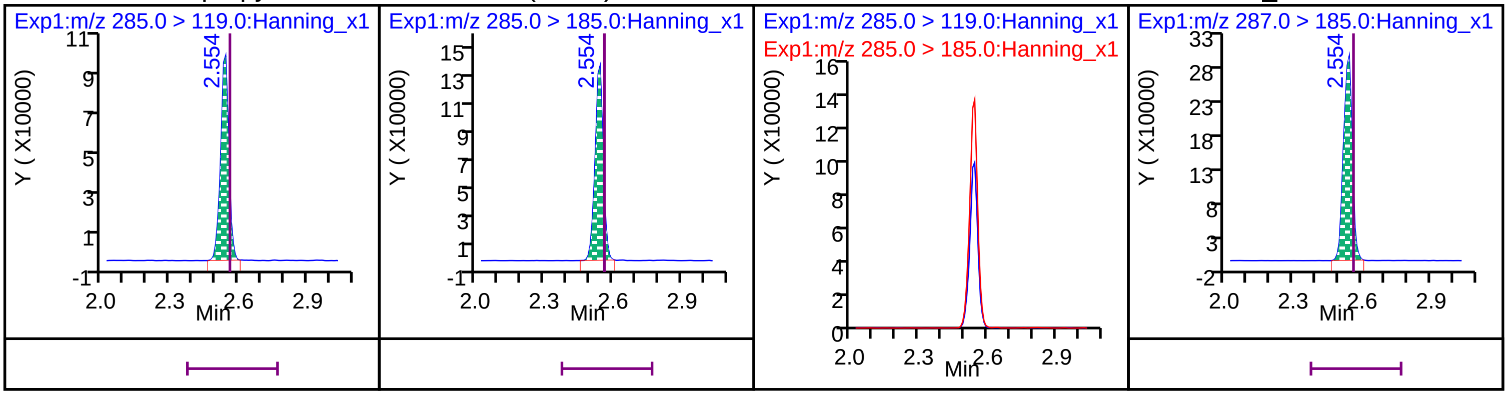
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



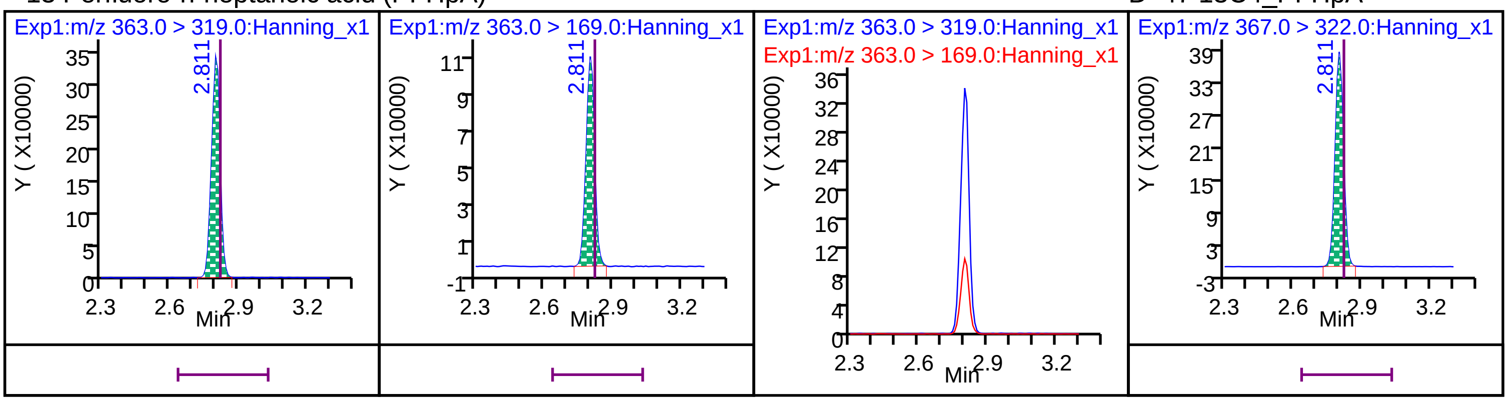
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



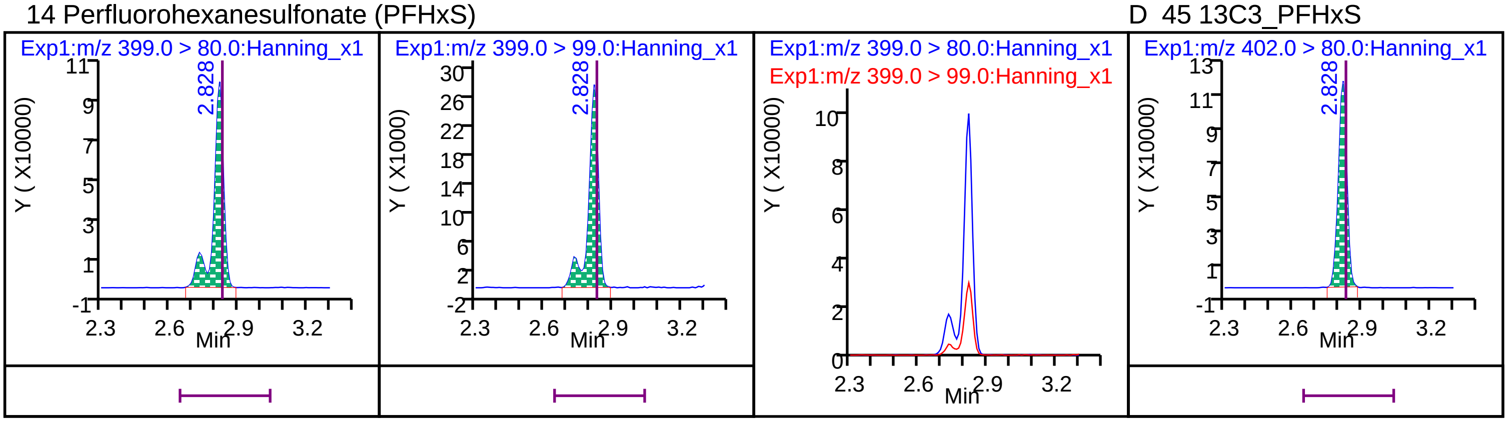
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



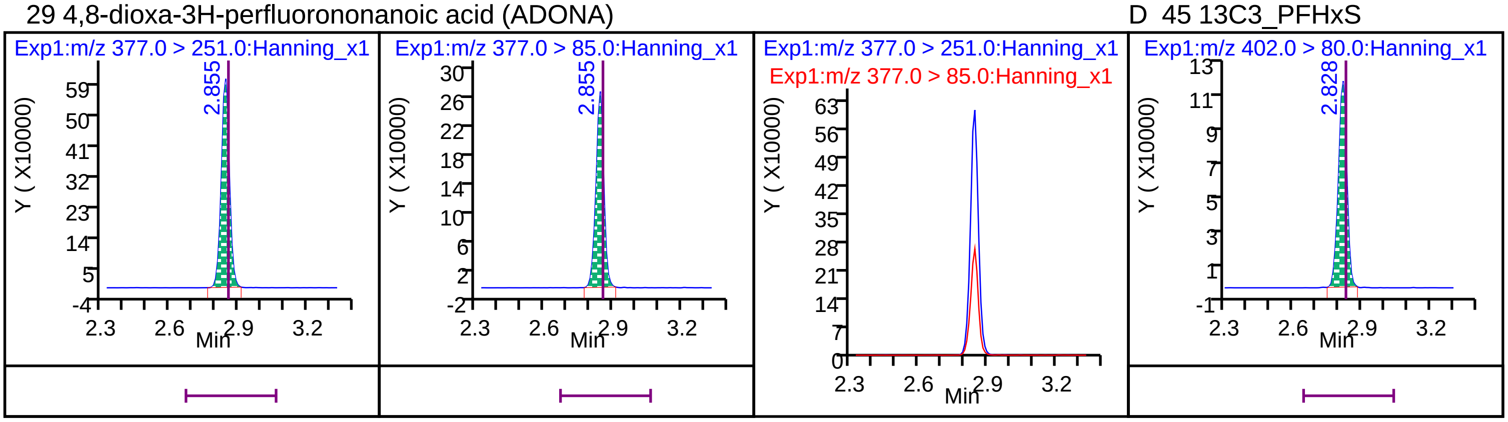
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



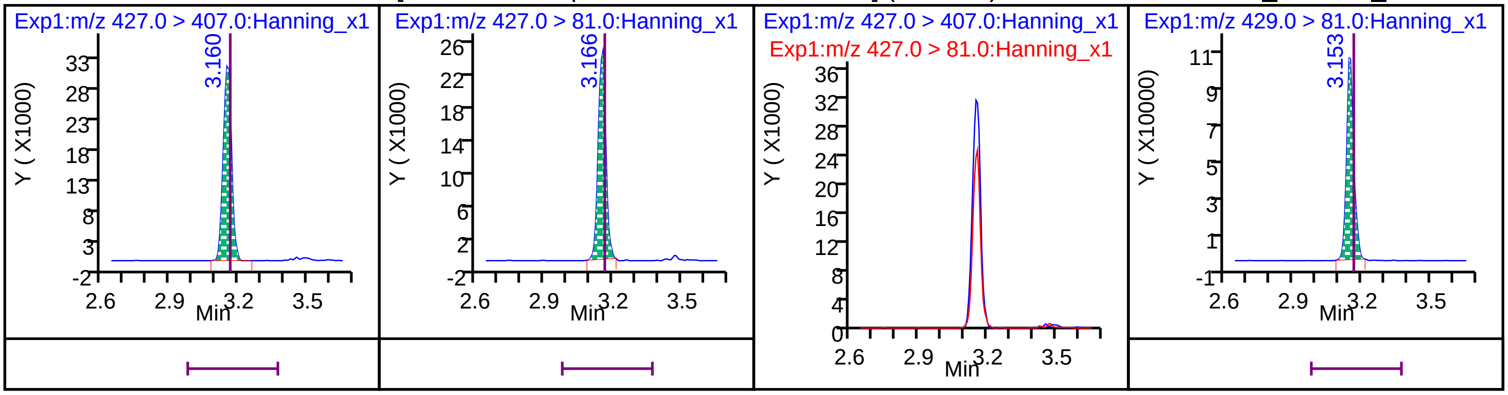
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



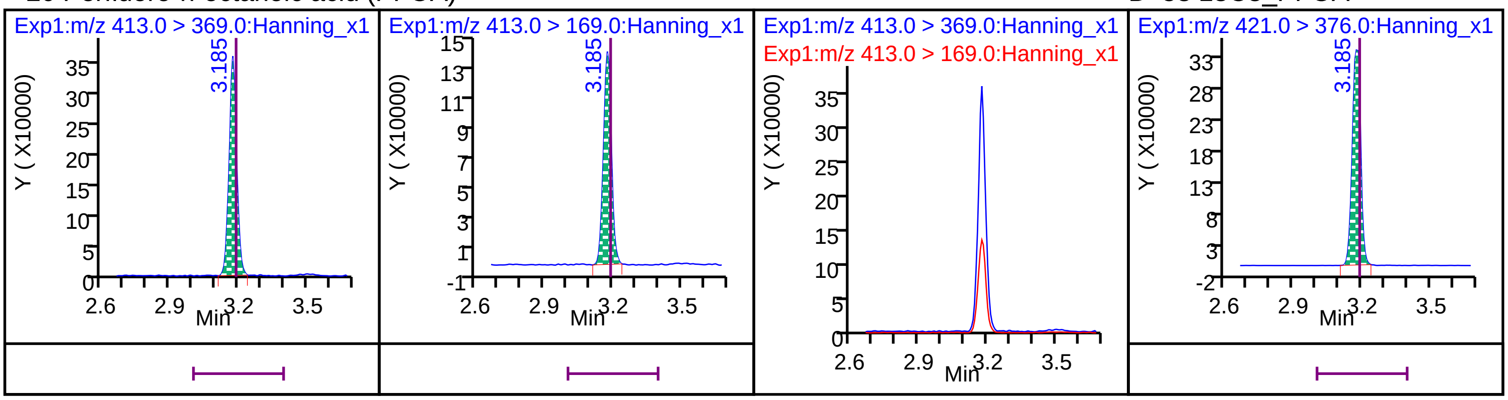
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



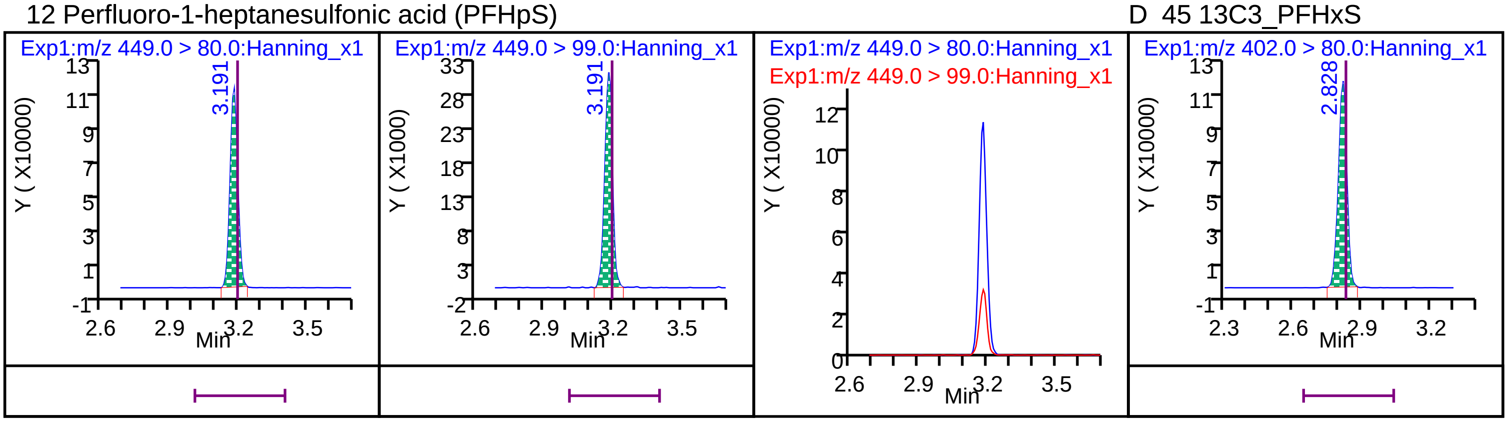
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



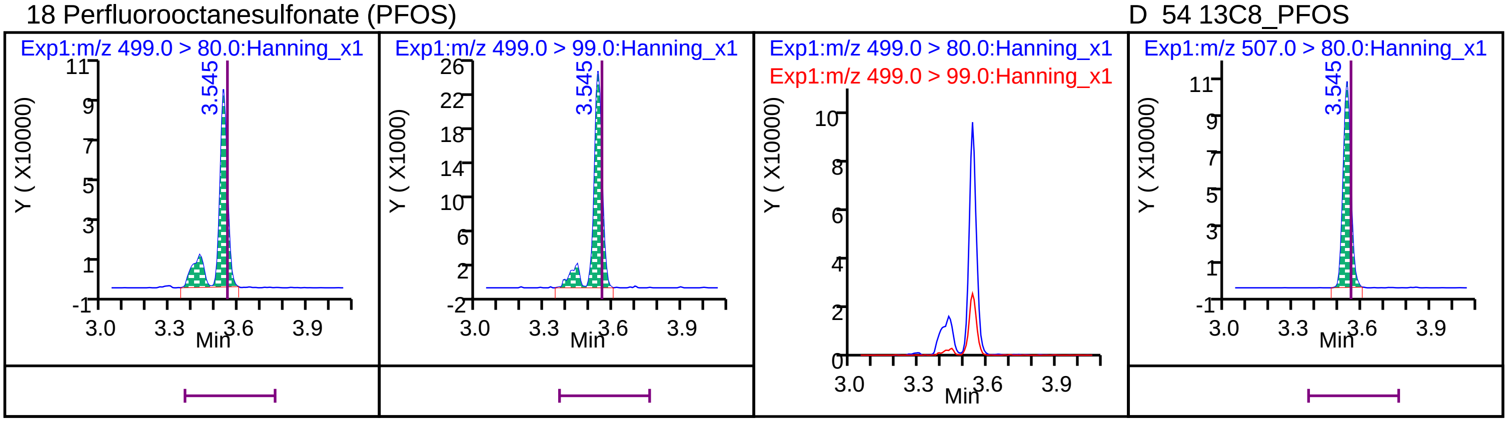
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



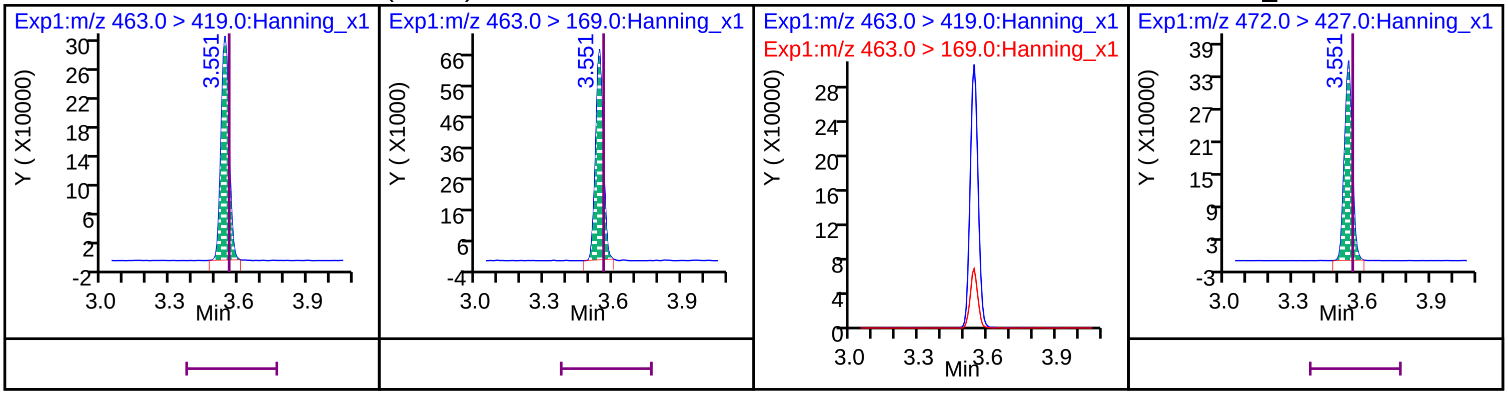
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



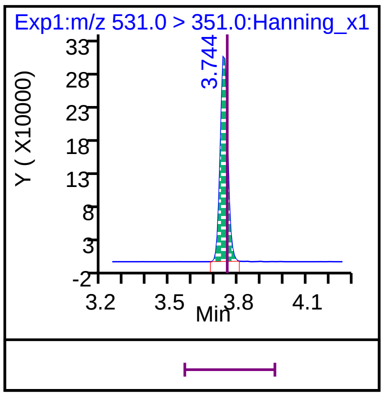
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

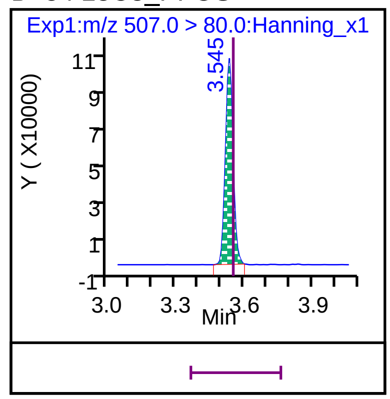


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

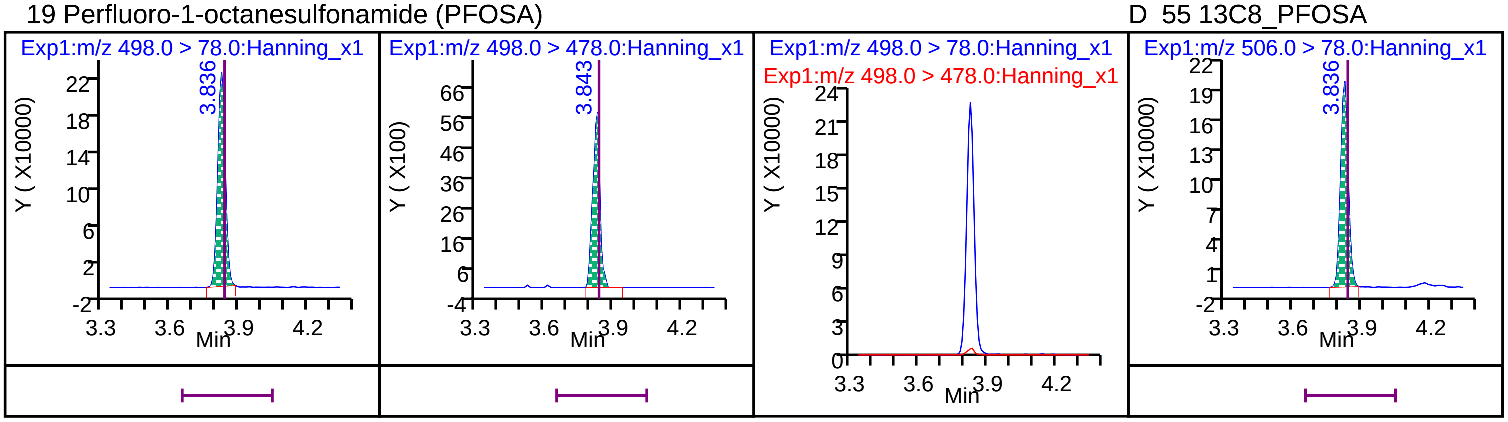


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

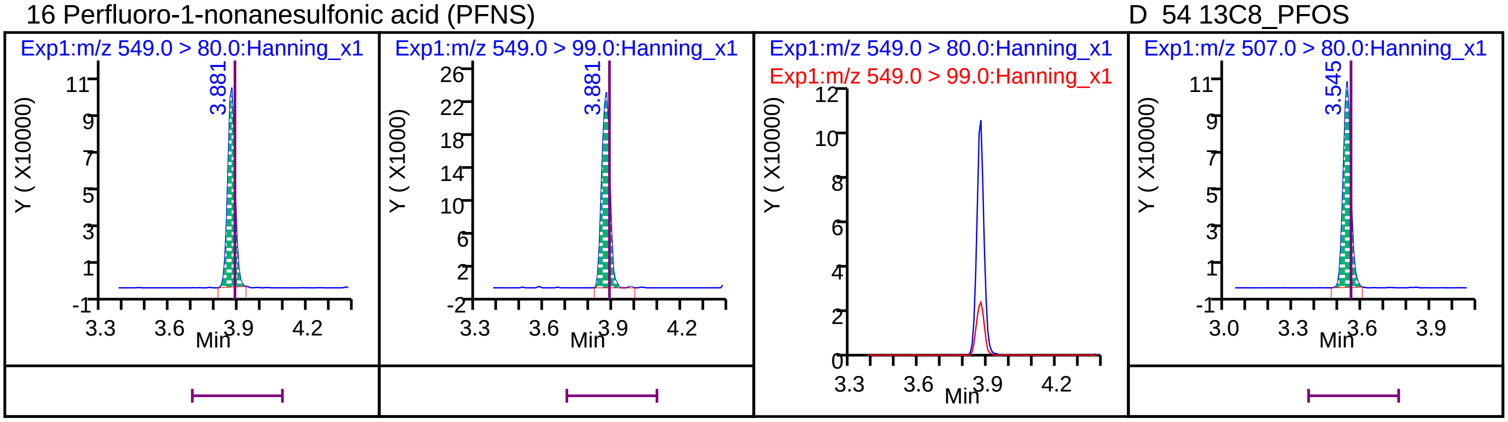




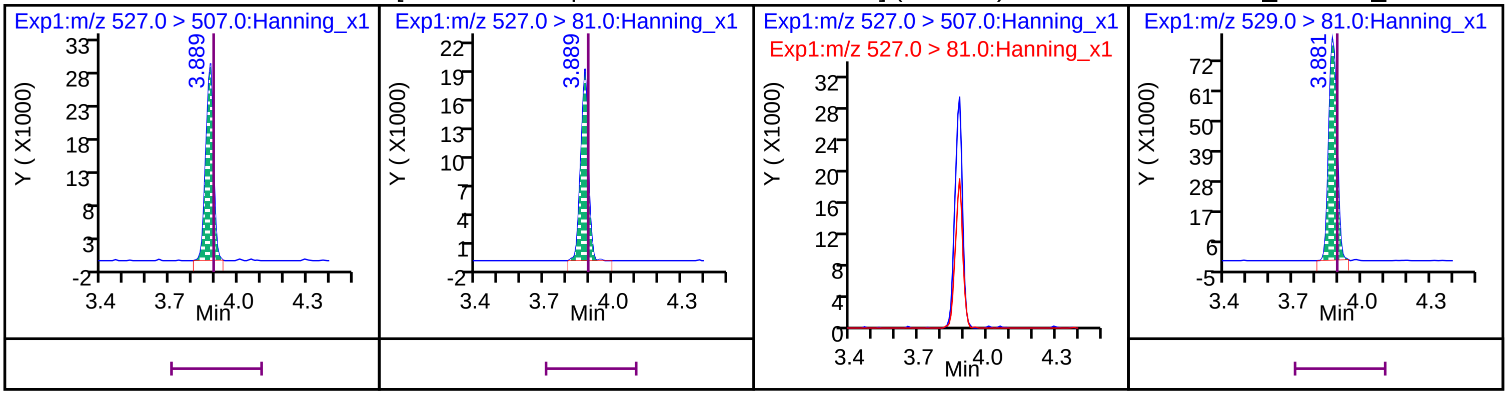
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



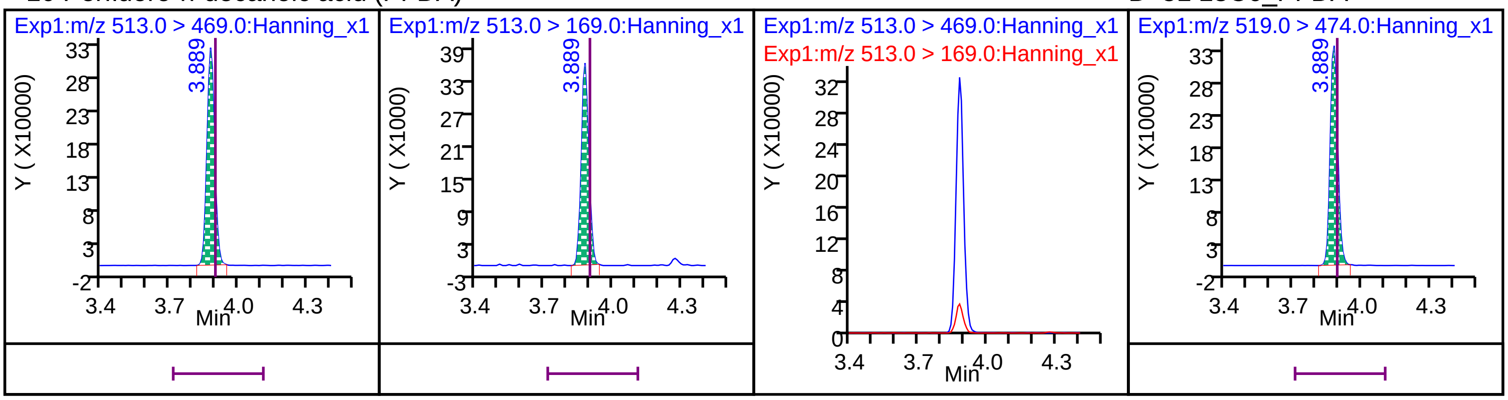
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



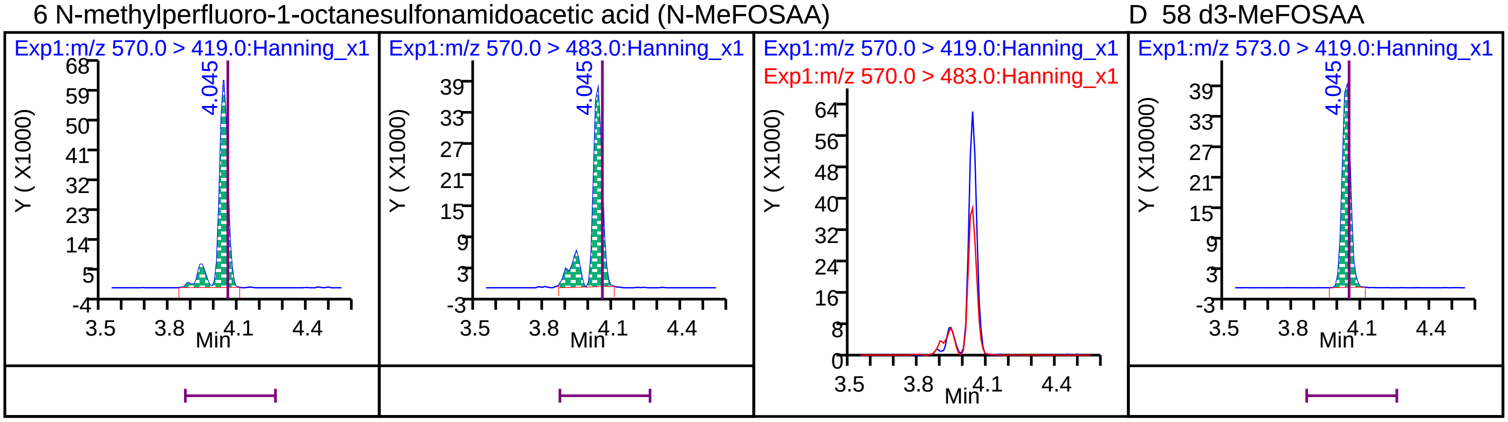
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



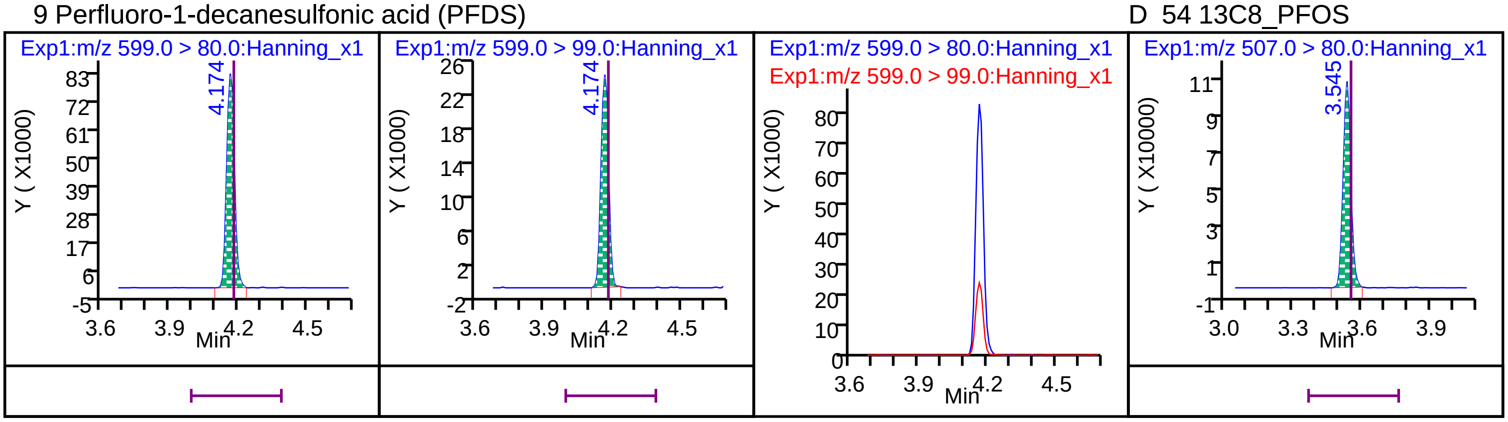
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



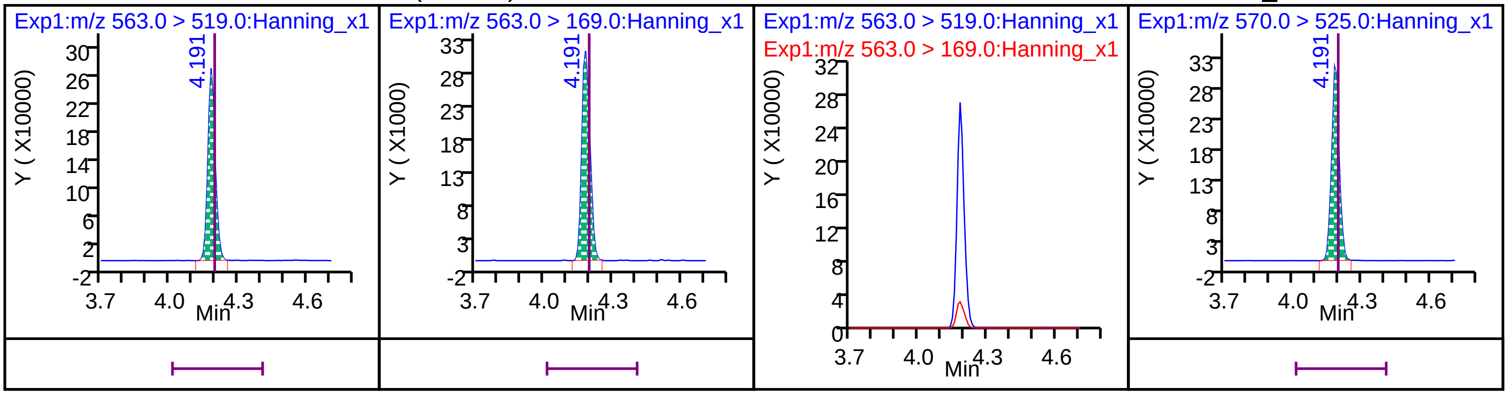
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



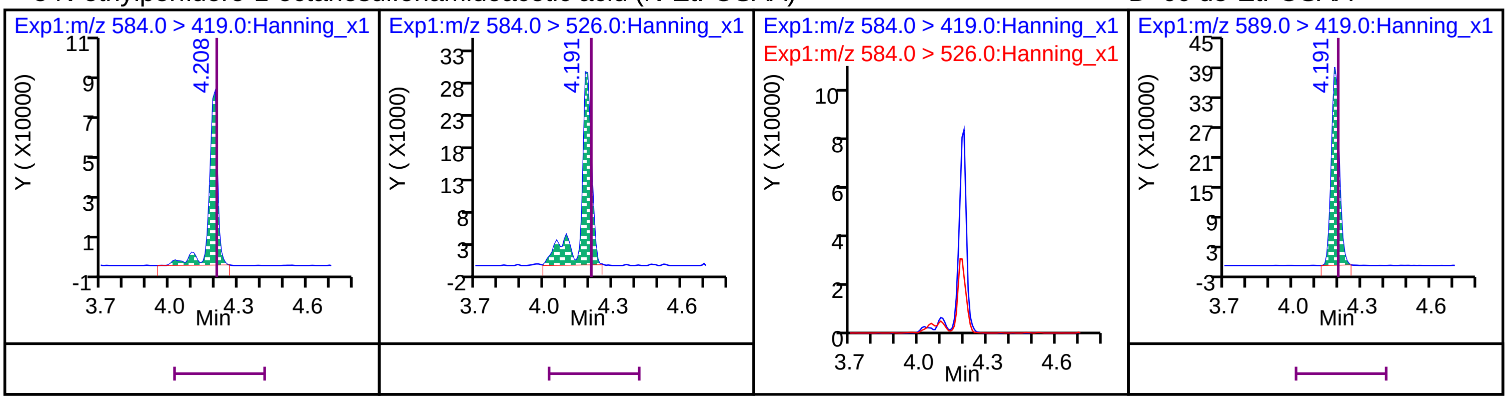
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



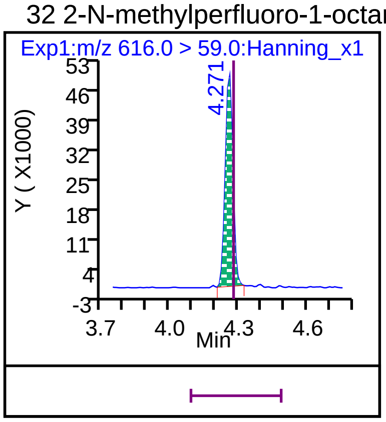
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



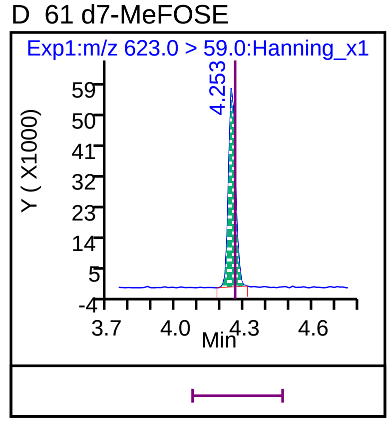
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



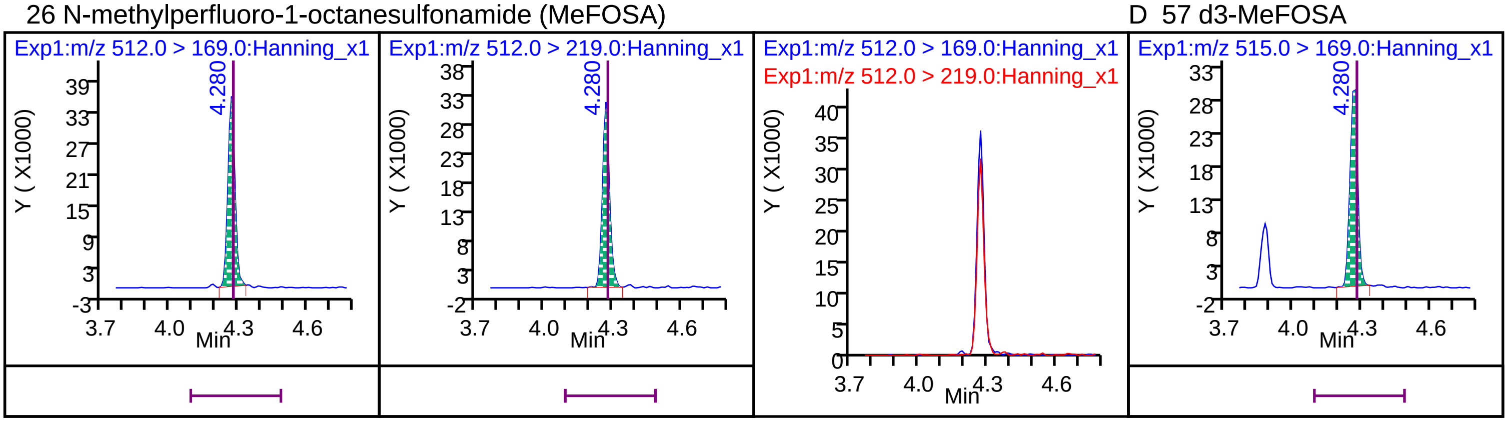
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



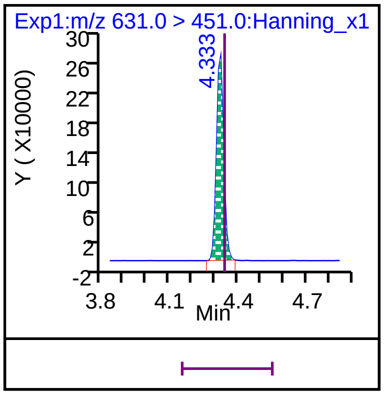
D 61 d7-MeFOSE



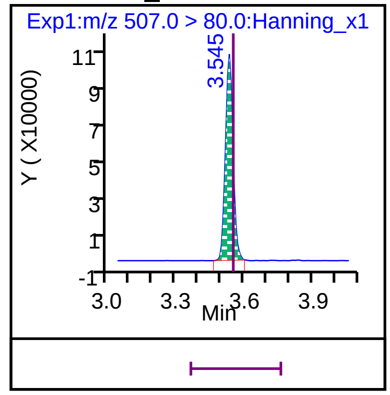
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



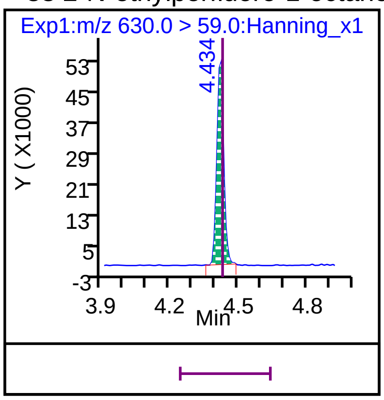
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



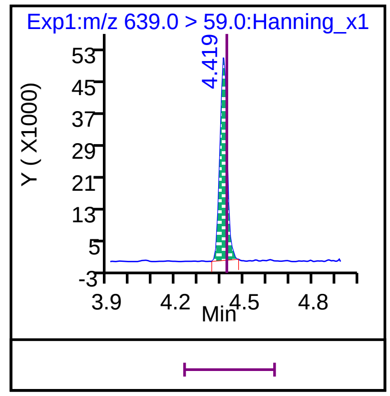
D 54 13C8_PFOS



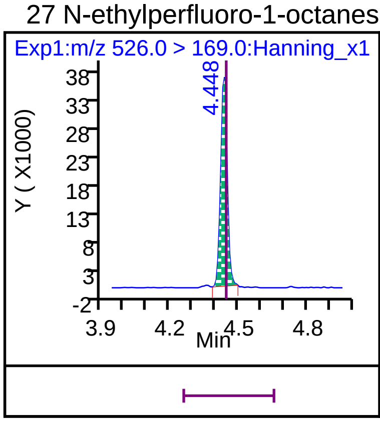
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

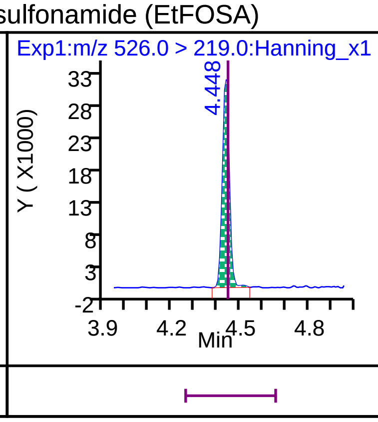


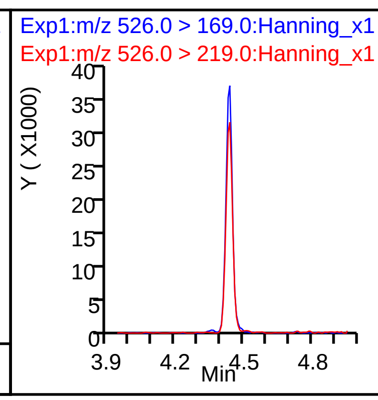
D 62 d9-EtFOSE



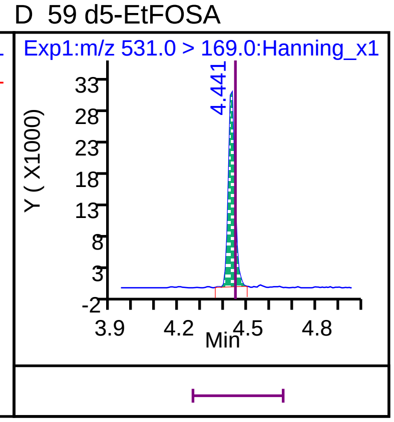
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



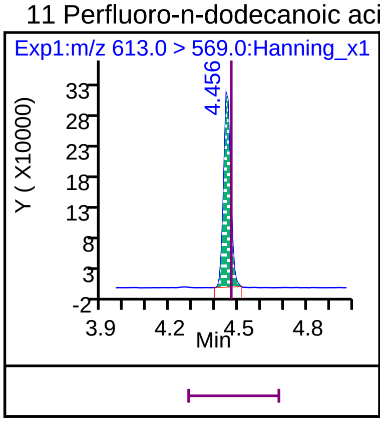


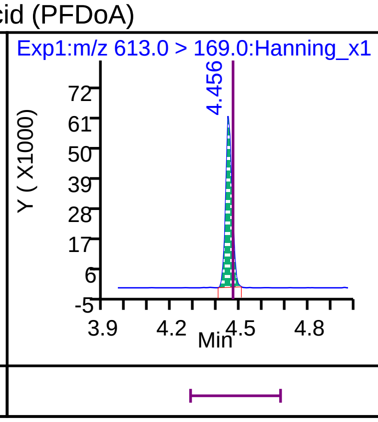


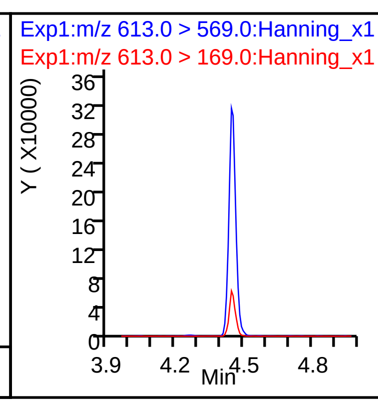
D 59 d5-EtFOSA



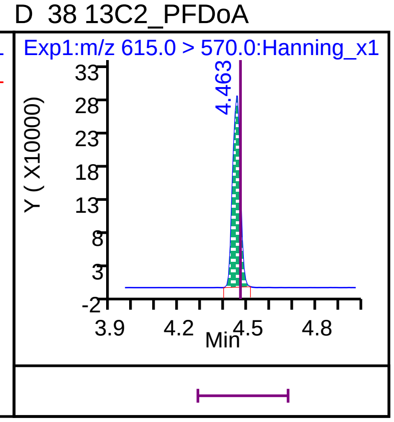
11 Perfluoro-n-dodecanoic acid (PFDoA)





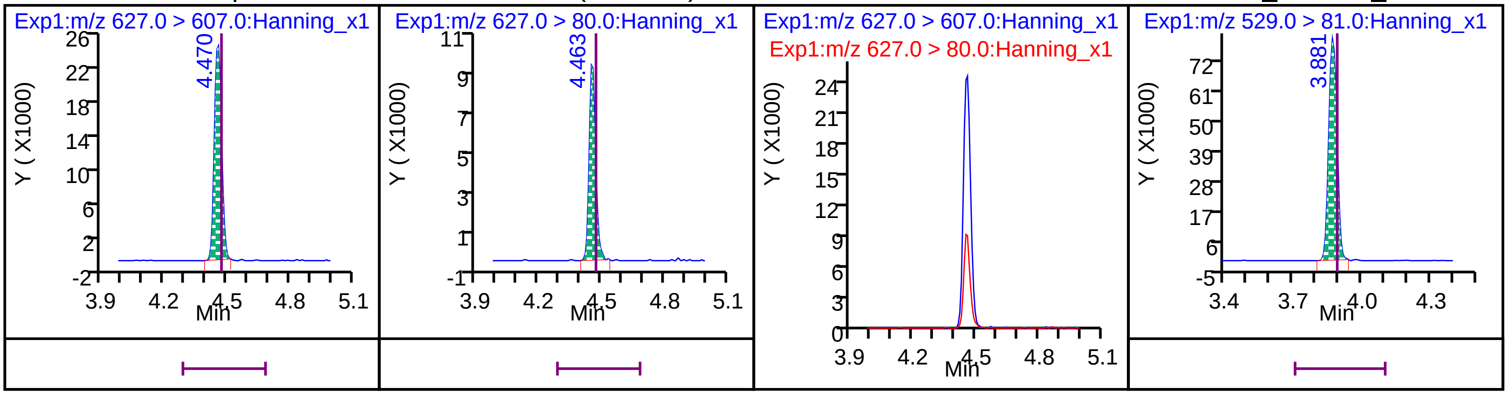


D 38 13C2_PFDoA

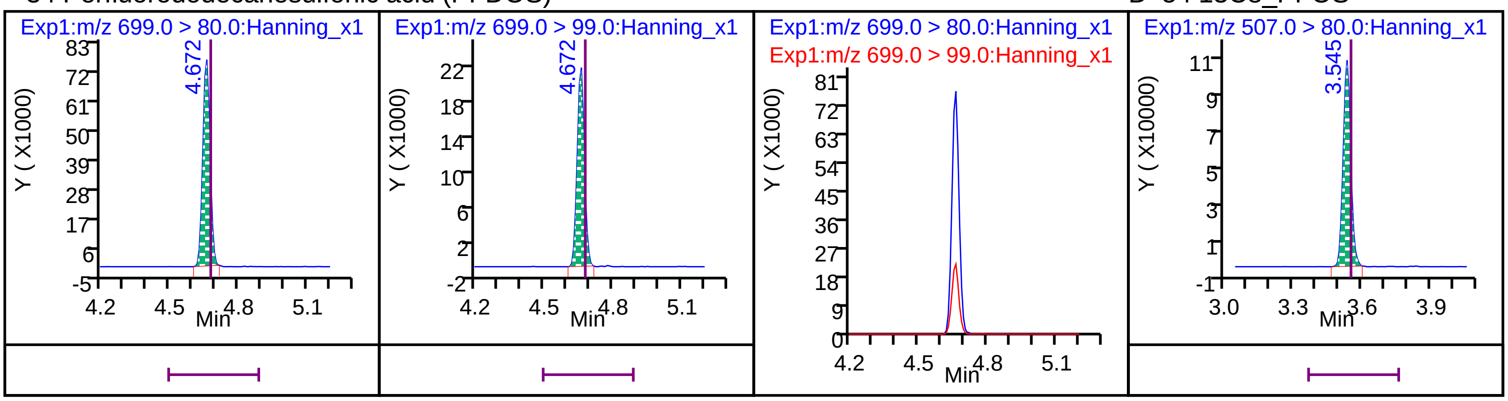


Report Date: 28-Oct-2021 20:18:16 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821036.d

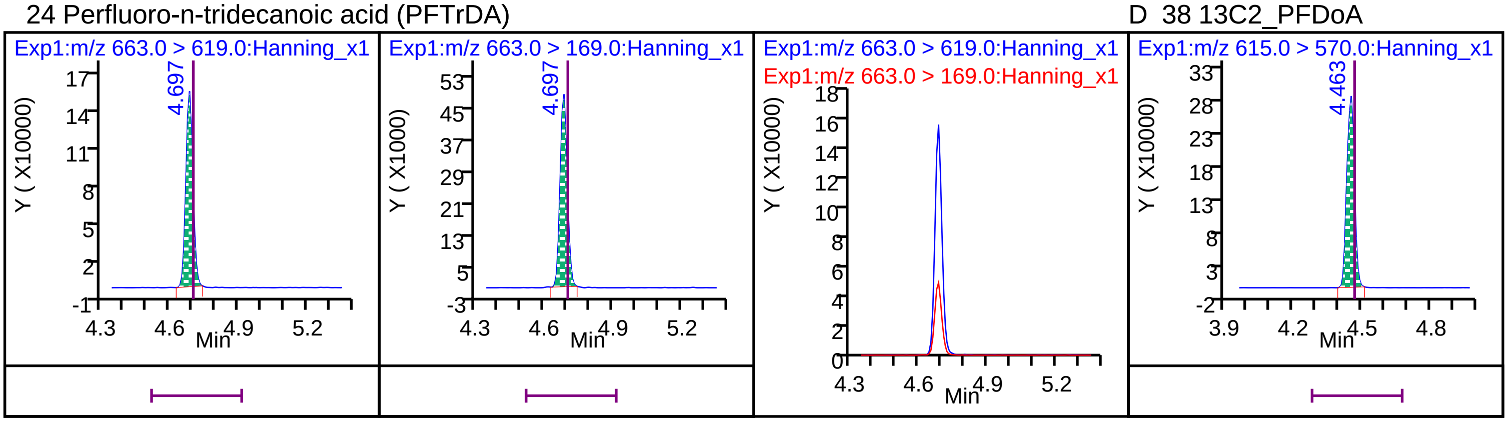
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



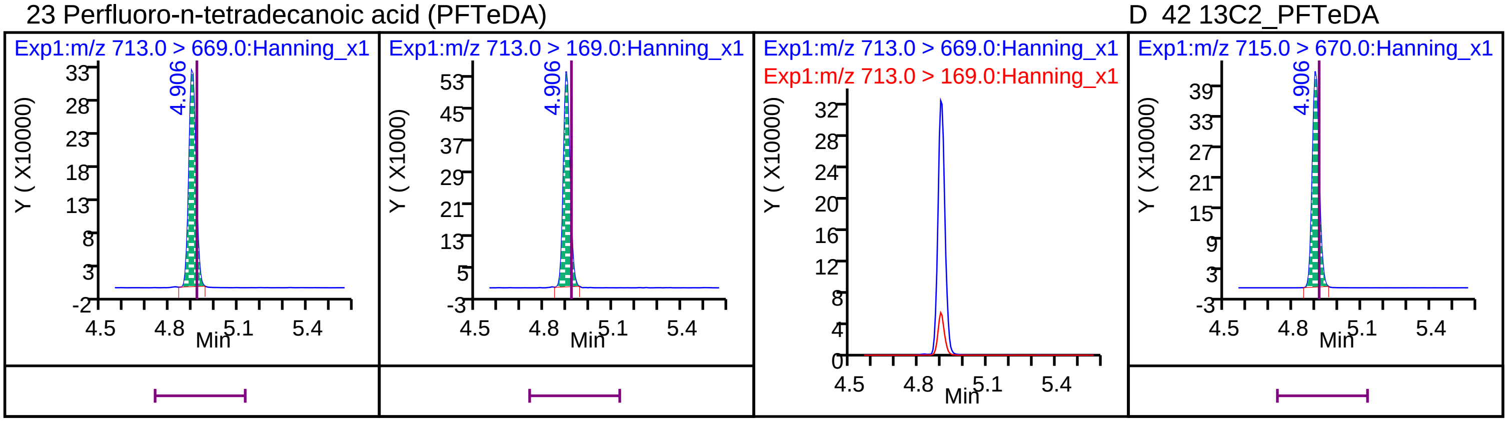
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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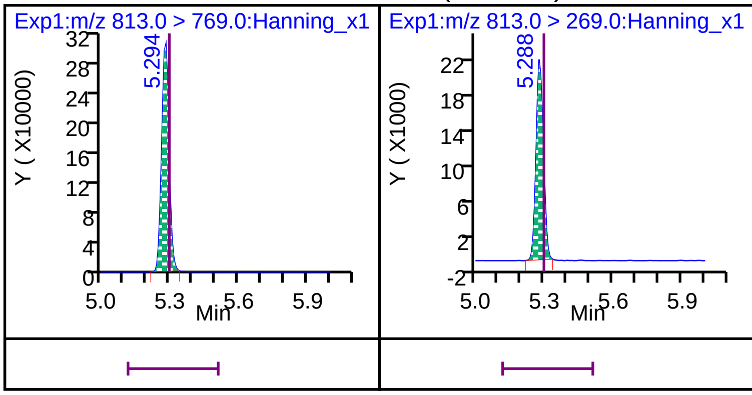
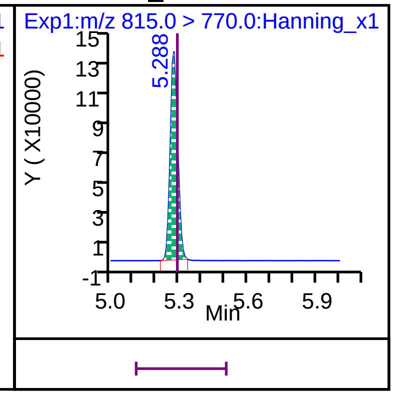
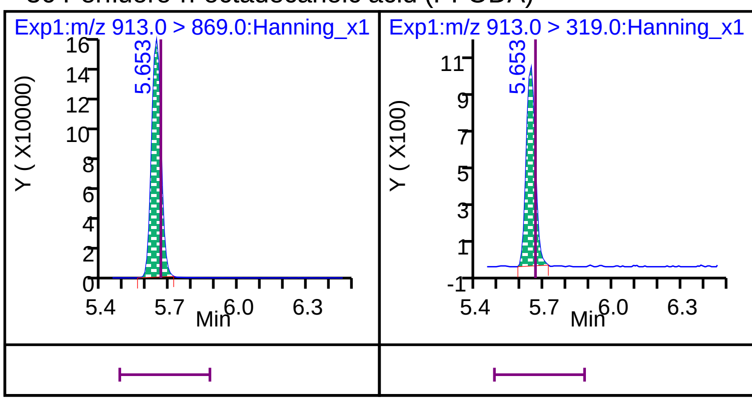
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA)



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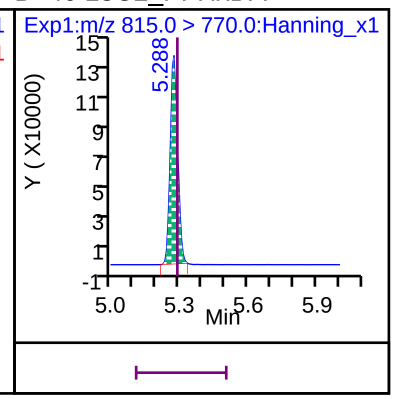
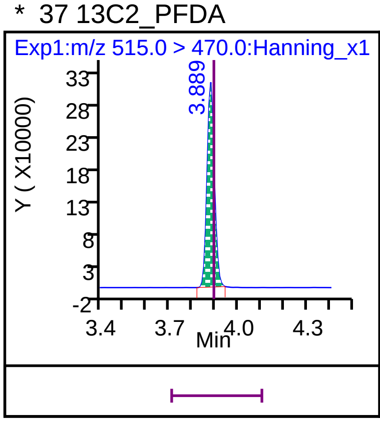


* 37 13C2_PFDA



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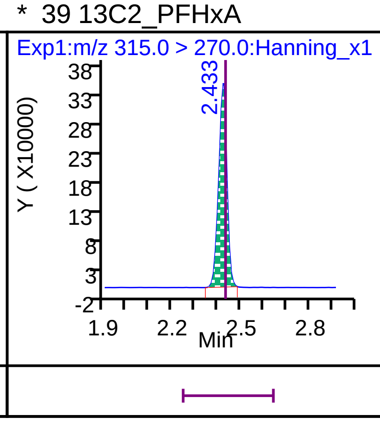

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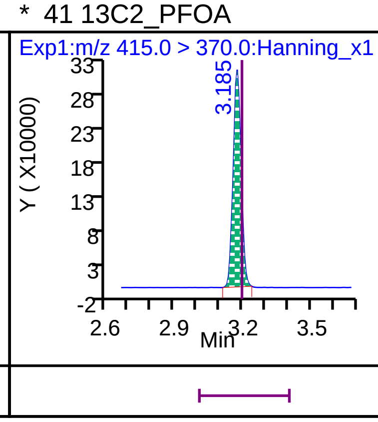

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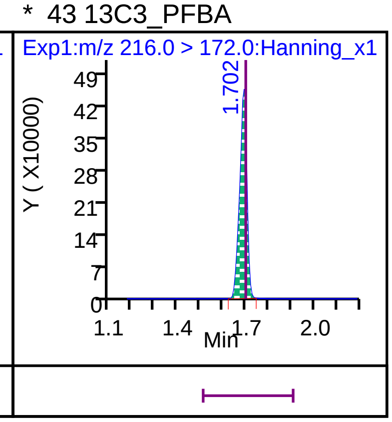
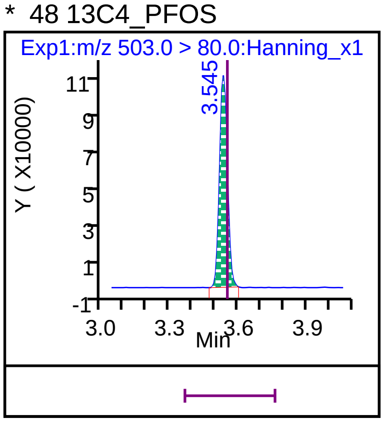


* 48 13C4_PFOS



Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d		
Injection Date:	28-Oct-2021 18:31:06	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	35
Sample Info:	CCV 1000B_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	921.52	92.2	70 - 130
D 46 13C4_PFBA	1111250	1224863			110.2	50 - 150
21 PFPeA			1000.00	945.23	94.5	70 - 130
D 50 13C5_PFPeA	1013844	1137028			112.2	50 - 150
D 44 13C3_PFBS	346697	388396			112	50 - 150
7 PFBS			884.00	751.60	85	70 - 130
D 63 13C2_4:2 FTS_2	323537	346258			107	50 - 150
1 4:2 FTS			934.00	796.74	85.3	70 - 130
D 49 13C5_PFHxA	941740	1041617			110.6	50 - 150
15 PFHxA			1000.00	957.86	95.8	70 - 130
22 PFPeS			938.00	818.45	87.3	70 - 130
28 GenX			2000.00	2327.81	116.4	70 - 130
D 66 13C3_GenX	715165	745283			104.2	50 - 150
D 47 13C4_PFHpA	943546	1013861			107.5	50 - 150
13 PFHpA			1000.00	949.94	95	70 - 130
D 45 13C3_PFHxS	283170	285143			100.7	50 - 150
14 PFHxS			910.00	896.60	98.5	70 - 130
29 ADONA			942.00	1169.89	124.2	70 - 130
2 6:2 FTS			948.00	1121.40	118.3	70 - 130
D 64 13C2_6:2 FTS_2	240700	260361			108.2	50 - 150
D 53 13C8_PFOA	859711	923583			107.4	50 - 150
20 PFOA			1000.00	931.94	93.2	70 - 130
12 PFHpS			952.00	953.69	100.2	70 - 130
D 54 13C8_PFOS	242805	250060			103	50 - 150
18 PFOS			928.00	892.03	96.1	70 - 130
17 PFNA			1000.00	958.92	95.9	70 - 130
D 56 13C9_PFNA	822524	934728			113.6	50 - 150
30 9Cl-PF3ONS			932.00	956.06	102.6	70 - 130
D 55 13C8_PFOSA	455631	483256			106.1	50 - 150
19 PFOSA			1000.00	1006.64	100.7	70 - 130
16 PFNS			960.00	895.73	93.3	70 - 130
D 65 13C2_8:2 FTS_2	205992	213818			103.8	50 - 150
3 8:2 FTS			958.00	1227.48	128.1	70 - 130
D 51 13C6_PFDA	761788	826264			108.5	50 - 150
10 PFDA			1000.00	962.27	96.2	70 - 130
D 58 d3-MeFOSAA	912247	1080002			118.4	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1022.33	102.2	70 - 130
9 PFDS			964.00	919.03	95.3	70 - 130
25 PFUdA			1000.00	956.50	95.7	70 - 130
D 60 d5-EtFOSAA	882829	981756			111.2	50 - 150
D 52 13C7_PFUdA	745296	747629			100.3	50 - 150
5 N-EtFOSAA			1000.00	908.62	90.9	70 - 130
D 61 d7-MeFOSE	136219	130809			96	50 - 150
32 MeFOSE			1000.00	954.83	95.5	70 - 130
D 57 d3-MeFOSA	60817	64198			105.6	50 - 150
26 MeFOSA			1000.00	1183.62	118.4	70 - 130
31 11Cl-PF3OUDS			942.00	997.57	105.9	70 - 130
D 62 d9-EtFOSE	128617	125110			97.3	50 - 150
33 EtFOSE			1000.00	1092.89	109.3	70 - 130
D 59 d5-EtFOSA	62925	64392			102.3	50 - 150
27 EtFOSA			1000.00	1088.87	108.9	70 - 130
11 PFDoA			1000.00	949.56	95	70 - 130
D 38 13C2_PFDoA	648927	711272			109.6	50 - 150
4 10:2 FTS			964.00	982.61	101.9	70 - 130
34 PFDOS			968.00	805.97	83.3	70 - 130
24 PFTrDA			1000.00	922.99	92.3	70 - 130
D 42 13C2_PFTeDA	891082	942562			105.8	50 - 150
23 PFTeDA			1000.00	965.02	96.5	70 - 130
D 40 13C2_PFHxDA	325837	324569			99.6	50 - 150
35 PFHxDA			1000.00	1055.81	105.6	70 - 130
36 PFODA			1000.00	1024.29	102.4	70 - 130

Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d		
Injection Date:	28-Oct-2021 18:31:06	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	35
Sample Info:	CCV 1000B_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.707	0	1224863	19	>100:1			1000.00	1365.35	110.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.702	1.707	0/0	1219736	19	>100:1			1000.00	921.52		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.079	0	1137028	17	>100:1			1000.00	1264.91	112.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.068	2.079	0/0	1160039	15	>100:1			1000.00	945.23		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.131	0	388396	15	>100:1			1000.00	1301.19	112	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.131	0/0	405842	15	>100:1	Target = 3.78		884.00	751.60		
298.9 > 99	44	2.120	2.131		105790	14	>100:1	3.83 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.477	0/0	327968	17	>100:1	Target = 3.45		938.00	818.45		
349 > 99	44	2.476	2.477		98627	18		3.32 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.407	0	346258	18	>100:1			5000.00	7748.24	107	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.406	2.407	0/0	105716	17	>100:1	Target = 1.43		934.00	796.74		
327 > 81	63	2.398	2.407		74725	19	>100:1	1.41 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.442	0	1041617	18	>100:1			1000.00	1272.17	110.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.451	0/0	1024811	17	>100:1	Target = 16.37		1000.00	957.86		
313 > 119	49	2.441	2.451		53296	16	>100:1	19.22 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.554	2.572	-1	745283	17	>100:1			5000.00	5150.99	104.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.563	2.572	0/1	266485	19	>100:1	Target = 0.74		2000.00	2327.81		
285 > 185	66	2.563	2.572		328187	16	>100:1	0.81 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.819	2.831	0	1013861	17	>100:1			1000.00	1265.29	107.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.828	2.831	0/0	955691	17	>100:1	Target = 3.21		1000.00	949.94		
363 > 169	47	2.828	2.831		291209	16	>100:1	3.28 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.837	2.840	0	285143	17	>100:1			1000.00	1159.33	100.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.837	2.840	0/0	308246	26	>100:1	Target = 3.47	5.08	910.00	896.60		
399 > 99	45	2.846	2.840		89179	24	>100:1	3.45 (1.73-5.21)	9.54				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.863	2.866	0/0	1813505	17	>100:1	Target = 2.28		942.00	1169.89		
377 > 85	45	2.863	2.866		601679	18	>100:1	3.01 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.204	3.206	0/0	295284	20	>100:1	Target = 3.62		952.00	953.69		
449 > 99	45	3.204	3.206		77823	20	>100:1	3.79 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.172	3.174	0	260361	21	>100:1			5000.00	5958.33	108.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.172	3.174	0/0	92097	29	>100:1	Target = 1.19		948.00	1121.40		
427 > 81	64	3.172	3.174		67232	22	>100:1	1.36 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.198	3.199	0	923583	22	>100:1			1000.00	1220.60	107.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.198	3.199	0/0	866602	21	>100:1	Target = 2.34		1000.00	931.94		
413 > 169	53	3.198	3.199		357265	21	>100:1	2.42 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.558	3.562	0	250060	19	>100:1			1000.00	1103.67	103	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.558	3.562	0/0	269274	40	>100:1	Target = 4.00	3.65	928.00	892.03		
499 > 99	54	3.558	3.562		74600	38	>100:1	3.60 (2.00-6.01)	9.51				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.763	3.761	1/1	729549	19	>100:1			932.00	956.06		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.896	3.894	1/1	226481	17	>100:1	Target = 3.83		960.00	895.73		
549 > 99	54	3.888	3.894		62269	17	>100:1	3.63 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.191	4.190	1/1	221107	15		Target = 3.87		964.00	919.03		
599 > 99	54	4.191	4.190		60571	16	>100:1	3.65 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.342	4.350	0/0	651471	15	>100:1			942.00	997.57		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.681	4.689	0/0	184172	17	>100:1	Target = 3.65		968.00	805.97		
699 > 99	54	4.689	4.689		50675	16	>100:1	3.63 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.566	3.569	0	934728	19	>100:1			1000.00	1205.40	113.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.566	3.569	0/0	782329	20	>100:1	Target = 4.21		1000.00	958.92		
463 > 169	56	3.566	3.569		166060	18	>100:1	4.71 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.851	3.849	1	483256	18	>100:1			1000.00	1153.87	106.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.851	3.849	1/0	551560	18	>100:1	Target = 49.05		1000.00	1006.64		
498>478	55	3.851	3.849		12797	20	>100:1	43.10 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.896	3.902	0	213818	17				5000.00	5654.51	103.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.896	3.902	0/0	77505	18	>100:1	Target = 1.27		958.00	1227.48		
527 > 81	65	3.896	3.902		52048	18		1.48 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.485	4.485	1/1	63359	18	>100:1	Target = 2.25		964.00	982.61		
627 > 80	65	4.485	4.485		23812	16	>100:1	2.66 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.904	3.902	1	826264	18	>100:1			1000.00	1216.60	108.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.904	3.910	0/-1	803351	17	>100:1	Target = 8.94		1000.00	962.27		
513 > 169	51	3.904	3.910		95898	18	>100:1	8.37 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.055	4.053	1	1080002	16	>100:1			5000.00	5270.91	118.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.065	4.063	1/0	168686	32		Target = 1.38	7.03	1000.00	1022.33		
570 > 483	58	4.055	4.063		125486	31	>100:1	1.34 (0.69-2.08)	3.37				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.208	4.206	1	747629	17	>100:1			1000.00	1182.69	100.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.208	4.206	1/0	634223	16	>100:1	Target = 8.27		1000.00	956.50		
563 > 169	52	4.208	4.206		76951	17	>100:1	8.24 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.208	4.206	1	981756	17	>100:1			5000.00	5718.64	111.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.217	4.215	1/0	190413	34	>100:1	Target = 1.95	6.58	1000.00	908.62		
584 > 526	60	4.217	4.215		108760	36	>100:1	1.75 (0.97-2.92)	4.44				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.271	4.270	1	130809	15	>100:1			1000.00	1028.69	96	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.280	4.287	0/-1	123193	14	>100:1			1000.00	954.83		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.289	4.287	1	64198	14	>100:1			1000.00	1104.54	105.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.289	4.287	1/0	80905	14	>100:1	Target = 1.08		1000.00	1183.62		
512 > 219	57	4.297	4.287		71052	16	>100:1	1.13 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.434	4.434	1	125110	15	>100:1			1000.00	1065.16	97.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.441	4.441	1/0	116519	16	>100:1			1000.00	1092.89		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.456	0	64392	18	>100:1			1000.00	1172.28	102.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.456	4.456	1/1	80224	17	>100:1	Target = 1.10		1000.00	1088.87		
526 > 219	59	4.456	4.456		72496	17	>100:1	1.10 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.470	4.477	0	711272	19	>100:1			1000.00	1184.22	109.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.470	4.477	0/0	691753	17	>100:1	Target = 5.93		1000.00	949.56		
613 > 169	38	4.470	4.477		110198	21		6.27 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.713	4.713	0/0	355153	16	>100:1	Target = 2.90		1000.00	922.99		
663 > 169	38	4.713	4.713		121597	18	>100:1	2.92 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.923	4.923	0	942562	20	>100:1			1000.00	1176.45	105.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.923	4.929	0/0	770094	20	>100:1	Target = 6.34		1000.00	965.02		
713 > 169	42	4.923	4.929		116967	21	>100:1	6.58 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.301	5.302	0	324569	20	>100:1			1000.00	986.38	99.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.301	5.309	0/0	694323	20	>100:1	Target = 12.53		1000.00	1055.81		
813 > 269	40	5.301	5.309		52696	18	>100:1	13.17 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.670	5.672	0/0	493434	21	>100:1	Target = 152.15		1000.00	1024.29		
913 > 319	40	5.661	5.672		3219	18	>100:1	153.28 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.904	3.902	1	765804	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.442	0	886527	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.198	3.206	0	839640	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.702	1.707	0	1034865	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.558	3.562	0	244097	18				1000.00			

Compound Type Legend

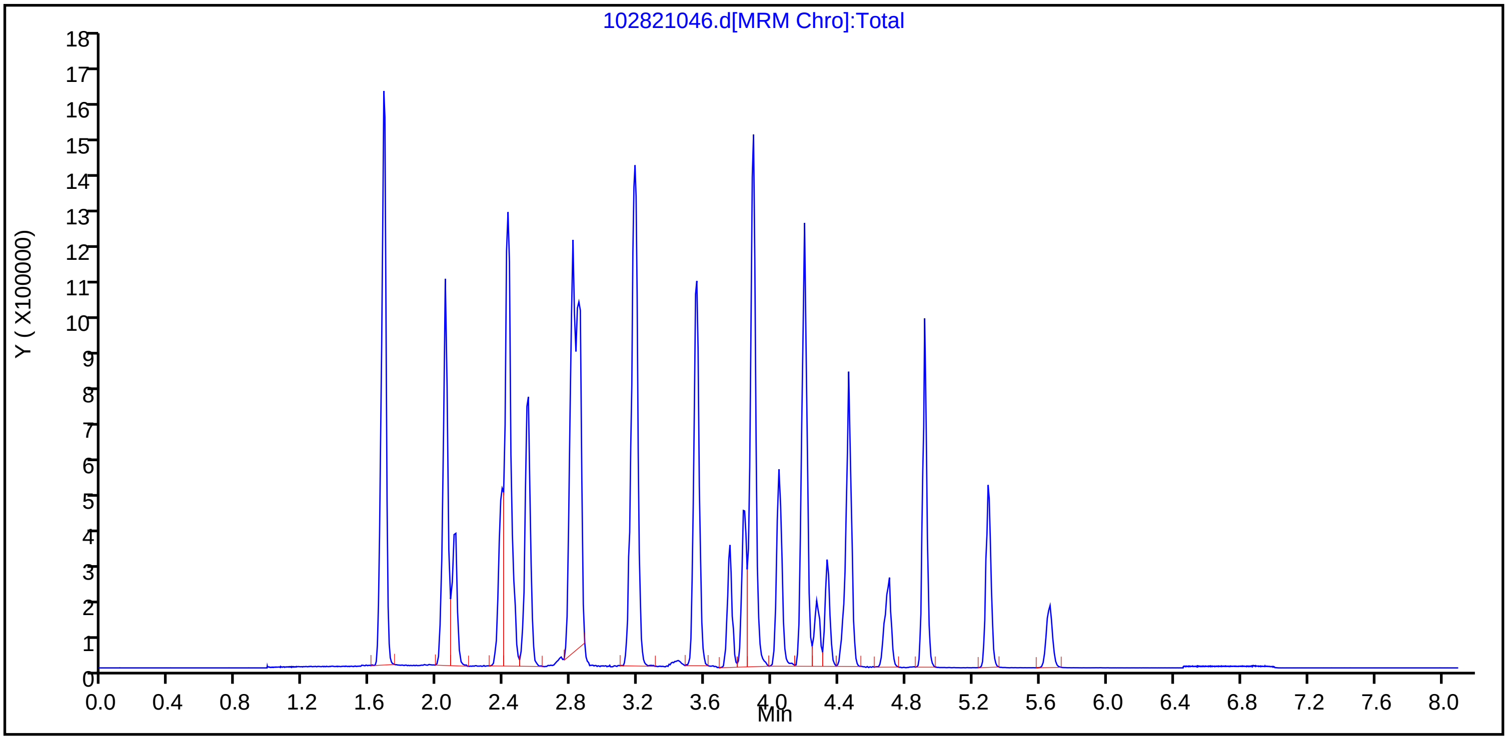
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

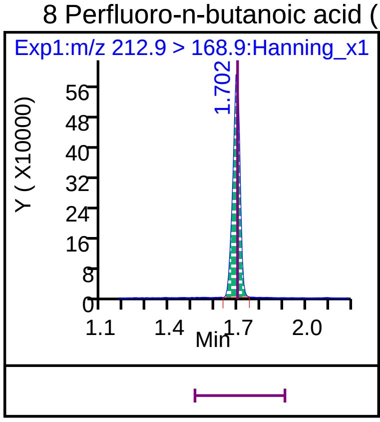
Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

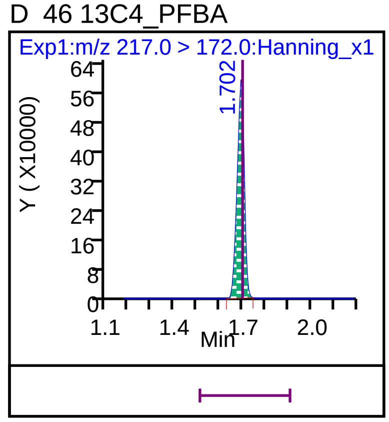
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d		
Injection Date:	28-Oct-2021 18:31:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000B_SVLC-1717
Sample Info:	CCV 1000B_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



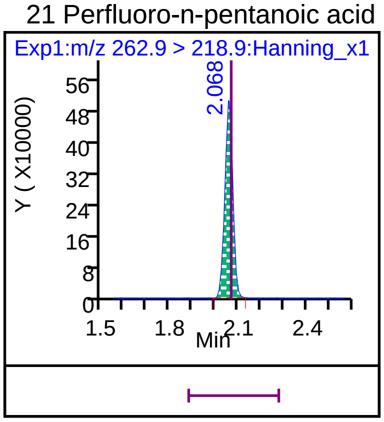
8 Perfluoro-n-butanoic acid (PFBA)



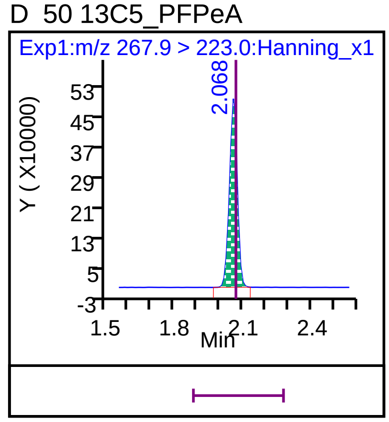
D 46 13C4_PFBA



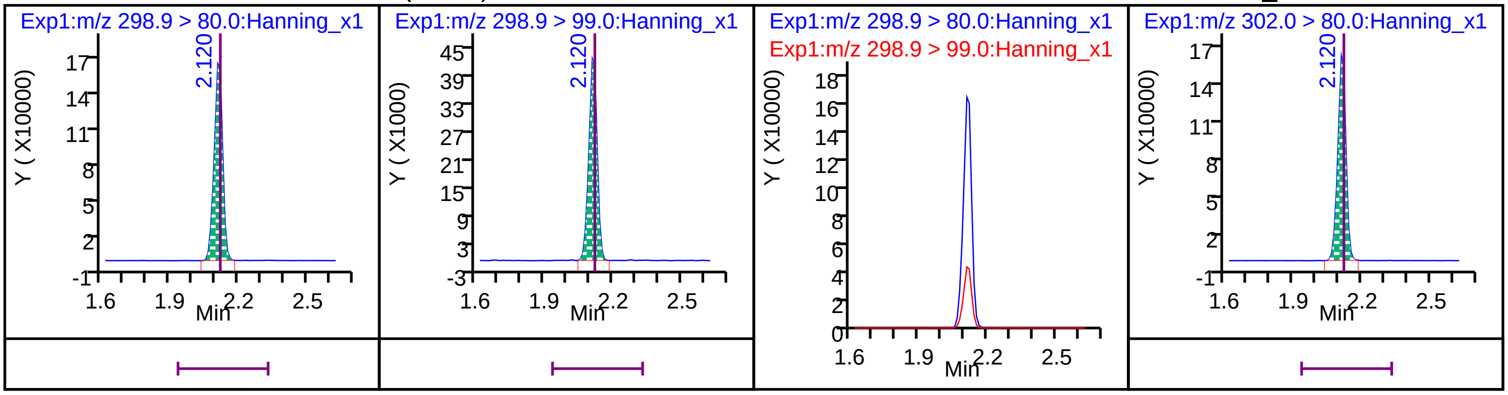
21 Perfluoro-n-pentanoic acid (PFPeA)



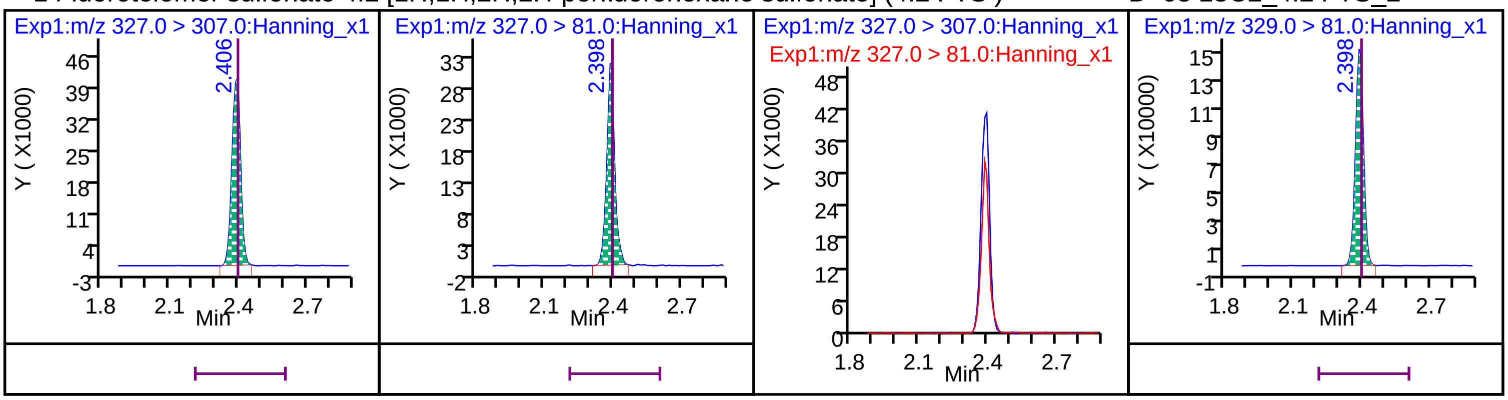
D 50 13C5_PFPeA



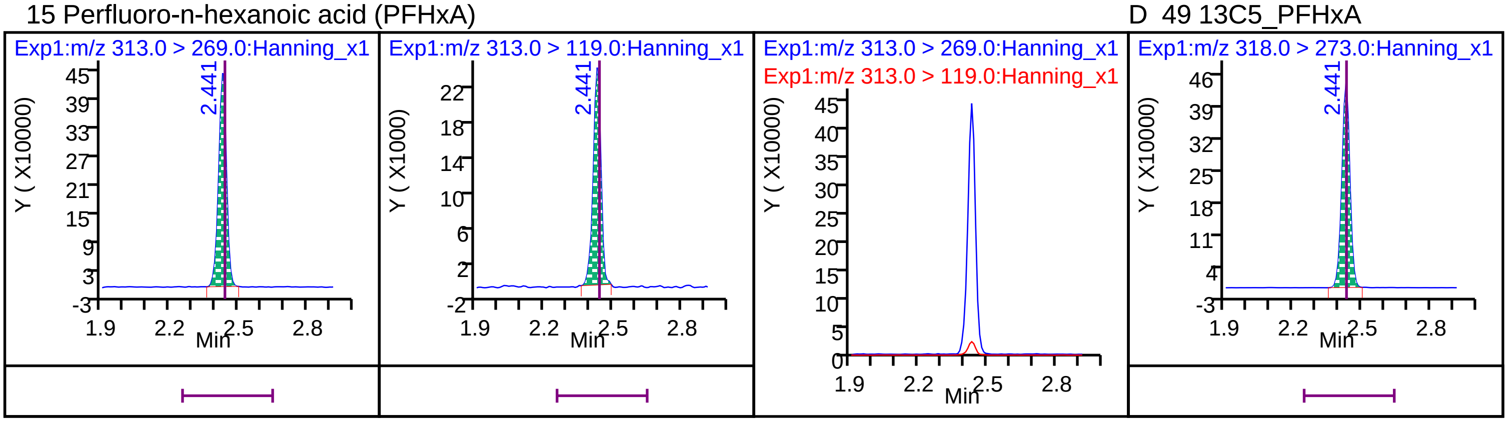
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



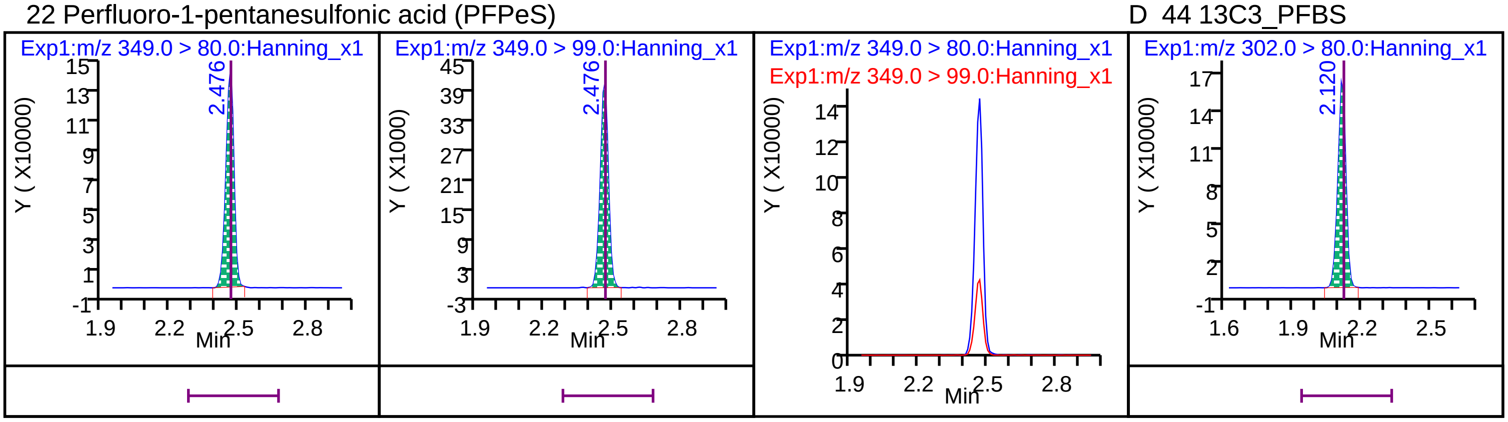
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



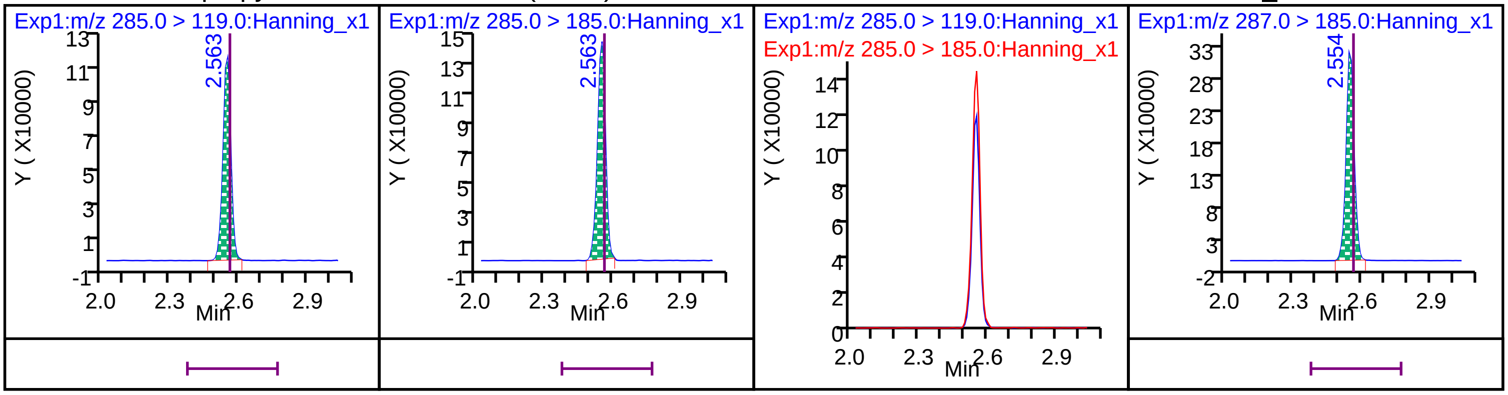
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



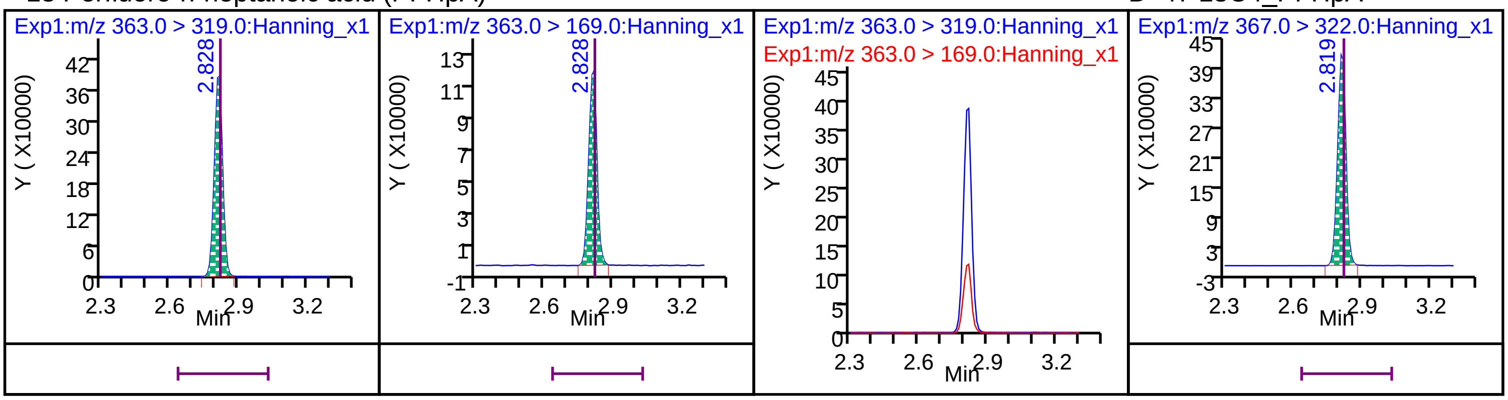
Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812

Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d

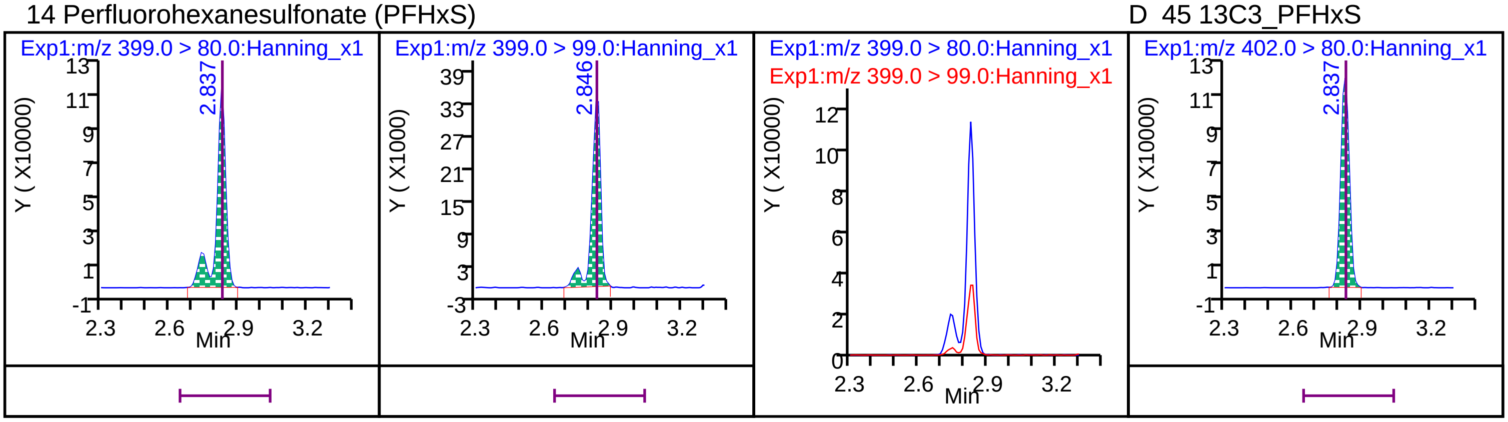
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



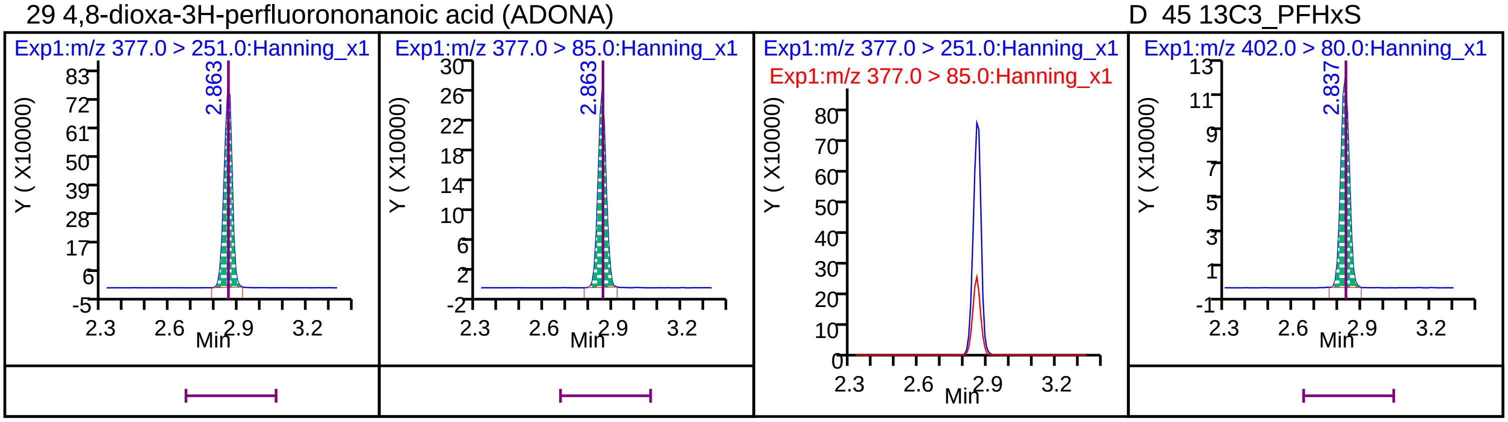
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

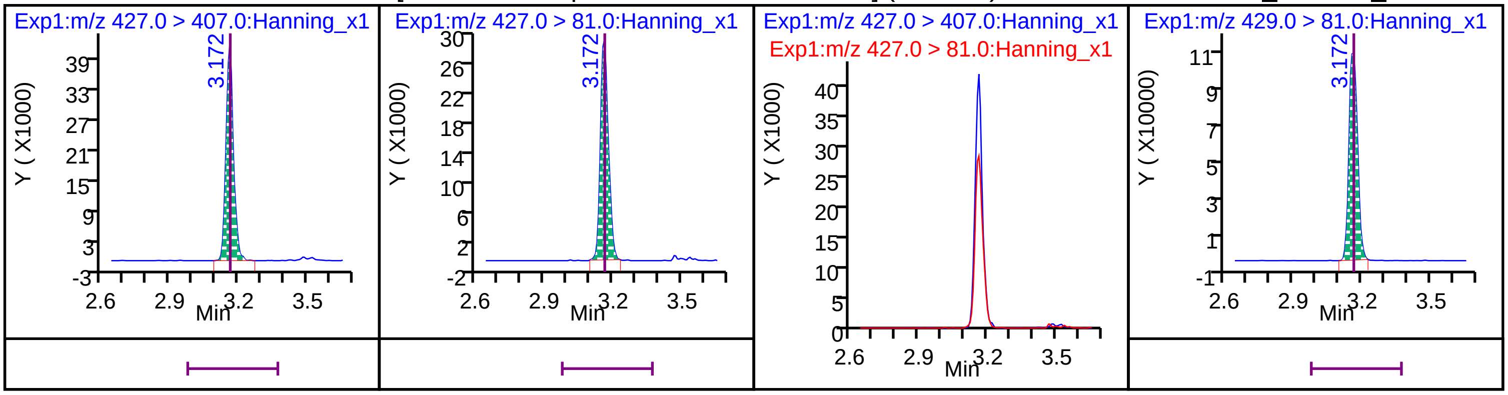


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

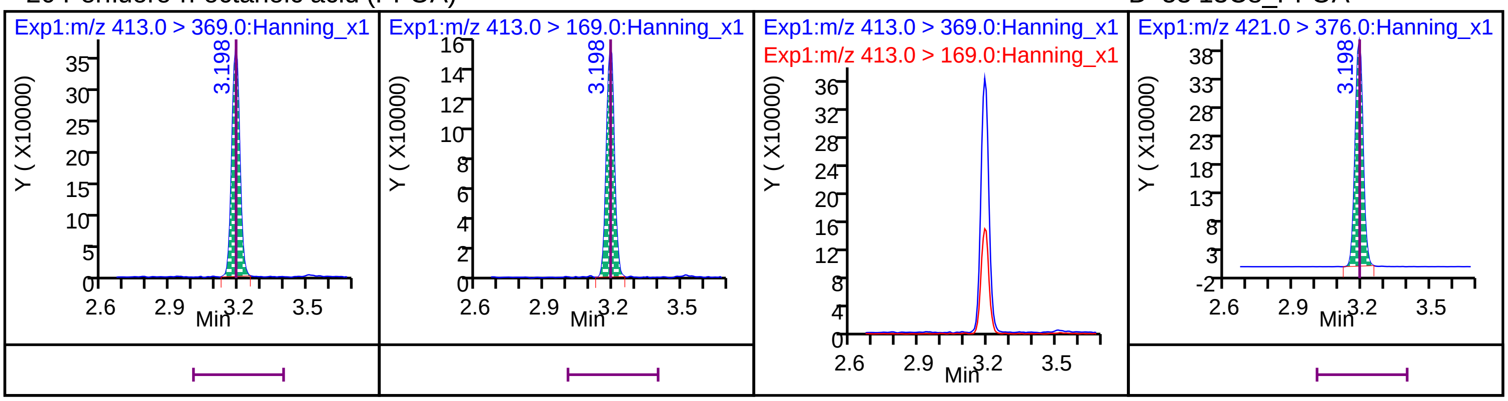


Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d

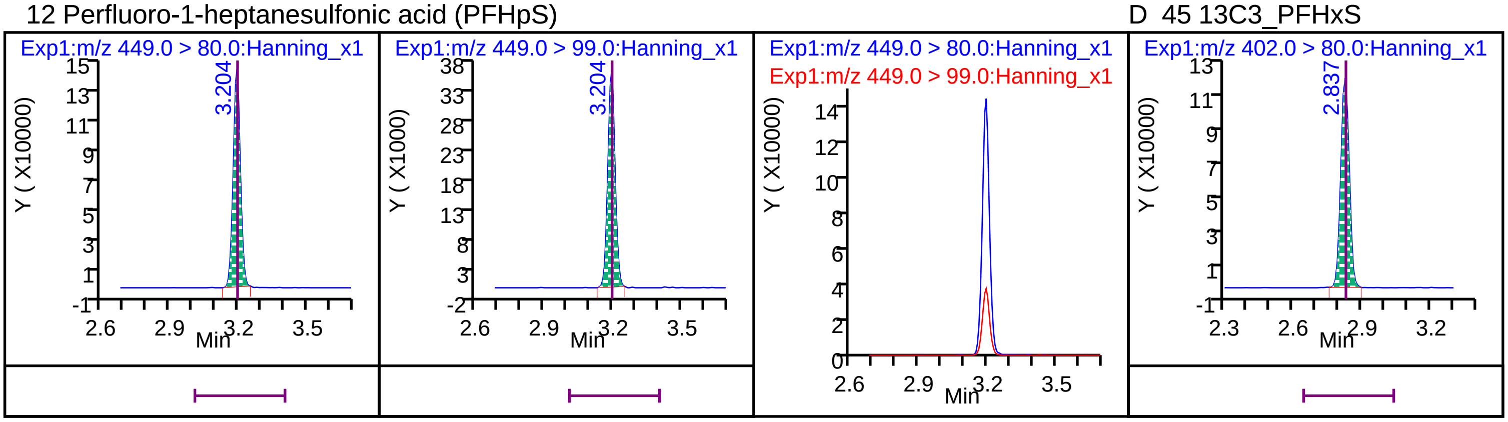
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



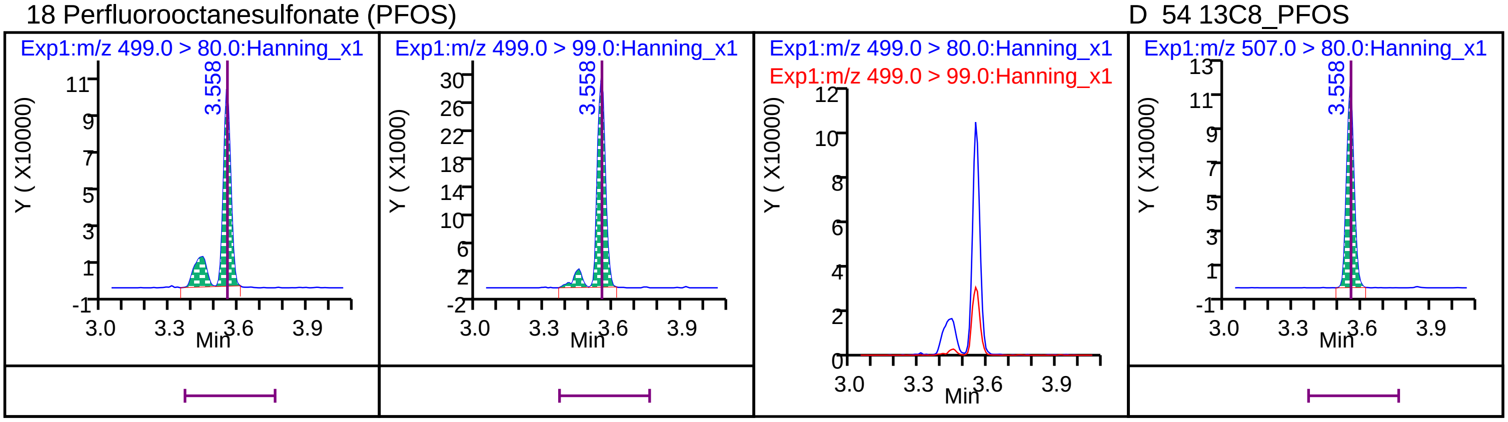
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

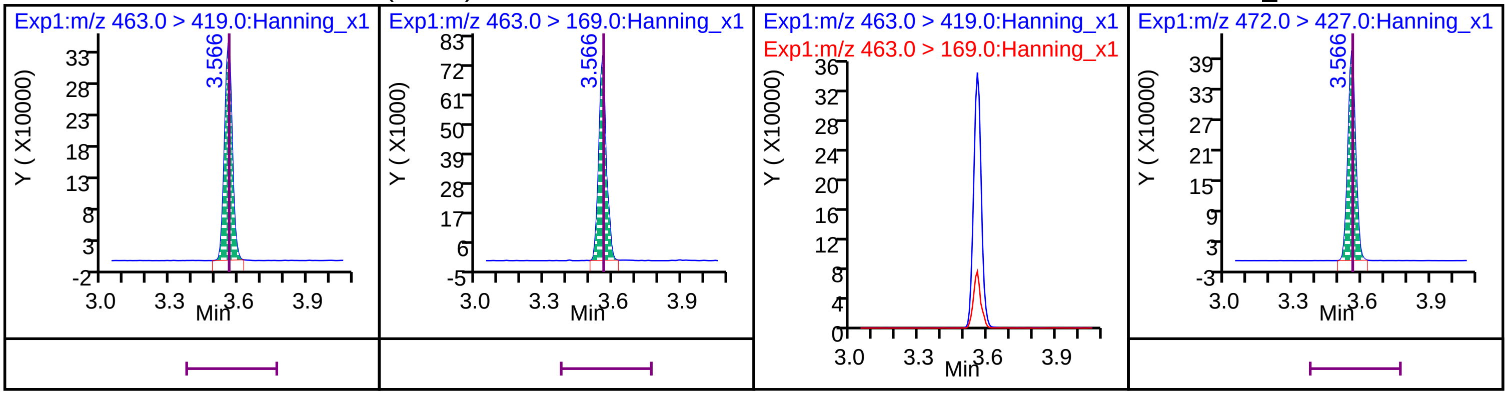


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

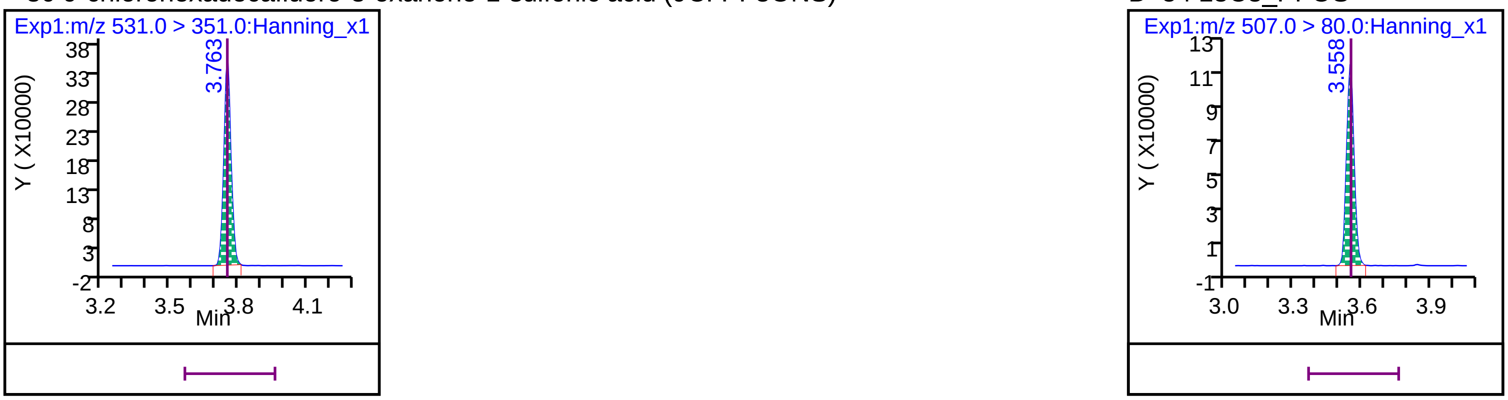


Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d

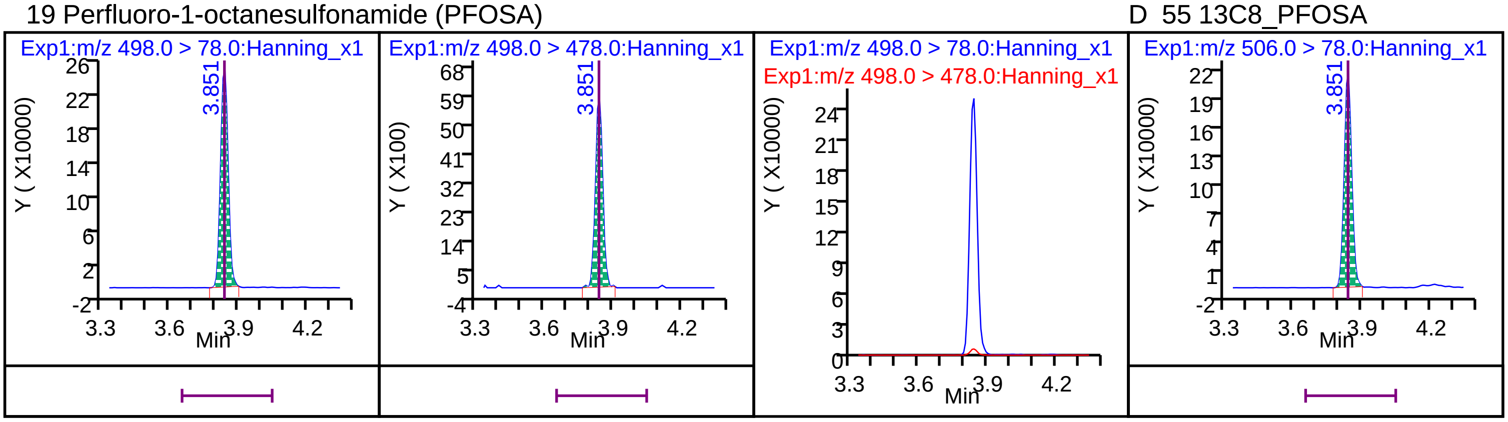
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



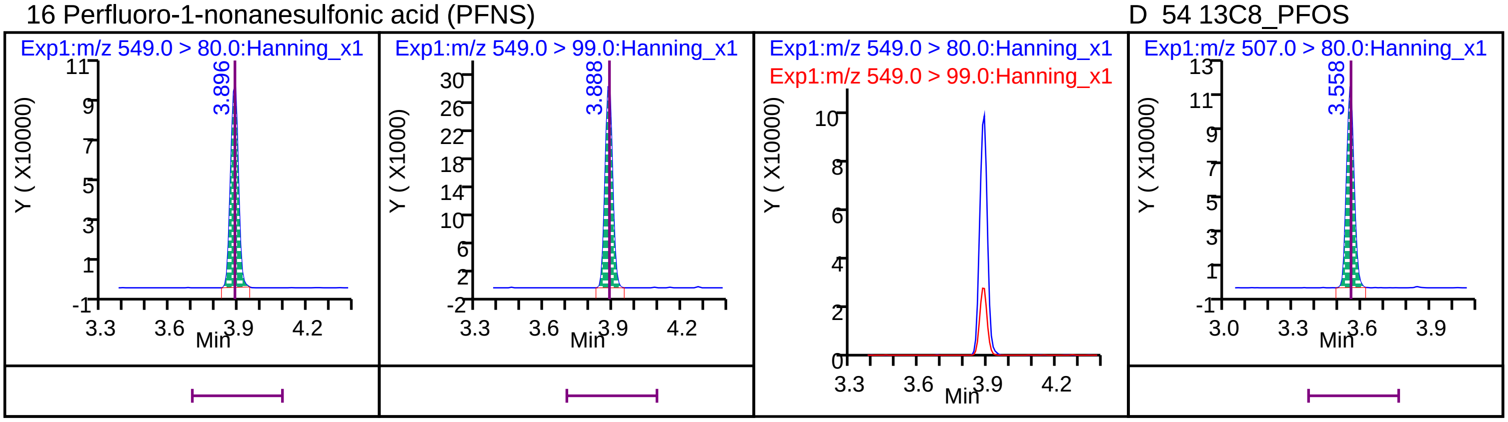
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

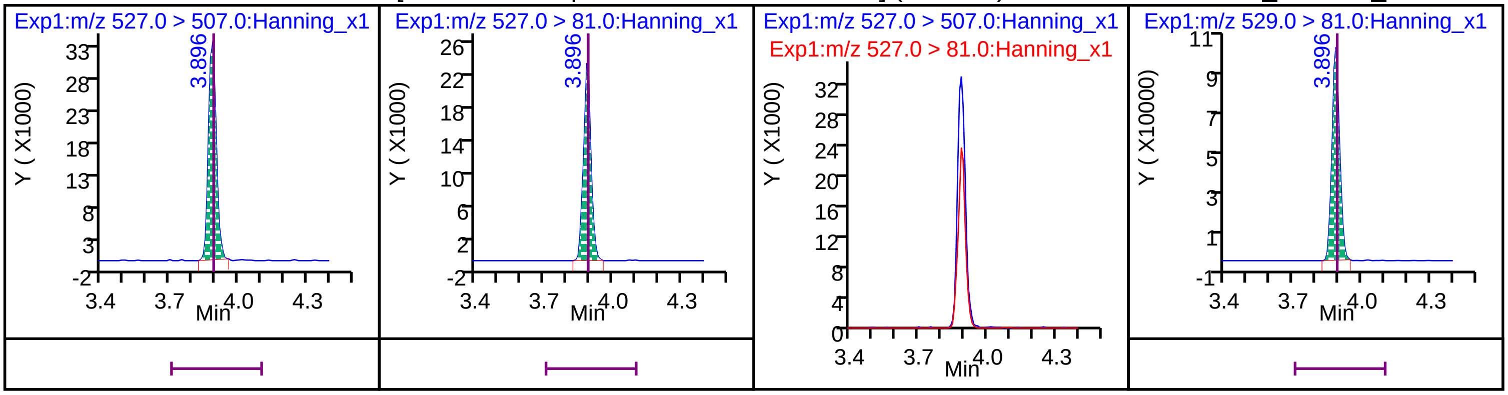


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

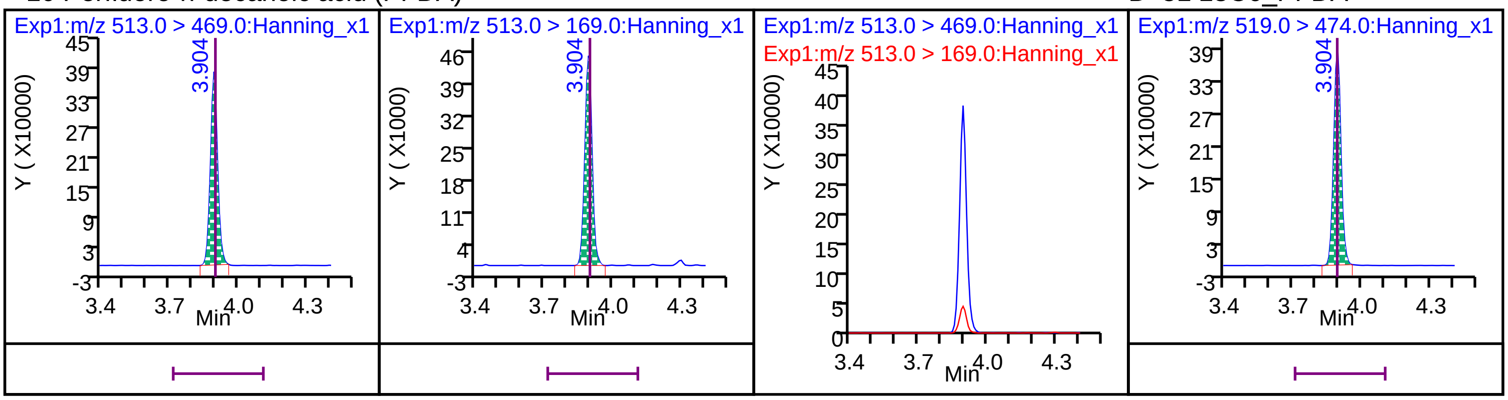


Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821046.d

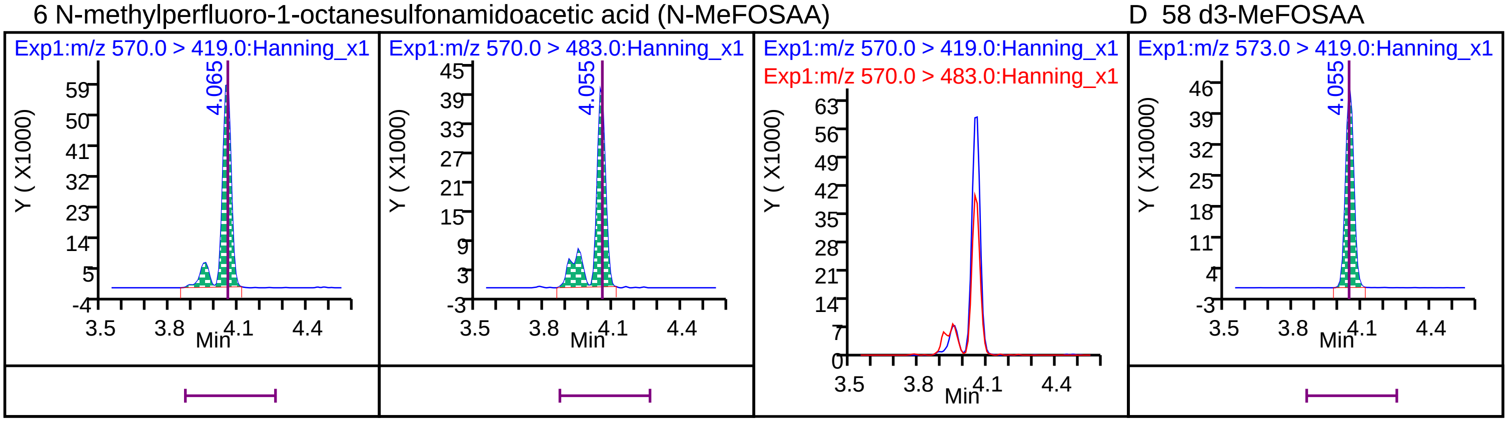
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



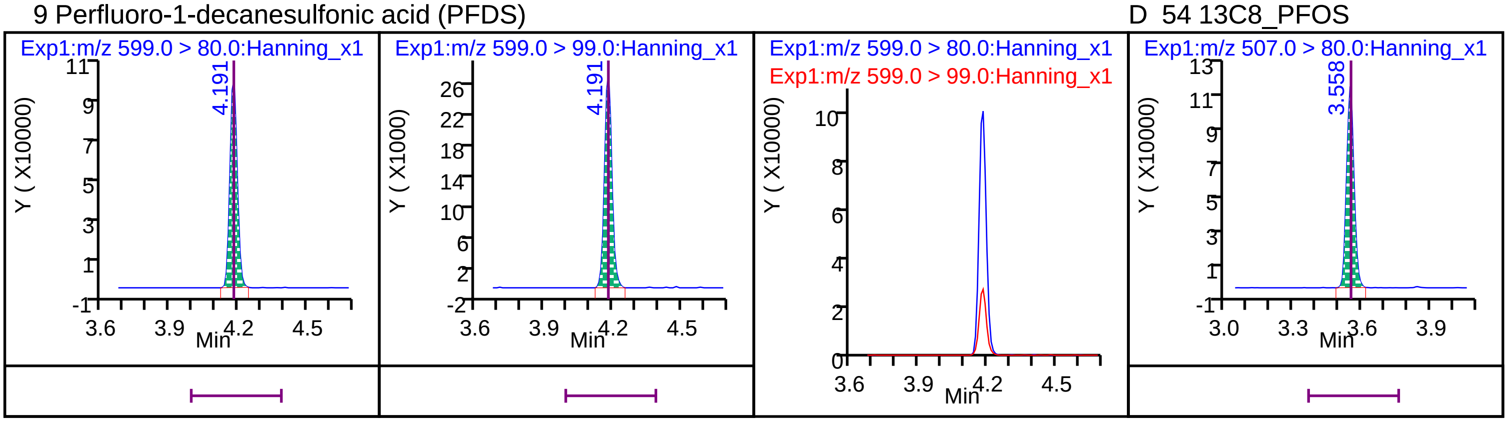
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



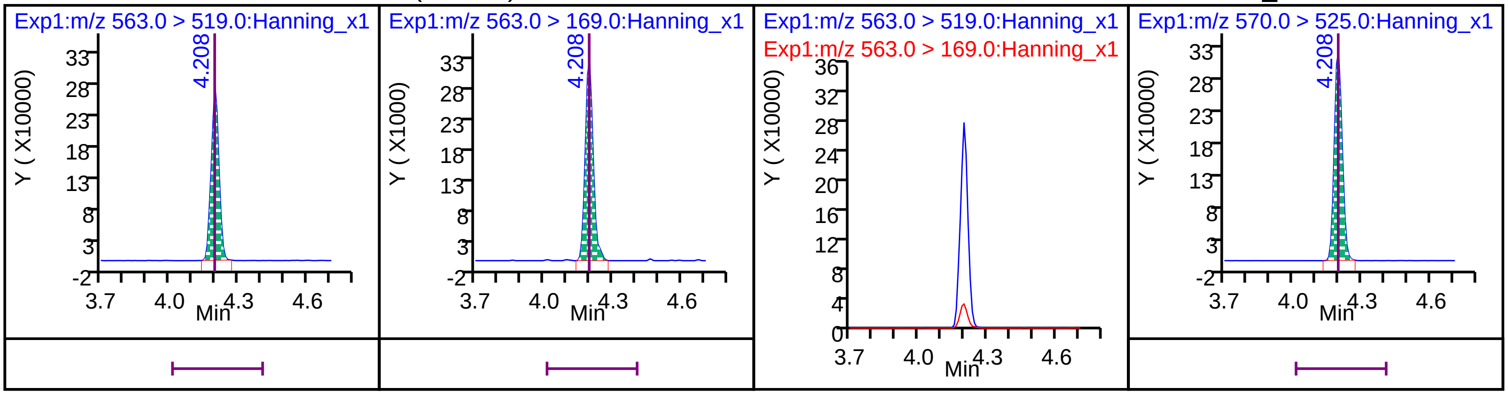
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



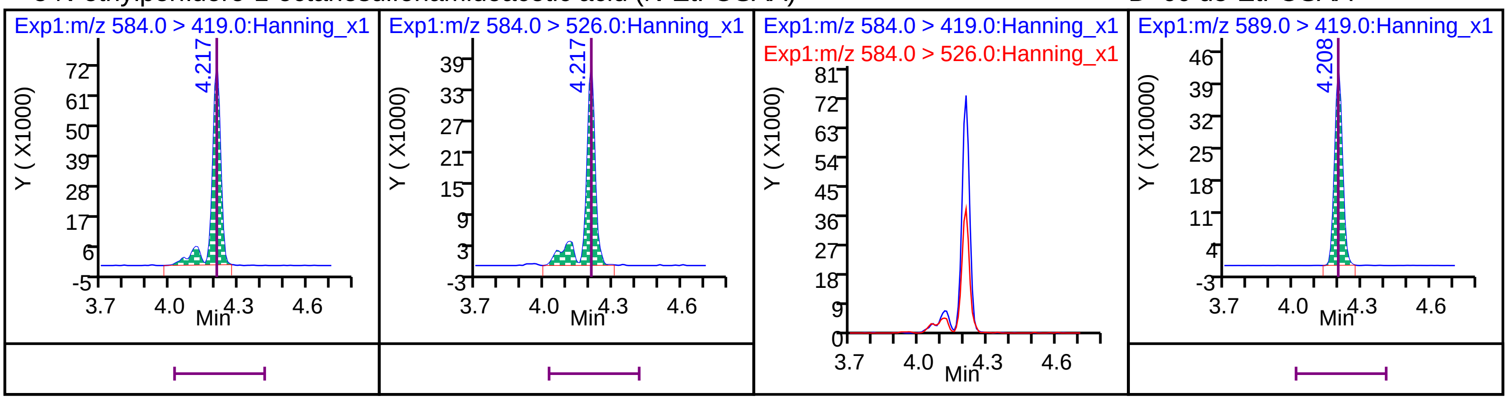
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



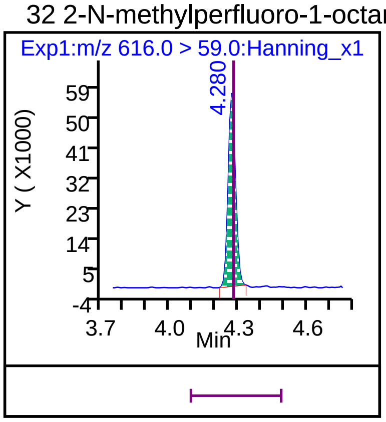
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

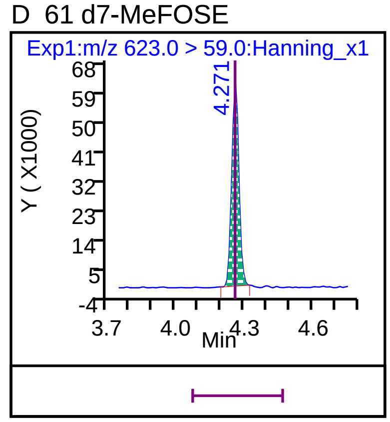


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

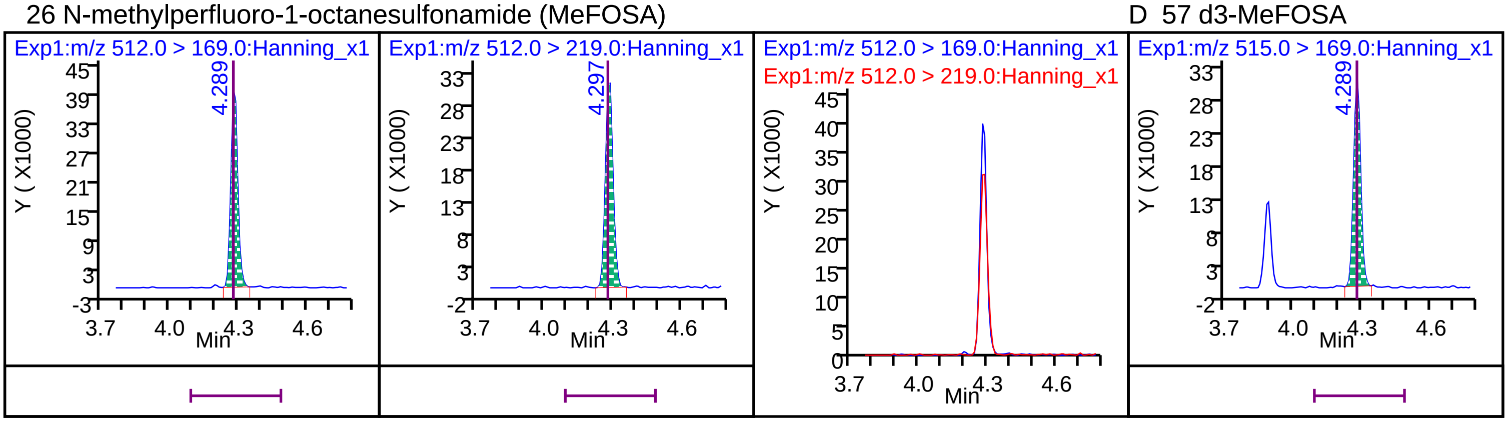


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

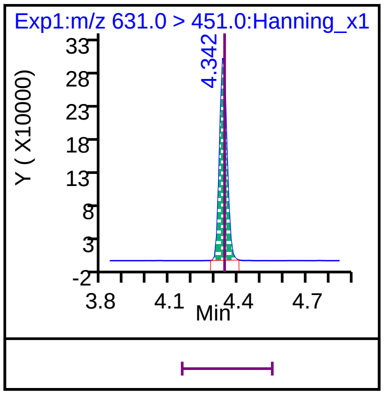




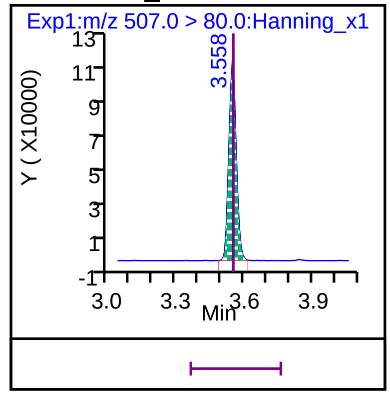
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



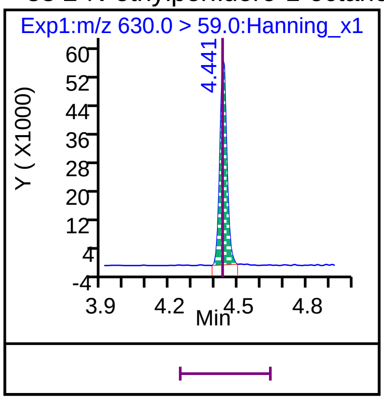
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



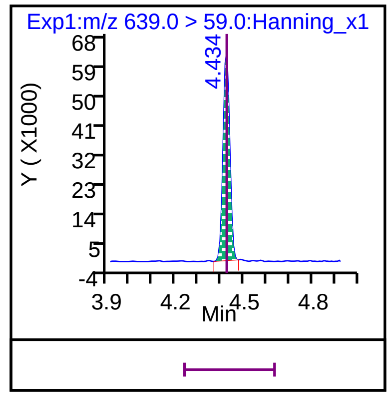
D 54 13C8_PFOS



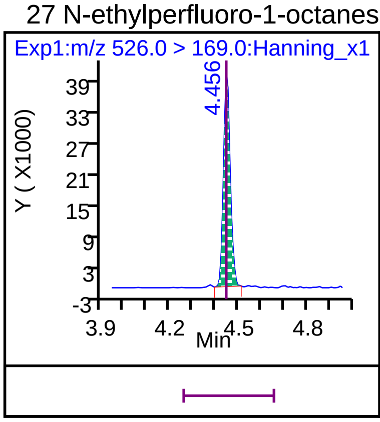
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

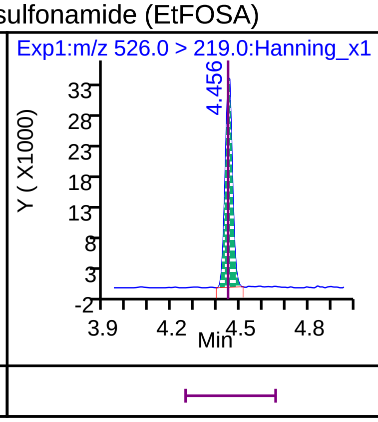


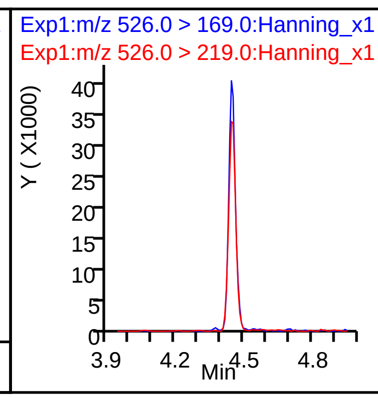
D 62 d9-EtFOSE



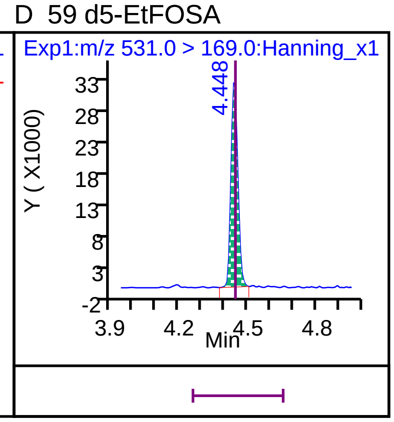
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



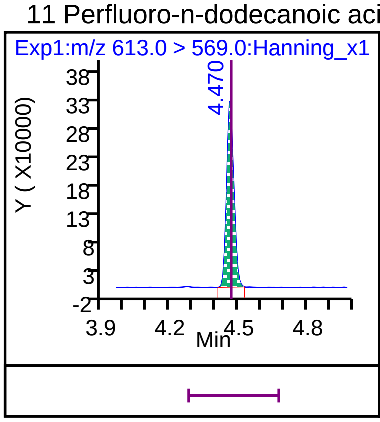


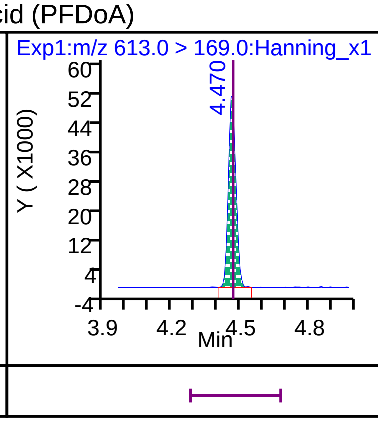


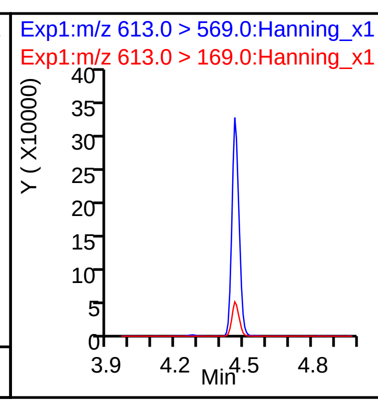
D 59 d5-EtFOSA



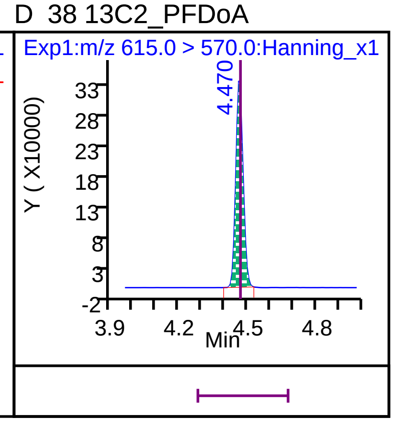
11 Perfluoro-n-dodecanoic acid (PFDoA)



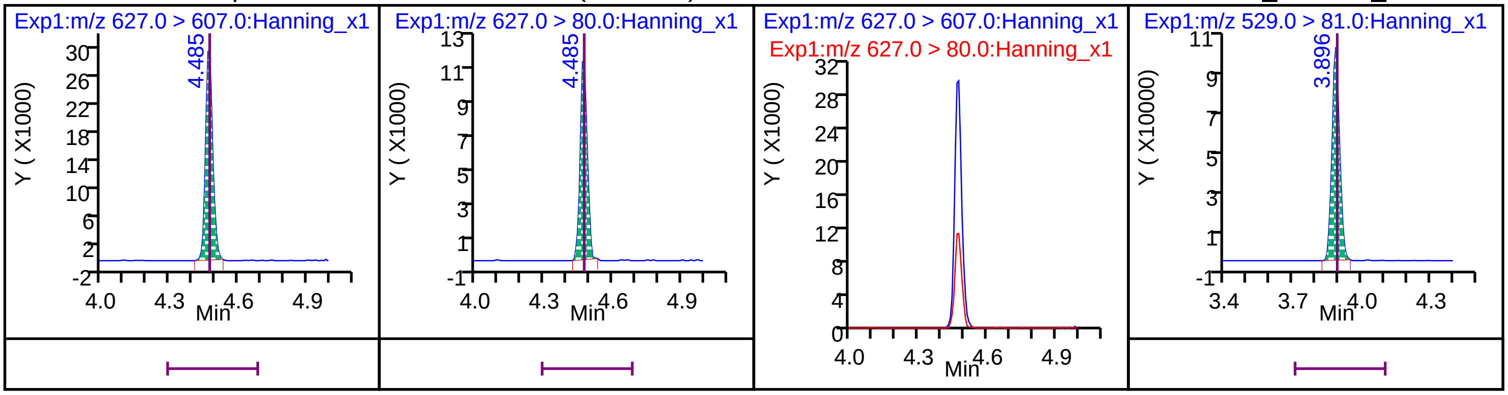




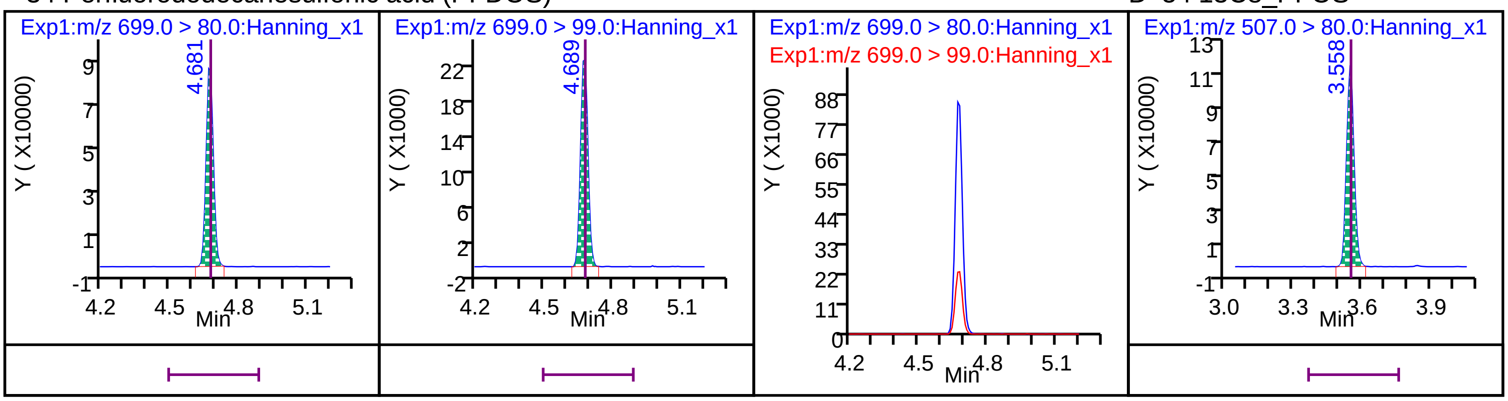
D 38 13C2_PFDoA



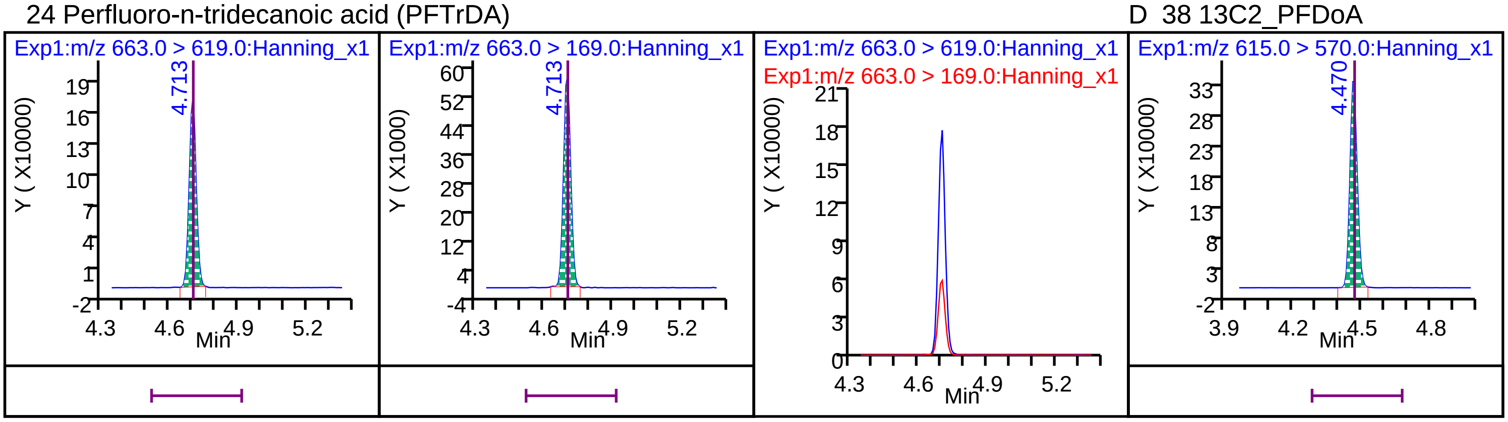
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



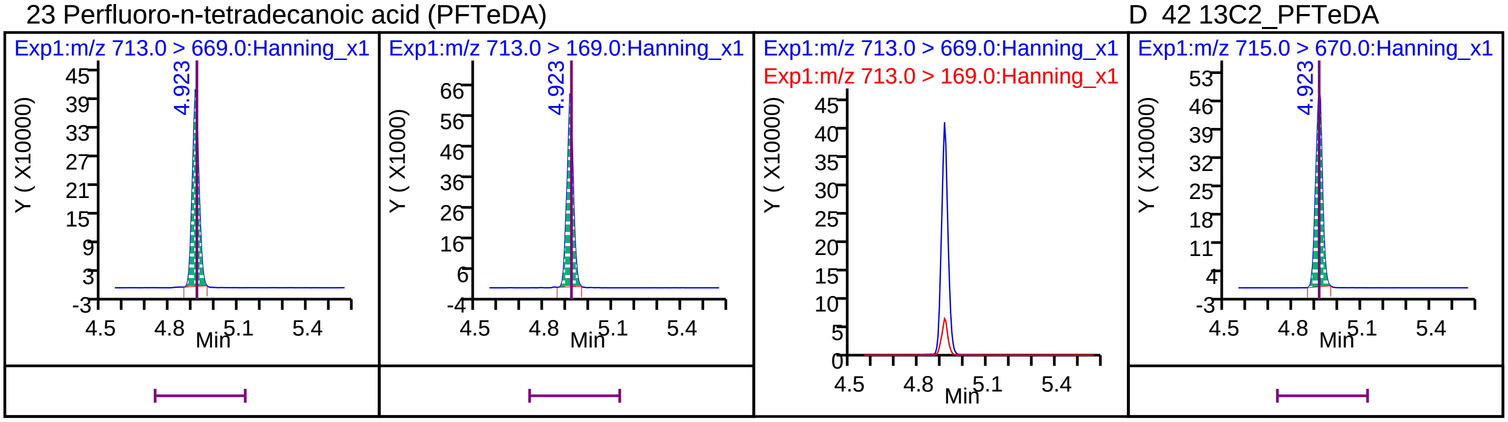
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



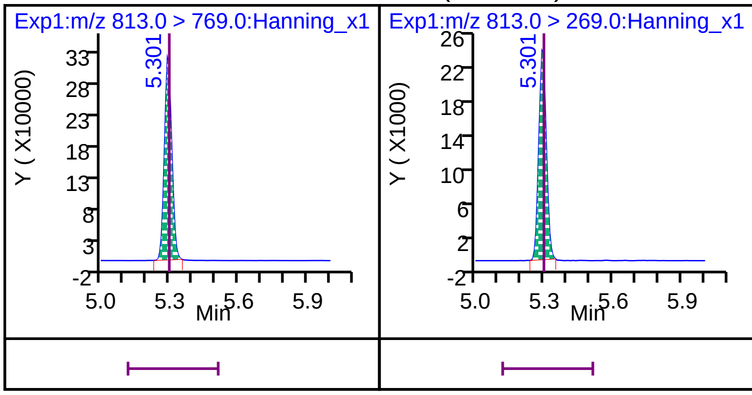
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



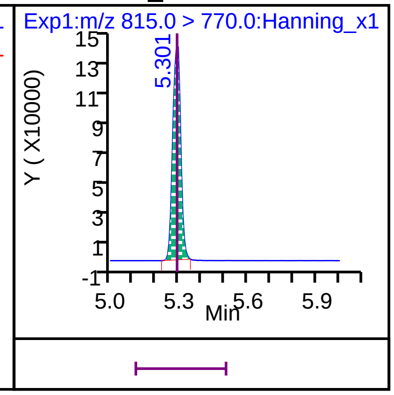
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



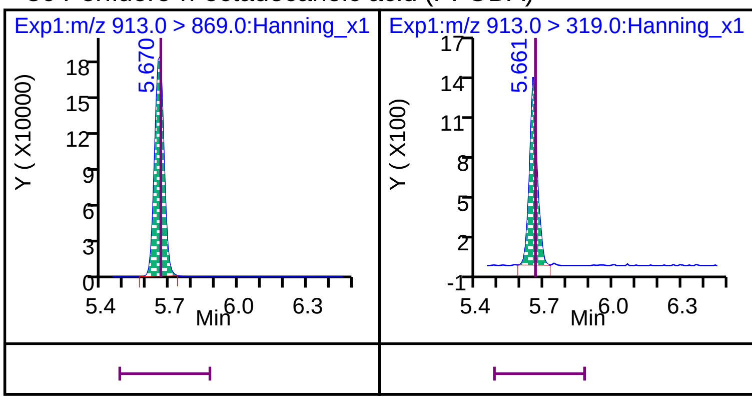
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



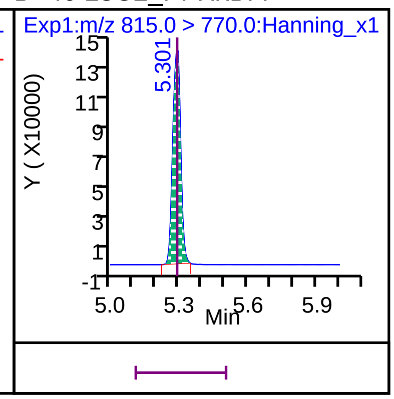
D 40 13C2_PFHxDA



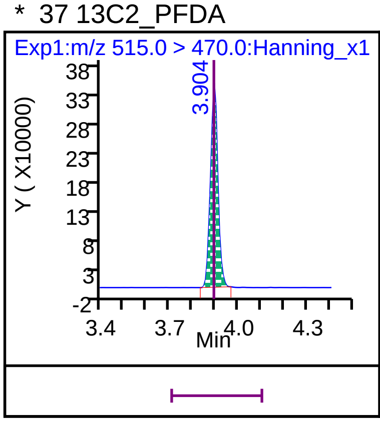
36 Perfluoro-n-octadecanoic acid (PFODA)



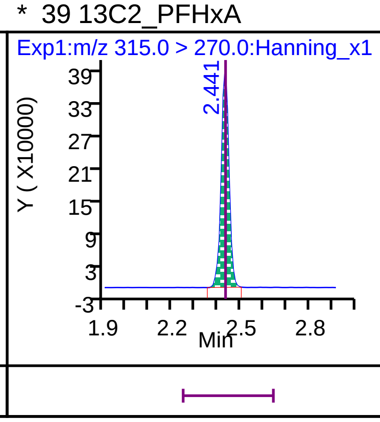
D 40 13C2_PFHxDA



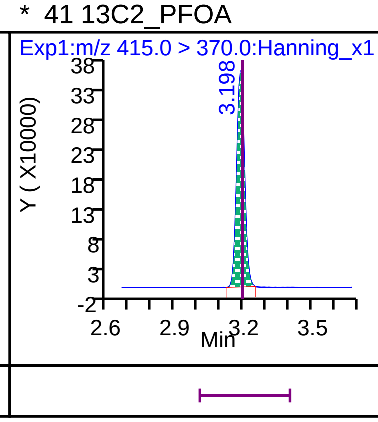
* 37 13C2_PFDA



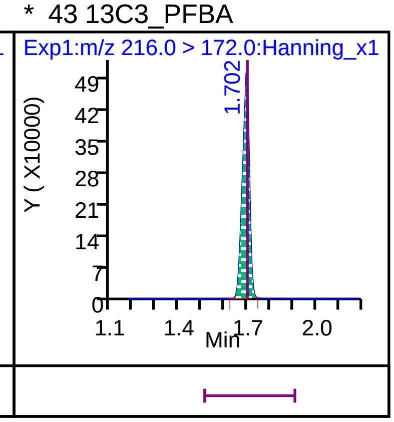
* 39 13C2_PFHxA



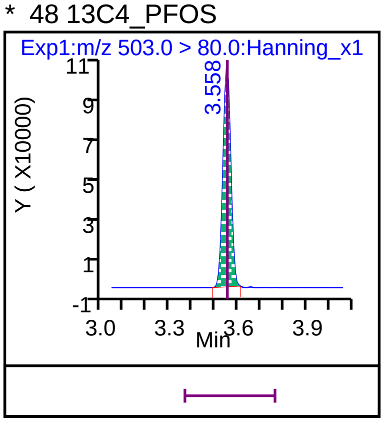
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d		
Injection Date:	29-Oct-2021 11:12:16	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	CCV 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	95.316	95.3	70 - 130
D 46 13C4_PFBA	1060126	1091906			103	50 - 150
21 PFPeA			100.00	98.556	98.6	70 - 130
D 50 13C5_PFPeA	1065127	1016491			95.4	50 - 150
D 44 13C3_PFBS	349624	317213			90.7	50 - 150
7 PFBS			88.400	84.472	95.6	70 - 130
D 63 13C2_4:2 FTS_2	267812	322284			120.3	50 - 150
1 4:2 FTS			93.400	87.045	93.2	70 - 130
D 49 13C5_PFHxA	997159	908351			91.1	50 - 150
15 PFHxA			100.00	95.197	95.2	70 - 130
22 PFPeS			93.800	99.515	106.1	70 - 130
28 GenX			200.00	182.90	91.4	70 - 130
D 66 13C3_GenX	863067	722297			83.7	50 - 150
D 47 13C4_PFHpA	975256	926202			95	50 - 150
13 PFHpA			100.00	98.976	99	70 - 130
D 45 13C3_PFHxS	296300	276451			93.3	50 - 150
14 PFHxS			91.000	80.885	88.9	70 - 130
29 ADONA			94.200	95.993	101.9	70 - 130
2 6:2 FTS			94.800	106.49	112.3	70 - 130
D 64 13C2_6:2 FTS_2	271560	273875			100.9	50 - 150
D 53 13C8_PFOA	875082	856960			97.9	50 - 150
20 PFOA			100.00	101.76	101.8	70 - 130
12 PFHpS			95.200	88.955	93.4	70 - 130
D 54 13C8_PFOS	266405	232752			87.4	50 - 150
18 PFOS			92.800	91.094	98.2	70 - 130
17 PFNA			100.00	94.934	94.9	70 - 130
D 56 13C9_PFNA	917935	863231			94	50 - 150
30 9Cl-PF3ONS			93.200	99.172	106.4	70 - 130
D 55 13C8_PFOSA	480654	428383			89.1	50 - 150
19 PFOSA			100.00	101.34	101.3	70 - 130
16 PFNS			96.000	96.866	100.9	70 - 130
D 65 13C2_8:2 FTS_2	228965	211438			92.3	50 - 150
3 8:2 FTS			95.800	124.54	130	70 - 130
D 51 13C6_PFDA	809542	753271			93	50 - 150
10 PFDA			100.00	99.000	99	70 - 130
D 58 d3-MeFOSAA	1212505	1033171			85.2	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			100.00	106.70	106.7	70 - 130
9 PFDS			96.400	97.725	101.4	70 - 130
25 PFUdA			100.00	97.054	97.1	70 - 130
D 60 d5-EtFOSAA	1058921	944086			89.2	50 - 150
D 52 13C7_PFUdA	724388	729025			100.6	50 - 150
5 N-EtFOSAA			100.00	89.345	89.3	70 - 130
D 61 d7-MeFOSE	152911	124594			81.5	50 - 150
32 MeFOSE			100.00	103.17	103.2	70 - 130
D 57 d3-MeFOSA	72599	57199			78.8	50 - 150
26 MeFOSA			100.00	108.34	108.3	70 - 130
31 11Cl-PF3OUDS			94.200	86.751	92.1	70 - 130
D 62 d9-EtFOSE	146363	110214			75.3	50 - 150
33 EtFOSE			100.00	106.27	106.3	70 - 130
D 59 d5-EtFOSA	65766	56576			86	50 - 150
27 EtFOSA			100.00	117.51	117.5	70 - 130
11 PFDoA			100.00	100.72	100.7	70 - 130
D 38 13C2_PFDoA	709018	702110			99	50 - 150
4 10:2 FTS			96.400	127.98	132.8	70 - 130
34 PFDOS			96.800	84.916	87.7	70 - 130
24 PFTrDA			100.00	94.917	94.9	70 - 130
D 42 13C2_PFTeDA	924733	874602			94.6	50 - 150
23 PFTeDA			100.00	98.604	98.6	70 - 130
D 40 13C2_PFHxDA	372371	327951			88.1	50 - 150
35 PFHxDA			100.00	108.00	108	70 - 130
36 PFODA			100.00	98.000	98	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d		
Injection Date:	29-Oct-2021 11:12:16	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	CCV 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.706	1.706	1	1091906	20	>100:1			1000.00	1217.15	103	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.706	1.706	1/0	112467	18	63:1			100.00	95.316		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.077	2.077	1	1016491	15	>100:1			1000.00	1130.82	95.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.077	2.077	1/0	108132	16	>100:1			100.00	98.556		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.129	2.129	1	317213	16	>100:1			1000.00	1062.71	90.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.129	2.129	1/0	37253	17	>100:1	Target = 3.78		88.400	84.472		
298.9 > 99	44	2.129	2.129		9112	16	74:1	4.08 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.475	2.475	0/-1	32569	17	>100:1	Target = 3.45		93.800	99.515		
349 > 99	44	2.475	2.475		9634	16	>100:1	3.38 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.397	0	322284	18	>100:1			5000.00	7211.78	120.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.397	2.397	0/0	10750	19	>100:1	Target = 1.43		93.400	87.045		
327 > 81	63	2.414	2.397		10227	19	38:1	1.05 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.440	2.440	0	908351	17	>100:1			1000.00	1109.40	91.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.440	2.440	0/0	88820	18	45:1	Target = 16.37		100.00	95.197		
313 > 119	49	2.440	2.440		6561	22	22:1	13.53 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.562	2.562	1	722297	18	>100:1			5000.00	4992.12	83.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.562	2.562	0/-1	20292	15	>100:1	Target = 0.74		200.00	182.90		
285 > 185	66	2.562	2.562		30606	16	>100:1	0.66 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.827	2.827	1	926202	18	>100:1			1000.00	1155.89	95	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.827	2.827	0/-1	90966	18	>100:1	Target = 3.21		100.00	98.976		
363 > 169	47	2.827	2.827		25737	16	79:1	3.53 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.836	2.836	0	276451	18	>100:1			1000.00	1123.99	93.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.845	1/1	26960	24	77:1	Target = 3.47	4.23	91.000	80.885		
399 > 99	45	2.845	2.845		8306	25	77:1	3.24 (1.73-5.21)	7.82				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.871	2.871	1/1	144268	22	>100:1	Target = 2.28		94.200	95.993		
377 > 85	45	2.871	2.871		56841	18	>100:1	2.53 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.208	1/1	26703	28	>100:1	Target = 3.62		95.200	88.955		
449 > 99	45	3.208	3.208		8228	23	64:1	3.24 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.177	3.177	1	273875	20	>100:1			5000.00	6267.59	100.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.183	3.183	1/0	9200	23	99:1	Target = 1.19		94.800	106.49		
427 > 81	64	3.177	3.183		8906	19	80:1	1.03 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.202	1	856960	22	>100:1			1000.00	1132.55	97.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.202	3.202	1/0	87799	18	42:1	Target = 2.34		100.00	101.76		
413 > 169	53	3.202	3.202		34083	19	40:1	2.57 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.565	3.565	1	232752	19	>100:1			1000.00	1027.28	87.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.572	0/-1	25595	36	58:1	Target = 4.00	4.31	92.800	91.094		M
499 > 99	54	3.565	3.572		7671	31	45:1	3.33 (2.00-6.01)	6.03				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.769	3.769	1/0	70438	18	>100:1			93.200	99.172		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.903	3.903	1/0	22797	22	>100:1	Target = 3.83		96.000	96.866		
549 > 99	54	3.888	3.903		4915	25	21:1	4.63 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.199	4.199	1/0	21884	20	>100:1	Target = 3.87		96.400	97.725		
599 > 99	54	4.199	4.199		4248	20	33:1	5.15 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.359	2/1	52732	16	>100:1			94.200	86.751		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.690	4.690	1/0	18061	23	>100:1	Target = 3.65		96.800	84.916		
699 > 99	54	4.690	4.690		5790	24	89:1	3.11 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.572	1	863231	19	>100:1			1000.00	1113.20	94	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.572	3.572	1/0	71527	18	>100:1	Target = 4.21		100.00	94.934		
463 > 169	56	3.572	3.572		15881	16	>100:1	4.50 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.842	3.842	0	428383	18	>100:1			1000.00	1022.85	89.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.842	3.842	0/0	49219	16	>100:1	Target = 49.05		100.00	101.34		
498>478	55	3.842	3.842		928	17	6.0:1	53.03 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.903	3.903	1	211438	18	>100:1			5000.00	5591.57	92.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.911	1/0	7776	23	56:1	Target = 1.27		95.800	124.54		
527 > 81	65	3.895	3.911		4900	22	18:1	1.58 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.492	4.492	1/0	8160	18	72:1	Target = 2.25		96.400	127.98		
627 > 80	65	4.500	4.492		3099	21	30:1	2.63 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.911	3.911	1	753271	16	>100:1			1000.00	1109.12	93	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.918	3.918	1/0	75349	18	>100:1	Target = 8.94		100.00	99.000		
513 > 169	51	3.903	3.918		7612	15	44:1	9.89 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.065	4.065	1	1033171	16	>100:1			5000.00	5042.35	85.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.073	4.073	1/0	16842	27	83:1	Target = 1.38	7.49	100.00	106.70		
570 > 483	58	4.073	4.073		13340	36	77:1	1.26 (0.69-2.08)	3.24				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.217	4.217	1	729025	15	>100:1			1000.00	1153.26	100.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.217	4.217	1/0	62752	15	>100:1	Target = 8.27		100.00	97.054		
563 > 169	52	4.217	4.217		7266	19	40:1	8.63 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.217	4.217	1	944086	17	>100:1			5000.00	5499.22	89.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.217	4.217	0/-1	18005	33	>100:1	Target = 1.95	4.57	100.00	89.345		
584 > 526	60	4.226	4.217		11555	33	43:1	1.55 (0.97-2.92)	4.78				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.262	4.262	0	124594	16	>100:1			1000.00	979.81	81.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.271	4.271	0/0	12678	12	40:1			100.00	103.17		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.280	4.280	0	57199	14	>100:1			1000.00	984.12	78.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.280	4.280	0/0	6598	16	58:1	Target = 1.08		100.00	108.34		
512 > 219	57	4.289	4.280		6516	20	33:1	1.01 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.427	4.427	0	110214	16	>100:1			1000.00	938.34	75.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.434	4.434	0/0	9981	17	32:1			100.00	106.27		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.442	4.442	0	56576	16	>100:1			1000.00	1029.99	86	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.449	4.449	0/0	7607	13	48:1	Target = 1.10		100.00	117.51		
526 > 219	59	4.449	4.449		5456	24	21:1	1.39 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.478	4.478	1	702110	18	>100:1			1000.00	1168.96	99	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.485	4.485	1/0	72431	18	81:1	Target = 5.93		100.00	100.72		
613 > 169	38	4.478	4.485		12621	16	>100:1	5.73 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.721	4.721	1/0	36052	16	>100:1	Target = 2.90		100.00	94.917		
663 > 169	38	4.721	4.721		11559	20	>100:1	3.11 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.935	4.935	1	874602	21	>100:1			1000.00	1091.63	94.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.935	4.935	1/0	73013	21	74:1	Target = 6.34		100.00	98.604		
713 > 169	42	4.935	4.935		11639	22	>100:1	6.27 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.319	5.319	2	327951	19	>100:1			1000.00	996.66	88.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.326	5.326	2/0	71763	19	>100:1	Target = 12.53		100.00	108.00		
813 > 269	40	5.319	5.326		5486	17	>100:1	13.08 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.695	5.695	2/0	47702	21	>100:1	Target = 152.15		100.00	98.000		
913 > 319	40	5.703	5.695		431	18	64:1	110.67 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.911	3.911	1	762083	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.440	0	919017	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.202	1	842001	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.706	1.706	1	1016298	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.565	3.565	1	247519	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 30-Oct-2021 15:06:10 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d		
Injection Date:	29-Oct-2021 11:12:16	Inst. ID:	LCMSMS01.i
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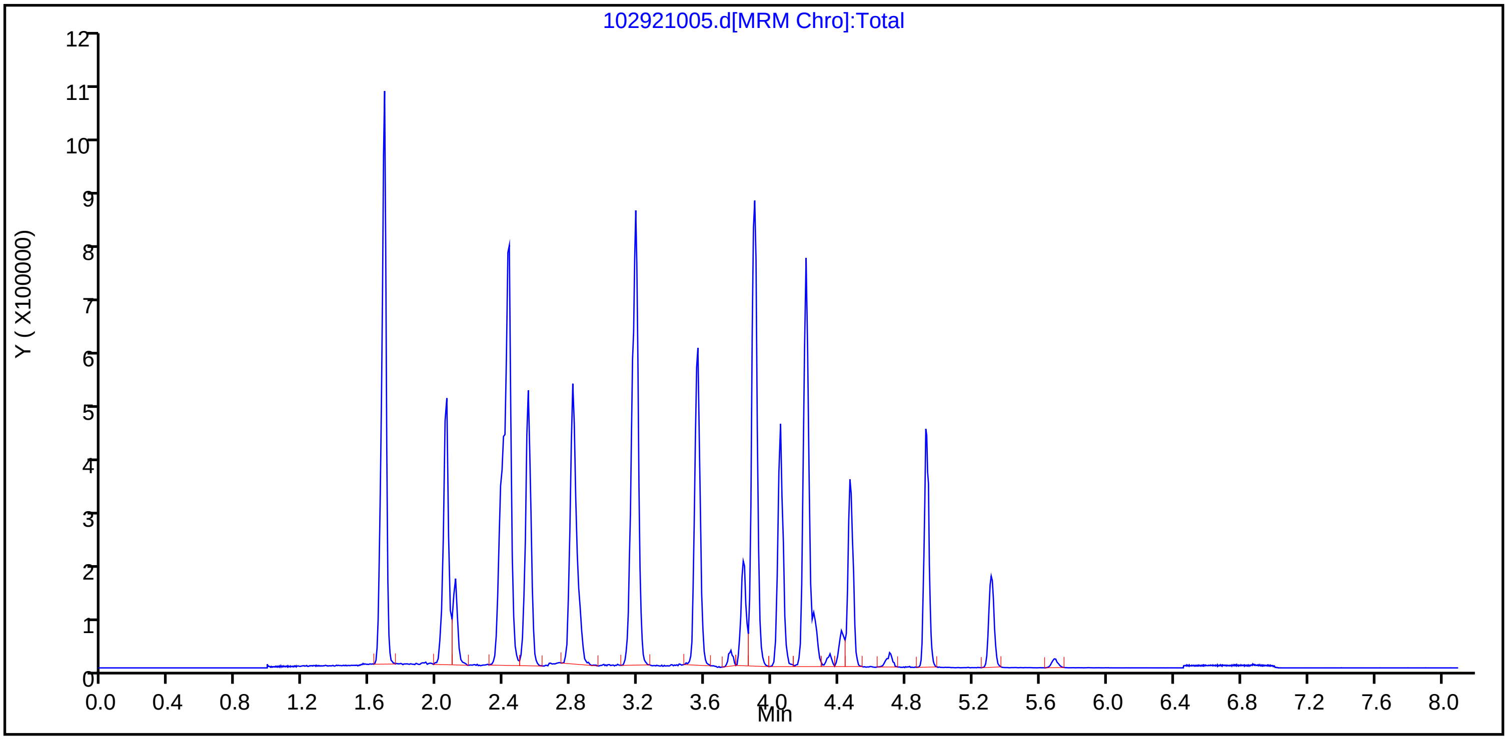
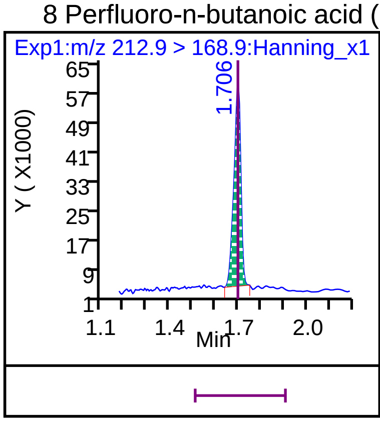
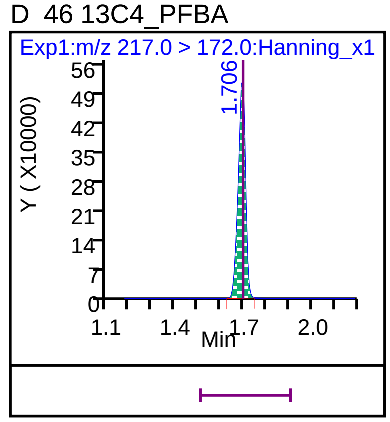
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller



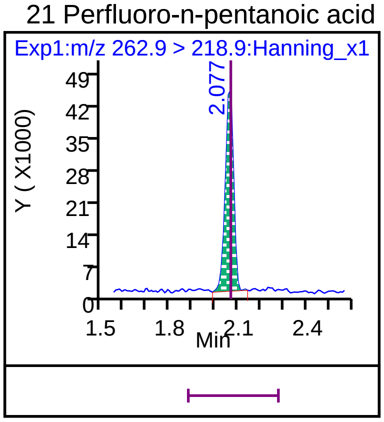
8 Perfluoro-n-butanoic acid (PFBA)



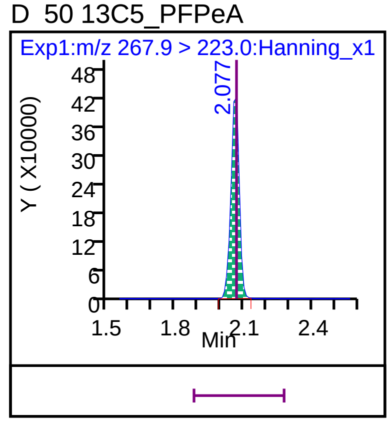
D 46 13C4_PFBA



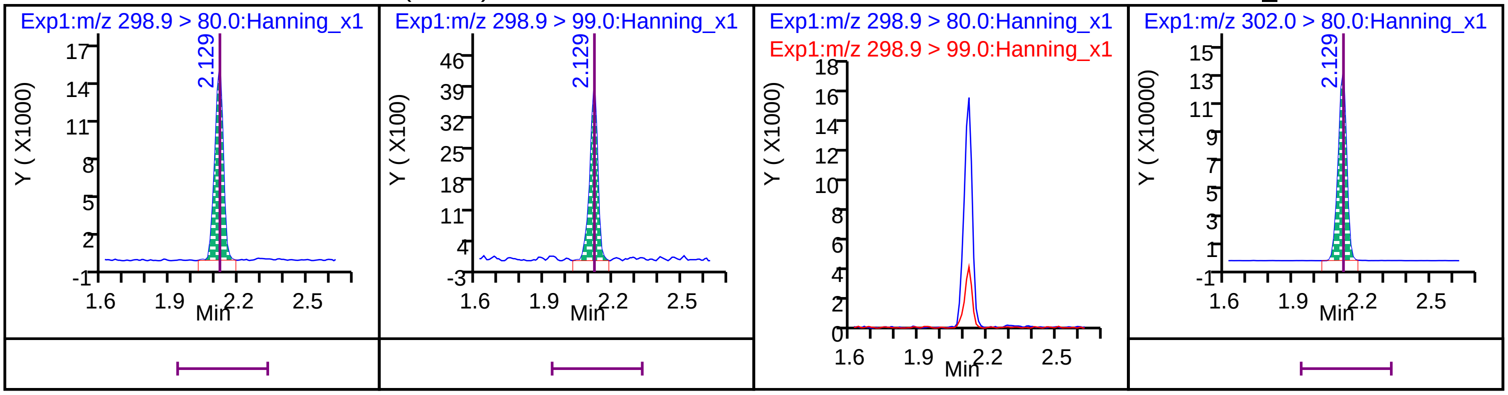
21 Perfluoro-n-pentanoic acid (PFPeA)



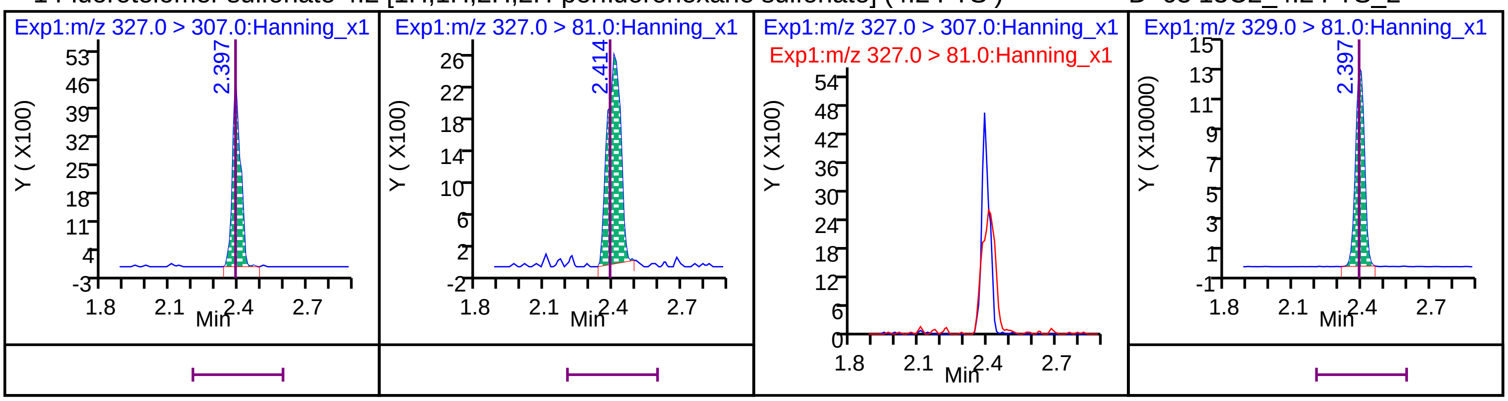
D 50 13C5_PFPeA



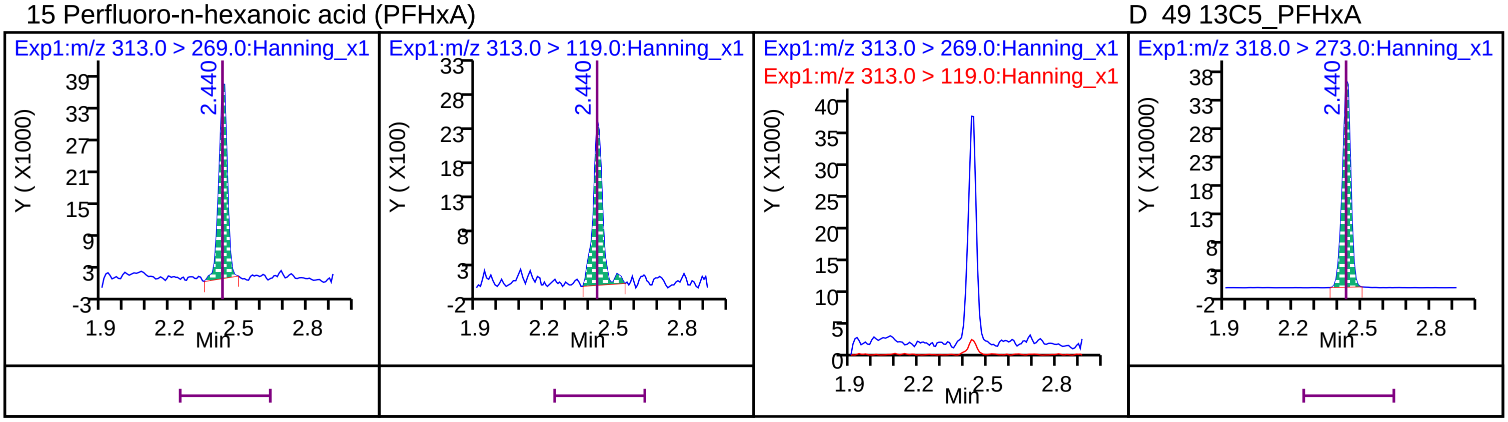
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



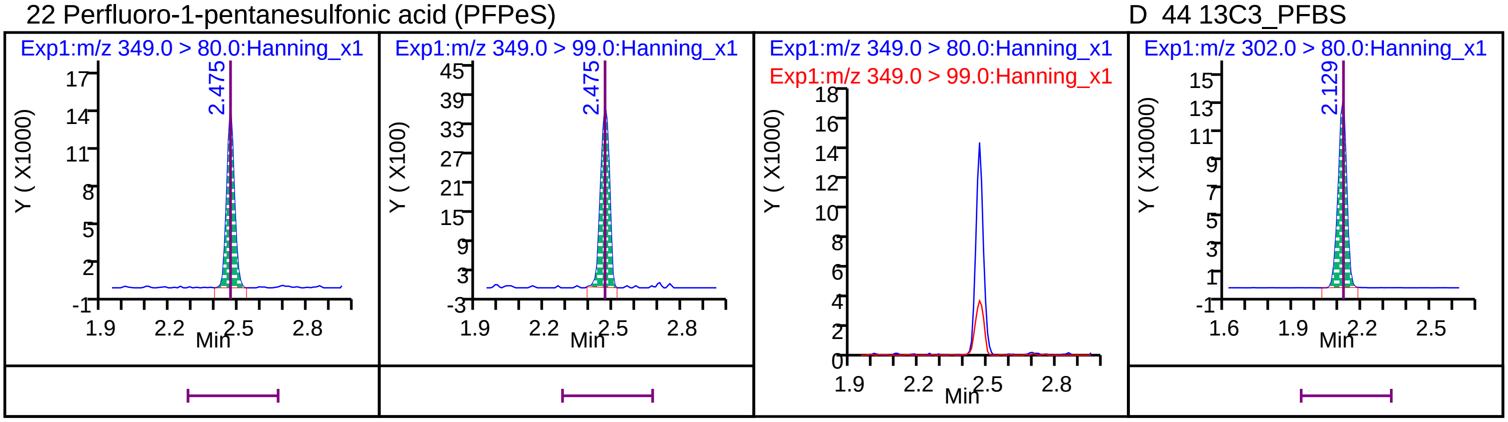
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

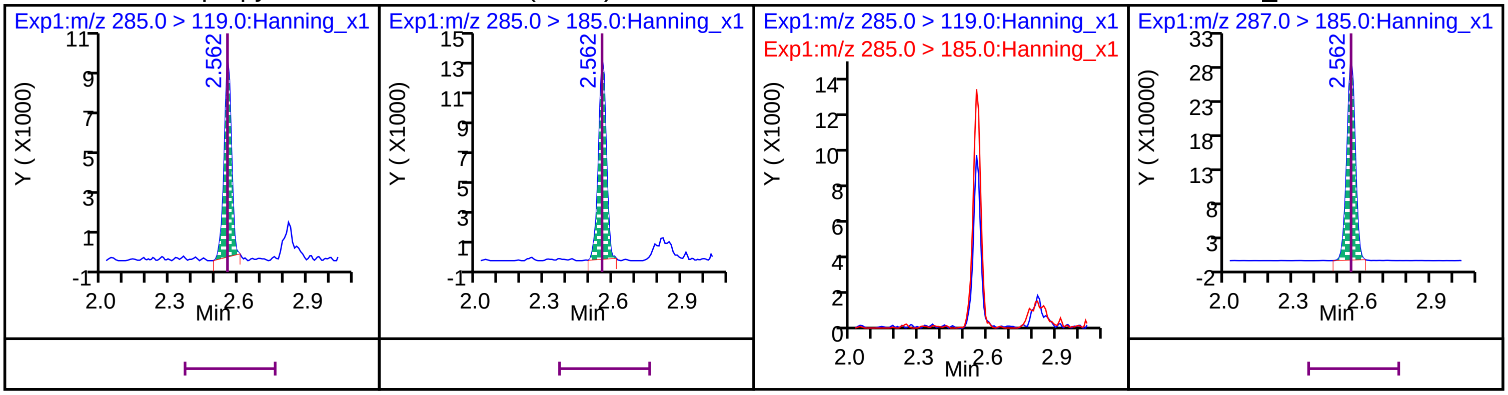


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

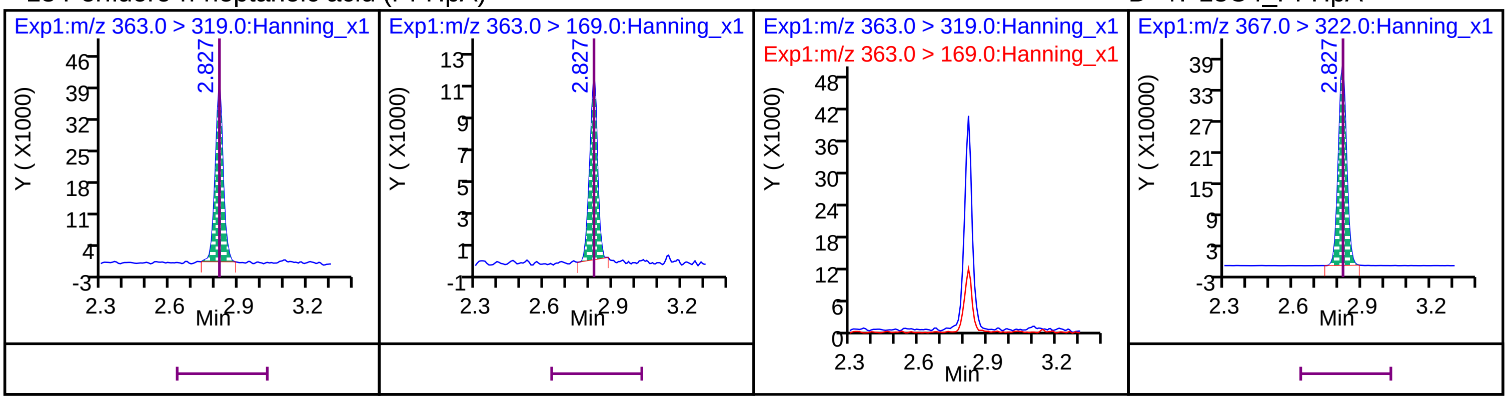


Report Date: 30-Oct-2021 15:06:10 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d

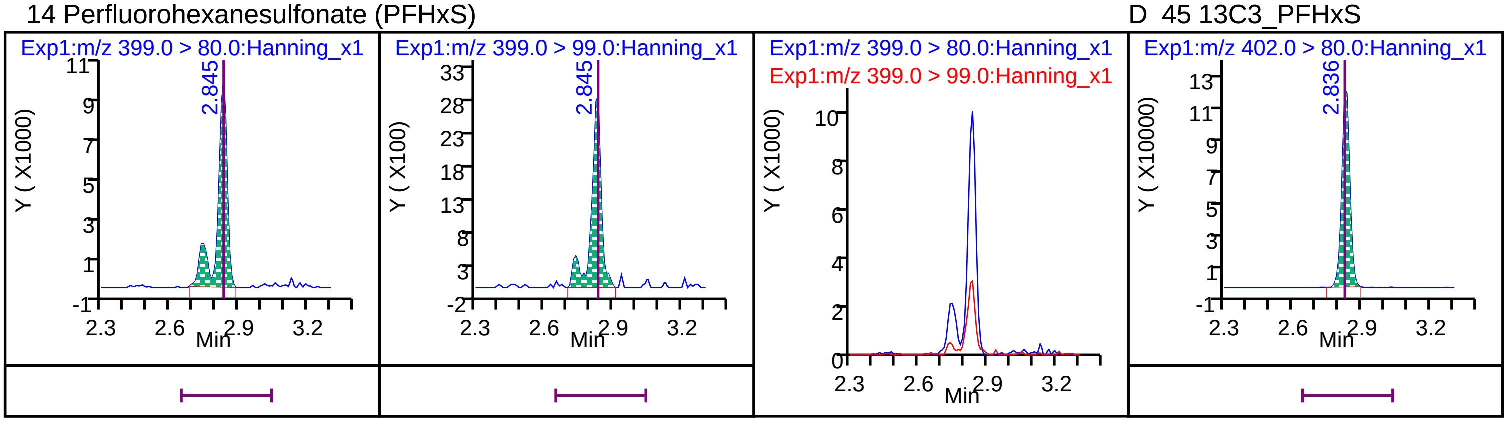
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



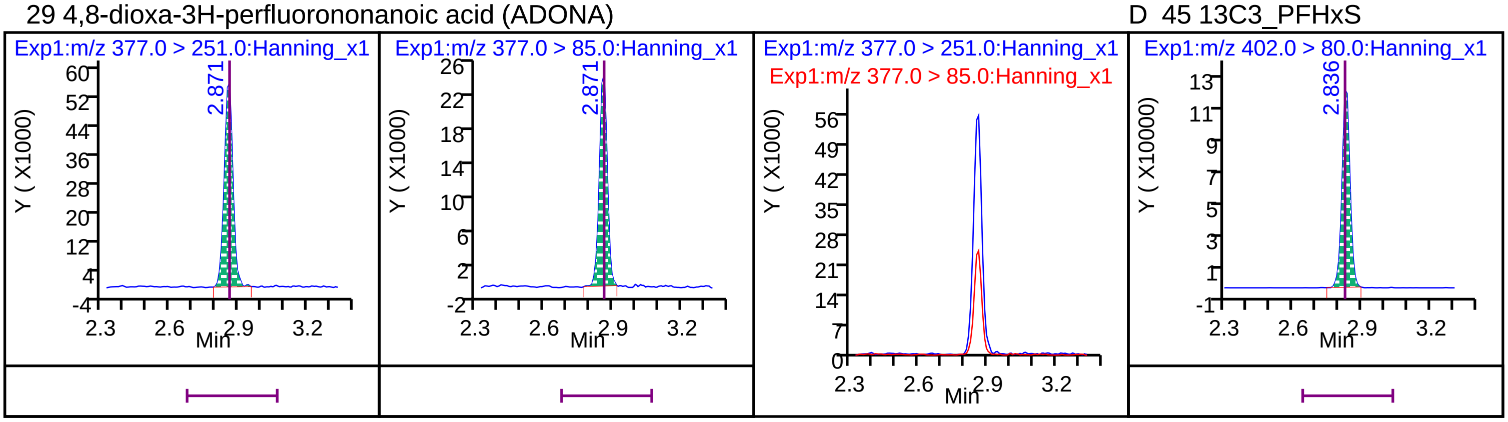
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

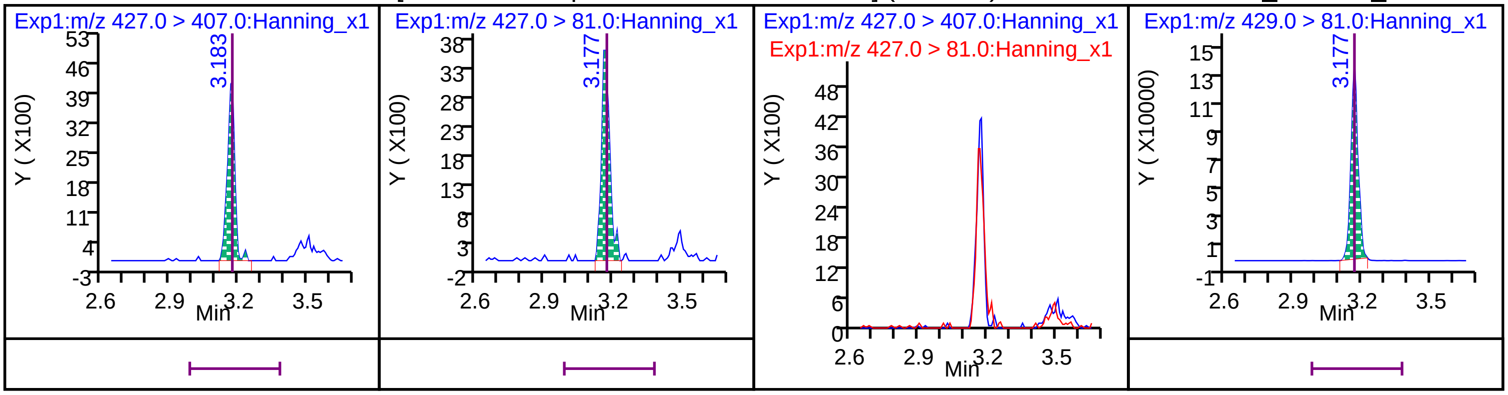


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

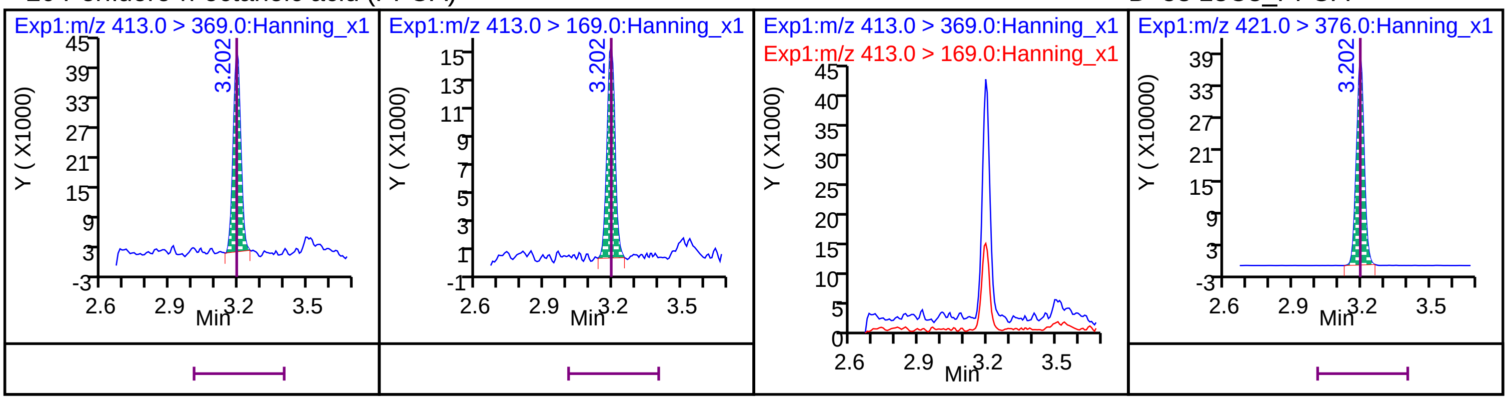


Report Date: 30-Oct-2021 15:06:10 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d

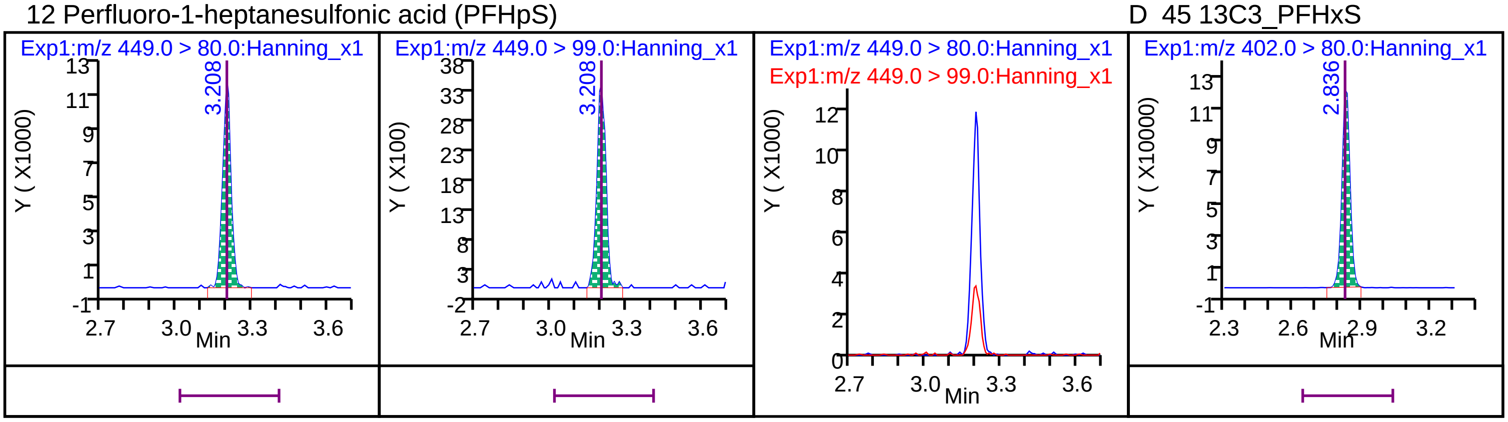
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



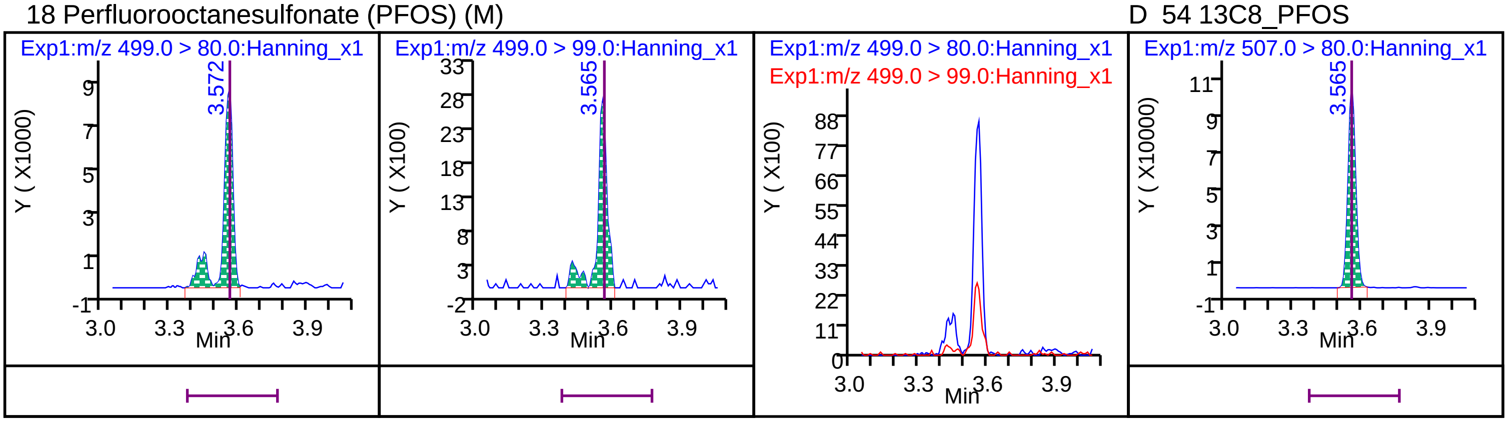
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



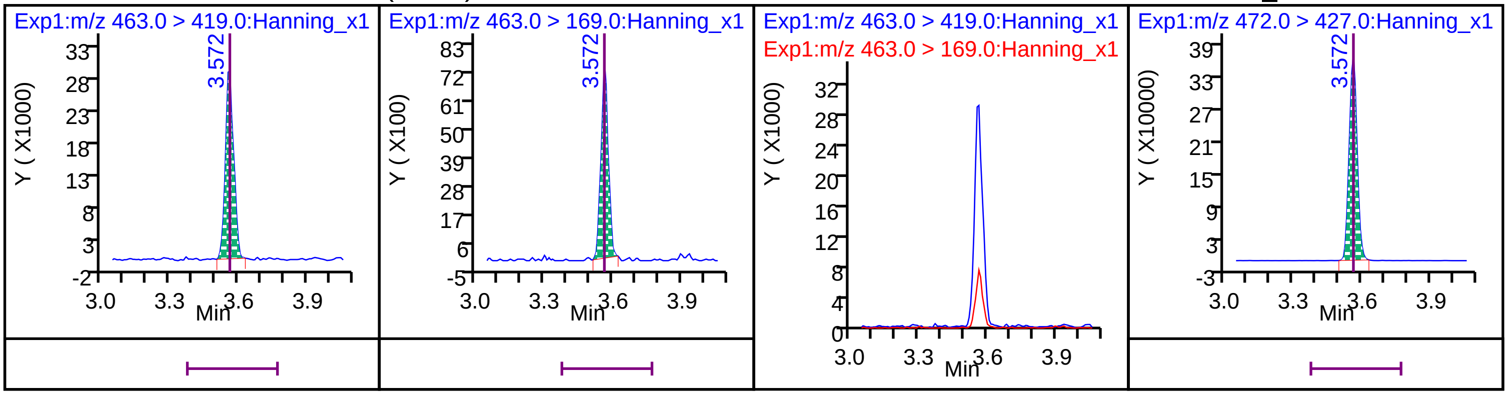
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



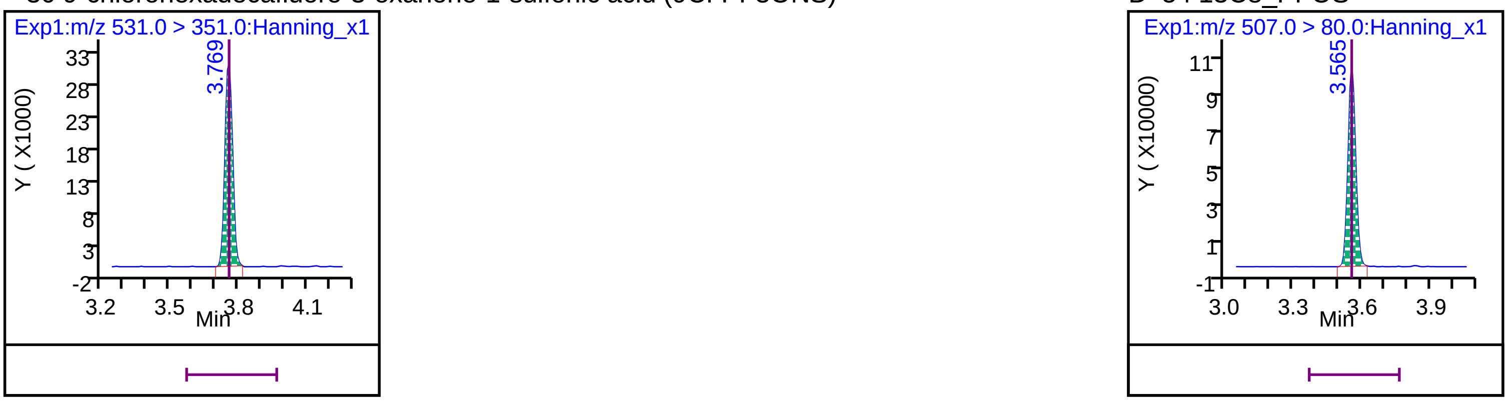
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



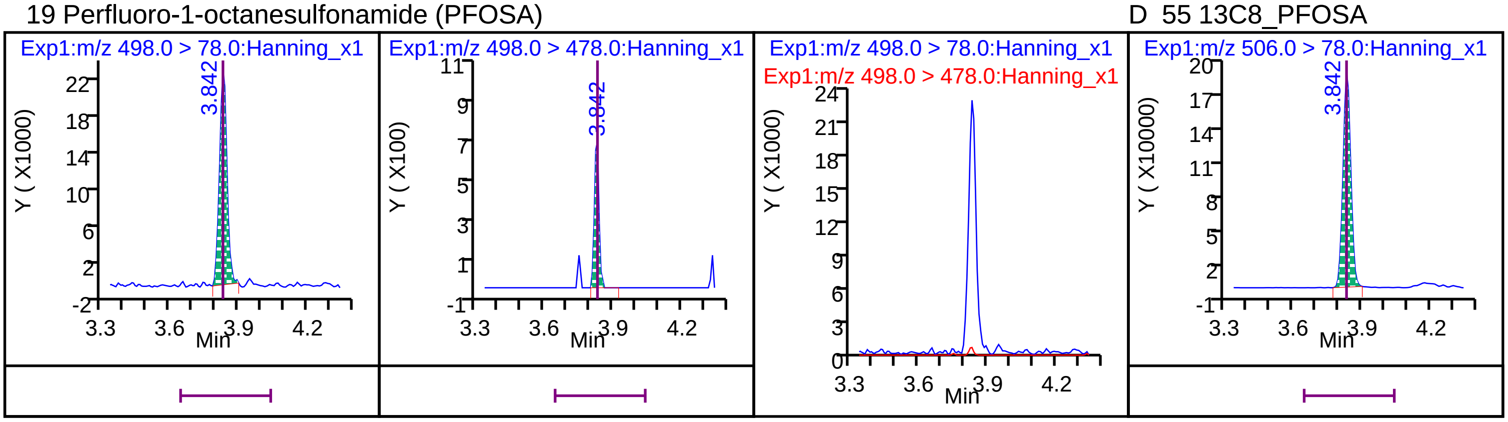
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



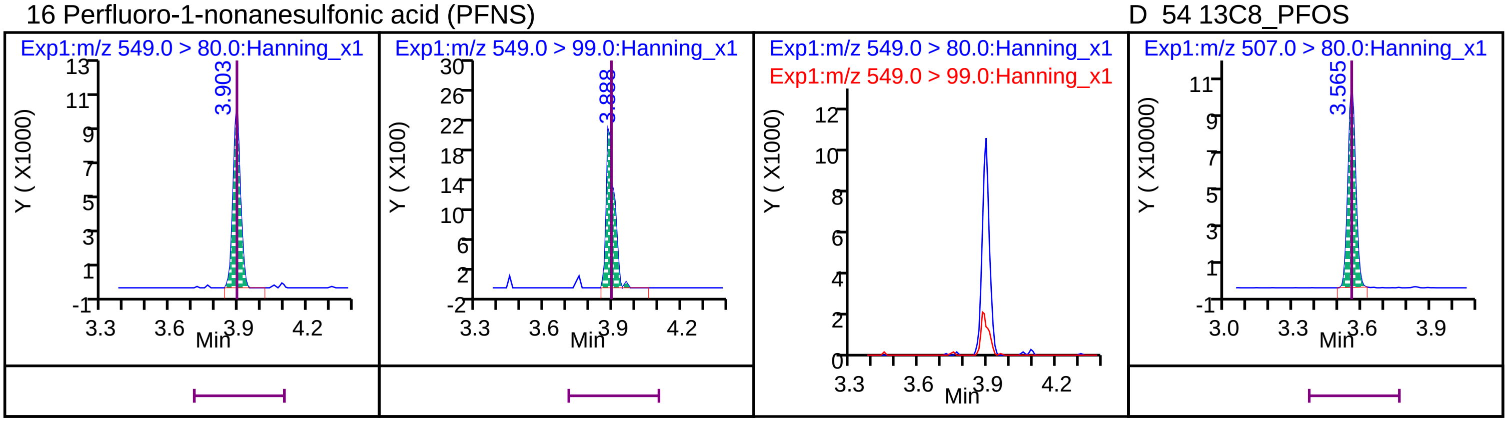
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



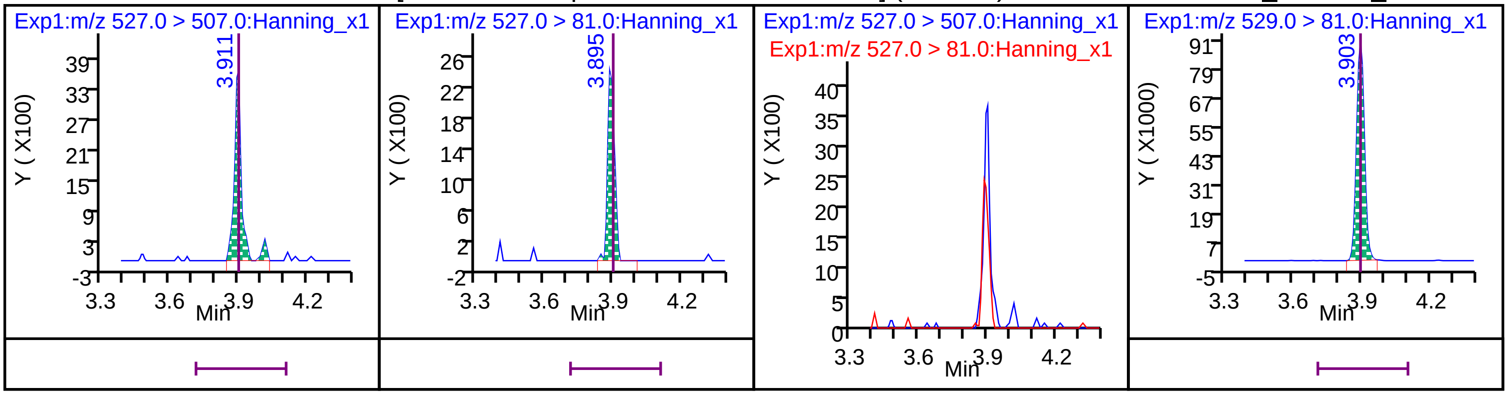
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



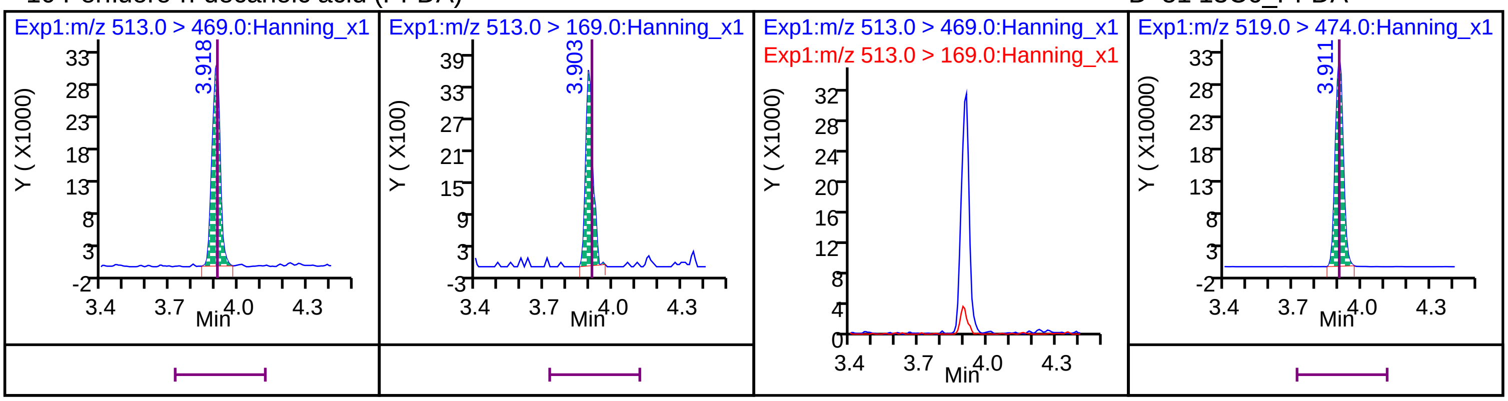
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



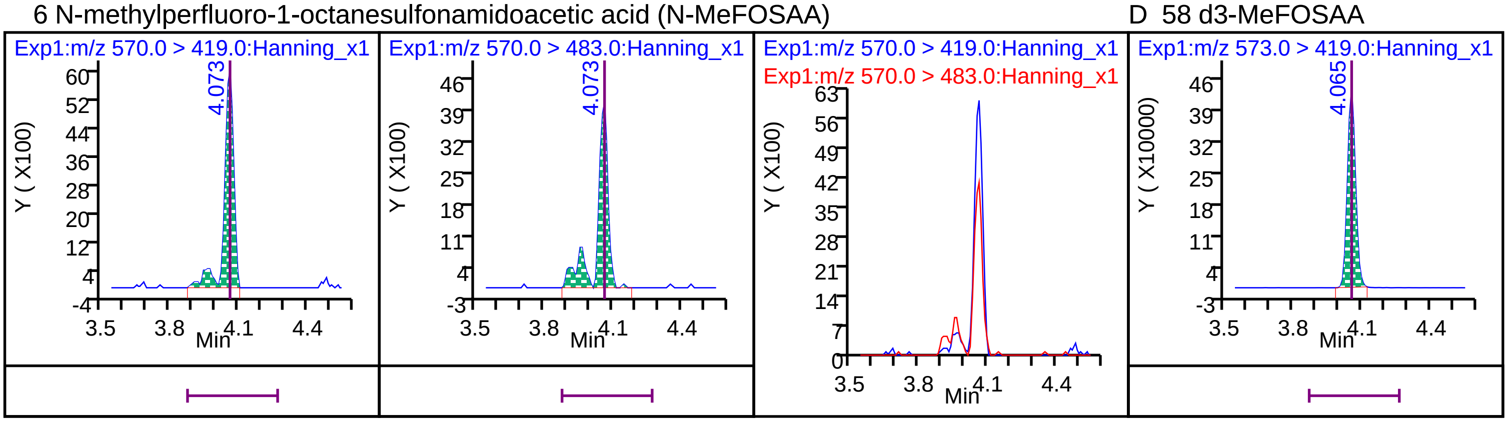
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



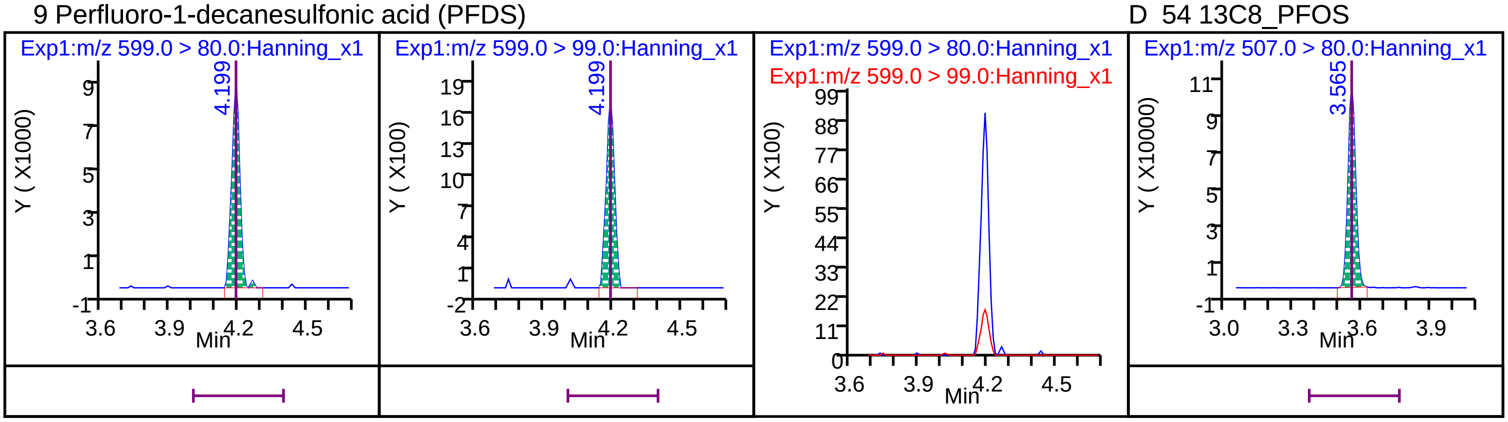
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

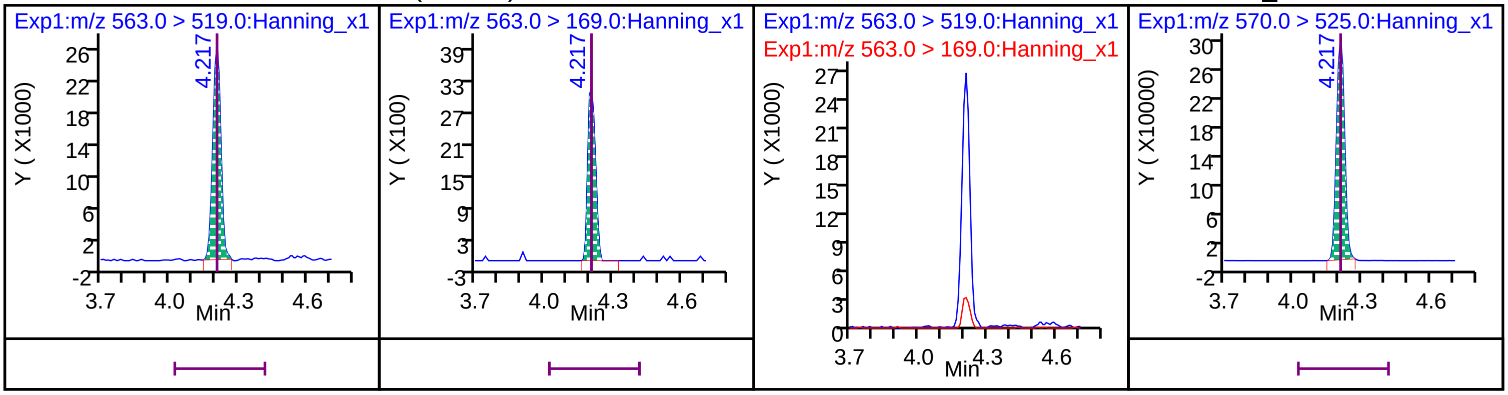


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

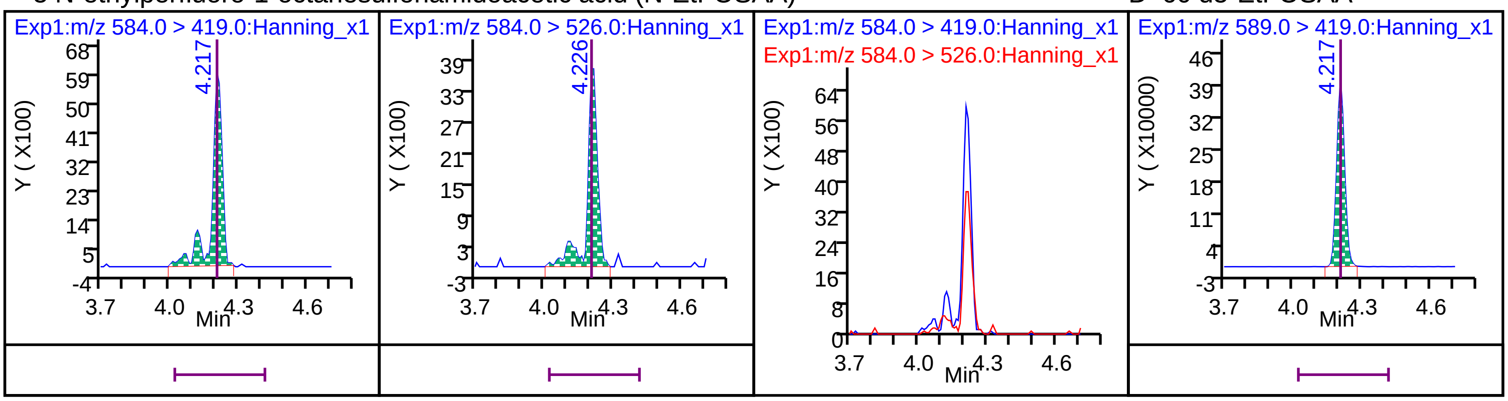


Report Date: 30-Oct-2021 15:06:10 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

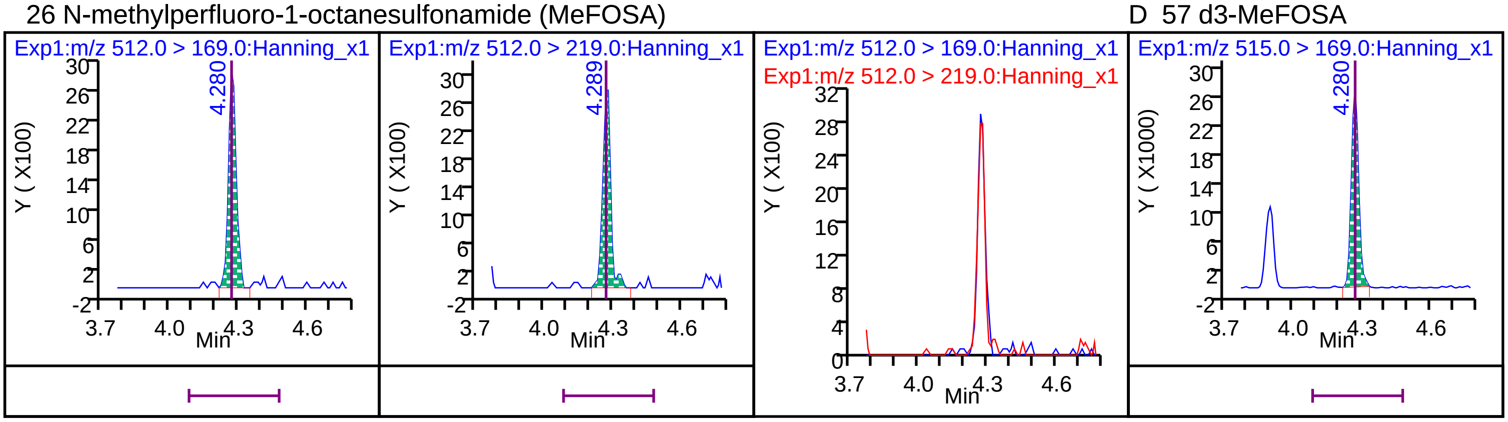


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

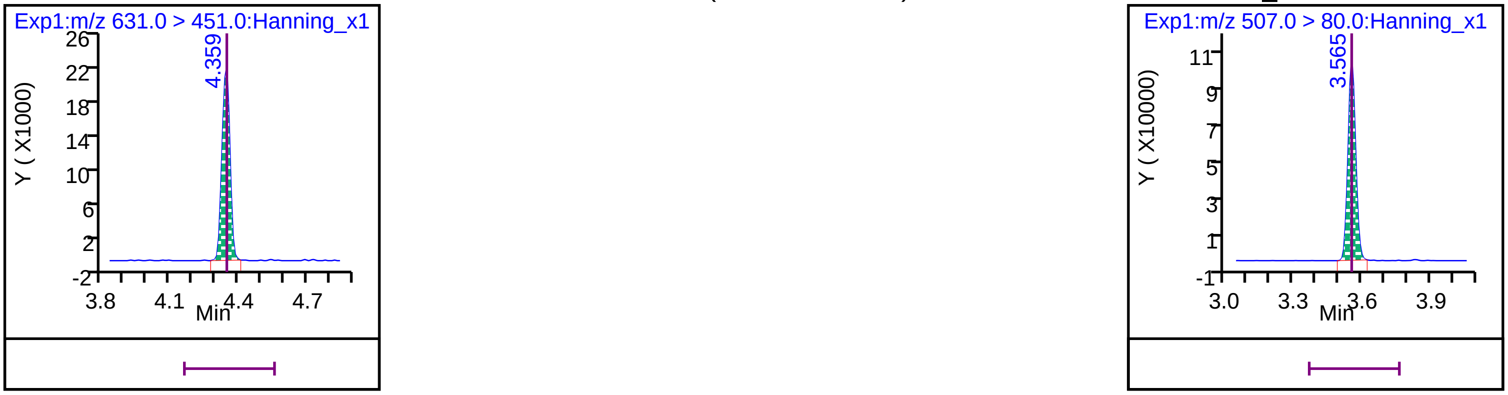


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

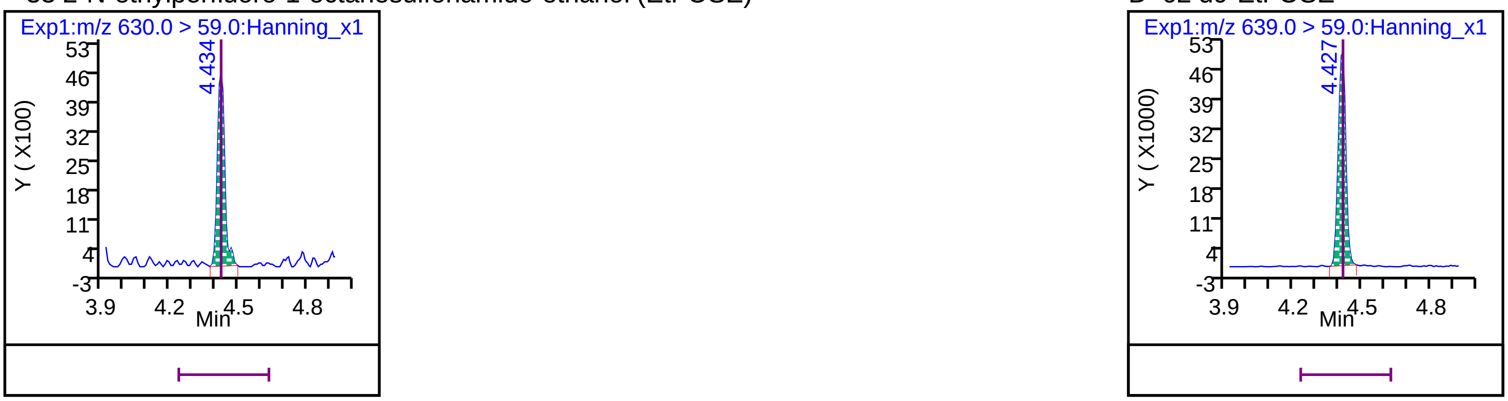
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



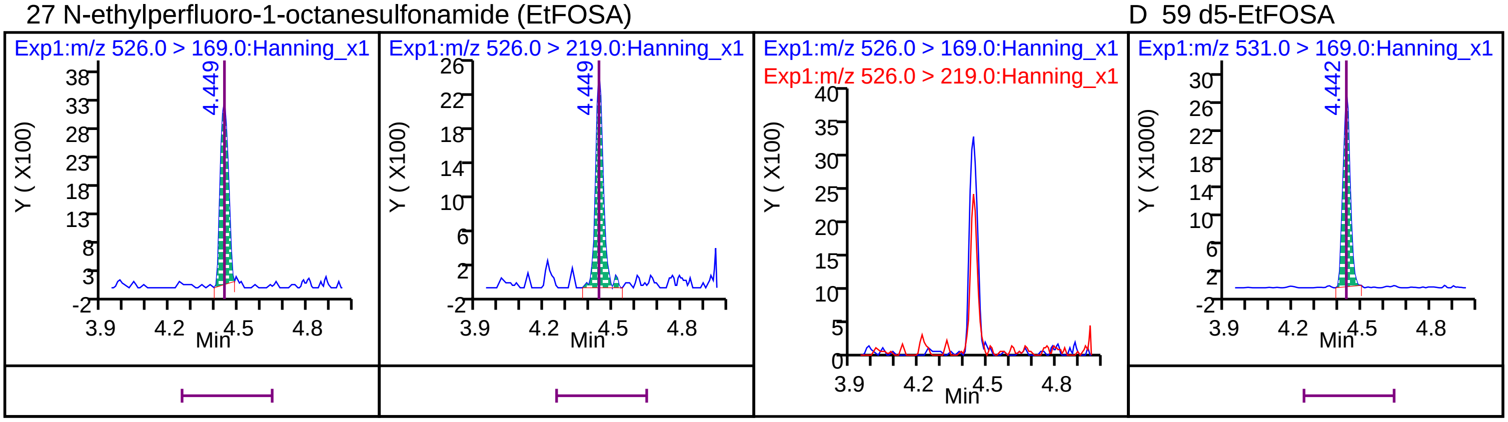
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS



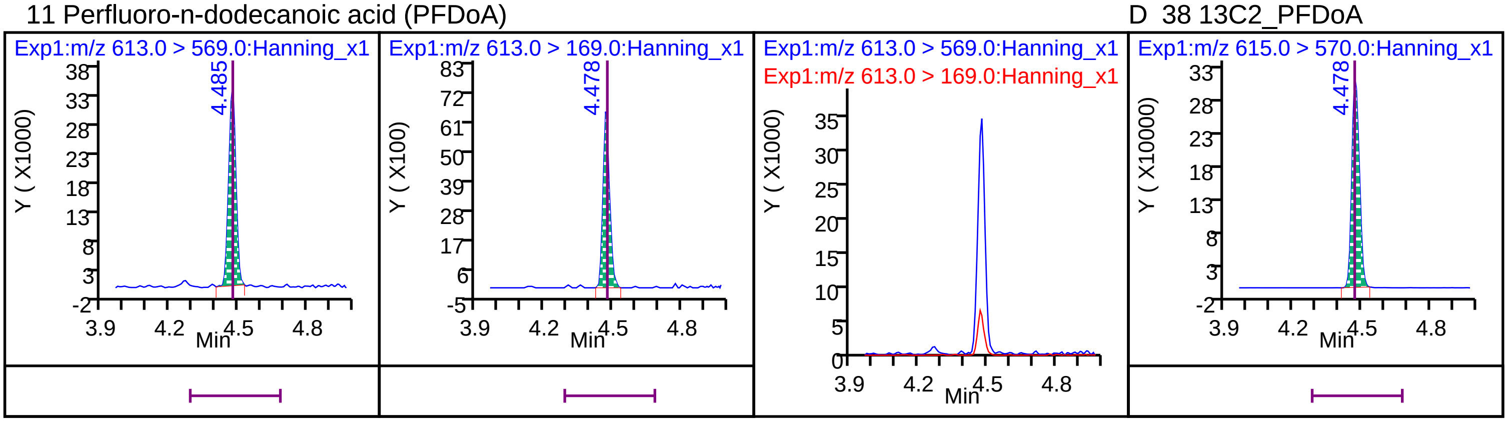
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) D 62 d9-EtFOSE



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) D 59 d5-EtFOSA



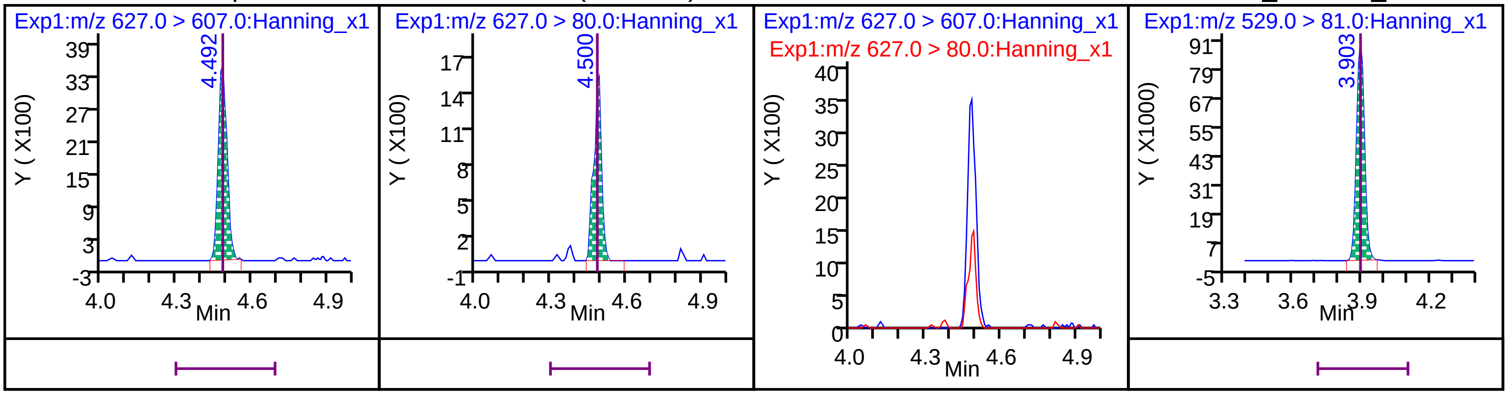
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



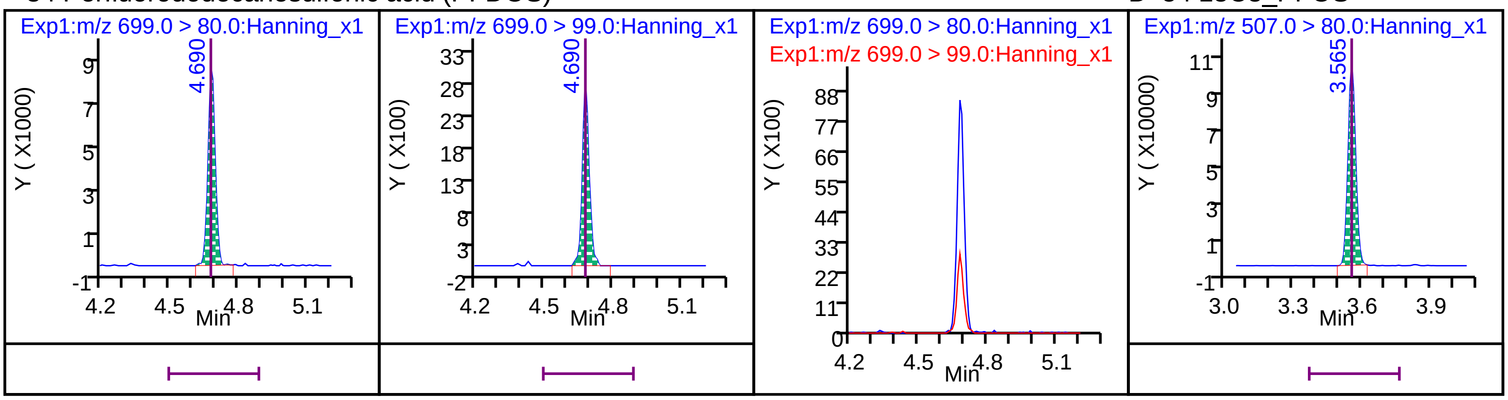
Report Date: 30-Oct-2021 15:06:10 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d

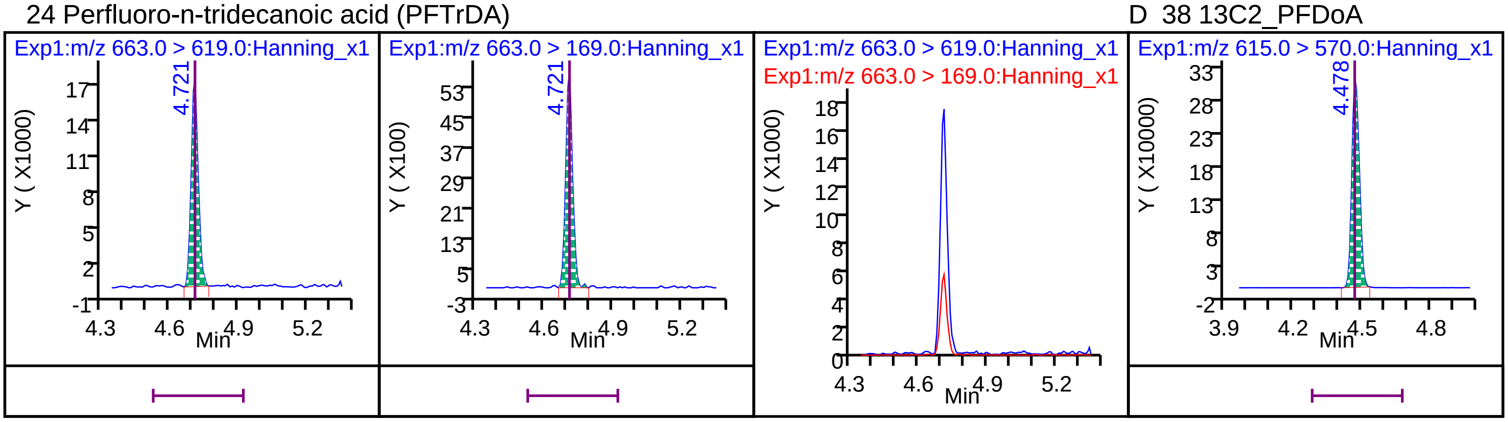
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



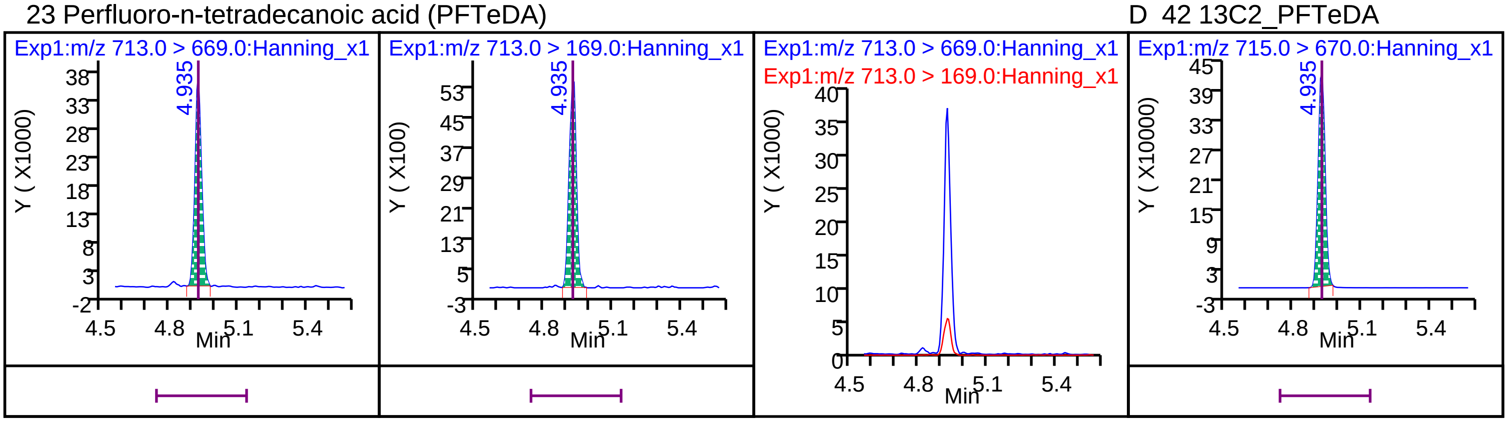
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



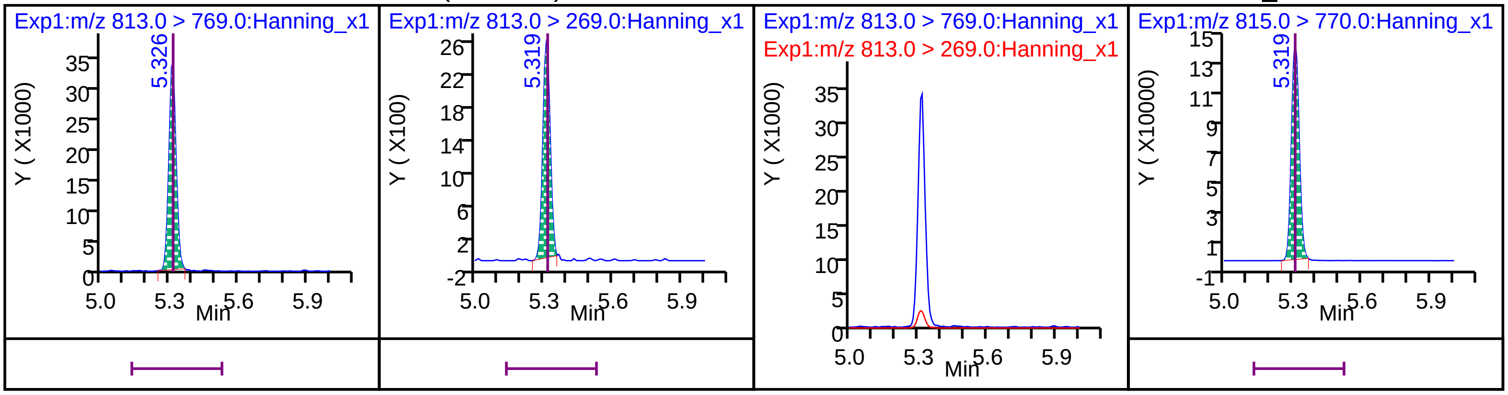
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



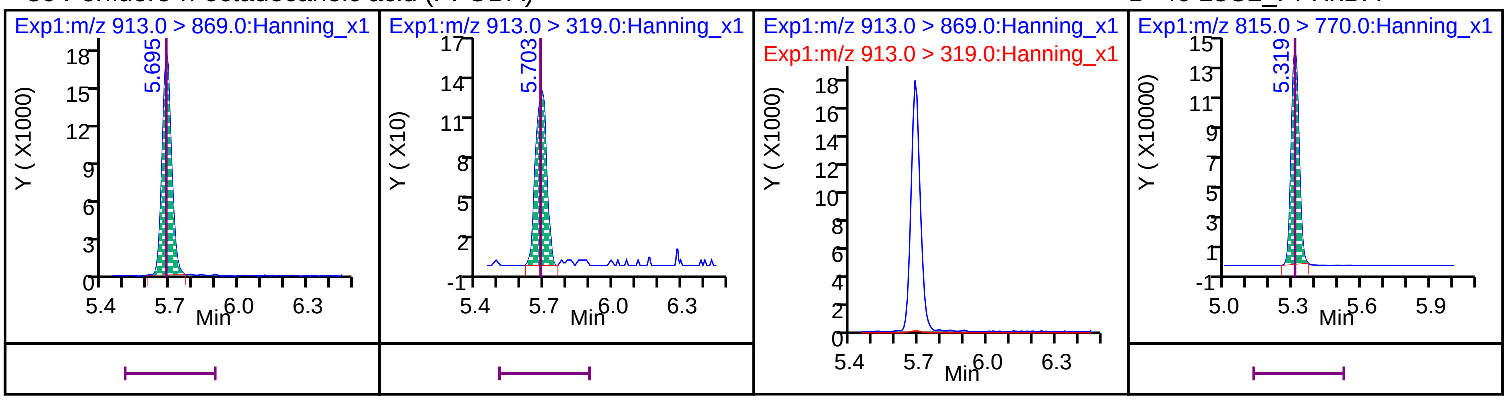
Report Date: 30-Oct-2021 15:06:10 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d

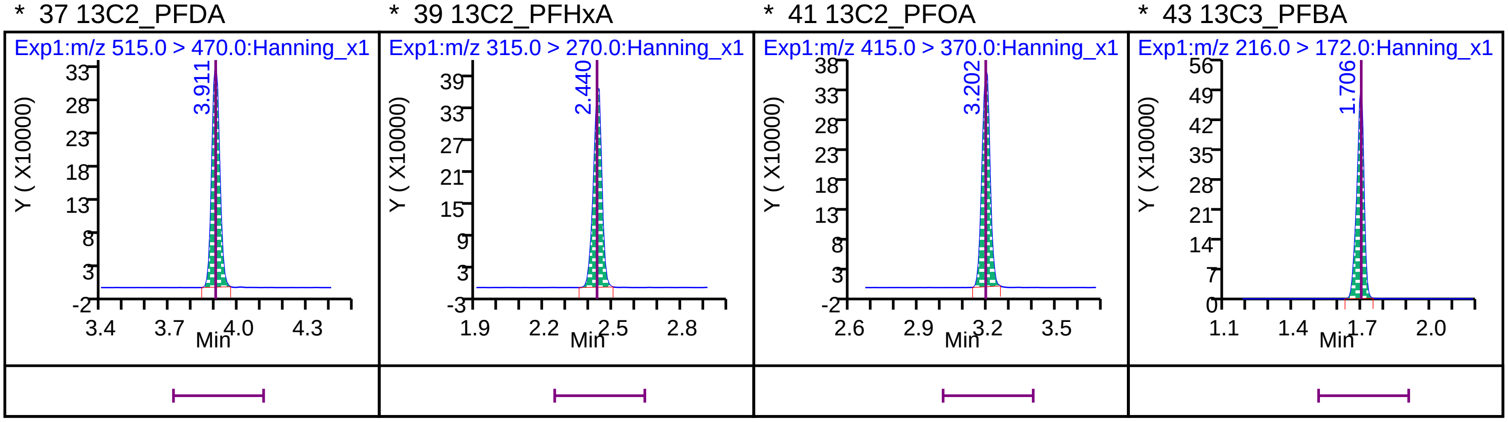
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



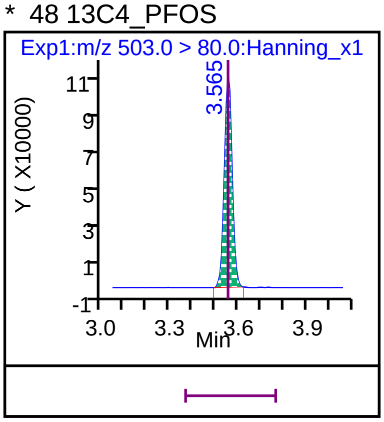
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Oct-2021 15:06:11 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

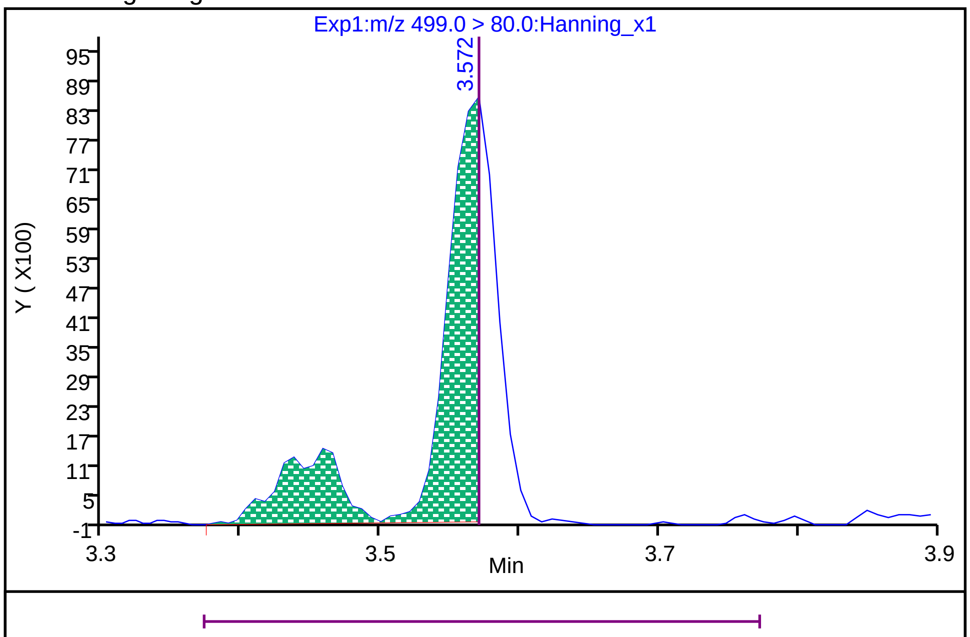
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921005.d		
Injection Date:	29-Oct-2021 11:12:16	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

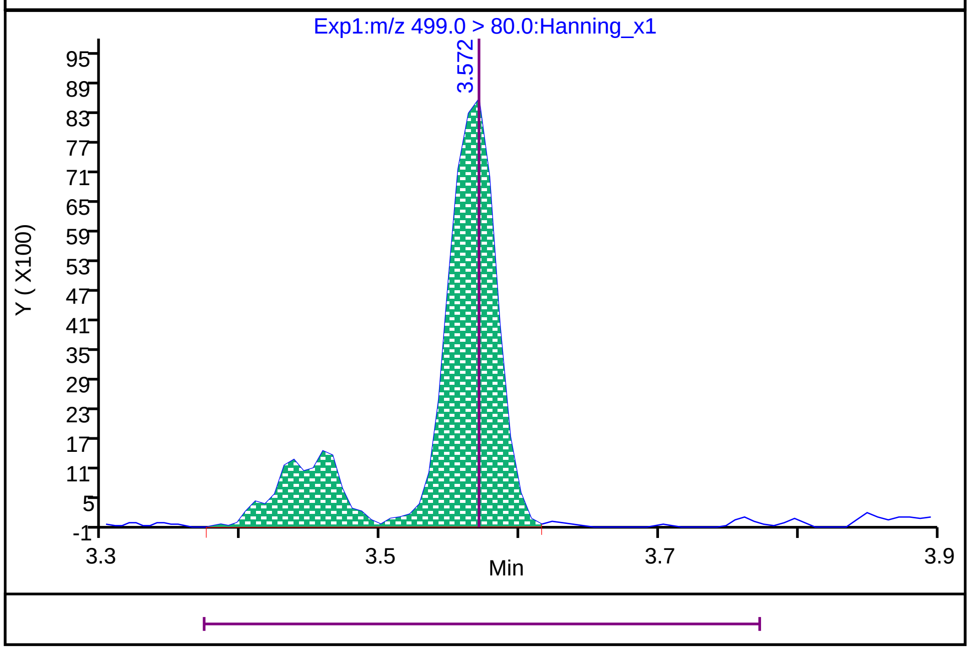
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.572
Area:	17179
Amount:	61.141
Amount Units:	ng/L



RT:	3.572
Area:	25595
Amount:	91.094
Amount Units:	ng/L



Data Editor: matthew.miller, 29-Oct-2021 11:40:28

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d		
Injection Date:	29-Oct-2021 11:22:51	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	CCV 200_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	194.57	97.3	70 - 130
D 46 13C4_PFBA	1091906	1081406			99	50 - 150
21 PFPeA			200.00	198.32	99.2	70 - 130
D 50 13C5_PFPeA	1016491	977104			96.1	50 - 150
D 44 13C3_PFBS	317213	327230			103.2	50 - 150
7 PFBS			176.80	175.85	99.5	70 - 130
D 63 13C2_4:2 FTS_2	322284	304143			94.4	50 - 150
1 4:2 FTS			186.80	215.79	115.5	70 - 130
D 49 13C5_PFHxA	908351	930561			102.4	50 - 150
15 PFHxA			200.00	190.08	95	70 - 130
22 PFPeS			187.60	188.47	100.5	70 - 130
28 GenX			400.00	360.35	90.1	70 - 130
D 66 13C3_GenX	722297	690307			95.6	50 - 150
D 47 13C4_PFHpA	926202	948670			102.4	50 - 150
13 PFHpA			200.00	175.93	88	70 - 130
D 45 13C3_PFHxS	276451	265541			96.1	50 - 150
14 PFHxS			182.00	168.83	92.8	70 - 130
29 ADONA			188.40	186.67	99.1	70 - 130
2 6:2 FTS			189.60	215.36	113.6	70 - 130
D 64 13C2_6:2 FTS_2	273875	247479			90.4	50 - 150
D 53 13C8_PFOA	856960	858956			100.2	50 - 150
20 PFOA			200.00	199.99	100	70 - 130
12 PFHpS			190.40	183.80	96.5	70 - 130
D 54 13C8_PFOS	232752	234373			100.7	50 - 150
18 PFOS			185.60	174.67	94.1	70 - 130
17 PFNA			200.00	196.46	98.2	70 - 130
D 56 13C9_PFNA	863231	824945			95.6	50 - 150
30 9Cl-PF3ONS			186.40	191.78	102.9	70 - 130
D 55 13C8_PFOSA	428383	436695			101.9	50 - 150
19 PFOSA			200.00	189.99	95	70 - 130
16 PFNS			192.00	179.02	93.2	70 - 130
D 65 13C2_8:2 FTS_2	211438	215455			101.9	50 - 150
3 8:2 FTS			191.60	229.85	120	70 - 130
D 51 13C6_PFDA	753271	760706			101	50 - 150
10 PFDA			200.00	177.11	88.6	70 - 130
D 58 d3-MeFOSAA	1033171	968511			93.7	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			200.00	240.68	120.3	70 - 130
9 PFDS			192.80	170.76	88.6	70 - 130
25 PFUdA			200.00	178.60	89.3	70 - 130
D 60 d5-EtFOSAA	944086	880223			93.2	50 - 150
D 52 13C7_PFUdA	729025	712669			97.8	50 - 150
5 N-EtFOSAA			200.00	194.98	97.5	70 - 130
D 61 d7-MeFOSE	124594	118676			95.3	50 - 150
32 MeFOSE			200.00	225.27	112.6	70 - 130
D 57 d3-MeFOSA	57199	59890			104.7	50 - 150
26 MeFOSA			200.00	210.45	105.2	70 - 130
31 11Cl-PF3OUDS			188.40	181.18	96.2	70 - 130
D 62 d9-EtFOSE	110214	110756			100.5	50 - 150
33 EtFOSE			200.00	214.90	107.4	70 - 130
D 59 d5-EtFOSA	56576	57077			100.9	50 - 150
27 EtFOSA			200.00	209.01	104.5	70 - 130
11 PFDoA			200.00	182.88	91.4	70 - 130
D 38 13C2_PFDoA	702110	703411			100.2	50 - 150
4 10:2 FTS			192.80	225.29	116.9	70 - 130
34 PFDOS			193.60	178.63	92.3	70 - 130
24 PFTrDA			200.00	172.06	86	70 - 130
D 42 13C2_PFTeDA	874602	824852			94.3	50 - 150
23 PFTeDA			200.00	207.34	103.7	70 - 130
D 40 13C2_PFHxDA	327951	308724			94.1	50 - 150
35 PFHxDA			200.00	213.45	106.7	70 - 130
36 PFODA			200.00	199.46	99.7	70 - 130

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d		
Injection Date:	29-Oct-2021 11:22:51	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	CCV 200_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.706	1.706	0	1081406	21	>100:1			1000.00	1205.44	99	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.706	1.706	0/0	227369	18	>100:1			200.00	194.57		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.076	2.077	0	977104	16	>100:1			1000.00	1087.00	96.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.076	2.077	0/0	209153	15	>100:1			200.00	198.32		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.128	2.129	0	327230	14	>100:1			1000.00	1096.27	103.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.128	2.129	0/0	80002	17	>100:1	Target = 3.78		176.80	175.85		
298.9 > 99	44	2.128	2.129		19708	13	>100:1	4.05 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.474	2.475	0/0	63629	18	>100:1	Target = 3.45		187.60	188.47		
349 > 99	44	2.474	2.475		17226	16	>100:1	3.69 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.404	2.397	1	304143	17	>100:1			5000.00	6805.83	94.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.404	2.397	1/0	25150	16		Target = 1.43		186.80	215.79		
327 > 81	63	2.404	2.397		13565	11	>100:1	1.85 (0.71-2.15)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.439	2.440	0	930561	17	>100:1			1000.00	1136.53	102.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.439	2.440	0/0	181680	16	>100:1	Target = 16.37		200.00	190.08		
313 > 119	49	2.439	2.440		9802	15	37:1	18.53 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.560	2.562	0	690307	19	>100:1			5000.00	4771.02	95.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.569	2.562	1/1	38209	21	>100:1	Target = 0.74		400.00	360.35		
285 > 185	66	2.560	2.562		59139	19	>100:1	0.64 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.826	2.827	0	948670	18	>100:1			1000.00	1183.93	102.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.826	2.827	0/0	165618	16	>100:1	Target = 3.21		200.00	175.93		
363 > 169	47	2.826	2.827		50390	15	>100:1	3.28 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.843	2.836	1	265541	18				1000.00	1079.63	96.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.835	2.845	0/-1	54051	25	>100:1	Target = 3.47	6.01	182.00	168.83		
399 > 99	45	2.843	2.845		17338	25	98:1	3.11 (1.73-5.21)	6.98				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.870	2.871	0/-1	269471	17	>100:1	Target = 2.28		188.40	186.67		
377 > 85	45	2.870	2.871		112217	16	>100:1	2.40 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.208	0/-1	52997	23	>100:1	Target = 3.62		190.40	183.80		
449 > 99	45	3.208	3.208		14031	19	71:1	3.77 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.170	3.177	0	247479	22	>100:1			5000.00	5663.52	90.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.176	3.183	0/0	16812	19		Target = 1.19		189.60	215.36		
427 > 81	64	3.182	3.183		13041	20	>100:1	1.28 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.201	3.202	0	858956	22	>100:1			1000.00	1135.19	100.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.202	1/1	172956	21	>100:1	Target = 2.34		200.00	199.99		
413 > 169	53	3.201	3.202		66444	20	>100:1	2.60 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.561	3.565	0	234373	18	>100:1			1000.00	1034.44	100.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.561	3.572	0/0	49420	37	>100:1	Target = 4.00	4.72	185.60	174.67		
499 > 99	54	3.561	3.572		13354	37	68:1	3.70 (2.00-6.01)	5.76				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.767	3.769	0/0	137162	19	>100:1			186.40	191.78		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.893	3.903	0/0	42424	16	>100:1	Target = 3.83		192.00	179.02		
549 > 99	54	3.901	3.903		9987	16	>100:1	4.24 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.196	4.199	0/0	38506	21	>100:1	Target = 3.87		192.80	170.76		
599 > 99	54	4.196	4.199		9580	14	27:1	4.01 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.348	4.359	0/0	110898	15	>100:1			188.40	181.18		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.687	4.690	0/0	38257	16	>100:1	Target = 3.65		193.60	178.63		
699 > 99	54	4.695	4.690		10925	17	>100:1	3.50 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.569	3.572	0	824945	19	>100:1			1000.00	1063.83	95.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.569	3.572	0/0	141453	24	>100:1	Target = 4.21		200.00	196.46		
463 > 169	56	3.576	3.572		29999	18	>100:1	4.71 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.840	3.842	0	436695	19	>100:1			1000.00	1042.69	101.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.848	3.842	1/1	94069	19	>100:1	Target = 49.05		200.00	189.99		
498>478	55	3.848	3.842		2125	20	14:1	44.26 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.901	3.903	0	215455	17				5000.00	5697.80	101.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.901	3.911	0/0	14624	19	88:1	Target = 1.27		191.60	229.85		
527 > 81	65	3.901	3.911		11595	14	69:1	1.26 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.497	4.492	1/1	14638	17	>100:1	Target = 2.25		192.80	225.29		
627 > 80	65	4.483	4.492		5477	16		2.67 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.908	3.911	0	760706	17	>100:1			1000.00	1120.07	101	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.908	3.918	0/0	136133	17	>100:1	Target = 8.94		200.00	177.11		
513 > 169	51	3.908	3.918		13567	14	>100:1	10.03 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.062	4.065	0	968511	16	>100:1			5000.00	4726.78	93.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.070	4.073	0/0	35613	29	>100:1	Target = 1.38	7.98	200.00	240.68		M
570 > 483	58	4.070	4.073		22464	29		1.58 (0.69-2.08)	2.78				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.214	4.217	0	712669	15	>100:1			1000.00	1127.39	97.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.214	4.217	0/0	112888	18	>100:1	Target = 8.27		200.00	178.60		
563 > 169	52	4.214	4.217		14018	15	92:1	8.05 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.214	4.217	0	880223	17	>100:1			5000.00	5127.22	93.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.223	4.217	1/1	36634	35	93:1	Target = 1.95	6.79	200.00	194.98		M
584 > 526	60	4.214	4.217		25690	34	>100:1	1.42 (0.97-2.92)	3.21				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.259	4.262	0	118676	17	>100:1			1000.00	933.27	95.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.277	4.271	1/1	26368	14	62:1			200.00	225.27		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.277	4.280	0	59890	13	>100:1			1000.00	1030.42	104.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.277	4.280	0/0	13420	21	72:1	Target = 1.08		200.00	210.45		
512 > 219	57	4.277	4.280		9697	17	66:1	1.38 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.417	4.427	0	110756	17	>100:1			1000.00	942.95	100.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.432	4.434	0/0	20283	15	80:1			200.00	214.90		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.446	4.442	1	57077	14	>100:1			1000.00	1039.11	100.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.454	4.449	1/0	13650	14	>100:1	Target = 1.10		200.00	209.01		
526 > 219	59	4.446	4.449		12948	14	95:1	1.05 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.475	4.478	0	703411	17	>100:1			1000.00	1171.13	100.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.483	4.485	0/0	131754	24	>100:1	Target = 5.93		200.00	182.88		
613 > 169	38	4.483	4.485		21534	23	>100:1	6.11 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.718	4.721	0/0	65474	16	>100:1	Target = 2.90		200.00	172.06		
663 > 169	38	4.718	4.721		23612	16	>100:1	2.77 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.933	4.935	0	824852	20	>100:1			1000.00	1029.53	94.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.933	4.935	0/0	144793	20	>100:1	Target = 6.34		200.00	207.34		
713 > 169	42	4.933	4.935		20598	21	>100:1	7.02 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.314	5.319	0	308724	20	>100:1			1000.00	938.22	94.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.320	5.326	0/0	133518	20	>100:1	Target = 12.53		200.00	213.45		
813 > 269	40	5.320	5.326		11231	20	>100:1	11.88 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.695	5.695	0/0	91397	21	>100:1	Target = 152.15		200.00	199.46		
913 > 319	40	5.695	5.695		471	15	63:1	194.04 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.908	3.911	0	786959	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.439	2.440	0	899164	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.201	3.202	0	883182	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.706	1.706	0	1011924	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.561	3.565	0	250274	18	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d		
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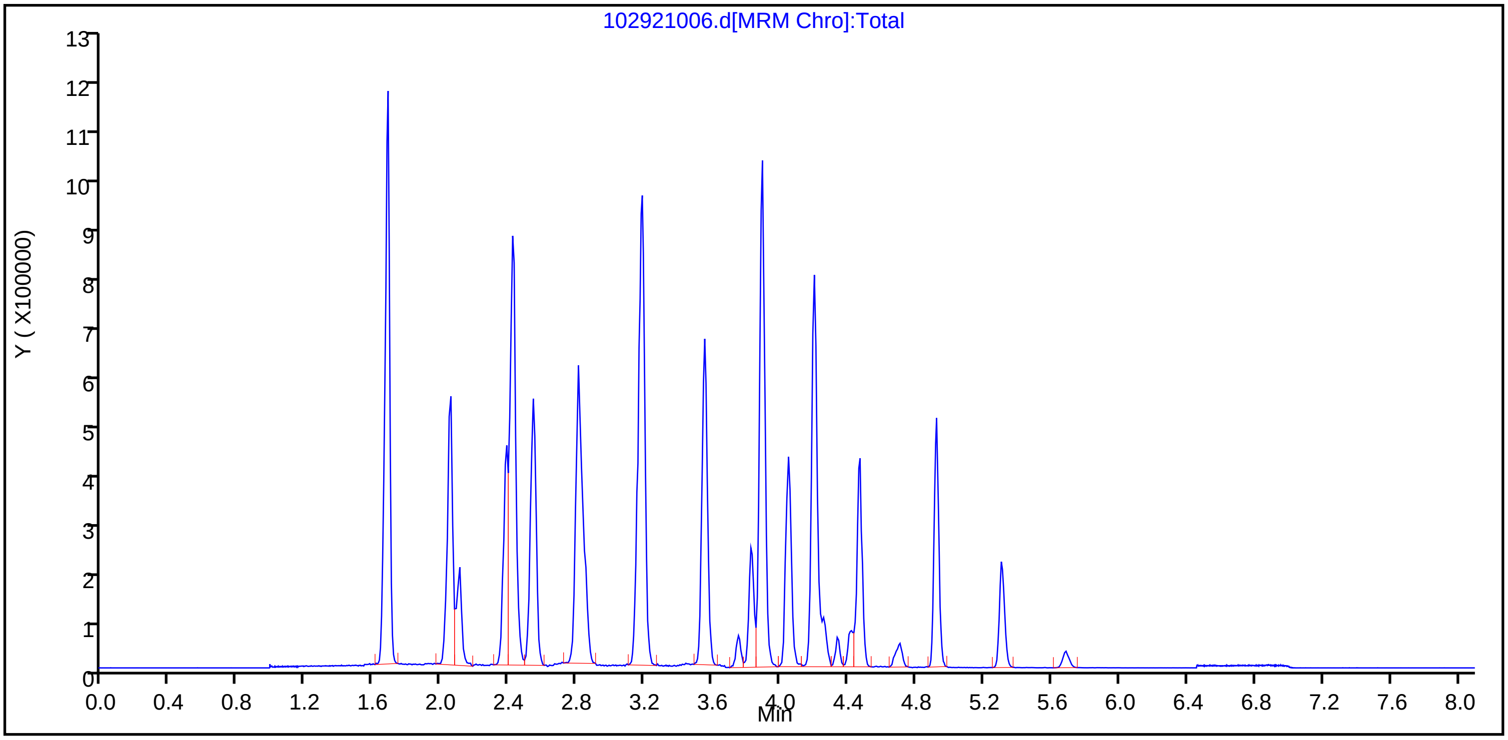
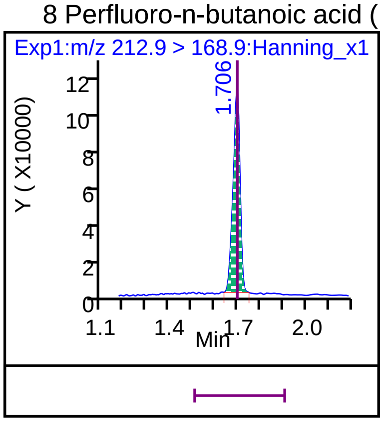
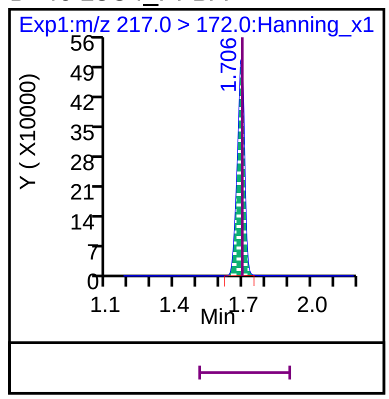
Sample Info:	CCV 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller



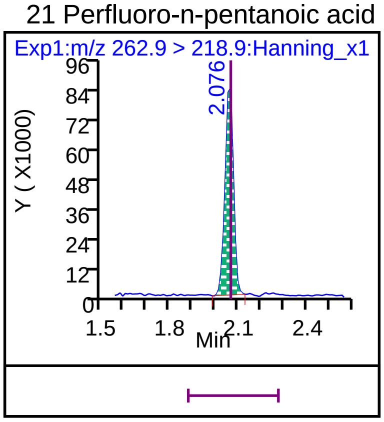
8 Perfluoro-n-butanoic acid (PFBA)



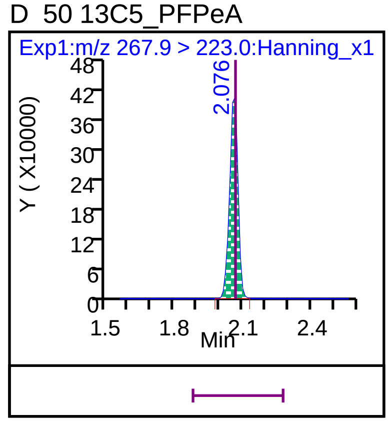
D 46 13C4_PFBA



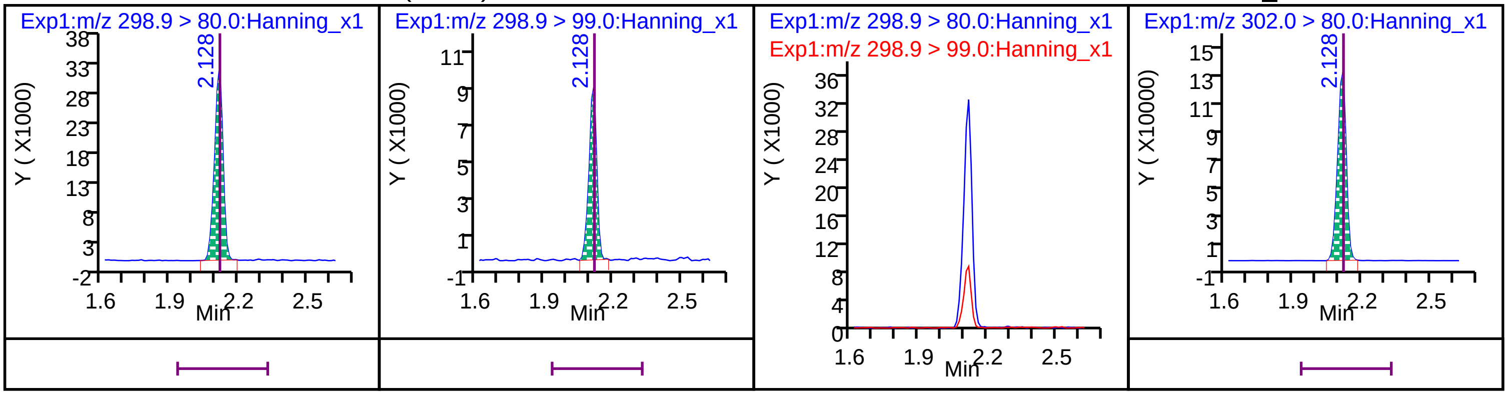
21 Perfluoro-n-pentanoic acid (PFPeA)



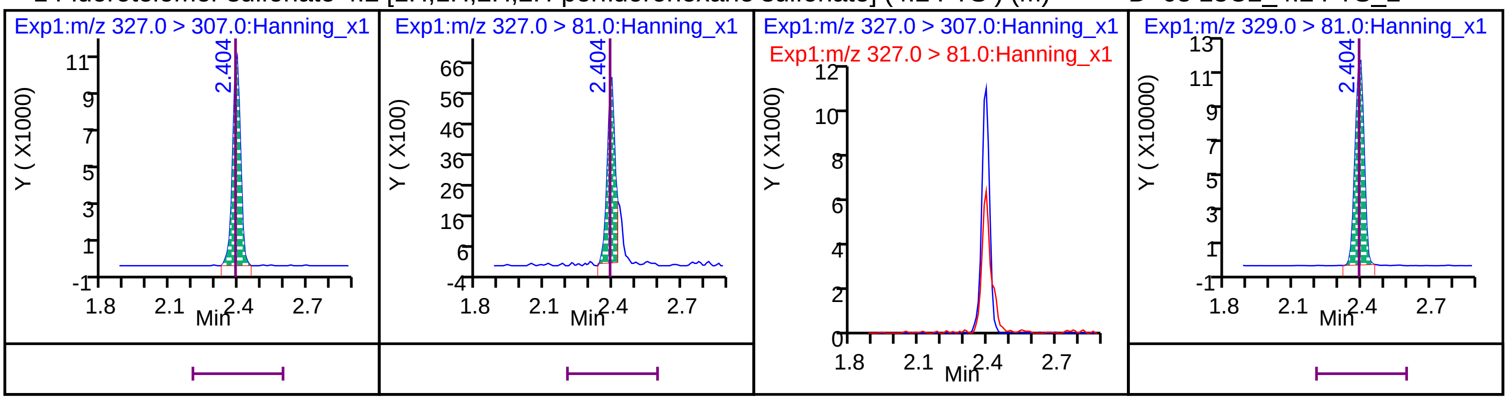
D 50 13C5_PFPeA



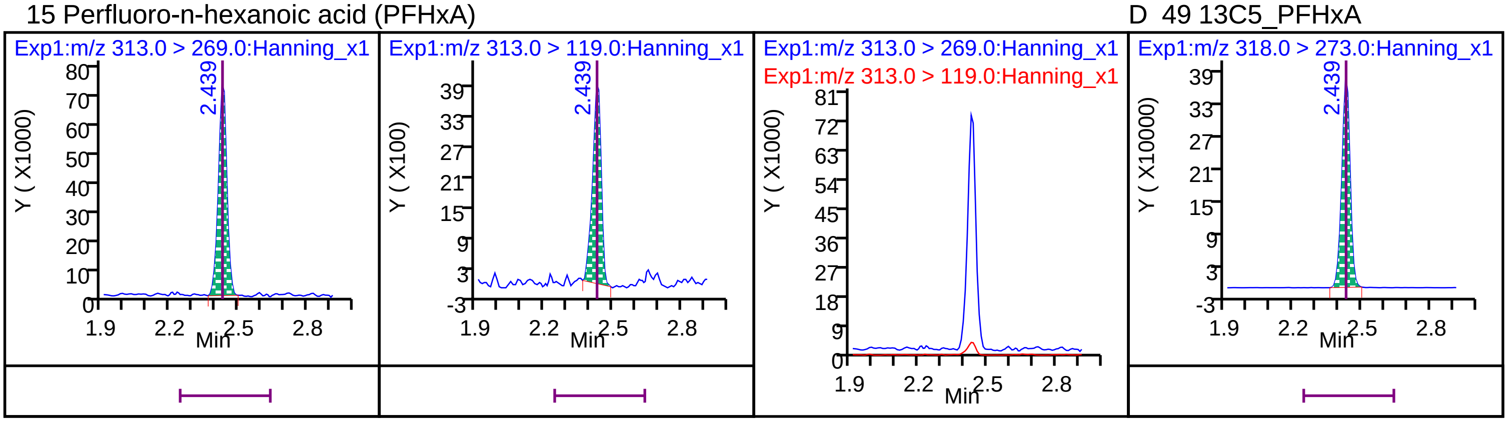
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



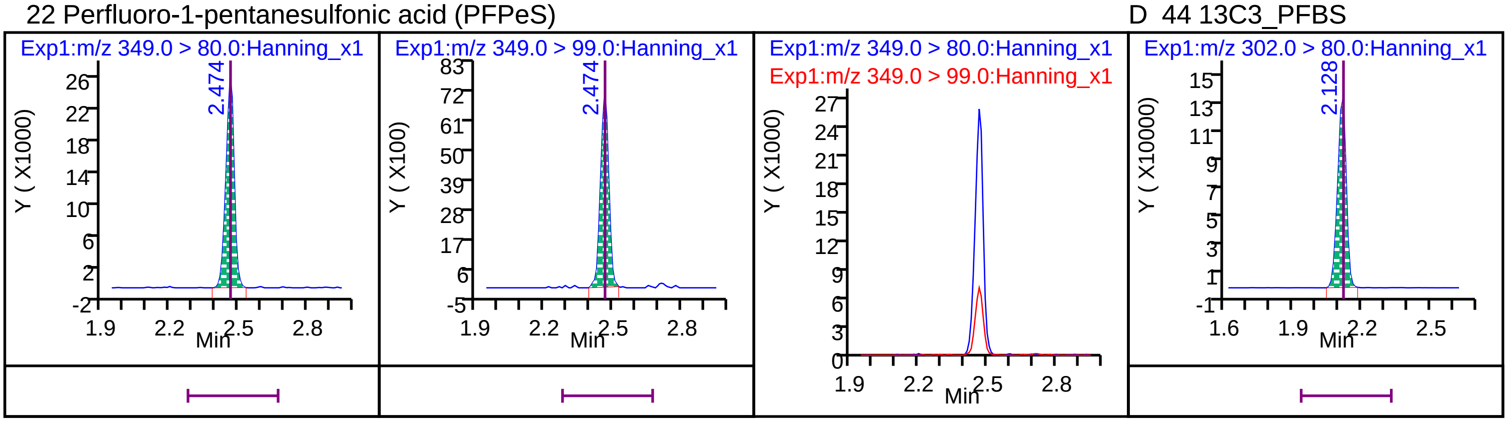
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



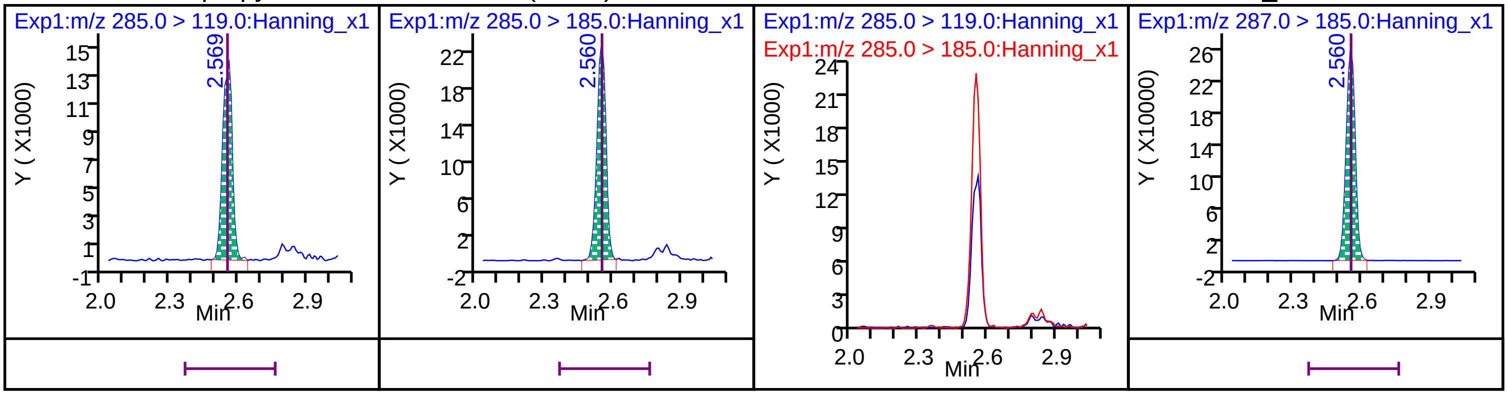
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



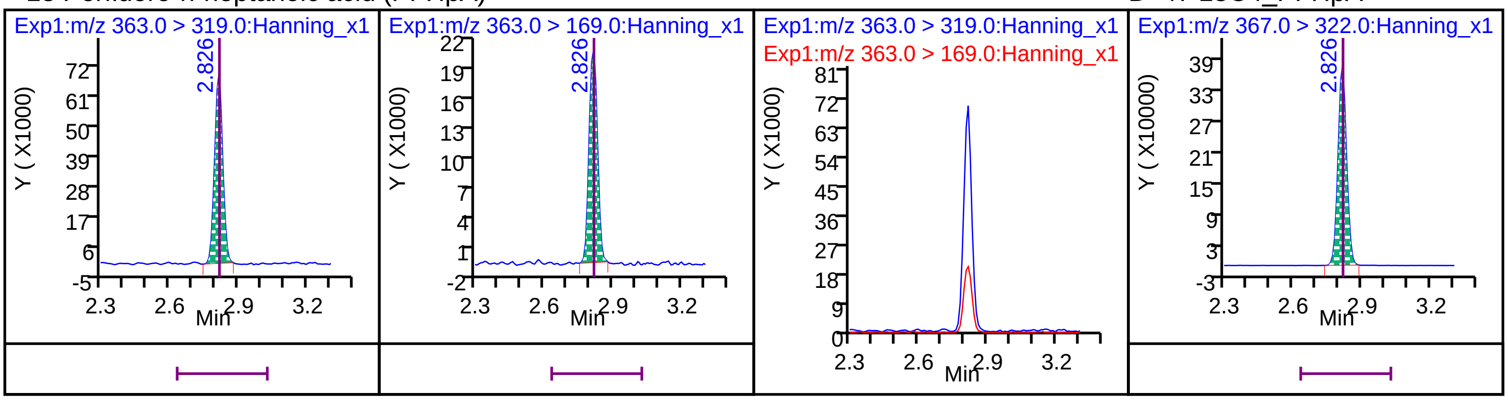
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



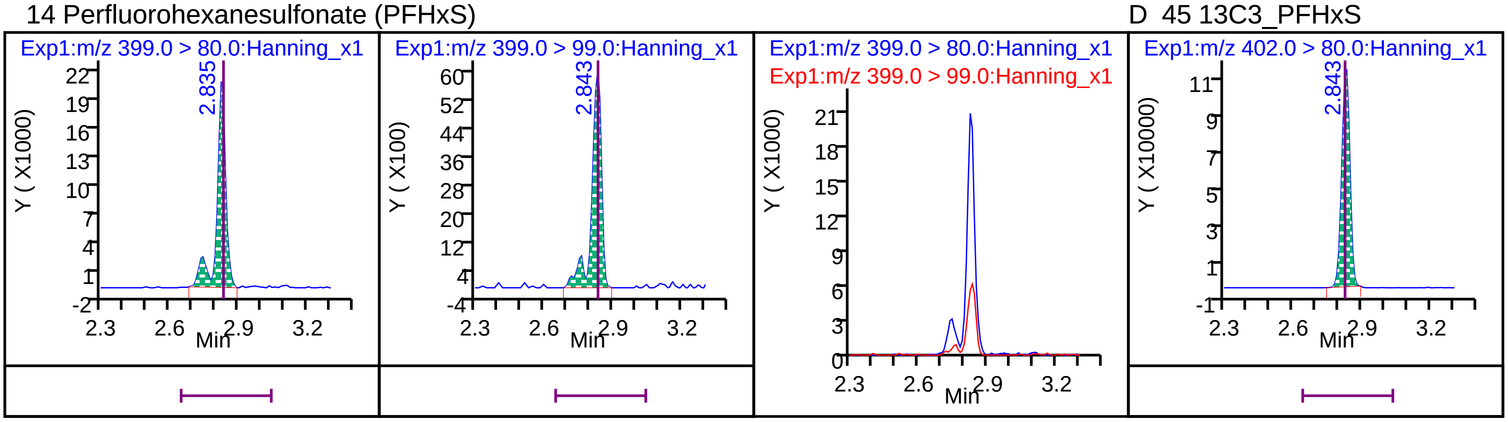
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



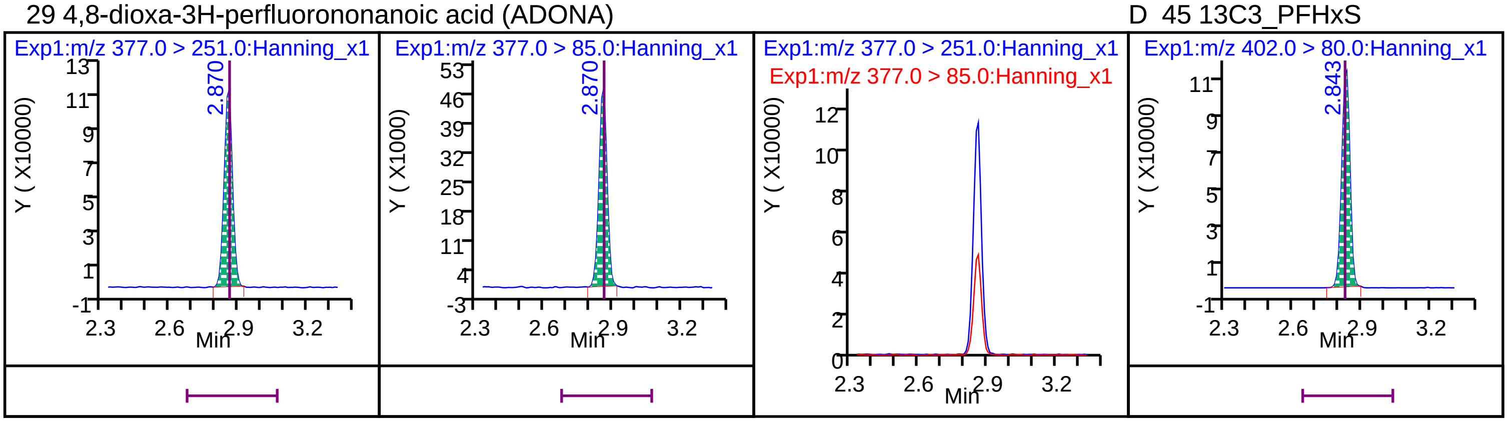
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



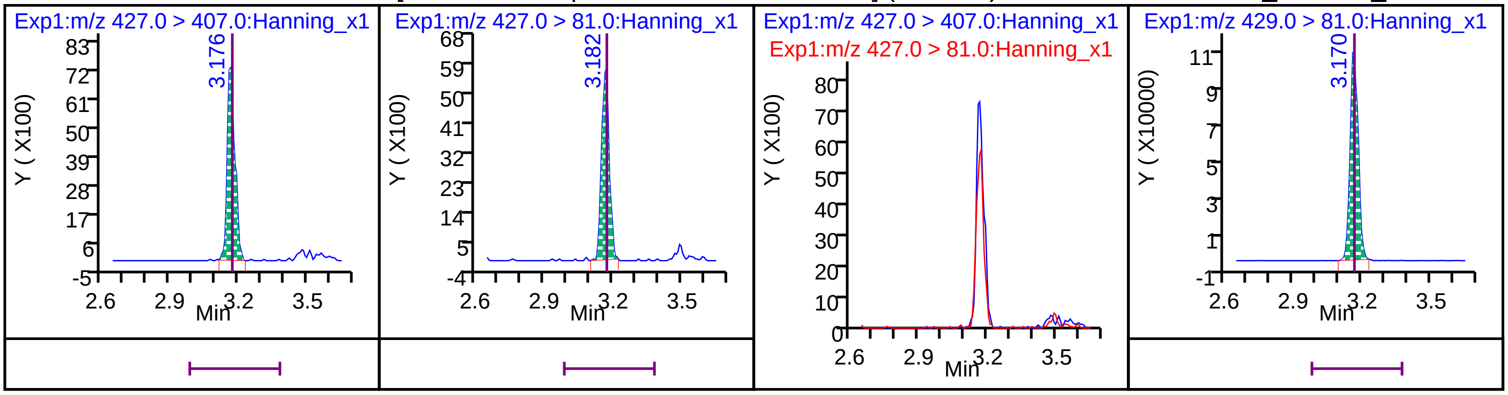
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



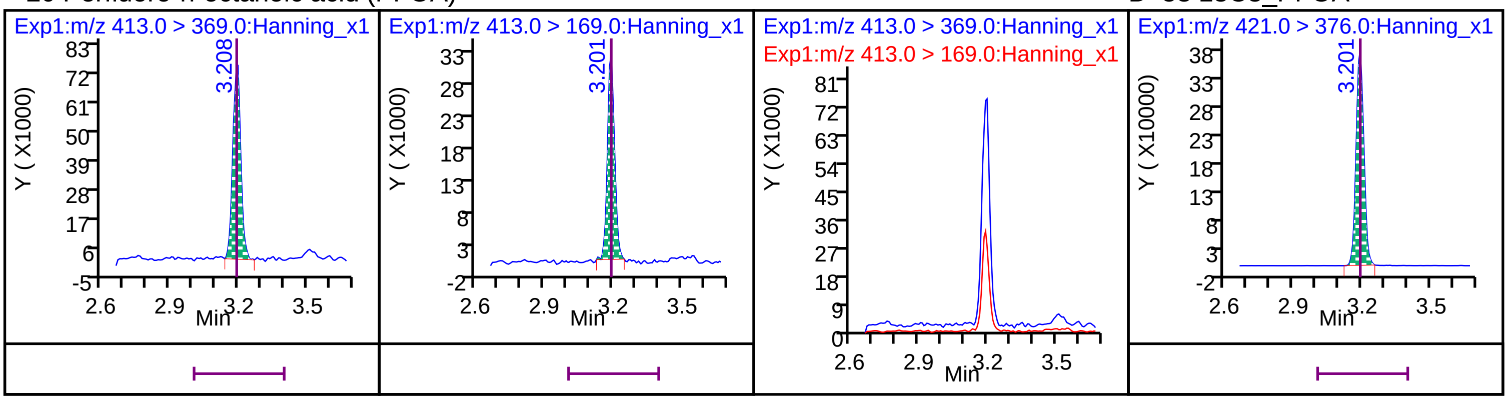
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



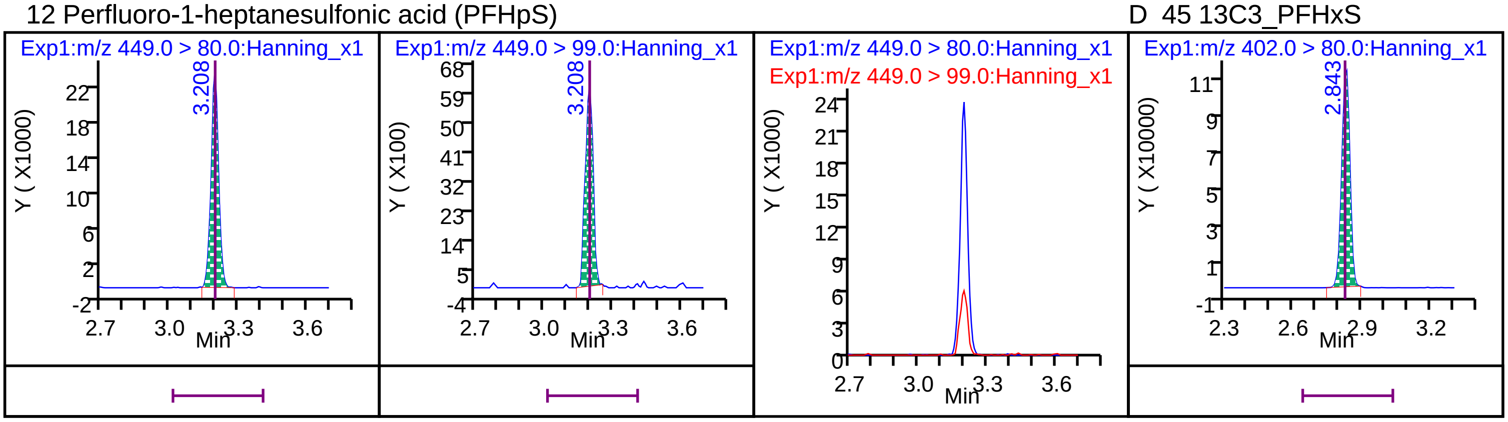
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



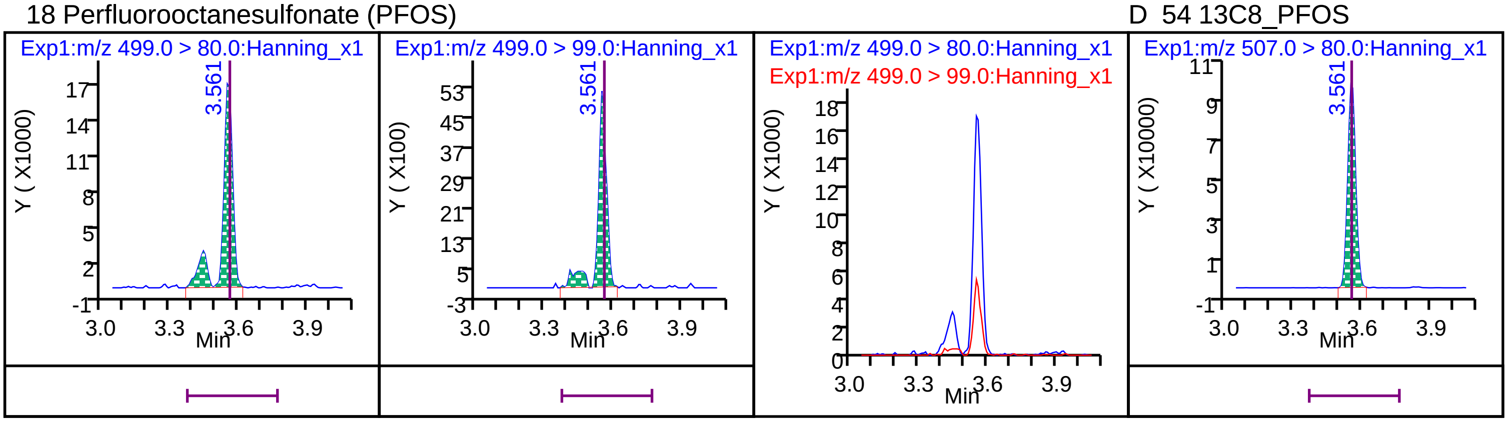
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

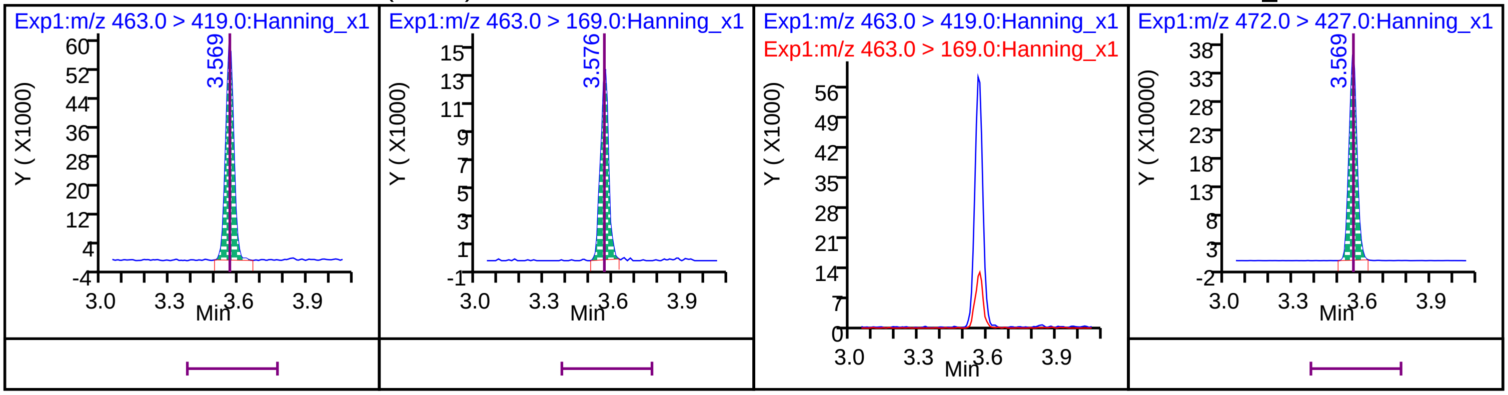


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

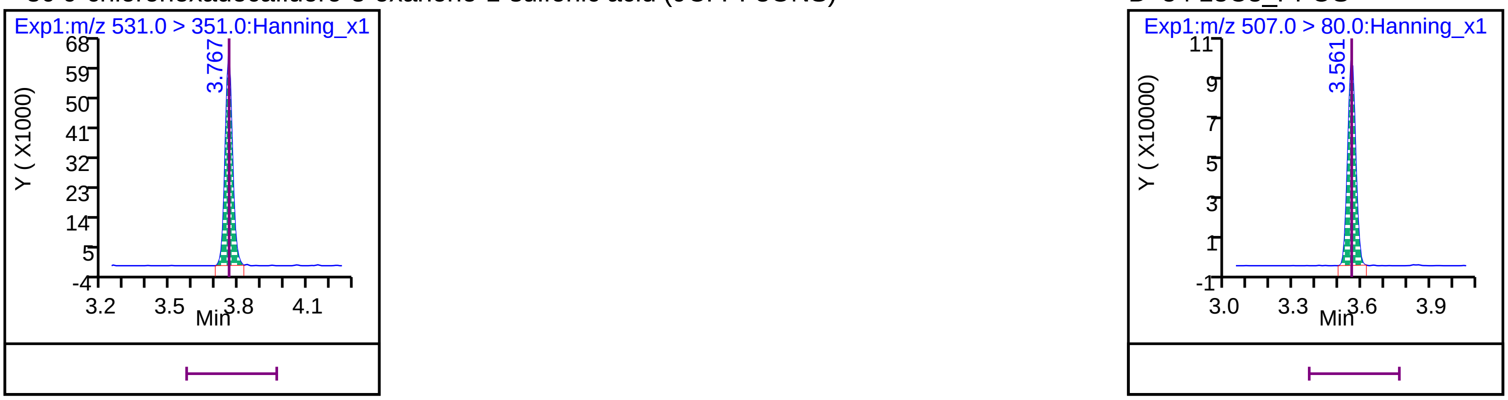


Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d

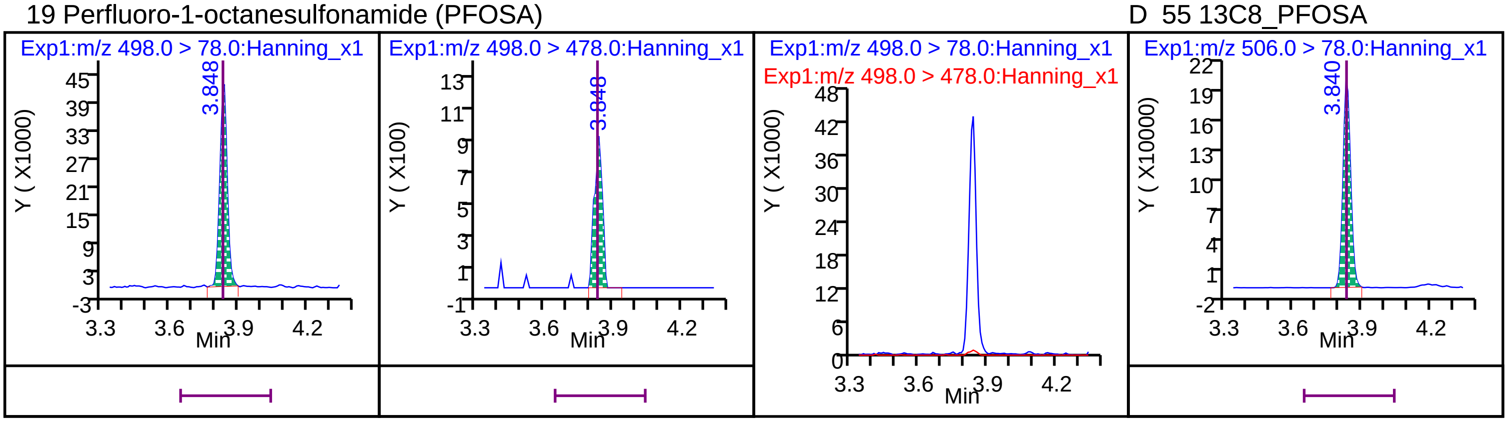
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



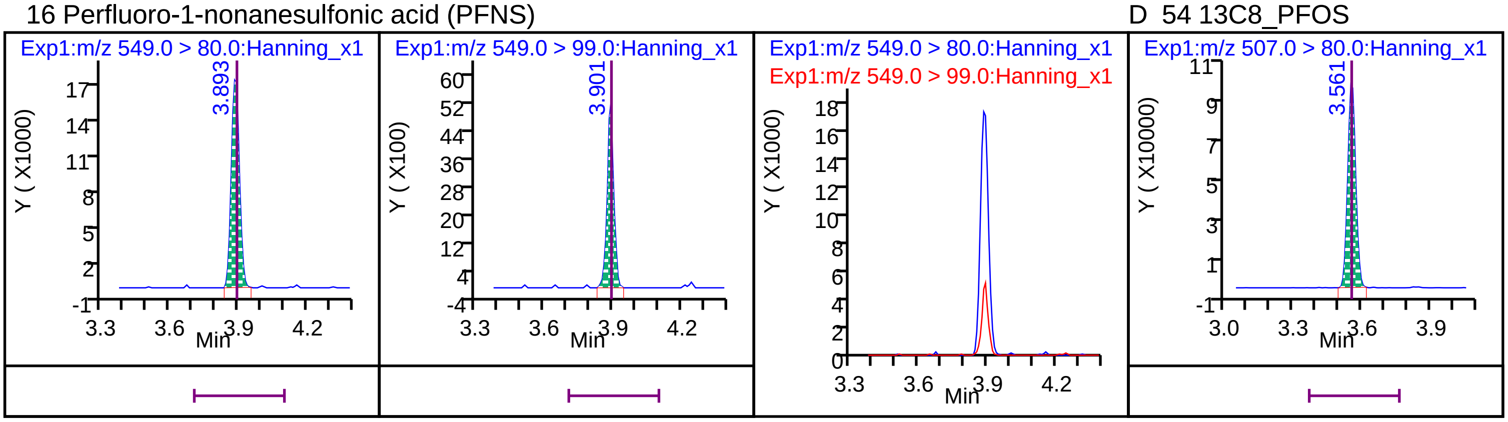
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



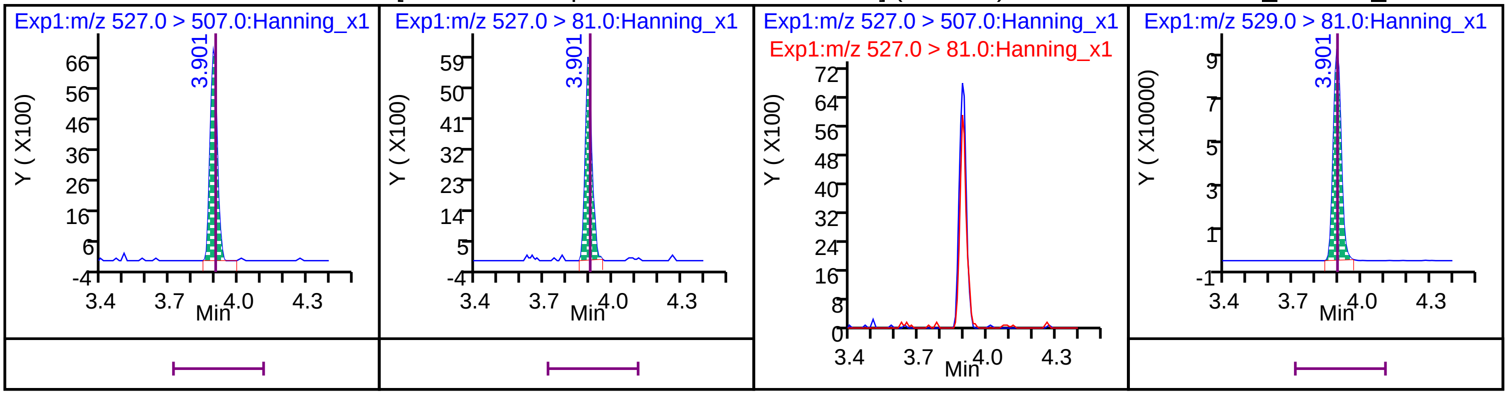
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



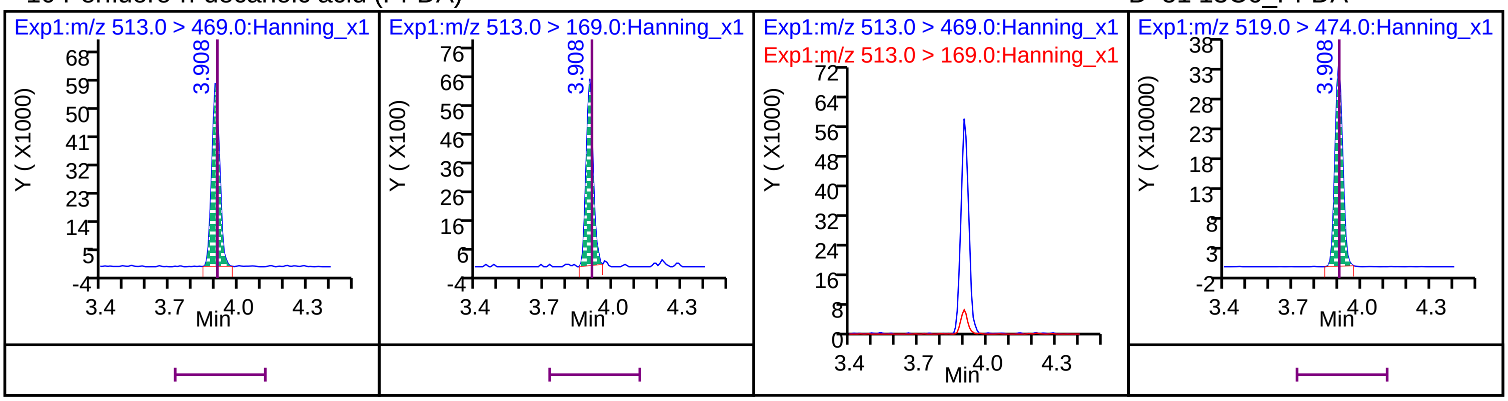
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



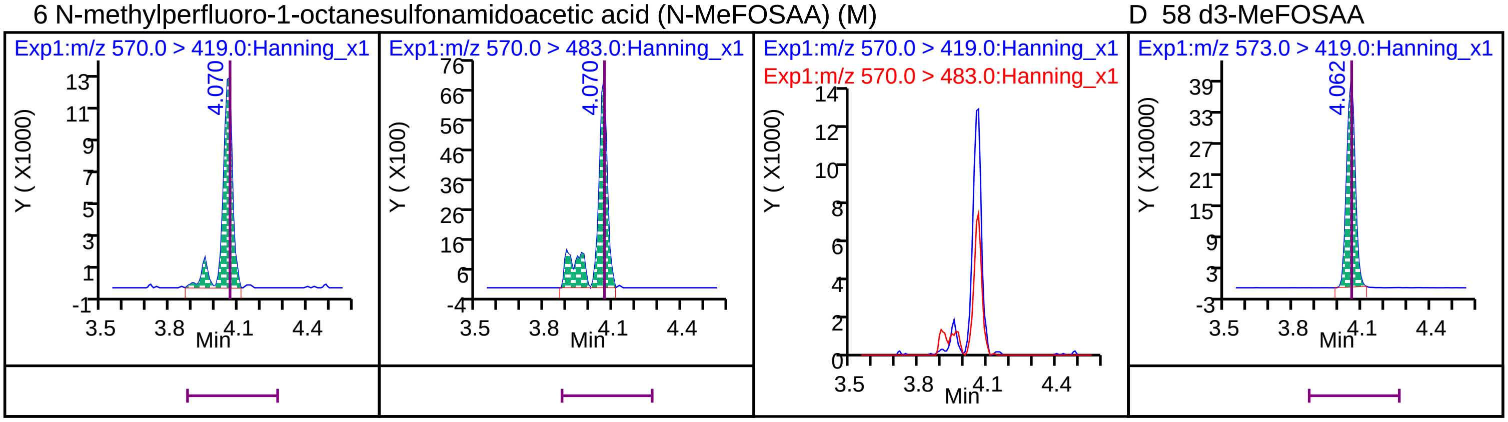
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



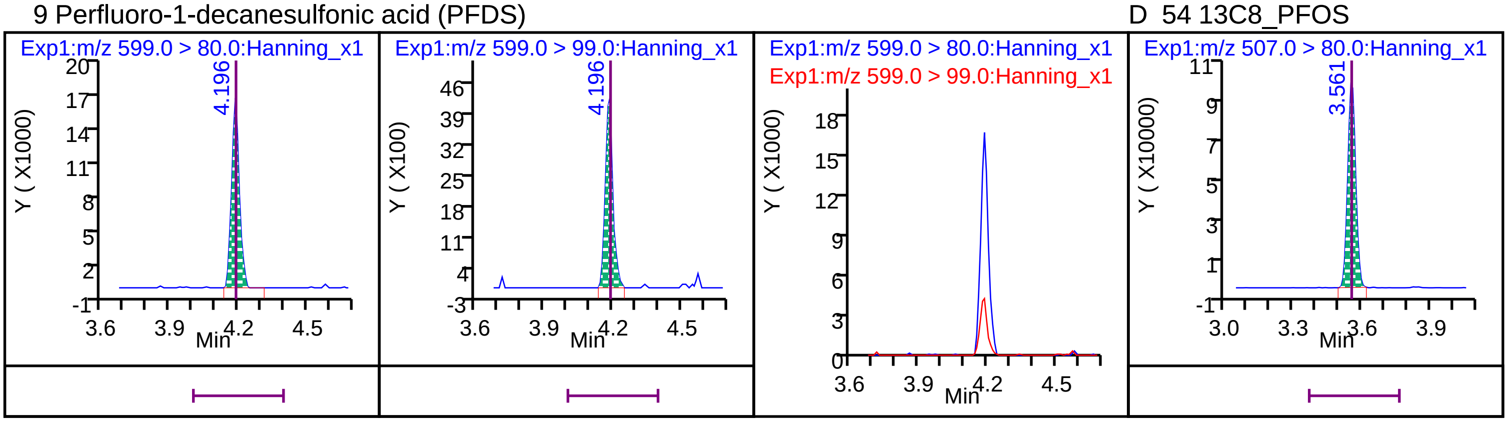
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



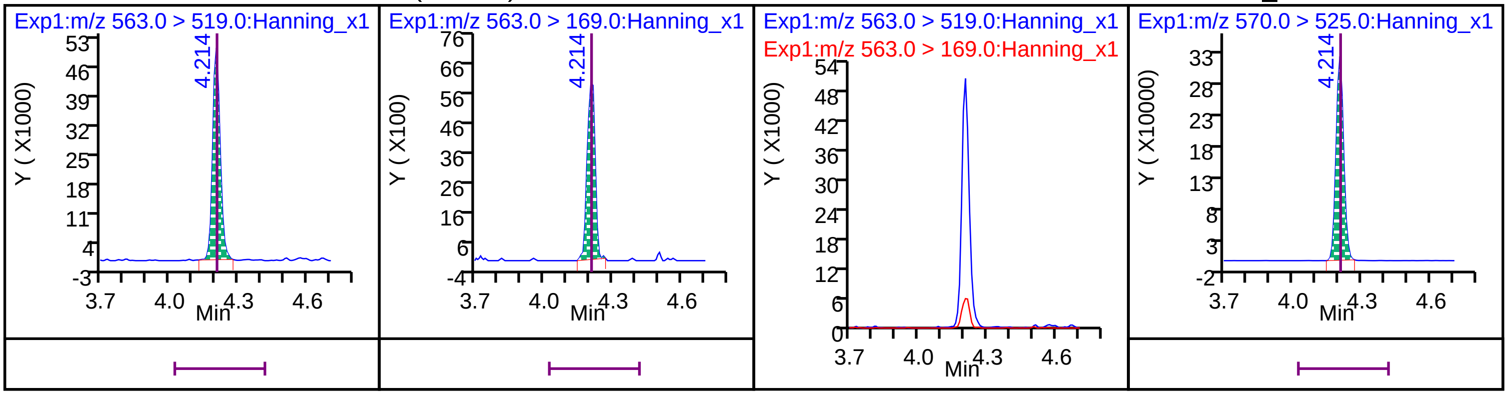
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



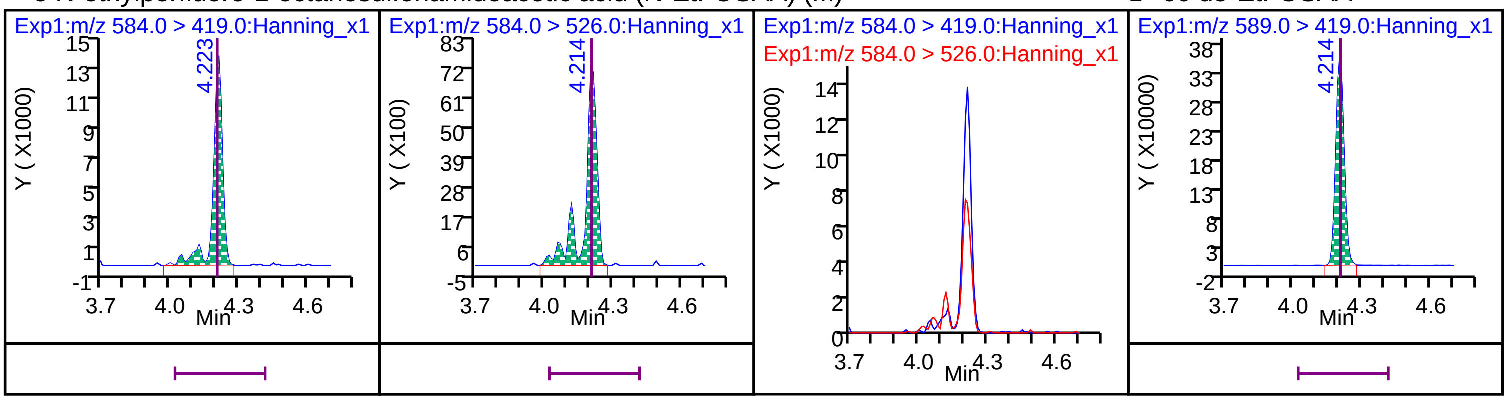
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



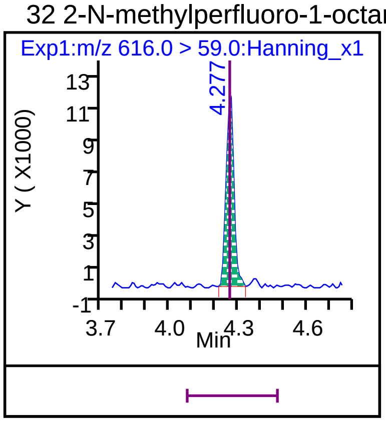
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

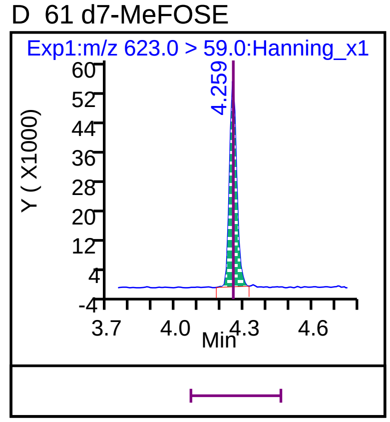


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

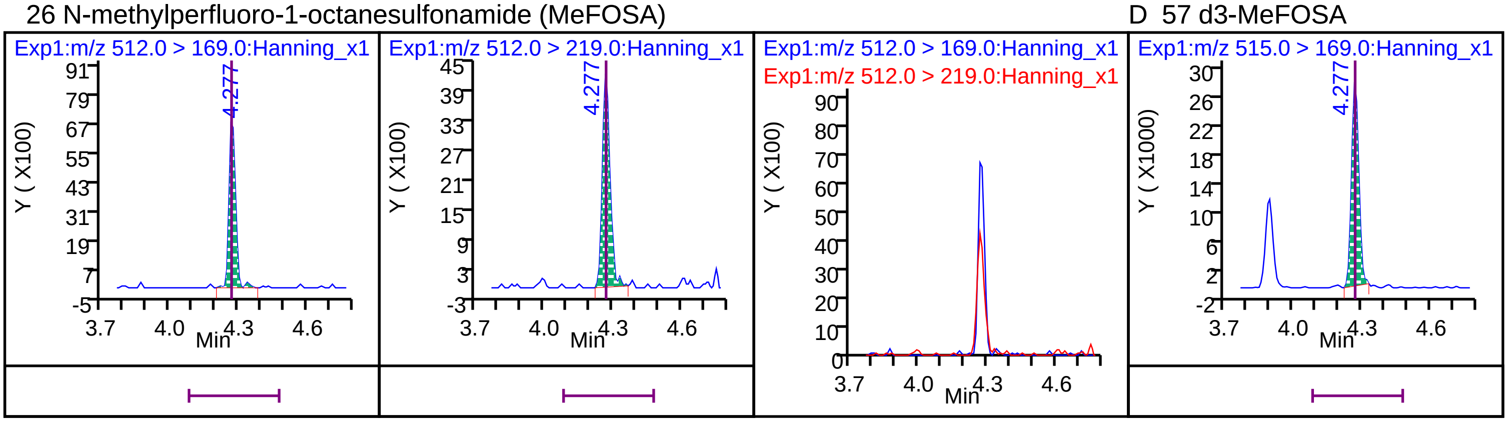


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

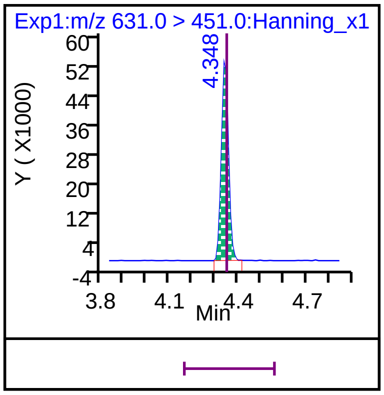




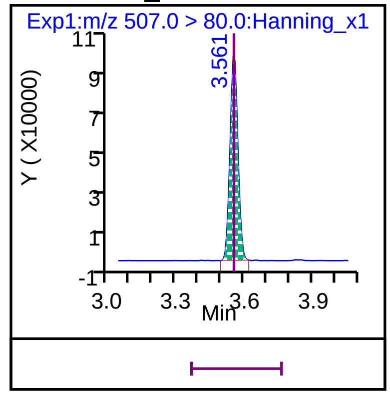
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



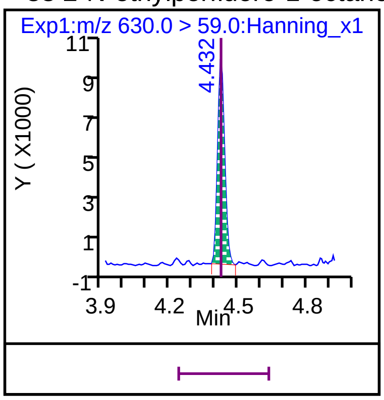
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



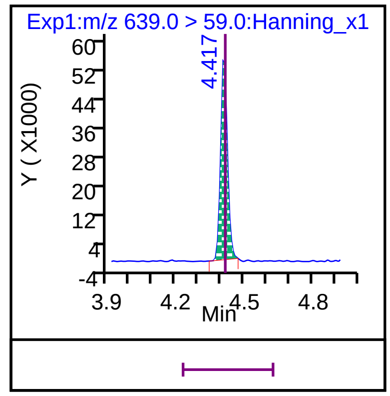
D 54 13C8_PFOS



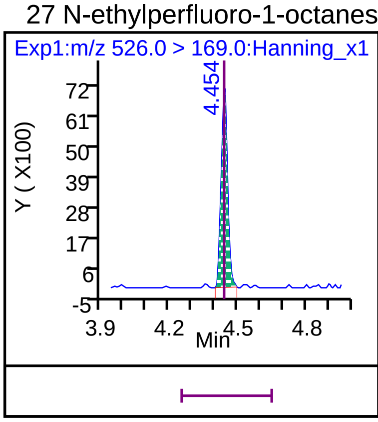
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

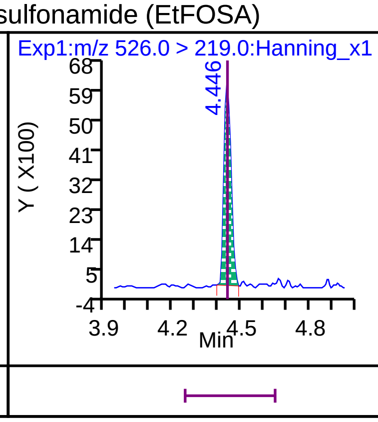


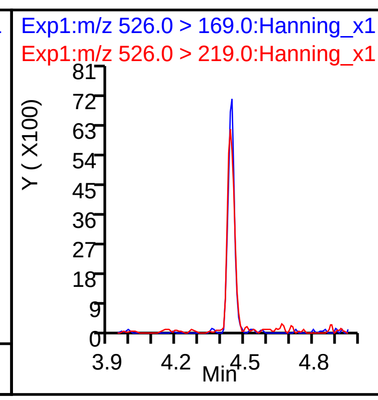
D 62 d9-EtFOSE



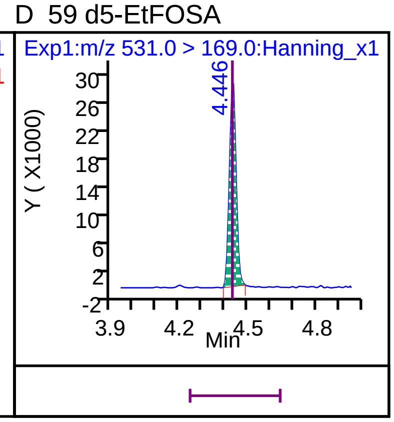
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



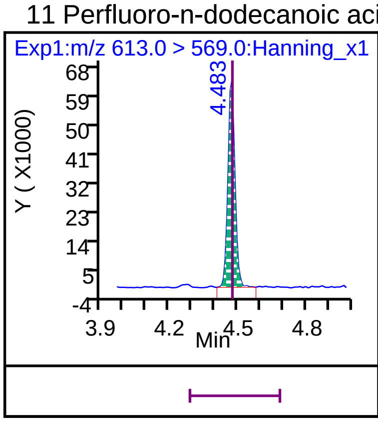


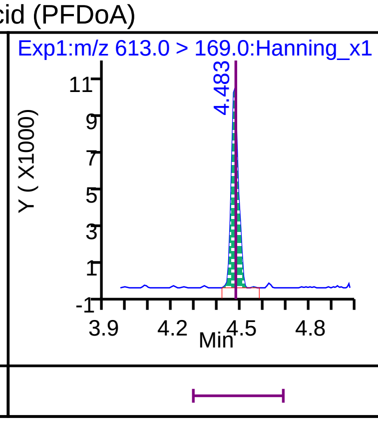


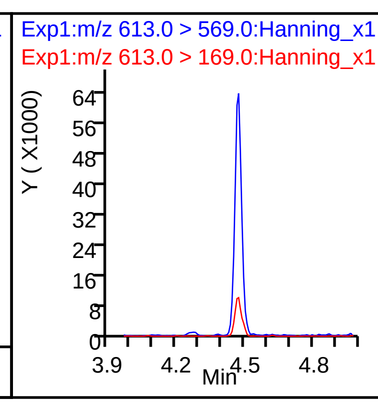
D 59 d5-EtFOSA



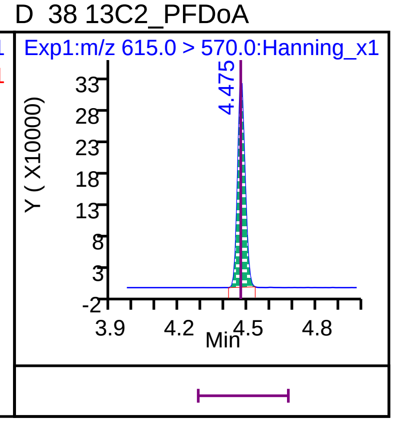
11 Perfluoro-n-dodecanoic acid (PFDoA)



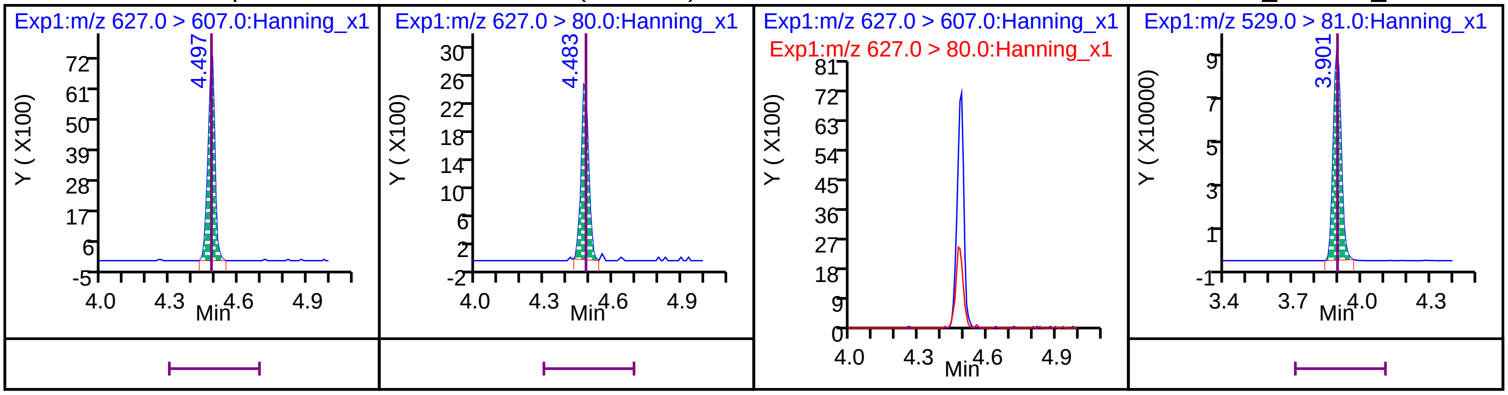




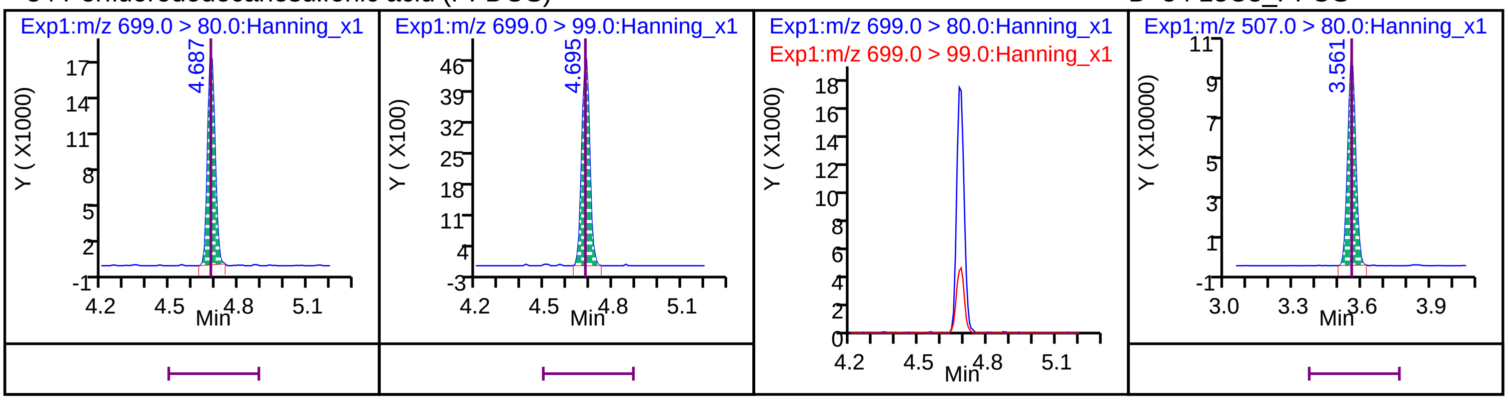
D 38 13C2_PFDoA



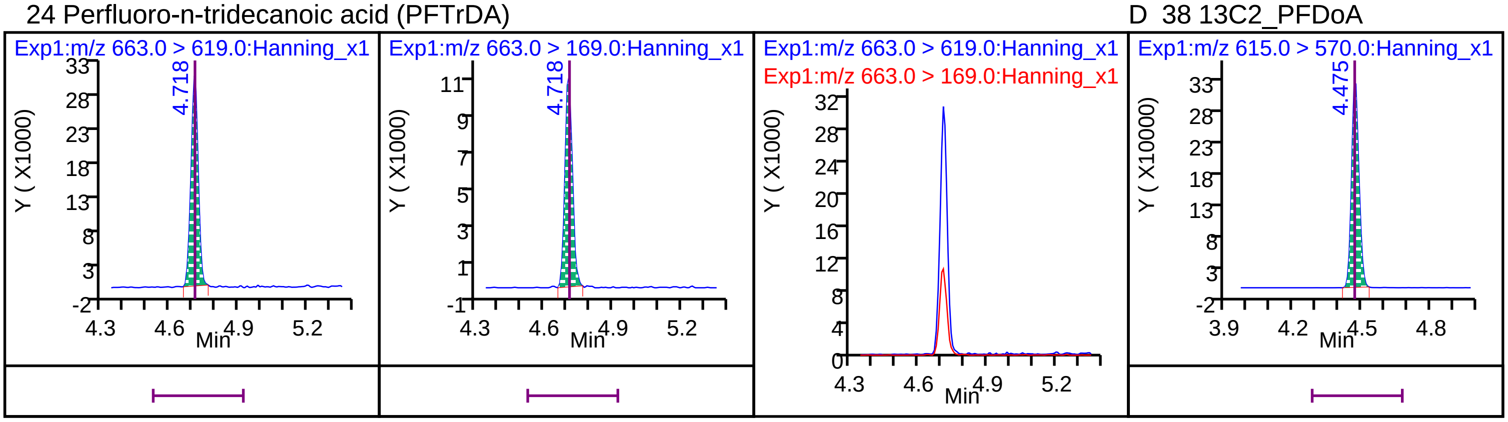
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



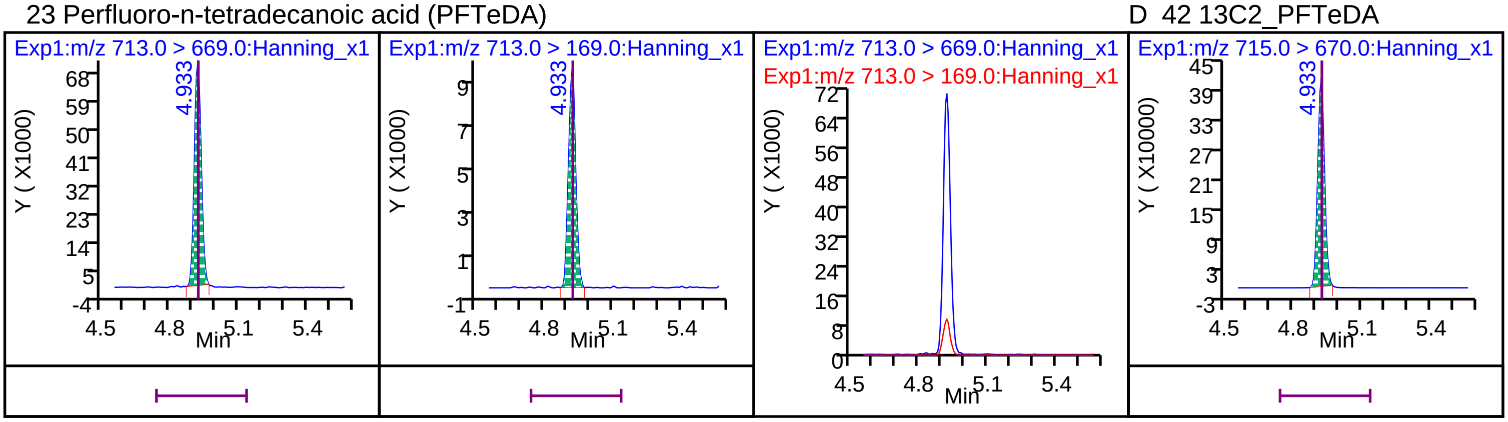
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

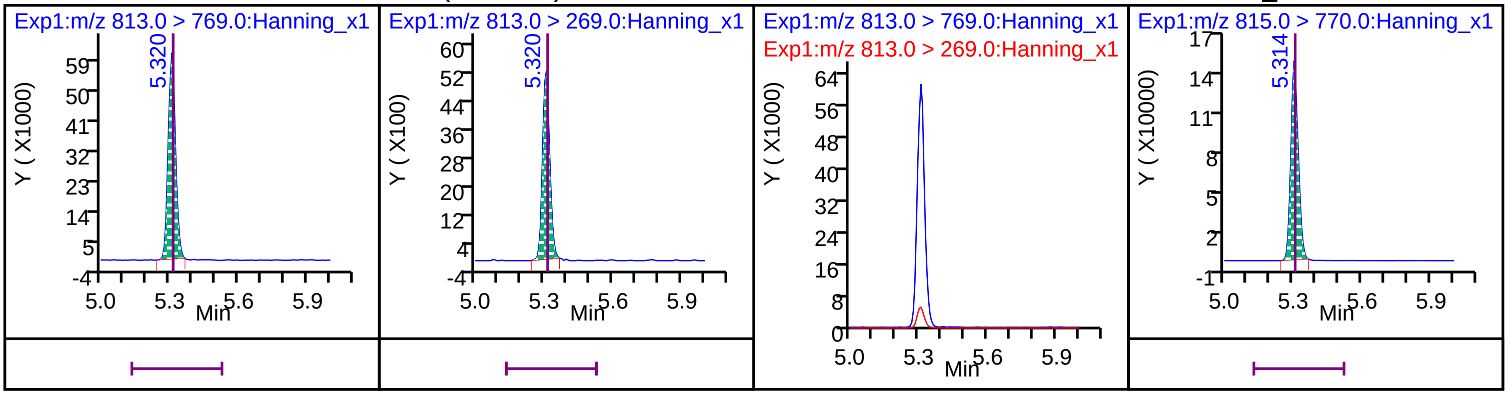


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

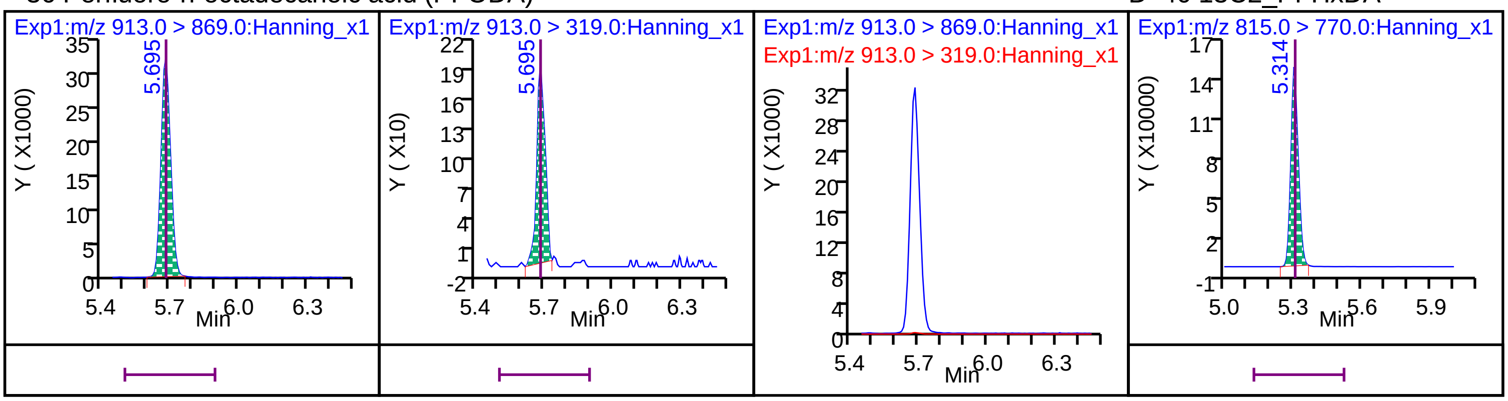


Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d

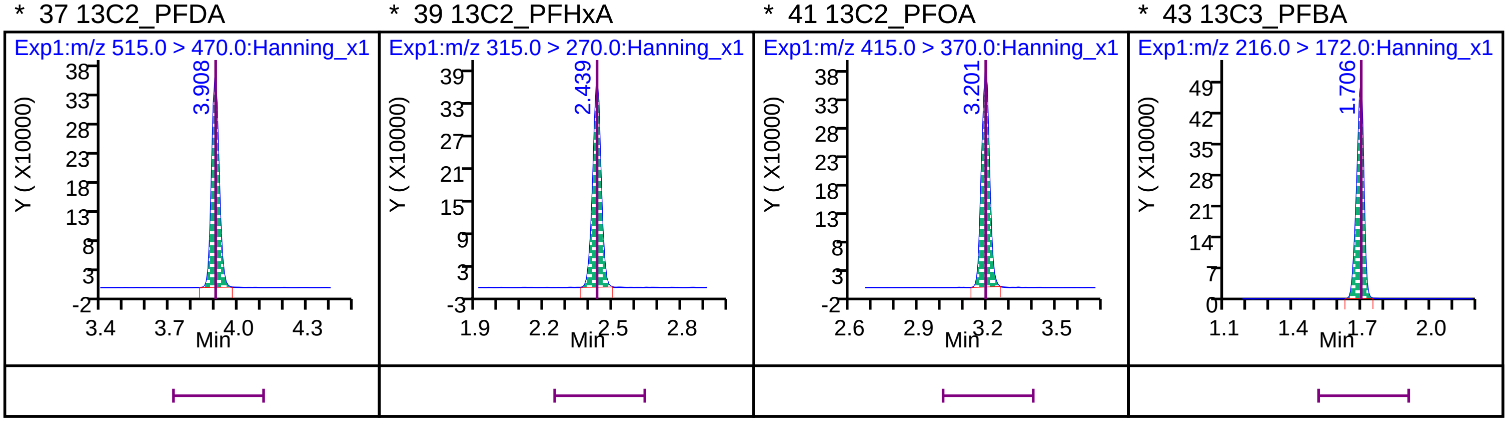
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



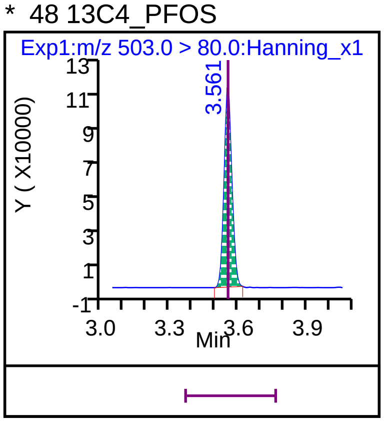
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d

Injection Date: 29-Oct-2021 11:22:51 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 200_SVLC-1725

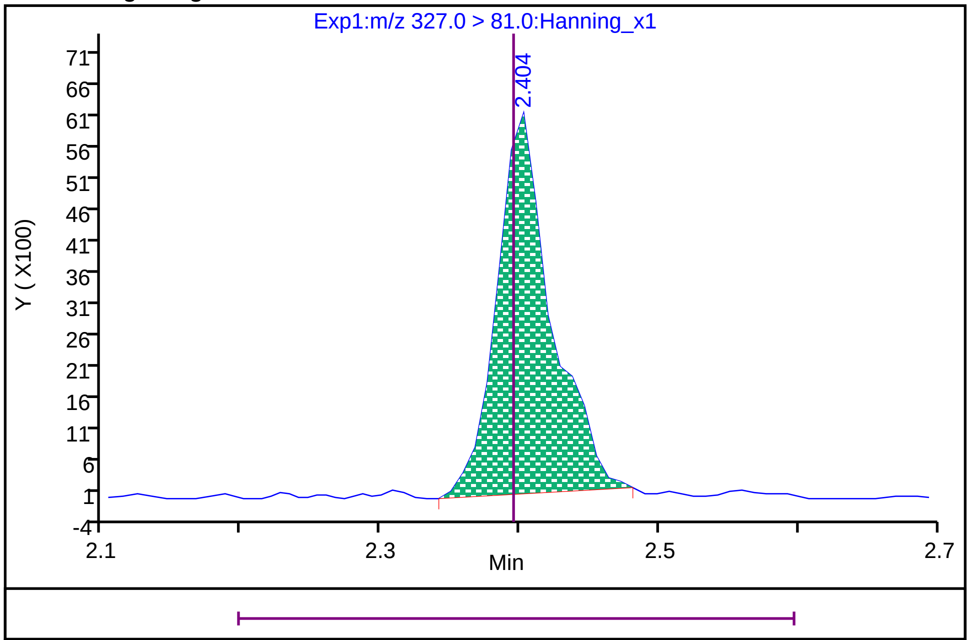
Sample Info: CCV 200_SVLC-1725

Dil. Factor: 1 Operator: Matthew M. Miller

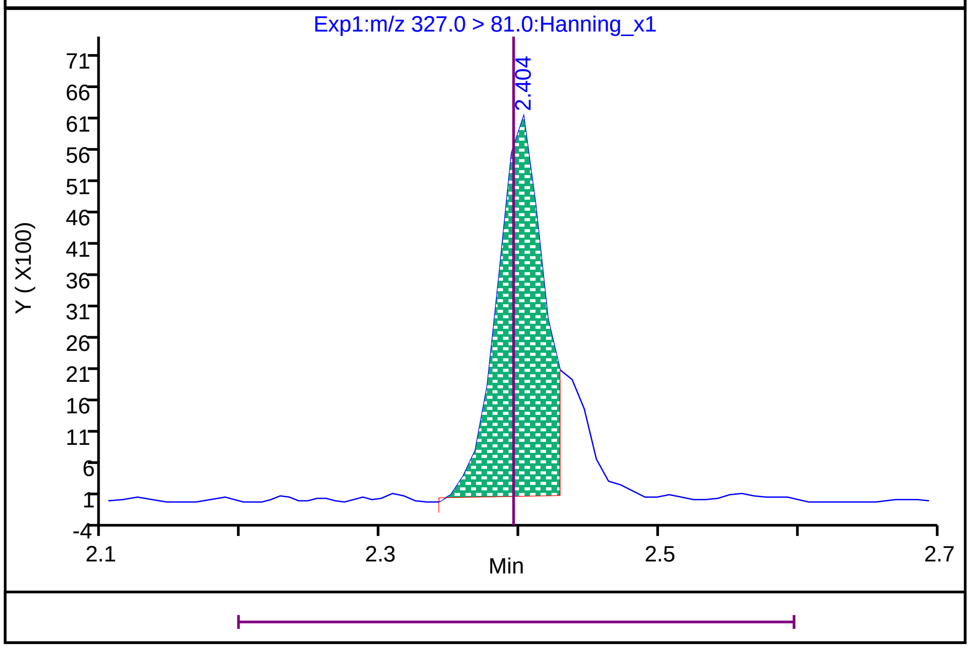
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.404
Area: 16286
Amount: 215.79
Amount Units: ng/L



RT: 2.404
Area: 13565
Amount: 215.79
Amount Units: ng/L



Data Editor: matthew.miller, 30-Oct-2021 10:18:26

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

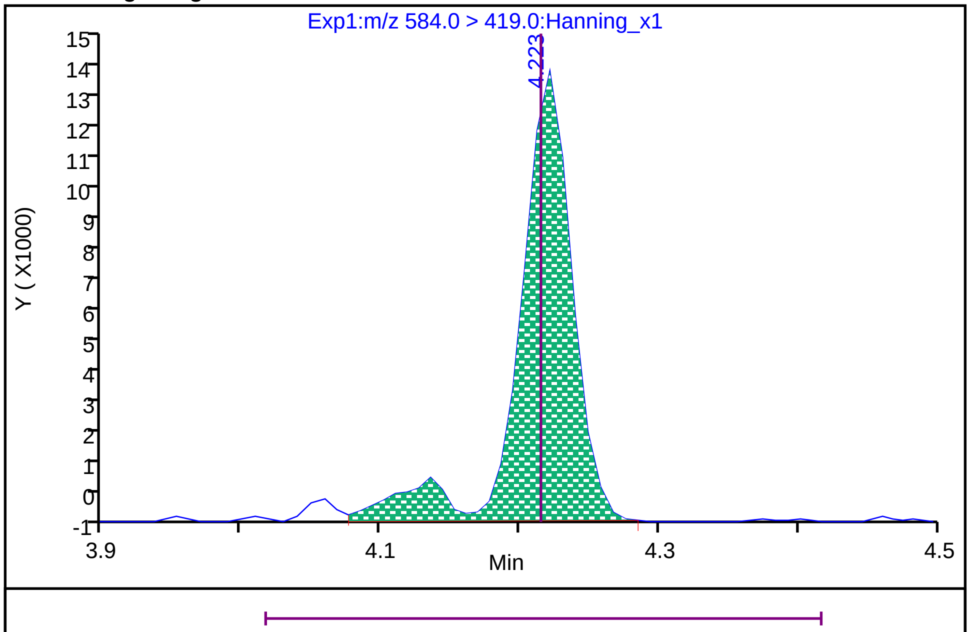
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d		
Injection Date:	29-Oct-2021 11:22:51	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200_SVLC-1725
Sample Info:	CCV 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

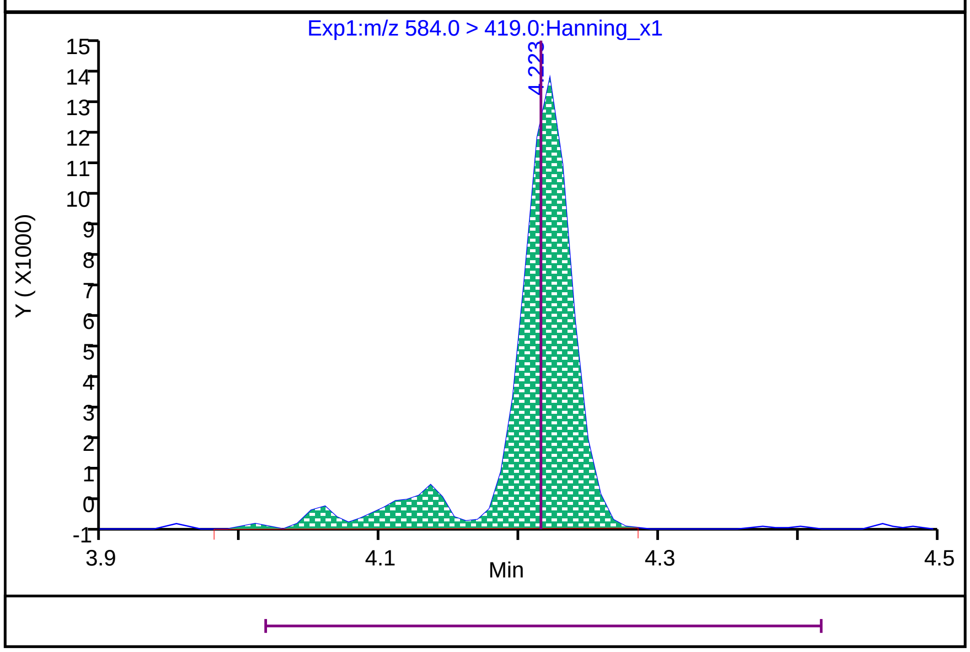
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.223
Area:	35331
Amount:	188.04
Amount Units:	ng/L



RT:	4.223
Area:	36634
Amount:	194.98
Amount Units:	ng/L



Data Editor: matthew.miller, 30-Oct-2021 10:18:47

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Oct-2021 15:06:12 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

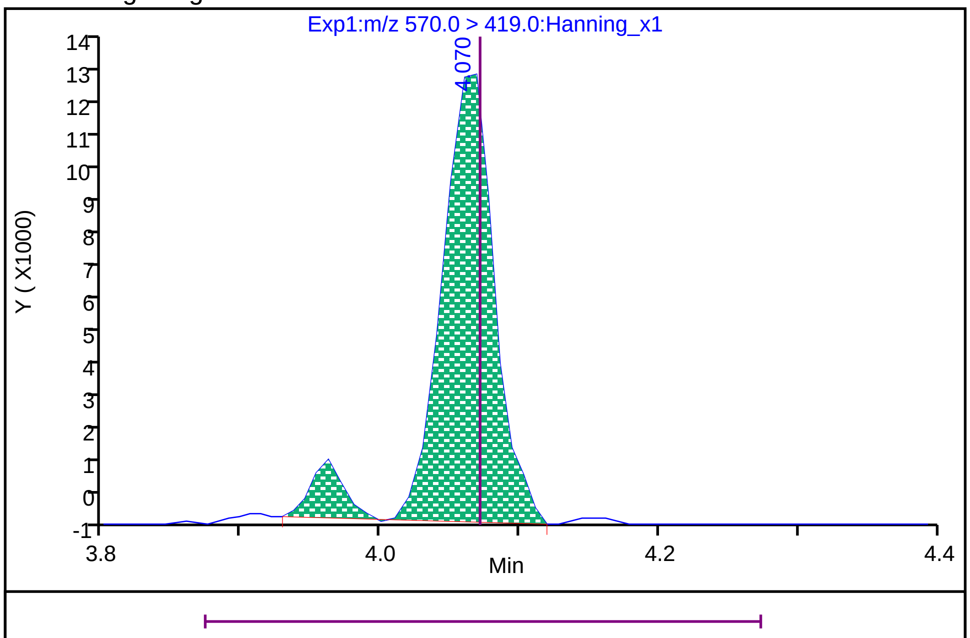
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921006.d		
Injection Date:	29-Oct-2021 11:22:51	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200_SVLC-1725
Sample Info:	CCV 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

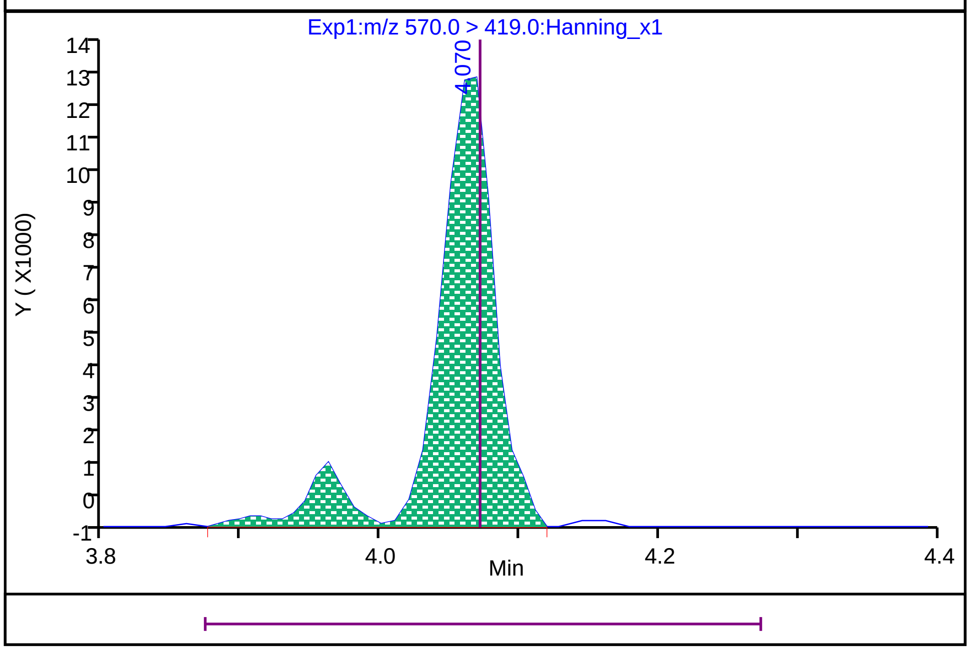
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.070
Area: 33610
Amount: 227.14
Amount Units: ng/L



RT: 4.070
Area: 35613
Amount: 240.68
Amount Units: ng/L



Data Editor: matthew.miller, 30-Oct-2021 10:18:41

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d		
Injection Date:	29-Oct-2021 12:47:31	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	5
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	937.96	93.8	70 - 130
D 46 13C4_PFBA	1091906	1071900			98.2	50 - 150
21 PFPeA			1000.00	1016.61	101.7	70 - 130
D 50 13C5_PFPeA	1016491	949227			93.4	50 - 150
D 44 13C3_PFBS	317213	324175			102.2	50 - 150
7 PFBS			884.00	769.58	87.1	70 - 130
D 63 13C2_4:2 FTS_2	322284	379852			117.9	50 - 150
1 4:2 FTS			934.00	1026.49	109.9	70 - 130
D 49 13C5_PFHxA	908351	916818			100.9	50 - 150
15 PFHxA			1000.00	920.07	92	70 - 130
22 PFPeS			938.00	870.12	92.8	70 - 130
28 GenX			2000.00	2044.05	102.2	70 - 130
D 66 13C3_GenX	722297	738814			102.3	50 - 150
D 47 13C4_PFHpA	926202	926023			100	50 - 150
13 PFHpA			1000.00	896.78	89.7	70 - 130
D 45 13C3_PFHxS	276451	274660			99.4	50 - 150
14 PFHxS			910.00	827.93	91	70 - 130
29 ADONA			942.00	945.07	100.3	70 - 130
2 6:2 FTS			948.00	915.64	96.6	70 - 130
D 64 13C2_6:2 FTS_2	273875	310061			113.2	50 - 150
D 53 13C8_PFOA	856960	886138			103.4	50 - 150
20 PFOA			1000.00	957.86	95.8	70 - 130
12 PFHpS			952.00	864.23	90.8	70 - 130
D 54 13C8_PFOS	232752	232622			99.9	50 - 150
18 PFOS			928.00	842.02	90.7	70 - 130
17 PFNA			1000.00	982.95	98.3	70 - 130
D 56 13C9_PFNA	863231	868472			100.6	50 - 150
30 9Cl-PF3ONS			932.00	977.53	104.9	70 - 130
D 55 13C8_PFOSA	428383	424401			99.1	50 - 150
19 PFOSA			1000.00	995.82	99.6	70 - 130
16 PFNS			960.00	857.88	89.4	70 - 130
D 65 13C2_8:2 FTS_2	211438	230634			109.1	50 - 150
3 8:2 FTS			958.00	1085.44	113.3	70 - 130
D 51 13C6_PFDA	753271	752764			99.9	50 - 150
10 PFDA			1000.00	953.17	95.3	70 - 130
D 58 d3-MeFOSAA	1033171	1093679			105.9	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1086.23	108.6	70 - 130
9 PFDS			964.00	902.62	93.6	70 - 130
25 PFUdA			1000.00	956.62	95.7	70 - 130
D 60 d5-EtFOSAA	944086	1025083			108.6	50 - 150
D 52 13C7_PFUdA	729025	740228			101.5	50 - 150
5 N-EtFOSAA			1000.00	953.33	95.3	70 - 130
D 61 d7-MeFOSE	124594	135328			108.6	50 - 150
32 MeFOSE			1000.00	997.72	99.8	70 - 130
D 57 d3-MeFOSA	57199	62502			109.3	50 - 150
26 MeFOSA			1000.00	1053.12	105.3	70 - 130
31 11Cl-PF3OUDS			942.00	956.43	101.5	70 - 130
D 62 d9-EtFOSE	110214	117013			106.2	50 - 150
33 EtFOSE			1000.00	1097.70	109.8	70 - 130
D 59 d5-EtFOSA	56576	61180			108.1	50 - 150
27 EtFOSA			1000.00	1016.08	101.6	70 - 130
11 PFDoA			1000.00	955.59	95.6	70 - 130
D 38 13C2_PFDoA	702110	691333			98.5	50 - 150
4 10:2 FTS			964.00	1043.95	108.3	70 - 130
34 PFDOS			968.00	779.44	80.5	70 - 130
24 PFTrDA			1000.00	1003.13	100.3	70 - 130
D 42 13C2_PFTeDA	874602	887938			101.5	50 - 150
23 PFTeDA			1000.00	1015.23	101.5	70 - 130
D 40 13C2_PFHxDA	327951	343219			104.7	50 - 150
35 PFHxDA			1000.00	1005.46	100.5	70 - 130
36 PFODA			1000.00	920.25	92	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d		
Injection Date:	29-Oct-2021 12:47:31	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	5
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.706	0	1071900	20	>100:1			1000.00	1194.85	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.706	1/1	1086457	20	>100:1			1000.00	937.96		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.077	0	949227	17	>100:1			1000.00	1055.99	93.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.077	1/1	1041571	16	>100:1			1000.00	1016.61		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.129	1	324175	14	>100:1			1000.00	1086.04	102.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.129	1/0	346839	17	>100:1	Target = 3.78		884.00	769.58		
298.9 > 99	44	2.131	2.129		96146	15	>100:1	3.60 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.485	2.475	1/0	291019	18	>100:1	Target = 3.45		938.00	870.12		
349 > 99	44	2.485	2.475		88026	18	>100:1	3.30 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.397	1	379852	19	>100:1			5000.00	8499.98	117.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.407	2.397	1/0	149415	17	>100:1	Target = 1.43		934.00	1026.49		
327 > 81	63	2.407	2.397		85273	20	>100:1	1.75 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.440	1	916818	18	>100:1			1000.00	1119.75	100.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.440	1/0	866446	19	>100:1	Target = 16.37		1000.00	920.07		
313 > 119	49	2.450	2.440		48590	16	>100:1	17.83 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.562	1	738814	19	>100:1			5000.00	5106.28	102.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.571	2.562	1/0	231970	18	>100:1	Target = 0.74		2000.00	2044.05		
285 > 185	66	2.571	2.562		311938	19	>100:1	0.74 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.828	2.827	1	926023	17	>100:1			1000.00	1155.67	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.828	2.827	1/0	824045	17	>100:1	Target = 3.21		1000.00	896.78		
363 > 169	47	2.828	2.827		265077	17	>100:1	3.10 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.846	2.836	1	274660	17	>100:1			1000.00	1116.71	99.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.846	2.845	1/0	274173	26	>100:1	Target = 3.47	5.08	910.00	827.93		
399 > 99	45	2.846	2.845		81997	24	>100:1	3.34 (1.73-5.21)	7.58				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.872	2.871	1/0	1411138	18	>100:1	Target = 2.28		942.00	945.07		
377 > 85	45	2.872	2.871		571559	19	>100:1	2.46 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.215	3.208	1/0	257749	21	>100:1	Target = 3.62		952.00	864.23		
449 > 99	45	3.208	3.208		67534	20	>100:1	3.81 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.170	3.177	0	310061	22	>100:1			5000.00	7095.70	113.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.183	3.183	0/0	89553	21		Target = 1.19		948.00	915.64		
427 > 81	64	3.183	3.183		68374	22	>100:1	1.30 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.208	3.202	1	886138	22	>100:1			1000.00	1171.11	103.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.202	1/0	854586	20	>100:1	Target = 2.34		1000.00	957.86		
413 > 169	53	3.208	3.202		330322	20	>100:1	2.58 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.569	3.565	1	232622	20	>100:1			1000.00	1026.71	99.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.577	3.572	1/0	236452	41	>100:1	Target = 4.00	3.18	928.00	842.02		
499 > 99	54	3.569	3.572		61748	37	>100:1	3.82 (2.00-6.01)	6.80				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.774	3.769	1/0	693917	19	>100:1			932.00	977.53		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.901	3.903	0/-1	201785	17	>100:1	Target = 3.83		960.00	857.88		
549 > 99	54	3.909	3.903		55300	22	>100:1	3.64 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.205	4.199	1/0	202015	16	>100:1	Target = 3.87		964.00	902.62		
599 > 99	54	4.205	4.199		48029	15		4.20 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.357	4.359	0/-1	581044	17	>100:1			942.00	956.43		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.703	4.690	1/0	165689	16	>100:1	Target = 3.65		968.00	779.44		
699 > 99	54	4.703	4.690		46897	15		3.53 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.577	3.572	1	868472	19	>100:1			1000.00	1119.96	100.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.577	3.572	1/0	745092	20	>100:1	Target = 4.21		1000.00	982.95		
463 > 169	56	3.577	3.572		161738	20	>100:1	4.60 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.856	3.842	1	424401	19	>100:1			1000.00	1013.34	99.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.856	3.842	1/0	479177	17	>100:1	Target = 49.05		1000.00	995.82		
498>478	55	3.856	3.842		10229	22	50:1	46.84 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.909	3.903	1	230634	18	>100:1			5000.00	6099.21	109.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.909	3.911	0/-1	73926	18	>100:1	Target = 1.27		958.00	1085.44		
527 > 81	65	3.909	3.911		49717	17	>100:1	1.48 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.498	4.492	1/0	72608	16	>100:1	Target = 2.25		964.00	1043.95		
627 > 80	65	4.498	4.492		29607	19	>100:1	2.45 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.916	3.911	1	752764	17	>100:1			1000.00	1108.38	99.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.916	3.918	0/-1	724973	17	>100:1	Target = 8.94		1000.00	953.17		
513 > 169	51	3.916	3.918		82192	16	>100:1	8.82 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.071	4.065	1	1093679	16	>100:1			5000.00	5337.66	105.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.071	4.073	0/-1	181500	33	>100:1	Target = 1.38	6.64	1000.00	1086.23		M
570 > 483	58	4.071	4.073		125270	30	>100:1	1.44 (0.69-2.08)	3.82				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.223	4.217	1	740228	15	>100:1			1000.00	1170.98	101.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.223	4.217	1/0	628020	16	>100:1	Target = 8.27		1000.00	956.62		
563 > 169	52	4.223	4.217		75746	17	>100:1	8.29 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.223	4.217	1	1025083	17	>100:1			5000.00	5971.02	108.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.232	4.217	1/0	208598	31	>100:1	Target = 1.95	6.01	1000.00	953.33		
584 > 526	60	4.232	4.217		114961	31	>100:1	1.81 (0.97-2.92)	3.74				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.262	1	135328	16	>100:1			1000.00	1064.22	108.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.286	4.271	1/0	133173	15	>100:1			1000.00	997.72		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.280	1	62502	14	>100:1			1000.00	1075.36	109.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.295	4.280	1/0	70083	15	>100:1	Target = 1.08		1000.00	1053.12		
512 > 219	57	4.295	4.280		62673	16	>100:1	1.11 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.427	1	117013	17	>100:1			1000.00	996.22	106.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.447	4.434	1/0	109458	16	>100:1			1000.00	1097.70		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.442	1	61180	17	>100:1			1000.00	1113.81	108.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.461	4.449	1/0	71127	18	>100:1	Target = 1.10		1000.00	1016.08		
526 > 219	59	4.461	4.449		66305	16	>100:1	1.07 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.490	4.478	1	691333	17	>100:1			1000.00	1151.02	98.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.490	4.485	1/0	676634	18	>100:1	Target = 5.93		1000.00	955.59		
613 > 169	38	4.483	4.485		110119	17	>100:1	6.14 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.725	4.721	1/0	375166	17	>100:1	Target = 2.90		1000.00	1003.13		
663 > 169	38	4.725	4.721		116254	19	>100:1	3.22 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.944	4.935	1	887938	20	>100:1			1000.00	1108.27	101.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.944	4.935	1/0	763207	21	>100:1	Target = 6.34		1000.00	1015.23		
713 > 169	42	4.944	4.935		106518	19	>100:1	7.16 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.321	5.319	1	343219	19	>100:1			1000.00	1043.06	104.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.327	5.326	1/0	699205	20	>100:1	Target = 12.53		1000.00	1005.46		
813 > 269	40	5.327	5.326		55184	19	>100:1	12.67 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.695	5.695	0/-1	468789	21	>100:1	Target = 152.15		1000.00	920.25		
913 > 319	40	5.695	5.695		2747	19	>100:1	170.65 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.916	3.911	1	705310	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.440	1	821264	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.202	3.202	0	772554	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.708	1.706	1	921479	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.569	3.565	1	226320	18	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

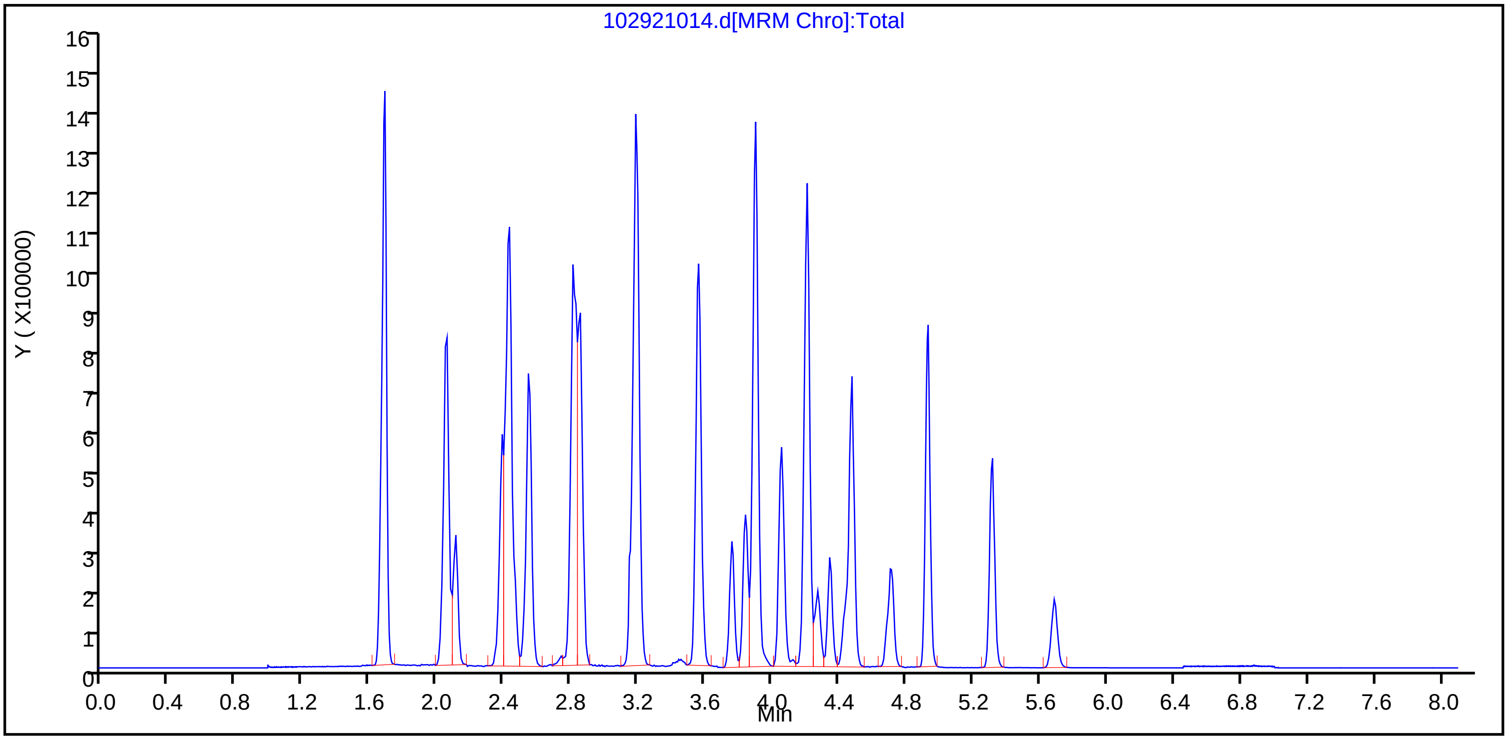
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

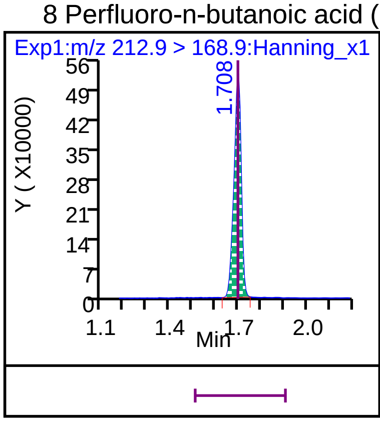
Report Date: 30-Oct-2021 15:06:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

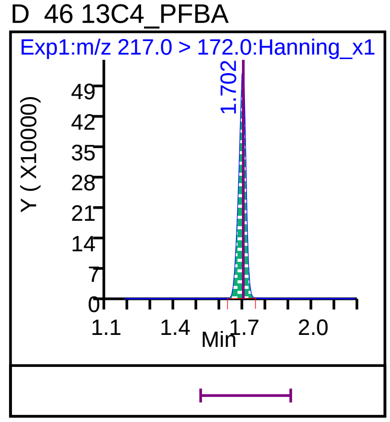
Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d		
Injection Date:	29-Oct-2021 12:47:31	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



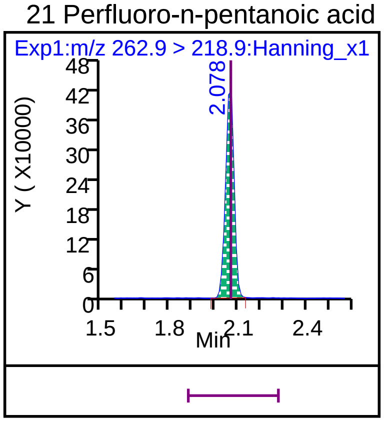
8 Perfluoro-n-butanoic acid (PFBA)



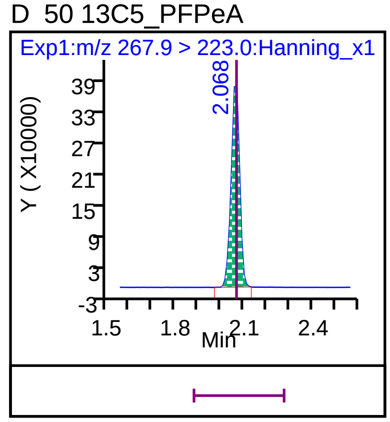
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

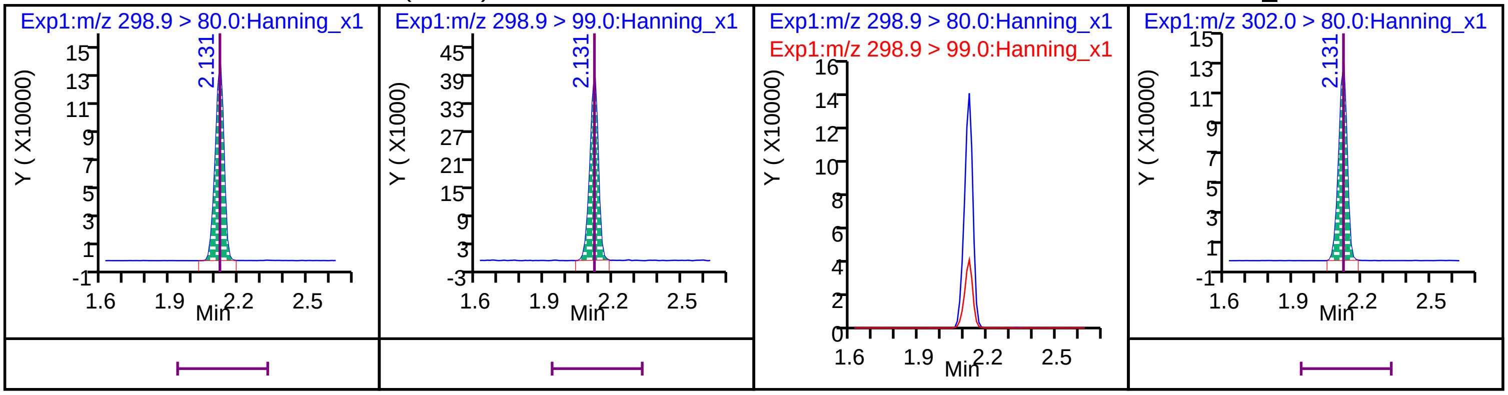


D 50 13C5_PFPeA

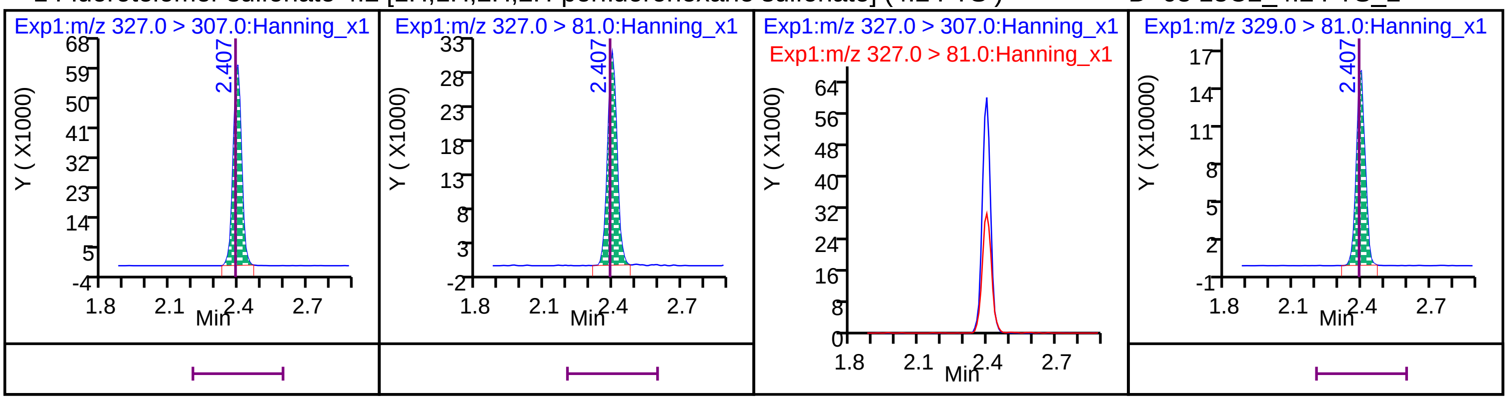


Report Date: 30-Oct-2021 15:06:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d

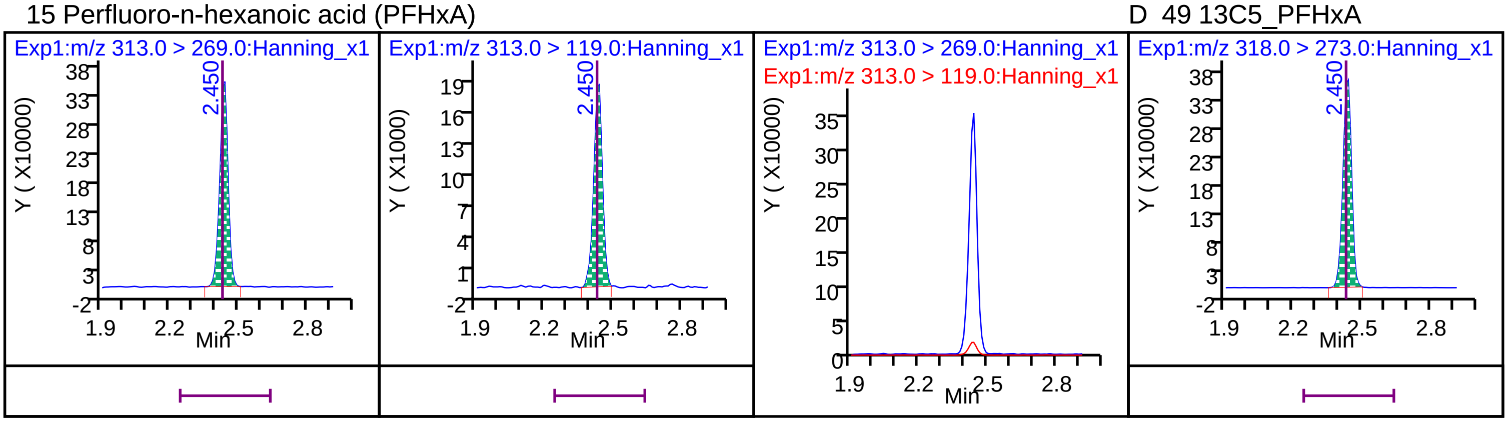
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



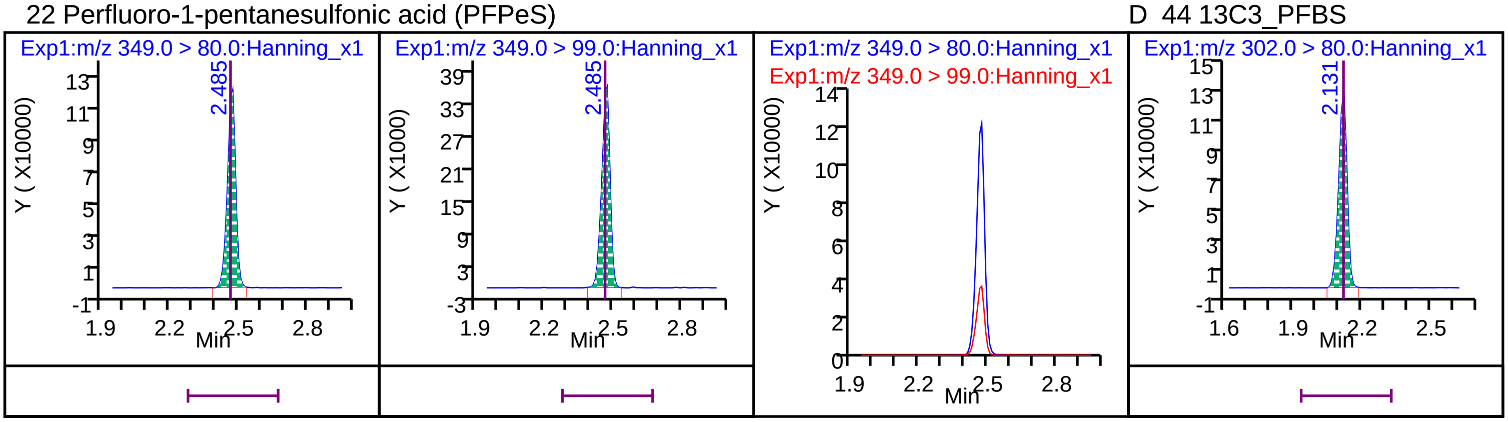
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



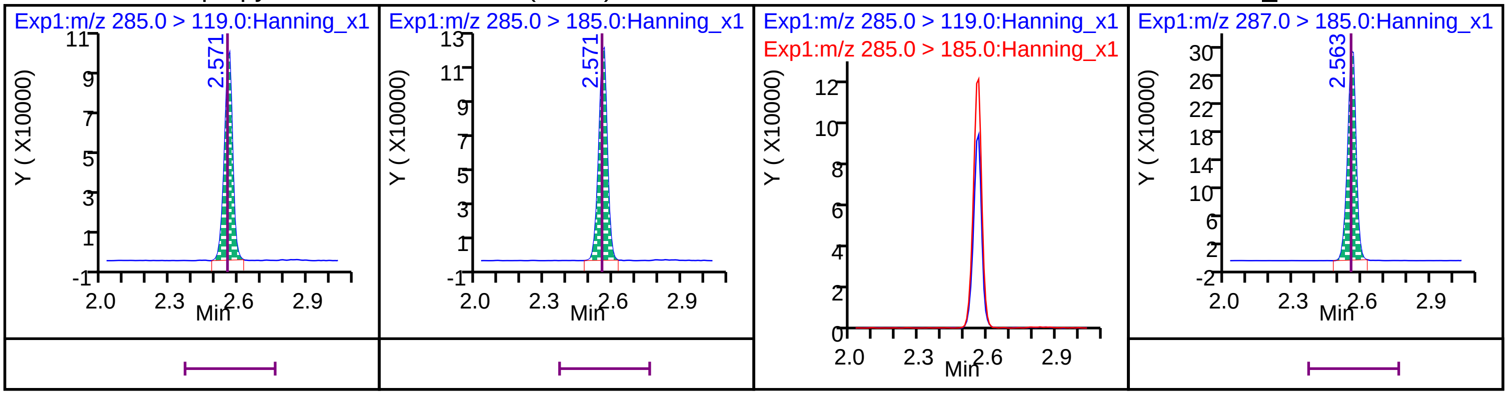
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



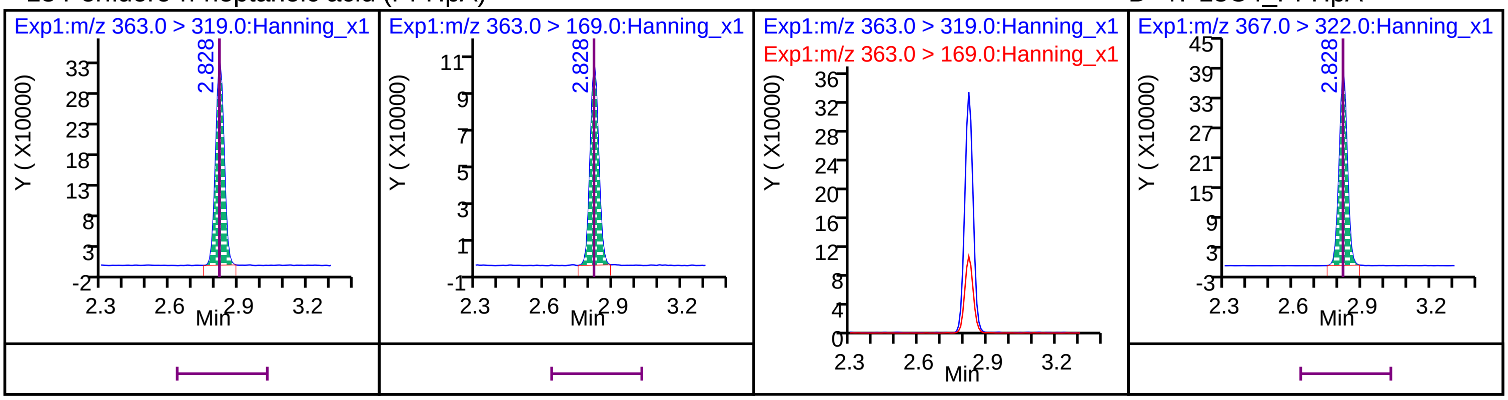
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



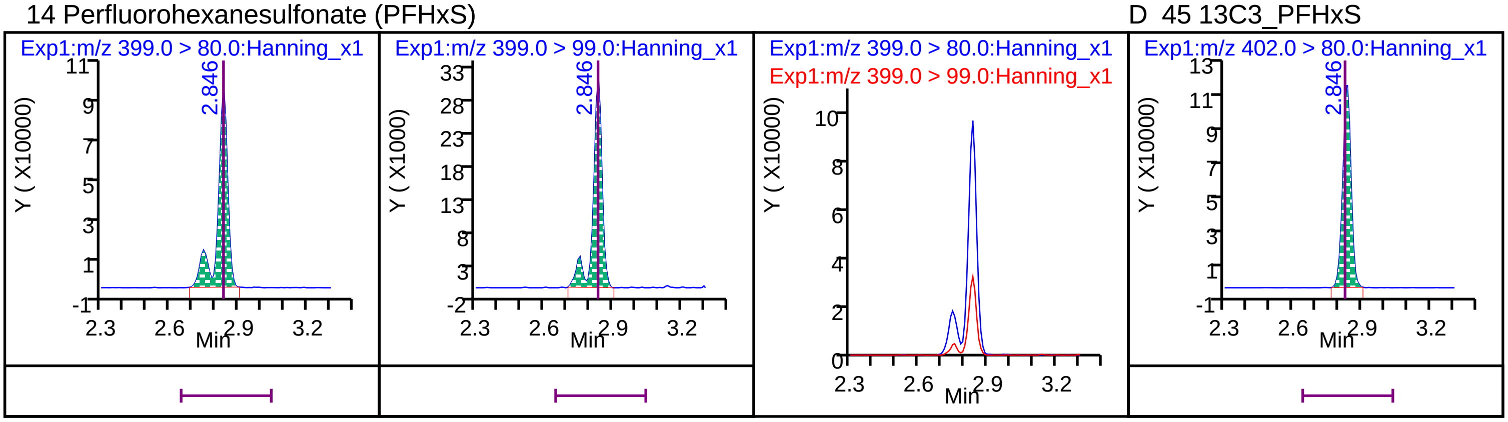
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



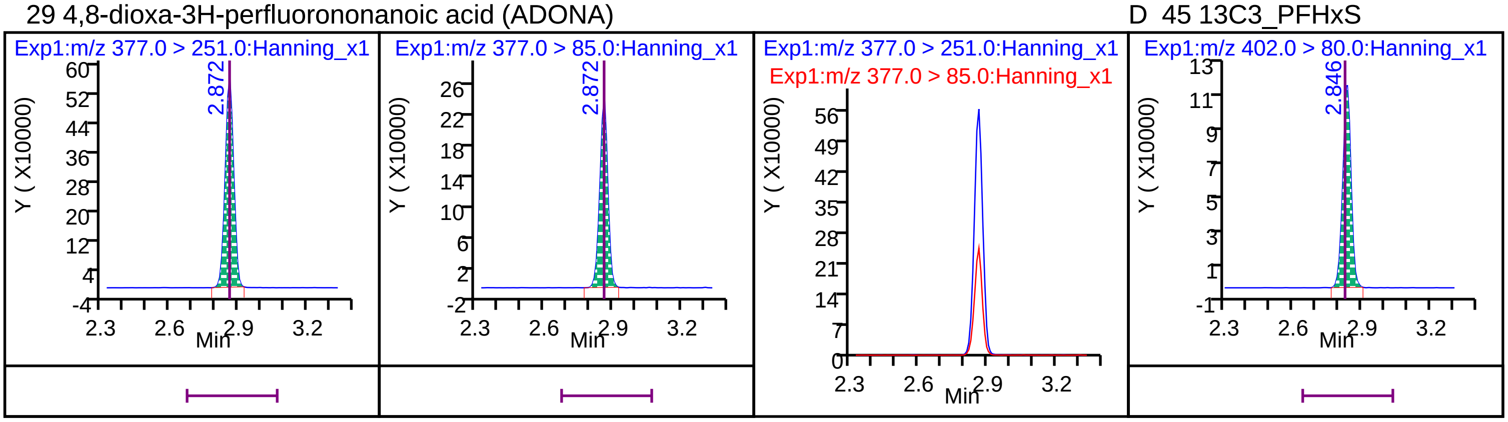
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

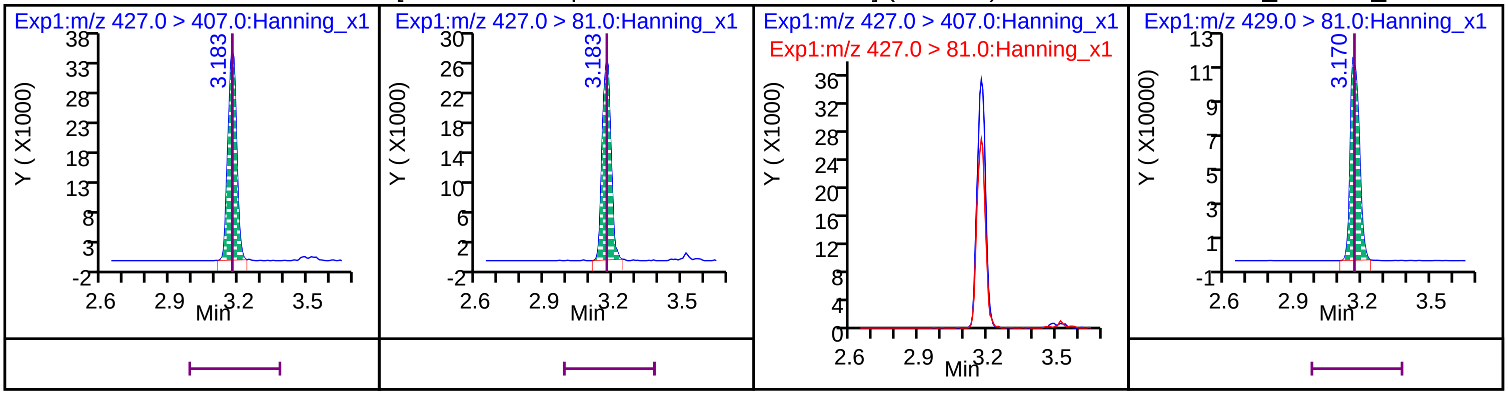


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

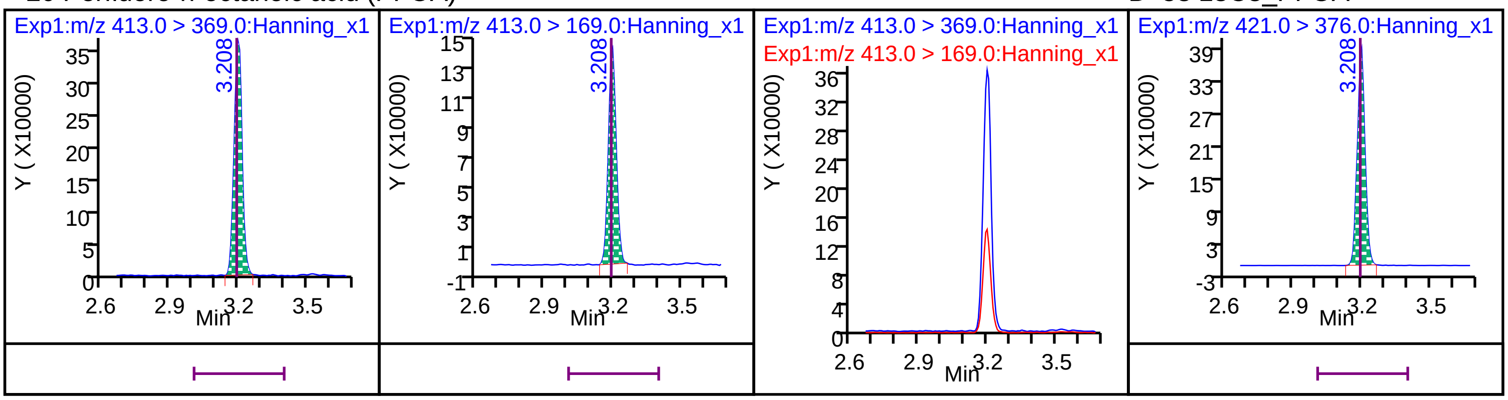


Report Date: 30-Oct-2021 15:06:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d

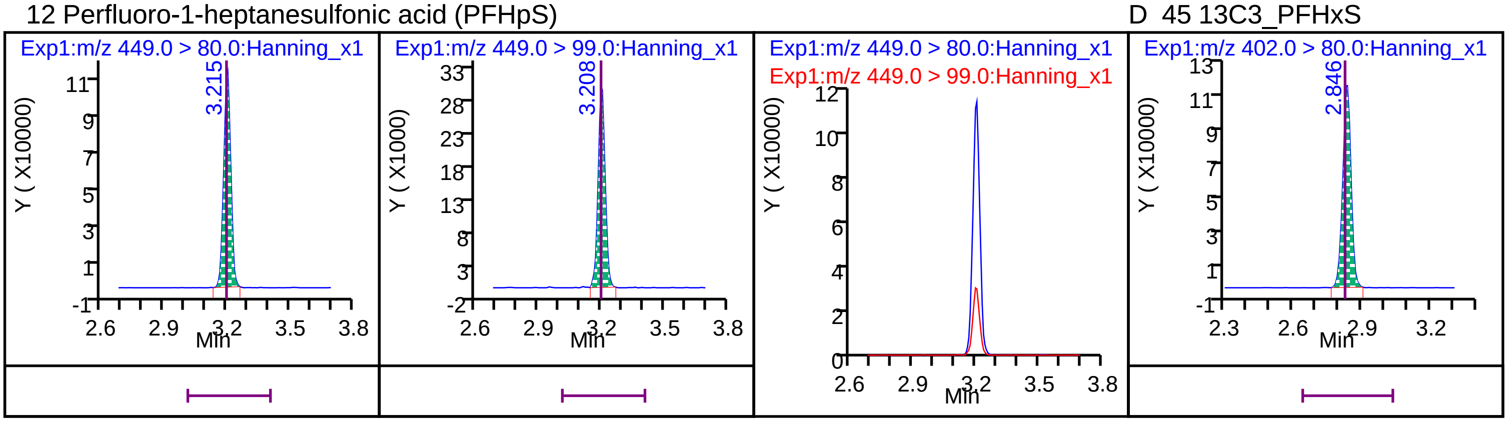
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



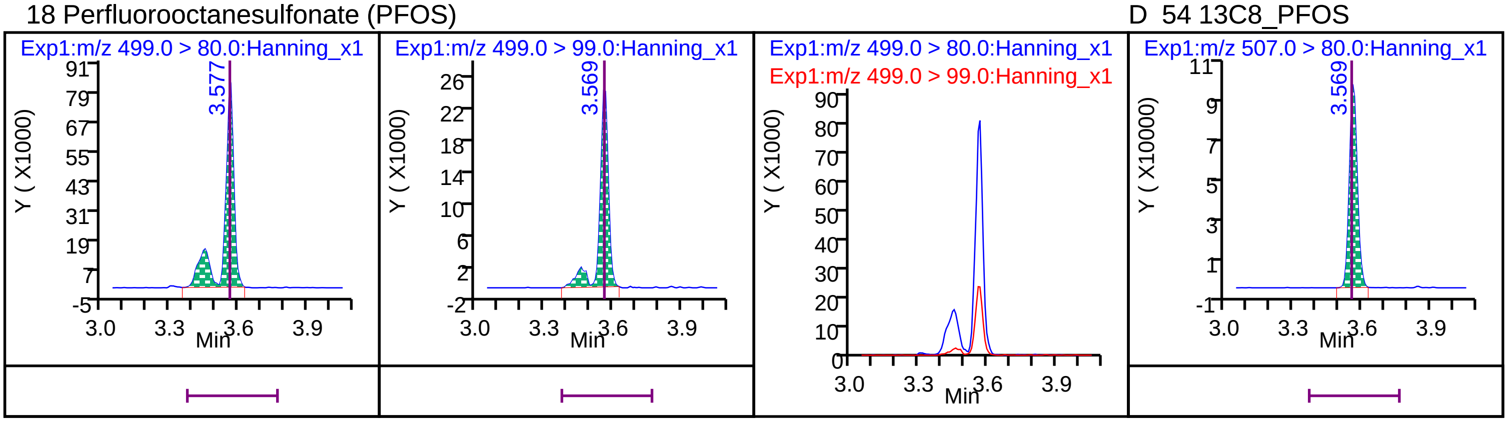
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



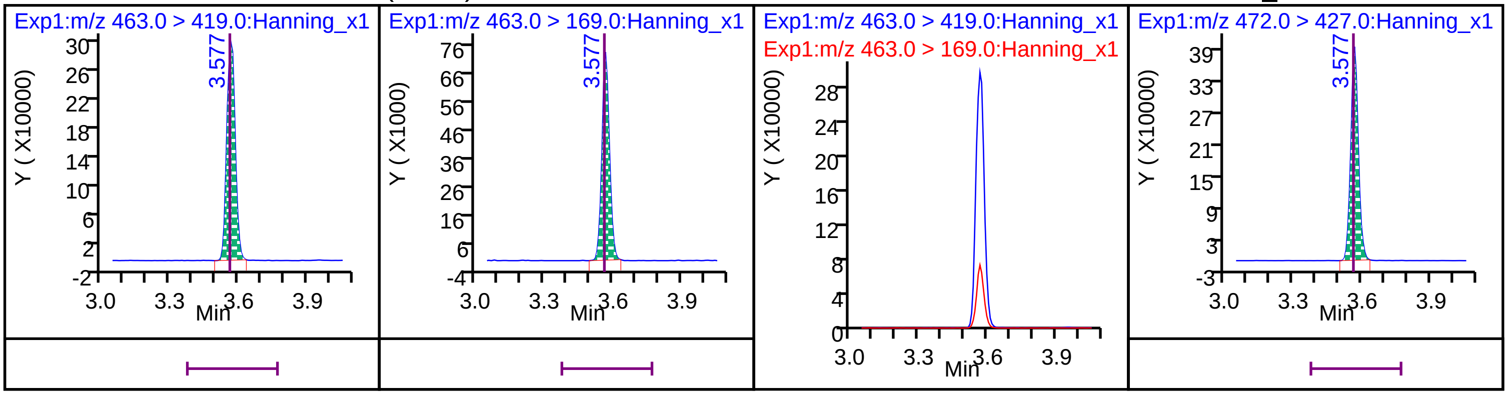
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



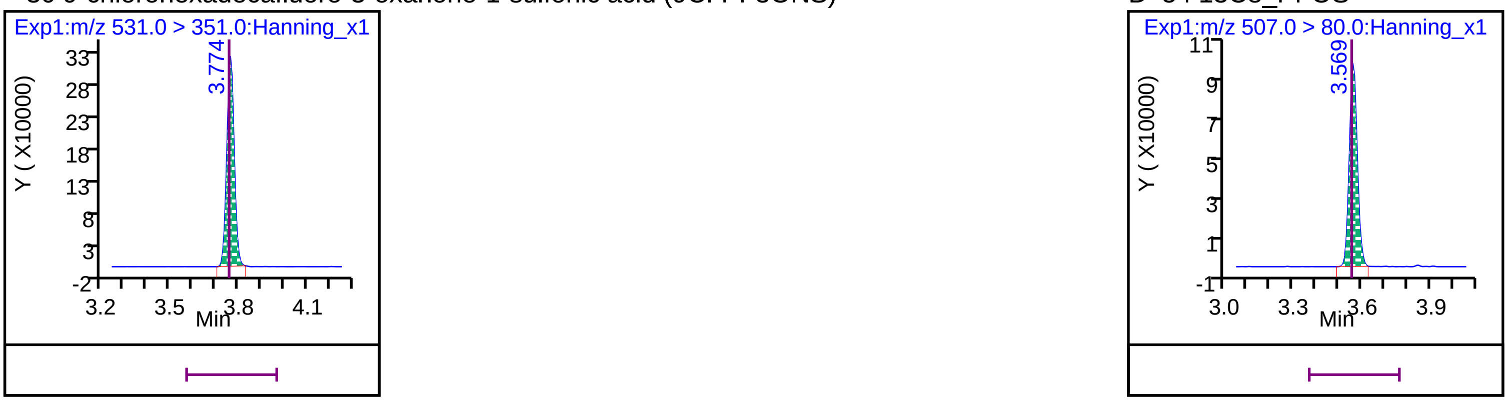
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



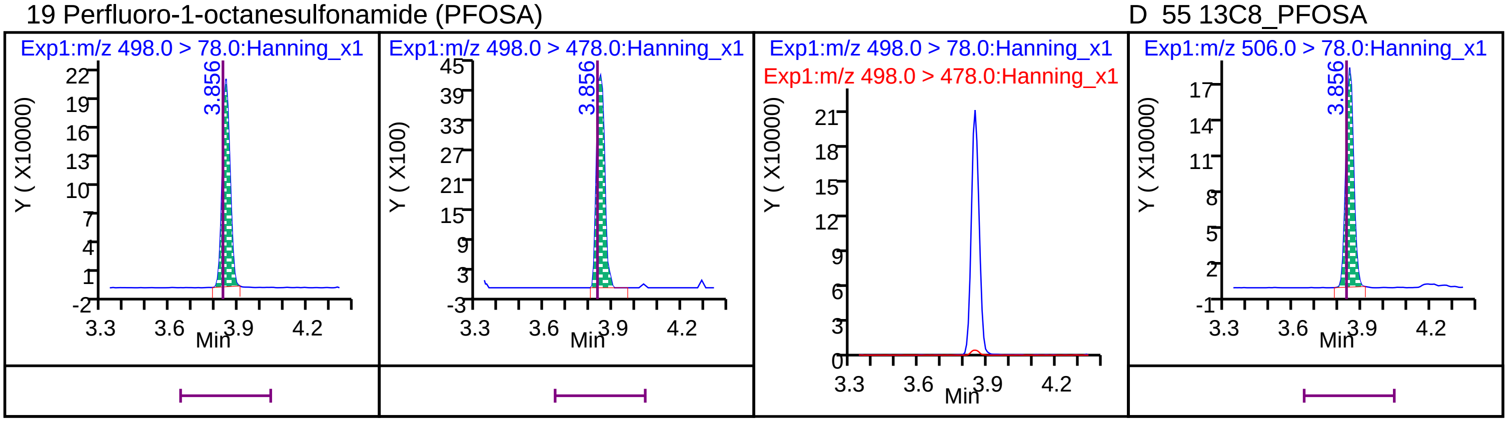
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



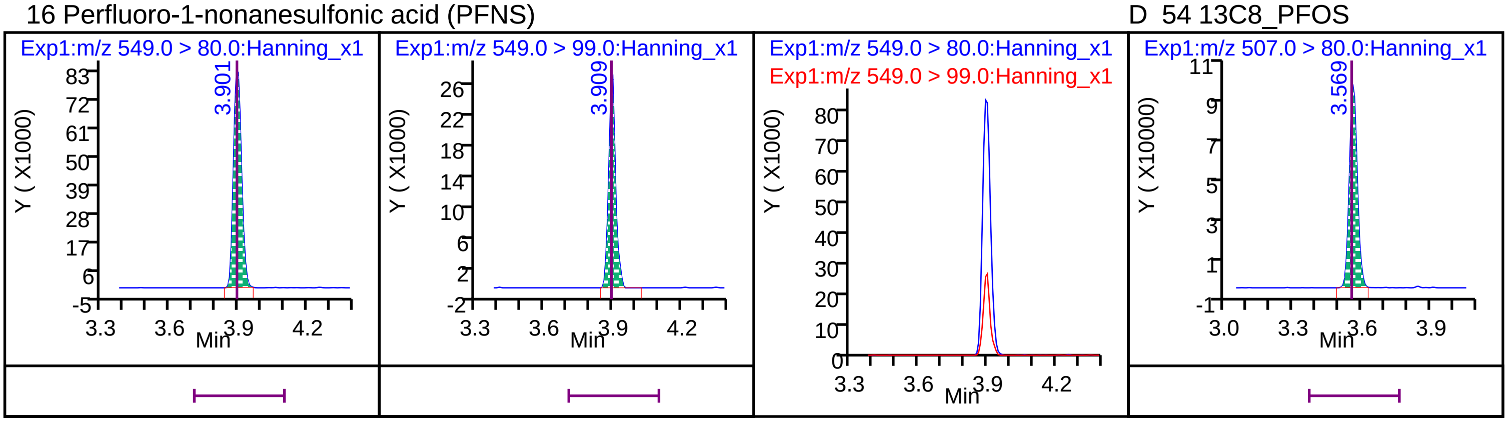
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



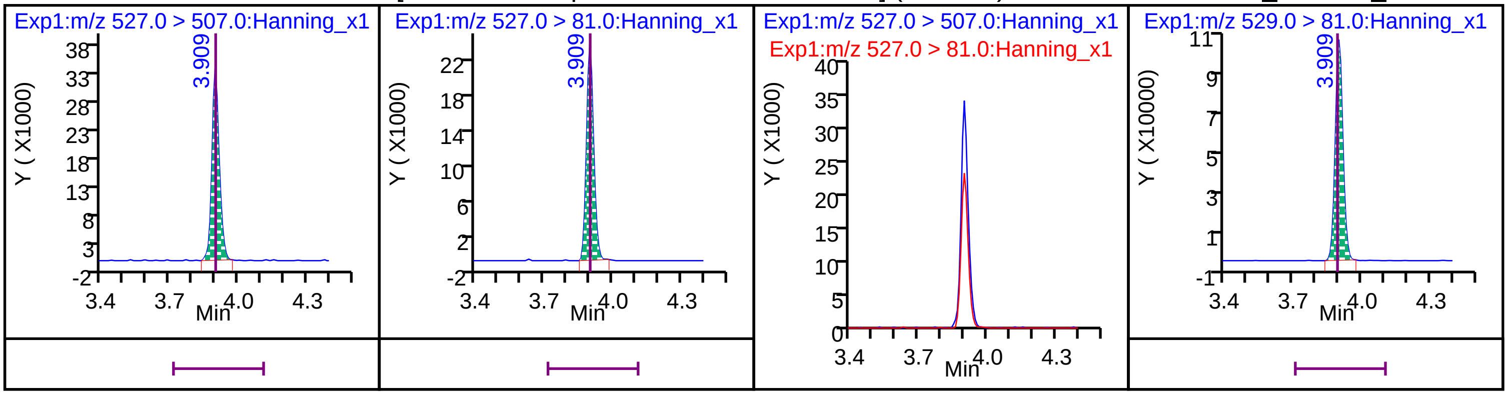
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



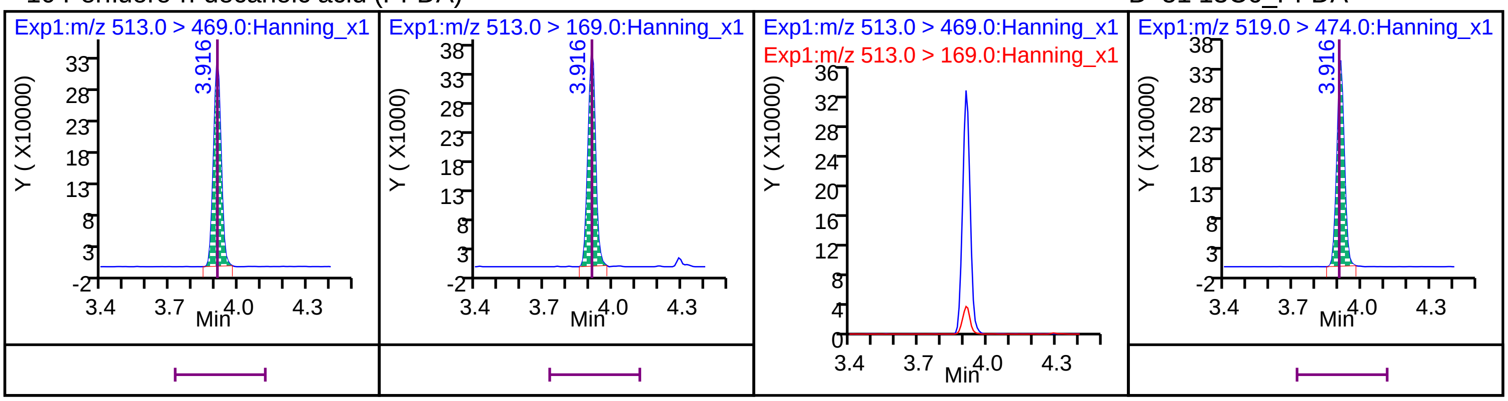
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



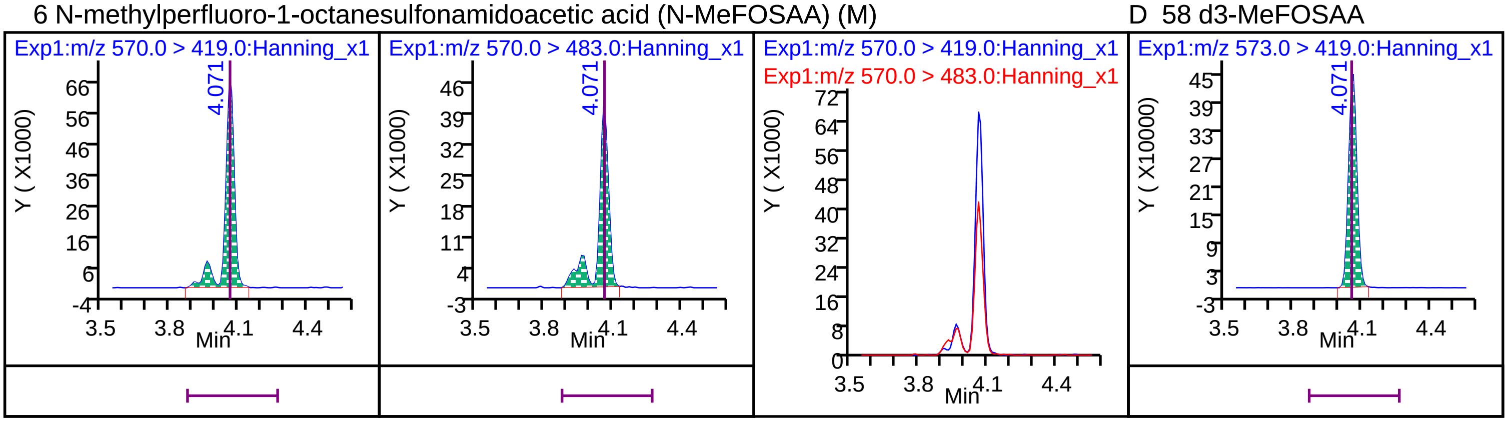
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



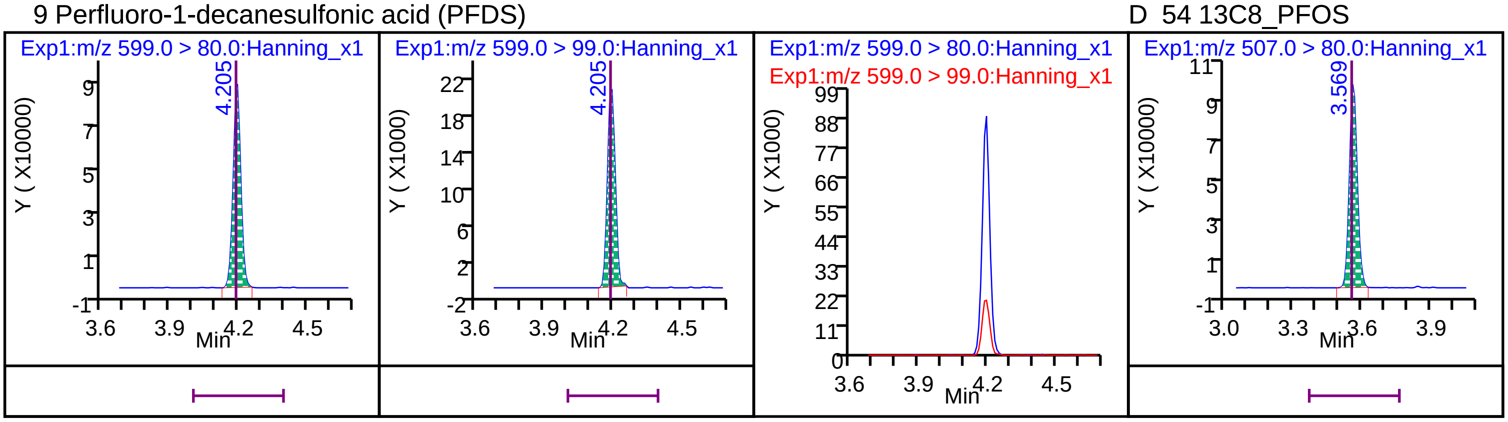
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



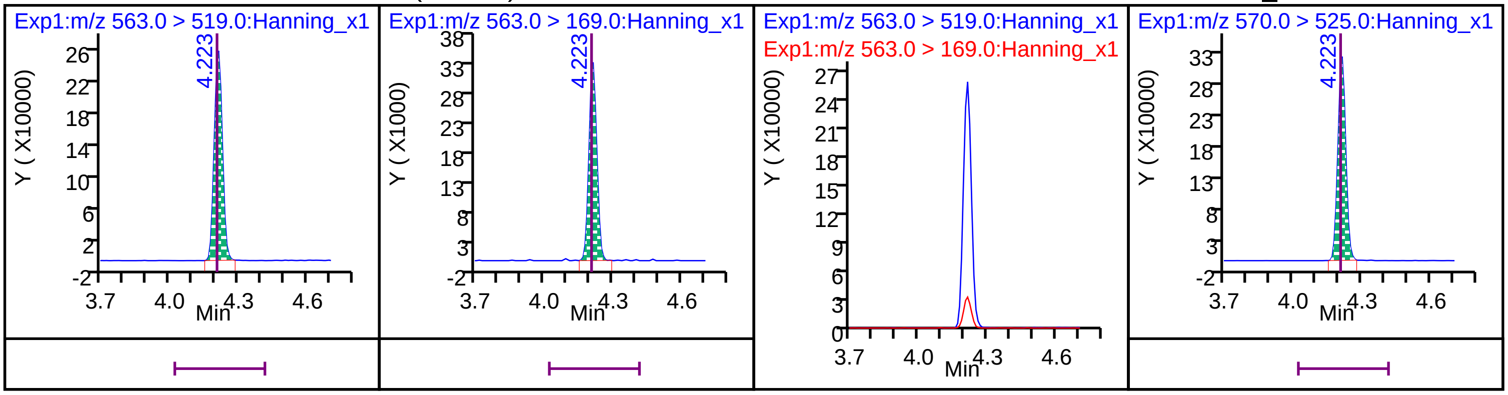
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



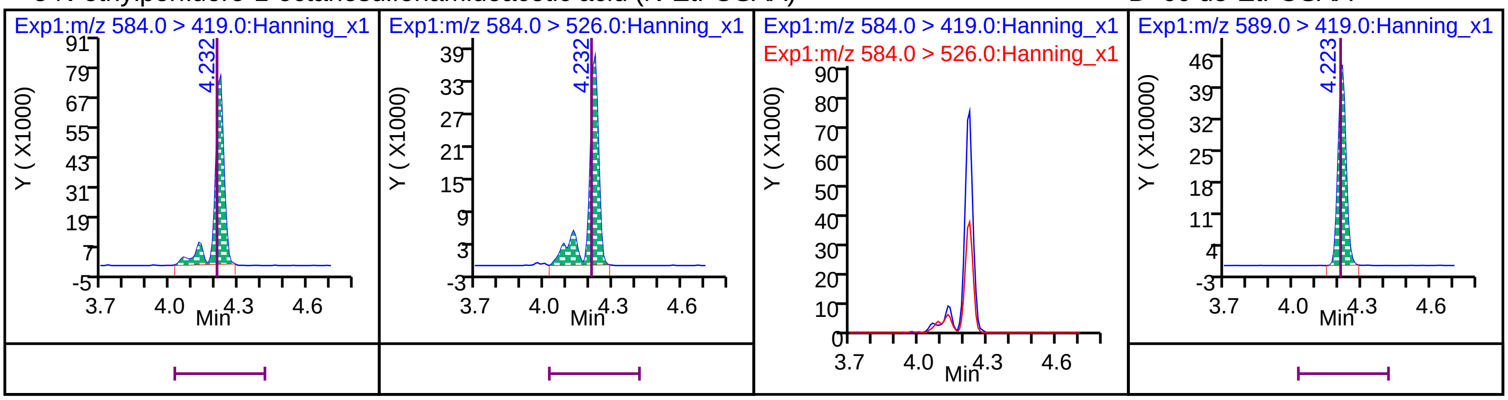
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



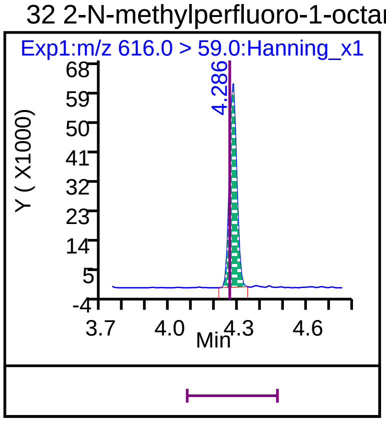
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



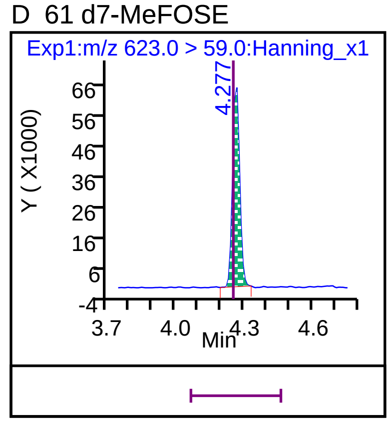
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



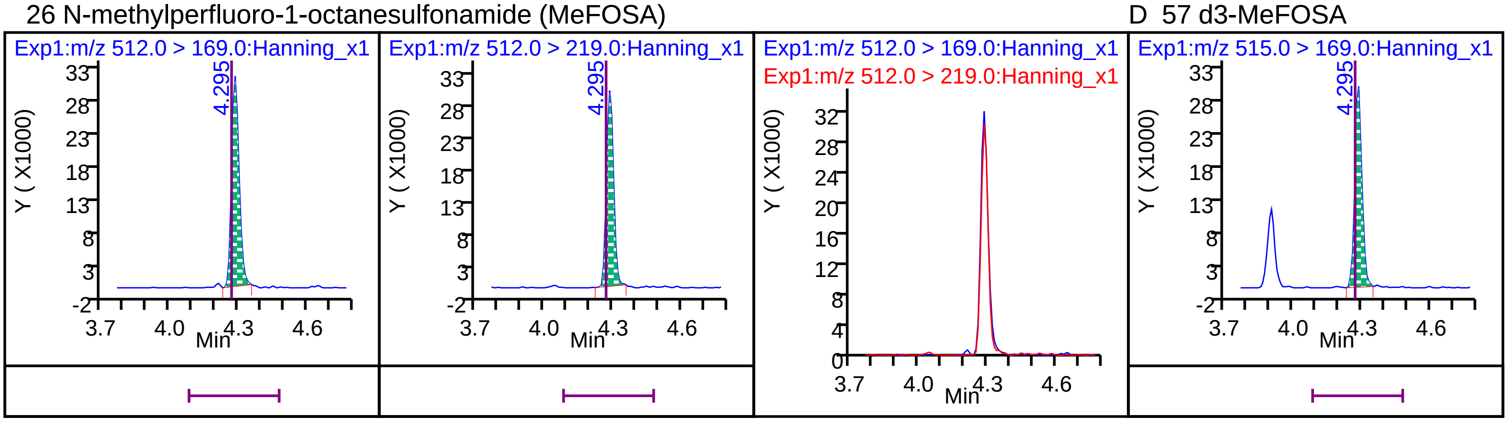
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



D 61 d7-MeFOSE

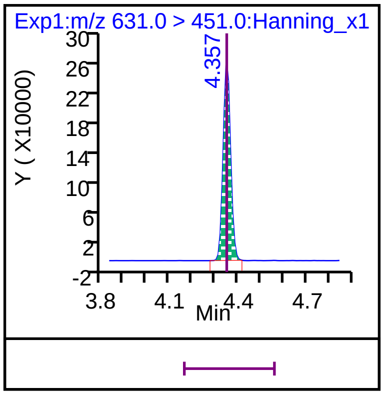


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

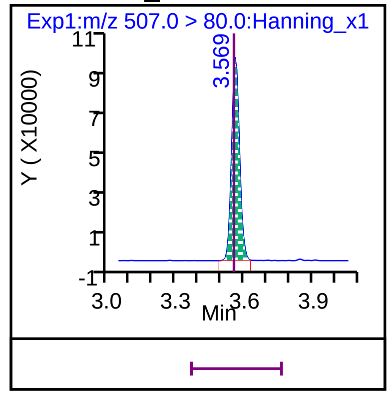


Report Date: 30-Oct-2021 15:06:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d

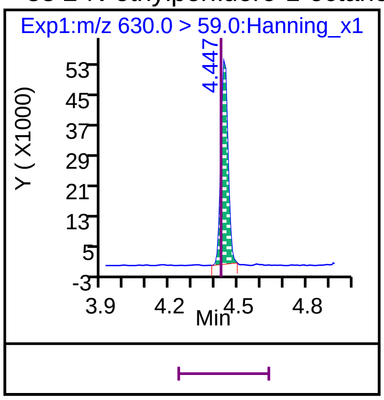
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



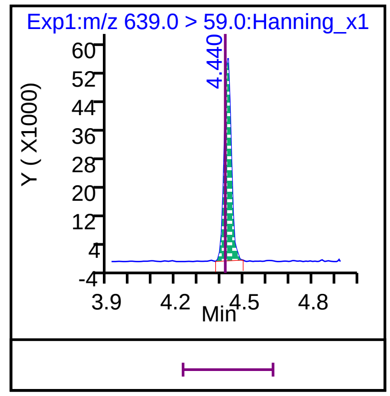
D 54 13C8_PFOS



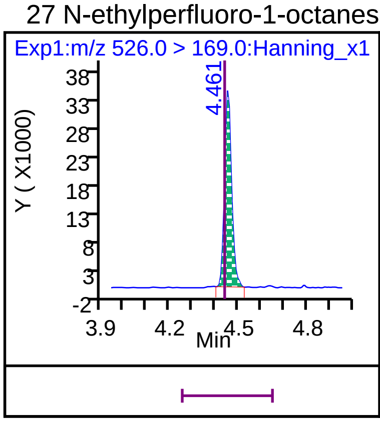
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

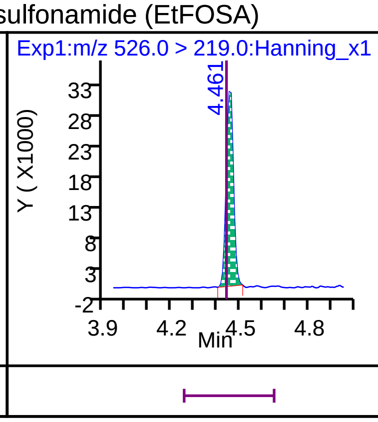


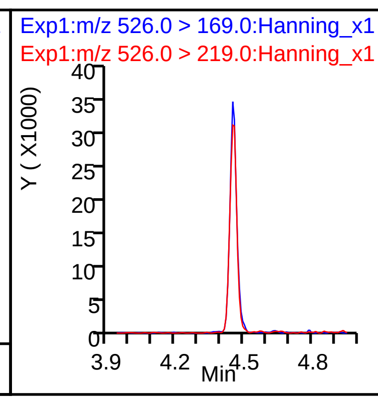
D 62 d9-EtFOSE



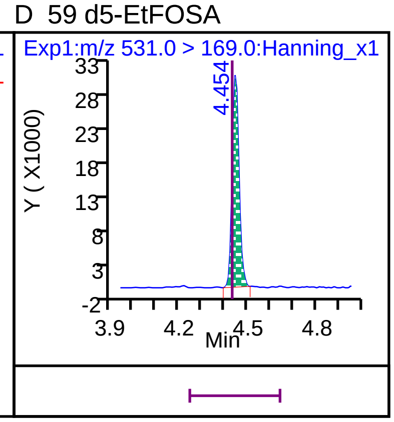
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



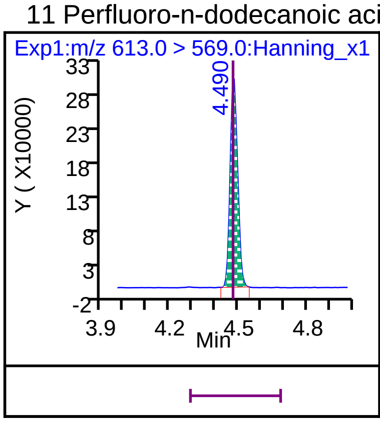


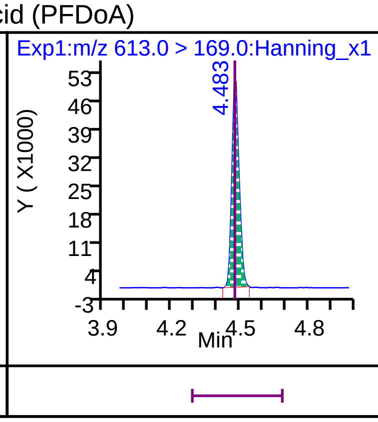


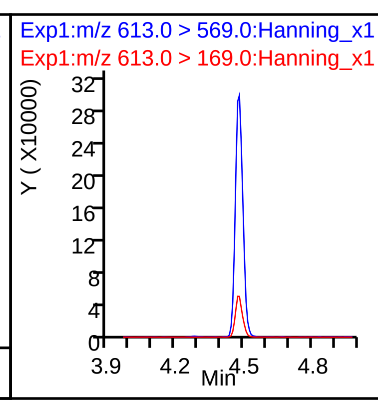
D 59 d5-EtFOSA



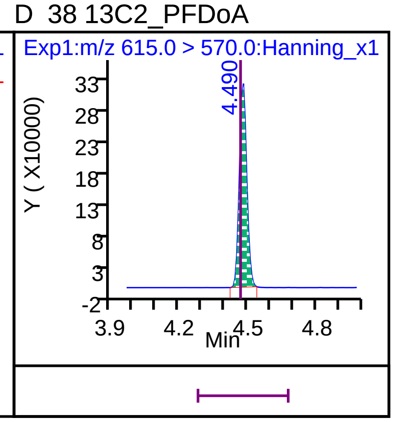
11 Perfluoro-n-dodecanoic acid (PFDoA)



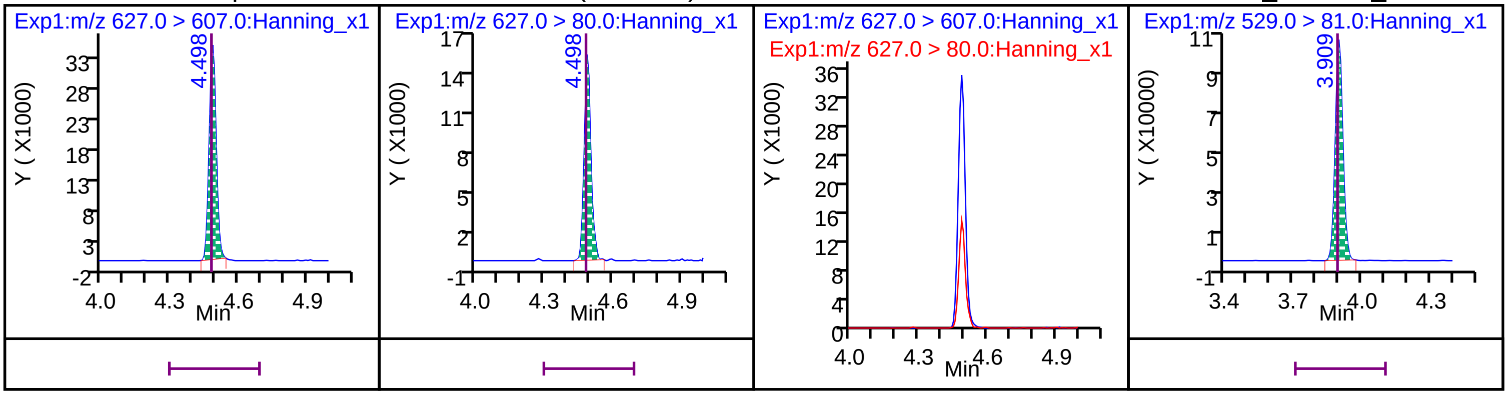




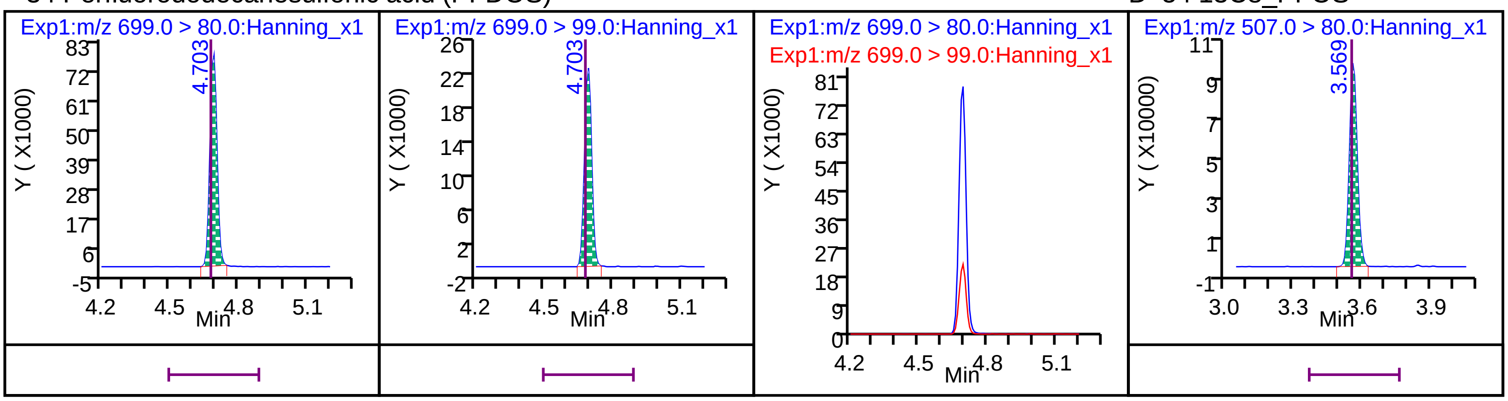
D 38 13C2_PFDoA



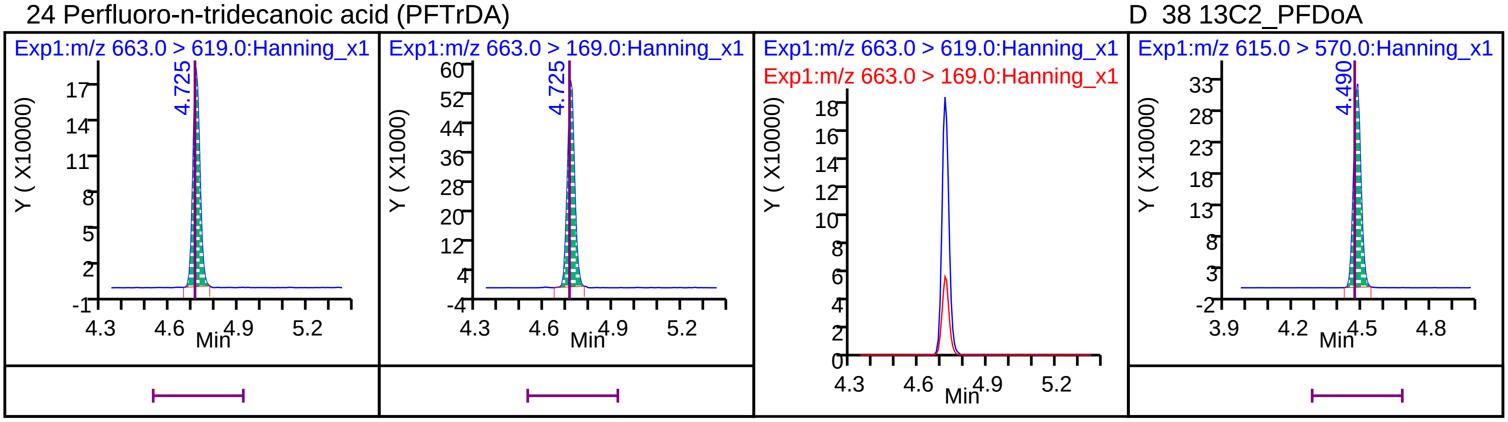
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



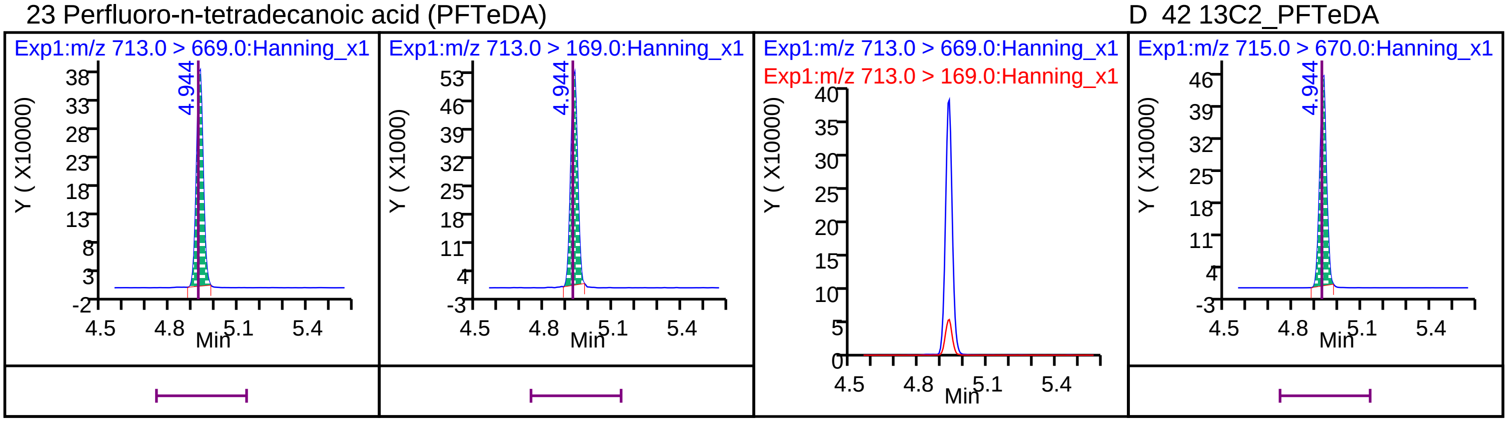
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



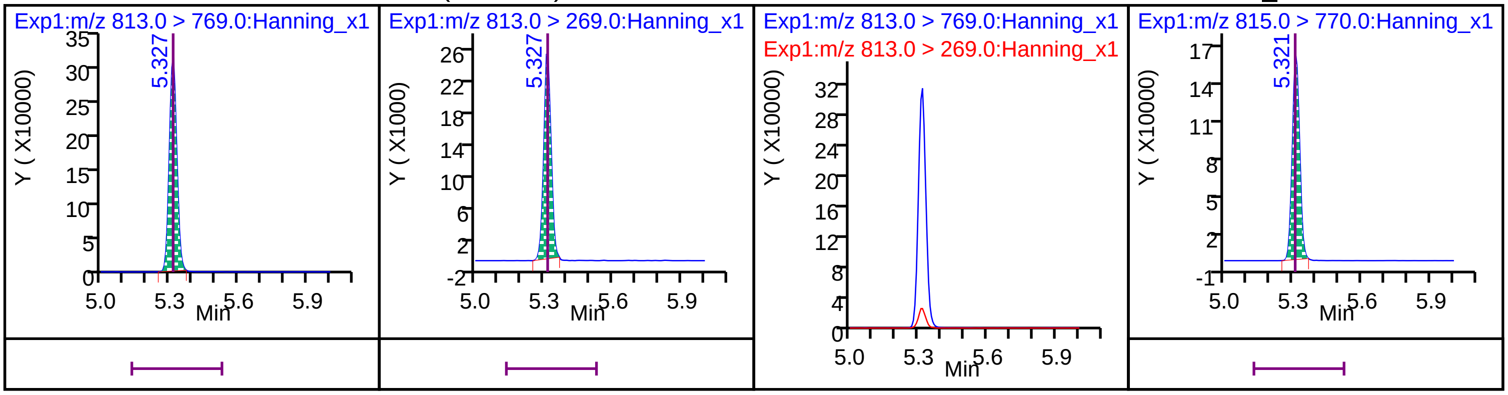
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



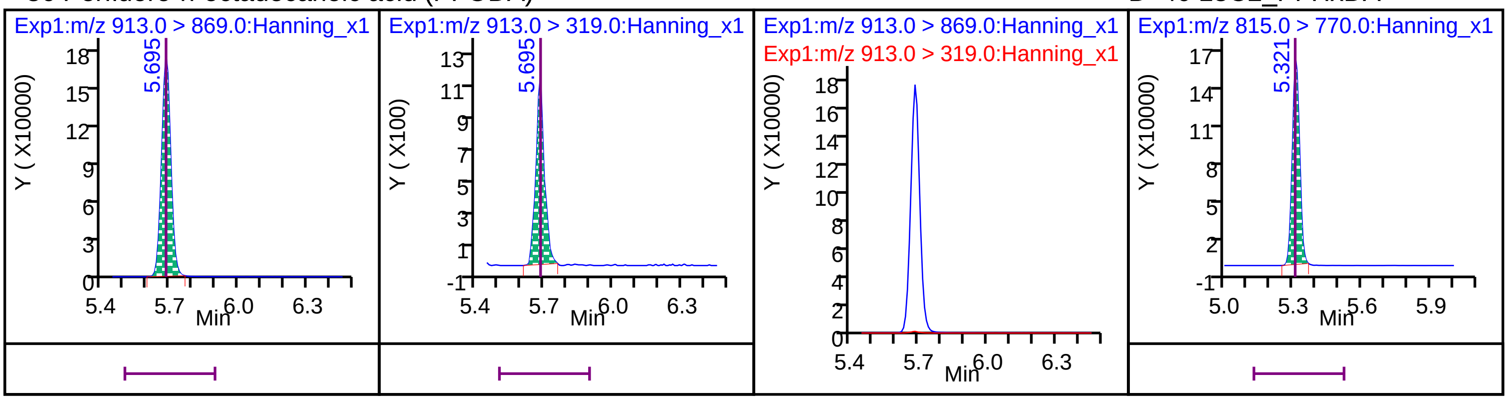
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



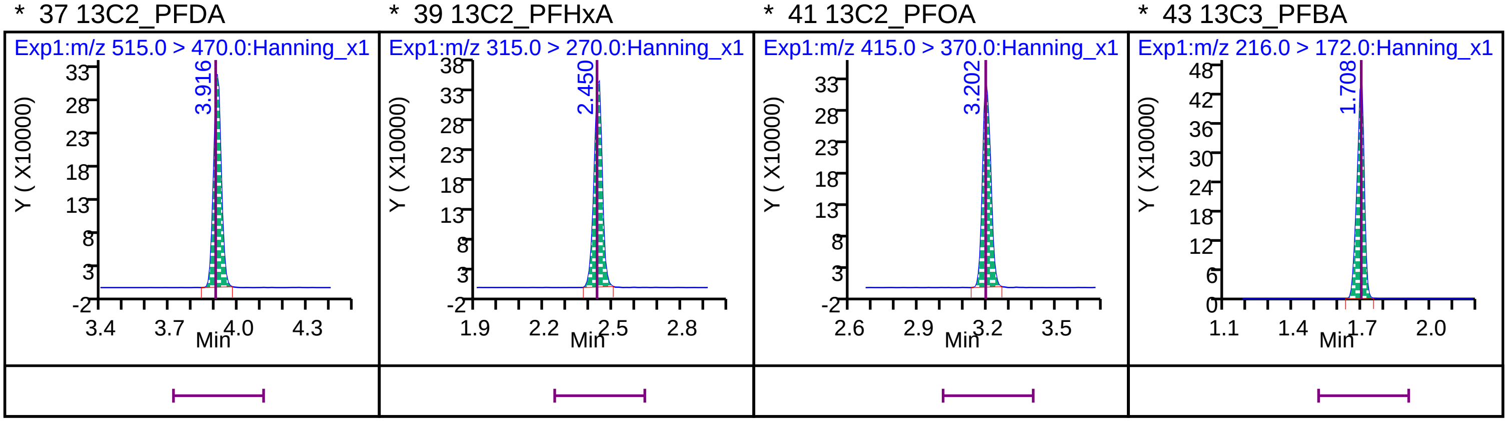
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



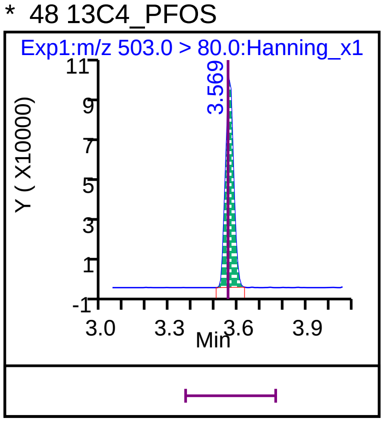
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Oct-2021 15:06:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

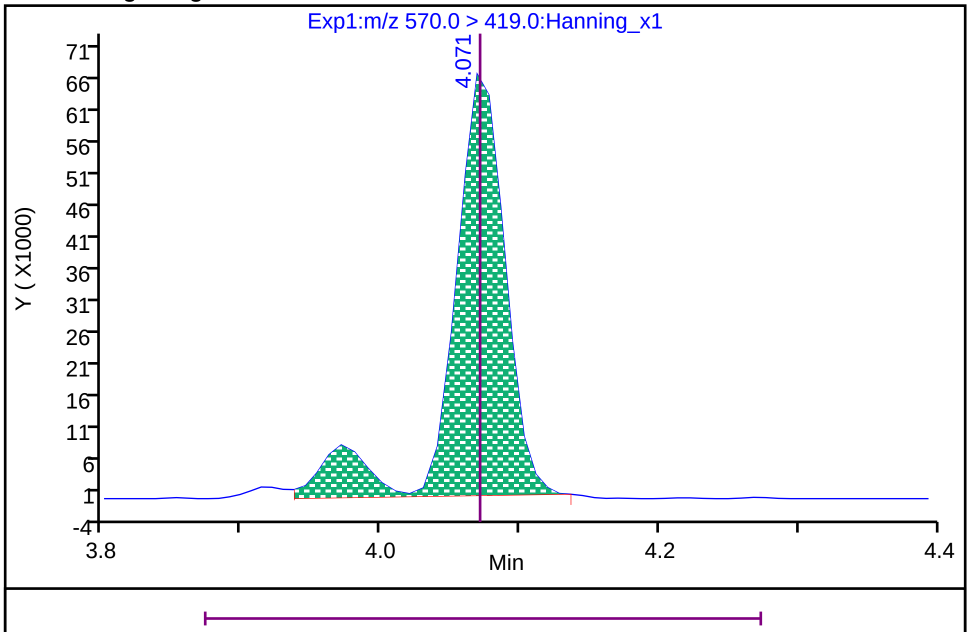
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921014.d

Injection Date:	29-Oct-2021 12:47:31	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

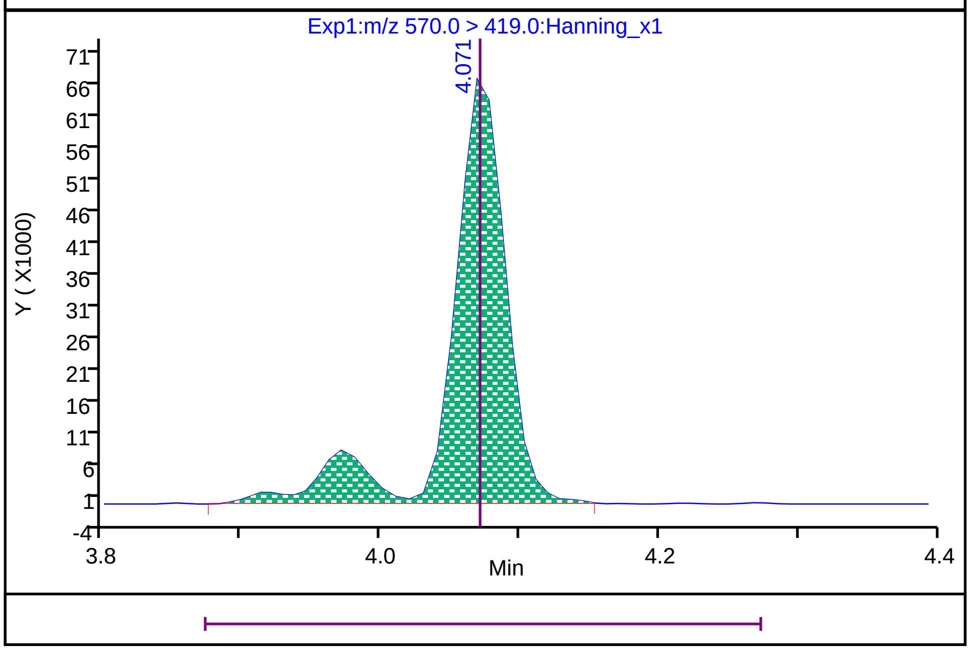
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.071
Area:	174828
Amount:	1046.30
Amount Units:	ng/L



RT:	4.071
Area:	181500
Amount:	1086.23
Amount Units:	ng/L



Data Editor: matthew.miller, 30-Oct-2021 14:46:29

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Oct-2021 15:06:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921028.d		
Injection Date:	29-Oct-2021 15:15:48	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	19
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	946.11	94.6	70 - 130
D 46 13C4_PFBA	1091906	1076412			98.6	50 - 150
21 PFPeA			1000.00	961.57	96.2	70 - 130
D 50 13C5_PFPeA	1016491	984871			96.9	50 - 150
D 44 13C3_PFBS	317213	326194			102.8	50 - 150
7 PFBS			884.00	830.05	93.9	70 - 130
D 63 13C2_4:2 FTS_2	322284	275959			85.6	50 - 150
1 4:2 FTS			934.00	1033.63	110.7	70 - 130
D 49 13C5_PFHxA	908351	859493			94.6	50 - 150
15 PFHxA			1000.00	1061.91	106.2	70 - 130
22 PFPeS			938.00	898.69	95.8	70 - 130
28 GenX			2000.00	2007.79	100.4	70 - 130
D 66 13C3_GenX	722297	768193			106.4	50 - 150
D 47 13C4_PFHpA	926202	891756			96.3	50 - 150
13 PFHpA			1000.00	948.26	94.8	70 - 130
D 45 13C3_PFHxS	276451	283097			102.4	50 - 150
14 PFHxS			910.00	788.20	86.6	70 - 130
29 ADONA			942.00	902.22	95.8	70 - 130
2 6:2 FTS			948.00	1060.44	111.9	70 - 130
D 64 13C2_6:2 FTS_2	273875	247982			90.5	50 - 150
D 53 13C8_PFOA	856960	858806			100.2	50 - 150
20 PFOA			1000.00	988.74	98.9	70 - 130
12 PFHpS			952.00	842.95	88.5	70 - 130
D 54 13C8_PFOS	232752	222481			95.6	50 - 150
18 PFOS			928.00	872.48	94	70 - 130
17 PFNA			1000.00	944.67	94.5	70 - 130
D 56 13C9_PFNA	863231	880852			102	50 - 150
30 9Cl-PF3ONS			932.00	985.62	105.8	70 - 130
D 55 13C8_PFOSA	428383	451151			105.3	50 - 150
19 PFOSA			1000.00	938.46	93.8	70 - 130
16 PFNS			960.00	991.10	103.2	70 - 130
D 65 13C2_8:2 FTS_2	211438	194309			91.9	50 - 150
3 8:2 FTS			958.00	1235.29	128.9	70 - 130
D 51 13C6_PFDA	753271	768752			102.1	50 - 150
10 PFDA			1000.00	969.64	97	70 - 130
D 58 d3-MeFOSAA	1033171	1032904			100	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1047.89	104.8	70 - 130
9 PFDS			964.00	938.53	97.4	70 - 130
25 PFUdA			1000.00	989.01	98.9	70 - 130
D 60 d5-EtFOSAA	944086	948674			100.5	50 - 150
D 52 13C7_PFUdA	729025	726986			99.7	50 - 150
5 N-EtFOSAA			1000.00	918.00	91.8	70 - 130
D 61 d7-MeFOSE	124594	130120			104.4	50 - 150
32 MeFOSE			1000.00	995.72	99.6	70 - 130
D 57 d3-MeFOSA	57199	64770			113.2	50 - 150
26 MeFOSA			1000.00	983.98	98.4	70 - 130
31 11Cl-PF3OUDS			942.00	963.83	102.3	70 - 130
D 62 d9-EtFOSE	110214	124833			113.3	50 - 150
33 EtFOSE			1000.00	1052.71	105.3	70 - 130
D 59 d5-EtFOSA	56576	58606			103.6	50 - 150
27 EtFOSA			1000.00	1098.84	109.9	70 - 130
11 PFDoA			1000.00	990.07	99	70 - 130
D 38 13C2_PFDoA	702110	692734			98.7	50 - 150
4 10:2 FTS			964.00	1021.68	106	70 - 130
34 PFDOS			968.00	850.46	87.9	70 - 130
24 PFTrDA			1000.00	1013.14	101.3	70 - 130
D 42 13C2_PFTeDA	874602	900493			103	50 - 150
23 PFTeDA			1000.00	915.01	91.5	70 - 130
D 40 13C2_PFHxDA	327951	323829			98.7	50 - 150
35 PFHxDA			1000.00	1037.79	103.8	70 - 130
36 PFODA			1000.00	962.98	96.3	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921028.d		
Injection Date:	29-Oct-2021 15:15:48	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	19
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.706	0	1076412	20	>100:1			1000.00	1199.88	98.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.706	1/1	1100509	20	>100:1			1000.00	946.11		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.077	0	984871	17	>100:1			1000.00	1095.64	96.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.068	2.077	0/0	1022174	15	>100:1			1000.00	961.57		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.129	1	326194	17	>100:1			1000.00	1092.80	102.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.129	1/0	376424	16	>100:1	Target = 3.78		884.00	830.05		
298.9 > 99	44	2.131	2.129		101328	14	>100:1	3.71 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.475	1/0	302448	18	>100:1	Target = 3.45		938.00	898.69		
349 > 99	44	2.476	2.475		92612	18	>100:1	3.26 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.397	1	275959	17	>100:1			5000.00	6175.16	85.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.407	2.397	1/0	109304	17	>100:1	Target = 1.43		934.00	1033.63		
327 > 81	63	2.407	2.397		69752	19	>100:1	1.56 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.442	2.440	1	859493	18	>100:1			1000.00	1049.73	94.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.442	2.440	1/0	937492	17	>100:1	Target = 16.37		1000.00	1061.91		
313 > 119	49	2.442	2.440		49761	16	>100:1	18.83 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.562	1	768193	17	>100:1			5000.00	5309.33	106.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.563	2.562	1/0	236915	17	>100:1	Target = 0.74		2000.00	2007.79		
285 > 185	66	2.563	2.562		311626	17	>100:1	0.76 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.829	2.827	1	891756	18	>100:1			1000.00	1112.90	96.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.829	2.827	1/0	839106	19	>100:1	Target = 3.21		1000.00	948.26		
363 > 169	47	2.829	2.827		245407	19	>100:1	3.41 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.837	2.836	1	283097	17				1000.00	1151.01	102.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.846	2.845	1/0	269033	25	>100:1	Target = 3.47	5.04	910.00	788.20		
399 > 99	45	2.837	2.845		80882	26	>100:1	3.32 (1.73-5.21)	7.19				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.873	2.871	1/0	1388550	19	>100:1	Target = 2.28		942.00	902.22		
377 > 85	45	2.873	2.871		557146	19	>100:1	2.49 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.208	3.208	0/-1	259126	21	>100:1	Target = 3.62		952.00	842.95		
449 > 99	45	3.214	3.208		66764	20	>100:1	3.88 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.176	3.177	0	247982	22	>100:1			5000.00	5675.03	90.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.183	3.183	0/0	82950	22	>100:1	Target = 1.19		948.00	1060.44		
427 > 81	64	3.183	3.183		65845	21	>100:1	1.25 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.202	3.202	0	858806	21	>100:1			1000.00	1134.99	100.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.208	3.202	1/1	854931	21	>100:1	Target = 2.34		1000.00	988.74		
413 > 169	53	3.208	3.202		331163	21	>100:1	2.58 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.569	3.565	1	222481	19	>100:1			1000.00	981.95	95.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.577	3.572	1/0	234326	44	>100:1	Target = 4.00	3.62	928.00	872.48		
499 > 99	54	3.577	3.572		58026	38	>100:1	4.03 (2.00-6.01)	7.60				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.774	3.769	1/0	669158	19	>100:1			932.00	985.62		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.909	3.903	1/0	222958	19	>100:1	Target = 3.83		960.00	991.10		
549 > 99	54	3.909	3.903		57987	17		3.84 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.205	4.199	1/0	200895	15		Target = 3.87		964.00	938.53		
599 > 99	54	4.205	4.199		50661	21		3.96 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.357	4.359	0/-1	560017	15	>100:1			942.00	963.83		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.703	4.690	1/0	172905	17	>100:1	Target = 3.65		968.00	850.46		
699 > 99	54	4.703	4.690		46539	16		3.71 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.577	3.572	1	880852	19	>100:1			1000.00	1135.92	102	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.577	3.572	1/0	726281	18	>100:1	Target = 4.21		1000.00	944.67		
463 > 169	56	3.577	3.572		170262	18	>100:1	4.26 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.863	3.842	2	451151	19	>100:1			1000.00	1077.21	105.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.856	3.842	1/-1	480041	18	>100:1	Target = 49.05		1000.00	938.46		
498>478	55	3.863	3.842		13607	21		35.27 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.909	3.903	1	194309	19				5000.00	5138.58	91.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.916	3.911	1/0	70881	15	>100:1	Target = 1.27		958.00	1235.29		
527 > 81	65	3.909	3.911		49717	19	>100:1	1.42 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.497	4.492	1/0	59867	17	>100:1	Target = 2.25		964.00	1021.68		
627 > 80	65	4.497	4.492		26215	17	>100:1	2.28 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.916	3.911	1	768752	17	>100:1			1000.00	1131.92	102.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.916	3.918	0/-1	753165	17	>100:1	Target = 8.94		1000.00	969.64		
513 > 169	51	3.916	3.918		81106	19	>100:1	9.28 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.071	4.065	1	1032904	16	>100:1			5000.00	5041.05	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.079	4.073	1/0	165363	32		Target = 1.38	8.06	1000.00	1047.89		
570 > 483	58	4.071	4.073		127834	33	>100:1	1.29 (0.69-2.08)	3.67				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.223	4.217	1	726986	16	>100:1			1000.00	1150.04	99.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.223	4.217	1/0	637674	17	>100:1	Target = 8.27		1000.00	989.01		
563 > 169	52	4.223	4.217		66150	15	>100:1	9.63 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.223	4.217	1	948674	17	>100:1			5000.00	5525.94	100.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.232	4.217	1/0	185896	26	37:1	Target = 1.95	7.79	1000.00	918.00		
584 > 526	60	4.232	4.217		107440	38	>100:1	1.73 (0.97-2.92)	3.15				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.262	1	130120	14	>100:1			1000.00	1023.27	104.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.286	4.271	1/0	127792	23	>100:1			1000.00	995.72		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.280	1	64770	18	>100:1			1000.00	1114.39	113.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.280	2/1	67858	14	>100:1	Target = 1.08		1000.00	983.98		
512 > 219	57	4.304	4.280		63716	15	>100:1	1.06 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.439	4.427	1	124833	17	>100:1			1000.00	1062.80	113.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.434	2/1	111987	16	>100:1			1000.00	1052.71		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.442	2	58606	16	>100:1			1000.00	1066.94	103.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.468	4.449	2/0	73684	22	>100:1	Target = 1.10		1000.00	1098.84		
526 > 219	59	4.468	4.449		68365	17	>100:1	1.07 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.490	4.478	1	692734	18	>100:1			1000.00	1153.35	98.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.490	4.485	1/0	702464	17	>100:1	Target = 5.93		1000.00	990.07		
613 > 169	38	4.490	4.485		104929	18		6.69 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.725	4.721	1/0	379681	18	>100:1	Target = 2.90		1000.00	1013.14		
663 > 169	38	4.725	4.721		117164	20	>100:1	3.24 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.938	4.935	1	900493	20	>100:1			1000.00	1123.94	103	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.938	4.935	1/0	697594	21	>100:1	Target = 6.34		1000.00	915.01		
713 > 169	42	4.943	4.935		101270	21	>100:1	6.88 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.320	5.319	1	323829	19	>100:1			1000.00	984.13	98.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.320	5.326	0/-1	680919	19	>100:1	Target = 12.53		1000.00	1037.79		
813 > 269	40	5.320	5.326		51035	20	>100:1	13.34 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.687	5.695	0/-1	462845	20	>100:1	Target = 152.15		1000.00	962.98		
913 > 319	40	5.687	5.695		2787	20		166.07 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.916	3.911	1	716963	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.440	1	847468	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.208	3.202	1	767755	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.708	1.706	1	936367	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.569	3.565	1	221875	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

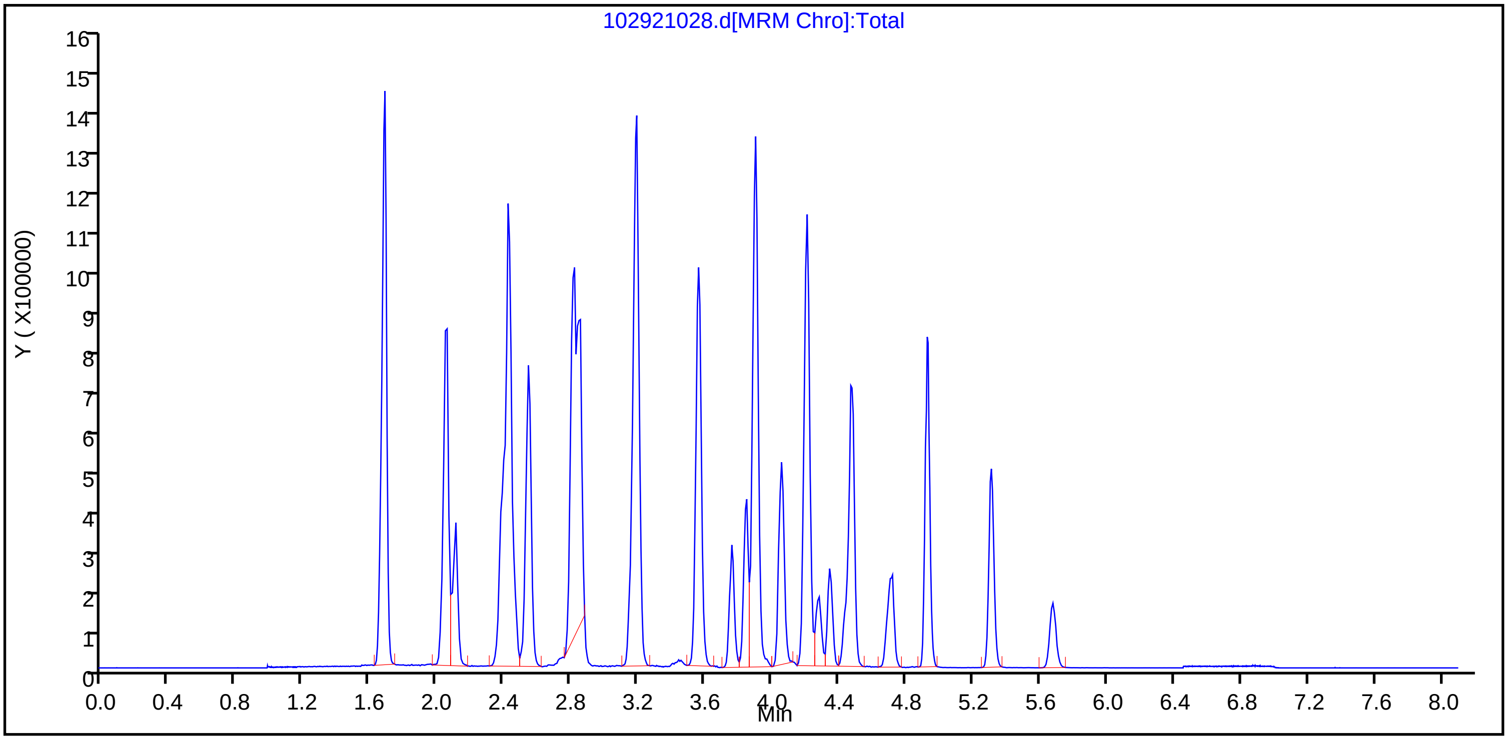
* - ISTD

QC Flag Legend

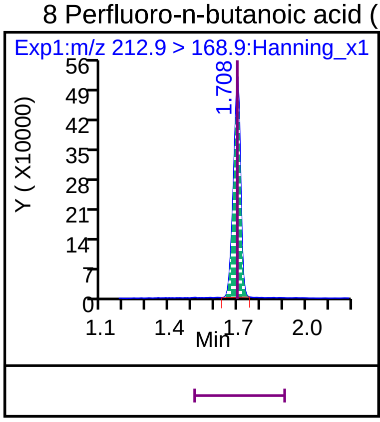
Report Date: 30-Oct-2021 15:06:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

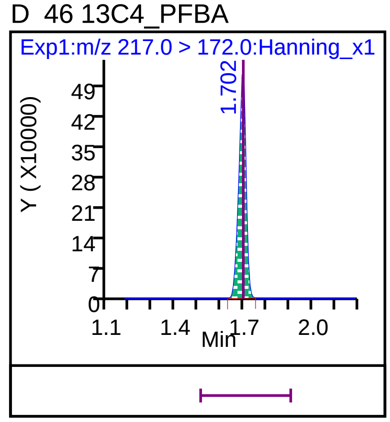
Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921028.d		
Injection Date:	29-Oct-2021 15:15:48	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



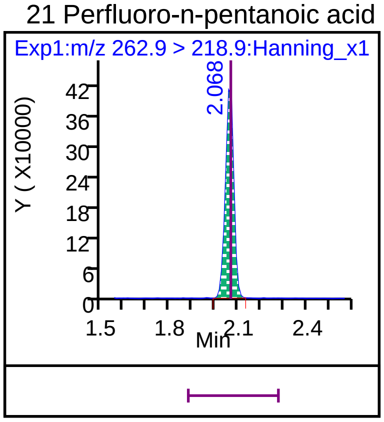
8 Perfluoro-n-butanoic acid (PFBA)



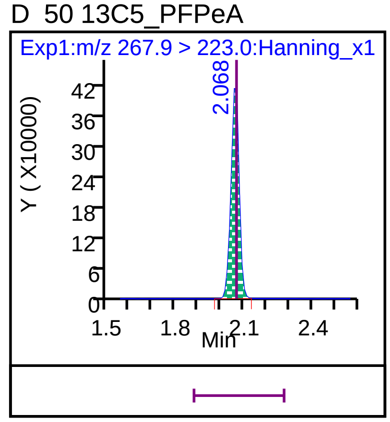
D 46 13C4_PFBA



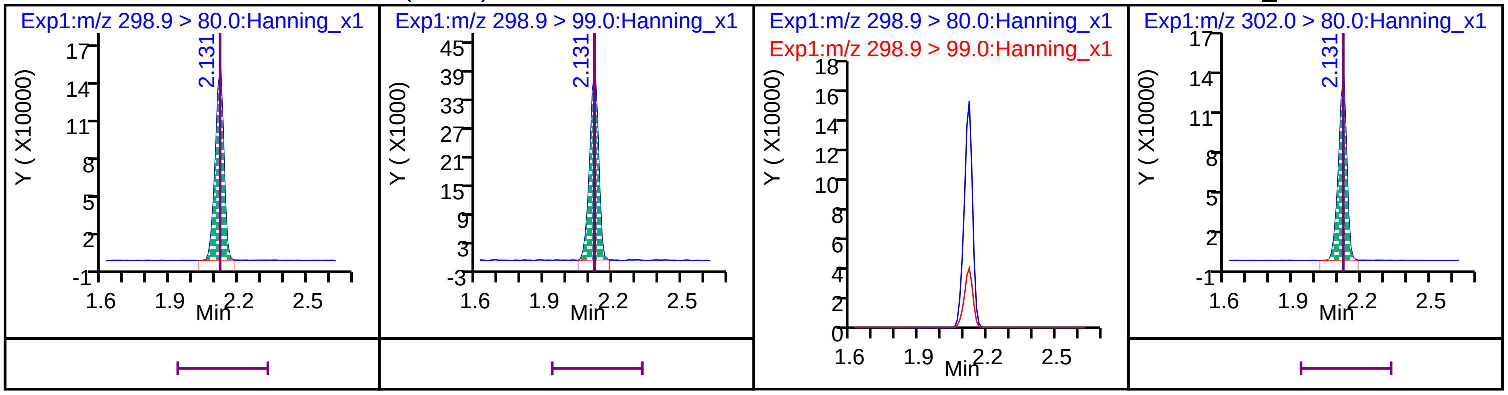
21 Perfluoro-n-pentanoic acid (PFPeA)



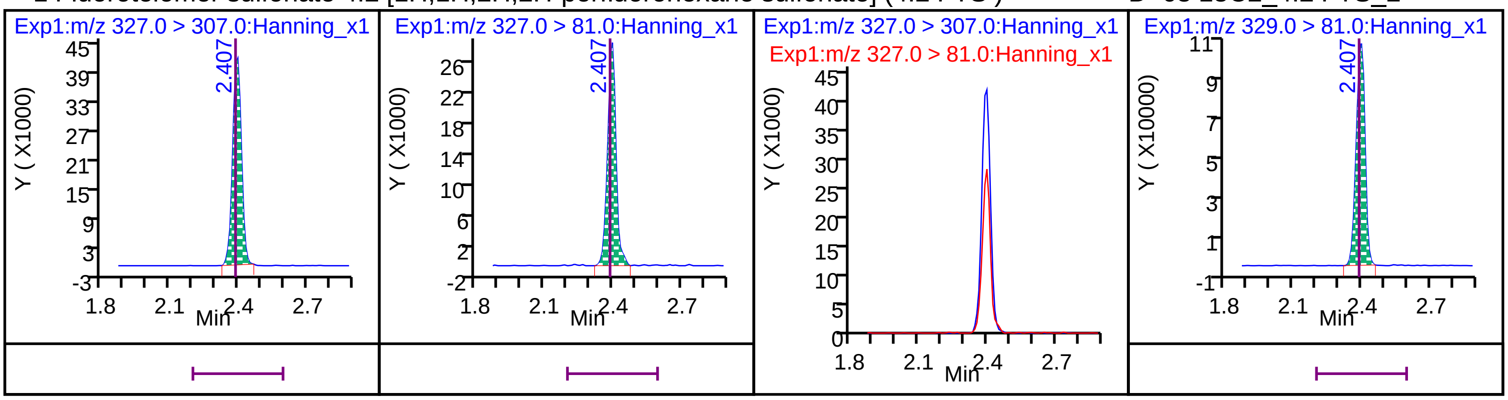
D 50 13C5_PFPeA



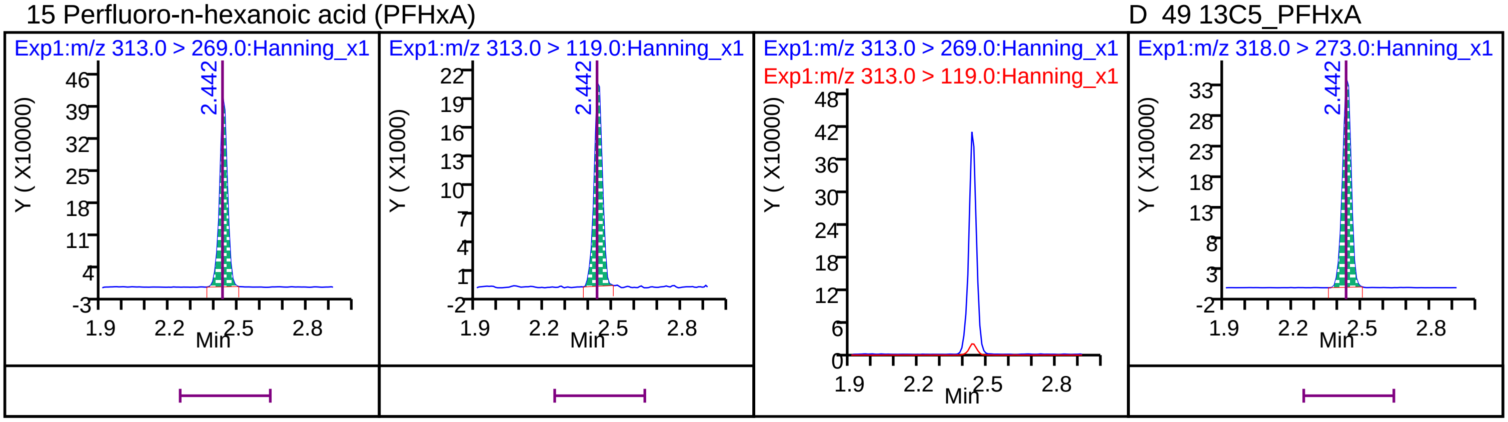
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



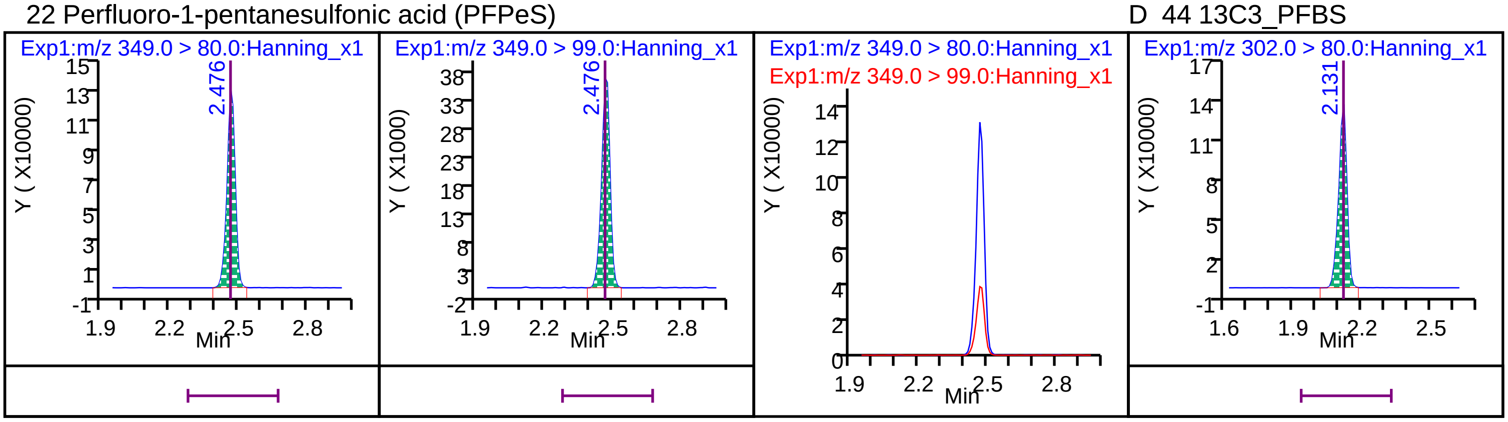
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

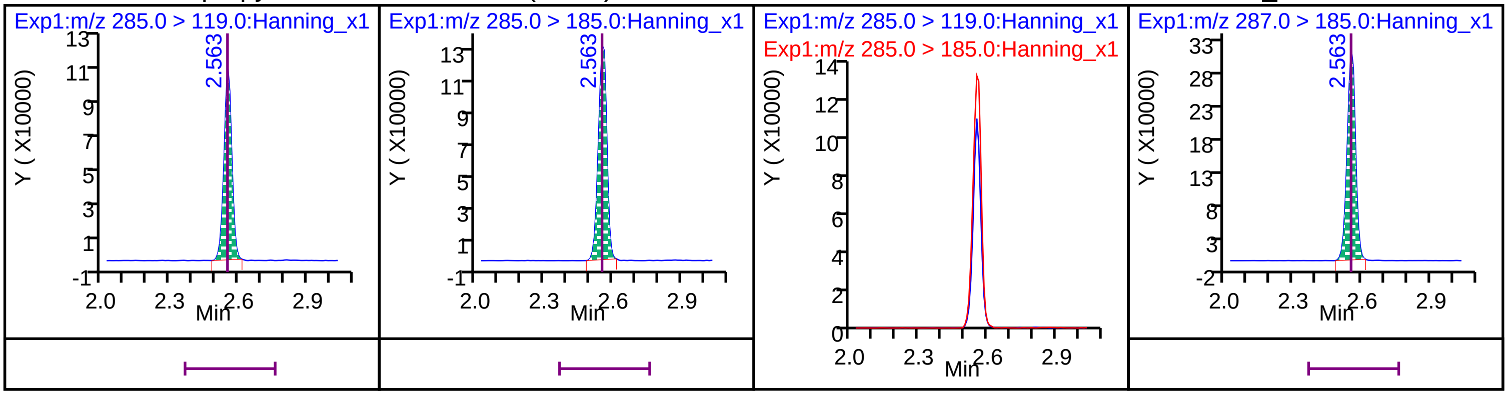


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

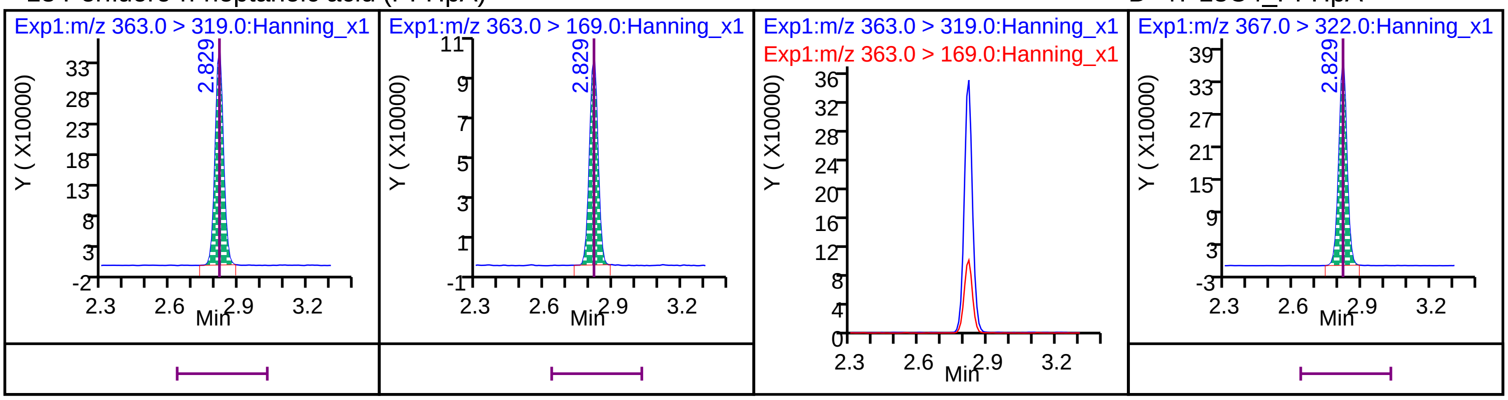


Report Date: 30-Oct-2021 15:06:31 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921028.d

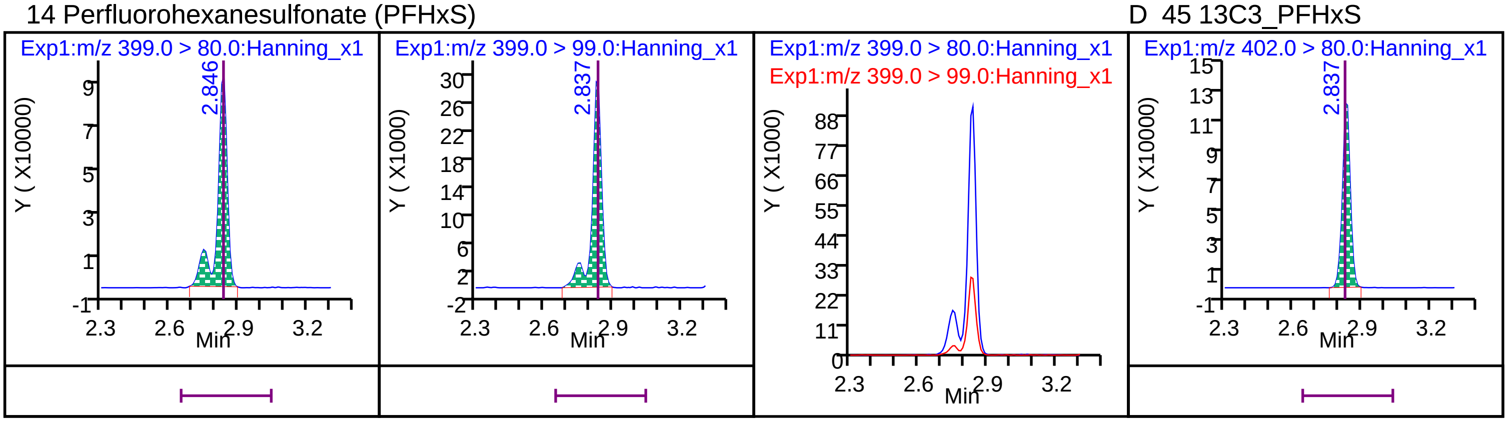
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



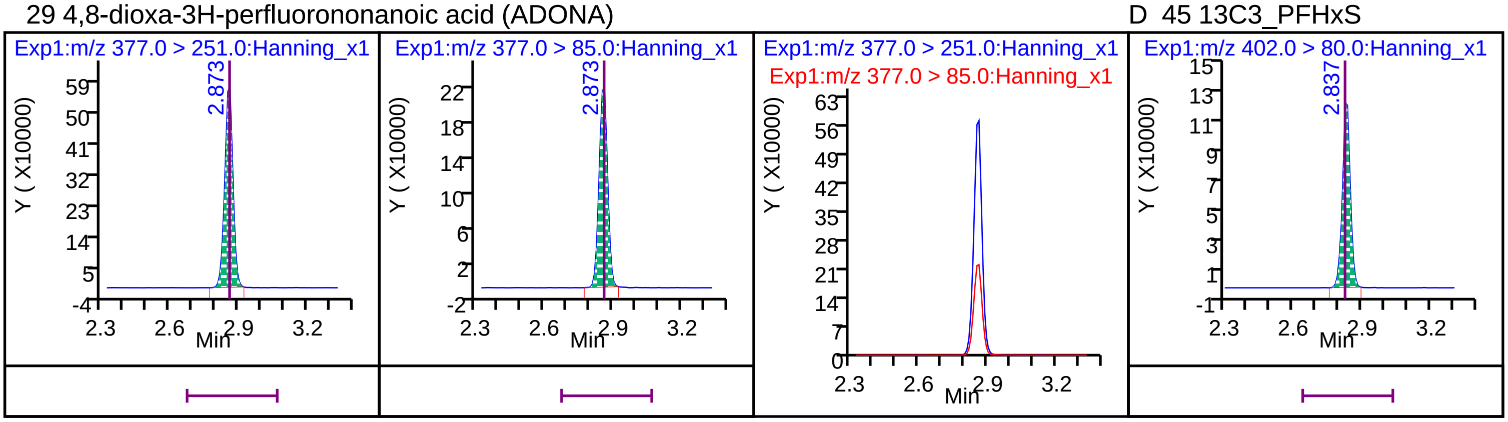
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

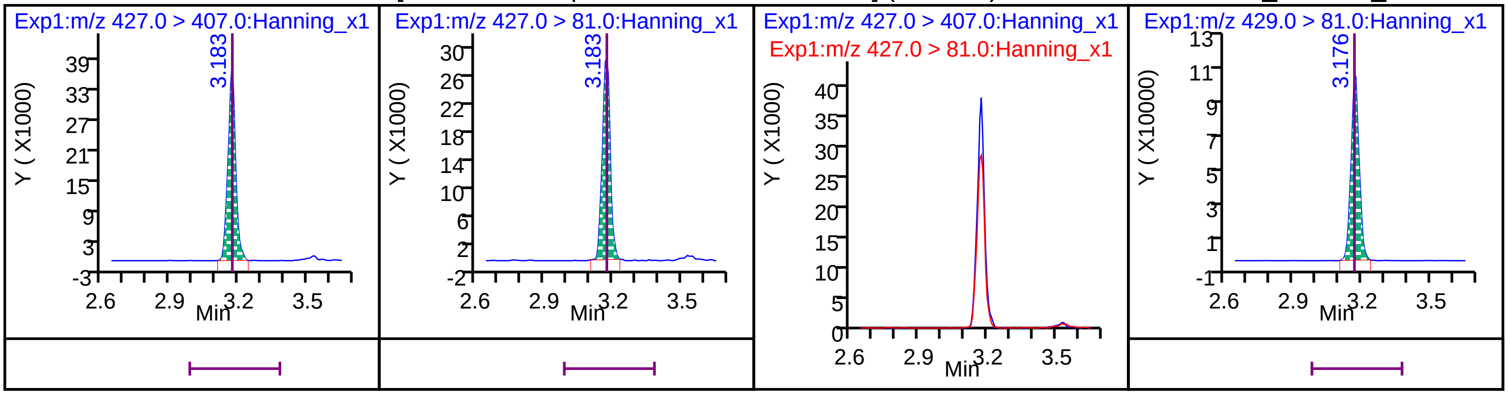


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

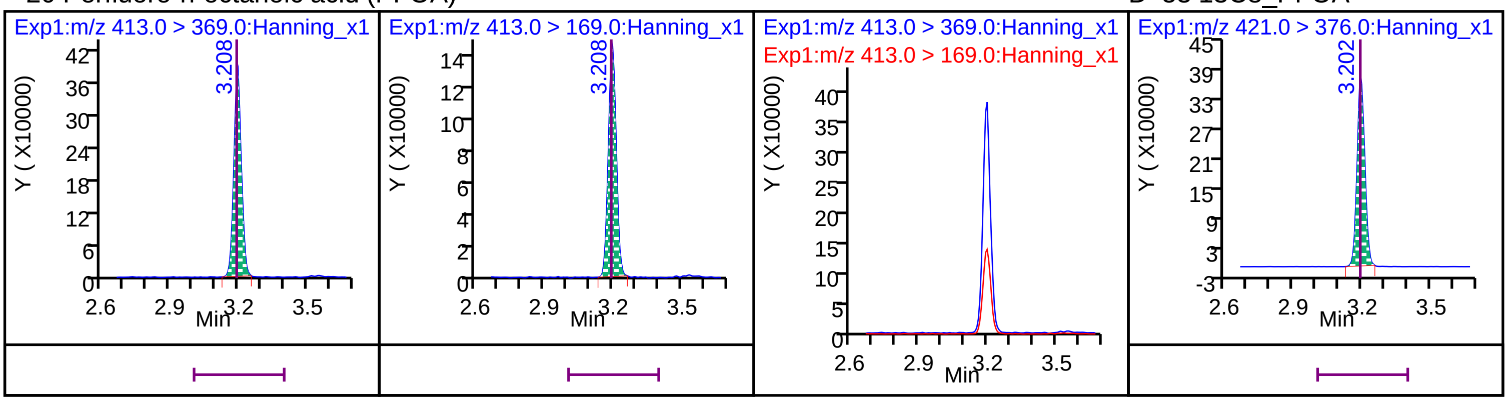


Report Date: 30-Oct-2021 15:06:31 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921028.d

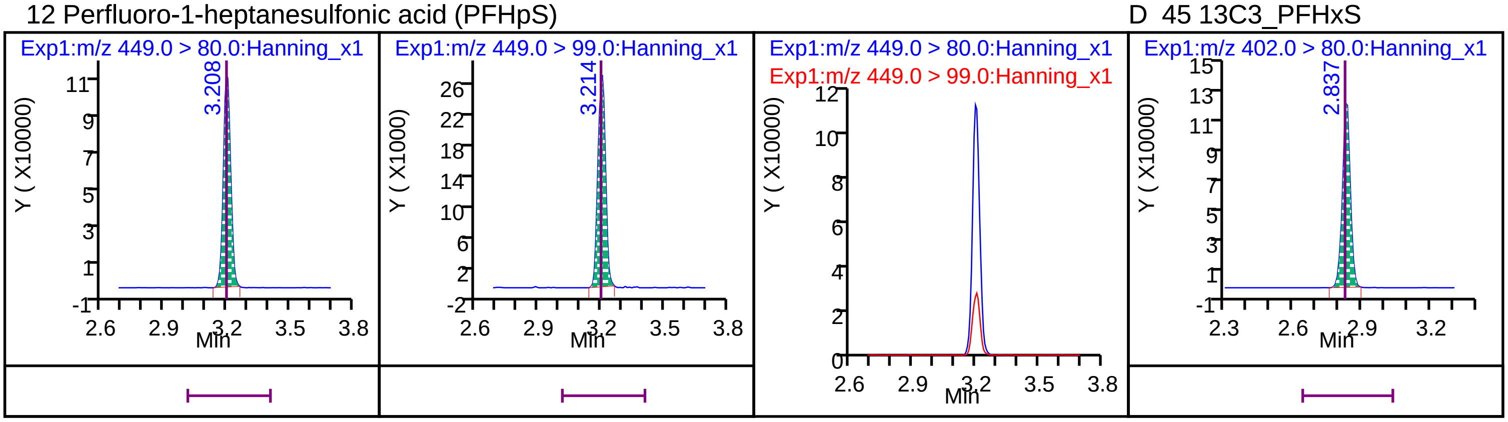
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



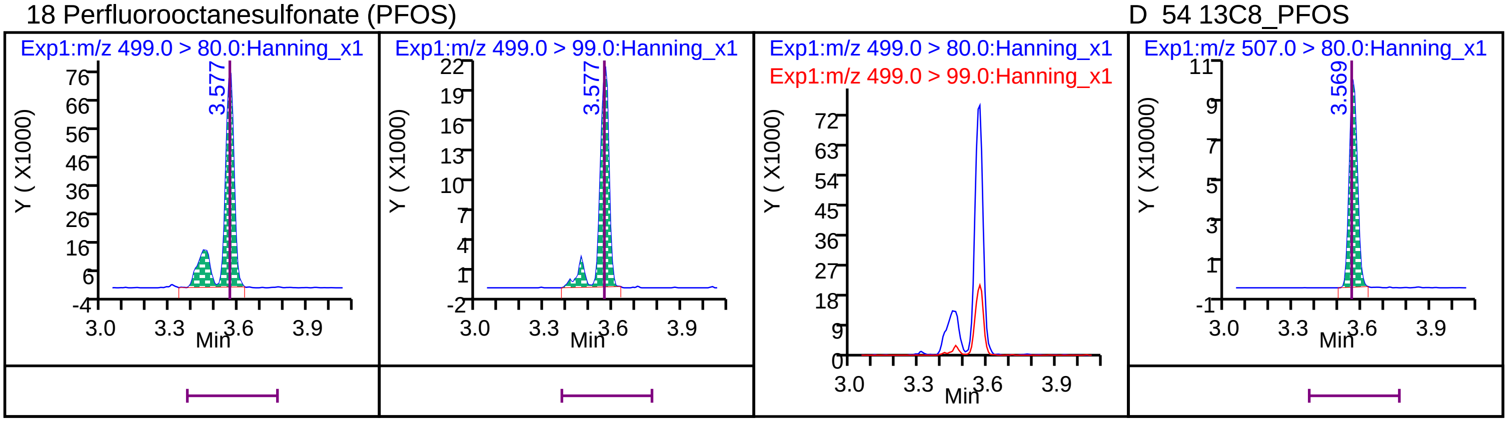
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



Report Date: 30-Oct-2021 15:06:31 AIM Revision: 2.0.2021.0812

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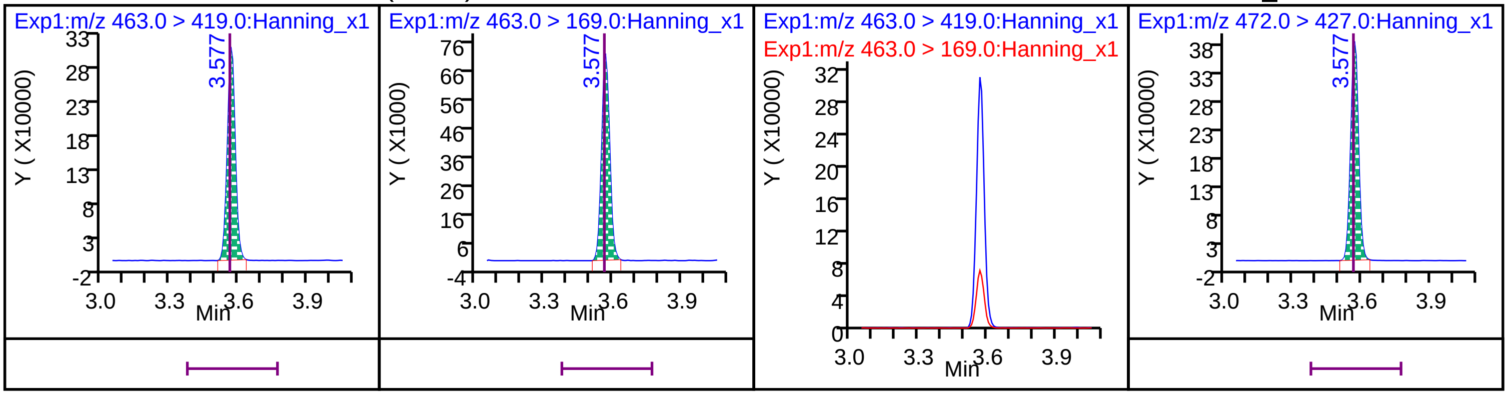
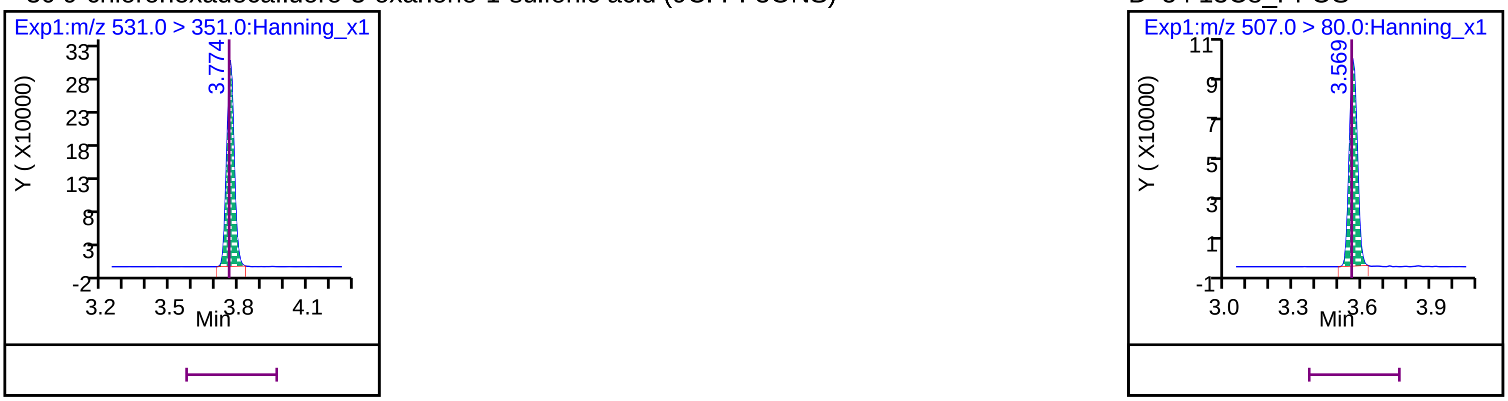
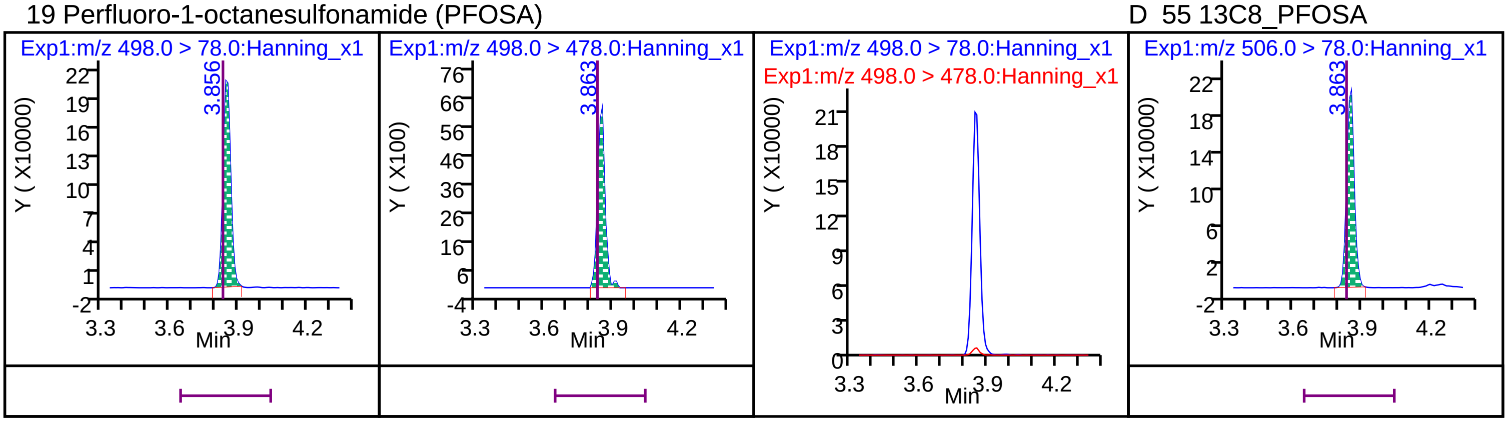
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



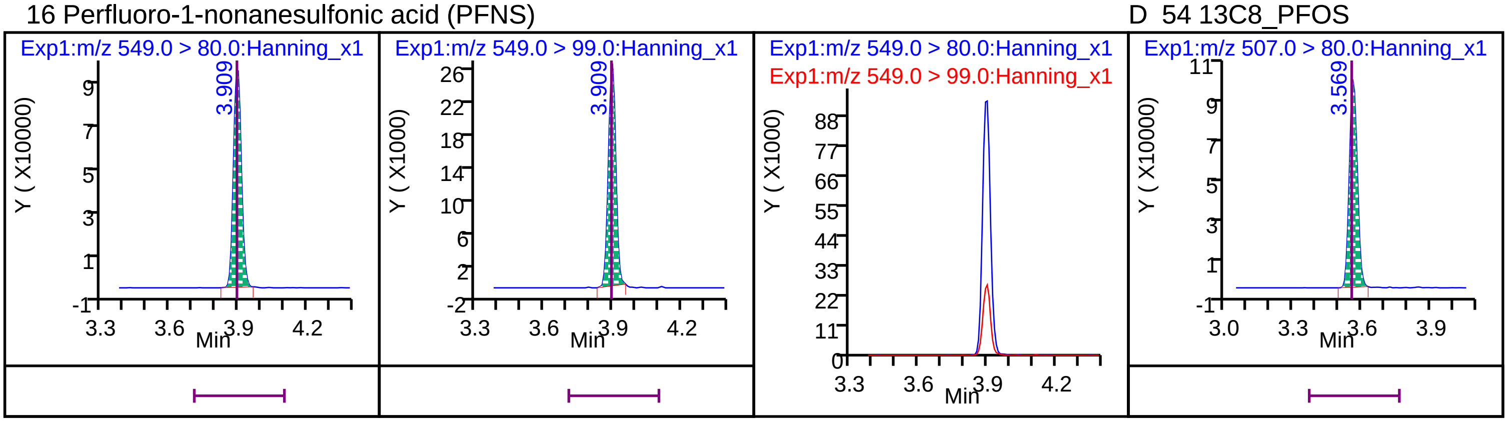
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



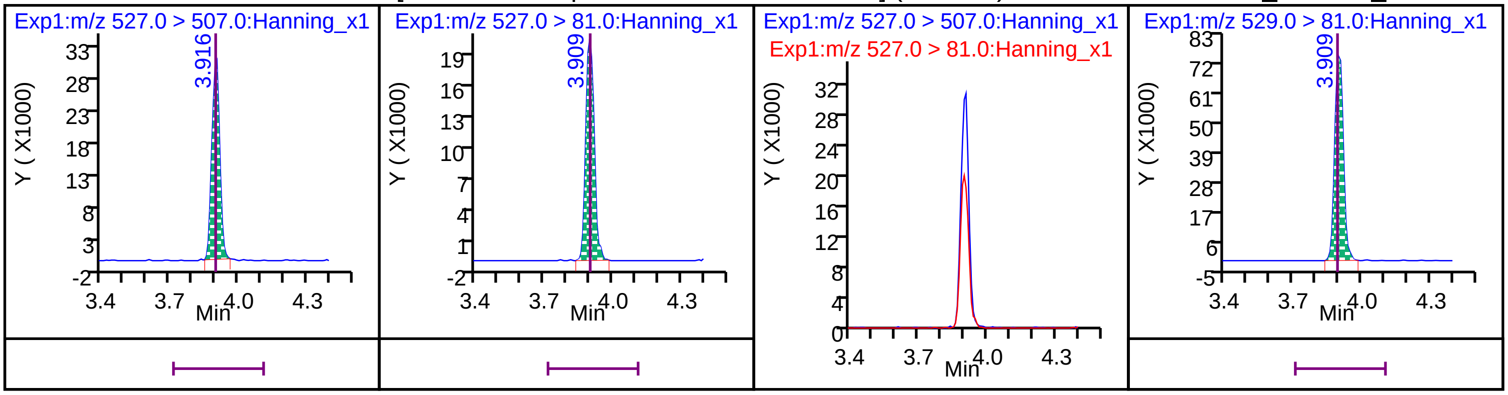
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



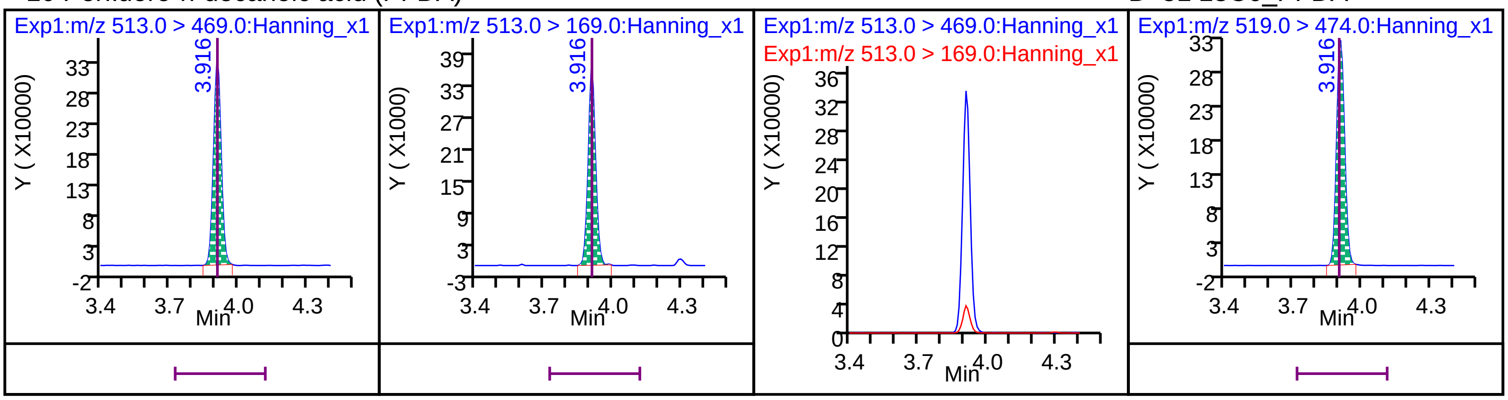
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



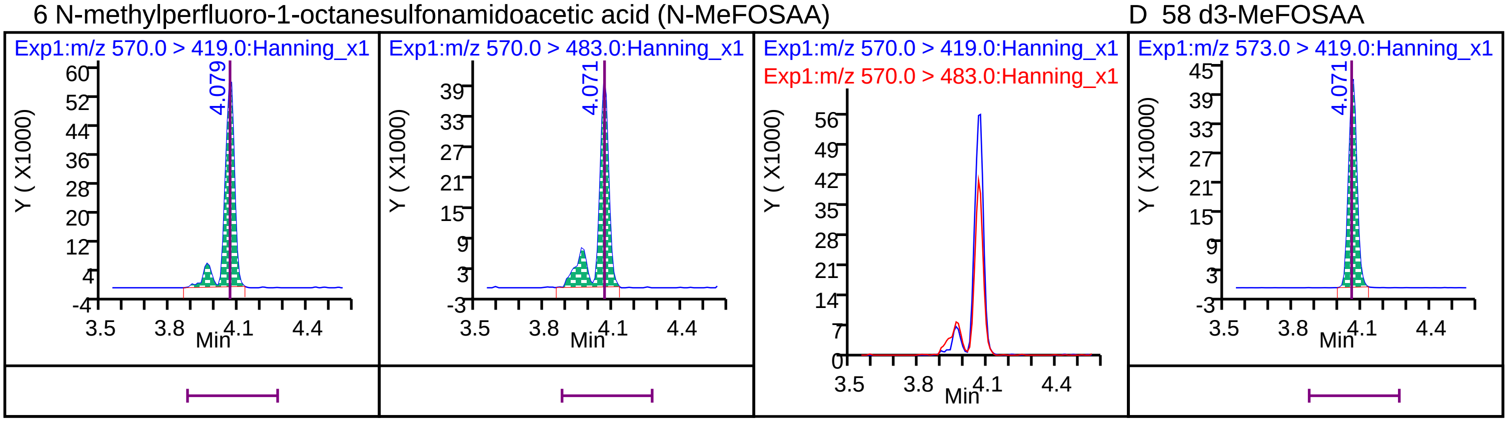
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



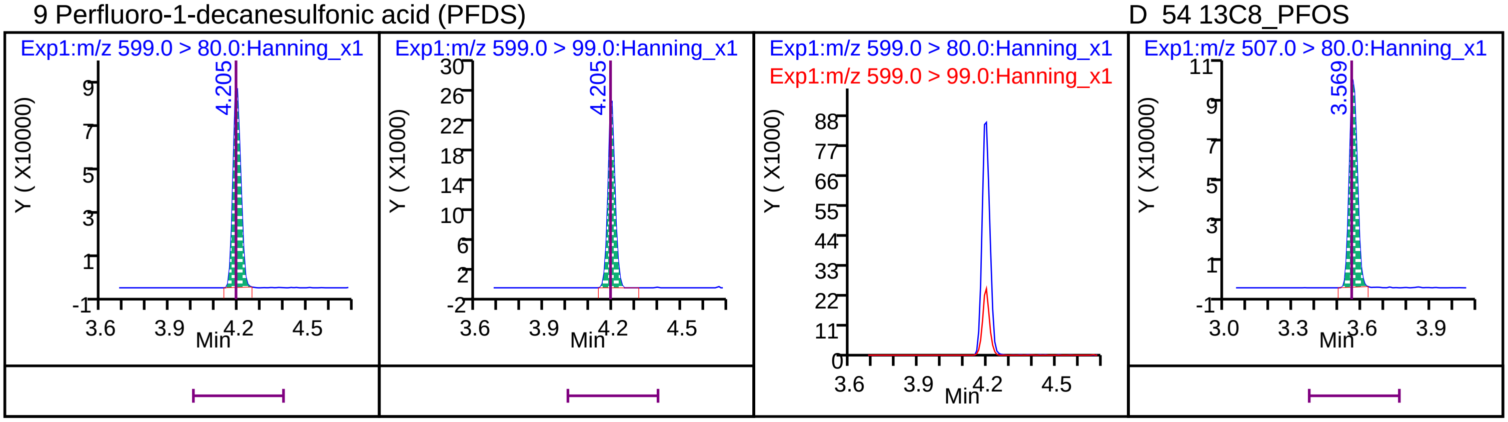
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



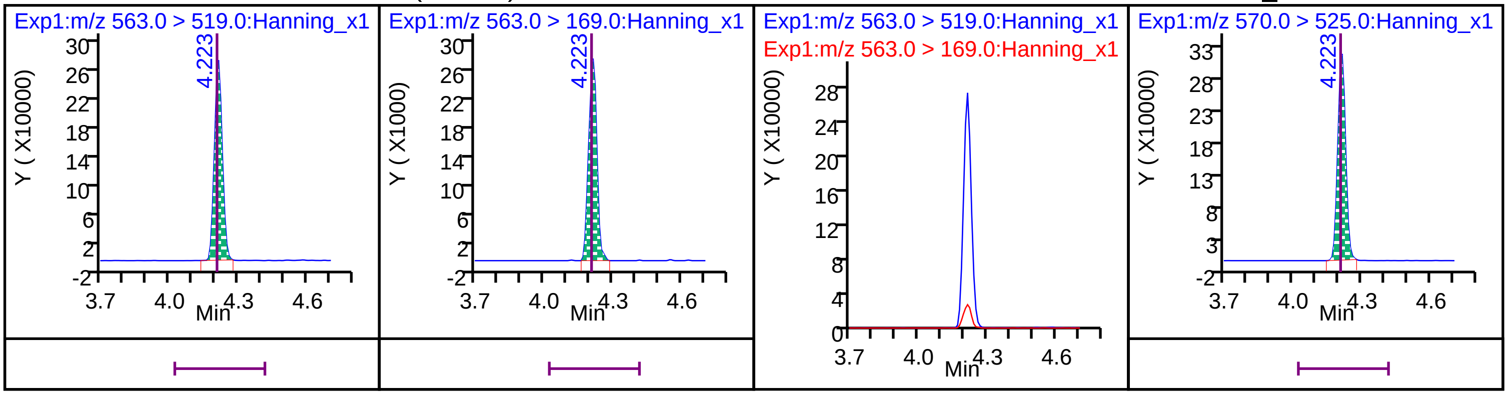
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



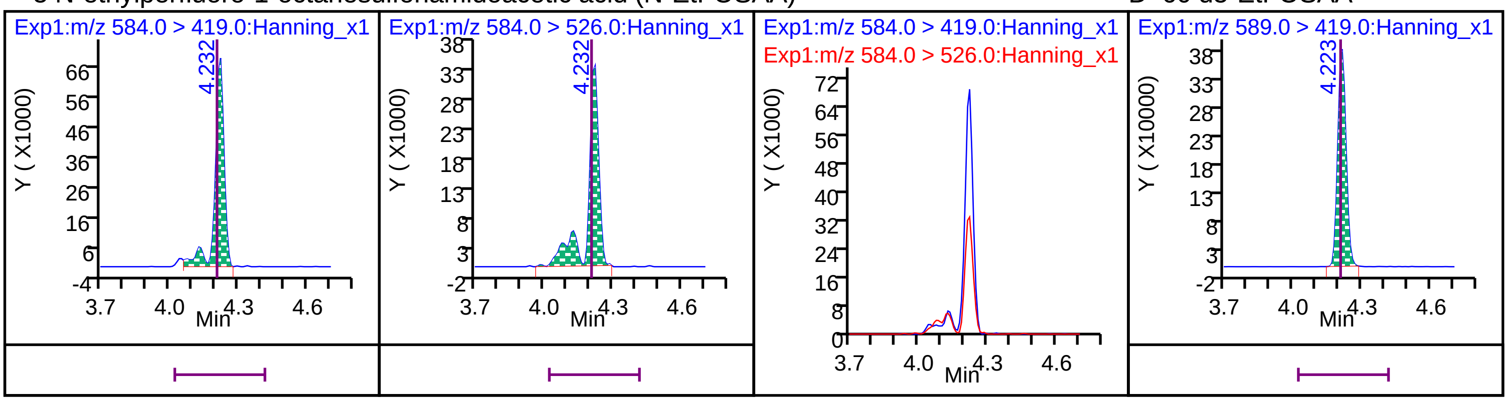
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

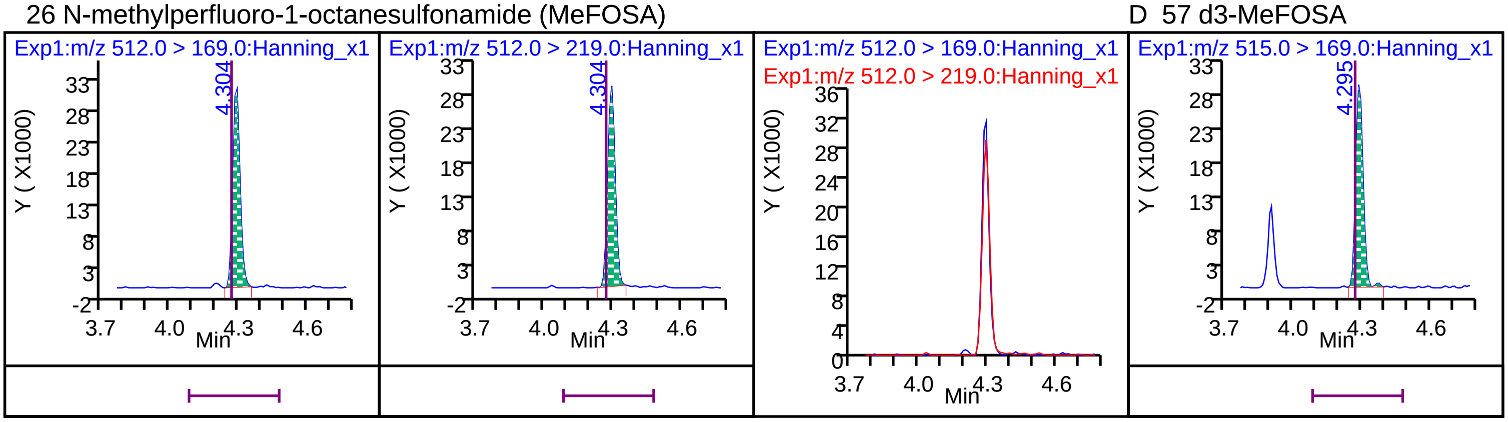


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

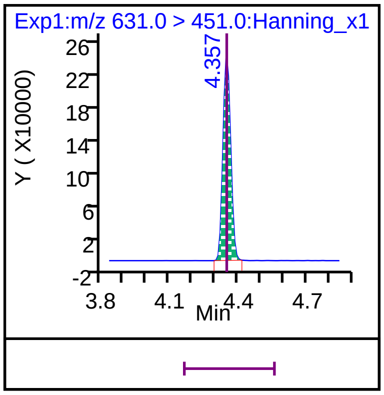


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

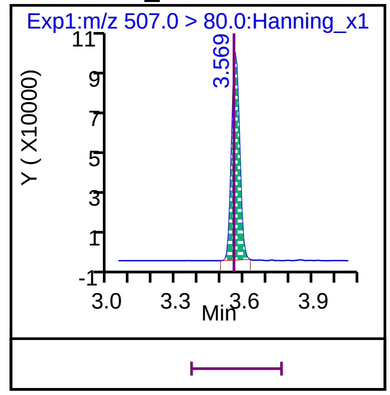
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



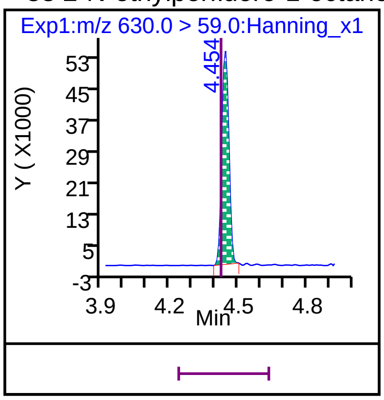
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



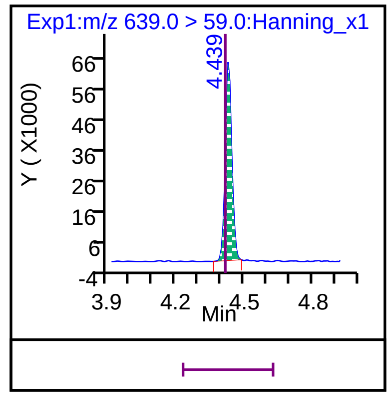
D 54 13C8_PFOS



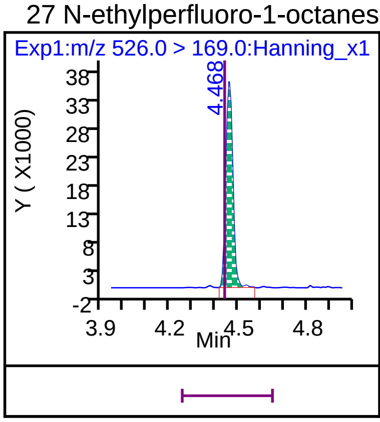
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

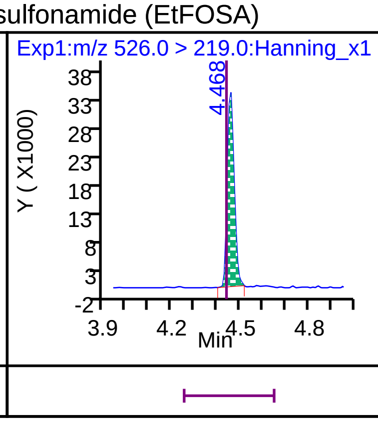


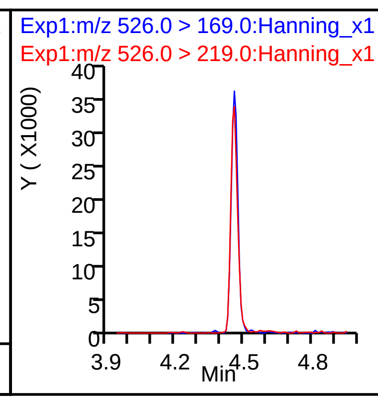
D 62 d9-EtFOSE



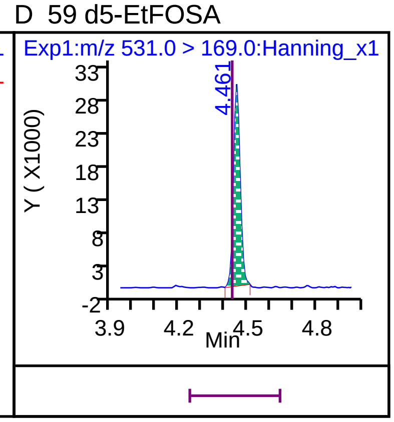
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



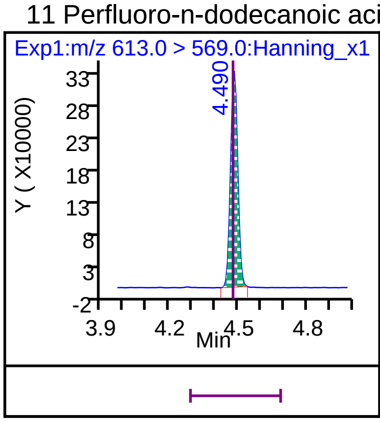


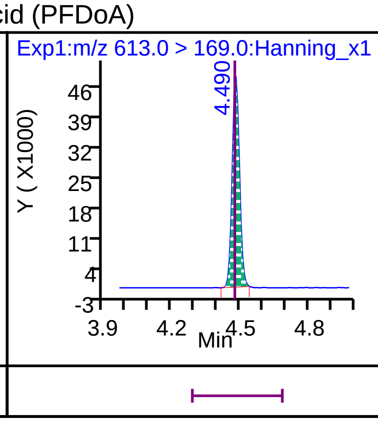


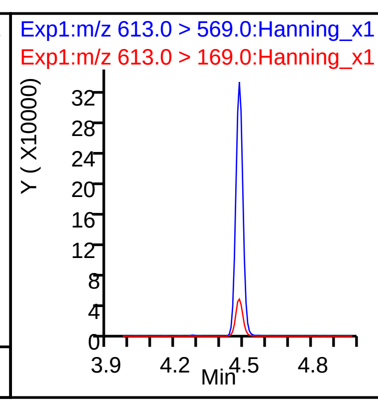
D 59 d5-EtFOSA



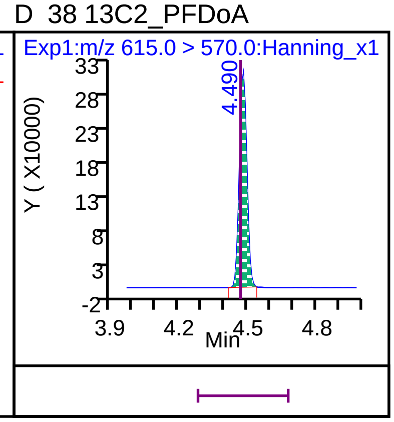
11 Perfluoro-n-dodecanoic acid (PFDoA)



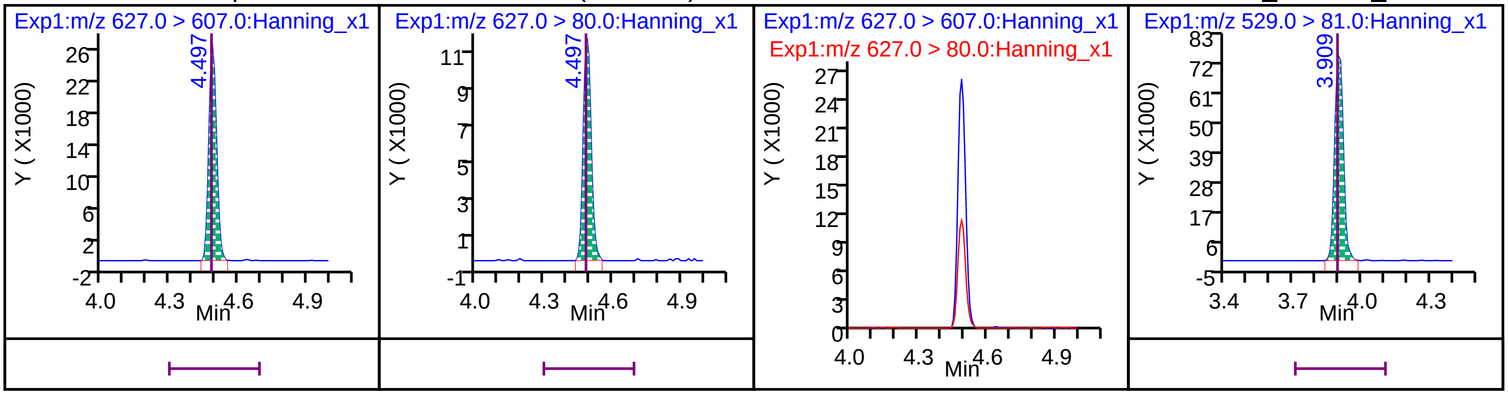




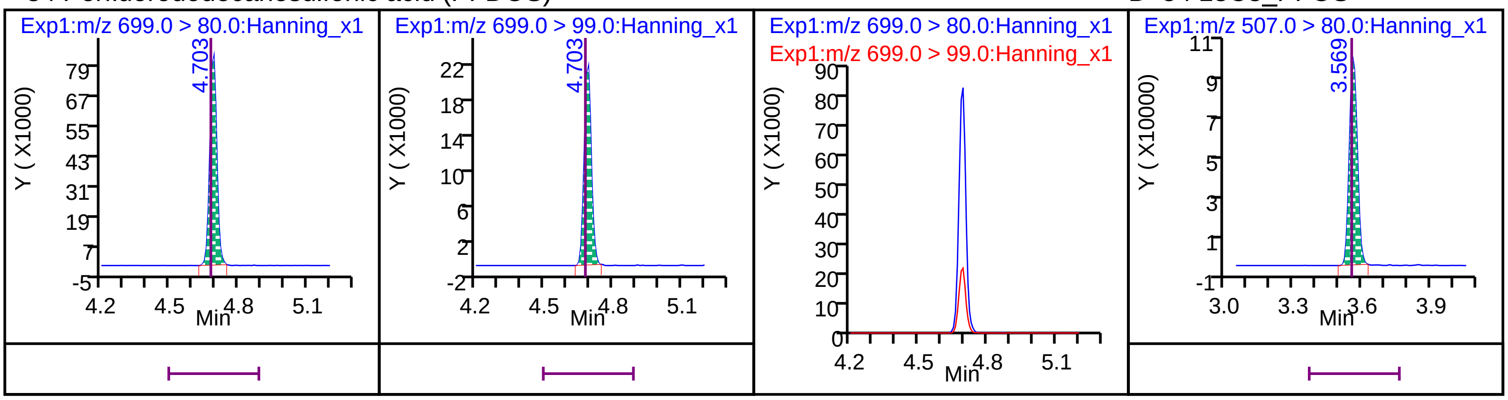
D 38 13C2_PFDoA



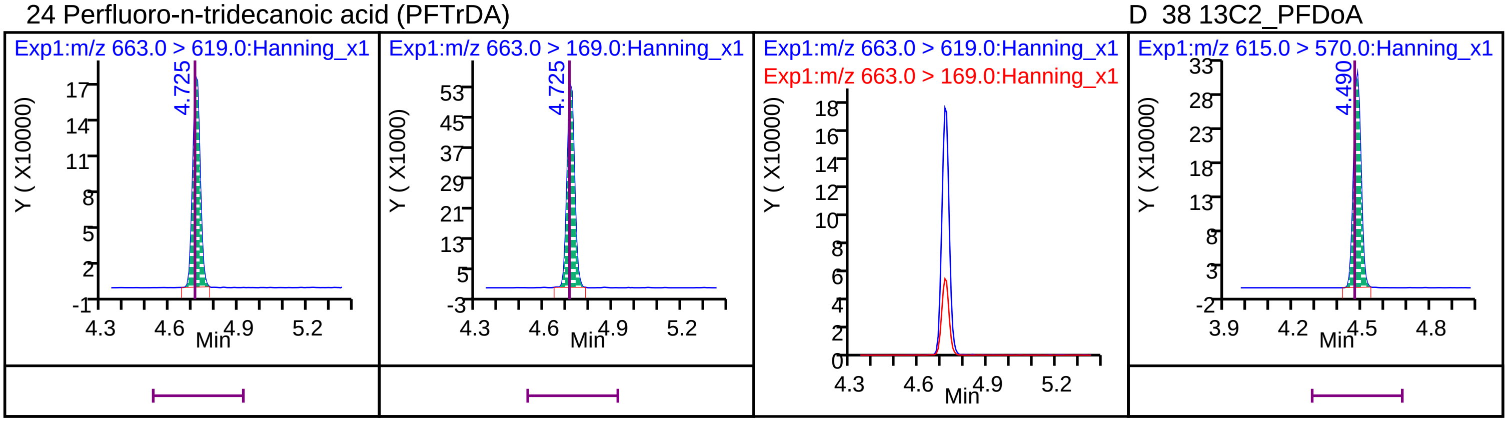
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



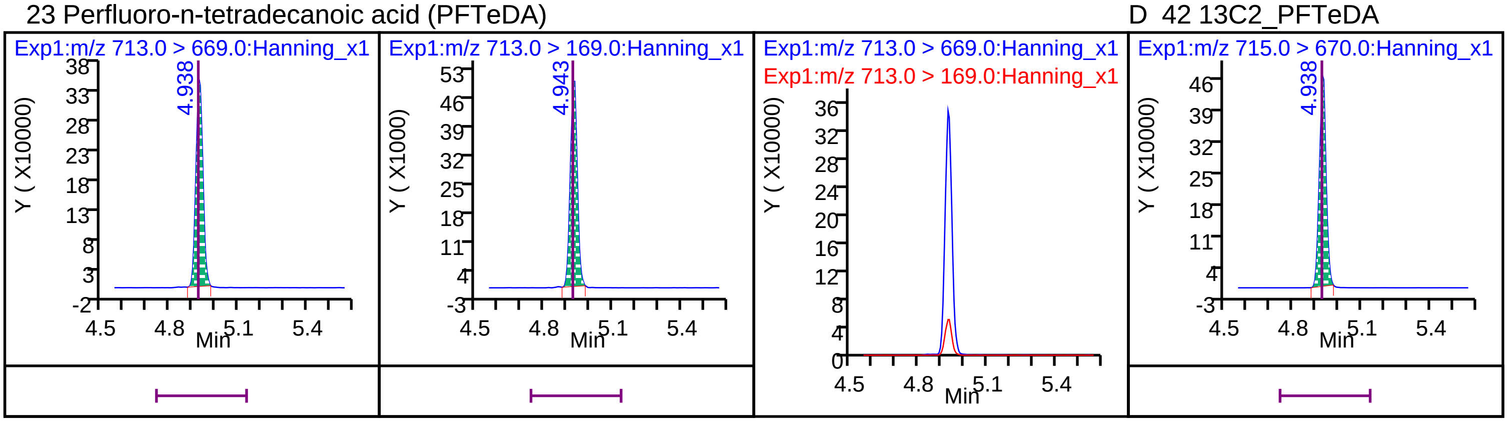
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

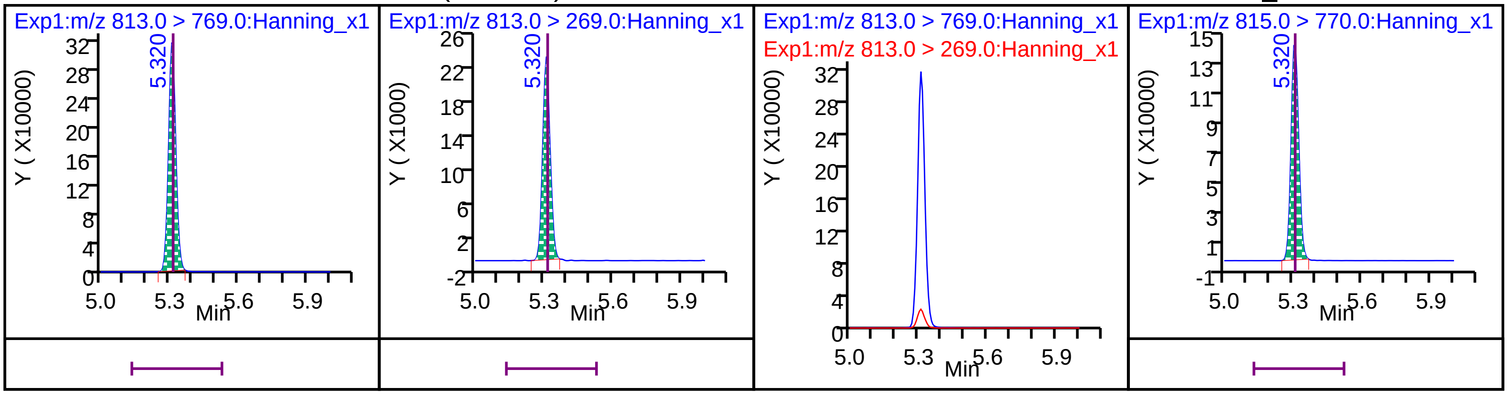


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

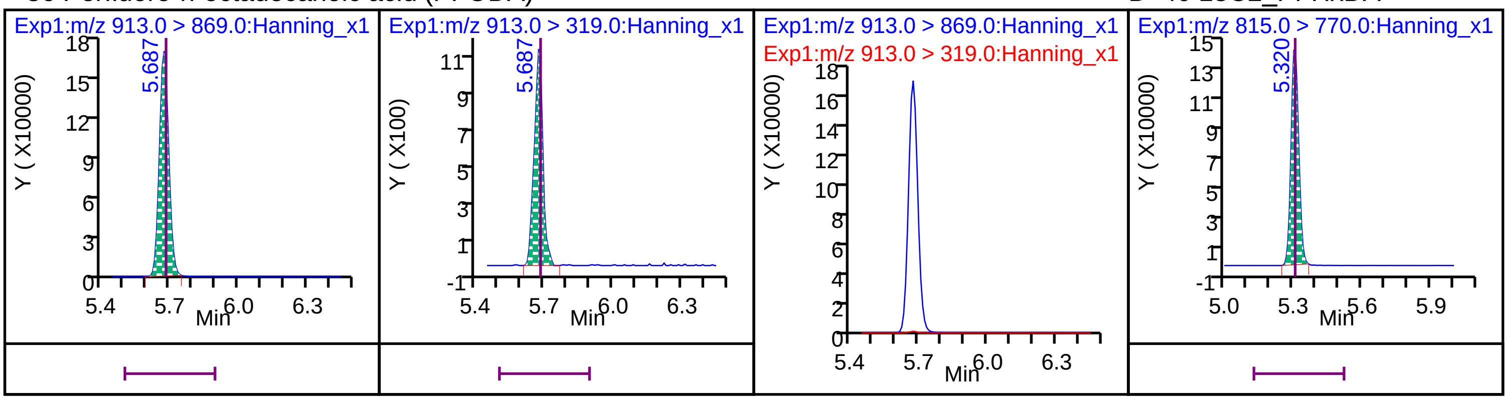


Report Date: 30-Oct-2021 15:06:31 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921028.d

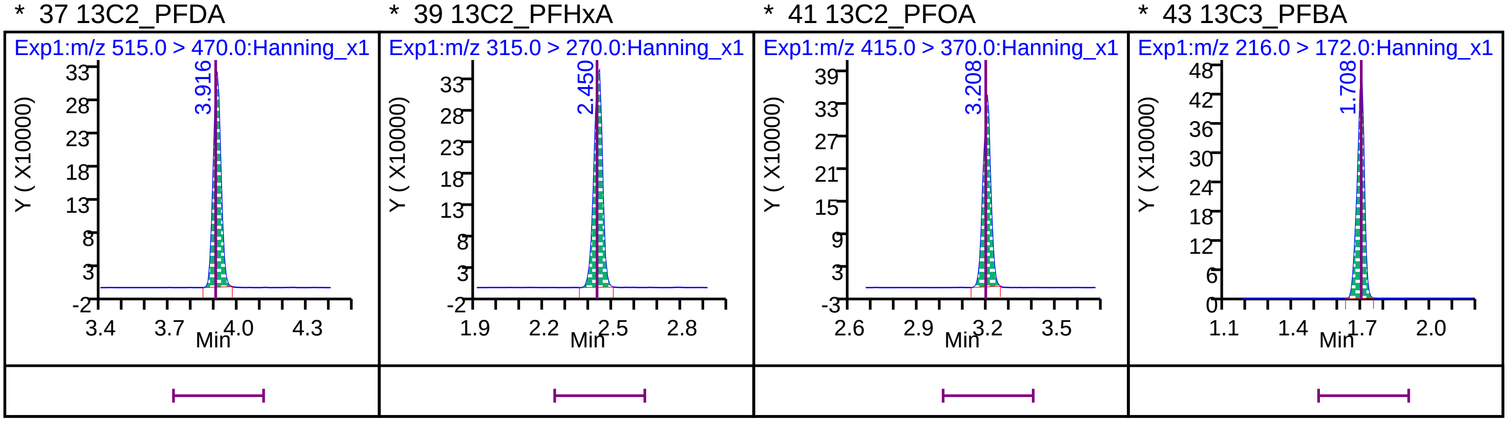
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



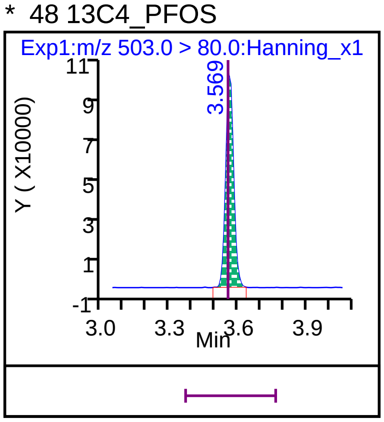
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Oct-2021 15:06:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921043.d
Injection Date: 29-Oct-2021 18:27:10 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 33
Sample Info: CCV 1000A_SVLC-1717 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	973.97	97.4	70 - 130
D 46 13C4_PFBA	1091906	1032329			94.5	50 - 150
21 PFPeA			1000.00	933.35	93.3	70 - 130
D 50 13C5_PFPeA	1016491	987031			97.1	50 - 150
D 44 13C3_PFBS	317213	321910			101.5	50 - 150
7 PFBS			884.00	795.73	90	70 - 130
D 63 13C2_4:2 FTS_2	322284	288567			89.5	50 - 150
1 4:2 FTS			934.00	912.12	97.7	70 - 130
D 49 13C5_PFHxA	908351	921373			101.4	50 - 150
15 PFHxA			1000.00	913.30	91.3	70 - 130
22 PFPeS			938.00	916.05	97.7	70 - 130
28 GenX			2000.00	1990.02	99.5	70 - 130
D 66 13C3_GenX	722297	765981			106	50 - 150
D 47 13C4_PFHpA	926202	951546			102.7	50 - 150
13 PFHpA			1000.00	906.98	90.7	70 - 130
D 45 13C3_PFHxS	276451	270012			97.7	50 - 150
14 PFHxS			910.00	852.11	93.6	70 - 130
29 ADONA			942.00	932.26	99	70 - 130
2 6:2 FTS			948.00	992.12	104.7	70 - 130
D 64 13C2_6:2 FTS_2	273875	243077			88.8	50 - 150
D 53 13C8_PFOA	856960	797216			93	50 - 150
20 PFOA			1000.00	1021.44	102.1	70 - 130
12 PFHpS			952.00	871.74	91.6	70 - 130
D 54 13C8_PFOS	232752	230536			99	50 - 150
18 PFOS			928.00	892.45	96.2	70 - 130
17 PFNA			1000.00	1036.76	103.7	70 - 130
D 56 13C9_PFNA	863231	789592			91.5	50 - 150
30 9Cl-PF3ONS			932.00	931.10	99.9	70 - 130
D 55 13C8_PFOSA	428383	424054			99	50 - 150
19 PFOSA			1000.00	1004.22	100.4	70 - 130
16 PFNS			960.00	863.57	90	70 - 130
D 65 13C2_8:2 FTS_2	211438	196008			92.7	50 - 150
3 8:2 FTS			958.00	1126.09	117.5	70 - 130
D 51 13C6_PFDA	753271	770263			102.3	50 - 150
10 PFDA			1000.00	933.82	93.4	70 - 130
D 58 d3-MeFOSAA	1033171	992928			96.1	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1049.25	104.9	70 - 130
9 PFDS			964.00	837.78	86.9	70 - 130
25 PFUdA			1000.00	939.40	93.9	70 - 130
D 60 d5-EtFOSAA	944086	921015			97.6	50 - 150
D 52 13C7_PFUdA	729025	759296			104.2	50 - 150
5 N-EtFOSAA			1000.00	964.56	96.5	70 - 130
D 61 d7-MeFOSE	124594	133282			107	50 - 150
32 MeFOSE			1000.00	942.59	94.3	70 - 130
D 57 d3-MeFOSA	57199	61075			106.8	50 - 150
26 MeFOSA			1000.00	1112.99	111.3	70 - 130
31 11Cl-PF3OUDS			942.00	910.20	96.6	70 - 130
D 62 d9-EtFOSE	110214	115561			104.9	50 - 150
33 EtFOSE			1000.00	1120.19	112	70 - 130
D 59 d5-EtFOSA	56576	58142			102.8	50 - 150
27 EtFOSA			1000.00	976.07	97.6	70 - 130
11 PFDoA			1000.00	953.76	95.4	70 - 130
D 38 13C2_PFDoA	702110	685839			97.7	50 - 150
4 10:2 FTS			964.00	973.20	101	70 - 130
34 PFDOS			968.00	837.82	86.6	70 - 130
24 PFTrDA			1000.00	964.48	96.4	70 - 130
D 42 13C2_PFTeDA	874602	933278			106.7	50 - 150
23 PFTeDA			1000.00	1001.38	100.1	70 - 130
D 40 13C2_PFHxDA	327951	343160			104.6	50 - 150
35 PFHxDA			1000.00	996.14	99.6	70 - 130
36 PFODA			1000.00	967.93	96.8	70 - 130

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921043.d		
Injection Date:	29-Oct-2021 18:27:10	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	33
Sample Info:	CCV 1000A_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.706	1	1032329	20	>100:1			1000.00	1150.74	94.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.706	1/0	1086523	20	>100:1			1000.00	973.97		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.077	1	987031	15	>100:1			1000.00	1098.05	97.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.077	1/0	994350	16	>100:1			1000.00	933.35		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.130	2.129	1	321910	16	>100:1			1000.00	1078.45	101.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.130	2.129	1/0	356120	16	>100:1	Target = 3.78		884.00	795.73		
298.9 > 99	44	2.130	2.129		94094	23	>100:1	3.78 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.484	2.475	1/0	304240	18	>100:1	Target = 3.45		938.00	916.05		
349 > 99	44	2.484	2.475		88682	17	>100:1	3.43 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.397	2	288567	18	>100:1			5000.00	6457.29	89.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.397	2/0	100861	17		Target = 1.43		934.00	912.12		
327 > 81	63	2.415	2.397		64347	19	>100:1	1.56 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.440	1	921373	18	>100:1			1000.00	1125.31	101.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.440	1/0	864345	18	>100:1	Target = 16.37		1000.00	913.30		
313 > 119	49	2.450	2.440		51248	25	>100:1	16.86 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.562	1	765981	19	>100:1			5000.00	5294.04	106	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.571	2.562	1/0	234142	20	>100:1	Target = 0.74		2000.00	1990.02		
285 > 185	66	2.571	2.562		323899	19	>100:1	0.72 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.836	2.827	1	951546	18	>100:1			1000.00	1187.52	102.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.836	2.827	1/0	856390	19	>100:1	Target = 3.21		1000.00	906.98		
363 > 169	47	2.836	2.827		255406	17	>100:1	3.35 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.853	2.836	2	270012	19	>100:1			1000.00	1097.81	97.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.853	2.845	1/-1	277403	26	>100:1	Target = 3.47	5.57	910.00	852.11		
399 > 99	45	2.853	2.845		80016	26	>100:1	3.46 (1.73-5.21)	9.03				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.880	2.871	1/-1	1368465	19	>100:1	Target = 2.28		942.00	932.26		
377 > 85	45	2.880	2.871		545215	18	>100:1	2.50 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.226	3.208	2/0	255589	21	>100:1	Target = 3.62		952.00	871.74		
449 > 99	45	3.226	3.208		68161	20	>100:1	3.74 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.195	3.177	2	243077	20	>100:1			5000.00	5562.78	88.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.195	3.183	1/-1	76071	22	>100:1	Target = 1.19		948.00	992.12		
427 > 81	64	3.195	3.183		57885	21	>100:1	1.31 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.220	3.202	2	797216	22	>100:1			1000.00	1053.59	93	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.220	3.202	2/0	819864	21	>100:1	Target = 2.34		1000.00	1021.44		
413 > 169	53	3.220	3.202		322907	20	>100:1	2.53 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.591	3.565	2	230536	19	>100:1			1000.00	1017.50	99	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.591	3.572	2/0	248368	40	>100:1	Target = 4.00	3.62	928.00	892.45		
499 > 99	54	3.591	3.572		58924	38	>100:1	4.21 (2.00-6.01)	6.43				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.796	3.769	2/0	655029	18	>100:1			932.00	931.10		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.923	3.903	2/0	201302	17	>100:1	Target = 3.83		960.00	863.57		
549 > 99	54	3.923	3.903		52953	23	>100:1	3.80 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.223	4.199	2/0	185821	16	>100:1	Target = 3.87		964.00	837.78		
599 > 99	54	4.223	4.199		53839	16	>100:1	3.45 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.384	4.359	2/0	548000	15	>100:1			942.00	910.20		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.725	4.690	3/1	176502	16	>100:1	Target = 3.65		968.00	837.82		
699 > 99	54	4.725	4.690		46233	17	>100:1	3.81 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.591	3.572	2	789592	19	>100:1			1000.00	1018.24	91.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.598	3.572	2/0	714503	20	>100:1	Target = 4.21		1000.00	1036.76		
463 > 169	56	3.598	3.572		152730	19	>100:1	4.67 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.878	3.842	3	424054	17	>100:1			1000.00	1012.51	99	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.878	3.842	3/0	482823	18	>100:1	Target = 49.05		1000.00	1004.22		
498>478	55	3.878	3.842		10453	22	48:1	46.18 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.931	3.903	2	196008	16				5000.00	5183.51	92.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.931	3.911	2/0	65180	18	>100:1	Target = 1.27		958.00	1126.09		
527 > 81	65	3.931	3.911		44221	18	>100:1	1.47 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.519	4.492	2/0	57525	18	>100:1	Target = 2.25		964.00	973.20		
627 > 80	65	4.519	4.492		23643	18		2.43 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.939	3.911	2	770263	18	>100:1			1000.00	1134.14	102.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.939	3.918	2/0	726765	17	>100:1	Target = 8.94		1000.00	933.82		
513 > 169	51	3.939	3.918		82022	18	>100:1	8.86 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.087	4.065	2	992928	17	>100:1			5000.00	4845.95	96.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.095	4.073	2/0	159170	26	>100:1	Target = 1.38	11.62	1000.00	1049.25		
570 > 483	58	4.095	4.073		123742	37	>100:1	1.28 (0.69-2.08)	3.76				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.241	4.217	2	759296	17	>100:1			1000.00	1201.15	104.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.241	4.217	2/0	632602	16	>100:1	Target = 8.27		1000.00	939.40		
563 > 169	52	4.250	4.217		74899	20	>100:1	8.44 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.217	3	921015	16	>100:1			5000.00	5364.83	97.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.250	4.217	3/0	189629	33	>100:1	Target = 1.95	6.77	1000.00	964.56		
584 > 526	60	4.250	4.217		105827	31	>100:1	1.79 (0.97-2.92)	3.55				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.295	4.262	2	133282	17	>100:1			1000.00	1048.14	107	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.312	4.271	3/1	123913	16	>100:1			1000.00	942.59		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.321	4.280	3	61075	15	>100:1			1000.00	1050.81	106.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.321	4.280	3/0	72376	14	>100:1	Target = 1.08		1000.00	1112.99		
512 > 219	57	4.321	4.280		68797	15	>100:1	1.05 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.461	4.427	3	115561	16	>100:1			1000.00	983.86	104.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.476	4.434	3/0	110315	16	>100:1			1000.00	1120.19		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.442	3	58142	16	>100:1			1000.00	1058.50	102.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.490	4.449	3/0	64933	15	>100:1	Target = 1.10		1000.00	976.07		
526 > 219	59	4.490	4.449		63987	16	>100:1	1.01 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.512	4.478	3	685839	17	>100:1			1000.00	1141.87	97.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.512	4.485	2/-1	669970	19	>100:1	Target = 5.93		1000.00	953.76		
613 > 169	38	4.512	4.485		96867	16		6.91 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.752	4.721	2/-1	357848	19	>100:1	Target = 2.90		1000.00	964.48		
663 > 169	38	4.752	4.721		110639	18	>100:1	3.23 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.959	4.935	2	933278	23	>100:1			1000.00	1164.86	106.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.964	4.935	2/0	791235	23	>100:1	Target = 6.34		1000.00	1001.38		
713 > 169	42	4.964	4.935		107645	24	>100:1	7.35 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.347	5.319	2	343160	19	>100:1			1000.00	1042.88	104.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.347	5.326	2/0	692603	20	>100:1	Target = 12.53		1000.00	996.14		
813 > 269	40	5.347	5.326		53705	20	>100:1	12.89 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.720	5.695	2/0	492995	21	>100:1	Target = 152.15		1000.00	967.93		
913 > 319	40	5.711	5.695		3010	21	>100:1	163.78 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.939	3.911	2	722565	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.440	1	820257	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.220	3.202	2	776429	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.708	1.706	1	909540	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.591	3.565	2	224760	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

Report Date: 30-Oct-2021 15:06:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921043.d		
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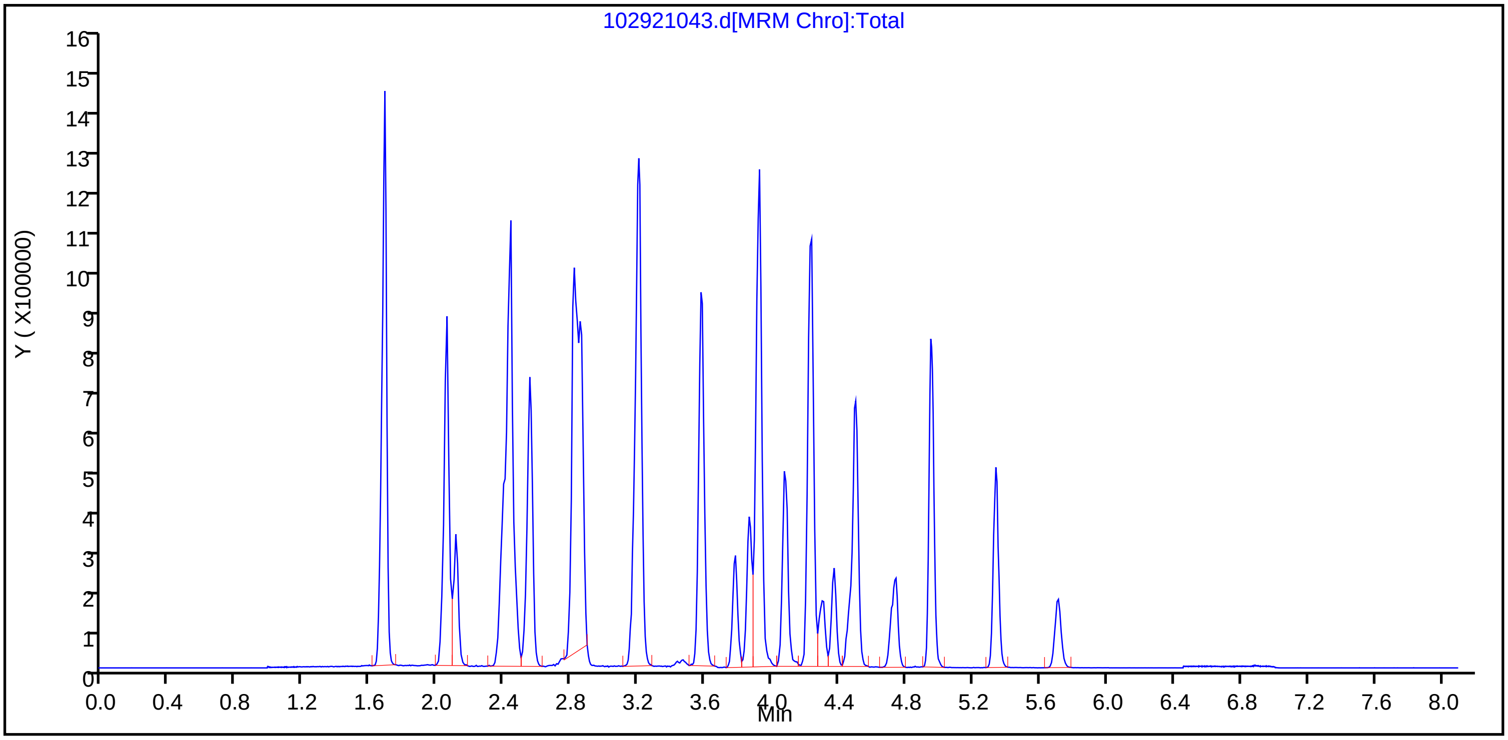
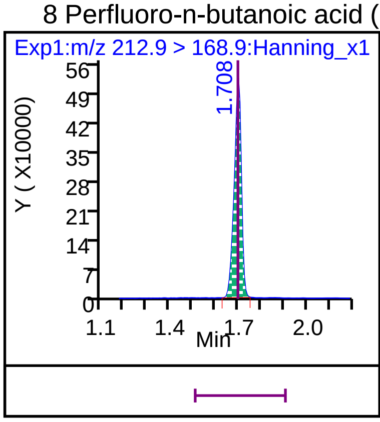
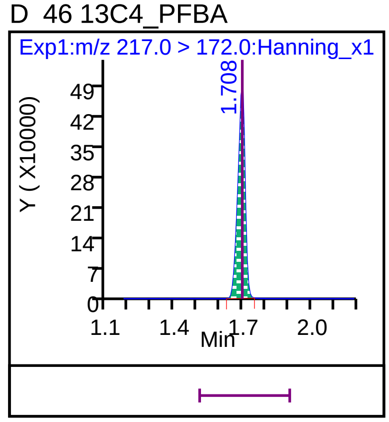
Client ID:		Lab ID:	CCV 1000A_SVLC-1717
Sample Info:	CCV 1000A_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



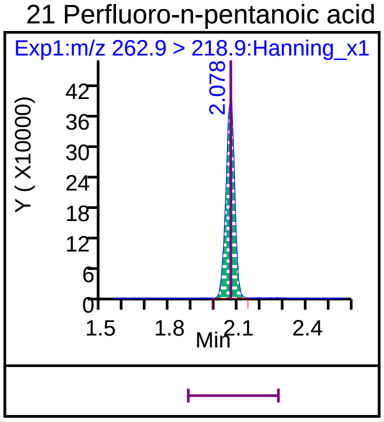
8 Perfluoro-n-butanoic acid (PFBA)



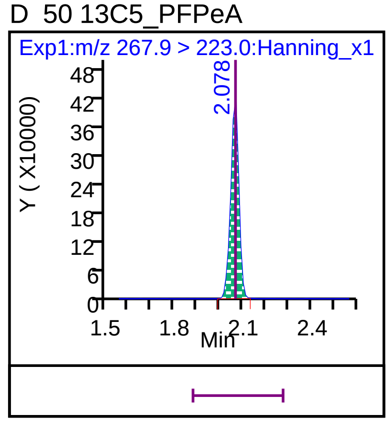
D 46 13C4_PFBA



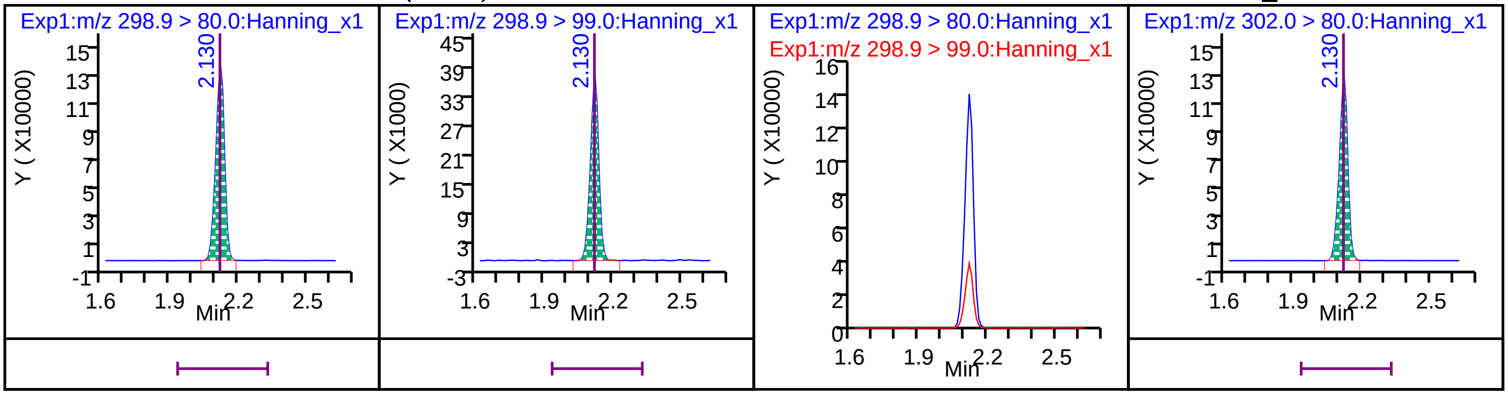
21 Perfluoro-n-pentanoic acid (PFPeA)



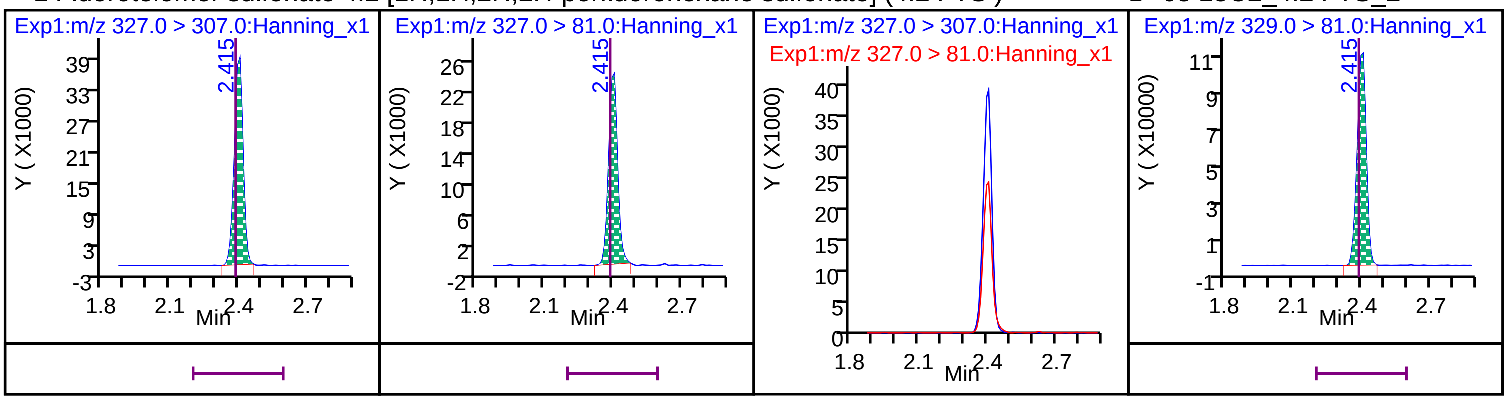
D 50 13C5_PFPeA



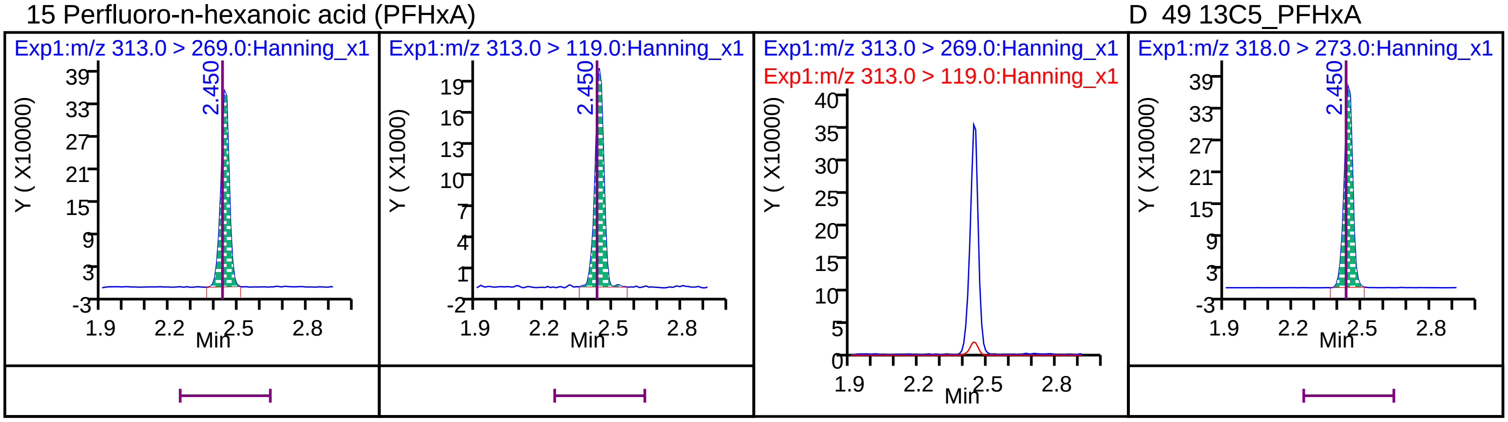
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



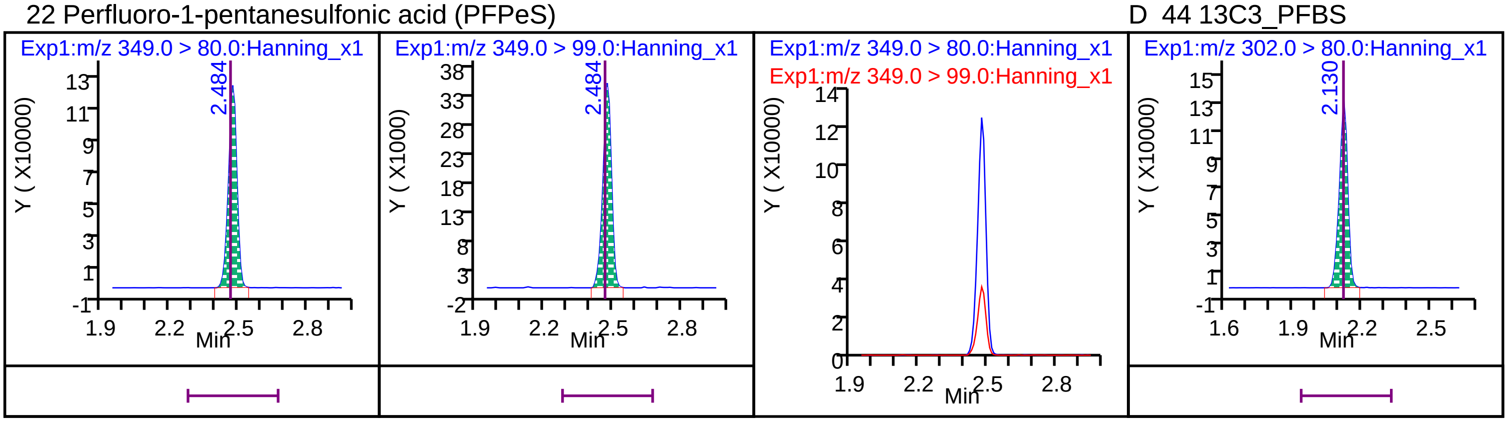
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



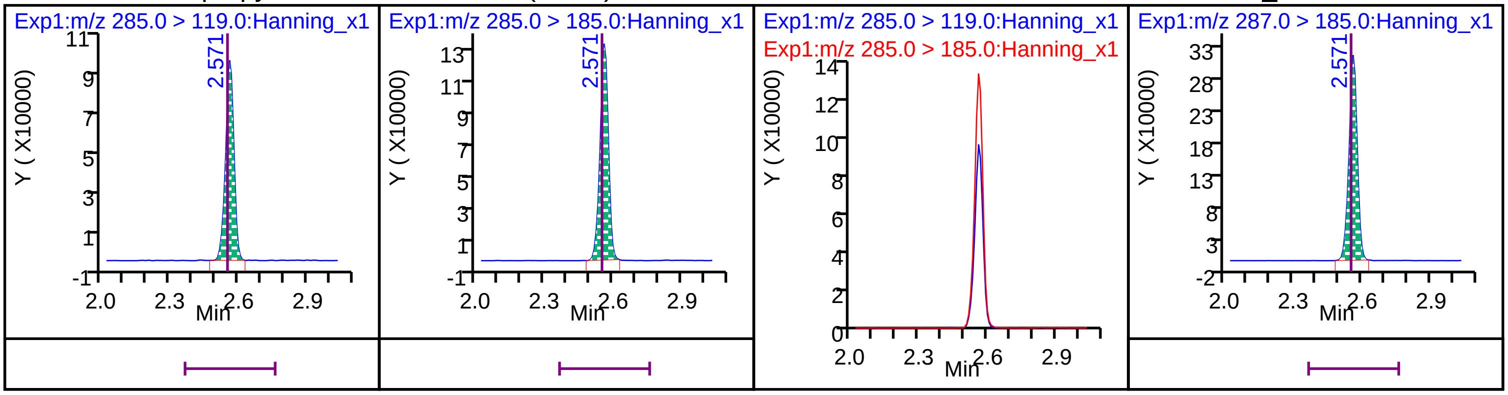
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



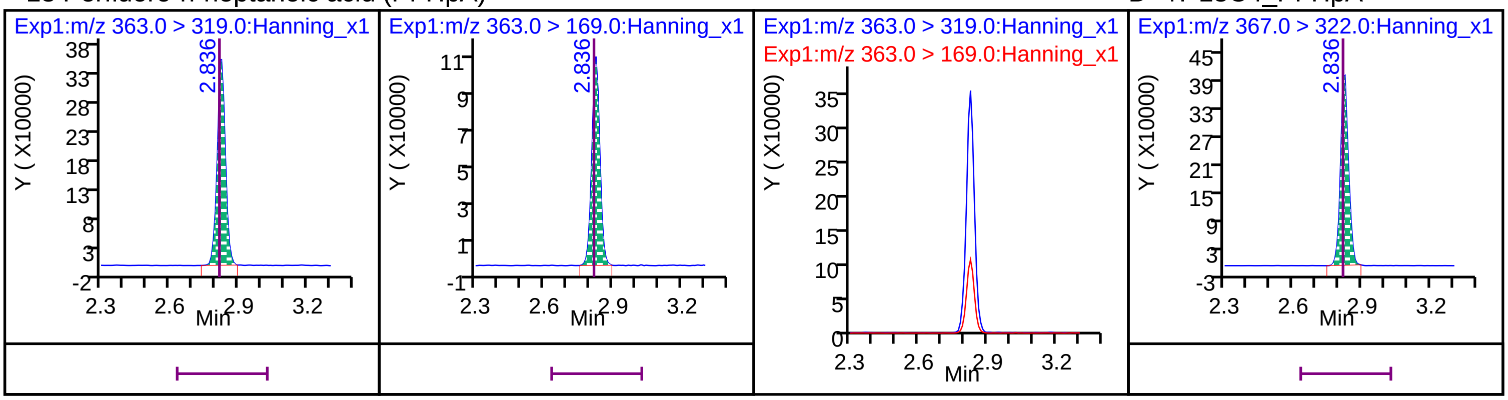
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



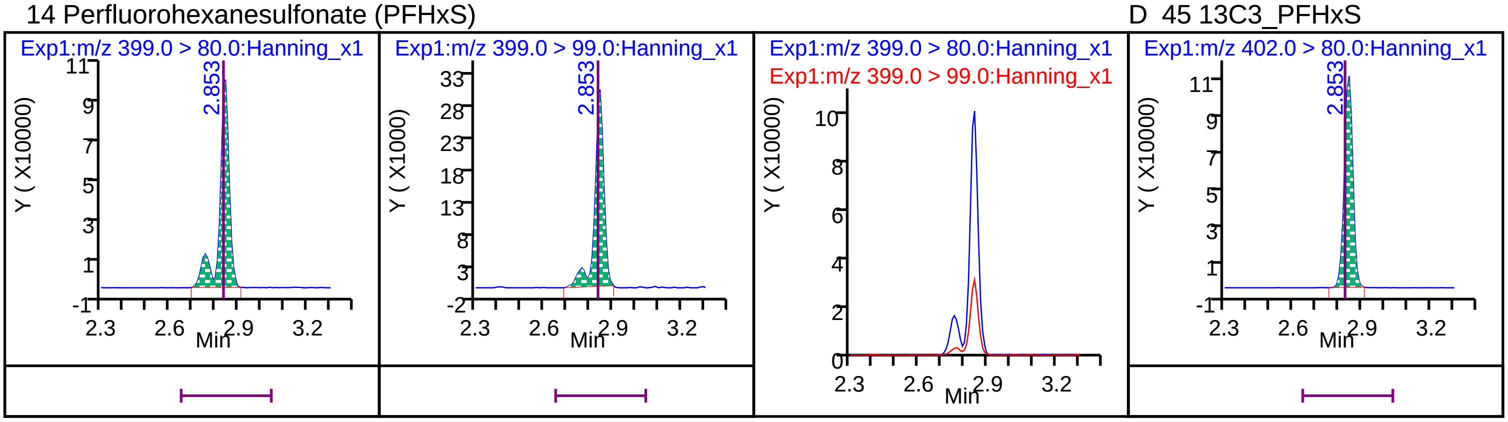
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



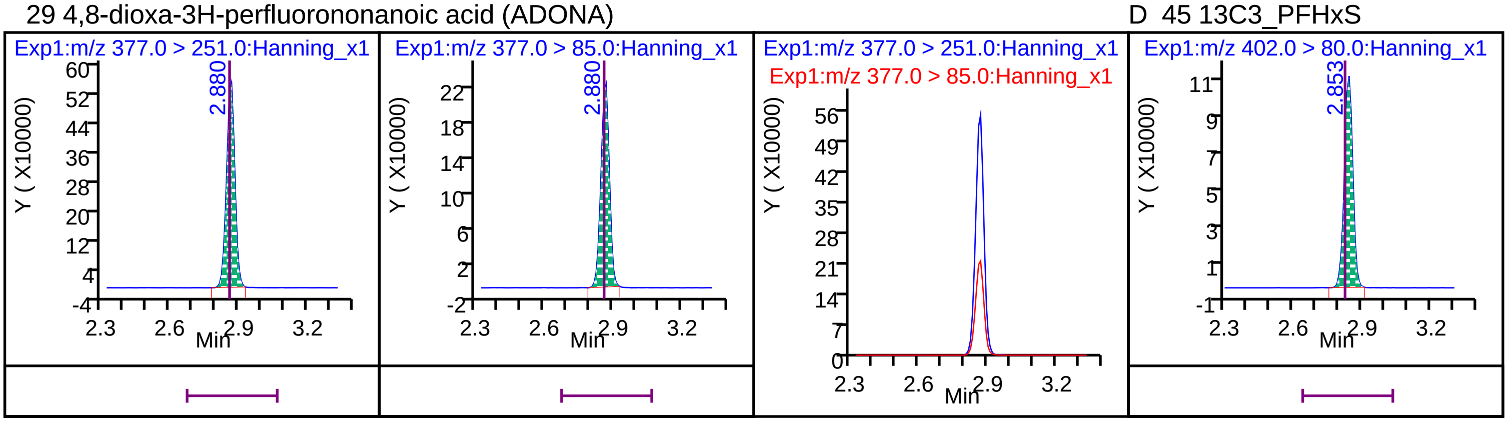
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



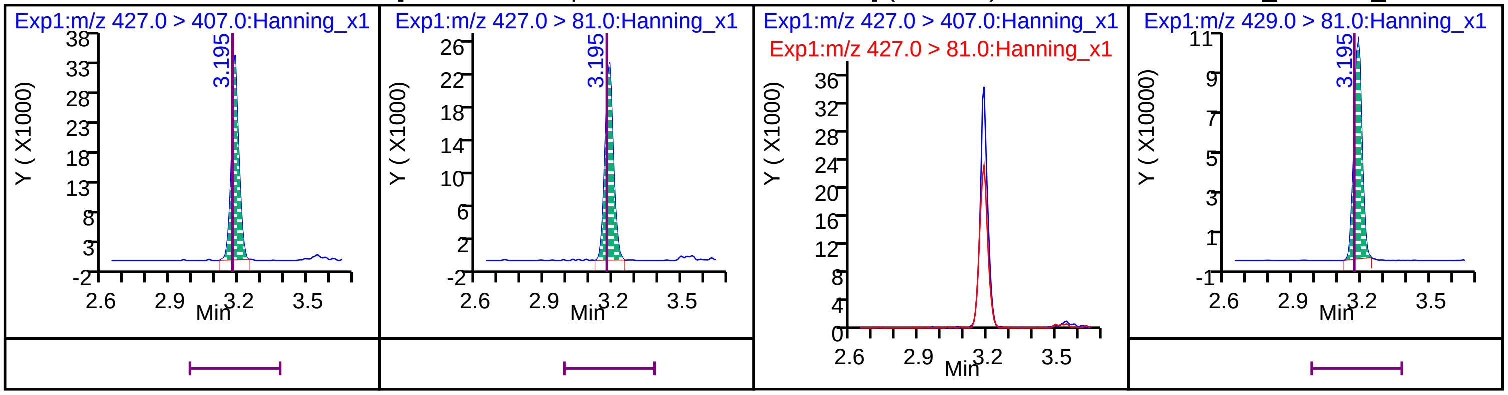
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



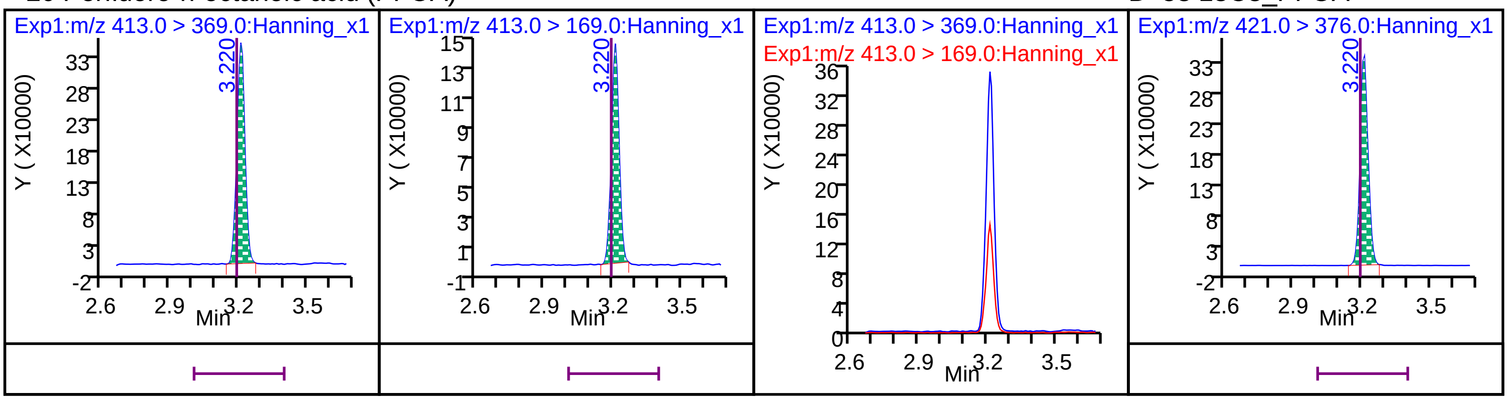
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



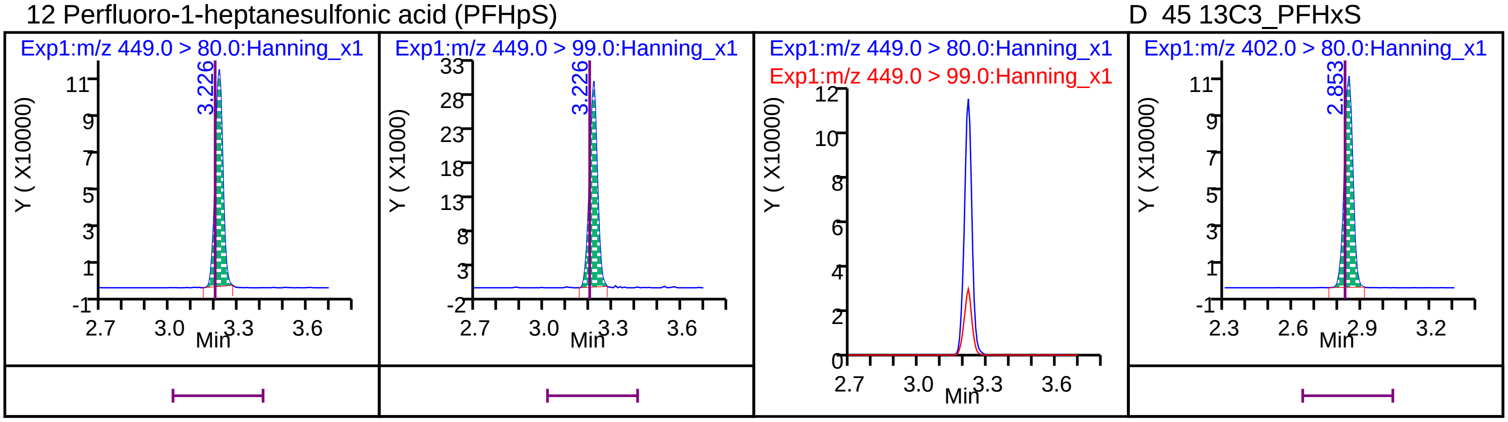
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



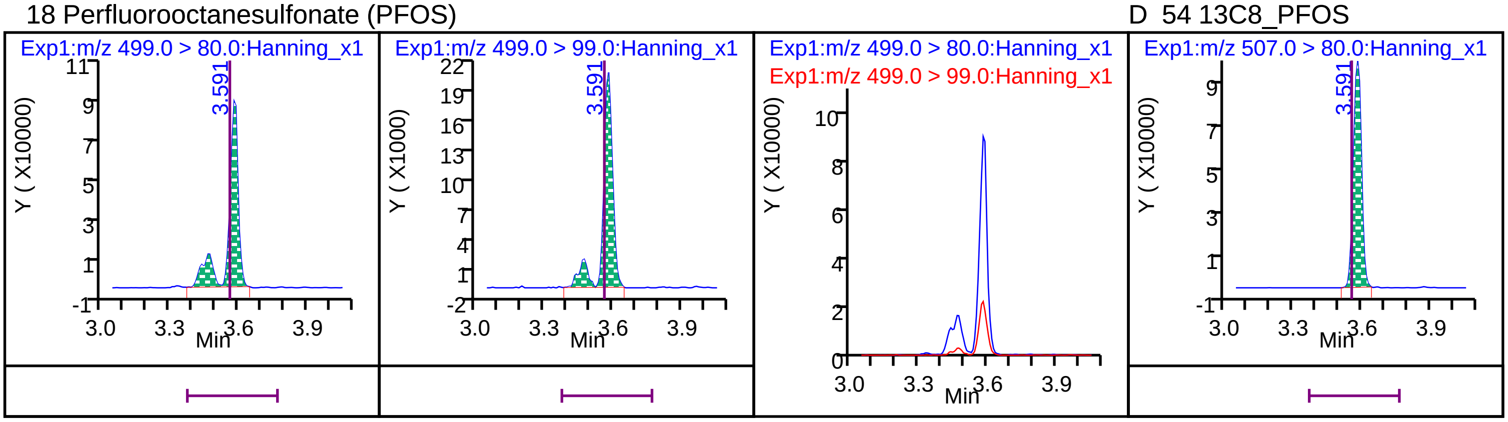
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



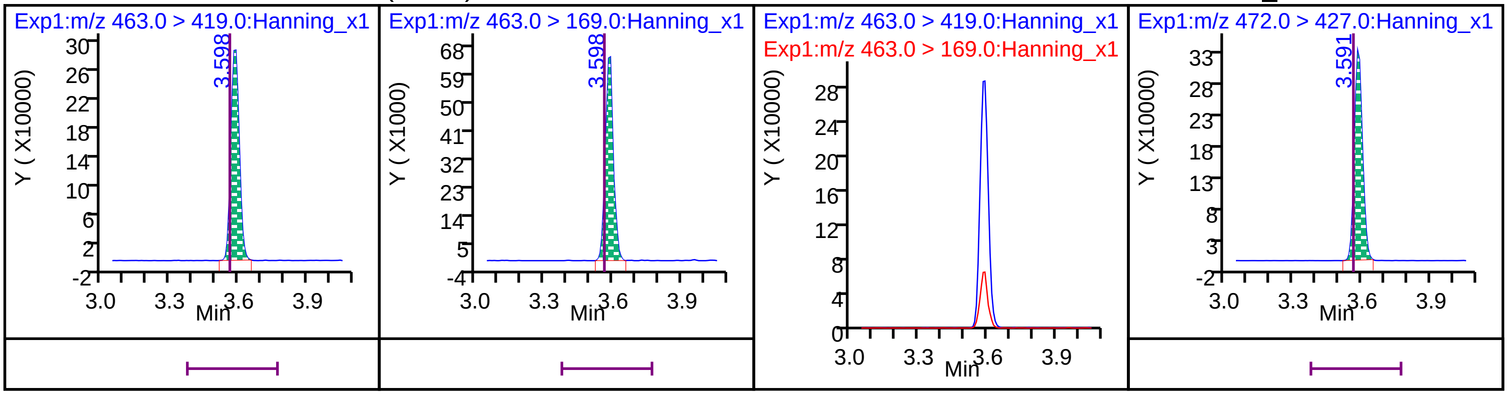
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



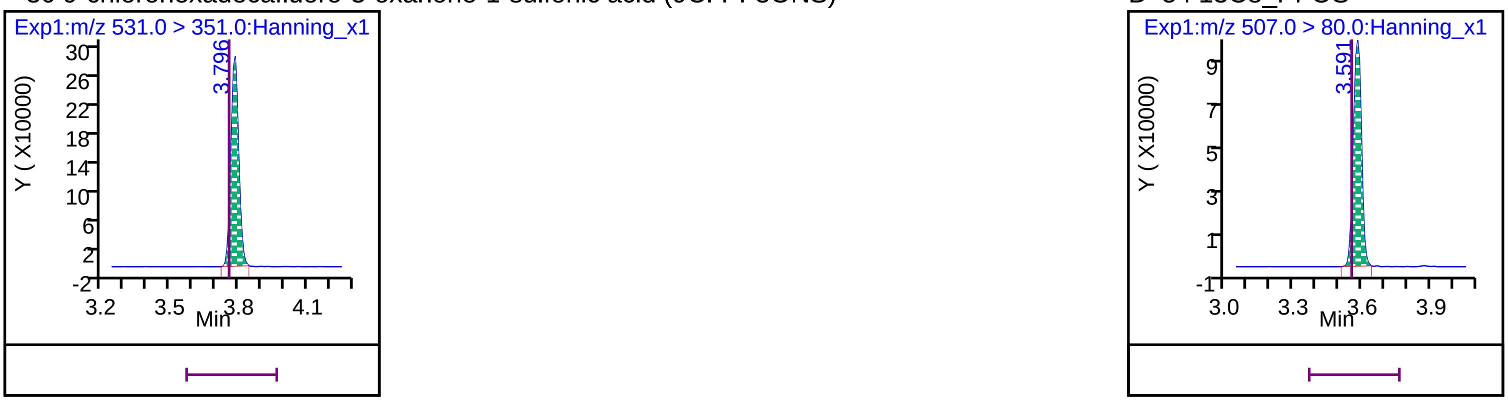
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



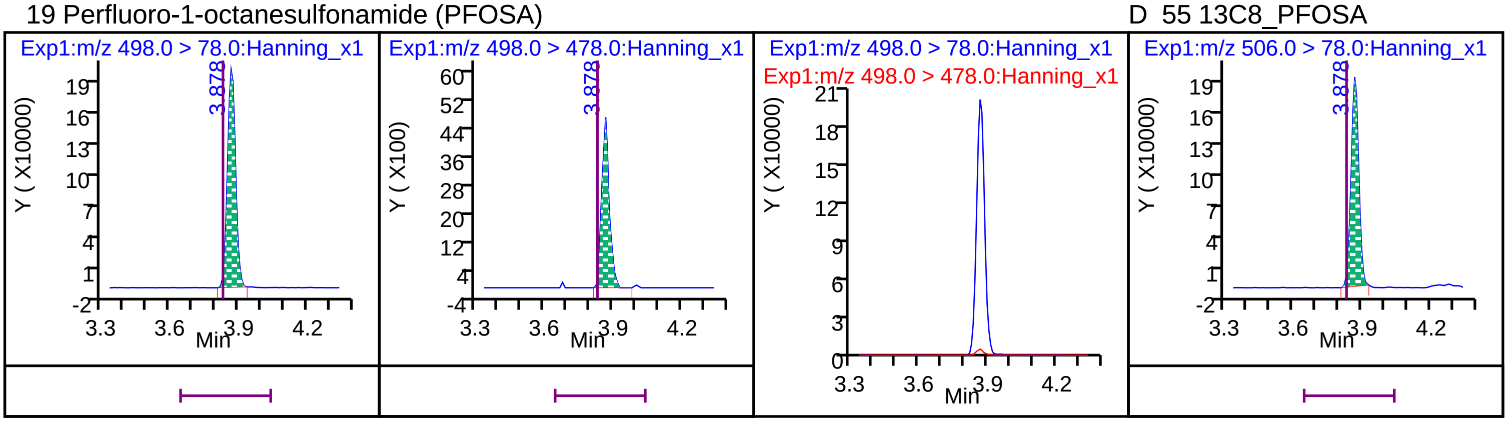
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



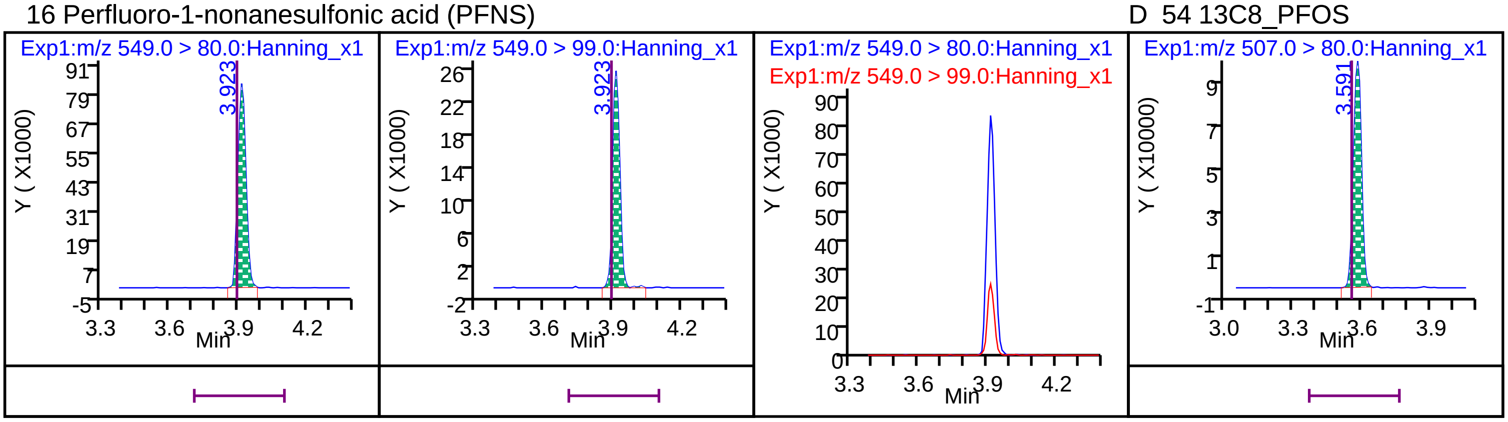
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



Report Date: 30-Oct-2021 15:06:51 AIM Revision: 2.0.2021.0812
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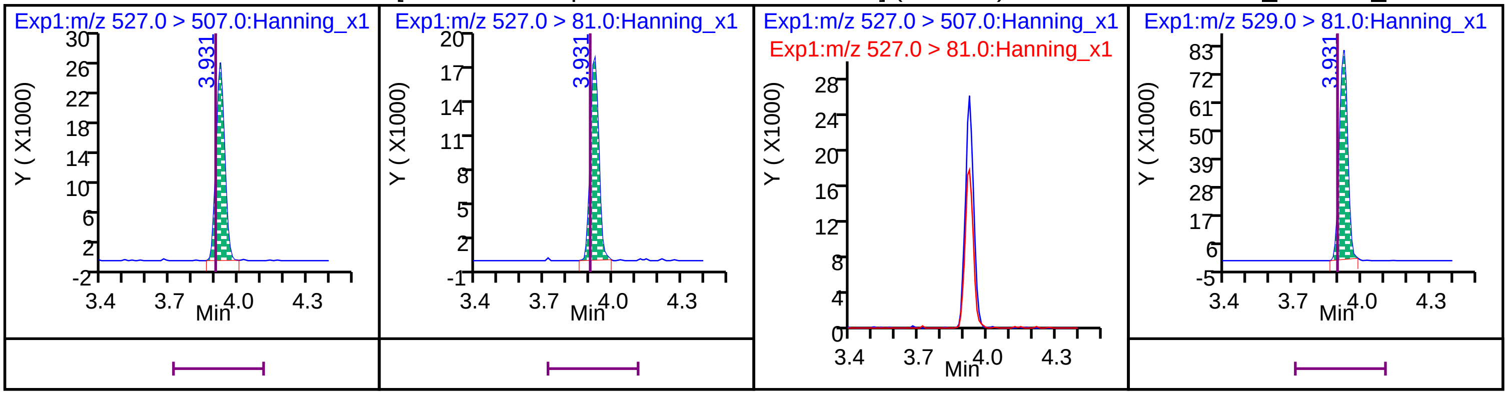
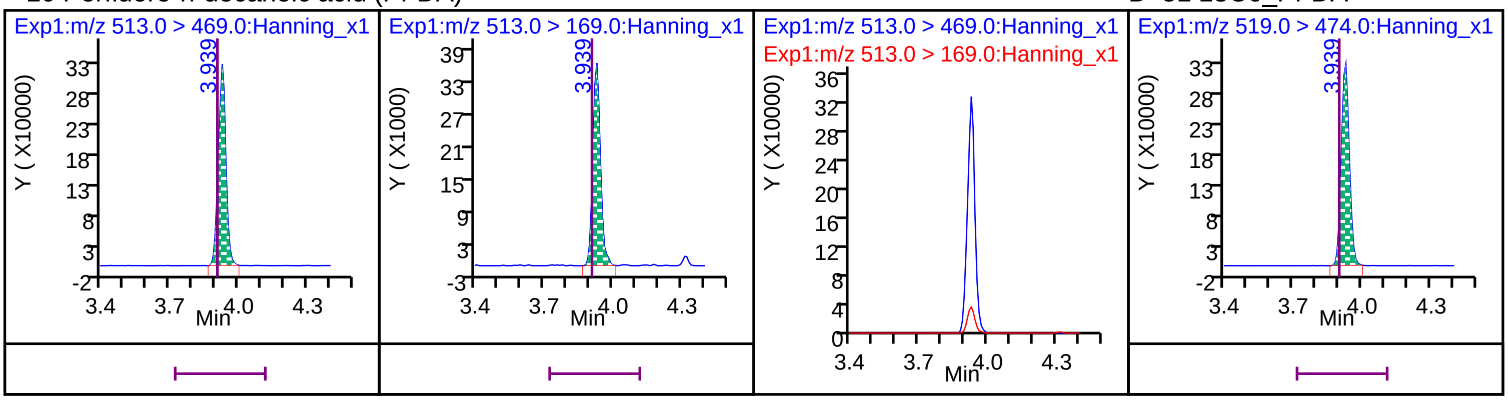
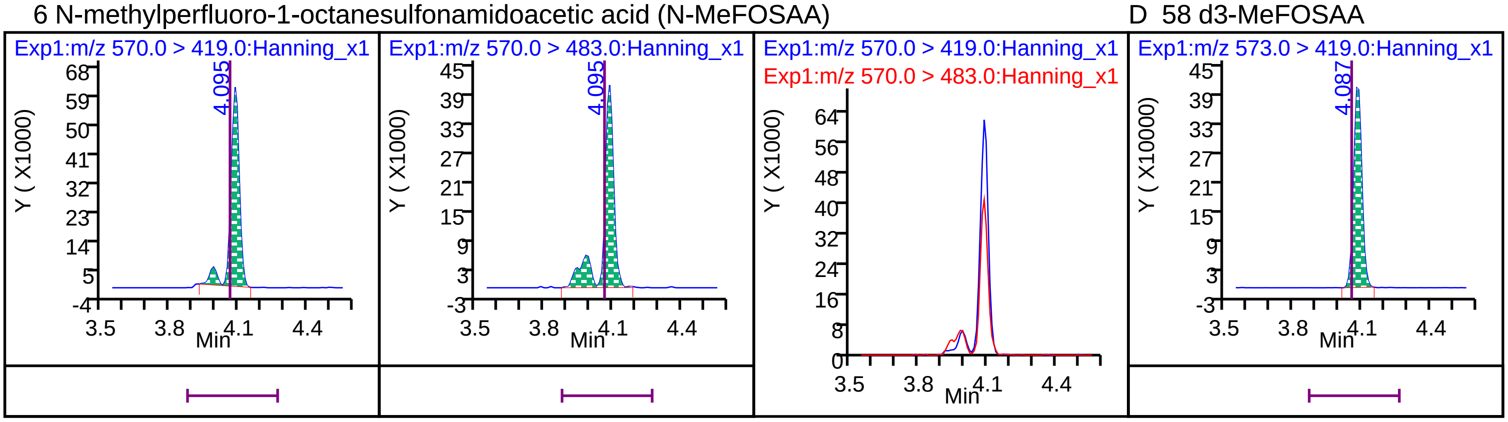
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



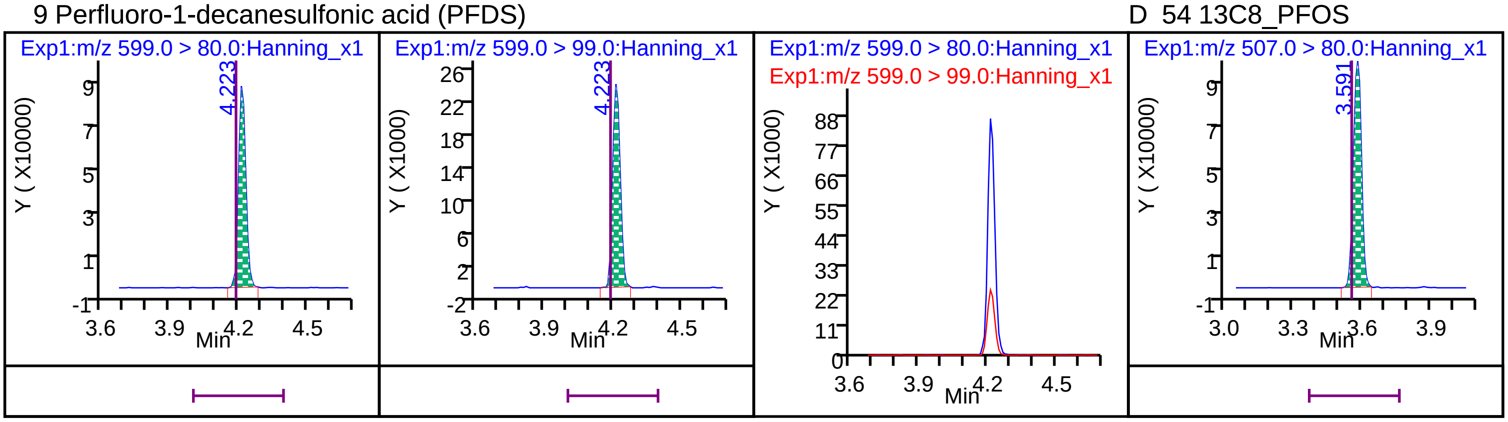
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



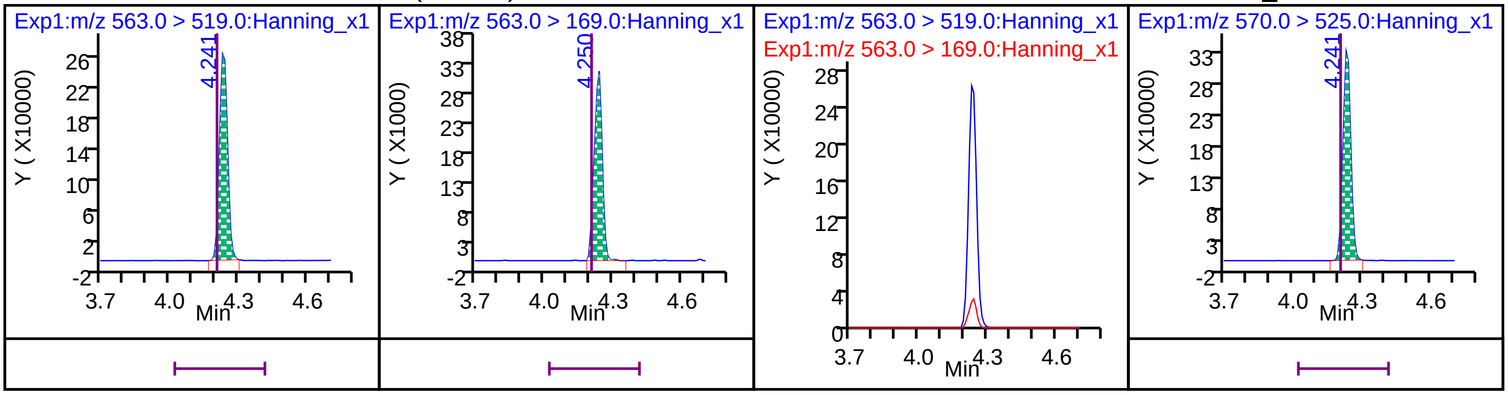
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



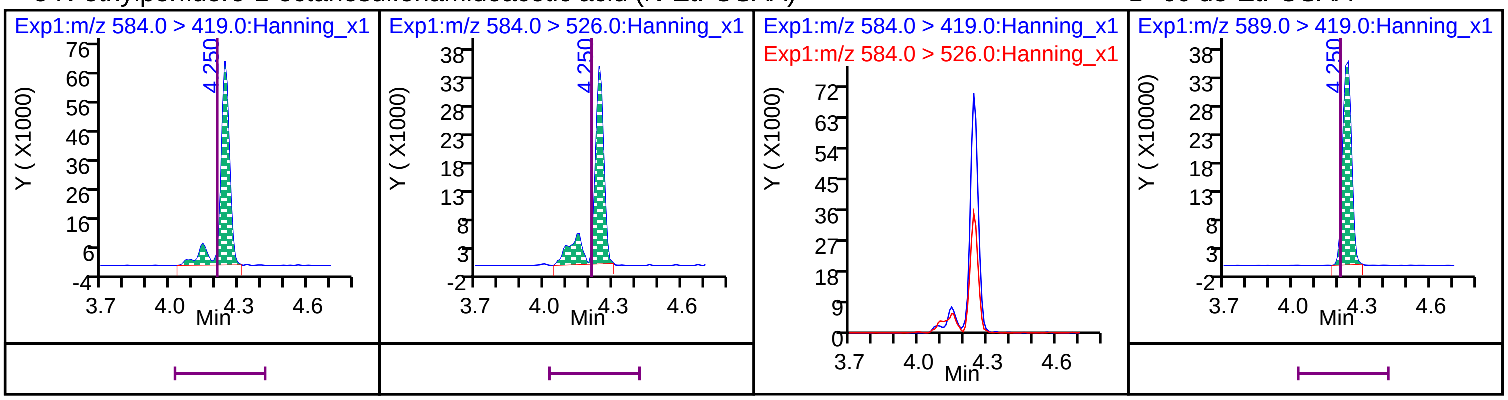
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

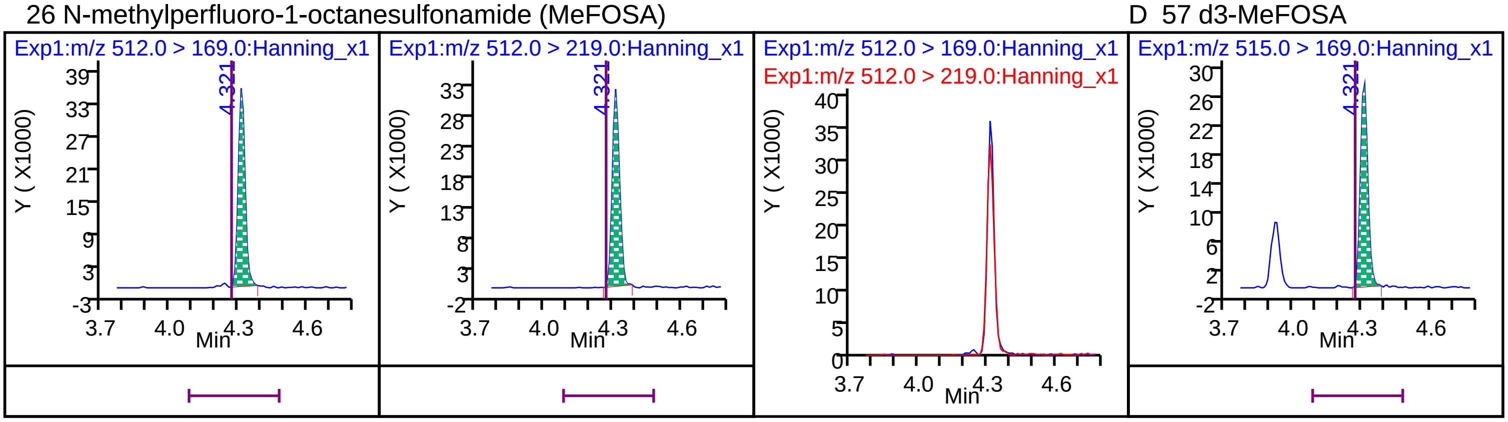


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

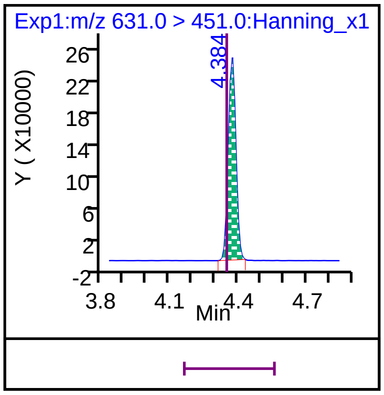


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

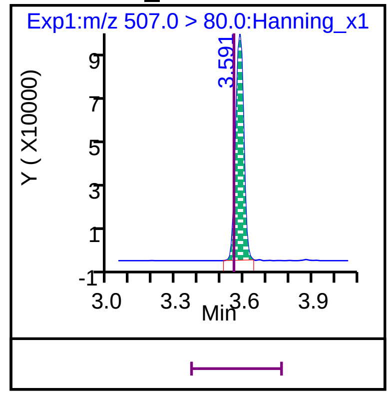
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



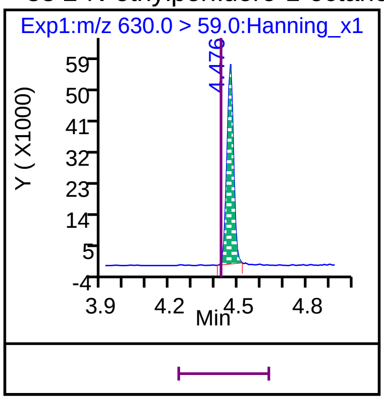
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



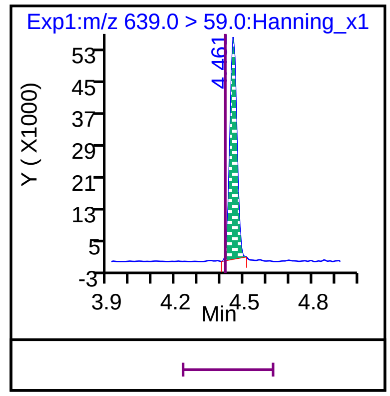
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

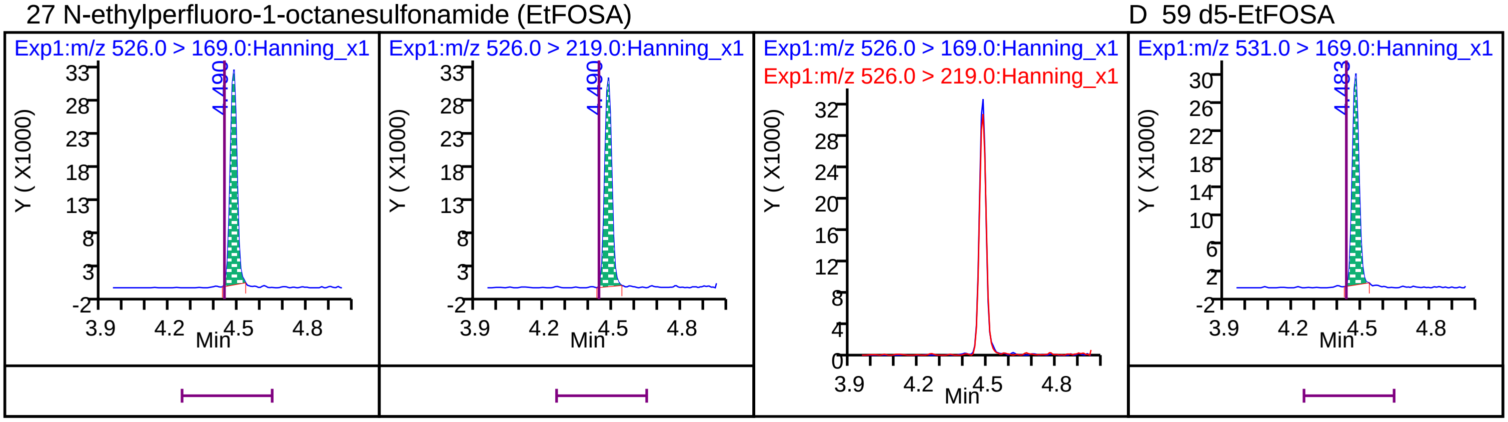


D 62 d9-EtFOSE



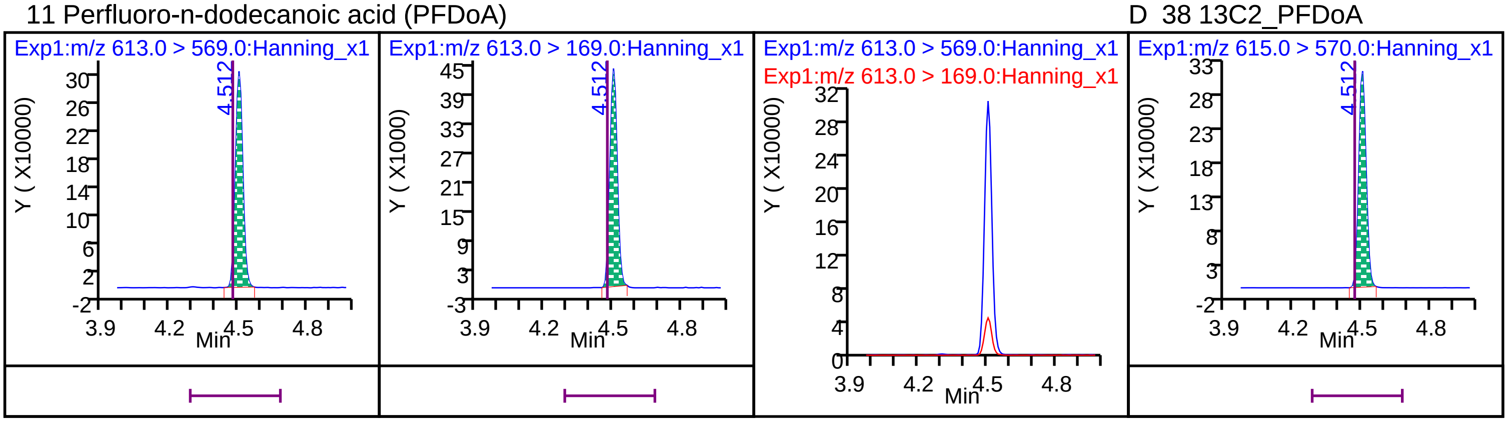
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

D 59 d5-EtFOSA

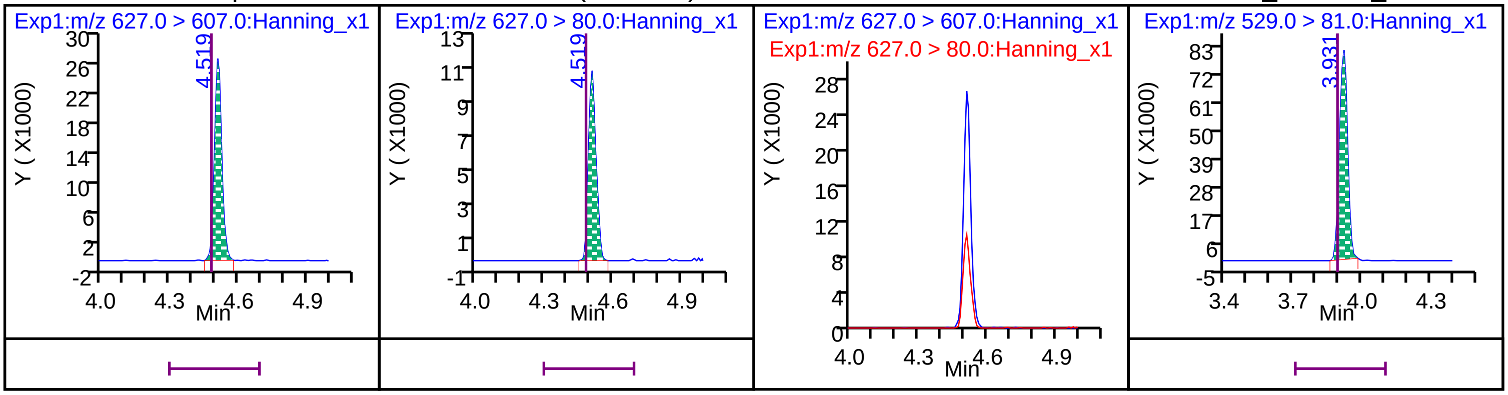


11 Perfluoro-n-dodecanoic acid (PFDoA)

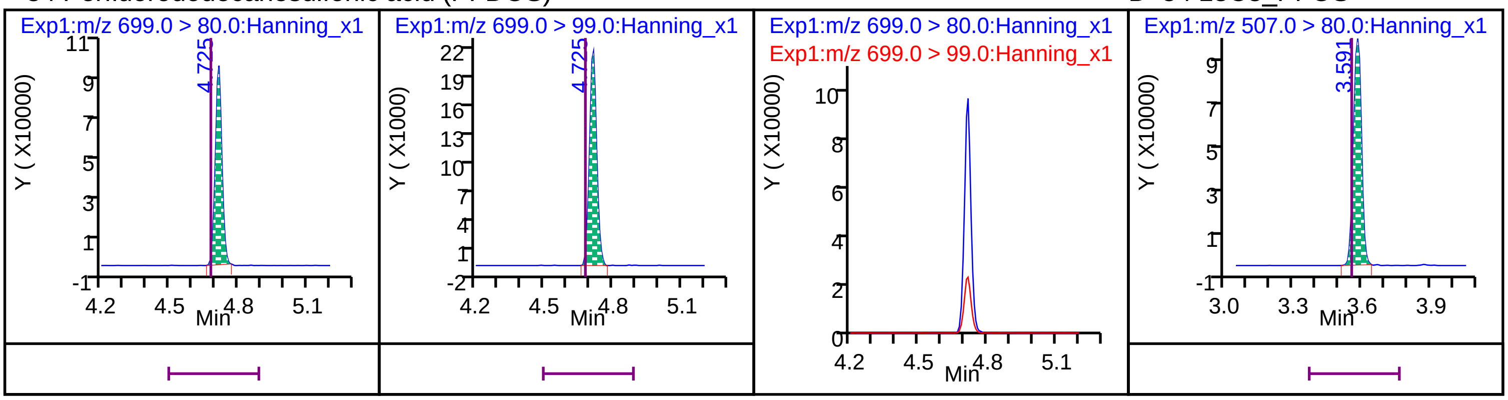
D 38 13C2_PFDoA



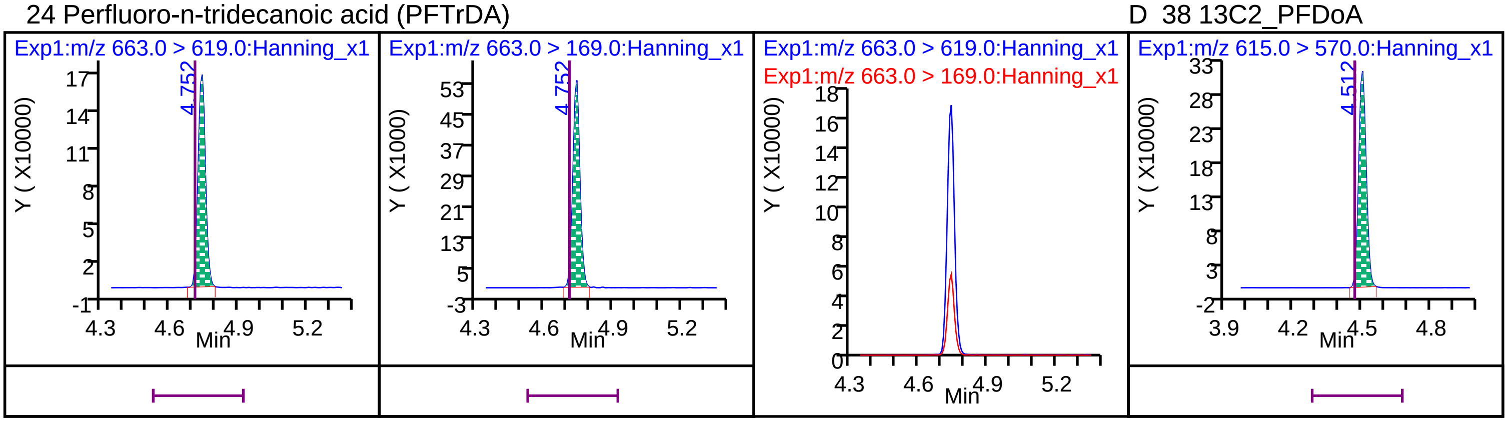
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



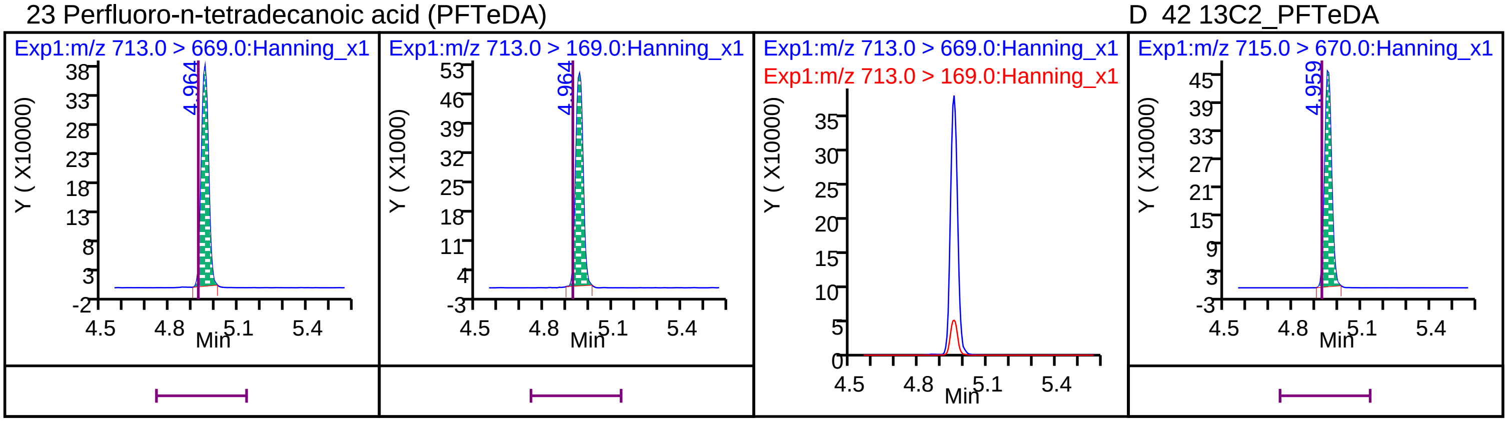
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



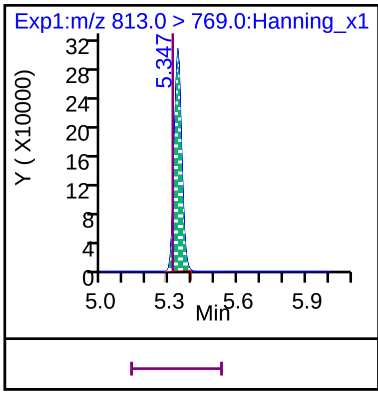
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

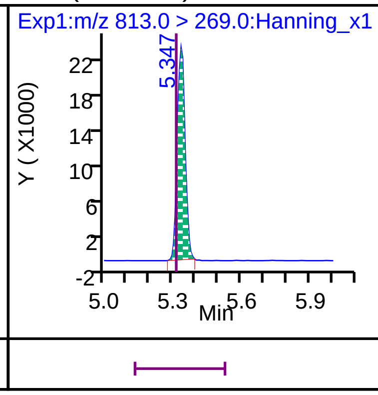


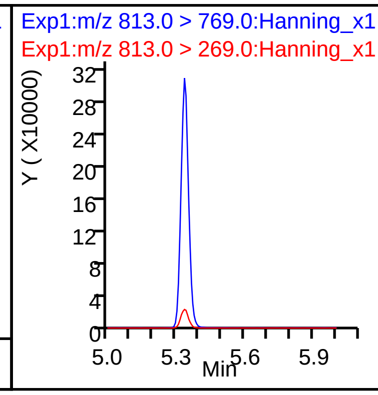
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



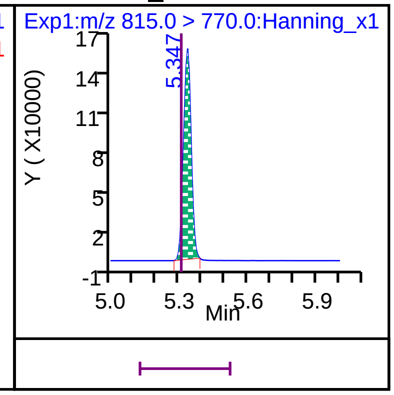
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



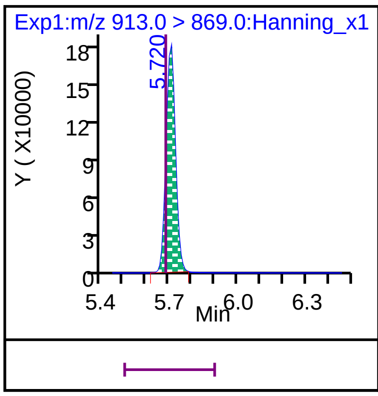


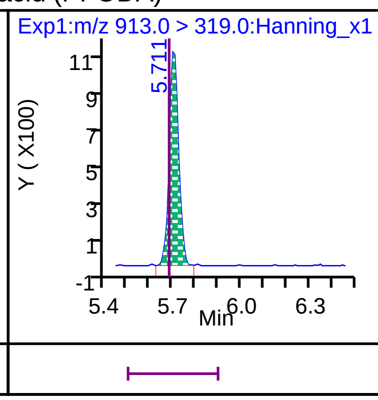


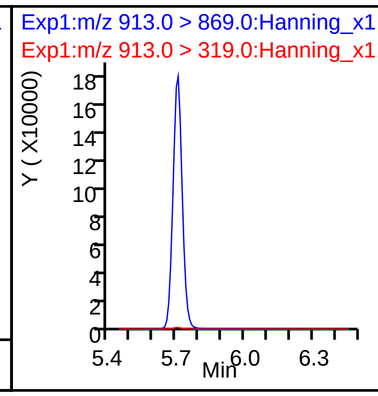
D 40 13C2_PFHxDA



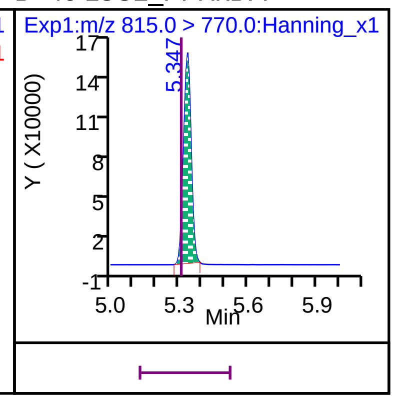
36 Perfluoro-n-octadecanoic acid (PFODA)



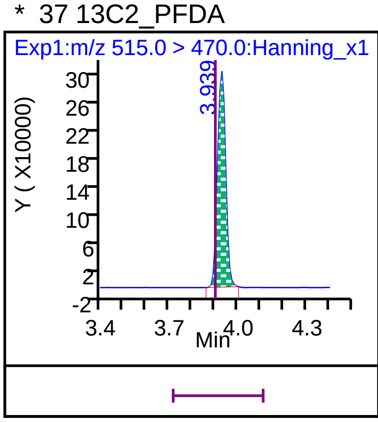




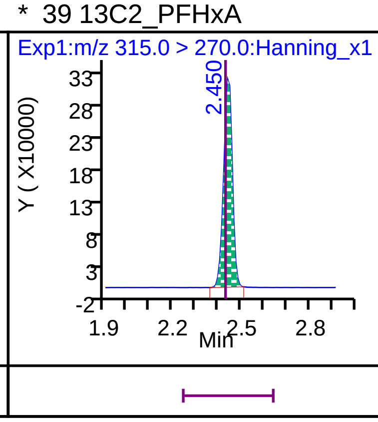
D 40 13C2_PFHxDA



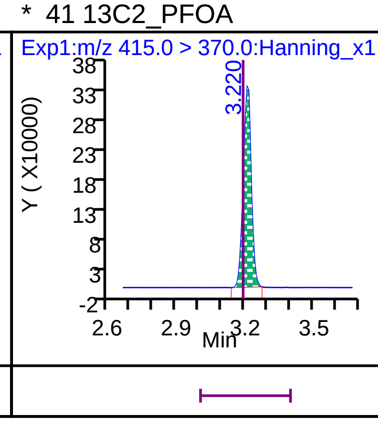
* 37 13C2_PFDA



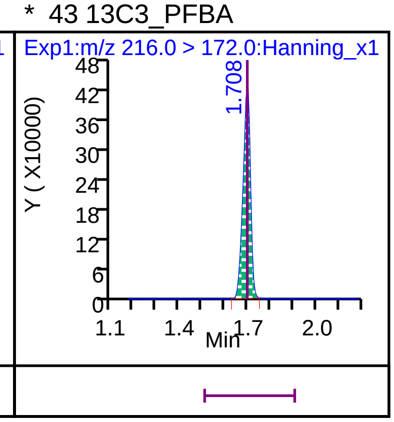
* 39 13C2_PFHxA



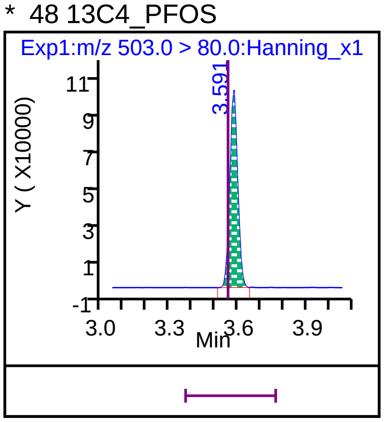
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d		
Injection Date:	29-Oct-2021 20:23:50	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	43
Sample Info:	CCV 1000B_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	960.36	96	70 - 130
D 46 13C4_PFBA	1091906	1125447			103.1	50 - 150
21 PFPeA			1000.00	980.45	98	70 - 130
D 50 13C5_PFPeA	1016491	1019052			100.3	50 - 150
D 44 13C3_PFBS	317213	331450			104.5	50 - 150
7 PFBS			884.00	845.22	95.6	70 - 130
D 63 13C2_4:2 FTS_2	322284	269321			83.6	50 - 150
1 4:2 FTS			934.00	1120.12	119.9	70 - 130
D 49 13C5_PFHxA	908351	933553			102.8	50 - 150
15 PFHxA			1000.00	987.11	98.7	70 - 130
22 PFPeS			938.00	955.56	101.9	70 - 130
28 GenX			2000.00	2040.94	102	70 - 130
D 66 13C3_GenX	722297	825449			114.3	50 - 150
D 47 13C4_PFHpA	926202	980879			105.9	50 - 150
13 PFHpA			1000.00	897.73	89.8	70 - 130
D 45 13C3_PFHxS	276451	294104			106.4	50 - 150
14 PFHxS			910.00	848.55	93.2	70 - 130
29 ADONA			942.00	934.68	99.2	70 - 130
2 6:2 FTS			948.00	1096.33	115.6	70 - 130
D 64 13C2_6:2 FTS_2	273875	256585			93.7	50 - 150
D 53 13C8_PFOA	856960	910741			106.3	50 - 150
20 PFOA			1000.00	918.03	91.8	70 - 130
12 PFHpS			952.00	865.53	90.9	70 - 130
D 54 13C8_PFOS	232752	240792			103.5	50 - 150
18 PFOS			928.00	887.35	95.6	70 - 130
17 PFNA			1000.00	1083.30	108.3	70 - 130
D 56 13C9_PFNA	863231	856952			99.3	50 - 150
30 9Cl-PF3ONS			932.00	994.28	106.7	70 - 130
D 55 13C8_PFOSA	428383	471726			110.1	50 - 150
19 PFOSA			1000.00	981.35	98.1	70 - 130
16 PFNS			960.00	918.96	95.7	70 - 130
D 65 13C2_8:2 FTS_2	211438	212481			100.5	50 - 150
3 8:2 FTS			958.00	1151.14	120.2	70 - 130
D 51 13C6_PFDA	753271	820744			109	50 - 150
10 PFDA			1000.00	1010.33	101	70 - 130
D 58 d3-MeFOSAA	1033171	1139213			110.3	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1065.11	106.5	70 - 130
9 PFDS			964.00	899.00	93.3	70 - 130
25 PFUdA			1000.00	960.67	96.1	70 - 130
D 60 d5-EtFOSAA	944086	1004760			106.4	50 - 150
D 52 13C7_PFUdA	729025	760950			104.4	50 - 150
5 N-EtFOSAA			1000.00	911.55	91.2	70 - 130
D 61 d7-MeFOSE	124594	143193			114.9	50 - 150
32 MeFOSE			1000.00	904.22	90.4	70 - 130
D 57 d3-MeFOSA	57199	65374			114.3	50 - 150
26 MeFOSA			1000.00	1198.84	119.9	70 - 130
31 11Cl-PF3OUDS			942.00	914.17	97	70 - 130
D 62 d9-EtFOSE	110214	136418			123.8	50 - 150
33 EtFOSE			1000.00	1051.24	105.1	70 - 130
D 59 d5-EtFOSA	56576	63697			112.6	50 - 150
27 EtFOSA			1000.00	1077.78	107.8	70 - 130
11 PFDoA			1000.00	986.83	98.7	70 - 130
D 38 13C2_PFDoA	702110	723716			103.1	50 - 150
4 10:2 FTS			964.00	982.60	101.9	70 - 130
34 PFDOS			968.00	846.04	87.4	70 - 130
24 PFTrDA			1000.00	949.43	94.9	70 - 130
D 42 13C2_PFTeDA	874602	969202			110.8	50 - 150
23 PFTeDA			1000.00	1002.93	100.3	70 - 130
D 40 13C2_PFHxDA	327951	385048			117.4	50 - 150
35 PFHxDA			1000.00	929.28	92.9	70 - 130
36 PFODA			1000.00	914.81	91.5	70 - 130

Report Date: 30-Oct-2021 15:07:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d		
Injection Date:	29-Oct-2021 20:23:50	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	43
Sample Info:	CCV 1000B_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.706	1	1125447	20	>100:1			1000.00	1254.54	103.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.706	1/0	1167980	19	>100:1			1000.00	960.36		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.077	1	1019052	17	>100:1			1000.00	1133.67	100.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.077	1/0	1078415	15	>100:1			1000.00	980.45		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.130	2.129	1	331450	16	>100:1			1000.00	1110.41	104.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.130	2.129	1/0	389482	15	>100:1	Target = 3.78		884.00	845.22		
298.9 > 99	44	2.130	2.129		102012	16	>100:1	3.81 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.485	2.475	1/0	326768	18	>100:1	Target = 3.45		938.00	955.56		
349 > 99	44	2.485	2.475		95221	17	>100:1	3.43 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.397	1	269321	16	>100:1			5000.00	6026.62	83.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.397	2/1	115600	17		Target = 1.43		934.00	1120.12		
327 > 81	63	2.407	2.397		78533	17	>100:1	1.47 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.440	1	933553	18	>100:1			1000.00	1140.18	102.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.440	1/0	946539	18	>100:1	Target = 16.37		1000.00	987.11		
313 > 119	49	2.459	2.440		43777	18	>100:1	21.62 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.562	1	825449	18	>100:1			5000.00	5705.05	114.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.571	2.562	1/0	258777	18	>100:1	Target = 0.74		2000.00	2040.94		
285 > 185	66	2.571	2.562		359221	19	>100:1	0.72 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.827	1	980879	18	>100:1			1000.00	1224.13	105.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.827	1/0	873788	18	>100:1	Target = 3.21		1000.00	897.73		
363 > 169	47	2.837	2.827		284297	18	>100:1	3.07 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.836	2	294104	18	>100:1			1000.00	1195.76	106.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.845	1/-1	300893	26	>100:1	Target = 3.47	5.17	910.00	848.55		
399 > 99	45	2.855	2.845		91128	32	>100:1	3.30 (1.73-5.21)	7.81				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.872	2.871	1/-1	1494424	18	>100:1	Target = 2.28		942.00	934.68		
377 > 85	45	2.881	2.871		590455	19	>100:1	2.53 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.223	3.208	1/-1	276412	21	>100:1	Target = 3.62		952.00	865.53		
449 > 99	45	3.223	3.208		77756	20	>100:1	3.55 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.191	3.177	1	256585	21	>100:1			5000.00	5871.91	93.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.191	3.183	1/0	88732	22		Target = 1.19		948.00	1096.33		
427 > 81	64	3.191	3.183		62281	20	>100:1	1.42 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.217	3.202	1	910741	21	>100:1			1000.00	1203.62	106.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.217	3.202	1/0	841793	21	>100:1	Target = 2.34		1000.00	918.03		
413 > 169	53	3.217	3.202		347377	20	>100:1	2.42 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.565	2	240792	18	>100:1			1000.00	1062.77	103.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.588	3.572	1/-1	257933	39	>100:1	Target = 4.00	3.45	928.00	887.35		
499 > 99	54	3.588	3.572		66039	38	>100:1	3.90 (2.00-6.01)	8.14				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.784	3.769	1/-1	730595	18	>100:1			932.00	994.28		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.919	3.903	1/-1	223744	18	>100:1	Target = 3.83		960.00	918.96		
549 > 99	54	3.919	3.903		61874	23		3.61 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.217	4.199	2/0	208270	16	>100:1	Target = 3.87		964.00	899.00		
599 > 99	54	4.217	4.199		54237	14	>100:1	3.83 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.377	4.359	2/0	574875	16	>100:1			942.00	914.17		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.720	4.690	2/0	186163	16		Target = 3.65		968.00	846.04		
699 > 99	54	4.720	4.690		46981	17	>100:1	3.96 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.595	3.572	2	856952	18	>100:1			1000.00	1105.10	99.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.572	1/-1	810265	18	>100:1	Target = 4.21		1000.00	1083.30		
463 > 169	56	3.595	3.572		166456	18	>100:1	4.86 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.842	2	471726	18	>100:1			1000.00	1126.34	110.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.842	2/0	524874	18	>100:1	Target = 49.05		1000.00	981.35		
498>478	55	3.873	3.842		12335	23	74:1	42.55 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.926	3.903	2	212481	18				5000.00	5619.15	100.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.926	3.911	1/-1	72230	26	>100:1	Target = 1.27		958.00	1151.14		
527 > 81	65	3.926	3.911		40486	16		1.78 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.514	4.492	2/0	62962	18	>100:1	Target = 2.25		964.00	982.60		
627 > 80	65	4.514	4.492		24465	17	>100:1	2.57 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.911	1	820744	19	>100:1			1000.00	1208.47	109	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.934	3.918	1/0	837839	18	>100:1	Target = 8.94		1000.00	1010.33		
513 > 169	51	3.934	3.918		87761	17	>100:1	9.54 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.090	4.065	2	1139213	17	>100:1			5000.00	5559.89	110.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.090	4.073	2/0	185379	24	70:1	Target = 1.38	8.54	1000.00	1065.11		
570 > 483	58	4.090	4.073		132005	34	>100:1	1.40 (0.69-2.08)	4.13				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.217	2	760950	16	>100:1			1000.00	1203.77	104.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.235	4.217	2/0	648334	17	>100:1	Target = 8.27		1000.00	960.67		
563 > 169	52	4.244	4.217		74818	14	>100:1	8.66 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.244	4.217	2	1004760	16	>100:1			5000.00	5852.64	106.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.244	4.217	2/0	195503	35		Target = 1.95	6.21	1000.00	911.55		
584 > 526	60	4.244	4.217		130072	38	>100:1	1.50 (0.97-2.92)	3.99				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.262	3	143193	15	>100:1			1000.00	1126.08	114.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.271	3/0	127707	15	>100:1			1000.00	904.22		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.280	3	65374	14	>100:1			1000.00	1124.78	114.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.324	4.280	3/0	83446	13	>100:1	Target = 1.08		1000.00	1198.84		
512 > 219	57	4.324	4.280		74579	13	>100:1	1.11 (0.54-1.62)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.427	3	136418	16	>100:1			1000.00	1161.43	123.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.470	4.434	3/0	122209	23	>100:1			1000.00	1051.24		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.477	4.442	3	63697	16	>100:1			1000.00	1159.63	112.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.485	4.449	3/0	78550	20	>100:1	Target = 1.10		1000.00	1077.78		
526 > 219	59	4.485	4.449		69721	18	>100:1	1.12 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.478	2	723716	19	>100:1			1000.00	1204.93	103.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.506	4.485	2/0	731483	19	>100:1	Target = 5.93		1000.00	986.83		
613 > 169	38	4.506	4.485		111008	18	>100:1	6.58 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.740	4.721	2/0	371715	18	>100:1	Target = 2.90		1000.00	949.43		
663 > 169	38	4.740	4.721		118736	20	>100:1	3.13 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.955	4.935	2	969202	23	>100:1			1000.00	1209.70	110.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.955	4.935	2/0	822968	22	>100:1	Target = 6.34		1000.00	1002.93		
713 > 169	42	4.955	4.935		119127	21	>100:1	6.90 (3.17-9.51)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.334	5.319	1	385048	20	>100:1			1000.00	1170.18	117.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.340	5.326	1/0	724986	19	>100:1	Target = 12.53		1000.00	929.28		
813 > 269	40	5.334	5.326		61484	20	>100:1	11.79 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.703	5.695	1/0	522814	21	>100:1	Target = 152.15		1000.00	914.81		
913 > 319	40	5.703	5.695		3271	18	>100:1	159.83 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.934	3.911	2	766888	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.440	1	859600	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.202	1	837132	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.708	1.706	1	976831	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.588	3.565	2	248190	25	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

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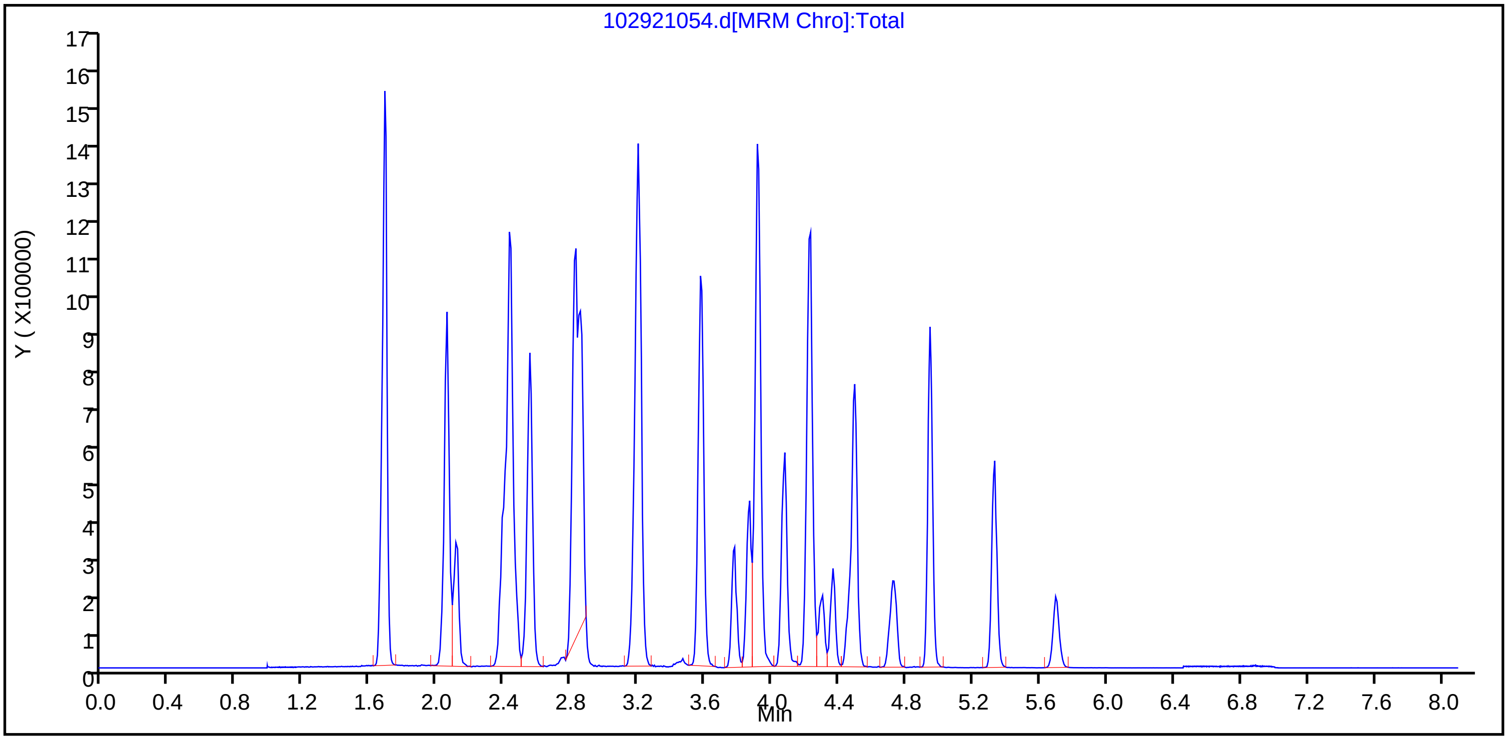
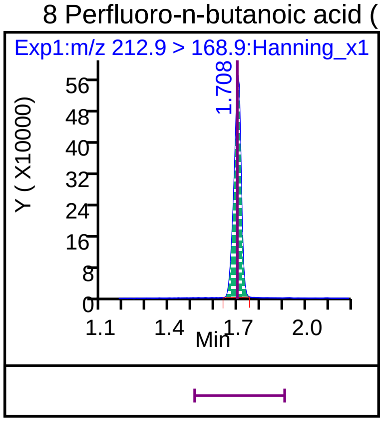
Pace Environmental Services, LLC

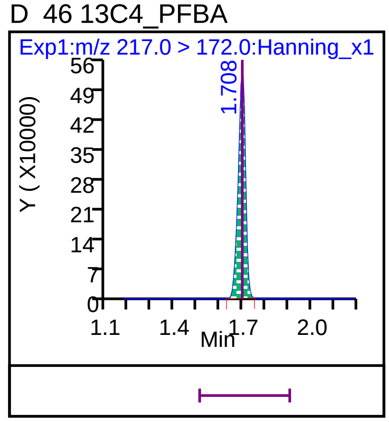
Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d		
Injection Date:	29-Oct-2021 20:23:50	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000B_SVLC-1717
Sample Info:	CCV 1000B_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



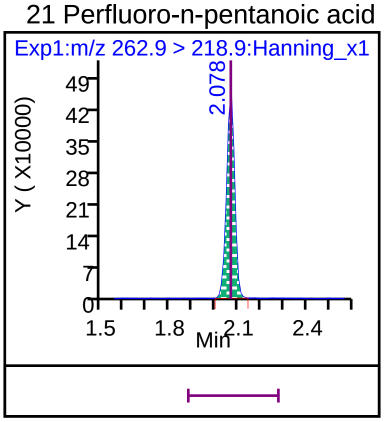
8 Perfluoro-n-butanoic acid (PFBA)



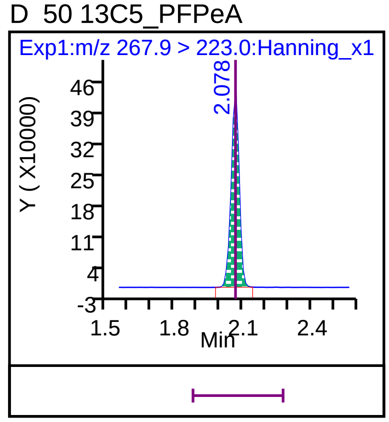
D 46 13C4_PFBA



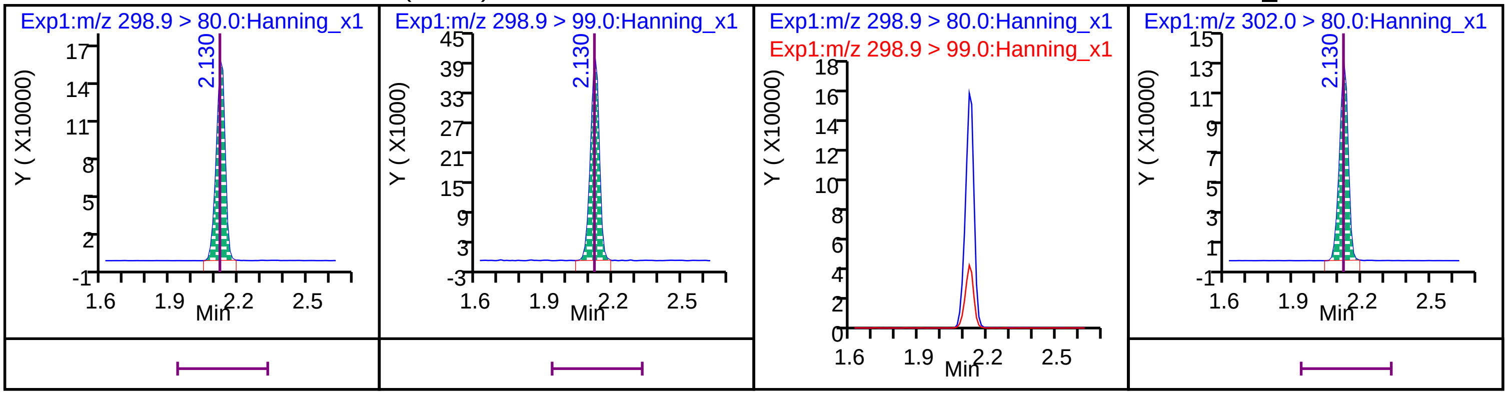
21 Perfluoro-n-pentanoic acid (PFPeA)



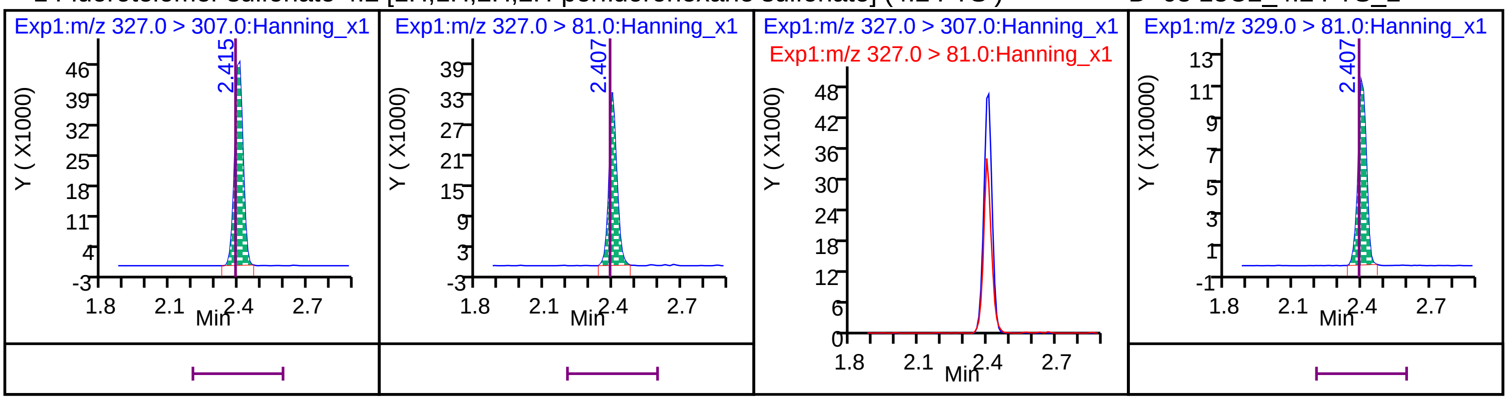
D 50 13C5_PFPeA



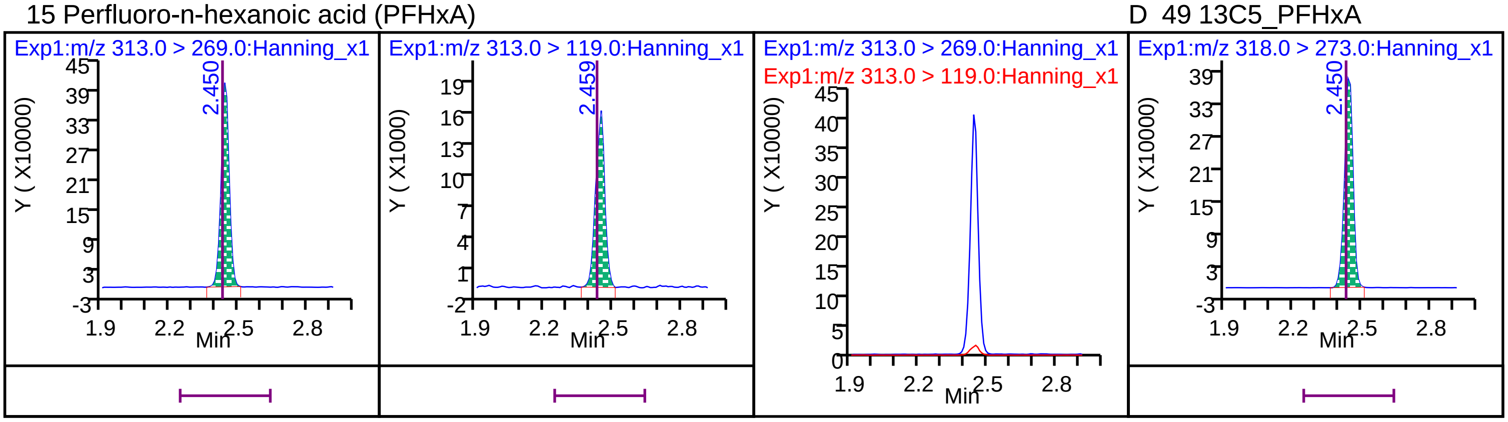
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



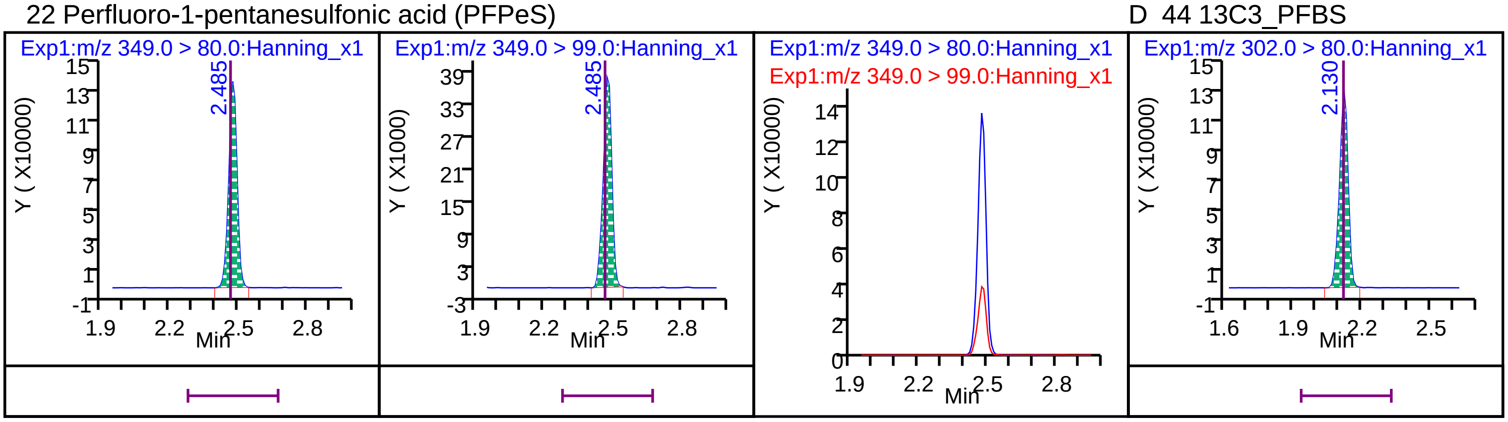
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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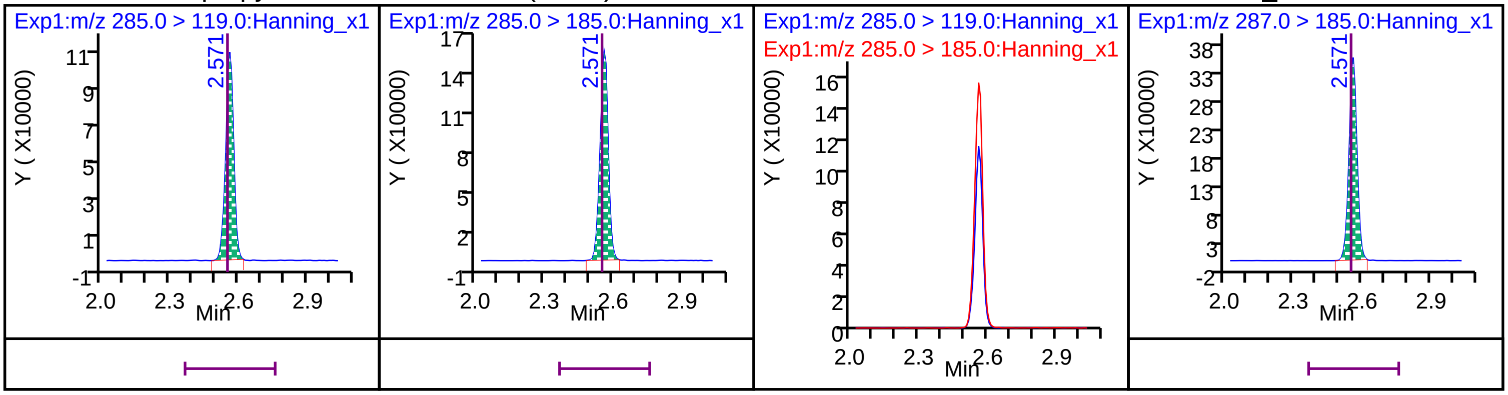
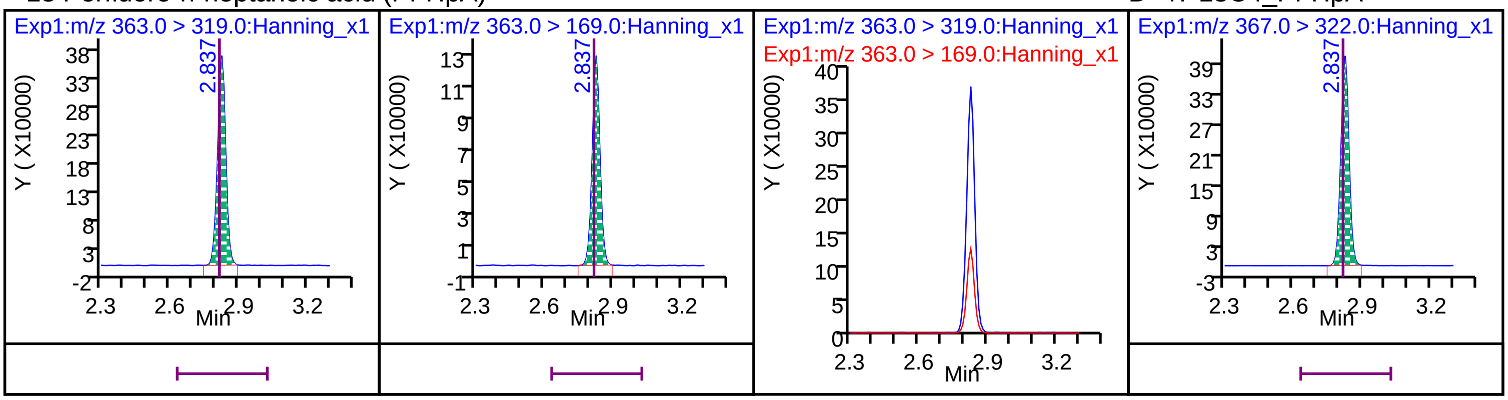
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d

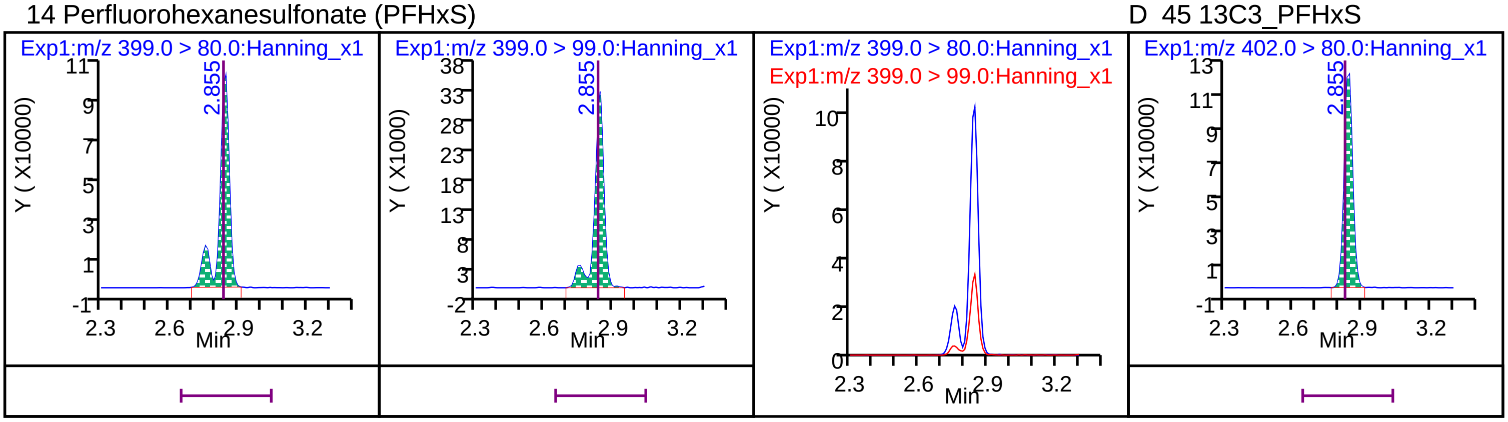
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



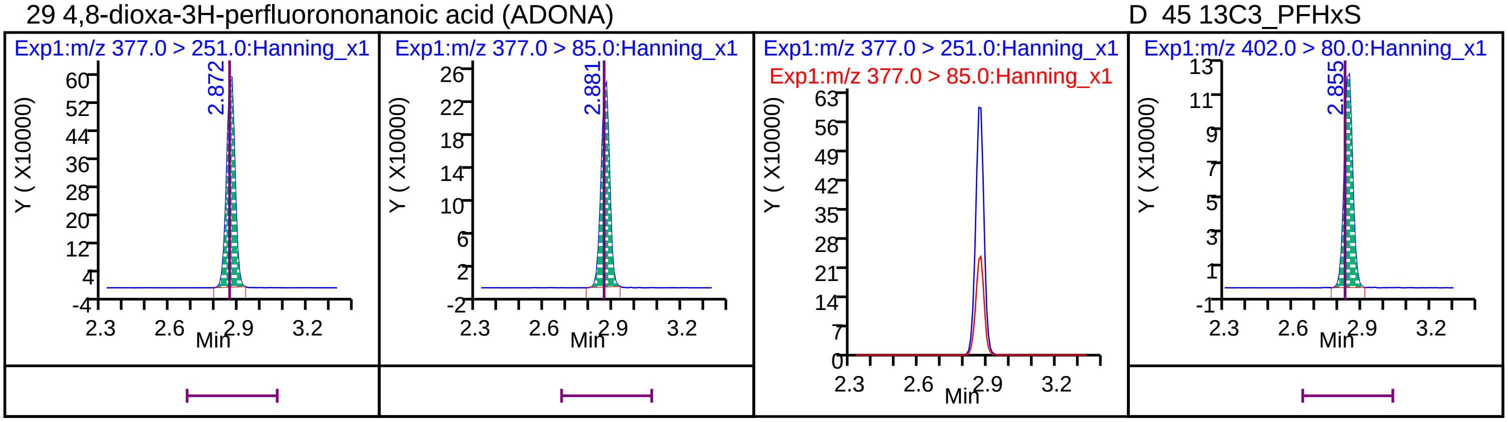
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



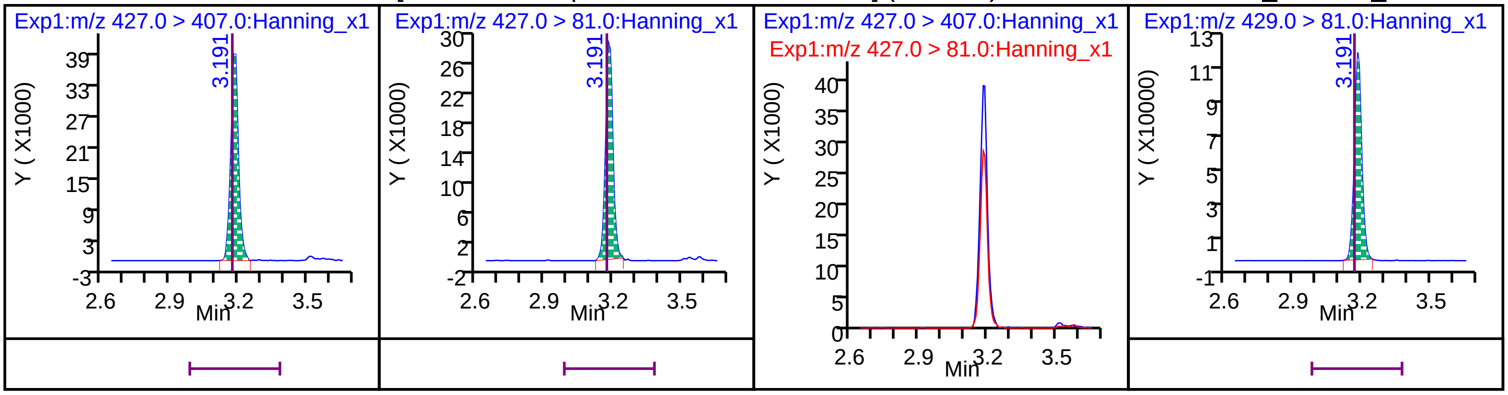
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



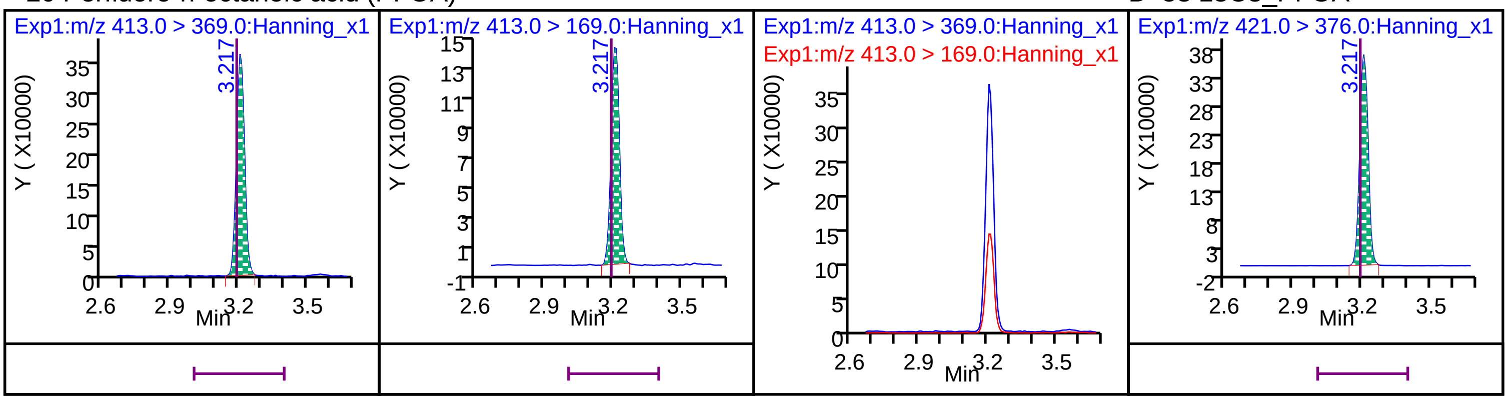
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



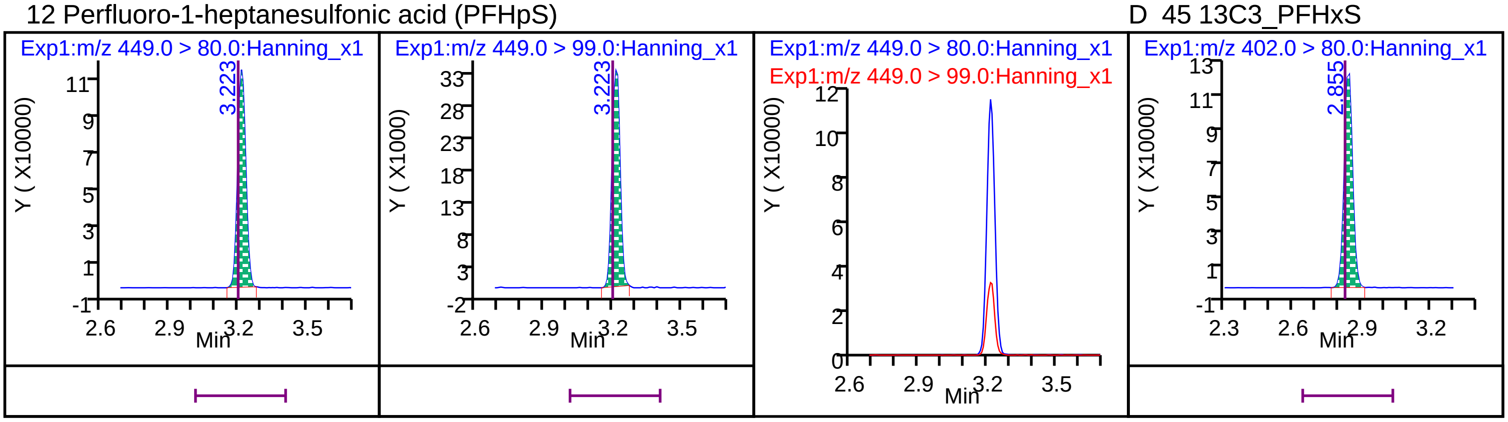
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



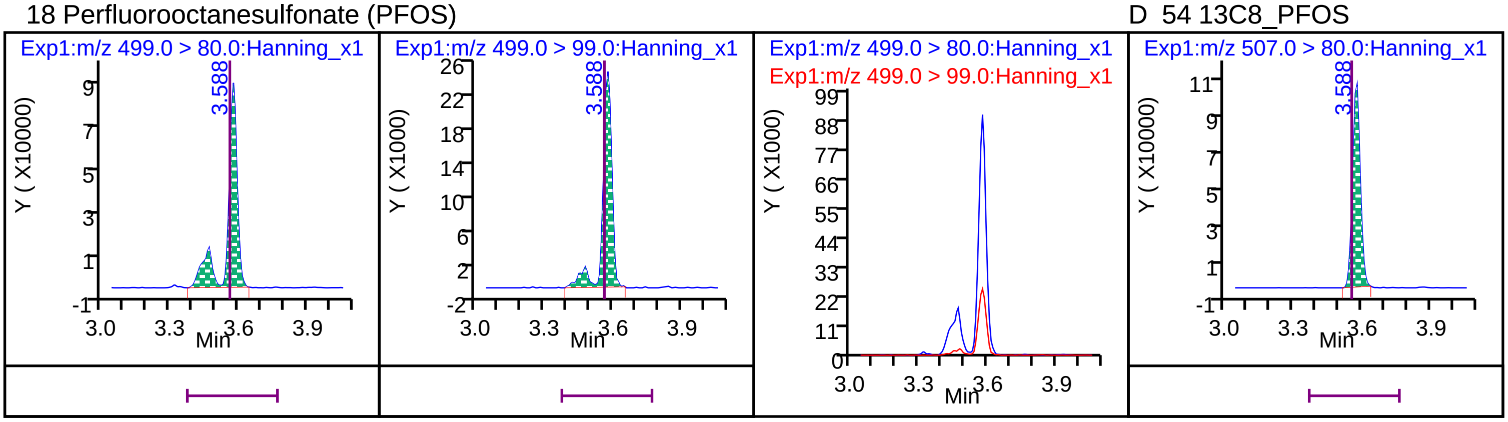
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



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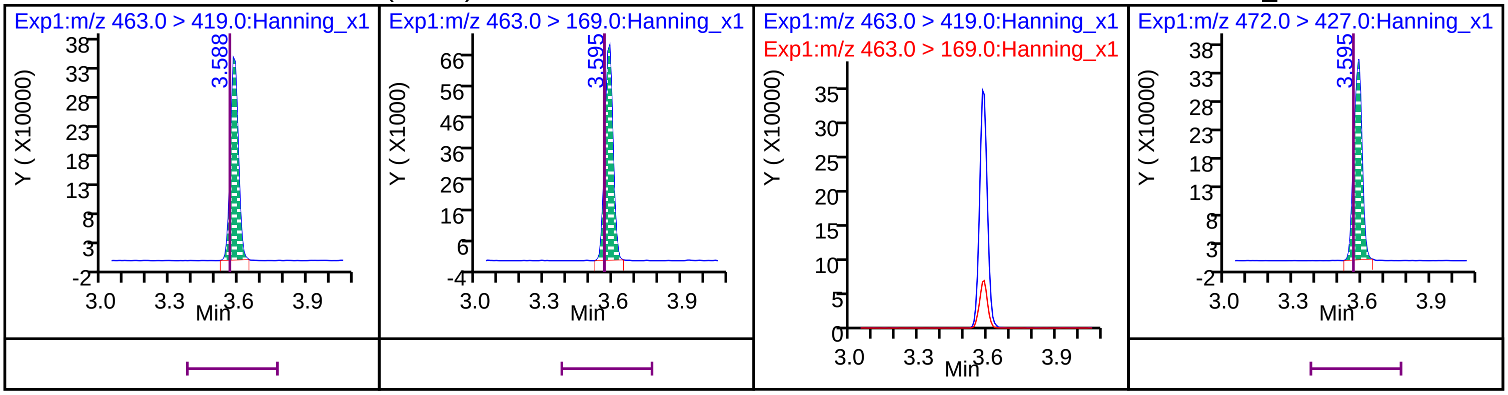
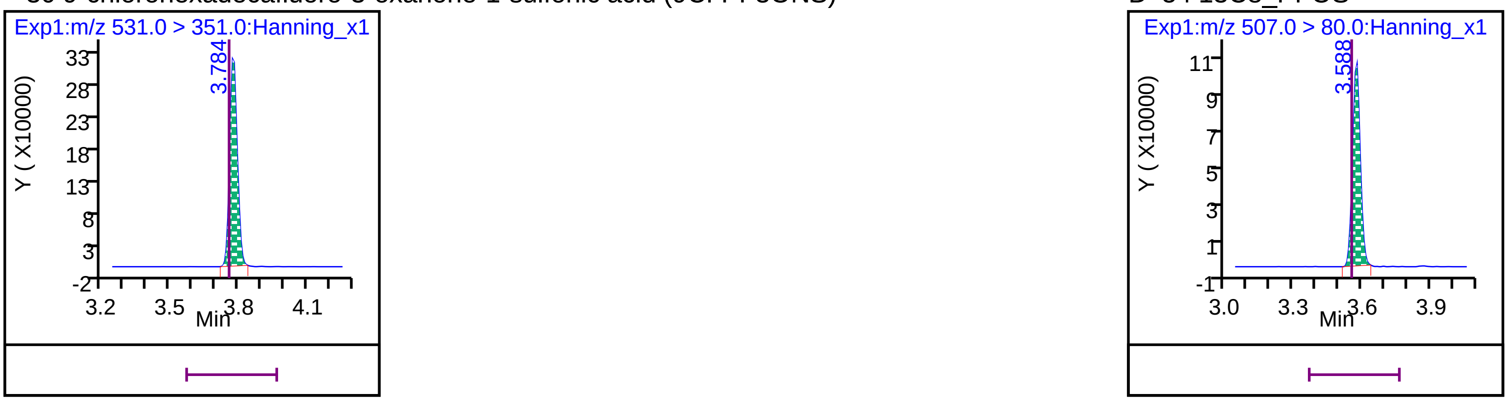
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d

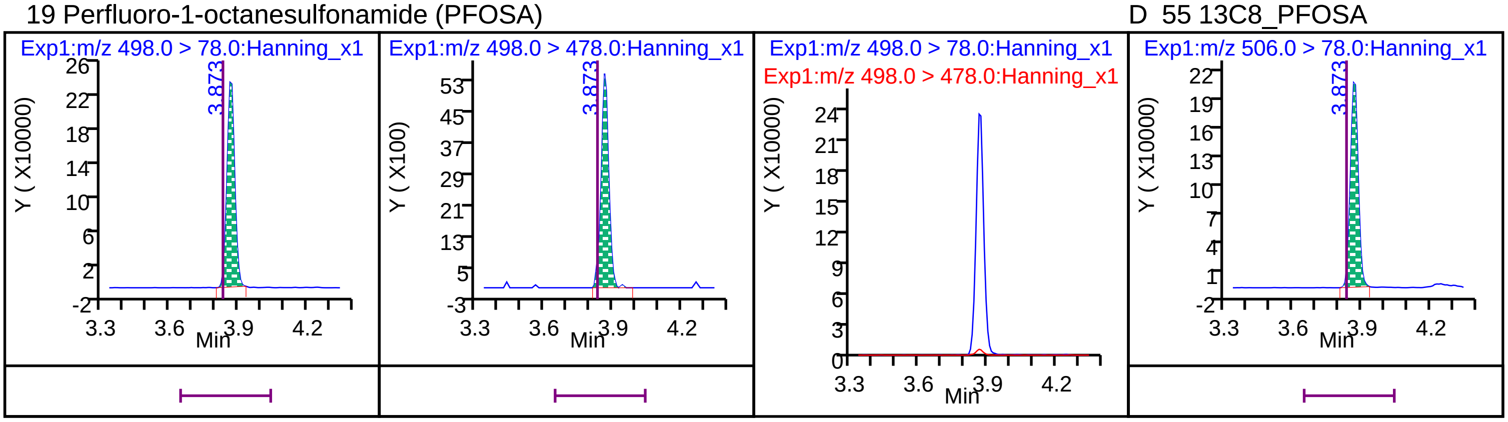
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



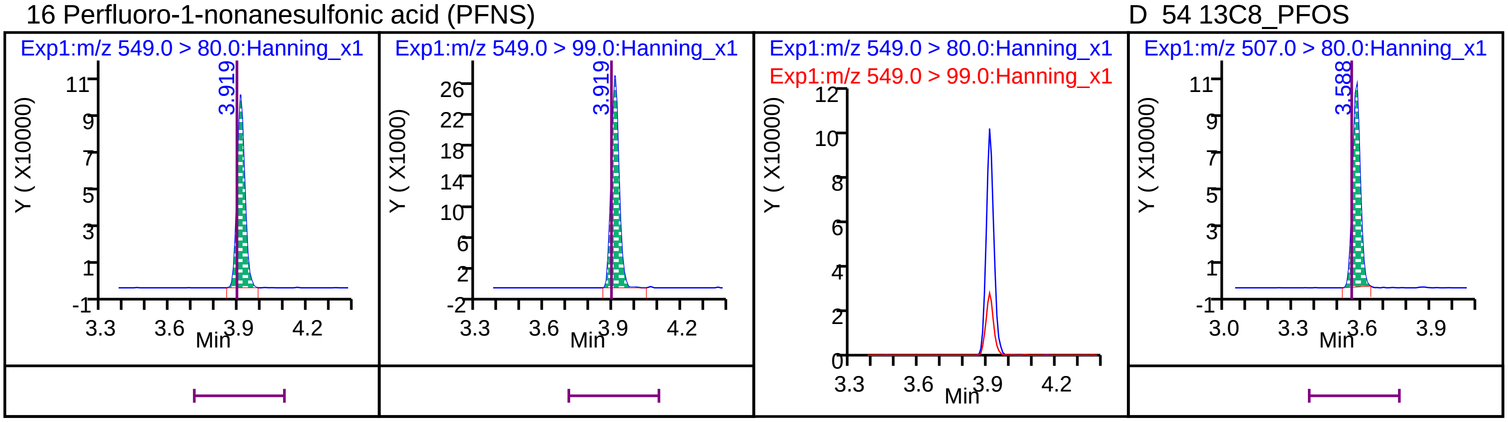
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



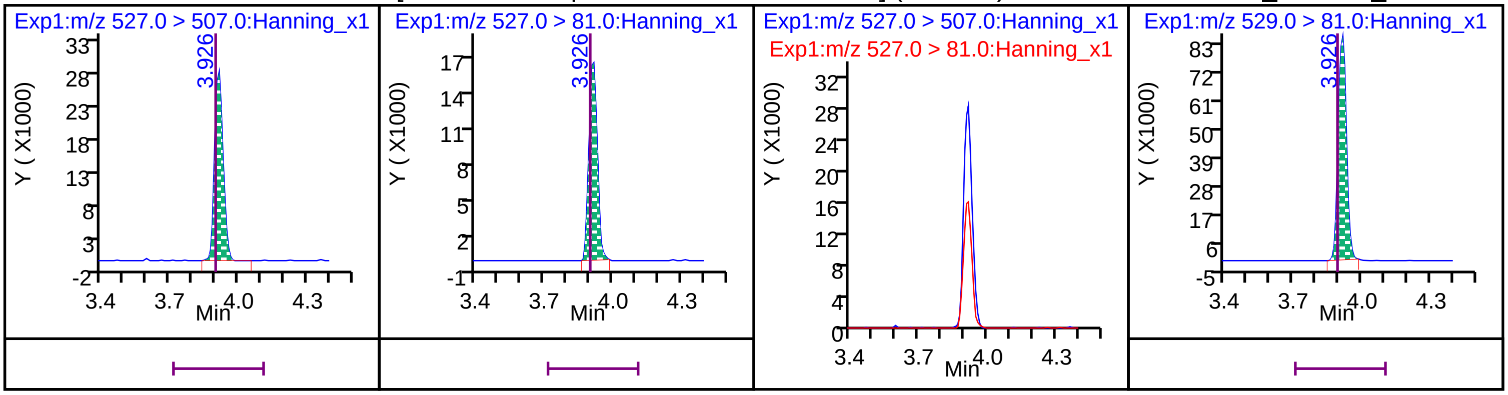
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



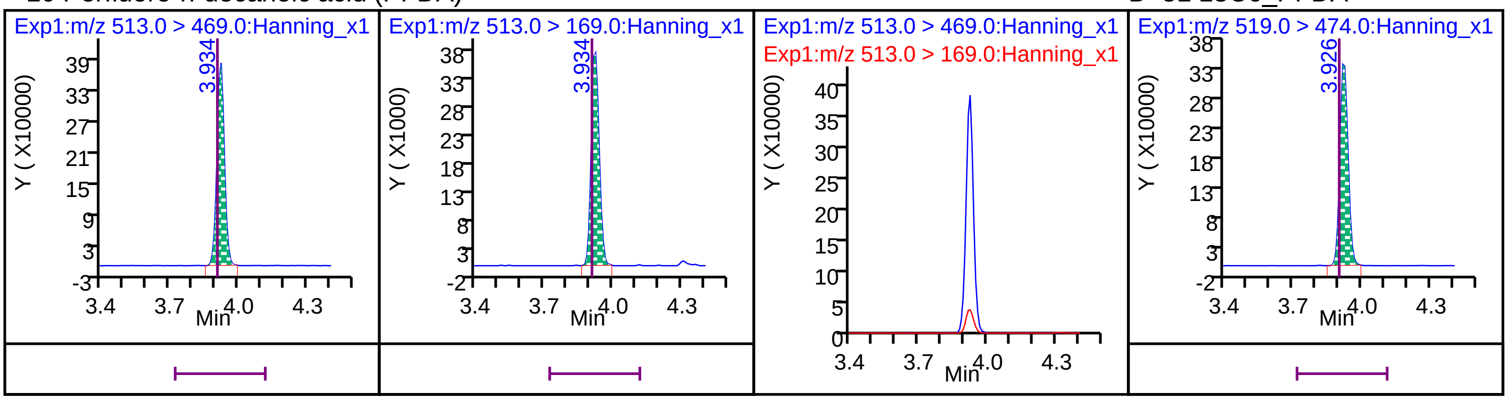
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



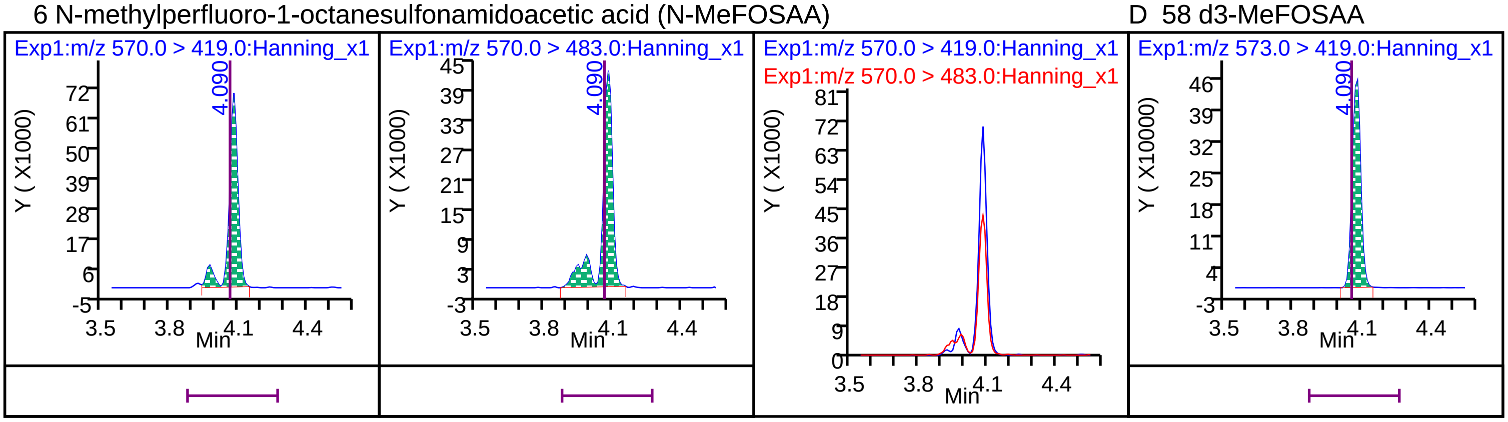
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



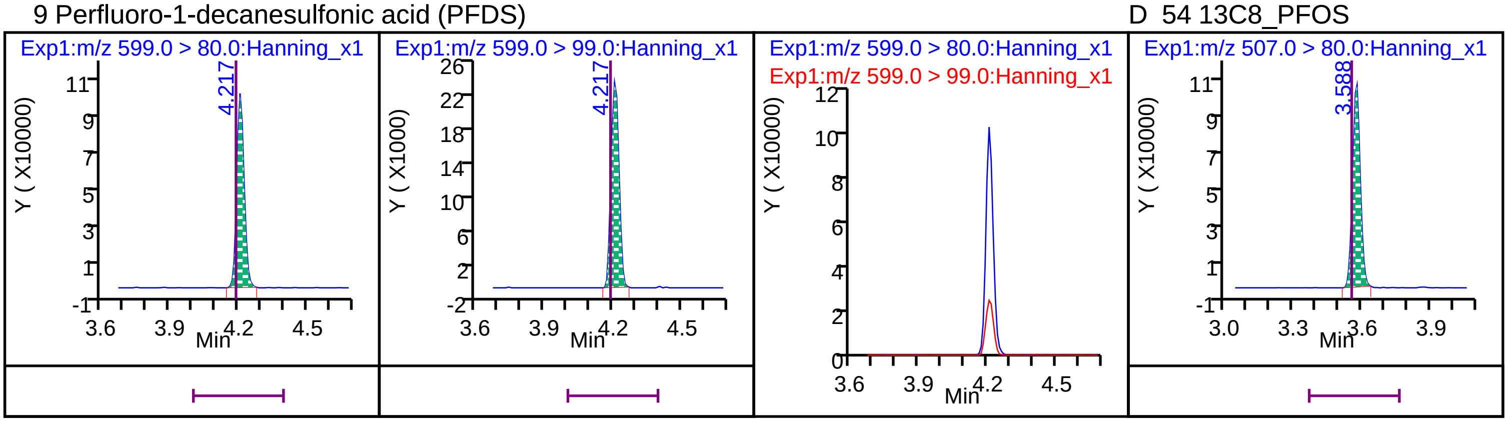
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



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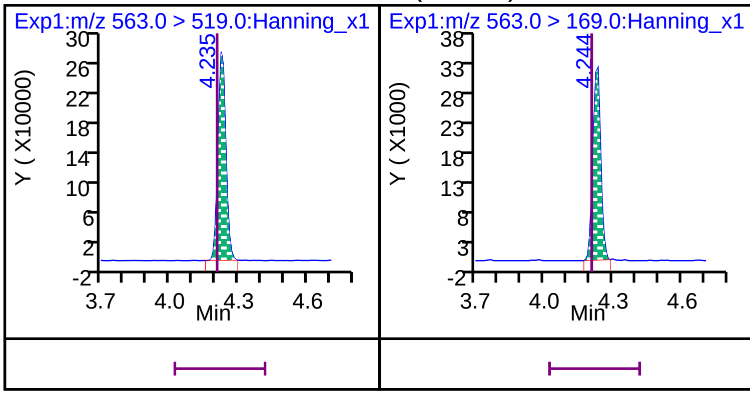
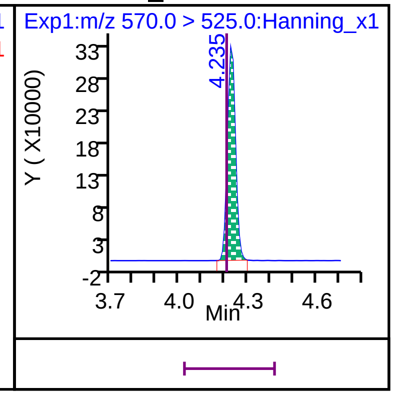
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d

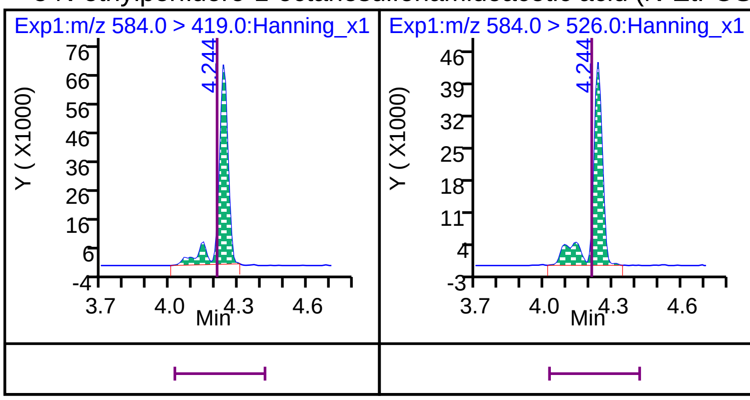
25 Perfluoro-n-undecanoic acid (PFUdA)



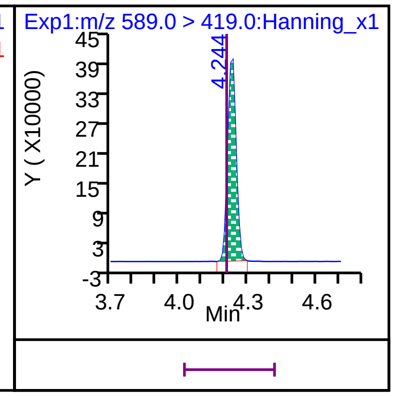
D 52 13C7_PFUdA



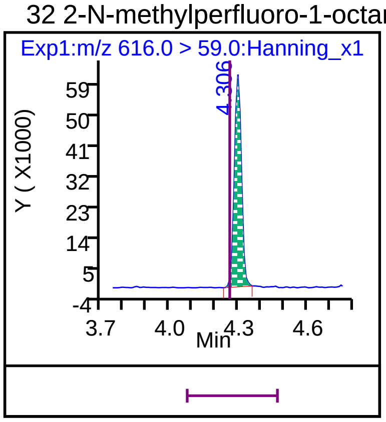
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



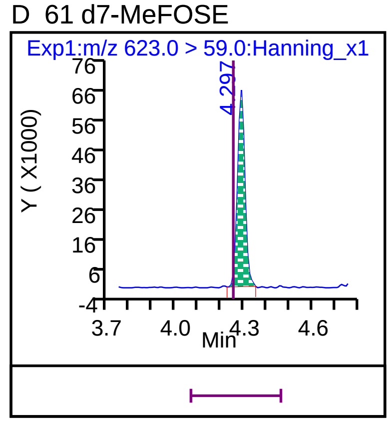
D 60 d5-EtFOSAA



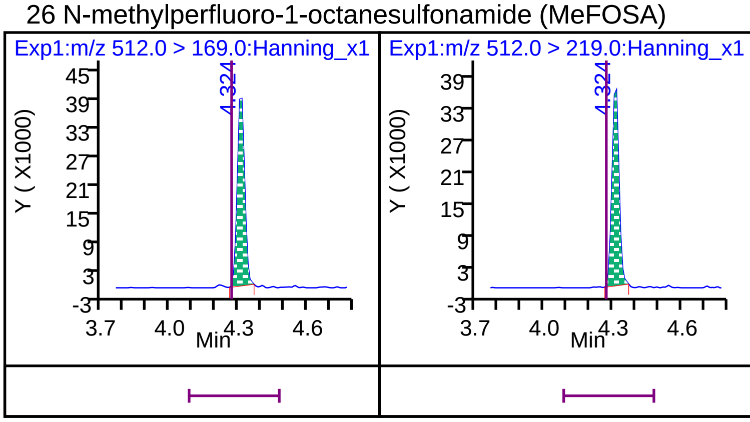
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



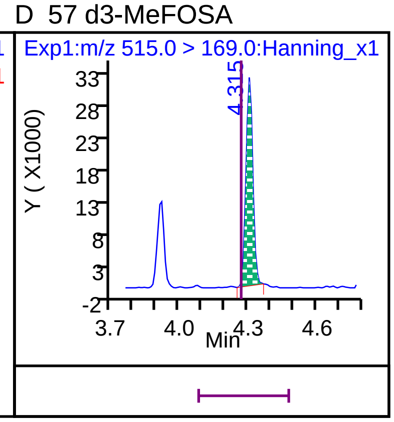
D 61 d7-MeFOSE



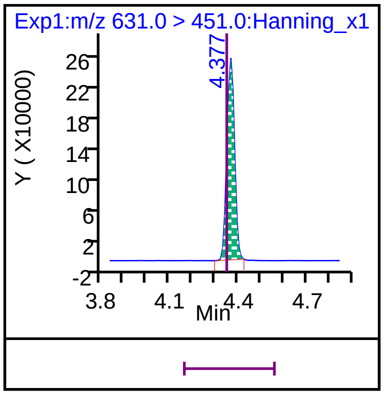
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)



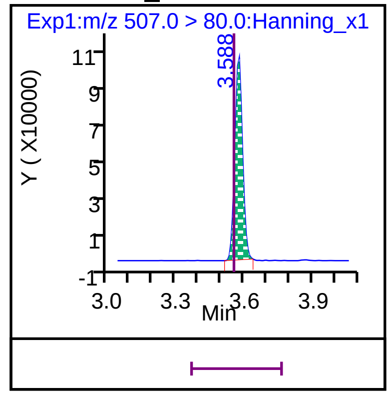
D 57 d3-MeFOSA



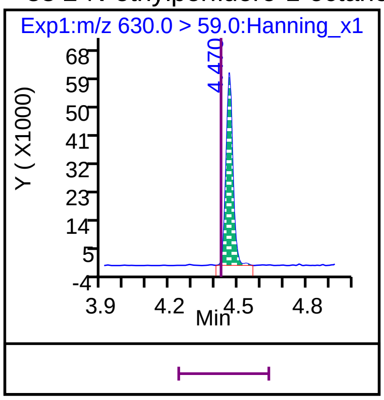
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



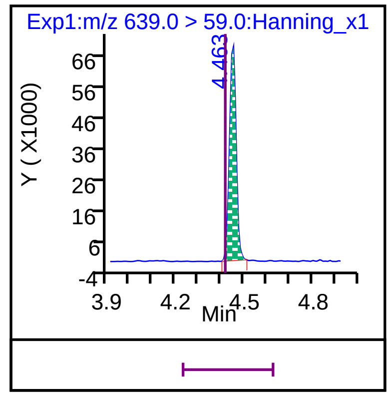
D 54 13C8_PFOS



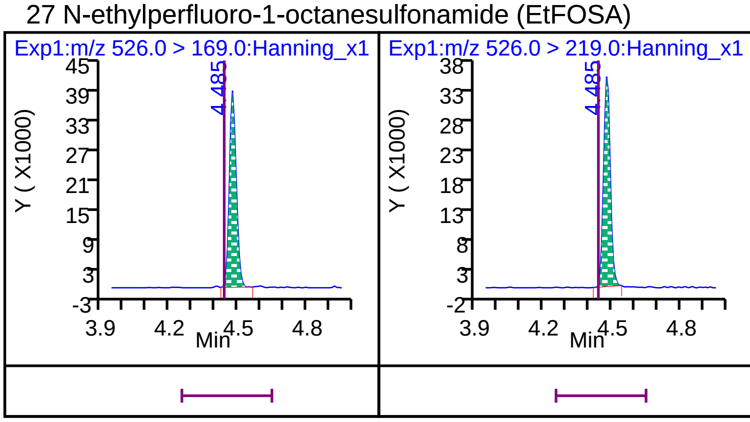
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



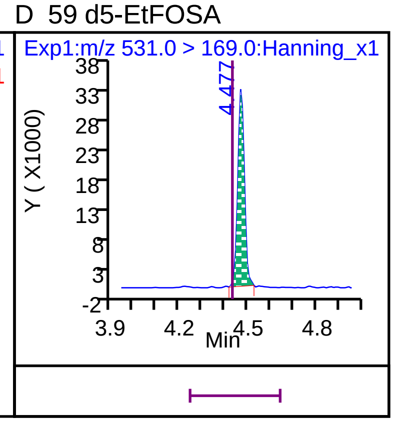
D 62 d9-EtFOSE



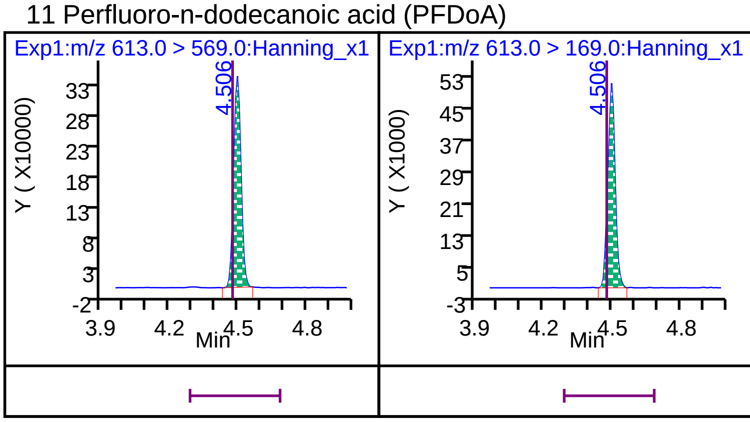
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



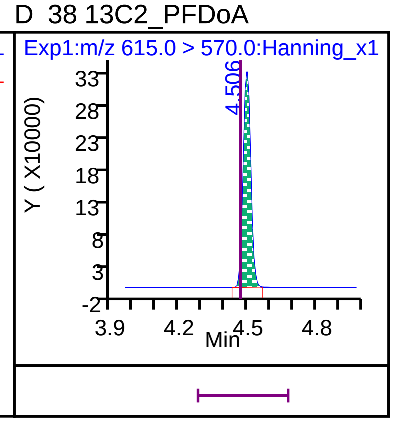
D 59 d5-EtFOSA



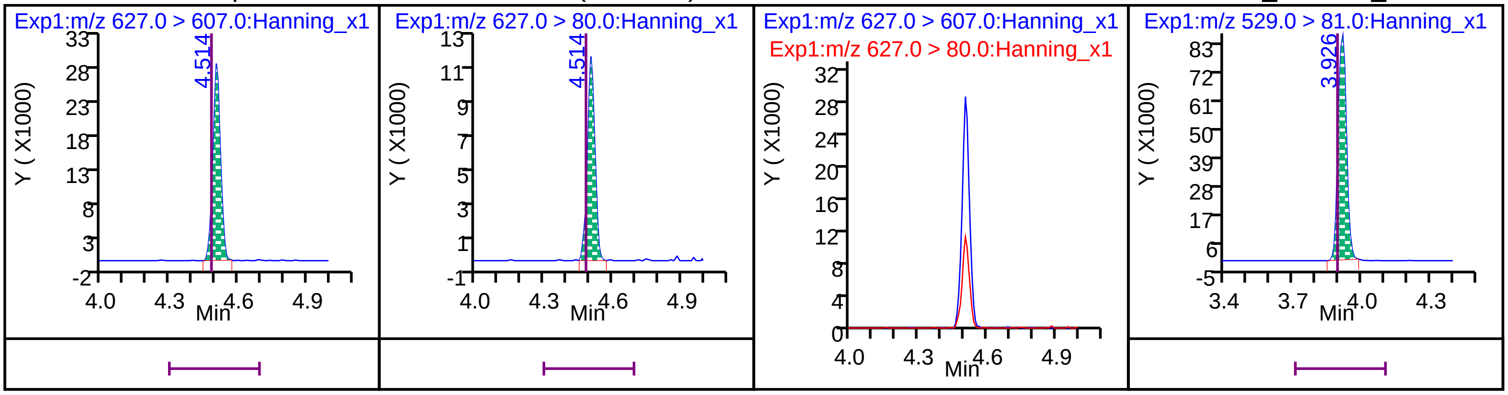
11 Perfluoro-n-dodecanoic acid (PFDoA)



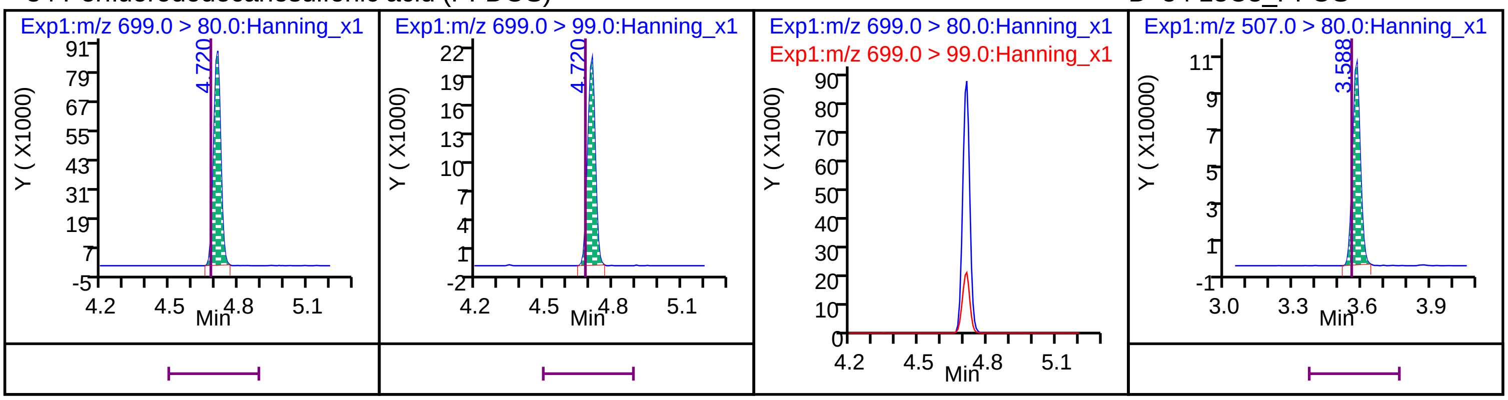
D 38 13C2_PFDoA



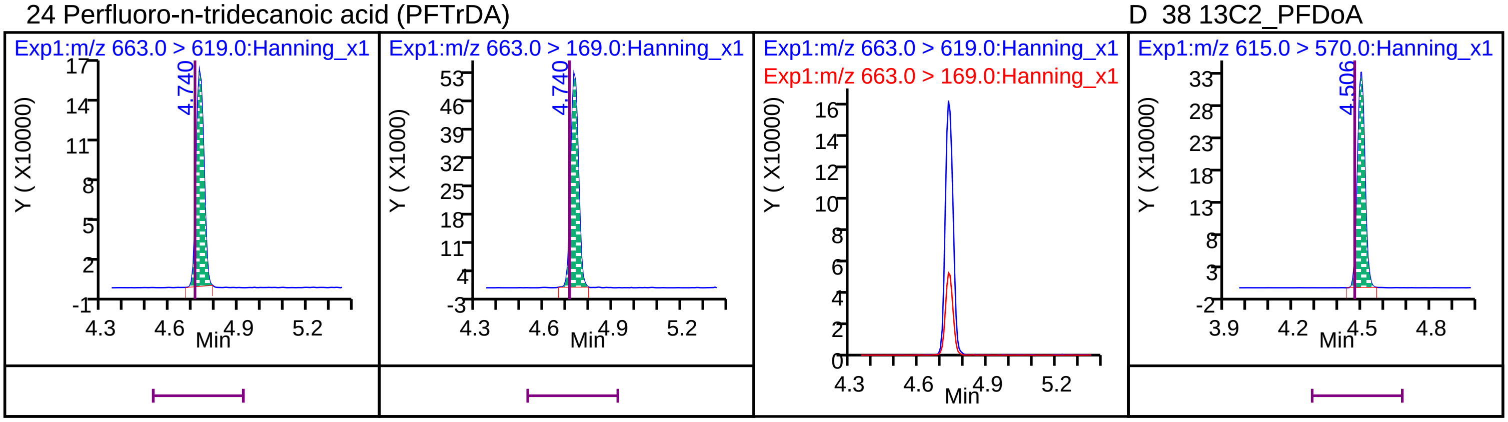
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



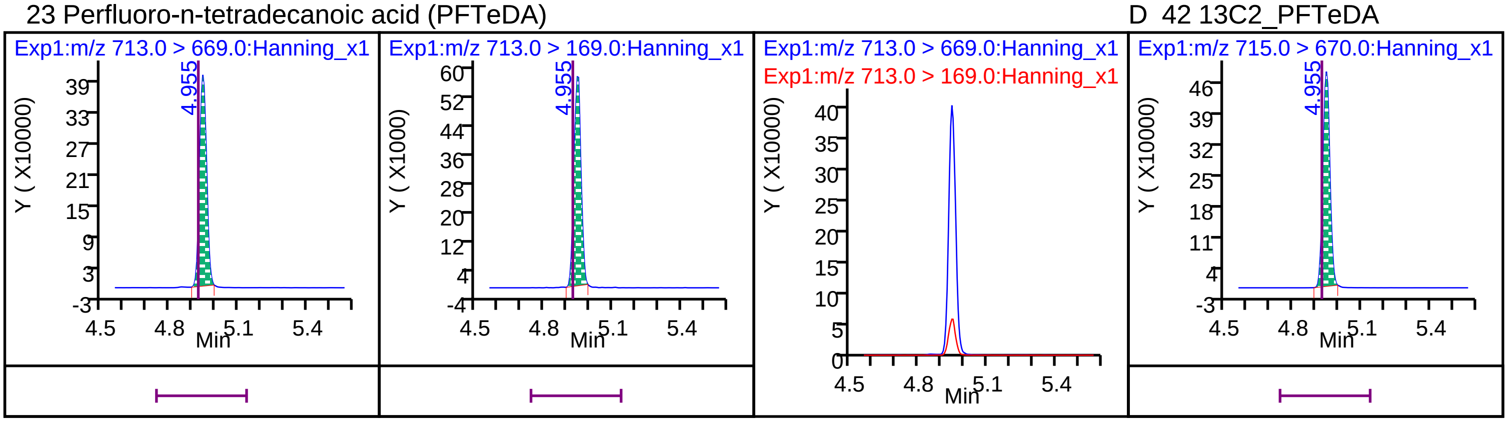
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

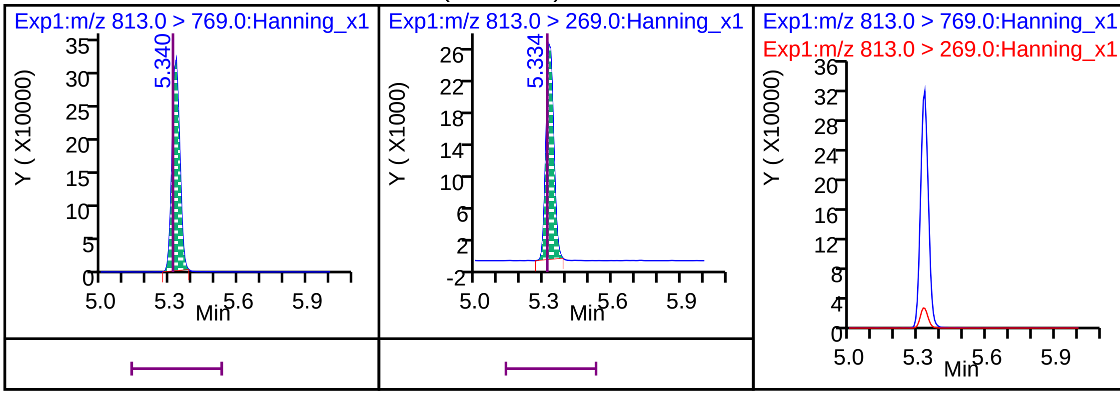


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

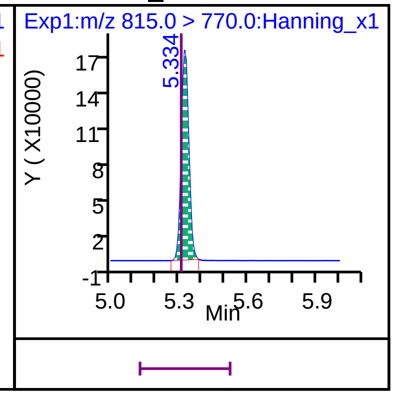


Report Date: 30-Oct-2021 15:07:04 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\102921-DOD.b\102921054.d

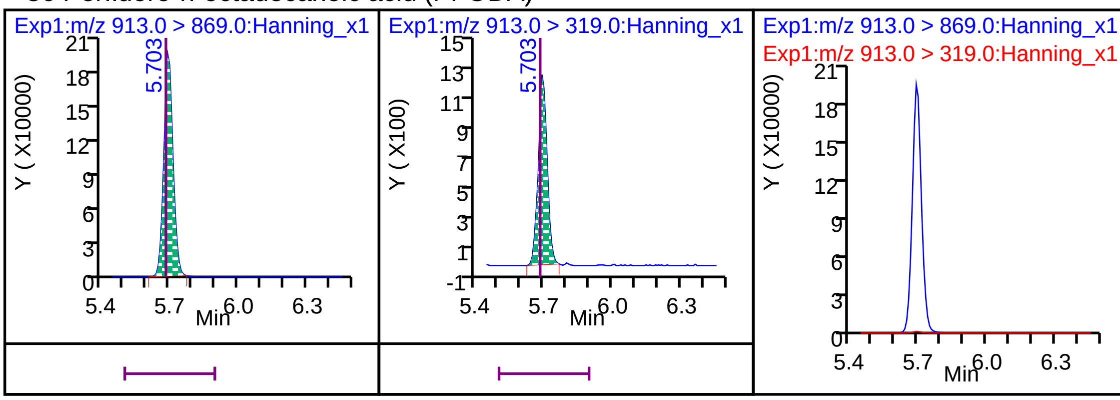
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



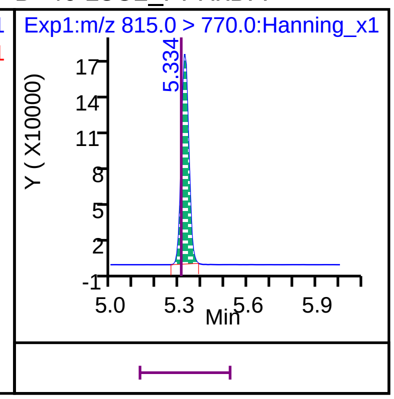
D 40 13C2_PFHxDA



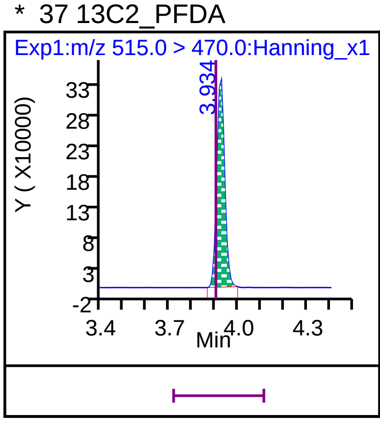
36 Perfluoro-n-octadecanoic acid (PFODA)



D 40 13C2_PFHxDA



* 37 13C2_PFDA



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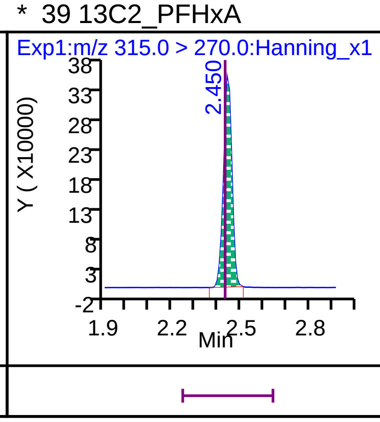
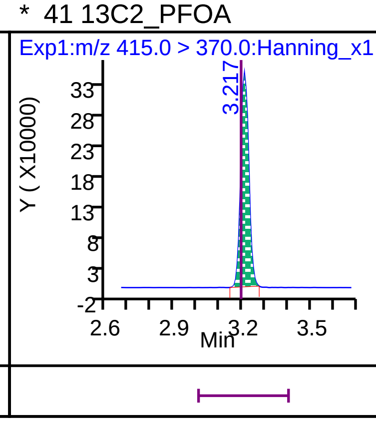
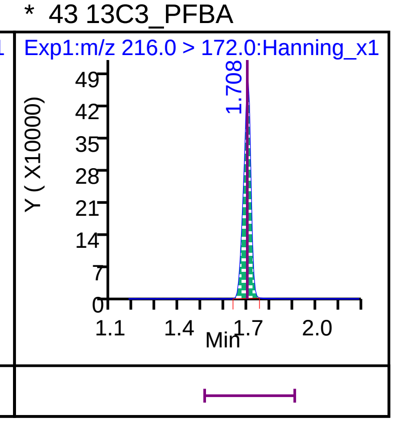


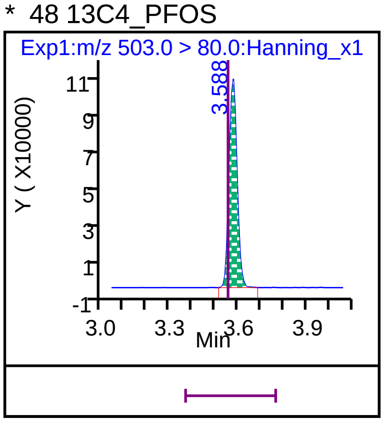
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



RAW QC DATA

SCIEX Triple Quad™ 4500/4500MD Systems

Planned Maintenance Procedure

GEN-IDV-08-6710-E

October 2020

EC REP

AB Sciex UK Limited
Phoenix House
Lakeside Drive, Centre Park
Warrington Cheshire
WA1 1RX, UK

AB Sciex Pte. Ltd.
Blk33, #04-06 Marsiling Industrial Estate Road 3
Woodlands Central Industrial Estate, Singapore 739256

Contents

Introduction 1

Note: For regulatory and safety information for the mass spectrometer, refer to the *System User Guide*.

The planned maintenance (PM) procedure is designed to help maintain overall system performance.

The PM is not intended to take the place of an Operational Qualification (OQ) nor is it intended to verify the instrument specifications. Separate Installation Qualification (IQ) and OQ services are available. Contact a SCIEX representative.

The procedure must be performed by a trained SCIEX Field Service Employee (FSE).

The procedure has been developed for the SCIEX Triple Quad™ 4500/4500MD System with the Turbo V™ Ion Source. It does not apply to any other products or processes.

The procedure does not address any customer-specific analytical protocol (performance qualification) or method validation.

Note: If an issue is identified and the system requires repair, then the customer is responsible for the repair at the expense of the customer, except to the extent that the system and the required repairs are covered by a SCIEX warranty or service contract. A separate repair service call must be opened and the repair hours must not be charged against this procedure.

Planned Maintenance Tasks 2

Note: Perform all procedures using the Turbo V^{TM} Ion Source, unless otherwise specified.

Pre-Planned Maintenance

Note: Guideline values are for reference only. The pre-PM test results are not required to meet or exceed these values.

Pre-PM Tasks

Task	Complete	N/A
Ask the customer about system performance since the last visit and record comments.	✓	—
If the customer maintains a log for the system, then review it.	○	◉
Review the work to be performed with the customer.	✓	—

PC Health Check

Task	Complete	N/A
Inspect the status of the RAID 1 hard drives.	✓	—

Vacuum System Tests

<table>
<tr><th colspan="3">Task</th><th>Complete</th></tr>
<tr><td colspan="3">Record the turbo pump operational values.
<table>
<tr><th>Parameter</th><th>Results</th></tr>
<tr><td>Temperature (ºC)</td><td>45</td></tr>
<tr><td>Current (A)</td><td>3.9</td></tr>
<tr><td>Voltage (V)</td><td>23</td></tr>
<tr><td>Power (W)</td><td>87</td></tr>
<tr><td>Driving frequency (Hz)</td><td>800</td></tr>
</table></td><td>✓</td></tr>
<tr><td rowspan="2">Inspect the vacuum gauge filament using the Analyst® Service Diagnostics (ASD) Software and identify the filament position. If the mass spectrometer is using filament 2, then order a replacement vacuum gauge as a separate service call.</td><td>1</td><td>◉</td><td rowspan="2">✓</td></tr>
<tr><td>2</td><td>○</td></tr>
</table>

Pre-PM Pressure Test

Pre-PM Pressure Test is Complete	✓

Test	Guideline	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.4e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.3e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Pre-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^{6}$	3.1e7	0.6 to 0.8	0.93
500.380	$\geq 8.0 \times 10^{6}$	3.7e7	0.6 to 0.8	0.71
906.673	$\geq 2.0 \times 10^{7}$	6.2e7	0.6 to 0.8	0.75
1,952.427	$\geq 8.8 \times 10^{5}$	8.0e6	0.6 to 0.8	0.71

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^{6}$	4.1e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^{6}$	3.6e7	0.6 to 0.8	0.75
906.673	$\geq 2.0 \times 10^{7}$	6.2e7	0.6 to 0.8	0.59
1,952.427	$\geq 8.8 \times 10^{5}$	1.3e7	0.6 to 0.8	0.65

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	3.0e7	0.6 to 0.8	0.65
1,863.306	$\geq 1.4 \times 10^6$	4.1e6	0.6 to 0.8	0.68

Q3 Negative MS Test is Complete	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	3.0e7	0.6 to 0.8	0.65
1,863.306	$\geq 2.0 \times 10^6$	4.1e6	0.6 to 0.8	0.68

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Guideline	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100 \geq 10\%$	14%

Planned Maintenance

Mass Spectrometer Maintenance

Task	Complete	N/A
Shut down the system and then disconnect the mains supply power cable.	✓	—
If required, replace the roughing pump oil. The recommended interval is every 3 years. **Note:** If an oil change is not required, then inspect the oil level and top up, if necessary. **CAUTION: Potential System Damage. Do not mix different types of oil. Mixing mineral oil with synthetic oil can cause pump failure.**	✓	—
If required, replace the roughing pump oil exhaust filter. The recommended interval is every 3 years.	○	◉
Confirm that there is no excessive roughing pump oil leakage. Clean up any oil.	✓	—
Make sure that the roughing pump exhaust is properly routed to the ventilation system.	✓	—

Task	Complete	N/A
Inspect the exhaust system: • Make sure that all of the gas fittings at the rear bulkhead are tight. • Make sure that all of the exhaust hoses are free of kinks. • Make sure that all of the hoses at the waste bottle are secure, and there are no signs of leaks. • Make sure that the waste bottle is in an upright position. • Make sure that the exhaust hose is secured to the lab ventilation system. • Confirm that no liquid is trapped in the exhaust lines.	✓	—
Clean or replace the four air filters in the base of the mass spectrometer chassis.	✓	—
(If applicable) Clean the turbo pump filter screen.	○	◉
(If applicable) Verify the operation of the SCIEX-supplied bench cooling fans.	◉	○
Clean the curtain plate.	✓	—
Clean the orifice plate.	✓	—
Clean the QJet® Ion Guide and IQ0 lens.	✓	—
(If contamination is detected) Clean the Q0 region and the IQ1 lens.	○	◉
Inspect the cable connections: • Make sure that the power cables for the mass spectrometer, LC system, roughing pump, syringe pump, gas generator, and UPS are securely connected. • Make sure that the communications cables for the GPIB/Ethernet ports, LC connections, and roughing pump are securely connected.	✓	—

Task	Complete	N/A
Verify system support functions — gas: • Confirm the input gas pressures at the regulators are within specifications. • Confirm that there is no liquid present in the gas lines.	✓	—
Verify the expiry date on the battery system for the UPS (sold by SCIEX), and then recommend replacement of the battery tray, if required.	○	◉
Start up the system.	✓	—

Turbo V™ Ion Source Maintenance

Task	Complete	N/A
If necessary, replace the electrode in the TurboIonSpray® and APCI Probes.	◉	○
With the TurboIonSpray® probe installed, verify that the temperature (TEM) reaches the recommended set point of 500 °C.	✓	—
(If applicable) With the APCI probe installed, verify that the temperature (TEM) reaches the recommended set point of 400 °C.	○	◉
Inspect the ion source and, if visible signs of contamination are present, clean the inner surfaces using lint-free wipes and a 50:50 methanol:water solution. **Note:** Remove the corona discharge needle before cleaning.	○	◉

Software Maintenance

Note: This task is not applicable to MD systems.

Task	Complete	N/A
(Obtain customer approval first) Install any applicable Analyst® Software HotFixes. **Note:** Make sure that the compatible instrument firmware is installed.	○	◉

Post-Planned Maintenance

Voltage Tests

Task		Complete
Inspect the RF tuning voltages at the QPS amplifier module and then, if required, tune the coil boxes.		✓
Inspect the detector voltage. Optimize, if required.		✓
Detector voltage	1800	

Post-PM Pressure Test

Post-PM Pressure Test is Complete	✓

Test	Specification	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.6e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.3e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Post-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	2.9e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^6$	3.2e7	0.6 to 0.8	0.72
906.673	$\geq 2.0 \times 10^7$	4.8e7	0.6 to 0.8	0.72
1,952.427	$\geq 8.8 \times 10^5$	5.5e6	0.6 to 0.8	0.60

Q1 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	3.5e7	0.6 to 0.8	0.75
500.380	$\geq 8.0 \times 10^6$	2.9e7	0.6 to 0.8	0.75
906.673	$\geq 2.0 \times 10^7$	5.0e7	0.6 to 0.8	0.62
1,952.427	$\geq 8.8 \times 10^5$	9.6e6	0.6 to 0.8	0.64

Q3 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	2.9e7	0.6 to 0.8	0.64
1,863.306	$\geq 1.4 \times 10^6$	5.3e6	0.6 to 0.8	0.70

Q1 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	3.6e7	0.6 to 0.8	0.69
1,863.306	$\geq 2.0 \times 10^6$	5.4e6	0.6 to 0.8	0.73

Q3 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Specification	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	11.8%

Post-PM Tasks

Task	Complete	N/A
Delete any unnecessary files.	✓	—
Back up the Analyst Data folder.	✓	—
(If applicable) Defragment the hard drive.	○	◉
(Not applicable for MD instrument families) If the customer has a Software Support Plan, then perform the Software Health Check: • (Obtain customer approval first) Install any compatible HotFixes and updates for SCIEX add-on software.	○	◉

StatusScope® Remote Monitoring Service Tasks

The StatusScope® Remote Monitoring Service is not applicable for MD systems.

Planned Maintenance Tasks

Task	Complete	N/A
Note: Installation of the StatusScope® Remote Monitoring Service is available only to warranty and eligible contract customers. Refer to sciex.com/instrument-service-and-support/statusscope-remote-monitoring for a list of eligible contracts. If the StatusScope® Remote Monitoring Service is not installed, then perform these tasks: • If the customer does not want the StatusScope® Remote Monitoring Service installed, then skip the remaining steps in this section. • If the customer wants the StatusScope® Remote Monitoring Service installed, then complete the steps in this section.	○	◉
Verify the connection to the server for the StatusScope® Remote Monitoring Service. **Note:** Use the **StatusScopePortCheck.exe**. The utility is included with the StatusScope® installer.	○	◉
Install the agent for the StatusScope® Remote Monitoring Service.	○	◉
Ask the customer to log on to SCIEX Now™ to verify that the instrument is connected to the server for the StatusScope® Remote Monitoring Service. **Note:** The instrument is shown under the account of the Primary Contact.	○	◉

Wrap-up

Task	Complete	N/A
Review the work performed with the customer.	✓	—
Record the test results in this document and then attach all of the test data.	✓	—
Review the routine maintenance schedule and the procedures with the customer.	✓	—
Complete this document: • Review the test results with the customer. • Provide the customer with the completed document and the test data. • If an electronic copy of the document is supplied to the customer, then save a copy on the Service drive.	✓	—

Signoff 3

Organization	Pace South Carolina		
Mass spectrometer serial number	BJ29321608	Service request number	
FSE name	Lynne Russell	Date (yyyy-mm-dd)	2021-03-17
FSE signature	Lynne Russell		

Comments and Exceptions

Inspect for Contamination A

Perform a Q1 and Q3 charging test to determine whether front end contamination is present.

1. Run the **Pos PPG** method for 10 minutes, monitoring the Total Ion Count (TIC) for degradation of the signal or a decrease in sensitivity.
2. Change the polarity to Negative, and then scan for one minute.
3. Change the polarity to Positive, and then make sure that the **IS** parameter returns to the original value.
4. Run the method.

   If the signal sensitivity is restored temporarily but the Total Ion Count (TIC) again degrades by more than 5% over a 10 minute run, then a possible front-end contamination is indicated.
5. Repeat the test in Negative polarity using the Q1 Neg PPG method.

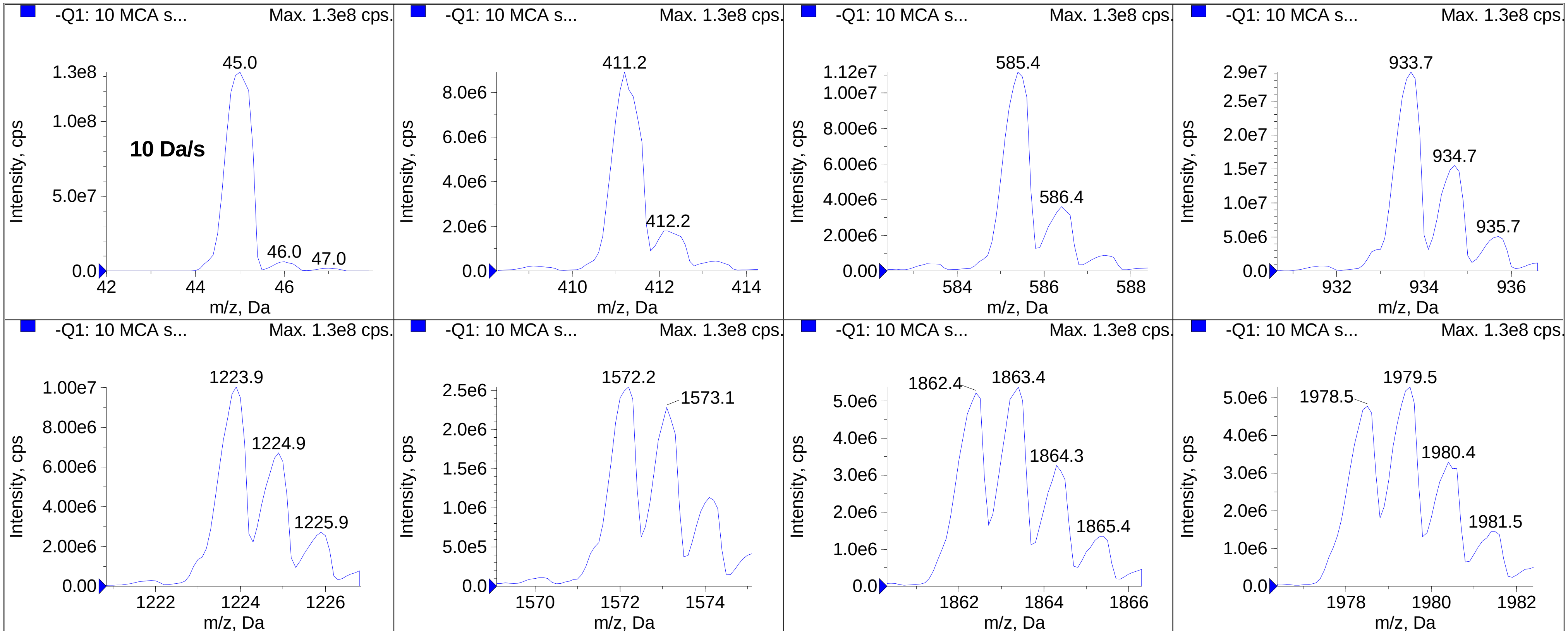
Guidelines for Cleaning the Front End

If charging tests indicate that cleaning is necessary, then clean the front-end components, including the QJet® Ion Guide, IQ0 lens, Q0 quadrupole, and IQ1 lens.

Removing the ion optics is considered a repair activity. FSEs must open a separate service repair call.

Note: This procedure does not provide troubleshooting for all technical root causes of signal degradation or charging effect. Signal degradation might also result from a contaminated TurboIonSpray® Probe or electrode, method parameters that are not optimized, or other factors.

```
Printing Time: 3:29:09 PM                          Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS
```

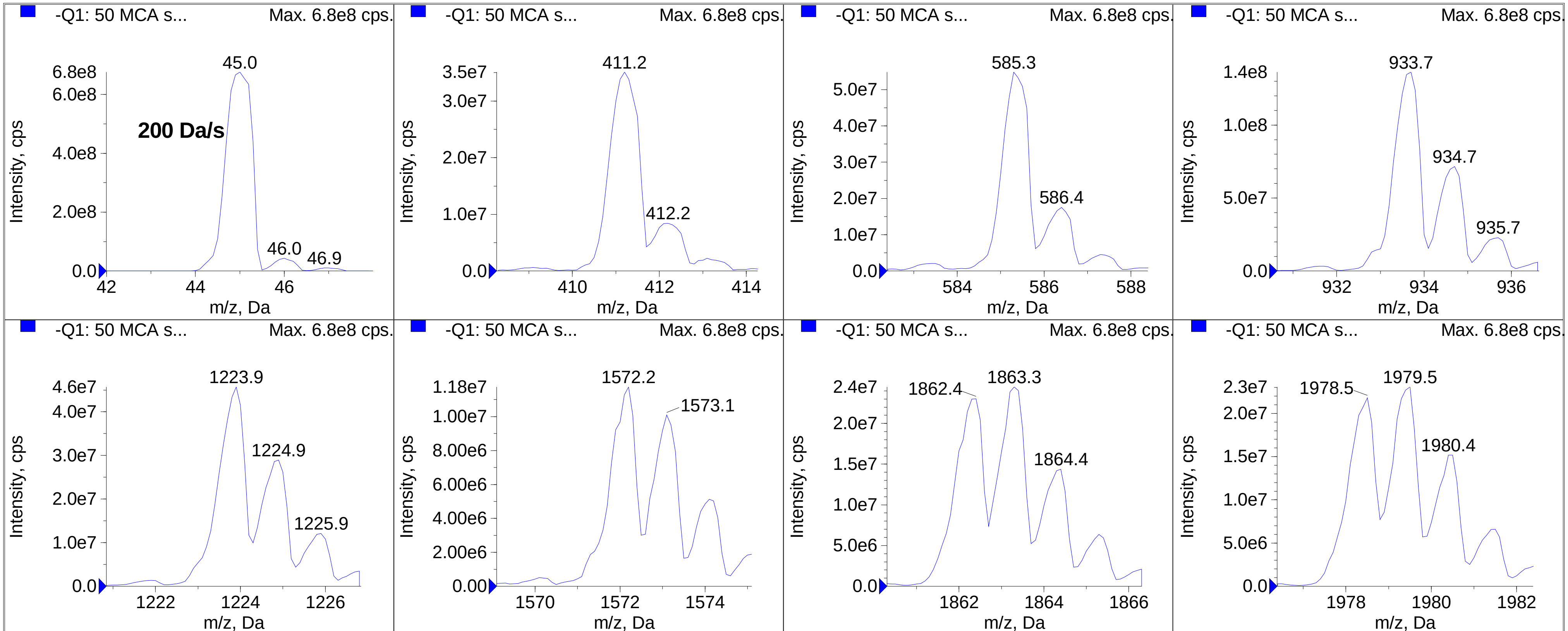


Peak List for " -Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210317152713.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9910	1.3290e8	0.6836	7.0007e-3
2	411.2590	411.2600	8.9124e6	0.7661	-9.6571e-4
3	585.3850	585.3845	1.1169e7	0.6575	5.1864e-4
4	933.6360	933.6541	2.9242e7	0.6466	-0.0181
5	1223.8450	1223.8432	1.0028e7	0.7023	1.8422e-3
6	1572.0970	1572.0954	2.5458e6	0.6844	1.6427e-3
7	1863.3060	1863.3201	5.3832e6	0.7092	-0.0141
8	1979.3890	1979.4185	5.2880e6	0.7333	-0.0295

```
* FSE Lynne Russell
*Post-PM Results
```

Printing Time: 3:36:43 PM Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS



Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317153519.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0002	6.7591e8	0.6846	-2.2026e-3
2	411.2590	411.2119	3.5092e7	0.7649	0.0471
3	585.3850	585.3644	5.4822e7	0.6584	0.0206
4	933.6360	933.6302	1.3625e8	0.6481	5.8471e-3
5	1223.8450	1223.8348	4.5702e7	0.6769	0.0102
6	1572.0970	1572.1166	1.1750e7	0.6539	-0.0196
7	1863.3060	1863.2690	2.4476e7	0.7185	0.0370
8	1979.3890	1979.3986	2.3062e7	0.6946	-9.5928e-3

* FSE Lynne Russell
*Post-PM Results

```
Printing Time: 3:40:22 PM                         Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS
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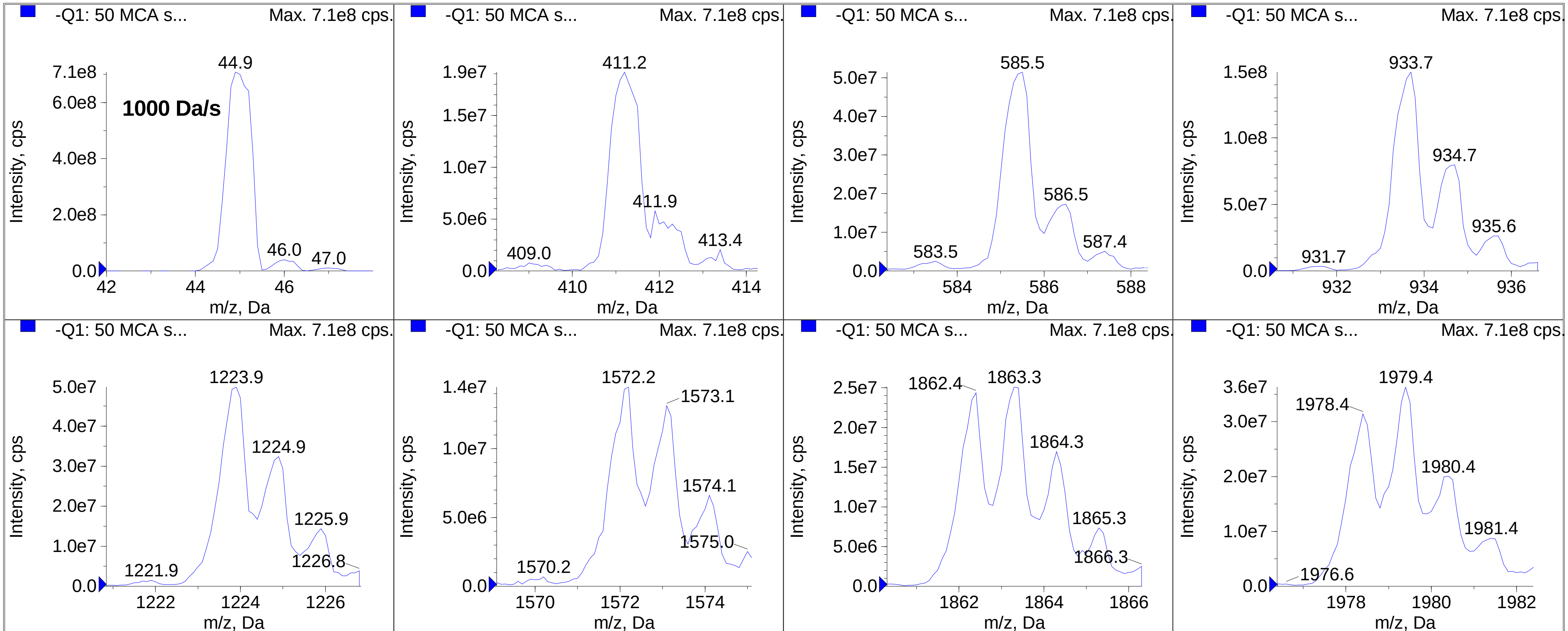

Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317153943.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9913	7.0792e8	0.6591	6.7120e-3
2	411.2590	411.2118	1.9170e7	0.7642	0.0472
3	585.3850	585.3843	5.1430e7	0.7072	7.2076e-4
4	933.6360	933.5972	1.4940e8	0.6413	0.0388
5	1223.8450	1223.8463	4.9780e7	0.6712	-1.2888e-3
6	1572.0970	1572.0804	1.4490e7	0.7157	0.0166
7	1863.3060	1863.2792	2.5100e7	0.6722	0.0268
8	1979.3890	1979.3756	3.6330e7	0.6677	0.0134

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 3:47:26 PM                          Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS
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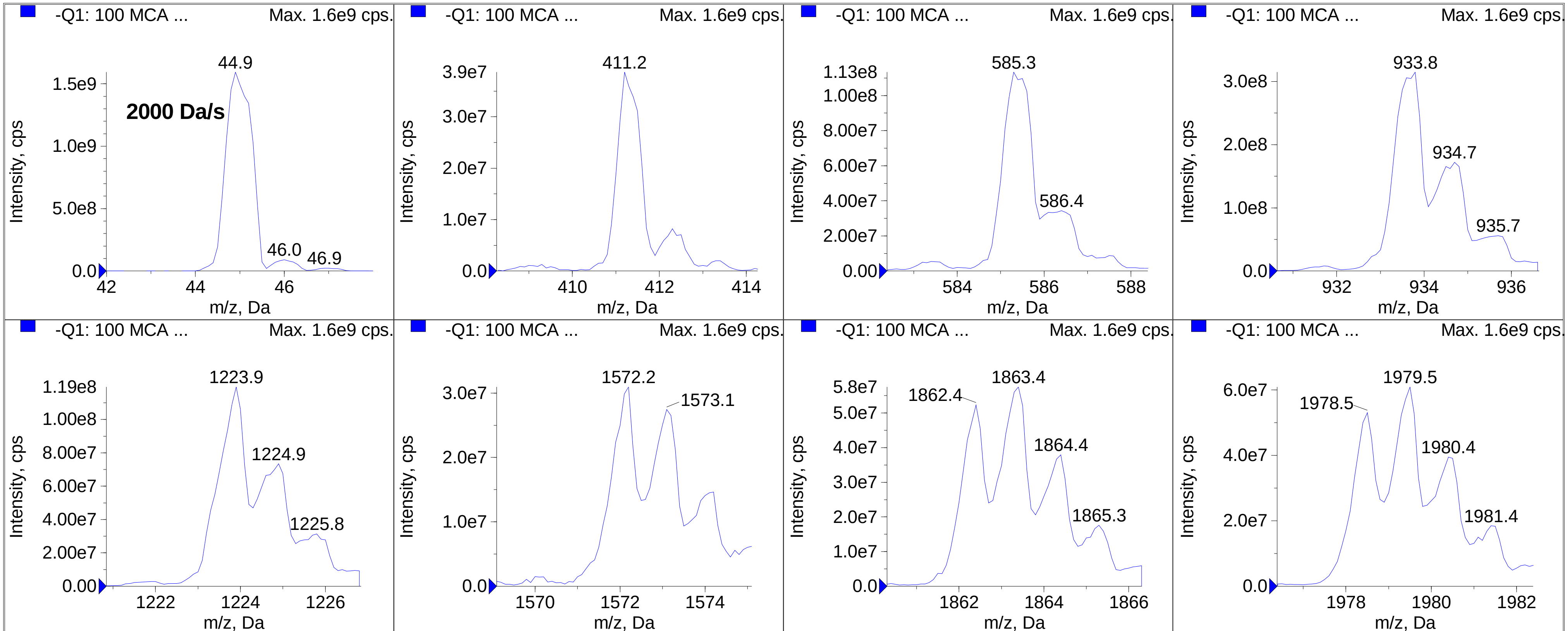

Peak List for " -Q1: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210317154650.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9869	1.5936e9	0.7014	0.0111
2	411.2590	411.3034	3.8680e7	0.6054	-0.0444
3	585.3850	585.3982	1.1334e8	0.7377	-0.0132
4	933.6360	933.6884	3.1468e8	0.7010	-0.0524
5	1223.8450	1223.8385	1.1948e8	0.7184	6.4595e-3
6	1572.0970	1572.1098	3.0940e7	0.6286	-0.0128
7	1863.3060	1863.3157	5.7500e7	0.7703	-9.6587e-3
8	1979.3890	1979.4295	6.0920e7	0.7023	-0.0405

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 3:55:05 PM                    Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
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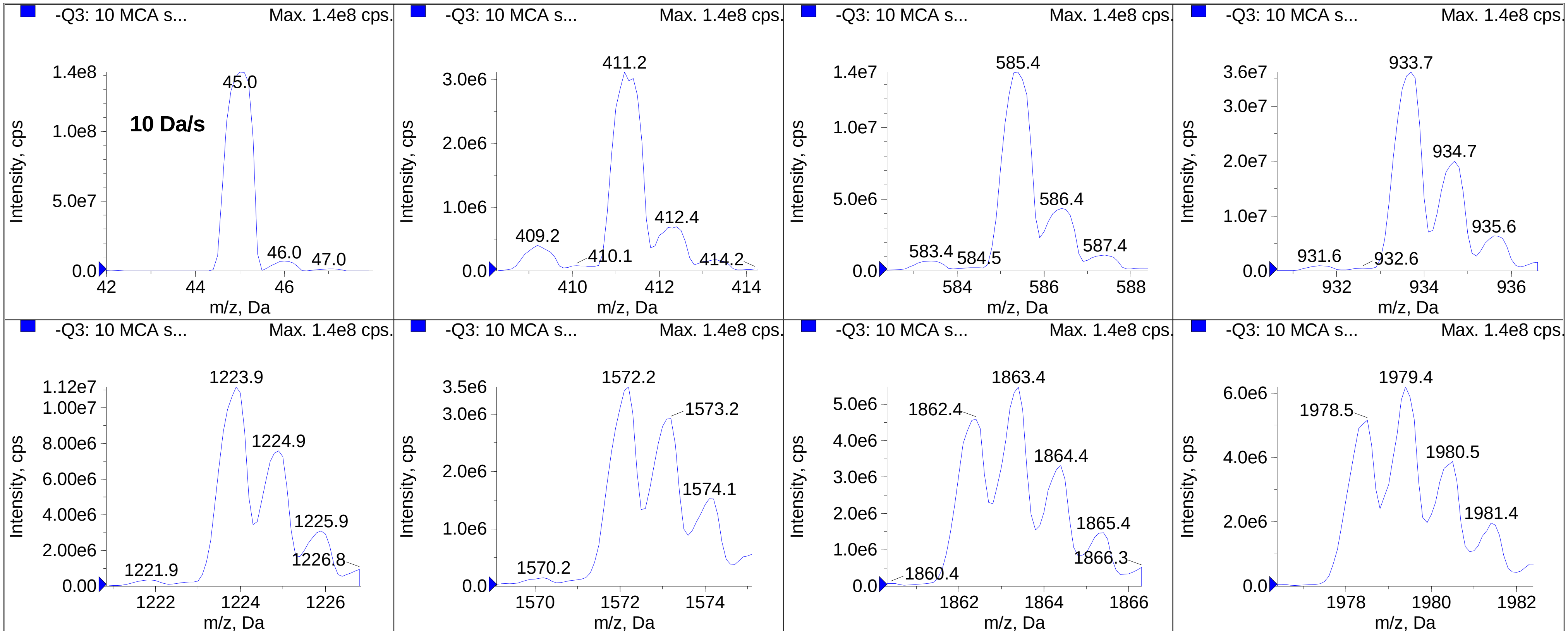

Peak List for " -Q3: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210317155339.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9954	1.4235e8	0.6998	2.5868e-3
2	411.2590	411.2663	3.1136e6	0.7653	-7.2991e-3
3	585.3850	585.3824	1.3857e7	0.7426	2.5787e-3
4	933.6360	933.6394	3.6194e7	0.6976	-3.3971e-3
5	1223.8450	1223.8414	1.1169e7	0.7388	3.6285e-3
6	1572.0970	1572.1229	3.4731e6	0.7534	-0.0259
7	1863.3060	1863.3178	5.4742e6	0.7396	-0.0118
8	1979.3890	1979.3917	6.1874e6	0.7353	-2.6787e-3

* FSE Lynne Russell
*Post-PM Results

```
Printing Time: 3:58:35 PM                    Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
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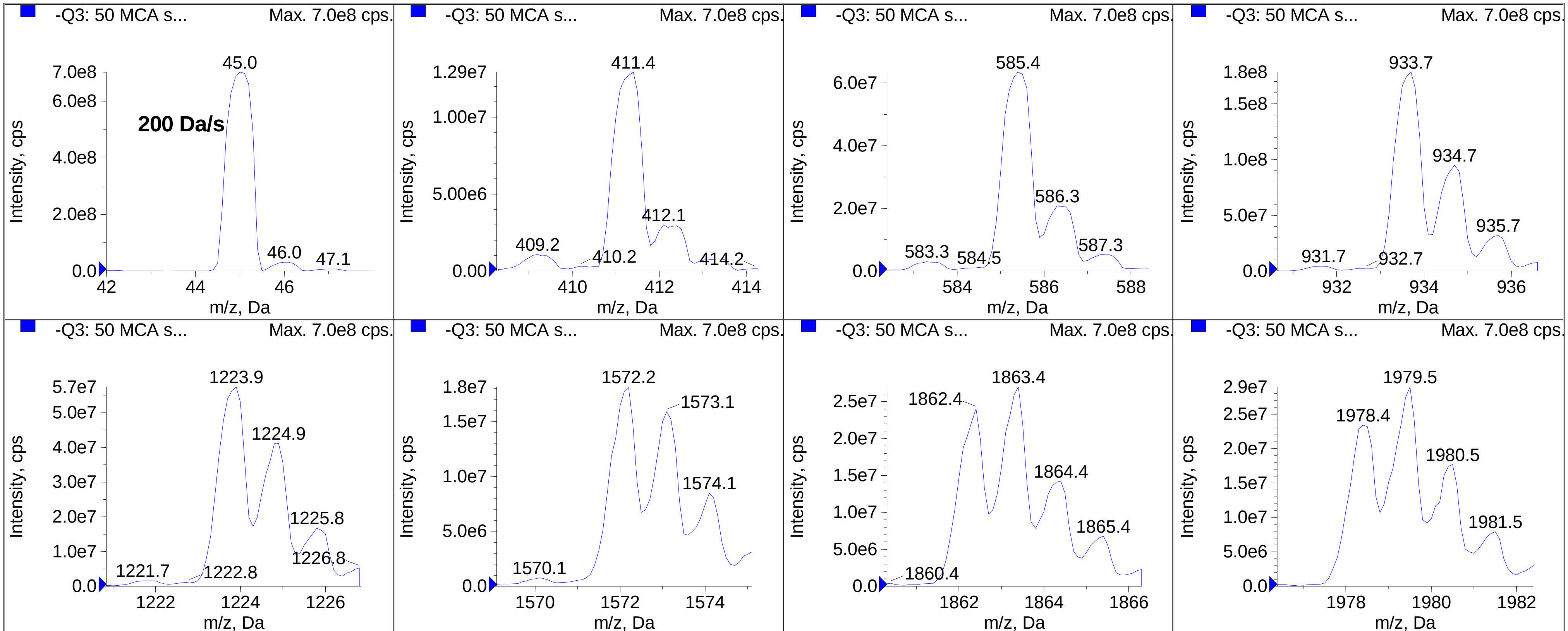

Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317155802.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0019	7.0237e8	0.6857	-3.8623e-3
2	411.2590	411.2741	1.2928e7	0.7451	-0.0151
3	585.3850	585.3839	6.3484e7	0.7331	1.0568e-3
4	933.6360	933.6315	1.7846e8	0.6712	4.4876e-3
5	1223.8450	1223.8069	5.7376e7	0.7239	0.0381
6	1572.0970	1572.1172	1.8126e7	0.7008	-0.0202
7	1863.3060	1863.3002	2.6982e7	0.6833	5.8385e-3
8	1979.3890	1979.4115	2.8940e7	0.7337	-0.0225

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 4:00:09 PM                    Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
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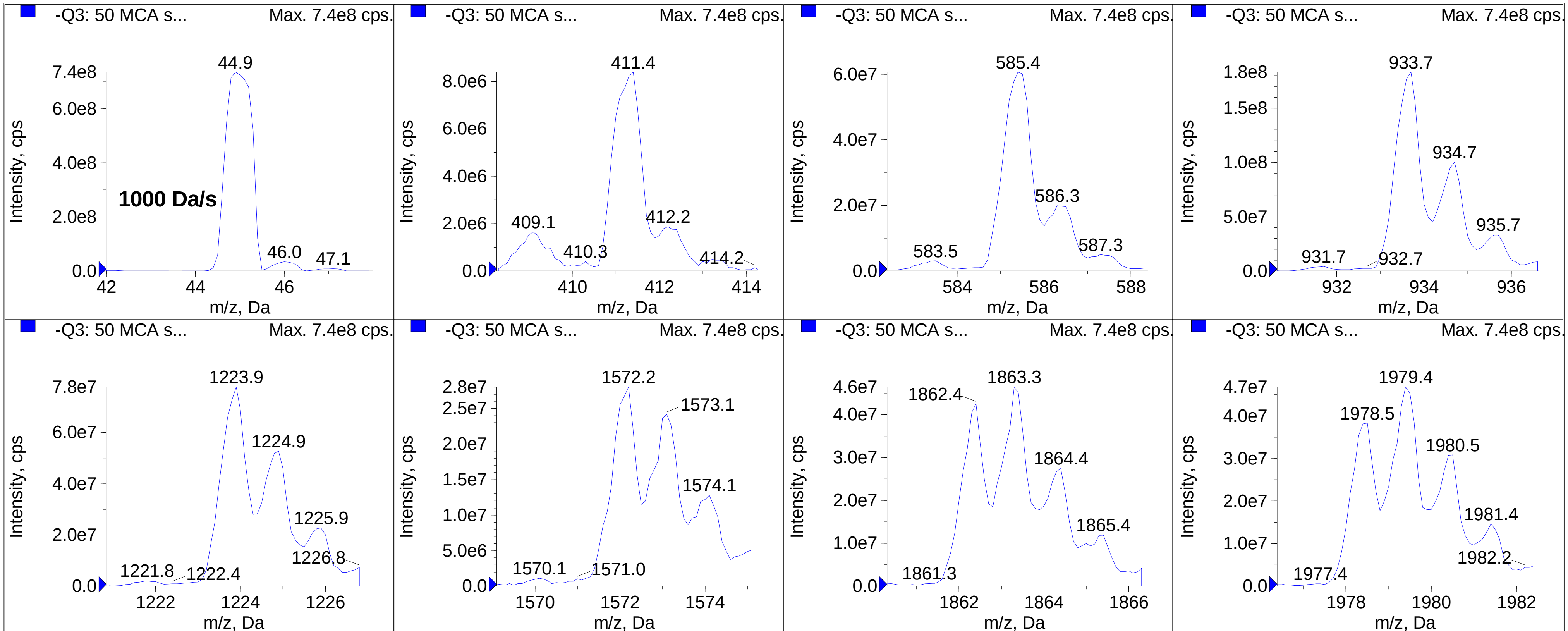

Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317155932.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9917	7.3590e8	0.7074	6.3058e-3
2	411.2590	411.2608	8.3900e6	0.7490	-1.7510e-3
3	585.3850	585.3889	6.0630e7	0.7130	-3.9447e-3
4	933.6360	933.6286	1.8323e8	0.6162	7.3699e-3
5	1223.8450	1223.8474	7.7780e7	0.6951	-2.4002e-3
6	1572.0970	1572.1198	2.8030e7	0.6475	-0.0228
7	1863.3060	1863.3085	4.6450e7	0.7545	-2.4862e-3
8	1979.3890	1979.4002	4.6780e7	0.7318	-0.0112

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 4:04:35 PM                           Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
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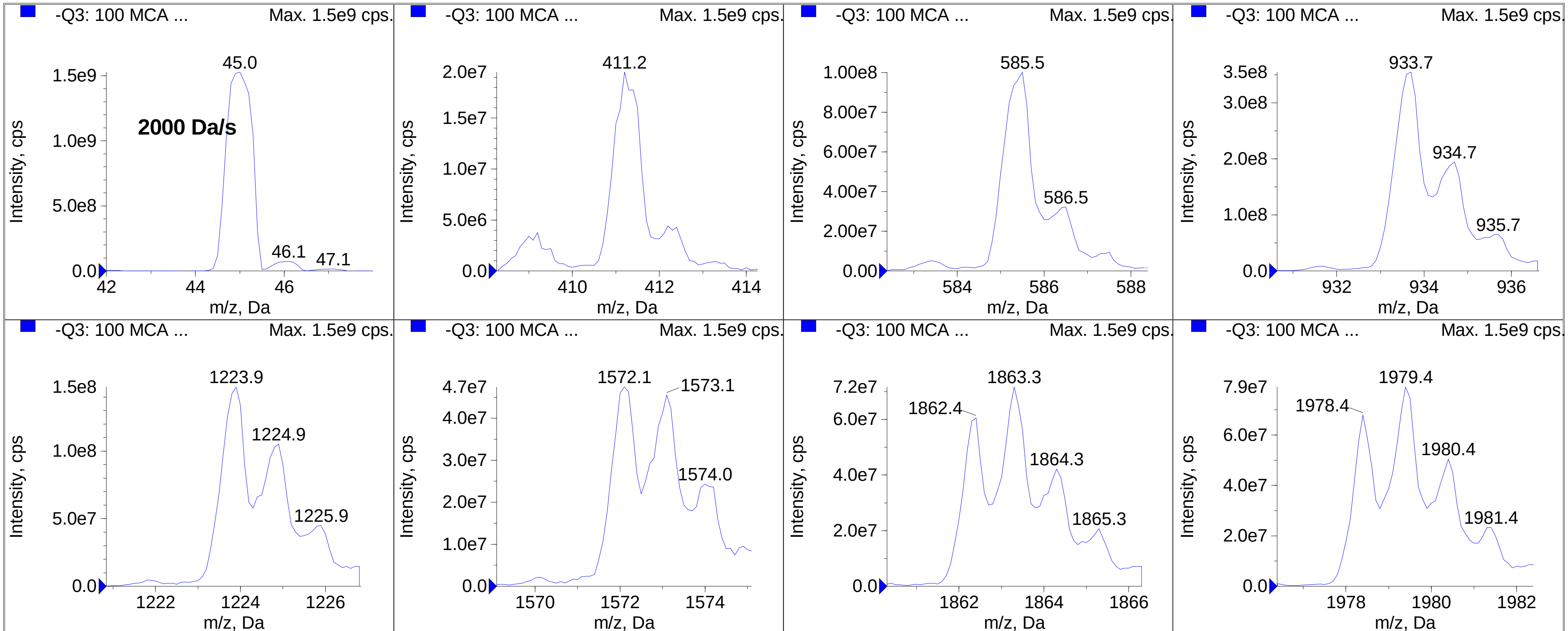


Peak List for " -Q3: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210317160355.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9952	1.5280e9	0.6901	2.7593e-3
2	411.2590	411.2640	1.9500e7	0.6899	-5.0124e-3
3	585.3850	585.3826	1.0024e8	0.7067	2.4475e-3
4	933.6360	933.6321	3.5464e8	0.6833	3.8616e-3
5	1223.8450	1223.8477	1.4746e8	0.6418	-2.6653e-3
6	1572.0970	1572.0994	4.7440e7	0.7027	-2.3818e-3
7	1863.3060	1863.3089	7.1680e7	0.6977	-2.8502e-3
8	1979.3890	1979.3915	7.9080e7	0.6872	-2.4992e-3

* FSE Lynne Russell
*Post-PM Results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d		
Injection Date:	28-Oct-2021 11:37:49	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.700	1.707	0	1133911	20	>100:1			1001.00	1263.97	102	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.707		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.079	0	1007160	16	>100:1			1001.00	1120.44	99.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.079		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.131	0	325014	16	>100:1			1001.00	1088.85	93.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.131		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.477		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.388	2.407	-1	273418	17	>100:1			5005.00	6118.30	84.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.407		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.432	2.442	0	918838	18	>100:1			1001.00	1122.21	97.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.451		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.553	2.572	-1	772089	17	>100:1			5005.00	5336.26	108	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.572		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.818	2.831	0	887378	19	>100:1			1001.00	1107.44	94	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.831		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.835	2.840	0	275345	17	>100:1			1001.00	1119.49	97.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.840		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.866		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.206		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.164	3.174	0	244890	22	>100:1			5005.00	5604.27	101.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.174		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.189	3.199	0	842958	21	>100:1			1001.00	1114.04	98.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.199		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.550	3.562	0	230440	17	>100:1			1001.00	1017.08	94.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.562		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.761		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.894		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.190		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.350		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.689		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.557	3.569	0	851300	19	>100:1			1001.00	1097.81	103.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.569		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.841	3.849	0	437636	17	>100:1			1001.00	1044.94	96.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.849		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.894	3.902	0	210665	18	>100:1			5005.00	5571.12	102.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.902		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.485		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.894	3.902	0	752107	18	>100:1			1001.00	1107.41	98.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.910		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.053	4.053	1	913475	17	>100:1			5005.00	4458.18	100.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.063		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.198	4.206	0	742060	16	>100:1			1001.00	1173.88	99.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.206		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.198	4.206	0	875275	16	>100:1			5005.00	5098.40	99.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.215		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.261	4.270	0	114766	13	>100:1			1001.00	902.52	84.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.287		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.279	4.287	0	63101	14	>100:1			1001.00	1085.67	103.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.287		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.426	4.434	0	114064	16	>100:1			1001.00	971.12	88.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.441		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.456	0	58999	17	>100:1			1001.00	1074.10	93.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.456		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.470	4.477	0	632709	17	>100:1			1001.00	1053.41	97.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.477		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.713		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.917	4.923	0	856696	20	>100:1			1001.00	1069.28	96.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.929		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.295	5.302	0	307647	21	>100:1			1001.00	934.95	94.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.302	5.309	0/0	5430	17	45:1	Target = 12.53		8.7199	8.7199		
813 > 269	40	5.295	5.309		567	17	30:1	9.57 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.672		ND								
*** 37 13C2_PFDA**													
515 > 470		3.894	3.902	0	813485	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.440	2.442	0	987877	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.189	3.206	0	835617	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.700	1.707	0	1114953	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.550	3.562	0	240747	19	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

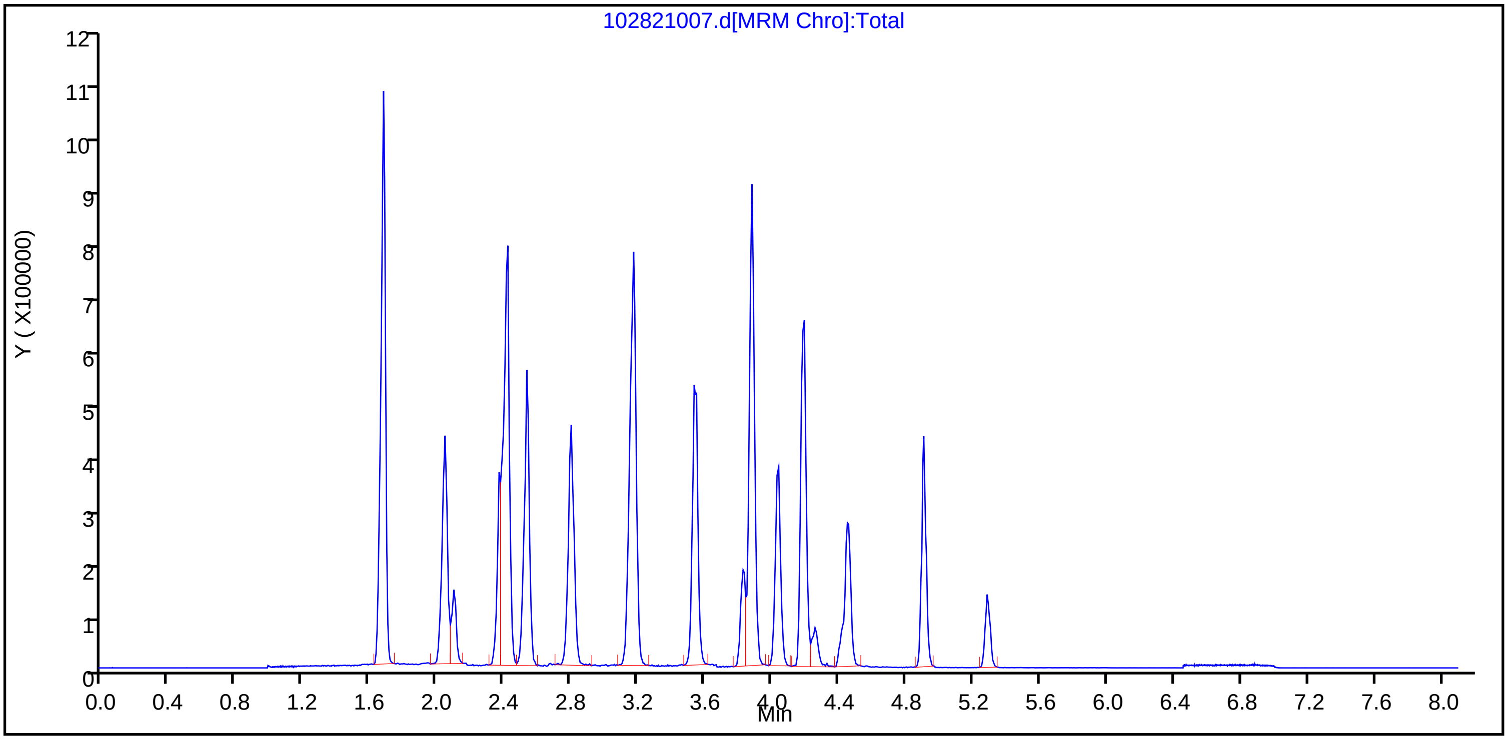
QC Flag Legend

U - Result Less Than Method Detection Limit

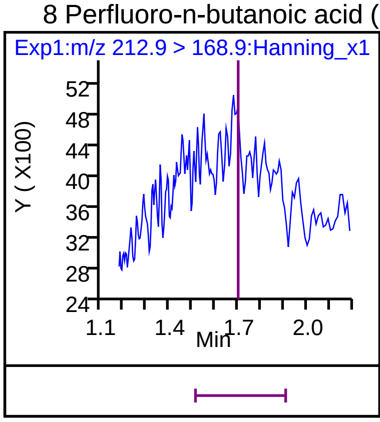
Report Date: 28-Oct-2021 20:18:06 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

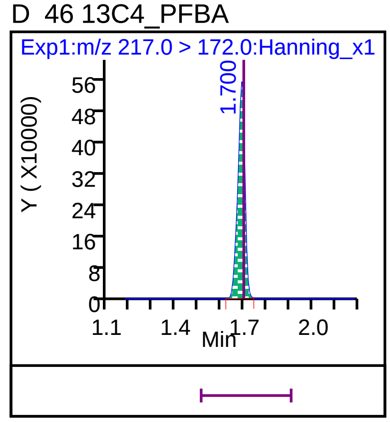
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d		
Injection Date:	28-Oct-2021 11:37:49	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Matthew M. Miller



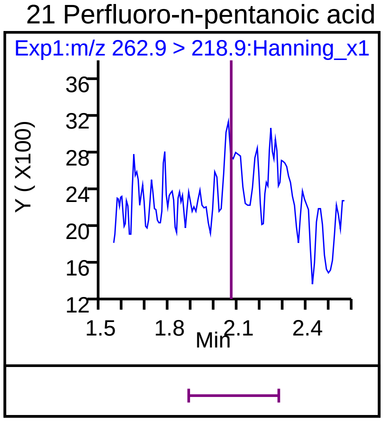
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



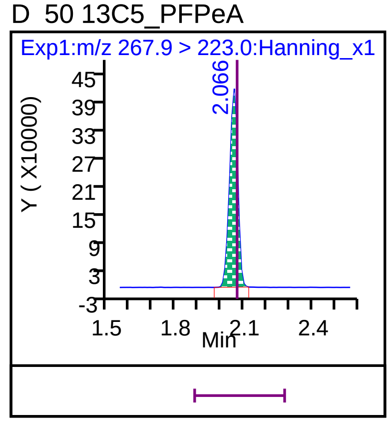
D 46 13C4_PFBA



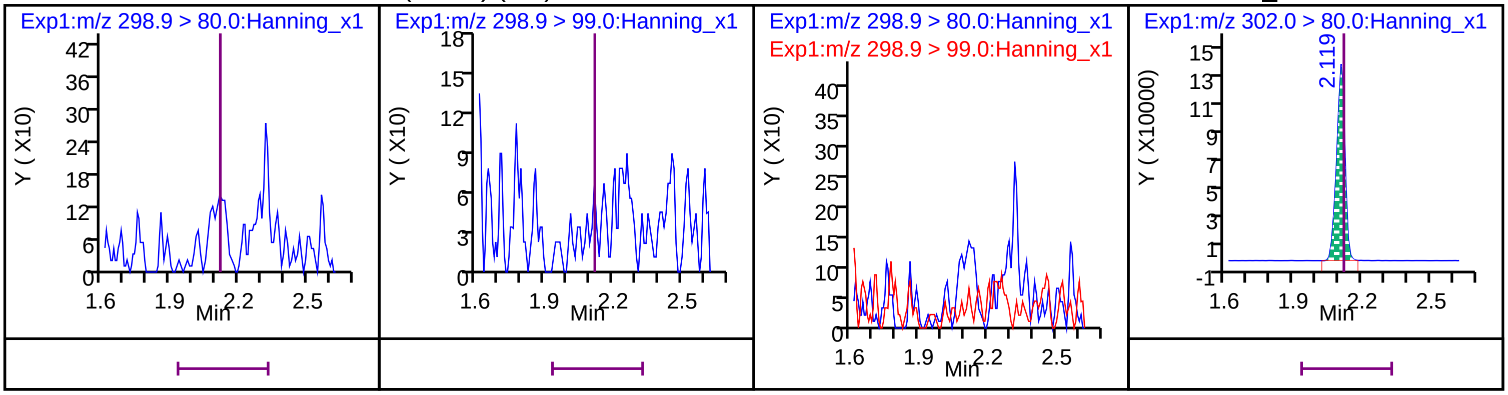
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



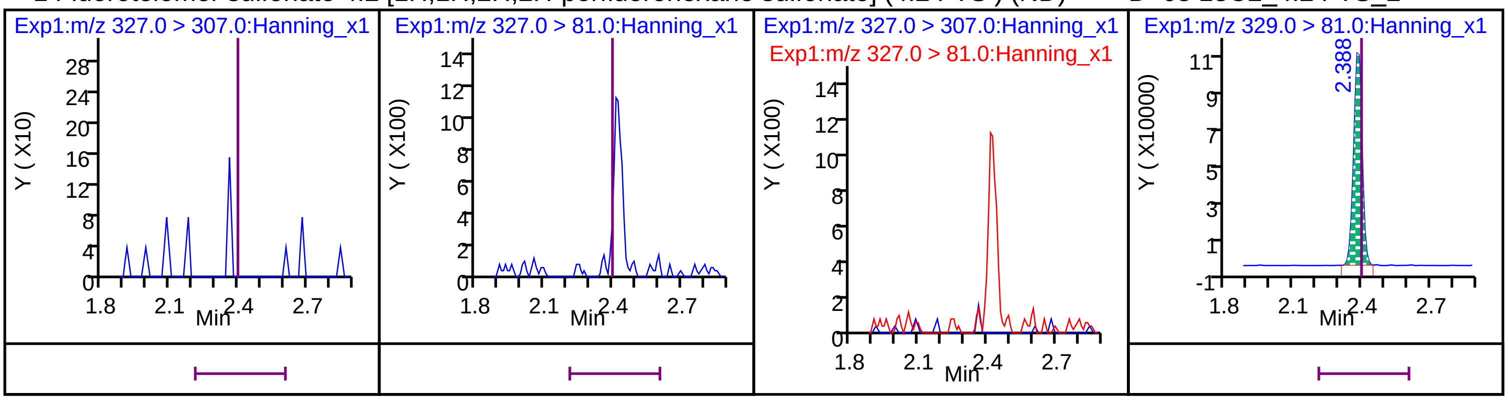
D 50 13C5_PFPeA



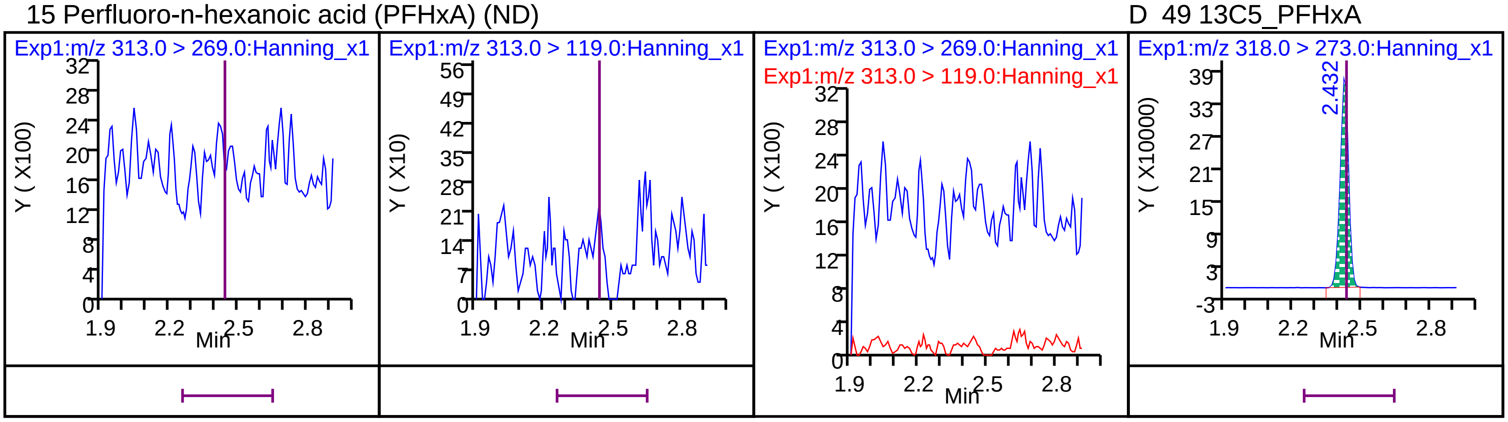
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



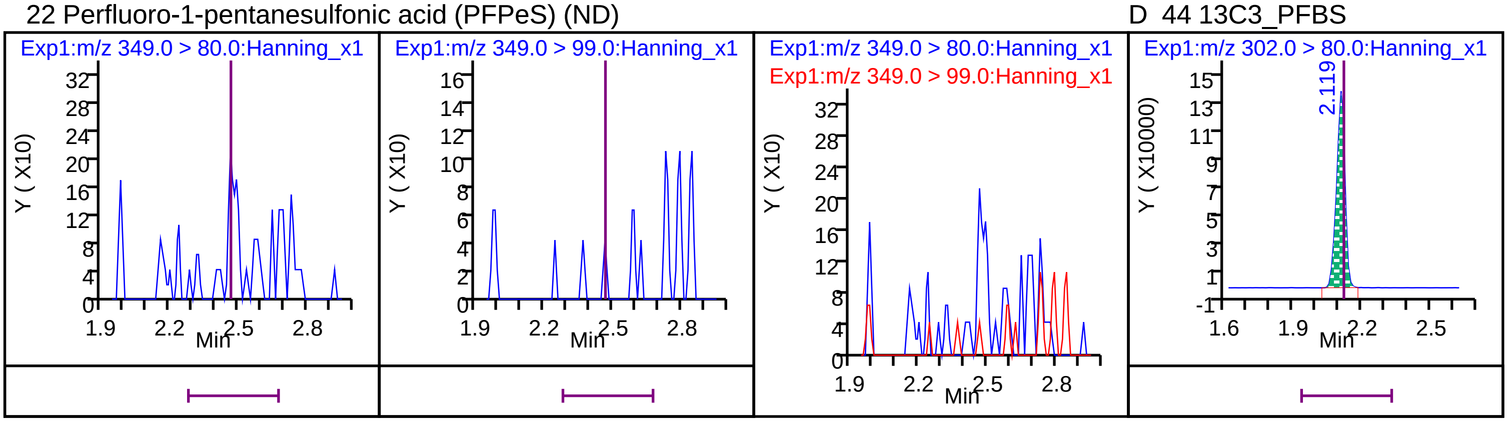
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA

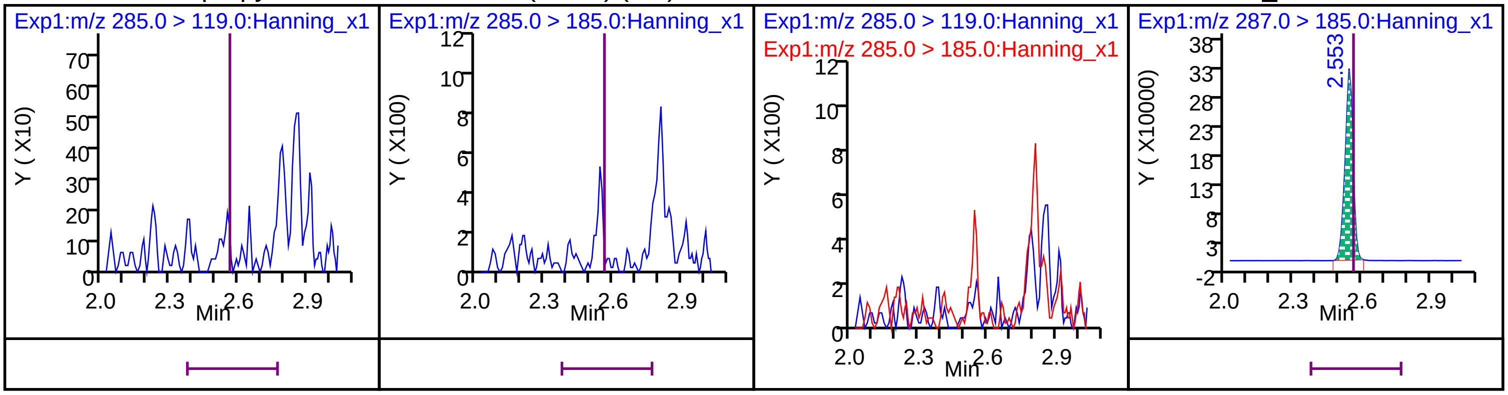


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

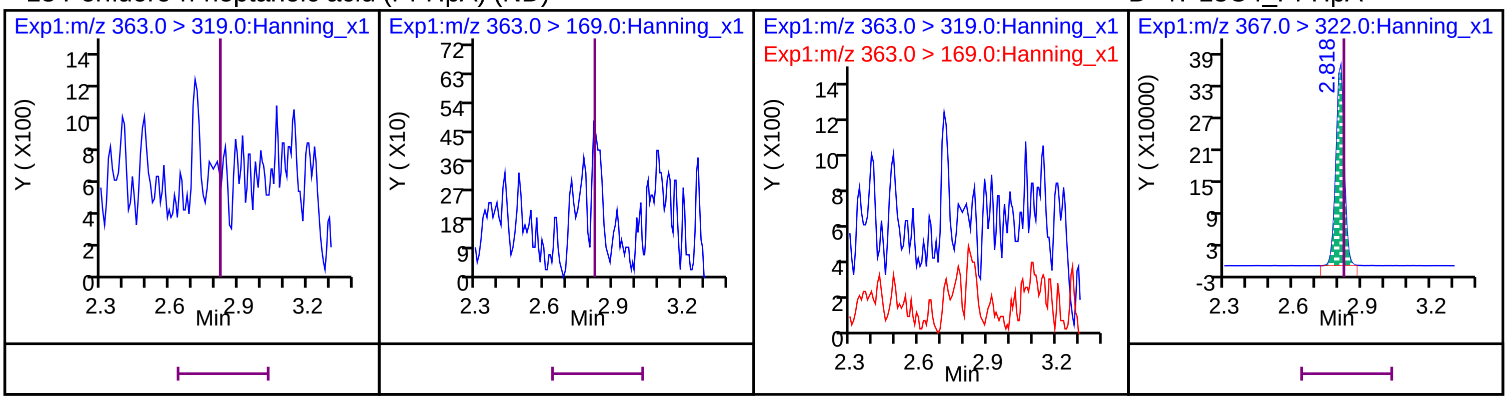


Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d

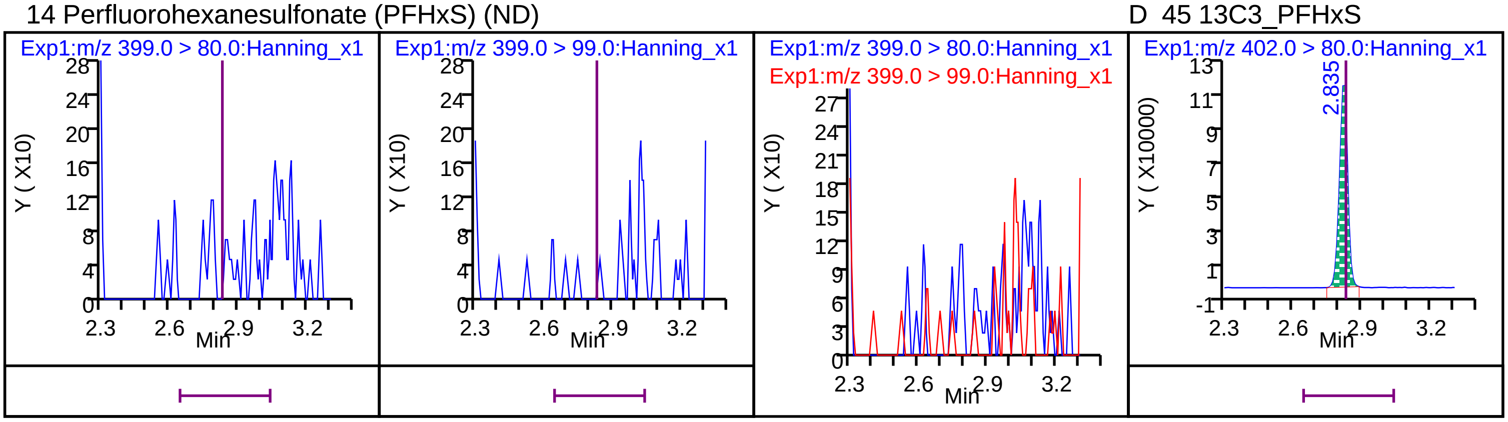
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



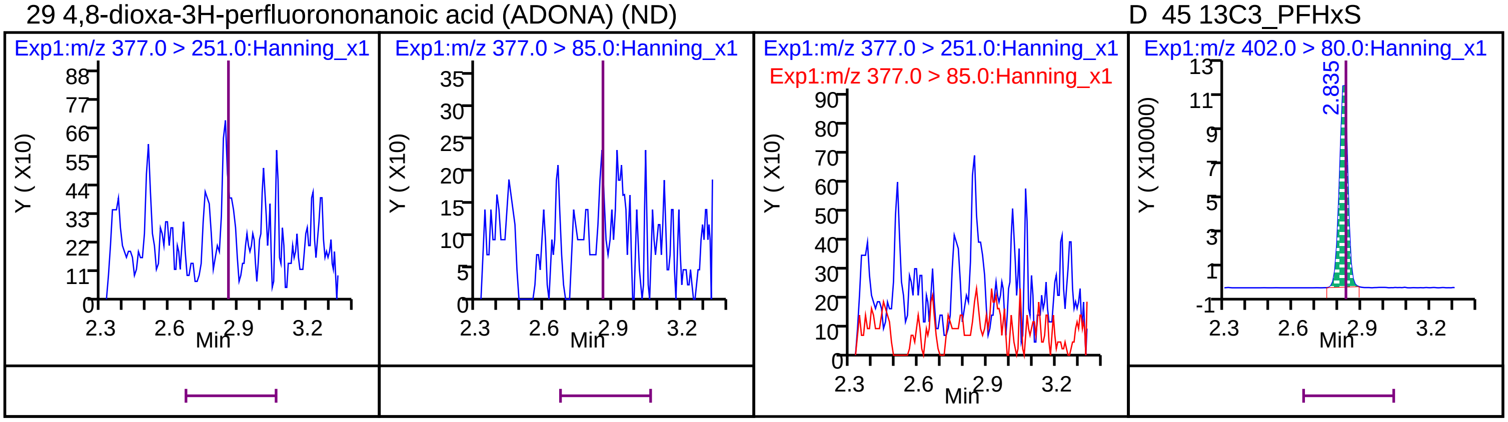
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

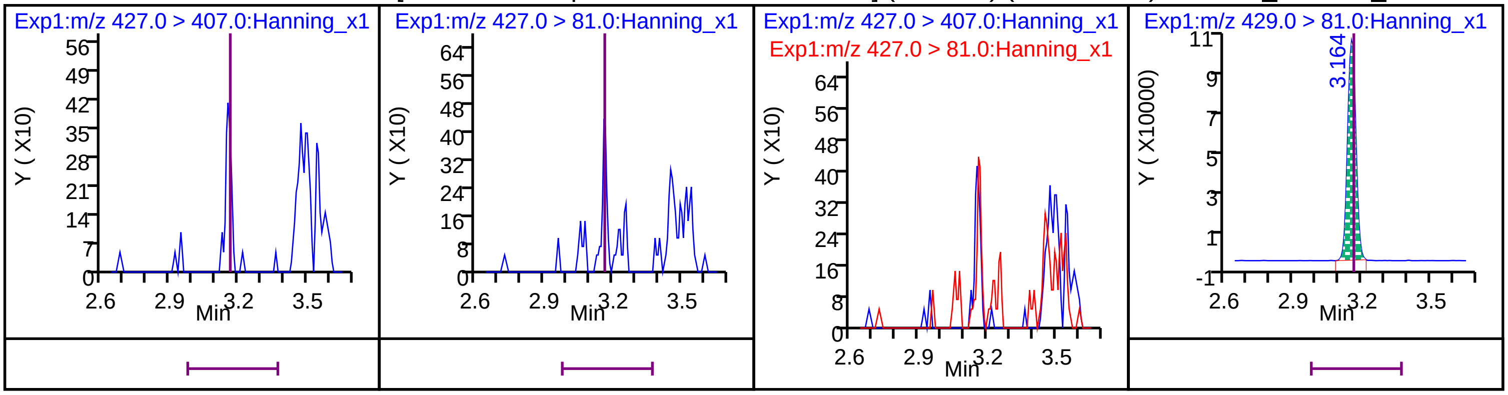


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

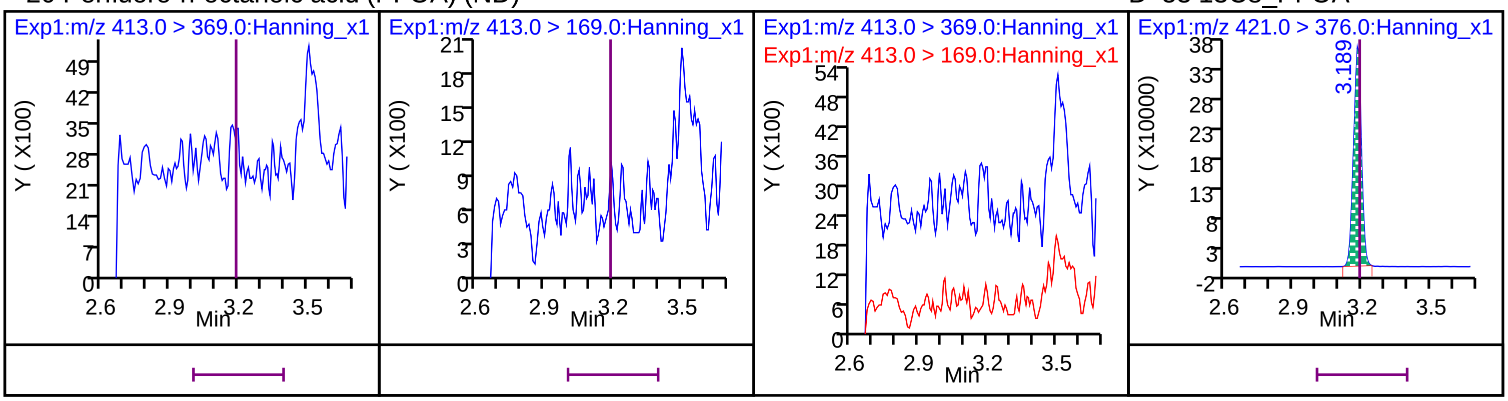


Report Date: 28-Oct-2021 20:18:06 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d

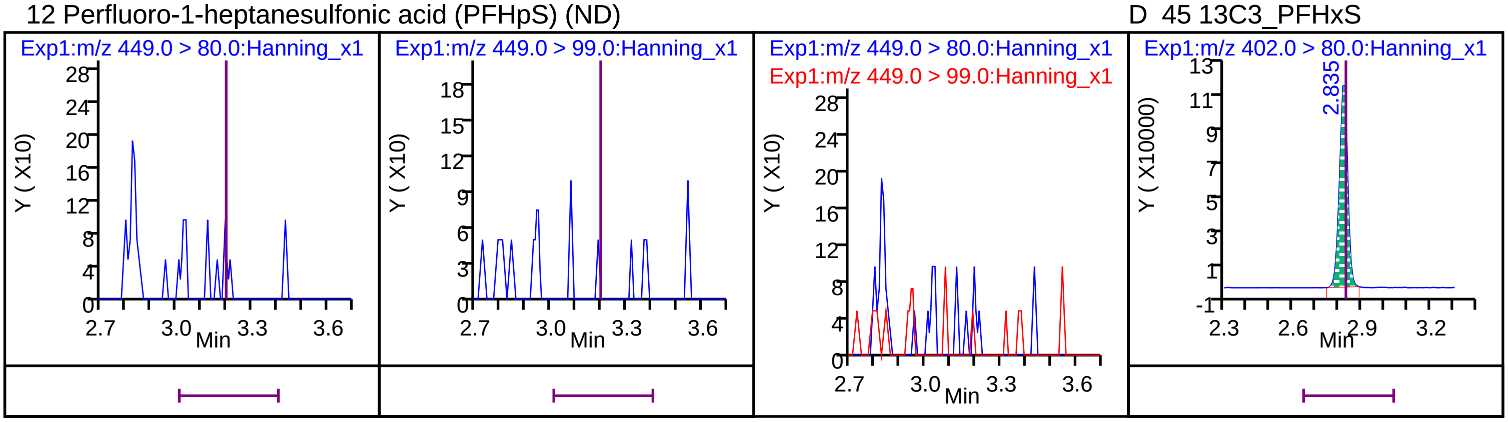
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (Marked ND) 64 13C2_6:2 FTS_2



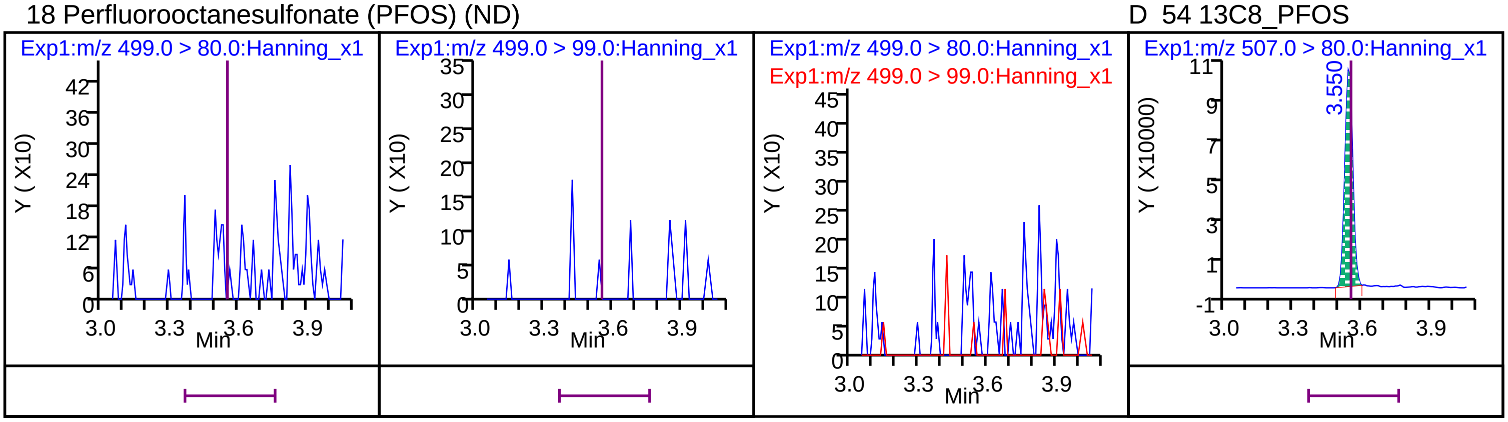
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS

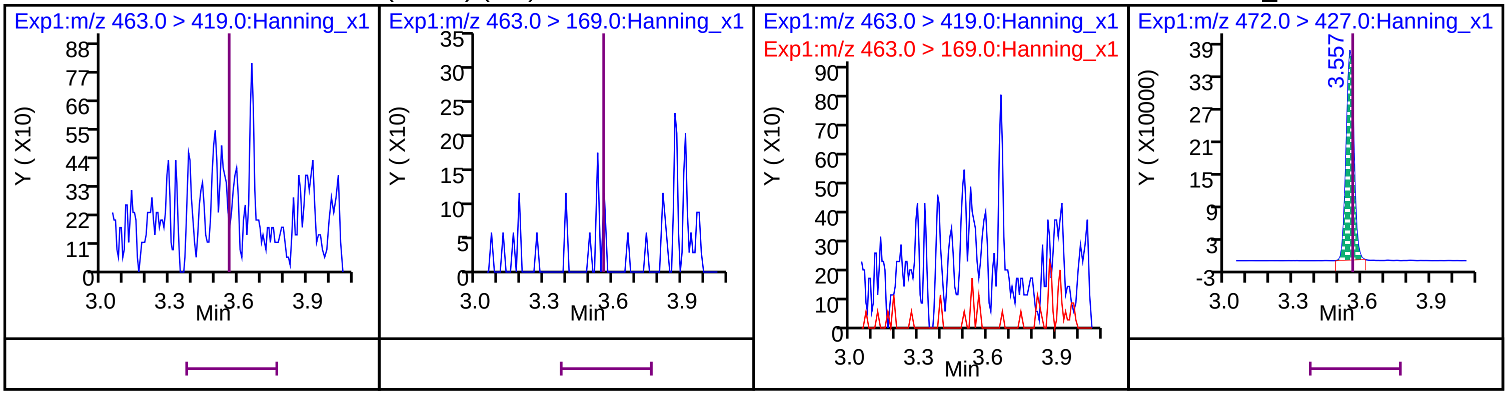


18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS

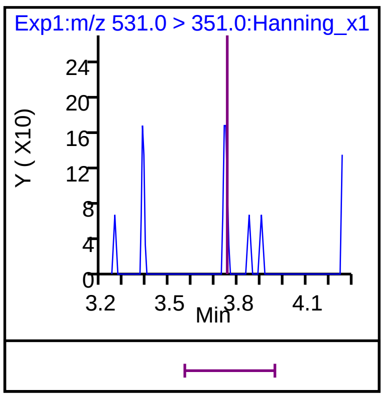


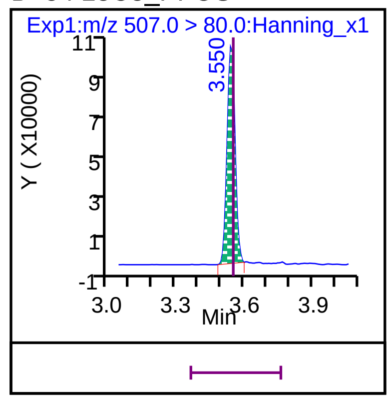
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d

17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA

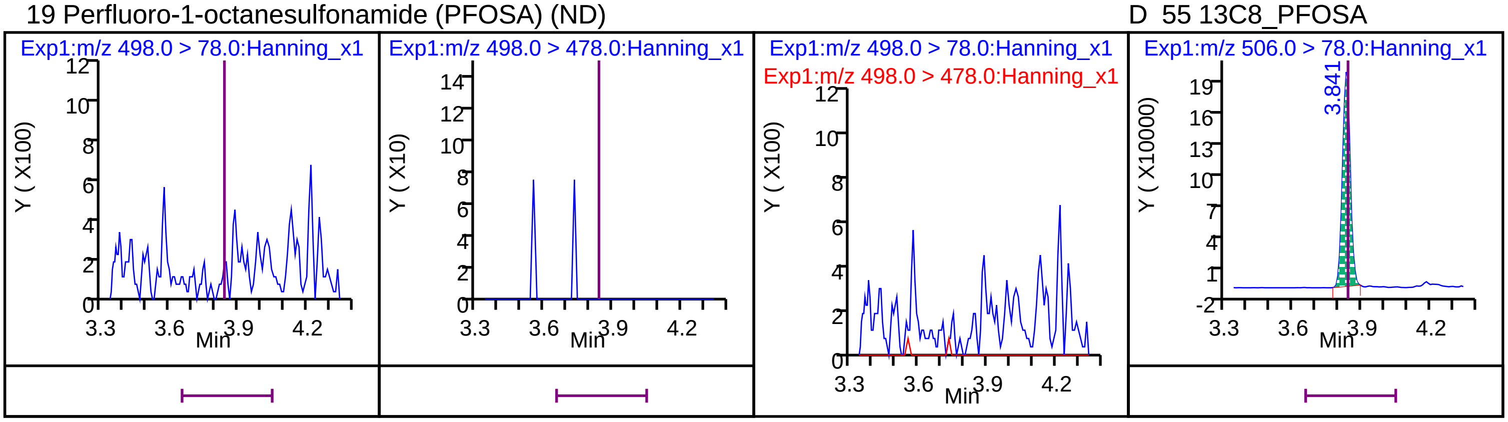


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

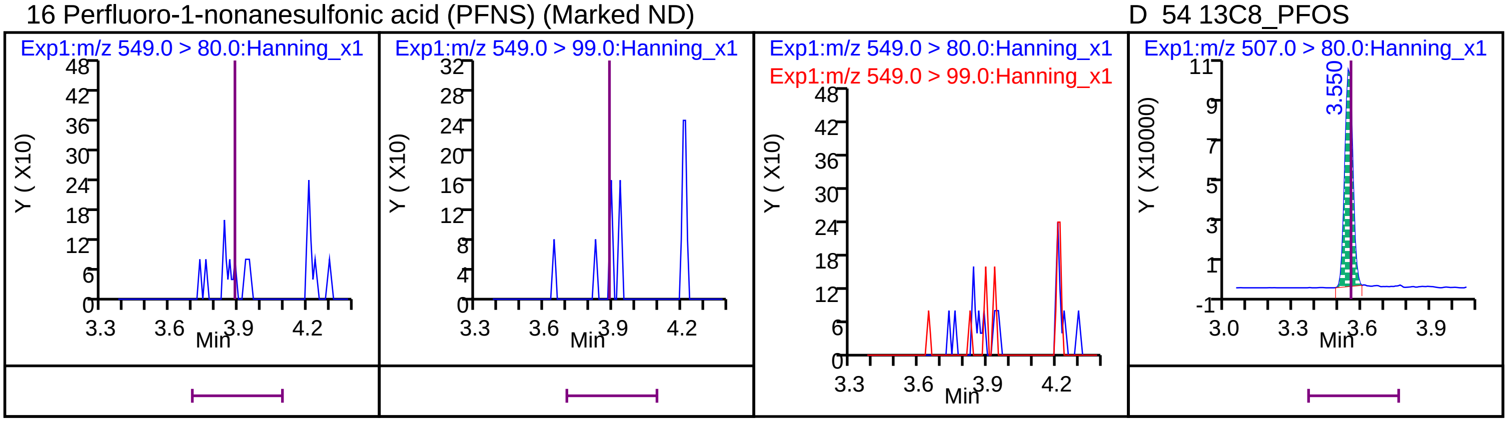




19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA

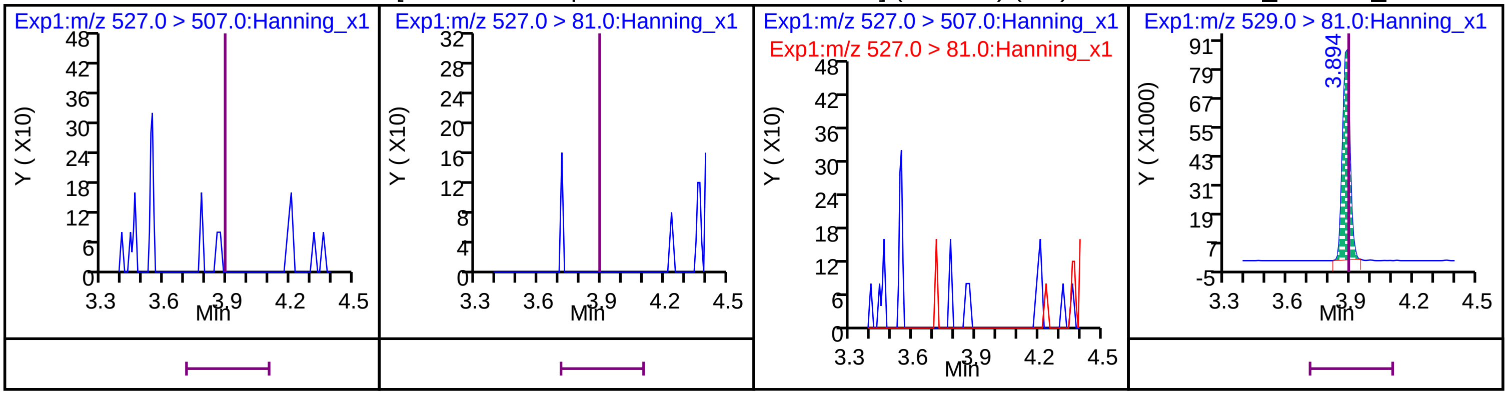


16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS

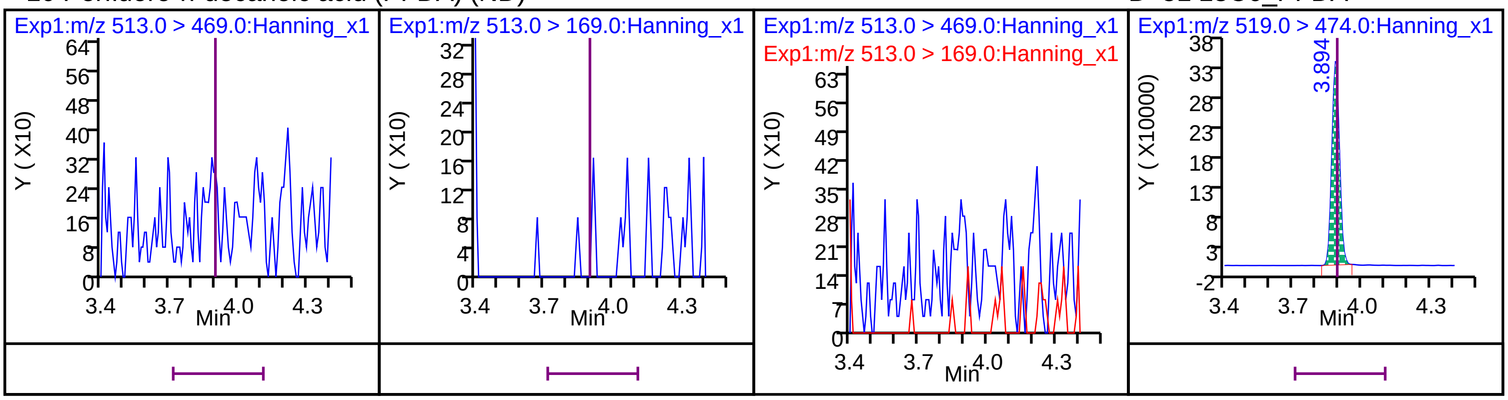


Report Date: 28-Oct-2021 20:18:06 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d

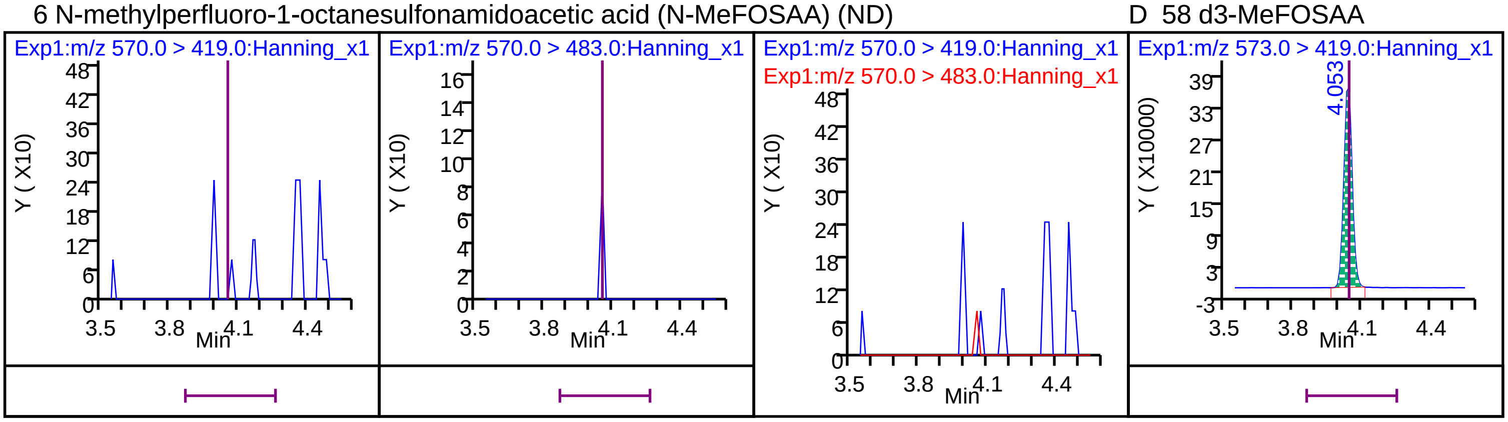
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



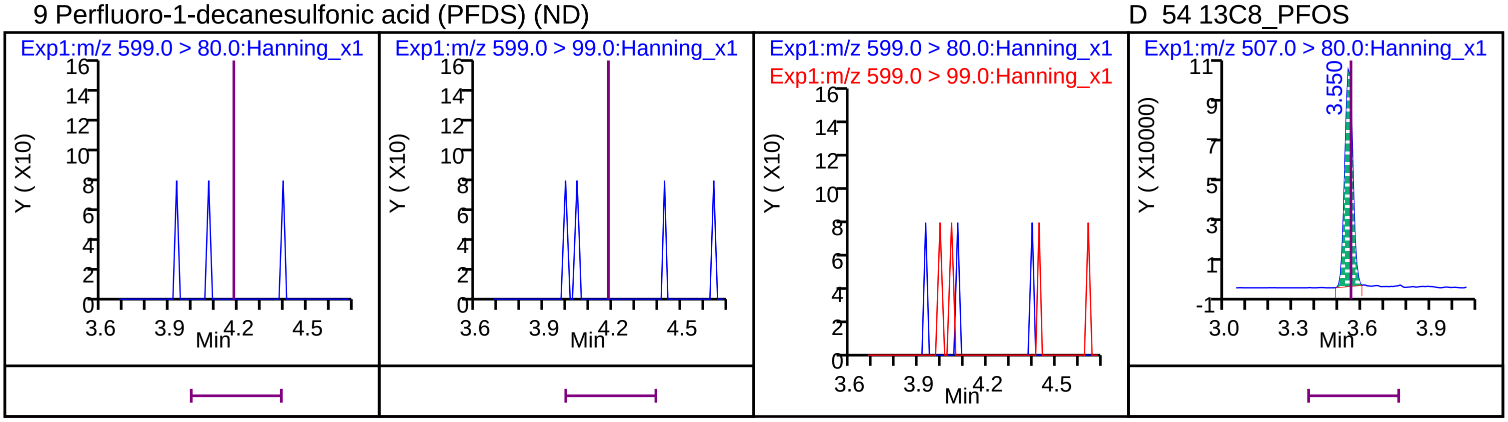
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



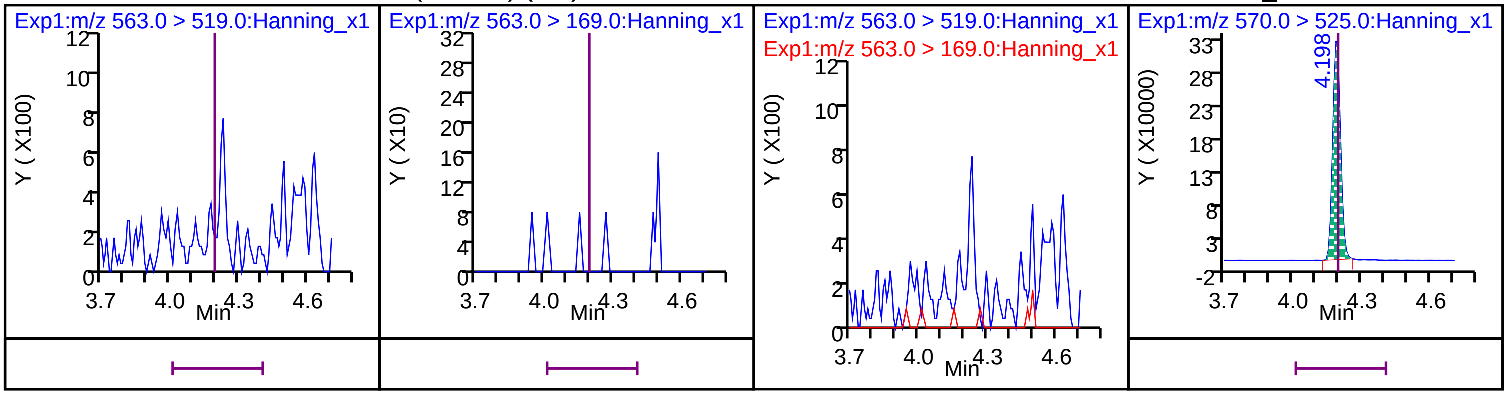
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



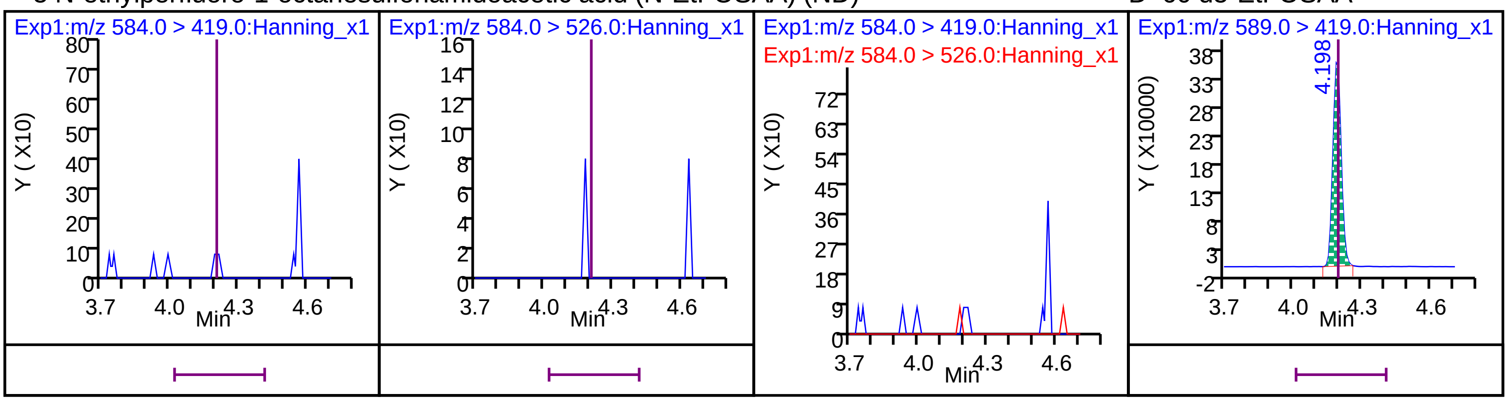
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



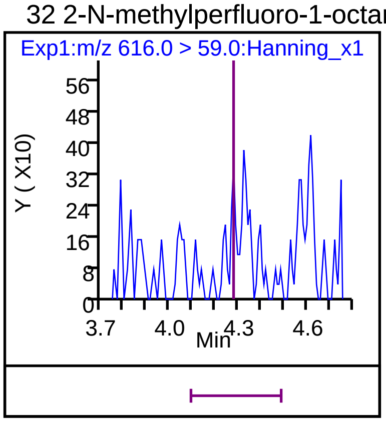
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

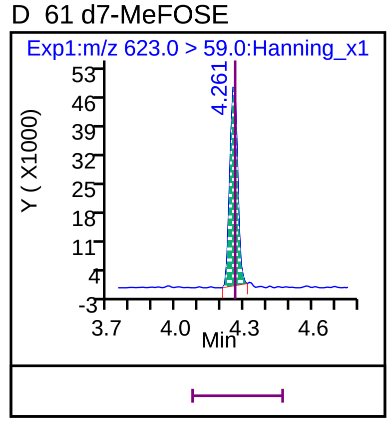


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

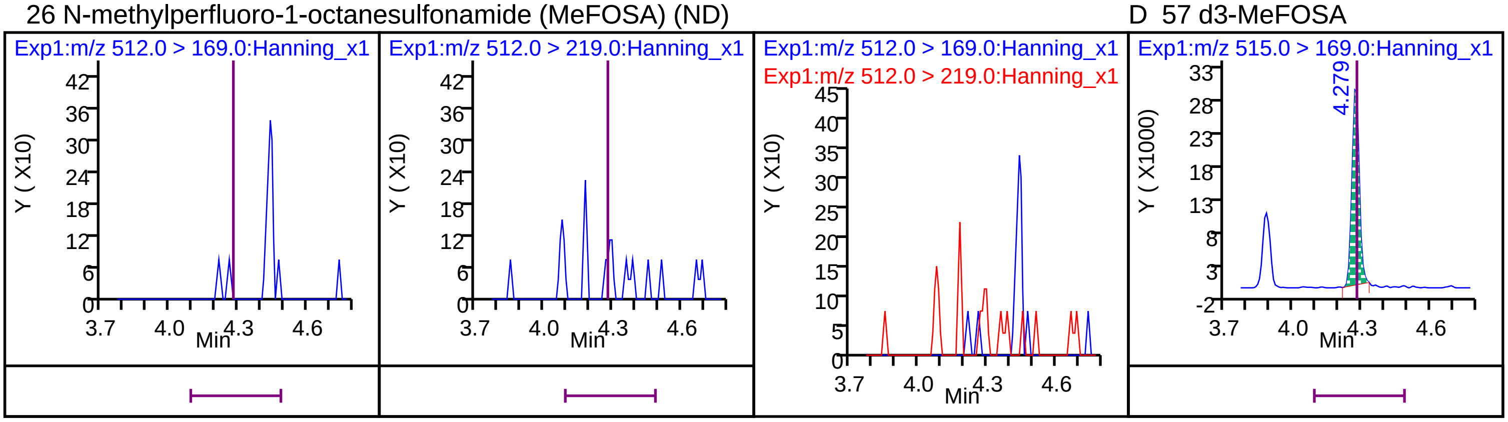


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

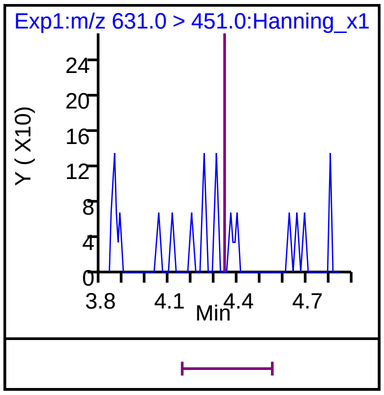




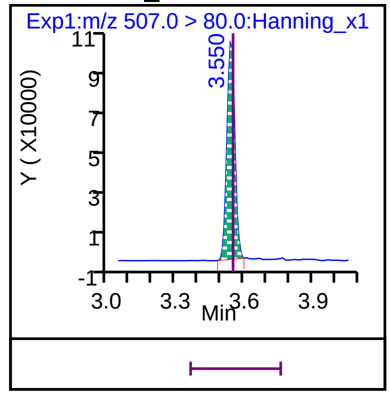
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



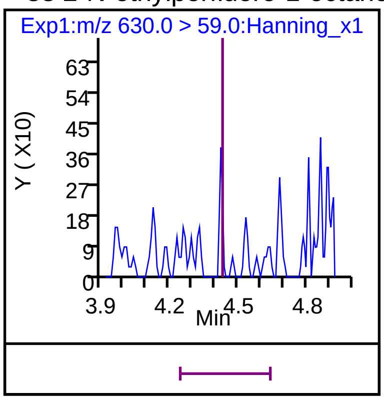
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



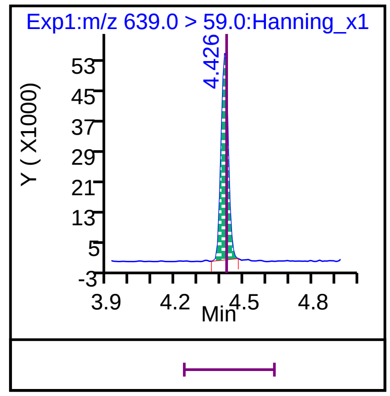
D 54 13C8_PFOS



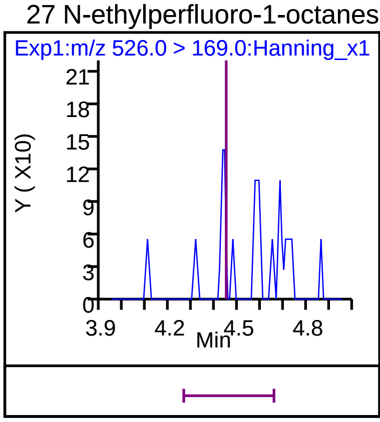
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (ND)

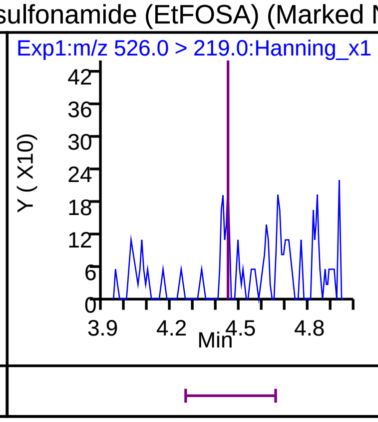


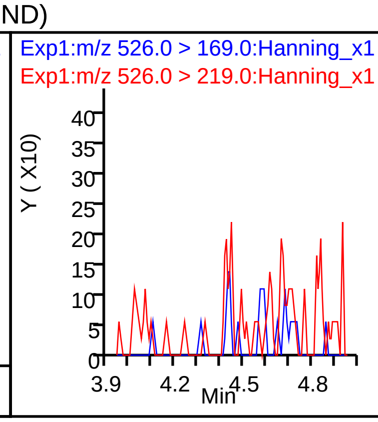
D 62 d9-EtFOSE



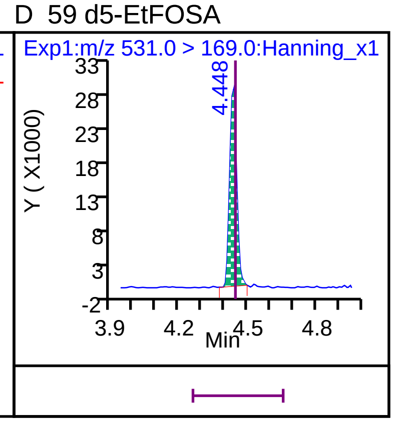
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND)



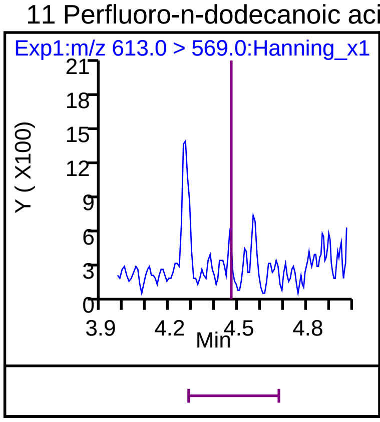


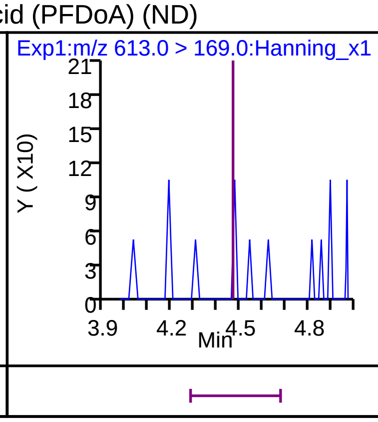


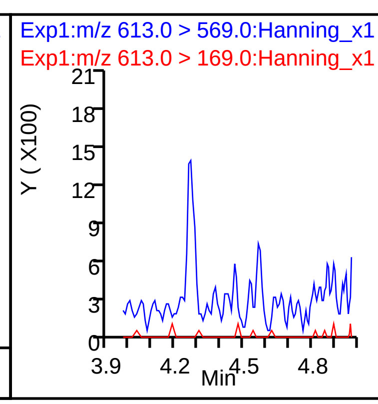
D 59 d5-EtFOSA



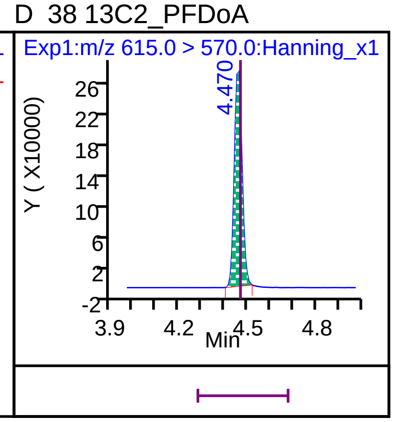
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)





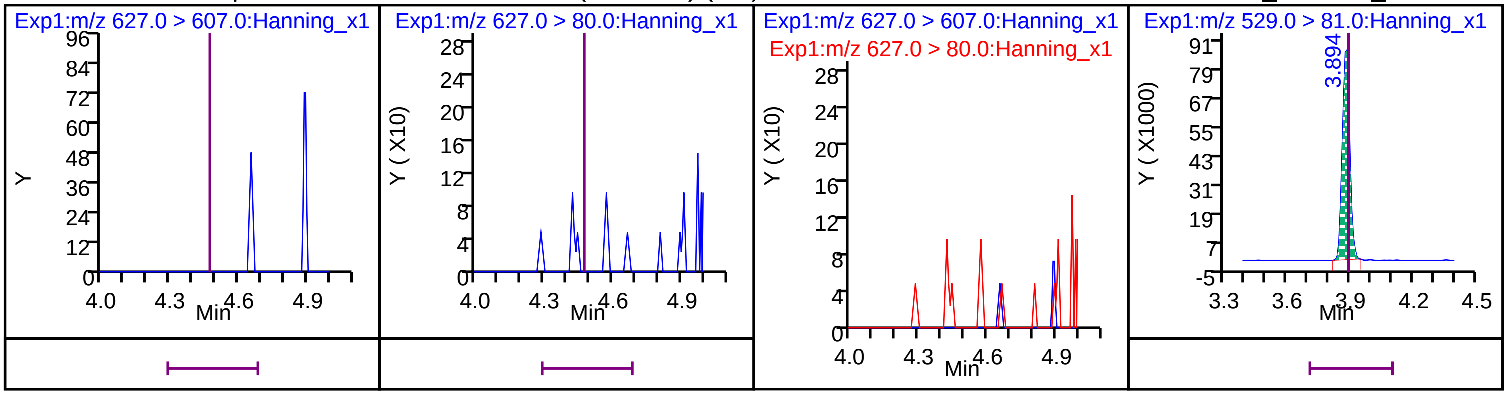


D 38 13C2_PFDoA

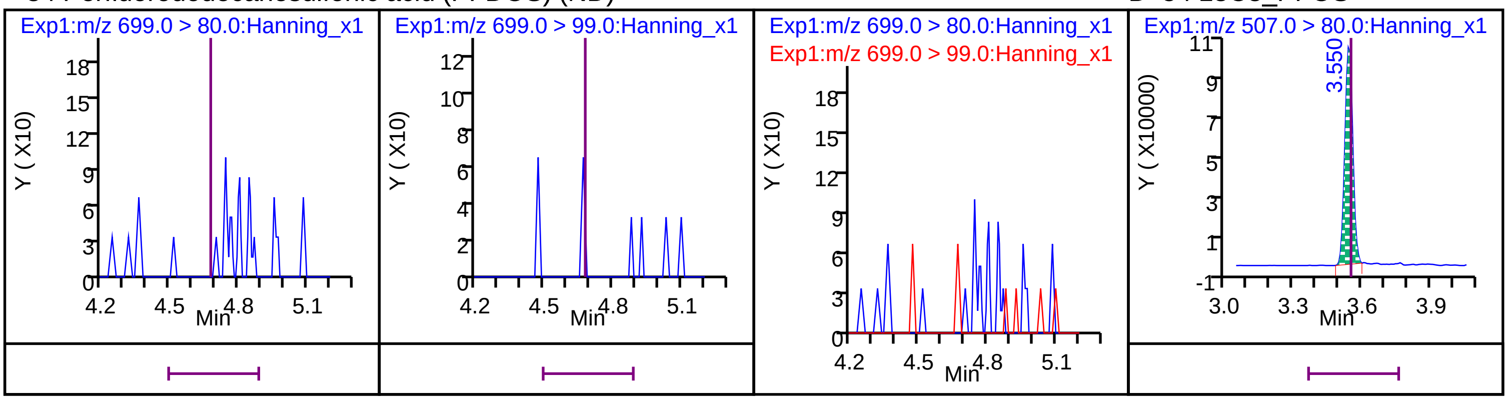


Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821007.d

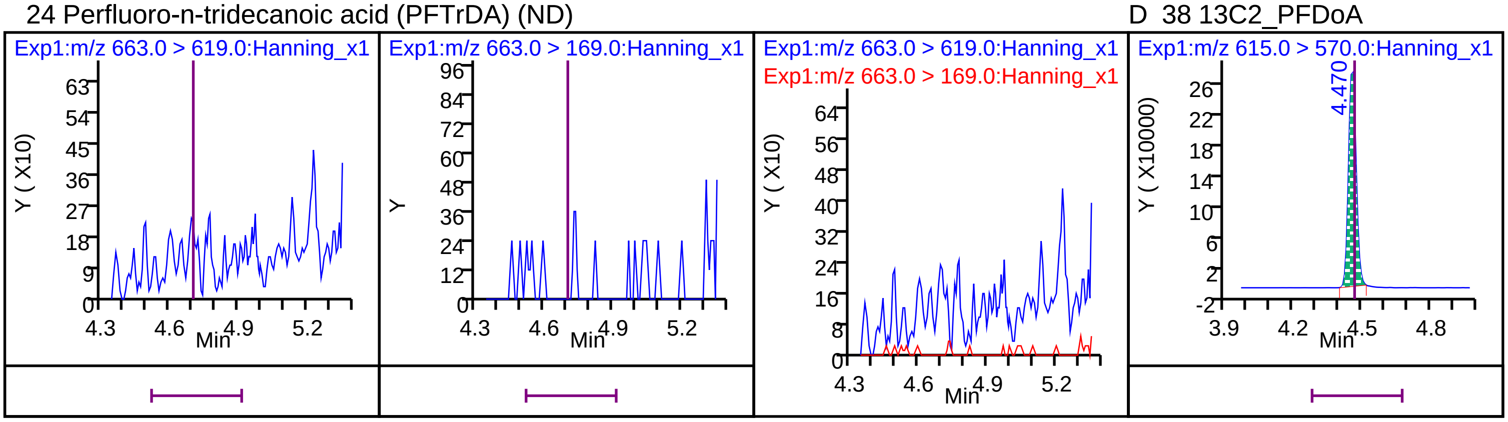
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



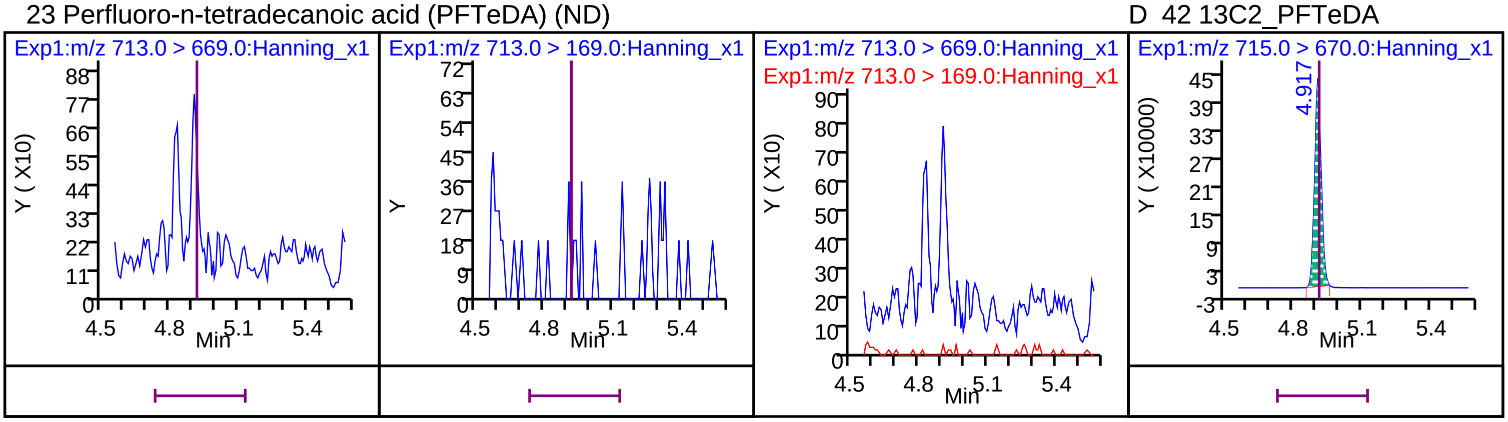
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



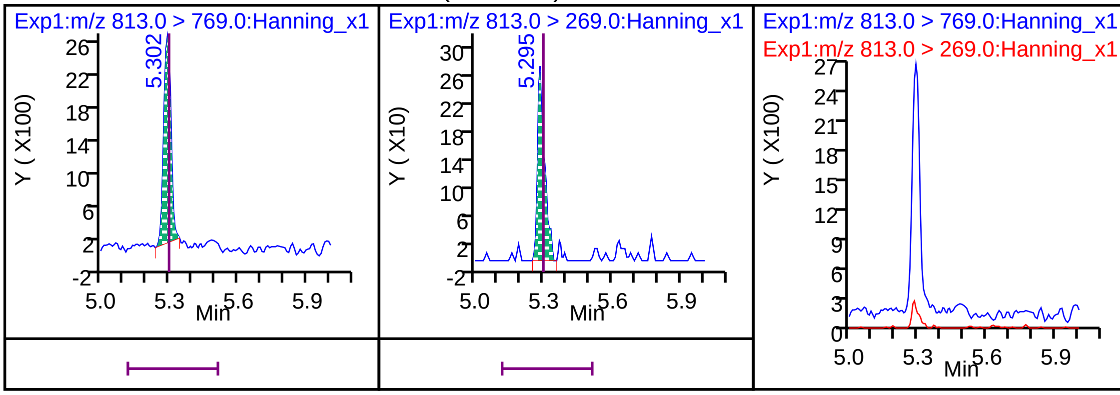
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



35 Perfluoro-n-hexadecanoic acid (PFHxDA)



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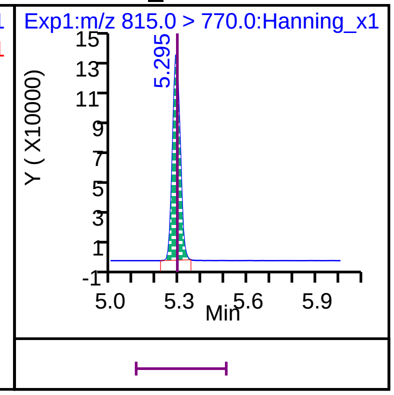
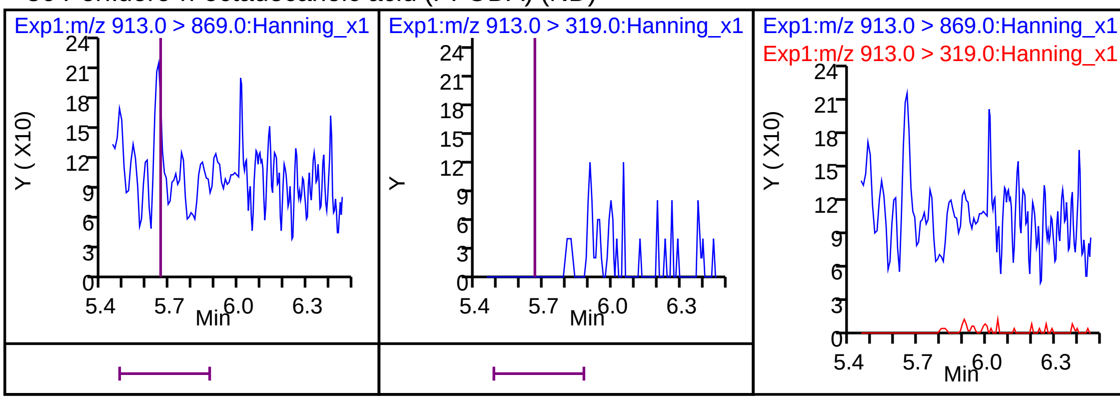


36 Perfluoro-n-octadecanoic acid (PFODA) (ND)



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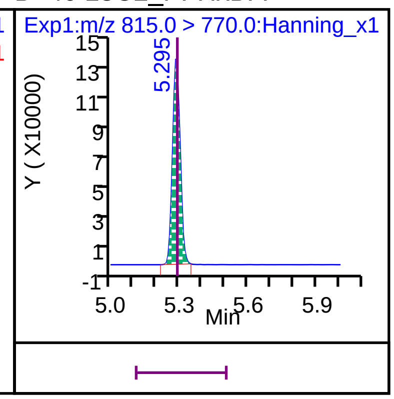
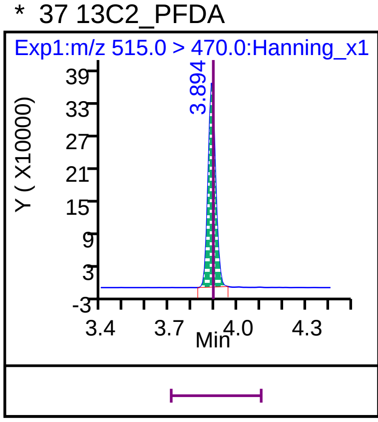
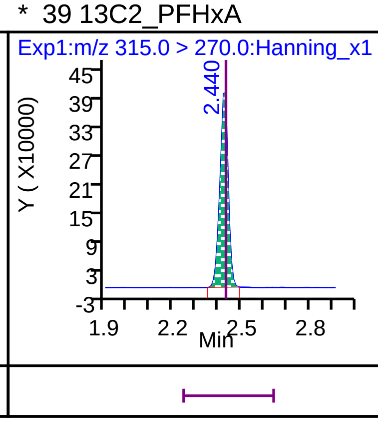


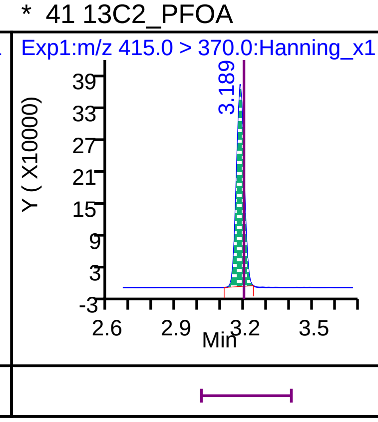
* 37 13C2_PFDA



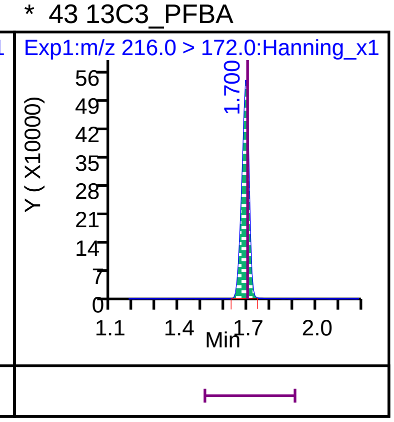
* 39 13C2_PFHxA



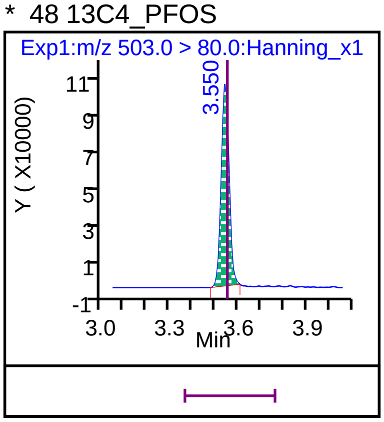
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Oct-2021 15:06:13 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921007.d		
Injection Date:	29-Oct-2021 11:33:22	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.706	1	1210738	21	>100:1			1001.00	1349.61	110.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.706		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.077	1	1106367	16	>100:1			1001.00	1230.80	108.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.077		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.129	1	356426	16	>100:1			1001.00	1194.08	112.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.129		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.475		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.397	1	368177	18	>100:1			5005.00	8238.73	114.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.397		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.440	1	1065673	19	>100:1			1001.00	1301.55	117.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.440		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.562	1	919054	19	>100:1			5005.00	6352.00	127.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.562		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.828	2.827	1	1017782	18	>100:1			1001.00	1270.18	109.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.827		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.846	2.836	1	299343	19	>100:1			1001.00	1217.06	108.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.845		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.871		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.208		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.179	3.177	1	273581	22	>100:1			5005.00	6260.86	99.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.183		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.204	3.202	1	929700	22	>100:1			1001.00	1228.68	108.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.202		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.566	3.565	1	241061	20	>100:1			1001.00	1063.96	103.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.572		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.769		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.903		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.199		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.359		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.690		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.573	3.572	1	909597	21	>100:1			1001.00	1172.99	105.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.572		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.843	3.842	1	463237	20	>100:1			1001.00	1106.07	108.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.842		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.896	3.903	0	256278	20	>100:1			5005.00	6777.38	121.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.911		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.492		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.911	3.911	1	845664	18	>100:1			1001.00	1245.16	112.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.918		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.065	4.065	1	990100	16	>100:1			5005.00	4832.15	95.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.073		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.217	4.217	1	787674	15	>100:1			1001.00	1246.04	108	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.217		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.217	4.217	1	983926	18	>100:1			5005.00	5731.28	104.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.217		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.262	4.262	1	119008	15	>100:1			1001.00	935.88	95.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.271		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.280	4.280	0	65268	20	>100:1			1001.00	1122.95	114.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.280		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.427	4.427	0	109491	17	>100:1			1001.00	932.18	99.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.434		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.442	1	65105	22	>100:1			1001.00	1185.26	115.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.449		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.485	4.478	1	745324	17	>100:1			1001.00	1240.91	106.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.485		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.721		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.939	4.935	1	891686	22	>100:1			1001.00	1112.95	102	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.935		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.314	5.319	0	355508	19	>100:1			1001.00	1080.40	108.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.321	5.326	0/0	6322	22	34:1	Target = 12.53		8.7856	8.7856		
813 > 269	40	5.321	5.326		520	24	42:1	12.15 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.695		ND								
*** 37 13C2_PFDA**													
515 > 470		3.911	3.911	1	769190	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.440	1	829894	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.204	3.202	1	817772	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.706	1	1004999	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.566	3.565	1	222171	20	>100:1			200.00			

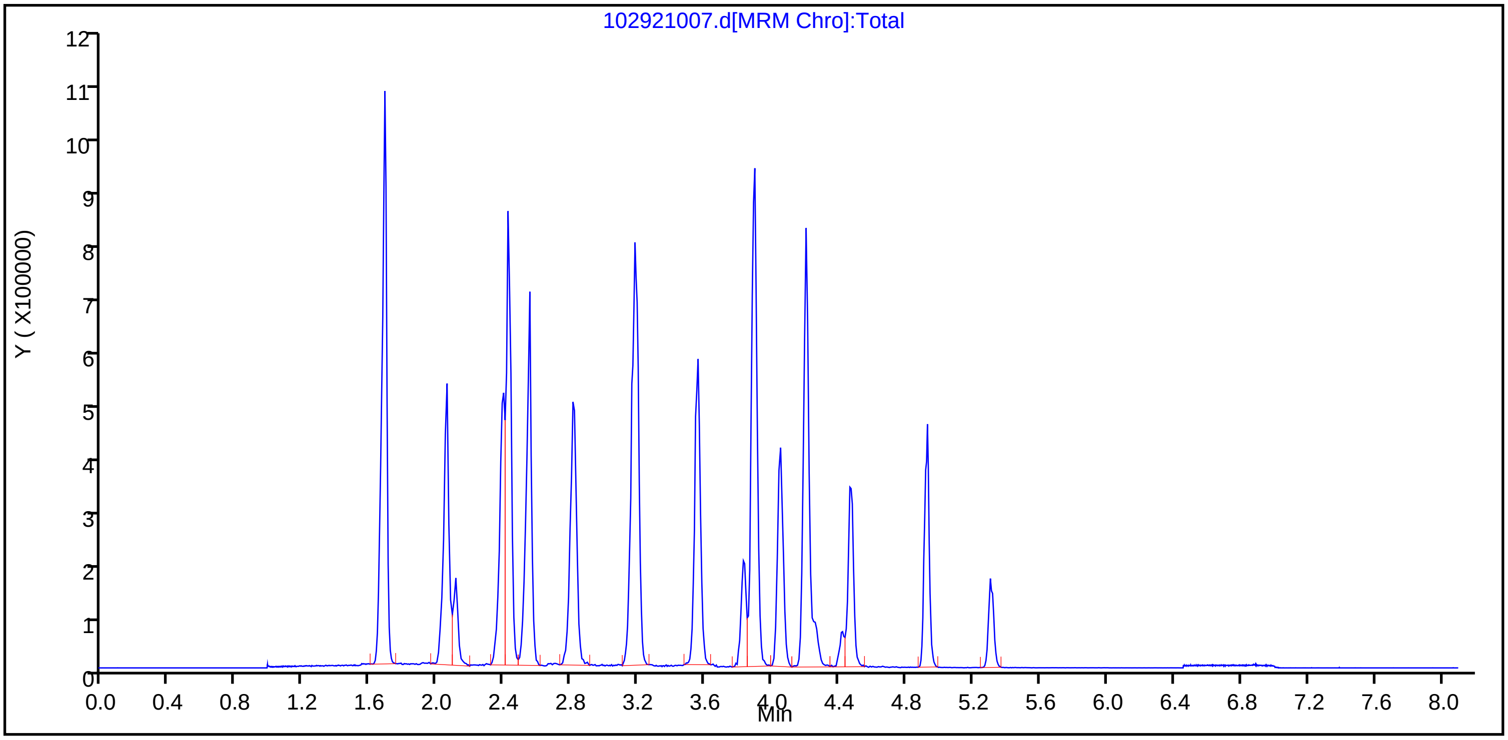
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

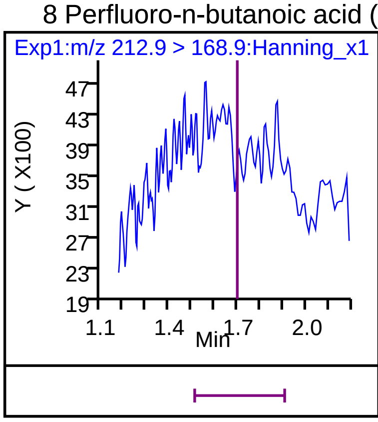
Report Date: 30-Oct-2021 15:06:13 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

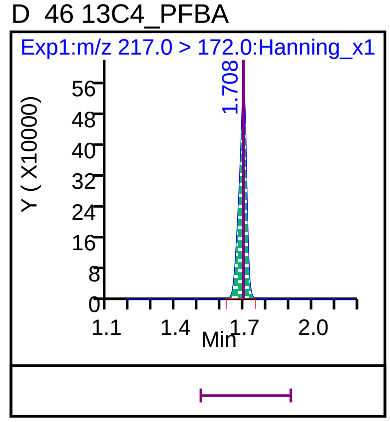
Data File:	\\Organics\LL\LCMSMS01.i\102921-DOD.b\102921007.d		
Injection Date:	29-Oct-2021 11:33:22	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Matthew M. Miller



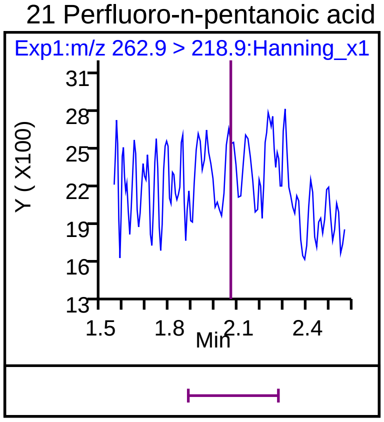
8 Perfluoro-n-butanoic acid (PFBA) (ND)



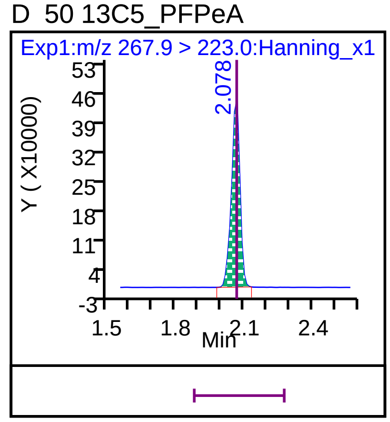
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



D 50 13C5_PFPeA



Report Date: 30-Oct-2021 15:06:13 AIM Revision: 2.0.2021.0812

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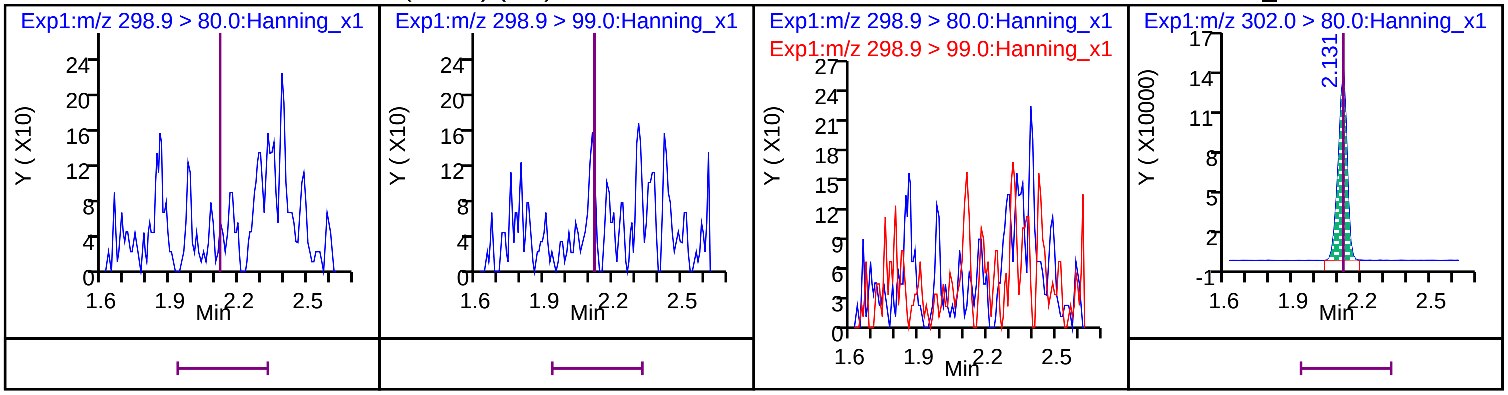
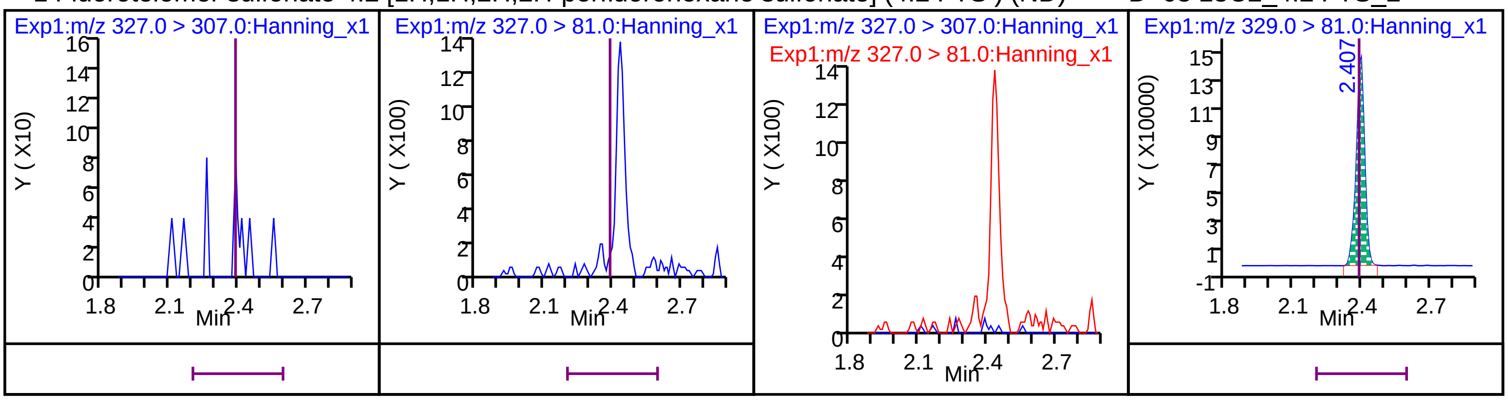
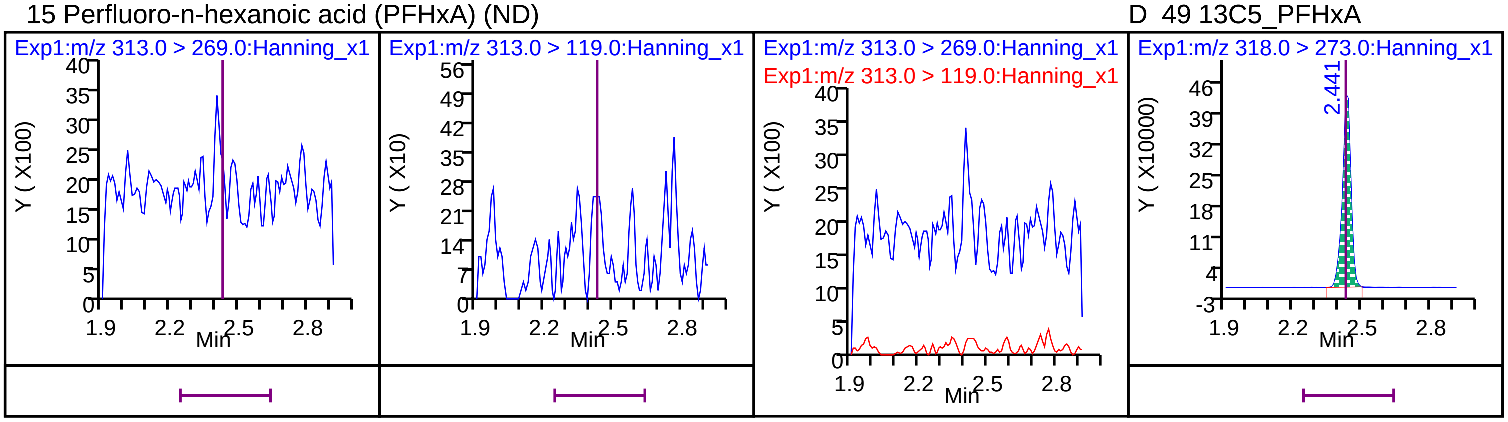
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



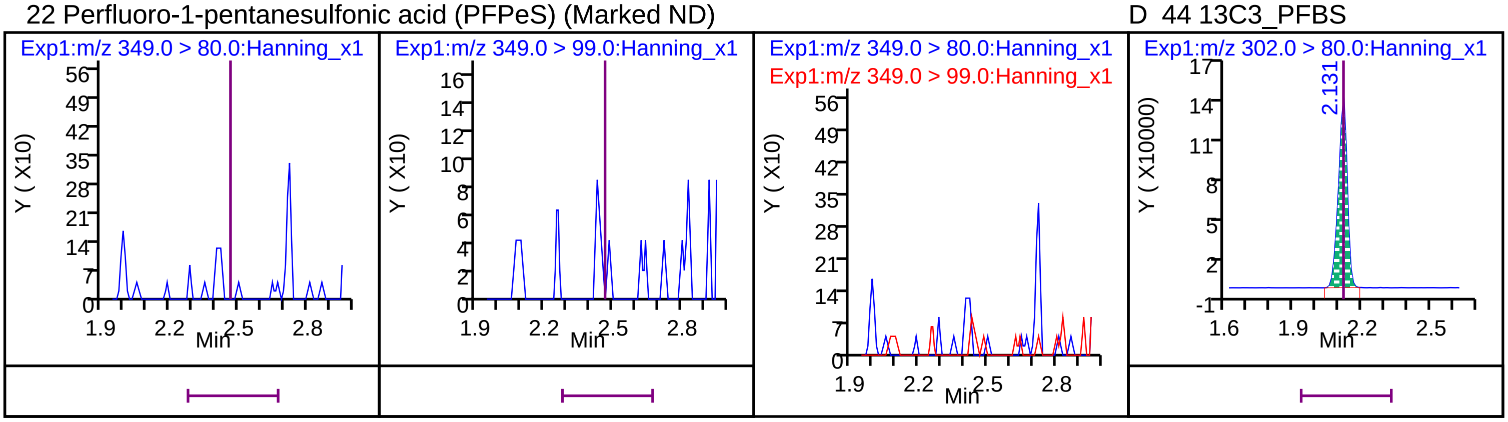
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



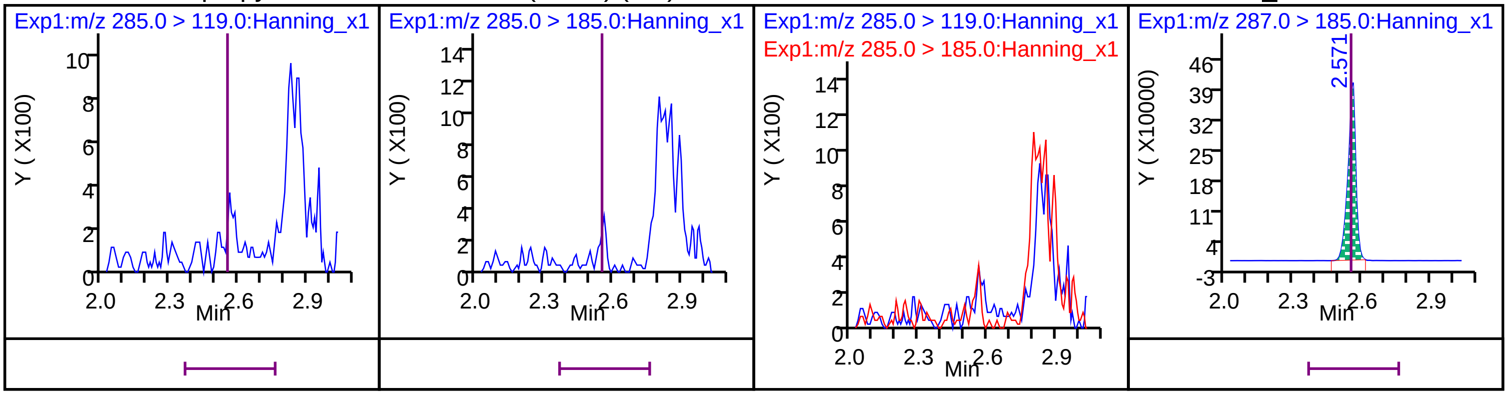
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



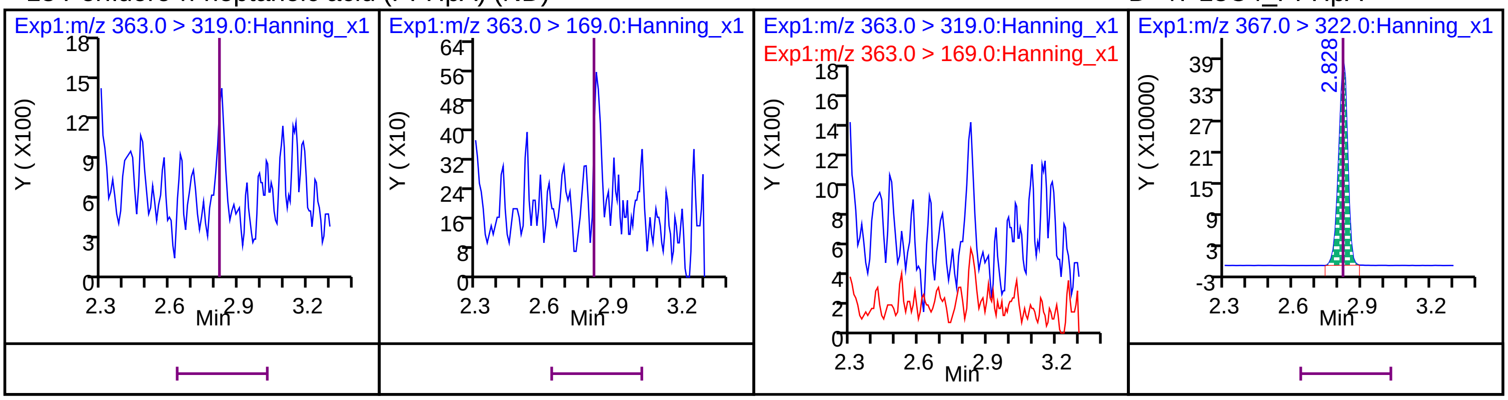
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



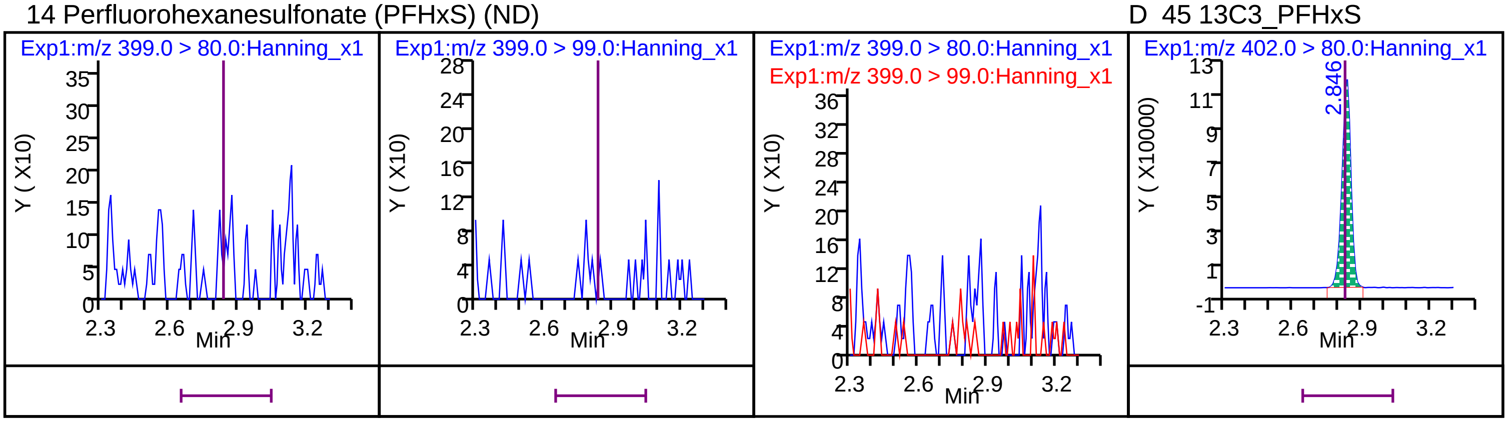
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



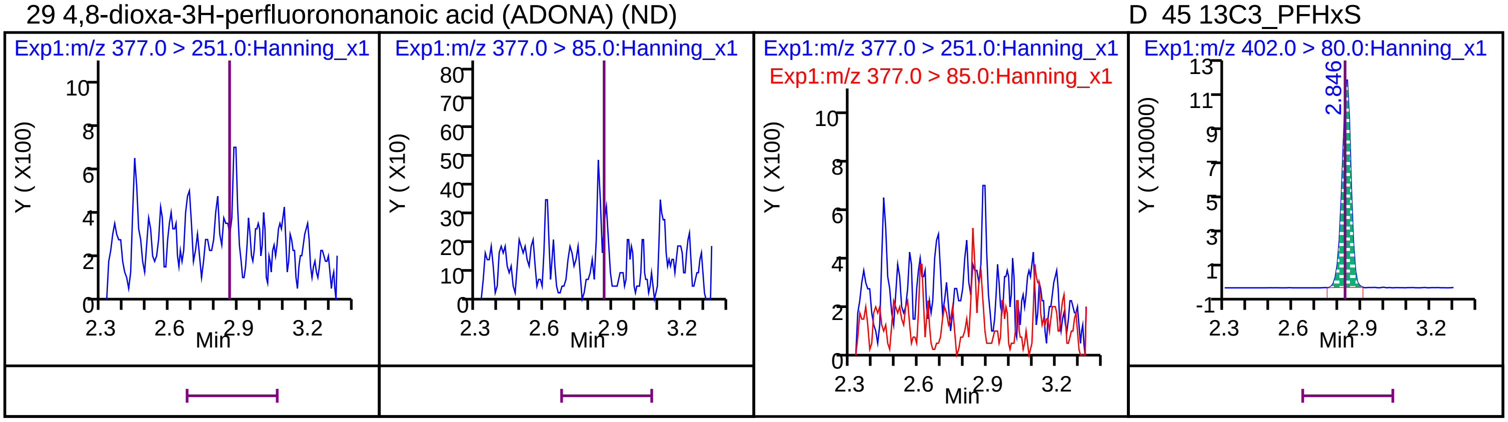
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



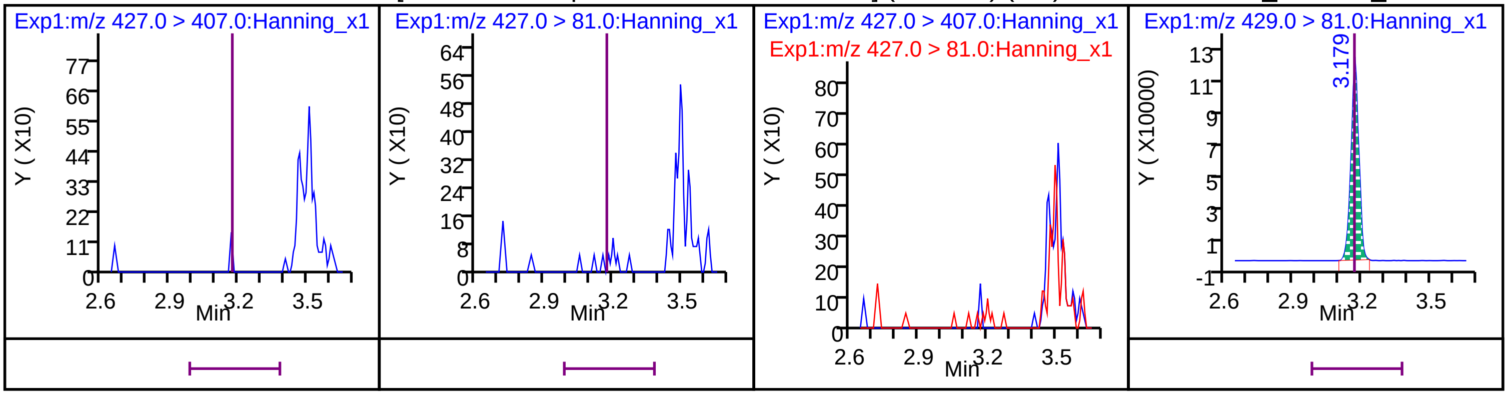
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



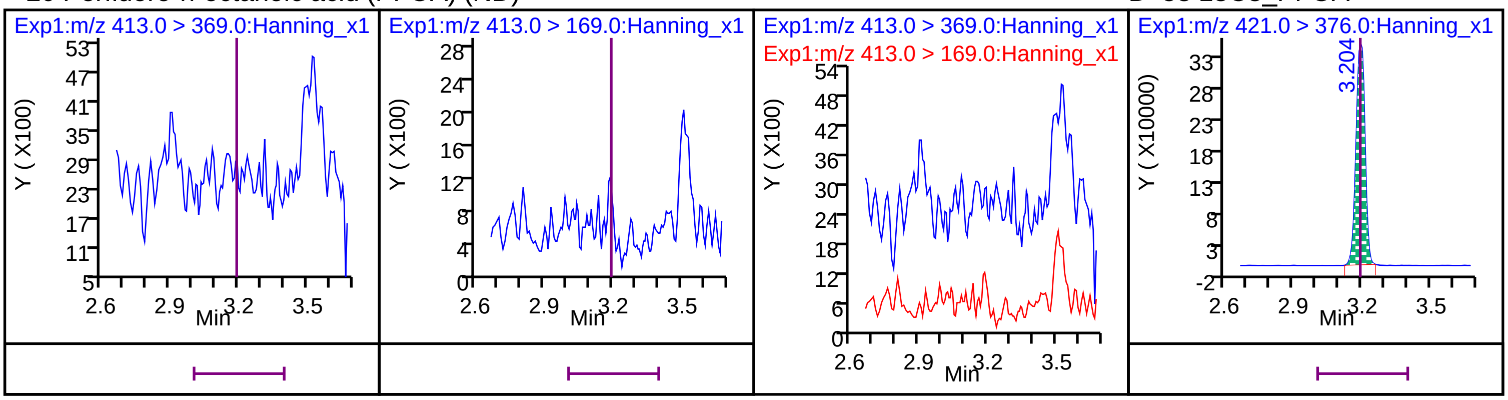
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



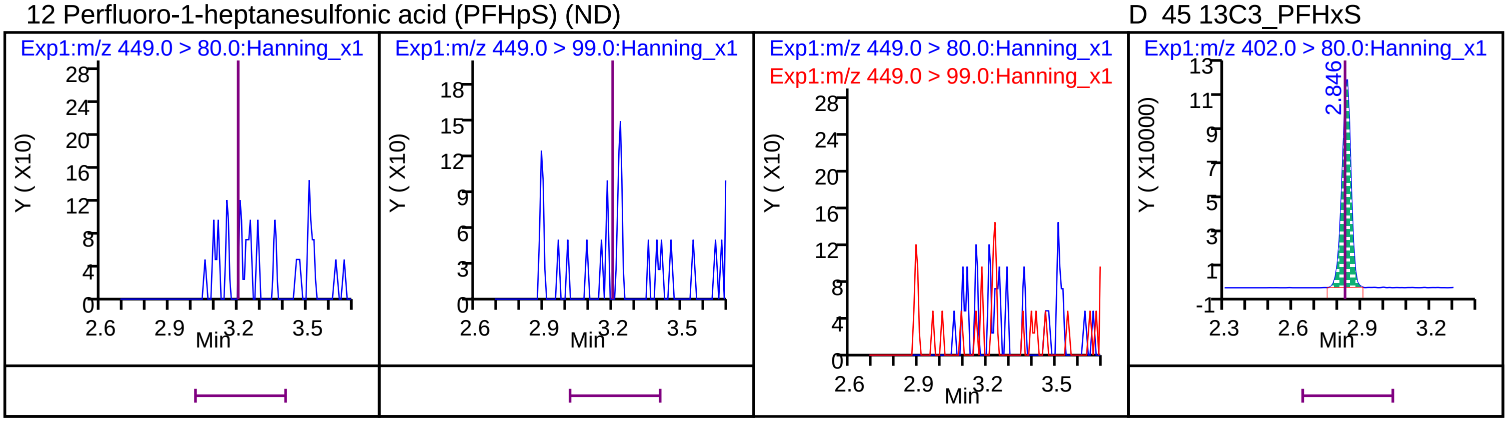
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



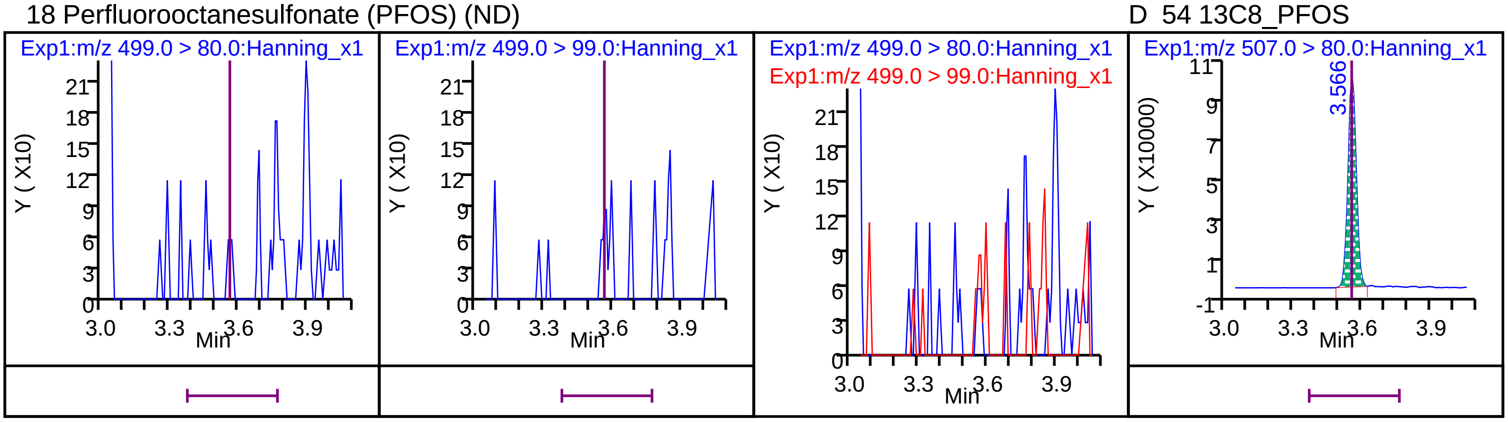
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



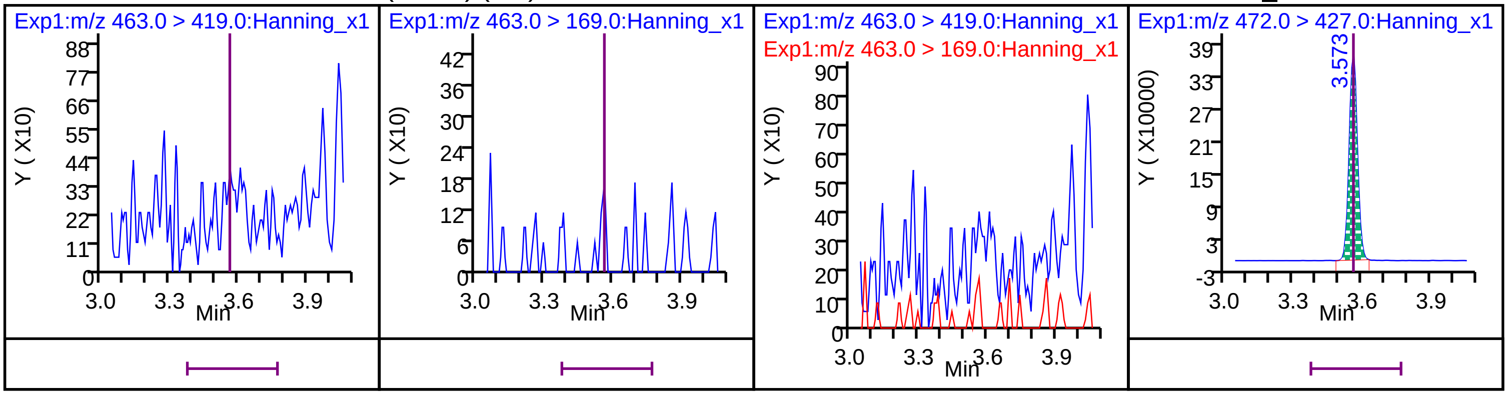
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



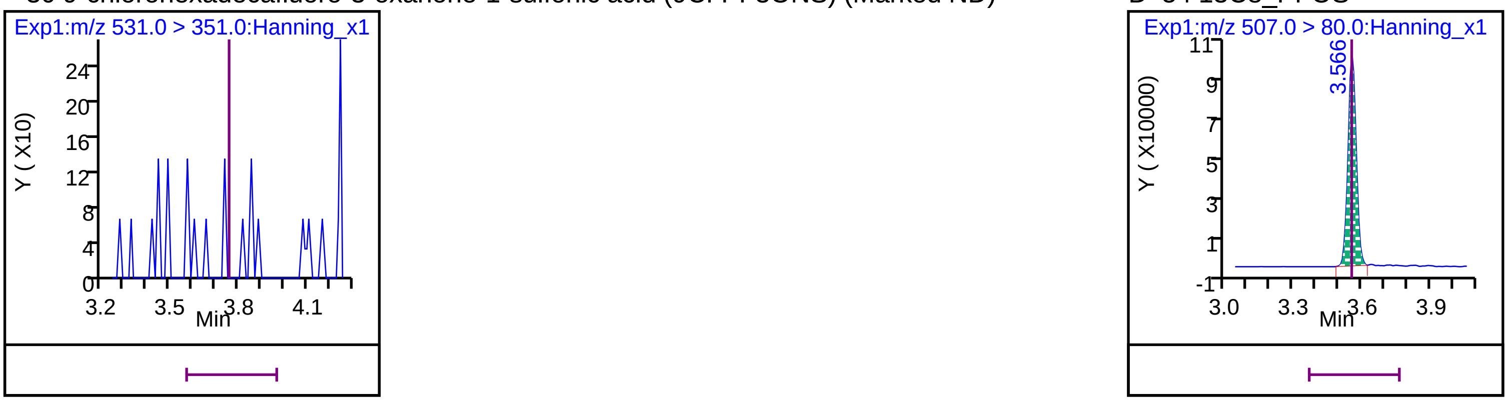
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



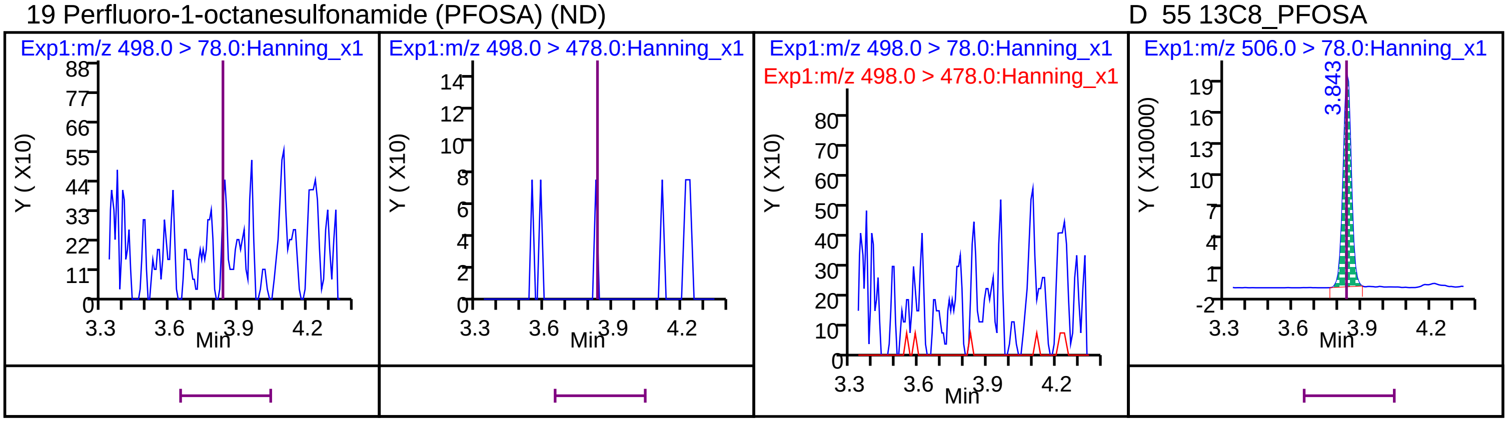
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



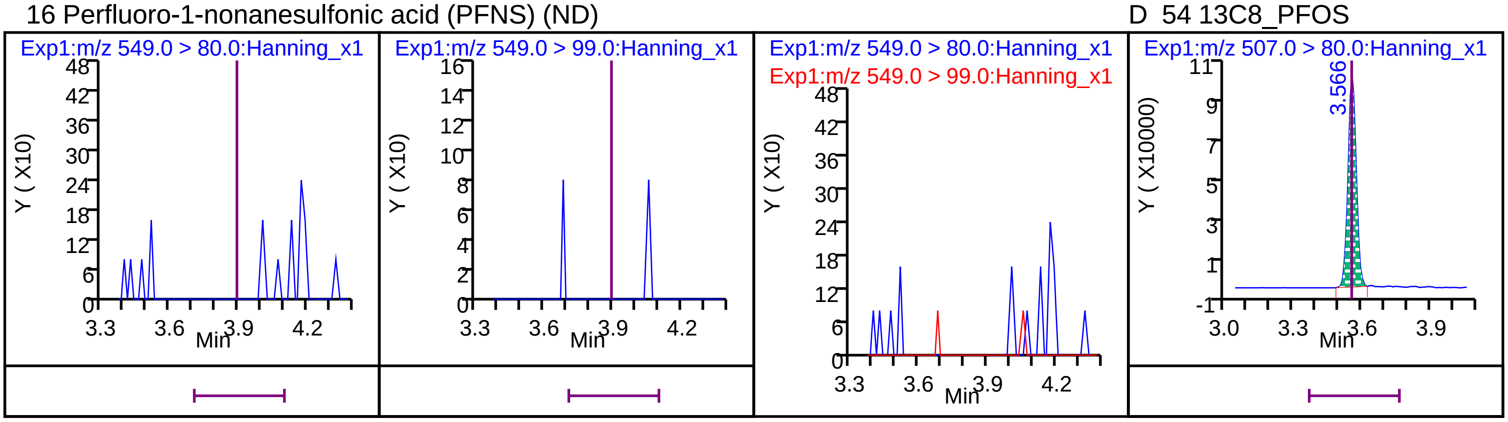
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



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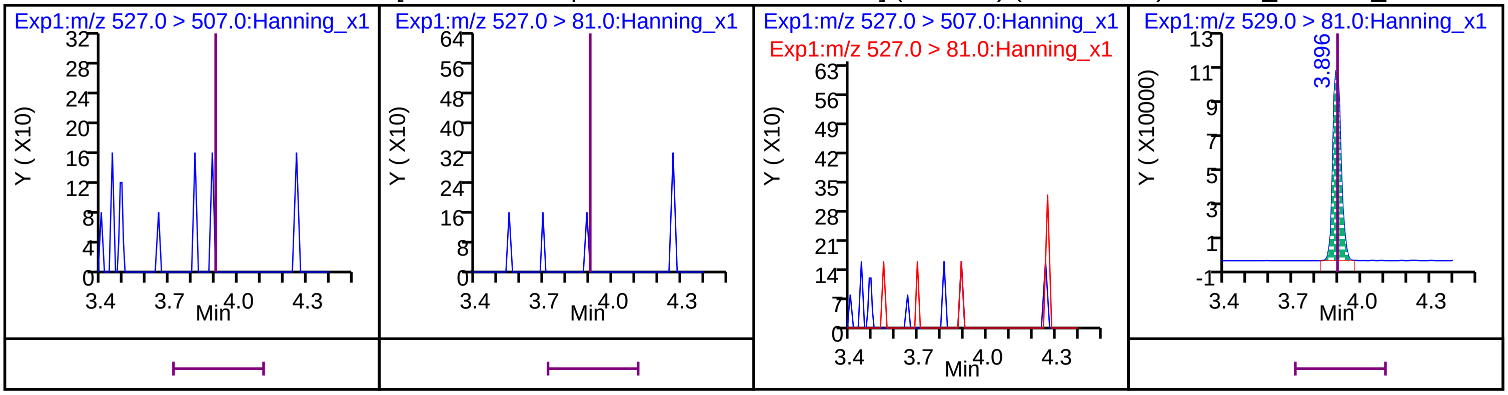
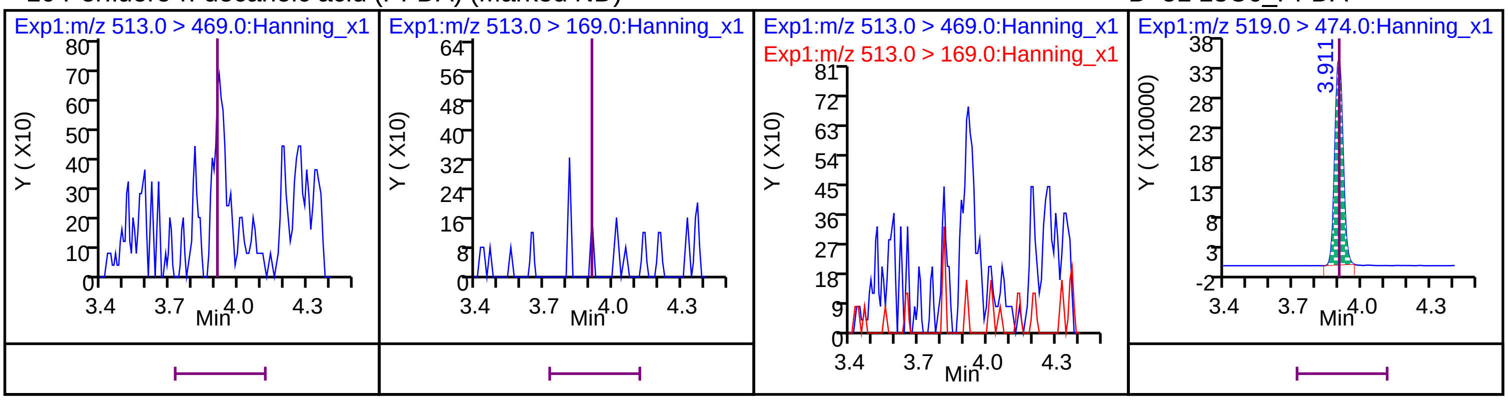
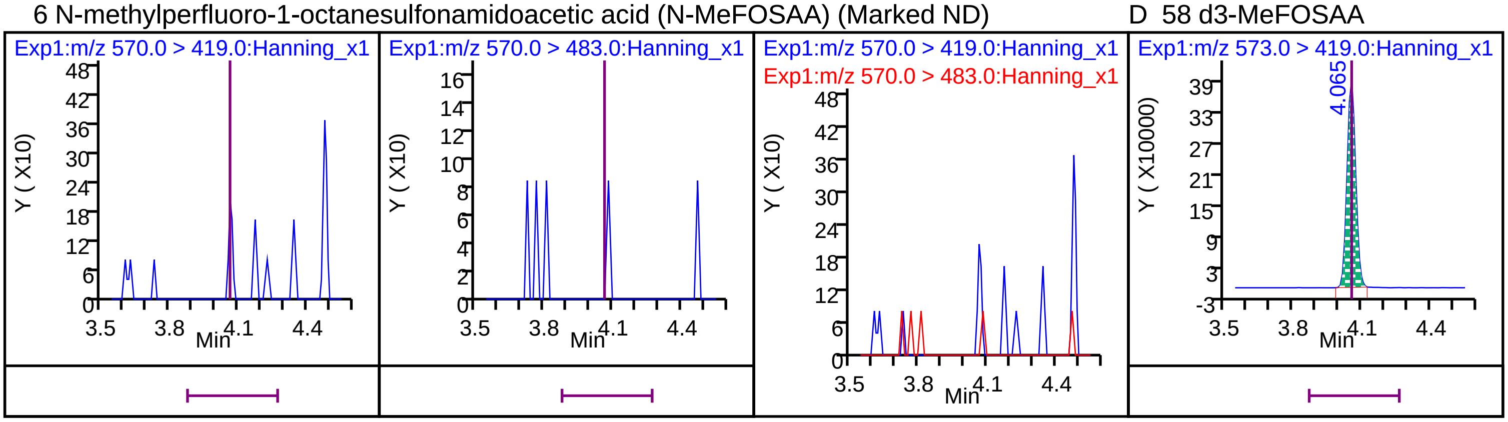
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (Marked ND) D 65 13C2_8:2 FTS_2



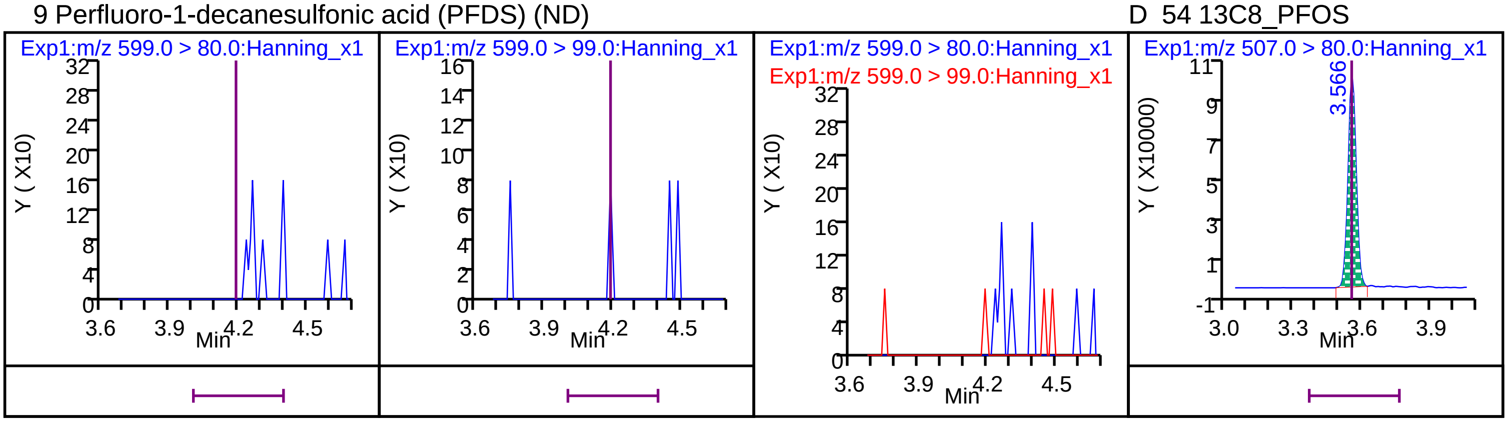
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



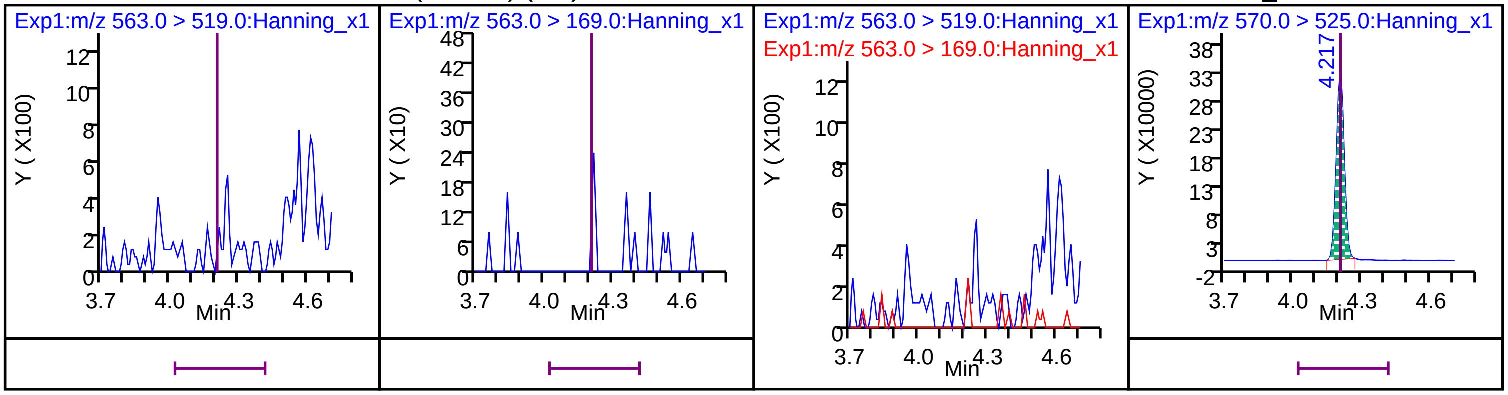
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



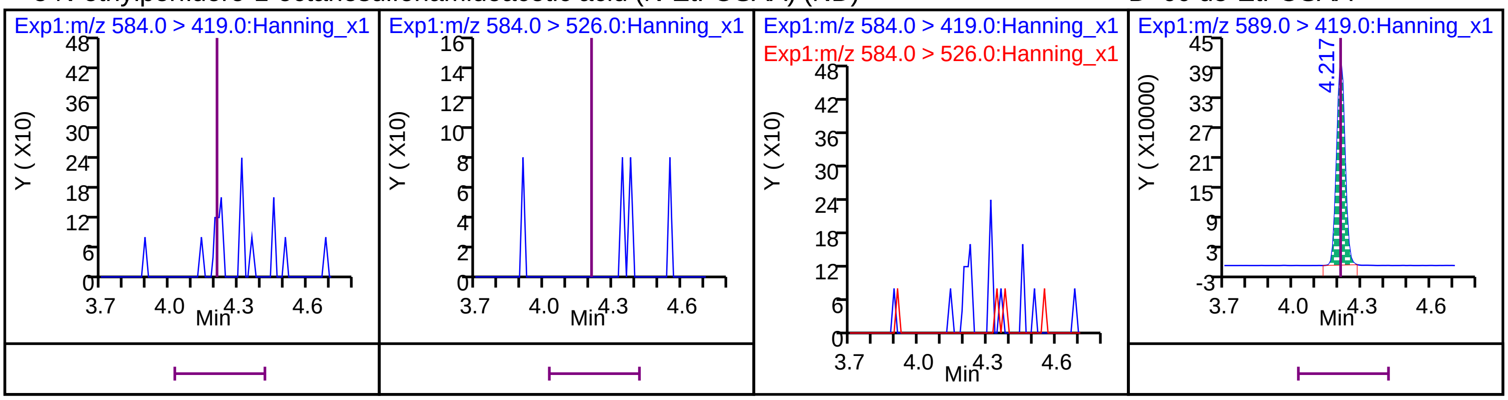
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



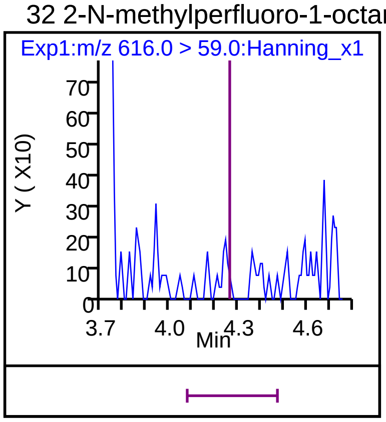
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

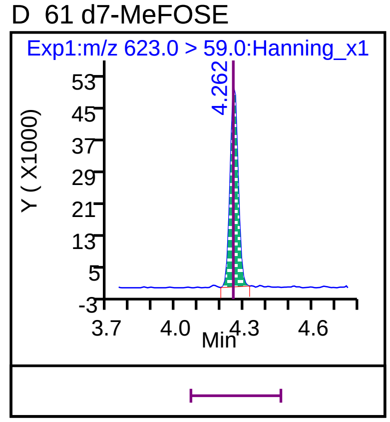


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

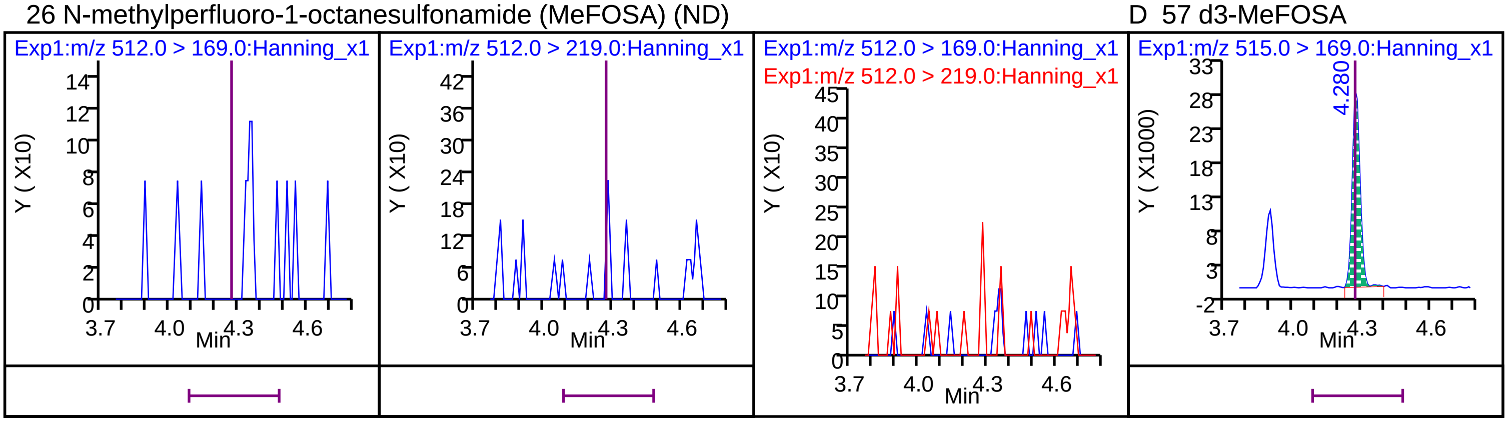


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (ND) D 61 d7-MeFOSE

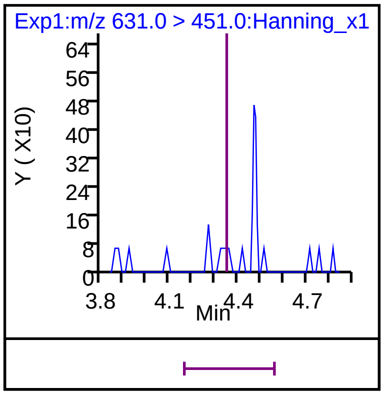




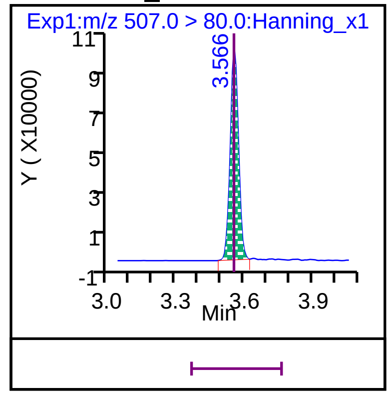
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



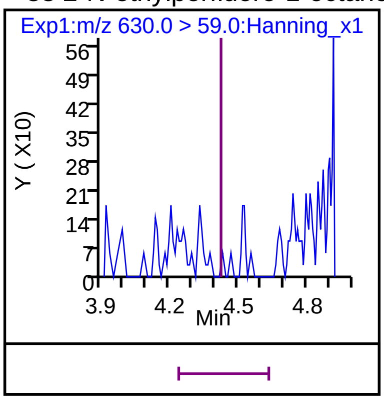
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



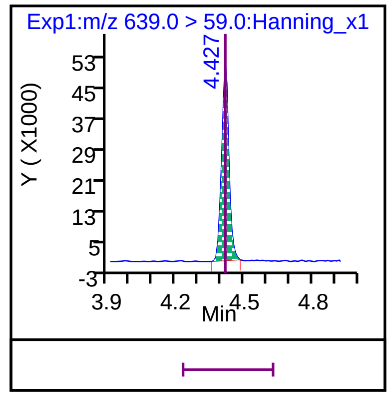
D 54 13C8_PFOS



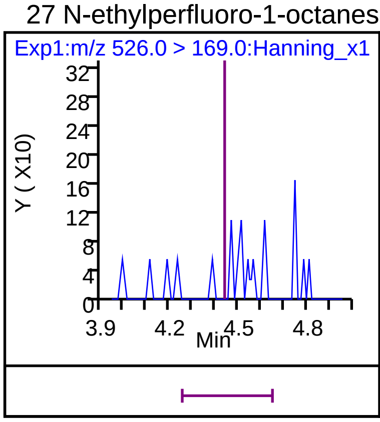
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (ND)

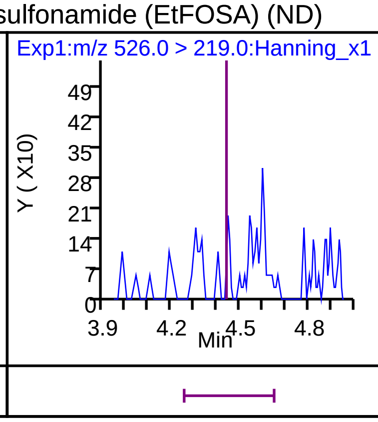


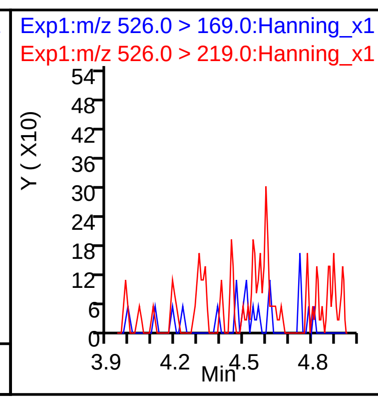
D 62 d9-EtFOSE



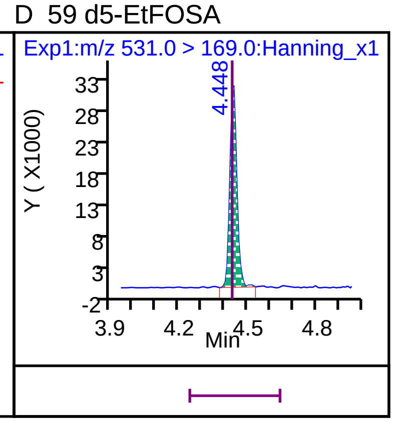
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



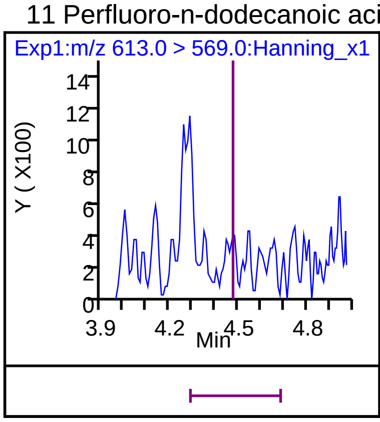


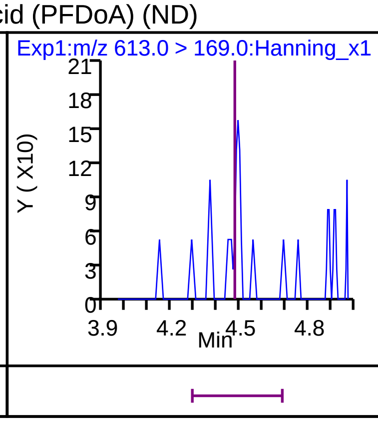


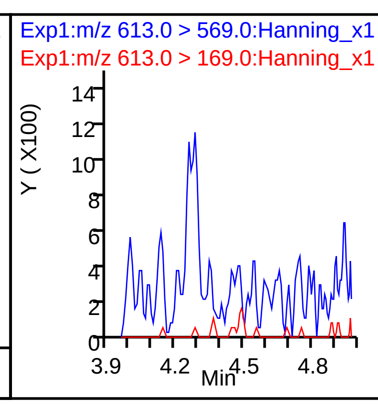
D 59 d5-EtFOSA



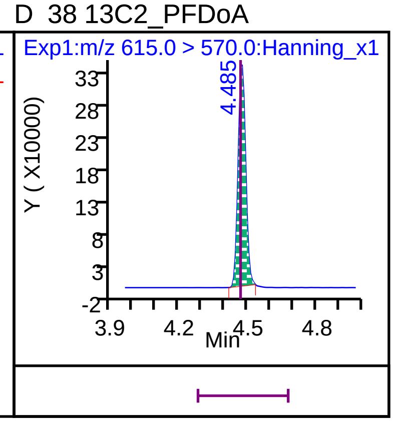
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



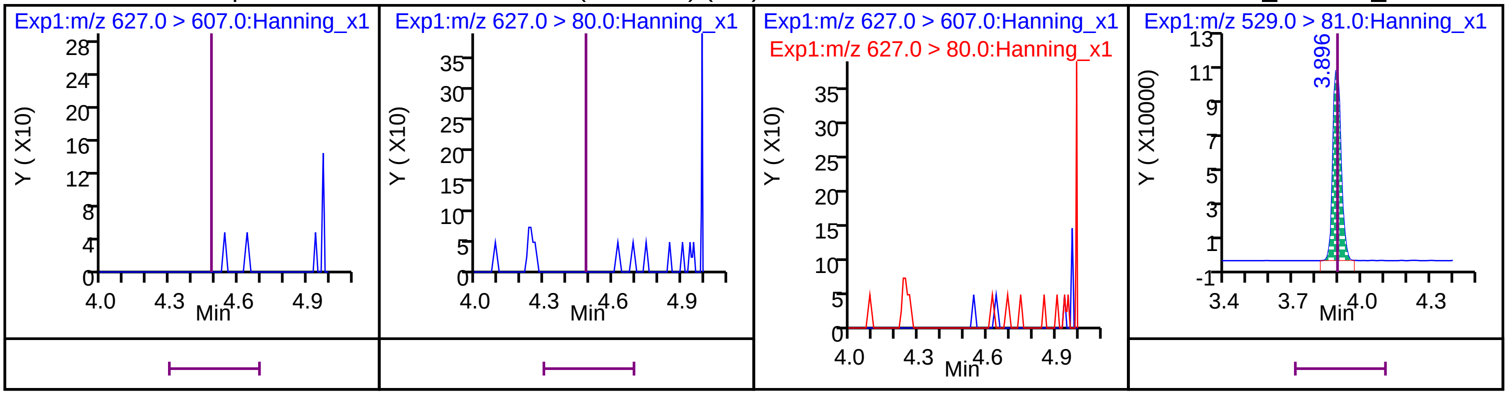




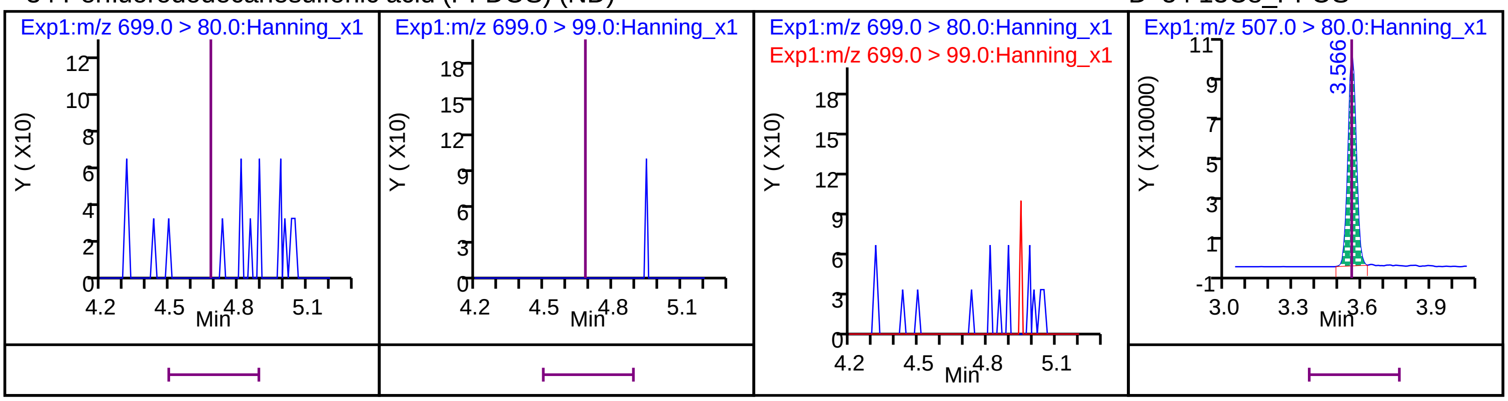
D 38 13C2_PFDoA



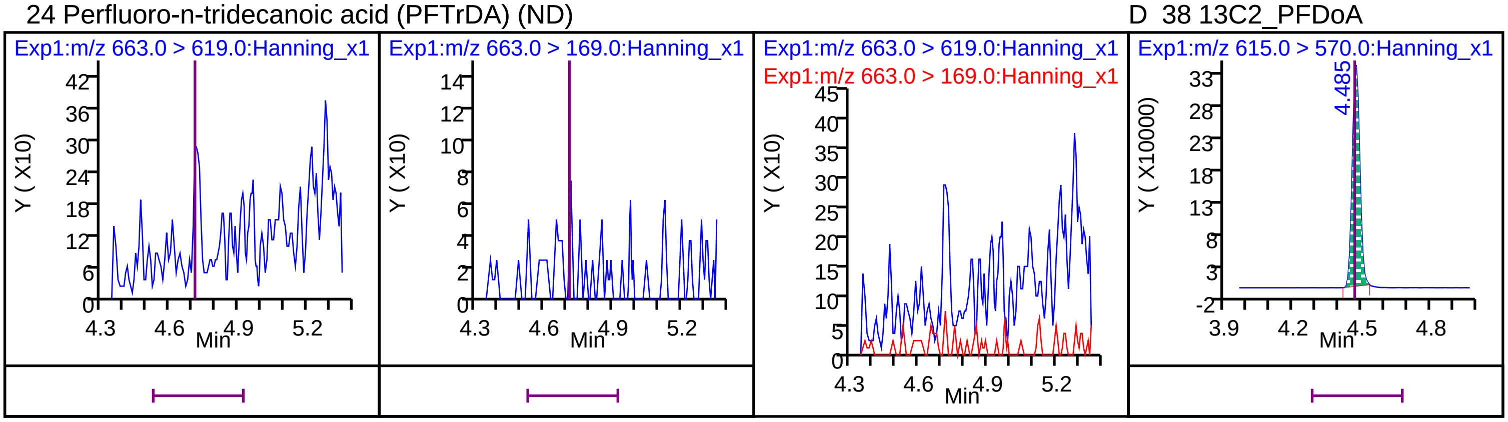
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



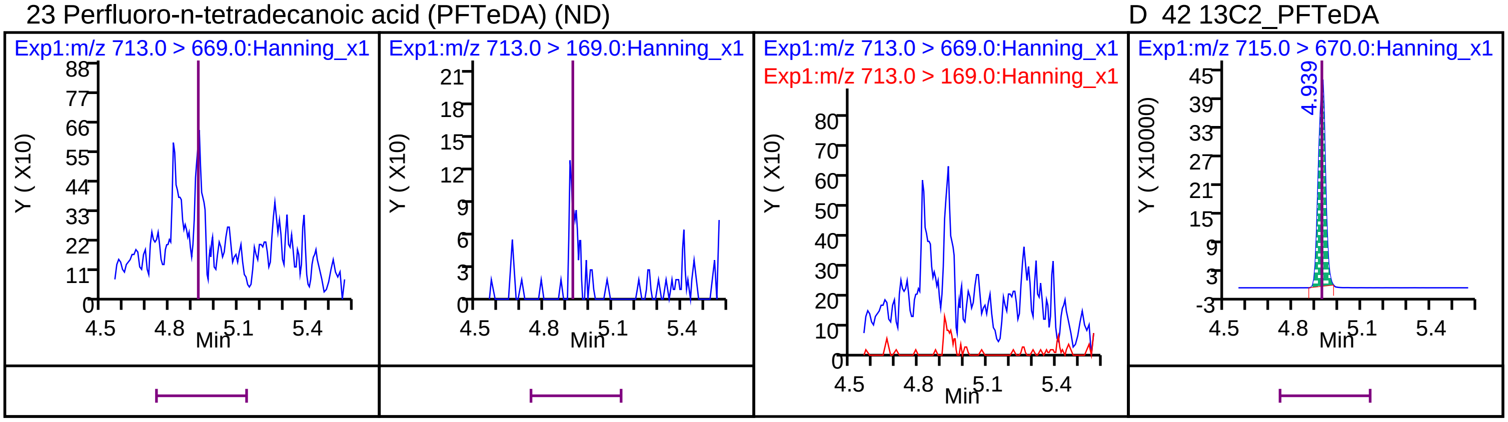
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



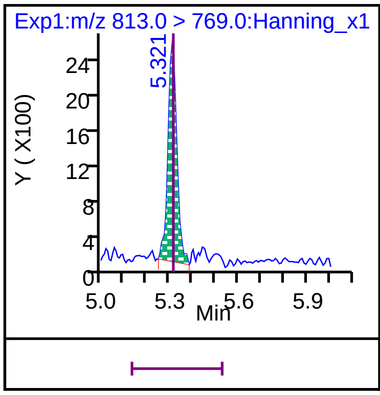
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA

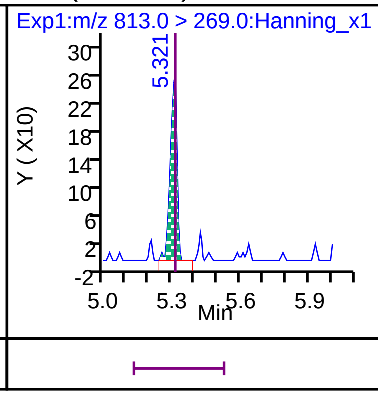


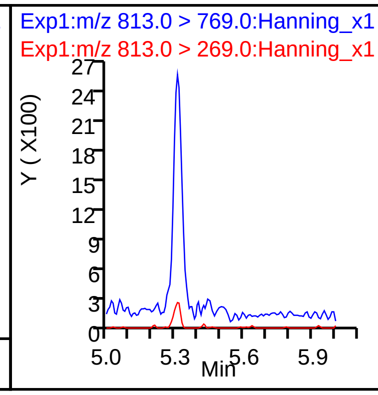
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA

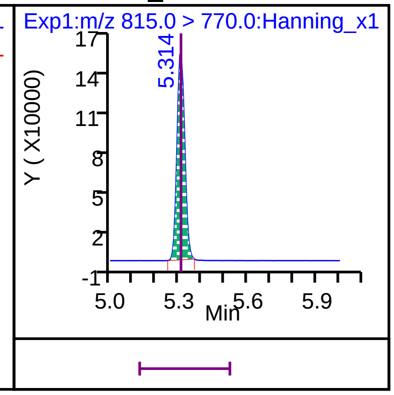


35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA

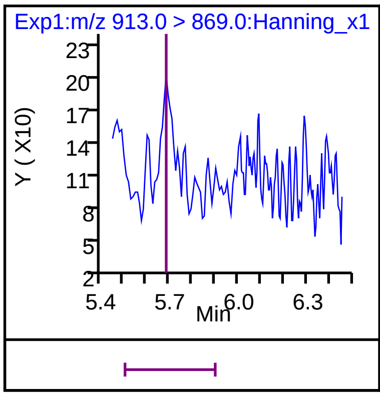


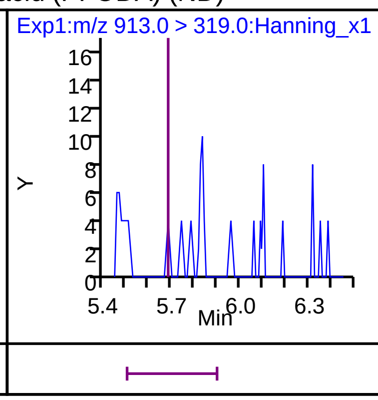


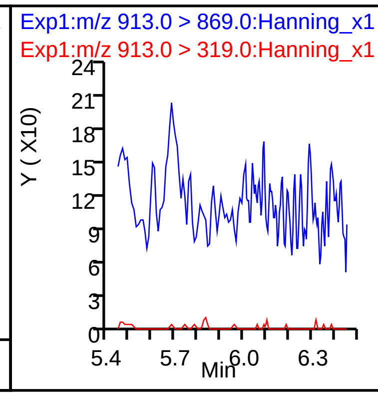


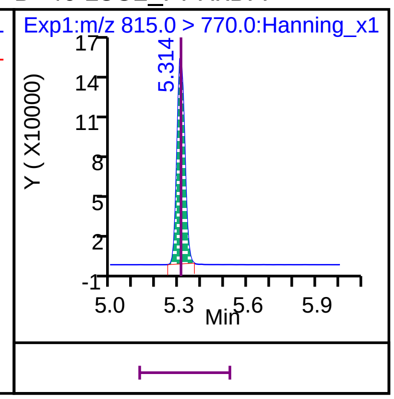


36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA

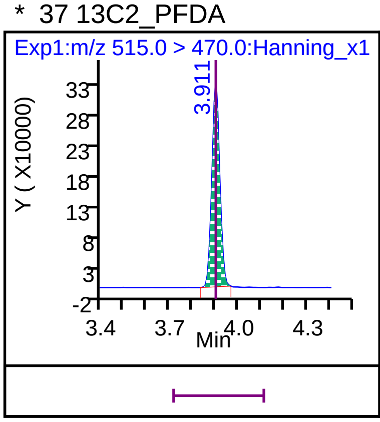


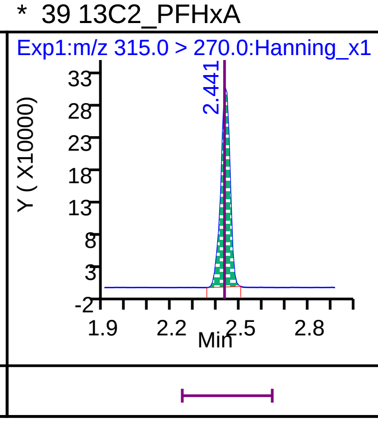


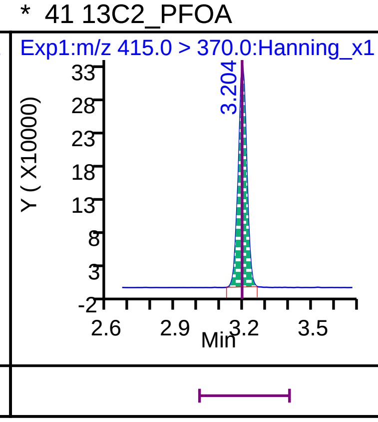


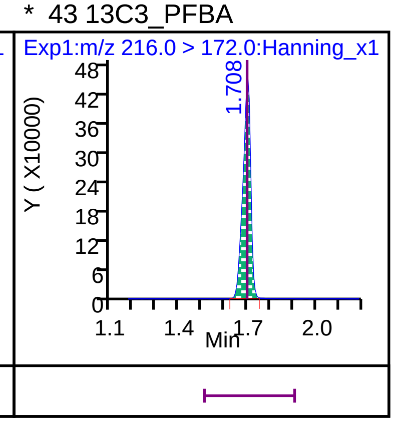


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA

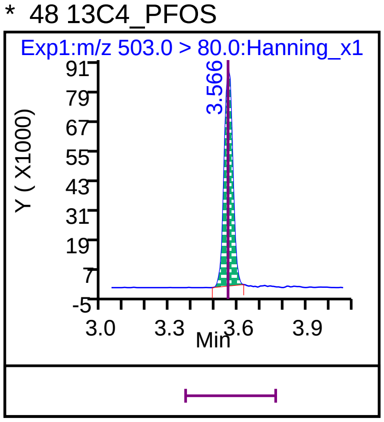








* 48 13C4_PFOS



PFAS by LC/MS/MS - MB

Sample ID:	WQ20397-001	Matrix:	Aqueous
Batch:	20397	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	10/27/2021 1636

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	10/28/2021 1530
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	10/28/2021 1530

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		72	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		91	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ20397-001
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		89	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		95	50-150
13C8_PFOS		80	50-150
13C9_PFNA		91	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821029.d		
Injection Date:	28-Oct-2021 15:30:55	Injection Vol:	10.0 uL
Sample Type:	MBlk	Auto Sampler:	19
Lab Sample ID:	WQ20397-001	Lab Prep. Batch:	20397
Sample Info:	WQ20397-001	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.702	1.707	0	1018383	19	>100:1			1001.00	1135.19	91.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.707		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.068	2.079	0	923825	14	>100:1			1001.00	1027.73	91.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.079		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.131	0	301984	14	>100:1			1001.00	1011.70	87.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.131		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.477		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.407	0	281730	16	>100:1			5005.00	6304.30	87.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.407		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.442	0	828344	16	>100:1			1001.00	1011.69	88	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.451		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.572	0	741163	17	>100:1			5005.00	5122.51	103.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.572		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.820	2.831	0	852634	16	>100:1			1001.00	1064.08	90.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.831		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.837	2.840	0	252065	15	>100:1			1001.00	1024.84	89	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.840		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.866		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.206		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.172	3.174	0	263148	22	>100:1			5005.00	6022.11	109.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.174		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.198	3.199	0	816439	19	>100:1			1001.00	1079.00	95	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.199		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.551	3.562	0	194432	19	>100:1			1001.00	858.15	80.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.562		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.761		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.894		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.190		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.350		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.558	3.569	0	745585	18	>100:1			1001.00	961.49	90.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.569		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.843	3.849	0	420376	18	>100:1			1001.00	1003.73	92.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.849		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.889	3.902	0	198251	16	>100:1			5005.00	5242.83	96.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.902		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.896	3.902	0	679157	18	>100:1			1001.00	1000.00	89.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.910		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.053	0	861408	15	>100:1			5005.00	4204.07	94.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.063		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.199	4.206	0	645762	15	>100:1			1001.00	1021.55	86.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.206		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.199	4.206	0	833580	17	>100:1			5005.00	4855.53	94.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.215		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.262	4.270	0	122013	14	>100:1			1001.00	959.52	89.6	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.280	4.287	0	52190	15	>100:1			1001.00	897.94	85.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.287		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.427	4.434	0	109714	16	>100:1			1001.00	934.08	85.3	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.441	4.456	0	51214	17	>100:1			1001.00	932.37	81.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.456		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.463	4.477	0	609963	17	>100:1			1001.00	1015.54	94	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.477		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.713		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.912	4.923	0	641777	19	>100:1			1001.00	801.03	72	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.929		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.288	5.302	0	181830	18	>100:1			1001.00	552.59	55.8	
*** 37 13C2_PFDA**													
515 > 470		3.896	3.902	0	607063	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.442	0	703732	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.198	3.206	0	694313	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.707	1	813194	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.551	3.562	0	180041	17	>100:1			200.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

Report Date: 28-Oct-2021 20:18:11 AIM Revision: 2.0.2021.0812

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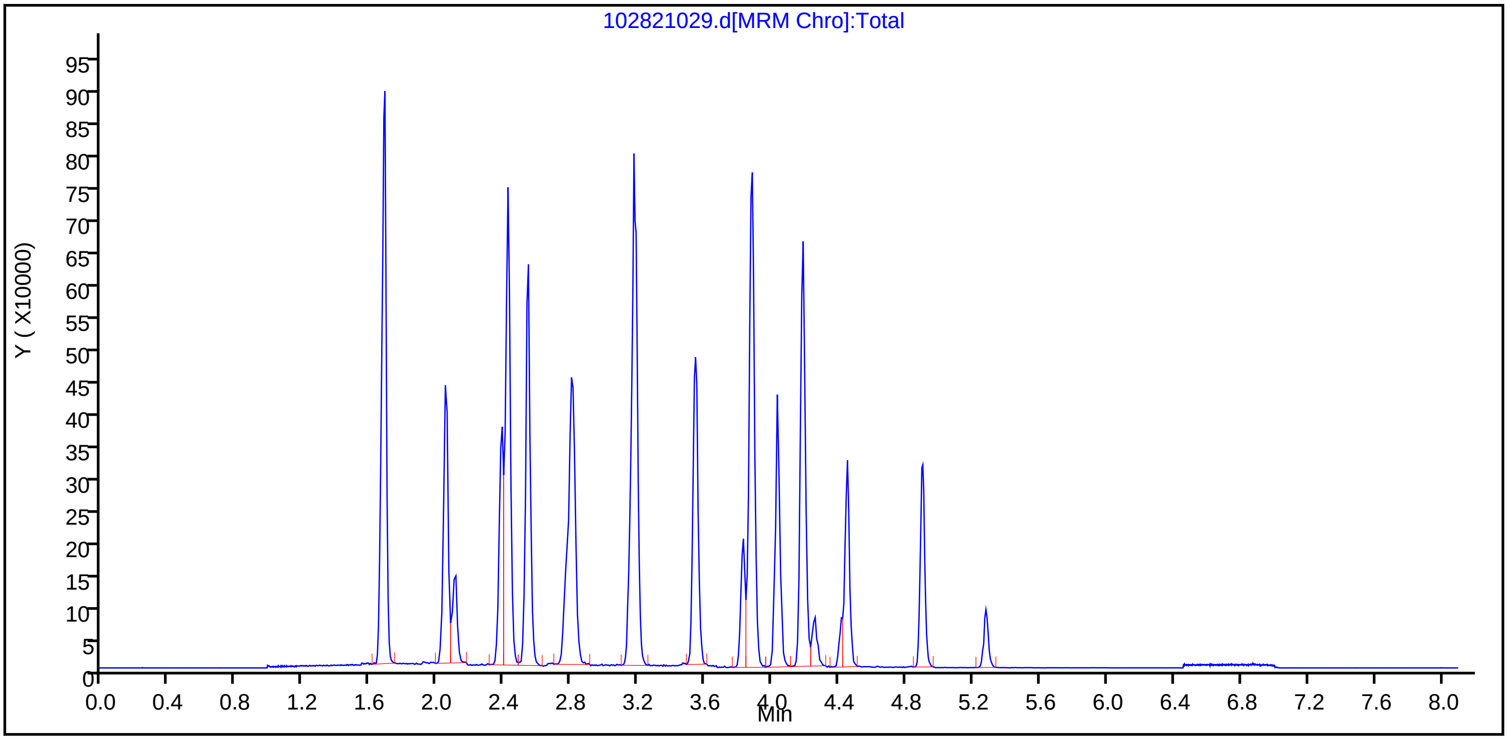
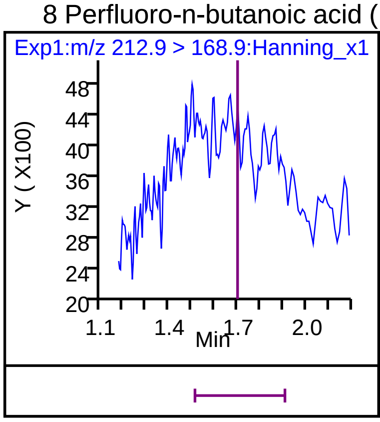
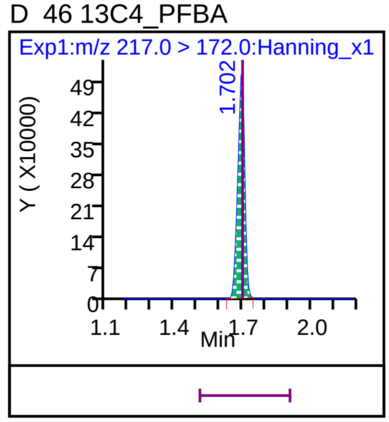
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821029.d		
Injection Date:	28-Oct-2021 15:30:55	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WQ20397-001
Sample Info:	WQ20397-001		
Dil. Factor:	1	Operator:	Matthew M. Miller



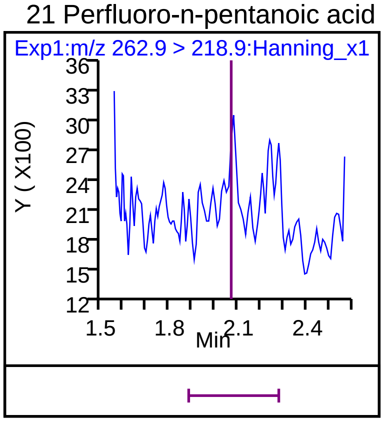
8 Perfluoro-n-butanoic acid (PFBA) (ND)



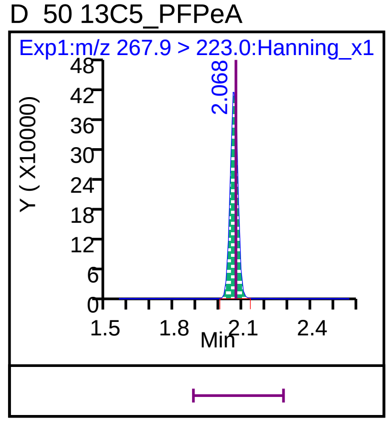
D 46 13C4_PFBA



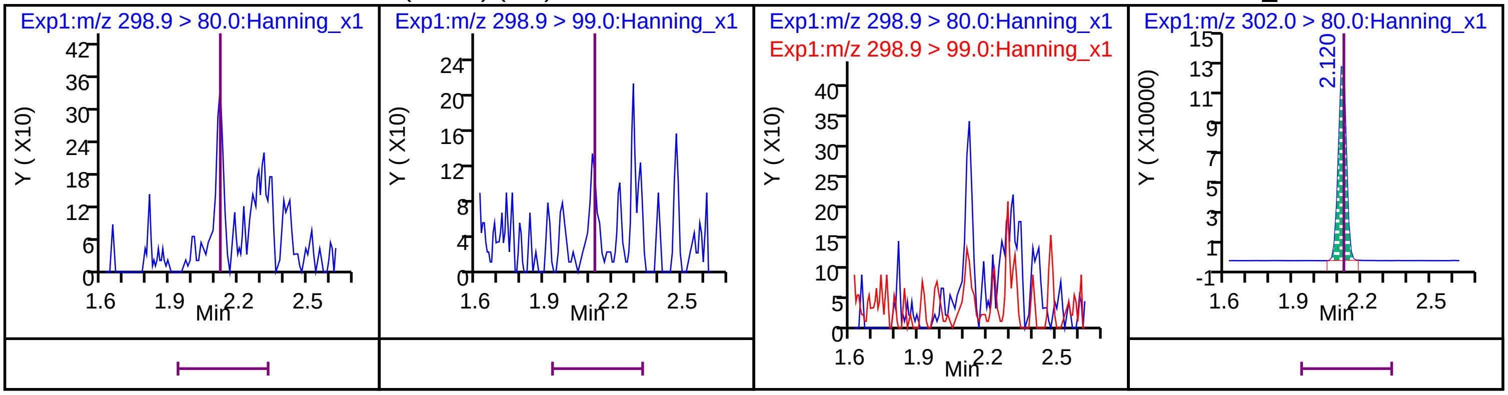
21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)



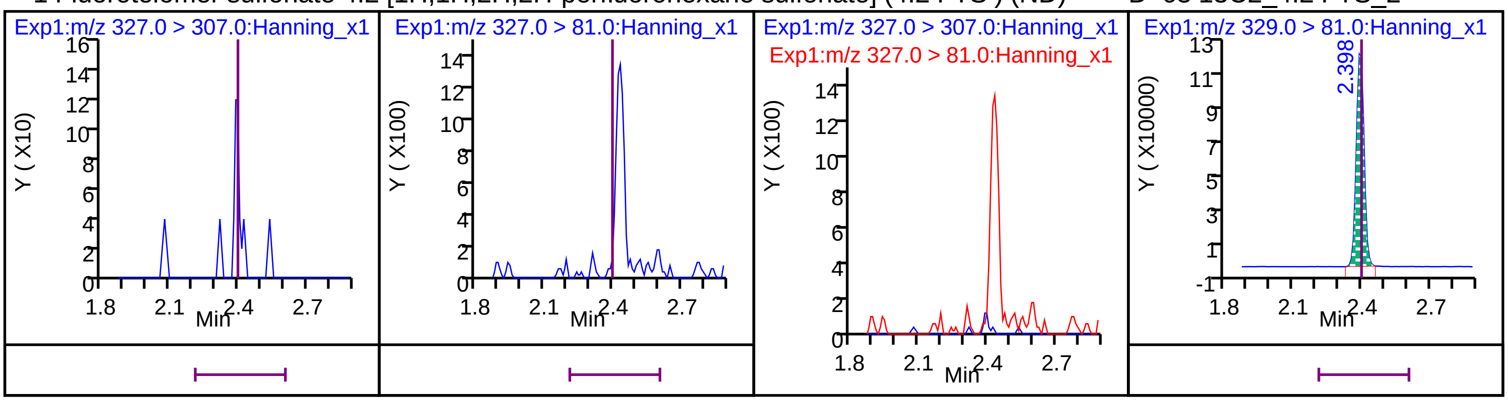
D 50 13C5_PFPeA



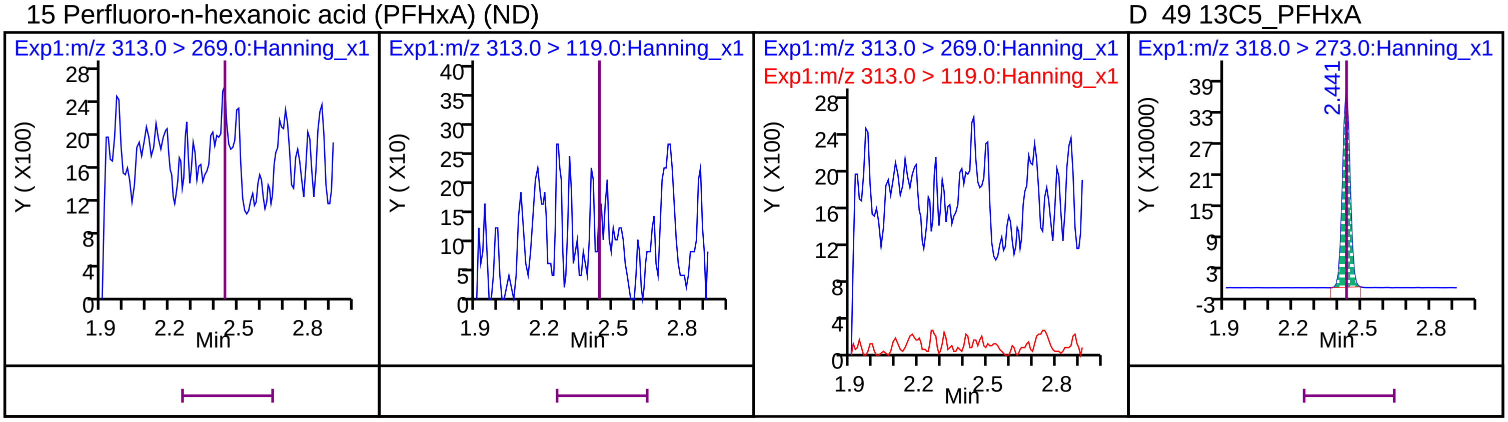
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



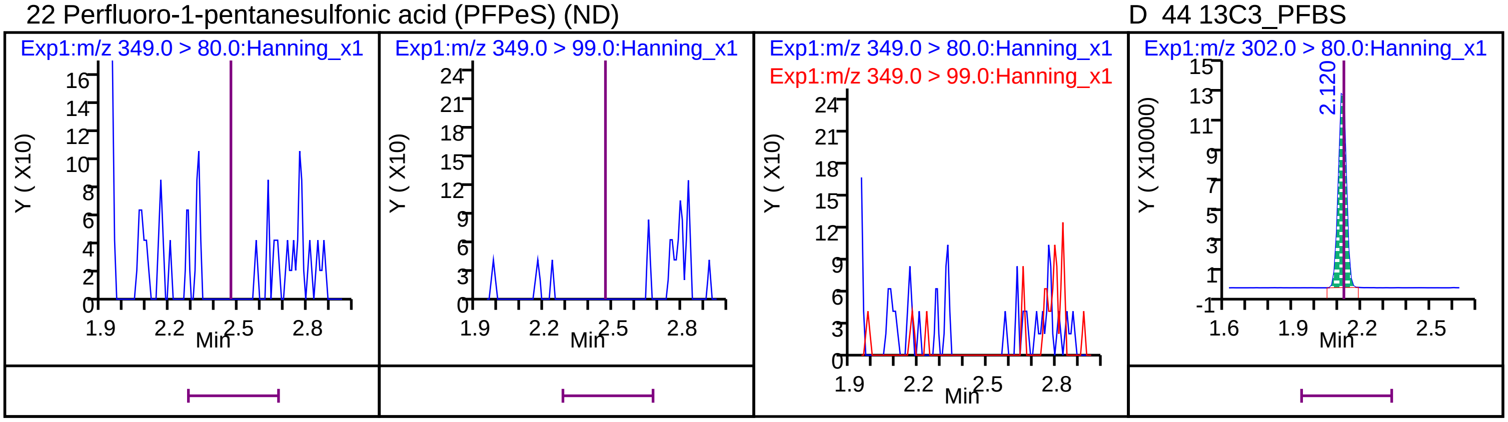
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



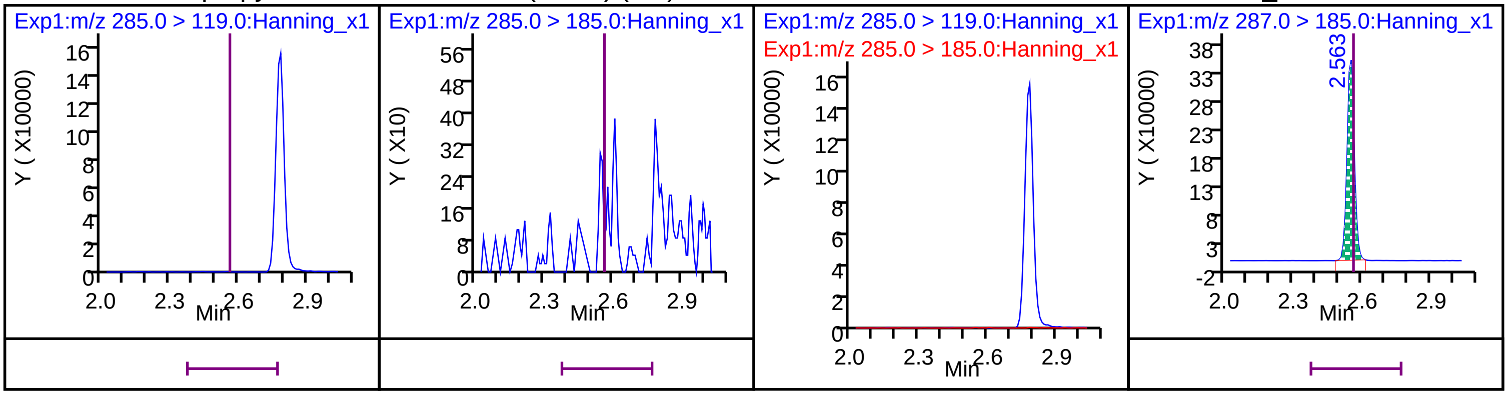
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



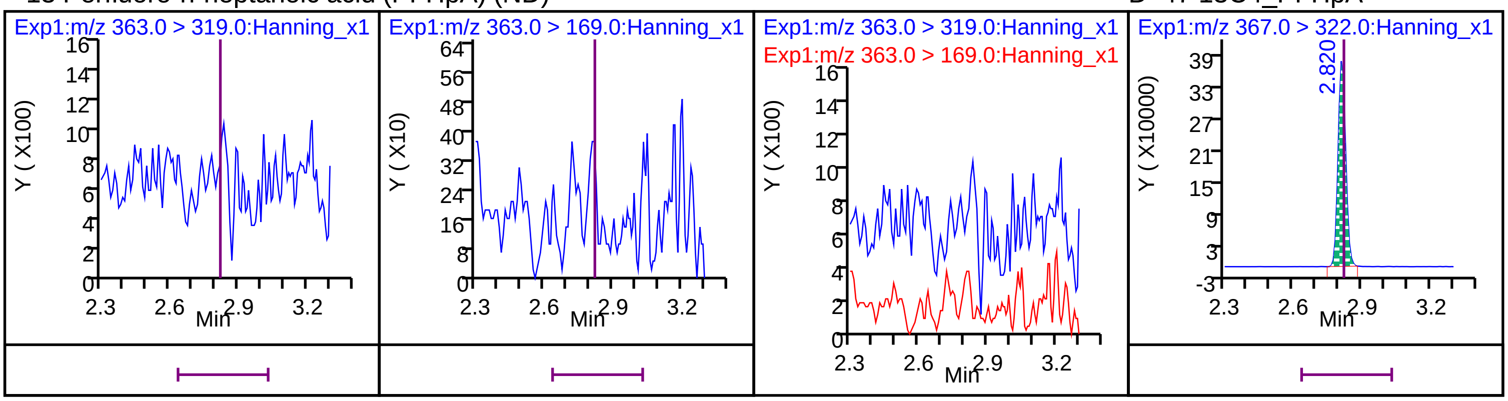
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



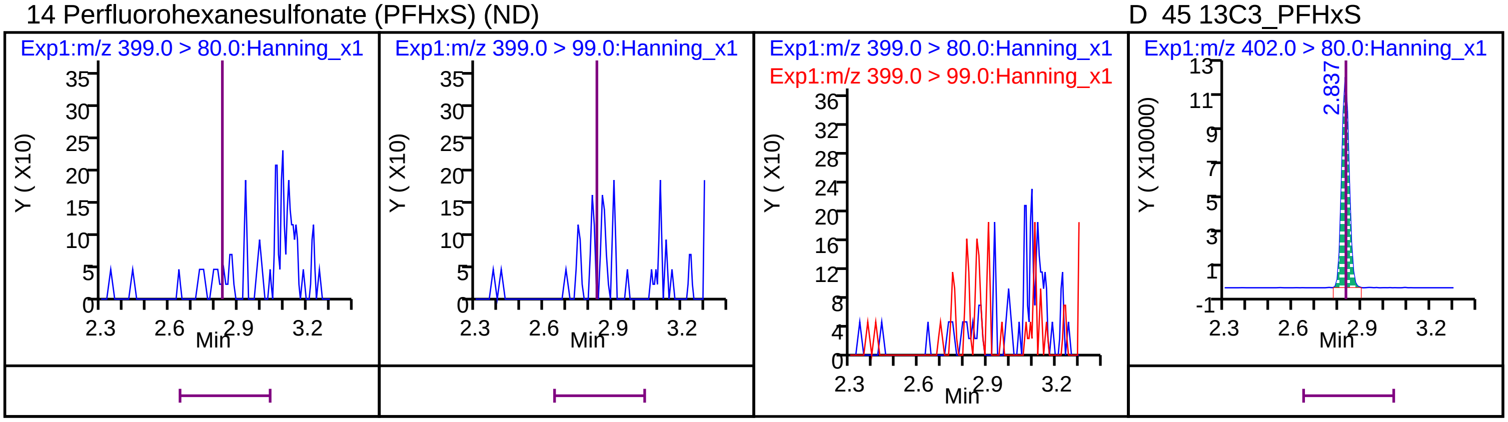
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



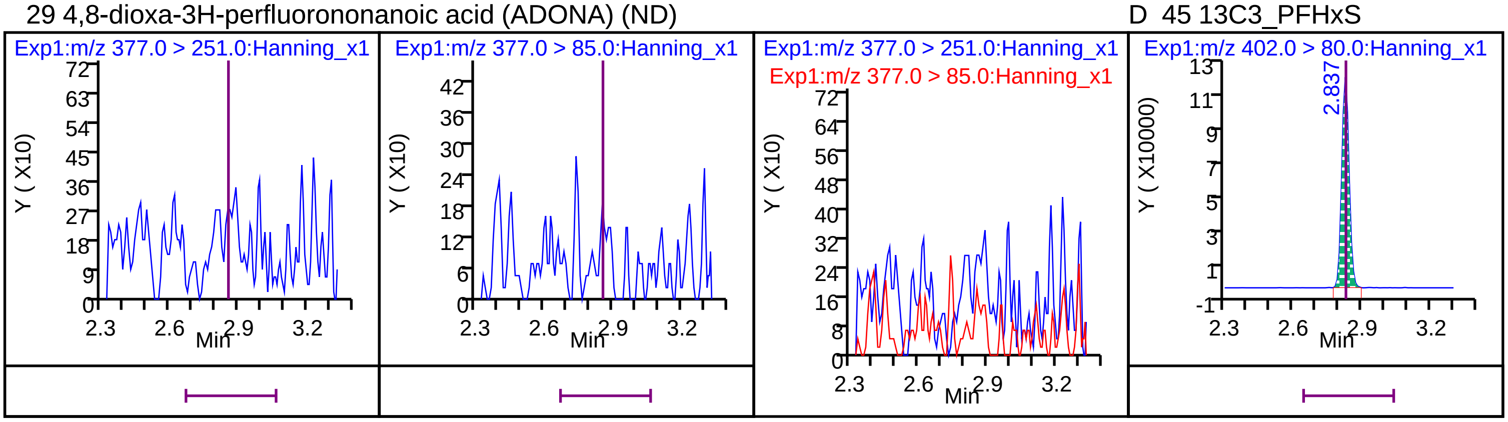
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

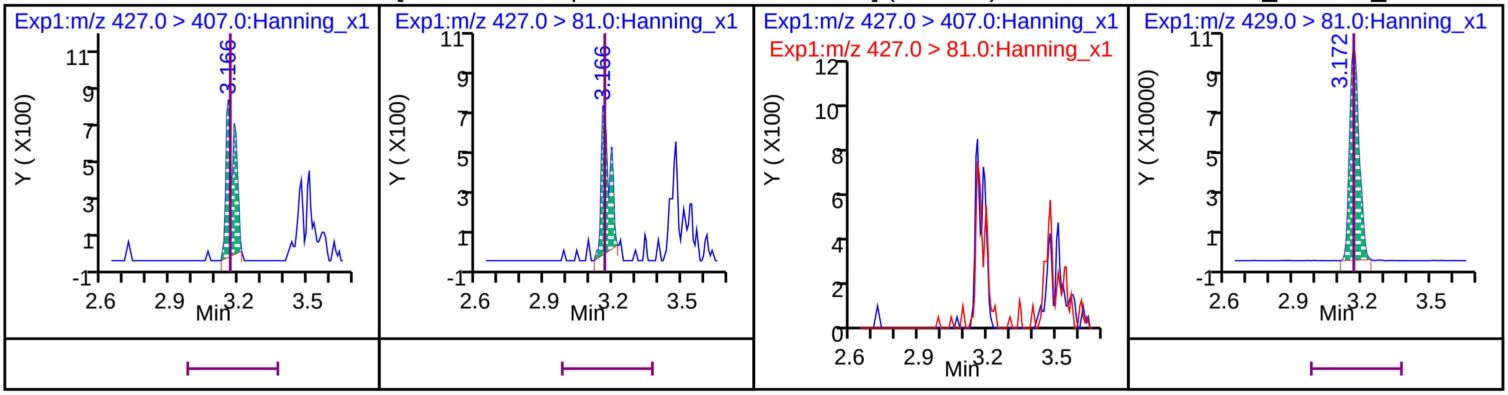


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

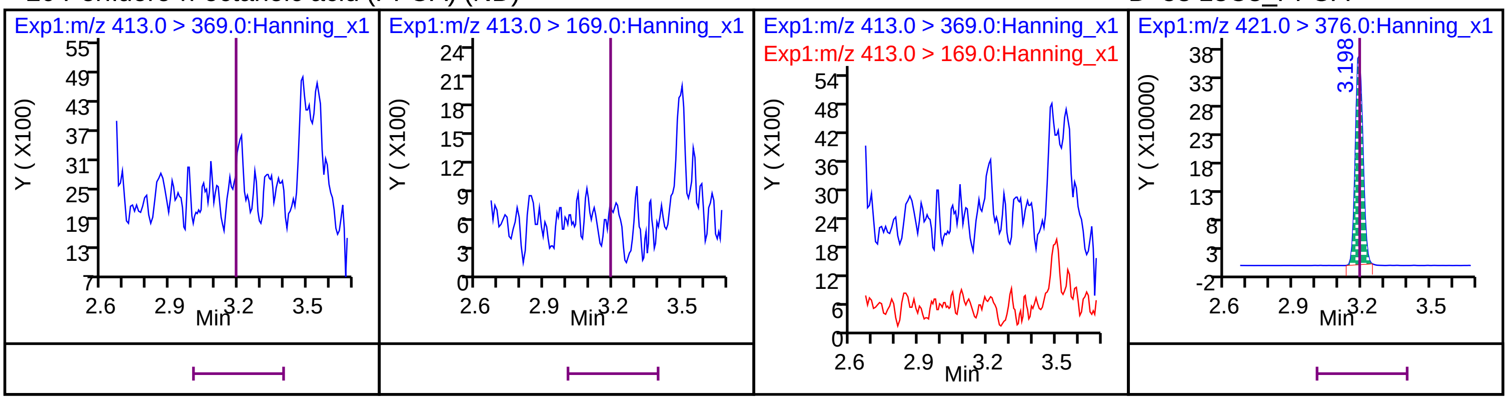


Report Date: 28-Oct-2021 20:18:11 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821029.d

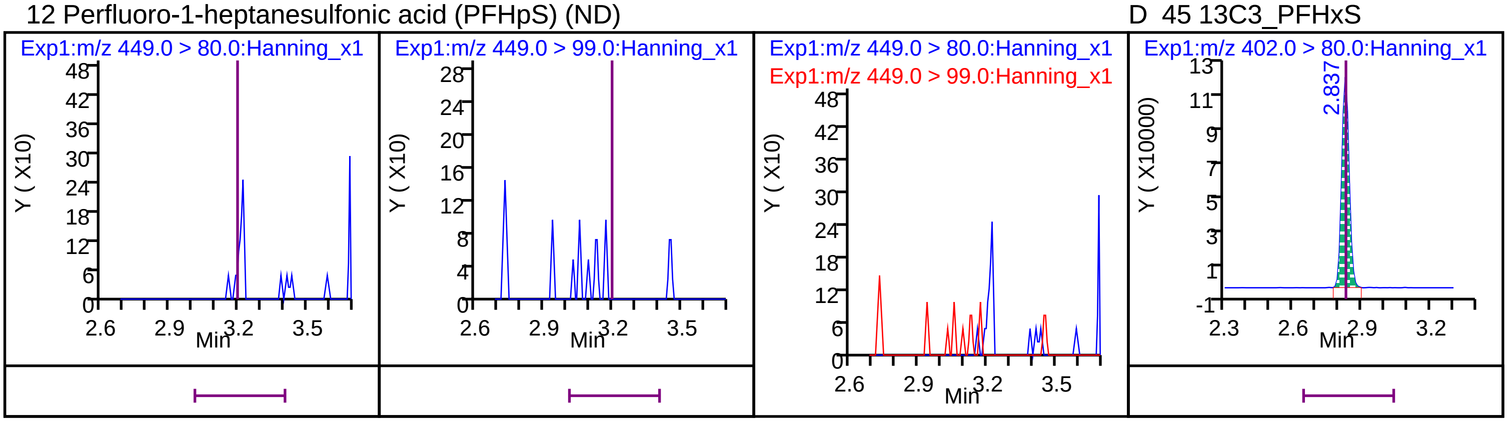
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



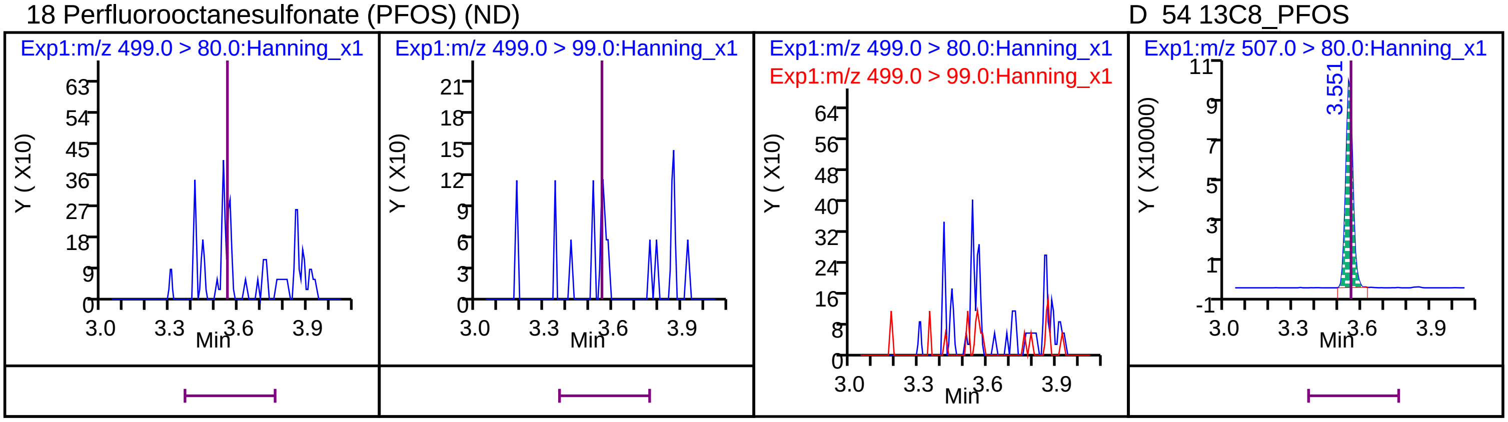
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



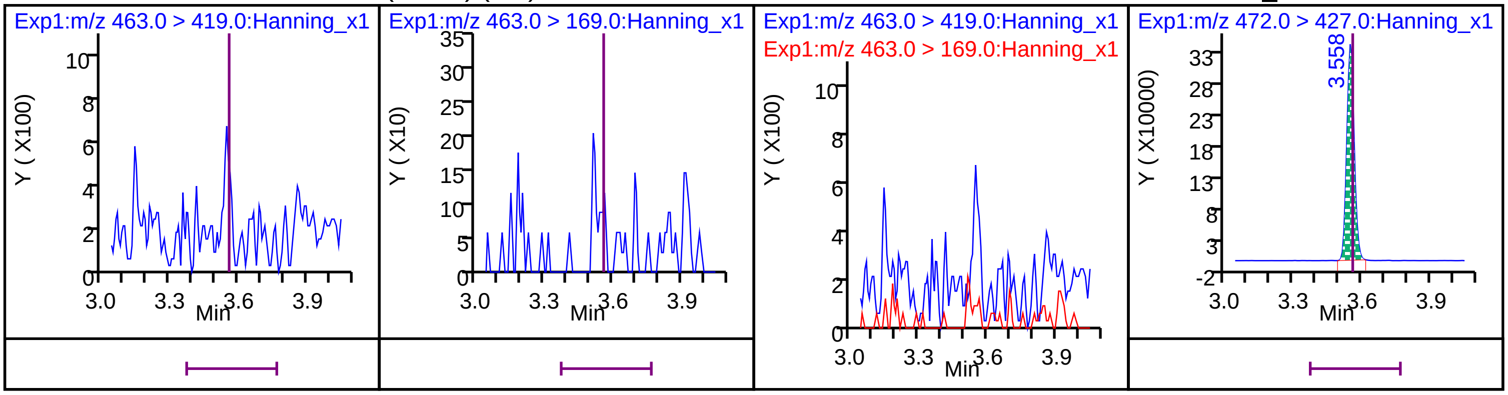
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



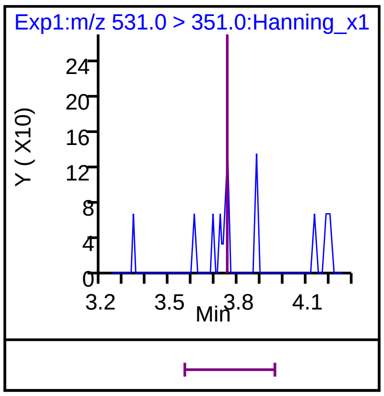
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS

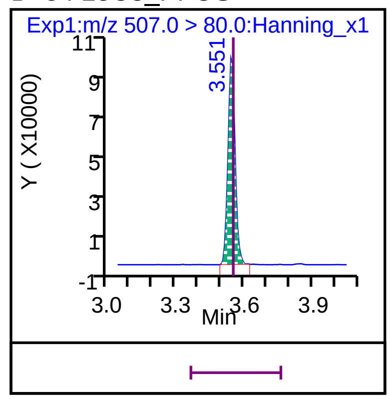


17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA

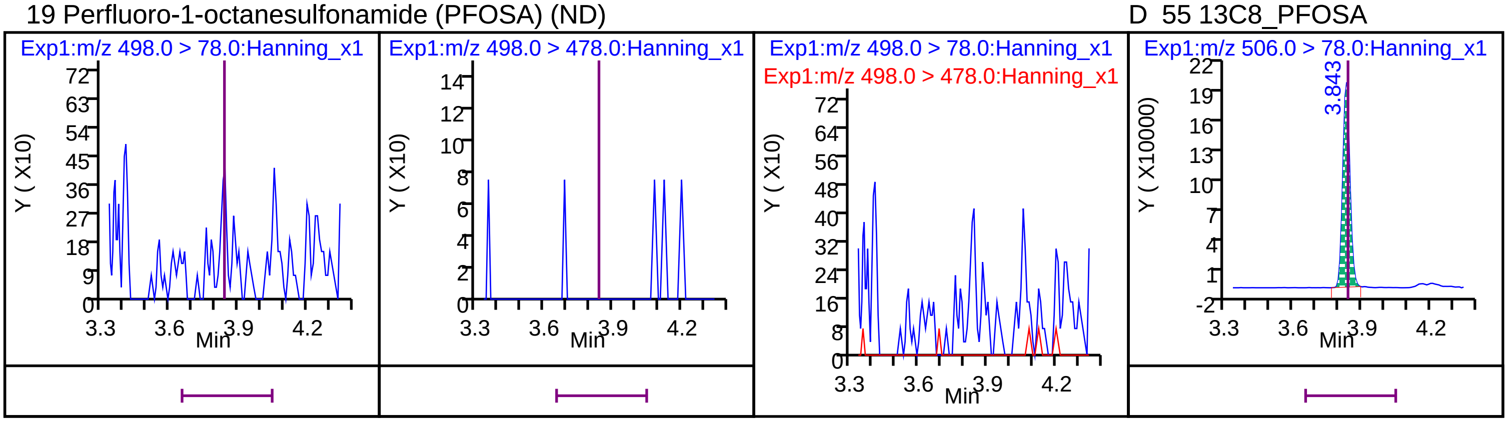


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

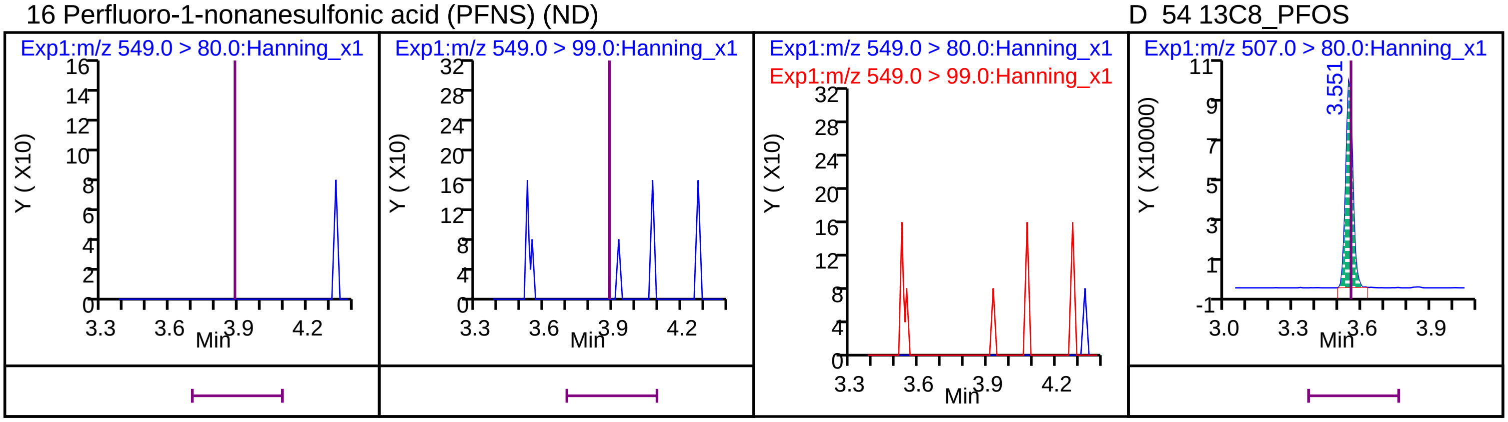




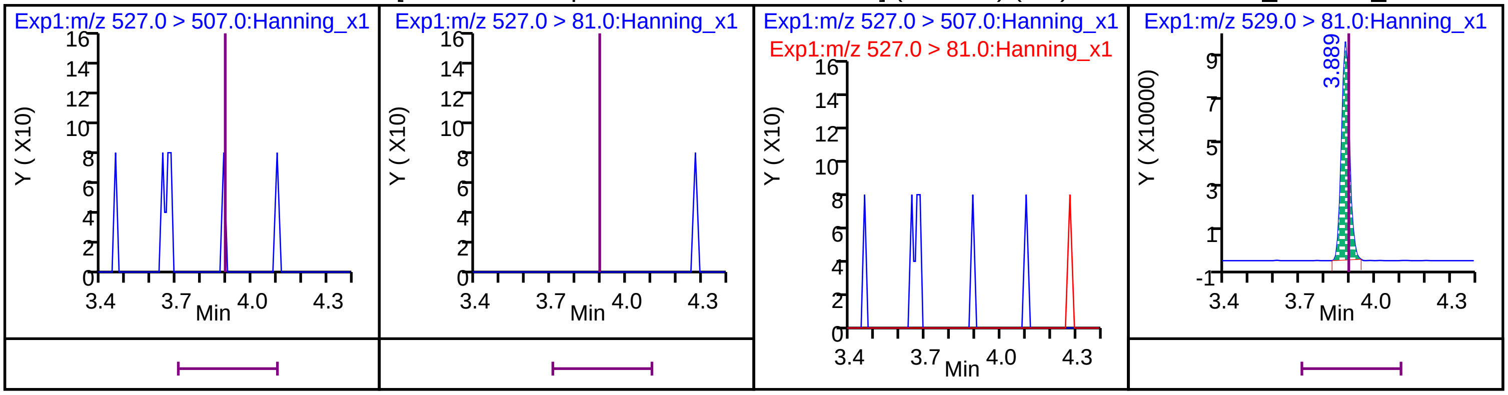
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



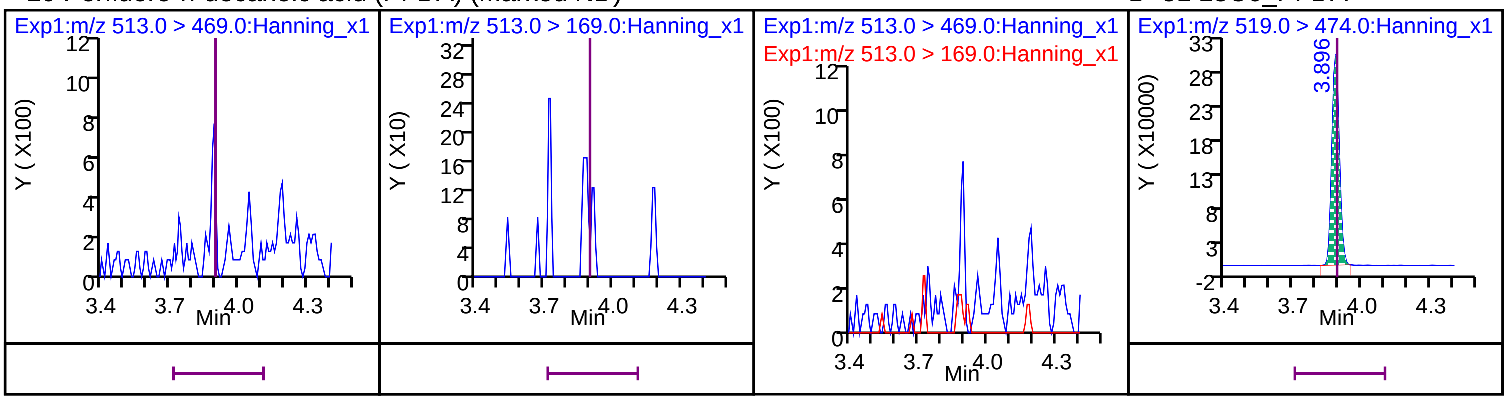
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



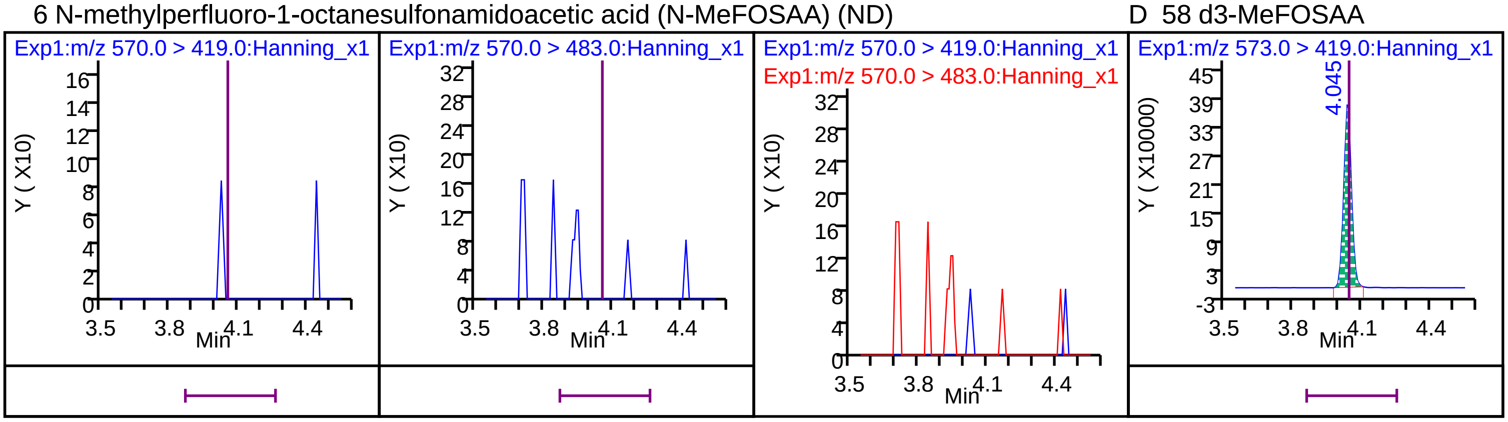
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



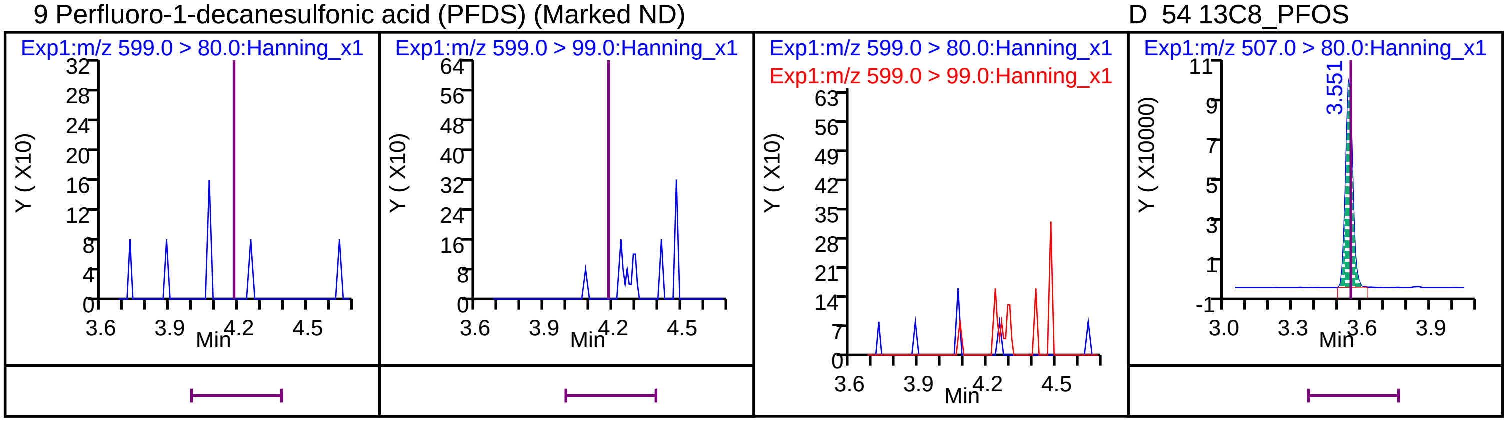
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



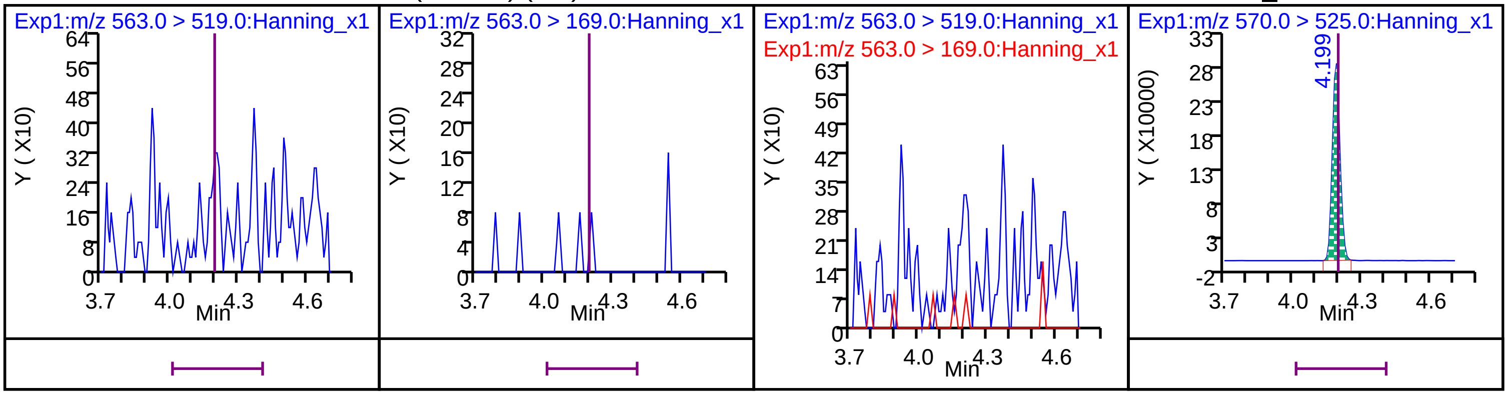
9 Perfluoro-1-decanesulfonic acid (PFDS) (Marked ND) D 54 13C8_PFOS



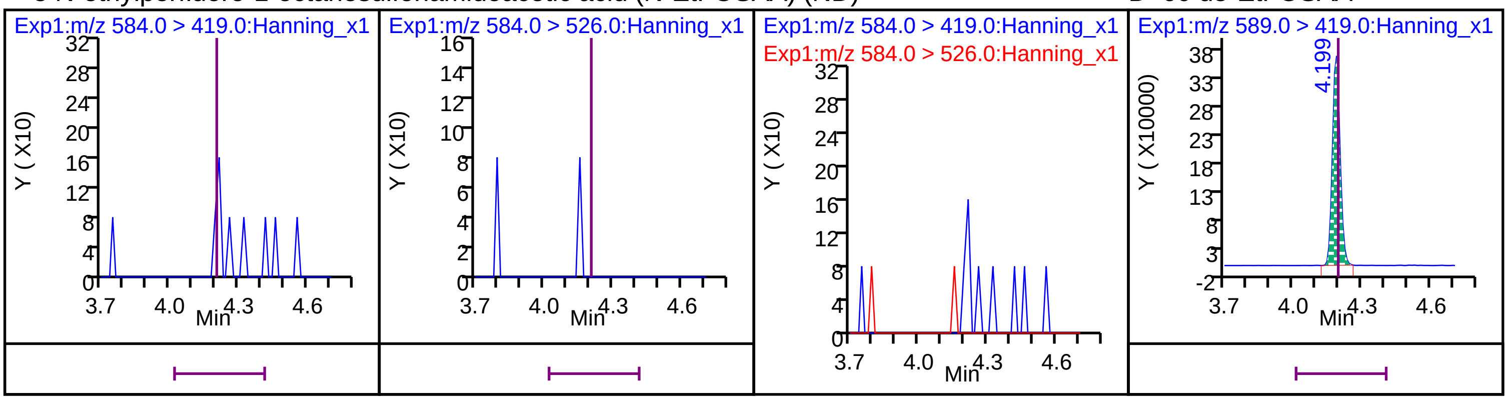
Report Date: 28-Oct-2021 20:18:11 AIM Revision: 2.0.2021.0812

Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821029.d

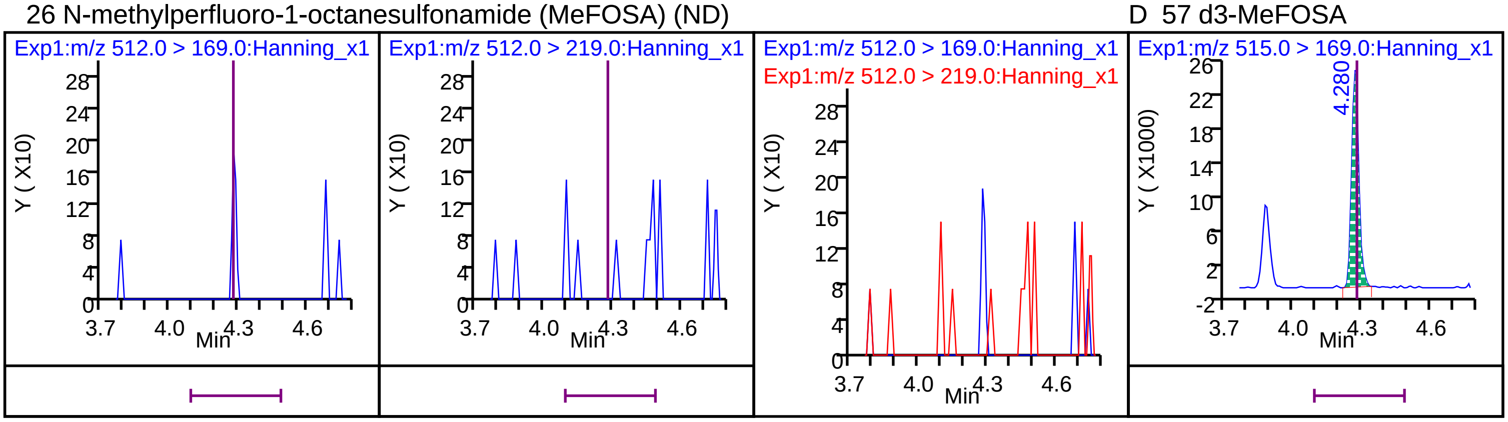
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



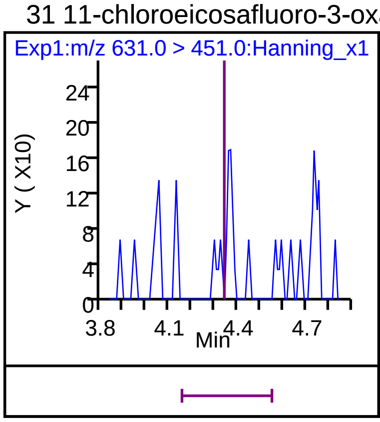
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

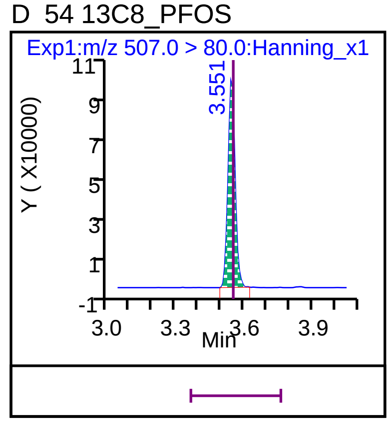


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

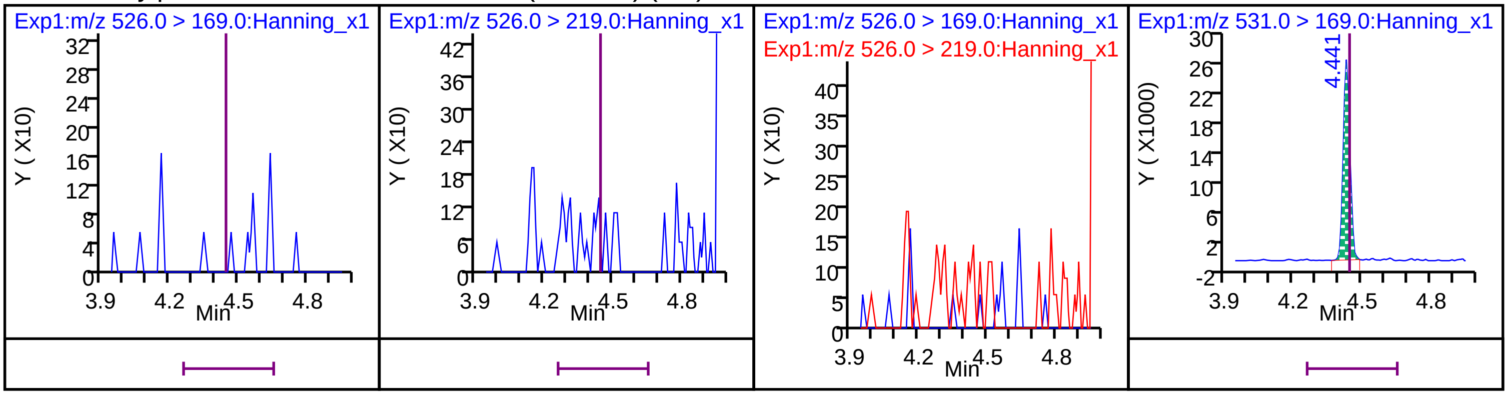




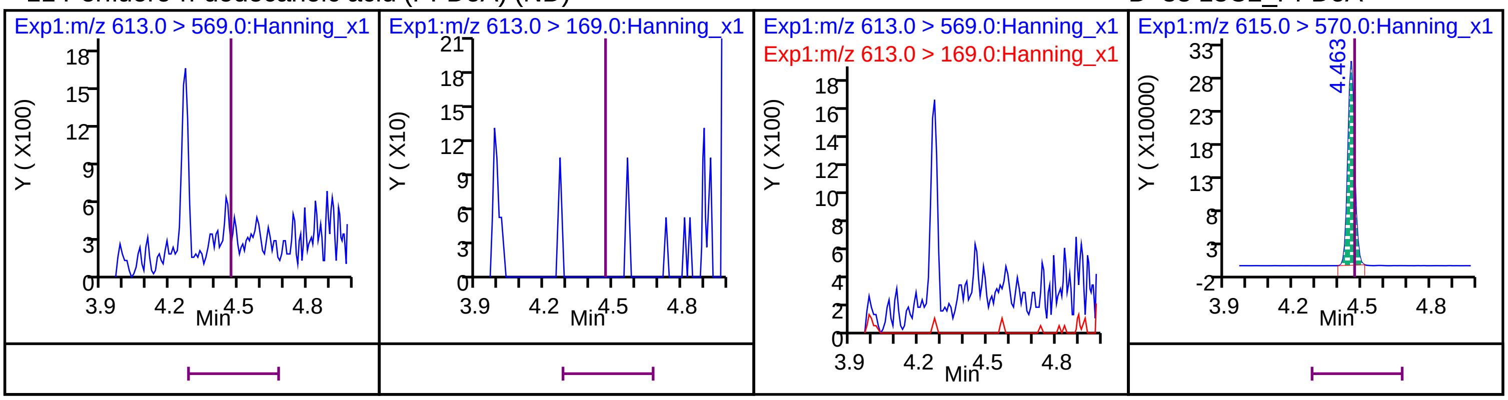
Report Date: 28-Oct-2021 20:18:11 AIM Revision: 2.0.2021.0812

Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821029.d

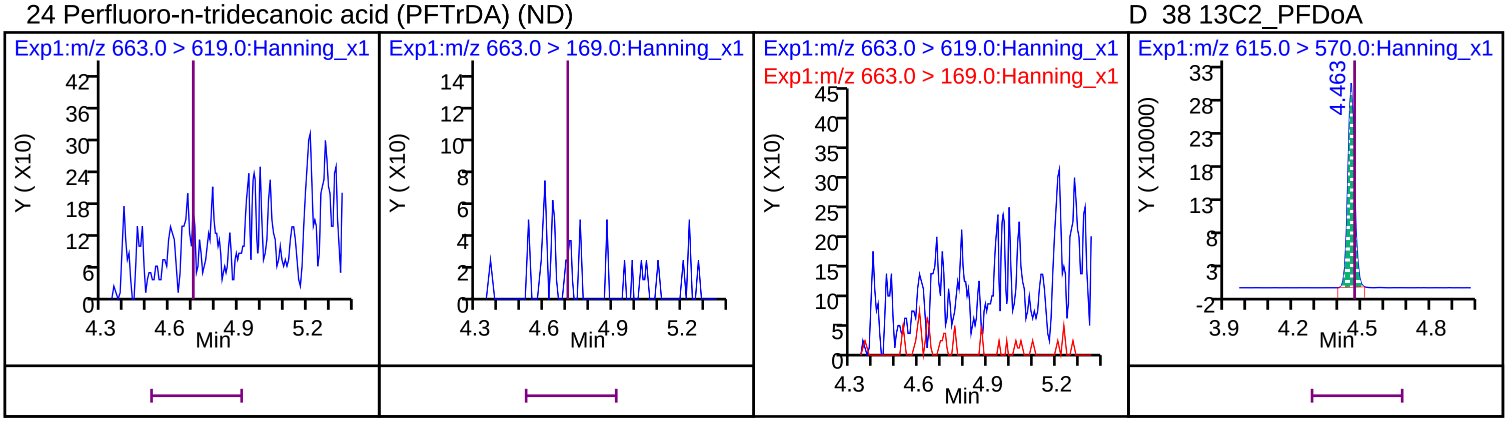
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



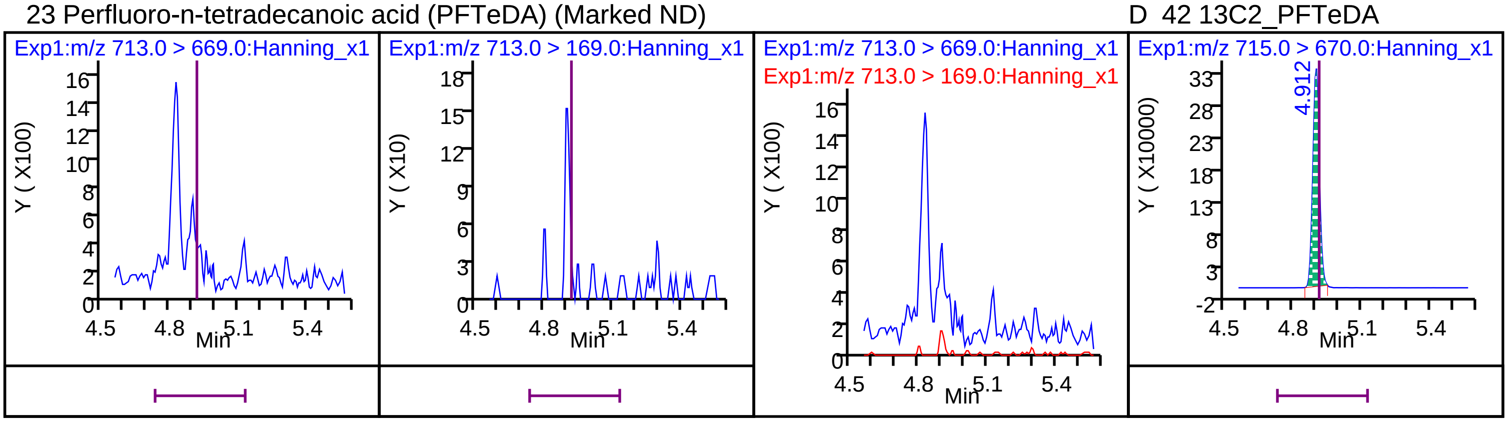
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA

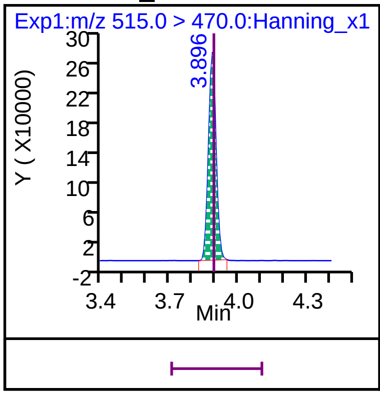


23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) D 42 13C2_PFTeDA

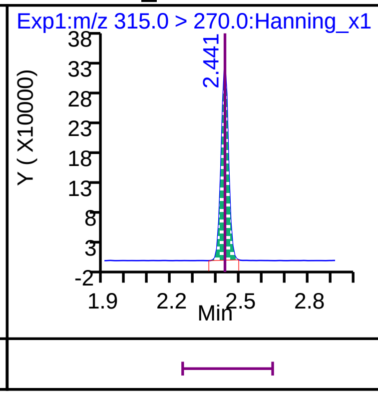


Report Date: 28-Oct-2021 20:18:11 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821029.d

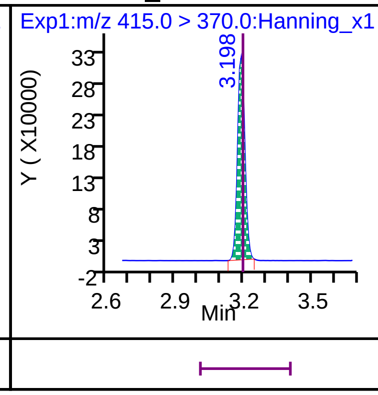
* 37 13C2_PFDA



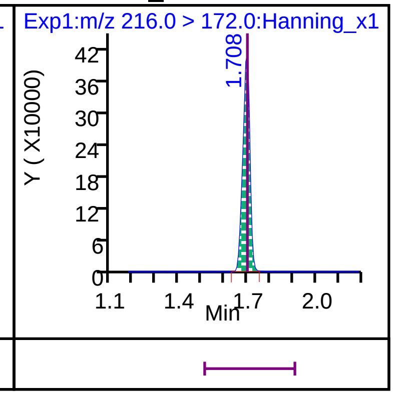
* 39 13C2_PFHxA



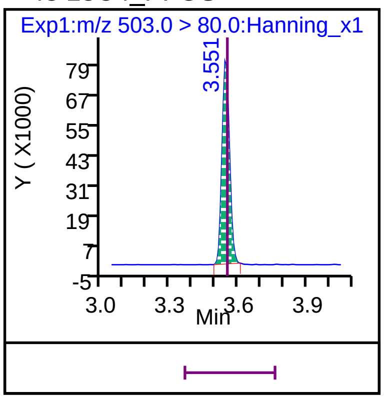
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - LCS

Sample ID: WQ20397-002
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	102	70-150	10/28/2021 1541
11Cl-PF3OUdS	15	14		1	93	70-150	10/28/2021 1541
8:2 FTS	15	19		1	123	67-138	10/28/2021 1541
6:2 FTS	15	17		1	113	64-140	10/28/2021 1541
4:2 FTS	15	15		1	99	63-143	10/28/2021 1541
GenX	32	30		1	92	70-150	10/28/2021 1541
ADONA	15	15		1	99	70-150	10/28/2021 1541
EtFOSA	16	15		1	96	70-150	10/28/2021 1541
EtFOSAA	16	13		1	83	61-135	10/28/2021 1541
MeFOSAA	16	15		1	97	65-136	10/28/2021 1541
PFBS	14	14		1	97	72-130	10/28/2021 1541
PFDS	15	15		1	100	53-142	10/28/2021 1541
PFHpS	15	14		1	94	69-134	10/28/2021 1541
PFNS	15	15		1	97	69-127	10/28/2021 1541
PFPeS	15	16		1	110	71-127	10/28/2021 1541
PFHxS	15	14		1	97	68-131	10/28/2021 1541
PFBA	16	16		1	98	73-129	10/28/2021 1541
PFDA	16	17		1	107	71-129	10/28/2021 1541
PFDoA	16	15		1	96	72-134	10/28/2021 1541
PFHpA	16	15		1	93	72-130	10/28/2021 1541
PFHxA	16	16		1	98	72-129	10/28/2021 1541
PFNA	16	17		1	105	69-130	10/28/2021 1541
PFOA	16	18		1	110	71-133	10/28/2021 1541
PFPeA	16	16		1	100	72-129	10/28/2021 1541
PFTeDA	16	15		1	96	71-132	10/28/2021 1541
PFTrDA	16	16		1	100	65-144	10/28/2021 1541
PFUdA	16	16		1	101	69-133	10/28/2021 1541
PFOS	15	15		1	98	65-140	10/28/2021 1541

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		91	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		95	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ20397-002
Batch: 20397
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 10/27/2021 1636

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		90	50-150
13C8_PFOS		89	50-150
13C9_PFNA		92	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821030.d		
Injection Date:	28-Oct-2021 15:41:33	Injection Vol:	10.0 uL
Sample Type:	LCS	Auto Sampler:	20
Lab Sample ID:	WQ20397-002	Lab Prep. Batch:	20397
Sample Info:	WQ20397-002	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:		Conc. Level:		Vol. Added:	
Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml
Reagent:	Analytes	Conc. Level:	100x PDS	Vol. Added:	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.707	1	1020854	19	>100:1			1001.00	1137.95	91.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.707	1/0	391973	18	>100:1			355.67	15.634		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.079	0	961948	16	>100:1			1001.00	1070.14	94.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.079	0/0	377311	15	>100:1			363.76	15.990		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.131	0	297883	15	>100:1			1001.00	997.96	85.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.131	0/0	128804	17	>100:1	Target = 3.78		311.33	13.685		
298.9 > 99	44	2.131	2.131		34931	15	>100:1	3.68 (1.89-5.67)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.476	2.477	0/0	114829	17	>100:1	Target = 3.45		374.00	16.440		
349 > 99	44	2.476	2.477		32993	17	>100:1	3.48 (1.72-5.18)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.398	2.407	0	294005	16	>100:1			5005.00	6578.97	90.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.407	2.407	0/0	37770	16	>100:1	Target = 1.43		335.58	14.751		
327 > 81	63	2.398	2.407		25686	18	>100:1	1.47 (0.71-2.15)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.441	2.442	0	828448	16	>100:1			1001.00	1011.82	88	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.441	2.451	0/0	303416	17	>100:1	Target = 16.37		356.92	15.689		
313 > 119	49	2.450	2.451		18811	16	55:1	16.12 (8.18-24.56)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.563	2.572	0	749958	17	>100:1			5005.00	5183.30	104.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.563	2.572	0/0	77315	15	>100:1	Target = 0.74		671.83	29.531		
285 > 185	66	2.563	2.572		117885	17	>100:1	0.65 (0.37-1.12)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.828	2.831	0	834655	16	>100:1			1001.00	1041.64	88.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.828	2.831	0/0	281558	17	>100:1	Target = 3.21		340.29	14.958		
363 > 169	47	2.828	2.831		89355	15	>100:1	3.15 (1.60-4.82)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.837	2.840	0	255600	15	>100:1			1001.00	1039.21	90.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.837	2.840	0/0	98678	24	>100:1	Target = 3.47	5.90	320.52	14.089		
399 > 99	45	2.837	2.840		28313	24	>100:1	3.48 (1.73-5.21)	7.46				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.863	2.866	0/0	469159	16	>100:1	Target = 2.28		337.97	14.856		
377 > 85	45	2.863	2.866		183267	15	>100:1	2.55 (1.14-3.42)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.202	3.206	0/0	90548	18	>100:1	Target = 3.62		326.57	14.355		
449 > 99	45	3.202	3.206		24577	18	>100:1	3.68 (1.81-5.43)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.170	3.174	0	240882	22	>100:1			5005.00	5512.55	100.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.170	3.174	0/0	29549	20	>100:1	Target = 1.19		389.28	17.111		
427 > 81	64	3.170	3.174		23697	25	>100:1	1.24 (0.59-1.79)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.195	3.199	0	777116	20	>100:1			1001.00	1027.03	90.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.195	3.199	0/0	313748	19	>100:1	Target = 2.34		401.40	17.644		
413 > 169	53	3.195	3.199		116557	20	>100:1	2.69 (1.17-3.51)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.554	3.562	0	215019	19	>100:1			1001.00	949.02	88.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.554	3.562	0/0	86139	38	>100:1	Target = 4.00	4.01	332.19	14.602		
499 > 99	54	3.554	3.562		22121	37	>100:1	3.89 (2.00-6.01)	9.29				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.754	3.761	0/0	226739	18	>100:1			345.91	15.205		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.886	3.894	0/0	73350	16	>100:1	Target = 3.83		337.71	14.844		
549 > 99	54	3.886	3.894		20380	21	>100:1	3.59 (1.91-5.75)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.180	4.190	0/0	72360	17	>100:1	Target = 3.87		350.13	15.390		
599 > 99	54	4.180	4.190		15140	13	>100:1	4.77 (1.93-5.80)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.331	4.350	-1/-1	178442	15	>100:1			318.09	13.982		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.671	4.689	-1/-1	54226	24	>100:1	Target = 3.65		276.25	12.143		
699 > 99	54	4.671	4.689		13296	14	93:1	4.07 (1.82-5.48)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.554	3.569	0	754046	18	>100:1			1001.00	972.40	91.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.562	3.569	0/0	251039	17	>100:1	Target = 4.21		381.82	16.783		
463 > 169	56	3.562	3.569		54304	17	>100:1	4.62 (2.10-6.32)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.841	3.849	0	422826	16	>100:1			1001.00	1009.58	92.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.841	3.849	0/0	169507	16	>100:1	Target = 49.05		353.93	15.557		
498>478	55	3.848	3.849		5099	19		33.24 (24.52-73.57)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.886	3.902	0	206247	16	>100:1			5005.00	5454.29	100.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.894	3.902	0/0	26117	18	>100:1	Target = 1.27		429.24	18.868		
527 > 81	65	3.886	3.902		17439	25	80:1	1.49 (0.63-1.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.468	4.485	0/0	22242	24		Target = 2.25		357.96	15.735		
627 > 80	65	4.468	4.485		9114	22	>100:1	2.44 (1.12-3.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.894	3.902	0	588905	18	>100:1			1001.00	867.11	77.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.894	3.910	0/0	232278	16	>100:1	Target = 8.94		390.76	17.176		
513 > 169	51	3.894	3.910		28416	21	>100:1	8.17 (4.47-13.41)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.042	4.053	0	913044	16	>100:1			5005.00	4456.08	100.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.052	4.063	0/0	49082	27	42:1	Target = 1.38	6.55	352.21	15.482		
570 > 483	58	4.052	4.063		40037	31	>100:1	1.22 (0.69-2.08)	3.10				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.197	4.206	0	672294	21	>100:1			1001.00	1063.52	90.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.197	4.206	0/0	218250	16	>100:1	Target = 8.27		366.40	16.106		
563 > 169	52	4.197	4.206		27358	16	>100:1	7.97 (4.13-12.40)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.197	4.206	0	921568	17	>100:1			5005.00	5368.05	104.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.205	4.215	0/0	59376	31	>100:1	Target = 1.95	7.25	302.14	13.281		
584 > 526	60	4.205	4.215		31866	32	>100:1	1.86 (0.97-2.92)	3.92				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.259	4.270	0	115975	14	>100:1			1001.00	912.03	85.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.269	4.287	-1/-1	43295	15	>100:1			378.87	16.654		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.277	4.287	0	43781	14	>100:1			1001.00	753.26	72	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.277	4.287	0/0	23290	15	>100:1	Target = 1.08		500.12	21.983		
512 > 219	57	4.286	4.287		13291	15	72:1	1.75 (0.54-1.62)					J
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.425	4.434	0	99609	15	>100:1			1001.00	848.05	77.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.432	4.441	0/0	33471	18	>100:1			394.71	17.350		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.439	4.456	0	47138	17	>100:1			1001.00	858.17	74.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.447	4.456	0/0	18872	16	>100:1	Target = 1.10		350.26	15.396		
526 > 219	59	4.447	4.456		17221	14	>100:1	1.09 (0.55-1.66)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.461	4.477	0	596829	19	>100:1			1001.00	993.68	92	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.468	4.477	0/0	212778	19	>100:1	Target = 5.93		348.43	15.316		
613 > 169	38	4.461	4.477		35745	17	>100:1	5.95 (2.96-8.90)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.695	4.713	-1/-1	117143	18	>100:1	Target = 2.90		363.18	15.964		
663 > 169	38	4.695	4.713		37031	18	>100:1	3.16 (1.45-4.35)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.911	4.923	0	750536	20	>100:1			1001.00	936.77	84.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.911	4.929	-1/-1	221354	20	>100:1	Target = 6.34		348.70	15.328		
713 > 169	42	4.911	4.929		33213	21	>100:1	6.66 (3.17-9.51)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.287	5.302	0	281972	19	>100:1			1001.00	856.92	86.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.294	5.309	0/0	203502	19	>100:1	Target = 12.53		356.56	15.673		
813 > 269	40	5.294	5.309		15886	18	>100:1	12.81 (6.26-18.80)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.654	5.672	-1/-1	130195	20	>100:1	Target = 152.15		311.40	13.688		
913 > 319	40	5.654	5.672		885	15	>100:1	147.11 (76.07-228.23)					
*** 37 13C2_PFDA**													
515 > 470		3.894	3.902	0	770918	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.441	2.442	0	793051	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.195	3.206	0	772139	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.707	1	957272	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.554	3.562	0	221584	17	>100:1			200.00			

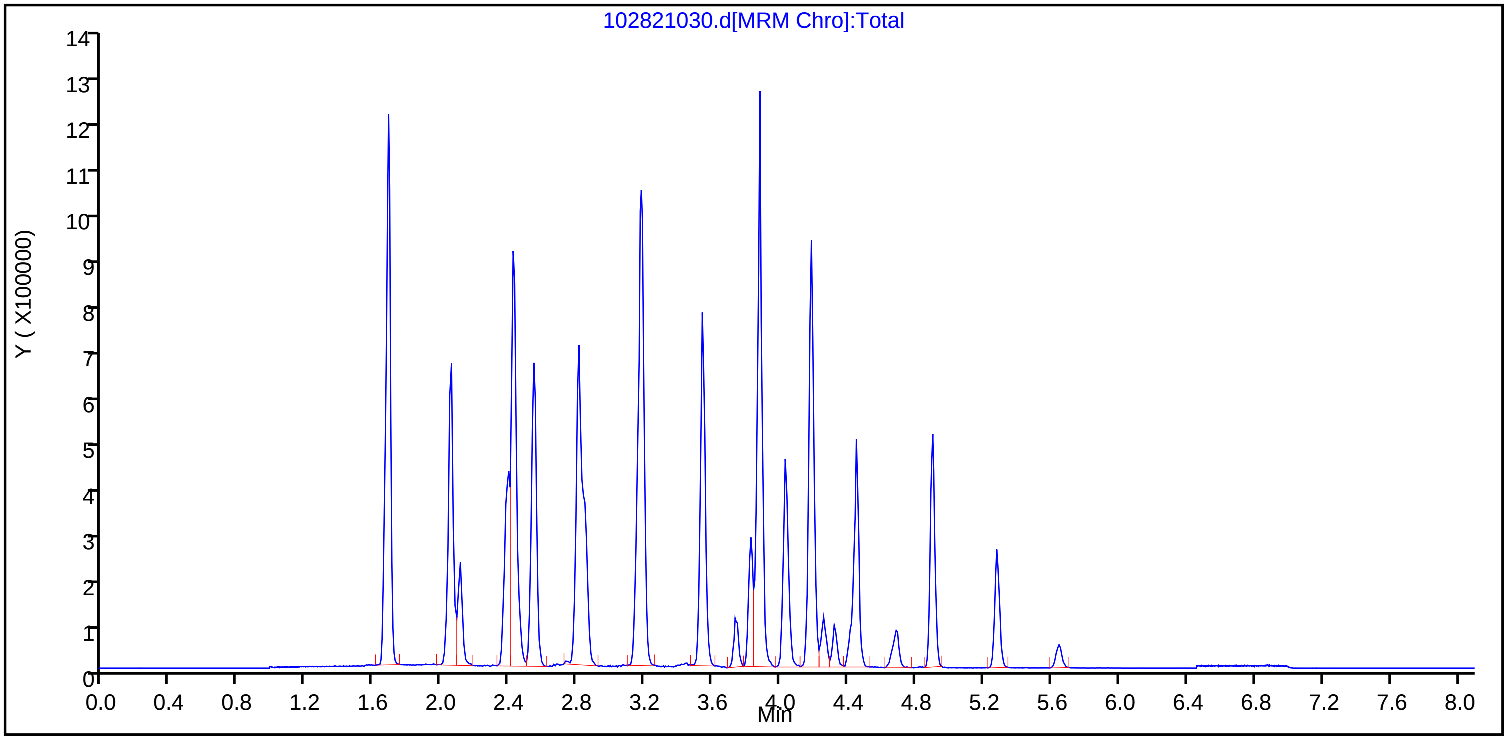
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

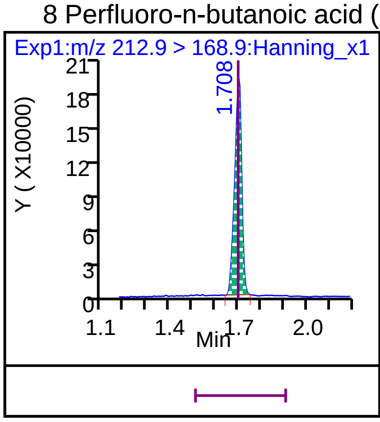
Report Date: 28-Oct-2021 20:18:12 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

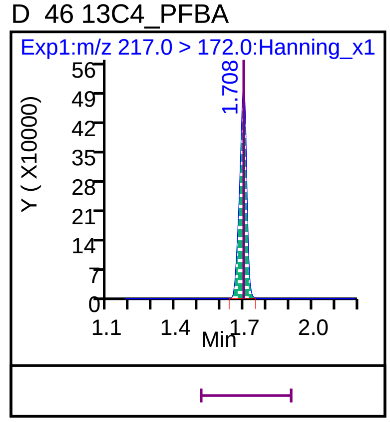
Data File:	\\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821030.d		
Injection Date:	28-Oct-2021 15:41:33	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WQ20397-002
Sample Info:	WQ20397-002		
Dil. Factor:	1	Operator:	Matthew M. Miller



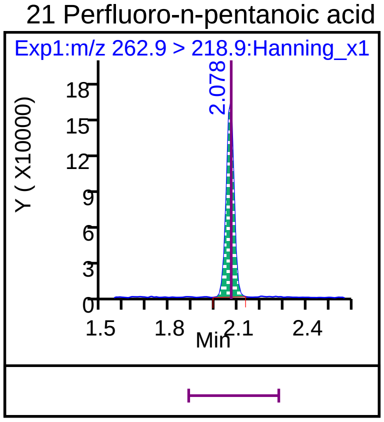
8 Perfluoro-n-butanoic acid (PFBA)



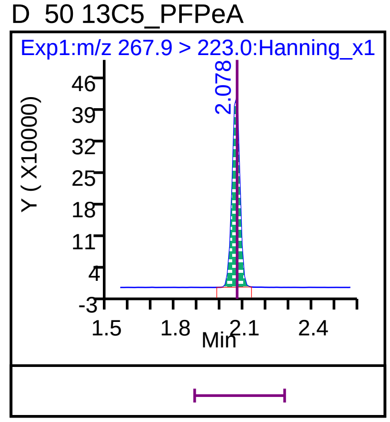
D 46 13C4_PFBA



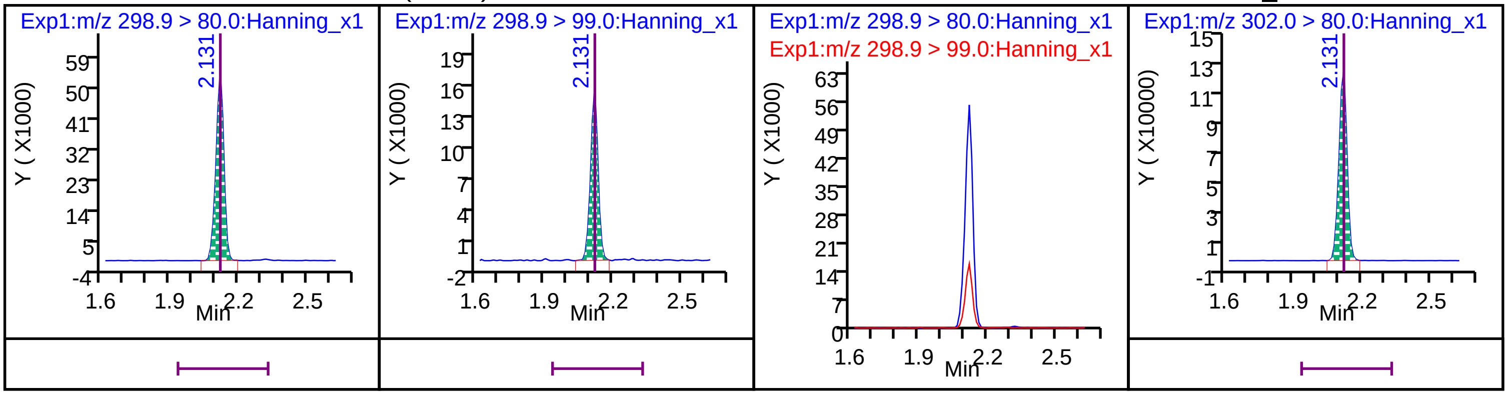
21 Perfluoro-n-pentanoic acid (PFPeA)



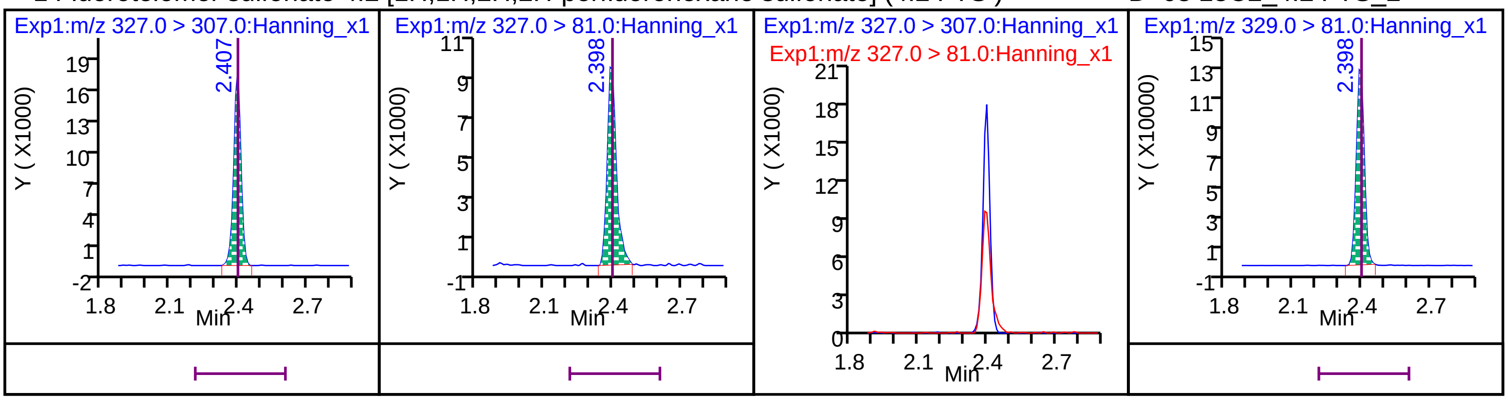
D 50 13C5_PFPeA



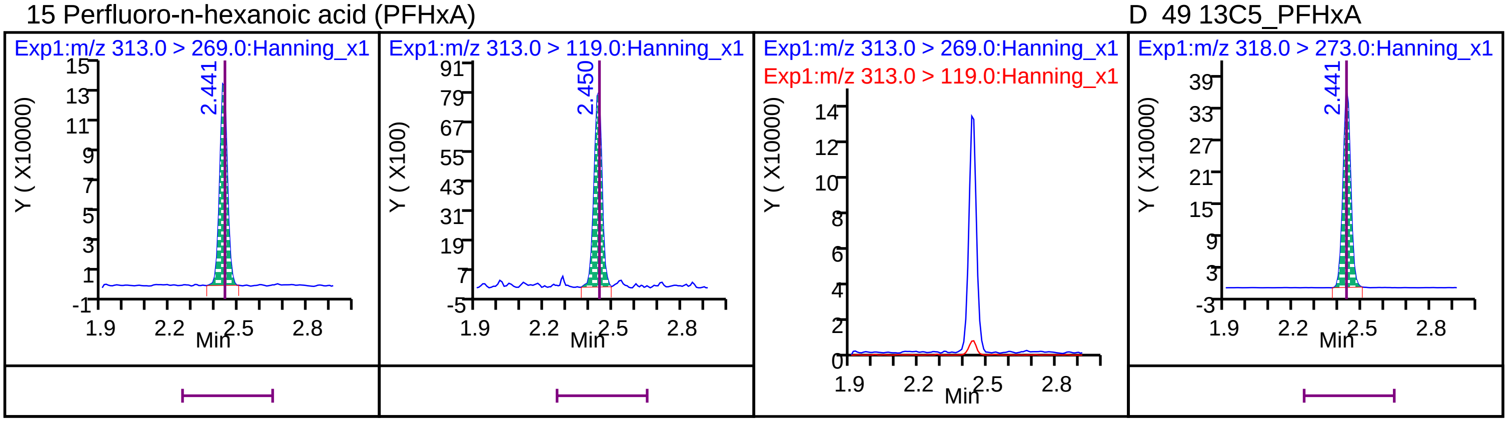
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



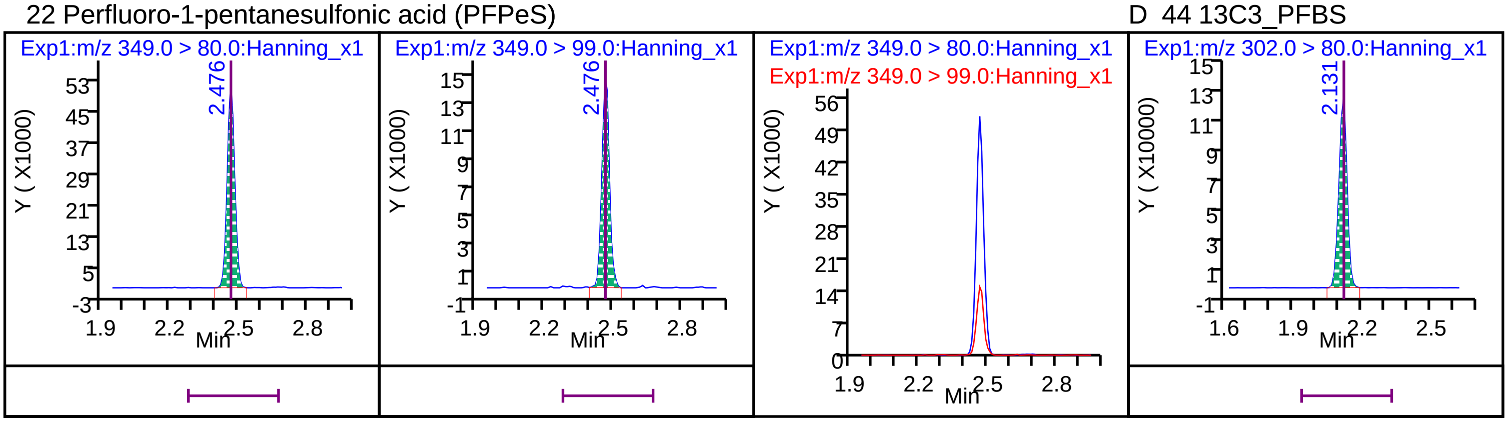
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



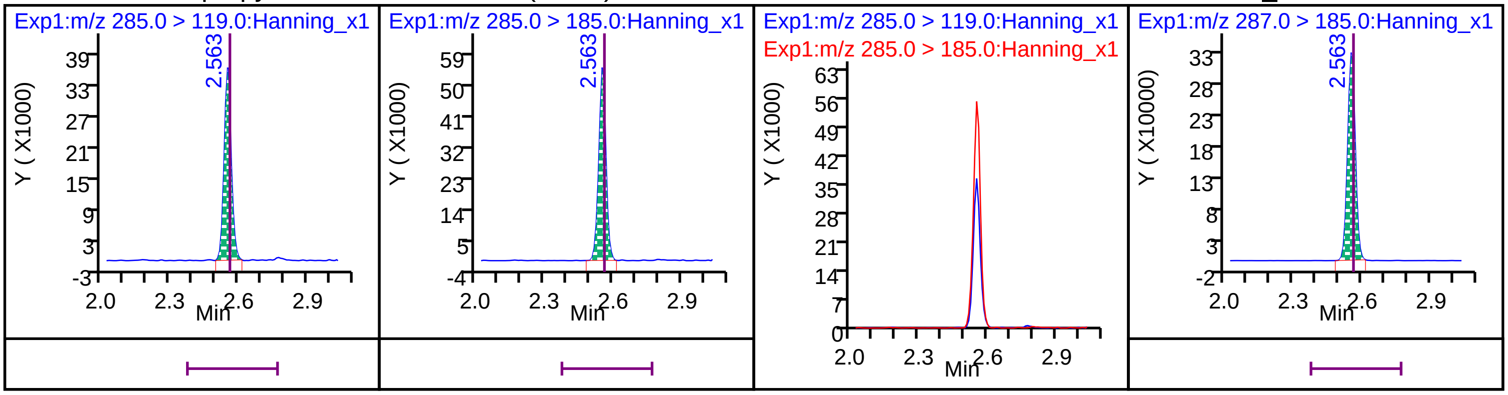
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



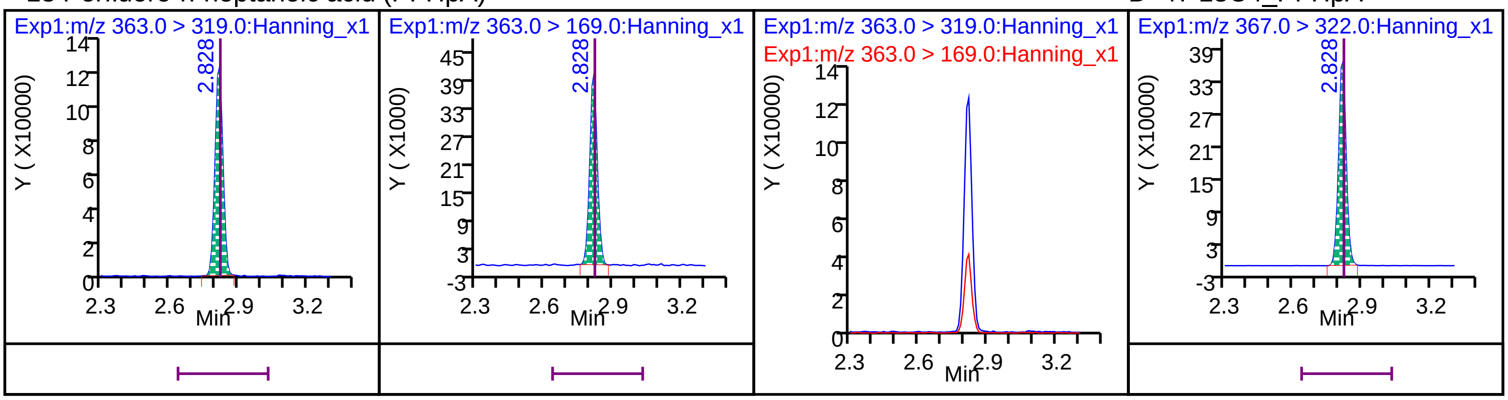
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



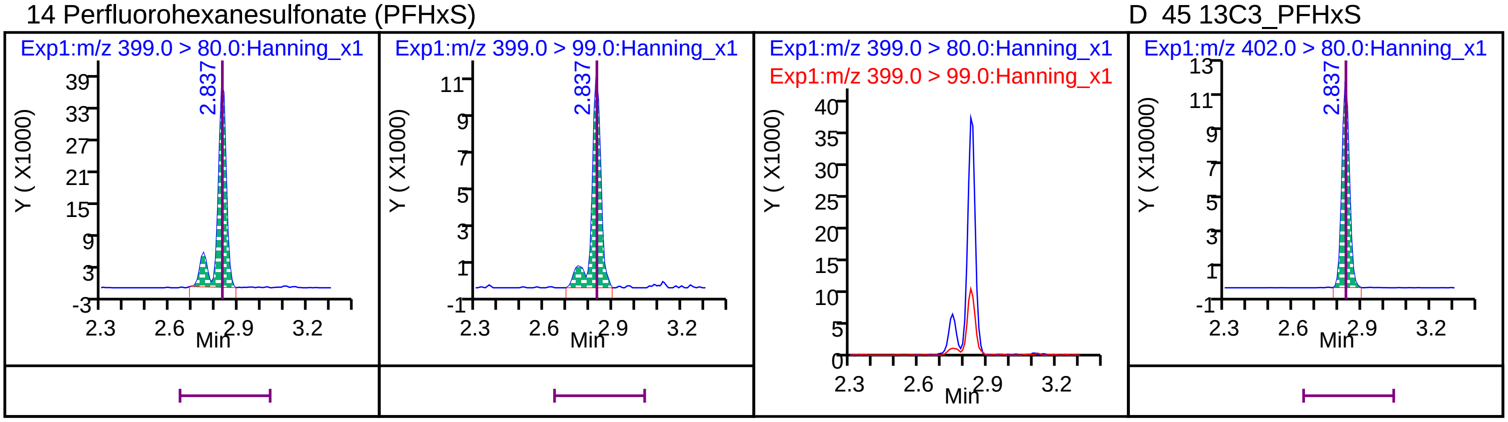
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



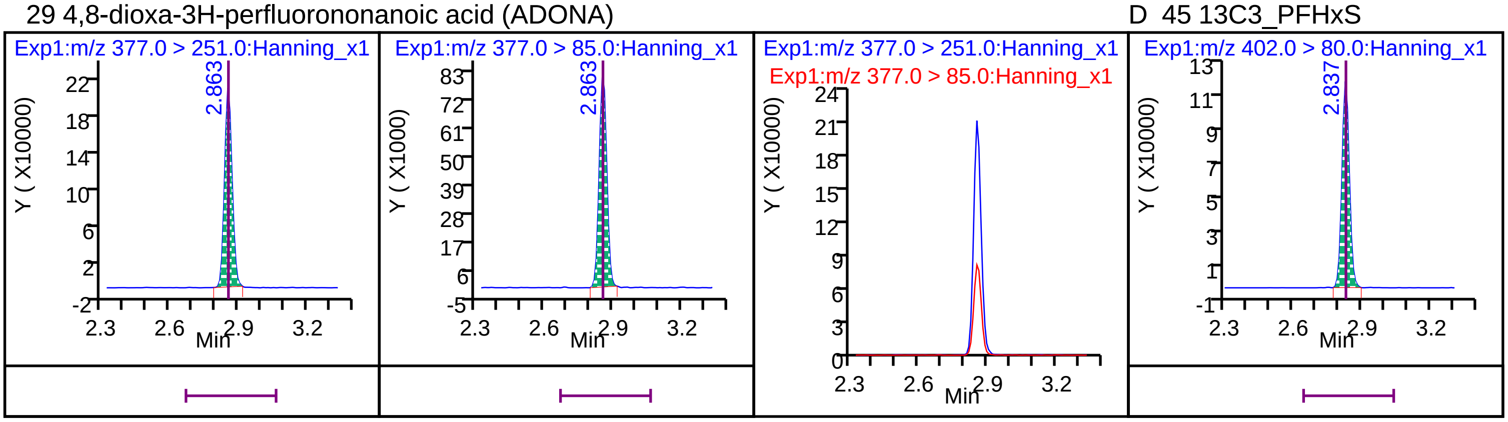
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

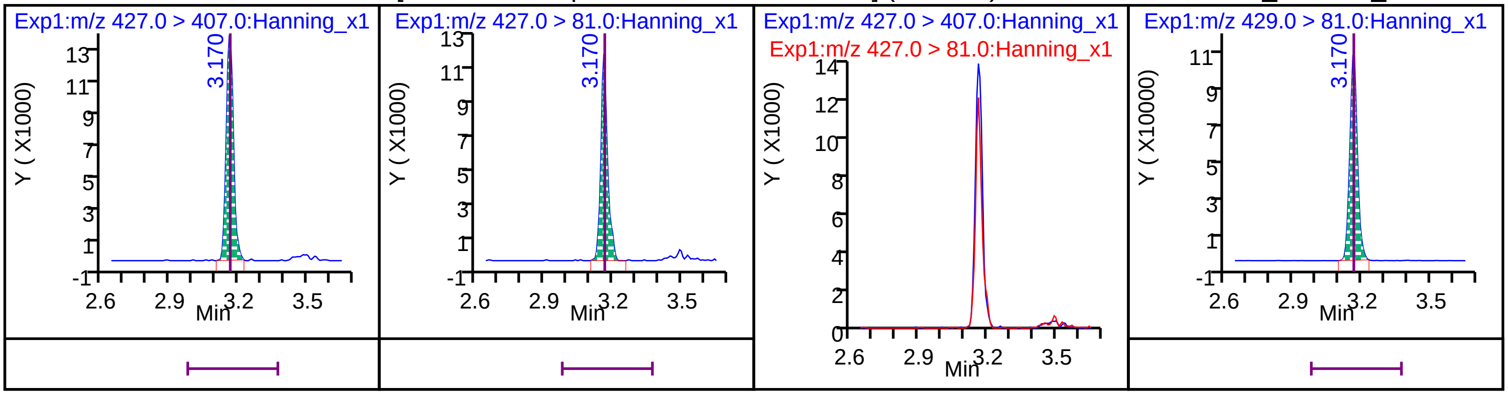


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

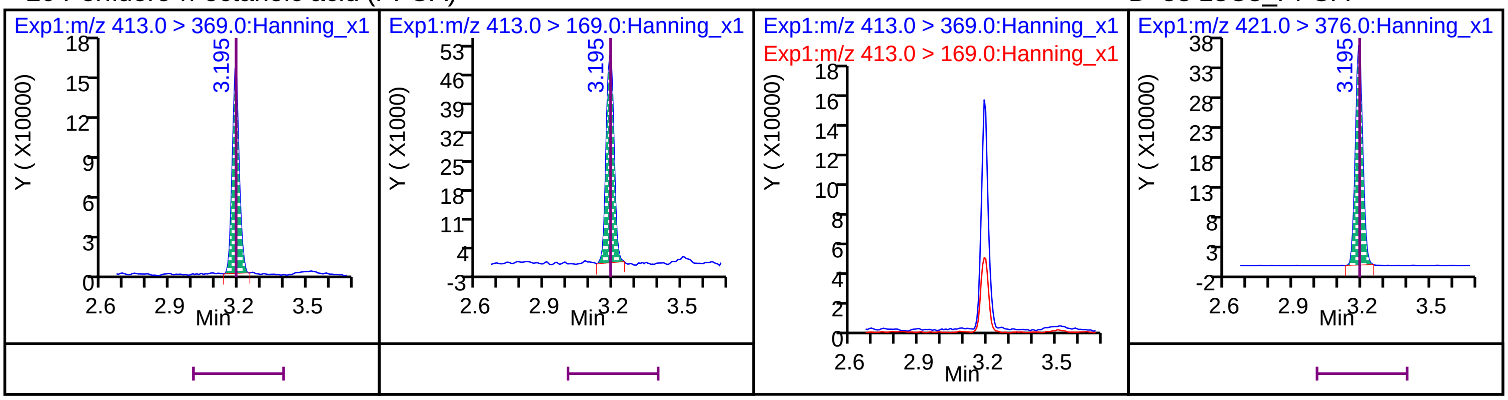


Report Date: 28-Oct-2021 20:18:12 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821030.d

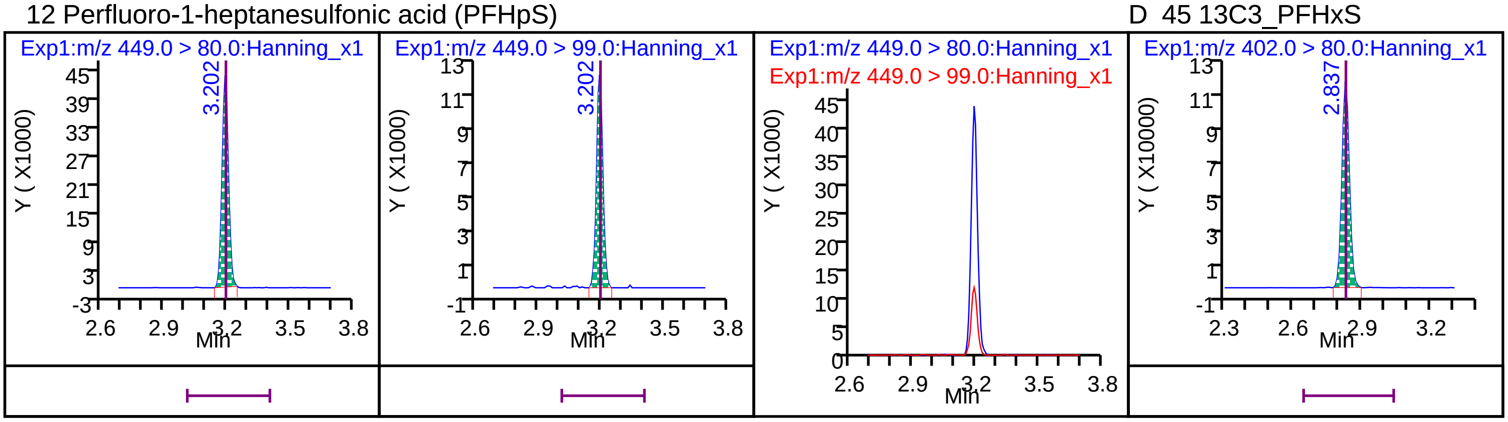
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



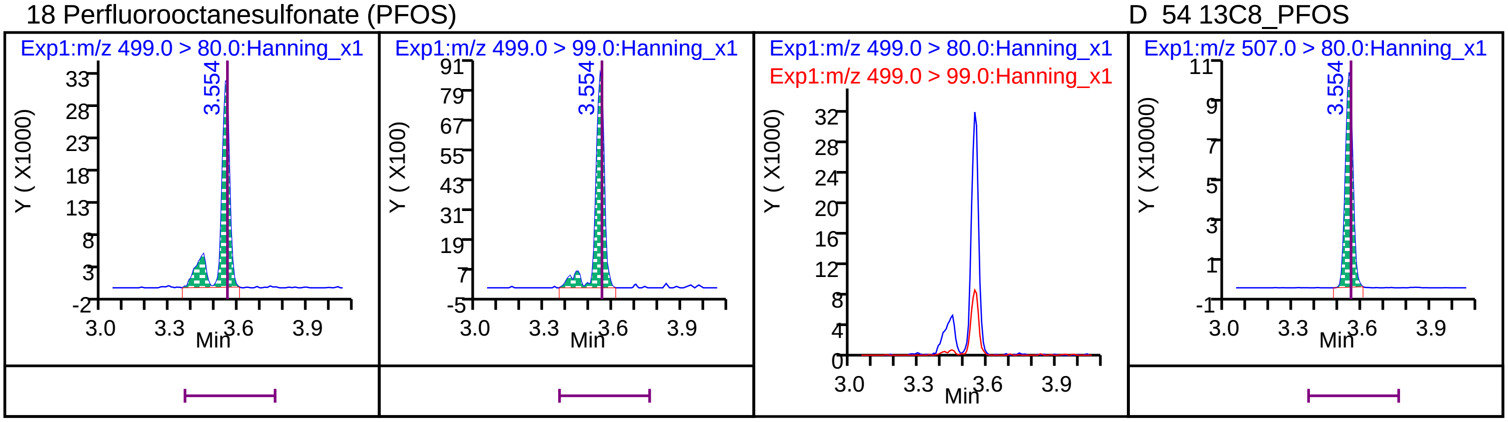
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



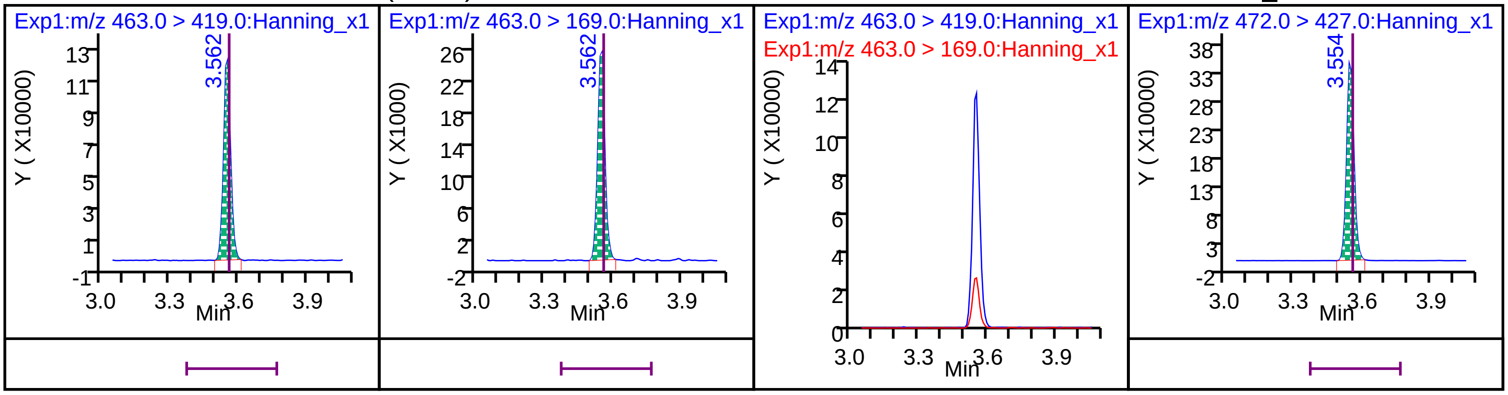
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



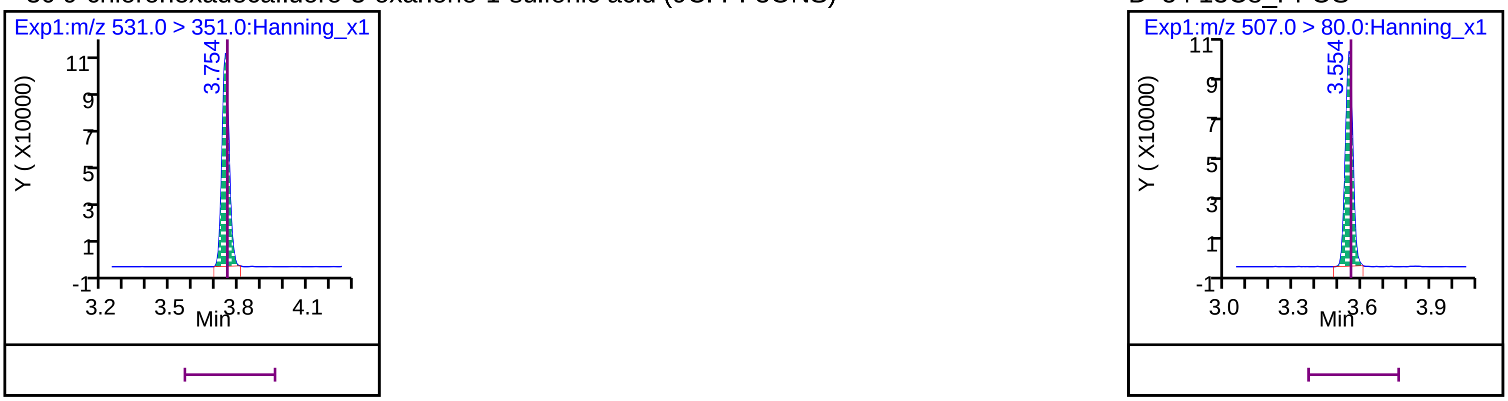
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



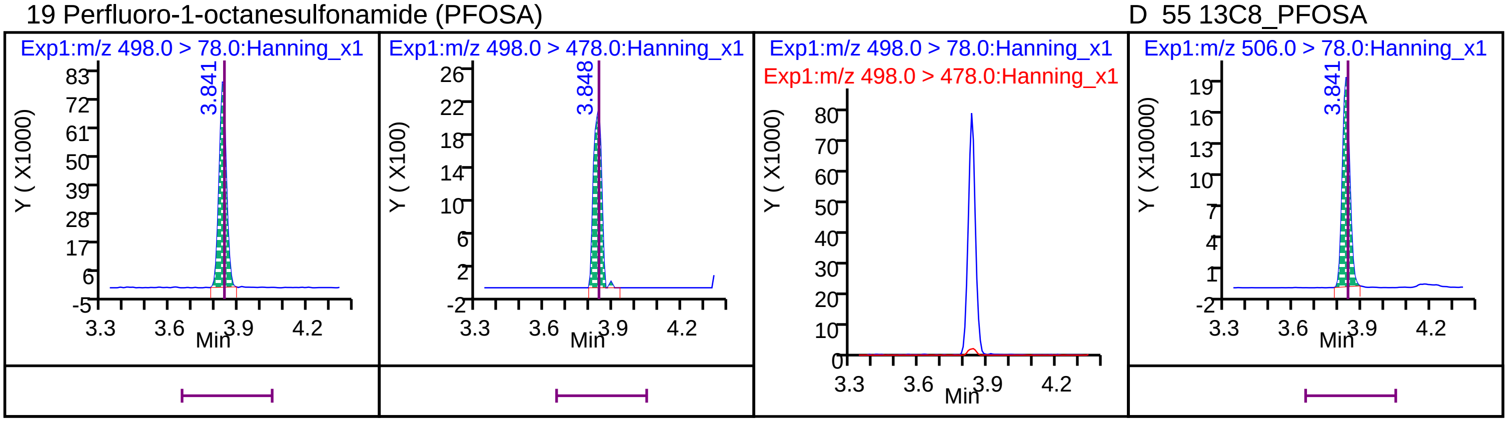
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



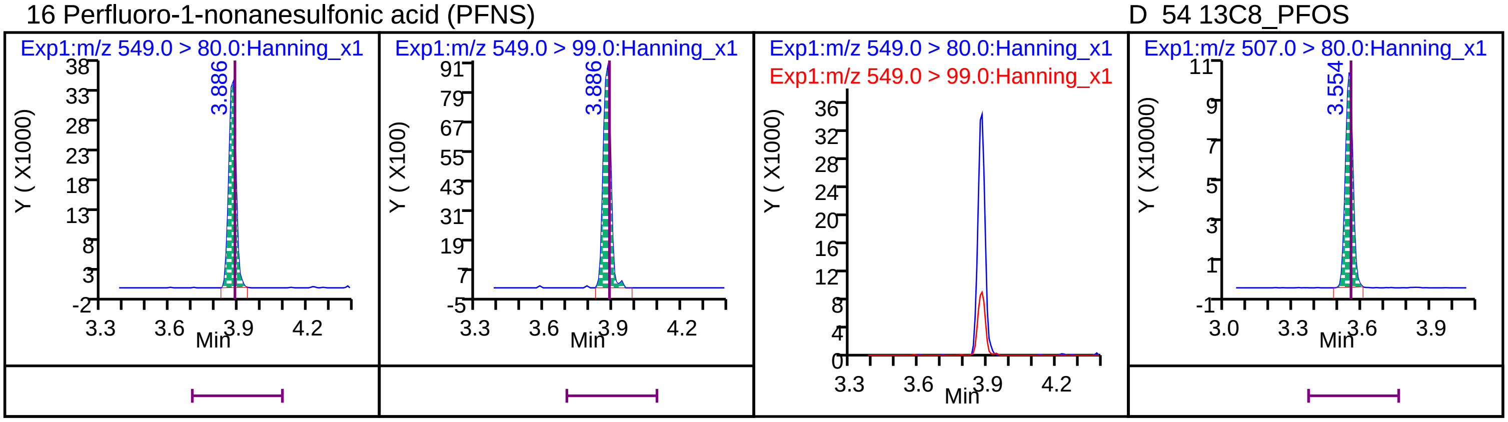
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

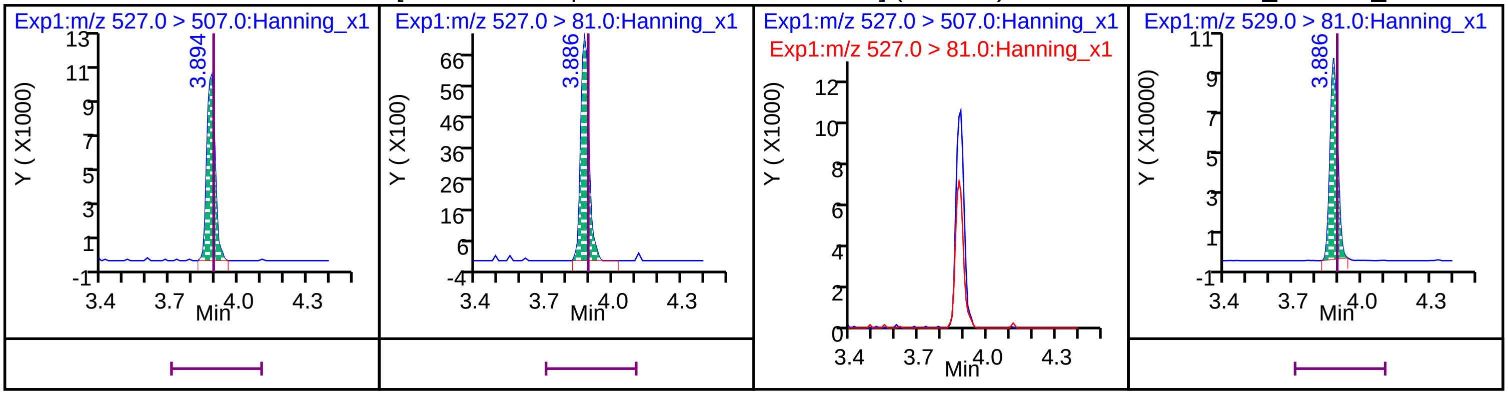


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

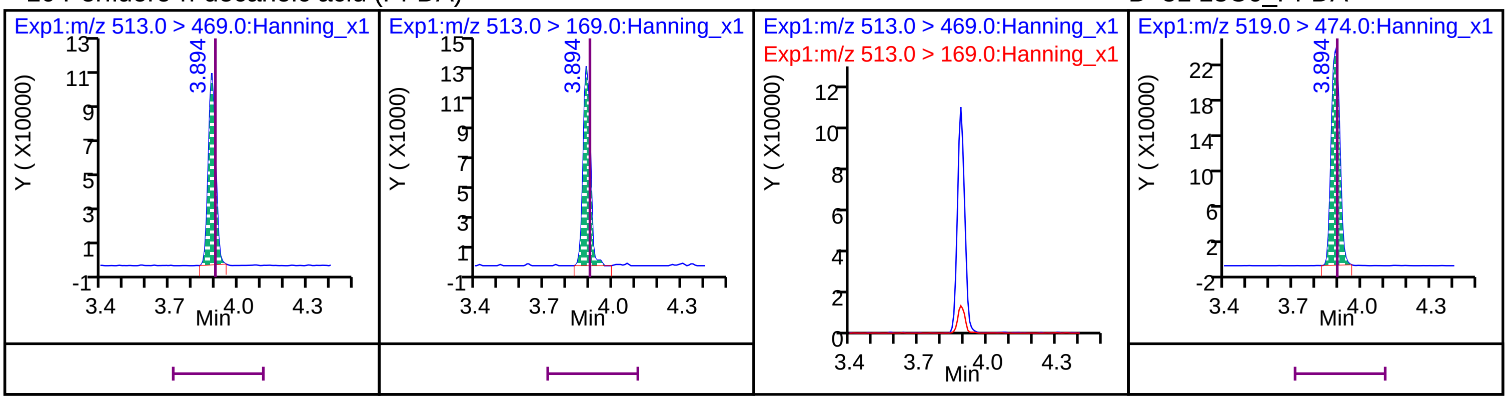


Report Date: 28-Oct-2021 20:18:12 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821030.d

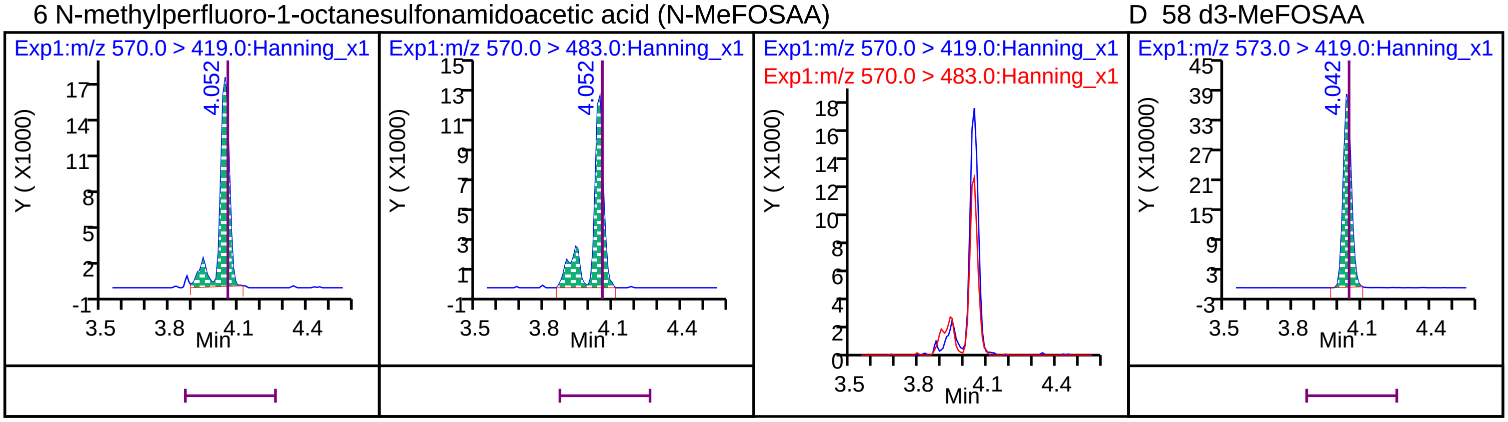
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



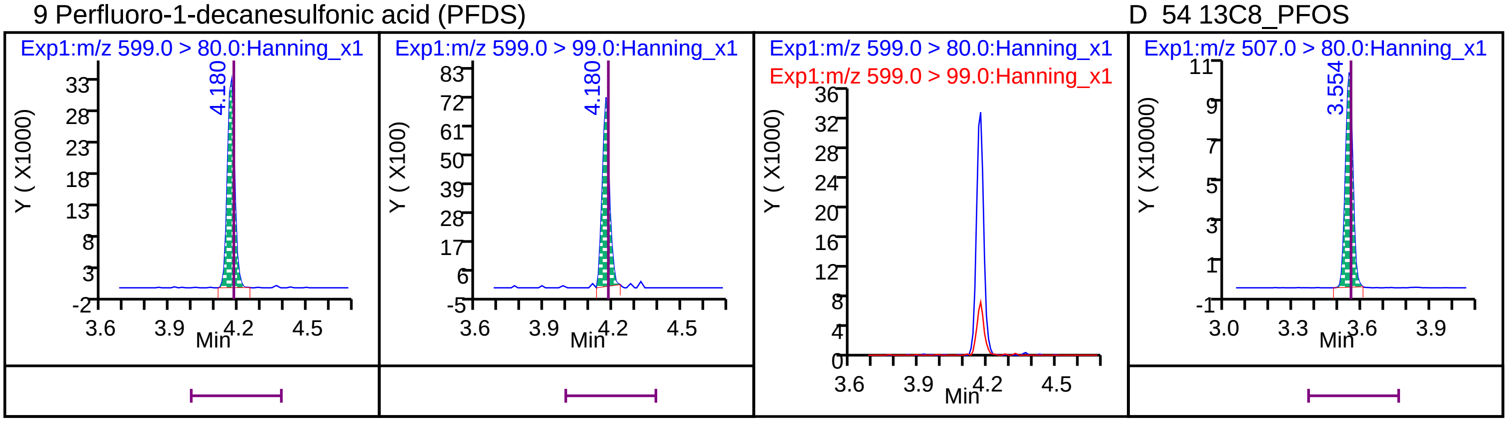
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

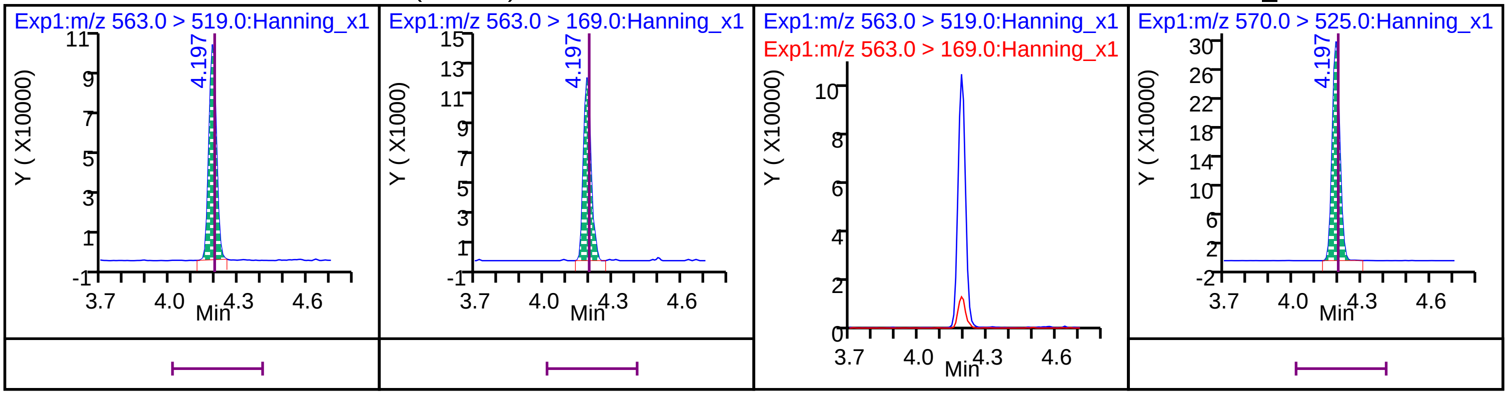


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

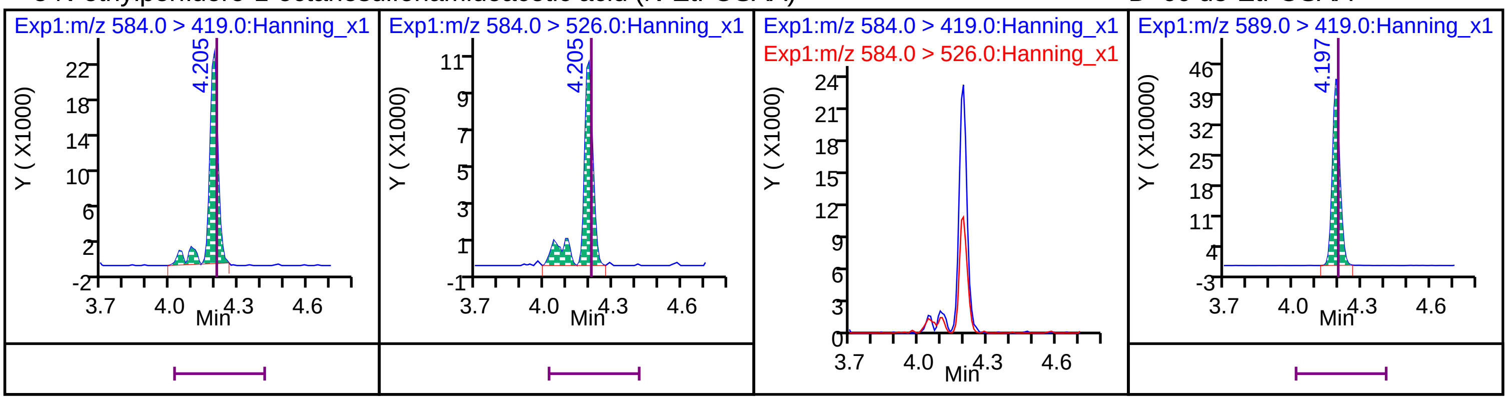


Report Date: 28-Oct-2021 20:18:12 AIM Revision: 2.0.2021.0812
Data File: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b\102821030.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

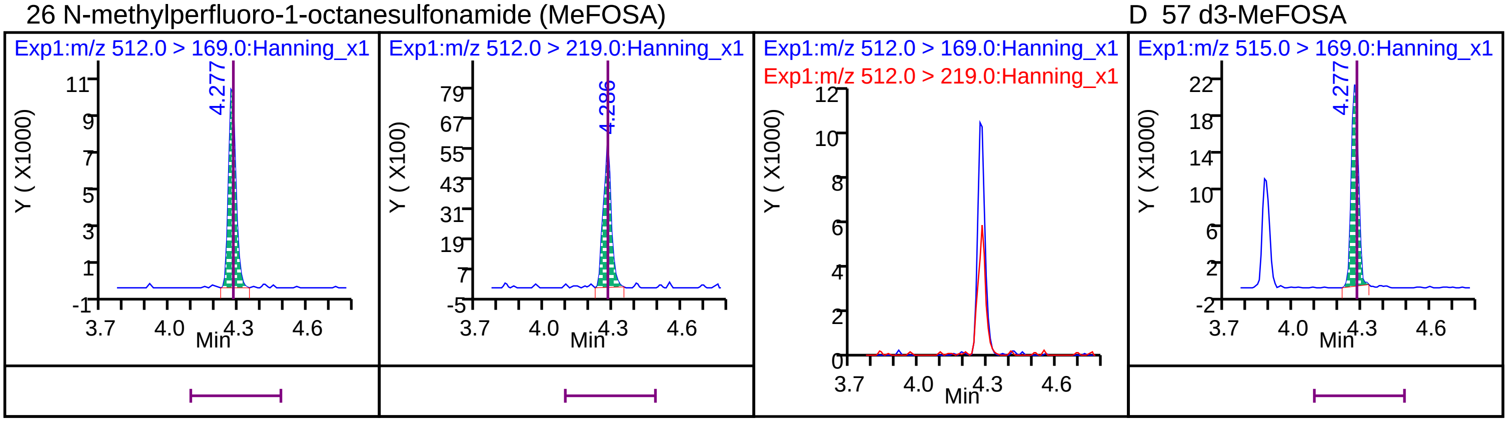


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

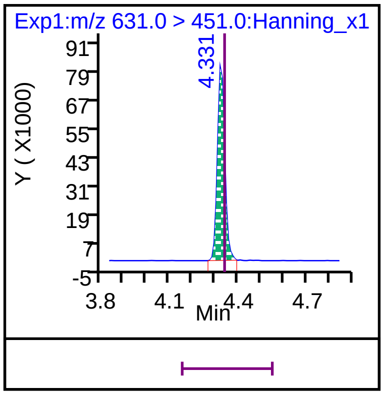


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

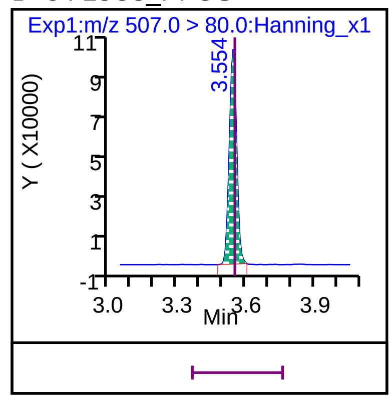
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



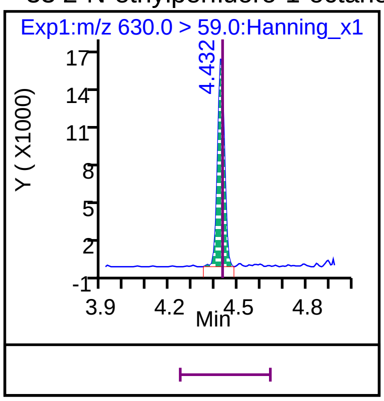
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



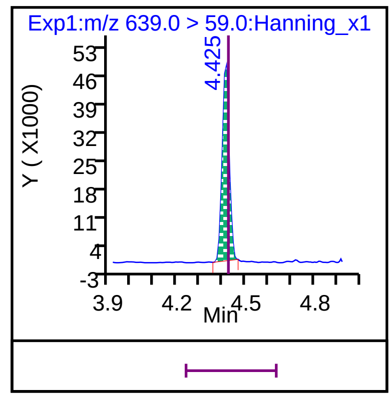
D 54 13C8_PFOS



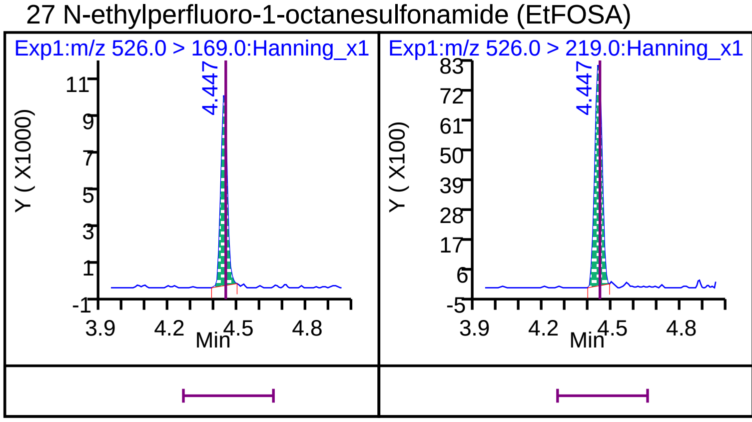
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



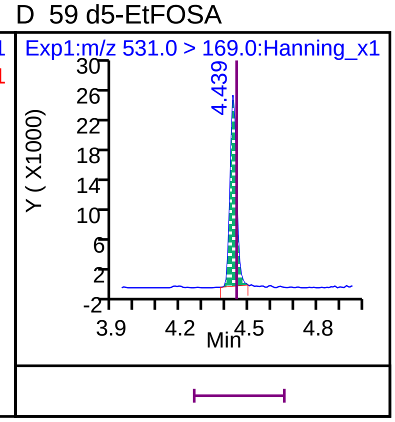
D 62 d9-EtFOSE



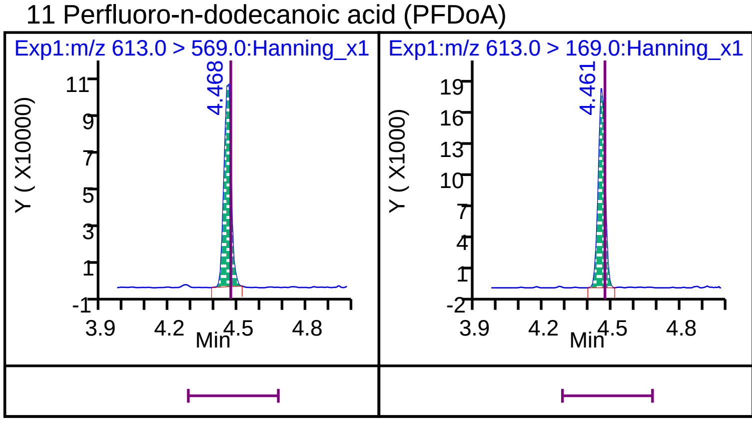
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



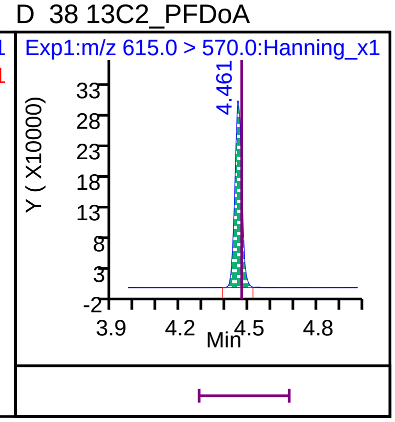
D 59 d5-EtFOSA



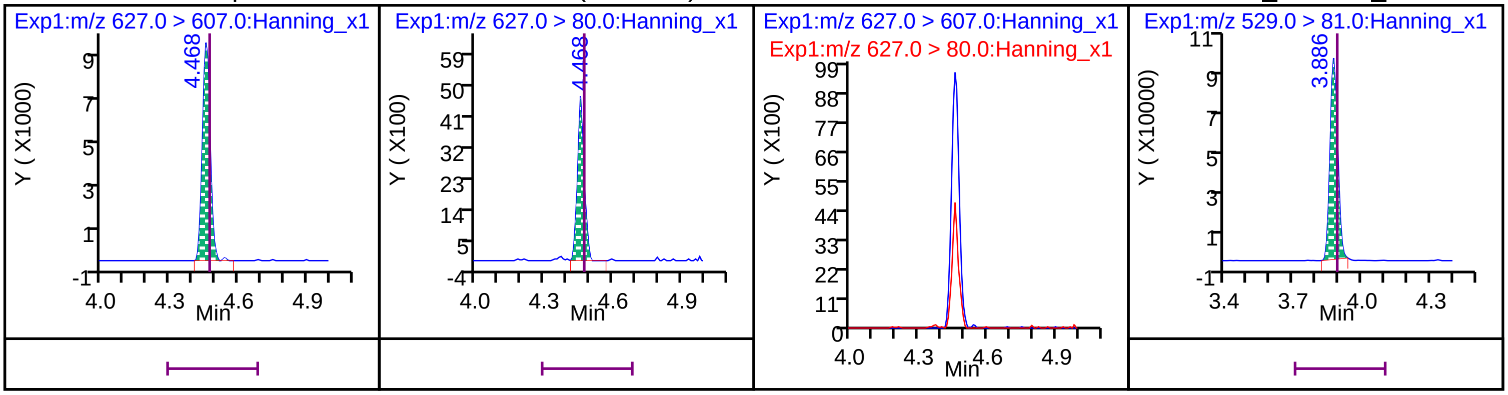
11 Perfluoro-n-dodecanoic acid (PFDoA)



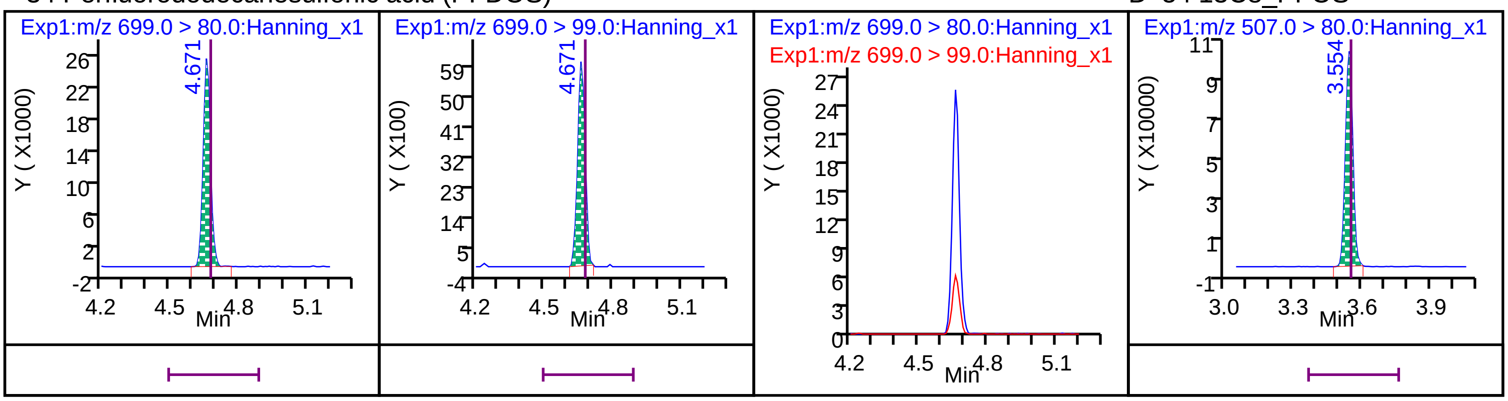
D 38 13C2_PFDoA



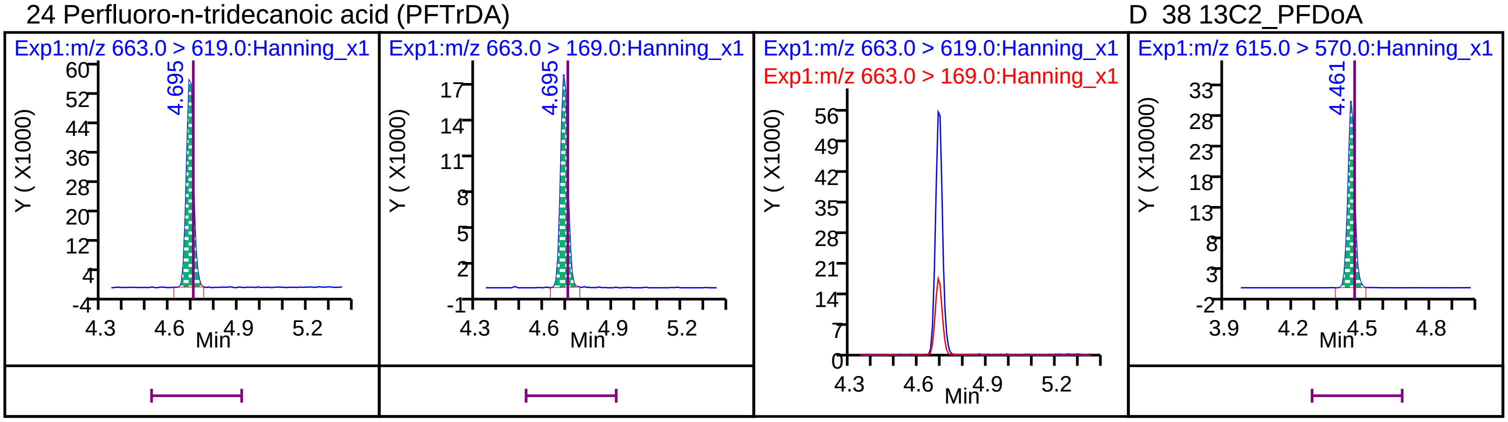
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



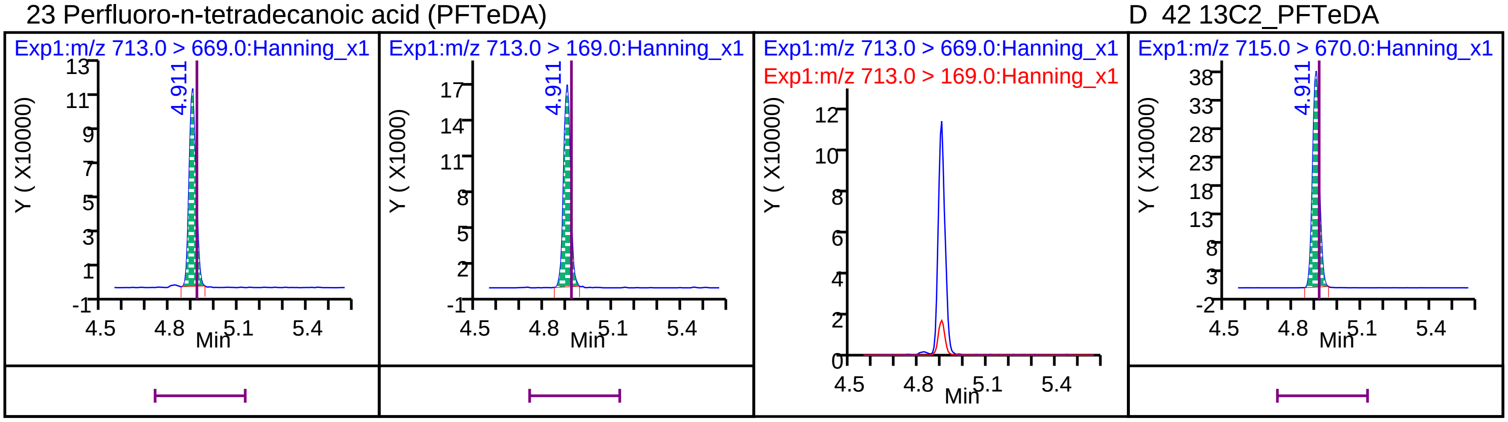
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



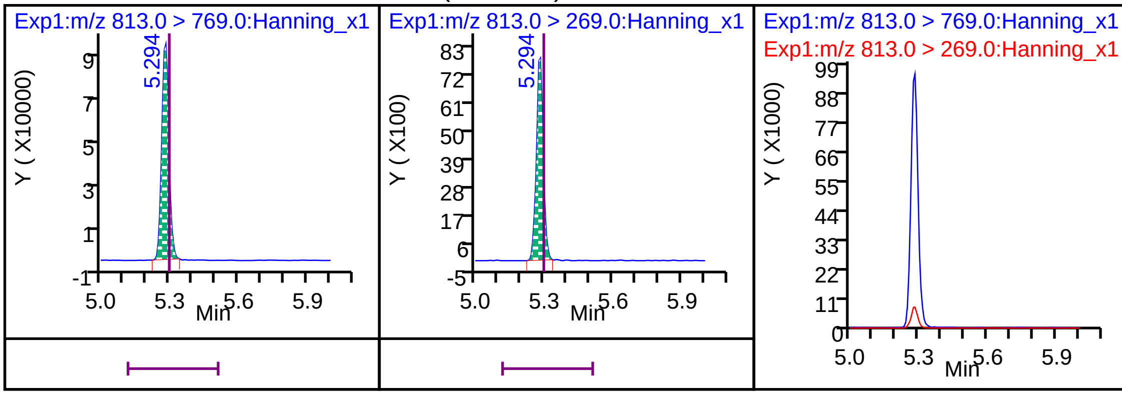
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



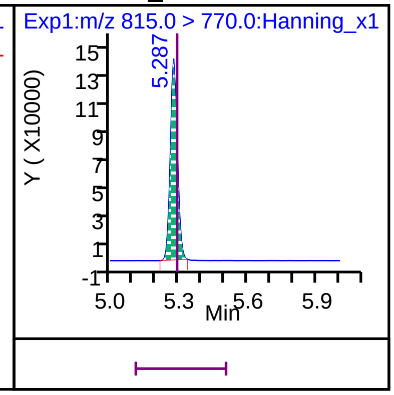
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



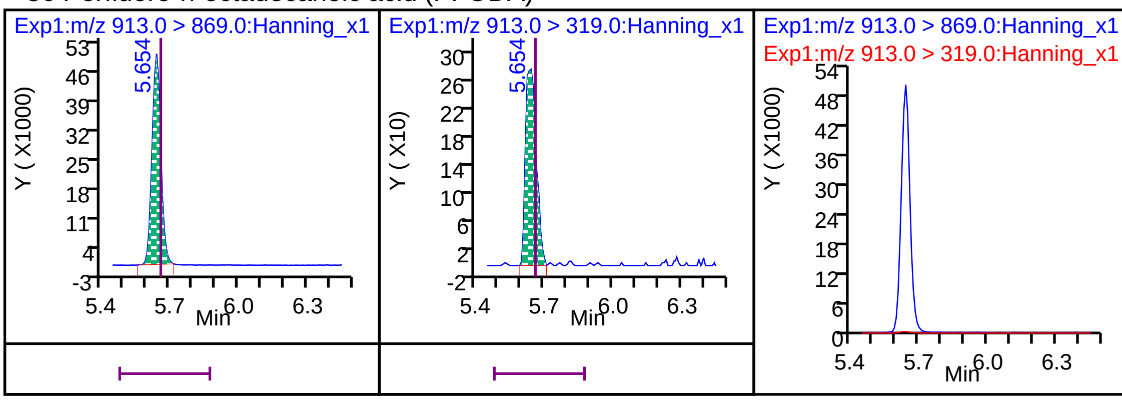
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



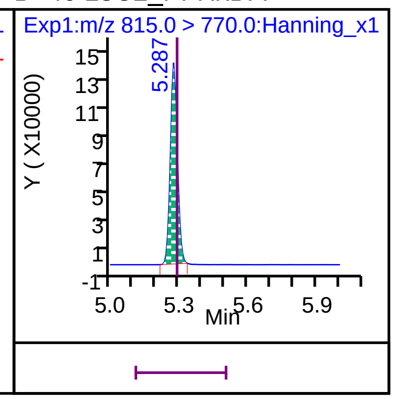
D 40 13C2_PFHxDA



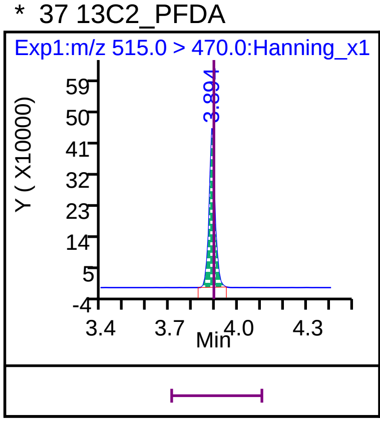
36 Perfluoro-n-octadecanoic acid (PFODA)



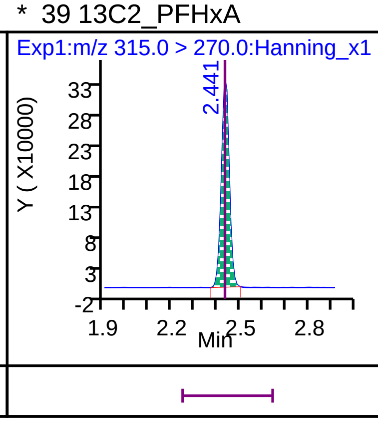
D 40 13C2_PFHxDA



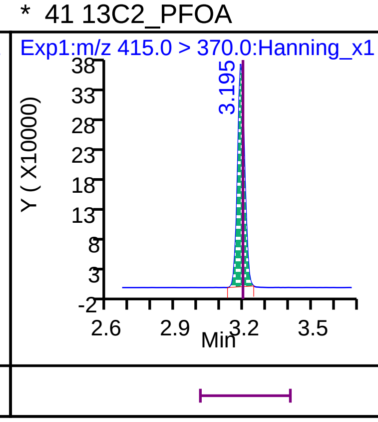
* 37 13C2_PFDA



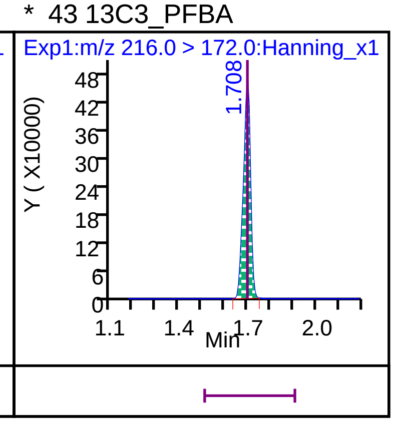
* 39 13C2_PFHxA



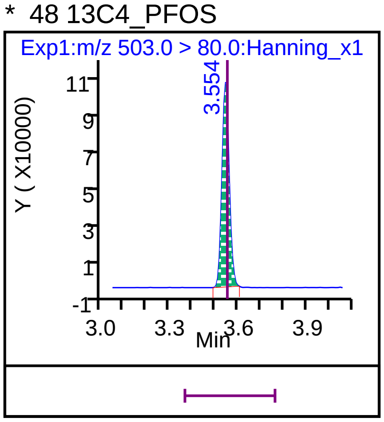
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



MISC. DATA

Extract Dilution Preparations

537	**1X**	**5X**	**10X**	**20X**	**50X**	**100X**	**200X**	**500X**	**1000X**	**2000X**
EXTRACT (uL)	950	200	100	50	20	10	20	8	4	2
IS (uL)	50	40	45	47.5	49	49.5	199	199.6	199.8	199.9
96% MeOH (uL)	-	760	855	902.5	931	940.5	3781	3792.4	3796.2	3798.1
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/Vol	1/(Vol*0.2)	1/(Vol*0.1)	1/(Vol*0.05)	1/(Vol*0.02)	1/(Vol*0.01)	1/(Vol*0.005)	1/(Vol*0.002)	1/(Vol*0.001)	1/(Vol*0.0005)

ID Aq	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	(1/0.91)* (FV/V_o)	5* (FV/V_o)	10* (FV/V_o)	20* (FV/V_o)	50* (FV/V_o)	100* (FV/V_o)	200* (FV/V_o)	500* (FV/V_o)	1000* (FV/V_o)	2000* (FV/V_o)

DAI	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
SAMPLE (uL)	700	140	70	35	14	7	14	5.6	2.8	1.4
SUR (uL)	25	25	25	25	25	25	100	100	100	100
MeOH (uL)	275	275	275	275	275	275	1100	1100	1100	1100
Water (uL)	0	560	630	665	686	693	2786	2794.4	2797.2	2798.6
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/.7	1/.14	1/.07	1/.035	1/.014	1/.007	4/.014	4/.0056	4/.0028	4/.0014

ID Solid	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	((V_E/(M*S))/ 0.91)/1000	((V_E/(M*S))/ 0.2)/1000	((V_E/(M*S))/ 0.1)/1000	((V_E/(M*S))/ 0.05)/1000	((V_E/(M*S))/ 0.02)/1000	((V_E/(M*S))/ 0.01)/1000	((V_E/(M*S))/ 0.005)/1000	((V_E/ (M*S))/ 0.002)/1000	((V_E/ (M*S))/ 0.001)/1000	((V_E/ (M*S))/ 0.0005)/1000

NOTE: Dilutions of 100x or below will be prepped in 1-mL FV; dilutions higher than 100x and will be prepped in 4-mL FV.

Report Date: 19-Oct-2021 08:49:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS01.i\101421-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 14-Oct-2021 11:07:26 Cal End Date: 14-Oct-2021 12:42:35

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
1	ICAL 50_SVLC-1655	14-Oct-2021 11:07:26	101421011.d	ICal					Analytes	L-1	1.00		
2	ICAL 100_SVLC-1656	14-Oct-2021 11:17:57	101421012.d	ICal					Analytes	L-2	1.00		
3	ICAL 200_SVLC-1641	14-Oct-2021 11:28:30	101421013.d	ICal					Analytes	L-3	1.00		
4	ICAL 500_SVLC-1642	14-Oct-2021 11:39:03	101421014.d	ICal					Analytes	L-4	1.00		
5	ICAL 1000_SVLC-1674	14-Oct-2021 11:49:36	101421015.d	ICal					Analytes	L-5	1.00		
6	ICAL 2000_SVLC-1643	14-Oct-2021 12:00:10	101421016.d	ICal					Analytes	L-6	1.00		
7	ICAL 5000_SVLC-1644	14-Oct-2021 12:10:44	101421017.d	ICal					Analytes	L-7	1.00		
8	ICAL 10000_SVLC-1645	14-Oct-2021 12:21:20	101421018.d	ICal					Analytes	L-8	1.00		
9	ICAL 15000_SVLC-1646	14-Oct-2021 12:31:57	101421019.d	ICal					Analytes	L-9	1.00		
10	ICAL 20000_SVLC-1647	14-Oct-2021 12:42:35	101421020.d	ICal					Analytes	L-10	1.00		
100	ID BLK C1	14-Oct-2021 12:53:14	101421021.d	InstBlk					Surrogates	Smp	0.1100		
11	ICV 500_SVLC-1712	14-Oct-2021 13:03:56	101421022.d	ICV					Analytes	ICV	1.00		
12	ISOMERS_SVLC-1652	14-Oct-2021 13:14:29	101421023.d	CheckStd					Surrogates	Smp	1.00	Yes	
13	ID IBLK A	14-Oct-2021 13:25:02	101421024.d	InstBlk					Surrogates	Smp	0.1100		
27	CCV 1000A_SVLC-1674	14-Oct-2021 16:03:51	101421039.d	CCV					Analytes	L-5	1.00		
100	CCB C2	14-Oct-2021 16:14:28	101421040.d	InstBlk					Surrogates	Smp	0.1100		
28	WQ18608-001	14-Oct-2021 16:25:15	101421041.d	MBlk		Soil	1	18608	Surrogates	Smp	0.1100		
29	WQ18608-002	14-Oct-2021 16:35:51	101421042.d	LCS		Soil	1	18608	Analytes	100x PDS	0.1000		
30	WJ11003-001	14-Oct-2021 16:46:27	101421043.d	Client	335	Soil	1	18608	Surrogates	Smp	0.1100		RR-SUR
31	WJ11003-002	14-Oct-2021 16:57:05	101421044.d	Client	336	Soil	1	18608	Surrogates	Smp	0.1100		RR-SUR
32	WJ11003-003	14-Oct-2021 17:07:37	101421045.d	Client	337	Soil	1	18608	Surrogates	Smp	0.1100		
33	WJ11003-004	14-Oct-2021 17:18:12	101421046.d	Client	342	Soil	1	18608	Surrogates	Smp	0.1100		
34	WJ11003-005	14-Oct-2021 17:28:46	101421047.d	Client	346	Soil	1	18608	Surrogates	Smp	0.1100		RR-5X
35	WJ11003-006	14-Oct-2021 17:39:19	101421048.d	Client	347	Soil	1	18608	Surrogates	Smp	0.1100		
36	WJ11003-007	14-Oct-2021 17:49:54	101421049.d	Client	348	Soil	1	18608	Surrogates	Smp	0.1100		
37	WJ11003-008	14-Oct-2021 18:00:31	101421050.d	Client	352	Soil	1	18608	Surrogates	Smp	0.1100		
38	WJ11003-009	14-Oct-2021 18:11:06	101421051.d	Client	355	Soil	1	18608	Surrogates	Smp	0.1100		
39	WJ11003-010	14-Oct-2021 18:21:42	101421052.d	Client	356	Soil	1	18608	Surrogates	Smp	0.1100		
40	CCV 1000B_SVLC-1674	14-Oct-2021 18:32:18	101421053.d	CCV					Analytes	L-5	1.00		
100	CCB C3	14-Oct-2021 18:42:57	101421054.d	InstBlk					Surrogates	Smp	0.1100		
41	WJ11003-011	14-Oct-2021 18:53:39	101421055.d	Client	357	Soil	1	18608	Surrogates	Smp	0.1100		
42	WJ11003-012	14-Oct-2021 19:04:11	101421056.d	Client	358	Soil	1	18608	Surrogates	Smp	0.1100		
43	WJ11003-013	14-Oct-2021 19:14:45	101421057.d	Client	359	Soil	1	18608	Surrogates	Smp	0.1100		
44	WJ11003-014	14-Oct-2021 19:25:20	101421058.d	Client	360	Soil	1	18608	Surrogates	Smp	0.1100		
54	CCV 1000C_SVLC-1674	14-Oct-2021 21:11:18	101421068.d	CCV					Analytes	L-5	1.00		
100	CCB C4	14-Oct-2021 21:21:54	101421069.d	InstBlk					Surrogates	Smp	0.1100		

Report Date: 28-Oct-2021 20:18:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\ORGANICS\LL\LCMSMS01.i\102821-DOD.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 14-Oct-2021 11:07:26 Cal End Date: 14-Oct-2021 12:42:35

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	CCV 100_SVLC-1724	28-Oct-2021 11:16:44	102821005.d	CCV					Analytes	L-2	1.00		
96	CCV 200_SVLC-1725	28-Oct-2021 11:27:18	102821006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	28-Oct-2021 11:37:49	102821007.d	InstBlk					Surrogates	Smp	0.1100		
99	ID IS 20_SVLC-1727	28-Oct-2021 11:59:00	102821009.d	InstBlk					Surrogates	Smp	0.1100		
13	CCV 1000_SVLC-1717	28-Oct-2021 14:16:43	102821022.d	CCV					Analytes	L-5	1.00		
100	CCB C1	28-Oct-2021 14:27:16	102821023.d	InstBlk					Surrogates	Smp	0.1100		
14	WJ15024-001	28-Oct-2021 14:37:59	102821024.d	Client	Echo-Phase01 (0.0'-0.5')	Soil	1	20076	Surrogates	Smp	0.1100		
15	WJ15024-002	28-Oct-2021 14:48:33	102821025.d	Client	Echo-Phase02 (0.0'-0.5')	Soil	1	20076	Surrogates	Smp	0.1100		
16	WJ15024-003	28-Oct-2021 14:59:07	102821026.d	Client	Echo-Phase03 (0.0'-0.5')	Soil	1	20076	Surrogates	Smp	0.1100		
17	WJ15024-004	28-Oct-2021 15:09:44	102821027.d	Client	Hanger-STP01A	Soil	1	20076	Surrogates	Smp	0.1100		
18	WJ15024-005	28-Oct-2021 15:20:19	102821028.d	Client	Hanger-STP02A	Soil	1	20076	Surrogates	Smp	0.1100		
19	WQ20397-001	28-Oct-2021 15:30:55	102821029.d	MBlk		Aqueous	1	20397	Surrogates	Smp	0.1100		
20	WQ20397-002	28-Oct-2021 15:41:33	102821030.d	LCS		Aqueous	1	20397	Analytes	100x PDS	0.2000		
21	WJ27032-001	28-Oct-2021 15:52:13	102821031.d	Client	POL-DPT0134-012.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		
22	WJ27032-002	28-Oct-2021 16:02:44	102821032.d	Client	POL-DPT0134-022.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX
23	WJ27032-003	28-Oct-2021 16:13:17	102821033.d	Client	POL-DPT0134-032.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,4:2 HI-NCM/ND
24	WJ27032-004	28-Oct-2021 16:23:51	102821034.d	Client	POL-DPT0134-042.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,4:l2 HI-NCM/ND, RR-6:2 HI(DET)
25	WJ27032-005	28-Oct-2021 16:34:25	102821035.d	Client	POL-DPT0135-012.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,4:2 HI-NCM/ND
26	CCV 1000A_SVLC-1717	28-Oct-2021 16:45:01	102821036.d	CCV					Analytes	L-5	1.00		
100	CCB C2	28-Oct-2021 16:55:36	102821037.d	InstBlk					Surrogates	Smp	0.1100		
27	WJ27032-006	28-Oct-2021 17:06:18	102821038.d	Client	POL-DPT0135-022.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX
28	WJ27032-007	28-Oct-2021 17:16:55	102821039.d	Client	POL-DPT0135-032.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,4:2 HI-NCM/ND
29	WJ27032-008	28-Oct-2021 17:27:32	102821040.d	Client	POL-DPT0135-042.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		43:2 HI-NCM/ND
30	WJ25006-001	28-Oct-2021 17:38:09	102821041.d	Client	POL-DPT0127-012.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,4:2 HI-NCM/ND,RR-6:2 HI(DET)
31	WJ25006-002	28-Oct-2021 17:48:49	102821042.d	Client	POL-DPT0127-022.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX
32	WJ25006-003	28-Oct-2021 17:59:23	102821043.d	Client	POL-DPT0127-032.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,4:2 HI-NCM/ND
33	WJ25006-004	28-Oct-2021 18:09:57	102821044.d	Client	POL-DPT0127-042.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		SUR-NCM/MTX,RR-4:2 HI(DET)
34	WJ22074-007	28-Oct-2021 18:20:32	102821045.d	Client	A3RB-MW0001-025.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		RR-PFBA LOW, 4:2 HI-NCM/ND
35	CCV 1000B_SVLC-1717	28-Oct-2021 18:31:06	102821046.d	CCV					Analytes	L-5	1.00		
100	CCB C3	28-Oct-2021 18:41:42	102821047.d	InstBlk					Surrogates	Smp	0.1100		

Report Date: 30-Oct-2021 15:07:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS01.i\102921-DOD.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 14-Oct-2021 11:07:26 Cal End Date: 14-Oct-2021 12:42:35

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	CCV 100_SVLC-1724	29-Oct-2021 11:12:16	102921005.d	CCV					Analytes	L-2	1.00		
96	CCV 200_SVLC-1725	29-Oct-2021 11:22:51	102921006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	29-Oct-2021 11:33:22	102921007.d	InstBlk					Surrogates	Smp	0.1100		
99	ID SUR 20_SVLC-1728	29-Oct-2021 11:54:34	102921009.d	InstBlk					Surrogates	Smp	0.1100		
5	CCV 1000_SVLC-1717	29-Oct-2021 12:47:31	102921014.d	CCV					Analytes	L-5	1.00		
6	ID SUR 100_SVLC-1729	29-Oct-2021 12:58:07	102921015.d	InstBlk					Surrogates	Smp	0.1100		
7	WJ09018-001	29-Oct-2021 13:08:41	102921016.d	Client	H729-INF-20211006	Aqueous	500	20397	Surrogates	Smp	0.1100		
8	WJ09018-001MS	29-Oct-2021 13:19:18	102921017.d	MS		Aqueous	500	20397	Analytes	100x PDS	0.2000		
9	WJ09018-002	29-Oct-2021 13:29:56	102921018.d	Client	H729-02-02K-20211006	Aqueous	5	20397	Surrogates	Smp	0.1100		
10	WJ09018-002DU	29-Oct-2021 13:40:34	102921019.d	Client		Aqueous	5	20397	Surrogates	Smp	0.1100		
11	WJ09018-003	29-Oct-2021 13:51:14	102921020.d	Client	H729-GAC3-20K-20211006	Aqueous	1	20397	Surrogates	Smp	0.1100		
12	WJ09018-004	29-Oct-2021 14:01:47	102921021.d	Client	H729-EFF-20K-20211006	Aqueous	1	20397	Surrogates	Smp	0.1100		
13	WJ09018-005	29-Oct-2021 14:12:21	102921022.d	Client	H729-INF-20211007	Aqueous	500	20397	Surrogates	Smp	0.1100		
14	WJ09018-006	29-Oct-2021 14:22:54	102921023.d	Client	H729-02-40K-20211007	Aqueous	5	20397	Surrogates	Smp	0.1100		
15	WJ09018-007	29-Oct-2021 14:33:27	102921024.d	Client	H729-GAC3-40K-20211007	Aqueous	1	20397	Surrogates	Smp	0.1100		
16	WJ27032-004	29-Oct-2021 14:44:02	102921025.d	Client	POL-DPT0134-042.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		REPORT THIS RUN
17	WJ25006-001	29-Oct-2021 14:54:38	102921026.d	Client	POL-DPT0127-012.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		REPORT THIS RUN
18	WJ25006-004	29-Oct-2021 15:05:13	102921027.d	Client	POL-DPT0127-042.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		CONFIRMS ORIG-NEED RX
19	CCV 1000_SVLC-1717	29-Oct-2021 15:15:48	102921028.d	CCV					Analytes	L-5	1.00		
100	CCB C1	29-Oct-2021 15:26:26	102921029.d	InstBlk					Surrogates	Smp	0.1100		
20	WJ22074-007	29-Oct-2021 15:37:08	102921030.d	Client	A3RB-MW0001-025.0-202110	Aqueous	1	20397	Surrogates	Smp	0.1100		REPORT THIS RUN
21	WQ20462-001	29-Oct-2021 16:20:03	102921031.d	MBlk		Aqueous	1	20462	Surrogates	Smp	0.1100		8:2 SUR HI-OK/ND
22	WQ20462-002	29-Oct-2021 16:30:36	102921032.d	LCS		Aqueous	1	20462	Analytes	100x PDS	0.2000		
23	WJ05084-001	29-Oct-2021 16:41:10	102921033.d	Client	KLF01-RS03-OCT2021	Aqueous	1	20462	Surrogates	Smp	0.1100		
24	WJ05084-002	29-Oct-2021 16:51:45	102921034.d	Client	KLF01-MW17-OCT2021	Aqueous	1	20462	Surrogates	Smp	0.1100		
25	WJ05069-002	29-Oct-2021 17:02:20	102921035.d	Client	FRB-TW3-02-100421	Aqueous	1	20462	Surrogates	Smp	0.1100		
26	WJ05069-003	29-Oct-2021 17:12:58	102921036.d	Client	FT006P-TW3-02-00-100421	Aqueous	1	20462	Surrogates	Smp	0.1100		RR-100X, SUR-NCM/MTX(SUPPRESSION)
27	WJ05069-004	29-Oct-2021 17:23:33	102921037.d	Client	FRB-TW3-02-100521	Aqueous	1	20462	Surrogates	Smp	0.1100		RR-1X-C/O
28	WJ05069-005	29-Oct-2021 17:34:11	102921038.d	Client	FT006P-TW3-02-00-100521	Aqueous	1	20462	Surrogates	Smp	0.1100		RR-50X
29	WJ09014-002	29-Oct-2021 17:44:48	102921039.d	Client	24 LS38816	Aqueous	1	20462	Surrogates	Smp	0.1100		RR-1X-C/O
30	WJ09025-002	29-Oct-2021 17:55:25	102921040.d	Client	OU2-EFF-1021A	Aqueous	1	20462	Surrogates	Smp	0.1100		
31	WJ09025-002MS	29-Oct-2021 18:06:04	102921041.d	MS		Aqueous	1	20462	Analytes	100x PDS	0.2000		
32	WJ09025-002MD	29-Oct-2021 18:16:37	102921042.d	MSD		Aqueous	1	20462	Analytes	100x PDS	0.2000		
33	CCV 1000A_SVLC-1717	29-Oct-2021 18:27:10	102921043.d	CCV					Analytes	L-5	1.00		
100	CCB C2	29-Oct-2021 18:37:45	102921044.d	InstBlk					Surrogates	Smp	0.1100		
34	WJ09025-003	29-Oct-2021 18:48:26	102921045.d	Client	OU2-VA50-1021A	Aqueous	1	20462	Surrogates	Smp	0.1100		
35	WJ09025-004	29-Oct-2021 18:59:01	102921046.d	Client	OU2-INF-1021A	Aqueous	1	20462	Surrogates	Smp	0.1100		
36	WJ09025-005	29-Oct-2021 19:09:36	102921047.d	Client	OU2-INF100-1021A	Aqueous	1	20462	Surrogates	Smp	0.1100		
37	WJ09025-006	29-Oct-2021 19:20:13	102921048.d	Client	100721-FB	Aqueous	1	20462	Surrogates	Smp	0.1100		
38	WJ15022-001	29-Oct-2021 19:30:49	102921049.d	Client	A3143-INF-FRB-04	Aqueous	1	20462	Surrogates	Smp	0.1100		
39	WJ15022-002	29-Oct-2021 19:41:25	102921050.d	Client	A3143-INF-10142021	Aqueous	1	20462	Surrogates	Smp	0.1100		RR-5X
40	WJ26008-038	29-Oct-2021 19:52:02	102921051.d	Client	21Q4-JBE054-TB01-SO-D01-	Aqueous	1	20462	Surrogates	Smp	0.1100		
41	WJ26008-039	29-Oct-2021 20:02:42	102921052.d	Client	21Q4-JBE054-TB01-SO-D01-	Aqueous	1	20462	Surrogates	Smp	0.1100		
42	WJ26008-040	29-Oct-2021 20:13:15	102921053.d	Client	21Q4-JBE054-TB01-SO-D01-	Aqueous	1	20462	Surrogates	Smp	0.1100		

Report Date: 30-Oct-2021 15:07:08 AIM Revision: 2.0.2021.0812

Batch Path: \\Organics\LL\LCMSMS01.i\102921-DOD.b

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
43	CCV 1000B_SVLC-1717	29-Oct-2021 20:23:50	102921054.d	CCV					Analytes	L-5	1.00		
100	CCB C3	29-Oct-2021 20:34:26	102921055.d	InstBlk					Surrogates	Smp	0.1100		
44	WJ09018-008	29-Oct-2021 20:45:08	102921056.d	Client	H729-EFF-40K-20211007	Aqueous	50	20462	Surrogates	Smp	0.1100		RR-1X
45	WJ09018-009	29-Oct-2021 20:55:43	102921057.d	Client	H729-Frac1-40K-20211007	Aqueous	50	20462	Surrogates	Smp	0.1100		RR-1X
46	WJ09018-010	29-Oct-2021 21:06:21	102921058.d	Client	H729-Frac2-20K-20211007	Aqueous	50	20462	Surrogates	Smp	0.1100		RR-1X

Analyst: ALM **Level 2 Analyst:** N/A

Status: Level 1 review released

Matrix: Aqueous

Printed: 11/06/21 1032

Prep Batch: 20397

PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 10/27/2021 1636
End Date: 10/27/2021 2353

Conc Analyst: ALM
Conc Start Date: 10/27/2021 0000
Conc End Date: 10/27/2021 0000

Ext Solvent: MEOH>96%MEOH/4%H2O

Surrogate: SVLG-1718
Surrogate Vol. (mL): 0.110

Reagents Vol. (mL): 10

Chem ID: 21-2009>21-2009/21-2249

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WQ20397-001	MB		1	PFAS by ID SOP QSM B-15	250		250		0.000	10.0	Init: 296.99g; Final: 31.64g
WQ20397-002	LCS		1	PFAS by ID SOP QSM B-15	250		250	SVLG-1723	0.200	10.0	Init: 284.28g; Final: 31.17g
WJ27032-001	Sample	FCL-DPT0134-012.0-20211026	1	PFAS by ID SOP QSM B-15	313.95	31.92	282		0.000	10.0	NCM62371
WJ27032-002	Sample	FCL-DPT0134-022.0-20211026	1	PFAS by ID SOP QSM B-15	319.81	32.56	287		0.000	10.0	NCM62371
WJ27032-003	Sample	FCL-DPT0134-032.0-20211026	1	PFAS by ID SOP QSM B-15	317.17	31.74	285		0.000	10.0	NCM62371
WJ27032-004	Sample	FCL-DPT0134-042.0-20211026	1	PFAS by ID SOP QSM B-15	315.38	32.23	283		0.000	10.0	NCM62371
WJ27032-005	Sample	FCL-DPT0135-012.0-20211026	1	PFAS by ID SOP QSM B-15	317.46	32.34	285		0.000	10.0	NCM62371
WJ27032-006	Sample	FCL-DPT0135-022.0-20211026	1	PFAS by ID SOP QSM B-15	312.61	32.05	281		0.000	10.0	NCM62371
WJ27032-007	Sample	FCL-DPT0135-032.0-20211026	1	PFAS by ID SOP QSM B-15	315.58	31.92	284		0.000	10.0	NCM62371
WJ27032-008	Sample	FCL-DPT0135-042.0-20211026	1	PFAS by ID SOP QSM B-15	325.46	32.33	293		0.000	10.0	NCM62371
WJ25006-001	Sample	FCL-DPT0127-012.0-20211021	1	PFAS by ID SOP QSM B-15	324.91	32.23	293		0.000	10.0	NCM62371
WJ25006-002	Sample	FCL-DPT0127-022.0-20211021	1	PFAS by ID SOP QSM B-15	324.23	32.12	292		0.000	10.0	NCM62371
WJ25006-003	Sample	FCL-DPT0127-032.0-20211021	1	PFAS by ID SOP QSM B-15	314.98	32.32	283		0.000	10.0	NCM62371
WJ25006-004	Sample	FCL-DPT0127-042.0-20211021	1	PFAS by ID SOP QSM B-15	332.45	32.36	300		0.000	10.0	NCM62371
WJ22074-007	Sample	A3RB-MW0001-025.0-20211019	1	PFAS by ID SOP QSM B-15	305.01	32.22	273		0.000	10.0	Sorbent dry start/end:1st: 2043/2048,2nd: 2302/2307; Buffer:SV21-772; Amm-MeOH:SV21-776(4mL); QC Water: PFAS-21-009;
WJ09018-001	Sample	H729-INF-20211006	1	PFAS by ID SOP QSM B-15	304.17	252.14	52		0.000	10.0	NCM62372

Analyst: ALM **Level 2 Analyst:** N/A

Status: Level 1 review released

Matrix: Aqueous

Printed: 11/06/21 1032

Prep Batch: 20397

PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 10/27/2021 1636
End Date: 10/27/2021 2353

Conc Analyst: ALM
Conc Start Date: 10/27/2021 0000
Conc End Date: 10/27/2021 0000

Ext Solvent: MEOH>96%MEOH/4%H2O
Reagents Vol. (mL): 10
Chem ID: 21-2009>21-2009/21-2249

Surrogate: SVLG-1718
Surrogate Vol. (mL): 0.110

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WJ09018-001MS	MS		1	PFAS by ID SOP QSM B-15	295	247.03	48	SVLG-1723	0.200	10.0	NCM62372
WJ09018-002	Sample	H729-02-02K-20211006	1	PFAS by ID SOP QSM B-15	318.26	32.55	286		0.000	10.0	Bottletop#329; Pipettes:21-1600,21-1707; QC Bottles: M-1-243-01BB; GCB/WAX 500/50:21-2327;
WJ09018-002DU	Duplicate		1	PFAS by ID SOP QSM B-15	314	32.49	282		0.000	10.0	Reservoirs:21-1930; Elution tubes:21-1415; Falcon tubes:21-1651; Centrifuge tubes:21-2028; Storage bottles:21-2272;
WJ09018-003	Sample	H729-GAC3-20K-20211006	1	PFAS by ID SOP QSM B-15	310.69	32.29	278		0.000	10.0	MeOH Ext:4mL, Filt:2mL; IS: SVLG-1711(0.010mL); ASV/Caps: 21-1476/21-1813;
WJ09018-004	Sample	H729-EFF-20K-20211006	1	PFAS by ID SOP QSM B-15	306.67	32.38	274		0.000	10.0	
WJ09018-005	Sample	H729-INF-20211007	1	PFAS by ID SOP QSM B-15	326.89	32.56	294		0.000	10.0	
WJ09018-006	Sample	H729-02-40K-20211007	1	PFAS by ID SOP QSM B-15	319.36	32.13	287		0.000	10.0	
WJ09018-007	Sample	H729-GAC3-40K-20211007	1	PFAS by ID SOP QSM B-15	317.41	32.04	285		0.000	10.0	

(end of report) **Total Samples: 20**

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1639	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1625	2,000	125	5	50	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,375		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1640	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1625	2,000	500	10	100	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,500		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1641	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	200 ppt PFAS FL ICAL (L3)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1625	2,000	1,000	10	200	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,000		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1642	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	500 ppt PFAS FL ICAL (L4)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1625	20,000	125	5	500	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,375		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1600	Level 2 Reviewed by:	ARC2
Prep. Date:	9/7/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-609		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1625	20,000	750	15	1000	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	750		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	750		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	12,750		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1643	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	2000 ppt PFAS FL ICAL (L6)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1625	20,000	500	5	2000	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,000		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1644	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	5000 ppt PFAS FL ICAL (L7)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	125	5	5000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,375		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1645	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	10000 ppt PFAS FL ICAL (L8)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	500	10	10000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,500		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1646	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	15000 ppt PFAS FL ICAL (L9)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	750	10	15000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,250		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1647	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	20000 ppt PFAS FL ICAL (L10)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	1,500	15	20000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	750		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	750		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	12,000		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 9/15/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1652
Mix Name: ISOMER CHECK STD
Solvent ID #: SV21-702
Solvent Name: Methanol/Water

Level 2 Reviewed by: ARC2
Date: 9/15/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Isomer Check 50X Mix	SVLC-0588	1,000	20	2	10	1	-	3/11/2019	2/7/2020
ID IS 20ppb	SVLC-1648	20	100		1	1	-	9/13/2021	4/14/2022
ID SUR 20ppb	SVLC-1633	20	100		1	1	-	9/2/2021	6/15/2022
96% Methanol	SV21-702	pure	1,780		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1655	Level 2 Reviewed by:	arc2
Prep. Date:	9/17/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	9/19/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-704		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	125	5	50	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1648	20,000.0	250		1000	1	-	9/13/2021	4/14/2022
96% Methanol	21-704	pure	4,375		#VALUE!	1	-	9/1/2021	9/1/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1656	Level 2 Reviewed by:	arc2
Prep. Date:	9/17/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	9/19/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-704		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	500	10	100	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1648	20,000.0	500		1000	1	-	9/13/2021	4/14/2022
96% Methanol	21-704	pure	8,500		#VALUE!	1	-	9/1/2021	9/1/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1674	Level 2 Reviewed by:	arc2
Prep. Date:	9/27/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	9/28/2021
Exp. Date:	4/14/2022	Solvent ID #:	21-702		
Pipet ID:	20-2534,20-1288	Solvent Name:	96% Methanol		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1672	20,000	750	15	1000	1,2	-	9/23/2021	11/19/2021
ID SUR 20ppb	SVLC-1653	20,000.0	750		1000	1	-	9/16/2021	6/15/2022
ID IS 20ppb	SVLC-1673	20,000.0	750		1000	1	-	9/23/2021	4/14/2022
96% Methanol	21-702	pure	12,750		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 10/13/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1712
Mix Name: PFAS Full List ICV, 500ppt
Solvent ID #: 21-2009/21-2249
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 10/19/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/mL	uL	mL	pg/mL				
PFAS ICV 100X Mix	SVLC-1025	20,000.0	50	2	500	1,2	-	6/8/2020	9/20/2022
ID SUR 20ppb	SVLC-1653	20,000.0	100		1000	1	-	9/16/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	100		1000	1	-	10/13/2021	4/14/2022
Methanol	21-2009	pure	1,680		#VALUE!	1	7/30/2026	9/30/2021	7/30/2026
Water	21-2249	pure	70		#VALUE!	1	8/31/2026	10/13/2021	8/31/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at a final concentration of 2500 pg/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	MMM	Mix ID #:	SVLC- 1717	Level 2 Reviewed by:	ALM
Prep. Date:	10/19/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	10/23/2021
Exp. Date:	6/15/2022	Solvent ID #:	21-758		
Pipet ID:	20-2533,20-1360	Solvent Name:	96% Methanol		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1710	20,000	750	15	1000	1,2	-	10/12/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	750		1000	1	-	10/16/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	750		1000	1	-	10/13/2021	10/13/2022
96% Methanol	21-758	pure	12,750		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: GLT
Prep. Date: 09/30/21
Exp. Date: 06/15/22
Pipet ID: 20-1360, 20-2534

Mix ID #: SVLC- 1718
Mix Name: PFAS ID SUR 100ppb
Solvent ID #: 21-225221-2249
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 10/24/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
MPFAC-C-ES	21-2293	2,000	2,200	44	100	1	1/13/2026	10/20/2021	10/20/2022
ID 50X SUR Mix	SVLC-1687	1,000	4,400		100	1,2	-	9/30/2021	6/15/2022
Methanol	21-2252	pure	35,816		#VALUE!	1	6/30/2026	7/27/2021	6/30/2026
Water	21-2249	pure	1,584		#VALUE!	1	4/30/2026	7/15/2021	4/30/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. 13C3-GenX, 13C2-4:2FTS, 13C2-6:2FTS, 13C2-8:2FTS, d5-EtFOSAA,

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	glt	Mix ID #:	SVLC- 1723	Level 2 Reviewed by:	arc2
Prep. Date:	10/23/21	Mix Name:	Full List 100X PDS	Date:	10/27/2021
Exp. Date:	11/19/21	Solvent ID #:	21-771		
Pipet ID:	21-1600	Solvent Name:	96% Methanol		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Full List Stock PDS (10X)	SVLC-1693	200.0	1,500	15	20	1,2	-	10/4/2021	11/19/2021
96% Methanol	21-771	pure	13,500		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water. 2. GenX is present at twice (2x) the concentration listed - 40ng/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1724	Level 2 Reviewed by:	arc2
Prep. Date:	10/26/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	10/27/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-771		
Pipet ID:	20-2534,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	500	10	100	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	500		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	500		1000	1	-	10/13/2021	4/14/2022
96% Methanol	21-771	pure	8,500		#VALUE!	1	-	10/22/2021	10/22/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1725	Level 2 Reviewed by:	arc2
Prep. Date:	10/26/2021	Mix Name:	200 ppt PFAS FL ICAL (L3)	Date:	10/27/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-771		
Pipet ID:	20-2534,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	1,000	10	200	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	500		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	500		1000	1	-	10/13/2021	4/14/2022
96% Methanol	21-771	pure	8,500		#VALUE!	1	-	10/22/2021	10/22/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-POL

Project Number: 112G09020

Lot Number:**WJ27023**

Date Completed:11/21/2021

Kathy Smith

11/23/2021 4:55 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc*.)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: WJ27023

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation:

Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Surrogate recovery for the following samples was outside control limits: WJ27023-002, WJ27023-003, WJ27023-004. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Samples WJ27023-004 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Tetra Tech
Lot Number: WJ27023

Project Name: KSC-POL

Project Number: 112G09020

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	POL-DPT0129-012.0-20211022	Aqueous	10/22/2021 0745	10/23/2021
002	POL-DPT0129-022.0-20211022	Aqueous	10/22/2021 0825	10/23/2021
003	POL-DPT0129-032.0-20211022	Aqueous	10/22/2021 0900	10/23/2021
004	POL-DPT0129-042.0-20211022	Aqueous	10/22/2021 0945	10/23/2021

(4 samples)

Detection Summary

Tetra Tech

Lot Number: WJ27023

Project Name: KSC-POL

Project Number: 112G09020

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	POL-DPT0129-012.0-20211022	Aqueous	PFBA	PFAS by ID	25	I	ng/L	7
001	POL-DPT0129-012.0-20211022	Aqueous	PFOS	PFAS by ID	16	I	ng/L	7
002	POL-DPT0129-022.0-20211022	Aqueous	6:2 FTS	PFAS by ID	11		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFBS	PFAS by ID	24		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFHpS	PFAS by ID	3.7		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFPeS	PFAS by ID	16		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFHxS	PFAS by ID	120		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFBA	PFAS by ID	23		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFHpA	PFAS by ID	20		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFHxA	PFAS by ID	38		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFNA	PFAS by ID	2.8	I	ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFOA	PFAS by ID	42		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFPeA	PFAS by ID	28		ng/L	9
002	POL-DPT0129-022.0-20211022	Aqueous	PFOS	PFAS by ID	160		ng/L	9
003	POL-DPT0129-032.0-20211022	Aqueous	8:2 FTS	PFAS by ID	8.9		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	6:2 FTS	PFAS by ID	41		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFBS	PFAS by ID	37		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFHpS	PFAS by ID	7.9		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFPeS	PFAS by ID	26		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFHxS	PFAS by ID	200		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFBA	PFAS by ID	27	Q	ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFDA	PFAS by ID	1.3	I	ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFHpA	PFAS by ID	29		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFHxA	PFAS by ID	59		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFNA	PFAS by ID	7.1		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFOA	PFAS by ID	70		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFPeA	PFAS by ID	40		ng/L	11
003	POL-DPT0129-032.0-20211022	Aqueous	PFOS	PFAS by ID	470		ng/L	11
004	POL-DPT0129-042.0-20211022	Aqueous	6:2 FTS	PFAS by ID	27		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	4:2 FTS	PFAS by ID	2.1	IQ	ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFBS	PFAS by ID	8.9		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFHpS	PFAS by ID	1.7	I	ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFPeS	PFAS by ID	6.5		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFHxS	PFAS by ID	46		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFBA	PFAS by ID	4.8		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFHpA	PFAS by ID	5.3		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFHxA	PFAS by ID	23		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFNA	PFAS by ID	1.5	I	ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFOA	PFAS by ID	12		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFPeA	PFAS by ID	12		ng/L	13
004	POL-DPT0129-042.0-20211022	Aqueous	PFOS	PFAS by ID	43		ng/L	13

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page

(41 detections)

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-001	
Description: POL-DPT0129-012.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0745	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1658	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	25	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	16	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		114	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		122	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		113	50-150
13C4_PFHpA		115	50-150
13C5_PFHxA		117	50-150
13C5_PFPeA		116	50-150
13C6_PFDA		105	50-150
13C7_PFUdA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-001	
Description: POL-DPT0129-012.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0745	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		111	50-150
13C9_PFNA		105	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech | Laboratory ID: WJ27023-002
Description: POL-DPT0129-022.0-20211022 | Matrix: Aqueous
Date Sampled: 10/22/2021 0825 | Project Name: KSC-POL
Date Received: 10/23/2021 | Project Number: 112G09020

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1709	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11		7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	24		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	23		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	38		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	42		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	28		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	160		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	196	50-150
13C2_6:2FTS		144	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		51	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		102	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation | V = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure
U = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | I = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure
Q = Out of holding time | W = Reported on wet weight basis | LOD = Limit of Detection | D = Dilution > 1 | S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-002	
Description: POL-DPT0129-022.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0825	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		105	50-150
13C9_PFNA		97	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-003	
Description: POL-DPT0129-032.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0900	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1719	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	8.9		8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	41		8.2	4.1	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	37		4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	7.9		4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	26		4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	200		4.1	2.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	27	Q	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	29		4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	59		4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.1		4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	70		4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	40		4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	UQ	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	470		4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		56	50-150
13C2_PFTeDA	N	31	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA	N	44	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		73	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-003	
Description: POL-DPT0129-032.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0900	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	50-150
13C8_PFOS		86	50-150
13C9_PFNA		84	50-150
d-EtFOSA	N	46	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-004	
Description: POL-DPT0129-042.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0945	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1730	JJG	11/09/2021 1014	21749
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/16/2021 2054	JJG	11/15/2021 1738	22543

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	27		7.0	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.1	IQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	8.9		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.7	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.5		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	46		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.8		3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.3		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	23		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.5	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	43		3.4	1.7	0.86	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150	N	197	50-150
13C2_6:2FTS		121	50-150		128	50-150
13C2_8:2FTS		75	50-150		104	50-150
13C2_PFDoA	N	27	50-150		78	50-150
13C2_PFTeDA	N	2.5	50-150		51	50-150
13C3_PFBS		97	50-150		93	50-150
13C3_PFHxS		82	50-150		97	50-150
13C3-HFPO-DA		88	50-150		92	50-150
13C4_PFBA		64	50-150		61	50-150
13C4_PFHpA		101	50-150		107	50-150
13C5_PFHxA		100	50-150		100	50-150
13C5_PFPeA		90	50-150		88	50-150
13C6_PFDA		63	50-150		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ27023-004
Description: POL-DPT0129-042.0-20211022			Matrix: Aqueous
Date Sampled: 10/22/2021 0945	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		51	50-150		91	50-150
13C8_PFOA		91	50-150		96	50-150
13C8_PFOS	N	46	50-150		94	50-150
13C9_PFNA		78	50-150		96	50-150
d-EtFOSA	N	9.0	50-150	N	44	50-150
d5-EtFOSAA	N	47	50-150		94	50-150
d3-MeFOSAA		55	50-150		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	WQ21749-001	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	50-150
13C2_6:2FTS	N	169	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation　　U = Not detected at or above the LOQ　　N = Recovery is out of criteria

DL = Detection Limit　　I = Estimated result < LOQ and $\geq$ DL　　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　　* = RSD is out of criteria　　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ21749-001
Batch: 21749
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1014

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		106	50-150
13C8_PFOS		98	50-150
13C9_PFNA		100	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ21749-002	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	17		1	111	70-150	11/10/2021 1431
11Cl-PF3OUdS	15	16		1	106	70-150	11/10/2021 1431
8:2 FTS	15	19		1	124	67-138	11/10/2021 1431
6:2 FTS	15	16		1	104	64-140	11/10/2021 1431
4:2 FTS	15	14		1	94	63-143	11/10/2021 1431
GenX	32	38		1	119	70-150	11/10/2021 1431
ADONA	15	16		1	107	70-150	11/10/2021 1431
EtFOSA	16	16		1	98	70-150	11/10/2021 1431
EtFOSAA	16	16		1	99	61-135	11/10/2021 1431
MeFOSAA	16	17		1	105	65-136	11/10/2021 1431
PFBS	14	14		1	98	72-130	11/10/2021 1431
PFDS	15	14		1	92	53-142	11/10/2021 1431
PFHpS	15	15		1	99	69-134	11/10/2021 1431
PFNS	15	14		1	94	69-127	11/10/2021 1431
PFPeS	15	15		1	102	71-127	11/10/2021 1431
PFHxS	15	15		1	106	68-131	11/10/2021 1431
PFBA	16	17		1	105	73-129	11/10/2021 1431
PFDA	16	18		1	110	71-129	11/10/2021 1431
PFDoA	16	17		1	109	72-134	11/10/2021 1431
PFHpA	16	17		1	105	72-130	11/10/2021 1431
PFHxA	16	17		1	107	72-129	11/10/2021 1431
PFNA	16	18		1	110	69-130	11/10/2021 1431
PFOA	16	17		1	106	71-133	11/10/2021 1431
PFPeA	16	18		1	112	72-129	11/10/2021 1431
PFTeDA	16	17		1	108	71-132	11/10/2021 1431
PFTrDA	16	14		1	91	65-144	11/10/2021 1431
PFUdA	16	16		1	97	69-133	11/10/2021 1431
PFOS	15	15		1	104	65-140	11/10/2021 1431

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		112	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		112	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ21749-002	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		105	50-150
13C8_PFOA		104	50-150
13C8_PFOS		102	50-150
13C9_PFNA		101	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ22543-001	Matrix:	Aqueous
Batch:	22543	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/15/2021 1738

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		96	50-150
13C8_PFOS		100	50-150
13C9_PFNA		99	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ22543-002
Batch: 22543
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/15/2021 1738

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	70-150	11/17/2021 1621
11Cl-PF3OUdS	15	13		1	88	70-150	11/17/2021 1621
EtFOSAA	16	16		1	98	61-135	11/17/2021 1621
PFDS	15	13		1	81	53-142	11/17/2021 1621
PFNS	15	14		1	90	69-127	11/17/2021 1621
PFDoA	16	15		1	95	72-134	11/17/2021 1621
PFTeDA	16	15		1	96	71-132	11/17/2021 1621
PFTrDA	16	15		1	97	65-144	11/17/2021 1621
PFOS	15	13		1	91	65-140	11/17/2021 1621

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		101	50-150
13C8_PFOS		105	50-150
13C9_PFNA		96	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 3230 | PAGE 1 OF 1

PROJECT NO: 112G09020 | FACILITY: KSC-POL

PROJECT MANAGER: Mark Jonnet | PHONE NUMBER: (412) 921-8622

LABORATORY NAME AND CONTACT: Kathy Smith – PACE Analytical

SAMPLERS (SIGNATURE): Kyle Kercher

FIELD OPERATIONS LEADER: Rob Seigel | PHONE NUMBER: (954) 649-3637

ADDRESS: 106 Vantage Point Drive

CARRIER/WAYBILL NUMBER:

CITY, STATE: West Columbia, SC

STANDARD TAT ☐
RUSH TAT ☒
☐ 24 hr. ☐ 48 hr. ☒ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P

PRESERVATIVE USED: Ice 4°C

TYPE OF ANALYSIS: PFAS QSM Table B-15

WJ27023

KES3

DATE YEAR 2021	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
10/22	0745	POL-DPT0129-0120-20211022		10	14	GW	G	2	X	
|	0825	POL-DPT0129-0220-20211022		20	24	|	|	|	|	
|	0900	POL-DPT0129-0320-20211022		30	34	|	|	|	|	
10/22	0945	POL-DPT0129-0420-20211022		40	44	GW	G	2	X	

Kyle Kercher

T: 5.6 E

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Kyle Kercher TT	10/22/2021	1500	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY fedex	10-23-2021	0915	3. RECEIVED BY [signature]	10-23-21	0915

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech   Cooler Inspected by/date: KDRW / 10/27/2021   Lot #: WJ27023

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ____

Yes	No	NA	Question
☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: 21-882   Chlorine Strip ID: NA   Tested by: KDRW
Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA
4.1 / 4.1 °C 2.3 / 2.3 °C NA / NA °C NA / NA °C
Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C
Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

Yes	No	NA	Question
☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ____
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote # ____

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: JRG2   Date: 10/27/2021

Comments:

PFAS

QC SUMMARY

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-001	
Description: POL-DPT0129-012.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0745	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1658	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	25	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	16	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		114	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		122	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		113	50-150
13C4_PFHpA		115	50-150
13C5_PFHxA		117	50-150
13C5_PFPeA		116	50-150
13C6_PFDA		105	50-150
13C7_PFUdA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ27023-001
Description: POL-DPT0129-012.0-20211022			Matrix: Aqueous
Date Sampled: 10/22/2021 0745	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		111	50-150
13C9_PFNA		105	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-002	
Description: POL-DPT0129-022.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0825	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1709	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11		7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	24		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	23		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	38		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	42		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	28		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	160		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	196	50-150
13C2_6:2FTS		144	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		51	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		102	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WJ27023-002
Description: POL-DPT0129-022.0-20211022	Matrix: Aqueous
Date Sampled: 10/22/2021 0825	Project Name: KSC-POL
Date Received: 10/23/2021	Project Number: 112G09020

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		105	50-150
13C9_PFNA		97	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-003	
Description: POL-DPT0129-032.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0900	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1719	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	8.9		8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	41		8.2	4.1	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	37		4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	7.9		4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	26		4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	200		4.1	2.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	27	Q	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	29		4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	59		4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.1		4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	70		4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	40		4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	UQ	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	470		4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		56	50-150
13C2_PFTeDA	N	31	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA	N	44	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		73	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-003	
Description: POL-DPT0129-032.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0900	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	50-150
13C8_PFOS		86	50-150
13C9_PFNA		84	50-150
d-EtFOSA	N	46	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WJ27023-004
Description: POL-DPT0129-042.0-20211022	Matrix: Aqueous
Date Sampled: 10/22/2021 0945	Project Name: KSC-POL
Date Received: 10/23/2021	Project Number: 112G09020

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1730	JJG	11/09/2021 1014	21749
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/16/2021 2054	JJG	11/15/2021 1738	22543

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	27		7.0	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.1	IQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	8.9		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.7	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.5		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	46		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.8		3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.3		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	23		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.5	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	43		3.4	1.7	0.86	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150	N	197	50-150
13C2_6:2FTS		121	50-150		128	50-150
13C2_8:2FTS		75	50-150		104	50-150
13C2_PFDoA	N	27	50-150		78	50-150
13C2_PFTeDA	N	2.5	50-150		51	50-150
13C3_PFBS		97	50-150		93	50-150
13C3_PFHxS		82	50-150		97	50-150
13C3-HFPO-DA		88	50-150		92	50-150
13C4_PFBA		64	50-150		61	50-150
13C4_PFHpA		101	50-150		107	50-150
13C5_PFHxA		100	50-150		100	50-150
13C5_PFPeA		90	50-150		88	50-150
13C6_PFDA		63	50-150		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ27023-004
Description: POL-DPT0129-042.0-20211022			Matrix: Aqueous
Date Sampled: 10/22/2021 0945	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		51	50-150		91	50-150
13C8_PFOA		91	50-150		96	50-150
13C8_PFOS	N	46	50-150		94	50-150
13C9_PFNA		78	50-150		96	50-150
d-EtFOSA	N	9.0	50-150	N	44	50-150
d5-EtFOSAA	N	47	50-150		94	50-150
d3-MeFOSAA		55	50-150		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS - MB

Sample ID:	WQ21749-001	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	50-150
13C2_6:2FTS	N	169	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ21749-001
Batch: 21749
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1014

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		106	50-150
13C8_PFOS		98	50-150
13C9_PFNA		100	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ22543-001	Matrix:	Aqueous
Batch:	22543	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/15/2021 1738

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		96	50-150
13C8_PFOS		100	50-150
13C9_PFNA		99	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria

DL = Detection Limit   I = Estimated result < LOQ and ≥ DL   P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ21749-002	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	17		1	111	70-150	11/10/2021 1431
11Cl-PF3OUdS	15	16		1	106	70-150	11/10/2021 1431
8:2 FTS	15	19		1	124	67-138	11/10/2021 1431
6:2 FTS	15	16		1	104	64-140	11/10/2021 1431
4:2 FTS	15	14		1	94	63-143	11/10/2021 1431
GenX	32	38		1	119	70-150	11/10/2021 1431
ADONA	15	16		1	107	70-150	11/10/2021 1431
EtFOSA	16	16		1	98	70-150	11/10/2021 1431
EtFOSAA	16	16		1	99	61-135	11/10/2021 1431
MeFOSAA	16	17		1	105	65-136	11/10/2021 1431
PFBS	14	14		1	98	72-130	11/10/2021 1431
PFDS	15	14		1	92	53-142	11/10/2021 1431
PFHpS	15	15		1	99	69-134	11/10/2021 1431
PFNS	15	14		1	94	69-127	11/10/2021 1431
PFPeS	15	15		1	102	71-127	11/10/2021 1431
PFHxS	15	15		1	106	68-131	11/10/2021 1431
PFBA	16	17		1	105	73-129	11/10/2021 1431
PFDA	16	18		1	110	71-129	11/10/2021 1431
PFDoA	16	17		1	109	72-134	11/10/2021 1431
PFHpA	16	17		1	105	72-130	11/10/2021 1431
PFHxA	16	17		1	107	72-129	11/10/2021 1431
PFNA	16	18		1	110	69-130	11/10/2021 1431
PFOA	16	17		1	106	71-133	11/10/2021 1431
PFPeA	16	18		1	112	72-129	11/10/2021 1431
PFTeDA	16	17		1	108	71-132	11/10/2021 1431
PFTrDA	16	14		1	91	65-144	11/10/2021 1431
PFUdA	16	16		1	97	69-133	11/10/2021 1431
PFOS	15	15		1	104	65-140	11/10/2021 1431

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		112	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		112	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21749-002
Batch: 21749
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1014

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		105	50-150
13C8_PFOA		104	50-150
13C8_PFOS		102	50-150
13C9_PFNA		101	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ22543-002	Matrix:	Aqueous
Batch:	22543	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/15/2021 1738

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	70-150	11/17/2021 1621
11Cl-PF3OUdS	15	13		1	88	70-150	11/17/2021 1621
EtFOSAA	16	16		1	98	61-135	11/17/2021 1621
PFDS	15	13		1	81	53-142	11/17/2021 1621
PFNS	15	14		1	90	69-127	11/17/2021 1621
PFDoA	16	15		1	95	72-134	11/17/2021 1621
PFTeDA	16	15		1	96	71-132	11/17/2021 1621
PFTrDA	16	15		1	97	65-144	11/17/2021 1621
PFOS	15	13		1	91	65-140	11/17/2021 1621

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		101	50-150
13C8_PFOS		105	50-150
13C9_PFNA		96	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WJ27023

Project No.: 112G09020

AnalyticalMethod: PFAS by ID SOP QSM B-15   Matrix: Water

CLIENT SAMPLE ID	IDS1	IDS2	IDS3	IDS4	IDS5	IDS6	IDS7	IDS8	IDS9
POL-DPT0129-012.0-20211022	114	119	117	96	101	122	111	112	113
POL-DPT0129-022.0-20211022	196 *	144	114	81	73	96	108	91	51
POL-DPT0129-032.0-20211022	179 *	114	90	56	31 *	81	88	77	44 *
POL-DPT0129-042.0-20211022	177 *	121	75	27 *	2.5 *	97	82	88	64
POL-DPT0129-042.0-20211022	197 *	128	104	78	51	93	97	92	61
WQ21749-001	105	169 *	105	93	81	107	105	103	102
WQ21749-002	112	110	98	93	81	112	109	105	103
WQ22543-001	92	99	96	91	66	99	91	94	93
WQ22543-002	106	107	102	92	93	97	93	98	94

	QC LIMITS
IDS1 = 13C2_4:2FTS	50-150
IDS2 = 13C2_6:2FTS	50-150
IDS3 = 13C2_8:2FTS	50-150
IDS4 = 13C2_PFDoA	50-150
IDS5 = 13C2_PFTeDA	50-150
IDS6 = 13C3_PFBS	50-150
IDS7 = 13C3_PFHxS	50-150
IDS8 = 13C3-HFPO-DA	50-150
IDS9 = 13C4_PFBA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WJ27023

Project No.: 112G09020

AnalyticalMethod: PFAS by ID SOP QSM B-15   Matrix: Water

CLIENT SAMPLE ID	IDS10	IDS11	IDS12	IDS13	IDS14	IDS15	IDS16	IDS17	
POL-DPT0129-012.0-20211022	115	117	116	105	110	108	111	105	
POL-DPT0129-022.0-20211022	104	102	85	99	98	98	105	97	
POL-DPT0129-032.0-20211022	88	83	73	84	79	82	86	84	
POL-DPT0129-042.0-20211022	101	100	90	63	51	91	46 *	78	
POL-DPT0129-042.0-20211022	107	100	88	99	91	96	94	96	
WQ21749-001	103	103	103	99	103	106	98	100	
WQ21749-002	109	107	103	99	105	104	102	101	
WQ22543-001	98	93	95	94	93	96	100	99	
WQ22543-002	94	97	97	96	102	101	105	96	

	QC LIMITS
IDS10 = 13C4_PFHpA	50-150
IDS11 = 13C5_PFHxA	50-150
IDS12 = 13C5_PFPeA	50-150
IDS13 = 13C6_PFDA	50-150
IDS14 = 13C7_PFUdA	50-150
IDS15 = 13C8_PFOA	50-150
IDS16 = 13C8_PFOS	50-150
IDS17 = 13C9_PFNA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC Lot No.: WJ27023

Project No.: 112G09020

AnalyticalMethod: PFAS by ID SOP QSM B-15 Matrix: Water

CLIENT SAMPLE ID	IDS18	IDS19	IDS20						TOT OUT
POL-DPT0129-012.0-20211022	97	99	105						0
POL-DPT0129-022.0-20211022	69	96	95						1
POL-DPT0129-032.0-20211022	46 *	72	74						4
POL-DPT0129-042.0-20211022	9.0 *	47 *	55						6
POL-DPT0129-042.0-20211022	44 *	94	93						2
WQ21749-001	67	98	102						1
WQ21749-002	72	104	103						0
WQ22543-001	59	95	98						0
WQ22543-002	54	102	105						0

	QC LIMITS
IDS18 = d-EtFOSA	50-150
IDS19 = d5-EtFOSAA	50-150
IDS20 = d3-MeFOSAA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 3
LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC Lot No.: WJ27023

Project No.: 112G09020

Analytical Method: PFAS by ID SOP QSM B-15 Matrix: Water

Client Sample ID: WQ21749-002 Lab Sample ID: WQ21749-002

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCS CONCENTRATION	LCS %REC #	QC LIMITS REC.
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	16	106	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	19	124	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	16	104	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	14	94	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	16	107	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	17	111	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	38	119	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	16	98	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	16	99	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	17	105	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	14	98	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	14	92	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	15	99	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	14	94	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	15	102	71-127
Perfluoro-n-butanoic acid (PFBA)	16	17	105	73-129
Perfluoro-n-decanoic acid (PFDA)	16	18	110	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	17	109	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	17	105	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	17	107	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	18	110	69-130
Perfluoro-n-octanoic acid (PFOA)	16	17	106	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	18	112	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	17	108	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	14	91	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	16	97	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	15	106	68-131
Perfluorooctanesulfonic acid (PFOS)	15	15	104	65-140

* Values outside of QC Limits

FORM 3

LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WJ27023

Project No.: 112G09020

Analytical Method: PFAS by ID SOP QSM B-15   Matrix: Water

Client Sample ID: WQ22543-002   Lab Sample ID: WQ22543-002

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCS CONCENTRATION	LCS %REC #	QC LIMITS REC.
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	13	88	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	15	96	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	17	114	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	13	90	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	15	101	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	14	96	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	30	94	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	18	114	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	16	98	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	16	102	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	13	95	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	13	81	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	16	104	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	14	90	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	15	101	71-127
Perfluoro-n-butanoic acid (PFBA)	16	15	95	73-129
Perfluoro-n-decanoic acid (PFDA)	16	17	104	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	15	95	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	15	91	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	15	91	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	16	100	69-130
Perfluoro-n-octanoic acid (PFOA)	16	15	93	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	15	96	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	15	96	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	15	97	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	15	93	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	15	104	68-131
Perfluorooctanesulfonic acid (PFOS)	15	13	91	65-140

* Values outside of QC Limits

CLIENT SAMPLE ID

WQ21749-001

FORM 4
METHOD BLANK SUMMARY

Lab Name: Pace Analytical Services, LLC

Lot No.: WJ27023

Project No.: 112G09020

Lab Sample ID: WQ21749-001

Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Water

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Lab File ID: WQ21749-001.txt

Extraction Type: SOP SPE

Date Extracted: 11/09/2021

LC Column: Gemini C18 ID: 2.00 (mm)

Date Analyzed: 11/10/2021

Time Analyzed: 14:20

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED
POL-DPT0129-012.0-20211022	WJ27023-001	WJ27023-001.txt	16:58
POL-DPT0129-022.0-20211022	WJ27023-002	WJ27023-002.txt	17:09
POL-DPT0129-032.0-20211022	WJ27023-003	WJ27023-003.txt	17:19
POL-DPT0129-042.0-20211022	WJ27023-004	WJ27023-004.txt	17:30
WQ21749-002	WQ21749-002	WQ21749-002.txt	14:31

CLIENT SAMPLE ID

WQ22543-001

FORM 4
METHOD BLANK SUMMARY

Lab Name: Pace Analytical Services, LLC

Lot No.: WJ27023

Project No.: 112G09020

Lab Sample ID: WQ22543-001

Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Water

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Lab File ID: WQ22543-001.txt

Extraction Type: SOP SPE

Date Extracted: 11/15/2021

LC Column: Gemini C18 ID: 2.00 (mm)

Date Analyzed: 11/16/2021

Time Analyzed: 19:09

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED
POL-DPT0129-042.0-20211022	WJ27023-004	WJ27023-004.txt	20:54
WQ22543-002	WQ22543-002	WQ22543-002.txt	16:21

RAW SAMPLE DATA

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-001	
Description: POL-DPT0129-012.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0745	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1658	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	25	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	16	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		114	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		122	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		113	50-150
13C4_PFHpA		115	50-150
13C5_PFHxA		117	50-150
13C5_PFPeA		116	50-150
13C6_PFDA		105	50-150
13C7_PFUdA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ27023-001
Description: POL-DPT0129-012.0-20211022			Matrix: Aqueous
Date Sampled: 10/22/2021 0745	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		111	50-150
13C9_PFNA		105	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d		
Injection Date:	10-Nov-2021 16:58:43	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	16
Lab Sample ID:	WJ27023-001	Lab Prep. Batch:	21749
Client ID:	POL-DPT0129-012.0-20211022	Sample Group:	WJ27023
Sample Info:	WJ27023-001	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.4395604

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	25	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.709	1.718	0	743068	19	>100:1			1001.00	1195.27	112.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													J
212.9 > 168.9	46	1.709	1.718	0/0	44285	26	24:1			56.567	24.864		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.109	0	671907	17	>100:1			1001.00	1175.50	115.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.120		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.157	2.173	0	201020	14	>100:1			1001.00	1162.17	122.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.173		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.532		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.451	-1	128728	17	>100:1			5005.00	5684.93	113.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.477	2.496	-1	778282	17	>100:1			1001.00	1194.99	116.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.496		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.590	2.607	-1	1358463	17	>100:1			5005.00	5861.60	112	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.854	2.873	-1	628255	17	>100:1			1001.00	1183.29	115.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.873		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.872	2.889	-1	137023	18	>100:1			1001.00	1090.60	110.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.889		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.276		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.218	3.242	-1	116369	19	>100:1			5005.00	6464.96	118.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.246	3.269	-1	623163	19	>100:1			1001.00	1187.71	108.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.636	3.657	-1	139803	20	>100:1			1001.00	1128.87	111.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													J
499 > 80	54	3.636	3.652	0/1	6052	36	29:1	Target = 3.30	2.00	36.393	15.997		M
499 > 99	54	3.636	3.652		1904	106		3.17 (1.65-4.95)	7.85				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.872		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.483		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.643	3.662	-1	723533	20	>100:1			1001.00	1129.85	104.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.662		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.001	4.027	-1	673158	15	>100:1			1001.00	1171.40	105.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.990	4.017	-1	114997	17	>100:1			5005.00	6653.19	117.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.155	4.178	-1	771826	17	>100:1			5005.00	5107.62	105.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.312	4.339	-1	648216	15	>100:1			5005.00	5005.02	99	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.312	4.339	-1	723091	16	>100:1			1001.00	1200.65	109.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.505	4.519	0	37408	21	>100:1			1001.00	869.96	96.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.593	4.614	-1	710270	16	>100:1			1001.00	1183.12	96	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.066	5.087	-1	892838	21	>100:1			1001.00	1098.22	101.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
*** 37 13C2_PFDA**													
515 > 470		4.001	4.027	-1	767885	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.477	2.496	-1	719898	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.246	3.269	-1	593739	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.709	1.718	0	657379	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.629	3.657	-1	130924	18	>100:1			200.00			

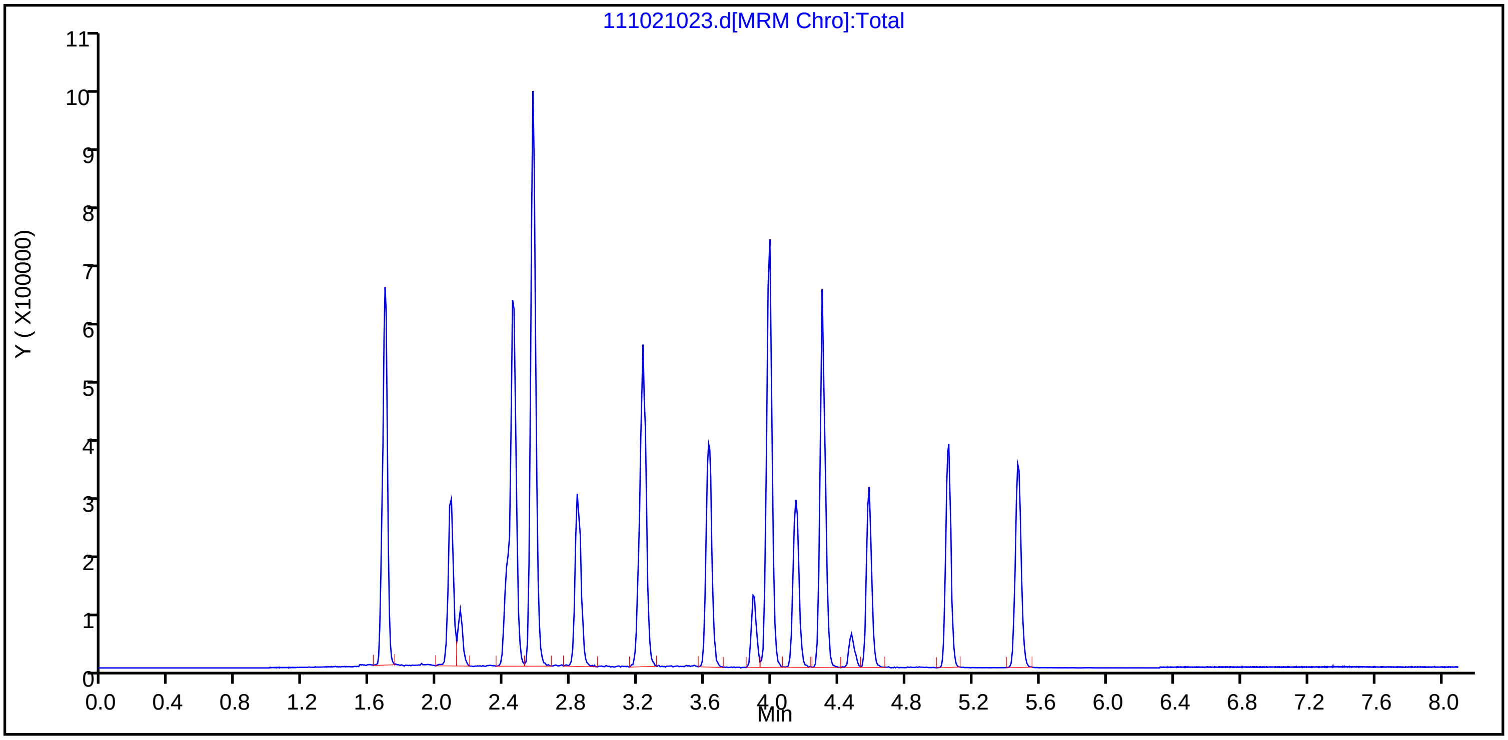
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

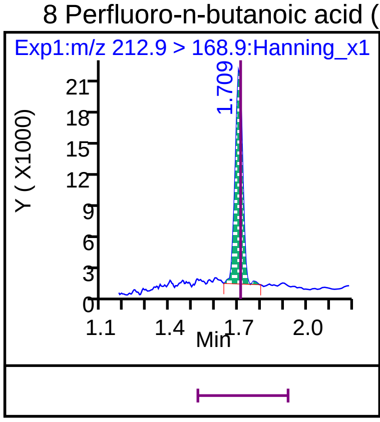
Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

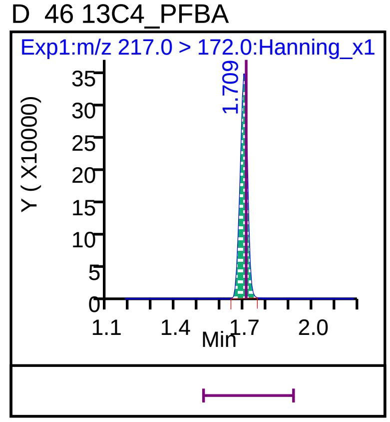
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d		
Injection Date:	10-Nov-2021 16:58:43	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-012.0-20211022	Lab ID:	WJ27023-001
Sample Info:	WJ27023-001		
Dil. Factor:	1	Operator:	Justin Gavin



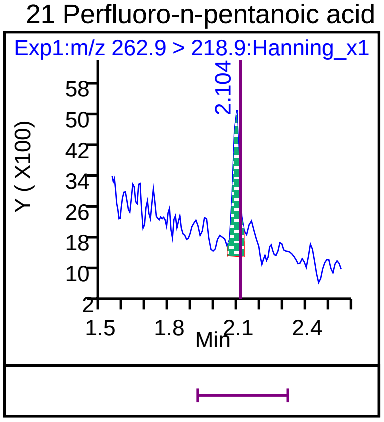
8 Perfluoro-n-butanoic acid (PFBA)



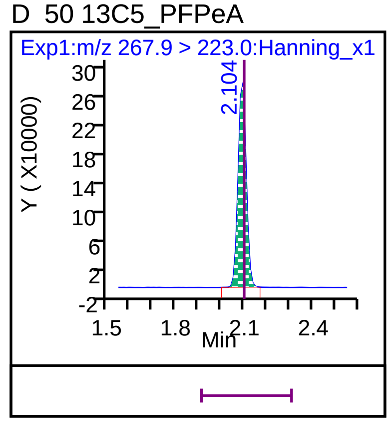
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (M)

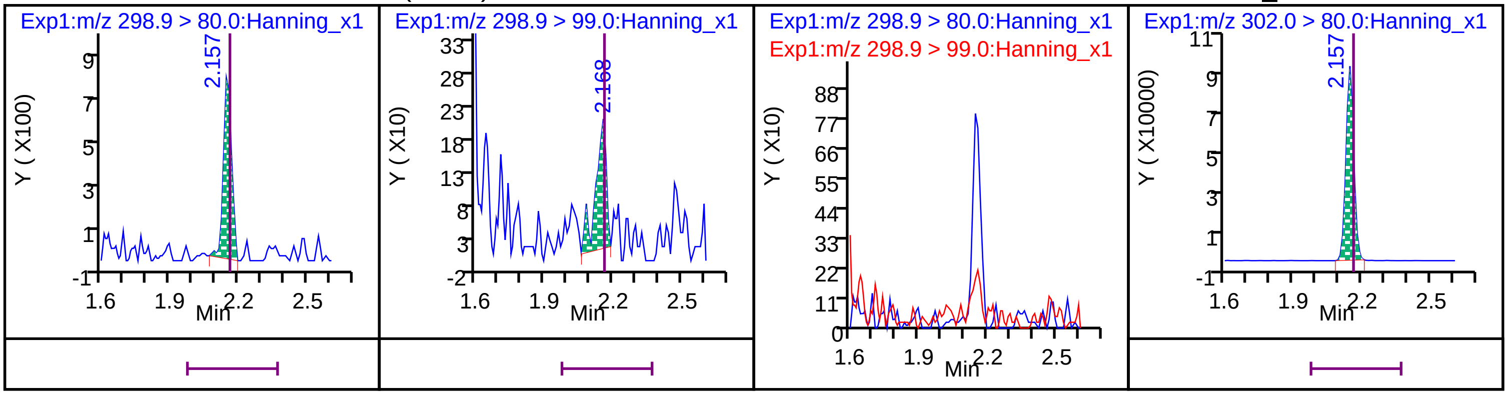


D 50 13C5_PFPeA

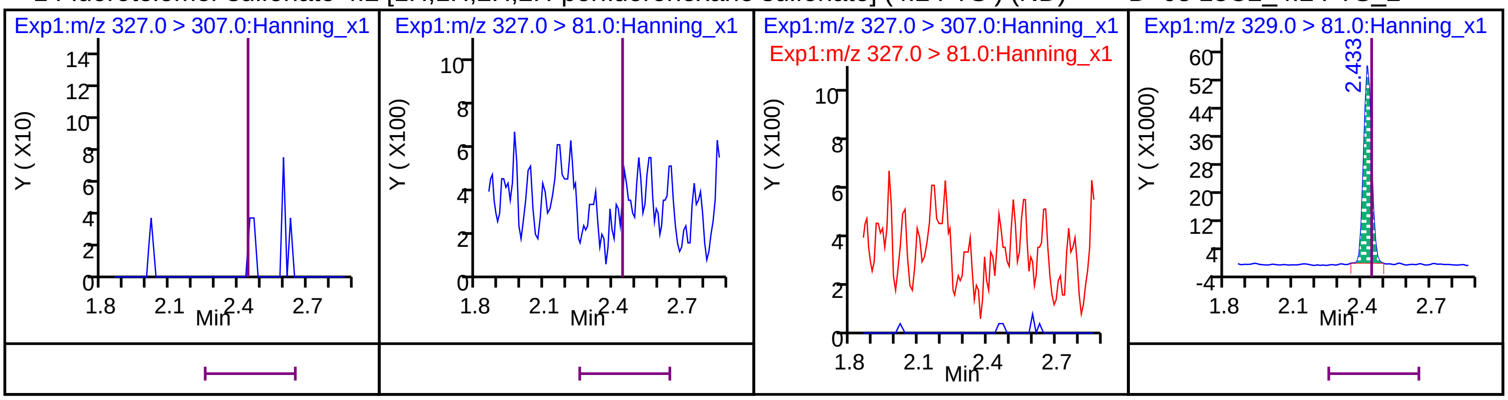


Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d

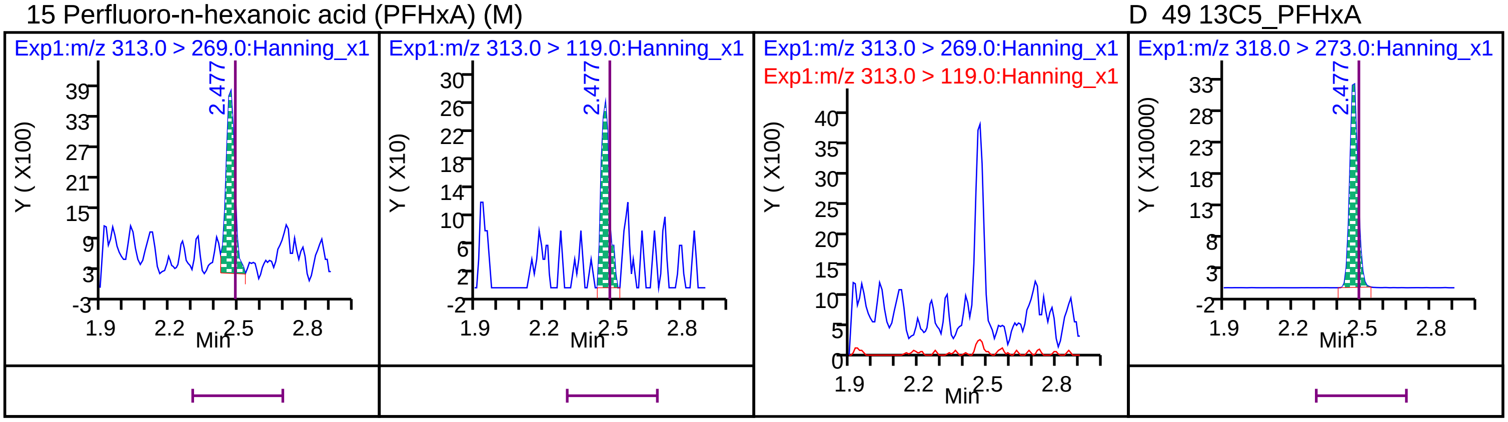
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



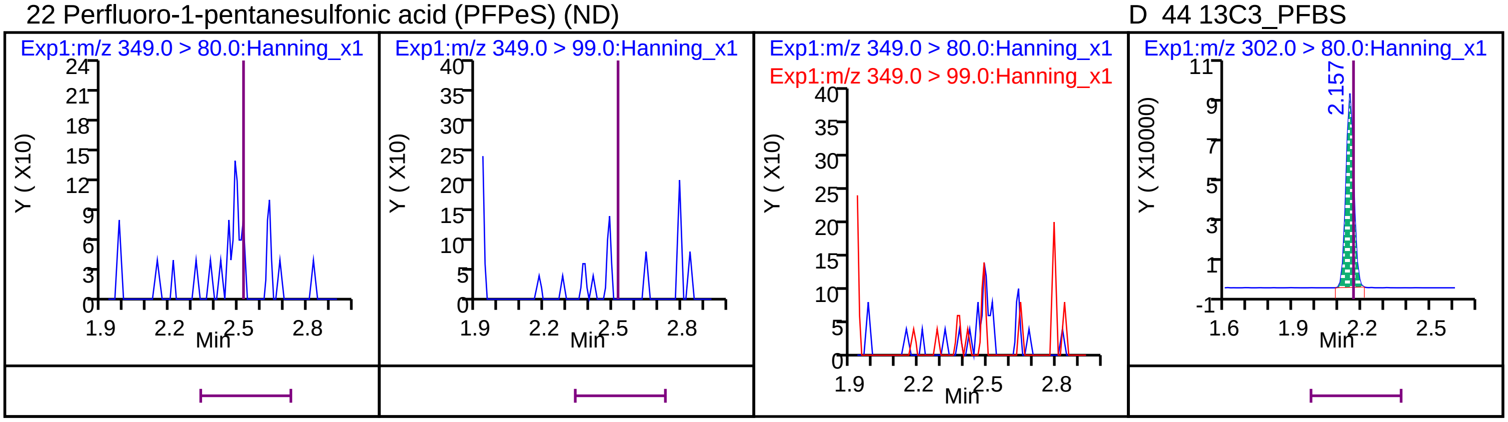
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA

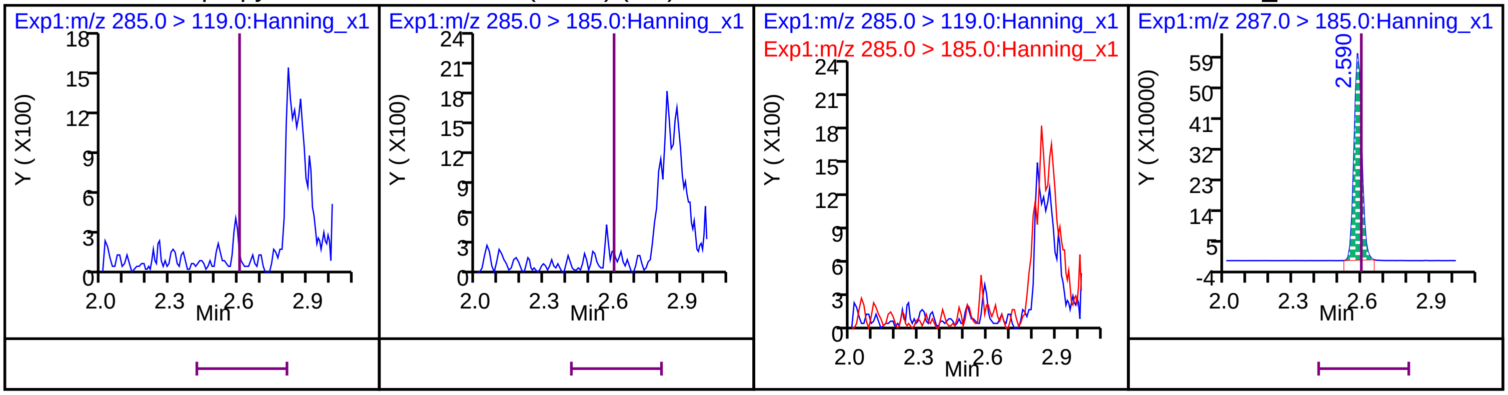


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

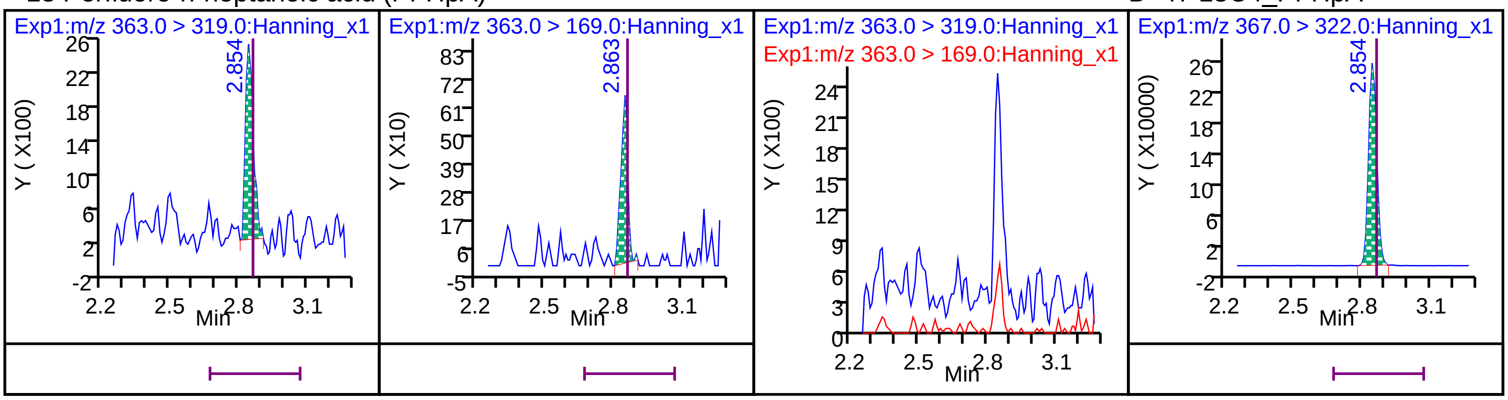


Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d

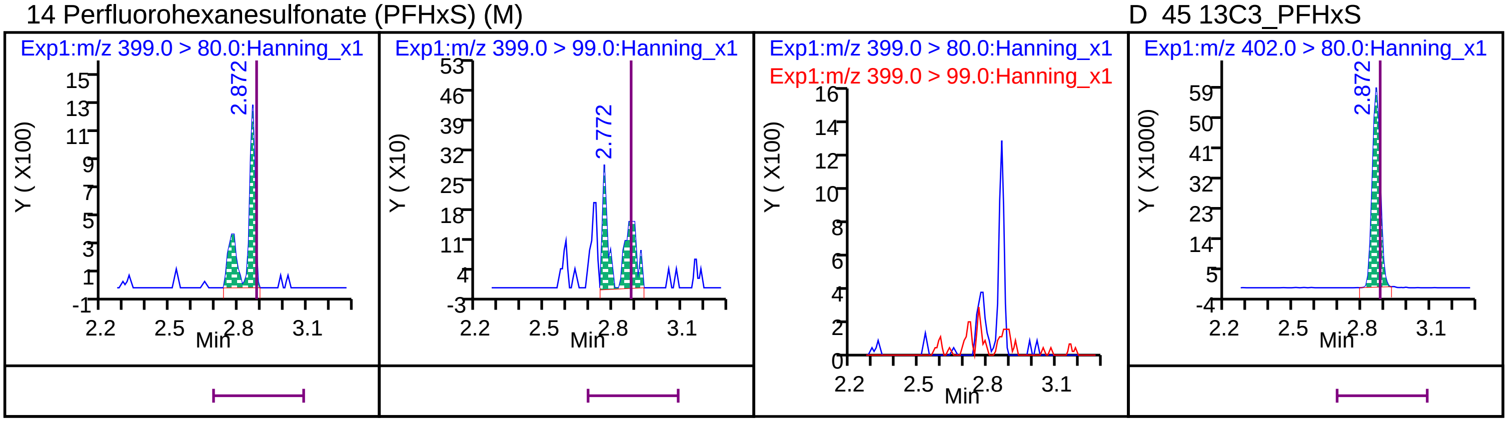
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



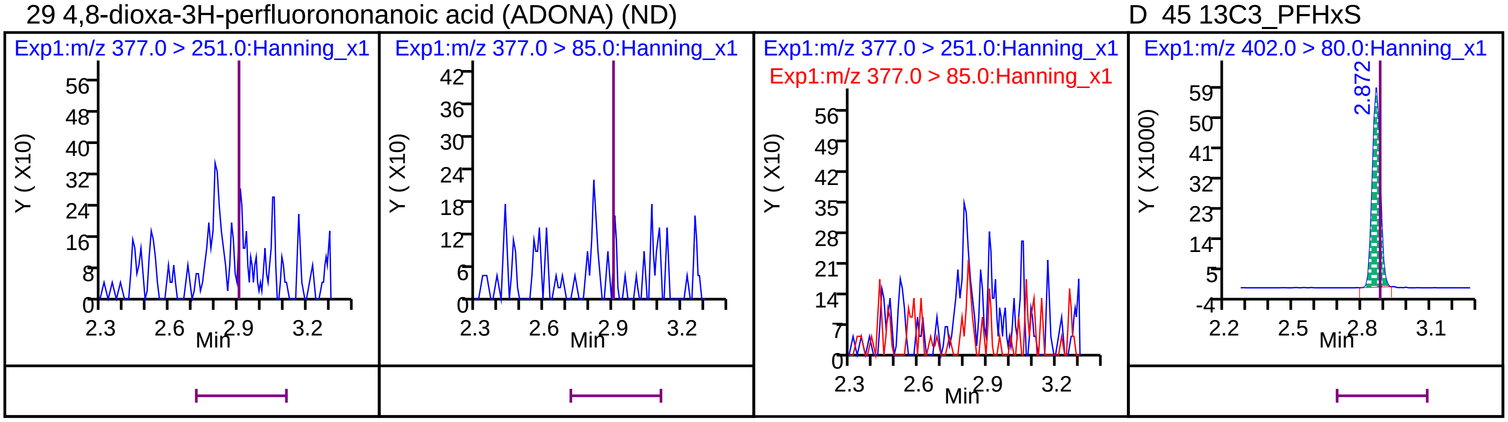
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



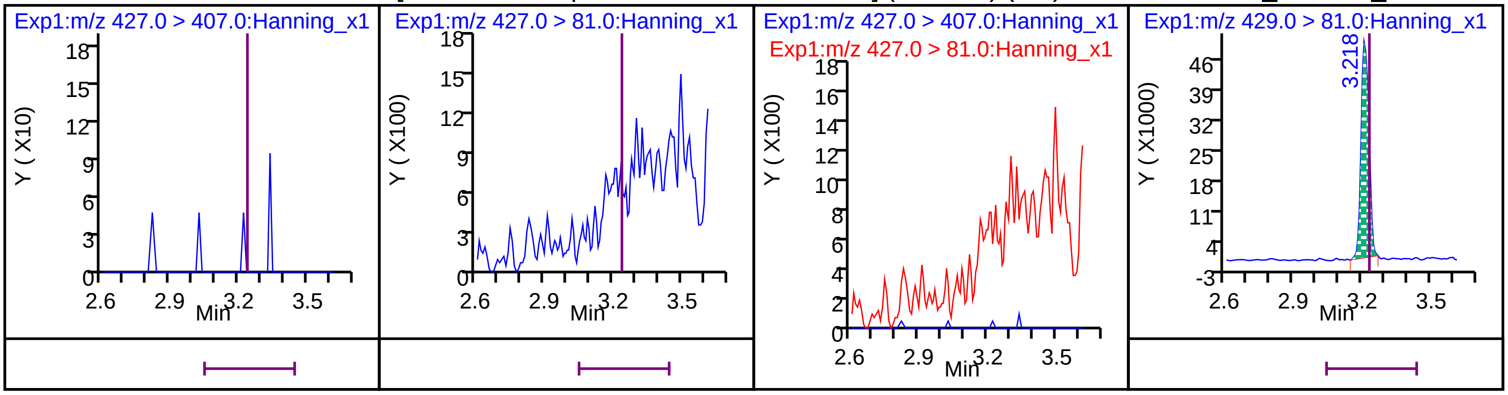
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



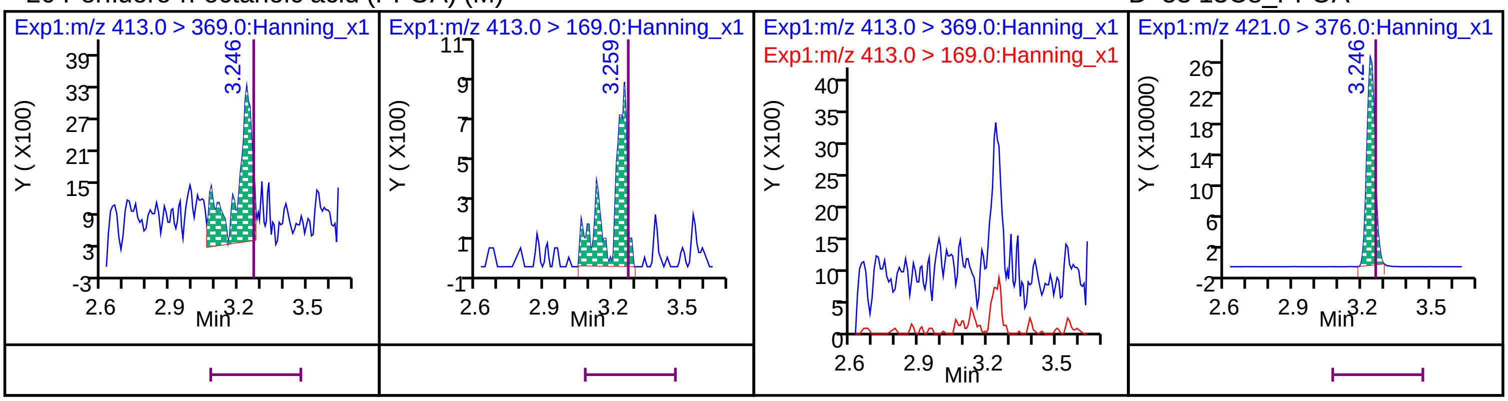
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



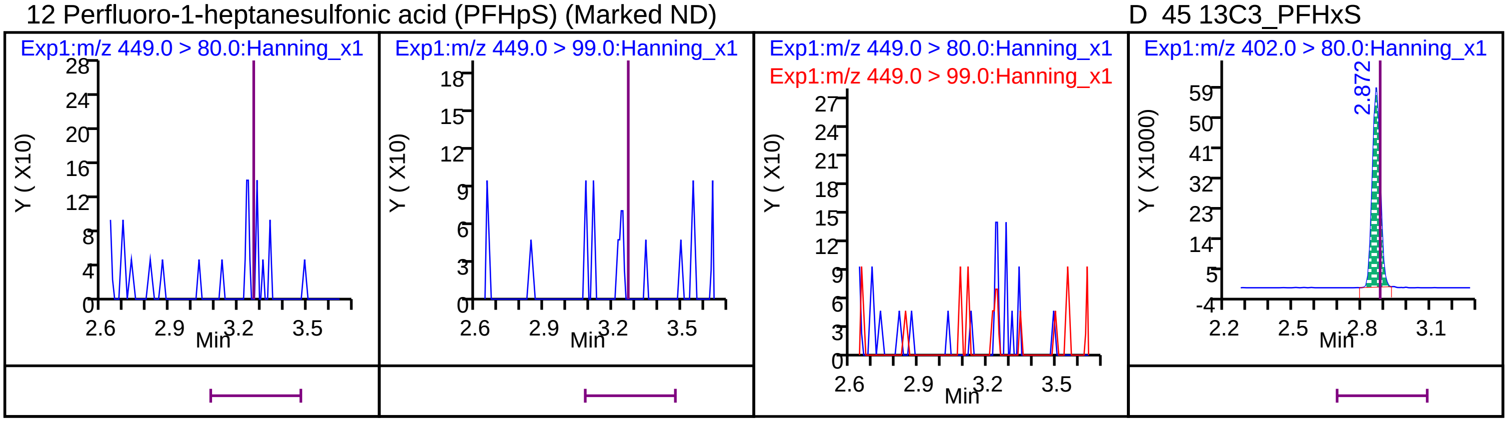
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



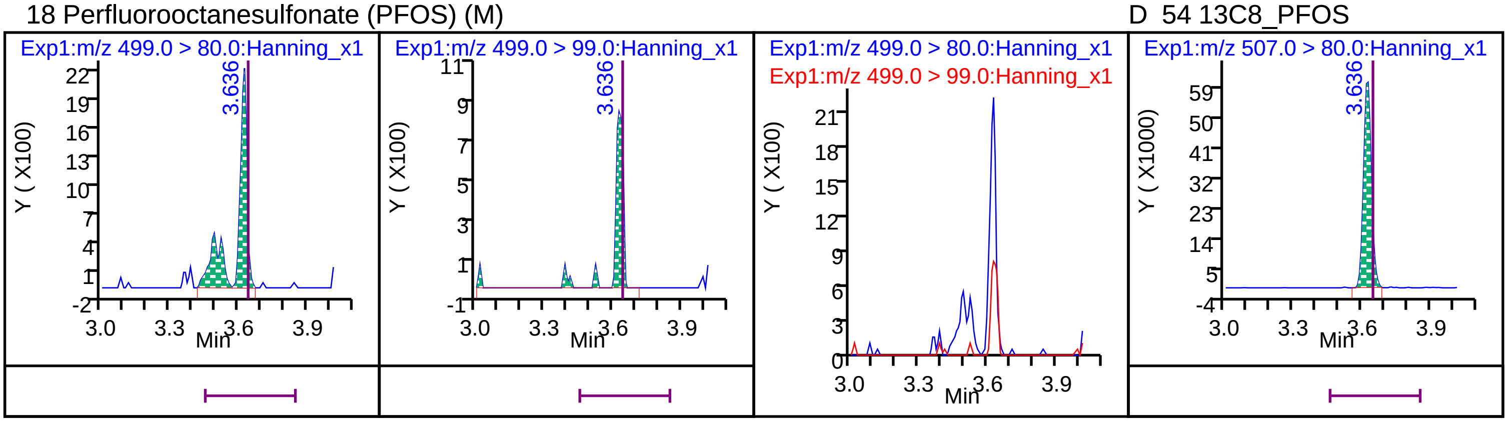
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (Marked ND) D 45 13C3_PFHxS

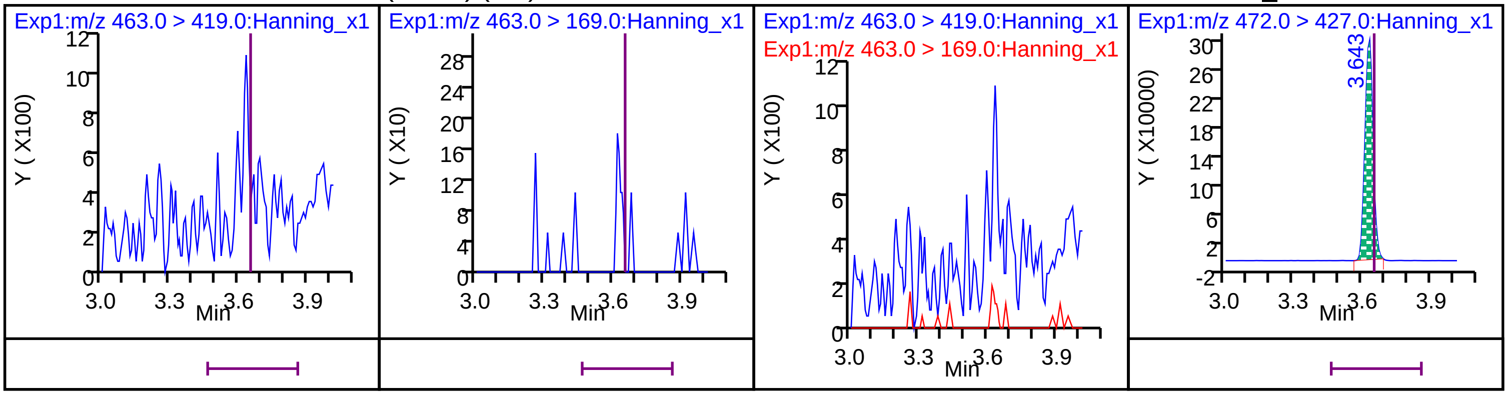


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

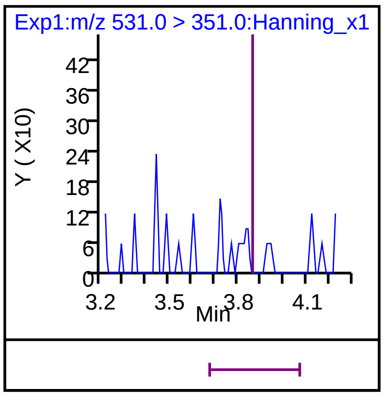


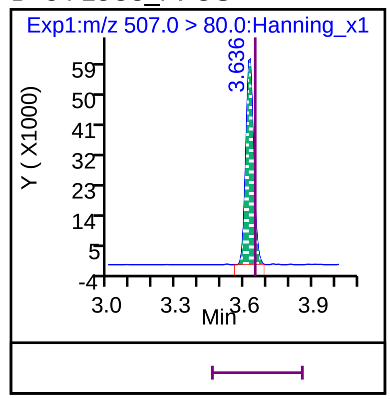
Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d

17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA

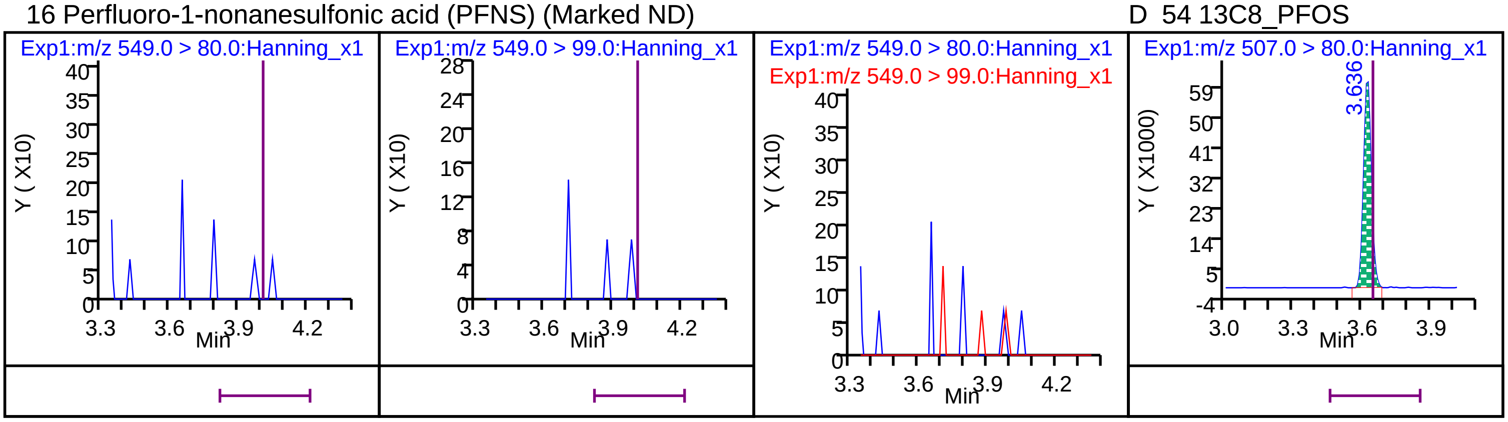


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS

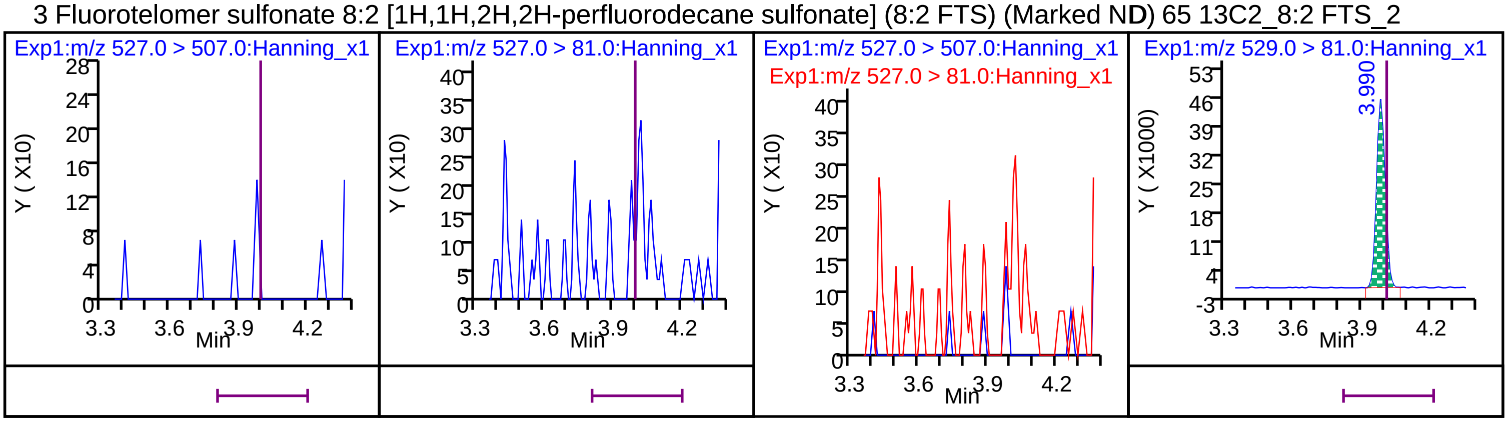




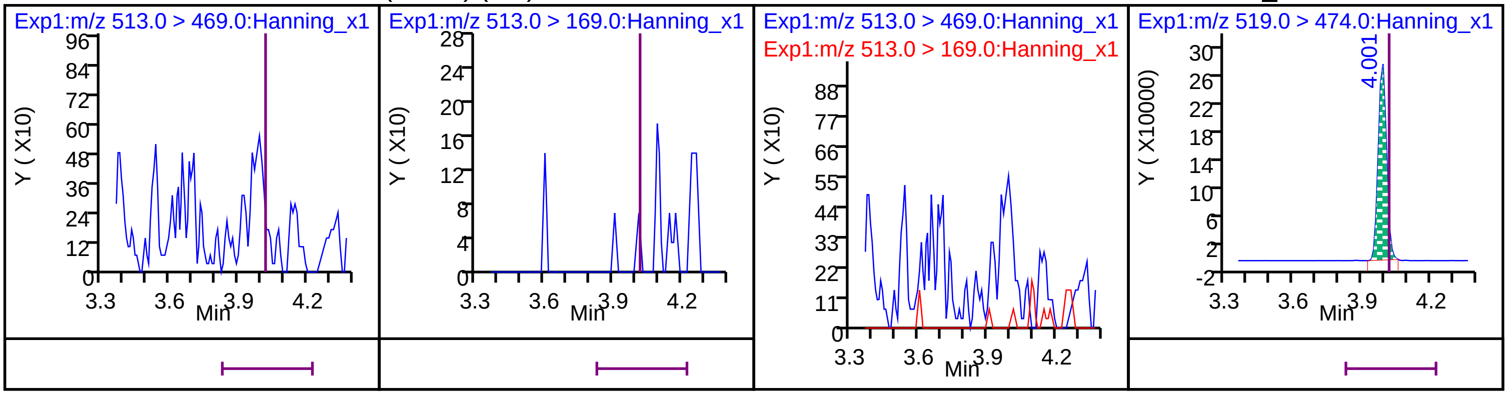
16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS



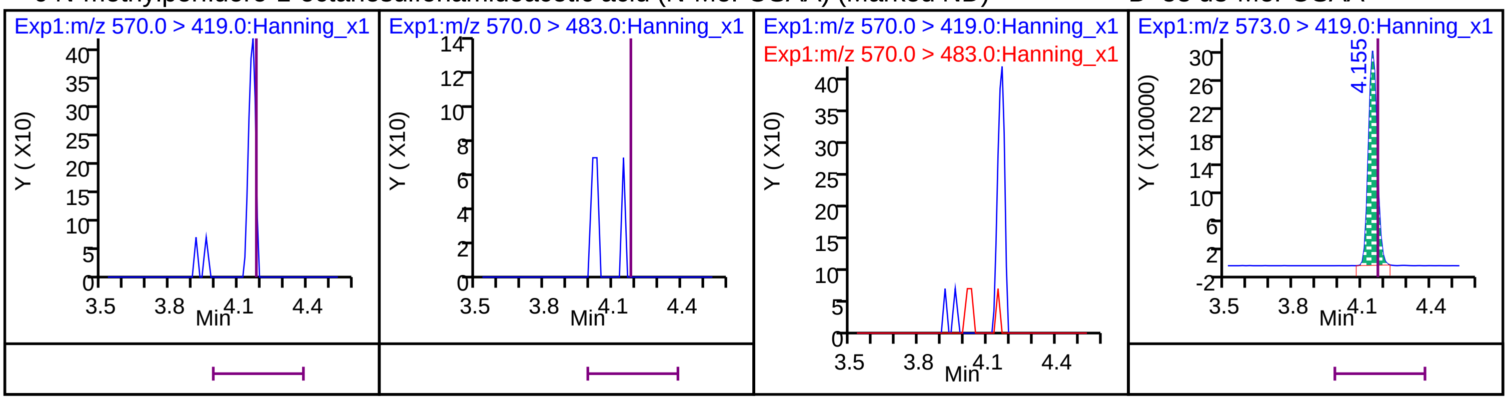
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (Marked ND) 65 13C2_8:2 FTS_2



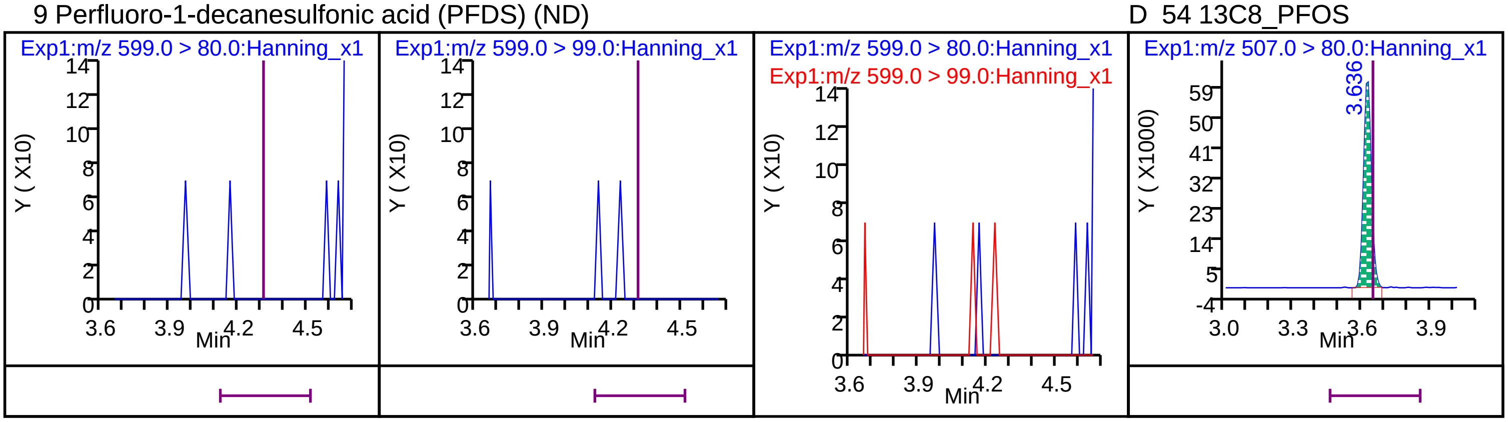
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



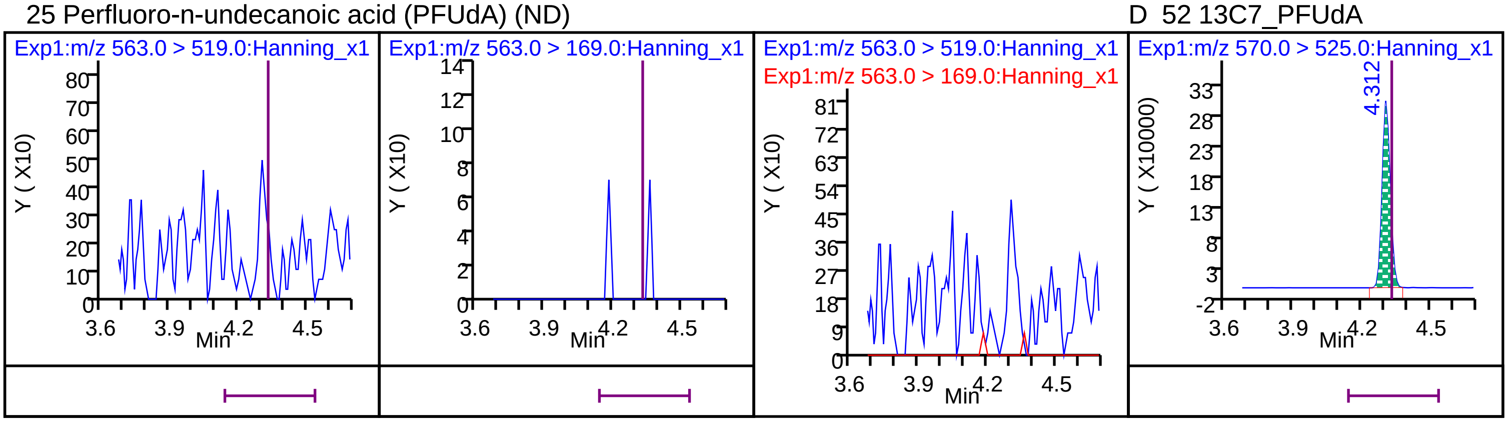
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



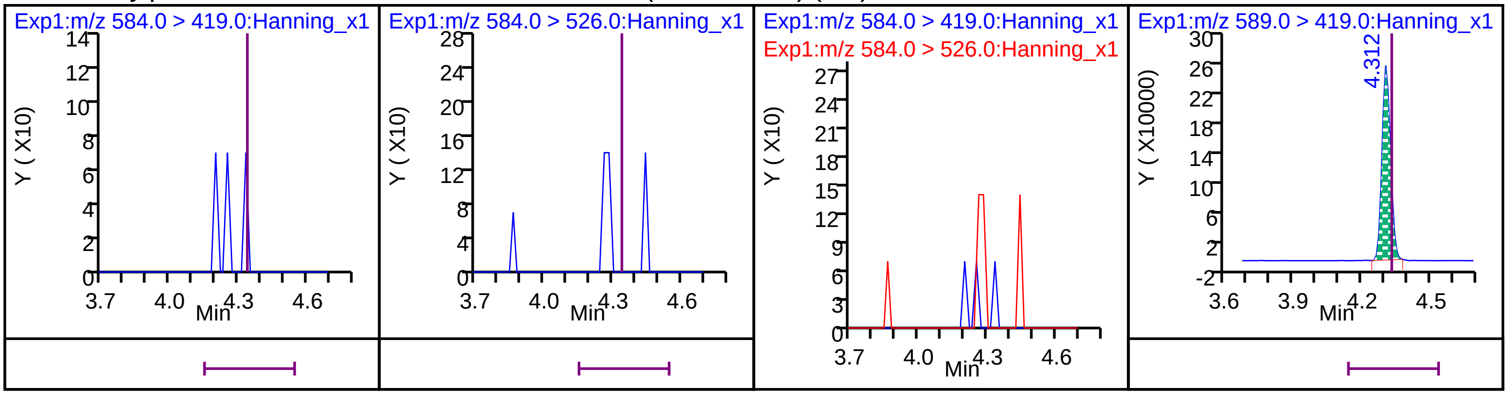
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



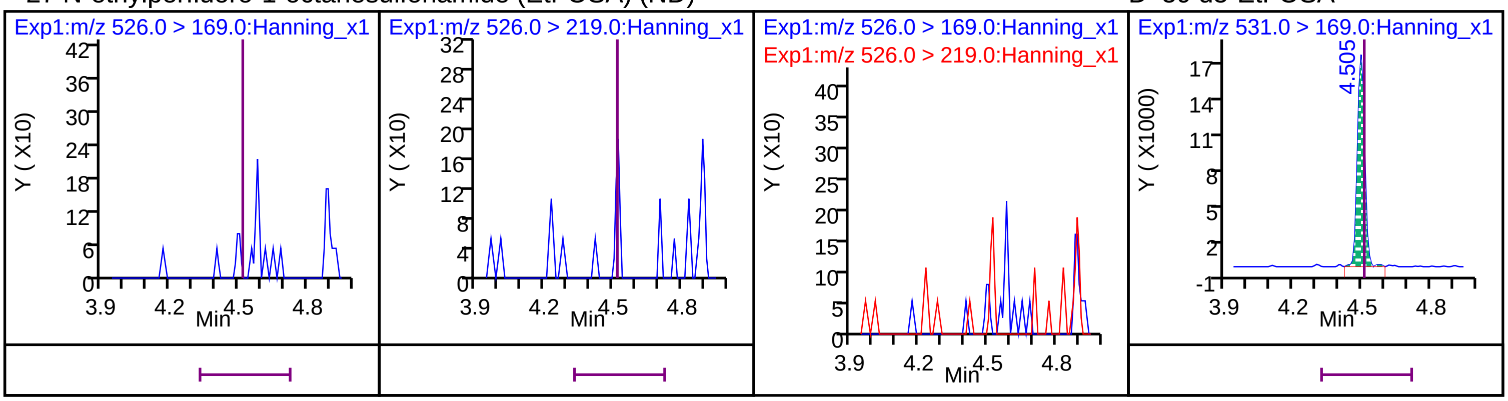
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



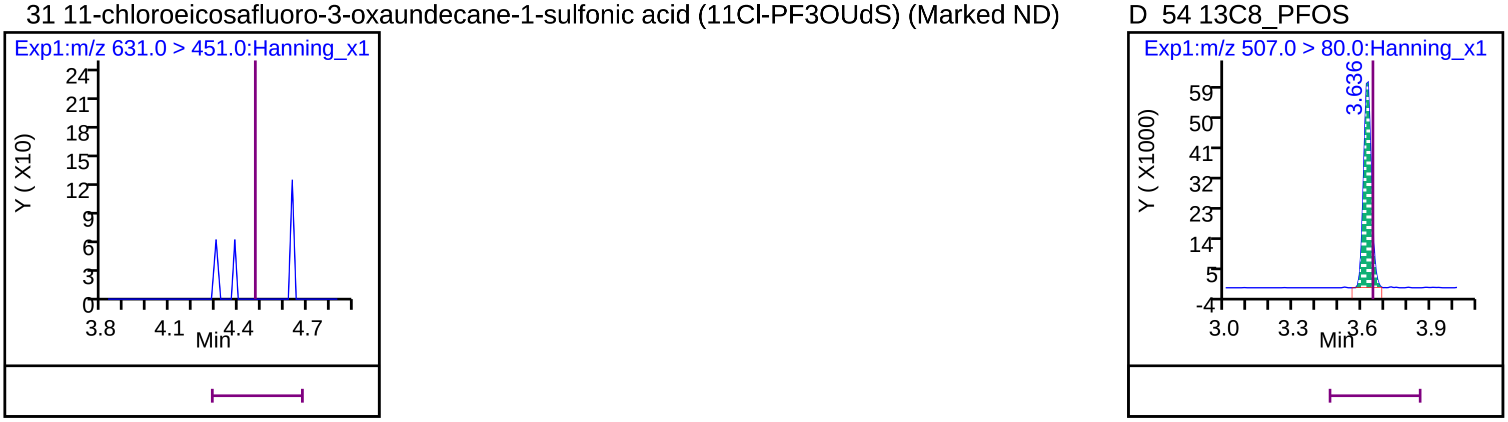
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



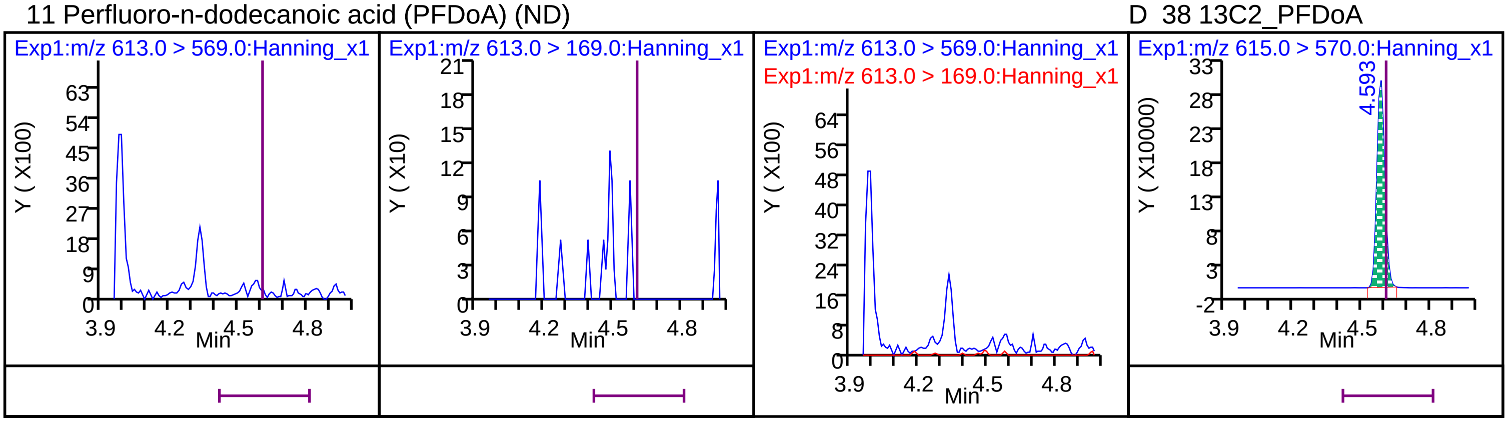
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



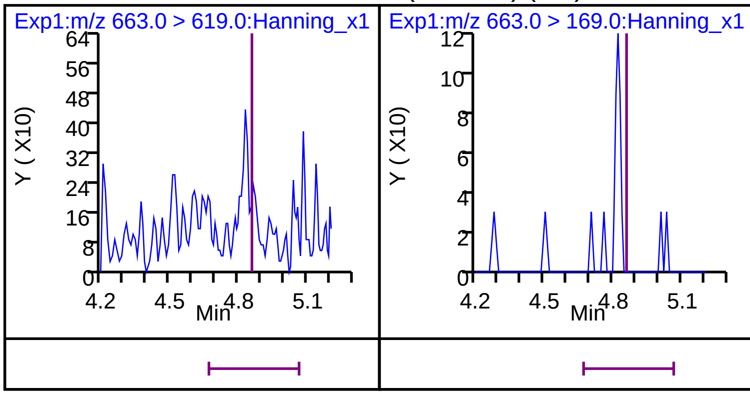
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



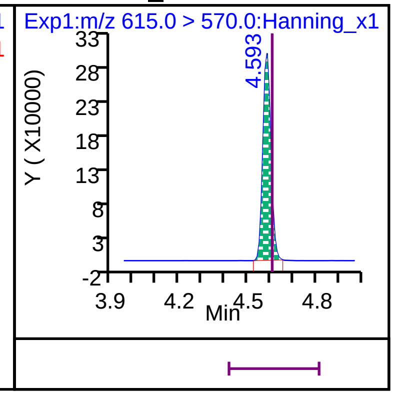
Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d

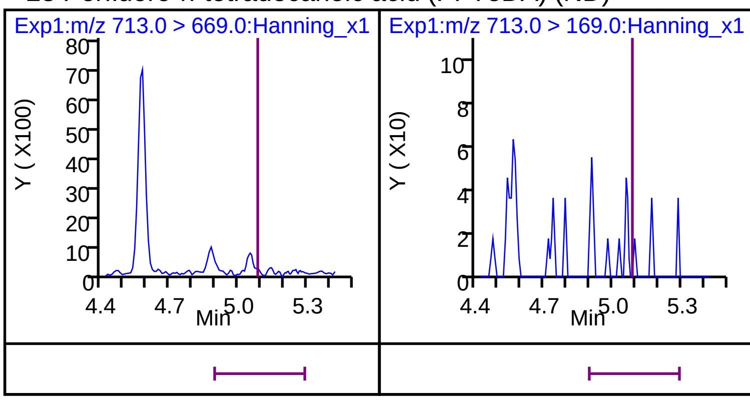
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



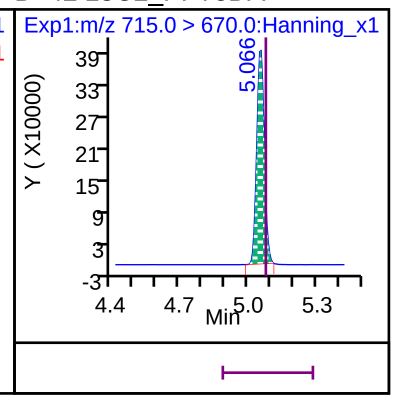
D 38 13C2_PFDoA



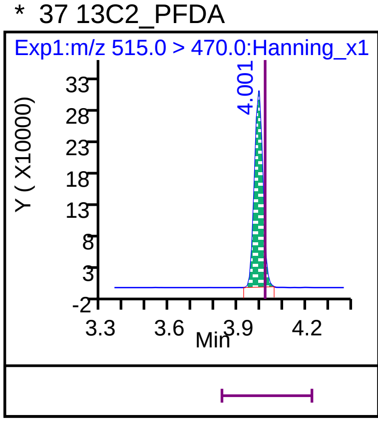
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



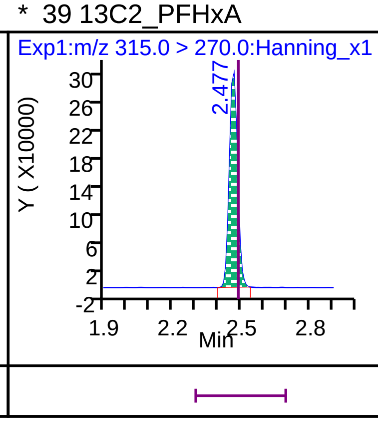
D 42 13C2_PFTeDA



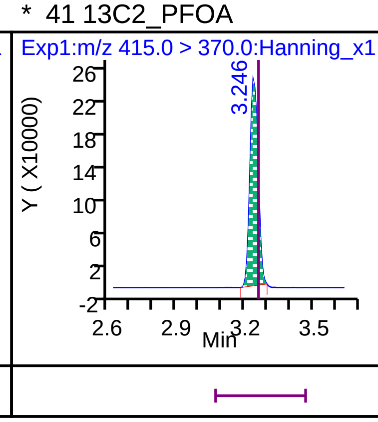
* 37 13C2_PFDA



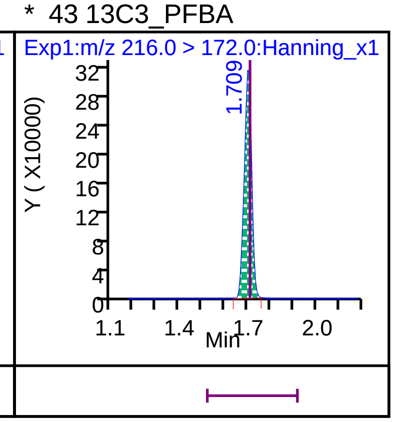
* 39 13C2_PFHxA



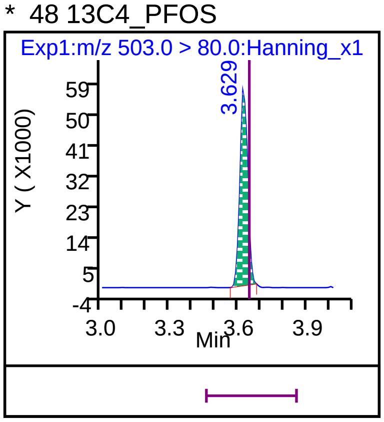
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

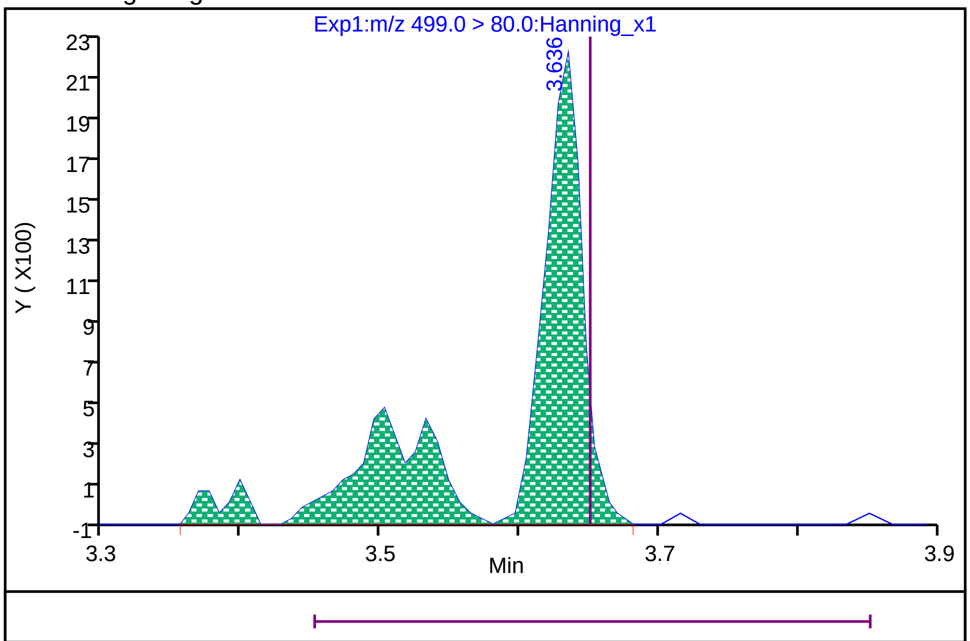
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021023.d		
Injection Date:	10-Nov-2021 16:58:43	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-012.0-20211022	Lab ID:	WJ27023-001
Sample Info:	WJ27023-001		
Dil. Factor:	1	Operator:	Justin Gavin

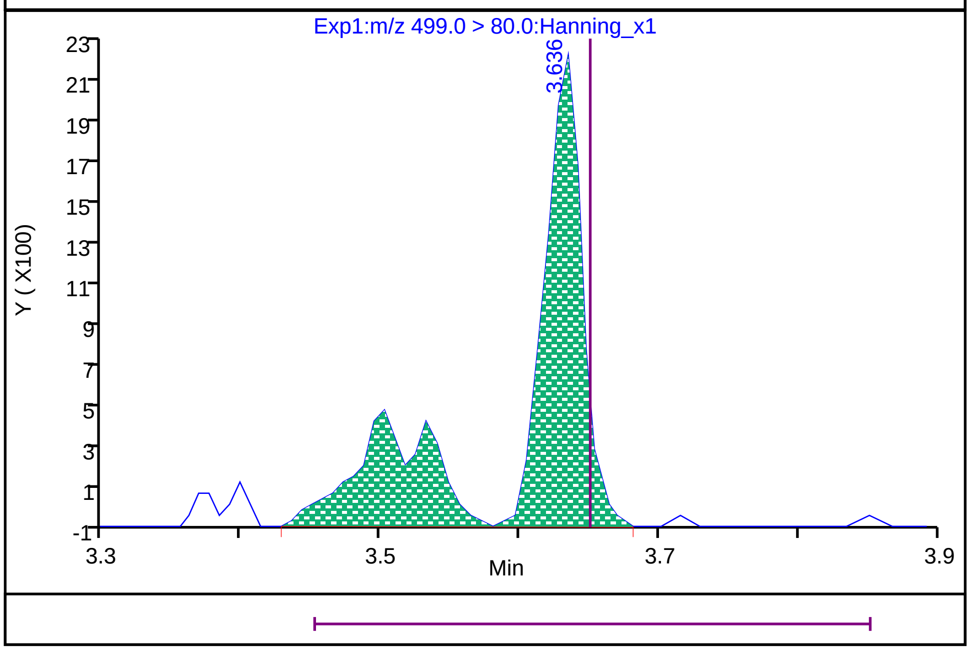
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.636
Area:	6374
Conc:	16.848
Conc Units:	ng/L



RT:	3.636
Area:	6052
Conc:	15.997
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:05:00

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-002	
Description: POL-DPT0129-022.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0825	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1709	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11		7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	24		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	23		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	38		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	42		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	28		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	160		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	196	50-150
13C2_6:2FTS		144	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		51	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		102	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WJ27023-002
Description: POL-DPT0129-022.0-20211022			Matrix: Aqueous
Date Sampled: 10/22/2021 0825	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		105	50-150
13C9_PFNA		97	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d		
Injection Date:	10-Nov-2021 17:09:14	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	17
Lab Sample ID:	WJ27023-002	Lab Prep. Batch:	21749
Client ID:	POL-DPT0129-022.0-20211022	Sample Group:	WJ27023
Sample Info:	WJ27023-002	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0395288

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	278	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.718	0	337539	16	>100:1			1001.00	542.95	51.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.718	0/0	204789	16	30:1			575.86	22.763		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.099	2.109	0	491573	15	>100:1			1001.00	860.01	84.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.120	0/0	393442	10	49:1			711.84	28.138		M
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.173	0	158375	12	>100:1			1001.00	915.62	96.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.173	0/0	122022	14	>100:1	Target = 3.53		618.45	24.447		
298.9 > 99	44	2.162	2.173		33446	14	89:1	3.64 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.505	2.532	-1/-1	58404	12	>100:1	Target = 3.10		398.31	15.745		M
349 > 99	44	2.514	2.532		21590	13	40:1	2.70 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.434	2.451	-1	222035	17	>100:1			5005.00	9805.59	195.9*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.496	-1	679551	17	>100:1			1001.00	1043.40	101.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.496	-1/0	674594	12	>100:1	Target = 18.91		955.70	37.778		M
313 > 119	49	2.478	2.496		37130	18	>100:1	18.16 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.591	2.607	0	1106752	16	>100:1			5005.00	4775.50	91.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.873	0	565728	16	>100:1			1001.00	1065.52	103.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.873	0/0	319884	15	72:1	Target = 3.80		515.10	20.361		
363 > 169	47	2.855	2.873		79747	20	>100:1	4.01 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.873	2.889	0	134164	14	>100:1			1001.00	1067.85	108.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.873	2.889	0/0	454288	26	>100:1	Target = 2.89	5.64	3083.04	121.87		
399 > 99	45	2.873	2.889		130766	24	>100:1	3.47 (1.44-4.34)	8.74				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.262	3.276	0/0	12726	15	71:1	Target = 3.12		92.447	3.6543		M
449 > 99	45	3.248	3.276		4478	16	64:1	2.84 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.228	3.242	0	140704	20	>100:1			5005.00	7816.91	143.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.228	3.248	-1/-1	19238	18	>100:1	Target = 1.75		289.08	11.427		
427 > 81	64	3.228	3.248		12666	21	22:1	1.51 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.248	3.269	-1	565228	21	>100:1			1001.00	1077.29	98.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.255	3.276	-1/0	617647	34	>100:1	Target = 2.89	5.57	1067.41	42.193		
413 > 169	53	3.255	3.276		190229	34	>100:1	3.24 (1.44-4.34)	5.12				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.632	3.657	-1	132331	21	>100:1			1001.00	1068.54	105.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.639	3.652	0/1	655623	38	>100:1	Target = 3.30	1.80	4165.17	164.64		M
499 > 99	54	3.639	3.652		177517	37	>100:1	3.69 (1.65-4.95)	4.06				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.872		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.483		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.639	3.662	-1	668316	20	>100:1			1001.00	1043.63	96.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													J
463 > 419	56	3.646	3.662	-1/0	50776	20	65:1	Target = 6.51		70.558	2.7891		
463 > 169	56	3.639	3.662		6517	19	23:1	7.79 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.995	4.027	-1	628851	16	>100:1			1001.00	1094.30	98.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.017	-1	111738	22	>100:1			5005.00	6464.64	114.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.151	4.178	-1	700451	17	>100:1			5005.00	4635.29	95.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.318	4.339	-1	626514	15	>100:1			5005.00	4837.45	95.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.318	4.339	-1	642443	15	>100:1			1001.00	1066.74	97.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.501	4.519	-1	26847	13	>100:1			1001.00	624.35	69.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.588	4.614	-1	598058	16	>100:1			1001.00	996.20	80.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.062	5.087	-1	644099	21	>100:1			1001.00	792.26	73.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
*** 37 13C2_PFDA**													
515 > 470		3.995	4.027	-1	763032	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.496	-1	727011	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.248	3.269	-1	638528	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.718	0	335470	17	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.639	3.657	-1	148338	20	>100:1			200.00			

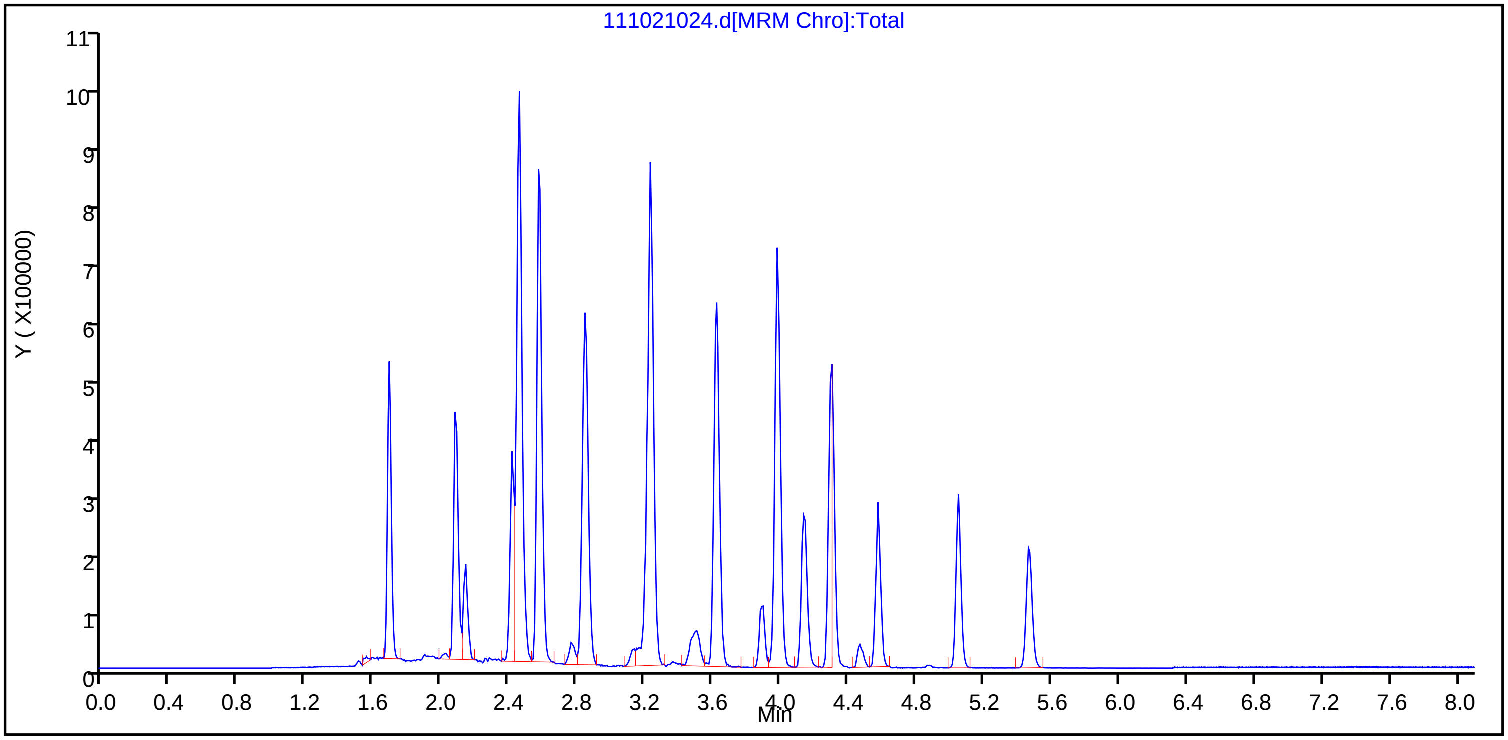
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

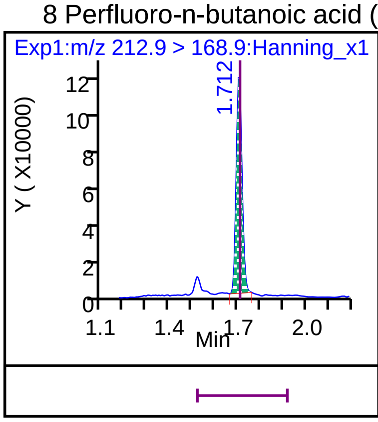
Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

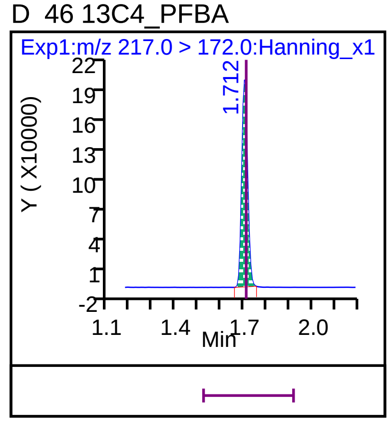
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d		
Injection Date:	10-Nov-2021 17:09:14	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-022.0-20211022	Lab ID:	WJ27023-002
Sample Info:	WJ27023-002		
Dil. Factor:	1	Operator:	Justin Gavin



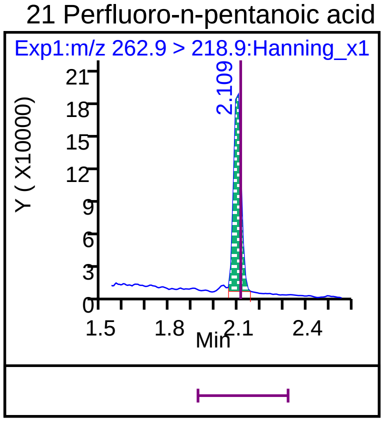
8 Perfluoro-n-butanoic acid (PFBA)



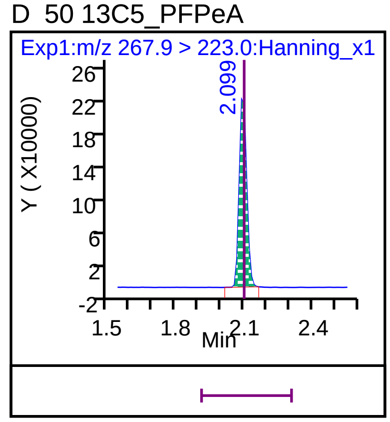
D 46 13C4_PFBA



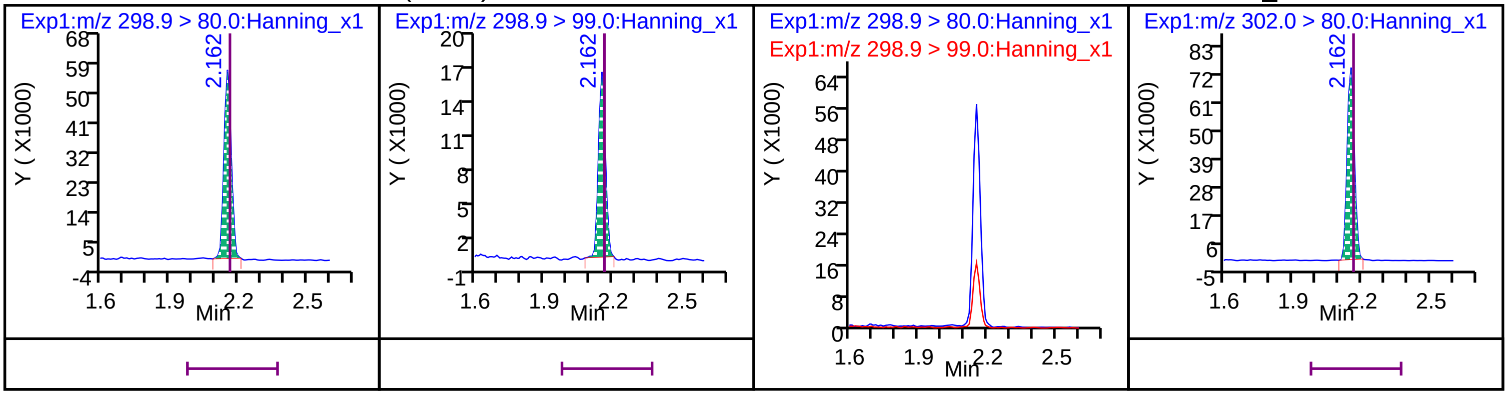
21 Perfluoro-n-pentanoic acid (PFPeA) (M)



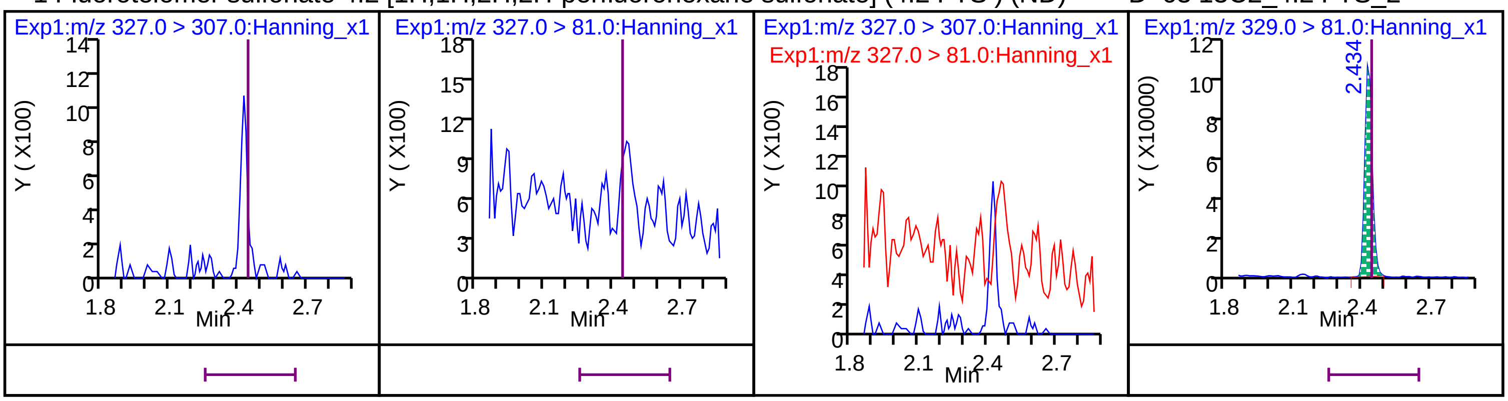
D 50 13C5_PFPeA



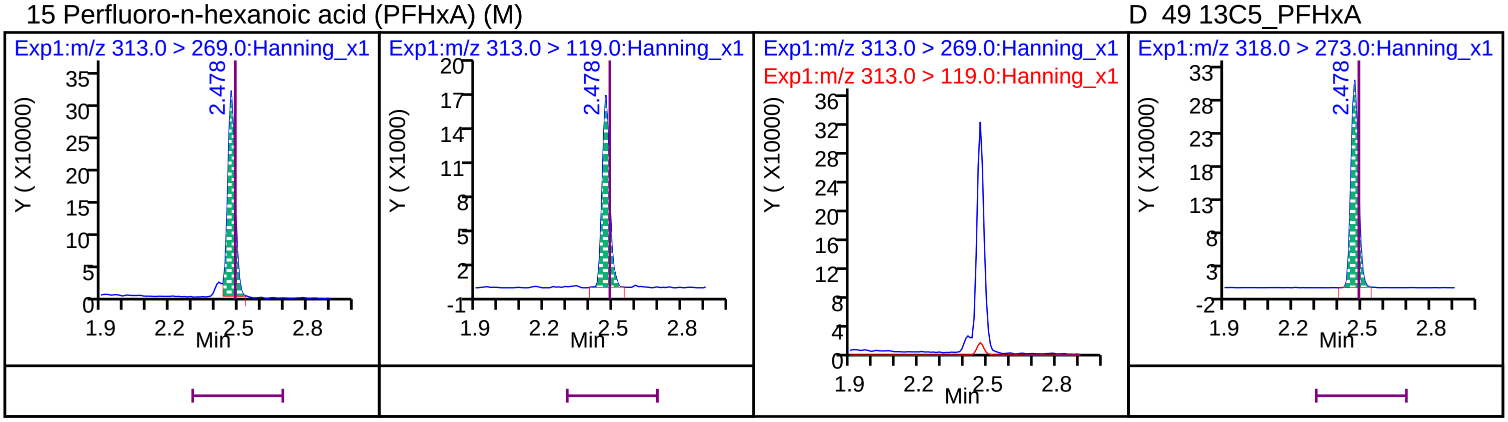
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



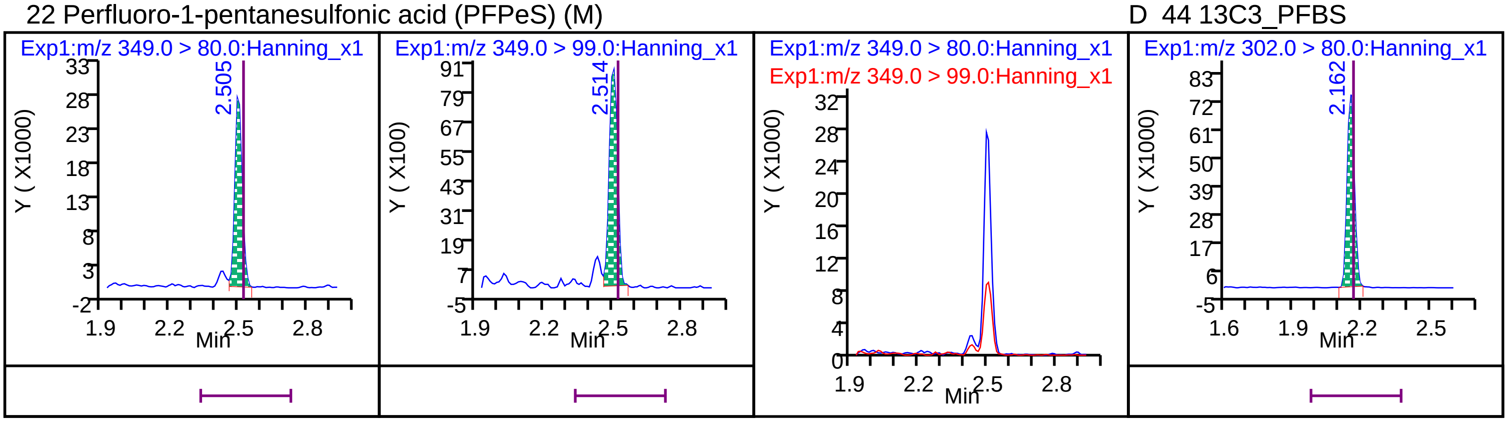
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



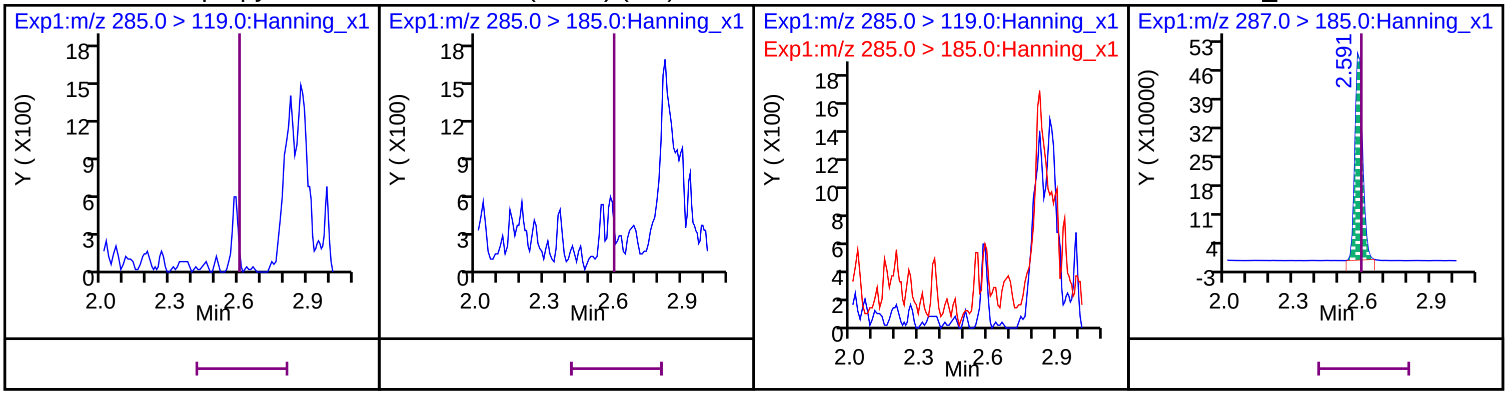
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



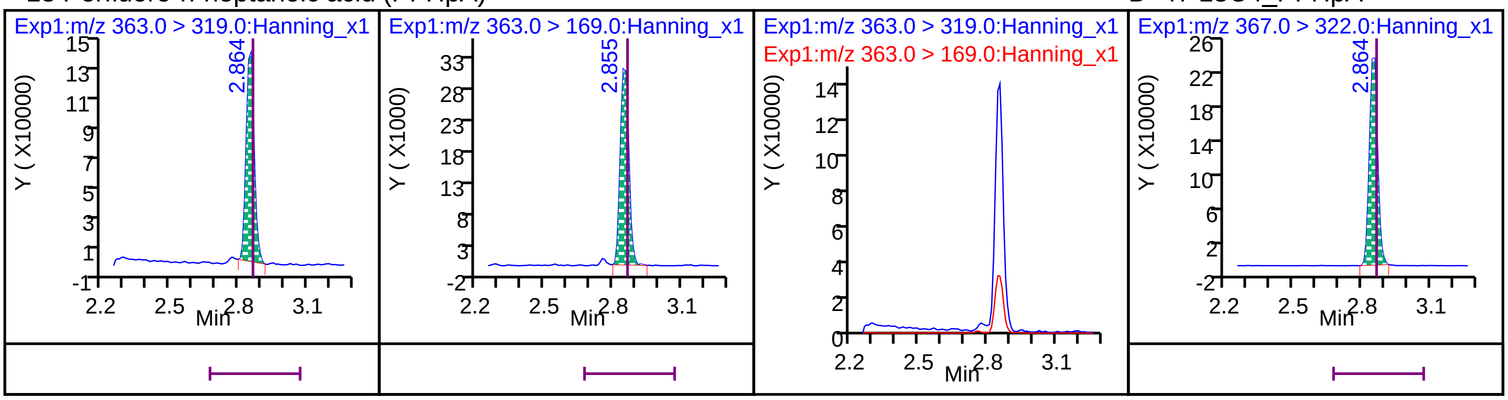
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (M) D 44 13C3_PFBS



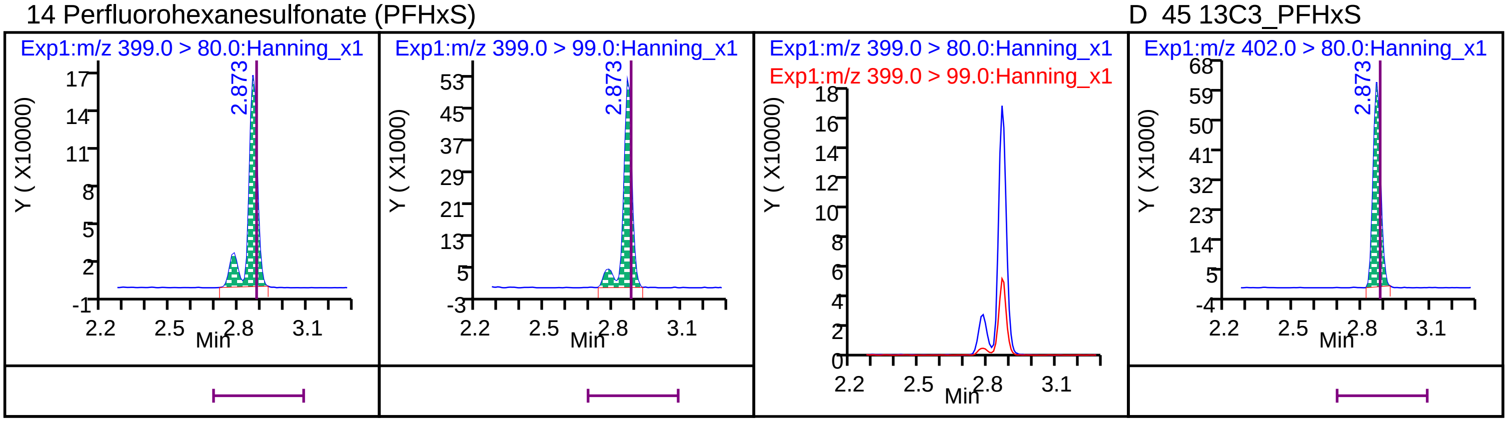
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



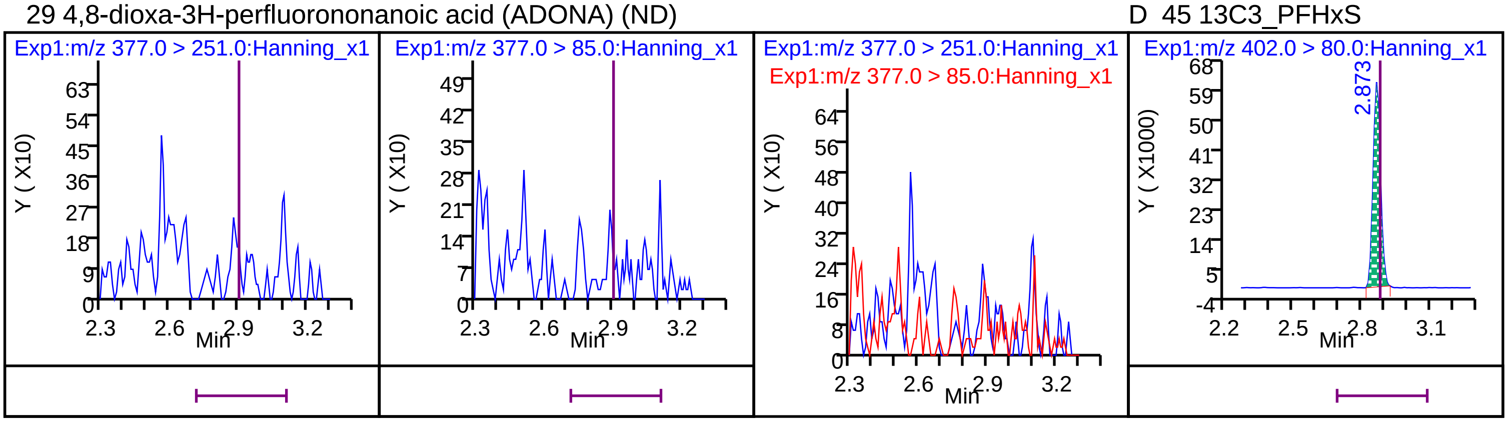
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

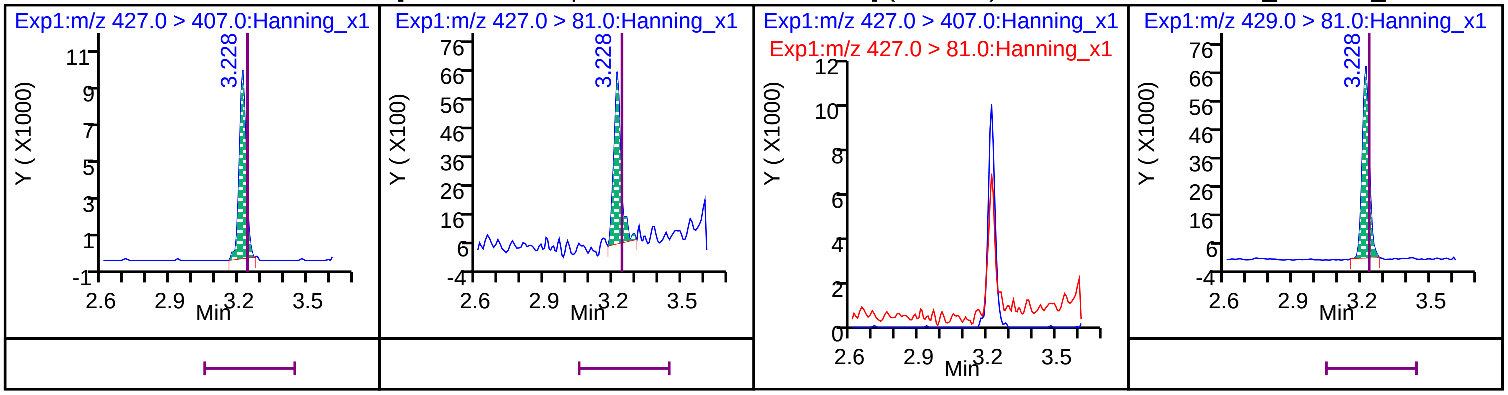


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

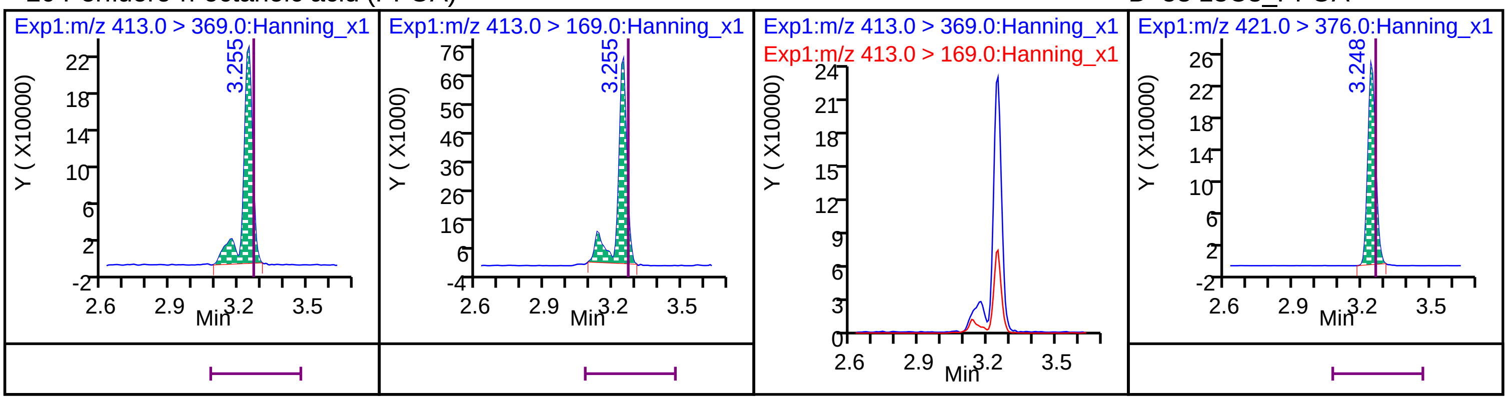


Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d

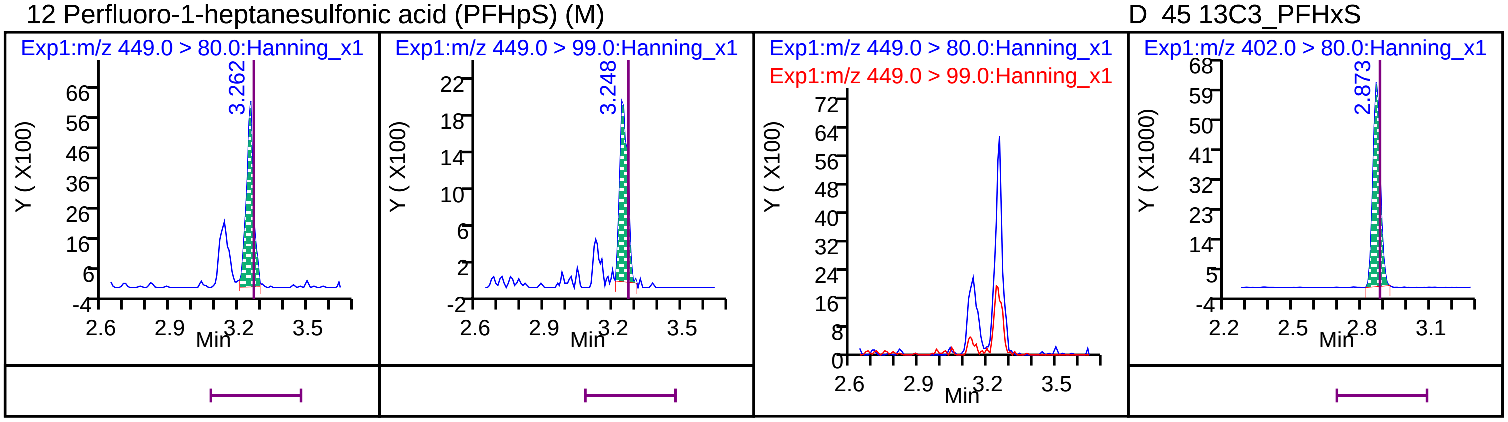
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



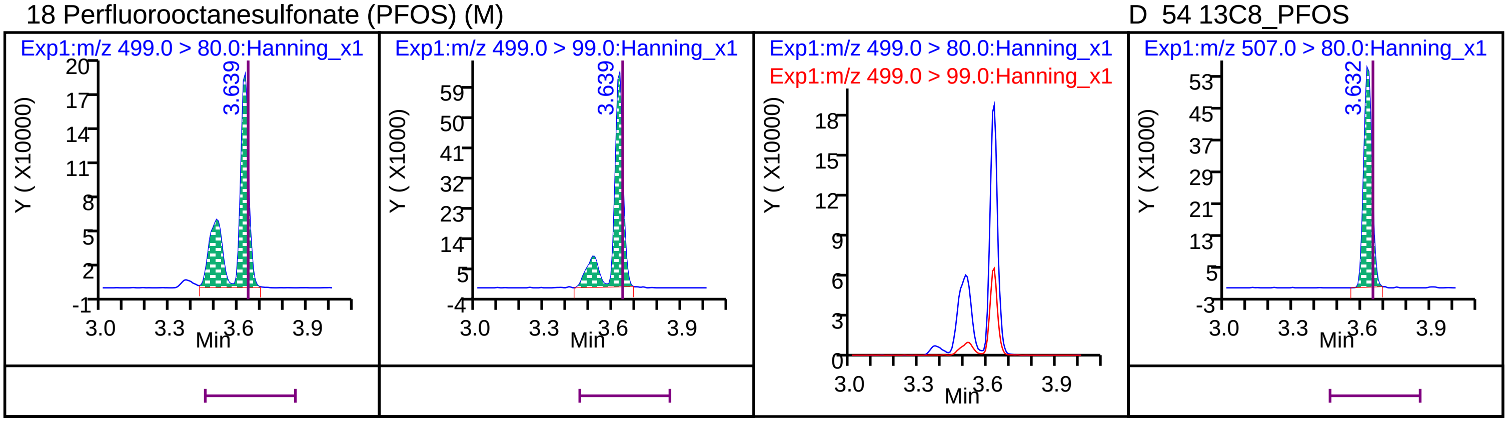
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



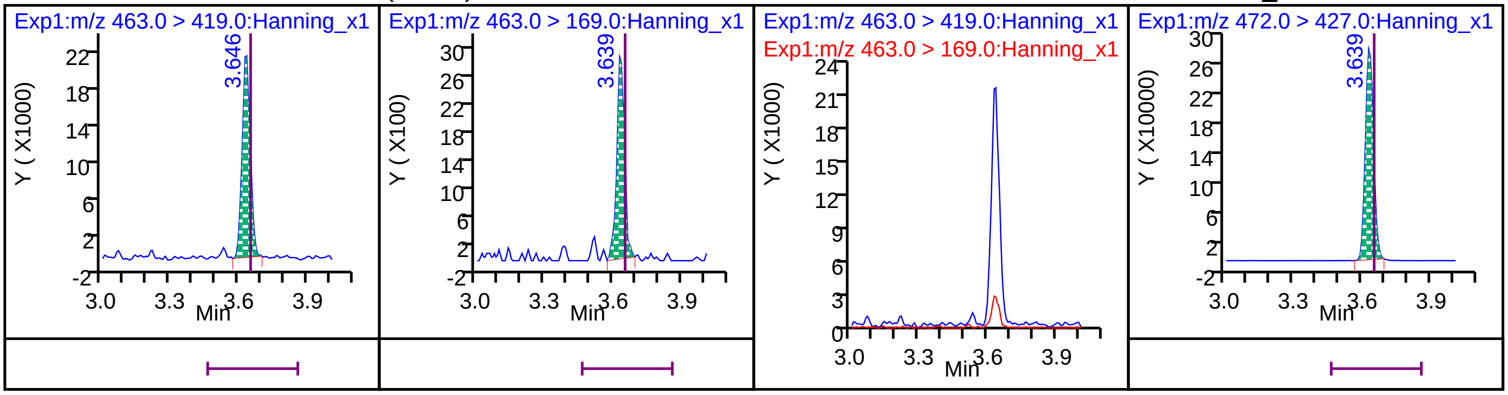
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS



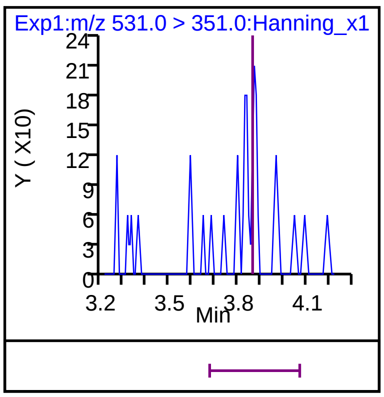
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

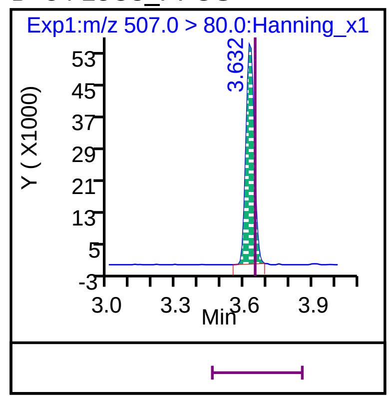


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

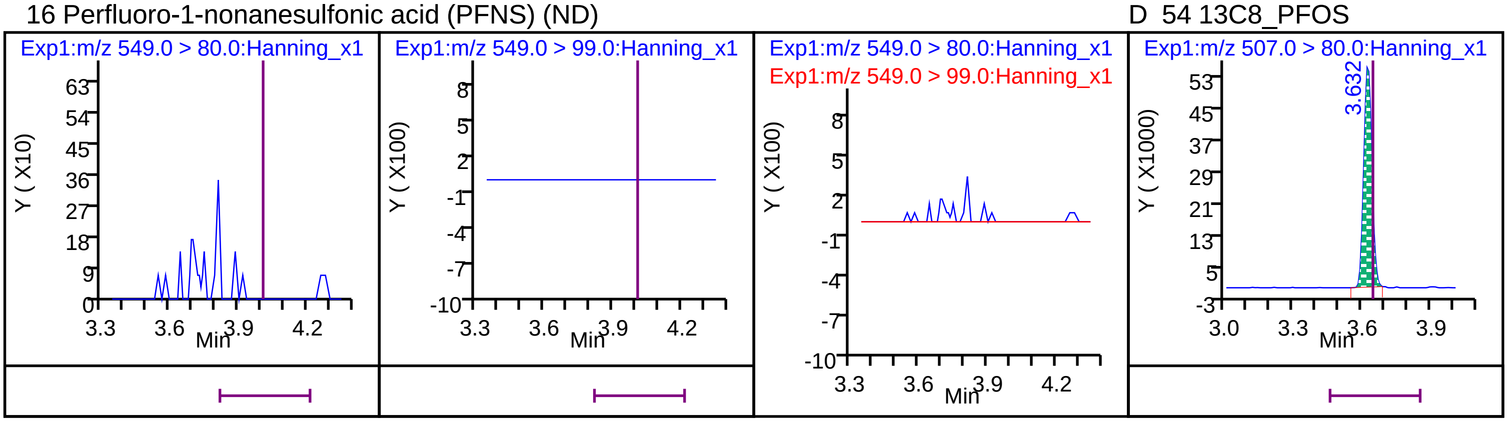


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

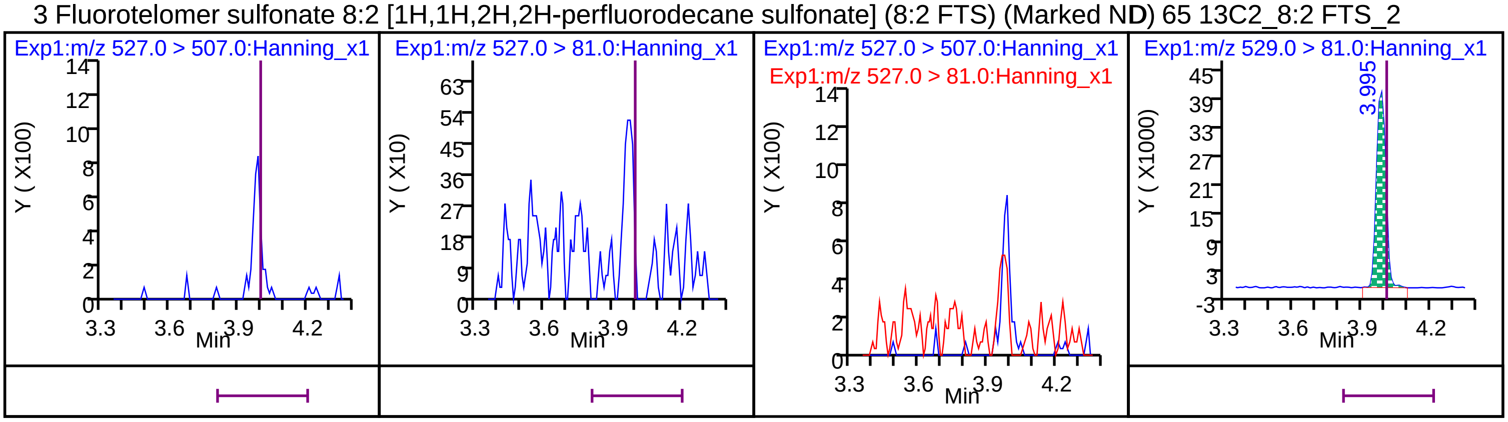




16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

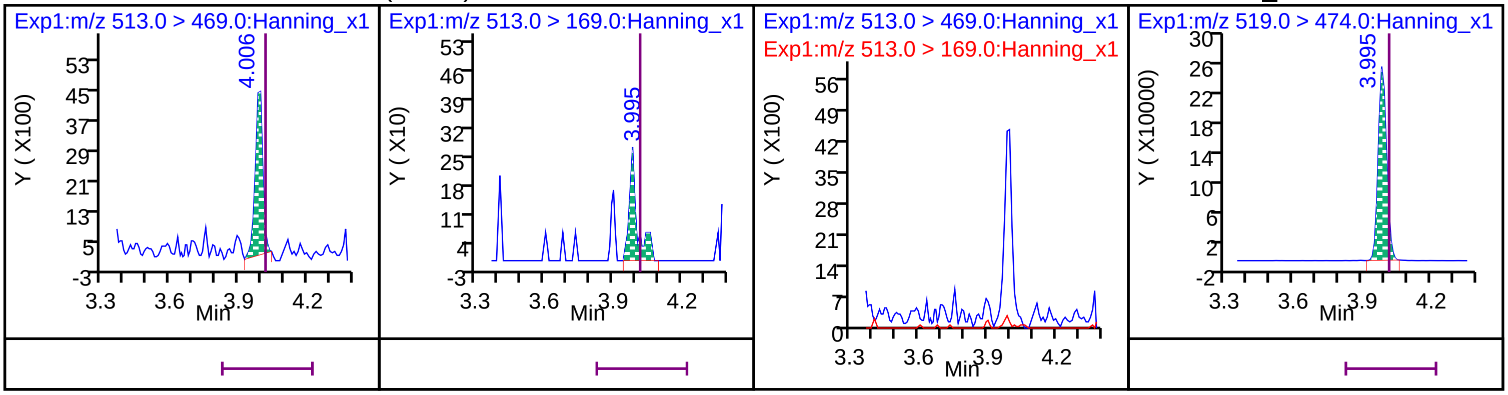


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (Marked ND) 65 13C2_8:2 FTS_2

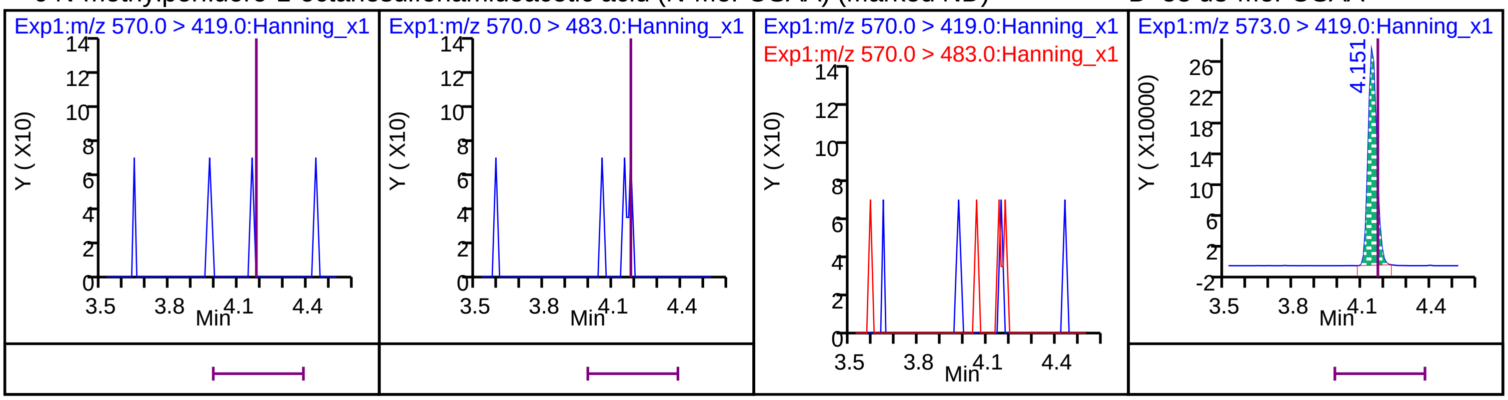


Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d

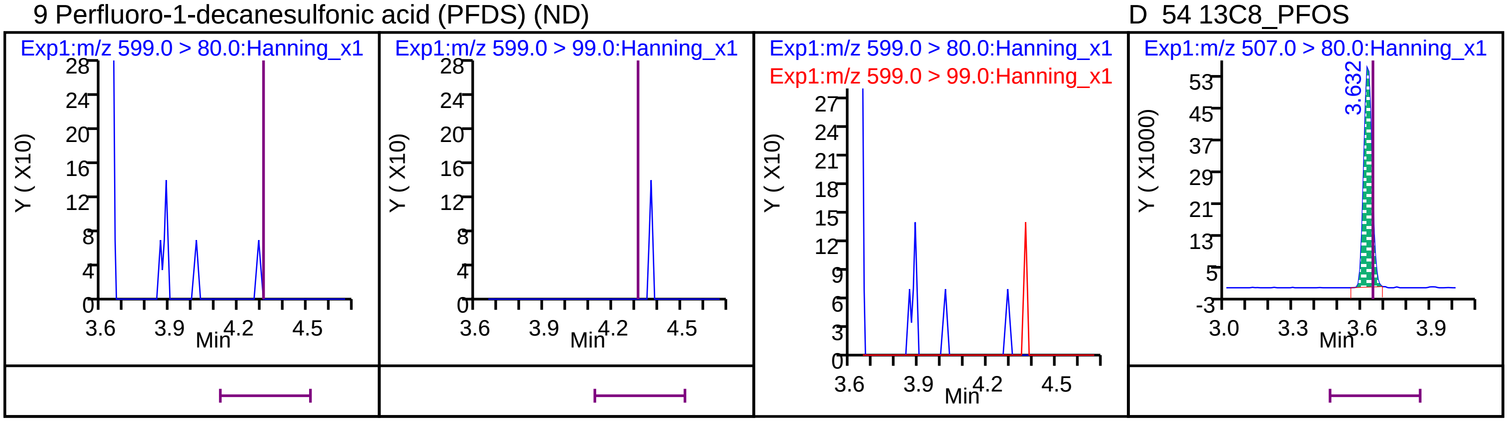
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



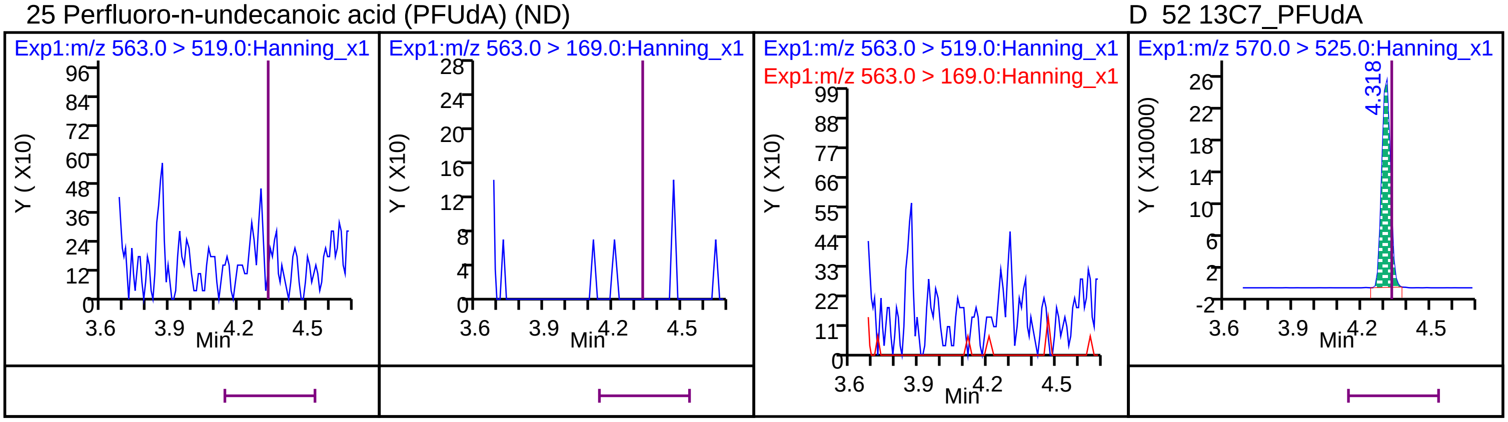
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



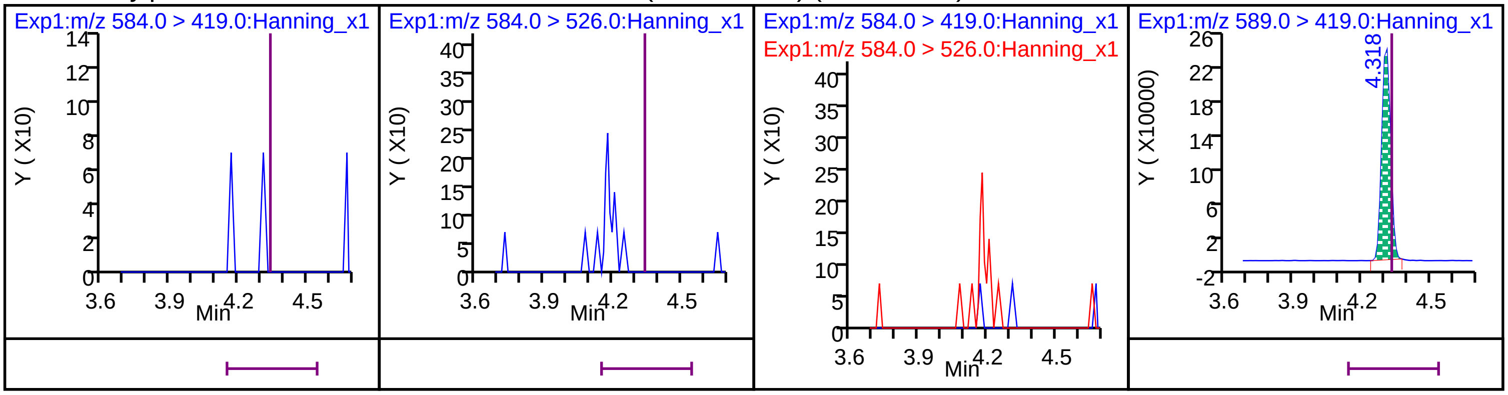
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



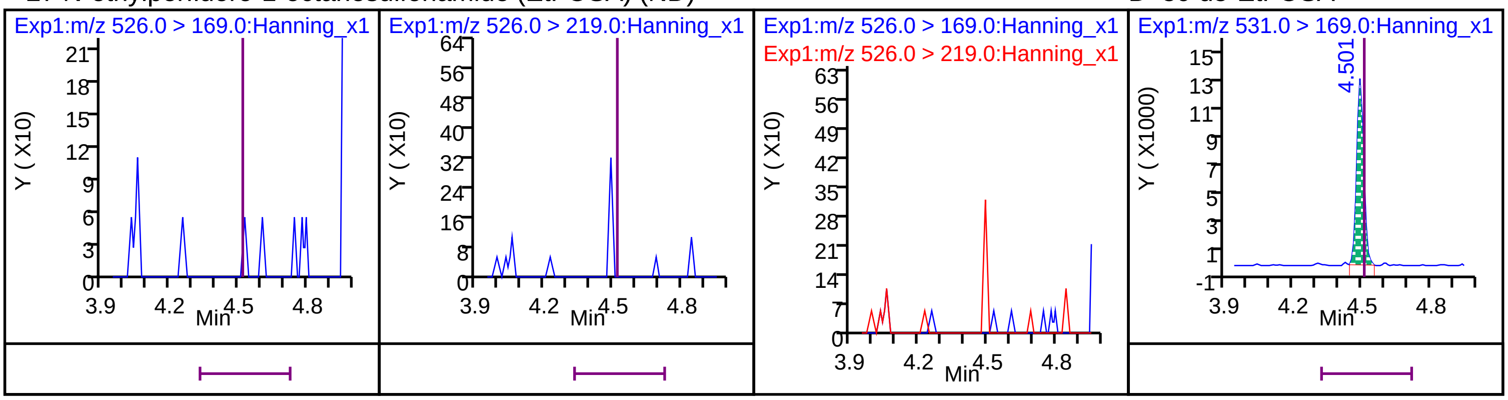
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



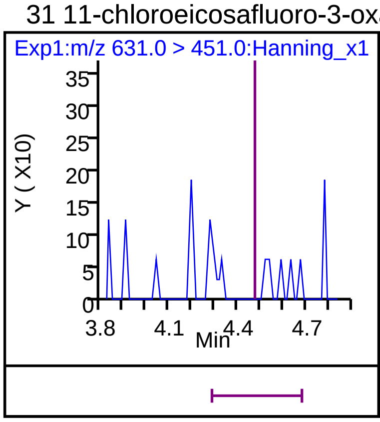
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA

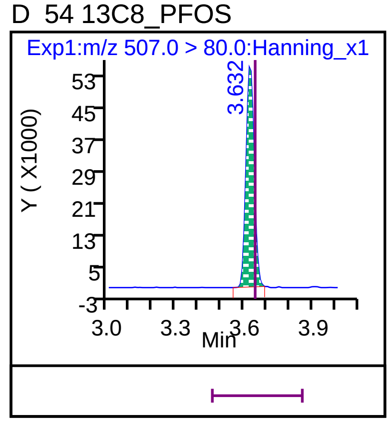


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA

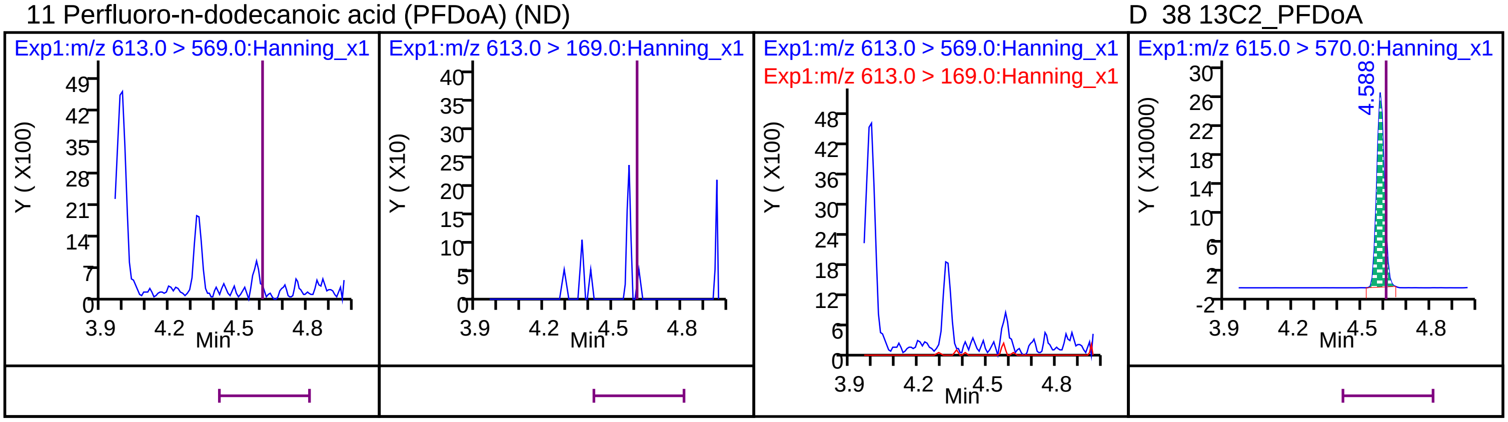


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



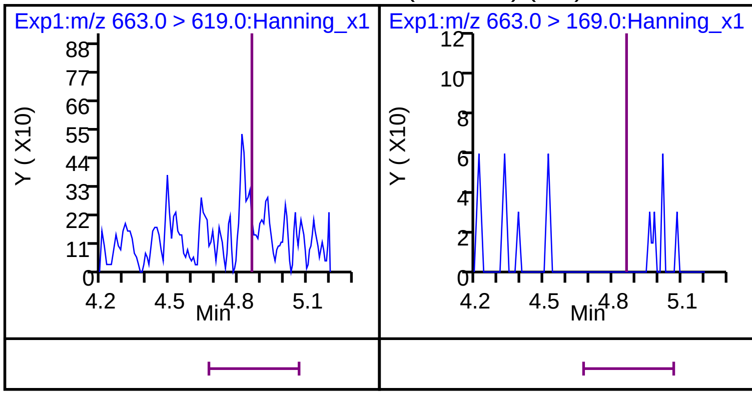


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA

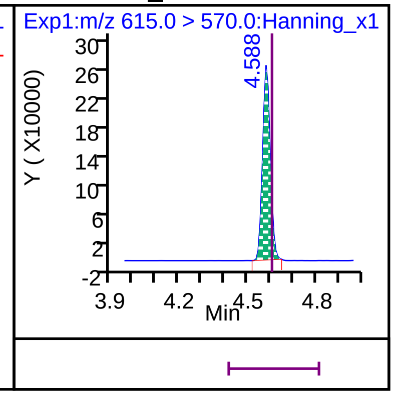


Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d

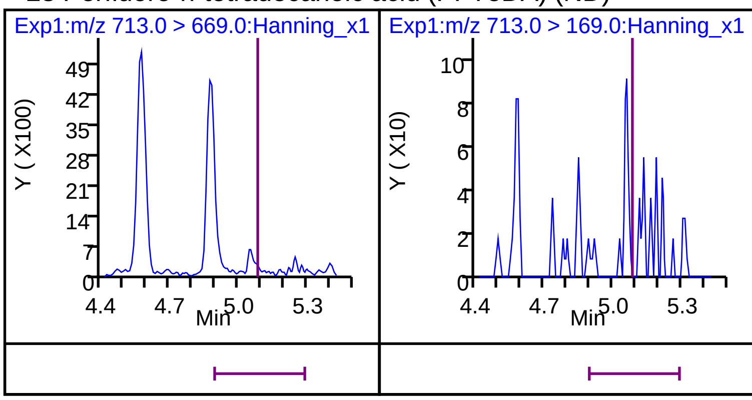
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



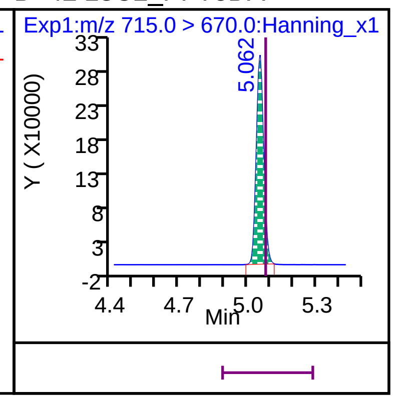
D 38 13C2_PFDoA



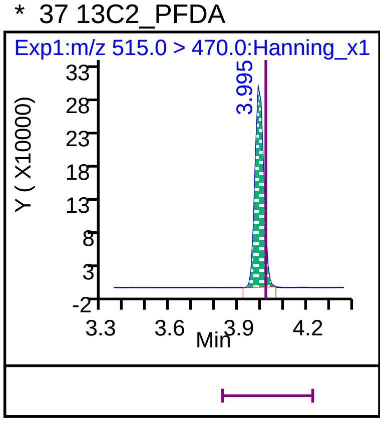
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



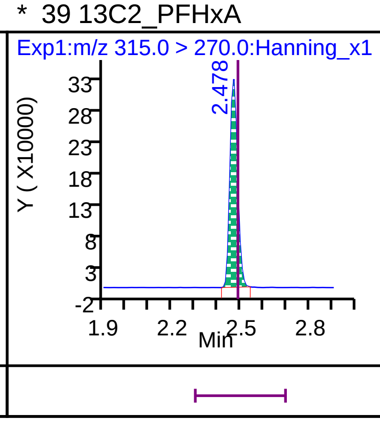
D 42 13C2_PFTeDA



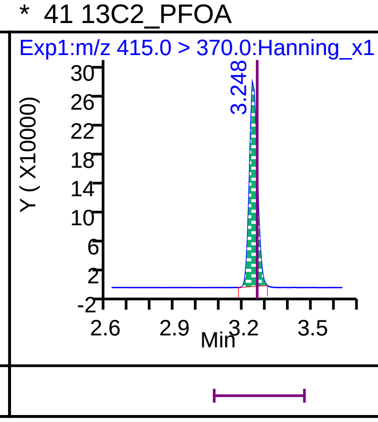
* 37 13C2_PFDA



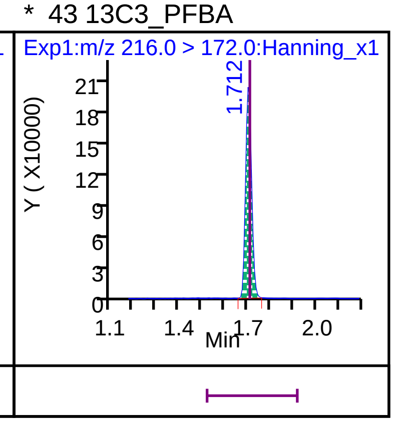
* 39 13C2_PFHxA



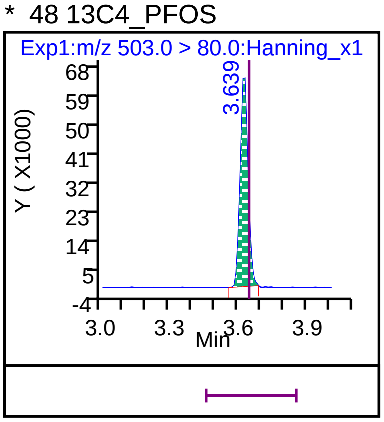
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

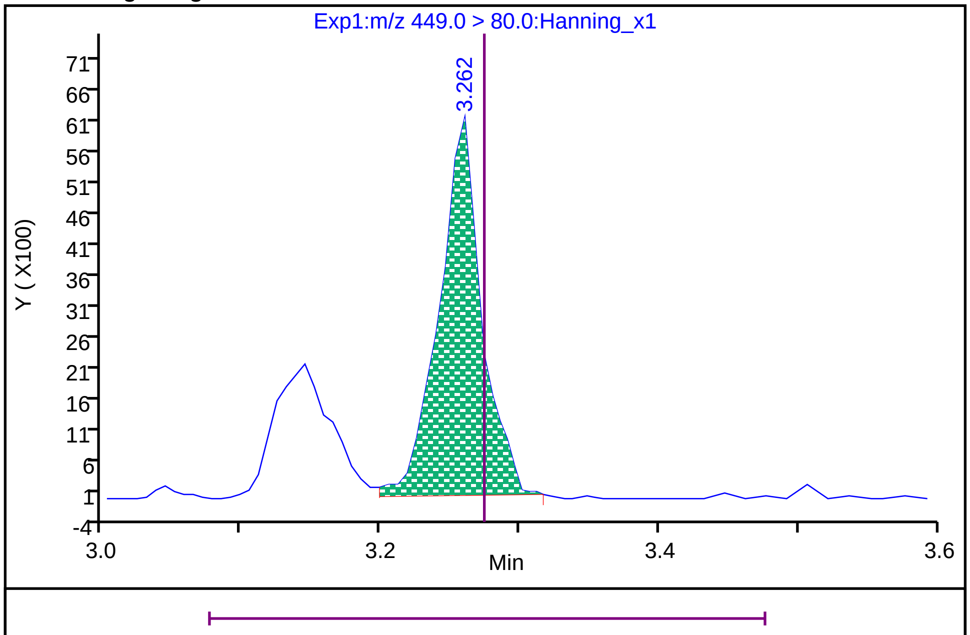
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d

Injection Date:	10-Nov-2021 17:09:14	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-022.0-20211022	Lab ID:	WJ27023-002
Sample Info:	WJ27023-002		
Dil. Factor:	1	Operator:	Justin Gavin

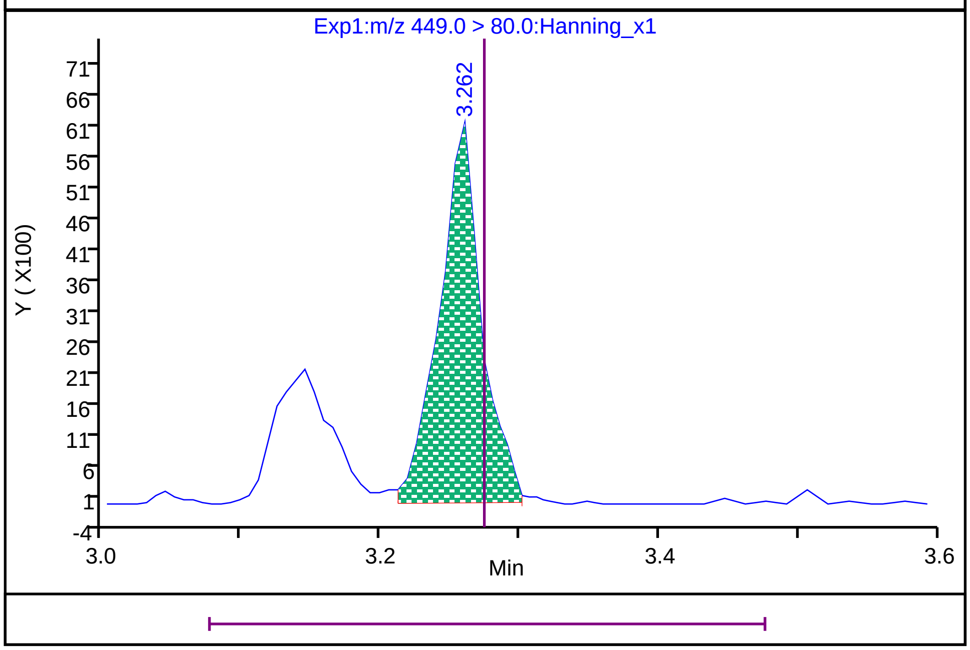
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT:	3.262
Area:	12740
Conc:	3.6583
Conc Units:	ng/L



RT:	3.262
Area:	12726
Conc:	3.6543
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:05:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

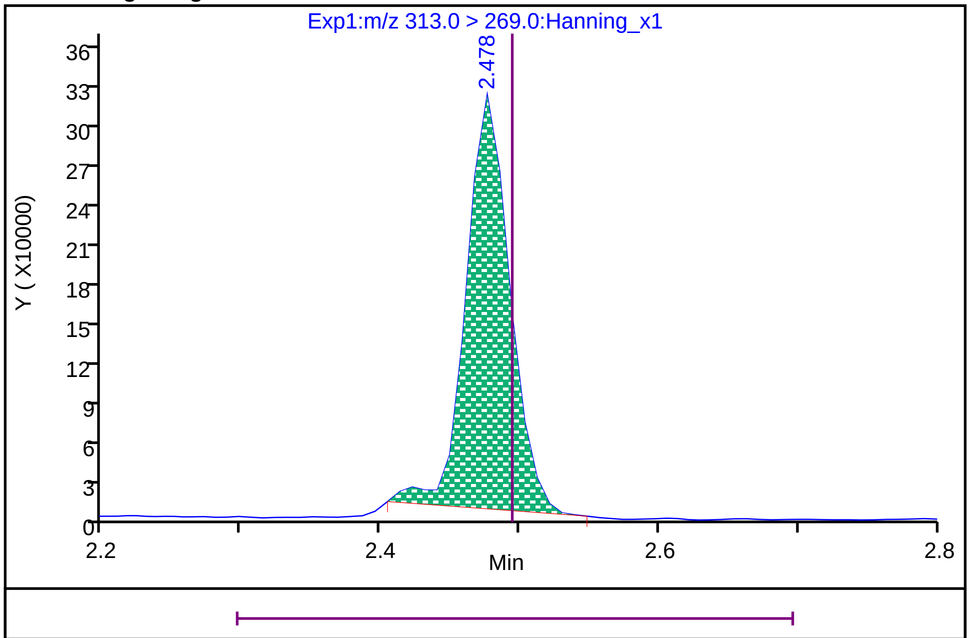
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d		
Injection Date:	10-Nov-2021 17:09:14	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-022.0-20211022	Lab ID:	WJ27023-002
Sample Info:	WJ27023-002		
Dil. Factor:	1	Operator:	Justin Gavin

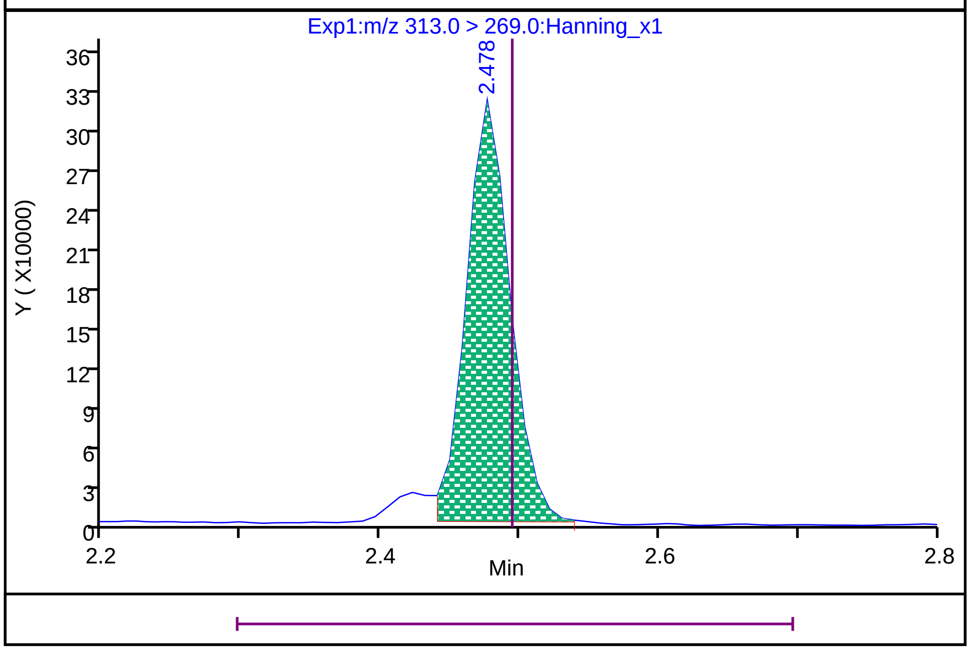
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.478
Area:	667268
Conc:	37.367
Conc Units:	ng/L



RT:	2.478
Area:	674594
Conc:	37.778
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:05:31

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

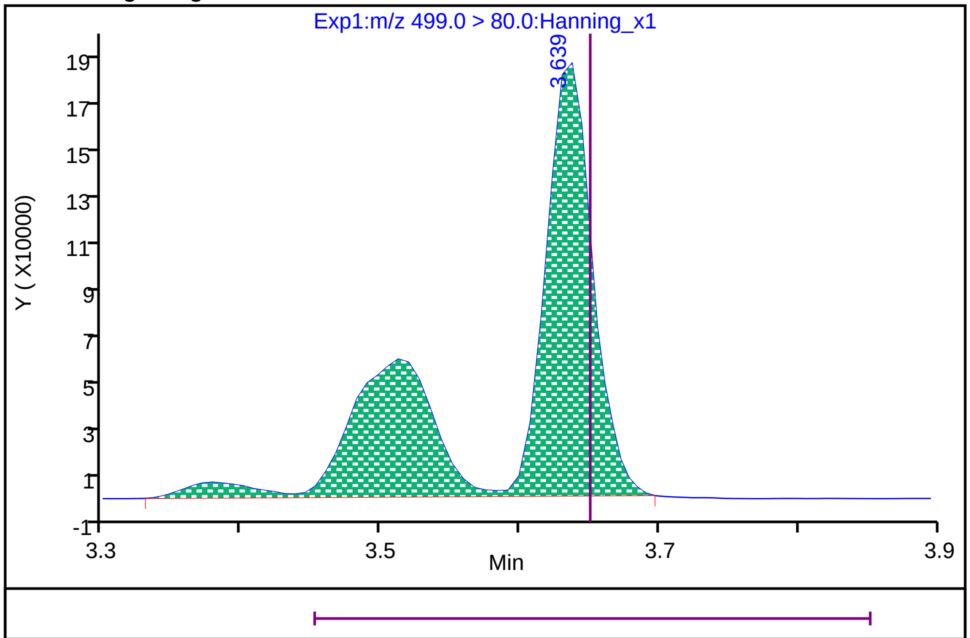
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d		
Injection Date:	10-Nov-2021 17:09:14	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-022.0-20211022	Lab ID:	WJ27023-002
Sample Info:	WJ27023-002		
Dil. Factor:	1	Operator:	Justin Gavin

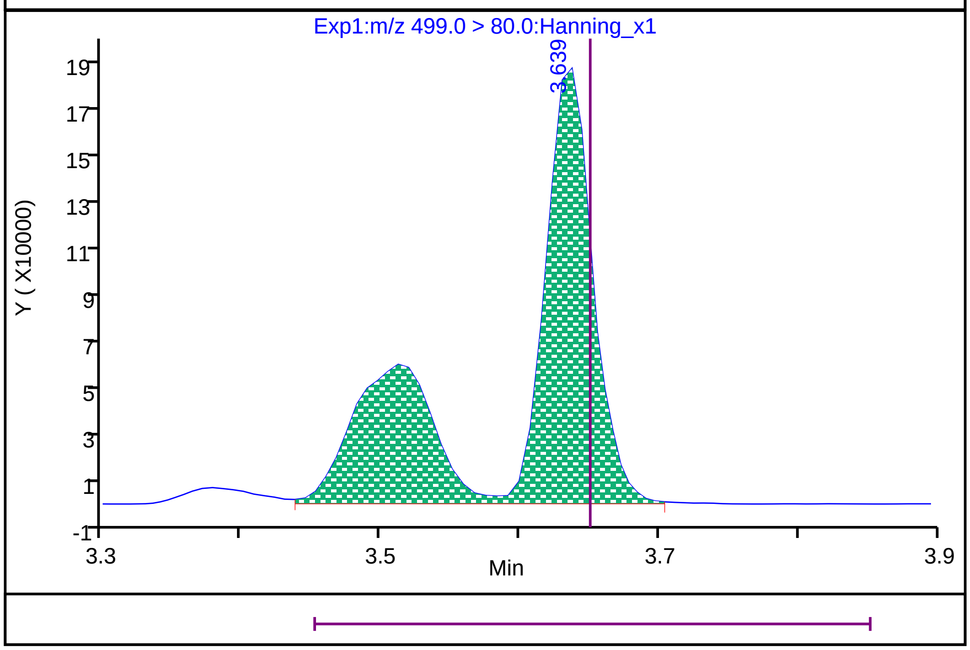
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.639
Area:	667586
Conc:	167.65
Conc Units:	ng/L



RT:	3.639
Area:	655623
Conc:	164.64
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:06:00

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

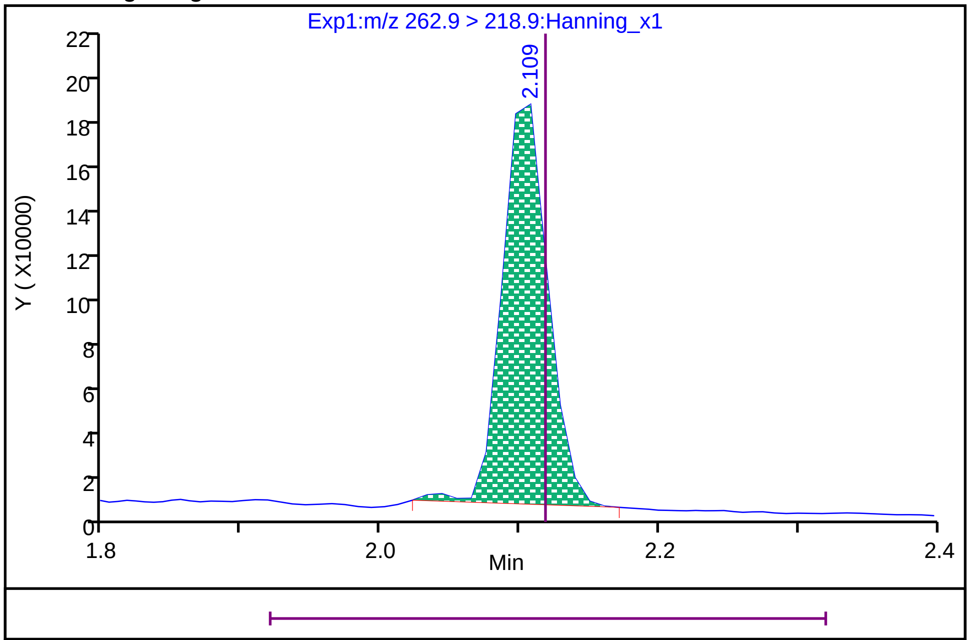
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d
Injection Date:	10-Nov-2021 17:09:14
Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-022.0-20211022
Lab ID:	WJ27023-002
Sample Info:	WJ27023-002
Dil. Factor:	1
Operator:	Justin Gavin

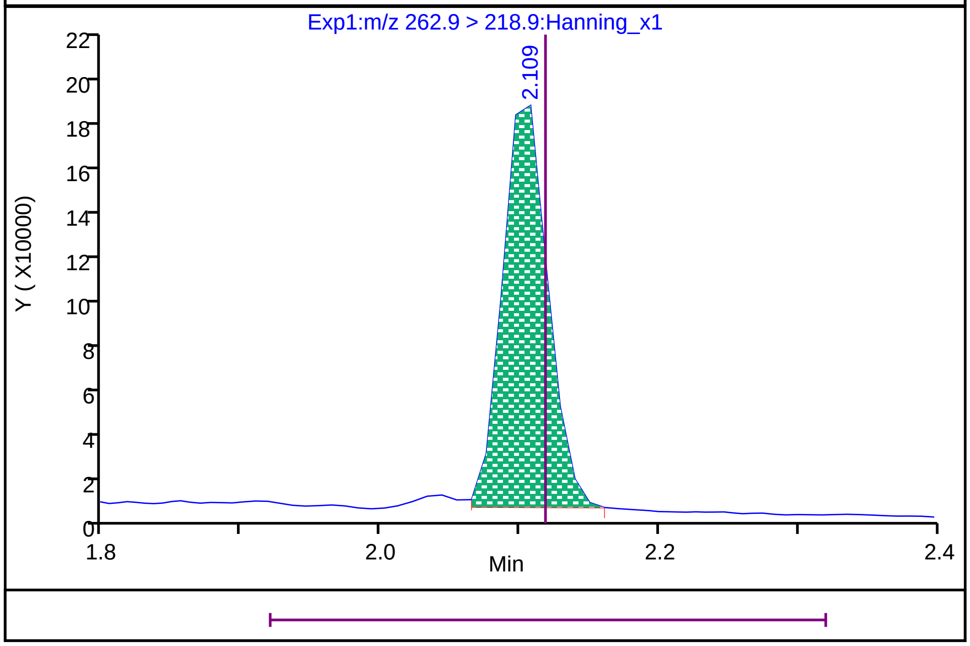
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT: 2.109
Area: 394195
Conc: 28.192
Conc Units: ng/L



RT: 2.109
Area: 393442
Conc: 28.138
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:05:23

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021024.d

Injection Date: 10-Nov-2021 17:09:14 Inst. ID: LCMSMS02.i

Client ID: POL-DPT0129-022.0-20211022 Lab ID: WJ27023-002

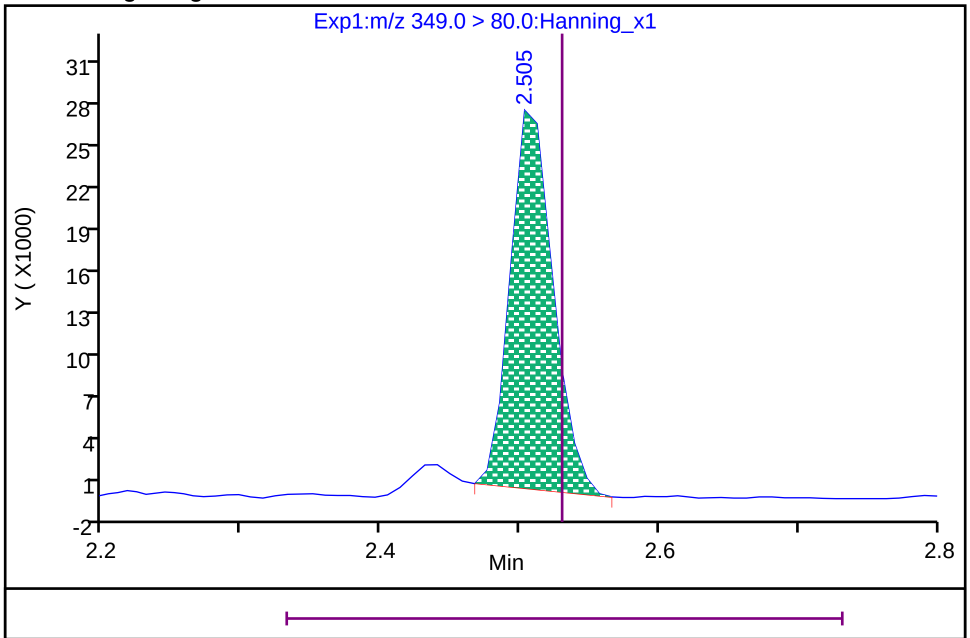
Sample Info: WJ27023-002

Dil. Factor: 1 Operator: Justin Gavin

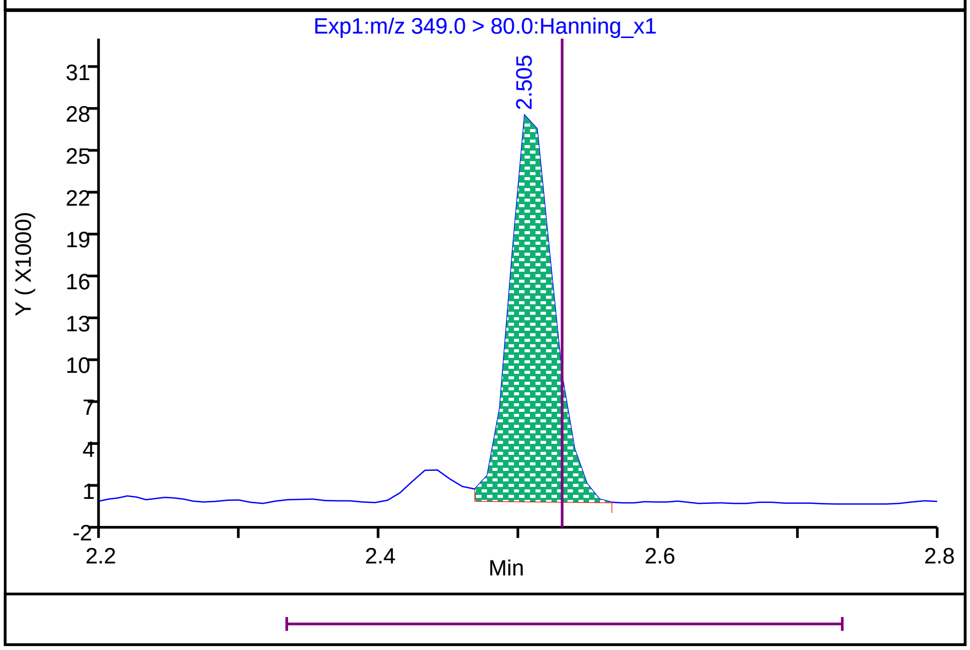
22 PFPeS, CAS: 2706-91-4

Processing Integration Results

RT: 2.505
Area: 55909
Conc: 15.072
Conc Units: ng/L



RT: 2.505
Area: 58404
Conc: 15.745
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:05:37

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-003	
Description: POL-DPT0129-032.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0900	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1719	JJG	11/09/2021 1014	21749

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	8.9		8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	41		8.2	4.1	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	37		4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	7.9		4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	26		4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	200		4.1	2.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	27	Q	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	29		4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	59		4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.1		4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	70		4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	40		4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	UQ	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	470		4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		56	50-150
13C2_PFTeDA	N	31	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA	N	44	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		73	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-003	
Description: POL-DPT0129-032.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0900	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	50-150
13C8_PFOS		86	50-150
13C9_PFNA		84	50-150
d-EtFOSA	N	46	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d		
Injection Date:	10-Nov-2021 17:19:46	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	18
Lab Sample ID:	WJ27023-003	Lab Prep. Batch:	21749
Client ID:	POL-DPT0129-032.0-20211022	Sample Group:	WJ27023
Sample Info:	WJ27023-003	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0452223

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	243	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.718	0	290691	15	>100:1			1001.00	467.59	44.1*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/0	182069	18	30:1			594.48	26.884		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	0	426242	13	>100:1			1001.00	745.71	73.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.120	0/0	418973	10	67:1			874.22	39.534		M
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.173	0	132921	14	>100:1			1001.00	768.46	80.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.173	0/0	136286	16	>100:1	Target = 3.53		823.03	37.219		
298.9 > 99	44	2.162	2.173		37684	13	93:1	3.61 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.505	2.532	-1/-1	70357	13	>100:1	Target = 3.10		571.71	25.854		
349 > 99	44	2.514	2.532		23801	15	57:1	2.95 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.451	-1	202651	14	>100:1			5005.00	8949.55	178.8*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.496	-1	554355	14	>100:1			1001.00	851.17	83	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.496	-1/0	756621	12	>100:1	Target = 18.91		1313.99	59.422		M
313 > 119	49	2.478	2.496		38258	15	>100:1	19.77 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.591	2.607	0	935104	16	>100:1			5005.00	4034.86	77.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.854	2.873	-1	477675	16	>100:1			1001.00	899.68	87.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.854	2.873	-1/0	338904	15	77:1	Target = 3.80		646.32	29.228		
363 > 169	47	2.854	2.873		91314	15	>100:1	3.71 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.873	2.889	0	109444	15	>100:1			1001.00	871.09	88.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.873	2.889	0/0	525662	25	>100:1	Target = 2.89	6.20	4373.19	197.77		
399 > 99	45	2.873	2.889		164565	25	>100:1	3.19 (1.44-4.34)	8.36				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.255	3.276	-1/-1	19694	22	>100:1	Target = 3.12		175.38	7.9310		
449 > 99	45	3.255	3.276		7285	16	18:1	2.70 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.221	3.242	-1	111518	20	>100:1			5005.00	6195.46	113.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.227	3.248	-1/0	48334	18	>100:1	Target = 1.75		916.37	41.440		
427 > 81	64	3.227	3.248		24144	17	40:1	2.00 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.248	3.269	-1	473797	19	>100:1			1001.00	903.03	82.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.248	3.276	-1/0	754358	36	>100:1	Target = 2.89	5.81	1555.25	70.332		
413 > 169	53	3.255	3.276		259722	35	>100:1	2.90 (1.44-4.34)	4.57				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.632	3.657	-1	107967	19	>100:1			1001.00	871.81	85.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.632	3.652	-1/0	1330344	38	>100:1	Target = 3.30	1.75	10359	468.45		M
499 > 99	54	3.632	3.652		379511	37	>100:1	3.50 (1.65-4.95)	4.12				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.872		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.483		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.639	3.662	-1	578840	20	>100:1			1001.00	903.90	83.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.646	3.662	-1/0	97889	20	>100:1	Target = 6.51		157.05	7.1022		
463 > 169	56	3.639	3.662		14878	25	73:1	6.57 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.995	4.027	-1	534696	16	>100:1			1001.00	930.46	83.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													J
513 > 469	51	3.995	4.027	-1/0	18149	17	19:1	Target = 13.80		29.196	1.3203		
513 > 169	51	3.995	4.027		1637	17	10.0:1	11.08 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.017	-1	87688	15	>100:1			5005.00	5073.22	89.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.995	4.006	0/1	7788	20	34:1	Target = 1.94		196.72	8.8963		
527 > 81	65	3.995	4.006		3340	14	8.4:1	2.33 (0.97-2.91)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.151	4.178	-1	546061	17	>100:1			5005.00	3613.61	74.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.318	4.339	-1	473436	16	>100:1			5005.00	3655.50	72.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.318	4.339	-1	520890	15	>100:1			1001.00	864.91	79.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.500	4.519	-1	17709	15	>100:1			1001.00	411.84	45.8*	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.588	4.614	-1	413915	16	>100:1			1001.00	689.47	55.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.063	5.087	-1	275104	21	>100:1			1001.00	338.39	31.2*	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
*** 37 13C2_PFDA**													
515 > 470		3.995	4.027	-1	852292	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.496	-1	796083	14	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.248	3.269	-1	698999	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.718	0	379484	17	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.632	3.657	-1	154328	19	>100:1			200.00			

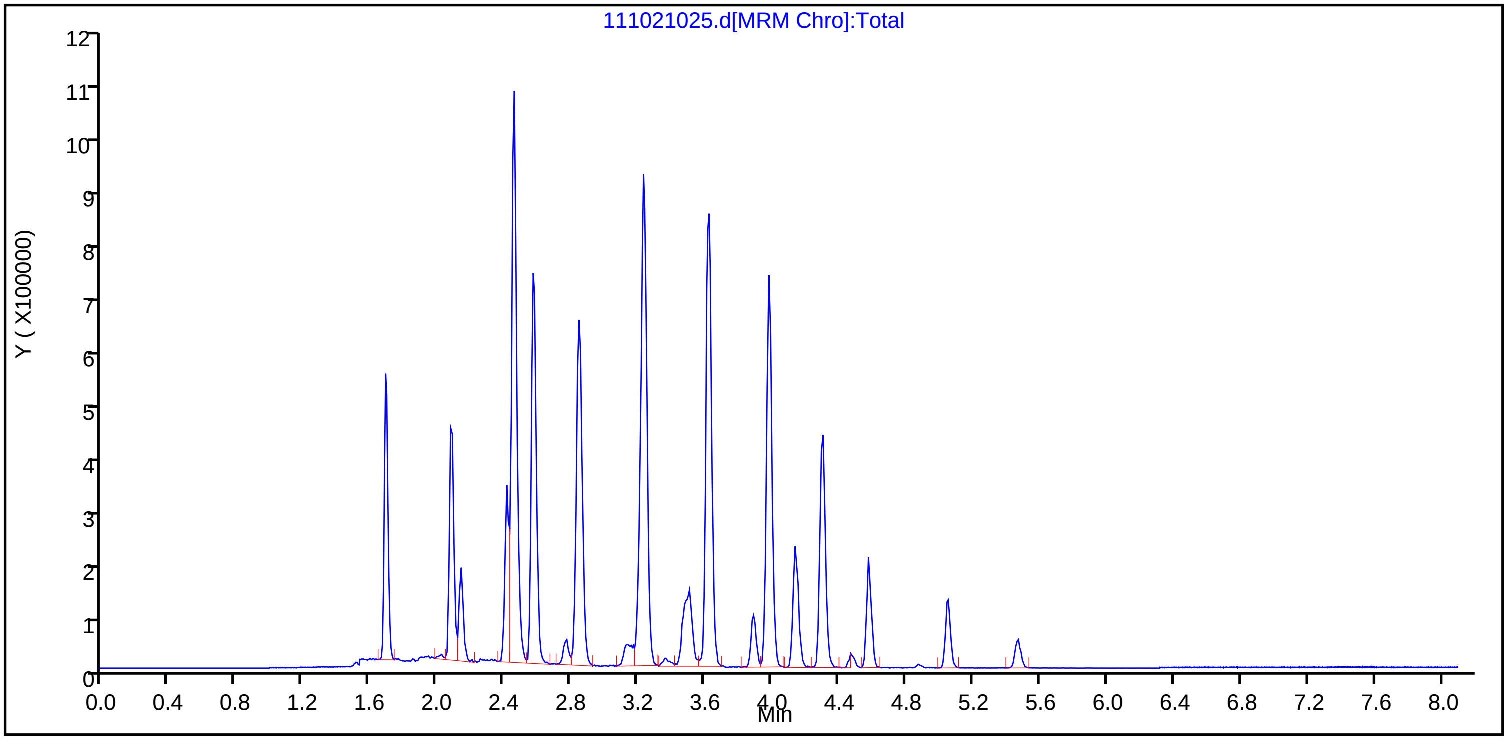
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

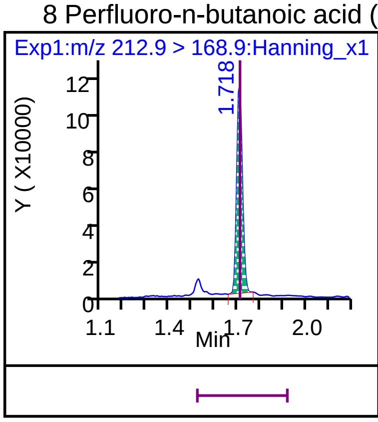
Report Date: 11-Nov-2021 20:41:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

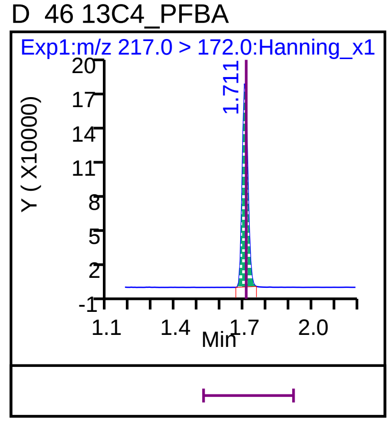
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d		
Injection Date:	10-Nov-2021 17:19:46	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-032.0-20211022	Lab ID:	WJ27023-003
Sample Info:	WJ27023-003		
Dil. Factor:	1	Operator:	Justin Gavin



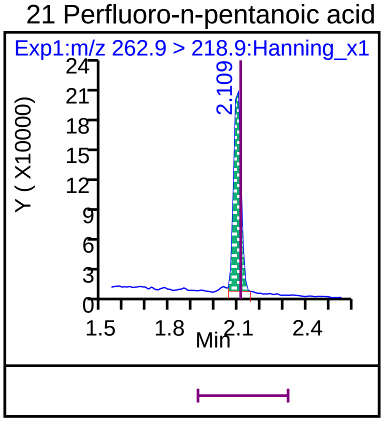
8 Perfluoro-n-butanoic acid (PFBA)



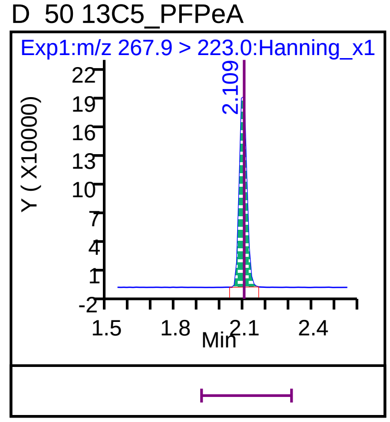
D 46 13C4_PFBA



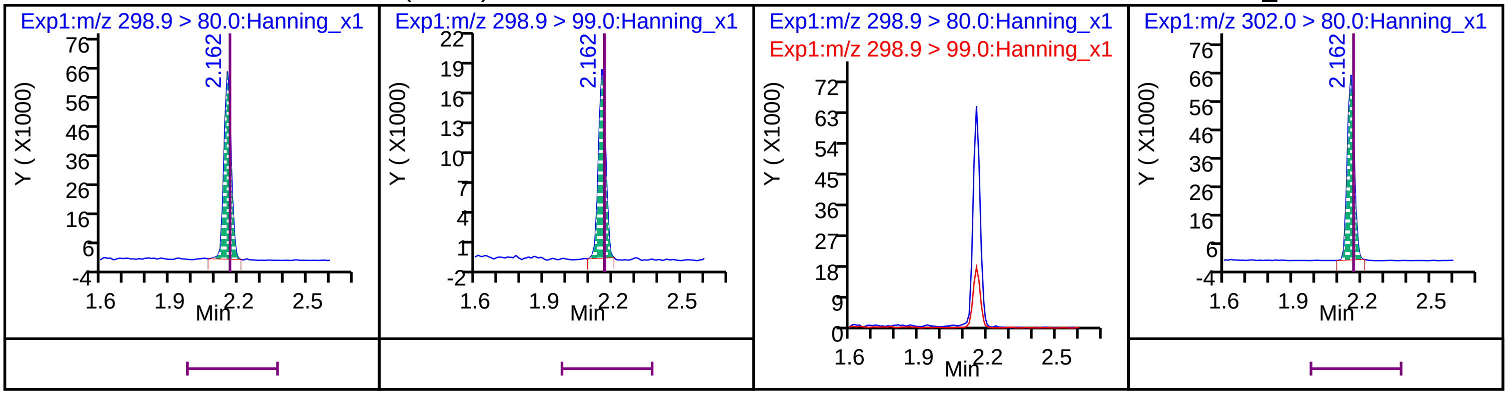
21 Perfluoro-n-pentanoic acid (PFPeA) (M)



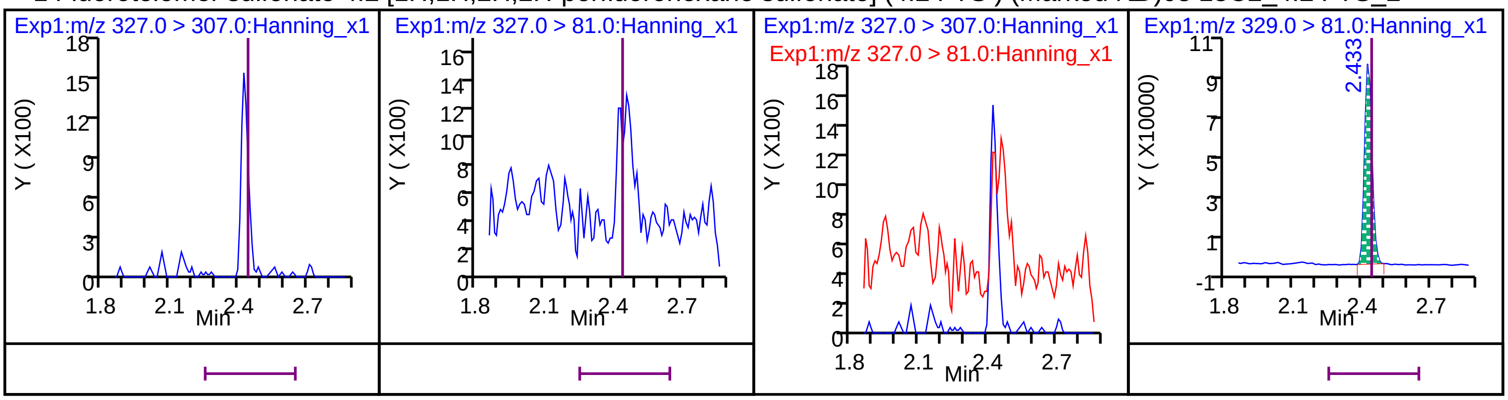
D 50 13C5_PFPeA



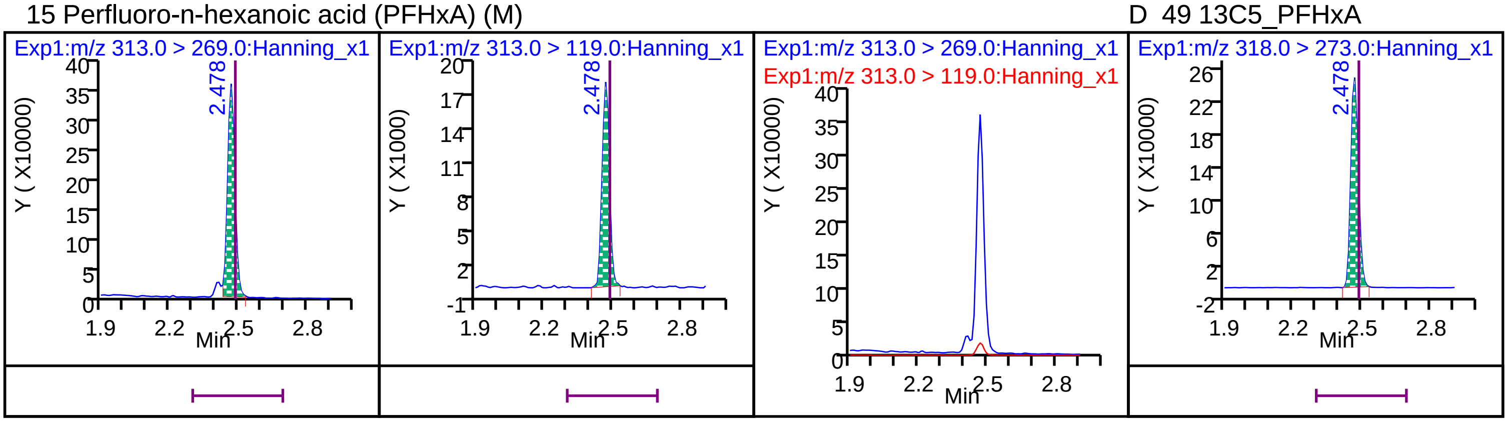
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



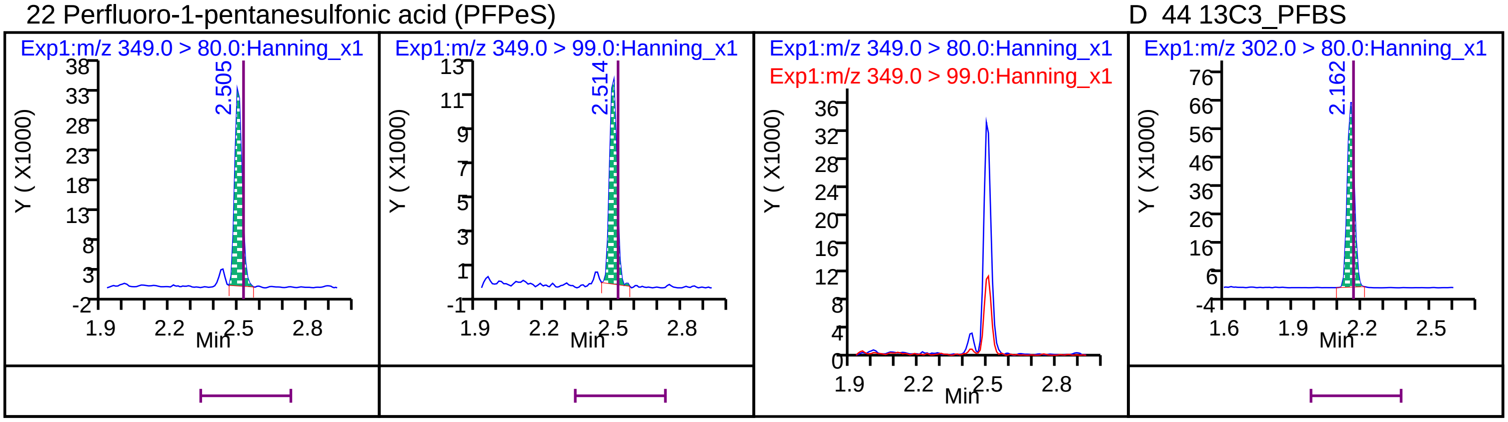
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (Marked ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA

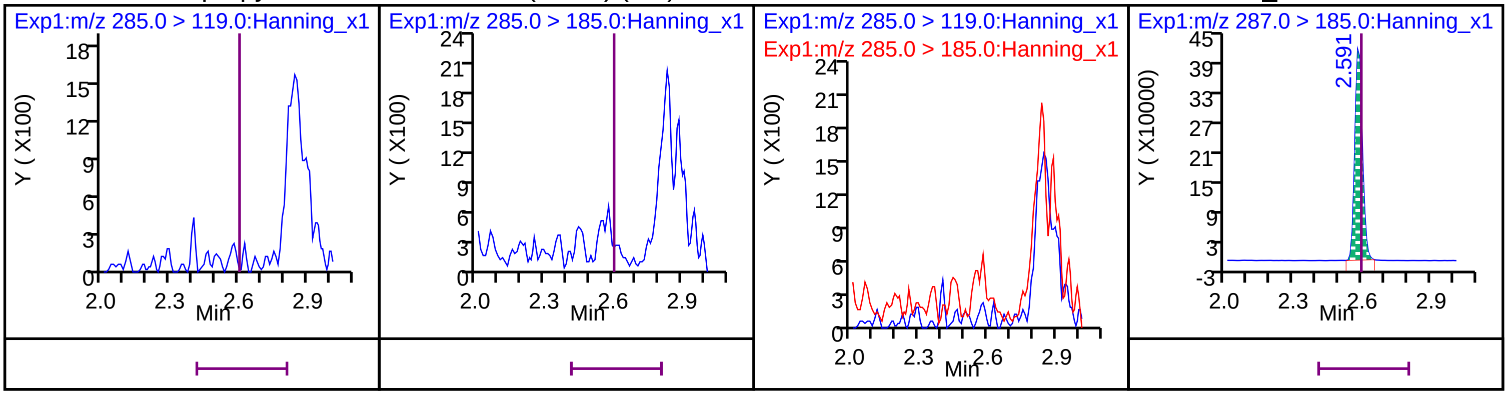


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

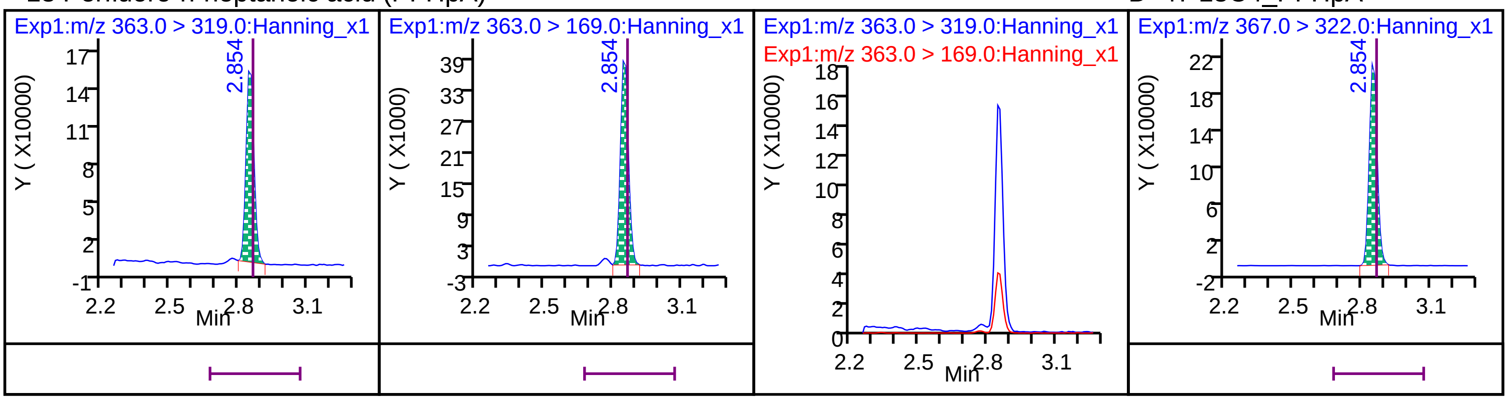


Report Date: 11-Nov-2021 20:41:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d

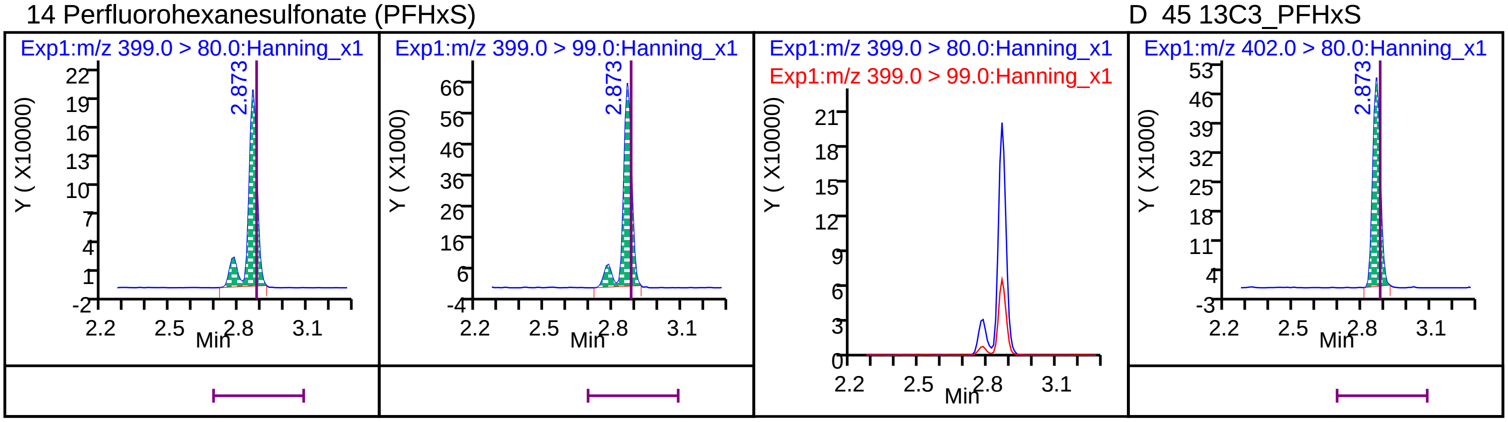
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



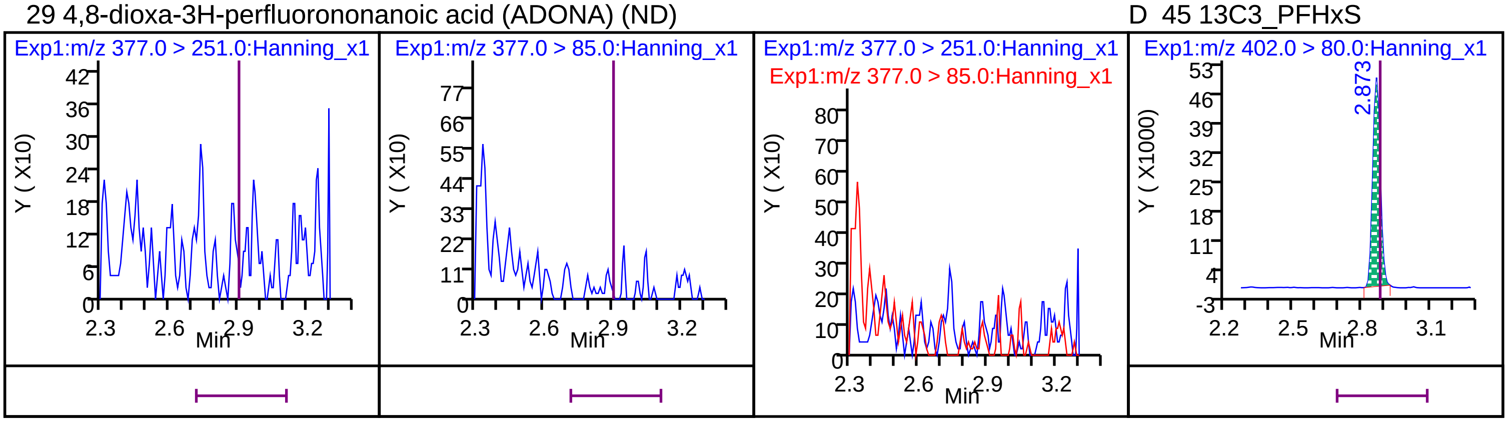
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



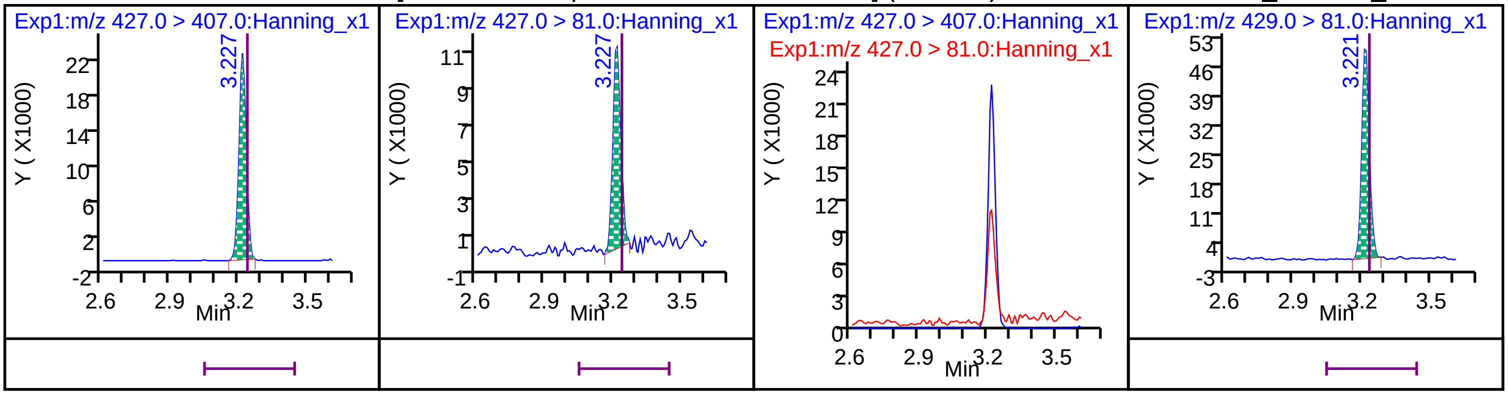
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



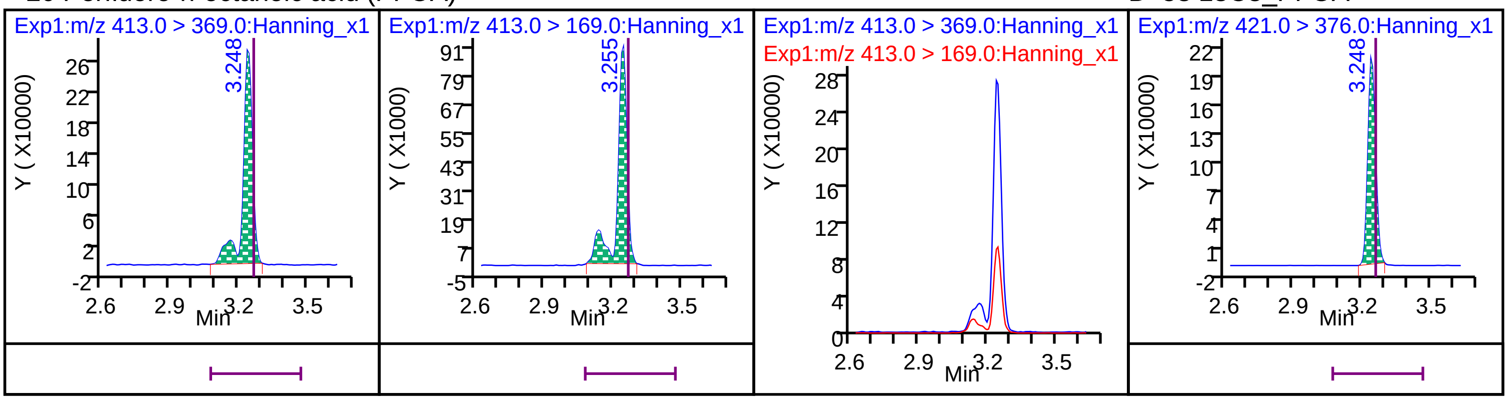
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



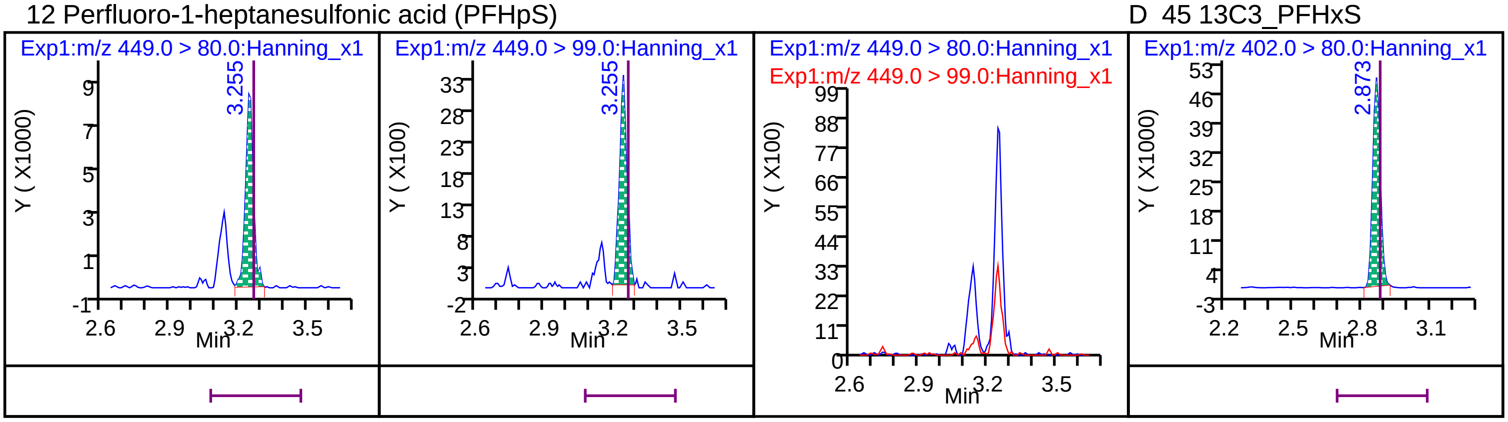
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



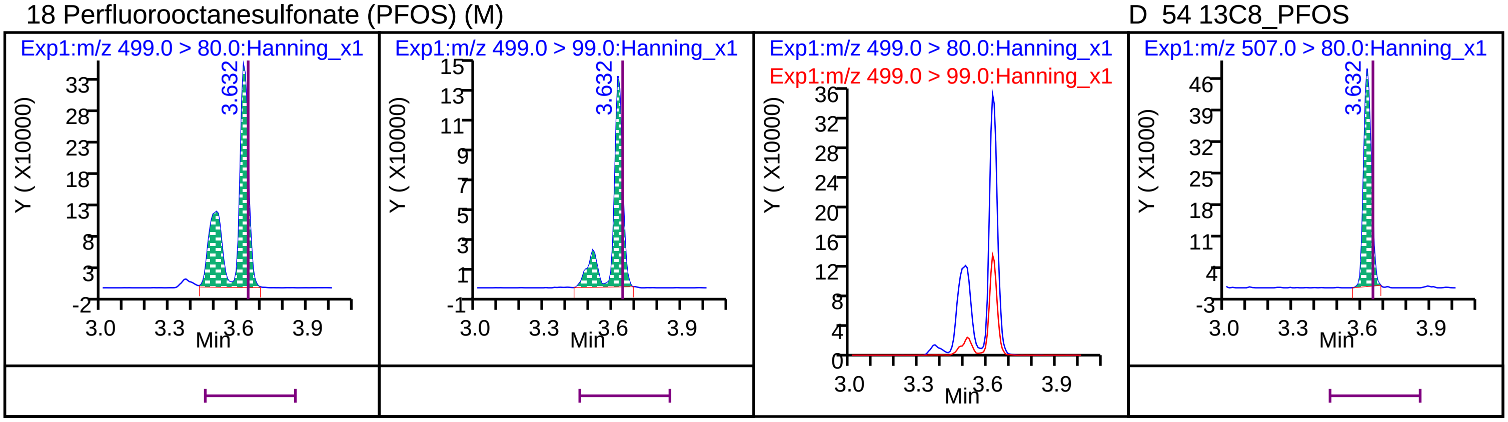
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



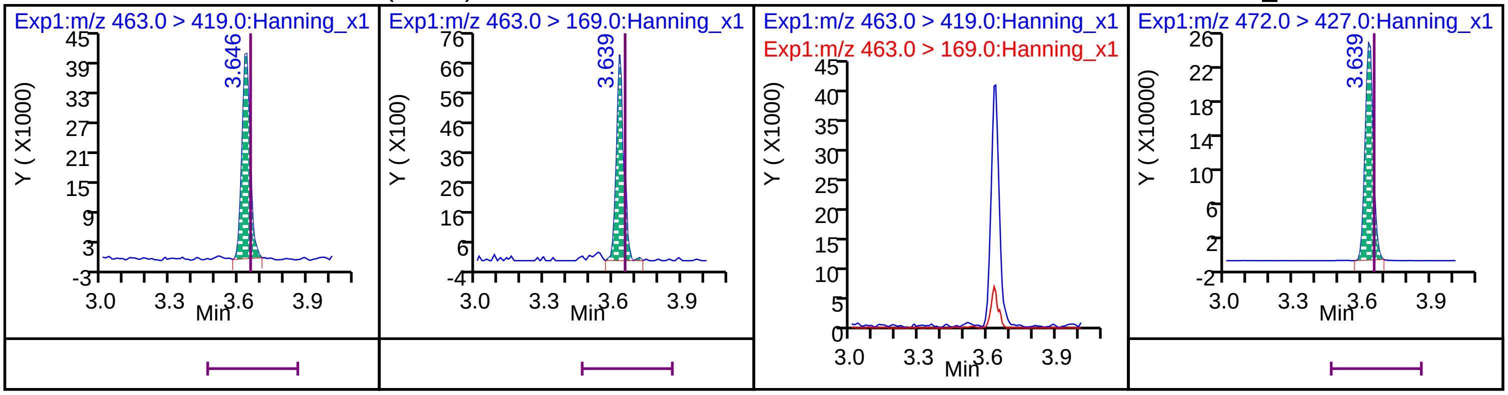
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



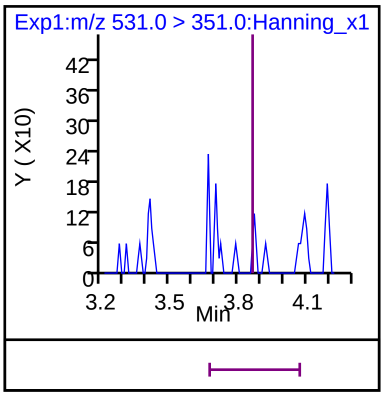
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

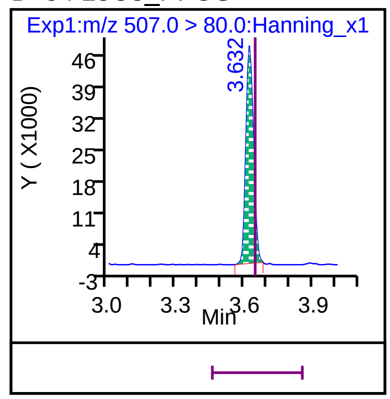


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

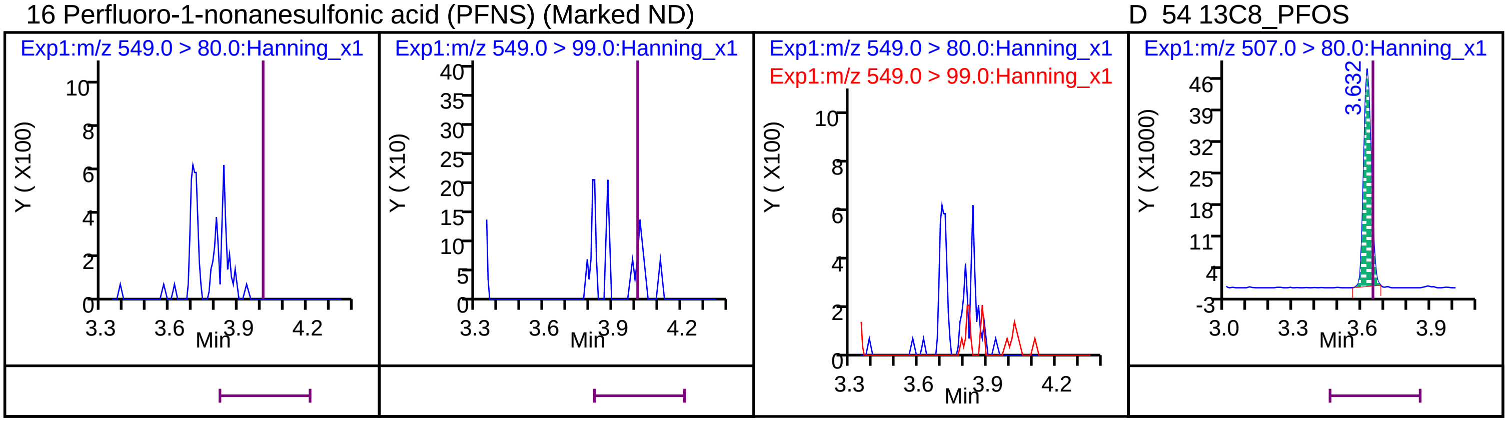


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS

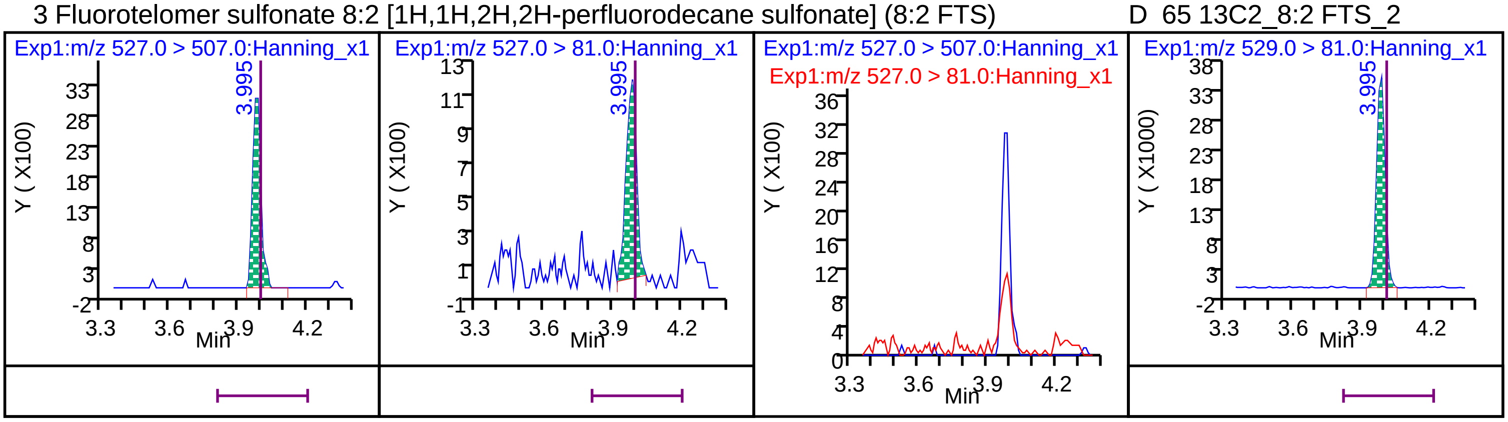




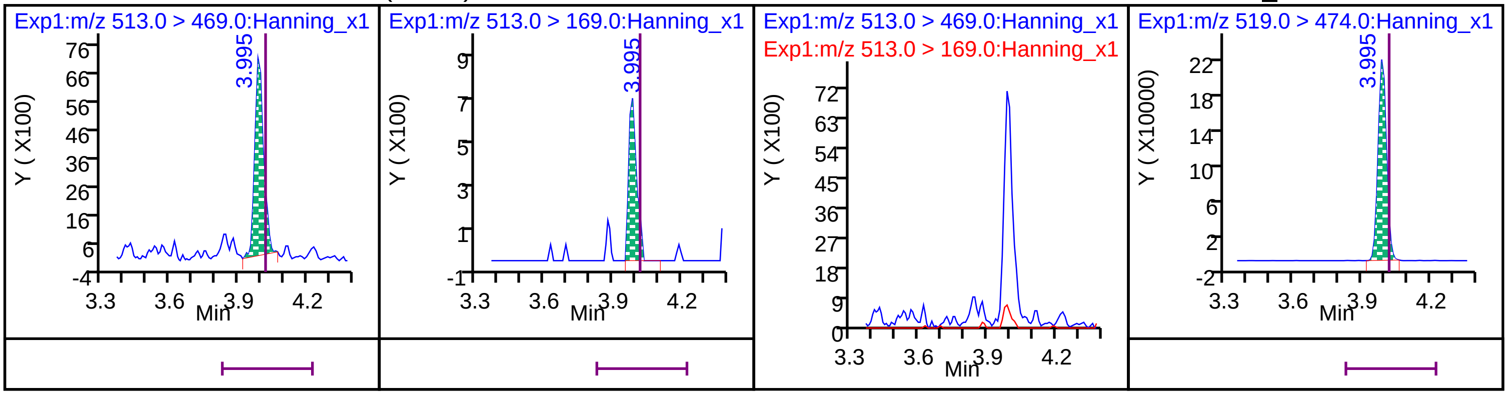
16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS



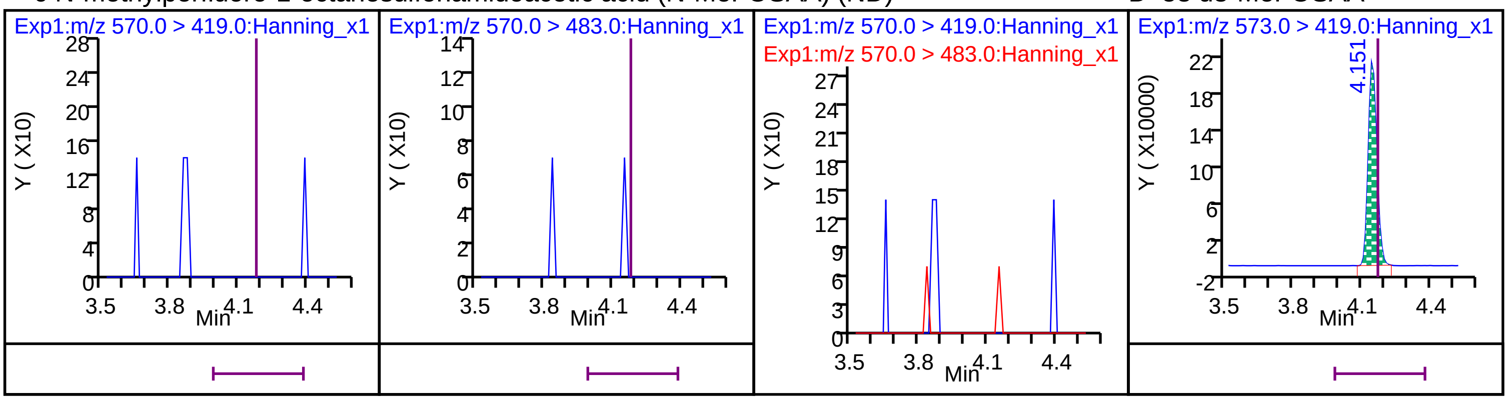
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



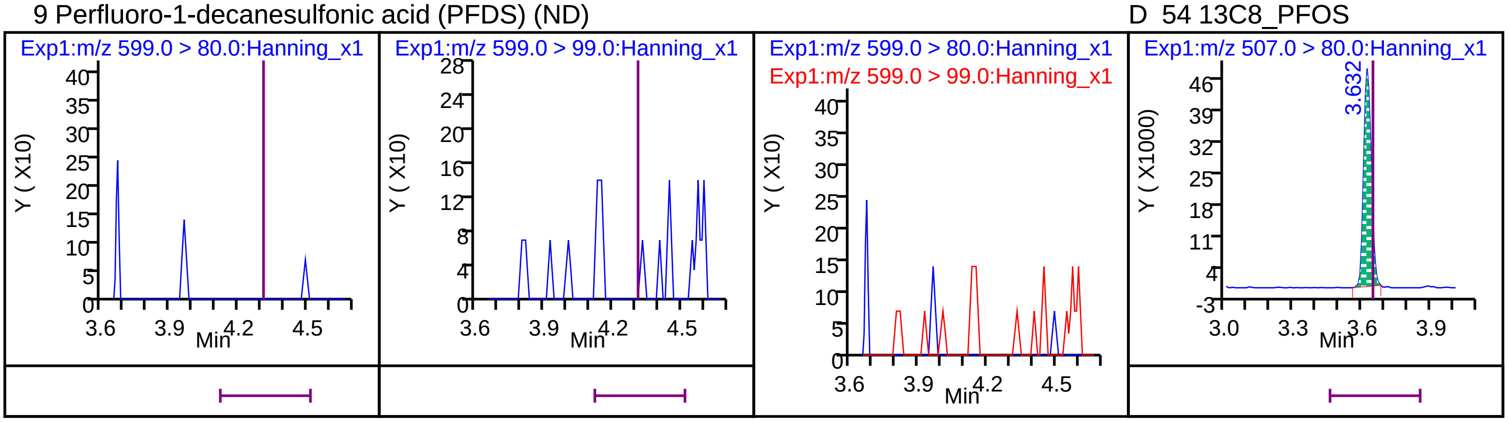
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



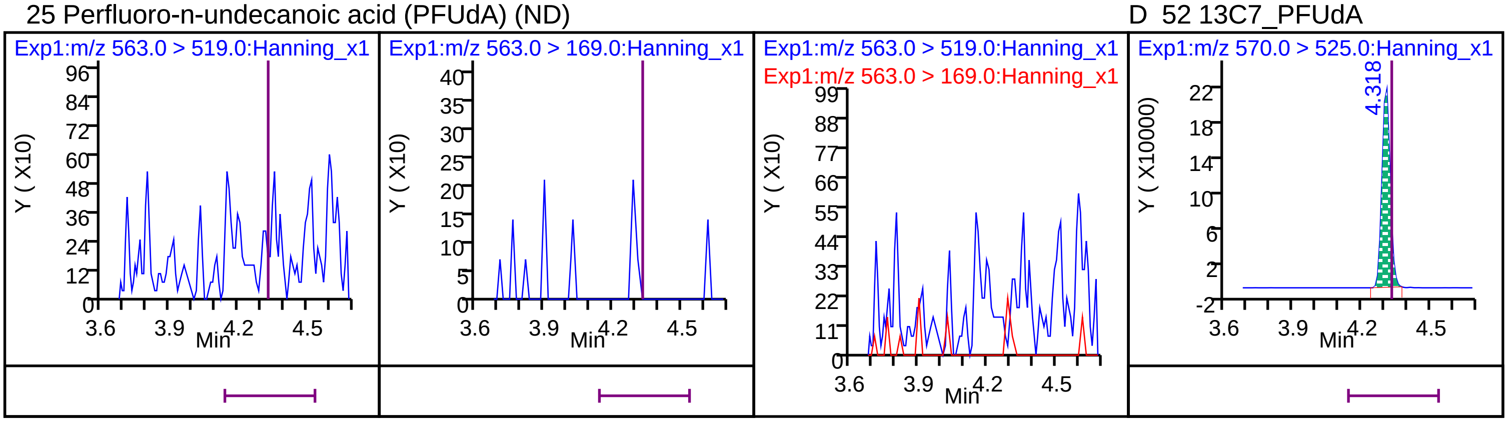
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



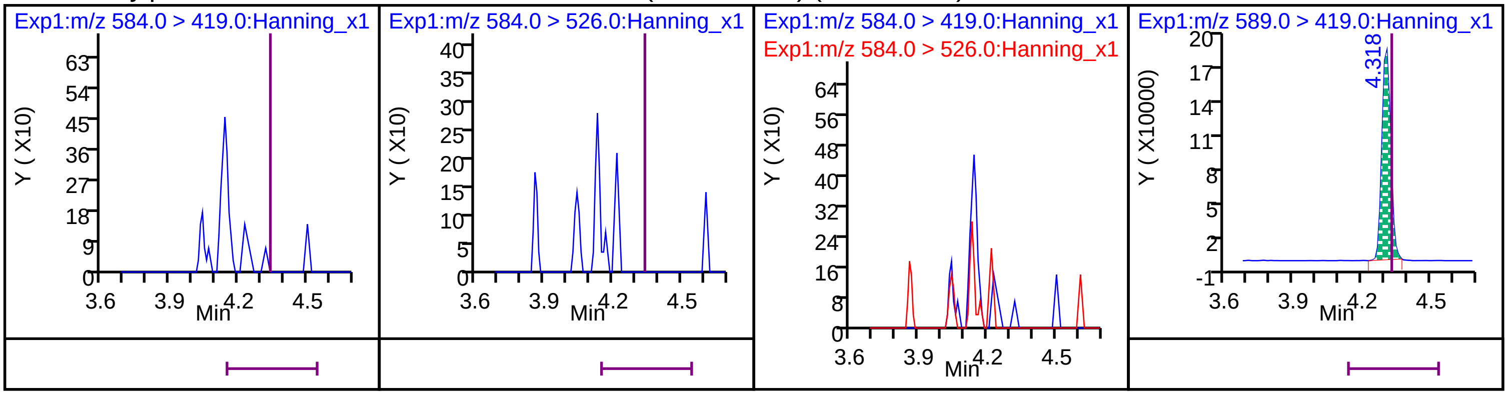
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



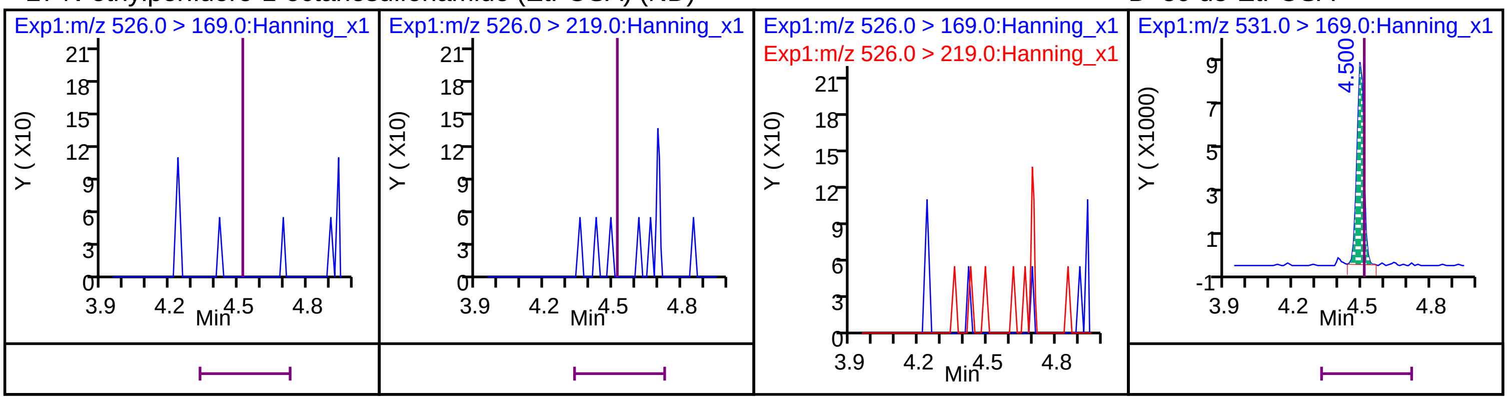
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



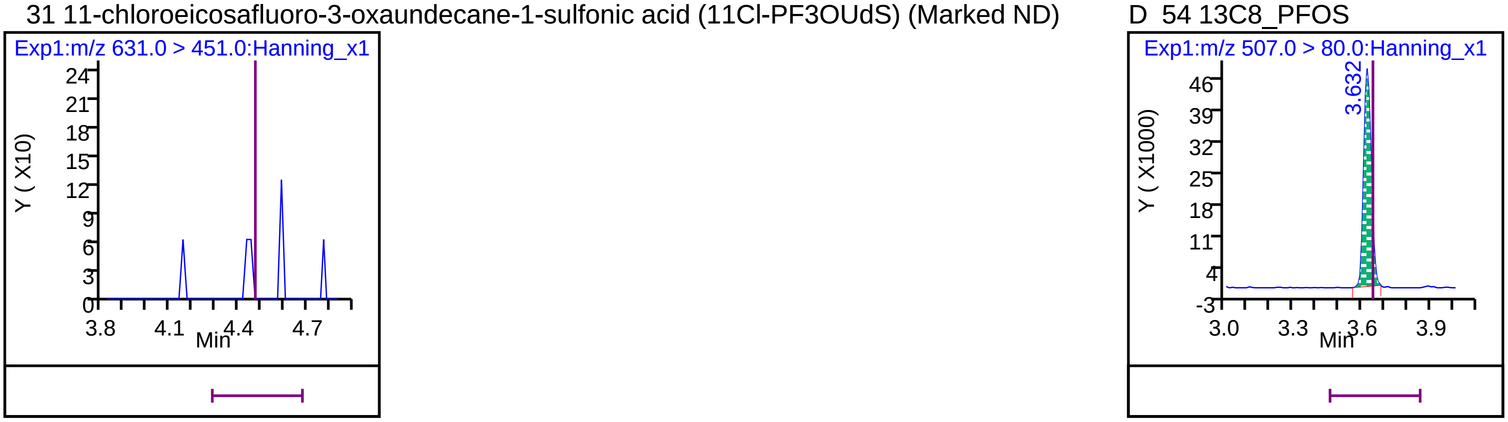
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



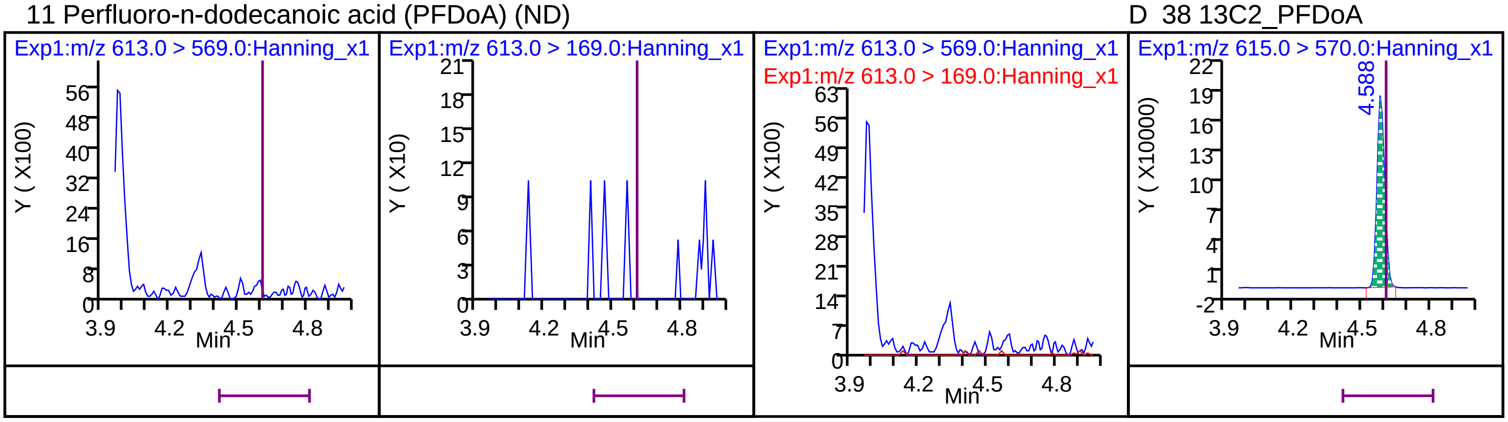
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



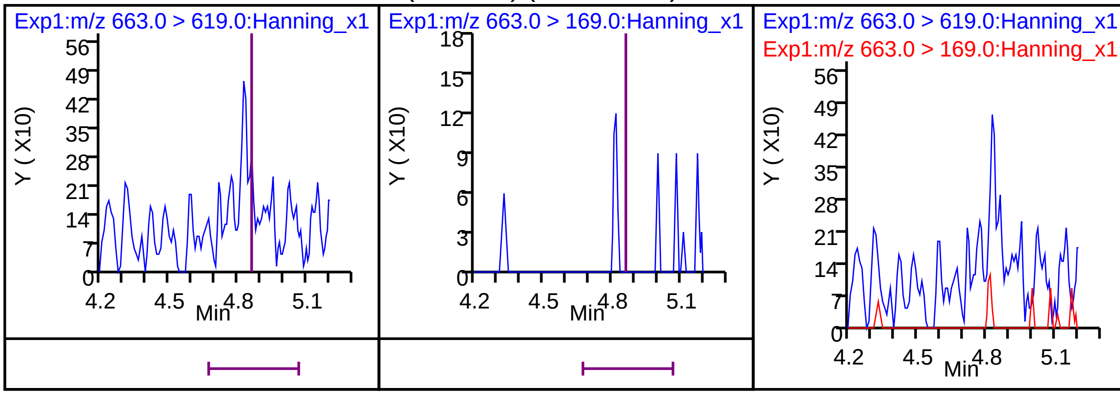
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



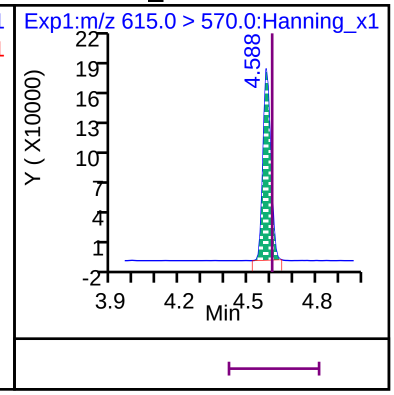
Report Date: 11-Nov-2021 20:41:47 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d

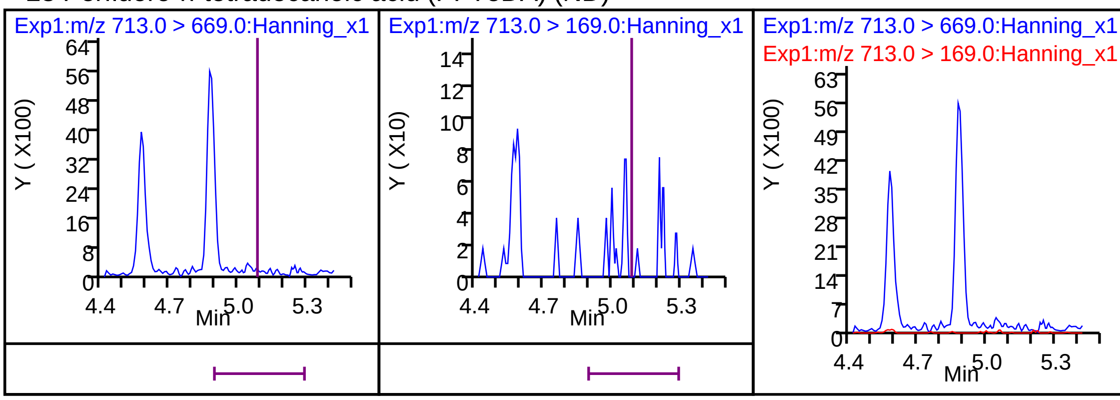
24 Perfluoro-n-tridecanoic acid (PFTrDA) (Marked ND)



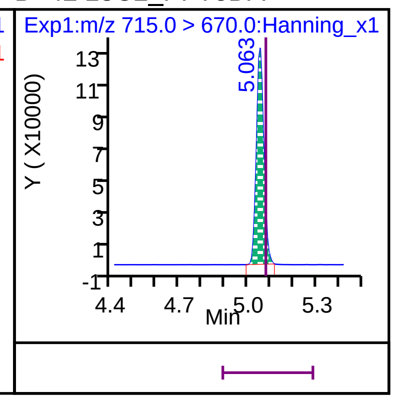
D 38 13C2_PFDoA



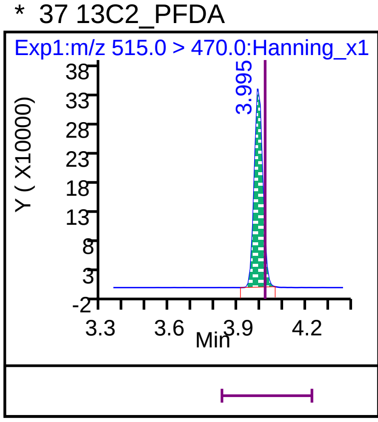
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



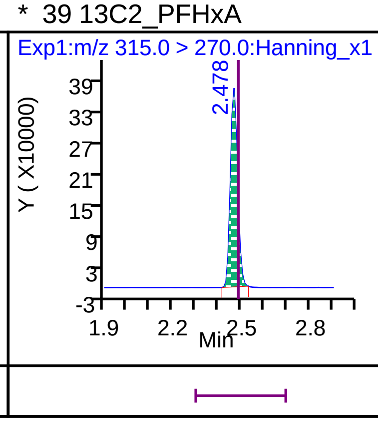
D 42 13C2_PFTeDA



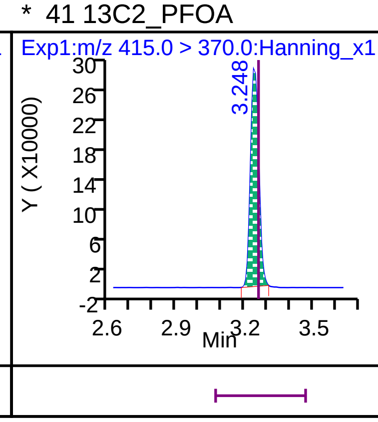
* 37 13C2_PFDA



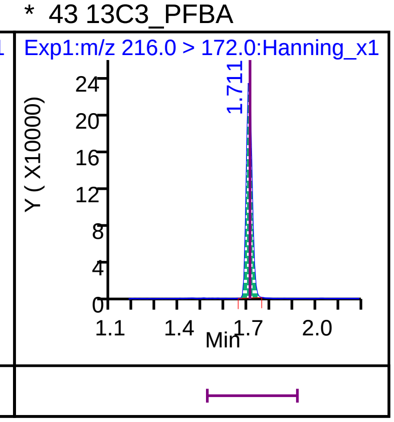
* 39 13C2_PFHxA



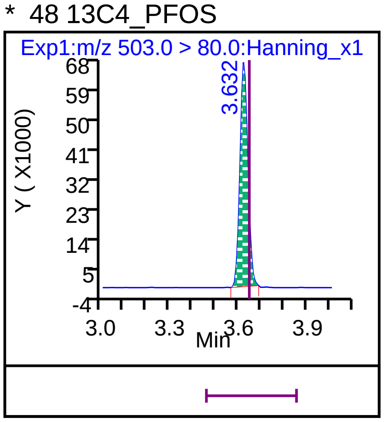
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:47   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

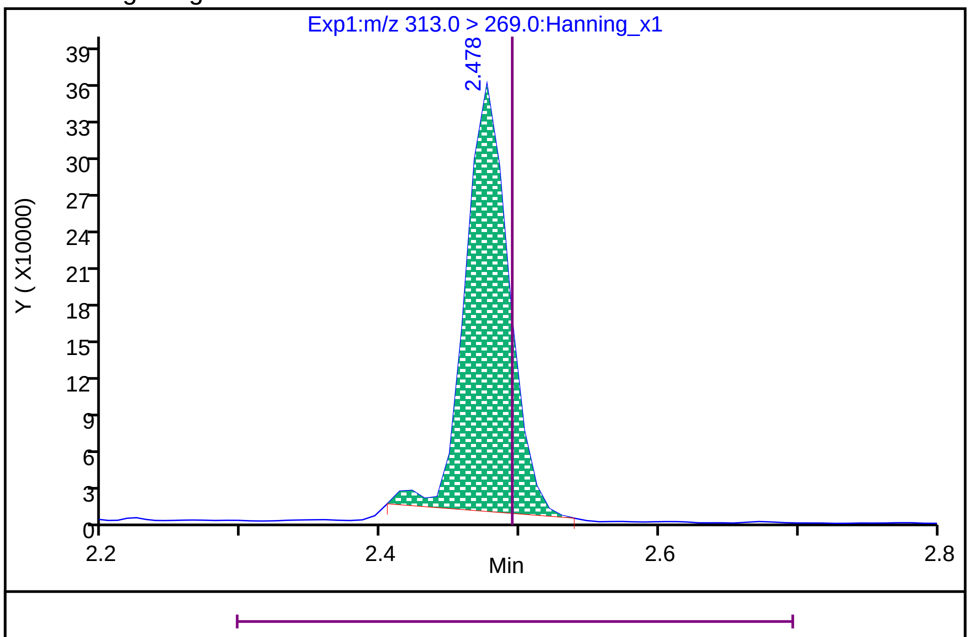
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d		
Injection Date:	10-Nov-2021 17:19:46	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-032.0-20211022	Lab ID:	WJ27023-003
Sample Info:	WJ27023-003		
Dil. Factor:	1	Operator:	Justin Gavin

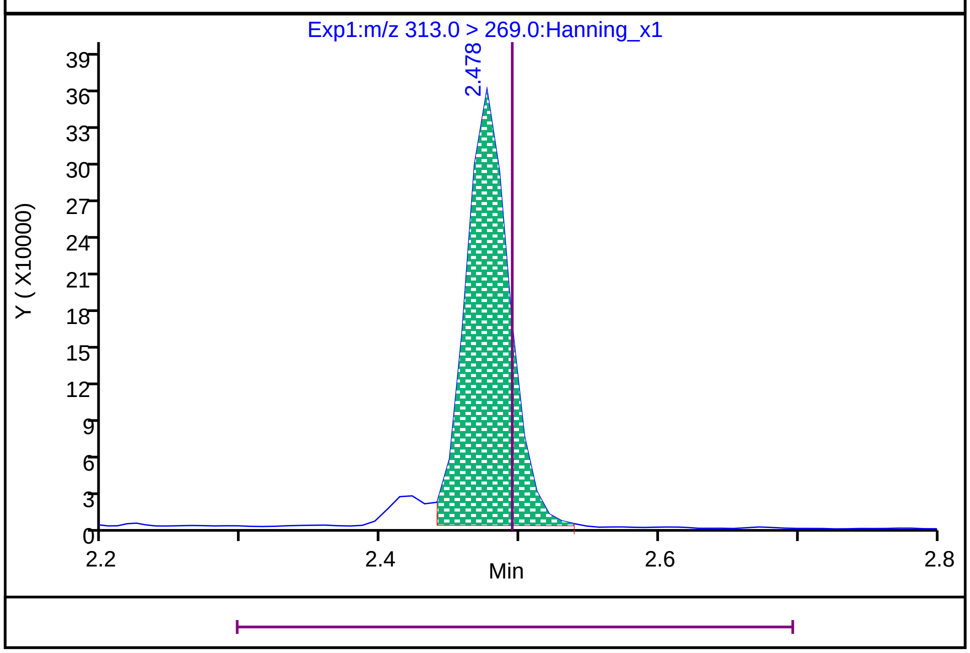
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.478
Area:	740934
Conc:	58.190
Conc Units:	ng/L



RT:	2.478
Area:	756621
Conc:	59.422
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:06:38

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

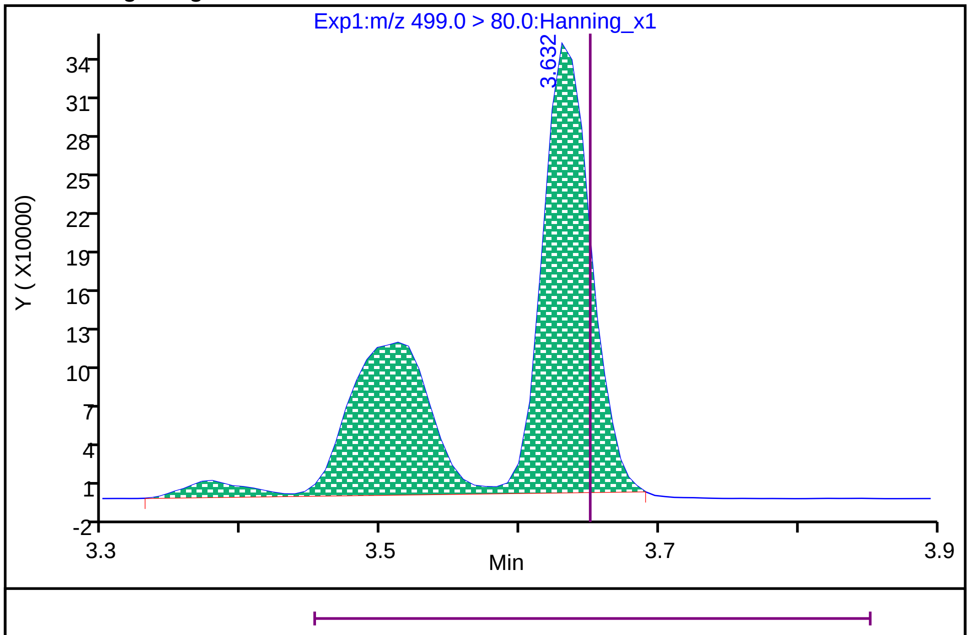
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d		
Injection Date:	10-Nov-2021 17:19:46	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-032.0-20211022	Lab ID:	WJ27023-003
Sample Info:	WJ27023-003		
Dil. Factor:	1	Operator:	Justin Gavin

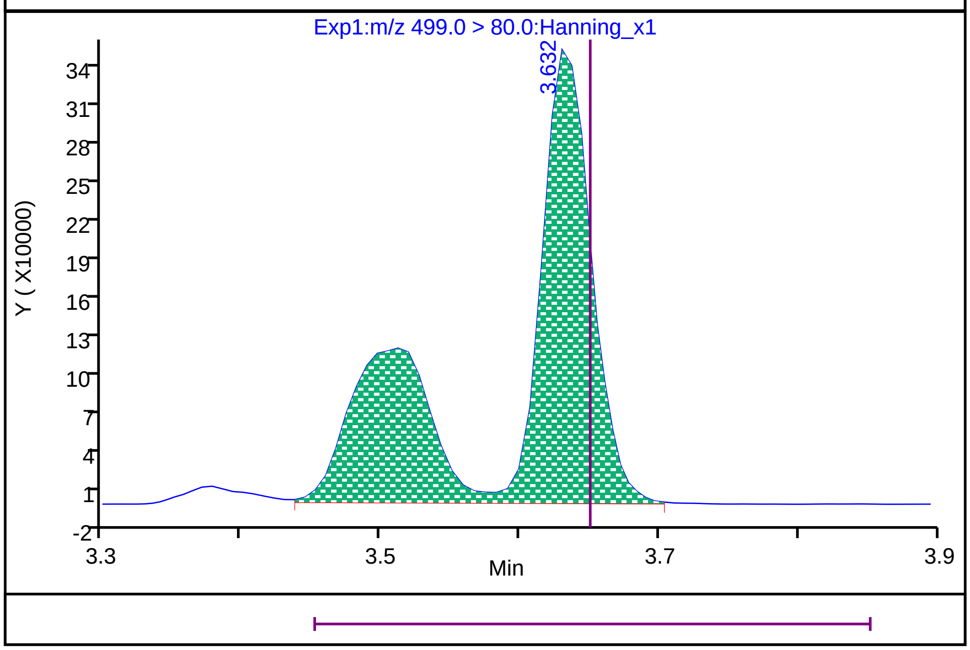
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.632
Area:	1328842
Conc:	467.92
Conc Units:	ng/L



RT:	3.632
Area:	1330344
Conc:	468.45
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:07:00

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021025.d

Injection Date: 10-Nov-2021 17:19:46 Inst. ID: LCMSMS02.i

Client ID: POL-DPT0129-032.0-20211022 Lab ID: WJ27023-003

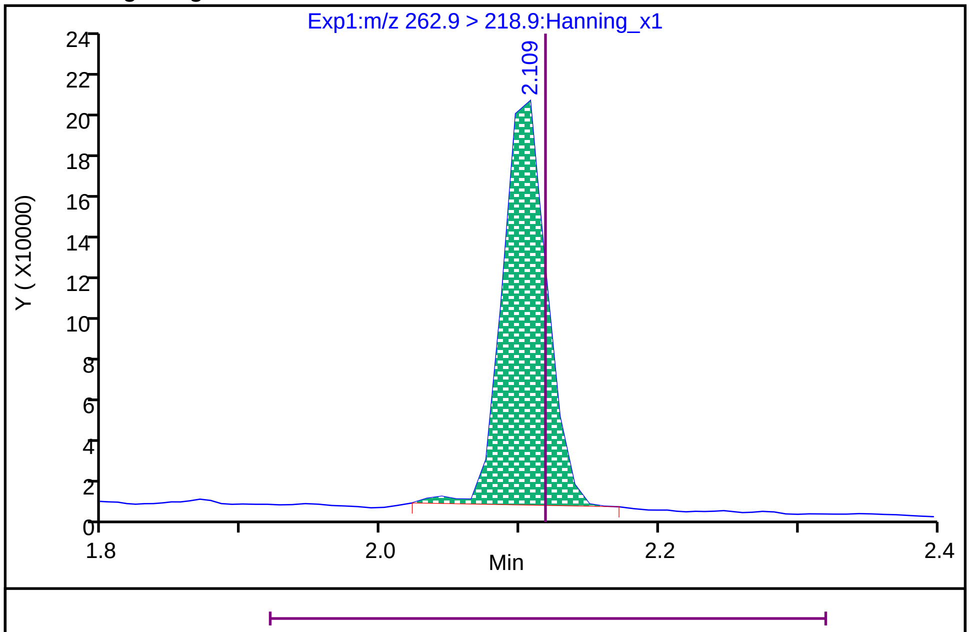
Sample Info: WJ27023-003

Dil. Factor: 1 Operator: Justin Gavin

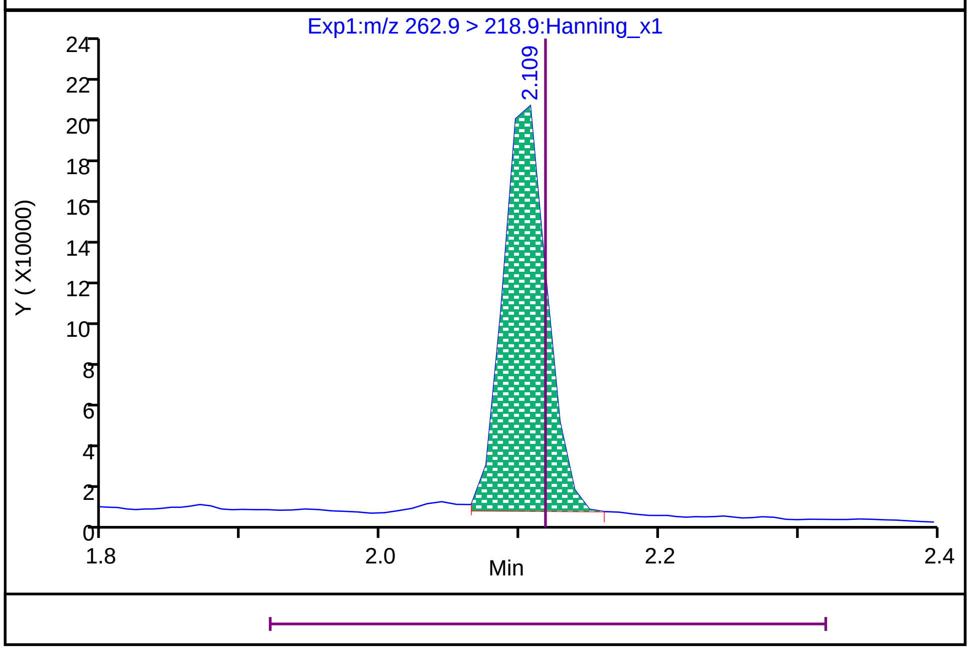
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT: 2.109
Area: 422468
Conc: 39.864
Conc Units: ng/L



RT: 2.109
Area: 418973
Conc: 39.534
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:06:28

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-004	
Description: POL-DPT0129-042.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0945	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/10/2021 1730	JJG	11/09/2021 1014	21749
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/16/2021 2054	JJG	11/15/2021 1738	22543

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	27		7.0	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.1	IQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	8.9		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.7	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.5		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	46		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.8		3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.3		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	23		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.5	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	43		3.4	1.7	0.86	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150	N	197	50-150
13C2_6:2FTS		121	50-150		128	50-150
13C2_8:2FTS		75	50-150		104	50-150
13C2_PFDoA	N	27	50-150		78	50-150
13C2_PFTeDA	N	2.5	50-150		51	50-150
13C3_PFBS		97	50-150		93	50-150
13C3_PFHxS		82	50-150		97	50-150
13C3-HFPO-DA		88	50-150		92	50-150
13C4_PFBA		64	50-150		61	50-150
13C4_PFHpA		101	50-150		107	50-150
13C5_PFHxA		100	50-150		100	50-150
13C5_PFPeA		90	50-150		88	50-150
13C6_PFDA		63	50-150		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WJ27023-004	
Description: POL-DPT0129-042.0-20211022		Matrix: Aqueous	
Date Sampled: 10/22/2021 0945	Project Name: KSC-POL		
Date Received: 10/23/2021	Project Number: 112G09020		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		51	50-150		91	50-150
13C8_PFOA		91	50-150		96	50-150
13C8_PFOS	N	46	50-150		94	50-150
13C9_PFNA		78	50-150		96	50-150
d-EtFOSA	N	9.0	50-150	N	44	50-150
d5-EtFOSAA	N	47	50-150		94	50-150
d3-MeFOSAA		55	50-150		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 11-Nov-2021 20:41:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	19
Lab Sample ID:	WJ27023-004	Lab Prep. Batch:	21749
Client ID:	POL-DPT0129-042.0-20211022	Sample Group:	WJ27023
Sample Info:	WJ27023-004	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0382892

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	287	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.718	0	422311	16	>100:1			1001.00	679.31	64.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	1/1	56236	13	22:1			126.39	4.8394		M
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	1	525912	15	>100:1			1001.00	920.08	90.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.120	0/-1	189719	11	38:1			320.84	12.285		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.173	0	159760	12	>100:1			1001.00	923.63	97.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.173	0/0	46475	14	91:1	Target = 3.53		233.51	8.9410		
298.9 > 99	44	2.162	2.173		16304	13	43:1	2.85 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.532	-1/-1	25006	12	66:1	Target = 3.10		169.06	6.4731		M
349 > 99	44	2.514	2.532		10021	17	23:1	2.49 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.443	2.451	0	200365	15	>100:1			5005.00	8848.59	176.8*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.434	2.451	-1/-1	4831	11	24:1	Target = 1.75		54.743	2.0961		M
327 > 81	63	2.452	2.451		6780	12	3.6:1	0.71 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.496	-1	668692	17	>100:1			1001.00	1026.72	100.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.496	-1/0	421420	12	63:1	Target = 18.91		606.72	23.231		M
313 > 119	49	2.478	2.496		18955	18	>100:1	22.23 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.599	2.607	0	1067989	16	>100:1			5005.00	4608.24	88.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.873	0	549486	16	>100:1			1001.00	1034.93	100.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.873	0/0	83453	15	35:1	Target = 3.80		138.35	5.2974		
363 > 169	47	2.864	2.873		23451	13	85:1	3.55 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.873	2.889	0	101522	14	>100:1			1001.00	808.04	82	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.873	2.889	0/0	132733	25	>100:1	Target = 2.89	5.49	1190.43	45.580		
399 > 99	45	2.873	2.889		39150	24	>100:1	3.39 (1.44-4.34)	6.07				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													J
449 > 80	45	3.254	3.276	-1/-1	4620	17	70:1	Target = 3.12		44.353	1.6982		M
449 > 99	45	3.254	3.276		1316	16	23:1	3.51 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.220	3.242	-1	118499	20	>100:1			5005.00	6583.29	121	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.227	3.248	-1/0	39582	20	>100:1	Target = 1.75		706.23	27.041		
427 > 81	64	3.227	3.248		22840	19	27:1	1.73 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.247	3.269	-1	525496	21	>100:1			1001.00	1001.56	91.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.254	3.276	-1/0	168613	41	>100:1	Target = 2.89	6.13	313.43	12.001		
413 > 169	53	3.254	3.276		55732	32	>100:1	3.02 (1.44-4.34)	5.45				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.638	3.657	-1	57751	19	>100:1			1001.00	466.32	45.9*	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.506	3.652	-8/-7	103516	36	>100:1	Target = 3.30		1506.91	57.699		M
499 > 99	54	3.638	3.652		26091	35	>100:1	3.96 (1.65-4.95)	0.89				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.872		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.483		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.645	3.662	-1	541176	19	>100:1			1001.00	845.09	78.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													J
463 > 419	56	3.638	3.662	-1/0	22497	20	41:1	Target = 6.51		38.606	1.4782		
463 > 169	56	3.638	3.662		4150	15	19:1	5.42 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.002	4.027	-1	403192	15	>100:1			1001.00	701.62	63.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.992	4.017	-1	73056	14	>100:1			5005.00	4226.68	74.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.157	4.178	-1	402549	17	>100:1			5005.00	2663.90	54.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.315	4.339	-1	310004	14	>100:1			5005.00	2393.61	47.4*	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.315	4.339	-1	332794	14	>100:1			1001.00	552.58	50.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.498	4.519	-1	3491	14	37:1			1001.00	81.186	9*	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.594	4.614	-1	200299	15	>100:1			1001.00	333.64	27.1*	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.067	5.087	-1	22008	21	>100:1			1001.00	27.070	2.5*	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
*** 37 13C2_PFDA**													
515 > 470		4.002	4.027	-1	714186	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.496	-1	797730	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.254	3.269	0	670292	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	1	457962	15	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.638	3.657	-1	139616	27	>100:1			200.00			

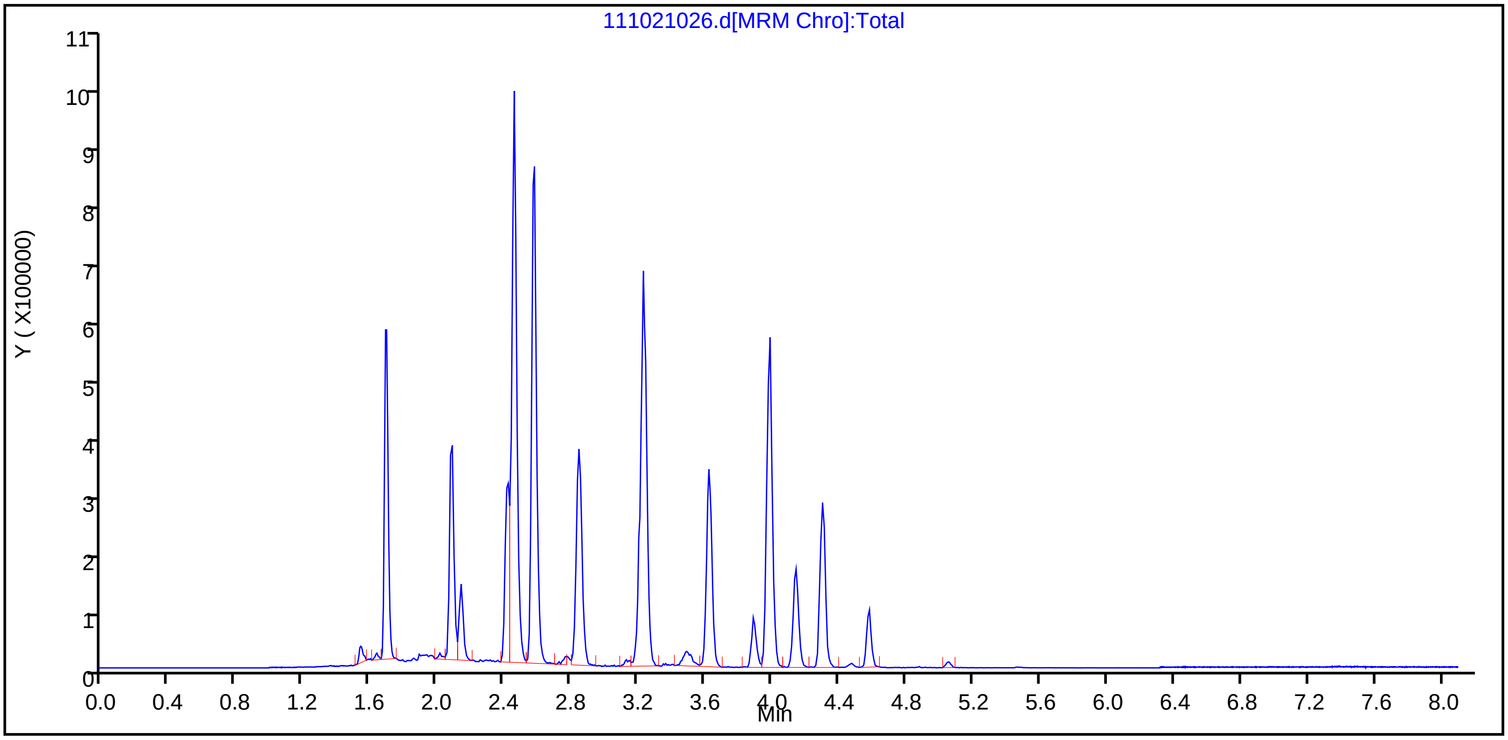
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

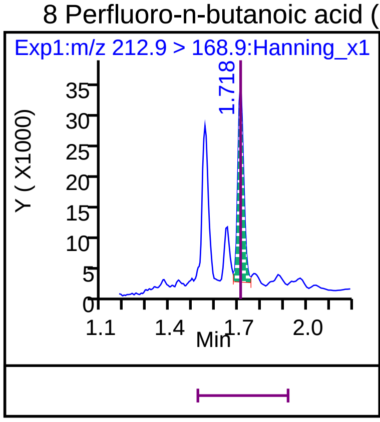
Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

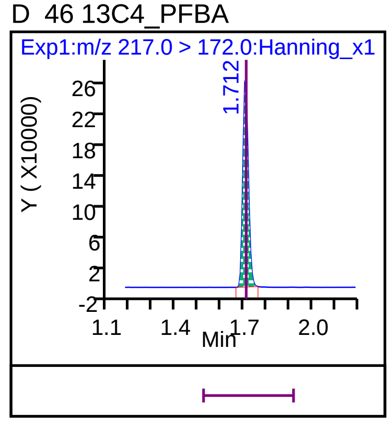
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin



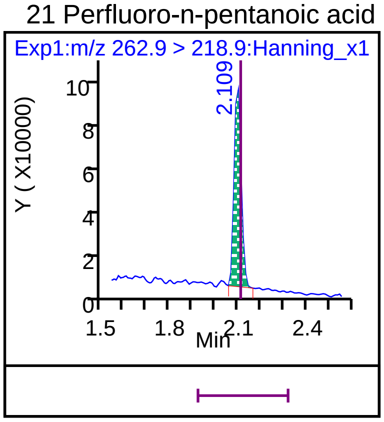
8 Perfluoro-n-butanoic acid (PFBA) (M)



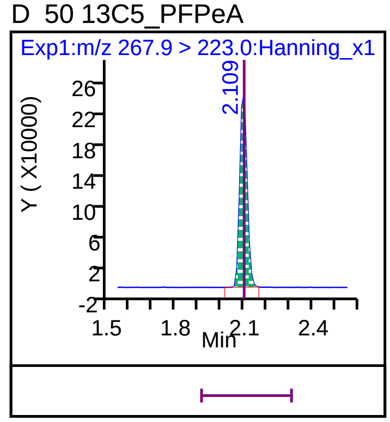
D 46 13C4_PFBA



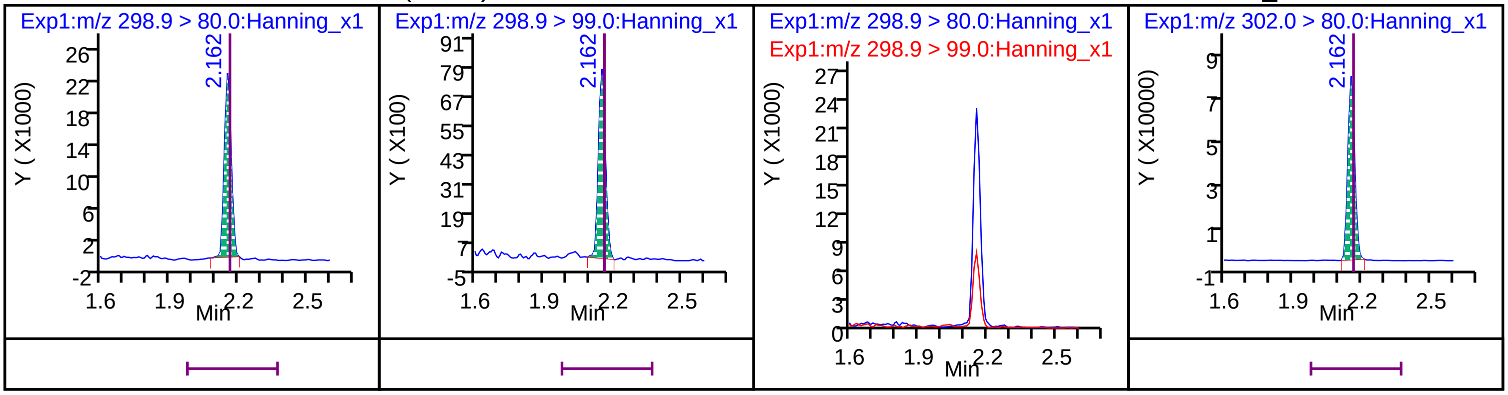
21 Perfluoro-n-pentanoic acid (PFPeA)



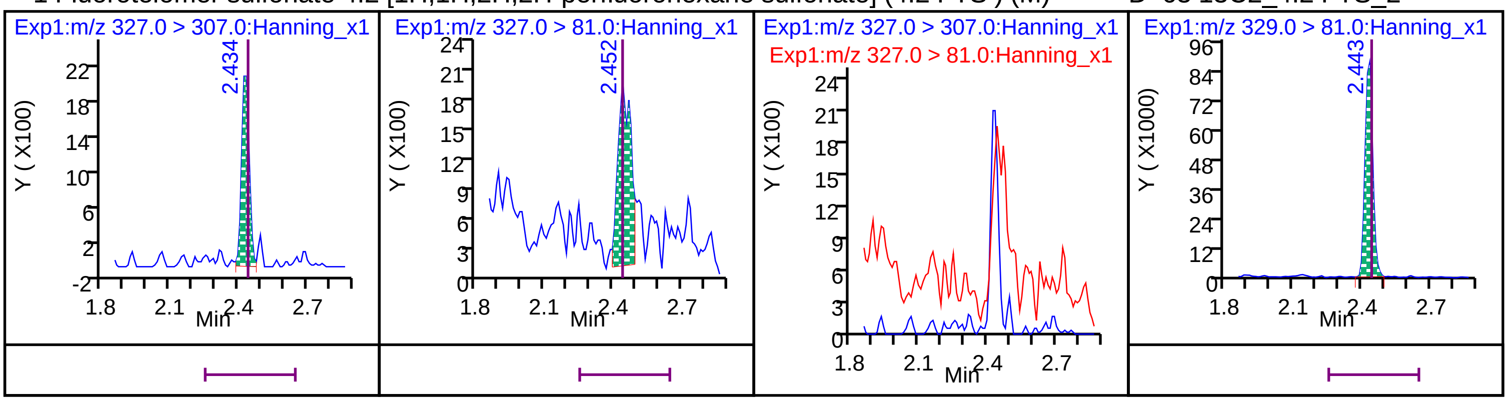
D 50 13C5_PFPeA



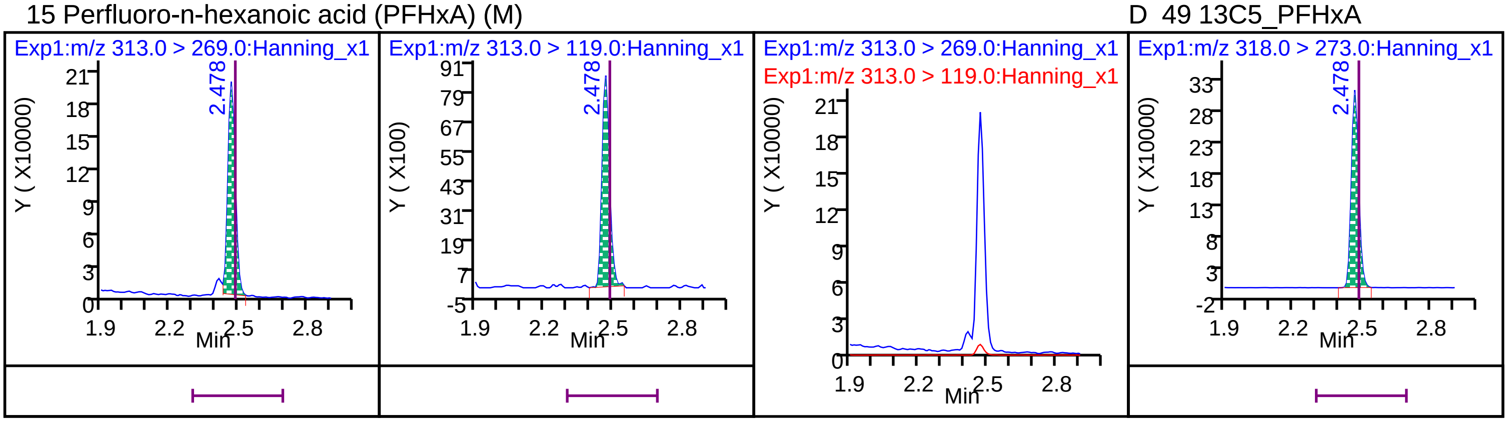
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



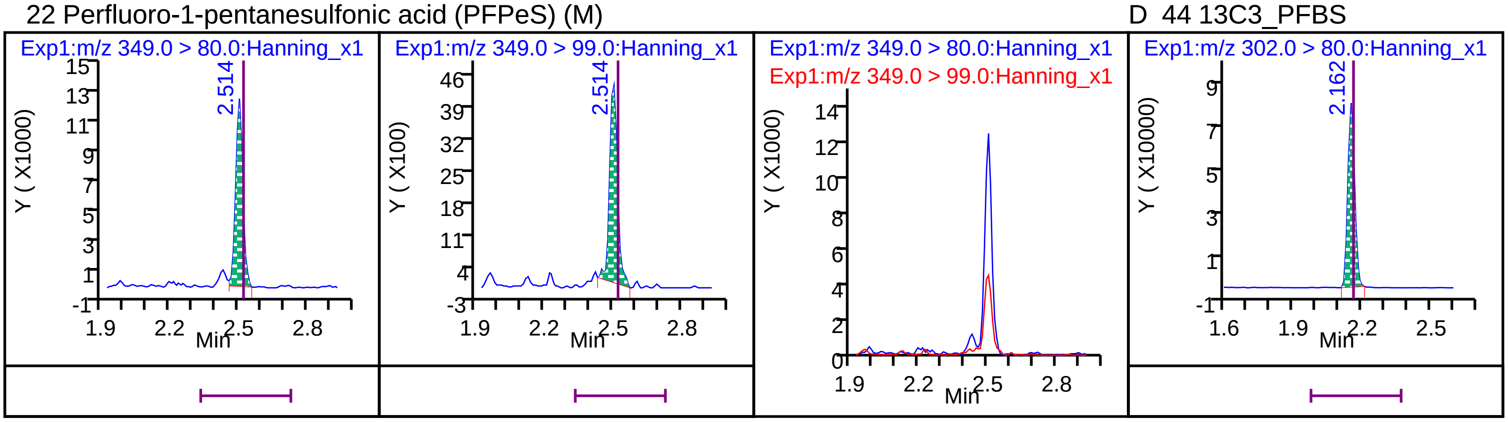
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



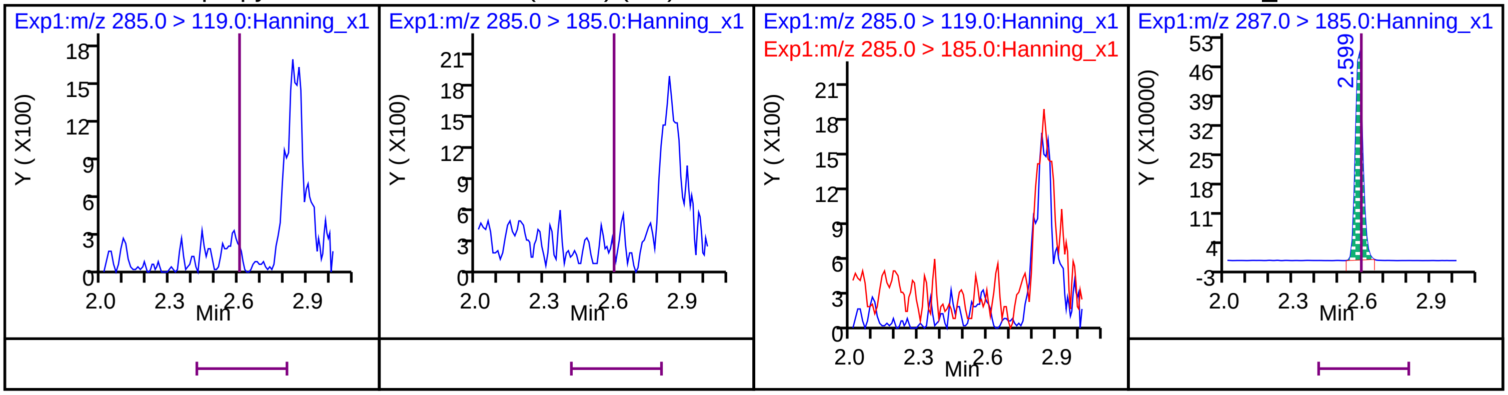
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



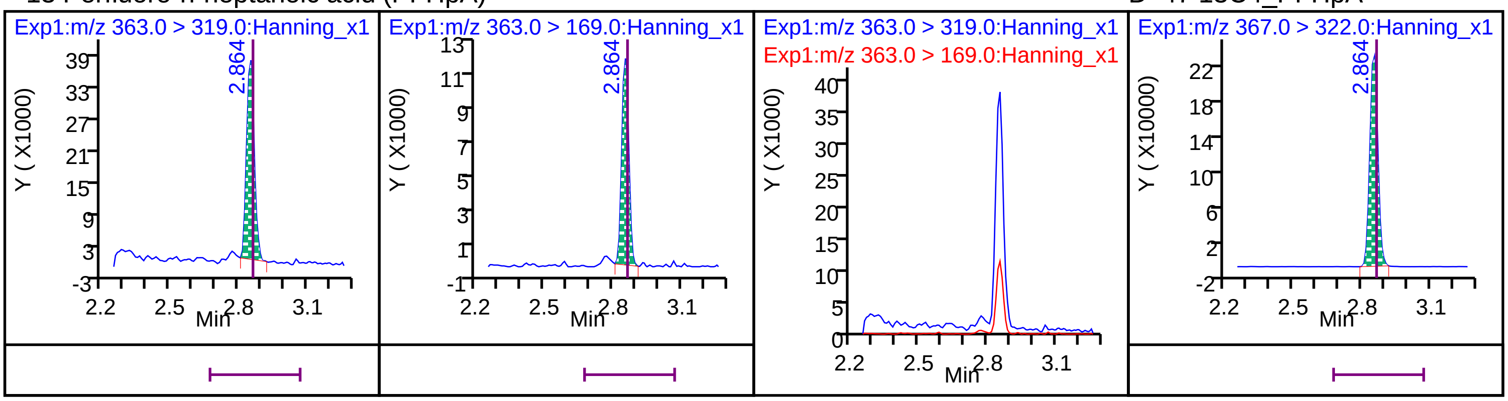
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (M) D 44 13C3_PFBS



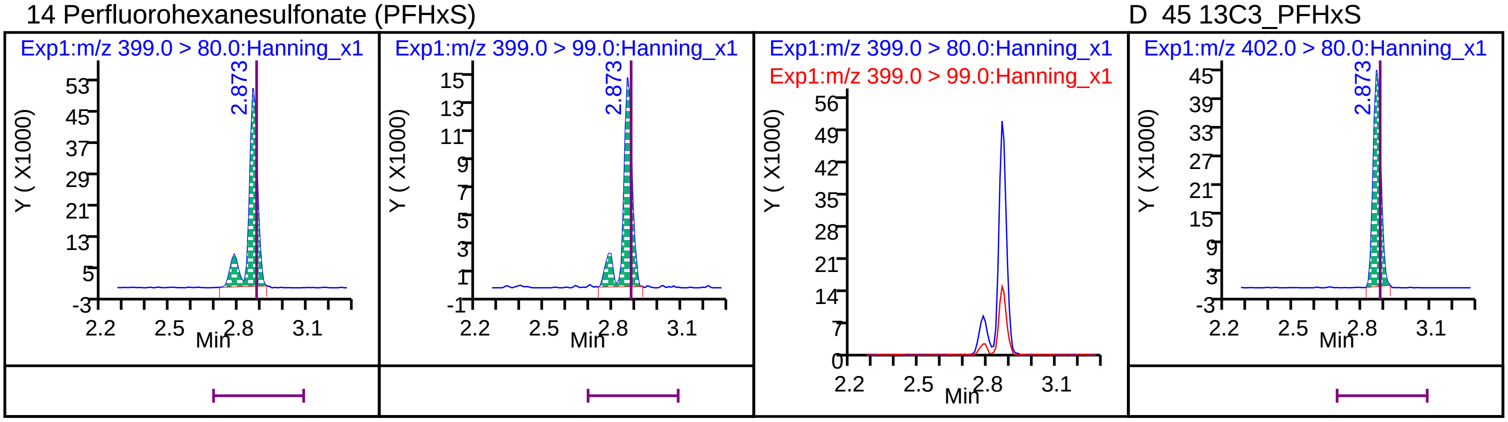
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



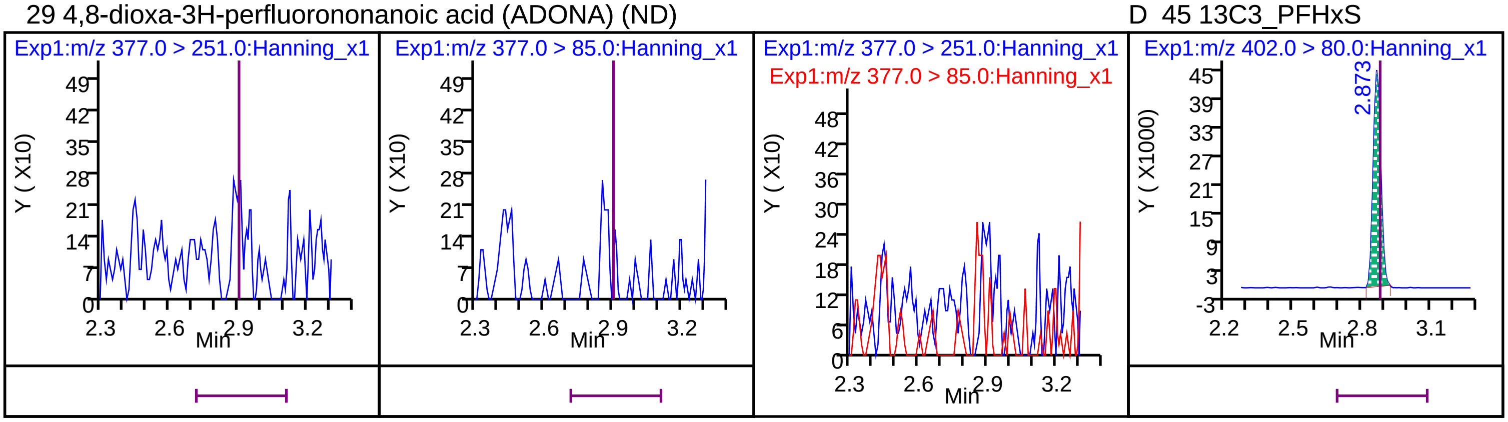
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



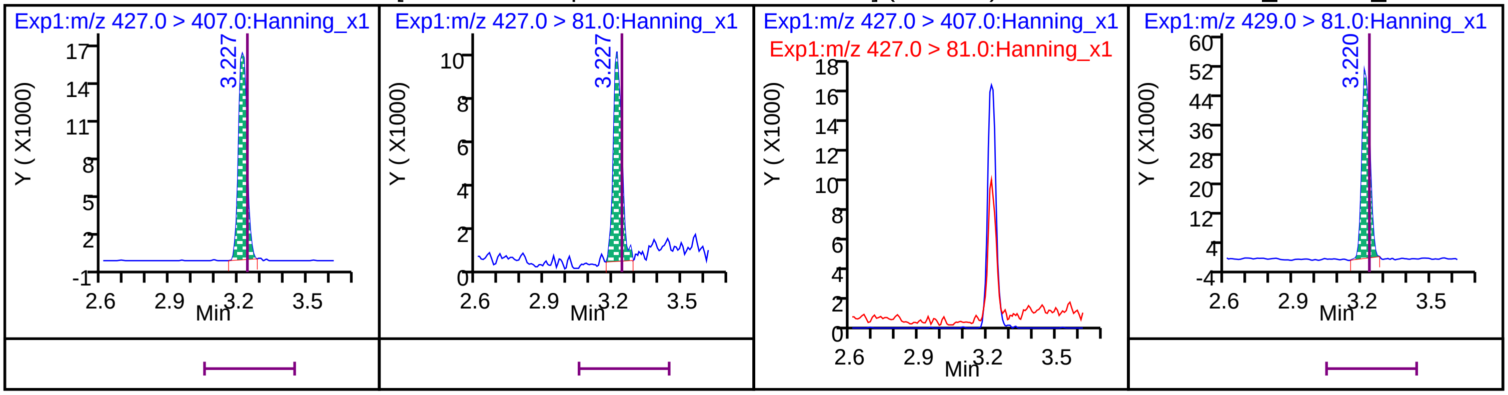
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



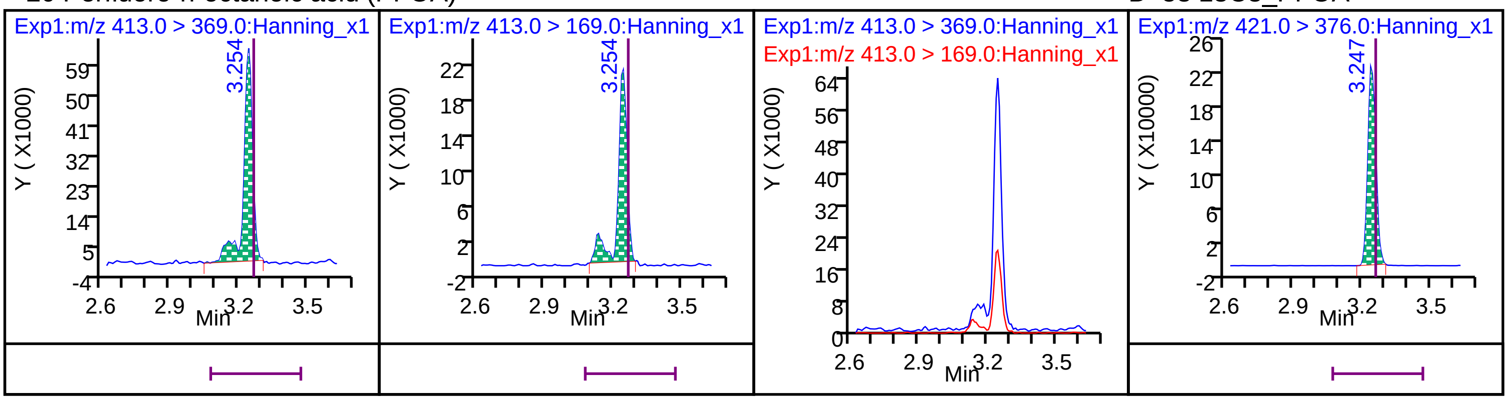
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



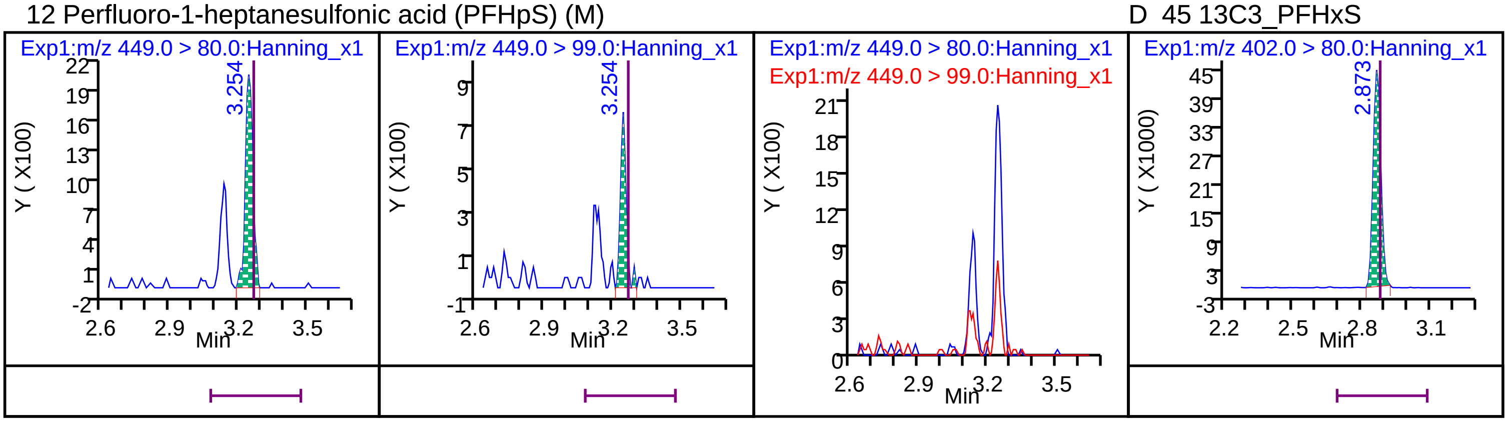
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



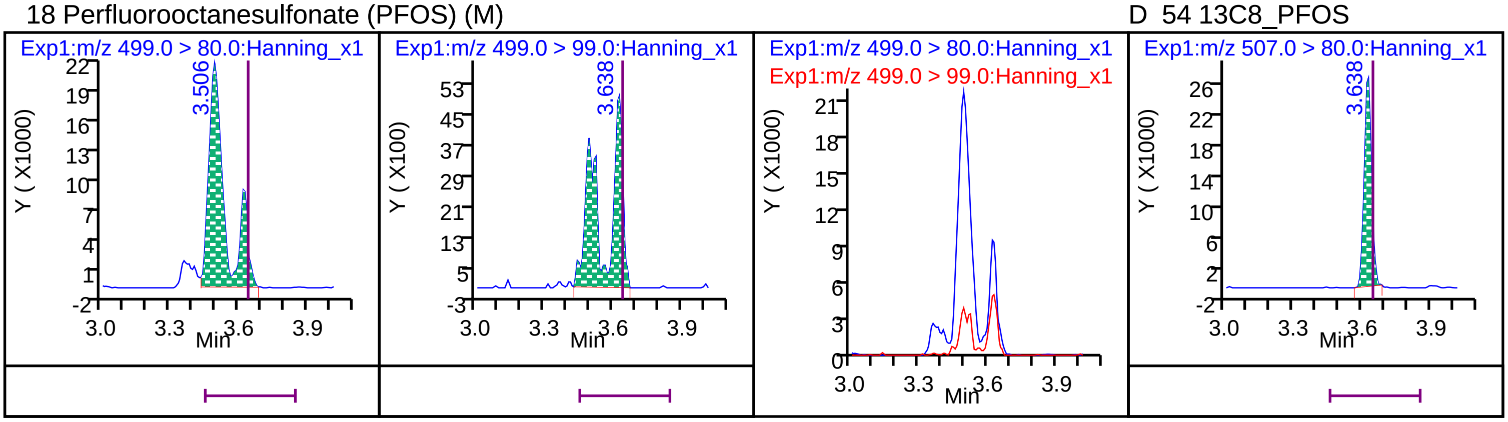
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



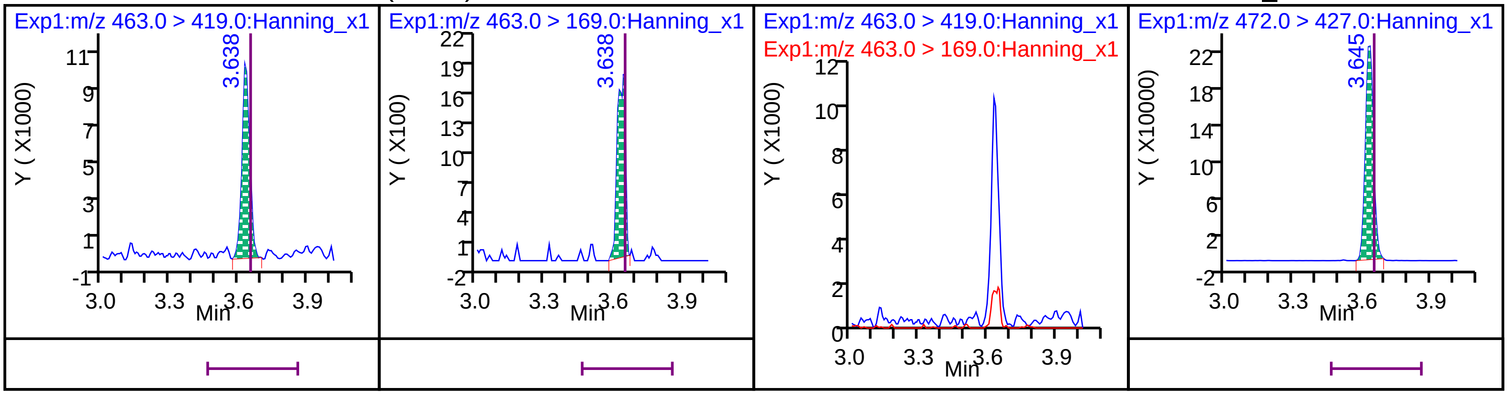
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS



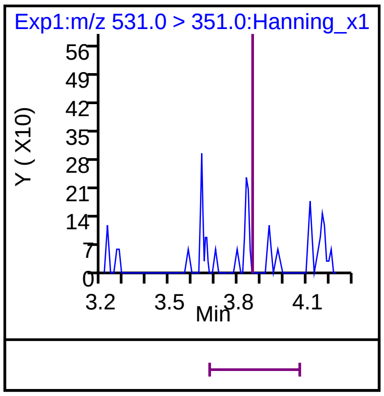
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

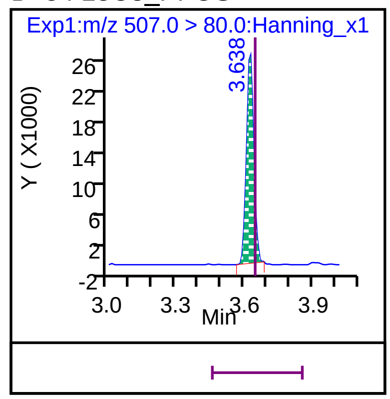


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

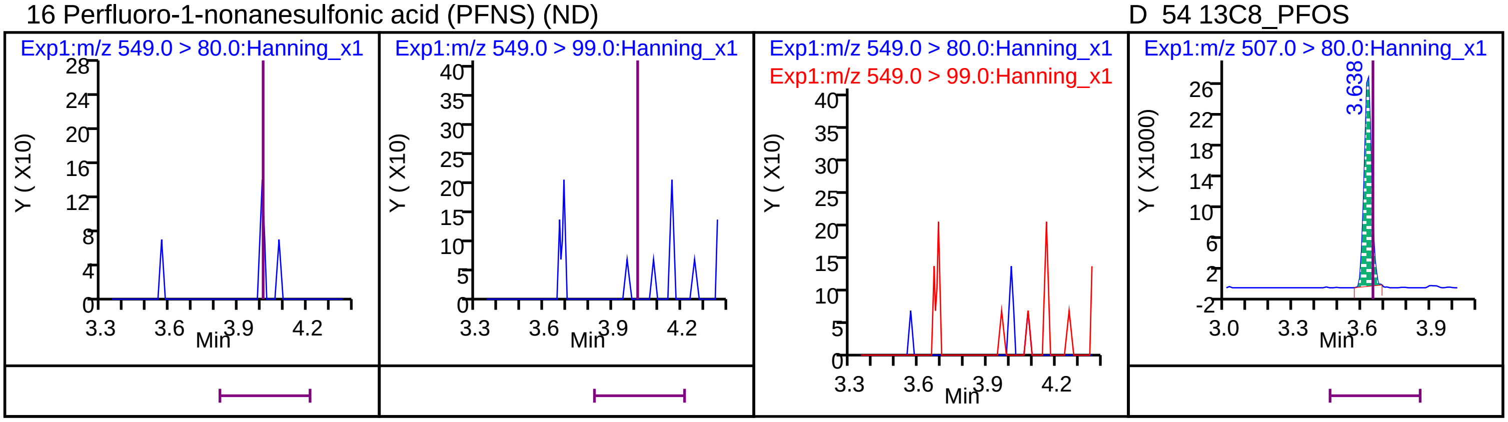


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

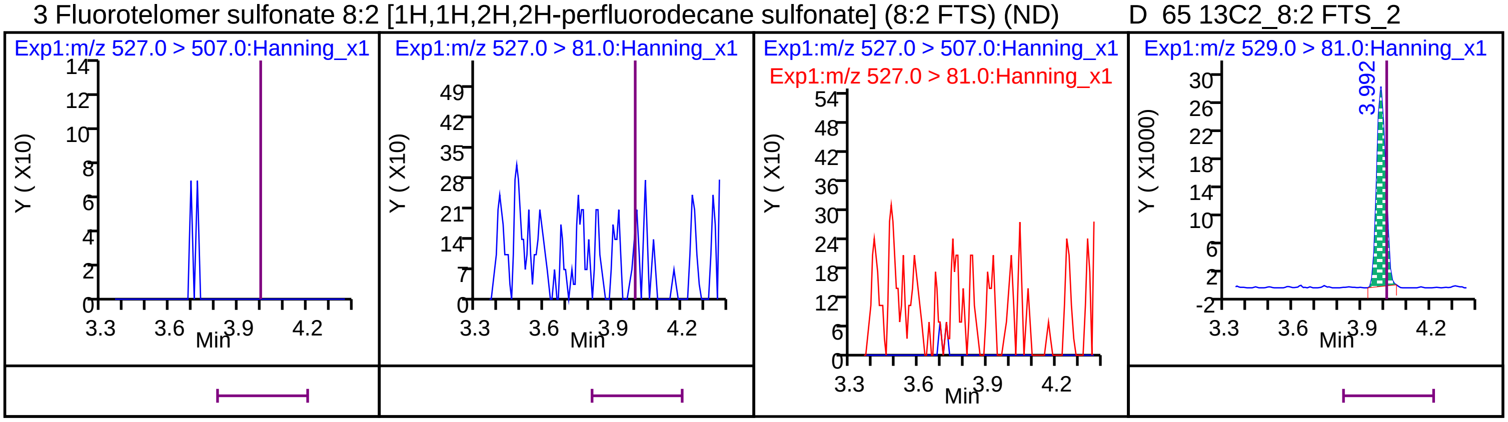




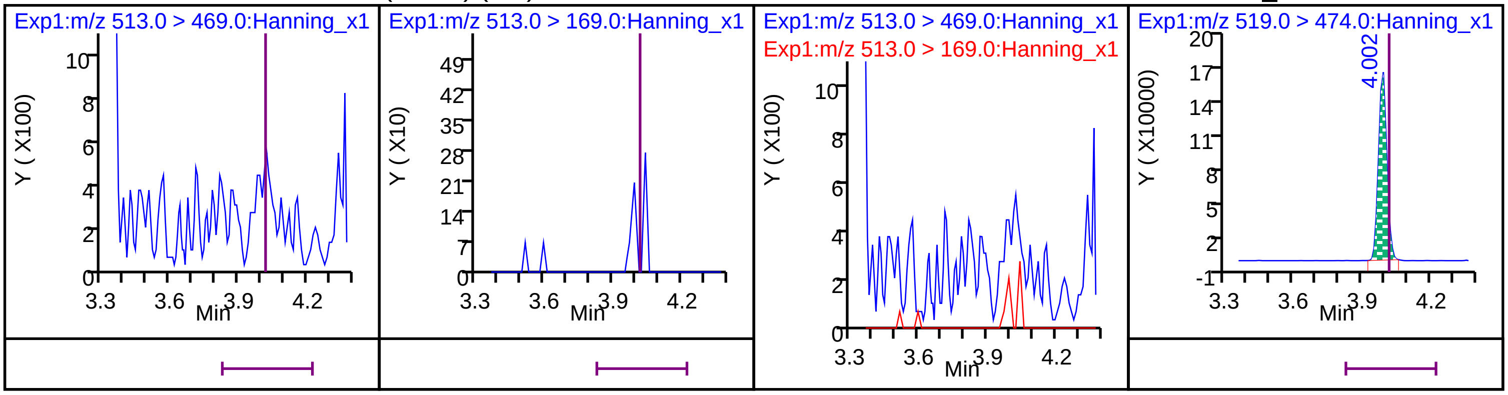
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



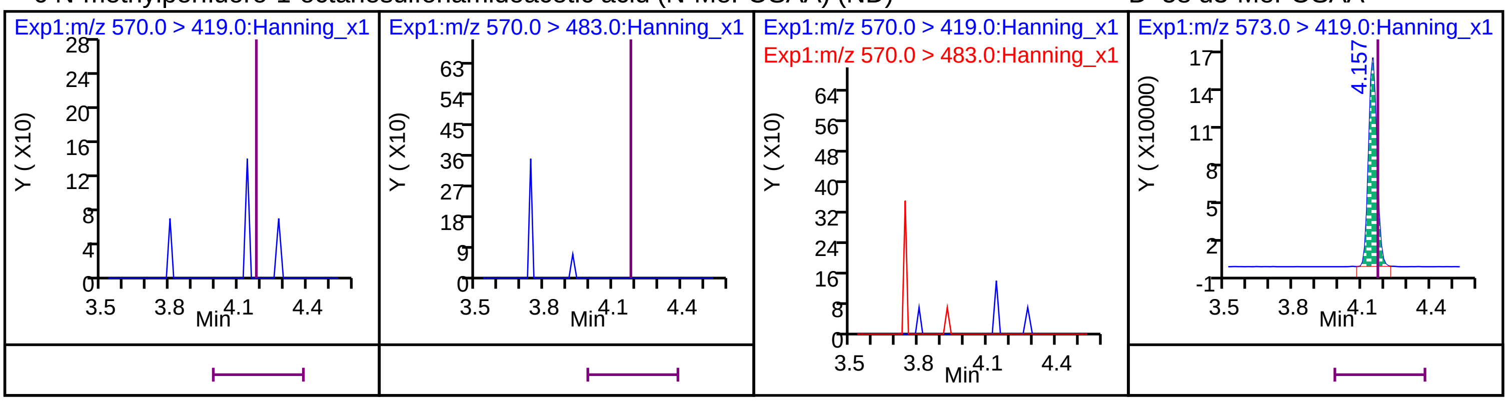
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



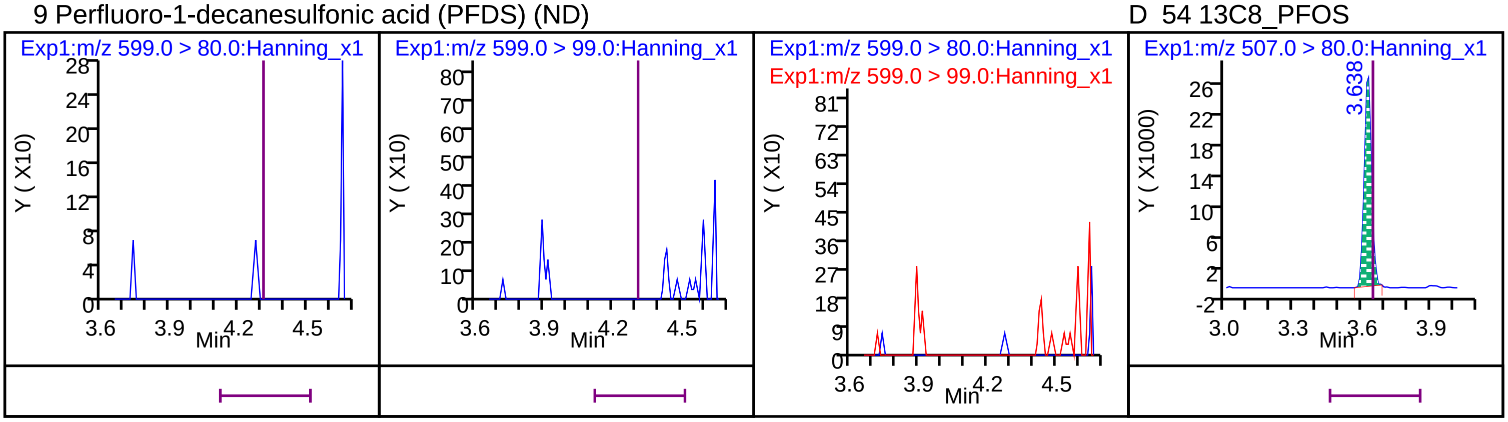
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



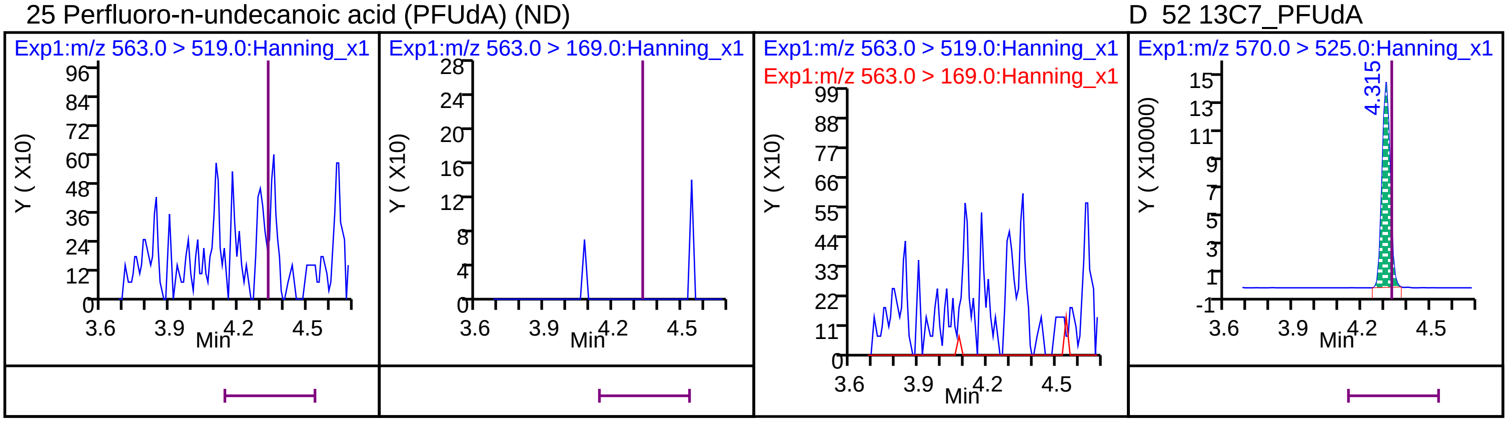
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

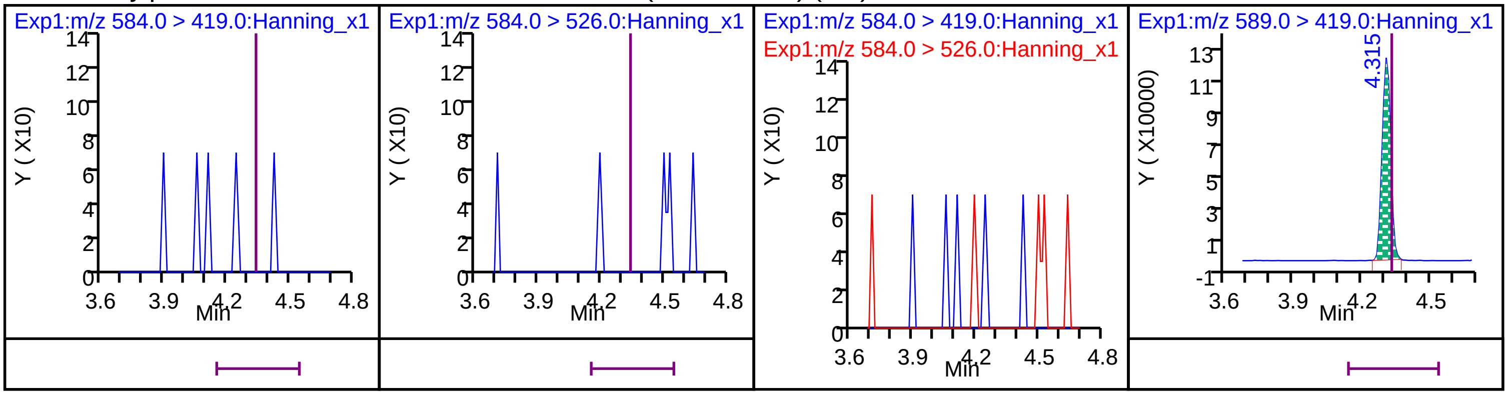


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



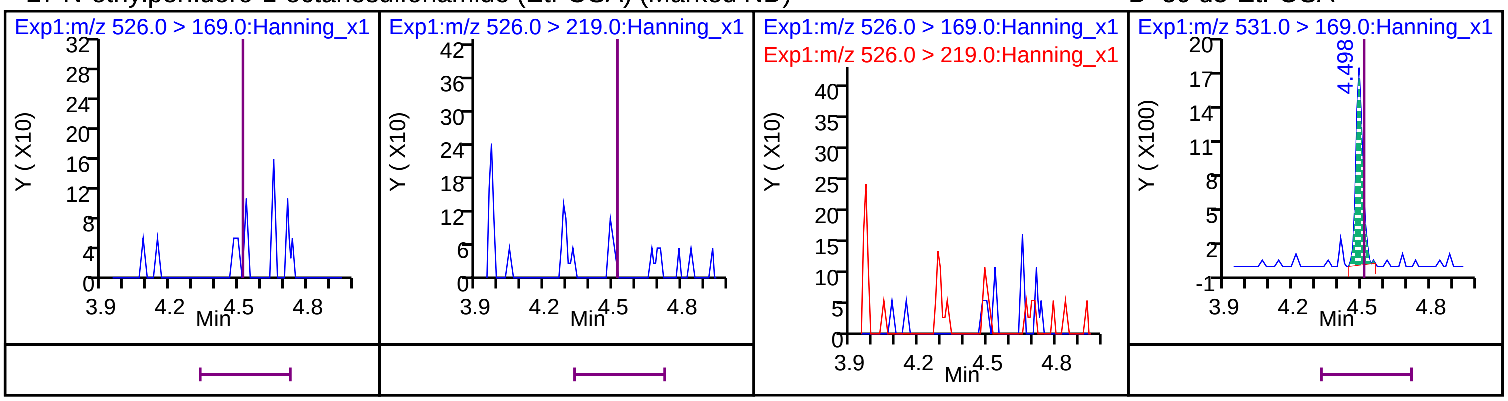
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)

D 60 d5-EtFOSAA



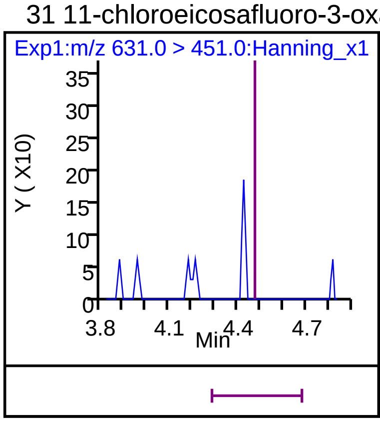
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND)

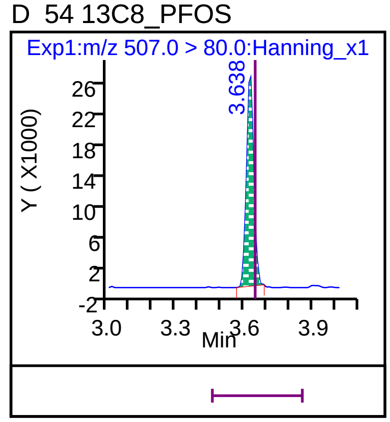
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

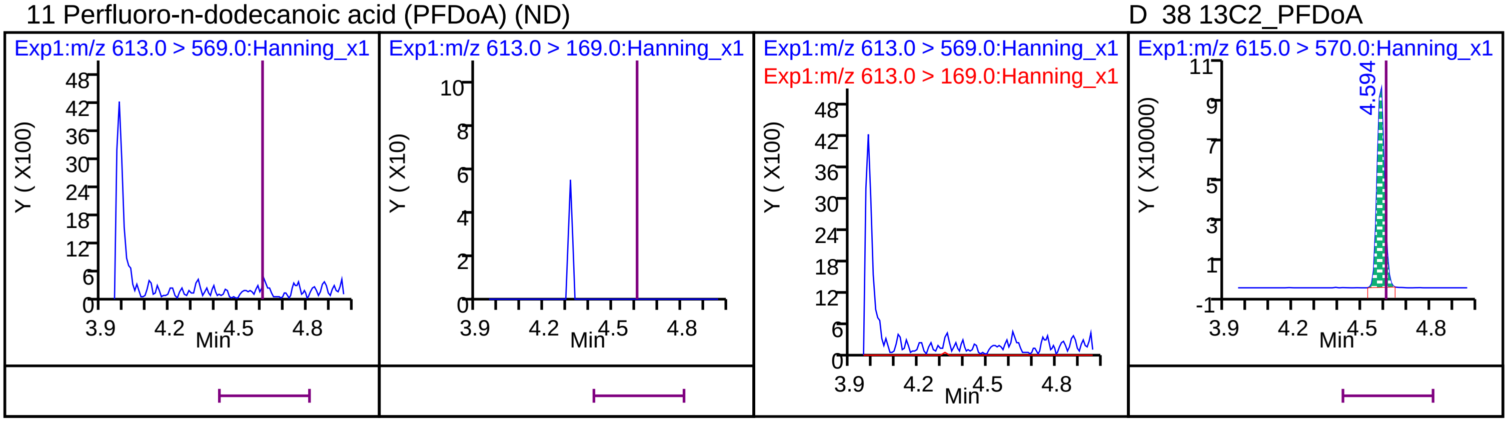
D 54 13C8_PFOS





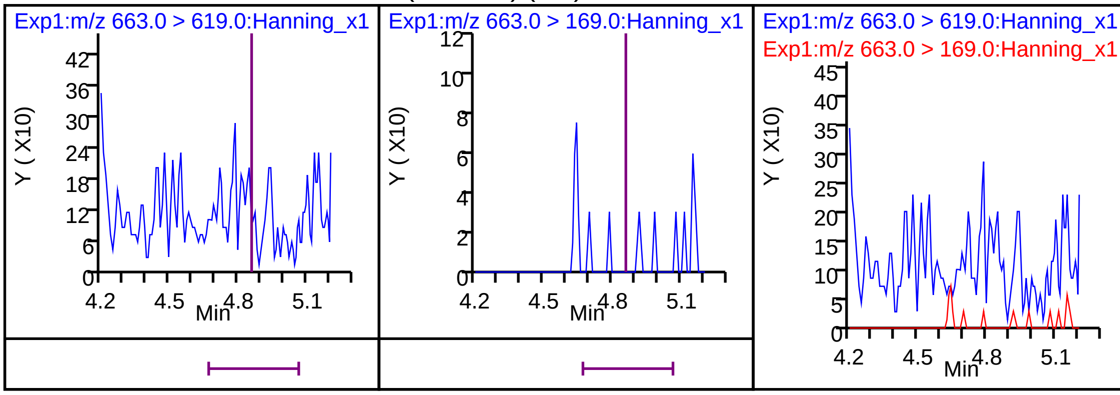
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

D 38 13C2_PFDoA

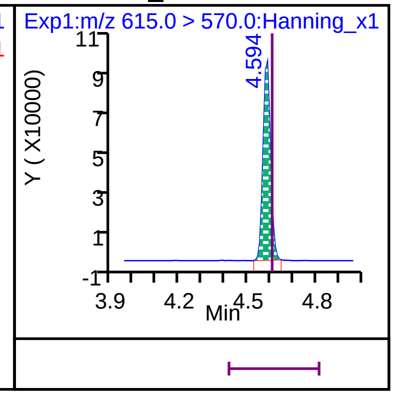


Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d

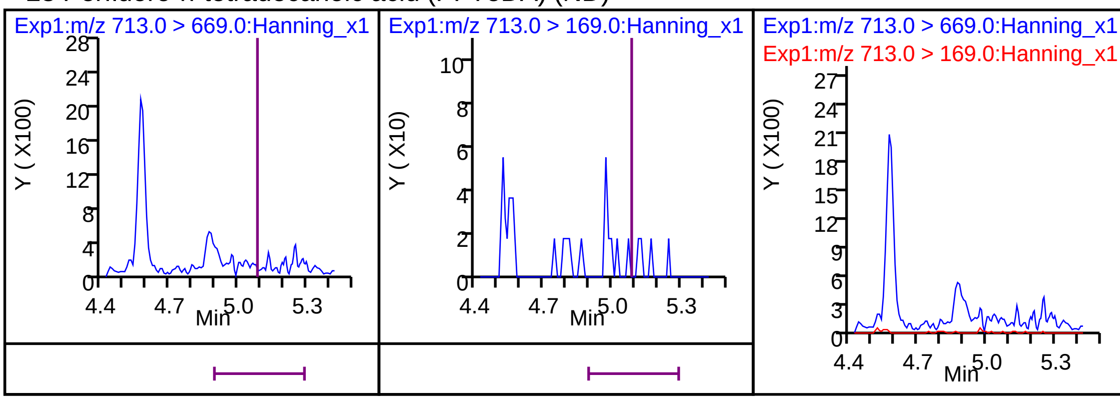
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



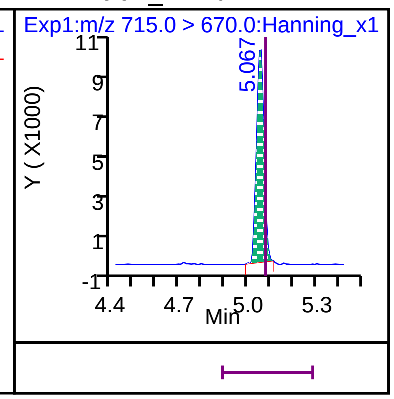
D 38 13C2_PFDoA



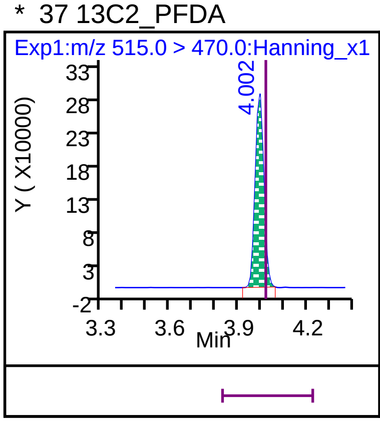
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



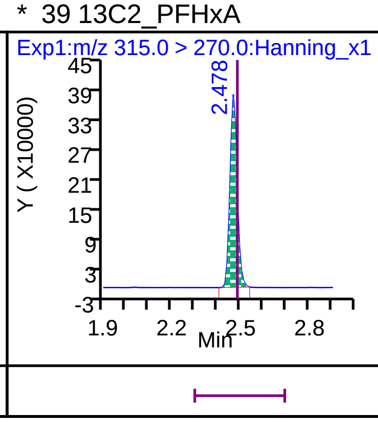
D 42 13C2_PFTeDA



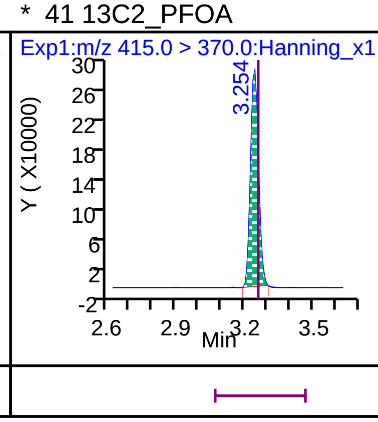
* 37 13C2_PFDA



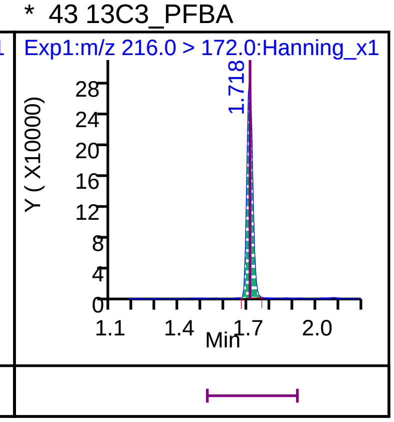
* 39 13C2_PFHxA



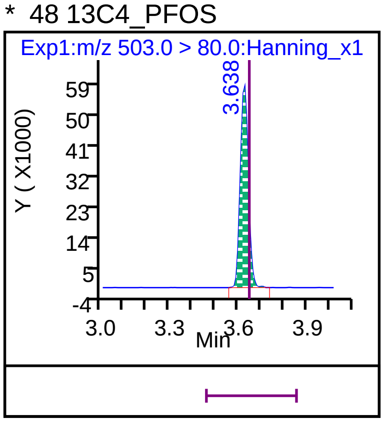
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

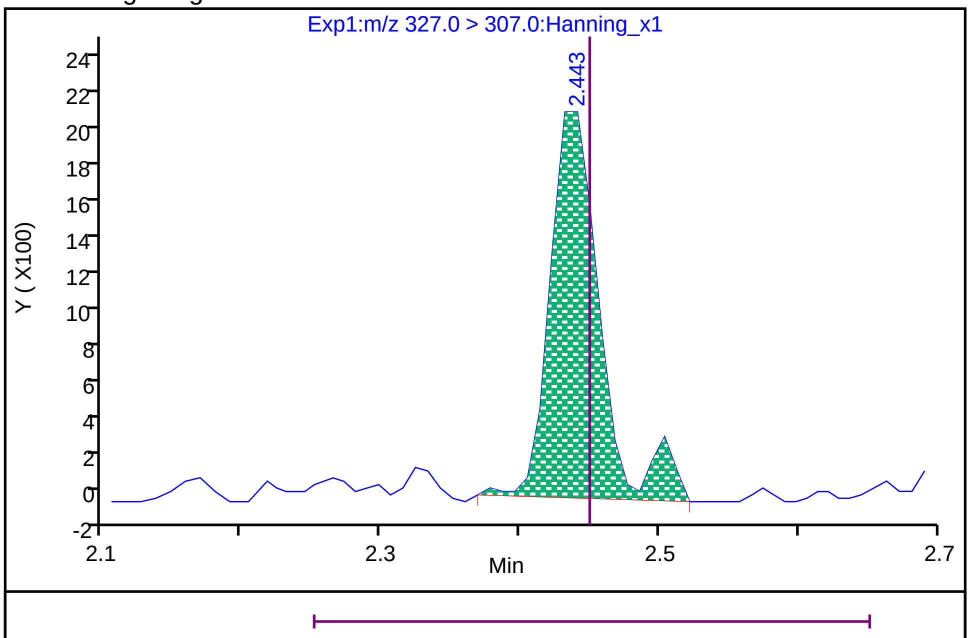
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

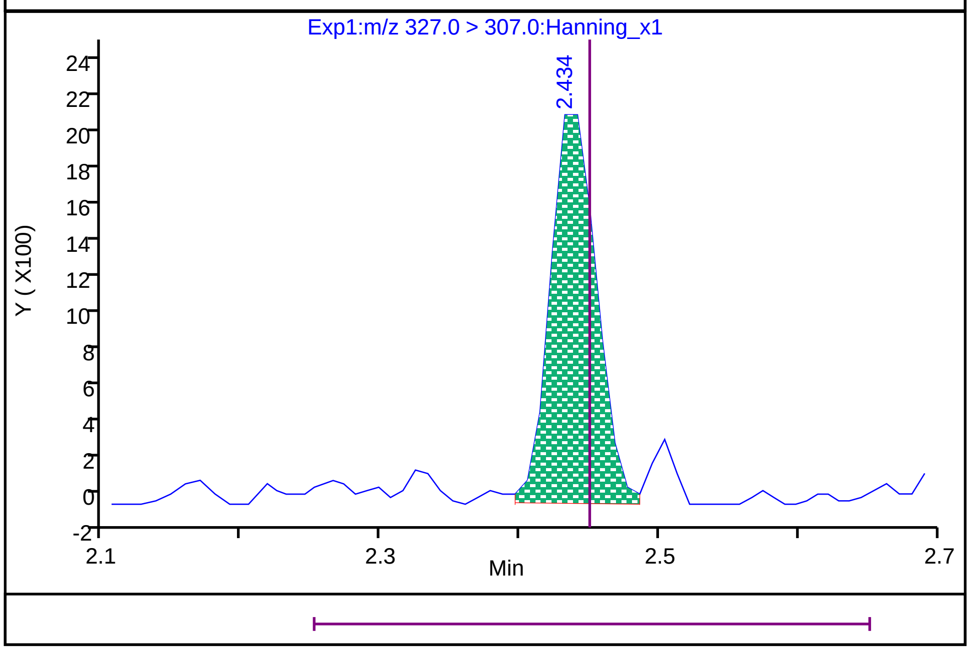
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT:	2.443
Area:	5185
Conc:	2.2497
Conc Units:	ng/L



RT:	2.434
Area:	4831
Conc:	2.0961
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:08:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

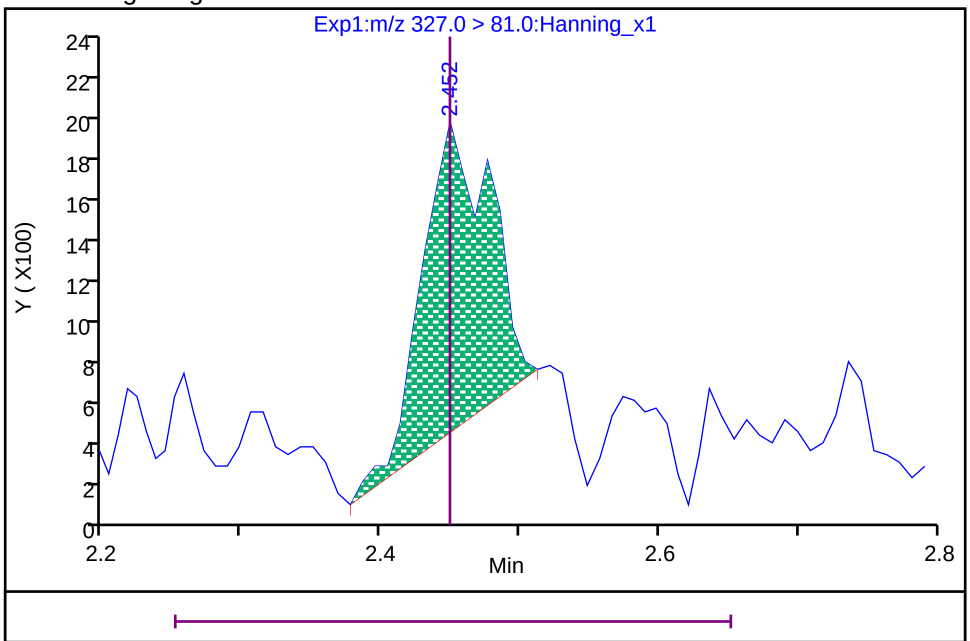
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

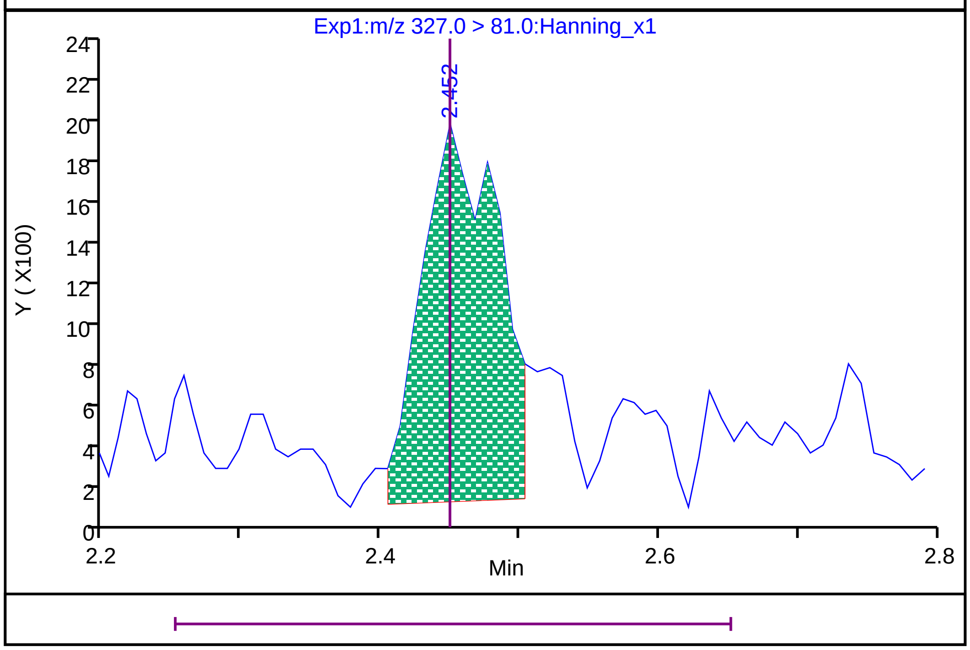
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT:	2.452
Area:	4923
Conc:	2.0961
Conc Units:	ng/L



RT:	2.452
Area:	6780
Conc:	2.0961
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:10:06

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

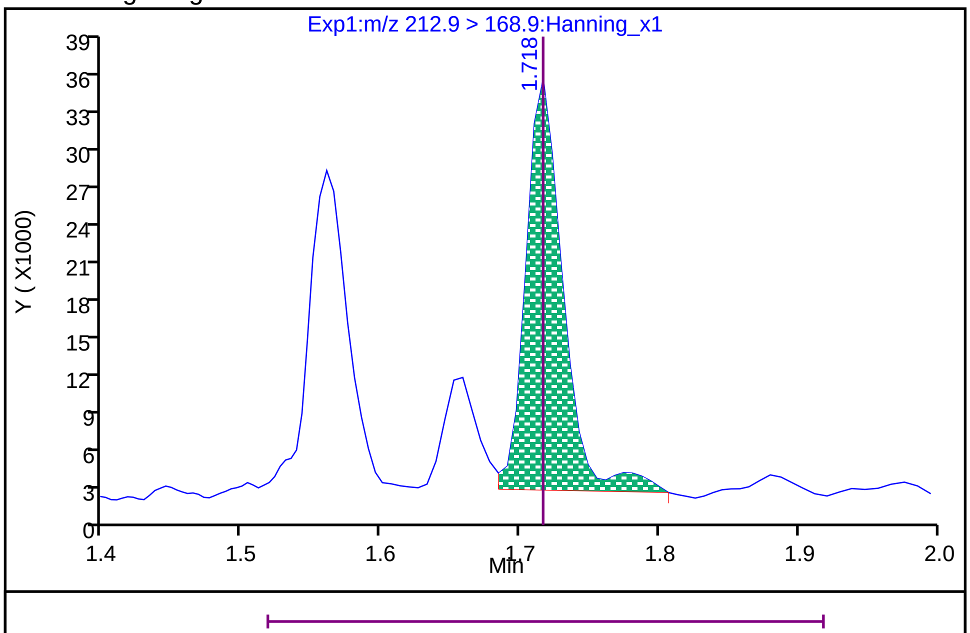
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

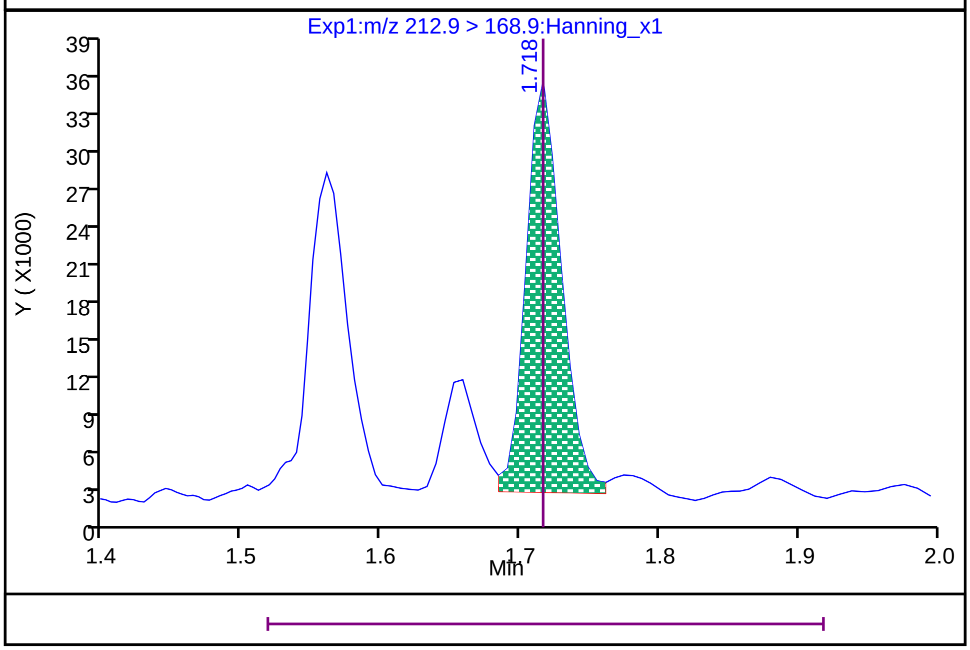
8 PFBA, CAS: 375-22-4

Processing Integration Results

RT:	1.718
Area:	58952
Conc:	5.0731
Conc Units:	ng/L



RT:	1.718
Area:	56236
Conc:	4.8394
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:07:52

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

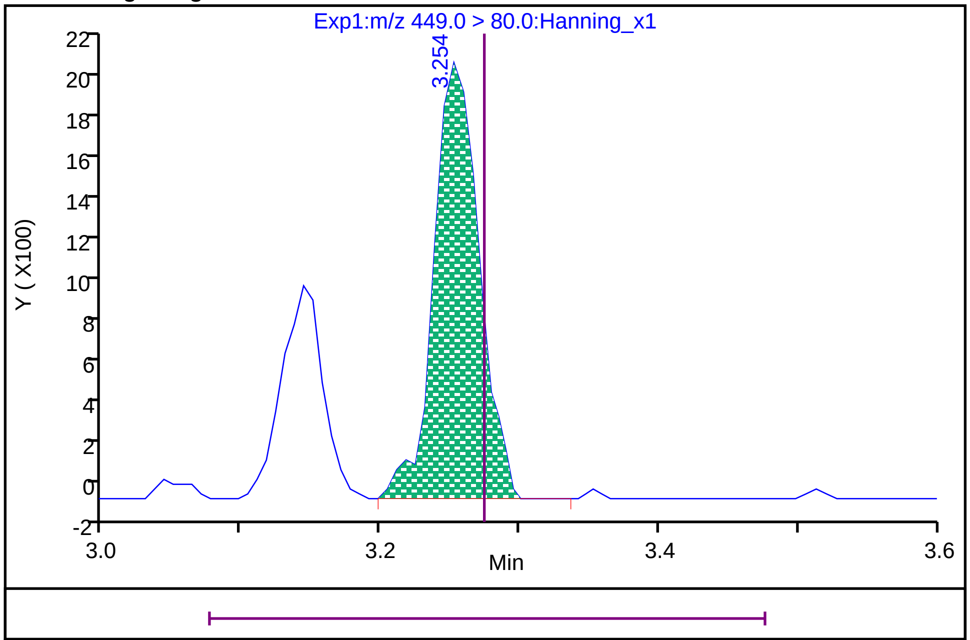
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

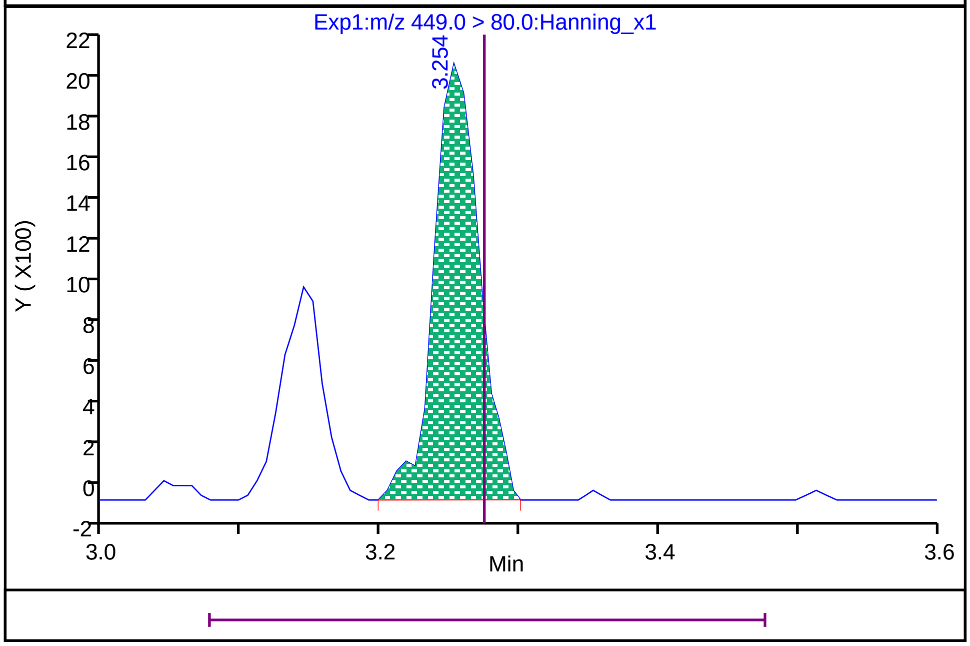
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT:	3.254
Area:	4617
Conc:	1.6971
Conc Units:	ng/L



RT:	3.254
Area:	4620
Conc:	1.6982
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:08:31

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

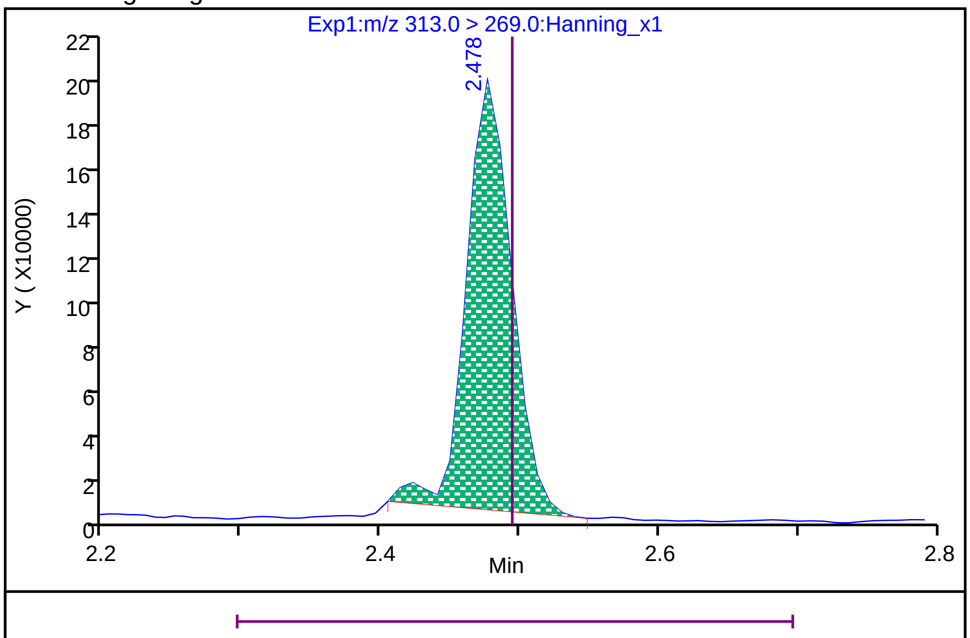
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

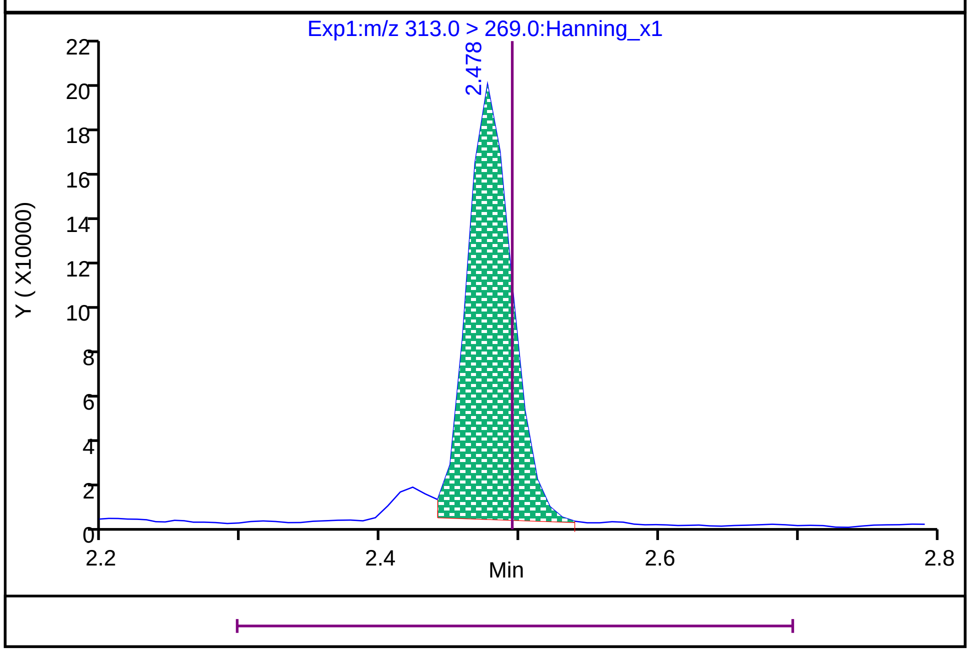
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT: 2.478
Area: 423490
Conc: 23.345
Conc Units: ng/L



RT: 2.478
Area: 421420
Conc: 23.231
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:08:09

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

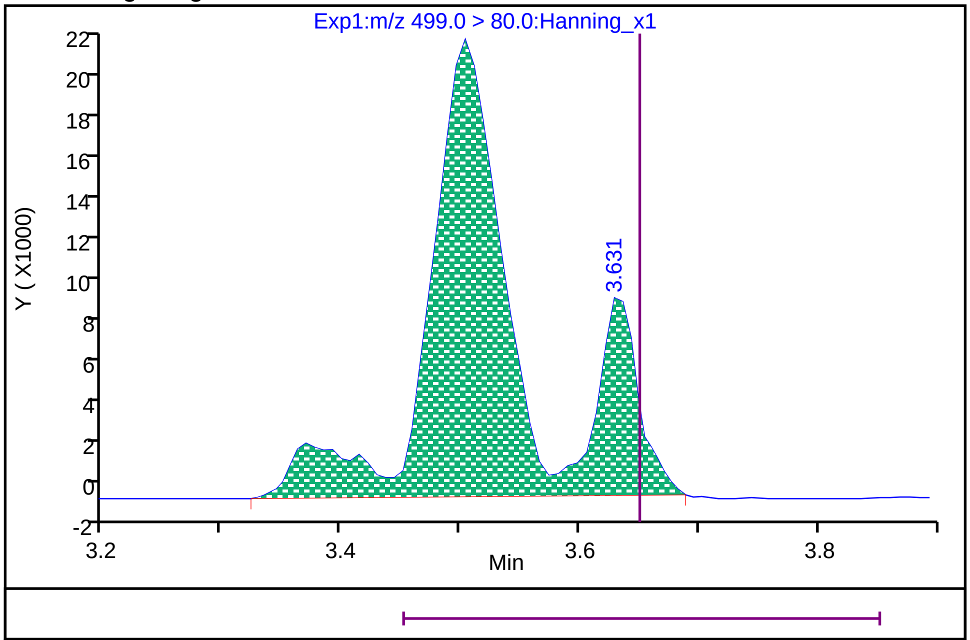
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d		
Injection Date:	10-Nov-2021 17:30:19	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

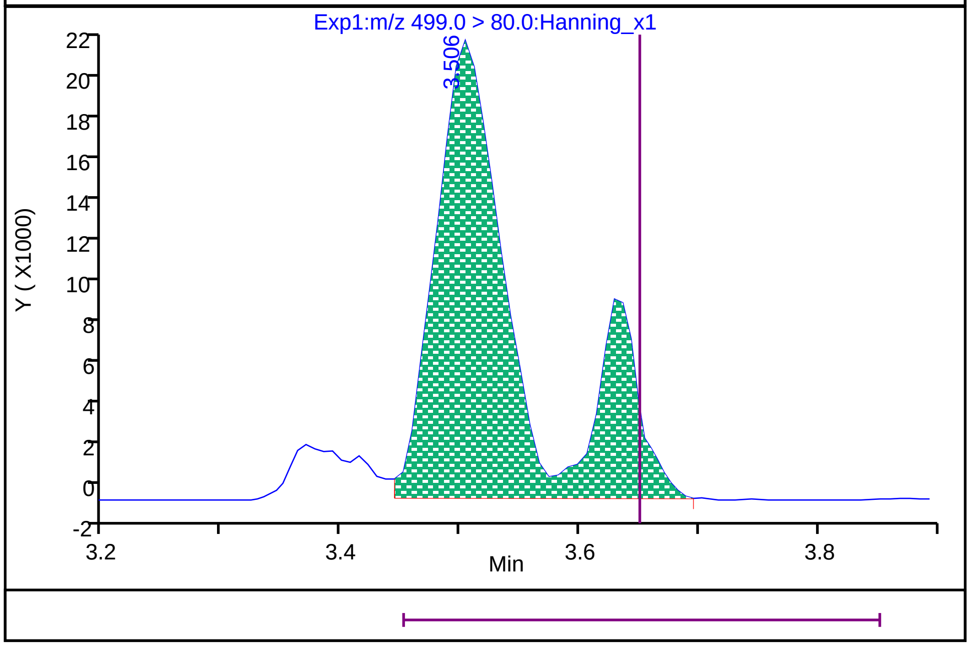
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.631
Area:	113258
Conc:	63.129
Conc Units:	ng/L



RT:	3.506
Area:	103516
Conc:	57.699
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:09:45

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

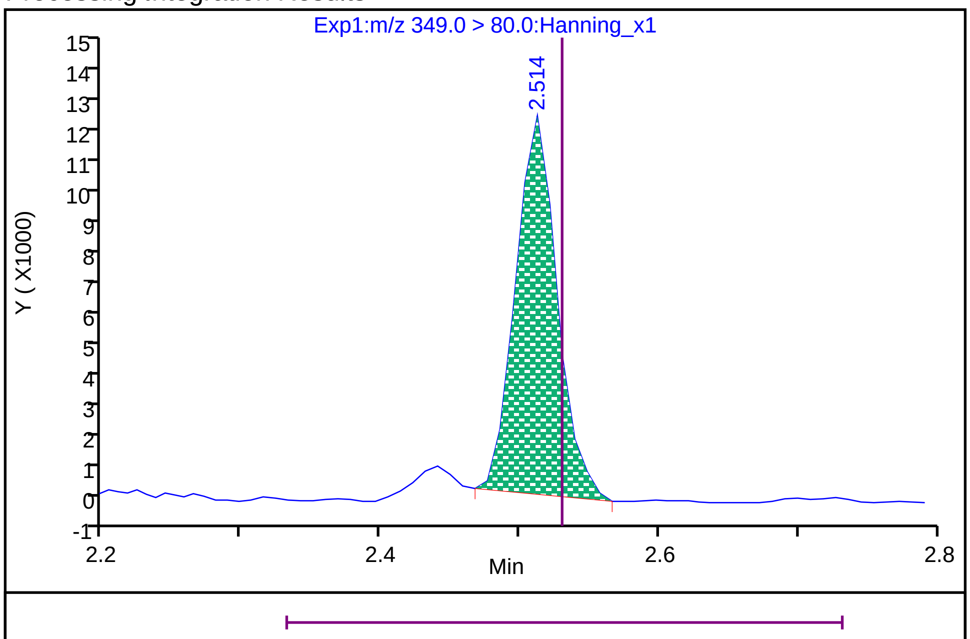
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021026.d
Injection Date:	10-Nov-2021 17:30:19
Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022
Lab ID:	WJ27023-004
Sample Info:	WJ27023-004
Dil. Factor:	1
Operator:	Justin Gavin

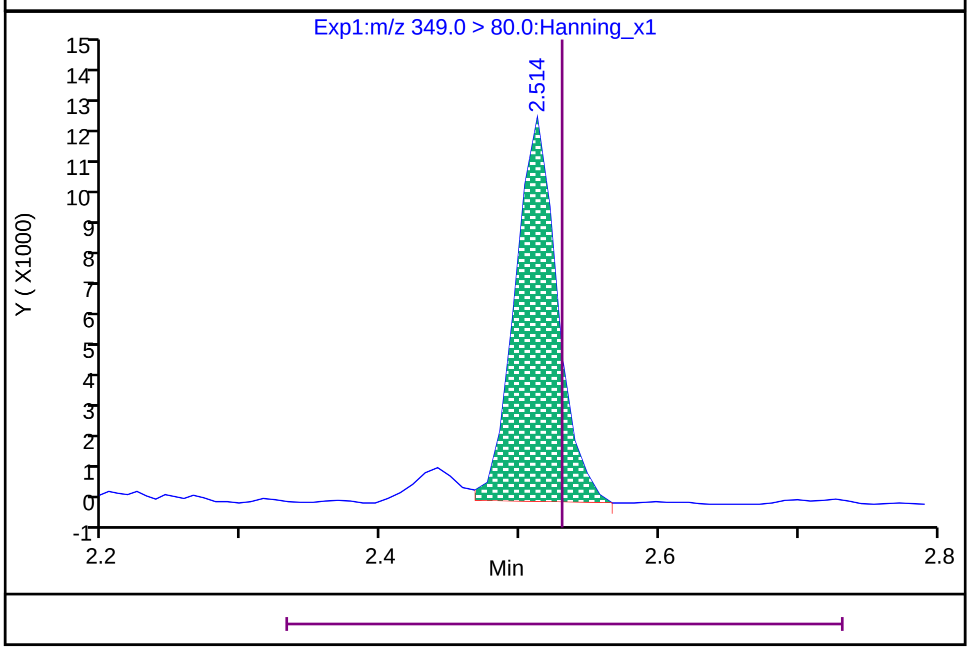
22 PFPeS, CAS: 2706-91-4

Processing Integration Results

RT: 2.514
Area: 24093
Conc: 6.2368
Conc Units: ng/L



RT: 2.514
Area: 25006
Conc: 6.4731
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 20:08:16

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	25
Lab Sample ID:	WJ27023-004	Lab Prep. Batch:	22543
Client ID:	POL-DPT0129-042.0-20211022	Sample Group:	WJ27023
Sample Info:	WJ27023-004	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0378931

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	290	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:		Conc. Level:		Vol. Added:	
Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	396009	16	>100:1			1001.00	634.70	61.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.692	1/0	50842	13	8.8:1			122.84	4.6549		M
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	525789	13	>100:1			1001.00	907.86	88	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	191276	11	41:1			331.59	12.565		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	161688	15	>100:1			1001.00	931.66	93	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	47020	14	>100:1	Target = 3.48		233.67	8.8544		
298.9 > 99	44	2.120	2.120		15862	13	46:1	2.96 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	26396	12	>100:1	Target = 3.03		184.61	6.9955		
349 > 99	44	2.460	2.460		9803	12	37:1	2.69 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	225511	16	>100:1			5005.00	10327	197.2*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.389		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.425	2.424	1	687751	15	>100:1			1001.00	1061.22	99.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.425	2.424	1/0	399481	12	93:1	Target = 18.47		549.47	20.821		M
313 > 119	49	2.425	2.424		20406	13	>100:1	19.57 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	1	1068569	15	>100:1			5005.00	4772.17	92.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.540		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	580152	15	>100:1			1001.00	1099.20	107	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	1/0	93636	10	43:1	Target = 3.92		141.28	5.3536		M
363 > 169	47	2.791	2.791		21723	14	>100:1	4.31 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	131783	16	>100:1			1001.00	1031.84	96.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	1/0	169358	25	>100:1	Target = 3.14	6.07	1141.09	43.239		
399 > 99	45	2.809	2.809		46338	20	>100:1	3.65 (1.57-4.71)	11.49				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.827		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													J
449 > 80	45	3.174	3.174	1/0	5984	15	69:1	Target = 3.02		46.752	1.7716		M
449 > 99	45	3.168	3.174		2169	20	17:1	2.75 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	1	114859	20	>100:1			5005.00	6693.13	127.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.141	1/0	40253	18	>100:1	Target = 1.69		747.79	28.336		
427 > 81	64	3.148	3.141		19901	17	24:1	2.02 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.168	1	532333	20	>100:1			1001.00	1027.69	95.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.168	3.168	1/0	174621	36	>100:1	Target = 3.03	6.24	313.76	11.889		
413 > 169	53	3.168	3.168		60541	42	>100:1	2.88 (1.51-4.55)	4.63				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	1	124036	17	>100:1			1001.00	996.27	93.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.411	3.537	-7/-8	168715	35	>100:1	Target = 3.42		1146.30	43.437		M
499 > 99	54	3.545	3.537		46654	34	>100:1	3.61 (1.71-5.13)	1.21				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.740		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.879		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.178		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.338		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.545	3.537	1	661614	19	>100:1			1001.00	1025.40	95.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													J
463 > 419	56	3.537	3.537	1/0	20485	14	29:1	Target = 7.14		28.135	1.0661		M
463 > 169	56	3.545	3.537		2929	21	25:1	6.99 (3.56-10.71)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.880	3.879	1	91426	17	>100:1			5005.00	5467.45	103.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.879		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.888	3.887	1	578921	18	>100:1			1001.00	1015.90	98.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.887		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	1	639277	17	>100:1			5005.00	4680.34	93.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.045		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.197	4.196	1	571849	16	>100:1			5005.00	4709.67	93.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.206		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.197	4.196	1	607121	17	>100:1			1001.00	935.20	91.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.196		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.456	4.464	0	20028	18	>100:1			1001.00	457.14	43.8*	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.473		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.474	4.473	1	488724	16	>100:1			1001.00	818.80	78	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.473		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.711		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	1	407108	17	>100:1			1001.00	539.85	51.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.928		ND								
*** 37 13C2_PFDA**													
515 > 470		3.888	3.887	1	772094	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.425	2.424	1	783275	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.168	1	609294	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	409619	16	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	1	145197	18	>100:1			200.00			

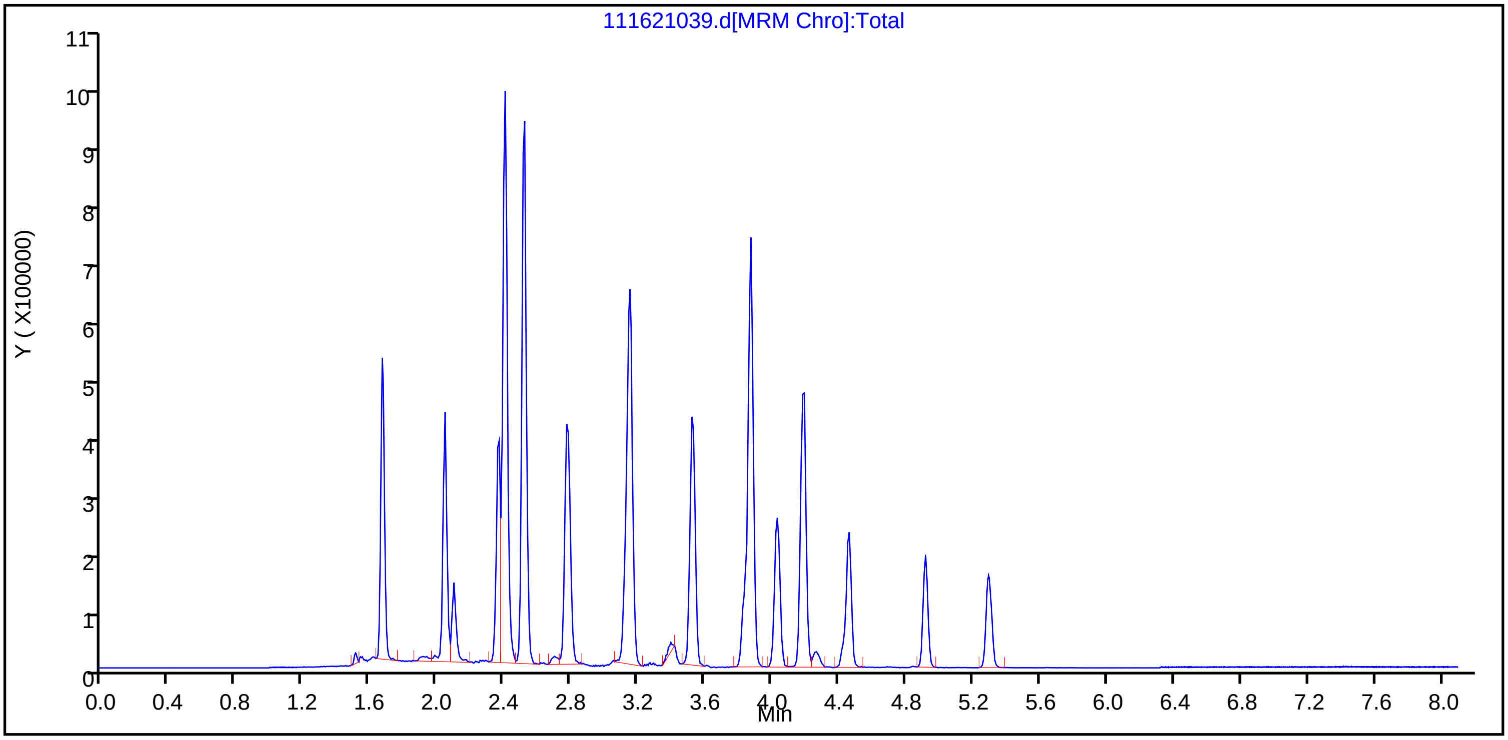
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

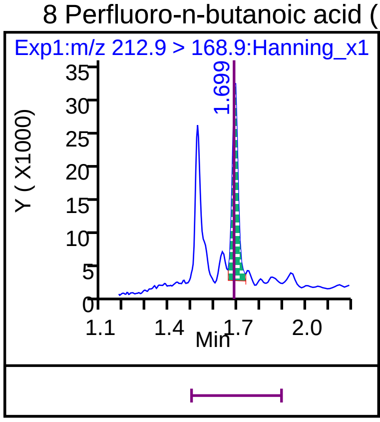
Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

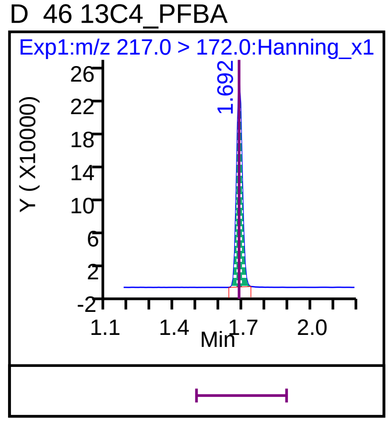
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin



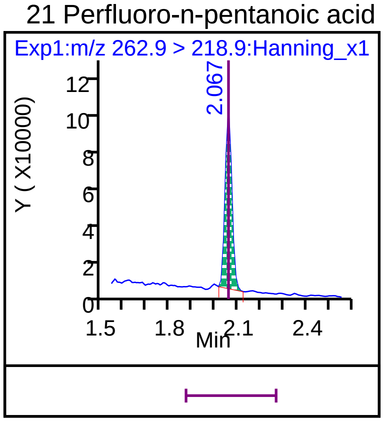
8 Perfluoro-n-butanoic acid (PFBA) (M)



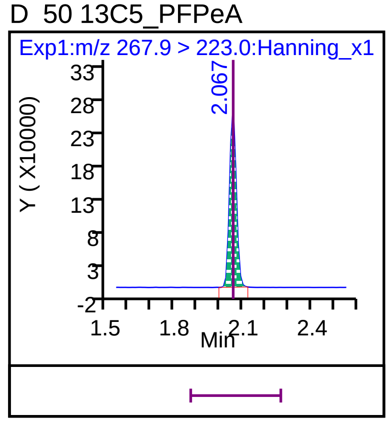
D 46 13C4_PFBA



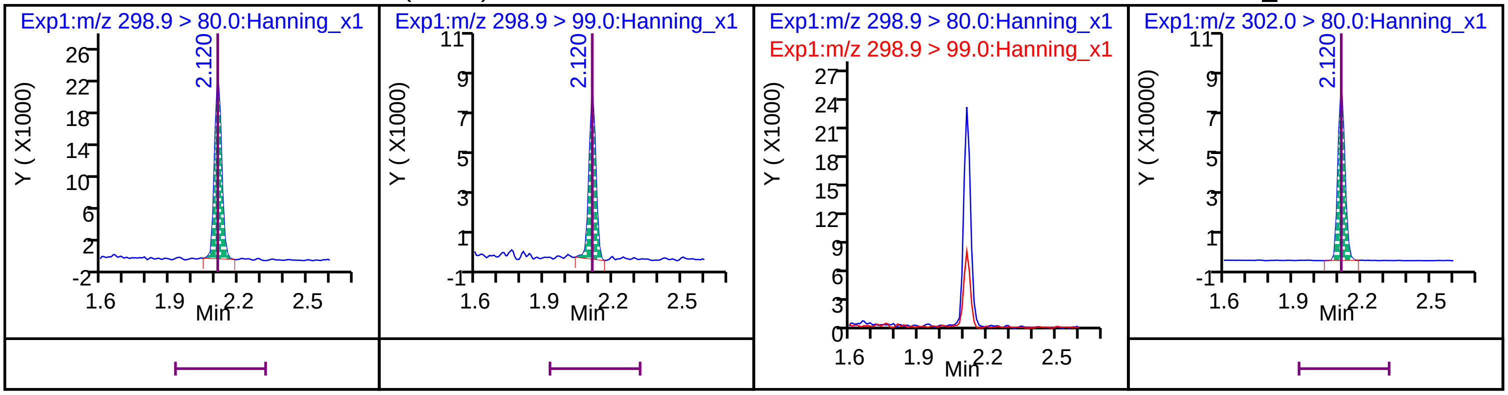
21 Perfluoro-n-pentanoic acid (PFPeA)



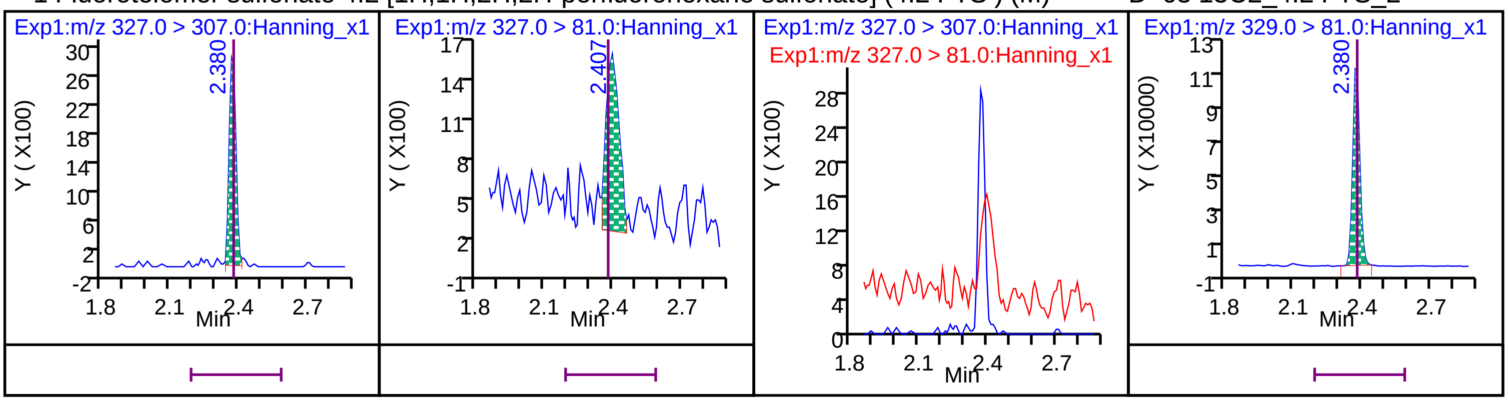
D 50 13C5_PFPeA



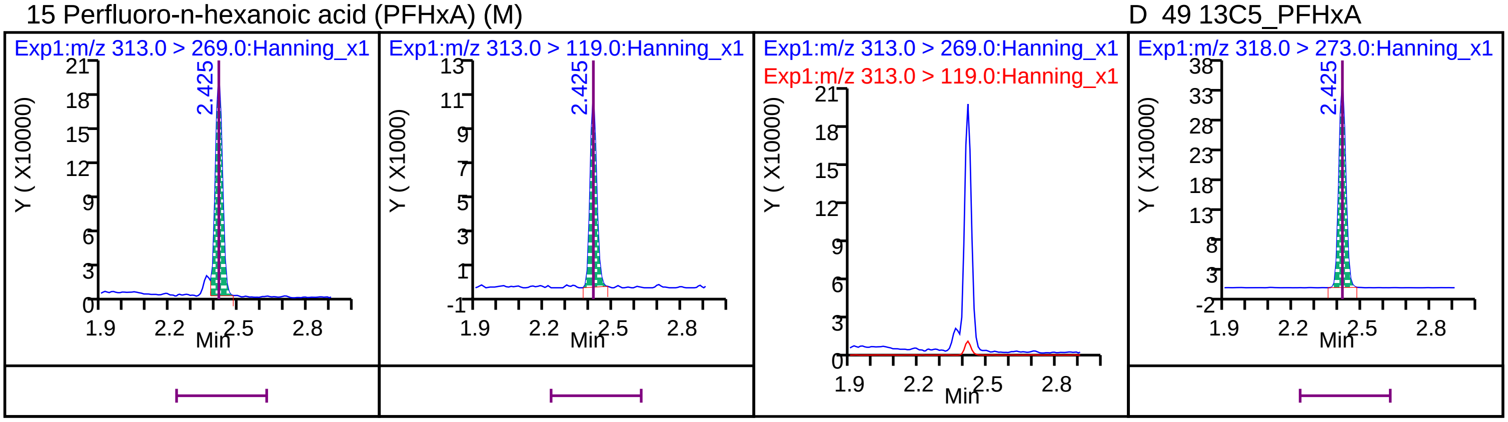
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



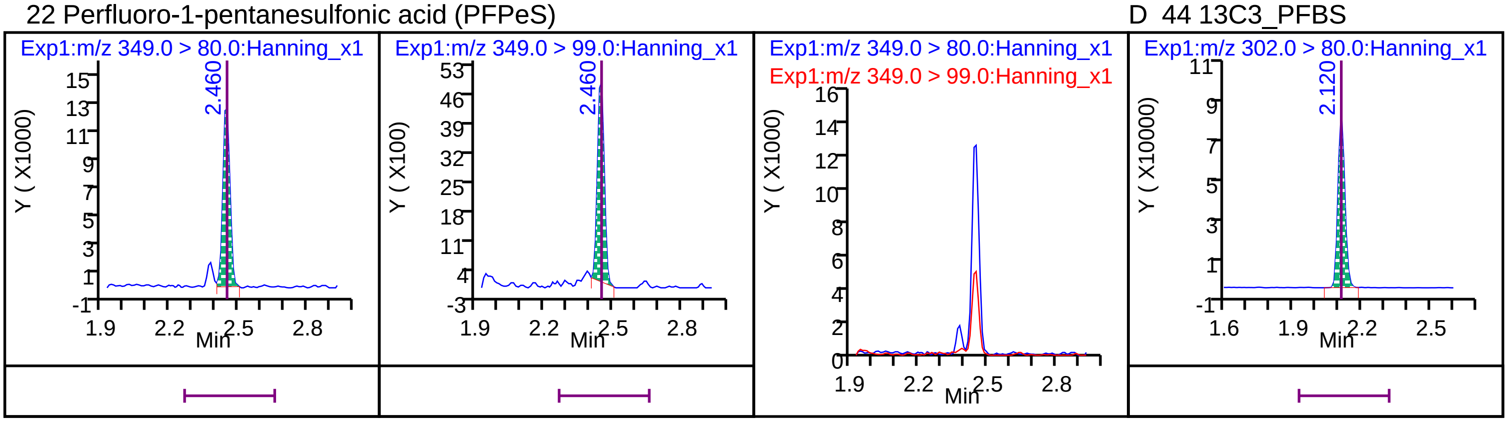
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



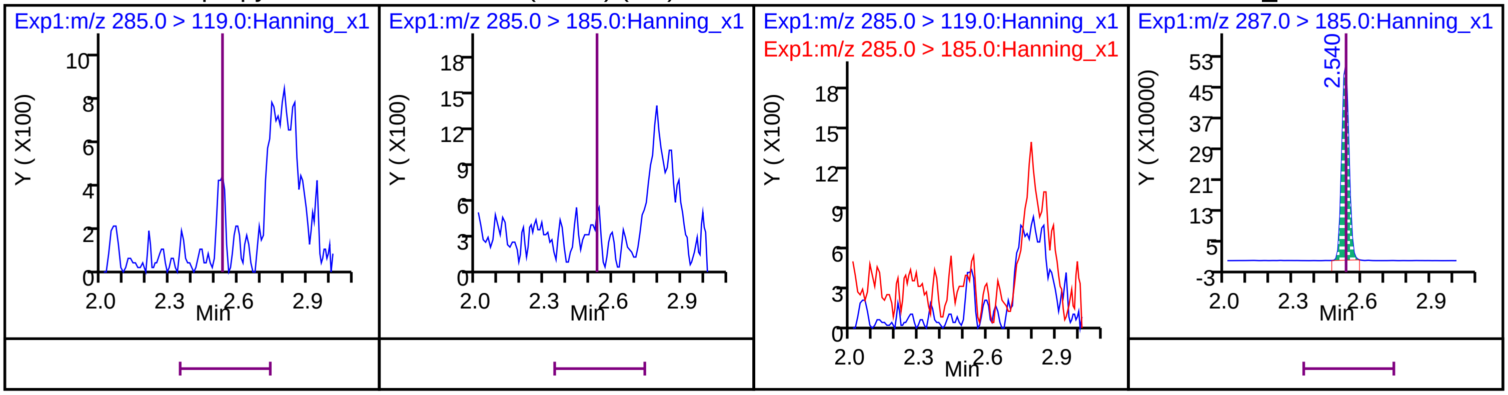
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



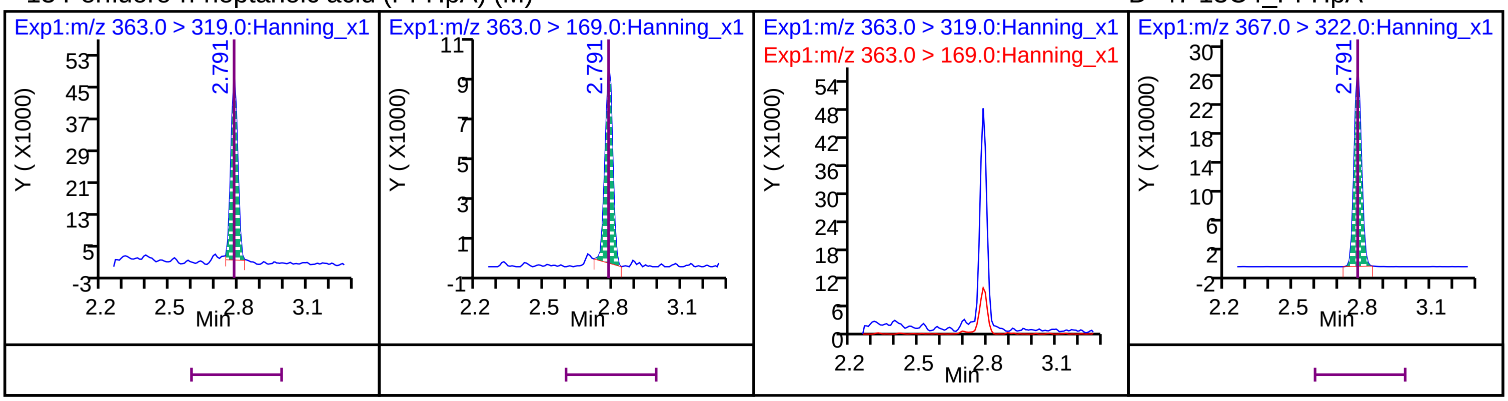
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



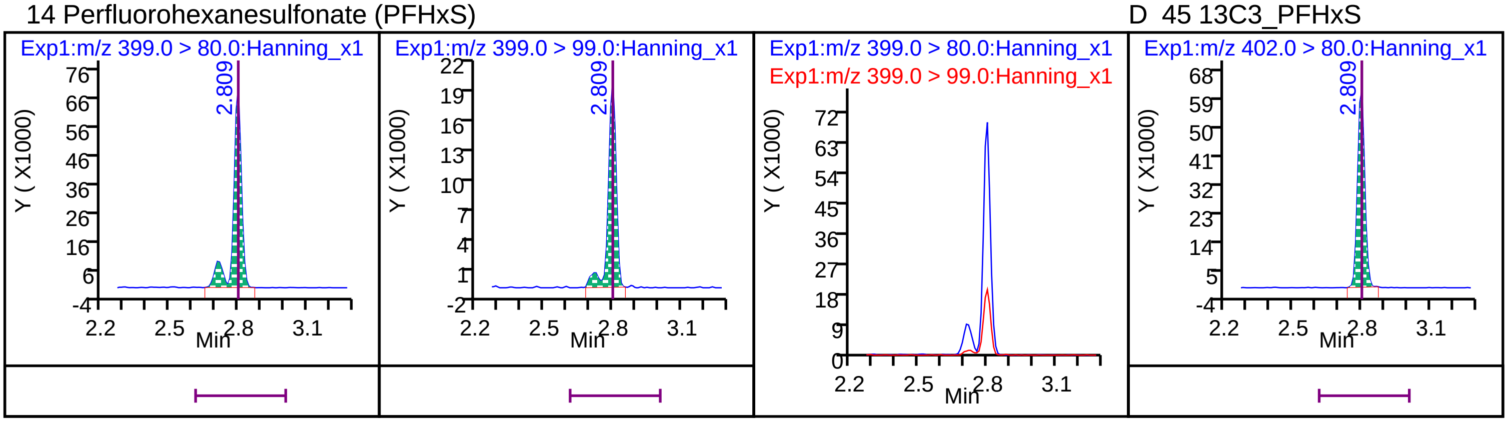
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



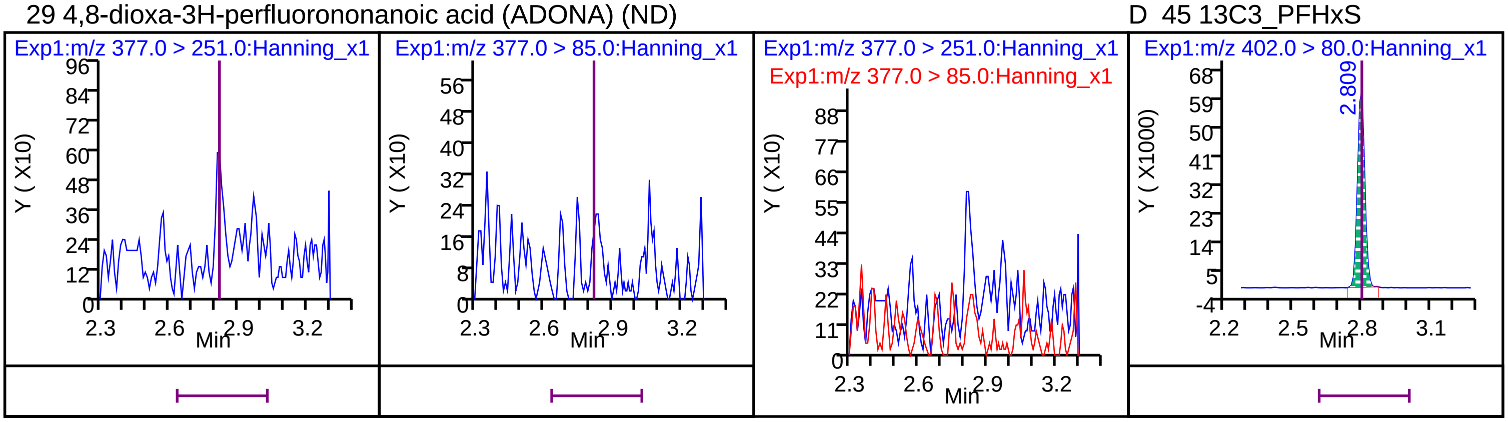
13 Perfluoro-n-heptanoic acid (PFHpA) (M) D 47 13C4_PFHpA



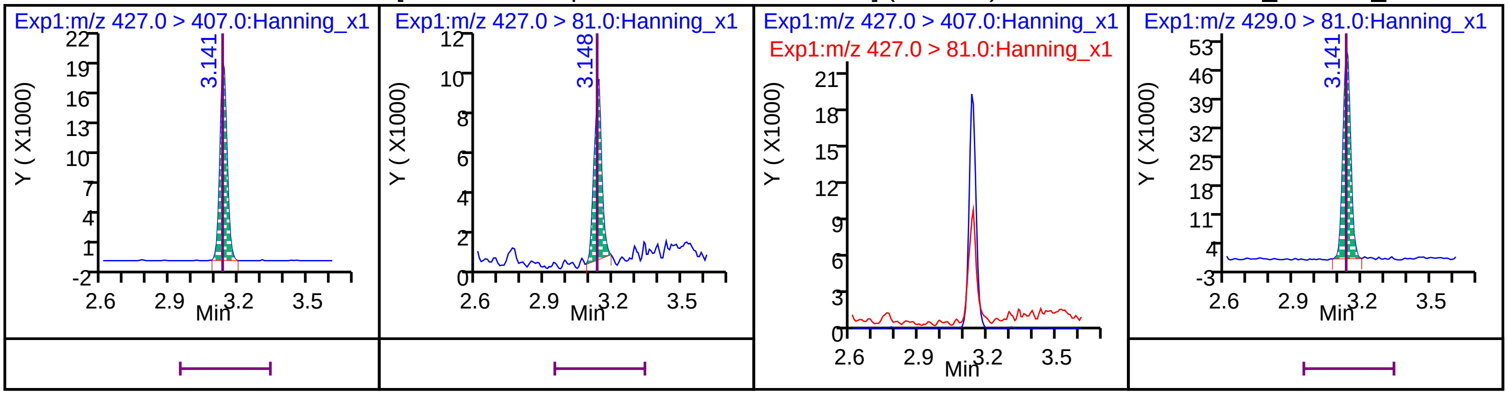
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



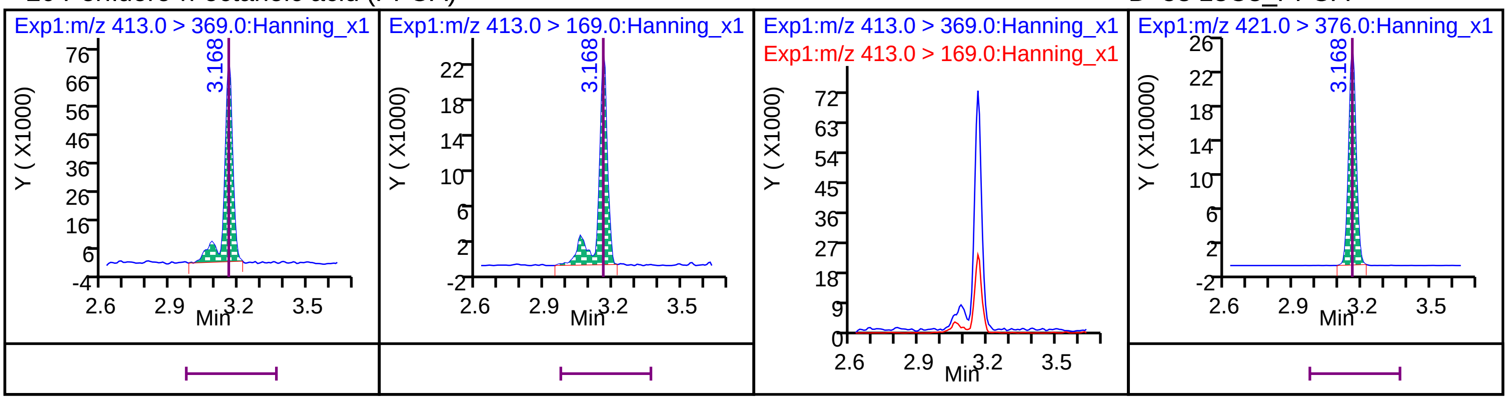
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



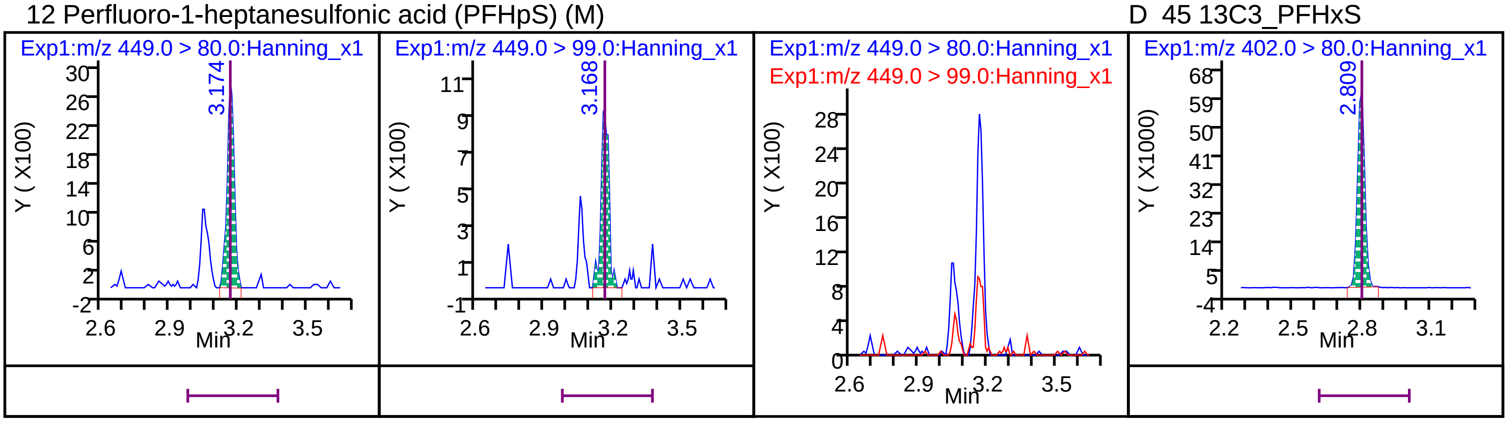
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



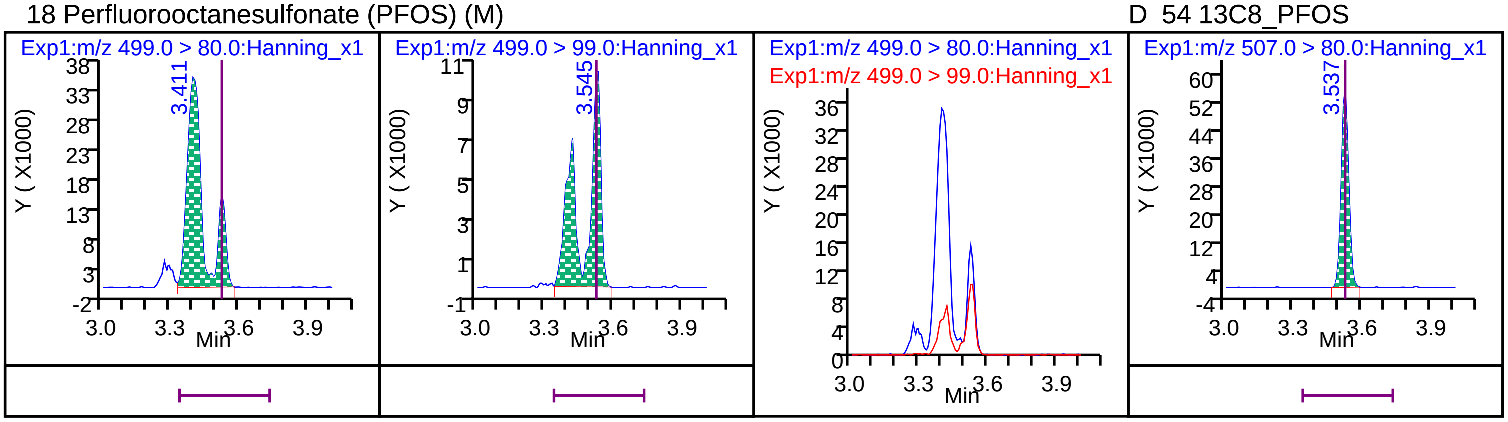
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS

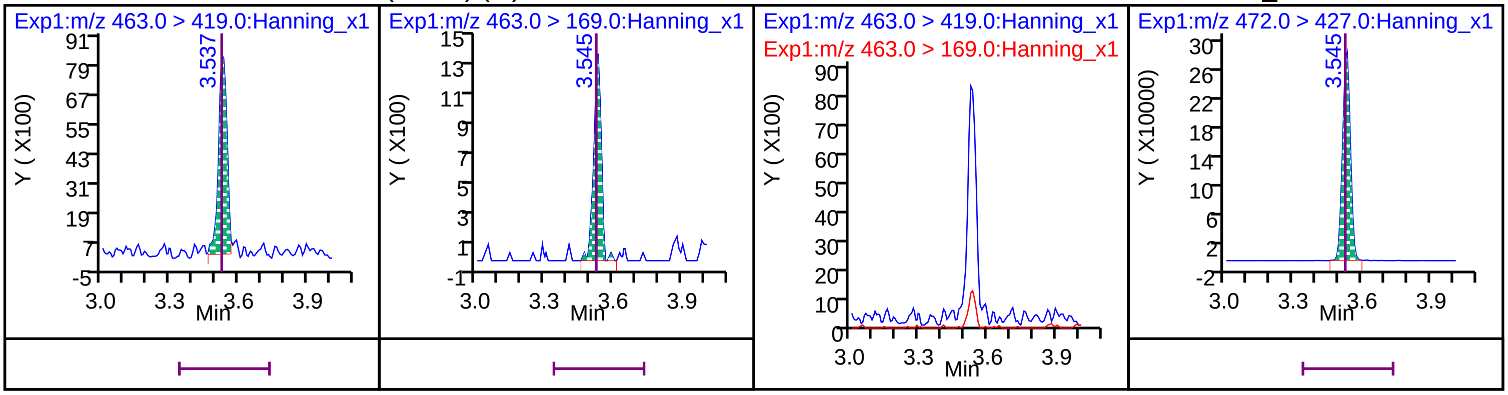


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

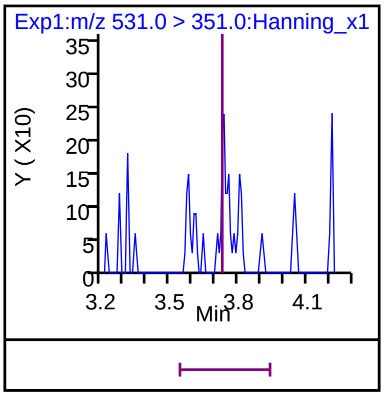


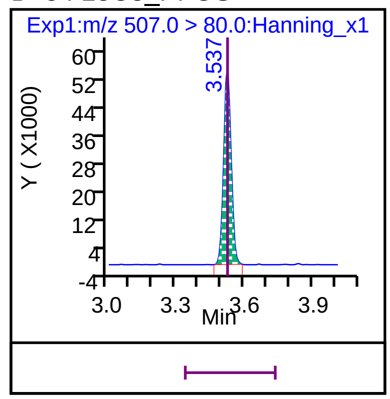
Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d

17 Perfluoro-n-nonanoic acid (PFNA) (M) D 56 13C9_PFNA

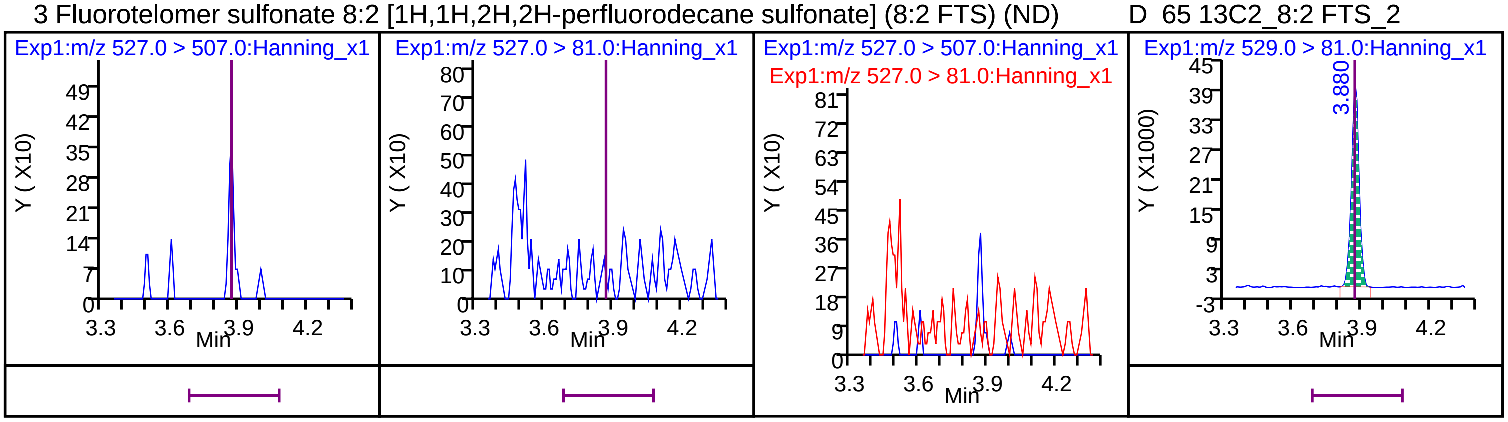


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

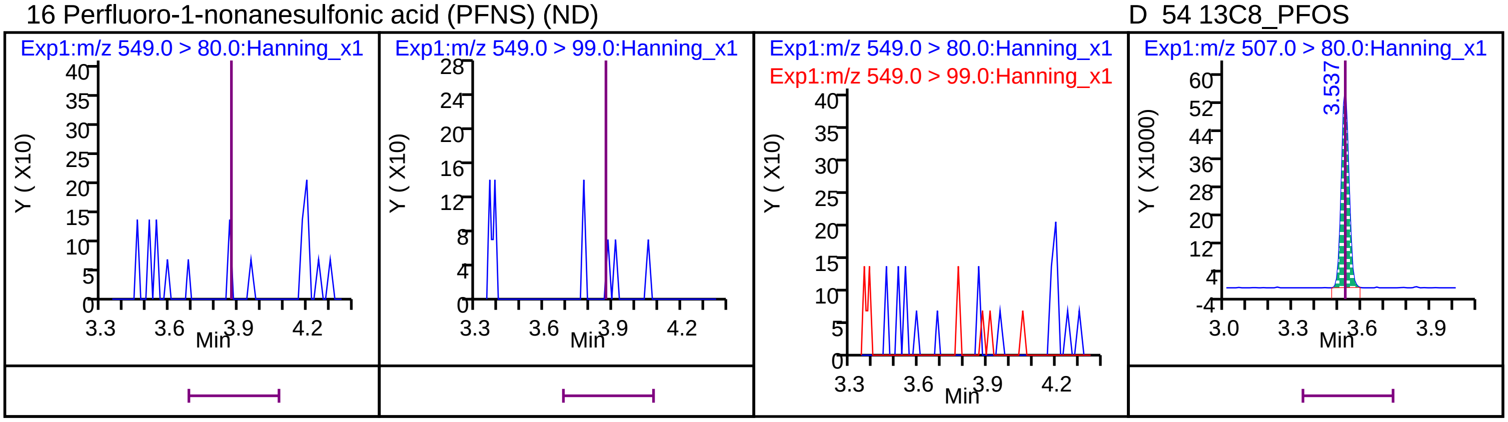




3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2

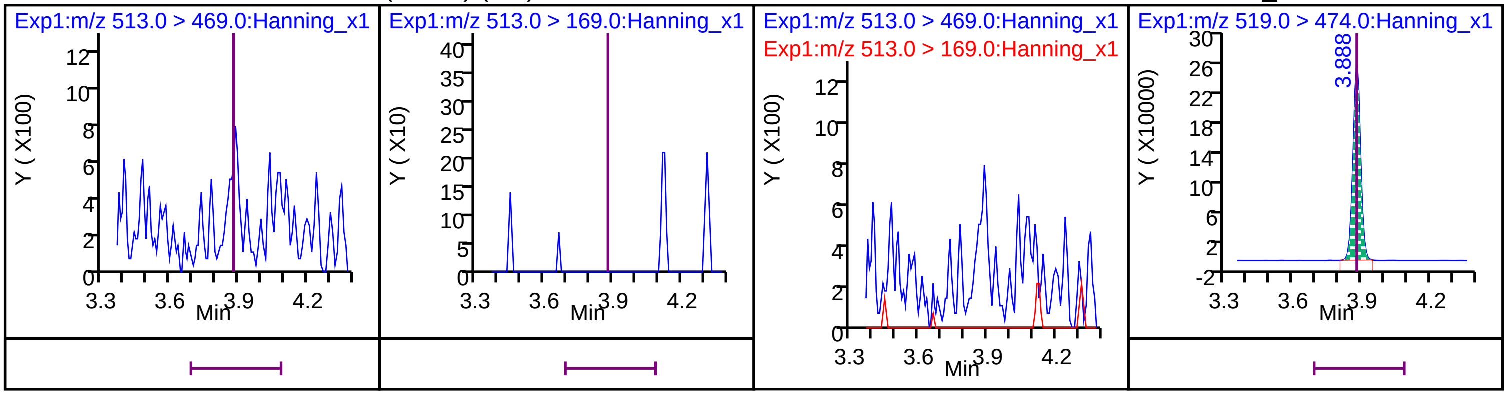


16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

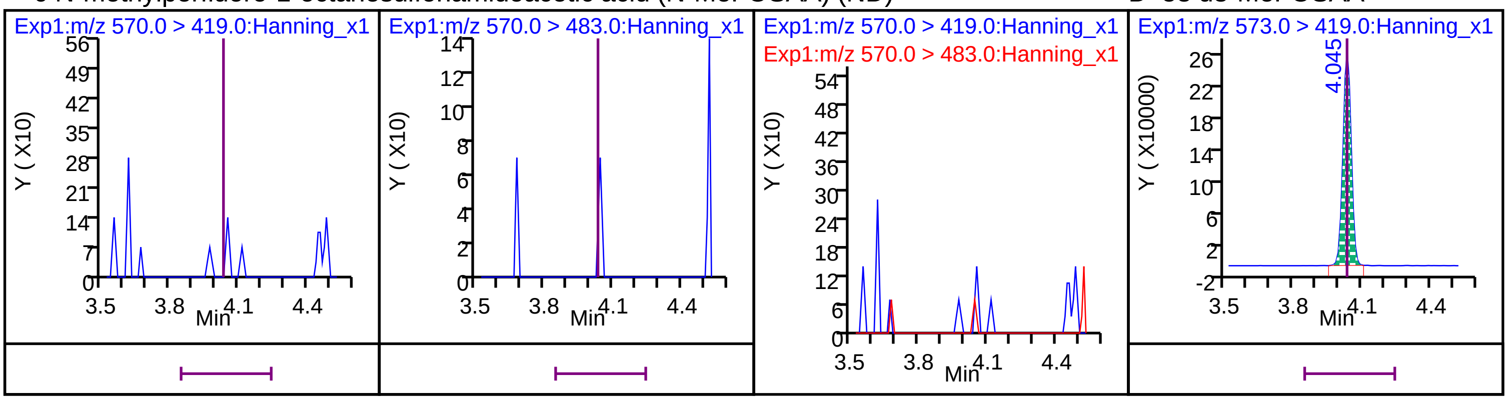


Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d

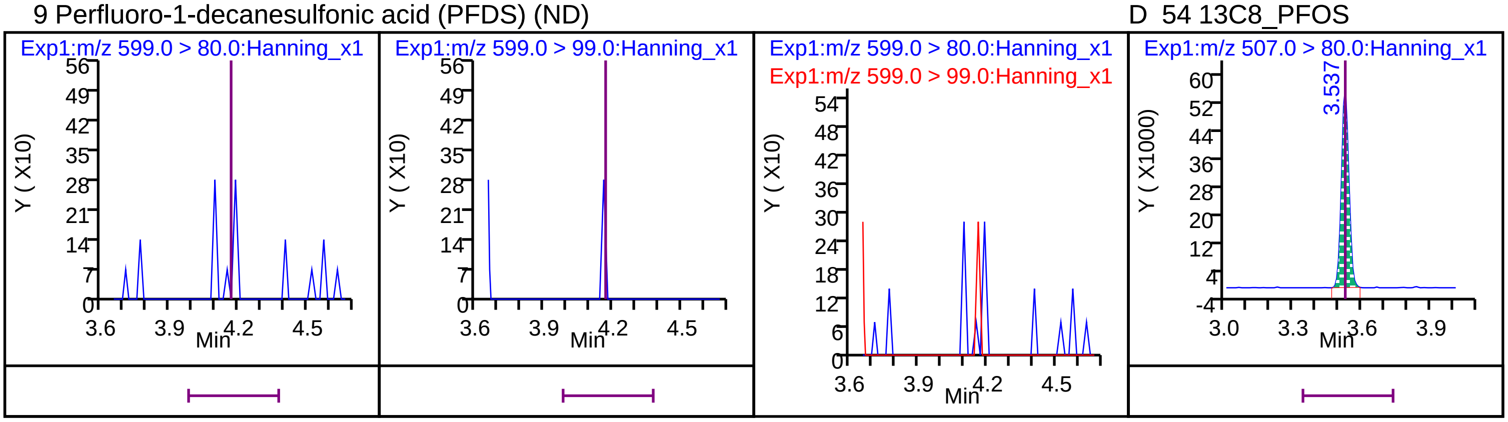
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



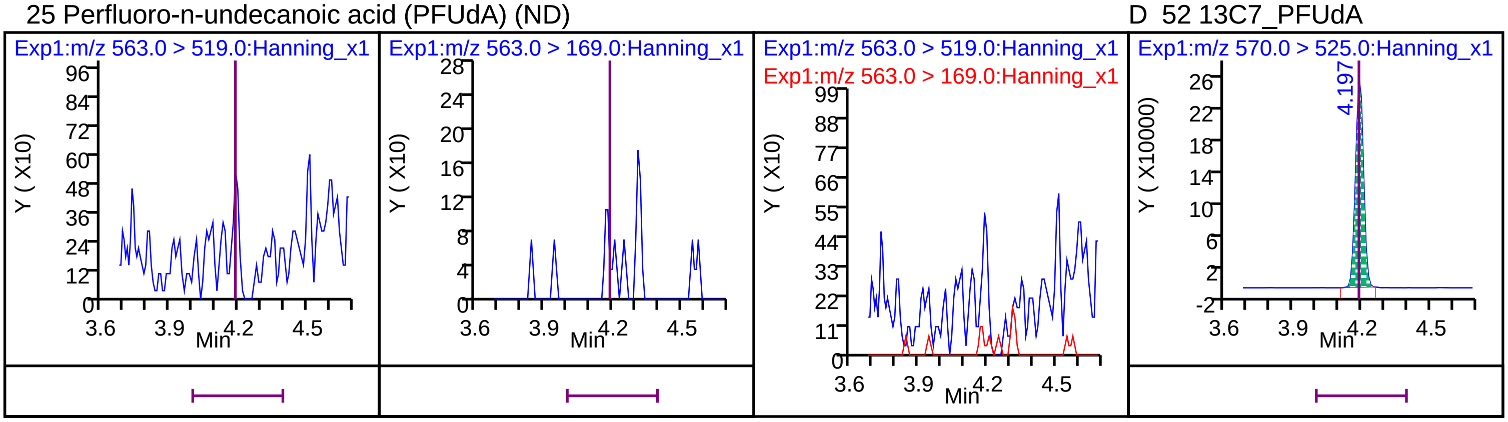
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



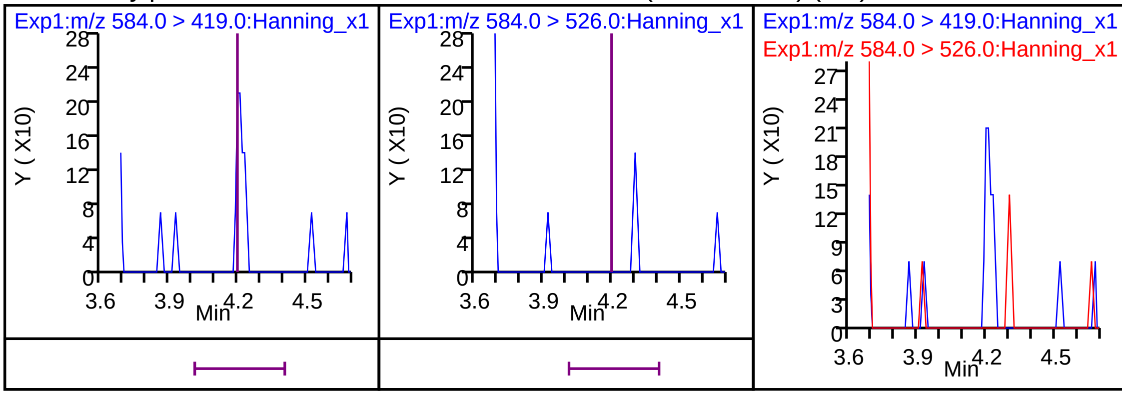
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



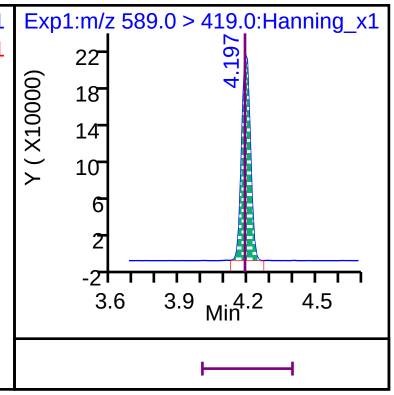
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



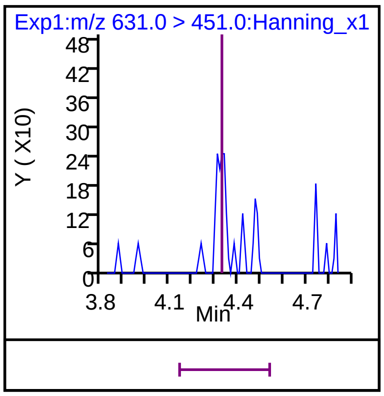
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)



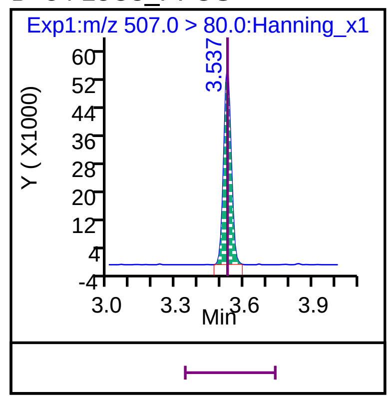
D 60 d5-EtFOSAA



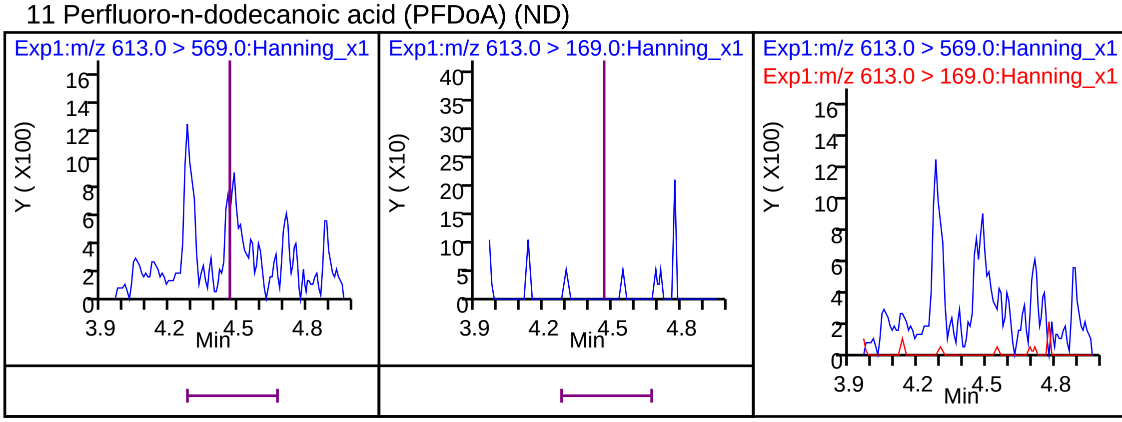
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



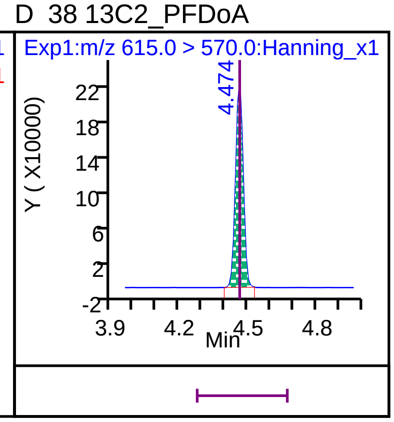
D 54 13C8_PFOS



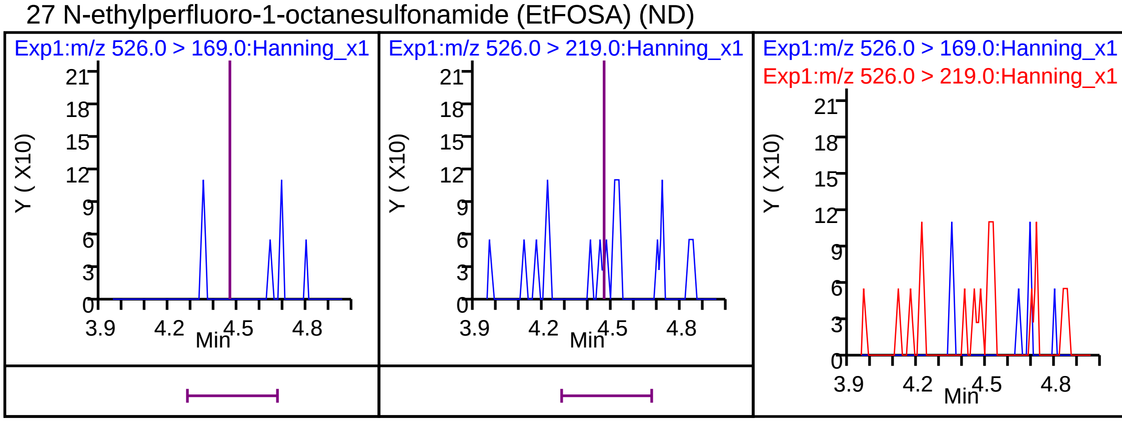
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



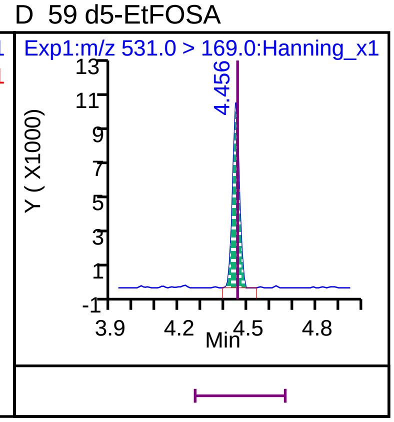
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

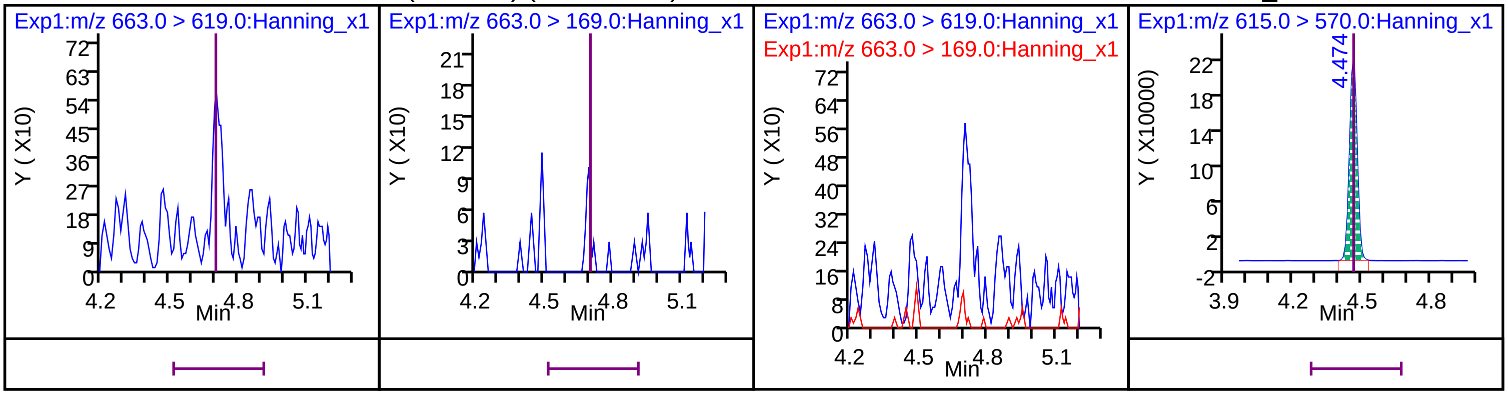


D 59 d5-EtFOSA

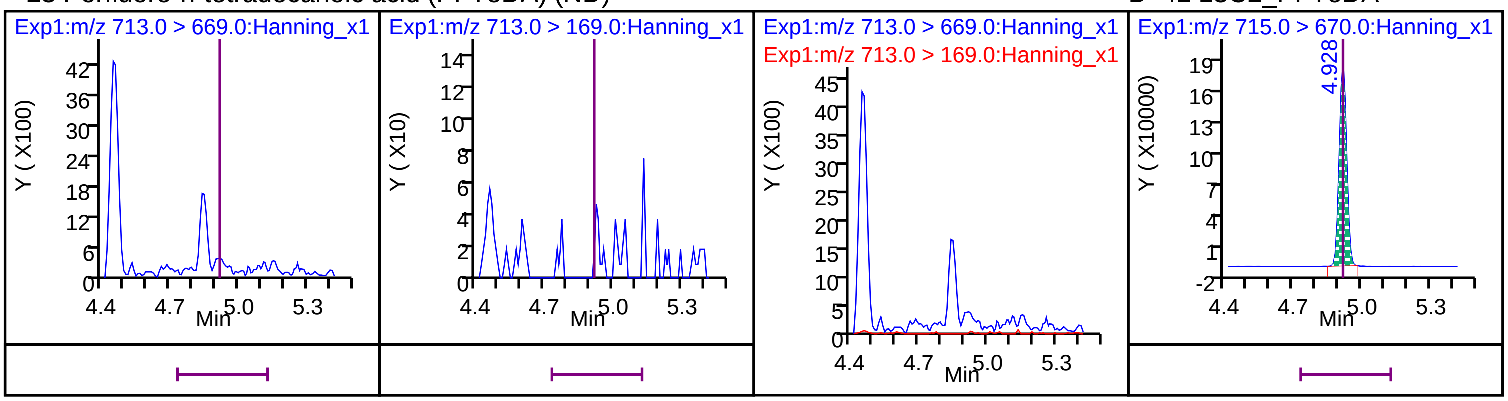


Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d

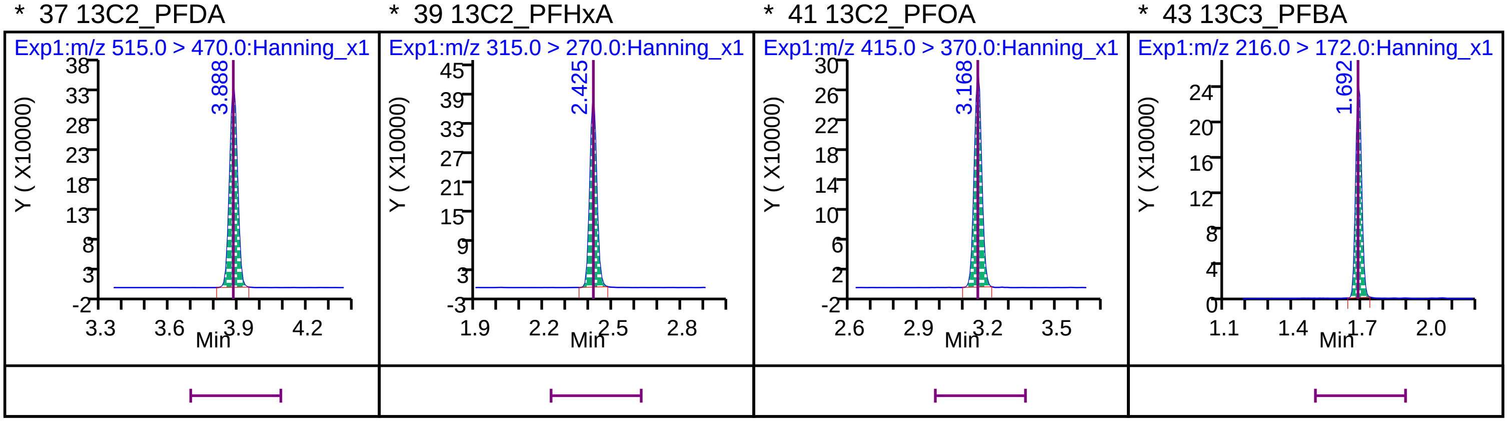
24 Perfluoro-n-tridecanoic acid (PFTrDA) (Marked ND) D 38 13C2_PFDoA



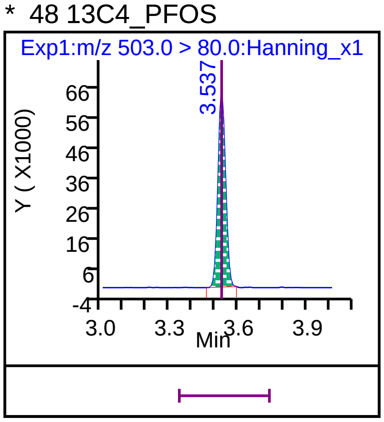
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

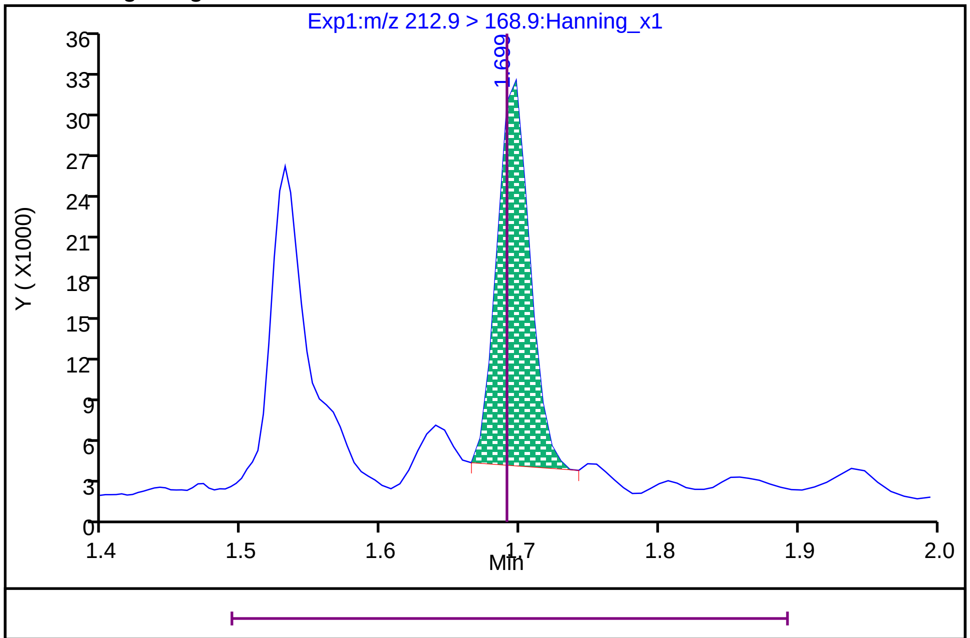
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

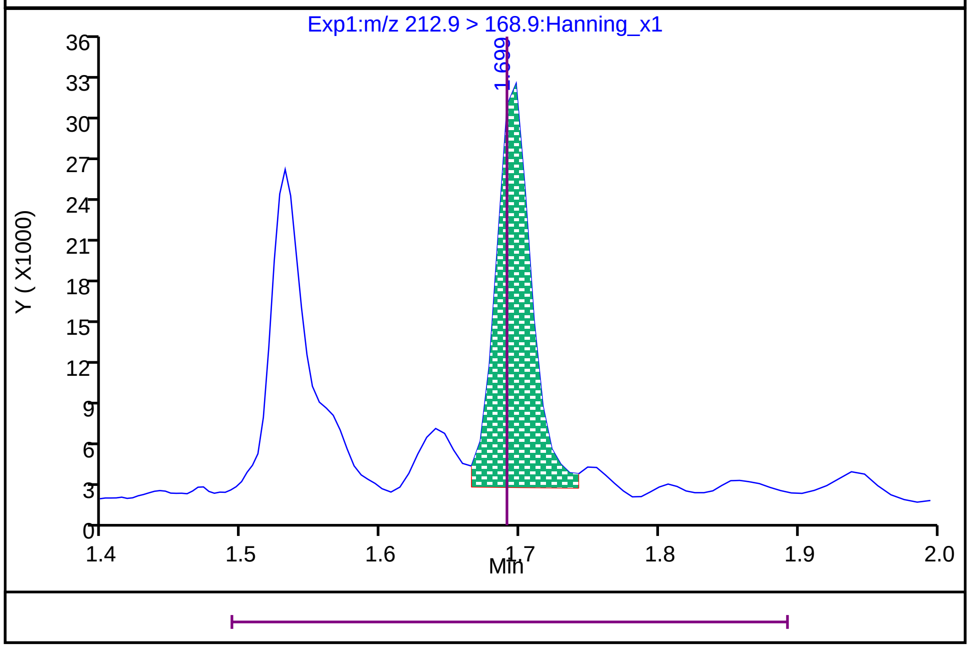
8 PFBA, CAS: 375-22-4

Processing Integration Results

RT:	1.699
Area:	44972
Conc:	4.1175
Conc Units:	ng/L



RT:	1.699
Area:	50842
Conc:	4.6549
Conc Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 18:52:29

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

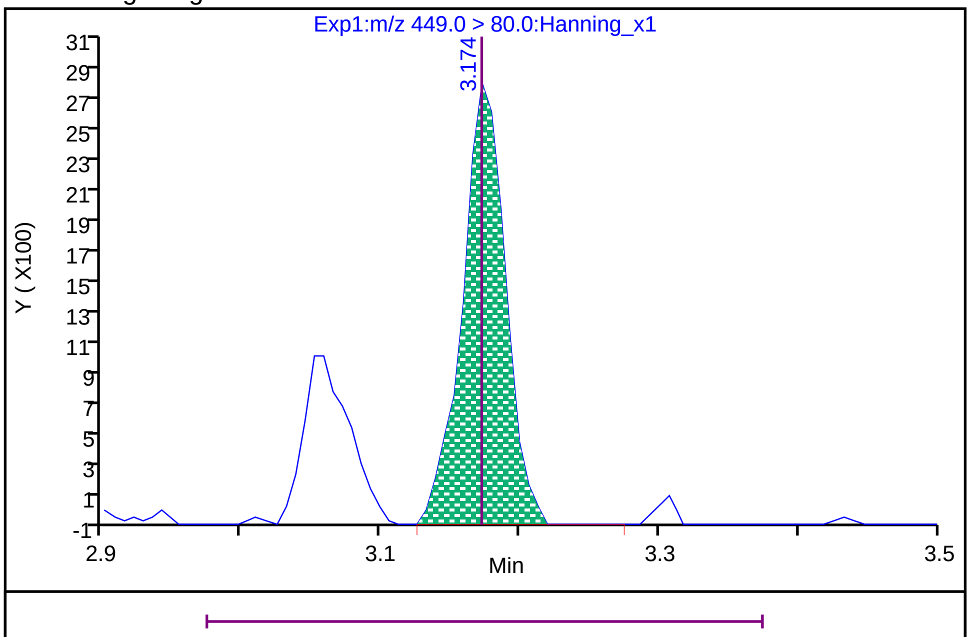
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

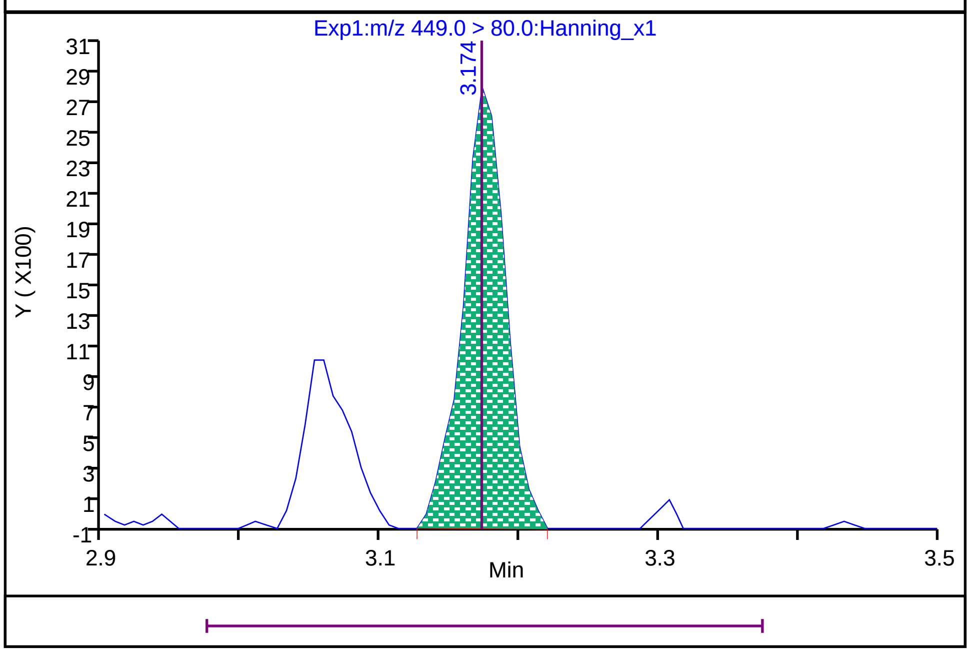
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT: 3.174
Area: 5972
Conc: 1.7680
Conc Units: ng/L



RT: 3.174
Area: 5984
Conc: 1.7716
Conc Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 12:02:46
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

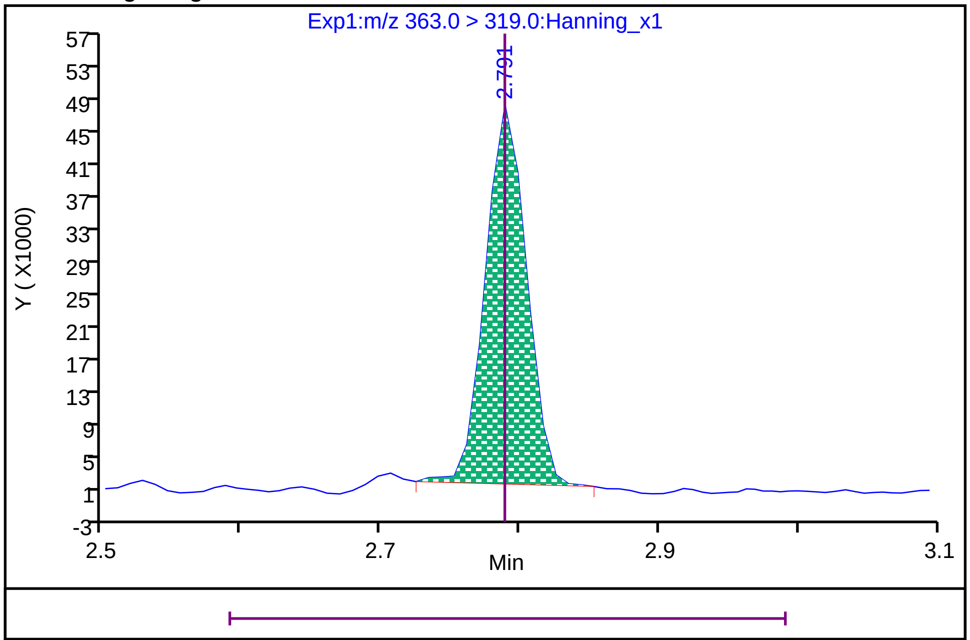
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

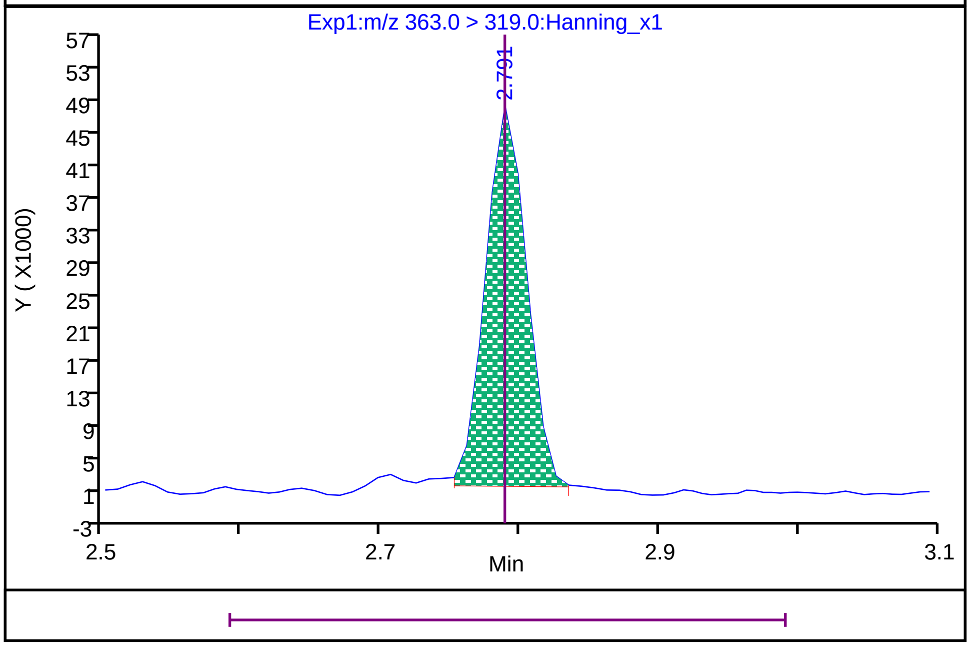
13 PFHpA, CAS: 375-85-9

Processing Integration Results

RT:	2.791
Area:	94154
Conc:	5.3833
Conc Units:	ng/L



RT:	2.791
Area:	93636
Conc:	5.3536
Conc Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 18:52:39

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d

Injection Date: 16-Nov-2021 20:54:30 Inst. ID: LCMSMS02.i

Client ID: POL-DPT0129-042.0-20211022 Lab ID: WJ27023-004

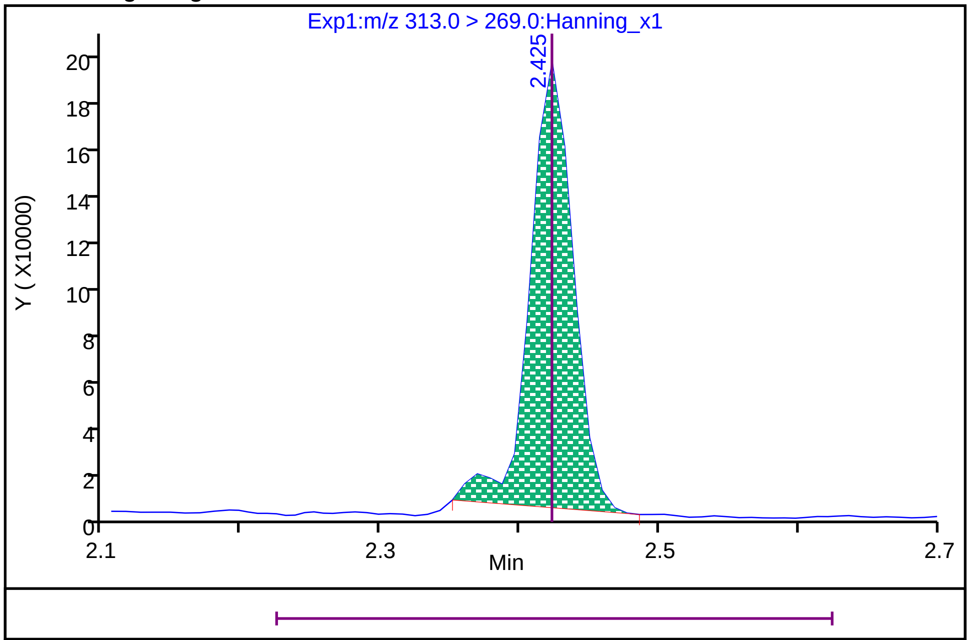
Sample Info: WJ27023-004

Dil. Factor: 1 Operator: Justin Gavin

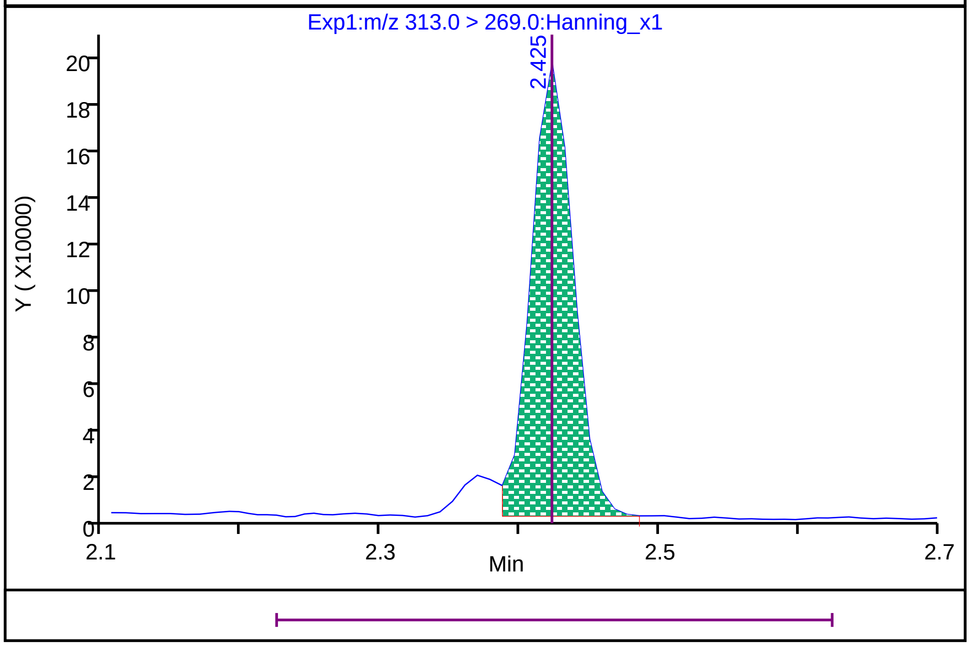
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT: 2.425
Area: 403154
Conc: 21.013
Conc Units: ng/L



RT: 2.425
Area: 399481
Conc: 20.821
Conc Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 12:02:32

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

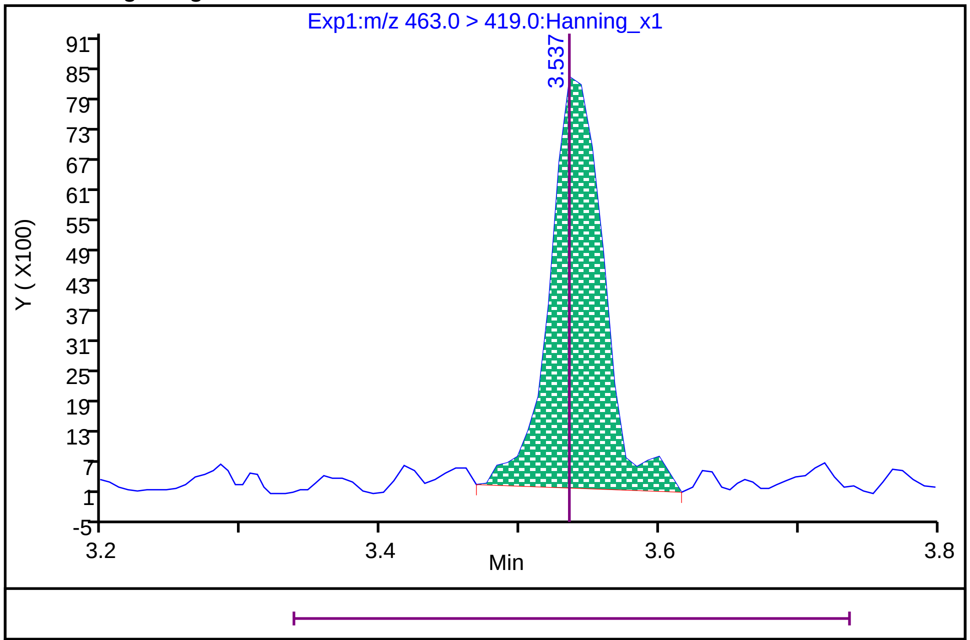
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

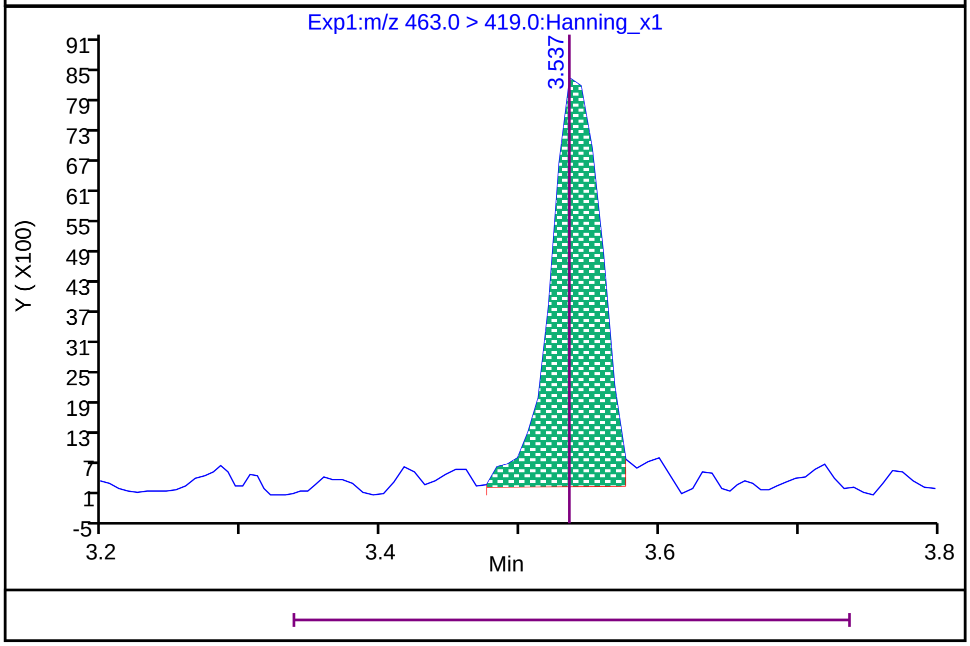
17 PFNA, CAS: 375-95-1

Processing Integration Results

RT:	3.537
Area:	21901
Conc:	1.1398
Conc Units:	ng/L



RT:	3.537
Area:	20485
Conc:	1.0661
Conc Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 18:52:50

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

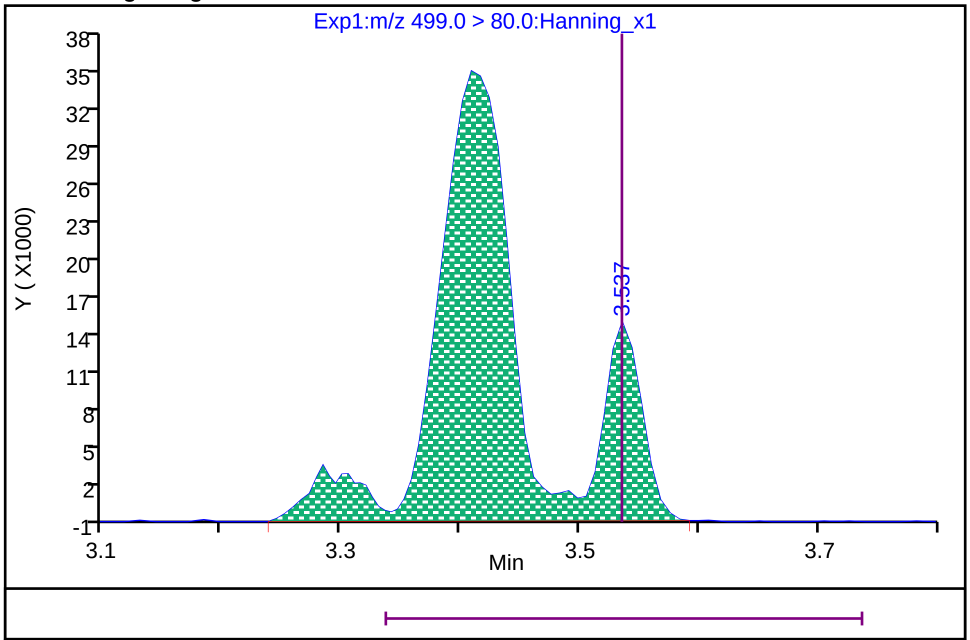
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621039.d		
Injection Date:	16-Nov-2021 20:54:30	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0129-042.0-20211022	Lab ID:	WJ27023-004
Sample Info:	WJ27023-004		
Dil. Factor:	1	Operator:	Justin Gavin

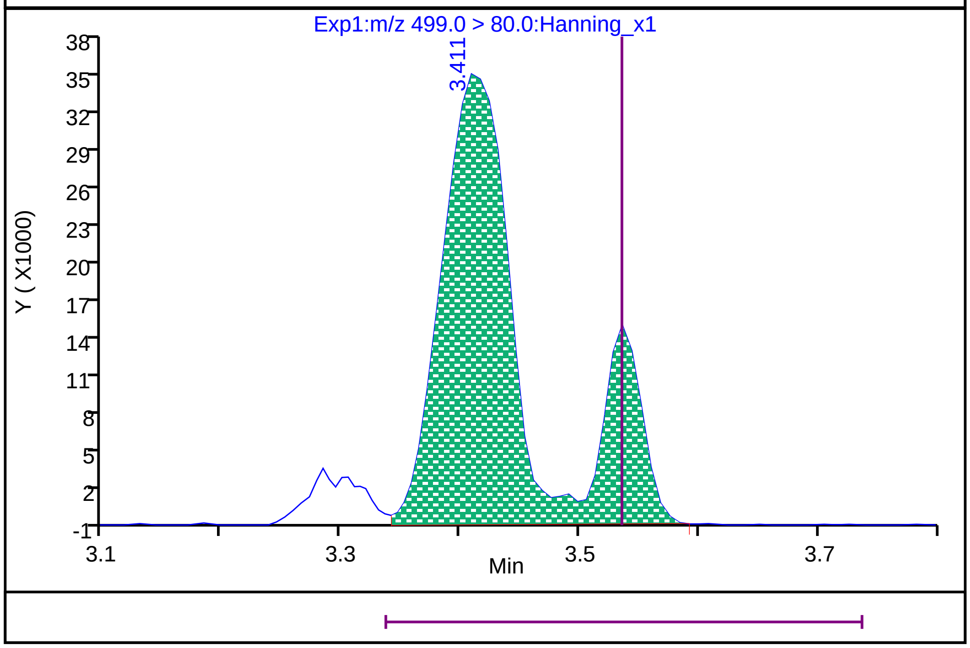
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.537
Area:	181729
Conc:	46.787
Conc Units:	ng/L



RT:	3.411
Area:	168715
Conc:	43.437
Conc Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 18:53:00

Audit Action: Mint

Audit Reason: Invalid Integration

CALIBRATION DATA

Report Date: 08-Nov-2021 12:29:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.634	3.197	3.738	3.673	3.397	3.639	3.447	3.523	3.554	3.568	3.537	3.080-3.993	0.15212	1.768
1 4:2 FTS	1.893	1.412	1.266	1.684	1.636	1.878	1.837	2.042	1.940	1.920	1.750	0.995-2.506	0.25181	0.875
15 PFHxA	15.856	22.669	18.862	17.962	18.726	19.217	19.405	19.267	18.592	18.615	18.917	14.119-23.714	1.59907	9.458
22 PFPeS	3.578	3.757	2.495	3.096	3.130	2.987	3.000	3.001	3.002	3.023	3.106	2.089-4.124	0.33920	1.553
28 GenX	0.824	0.765	0.831	0.788	0.776	0.800	0.764	0.789	0.783	0.801	0.792	0.722-0.861	0.02315	0.396
13 PFHpA	4.108	3.712	3.770	3.703	3.651	3.876	3.934	3.962	3.653	3.676	3.804	3.343-4.265	0.15353	1.902
14 PFHxS	1.874	2.322	3.190	3.259	2.988	2.846	3.107	3.105	3.108	3.176	2.897	1.416-4.378	0.49357	1.448
29 ADONA	3.655	3.261	2.962	3.089	3.373	3.349	3.221	3.256	3.098	3.121	3.238	2.684-3.792	0.18471	1.619
2 6:2 FTS	0.000	1.614	1.642	1.778	1.698	1.804	1.804	1.802	1.783	1.850	1.752	1.341-2.164	0.13709	0.876
20 PFOA	2.873	2.489	3.050	3.082	2.950	2.853	2.888	2.971	2.922	2.884	2.896	2.426-3.365	0.15650	1.448
12 PFHpS	4.029	2.614	3.357	2.784	3.057	3.223	3.126	3.028	2.961	3.080	3.125	1.981-4.269	0.38136	1.562
18 PFOS	3.445	3.037	3.173	3.219	3.251	3.227	3.451	3.436	3.401	3.420	3.306	2.711-3.900	0.19818	1.653
17 PFNA	5.539	6.259	6.790	6.458	6.946	6.819	6.644	6.584	6.577	6.507	6.512	5.371-7.653	0.38033	3.256
19 PFOSA	18.235	149.762	27.748	32.307	26.924	32.142	31.344	32.880	33.286	31.697	41.632	71.284-154.54	37.63888	20.816
16 PFNS	5.558	2.825	3.406	2.743	3.152	2.411	2.846	2.751	2.511	2.649	3.085	0.363-5.807	0.90728	1.542
3 8:2 FTS	Disabled	1.522	2.213	1.803	2.194	2.011	1.997	1.878	1.900	1.952	1.941	1.280-2.601	0.22011	0.970
10 PFDA	14.280	16.419	10.754	13.070	14.384	13.700	14.292	14.213	12.828	14.103	13.804	9.593-18.014	1.40352	6.902
6 N-MeFOSAA	1.186	1.787	1.319	1.227	1.475	1.316	1.353	1.379	1.344	1.343	1.372	0.886-1.859	0.16227	0.686
9 PFDS	2.547	3.124	3.158	2.639	2.448	2.551	2.689	2.671	2.657	2.735	2.721	2.020-3.423	0.23372	1.360
26 MeFOSA	1.063	1.009	1.066	1.428	1.202	0.990	1.136	1.066	1.094	1.085	1.113	0.718-1.509	0.13175	0.556
25 PFUdA	11.976	14.485	13.569	15.701	14.269	15.663	15.085	15.205	15.058	14.239	14.525	11.279-17.770	1.08167	7.262
5 N-EtFOSAA	1.955	1.081	1.363	1.509	1.626	1.545	1.417	1.488	1.570	1.550	1.510	0.874-2.146	0.21210	0.755
27 EtFOSA	1.094	1.499	1.138	0.851	0.954	1.056	1.014	0.960	1.026	1.034	1.062	0.534-1.590	0.17611	0.531
11 PFDoA	8.889	9.847	12.326	11.248	11.074	10.936	11.003	10.790	10.792	10.157	10.706	8.032-13.380	0.89128	5.353
4 10:2 FTS	6.655	2.764	3.147	2.371	3.143	3.722	3.362	3.478	3.544	3.227	3.541	0.183-6.898	1.11912	1.770
34 PFDOS	4.347	3.215	3.153	3.264	3.341	3.202	2.998	3.020	3.067	3.094	3.270	2.052-4.487	0.40573	1.635
24 PFTrDA	7.726	7.768	8.470	8.201	8.334	8.577	8.885	8.628	8.384	8.197	8.317	7.256-9.377	0.35356	4.158
23 PFTeDA	11.631	12.616	12.732	11.936	12.074	11.949	12.369	12.474	11.973	11.964	12.171	11.039-13.304	0.37747	6.085
35 PFHxDA	11.012	10.679	10.177	10.398	10.446	10.508	10.500	10.210	10.326	10.141	10.439	9.651-11.228	0.26290	5.219
36 PFODA	13.717	12.677	13.595	13.678	14.012	13.889	13.933	13.924	13.769	13.597	13.679	12.518-14.839	0.38693	6.839

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area

Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None

Org: Origin, F-Force, I-Include, N-Neither

Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	639	639	635	624	636	632	608	613	590	601	Avg:A Wt:C2	622		RSD=2.8	
	102.8	102.8	102.2	100.4	102.3	101.7	97.7	98.6	94.8	96.7	Org:N Dep:R				
8 PFBA	1.093604	1.044216	1.054876	1.085637	1.058922	1.056054	1.064531	1.042459	1.025815	1.020220	Avg:A Wt:C2	1.054633		RSD=2.2	
	103.7	99	100	102.9	100.4	100.1	100.9	98.8	97.3	96.7	Org:N Dep:R				
D 50 13C5_PFPeA	575	580	577	592	580	591	542	575	542	563	Avg:A Wt:C2	572		RSD=3.1	
	100.6	101.4	100.9	103.6	101.5	103.4	94.8	100.5	94.9	98.4	Org:N Dep:R				
21 PFPeA	1.220626	1.173679	1.170037	1.103992	1.080300	1.089167	1.142643	1.073904	1.108750	1.091886	Avg:A Wt:C2	1.125498		RSD=4.3	
	108.5	104.3	104	98.1	96	96.8	101.5	95.4	98.5	97	Org:N Dep:R				
D 44 13C3_PFBS	176	172	176	176	178	169	170	170	170	173	Avg:A Wt:C2	173		RSD=1.9	
	101.6	99.6	101.5	101.8	103.2	97.5	98.4	98.3	98.4	99.7	Org:N Dep:R				

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812
Method Path: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\LCMSMS02_PFAS-ID.m

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.228740	1.376090	1.248048	1.278962	1.178356	1.291760	1.223638	1.217217	1.186756	1.240756	Avg:A Wt:C2	1.247032		RSD=4.6	
	98.5	110.3	100.1	102.6	94.5	103.6	98.1	97.6	95.2	99.5	Org:N Dep:R				
1 4:2 FTS	2.204134	2.099897	2.048929	2.242499	2.191925	2.141071	2.403999	2.020901	2.482072	2.208397	Avg:A Wt:C2	2.204382		RSD=6.6	
	100	95.3	92.9	101.7	99.4	97.1	109.1	91.7	112.6	100.2	Org:N Dep:R				
D 63 13C2_4:2 FTS_2	23.9476	23.4130	23.6244	21.9442	22.4598	23.3938	19.7876	25.5426	20.0558	22.2684	Avg:A Wt:C2	22.6437		RSD=7.8	
	105.8	103.4	104.3	96.9	99.2	103.3	87.4	112.8	88.6	98.3	Org:N Dep:R				
D 49 13C5_PFHxA	664	671	647	676	665	635	646	645	634	630	Avg:A Wt:C2	651		RSD=2.5	
	102	103	99.4	103.7	102.1	97.5	99.1	99.1	97.3	96.8	Org:N Dep:R				
15 PFHxA	1.152929	0.997028	1.062543	1.040881	1.028211	1.046735	1.022696	1.006346	1.003983	1.036231	Avg:A Wt:C2	1.039758		RSD=4.3	
	110.9	95.9	102.2	100.1	98.9	100.7	98.4	96.8	96.6	99.7	Org:N Dep:R				
22 PFPeS	1.065959	0.960891	0.850038	0.939012	0.871228	0.928577	0.904603	0.911903	0.905064	0.930429	Avg:A Wt:C2	0.926770		RSD=6.3	
	115	103.7	91.7	101.3	94	100.2	97.6	98.4	97.7	100.4	Org:N Dep:R				
28 GenX	0.693832	0.612990	0.641206	0.659909	0.627348	0.649947	0.634083	0.653577	0.642220	0.661199	Avg:A Wt:C2	0.647631		RSD=3.4	
	107.1	94.7	99	101.9	96.9	100.4	97.9	100.9	99.2	102.1	Org:N Dep:R				
D 66 13C3_GenX	235	240	240	233	241	238	227	227	219	218	Avg:A Wt:C2	232		RSD=3.7	
	101.6	103.4	103.6	100.5	104	102.8	97.8	97.9	94.6	93.9	Org:N Dep:R				
13 PFHpA	1.279100	1.093710	1.103691	1.103542	1.084325	1.036241	1.121621	1.112854	0.989808	1.063427	Avg:A Wt:C2	1.098832		RSD=6.8	
	116.4	99.5	100.4	100.4	98.7	94.3	102.1	101.3	90.1	96.8	Org:N Dep:R				
D 47 13C4_PFHpA	533	549	547	538	533	554	513	512	523	508	Avg:A Wt:C2	531		RSD=3.1	
	100.4	103.4	103.1	101.3	100.4	104.4	96.6	96.4	98.4	95.7	Org:N Dep:R				
14 PFHxS	0.990168	1.066144	1.184213	1.118151	1.084169	1.050532	1.155686	1.089155	1.122447	1.133206	Avg:A Wt:C2	1.099387		RSD=5.1	
	90.1	97	107.7	101.7	98.6	95.6	105.1	99.1	102.1	103.1	Org:N Dep:R				
D 45 13C3_PFHxS	128	126	130	133	130	128	122	123	117	118	Avg:A Wt:C2	126		RSD=4.2	
	101.8	100.2	103.6	106.2	103.2	102.2	97.2	98.1	93.5	93.8	Org:N Dep:R				
29 ADONA	8.316831	8.040642	7.300605	7.321912	7.828526	7.769082	7.983214	7.657087	7.605731	7.728870	Avg:A Wt:C2	7.755250		RSD=4.0	
	107.2	103.7	94.1	94.4	100.9	100.2	102.9	98.7	98.1	99.7	Org:N Dep:R				
2 6:2 FTS	2.396080	2.951233	2.340941	2.292609	2.181824	2.311379	2.316137	2.469699	2.295395	2.117074	Avg:A Wt:C2	2.367237		RSD=9.6	
	101.2	124.7	98.9	96.8	92.2	97.6	97.8	104.3	97	89.4	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	18.2788	18.6470	18.1596	18.8912	18.7892	18.5258	17.0896	16.5418	16.8202	18.2564	Avg:A Wt:C2	18.0000		RSD=4.8	
	101.5	103.6	100.9	105	104.4	102.9	94.9	91.9	93.4	101.4	Org:N Dep:R				
D 53 13C8_PFOA	566	554	528	524	548	534	496	502	493	501	Avg:A Wt:C2	525		RSD=5.0	
	107.9	105.6	100.6	99.9	104.4	101.8	94.6	95.7	94	95.6	Org:N Dep:R				
20 PFOA	1.153060	0.938381	1.041106	1.074437	1.017702	1.008160	1.042997	1.007636	0.985356	0.978720	Avg:A Wt:C2	1.024756		RSD=5.8	
	112.5	91.6	101.6	104.8	99.3	98.4	101.8	98.3	96.2	95.5	Org:N Dep:R				
12 PFHpS	1.185281	1.095679	1.044224	0.912560	0.996569	1.044817	1.002795	0.992578	0.983259	1.012883	Avg:A Wt:C2	1.027065		RSD=7.1	
	115.4	106.7	101.7	88.9	97	101.7	97.6	96.6	95.7	98.6	Org:N Dep:R				
D 54 13C8_PFOS	121	121	122	130	132	132	120	120	122	117	Avg:A Wt:C2	124		RSD=4.4	
	97.7	97.9	98.8	104.8	106.5	106.9	97.3	97	98.5	94.5	Org:N Dep:R				
18 PFOS	1.387235	1.268998	1.211515	1.146369	1.104372	1.097088	1.159871	1.181776	1.126016	1.223539	Avg:A Wt:C2	1.190678		RSD=7.4	
	116.5	106.6	101.8	96.3	92.8	92.1	97.4	99.3	94.6	102.8	Org:N Dep:R				
17 PFNA	1.050870	1.071600	1.096972	1.100487	1.083246	1.090361	1.077734	1.072861	1.066654	1.067938	Avg:A Wt:C2	1.077872		RSD=1.4	
	97.5	99.4	101.8	102.1	100.5	101.2	100	99.5	99	99.1	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 56 13C9_PFNA	674	668	650	653	639	666	629	622	601	602	Avg:A Wt:C2	640		RSD=4.1	
	105.2	104.3	101.5	101.9	99.8	104.1	98.2	97.2	93.9	93.9	Org:N Dep:R				
30 9Cl-PF3ONS	3.804328	3.764996	3.910266	3.641353	3.531021	3.768664	3.804656	3.931447	3.721179	3.993131	Avg:A Wt:C2	3.787104		RSD=3.6	
	100.5	99.4	103.3	96.2	93.2	99.5	100.5	103.8	98.3	105.4	Org:N Dep:R				
19 PFOSA	1.079234	0.994144	1.026780	1.080506	1.070462	1.093312	1.009769	1.044775	1.066238	1.056609	Avg:A Wt:C2	1.052183		RSD=3.1	
	102.6	94.5	97.6	102.7	101.7	103.9	96	99.3	101.3	100.4	Org:N Dep:R				
D 55 13C8_PFOSA	262	279	271	279	267	271	276	257	255	265	Avg:A Wt:C2	268		RSD=3.2	
	97.6	104	101	104.1	99.5	101.2	102.9	95.9	95.2	98.8	Org:N Dep:R				
16 PFNS	0.966286	0.800304	0.726913	0.796849	0.762371	0.737477	0.846127	0.803489	0.752232	0.830833	Avg:A Wt:C2	0.802288		RSD=8.7	
	120.4	99.8	90.6	99.3	95	91.9	105.5	100.1	93.8	103.6	Org:N Dep:R				
3 8:2 FTS	Disabled	1.847311	2.645265	2.308095	2.775809	2.072917	2.297090	1.977371	2.296578	2.116028	Avg:A Wt:C2	2.259607		RSD=13.3	
	Disabled	81.8	117.1	102.1	122.8	91.7	101.7	87.5	101.6	93.6	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	18.6108	17.9576	18.2940	16.8862	15.7670	18.9888	16.4626	17.3706	15.2564	17.2510	Avg:A Wt:C2	17.2845		RSD=7.1	
	107.7	103.9	105.8	97.7	91.2	109.9	95.2	100.5	88.3	99.8	Org:N Dep:R				
D 51 13C6_PFDA	610	567	576	591	576	617	563	570	545	532	Avg:A Wt:C2	575		RSD=4.6	
	106.1	98.6	100.3	102.9	100.2	107.3	98	99.2	94.8	92.5	Org:N Dep:R				
10 PFDA	1.068077	1.203242	1.144485	1.200156	1.221802	1.151593	1.220548	1.159487	1.105462	1.162616	Avg:A Wt:C2	1.163747		RSD=4.3	
	91.8	103.4	98.3	103.1	105	99	104.9	99.6	95	99.9	Org:N Dep:R				
D 58 d3-MeFOSAA	154	151	150	149	155	157	152	147	143	153	Avg:A Wt:C2	151		RSD=2.7	
	102.1	100.2	99.4	98.6	102.3	104.1	100.6	97.1	94.7	101	Org:N Dep:R				
6 N-MeFOSAA	0.821729	0.805199	0.886579	0.770566	0.839126	0.770432	0.762918	0.804530	0.781896	0.781274	Avg:A Wt:C2	0.802425		RSD=4.8	
	102.4	100.3	110.5	96	104.6	96	95.1	100.3	97.4	97.4	Org:N Dep:R				
D 61 d7-MeFOSE	89.3790	97.5870	89.9580	94.5070	90.0700	85.7370	86.5710	86.1910	88.6230	93.2650	Avg:A Wt:C2	90.1888		RSD=4.3	
	99.1	108.2	99.7	104.8	99.9	95.1	96	95.6	98.3	103.4	Org:N Dep:R				
32 MeFOSE	1.397644	0.929325	0.988072	0.977113	1.097280	1.212843	1.114868	1.137026	1.073985	1.000270	Avg:A Wt:C2	1.092842		RSD=12.6	
	127.9	85	90.4	89.4	100.4	111	102	104	98.3	91.5	Org:N Dep:R				
9 PFDS	0.906913	0.773802	0.851604	0.750876	0.748851	0.733544	0.791521	0.756089	0.735397	0.776763	Avg:A Wt:C2	0.782536		RSD=7.1	
	115.9	98.9	108.8	96	95.7	93.7	101.1	96.6	94	99.3	Org:N Dep:R				
26 MeFOSA	1.114709	0.937183	1.076227	1.235609	1.174256	1.096348	1.025609	1.121700	1.052213	1.004998	Avg:A Wt:C2	1.083885		RSD=7.9	
	102.8	86.5	99.3	114	108.3	101.1	94.6	103.5	97.1	92.7	Org:N Dep:R				
D 57 d3-MeFOSA	45.0880	51.3240	50.1660	51.1100	44.9970	47.1830	47.3110	42.3910	44.3290	46.5130	Avg:A Wt:C2	47.0412		RSD=6.4	
	95.8	109.1	106.6	108.6	95.7	100.3	100.6	90.1	94.2	98.9	Org:N Dep:R				
D 60 d5-EtFOSAA	138	140	132	142	138	128	131	122	117	107	Avg:A Wt:C2	130		RSD=8.6	
	106.5	108.1	101.9	109.3	106.5	99.2	101.1	94.1	90.3	82.9	Org:N Dep:R				
25 PFUdA	0.968905	1.004448	1.014149	0.904867	0.952735	0.954277	1.001736	0.967584	1.005611	0.915340	Avg:A Wt:C2	0.968965		RSD=3.9	
	100	103.7	104.7	93.4	98.3	98.5	103.4	99.9	103.8	94.5	Org:N Dep:R				
D 52 13C7_PFUdA	633	606	622	645	635	645	567	587	527	556	Avg:A Wt:C2	602		RSD=6.8	
	105.1	100.6	103.3	107.1	105.4	107	94.2	97.4	87.6	92.4	Org:N Dep:R				
5 N-EtFOSAA	1.195885	0.762096	0.986538	0.881703	1.027486	0.953052	0.930356	0.961725	0.976301	1.075368	Avg:A Wt:C2	0.975051		RSD=11.8	
	122.6	78.2	101.2	90.4	105.4	97.7	95.4	98.6	100.1	110.3	Org:N Dep:R				
D 62 d9-EtFOSE	115	112	104	104	102	104	101	106	105	107	Avg:A Wt:C2	106		RSD=4.1	
	108	105.9	98.1	98.4	95.8	98.3	95.2	100.3	99	101	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
33 EtFOSE	0.998097	0.918667	0.904640	0.929645	1.041532	1.027513	1.062925	0.959872	0.960782	0.931131	Avg:A Wt:C2	0.973480		RSD=5.7	
	102.5	94.4	92.9	95.5	107	105.6	109.2	98.6	98.7	95.6	Org:N Dep:R				
D 59 d5-EtFOSA	44.5470	41.1580	43.2240	44.9430	42.8950	42.6590	42.7900	40.7960	43.6680	43.3190	Avg:A Wt:C2	42.9999		RSD=3.0	
	103.6	95.7	100.5	104.5	99.8	99.2	99.5	94.9	101.6	100.7	Org:N Dep:R				
31 11Cl-PF3OUDS	3.668871	3.605975	3.692567	3.254992	3.203625	3.229571	3.367778	3.488174	3.167200	3.557629	Avg:A Wt:C2	3.423638		RSD=5.9	
	107.2	105.3	107.9	95.1	93.6	94.3	98.4	101.9	92.5	103.9	Org:N Dep:R				
27 EtFOSA	1.193346	1.622285	1.335138	1.162183	1.165008	1.228568	1.184394	1.202807	1.152069	1.195907	Ln:A Wt:C	1.182603	15.8204	R^2=0.999	
	74.2	123.8	106.2	95.6	97.2	103.2	99.9	101.6	97.3	101.1	Org:N Dep:R			RSE=12.9	
D 38 13C2_PFDoA	595	610	601	603	604	603	568	599	640	580	Avg:A Wt:C2	600		RSD=3.1	
	99.1	101.6	100.1	100.5	100.7	100.4	94.7	99.7	106.7	96.6	Org:N Dep:R				
11 PFDoA	1.048769	1.023111	1.145845	1.084212	1.068810	1.118181	1.115233	1.042366	0.968551	1.045669	Avg:A Wt:C2	1.066075		RSD=4.9	
	98.4	96	107.5	101.7	100.3	104.9	104.6	97.8	90.9	98.1	Org:N Dep:R				
4 10:2 FTS	2.285292	3.033887	2.202386	2.237826	2.831693	2.398635	2.546360	2.525754	2.880110	2.424145	Avg:A Wt:C2	2.536609		RSD=11.4	
	90.1	119.6	86.8	88.2	111.6	94.6	100.4	99.6	113.5	95.6	Org:N Dep:R				
34 PFDOS	1.021971	0.807150	0.858975	0.794433	0.830829	0.786619	0.858952	0.869142	0.809819	0.960994	Avg:A Wt:C2	0.859888		RSD=8.9	
	118.8	93.9	99.9	92.4	96.6	91.5	99.9	101.1	94.2	111.8	Org:N Dep:R				
24 PFTrDA	1.175527	1.043726	1.061081	1.082422	1.067820	1.090161	1.128893	1.055680	0.844959	0.960614	Avg:A Wt:C2	1.051088		RSD=8.7	
	111.8	99.3	101	103	101.6	103.7	107.4	100.4	80.4	91.4	Org:N Dep:R				
D 42 13C2_PFTeDA	843	822	812	818	838	821	789	801	787	798	Avg:A Wt:C2	813		RSD=2.4	
	103.7	101.1	99.8	100.6	103.1	101	97.1	98.5	96.8	98.2	Org:N Dep:R				
23 PFTeDA	0.949070	0.890846	0.909849	0.891955	0.844266	0.871775	0.887309	0.863476	0.814294	0.806494	Avg:A Wt:C2	0.872933		RSD=5.0	
	108.7	102.1	104.2	102.2	96.7	99.9	101.6	98.9	93.3	92.4	Org:N Dep:R				
D 40 13C2_PFHxDA	905	862	859	852	878	874	844	880	870	856	Avg:A Wt:C2	868		RSD=2.0	
	104.2	99.3	98.9	98.1	101.1	100.7	97.3	101.4	100.2	98.6	Org:N Dep:R				
35 PFHxDA	0.787907	0.689110	0.661678	0.650915	0.609247	0.621284	0.622652	0.582303	0.593215	0.586194	Avg:A Wt:C2	0.640451		RSD=9.7	
	123	107.6	103.3	101.6	95.1	97	97.2	90.9	92.6	91.5	Org:N Dep:R				
36 PFODA	0.964798	0.930131	0.923499	0.945970	0.936326	0.943438	0.906510	0.862526	0.815725	0.874939	Avg:A Wt:C2	0.910386		RSD=5.1	
	106	102.2	101.4	103.9	102.8	103.6	99.6	94.7	89.6	96.1	Org:N Dep:R				

Report Date: 08-Nov-2021 12:29:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	664485	665974	635729	690187	652287	684156	646194	625216	641184	627731	1.42
* 39 13C2_PFHxA	686523	662021	662023	670207	682639	687359	655717	669175	626878	669431	0.63
* 41 13C2_PFOA	569415	543161	531844	553624	562836	543856	519402	506174	503361	495600	3.46
* 43 13C3_PFBA	601508	568408	575690	590590	589407	590309	554269	565087	532630	550746	2.20
* 48 13C4_PFOS	127140	128160	131882	132512	130980	132467	122600	116530	118944	118894	1.67

13C2_PFDA	((|627731 - 664485| / (627731 + 664485)) / 2) * 100	= 1.42
13C2_PFHxA	((|669431 - 686523| / (669431 + 686523)) / 2) * 100	= 0.63
13C2_PFOA	((|495600 - 569415| / (495600 + 569415)) / 2) * 100	= 3.47
13C3_PFBA	((|550746 - 601508| / (550746 + 601508)) / 2) * 100	= 2.20
13C4_PFOS	((|118894 - 127140| / (118894 + 127140)) / 2) * 100	= 1.68

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA	* 39 13C2_PFHxA	* 41 13C2_PFOA
* 43 13C3_PFBA	* 48 13C4_PFOS	D 38 13C2_PFDoA
D 40 13C2_PFHxDA	D 42 13C2_PFTeDA	D 44 13C3_PFBS
D 45 13C3_PFHxS	D 46 13C4_PFBA	D 47 13C4_PFHpA
D 49 13C5_PFHxA	D 50 13C5_PFPeA	D 51 13C6_PFDA
D 52 13C7_PFUdA	D 53 13C8_PFOA	D 54 13C8_PFOS
D 55 13C8_PFOSA	D 56 13C9_PFNA	D 57 d3-MeFOSA
D 58 d3-MeFOSAA	D 59 d5-EtFOSA	D 60 d5-EtFOSAA
D 61 d7-MeFOSE	D 62 d9-EtFOSE	D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2	D 65 13C2_8:2 FTS_2	D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	638915	639140	635065	624336	635753	631978	607576	612919	589637	601428	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	34936	66740	133983	338901	673213	1334806	3233918	6389427	9072875	12271777	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	574918	579707	576704	592341	580113	590743	541862	574561	542414	562559	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	35088	68039	134953	326970	626696	1286836	3095773	6170232	9021019	12285003	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	175823	172237	175591	176030	178463	168596	170276	170031	170122	172528	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	9549	20952	38745	99510	185899	385045	920934	1829568	2677106	3784673	
1 4:2 FTS	46.700	93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
	2465	4592	9042	22981	45981	93564	222149	482122	697417	918635	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	119738	117065	118122	109721	112299	116969	98938	127713	100279	111342	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	664013	670974	647409	675545	664948	635316	645583	645118	633613	630351	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	686523	662021	662023	670207	682639	687359	655717	669175	626878	669431	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	38278	66898	137580	351581	683707	1330015	3301175	6492122	9542047	13063789	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	8790	15524	28001	77523	145842	293696	722411	1454385	2166376	3011449	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	16330	29374	61561	153699	302352	619228	1437846	2964456	4224675	5757611	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	1176798	1197981	1200102	1164547	1204882	1190921	1133799	1133936	1096372	1088480	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	34076	60017	120846	296723	577941	1148679	2877261	5693105	7758440	10807866	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	532812	548747	547463	537765	532996	554253	513054	511577	522555	508162	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	5763	12218	28059	67873	127977	245510	642452	1221767	1799881	2431672	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	127917	125934	130188	133409	129716	128407	122177	123270	117475	117903	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	50108	95386	179065	460077	956587	1879487	4593970	8891435	12624919	17168081	
2 6:2 FTS	47.400	94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
	2076	5217	8060	20529	38863	81187	187618	387289	549020	732807	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	91394	93235	90798	94456	93946	92629	85448	82709	84101	91282	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	569415	543161	531844	553624	562836	543856	519402	506174	503361	495600	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	566059	554295	527785	524379	547741	533931	496199	501858	493065	501453	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	32635	52014	109896	281706	557437	1076576	2587671	5056901	7287671	9815646	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	7217	13136	25884	57950	123066	255444	583188	1164821	1649459	2273794	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	121039	121269	122371	129829	131913	132396	120487	120102	122035	116988	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	127140	128160	131882	132512	130980	132467	122600	116530	118944	118894	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	7791	14281	27516	69058	135192	269584	648437	1317144	1912794	2656667	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	35389	71588	142641	359052	692229	1453207	3388713	6678173	9619483	12848388	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	673518	668048	650158	652533	639032	666388	628859	622464	601225	601551	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	21458	42553	89193	220303	434114	930054	2136198	4400668	6348515	8707646	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	14114	27706	55580	150716	285564	593408	1391997	2684423	4080280	5595676	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	261556	278692	270652	278973	266767	271381	275706	256938	255120	264794	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	5614	9317	17079	49658	96544	187467	489347	926406	1321901	1866192	
3 8:2 FTS	Disabled	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	Disabled	3178	9272	18669	41928	75418	181139	329055	503489	699409	
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	664485	665974	635729	690187	652287	684156	646194	625216	641184	627731	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	93054	89788	91470	84431	78835	94944	82313	86853	76282	86255	
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	609675	566586	576412	591408	575846	616544	563256	570320	544823	531731	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	32559	68174	131939	354891	703570	1420016	3437405	6612786	9034213	12363983	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	771544	757204	751315	744712	772780	786283	759801	733412	715483	763092	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	6340	12194	26644	57385	129692	242311	579666	1180104	1678300	2384735	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	89379	97587	89958	94507	90070	85737	86571	86191	88623	93265	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	6246	9069	17777	46172	98832	207971	482576	980014	1427696	1865803	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	5291	9046	20092	46988	95227	187244	459674	875387	1297701	1752012	
26 MeFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	2513	4810	10798	31576	52838	103458	242613	475500	699653	934909	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	45088	51324	50166	51110	44997	47183	47311	42391	44329	46513	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	689949	700240	659630	708039	689688	642300	654701	609480	584720	536911	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	30659	60854	126197	291697	604574	1230135	2841498	5676476	7956538	10184582	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	632859	605845	622182	644729	634567	644538	567315	586665	527476	556328	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	8251	10673	26030	62428	141729	244858	609105	1172304	1712589	2309508	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	114558	112304	104069	104371	101585	104277	101022	106365	105046	107173	
33 EtFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	5717	10317	18829	48514	105804	214292	536894	1020968	1513895	1995842	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	44547	41158	43224	44943	42895	42659	42790	40796	43668	43319	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	20916	41193	85131	199041	398089	805565	1911193	3946384	5461375	7841206	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	2658	6677	11542	26116	49973	104819	253401	490697	754628	1036110	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	594678	609758	600845	603349	604291	602891	568288	598735	640359	580173	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	31184	62385	137695	327079	645872	1348282	3168869	6241011	9303305	12133384	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	2050	5252	7768	18214	43040	87815	202053	422944	635374	806269	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	5987	9475	20350	49920	106090	201625	500904	1010453	1434957	2176544	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	34953	63642	127509	326539	645274	1314496	3207682	6320725	8116160	11146450	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	843457	821567	811547	818088	838224	821412	789132	800702	787350	798422	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	40025	73189	147677	364849	707684	1432173	3501019	6913870	9617011	12878458	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	904853	861836	858869	851524	877835	874416	844444	880463	870178	855945	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	35647	59390	113659	277135	534818	1086521	2628973	5126962	7743034	10035004	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	43650	80162	158633	402758	821940	1649914	3827486	7594218	10647394	14977998	

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b
Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04
Instrument: LCMSMS02.i Integrator: picker
Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32
Method Lock: Unknown Lock Date:
Calib Method: PFAS-ID No.Compounds: 66
Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes
Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.731	1.724	1.724	1.724	1.731	1.731	1.731	1.731	1.728	1.724	1.727	0.173
8 PFBA	1.731	1.731	1.731	1.731	1.731	1.731	1.731	1.731	1.734	1.731	1.730	0.073
D 50 13C5_PFPeA	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.119	2.125	2.120	2.127	0.221
21 PFPeA	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.119	2.125	2.120	2.127	0.221
D 44 13C3_PFBS	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.178	2.183	2.182	0.080
7 PFBS	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.178	2.183	2.182	0.080
1 4:2 FTS	2.451	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.460	2.459	0.116
D 63 13C2_4:2 FTS_2	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.460	2.460	0.026
D 49 13C5_PFHxA	2.505	2.496	2.505	2.505	2.505	2.496	2.496	2.496	2.495	2.496	2.499	0.190
* 39 13C2_PFHxA	2.505	2.505	2.505	2.496	2.505	2.505	2.496	2.496	2.503	2.496	2.500	0.183
15 PFHxA	2.505	2.505	2.505	2.505	2.505	2.505	2.505	2.496	2.503	2.496	2.502	0.150
22 PFPeS	2.540	2.531	2.532	2.531	2.531	2.532	2.531	2.531	2.530	2.532	2.532	0.114
28 GenX	2.622	2.622	2.622	2.622	2.622	2.614	2.614	2.614	2.613	2.614	2.617	0.151
D 66 13C3_GenX	2.622	2.622	2.622	2.614	2.622	2.614	2.614	2.614	2.613	2.614	2.617	0.147
13 PFHpA	2.888	2.880	2.881	2.881	2.880	2.881	2.880	2.880	2.879	2.881	2.881	0.090
D 47 13C4_PFHpA	2.880	2.880	2.881	2.881	2.880	2.881	2.880	2.880	2.879	2.873	2.879	0.087
14 PFHxS	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.895	2.888	2.895	0.088
D 45 13C3_PFHxS	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.895	2.896	2.896	0.022
29 ADONA	2.918	2.919	2.919	2.919	2.919	2.919	2.918	2.918	2.917	2.919	2.918	0.011
2 6:2 FTS	3.255	3.248	3.255	3.248	3.248	3.248	3.248	3.241	3.245	3.241	3.248	0.142
D 64 13C2_6:2 FTS_2	3.248	3.248	3.248	3.255	3.248	3.248	3.248	3.241	3.238	3.241	3.246	0.152
* 41 13C2_PFOA	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.276	3.273	3.269	3.273	0.090
D 53 13C8_PFOA	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.269	3.266	3.269	3.272	0.125
20 PFOA	3.282	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.266	3.269	3.273	0.145
12 PFHpS	3.276	3.282	3.287	3.282	3.276	3.276	3.276	3.276	3.273	3.276	3.277	0.137
D 54 13C8_PFOS	3.657	3.657	3.657	3.652	3.651	3.657	3.651	3.651	3.648	3.646	3.652	0.105
* 48 13C4_PFOS	3.657	3.657	3.657	3.652	3.657	3.657	3.657	3.651	3.648	3.652	3.654	0.085
18 PFOS	3.662	3.651	3.657	3.662	3.662	3.657	3.657	3.651	3.648	3.652	3.656	0.143
17 PFNA	3.668	3.668	3.662	3.662	3.662	3.662	3.662	3.662	3.659	3.657	3.662	0.089
D 56 13C9_PFNA	3.668	3.668	3.662	3.662	3.662	3.662	3.662	3.657	3.659	3.657	3.661	0.103
30 9Cl-PF3ONS	3.871	3.871	3.871	3.871	3.863	3.863	3.862	3.863	3.858	3.863	3.865	0.122
19 PFOSA	3.895	3.895	3.896	3.896	3.896	3.896	3.895	3.896	3.891	3.896	3.895	0.036

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 55 13C8_PFOSA	3.895	3.895	3.896	3.896	3.896	3.896	3.895	3.888	3.891	3.888	3.893	0.091
16 PFNS	4.005	4.005	4.006	4.006	4.006	4.006	4.005	4.006	3.999	3.995	4.004	0.091
3 8:2 FTS	Disabled	4.027	4.017	4.017	4.016	4.017	4.016	4.016	4.010	4.006	4.015	0.137
* 37 13C2_PFDA	4.027	4.027	4.027	4.027	4.016	4.017	4.016	4.016	4.010	4.017	4.019	0.161
D 65 13C2_8:2 FTS_2	4.016	4.016	4.017	4.017	4.016	4.017	4.005	4.006	3.999	4.006	4.011	0.164
D 51 13C6_PFDA	4.027	4.027	4.017	4.017	4.016	4.017	4.016	4.016	4.020	4.017	4.018	0.106
10 PFDA	4.027	4.027	4.027	4.017	4.016	4.017	4.016	4.016	4.010	4.017	4.018	0.148
D 58 d3-MeFOSAA	4.178	4.187	4.178	4.178	4.178	4.178	4.178	4.178	4.171	4.169	4.177	0.109
6 N-MeFOSAA	4.196	4.178	4.178	4.187	4.178	4.178	4.178	4.178	4.171	4.169	4.179	0.183
D 61 d7-MeFOSE	4.287	4.287	4.288	4.288	4.288	4.288	4.297	4.288	4.290	4.288	4.289	0.073
32 MeFOSE	4.308	4.298	4.308	4.298	4.298	4.298	4.297	4.298	4.300	4.298	4.300	0.098
9 PFDS	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.308	4.310	4.308	4.315	0.101
26 MeFOSA	4.328	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.320	4.318	4.319	0.069
D 57 d3-MeFOSA	4.308	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.310	4.308	4.315	0.107
D 60 d5-EtFOSAA	4.348	4.347	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.338	0.139
25 PFUdA	4.348	4.338	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.337	0.118
D 52 13C7_PFUdA	4.338	4.338	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.336	0.086
5 N-EtFOSAA	4.348	4.347	4.348	4.339	4.348	4.348	4.347	4.348	4.340	4.339	4.345	0.100
D 62 d9-EtFOSE	4.455	4.455	4.456	4.455	4.455	4.465	4.455	4.455	4.459	4.455	4.456	0.069
33 EtFOSE	4.473	4.464	4.474	4.474	4.464	4.474	4.473	4.474	4.468	4.465	4.470	0.099
D 59 d5-EtFOSA	4.482	4.482	4.474	4.474	4.483	4.483	4.482	4.483	4.477	4.474	4.479	0.097
31 11Cl-PF3OUDS	4.482	4.482	4.483	4.483	4.483	4.474	4.473	4.474	4.477	4.474	4.478	0.104
27 EtFOSA	4.482	4.482	4.483	4.483	4.483	4.492	4.482	4.483	4.486	4.483	4.483	0.065
D 38 13C2_PFDoA	4.622	4.622	4.623	4.623	4.614	4.623	4.613	4.614	4.608	4.606	4.616	0.142
11 PFDoA	4.622	4.622	4.623	4.623	4.622	4.623	4.613	4.614	4.617	4.606	4.618	0.127
4 10:2 FTS	4.639	4.631	4.631	4.631	4.631	4.631	4.630	4.631	4.625	4.623	4.630	0.095
34 PFDOS	4.851	4.851	4.843	4.843	4.842	4.843	4.842	4.834	4.838	4.825	4.840	0.158
24 PFTrDA	4.876	4.877	4.877	4.877	4.877	4.868	4.868	4.868	4.864	4.860	4.871	0.128
D 42 13C2_PFTeDA	5.112	5.112	5.106	5.106	5.106	5.106	5.099	5.100	5.097	5.094	5.103	0.118
23 PFTeDA	5.112	5.112	5.106	5.106	5.106	5.106	5.099	5.100	5.097	5.094	5.103	0.118
D 40 13C2_PFHxDA	5.559	5.552	5.552	5.552	5.544	5.544	5.543	5.536	5.539	5.529	5.544	0.162
35 PFHxDA	5.559	5.552	5.552	5.552	5.552	5.544	5.543	5.536	5.539	5.536	5.546	0.140
36 PFODA	6.026	6.031	6.021	6.017	6.026	6.012	6.001	6.007	6.000	6.002	6.014	0.189

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	75
Sample Info:	ID ICAL 50_SVLC-1740	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	5	638915	20	>100:1			1000.00	1027.73	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	5/0	34936	18	44:1			50.000	51.848		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	7	574918	16	>100:1			1000.00	1005.82	99.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	7/0	35088	14	43:1			50.000	54.226		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	7	175823	16	>100:1			1000.00	1016.50	98.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	7/0	9549	17	>100:1	Target = 3.53		44.200	43.552		
298.9 > 99	44	2.183	2.183		2627	13	27:1	3.63 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.540	2.531	9/2	8790	25	>100:1	Target = 3.10		46.900	53.944		
349 > 99	44	2.522	2.531		2456	19	17:1	3.57 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	8	119738	17	>100:1			5000.00	5287.91	106.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													a
327 > 307	63	2.451	2.460	0/-8	2465	21		Target = 1.75		46.700	46.695		
327 > 81	63	2.487	2.460		1302	10	1.1:1	1.89 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	9	664013	16	>100:1			1000.00	1019.54	99.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	9/0	38278	17	72:1	Target = 18.91		50.000	55.442		
313 > 119	49	2.496	2.505		2414	18	12:1	15.85 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	9	1176798	19	>100:1			5000.00	5077.74	97.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	9/0	16330	18	57:1	Target = 0.79		100.00	107.13		
285 > 185	66	2.622	2.622		19809	17	>100:1	0.82 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	10	532812	18	>100:1			1000.00	1003.53	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.888	2.880	10/0	34076	16	59:1	Target = 3.80		50.000	58.203		
363 > 169	47	2.888	2.880		8295	16	71:1	4.10 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	10	127917	20	>100:1			1000.00	1018.13	98.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/-4	5763	24	23:1	Target = 2.89	4.10	45.500	40.980		M
399 > 99	45	2.888	2.896		3074	26	22:1	1.87 (1.44-4.34)	5.41				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	9/-1	50108	19	>100:1	Target = 3.23		47.100	50.511		
377 > 85	45	2.918	2.919		13707	16	>100:1	3.65 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	11/1	7217	26	97:1	Target = 3.12		47.600	54.933		
449 > 99	45	3.287	3.276		1791	17	19:1	4.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	11	91394	23	>100:1			5000.00	5077.46	97.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.255	3.248	1/-10	2076	11	39:1	Target = 1.75		47.400	47.978		M
427 > 81	64	0.000	3.248		0	1		0.00 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	11	566059	22	>100:1			1000.00	1078.87	103.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.282	3.276	1/-10	32635	16	21:1	Target = 2.89		50.000	56.260		M
413 > 169	53	3.282	3.276		11356	31	73:1	2.87 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	12	121039	21	>100:1			1000.00	977.36	91.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	12/0	7791	35	72:1	Target = 3.30	3.27	46.400	54.060		
499 > 99	54	3.668	3.662		2261	39	35:1	3.44 (1.65-4.95)	6.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	12/0	21458	16	>100:1			46.600	46.812		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	12/0	5614	21	48:1	Target = 3.08		48.000	57.812		
549 > 99	54	4.005	4.006		1010	14	4.1:1	5.55 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	12/0	5291	18		Target = 2.72		48.200	55.861		
599 > 99	54	4.338	4.318		2077	17	9.8:1	2.54 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.483	12/0	20916	19	>100:1			47.100	50.474		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.851	4.842	10/-2	5987	22	51:1	Target = 3.27		48.400	57.523		
699 > 99	54	4.842	4.842		1377	18	36:1	4.34 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.662	12	673518	22	>100:1			1000.00	1051.75	105.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.662	12/0	35389	21	80:1	Target = 6.51		50.000	48.747		
463 > 169	56	3.662	3.662		6388	27	42:1	5.53 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	8	261556	16				1000.00	975.74	98	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	8/0	14114	15	67:1	Target = 41.63		50.000	51.285		
498>478	55	3.895	3.896		774	16	11:1	18.23 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													a
519 > 474		4.027	4.016	1	609675	16	>100:1			1000.00	1060.93	105.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/0	32559	12	65:1	Target = 13.80		50.000	45.890		M
513 > 169	51	4.027	4.016		2280	21	17:1	14.28 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	12	93054	18	>100:1			5000.00	5383.67	118	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/-12	2894	11	21:1	Target = 1.94		47.900	68.818		M
527 > 81	65	3.995	4.016		1153	11	4.8:1	2.50 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.639	4.631	1/-11	2050	23	22:1	Target = 3.54		48.200	43.425		
627 > 80	65	4.639	4.631		308	15	6.8:1	6.65 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	12	771544	17	>100:1			5000.00	5105.76	99.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.196	4.178	2/-10	6340	24	45:1	Target = 1.37	5.84	50.000	51.203		M
570 > 483	58	4.196	4.178		5342	25		1.18 (0.68-2.05)	6.95				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.288	6	89379	14	>100:1			1000.00	991.02	99.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.298	7/1	6246	13	43:1			50.000	63.945		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	45088	12	>100:1			1000.00	958.48	100.2	M
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.328	4.318	7/1	2513	17		Target = 1.11		50.000	51.422		
512 > 219	57	4.318	4.318		2364	15	18:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.348	4.338	12	689949	18	>100:1			5000.00	5327.25	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	12/0	8251	24	66:1	Target = 1.51	5.95	50.000	61.324		
584 > 526	60	4.348	4.348		4220	47		1.95 (0.75-2.26)	4.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	12	632859	17	>100:1			1000.00	1050.82	99.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.348	4.338	12/0	30659	15	86:1	Target = 14.52		50.000	49.997		
563 > 169	52	4.338	4.338		2560	21	12:1	11.97 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	6	114558	15	>100:1			1000.00	1079.95	112.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.464	7/1	5717	21	47:1			50.000	51.264		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	7	44547	16	>100:1			1000.00	1035.98	103.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	6/-1	2658	18	44:1	Target = 1.06		50.000	37.077		
526 > 219	59	4.482	4.483		2428	22	30:1	1.09 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.614	12	594678	17	>100:1			1000.00	990.57	98.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	12/0	31184	14	>100:1	Target = 10.70		50.000	49.188		
613 > 169	38	4.631	4.622		3508	22	30:1	8.88 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.876	4.877	12/0	34953	16	>100:1	Target = 8.31		50.000	55.920		
663 > 169	38	4.885	4.877		4524	21	65:1	7.72 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.112	5.106	12	843457	22	>100:1			1000.00	1037.48	100.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													a
713 > 669	42	5.112	5.106	1/-11	40025	21	>100:1	Target = 12.17		50.000	54.361		
713 > 169	42	5.112	5.106		3441	20	48:1	11.63 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.559	5.544	15	904853	22	>100:1			1000.00	1042.41	103.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.559	5.552	15	35647	20	>100:1	Target = 10.43		50.000	61.512		
813 > 269	40	5.567	5.552		3237	21	76:1	11.01 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.026	6.026	0/-15	43650	36	>100:1	Target = 13.67		50.000	52.988		M
913 > 319	40	6.021	6.026		3182	39	>100:1	13.71 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	12	664485	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	9	686523	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	11	569415	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	5	601508	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	12	127140	20	>100:1			1000.00			

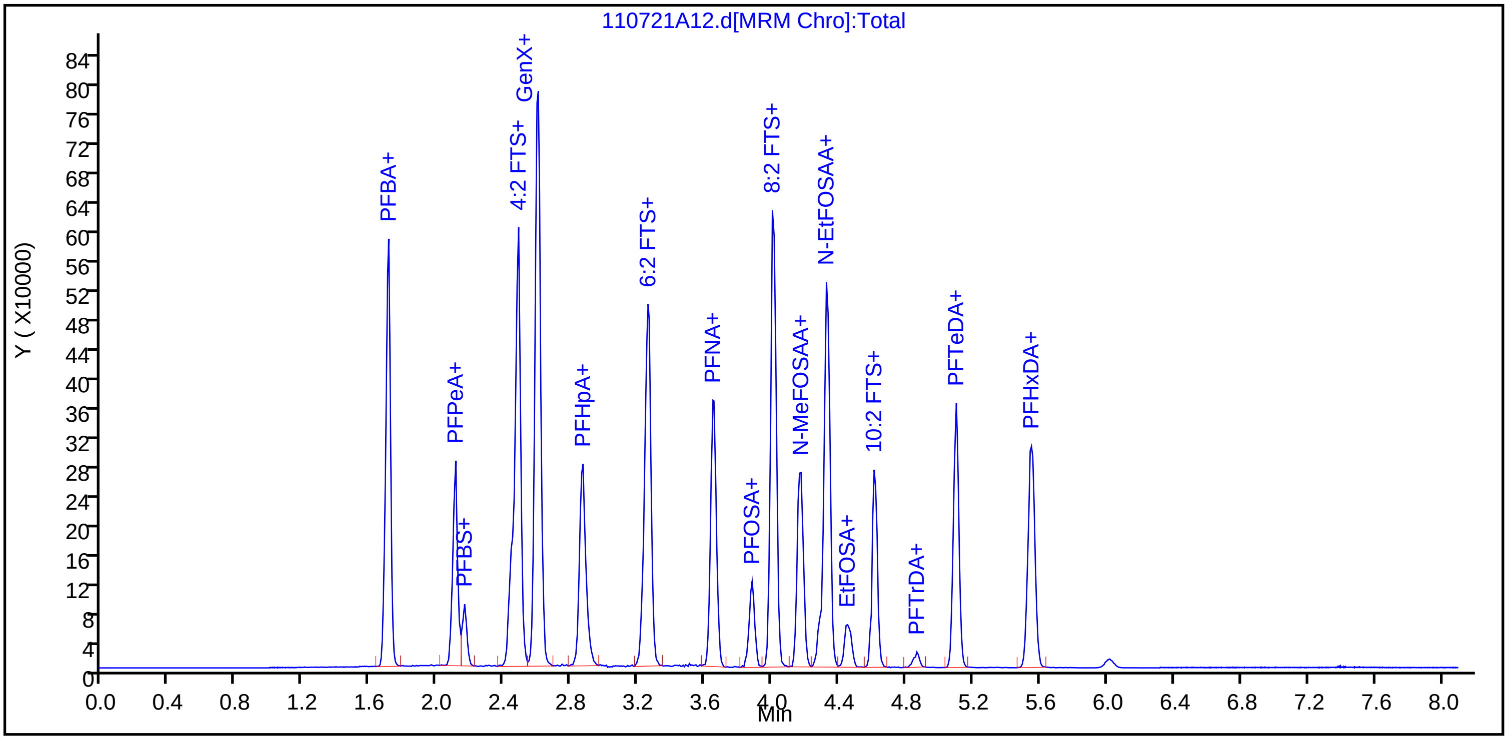
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

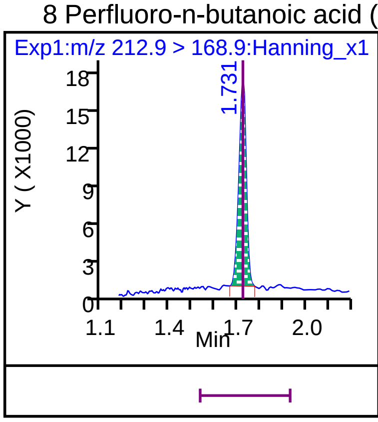
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

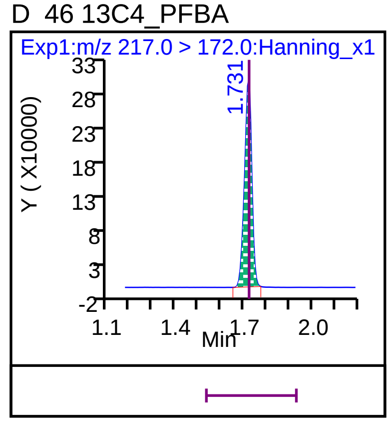
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin



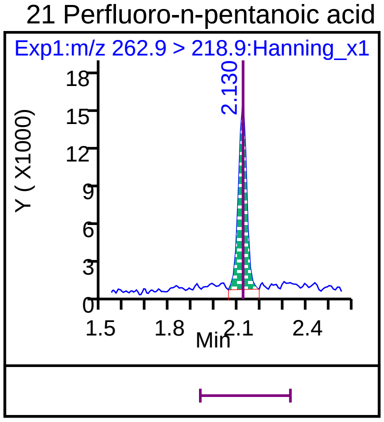
8 Perfluoro-n-butanoic acid (PFBA)



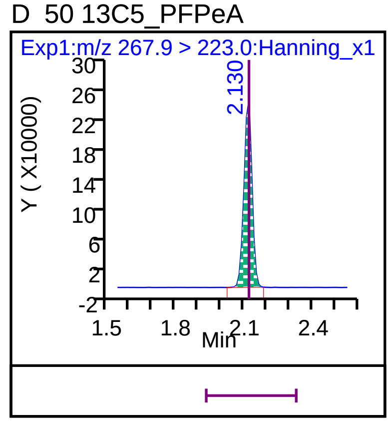
D 46 13C4_PFBA



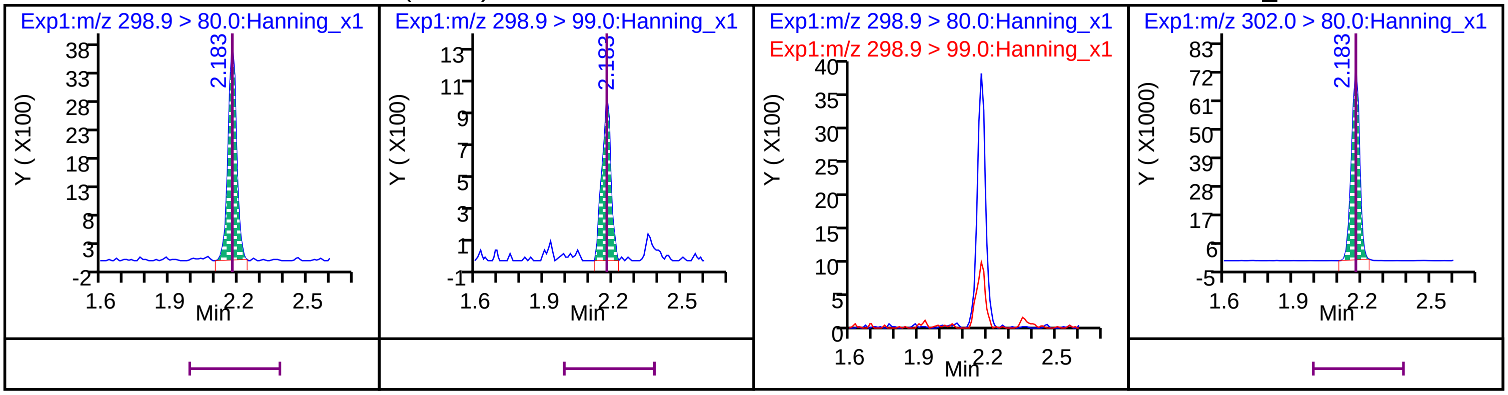
21 Perfluoro-n-pentanoic acid (PFPeA)



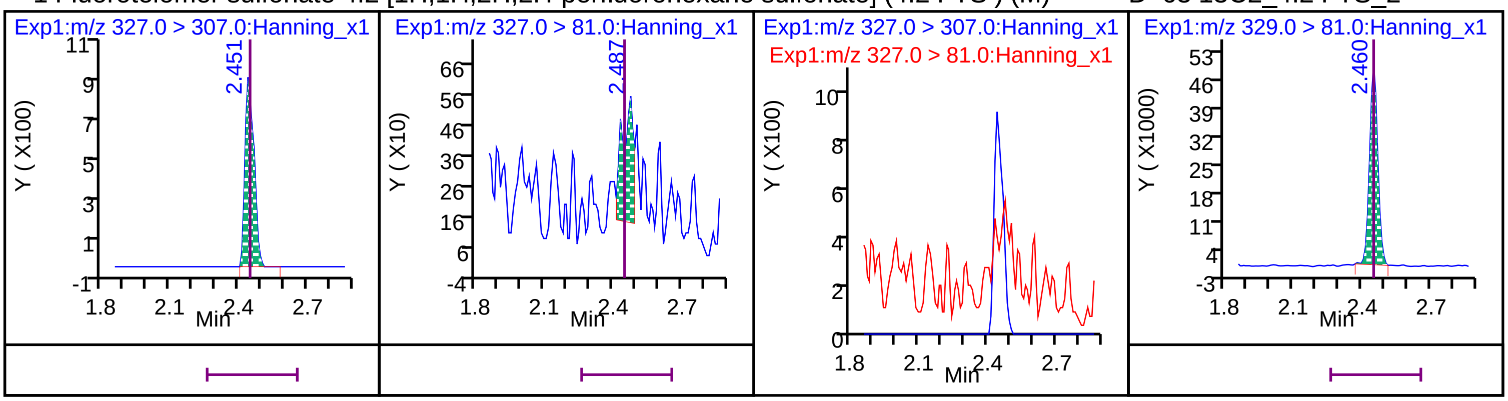
D 50 13C5_PFPeA



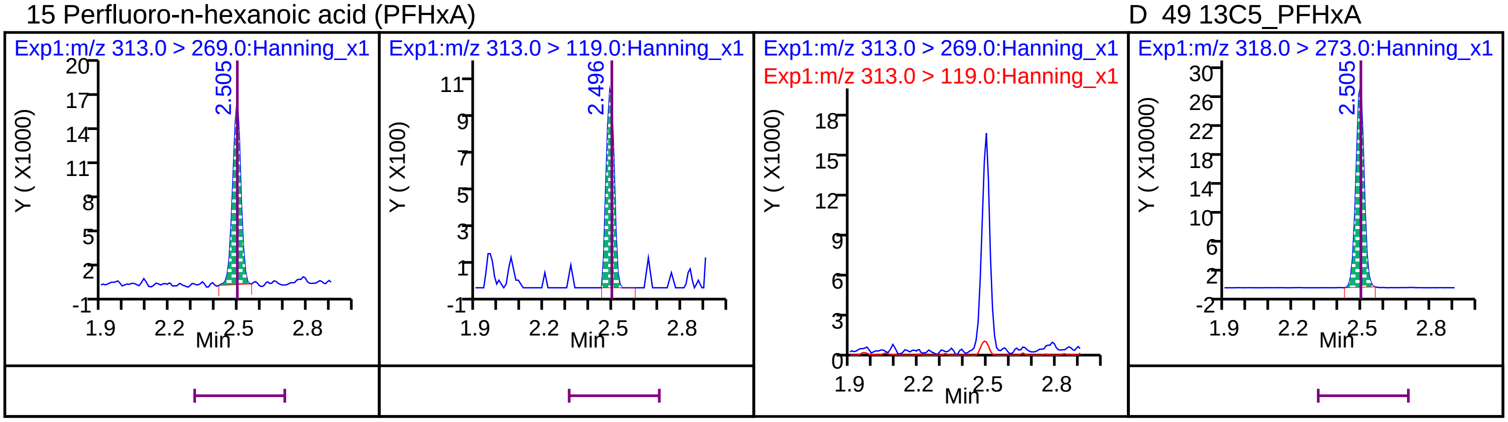
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



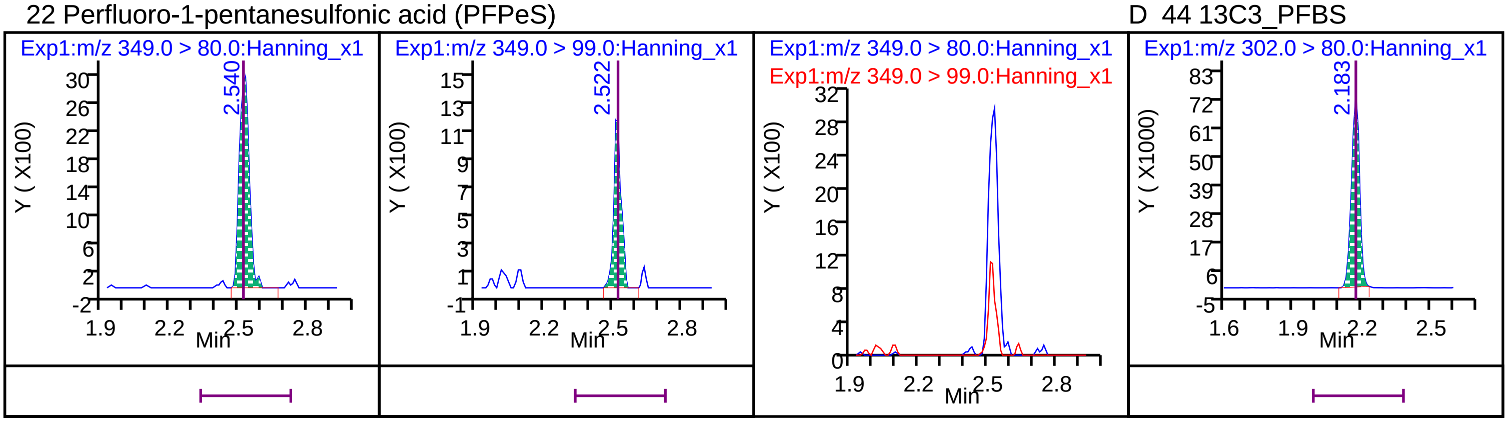
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



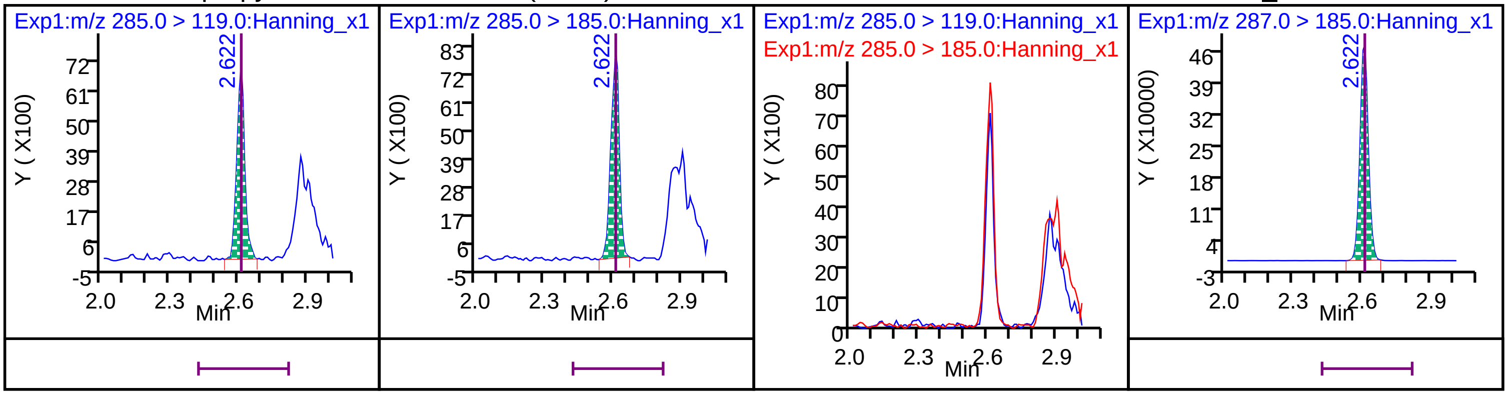
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



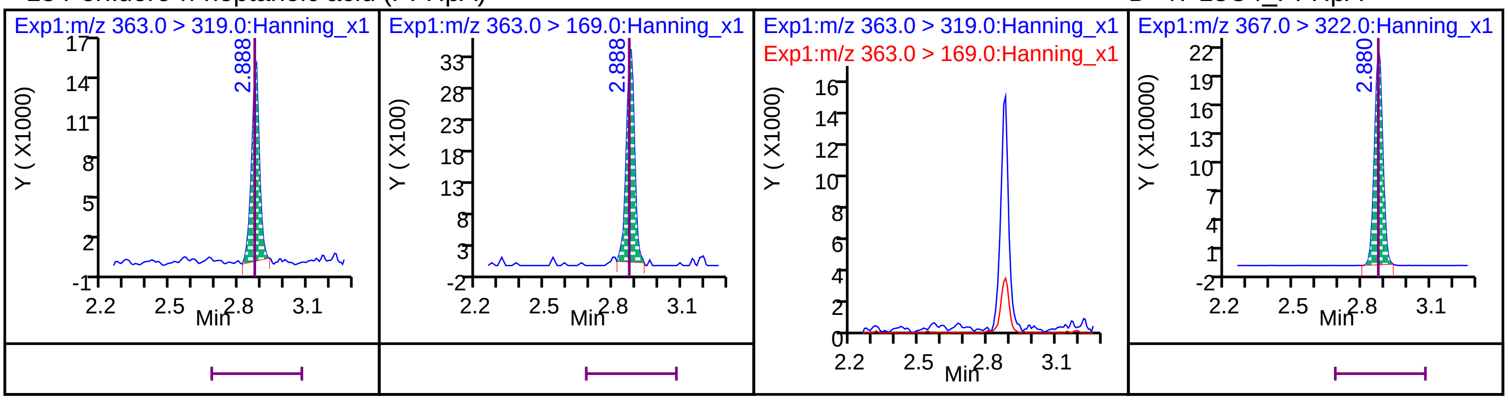
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



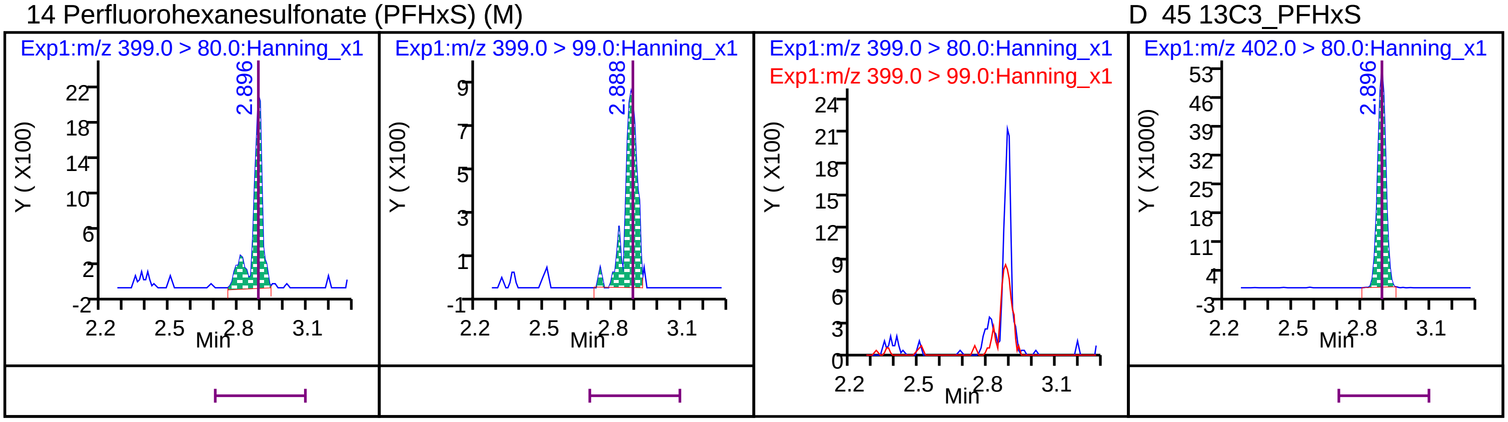
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



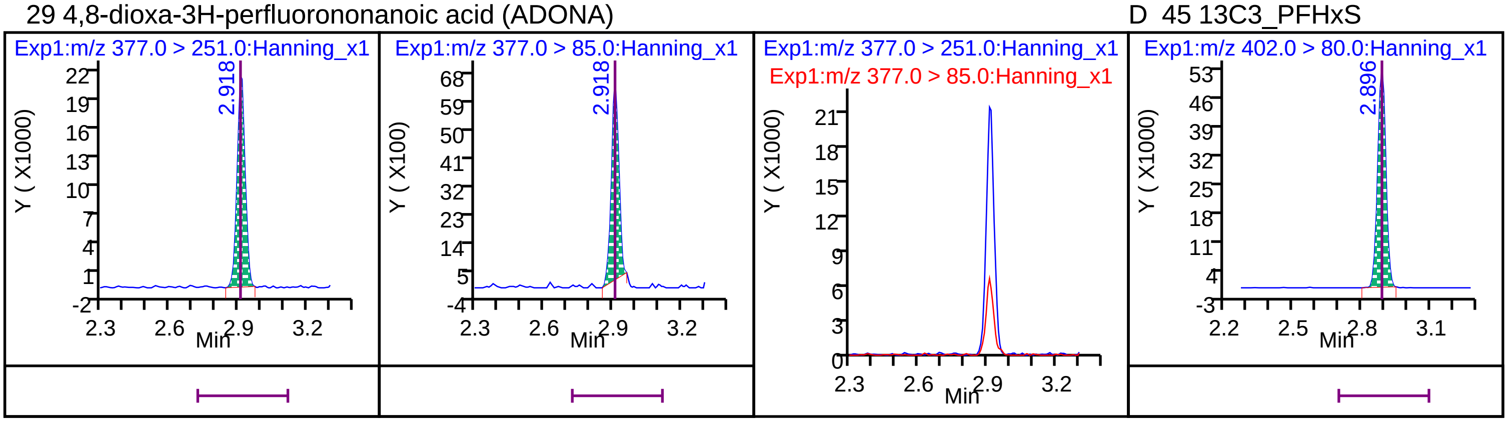
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



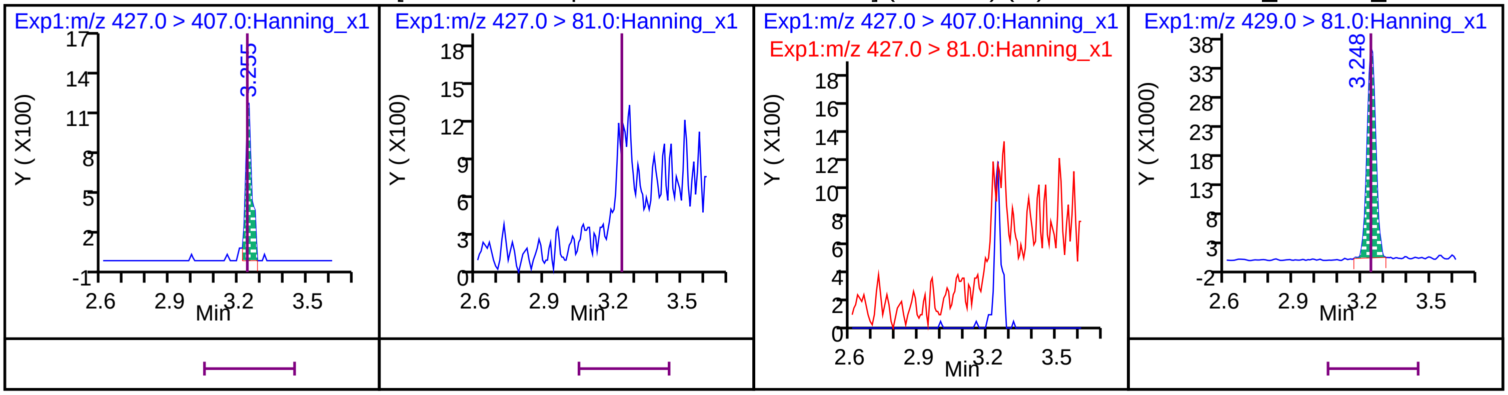
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



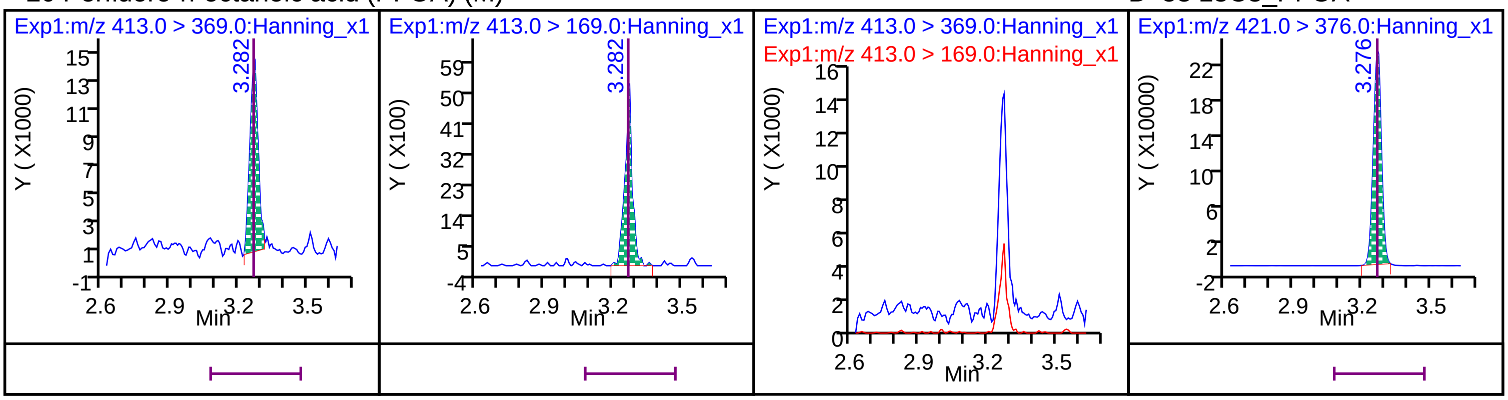
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



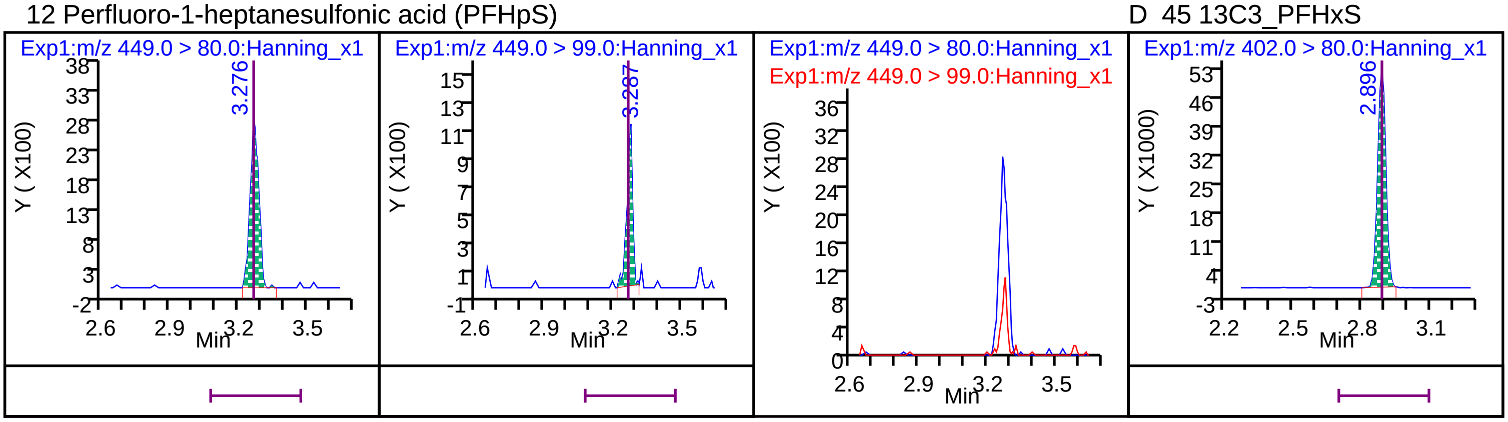
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



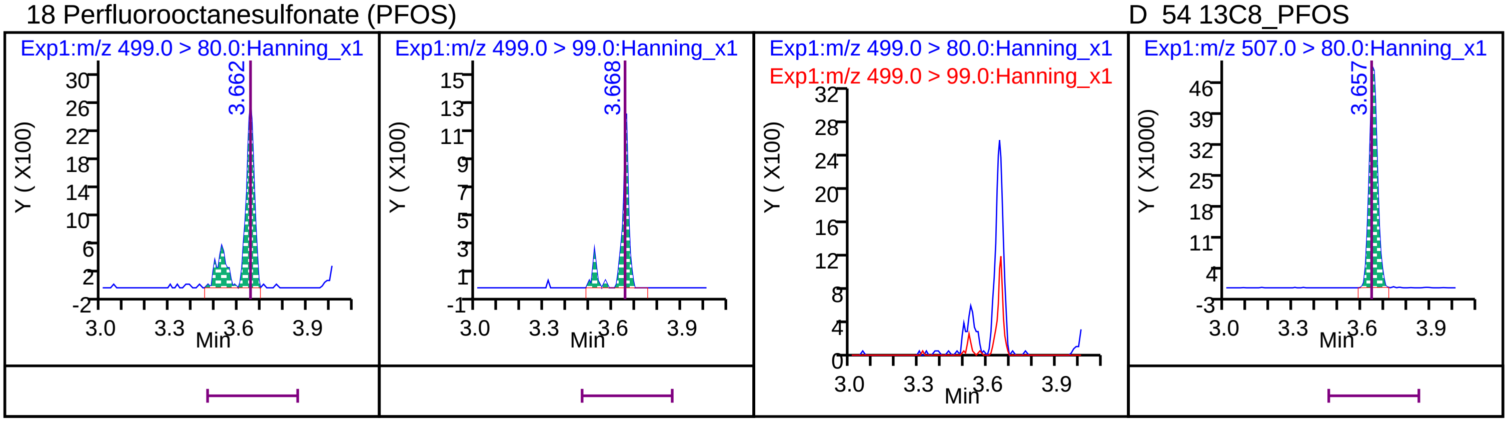
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



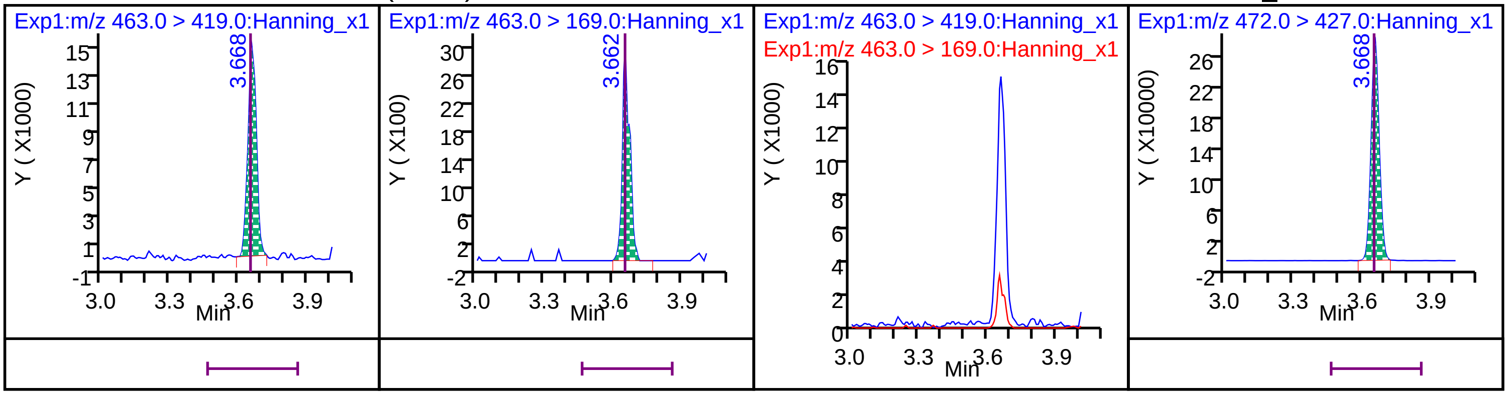
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



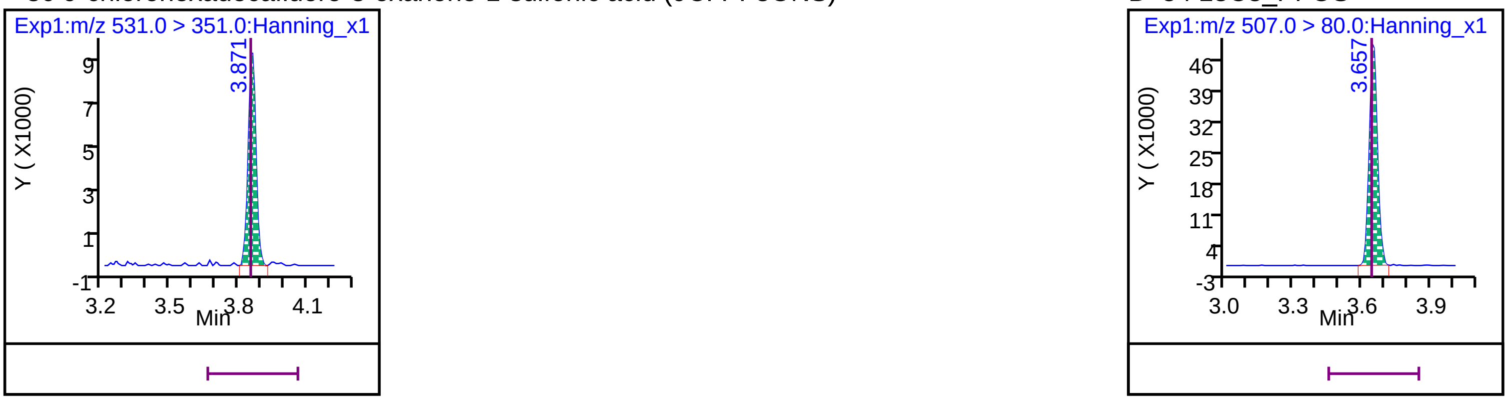
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



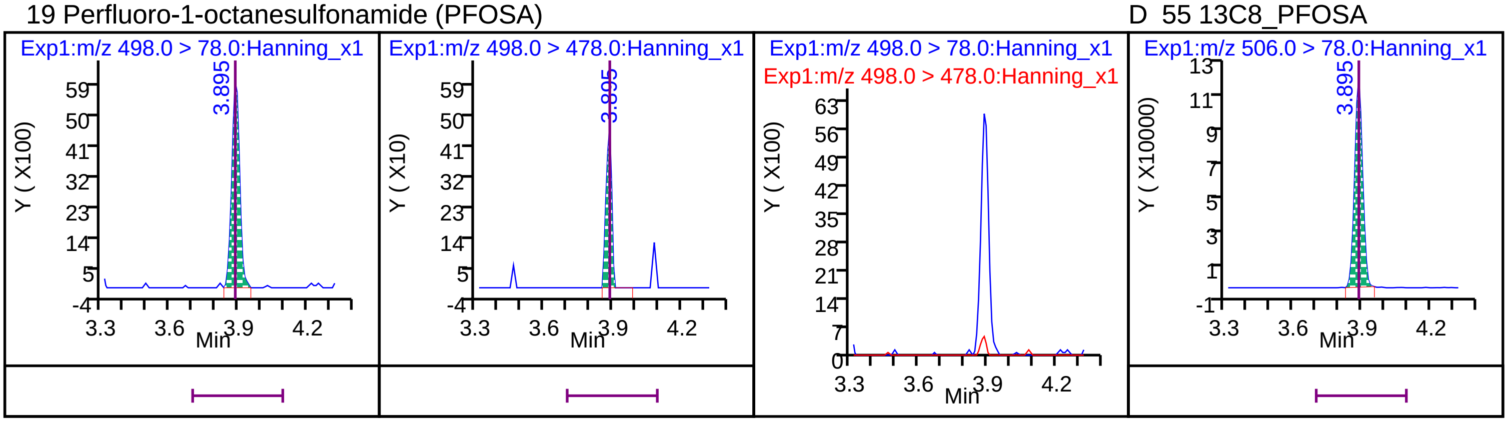
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



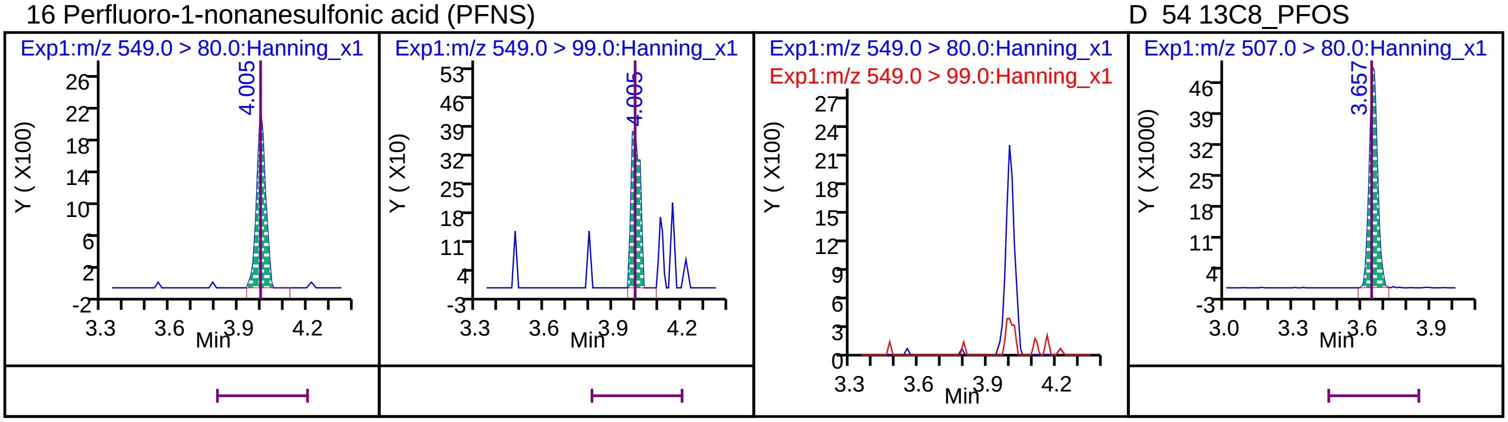
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

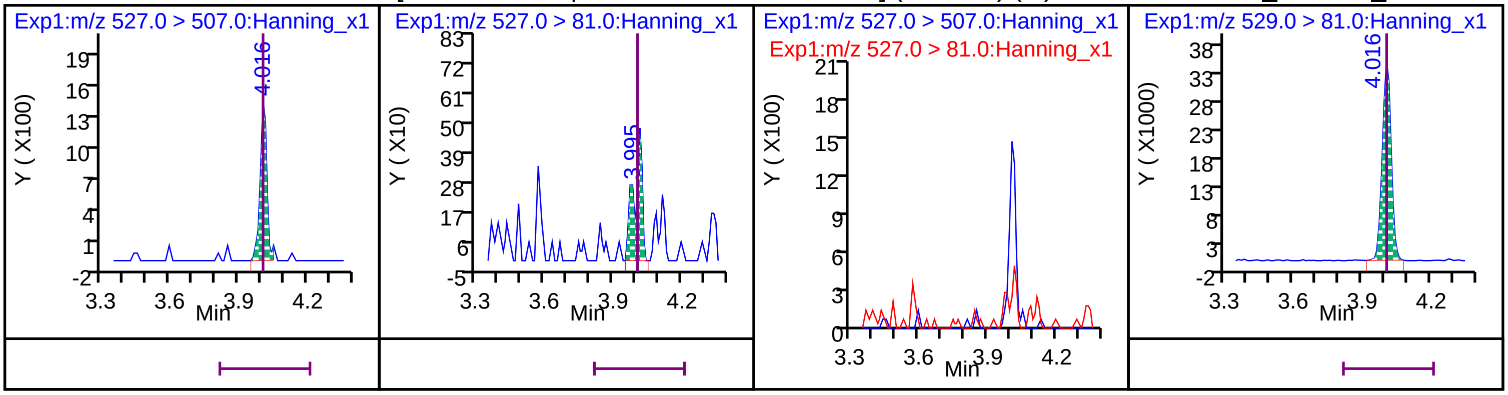


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

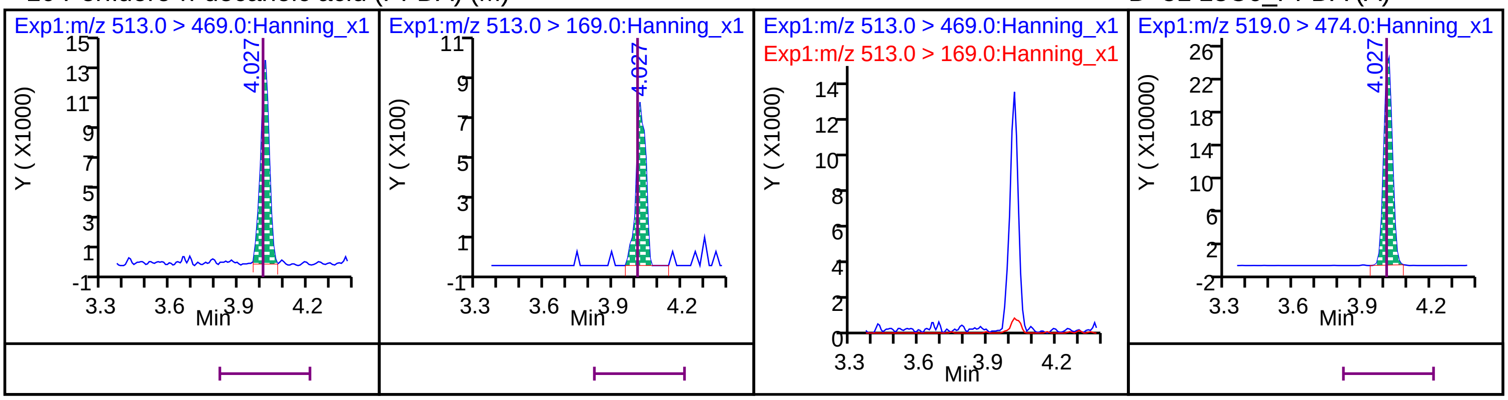


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

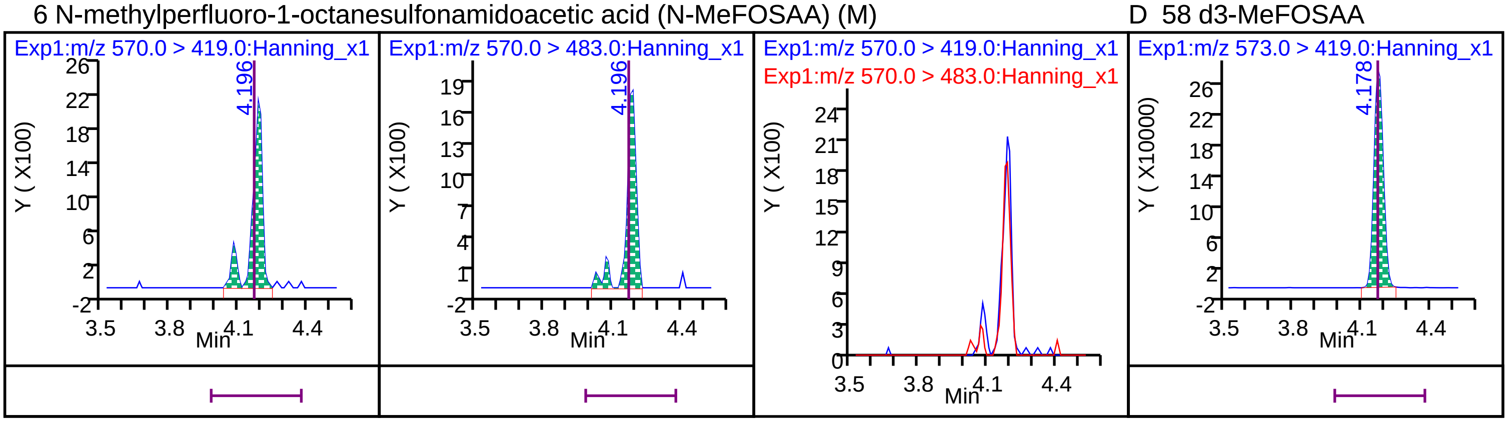
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



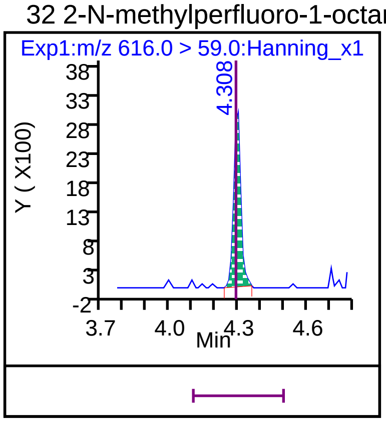
10 Perfluoro-n-decanoic acid (PFDA) (M) D 51 13C6_PFDA (A)



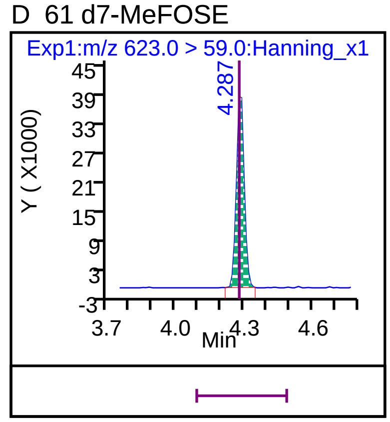
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



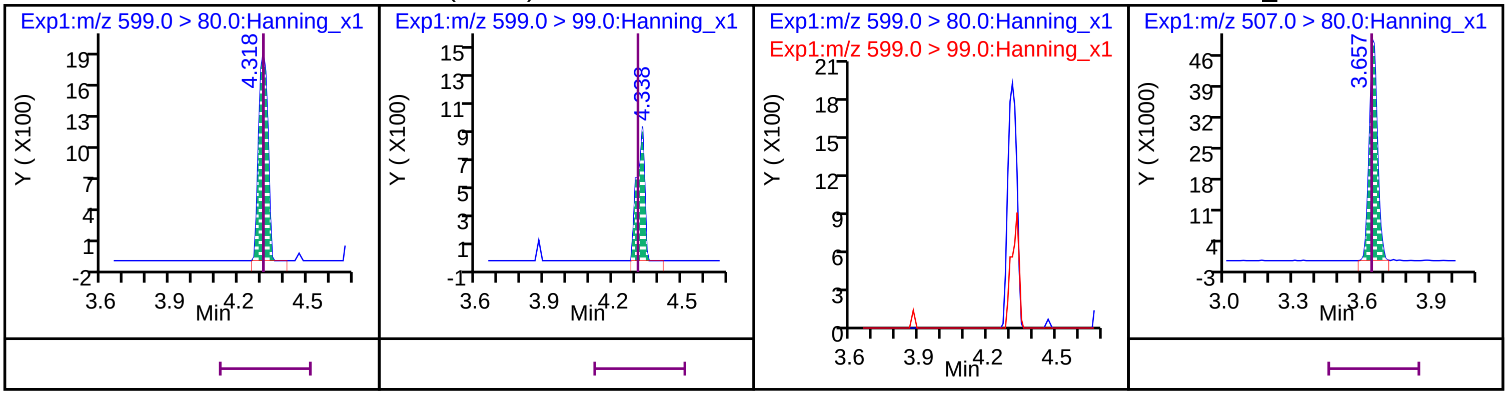
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



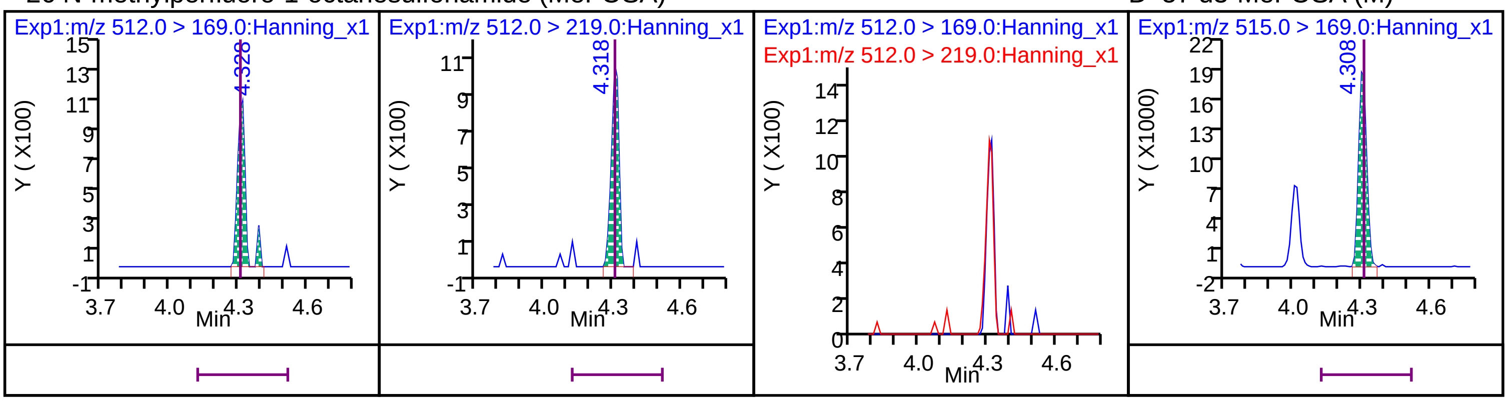
D 61 d7-MeFOSE



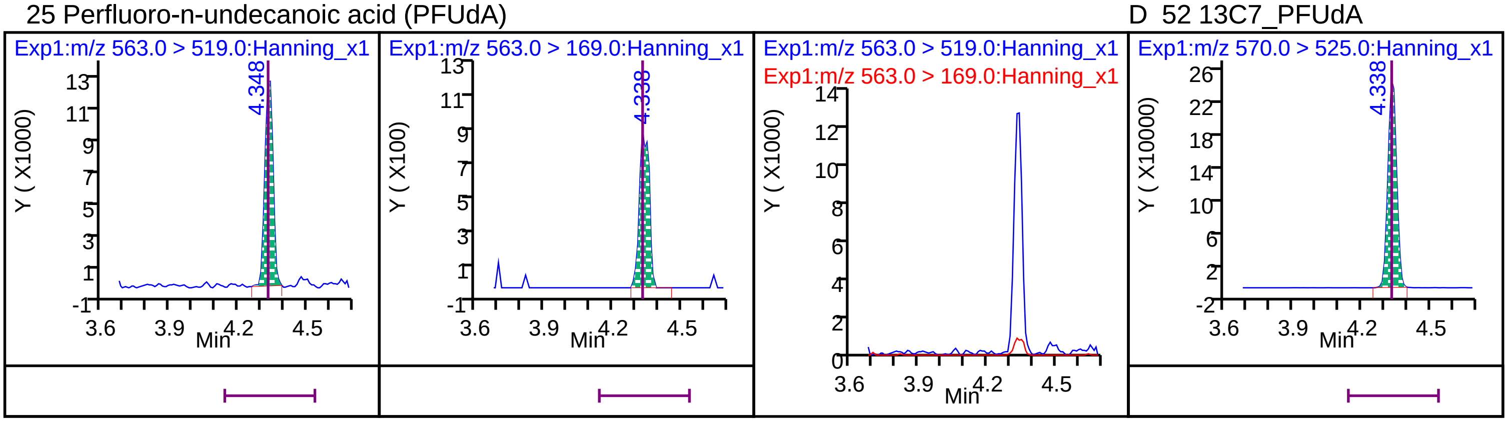
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



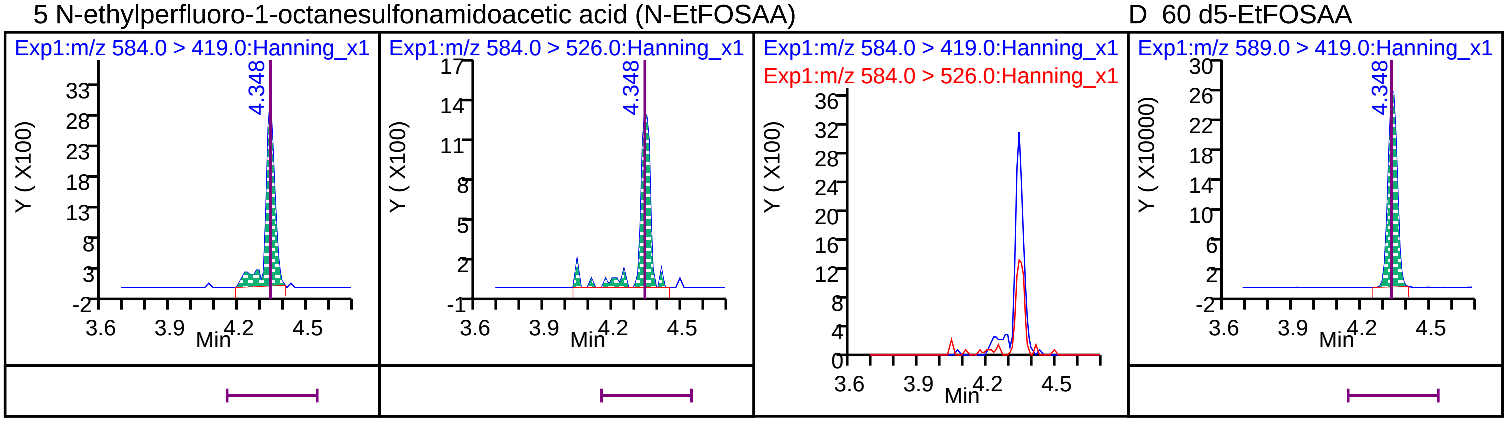
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA (M)



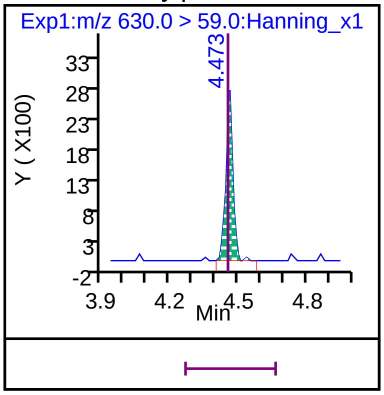
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



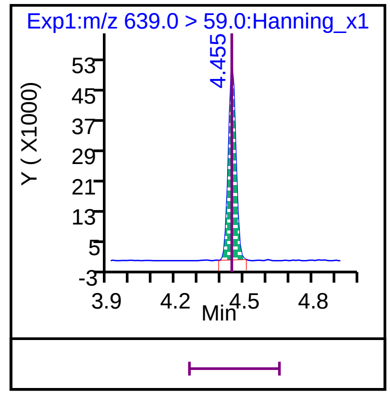
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



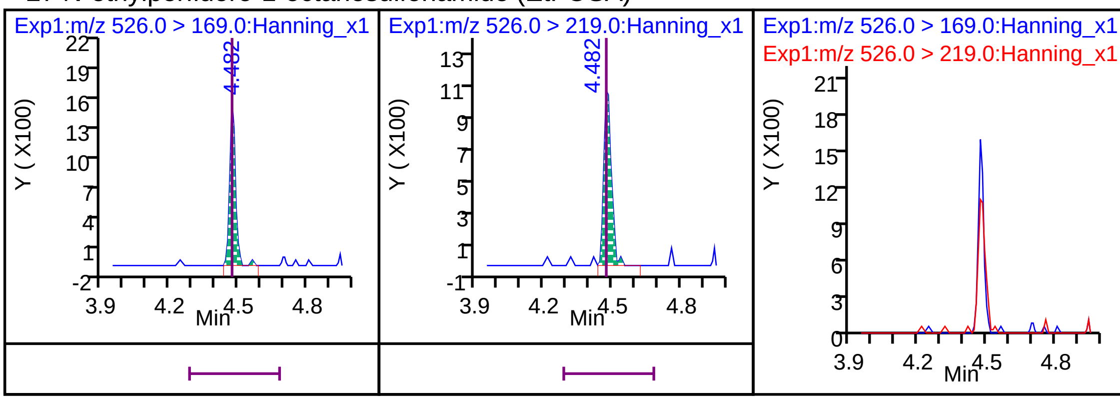
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



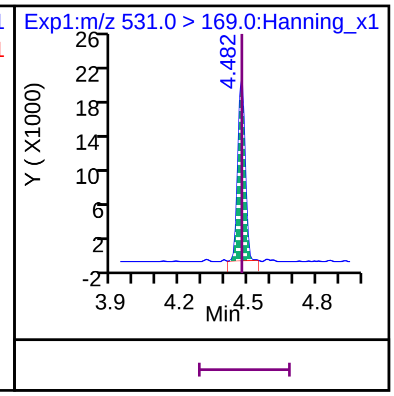
D 62 d9-EtFOSE



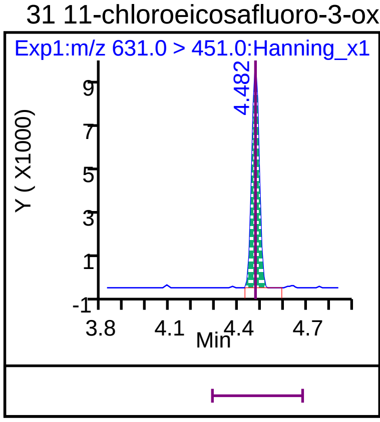
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



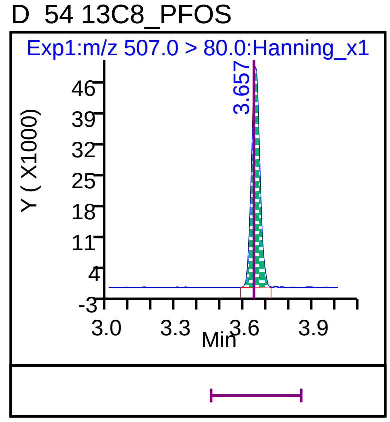
D 59 d5-EtFOSA



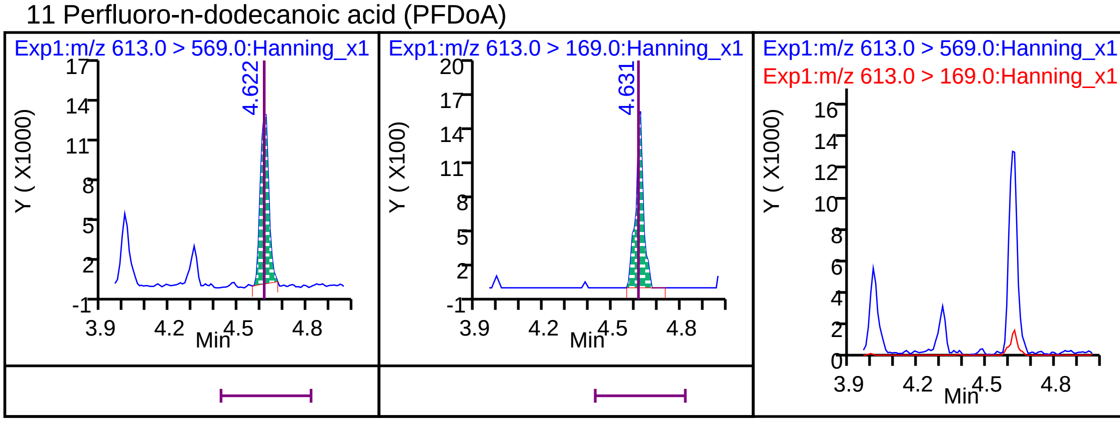
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



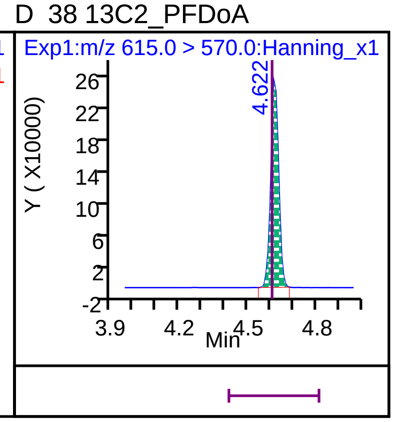
D 54 13C8_PFOS



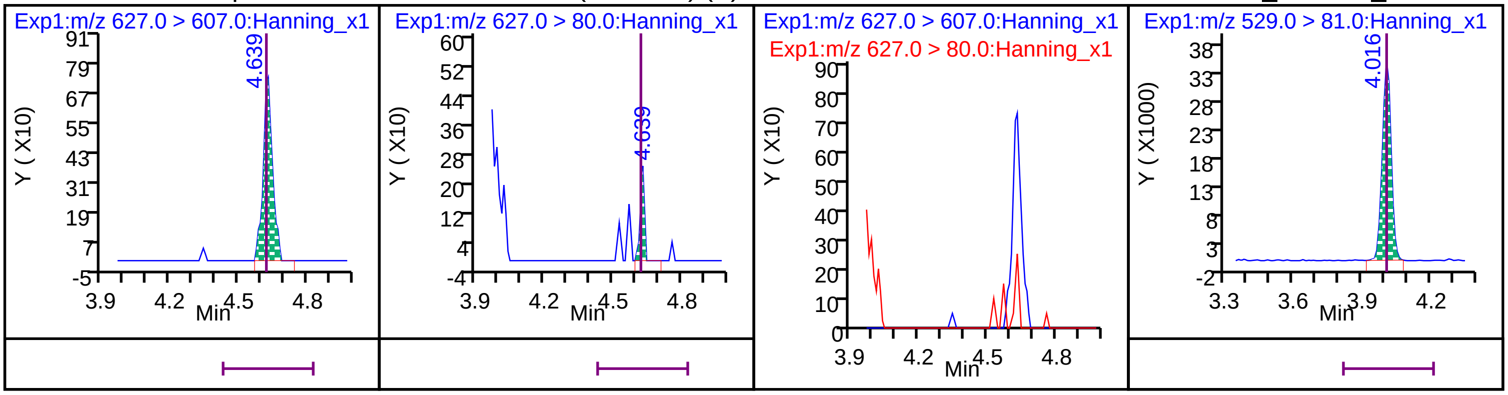
11 Perfluoro-n-dodecanoic acid (PFDoA)



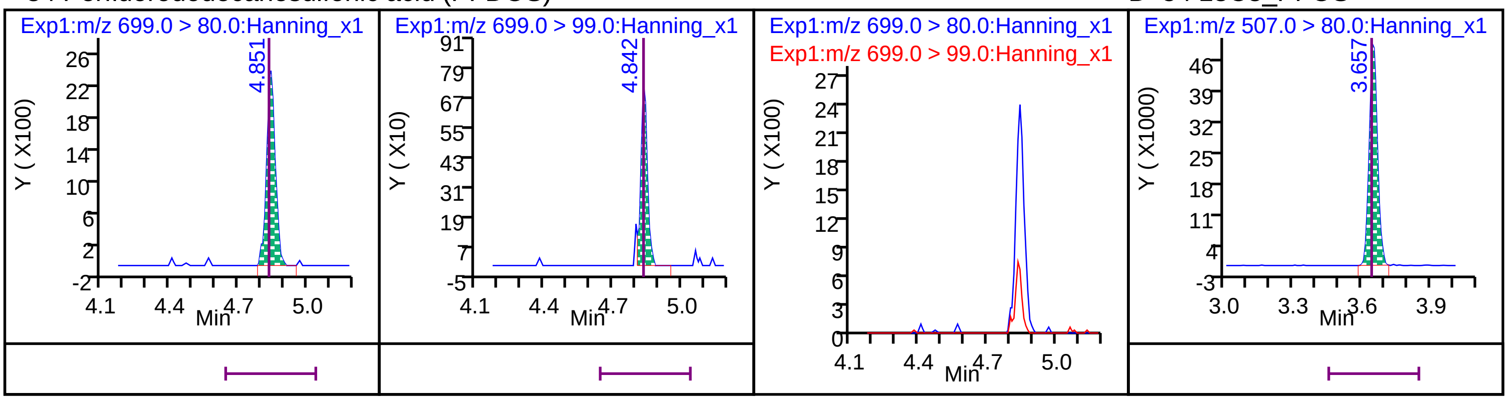
D 38 13C2_PFDoA



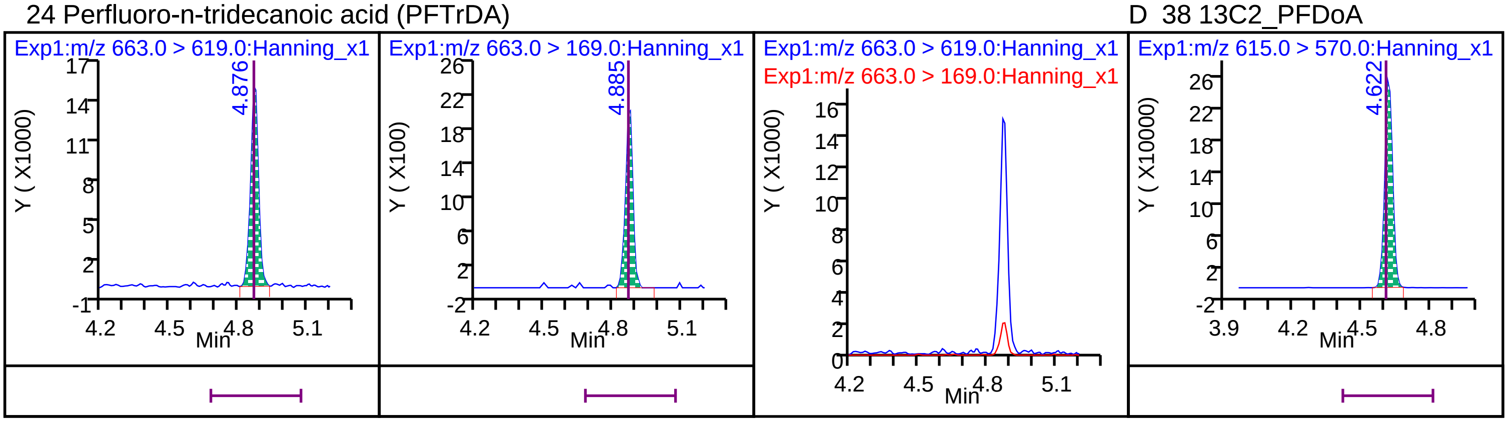
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



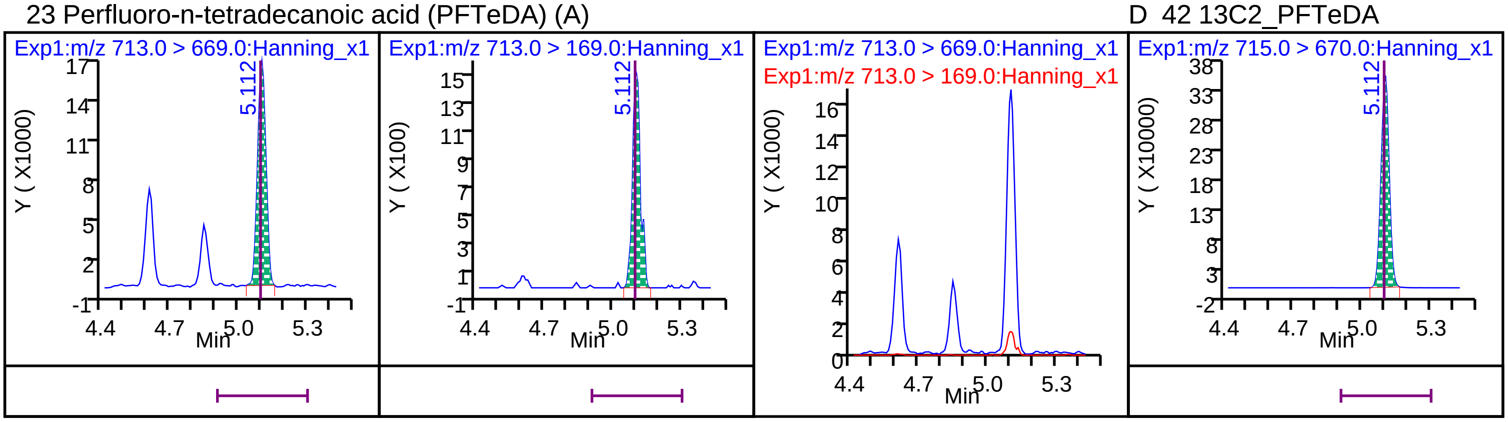
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



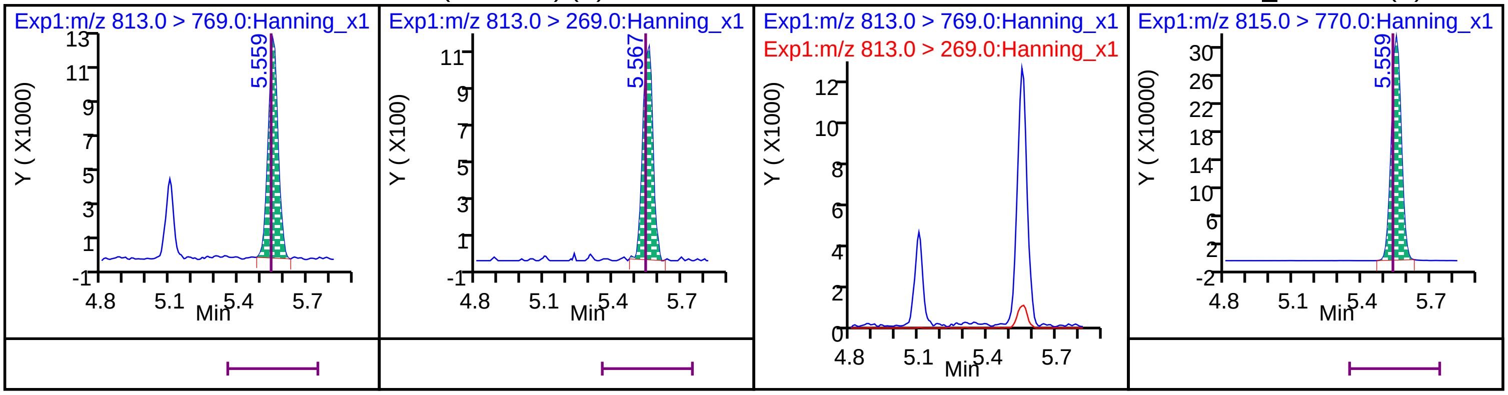
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (A) D 42 13C2_PFTeDA



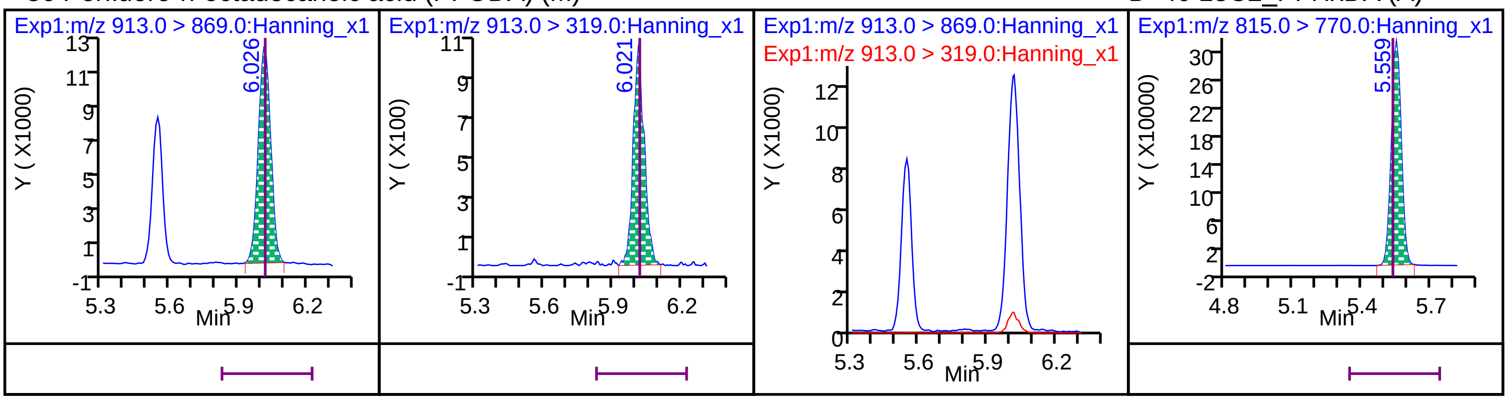
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

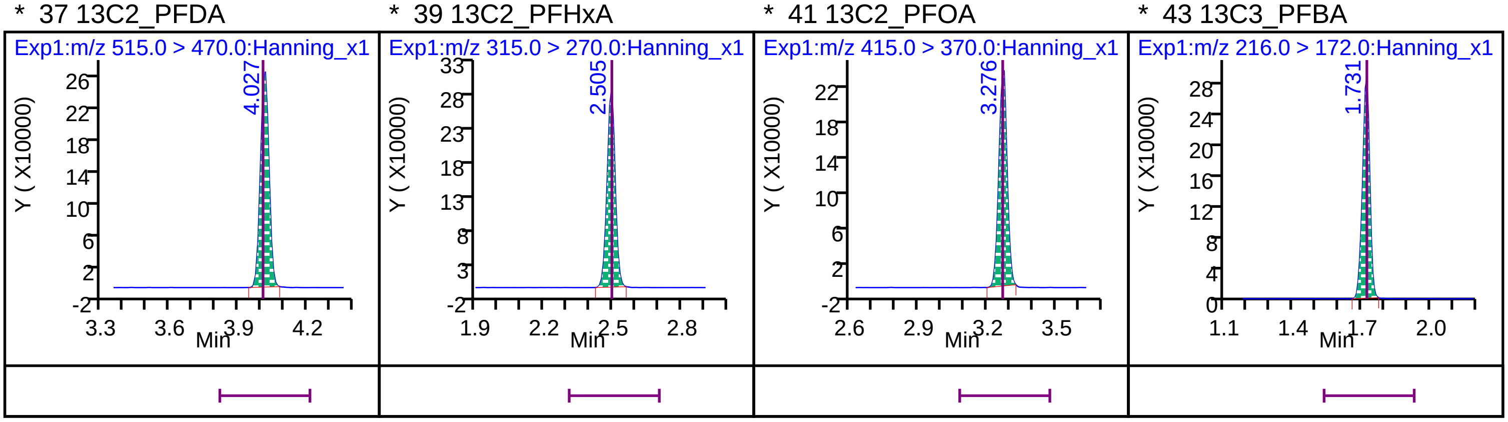
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A) D 40 13C2_PFHxDA (A)



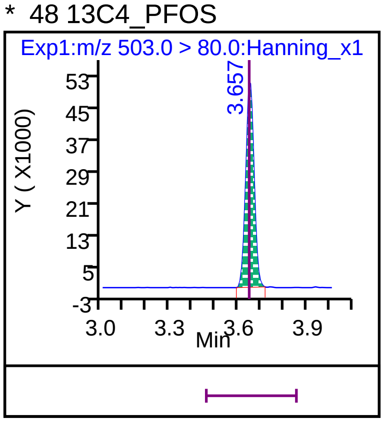
36 Perfluoro-n-octadecanoic acid (PFODA) (M) D 40 13C2_PFHxDA (A)



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

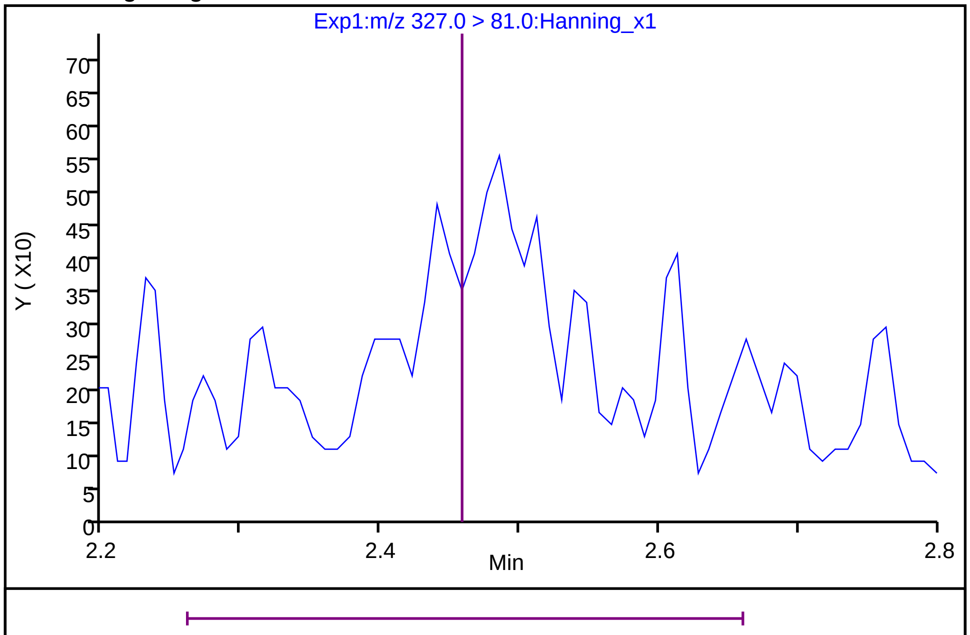
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected

Expected RT: 2.460

RT Window: 2.260-2.660

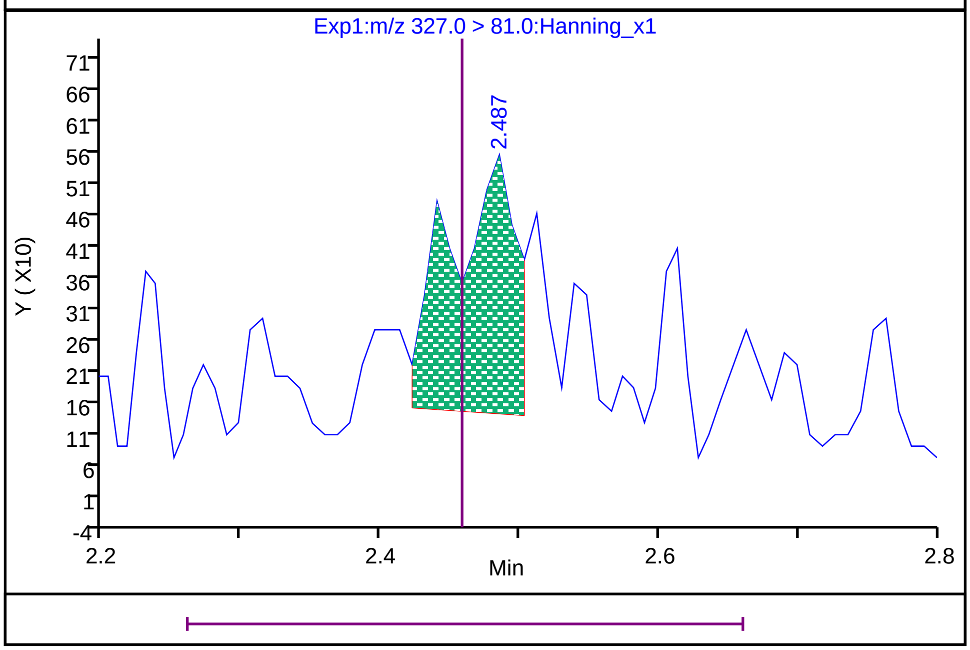


RT: 2.487

Area: 1302

Amount: 46.695

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:38

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

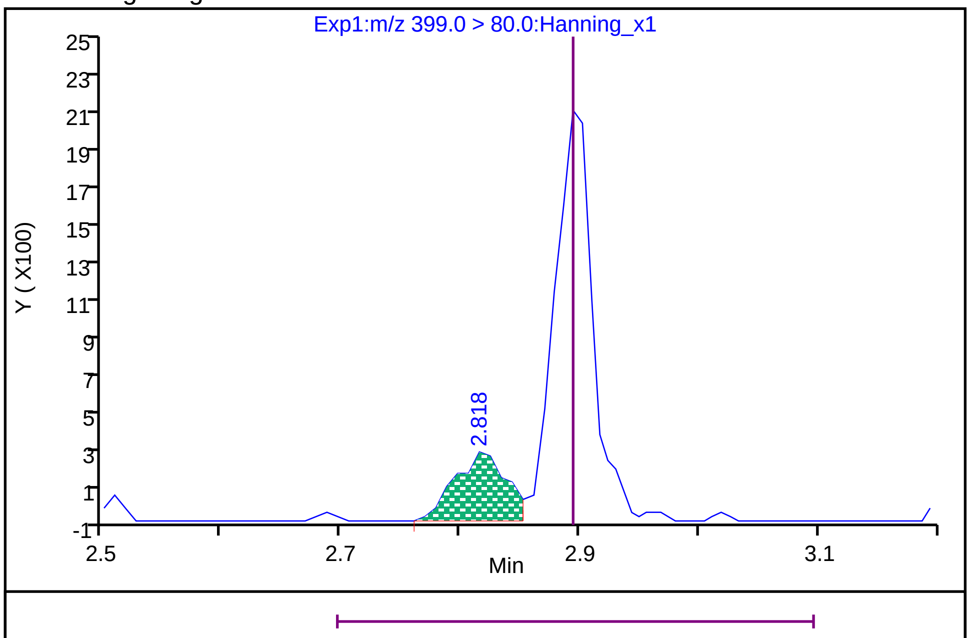
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d
Injection Date:	07-Nov-2021 18:47:44
Inst. ID:	LCMSMS02.i
Client ID:	
Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740
Dil. Factor:	1
Operator:	Justin Gavin

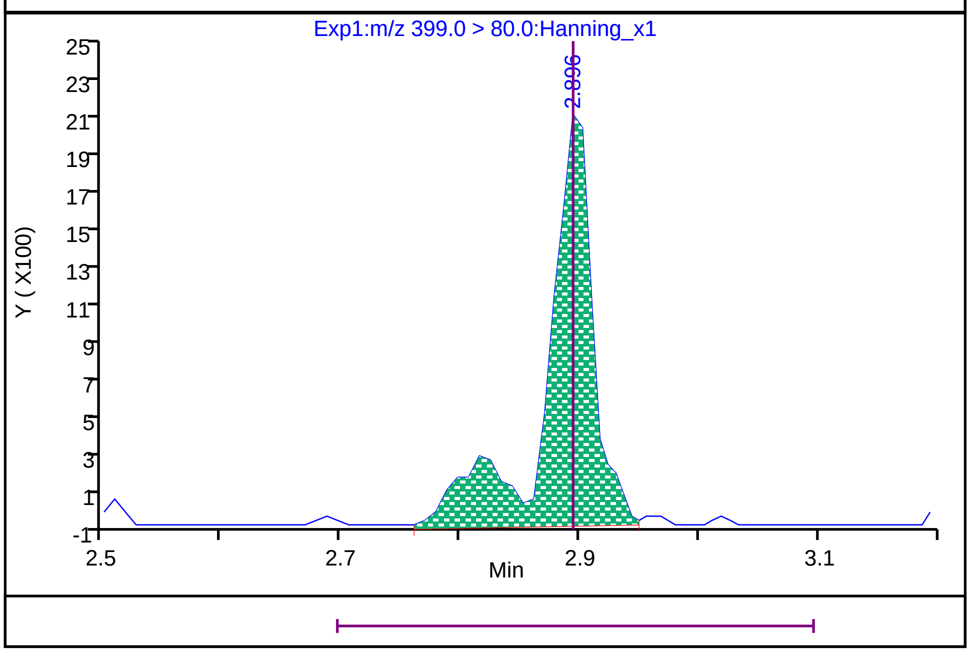
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 1033
Amount: -979.48
Amount Units: ng/L



RT: 2.896
Area: 5763
Amount: 40.980
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:56
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

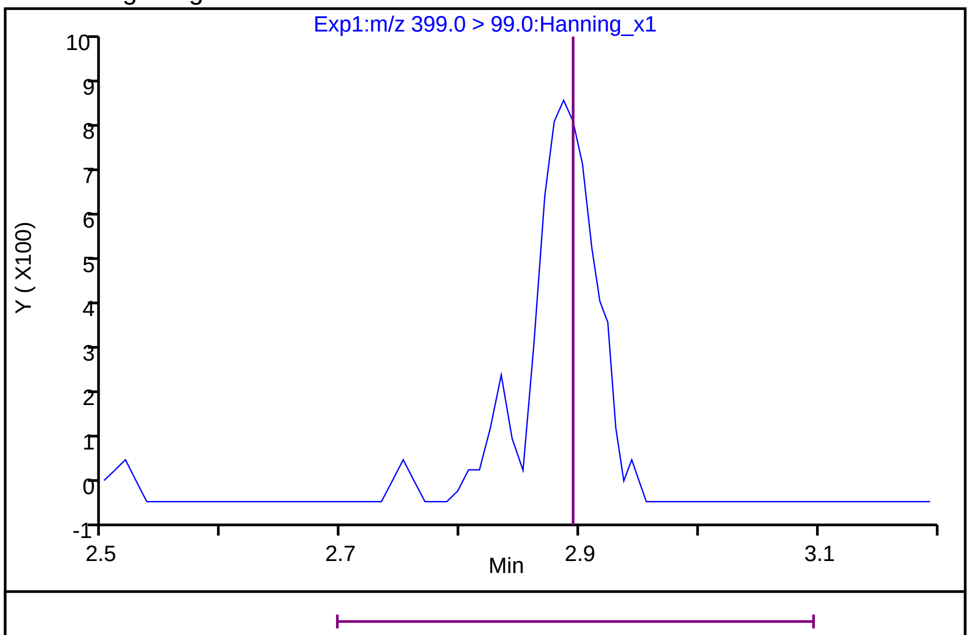
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

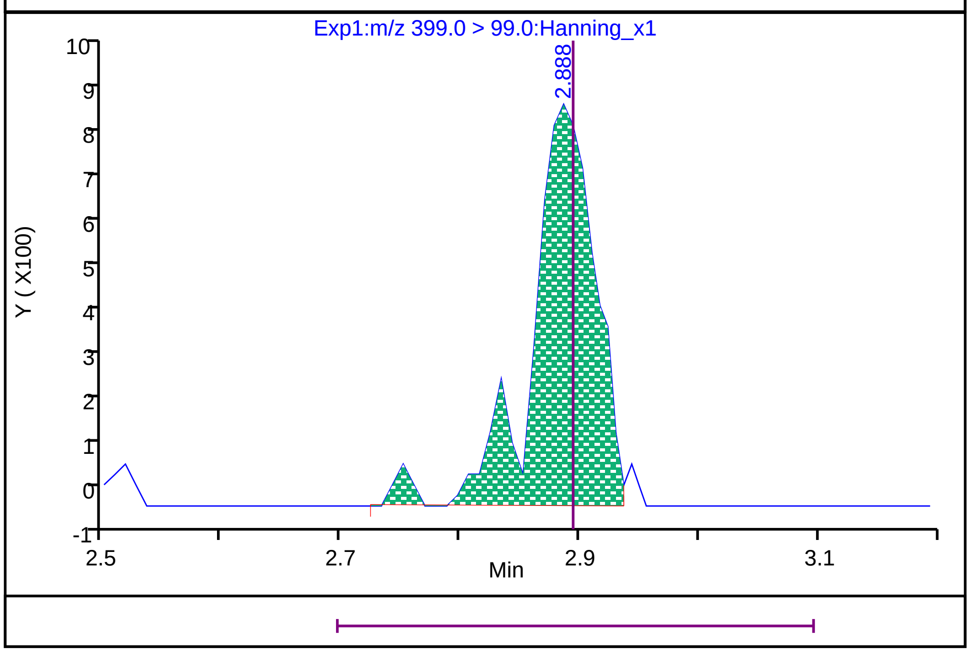
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.836
Area: 634
Amount: 40.980
Amount Units: ng/L



RT: 2.888
Area: 3074
Amount: 40.980
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:02
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

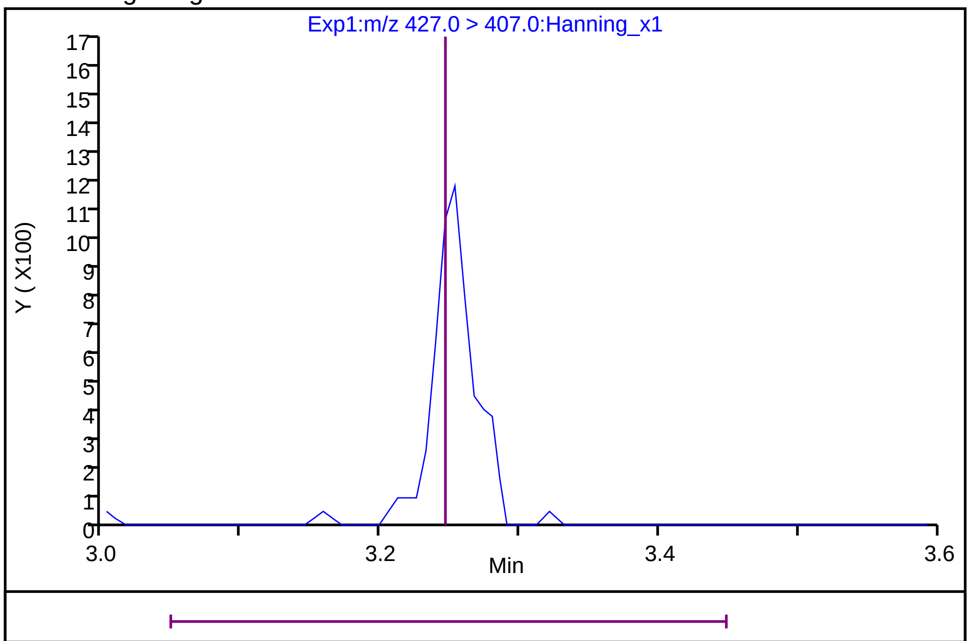
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected

Expected RT: 3.248

RT Window: 3.048-3.448

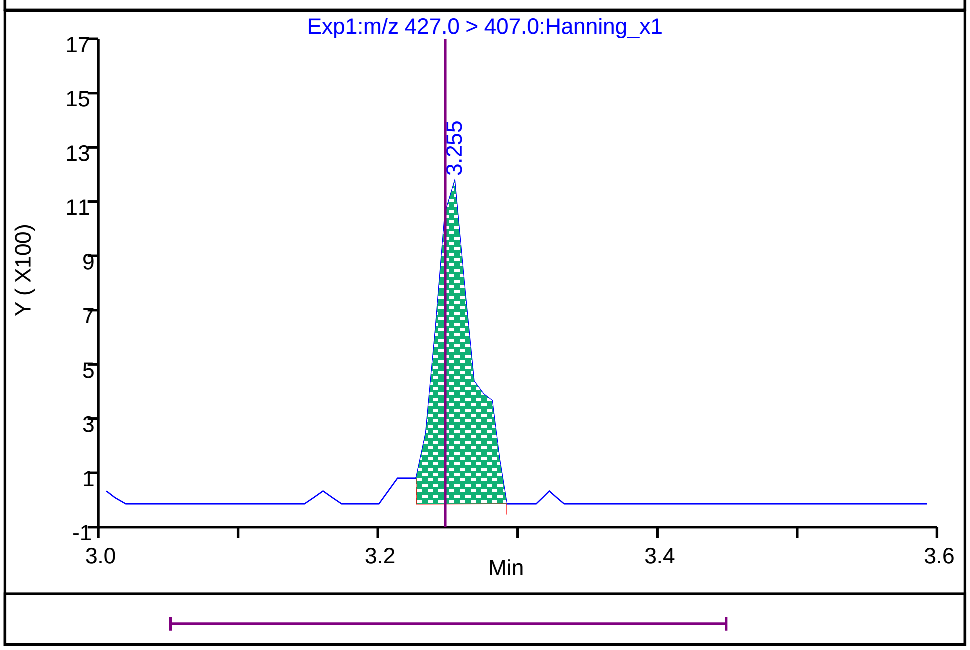


RT: 3.255

Area: 2076

Amount: 47.978

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:49

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

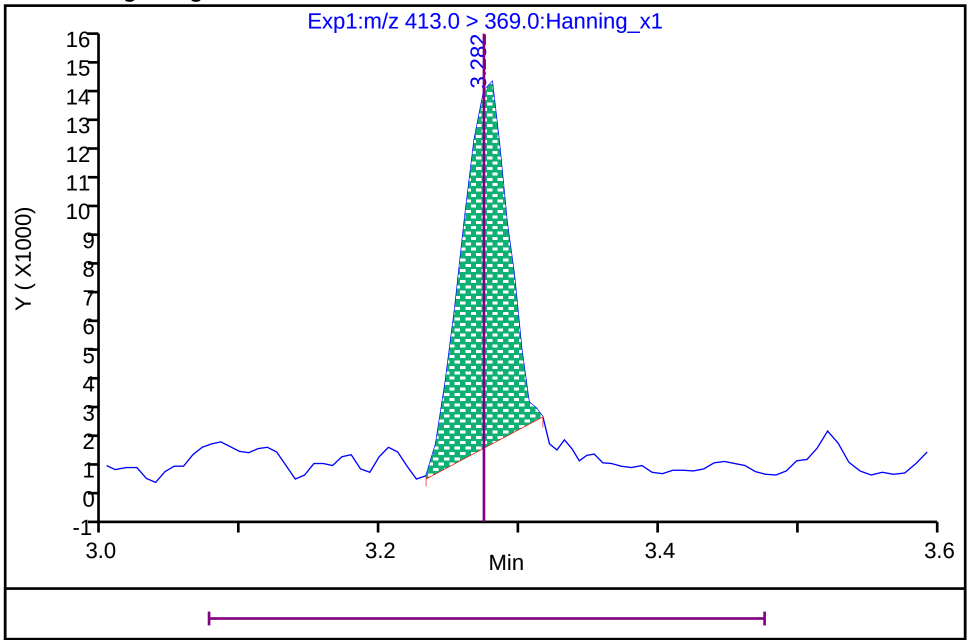
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

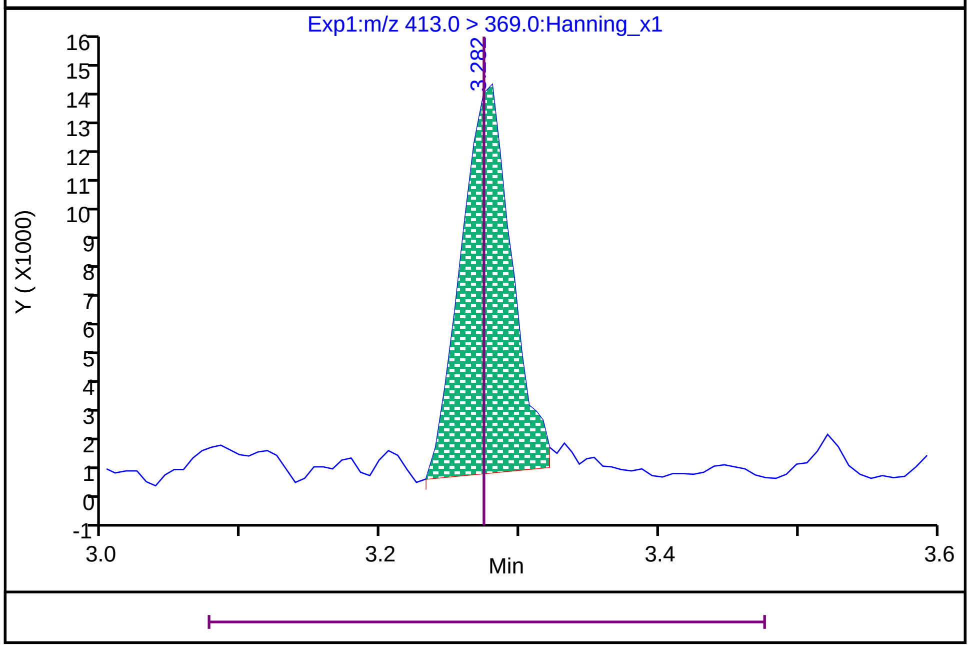
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.282
Area:	28523
Amount:	49.879
Amount Units:	ng/L



RT:	3.282
Area:	32635
Amount:	56.260
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:54:54

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

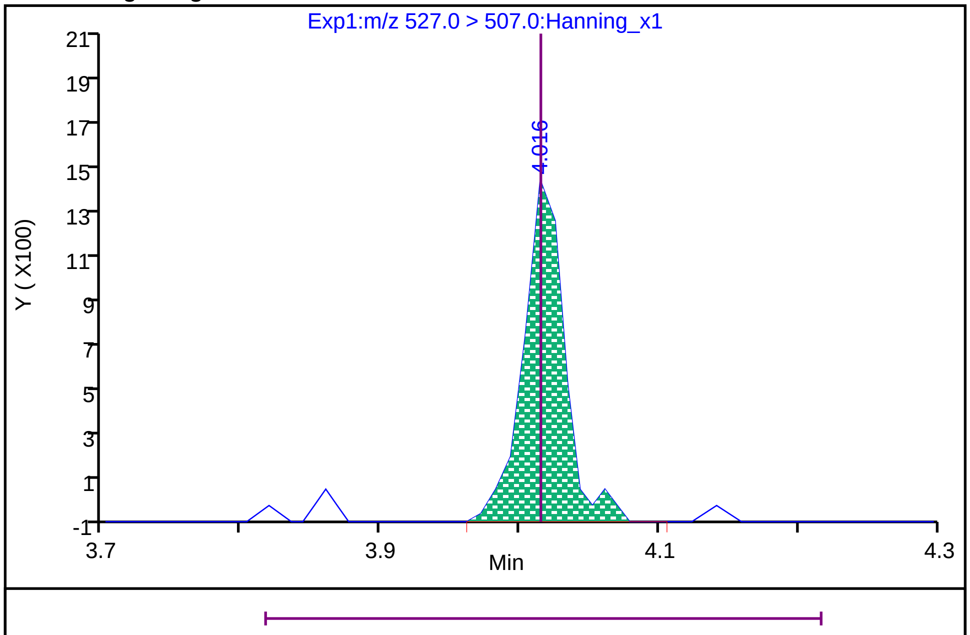
Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

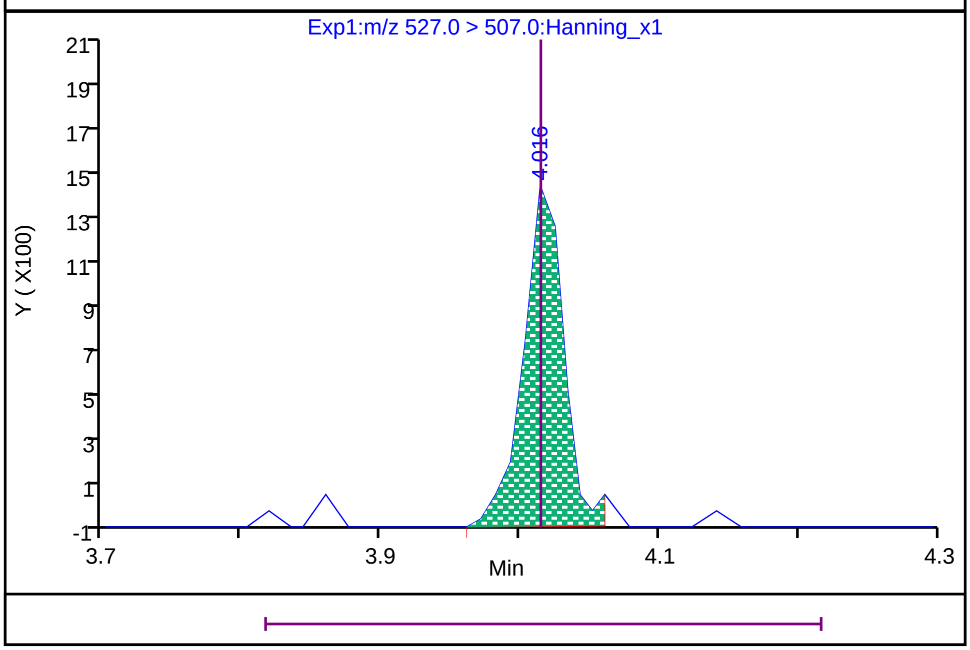
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT: 4.016
Area: 2973
Amount: 67.485
Amount Units: ng/L



RT: 4.016
Area: 2894
Amount: 68.818
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:19

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

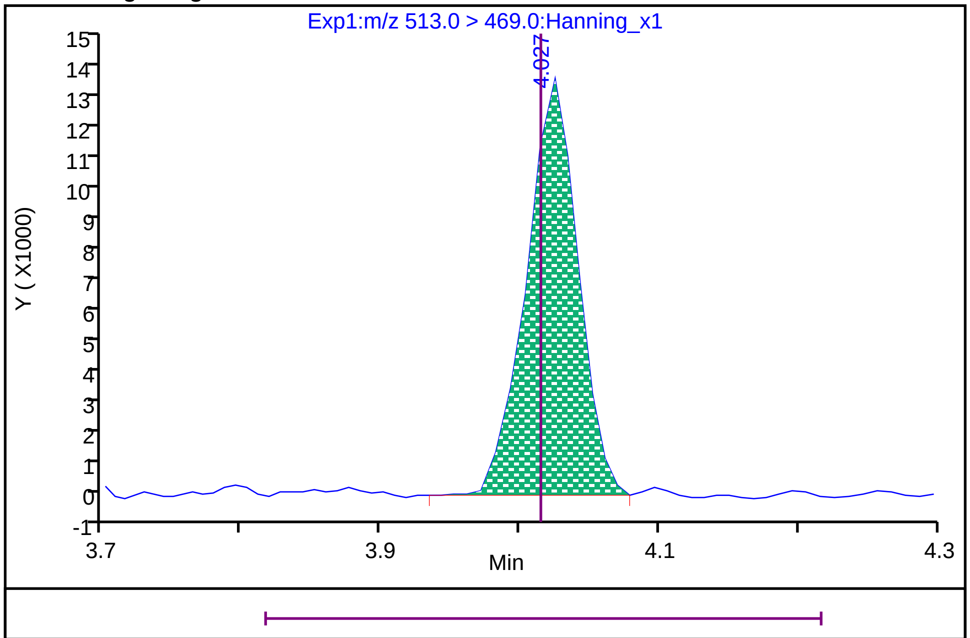
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

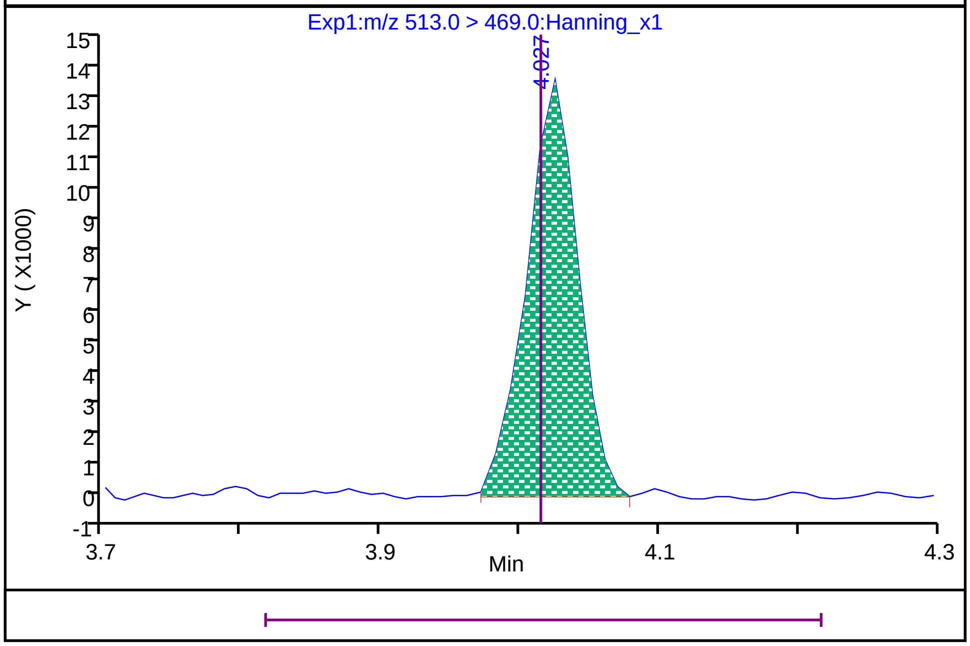
10 PFDA, CAS: 335-76-2

Processing Integration Results

RT: 4.027
Area: 32568
Amount: 71.158
Amount Units: ng/L



RT: 4.027
Area: 32559
Amount: 45.890
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:57

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

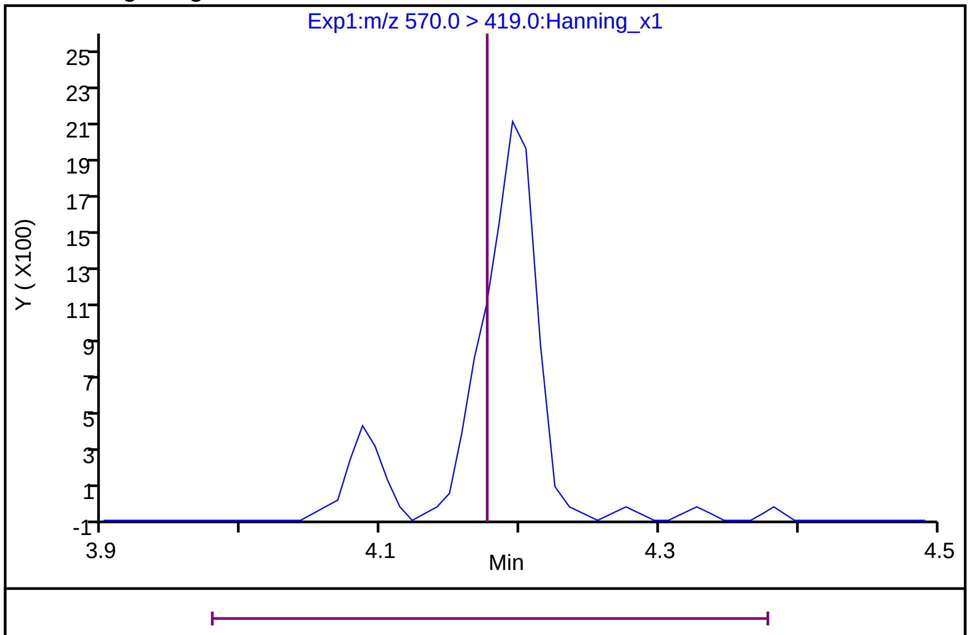
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected

Expected RT: 4.178

RT Window: 3.978-4.378

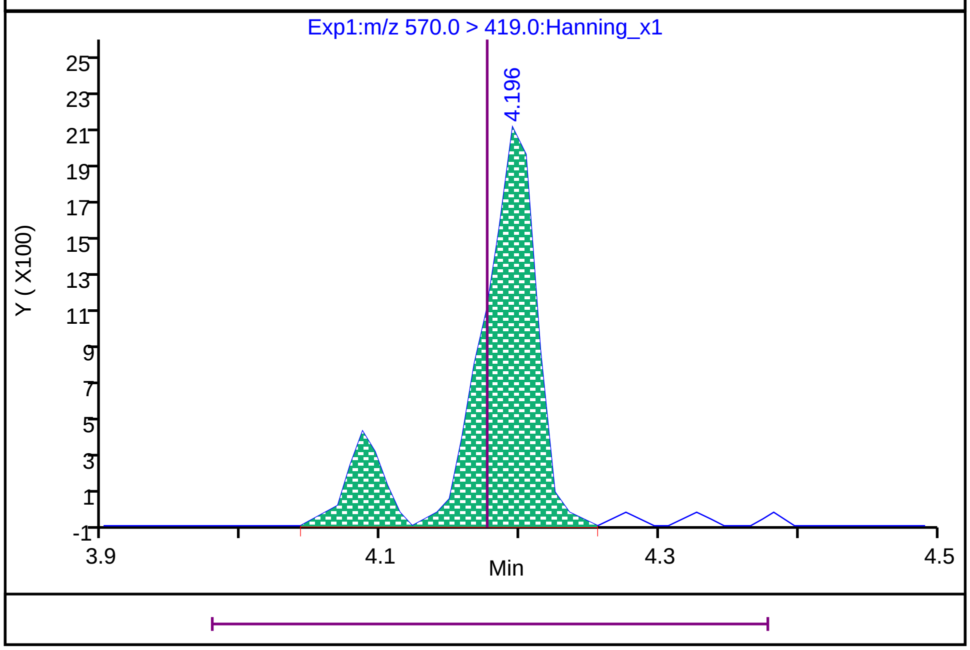


RT: 4.196

Area: 6340

Amount: 51.203

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:44

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

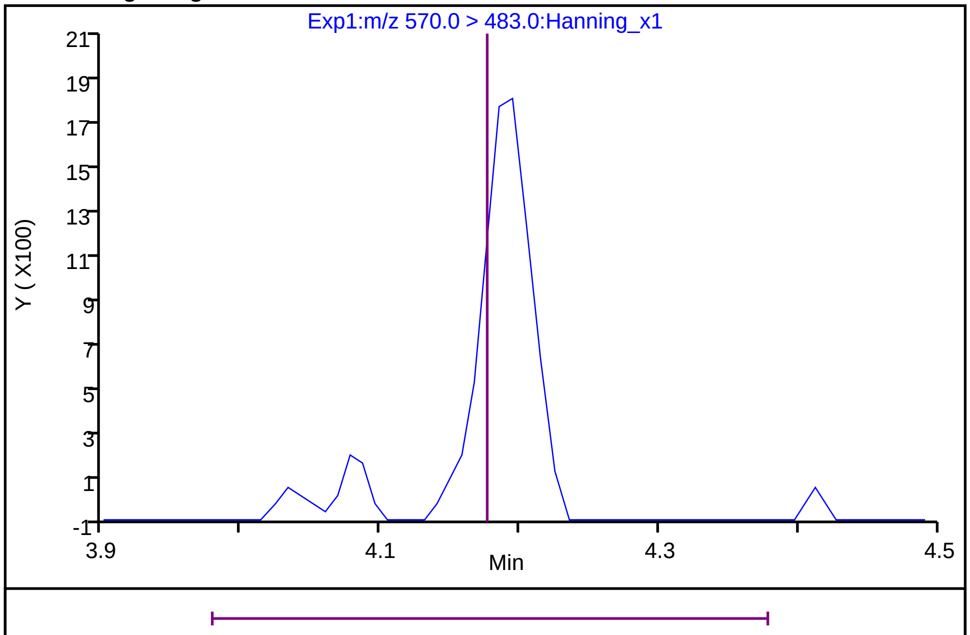
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected

Expected RT: 4.178

RT Window: 3.978-4.378

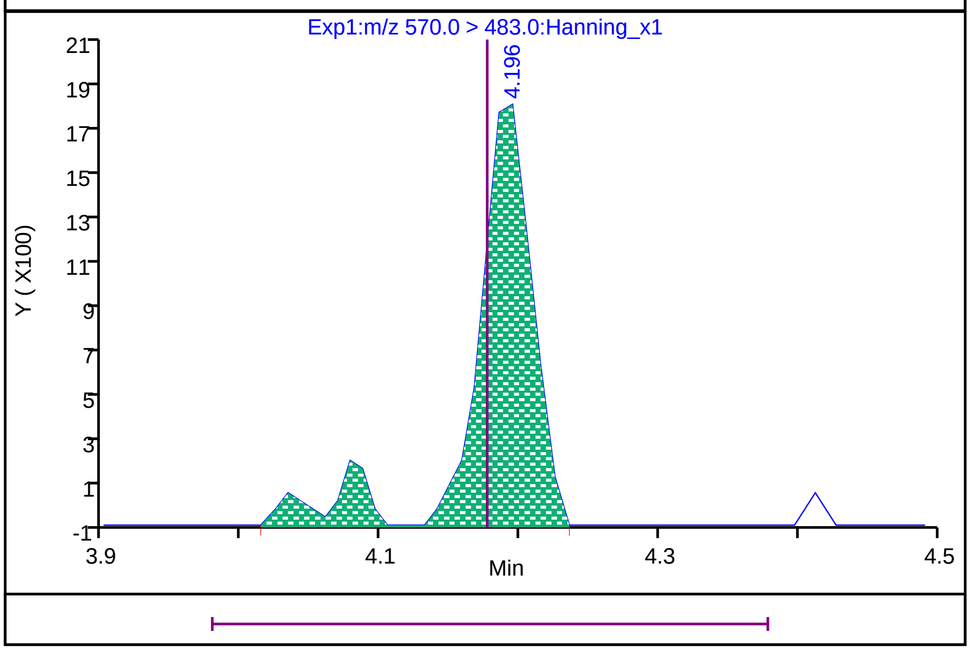


RT: 4.196

Area: 5342

Amount: 51.203

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

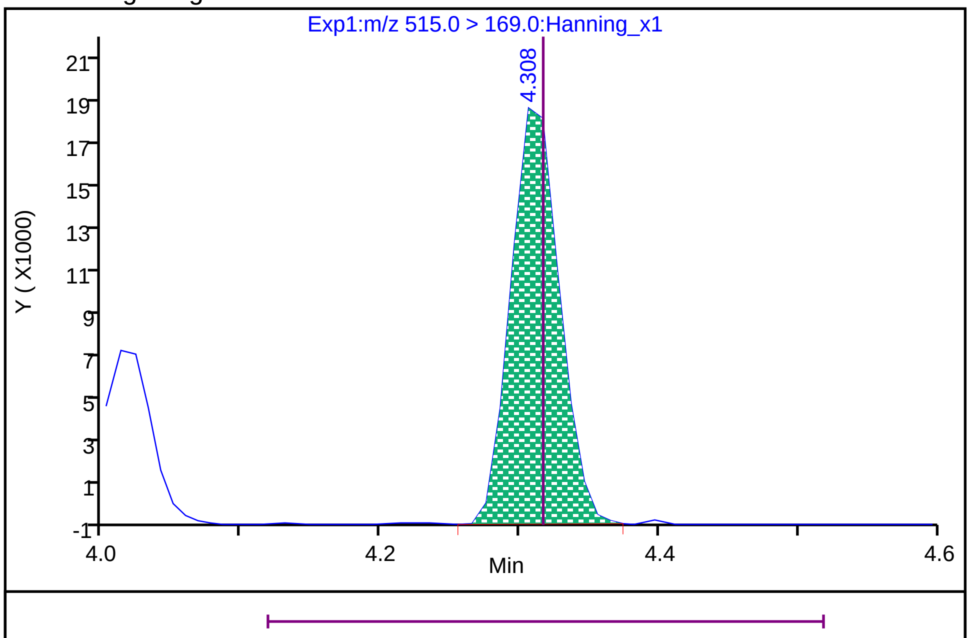
Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

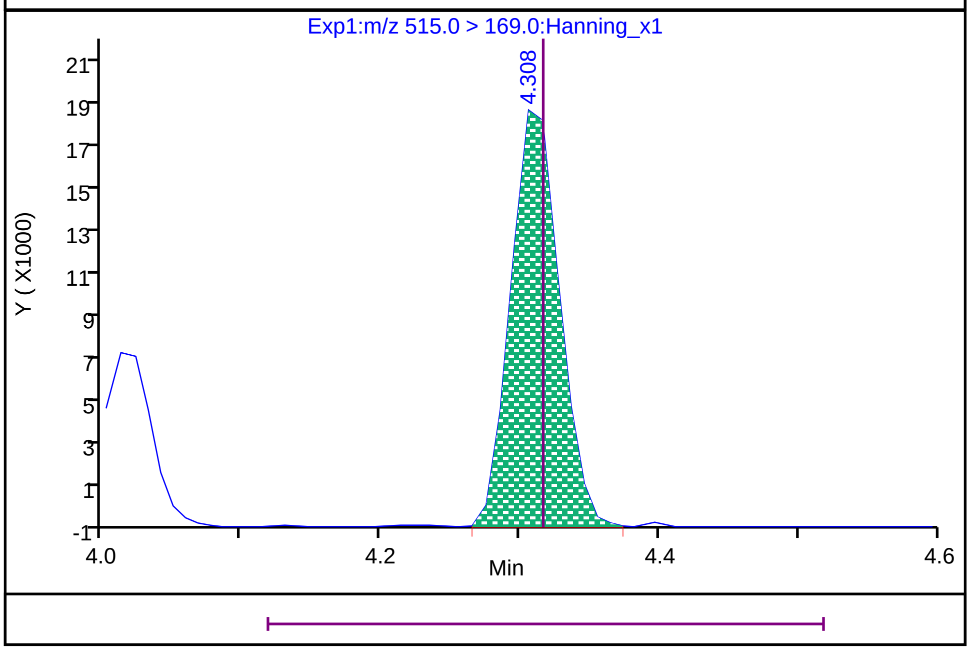
D 57 d3-MeFOSA, CAS: SESI-0109

Processing Integration Results

RT: 4.308
Area: 44820
Amount: 953.32
Amount Units: ng/L



RT: 4.308
Area: 45088
Amount: 958.48
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:55:16

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

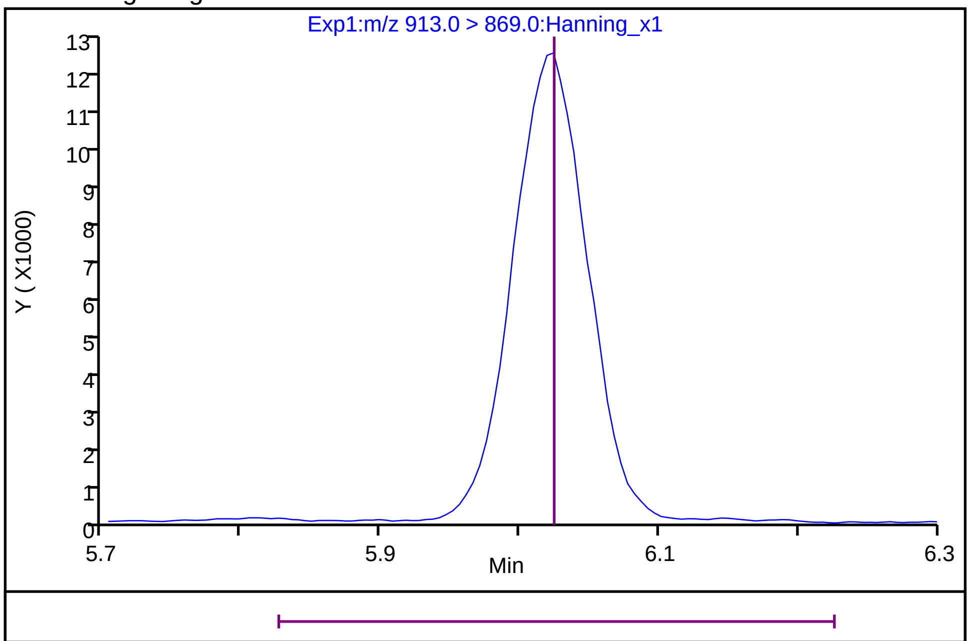
36 PFODA, CAS: 16517-11-6

Processing Integration Results

Not Detected

Expected RT: 6.026

RT Window: 5.826-6.226

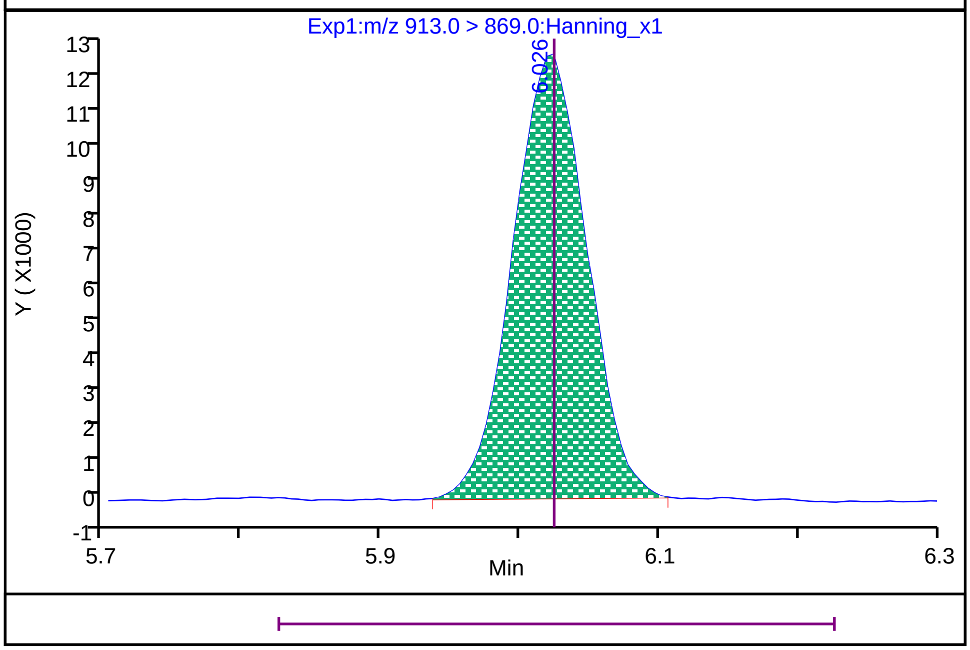


RT: 6.026

Area: 43650

Amount: 52.988

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:55:05

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	76
Sample Info:	ID ICAL 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	639140	20	>100:1			1000.00	1028.09	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	66740	19	97:1			100.00	99.012		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	579707	15	>100:1			1000.00	1014.20	99.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	68039	14	70:1			100.00	104.28		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	172237	16	>100:1			1000.00	995.76	96.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	20952	14	>100:1	Target = 3.53		88.400	97.549		
298.9 > 99	44	2.183	2.183		6553	19	83:1	3.19 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	1/1	15524	16	>100:1	Target = 3.10		93.800	97.253		
349 > 99	44	2.531	2.531		4132	12	58:1	3.75 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	117065	14	>100:1			5000.00	5169.87	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	4592	14	72:1	Target = 1.75		93.400	88.973		M
327 > 81	63	2.460	2.460		3250	11		1.41 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	670974	17	>100:1			1000.00	1030.23	100.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/1	66898	21	>100:1	Target = 18.91		100.00	95.890		
313 > 119	49	2.505	2.505		2951	11	42:1	22.66 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	1	1197981	19	>100:1			5000.00	5169.14	99.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	29374	16	100:1	Target = 0.79		200.00	189.30		M
285 > 185	66	2.622	2.622		38380	18	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	1	548747	18	>100:1			1000.00	1033.54	103	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	1/0	60017	18	>100:1	Target = 3.80		100.00	99.534		
363 > 169	47	2.888	2.880		16168	16	>100:1	3.71 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	125934	19	>100:1			1000.00	1002.34	97.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													a
399 > 80	45	2.896	2.896	6/5	12218	24	61:1	Target = 2.89	5.96	91.000	88.248		M
399 > 99	45	2.888	2.896		5261	20	69:1	2.32 (1.44-4.34)	9.97				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	95386	17	>100:1	Target = 3.23		94.200	97.667		
377 > 85	45	2.925	2.919		29244	18	>100:1	3.26 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.282	3.276	1/0	13136	20	>100:1	Target = 3.12		95.200	101.56		
449 > 99	45	3.282	3.276		5024	20	45:1	2.61 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	93235	24	>100:1			5000.00	5179.73	99.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	5217	19		Target = 1.75		94.800	118.19		
427 > 81	64	3.241	3.248		3232	14	5.0:1	1.61 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	0	554295	23	>100:1			1000.00	1056.45	101.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	52014	21	42:1	Target = 2.89		100.00	91.571		
413 > 169	53	3.282	3.276		20893	21	>100:1	2.48 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	121269	21	>100:1			1000.00	979.22	91.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.662	0/-1	14281	45	34:1	Target = 3.30	3.55	92.800	98.904		
499 > 99	54	3.657	3.662		4701	29	62:1	3.03 (1.65-4.95)	14.37				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/0	42553	19	>100:1			93.200	92.656		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	0/-1	9317	18		Target = 3.08		96.000	95.763		
549 > 99	54	4.005	4.006		3298	20	13:1	2.82 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/-1	9046	20	36:1	Target = 2.72		96.400	95.324		
599 > 99	54	4.318	4.318		2895	18	23:1	3.12 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.483	0/-1	41193	16	>100:1			94.200	99.217		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.851	4.842	1/0	9475	26	65:1	Target = 3.27		96.800	90.863		
699 > 99	54	4.851	4.842		2947	19		3.21 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.662	1	668048	22	>100:1			1000.00	1043.21	104.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.662	1/0	71588	21	>100:1	Target = 6.51		100.00	99.418		
463 > 169	56	3.668	3.662		11437	21	>100:1	6.25 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	0	278692	17	>100:1			1000.00	1039.67	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	0/0	27706	13	>100:1	Target = 41.63		100.00	94.484		
498>478	55	3.912	3.896		185	13		149.76 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.016	1	566586	16	>100:1			1000.00	985.95	98.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/0	68174	18	>100:1	Target = 13.80		100.00	103.39		
513 > 169	51	4.027	4.016		4152	21		16.41 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	0	89788	16	>100:1			5000.00	5194.71	113.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.027	4.016	1/1	3178	19	15:1	Target = 1.94		95.800	78.320		
527 > 81	65	4.027	4.016		2087	10	8.9:1	1.52 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	5252	15		Target = 3.54		96.400	115.30		
627 > 80	65	4.631	4.631		1900	23	5.8:1	2.76 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.187	4.178	1	757204	17	>100:1			5000.00	5010.86	98	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/-1	12194	23	66:1	Target = 1.37	10.57	100.00	100.35		
570 > 483	58	4.187	4.178		6822	27	25:1	1.78 (0.68-2.05)	5.14				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.288	0	97587	14	>100:1			1000.00	1082.03	108.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/0	9069	19	56:1			100.00	85.037		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	51324	14	>100:1			1000.00	1091.04	114.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	4810	16	25:1	Target = 1.11		100.00	86.465		
512 > 219	57	4.318	4.318		4765	21	32:1	1.00 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.347	4.338	1	700240	16	>100:1			5000.00	5406.71	101.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.347	4.348	0/-1	10673	29		Target = 1.51	8.24	100.00	78.160		
584 > 526	60	4.347	4.348		9865	33		1.08 (0.75-2.26)	3.20				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	605845	17	>100:1			1000.00	1005.97	95.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	60854	16	>100:1	Target = 14.52		100.00	103.66		
563 > 169	52	4.347	4.338		4201	21		14.48 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	112304	14	>100:1			1000.00	1058.70	110.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.464	0/0	10317	20	57:1			100.00	94.369		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	0	41158	16	>100:1			1000.00	957.17	96	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	0/0	6677	12	41:1	Target = 1.06		100.00	123.80		
526 > 219	59	4.482	4.483		4453	19	22:1	1.49 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.614	1	609758	17	>100:1			1000.00	1015.69	100.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	0/-1	62385	14	15:1	Target = 10.70		100.00	95.970		
613 > 169	38	4.631	4.622		6335	15	26:1	9.84 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	0/-1	63642	18	>100:1	Target = 8.31		100.00	99.300		
663 > 169	38	4.877	4.877		8192	21	>100:1	7.76 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.112	5.106	1	821567	22	>100:1			1000.00	1010.55	98	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.112	5.106	1/0	73189	20	18:1	Target = 12.17		100.00	102.05		
713 > 169	42	5.106	5.106		5801	21	97:1	12.61 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.552	5.544	0	861836	21	>100:1			1000.00	992.86	98.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.552	5.552	0/0	59390	21	8.1:1	Target = 10.43		100.00	107.60		
813 > 269	40	5.560	5.552		5561	25	>100:1	10.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.031	6.026	1/1	80162	32	>100:1	Target = 13.67		100.00	102.17		
913 > 319	40	6.031	6.026		6323	38	>100:1	12.67 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	665974	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	662021	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	543161	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	568408	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	128160	21	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

Report Date: 08-Nov-2021 10:00:22 | AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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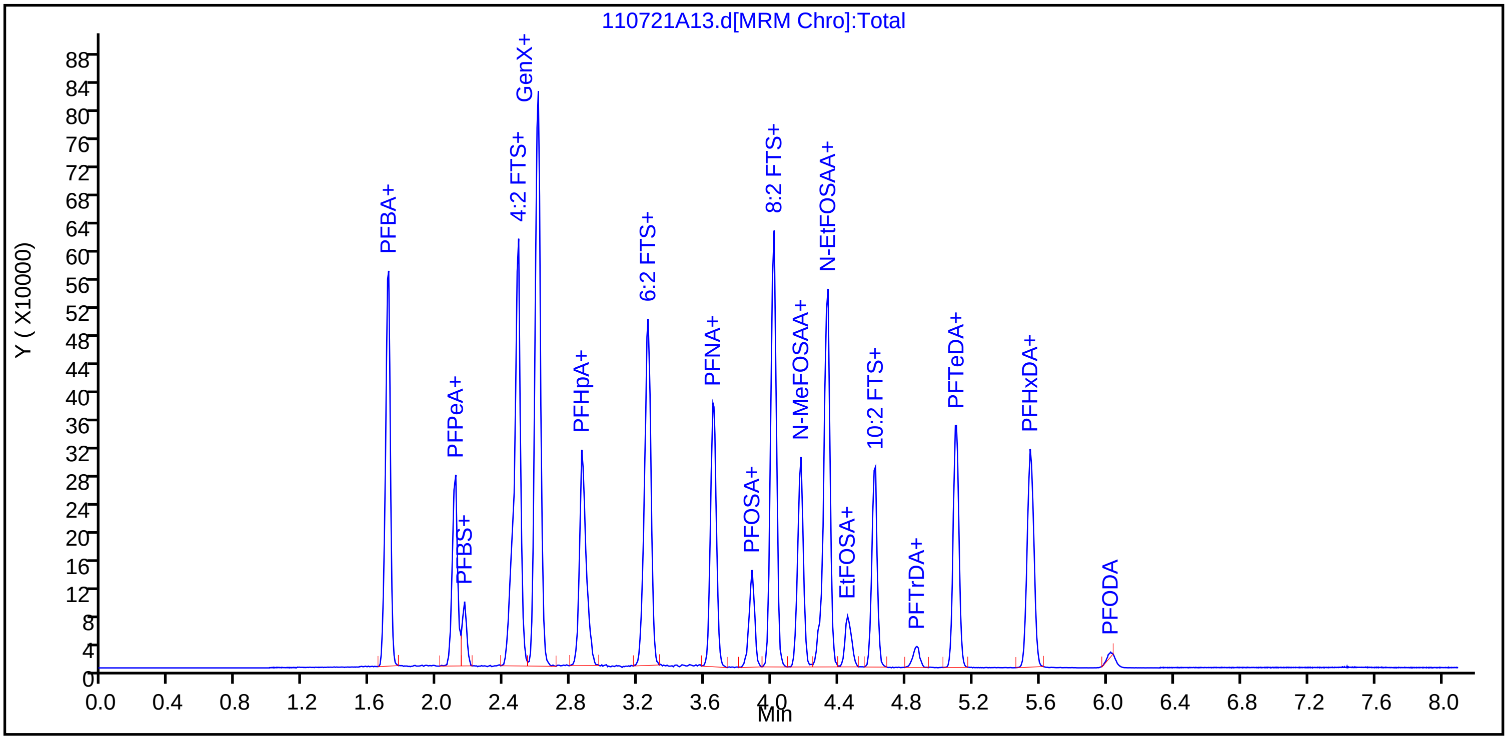
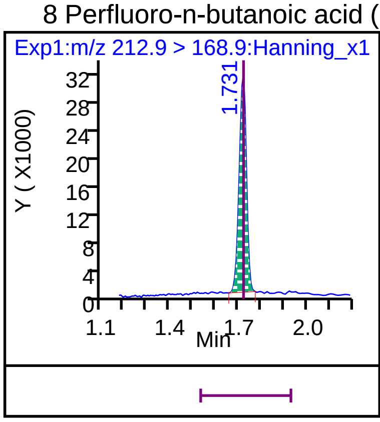
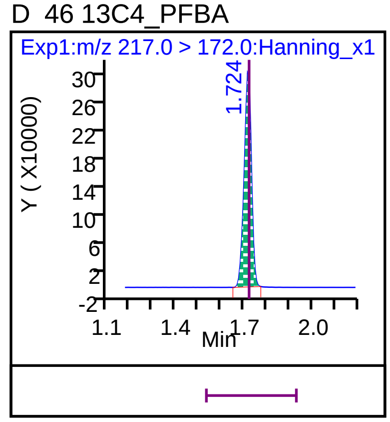
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



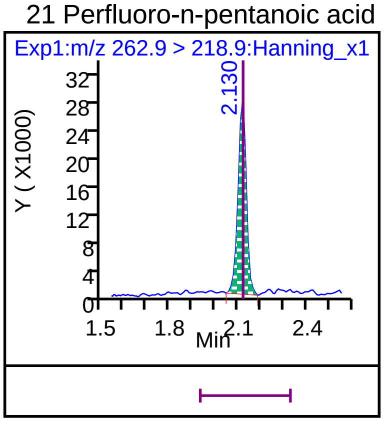
8 Perfluoro-n-butanoic acid (PFBA)



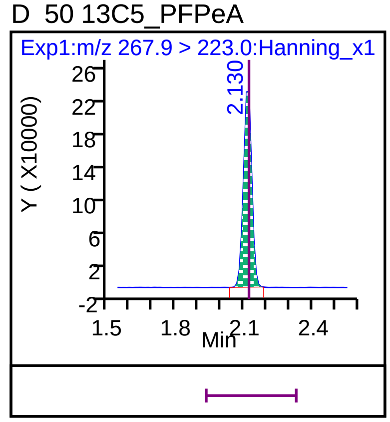
D 46 13C4_PFBA



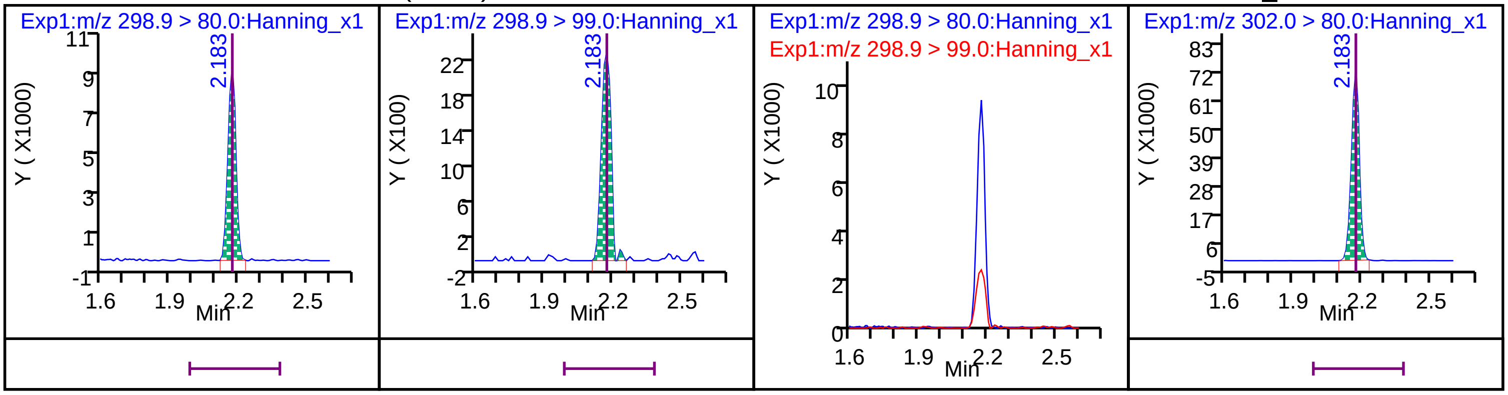
21 Perfluoro-n-pentanoic acid (PFPeA)



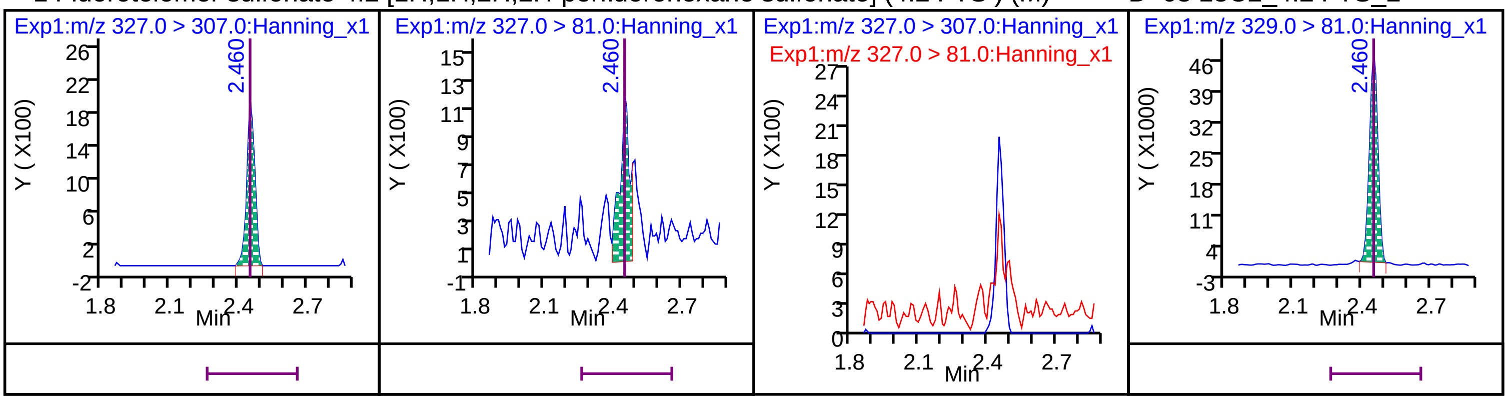
D 50 13C5_PFPeA



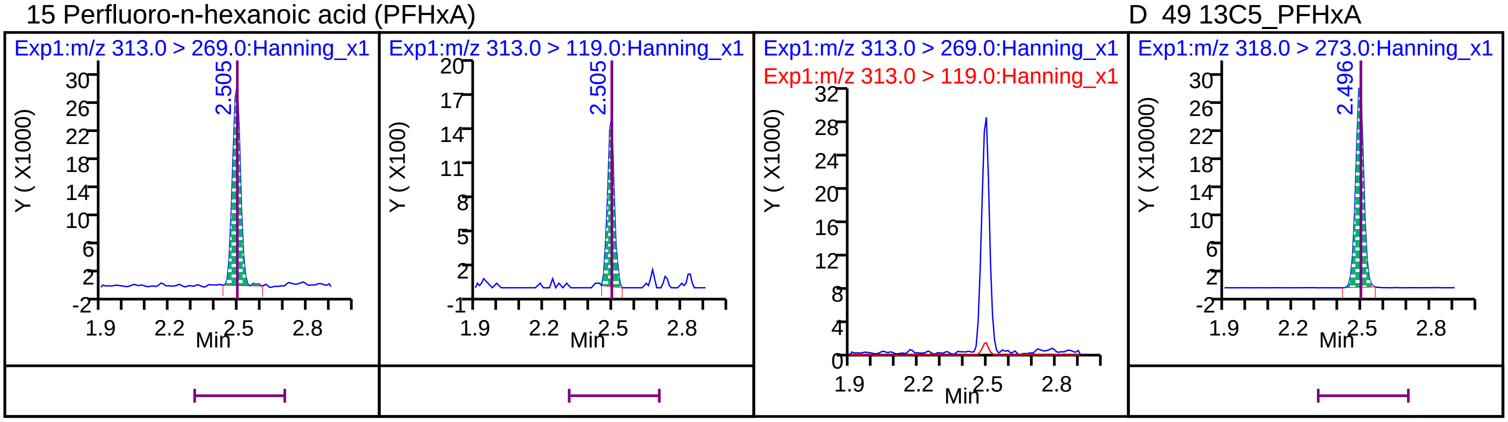
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



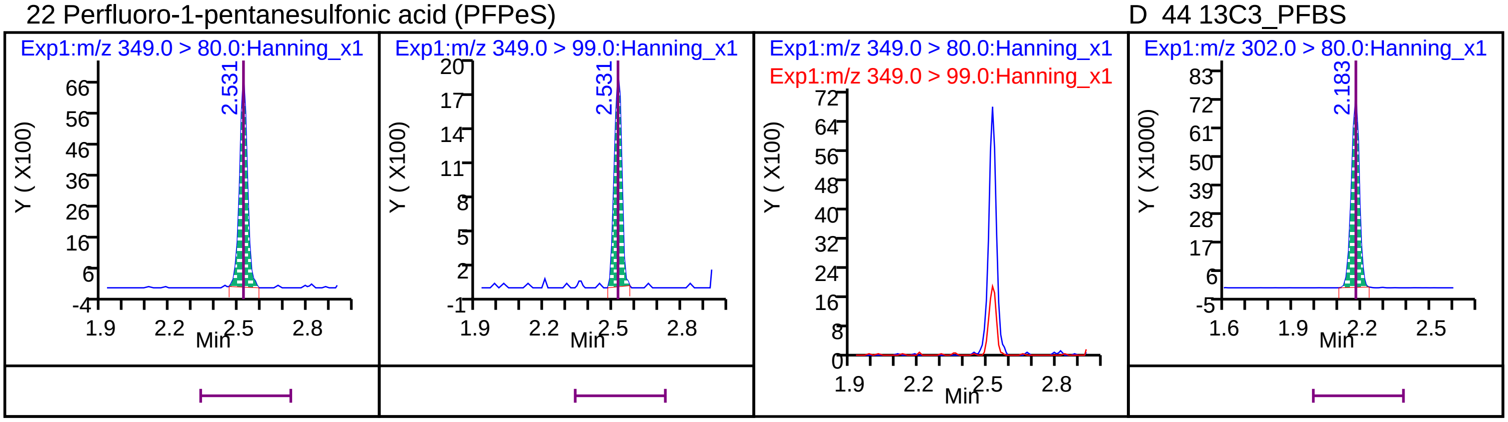
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



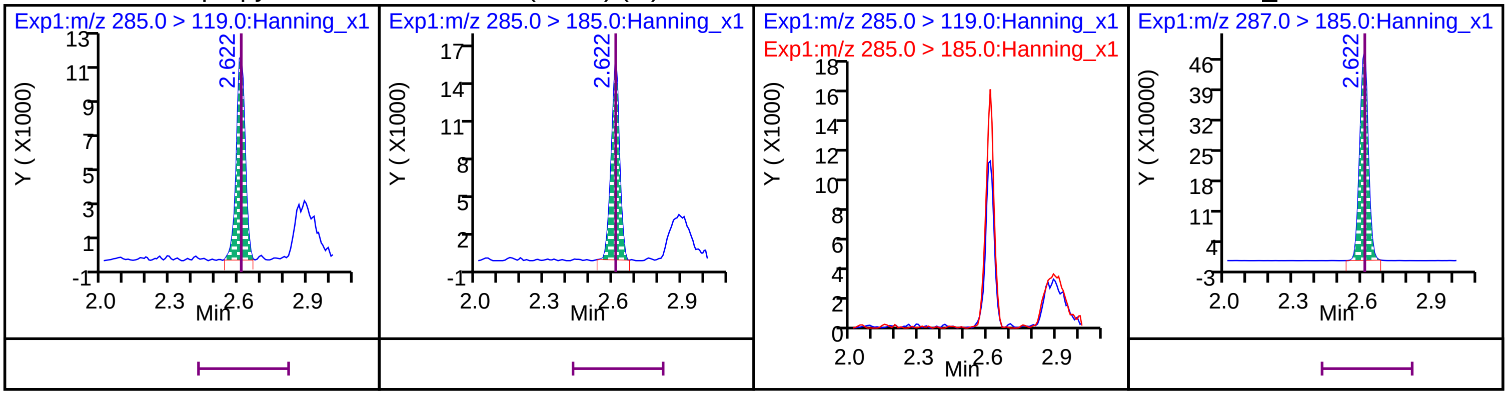
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



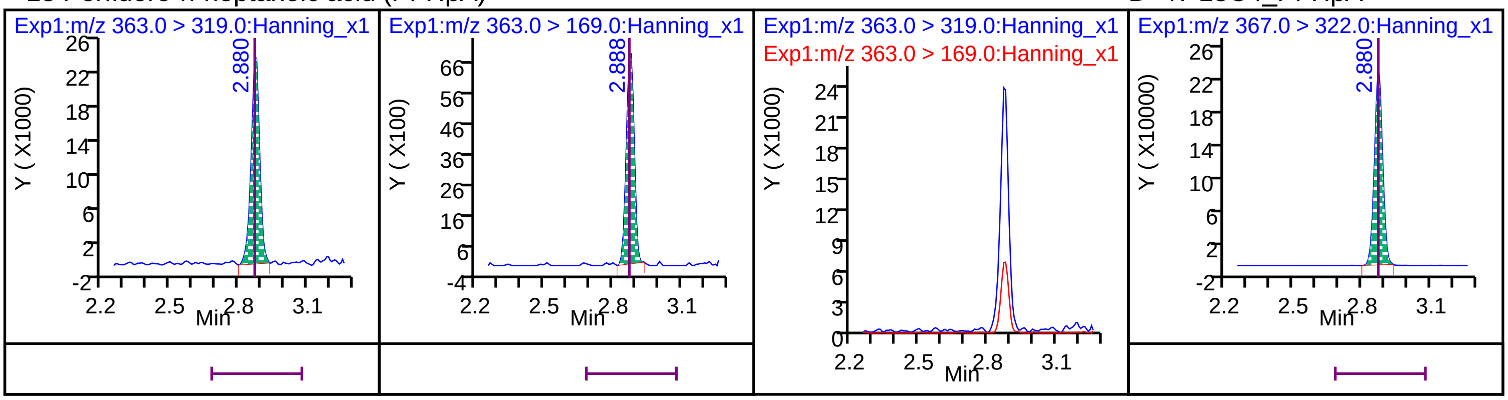
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



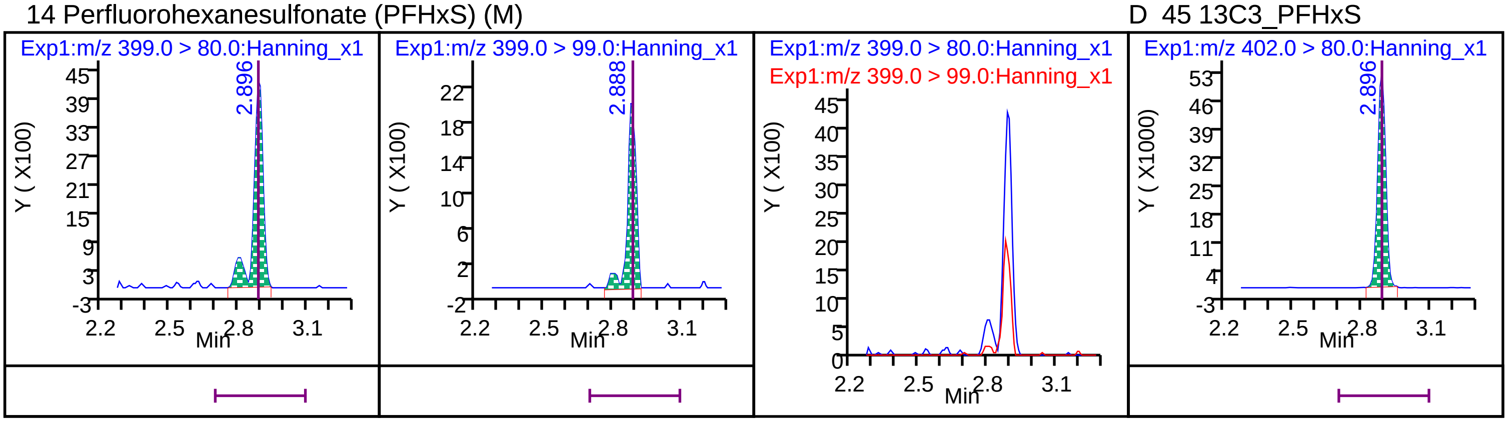
28 Hexafluoropropylene oxide dimer acid (GenX) (M) D 66 13C3_GenX



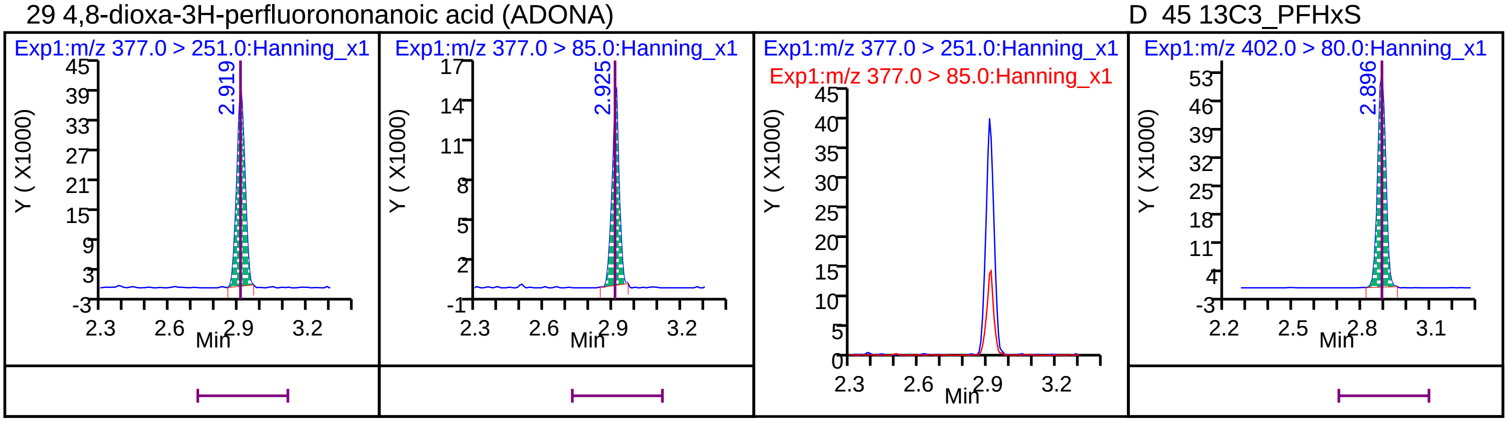
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
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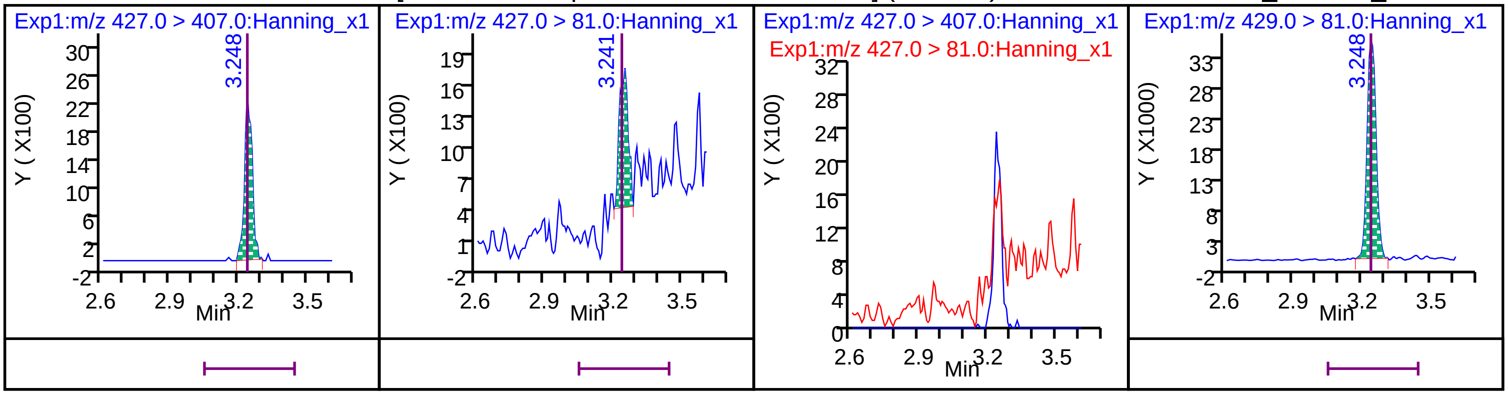
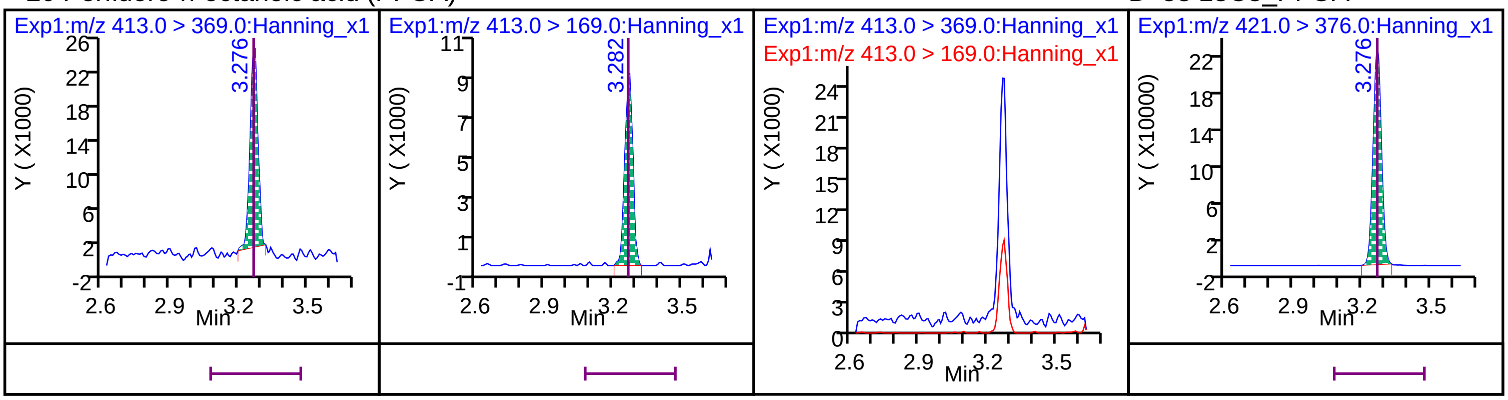
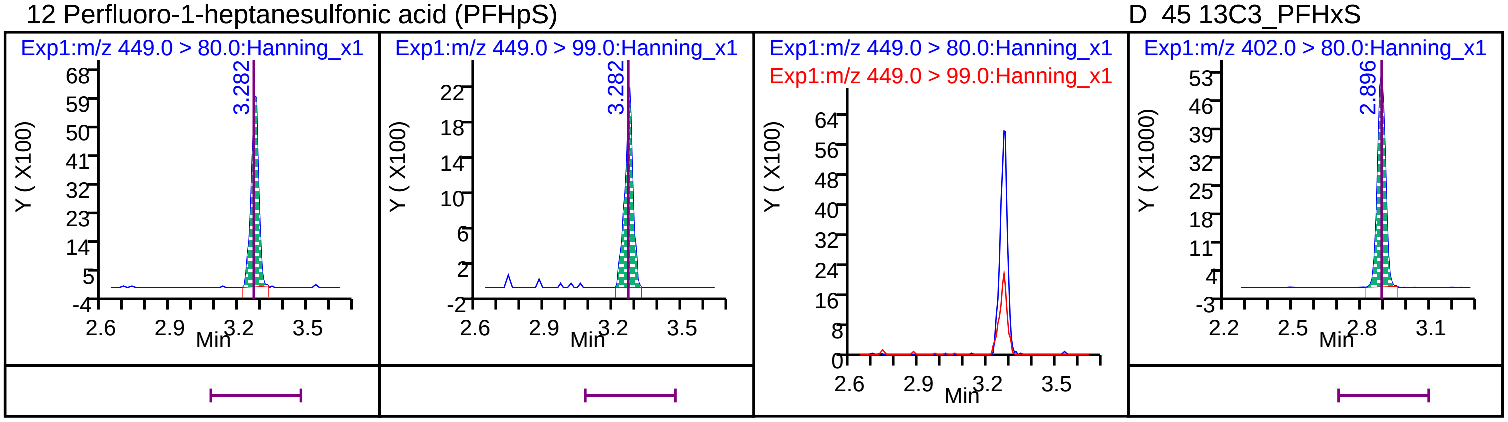
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



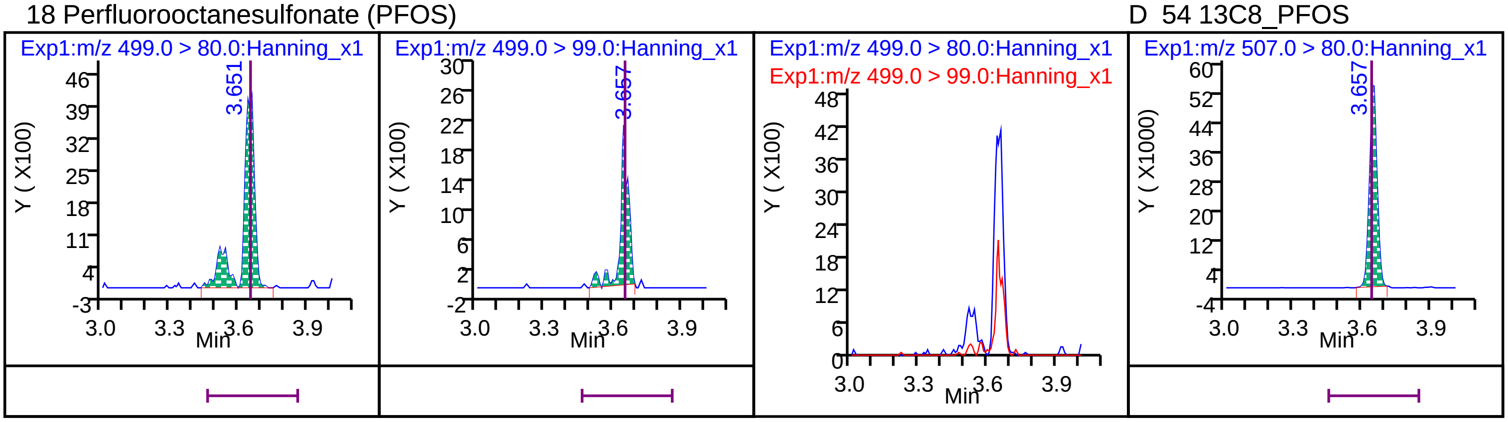
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



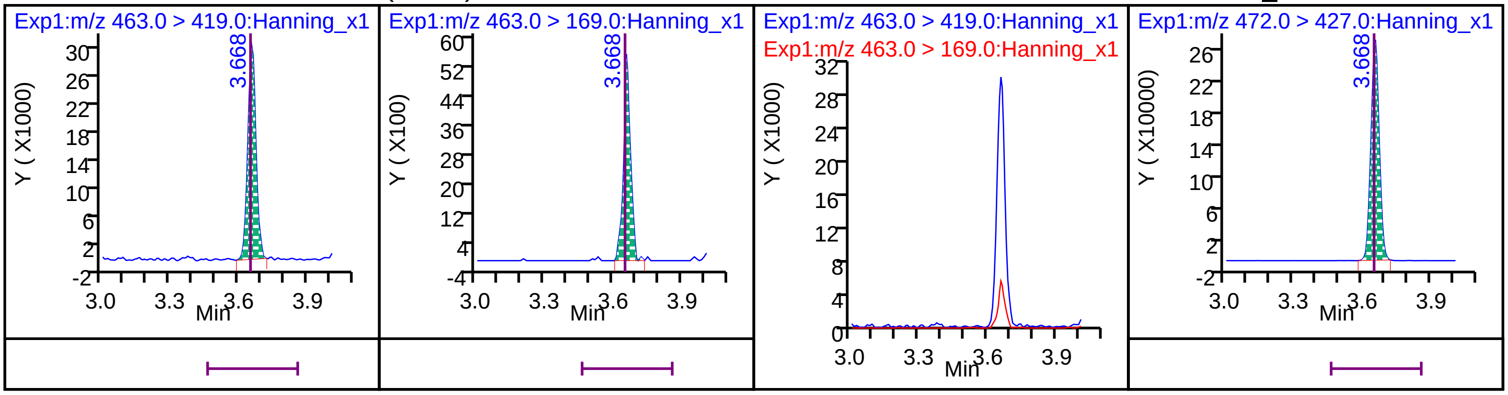
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



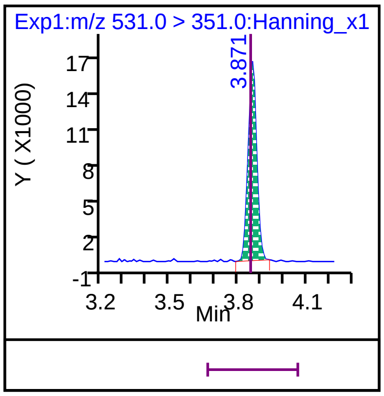
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

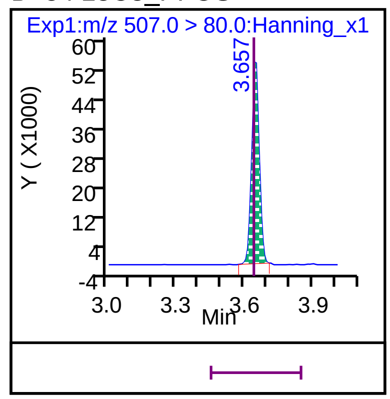


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

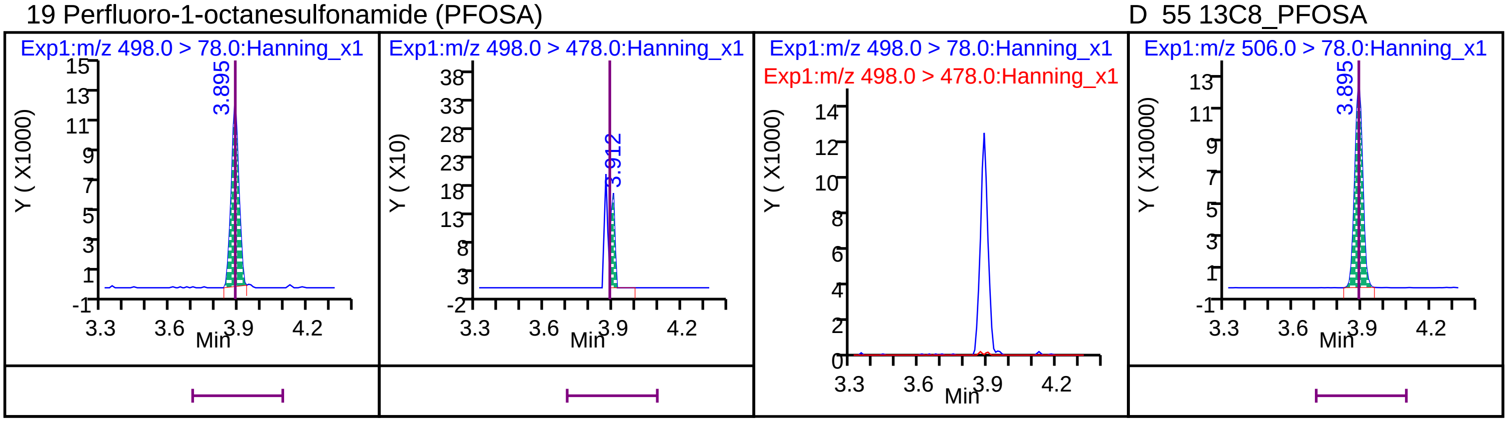


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

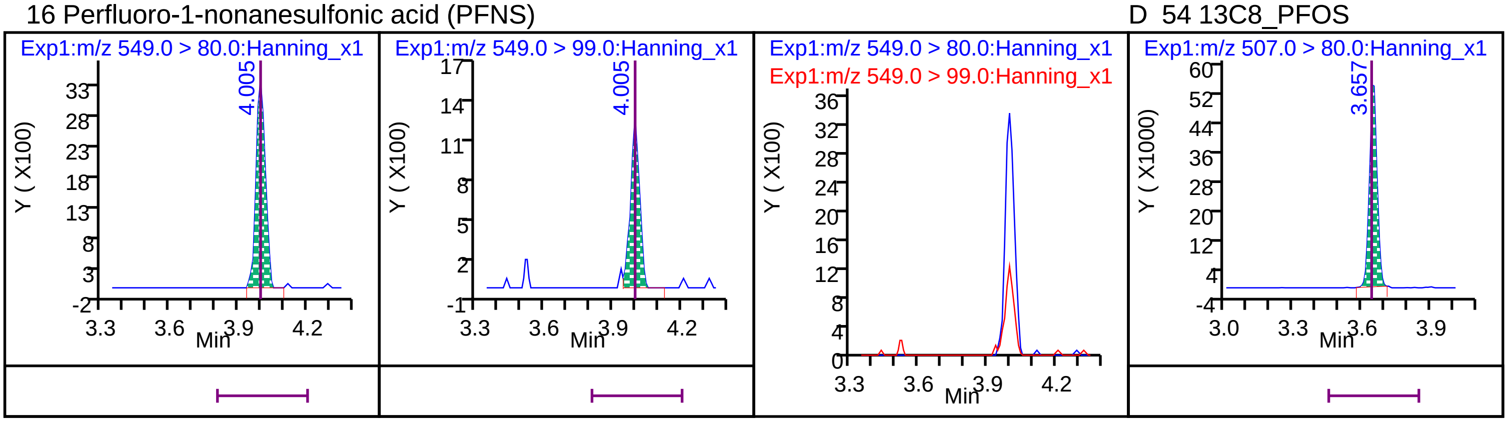




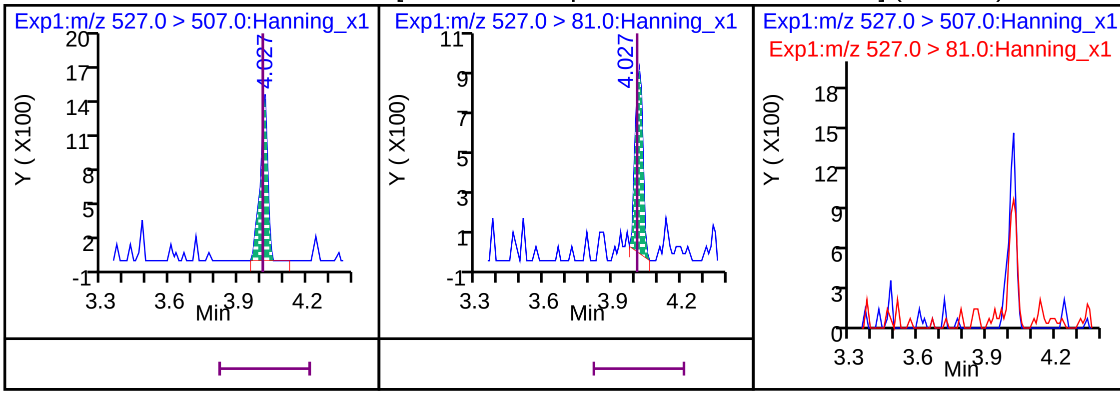
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



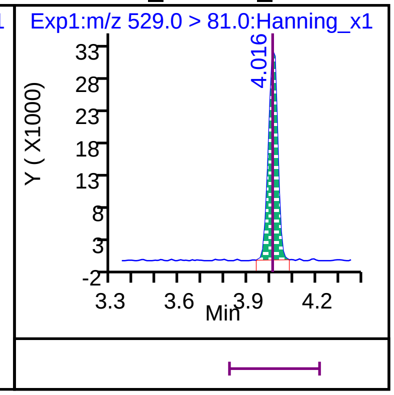
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



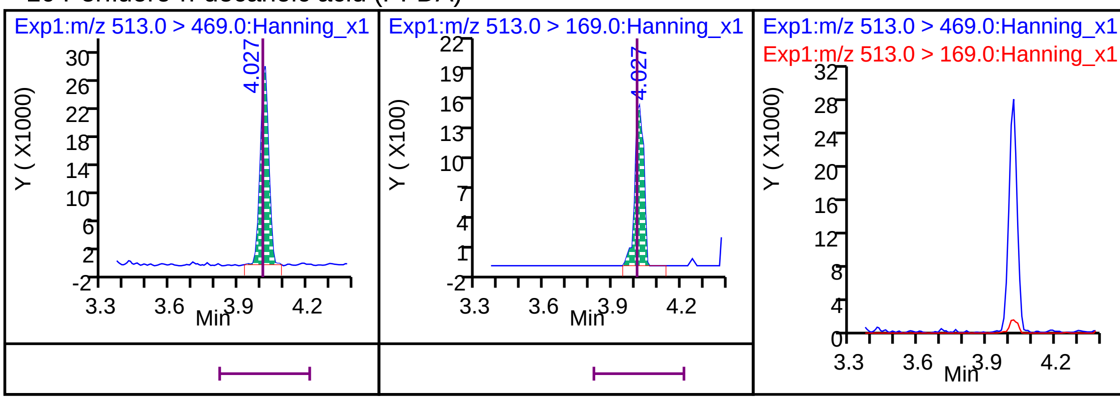
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)



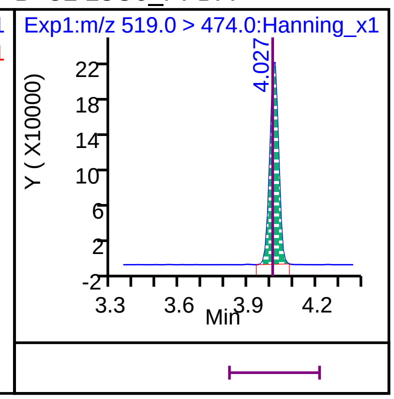
D 65 13C2_8:2 FTS_2



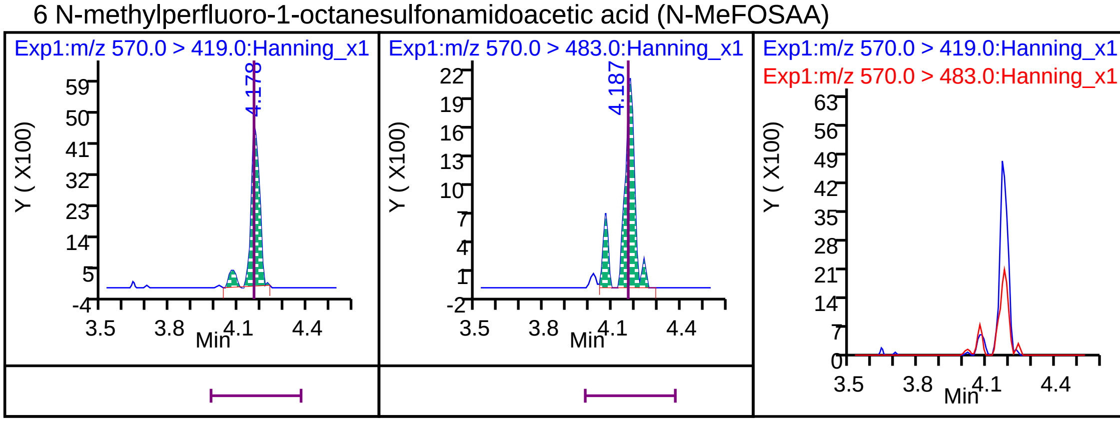
10 Perfluoro-n-decanoic acid (PFDA)



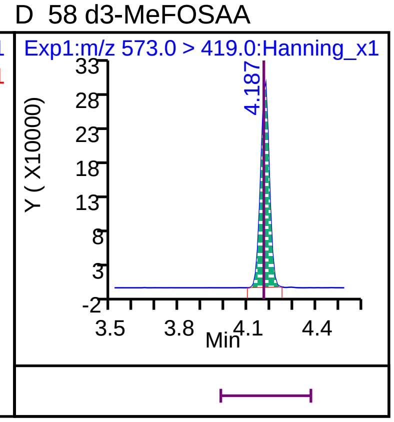
D 51 13C6_PFDA



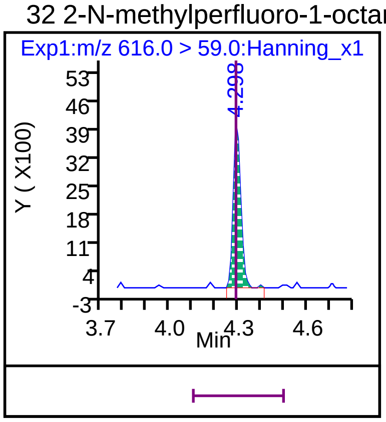
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)



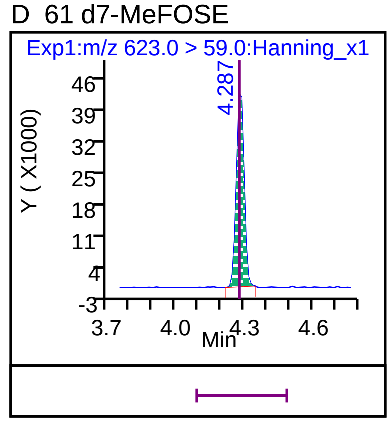
D 58 d3-MeFOSAA



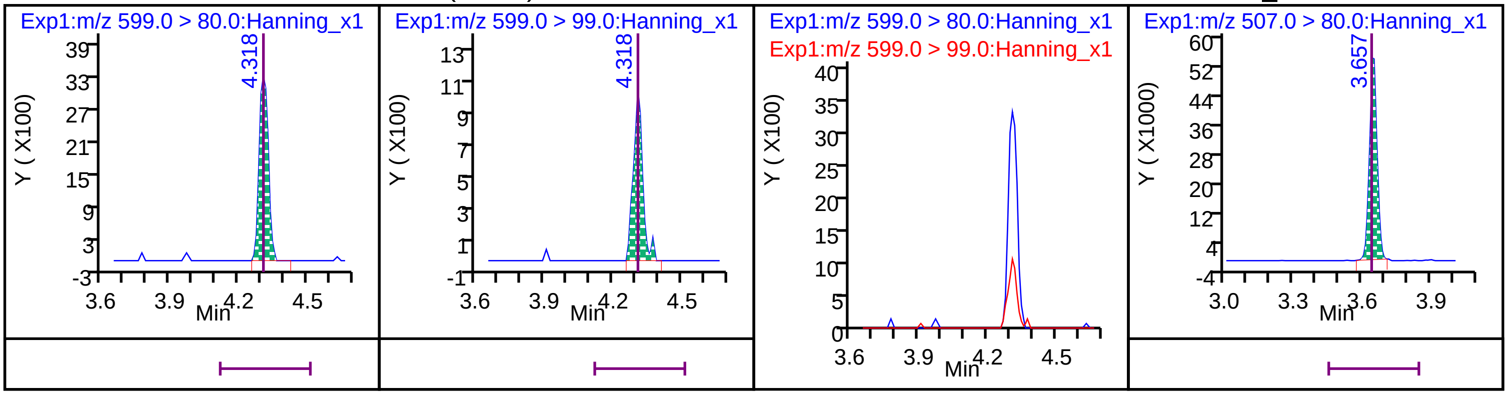
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



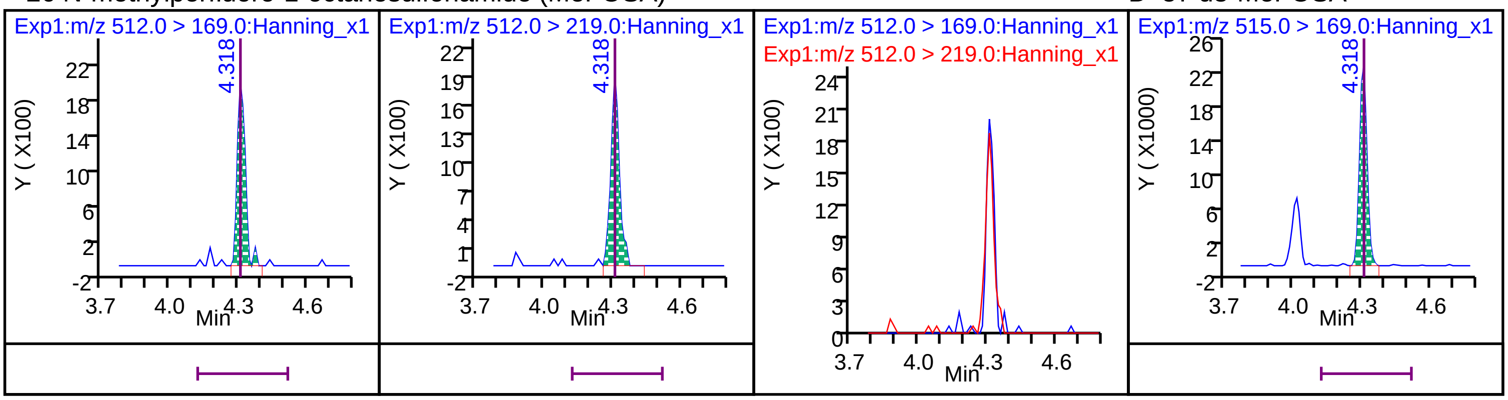
D 61 d7-MeFOSE



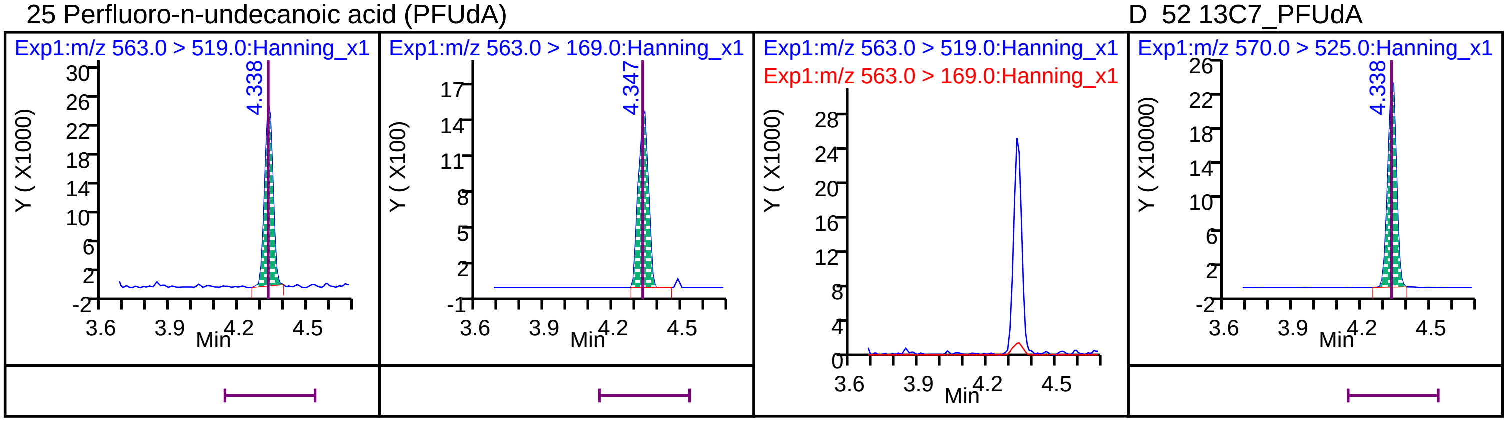
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



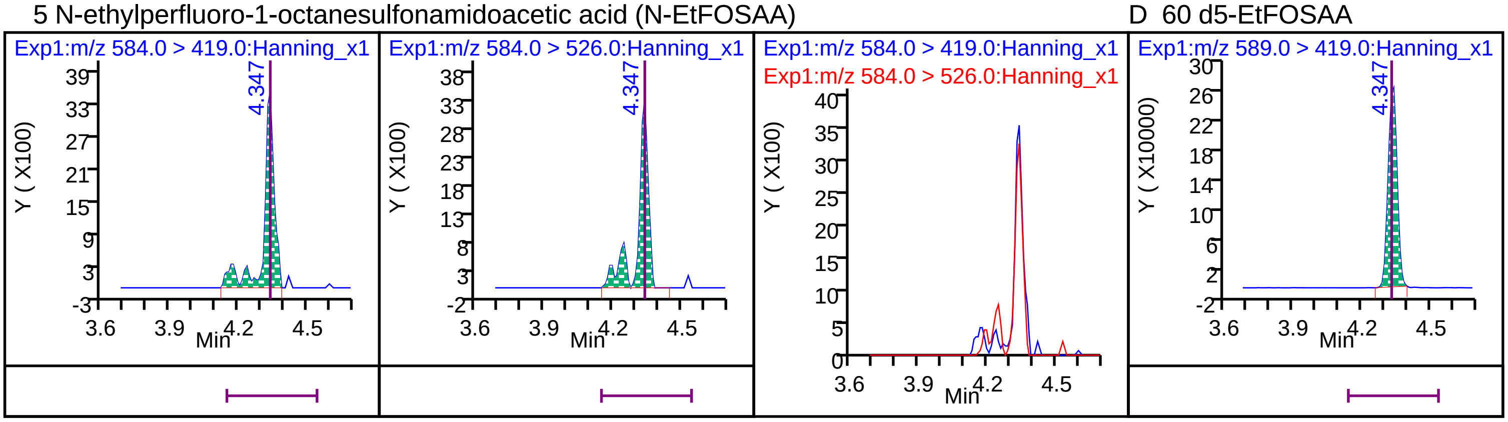
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



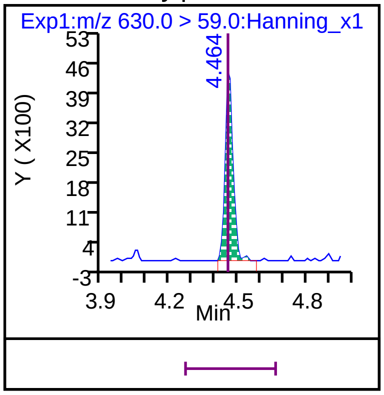
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



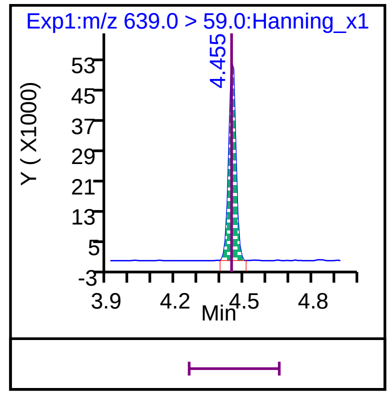
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



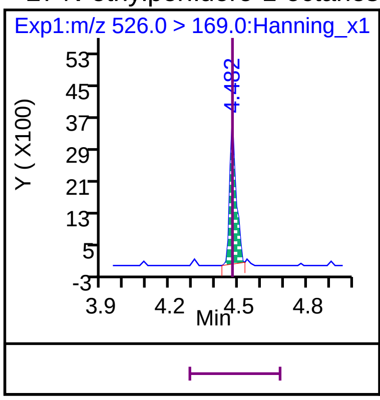
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

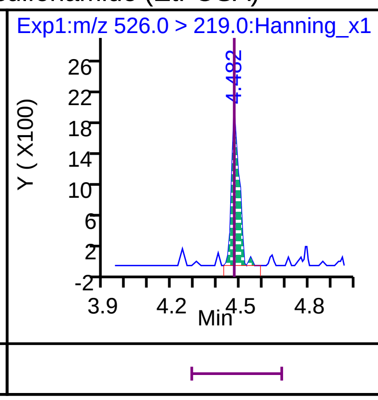


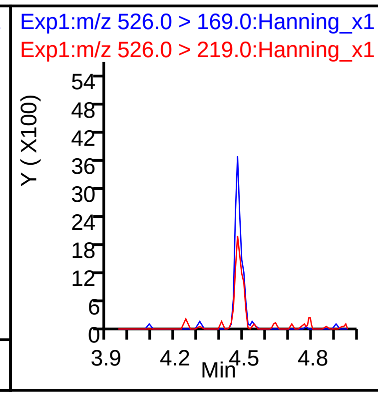
D 62 d9-EtFOSE



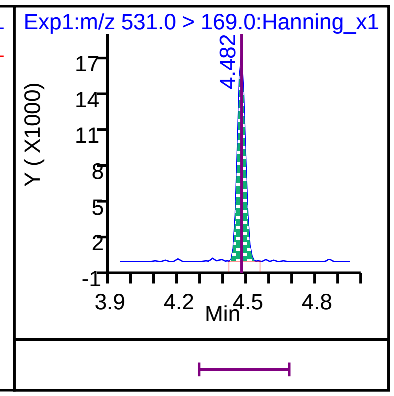
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



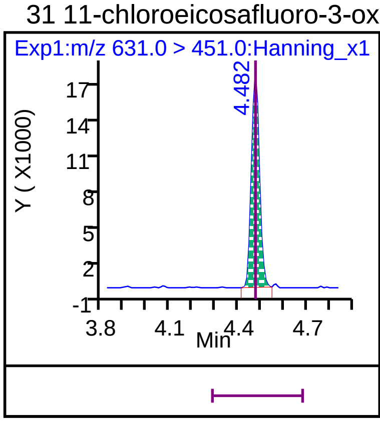




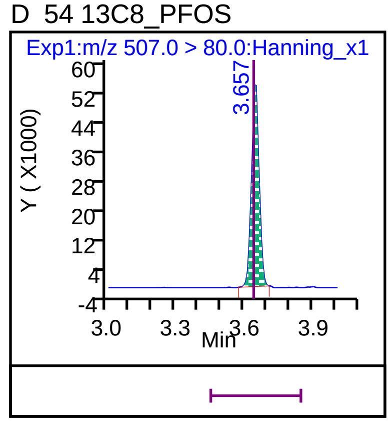
D 59 d5-EtFOSA



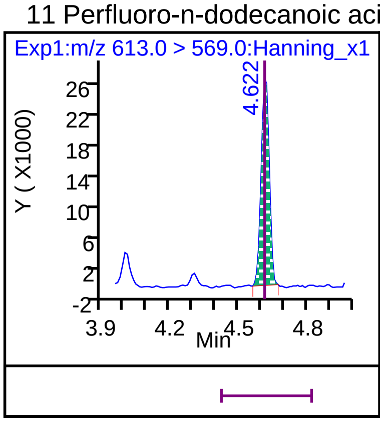
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

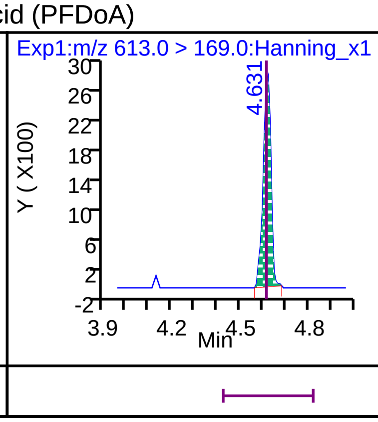


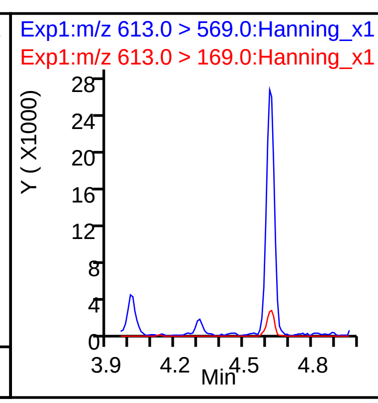
D 54 13C8_PFOS



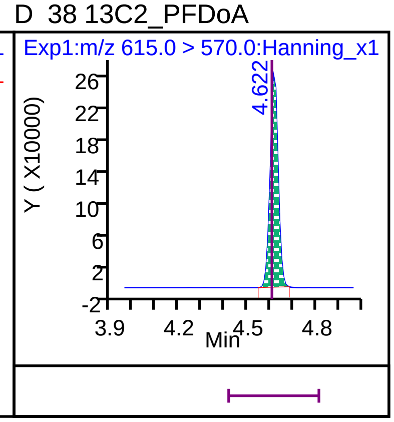
11 Perfluoro-n-dodecanoic acid (PFDoA)



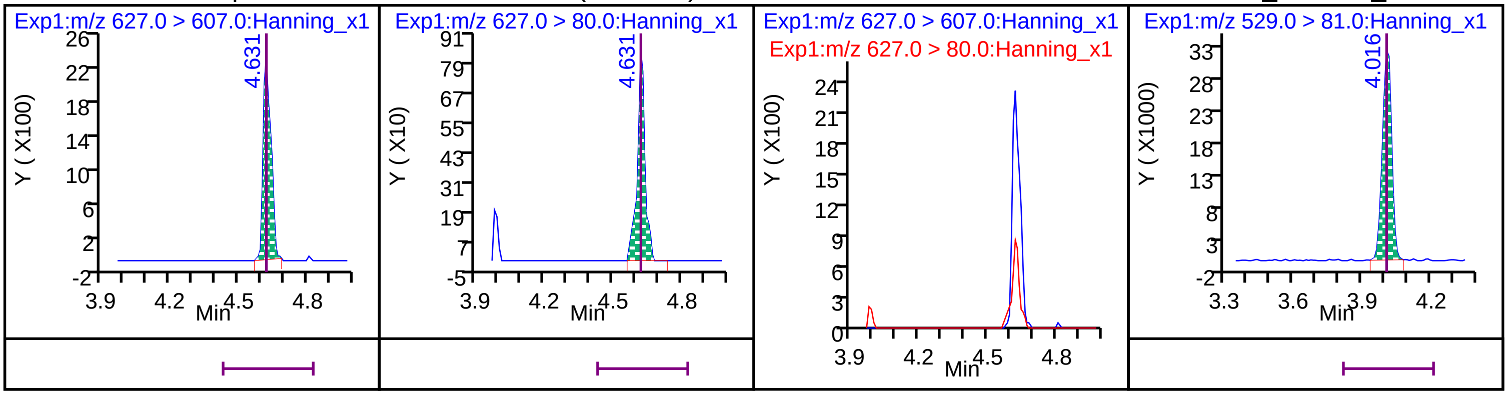




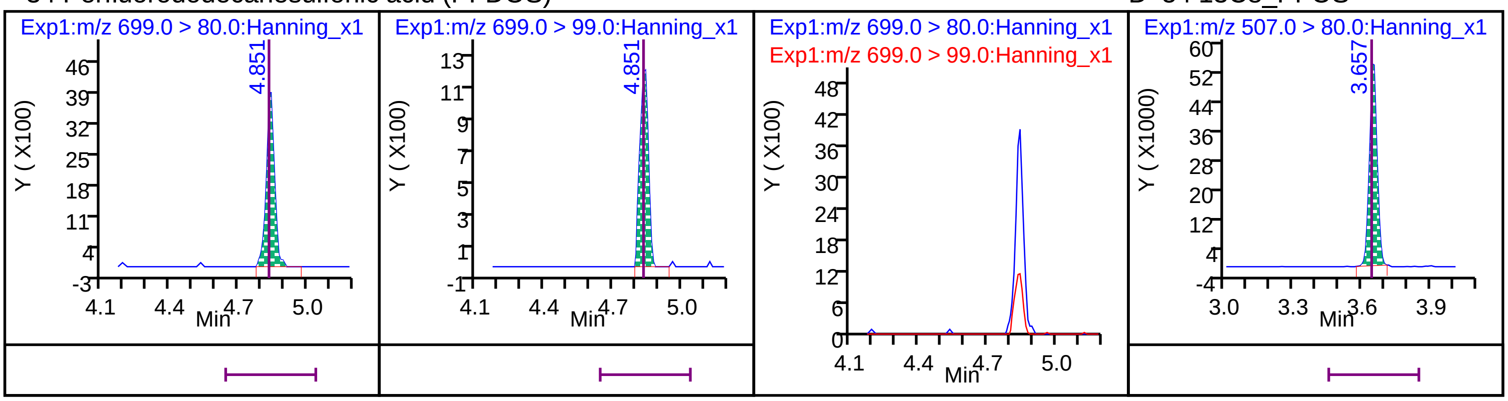
D 38 13C2_PFDoA



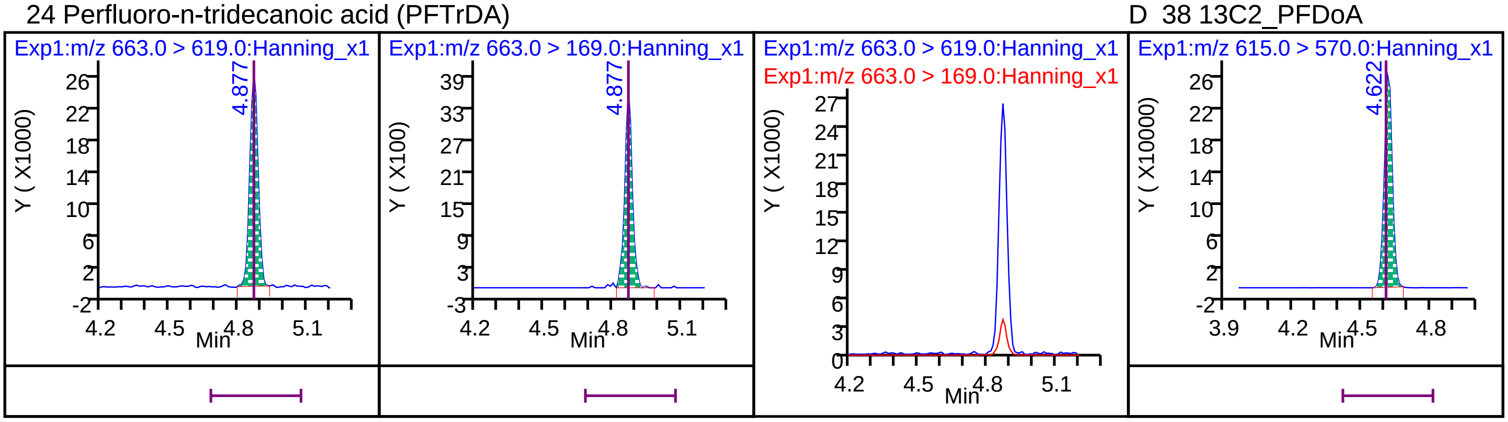
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



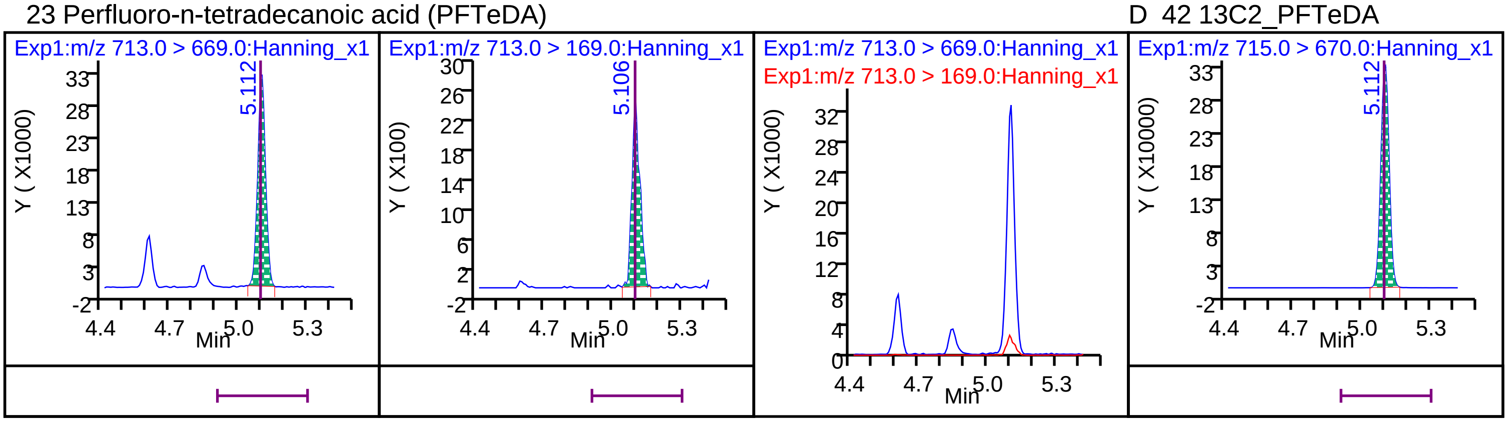
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

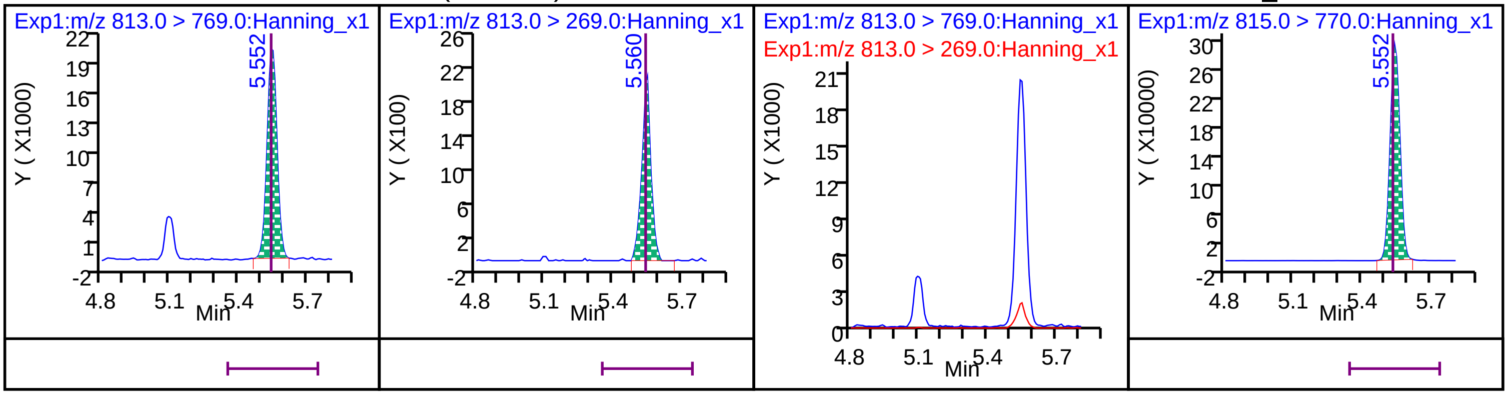


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

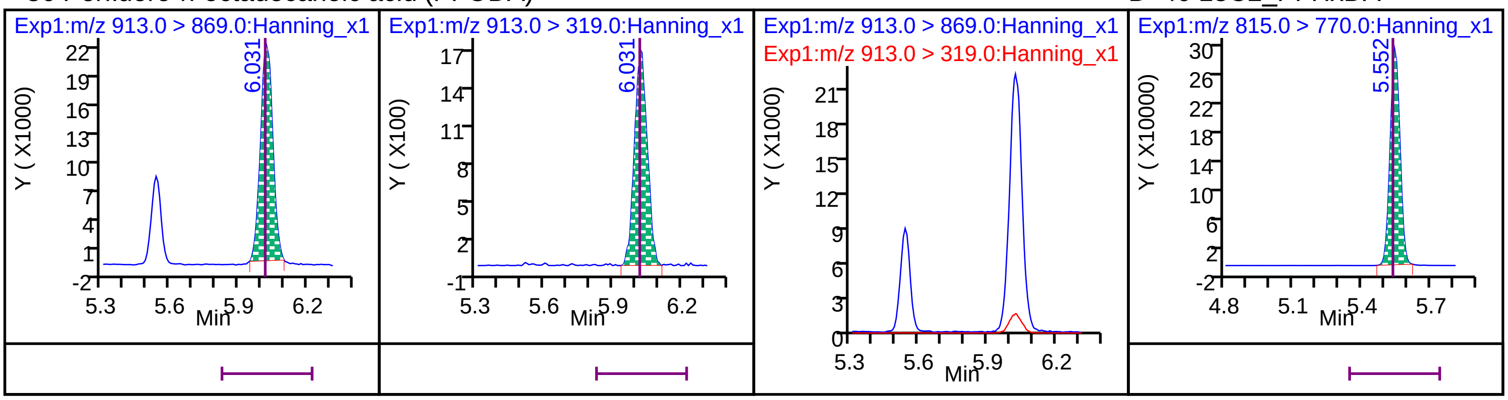


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

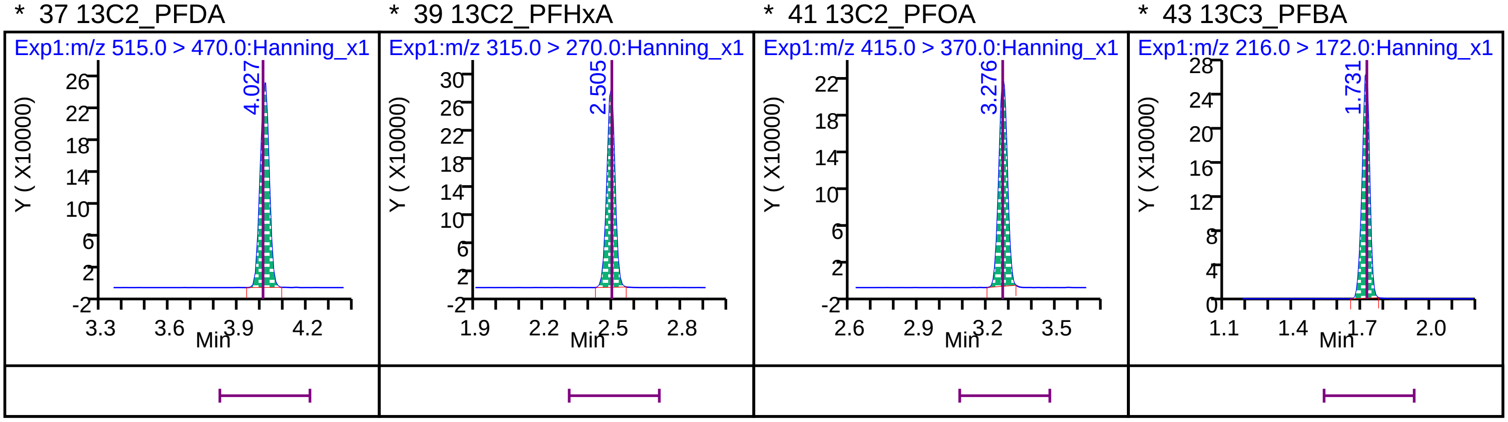
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



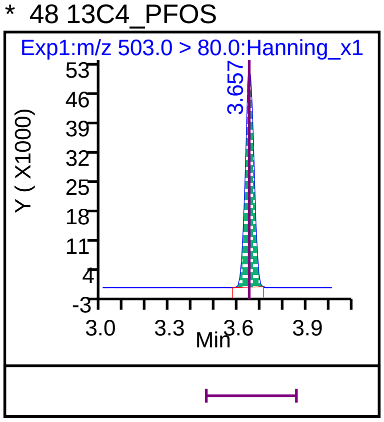
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

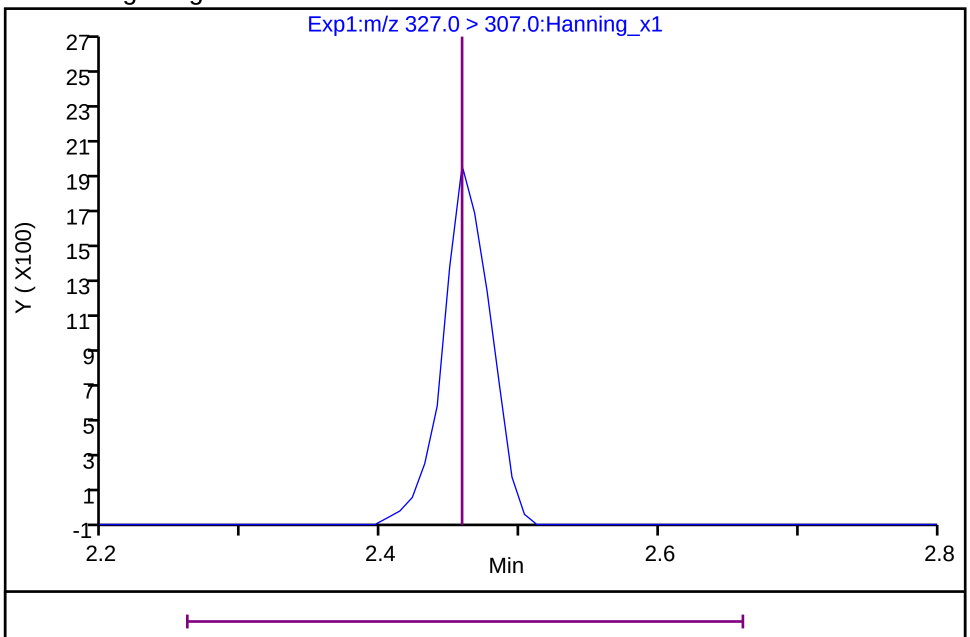
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

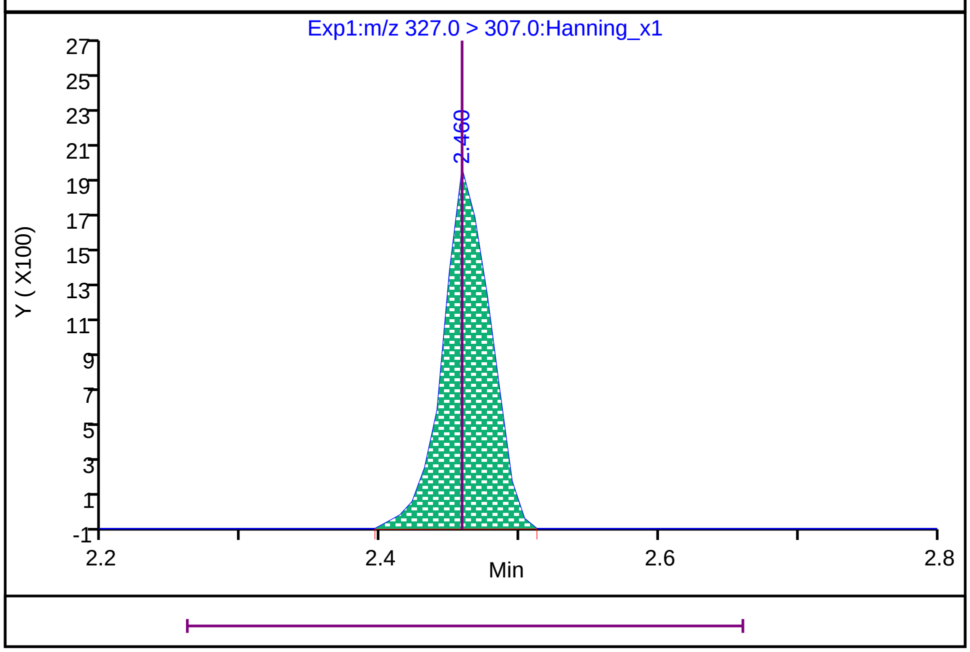
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected
Expected RT: 2.460
RT Window: 2.260-2.660



RT: 2.460
Area: 4592
Amount: 88.973
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:54
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

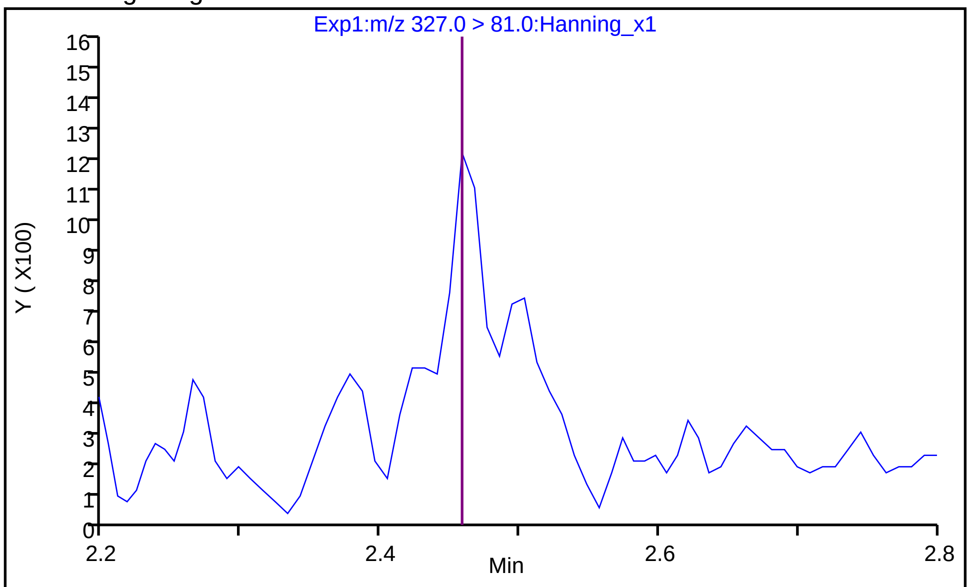
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected

Expected RT: 2.460

RT Window: 2.260-2.660

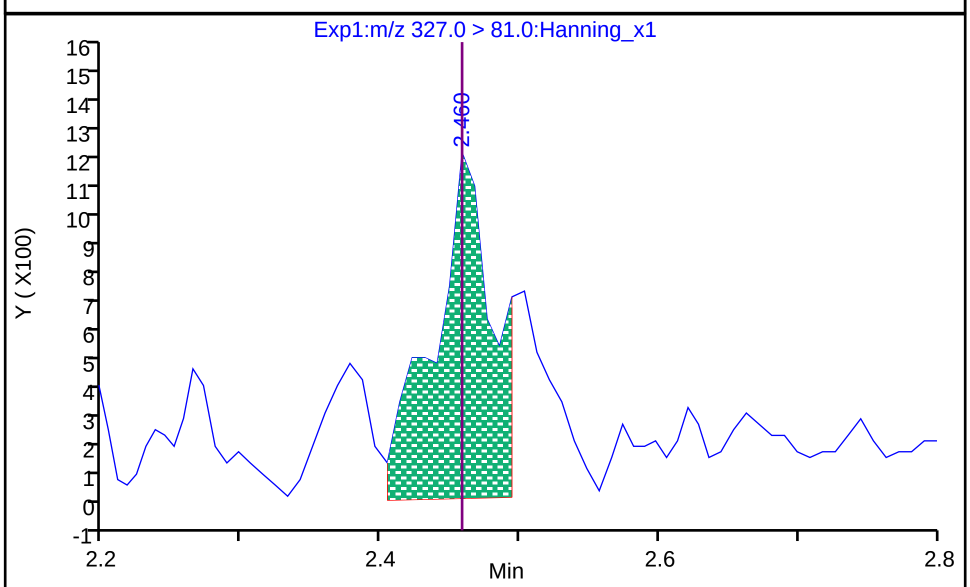


RT: 2.460

Area: 3250

Amount: 88.973

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:49:37

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

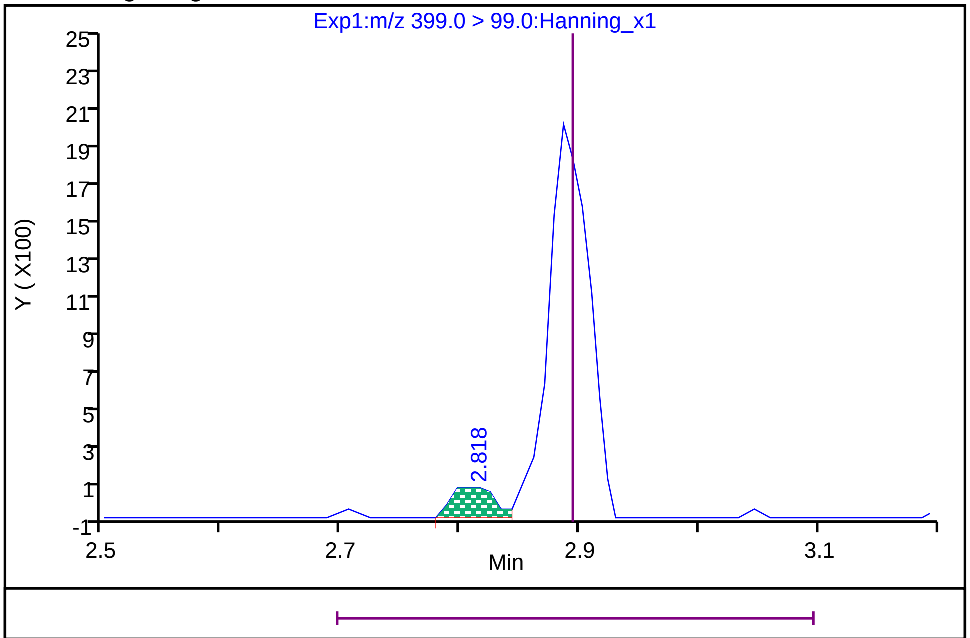
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

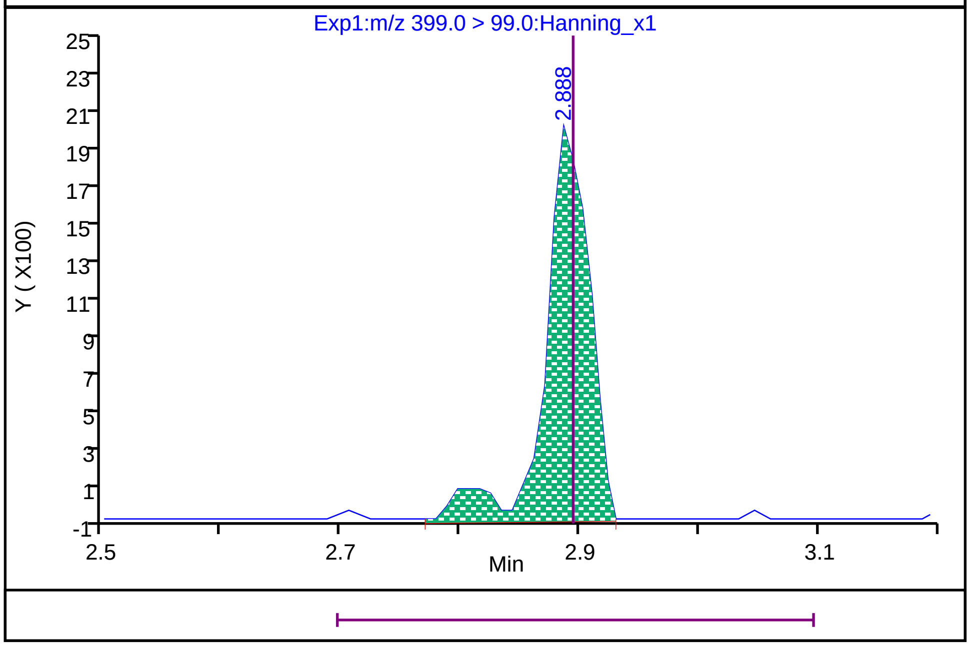
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 392
Amount: 88.248
Amount Units: ng/L



RT: 2.888
Area: 5261
Amount: 88.248
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:21

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

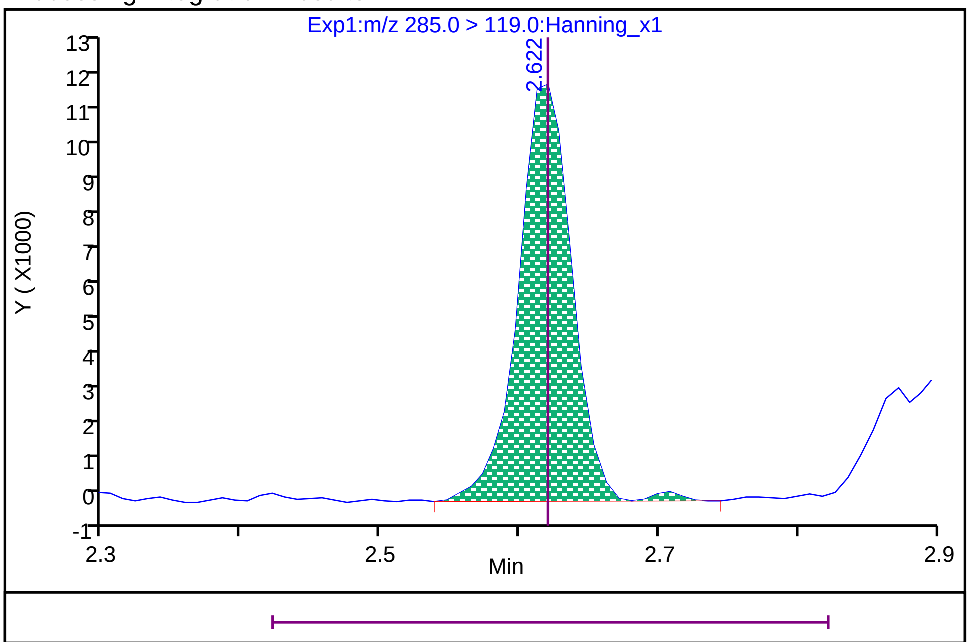
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

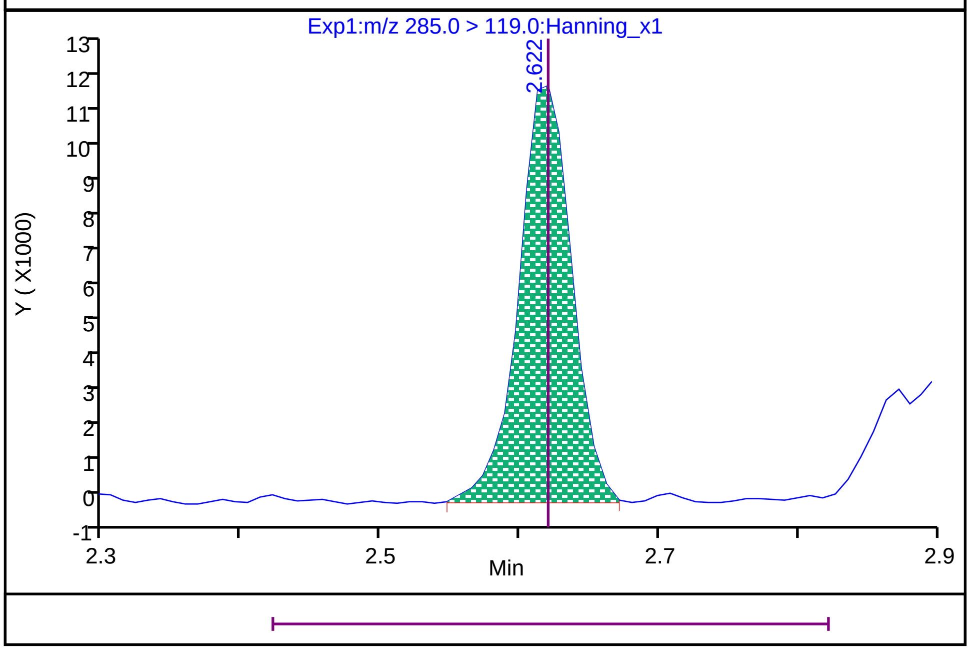
28 GenX, CAS: 13252-13-6

Processing Integration Results

RT:	2.622
Area:	29787
Amount:	191.71
Amount Units:	ng/L



RT:	2.622
Area:	29374
Amount:	189.30
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:49:46

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	77
Sample Info:	ID ICAL 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	635065	20	>100:1			1000.00	1021.54	99.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	133983	24	>100:1			200.00	200.05		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	576704	16	>100:1			1000.00	1008.94	99.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	134953	14	>100:1			200.00	207.91		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	175591	16	>100:1			1000.00	1015.15	98.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	38745	18	>100:1	Target = 3.53		176.80	176.94		
298.9 > 99	44	2.183	2.183		10365	16	>100:1	3.73 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	0/-1	28001	15	>100:1	Target = 3.10		187.60	172.07		
349 > 99	44	2.532	2.531		11219	17	60:1	2.49 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	118122	17	>100:1			5000.00	5216.55	105.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	8/7	9042	22		Target = 1.75		186.80	173.63		
327 > 81	63	2.469	2.460		7137	22	10.0:1	1.26 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	1	647409	17	>100:1			1000.00	994.05	97.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/0	137580	17	>100:1	Target = 18.91		200.00	204.38		
313 > 119	49	2.505	2.505		7294	15	53:1	18.86 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	1	1200102	19	>100:1			5000.00	5178.29	99.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	61561	19	>100:1	Target = 0.79		400.00	396.03		
285 > 185	66	2.622	2.622		74073	18	>100:1	0.83 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	547463	18	>100:1			1000.00	1031.12	102.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	0/-1	120846	17	>100:1	Target = 3.80		200.00	200.88		
363 > 169	47	2.888	2.880		32050	19	>100:1	3.77 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	130188	19	>100:1			1000.00	1036.20	100.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/5	28059	25	>100:1	Target = 2.89	6.88	182.00	196.04		M
399 > 99	45	2.896	2.896		8795	22		3.19 (1.44-4.34)	10.98				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	179065	19	>100:1	Target = 3.23		188.40	177.36		
377 > 85	45	2.925	2.919		60441	24	>100:1	2.96 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.287	3.276	1/0	25884	41	>100:1	Target = 3.12		190.40	193.58		
449 > 99	45	3.276	3.276		7710	16	58:1	3.35 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	1	90798	21	>100:1			5000.00	5044.34	96.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.255	3.248	1/0	8060	27	47:1	Target = 1.75		189.60	187.49		
427 > 81	64	3.255	3.248		4906	19	9.5:1	1.64 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	527785	21	>100:1			1000.00	1005.92	96.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/-1	109896	22	90:1	Target = 2.89		200.00	203.19		
413 > 169	53	3.276	3.276		36021	28	>100:1	3.05 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	122371	25	>100:1			1000.00	988.11	92.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	1/0	27516	40	92:1	Target = 3.30	3.84	185.60	188.85		
499 > 99	54	3.657	3.662		8671	34	>100:1	3.17 (1.65-4.95)	7.44				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/0	89193	17	>100:1			186.40	192.46		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	17079	19	>100:1	Target = 3.08		192.00	173.96		
549 > 99	54	4.006	4.006		5014	19		3.40 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/0	20092	14		Target = 2.72		192.80	209.82		
599 > 99	54	4.318	4.318		6361	18	28:1	3.15 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	1/0	85131	16	>100:1			188.40	203.20		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	0/-1	20350	17		Target = 3.27		193.60	193.39		
699 > 99	54	4.851	4.842		6453	17	66:1	3.15 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	650158	20	>100:1			1000.00	1015.27	101.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	142641	21	>100:1	Target = 6.51		200.00	203.54		
463 > 169	56	3.668	3.662		21007	27	>100:1	6.79 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	270652	18	>100:1			1000.00	1009.68	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	55580	18	>100:1	Target = 41.63		200.00	195.17		
498>478	55	3.904	3.896		2003	18		27.74 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	12	576412	15	>100:1			1000.00	1003.05	100.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/-11	131939	15	>100:1	Target = 13.80		200.00	196.69		
513 > 169	51	4.017	4.016		12268	14	65:1	10.75 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	91470	14	>100:1			5000.00	5292.02	116	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	0/-1	9272	17	25:1	Target = 1.94		191.60	224.30		
527 > 81	65	4.027	4.016		4188	14	15:1	2.21 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.631	4.631	1/0	7768	15	>100:1	Target = 3.54		192.80	167.40		
627 > 80	65	4.614	4.631		2468	23	4.0:1	3.14 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	751315	17	>100:1			5000.00	4971.89	97.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/1	26644	29	92:1	Target = 1.37	7.51	200.00	220.97		M
570 > 483	58	4.178	4.178		20187	28	86:1	1.31 (0.68-2.05)	4.44				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	89958	13	>100:1			1000.00	997.44	99.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.298	1/0	17777	16	>100:1			200.00	180.83		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	50166	14	>100:1			1000.00	1066.43	111.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/-1	10798	16	85:1	Target = 1.11		200.00	198.59		
512 > 219	57	4.318	4.318		10129	18	82:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	0	659630	16	>100:1			5000.00	5093.15	95.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/1	26030	29	56:1	Target = 1.51	5.75	200.00	202.36		
584 > 526	60	4.348	4.348		19087	28	51:1	1.36 (0.75-2.26)	2.06				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	622182	16	>100:1			1000.00	1033.10	98	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	0/-1	126197	14	>100:1	Target = 14.52		200.00	209.33		
563 > 169	52	4.348	4.338		9300	18	47:1	13.56 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.455	1	104069	15	>100:1			1000.00	981.07	102.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	18829	17	>100:1			200.00	185.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	43224	14	>100:1			1000.00	1005.21	100.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	11542	14	>100:1	Target = 1.06		200.00	212.42		
526 > 219	59	4.483	4.483		10137	13	67:1	1.13 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	600845	16	>100:1			1000.00	1000.85	99.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	137695	16	27:1	Target = 10.70		200.00	214.97		
613 > 169	38	4.623	4.622		11171	21	68:1	12.32 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	1/0	127509	15	>100:1	Target = 8.31		200.00	201.90		
663 > 169	38	4.877	4.877		15054	23	98:1	8.47 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	811547	22	>100:1			1000.00	998.22	96.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	12/12	147677	22	21:1	Target = 12.17		200.00	208.46		
713 > 169	42	5.112	5.106		11598	23	>100:1	12.73 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.552	5.544	0	858869	22	>100:1			1000.00	989.44	97.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.552	5.552	0	113659	21	16:1	Target = 10.43		200.00	206.63		
813 > 269	40	5.552	5.552		11168	21	>100:1	10.17 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	6.021	6.026	0	158633	32	9.1:1	Target = 13.67		200.00	202.88		
913 > 319	40	6.017	6.026		11668	45	>100:1	13.59 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	635729	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	662023	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	531844	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	575690	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	1	131882	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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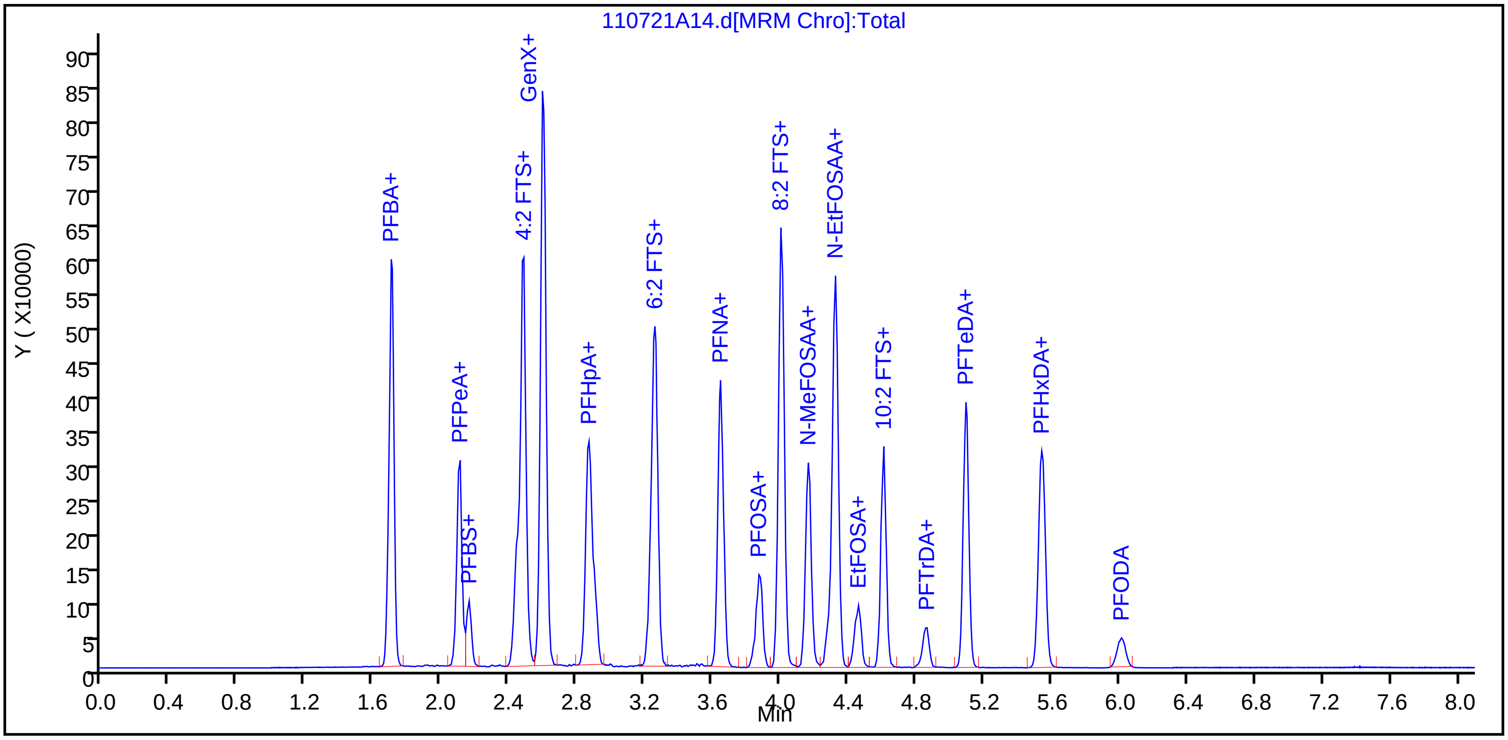
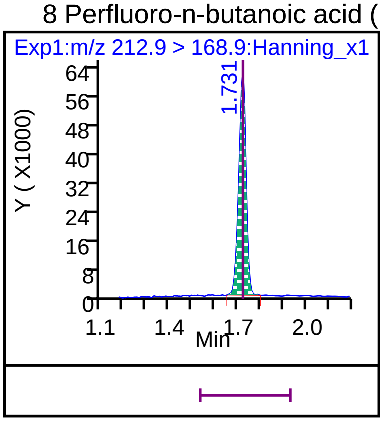
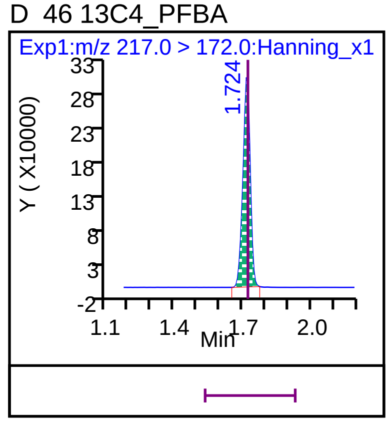
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



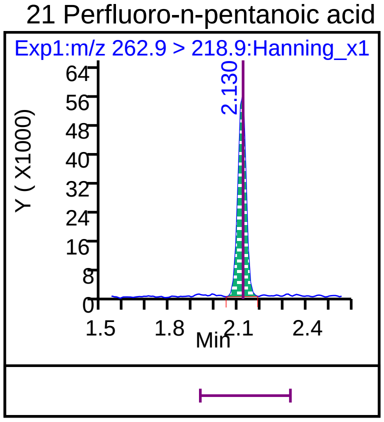
8 Perfluoro-n-butanoic acid (PFBA)



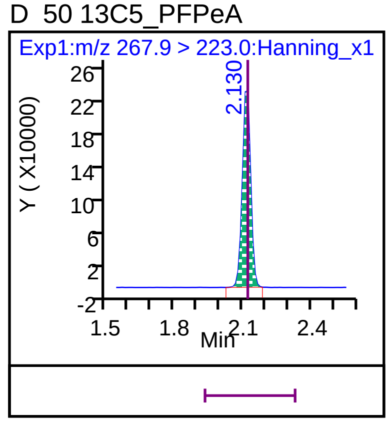
D 46 13C4_PFBA



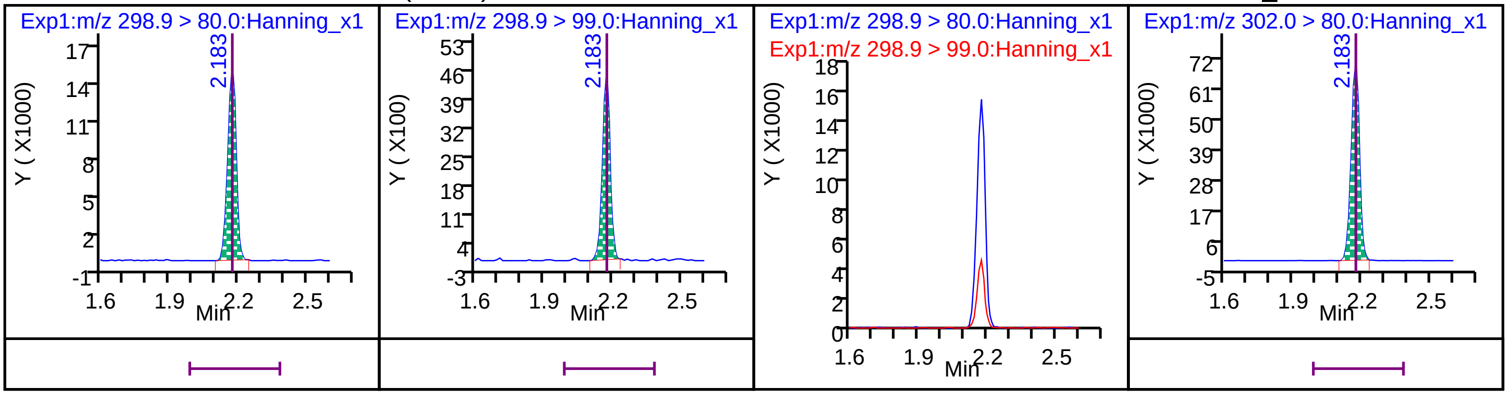
21 Perfluoro-n-pentanoic acid (PFPeA)



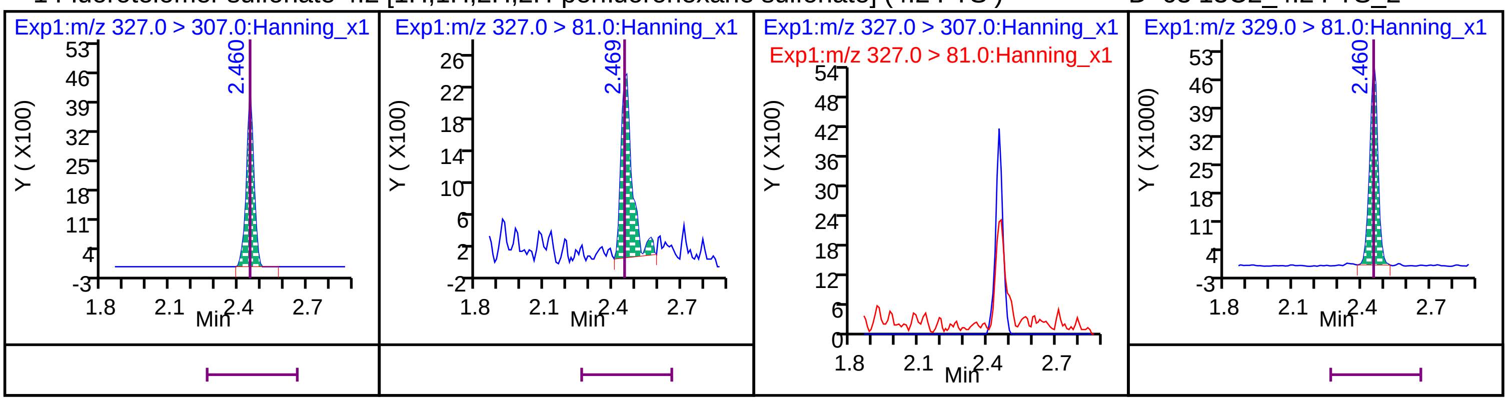
D 50 13C5_PFPeA



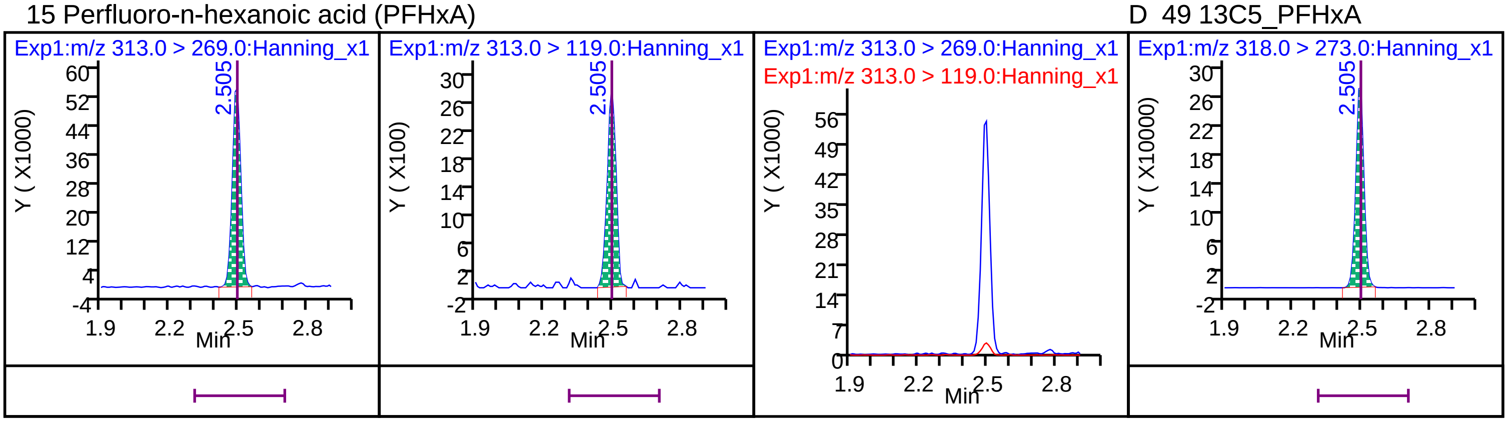
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



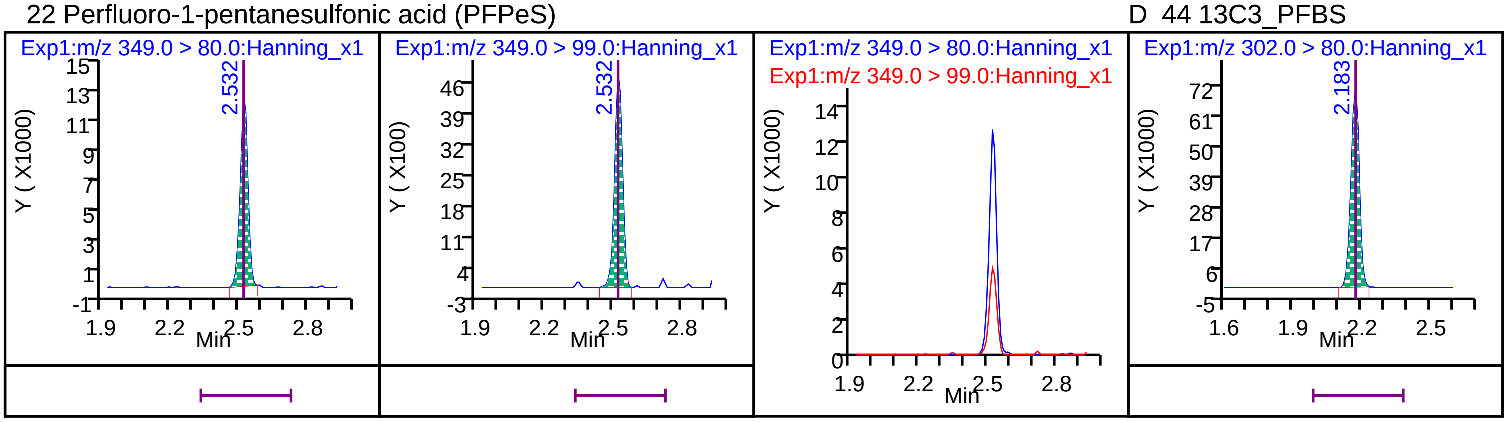
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

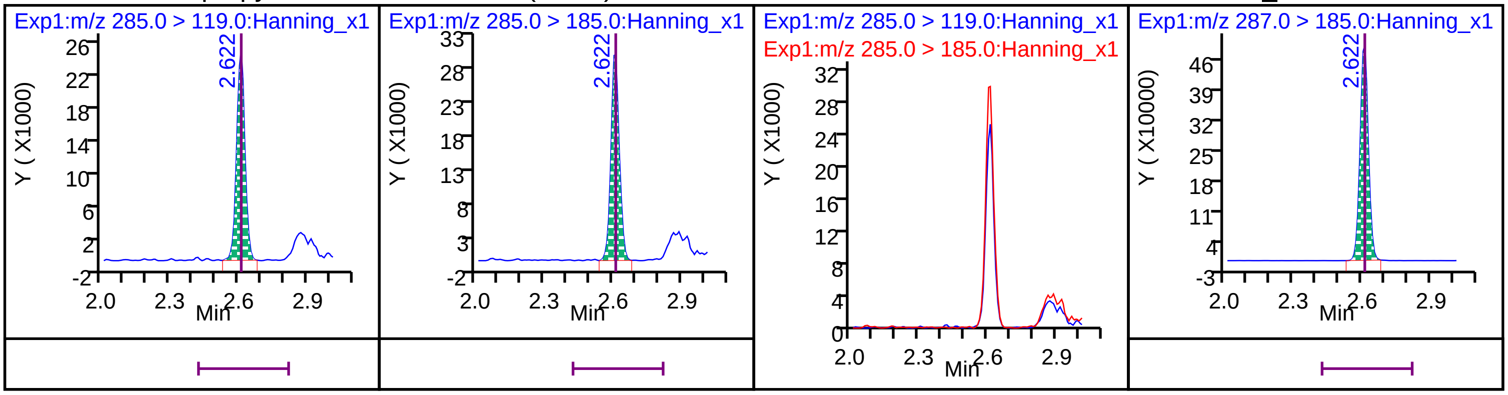


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

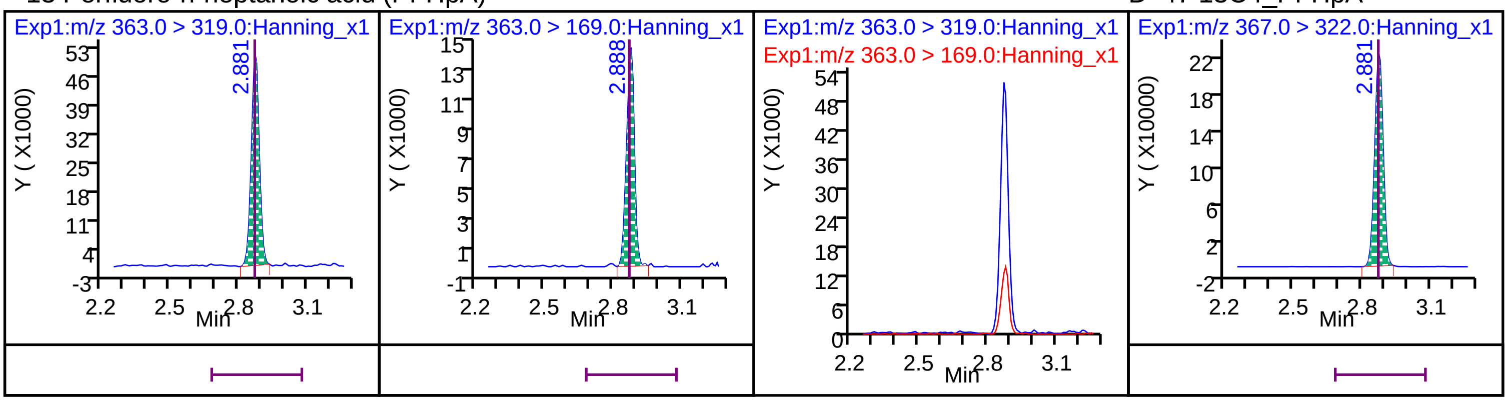


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

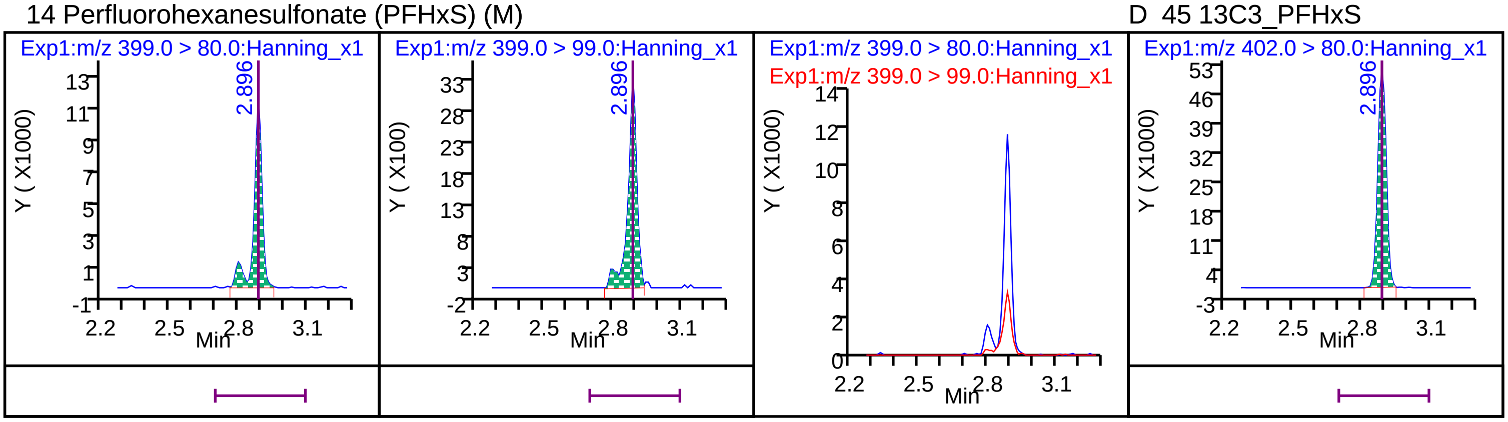
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



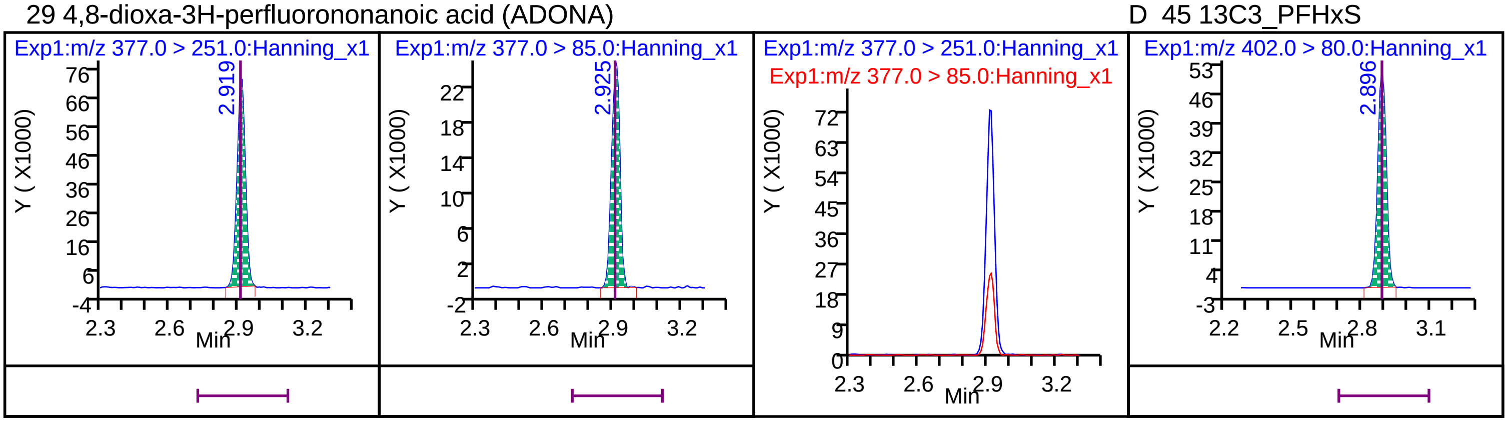
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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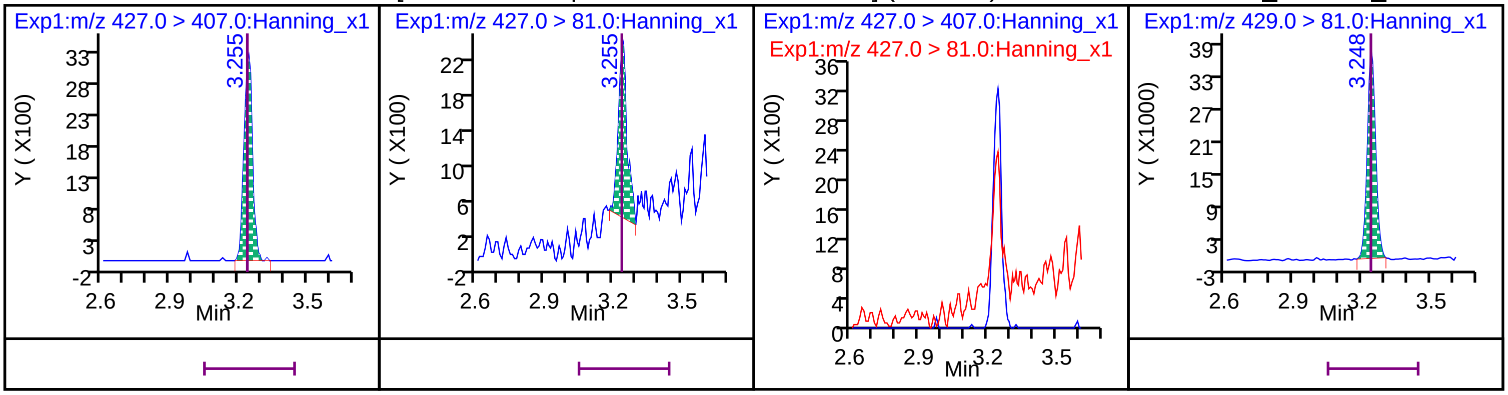
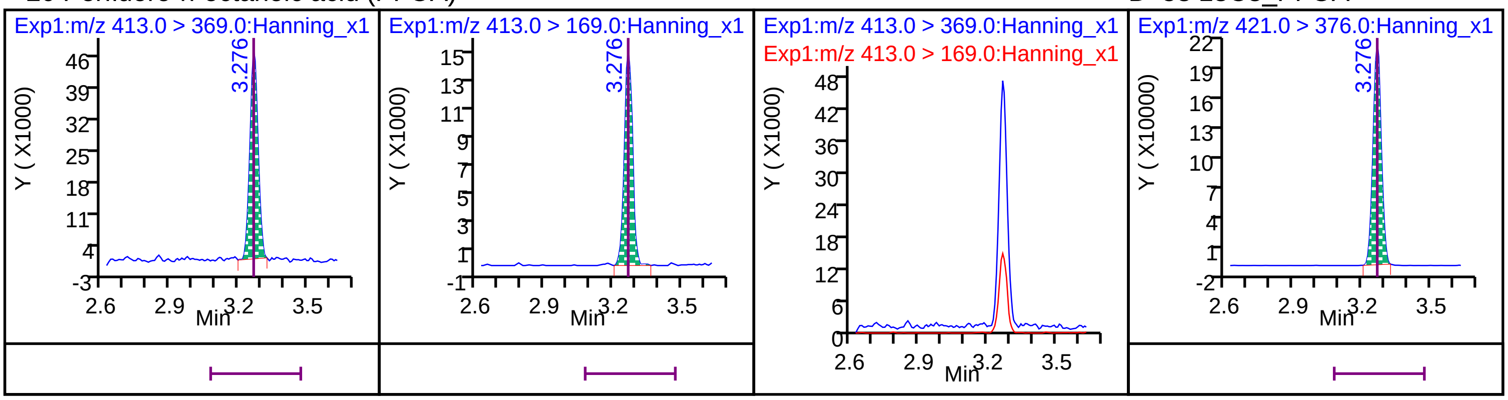
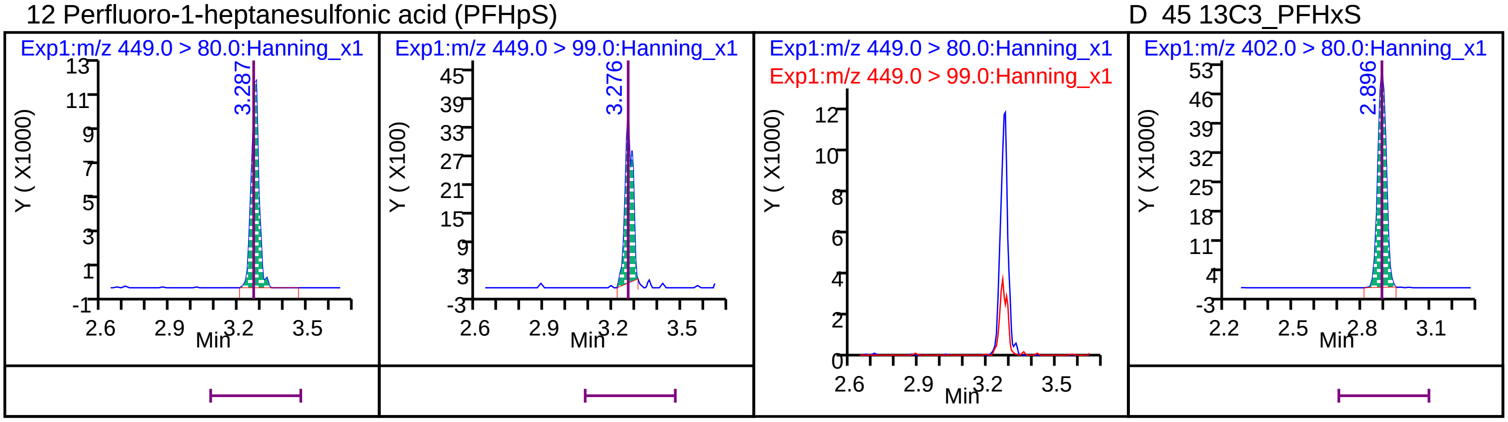
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



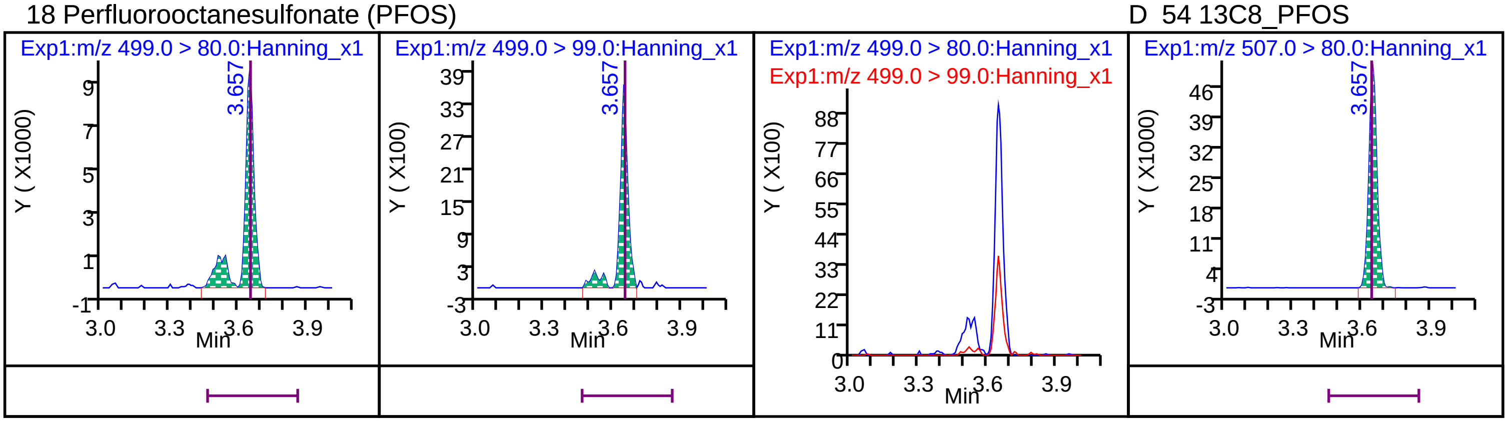
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



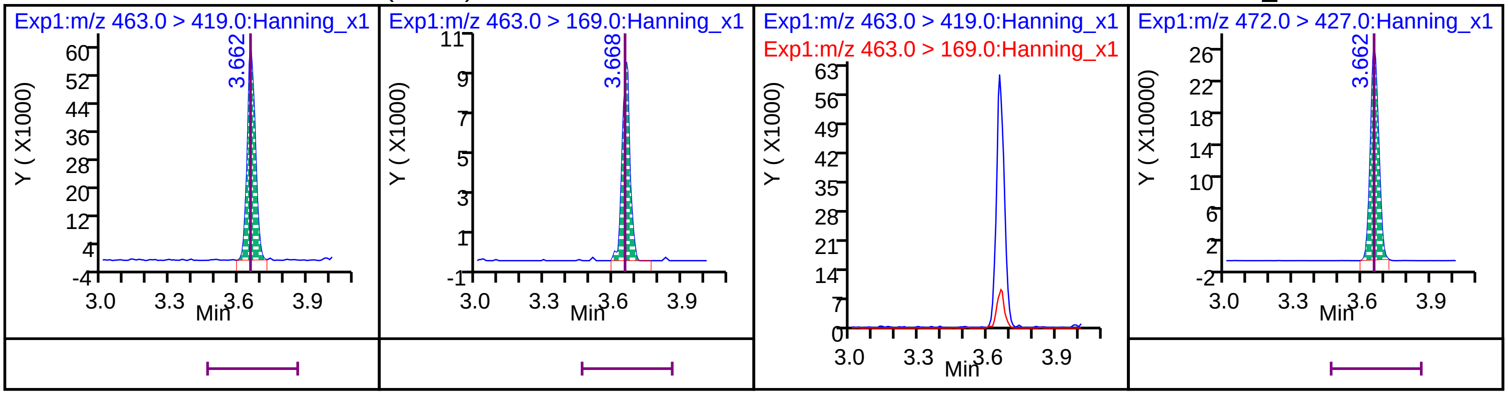
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



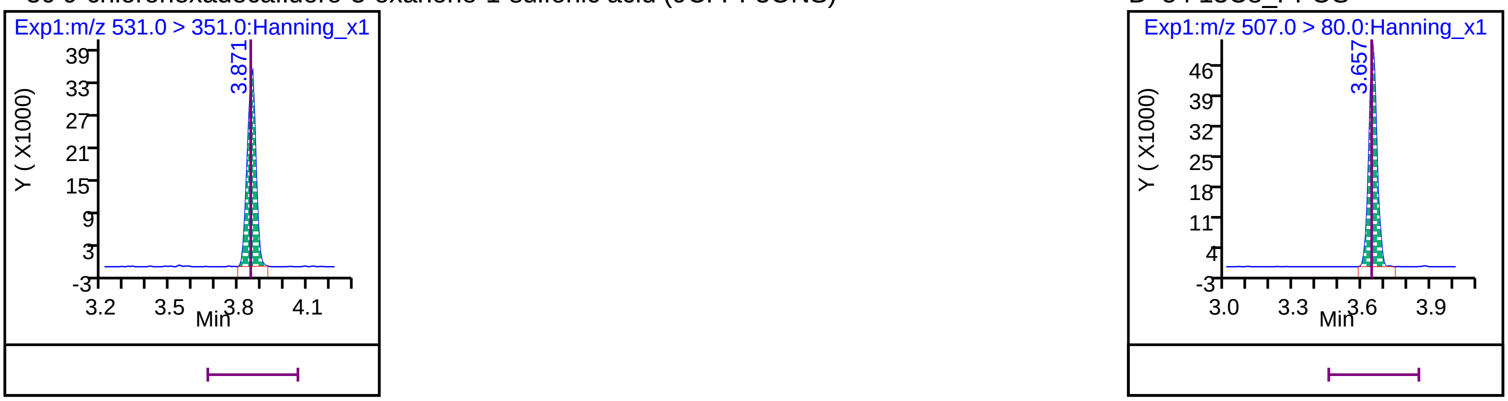
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



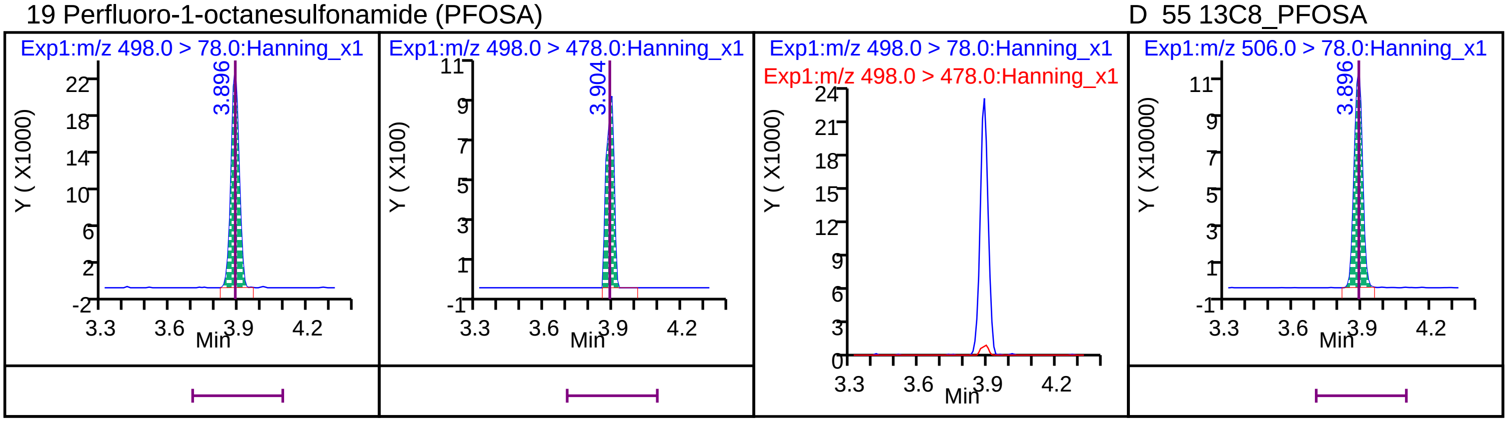
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



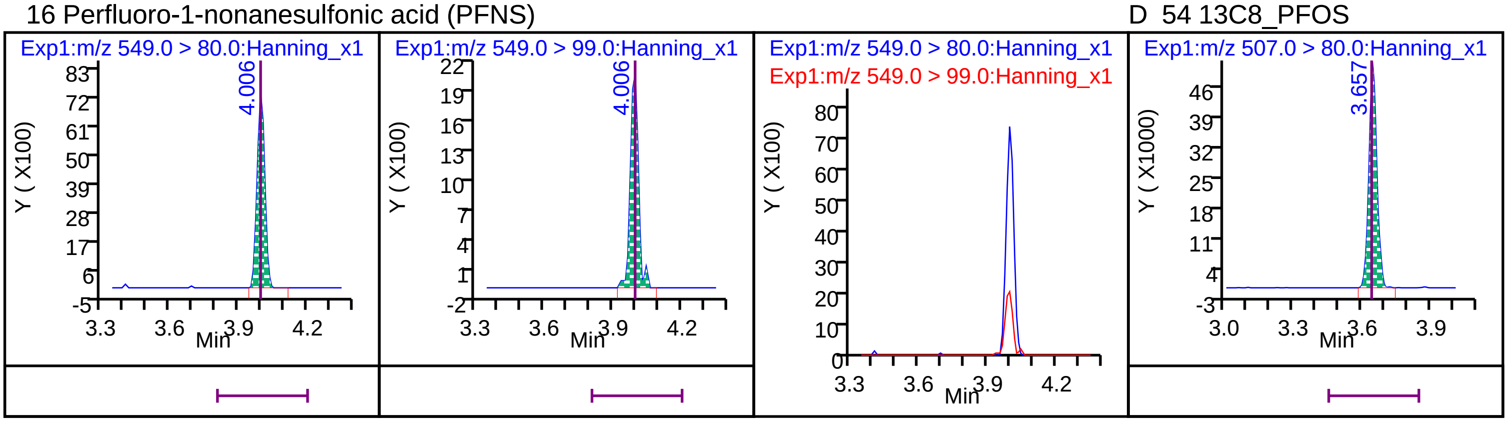
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



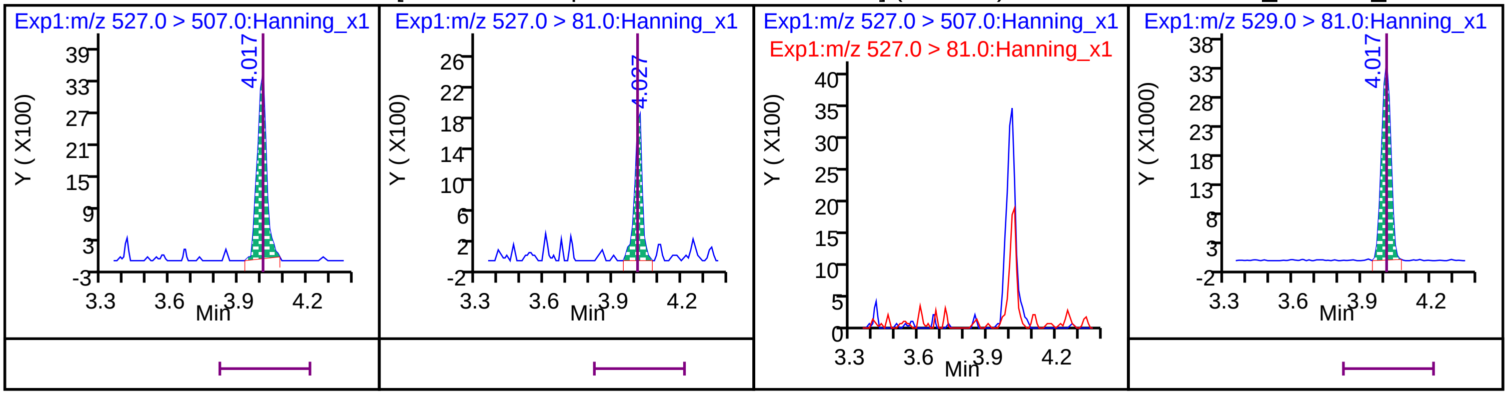
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



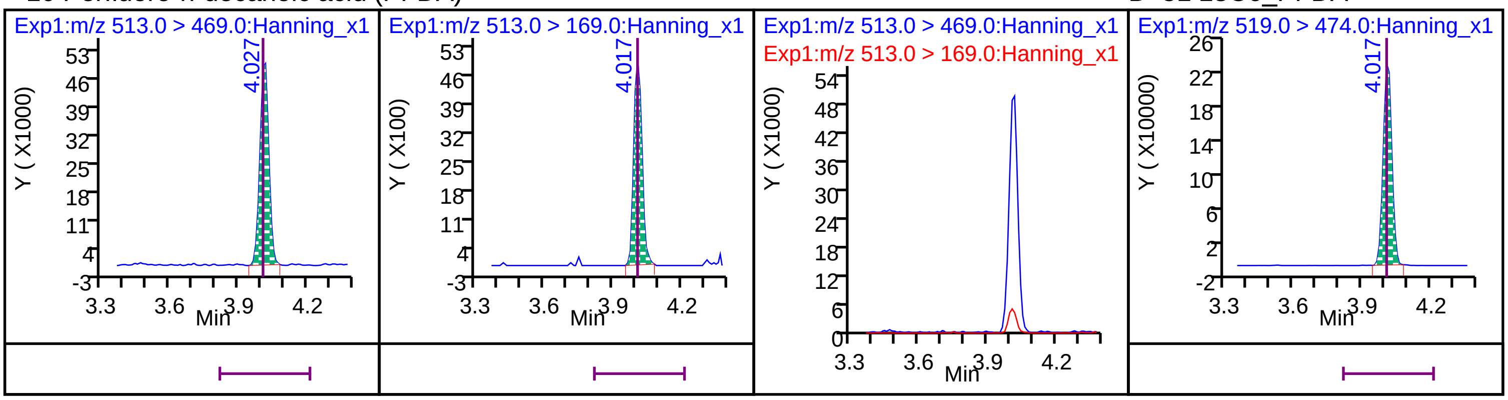
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



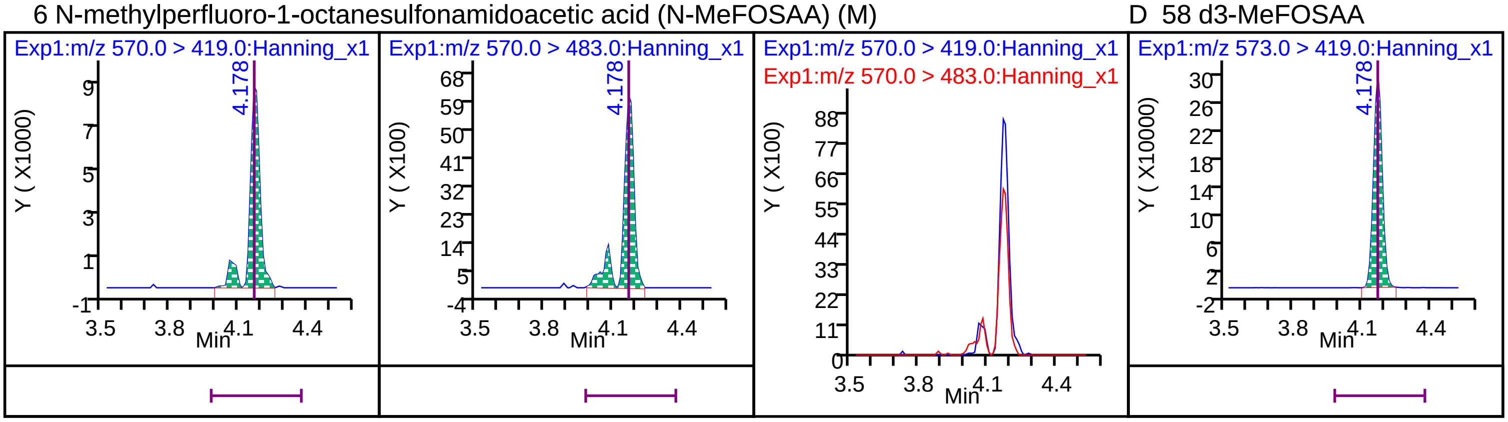
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



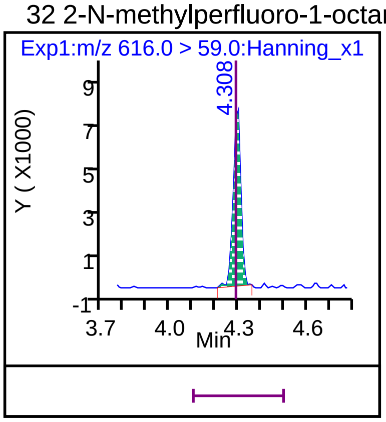
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

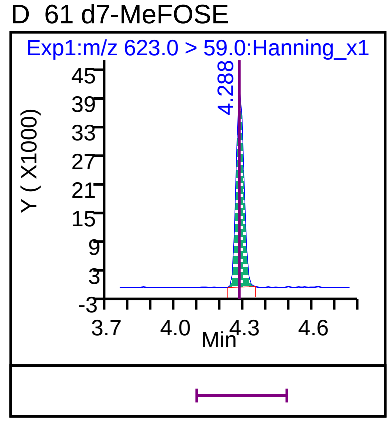


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

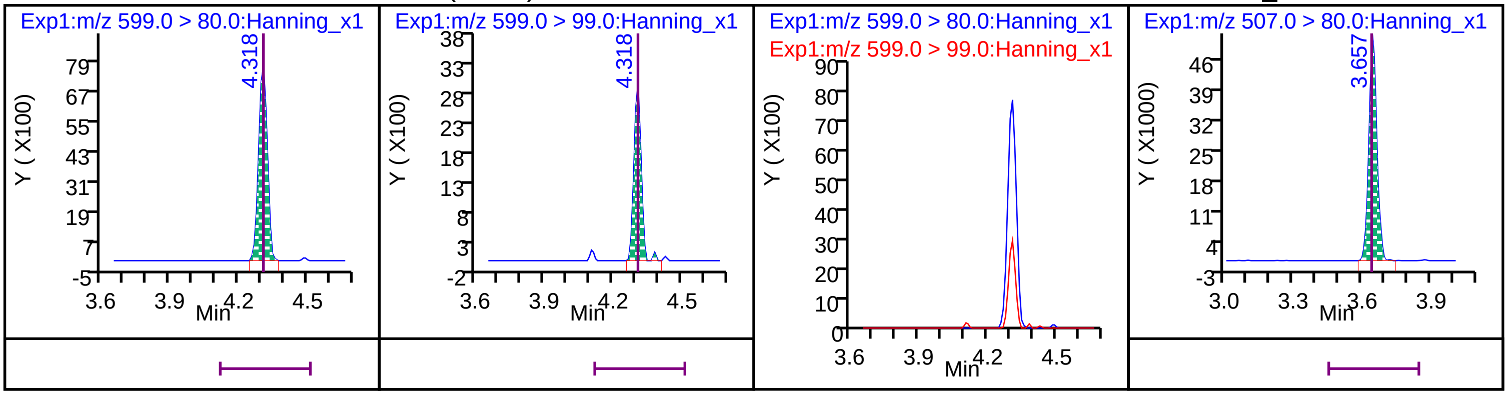


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

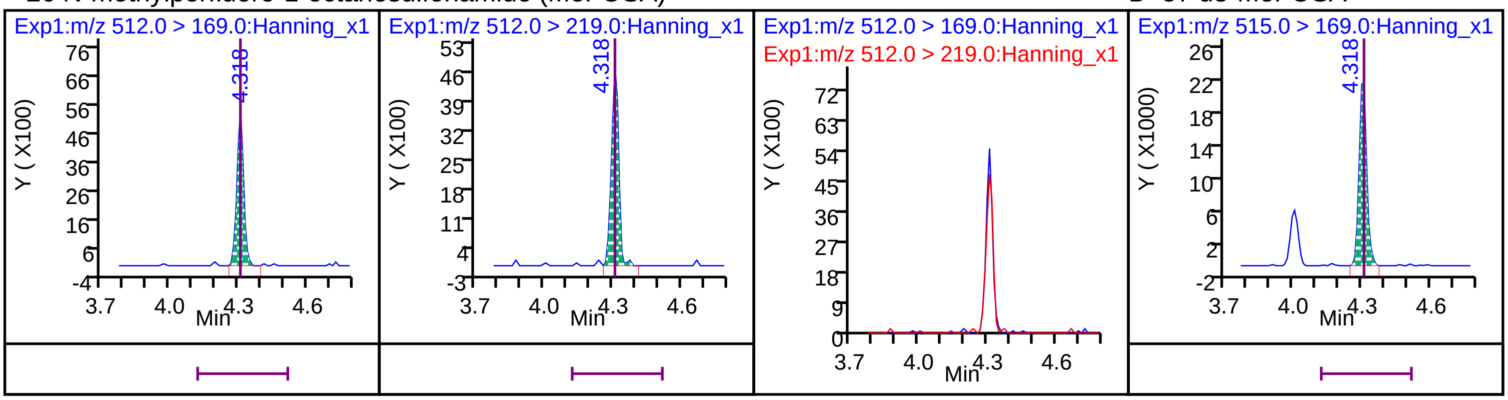




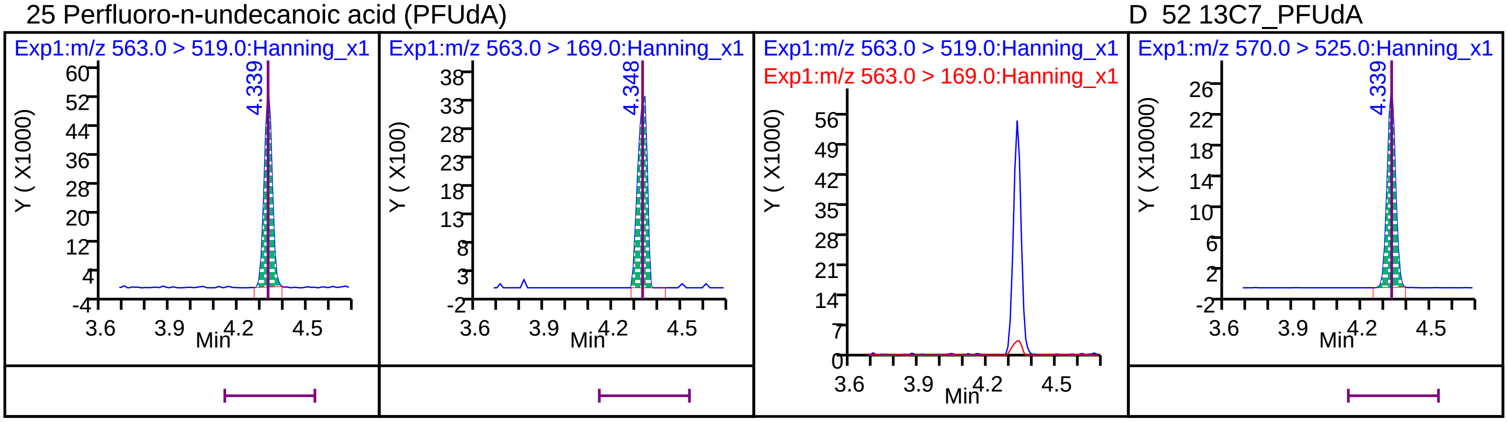
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



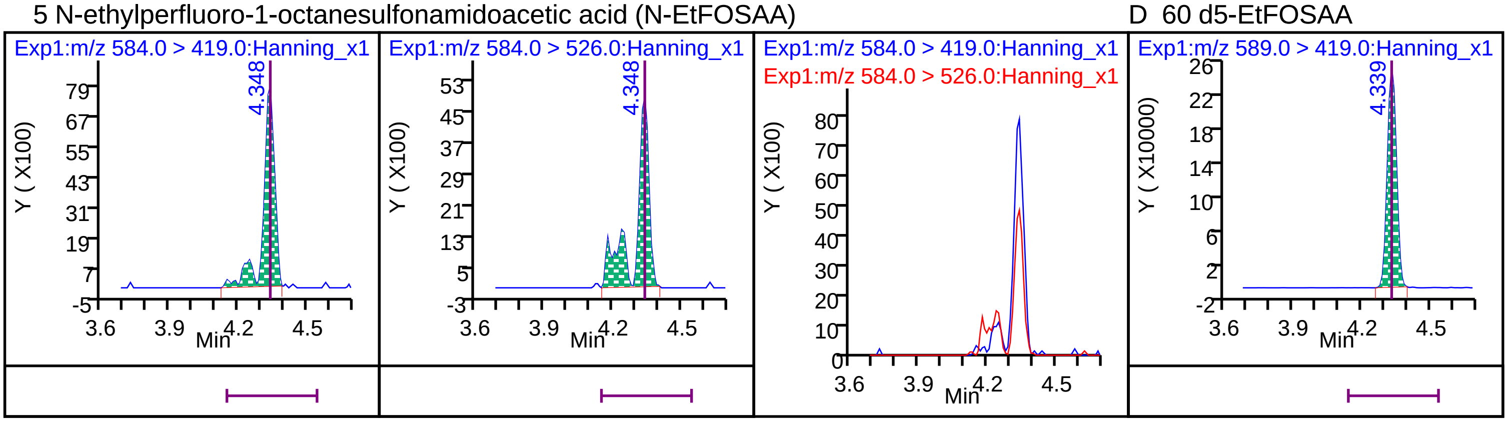
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



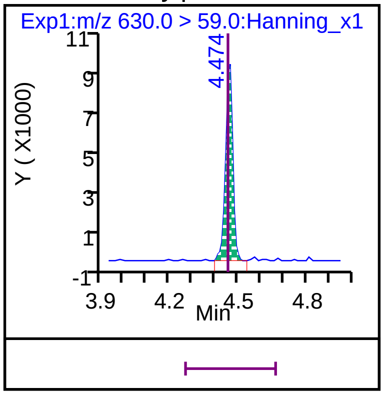
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



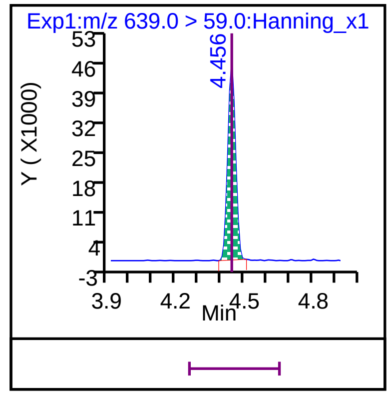
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



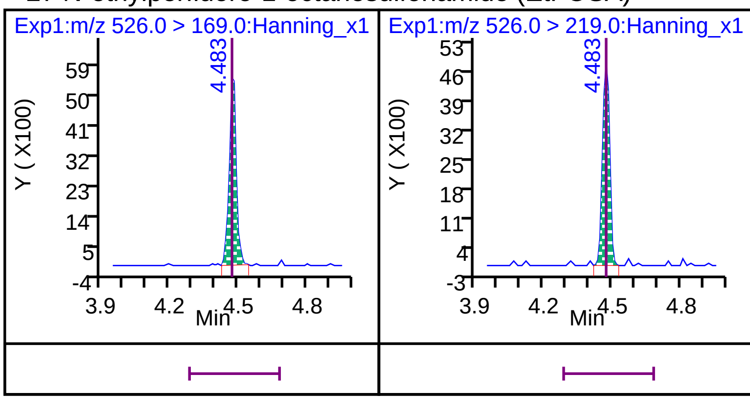
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



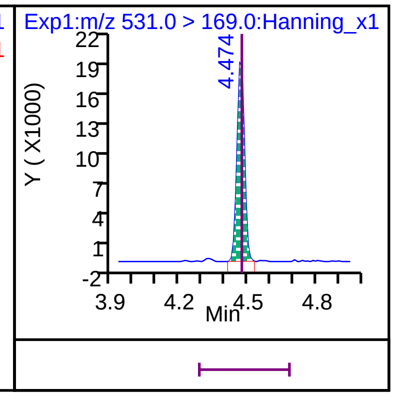
D 62 d9-EtFOSE



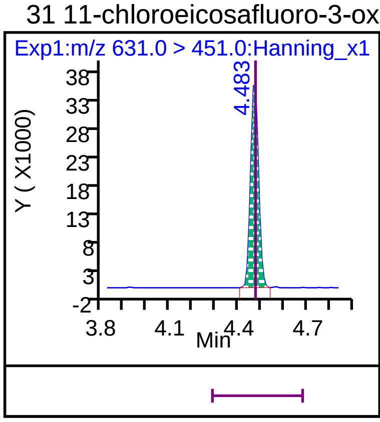
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



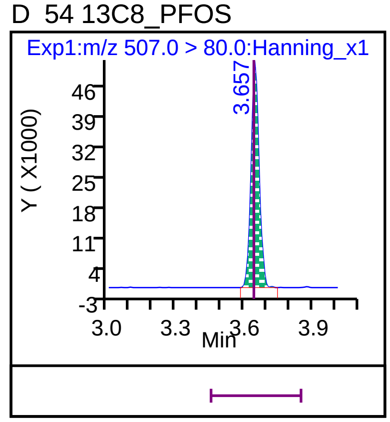
D 59 d5-EtFOSA



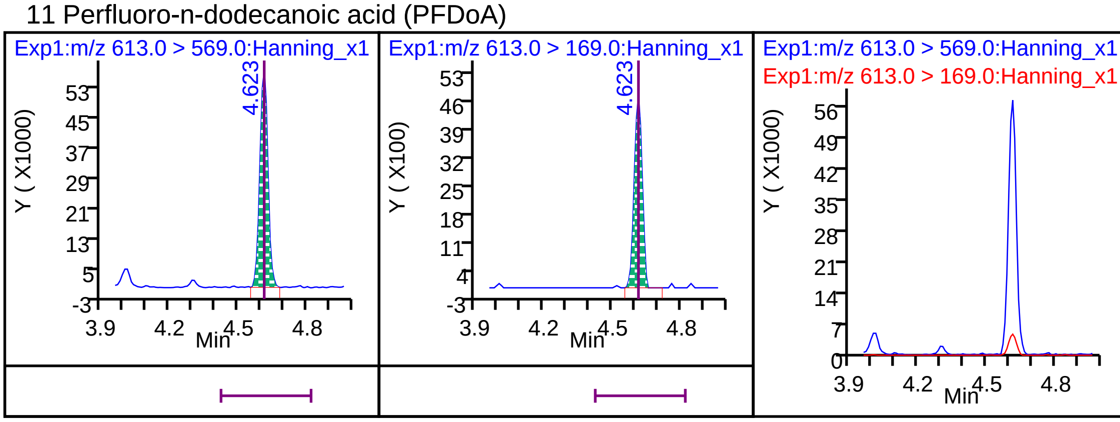
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



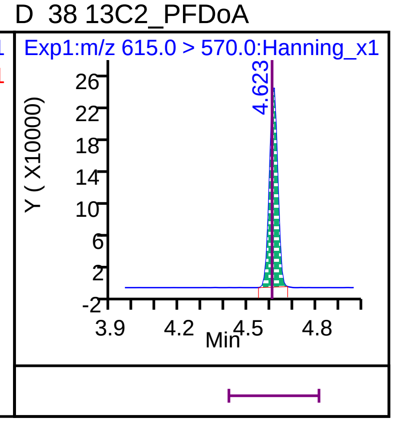
D 54 13C8_PFOS



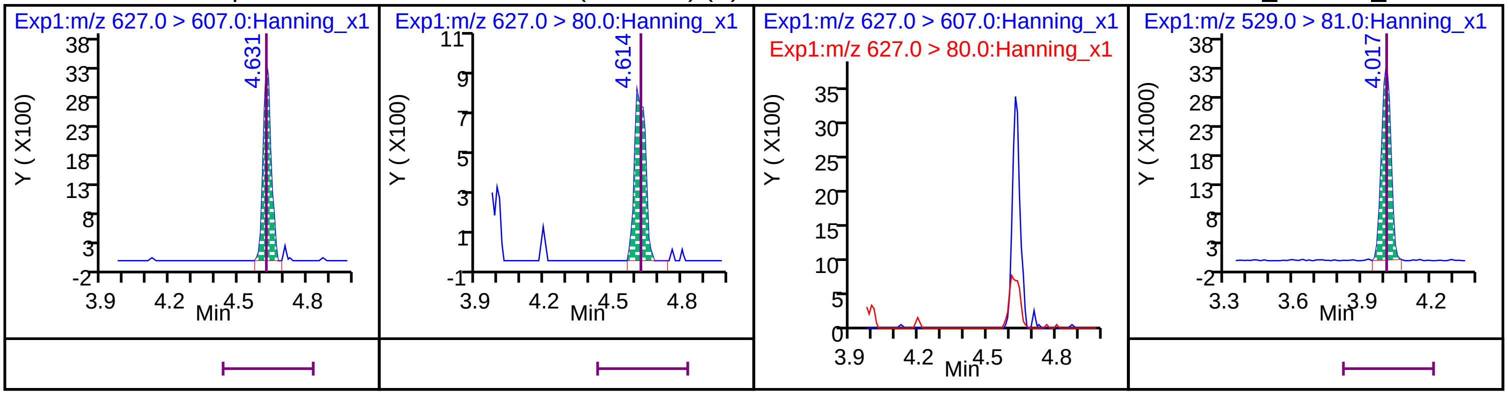
11 Perfluoro-n-dodecanoic acid (PFDoA)



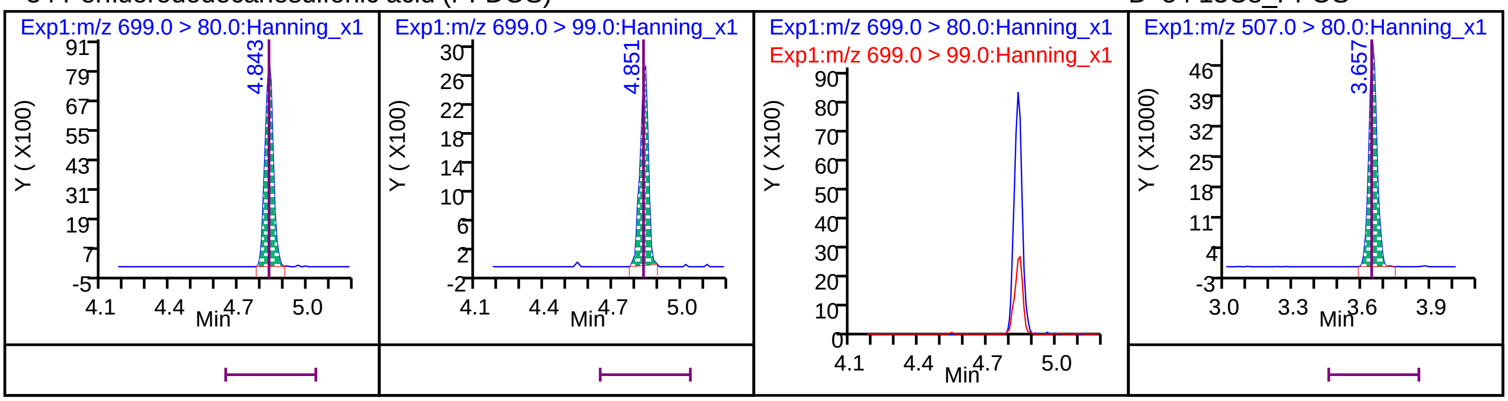
D 38 13C2_PFDoA



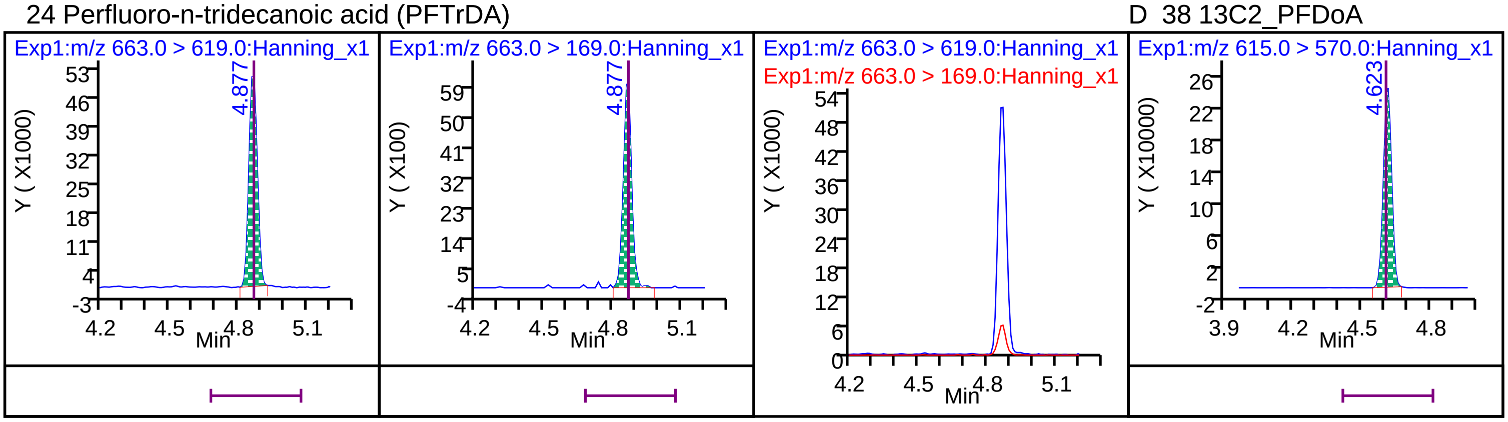
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



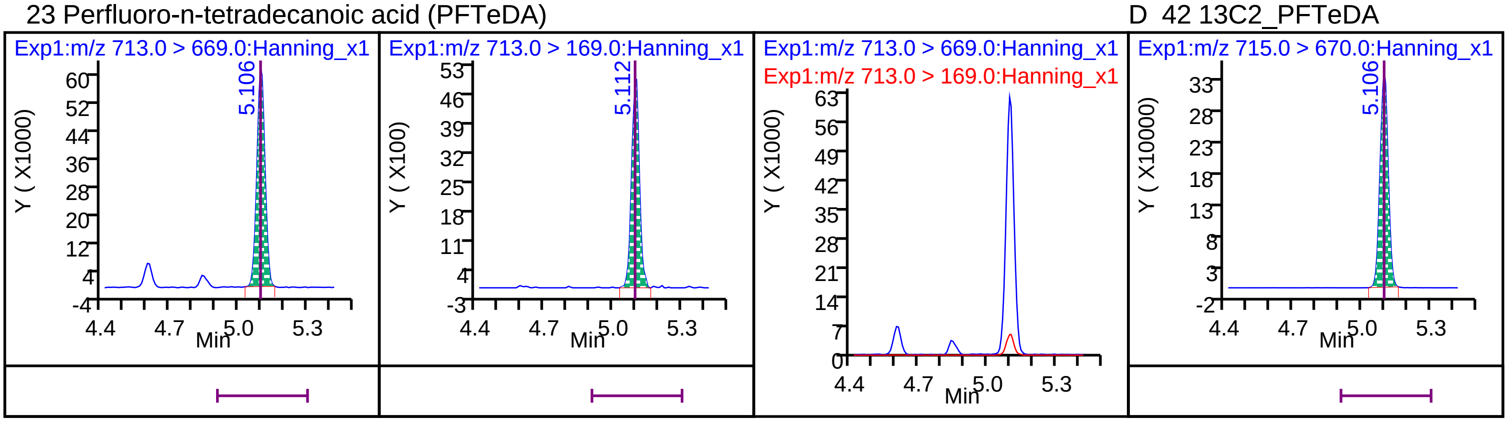
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

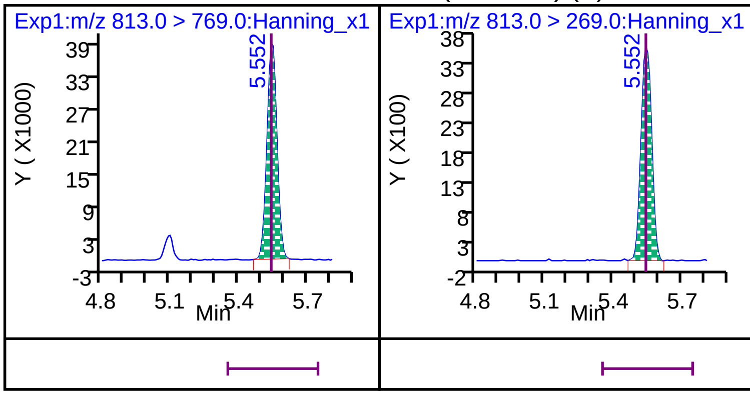


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

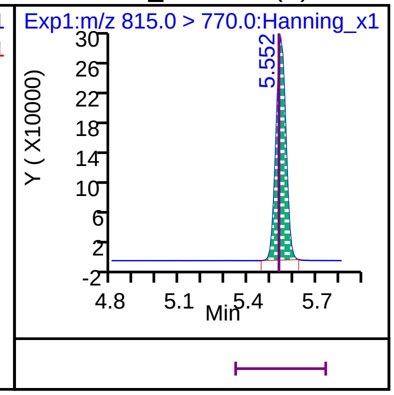


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

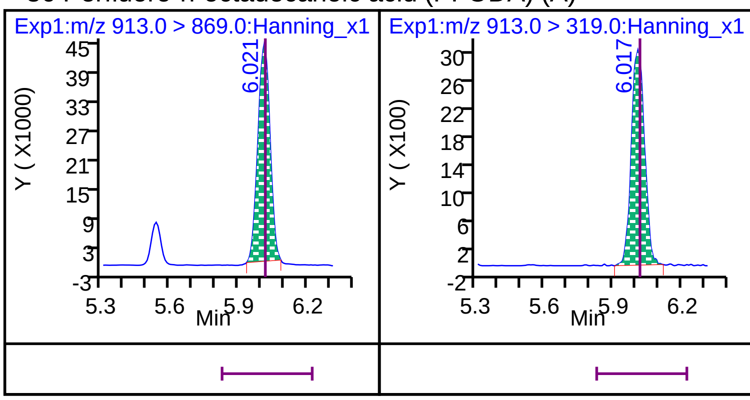
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A)



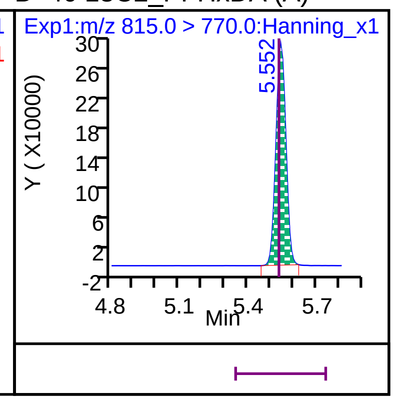
D 40 13C2_PFHxDA (A)



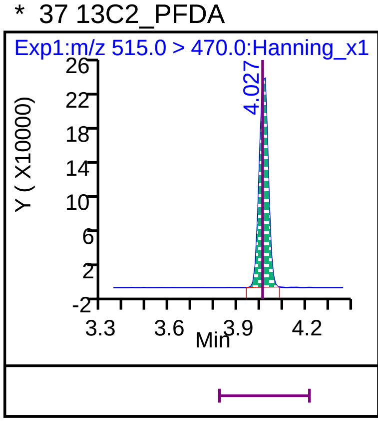
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



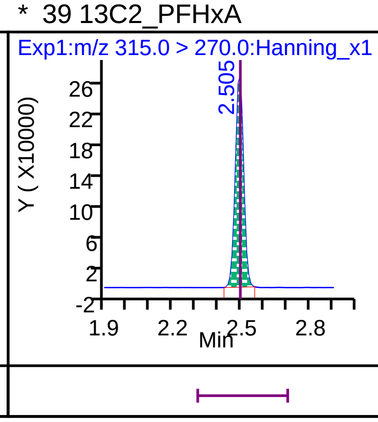
D 40 13C2_PFHxDA (A)



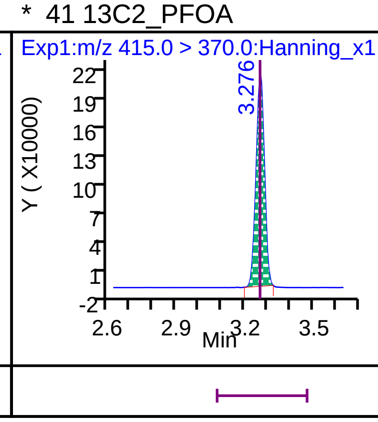
* 37 13C2_PFDA



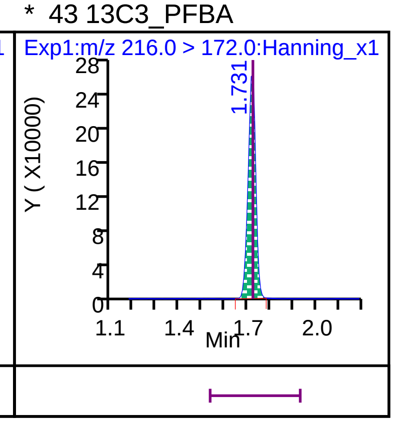
* 39 13C2_PFHxA



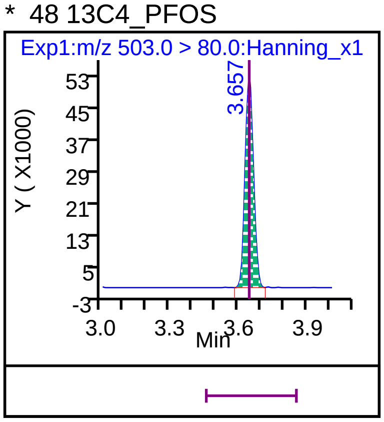
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

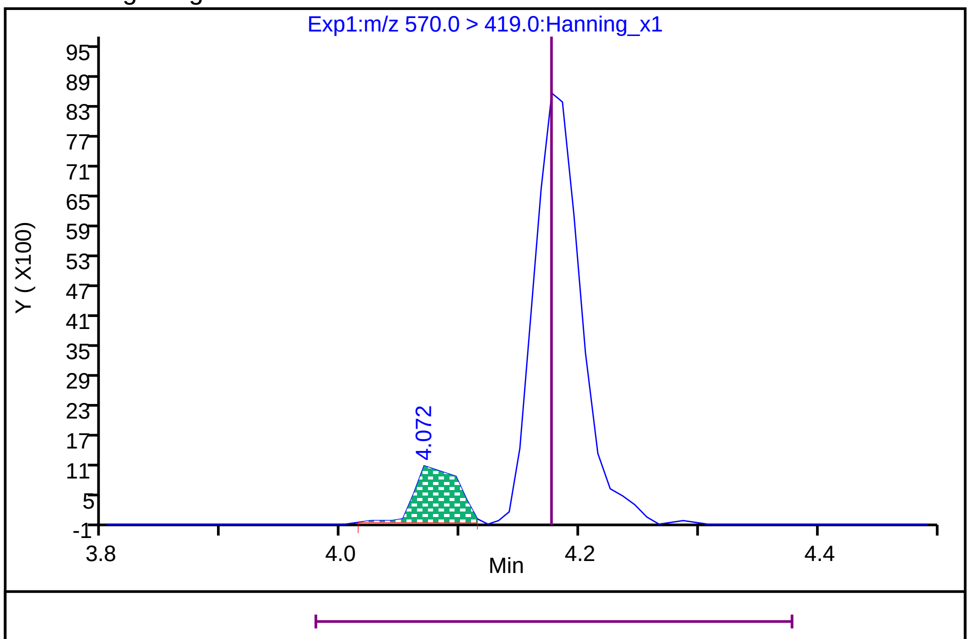
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

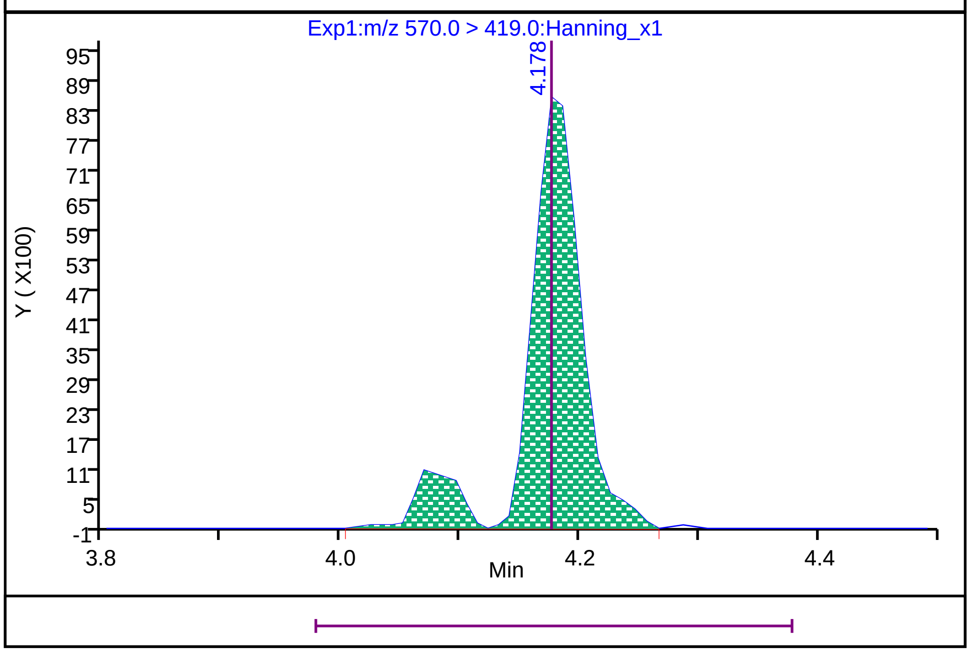
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.072
Area:	2850
Amount:	44.406
Amount Units:	ng/L



RT:	4.178
Area:	26644
Amount:	220.97
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:26

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

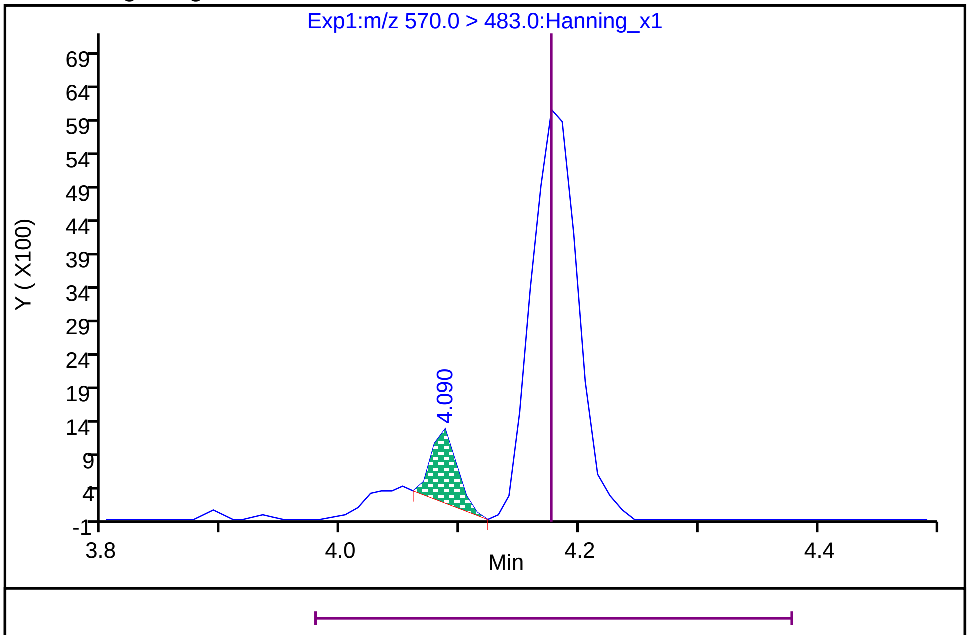
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

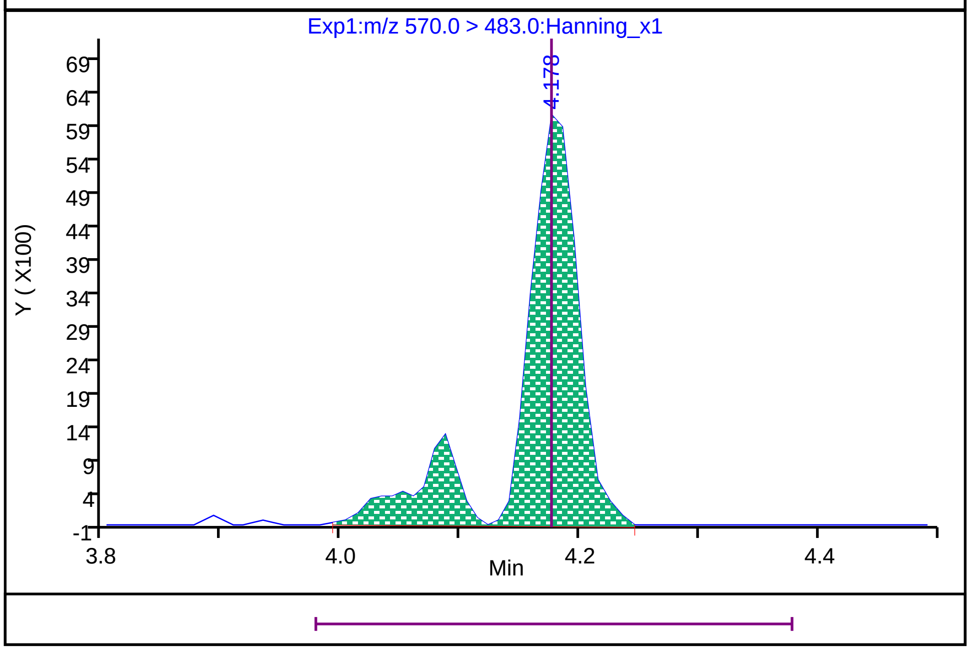
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.090
Area: 1622
Amount: 220.97
Amount Units: ng/L



RT: 4.178
Area: 20187
Amount: 220.97
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:28

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

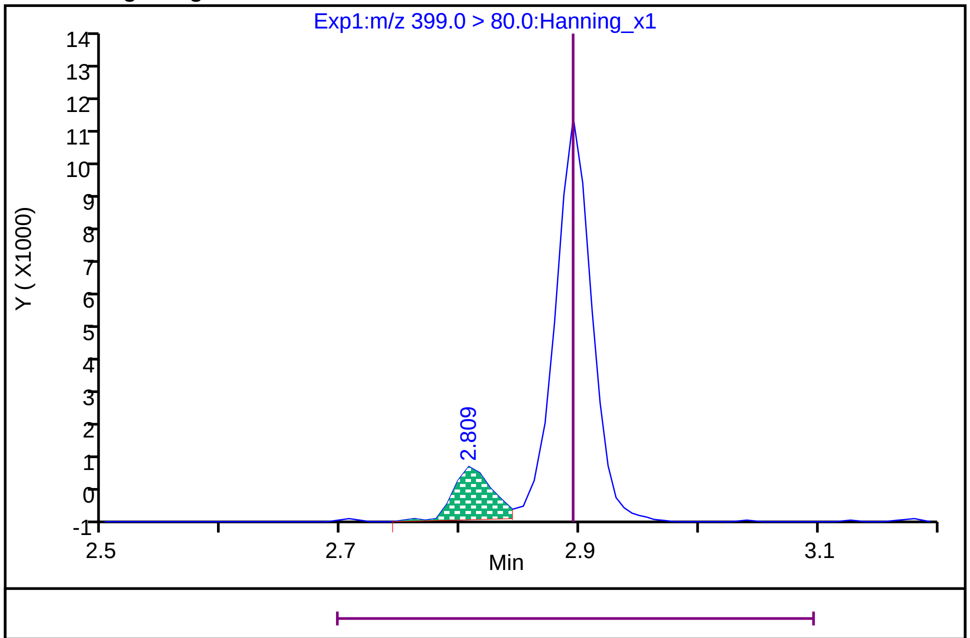
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

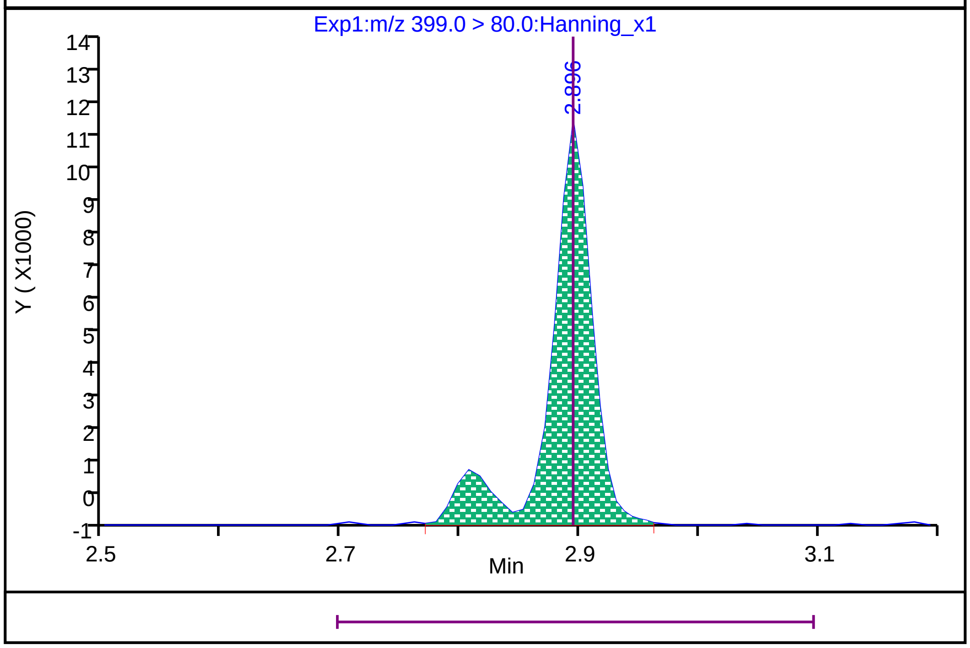
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.809
Area:	3354
Amount:	-996.38
Amount Units:	ng/L



RT:	2.896
Area:	28059
Amount:	196.04
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:09

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

Injection Date: 07-Nov-2021 19:08:54 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 200_SVLC-1742

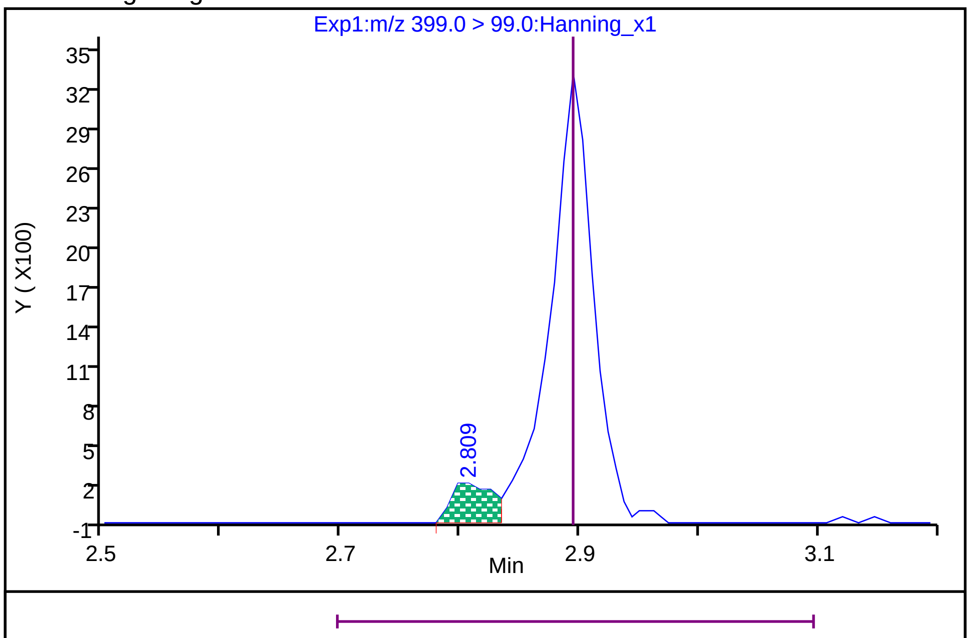
Sample Info: ID ICAL 200_SVLC-1742

Dil. Factor: 1 Operator: Justin Gavin

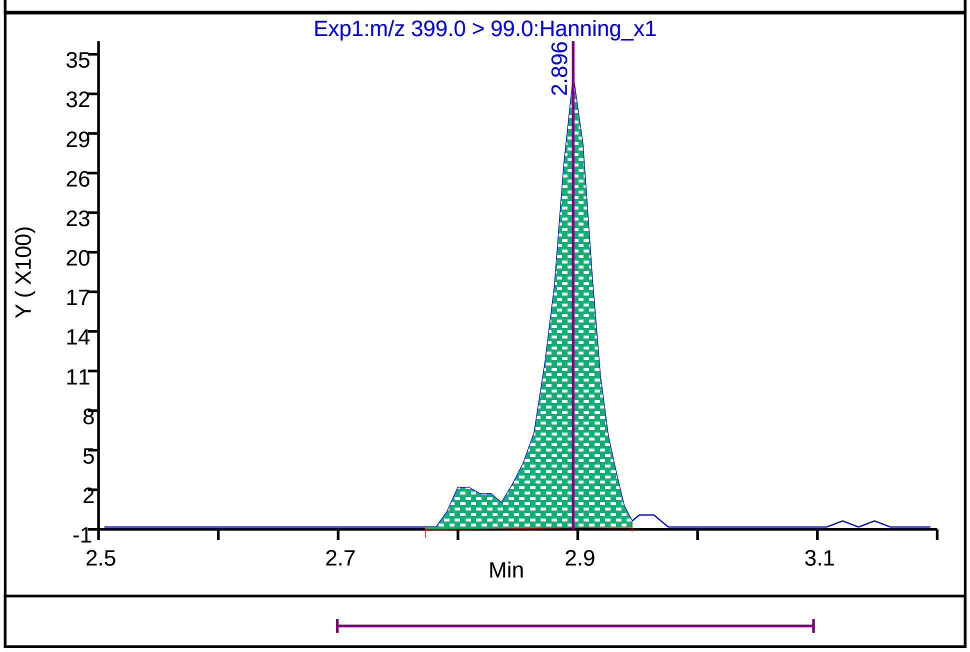
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 681
Amount: 196.04
Amount Units: ng/L



RT: 2.896
Area: 8795
Amount: 196.04
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:12

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	78
Sample Info:	ID ICAL 500_SVLC-1743	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	624336	20	>100:1			1000.00	1004.28	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	338901	19	>100:1			500.00	514.70		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	592341	16	>100:1			1000.00	1036.30	102.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	326970	16	>100:1			500.00	490.45		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	176030	16	>100:1			1000.00	1017.69	98.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	99510	18	>100:1	Target = 3.53		442.00	453.32		
298.9 > 99	44	2.183	2.183		27088	23	>100:1	3.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/-1	77523	18	>100:1	Target = 3.10		469.00	475.19		
349 > 99	44	2.531	2.531		25032	17	>100:1	3.09 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	109721	16	>100:1			5000.00	4845.54	97.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/-1	22981	16		Target = 1.75		467.00	475.08		
327 > 81	63	2.469	2.460		13645	19	31:1	1.68 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	1	675545	17	>100:1			1000.00	1037.25	101.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/0	351581	16	>100:1	Target = 18.91		500.00	500.54		
313 > 119	49	2.505	2.505		19573	15	>100:1	17.96 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1164547	19	>100:1			5000.00	5024.88	96.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/1	153699	19	>100:1	Target = 0.79		1000.00	1018.96		
285 > 185	66	2.622	2.622		194997	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	537765	18	>100:1			1000.00	1012.86	100.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	0/-1	296723	17	>100:1	Target = 3.80		500.00	502.14		
363 > 169	47	2.881	2.880		80115	20	>100:1	3.70 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	133409	18	>100:1			1000.00	1061.84	102.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/5	67873	27	>100:1	Target = 2.89	4.35	455.00	462.77		M
399 > 99	45	2.896	2.896		20824	25	>100:1	3.25 (1.44-4.34)	7.53				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	460077	20	>100:1	Target = 3.23		471.00	444.68		
377 > 85	45	2.919	2.919		148929	21	>100:1	3.08 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.282	3.276	1/0	57950	21	>100:1	Target = 3.12		476.00	422.93		
449 > 99	45	3.276	3.276		20808	19	>100:1	2.78 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.255	3.248	1	94456	20	>100:1			5000.00	5247.57	100.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/-1	20529	20		Target = 1.75		474.00	459.06		
427 > 81	64	3.255	3.248		11546	19	28:1	1.77 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	524379	22	>100:1			1000.00	999.43	95.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/-1	281706	20	>100:1	Target = 2.89		500.00	524.24		
413 > 169	53	3.276	3.276		91375	23	>100:1	3.08 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.652	3.651	0	129829	20	>100:1			1000.00	1048.34	98.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	1/1	69058	41	>100:1	Target = 3.30	3.54	464.00	446.73		M
499 > 99	54	3.652	3.662		21453	44	>100:1	3.21 (1.65-4.95)	5.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/1	220303	17	>100:1			466.00	448.07		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/1	49658	21	>100:1	Target = 3.08		480.00	476.75		
549 > 99	54	4.006	4.006		18097	22	>100:1	2.74 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/1	46988	20	>100:1	Target = 2.72		482.00	462.50		
599 > 99	54	4.318	4.318		17800	20		2.63 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	1/1	199041	17	>100:1			471.00	447.80		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	0/0	49920	17	>100:1	Target = 3.27		484.00	447.16		
699 > 99	54	4.843	4.842		15294	16	>100:1	3.26 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	652533	21	>100:1			1000.00	1018.98	102.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	359052	23	>100:1	Target = 6.51		500.00	510.49		
463 > 169	56	3.662	3.662		55590	21	>100:1	6.45 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	278973	18	>100:1			1000.00	1040.72	104.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	150716	17	>100:1	Target = 41.63		500.00	513.46		
498>478	55	3.888	3.896		4665	15	28:1	32.30 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	0	591408	17	>100:1			1000.00	1029.14	102.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	0/0	354891	17	>100:1	Target = 13.80		500.00	515.64		
513 > 169	51	4.027	4.016		27152	20	>100:1	13.07 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	84431	15	>100:1			5000.00	4884.78	107.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	0/-1	18669	17	85:1	Target = 1.94		479.00	489.28		
527 > 81	65	4.017	4.016		10352	15	37:1	1.80 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.631	4.631	1/0	18214	16		Target = 3.54		482.00	425.23		
627 > 80	65	4.631	4.631		7681	15	20:1	2.37 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	744712	18	>100:1			5000.00	4928.20	96.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.187	4.178	7/7	57385	27	>100:1	Target = 1.37	10.02	500.00	480.15		
570 > 483	58	4.178	4.178		46738	31	>100:1	1.22 (0.68-2.05)	4.99				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	94507	15	>100:1			1000.00	1047.88	104.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/-1	46172	14	>100:1			500.00	447.05		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	51110	14	>100:1			1000.00	1086.49	113.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/-1	31576	13	>100:1	Target = 1.11		500.00	569.99		
512 > 219	57	4.318	4.318		22112	11	>100:1	1.42 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	0	708039	16	>100:1			5000.00	5466.93	102.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.348	0/0	62428	21	36:1	Target = 1.51	10.51	500.00	452.13		
584 > 526	60	4.348	4.348		41356	30	66:1	1.50 (0.75-2.26)	3.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	644729	15	>100:1			1000.00	1070.53	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	0/-1	291697	15	>100:1	Target = 14.52		500.00	466.92		
563 > 169	52	4.339	4.338		18578	20	>100:1	15.70 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	104371	16	>100:1			1000.00	983.92	102.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	48514	15	>100:1			500.00	477.49		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	44943	16	>100:1			1000.00	1045.19	104.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	26116	20	>100:1	Target = 1.06		500.00	477.99		
526 > 219	59	4.483	4.483		30666	15	>100:1	0.85 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	603349	17	>100:1			1000.00	1005.02	99.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	327079	18	75:1	Target = 10.70		500.00	508.51		
613 > 169	38	4.623	4.622		29077	16	>100:1	11.24 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	1/0	326539	17	>100:1	Target = 8.31		500.00	514.91		
663 > 169	38	4.877	4.877		39813	15	>100:1	8.20 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	818088	22	>100:1			1000.00	1006.27	97.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	1/1	364849	22	50:1	Target = 12.17		500.00	510.90		
713 > 169	42	5.106	5.106		30567	23	>100:1	11.93 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.552	5.544	0	851524	21	>100:1			1000.00	980.98	97	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.552	5.552	0	277135	22	40:1	Target = 10.43		500.00	508.17		
813 > 269	40	5.552	5.552		26652	21	>100:1	10.39 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	6.017	6.026	0	402758	33	23:1	Target = 13.67		500.00	519.54		
913 > 319	40	6.017	6.026		29444	42	>100:1	13.67 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	690187	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	670207	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	553624	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	590590	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.657	0	132512	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

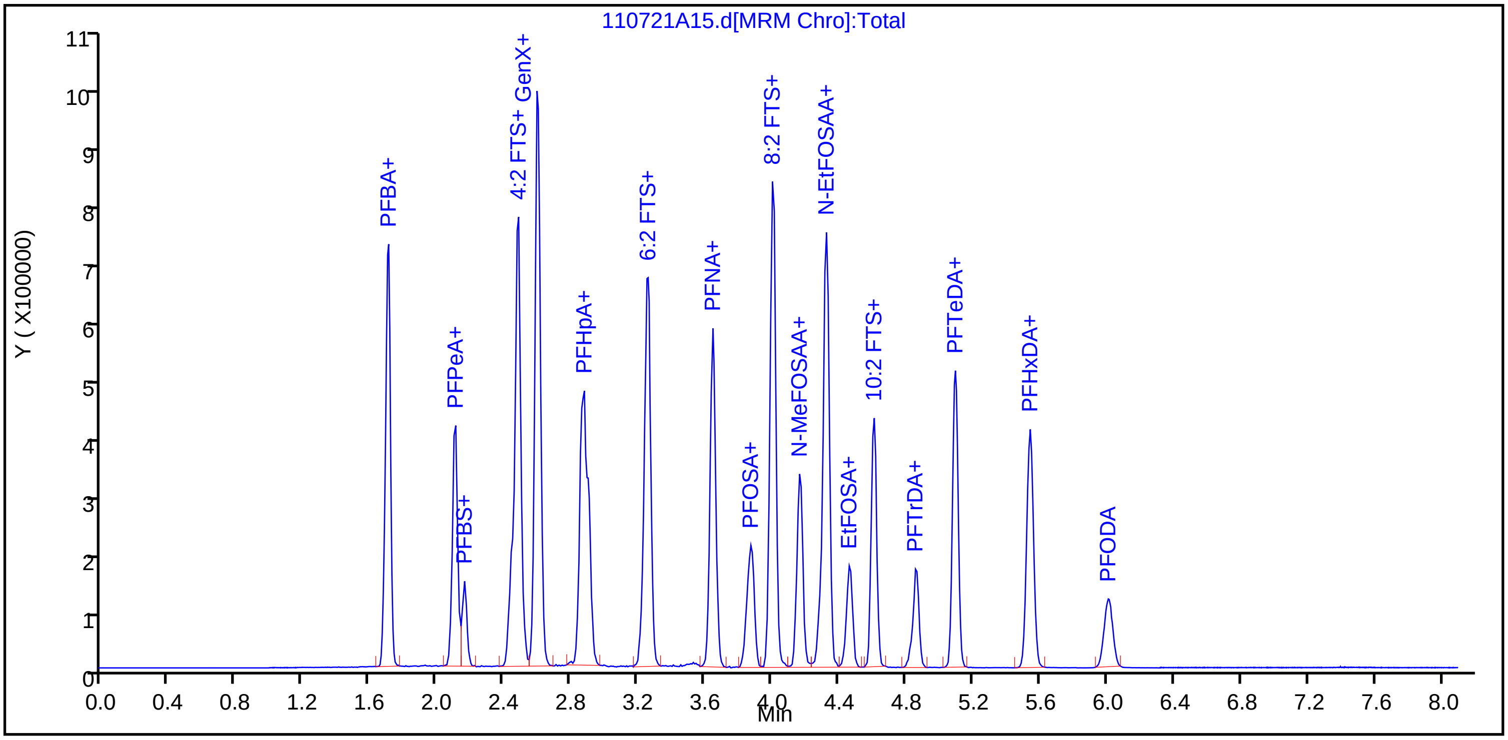
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

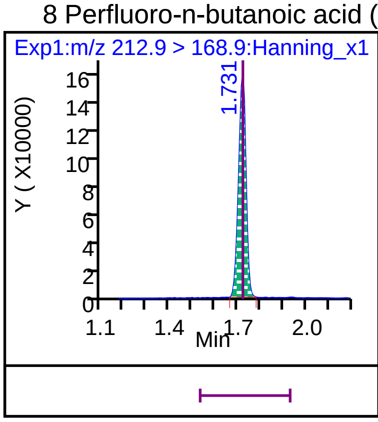
Report Date: 08-Nov-2021 10:00:23 | AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

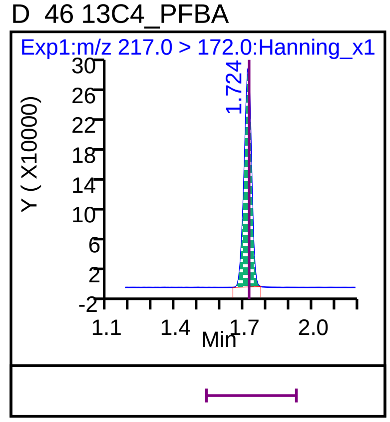
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin



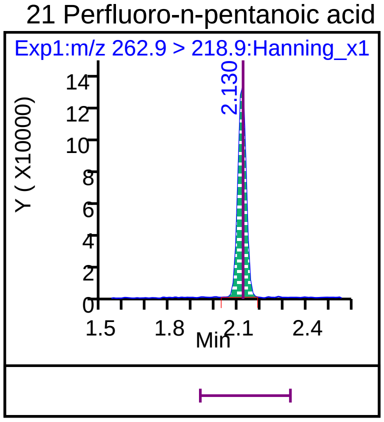
8 Perfluoro-n-butanoic acid (PFBA)



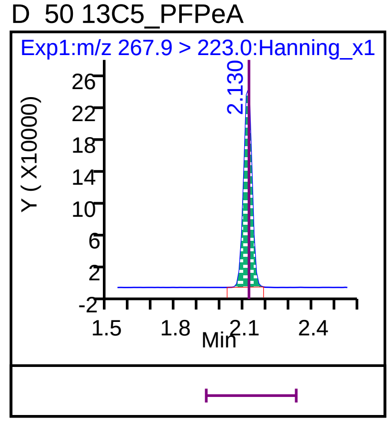
D 46 13C4_PFBA



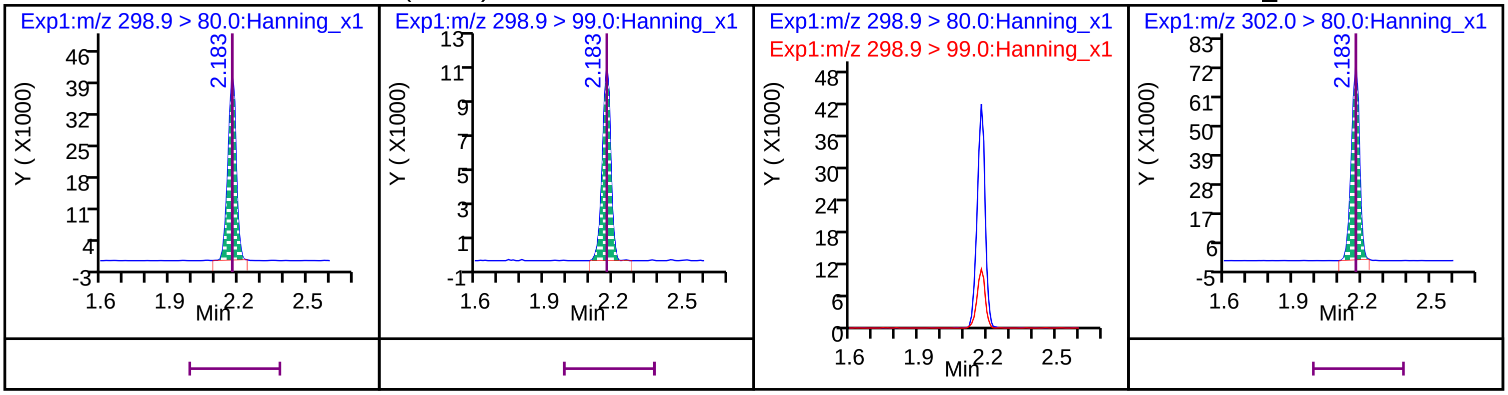
21 Perfluoro-n-pentanoic acid (PFPeA)



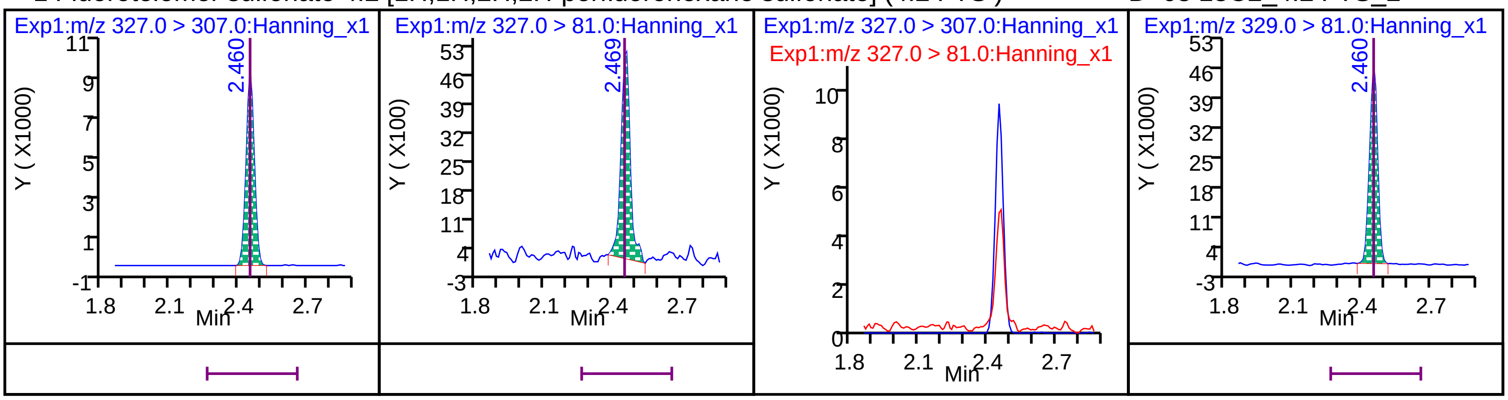
D 50 13C5_PFPeA



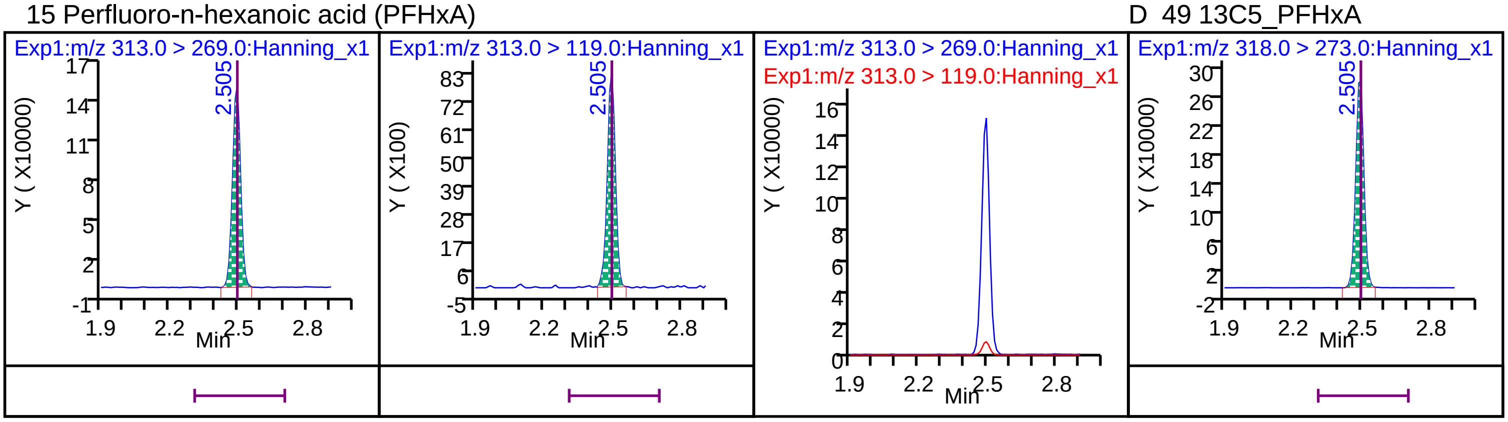
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



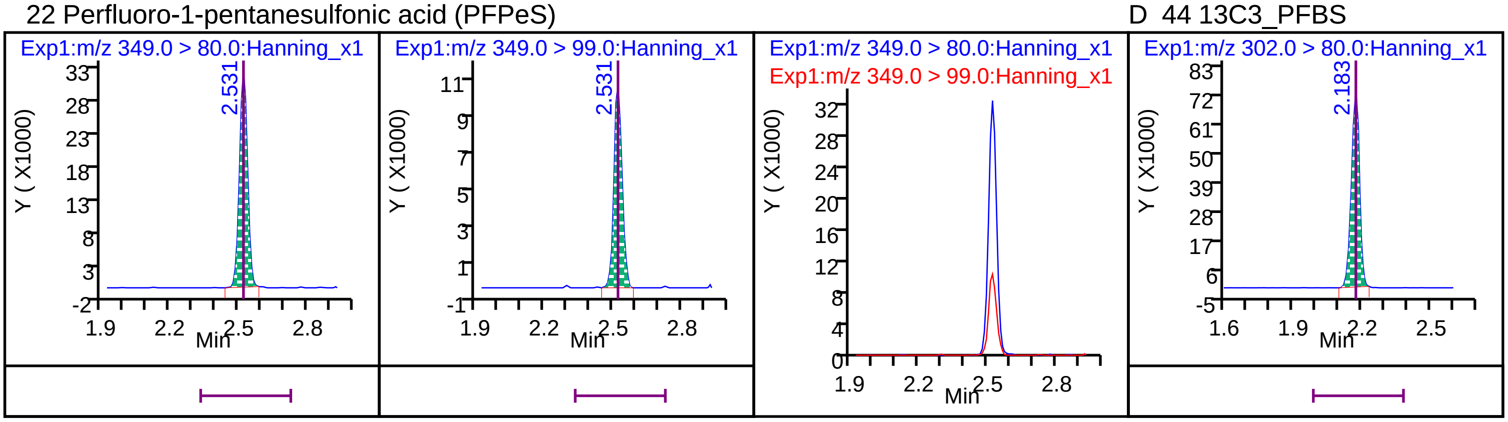
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

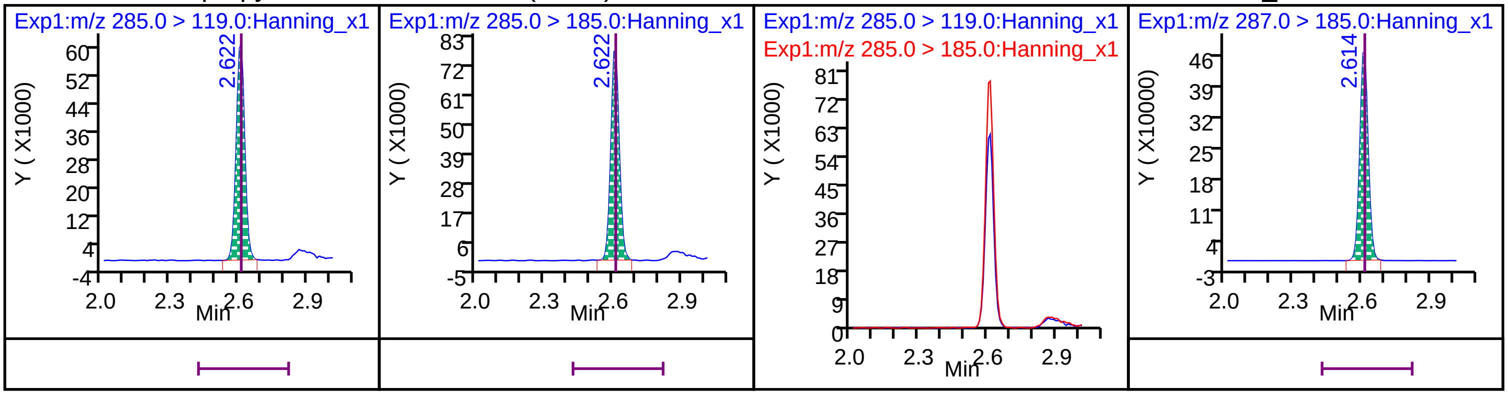


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

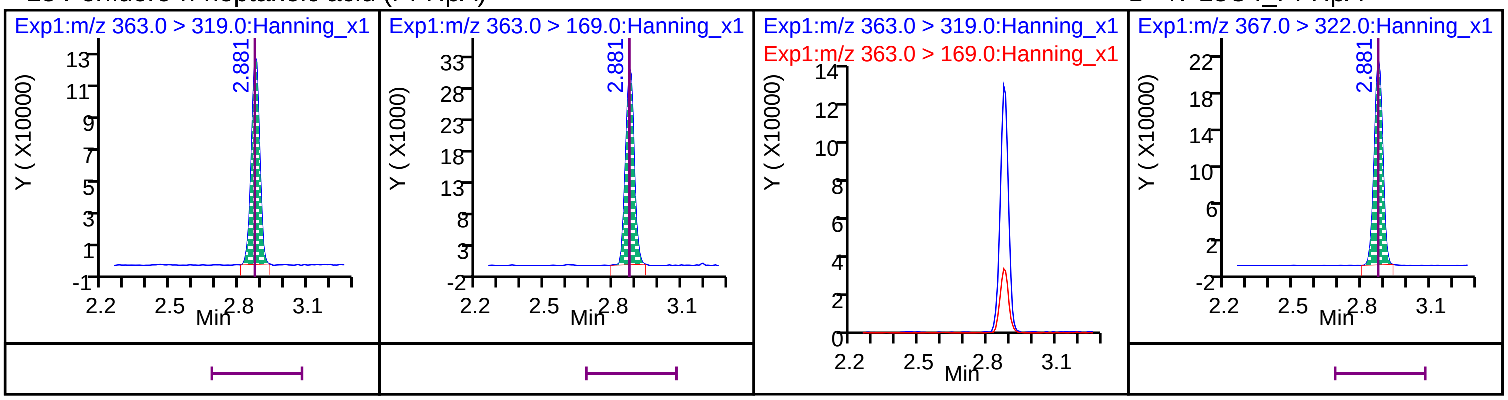


Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

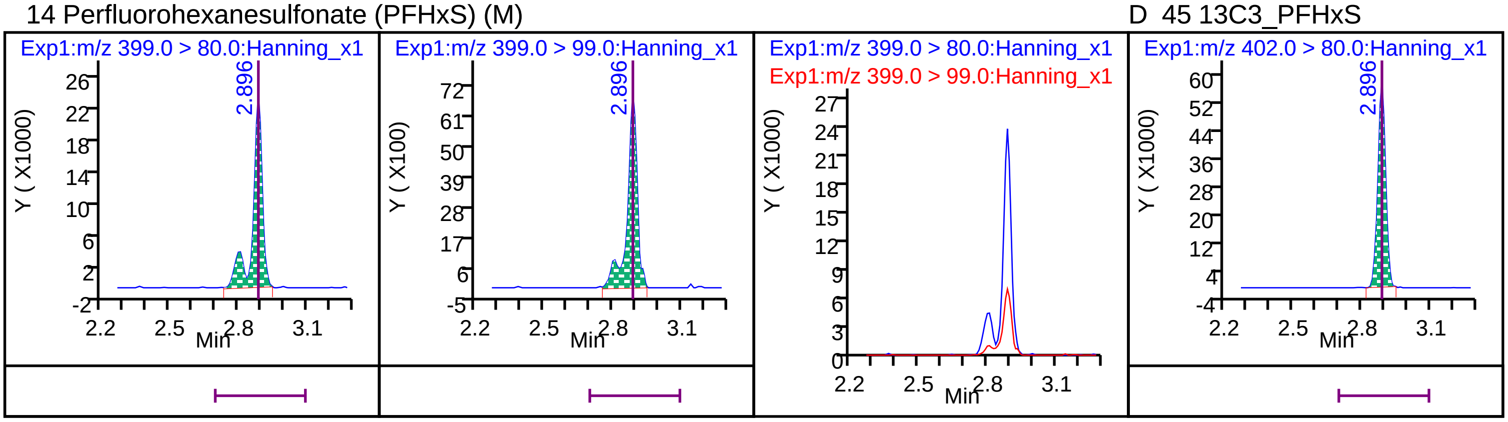
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



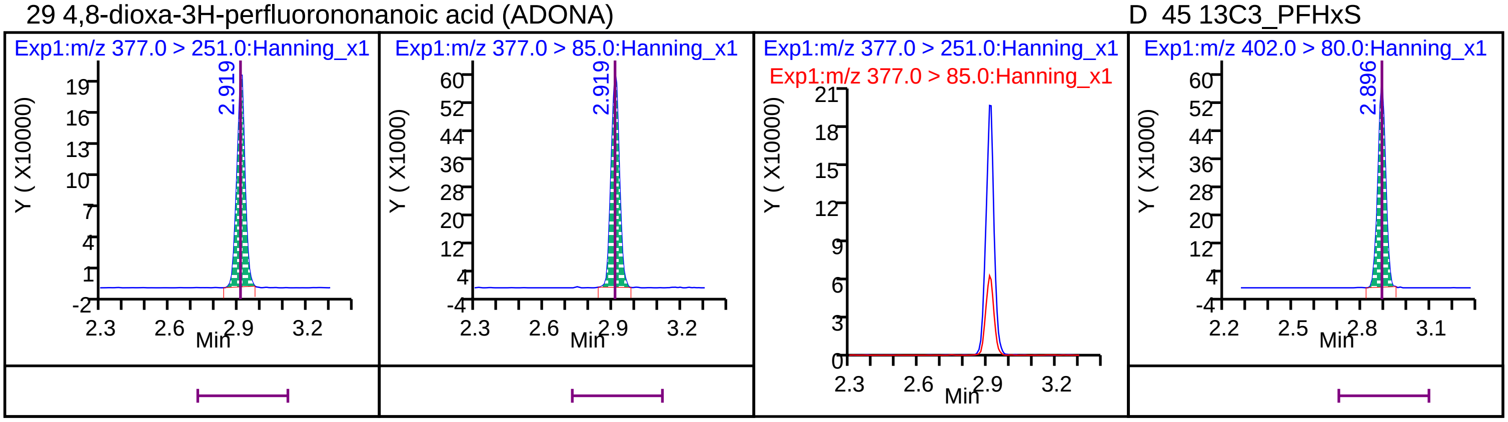
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS

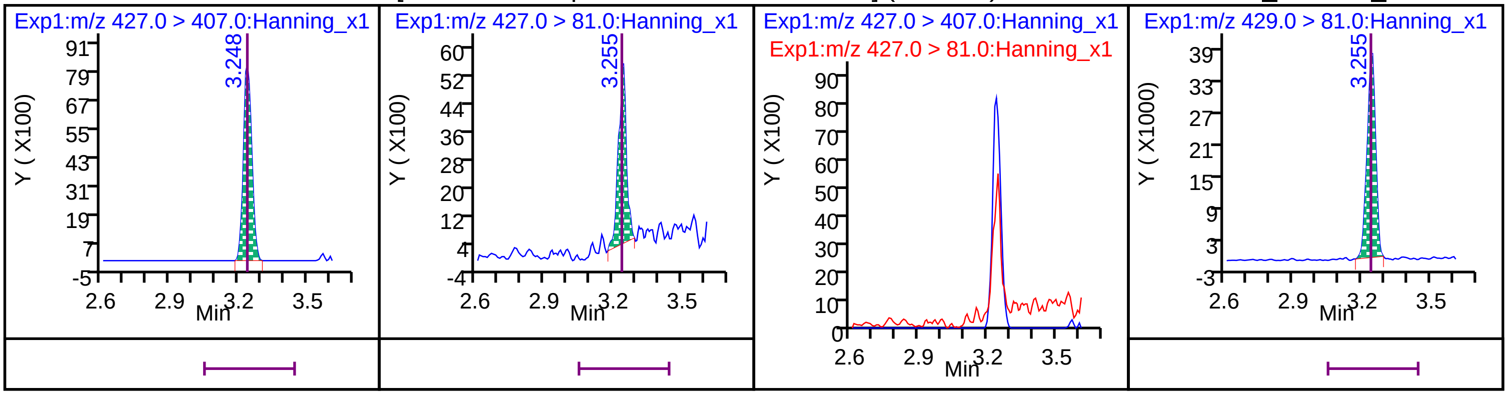


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

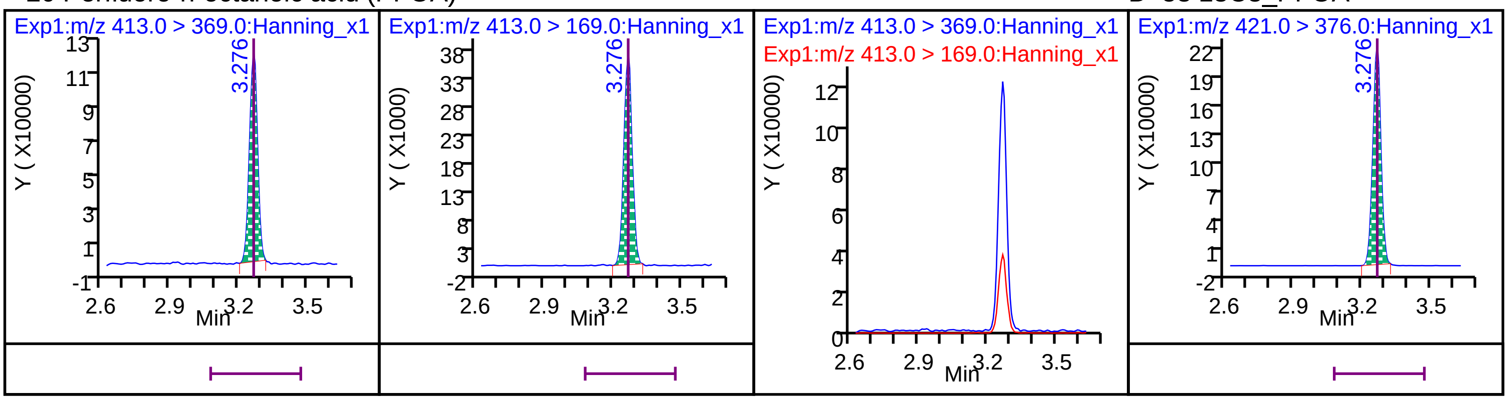


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

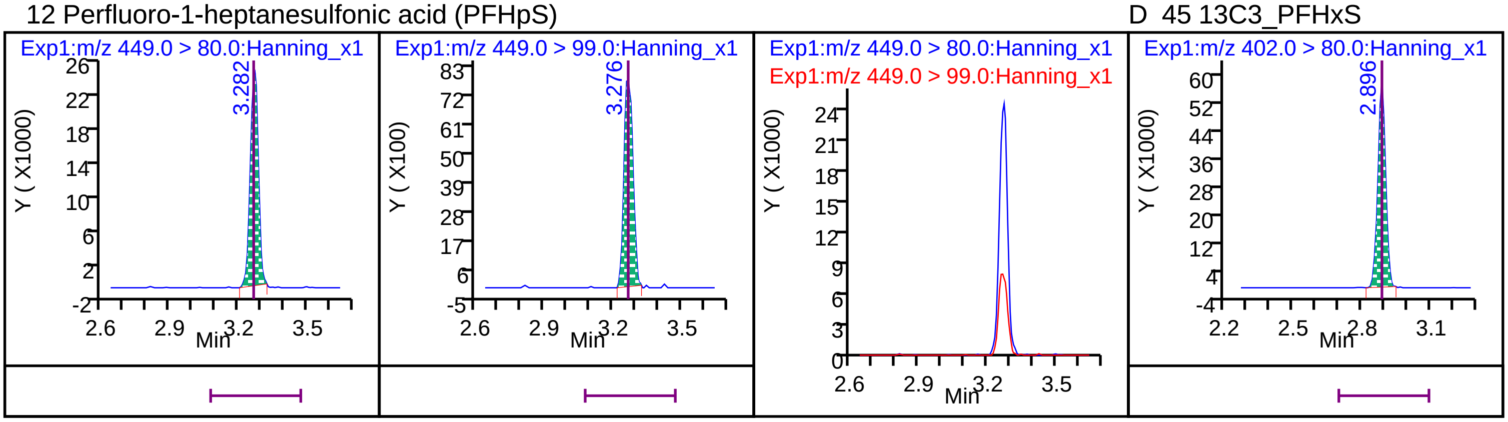
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



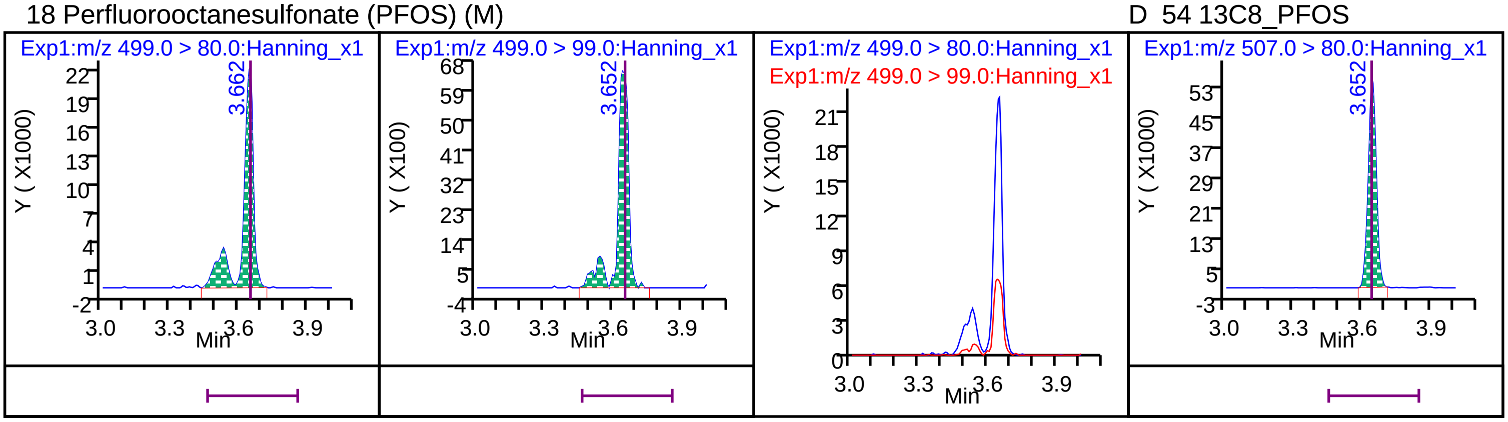
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



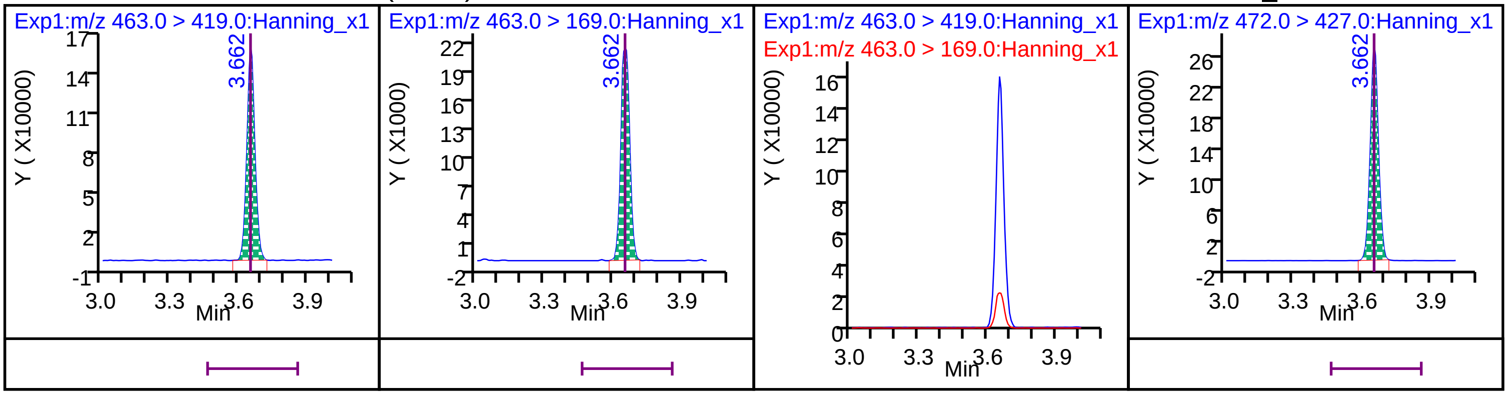
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



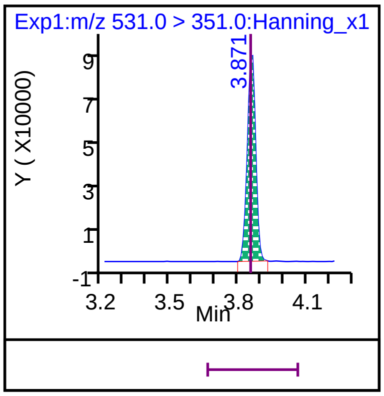
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

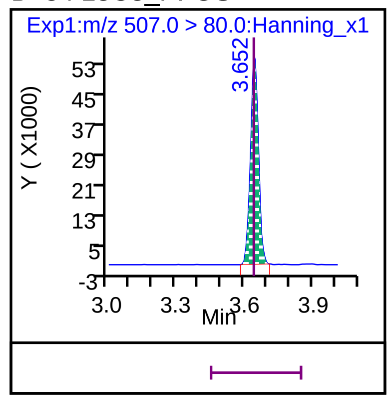


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

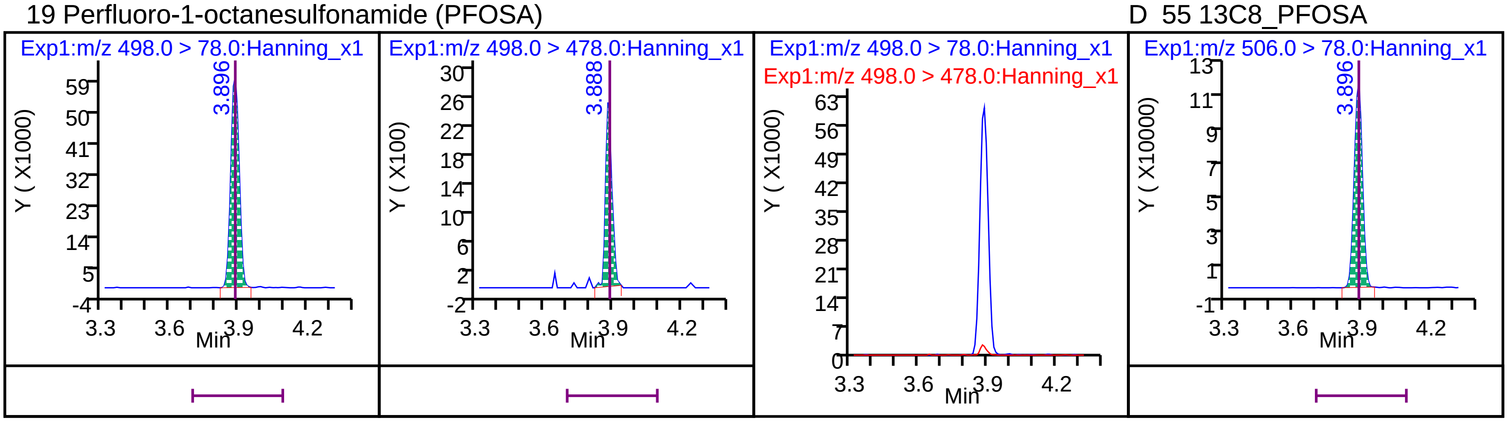


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

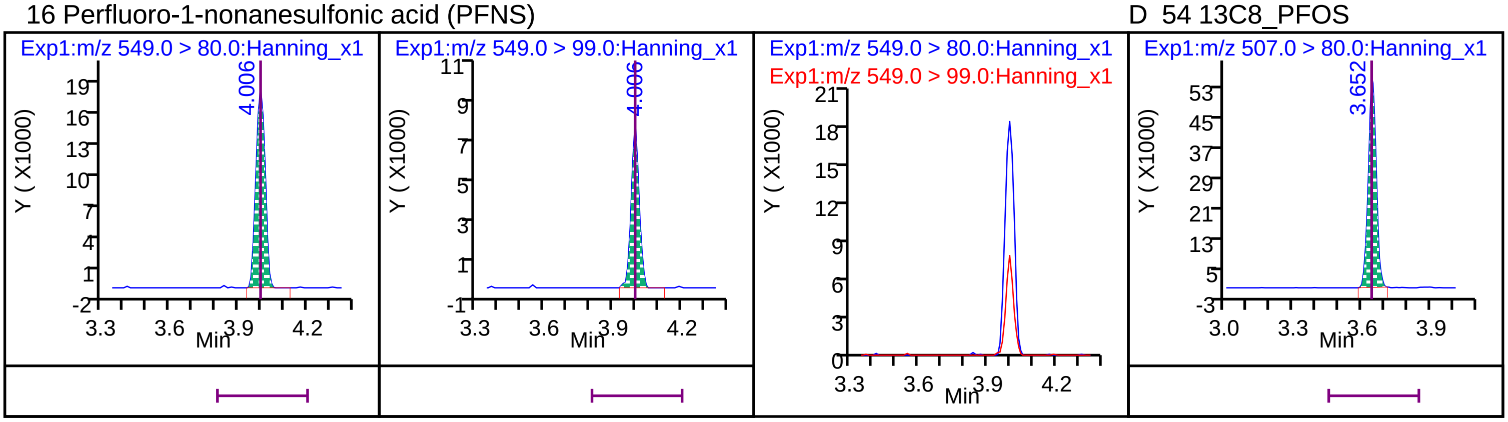




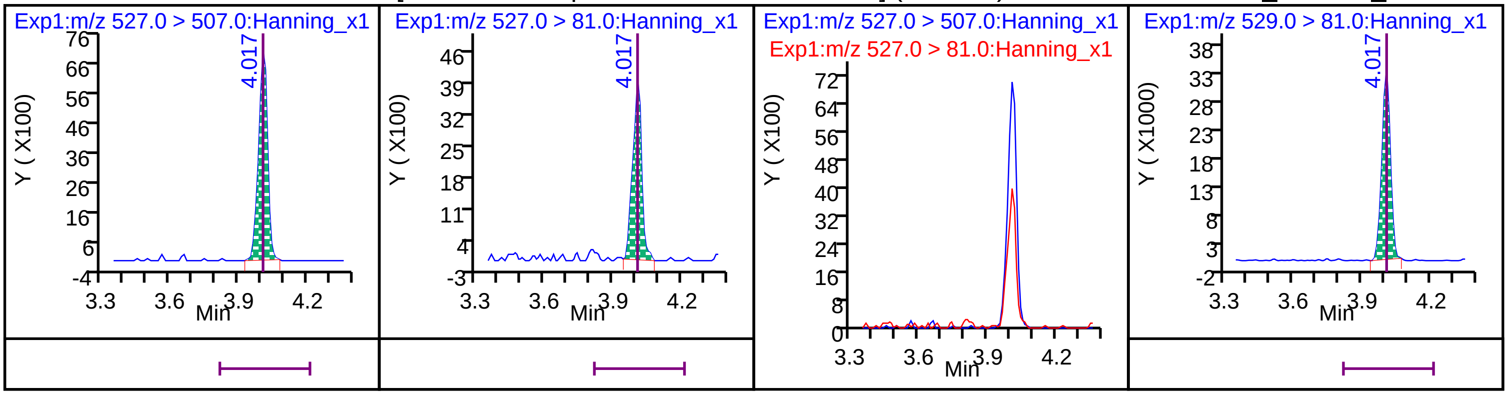
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



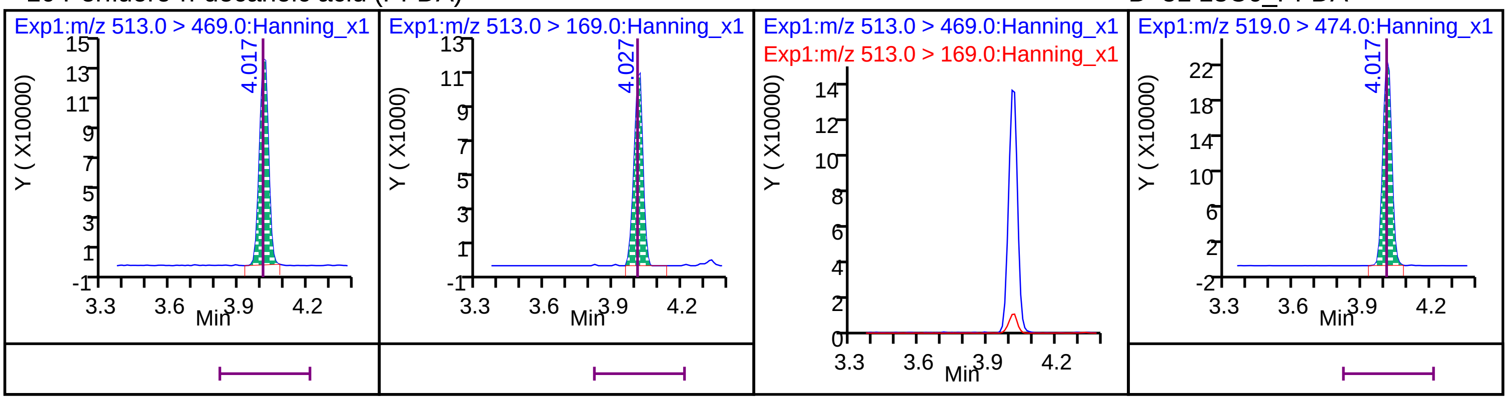
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



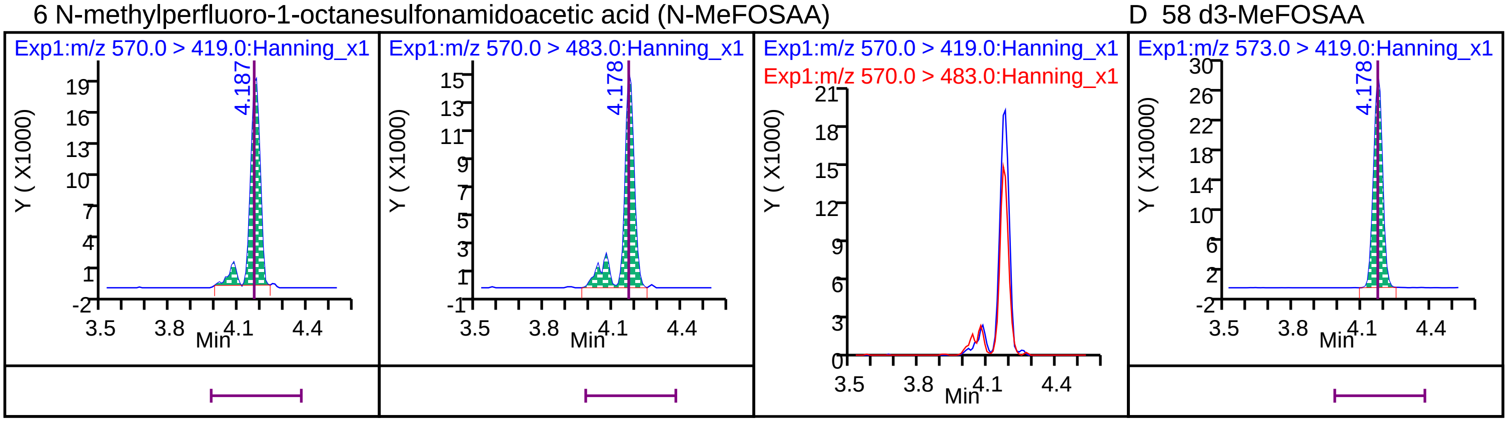
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

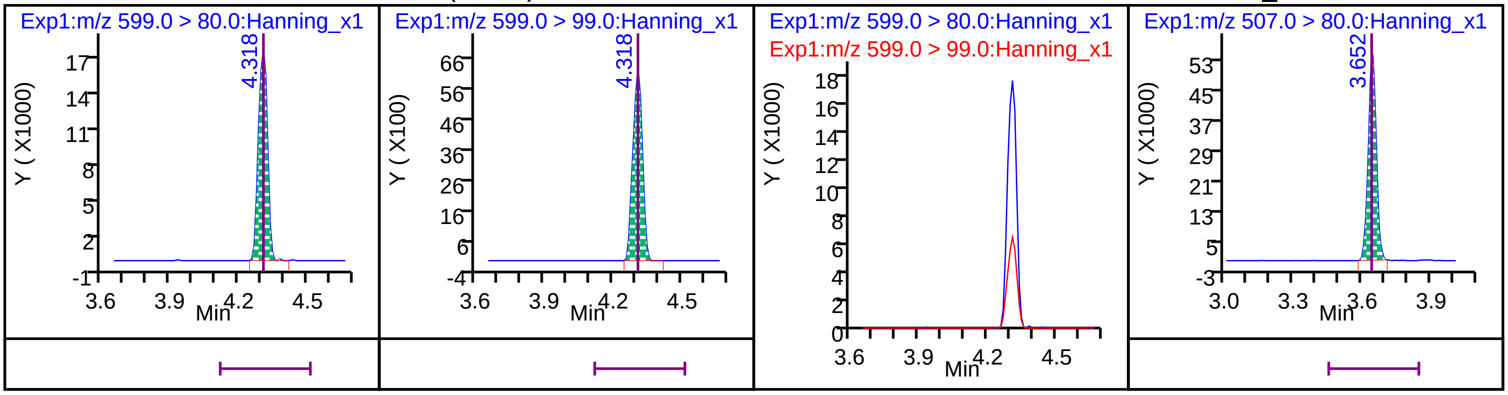


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

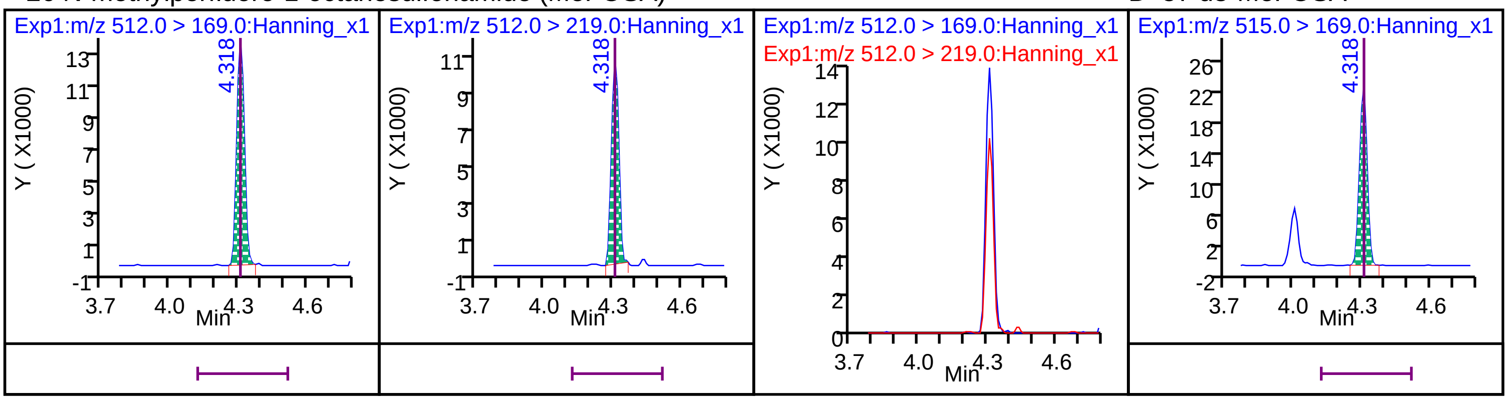


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

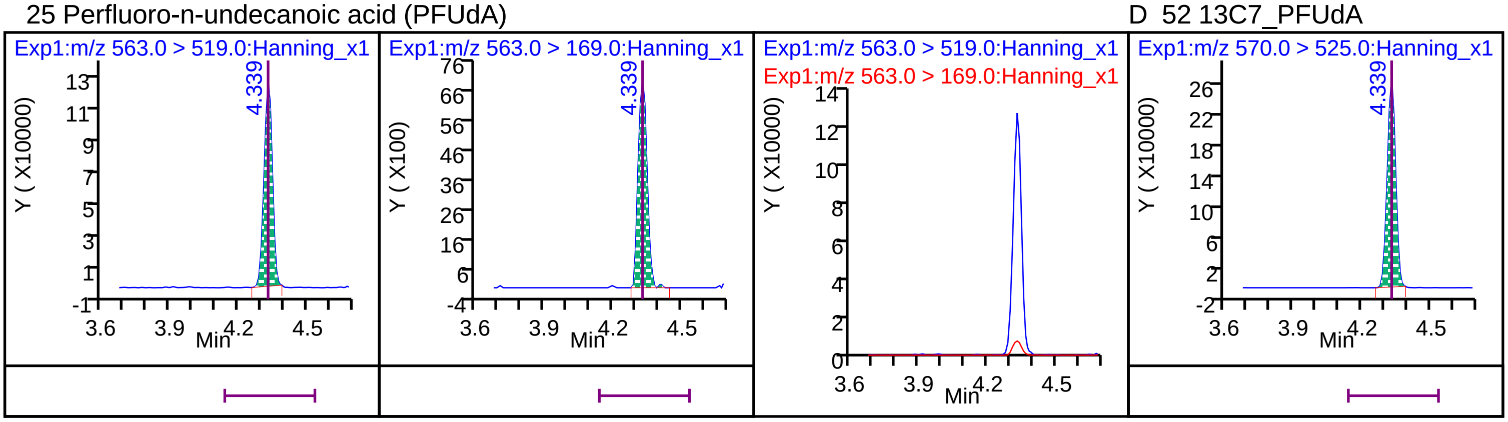
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



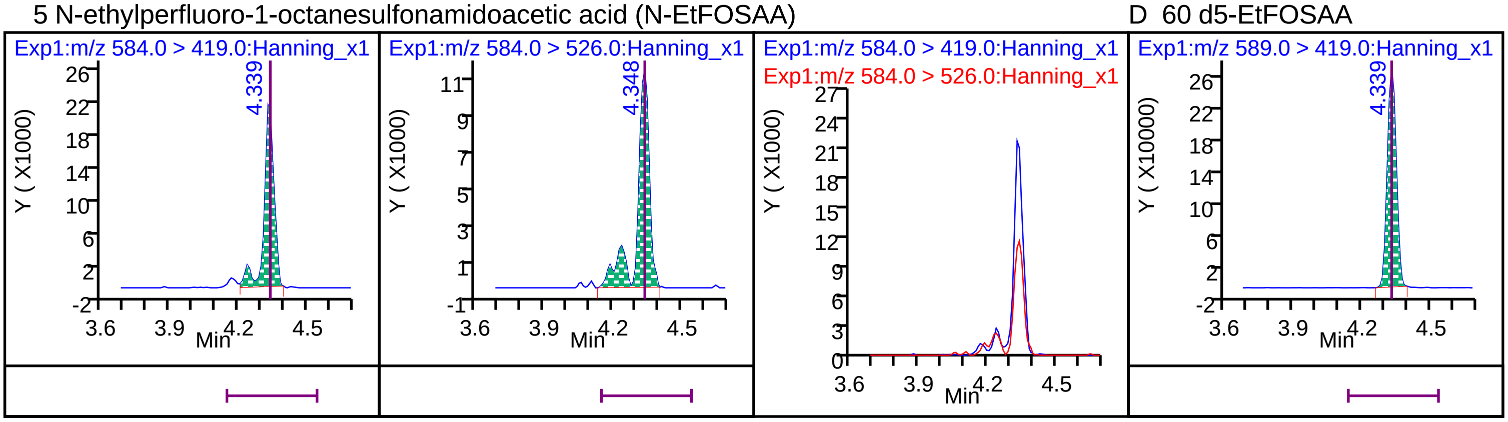
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

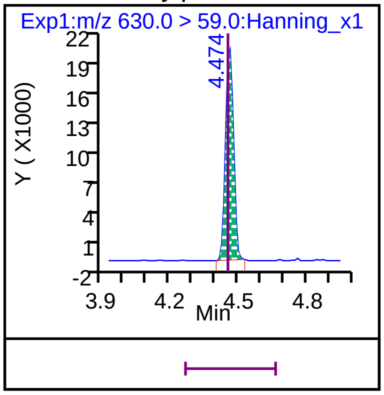


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

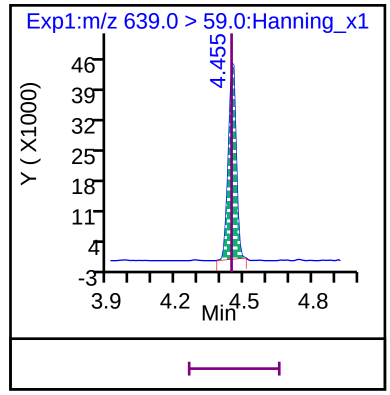


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

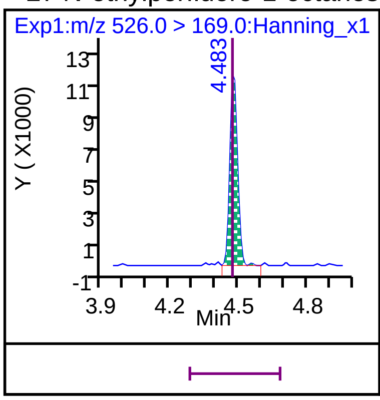
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

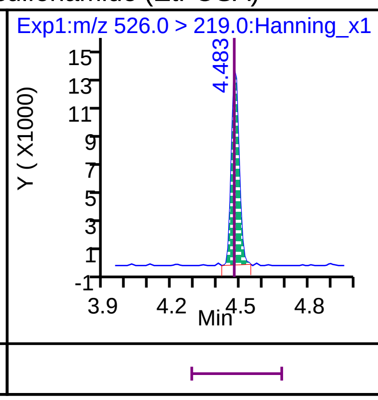


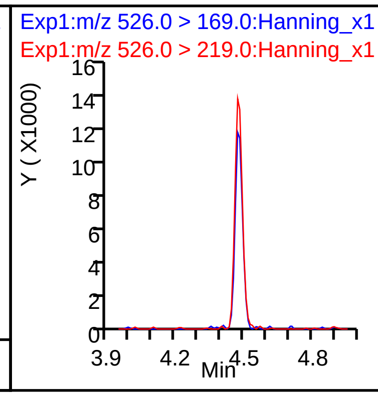
D 62 d9-EtFOSE



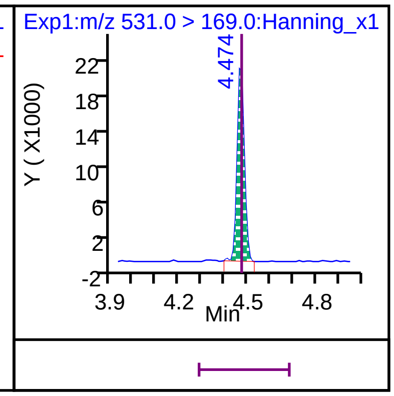
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



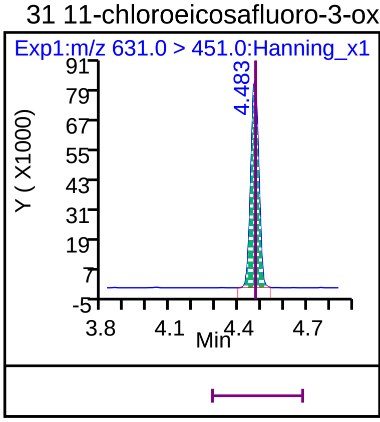




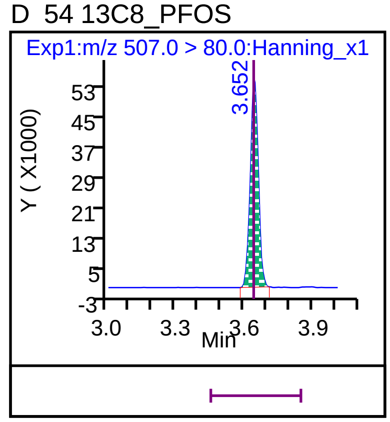
D 59 d5-EtFOSA



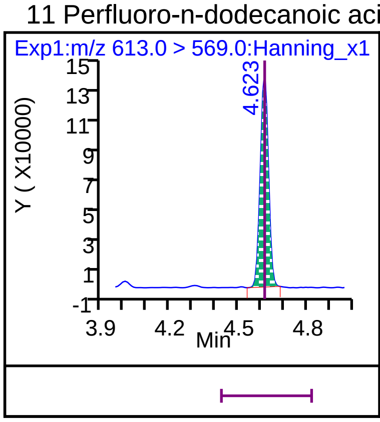
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

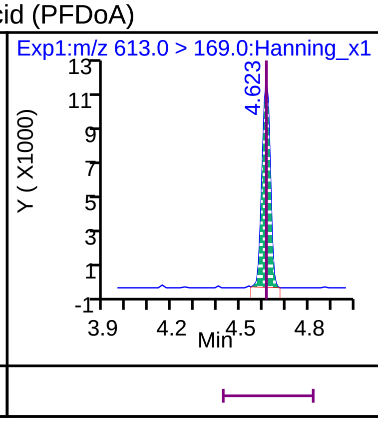


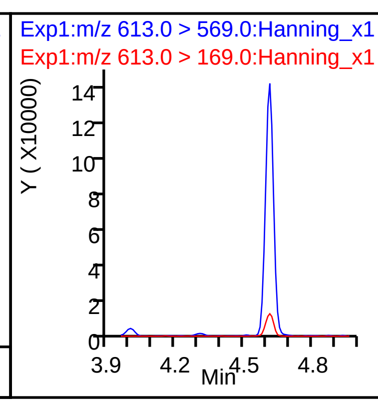
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)







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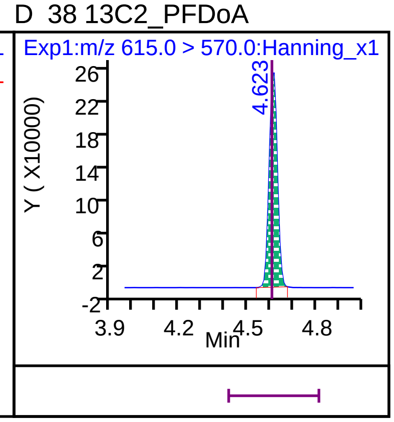
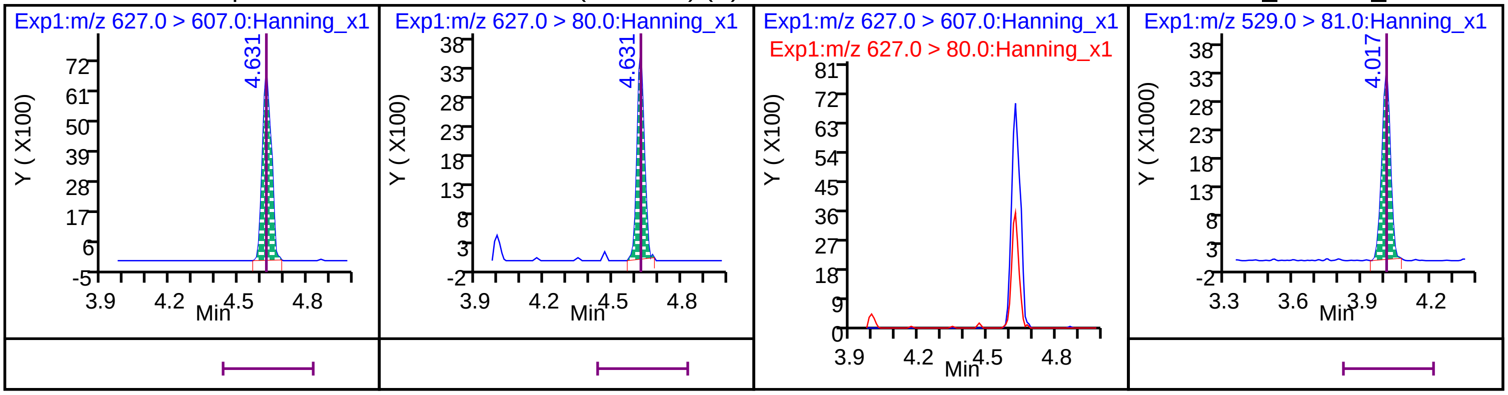
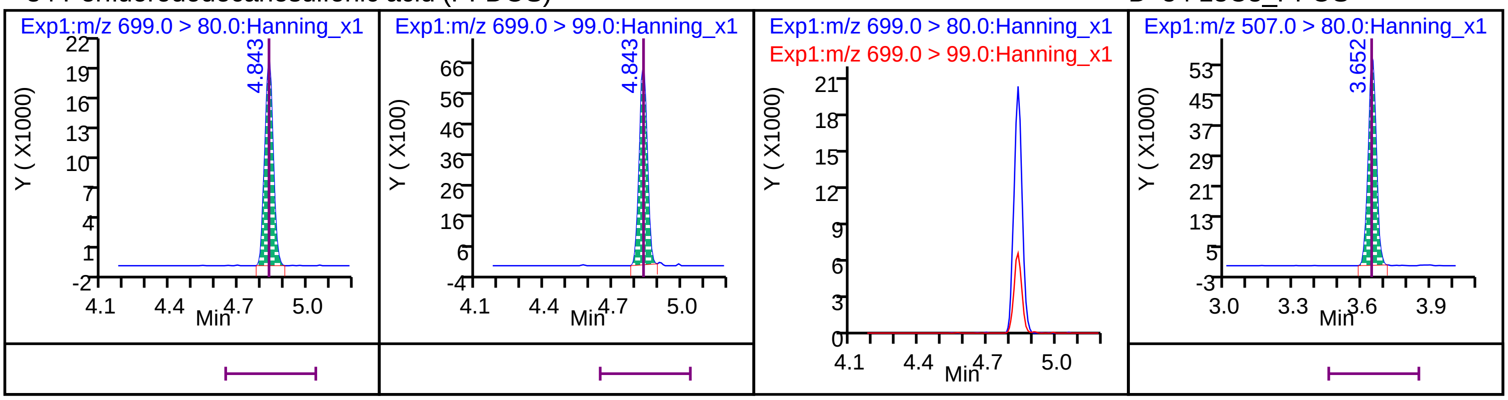


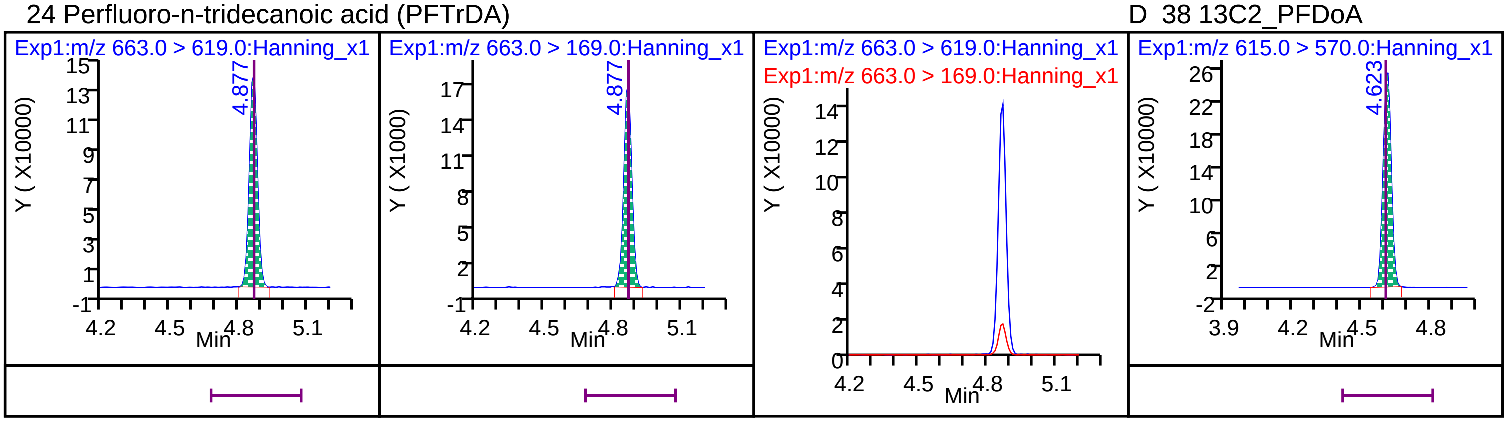
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



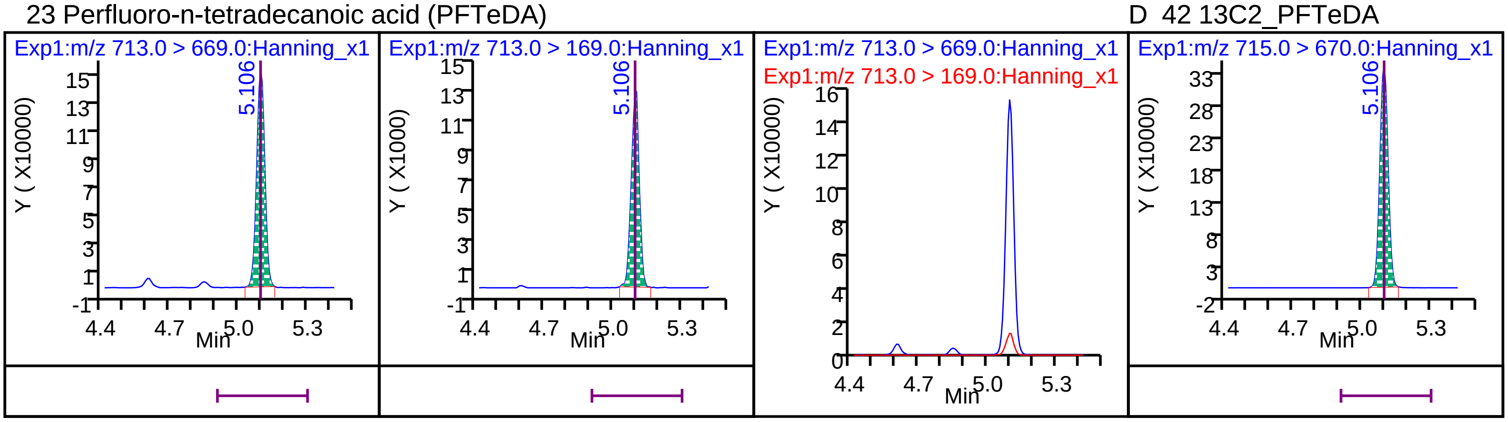
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



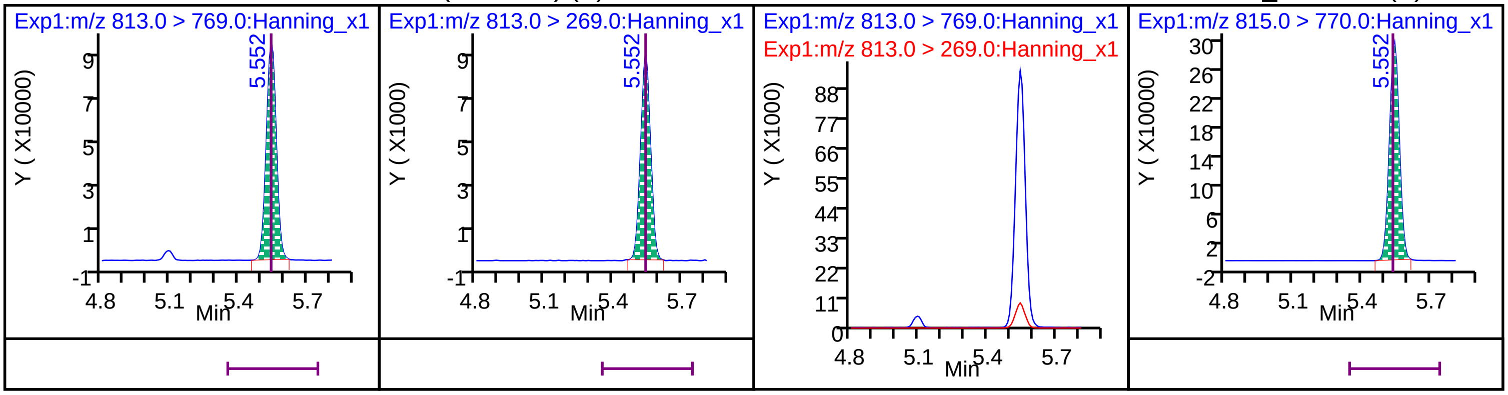
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



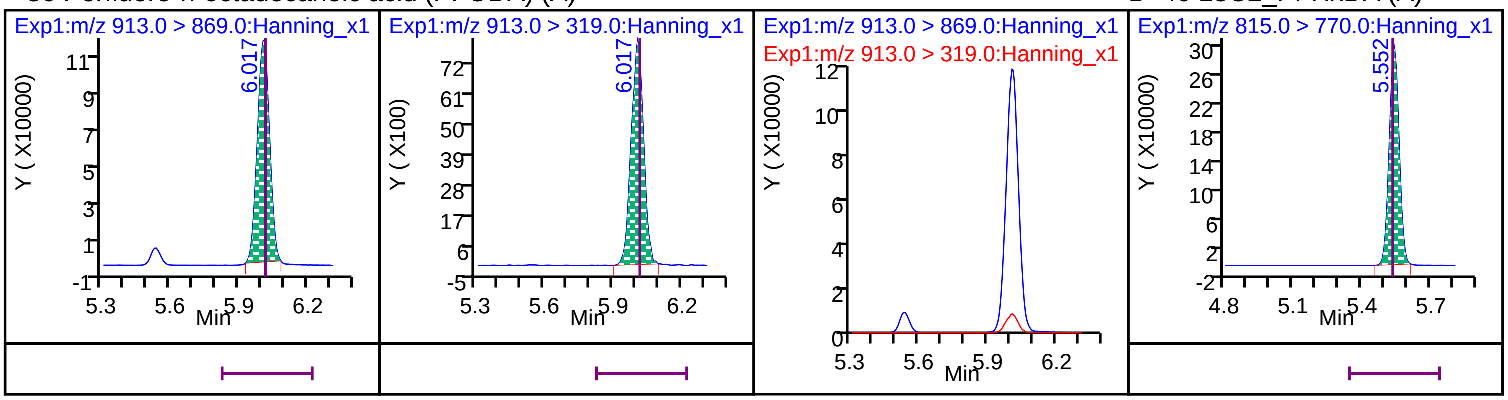
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



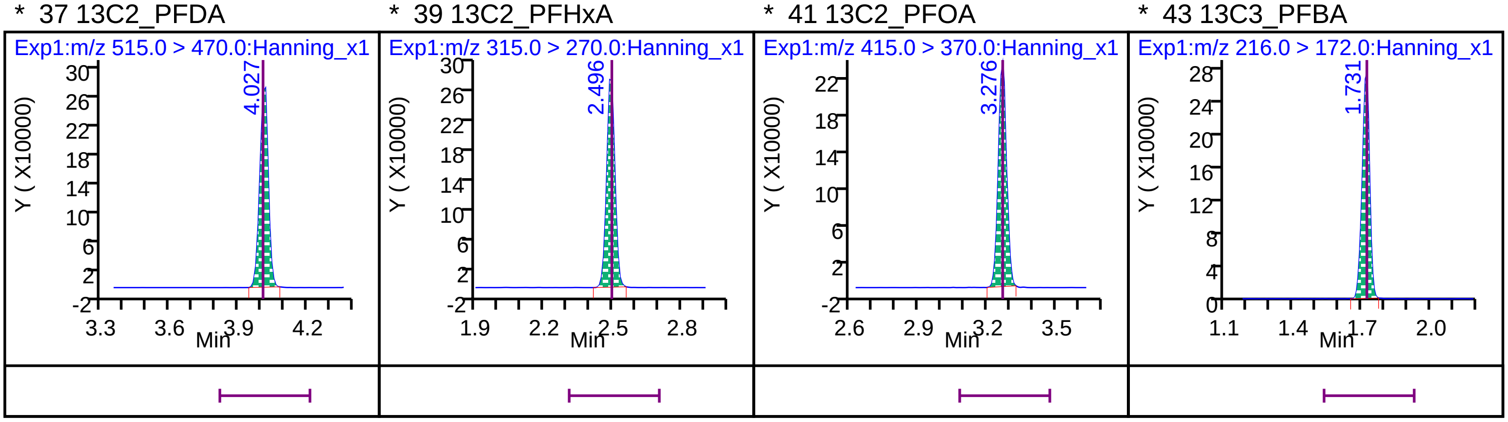
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A) D 40 13C2_PFHxDA (A)



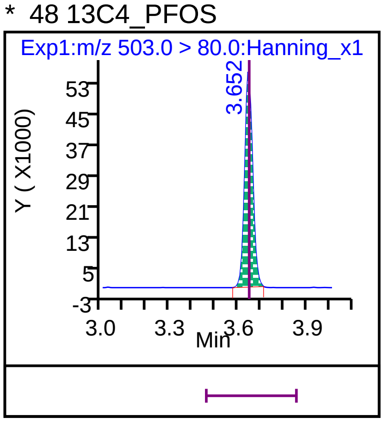
36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA (A)



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

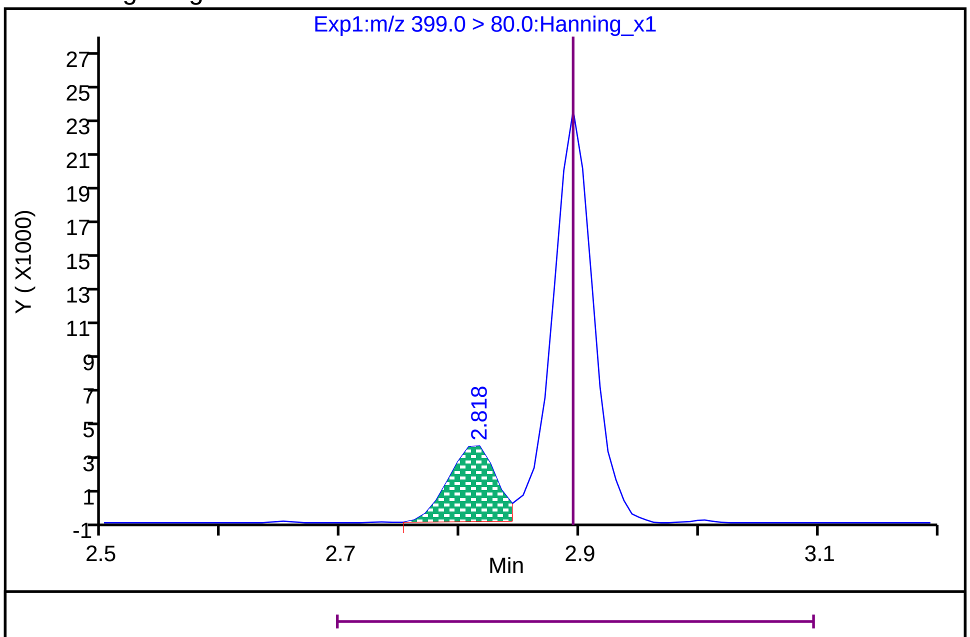
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

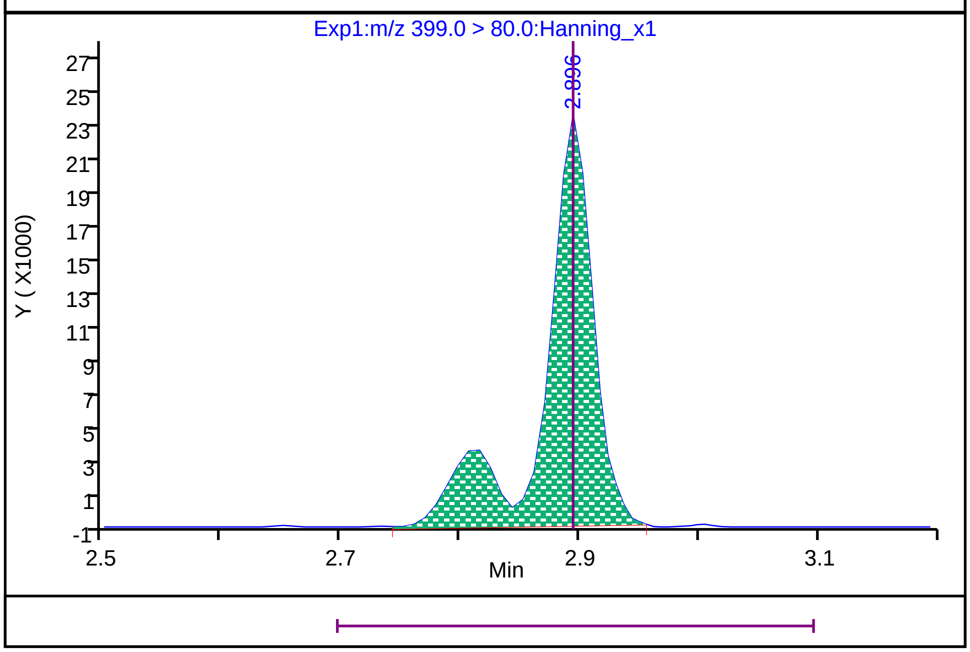
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.818
Area:	11901
Amount:	-828.52
Amount Units:	ng/L



RT:	2.896
Area:	67873
Amount:	462.77
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:51:24

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

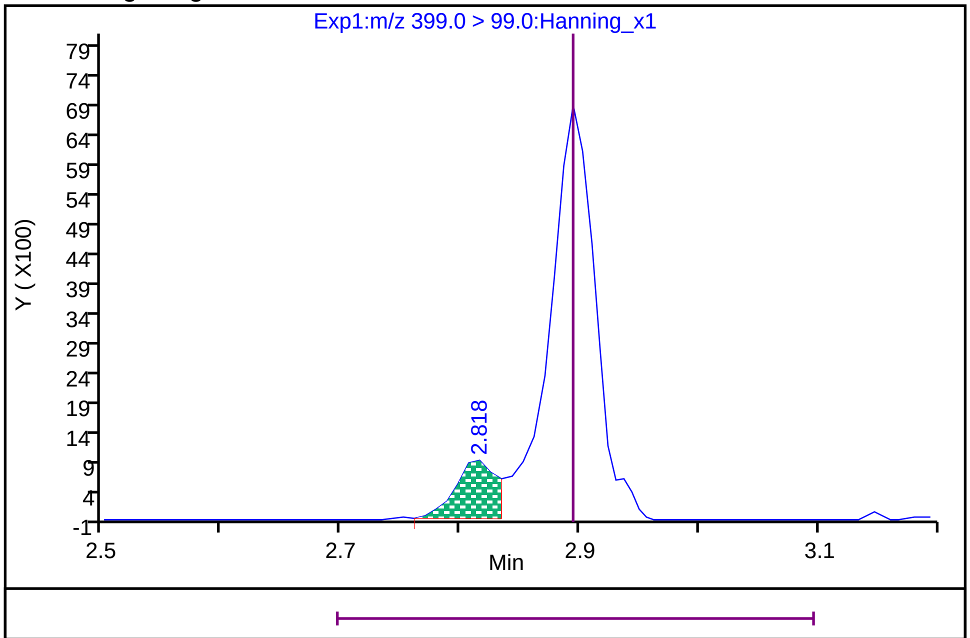
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

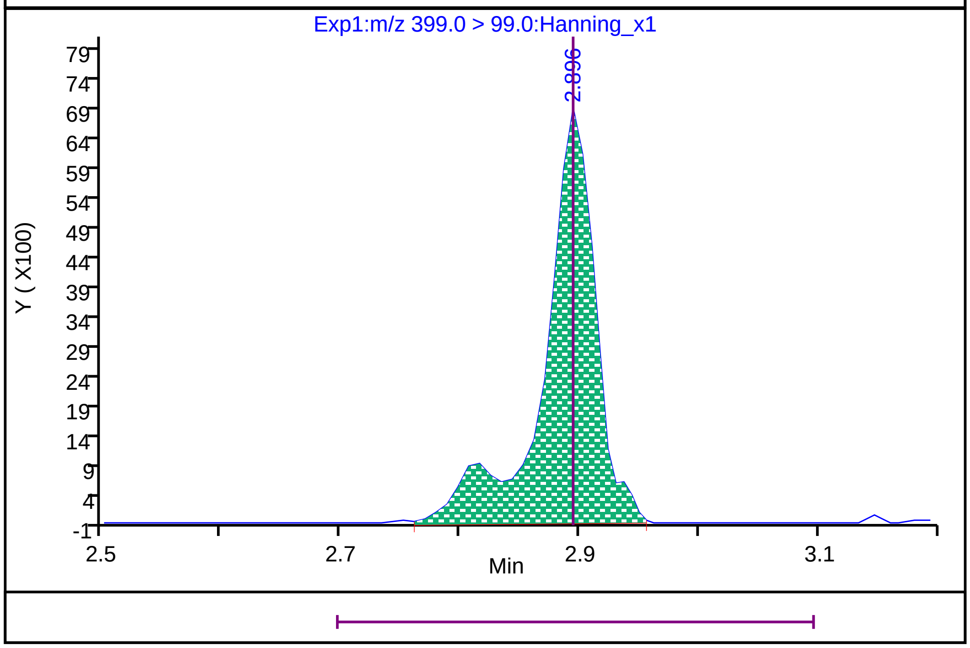
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 2213
Amount: 462.77
Amount Units: ng/L



RT: 2.896
Area: 20824
Amount: 462.77
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:51:27

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

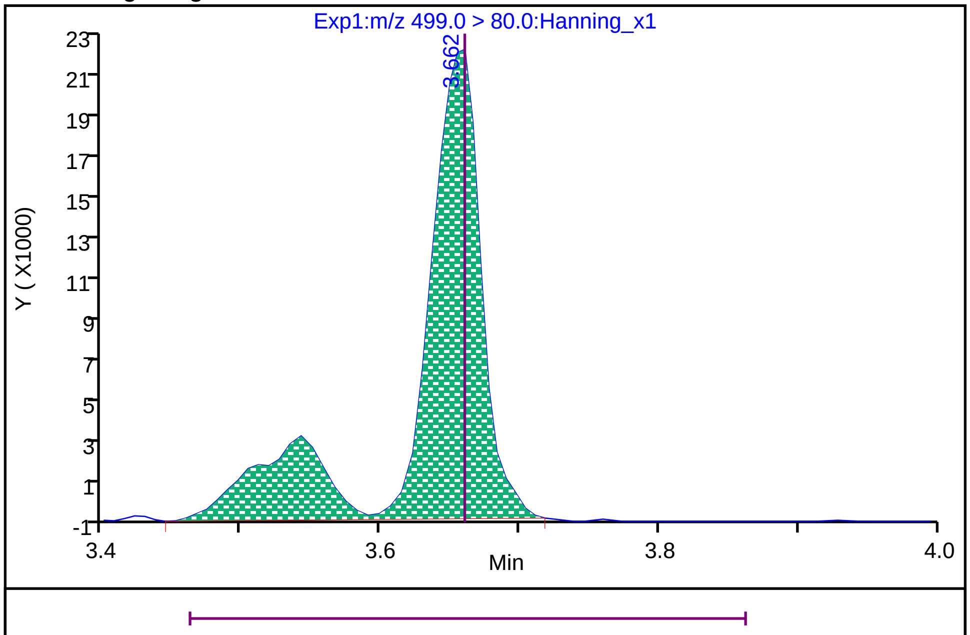
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

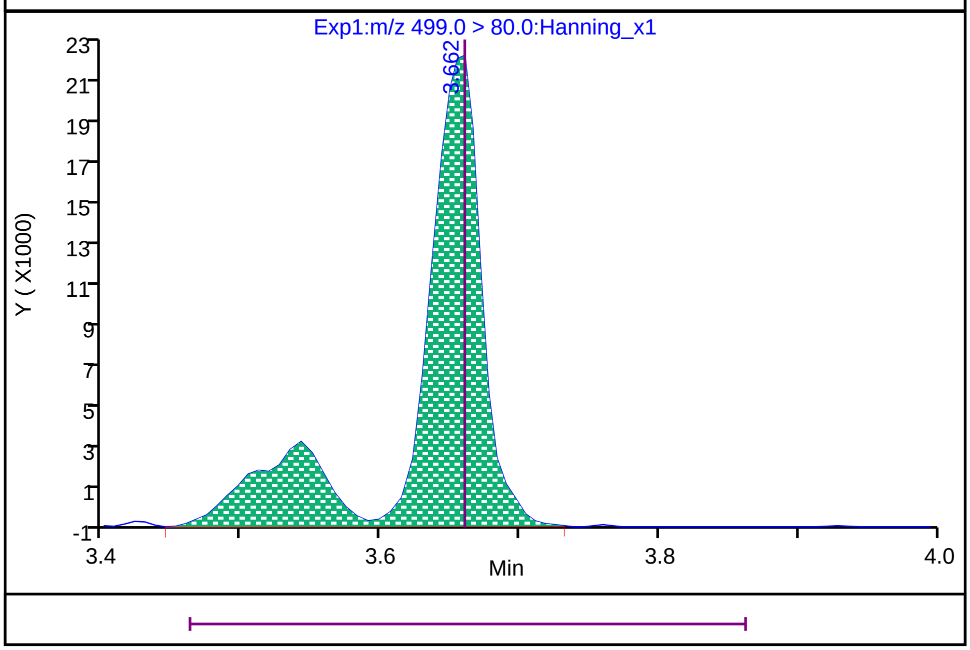
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.662
Area:	67608
Amount:	441.12
Amount Units:	ng/L



RT:	3.662
Area:	69058
Amount:	446.73
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:06

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	79
Sample Info:	ID ICAL 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	635753	19	>100:1			1000.00	1022.65	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	673213	20	>100:1			1000.00	1004.07		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	580113	15	>100:1			1000.00	1014.91	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	626696	14	>100:1			1000.00	959.84		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	178463	17	>100:1			1000.00	1031.76	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	185899	15	>100:1	Target = 3.53		884.00	835.32		
298.9 > 99	44	2.183	2.183		54712	15	>100:1	3.39 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/-1	145842	17	>100:1	Target = 3.10		938.00	881.78		
349 > 99	44	2.531	2.531		46591	16	>100:1	3.13 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	112299	18	>100:1			5000.00	4959.39	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	45981	16	>100:1	Target = 1.75		934.00	928.72		
327 > 81	63	2.460	2.460		28095	17	52:1	1.63 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	0	664948	17	>100:1			1000.00	1020.98	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	0/0	683707	16	>100:1	Target = 18.91		1000.00	988.89		
313 > 119	49	2.505	2.505		36511	21	>100:1	18.72 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	0	1204882	18	>100:1			5000.00	5198.92	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	0/0	302352	19	>100:1	Target = 0.79		2000.00	1937.36		
285 > 185	66	2.622	2.622		389193	18	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	532996	16	>100:1			1000.00	1003.88	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	577941	18	>100:1	Target = 3.80		1000.00	986.80		
363 > 169	47	2.880	2.880		158273	16	>100:1	3.65 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	129716	24	>100:1			1000.00	1032.45	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	127977	26	>100:1	Target = 2.89	4.78	910.00	897.40		M
399 > 99	45	2.896	2.896		42817	25	>100:1	2.98 (1.44-4.34)	7.51				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	0/0	956587	20	>100:1	Target = 3.23		942.00	950.90		
377 > 85	45	2.919	2.919		283572	20	>100:1	3.37 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	123066	21	>100:1	Target = 3.12		952.00	923.73		
449 > 99	45	3.282	3.276		40248	22	>100:1	3.05 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	93946	20	>100:1			5000.00	5219.23	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	38863	21	>100:1	Target = 1.75		948.00	873.75		
427 > 81	64	3.255	3.248		22878	18	42:1	1.69 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	0	547741	21	>100:1			1000.00	1043.96	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	557437	23	>100:1	Target = 2.89		1000.00	993.12		
413 > 169	53	3.276	3.276		188943	22	>100:1	2.95 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	0	131913	20	>100:1			1000.00	1065.16	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	0/0	135192	39	>100:1	Target = 3.30	3.36	928.00	860.73		M
499 > 99	54	3.657	3.662		41577	36	>100:1	3.25 (1.65-4.95)	6.84				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	0/0	434114	16	>100:1			932.00	868.98		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	0/0	96544	14	>100:1	Target = 3.08		960.00	912.24		
549 > 99	54	4.006	4.006		30621	15	>100:1	3.15 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/0	95227	15		Target = 2.72		964.00	922.50		
599 > 99	54	4.318	4.318		38891	14	>100:1	2.44 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	0/0	398089	17	>100:1			942.00	881.46		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	0/0	106090	18	>100:1	Target = 3.27		968.00	935.29		
699 > 99	54	4.842	4.842		31753	18	>100:1	3.34 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	639032	21	>100:1			1000.00	997.90	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	692229	21	>100:1	Target = 6.51		1000.00	1004.99		
463 > 169	56	3.662	3.662		99650	20	>100:1	6.94 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	0	266767	21	>100:1			1000.00	995.18	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	0/0	285564	18	>100:1	Target = 41.63		1000.00	1017.37		
498>478	55	3.896	3.896		10606	21		26.92 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	0	575846	17	>100:1			1000.00	1002.06	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	0/0	703570	16	>100:1	Target = 13.80		1000.00	1049.89		
513 > 169	51	4.016	4.016		48911	15		14.38 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	0	78835	15	>100:1			5000.00	4561.02	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/0	41928	20	>100:1	Target = 1.94		958.00	1176.85		
527 > 81	65	4.006	4.016		19107	18	63:1	2.19 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	43040	15	>100:1	Target = 3.54		964.00	1076.14		
627 > 80	65	4.631	4.631		13692	14	43:1	3.14 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	772780	18	>100:1			5000.00	5113.94	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/0	129692	30	>100:1	Target = 1.37	8.10	1000.00	1045.74		
570 > 483	58	4.178	4.178		87893	32	>100:1	1.47 (0.68-2.05)	4.77				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	0	90070	16	>100:1			1000.00	998.68	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/0	98832	14	>100:1			1000.00	1004.06		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	44997	13	97:1			1000.00	956.54	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	52838	13	>100:1	Target = 1.11		1000.00	1083.38		
512 > 219	57	4.318	4.318		43925	14	>100:1	1.20 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	0	689688	16	>100:1			5000.00	5325.23	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	0/0	141729	32	>100:1	Target = 1.51	6.54	1000.00	1053.78		
584 > 526	60	4.348	4.348		87163	30	>100:1	1.62 (0.75-2.26)	3.83				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	634567	15	>100:1			1000.00	1053.66	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	604574	15	>100:1	Target = 14.52		1000.00	983.25		
563 > 169	52	4.338	4.338		42367	17	>100:1	14.26 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	101585	19	>100:1			1000.00	957.65	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.464	0/0	105804	17	>100:1			1000.00	1069.91		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	0	42895	17	>100:1			1000.00	997.56	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	0/0	49973	15	>100:1	Target = 1.06		1000.00	971.74		
526 > 219	59	4.483	4.483		52334	15	>100:1	0.95 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	0	604291	17	>100:1			1000.00	1006.59	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	0/0	645872	16	>100:1	Target = 10.70		1000.00	1002.57		
613 > 169	38	4.622	4.622		58323	15	>100:1	11.07 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	0/0	645274	16	>100:1	Target = 8.31		1000.00	1015.92		
663 > 169	38	4.877	4.877		77419	21	>100:1	8.33 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	838224	21	>100:1			1000.00	1031.04	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	0/0	707684	22	100:1	Target = 12.17		1000.00	967.16		
713 > 169	42	5.106	5.106		58611	22	>100:1	12.07 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.544	5.544	0	877835	21	>100:1			1000.00	1011.29	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.552	5.552	0/0	534818	21	71:1	Target = 10.43		1000.00	951.28		
813 > 269	40	5.552	5.552		51196	21	>100:1	10.44 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.026	6.026	1/1	821940	44	48:1	Target = 13.67		1000.00	1028.49		
913 > 319	40	6.021	6.026		58656	40	>100:1	14.01 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	0	652287	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	0	682639	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	562836	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	589407	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	130980	23	>100:1			1000.00			

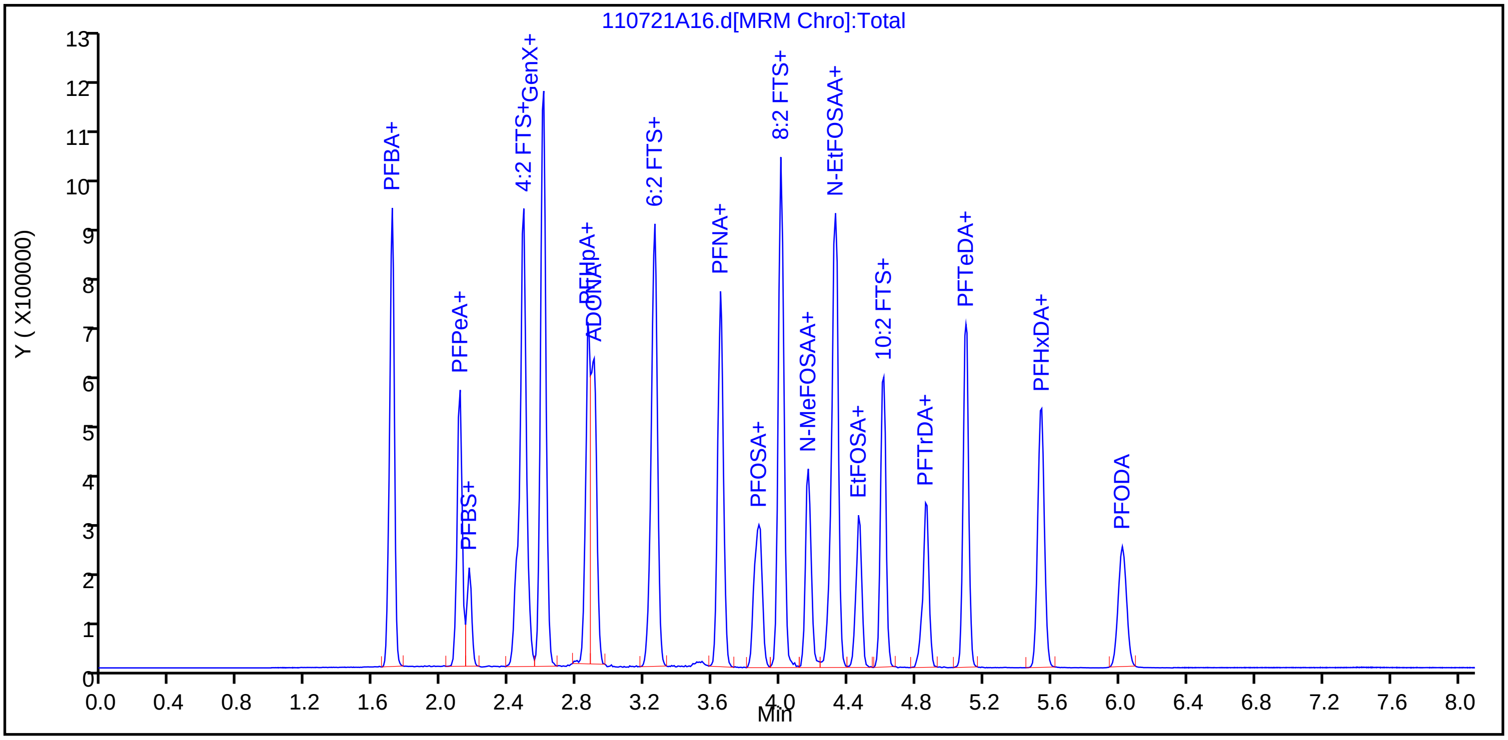
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

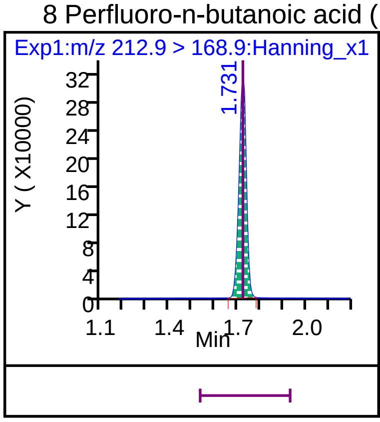
Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

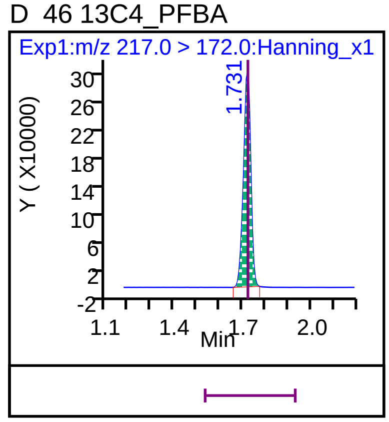
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



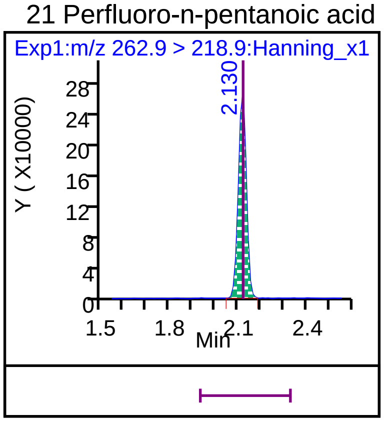
8 Perfluoro-n-butanoic acid (PFBA)



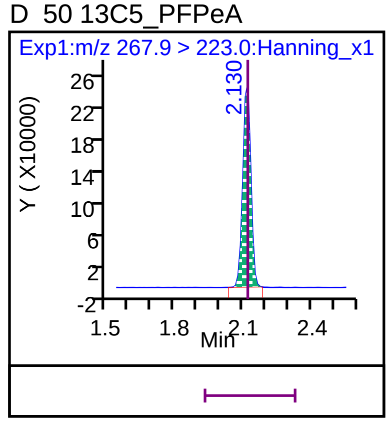
D 46 13C4_PFBA



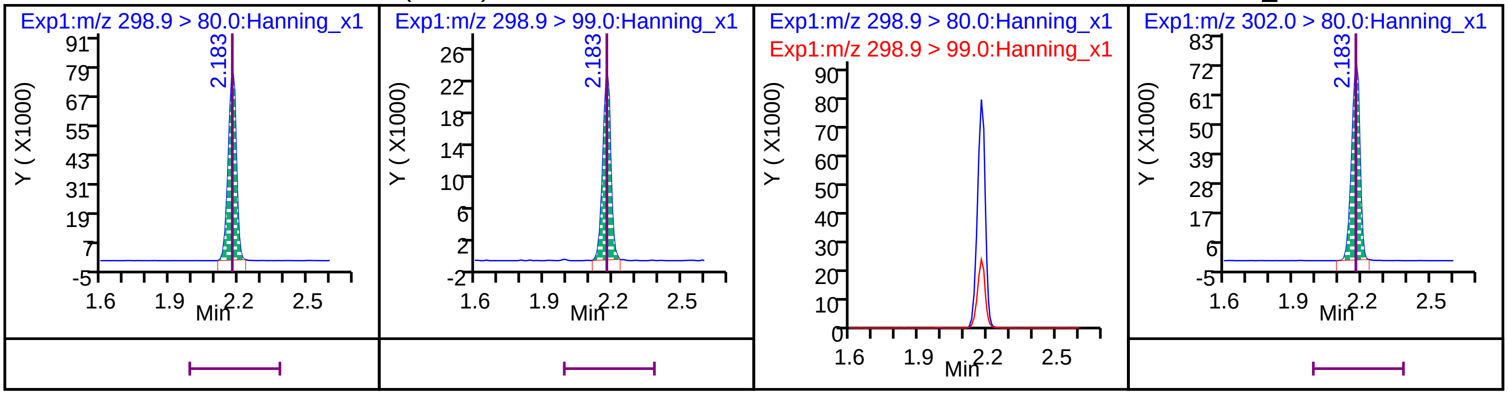
21 Perfluoro-n-pentanoic acid (PFPeA)



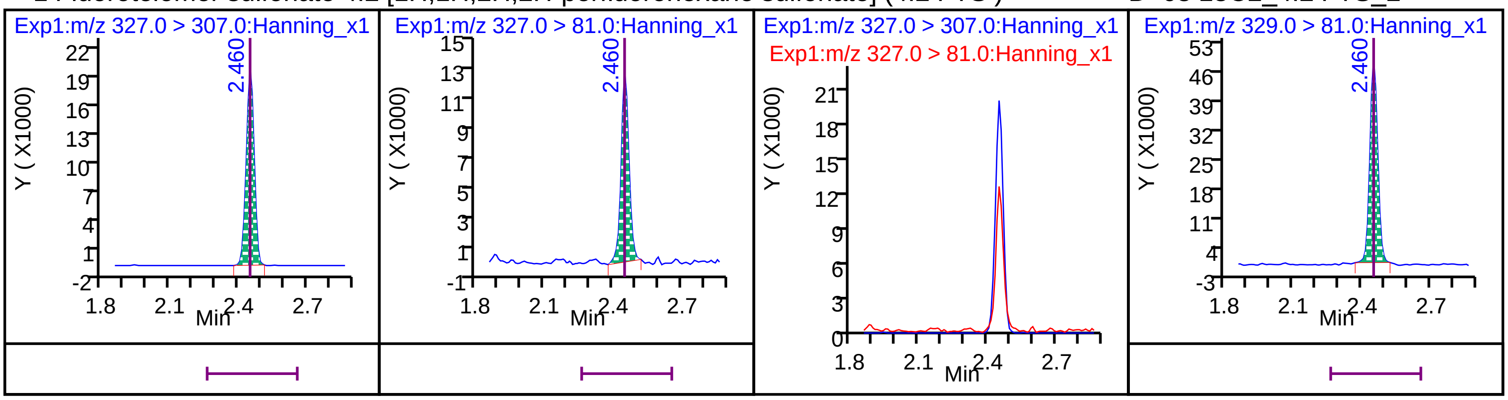
D 50 13C5_PFPeA



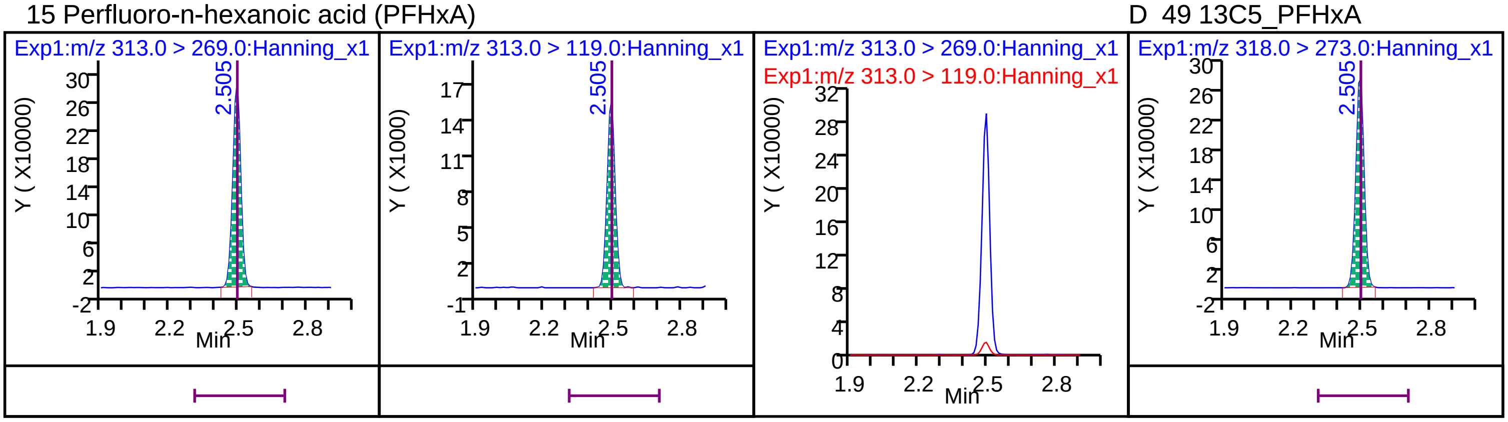
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



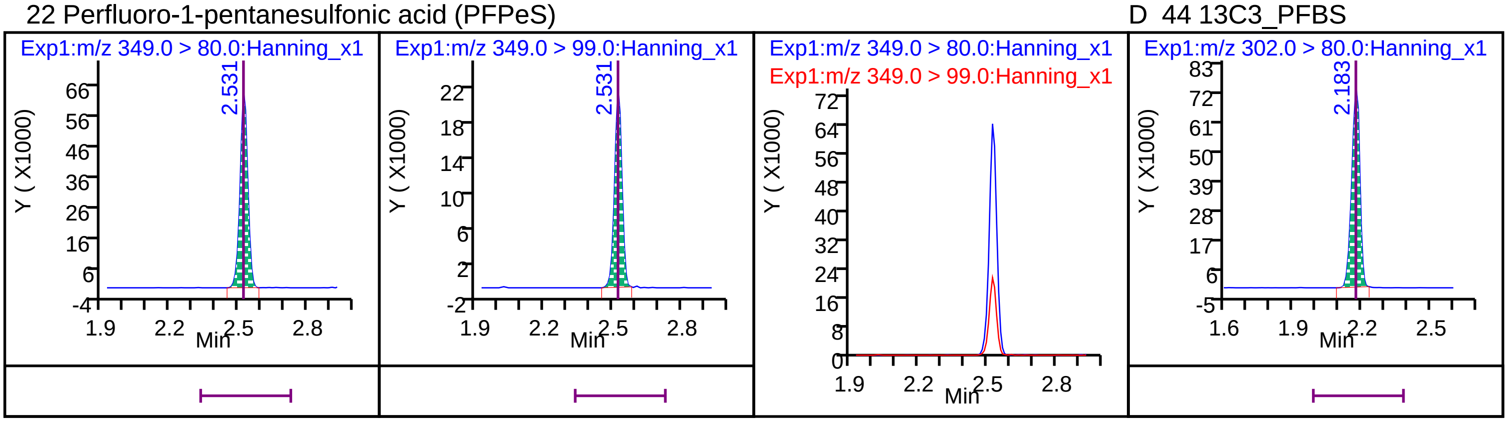
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

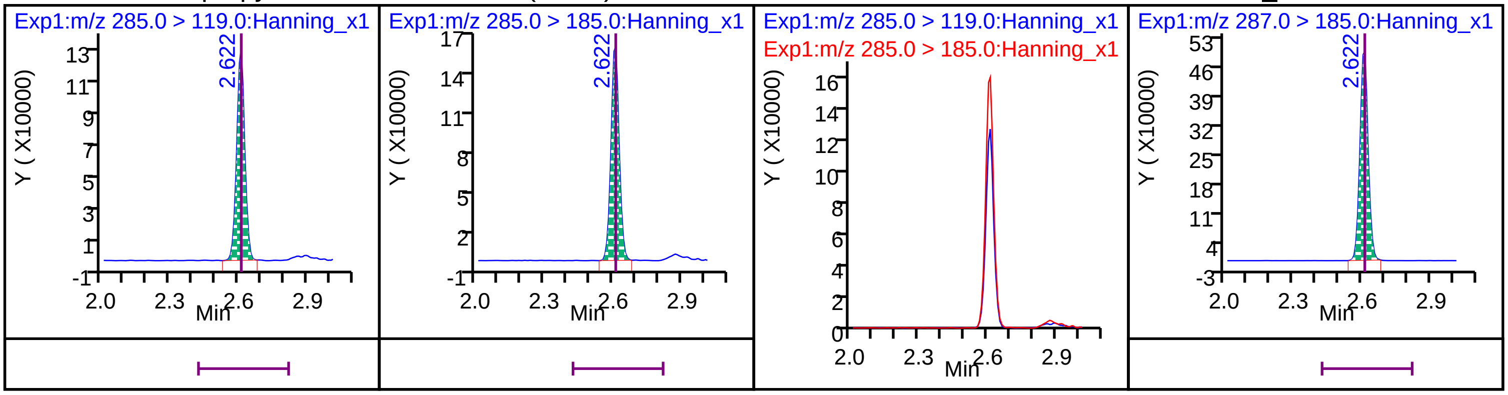


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

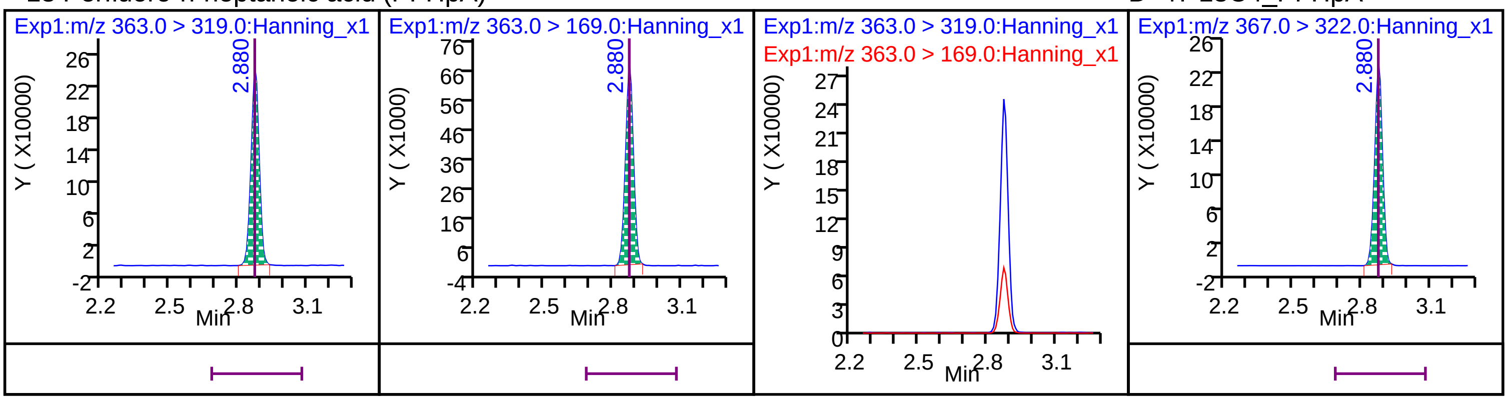


Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

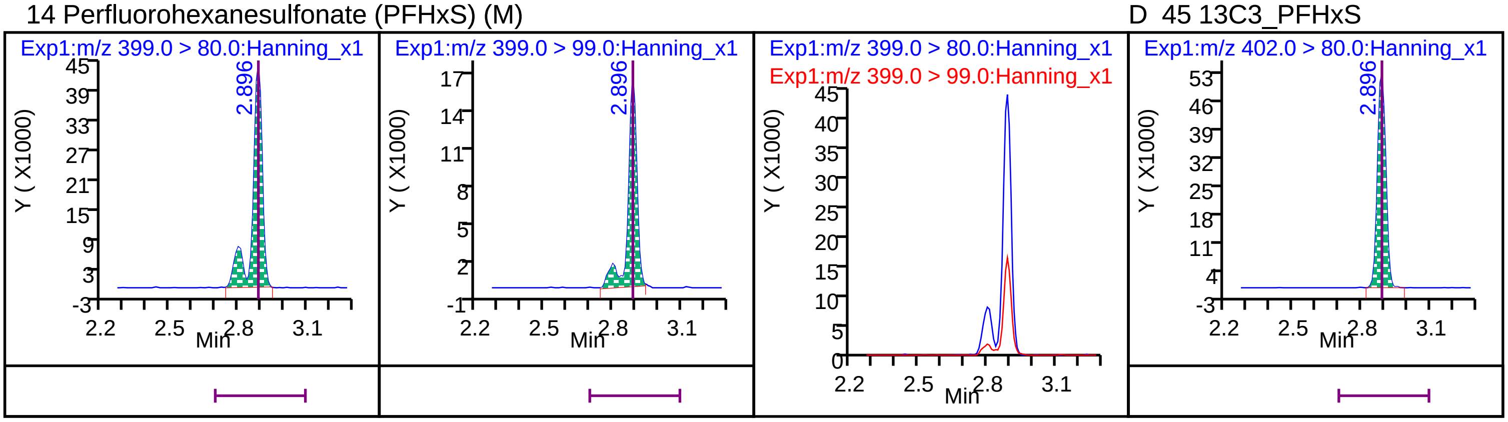
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



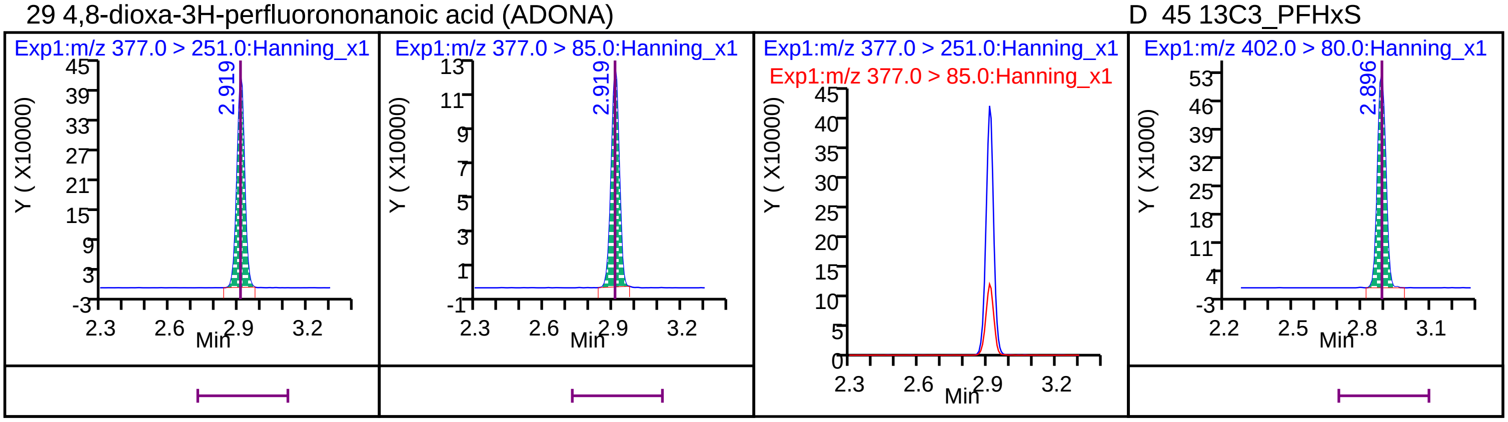
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



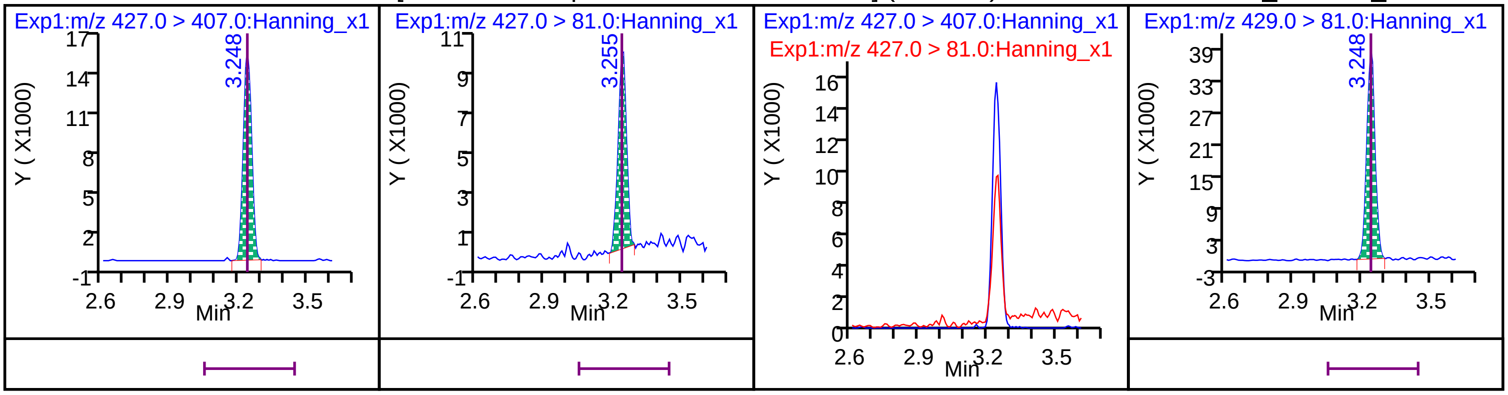
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



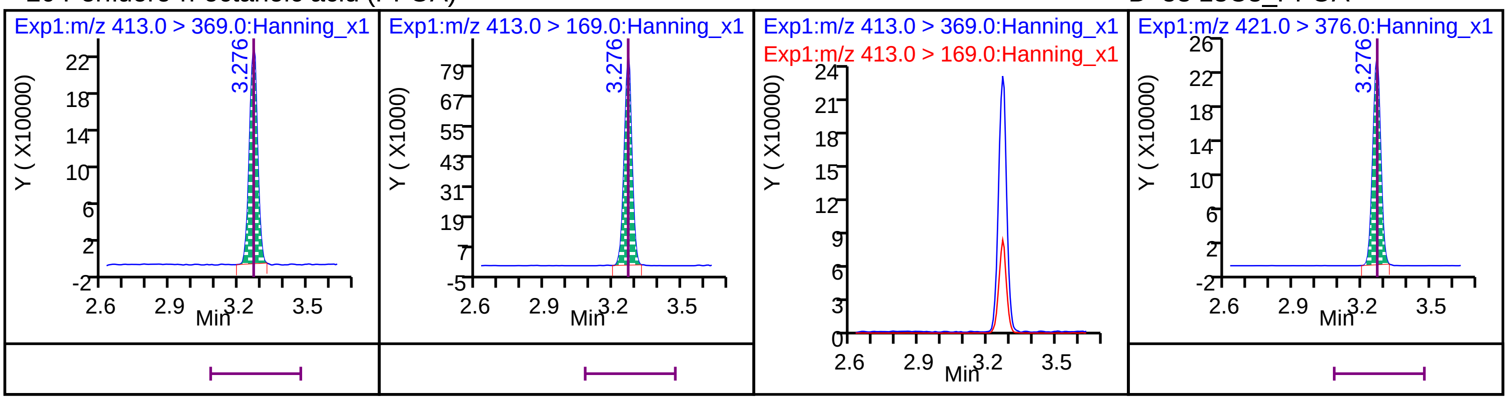
Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

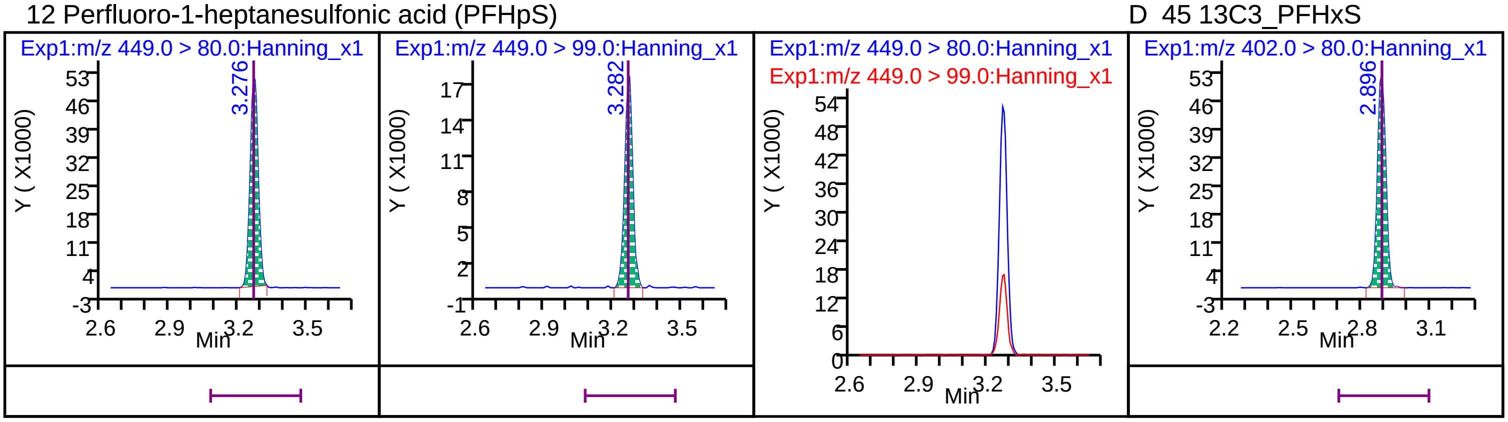
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



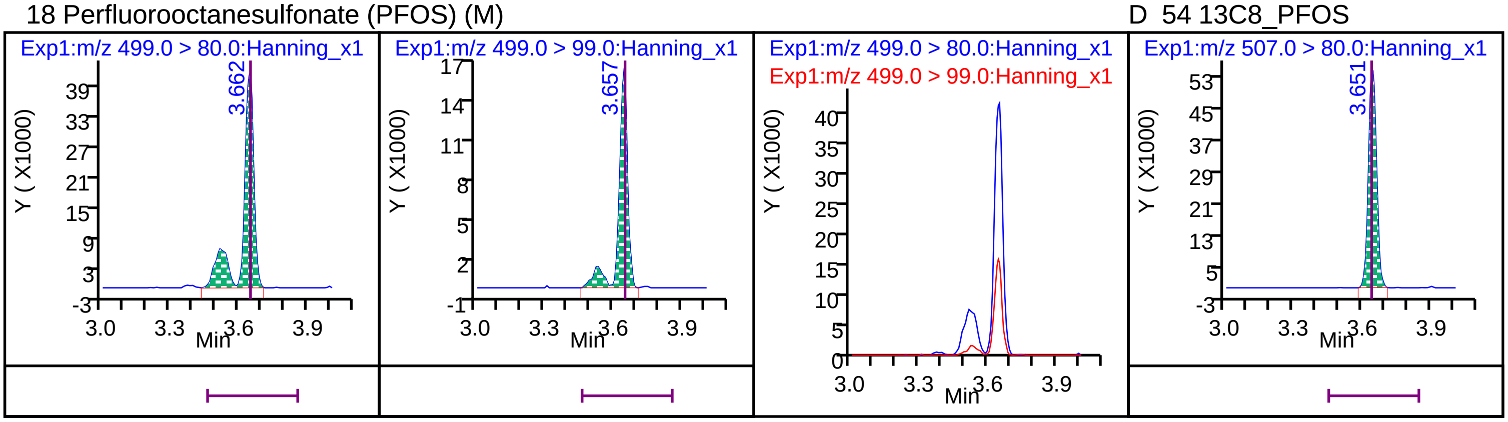
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



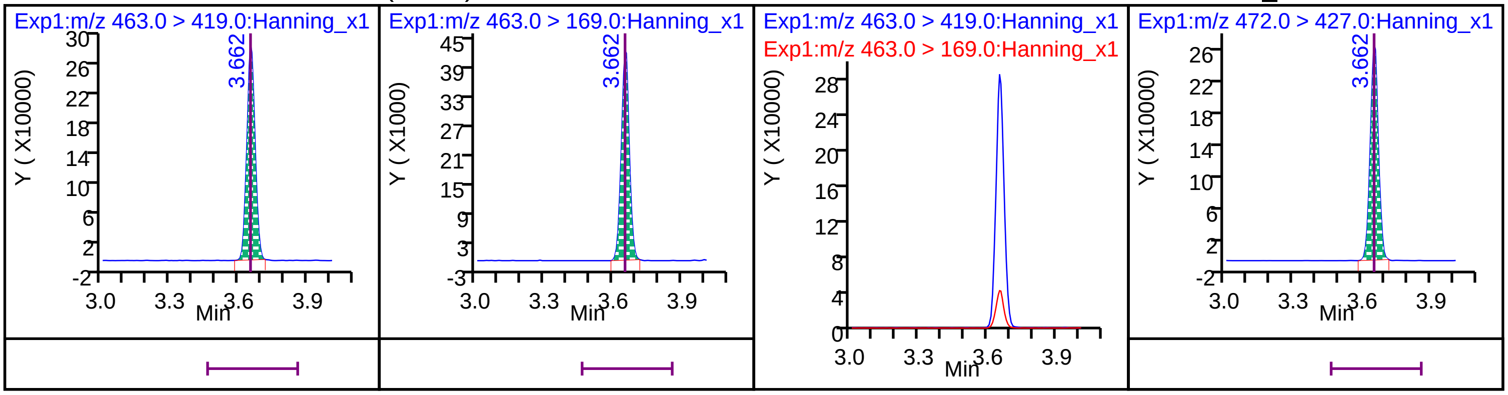
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



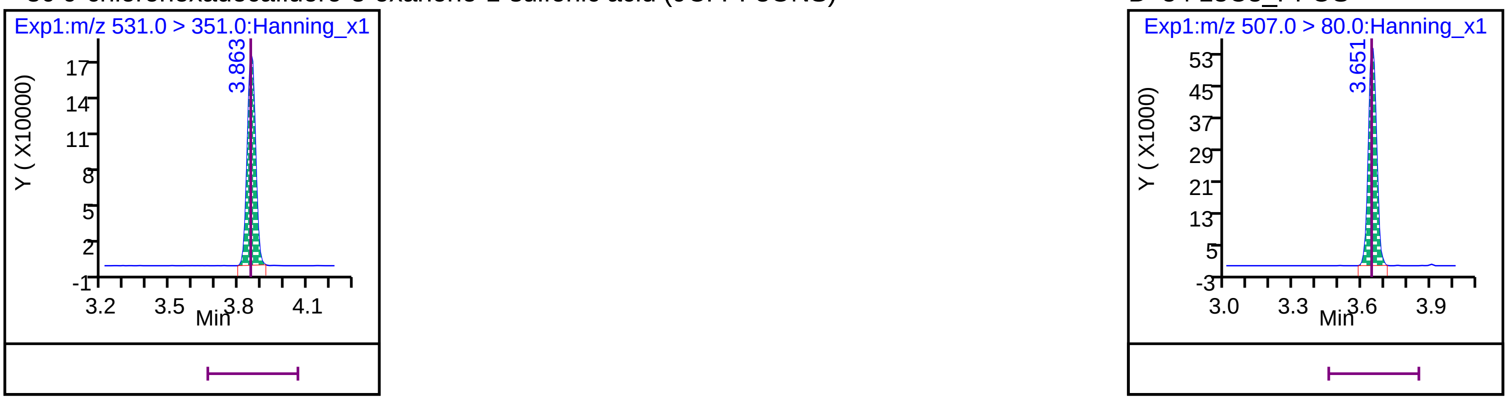
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



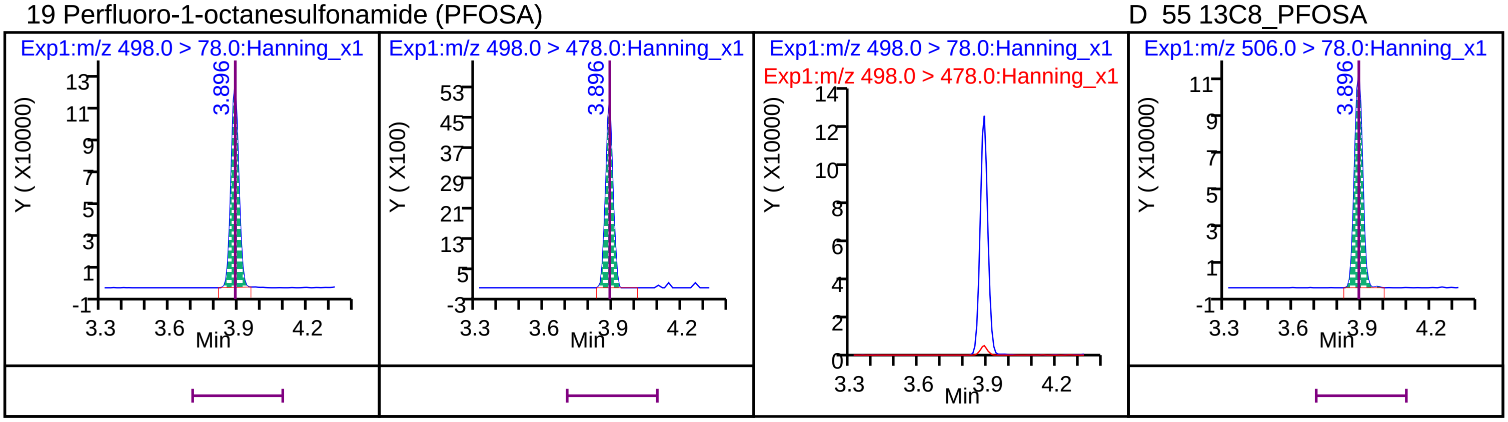
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



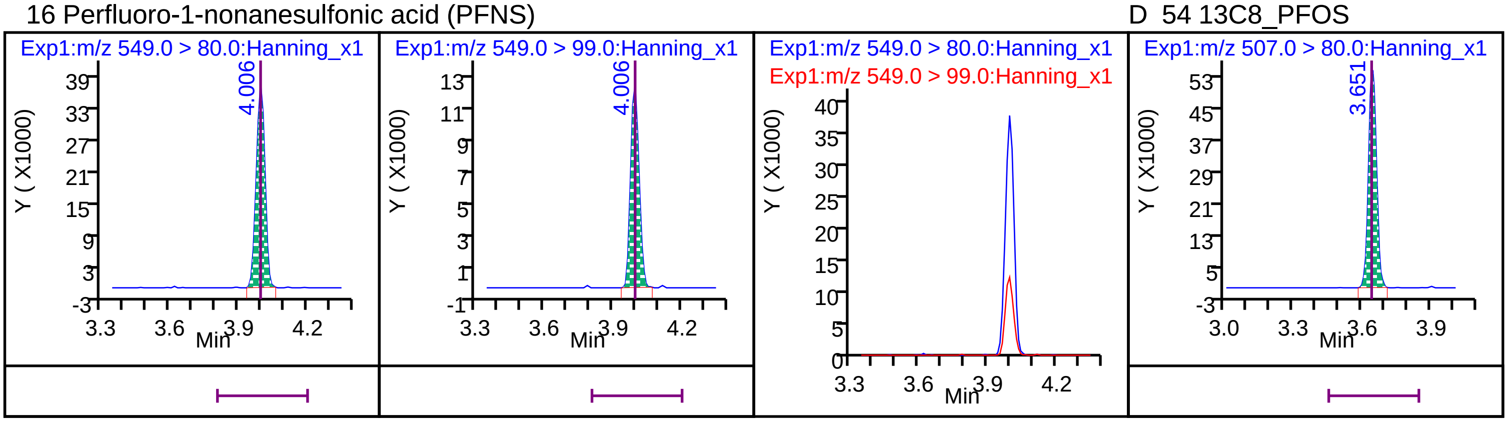
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

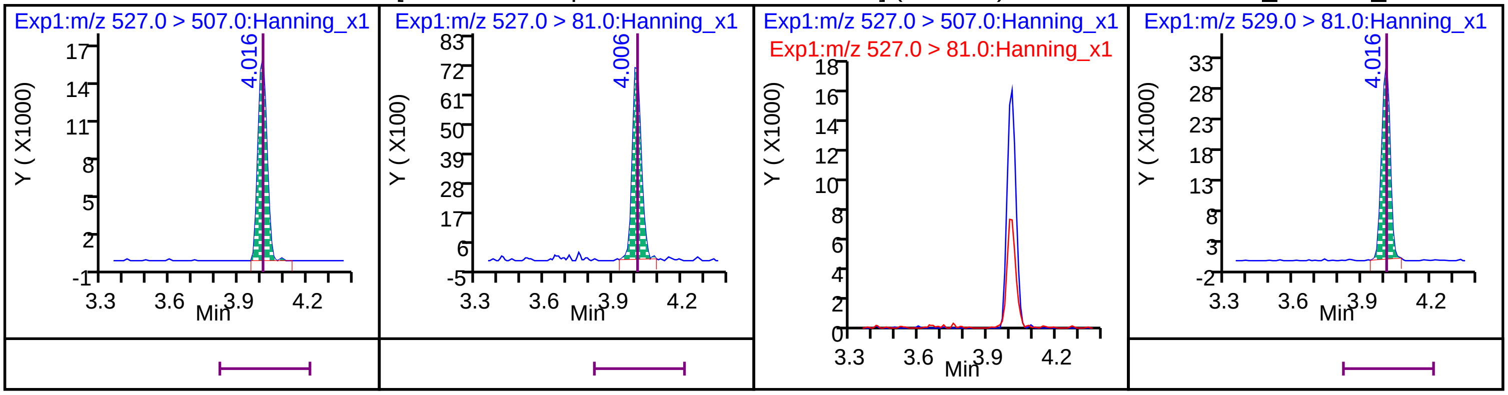


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



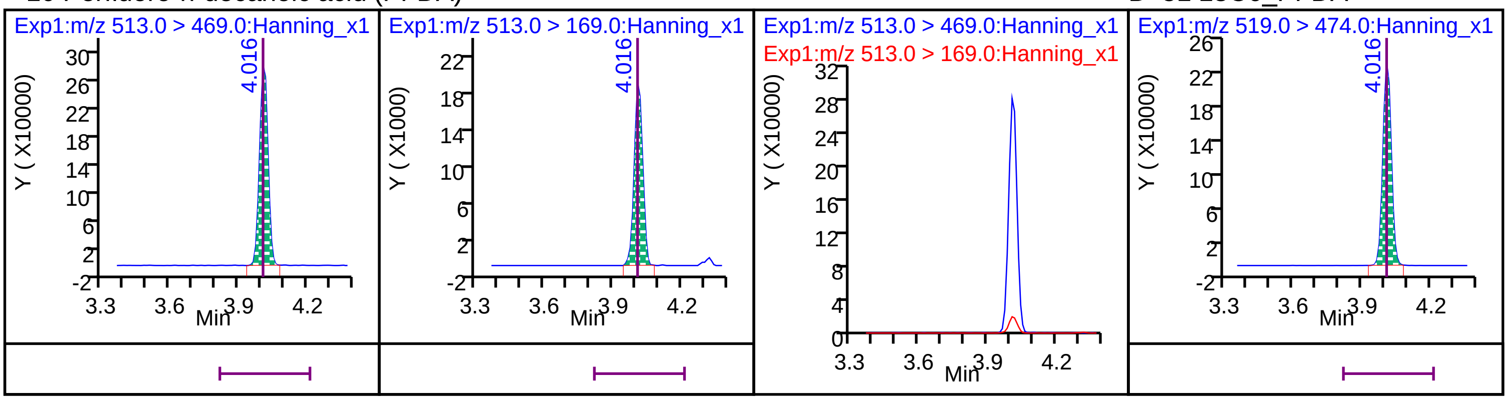
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



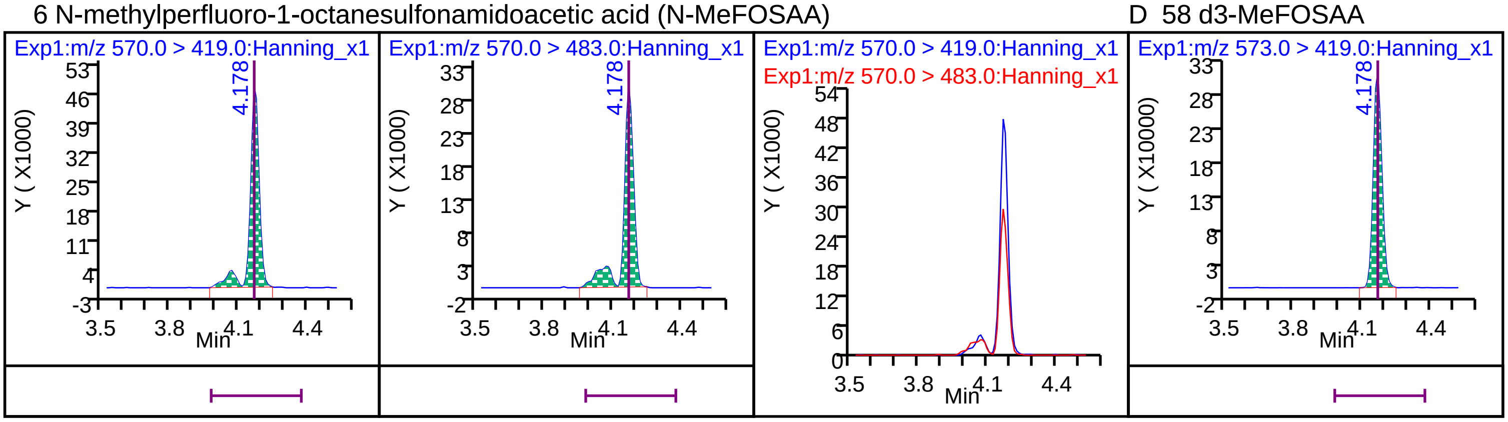
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

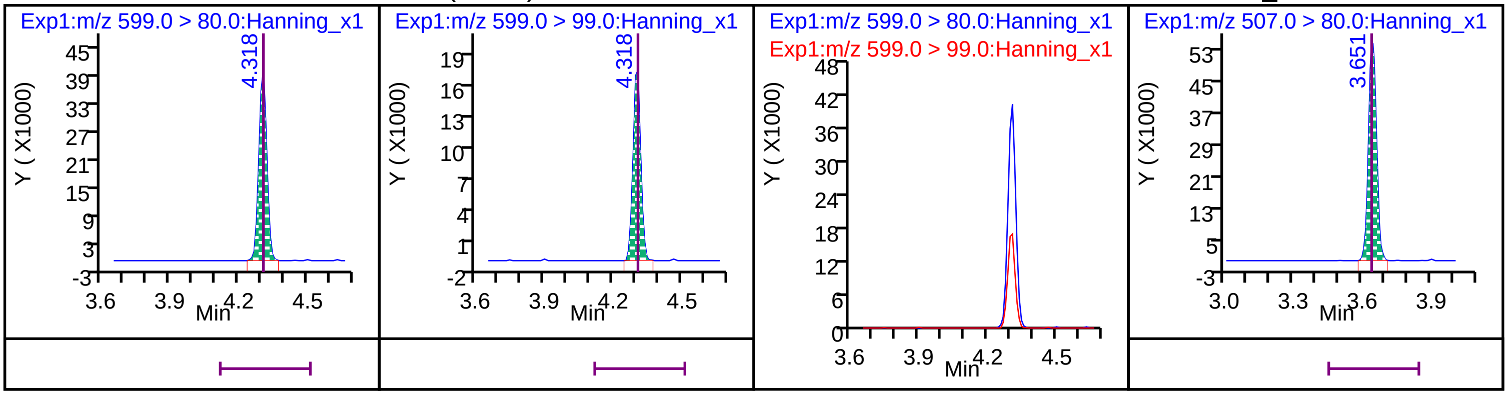
D 58 d3-MeFOSAA



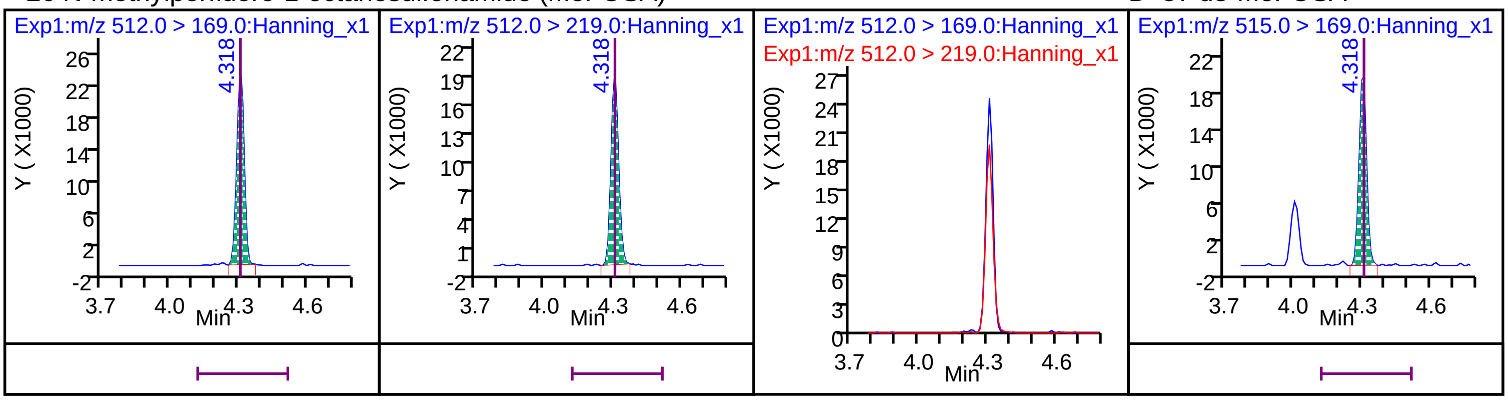
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

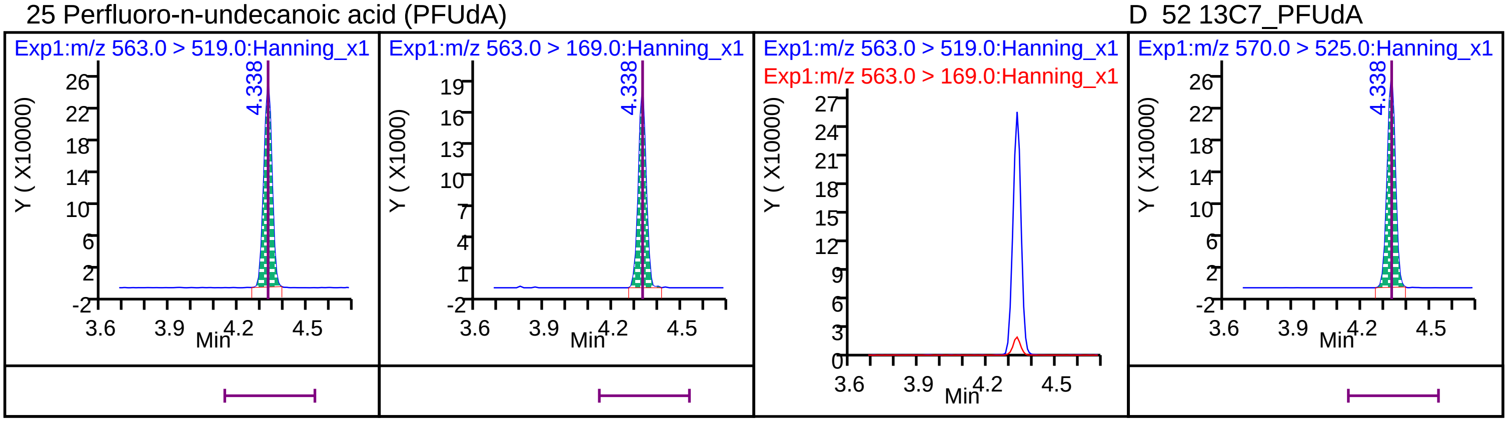
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



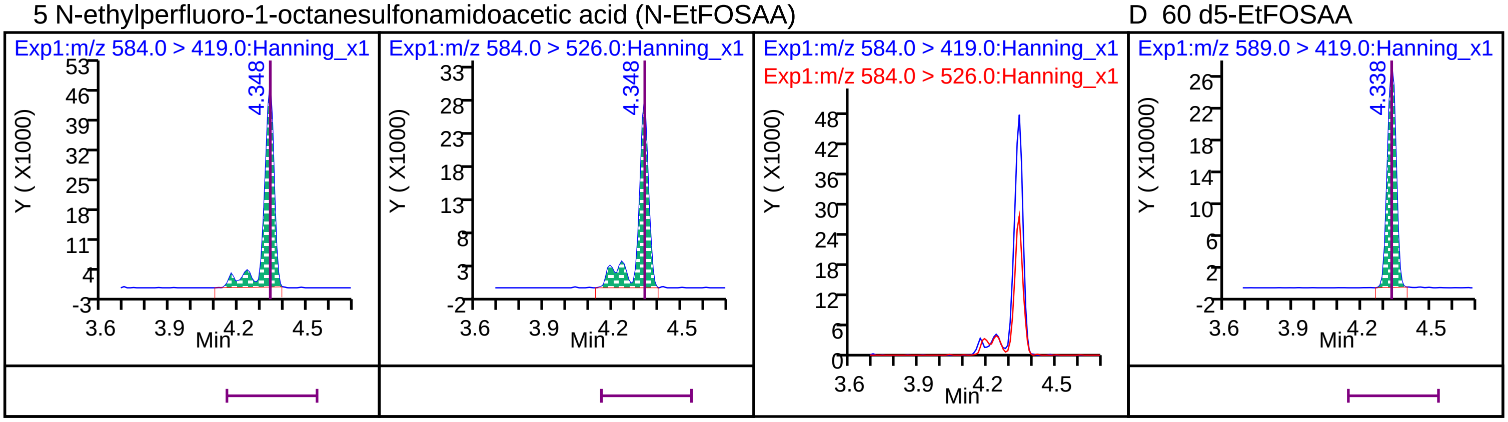
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



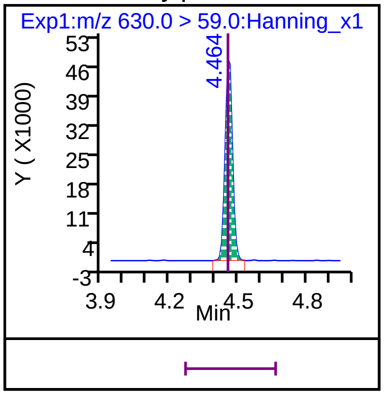
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



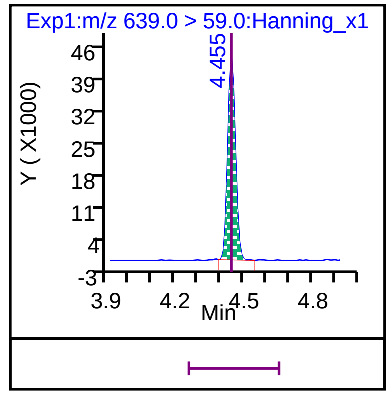
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



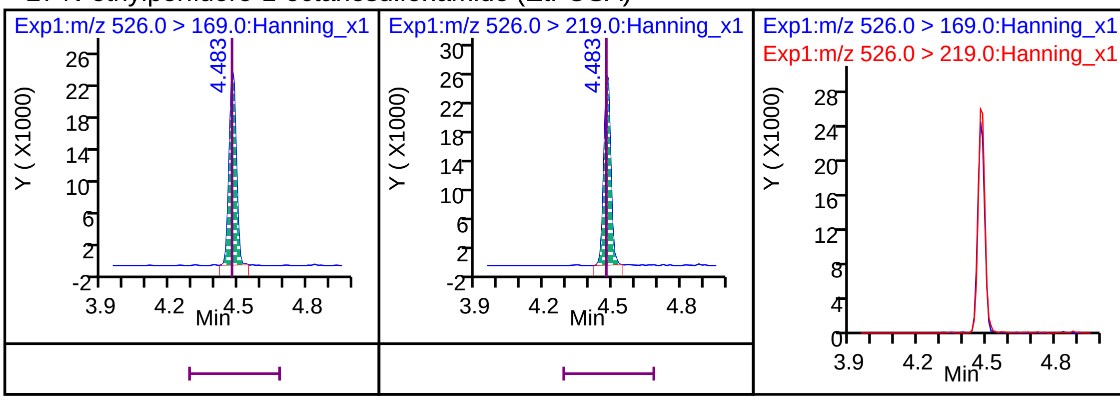
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



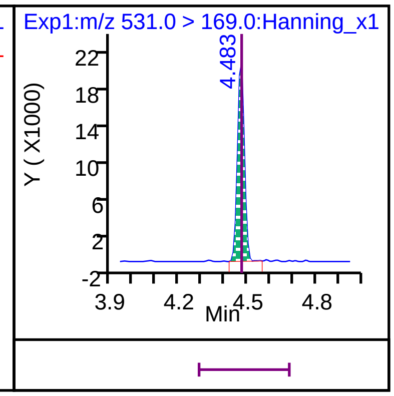
D 62 d9-EtFOSE



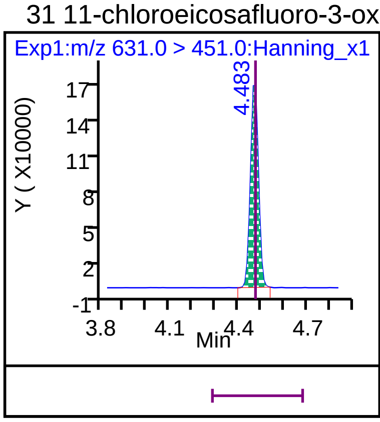
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



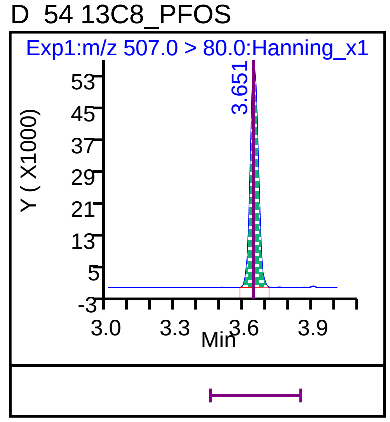
D 59 d5-EtFOSA



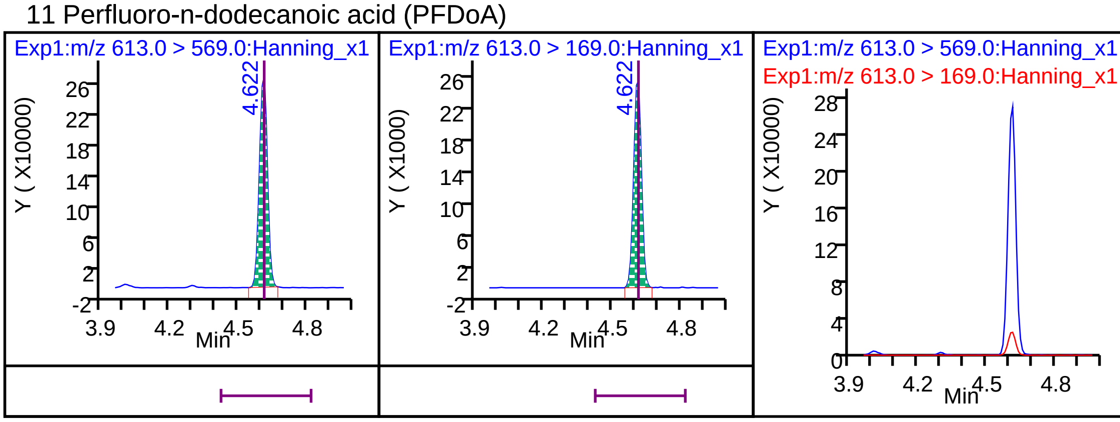
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



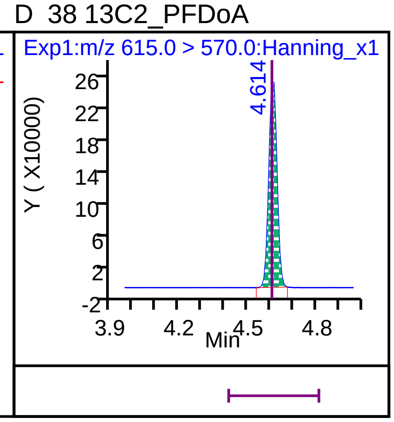
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)

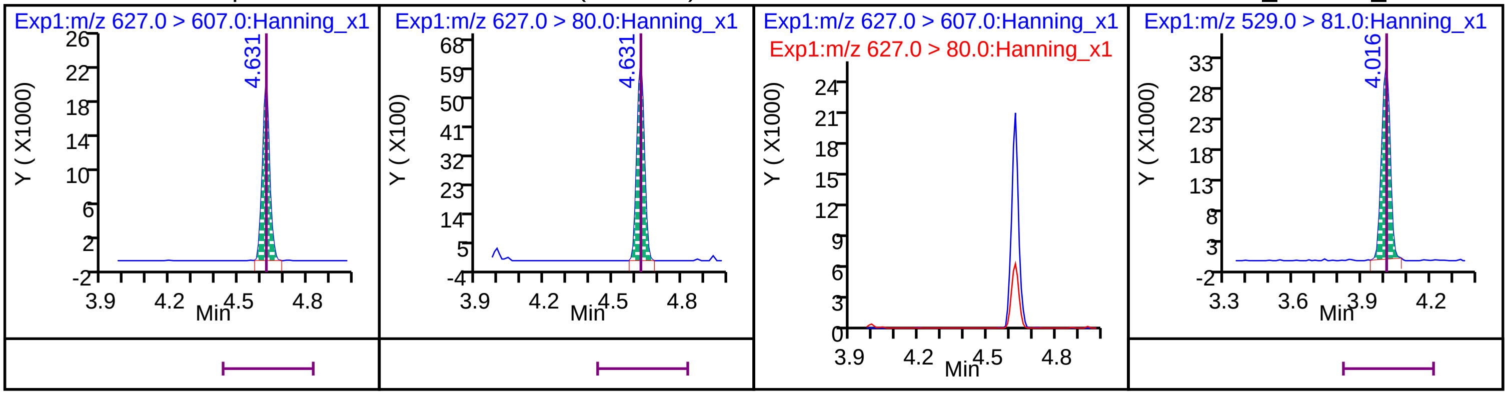


D 38 13C2_PFDoA

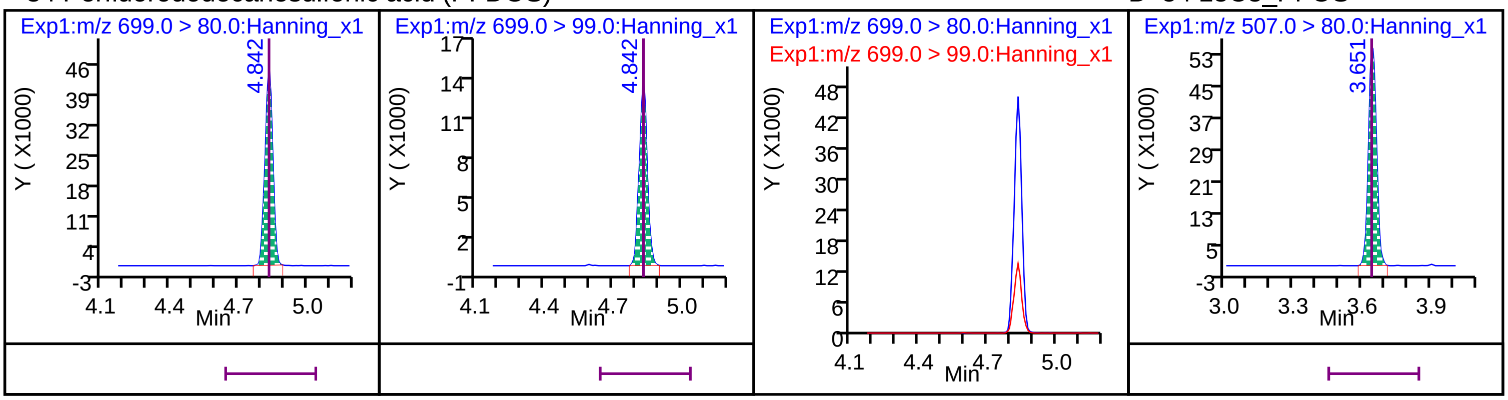


Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

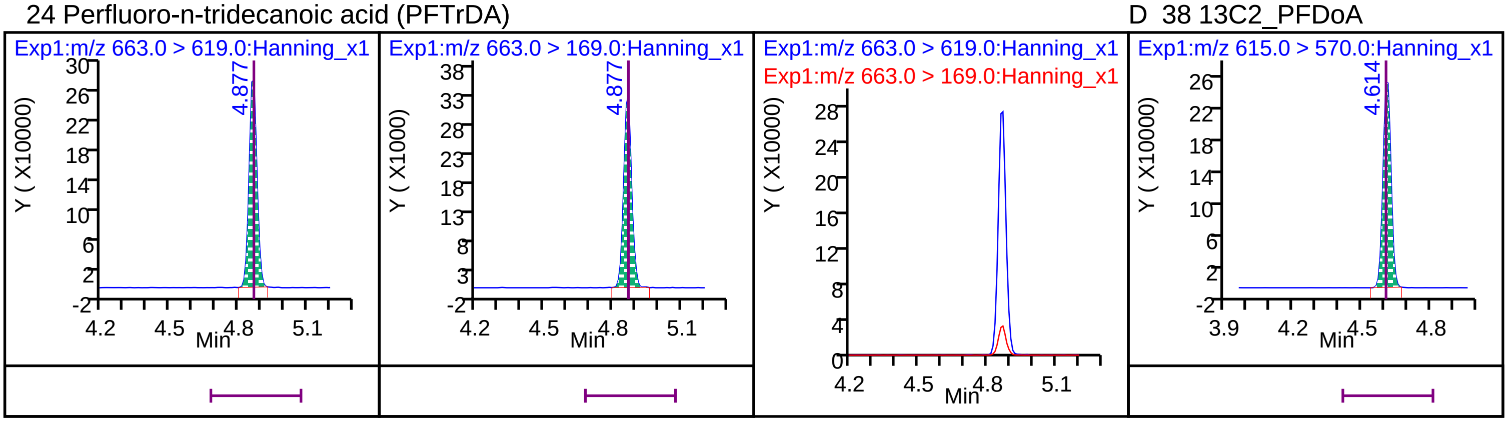
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



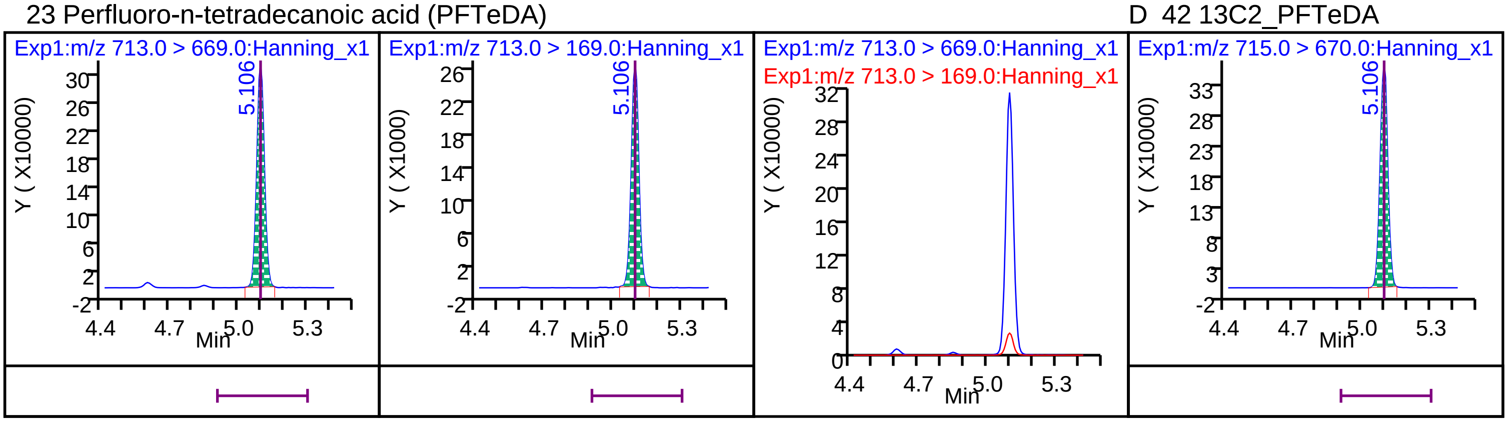
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



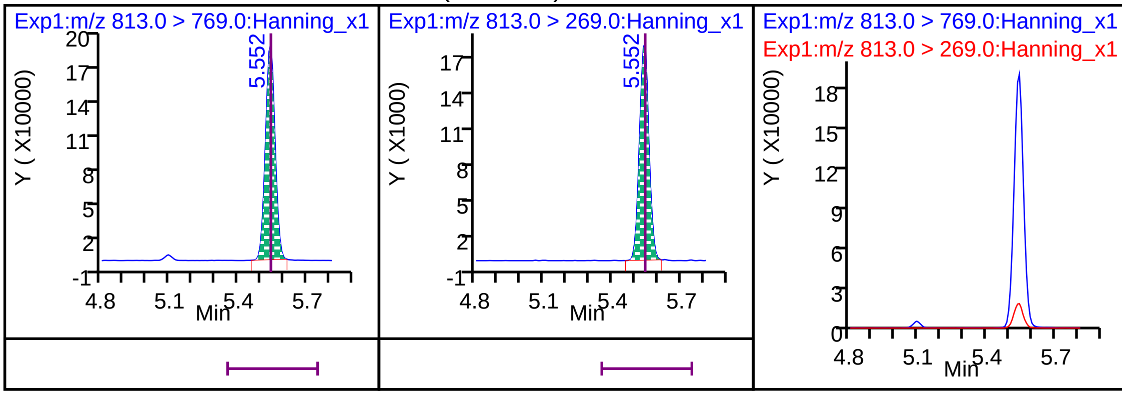
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



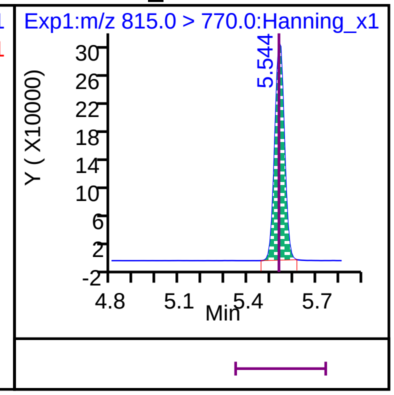
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



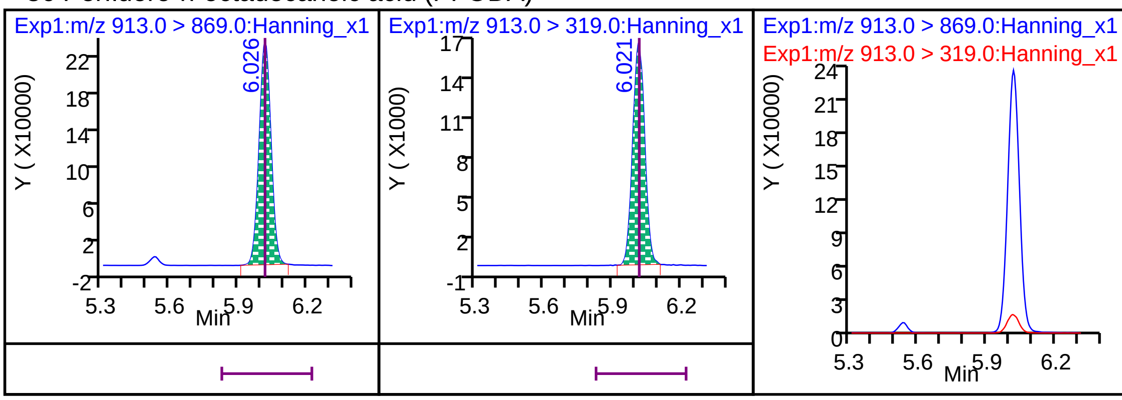
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



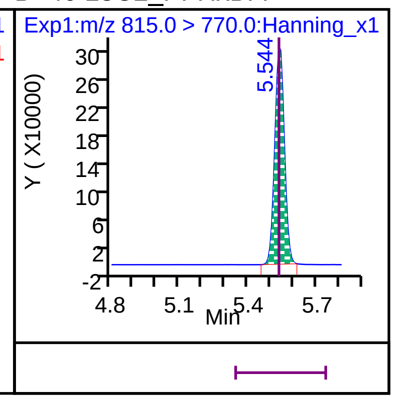
D 40 13C2_PFHxDA



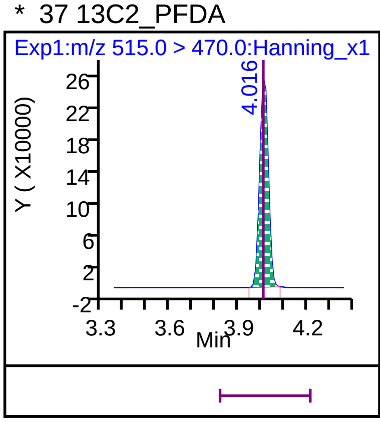
36 Perfluoro-n-octadecanoic acid (PFODA)



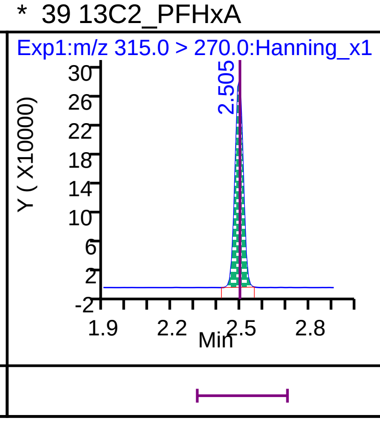
D 40 13C2_PFHxDA



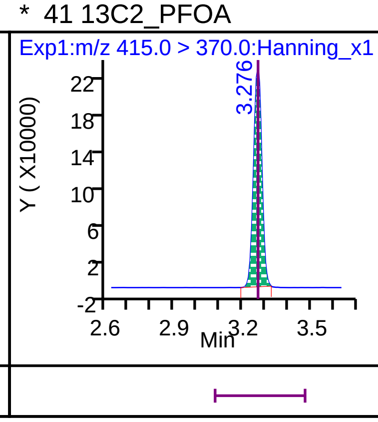
* 37 13C2_PFDA



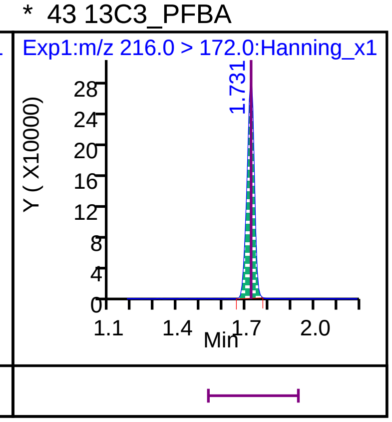
* 39 13C2_PFHxA



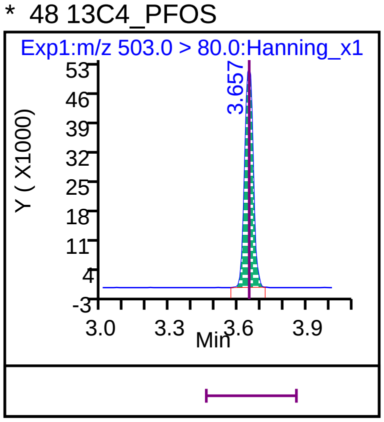
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

14 PFHxS, CAS: 355-46-4

Processing Integration Results

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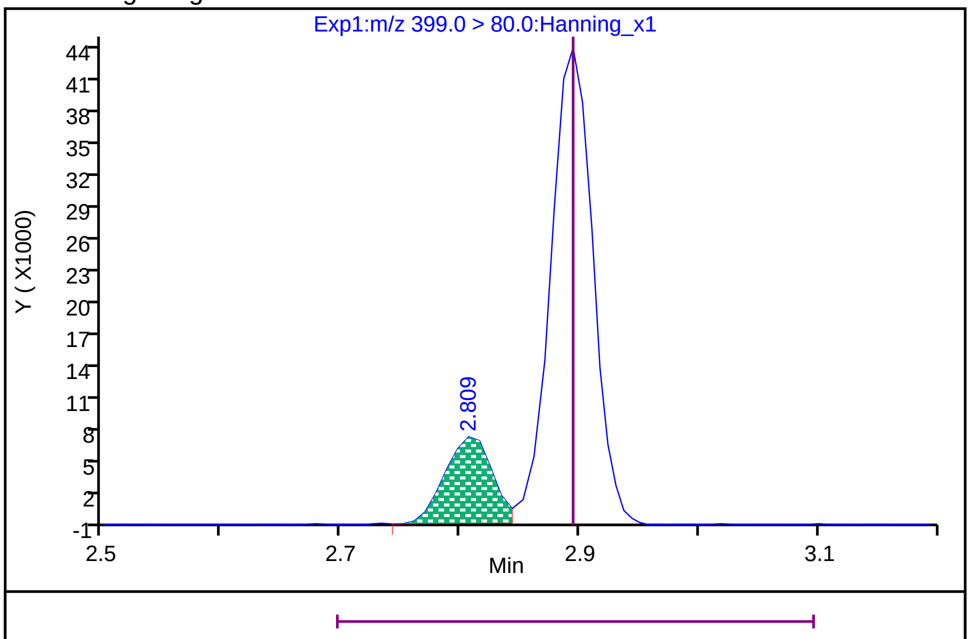
Amount:	-782.67
Amount Units:	ng/L



RT:	2.896
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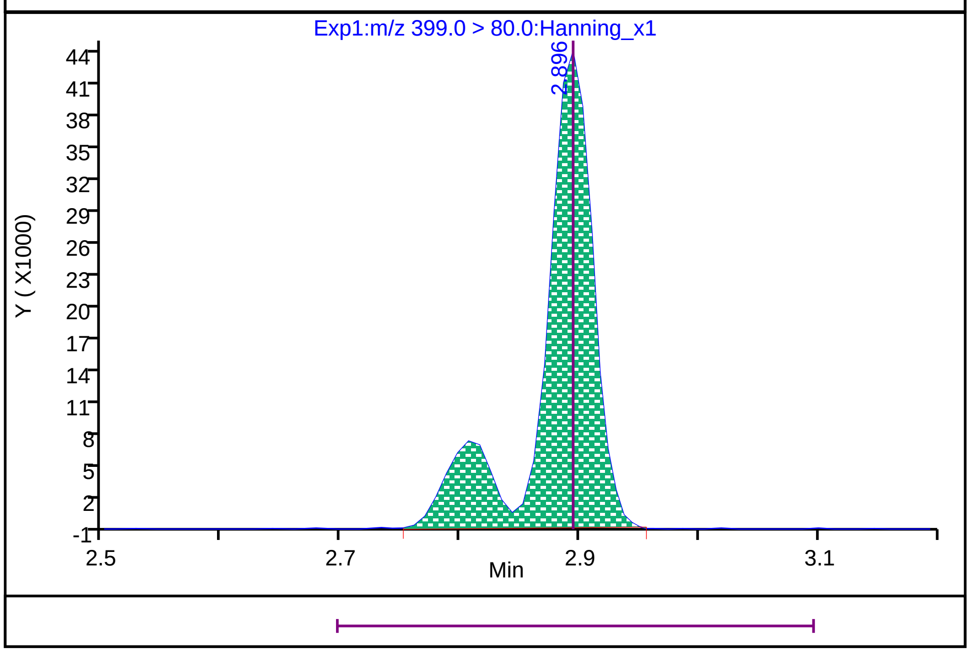
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:52:42

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

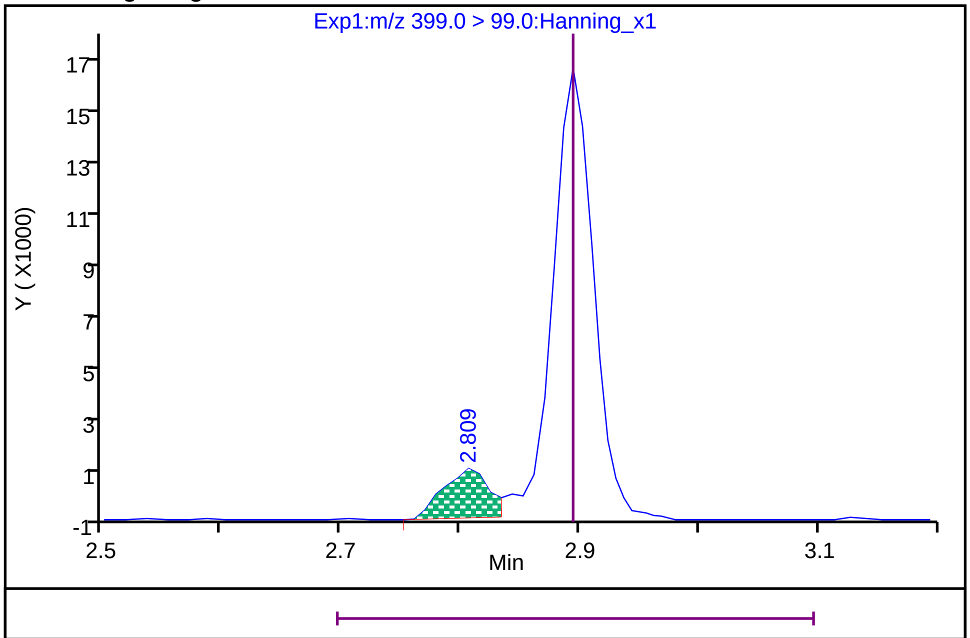
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

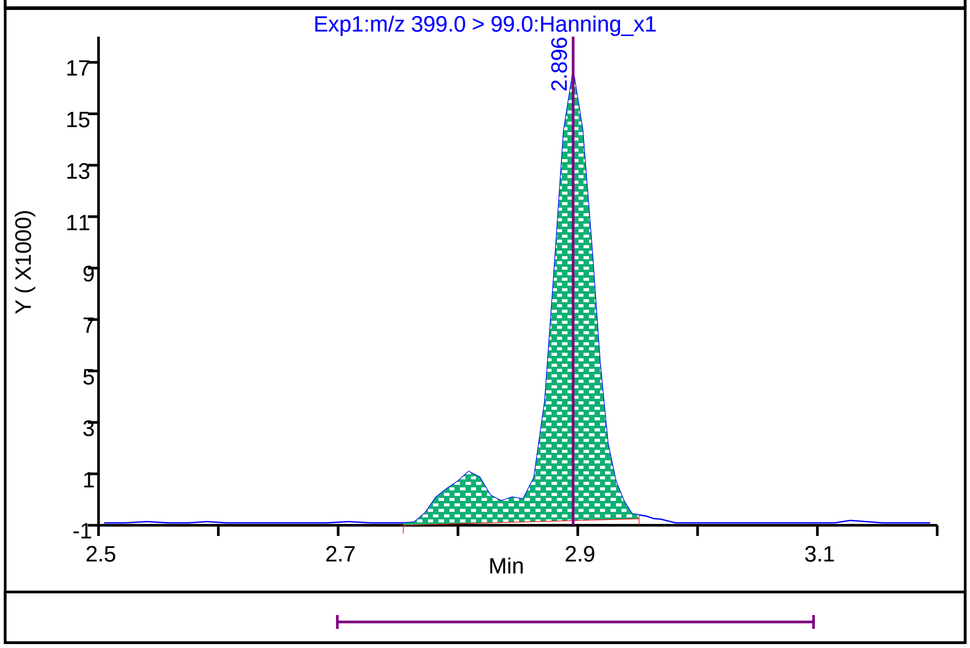
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 4604
Amount: 897.40
Amount Units: ng/L



RT: 2.896
Area: 42817
Amount: 897.40
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:52:45
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

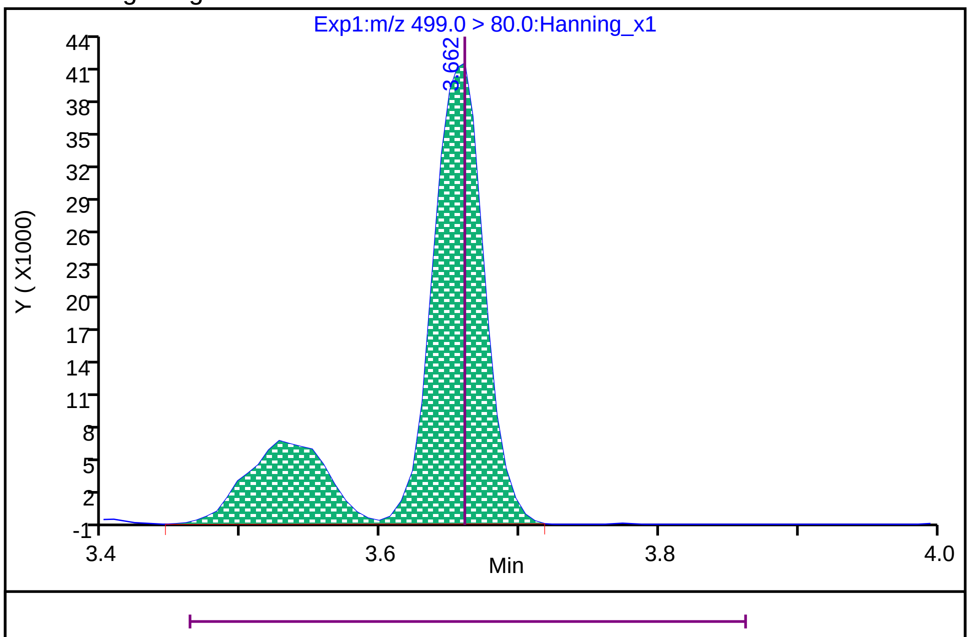
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

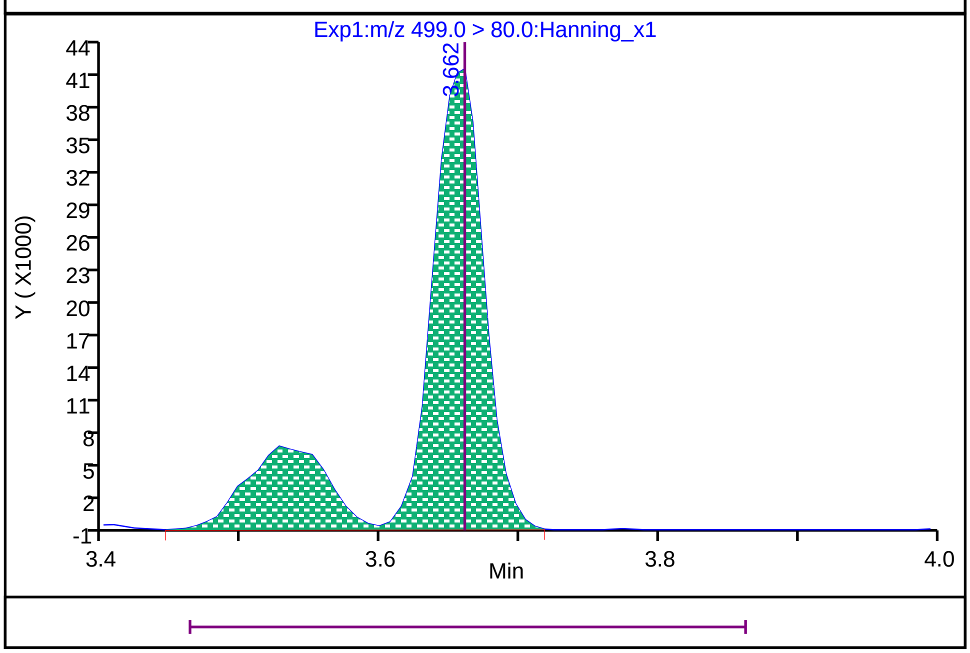
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.662
Area:	134248
Amount:	863.31
Amount Units:	ng/L



RT:	3.662
Area:	135192
Amount:	860.73
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:15

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	80
Sample Info:	ID ICAL 2000_SVLC-1745	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	1	631978	19	>100:1			1000.00	1016.57	99.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/0	1334806	20	>100:1			2000.00	2002.69		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	590743	15	>100:1			1000.00	1033.50	101.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	1286836	16	>100:1			2000.00	1935.44		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	168596	16	>100:1			1000.00	974.71	94.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	385045	16	>100:1	Target = 3.53		1768.00	1831.41		
298.9 > 99	44	2.183	2.183		105793	17	>100:1	3.63 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	293696	16	>100:1	Target = 3.10		1876.00	1879.66		
349 > 99	44	2.532	2.531		98296	17	>100:1	2.98 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	116969	17	>100:1			5000.00	5165.63	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	93564	16		Target = 1.75		1868.00	1814.35		
327 > 81	63	2.460	2.460		49805	17	>100:1	1.87 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	635316	16	>100:1			1000.00	975.48	95.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/1	1330015	17	>100:1	Target = 18.91		2000.00	2013.42		
313 > 119	49	2.505	2.505		69209	17	>100:1	19.21 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1190921	19	>100:1			5000.00	5138.68	98.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	619228	19	>100:1	Target = 0.79		4000.00	4014.30		
285 > 185	66	2.622	2.622		773921	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	554253	17	>100:1			1000.00	1043.91	104	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/0	1148679	18	>100:1	Target = 3.80		2000.00	1886.08		
363 > 169	47	2.881	2.880		296345	18	>100:1	3.87 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	128407	16	>100:1			1000.00	1022.03	99	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	1/0	245510	27	>100:1	Target = 2.89	4.60	1820.00	1739.12		
399 > 99	45	2.896	2.896		86241	26	>100:1	2.84 (1.44-4.34)	8.78				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	1879487	19	>100:1	Target = 3.23		1884.00	1887.36		
377 > 85	45	2.919	2.919		561111	19	>100:1	3.34 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	1/0	255444	22	>100:1	Target = 3.12		1904.00	1936.91		
449 > 99	45	3.276	3.276		79234	21	>100:1	3.22 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	1	92629	20	>100:1			5000.00	5146.07	98.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	1/0	81187	22	>100:1	Target = 1.75		1896.00	1851.26		
427 > 81	64	3.248	3.248		44979	22	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	533931	23	>100:1			1000.00	1017.64	97.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	1/0	1076576	21	>100:1	Target = 2.89		2000.00	1967.61		
413 > 169	53	3.276	3.276		377307	23	>100:1	2.85 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	132396	24	>100:1			1000.00	1069.06	100.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	0/-1	269584	40	>100:1	Target = 3.30	4.09	1856.00	1710.11		M
499 > 99	54	3.652	3.662		83529	39		3.22 (1.65-4.95)	7.71				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/0	930054	18	>100:1			1864.00	1854.92		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	187467	15	>100:1	Target = 3.08		1920.00	1764.90		
549 > 99	54	4.006	4.006		77754	15	>100:1	2.41 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/0	187244	15	>100:1	Target = 2.72		1928.00	1807.29		
599 > 99	54	4.318	4.318		73400	21	>100:1	2.55 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/-1	805565	17	>100:1			1884.00	1777.21		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	1/0	201625	19	>100:1	Target = 3.27		1936.00	1771.04		
699 > 99	54	4.843	4.842		62965	17		3.20 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	1	666388	21	>100:1			1000.00	1040.62	104.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	1/0	1453207	21	>100:1	Target = 6.51		2000.00	2023.17		
463 > 169	56	3.662	3.662		213087	21	>100:1	6.81 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	271381	19	>100:1			1000.00	1012.40	101.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	593408	17	>100:1	Target = 41.63		2000.00	2078.18		
498>478	55	3.888	3.896		18462	21		32.14 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	1	616544	16	>100:1			1000.00	1072.88	107.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	1/0	1420016	16	>100:1	Target = 13.80		2000.00	1979.11		
513 > 169	51	4.017	4.016		103646	14	>100:1	13.70 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	94944	16	>100:1			5000.00	5493.01	120.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	1/0	75418	16	>100:1	Target = 1.94		1916.00	1757.70		
527 > 81	65	4.006	4.016		37486	18	>100:1	2.01 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/0	87815	17		Target = 3.54		1928.00	1823.13		
627 > 80	65	4.631	4.631		23593	16	55:1	3.72 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	1	786283	16	>100:1			5000.00	5203.29	101.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/0	242311	33		Target = 1.37	7.52	2000.00	1920.26		
570 > 483	58	4.178	4.178		184100	32	>100:1	1.31 (0.68-2.05)	4.18				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	85737	13	>100:1			1000.00	950.64	95.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	207971	13	>100:1			2000.00	2219.61		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	47183	12	>100:1			1000.00	1003.01	104.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/0	103458	13	>100:1	Target = 1.11		2000.00	2023.00		
512 > 219	57	4.318	4.318		104435	13	>100:1	0.99 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	1	642300	17	>100:1			5000.00	4959.34	93.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/0	244858	30	>100:1	Target = 1.51	6.39	2000.00	1954.88		M
584 > 526	60	4.348	4.348		158435	31	>100:1	1.54 (0.75-2.26)	3.53				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	644538	15	>100:1			1000.00	1070.22	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	1/0	1230135	16	>100:1	Target = 14.52		2000.00	1969.68		
563 > 169	52	4.339	4.338		78534	14	>100:1	15.66 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.465	4.455	1	104277	15	>100:1			1000.00	983.03	102.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	214292	15	>100:1			2000.00	2111.01		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	1	42659	13	>100:1			1000.00	992.07	99.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.492	4.483	1/0	104819	20	>100:1	Target = 1.06		2000.00	2064.36		
526 > 219	59	4.483	4.483		99256	15	>100:1	1.05 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	602891	17	>100:1			1000.00	1004.25	99.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	1348282	16	>100:1	Target = 10.70		2000.00	2097.75		
613 > 169	38	4.623	4.622		123278	18	>100:1	10.93 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/-1	1314496	17	>100:1	Target = 8.31		2000.00	2074.35		
663 > 169	38	4.868	4.877		153257	22	>100:1	8.57 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	1	821412	21	>100:1			1000.00	1010.36	98	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	1/0	1432173	22	>100:1	Target = 12.17		2000.00	1997.35		
713 > 169	42	5.106	5.106		119851	20	>100:1	11.94 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.544	5.544	1	874416	21	>100:1			1000.00	1007.35	99.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.544	5.552	0/-1	1086521	21	>100:1	Target = 10.43		2000.00	1940.15		
813 > 269	40	5.544	5.552		103391	21	>100:1	10.50 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.012	6.026	0/-1	1649914	42	95:1	Target = 13.67		2000.00	2072.61		
913 > 319	40	6.012	6.026		118785	43	>100:1	13.88 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.017	4.016	1	684156	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	687359	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	543856	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	590309	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	1	132467	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

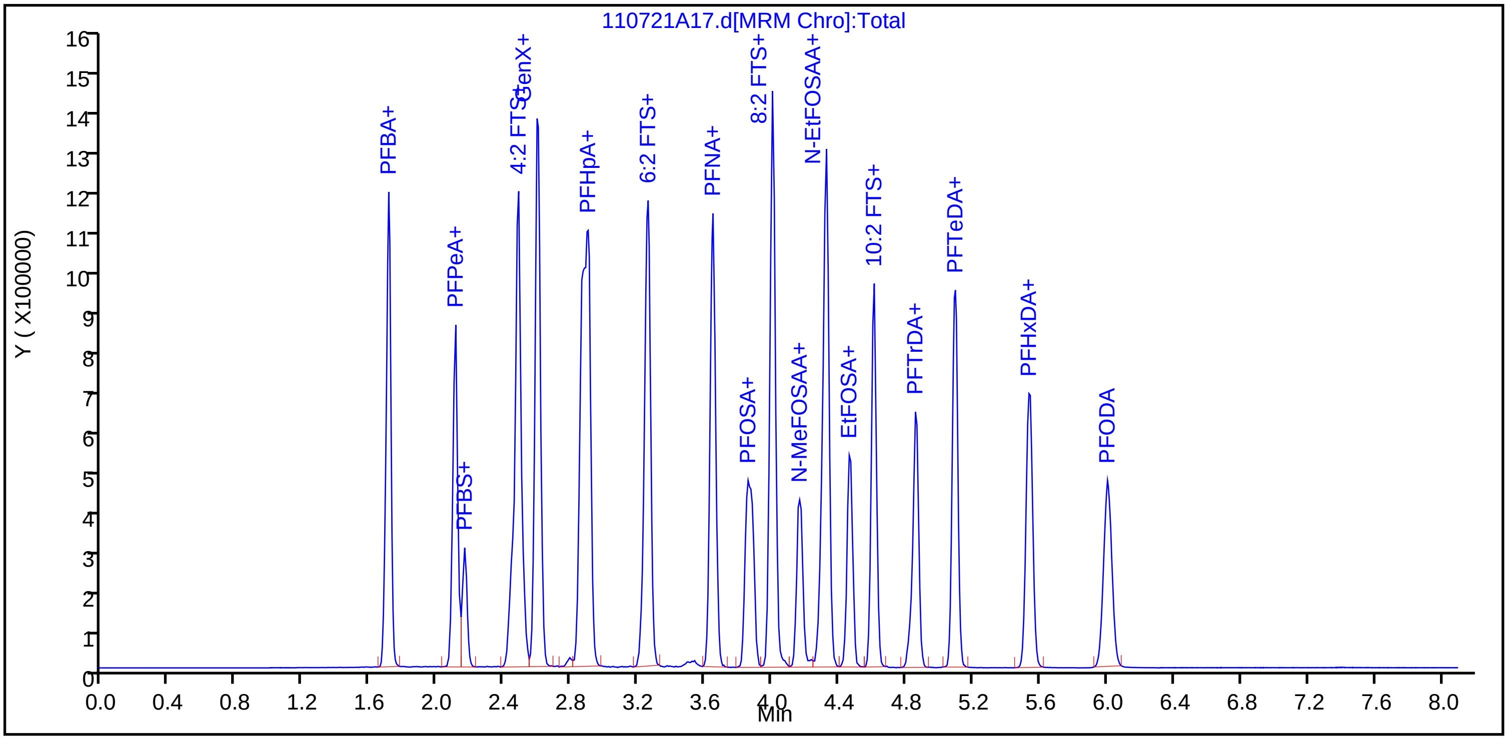
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

Injection Date: 07-Nov-2021 19:40:43 Inst. ID: LCMSMS02.i

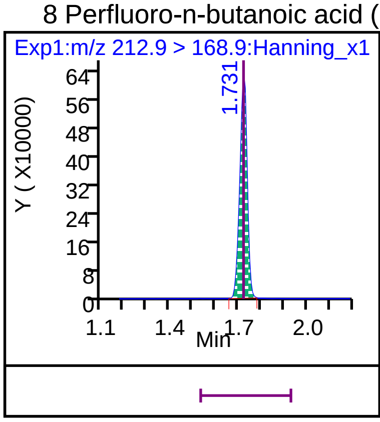
Client ID: Lab ID: ID ICAL 2000_SVLC-1745

Sample Info: ID ICAL 2000_SVLC-1745

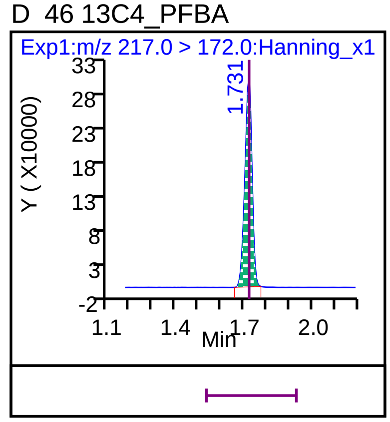
Dil. Factor: 1 Operator: Justin Gavin



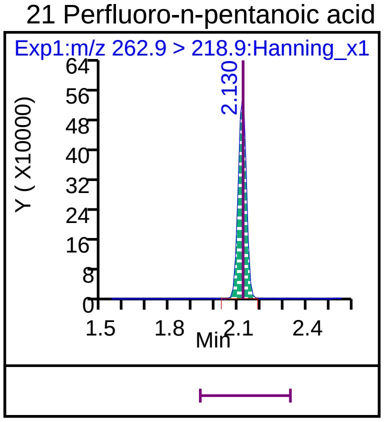
8 Perfluoro-n-butanoic acid (PFBA)



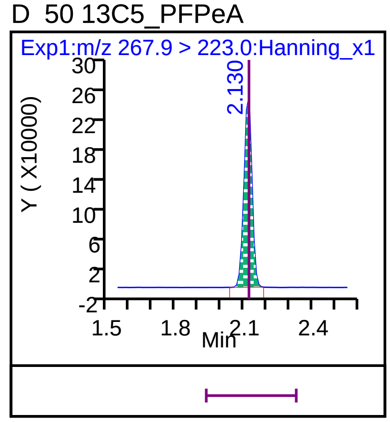
D 46 13C4_PFBA



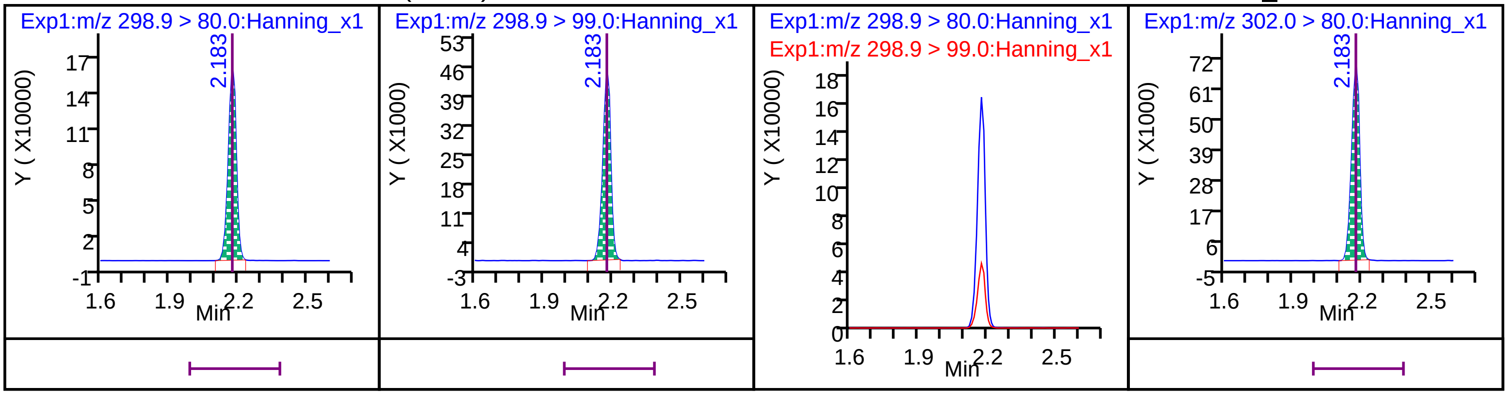
21 Perfluoro-n-pentanoic acid (PFPeA)



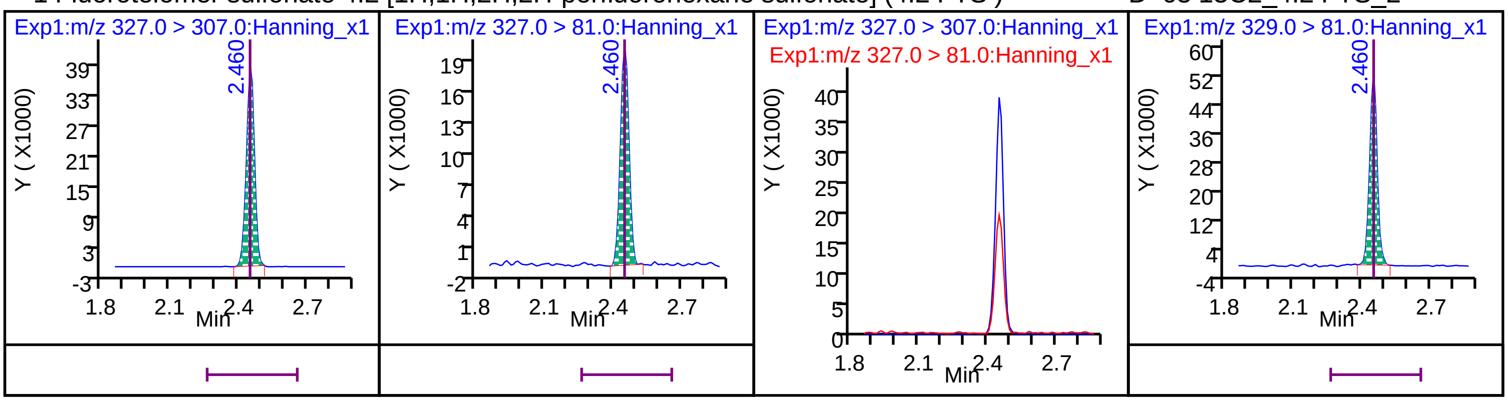
D 50 13C5_PFPeA



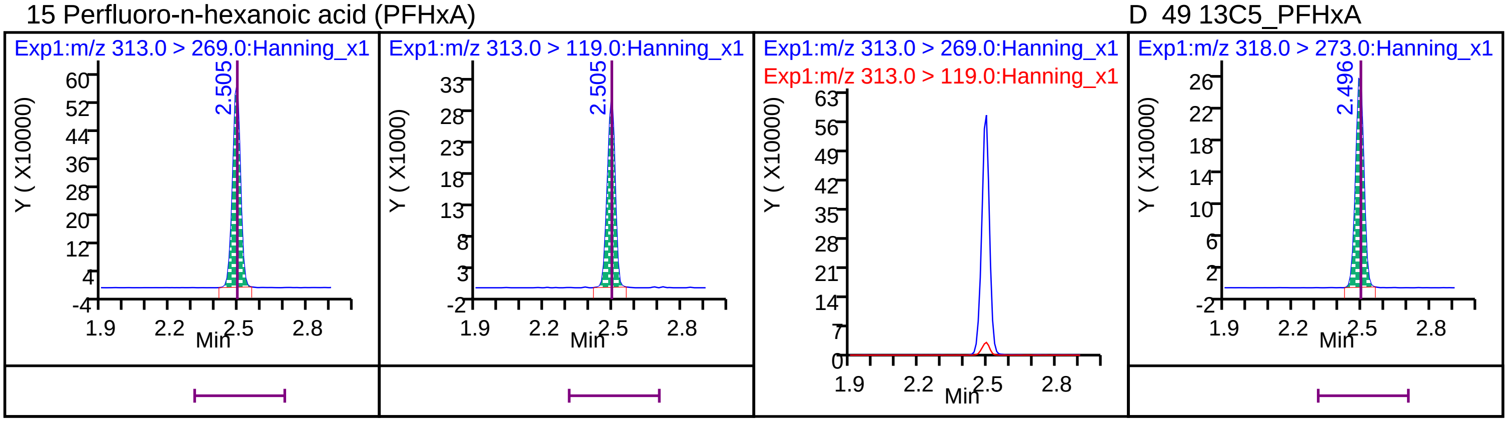
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



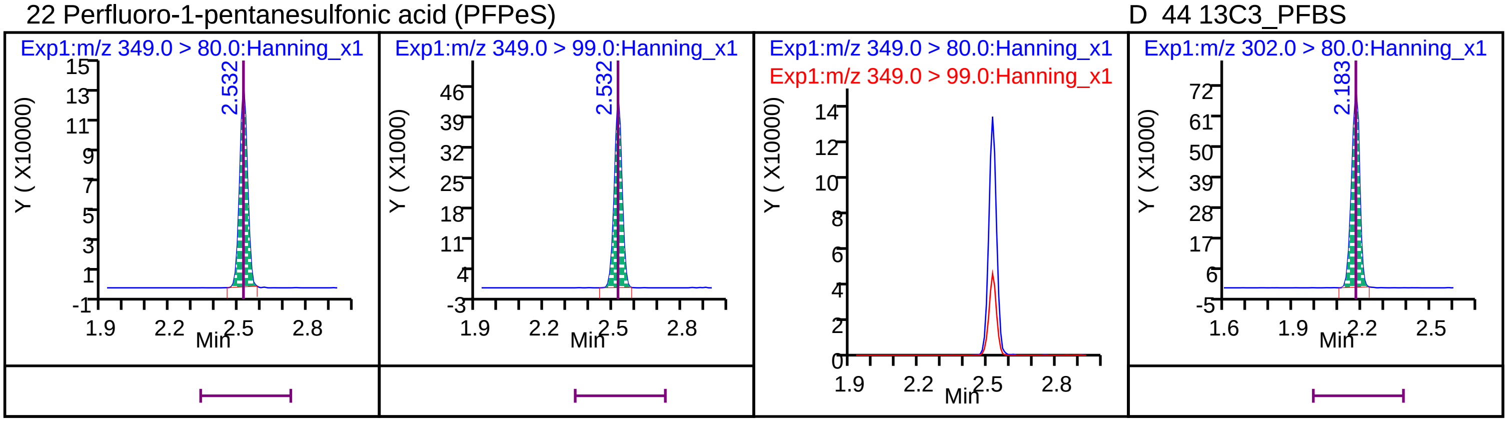
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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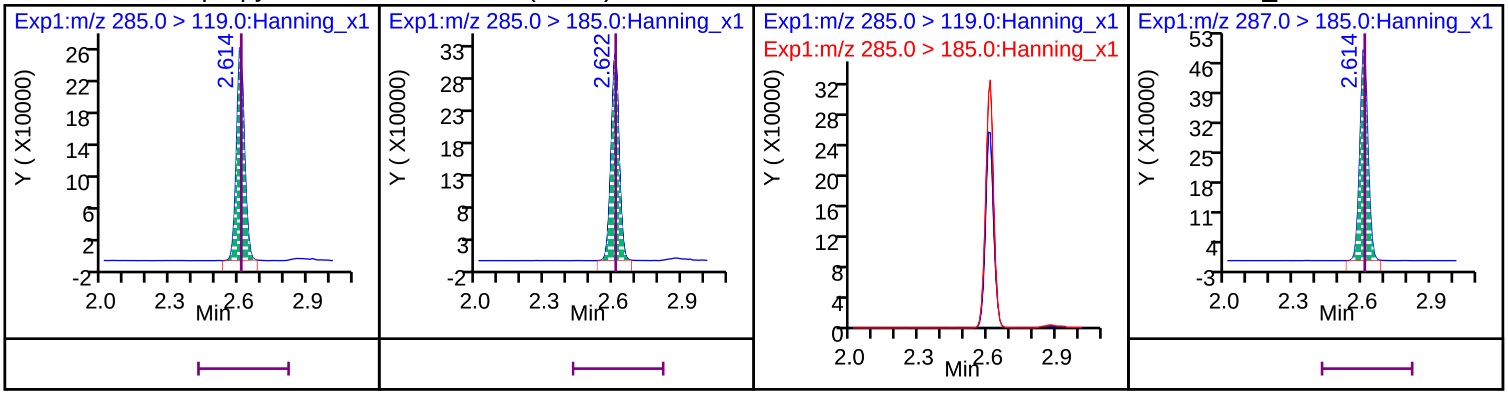
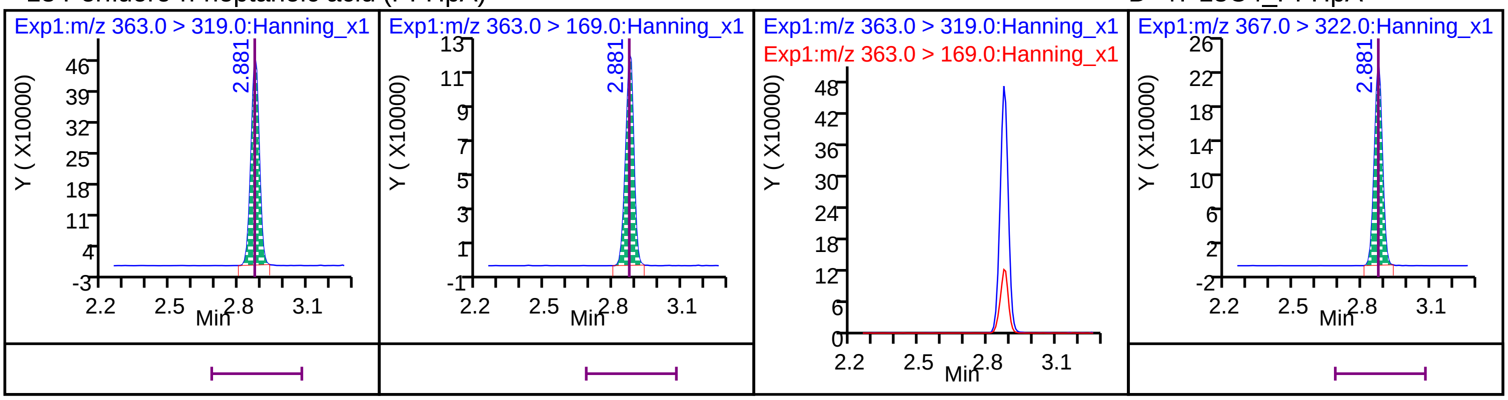
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

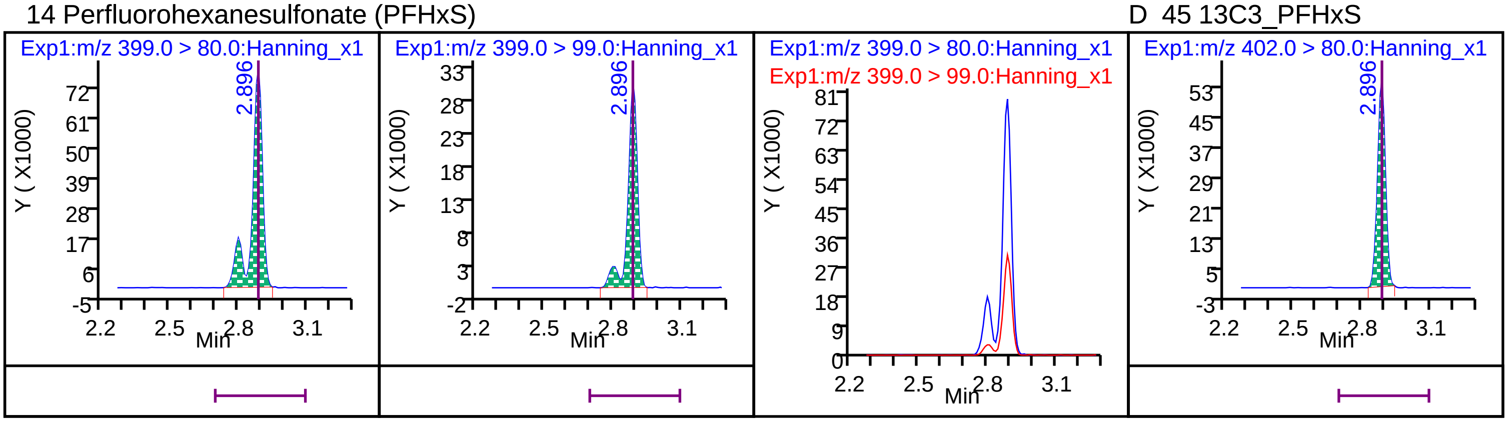
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



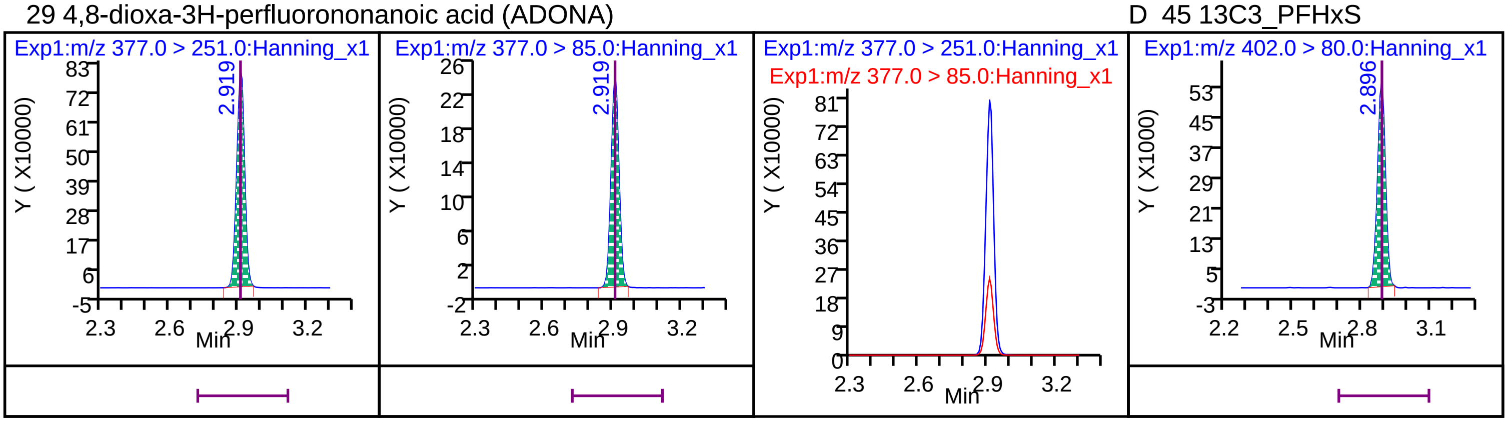
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



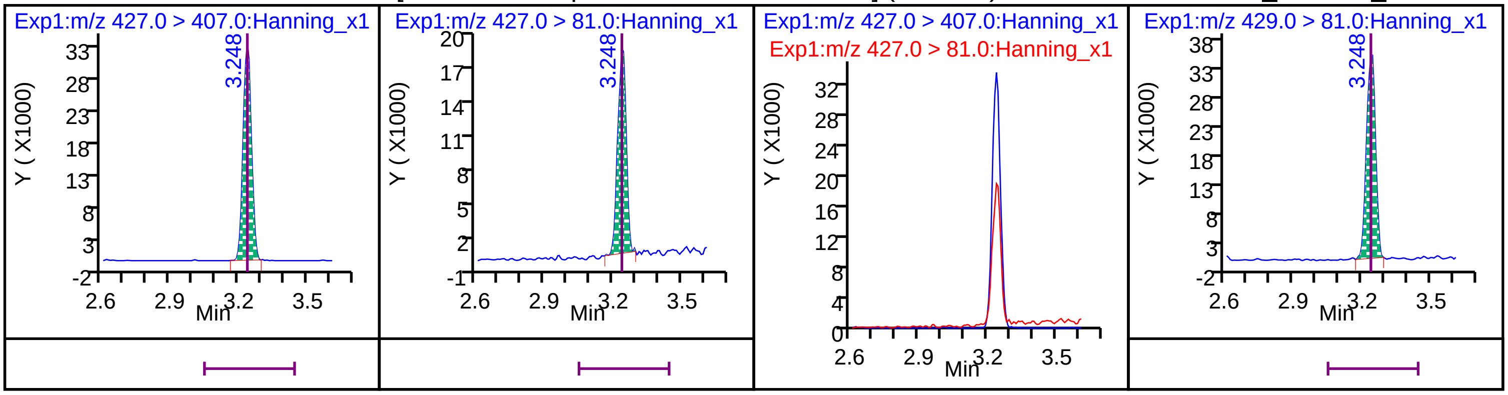
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



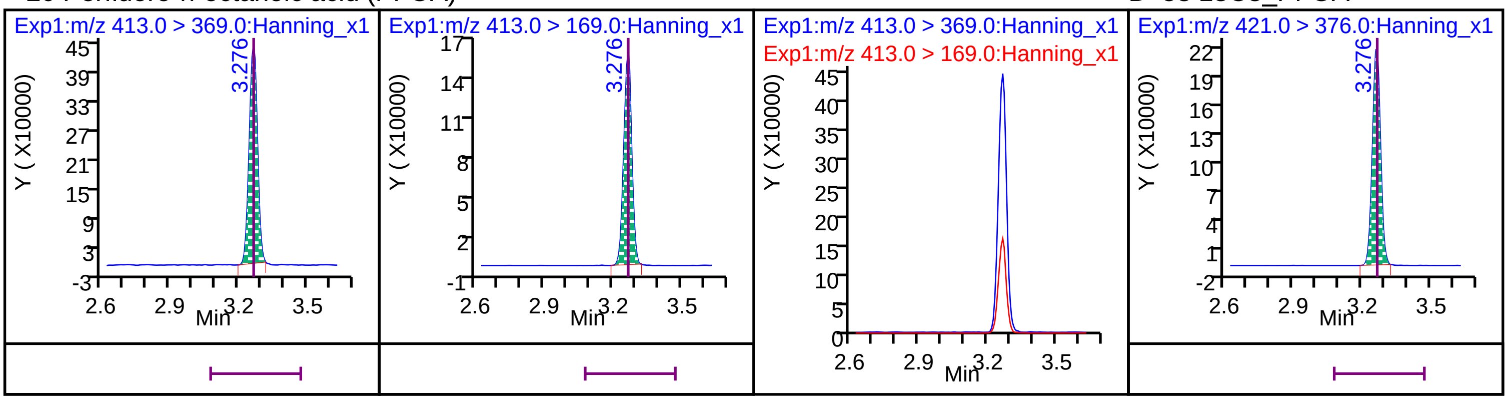
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



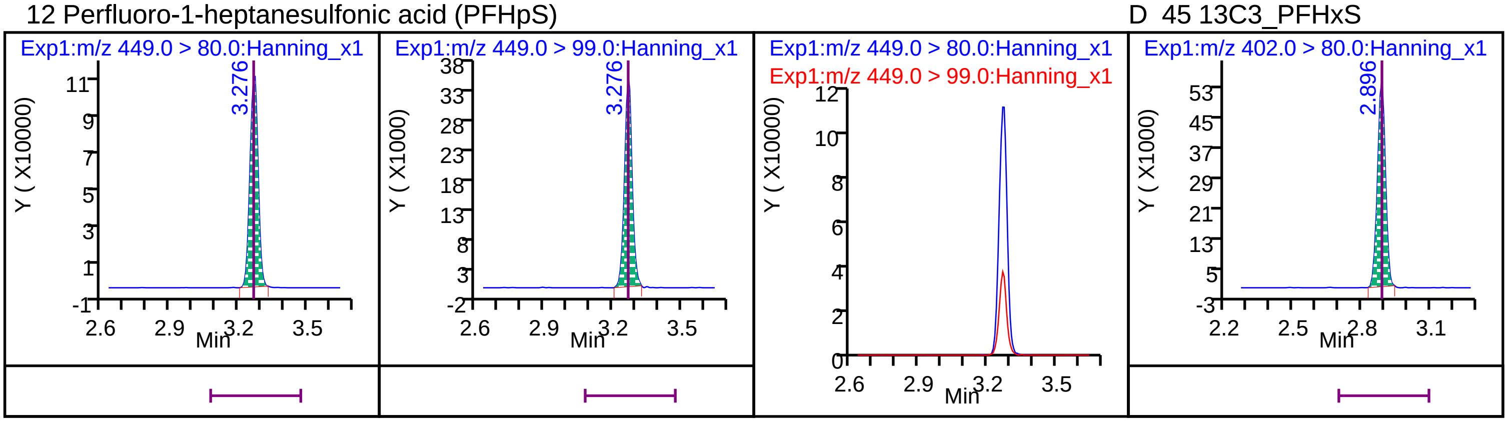
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



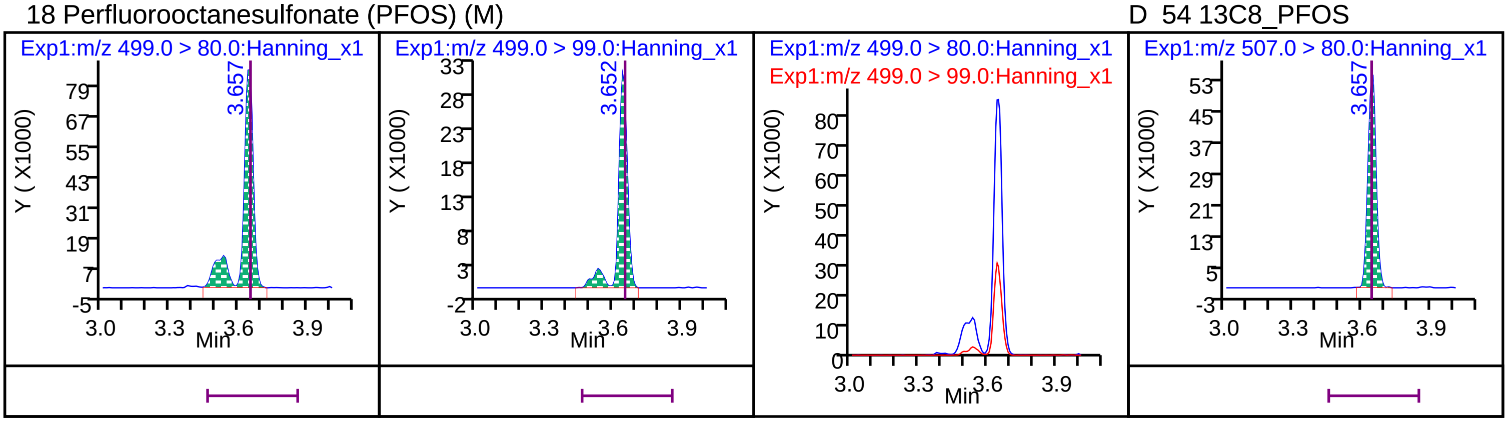
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



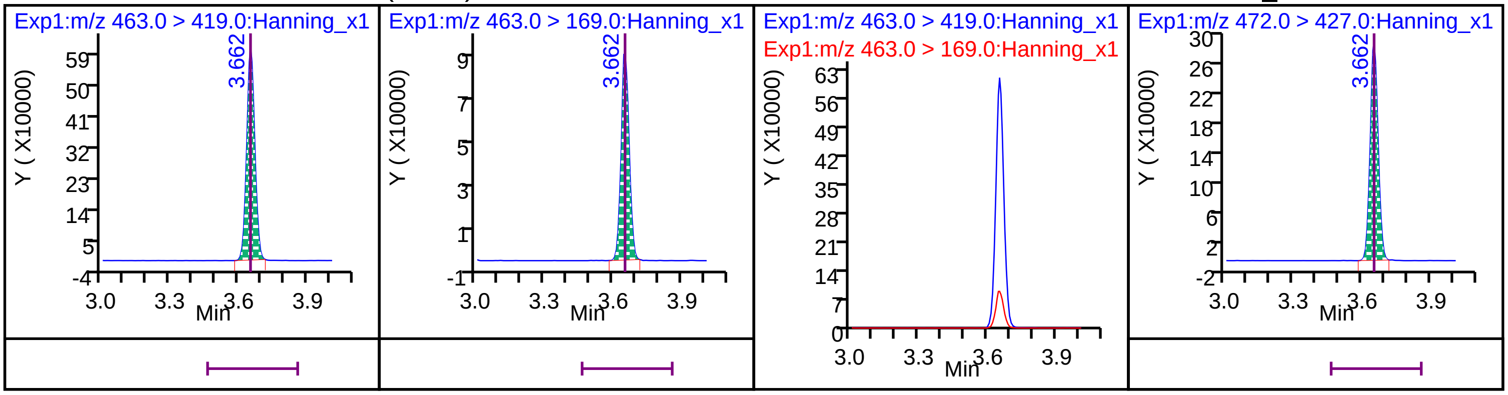
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



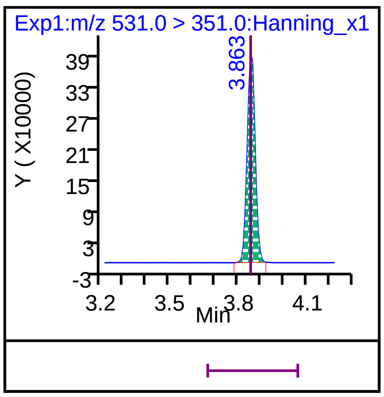
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

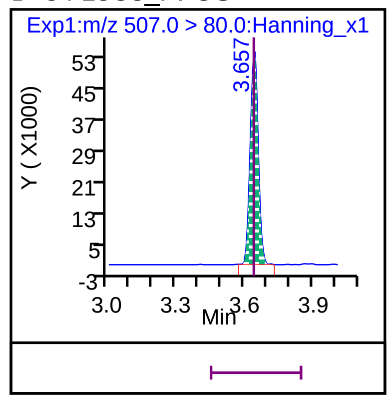


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

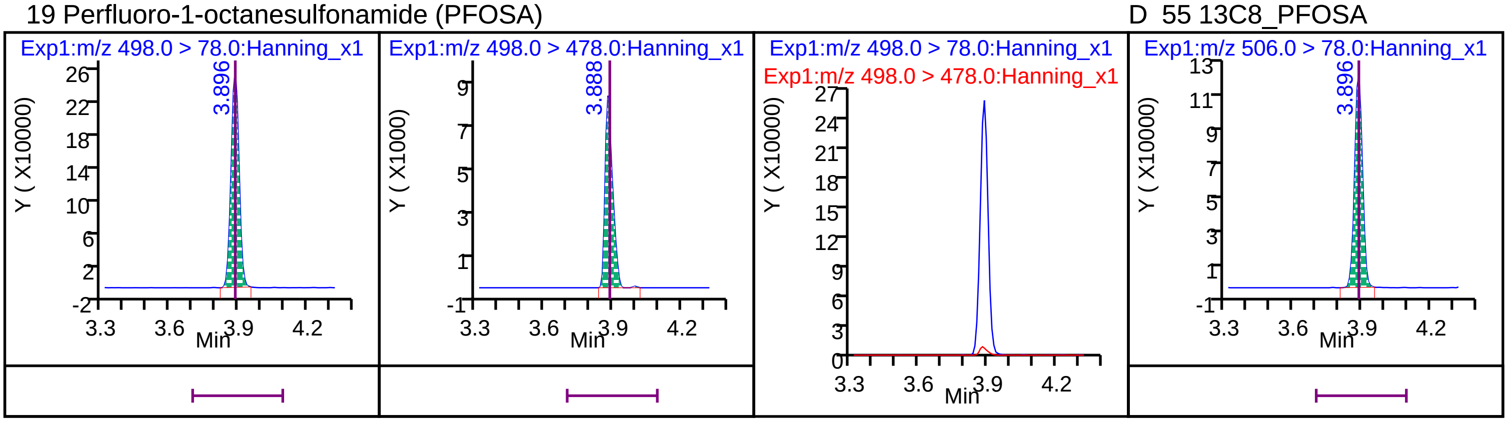


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

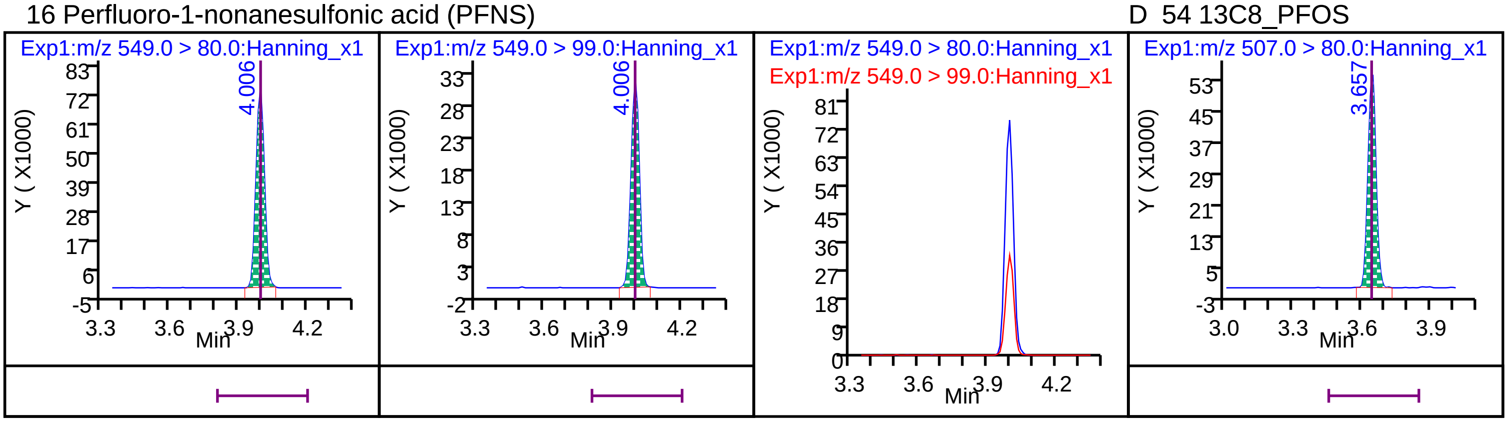




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
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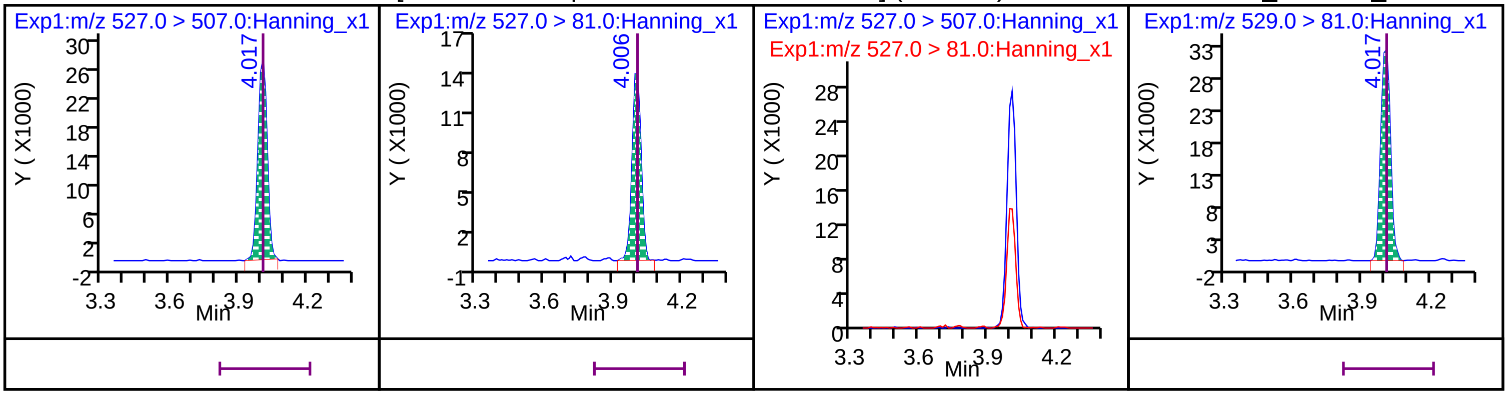
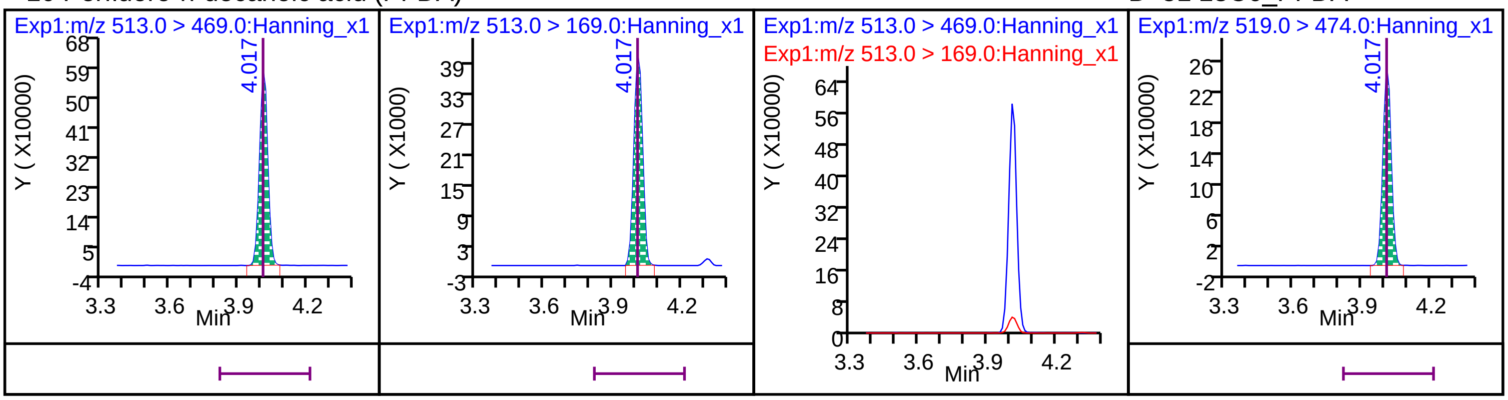
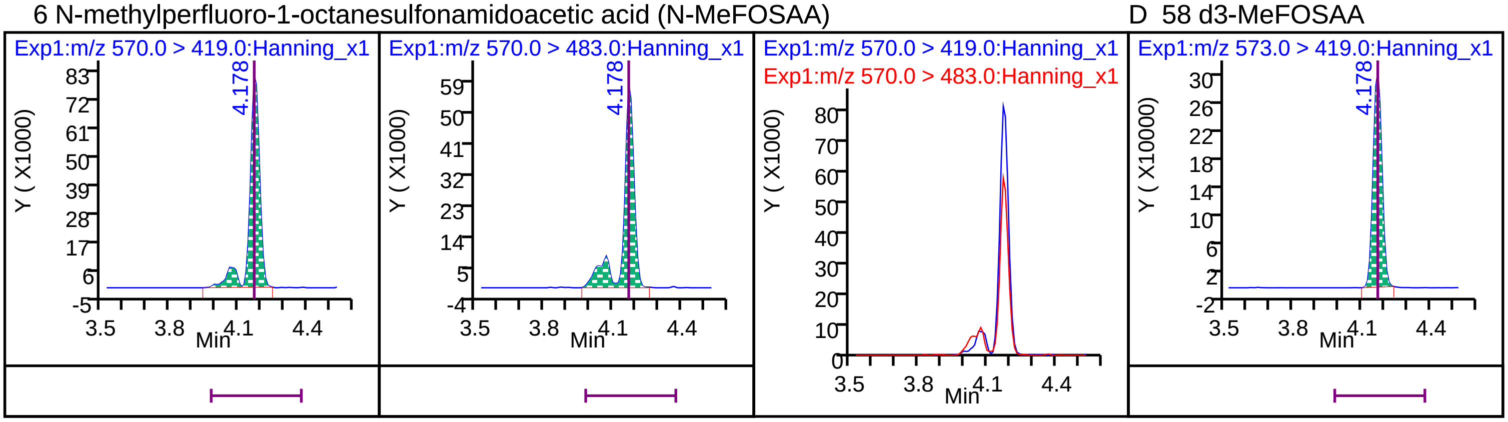
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



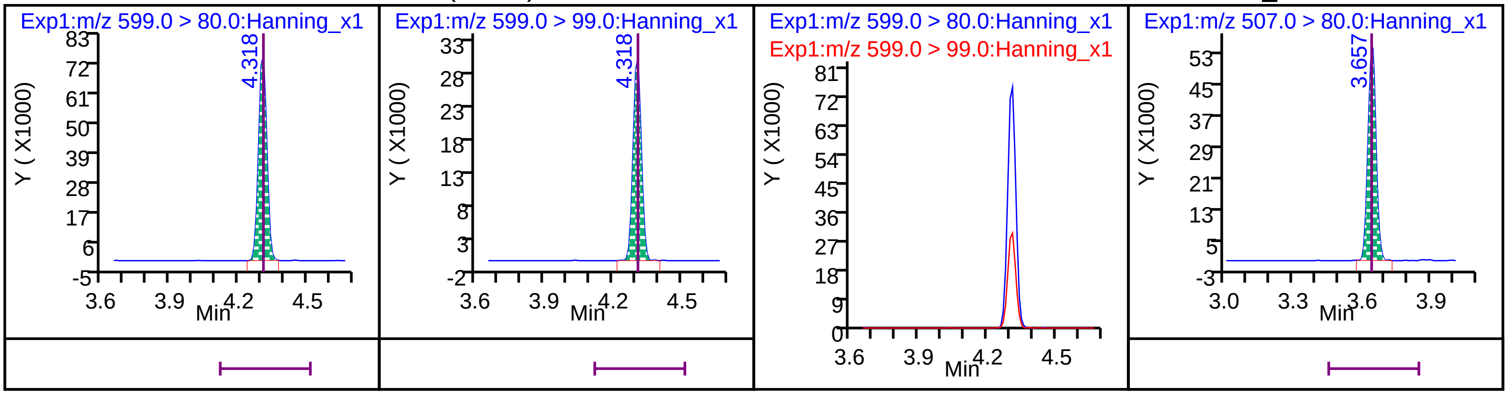
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



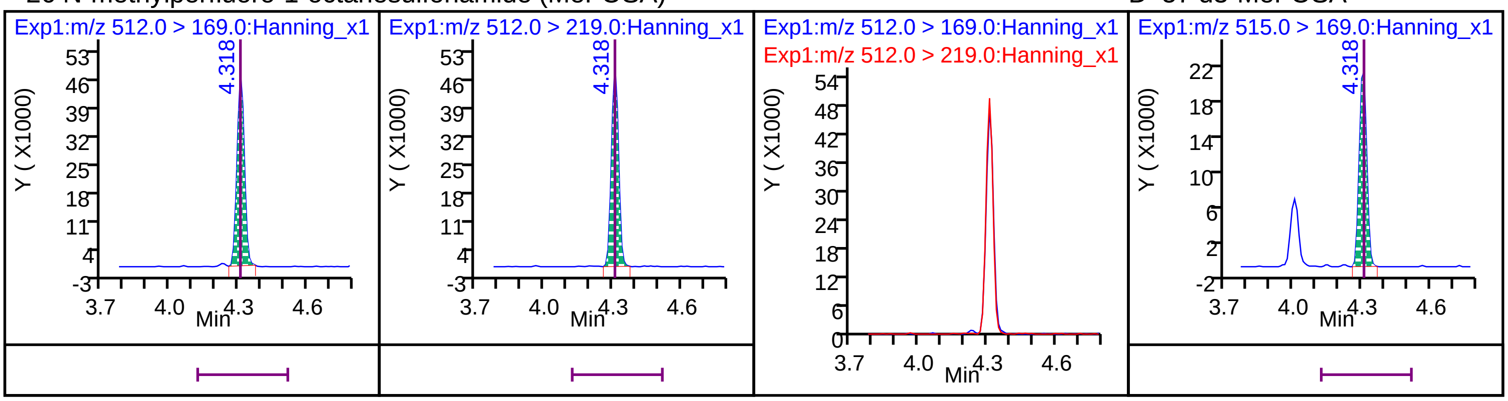
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

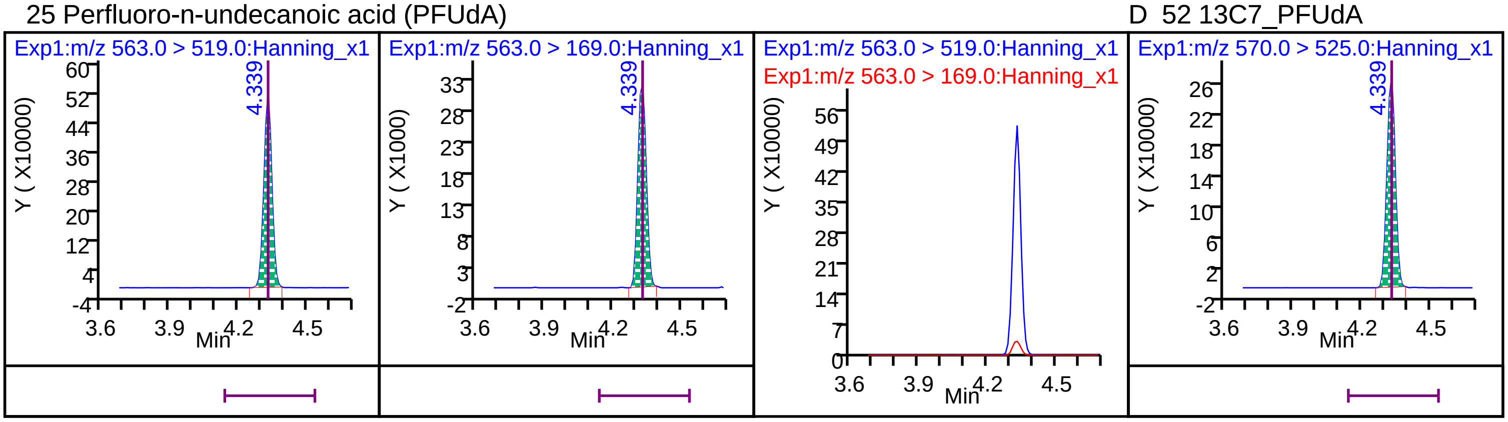
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



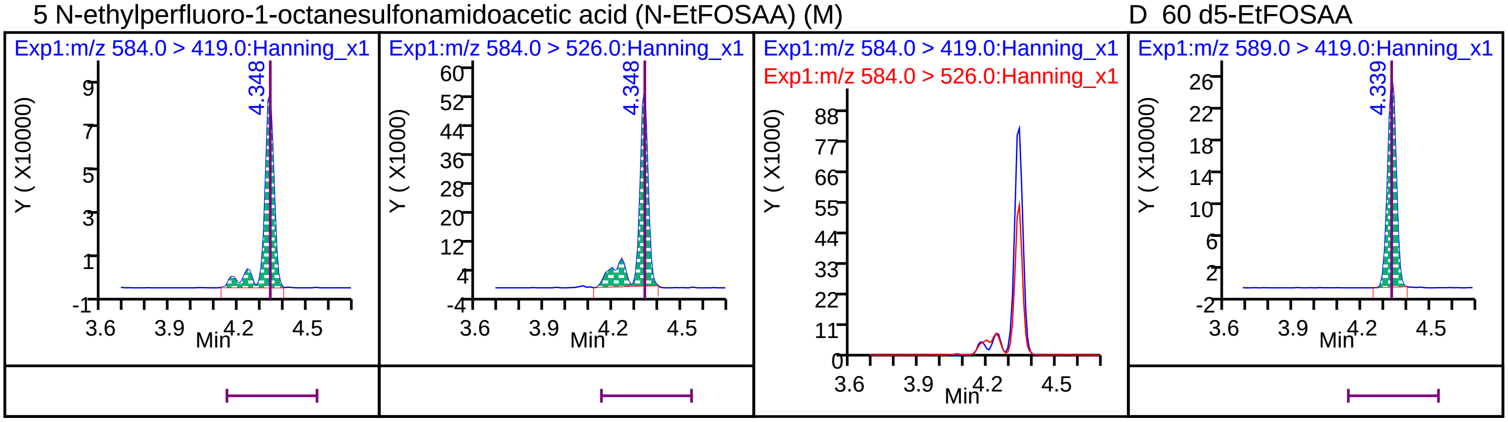
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



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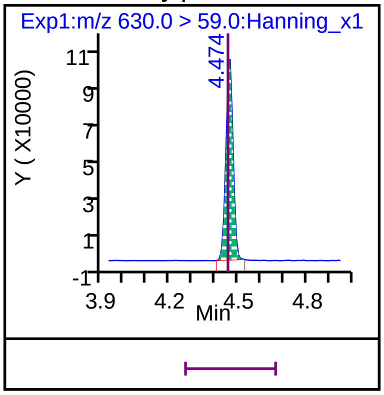
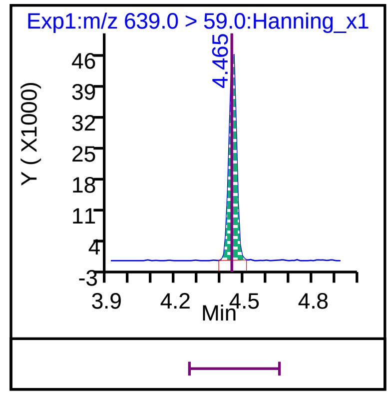
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

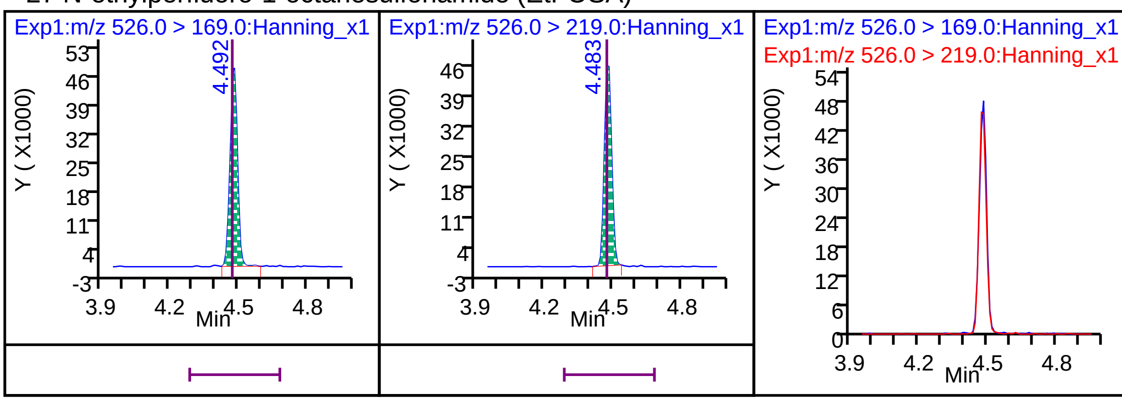
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



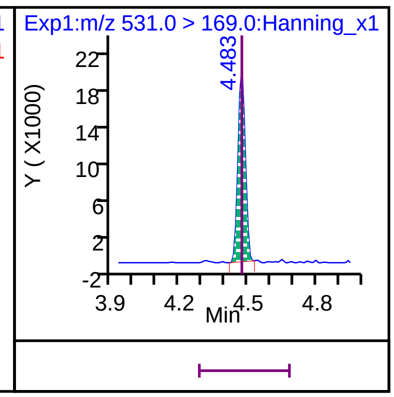
D 62 d9-EtFOSE



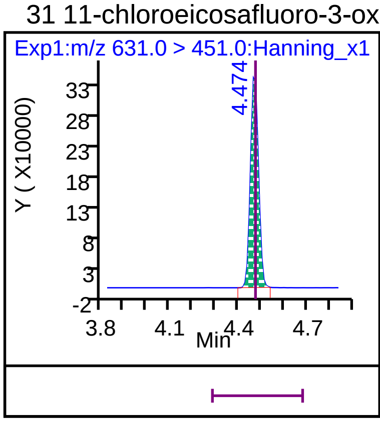
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



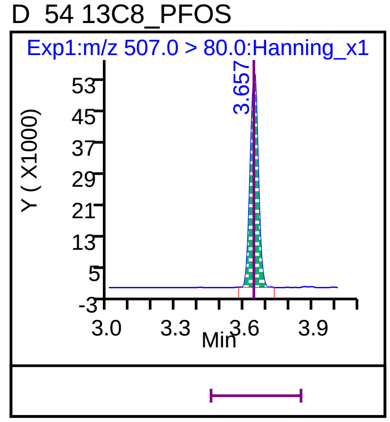
D 59 d5-EtFOSA



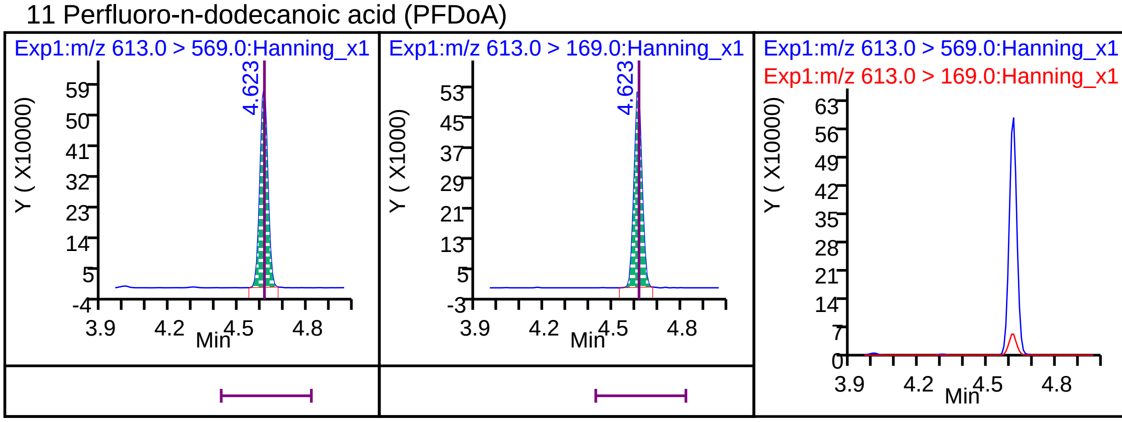
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



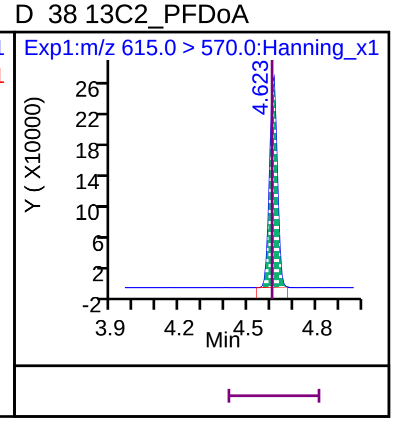
D 54 13C8_PFOS



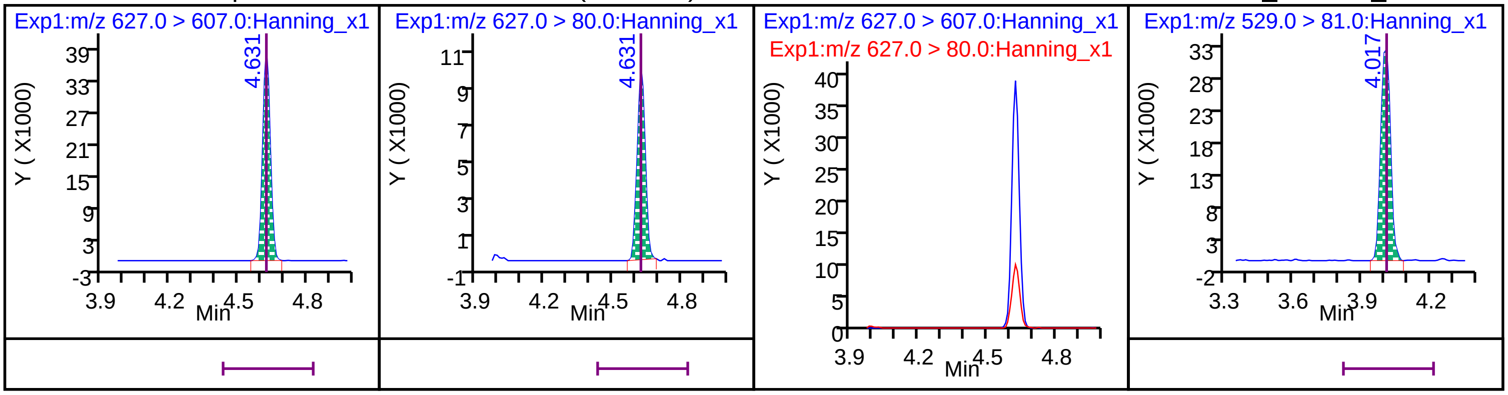
11 Perfluoro-n-dodecanoic acid (PFDoA)



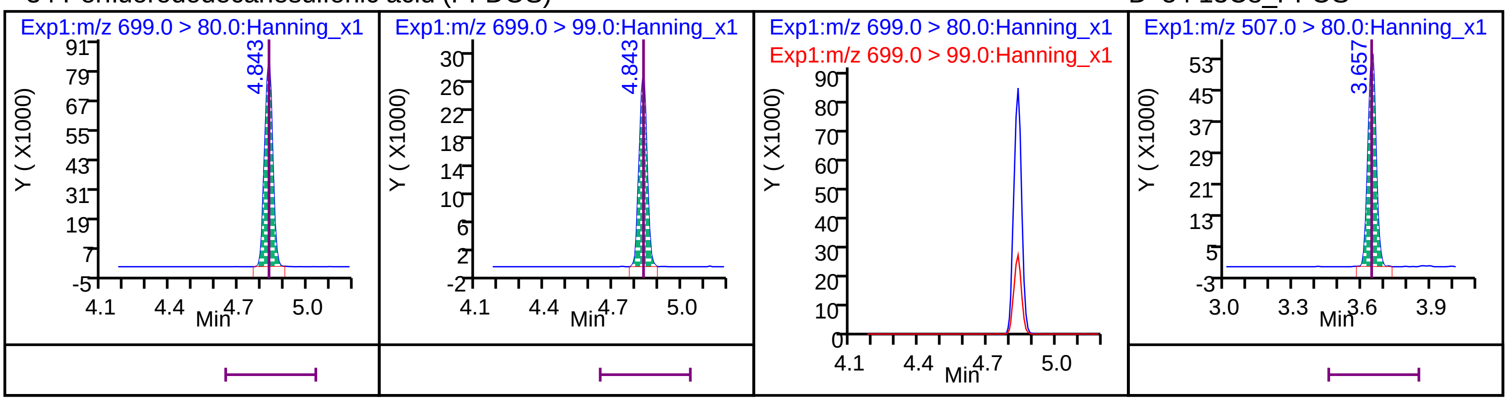
D 38 13C2_PFDoA



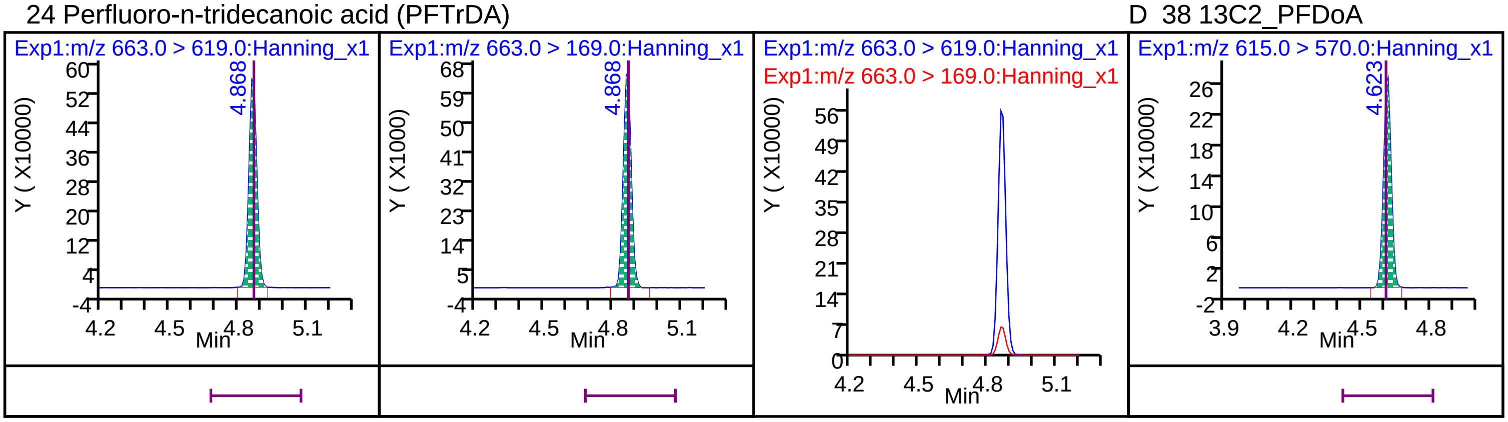
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



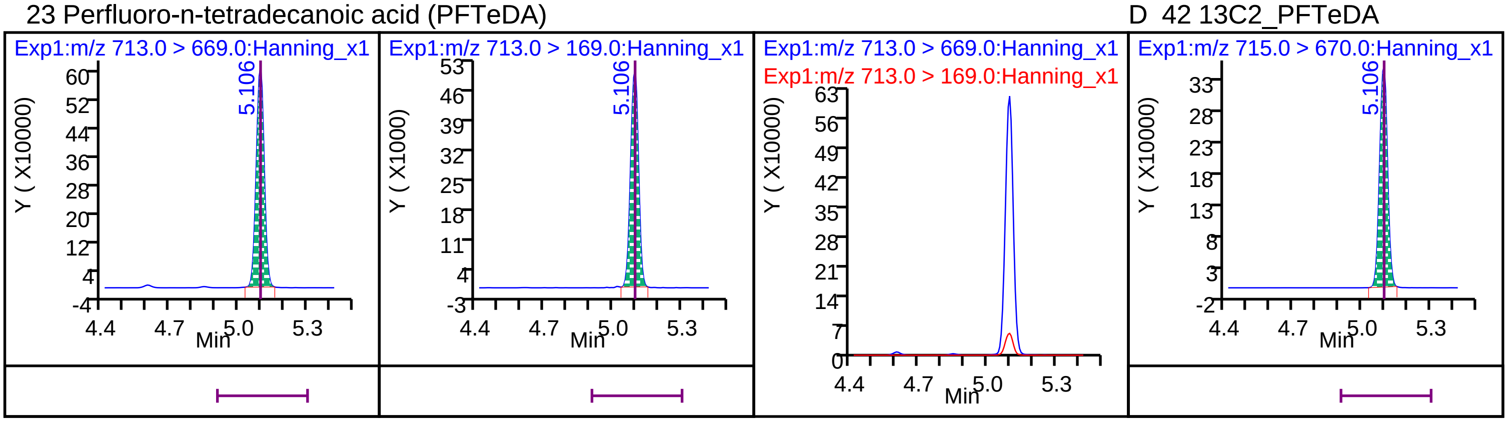
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



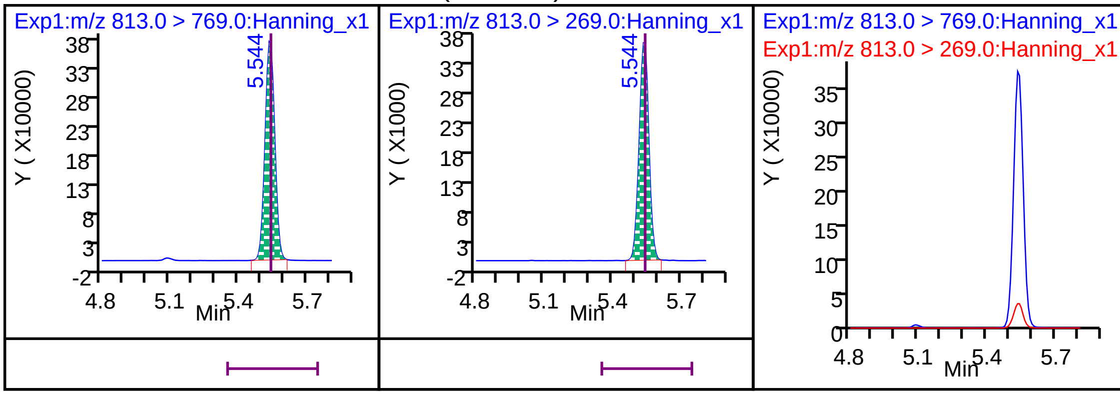
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



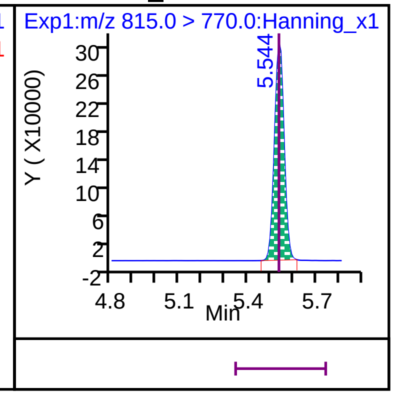
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



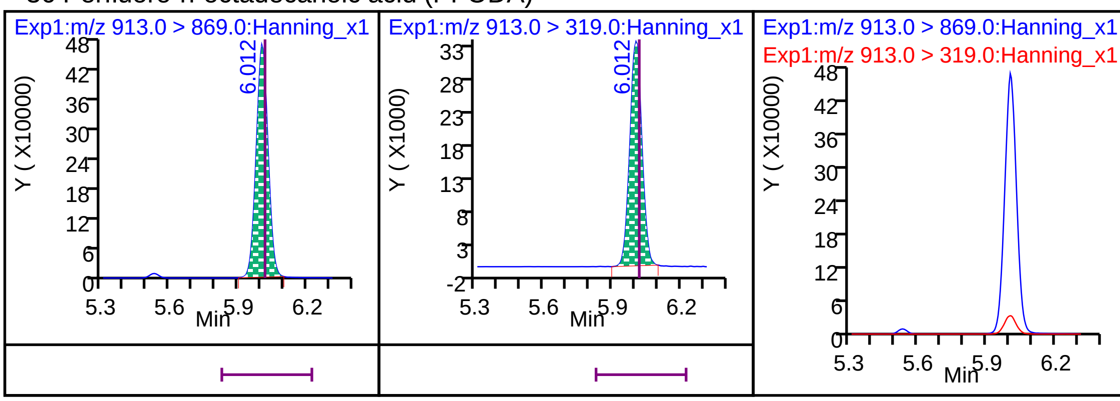
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



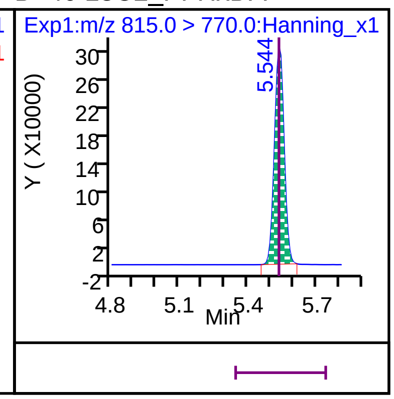
D 40 13C2_PFHxDA



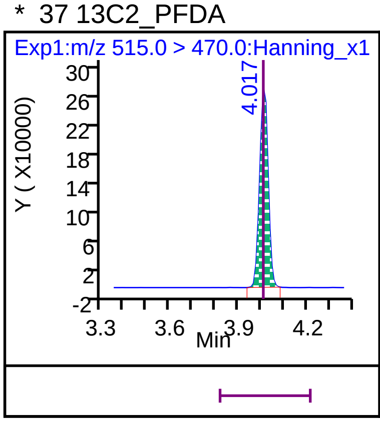
36 Perfluoro-n-octadecanoic acid (PFODA)



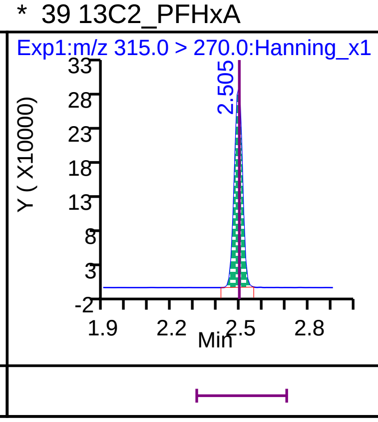
D 40 13C2_PFHxDA



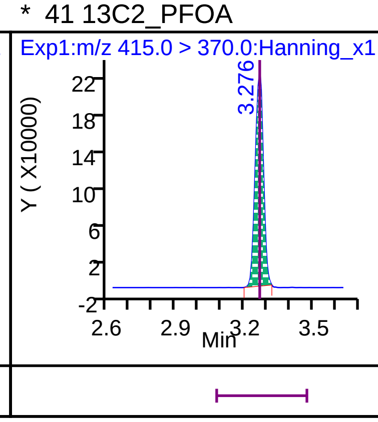
* 37 13C2_PFDA



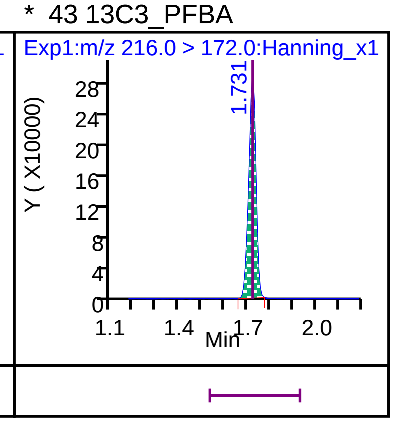
* 39 13C2_PFHxA



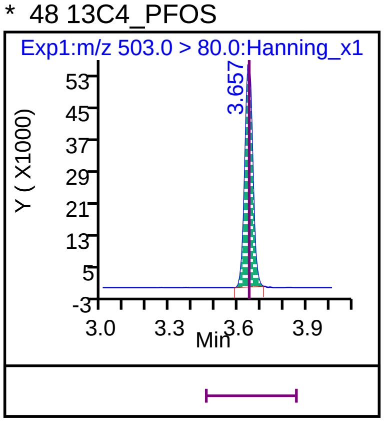
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

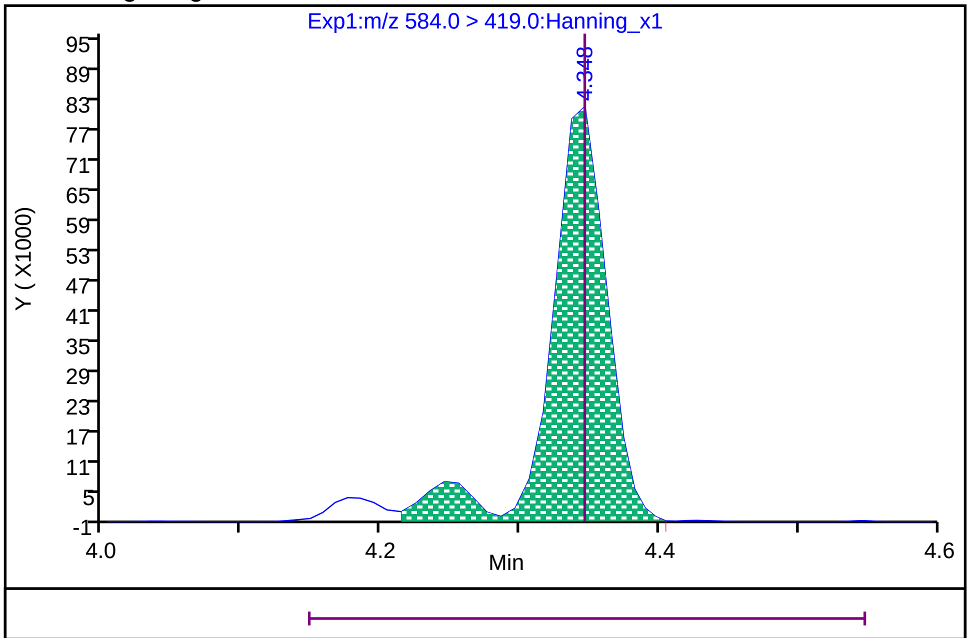
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 2000_SVLC-1745
Sample Info:	ID ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin

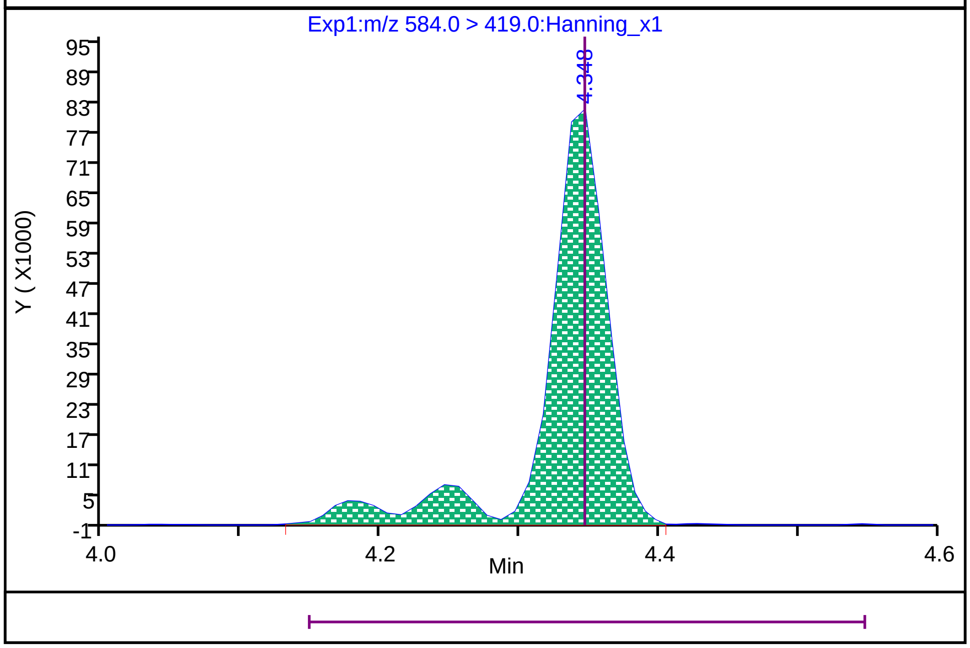
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.348
Area: 231135
Amount: 1855.48
Amount Units: ng/L



RT: 4.348
Area: 244858
Amount: 1954.88
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:56:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

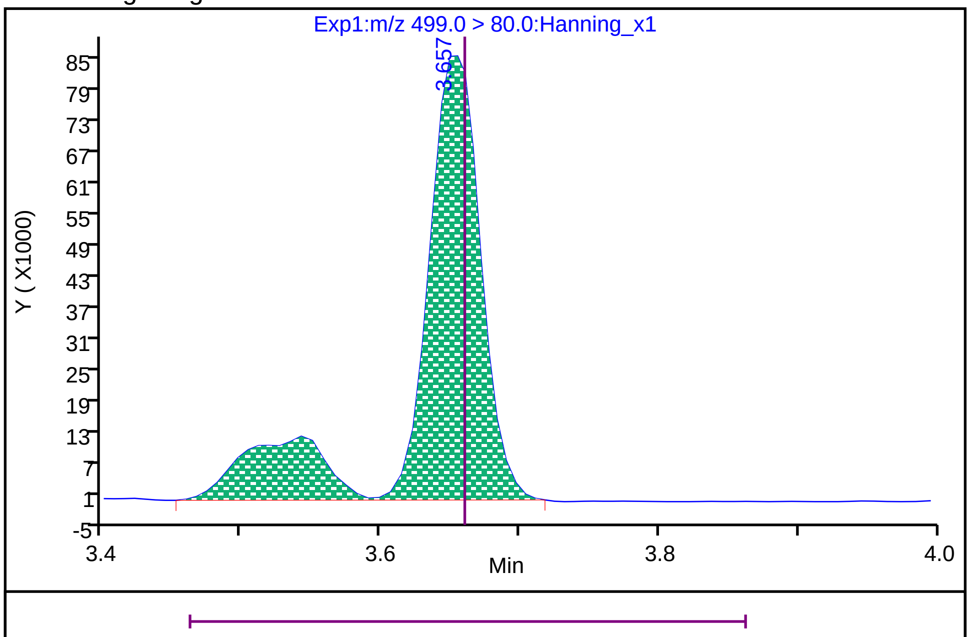
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 2000_SVLC-1745
Sample Info:	ID ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin

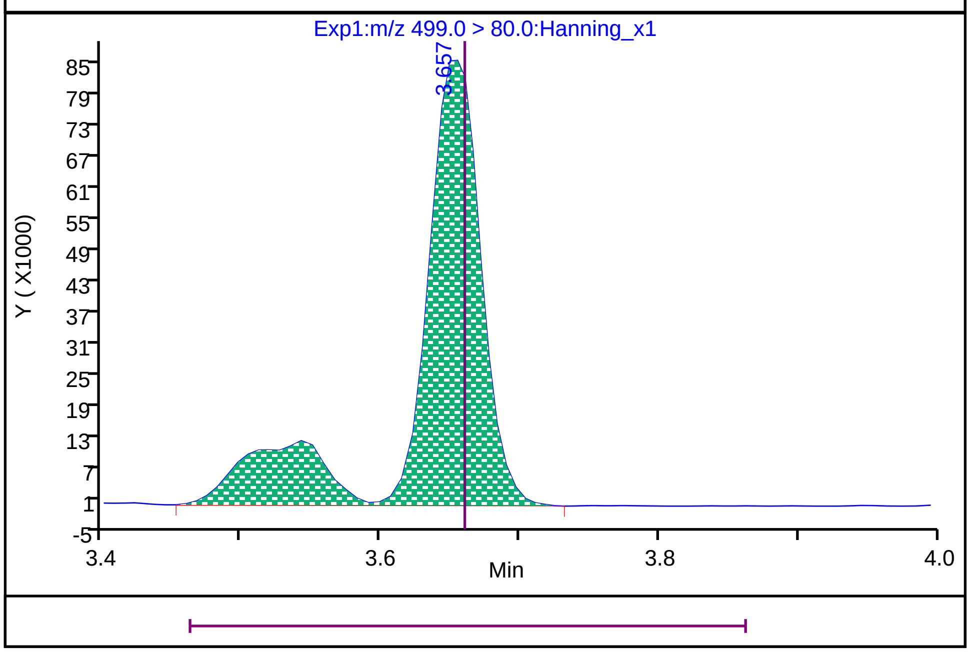
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.657
Area:	266367
Amount:	1699.43
Amount Units:	ng/L



RT:	3.657
Area:	269584
Amount:	1710.11
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:20

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	81
Sample Info:	ID ICAL 5000_SVLC-1746	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	607576	20	>100:1			1000.00	977.32	95.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	3233918	20	>100:1			5000.00	5046.93		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	541862	15	>100:1			1000.00	947.99	93.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	3095773	14	>100:1			5000.00	5076.16		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	170276	17	>100:1			1000.00	984.43	95.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	920934	16	>100:1	Target = 3.53		4420.00	4337.08		
298.9 > 99	44	2.183	2.183		267102	16	>100:1	3.44 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/0	722411	16	>100:1	Target = 3.10		4690.00	4577.82		
349 > 99	44	2.531	2.531		240798	17	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	98938	16	>100:1			5000.00	4369.34	88.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	222149	16	>100:1	Target = 1.75		4670.00	5092.89		
327 > 81	63	2.460	2.460		120907	15	>100:1	1.83 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	645583	18	>100:1			1000.00	991.24	97.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	0/0	3301175	18	>100:1	Target = 18.91		5000.00	4917.95		
313 > 119	49	2.496	2.505		170114	17	>100:1	19.40 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1133799	19	>100:1			5000.00	4892.20	94.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	1437846	19	>100:1	Target = 0.79		10000	9790.81		
285 > 185	66	2.614	2.622		1880218	19	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	513054	17	>100:1			1000.00	966.32	96.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	2877261	17	>100:1	Target = 3.80		5000.00	5103.70		
363 > 169	47	2.880	2.880		731294	17	>100:1	3.93 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	122177	19				1000.00	972.44	94.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	642452	27	>100:1	Target = 2.89	5.16	4550.00	4783.00		
399 > 99	45	2.896	2.896		206768	25	>100:1	3.10 (1.44-4.34)	8.18				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	0/0	4593970	19	>100:1	Target = 3.23		4710.00	4848.45		
377 > 85	45	2.918	2.919		1425848	20	>100:1	3.22 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	583188	23	>100:1	Target = 3.12		4760.00	4647.52		
449 > 99	45	3.276	3.276		186516	21	>100:1	3.12 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	85448	26	>100:1			5000.00	4747.12	91	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	187618	21	>100:1	Target = 1.75		4740.00	4637.68		
427 > 81	64	3.248	3.248		103987	21	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	496199	22	>100:1			1000.00	945.72	90.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	2587671	22	>100:1	Target = 2.89		5000.00	5089.01		
413 > 169	53	3.276	3.276		895796	21	>100:1	2.88 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	0	120487	20	>100:1			1000.00	972.90	91.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	0/0	648437	44	>100:1	Target = 3.30	3.69	4640.00	4519.95		M
499 > 99	54	3.657	3.662		187869	37	>100:1	3.45 (1.65-4.95)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.862	3.863	0/0	2136198	17	>100:1			4660.00	4681.60		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	0/0	489347	15	>100:1	Target = 3.08		4800.00	5062.28		
549 > 99	54	4.005	4.006		171885	16		2.84 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/0	459674	15	>100:1	Target = 2.72		4820.00	4875.35		
599 > 99	54	4.318	4.318		170917	21	>100:1	2.68 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.473	4.483	0/0	1911193	17	>100:1			4710.00	4633.15		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	0/0	500904	18	>100:1	Target = 3.27		4840.00	4834.73		
699 > 99	54	4.842	4.842		167070	18		2.99 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	628859	21	>100:1			1000.00	982.01	98.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	3388713	21	>100:1	Target = 6.51		5000.00	4999.36		
463 > 169	56	3.662	3.662		510000	21	>100:1	6.64 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	0	275706	18	>100:1			1000.00	1028.53	103.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	0/0	1391997	18	>100:1	Target = 41.63		5000.00	4798.45		
498>478	55	3.895	3.896		44410	15	>100:1	31.34 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	0	563256	16	>100:1			1000.00	980.16	97.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	0/0	3437405	16	>100:1	Target = 13.80		5000.00	5244.04		
513 > 169	51	4.016	4.016		240497	15	>100:1	14.29 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.005	4.016	0	82313	17	>100:1			5000.00	4762.24	104.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/0	181139	16	>100:1	Target = 1.94		4790.00	4869.46		
527 > 81	65	4.016	4.016		90684	16	>100:1	1.99 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.630	4.631	0/0	202053	16		Target = 3.54		4820.00	4838.53		
627 > 80	65	4.630	4.631		60086	15	>100:1	3.36 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	759801	17	>100:1			5000.00	5028.05	98.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/0	579666	34	>100:1	Target = 1.37	7.05	5000.00	4753.83		
570 > 483	58	4.178	4.178		428300	31	>100:1	1.35 (0.68-2.05)	3.82				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.288	1	86571	14	>100:1			1000.00	959.89	96.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.297	4.298	0/-1	482576	14	>100:1			5000.00	5100.77		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	47311	12	>100:1			1000.00	1005.74	105.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	242613	13	>100:1	Target = 1.11		5000.00	4731.17		
512 > 219	57	4.318	4.318		213499	14	>100:1	1.13 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	0	654701	16	>100:1			5000.00	5055.09	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.347	4.348	0/0	609105	29	>100:1	Target = 1.51	6.24	5000.00	4770.81		
584 > 526	60	4.347	4.348		429723	31	>100:1	1.41 (0.75-2.26)	3.48				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	567315	16				1000.00	941.99	89.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	2841498	16	>100:1	Target = 14.52		5000.00	5169.10		
563 > 169	52	4.338	4.338		188357	15	>100:1	15.08 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	101022	14	>100:1			1000.00	952.35	99.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.464	1/1	536894	16	>100:1			5000.00	5459.41		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	0	42790	12	>100:1			1000.00	995.12	99.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	0/0	253401	13	>100:1	Target = 1.06		5000.00	4994.19		
526 > 219	59	4.482	4.483		249853	16	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.613	4.614	0	568288	16	>100:1			1000.00	946.62	94	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.613	4.622	0/0	3168869	17	>100:1	Target = 10.70		5000.00	5230.56		
613 > 169	38	4.613	4.622		287989	16	>100:1	11.00 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/0	3207682	18	>100:1	Target = 8.31		5000.00	5370.12		
663 > 169	38	4.868	4.877		361012	16	>100:1	8.88 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.099	5.106	0	789132	21	>100:1			1000.00	970.65	94.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.099	5.106	0/0	3501019	22	>100:1	Target = 12.17		5000.00	5082.34		
713 > 169	42	5.099	5.106		283044	22	>100:1	12.36 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.543	5.544	0	844444	20	>100:1			1000.00	972.82	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.543	5.552	0/0	2628973	21	>100:1	Target = 10.43		5000.00	4861.05		
813 > 269	40	5.543	5.552		250370	21	>100:1	10.50 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.001	6.026	-1/-1	3827486	42	>100:1	Target = 13.67		5000.00	4978.71		
913 > 319	40	5.997	6.026		274691	43	>100:1	13.93 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	0	646194	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	655717	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	519402	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	554269	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	122600	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
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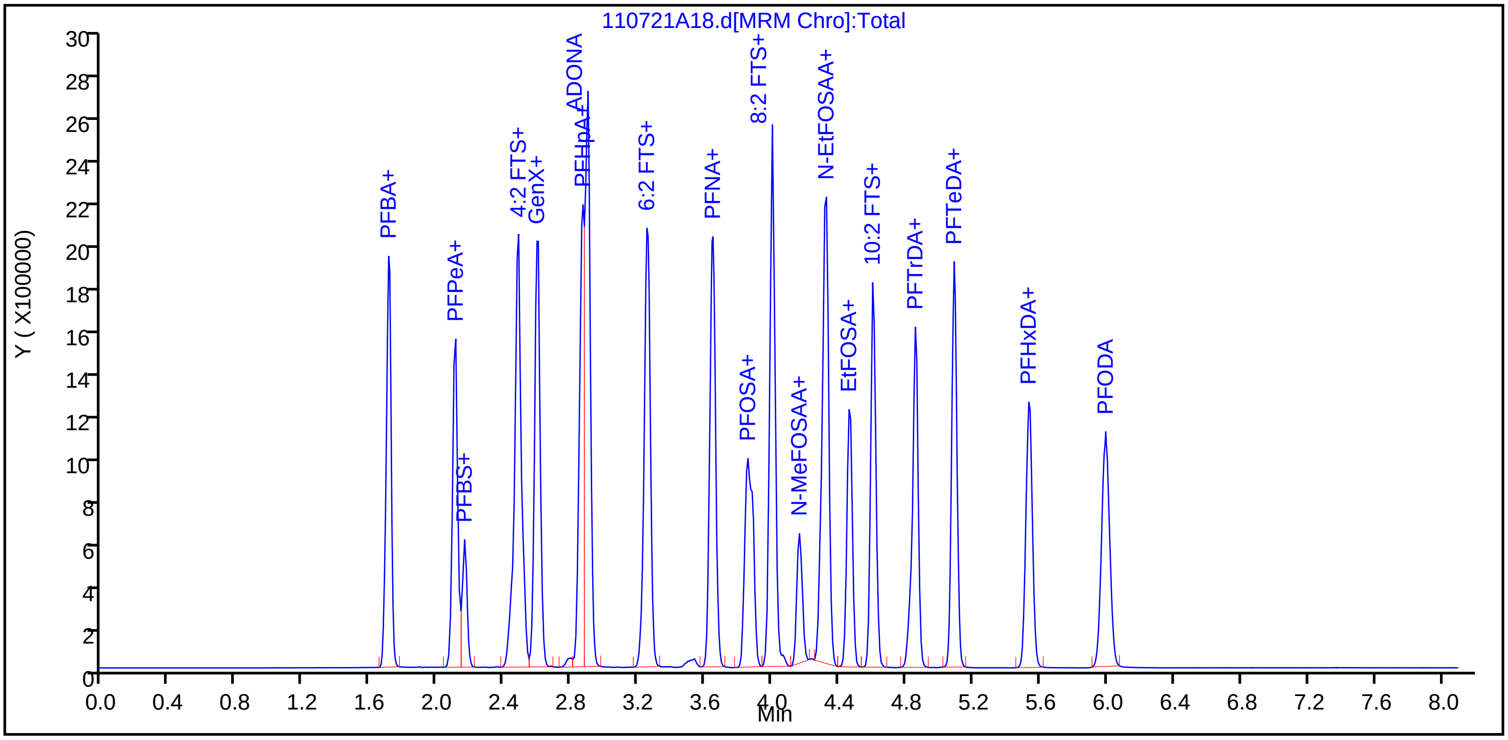
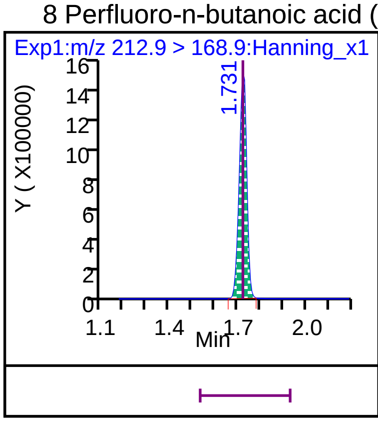
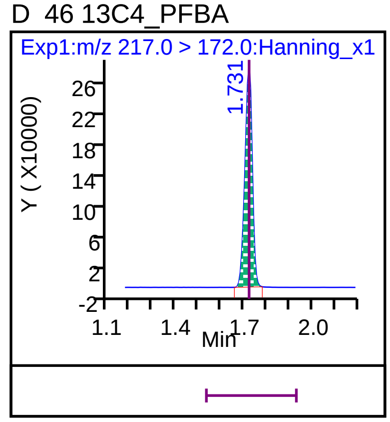
Sample Info:	ID ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin



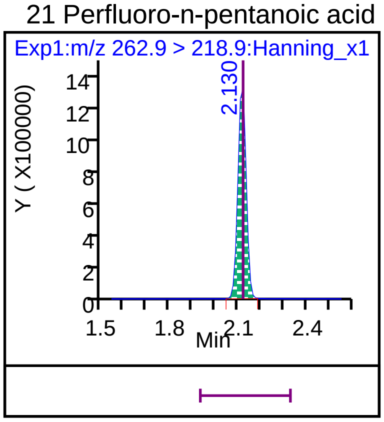
8 Perfluoro-n-butanoic acid (PFBA)



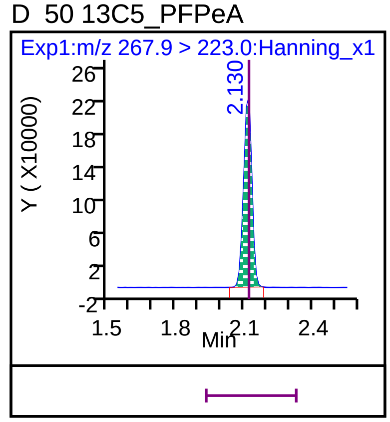
D 46 13C4_PFBA



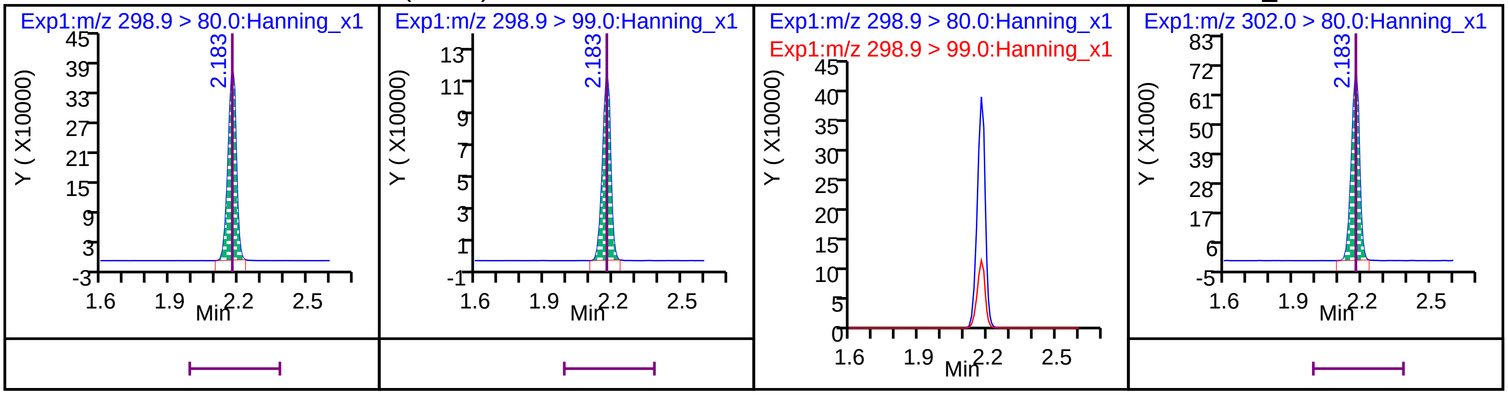
21 Perfluoro-n-pentanoic acid (PFPeA)



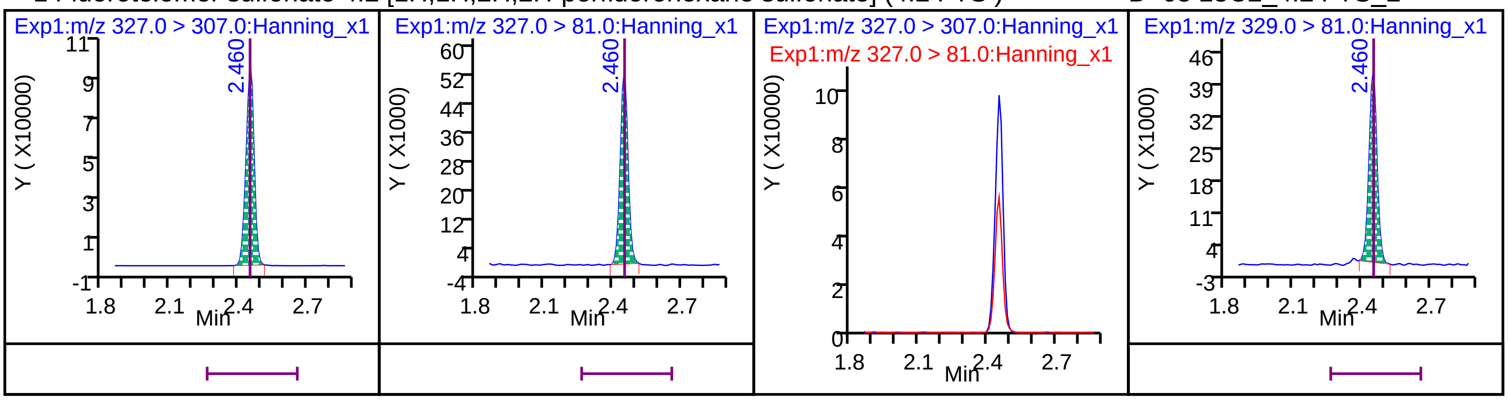
D 50 13C5_PFPeA



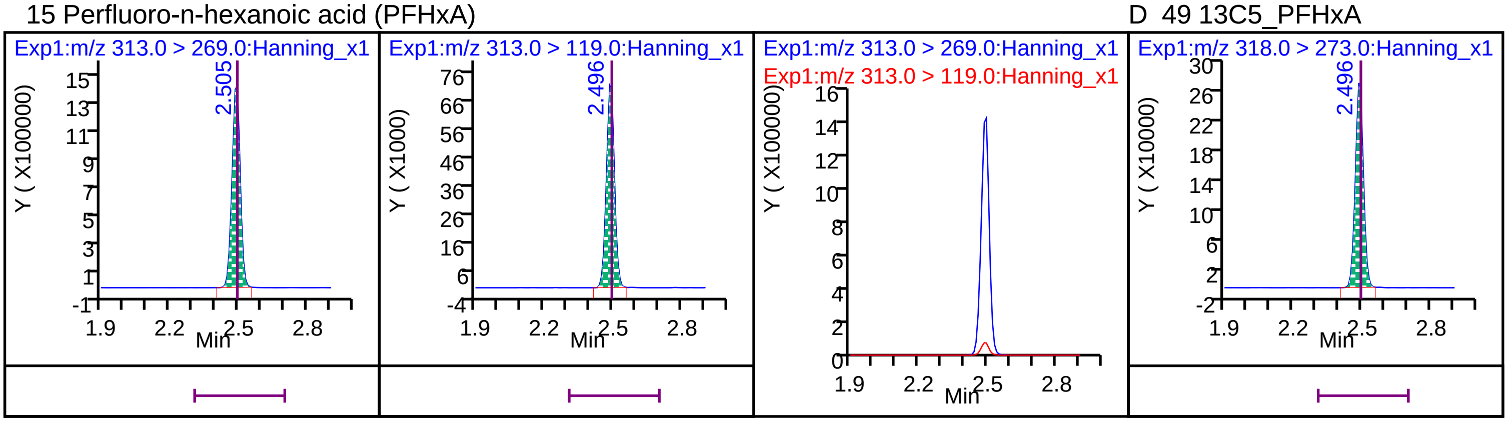
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



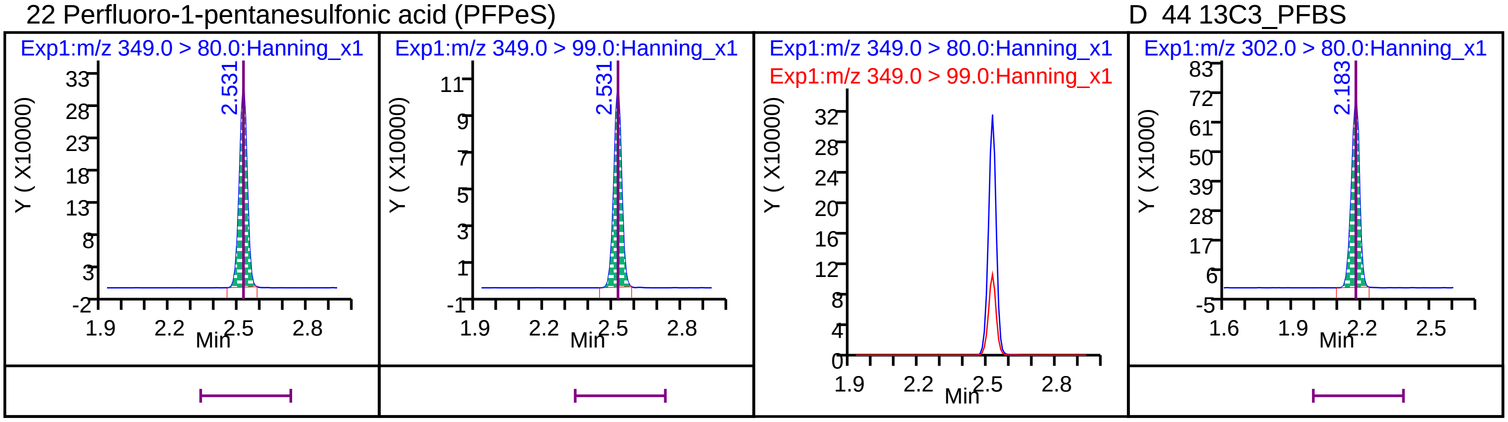
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



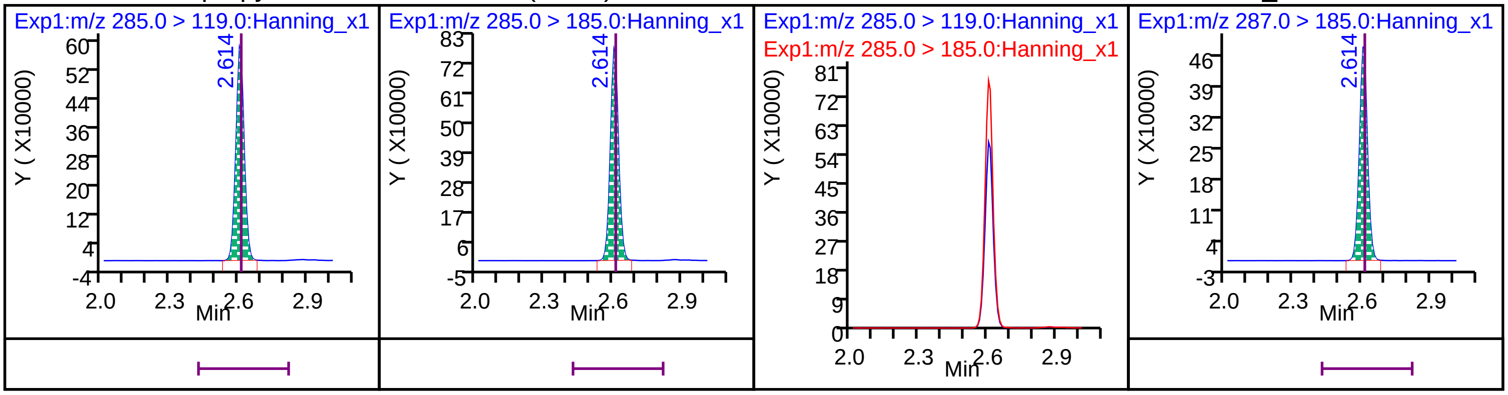
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



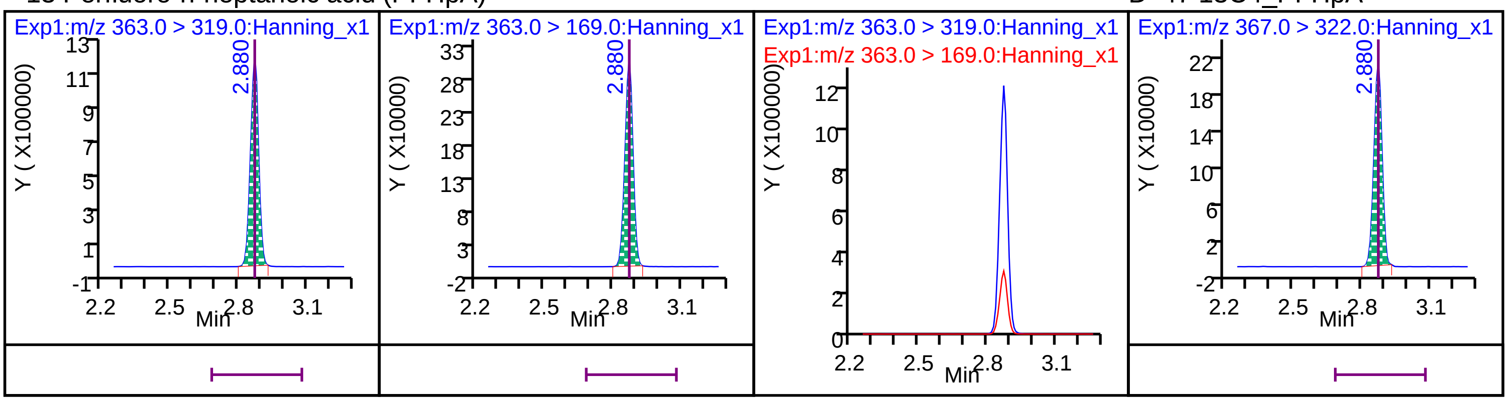
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



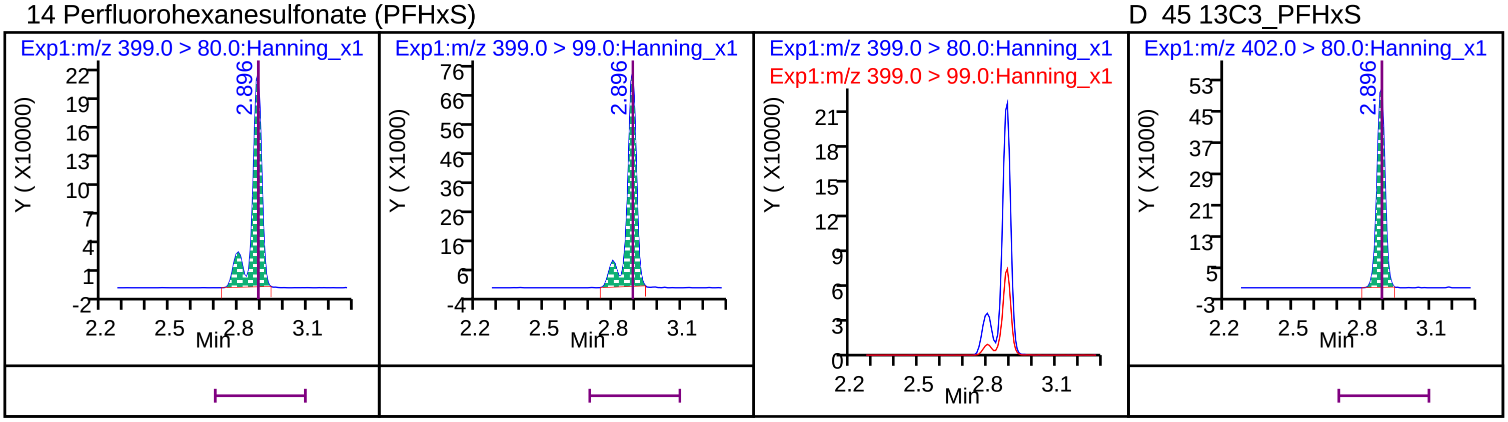
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



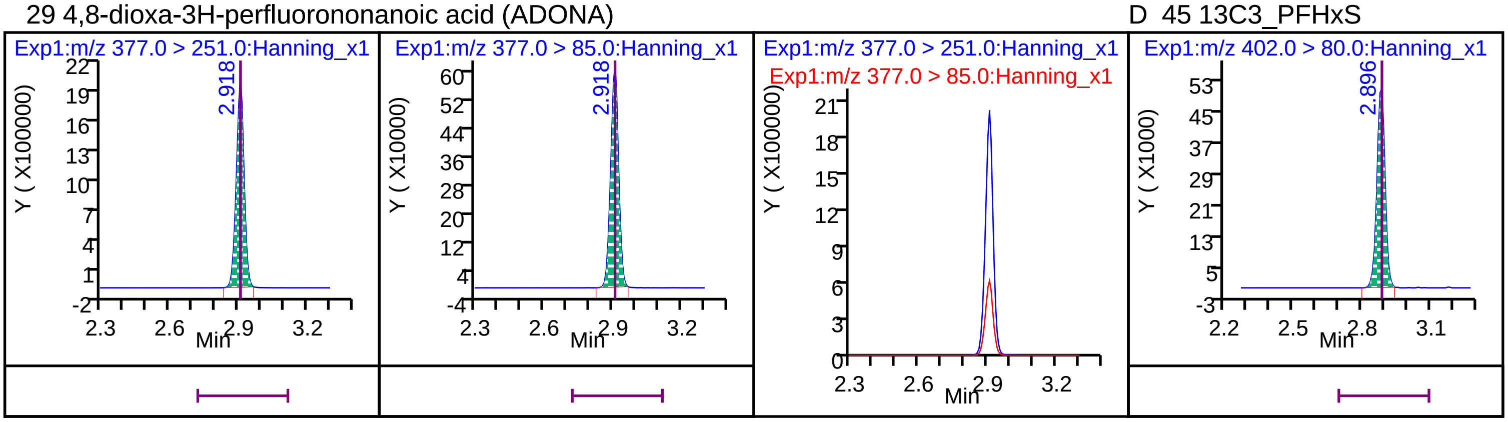
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

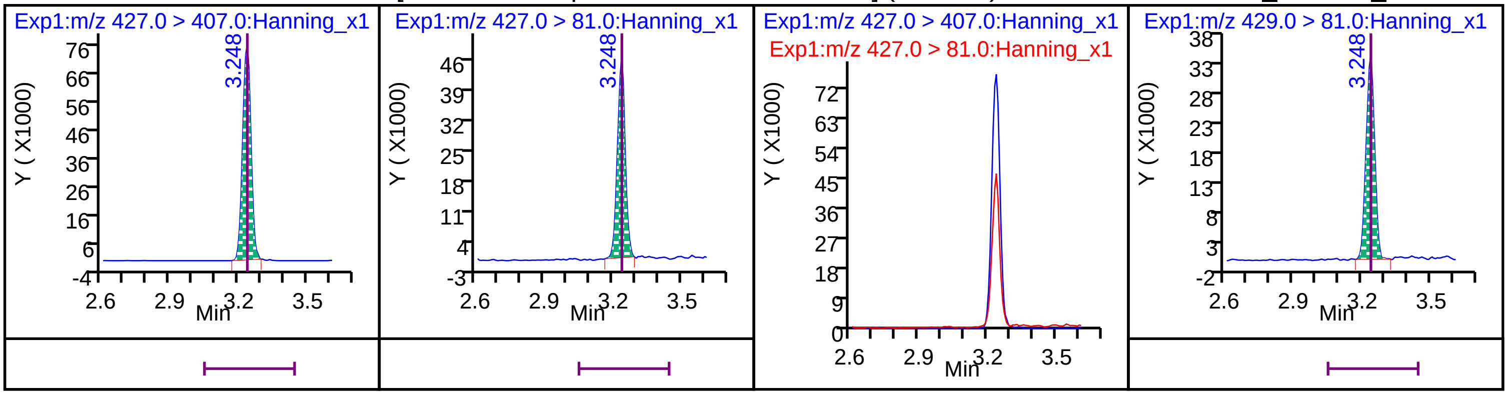


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

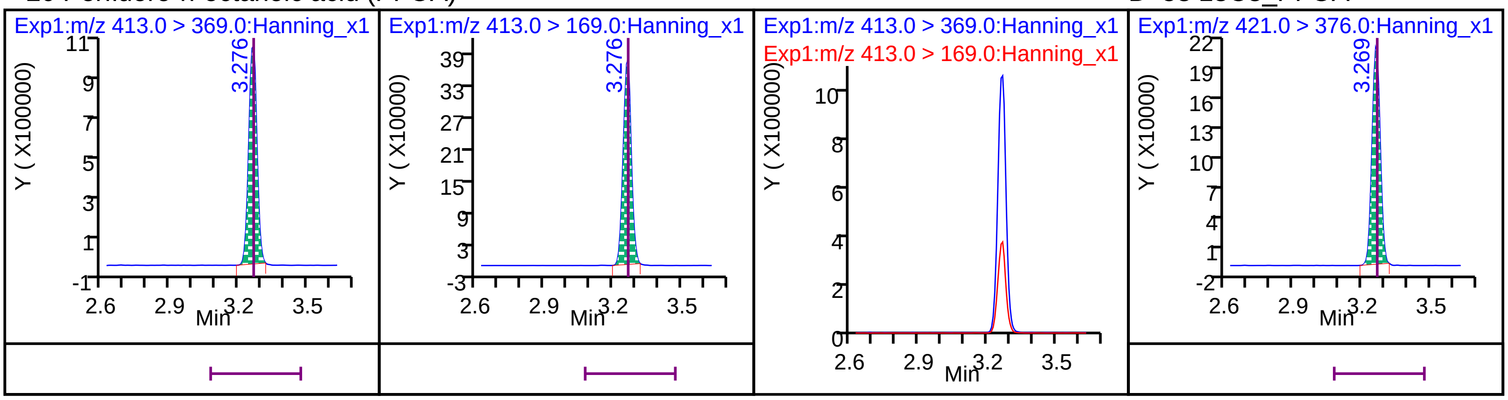


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d

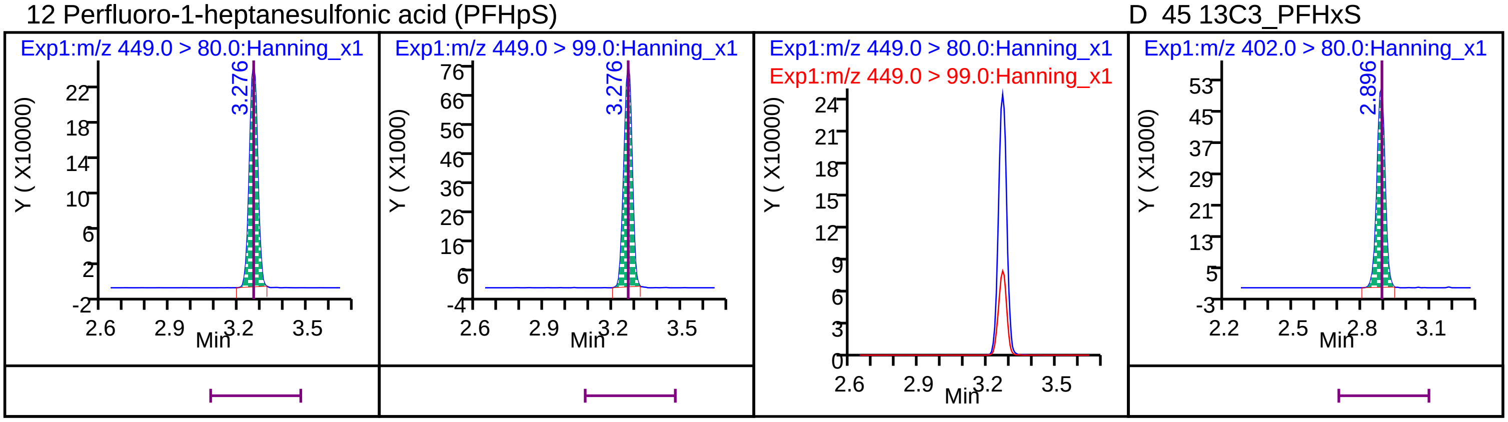
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



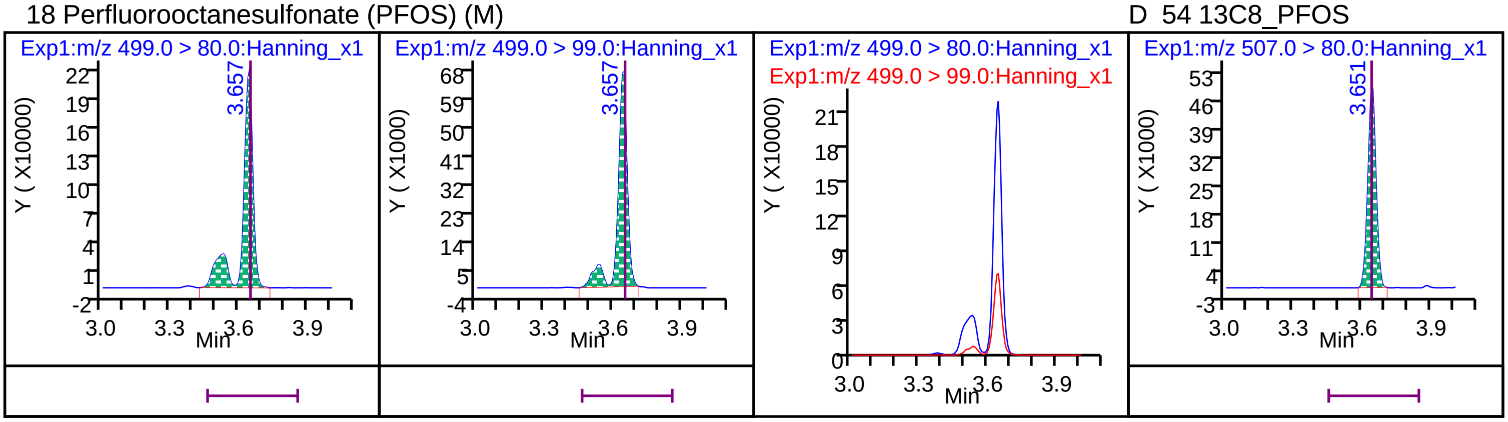
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



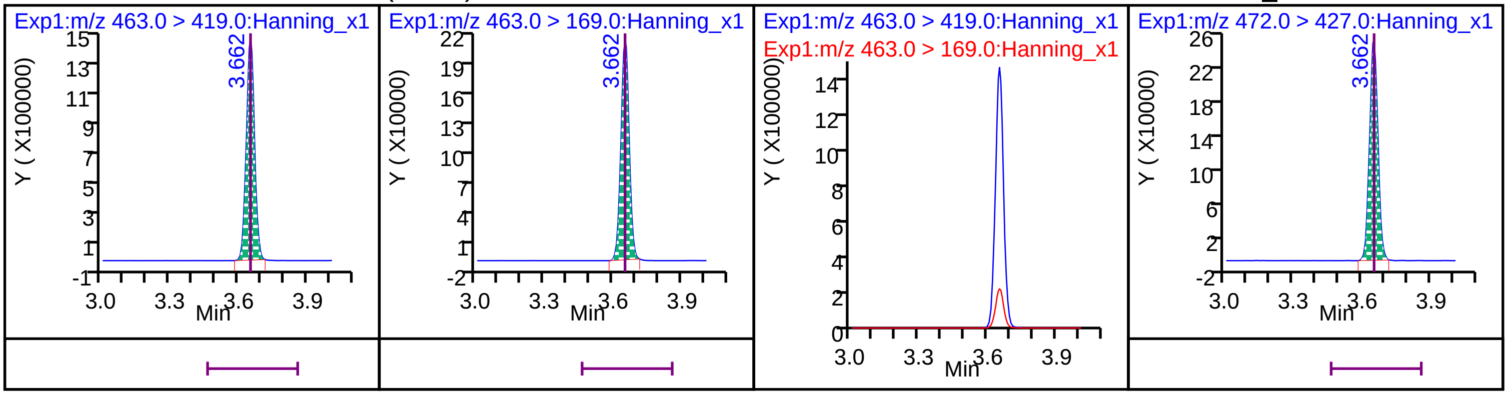
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



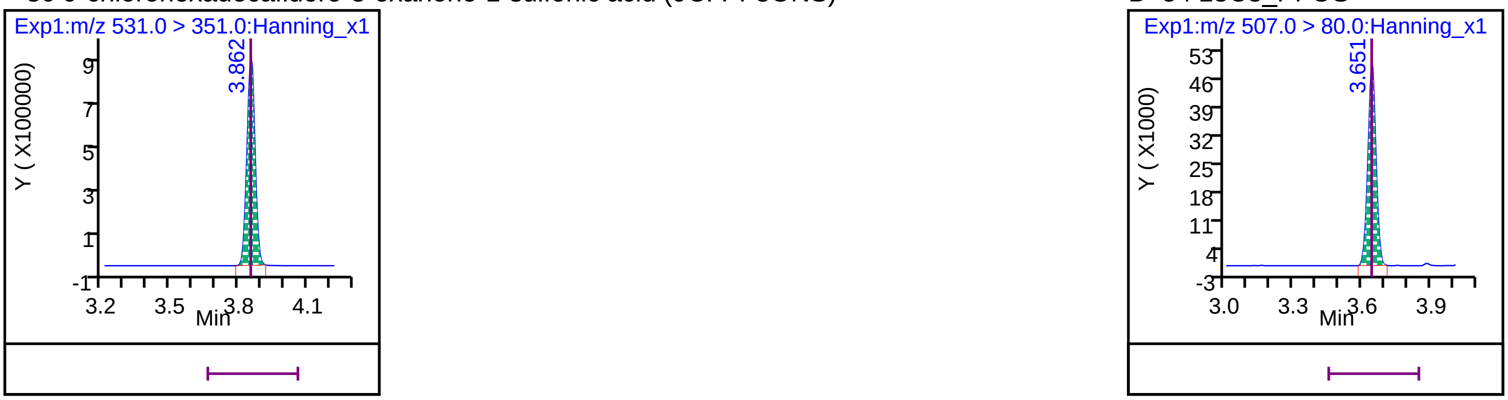
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



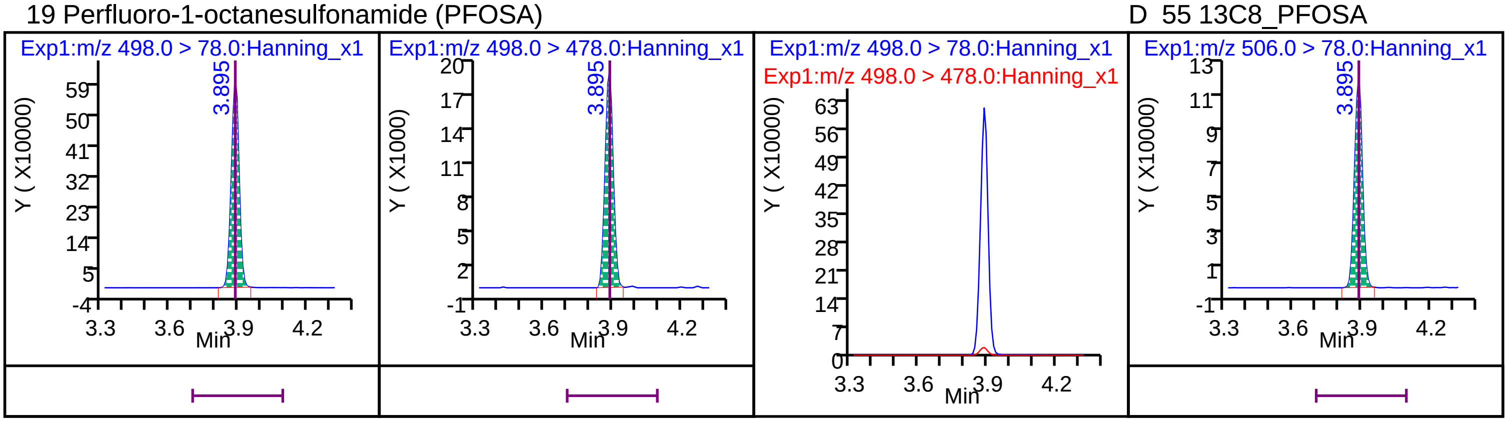
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



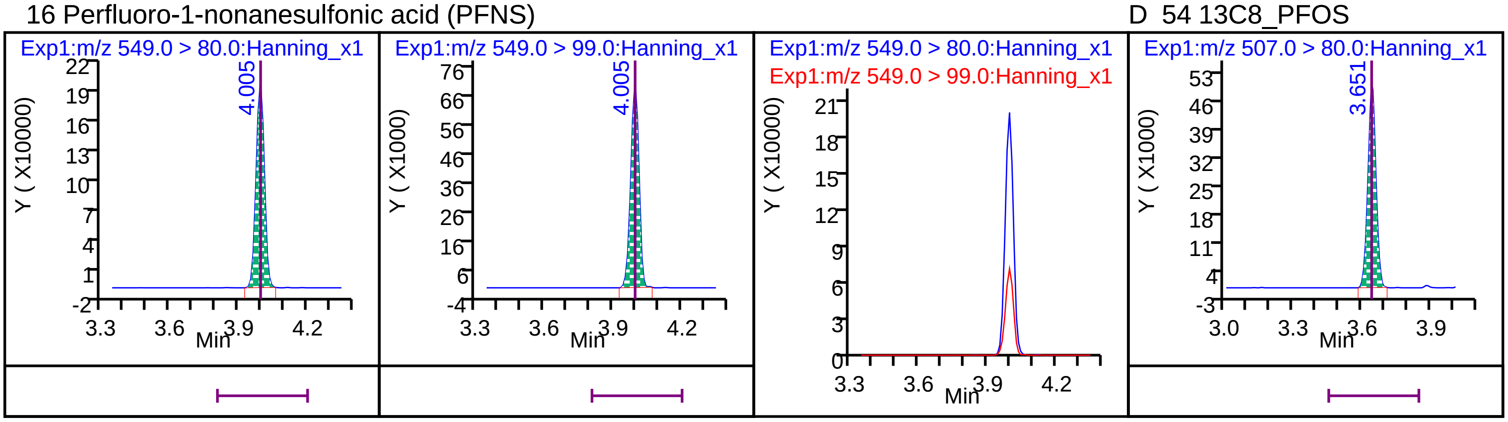
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



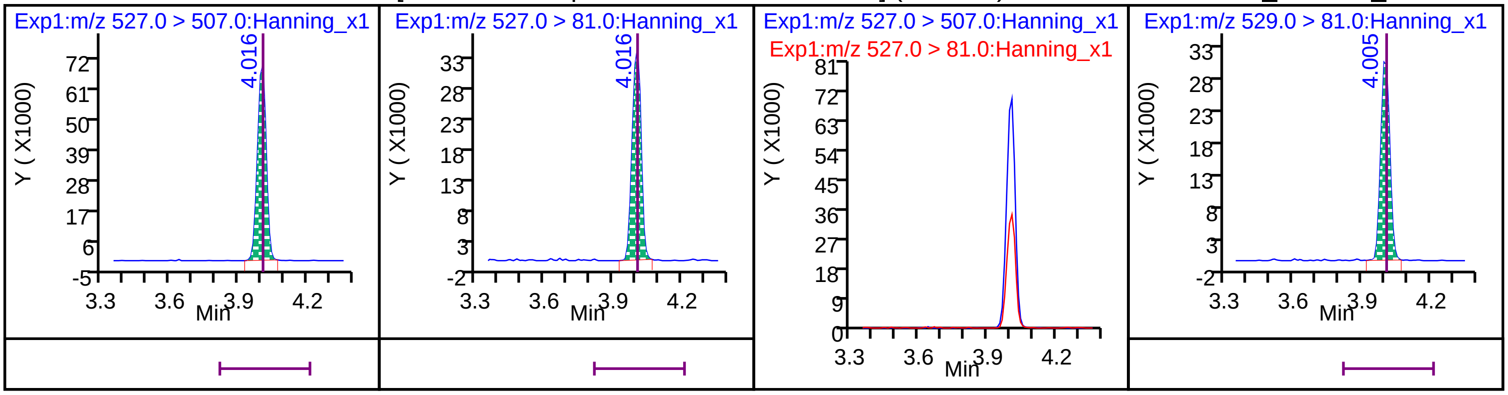
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



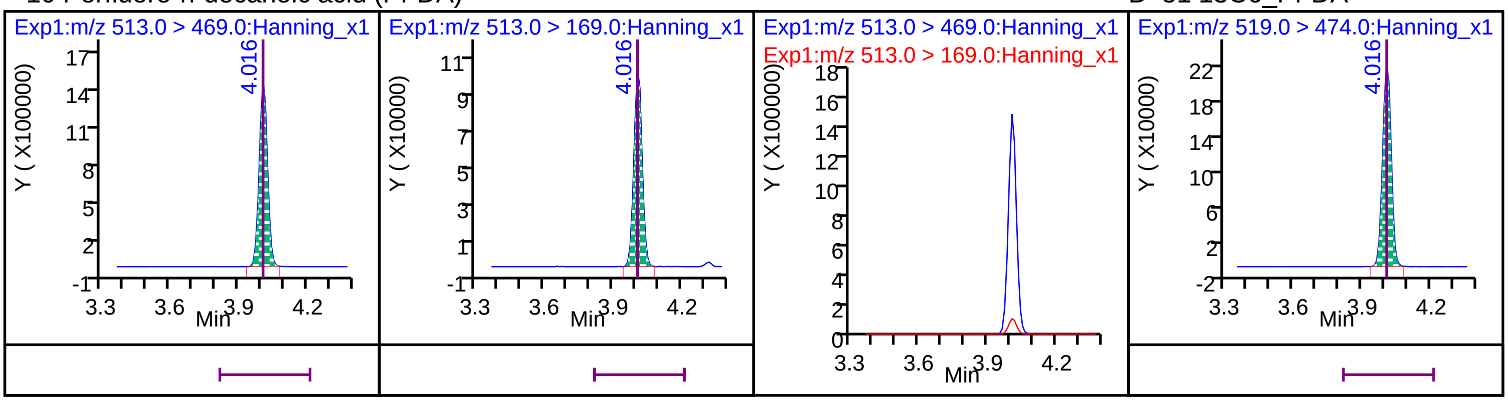
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



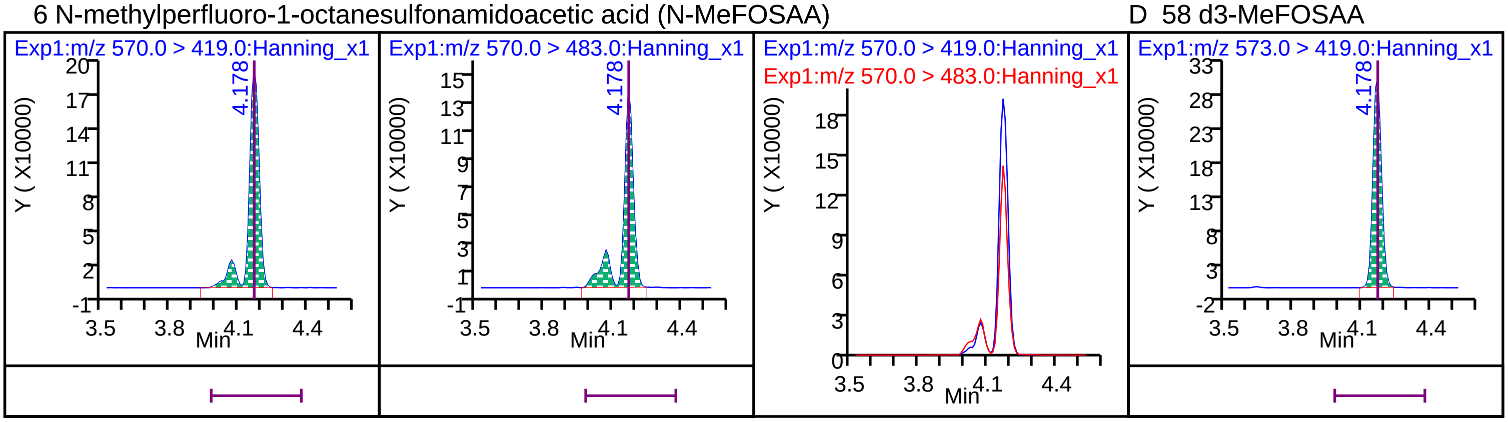
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



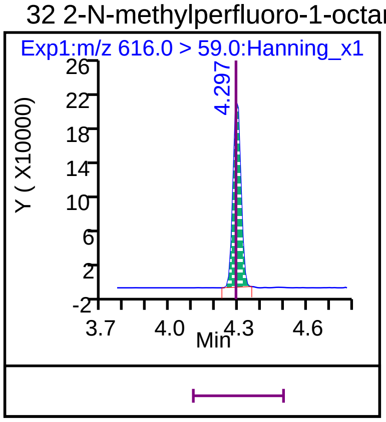
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

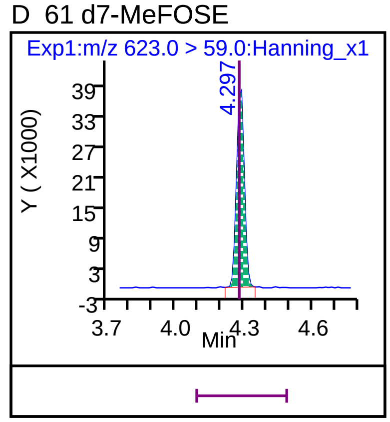


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





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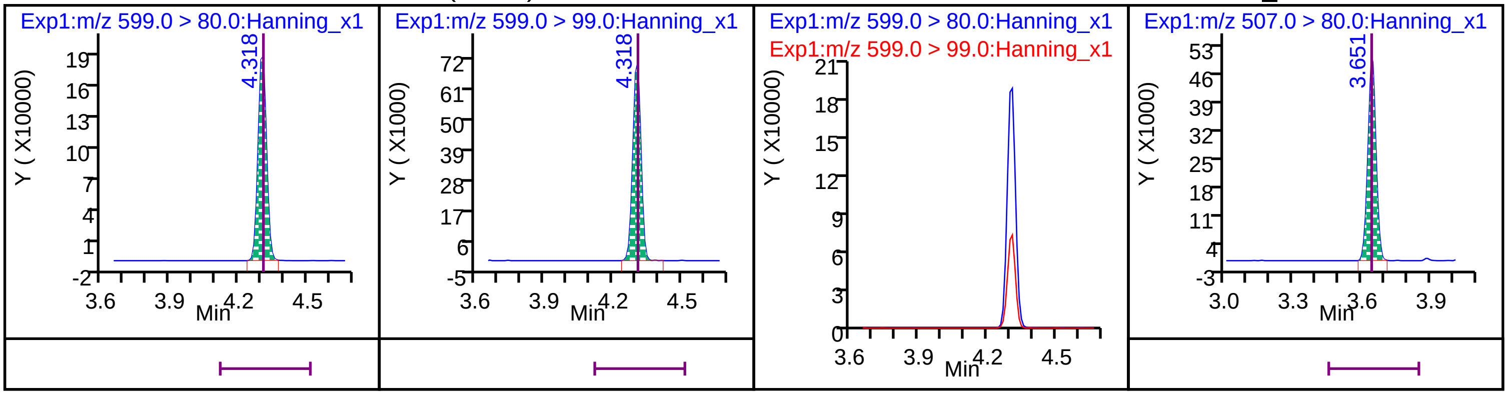
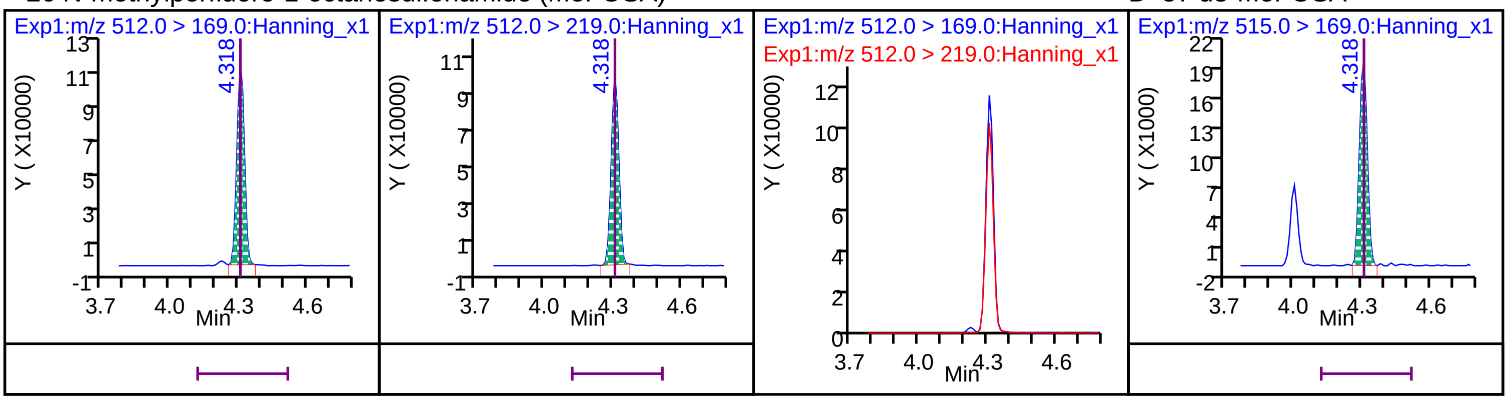
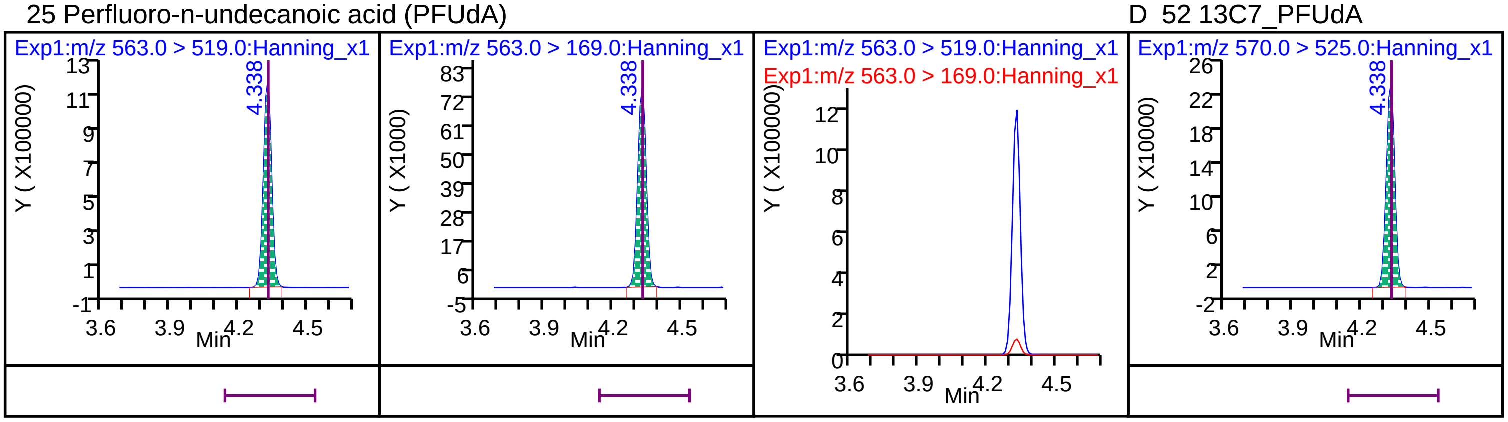
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



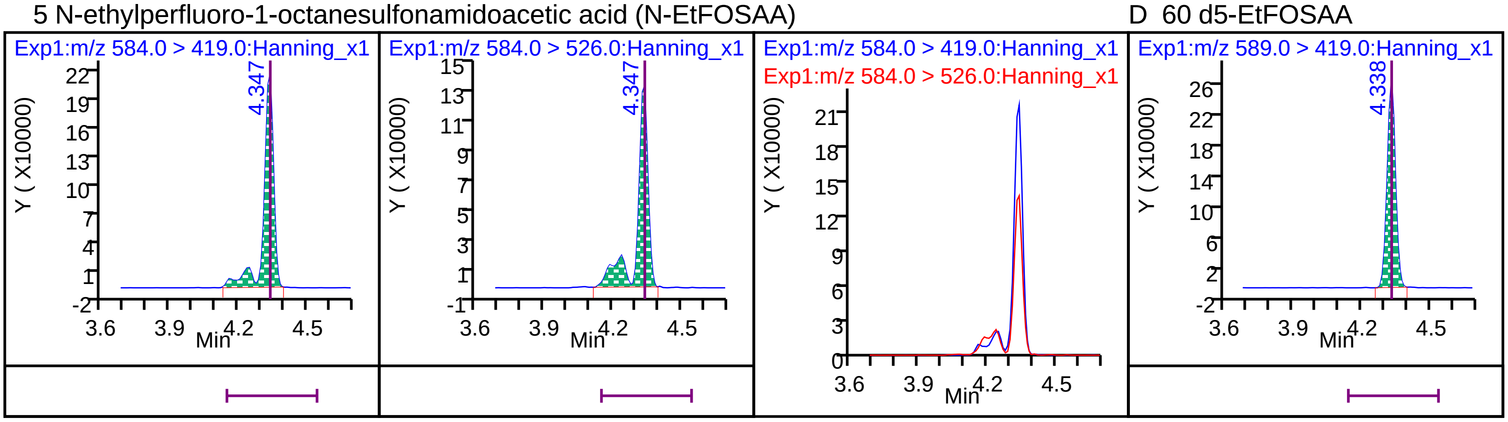
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



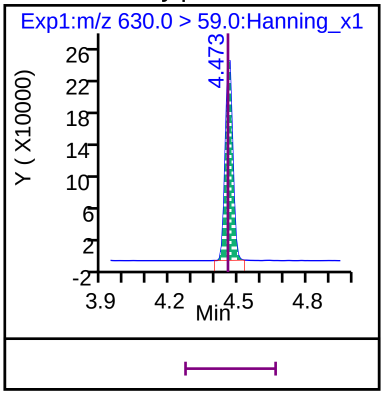
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



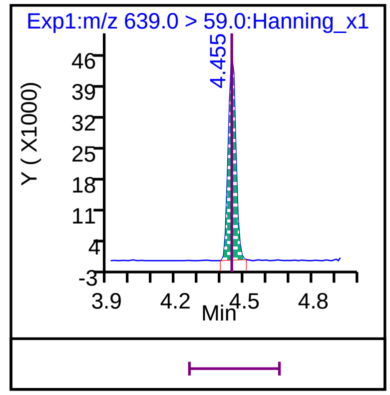
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



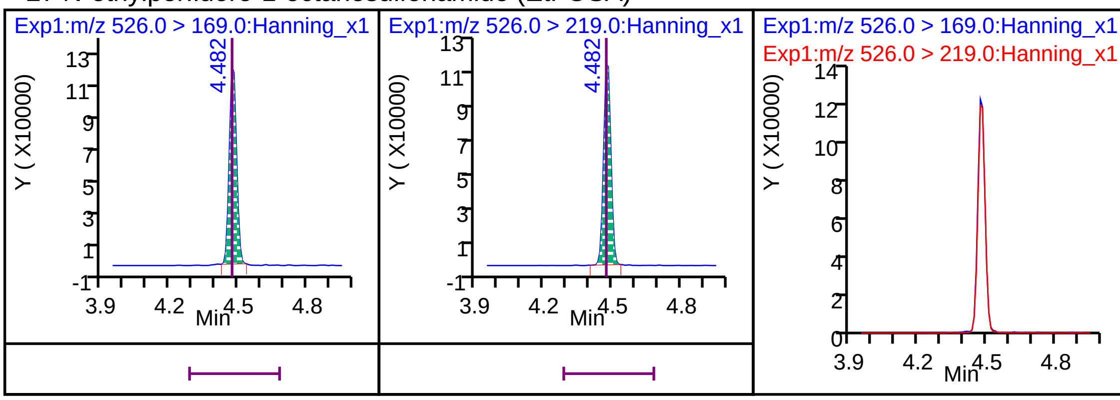
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



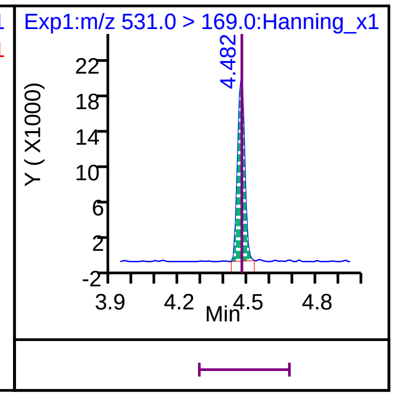
D 62 d9-EtFOSE



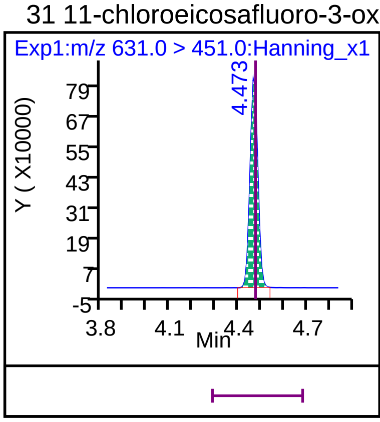
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



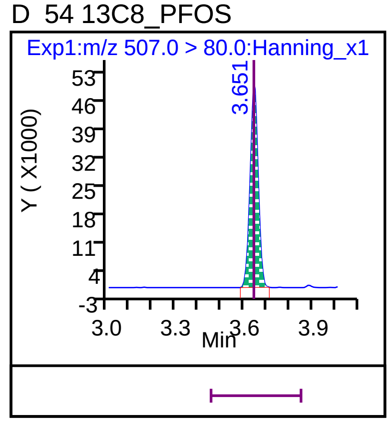
D 59 d5-EtFOSA



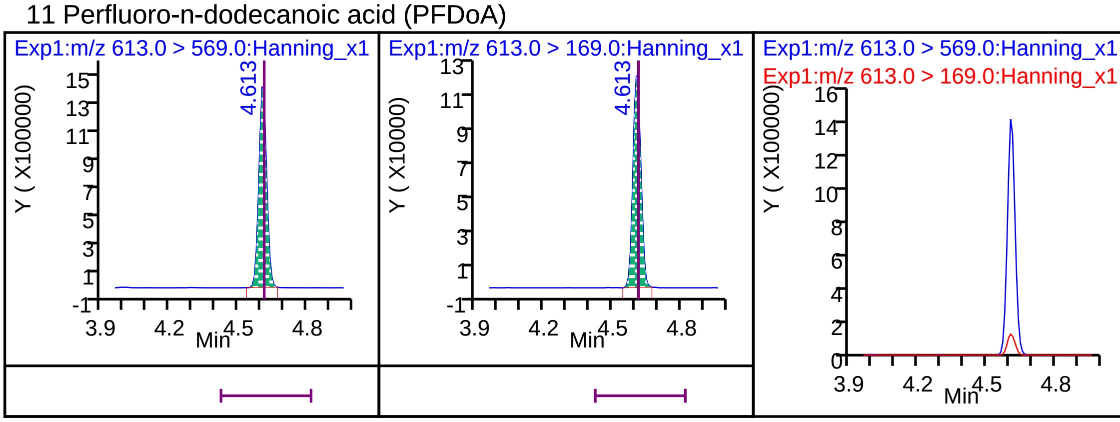
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



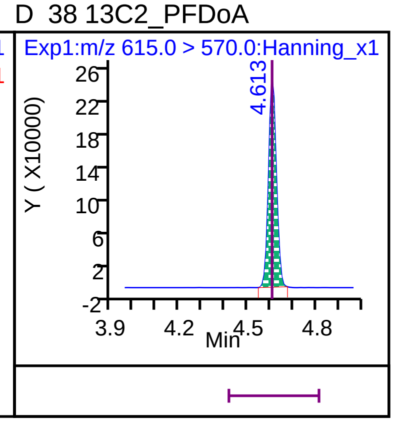
D 54 13C8_PFOS



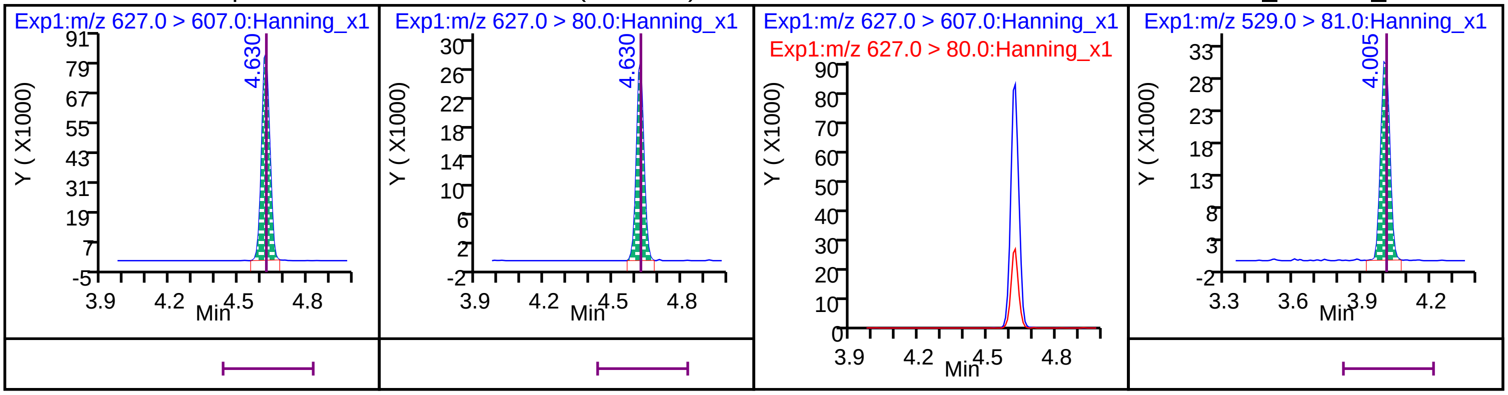
11 Perfluoro-n-dodecanoic acid (PFDoA)



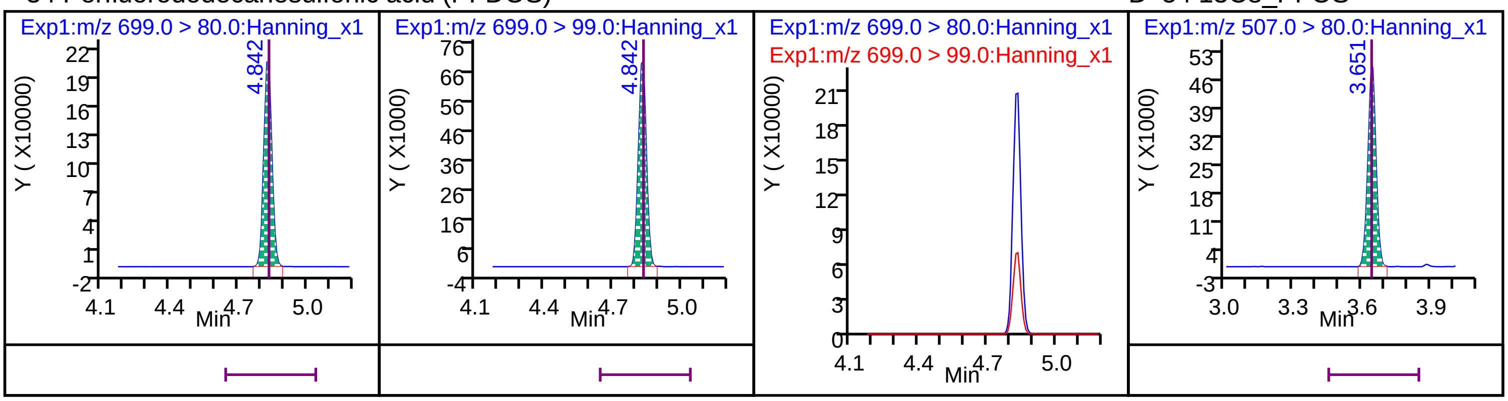
D 38 13C2_PFDoA



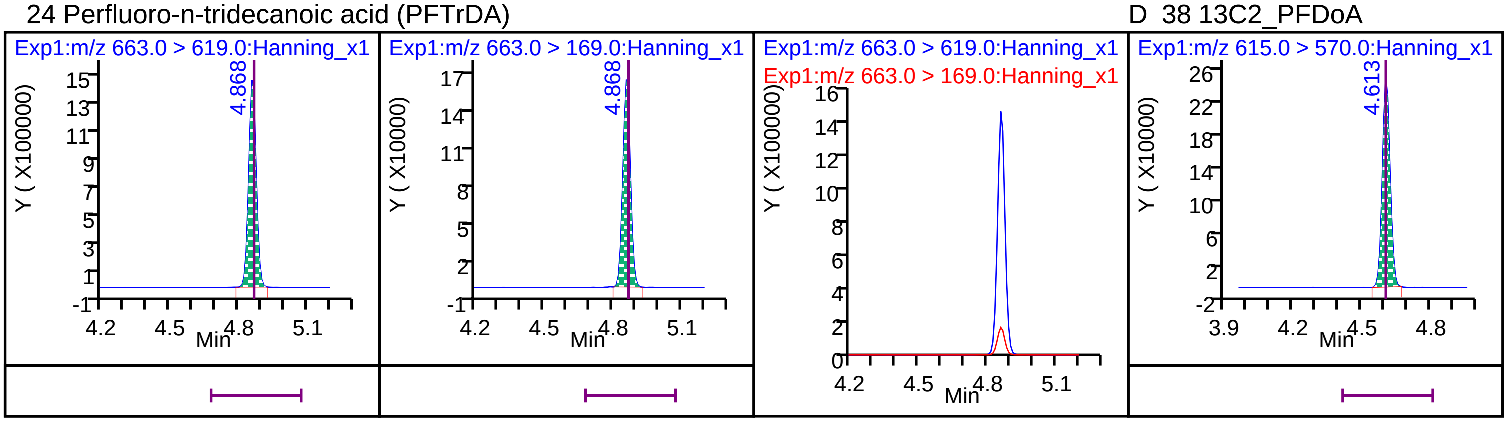
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



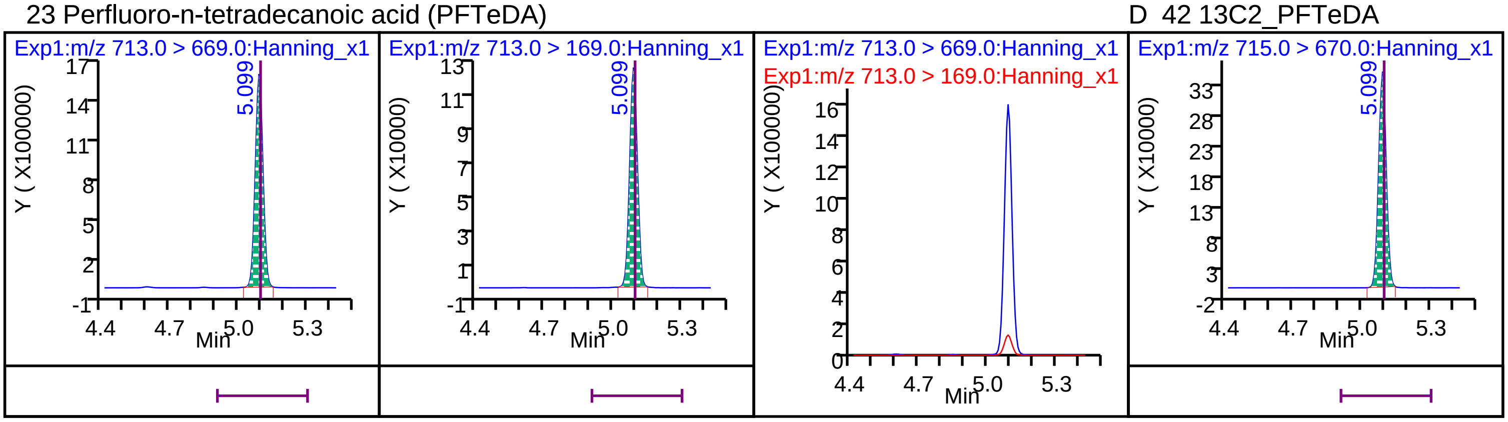
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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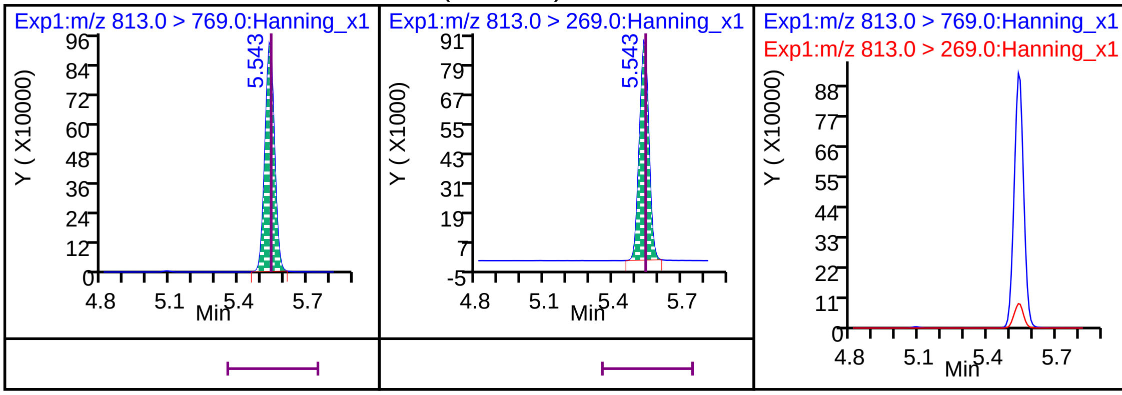
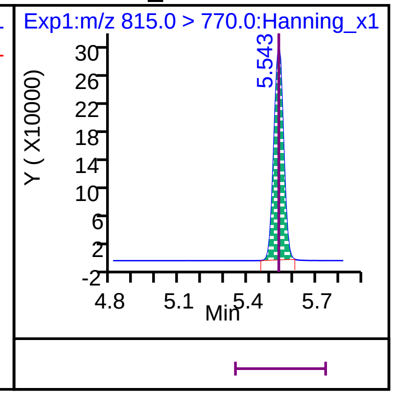
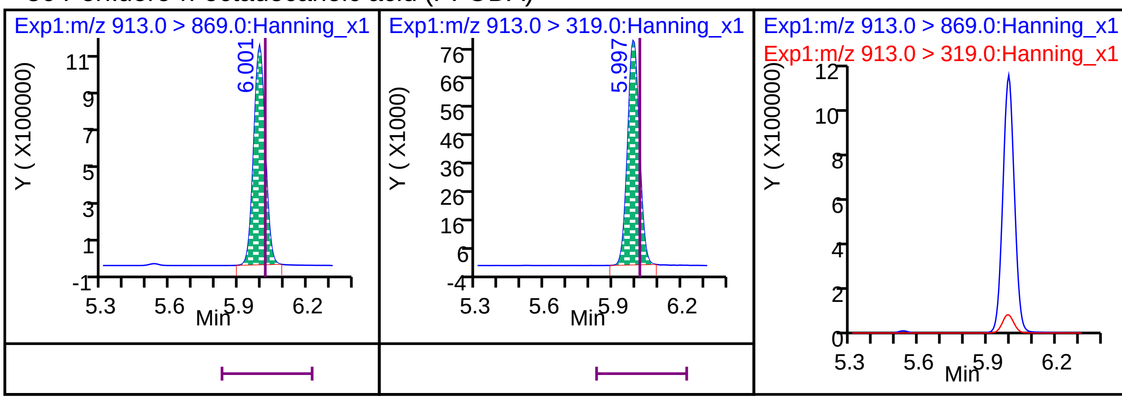
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



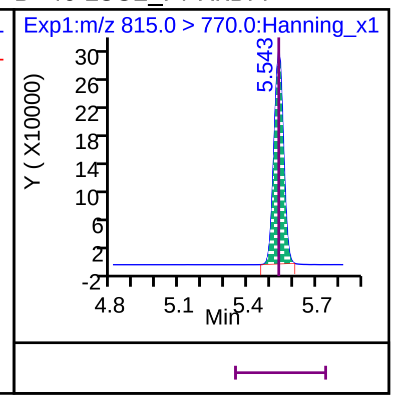
D 40 13C2_PFHxDA



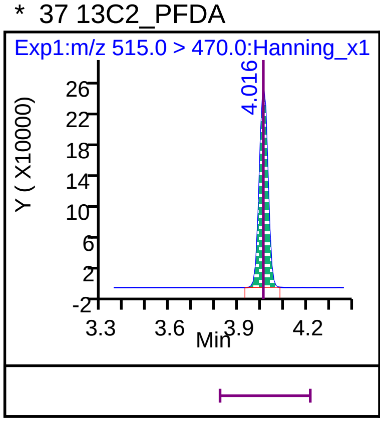
36 Perfluoro-n-octadecanoic acid (PFODA)



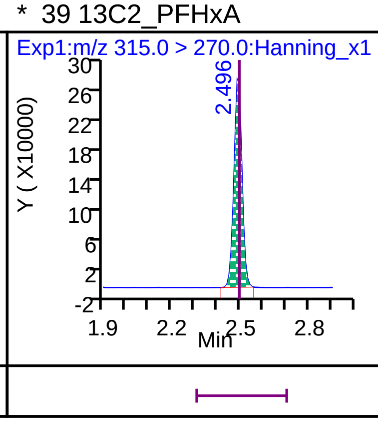
D 40 13C2_PFHxDA



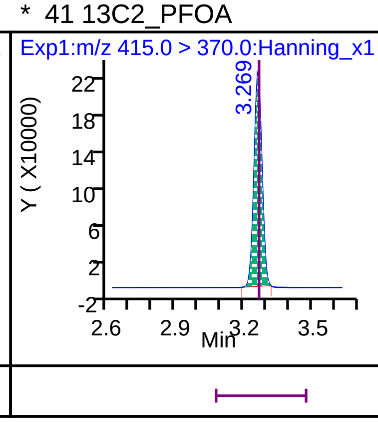
* 37 13C2_PFDA



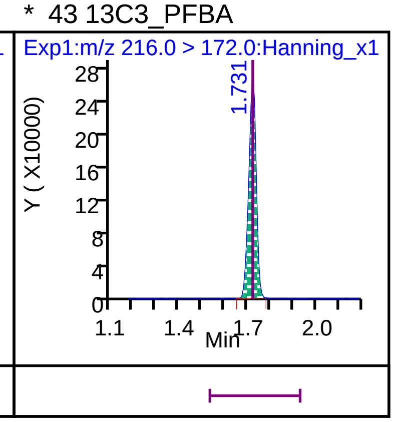
* 39 13C2_PFHxA



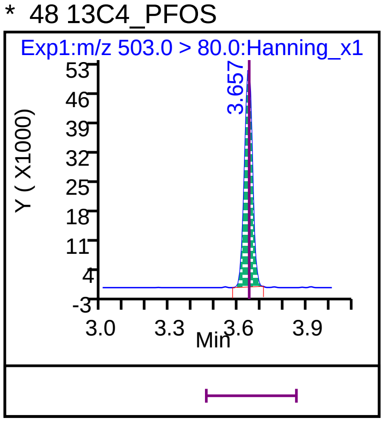
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

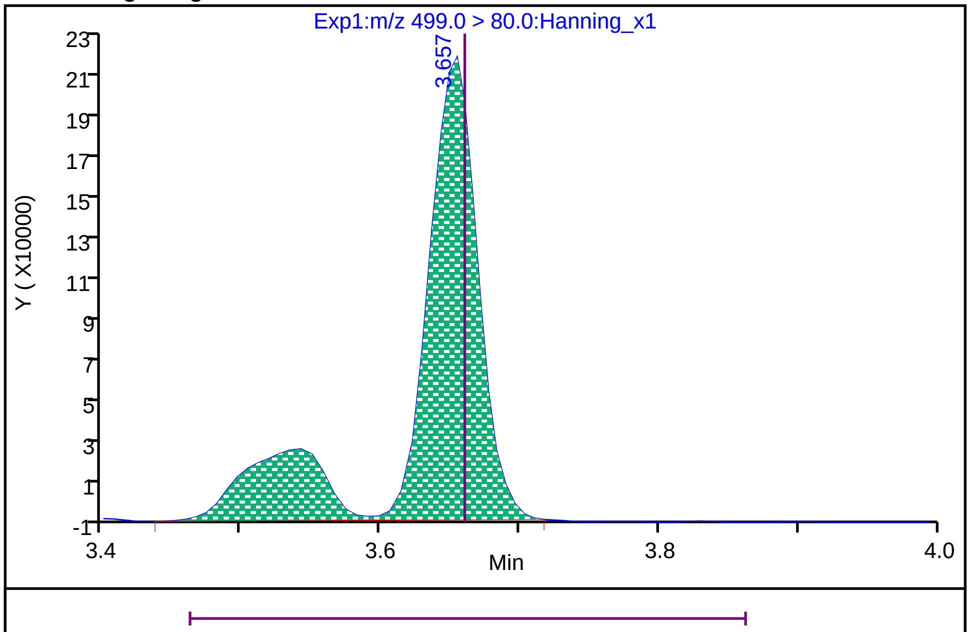
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 5000_SVLC-1746
Sample Info:	ID ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin

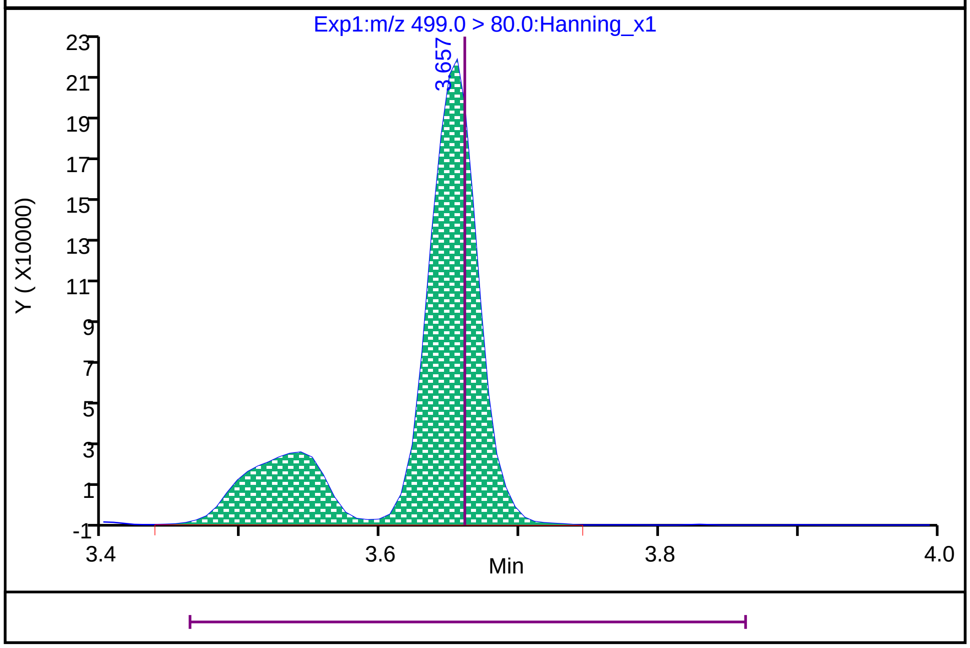
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.657
Area:	637895
Amount:	4460.48
Amount Units:	ng/L



RT:	3.657
Area:	648437
Amount:	4519.95
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:27

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	82
Sample Info:	ID ICAL 10000_SVLC-1747	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	612919	20	>100:1			1000.00	985.92	96.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	6389427	20	>100:1			10000	9884.56		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.119	2.130	0	574561	14	>100:1			1000.00	1005.19	99	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.119	2.130	0/0	6170232	15	>100:1			10000	9541.58		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	170031	16	>100:1			1000.00	983.01	95.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	1829568	16	>100:1	Target = 3.53		8840.00	8628.65		
298.9 > 99	44	2.183	2.183		519284	16	>100:1	3.52 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/0	1454385	18	>100:1	Target = 3.10		9380.00	9229.52		
349 > 99	44	2.531	2.531		484535	16	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	127713	16	>100:1			5000.00	5640.11	113.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	482122	17	>100:1	Target = 1.75		9340.00	8562.59		
327 > 81	63	2.460	2.460		236058	17	>100:1	2.04 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	645118	17	>100:1			1000.00	990.53	97	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	6492122	18	>100:1	Target = 18.91		10000	9678.66		
313 > 119	49	2.496	2.505		336946	18	>100:1	19.26 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1133936	19	>100:1			5000.00	4892.79	94.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	2964456	19	>100:1	Target = 0.79		20000	20184		
285 > 185	66	2.614	2.622		3754397	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	511577	18	>100:1			1000.00	963.53	96	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	5693105	18	>100:1	Target = 3.80		10000	10128		
363 > 169	47	2.880	2.880		1436859	18	>100:1	3.96 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	123270	17	>100:1			1000.00	981.14	95	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	1221767	27	>100:1	Target = 2.89	5.14	9100.00	9015.30		
399 > 99	45	2.896	2.896		393459	27	>100:1	3.10 (1.44-4.34)	6.96				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	0/0	8891435	19	>100:1	Target = 3.23		9420.00	9300.76		
377 > 85	45	2.918	2.919		2730031	19	>100:1	3.25 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	1164821	23	>100:1	Target = 3.12		9520.00	9200.34		
449 > 99	45	3.276	3.276		384601	23	>100:1	3.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	82709	20	>100:1			5000.00	4594.95	88	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	387289	20		Target = 1.75		9480.00	9890.33		
427 > 81	64	3.248	3.248		214804	20	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	501858	21	>100:1			1000.00	956.51	91.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	5056901	21	>100:1	Target = 2.89		10000	9832.94		
413 > 169	53	3.276	3.276		1701870	22	>100:1	2.97 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	1	120102	21	>100:1			1000.00	969.79	91	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.662	0/-1	1317144	41	>100:1	Target = 3.30	3.67	9280.00	9210.62		M
499 > 99	54	3.651	3.662		383258	37	>100:1	3.43 (1.65-4.95)	7.66				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/0	4400668	18	>100:1			9320.00	9675.23		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	926406	17	>100:1	Target = 3.08		9600.00	9614.37		
549 > 99	54	4.006	4.006		336636	15	>100:1	2.75 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/-1	875387	15	>100:1	Target = 2.72		9640.00	9314.20		
599 > 99	54	4.308	4.318		327736	15	>100:1	2.67 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/-1	3946384	16	>100:1			9420.00	9597.57		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.834	4.842	0/-1	1010453	19	>100:1	Target = 3.27		9680.00	9784.17		
699 > 99	54	4.834	4.842		334518	18		3.02 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.662	0	622464	23	>100:1			1000.00	972.03	97.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	1/1	6678173	22	>100:1	Target = 6.51		10000	9953.51		
463 > 169	56	3.662	3.662		1014269	21	>100:1	6.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	256938	18	>100:1			1000.00	958.52	96.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/1	2684423	17	>100:1	Target = 41.63		10000	9929.59		
498>478	55	3.896	3.896		81642	17		32.88 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	1	570320	15	>100:1			1000.00	992.45	99	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	1/0	6612786	15	>100:1	Target = 13.80		10000	9963.39		
513 > 169	51	4.016	4.016		465257	17	>100:1	14.21 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	4.016	0	86853	16	>100:1			5000.00	5024.91	110.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	1/1	329055	16	>100:1	Target = 1.94		9580.00	8383.41		
527 > 81	65	4.006	4.016		175195	15	>100:1	1.87 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	422944	16		Target = 3.54		9640.00	9598.75		
627 > 80	65	4.631	4.631		121604	16	>100:1	3.47 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	1	733412	16	>100:1			5000.00	4853.42	94.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/0	1180104	31	>100:1	Target = 1.37	7.91	10000	10026		
570 > 483	58	4.178	4.178		855310	30	>100:1	1.37 (0.68-2.05)	4.25				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	86191	13				1000.00	955.67	95.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	980014	14	>100:1			10000	10404		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	42391	14	>100:1			1000.00	901.15	94.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/0	475500	13	>100:1	Target = 1.11		10000	10349		
512 > 219	57	4.318	4.318		445953	14	>100:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	1	609480	15	>100:1			5000.00	4705.93	88.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/0	1172304	30	>100:1	Target = 1.51	5.65	10000	9863.33		
584 > 526	60	4.338	4.348		787771	29	>100:1	1.48 (0.75-2.26)	3.75				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	1	586665	16	>100:1			1000.00	974.12	92.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	1/0	5676476	16	>100:1	Target = 14.52		10000	9985.75		
563 > 169	52	4.338	4.338		373326	15		15.20 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	106365	14	>100:1			1000.00	1002.72	104.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	1020968	15	>100:1			10000	9860.21		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	1	40796	18	>100:1			1000.00	948.75	95.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/0	490697	15	>100:1	Target = 1.06		10000	10157		
526 > 219	59	4.483	4.483		511101	15	>100:1	0.96 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	1	598735	17	>100:1			1000.00	997.33	99.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.622	0/-1	6241011	17	>100:1	Target = 10.70		10000	9777.61		
613 > 169	38	4.614	4.622		578392	17	>100:1	10.79 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/-1	6320725	18	>100:1	Target = 8.31		10000	10044		
663 > 169	38	4.868	4.877		732527	17	>100:1	8.62 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.100	5.106	0	800702	21	>100:1			1000.00	984.89	95.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.100	5.106	0/0	6913870	22	>100:1	Target = 12.17		10000	9891.66		
713 > 169	42	5.100	5.106		554226	21	>100:1	12.47 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.536	5.544	0	880463	21	>100:1			1000.00	1014.32	100.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.536	5.552	0/0	5126962	21	>100:1	Target = 10.43		10000	9092.08		
813 > 269	40	5.536	5.552		502124	21	>100:1	10.21 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.007	6.026	-1/-1	7594218	42	>100:1	Target = 13.67		10000	9474.28		
913 > 319	40	6.002	6.026		545393	44	>100:1	13.92 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	1	625216	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	669175	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	506174	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	565087	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.651	3.657	0	116530	19	>100:1			1000.00			

Compound Type Legend

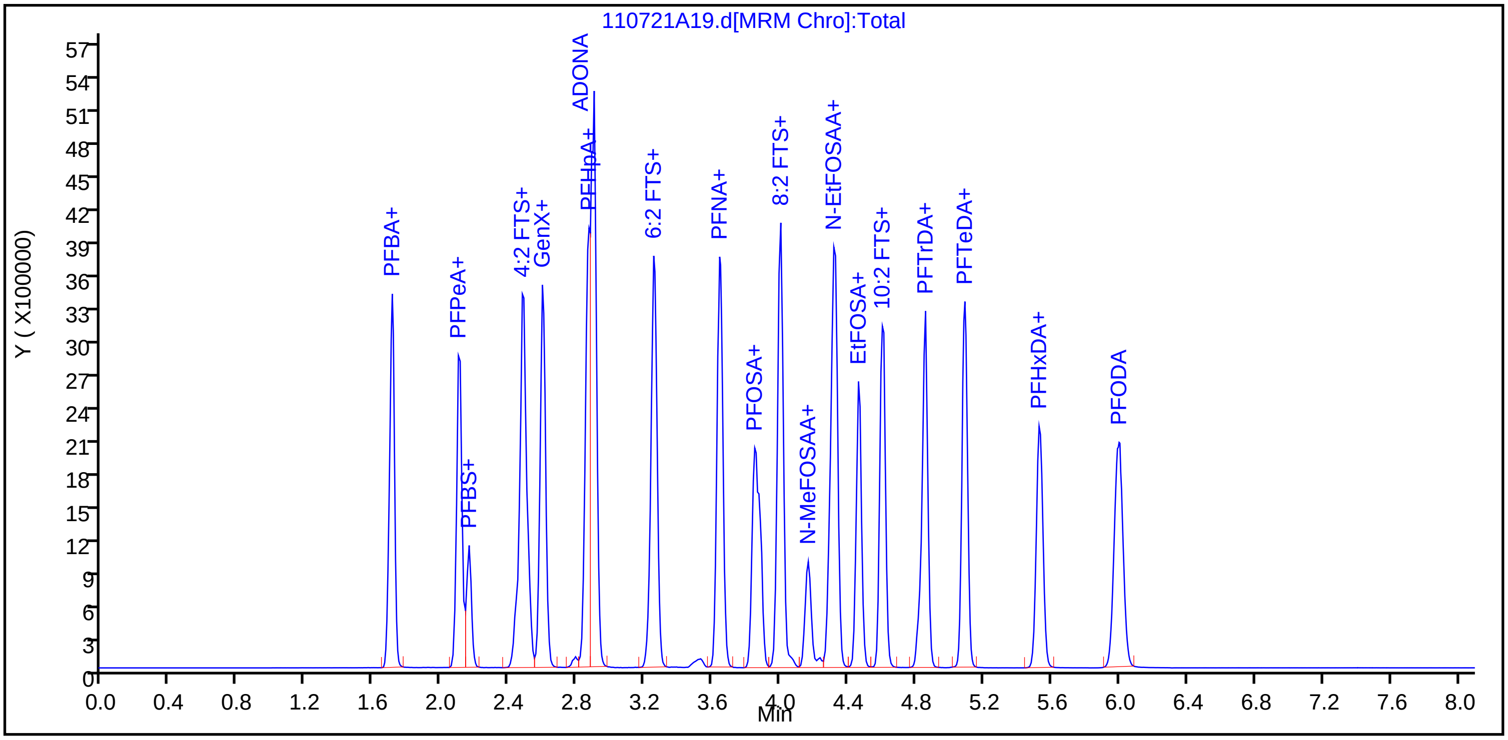
D - Isotopic Dilution Std.

* - ISTD

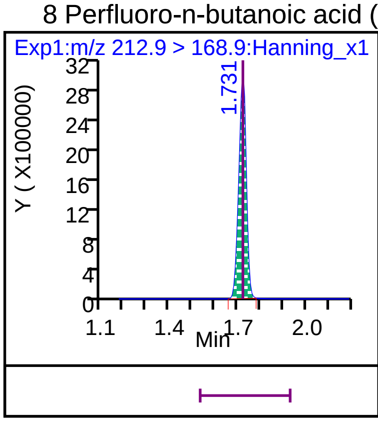
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

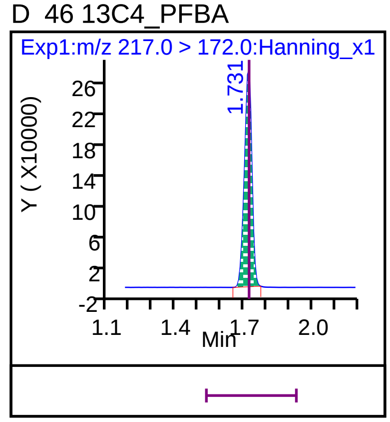
Report Date: 08-Nov-2021 10:00:26		AIM Revision: 2.0.2021.0812	
	Pace Environmental Services, LLC		
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 10000_SVLC-1747
Sample Info:	ID ICAL 10000_SVLC-1747		
Dil. Factor:	1	Operator:	Justin Gavin



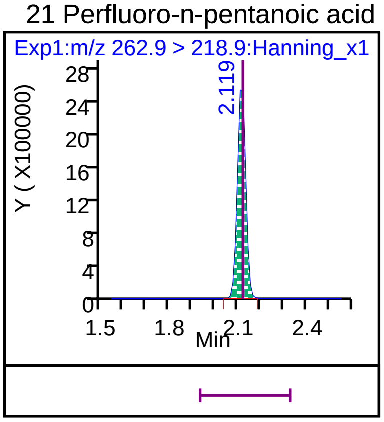
8 Perfluoro-n-butanoic acid (PFBA)



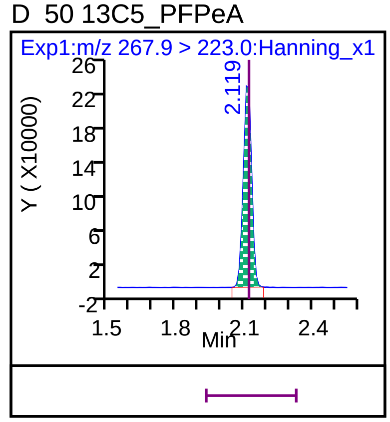
D 46 13C4_PFBA



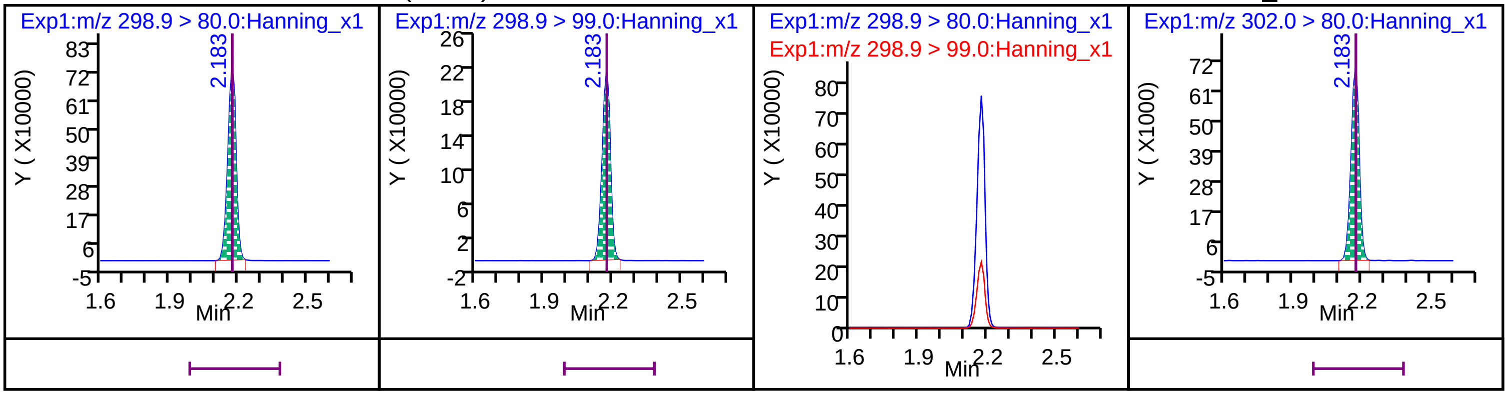
21 Perfluoro-n-pentanoic acid (PFPeA)



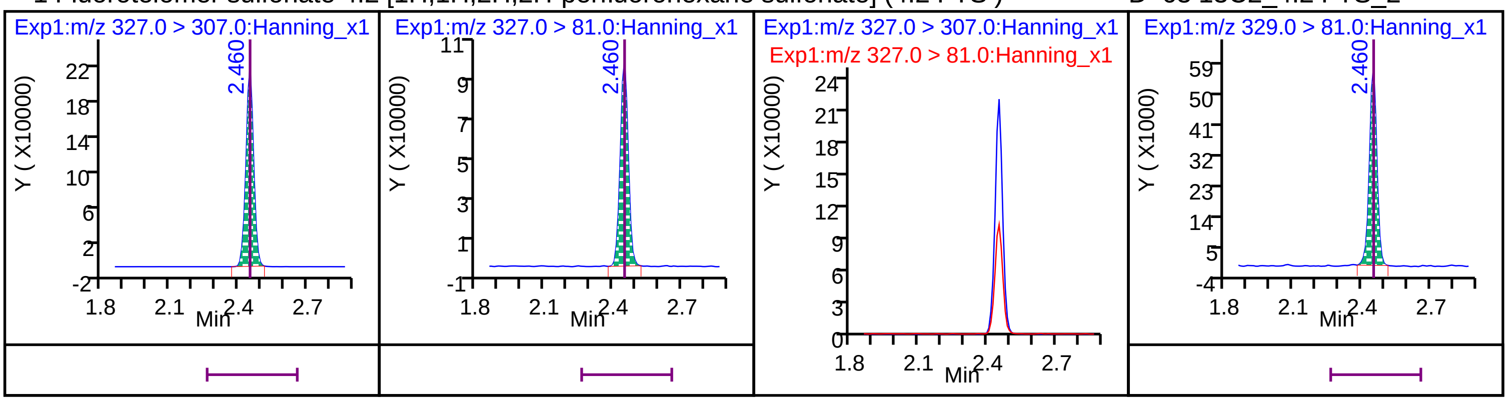
D 50 13C5_PFPeA



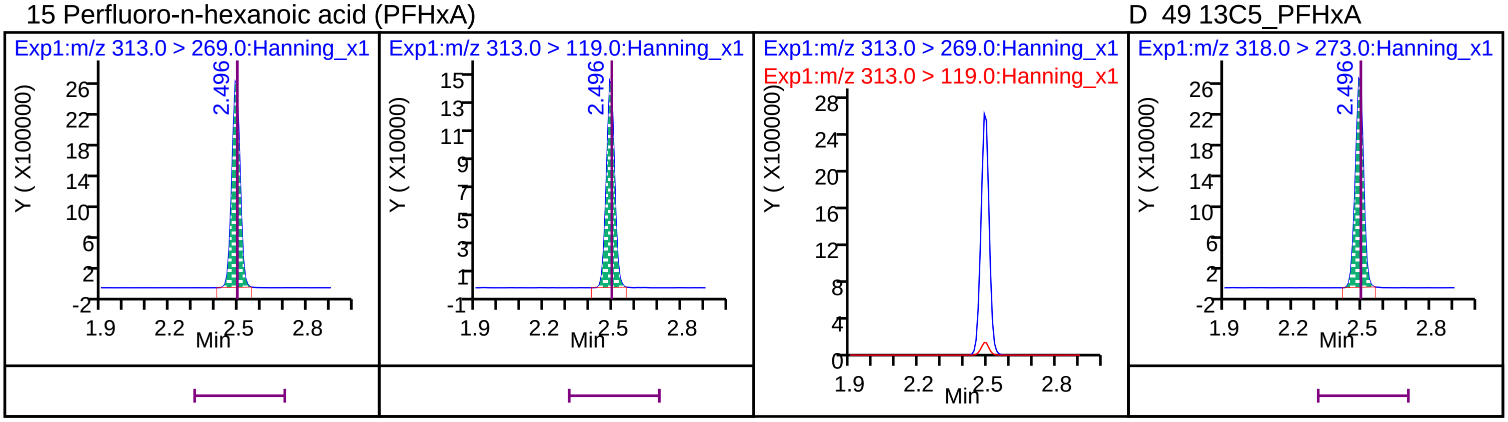
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



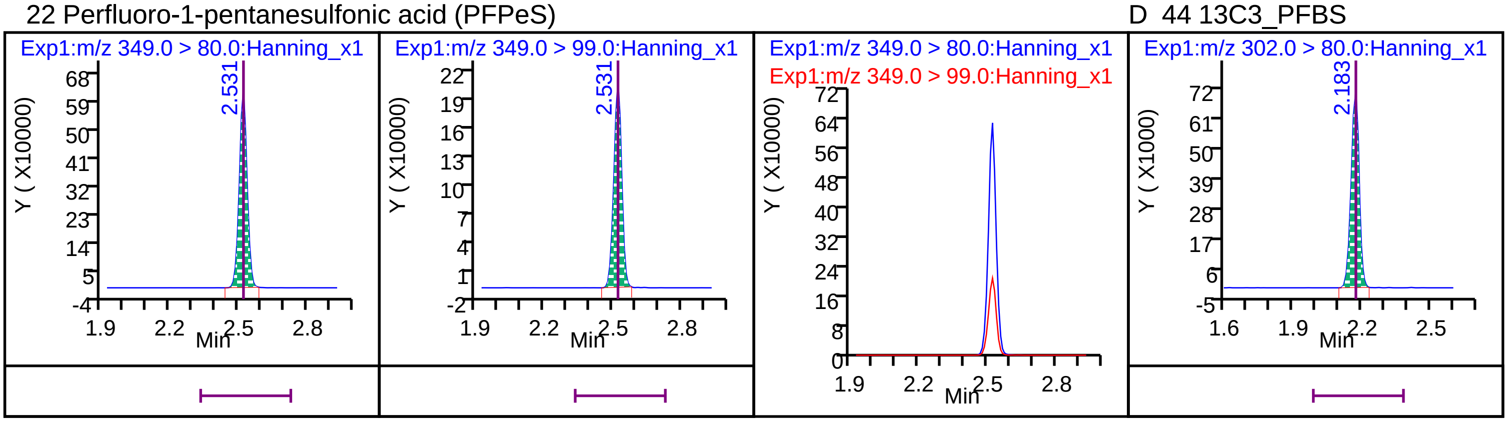
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

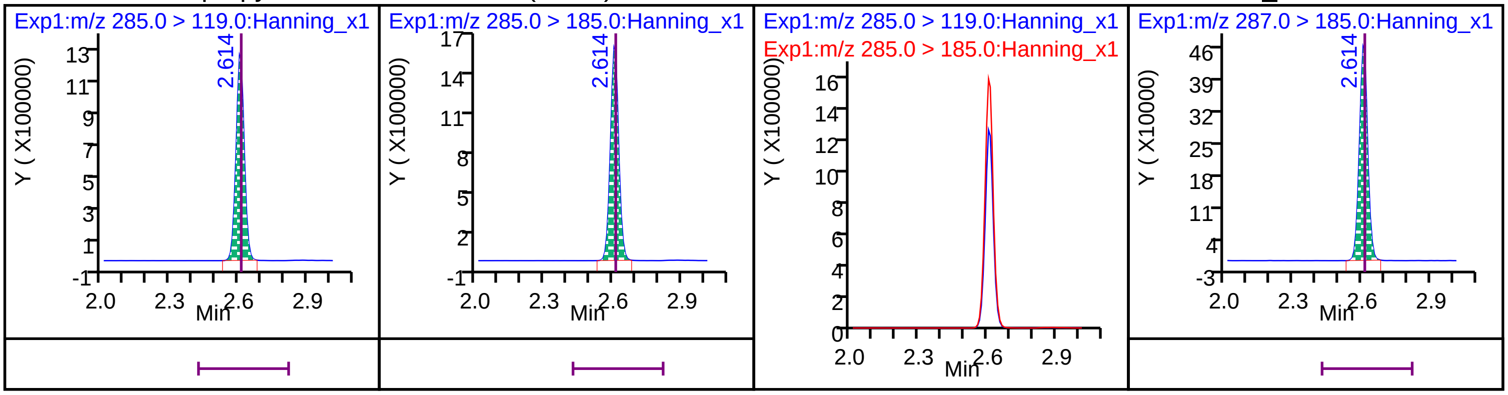


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

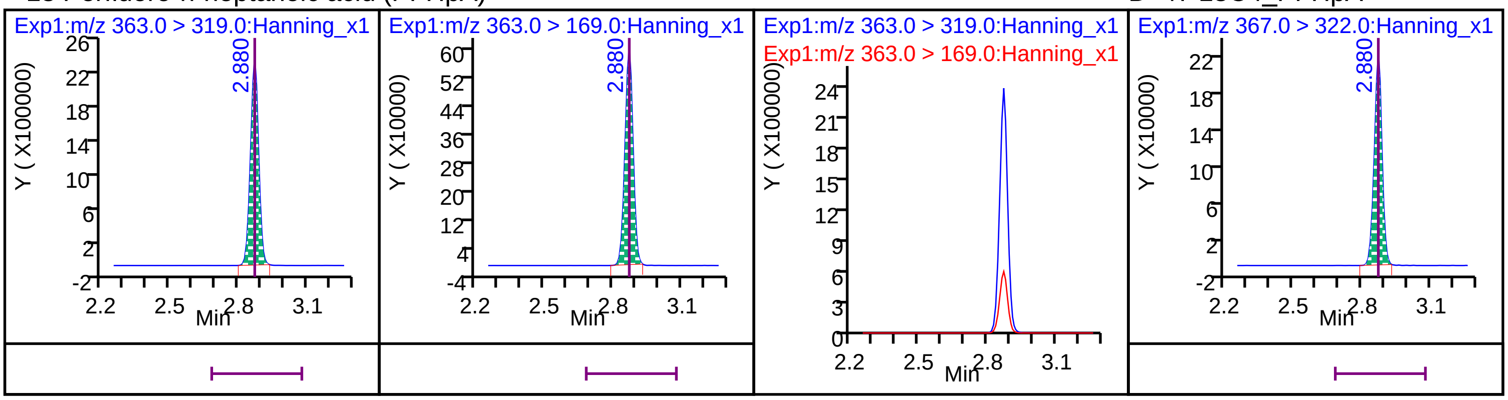


Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

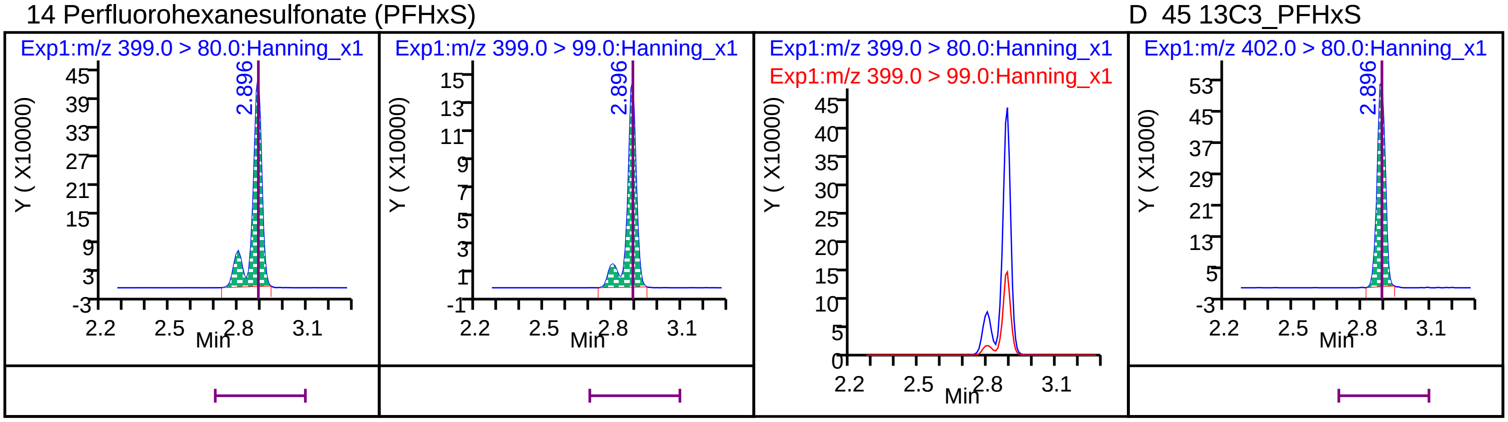
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



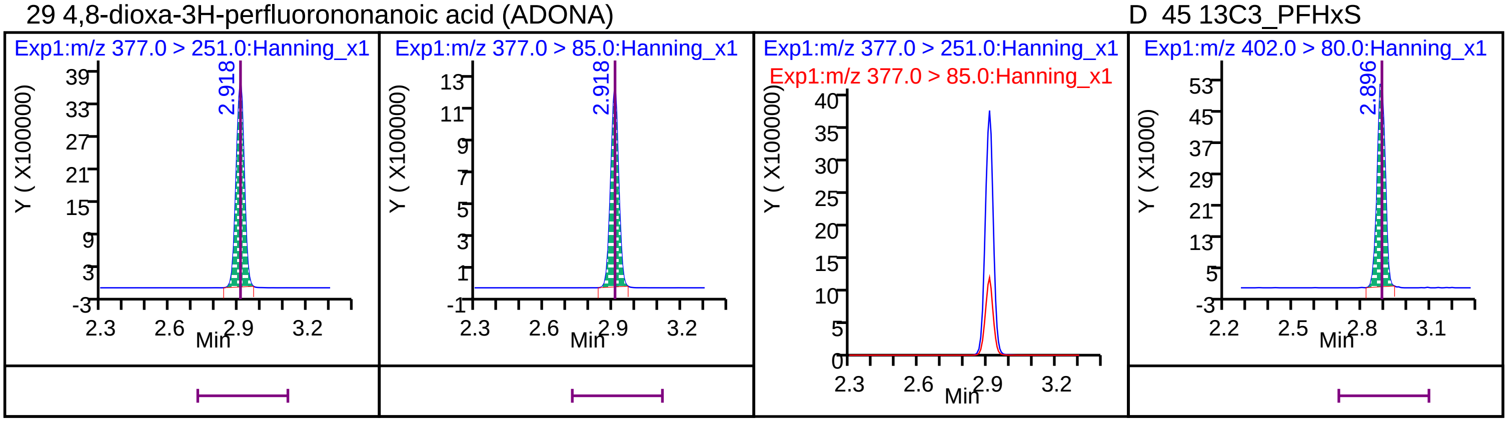
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



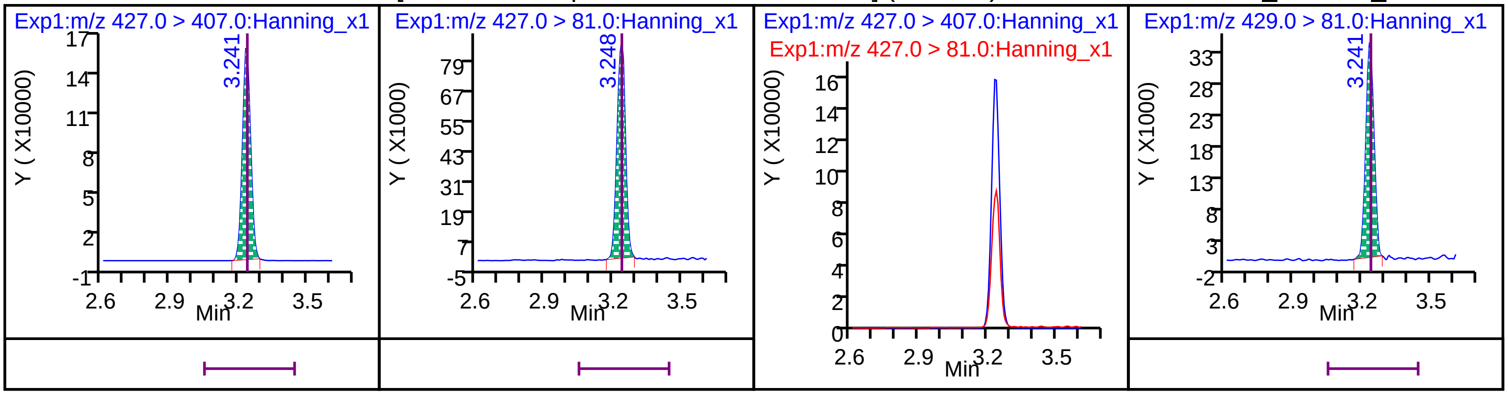
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



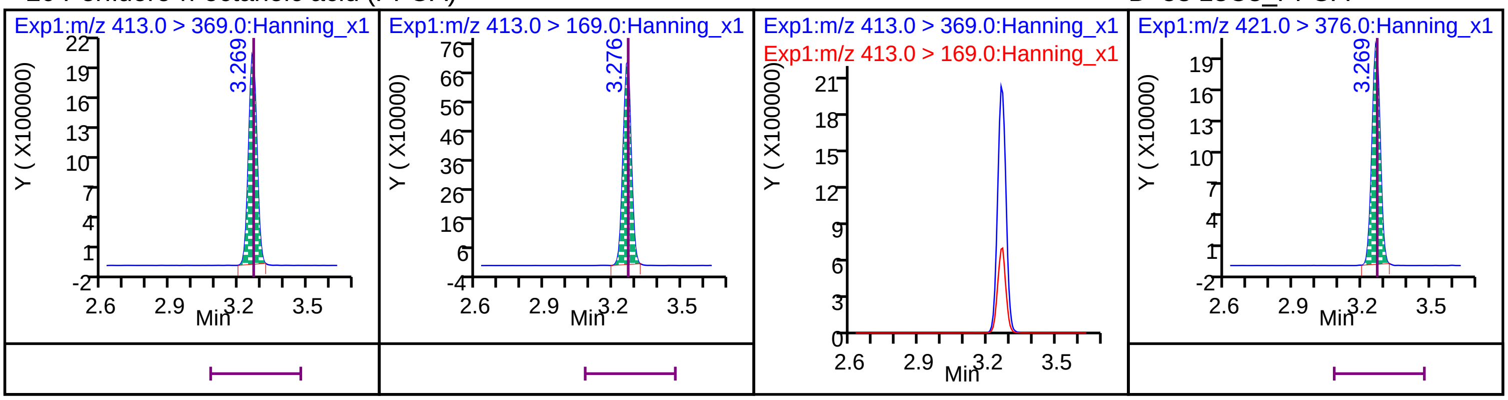
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



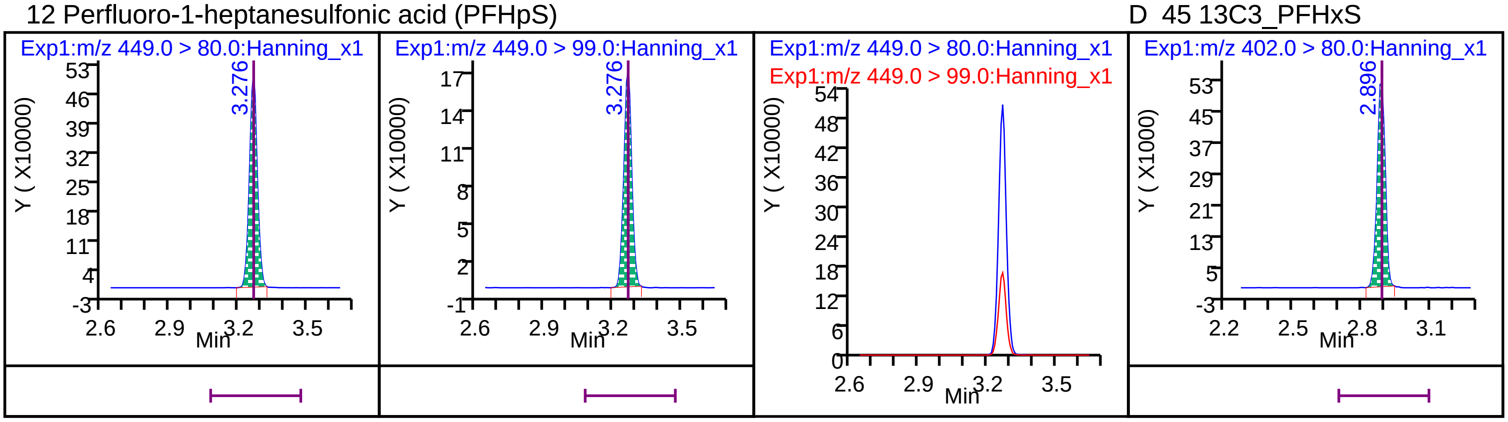
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



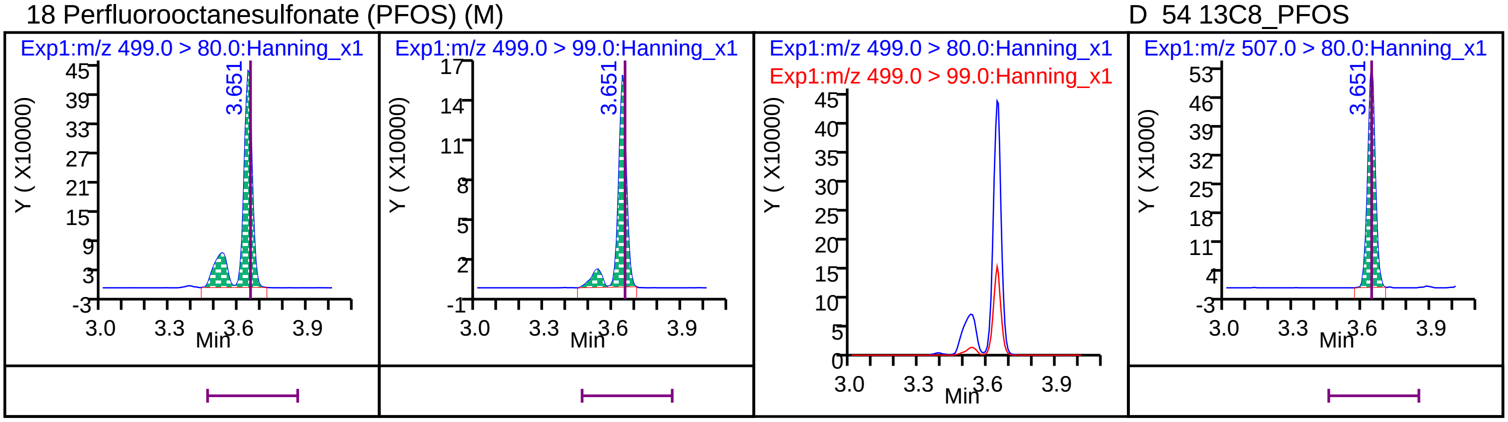
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



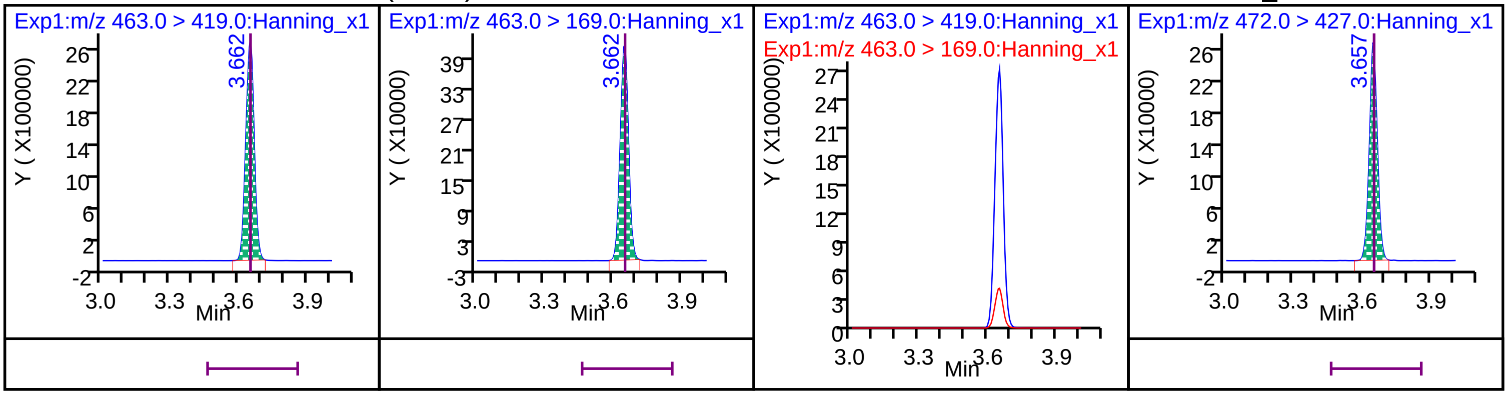
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



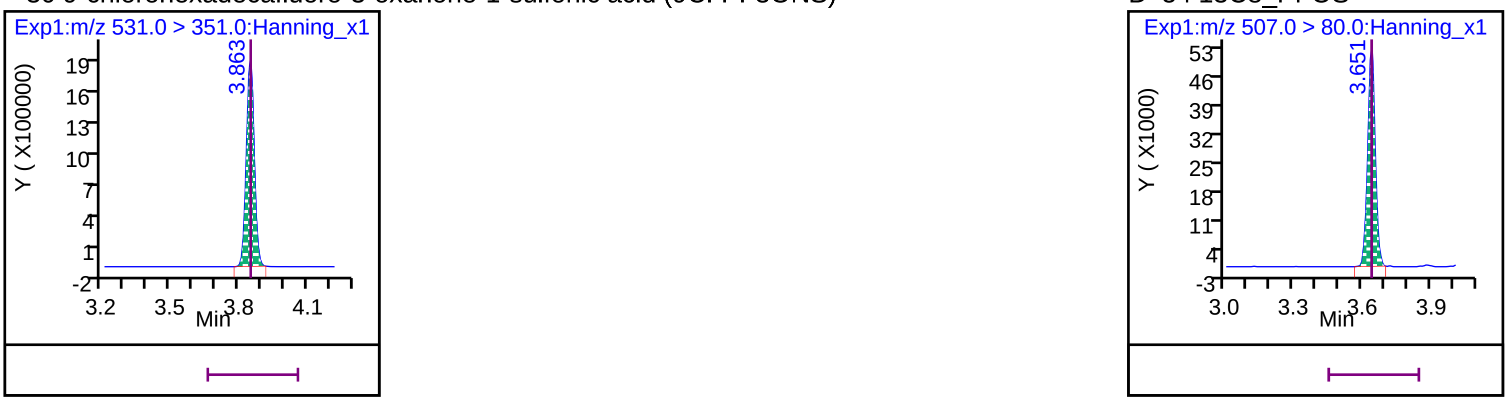
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



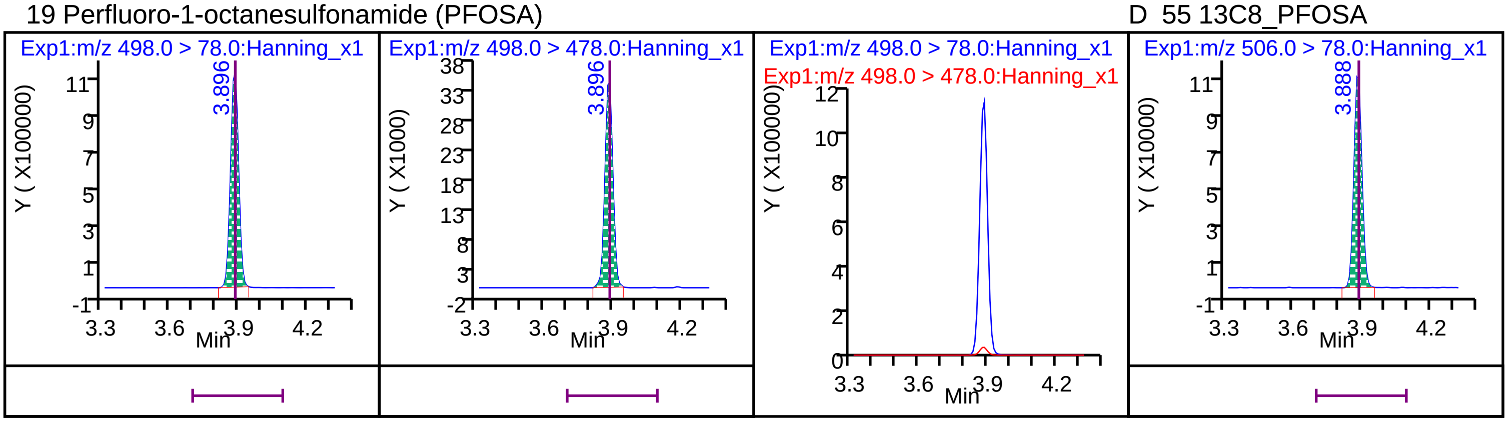
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



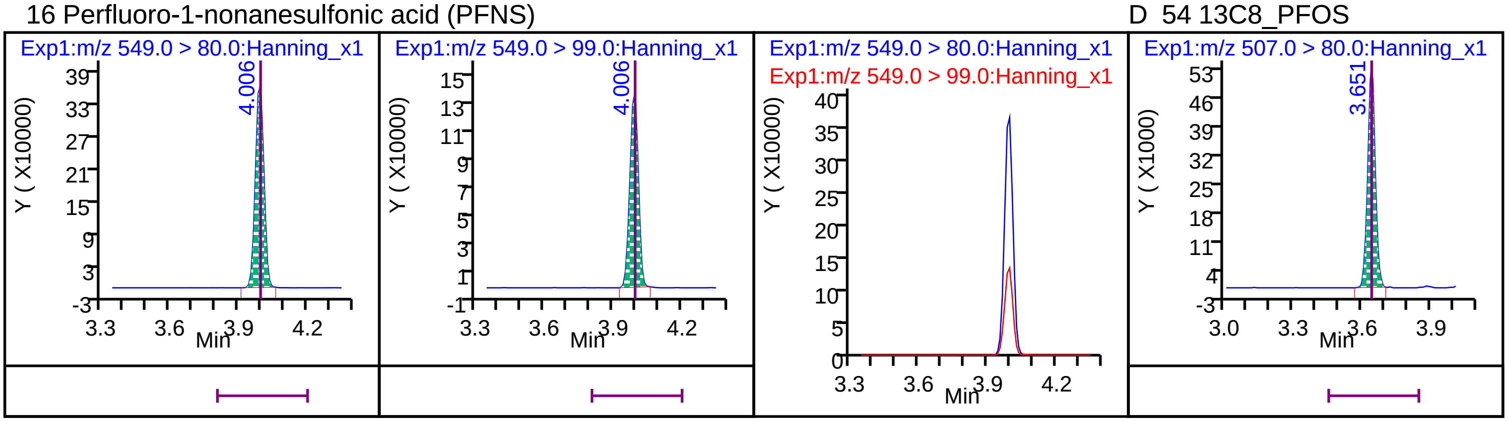
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

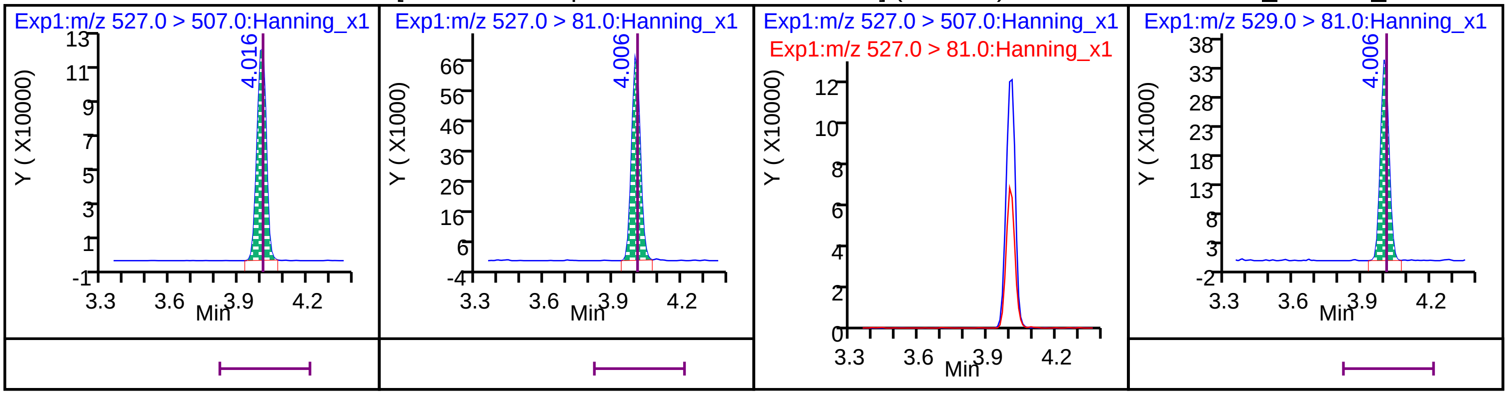


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



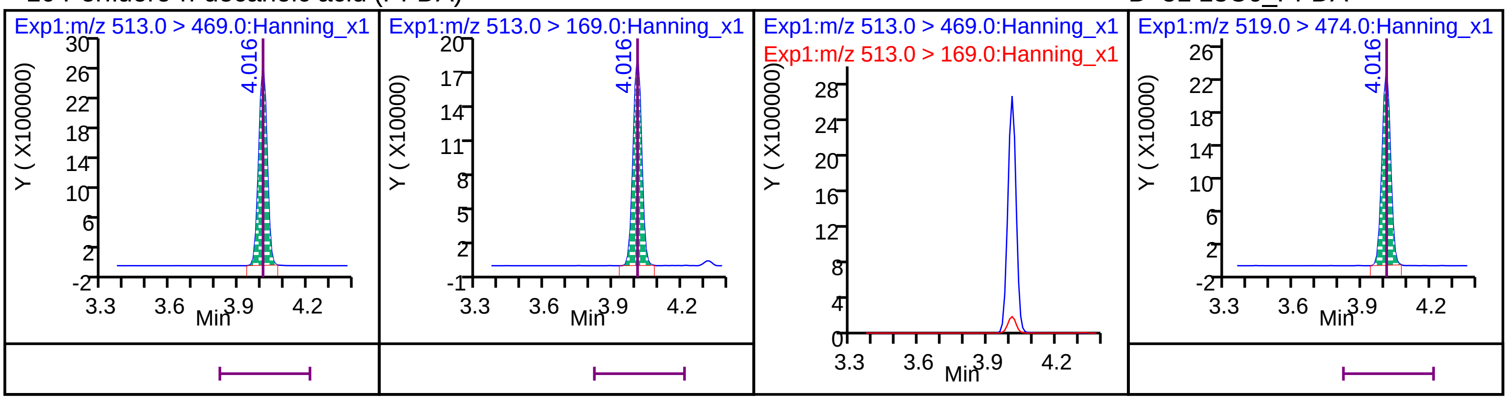
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



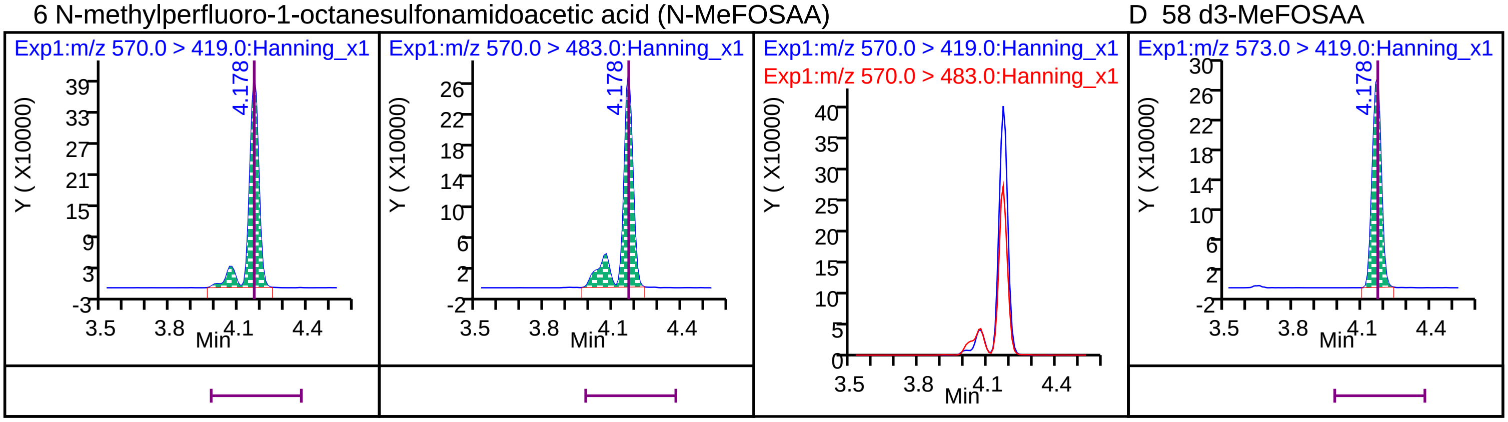
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



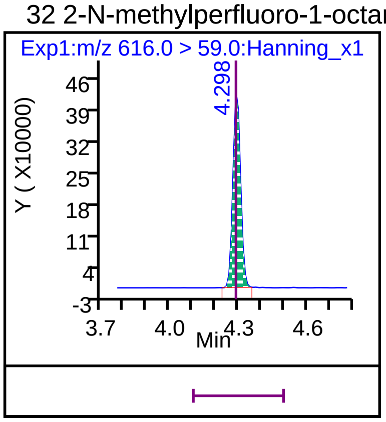
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

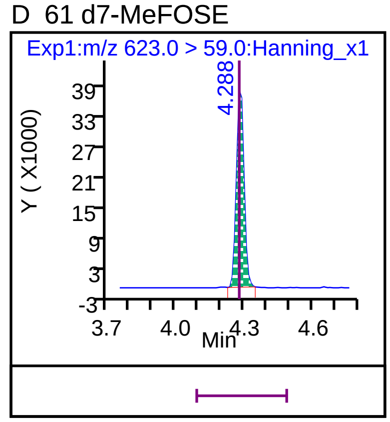
D 58 d3-MeFOSAA



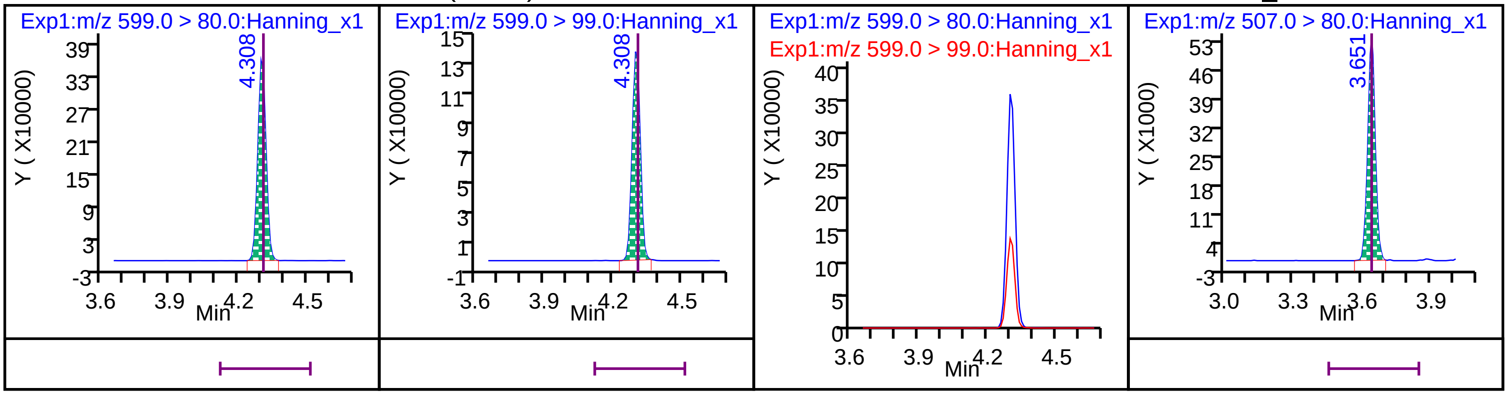
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

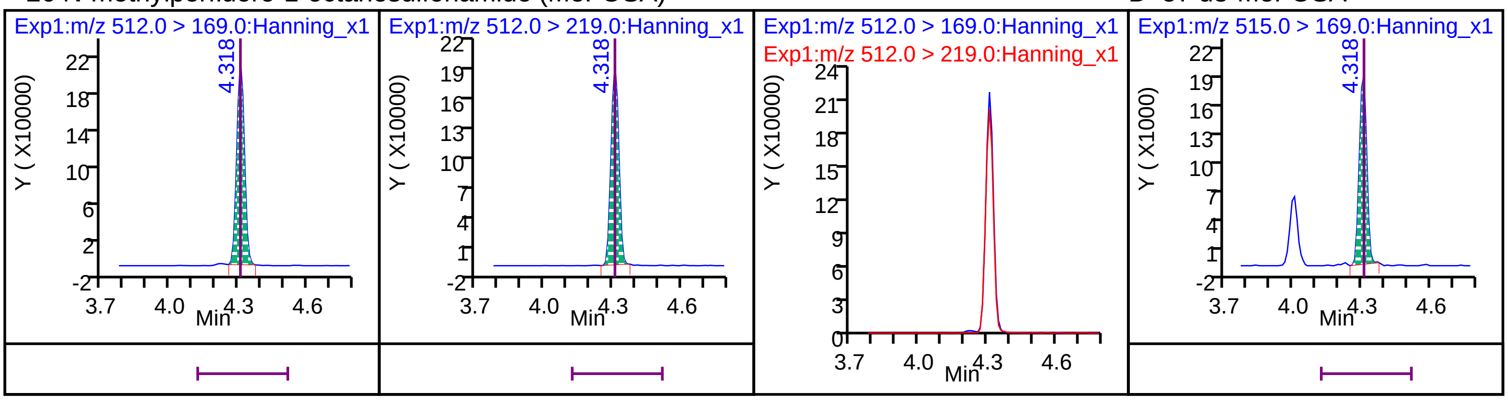




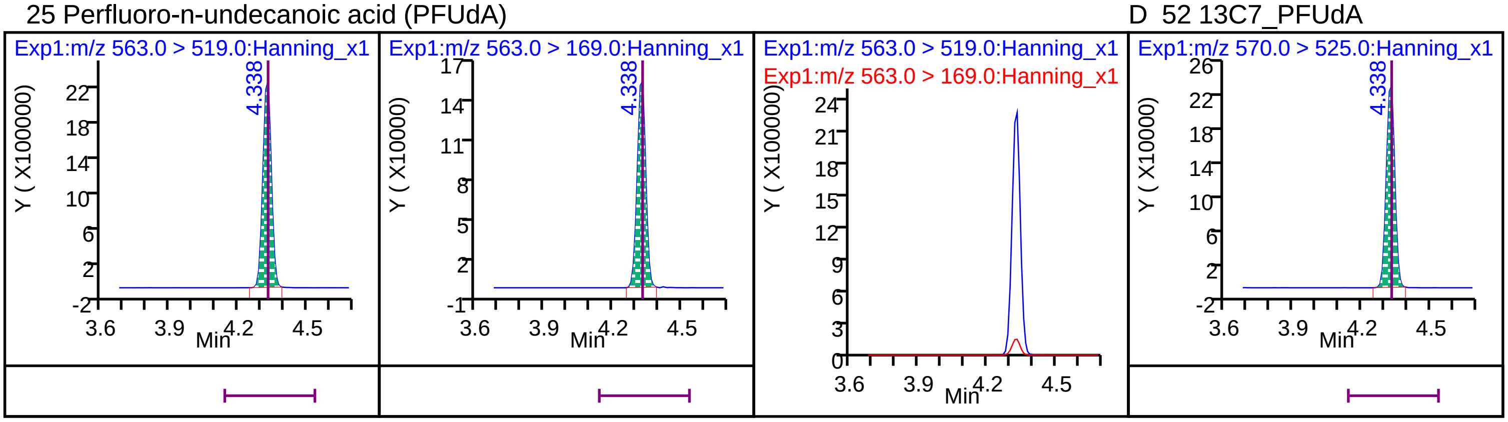
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



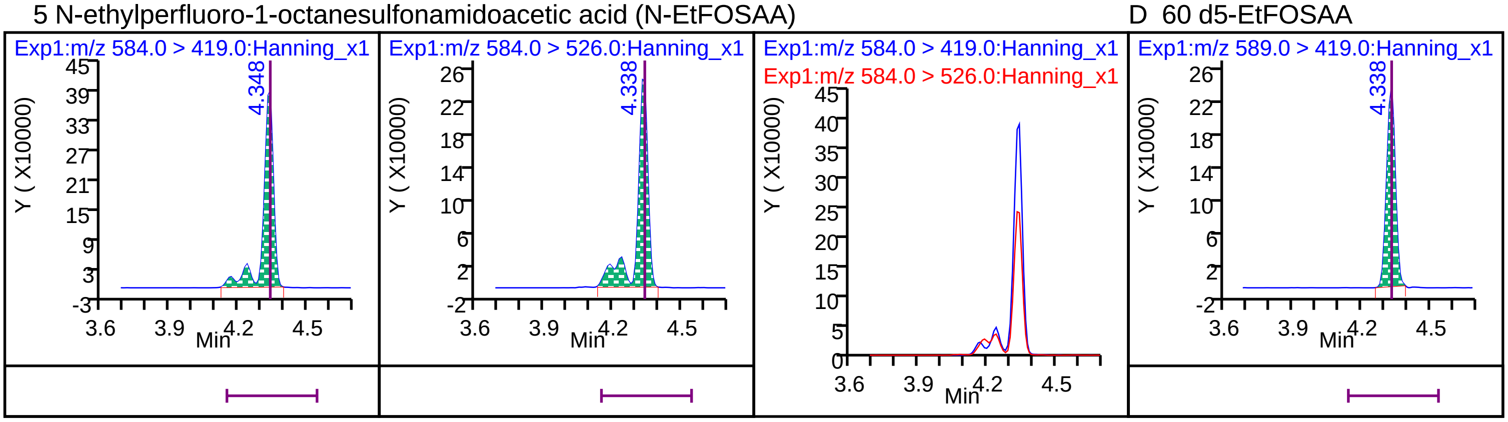
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



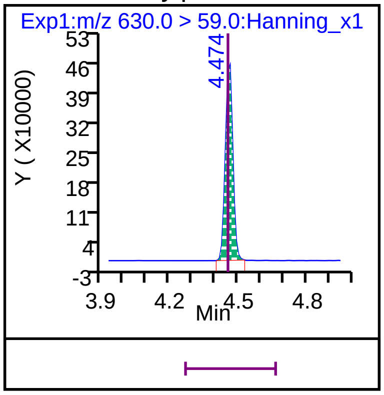
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



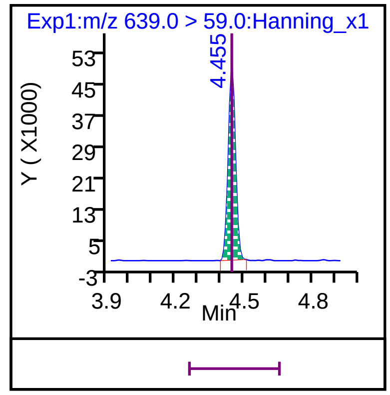
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



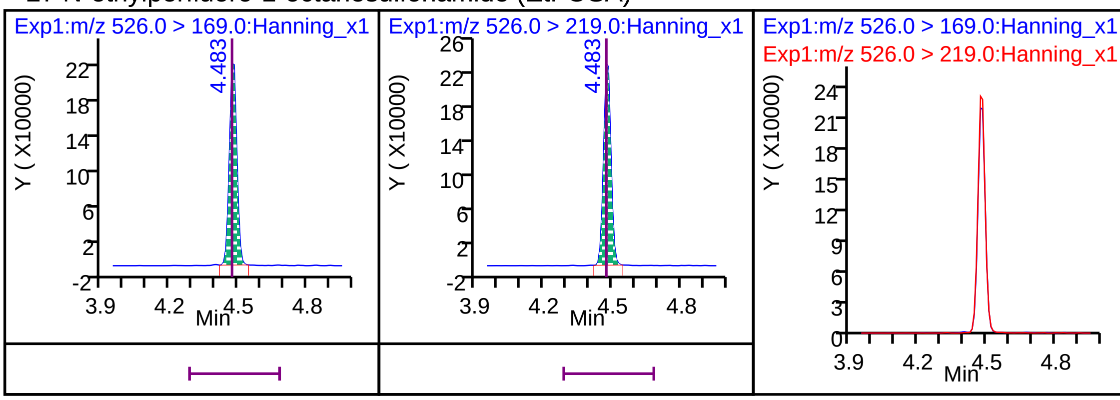
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



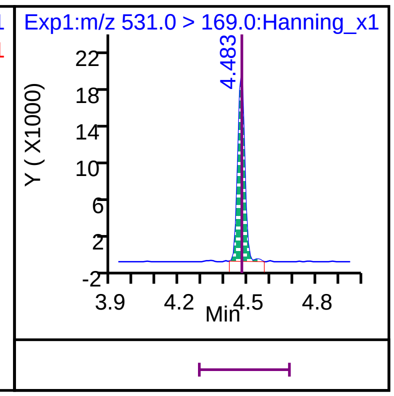
D 62 d9-EtFOSE



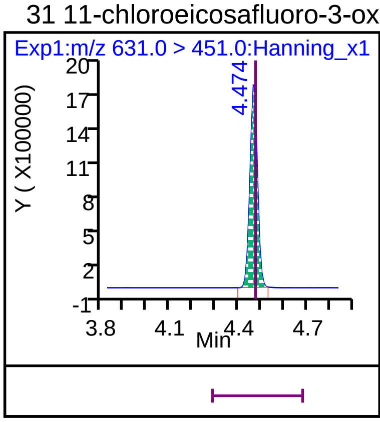
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



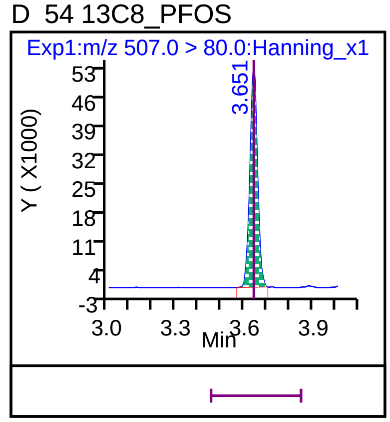
D 59 d5-EtFOSA



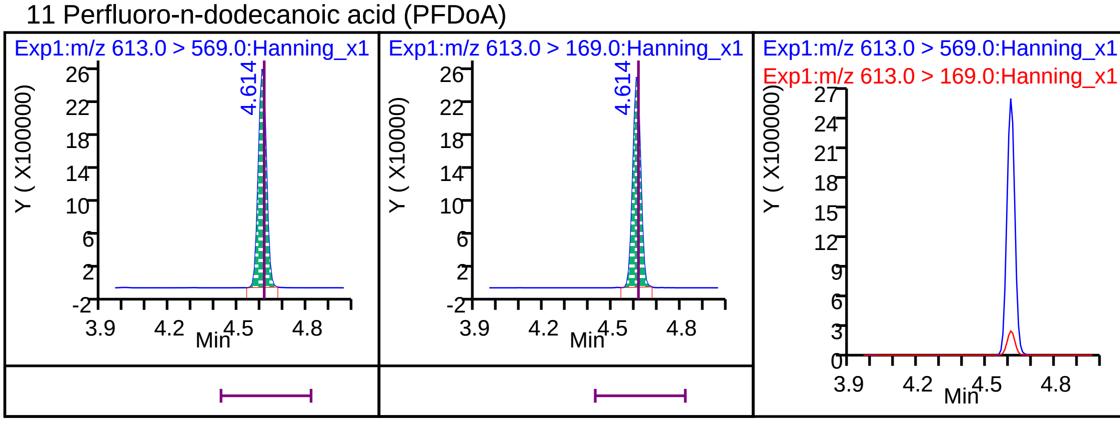
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



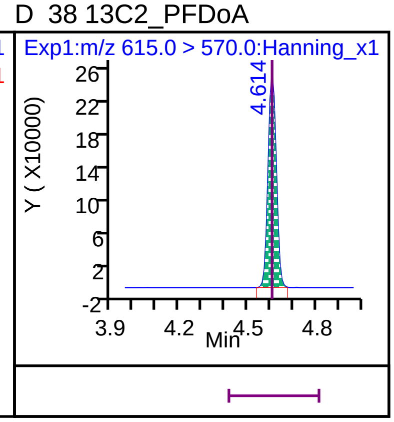
D 54 13C8_PFOS



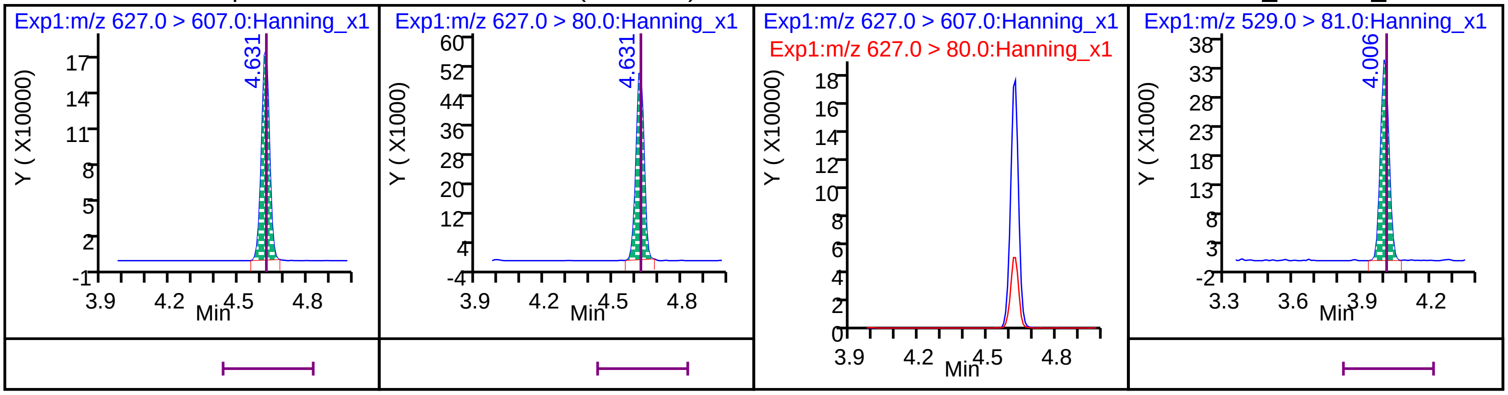
11 Perfluoro-n-dodecanoic acid (PFDoA)



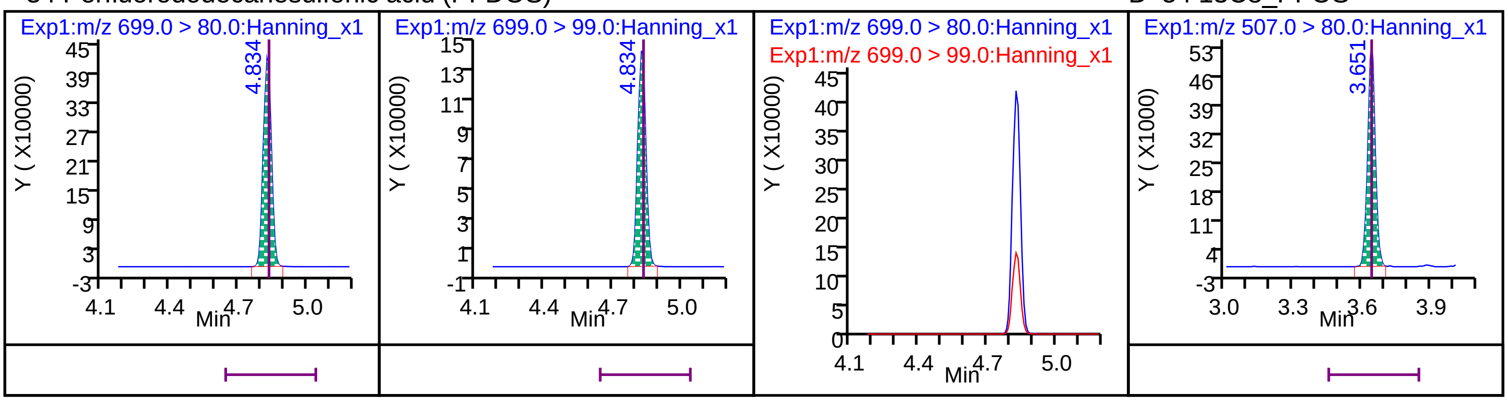
D 38 13C2_PFDoA



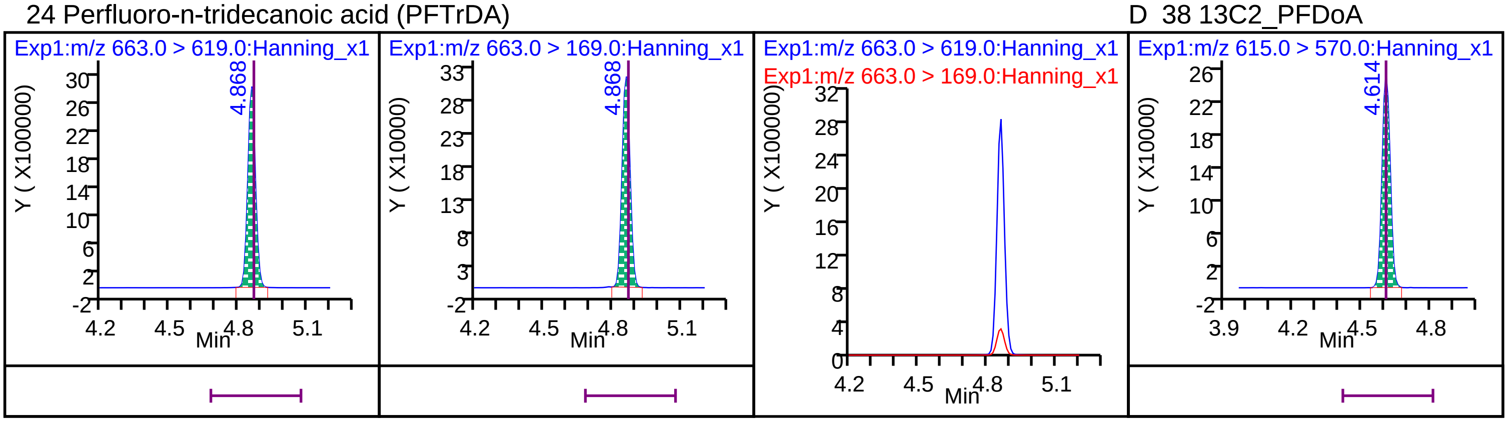
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



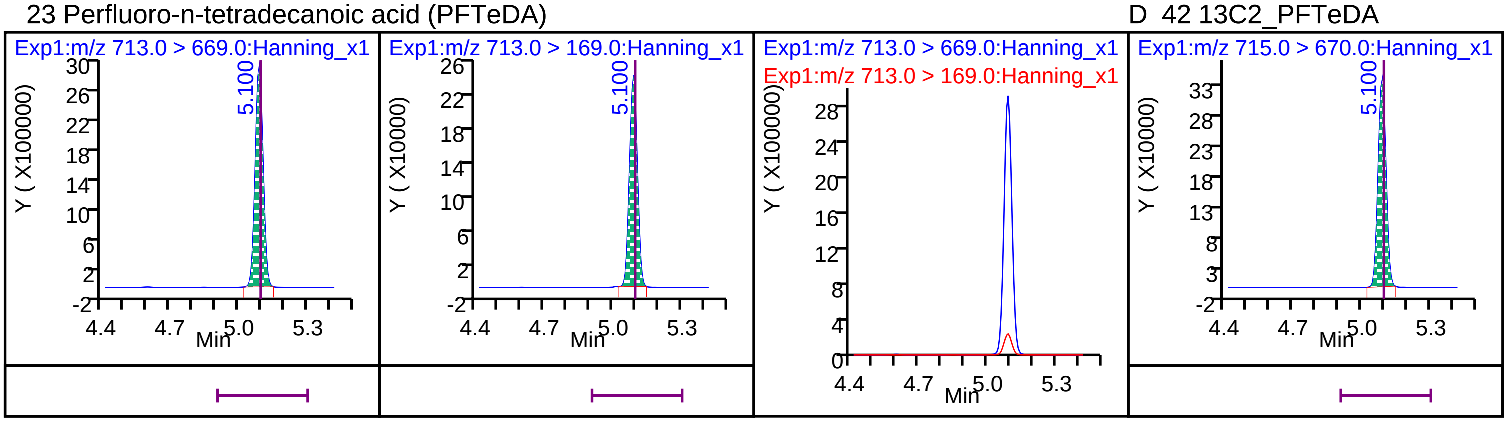
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



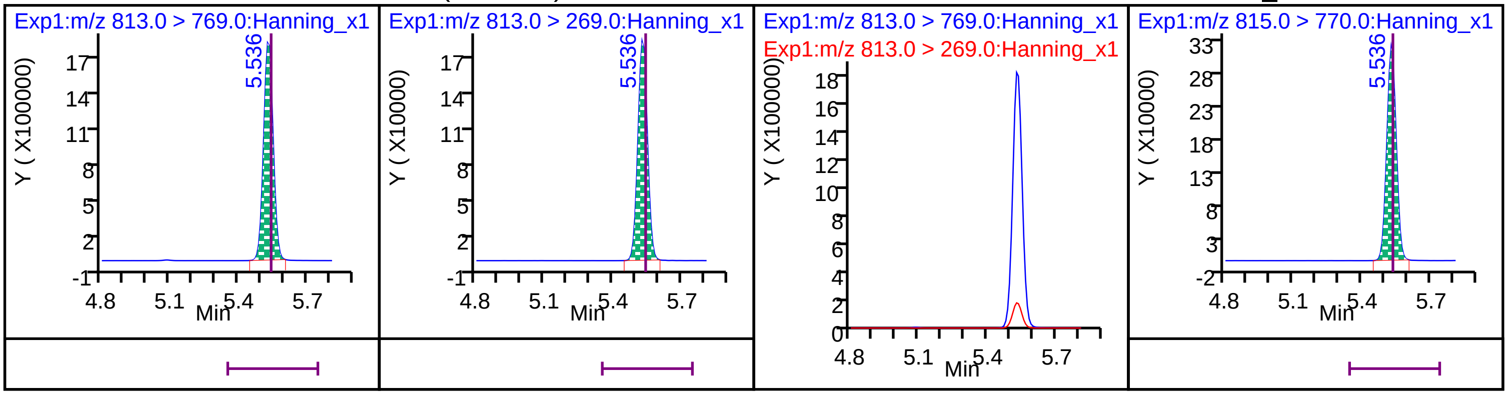
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



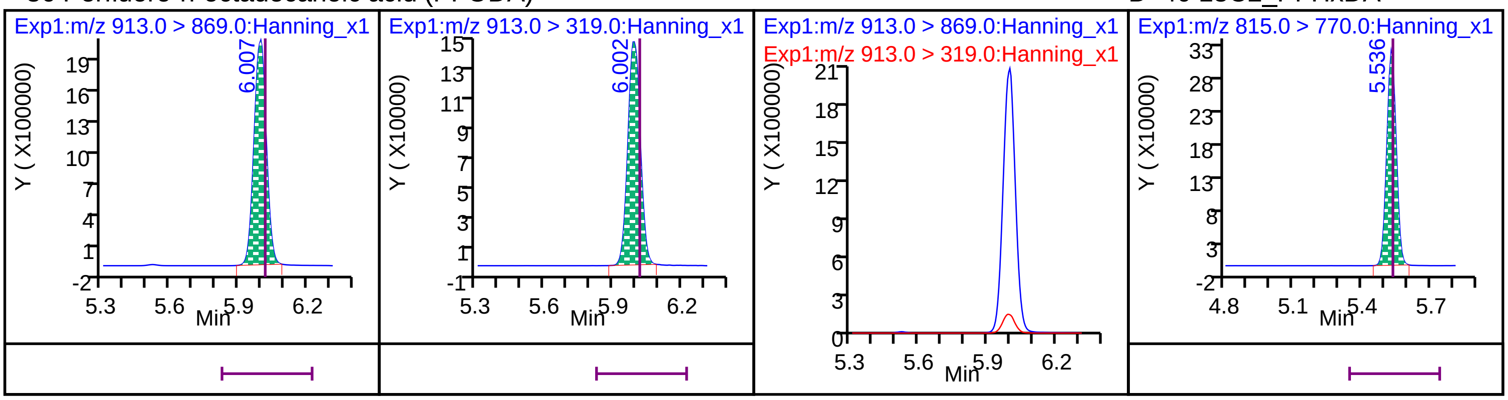
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



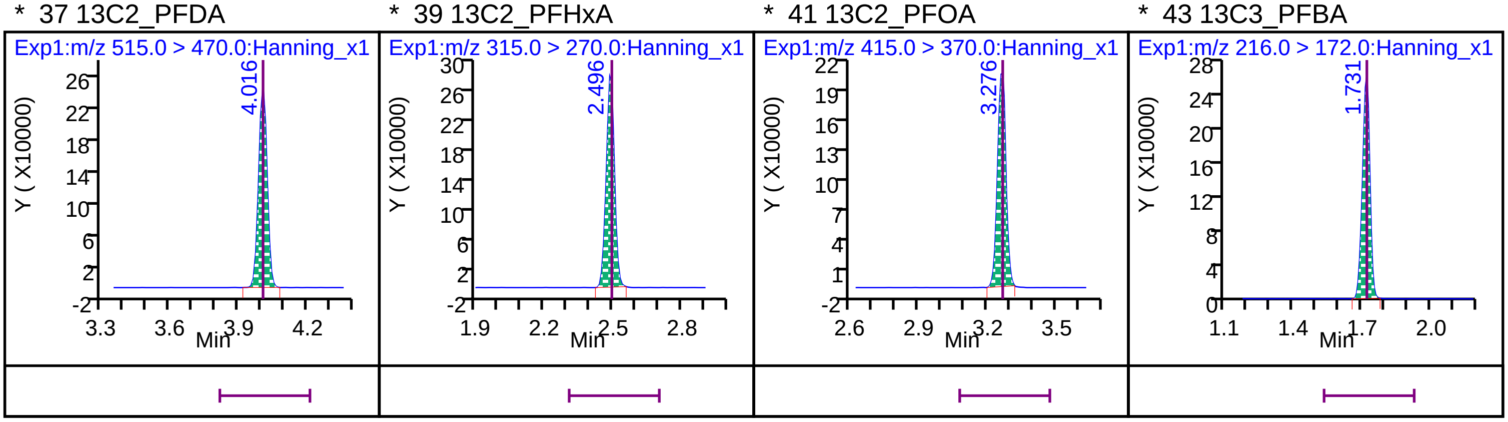
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



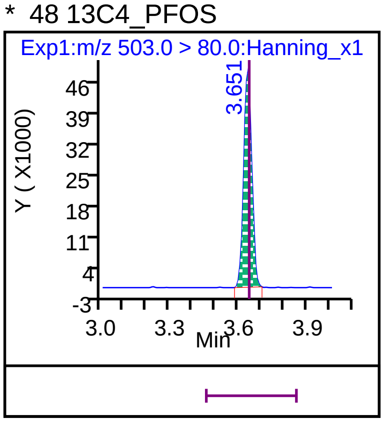
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

Injection Date: 07-Nov-2021 20:01:42 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 10000_SVLC-1747

Sample Info: ID ICAL 10000_SVLC-1747

Dil. Factor: 1 Operator: Justin Gavin

18 PFOS, CAS: 1763-23-1

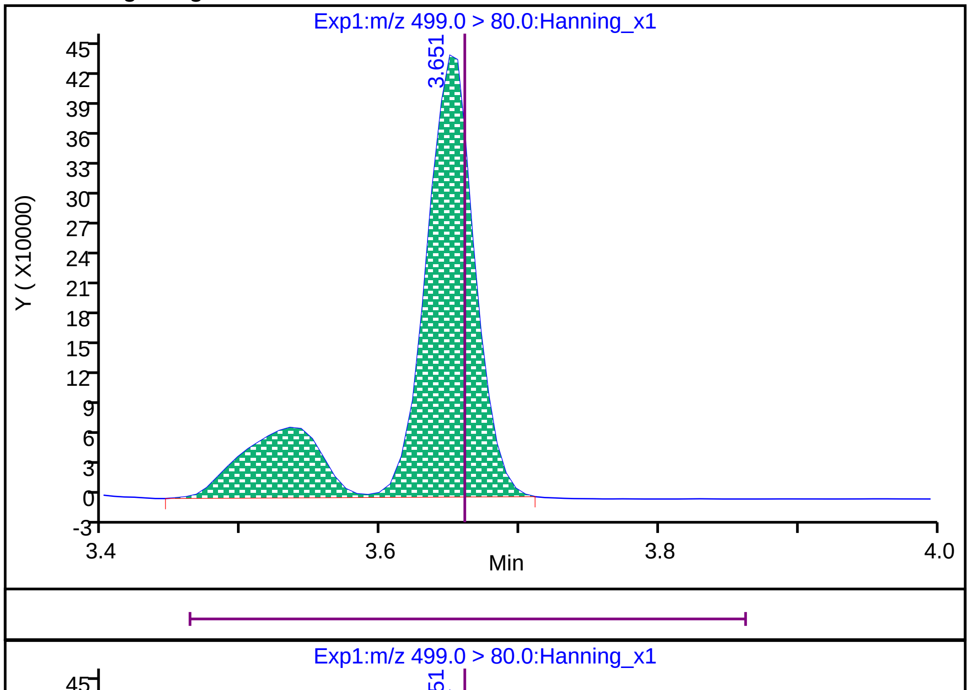
Processing Integration Results

RT: 3.651

Area: 1304733

Amount: 9130.74

Amount Units: ng/L

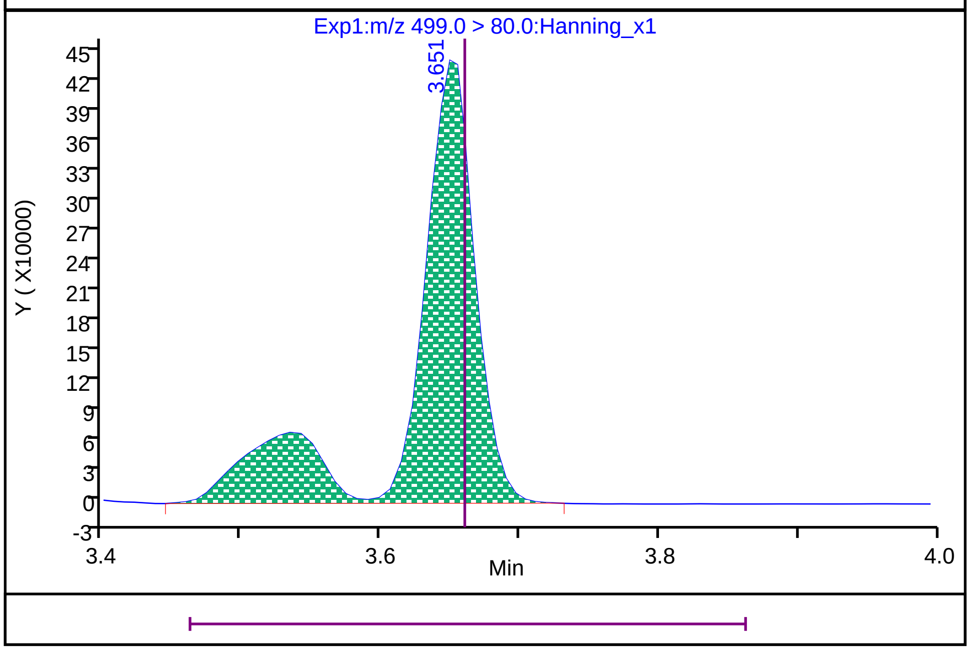


RT: 3.651

Area: 1317144

Amount: 9210.62

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:33

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	83
Sample Info:	ID ICAL 15000_SVLC-1748	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-9 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.731	0	589637	21	>100:1			1000.00	948.47	92.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.734	1.731	1/1	9072875	20	>100:1			15000	14590		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.125	2.130	0	542414	16	>100:1			1000.00	948.95	93.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.125	2.130	0/0	9021019	16	>100:1			15000	14777		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.183	0	170122	15	>100:1			1000.00	983.54	95.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.183	0/0	2677106	15	>100:1	Target = 3.53		13260	12619		
298.9 > 99	44	2.178	2.183		753247	16	>100:1	3.55 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.530	2.531	0/0	2166376	17	>100:1	Target = 3.10		14070	13740		
349 > 99	44	2.530	2.531		721632	17	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.460	0	100279	17	>100:1			5000.00	4428.56	89.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.459	2.460	0/0	697417	17	>100:1	Target = 1.75		14010	15775		
327 > 81	63	2.459	2.460		359357	16	>100:1	1.94 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.505	0	633613	16	>100:1			1000.00	972.86	95.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.503	2.505	0/0	9542047	18	>100:1	Target = 18.91		15000	14484		
313 > 119	49	2.503	2.505		513210	17	>100:1	18.59 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.622	0	1096372	18	>100:1			5000.00	4730.71	91	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.613	2.622	0/0	4224675	19	>100:1	Target = 0.79		30000	29749		
285 > 185	66	2.613	2.622		5395278	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.880	0	522555	18	>100:1			1000.00	984.21	98	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.880	0/0	7758440	17	>100:1	Target = 3.80		15000	13512		
363 > 169	47	2.879	2.880		2123672	19	>100:1	3.65 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.895	2.896	0	117475	18	>100:1			1000.00	935.02	90.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.895	2.896	0/0	1799881	27	>100:1	Target = 2.89	4.66	13650	13936		
399 > 99	45	2.895	2.896		579076	27	>100:1	3.10 (1.44-4.34)	6.67				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.917	2.919	0/0	12624919	19	>100:1	Target = 3.23		14130	13858		
377 > 85	45	2.917	2.919		4074240	19	>100:1	3.09 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.273	3.276	0/0	1649459	22	>100:1	Target = 3.12		14280	13671		
449 > 99	45	3.273	3.276		556981	22	>100:1	2.96 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.238	3.248	0	84101	23	>100:1			5000.00	4672.29	89.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.245	3.248	0/0	549020	20	>100:1	Target = 1.75		14220	13788		
427 > 81	64	3.245	3.248		307858	21	>100:1	1.78 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.276	0	493065	22	>100:1			1000.00	939.75	90	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.266	3.276	0/0	7287671	23	>100:1	Target = 2.89		15000	14423		
413 > 169	53	3.273	3.276		2494039	21	>100:1	2.92 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.648	3.651	0	122035	21	>100:1			1000.00	985.40	92.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.648	3.662	0/0	1912794	41	>100:1	Target = 3.30	3.62	13920	13164		M
499 > 99	54	3.654	3.662		562324	37	>100:1	3.40 (1.65-4.95)	7.07				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.858	3.863	0/0	6348515	17	>100:1			13980	13737		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.999	4.006	0/0	1321901	16	>100:1	Target = 3.08		14400	13502		
549 > 99	54	3.999	4.006		526265	16	>100:1	2.51 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.310	4.318	0/0	1297701	15	>100:1	Target = 2.72		14460	13589		
599 > 99	54	4.310	4.318		488233	15	>100:1	2.65 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.477	4.483	0/0	5461375	17	>100:1			14130	13072		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.838	4.842	0/0	1434957	18	>100:1	Target = 3.27		14520	13675		
699 > 99	54	4.838	4.842		467758	18	>100:1	3.06 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.659	3.662	0	601225	21	>100:1			1000.00	938.86	94.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.659	3.662	0/0	9619483	21	>100:1	Target = 6.51		15000	14844		
463 > 169	56	3.659	3.662		1462390	22	>100:1	6.57 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.891	3.896	0	255120	17	>100:1			1000.00	951.73	95.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.891	3.896	0/0	4080280	18	>100:1	Target = 41.63		15000	15200		
498>478	55	3.891	3.896		122582	17	>100:1	33.28 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.020	4.016	1	544823	17	>100:1			1000.00	948.08	94.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.010	4.016	0/-1	9034213	16	>100:1	Target = 13.80		15000	14249		
513 > 169	51	4.010	4.016		704248	16	>100:1	12.82 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.999	4.016	-1	76282	17	>100:1			5000.00	4413.32	96.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.010	4.016	0/1	503489	16	>100:1	Target = 1.94		14370	14605		
527 > 81	65	4.010	4.016		264894	16	>100:1	1.90 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.625	4.631	0/1	635374	17	>100:1	Target = 3.54		14460	16418		
627 > 80	65	4.625	4.631		179265	18	>100:1	3.54 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.171	4.178	0	715483	17	>100:1			5000.00	4734.77	92.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.171	4.178	0/0	1678300	31	>100:1	Target = 1.37	7.56	15000	14616		
570 > 483	58	4.171	4.178		1248017	31	>100:1	1.34 (0.68-2.05)	4.21				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.290	4.288	1	88623	14	>100:1			1000.00	982.64	98.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.300	4.298	1/0	1427696	15	>100:1			15000	14741		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.310	4.318	0	44329	19	>100:1			1000.00	942.34	98.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.320	4.318	1/1	699653	14	>100:1	Target = 1.11		15000	14562		
512 > 219	57	4.320	4.318		639310	14	>100:1	1.09 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.330	4.338	0	584720	16	>100:1			5000.00	4514.75	84.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.340	4.348	0/0	1712589	32	>100:1	Target = 1.51	5.92	15000	15019		
584 > 526	60	4.340	4.348		1090338	29	>100:1	1.57 (0.75-2.26)	3.34				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.330	4.338	0	527476	16	>100:1			1000.00	875.84	83.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.330	4.338	0/0	7956538	16	>100:1	Target = 14.52		15000	15567		
563 > 169	52	4.330	4.338		528360	17	>100:1	15.05 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.459	4.455	1	105046	16	>100:1			1000.00	990.28	103.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.468	4.464	1/0	1513895	15	>100:1			15000	14804		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.477	4.483	0	43668	13	>100:1			1000.00	1015.54	101.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.486	4.483	1/1	754628	14	>100:1	Target = 1.06		15000	14599		
526 > 219	59	4.486	4.483		734956	14	>100:1	1.02 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.608	4.614	0	640359	17	>100:1			1000.00	1066.67	106	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.617	4.622	0/0	9303305	17	>100:1	Target = 10.70		15000	13628		
613 > 169	38	4.617	4.622		862017	17	>100:1	10.79 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.864	4.877	0/0	8116160	18	>100:1	Target = 8.31		15000	12058		
663 > 169	38	4.864	4.877		967954	16	>100:1	8.38 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.097	5.106	0	787350	21	>100:1			1000.00	968.46	93.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.097	5.106	0/0	9617011	22	>100:1	Target = 12.17		15000	13992		
713 > 169	42	5.097	5.106		803215	22	>100:1	11.97 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.544	0	870178	22	>100:1			1000.00	1002.47	99.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.552	0/0	7743034	21	>100:1	Target = 10.43		15000	13894		
813 > 269	40	5.539	5.552		749842	22	>100:1	10.32 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.000	6.026	-1/-1	10647394	42	>100:1	Target = 13.67		15000	13440		
913 > 319	40	5.995	6.026		773254	41	>100:1	13.76 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.010	4.016	0	641184	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.503	2.505	0	626878	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.276	0	503361	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.728	1.731	0	532630	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.648	3.657	0	118944	21	>100:1			1000.00			

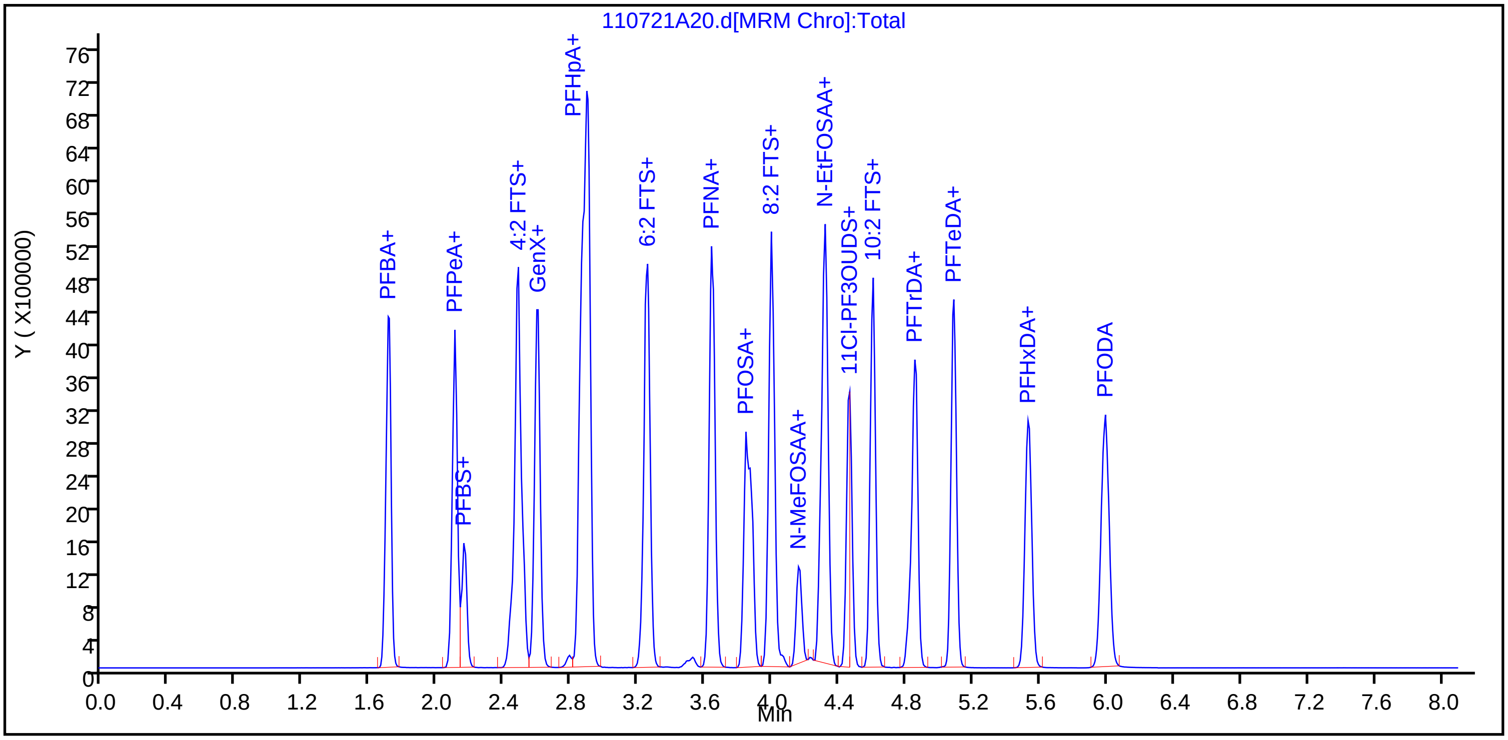
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

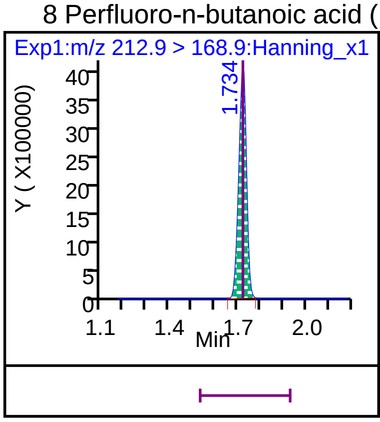
Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

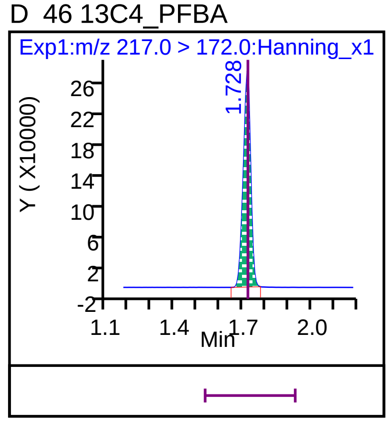
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 15000_SVLC-1748
Sample Info:	ID ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin



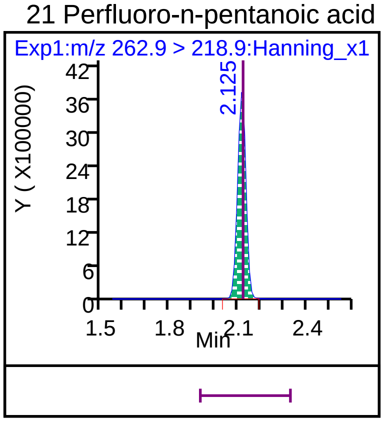
8 Perfluoro-n-butanoic acid (PFBA)



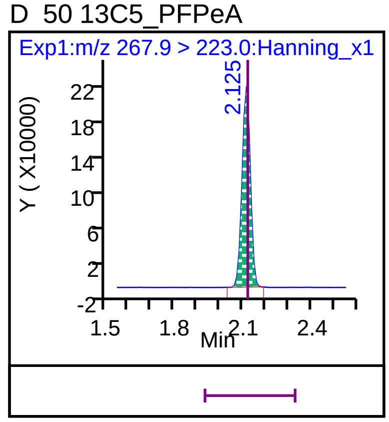
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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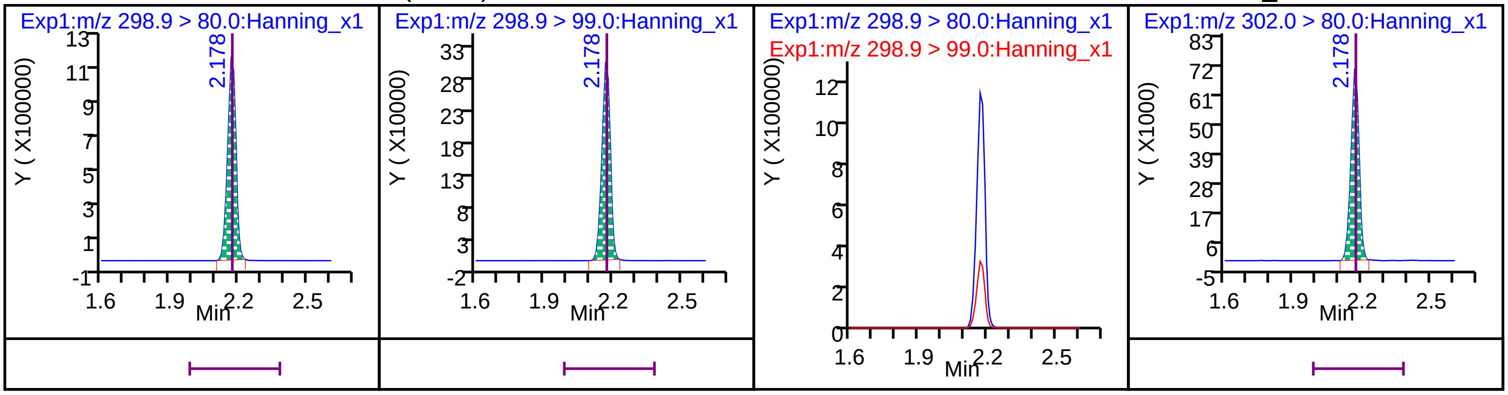
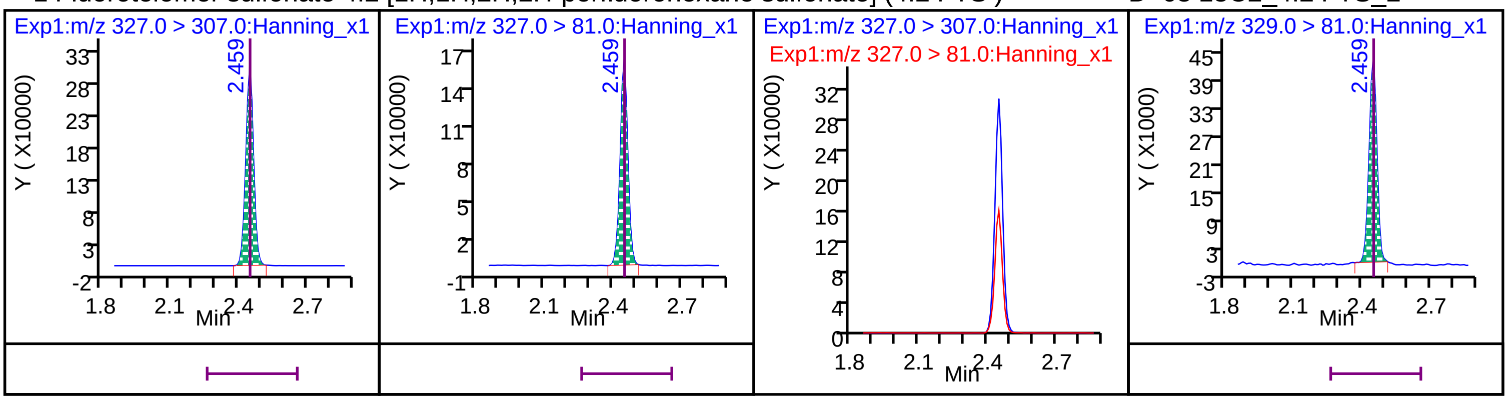
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d

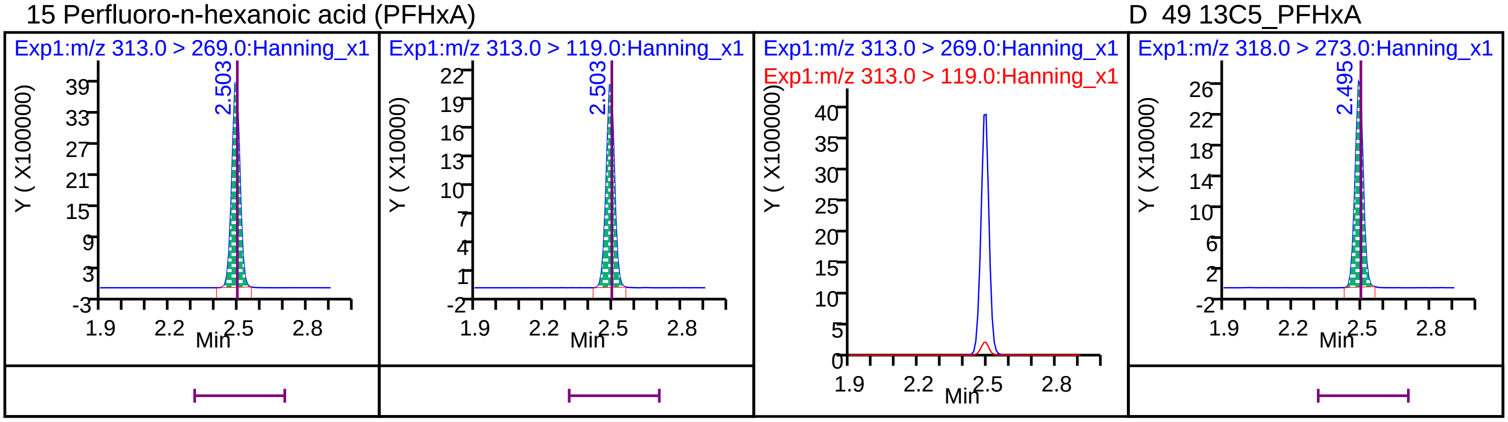
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



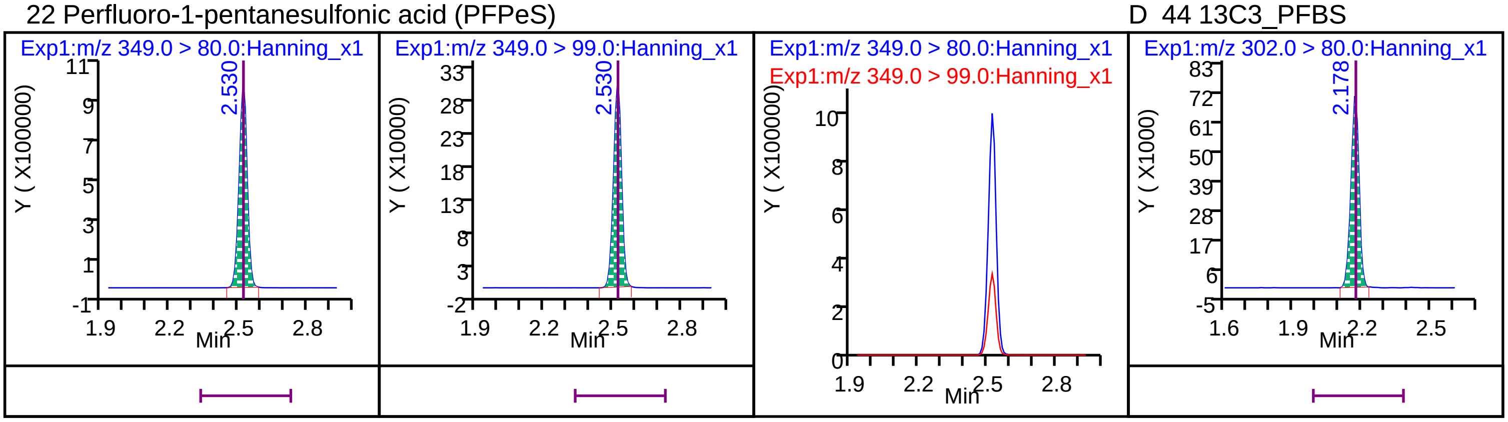
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



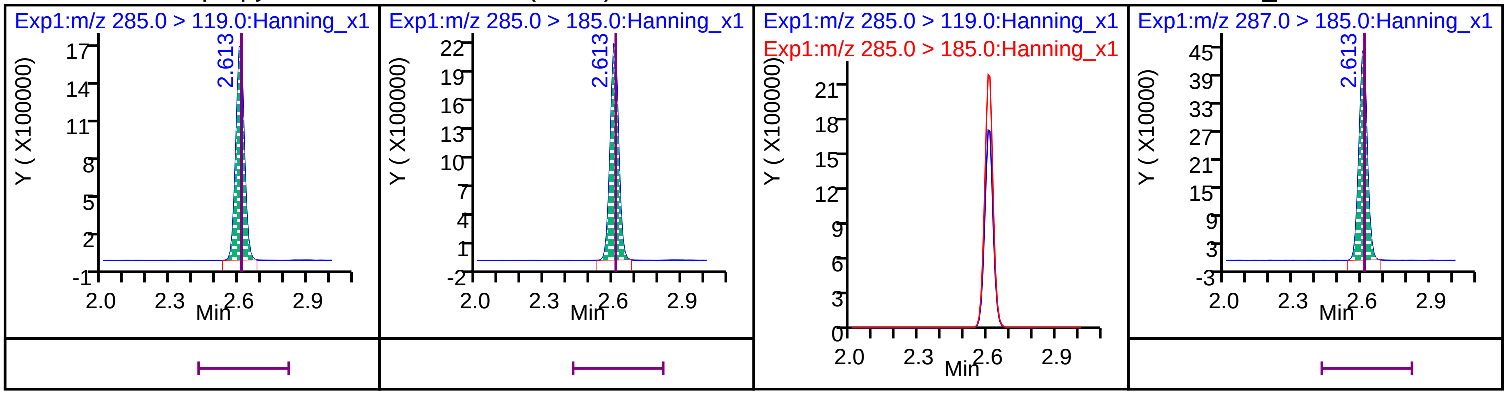
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



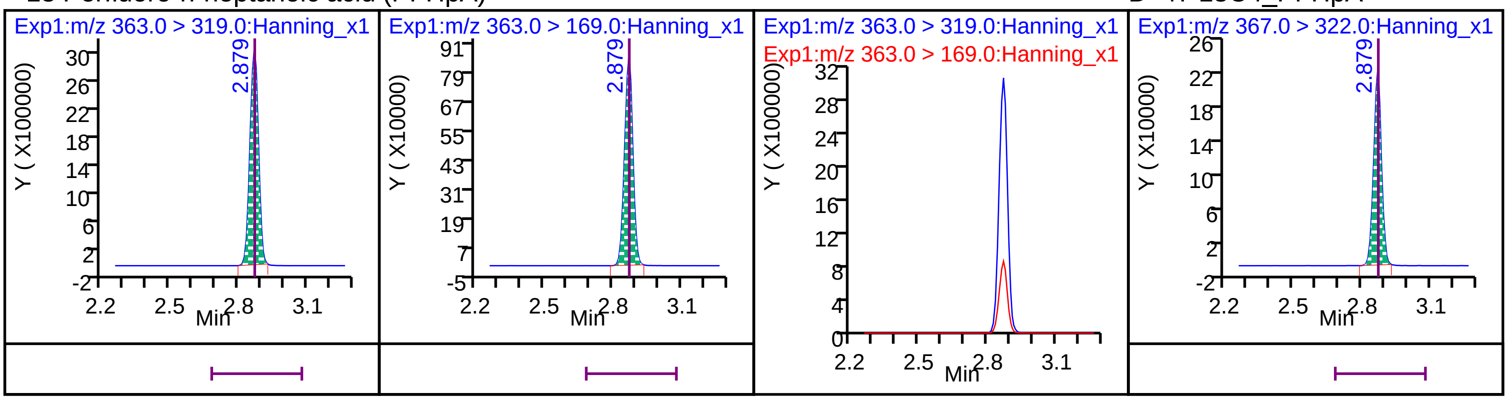
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



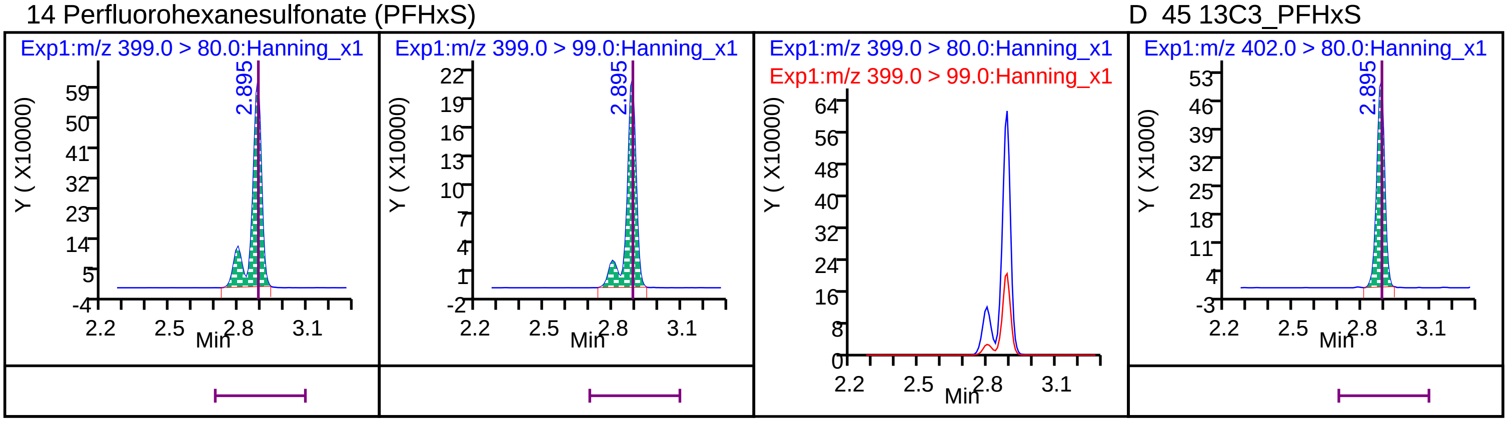
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



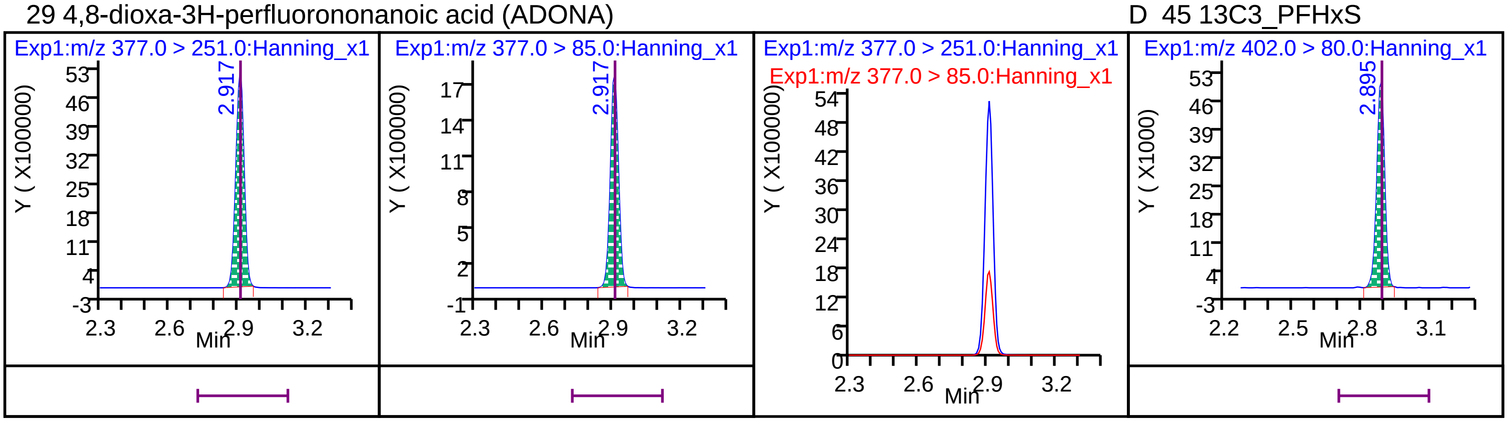
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



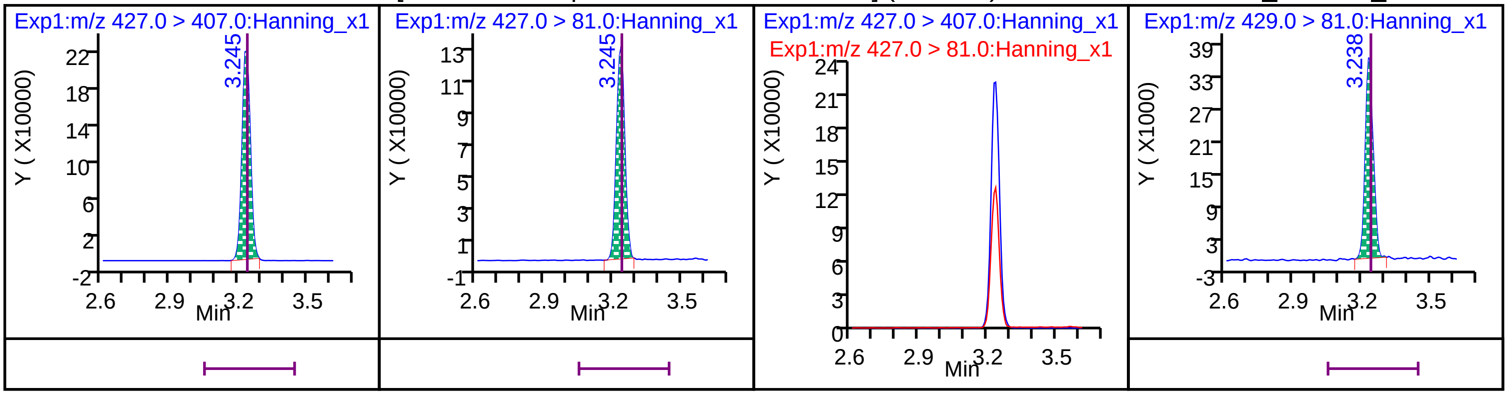
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



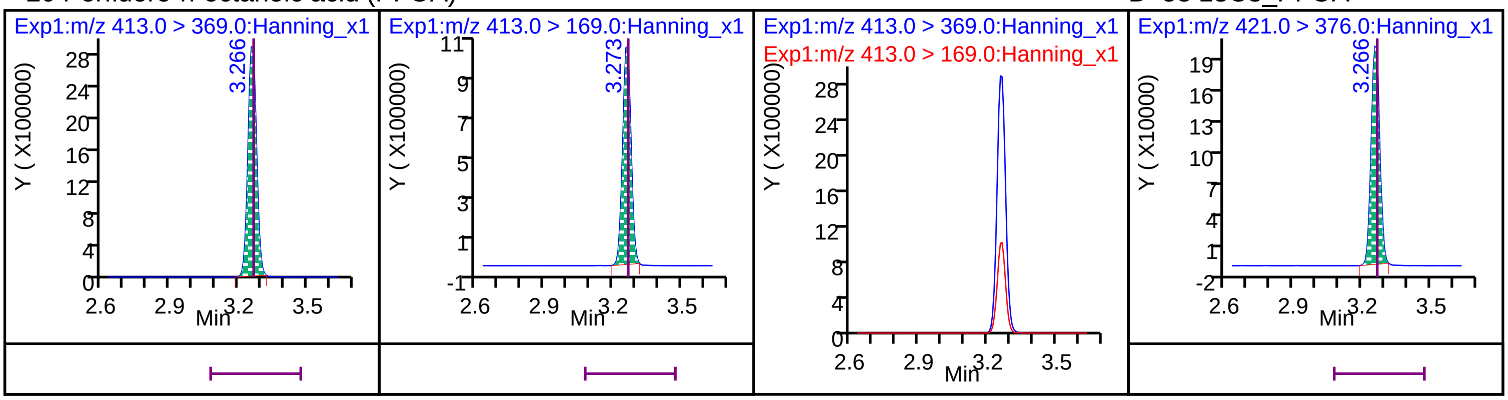
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



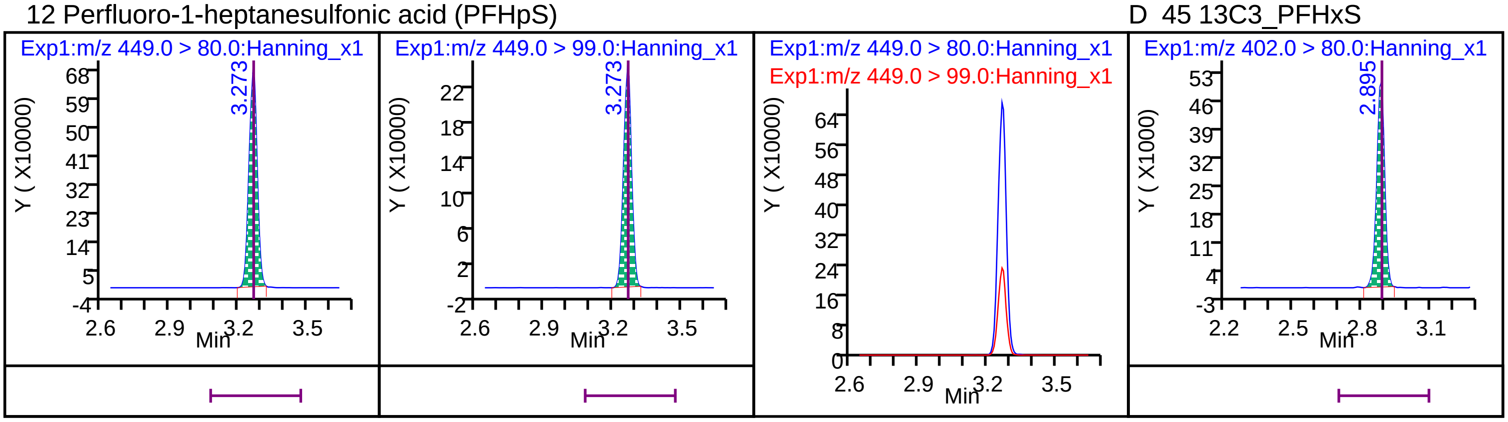
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



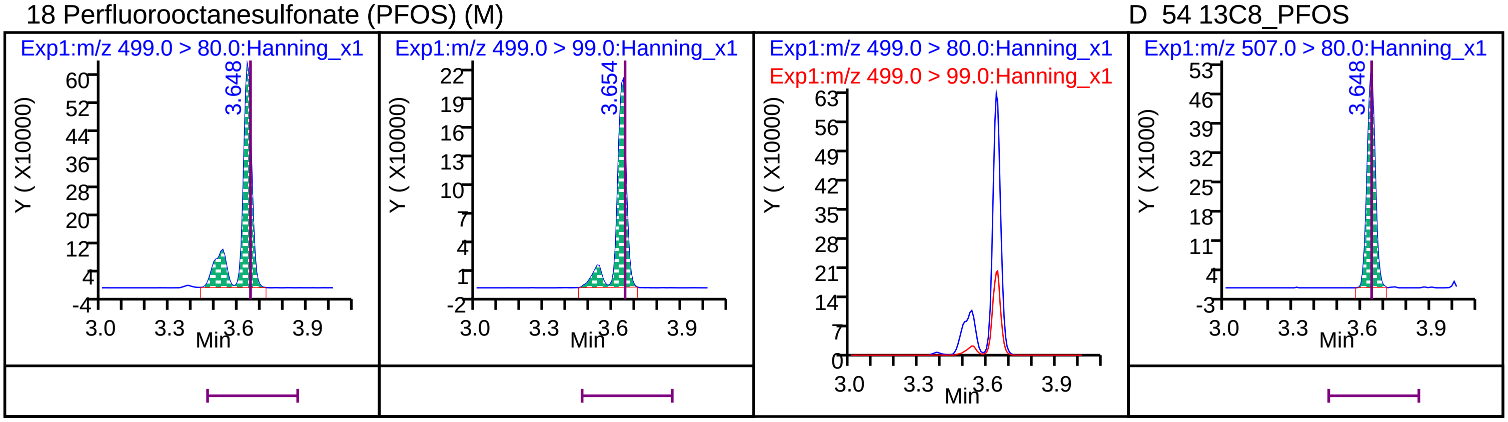
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



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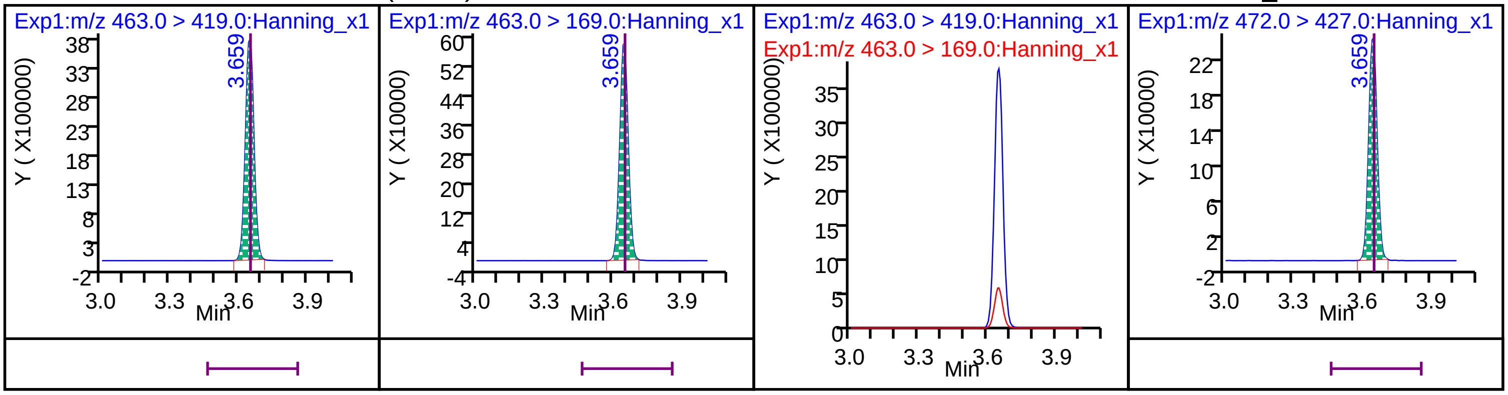
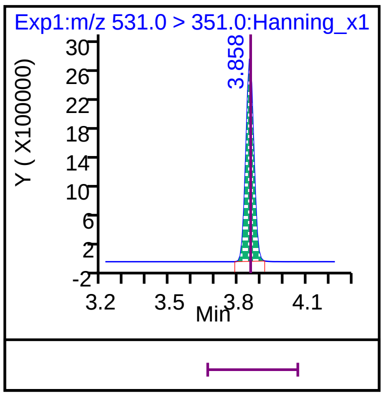
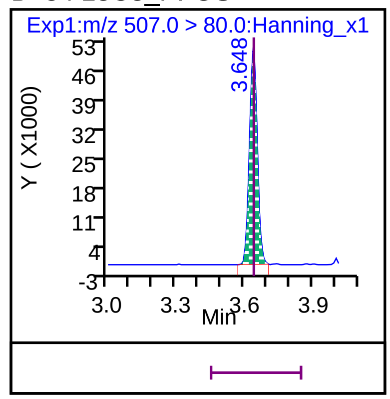
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

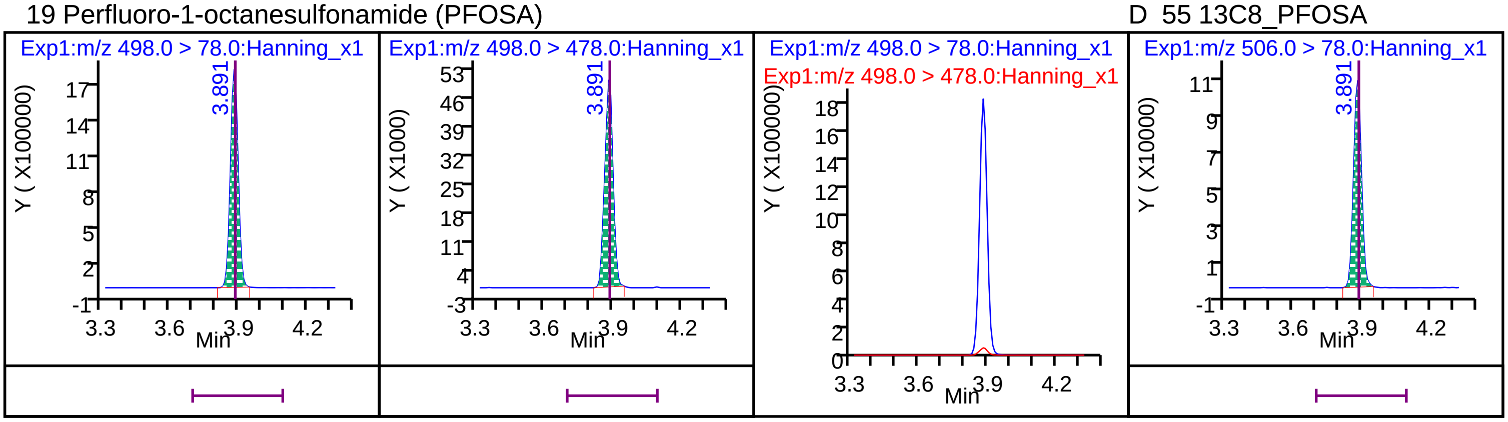


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

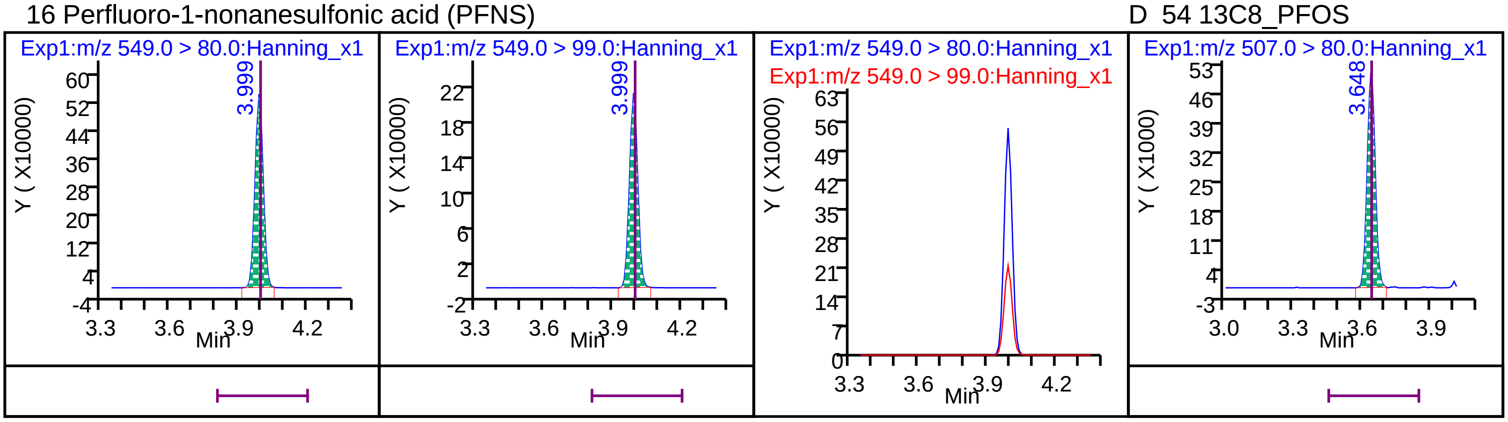




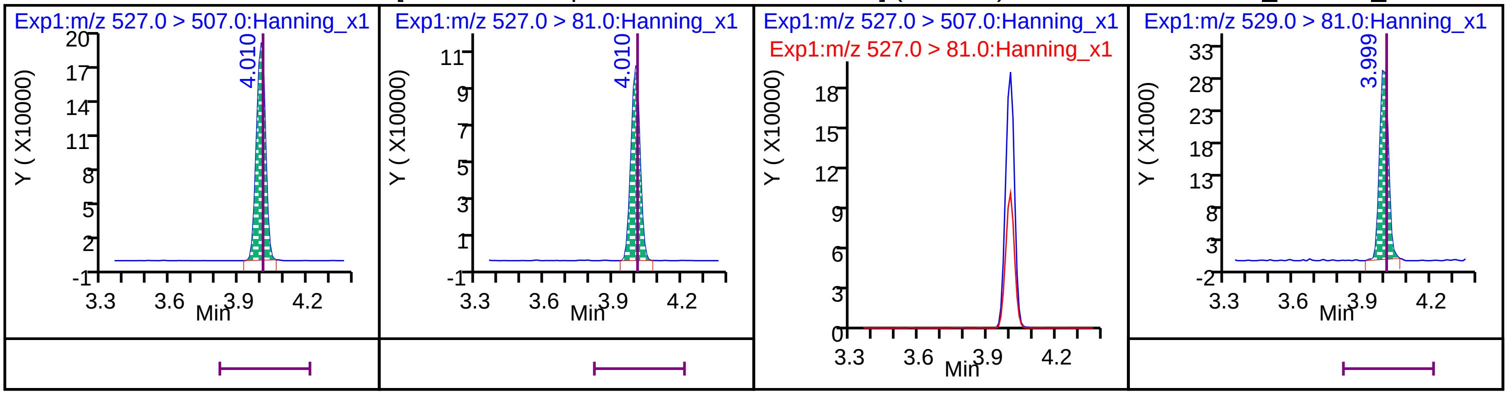
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



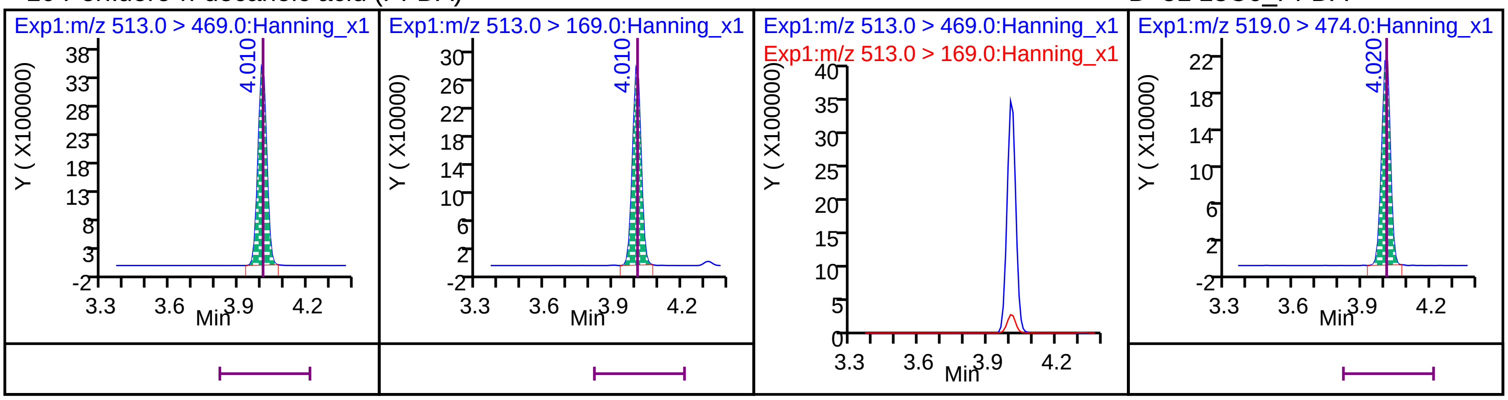
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



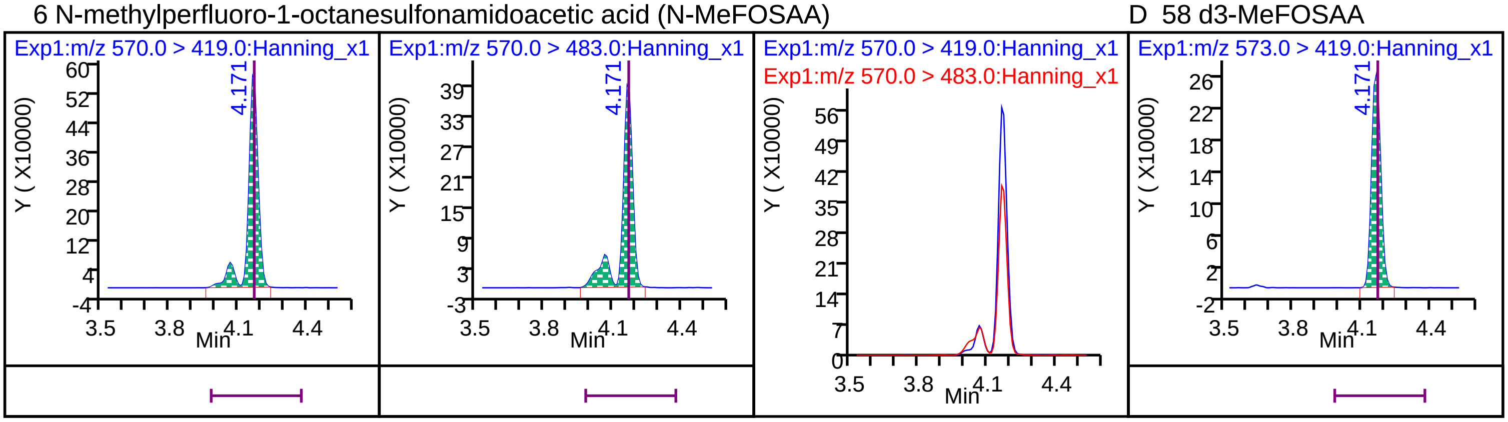
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



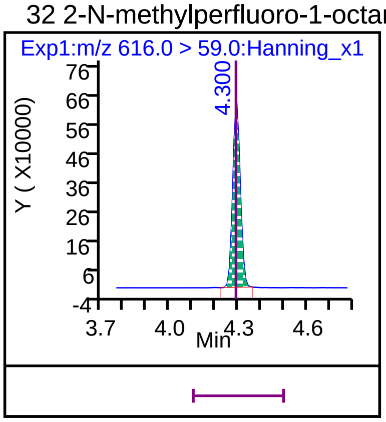
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



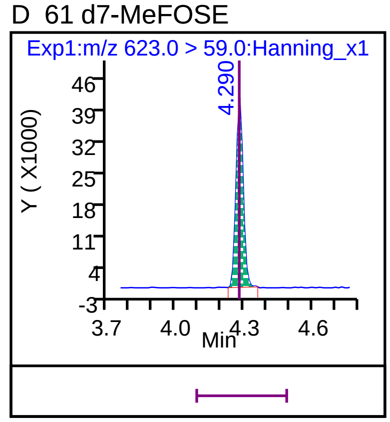
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



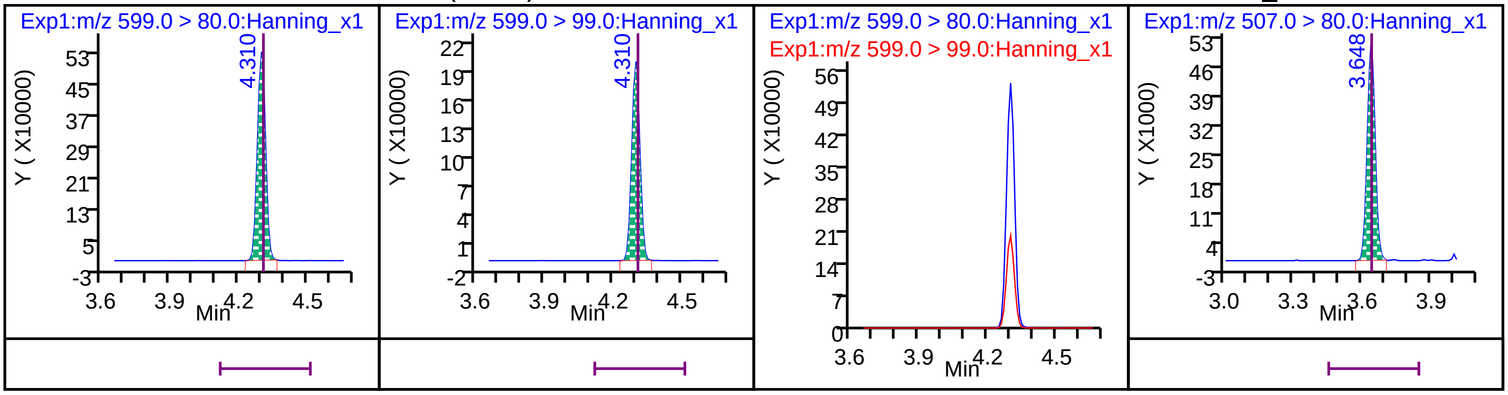
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



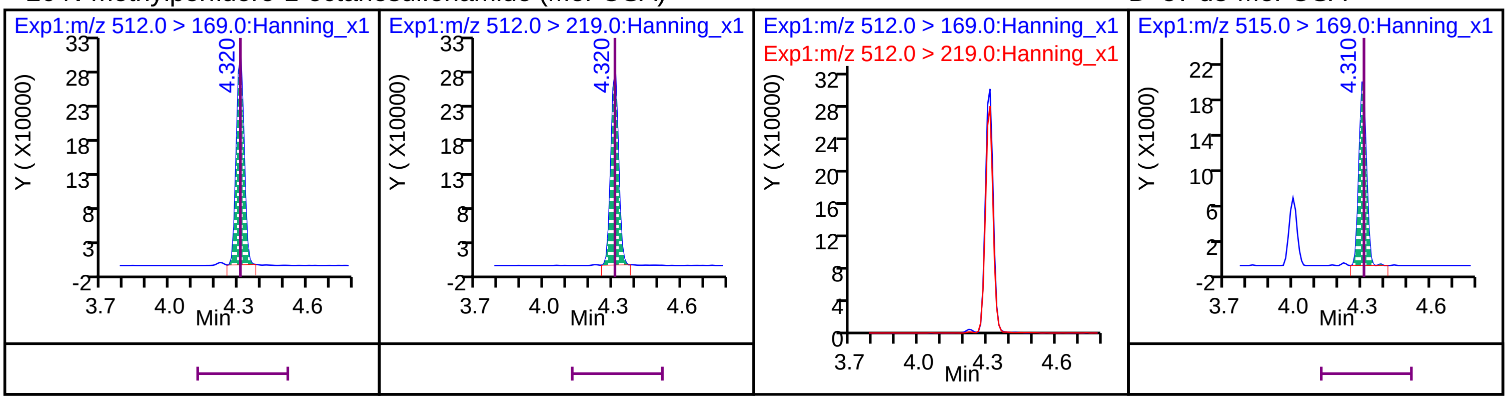
D 61 d7-MeFOSE



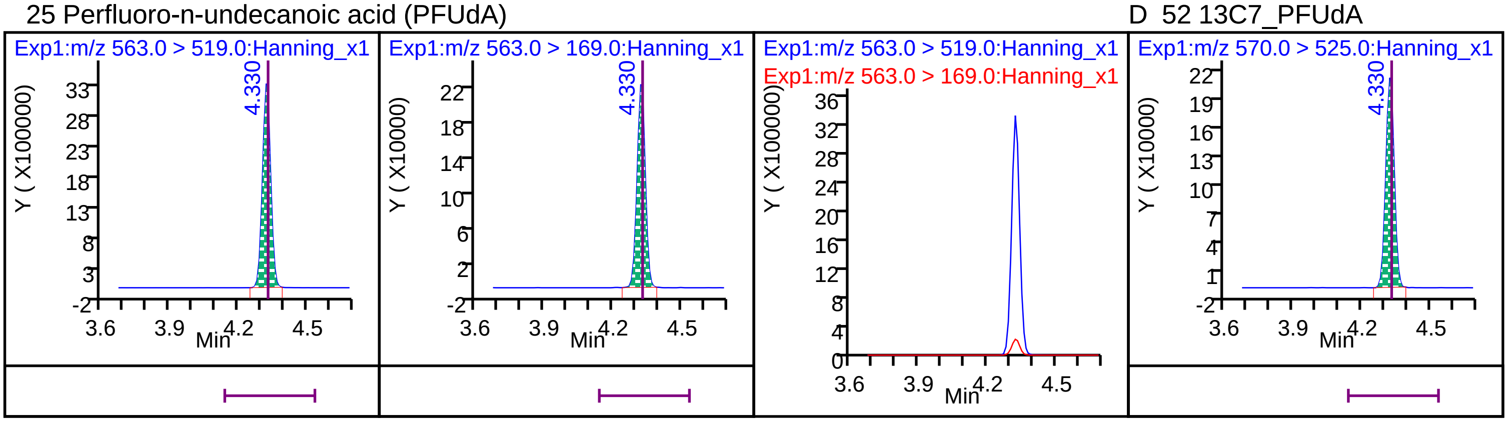
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



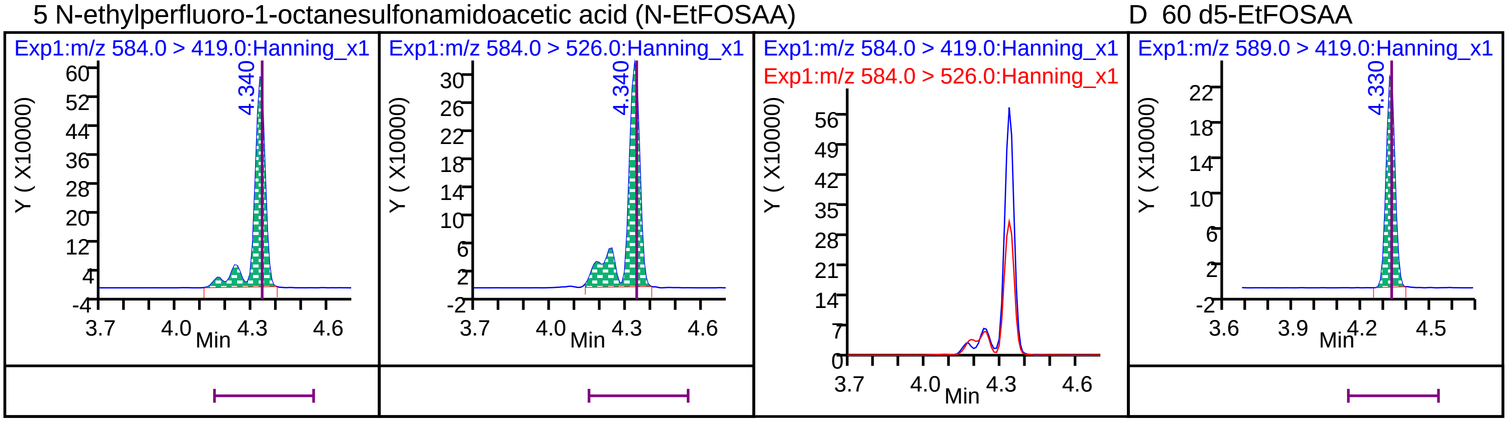
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



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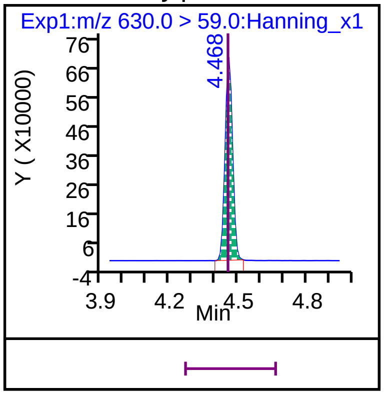
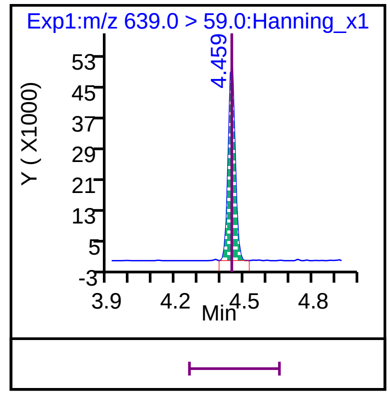
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d

33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

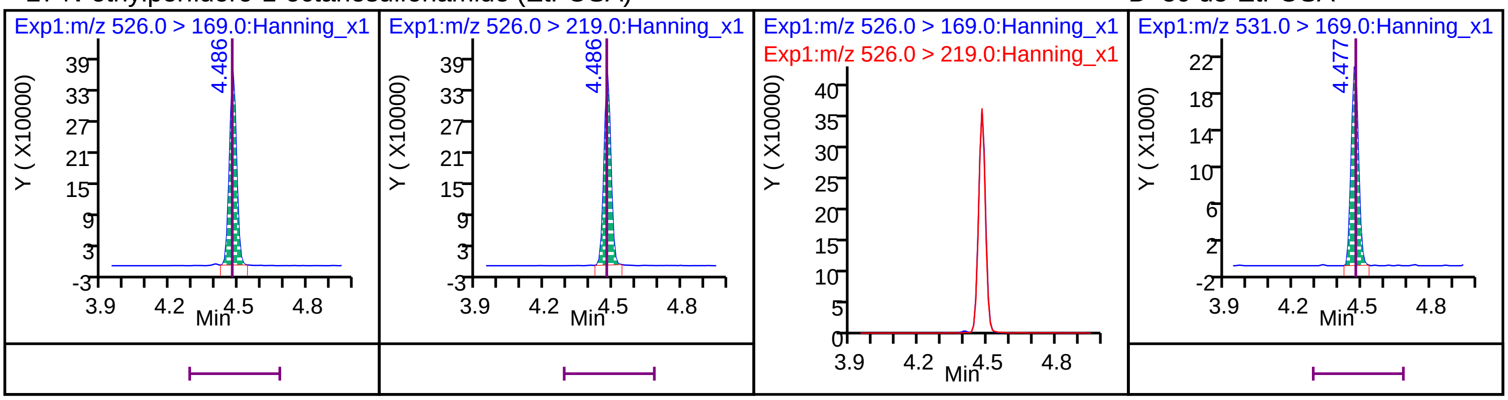


D 62 d9-EtFOSE

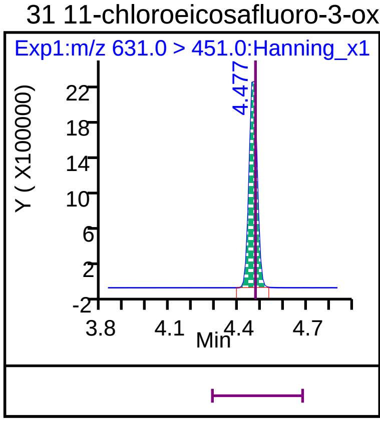


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

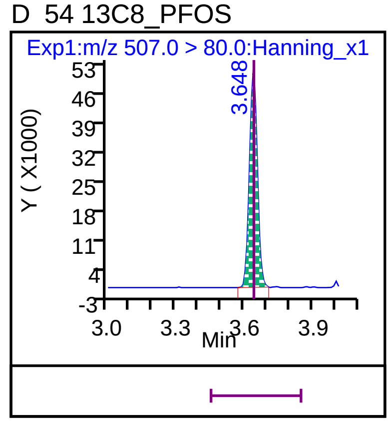
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

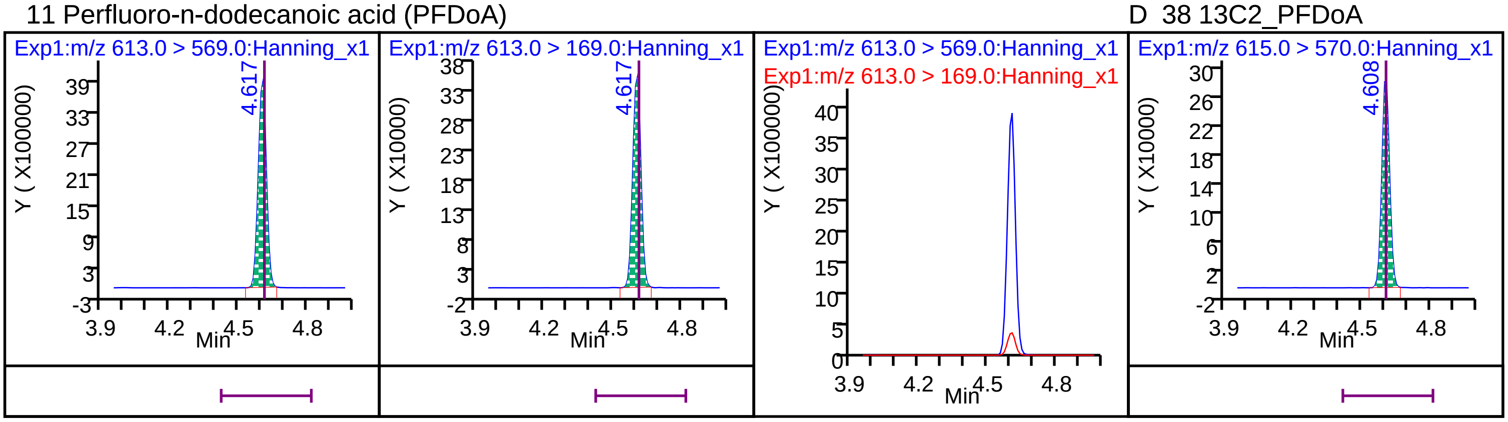


D 54 13C8_PFOS

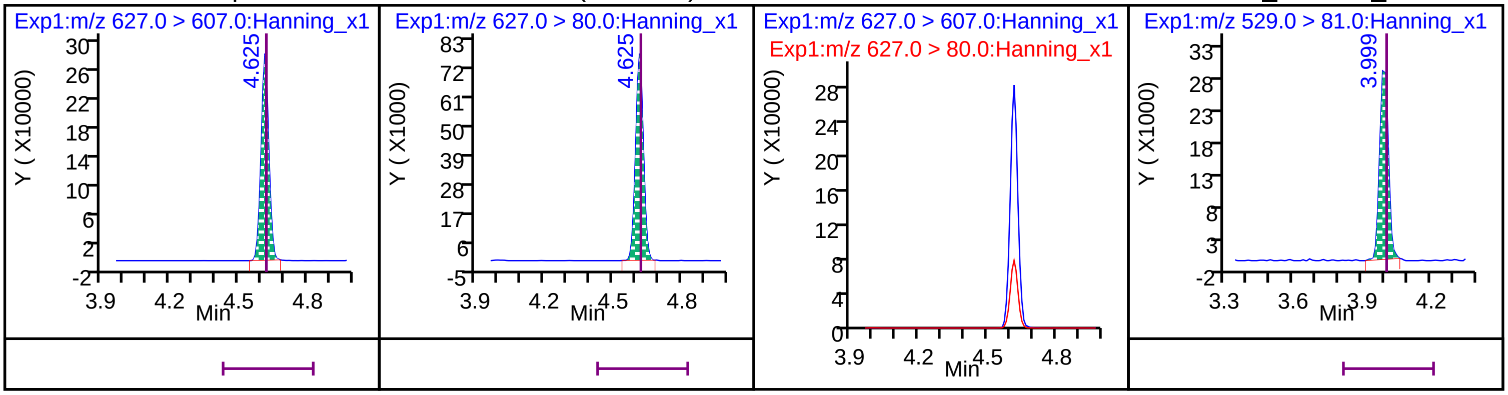


11 Perfluoro-n-dodecanoic acid (PFDoA)

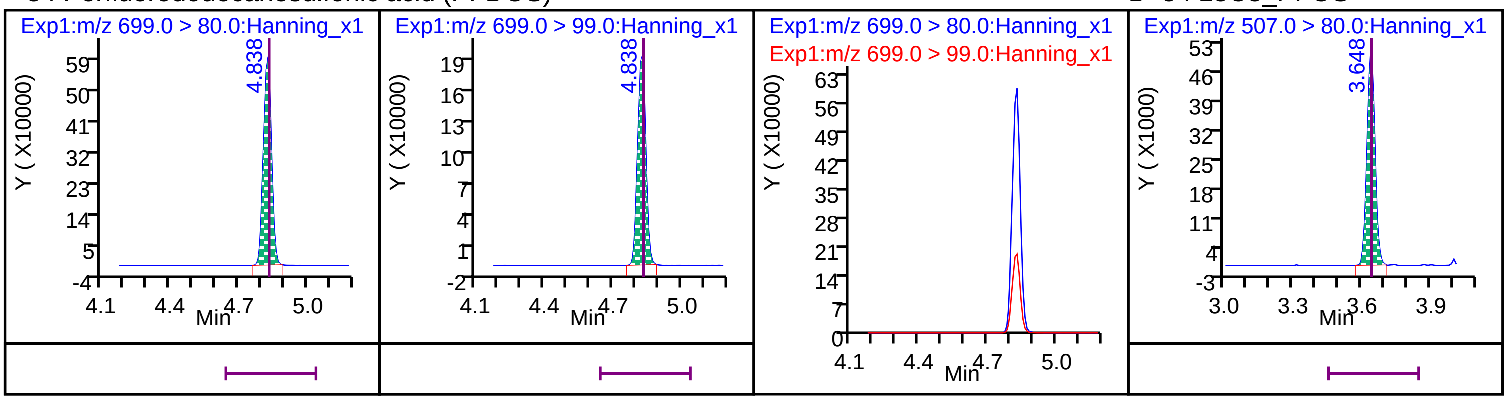
D 38 13C2_PFDoA



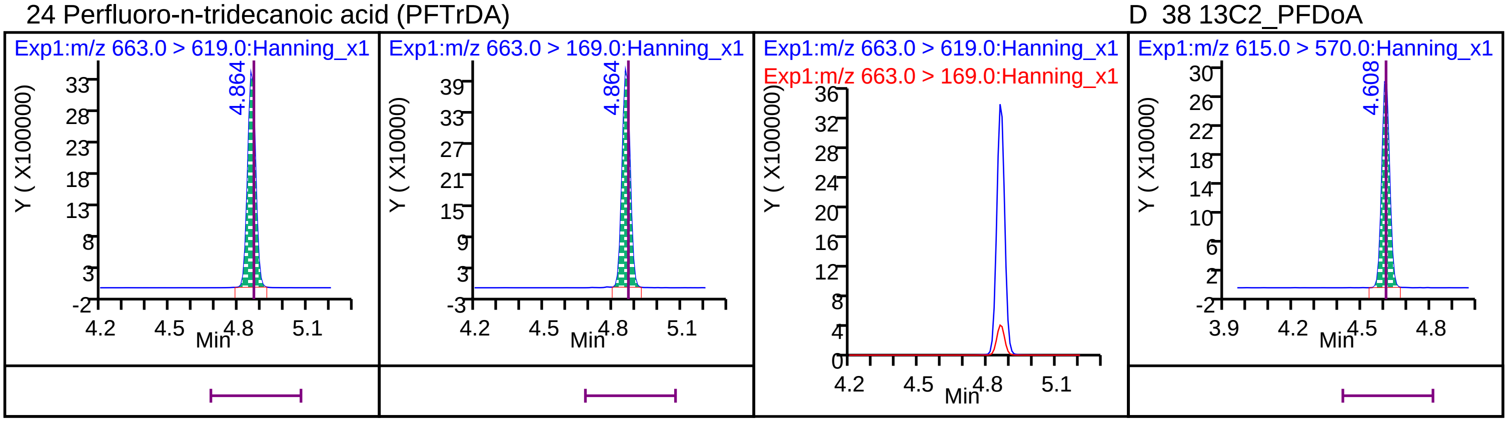
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



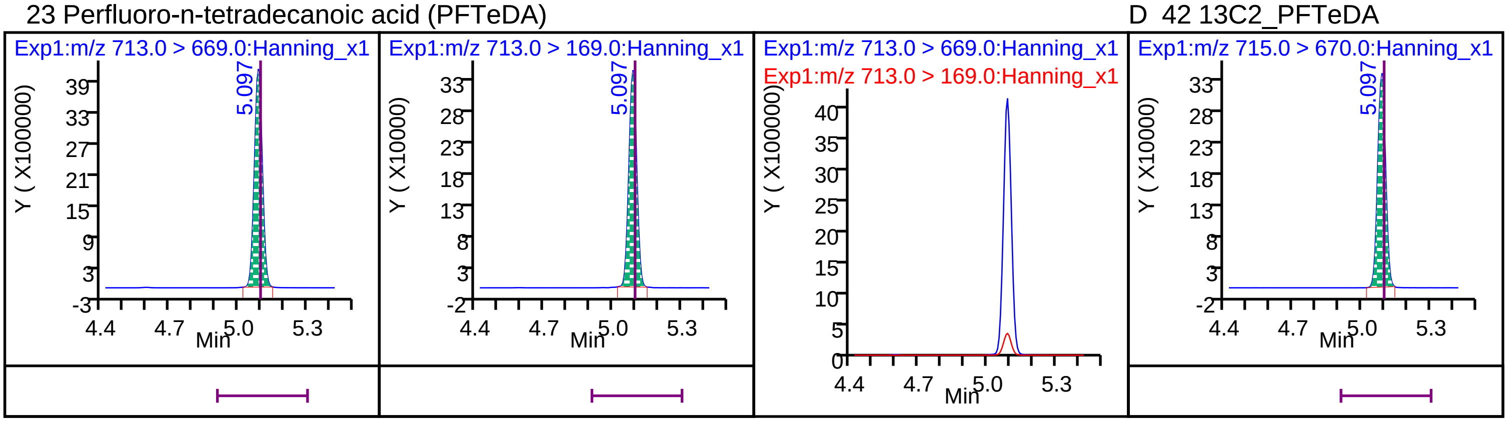
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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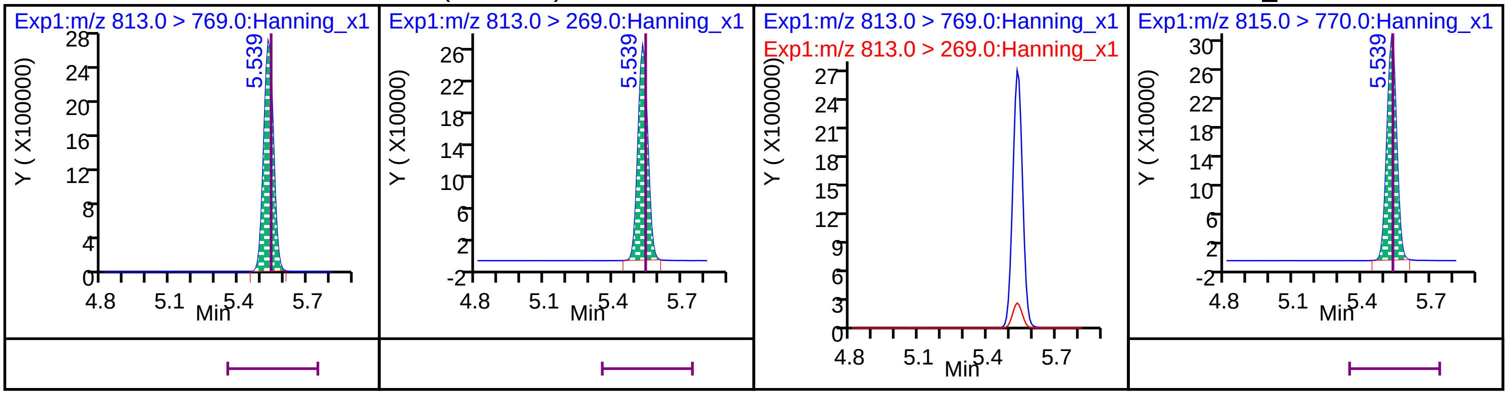
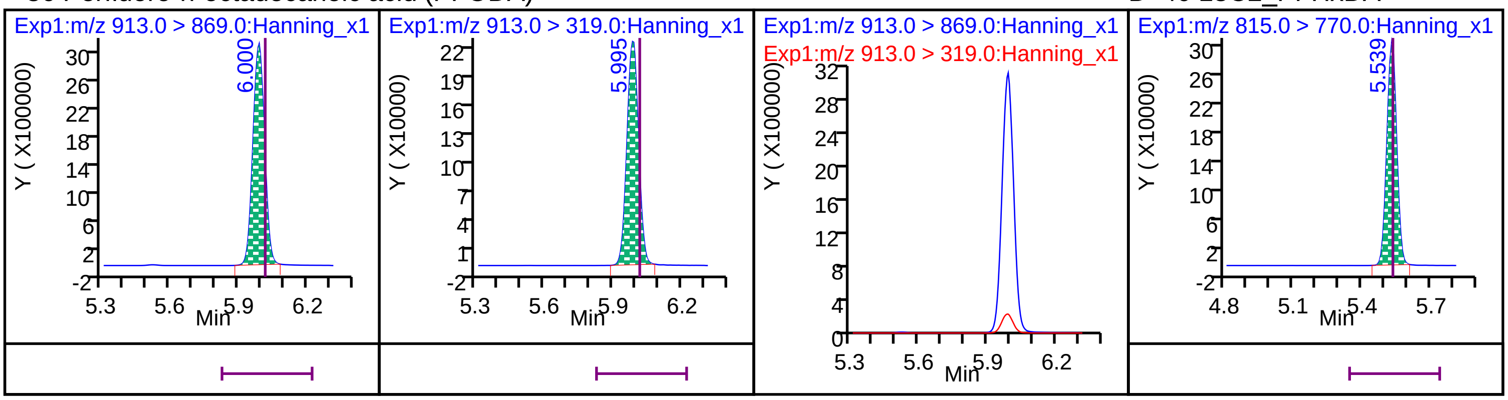
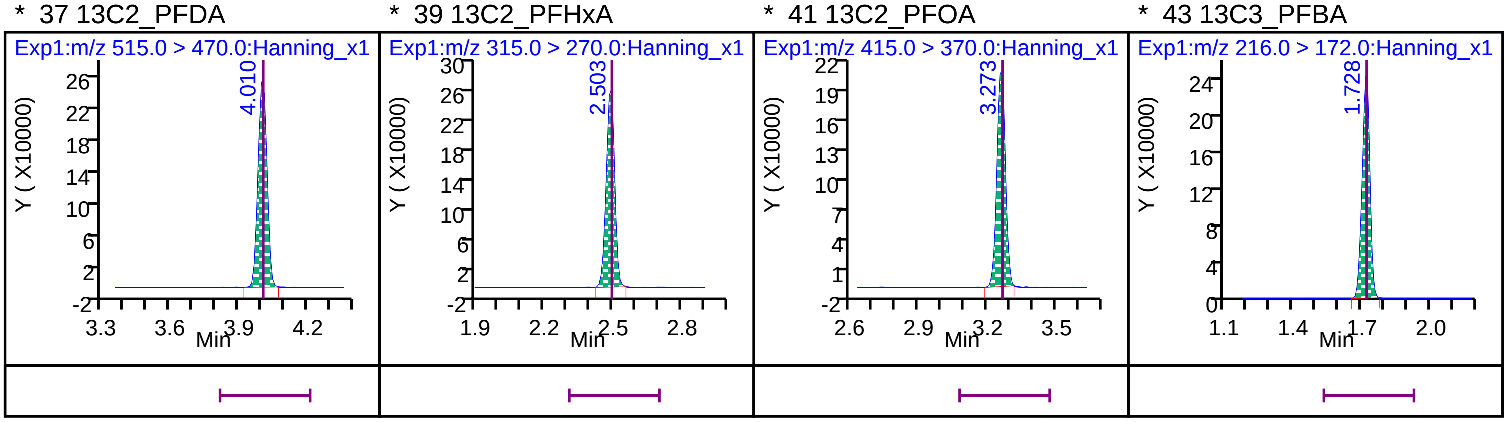
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



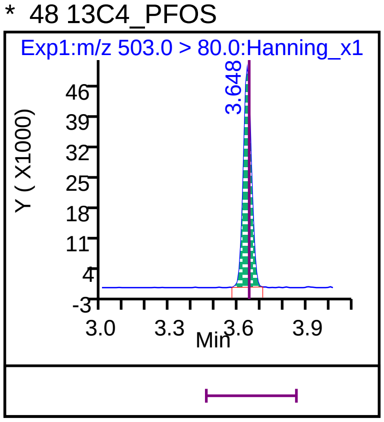
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

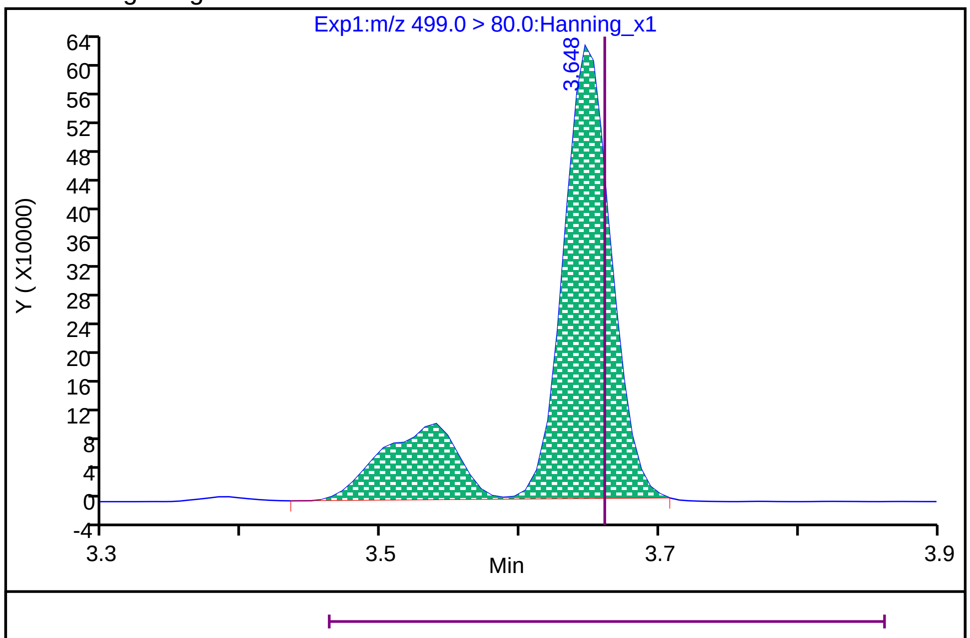
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 15000_SVLC-1748
Sample Info:	ID ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin

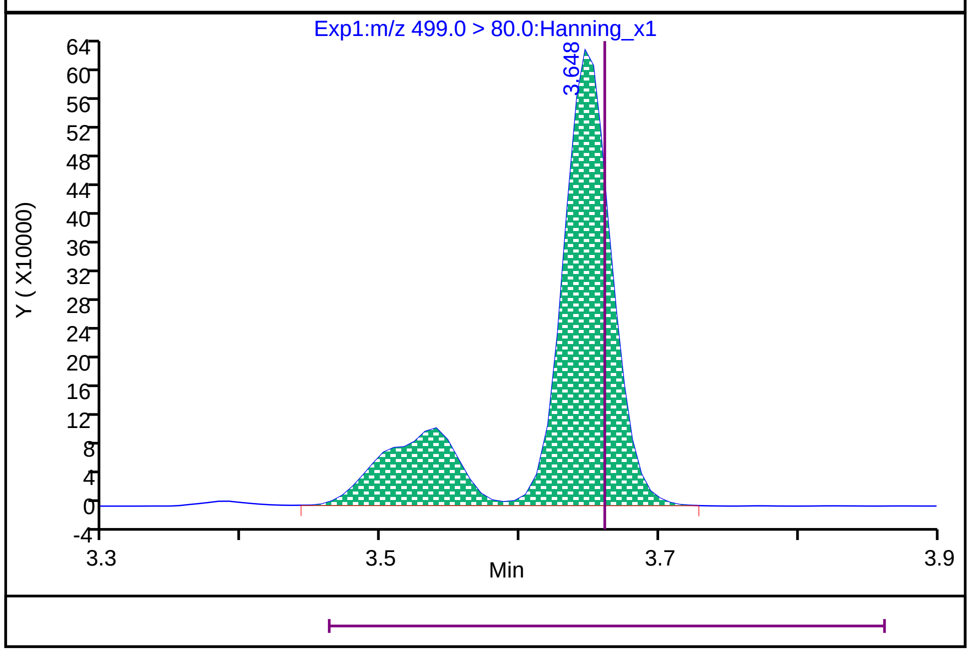
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.648
Area: 1869519
Amount: 12841
Amount Units: ng/L



RT: 3.648
Area: 1912794
Amount: 13164
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:39

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	84
Sample Info:	ID ICAL 20000_SVLC-1749	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	601428	20	>100:1			1000.00	967.43	94.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	12271777	20	>100:1			20000	19347		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.130	0	562559	16	>100:1			1000.00	984.20	97	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.130	0/0	12285003	14	>100:1			20000	19403		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	172528	16	>100:1			1000.00	997.45	96.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	3784673	16	>100:1	Target = 3.53		17680	17591		
298.9 > 99	44	2.183	2.183		1060665	16	>100:1	3.56 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	3011449	17	>100:1	Target = 3.10		18760	18834		
349 > 99	44	2.532	2.531		995968	17	>100:1	3.02 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	111342	16	>100:1			5000.00	4917.12	99.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	918635	16	>100:1	Target = 1.75		18680	18714		
327 > 81	63	2.460	2.460		478434	17	>100:1	1.92 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	630351	18	>100:1			1000.00	967.85	94.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	13063789	18	>100:1	Target = 18.91		20000	19932		
313 > 119	49	2.496	2.505		701779	17	>100:1	18.61 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1088480	19	>100:1			5000.00	4696.66	90.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	5757611	19	>100:1	Target = 0.79		40000	40838		
285 > 185	66	2.614	2.622		7184736	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	508162	19	>100:1			1000.00	957.10	95.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/1	10807866	17	>100:1	Target = 3.80		20000	19356		
363 > 169	47	2.881	2.880		2939906	17	>100:1	3.67 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	117903	19	>100:1			1000.00	938.42	90.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/-1	2431672	27	>100:1	Target = 2.89	4.58	18200	18760		
399 > 99	45	2.888	2.896		765406	27	>100:1	3.17 (1.44-4.34)	7.97				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	17168081	19	>100:1	Target = 3.23		18840	18776		
377 > 85	45	2.919	2.919		5499702	19	>100:1	3.12 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	1/0	2273794	21	>100:1	Target = 3.12		19040	18777		
449 > 99	45	3.269	3.276		738084	21	>100:1	3.08 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	91282	19	>100:1			5000.00	5071.23	97.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	732807	20		Target = 1.75		18960	16956		
427 > 81	64	3.241	3.248		396106	19	>100:1	1.85 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	501453	20	>100:1			1000.00	955.74	91.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	9815646	22	>100:1	Target = 2.89		20000	19102		
413 > 169	53	3.269	3.276		3402320	22	>100:1	2.88 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.646	3.651	0	116988	21	>100:1			1000.00	944.65	88.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.652	3.662	0/0	2656667	41	>100:1	Target = 3.30	3.43	18560	19072		M
499 > 99	54	3.652	3.662		776730	37	>100:1	3.42 (1.65-4.95)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/1	8707646	19	>100:1			18640	19654		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.006	0/0	1866192	17	>100:1	Target = 3.08		19200	19883		
549 > 99	54	3.995	4.006		704344	17	>100:1	2.64 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/0	1752012	15	>100:1	Target = 2.72		19280	19138		
599 > 99	54	4.308	4.318		640580	16		2.73 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/0	7841206	16	>100:1			18840	19577		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.825	4.842	-1/-1	2176544	19	>100:1	Target = 3.27		19360	21636		
699 > 99	54	4.825	4.842		703356	19	>100:1	3.09 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.662	0	601551	20	>100:1			1000.00	939.37	94.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.657	3.662	0/0	12848388	22	>100:1	Target = 6.51		20000	19816		
463 > 169	56	3.657	3.662		1974262	22	>100:1	6.50 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	264794	17				1000.00	987.82	99.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/1	5595676	18	>100:1	Target = 41.63		20000	20084		
498>478	55	3.896	3.896		176532	18		31.69 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	1	531731	16	>100:1			1000.00	925.30	92.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	1/0	12363983	16	>100:1	Target = 13.80		20000	19981		
513 > 169	51	4.017	4.016		876637	15	>100:1	14.10 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	4.016	0	86255	15	>100:1			5000.00	4990.31	109.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.016	0/0	699409	17	>100:1	Target = 1.94		19160	17943		
527 > 81	65	4.006	4.016		358178	16	>100:1	1.95 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.623	4.631	0/0	806269	18	>100:1	Target = 3.54		19280	18425		
627 > 80	65	4.623	4.631		249814	17	>100:1	3.22 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.178	0	763092	17	>100:1			5000.00	5049.83	98.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.178	0/0	2384735	30	>100:1	Target = 1.37	8.07	20000	19473		
570 > 483	58	4.169	4.178		1774460	31	>100:1	1.34 (0.68-2.05)	4.20				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	93265	14	>100:1			1000.00	1034.11	103.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	1865803	14	>100:1			20000	18306		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	46513	17	>100:1			1000.00	988.77	103.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/1	934909	14	>100:1	Target = 1.11		20000	18544		
512 > 219	57	4.318	4.318		861239	14	>100:1	1.08 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.338	0	536911	17	>100:1			5000.00	4145.61	77.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.348	0/0	2309508	31	>100:1	Target = 1.51	5.37	20000	22058		
584 > 526	60	4.339	4.348		1489678	31	>100:1	1.55 (0.75-2.26)	3.35				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.338	0	556328	16				1000.00	923.75	87.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.338	0/0	10184582	16	>100:1	Target = 14.52		20000	18893		
563 > 169	52	4.328	4.338		715241	15	>100:1	14.23 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	107173	16	>100:1			1000.00	1010.33	105.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.465	4.464	1/0	1995842	15	>100:1			20000	19130		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	43319	19	>100:1			1000.00	1007.42	101	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	1036110	14	>100:1	Target = 1.06		20000	20212		
526 > 219	59	4.483	4.483		1001264	15	>100:1	1.03 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.614	0	580173	17	>100:1			1000.00	966.41	96	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.606	4.622	-1/-1	12133384	17	>100:1	Target = 10.70		20000	19617		
613 > 169	38	4.606	4.622		1194541	17	>100:1	10.15 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.860	4.877	-1/-1	11146450	18	>100:1	Target = 8.31		20000	18278		
663 > 169	38	4.860	4.877		1359765	17	>100:1	8.19 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.094	5.106	0	798422	22	>100:1			1000.00	982.08	95.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.094	5.106	0/0	12878458	22	>100:1	Target = 12.17		20000	18478		
713 > 169	42	5.094	5.106		1076381	22	>100:1	11.96 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.529	5.544	0	855945	21	>100:1			1000.00	986.07	97.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.536	5.552	0/0	10035004	21	>100:1	Target = 10.43		20000	18306		
813 > 269	40	5.529	5.552		989488	21	>100:1	10.14 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.002	6.026	-1/-1	14977998	44	>100:1	Target = 13.67		20000	19221		
913 > 319	40	6.002	6.026		1101505	44	>100:1	13.59 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.017	4.016	1	627731	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	669431	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	495600	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	550746	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.657	0	118894	22	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

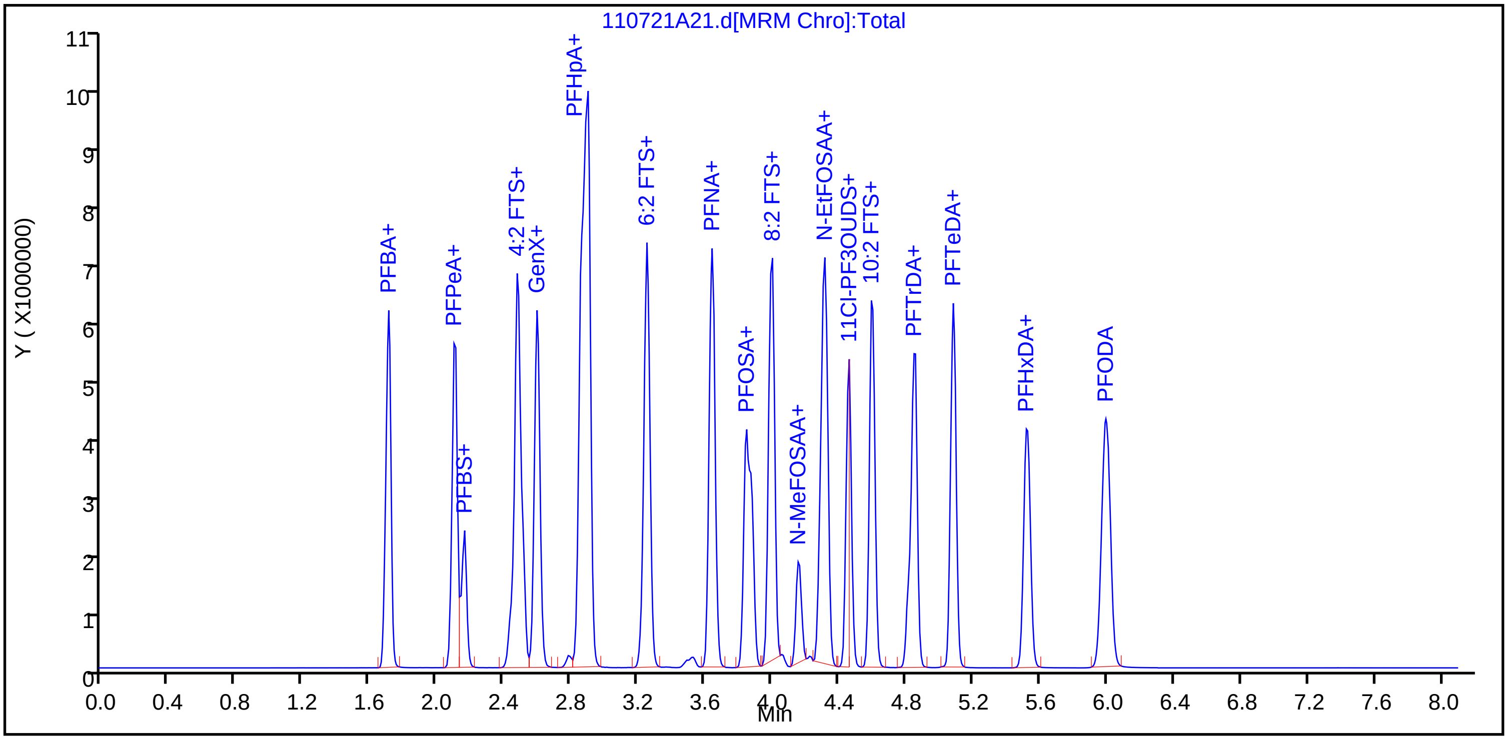
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

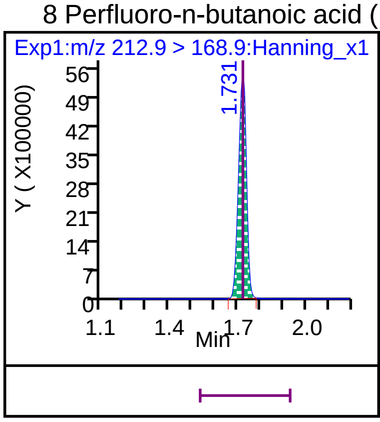
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

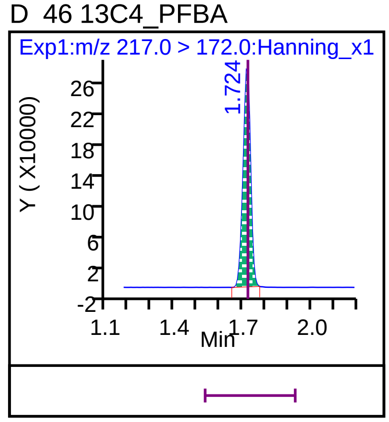
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 20000_SVLC-1749
Sample Info:	ID ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin



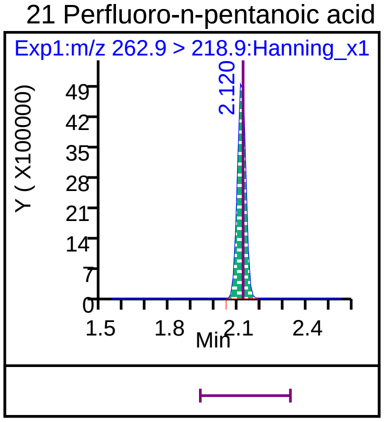
8 Perfluoro-n-butanoic acid (PFBA)



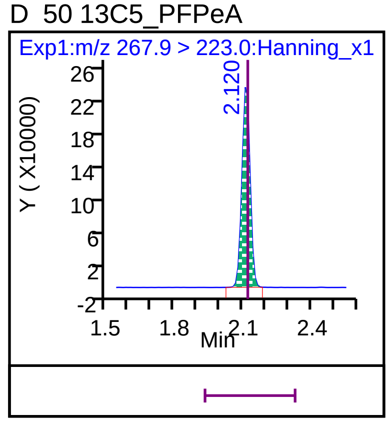
D 46 13C4_PFBA



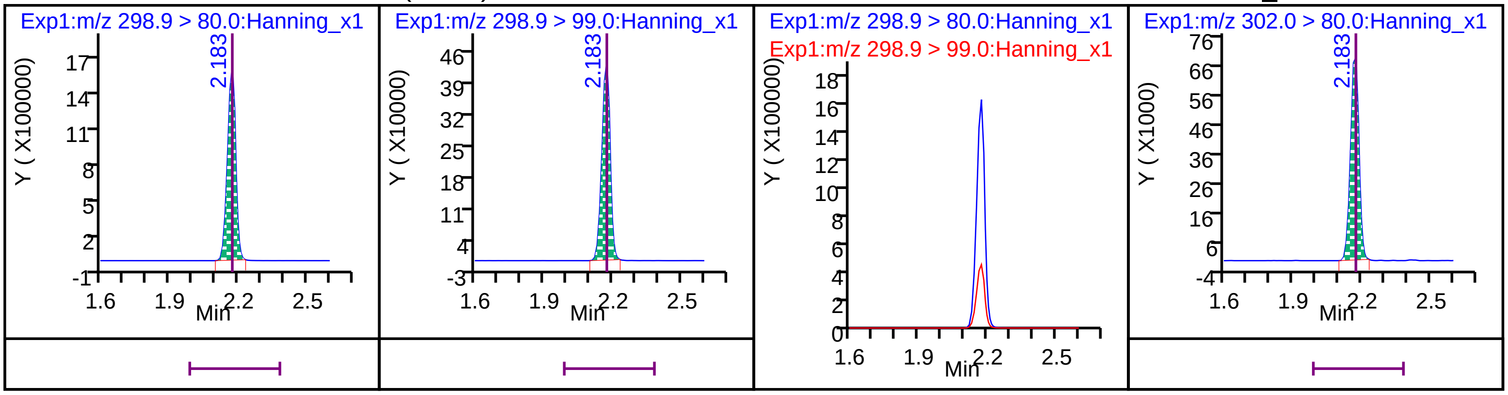
21 Perfluoro-n-pentanoic acid (PFPeA)



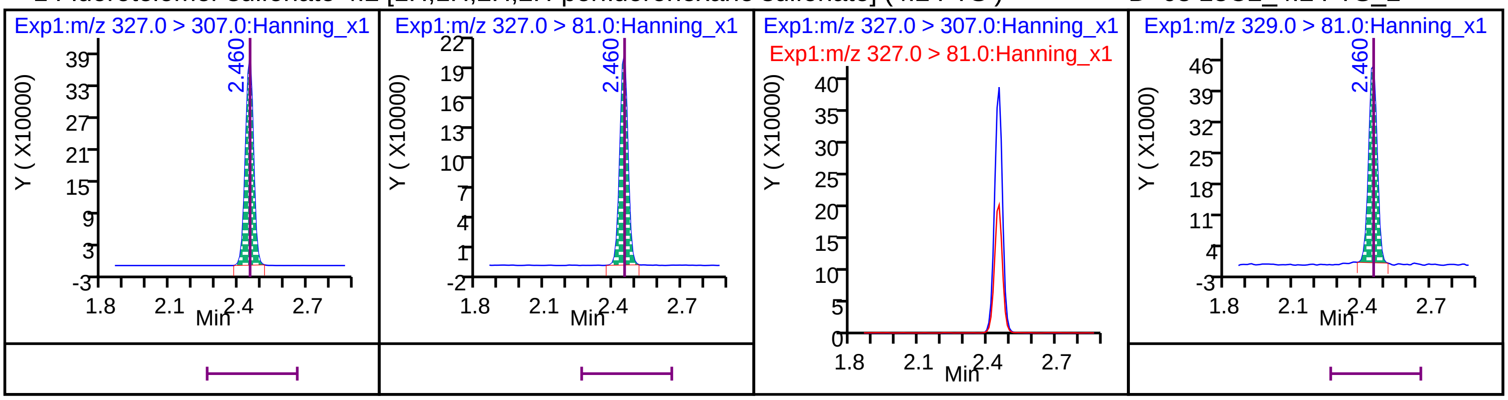
D 50 13C5_PFPeA



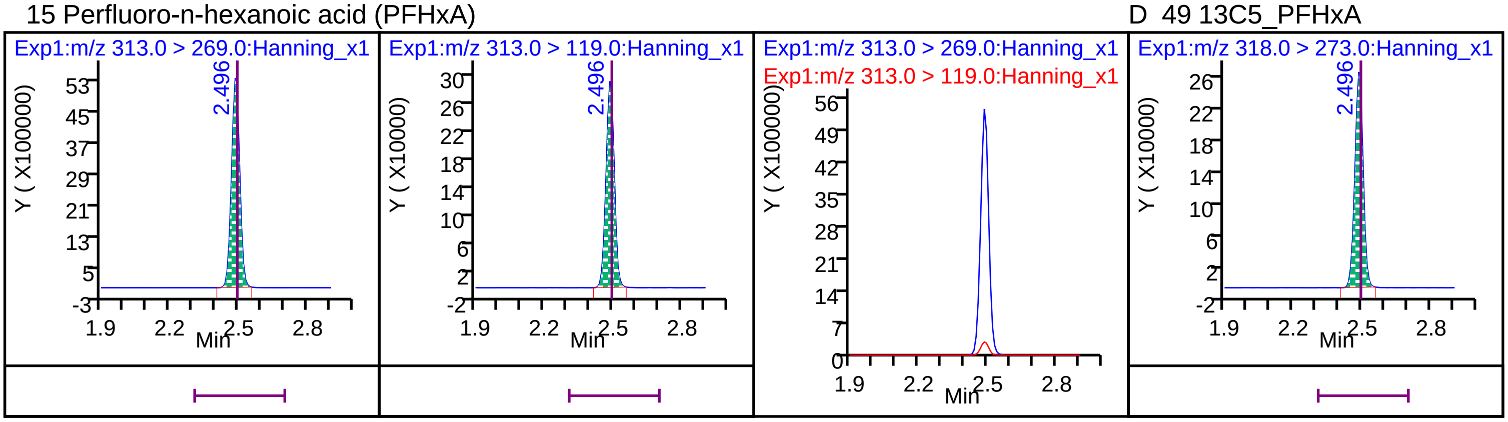
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



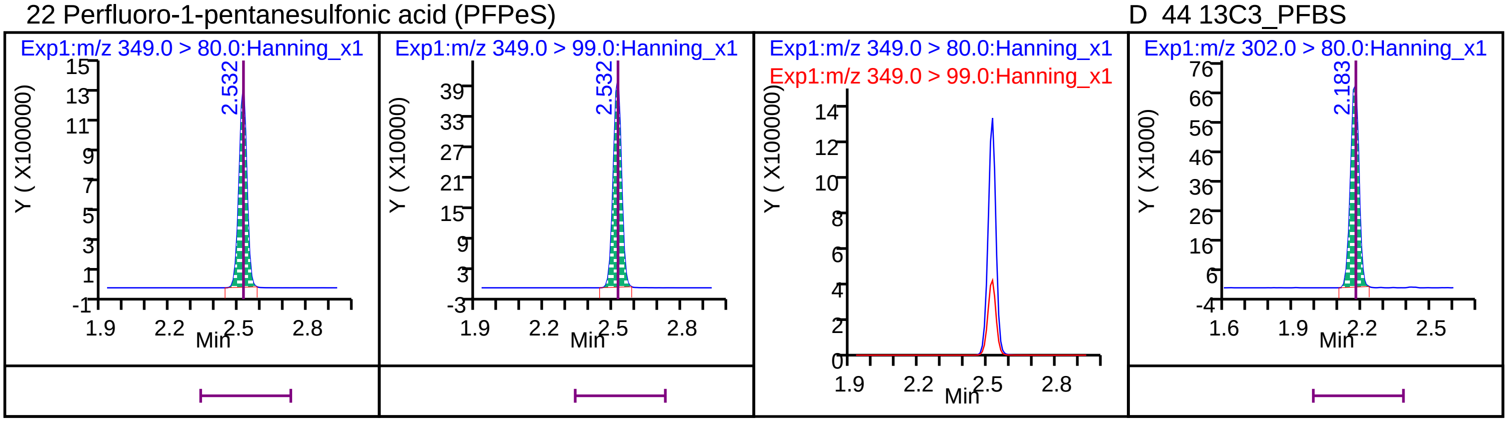
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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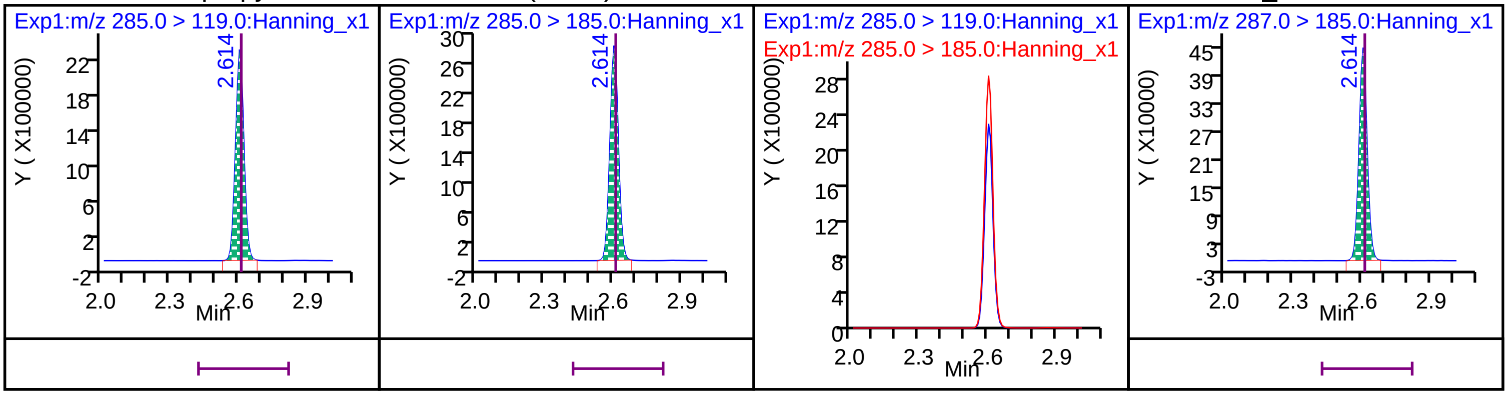
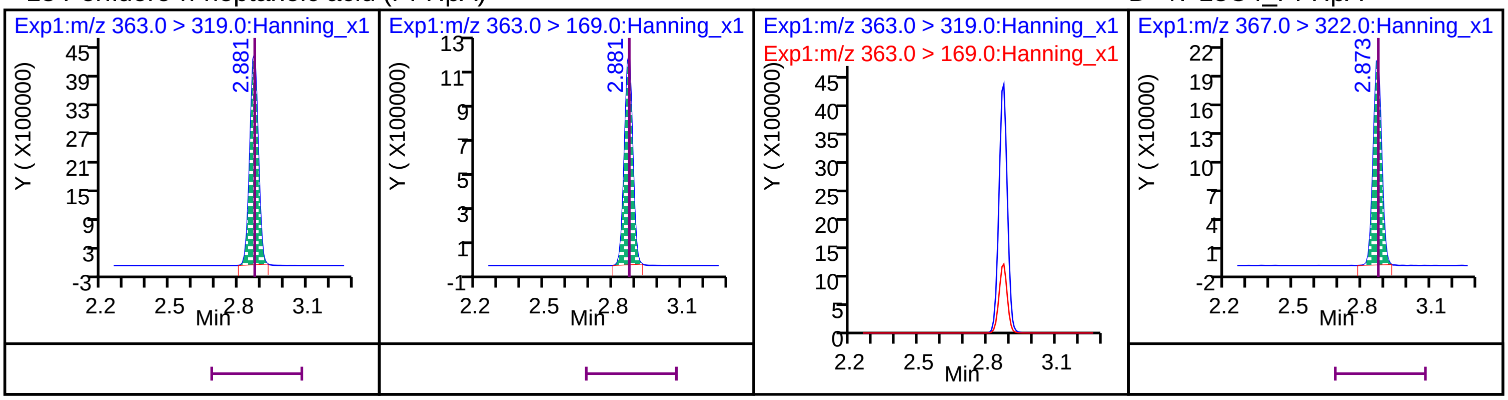
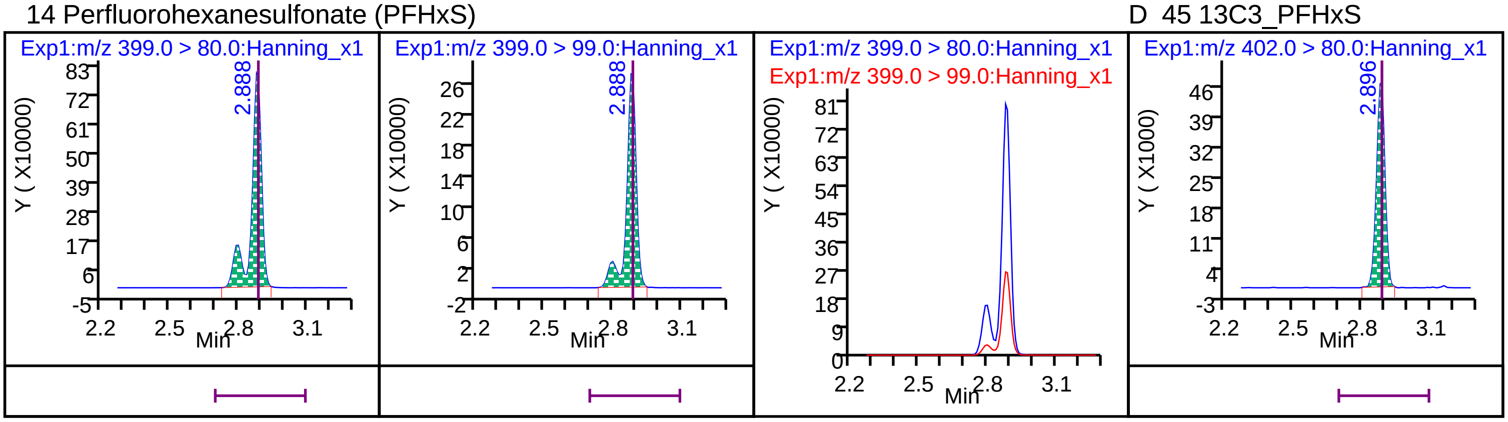
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



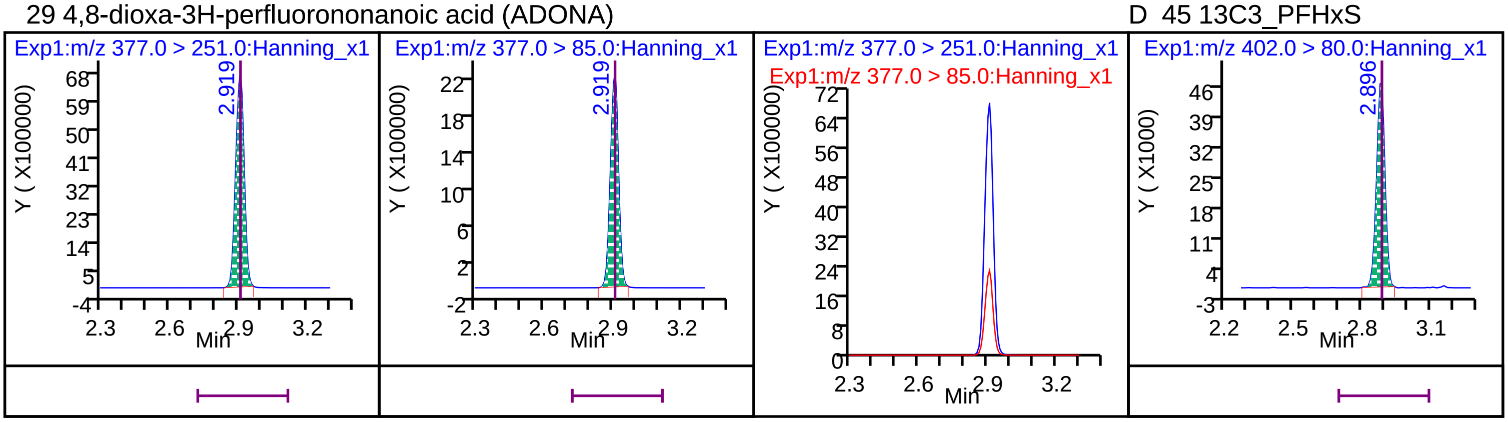
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



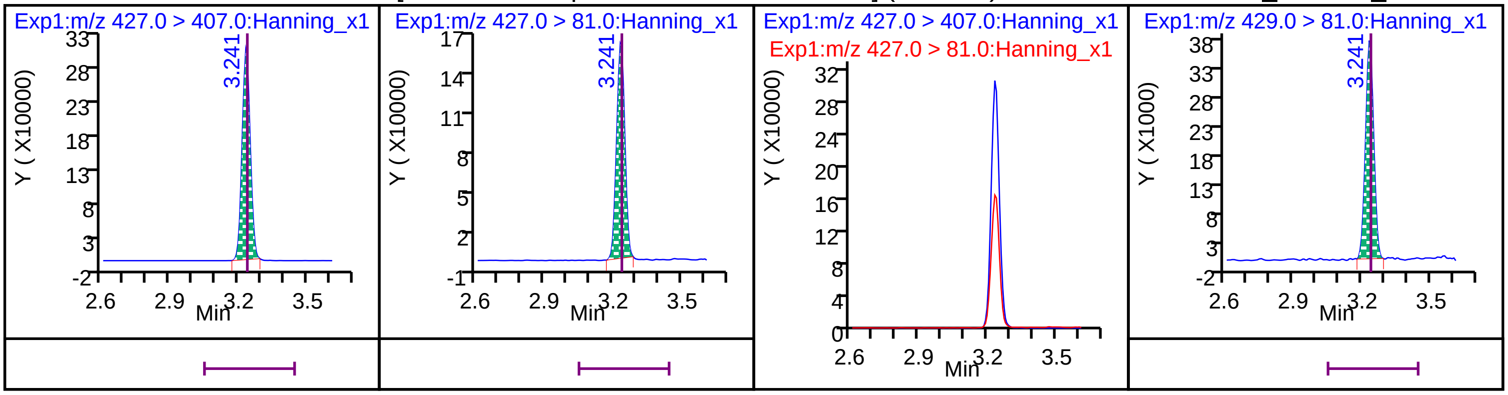
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



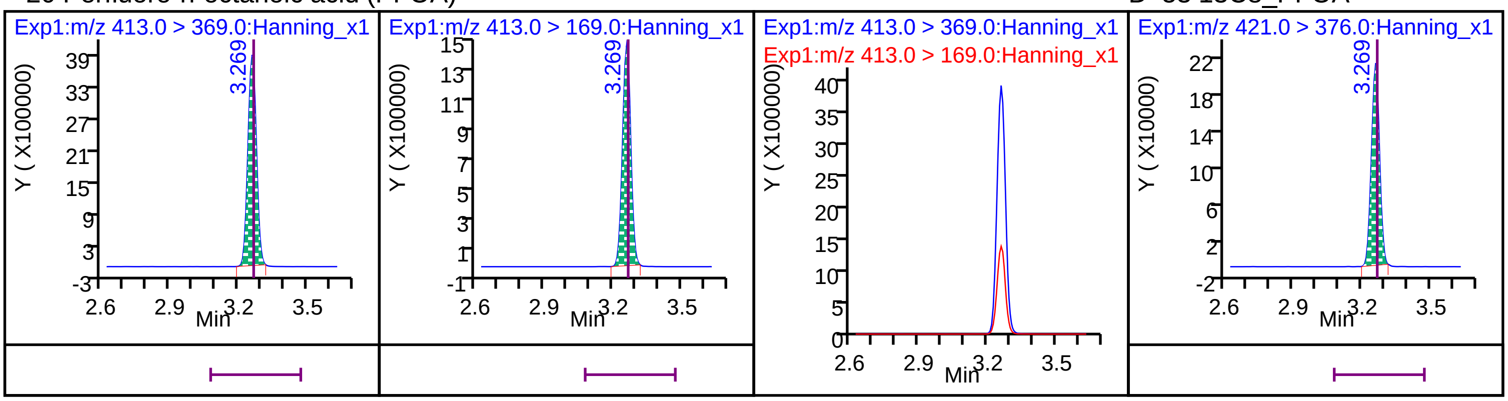
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

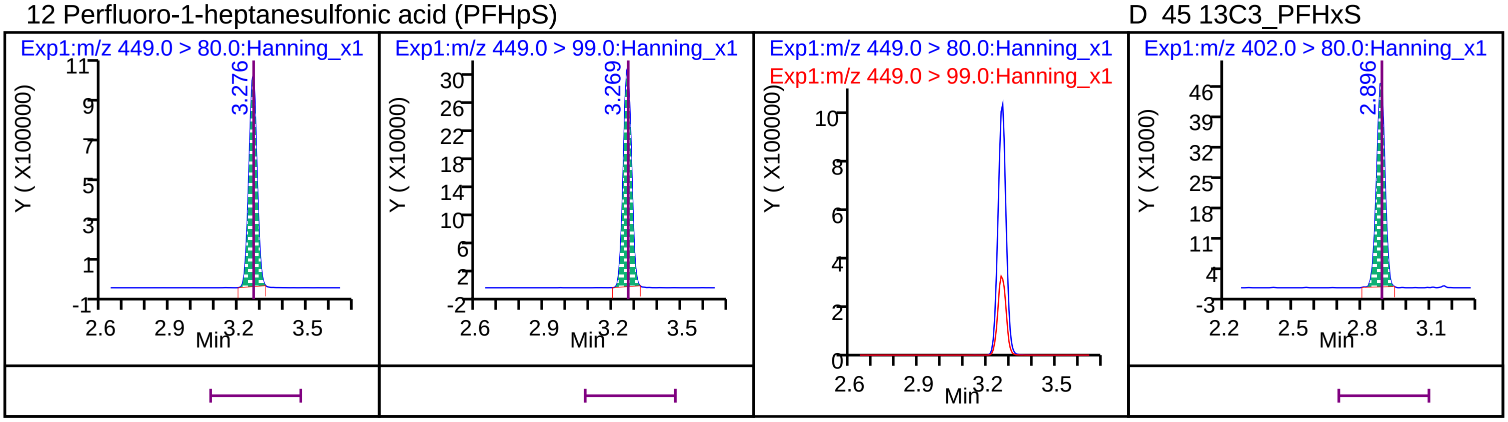
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



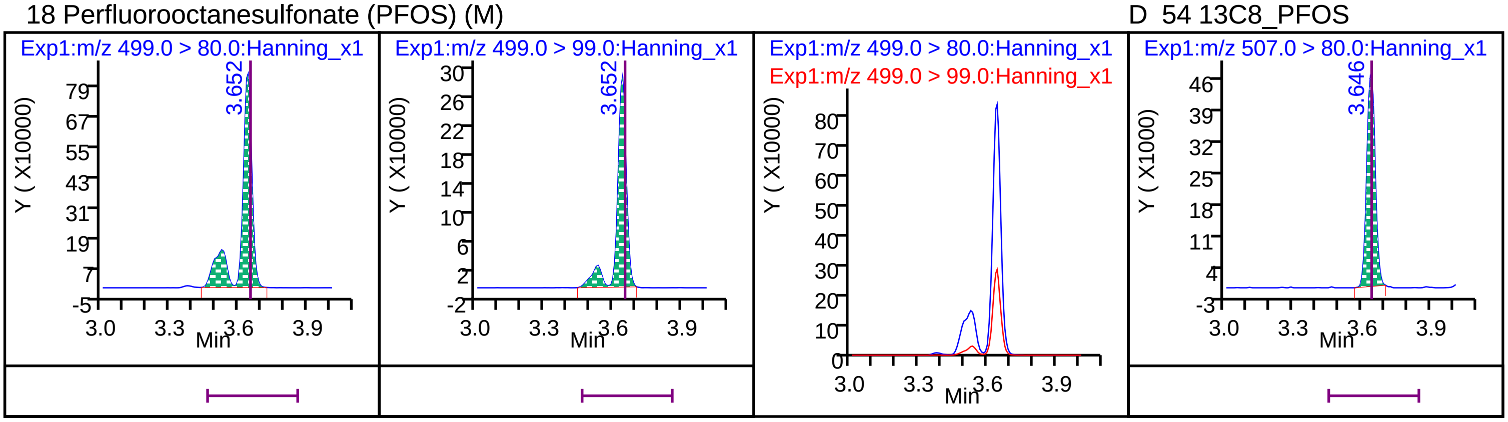
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



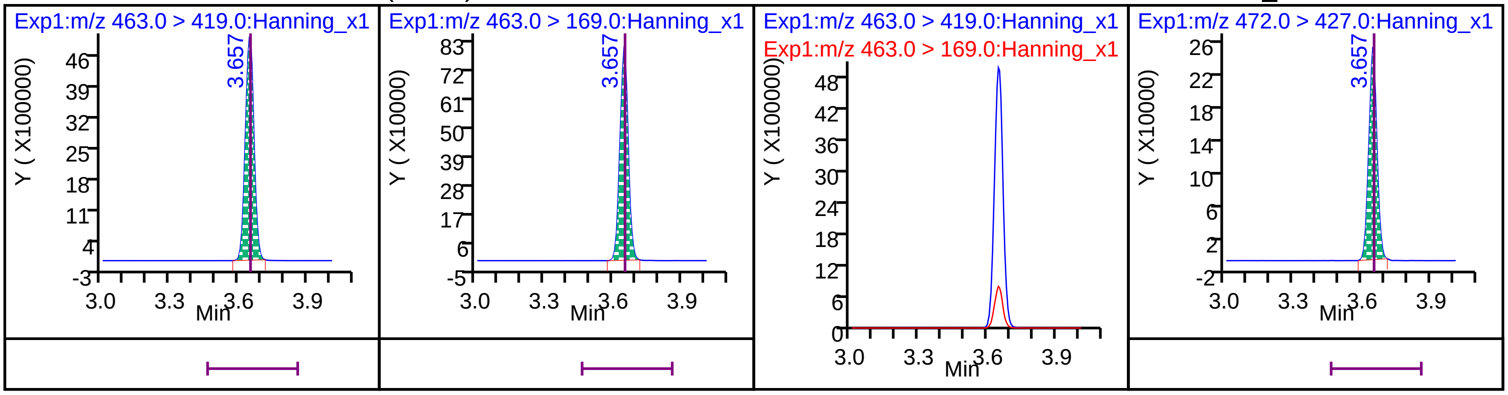
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



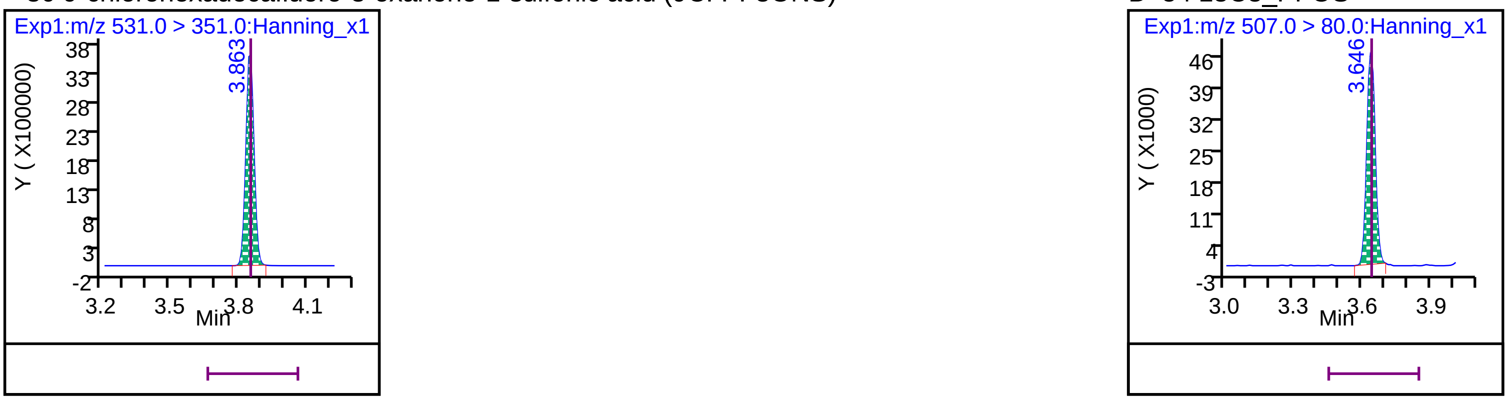
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



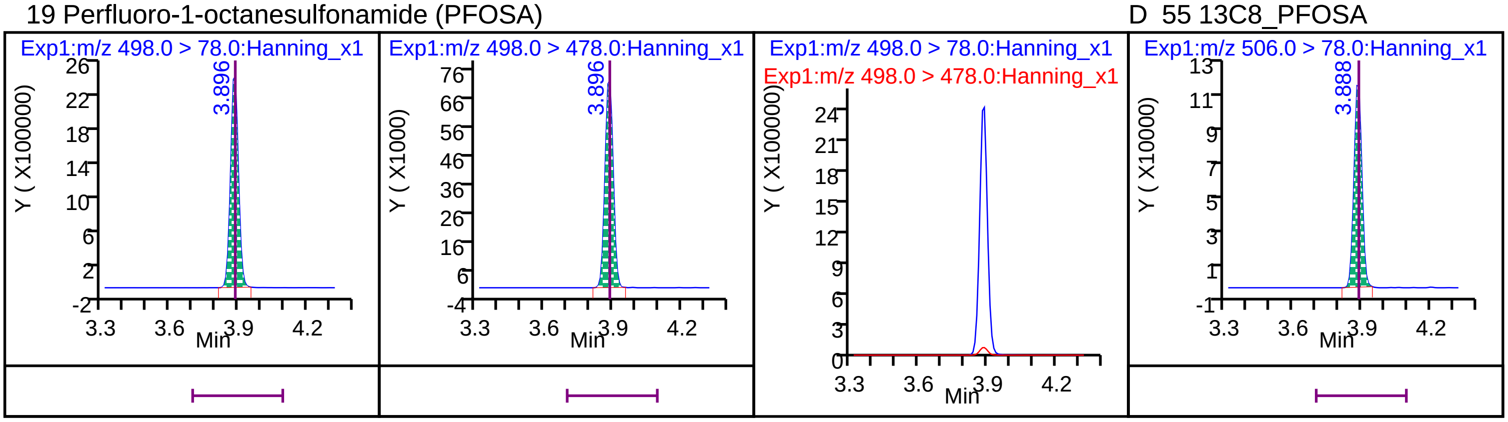
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



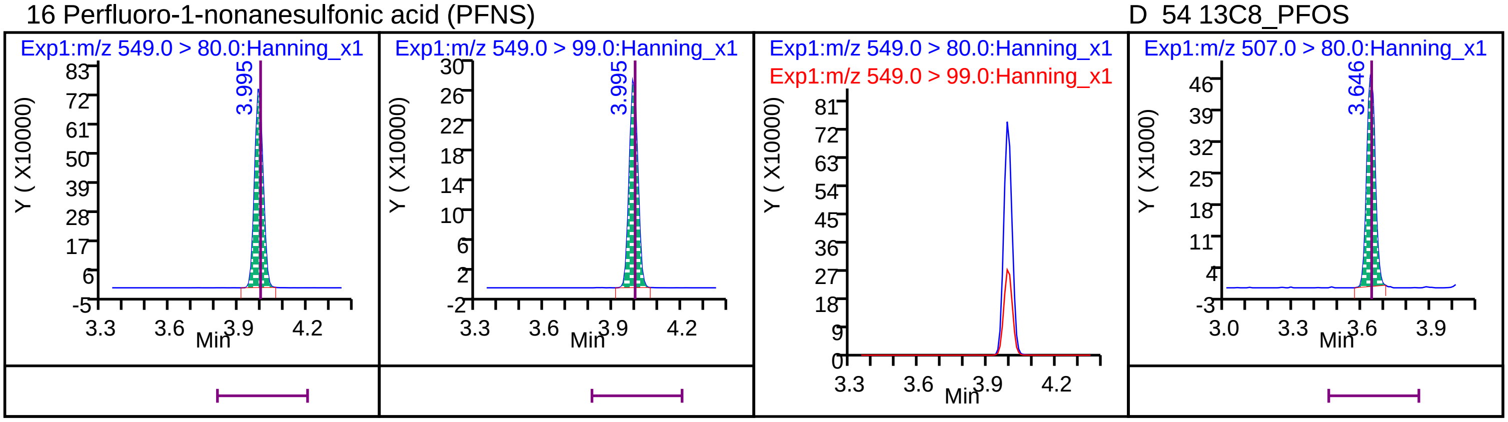
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



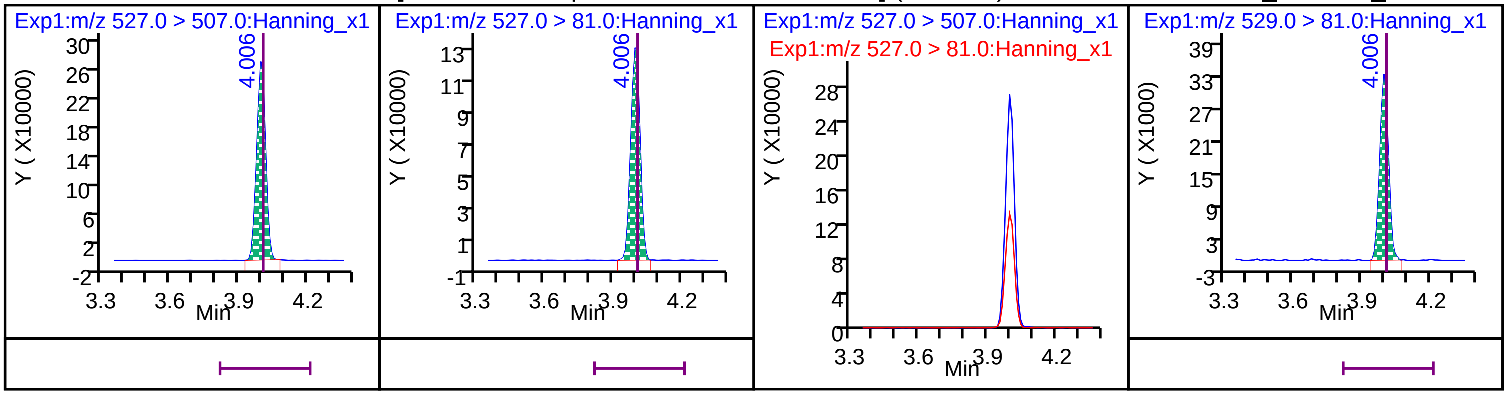
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



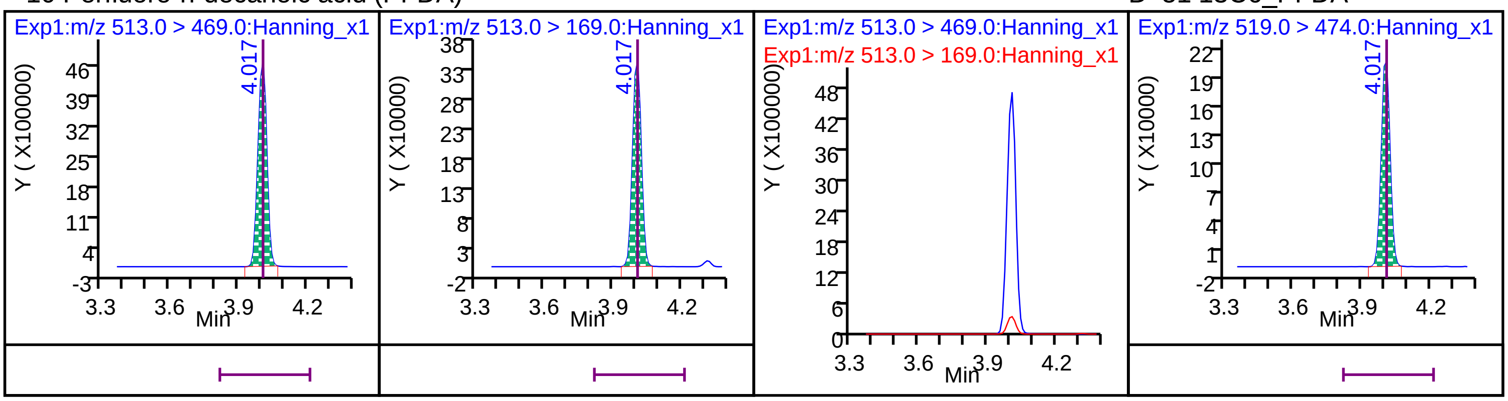
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



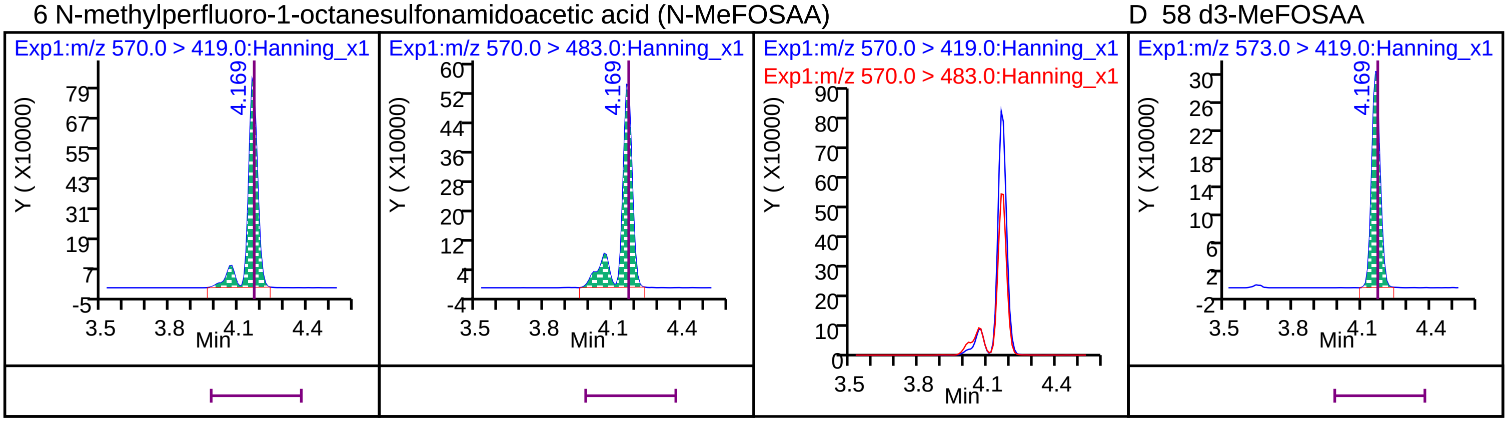
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



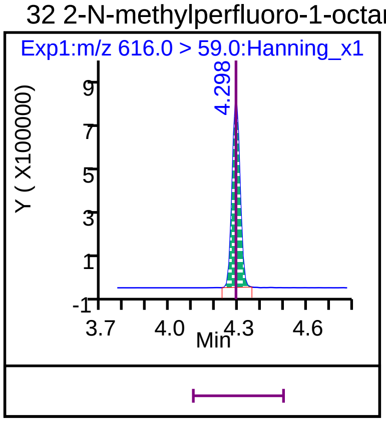
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

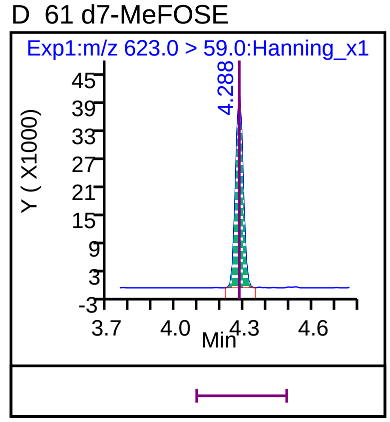


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

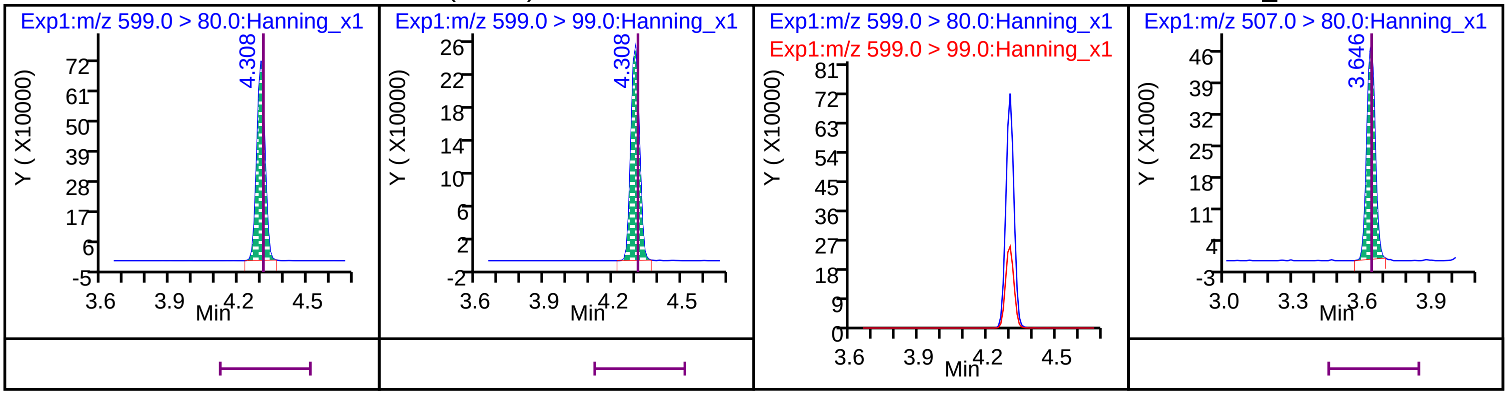


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

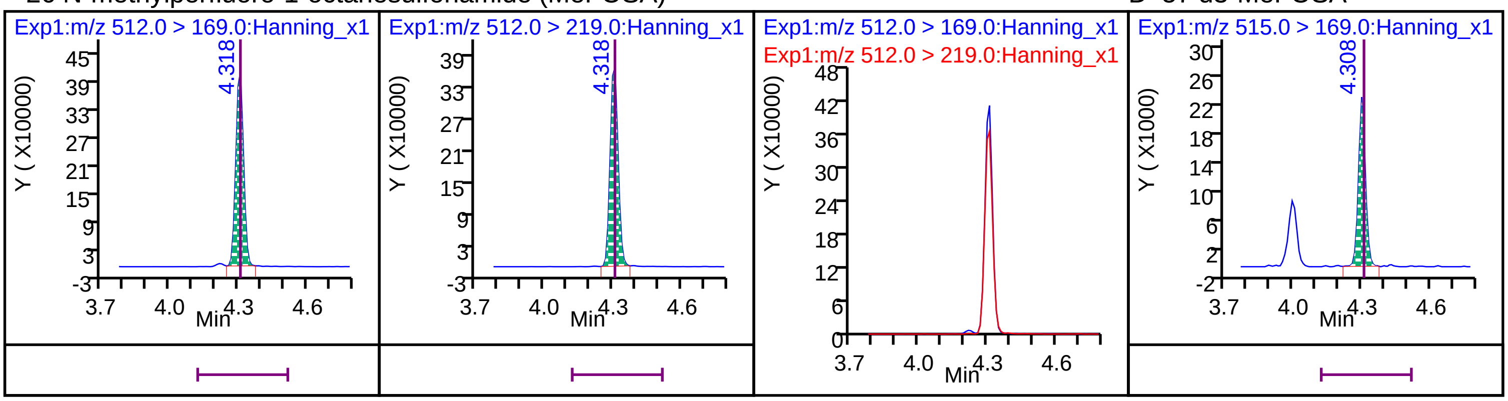




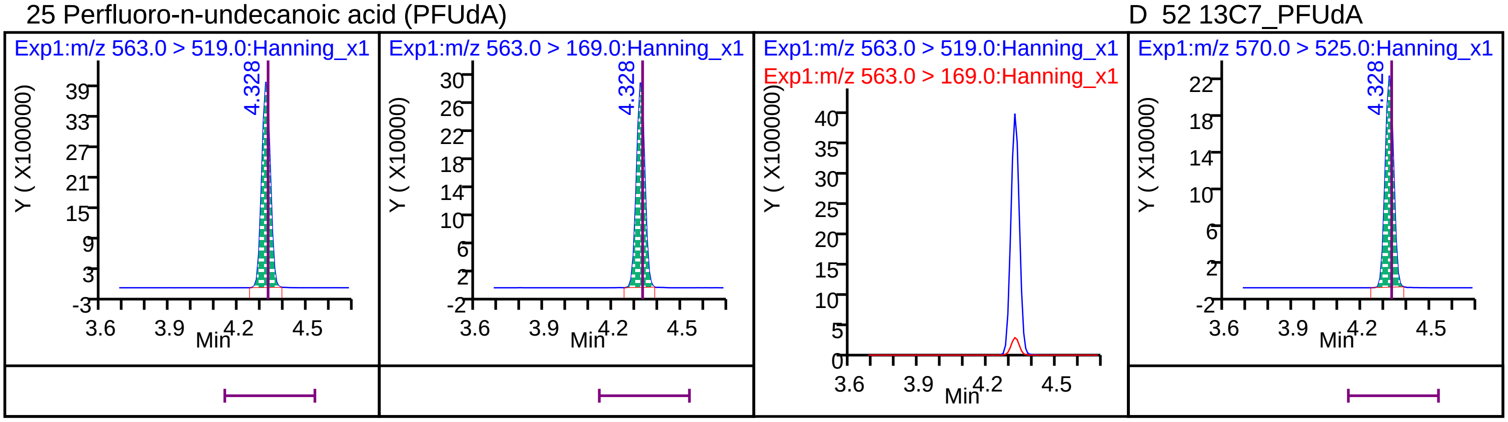
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



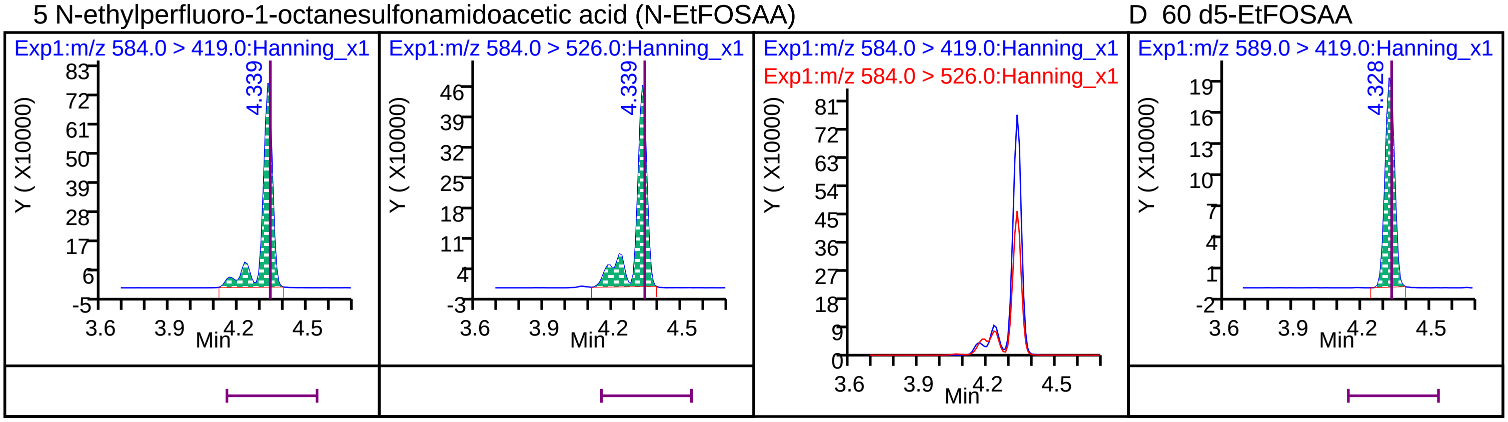
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



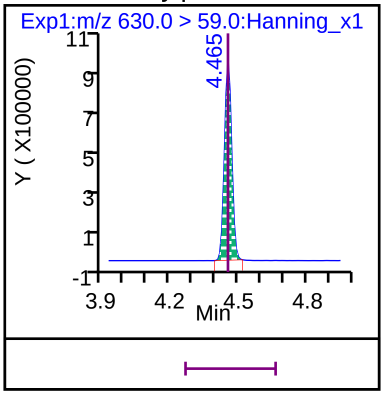
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



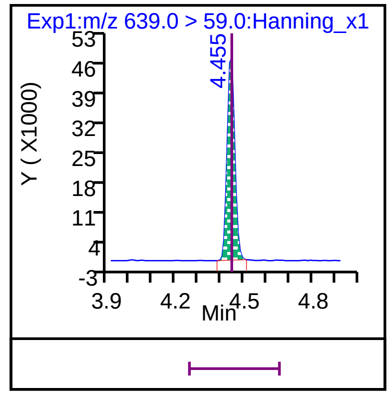
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

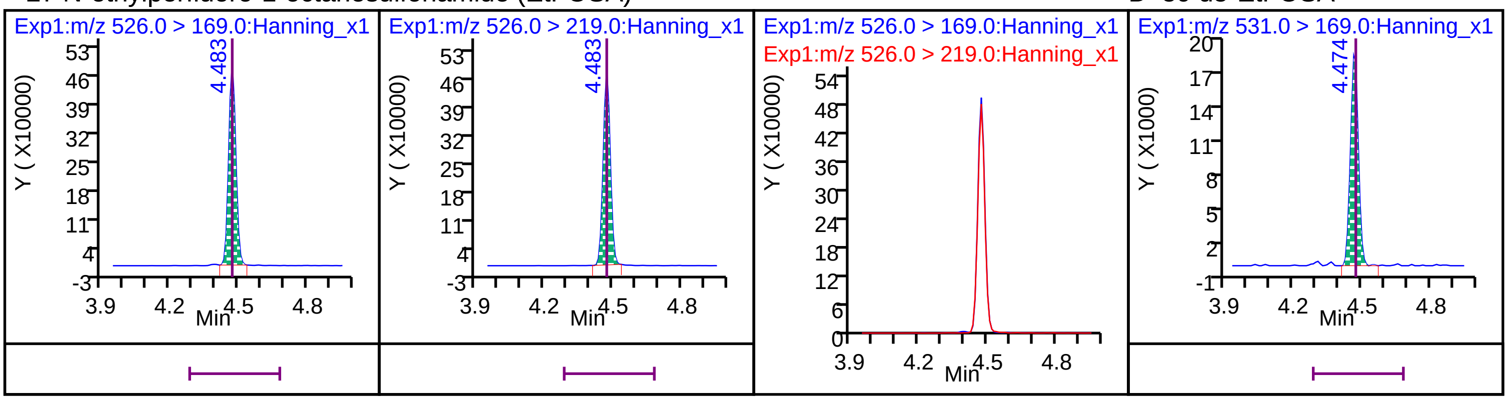


D 62 d9-EtFOSE

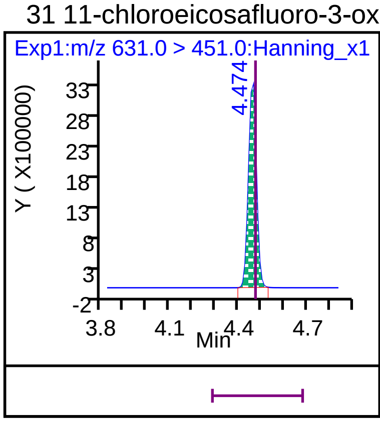


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

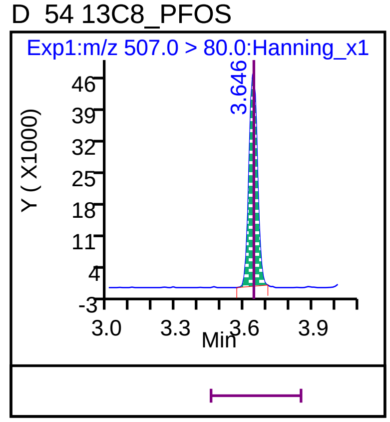
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

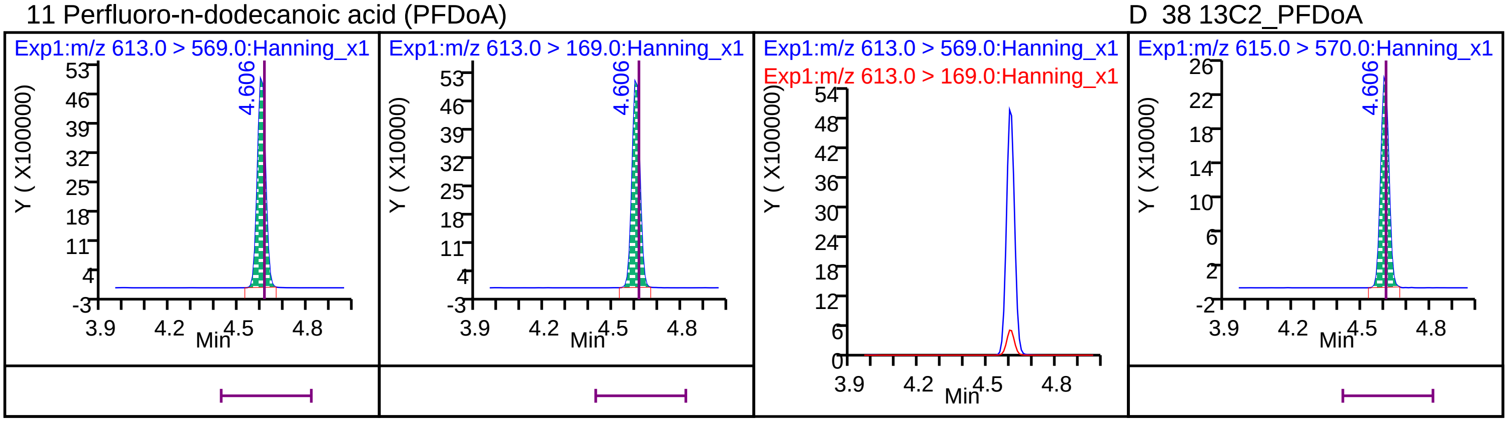


D 54 13C8_PFOS

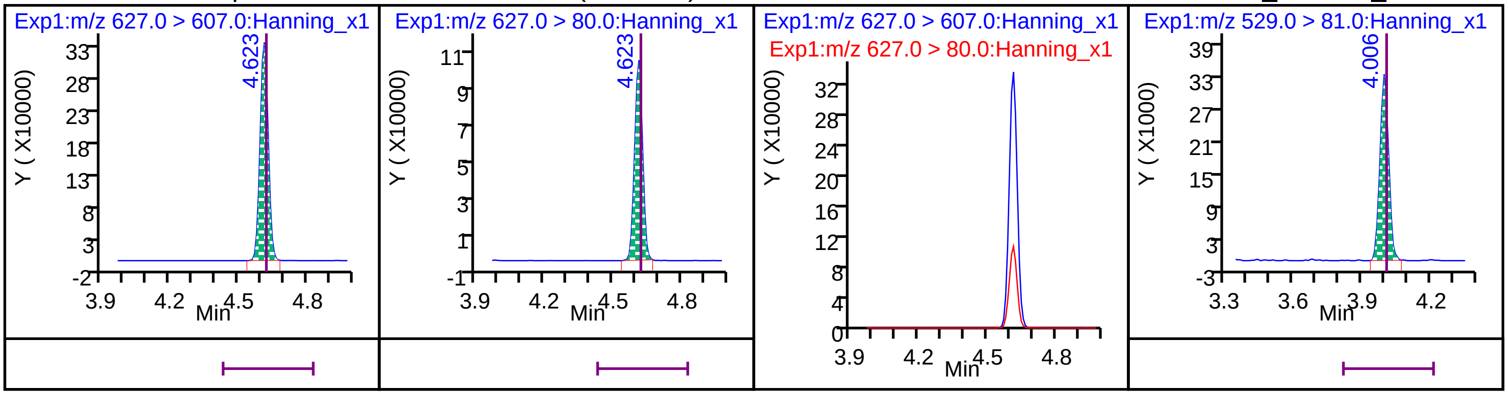


11 Perfluoro-n-dodecanoic acid (PFDoA)

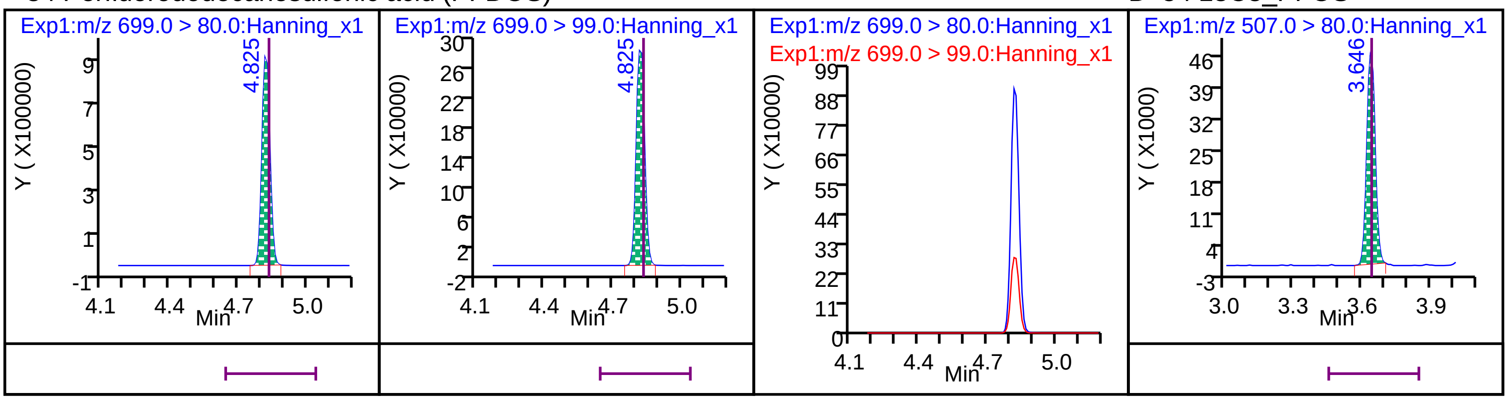
D 38 13C2_PFDoA



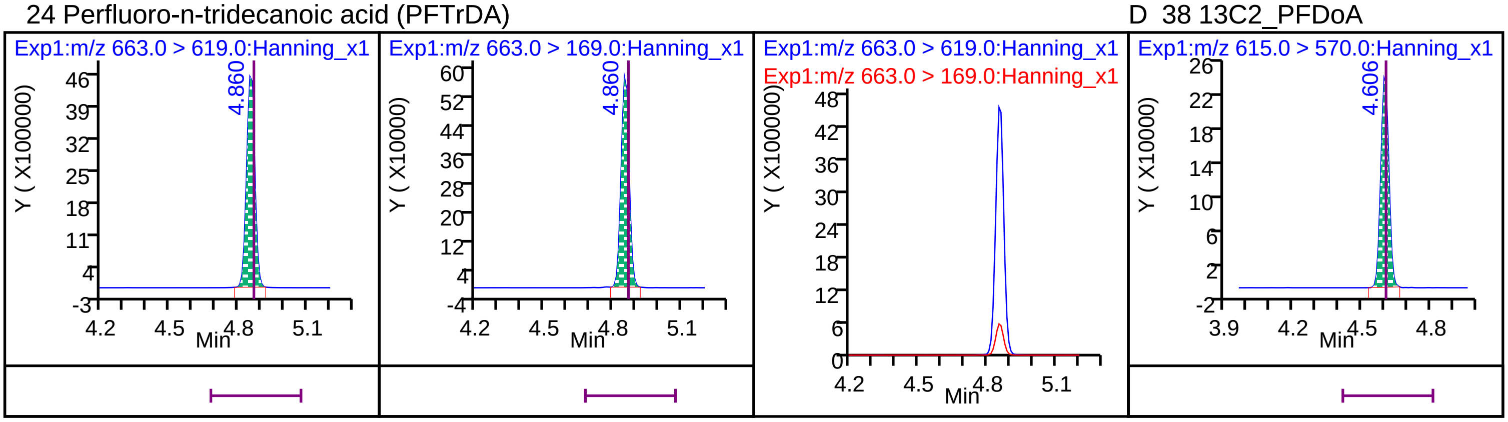
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



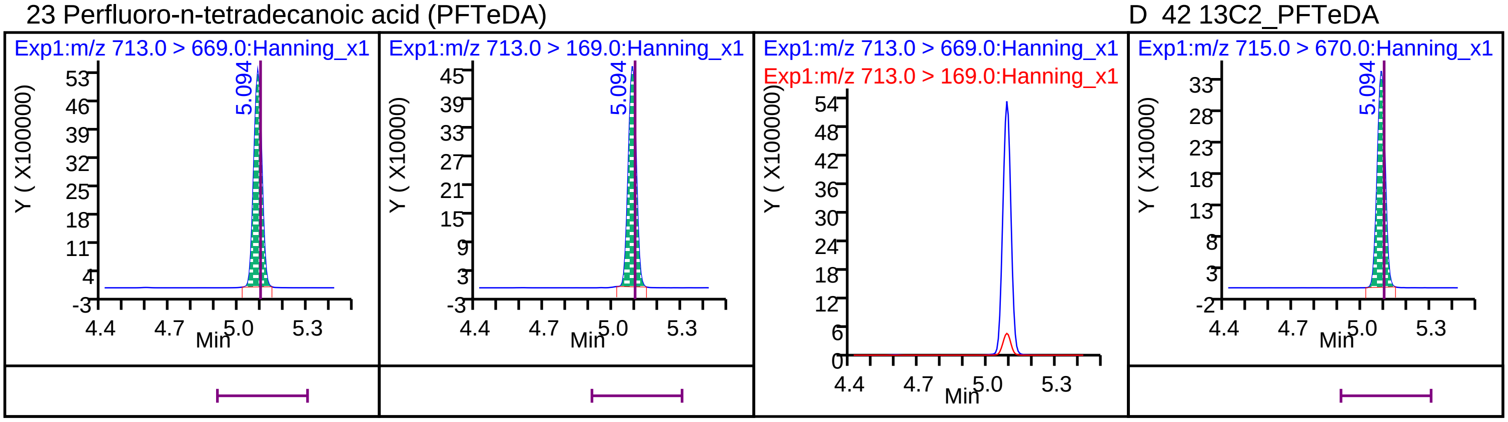
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



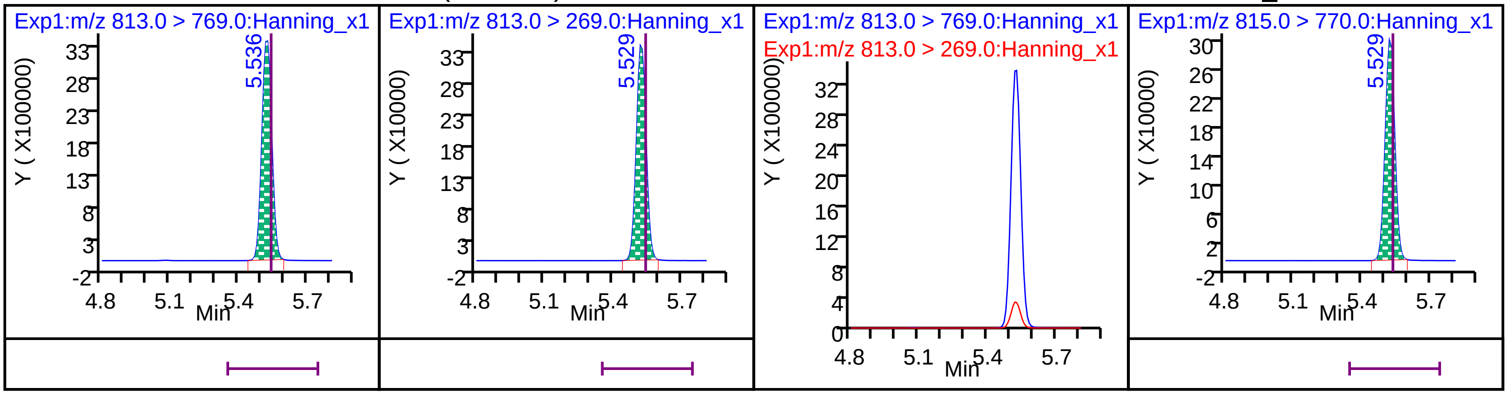
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



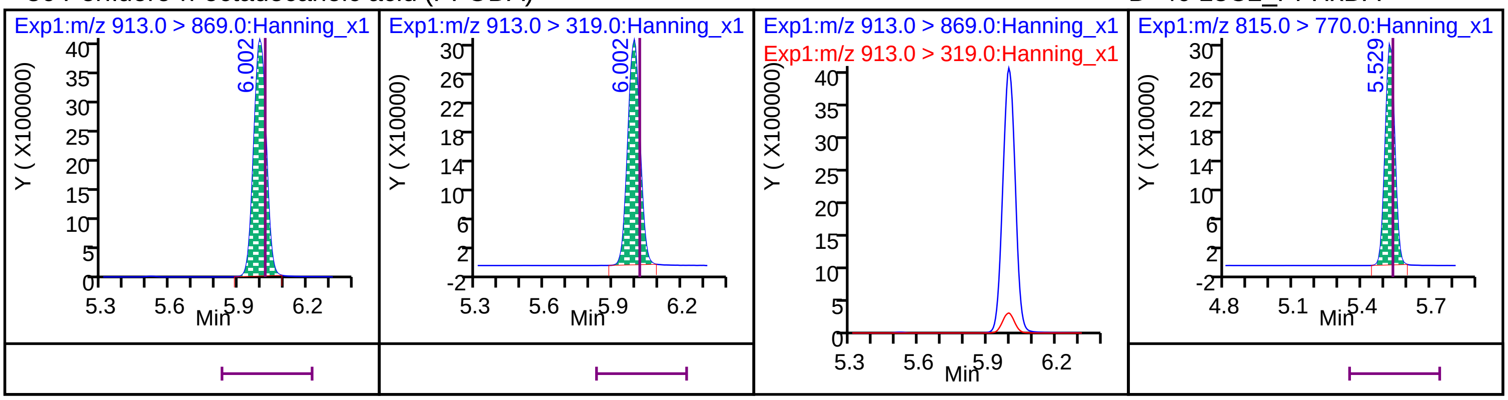
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

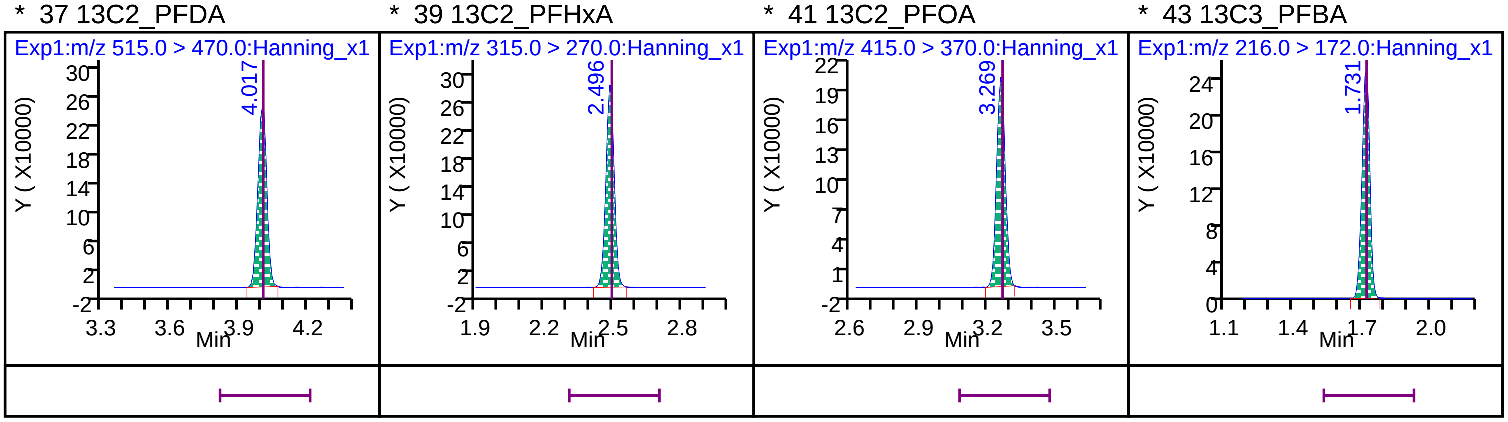
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



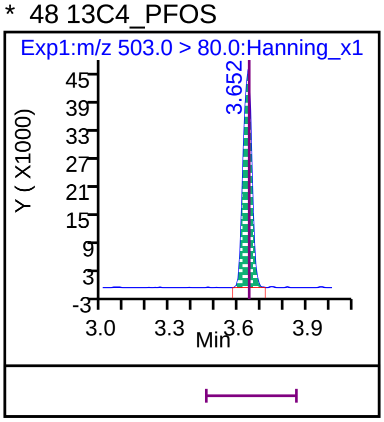
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

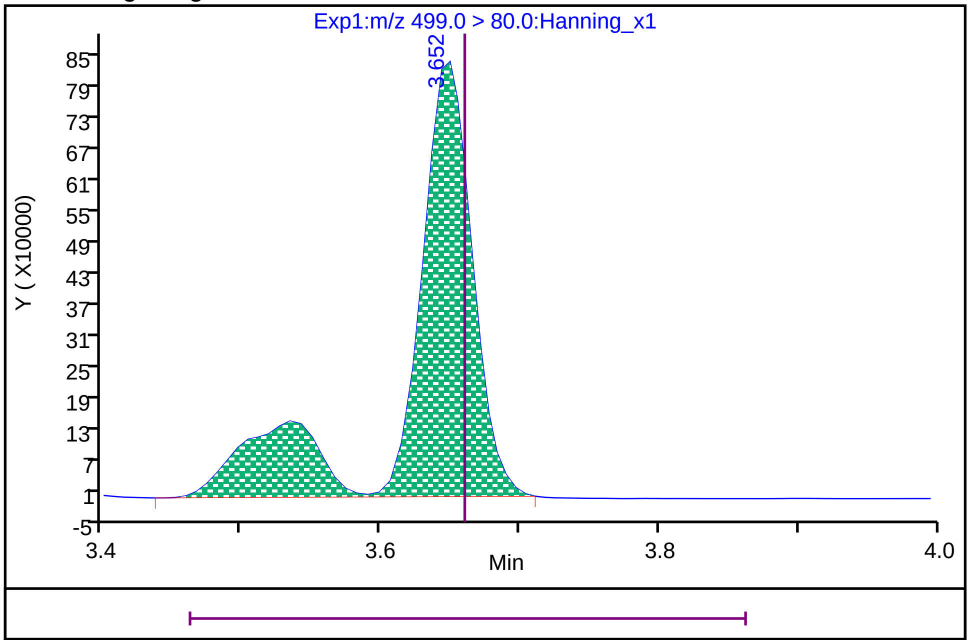
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 20000_SVLC-1749
Sample Info:	ID ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin

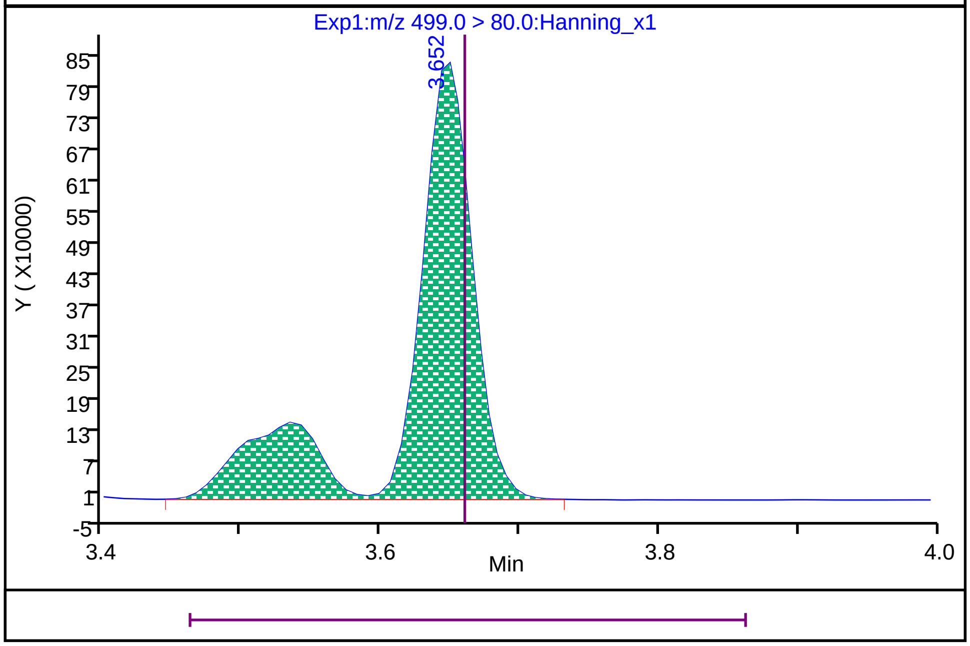
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.652
Area:	2617566
Amount:	18679
Amount Units:	ng/L



RT:	3.652
Area:	2656667
Amount:	19072
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:46

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d		
Injection Date:	07-Nov-2021 20:32:59	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	85
Lab Sample ID:	ID IBLK B	Lab Prep. Batch:	
Sample Info:	ID IBLK B	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.731	0	780616	21	>100:1			1001.00	1255.67	122.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.722	1.731	0/0	3055	14	0.928:1			3.7146	3.7146		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.125	2.130	0	735038	15	>100:1			1001.00	1285.95	126.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.130		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.183	0	216130	16	>100:1			1001.00	1249.53	121.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.183	0/0	641	12	5.4:1	Target = 3.53		2.3807	2.3807		
298.9 > 99	44	2.178	2.183		240	6	3.7:1	2.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.531		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.460	0	132043	16	>100:1			5005.00	5831.33	117.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.460		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.505	0	785191	17	>100:1			1001.00	1205.60	118.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.505		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.622	0	1311060	18	>100:1			5005.00	5657.06	108.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.880	0	641002	17	>100:1			1001.00	1207.30	120.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.853	2.880	-1/-1	2609	13	2.0:1	Target = 3.80		3.7078	3.7078		
363 > 169	47	2.871	2.880		954	18	9.2:1	2.73 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	155014	17	>100:1			1001.00	1233.80	119.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.919		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.259	3.276	0/0	240	11	3.8:1	Target = 3.12		1.5090	1.5090		
449 > 99	45	3.252	3.276		178	10	2.9:1	1.34 (1.56-4.68)					J

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.238	3.248	0	107261	20	>100:1			5005.00	5958.96	114.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.276	0	650366	22	>100:1			1001.00	1239.56	118.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.643	3.651	0	139409	19	>100:1			1001.00	1125.69	105.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.636	3.662	-1/-1	676	80		Target = 3.30	1.80	4.0766	4.0766		
499 > 99	54	3.649	3.662		748	92		0.90 (1.65-4.95)	2.95				J
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.859	3.863	0/0	1227	12	5.9:1			2.3264	2.3264		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.006		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.318		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.450	4.483	-1/-1	931	17	6.3:1			1.9526	1.9526		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.848	4.842	1/1	698	17		Target = 3.27		5.8285	5.8285		
699 > 99	54	4.848	4.842		62	14		11.25 (1.63-4.90)					J
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.654	3.662	0	783085	23	>100:1			1001.00	1222.85	122.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.660	3.662	0/0	1941	12	2.5:1	Target = 6.51		2.3019	2.3019		
463 > 169	56	3.654	3.662		271	12	3.6:1	7.16 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.892	3.896	0	282066	18	>100:1			1001.00	1052.26	105.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.896		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.011	4.016	0	726359	16	>100:1			1001.00	1263.98	126.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.022	4.016	1/1	2915	11	6.1:1	Target = 13.80		3.4519	3.4519		
513 > 169	51	4.022	4.016		247	15	3.0:1	11.80 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.001	4.016	0	108576	23	>100:1			5005.00	6281.70	137.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.016		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.631		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.173	4.178	0	824461	17	>100:1			5005.00	5455.94	106.7	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.173	4.178	0/0	1980	74		Target = 1.37	1.40	14.979	14.979		
570 > 483	58	4.164	4.178		695	15		2.84 (0.68-2.05)					J
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.292	4.288	1	99477	14	>100:1			1001.00	1102.99	110.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.370	4.298	5/4	420	15	3.0:1			3.8673	3.8673		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.312	4.318	0	54230	16	>100:1			1001.00	1152.82	120.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.302	4.318	0/0	852	13	4.9:1	Target = 1.11		14.509	14.509		
512 > 219	57	4.312	4.318		734	15	7.4:1	1.16 (0.55-1.67)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.332	4.338	0	792415	17	>100:1			5005.00	6118.41	114.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.332	4.348	0/0	2622	59	4.4:1	Target = 1.51	4.87	16.985	16.985		
584 > 526	60	4.312	4.348		1883	85		1.39 (0.75-2.26)	3.57				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.332	4.338	0	770416	15	>100:1			1001.00	1279.23	121.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.342	4.338	1/1	2582	12	4.2:1	Target = 14.52		3.4622	3.4622		
563 > 169	52	4.332	4.338		144	13	1.5:1	17.93 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.450	4.455	0	122749	16	>100:1			1001.00	1157.17	120.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.450	4.464	0/0	676	14	1.6:1			5.6629	5.6629		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.483	0	53229	16	>100:1			1001.00	1237.89	124.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.478	4.483	0/0	1613	22	9.6:1	Target = 1.06		12.272	12.272		
526 > 219	59	4.478	4.483		1674	21	6.4:1	0.96 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.609	4.614	0	736032	16	>100:1			1001.00	1226.03	121.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.622		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.856	4.877	-1/-1	3478	15	10:1	Target = 8.31		4.5002	4.5002		
663 > 169	38	4.856	4.877		177	15	3.3:1	19.64 (4.15-12.47)					J
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.091	5.106	0	985961	21	>100:1			1001.00	1212.76	117.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.085	5.106	-1/-1	4054	15	16:1	Target = 12.17		4.7149	4.7149		
713 > 169	42	5.091	5.106		372	14	5.7:1	10.89 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.544	0	1010915	21	>100:1			1001.00	1164.60	115.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.552	0/0	9385	22	39:1	Target = 10.43		14.510	14.510		
813 > 269	40	5.539	5.552		1082	19	37:1	8.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		6.026		ND								
*** 37 13C2_PFDA**													
515 > 470		4.011	4.016	0	751273	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.495	2.505	0	696038	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.276	0	582163	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.728	1.731	0	634164	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.649	3.657	0	122648	22	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

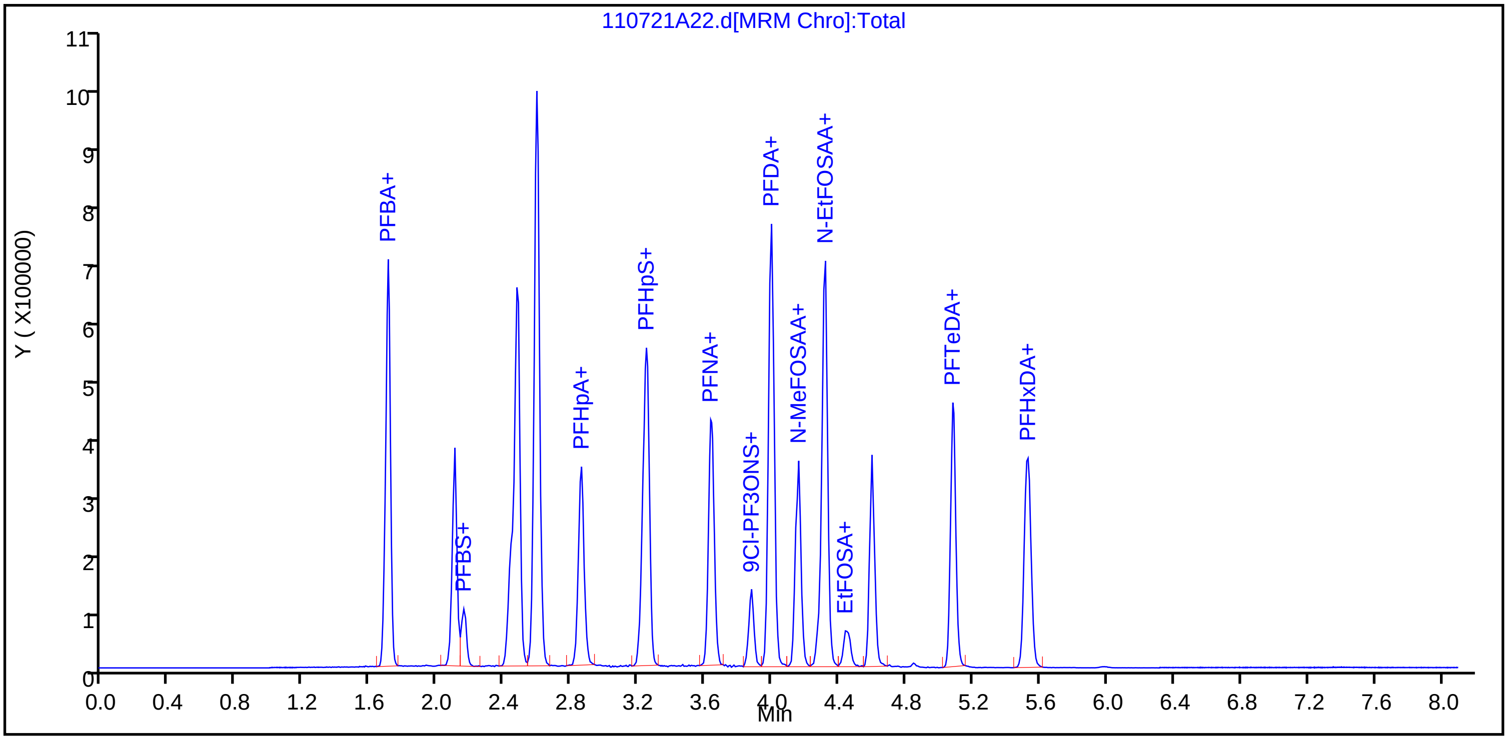
QC Flag Legend

U - Result Less Than Method Detection Limit

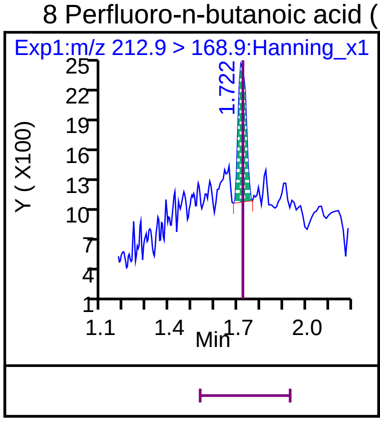
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

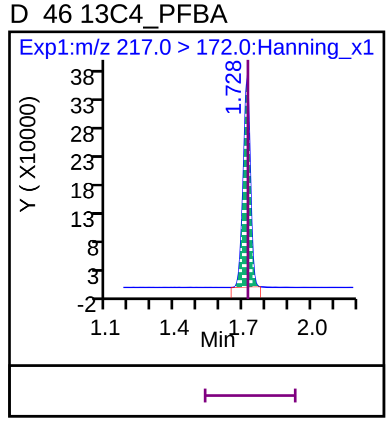
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d		
Injection Date:	07-Nov-2021 20:32:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK B
Sample Info:	ID IBLK B		
Dil. Factor:	1	Operator:	Justin Gavin



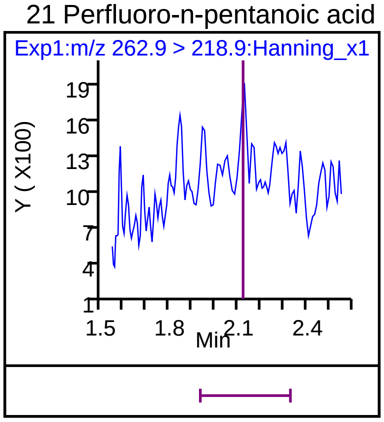
8 Perfluoro-n-butanoic acid (PFBA)



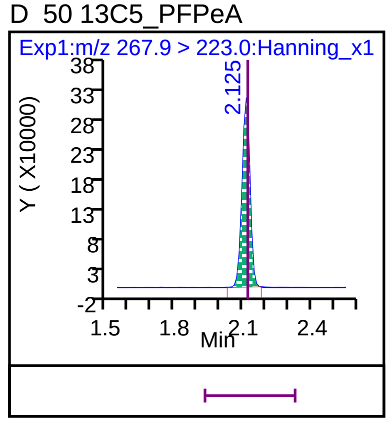
D 46 13C4_PFBA



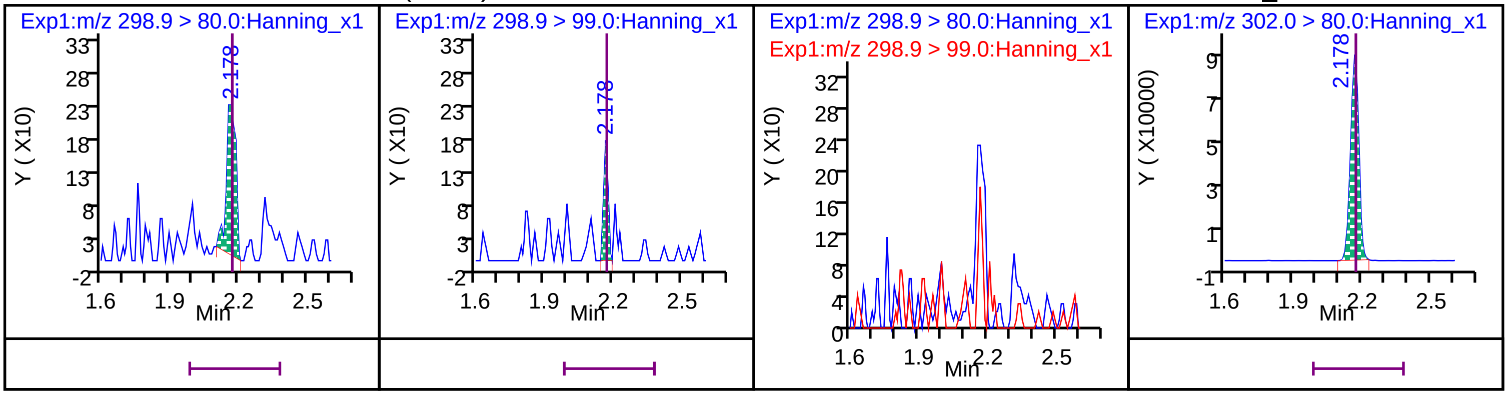
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



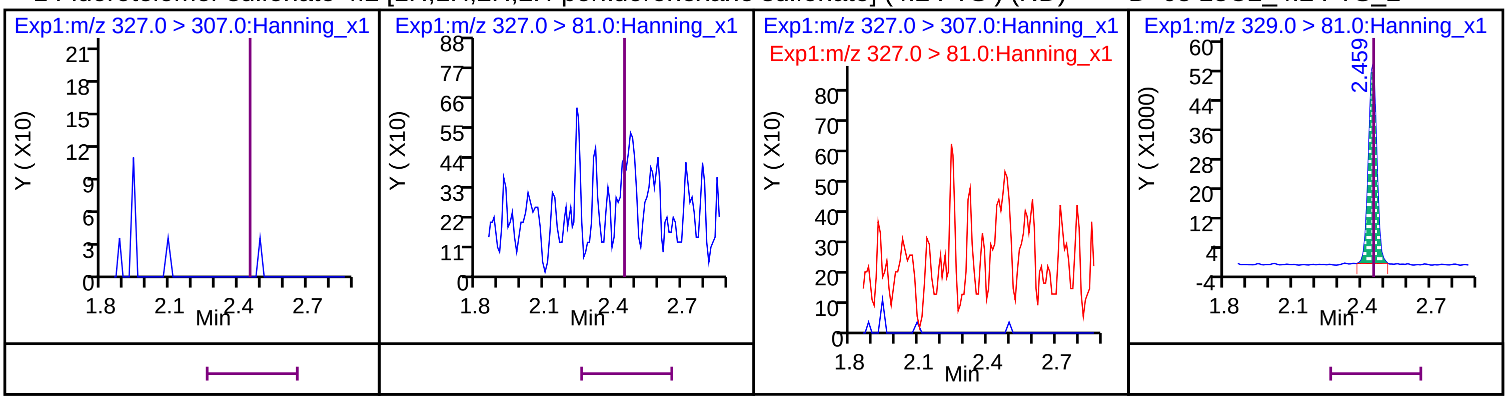
D 50 13C5_PFPeA



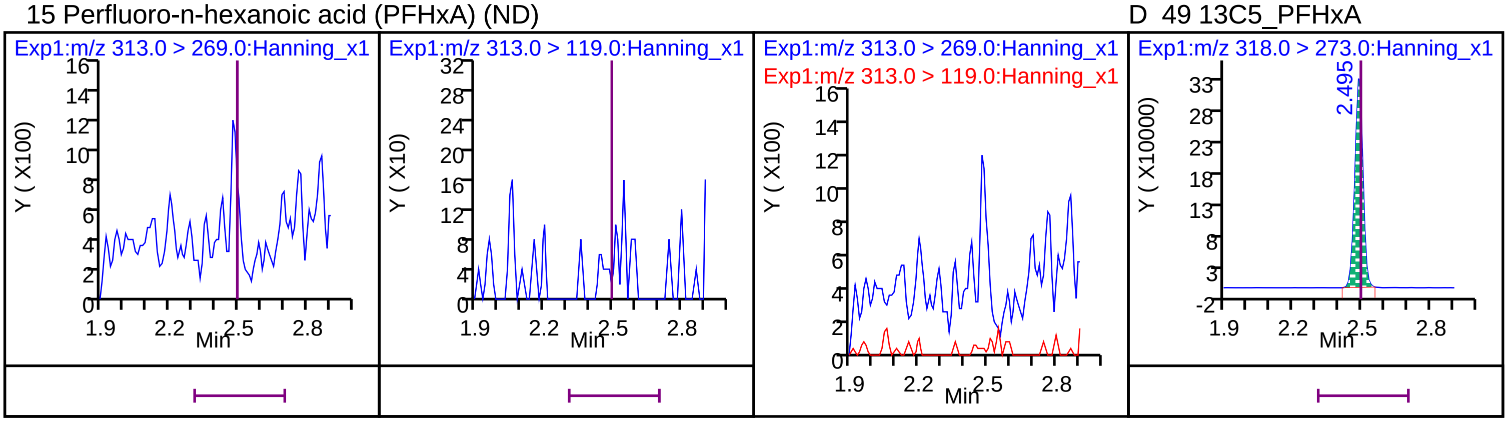
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



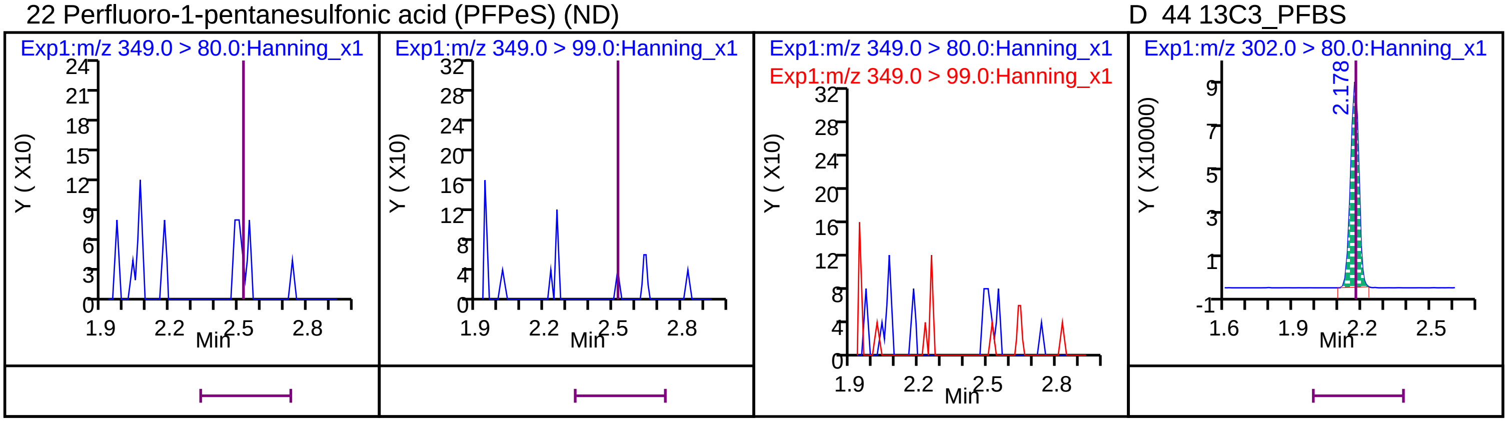
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA

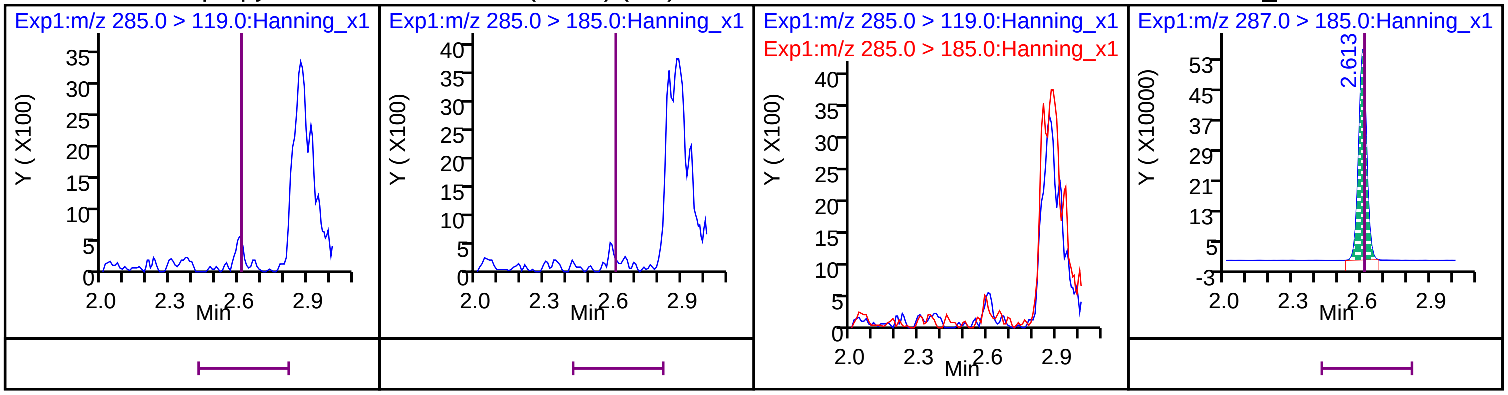


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

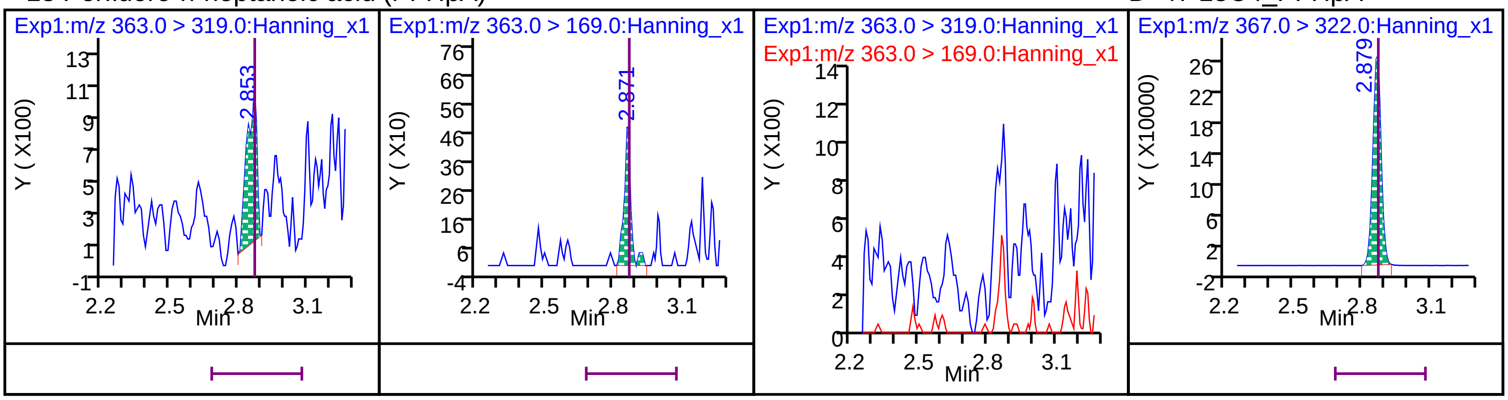


Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

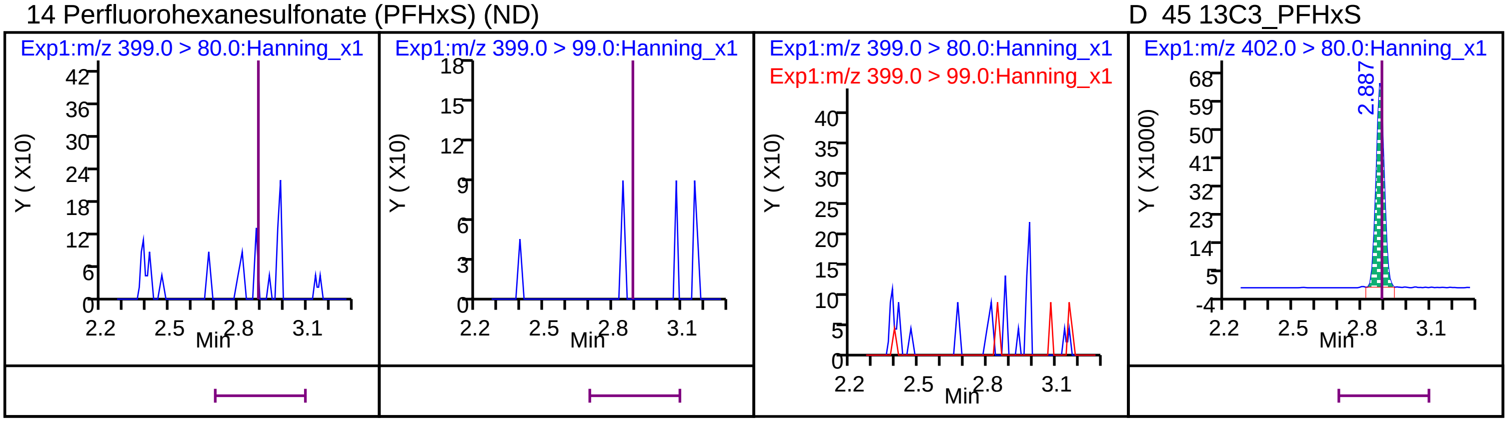
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



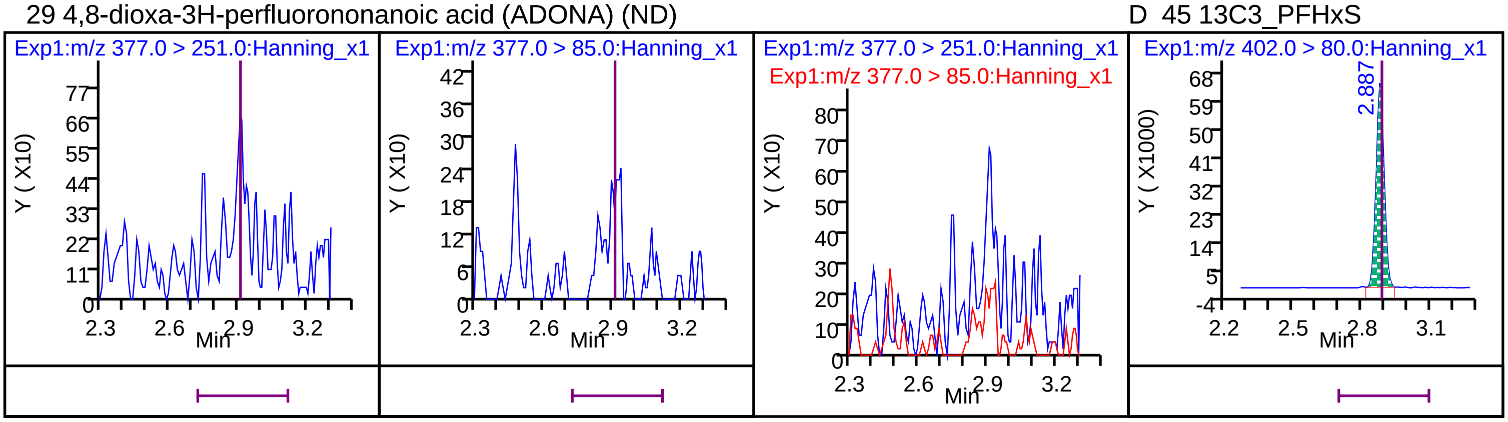
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

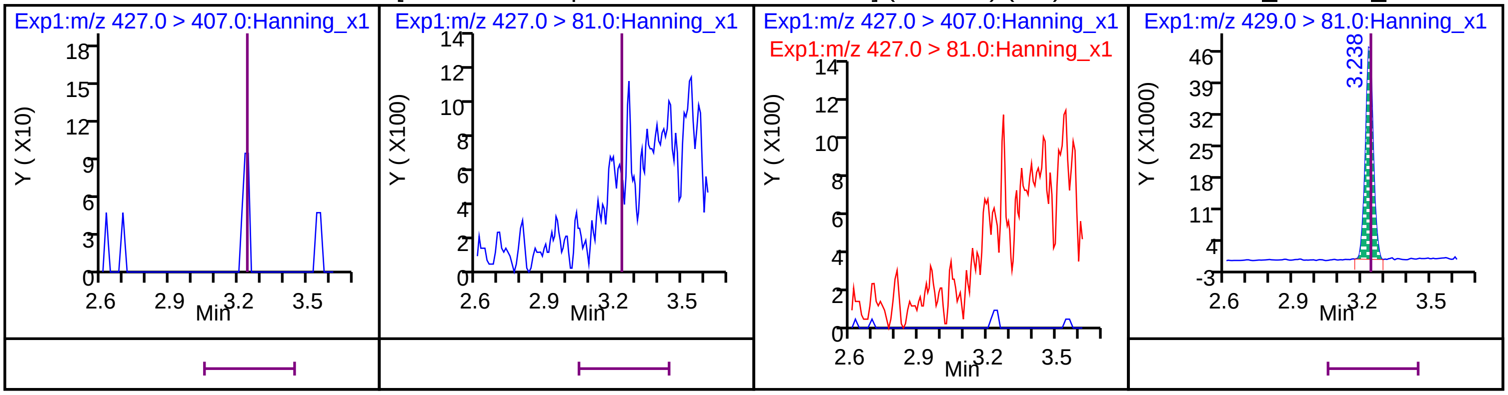


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

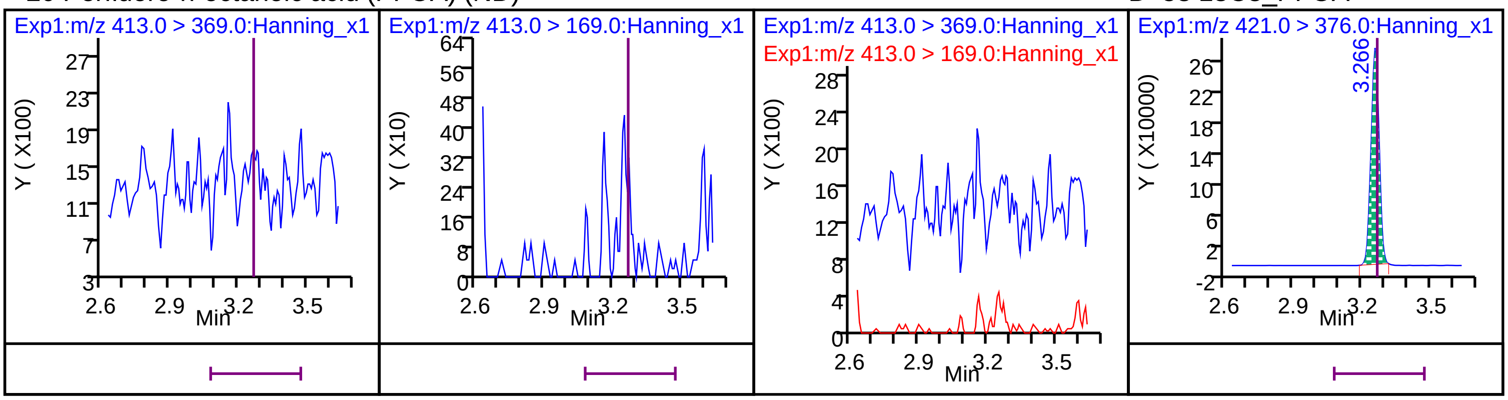


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

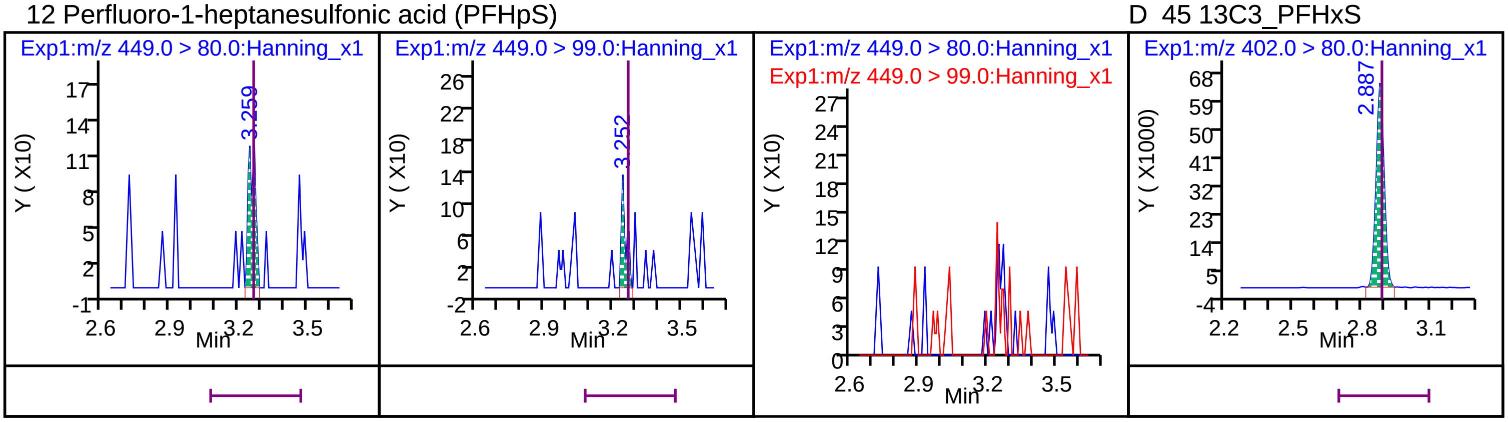
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



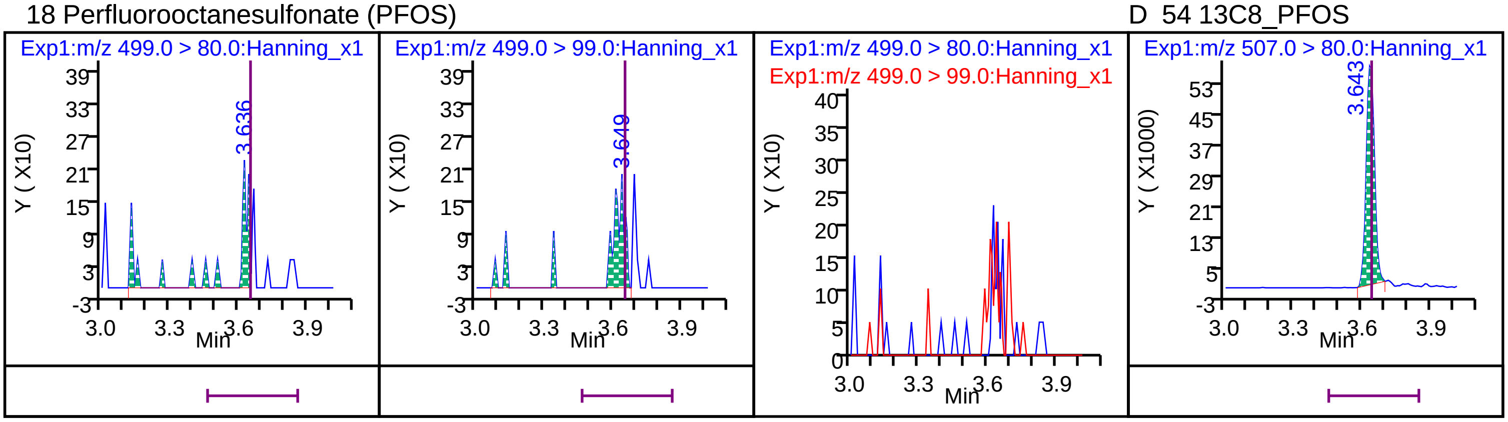
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



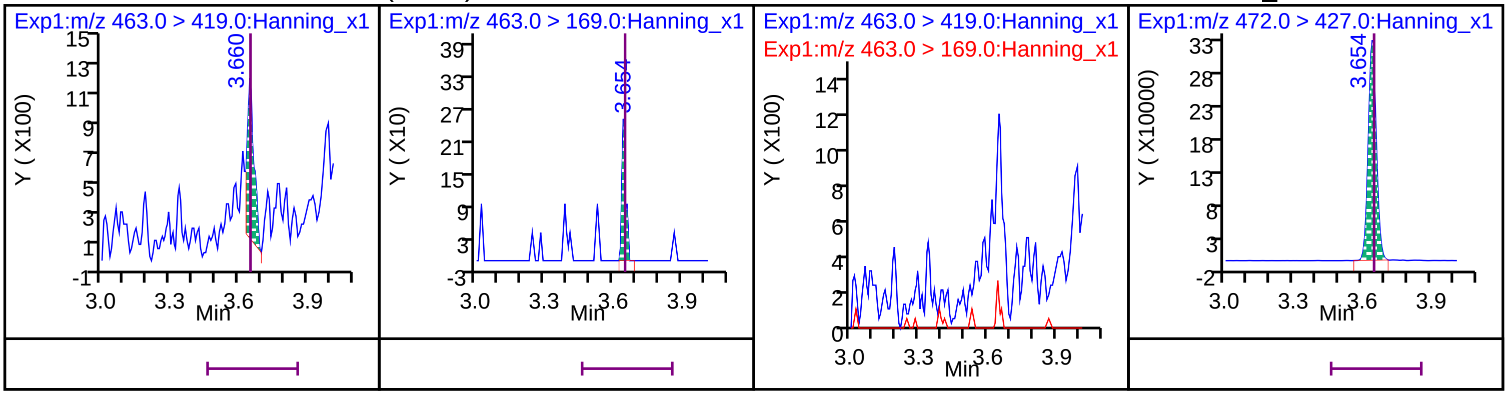
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



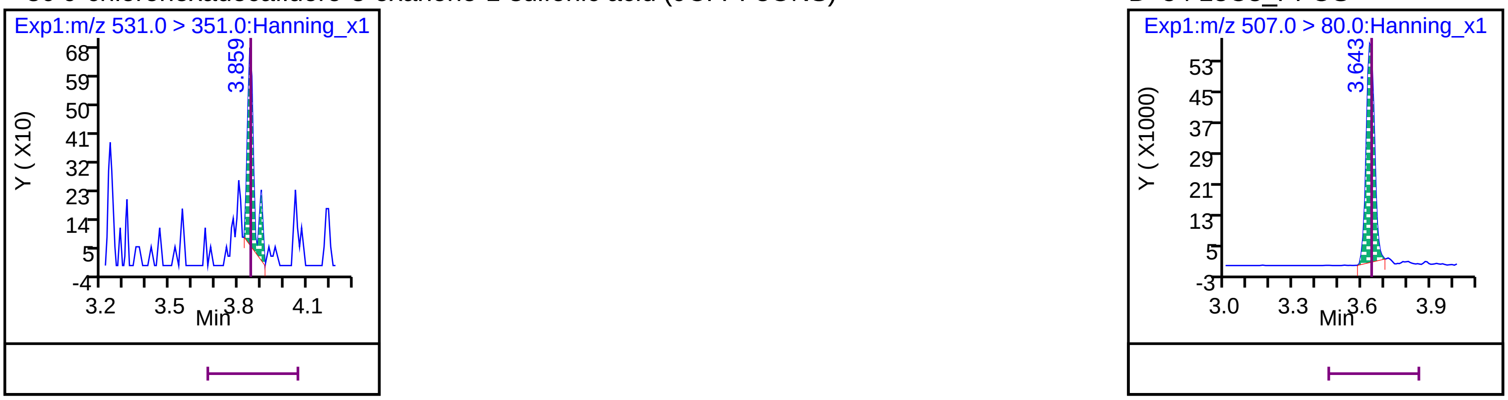
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

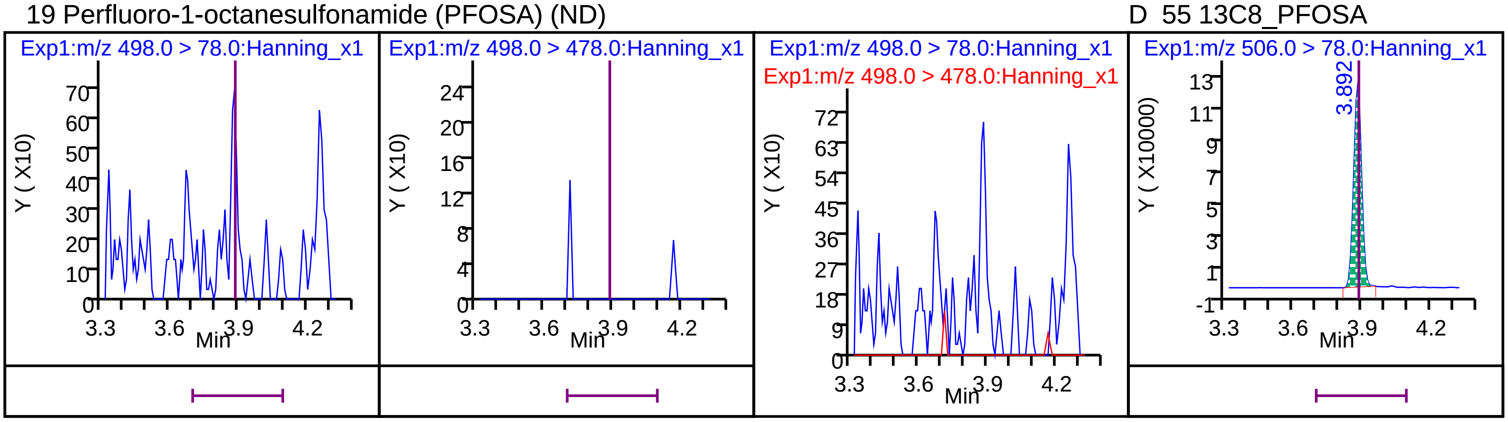
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



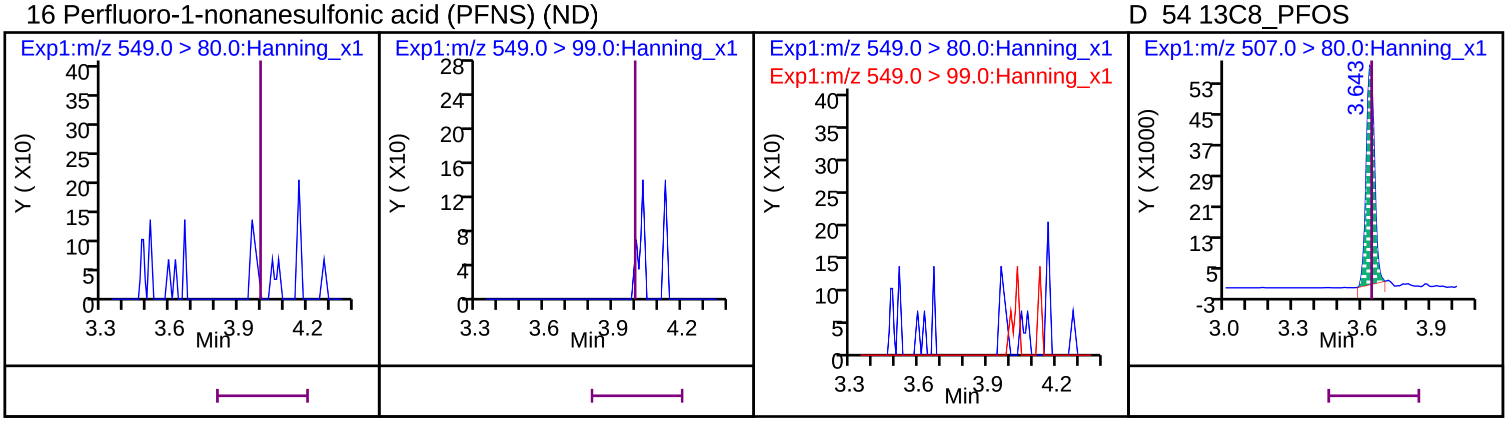
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



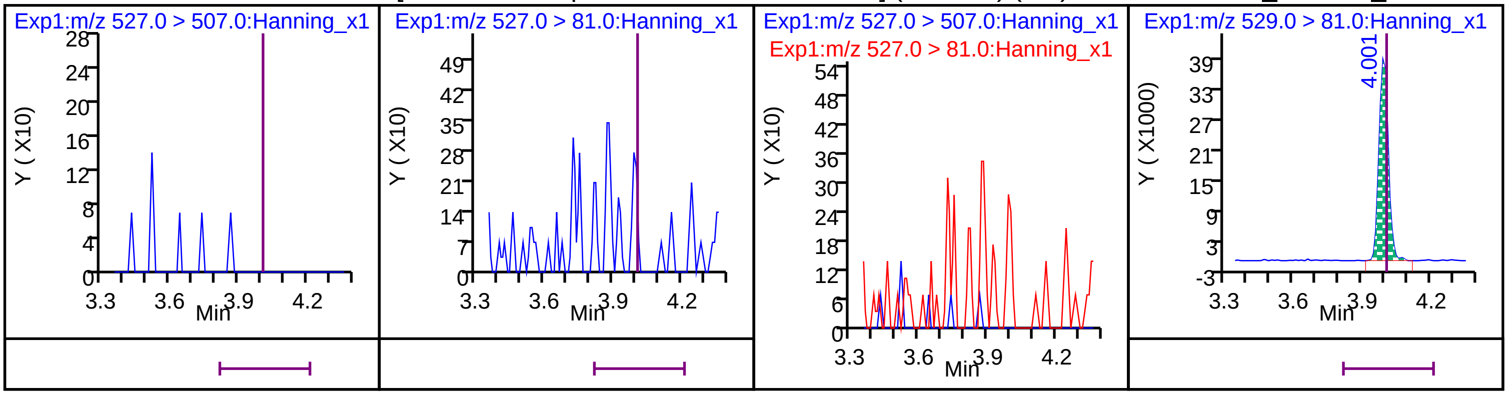
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



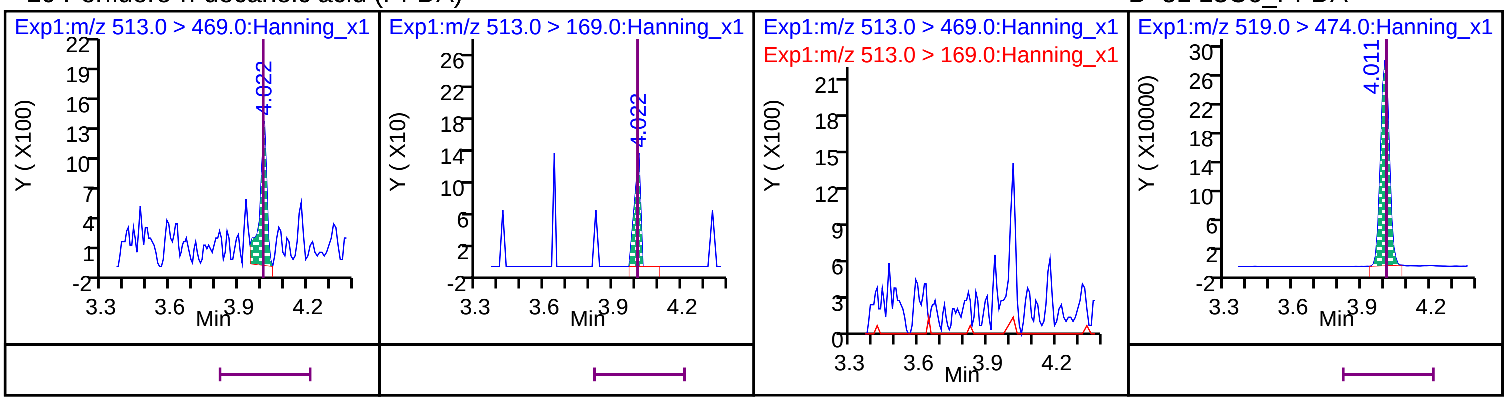
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



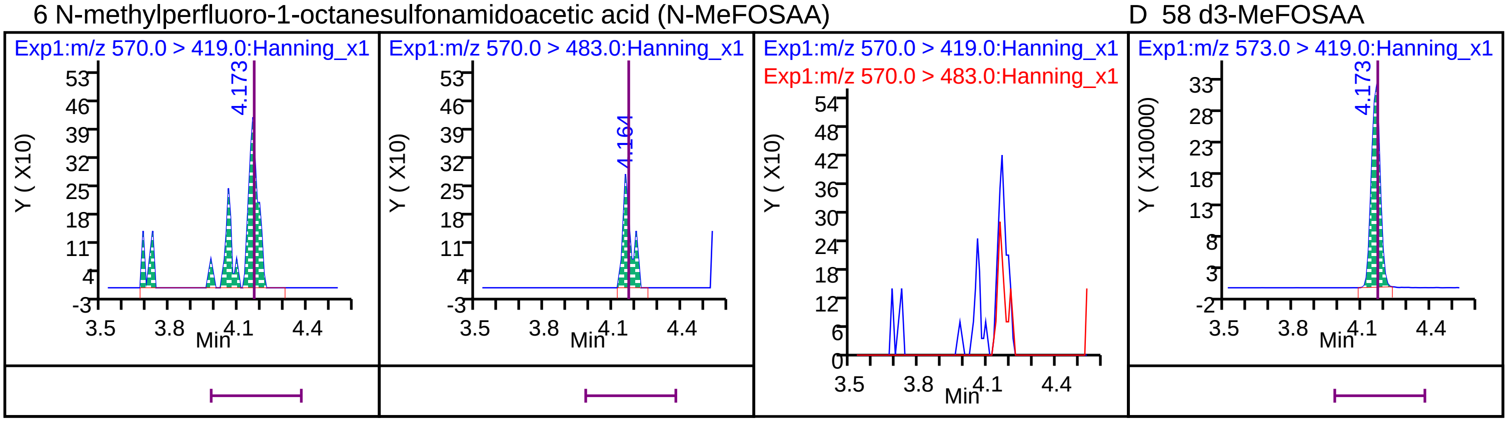
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



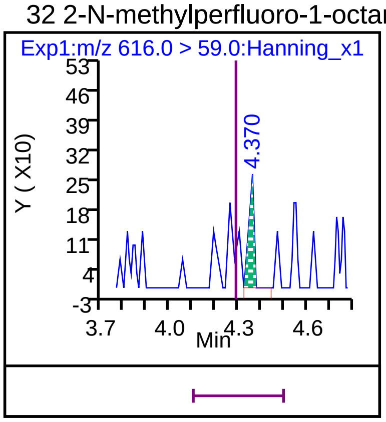
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

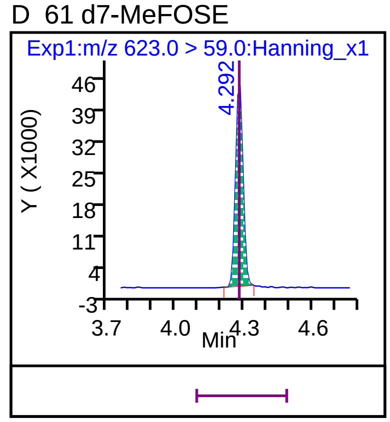


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

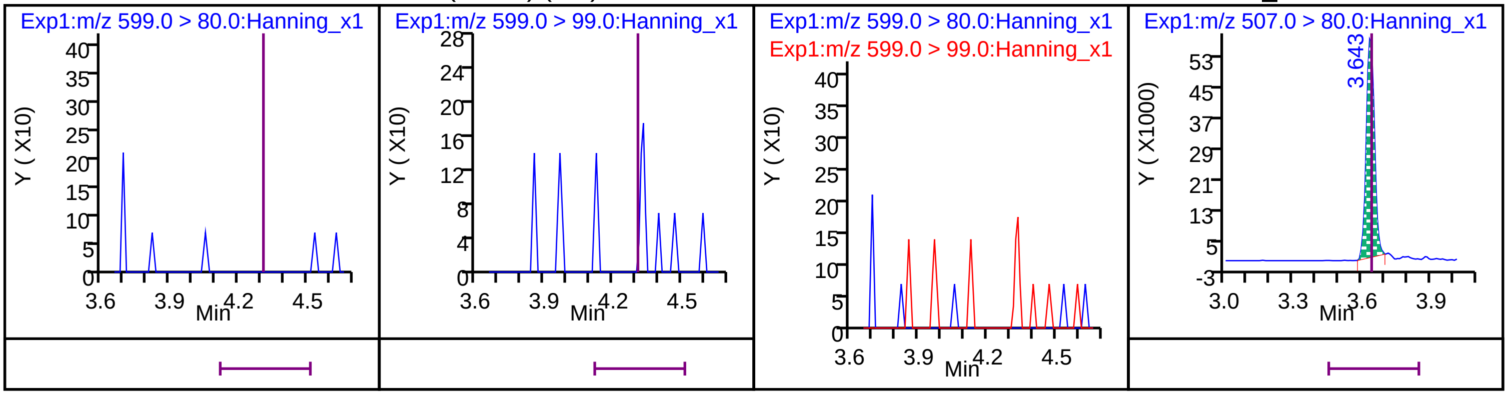


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

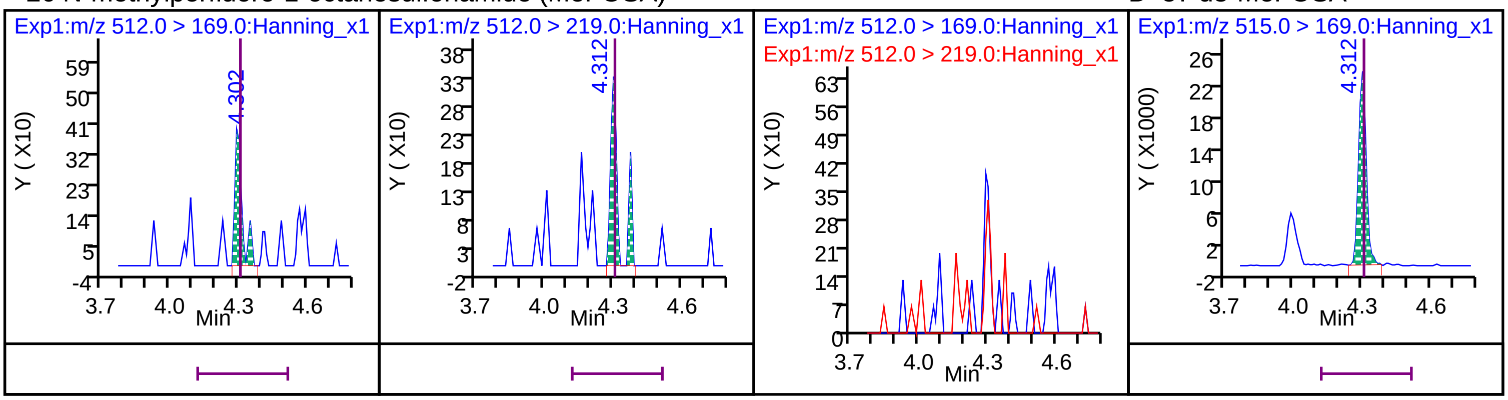




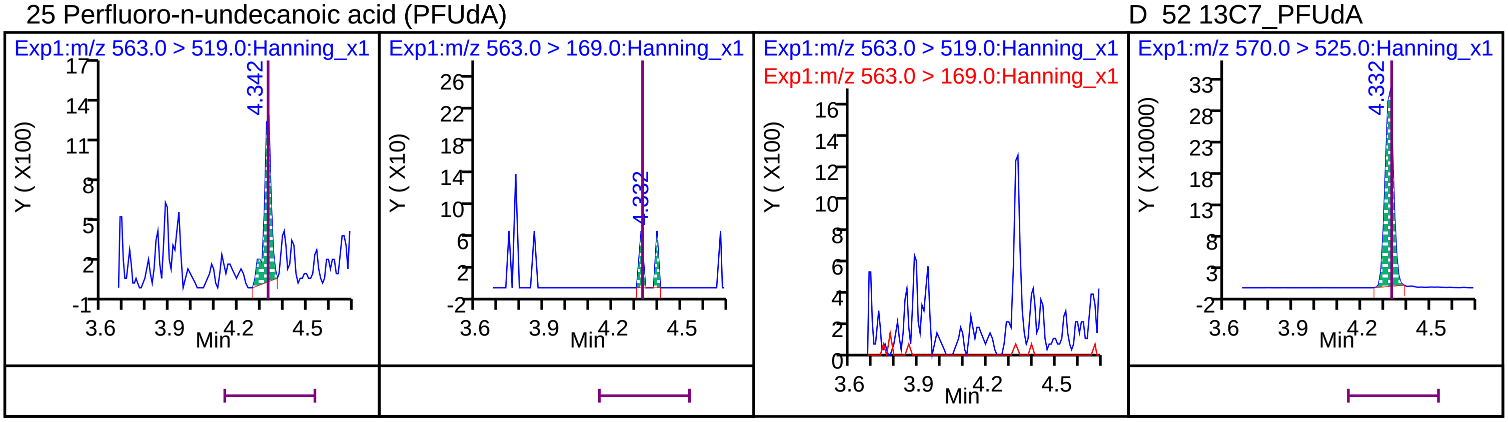
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



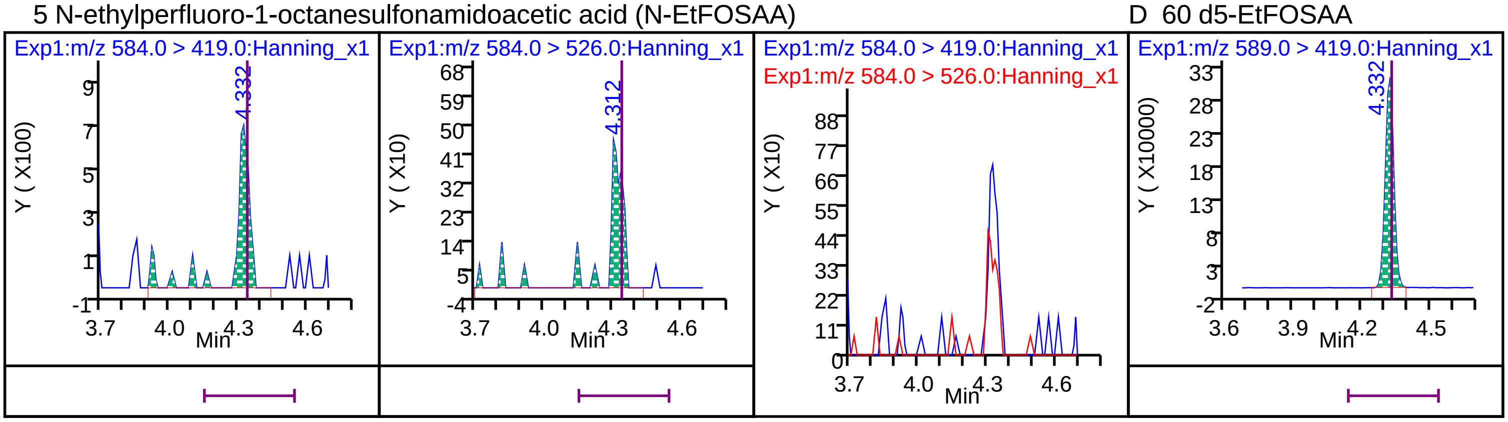
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

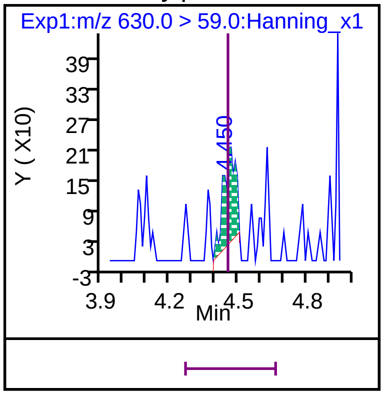


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

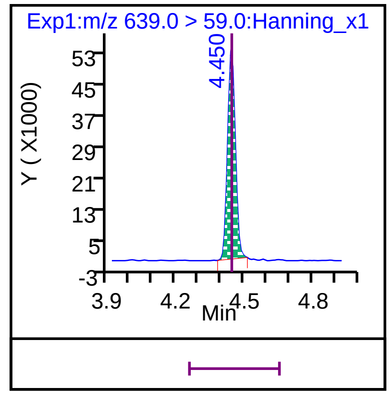


Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

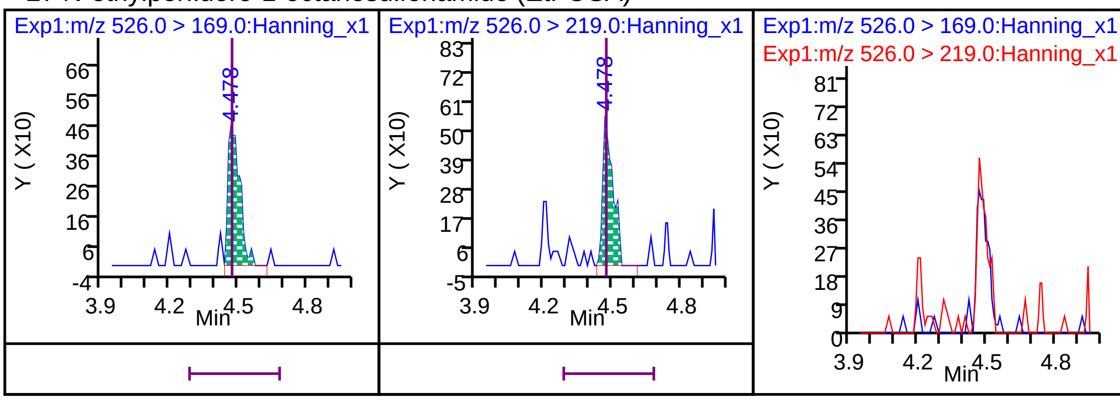
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



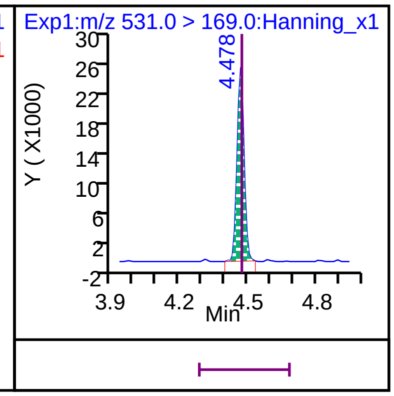
D 62 d9-EtFOSE



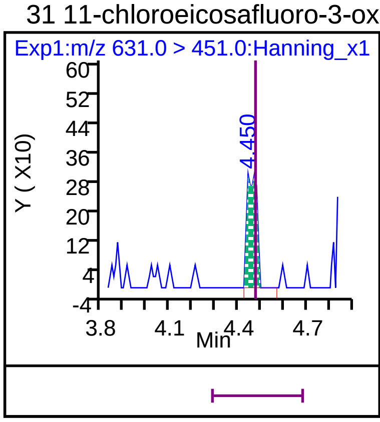
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



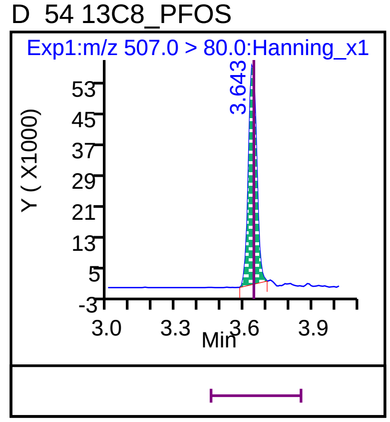
D 59 d5-EtFOSA



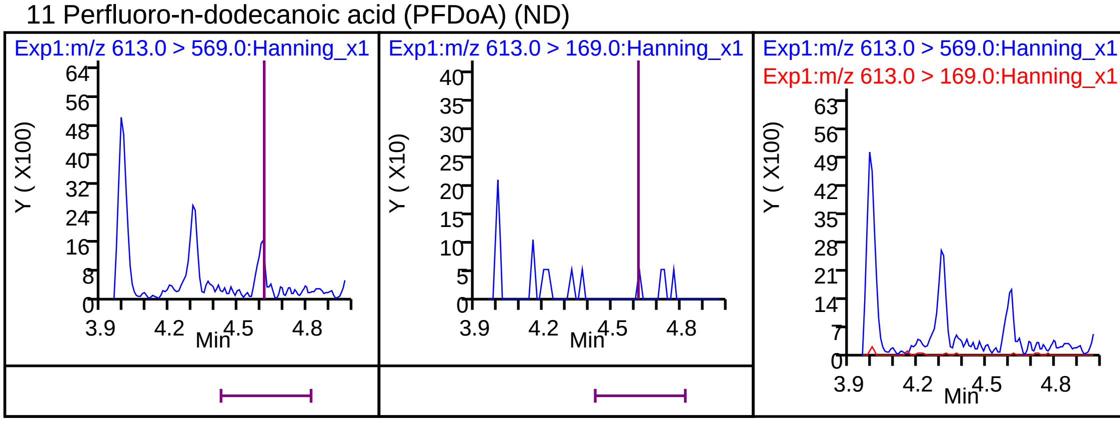
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



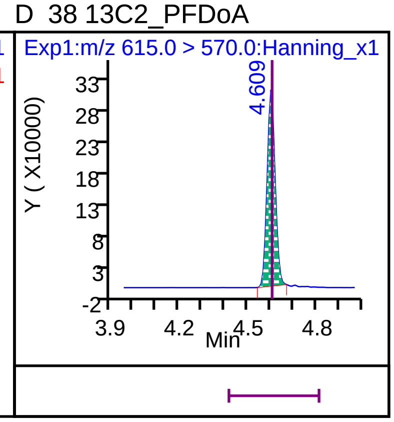
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



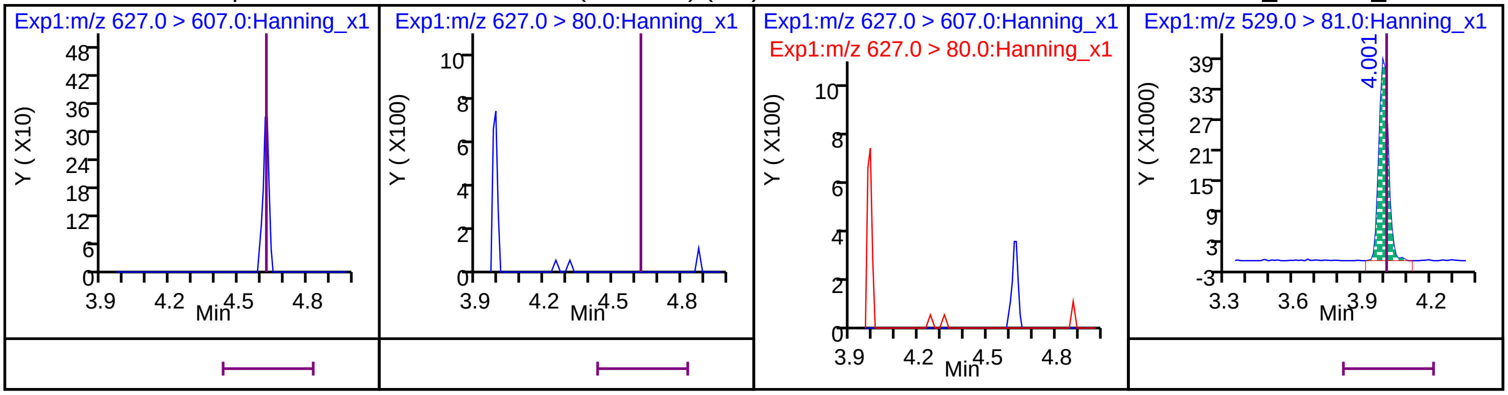
D 38 13C2_PFDoA



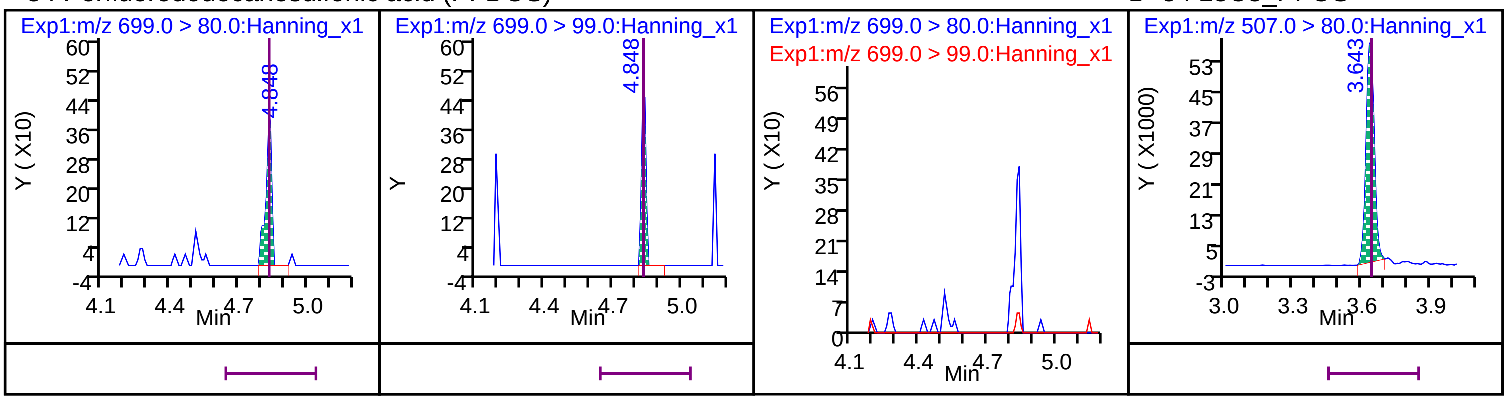
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

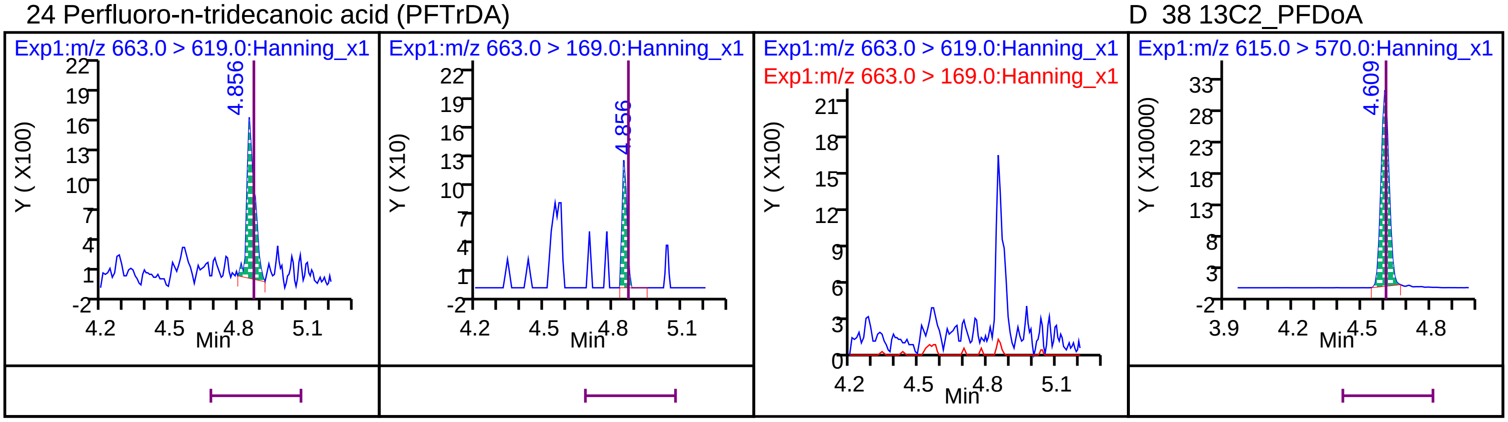
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



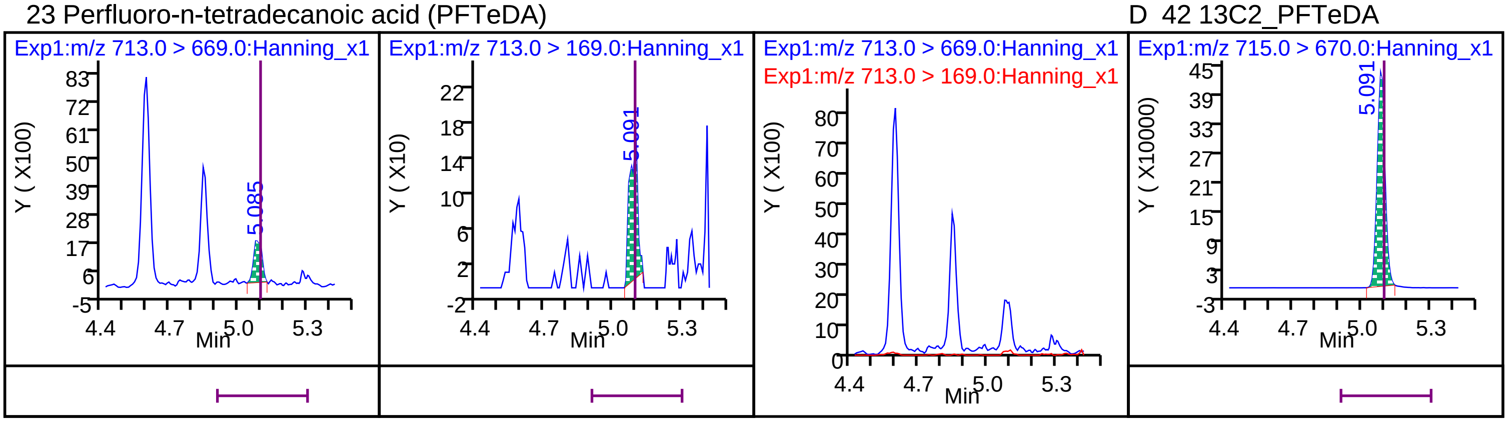
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



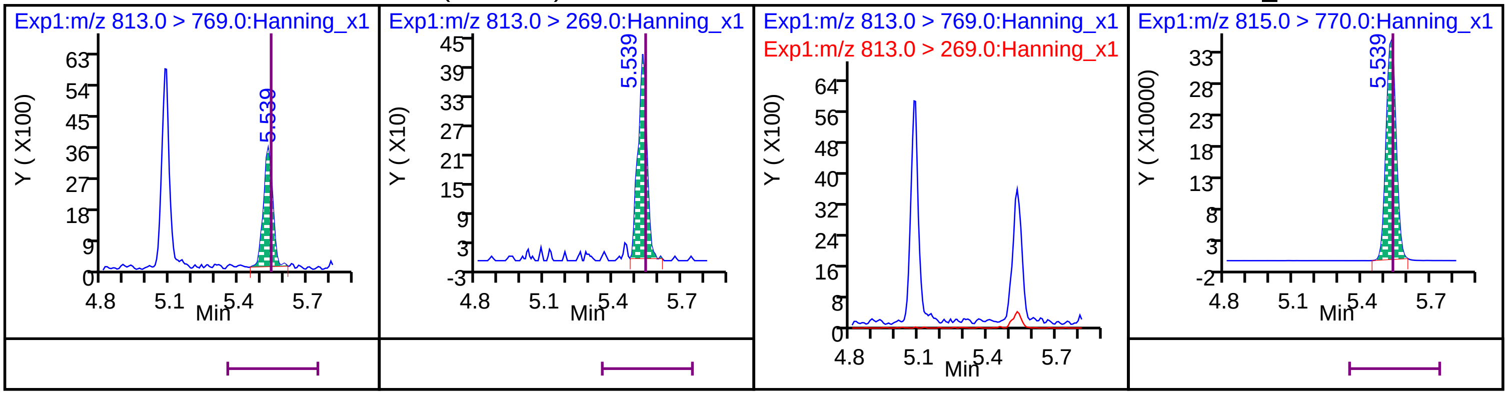
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



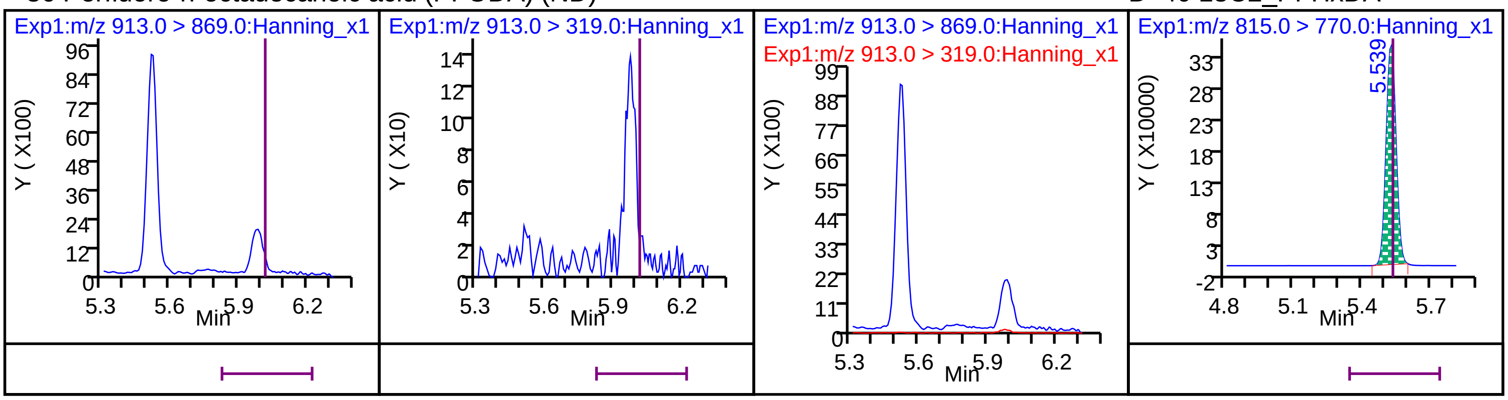
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



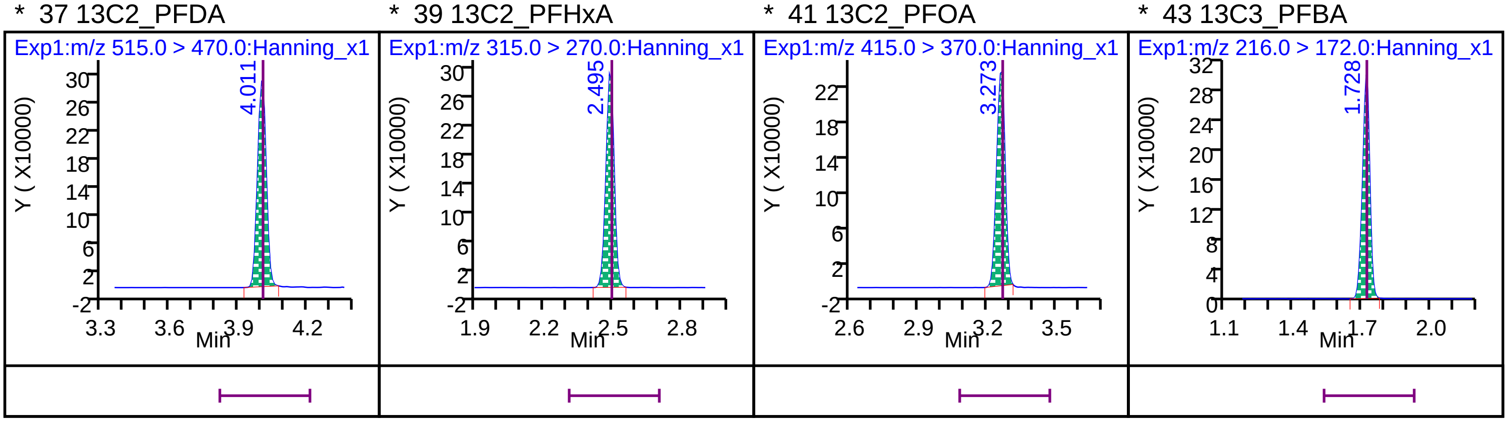
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



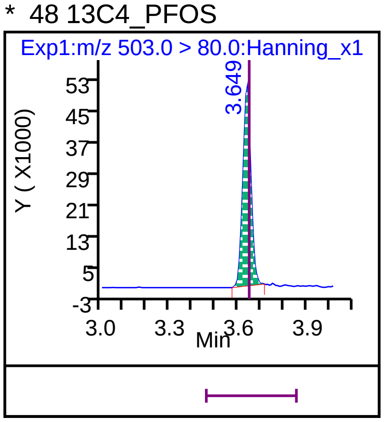
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Initial Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	86
Sample Info:	F.L. ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			500.00	449.86	90	70 - 130
D 46 13C4_PFBA	635753	729867			114.8	50 - 150
21 PFPeA			500.00	441.43	88.3	70 - 130
D 50 13C5_PFPeA	580113	696502			120.1	50 - 150
D 44 13C3_PFBS	178463	199640			111.9	50 - 150
7 PFBS			442.50	406.07	91.8	70 - 130
1 4:2 FTS			467.50	470.53	100.6	70 - 130
D 63 13C2_4:2 FTS_2	112299	123965			110.4	50 - 150
D 49 13C5_PFHxA	664948	758944			114.1	50 - 150
15 PFHxA			500.00	451.84	90.4	70 - 130
22 PFPeS			470.00	419.36	89.2	70 - 130
28 GenX			2500.00	2428.86	97.2	70 - 130
D 66 13C3_GenX	1204882	1252208			103.9	50 - 150
D 47 13C4_PFHpA	532996	637189			119.5	50 - 150
13 PFHpA			500.00	436.71	87.3	70 - 130
D 45 13C3_PFHxS	129716	143485			110.6	50 - 150
14 PFHxS			456.00	419.12	91.9	70 - 130
29 ADONA			2355.00	2144.51	91.1	70 - 130
D 64 13C2_6:2 FTS_2	93946	106963			113.9	50 - 150
2 6:2 FTS			475.00	397.01	83.6	70 - 130
20 PFOA			500.00	439.45	87.9	70 - 130
D 53 13C8_PFOA	547741	648933			118.5	50 - 150
12 PFHpS			475.00	435.51	91.7	70 - 130
D 54 13C8_PFOS	131913	153205			116.1	50 - 150
18 PFOS			462.75	401.15	86.7	70 - 130
17 PFNA			500.00	452.91	90.6	70 - 130
D 56 13C9_PFNA	639032	760846			119.1	50 - 150
30 9Cl-PF3ONS			2330.00	2029.63	87.1	70 - 130
D 55 13C8_PFOSA	266767	278831			104.5	50 - 150
19 PFOSA			500.00	482.21	96.4	70 - 130
16 PFNS			480.00	417.65	87	70 - 130
10 PFDA			500.00	428.86	85.8	70 - 130
3 8:2 FTS			480.00	415.08	86.5	70 - 130
D 51 13C6_PFDA	575846	697987			121.2	50 - 150
D 65 13C2_8:2 FTS_2	78835	103107			130.8	50 - 150
6 N-MeFOSAA			500.00	503.31	100.7	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	841627			108.9	50 - 150
D 61 d7-MeFOSE	90070	99485			110.5	50 - 150
D 57 d3-MeFOSA	44997	47320			105.2	50 - 150
9 PFDS			482.50	421.43	87.3	70 - 130
D 52 13C7_PFUdA	634567	731568			115.3	50 - 150
D 60 d5-EtFOSAA	689688	705245			102.3	50 - 150
25 PFUdA			500.00	436.06	87.2	70 - 130
5 N-EtFOSAA			500.00	568.52	113.7	70 - 130
D 62 d9-EtFOSE	101585	118584			116.7	50 - 150
D 59 d5-EtFOSA	42895	48893			114	50 - 150
31 11Cl-PF3OUDS			2355.00	1931.80	82	70 - 130
D 38 13C2_PFDoA	604291	818103			135.4	50 - 150
11 PFDoA			500.00	438.42	87.7	70 - 130
4 10:2 FTS			2410.00	2721.03	112.9	70 - 130
24 PFTrDA			500.00	406.02	81.2	70 - 130
D 42 13C2_PFTeDA	838224	982455			117.2	50 - 150
23 PFTeDA			500.00	450.55	90.1	70 - 130
D 40 13C2_PFHxDA	877835	968757			110.4	50 - 150

Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	86
Sample Info:	F.L. ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	729867	20	>100:1			1000.00	1174.03	114.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	346276	20	>100:1			500.00	449.86		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.130	0	696502	15	>100:1			1000.00	1218.53	120.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.130	0/0	346044	14	>100:1			500.00	441.43		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	199640	16	>100:1			1000.00	1154.19	111.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	101094	17	>100:1	Target = 3.53		442.50	406.07		
298.9 > 99	44	2.183	2.183		29039	17	>100:1	3.48 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	77590	16	>100:1	Target = 3.10		470.00	419.36		
349 > 99	44	2.532	2.531		25008	16	>100:1	3.10 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	123965	17	>100:1			5000.00	5474.59	110.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	25716	23	>100:1	Target = 1.75		467.50	470.53		
327 > 81	63	2.460	2.460		14152	18	29:1	1.81 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	758944	17	>100:1			1000.00	1165.30	114.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	356554	17	>100:1	Target = 18.91		500.00	451.84		
313 > 119	49	2.496	2.505		19453	18	>100:1	18.32 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1252208	18	>100:1			5000.00	5403.12	103.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	393946	19	>100:1	Target = 0.79		2500.00	2428.86		
285 > 185	66	2.614	2.622		516736	19	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	637189	18	>100:1			1000.00	1200.12	119.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/1	305771	19	>100:1	Target = 3.80		500.00	436.71		
363 > 169	47	2.881	2.880		80052	19	>100:1	3.81 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	143485	18	>100:1			1000.00	1142.04	110.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/0	66115	24	>100:1	Target = 2.89	5.51	456.00	419.12		
399 > 99	45	2.888	2.896		24799	27	>100:1	2.66 (1.44-4.34)	8.58				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.919	0/0	2386331	19	>100:1	Target = 3.23		2355.00	2144.51		
377 > 85	45	2.912	2.919		726470	20	>100:1	3.28 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.269	3.276	0/0	64181	20	>100:1	Target = 3.12		475.00	435.51		
449 > 99	45	3.269	3.276		23497	21	>100:1	2.73 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	106963	22	>100:1			5000.00	5942.40	113.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	20105	23	>100:1	Target = 1.75		475.00	397.01		
427 > 81	64	3.241	3.248		13864	19	29:1	1.45 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.262	3.276	0	648933	22	>100:1			1000.00	1236.82	118.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	292233	22	>100:1	Target = 2.89		500.00	439.45		
413 > 169	53	3.269	3.276		98289	20	>100:1	2.97 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.646	3.651	0	153205	28				1000.00	1237.09	116.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.646	3.662	0/0	73176	37	>100:1	Target = 3.30	3.97	462.75	401.15		
499 > 99	54	3.651	3.662		19553	36	>100:1	3.74 (1.65-4.95)	8.10				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.855	3.863	0/0	1177596	17	>100:1			2330.00	2029.63		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.006	0/0	51335	19	>100:1	Target = 3.08		480.00	417.65		
549 > 99	54	3.995	4.006		17864	19	>100:1	2.87 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/0	50524	15	>100:1	Target = 2.72		482.50	421.43		
599 > 99	54	4.308	4.318		18013	18	>100:1	2.80 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/0	1013267	17	>100:1			2355.00	1931.80		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.651	3.662	0	760846	22	>100:1			1000.00	1188.12	119.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.657	3.662	0/0	371431	22	>100:1	Target = 6.51		500.00	452.91		
463 > 169	56	3.657	3.662		56437	20	>100:1	6.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	278831	18	>100:1			1000.00	1040.19	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.888	3.896	0/0	141472	18	>100:1	Target = 41.63		500.00	482.21		
498>478	55	3.888	3.896		4740	21		29.84 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.006	4.016	0	697987	17	>100:1			1000.00	1214.61	121.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.006	4.016	0/0	348352	17	>100:1	Target = 13.80		500.00	428.86		
513 > 169	51	4.006	4.016		25277	15	>100:1	13.78 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.016	-1	103107	23	>100:1			5000.00	5965.29	130.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.016	0/1	19341	15	>100:1	Target = 1.94		480.00	415.08		
527 > 81	65	4.006	4.016		11860	14	49:1	1.63 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.623	4.631	0/1	142333	16		Target = 3.54		2410.00	2721.03		
627 > 80	65	4.623	4.631		39674	16	>100:1	3.58 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.178	0	841627	17	>100:1			5000.00	5569.54	108.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.178	0/0	67981	16	>100:1	Target = 1.37		500.00	503.31		
570 > 483	58	4.169	4.178		54282	22	>100:1	1.25 (0.68-2.05)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	99485	15				1000.00	1103.07	110.5	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	47320	13	>100:1			1000.00	1005.93	105.2	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.338	0	705245	16	>100:1			5000.00	5445.35	102.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.338	4.348	0/0	78189	15	>100:1	Target = 1.51		500.00	568.52		
584 > 526	60	4.328	4.348		48185	15	>100:1	1.62 (0.75-2.26)					
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.338	0	731568	16	>100:1			1000.00	1214.72	115.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.338	0/0	309106	15	>100:1	Target = 14.52		500.00	436.06		
563 > 169	52	4.328	4.338		22293	20		13.86 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	118584	15	>100:1			1000.00	1117.90	116.7	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	48893	14	>100:1			1000.00	1137.05	114	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.614	0	818103	16	>100:1			1000.00	1362.74	135.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.622	0/0	382376	17	66:1	Target = 10.70		500.00	438.42		
613 > 169	38	4.614	4.622		35063	16	>100:1	10.90 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.860	4.877	-1/-1	349140	18	>100:1	Target = 8.31		500.00	406.02		
663 > 169	38	4.860	4.877		41116	15	>100:1	8.49 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.087	5.106	-1	982455	21	>100:1			1000.00	1208.45	117.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.087	5.106	-1/0	386398	21	50:1	Target = 12.17		500.00	450.55		
713 > 169	42	5.087	5.106		30868	19	>100:1	12.51 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.528	5.544	0	968757	20	>100:1			1000.00	1116.03	110.4	
*** 37 13C2_PFDA**													
515 > 470		4.006	4.016	0	760545	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	712656	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	597895	22	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	645705	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.646	3.657	0	149411	21	>100:1			1000.00			

Compound Type Legend

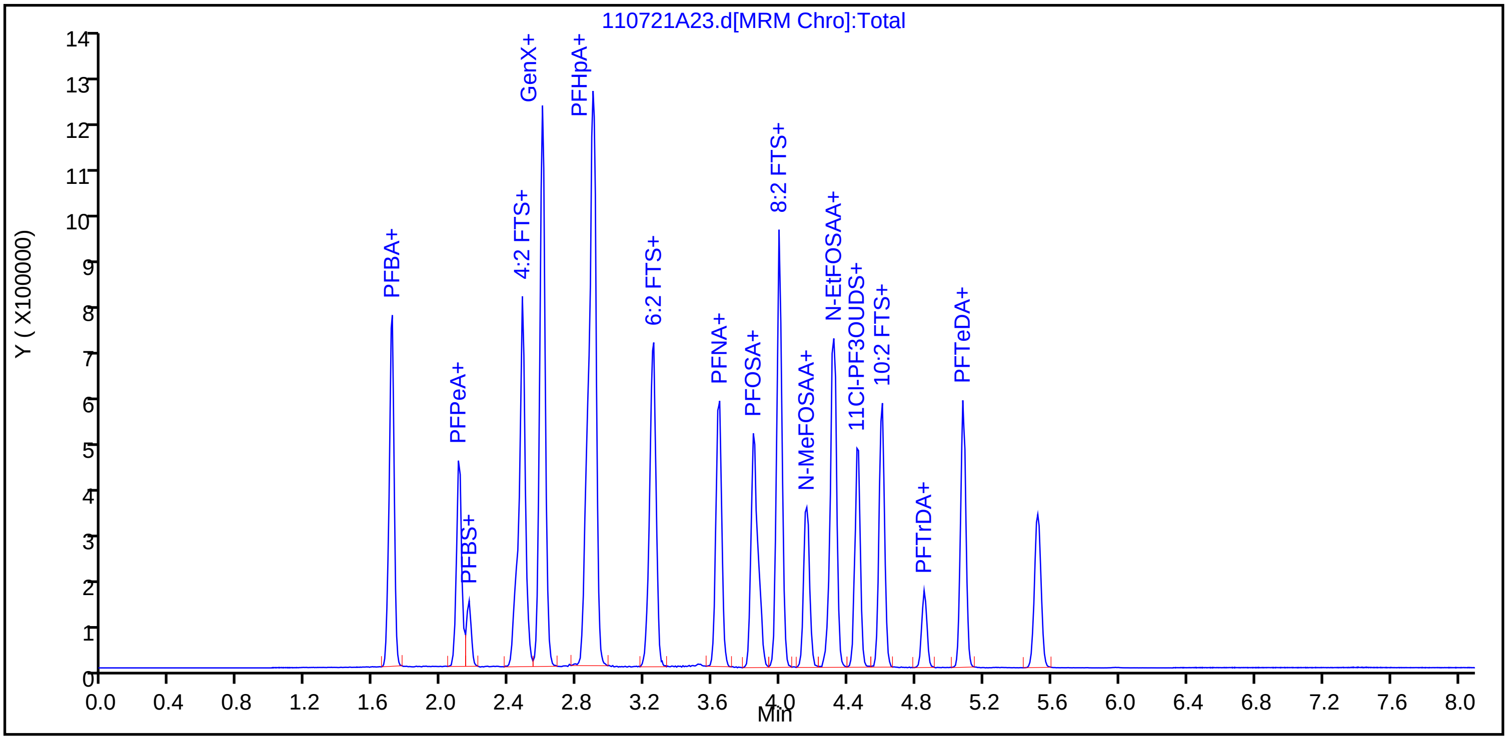
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

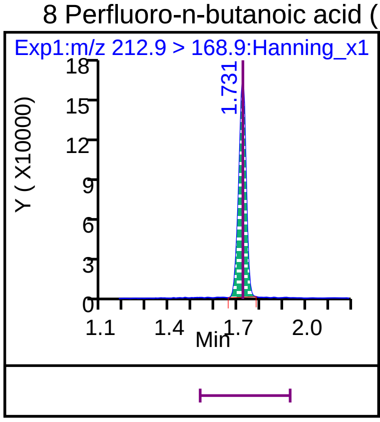
Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

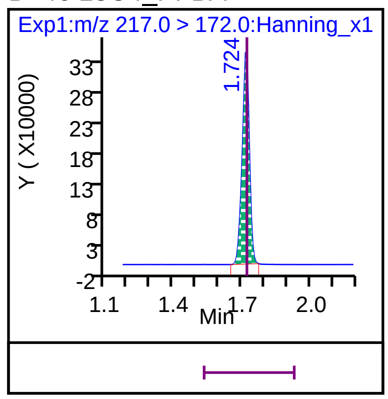
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICV 500_SVLC-1734
Sample Info:	F.L. ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Justin Gavin



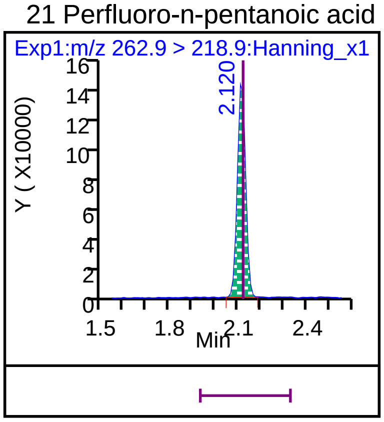
8 Perfluoro-n-butanoic acid (PFBA)



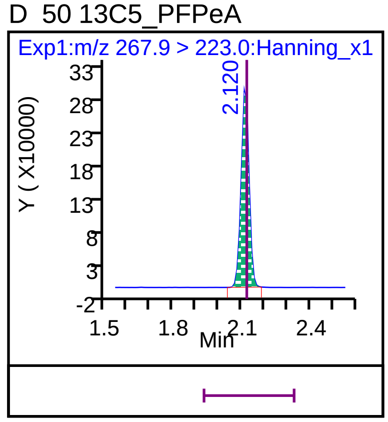
D 46 13C4_PFBA



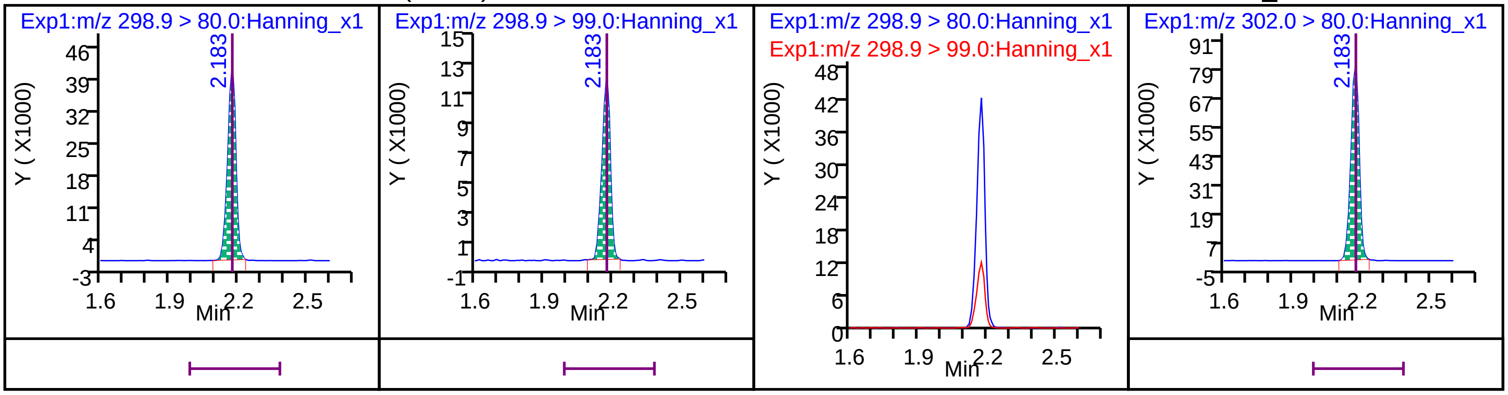
21 Perfluoro-n-pentanoic acid (PFPeA)



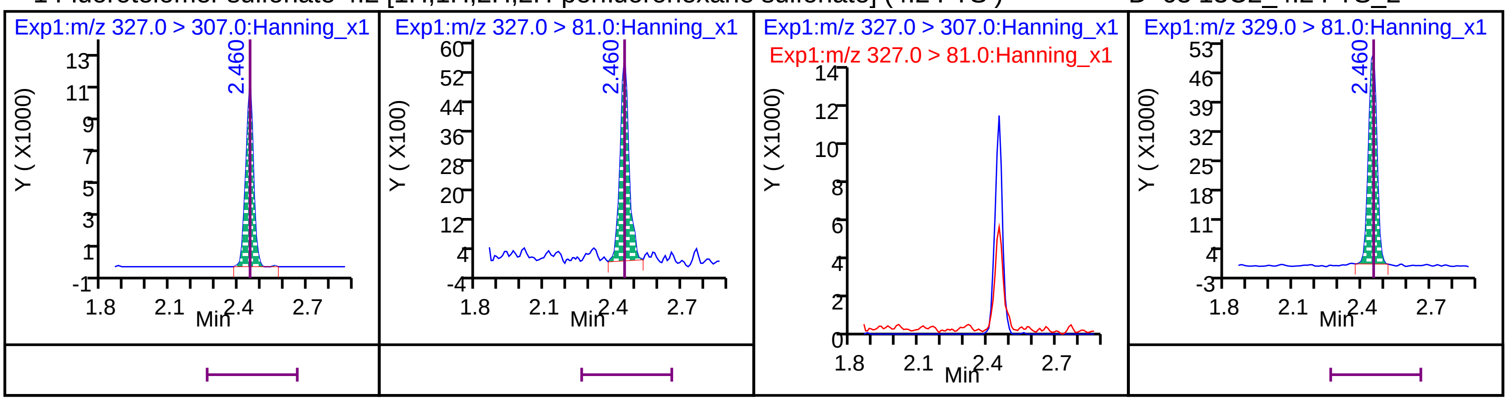
D 50 13C5_PFPeA



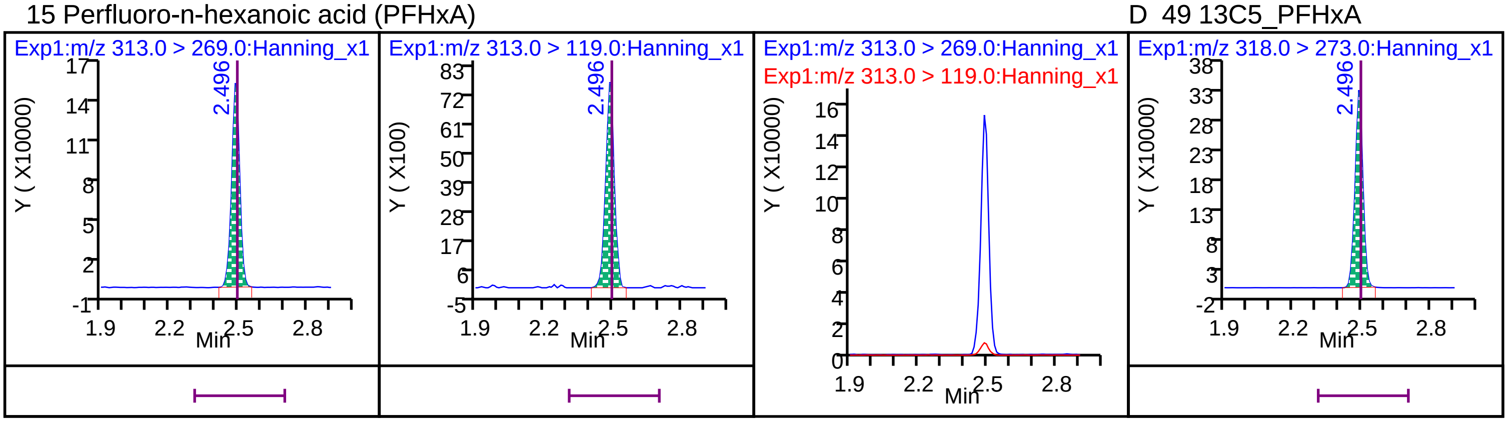
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



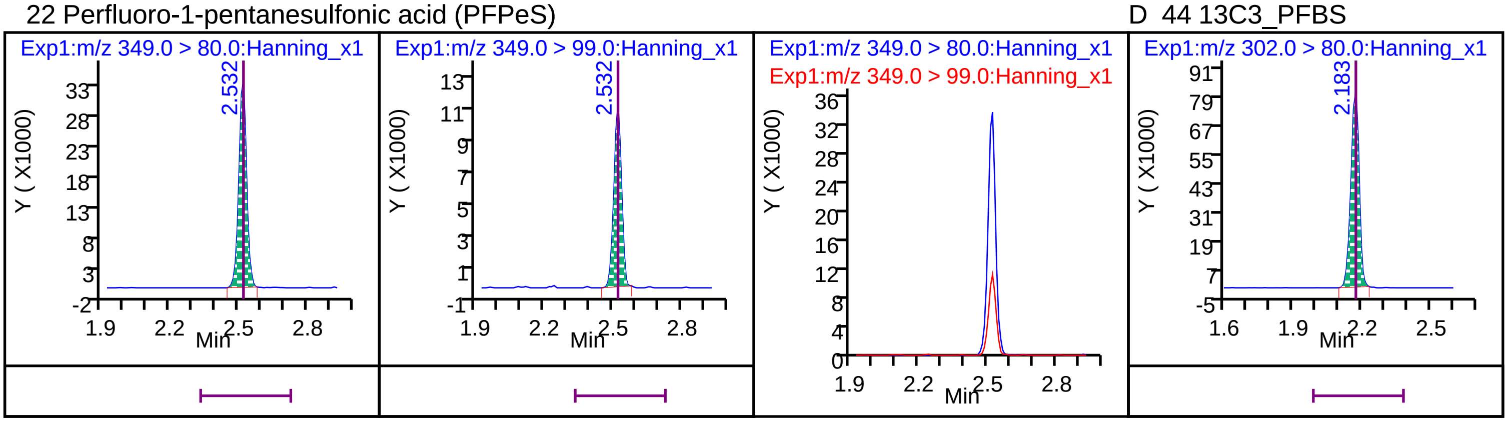
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

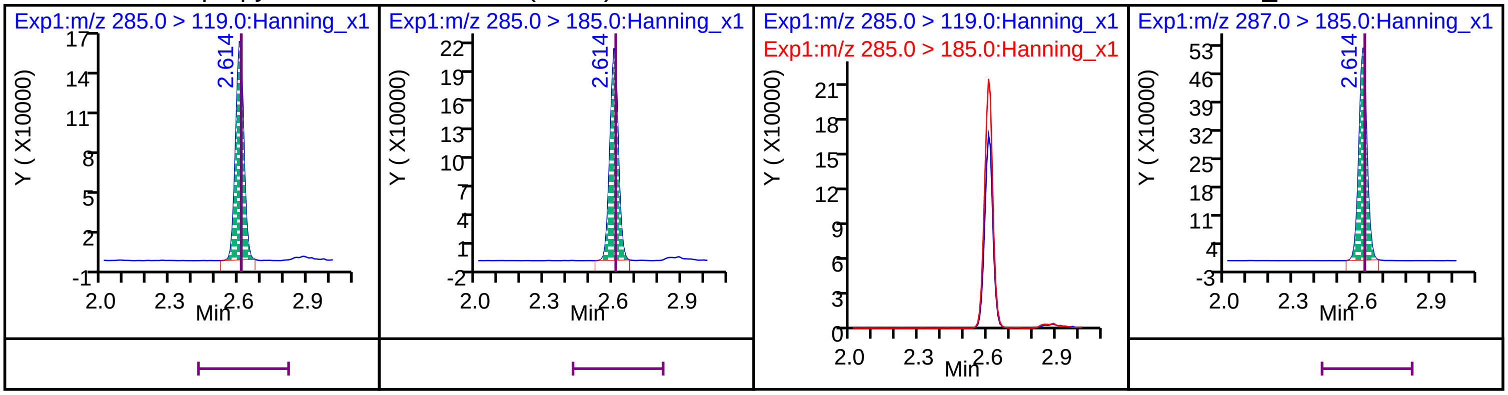


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

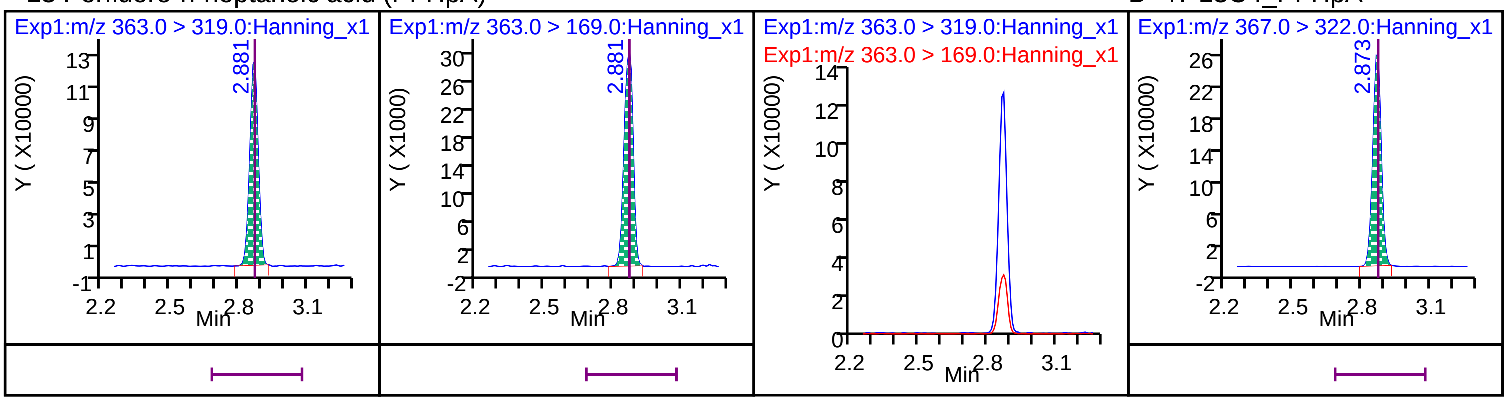


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

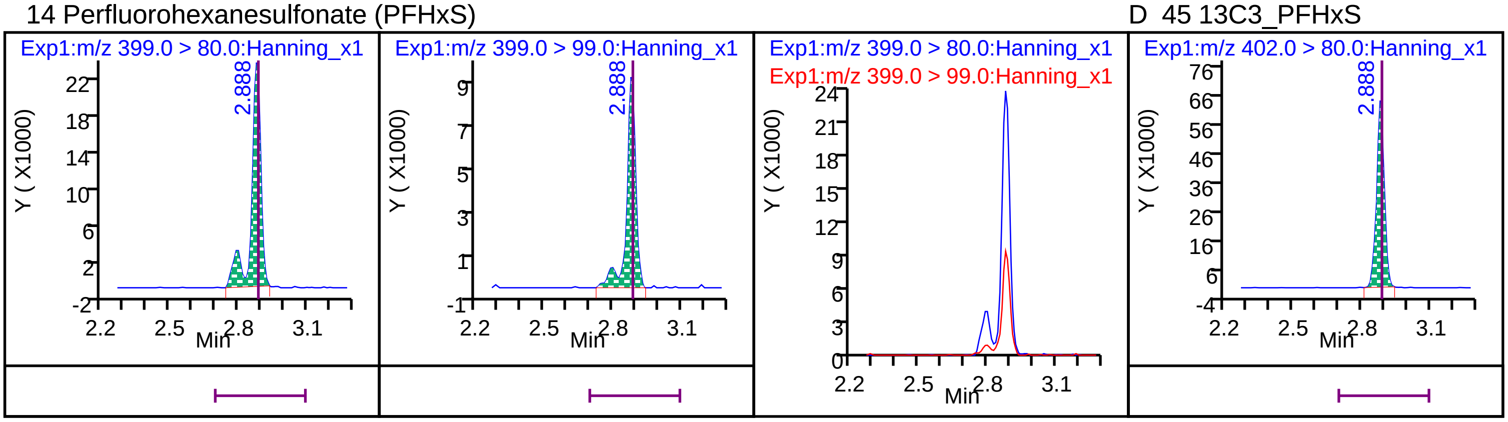
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



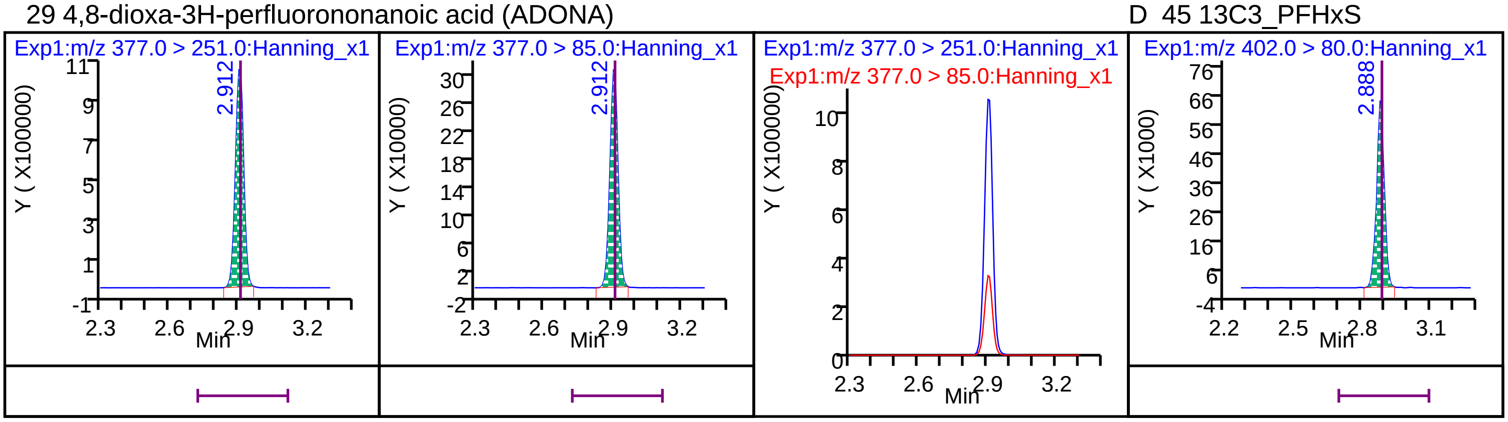
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



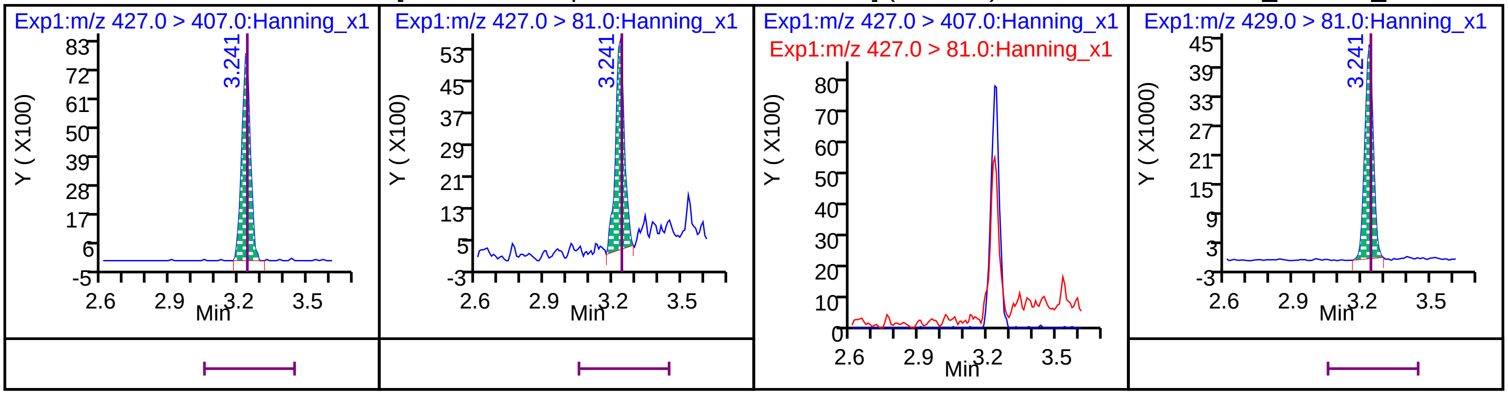
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



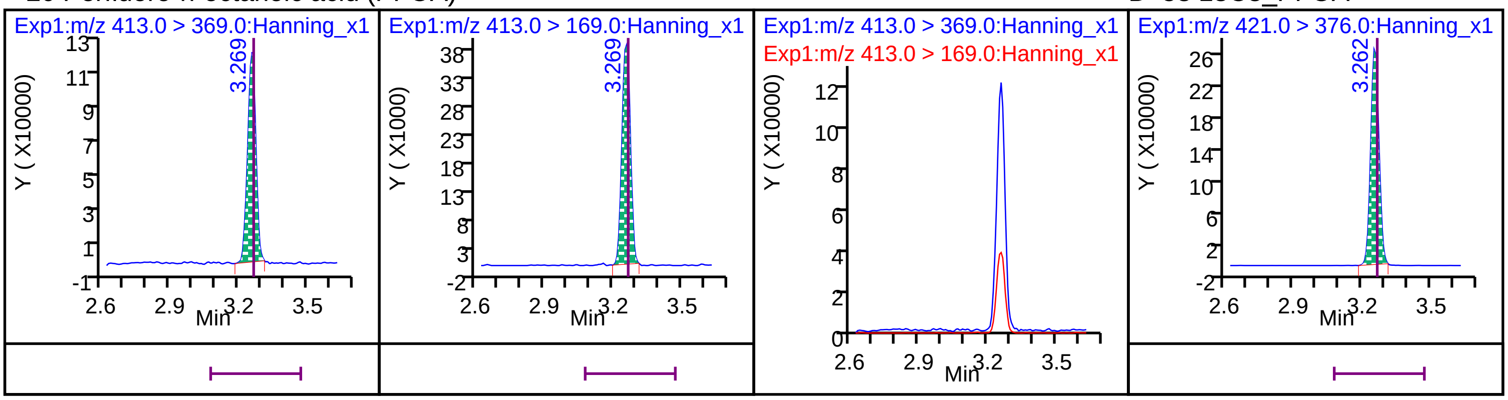
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



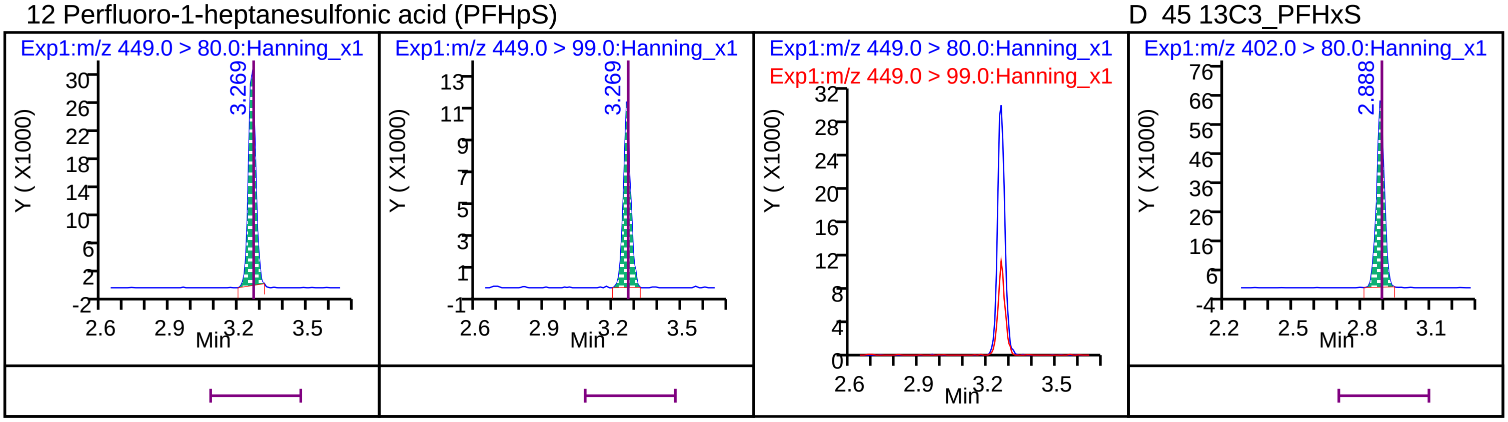
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



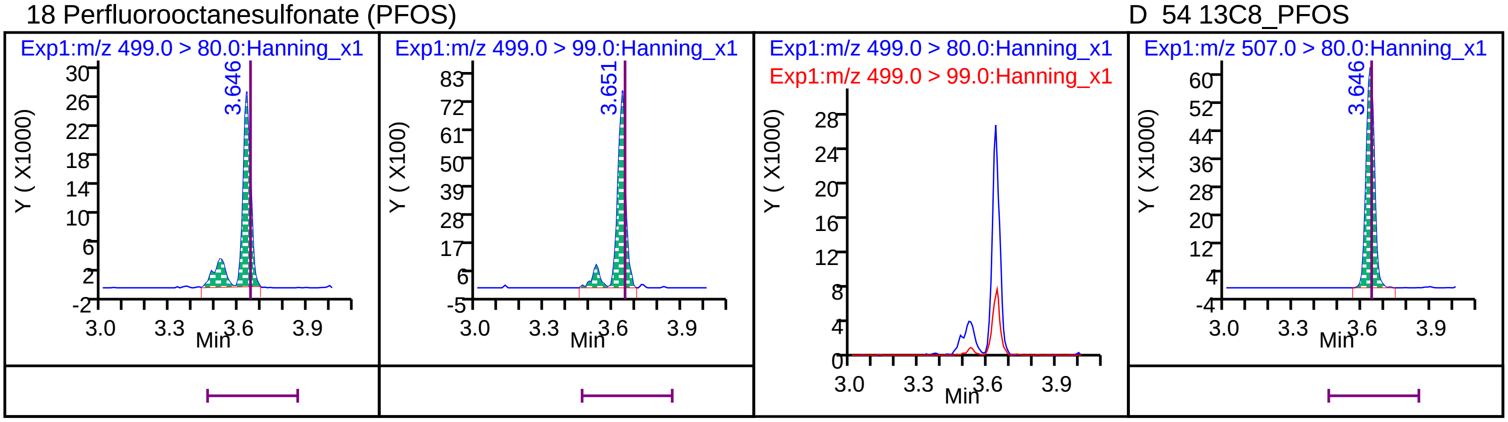
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

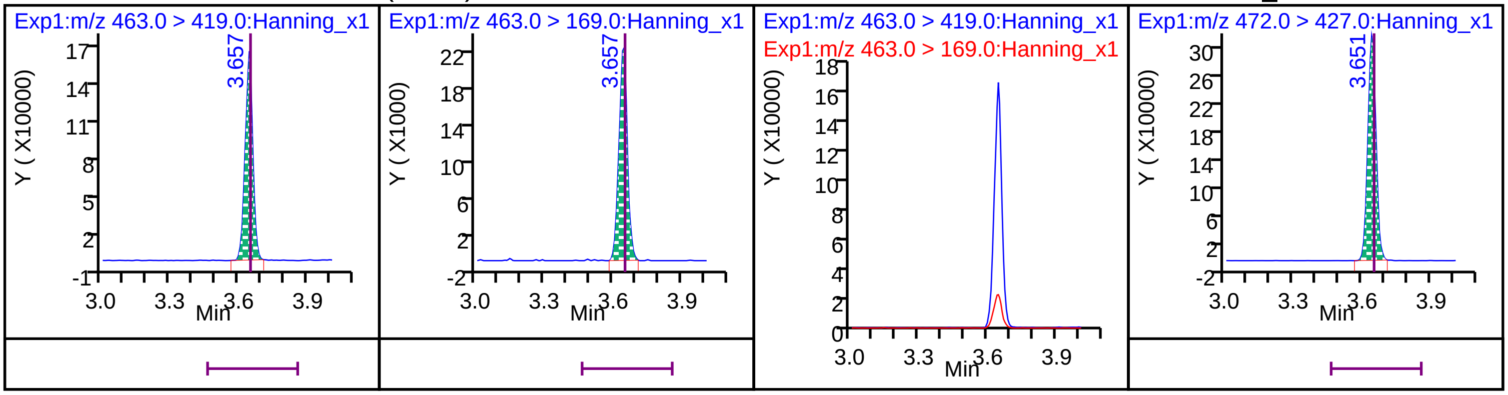


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

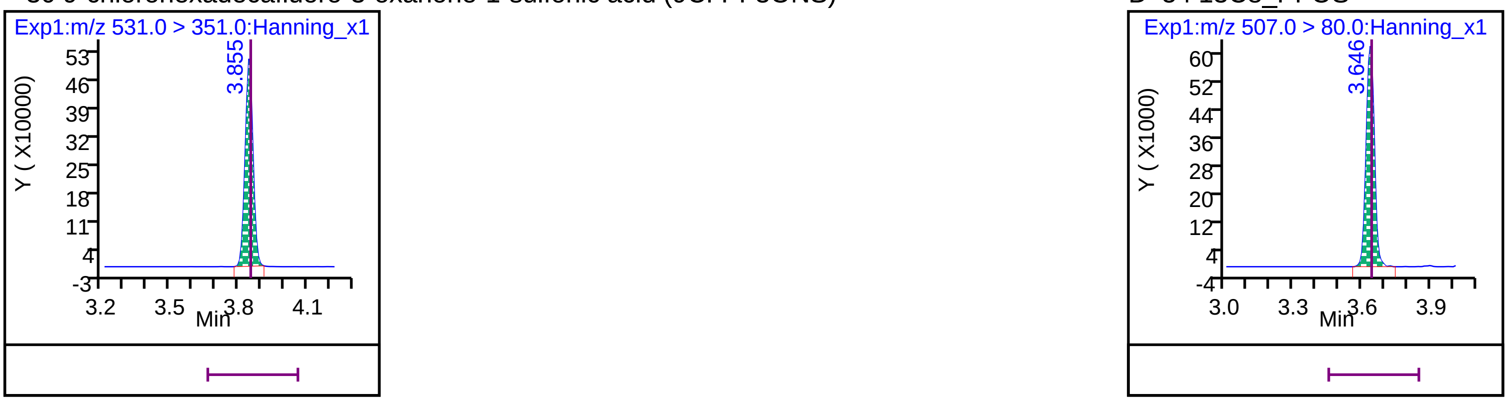


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

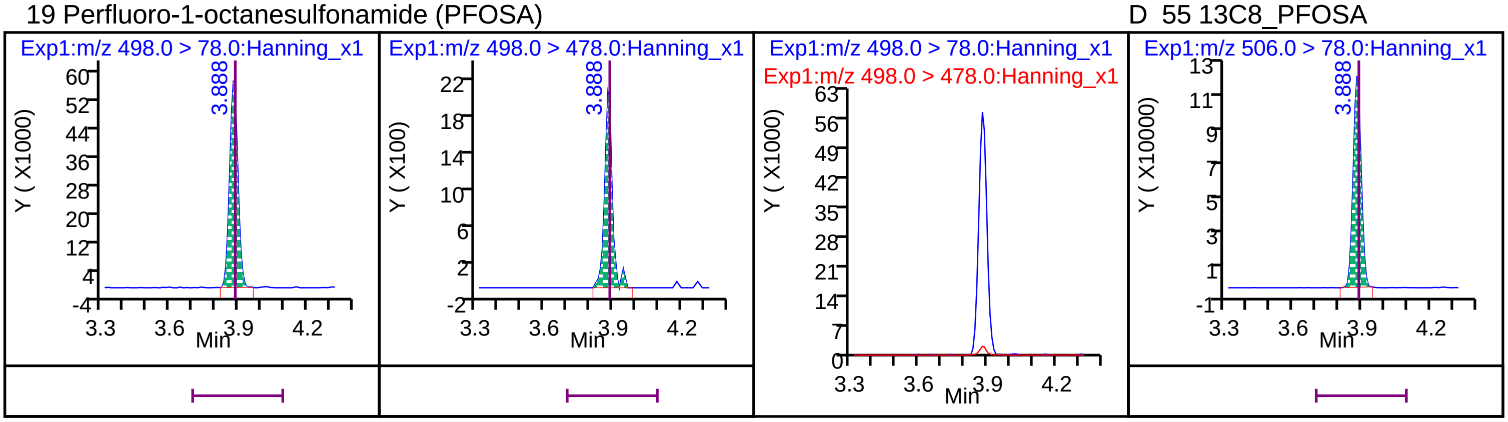
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



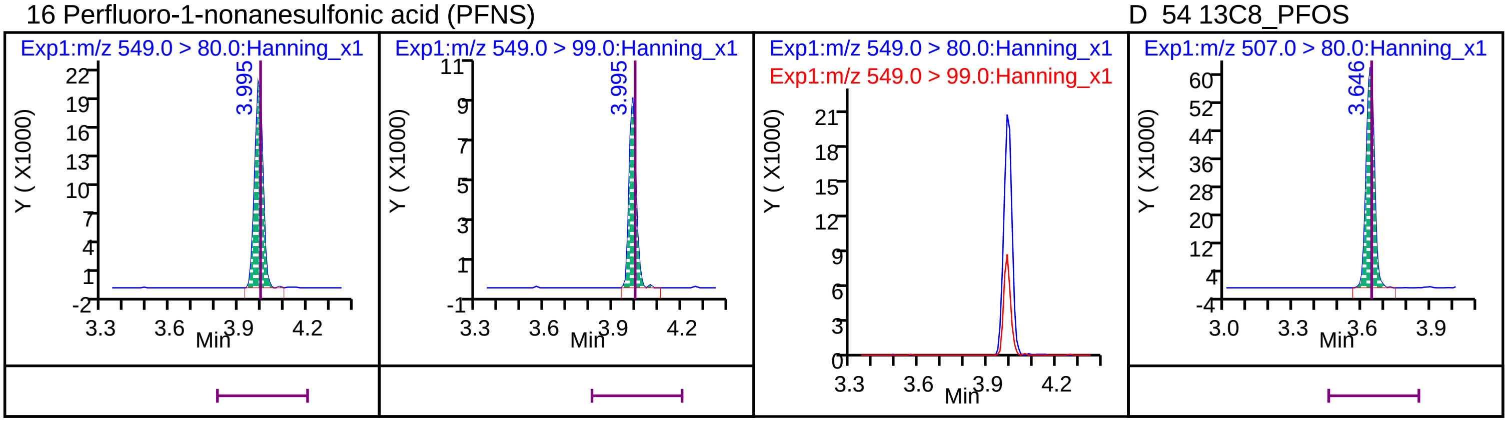
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



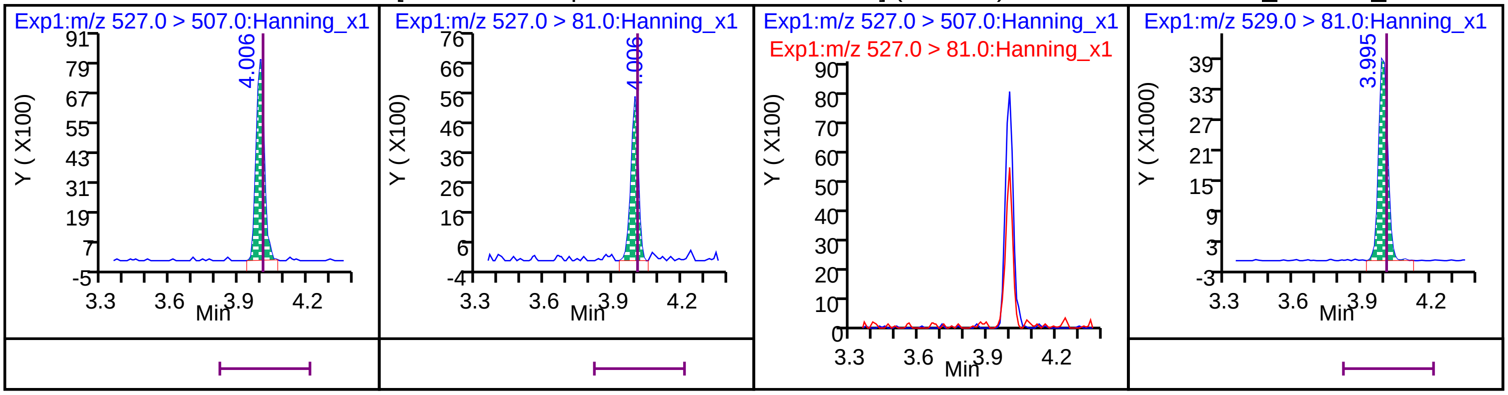
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



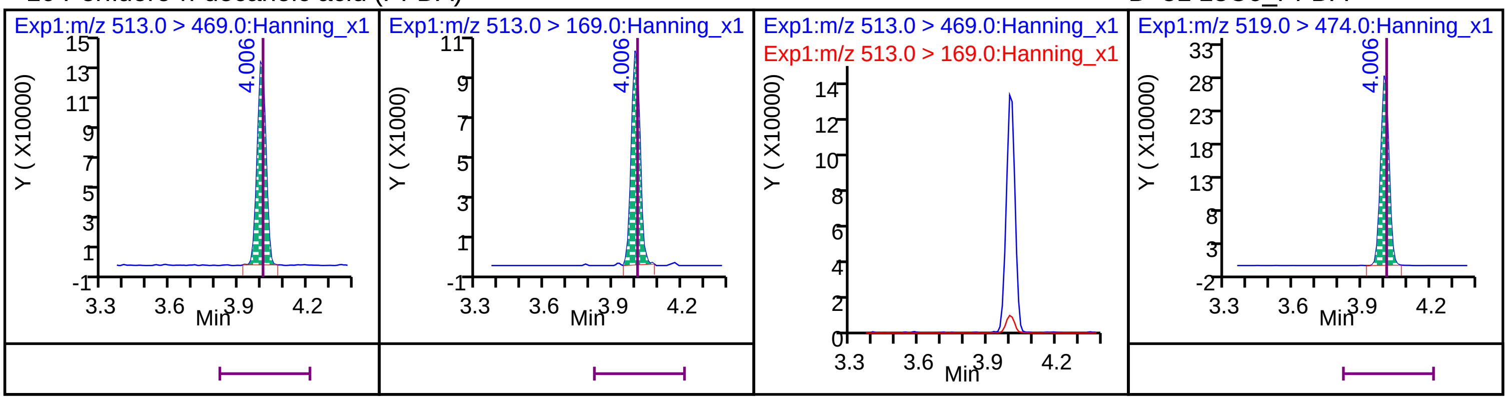
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



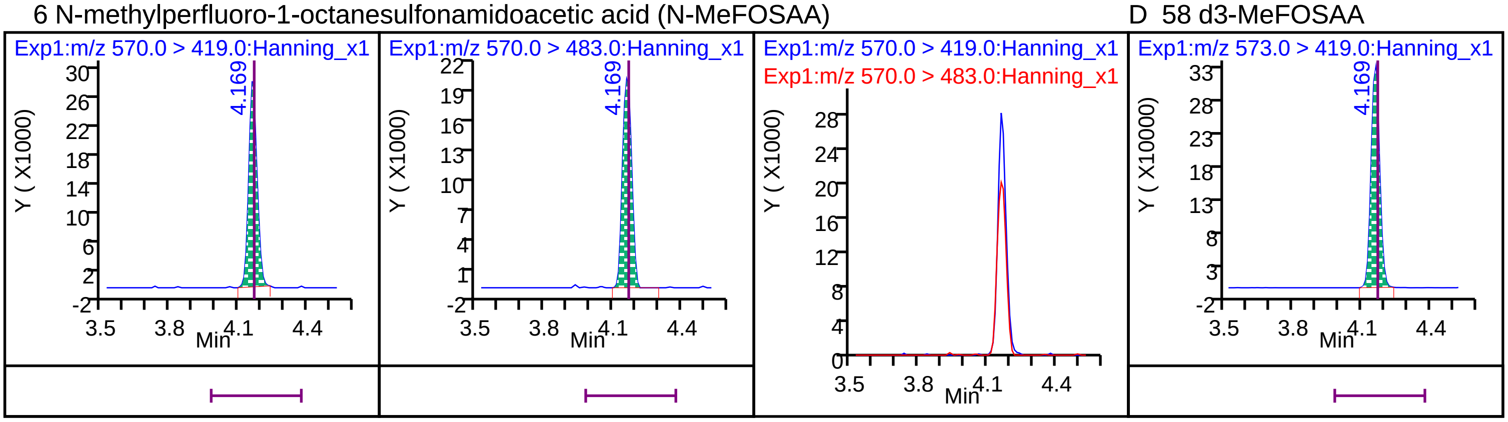
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



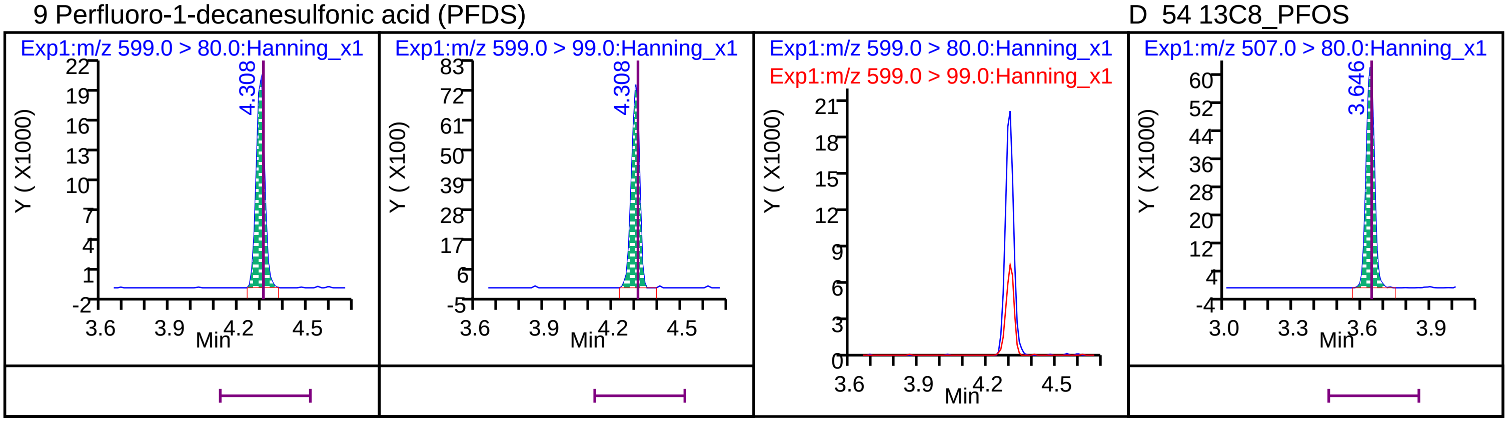
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



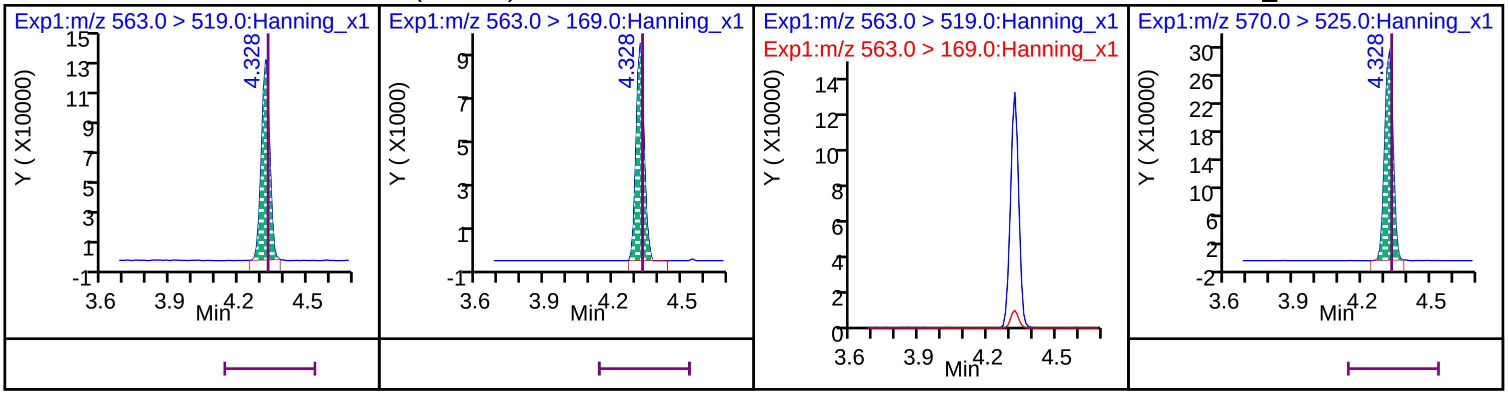
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



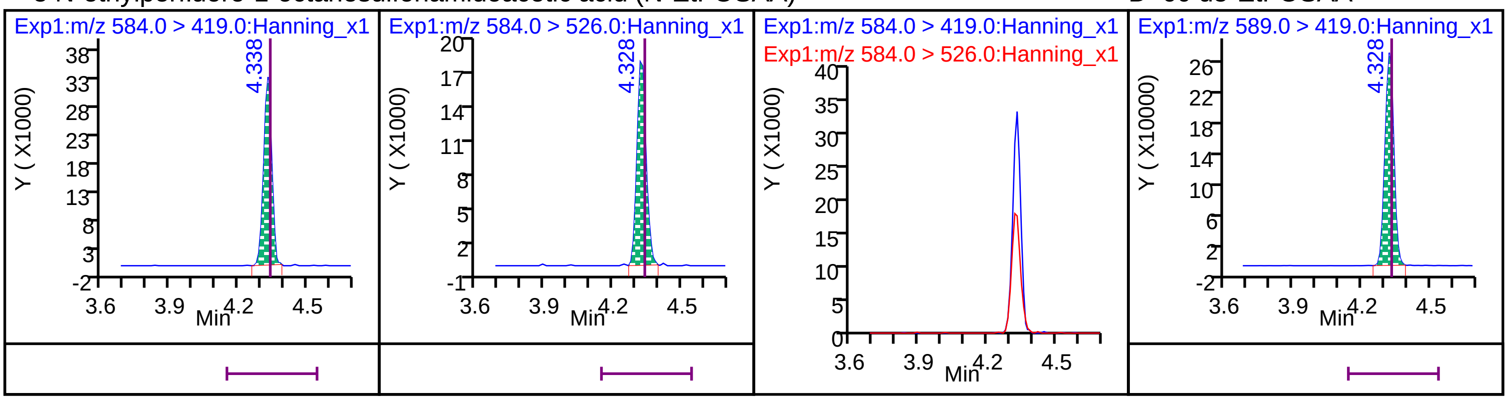
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



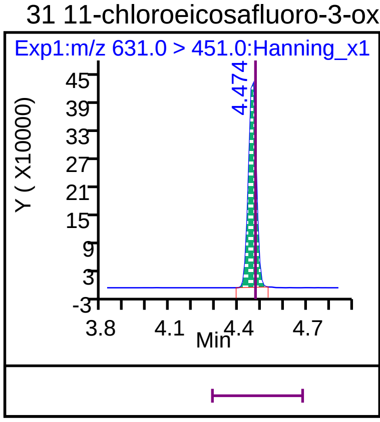
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



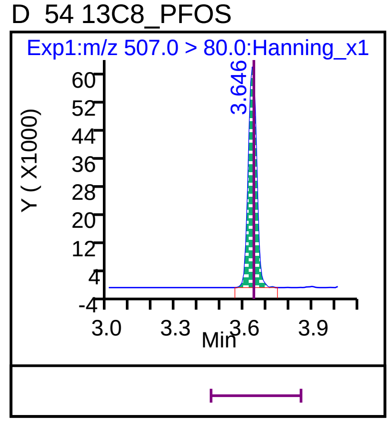
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



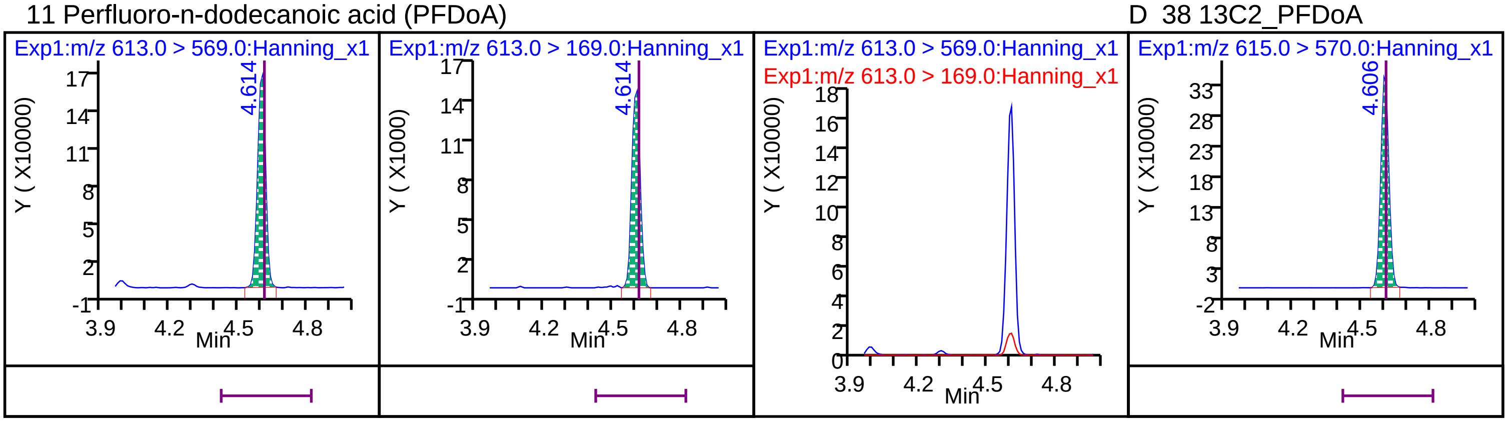
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



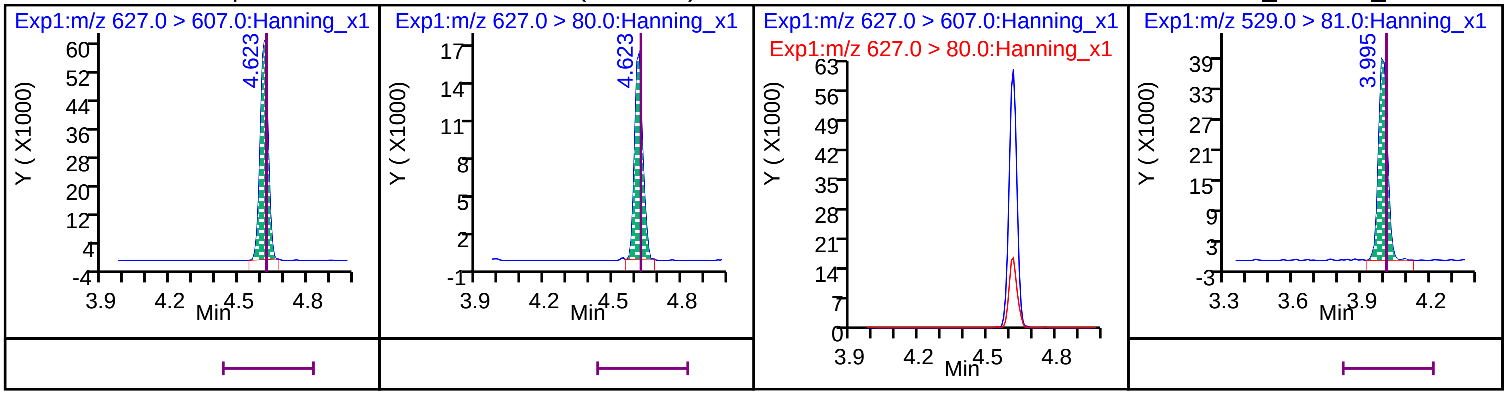
D 54 13C8_PFOS



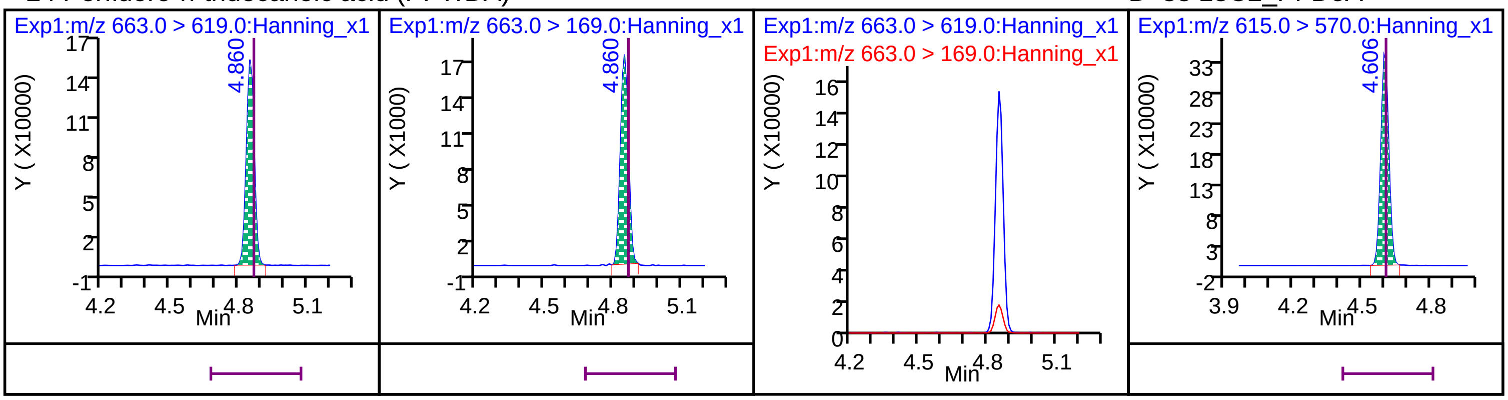
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



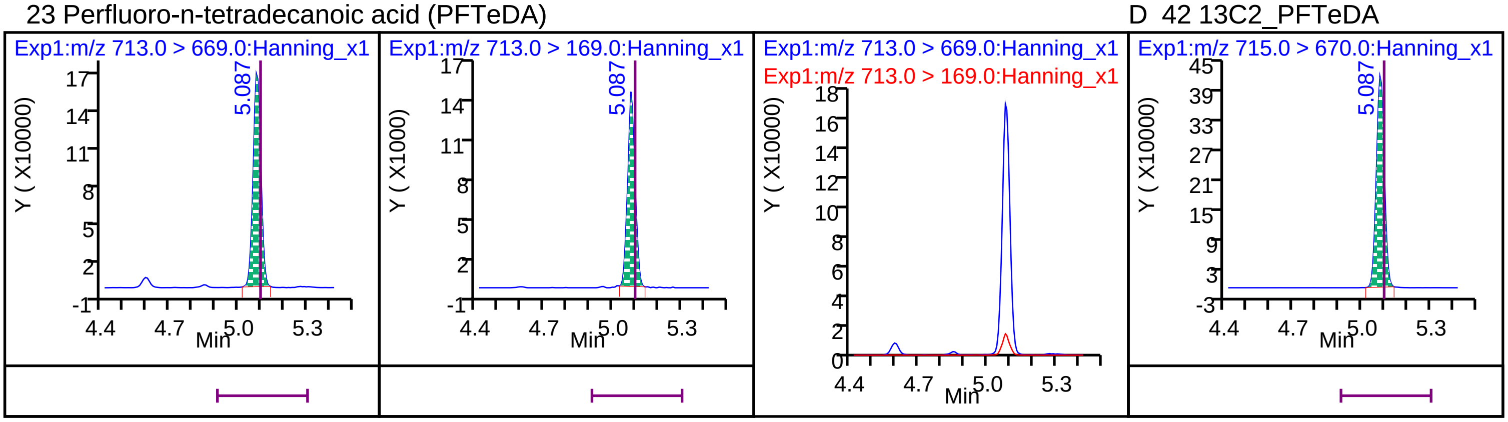
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



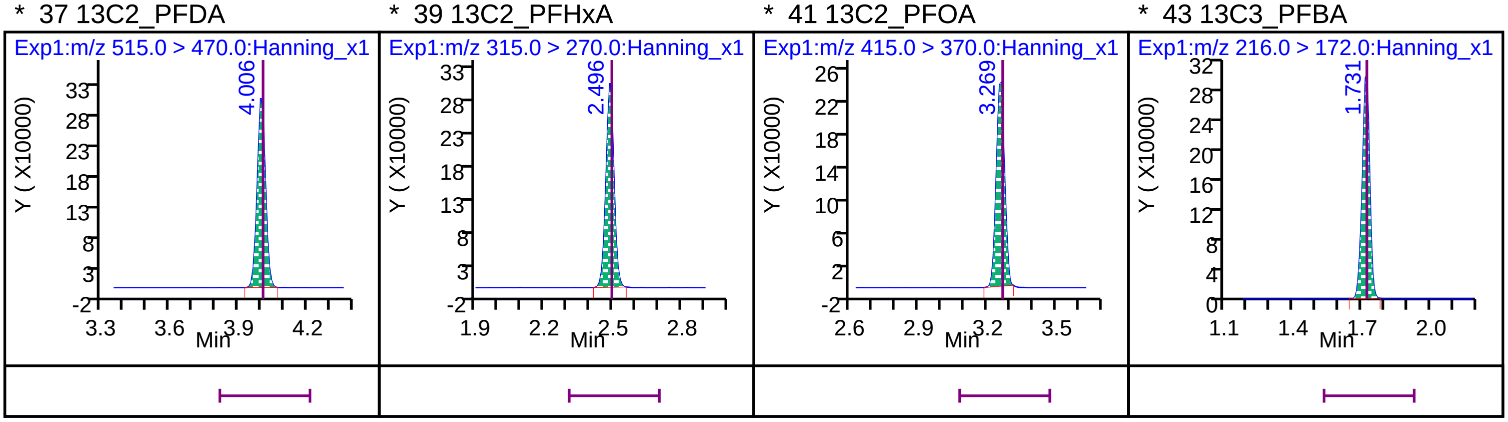
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



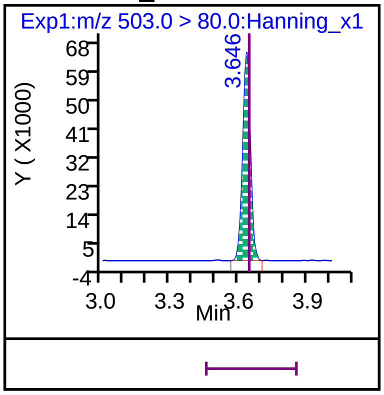
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS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3.646
Y (X1000)
68
59
50
41
32
23
14
5
-4
3.0
3.3
3.6
3.9
Min

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d		
Injection Date:	07-Nov-2021 20:53:57	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	87
Sample Info:	ISOMER CHECK_SVLC-1652	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: IsomerCheck Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	832490	19	>100:1			1000.00	1339.11	130.9	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.119	2.130	0	745225	16	>100:1			1000.00	1303.77	128.5	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	219522	15	>100:1			1000.00	1269.14	123	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.460	0	146403	16	>100:1			5000.00	6465.50	130.4	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	859966	16	>100:1			1000.00	1320.41	129.3	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1464128	18	>100:1			5000.00	6317.53	121.5	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	680709	17	>100:1			1000.00	1282.09	127.7	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	164983	19	>100:1			1000.00	1313.14	127.2	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.233	3.248	0	138915	19	>100:1			5000.00	7717.52	147.9	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.261	3.276	0	659495	22	>100:1			1000.00	1256.96	120.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.261	3.276	0/0	8375944	34	>100:1	Target = 2.89	5.62	10000	12394		
413 > 169	53	3.261	3.276		2966796	35	>100:1	2.82 (1.44-4.34)	4.01				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.644	3.651	0	157645	20	>100:1			1000.00	1272.94	119.5	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.650	3.662	0	838923	22	>100:1			1000.00	1310.04	131.3	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.885	3.896	0	341851	18	>100:1			1000.00	1275.29	128.1	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.003	4.016	0	883285	16	>100:1			1000.00	1537.06	153.4*	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.003	4.016	0	178958	18	>100:1			5000.00	10354	227*	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.167	4.178	0	1046130	18	>100:1			5000.00	6922.85	135.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.167	4.178	0/0	2156658	31		Target = 1.37	7.20	10000	12846		
570 > 483	58	4.167	4.178		1644445	29	>100:1	1.31 (0.68-2.05)	3.92				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.285	4.288	0	126915	16	>100:1			1000.00	1407.21	140.9	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.316	4.318	0	67744	14	>100:1			1000.00	1440.10	150.6*	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.326	4.338	0	975094	17	>100:1			5000.00	7528.92	141.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.336	4.348	0/0	2319207	32	>100:1	Target = 1.51	7.07	10000	12197		
584 > 526	60	4.336	4.348		1456264	30	>100:1	1.59 (0.75-2.26)	4.40				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.326	4.338	0	894952	16	>100:1			1000.00	1486.01	141	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.453	4.455	0	136294	17	>100:1			1000.00	1284.86	134.2	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.471	4.483	0	62069	15	>100:1			1000.00	1443.47	144.7	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.603	4.614	0	1132705	18	>100:1			1000.00	1886.78	187.4*	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.080	5.106	-1	1243521	21	>100:1			1000.00	1529.56	148.4	
D 40 13C2_PFHxDA CAS: SESI-0103													U
815 > 770			5.544		ND								
*** 37 13C2_PFDA**													
515 > 470		4.003	4.016	0	976038	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	815151	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.261	3.276	0	646940	21	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	707478	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.644	3.657	0	147754	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

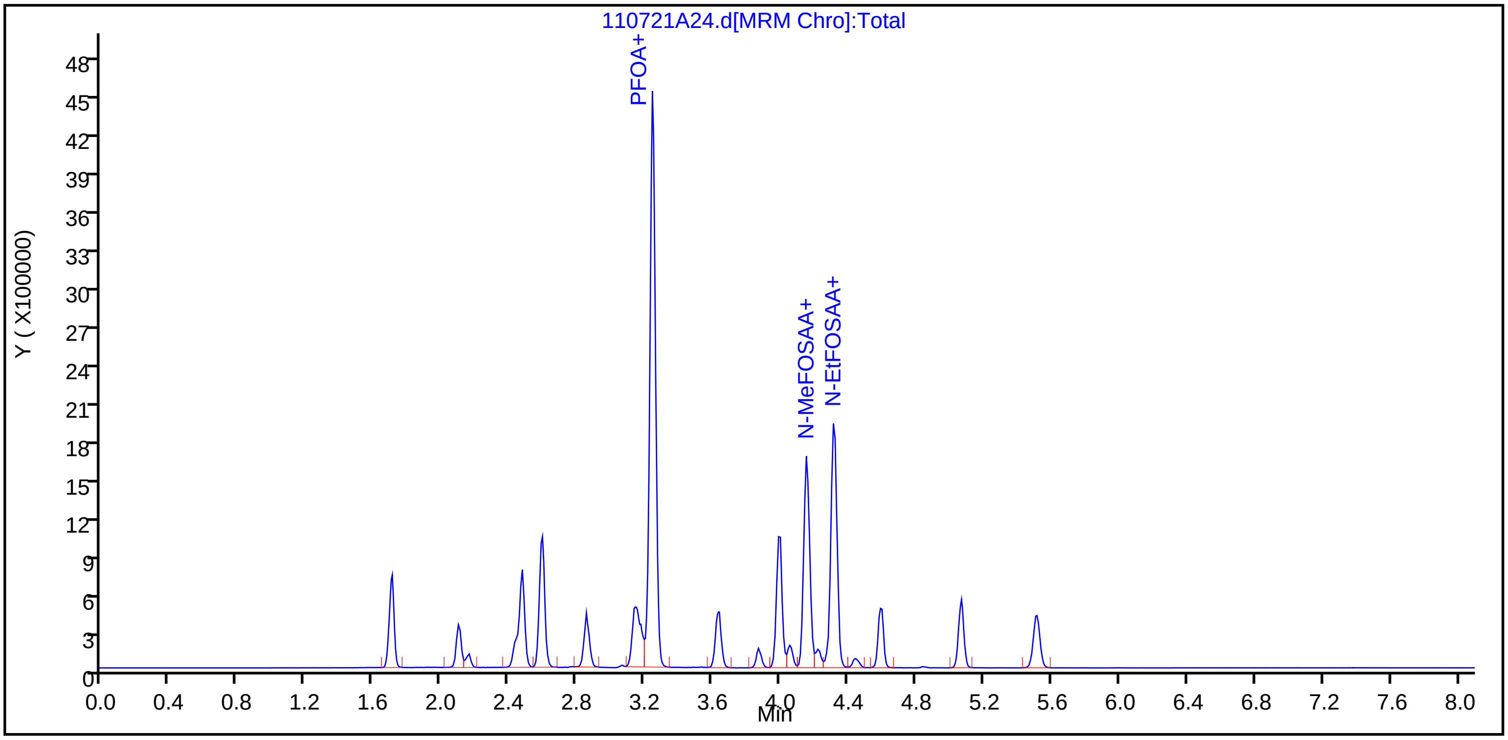
QC Flag Legend

U - Result Less Than Method Detection Limit

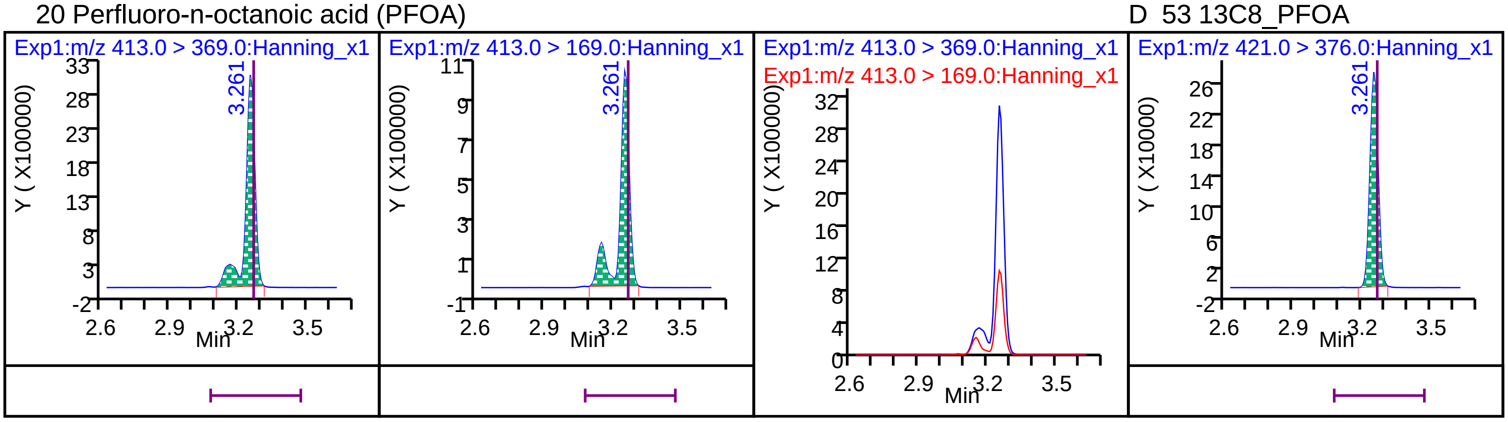
Report Date: 08-Nov-2021 10:00:29 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

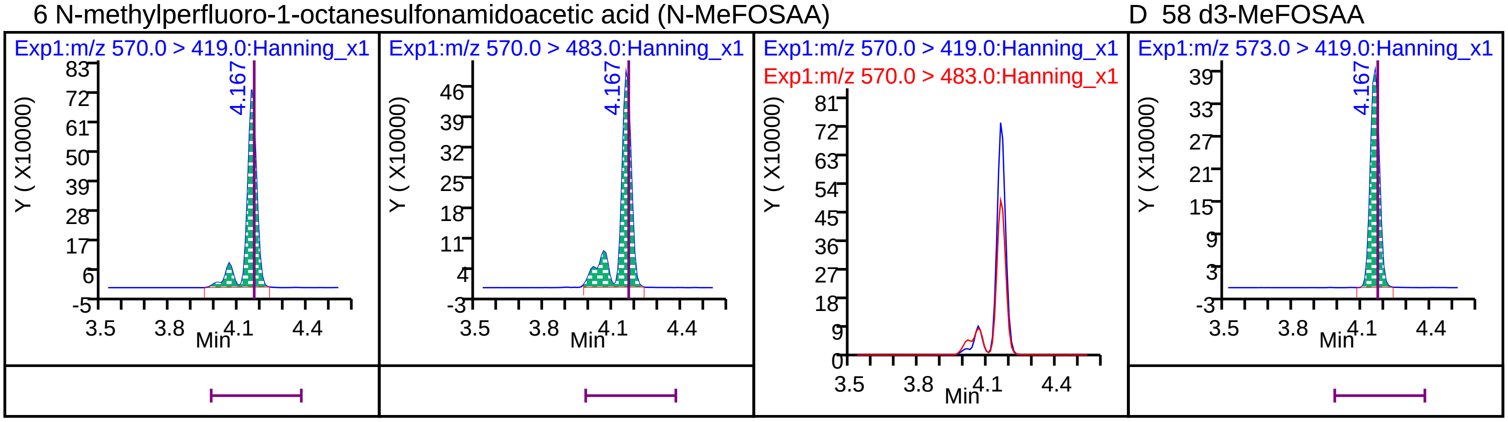
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d		
Injection Date:	07-Nov-2021 20:53:57	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ISOMER CHECK_SVLC-1652
Sample Info:	ISOMER CHECK_SVLC-1652		
Dil. Factor:	1	Operator:	Justin Gavin



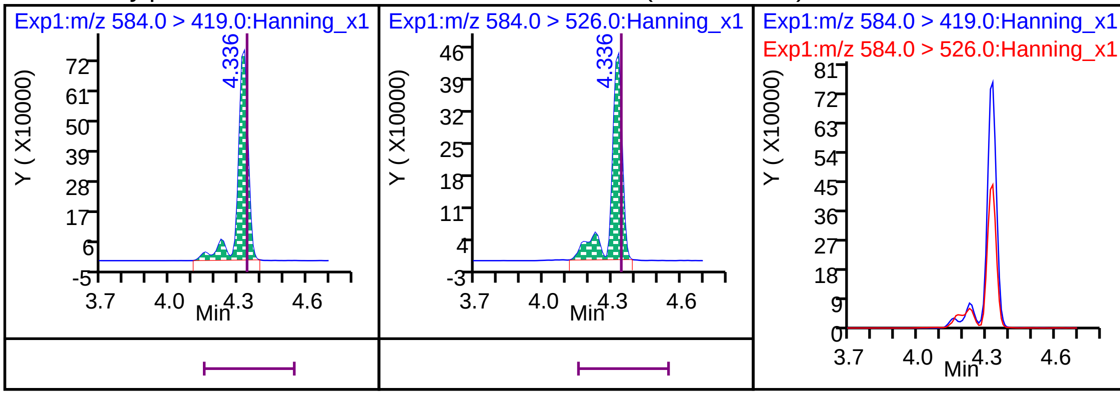
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



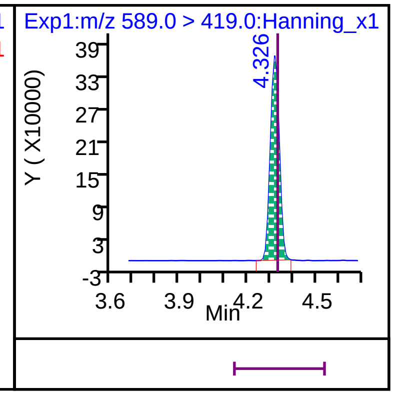
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



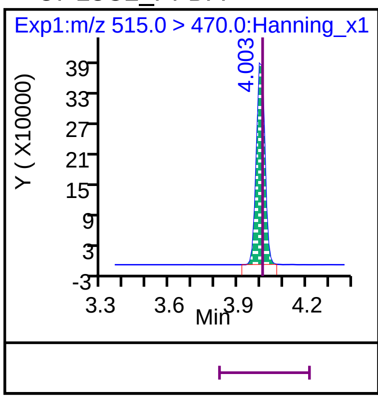
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



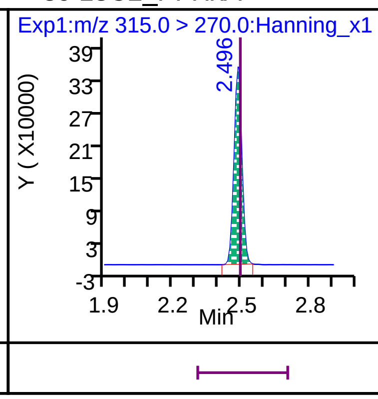
D 60 d5-EtFOSAA



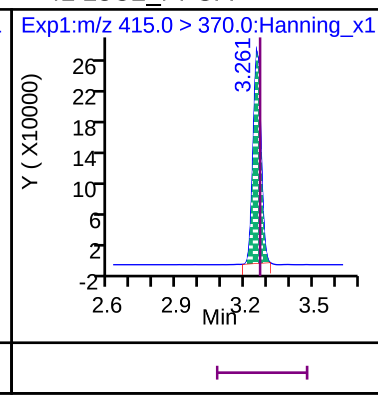
* 37 13C2_PFDA



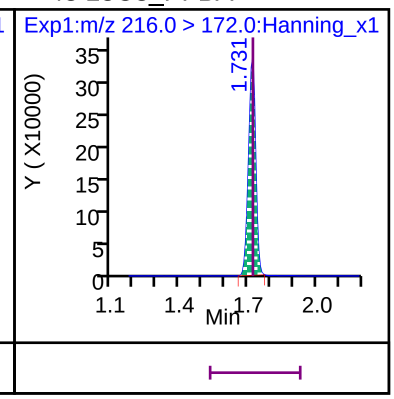
* 39 13C2_PFHxA



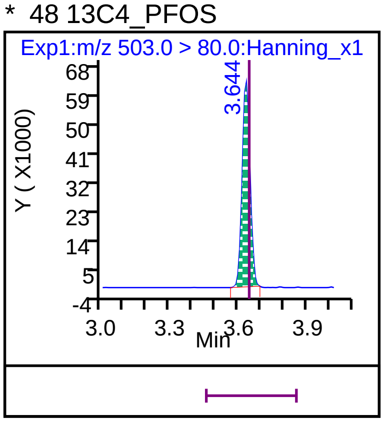
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 09:00:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	16-Nov-2021 16:41:56	Cal End Date:	16-Nov-2021 18:16:36
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	111621015.d	F.L. ICAL 50_SVLC-1740	16-Nov-2021 16:41:56
2	111621016.d	F.L. ICAL 100_SVLC-1741	16-Nov-2021 16:52:24
3	111621017.d	F.L. ICAL 200_SVLC-1742	16-Nov-2021 17:02:54
4	111621018.d	F.L. ICAL 500_SVLC-1743	16-Nov-2021 17:13:24
5	111621019.d	F.L. ICAL 1000_SVLC-1744	16-Nov-2021 17:23:54
6	111621020.d	F.L. ICAL 2000_SVLC-1745	16-Nov-2021 17:34:24
7	111621021.d	F.L. ICAL 5000_SVLC-1746	16-Nov-2021 17:44:55
8	111621022.d	F.L. ICAL 10000_SVLC-1747	16-Nov-2021 17:55:28
9	111621023.d	F.L. ICAL 15000_SVLC-1748	16-Nov-2021 18:06:02
10	111621024.d	F.L. ICAL 20000_SVLC-1749	16-Nov-2021 18:16:36

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.631	3.658	3.276	3.444	3.377	3.292	3.453	3.504	3.625	3.562	3.482	3.049-3.915	0.14436	1.741
1 4:2 FTS	1.304	1.064	1.524	1.627	1.864	1.834	1.913	1.938	2.040	1.961	1.706	0.669-2.744	0.34587	0.853
15 PFHxA	17.901	14.724	16.764	17.818	20.577	20.301	19.666	19.538	18.591	18.883	18.476	13.072-23.879	1.80113	9.238
22 PFPeS	3.947	2.587	3.302	2.916	2.912	2.944	2.850	2.914	2.988	3.024	3.038	1.928-4.148	0.36988	1.519
28 GenX	0.695	0.833	0.803	0.750	0.809	0.803	0.821	0.782	0.800	0.801	0.789	0.669-0.909	0.04009	0.394
13 PFHpA	5.001	3.551	3.459	3.976	4.278	3.627	3.840	4.030	3.739	3.755	3.925	2.621-5.229	0.43465	1.962
14 PFHxS	2.620	3.958	3.176	3.219	3.206	3.103	2.896	3.113	3.062	3.093	3.144	2.105-4.184	0.34653	1.572
29 ADONA	3.058	3.349	3.623	3.424	3.428	3.295	3.468	3.356	3.161	3.181	3.334	2.822-3.846	0.17062	1.667
2 6:2 FTS	0.838	1.895	1.727	1.420	1.793	1.846	1.729	1.878	1.915	1.945	1.698	0.686-2.710	0.33745	0.849
20 PFOA	2.947	3.163	3.358	3.008	3.002	3.043	3.004	3.028	2.910	2.924	3.038	2.632-3.444	0.13539	1.519
12 PFHpS	3.910	2.235	2.670	2.901	3.041	3.152	3.088	3.114	3.063	3.080	3.025	1.820-4.230	0.40170	1.512
17 PFNA	7.980	8.041	7.536	7.147	6.891	6.759	7.155	6.786	6.684	6.440	7.141	5.409-8.874	0.57743	3.570
18 PFOS	4.280	3.543	3.029	3.765	3.149	3.159	3.350	3.192	3.334	3.423	3.422	2.335-4.508	0.36214	1.711
19 PFOSA	31.252	33.495	51.541	28.798	32.212	30.839	30.745	28.257	30.485	30.769	32.839	8.067-57.611	8.25743	16.419
3 8:2 FTS	1.559	3.691	2.042	2.204	2.065	2.007	1.812	2.102	1.876	2.075	2.143	0.461-3.825	0.56065	1.071
16 PFNS	1.215	2.206	4.019	2.586	2.510	2.576	2.756	2.686	2.622	2.633	2.580	0.599-4.562	0.66042	1.290
10 PFDA	12.611	13.005	15.237	14.784	15.470	14.899	14.785	14.138	13.578	13.164	14.167	11.255-17.078	0.97040	7.083
6 N-MeFOSAA	1.559	2.021	1.604	1.325	1.444	1.169	1.275	1.352	1.228	1.325	1.430	0.657-2.202	0.25757	0.715
9 PFDS	2.226	3.675	2.821	2.297	2.903	2.633	2.534	2.571	2.611	2.847	2.711	1.505-3.917	0.40199	1.355
25 PFUdA	13.387	16.544	14.256	14.656	13.636	14.398	14.870	13.732	13.908	14.371	14.375	11.225-17.525	1.04994	7.187
5 N-EtFOSAA	1.419	1.167	1.487	1.633	1.559	1.493	1.512	1.557	1.563	1.572	1.496	1.056-1.935	0.14642	0.748
26 MeFOSA	1.140	1.043	1.345	1.098	1.025	1.010	1.108	1.083	1.028	1.016	1.089	0.778-1.401	0.10381	0.544
27 EtFOSA	0.902	0.869	0.961	0.952	0.995	0.944	1.023	1.015	1.023	1.037	0.972	0.801-1.142	0.05677	0.486
11 PFDoA	7.800	10.273	10.892	10.914	11.301	11.230	11.271	10.415	10.518	10.940	10.555	7.425-13.684	1.04317	5.277
4 10:2 FTS	2.416	5.302	2.983	5.264	3.670	3.561	3.344	3.574	3.517	3.619	3.725	1.094-6.355	0.87683	1.862
34 PFDOS	4.045	2.368	2.842	3.322	2.886	2.952	3.042	2.962	3.019	3.000	3.043	1.756-4.331	0.42926	1.521
24 PFTrDA	9.282	9.430	9.159	9.070	8.913	8.793	8.984	8.486	8.591	8.545	8.925	7.858-9.991	0.35546	4.462
23 PFTeDA	12.536	12.618	11.352	12.316	12.396	12.269	12.378	12.153	12.195	12.071	12.228	10.831-13.625	0.46580	6.114
35 PFHxDA	13.719	11.149	11.661	11.562	11.545	11.748	11.782	11.249	11.241	10.931	11.658	9.306-14.011	0.78418	5.829
36 PFODA	16.309	16.717	14.988	15.040	15.121	14.984	15.370	14.756	14.161	14.106	15.155	12.638-17.672	0.83906	7.577

Report Date: 22-Nov-2021 09:00:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 16-Nov-2021 16:41:56 Cal End Date: 16-Nov-2021 18:16:36

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	111621015.d	F.L. ICAL 50_SVLC-1740	16-Nov-2021 16:41:56
2	111621016.d	F.L. ICAL 100_SVLC-1741	16-Nov-2021 16:52:24
3	111621017.d	F.L. ICAL 200_SVLC-1742	16-Nov-2021 17:02:54
4	111621018.d	F.L. ICAL 500_SVLC-1743	16-Nov-2021 17:13:24
5	111621019.d	F.L. ICAL 1000_SVLC-1744	16-Nov-2021 17:23:54
6	111621020.d	F.L. ICAL 2000_SVLC-1745	16-Nov-2021 17:34:24
7	111621021.d	F.L. ICAL 5000_SVLC-1746	16-Nov-2021 17:44:55
8	111621022.d	F.L. ICAL 10000_SVLC-1747	16-Nov-2021 17:55:28
9	111621023.d	F.L. ICAL 15000_SVLC-1748	16-Nov-2021 18:06:02
10	111621024.d	F.L. ICAL 20000_SVLC-1749	16-Nov-2021 18:16:36

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area

Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None

Org: Origin, F-Force, I-Include, N-Neither

Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	654	648	646	642	646	621	628	586	575	594	Avg:A Wt:C2	624		RSD=4.6	
	104.8	103.8	103.6	102.9	103.6	99.5	100.7	94	92.1	95.1	Org:N Dep:R				
8 PFBA	1.075626	1.074802	1.069777	1.041734	1.015574	1.030952	1.066086	1.049075	1.024954	1.013053	Avg:A Wt:C2	1.046163		RSD=2.3	
	102.8	102.7	102.3	99.6	97.1	98.5	101.9	100.3	98	96.8	Org:N Dep:R				
D 50 13C5_PFPeA	614	597	583	580	598	586	593	550	544	548	Avg:A Wt:C2	579		RSD=4.2	
	106	103.2	100.6	100.1	103.2	101.1	102.4	94.9	93.9	94.6	Org:N Dep:R				
21 PFPeA	1.047909	1.101382	1.123271	1.118126	1.094642	1.079236	1.123963	1.127264	1.058314	1.108031	Avg:A Wt:C2	1.098214		RSD=2.6	
	95.4	100.3	102.3	101.8	99.7	98.3	102.3	102.6	96.4	100.9	Org:N Dep:R				
D 44 13C3_PFBS	180	176	176	173	174	176	181	168	157	174	Avg:A Wt:C2	174		RSD=3.9	
	103.7	101.4	101.3	99.9	100.2	101.6	104.3	97	90.4	100.1	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.306051	1.310768	1.275305	1.233794	1.231208	1.163359	1.191959	1.214682	1.299901	1.230803	Avg:A Wt:C2	1.245783		RSD=4.0	
	104.8	105.2	102.4	99	98.8	93.4	95.7	97.5	104.3	98.8	Org:N Dep:R				
1 4:2 FTS	3.052183	2.046624	2.330847	2.180437	2.210691	2.159597	2.329525	2.286781	2.083527	2.277465	Ln:A Wt:C2	2.168196	30.6173	R^2=0.990	
	110.5	79.3	99.9	97.5	100.4	98.8	107.1	105.3	96	105	Org:N Dep:R			RSE=9.1	
D 63 13C2_4:2 FTS_2	21.8610	22.3170	22.3862	22.5688	22.8726	22.3394	20.9118	20.1784	21.8686	21.0566	Avg:A Wt:C2	21.8360		RSD=3.9	
	100.1	102.2	102.5	103.4	104.7	102.3	95.8	92.4	100.1	96.4	Org:N Dep:R				
D 49 13C5_PFHxA	675	670	670	689	691	630	626	626	580	623	Avg:A Wt:C2	648		RSD=5.6	
	104.2	103.4	103.4	106.4	106.6	97.2	96.6	96.6	89.5	96.2	Org:N Dep:R				
15 PFHxA	1.114237	1.097562	0.984602	1.021328	1.018469	1.096979	1.127332	1.045075	1.051068	1.024987	Avg:A Wt:C2	1.058164		RSD=4.5	
	105.3	103.7	93	96.5	96.2	103.7	106.5	98.8	99.3	96.9	Org:N Dep:R				
22 PFPeS	0.970456	0.804693	0.887435	0.891278	0.904681	0.867399	0.845248	0.866819	0.936856	0.876984	Avg:A Wt:C2	0.885185		RSD=5.2	
	109.6	90.9	100.3	100.7	102.2	98	95.5	97.9	105.8	99.1	Org:N Dep:R				
28 GenX	0.699669	0.682445	0.668211	0.638041	0.655533	0.611738	0.688328	0.641184	0.645961	0.649027	Avg:A Wt:C2	0.658014		RSD=4.1	
	106.3	103.7	101.5	97	99.6	93	104.6	97.4	98.2	98.6	Org:N Dep:R				
D 66 13C3_GenX	227	235	234	229	231	228	219	214	208	213	Avg:A Wt:C2	224		RSD=4.2	
	101.6	105.1	104.3	102.3	103.3	101.7	97.7	95.8	93	95.3	Org:N Dep:R				
13 PFHpA	1.329249	1.062720	1.178117	1.098639	1.169980	1.084482	1.171283	1.095455	1.104451	1.140884	Avg:A Wt:C2	1.143526		RSD=6.7	
	116.2	92.9	103	96.1	102.3	94.8	102.4	95.8	96.6	99.8	Org:N Dep:R				
D 47 13C4_PFHpA	529	549	548	555	542	525	528	521	488	493	Avg:A Wt:C2	528		RSD=4.3	
	100.3	104.1	103.8	105.2	102.7	99.4	100.1	98.8	92.4	93.3	Org:N Dep:R				
D 45 13C3_PFHxS	126	126	129	135	136	128	132	127	118	122	Avg:A Wt:C2	128		RSD=4.2	
	98.8	98.3	100.7	105.4	106.5	100.2	103	99.2	92.7	95.2	Org:N Dep:R				
14 PFHxS	1.349480	1.175772	1.227314	1.083480	1.023475	1.122870	1.063998	1.046821	1.098330	1.082013	Avg:A Wt:C2	1.127355		RSD=8.8	
	119.7	104.3	108.9	96.1	90.8	99.6	94.4	92.9	97.4	96	Org:N Dep:R				
29 ADONA	8.176541	8.592709	7.870237	7.630501	7.481434	7.407877	7.710335	7.412793	7.783236	7.710988	Avg:A Wt:C2	7.777665		RSD=4.7	
	105.1	110.5	101.2	98.1	96.2	95.2	99.1	95.3	100.1	99.1	Org:N Dep:R				
2 6:2 FTS	2.252737	2.593427	2.246691	2.199815	2.354702	2.396116	2.362587	2.333789	2.480563	2.235761	Avg:A Wt:C2	2.345619		RSD=5.2	
	96	110.6	95.8	93.8	100.4	102.2	100.7	99.5	105.8	95.3	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	18.0184	18.3074	18.1068	18.6082	18.0024	16.7584	16.6694	15.7114	14.6524	16.7726	Avg:A Wt:C2	17.1607		RSD=7.4	
	105	106.7	105.5	108.4	104.9	97.7	97.1	91.6	85.4	97.7	Org:N Dep:R				
D 53 13C8_PFOA	568	540	551	543	557	514	519	477	458	453	Avg:A Wt:C2	518		RSD=8.1	
	109.6	104.3	106.4	104.8	107.5	99.2	100.2	92.1	88.5	87.4	Org:N Dep:R				
20 PFOA	1.082414	1.111656	1.094123	1.035047	1.008175	1.063552	1.025859	1.048181	0.995388	1.000877	Avg:A Wt:C2	1.046527		RSD=3.9	
	103.4	106.2	104.5	98.9	96.3	101.6	98	100.2	95.1	95.6	Org:N Dep:R				
12 PFHpS	1.176610	0.987114	0.986201	0.931704	0.947780	0.978632	0.948774	0.912764	0.932198	0.920464	Avg:A Wt:C2	0.972224		RSD=7.9	
	121	101.5	101.4	95.8	97.5	100.7	97.6	93.9	95.9	94.7	Org:N Dep:R				
D 56 13C9_PFNA	664	659	639	661	690	659	653	610	586	630	Avg:A Wt:C2	645		RSD=4.6	
	102.9	102.1	99.1	102.5	107	102.2	101.2	94.6	90.9	97.6	Org:N Dep:R				
D 54 13C8_PFOS	126	129	124	128	133	124	125	123	110	123	Avg:A Wt:C2	125		RSD=4.6	
	100.8	103.3	99.6	102.8	106.5	99.9	100.1	99.2	88.6	99.2	Org:N Dep:R				
17 PFNA	1.245793	1.135027	1.121514	1.067694	1.105764	1.060495	1.098285	1.081307	1.063787	1.036200	Avg:A Wt:C2	1.101587		RSD=5.4	
	113.1	103	101.8	96.9	100.4	96.3	99.7	98.2	96.6	94.1	Org:N Dep:R				

Report Date: 22-Nov-2021 09:00:04 AIM Revision: 2.0.2021.0812
Method Path: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\LCMSMS02_PFAS-ID.m

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
18 PFOS	1.256610	1.213326	1.223876	1.228660	1.111590	1.181519	1.174400	1.098410	1.221843	1.167751	Avg:A Wt:C2	1.187799		RSD=4.3	
	105.8	102.1	103	103.4	93.6	99.5	98.9	92.5	102.9	98.3	Org:N Dep:R				
30 9Cl-PF3ONS	3.946804	3.899326	3.765867	3.761136	3.732399	3.694751	3.962448	3.735887	3.998836	3.893118	Avg:A Wt:C2	3.839057		RSD=2.9	
	102.8	101.6	98.1	98	97.2	96.2	103.2	97.3	104.2	101.4	Org:N Dep:R				
D 55 13C8_PFOSA	258	263	247	263	274	247	257	241	239	233	Avg:A Wt:C2	252		RSD=5.0	
	102.1	104.1	98	104.2	108.7	97.9	101.9	95.7	94.8	92.6	Org:N Dep:R				
19 PFOSA	1.247602	1.078005	1.199914	1.104235	1.072170	1.071782	1.045471	1.027514	1.042439	1.098736	Avg:A Wt:C2	1.098787		RSD=6.5	
	113.5	98.1	109.2	100.5	97.6	97.5	95.1	93.5	94.9	100	Org:N Dep:R				
3 8:2 FTS	1.888969	2.168363	2.941342	2.609477	2.315256	2.213581	2.294121	2.147928	2.339141	2.274106	Avg:A Wt:C2	2.319228		RSD=12.2	
	81.4	93.5	126.8	112.5	99.8	95.4	98.9	92.6	100.9	98.1	Org:N Dep:R				
16 PFNS	0.689007	0.778329	0.859605	0.810578	0.762729	0.762417	0.818477	0.753772	0.800353	0.750142	Avg:A Wt:C2	0.778541		RSD=6.0	
	88.5	100	110.4	104.1	98	97.9	105.1	96.8	102.8	96.4	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	17.3958	16.2760	18.3068	16.5600	17.6162	17.3898	16.7348	16.3146	14.4056	16.2192	Avg:A Wt:C2	16.7219		RSD=6.4	
	104	97.3	109.5	99	105.3	104	100.1	97.6	86.1	97	Org:N Dep:R				
10 PFDA	1.195802	1.144681	1.289439	1.216404	1.153880	1.115229	1.174326	1.182582	1.128078	1.124197	Avg:A Wt:C2	1.172462		RSD=4.5	
	102	97.6	110	103.7	98.4	95.1	100.2	100.9	96.2	95.9	Org:N Dep:R				
D 51 13C6_PFDA	614	592	576	578	586	579	602	524	516	531	Avg:A Wt:C2	570		RSD=6.0	
	107.8	103.9	101	101.5	102.9	101.5	105.6	92	90.6	93.2	Org:N Dep:R				
D 58 d3-MeFOSAA	138	132	141	144	137	136	137	133	133	135	Avg:A Wt:C2	137		RSD=2.9	
	100.9	96.4	103.4	105.6	100.2	99.5	100.6	97.3	97.3	98.8	Org:N Dep:R				
6 N-MeFOSAA	1.024867	1.001316	0.824278	0.779757	0.871212	0.736836	0.757969	0.775693	0.718329	0.793474	Avg:A Wt:C2	0.828373		RSD=12.9	
	123.7	120.9	99.5	94.1	105.2	88.9	91.5	93.6	86.7	95.8	Org:N Dep:R				
9 PFDS	0.915195	0.942028	0.767974	0.798269	0.740599	0.766527	0.781971	0.735883	0.819425	0.770473	Avg:A Wt:C2	0.803834		RSD=8.8	
	113.9	117.2	95.5	99.3	92.1	95.4	97.3	91.5	101.9	95.8	Org:N Dep:R				
D 60 d5-EtFOSAA	133	132	126	130	122	123	123	116	106	104	Avg:A Wt:C2	121		RSD=8.2	
	109.6	108.5	103.7	106.8	100.6	101.1	101.4	95.2	87.5	85.7	Org:N Dep:R				
D 52 13C7_PFUdA	700	689	659	678	666	660	646	582	609	603	Avg:A Wt:C2	649		RSD=6.0	
	107.9	106.1	101.5	104.5	102.5	101.6	99.6	89.6	93.8	92.9	Org:N Dep:R				
25 PFUdA	1.019486	0.890042	0.917179	0.925514	0.952294	0.913293	0.934005	0.935043	0.899078	0.892119	Avg:A Wt:C2	0.927805		RSD=4.1	
	109.9	95.9	98.9	99.8	102.6	98.4	100.7	100.8	96.9	96.2	Org:N Dep:R				
5 N-EtFOSAA	0.880943	0.833150	0.943298	0.950067	1.008538	0.938896	0.930615	0.950766	1.015569	1.035540	Avg:A Wt:C2	0.948738		RSD=6.5	
	92.9	87.8	99.4	100.1	106.3	99	98.1	100.2	107	109.1	Org:N Dep:R				
D 61 d7-MeFOSE	87.5790	81.8370	86.3260	84.4480	88.3870	92.5960	91.7400	87.3820	87.6300	88.4170	Avg:A Wt:C2	87.6342		RSD=3.6	
	99.9	93.4	98.5	96.4	100.9	105.7	104.7	99.7	100	100.9	Org:N Dep:R				
32 MeFOSE	0.965300	1.344013	1.044355	1.159909	1.262131	1.034575	1.059922	1.065080	1.006847	1.098108	Avg:A Wt:C2	1.104024		RSD=10.7	
	87.4	121.7	94.6	105.1	114.3	93.7	96	96.5	91.2	99.5	Org:N Dep:R				
26 MeFOSA	1.013580	0.875894	1.001395	1.314618	0.983108	1.090456	1.119761	0.937349	1.001522	0.856860	Avg:A Wt:C2	1.019454		RSD=13.0	
	99.4	85.9	98.2	129	96.4	107	109.8	91.9	98.2	84.1	Org:N Dep:R				
D 57 d3-MeFOSA	49.7050	50.9080	50.1700	42.6390	50.0830	46.8790	46.7130	50.9200	45.5990	54.7550	Avg:A Wt:C2	48.8371		RSD=7.0	
	101.8	104.2	102.7	87.3	102.6	96	95.7	104.3	93.4	112.1	Org:N Dep:R				
31 11Cl-PF3OUDS	3.419033	3.570110	3.486782	3.157837	3.349526	3.422830	3.321208	3.232437	3.577142	3.360028	Avg:A Wt:C2	3.389693		RSD=4.0	
	100.9	105.3	102.9	93.2	98.8	101	98	95.4	105.5	99.1	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 62 d9-EtFOSE	110	108	106	106	114	100	101	108	95.6570	110	Avg:A Wt:C2	106		RSD=5.3	
	104	102.3	100.1	100	107.8	94.5	95.1	101.8	90.3	104.1	Org:N Dep:R				
33 EtFOSE	1.168450	0.971980	1.005161	1.020426	0.996296	1.013375	1.088996	0.937150	1.059254	0.933662	Avg:A Wt:C2	1.019475		RSD=7.0	
	114.6	95.3	98.6	100.1	97.7	99.4	106.8	91.9	103.9	91.6	Org:N Dep:R				
D 59 d5-EtFOSA	44.2460	43.6920	48.2310	44.5000	45.7300	40.9760	45.8140	41.4050	40.3850	43.1340	Avg:A Wt:C2	43.8113		RSD=5.6	
	101	99.7	110.1	101.6	104.4	93.5	104.6	94.5	92.2	98.5	Org:N Dep:R				
D 38 13C2_PFDoA	638	645	624	621	627	587	592	540	547	548	Avg:A Wt:C2	597		RSD=6.7	
	106.9	108	104.6	104.1	105	98.3	99.2	90.5	91.7	91.7	Org:N Dep:R				
27 EtFOSA	1.240338	1.187174	1.182849	1.249753	1.078570	1.188830	1.117012	1.181275	1.207603	1.142509	Avg:A Wt:C2	1.177591		RSD=4.5	
	105.3	100.8	100.4	106.1	91.6	101	94.9	100.3	102.5	97	Org:N Dep:R				
11 PFDoA	1.163017	1.040323	1.120806	1.120806	1.053514	1.109461	1.093278	1.071902	1.025640	0.996438	Avg:A Wt:C2	1.079519		RSD=4.7	
	107.7	96.4	103.8	103.8	97.6	102.8	101.3	99.3	95	92.3	Org:N Dep:R				
4 10:2 FTS	2.689398	3.163148	2.561799	3.019449	2.468729	2.531173	2.535068	2.609282	2.805651	2.497671	Avg:A Wt:C2	2.688137		RSD=8.8	
	100	117.7	95.3	112.3	91.8	94.2	94.3	97.1	104.4	92.9	Org:N Dep:R				
34 PFDOS	0.891499	0.793912	0.763717	0.806300	0.738606	0.788125	0.803515	0.756997	0.845761	0.769582	Avg:A Wt:C2	0.795801		RSD=5.7	
	112	99.8	96	101.3	92.8	99	101	95.1	106.3	96.7	Org:N Dep:R				
24 PFTrDA	1.105563	0.924659	0.989708	0.950563	0.969885	0.975909	0.989059	0.953702	0.912077	0.963119	Avg:A Wt:C2	0.973425		RSD=5.4	
	113.6	95	101.7	97.7	99.6	100.3	101.6	98	93.7	98.9	Org:N Dep:R				
D 42 13C2_PFTeDA	793	783	760	769	796	748	756	713	690	734	Avg:A Wt:C2	754		RSD=4.6	
	105.1	103.8	100.7	102	105.5	99.2	100.3	94.5	91.5	97.3	Org:N Dep:R				
23 PFTeDA	0.978922	0.895883	0.917472	0.888322	0.844380	0.890179	0.861958	0.860201	0.830228	0.799713	Avg:A Wt:C2	0.876726		RSD=5.7	
	111.7	102.2	104.6	101.3	96.3	101.5	98.3	98.1	94.7	91.2	Org:N Dep:R				
35 PFHxDA	0.837747	0.735289	0.707429	0.693119	0.653511	0.645929	0.649748	0.632769	0.616643	0.602865	Avg:A Wt:C2	0.677505		RSD=10.3	
	123.7	108.5	104.4	102.3	96.5	95.3	95.9	93.4	91	89	Org:N Dep:R				
D 40 13C2_PFHxDA	938	905	910	888	929	918	913	875	857	859	Avg:A Wt:C2	899		RSD=3.2	
	104.3	100.6	101.2	98.7	103.3	102.1	101.5	97.4	95.3	95.5	Org:N Dep:R				
36 PFODA	0.978822	0.958918	0.966986	0.959719	0.946477	0.909445	0.950659	0.912908	0.900355	0.924967	Avg:A Wt:C2	0.940925		RSD=2.9	
	104	101.9	102.8	102	100.6	96.7	101	97	95.7	98.3	Org:N Dep:R				

Report Date: 22-Nov-2021 09:00:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	16-Nov-2021 16:41:56	Cal End Date:	16-Nov-2021 18:16:36
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	111621015.d	F.L. ICAL 50_SVLC-1740	16-Nov-2021 16:41:56
2	111621016.d	F.L. ICAL 100_SVLC-1741	16-Nov-2021 16:52:24
3	111621017.d	F.L. ICAL 200_SVLC-1742	16-Nov-2021 17:02:54
4	111621018.d	F.L. ICAL 500_SVLC-1743	16-Nov-2021 17:13:24
5	111621019.d	F.L. ICAL 1000_SVLC-1744	16-Nov-2021 17:23:54
6	111621020.d	F.L. ICAL 2000_SVLC-1745	16-Nov-2021 17:34:24
7	111621021.d	F.L. ICAL 5000_SVLC-1746	16-Nov-2021 17:44:55
8	111621022.d	F.L. ICAL 10000_SVLC-1747	16-Nov-2021 17:55:28
9	111621023.d	F.L. ICAL 15000_SVLC-1748	16-Nov-2021 18:06:02
10	111621024.d	F.L. ICAL 20000_SVLC-1749	16-Nov-2021 18:16:36

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	699394	658522	674163	682460	668817	665105	657463	608395	578666	617288	3.11
* 39 13C2_PFHxA	712177	709636	702285	712525	701886	682077	675413	653246	630501	638594	2.72
* 41 13C2_PFOA	573254	550490	558513	564091	553124	544360	522128	484523	461790	462097	5.36
* 43 13C3_PFBA	601204	586508	596956	590507	587938	576098	578028	540874	533639	543276	2.53
* 48 13C4_PFOS	132225	123204	119607	127853	132881	124546	128426	118518	114106	129437	0.53

13C2_PFDA ((|617288 - 699394| / (617288 + 699394)) / 2) * 100 = 3.12

13C2_PFHxA ((|638594 - 712177| / (638594 + 712177)) / 2) * 100 = 2.72

13C2_PFOA ((|462097 - 573254| / (462097 + 573254)) / 2) * 100 = 5.37

13C3_PFBA ((|543276 - 601204| / (543276 + 601204)) / 2) * 100 = 2.53

13C4_PFOS ((|129437 - 132225| / (129437 + 132225)) / 2) * 100 = 0.53

Report Date: 22-Nov-2021 09:00:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b
Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04
Instrument: LCMSMS02.i Integrator: picker
Cal Start Date: 16-Nov-2021 16:41:56 Cal End Date: 16-Nov-2021 18:16:36
Method Lock: Unknown Lock Date:
Calib Method: PFAS-ID No.Compounds: 66
Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes
Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	111621015.d	F.L. ICAL 50_SVLC-1740	16-Nov-2021 16:41:56
2	111621016.d	F.L. ICAL 100_SVLC-1741	16-Nov-2021 16:52:24
3	111621017.d	F.L. ICAL 200_SVLC-1742	16-Nov-2021 17:02:54
4	111621018.d	F.L. ICAL 500_SVLC-1743	16-Nov-2021 17:13:24
5	111621019.d	F.L. ICAL 1000_SVLC-1744	16-Nov-2021 17:23:54
6	111621020.d	F.L. ICAL 2000_SVLC-1745	16-Nov-2021 17:34:24
7	111621021.d	F.L. ICAL 5000_SVLC-1746	16-Nov-2021 17:44:55
8	111621022.d	F.L. ICAL 10000_SVLC-1747	16-Nov-2021 17:55:28
9	111621023.d	F.L. ICAL 15000_SVLC-1748	16-Nov-2021 18:06:02
10	111621024.d	F.L. ICAL 20000_SVLC-1749	16-Nov-2021 18:16:36

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA
* 39 13C2_PFHxA
* 41 13C2_PFOA
* 43 13C3_PFBA
* 48 13C4_PFOS
D 38 13C2_PFDoA
D 40 13C2_PFHxDA
D 42 13C2_PFTeDA
D 44 13C3_PFBS
D 45 13C3_PFHxS
D 46 13C4_PFBA
D 47 13C4_PFHpA
D 49 13C5_PFHxA
D 50 13C5_PFPeA
D 51 13C6_PFDA
D 52 13C7_PFUdA
D 53 13C8_PFOA
D 54 13C8_PFOS
D 55 13C8_PFOSA
D 56 13C9_PFNA
D 57 d3-MeFOSA
D 58 d3-MeFOSAA
D 59 d5-EtFOSA
D 60 d5-EtFOSAA
D 61 d7-MeFOSE
D 62 d9-EtFOSE
D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2
D 65 13C2_8:2 FTS_2
D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	653796	647626	646191	641895	646253	620800	628071	586290	574833	593589	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	35162	69607	138256	334342	656318	1280030	3347890	6150621	8837659	12026746	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	614042	597422	582905	579536	597525	585534	593276	549623	543754	547933	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	32173	65799	130952	323997	654076	1263859	3334100	6195702	8631933	12142535	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	180053	175927	175874	173434	173893	176299	180992	168423	156937	173645	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	10394	20385	39655	94580	189263	362615	953549	1808491	2705073	3778620	
1 4:2 FTS	46.700	93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
	3116	4266	9747	22981	47227	90120	227497	430981	638349	895812	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	109305	111585	111931	112844	114363	111697	104559	100892	109343	105283	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	675404	670240	670073	689334	690660	629817	626002	625925	579965	623308	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	712177	709636	702285	712525	701886	682077	675413	653246	630501	638594	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	37628	73563	131951	352018	703416	1381792	3528560	6541385	9143743	12777653	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	8195	13279	29280	72497	147564	286881	717491	1369408	2068674	2856845	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	15914	32118	62447	146133	303137	557190	1505951	2749904	4035869	5538197	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	1137252	1176579	1168176	1145170	1156071	1138539	1093920	1072198	1041308	1066635	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	35167	58375	129042	305031	634114	1137927	3093898	5710957	8080272	11239920	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	529126	549298	547662	555289	541987	524641	528292	521332	487740	492597	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	126235	125557	128629	134607	135990	127914	131543	126720	118445	121523	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	7751	13434	28732	66359	126656	261408	636825	1207144	1775752	2393108	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	48615	101630	190725	483773	958391	1785224	4777073	8848669	13026241	17654255	
2 6:2 FTS	47.400	94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
	1924	4501	7713	19403	40186	76134	186675	347604	516843	710991	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	90092	91537	90534	93041	90012	83792	83347	78557	73262	83863	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	573254	550490	558513	564091	553124	544360	522128	484523	461790	462097	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	567953	540221	551076	543046	556700	513813	518854	477103	458356	452777	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	30738	60054	120589	281039	561251	1092934	2661356	5000905	6843633	9063485	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	7070	11799	24153	59697	122702	238344	594070	1101135	1576715	2129768	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	663770	658795	639136	661457	690404	659180	652821	610268	586378	630046	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	125543	128574	123979	128013	132590	124433	124626	123482	110300	123468	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	132225	123204	119607	127853	132881	124546	128426	118518	114106	129437	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	41346	74775	143360	353117	763424	1398114	3584917	6598868	9356718	13057073	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	7320	14477	28162	72980	136774	272869	679114	1258682	1875988	2675979	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	23090	46726	87028	224367	461227	856972	2301220	4299454	6166181	8959792	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	257518	262559	247201	262676	274090	246769	256916	241446	239110	233388	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	16064	28304	59324	145028	293871	528965	1342991	2480891	3738865	5128637	
3 8:2 FTS	47.900	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	1574	3381	10317	20699	39073	73754	183896	335708	484222	706701	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	4152	9607	20462	49807	97085	182150	489617	893542	1271216	1778277	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	86979	81380	91534	82800	88081	86949	83674	81573	72028	81096	
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	699394	658522	674163	682460	668817	665105	657463	608395	578666	617288	
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	36725	67783	148492	351682	676545	1290721	3531878	6201460	8731936	11944032	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	614232	592156	575801	578232	586322	578680	601516	524400	516036	531225	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	689260	658034	705951	721404	684495	679663	686862	664615	664187	674917	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	7064	13178	23276	56252	119268	200320	520620	1031074	1431315	2142117	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	5538	11676	18357	49255	94661	183895	469728	875970	1306932	1834083	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	665196	658405	629361	648554	610899	614019	615408	577750	530911	520500	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	700196	688709	658808	678421	665740	659602	646380	581608	609243	603194	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	35692	61298	120849	313944	633980	1204820	3018611	5438287	8216358	10762420	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	5860	10971	23747	61617	123223	230600	572708	1098610	1617530	2155994	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	87579	81837	86326	84448	88387	92596	91740	87382	87630	88417	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	4227	10999	18031	48976	111556	191595	486186	930688	1323450	1941829	
26 MeFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	2519	4459	10048	28027	49237	102239	261537	477298	685026	938347	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	49705	50908	50170	42639	50083	46879	46713	50920	45599	54755	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	20217	43240	81443	190399	418355	802420	1949511	3759972	5575115	7815887	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	110163	108387	105978	105942	114206	100075	100726	107777	95657	110249	
33 EtFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	6436	10535	21305	54053	113783	202827	548451	1010032	1519876	2058707	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	44246	43692	48231	44500	45730	40976	45814	41405	40385	43134	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	638082	644540	624149	621217	626804	586725	591849	540455	547334	547608	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	2744	5187	11410	27807	49323	97427	255874	489107	731536	985620	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	37105	67053	139910	348132	660347	1301897	3235276	5793147	8420514	10913153	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	2255	4963	9042	24101	41924	84864	204483	410369	584431	781037	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	5417	9881	18331	49957	94798	189861	484672	904843	1354533	1839563	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	35272	59598	123545	295253	607928	1145181	2926868	5154328	7488161	10548237	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	792709	782982	759587	769311	795861	747965	756219	712766	689837	733886	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	38800	70146	139380	341698	672009	1331645	3259145	6131217	8590827	11737962	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	39294	66529	128795	307679	607230	1186138	2966007	5539525	7922360	10351666	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	938087	904801	910303	887810	929181	918164	912972	875442	856504	858539	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	45911	86763	176050	426024	879448	1670040	4339625	7991982	11567360	15882403	

Report Date: 22-Nov-2021 09:00:04 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b
Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04
Instrument: LCMSMS02.i Integrator: picker
Cal Start Date: 16-Nov-2021 16:41:56 Cal End Date: 16-Nov-2021 18:16:36
Method Lock: Unknown Lock Date:
Calib Method: PFAS-ID No.Compounds: 66
Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes
Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	111621015.d	F.L. ICAL 50_SVLC-1740	16-Nov-2021 16:41:56
2	111621016.d	F.L. ICAL 100_SVLC-1741	16-Nov-2021 16:52:24
3	111621017.d	F.L. ICAL 200_SVLC-1742	16-Nov-2021 17:02:54
4	111621018.d	F.L. ICAL 500_SVLC-1743	16-Nov-2021 17:13:24
5	111621019.d	F.L. ICAL 1000_SVLC-1744	16-Nov-2021 17:23:54
6	111621020.d	F.L. ICAL 2000_SVLC-1745	16-Nov-2021 17:34:24
7	111621021.d	F.L. ICAL 5000_SVLC-1746	16-Nov-2021 17:44:55
8	111621022.d	F.L. ICAL 10000_SVLC-1747	16-Nov-2021 17:55:28
9	111621023.d	F.L. ICAL 15000_SVLC-1748	16-Nov-2021 18:06:02
10	111621024.d	F.L. ICAL 20000_SVLC-1749	16-Nov-2021 18:16:36

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.692	1.692	1.692	1.692	1.692	1.692	1.692	1.692	1.690	1.686	1.691	0.135
8 PFBA	1.699	1.699	1.692	1.692	1.692	1.692	1.692	1.692	1.690	1.692	1.693	0.171
D 50 13C5_PFPeA	2.067	2.067	2.067	2.067	2.067	2.067	2.066	2.067	2.062	2.056	2.065	0.163
21 PFPeA	2.067	2.067	2.067	2.067	2.067	2.067	2.066	2.067	2.062	2.067	2.066	0.077
D 44 13C3_PFBS	2.120	2.120	2.120	2.120	2.120	2.119	2.119	2.120	2.115	2.119	2.119	0.075
7 PFBS	2.120	2.120	2.120	2.120	2.120	2.119	2.119	2.120	2.115	2.119	2.119	0.075
1 4:2 FTS	2.389	2.380	2.389	2.389	2.389	2.389	2.388	2.389	2.388	2.380	2.386	0.160
D 63 13C2_4:2 FTS_2	2.389	2.389	2.389	2.380	2.389	2.389	2.388	2.389	2.388	2.380	2.386	0.149
D 49 13C5_PFHxA	2.424	2.424	2.424	2.425	2.424	2.424	2.424	2.424	2.423	2.415	2.423	0.117
* 39 13C2_PFHxA	2.424	2.424	2.424	2.425	2.424	2.424	2.424	2.424	2.423	2.415	2.423	0.117
15 PFHxA	2.424	2.424	2.424	2.425	2.424	2.424	2.424	2.424	2.423	2.424	2.424	0.013
22 PFPeS	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.451	2.459	0.114
28 GenX	2.540	2.540	2.540	2.541	2.540	2.540	2.540	2.540	2.539	2.531	2.539	0.111
D 66 13C3_GenX	2.540	2.540	2.540	2.541	2.540	2.540	2.540	2.540	2.539	2.531	2.539	0.111
13 PFHpA	2.791	2.800	2.791	2.791	2.791	2.791	2.790	2.791	2.790	2.791	2.791	0.104
D 47 13C4_PFHpA	2.791	2.791	2.791	2.791	2.791	2.791	2.790	2.791	2.790	2.782	2.789	0.101
D 45 13C3_PFHxS	2.809	2.809	2.809	2.809	2.809	2.809	2.809	2.809	2.799	2.800	2.806	0.145
14 PFHxS	2.809	2.809	2.809	2.809	2.809	2.809	2.809	2.809	2.808	2.800	2.807	0.103
29 ADONA	2.836	2.836	2.827	2.827	2.827	2.836	2.827	2.827	2.826	2.827	2.829	0.162
2 6:2 FTS	3.147	3.154	3.134	3.147	3.141	3.147	3.141	3.141	3.138	3.141	3.143	0.184
D 64 13C2_6:2 FTS_2	3.141	3.148	3.141	3.147	3.141	3.147	3.141	3.141	3.138	3.134	3.141	0.134
* 41 13C2_PFOA	3.167	3.174	3.168	3.173	3.168	3.167	3.167	3.168	3.165	3.161	3.167	0.125
D 53 13C8_PFOA	3.167	3.168	3.168	3.173	3.168	3.167	3.167	3.168	3.165	3.161	3.167	0.101
20 PFOA	3.167	3.174	3.174	3.167	3.168	3.167	3.167	3.168	3.165	3.161	3.167	0.131
12 PFHpS	3.174	3.174	3.174	3.173	3.174	3.174	3.174	3.174	3.171	3.167	3.173	0.071
D 56 13C9_PFNA	3.537	3.548	3.545	3.544	3.537	3.545	3.536	3.537	3.534	3.536	3.539	0.137
D 54 13C8_PFOS	3.537	3.540	3.537	3.536	3.537	3.537	3.536	3.537	3.534	3.536	3.536	0.041
* 48 13C4_PFOS	3.537	3.540	3.537	3.544	3.537	3.537	3.536	3.537	3.534	3.536	3.537	0.074
17 PFNA	3.545	3.540	3.545	3.544	3.537	3.545	3.536	3.545	3.542	3.536	3.541	0.102
18 PFOS	3.537	3.548	3.537	3.536	3.537	3.537	3.536	3.537	3.534	3.536	3.537	0.106
30 9Cl-PF3ONS	3.746	3.748	3.747	3.745	3.740	3.746	3.746	3.740	3.743	3.739	3.743	0.087
D 55 13C8_PFOSA	3.846	3.848	3.846	3.853	3.846	3.846	3.845	3.847	3.842	3.845	3.846	0.068

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
19 PFOSA	3.854	3.848	3.846	3.853	3.846	3.846	3.845	3.847	3.850	3.845	3.848	0.088
3 8:2 FTS	3.895	3.889	3.871	3.877	3.879	3.887	3.878	3.879	3.883	3.878	3.881	0.185
16 PFNS	3.879	3.889	3.879	3.877	3.879	3.879	3.878	3.879	3.875	3.878	3.879	0.090
D 65 13C2_8:2 FTS_2	3.879	3.880	3.879	3.885	3.879	3.879	3.878	3.879	3.875	3.878	3.879	0.068
* 37 13C2_PFDA	3.887	3.889	3.887	3.885	3.887	3.887	3.886	3.888	3.883	3.886	3.886	0.038
10 PFDA	3.887	3.889	3.887	3.894	3.887	3.887	3.886	3.888	3.891	3.886	3.888	0.062
D 51 13C6_PFDA	3.887	3.889	3.887	3.885	3.887	3.887	3.886	3.888	3.883	3.886	3.886	0.038
D 58 d3-MeFOSAA	4.044	4.046	4.044	4.043	4.045	4.044	4.043	4.045	4.038	4.043	4.043	0.049
6 N-MeFOSAA	4.044	4.046	4.044	4.051	4.045	4.053	4.043	4.045	4.047	4.043	4.046	0.086
9 PFDS	4.186	4.179	4.187	4.185	4.178	4.178	4.176	4.178	4.180	4.176	4.180	0.095
D 60 d5-EtFOSAA	4.206	4.198	4.206	4.204	4.196	4.196	4.204	4.197	4.199	4.195	4.199	0.103
D 52 13C7_PFUdA	4.206	4.198	4.196	4.204	4.196	4.196	4.195	4.197	4.199	4.195	4.198	0.087
25 PFUdA	4.206	4.207	4.206	4.204	4.196	4.196	4.195	4.197	4.199	4.195	4.199	0.120
5 N-EtFOSAA	4.206	4.198	4.206	4.214	4.206	4.206	4.204	4.206	4.209	4.205	4.205	0.099
D 61 d7-MeFOSE	4.277	4.279	4.277	4.275	4.267	4.277	4.276	4.278	4.270	4.276	4.275	0.087
32 MeFOSE	4.287	4.289	4.287	4.286	4.287	4.287	4.286	4.288	4.280	4.286	4.286	0.053
26 MeFOSA	4.287	4.299	4.298	4.306	4.298	4.297	4.296	4.298	4.300	4.296	4.297	0.103
D 57 d3-MeFOSA	4.297	4.299	4.298	4.296	4.298	4.287	4.296	4.298	4.290	4.286	4.294	0.106
31 11Cl-PF3OUDS	4.347	4.339	4.347	4.346	4.338	4.338	4.346	4.338	4.340	4.346	4.342	0.097
D 62 d9-EtFOSE	4.446	4.449	4.446	4.444	4.437	4.437	4.444	4.437	4.441	4.436	4.441	0.105
33 EtFOSE	4.464	4.458	4.455	4.453	4.455	4.455	4.453	4.455	4.450	4.454	4.455	0.081
D 59 d5-EtFOSA	4.464	4.467	4.464	4.462	4.464	4.464	4.463	4.455	4.459	4.463	4.462	0.074
D 38 13C2_PFDoA	4.473	4.476	4.473	4.471	4.473	4.473	4.472	4.474	4.477	4.472	4.473	0.042
27 EtFOSA	4.473	4.476	4.482	4.471	4.473	4.464	4.472	4.474	4.468	4.472	4.472	0.112
11 PFDoA	4.473	4.476	4.473	4.471	4.473	4.473	4.472	4.474	4.477	4.472	4.473	0.042
4 10:2 FTS	4.473	4.485	4.482	4.480	4.482	4.482	4.481	4.483	4.486	4.481	4.481	0.084
34 PFDOS	4.689	4.684	4.689	4.687	4.681	4.689	4.688	4.690	4.684	4.688	4.687	0.061
24 PFTrDA	4.718	4.713	4.711	4.710	4.711	4.711	4.710	4.712	4.714	4.710	4.712	0.056
D 42 13C2_PFTeDA	4.928	4.933	4.928	4.926	4.928	4.928	4.927	4.928	4.933	4.927	4.928	0.051
23 PFTeDA	4.928	4.933	4.928	4.926	4.928	4.928	4.935	4.928	4.933	4.927	4.929	0.066
35 PFHxDA	5.303	5.306	5.302	5.306	5.302	5.303	5.306	5.303	5.305	5.306	5.304	0.036
D 40 13C2_PFHxDA	5.303	5.306	5.302	5.301	5.302	5.303	5.306	5.303	5.305	5.302	5.303	0.034
36 PFODA	5.660	5.656	5.652	5.656	5.660	5.660	5.657	5.661	5.663	5.656	5.658	0.058

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d		
Injection Date:	16-Nov-2021 16:41:56	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	1
Sample Info:	F.L. ICAL 50_SVLC-1740	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	0	653796	21	>100:1			1000.00	1047.86	101.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.692	1/1	35162	18	28:1			50.000	51.408		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	0	614042	17	>100:1			1000.00	1060.24	102.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	0/0	32173	13	37:1			50.000	47.710		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	0	180053	15	>100:1			1000.00	1037.48	103.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	0/0	10394	18	79:1	Target = 3.48		44.200	46.338		
298.9 > 99	44	2.120	2.120		2862	21	34:1	3.63 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/1	8195	15	93:1	Target = 3.03		46.900	51.418		
349 > 99	44	2.460	2.460		2076	18	25:1	3.94 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	109305	18	>100:1			5000.00	5005.72	95.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	1/0	3116	15		Target = 1.70		46.700	51.619		M
327 > 81	63	2.415	2.389		2389	15		1.30 (0.85-2.55)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	1	675404	16	>100:1			1000.00	1042.17	97.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	1/0	37628	15	57:1	Target = 18.47		50.000	52.650		
313 > 119	49	2.424	2.424		2102	13	12:1	17.90 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	0	1137252	19	>100:1			5000.00	5078.90	98.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	0/0	15914	14	78:1	Target = 0.78		100.00	106.33		
285 > 185	66	2.540	2.540		22875	17	78:1	0.69 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	0	529126	18	>100:1			1000.00	1002.52	97.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	0/0	35167	22	53:1	Target = 3.92		50.000	58.121		
363 > 169	47	2.809	2.791		7031	13	24:1	5.00 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	0	126235	17	>100:1			1000.00	988.40	92.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	0/0	7751	23	44:1	Target = 3.14	5.97	45.500	54.465		
399 > 99	45	2.809	2.809		2958	20	26:1	2.62 (1.57-4.71)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.836	2.827	1/1	48615	23	100:1	Target = 3.33		47.100	49.516		
377 > 85	45	2.836	2.827		15894	14	75:1	3.05 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													a
449 > 80	45	3.174	3.174	0/0	7070	20	95:1	Target = 3.02		47.600	57.607		
449 > 99	45	3.194	3.174		1808	14	19:1	3.91 (1.51-4.53)					M
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	0	90092	20	>100:1			5000.00	5249.89	100.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.147	3.141	1/1	1924	20		Target = 1.69		47.400	45.523		
427 > 81	64	3.141	3.141		2294	16	7.2:1	0.83 (0.84-2.54)					J
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.167	3.168	0	567953	22	>100:1			1000.00	1096.46	102	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.167	3.168	0/0	30738	19	27:1	Target = 3.03		50.000	51.715		
413 > 169	53	3.174	3.168		10427	18	44:1	2.94 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	0	125543	19	>100:1			1000.00	1008.37	94.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.537	3.537	0/0	7320	38	44:1	Target = 3.42	4.28	46.400	49.088		
499 > 99	54	3.529	3.537		1710	28	9.5:1	4.28 (1.71-5.13)	1.70				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.746	3.740	1/1	23090	18	>100:1			46.600	47.908		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.879	3.879	0/0	4152	26	35:1	Target = 2.57		48.000	42.480		
549 > 99	54	3.895	3.879		3416	21	23:1	1.21 (1.29-3.87)					J
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.186	4.178	1/1	5538	19	28:1	Target = 2.71		48.200	54.877		
599 > 99	54	4.178	4.178		2487	16		2.22 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.347	4.338	1/1	20217	14	>100:1			47.100	47.508		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.689	4.681	1/1	5417	23	>100:1	Target = 3.04		48.400	54.220		
699 > 99	54	4.689	4.681		1339	21	28:1	4.04 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.537	3.537	0	663770	19	>100:1			1000.00	1028.74	96.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.545	3.537	1/1	41346	18	78:1	Target = 7.14		50.000	56.545		
463 > 169	56	3.537	3.537		5181	14	39:1	7.98 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.846	0	257518	18				1000.00	1021.22	94	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.854	3.846	1/1	16064	16	61:1	Target = 32.83		50.000	56.772		
498>478	55	3.862	3.846		514	17		31.25 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	0	86979	16	>100:1			5000.00	5201.51	98.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.895	3.879	1/1	1574	13		Target = 2.14		47.900	39.014		
527 > 81	65	3.879	3.879		1009	13	3.2:1	1.55 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.473	4.482	0/0	2255	17	12:1	Target = 3.72		48.200	48.223		
627 > 80	65	4.491	4.482		933	16	11:1	2.41 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.887	3.887	0	614232	17	>100:1			1000.00	1077.86	104.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.887	3.887	0/0	36725	16	71:1	Target = 14.16		50.000	50.995		
513 > 169	51	3.887	3.887		2912	23	13:1	12.61 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.044	4.045	0	689260	18	>100:1			5000.00	5046.28	100.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.044	4.045	0/0	7064	31	40:1	Target = 1.42	7.68	50.000	61.860		M
570 > 483	58	4.062	4.045		4529	29	32:1	1.55 (0.71-2.14)	2.53				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.206	4.196	1	665196	17	>100:1			5000.00	5478.47	108.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.206	4.206	0/-1	5860	37		Target = 1.49	5.04	50.000	46.427		
584 > 526	60	4.206	4.206		4127	33	27:1	1.41 (0.74-2.24)	4.61				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.206	4.196	1	700196	17	>100:1			1000.00	1078.57	105.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.206	4.196	1/0	35692	16	67:1	Target = 14.37		50.000	54.941		
563 > 169	52	4.196	4.196		2666	18		13.38 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.267	1	87579	14	>100:1			1000.00	999.37	99.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.287	0/-1	4227	21	23:1			50.000	43.717		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.297	4.298	0	49705	12	>100:1			1000.00	1017.77	99.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.287	4.298	0/0	2519	18	13:1	Target = 1.08		50.000	49.712		
512 > 219	57	4.308	4.298		2208	17	13:1	1.14 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.446	4.437	1	110163	15	>100:1			1000.00	1040.10	96.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.455	1/0	6436	22	44:1			50.000	57.306		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.464	4.464	0	44246	14	>100:1			1000.00	1009.92	96.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.473	4.473	0/0	2744	13	15:1	Target = 0.97		50.000	52.664		
526 > 219	59	4.482	4.473		3041	12	16:1	0.90 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.473	4.473	0	638082	17	>100:1			1000.00	1069.04	101.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.473	4.473	0/0	37105	21	21:1	Target = 10.55		50.000	53.867		
613 > 169	38	4.473	4.473		4757	24	60:1	7.80 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.718	4.711	1/1	35272	16	85:1	Target = 8.92		50.000	56.787		
663 > 169	38	4.718	4.711		3800	19	33:1	9.28 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	1	792709	17	>100:1			1000.00	1051.18	99.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	1/0	38800	14	34:1	Target = 12.22		50.000	55.828		M
713 > 169	42	4.928	4.928		3095	16	32:1	12.53 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.303	5.302	1	938087	22	>100:1			1000.00	1043.27	101	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.303	5.302	1/0	39294	21	9.4:1	Target = 11.65		50.000	61.826		
813 > 269	40	5.303	5.302		2864	19	>100:1	13.71 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.660	5.660	1/0	45911	19	7.5:1	Target = 15.15		50.000	52.014		
913 > 319	40	5.653	5.660		2815	17	>100:1	16.30 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.887	3.887	0	699394	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	1	712177	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.167	3.168	0	573254	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	0	601204	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	0	132225	19	>100:1			1000.00			

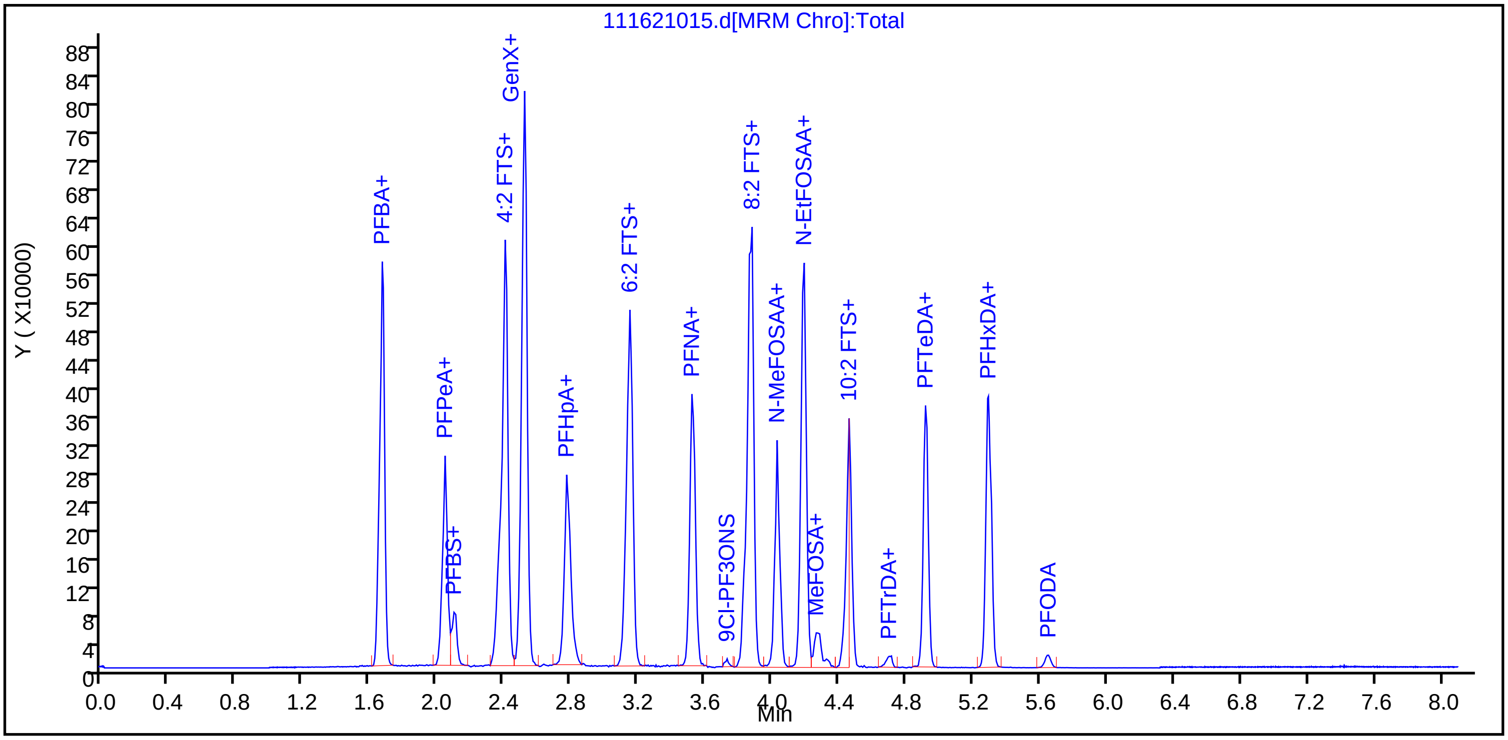
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

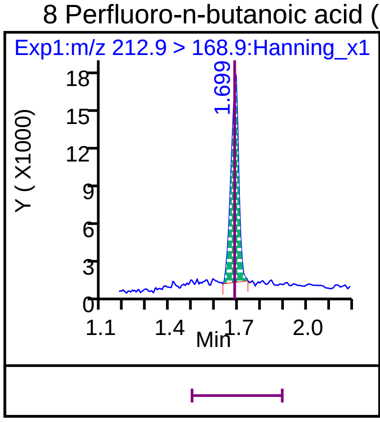
Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

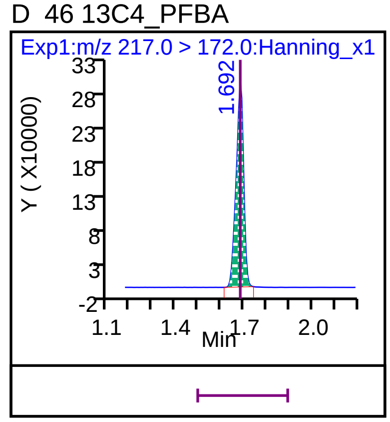
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d		
Injection Date:	16-Nov-2021 16:41:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 50_SVLC-1740
Sample Info:	F.L. ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin



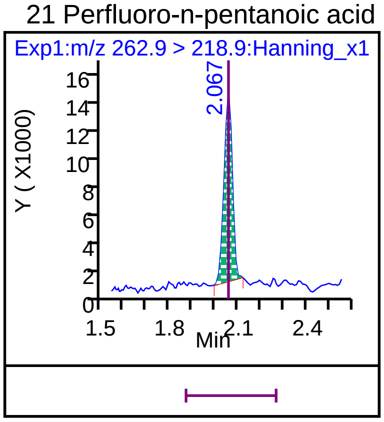
8 Perfluoro-n-butanoic acid (PFBA)



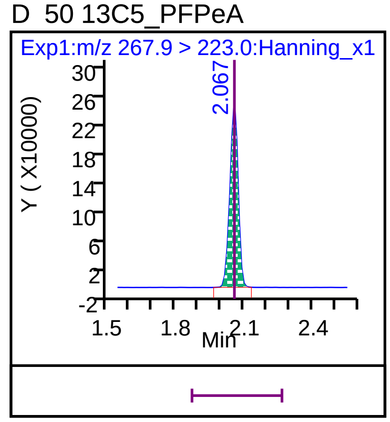
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

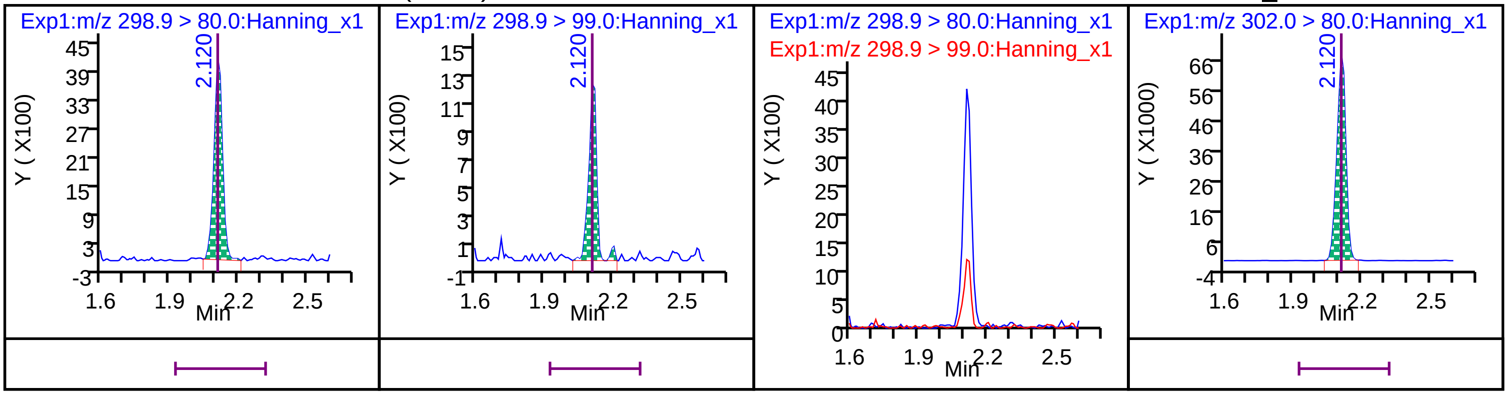


D 50 13C5_PFPeA

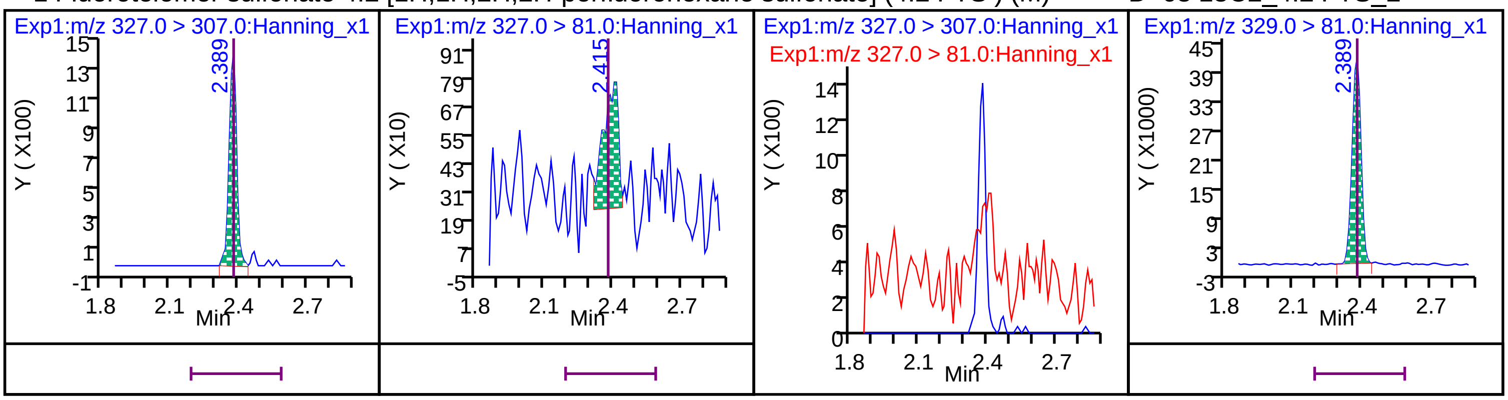


Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d

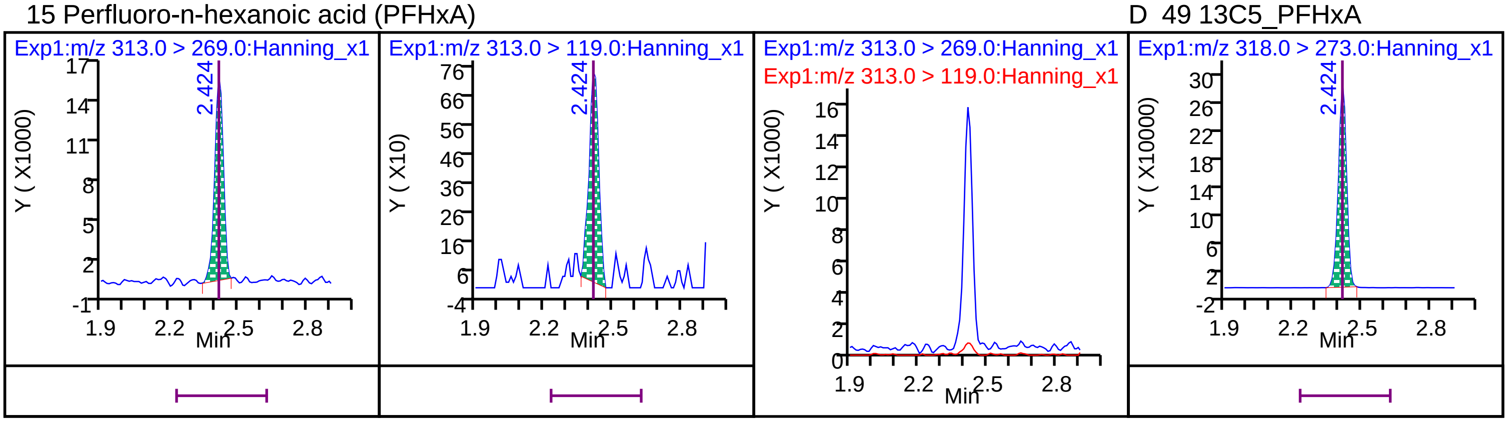
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



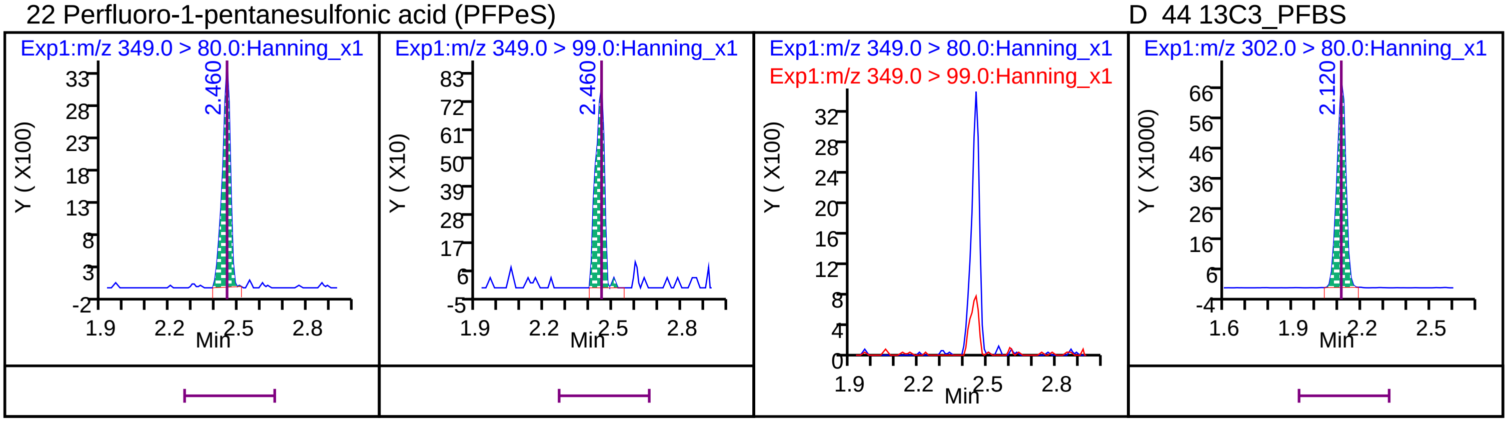
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

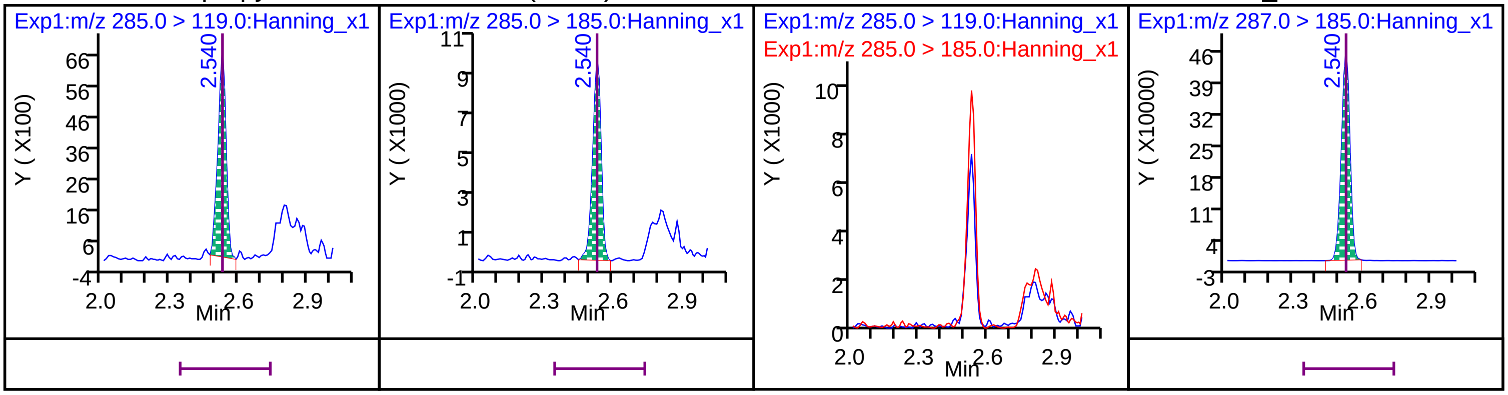


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

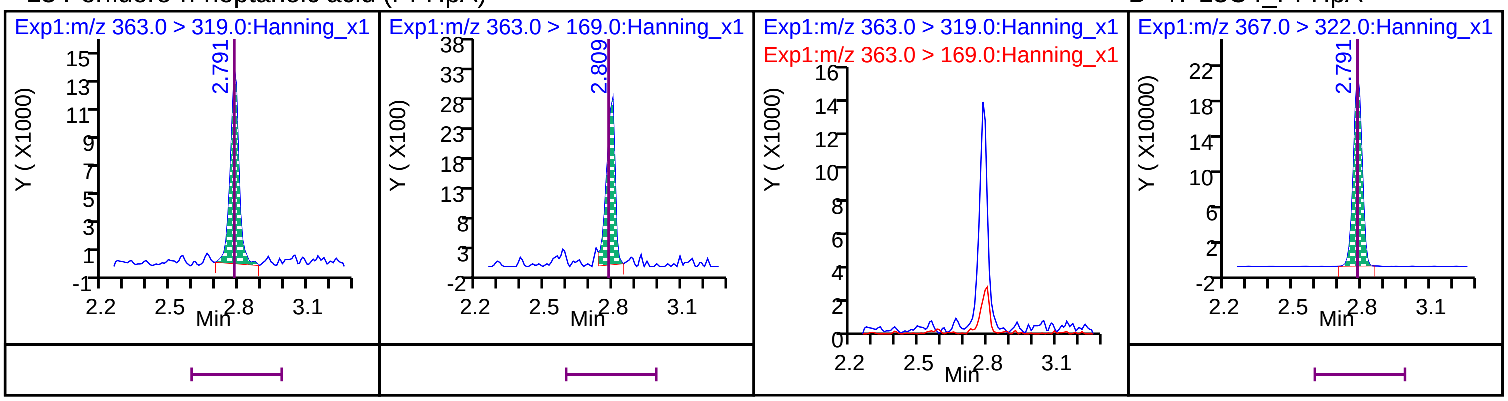


Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d

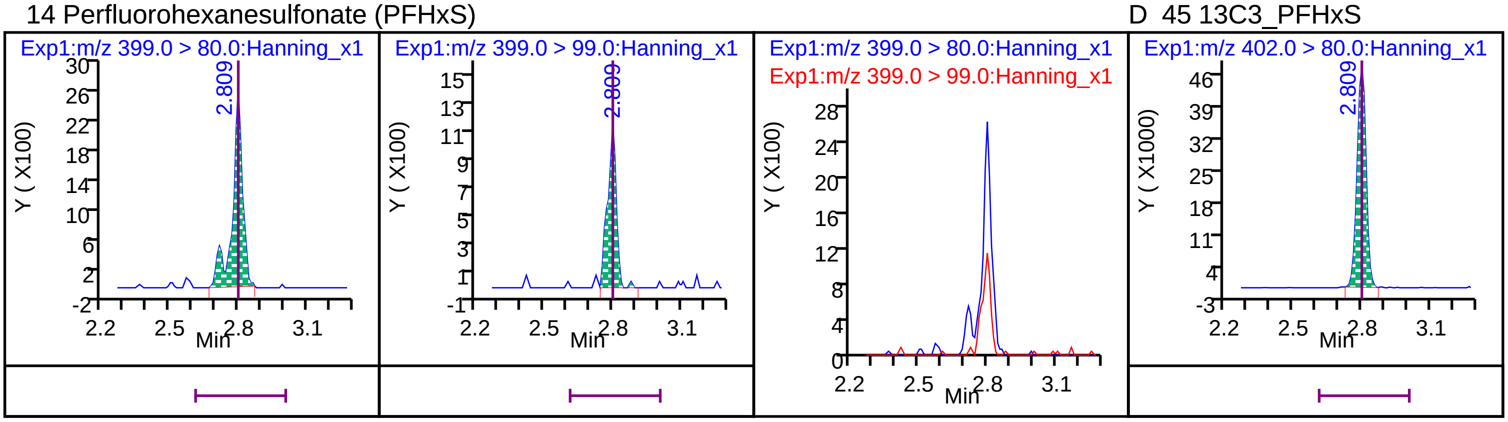
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



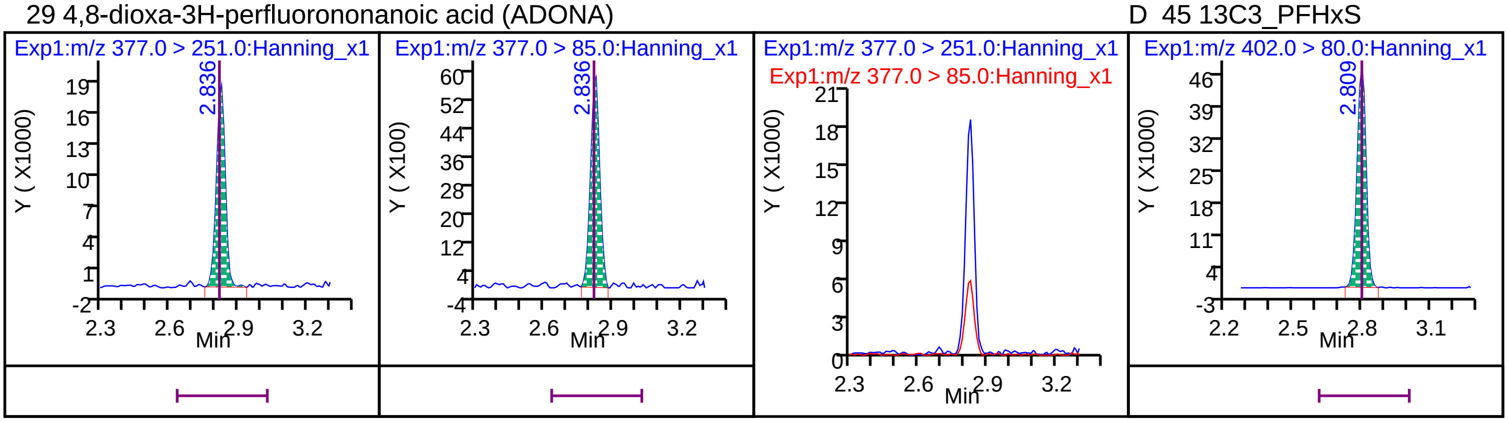
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



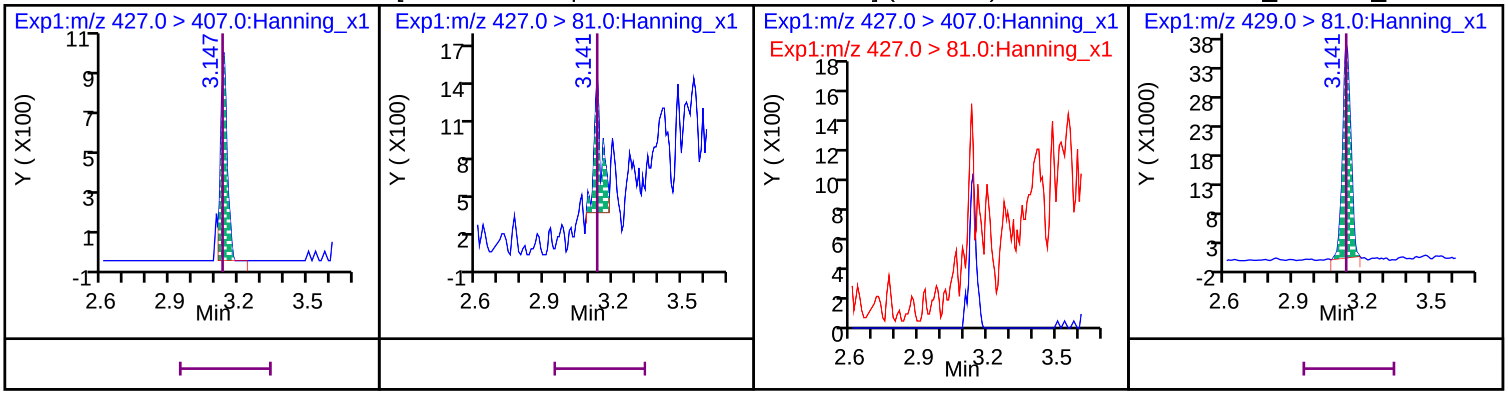
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



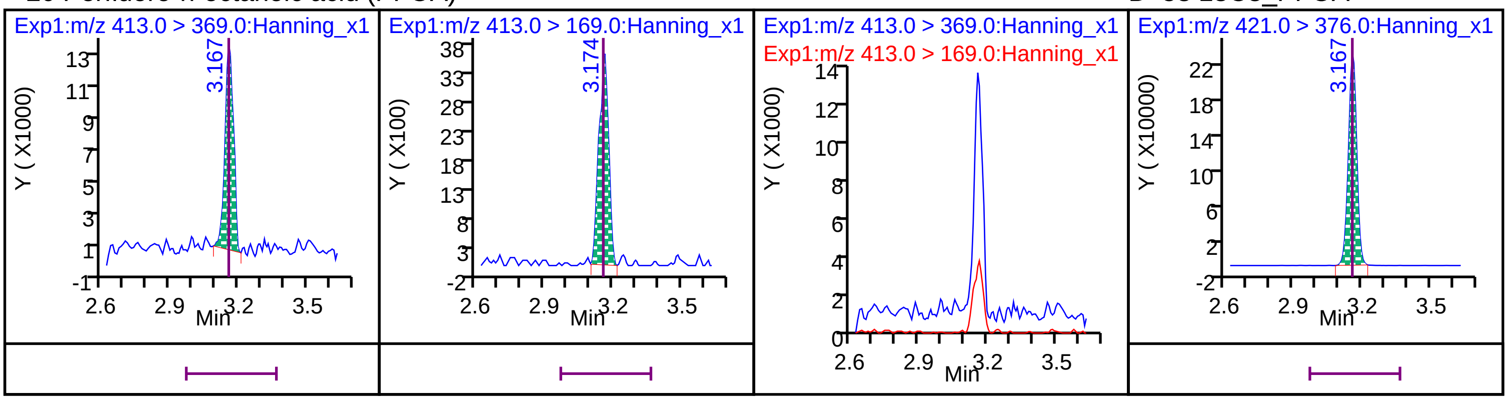
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



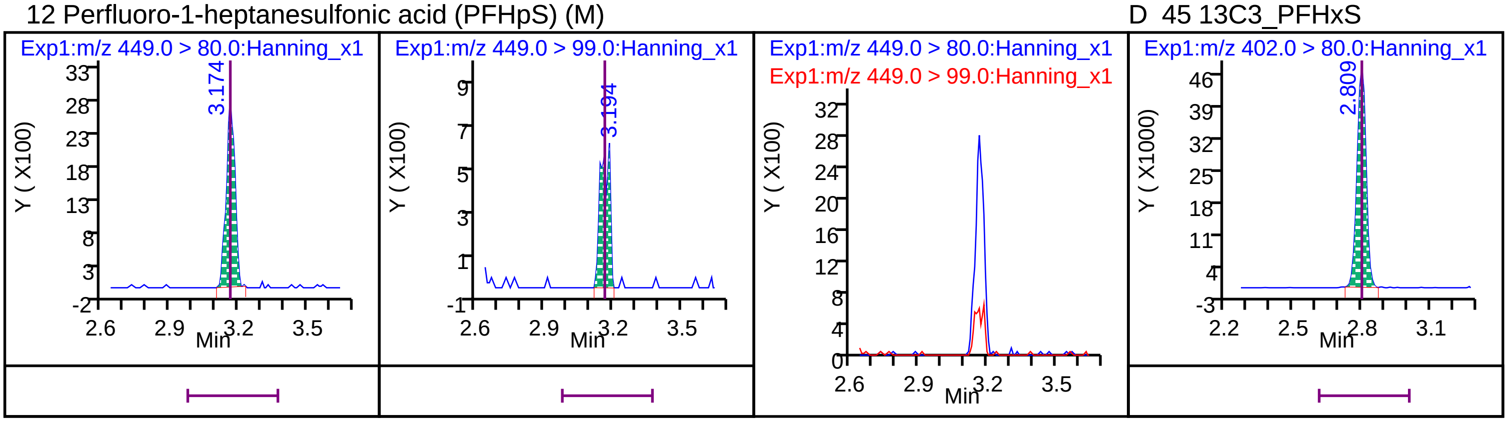
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



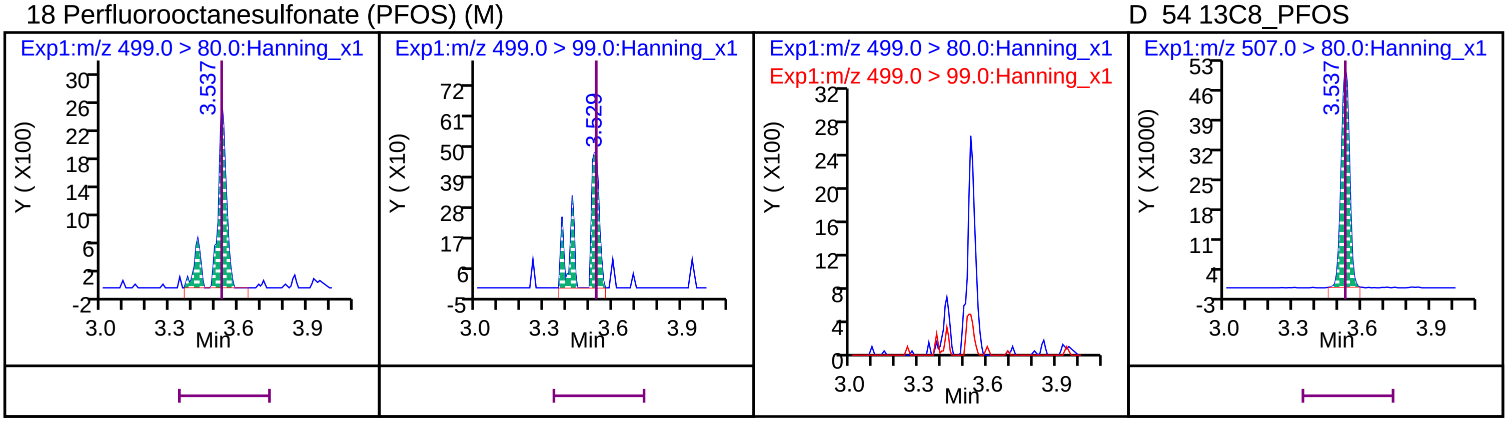
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



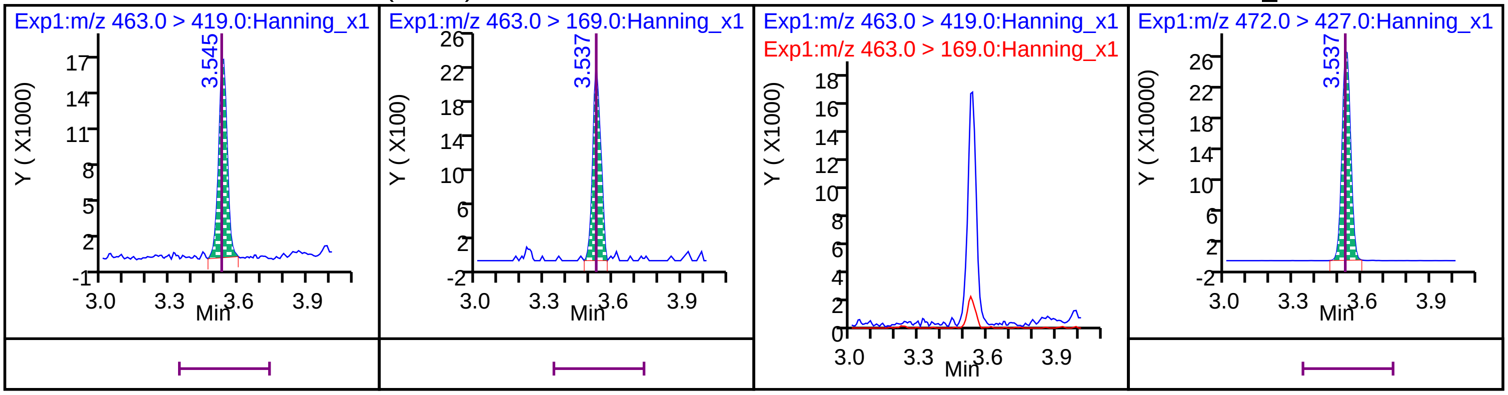
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS



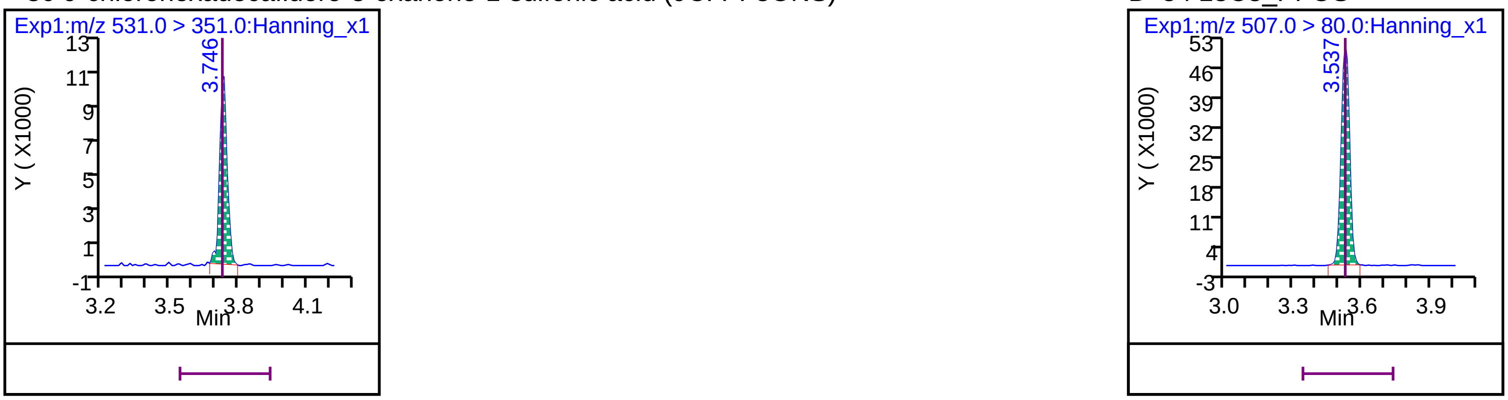
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



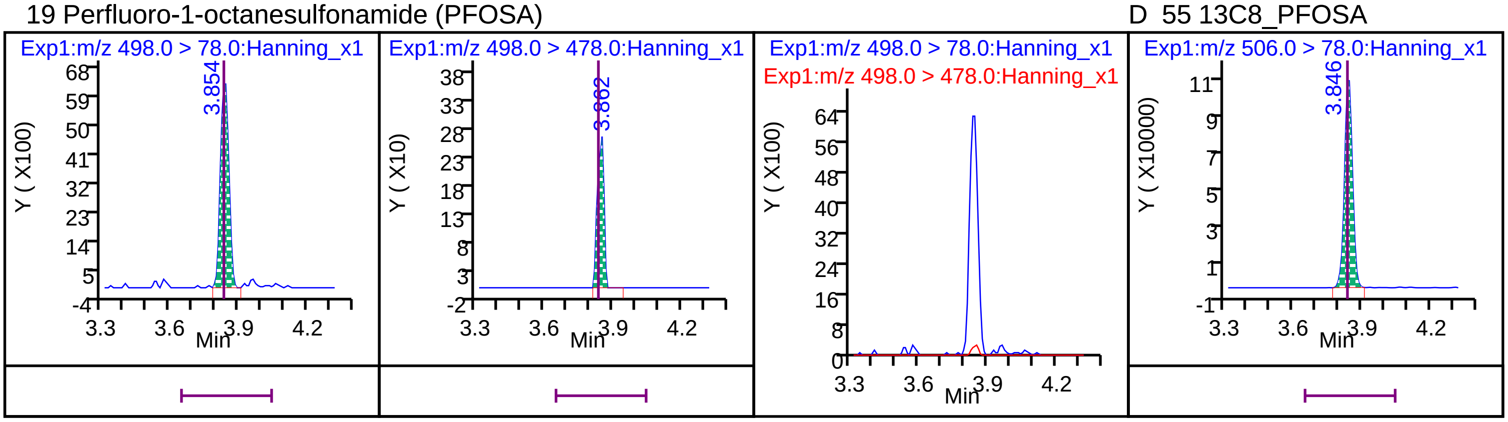
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



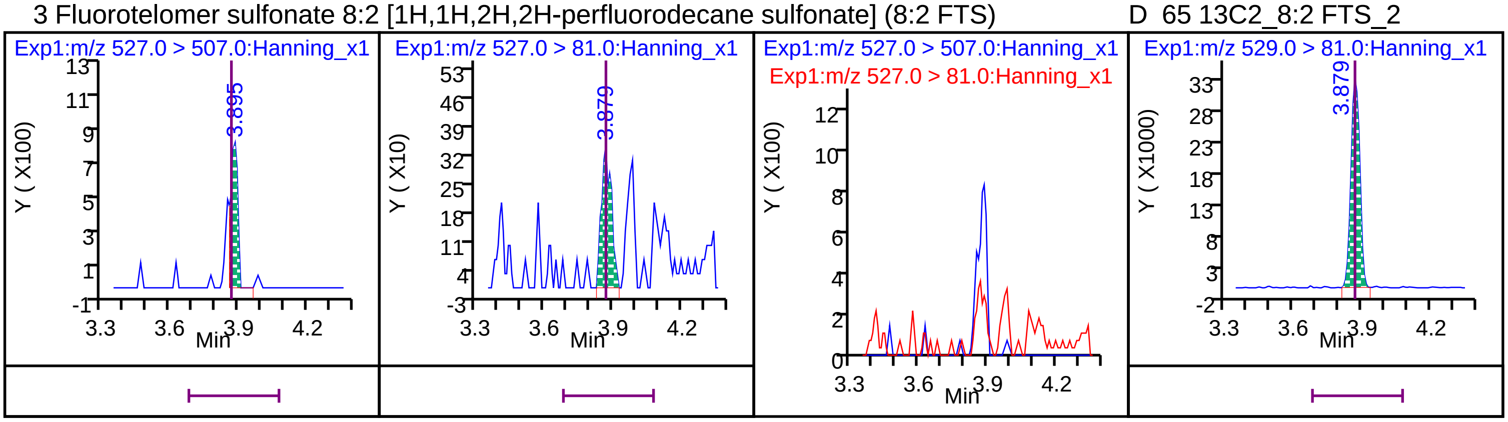
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



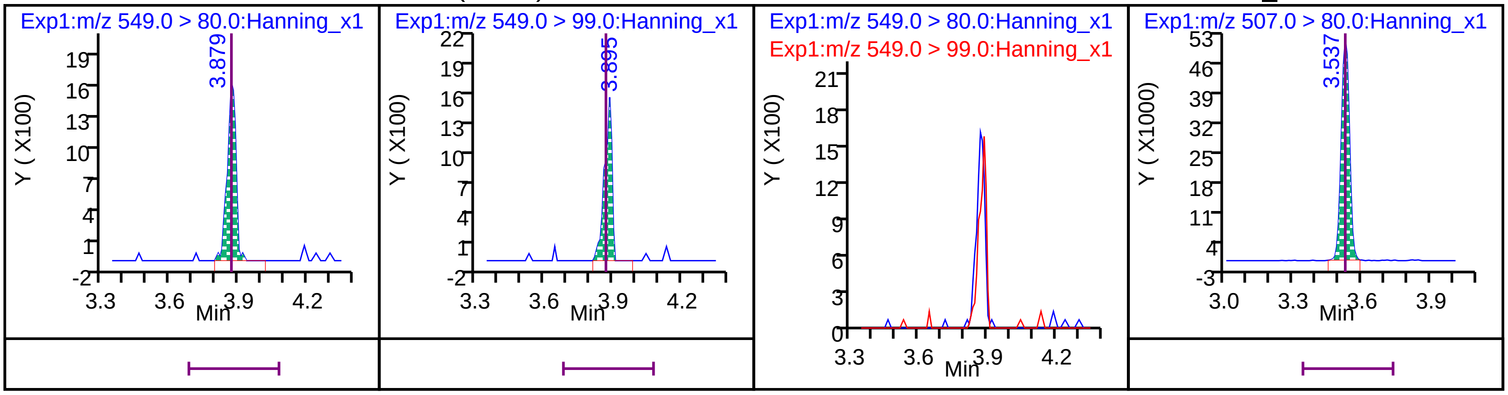
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



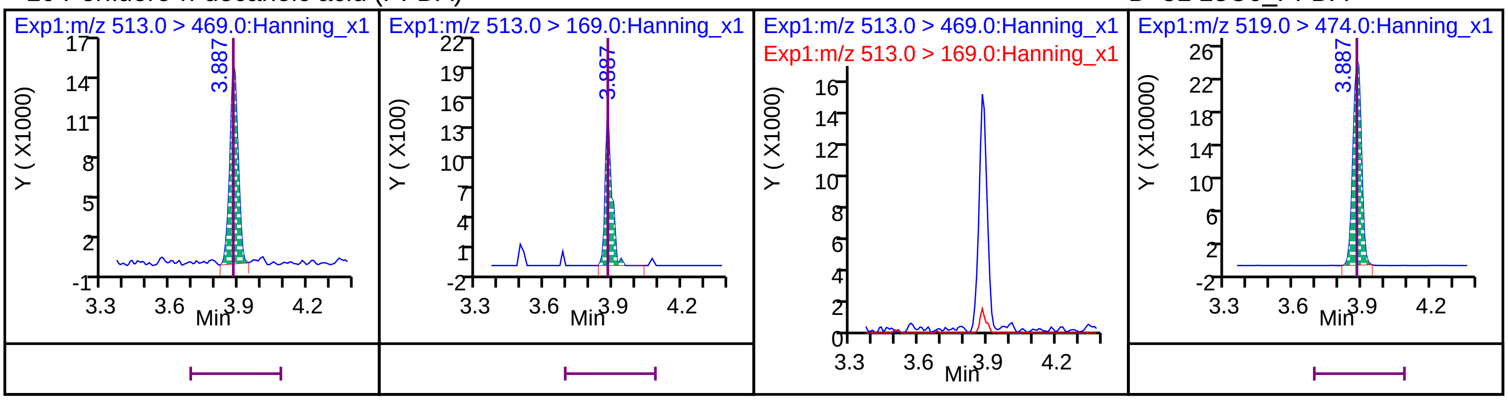
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



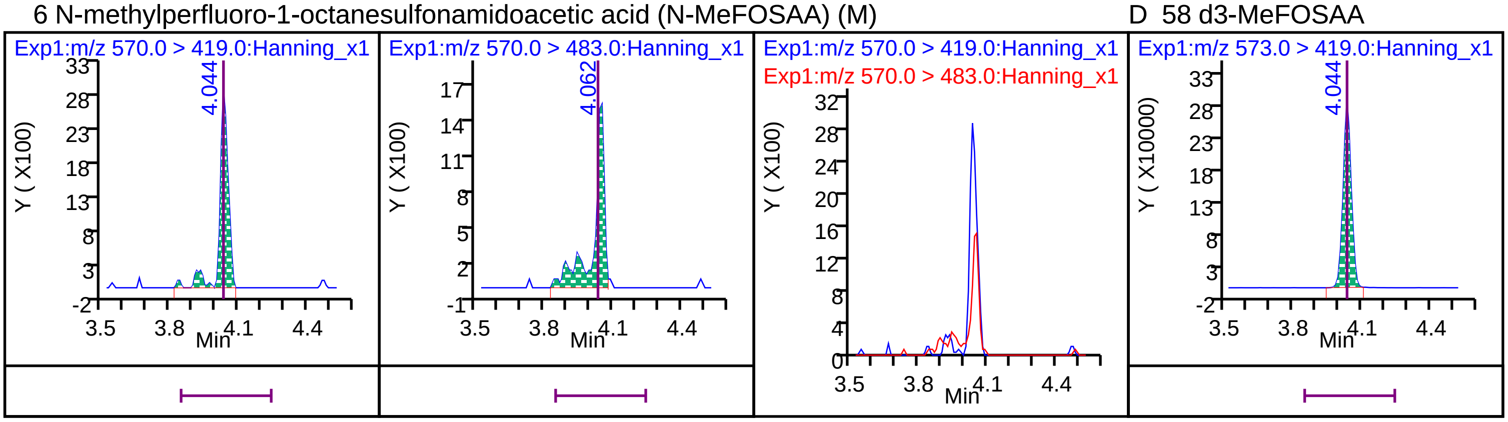
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



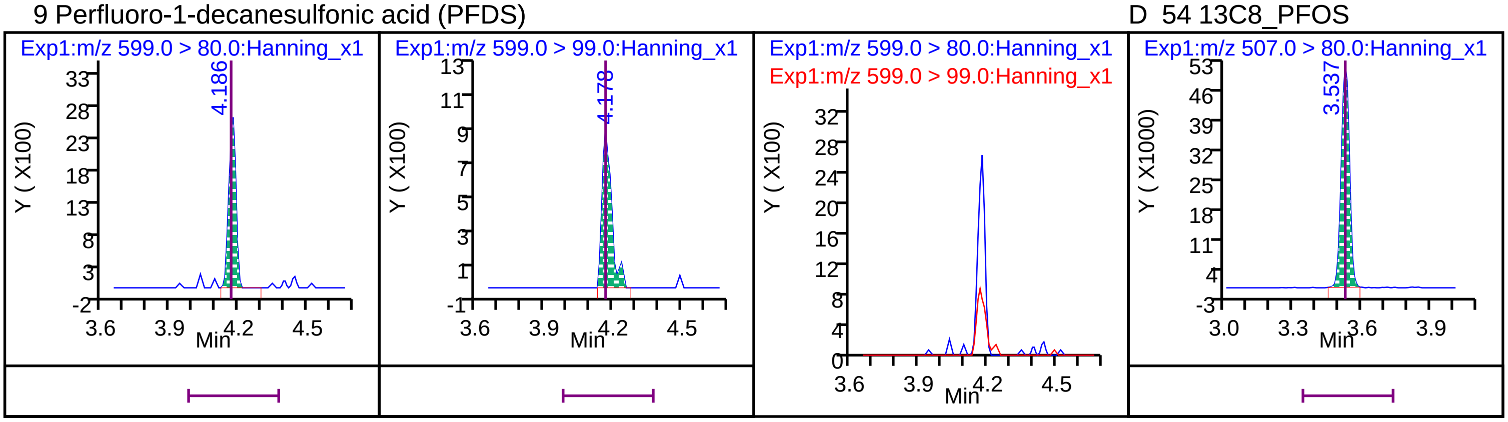
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



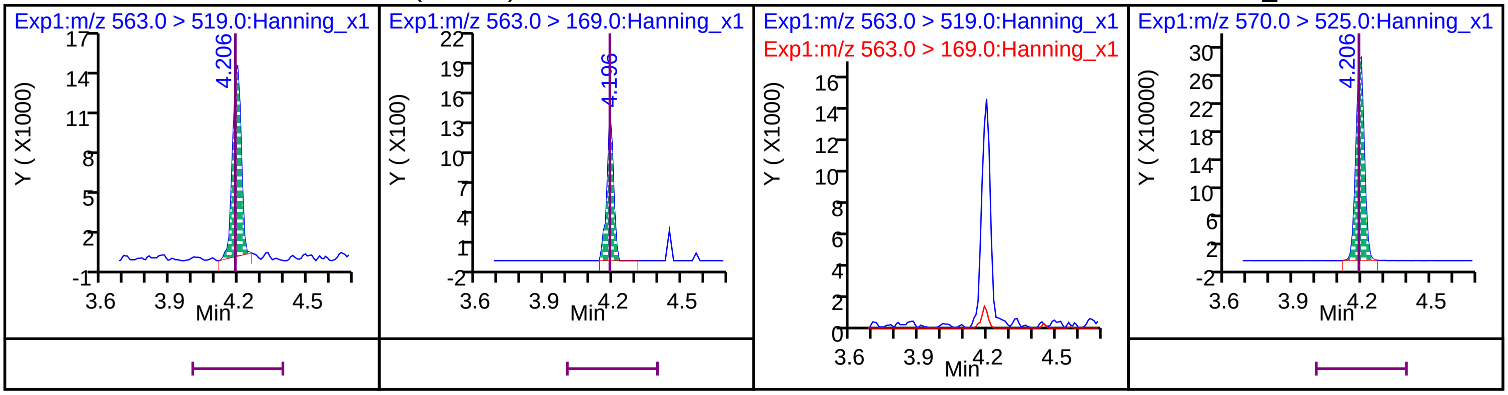
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



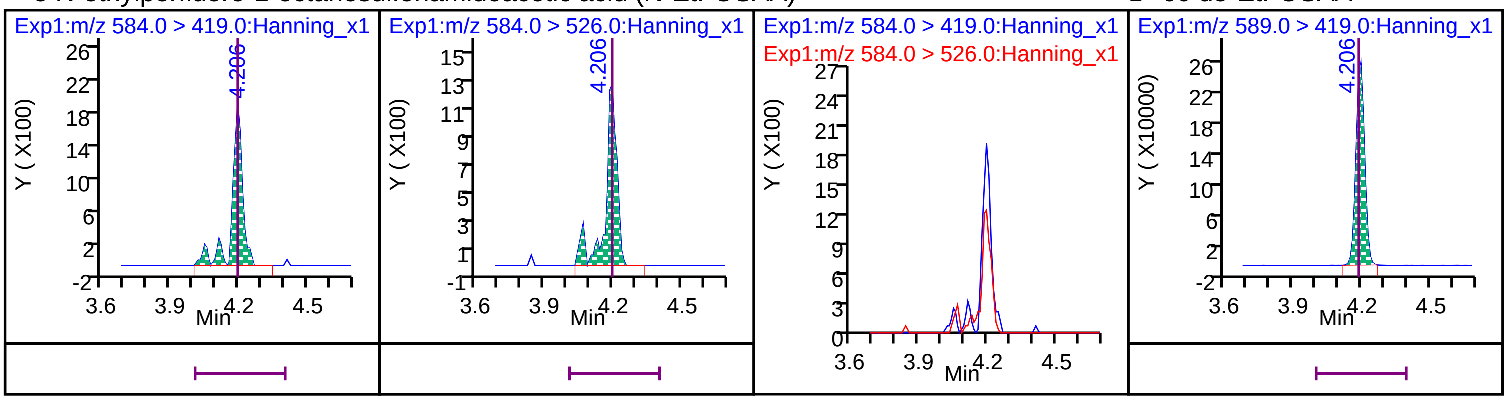
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

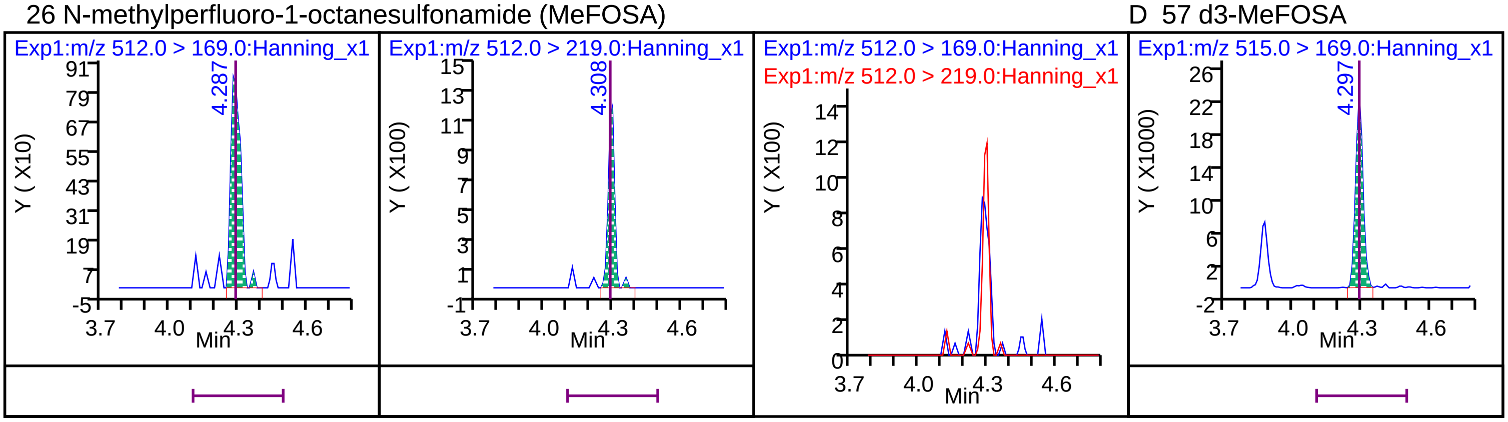


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

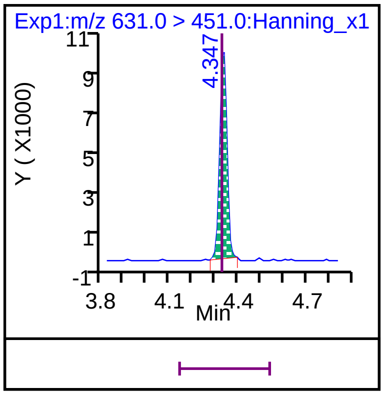


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

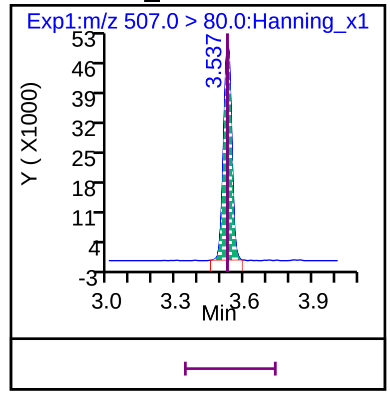
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



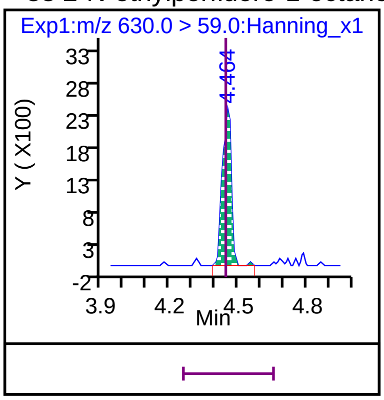
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



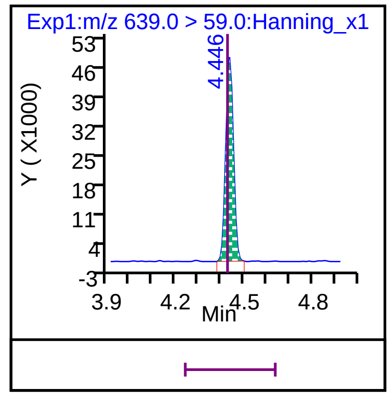
D 54 13C8_PFOS



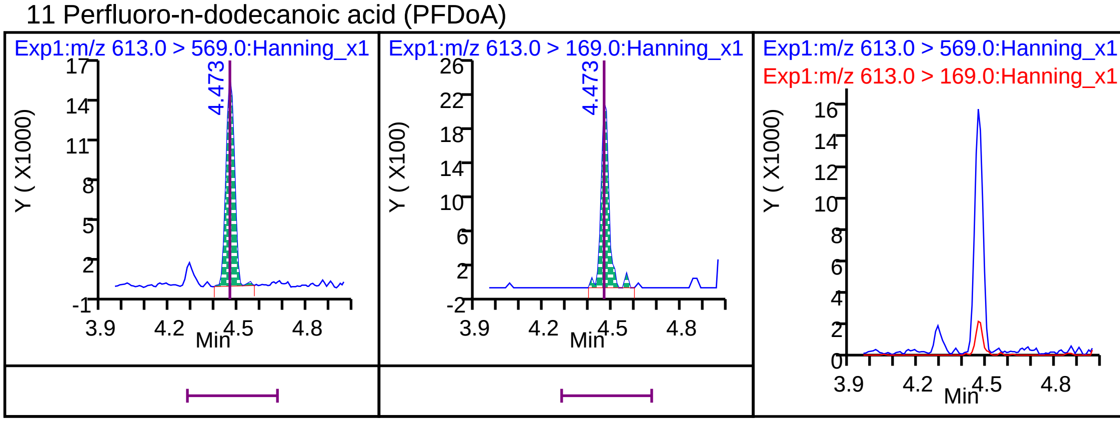
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



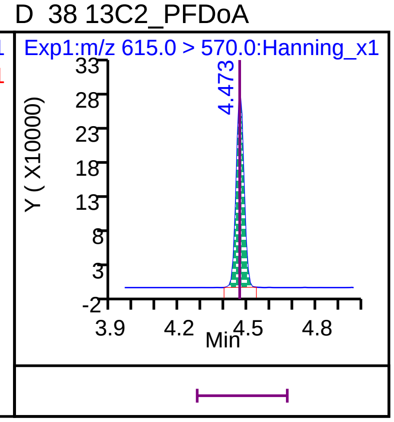
D 62 d9-EtFOSE



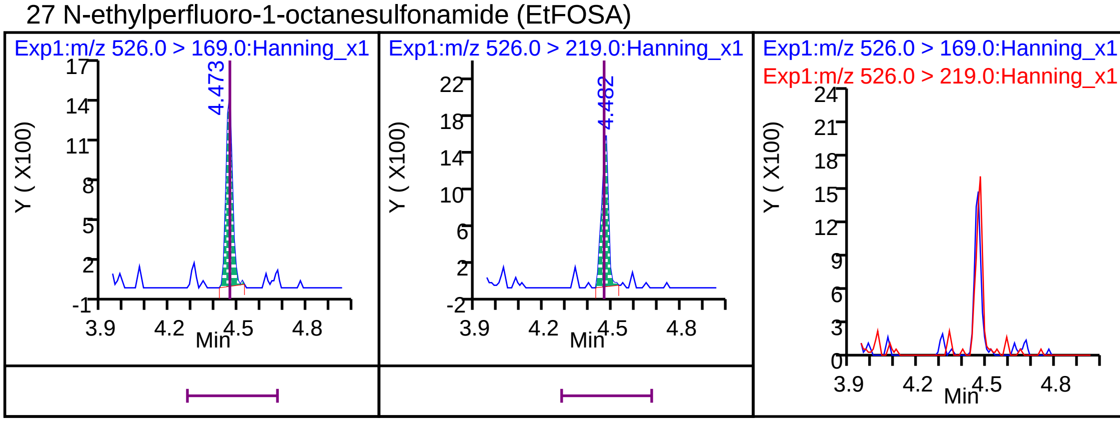
11 Perfluoro-n-dodecanoic acid (PFDoA)



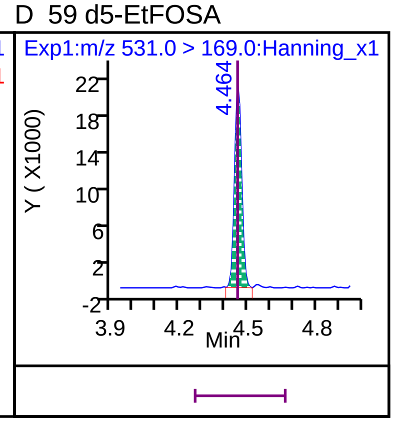
D 38 13C2_PFDoA



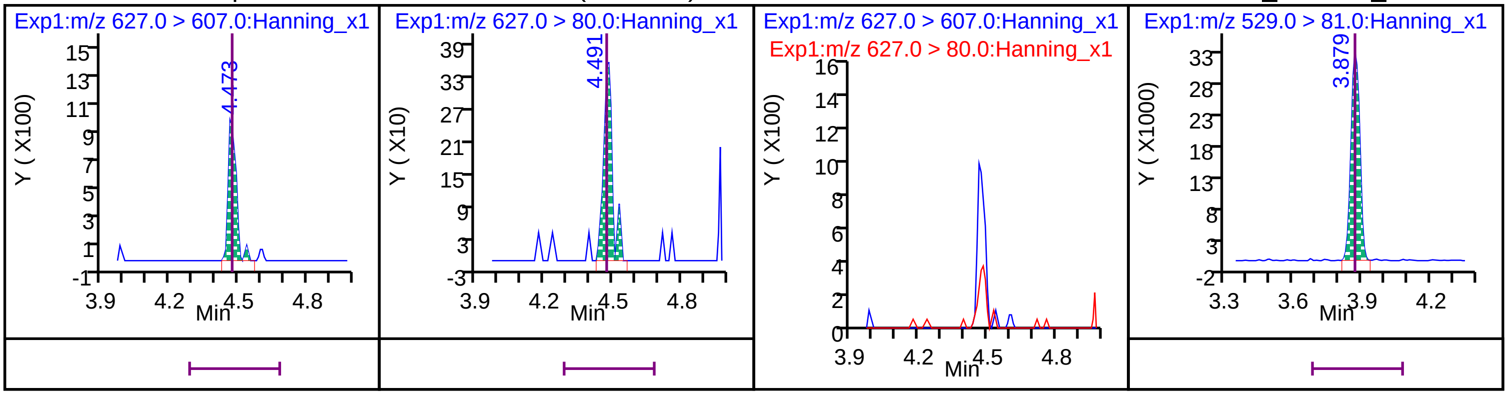
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



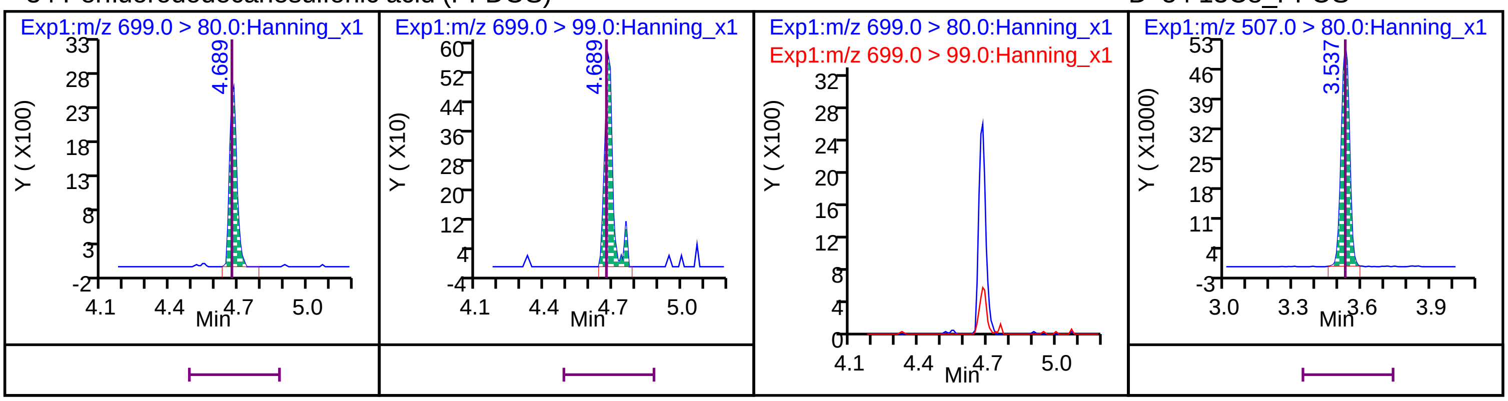
D 59 d5-EtFOSA



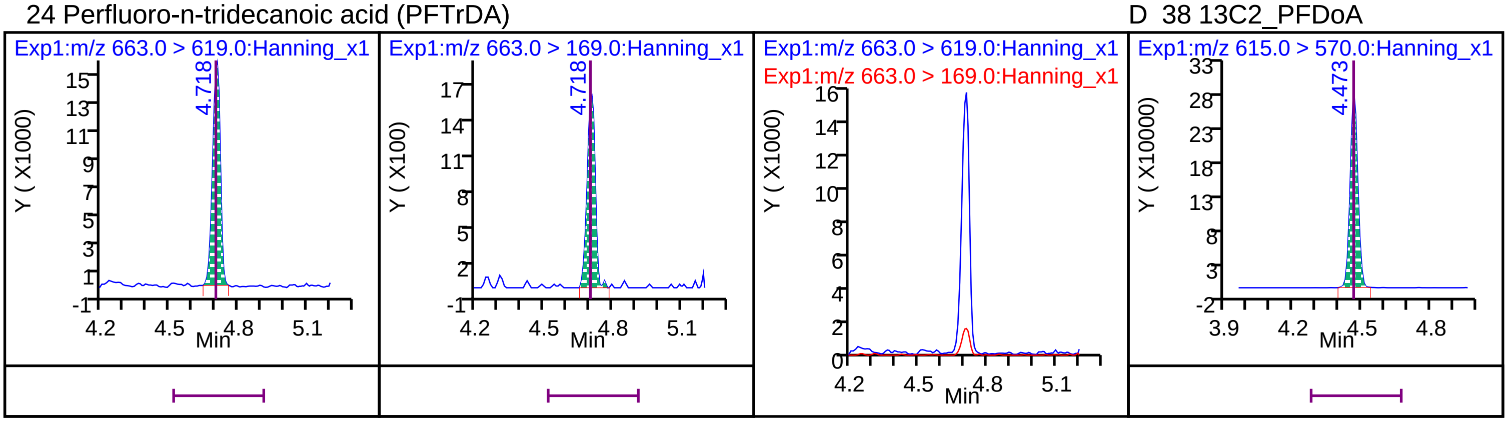
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



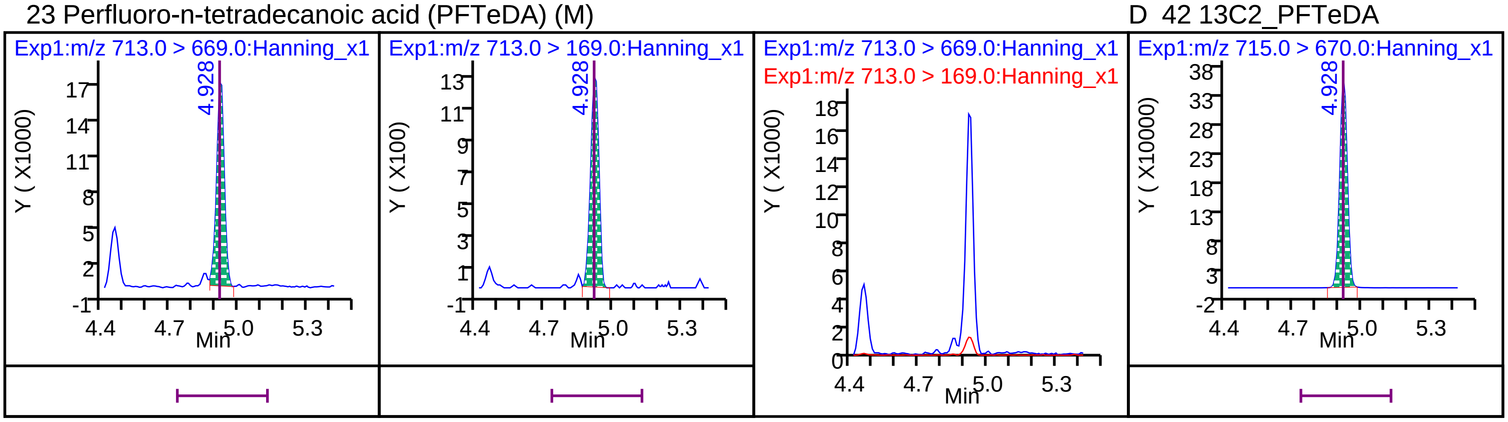
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



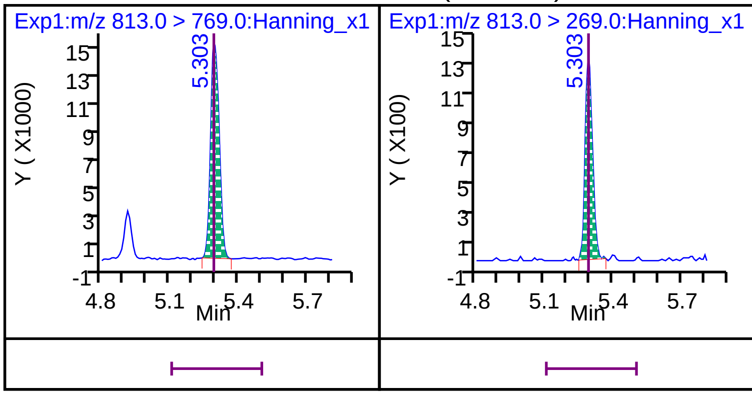
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



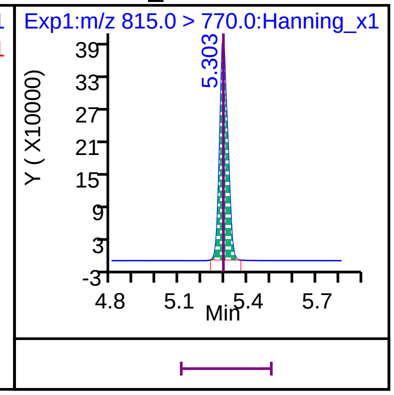
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (M) D 42 13C2_PFTeDA



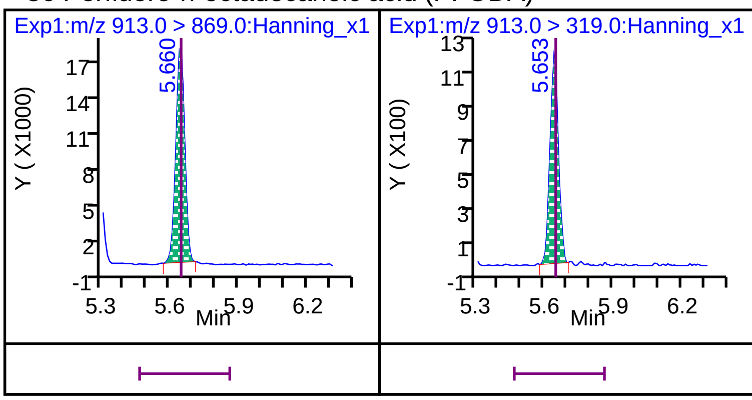
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



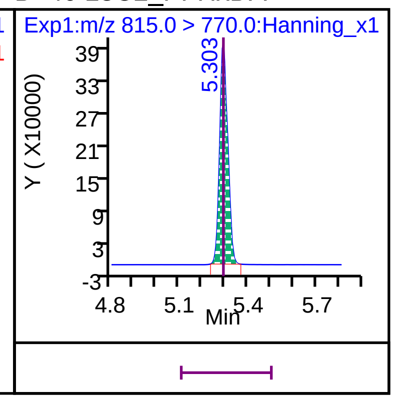
D 40 13C2_PFHxDA



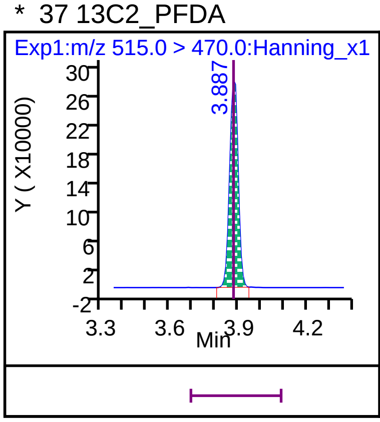
36 Perfluoro-n-octadecanoic acid (PFODA)



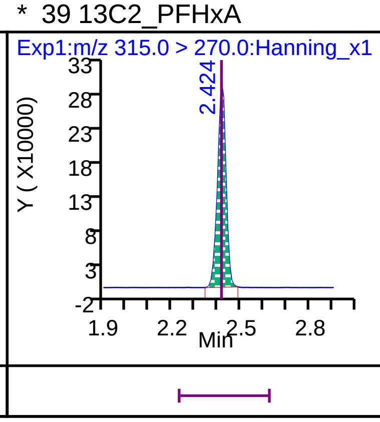
D 40 13C2_PFHxDA



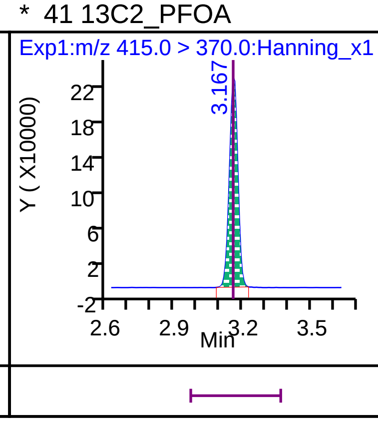
* 37 13C2_PFDA



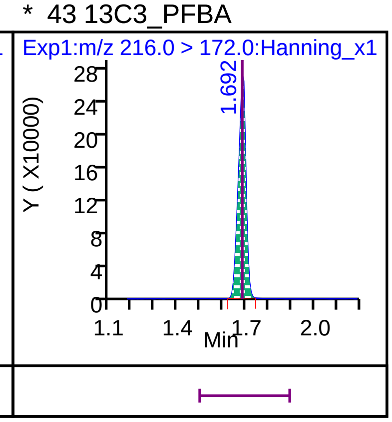
* 39 13C2_PFHxA



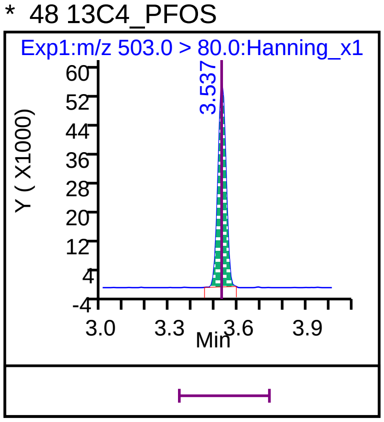
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

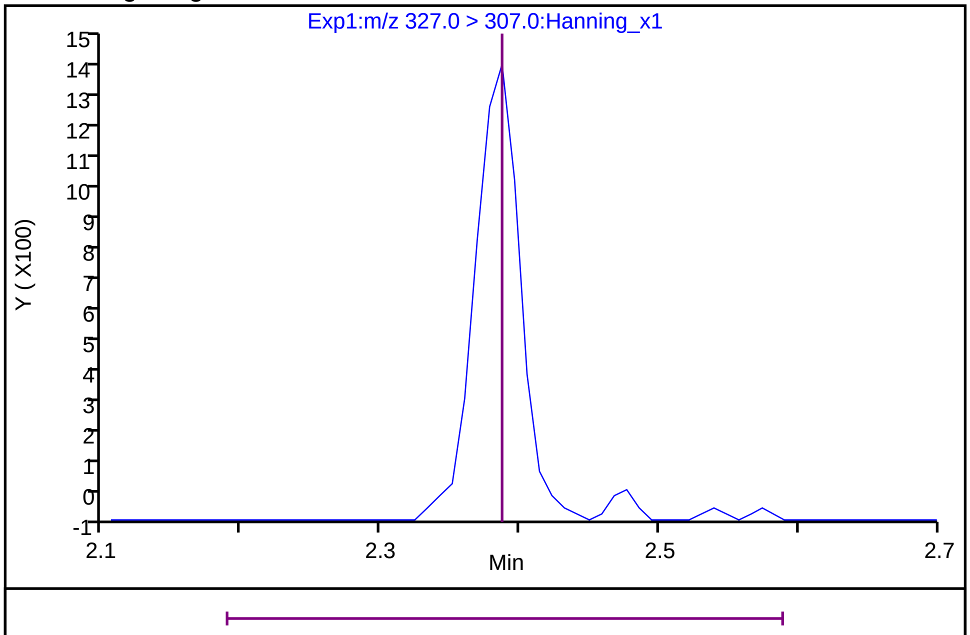
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d		
Injection Date:	16-Nov-2021 16:41:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 50_SVLC-1740
Sample Info:	F.L. ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

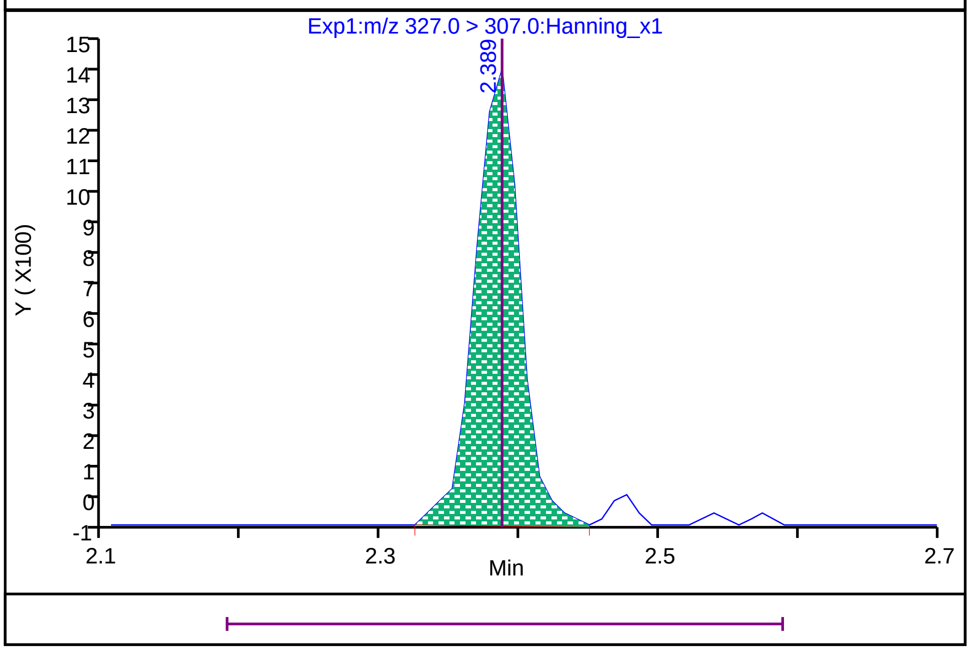
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected
Expected RT: 2.389
RT Window: 2.189-2.589



RT: 2.389
Area: 3116
Amount: 51.619
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:02:41
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d		
Injection Date:	16-Nov-2021 16:41:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 50_SVLC-1740
Sample Info:	F.L. ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

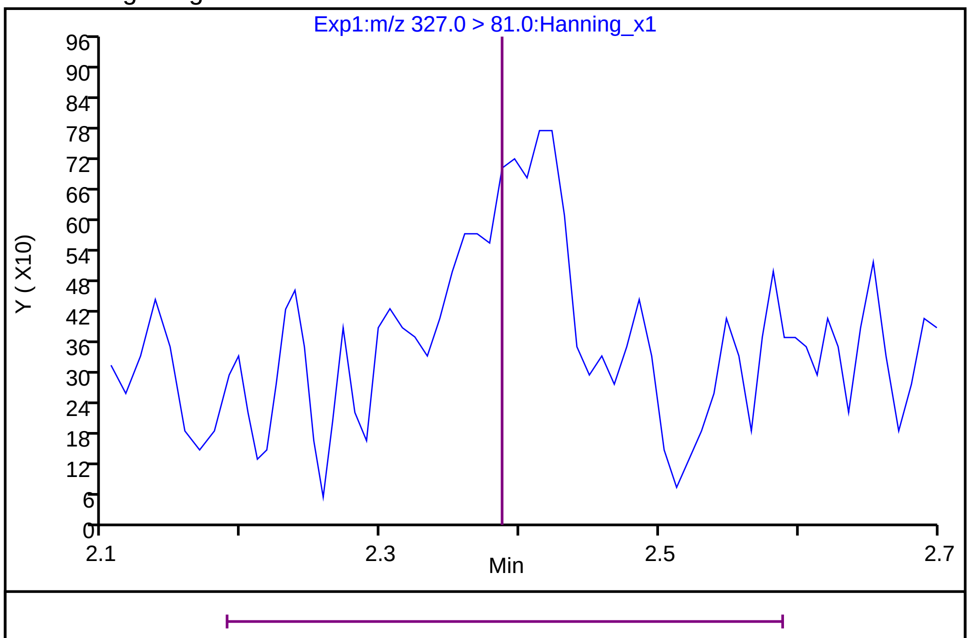
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected

Expected RT: 2.389

RT Window: 2.189-2.589

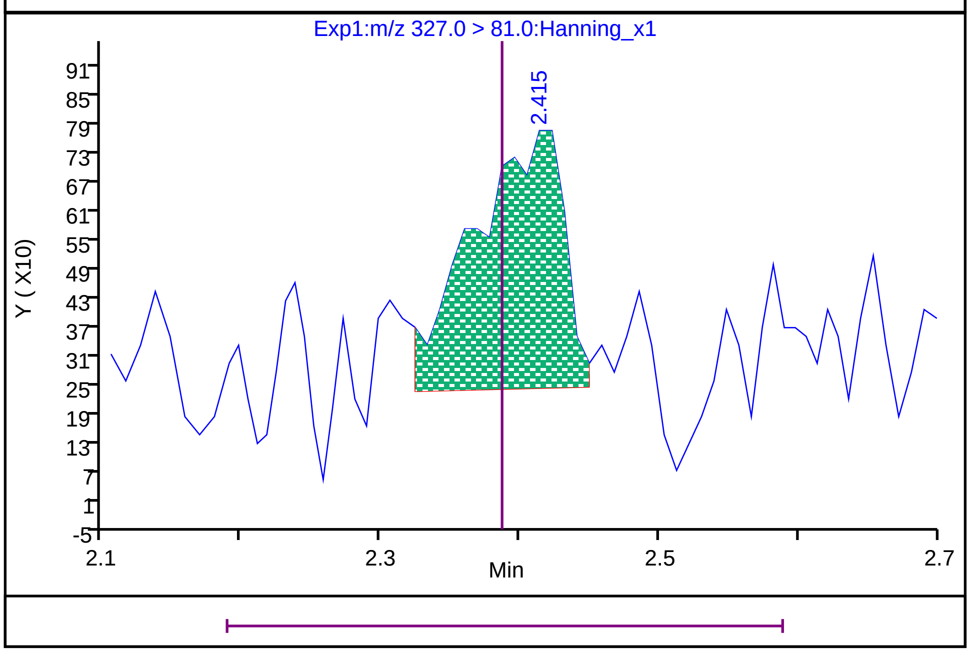


RT: 2.415

Area: 2389

Amount: 51.619

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:02:45

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d

Injection Date: 16-Nov-2021 16:41:56 Inst. ID: LCMSMS02.i

Client ID: Lab ID: F.L. ICAL 50_SVLC-1740

Sample Info: F.L. ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

12 PFHpS, CAS: 375-92-8

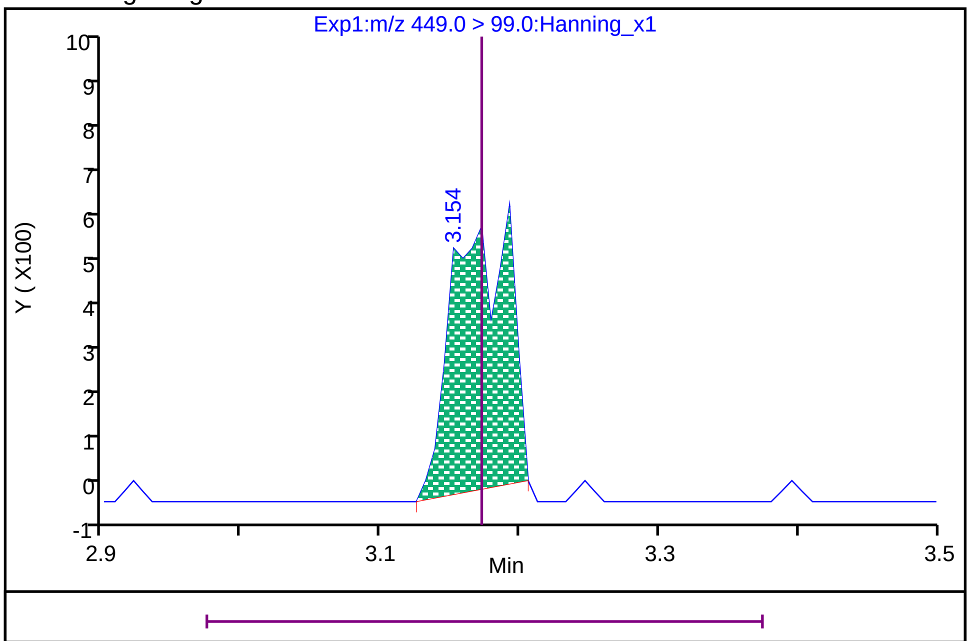
Processing Integration Results

RT: 3.154

Area: 1689

Amount: 57.607

Amount Units: ng/L

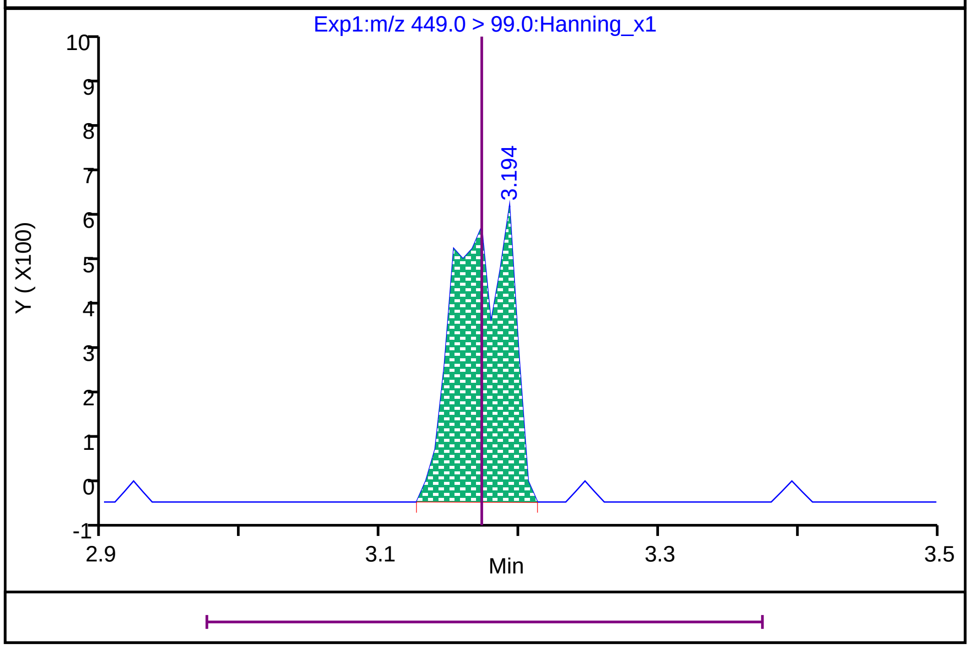


RT: 3.194

Area: 1808

Amount: 57.607

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:03:01

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d

Injection Date: 16-Nov-2021 16:41:56 Inst. ID: LCMSMS02.i

Client ID: Lab ID: F.L. ICAL 50_SVLC-1740

Sample Info: F.L. ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

18 PFOS, CAS: 1763-23-1

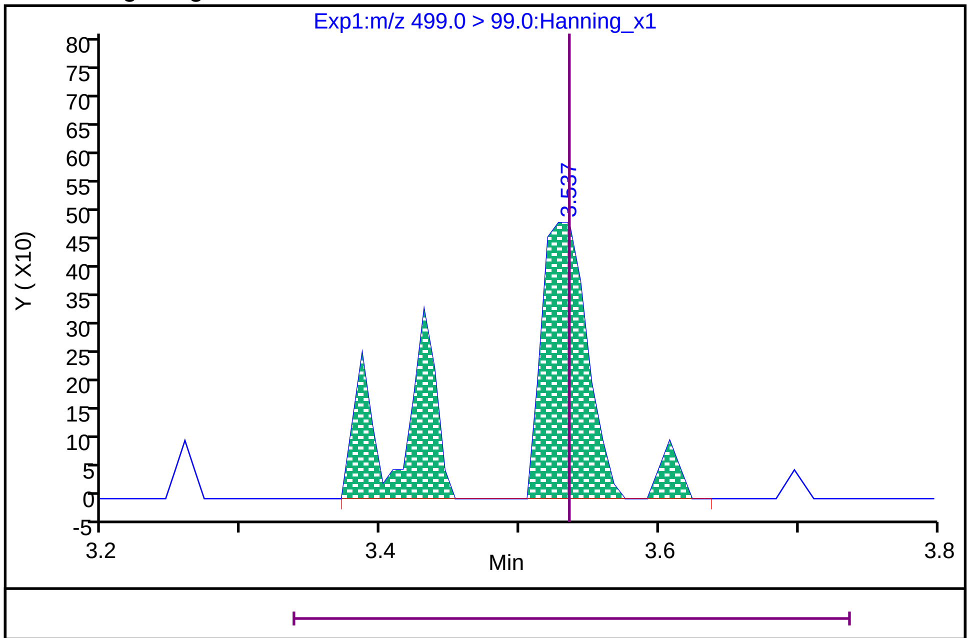
Processing Integration Results

RT: 3.537

Area: 1794

Amount: 49.088

Amount Units: ng/L

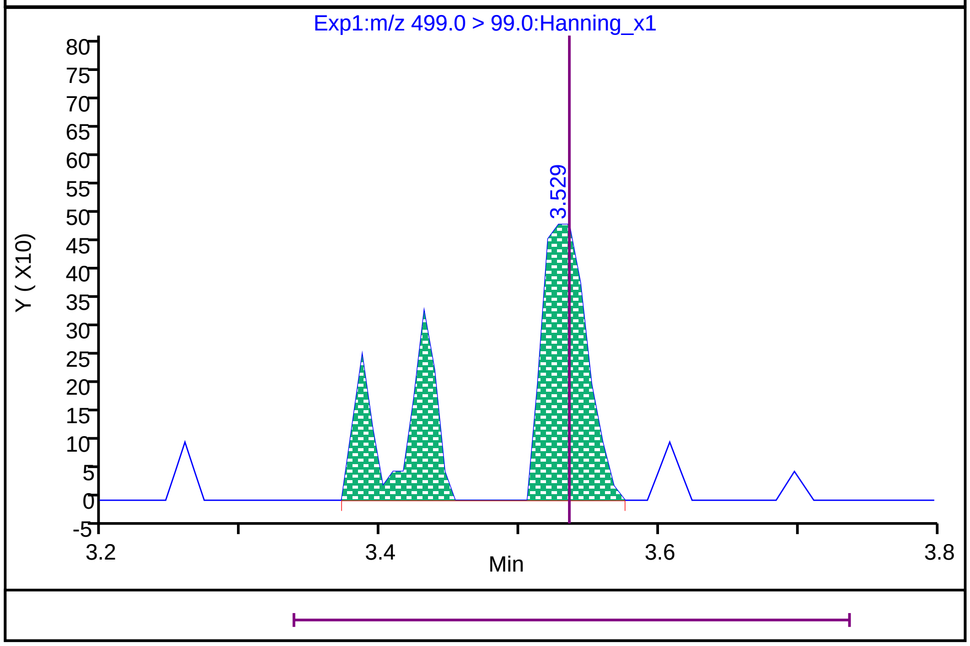


RT: 3.529

Area: 1710

Amount: 49.088

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:03:18

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

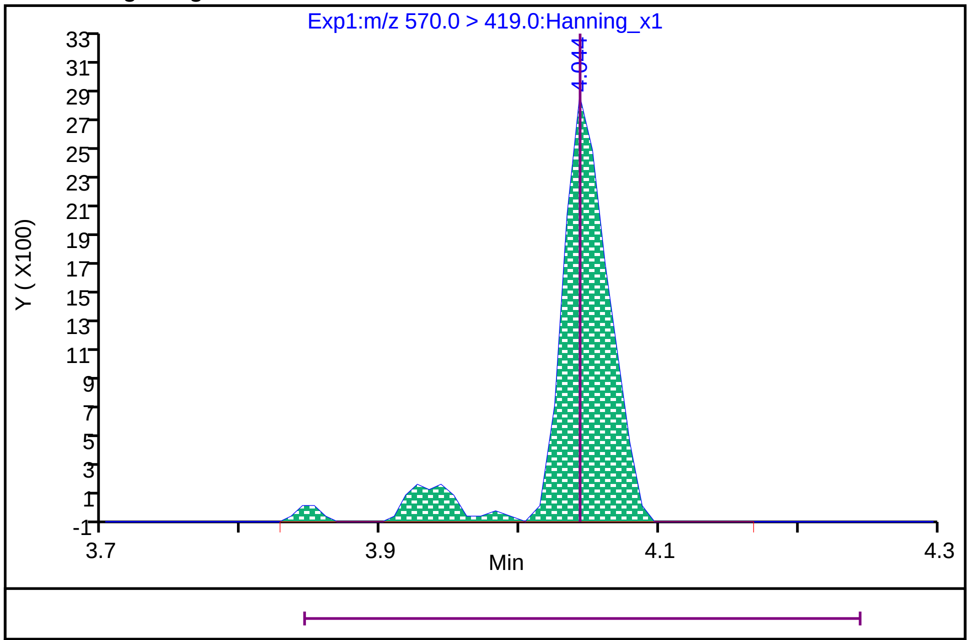
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d		
Injection Date:	16-Nov-2021 16:41:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 50_SVLC-1740
Sample Info:	F.L. ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

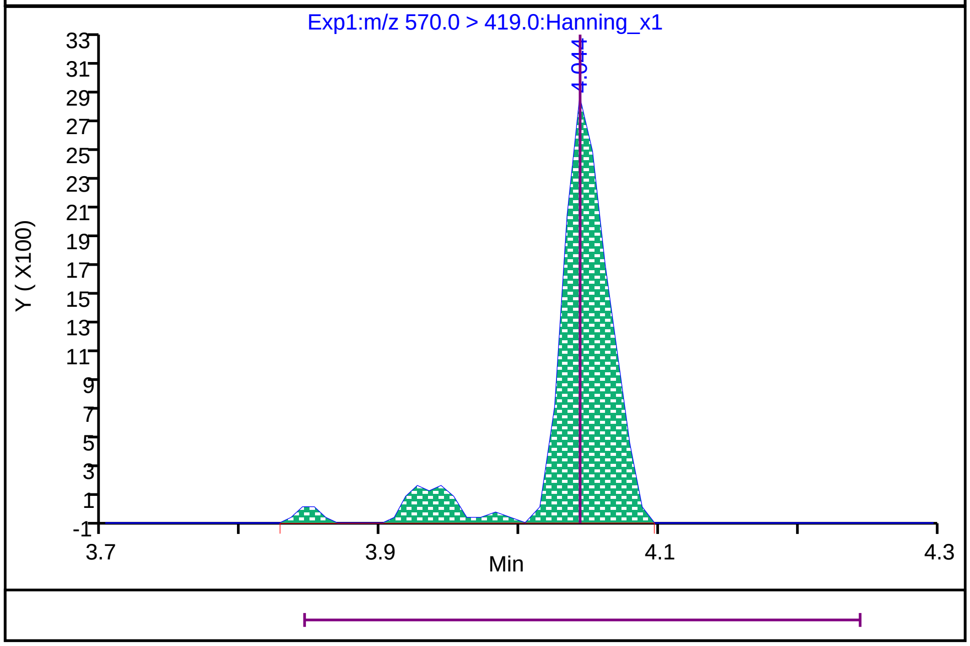
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.044
Area:	7048
Amount:	61.737
Amount Units:	ng/L



RT:	4.044
Area:	7064
Amount:	61.860
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:03:59

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

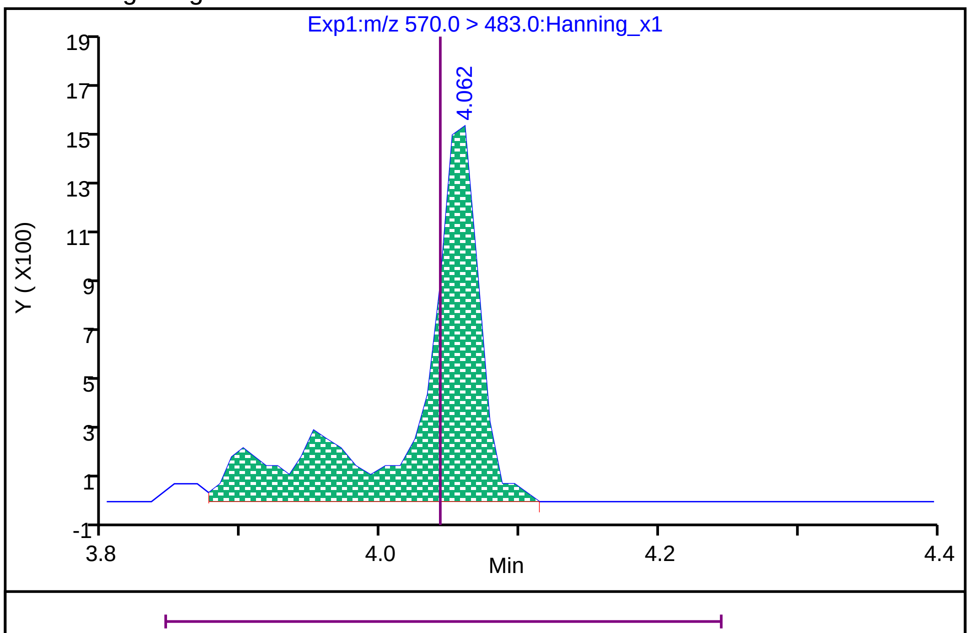
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d
Injection Date:	16-Nov-2021 16:41:56
Inst. ID:	LCMSMS02.i
Client ID:	
Lab ID:	F.L. ICAL 50_SVLC-1740
Sample Info:	F.L. ICAL 50_SVLC-1740
Dil. Factor:	1
Operator:	Justin Gavin

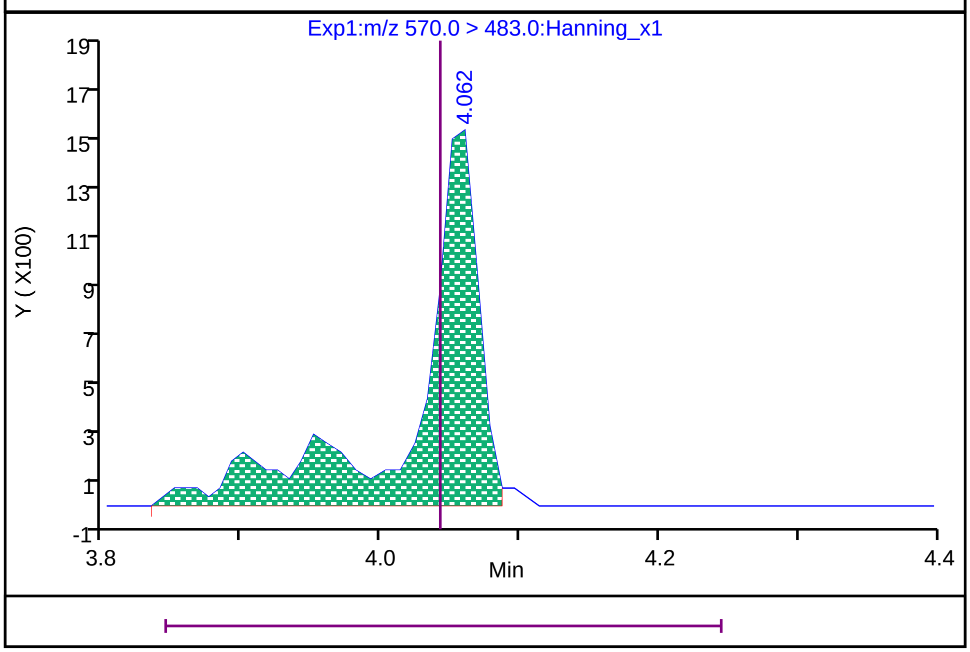
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.062
Area:	4474
Amount:	61.860
Amount Units:	ng/L



RT:	4.062
Area:	4529
Amount:	61.860
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:04:03

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

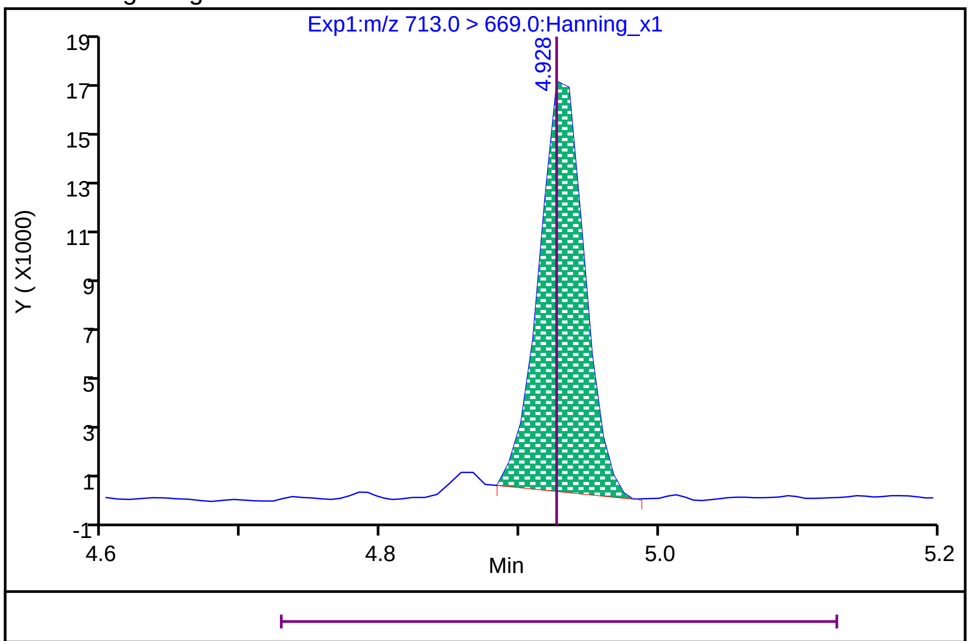
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621015.d		
Injection Date:	16-Nov-2021 16:41:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 50_SVLC-1740
Sample Info:	F.L. ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

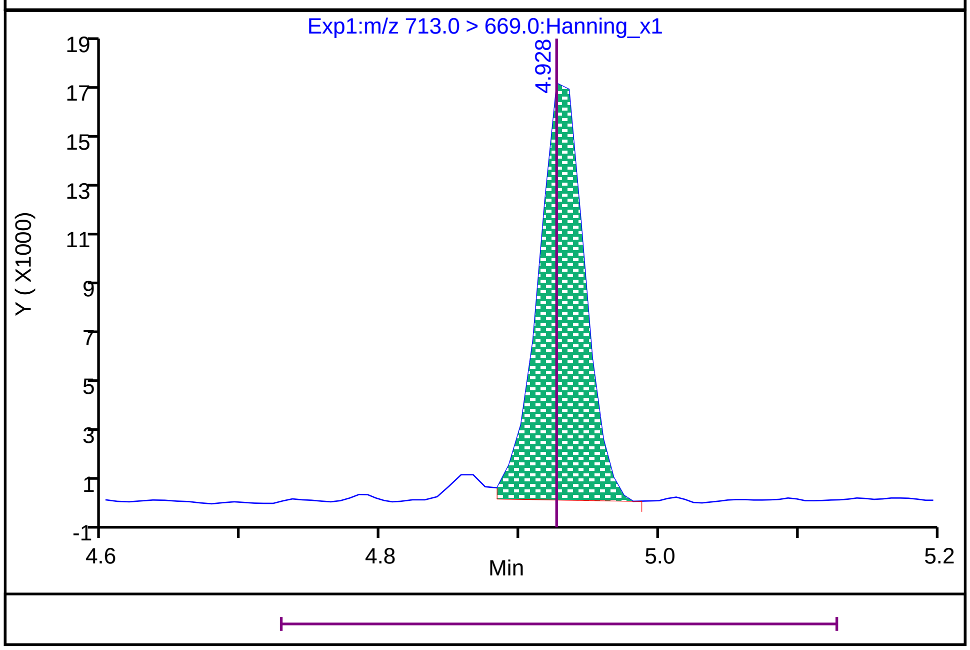
23 PFTeDA, CAS: 376-06-7

Processing Integration Results

RT: 4.928
Area: 37523
Amount: 54.190
Amount Units: ng/L



RT: 4.928
Area: 38800
Amount: 55.828
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:04:44
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d		
Injection Date:	16-Nov-2021 16:52:24	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	2
Sample Info:	F.L. ICAL 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	647626	20	>100:1			1000.00	1037.97	100.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.692	1/0	69607	21	54:1			100.00	102.74		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	597422	17	>100:1			1000.00	1031.54	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	65799	14	86:1			100.00	100.29		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	175927	17	>100:1			1000.00	1013.71	101.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	20385	14	>100:1	Target = 3.48		88.400	93.011		
298.9 > 99	44	2.120	2.120		5572	16	64:1	3.65 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	13279	17	>100:1	Target = 3.03		93.800	85.271		
349 > 99	44	2.460	2.460		5132	14	84:1	2.58 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	111585	19	>100:1			5000.00	5110.13	97.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.380	2.389	0/-1	4266	16	30:1	Target = 1.70		93.400	74.042		
327 > 81	63	2.398	2.389		4008	17	3.9:1	1.06 (0.85-2.55)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	1	670240	17	>100:1			1000.00	1034.20	97	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	1/0	73563	17	>100:1	Target = 18.47		100.00	103.72		
313 > 119	49	2.424	2.424		4996	18	39:1	14.72 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	1	1176579	18	>100:1			5000.00	5254.53	101.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	1/0	32118	15	>100:1	Target = 0.78		200.00	207.43		
285 > 185	66	2.540	2.540		38520	17	>100:1	0.83 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	549298	17	>100:1			1000.00	1040.74	101.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.800	2.791	1/0	58375	17	93:1	Target = 3.92		100.00	92.934		
363 > 169	47	2.791	2.791		16439	15	64:1	3.55 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	125557	18	>100:1			1000.00	983.09	92.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	1/0	13434	31	>100:1	Target = 3.14	3.78	91.000	94.908		
399 > 99	45	2.818	2.809		3394	27	26:1	3.95 (1.57-4.71)	16.86				J

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.836	2.827	1/0	101630	17	>100:1	Target = 3.33		94.200	104.07		
377 > 85	45	2.827	2.827		30339	19	>100:1	3.34 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.174	3.174	5/4	11799	19	>100:1	Target = 3.02		95.200	96.658		
449 > 99	45	3.181	3.174		5279	24	48:1	2.23 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.148	3.141	1	91537	19	>100:1			5000.00	5334.09	101.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.154	3.141	1/0	4501	22	70:1	Target = 1.69		94.800	104.82		
427 > 81	64	3.154	3.141		2375	12	4.0:1	1.89 (0.84-2.54)					J
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.168	1	540221	20	>100:1			1000.00	1042.92	97	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.174	3.168	1/0	60054	21	55:1	Target = 3.03		100.00	106.22		
413 > 169	53	3.174	3.168		18984	18	40:1	3.16 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.540	3.537	1	128574	20	>100:1			1000.00	1032.72	97	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.548	3.537	1/0	14477	33	74:1	Target = 3.42	3.69	92.800	94.794		M
499 > 99	54	3.548	3.537		4086	32	43:1	3.54 (1.71-5.13)	7.25				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.748	3.740	1/0	46726	17	>100:1			93.200	94.663		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.889	3.879	1/0	9607	19	59:1	Target = 2.57		96.000	95.974		
549 > 99	54	3.872	3.879		4354	18	37:1	2.20 (1.29-3.87)					J
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.179	4.178	0/-1	11676	16	55:1	Target = 2.71		96.400	112.97		
599 > 99	54	4.170	4.178		3177	18		3.67 (1.35-4.06)					J
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.339	4.338	0/-1	43240	16	>100:1			94.200	99.214		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.684	4.681	0/-1	9881	21	>100:1	Target = 3.04		96.800	96.570		
699 > 99	54	4.692	4.681		4171	20		2.36 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.548	3.537	1	658795	20	>100:1			1000.00	1021.03	95.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.540	3.537	0/-1	74775	20	>100:1	Target = 7.14		100.00	103.04		
463 > 169	56	3.548	3.537		9299	15	64:1	8.04 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.848	3.846	1	262559	17	>100:1			1000.00	1041.21	95.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.848	3.846	0/-1	28304	18	>100:1	Target = 32.83		100.00	98.109		
498>478	55	3.856	3.846		845	11	6.8:1	33.49 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.880	3.879	1	81380	19	>100:1			5000.00	4866.68	92.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.889	3.879	0/-1	3381	20	12:1	Target = 2.14		95.800	89.568		
527 > 81	65	3.880	3.879		916	8	4.4:1	3.69 (1.07-3.21)					J
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.485	4.482	1/0	4963	15		Target = 3.72		96.400	113.43		
627 > 80	65	4.476	4.482		936	17		5.30 (1.86-5.58)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.889	3.887	1	592156	18	>100:1			1000.00	1039.13	101	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.889	3.887	1/0	67783	18	>100:1	Target = 14.16		100.00	97.631		
513 > 169	51	3.880	3.887		5212	25		13.00 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.046	4.045	1	658034	16	>100:1			5000.00	4817.66	96.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.046	4.045	1/0	13178	29		Target = 1.42	6.95	100.00	120.88		M
570 > 483	58	4.046	4.045		6520	33	52:1	2.02 (0.71-2.14)	5.26				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.198	4.196	0	658405	18	>100:1			5000.00	5422.54	107.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.198	4.206	0/0	10971	30	77:1	Target = 1.49	5.56	100.00	87.817		M
584 > 526	60	4.218	4.206		9401	45		1.16 (0.74-2.24)	6.83				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.198	4.196	0	688709	17	>100:1			1000.00	1060.87	103.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.207	4.196	1/1	61298	15	>100:1	Target = 14.37		100.00	95.930		
563 > 169	52	4.198	4.196		3705	19	27:1	16.54 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.279	4.267	1	81837	16	>100:1			1000.00	933.85	92.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.287	1/0	10999	21	90:1			100.00	121.74		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.299	4.298	1	50908	12	>100:1			1000.00	1042.40	101.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.299	4.298	1/0	4459	12	26:1	Target = 1.08		100.00	85.918		
512 > 219	57	4.299	4.298		4275	19	22:1	1.04 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.449	4.437	1	108387	18	>100:1			1000.00	1023.33	94.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.458	4.455	0/-1	10535	18	>100:1			100.00	95.341		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.467	4.464	1	43692	15	>100:1			1000.00	997.28	95.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.476	4.473	1/0	5187	21	64:1	Target = 0.97		100.00	100.81		
526 > 219	59	4.476	4.473		5965	20		0.86 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.476	4.473	1	644540	17	>100:1			1000.00	1079.86	102.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.476	4.473	1/0	67053	16	31:1	Target = 10.55		100.00	96.369		
613 > 169	38	4.476	4.473		6527	12	83:1	10.27 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.713	4.711	0/-1	59598	18	>100:1	Target = 8.92		100.00	94.990		
663 > 169	38	4.713	4.711		6320	15	>100:1	9.43 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.933	4.928	1	782982	17	>100:1			1000.00	1038.28	98.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.933	4.928	1/0	70146	14	12:1	Target = 12.22		100.00	102.19		
713 > 169	42	4.924	4.928		5559	17	>100:1	12.61 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.306	5.302	1	904801	22	>100:1			1000.00	1006.25	97.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.306	5.302	1/0	66529	20	17:1	Target = 11.65		100.00	108.53		
813 > 269	40	5.301	5.302		5967	21	>100:1	11.14 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.656	5.660	0/-1	86763	20	18:1	Target = 15.15		100.00	101.91		
913 > 319	40	5.656	5.660		5190	18	>100:1	16.71 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.889	3.887	1	658522	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	1	709636	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.174	3.168	1	550490	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	586508	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.540	3.537	1	123204	18	>100:1			1000.00			

Compound Type Legend

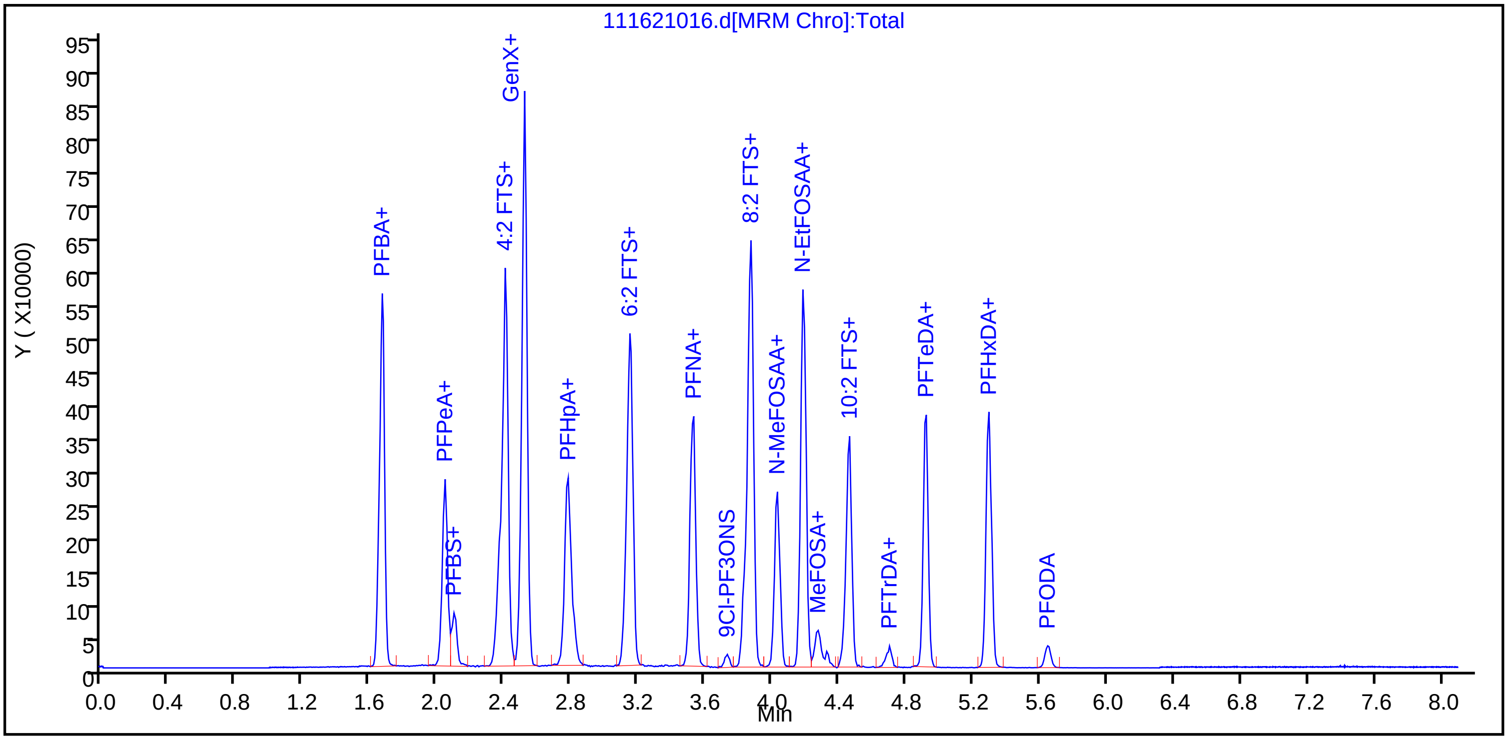
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

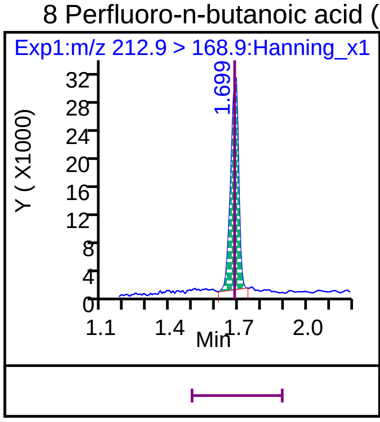
M - Compound Hit/Peak Manually Integrated

Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812
Pace Environmental Services, LLC

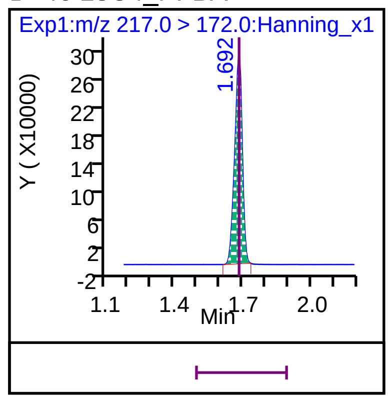
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d		
Injection Date:	16-Nov-2021 16:52:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 100_SVLC-1741
Sample Info:	F.L. ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



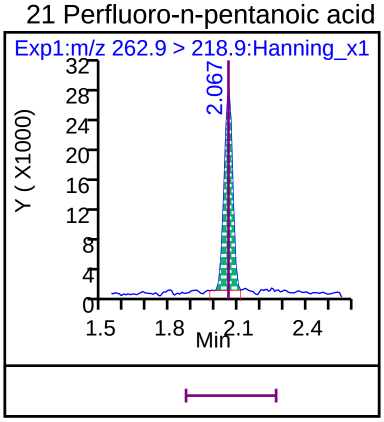
8 Perfluoro-n-butanoic acid (PFBA)



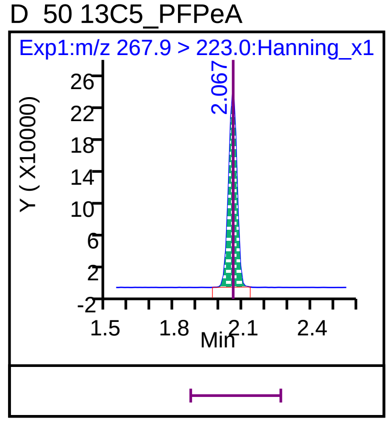
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



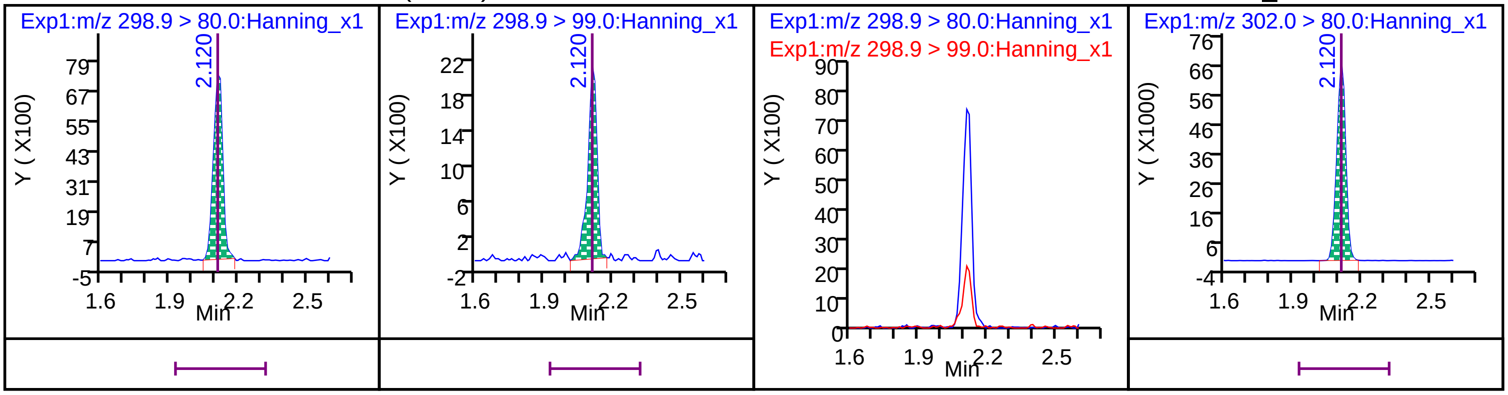
D 50 13C5_PFPeA



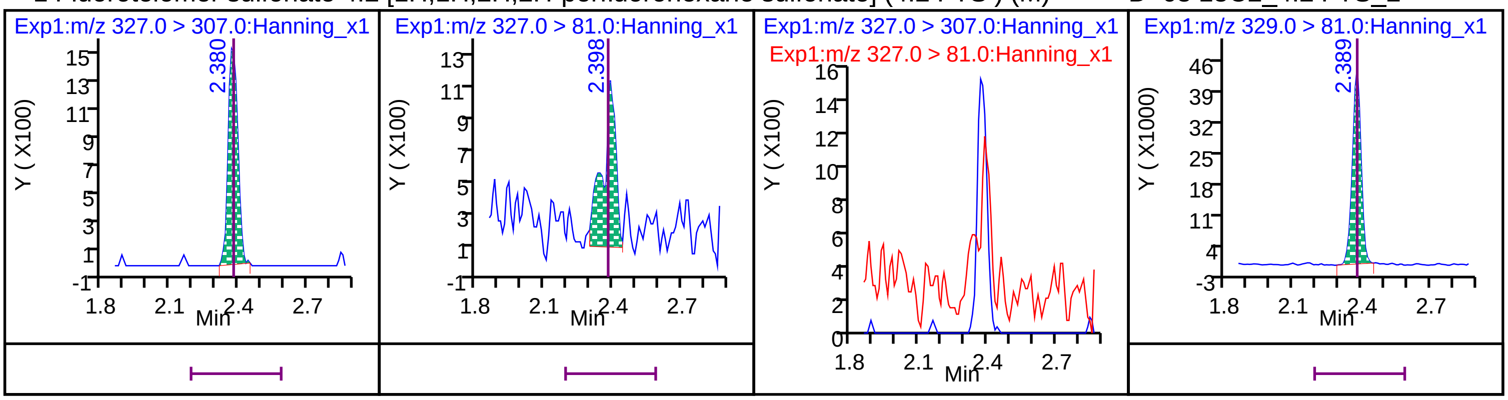
Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

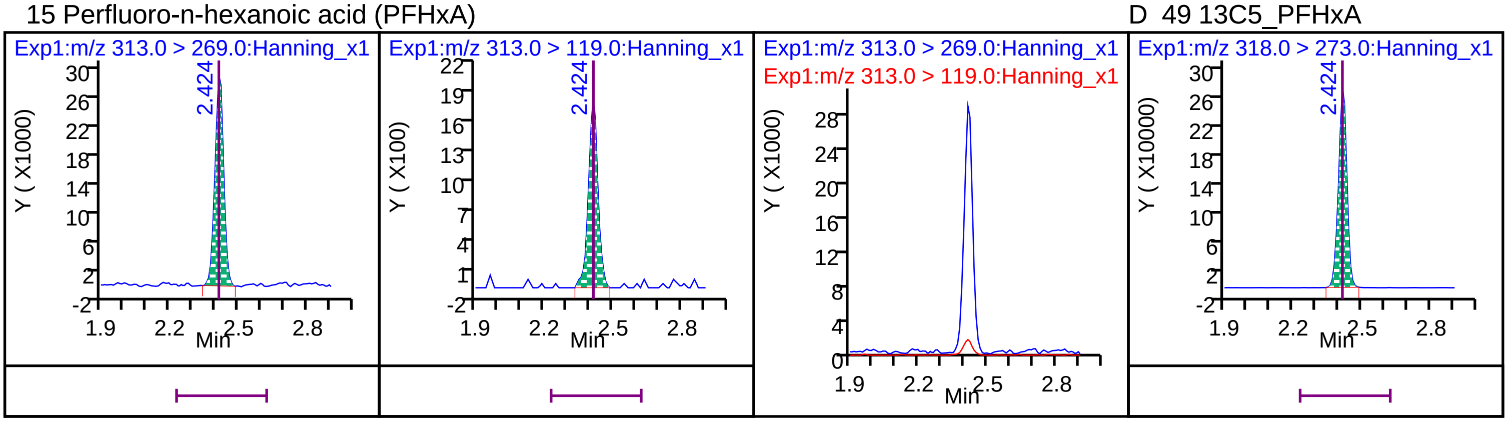
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



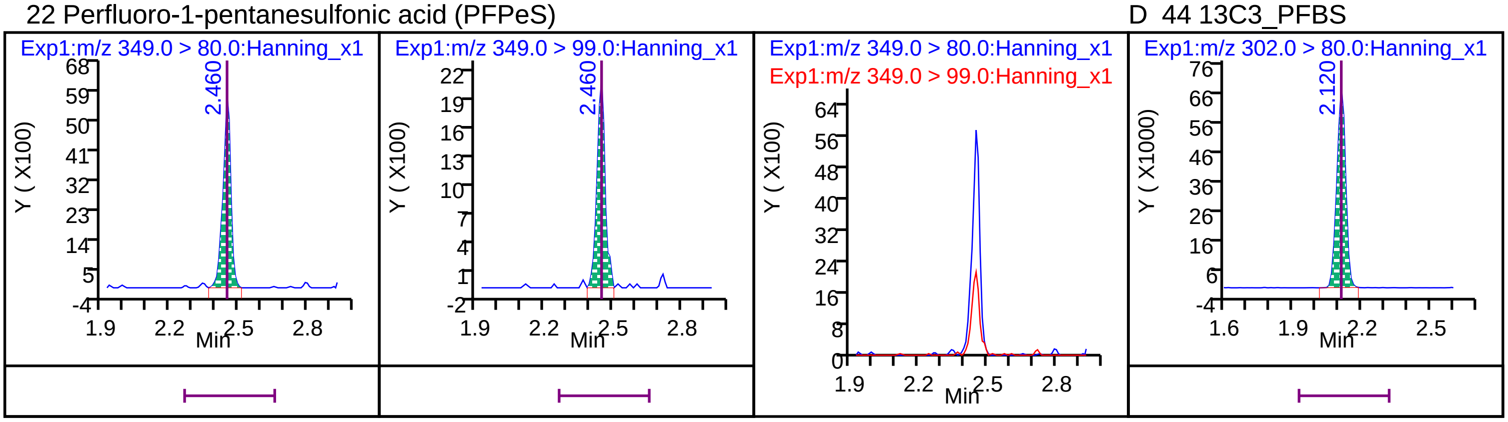
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



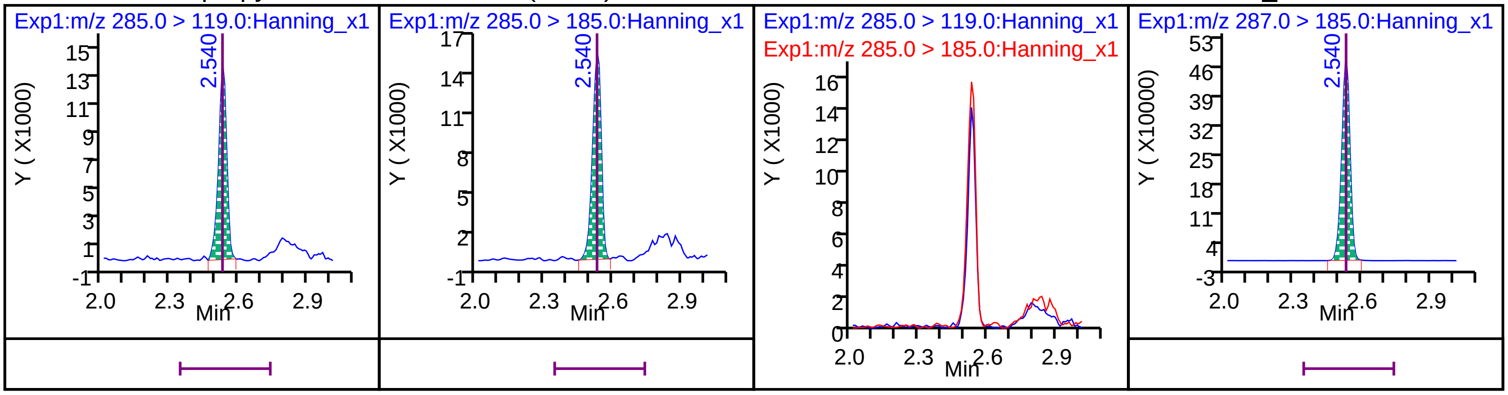
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



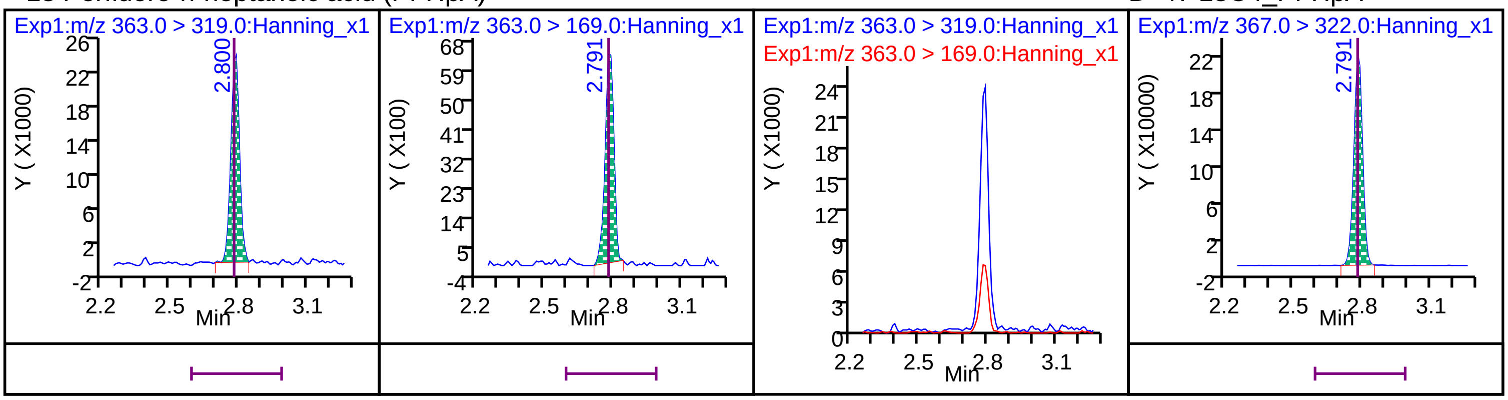
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



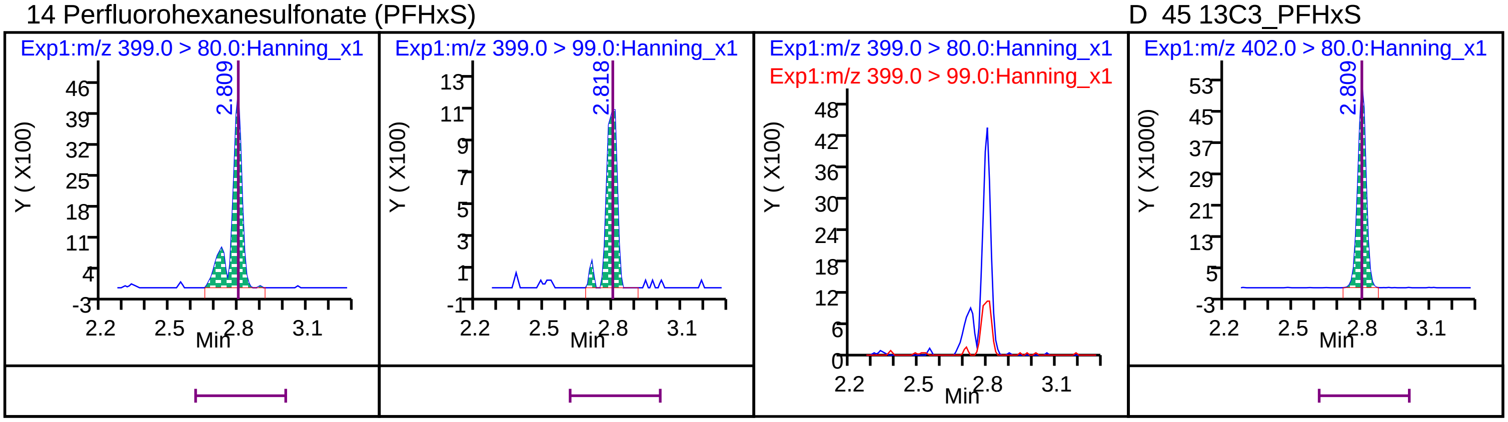
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



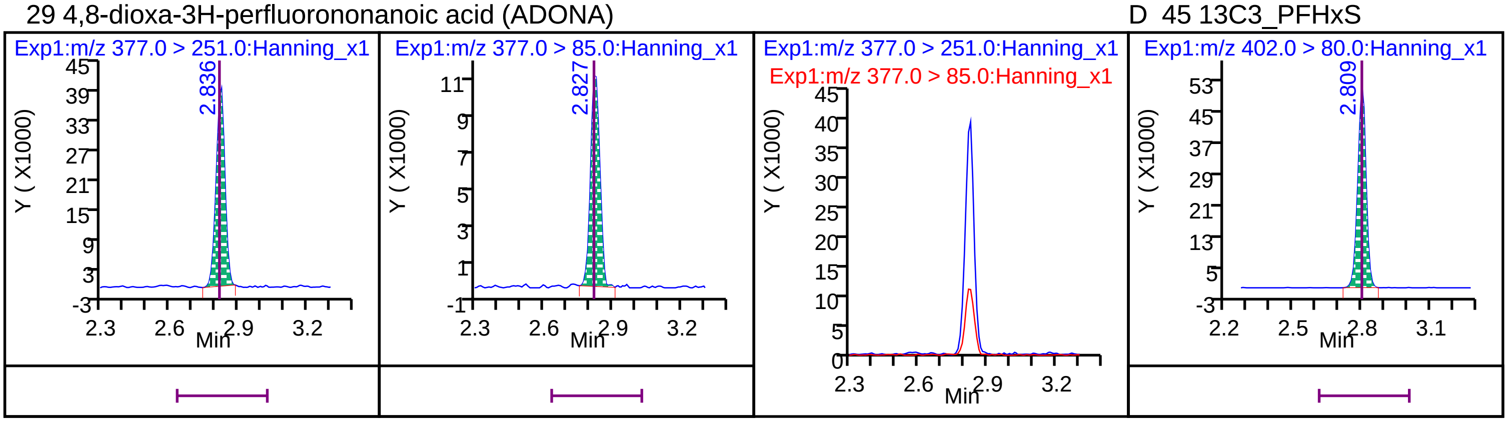
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

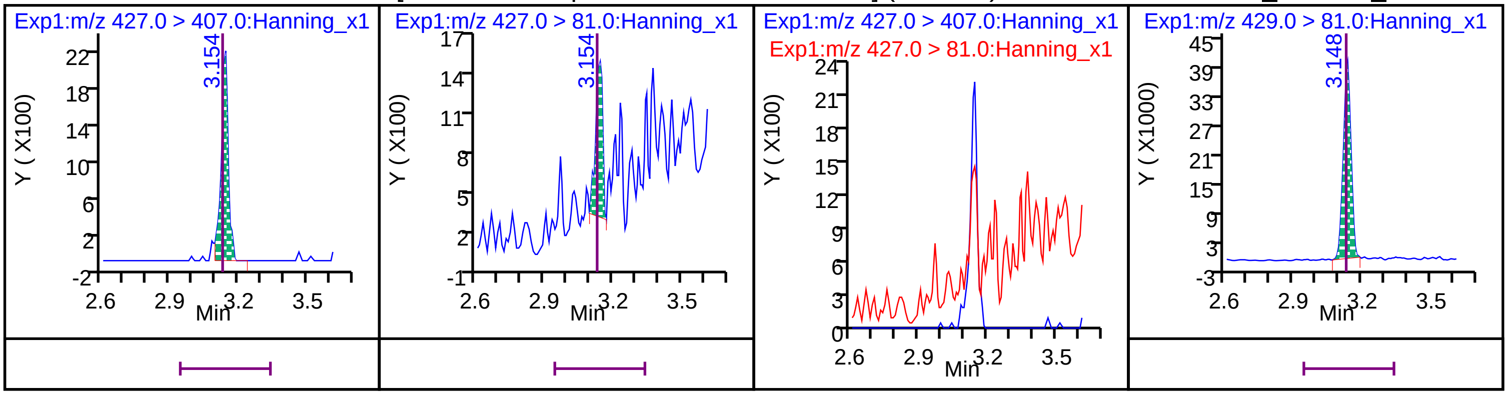


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

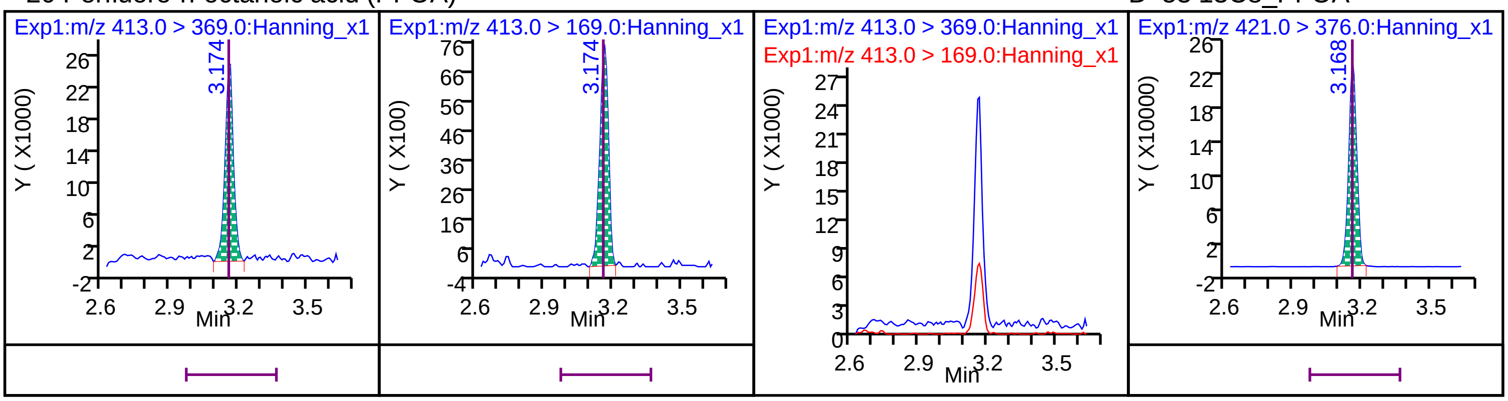


Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

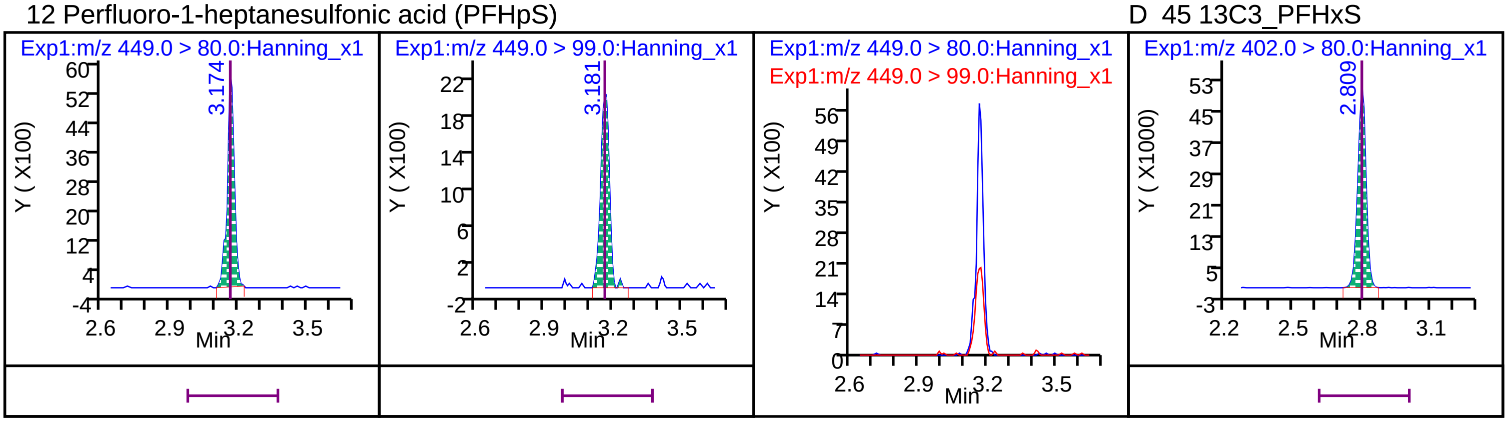
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



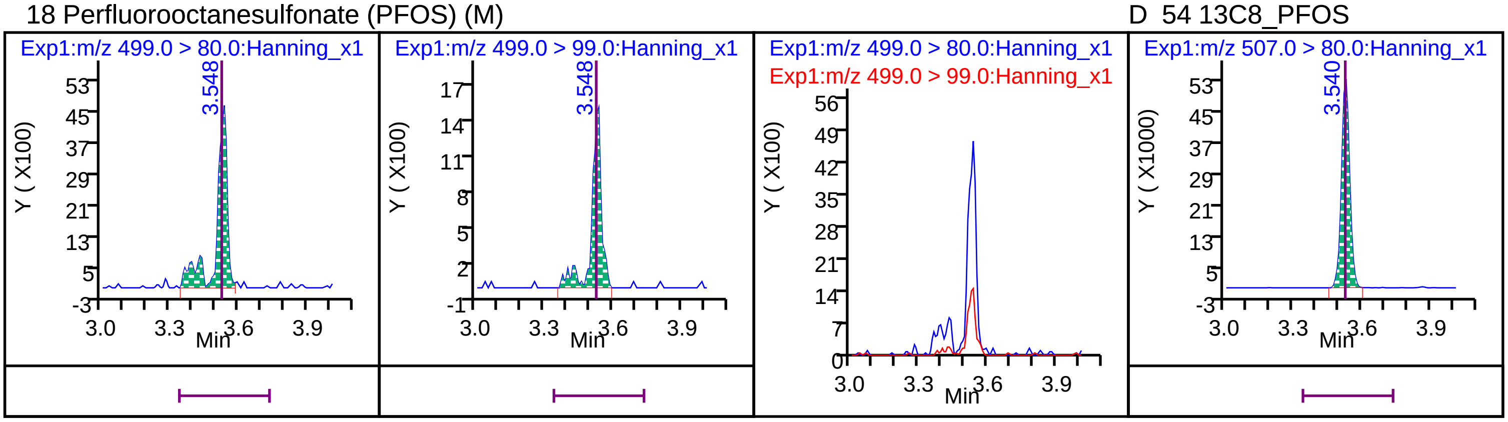
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



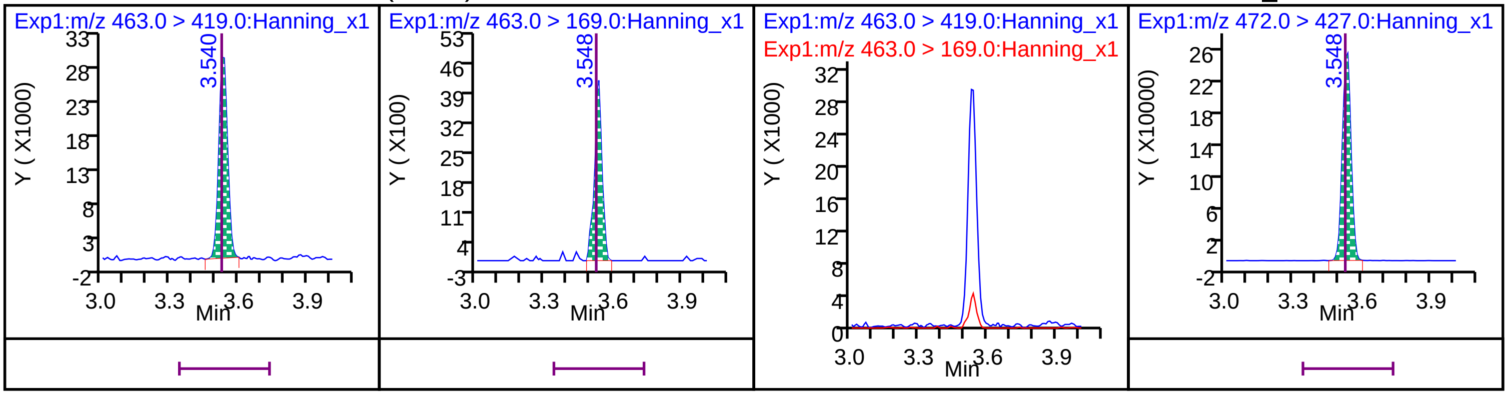
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



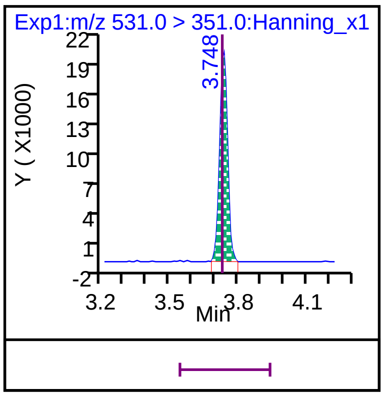
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

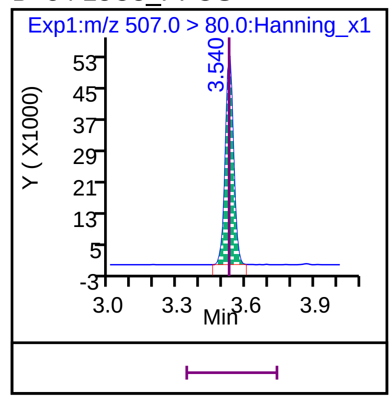


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

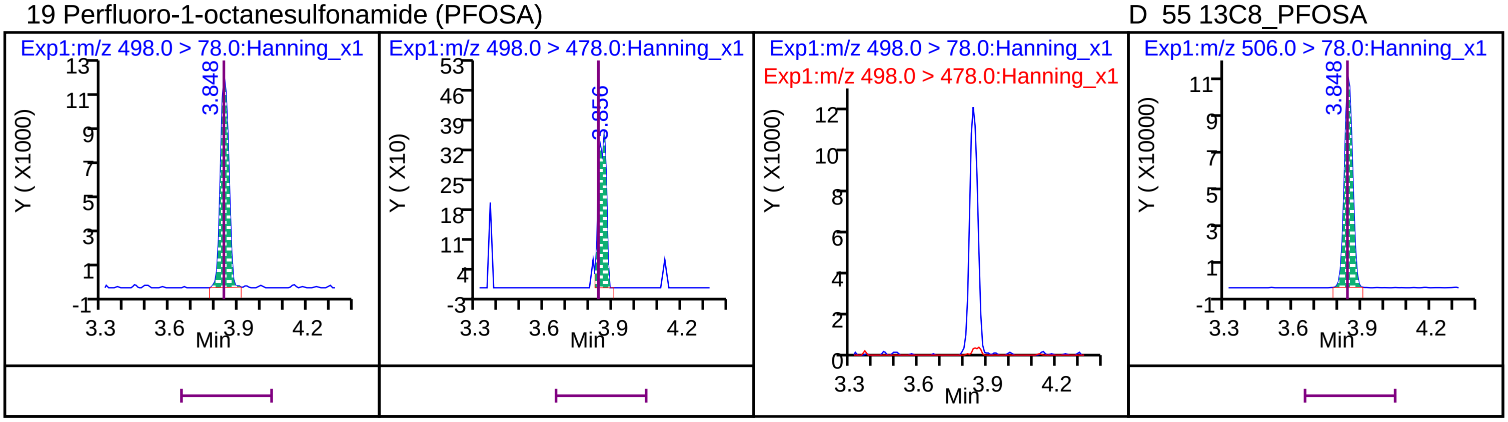


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

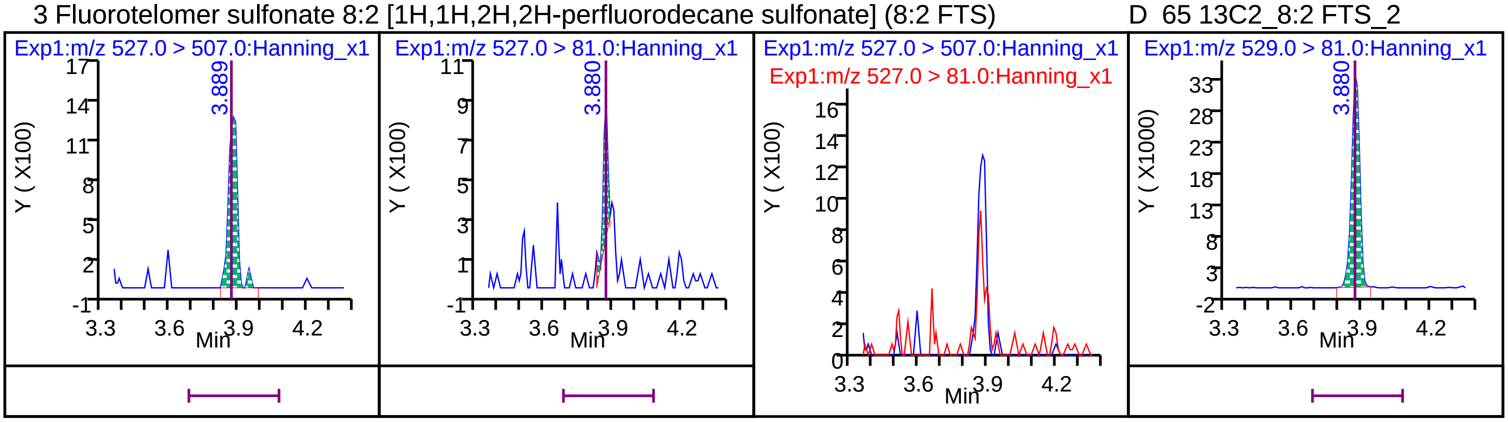




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

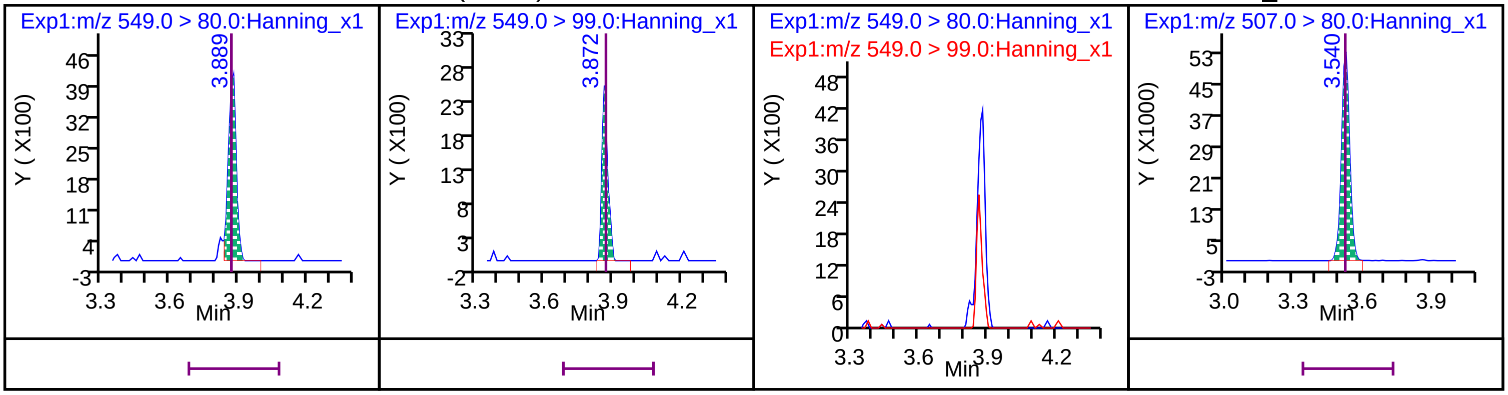


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

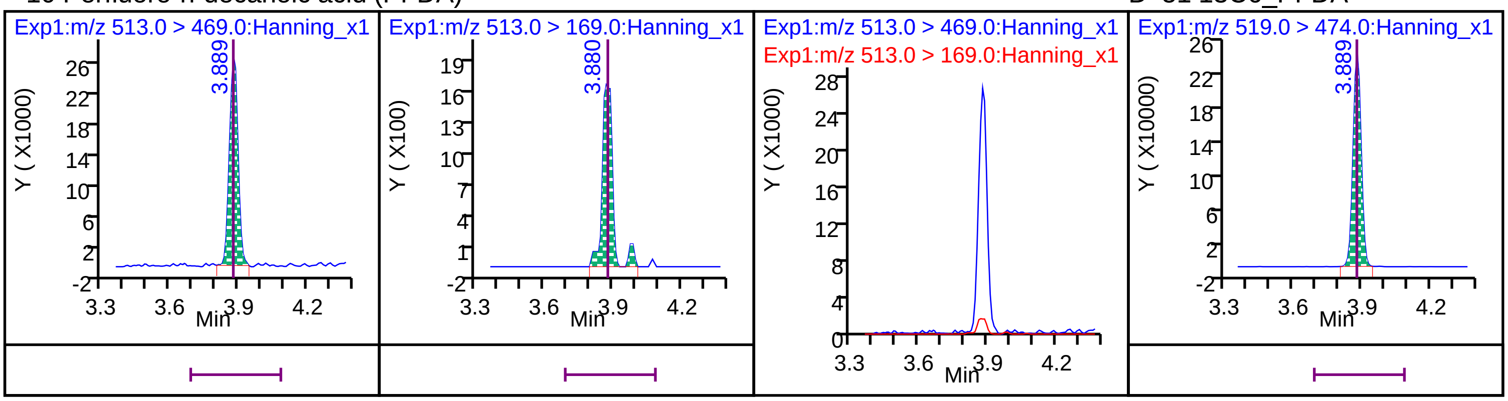


Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

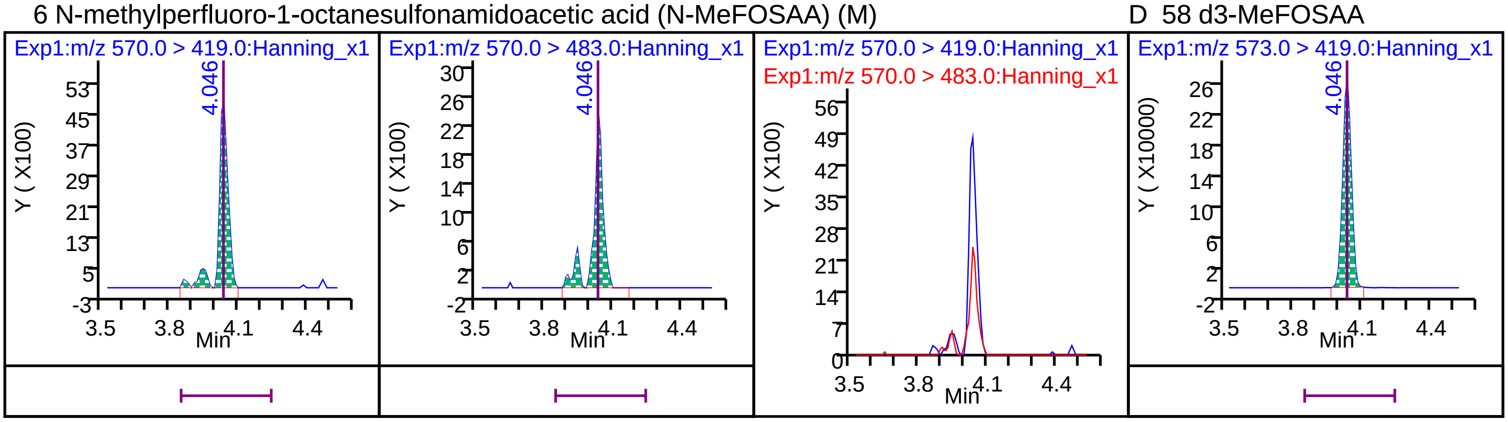
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



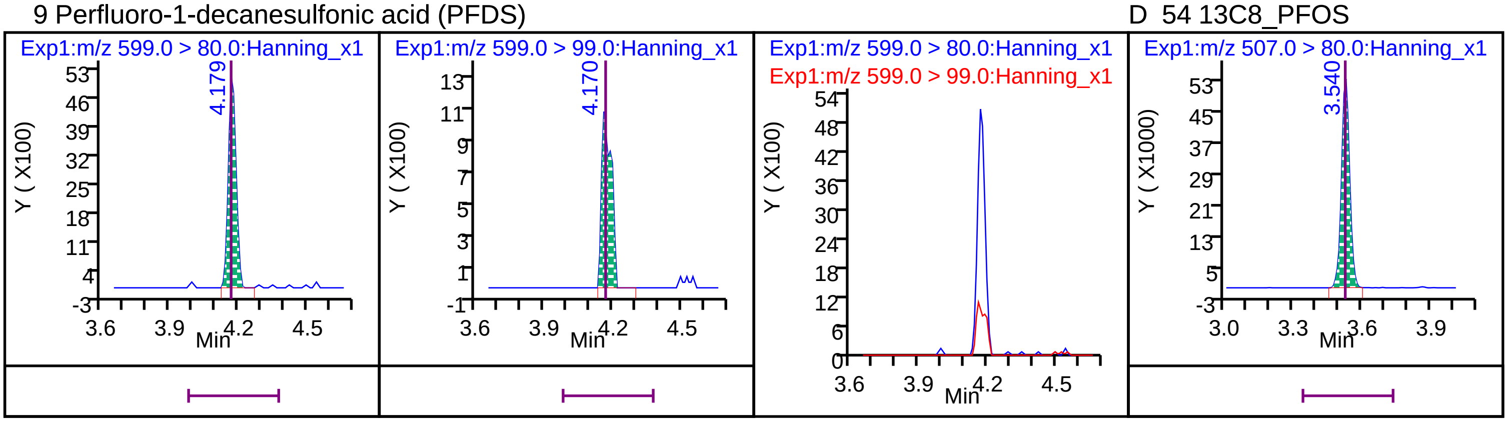
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



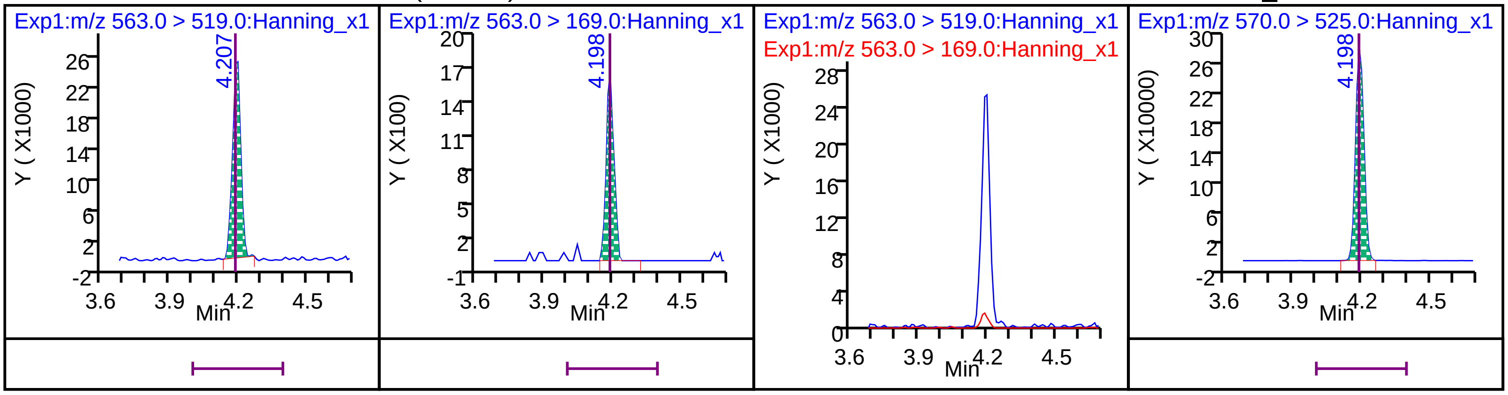
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



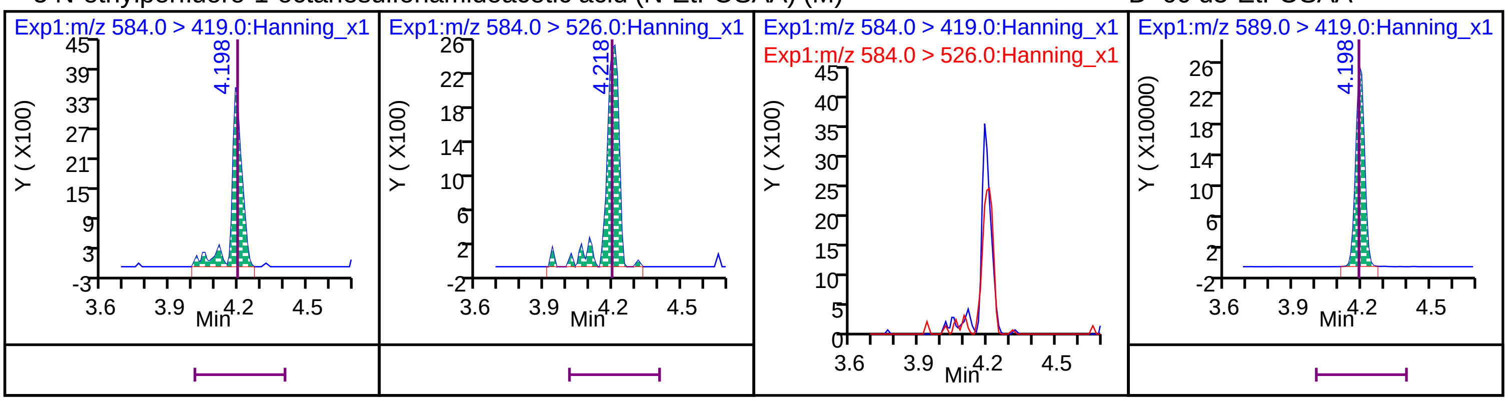
Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

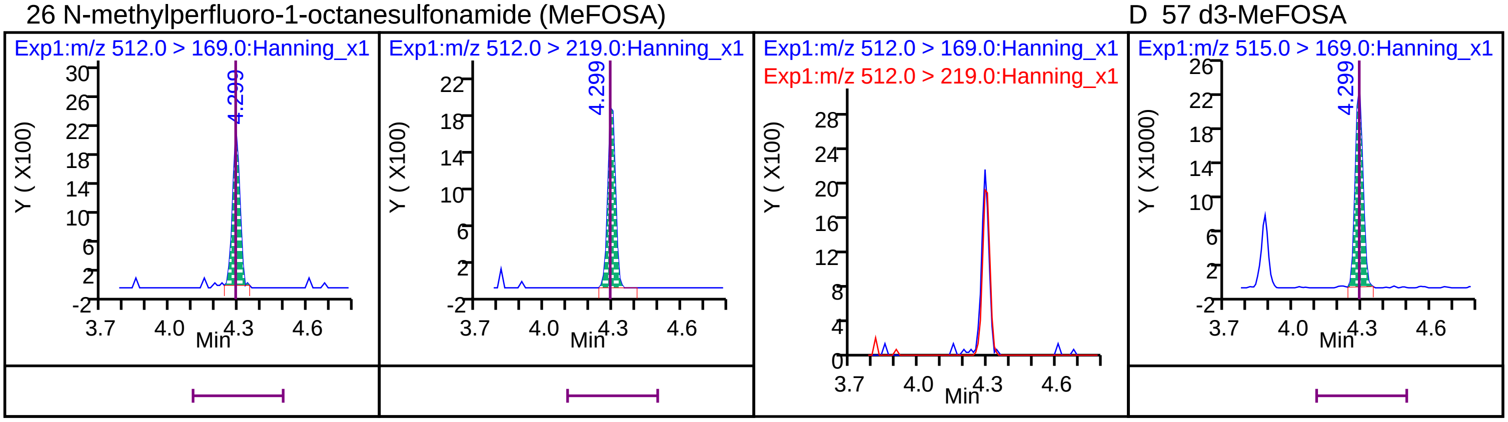


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

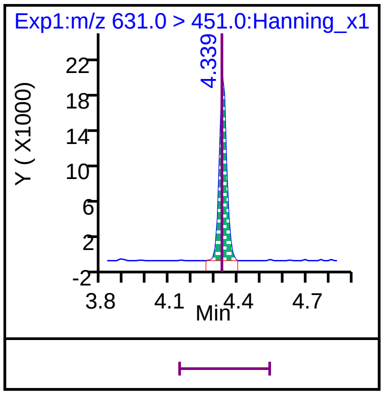


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

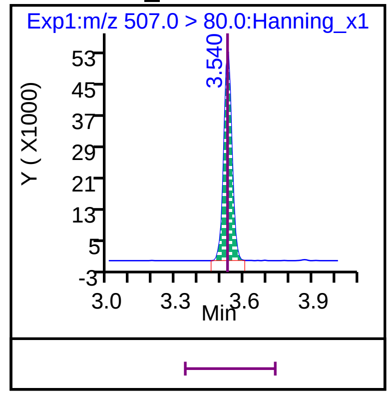
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



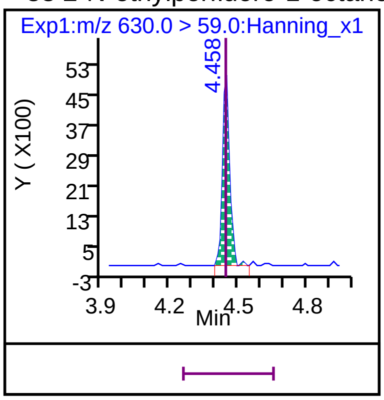
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



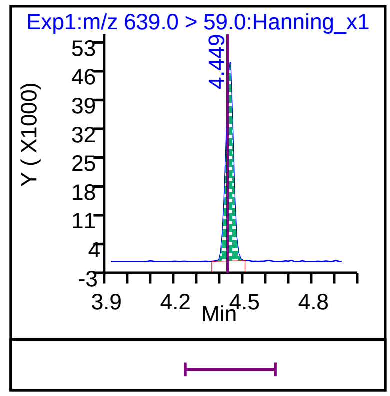
D 54 13C8_PFOS



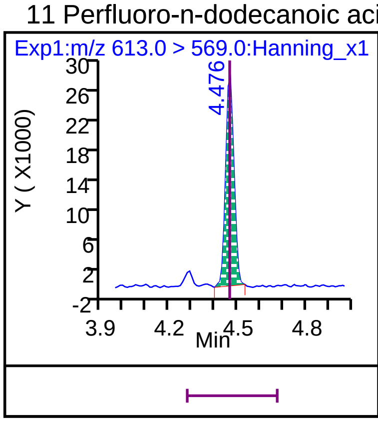
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

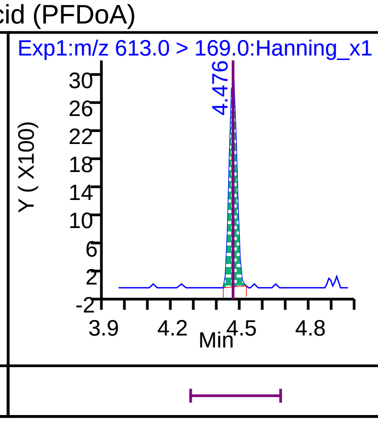


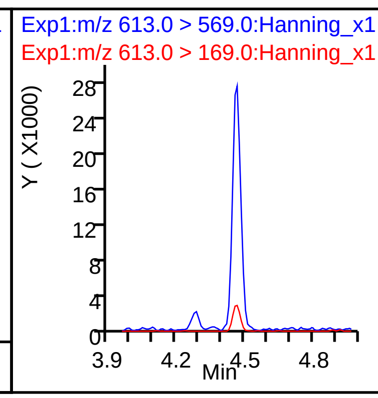
D 62 d9-EtFOSE



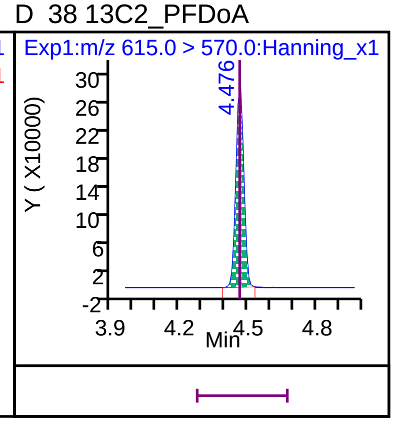
11 Perfluoro-n-dodecanoic acid (PFDoA)



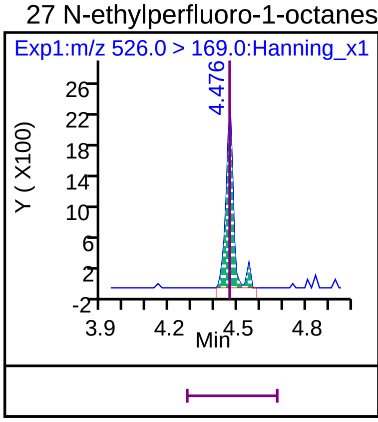


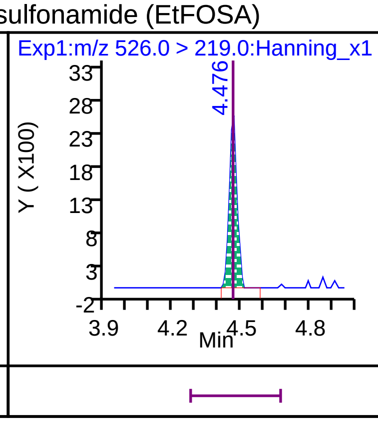


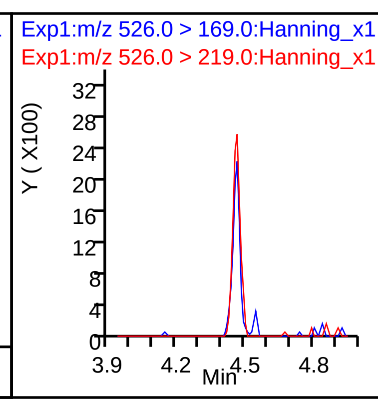
D 38 13C2_PFDoA



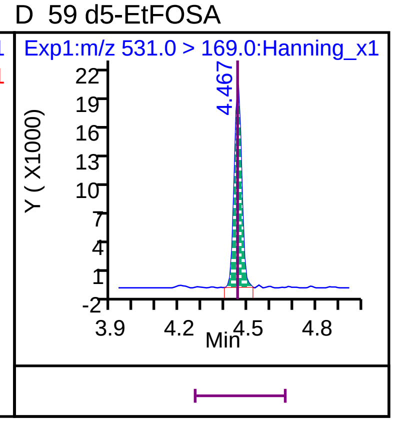
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



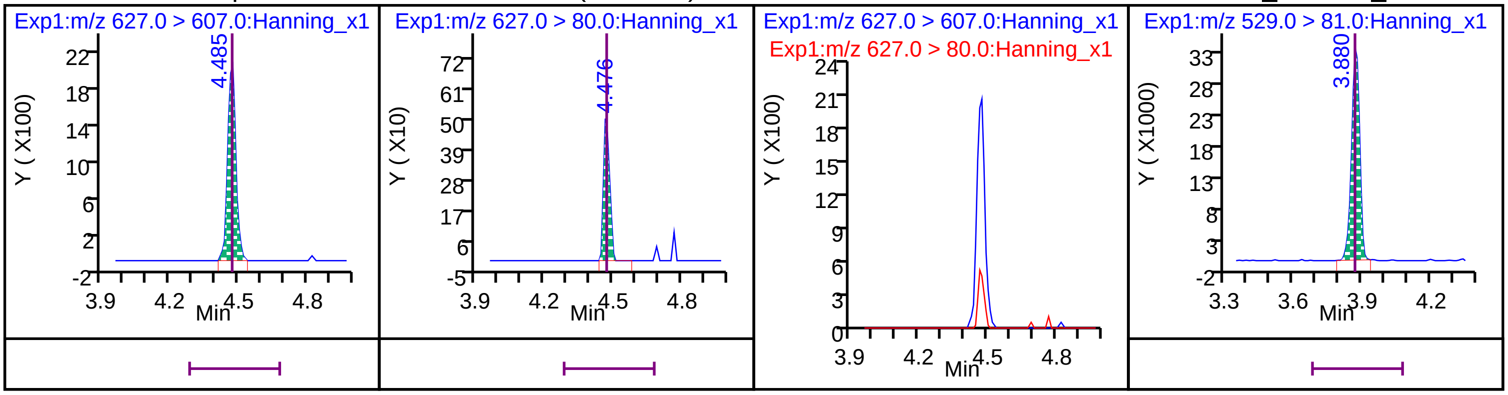




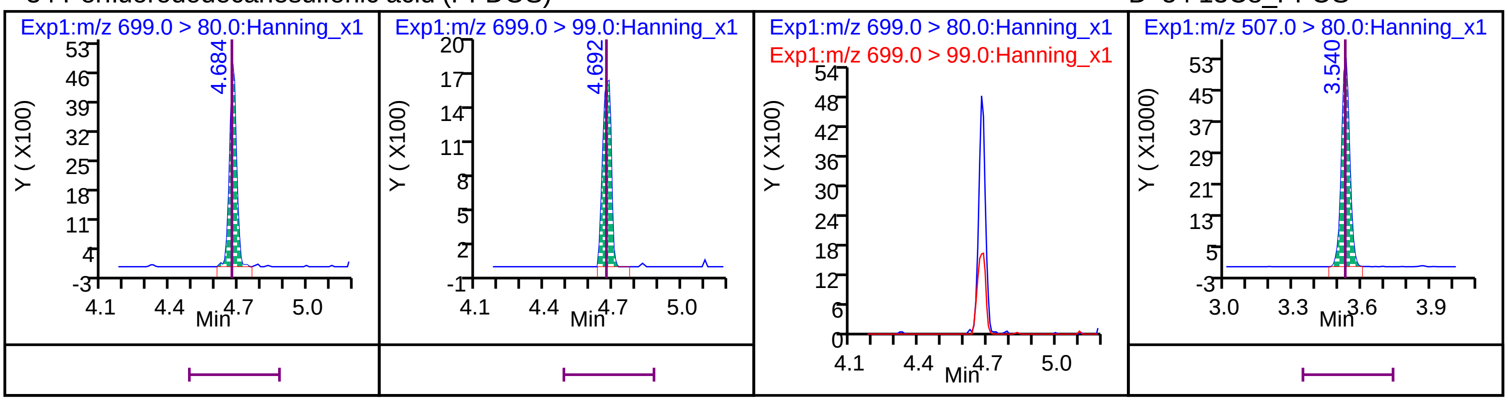
D 59 d5-EtFOSA



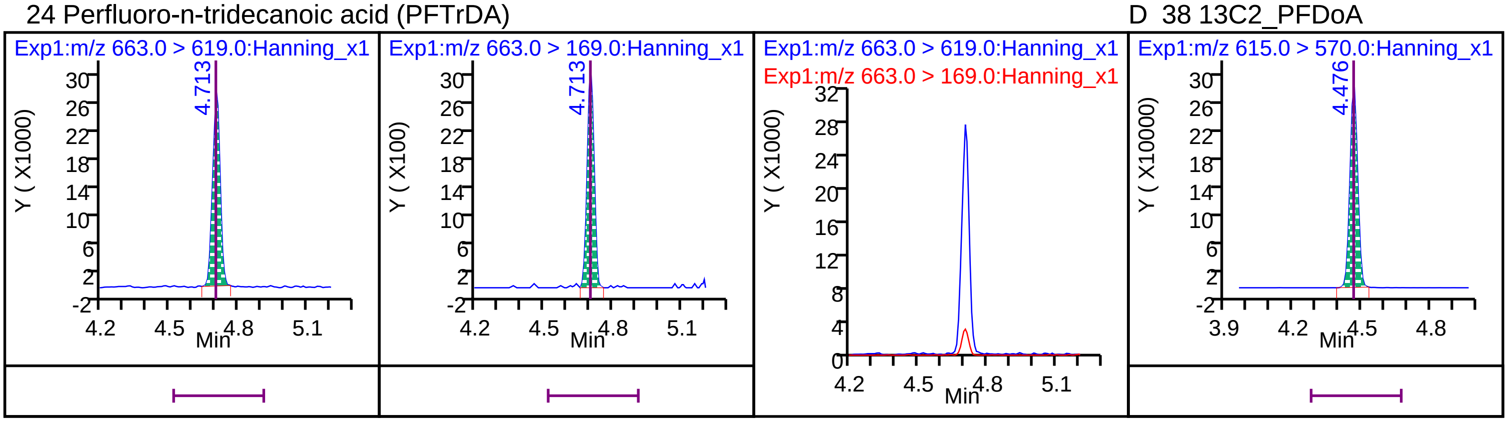
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



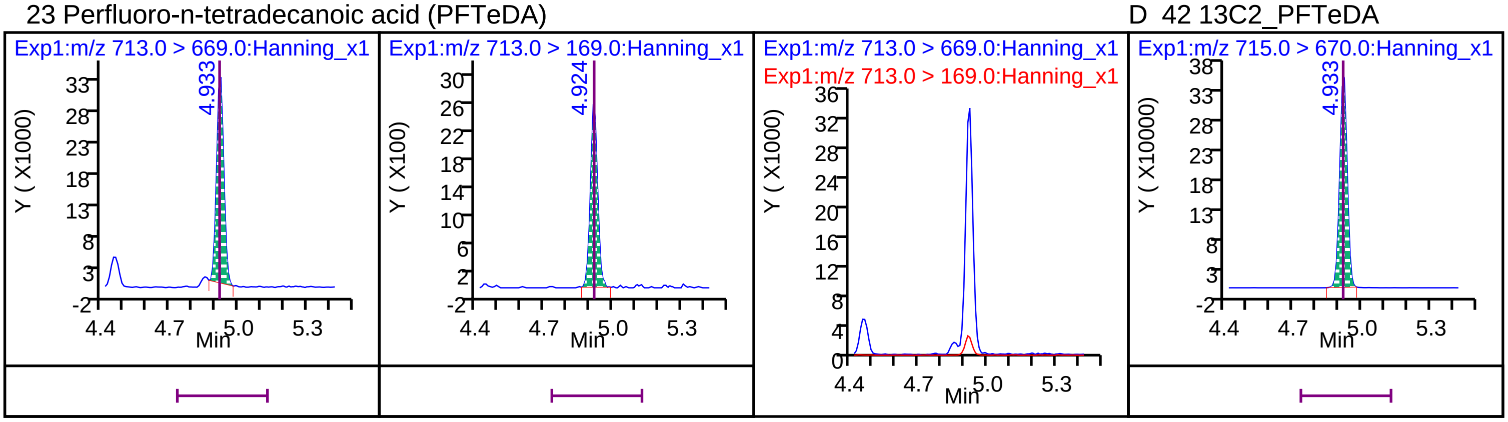
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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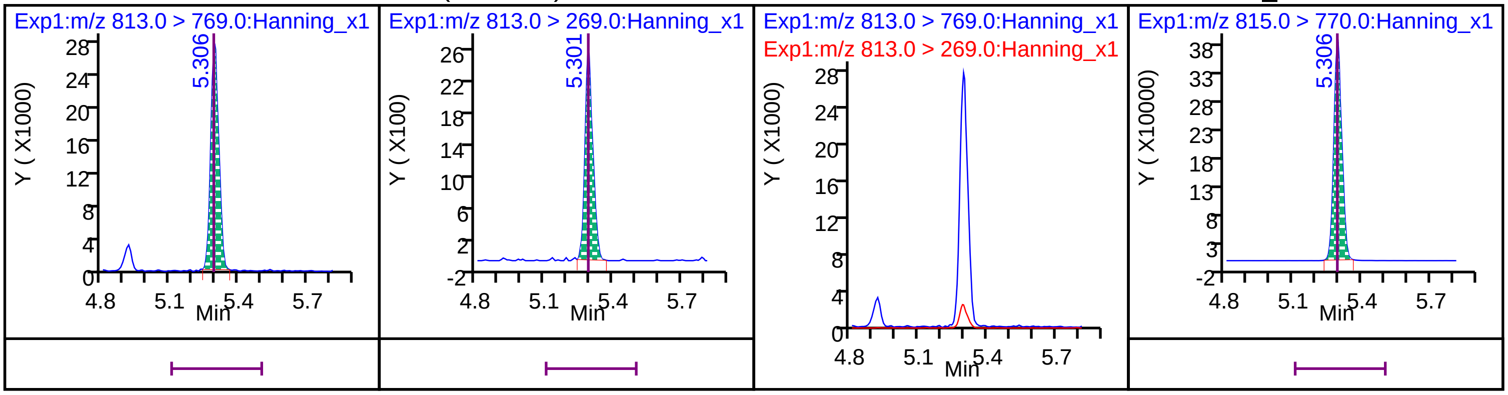
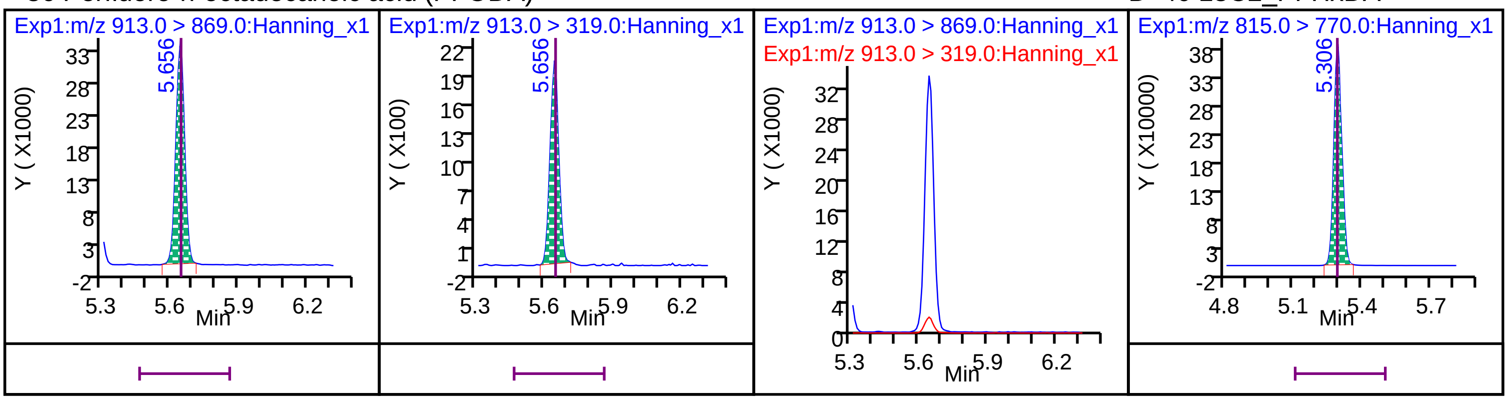
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

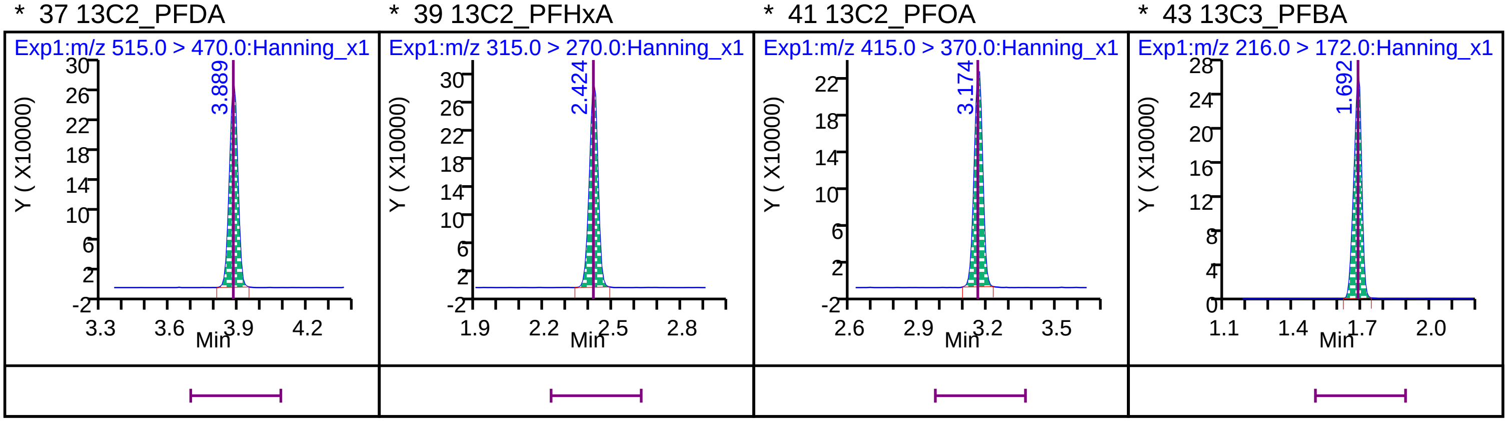
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



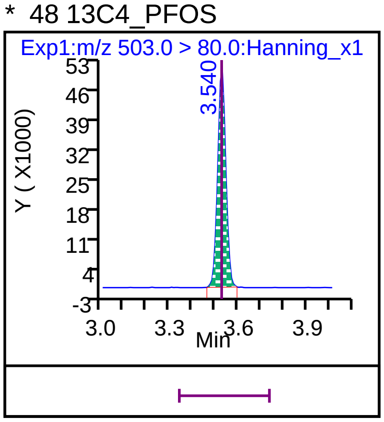
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

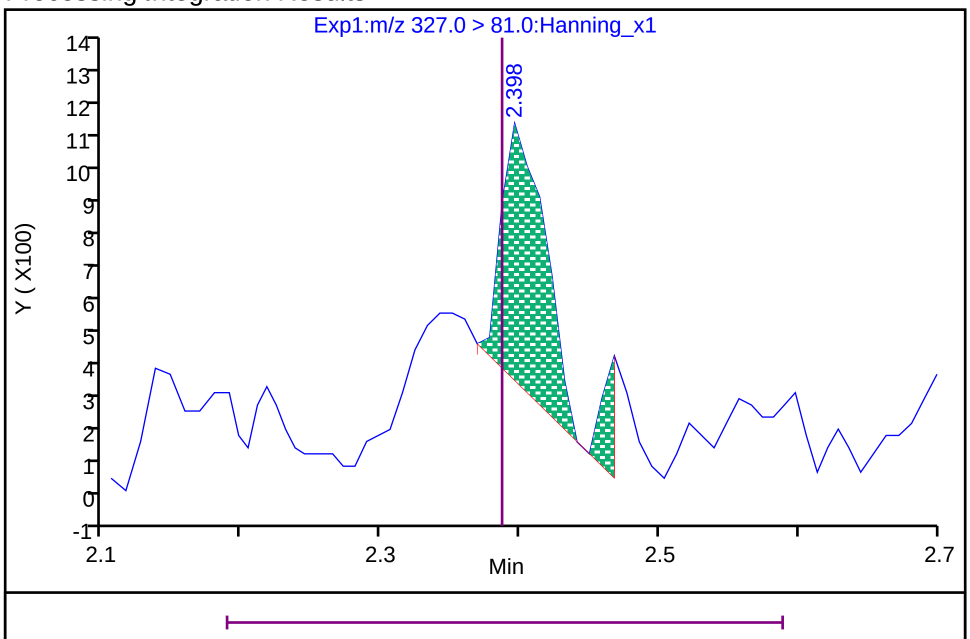
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

Injection Date:	16-Nov-2021 16:52:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 100_SVLC-1741
Sample Info:	F.L. ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

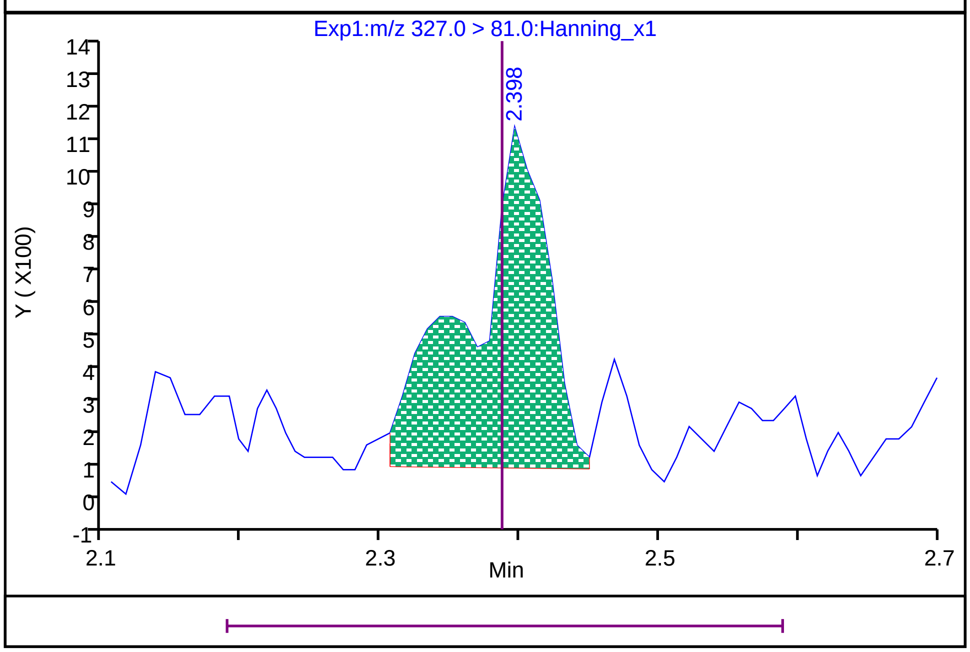
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.398
Area: 1909
Amount: 74.042
Amount Units: ng/L



RT: 2.398
Area: 4008
Amount: 74.042
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:01:22

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

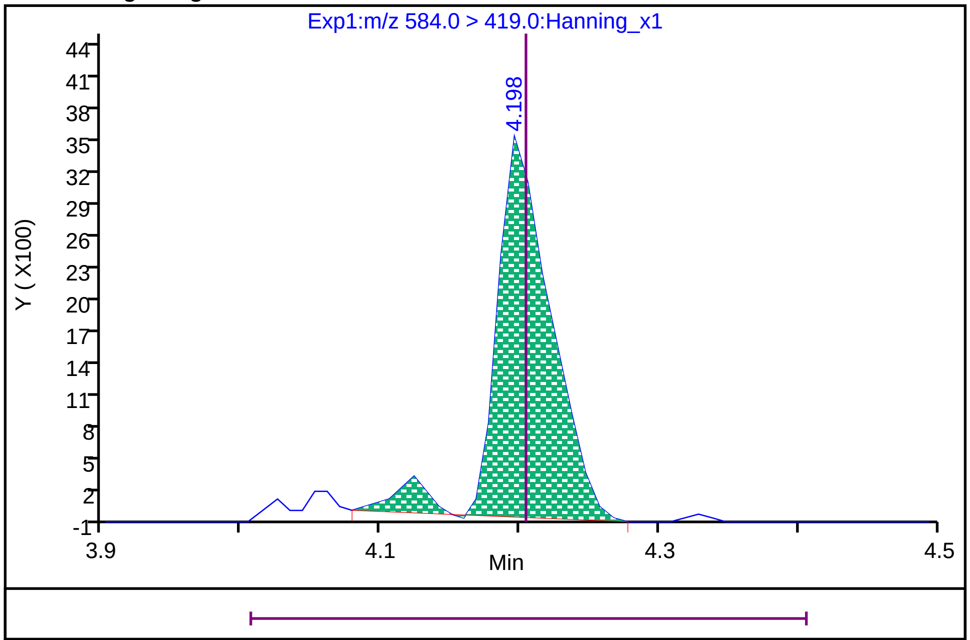
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d		
Injection Date:	16-Nov-2021 16:52:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 100_SVLC-1741
Sample Info:	F.L. ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

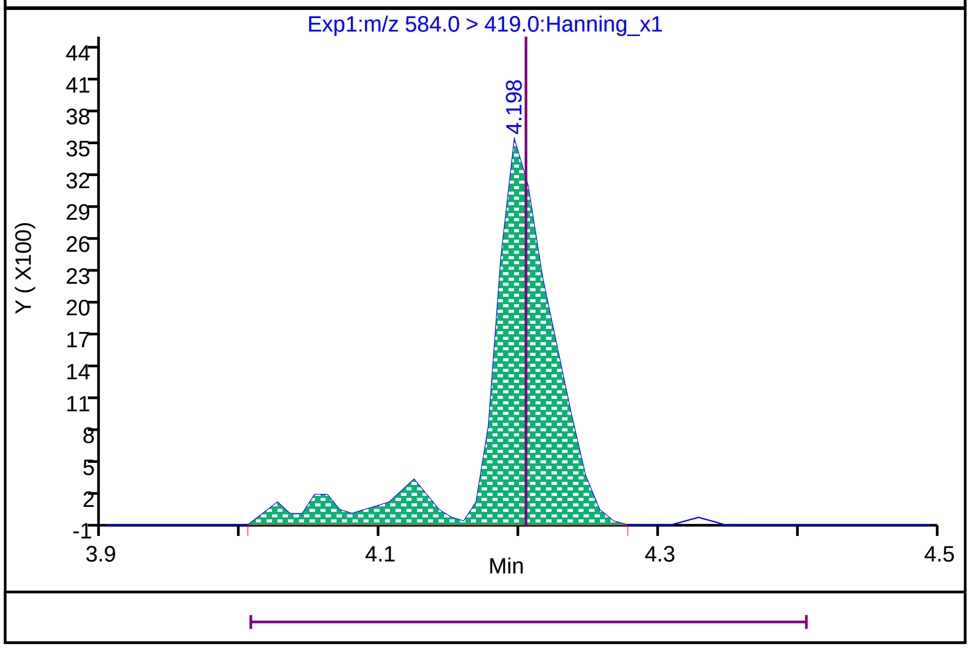
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.198
Area:	9633
Amount:	110.54
Amount Units:	ng/L



RT:	4.198
Area:	10971
Amount:	87.817
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:02:16

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d

Injection Date: 16-Nov-2021 16:52:24 Inst. ID: LCMSMS02.i

Client ID: Lab ID: F.L. ICAL 100_SVLC-1741

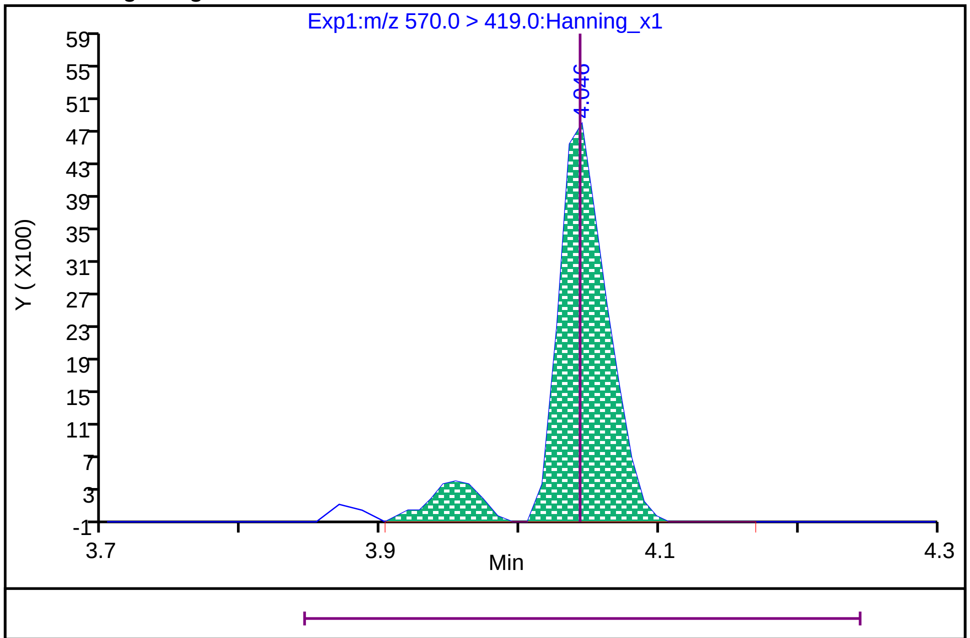
Sample Info: F.L. ICAL 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

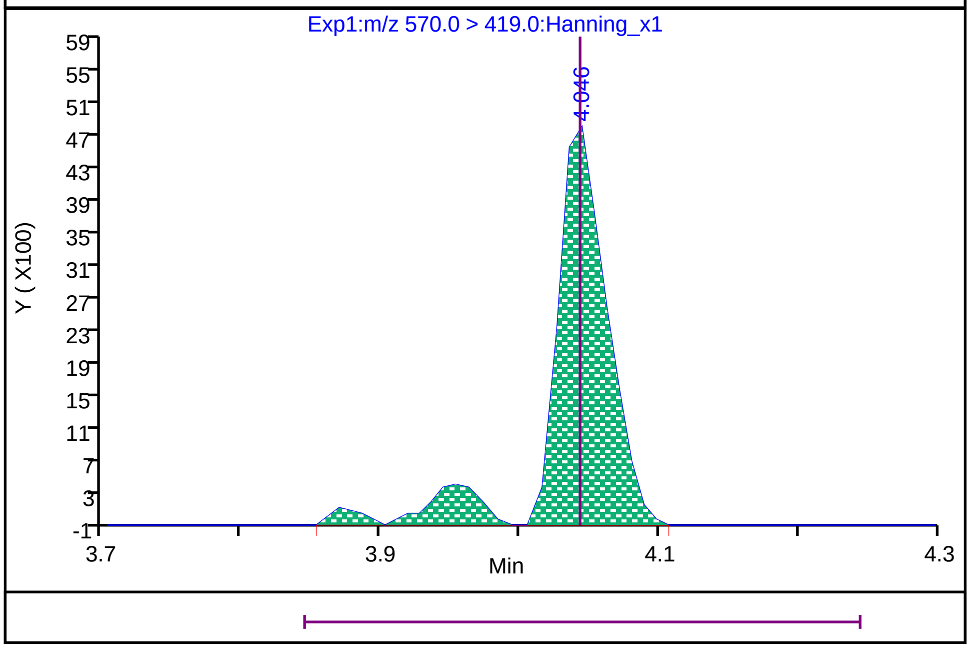
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.046
Area: 12819
Amount: 118.01
Amount Units: ng/L



RT: 4.046
Area: 13178
Amount: 120.88
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:02:09

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

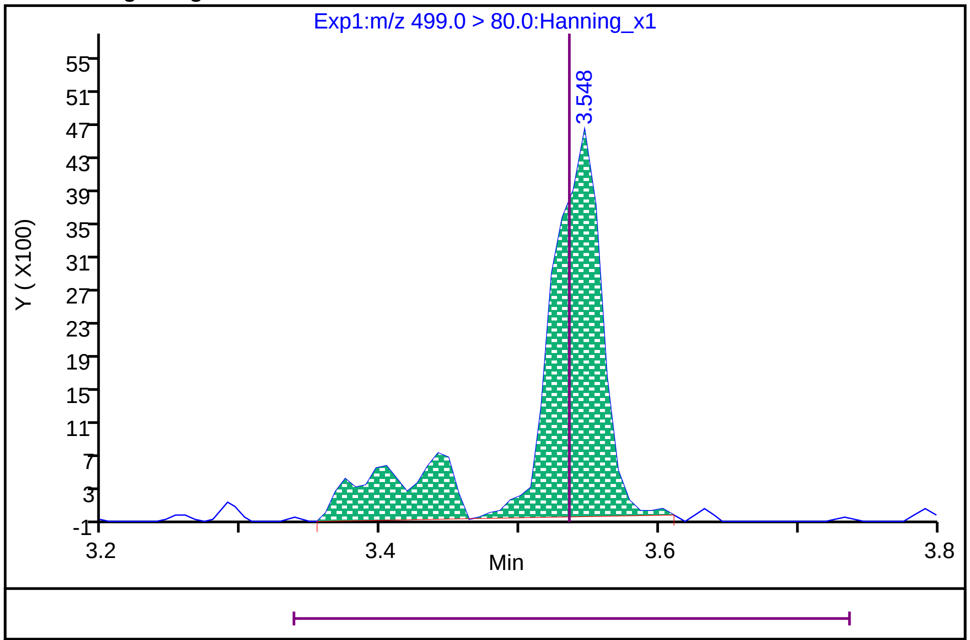
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621016.d		
Injection Date:	16-Nov-2021 16:52:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 100_SVLC-1741
Sample Info:	F.L. ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

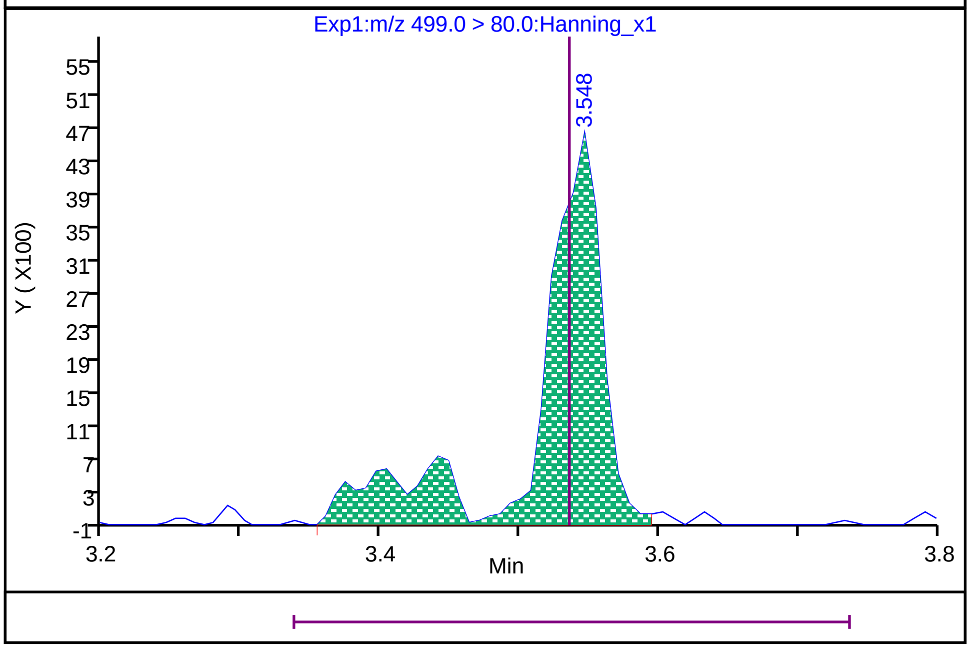
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.548
Area: 13952
Amount: 92.164
Amount Units: ng/L



RT: 3.548
Area: 14477
Amount: 94.794
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:01:56

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621017.d		
Injection Date:	16-Nov-2021 17:02:54	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	3
Sample Info:	F.L. ICAL 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	646191	21	>100:1			1000.00	1035.67	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	0/-1	138256	24	>100:1			200.00	204.51		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	582905	14	>100:1			1000.00	1006.47	97.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	130952	15	>100:1			200.00	204.56		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	175874	17	>100:1			1000.00	1013.40	101.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	39655	14	>100:1	Target = 3.48		176.80	180.99		
298.9 > 99	44	2.120	2.120		12103	14	>100:1	3.27 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	29280	17	>100:1	Target = 3.03		187.60	188.08		
349 > 99	44	2.469	2.460		8865	17	67:1	3.30 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	111931	18	>100:1			5000.00	5125.98	97.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	1/0	9747	24	56:1	Target = 1.70		186.80	186.69		
327 > 81	63	2.389	2.389		6394	17	14:1	1.52 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	1	670073	17	>100:1			1000.00	1033.95	97	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	1/0	131951	15	>100:1	Target = 18.47		200.00	186.10		
313 > 119	49	2.424	2.424		7871	21	60:1	16.76 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	1	1168176	17	>100:1			5000.00	5217.01	101	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	1/0	62447	16	>100:1	Target = 0.78		400.00	406.20		
285 > 185	66	2.540	2.540		77671	18	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	547662	18	>100:1			1000.00	1037.64	101	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	0/-1	129042	17	>100:1	Target = 3.92		200.00	206.05		
363 > 169	47	2.791	2.791		37300	18	>100:1	3.45 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	128629	17	>100:1			1000.00	1007.15	94.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	1/0	28732	29	>100:1	Target = 3.14	4.82	182.00	198.14		
399 > 99	45	2.809	2.809		9046	23	>100:1	3.17 (1.57-4.71)	7.97				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	0/-1	190725	17	>100:1	Target = 3.33		188.40	190.64		
377 > 85	45	2.836	2.827		52642	16	>100:1	3.62 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.174	3.174	0/-1	24153	20	>100:1	Target = 3.02		190.40	193.14		
449 > 99	45	3.168	3.174		9043	22	82:1	2.67 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	0	90534	19	>100:1			5000.00	5275.65	100.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.134	3.141	0/0	7713	18	85:1	Target = 1.69		189.60	181.60		
427 > 81	64	3.141	3.141		4464	14	8.5:1	1.72 (0.84-2.54)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.168	1	551076	21	>100:1			1000.00	1063.87	99	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.174	3.168	1/0	120589	25	90:1	Target = 3.03		200.00	209.10		
413 > 169	53	3.168	3.168		35907	21	>100:1	3.35 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	0	123979	19	>100:1			1000.00	995.81	93.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.537	3.537	0/0	28162	34	>100:1	Target = 3.42	4.05	185.60	191.24		
499 > 99	54	3.545	3.537		9295	27	42:1	3.02 (1.71-5.13)	14.19				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.747	3.740	1/1	87028	19	>100:1			186.40	182.85		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.879	3.879	0/0	20462	20	>100:1	Target = 2.57		192.00	211.99		
549 > 99	54	3.879	3.879		5091	14	39:1	4.01 (1.29-3.87)					J
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.187	4.178	1/1	18357	20	>100:1	Target = 2.71		192.80	184.20		
599 > 99	54	4.187	4.178		6507	19	60:1	2.82 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.347	4.338	1/1	81443	16	>100:1			188.40	193.80		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.689	4.681	1/1	18331	19	>100:1	Target = 3.04		193.60	185.79		
699 > 99	54	4.689	4.681		6448	16		2.84 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.545	3.537	1	639136	20	>100:1			1000.00	990.56	92.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.545	3.537	1/0	143360	18	>100:1	Target = 7.14		200.00	203.62		
463 > 169	56	3.545	3.537		19022	17	>100:1	7.53 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.846	0	247201	18				1000.00	980.31	90.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.846	3.846	0/0	59324	19	>100:1	Target = 32.83		200.00	218.41		
498>478	55	3.838	3.846		1151	16	18:1	51.54 (16.41-49.25)					J
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	0	91534	18	>100:1			5000.00	5473.91	103.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.871	3.879	-1/-1	10317	20	52:1	Target = 2.14		191.60	243.00		
527 > 81	65	3.887	3.879		5052	17	14:1	2.04 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.482	4.482	1/1	9042	21		Target = 3.72		192.80	183.74		
627 > 80	65	4.473	4.482		3031	19	17:1	2.98 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.887	3.887	0	575801	18	>100:1			1000.00	1010.43	98.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.887	3.887	0/0	148492	17	>100:1	Target = 14.16		200.00	219.95		
513 > 169	51	3.887	3.887		9745	19	31:1	15.23 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.044	4.045	0	705951	17	>100:1			5000.00	5168.48	103.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.044	4.045	0/0	23276	30	90:1	Target = 1.42	5.85	200.00	199.01		
570 > 483	58	4.053	4.045		14511	38	32:1	1.60 (0.71-2.14)	2.65				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.206	4.196	1	629361	17	>100:1			5000.00	5183.34	103	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.206	4.206	0/-1	23747	29		Target = 1.49	4.25	200.00	198.85		M
584 > 526	60	4.206	4.206		15968	29	36:1	1.48 (0.74-2.24)	3.08				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.196	4.196	0	658808	16	>100:1			1000.00	1014.82	99	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.206	4.196	0/0	120849	18	>100:1	Target = 14.37		200.00	197.71		
563 > 169	52	4.196	4.196		8477	22	39:1	14.25 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.267	0	86326	14	>100:1			1000.00	985.07	97.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.287	0/0	18031	12	92:1			200.00	189.19		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.298	1	50170	13	>100:1			1000.00	1027.29	100.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.298	4.298	1/0	10048	15	88:1	Target = 1.08		200.00	196.46		
512 > 219	57	4.298	4.298		7470	13	87:1	1.34 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.446	4.437	0	105978	17	>100:1			1000.00	1000.59	92.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.455	4.455	0/0	21305	17	>100:1			200.00	197.19		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.464	4.464	0	48231	15	>100:1			1000.00	1100.88	105.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.473	1/1	11410	14	79:1	Target = 0.97		200.00	200.89		
526 > 219	59	4.473	4.473		11861	13	81:1	0.96 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.473	4.473	0	624149	17	>100:1			1000.00	1045.69	99.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.473	4.473	0/0	139910	16	69:1	Target = 10.55		200.00	207.65		
613 > 169	38	4.473	4.473		12845	23	>100:1	10.89 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.711	4.711	0/0	123545	18	>100:1	Target = 8.92		200.00	203.35		
663 > 169	38	4.711	4.711		13488	24	>100:1	9.15 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	0	759587	18	>100:1			1000.00	1007.26	95.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	0/0	139380	18	20:1	Target = 12.22		200.00	209.30		
713 > 169	42	4.928	4.928		12278	16	>100:1	11.35 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.302	5.302	0	910303	22	>100:1			1000.00	1012.37	98	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.302	5.302	0/0	128795	22	28:1	Target = 11.65		200.00	208.83		
813 > 269	40	5.302	5.302		11044	22	>100:1	11.66 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.652	5.660	0/0	176050	20	30:1	Target = 15.15		200.00	205.54		
913 > 319	40	5.652	5.660		11746	26	>100:1	14.98 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.887	3.887	0	674163	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	1	702285	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.168	0	558513	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	596956	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	0	119607	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

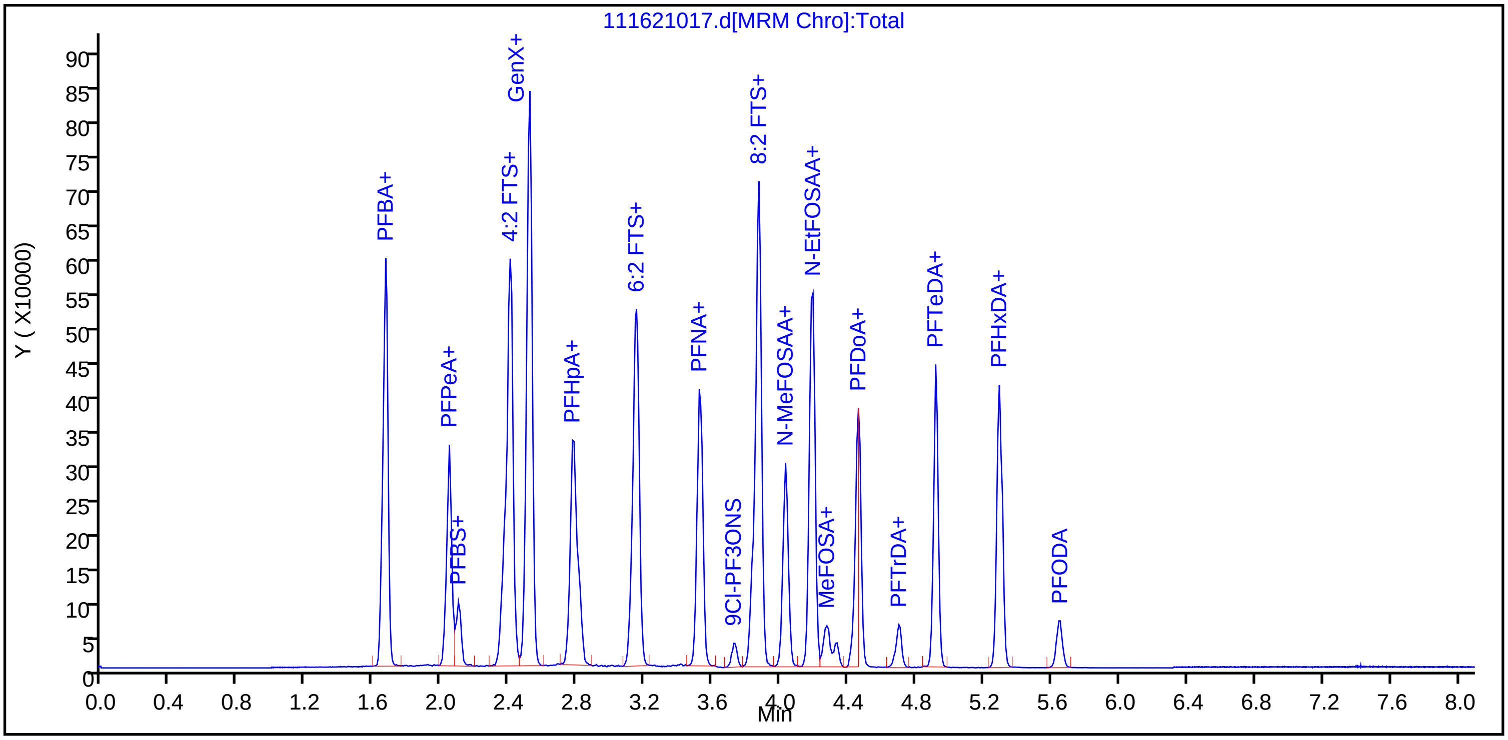
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

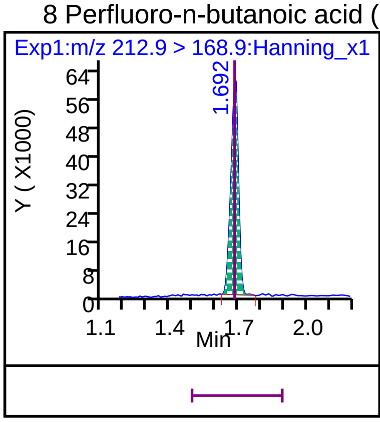
Report Date: 22-Nov-2021 08:59:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

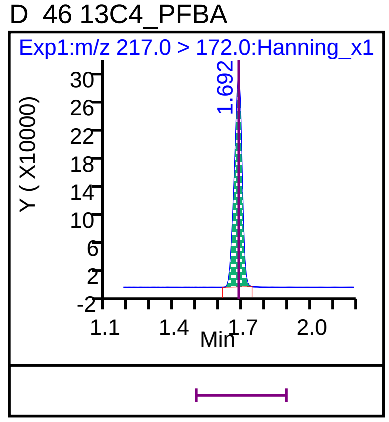
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621017.d		
Injection Date:	16-Nov-2021 17:02:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 200_SVLC-1742
Sample Info:	F.L. ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



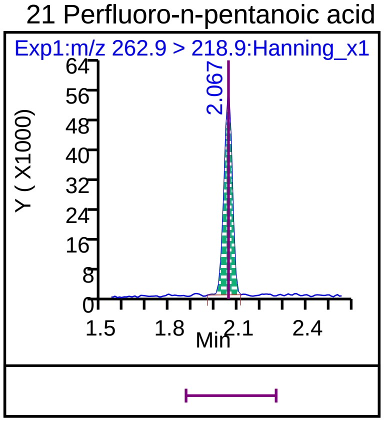
8 Perfluoro-n-butanoic acid (PFBA)



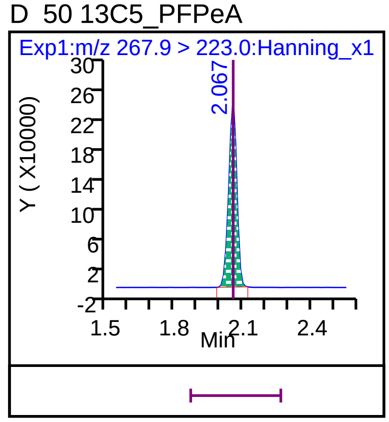
D 46 13C4_PFBA



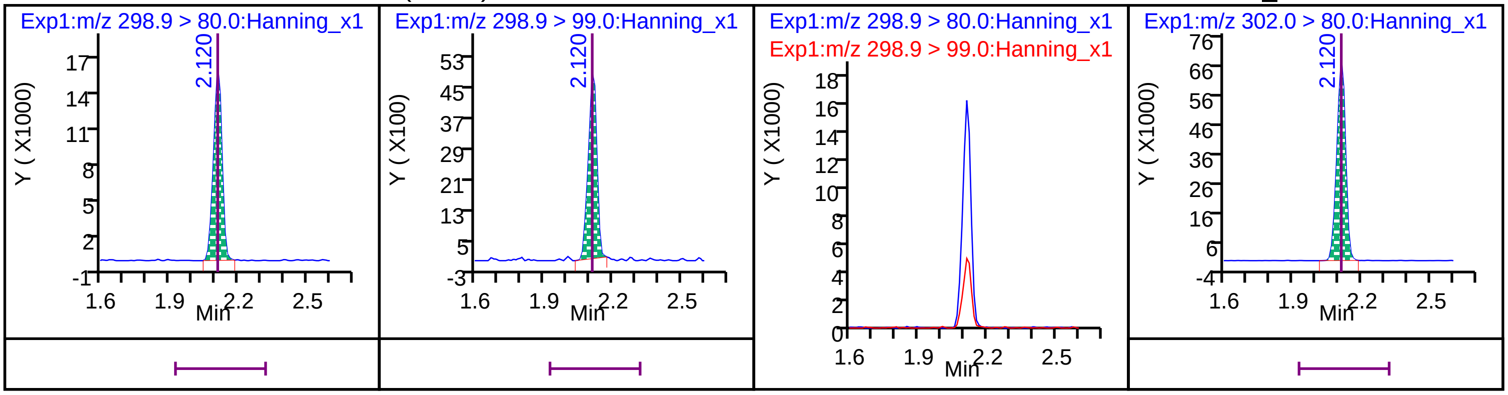
21 Perfluoro-n-pentanoic acid (PFPeA)



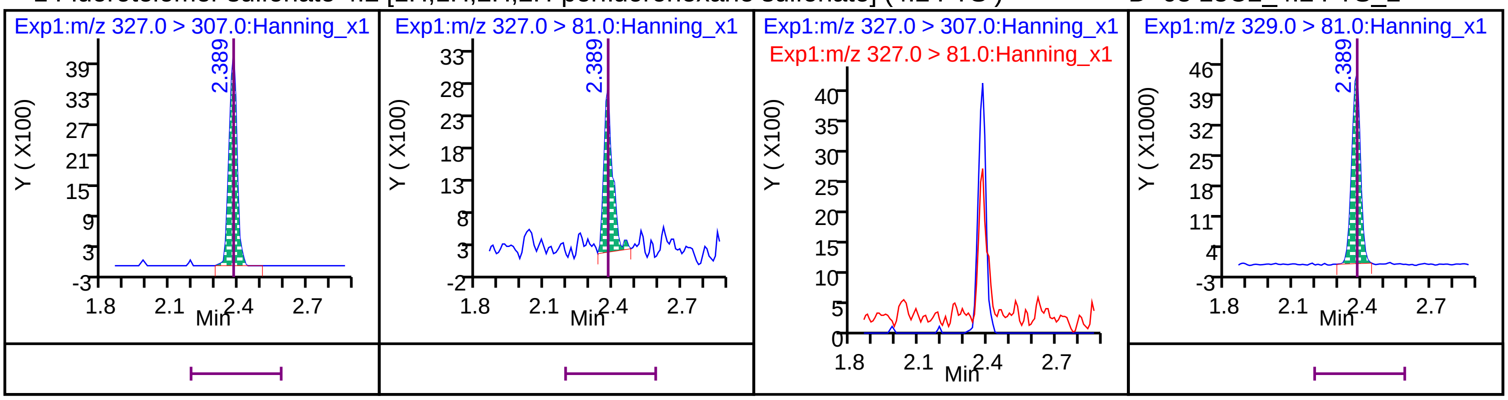
D 50 13C5_PFPeA



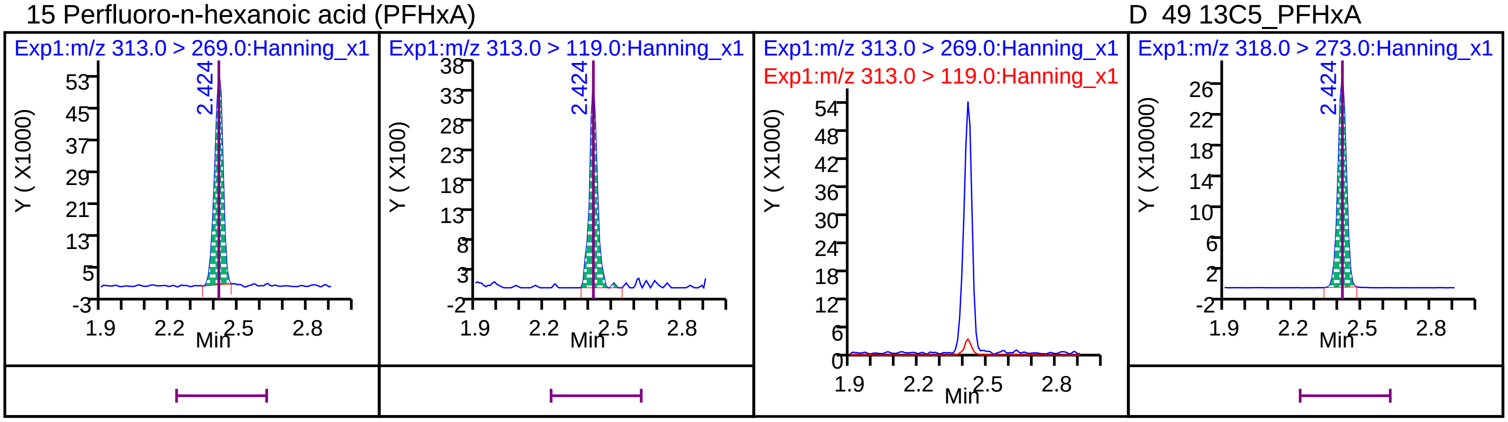
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



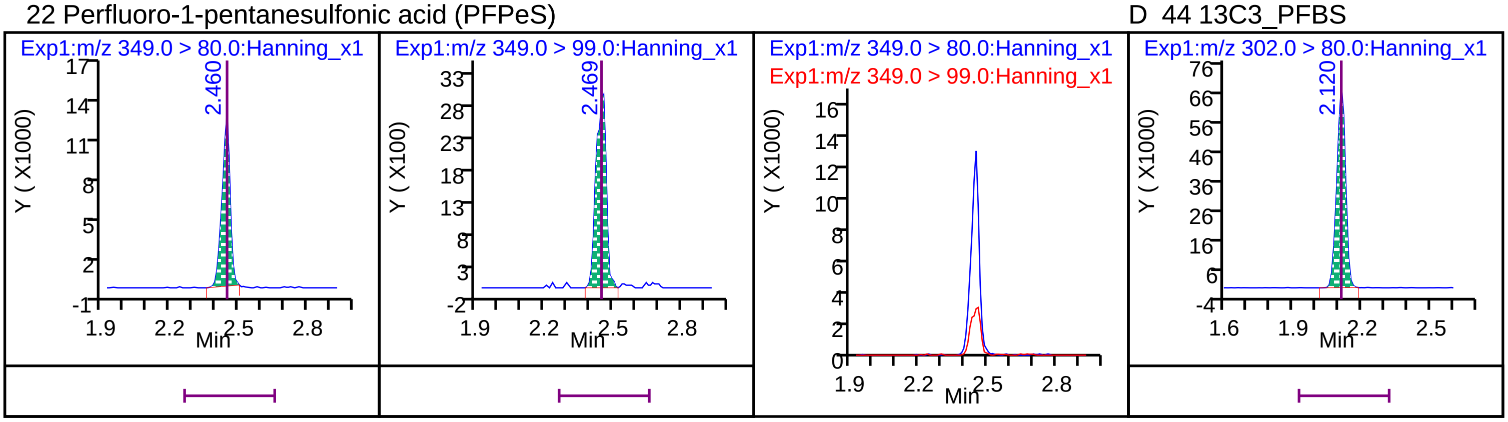
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



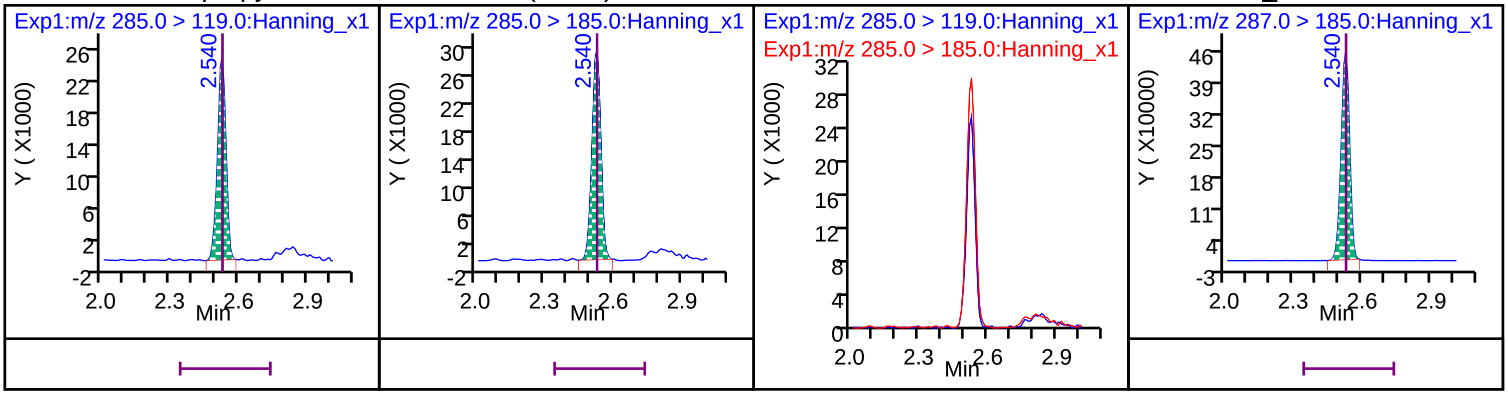
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



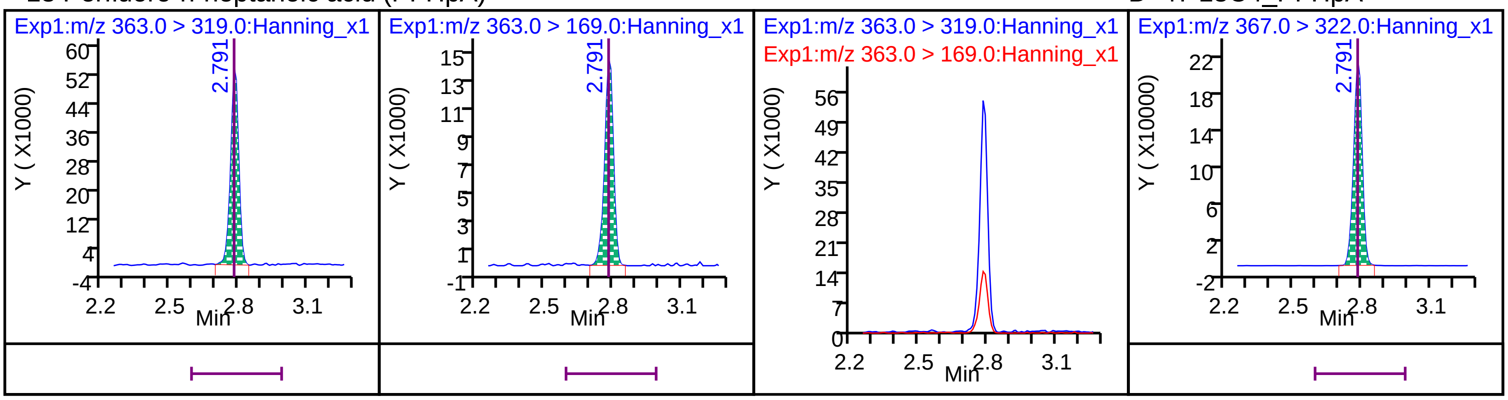
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



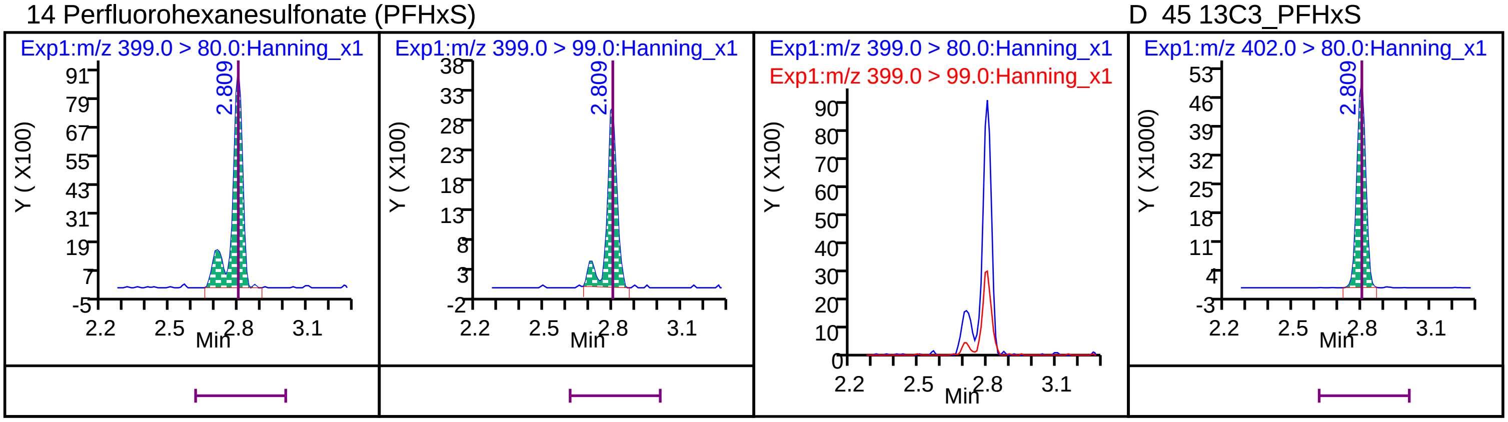
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



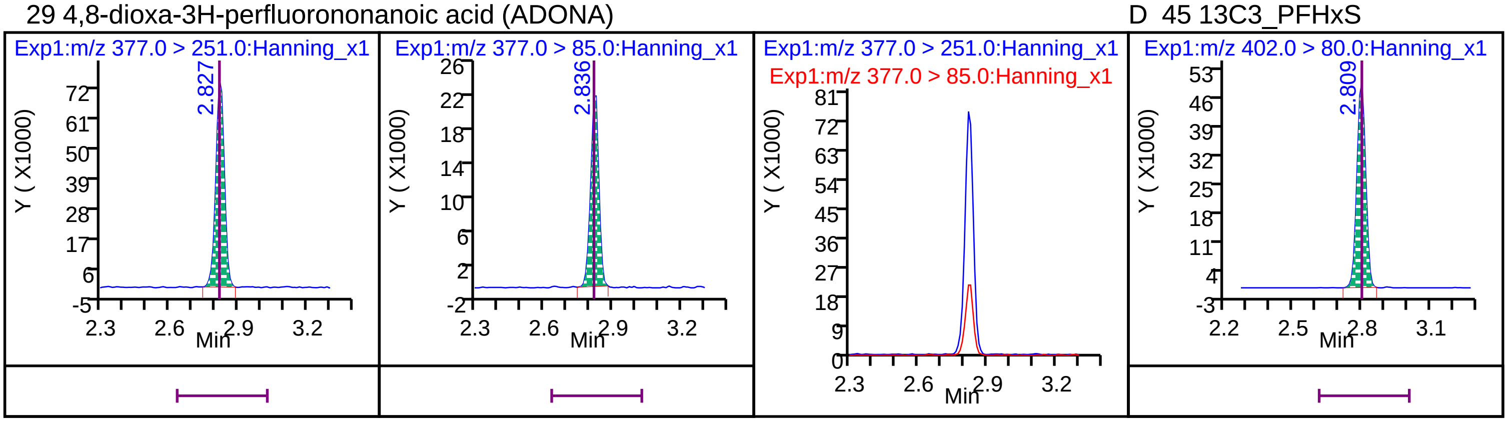
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

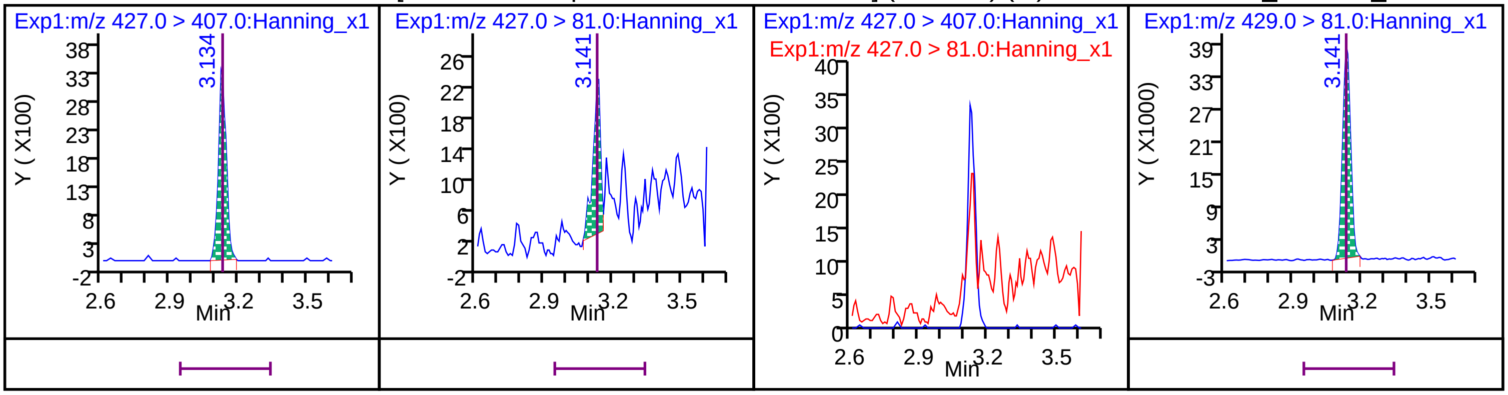


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

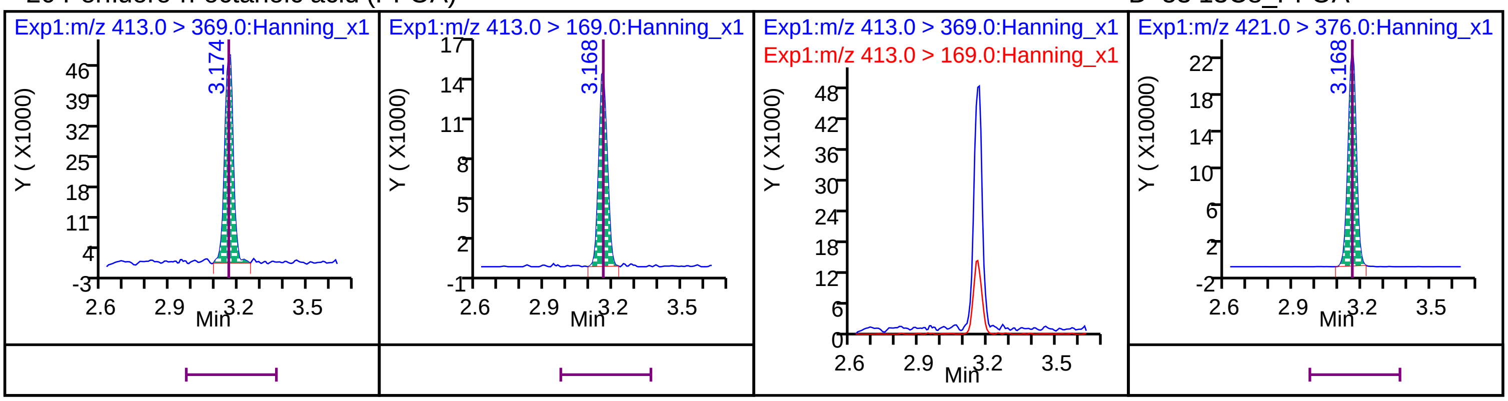


Report Date: 22-Nov-2021 08:59:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621017.d

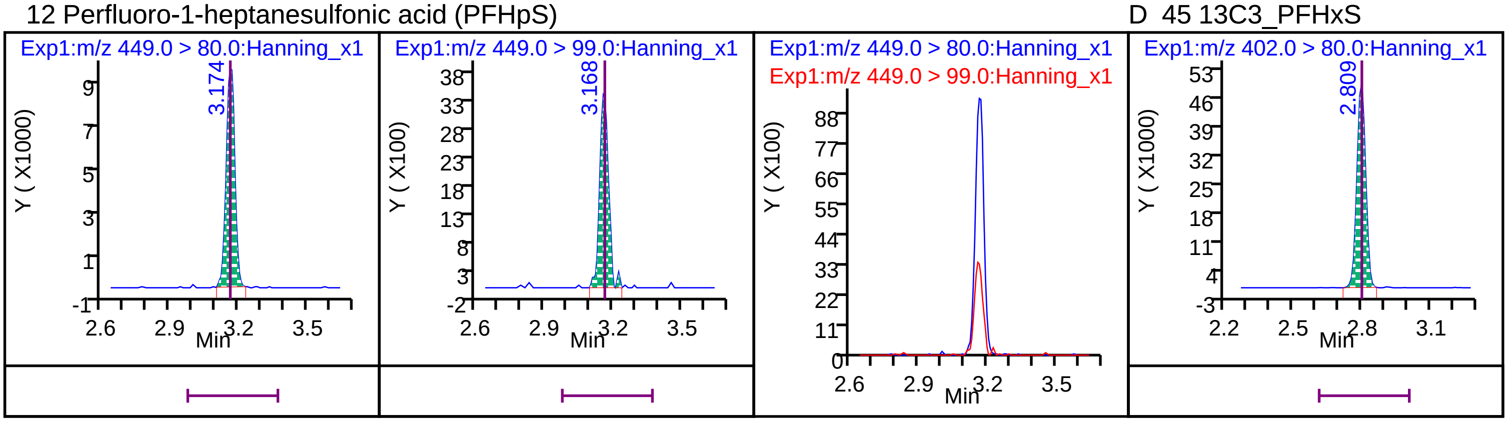
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



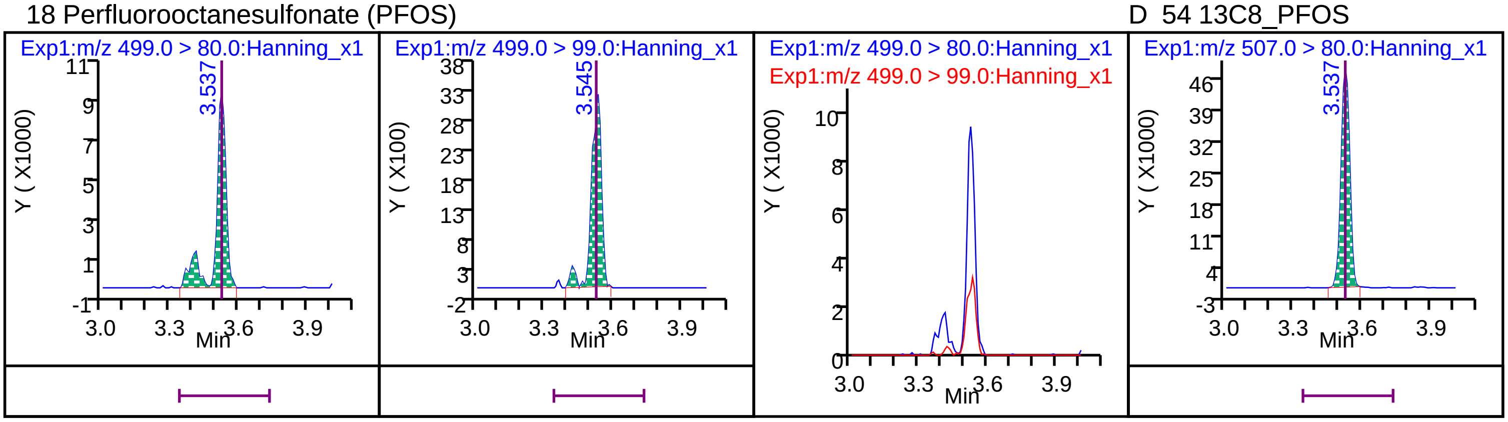
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



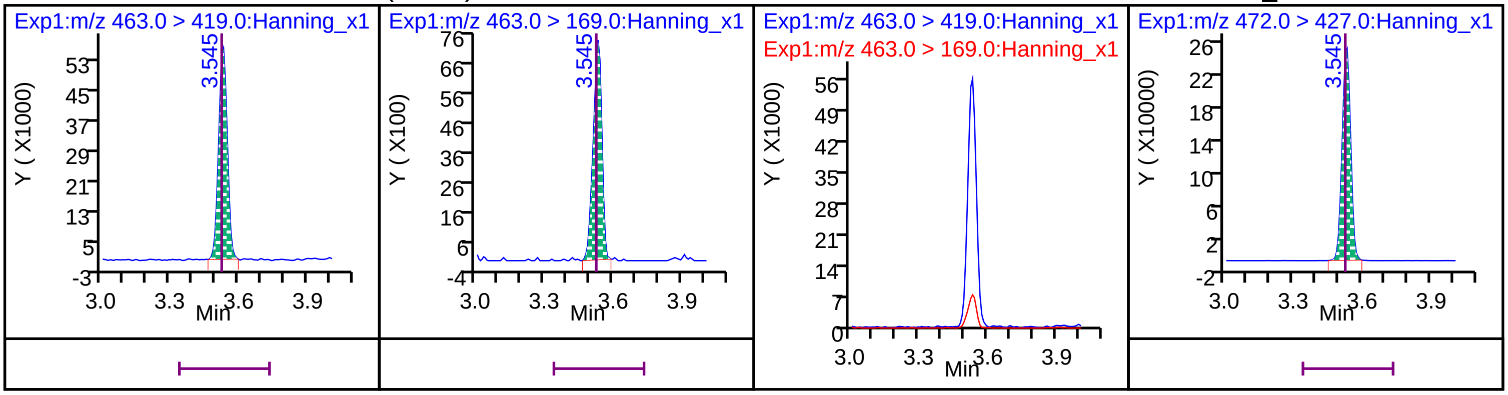
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



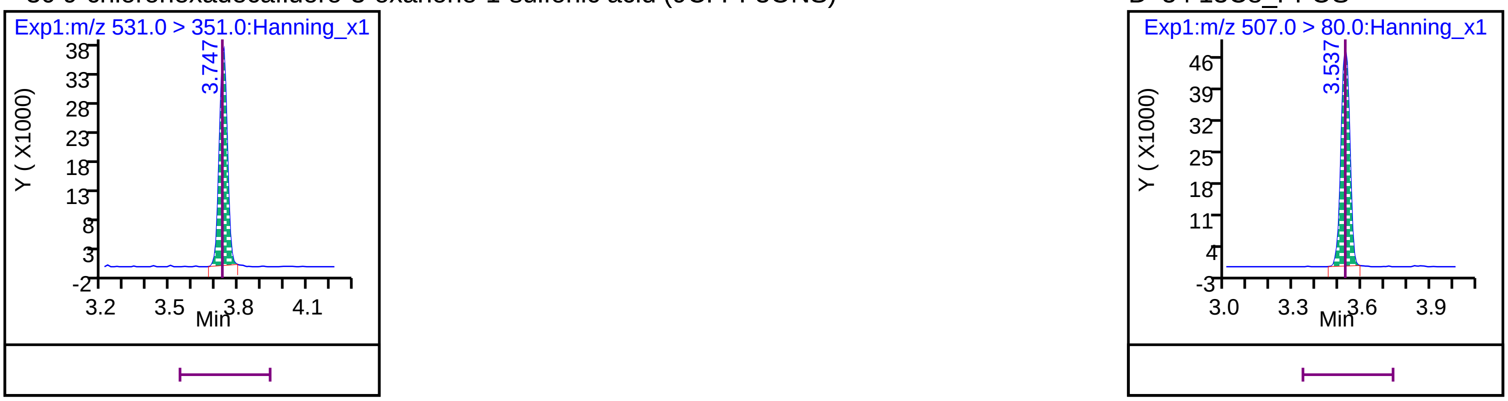
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



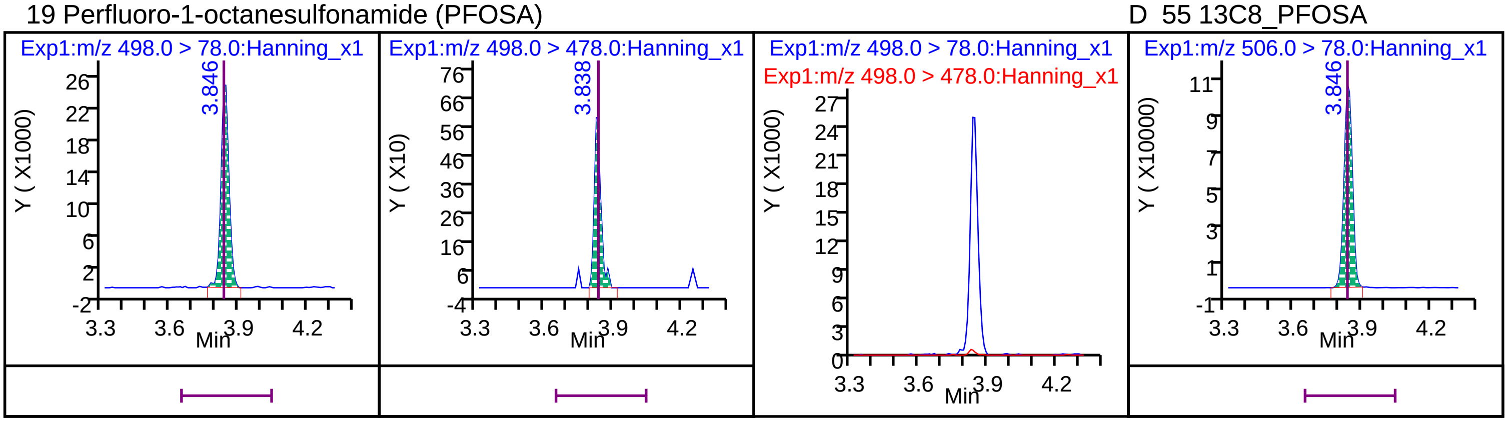
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



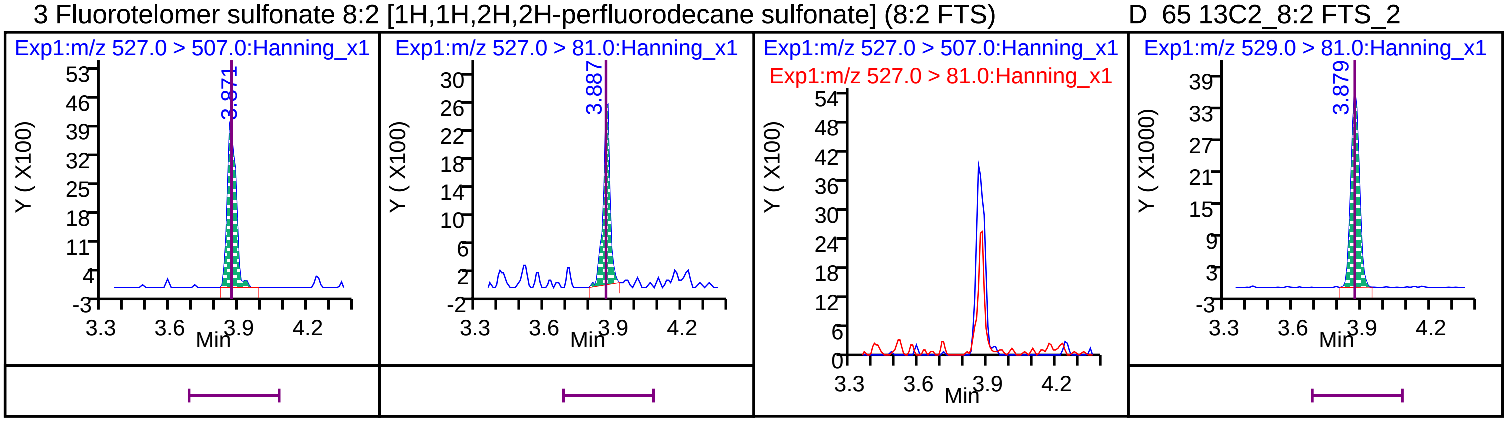
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

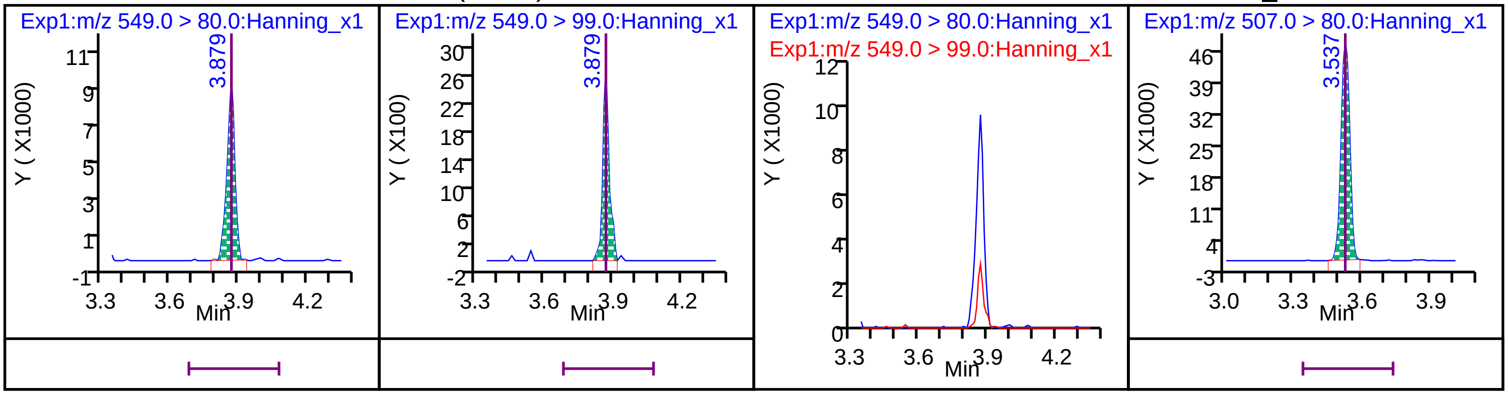


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

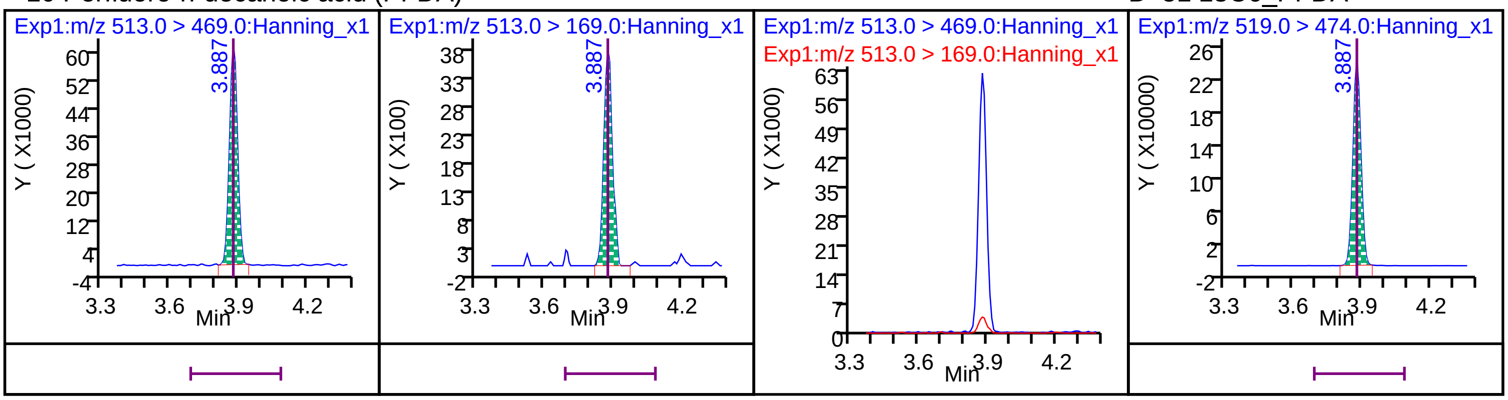


Report Date: 22-Nov-2021 08:59:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621017.d

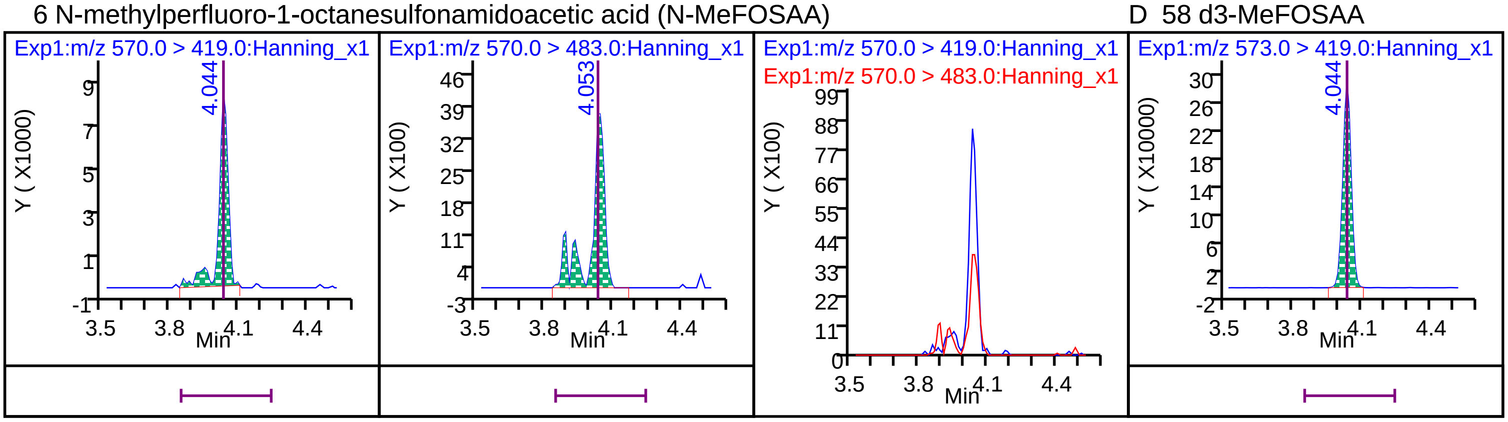
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



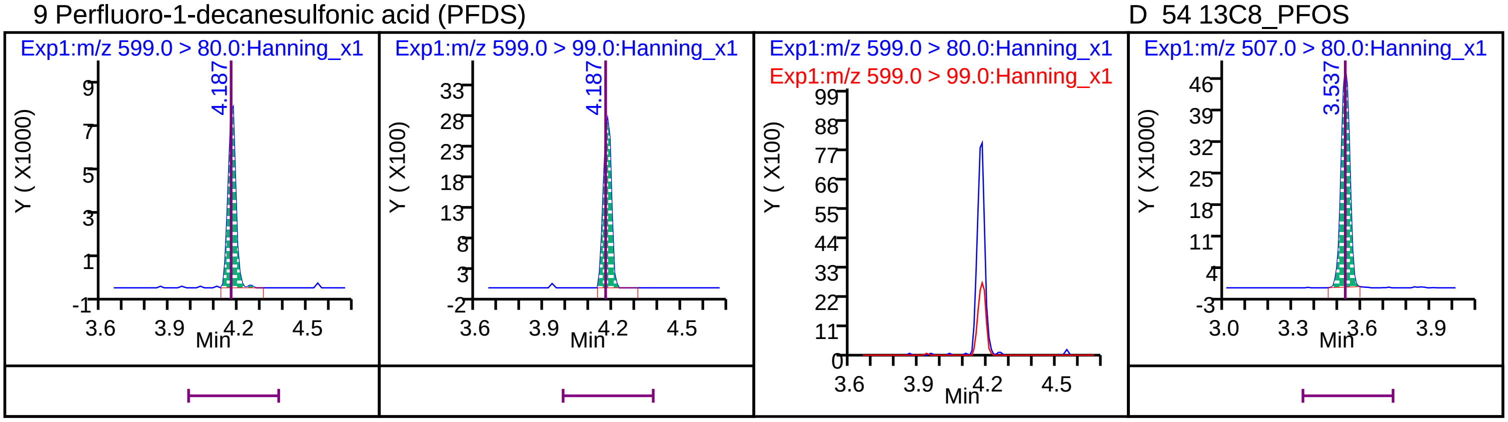
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



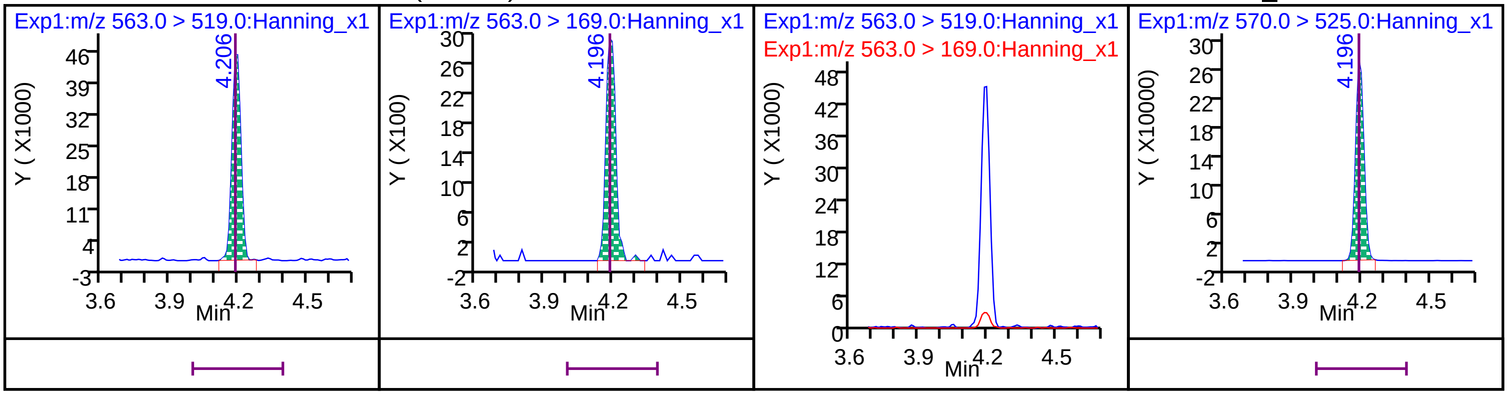
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



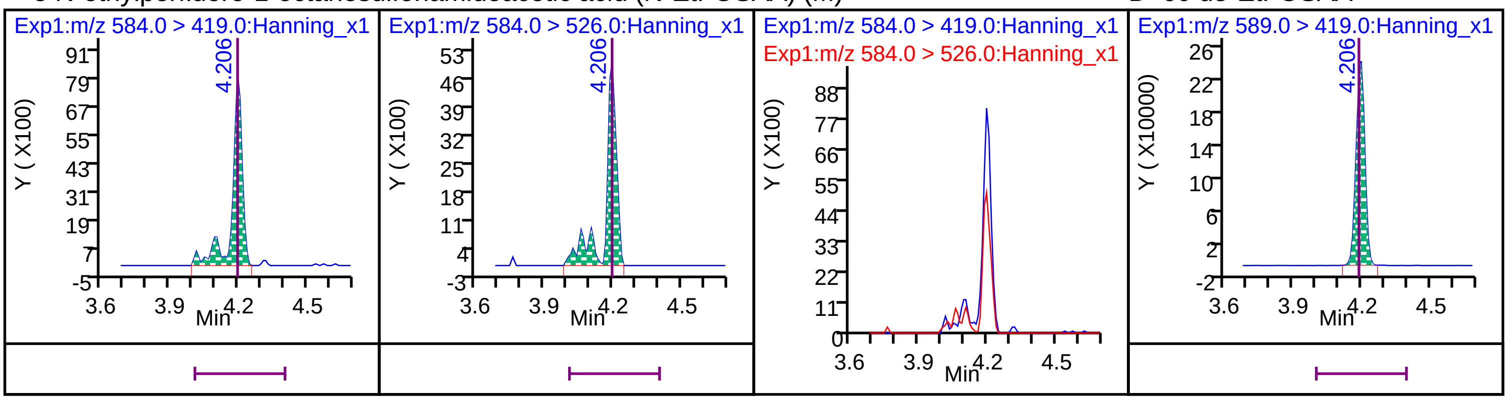
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

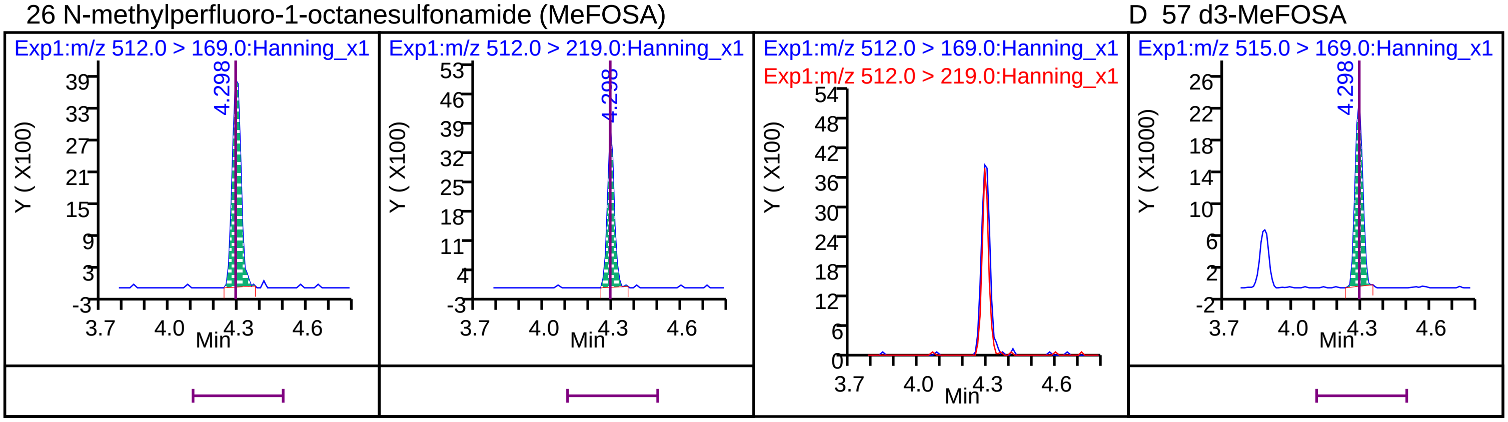


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

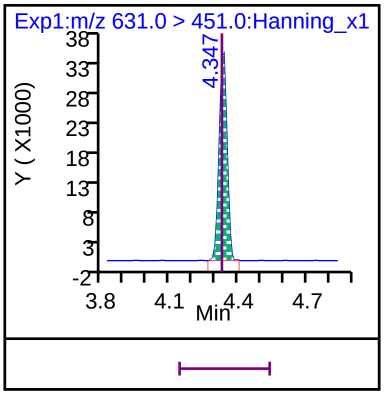


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

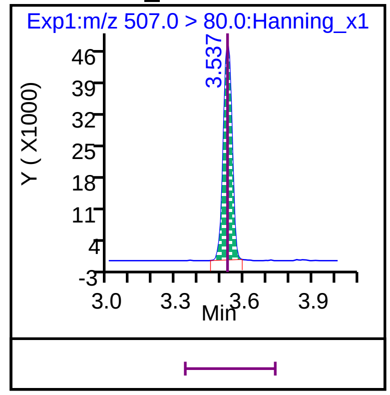
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



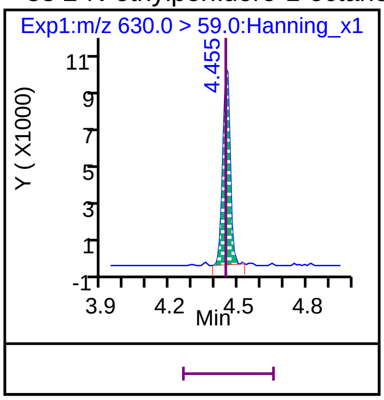
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



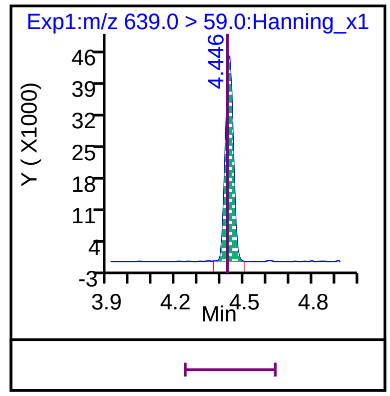
D 54 13C8_PFOS



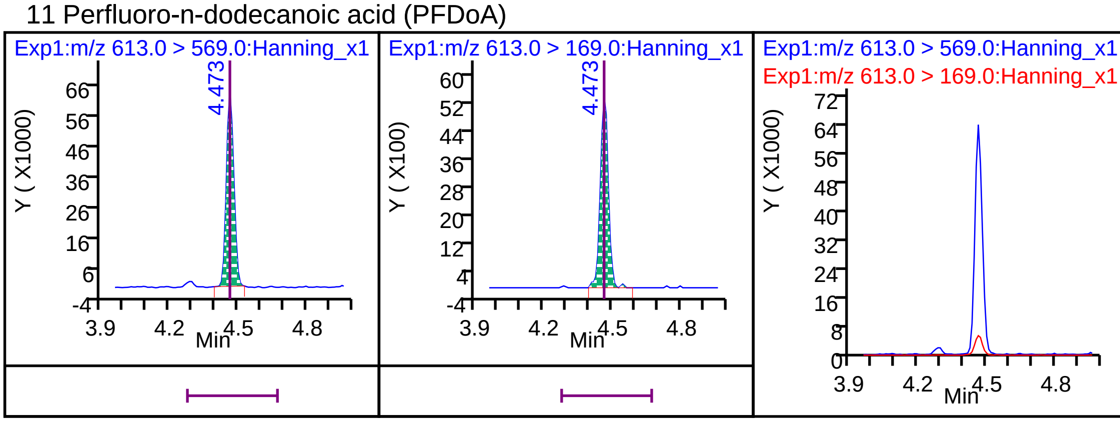
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



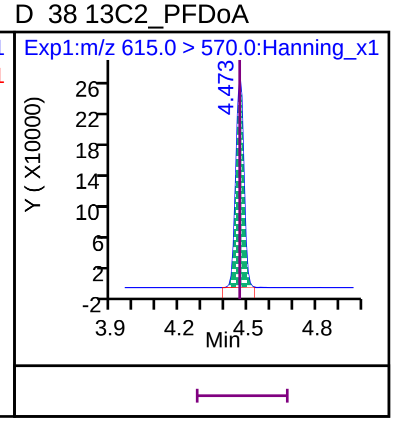
D 62 d9-EtFOSE



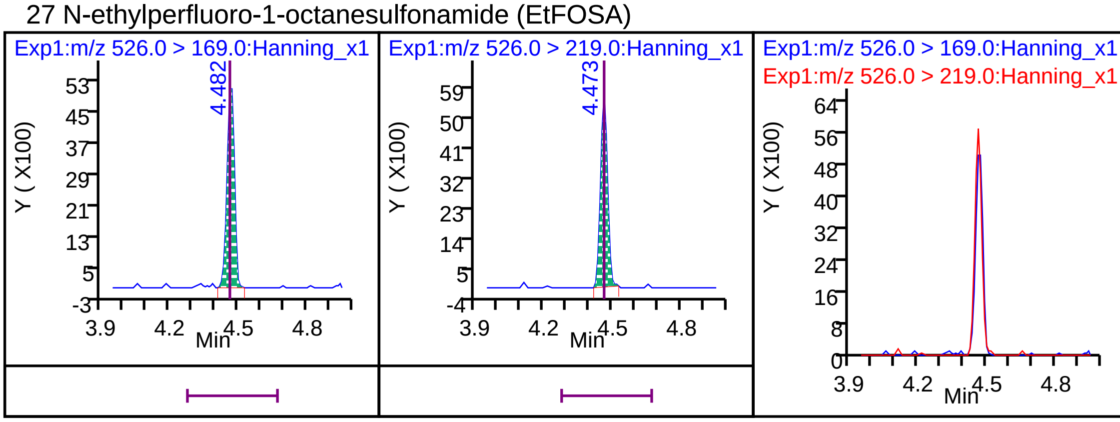
11 Perfluoro-n-dodecanoic acid (PFDoA)



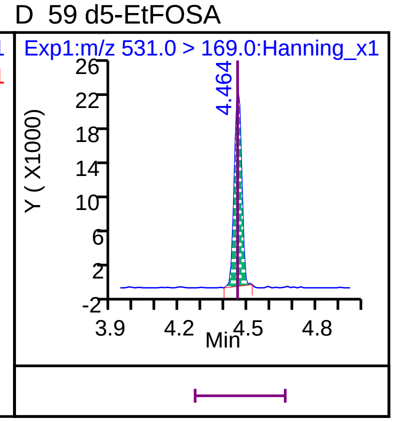
D 38 13C2_PFDoA



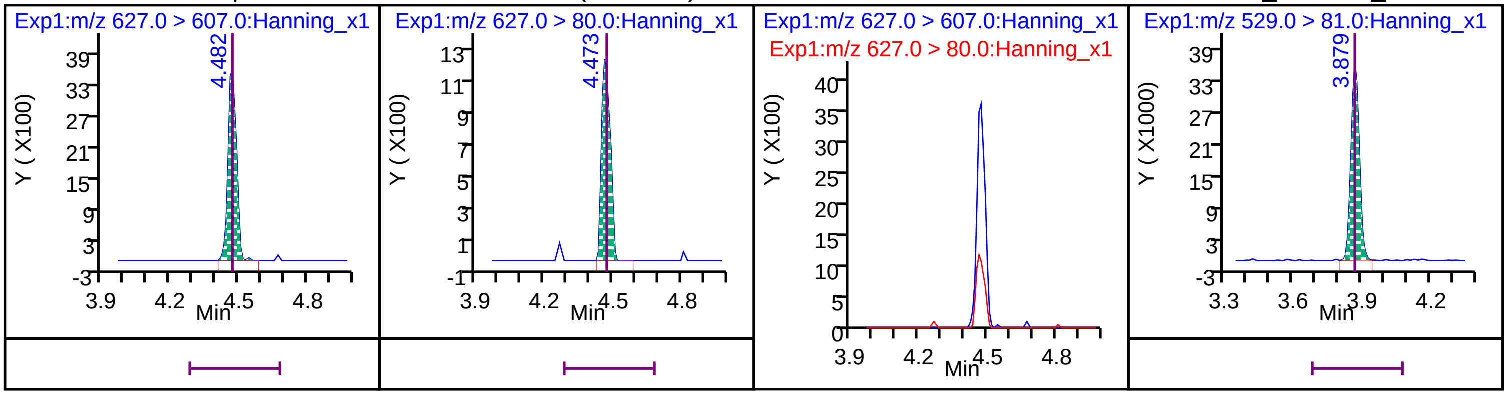
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



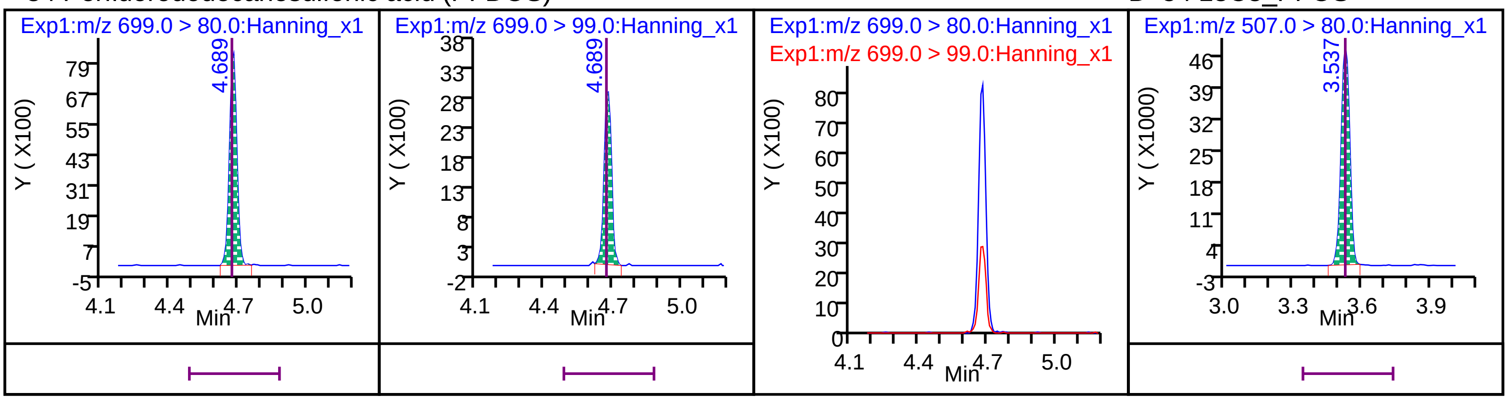
D 59 d5-EtFOSA



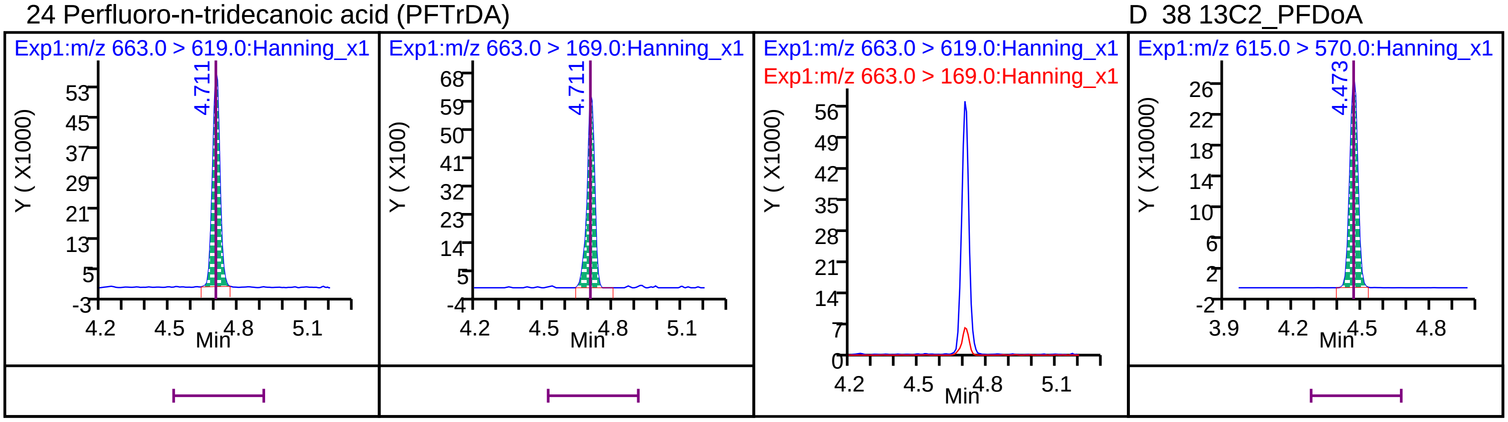
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



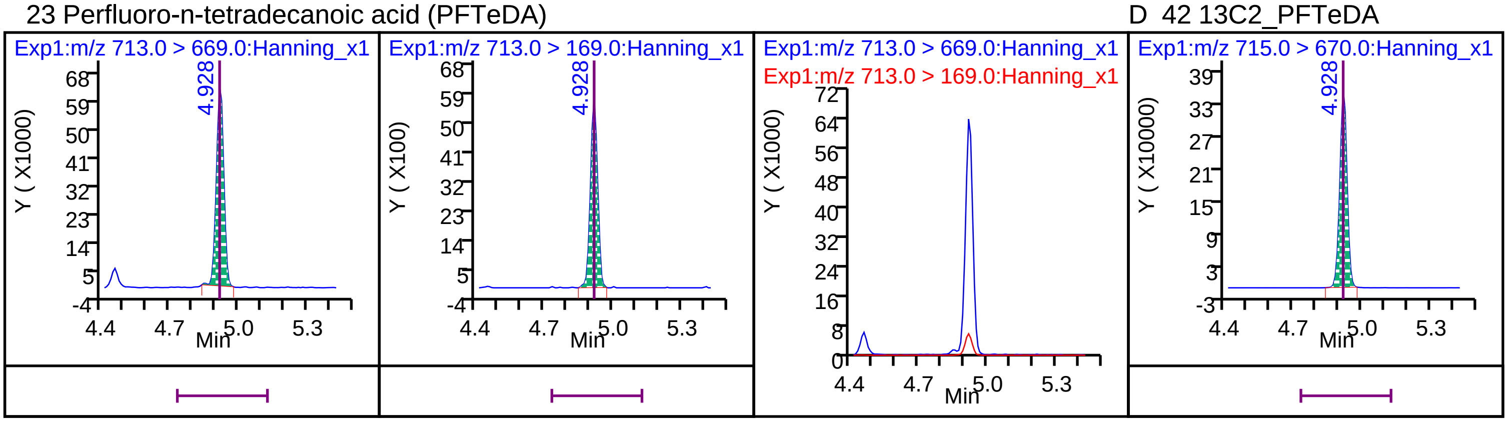
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



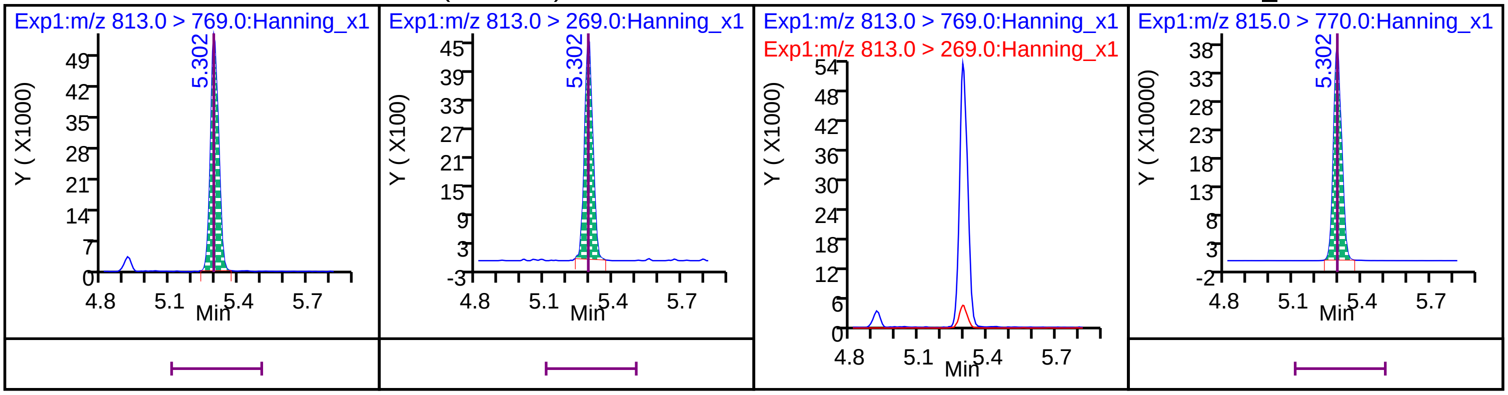
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



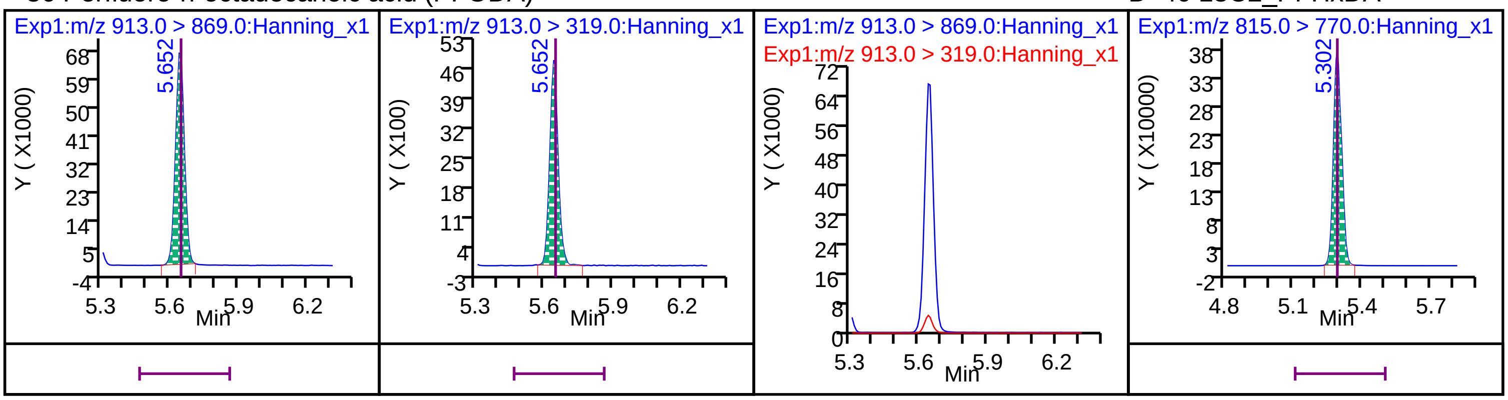
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



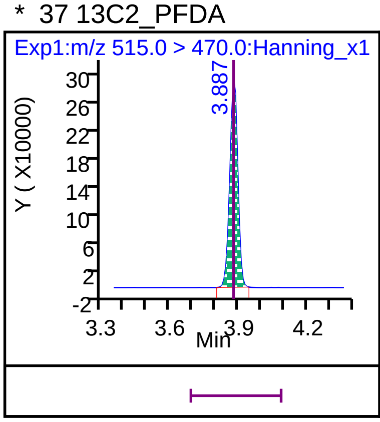
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



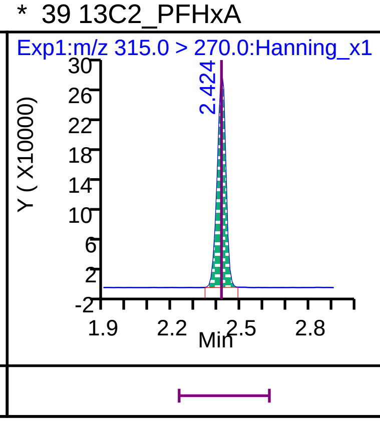
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



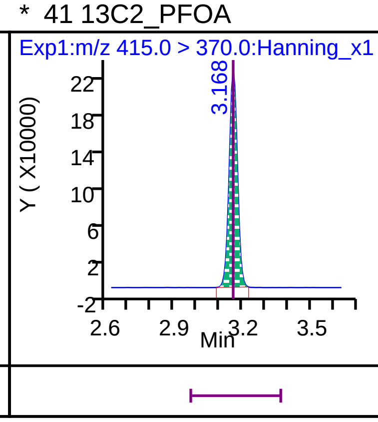
* 37 13C2_PFDA



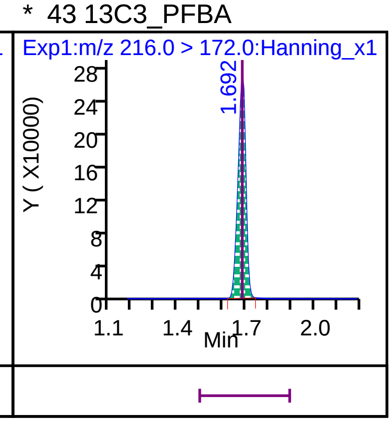
* 39 13C2_PFHxA



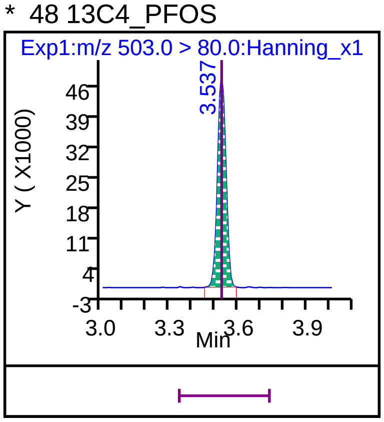
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621017.d

Injection Date: 16-Nov-2021 17:02:54 Inst. ID: LCMSMS02.i

Client ID: Lab ID: F.L. ICAL 200_SVLC-1742

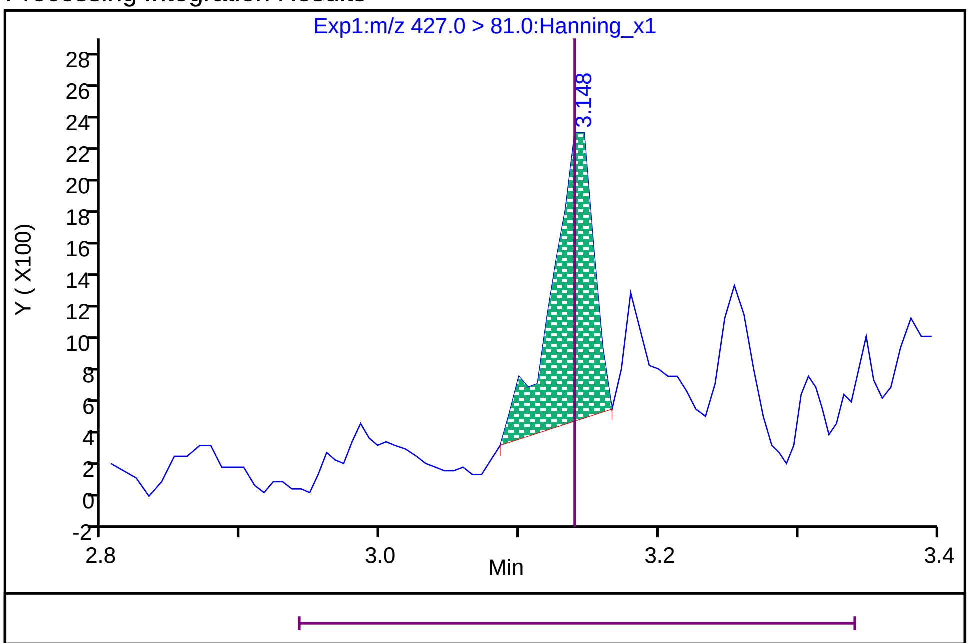
Sample Info: F.L. ICAL 200_SVLC-1742

Dil. Factor: 1 Operator: Justin Gavin

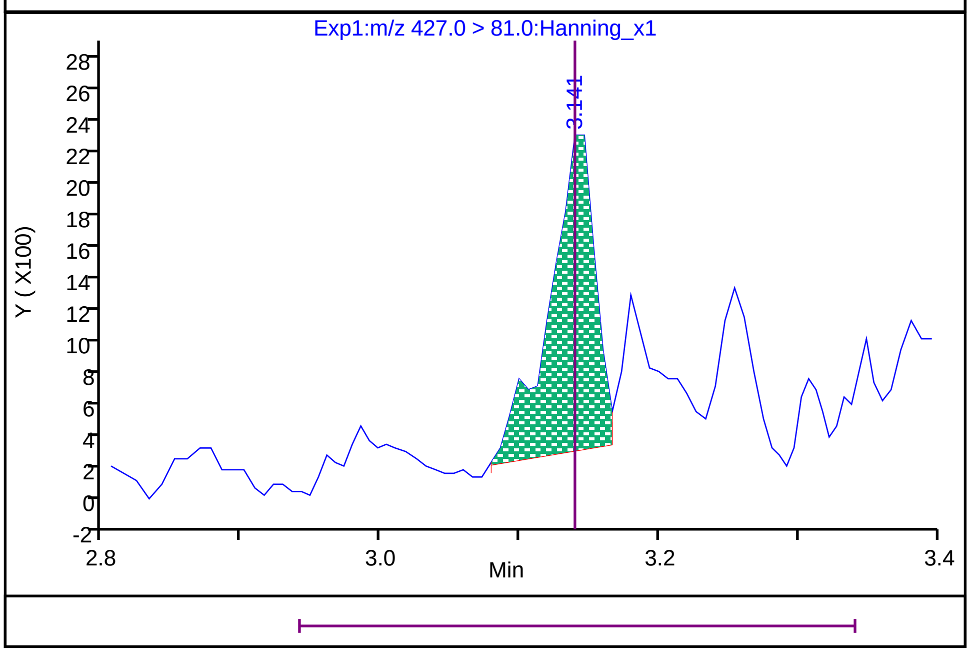
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT: 3.148
Area: 3709
Amount: 181.60
Amount Units: ng/L



RT: 3.141
Area: 4464
Amount: 181.60
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:00:38

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

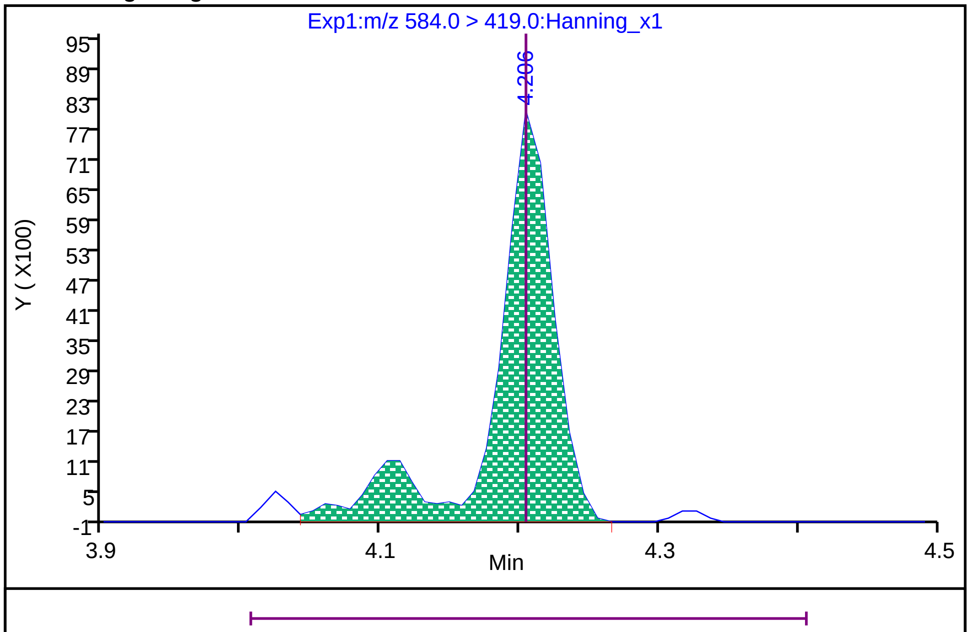
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621017.d		
Injection Date:	16-Nov-2021 17:02:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 200_SVLC-1742
Sample Info:	F.L. ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

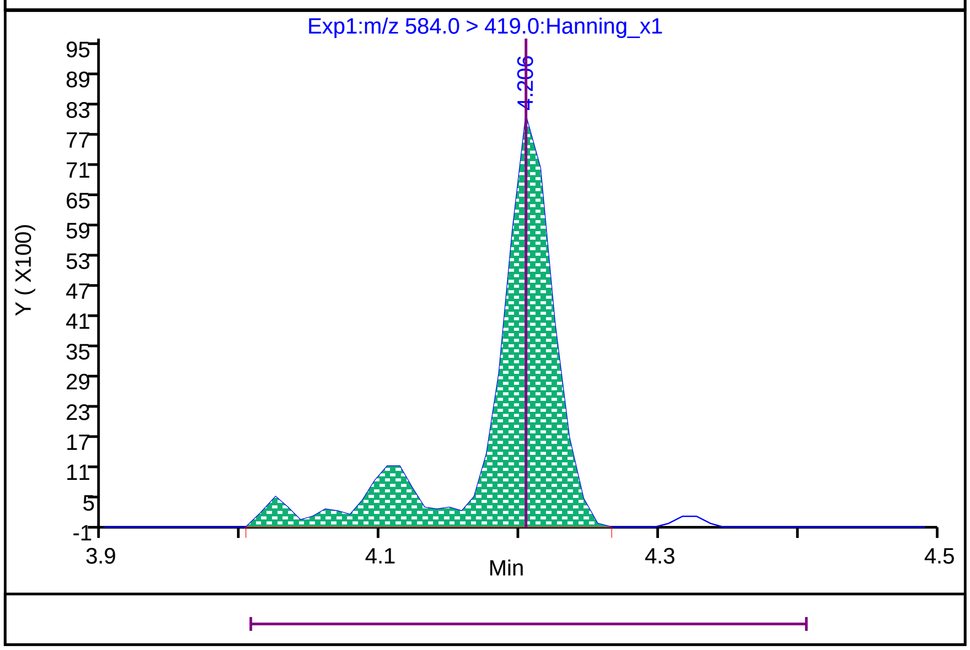
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.206
Area: 22956
Amount: 218.46
Amount Units: ng/L



RT: 4.206
Area: 23747
Amount: 198.85
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:00:50

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d		
Injection Date:	16-Nov-2021 17:13:24	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	4
Sample Info:	F.L. ICAL 500_SVLC-1743	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	641895	20	>100:1			1000.00	1028.79	99.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	0/-1	334342	21	>100:1			500.00	497.88		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	579536	16	>100:1			1000.00	1000.66	97	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	323997	16	>100:1			500.00	509.07		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	173434	15	>100:1			1000.00	999.34	99.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	94580	17	>100:1	Target = 3.48		442.00	437.75		
298.9 > 99	44	2.120	2.120		27457	16	>100:1	3.44 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	72497	15	>100:1	Target = 3.03		469.00	472.23		
349 > 99	44	2.460	2.460		24857	18	>100:1	2.91 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	112844	18	>100:1			5000.00	5167.79	98.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	1/1	22981	18	>100:1	Target = 1.70		467.00	455.52		
327 > 81	63	2.389	2.389		14121	26	22:1	1.62 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.425	2.424	1	689334	17	>100:1			1000.00	1063.67	99.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.425	2.424	1/0	352018	18	>100:1	Target = 18.47		500.00	482.59		
313 > 119	49	2.425	2.424		19756	17	>100:1	17.81 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.541	2.540	1	1145170	17	>100:1			5000.00	5114.26	99.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.541	2.540	1/0	146133	17	>100:1	Target = 0.78		1000.00	969.65		
285 > 185	66	2.541	2.540		194751	18	>100:1	0.75 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	555289	18	>100:1			1000.00	1052.09	102.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	0/-1	305031	17	>100:1	Target = 3.92		500.00	480.37		
363 > 169	47	2.791	2.791		76707	17	>100:1	3.97 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	134607	16	>100:1			1000.00	1053.95	99	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	1/0	66359	25	>100:1	Target = 3.14	5.04	455.00	437.29		
399 > 99	45	2.809	2.809		20613	24	>100:1	3.21 (1.57-4.71)	6.81				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	0/-1	483773	17	>100:1	Target = 3.33		471.00	462.09		
377 > 85	45	2.827	2.827		141276	16	>100:1	3.42 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.173	3.174	0/-1	59697	21	>100:1	Target = 3.02		476.00	456.16		
449 > 99	45	3.173	3.174		20576	20	>100:1	2.90 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.147	3.141	1	93041	21	>100:1			5000.00	5421.74	103.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.147	3.141	1/0	19403	20	>100:1	Target = 1.69		474.00	444.54		
427 > 81	64	3.147	3.141		13656	22	35:1	1.42 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.173	3.168	1	543046	21	>100:1			1000.00	1048.37	97.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.167	3.168	0/-1	281039	21	>100:1	Target = 3.03		500.00	494.51		
413 > 169	53	3.167	3.168		93411	22	>100:1	3.00 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.536	3.537	0	128013	18	>100:1			1000.00	1028.21	96.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.536	3.537	0/0	72980	34		Target = 3.42	3.80	464.00	479.96		M
499 > 99	54	3.536	3.537		19383	31	>100:1	3.76 (1.71-5.13)	8.58				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.745	3.740	0/0	224367	20	>100:1			466.00	456.54		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.877	3.879	0/0	49807	17	>100:1	Target = 2.57		480.00	499.75		
549 > 99	54	3.877	3.879		19256	15	>100:1	2.58 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.185	4.178	1/1	49255	13		Target = 2.71		482.00	478.66		
599 > 99	54	4.185	4.178		21440	19		2.29 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.346	4.338	1/1	190399	17	>100:1			471.00	438.78		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.687	4.681	1/1	49957	14	>100:1	Target = 3.04		484.00	490.39		
699 > 99	54	4.687	4.681		15035	16		3.32 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.544	3.537	1	661457	20	>100:1			1000.00	1025.16	95.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.544	3.537	1/0	353117	19	>100:1	Target = 7.14		500.00	484.62		
463 > 169	56	3.544	3.537		49401	20	>100:1	7.14 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.853	3.846	1	262676	19	>100:1			1000.00	1041.67	95.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.853	3.846	1/0	145028	18	>100:1	Target = 32.83		500.00	502.48		
498>478	55	3.853	3.846		5036	22		28.79 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.885	3.879	1	82800	18	>100:1			5000.00	4951.60	94	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.877	3.879	0/-1	20699	24	96:1	Target = 2.14		479.00	538.95		
527 > 81	65	3.885	3.879		9389	16	34:1	2.20 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.480	4.482	1/0	24101	22	>100:1	Target = 3.72		482.00	541.41		
627 > 80	65	4.480	4.482		4578	21	24:1	5.26 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.885	3.887	0	578232	19	>100:1			1000.00	1014.69	98.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.894	3.887	1/1	351682	18	>100:1	Target = 14.16		500.00	518.74		
513 > 169	51	3.894	3.887		23787	23	87:1	14.78 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.043	4.045	0	721404	17	>100:1			5000.00	5281.62	105.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.051	4.045	1/1	56252	31	>100:1	Target = 1.42	6.98	500.00	470.66		
570 > 483	58	4.051	4.045		42446	32	90:1	1.32 (0.71-2.14)	2.99				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.204	4.196	1	648554	17	>100:1			5000.00	5341.41	106.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.214	4.206	3/2	61617	30		Target = 1.49	5.40	500.00	500.70		
584 > 526	60	4.214	4.206		37728	30	>100:1	1.63 (0.74-2.24)	4.86				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.204	4.196	1	678421	17	>100:1			1000.00	1045.03	101.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.204	4.196	0/-1	313944	16	>100:1	Target = 14.37		500.00	498.77		
563 > 169	52	4.204	4.196		21420	13	>100:1	14.65 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.275	4.267	0	84448	15				1000.00	963.64	95.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.286	4.287	0/0	48976	15	>100:1			500.00	525.31		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.296	4.298	0	42639	21	>100:1			1000.00	873.09	85.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.298	1/1	28027	11		Target = 1.08		500.00	644.77		M
512 > 219	57	4.296	4.298		25522	13	>100:1	1.09 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.444	4.437	0	105942	18	>100:1			1000.00	1000.25	92.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.453	4.455	0/0	54053	16	>100:1			500.00	500.47		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.462	4.464	0	44500	14	>100:1			1000.00	1015.72	97.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.471	4.473	0/0	27807	19	>100:1	Target = 0.97		500.00	530.64		
526 > 219	59	4.471	4.473		29192	16	>100:1	0.95 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.471	4.473	0	621217	16	>100:1			1000.00	1040.78	99.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.471	4.473	0/0	348132	16	>100:1	Target = 10.55		500.00	519.12		
613 > 169	38	4.471	4.473		31897	14	>100:1	10.91 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.710	4.711	0/0	295253	19	>100:1	Target = 8.92		500.00	488.26		
663 > 169	38	4.710	4.711		32552	17	>100:1	9.07 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.926	4.928	0	769311	18	>100:1			1000.00	1020.15	96.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.926	4.928	0/0	341698	18	51:1	Target = 12.22		500.00	506.61		
713 > 169	42	4.926	4.928		27742	18	>100:1	12.31 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.301	5.302	0	887810	22	>100:1			1000.00	987.35	95.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.306	5.302	1/1	307679	22	72:1	Target = 11.65		500.00	511.52		
813 > 269	40	5.306	5.302		26610	24	>100:1	11.56 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.656	5.660	1/1	426024	20	>100:1	Target = 15.15		500.00	509.99		
913 > 319	40	5.656	5.660		28325	21	>100:1	15.04 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.885	3.887	0	682460	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.425	2.424	1	712525	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.173	3.168	1	564091	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	590507	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.544	3.537	1	127853	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

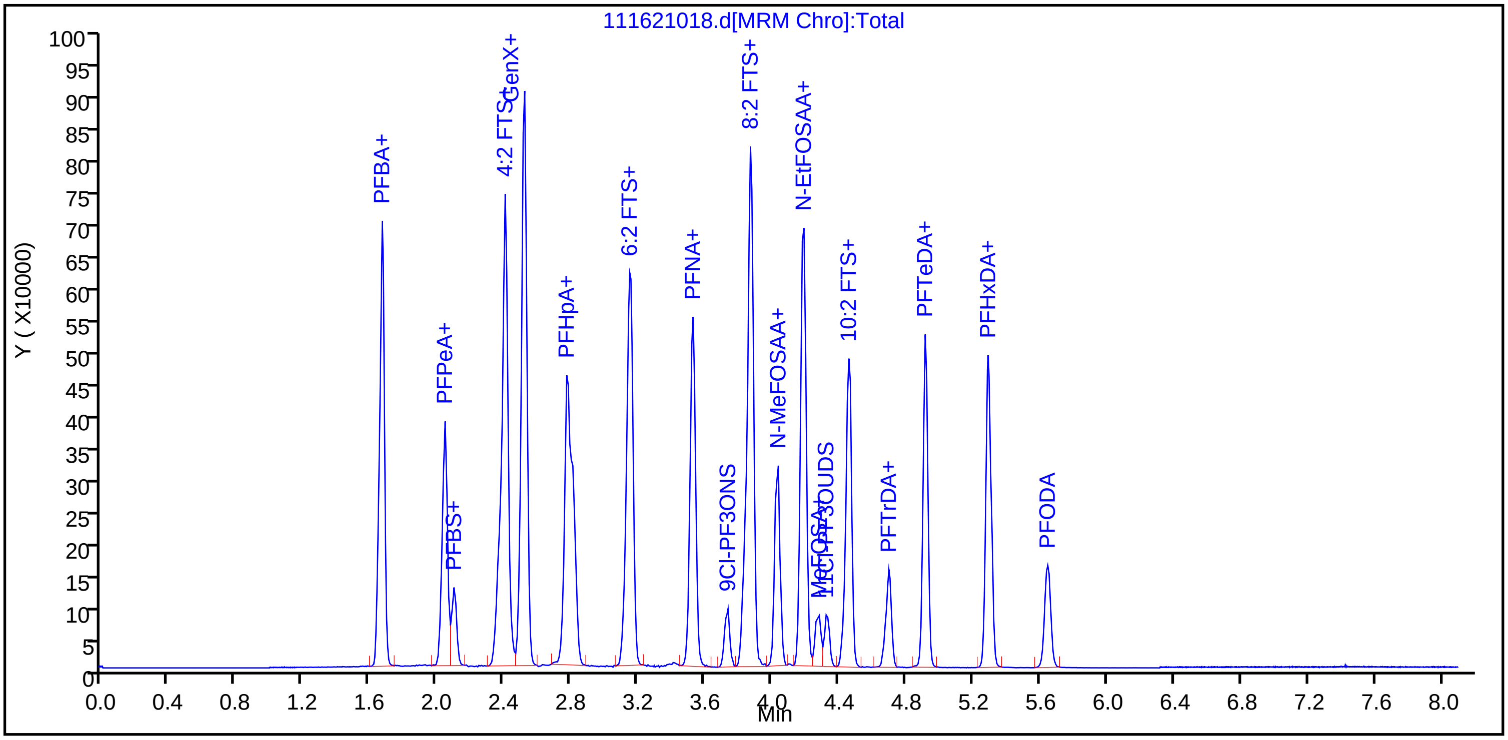
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

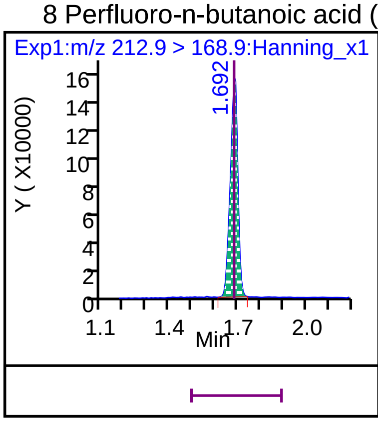
Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

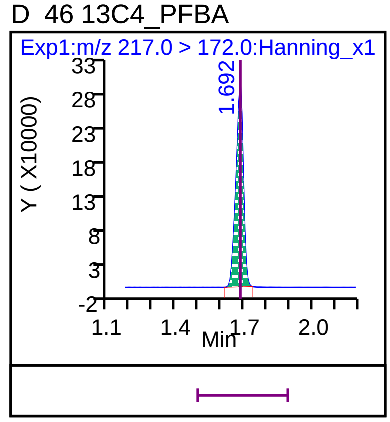
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d		
Injection Date:	16-Nov-2021 17:13:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 500_SVLC-1743
Sample Info:	F.L. ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin



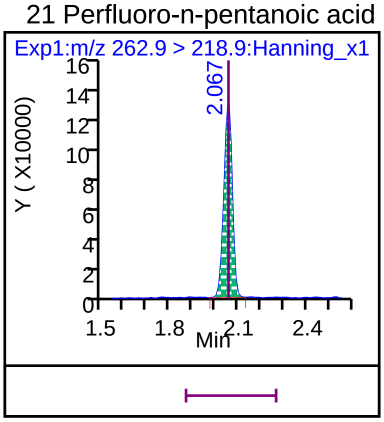
8 Perfluoro-n-butanoic acid (PFBA)



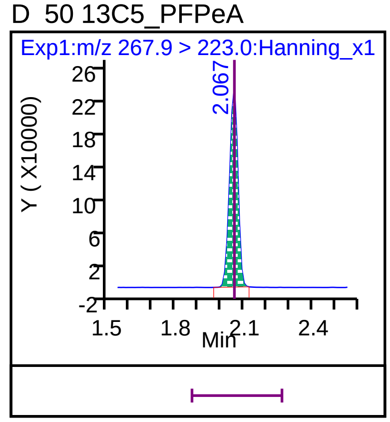
D 46 13C4_PFBA



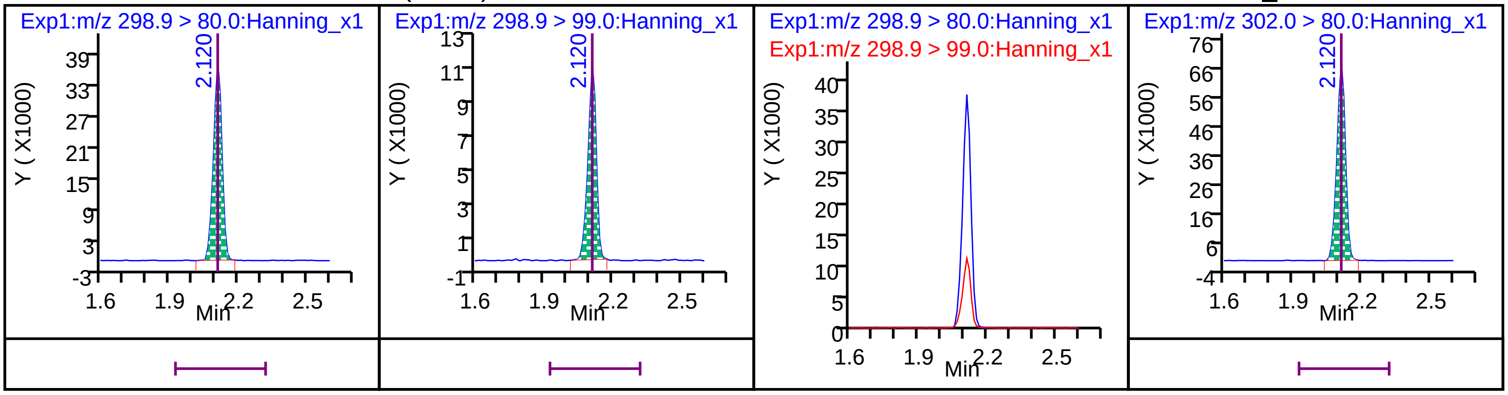
21 Perfluoro-n-pentanoic acid (PFPeA)



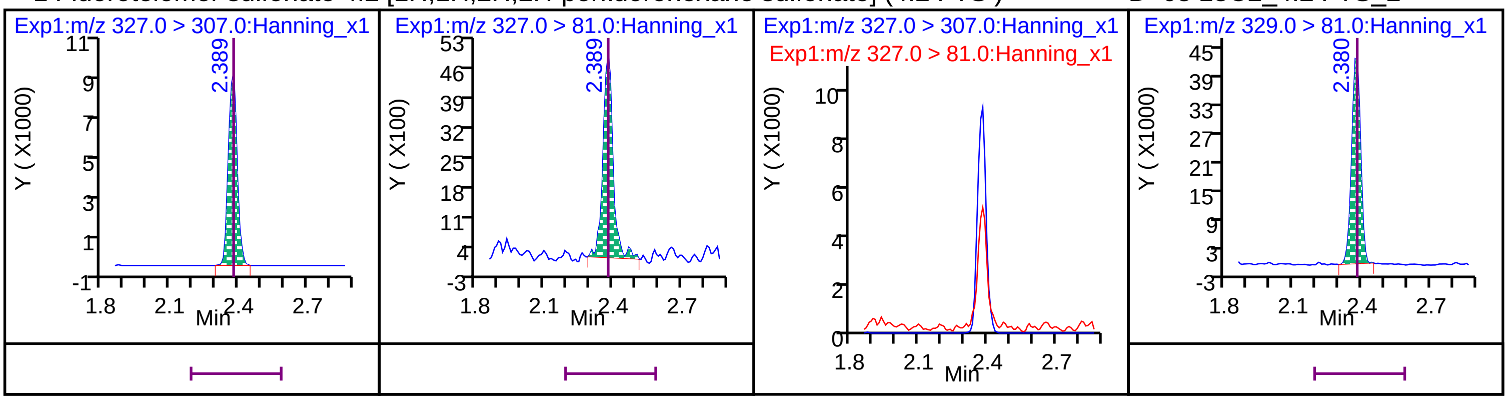
D 50 13C5_PFPeA



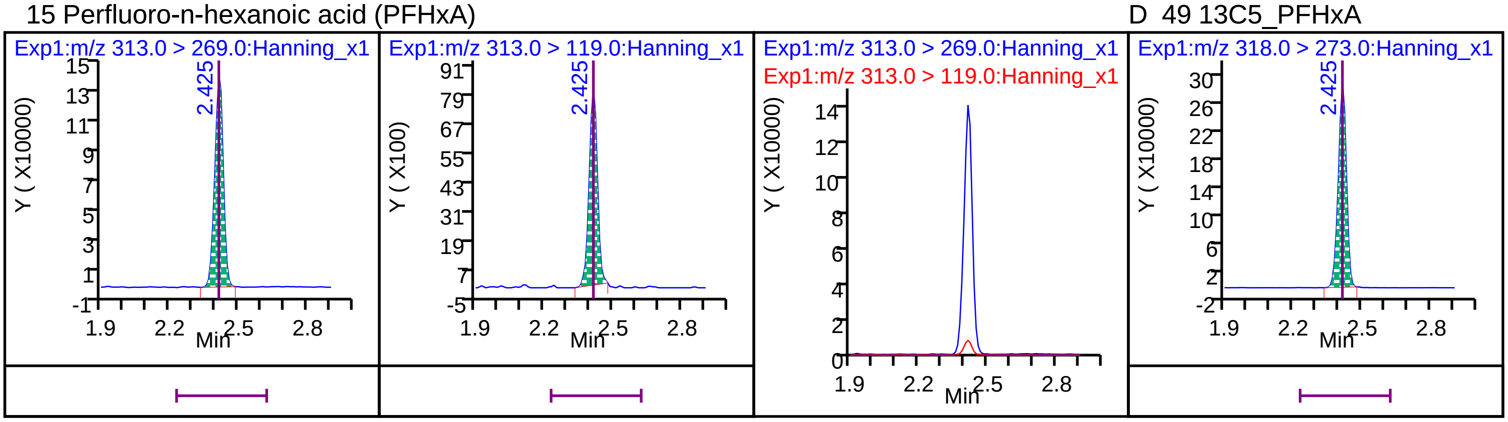
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



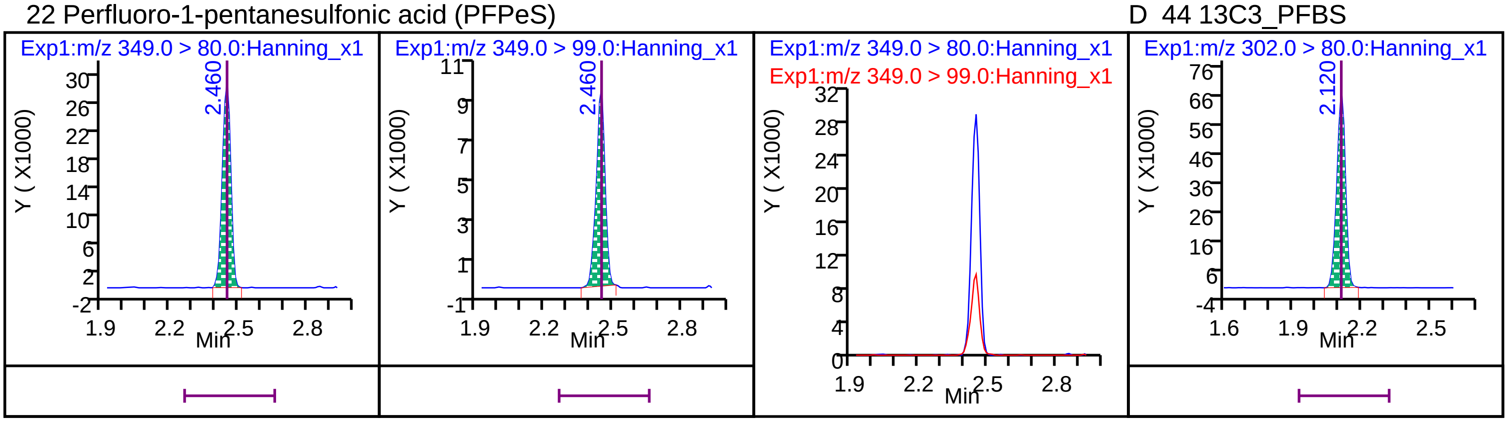
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



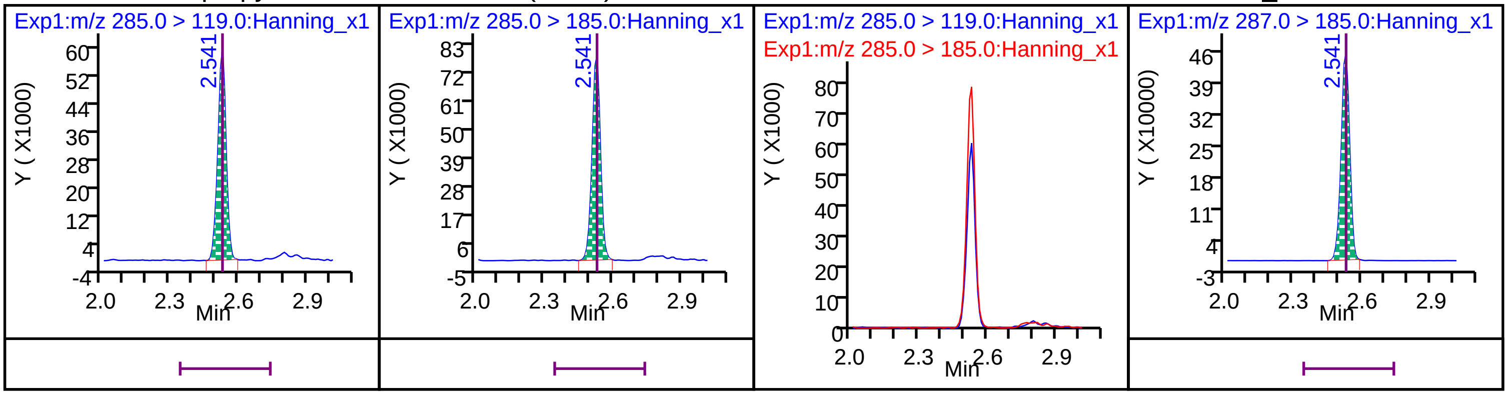
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



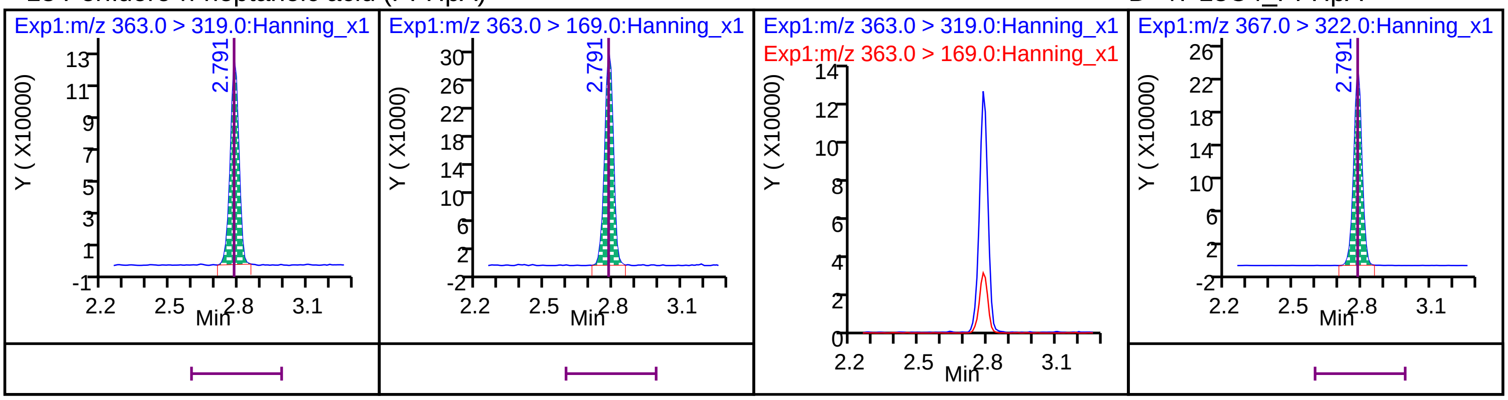
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



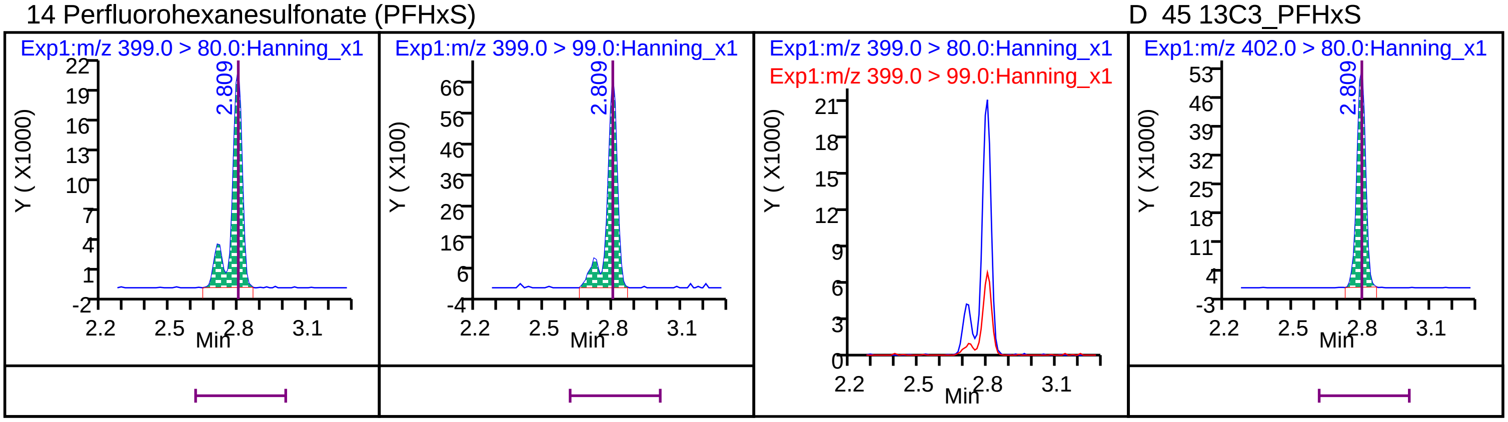
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



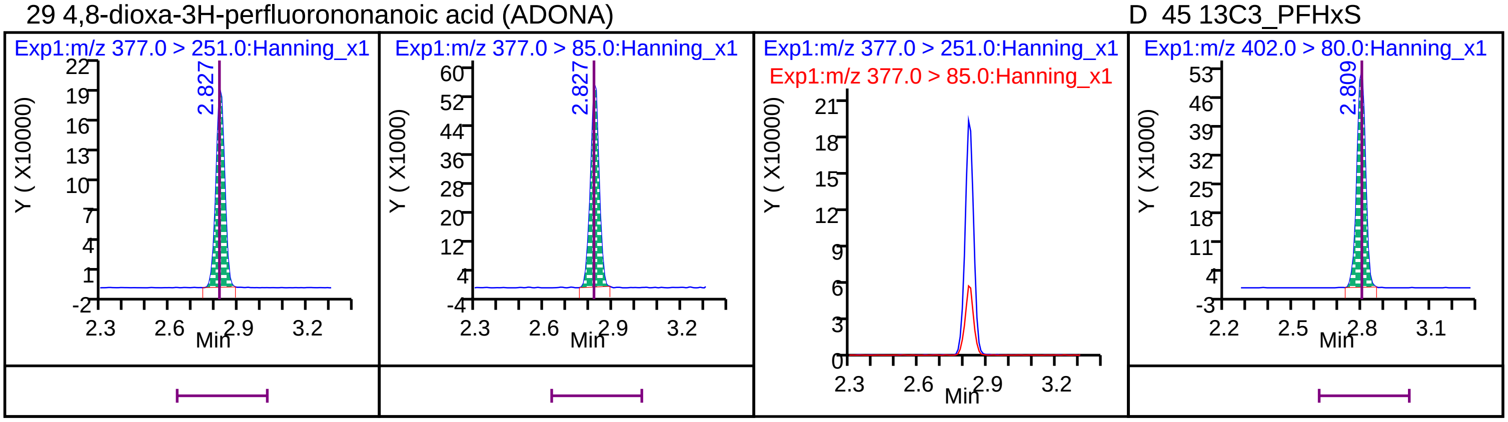
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



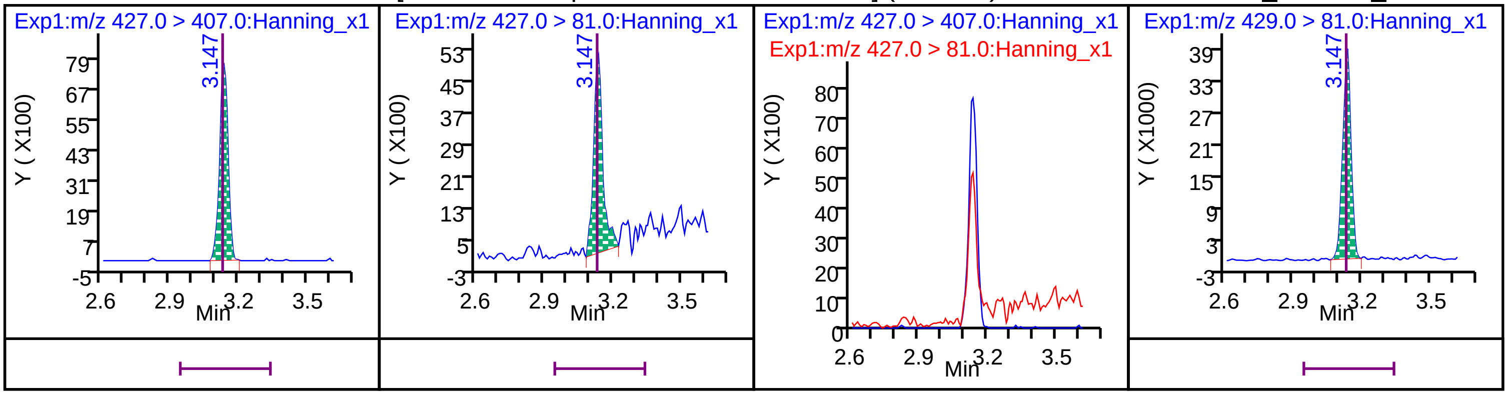
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



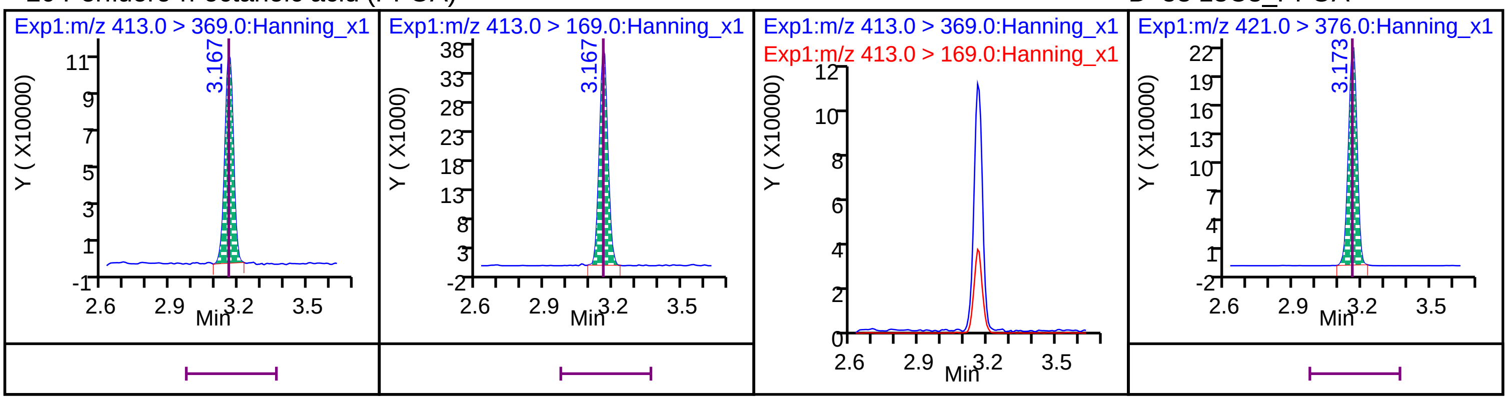
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



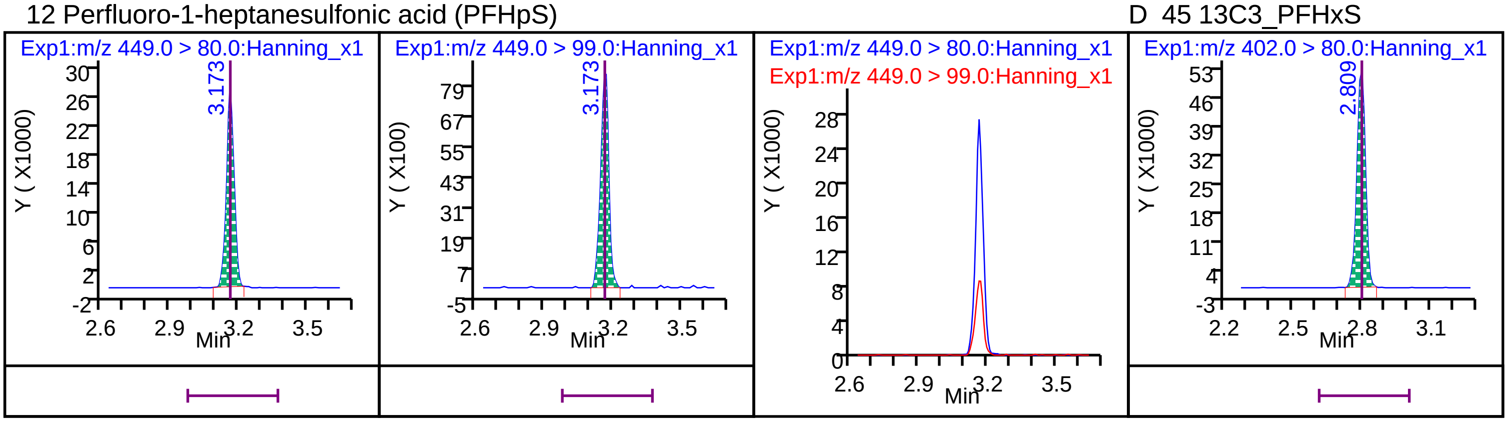
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



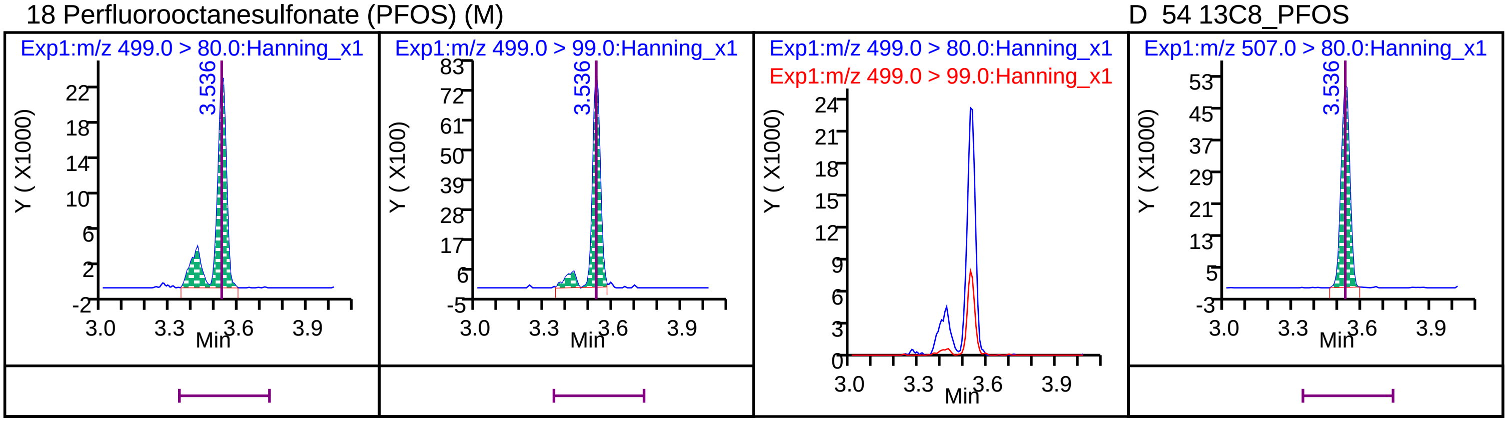
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



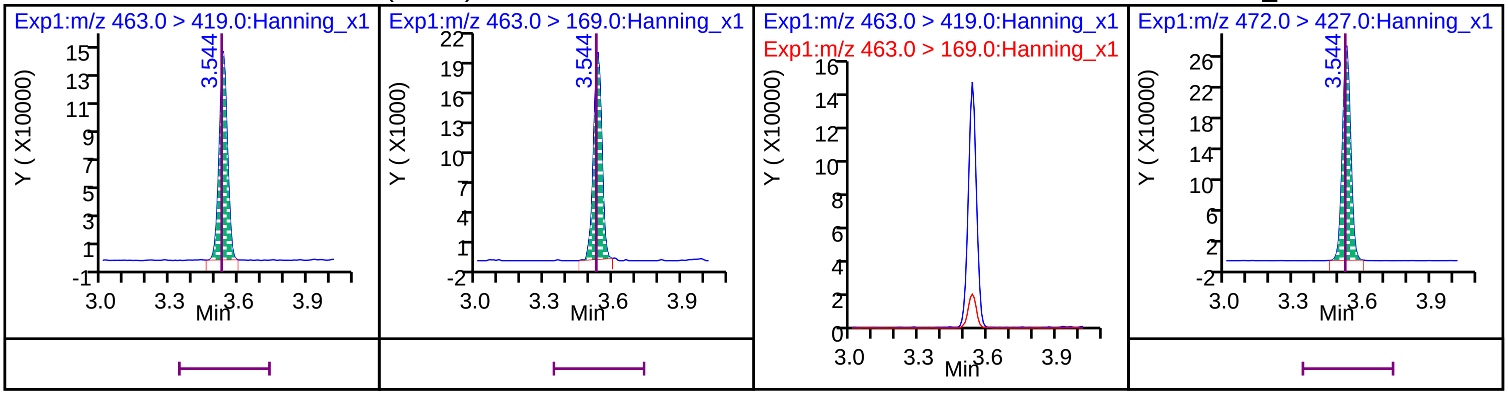
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



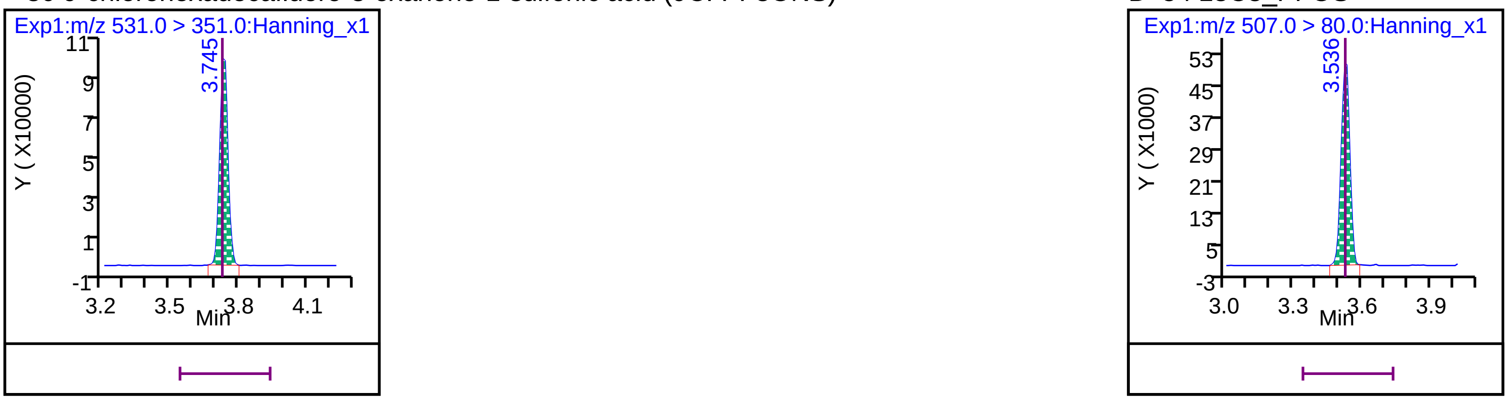
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



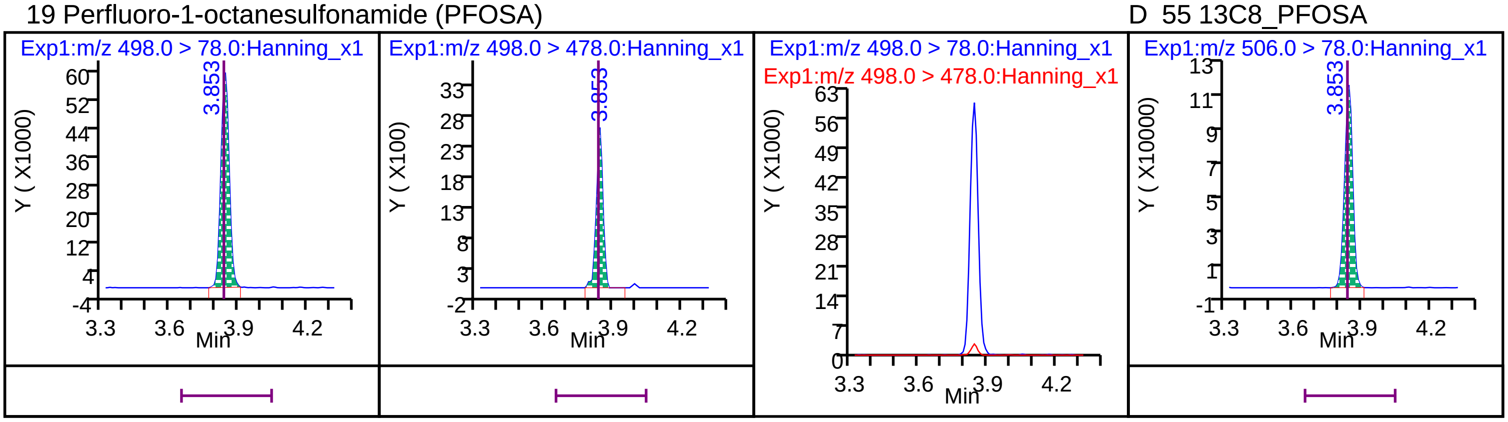
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



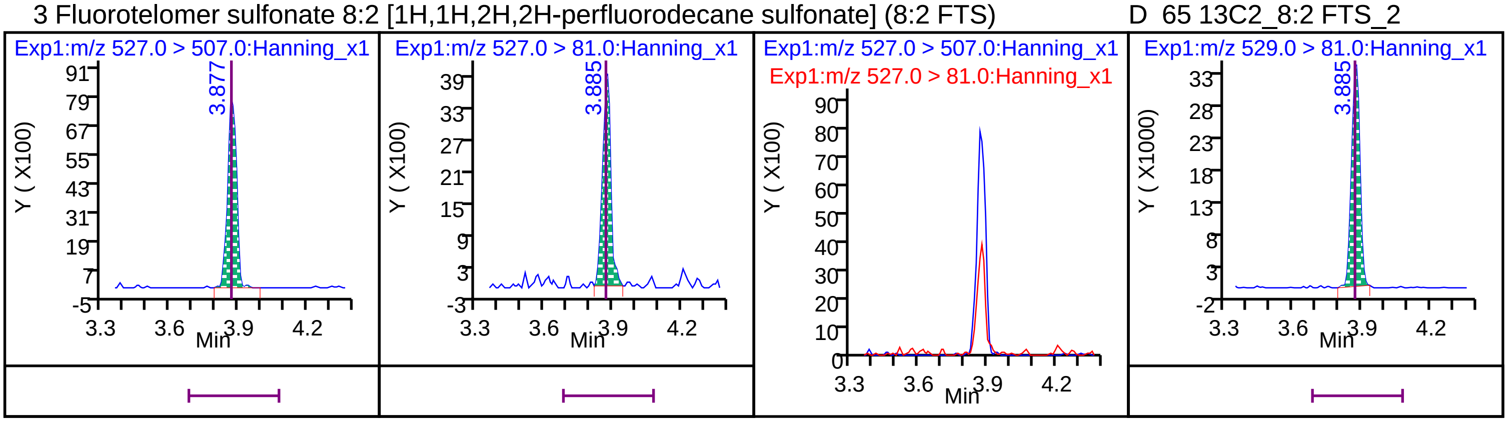
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



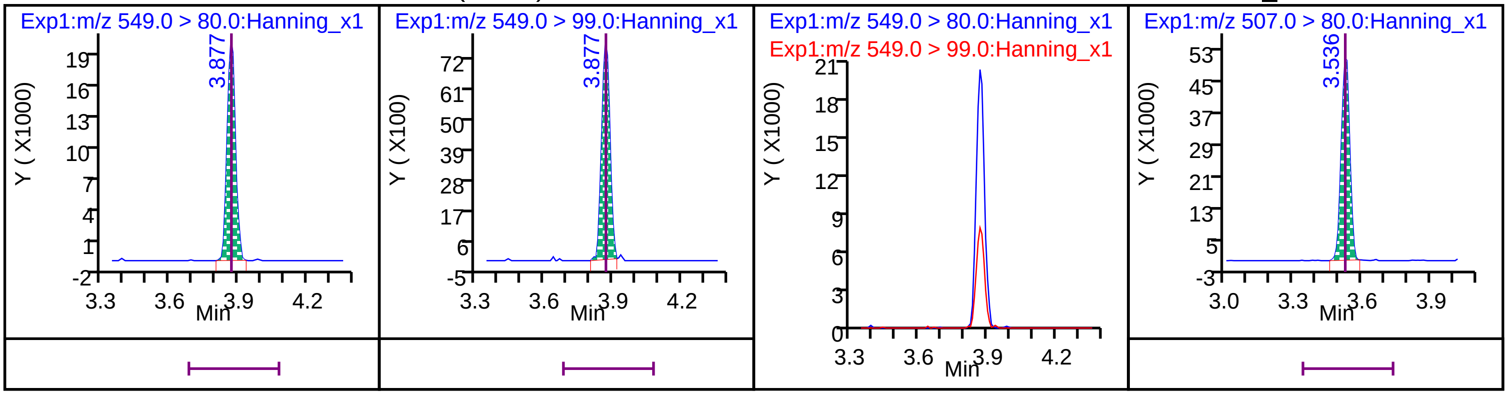
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



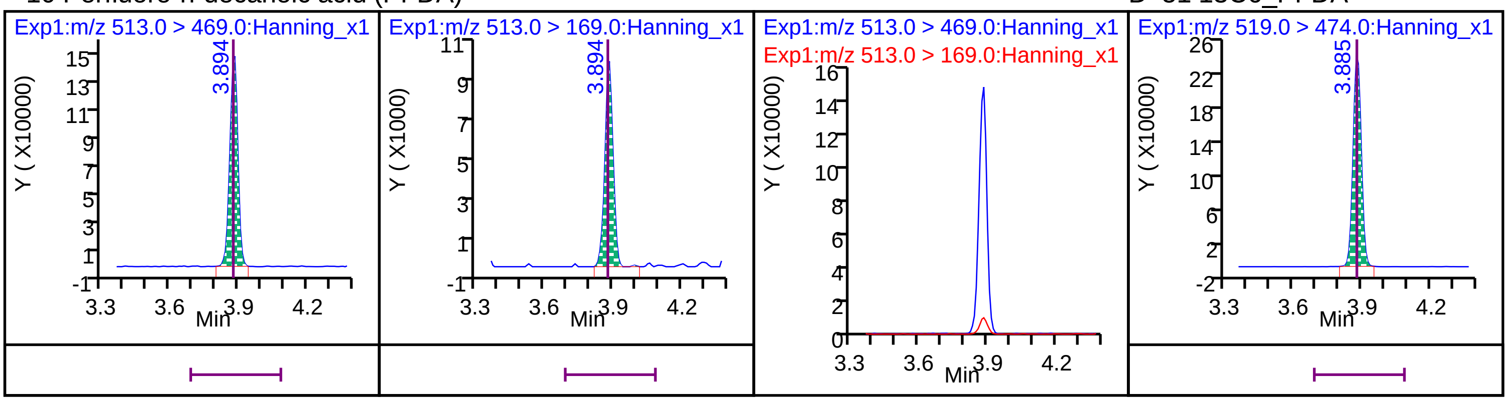
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



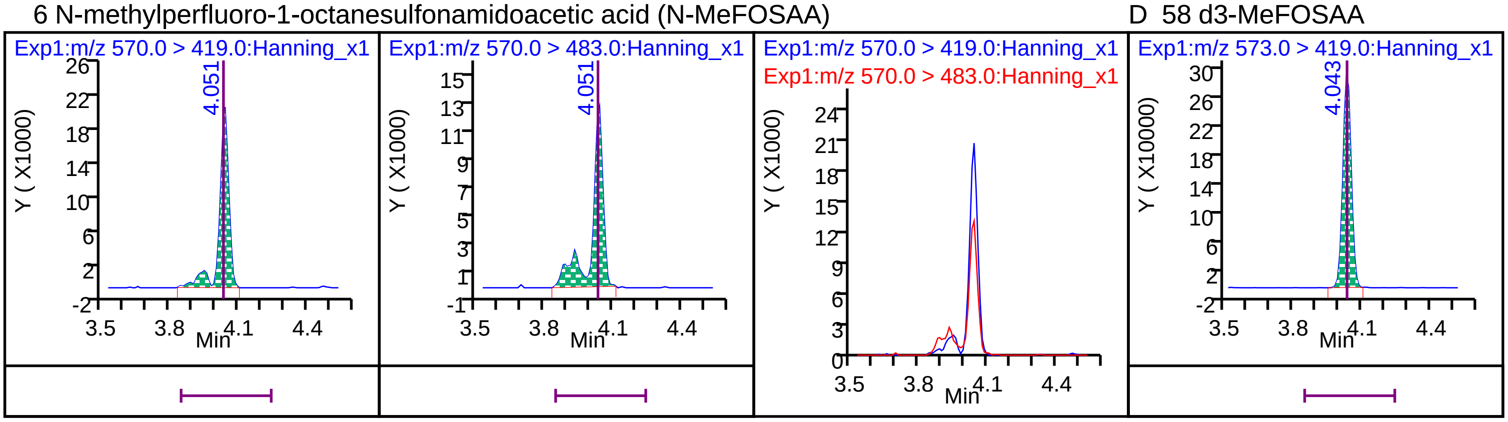
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



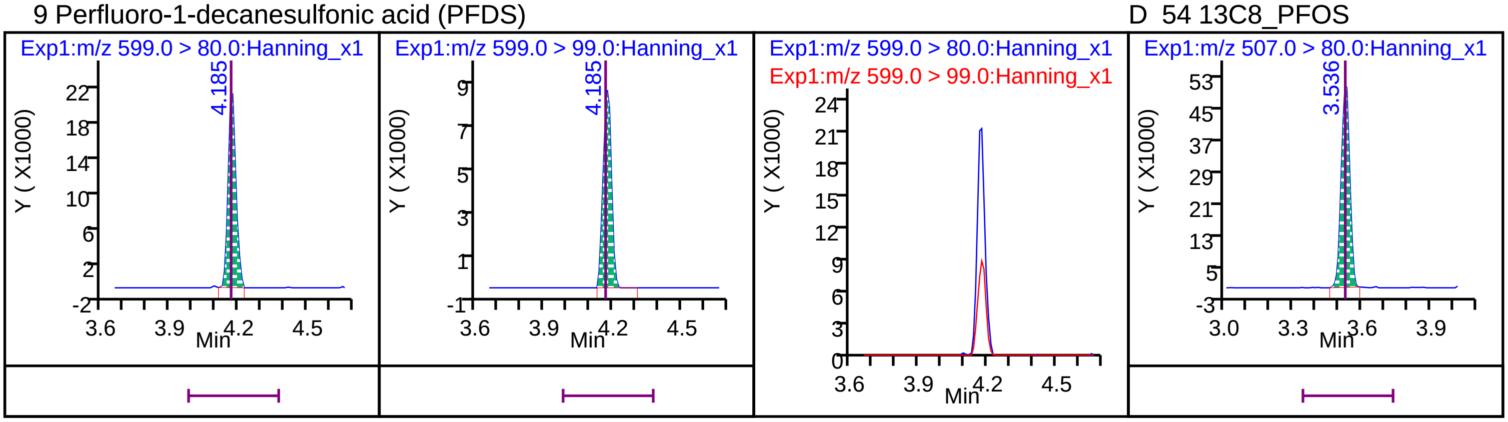
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



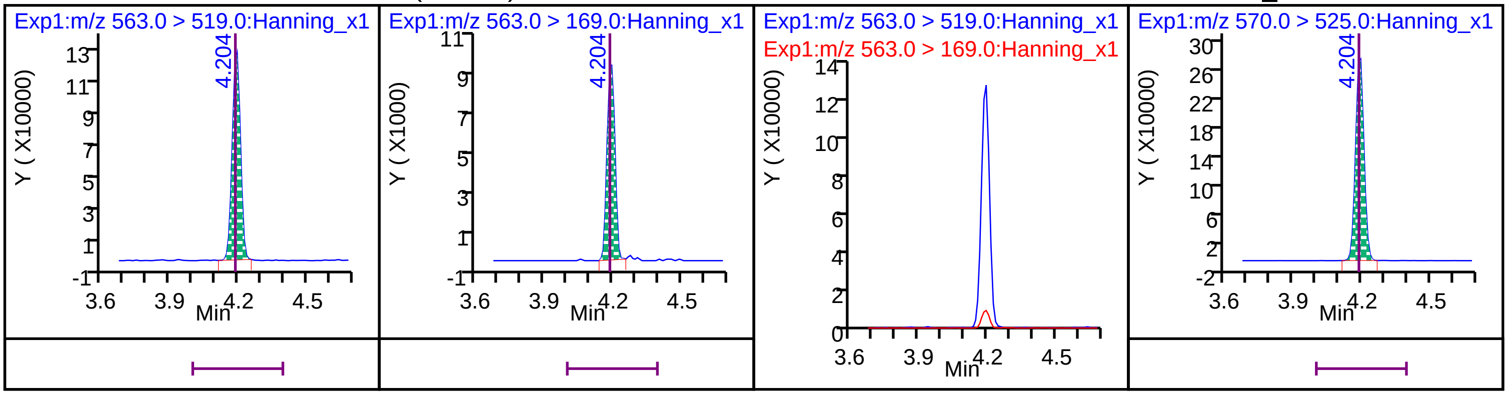
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



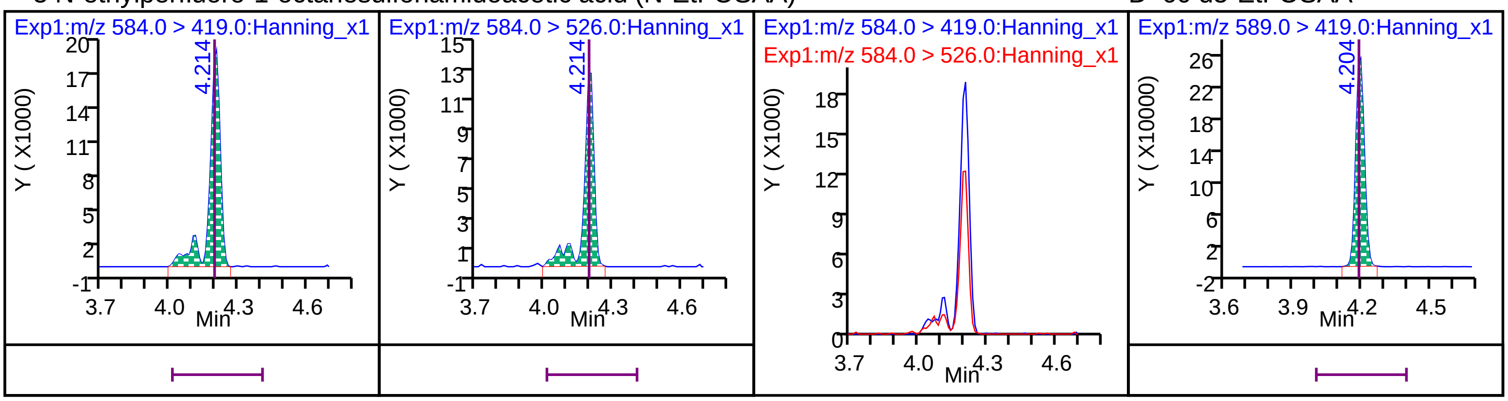
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



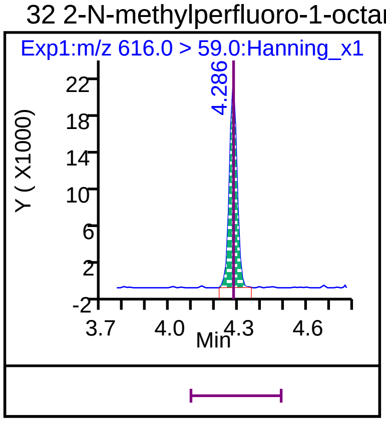
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



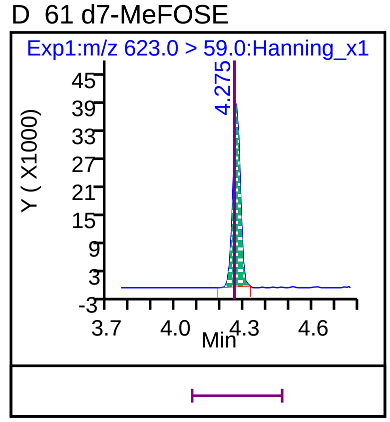
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



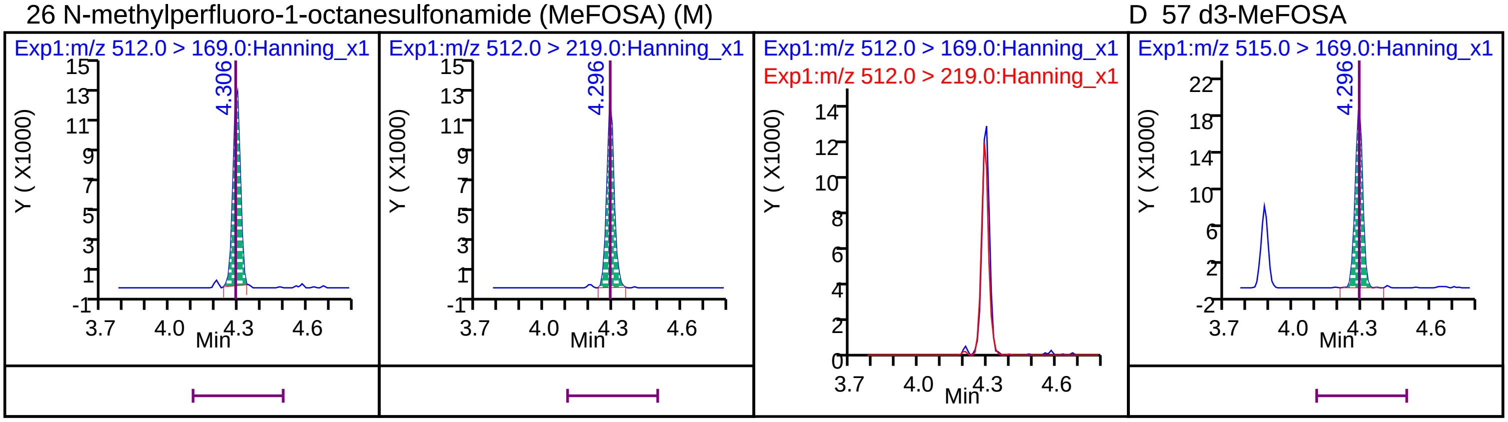
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



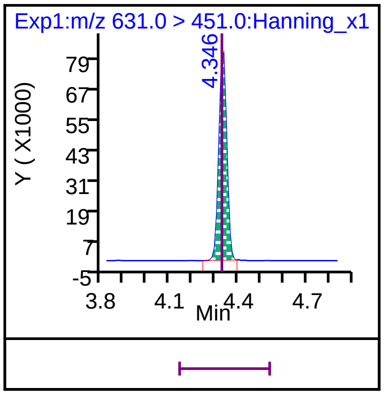
D 61 d7-MeFOSE



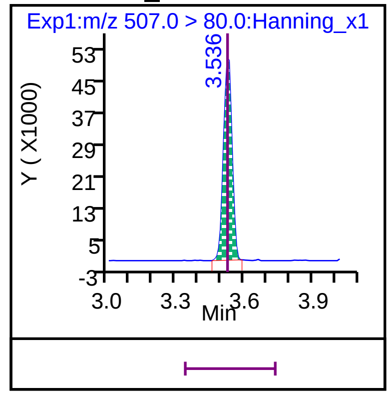
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (M) D 57 d3-MeFOSA



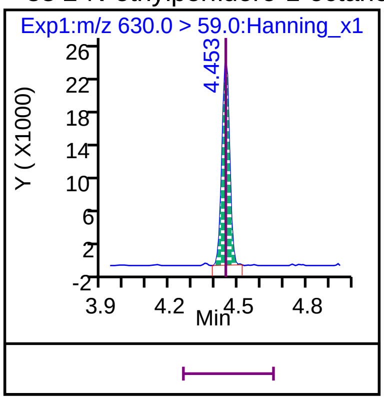
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



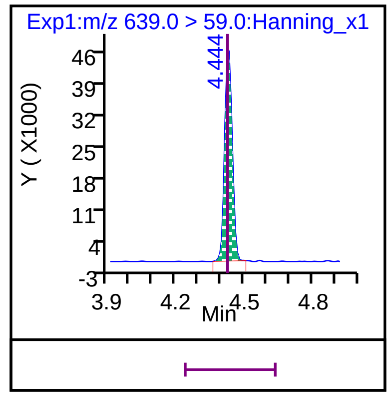
D 54 13C8_PFOS



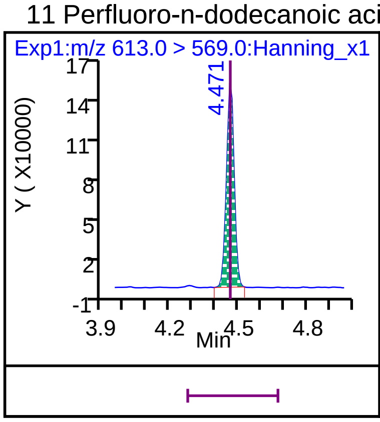
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

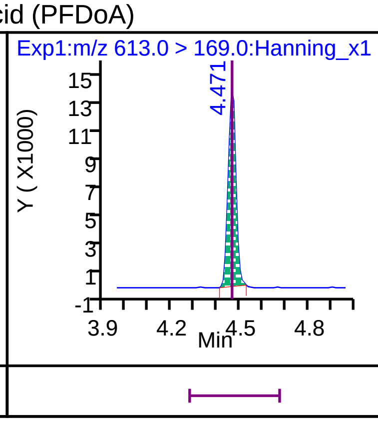


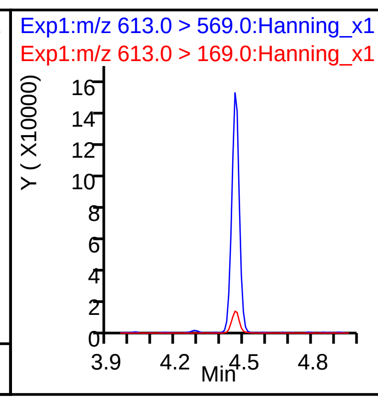
D 62 d9-EtFOSE



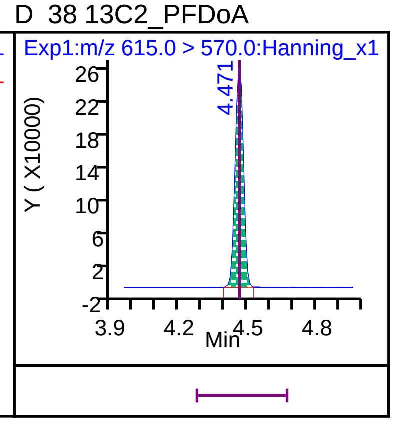
11 Perfluoro-n-dodecanoic acid (PFDoA)



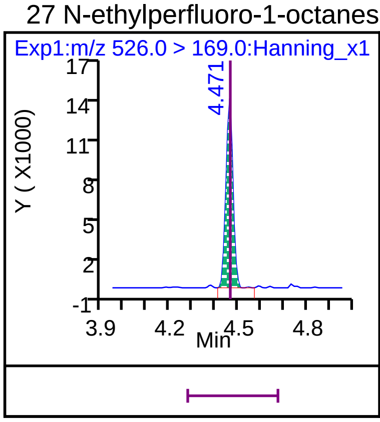


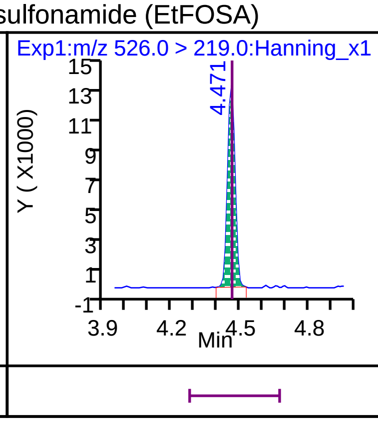


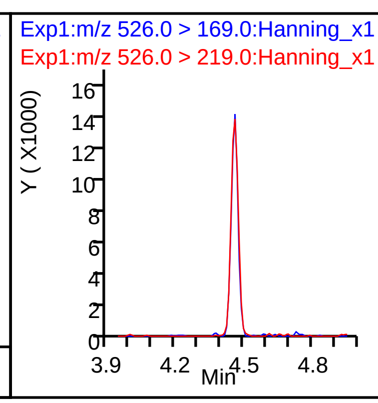
D 38 13C2_PFDoA



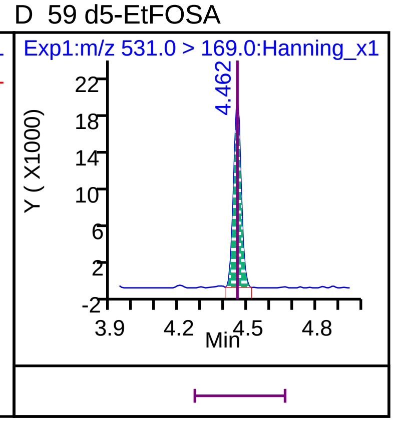
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)





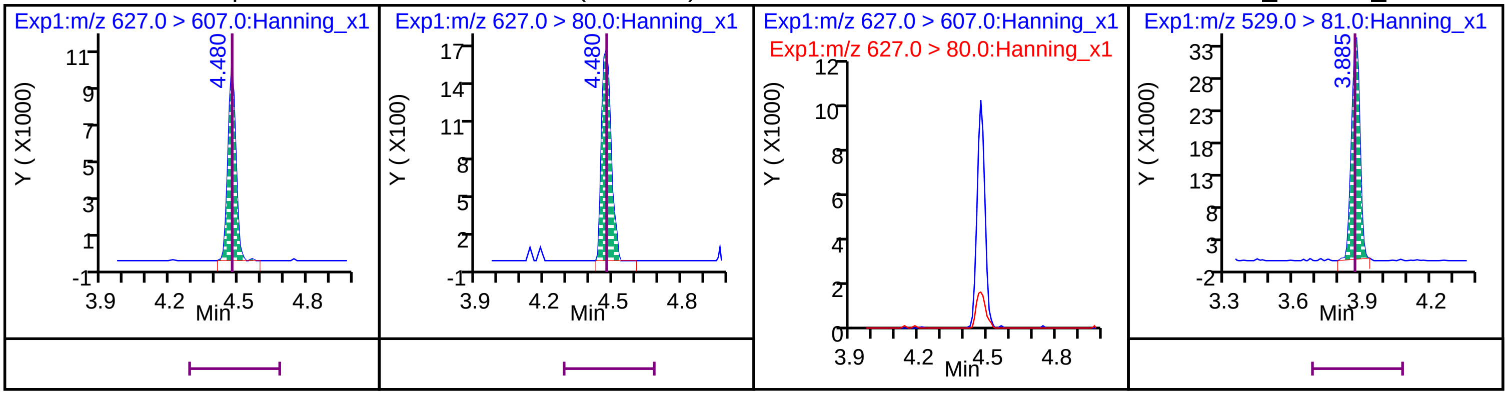


D 59 d5-EtFOSA

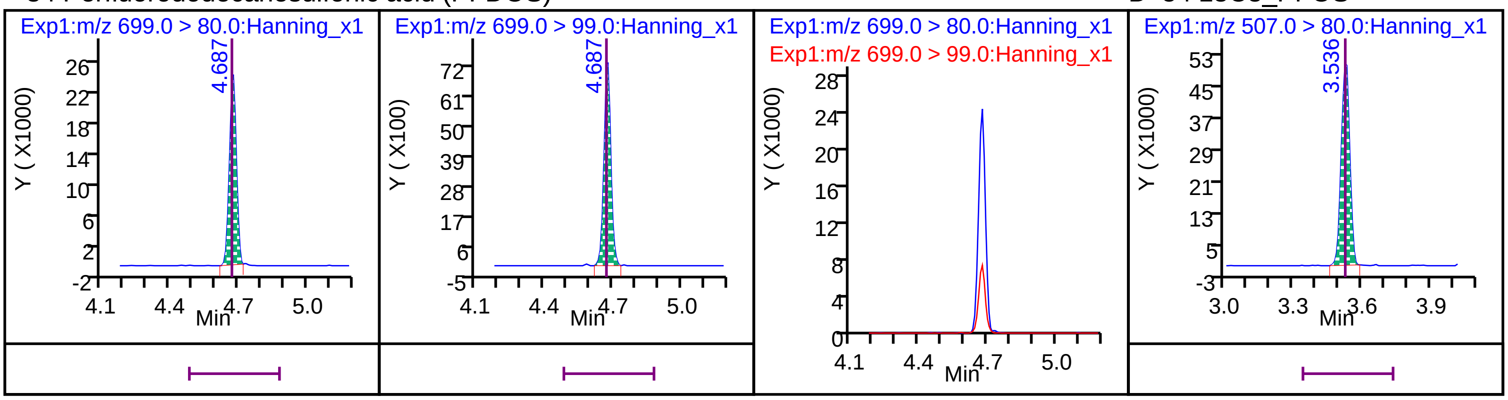


Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d

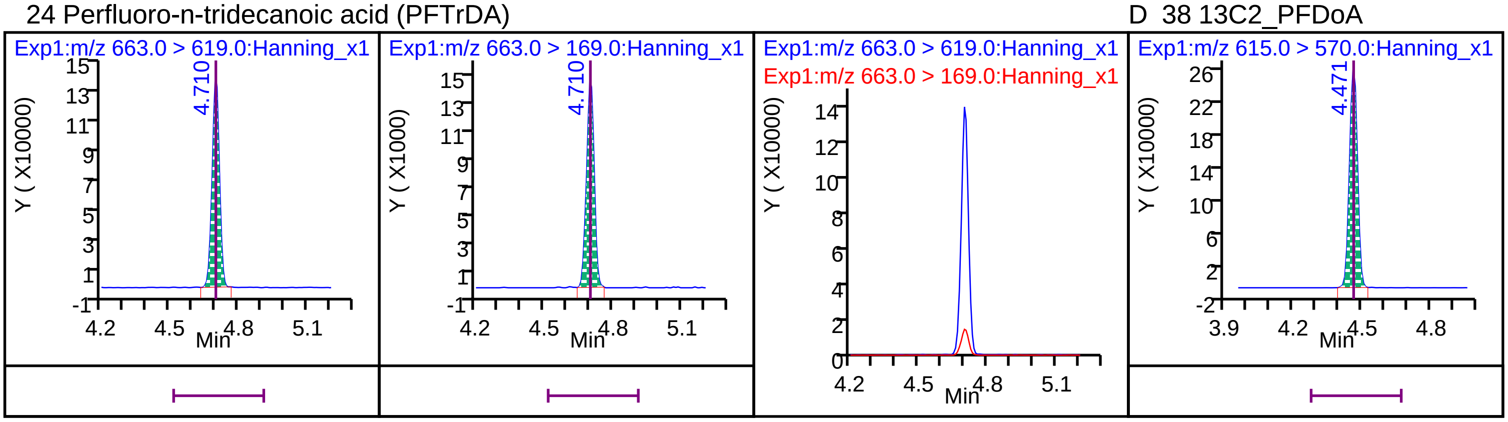
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



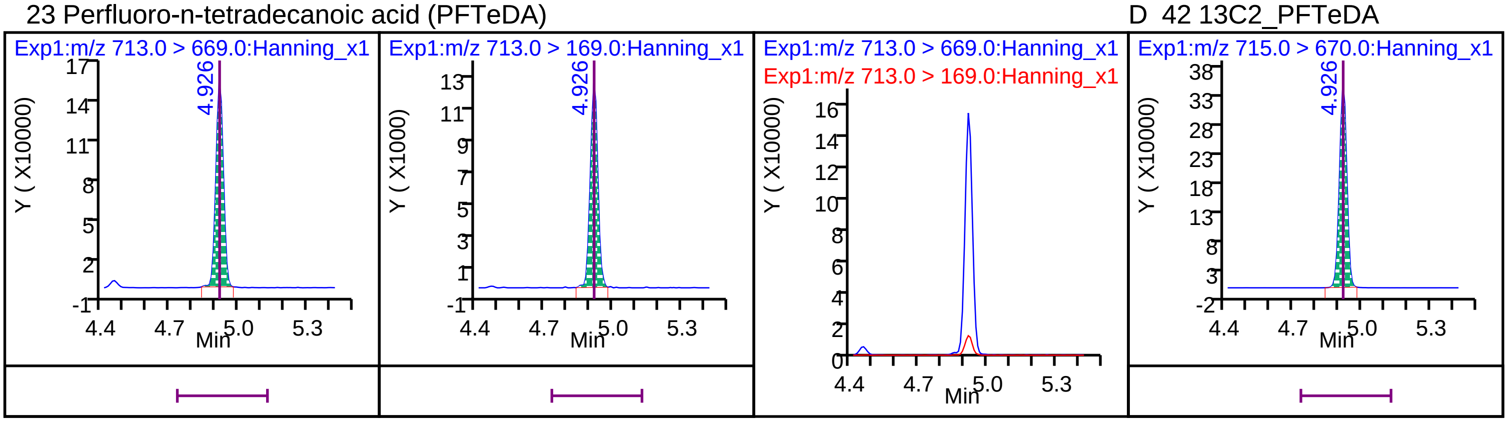
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

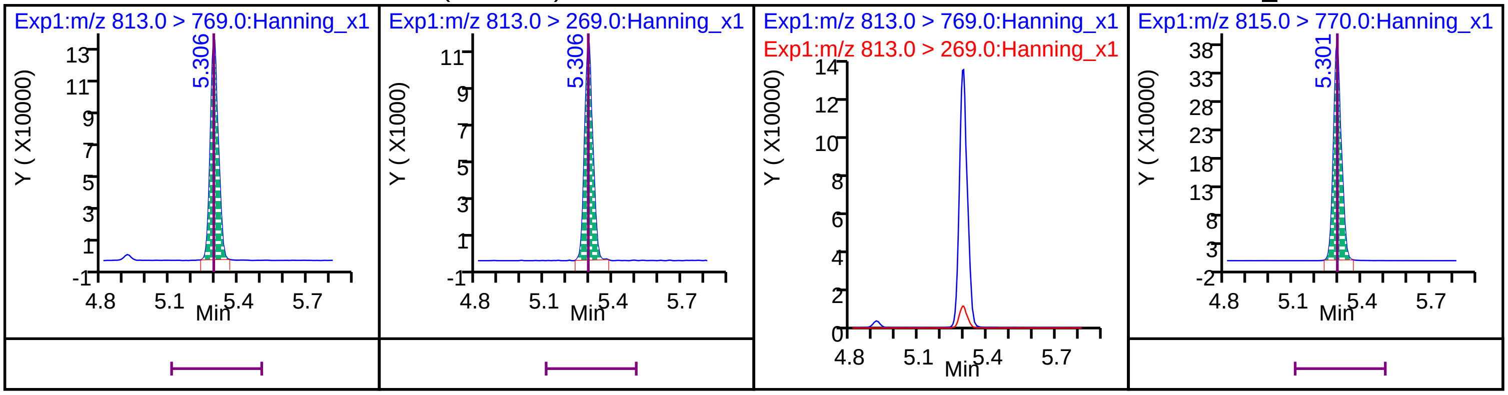


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

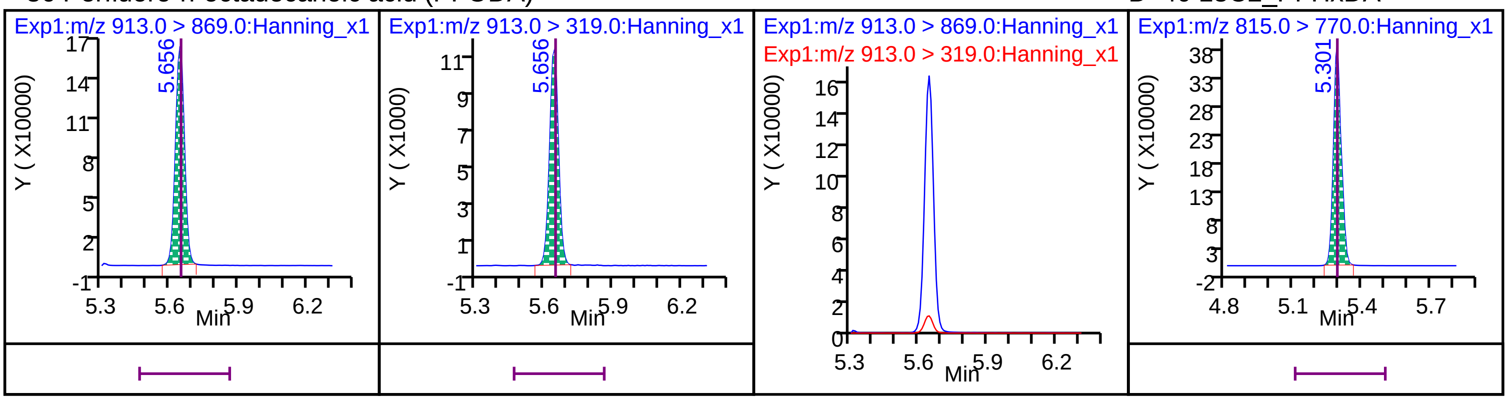


Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d

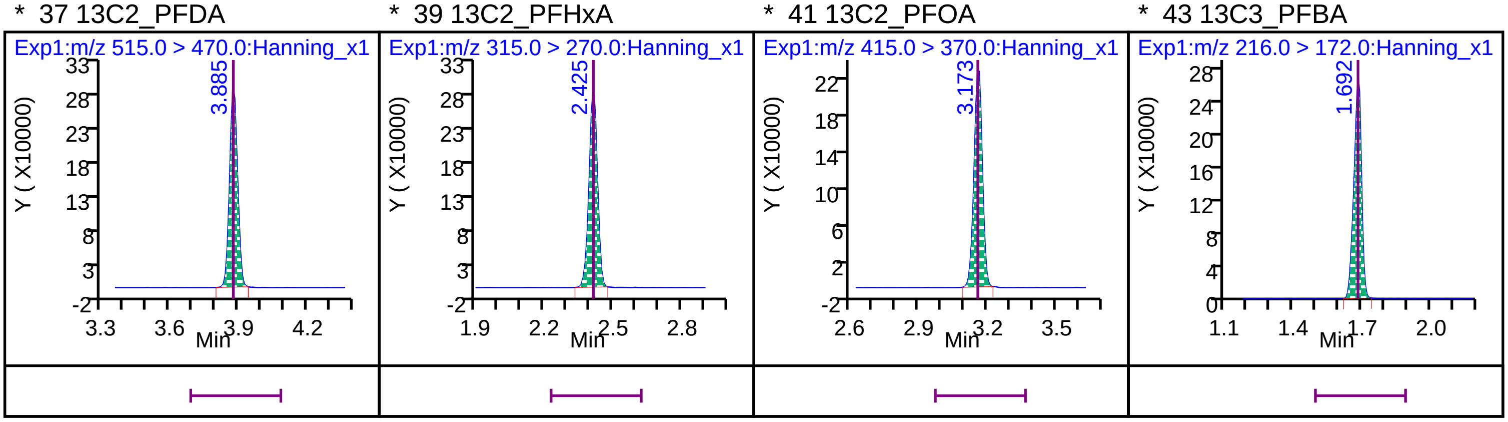
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



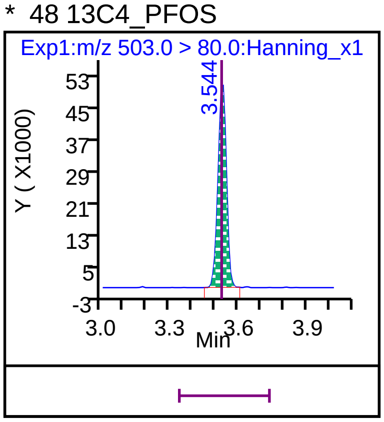
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

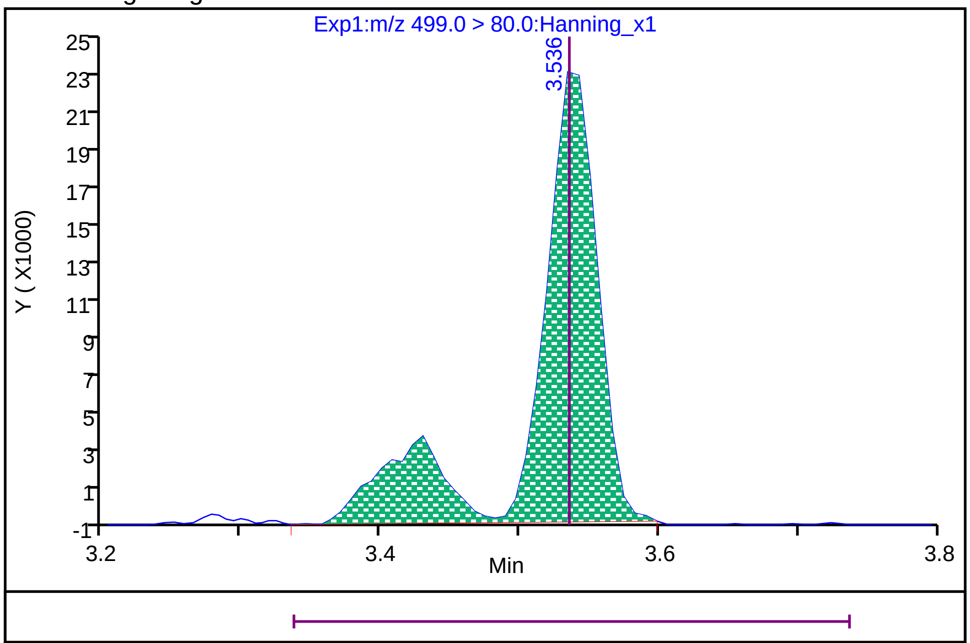
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d		
Injection Date:	16-Nov-2021 17:13:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 500_SVLC-1743
Sample Info:	F.L. ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

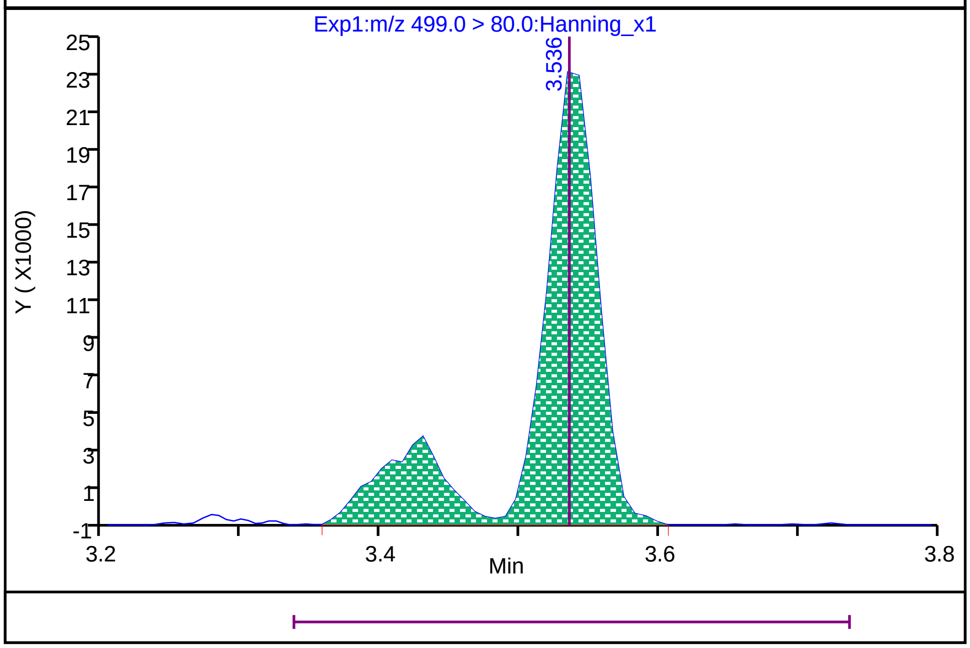
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.536
Area:	71452
Amount:	476.14
Amount Units:	ng/L



RT:	3.536
Area:	72980
Amount:	479.96
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:10:55

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

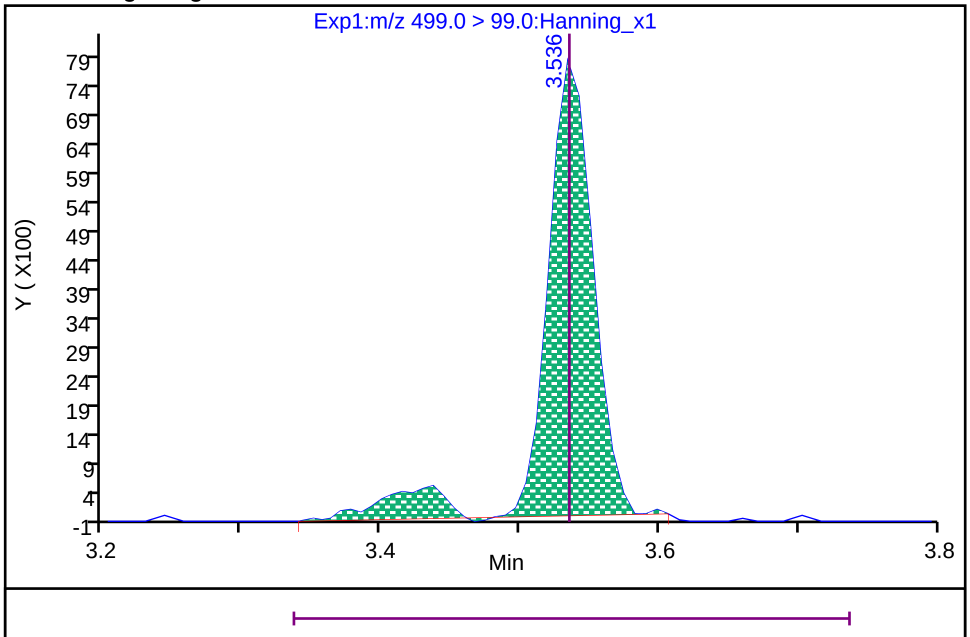
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d		
Injection Date:	16-Nov-2021 17:13:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 500_SVLC-1743
Sample Info:	F.L. ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

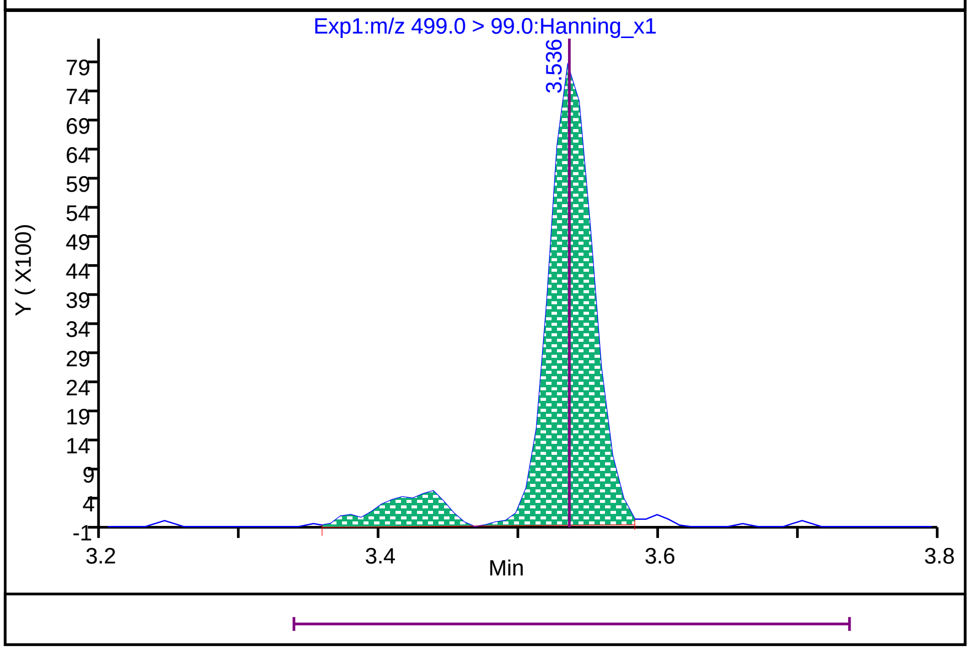
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.536
Area:	18758
Amount:	479.96
Amount Units:	ng/L



RT:	3.536
Area:	19383
Amount:	479.96
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:10:59

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

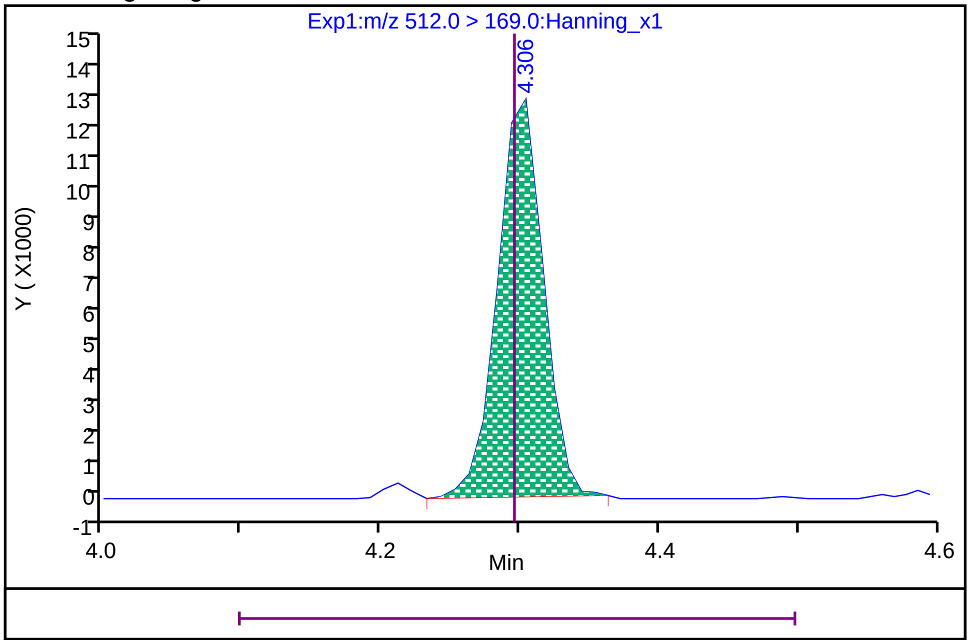
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621018.d		
Injection Date:	16-Nov-2021 17:13:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 500_SVLC-1743
Sample Info:	F.L. ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

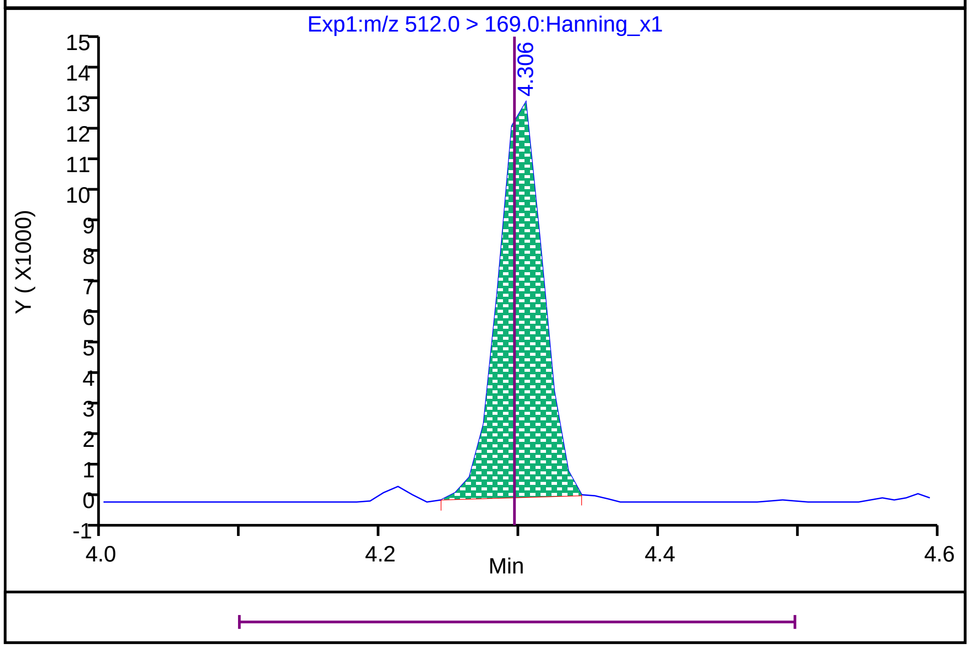
26 MeFOSA, CAS: 31506-32-8

Processing Integration Results

RT:	4.306
Area:	28648
Amount:	657.17
Amount Units:	ng/L



RT:	4.306
Area:	28027
Amount:	644.77
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:00:17

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d		
Injection Date:	16-Nov-2021 17:23:54	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	5
Sample Info:	F.L. ICAL 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	646253	19	>100:1			1000.00	1035.77	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	0/-1	656318	20	>100:1			1000.00	970.76		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	597525	17	>100:1			1000.00	1031.72	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	654076	16	>100:1			1000.00	996.75		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	173893	15	>100:1			1000.00	1001.99	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	189263	17	>100:1	Target = 3.48		884.00	873.66		
298.9 > 99	44	2.120	2.120		56037	17	>100:1	3.37 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	147564	18	>100:1	Target = 3.03		938.00	958.66		
349 > 99	44	2.460	2.460		50668	16	>100:1	2.91 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	114363	18	>100:1			5000.00	5237.35	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	1/0	47227	17	>100:1	Target = 1.70		934.00	938.18		
327 > 81	63	2.389	2.389		25325	17	63:1	1.86 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	1	690660	18	>100:1			1000.00	1065.71	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	1/0	703416	17	>100:1	Target = 18.47		1000.00	962.49		
313 > 119	49	2.424	2.424		34184	17	>100:1	20.57 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	1	1156071	18	>100:1			5000.00	5162.95	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	1/0	303137	17	>100:1	Target = 0.78		2000.00	1992.46		
285 > 185	66	2.540	2.540		374474	18	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	541987	18	>100:1			1000.00	1026.89	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	0/-1	634114	17	>100:1	Target = 3.92		1000.00	1023.13		
363 > 169	47	2.791	2.791		148202	18	>100:1	4.27 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	135990	18	>100:1			1000.00	1064.78	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	1/0	126656	24	>100:1	Target = 3.14	4.70	910.00	826.15		
399 > 99	45	2.809	2.809		39504	22	>100:1	3.20 (1.57-4.71)	17.52				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	0/-1	958391	18	>100:1	Target = 3.33		942.00	906.12		
377 > 85	45	2.827	2.827		279545	17	>100:1	3.42 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.174	3.174	1/0	122702	21		Target = 3.02		952.00	928.06		
449 > 99	45	3.174	3.174		40345	19	>100:1	3.04 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	0	90012	21	>100:1			5000.00	5245.23	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.141	0/0	40186	21		Target = 1.69		948.00	951.67		
427 > 81	64	3.141	3.141		22402	22	53:1	1.79 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.168	0	556700	21	>100:1			1000.00	1074.73	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.168	3.168	0/0	561251	21	>100:1	Target = 3.03		1000.00	963.35		
413 > 169	53	3.168	3.168		186955	22	>100:1	3.00 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	1	132590	24	>100:1			1000.00	1064.97	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.537	3.537	0/-1	136774	35	>100:1	Target = 3.42	3.38	928.00	868.46		M
499 > 99	54	3.537	3.537		43429	33	>100:1	3.14 (1.71-5.13)	6.79				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.740	3.740	0/-1	461227	19	>100:1			932.00	906.11		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.879	3.879	0/-1	97085	19	>100:1	Target = 2.57		960.00	940.50		
549 > 99	54	3.879	3.879		38673	23		2.51 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.178	4.178	0/-1	94661	22		Target = 2.71		964.00	888.17		
599 > 99	54	4.178	4.178		32607	21		2.90 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.338	4.338	0/-1	418355	17	>100:1			942.00	930.84		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.681	4.681	0/-1	94798	17	>100:1	Target = 3.04		968.00	898.43		
699 > 99	54	4.681	4.681		32844	18		2.88 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.537	3.537	0	690404	20	>100:1			1000.00	1070.02	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.537	3.537	0/0	763424	19	>100:1	Target = 7.14		1000.00	1003.79		
463 > 169	56	3.537	3.537		110776	20	>100:1	6.89 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.846	0	274090	18	>100:1			1000.00	1086.94	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.846	3.846	0/0	293871	17	>100:1	Target = 32.83		1000.00	975.78		
498>478	55	3.846	3.846		9123	23		32.21 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	0	88081	18	>100:1			5000.00	5267.41	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.879	3.879	0/0	39073	18	>100:1	Target = 2.14		958.00	956.36		
527 > 81	65	3.879	3.879		18917	22	82:1	2.06 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.482	4.482	1/1	41924	16	>100:1	Target = 3.72		964.00	885.32		
627 > 80	65	4.482	4.482		11421	20		3.67 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.887	3.887	1	586322	18	>100:1			1000.00	1028.89	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.887	3.887	0/-1	676545	19	>100:1	Target = 14.16		1000.00	984.15		
513 > 169	51	3.887	3.887		43731	22	>100:1	15.47 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	1	684495	17	>100:1			5000.00	5011.39	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.045	4.045	0/-1	119268	30	>100:1	Target = 1.42	8.37	1000.00	1051.71		
570 > 483	58	4.053	4.045		82556	32	>100:1	1.44 (0.71-2.14)	3.85				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.196	4.196	0	610899	18	>100:1			5000.00	5031.29	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.206	4.206	2/2	123223	31	>100:1	Target = 1.49	6.86	1000.00	1063.03		
584 > 526	60	4.206	4.206		79018	32	>100:1	1.55 (0.74-2.24)	3.63				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.196	4.196	0	665740	16	>100:1			1000.00	1025.49	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.196	4.196	0/0	633980	15	>100:1	Target = 14.37		1000.00	1026.39		
563 > 169	52	4.196	4.196		46490	13	>100:1	13.63 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.267	4.267	0	88387	15	>100:1			1000.00	1008.59	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.287	1/1	111556	14	>100:1			1000.00	1143.21		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.298	1	50083	12	>100:1			1000.00	1025.51	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.298	4.298	1/0	49237	14	>100:1	Target = 1.08		1000.00	964.35		
512 > 219	57	4.298	4.298		48008	15	>100:1	1.02 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.437	0	114206	18	>100:1			1000.00	1078.27	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.455	4.455	0/0	113783	16	>100:1			1000.00	977.26		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.464	4.464	1	45730	15	>100:1			1000.00	1043.79	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.473	4.473	0/-1	49323	14	>100:1	Target = 0.97		1000.00	915.91		
526 > 219	59	4.464	4.473		49560	14	>100:1	0.99 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.473	4.473	1	626804	17	>100:1			1000.00	1050.14	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.473	4.473	1/0	660347	17	>100:1	Target = 10.55		1000.00	975.91		
613 > 169	38	4.473	4.473		58431	16	>100:1	11.30 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.711	4.711	0/-1	607928	18	>100:1	Target = 8.92		1000.00	996.36		
663 > 169	38	4.711	4.711		68201	18	>100:1	8.91 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	0	795861	18	>100:1			1000.00	1055.36	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	0/0	672009	18	>100:1	Target = 12.22		1000.00	963.11		
713 > 169	42	4.928	4.928		54210	16	>100:1	12.39 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.302	5.302	0	929181	22	>100:1			1000.00	1033.36	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.302	5.302	0/0	607230	22	>100:1	Target = 11.65		1000.00	964.58		
813 > 269	40	5.302	5.302		52594	22	>100:1	11.54 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.660	5.660	1/1	879448	21	>100:1	Target = 15.15		1000.00	1005.90		
913 > 319	40	5.652	5.660		58158	20	>100:1	15.12 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.887	3.887	1	668817	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	1	701886	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.168	0	553124	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	587938	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	0	132881	19				1000.00			

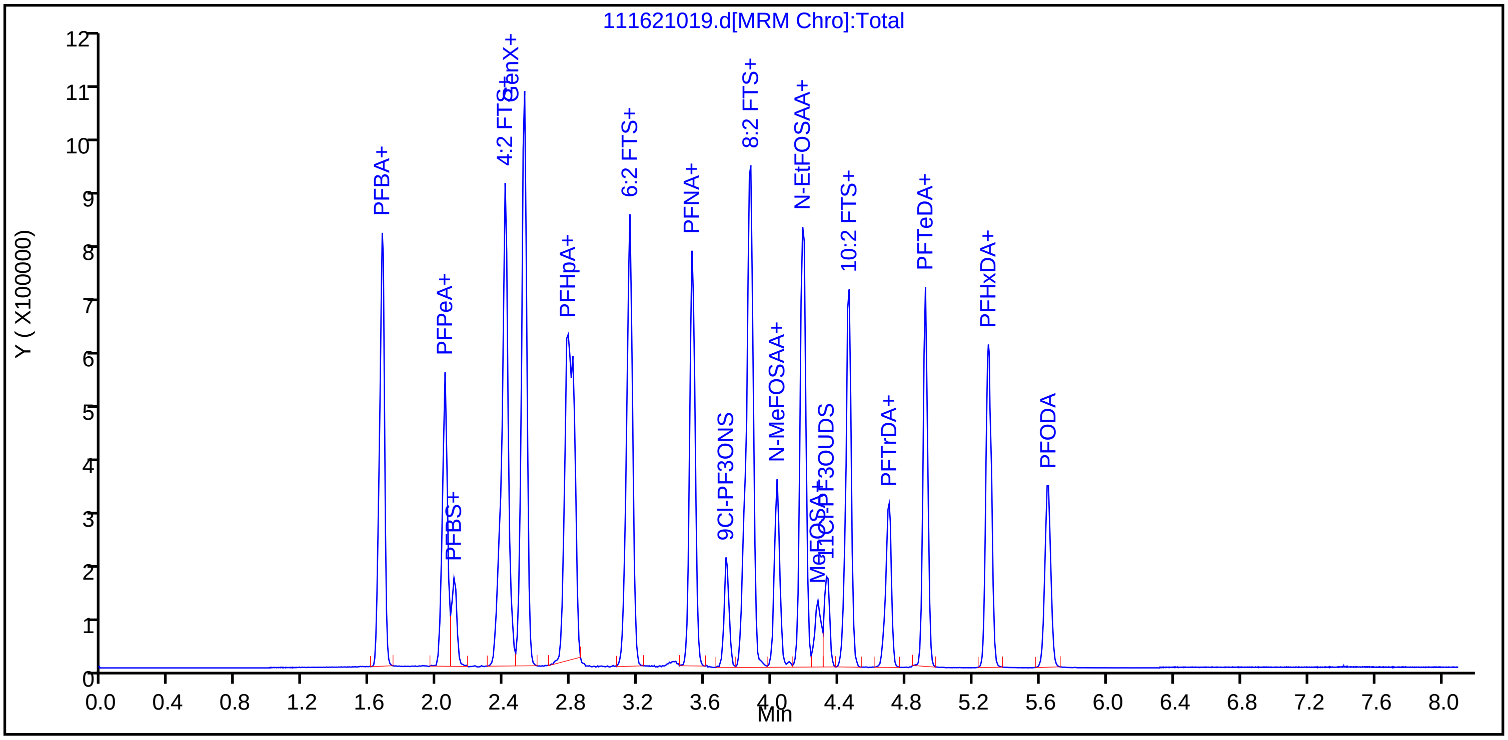
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

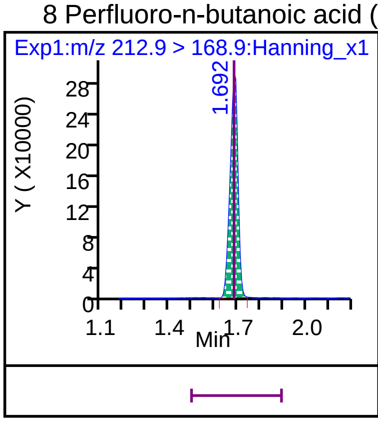
Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

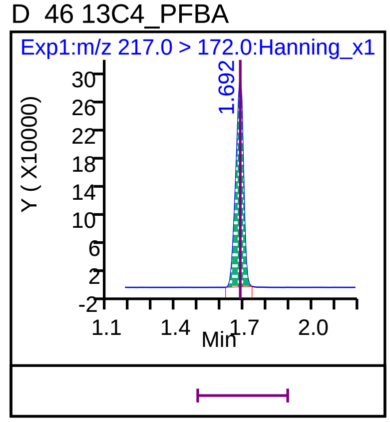
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d		
Injection Date:	16-Nov-2021 17:23:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 1000_SVLC-1744
Sample Info:	F.L. ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



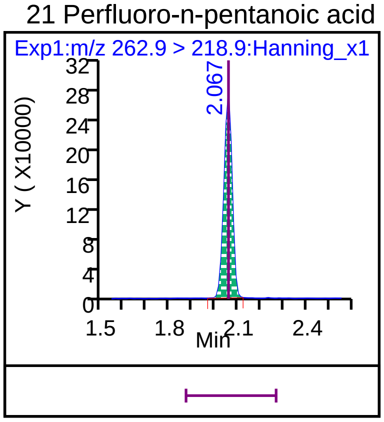
8 Perfluoro-n-butanoic acid (PFBA)



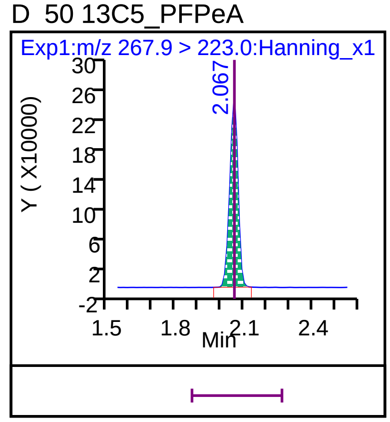
D 46 13C4_PFBA



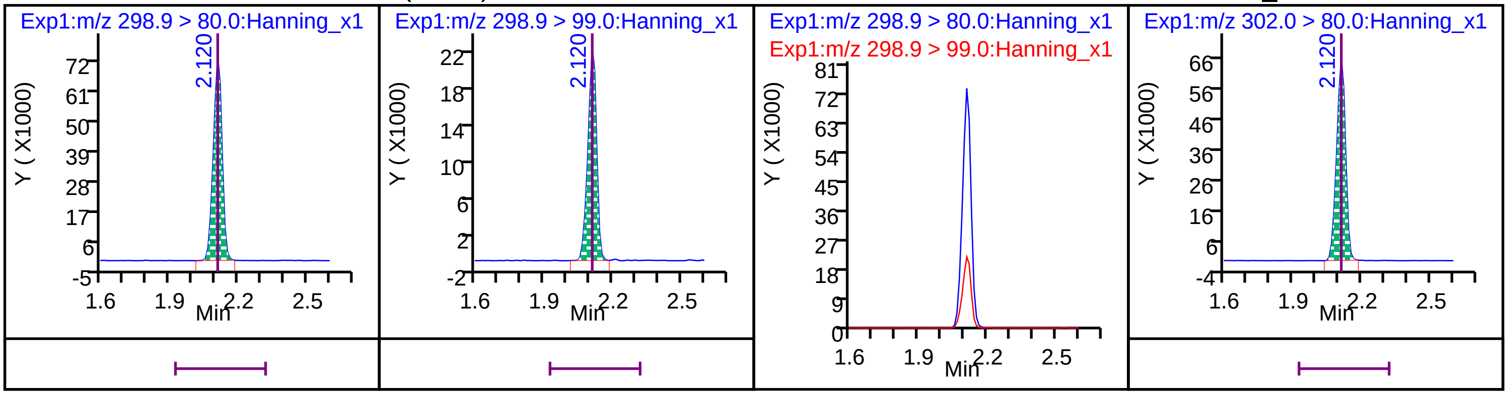
21 Perfluoro-n-pentanoic acid (PFPeA)



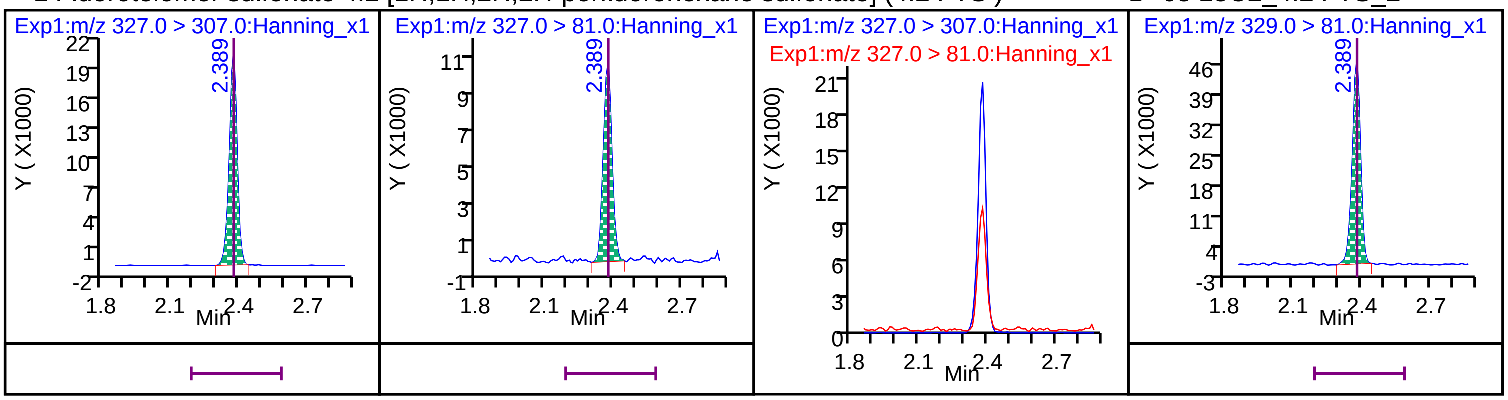
D 50 13C5_PFPeA



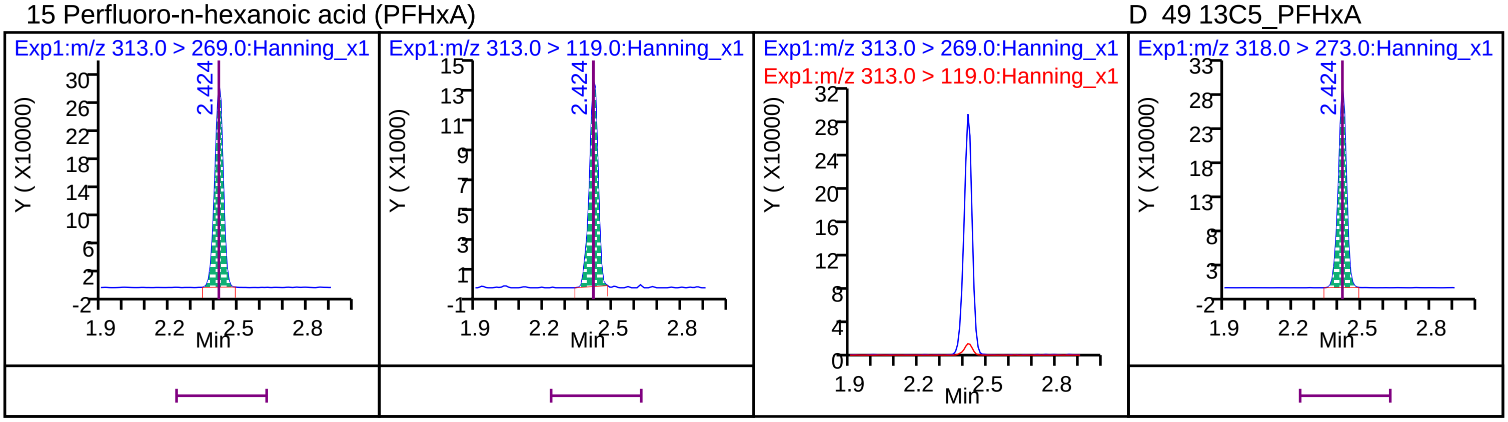
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



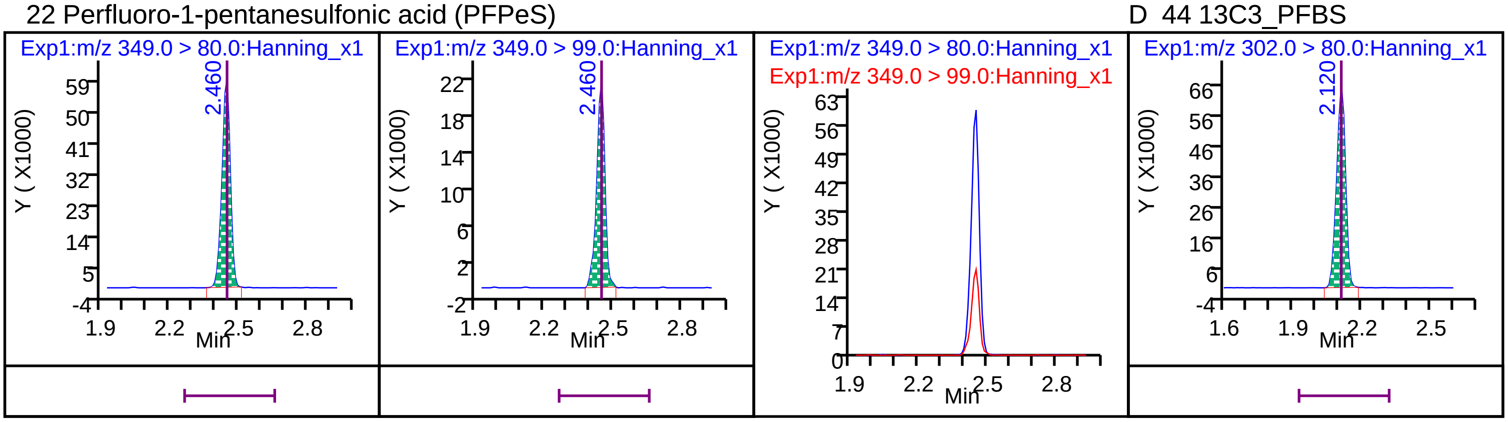
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

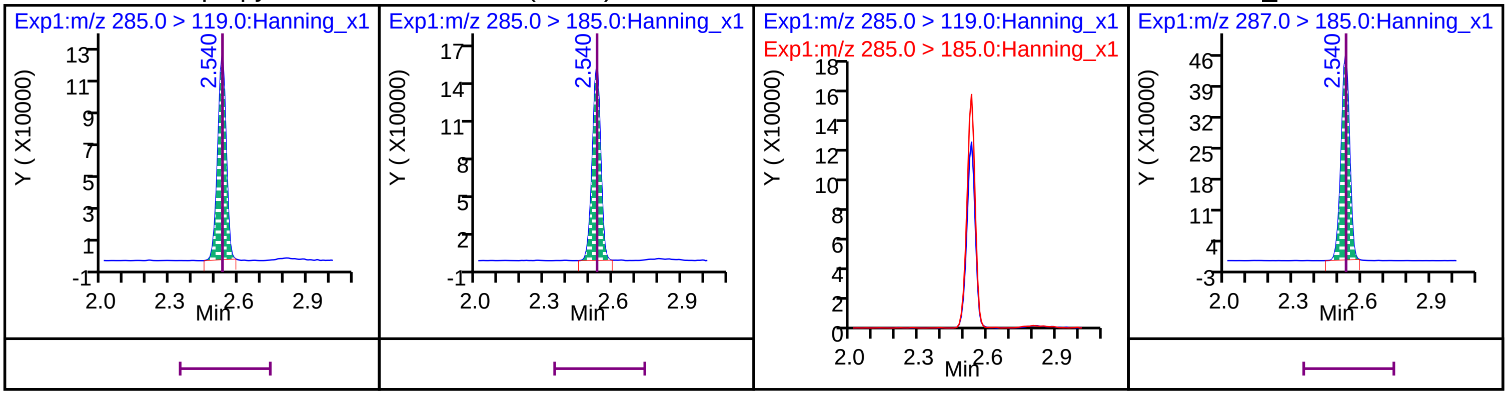


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

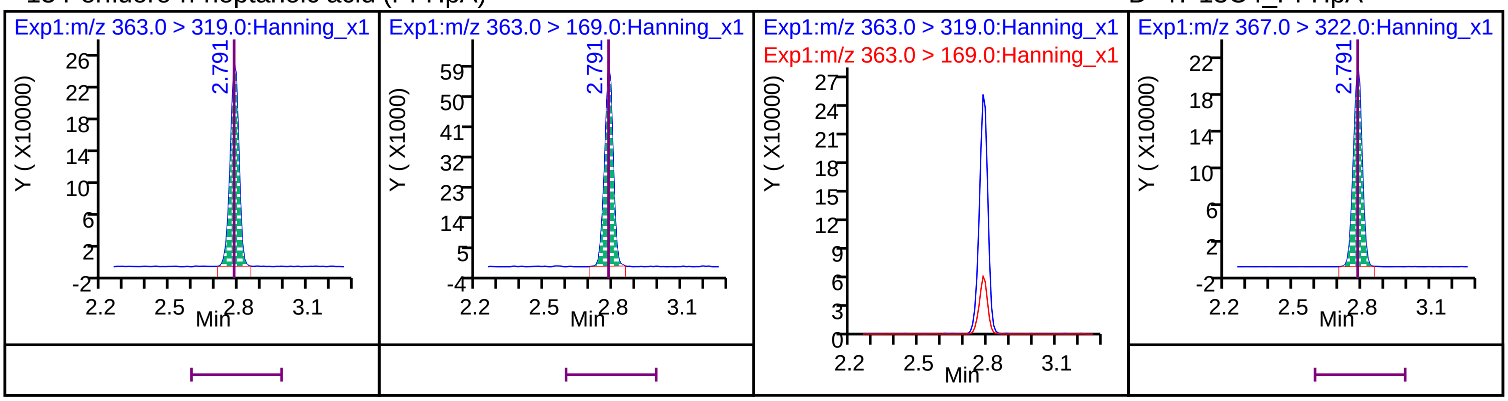


Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d

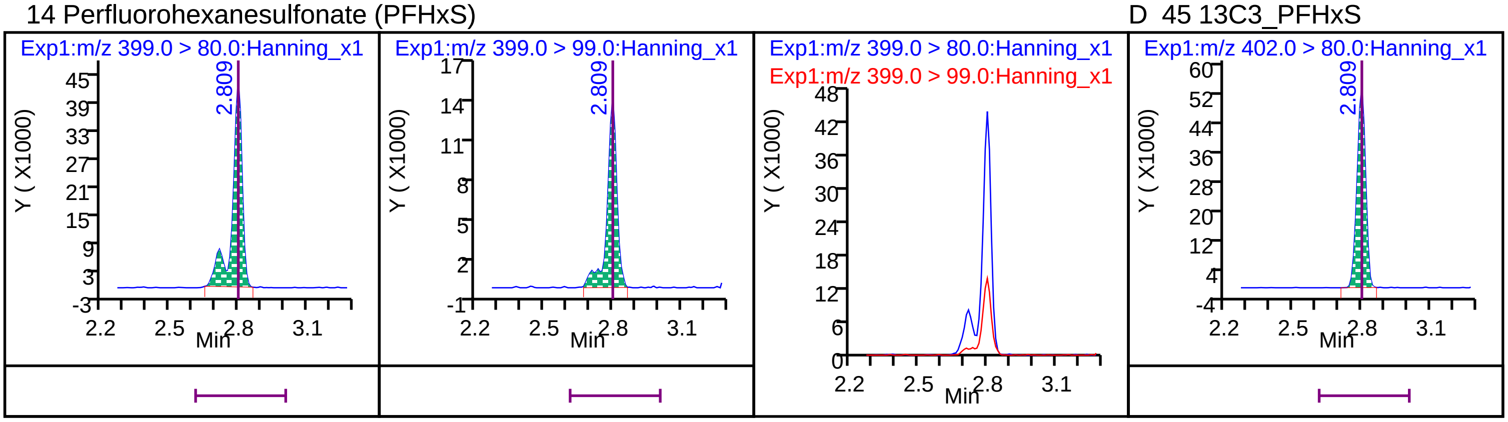
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



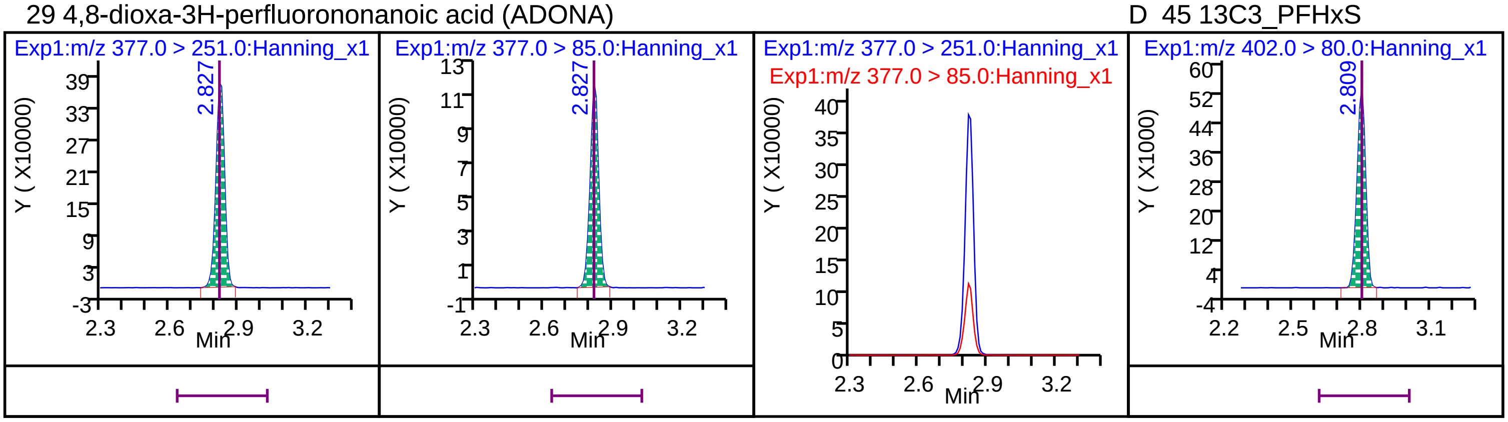
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

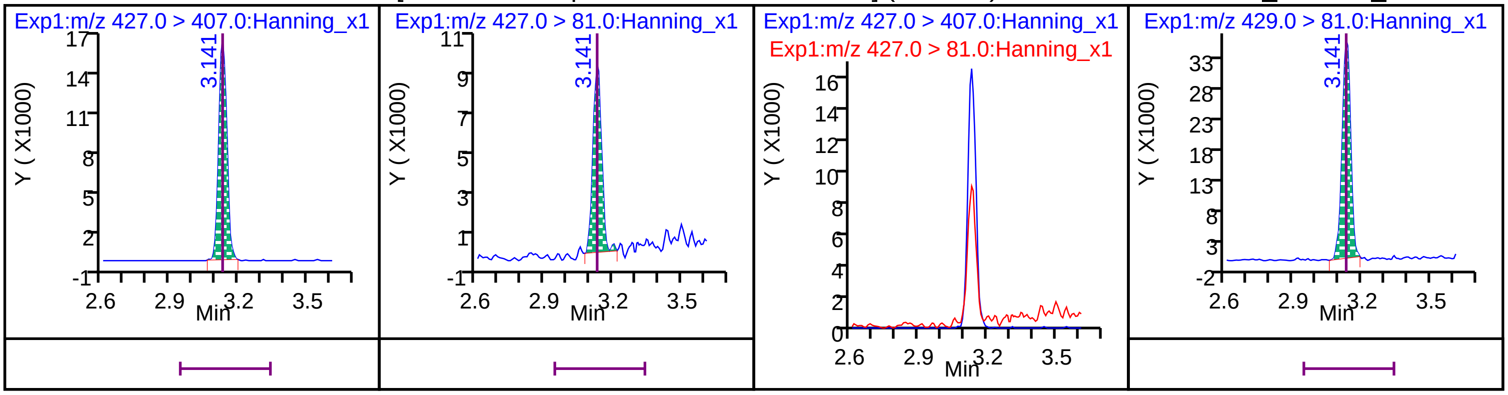


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

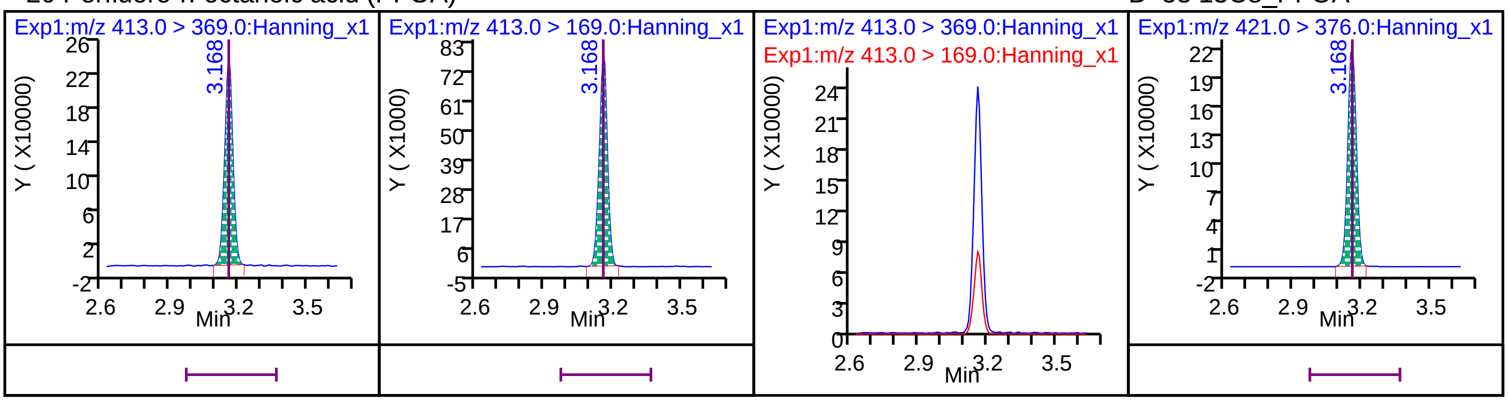


Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d

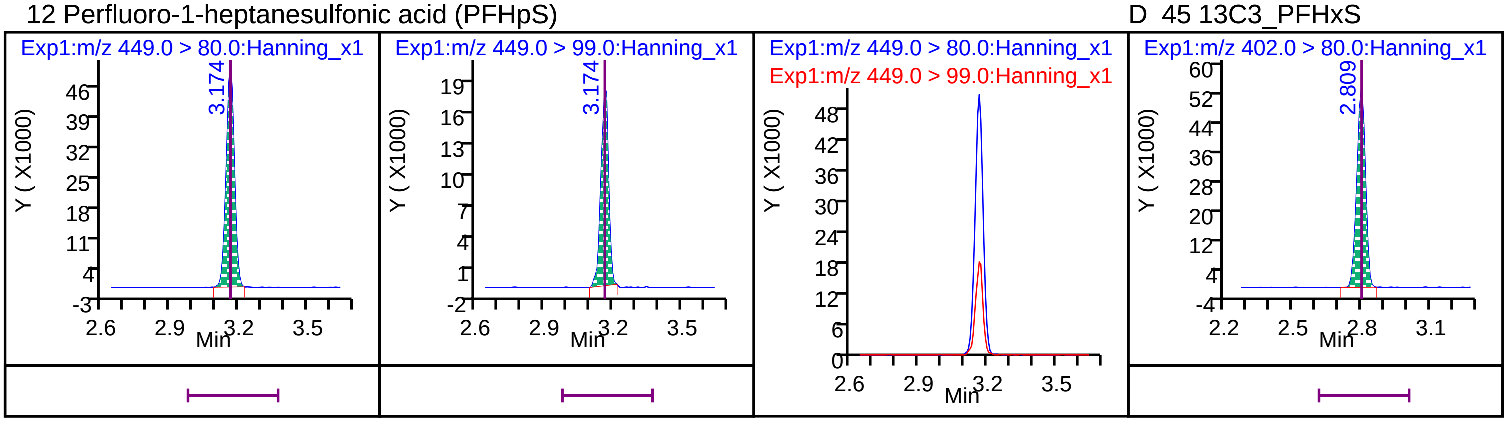
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



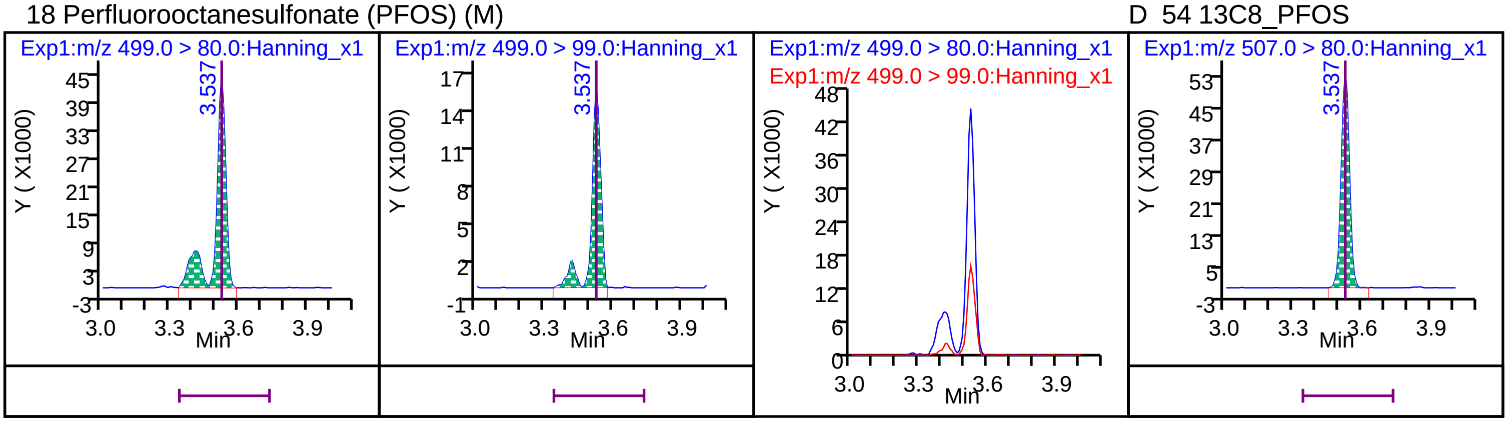
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



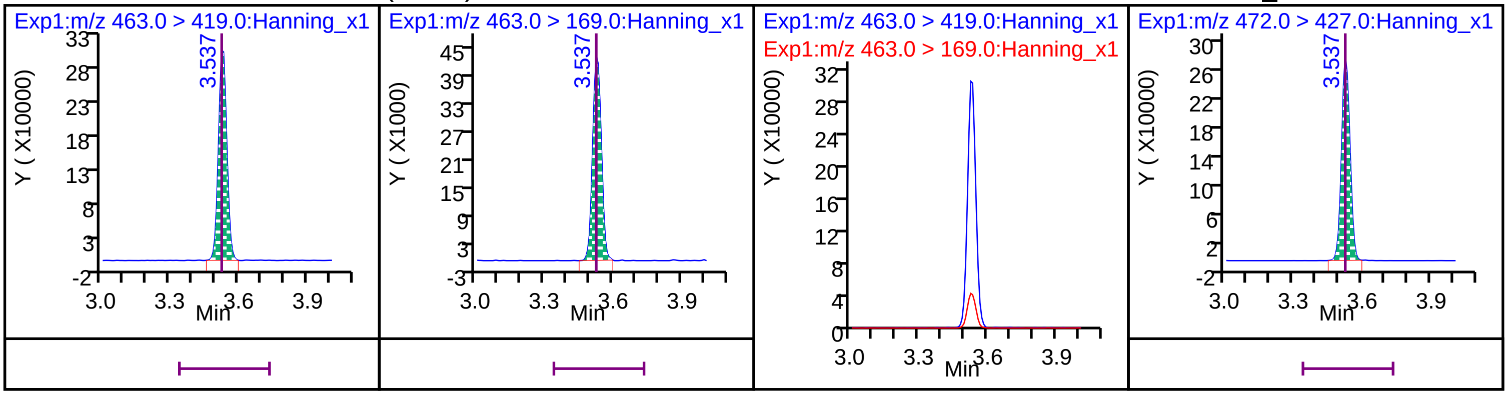
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



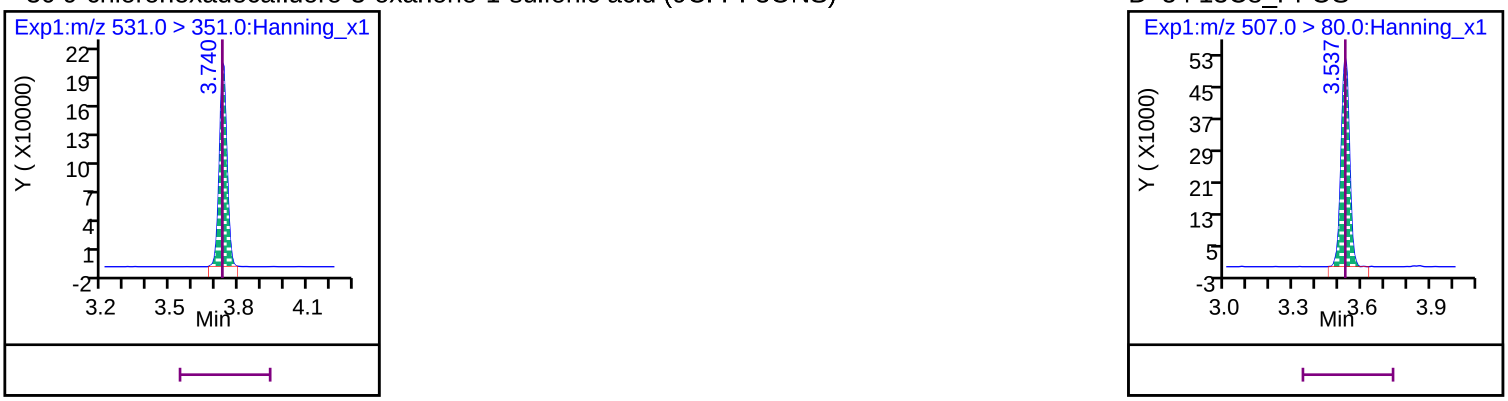
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



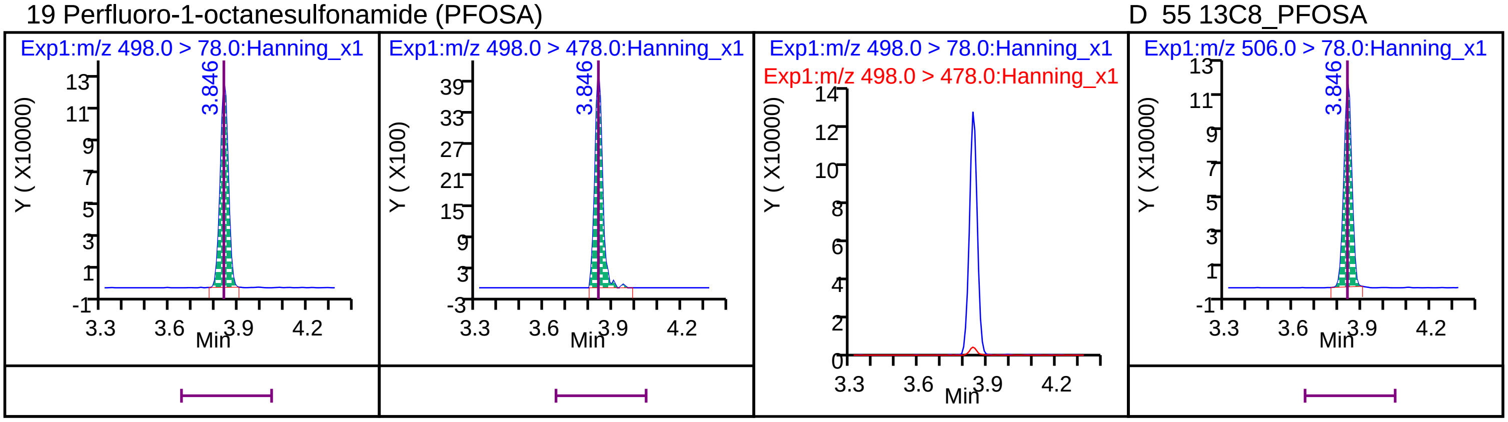
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



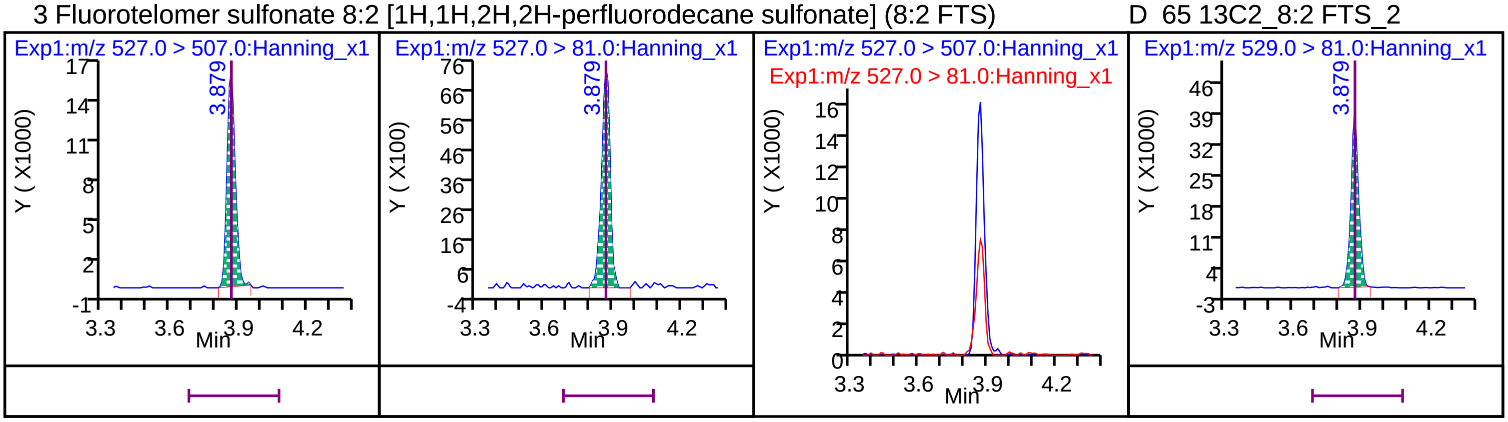
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

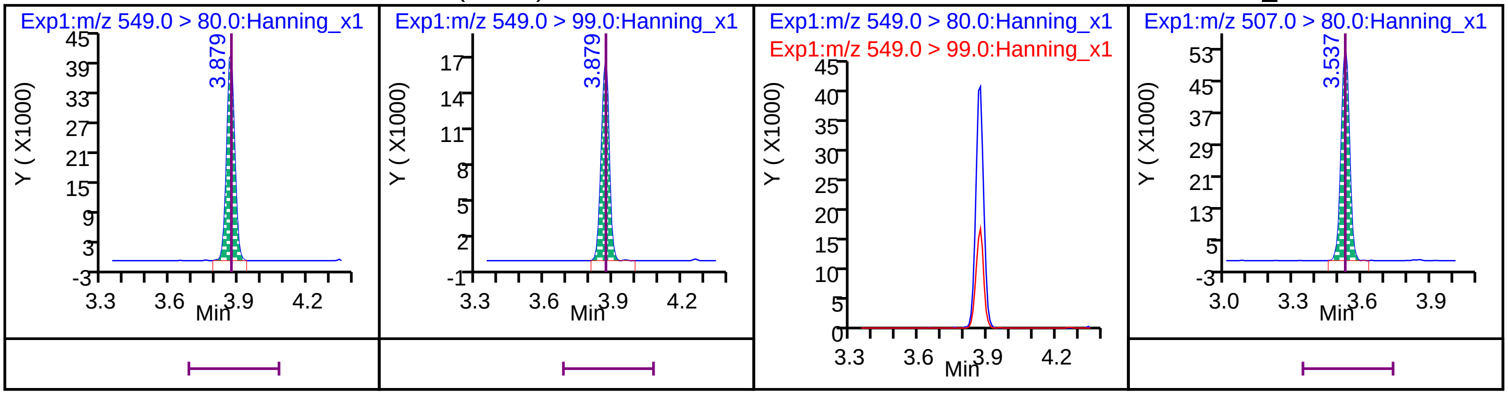


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

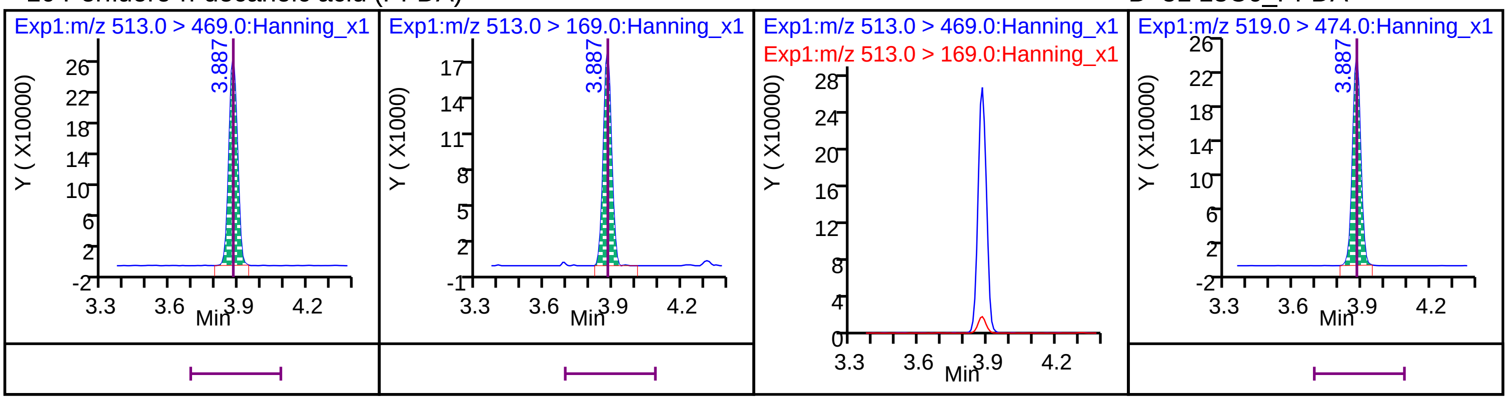


Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d

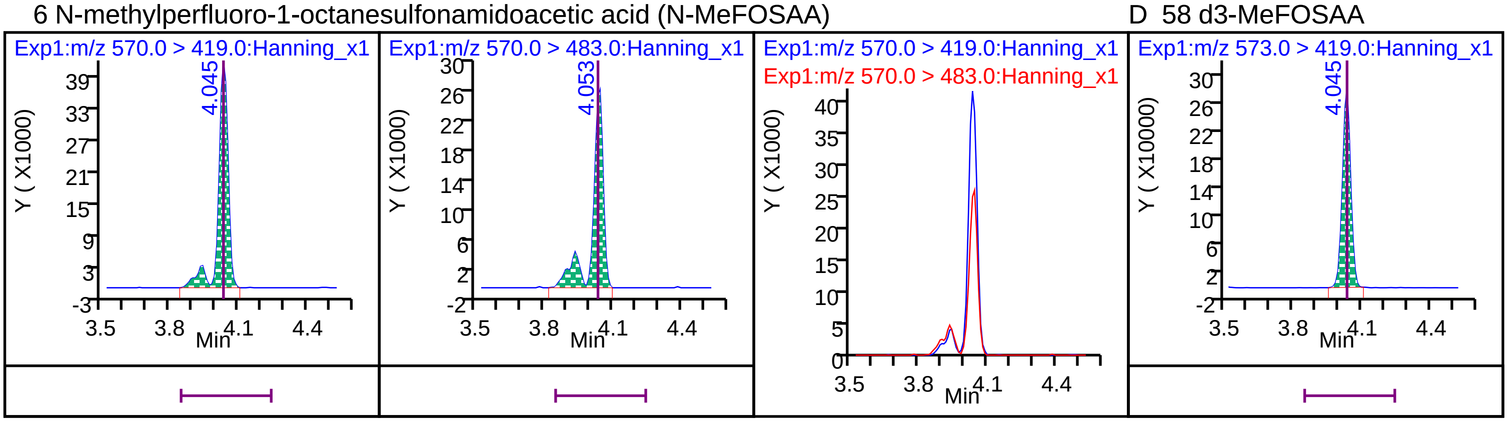
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



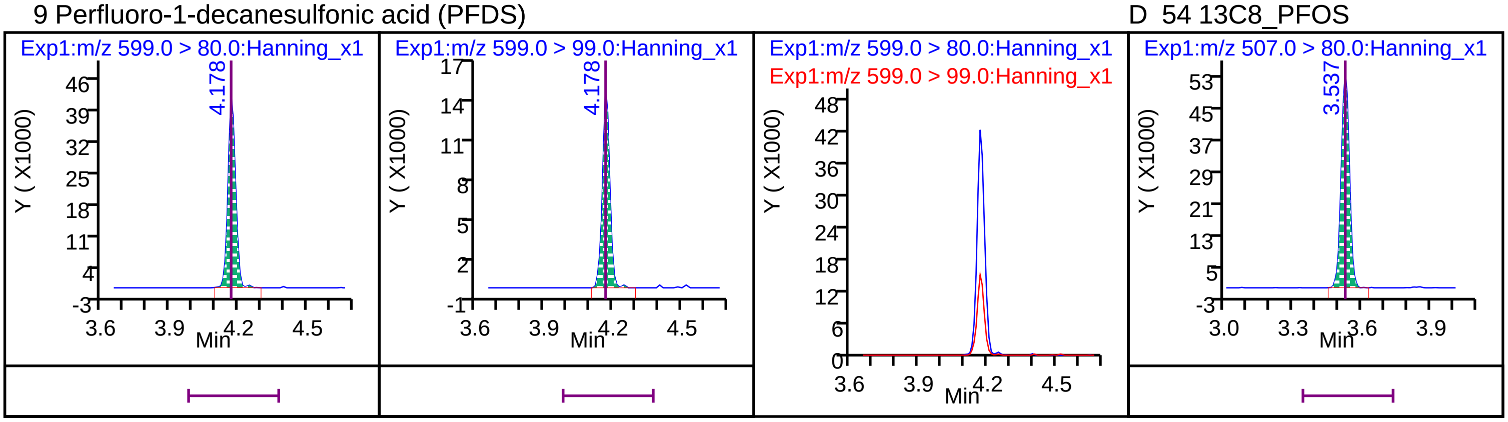
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



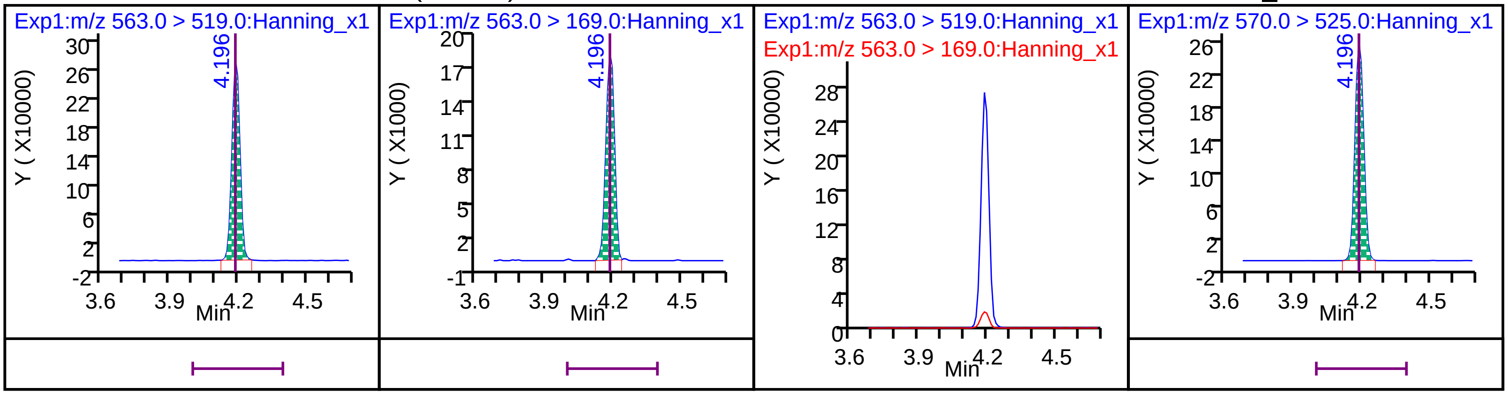
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



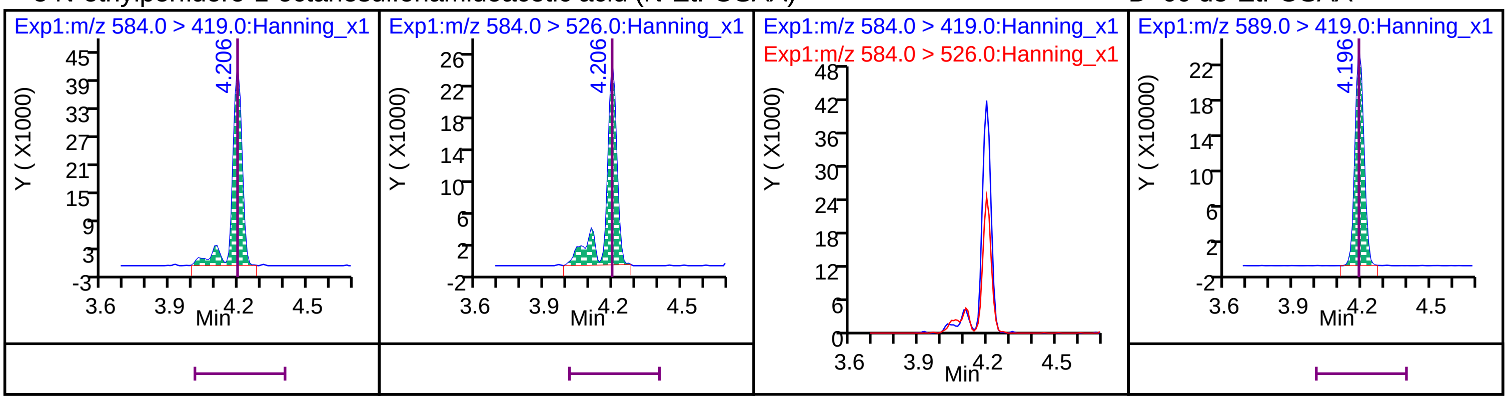
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



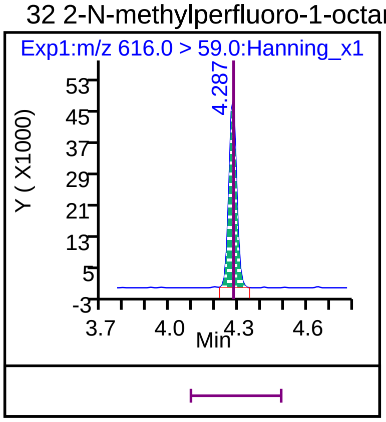
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

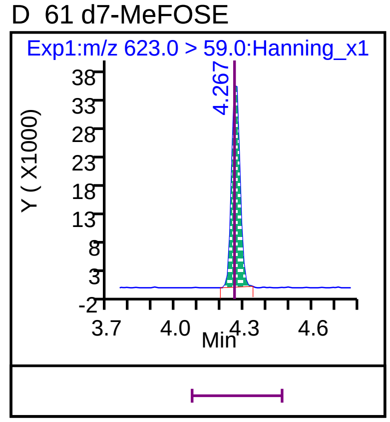


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

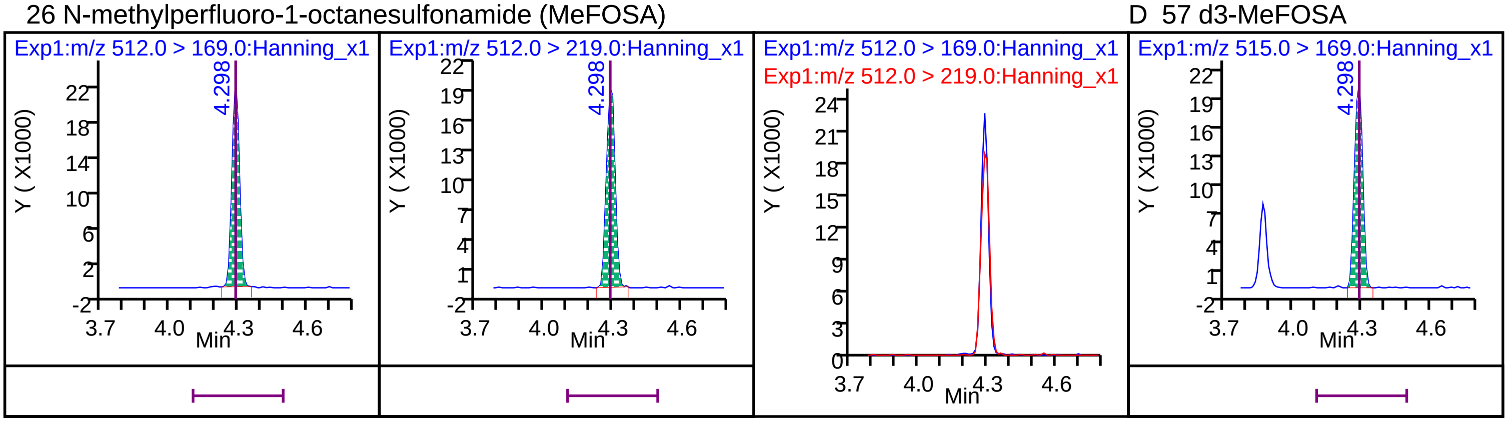


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

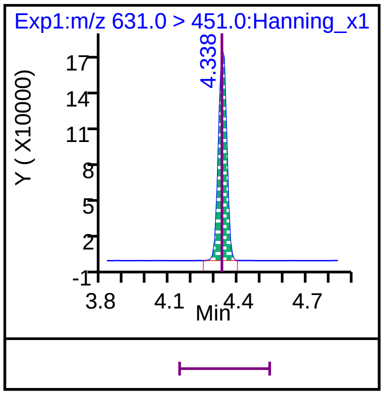




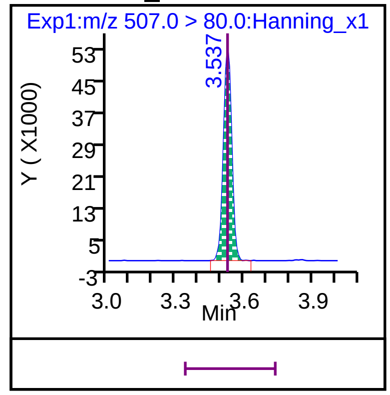
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



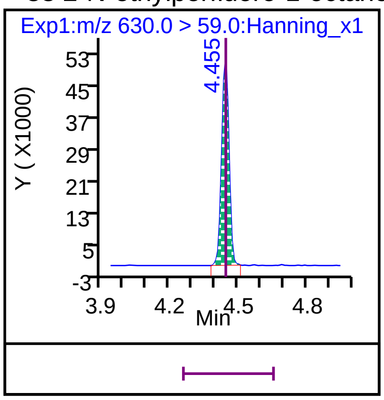
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



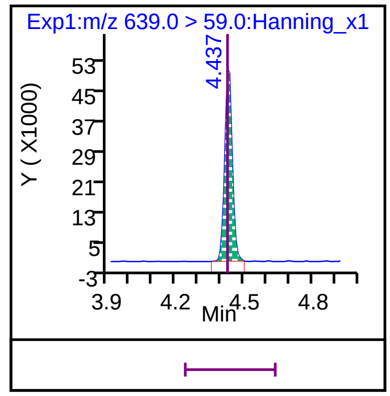
D 54 13C8_PFOS



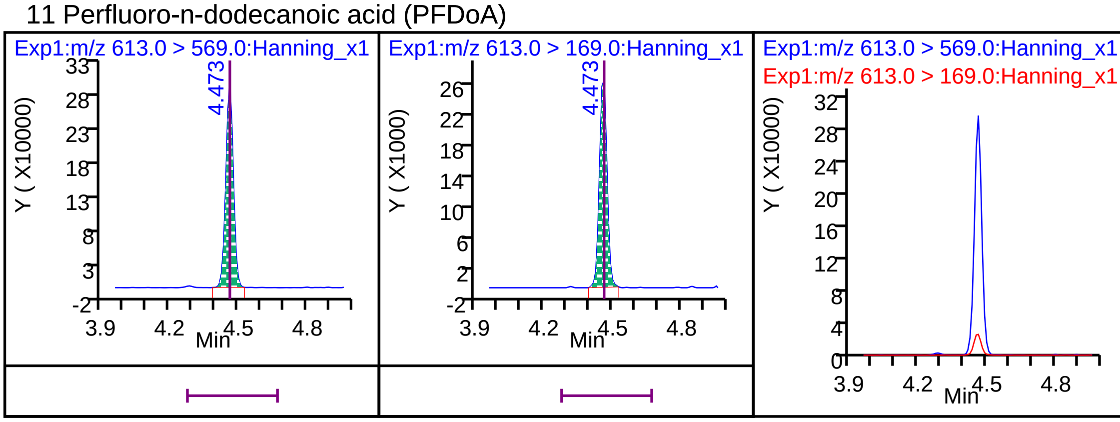
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



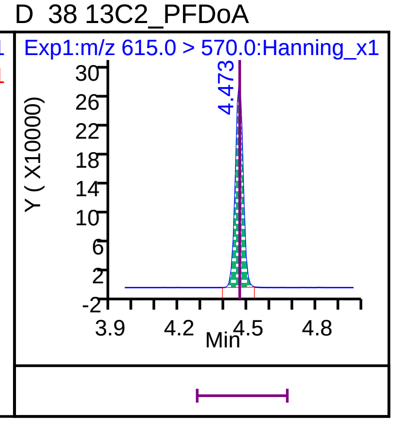
D 62 d9-EtFOSE



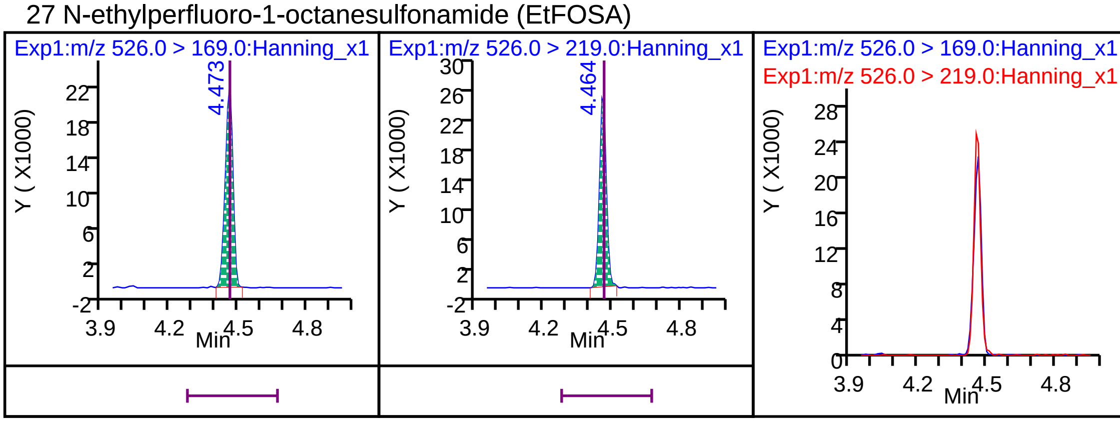
11 Perfluoro-n-dodecanoic acid (PFDoA)



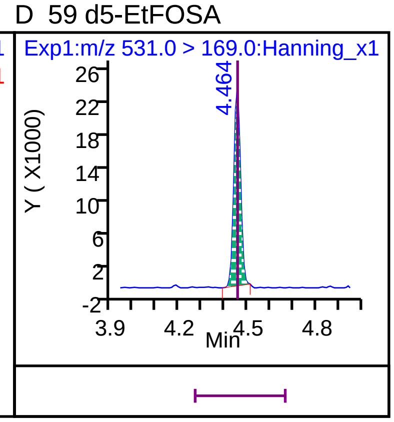
D 38 13C2_PFDoA



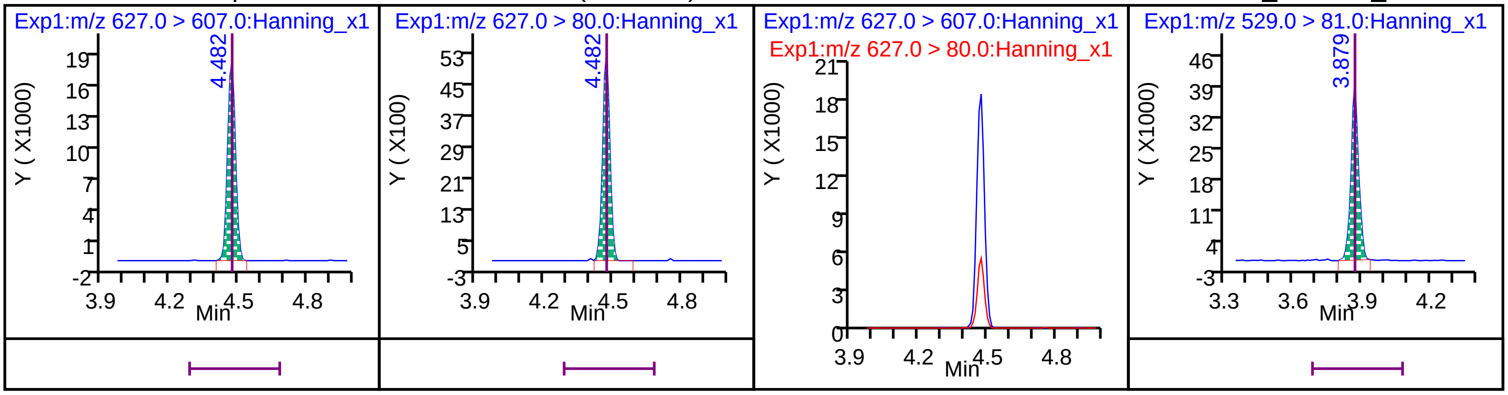
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



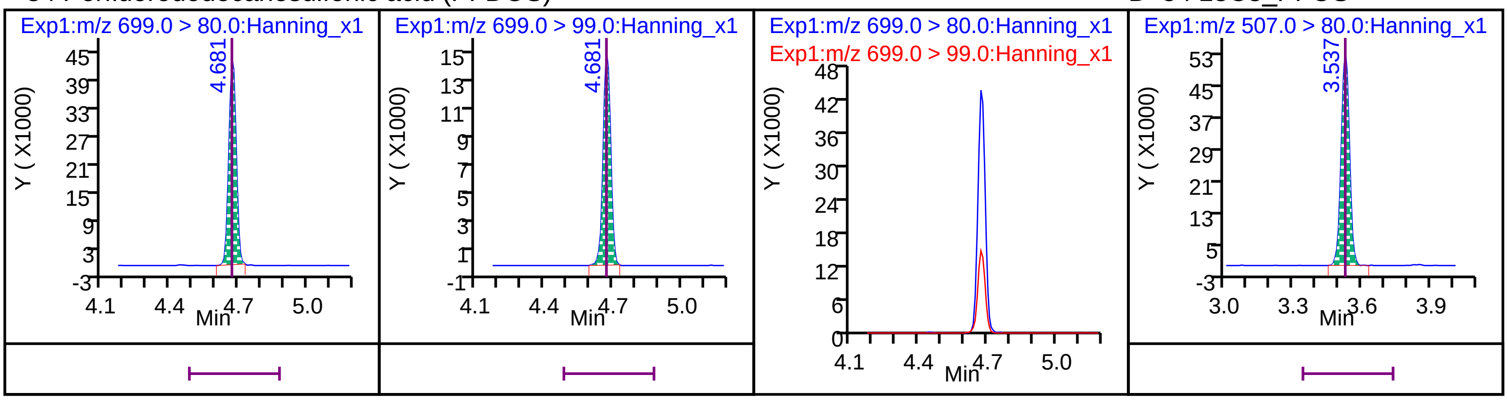
D 59 d5-EtFOSA



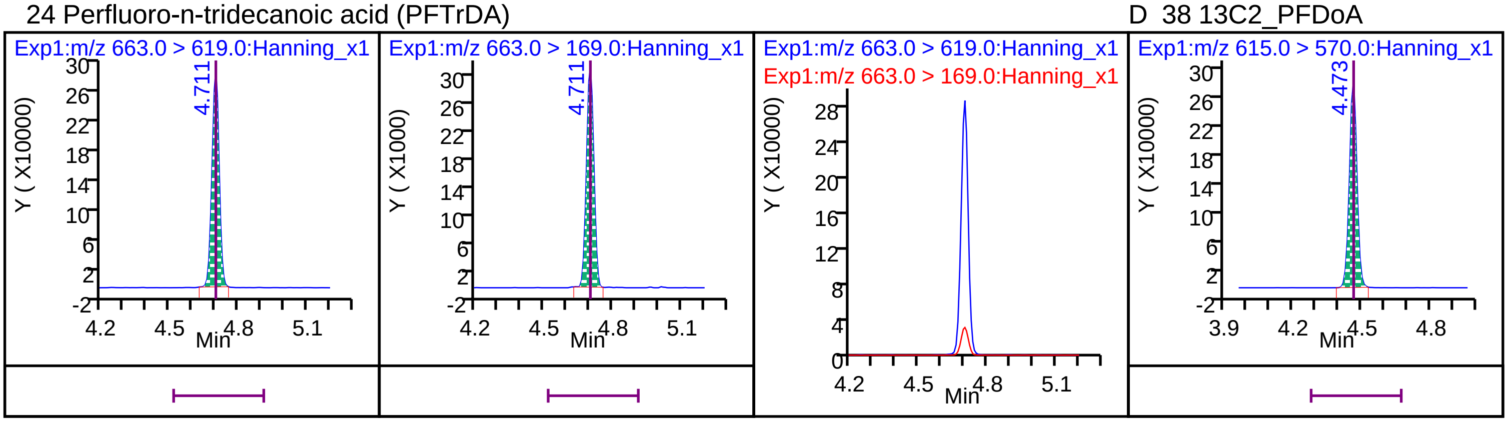
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



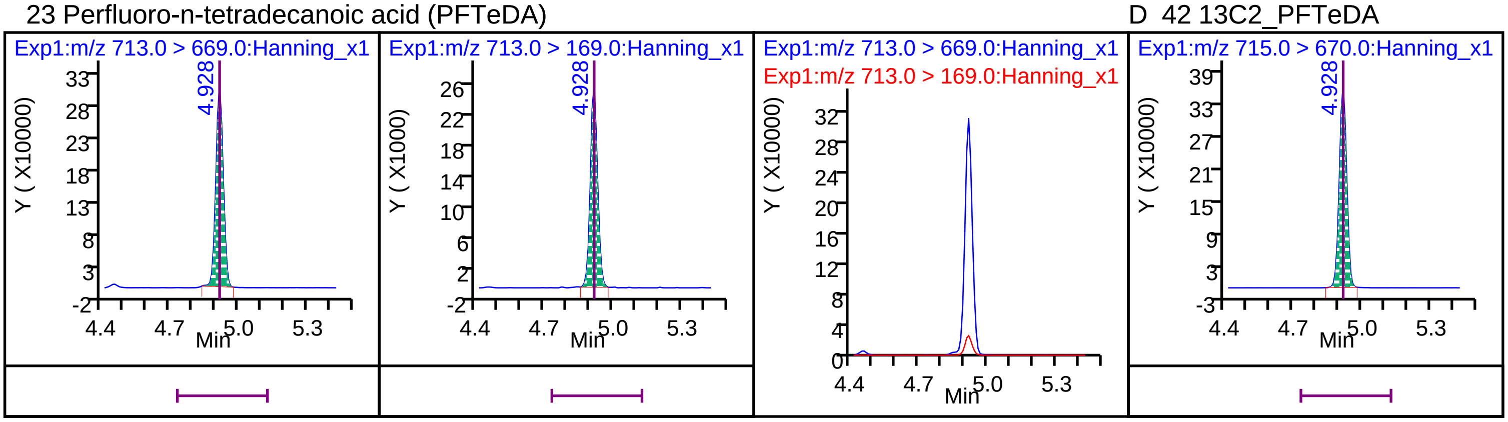
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

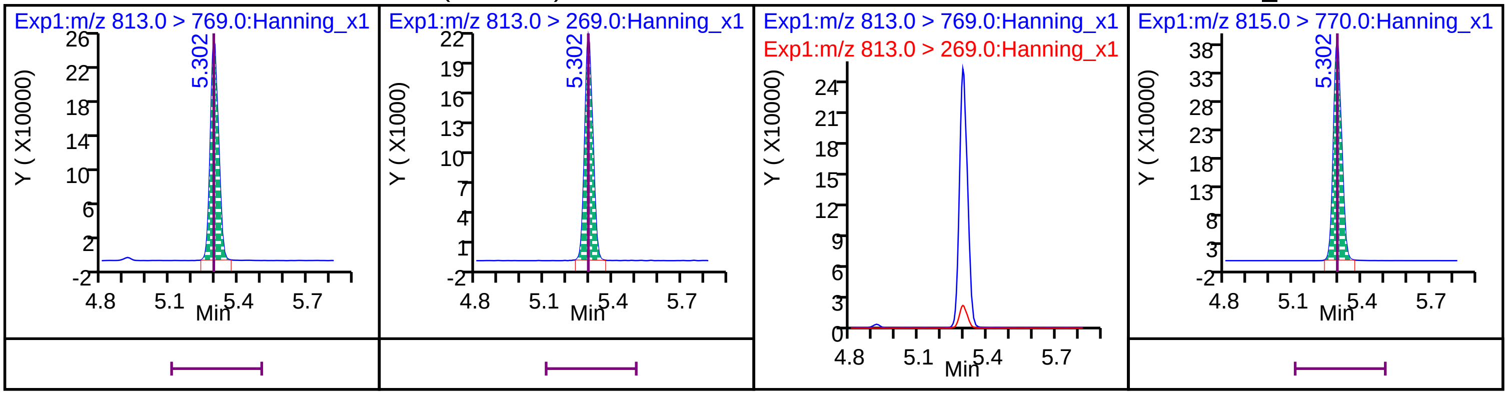


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

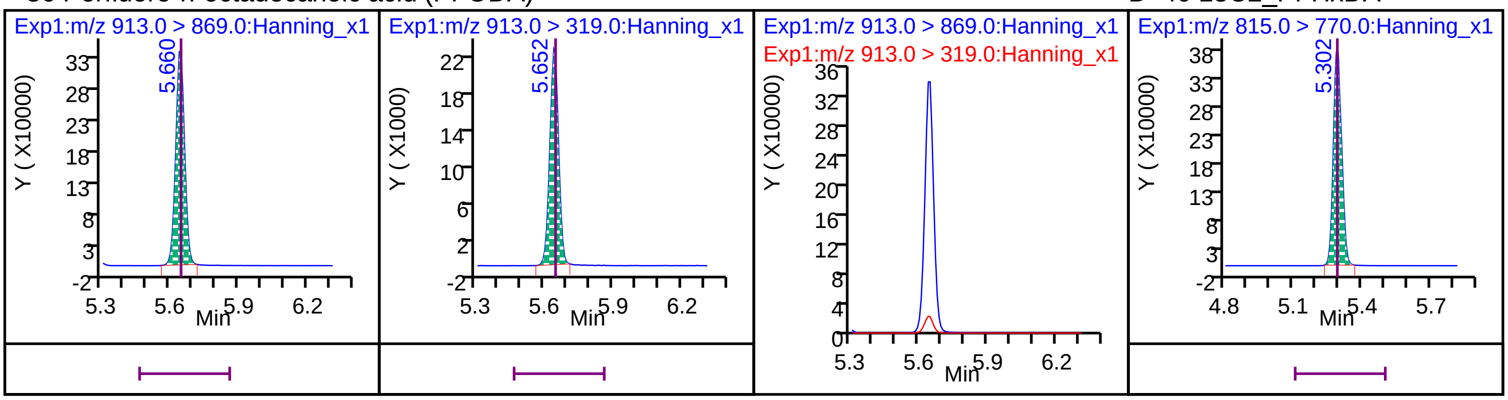


Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d

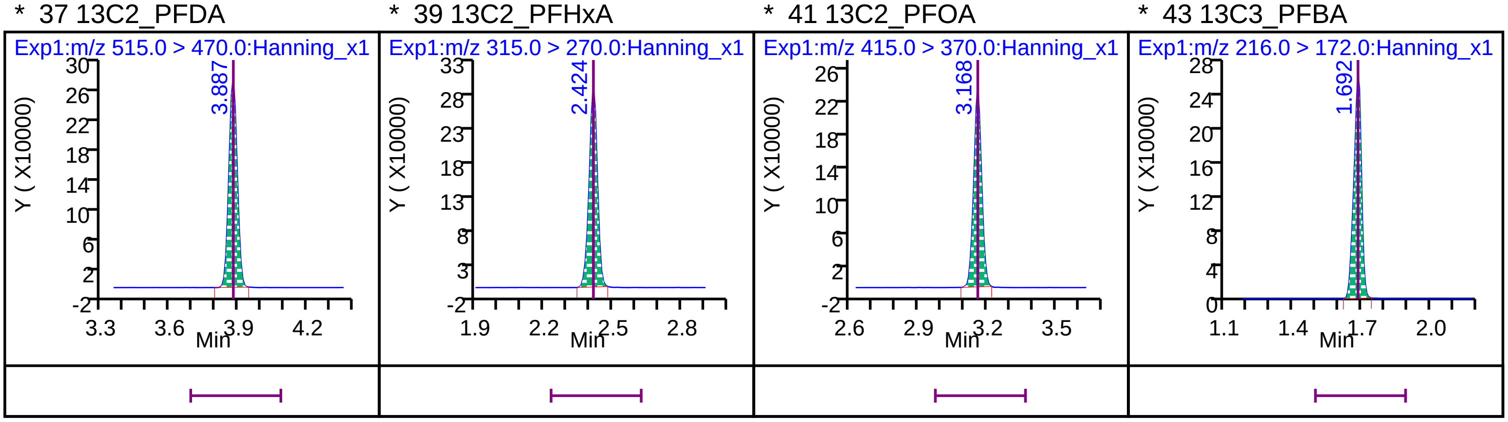
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



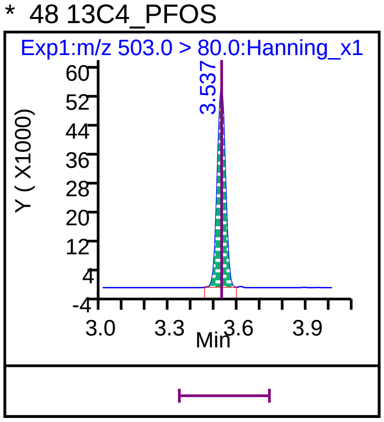
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621019.d

Injection Date: 16-Nov-2021 17:23:54 Inst. ID: LCMSMS02.i

Client ID: Lab ID: F.L. ICAL 1000_SVLC-1744

Sample Info: F.L. ICAL 1000_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

18 PFOS, CAS: 1763-23-1

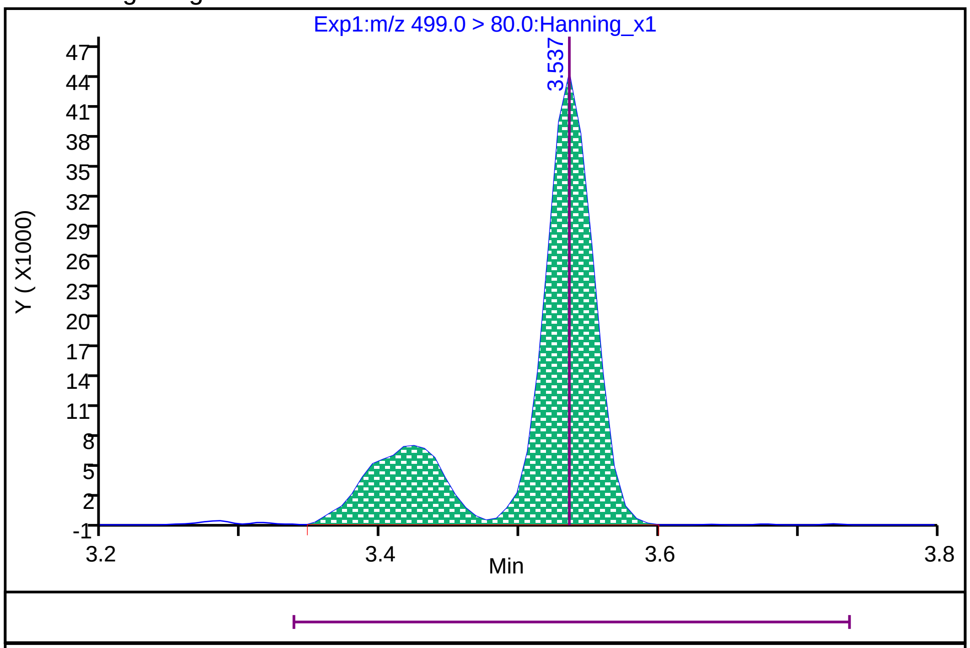
Processing Integration Results

RT: 3.537

Area: 136095

Amount: 876.76

Amount Units: ng/L

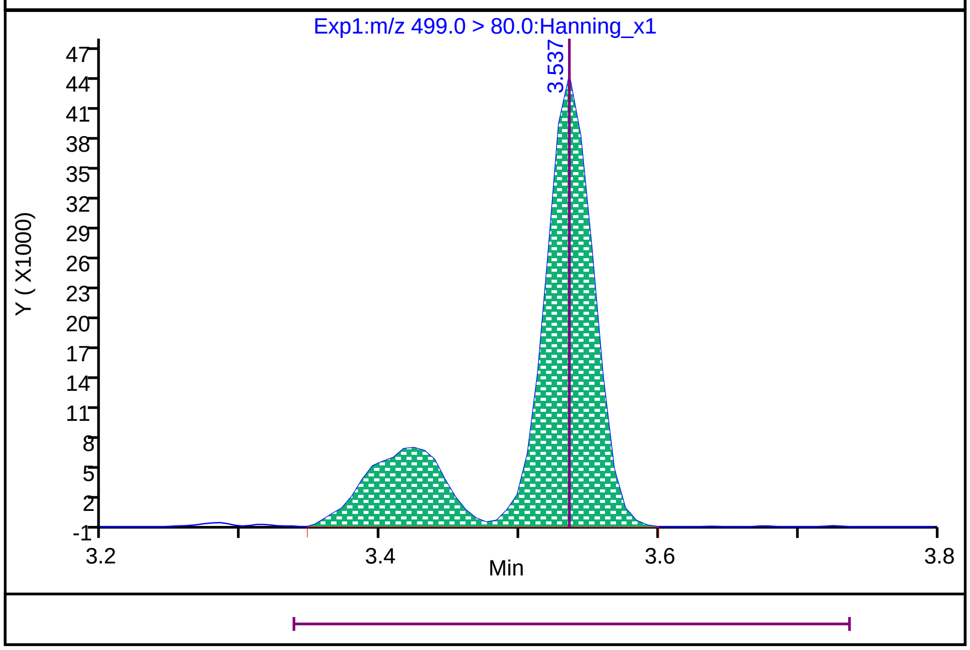


RT: 3.537

Area: 136774

Amount: 868.46

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:10

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621020.d		
Injection Date:	16-Nov-2021 17:34:24	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	6
Sample Info:	F.L. ICAL 2000_SVLC-1745	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	0	620800	22	>100:1			1000.00	994.98	96.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	0/0	1280030	21	>100:1			2000.00	1970.92		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	0	585534	17	>100:1			1000.00	1011.01	98	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	0/0	1263859	16	>100:1			2000.00	1965.44		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.120	0	176299	15	>100:1			1000.00	1015.85	101.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.120	0/0	362615	17	>100:1	Target = 3.48		1768.00	1651.02		
298.9 > 99	44	2.119	2.120		110125	15	>100:1	3.29 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	0/0	286881	17	>100:1	Target = 3.03		1876.00	1838.31		
349 > 99	44	2.460	2.460		97438	18	>100:1	2.94 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	0	111697	18	>100:1			5000.00	5115.26	97.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	0/0	90120	16	>100:1	Target = 1.70		1868.00	1846.47		
327 > 81	63	2.389	2.389		49125	22	>100:1	1.83 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	0	629817	18	>100:1			1000.00	971.83	91.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	0/0	1381792	18	>100:1	Target = 18.47		2000.00	2073.36		
313 > 119	49	2.424	2.424		68063	18	>100:1	20.30 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	0	1138539	18	>100:1			5000.00	5084.65	98.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	0/0	557190	18	>100:1	Target = 0.78		4000.00	3718.70		
285 > 185	66	2.540	2.540		693347	18	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	0	524641	18	>100:1			1000.00	994.02	96.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	0/0	1137927	18	>100:1	Target = 3.92		2000.00	1896.73		
363 > 169	47	2.791	2.791		313690	18	>100:1	3.62 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	0	127914	16	>100:1			1000.00	1001.55	94.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	0/0	261408	26	>100:1	Target = 3.14	5.87	1820.00	1812.76		
399 > 99	45	2.809	2.809		84228	24	>100:1	3.10 (1.57-4.71)	8.51				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.836	2.827	1/1	1785224	17	>100:1	Target = 3.33		1884.00	1794.43		
377 > 85	45	2.827	2.827		541691	17	>100:1	3.29 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.174	3.174	0/0	238344	20	>100:1	Target = 3.02		1904.00	1916.55		
449 > 99	45	3.174	3.174		75599	23		3.15 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.147	3.141	1	83792	23	>100:1			5000.00	4882.77	93.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.147	3.141	1/0	76134	21	>100:1	Target = 1.69		1896.00	1936.82		
427 > 81	64	3.147	3.141		41234	22	>100:1	1.84 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.167	3.168	0	513813	22	>100:1			1000.00	991.94	92.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.167	3.168	0/0	1092934	21	>100:1	Target = 3.03		2000.00	2032.54		
413 > 169	53	3.167	3.168		359111	21	>100:1	3.04 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	0	124433	20	>100:1			1000.00	999.46	93.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.537	3.537	0/0	272869	36	>100:1	Target = 3.42	3.99	1856.00	1846.19		M
499 > 99	54	3.537	3.537		86370	34	>100:1	3.15 (1.71-5.13)	7.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.746	3.740	1/1	856972	19	>100:1			1864.00	1793.93		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.879	3.879	0/0	182150	19	>100:1	Target = 2.57		1920.00	1880.24		
549 > 99	54	3.879	3.879		70690	17	>100:1	2.57 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.178	4.178	0/0	183895	17	>100:1	Target = 2.71		1928.00	1838.52		
599 > 99	54	4.178	4.178		69816	20	>100:1	2.63 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.338	4.338	0/0	802420	15	>100:1			1884.00	1902.42		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.689	4.681	1/1	189861	17	>100:1	Target = 3.04		1936.00	1917.32		
699 > 99	54	4.681	4.681		64298	17	>100:1	2.95 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.545	3.537	1	659180	19	>100:1			1000.00	1021.63	95.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.545	3.537	1/0	1398114	19	>100:1	Target = 7.14		2000.00	1925.40		
463 > 169	56	3.545	3.537		206825	19	>100:1	6.75 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.846	0	246769	18	>100:1			1000.00	978.59	90	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.846	3.846	0/0	528965	18	>100:1	Target = 32.83		2000.00	1950.85		
498>478	55	3.846	3.846		17152	19		30.83 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	0	86949	23	>100:1			5000.00	5199.71	98.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.887	3.879	1/1	73754	19	>100:1	Target = 2.14		1916.00	1828.72		
527 > 81	65	3.887	3.879		36740	15	>100:1	2.00 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.482	4.482	0/0	84864	15		Target = 3.72		1928.00	1815.42		
627 > 80	65	4.482	4.482		23827	17	95:1	3.56 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.887	3.887	0	578680	18	>100:1			1000.00	1015.48	98.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.887	3.887	0/0	1290721	18	>100:1	Target = 14.16		2000.00	1902.37		
513 > 169	51	3.887	3.887		86631	18	>100:1	14.89 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.044	4.045	0	679663	15	>100:1			5000.00	4976.02	99.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.053	4.045	1/1	200320	32	>100:1	Target = 1.42	8.79	2000.00	1778.99		
570 > 483	58	4.044	4.045		171241	30	>100:1	1.16 (0.71-2.14)	4.58				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.196	4.196	0	614019	17	>100:1			5000.00	5056.98	100.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.206	4.206	0/0	230600	30	>100:1	Target = 1.49	6.31	2000.00	1979.25		
584 > 526	60	4.206	4.206		154415	33	>100:1	1.49 (0.74-2.24)	3.72				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.196	4.196	0	659602	17	>100:1			1000.00	1016.04	99.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.196	4.196	0/0	1204820	16	>100:1	Target = 14.37		2000.00	1968.72		
563 > 169	52	4.196	4.196		83674	16	>100:1	14.39 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.267	1	92596	14	>100:1			1000.00	1056.62	104.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.287	0/-1	191595	17	>100:1			2000.00	1874.19		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.298	0	46879	15	>100:1			1000.00	959.91	93.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.297	4.298	0/0	102239	20	>100:1	Target = 1.08		2000.00	2139.29		
512 > 219	57	4.297	4.298		101217	13	>100:1	1.01 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.437	0	100075	17	>100:1			1000.00	944.85	87.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.455	4.455	0/0	202827	17				2000.00	1988.03		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.464	4.464	0	40976	16	>100:1			1000.00	935.28	89.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.464	4.473	0/0	97427	15	>100:1	Target = 0.97		2000.00	2019.09		
526 > 219	59	4.473	4.473		103161	16	>100:1	0.94 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.473	4.473	0	586725	17	>100:1			1000.00	982.99	93.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.473	4.473	0/0	1301897	17	>100:1	Target = 10.55		2000.00	2055.47		
613 > 169	38	4.473	4.473		115921	15	>100:1	11.23 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.711	4.711	0/0	1145181	19	>100:1	Target = 8.92		2000.00	2005.11		
663 > 169	38	4.711	4.711		130224	17	>100:1	8.79 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	1	747965	18	>100:1			1000.00	991.85	94	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	1/0	1331645	18	>100:1	Target = 12.22		2000.00	2030.69		
713 > 169	42	4.928	4.928		108536	18	>100:1	12.26 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.303	5.302	1	918164	22	>100:1			1000.00	1021.11	98.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.303	5.302	1/0	1186138	22	>100:1	Target = 11.65		2000.00	1906.79		
813 > 269	40	5.303	5.302		100960	22	>100:1	11.74 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.660	5.660	1/0	1670040	21	>100:1	Target = 15.15		2000.00	1933.09		
913 > 319	40	5.653	5.660		111449	21	>100:1	14.98 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.887	3.887	0	665105	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	0	682077	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.167	3.168	0	544360	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	0	576098	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	0	124546	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

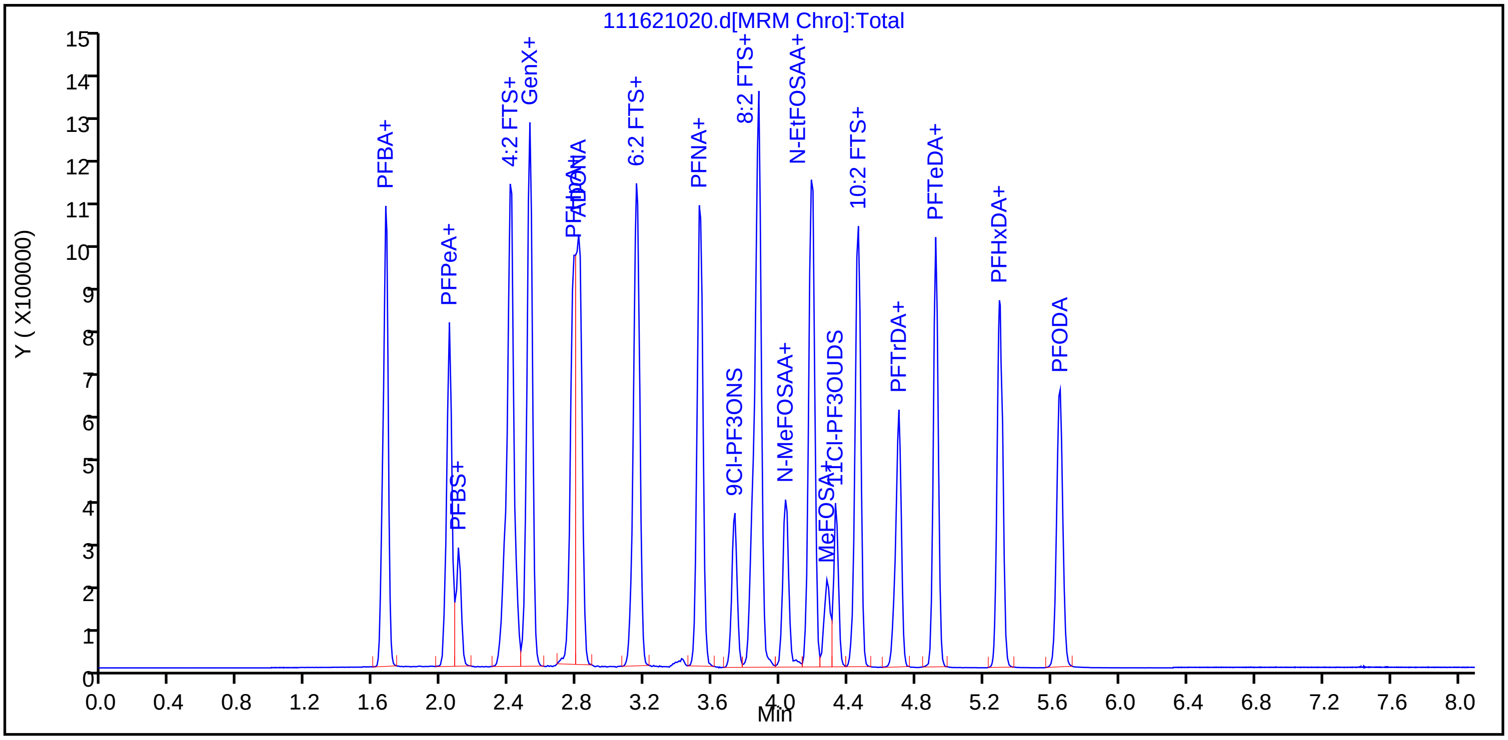
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

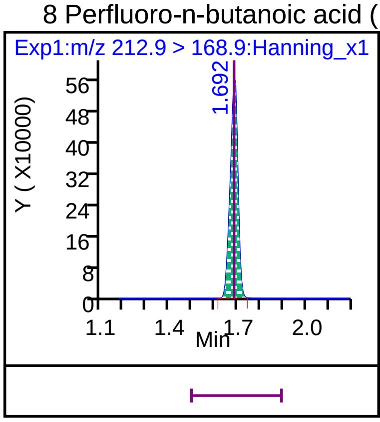
Report Date: 22-Nov-2021 08:59:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

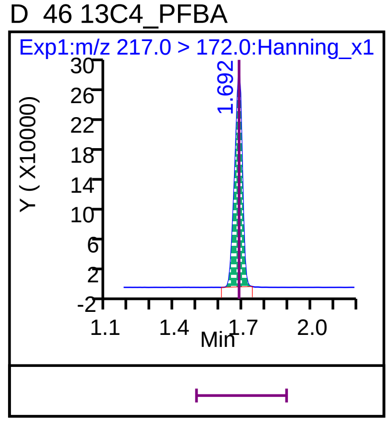
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621020.d		
Injection Date:	16-Nov-2021 17:34:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 2000_SVLC-1745
Sample Info:	F.L. ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin



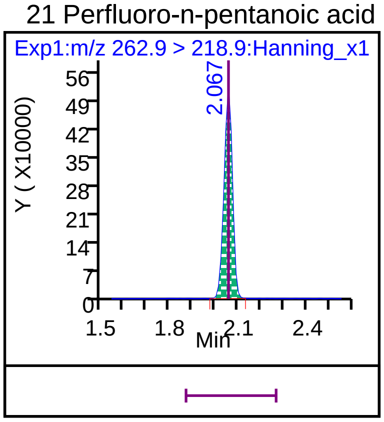
8 Perfluoro-n-butanoic acid (PFBA)



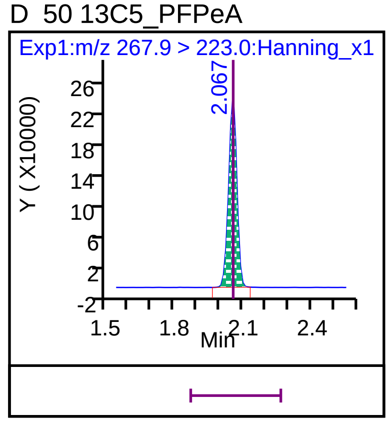
D 46 13C4_PFBA



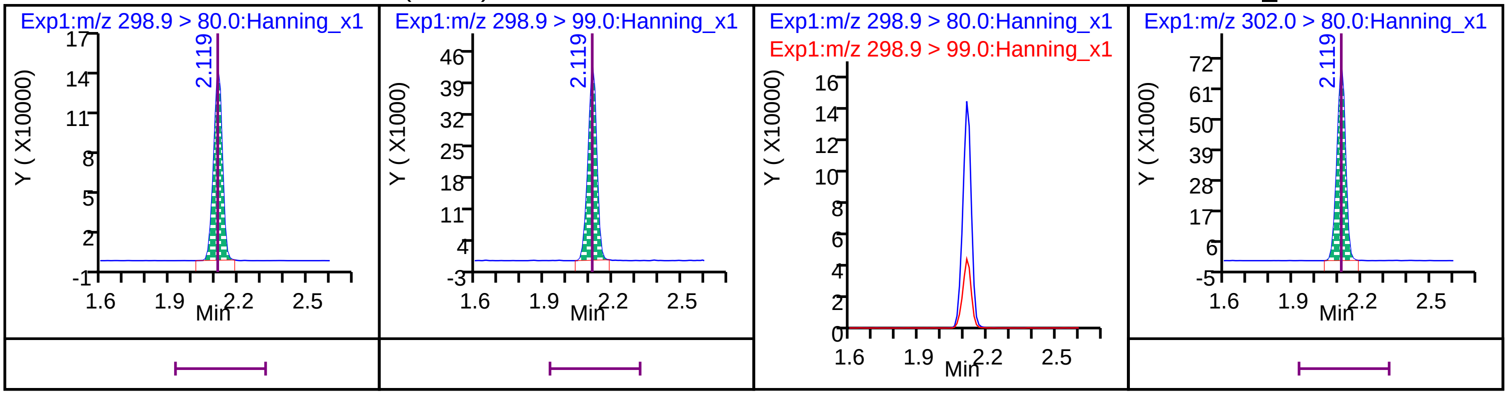
21 Perfluoro-n-pentanoic acid (PFPeA)



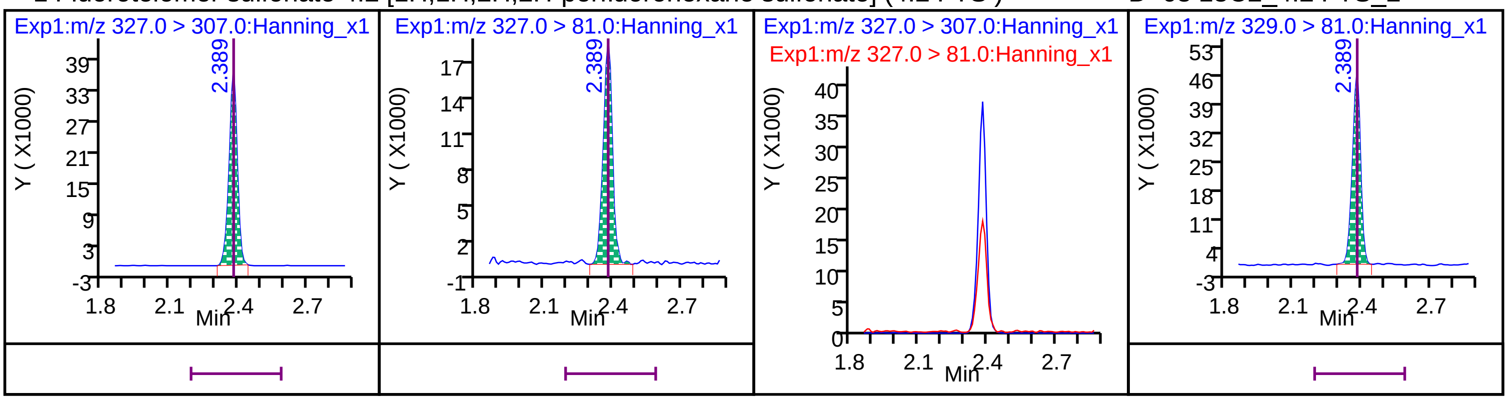
D 50 13C5_PFPeA



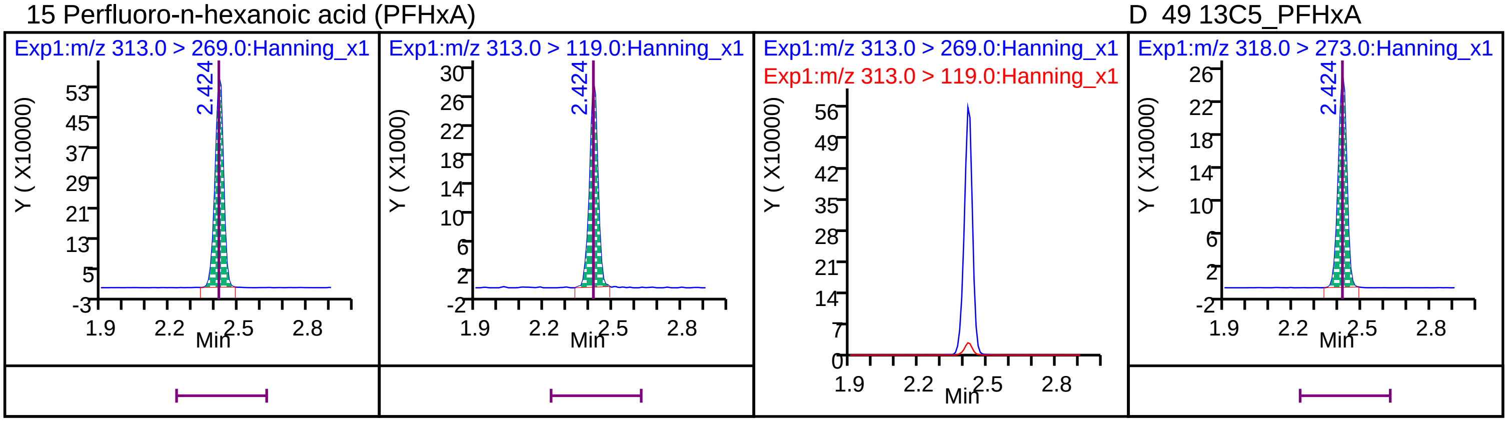
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



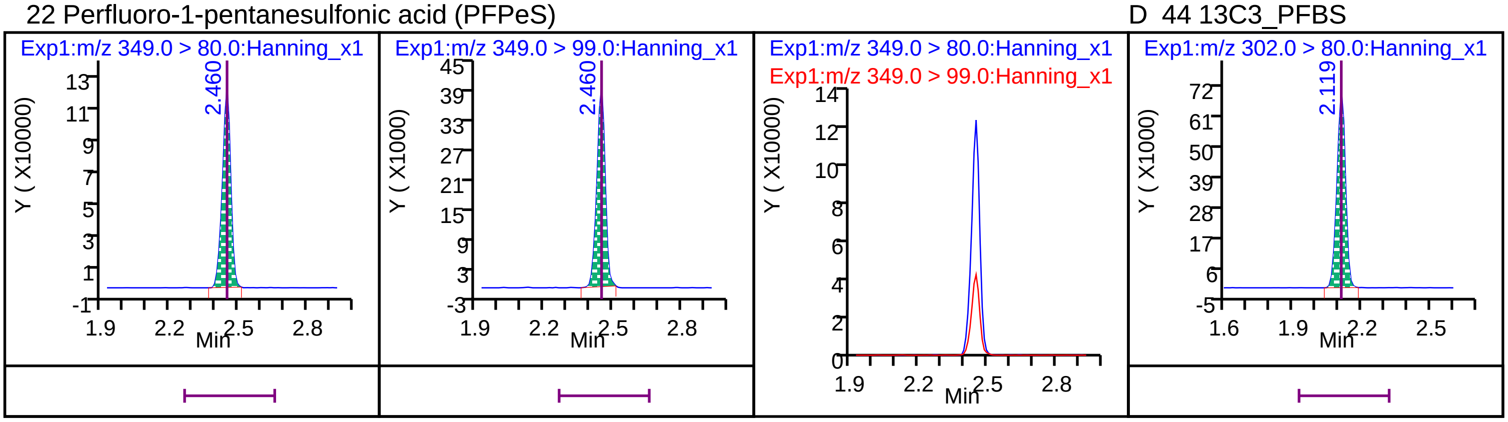
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



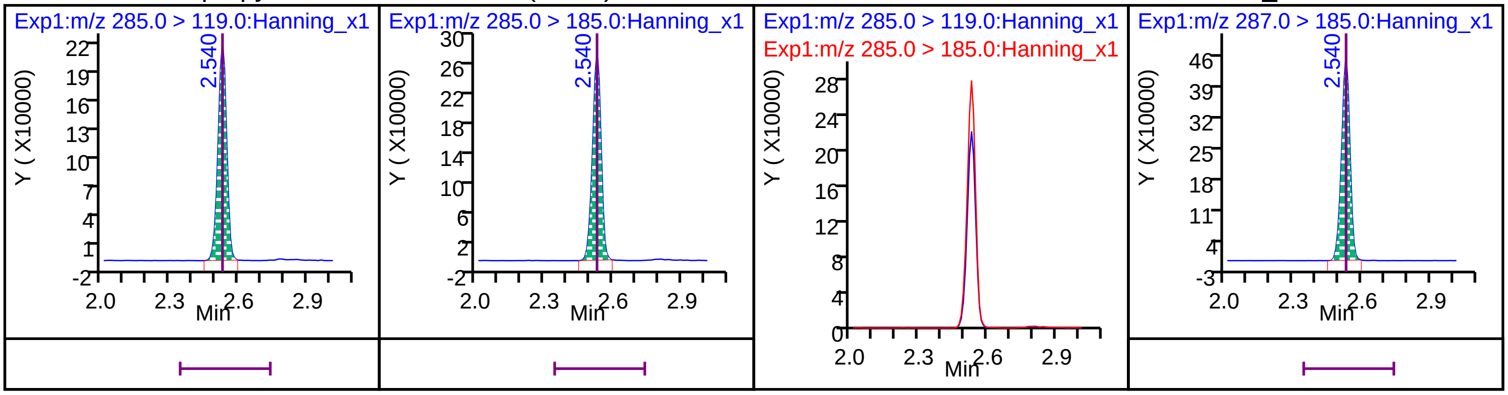
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



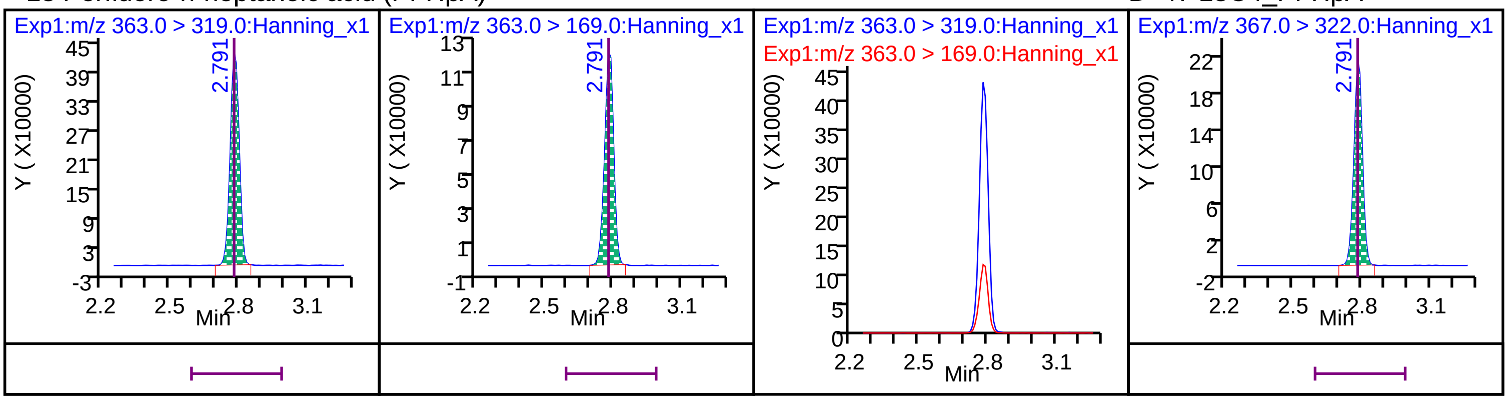
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



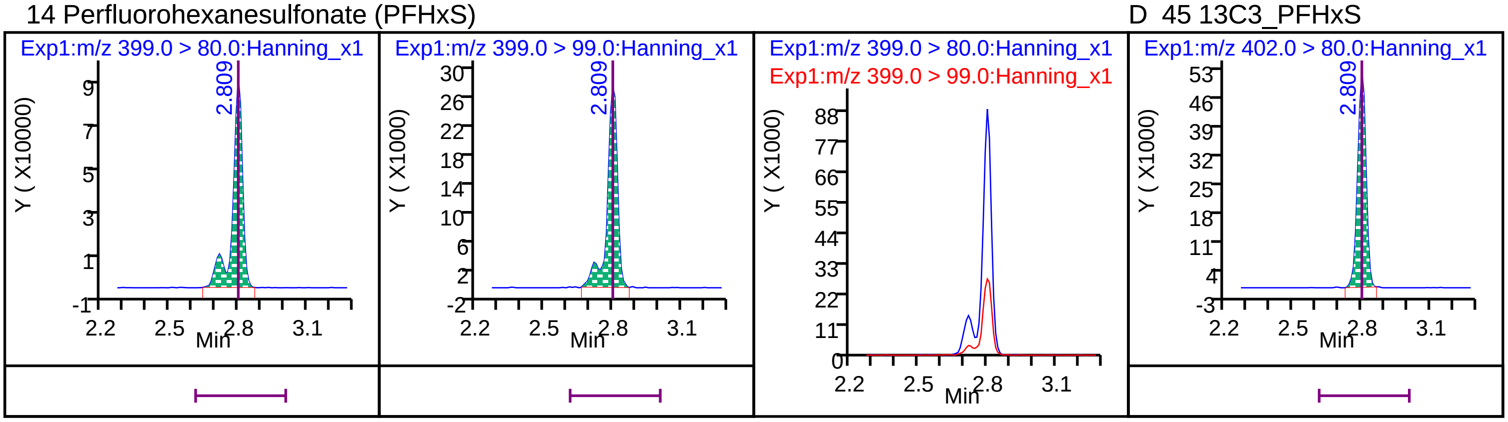
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



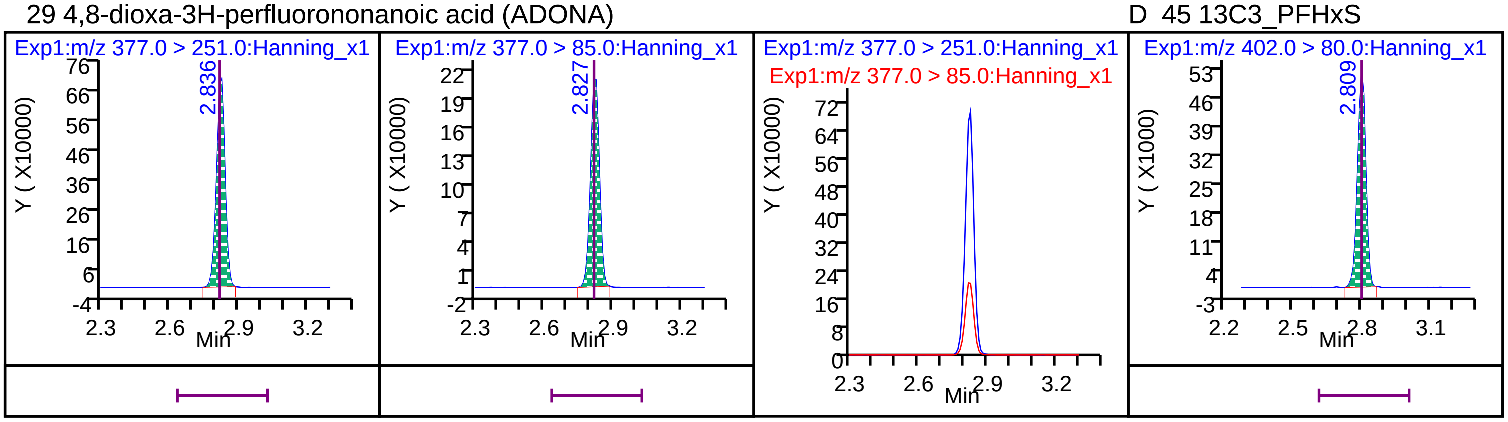
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



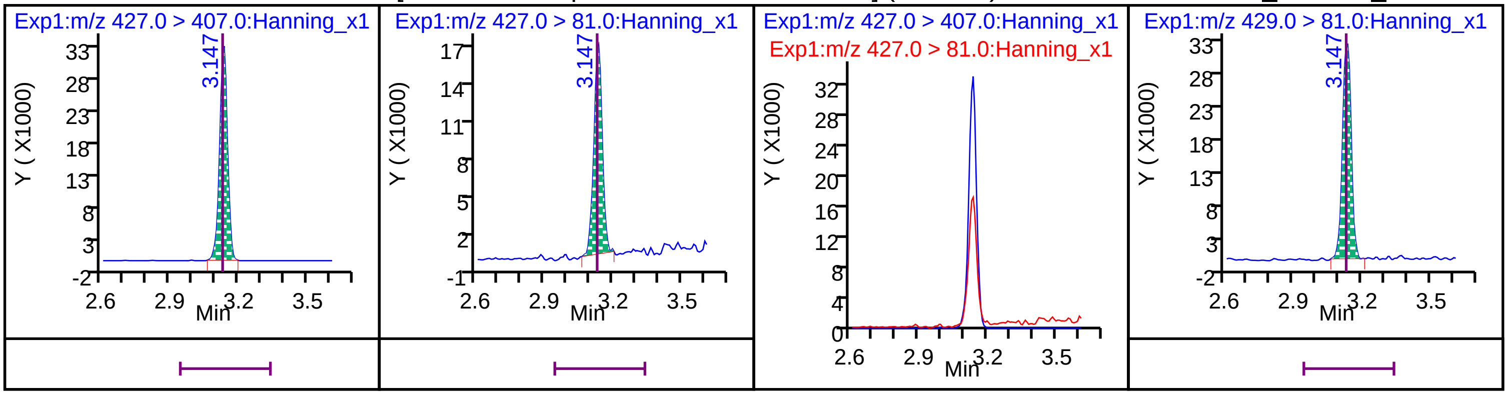
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



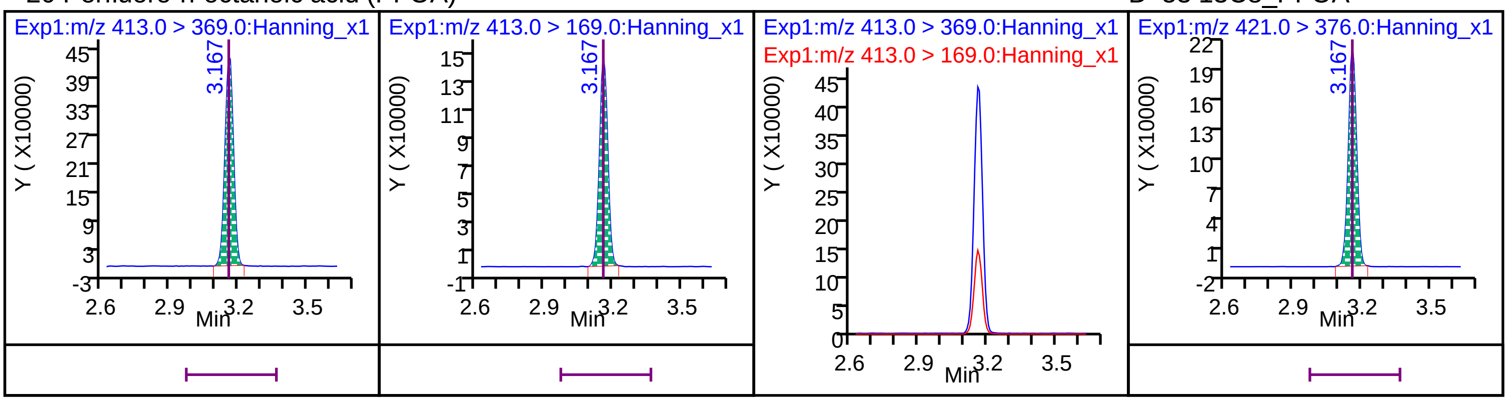
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



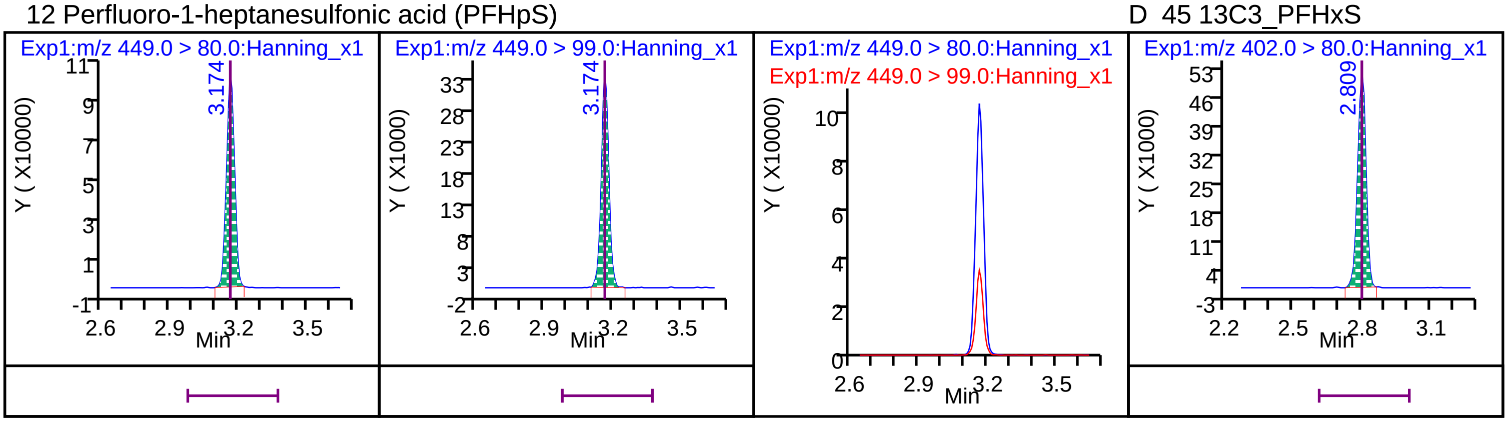
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



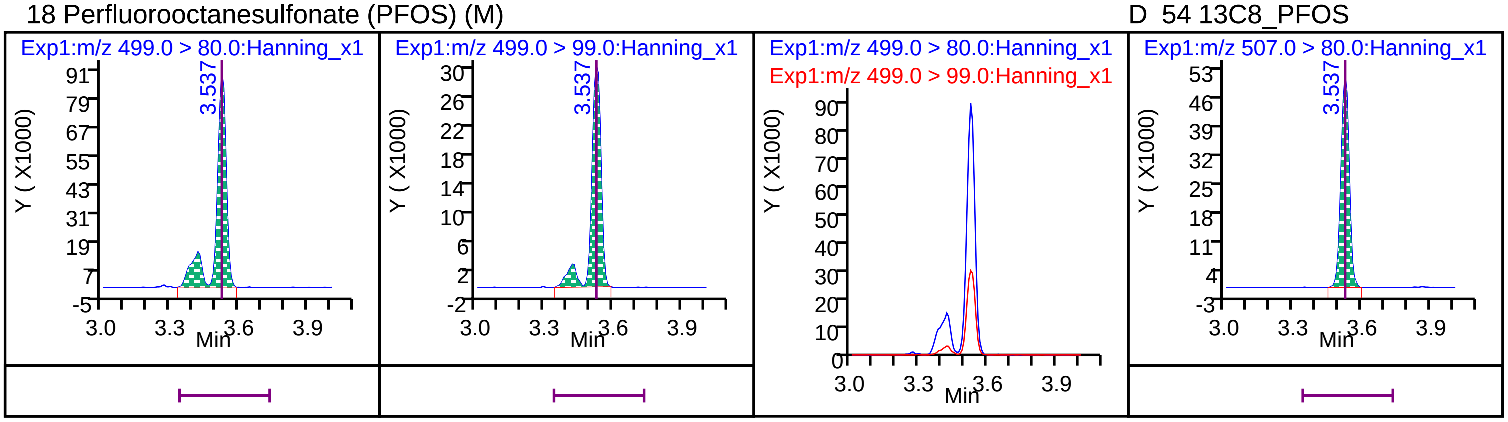
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



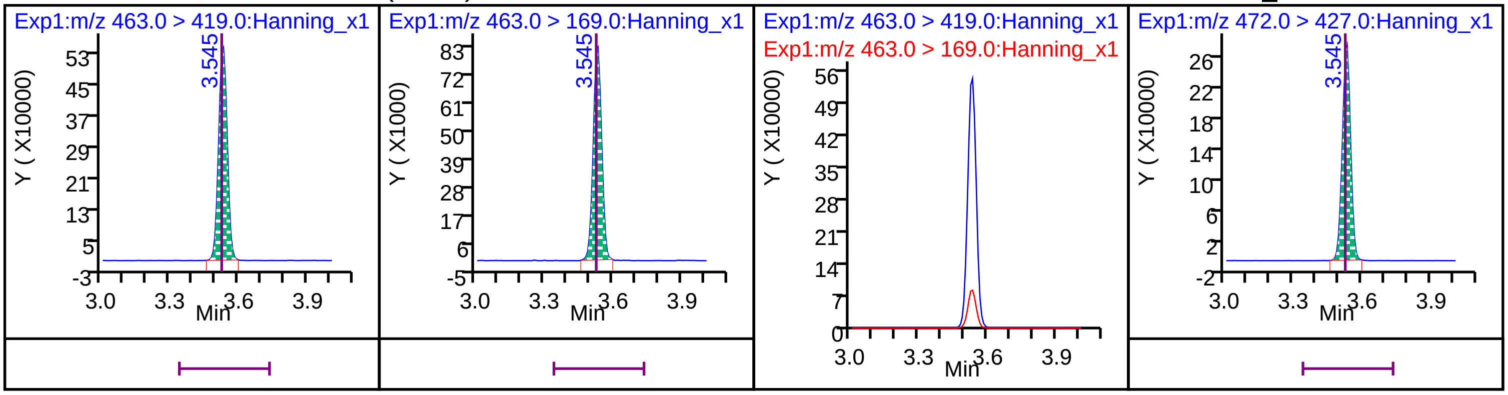
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



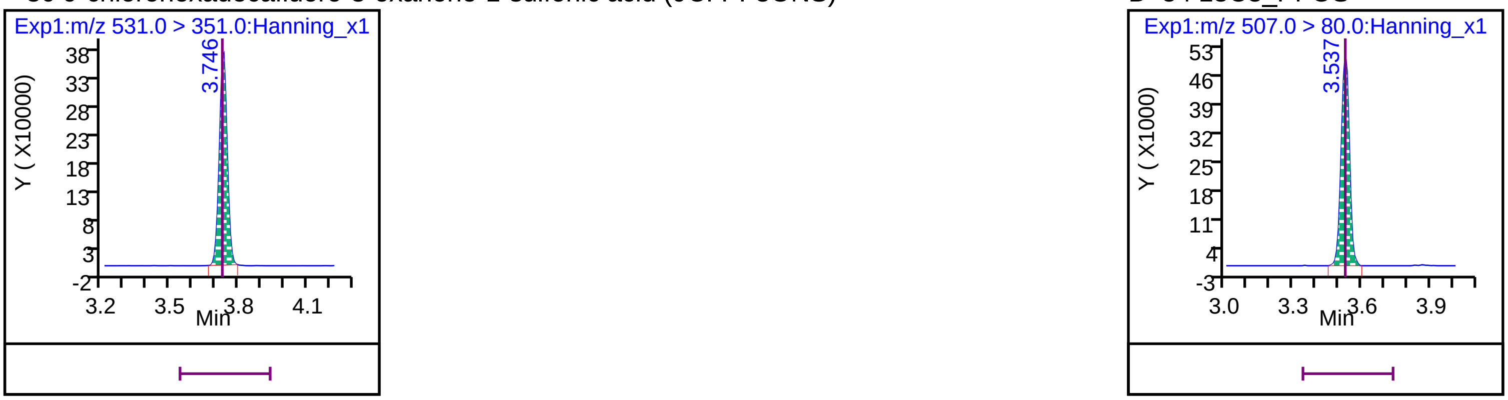
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



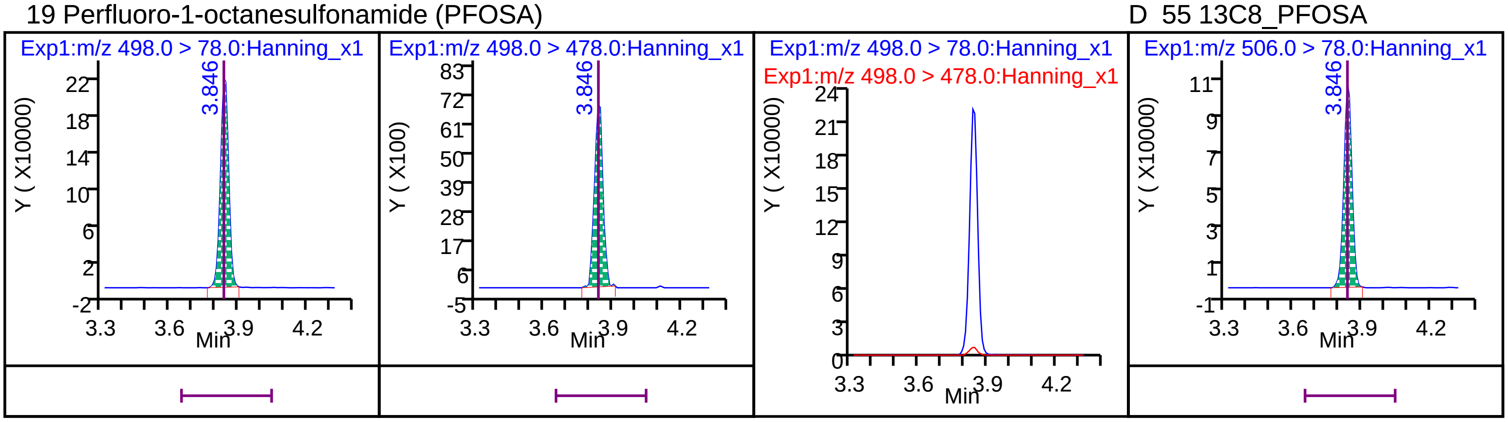
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



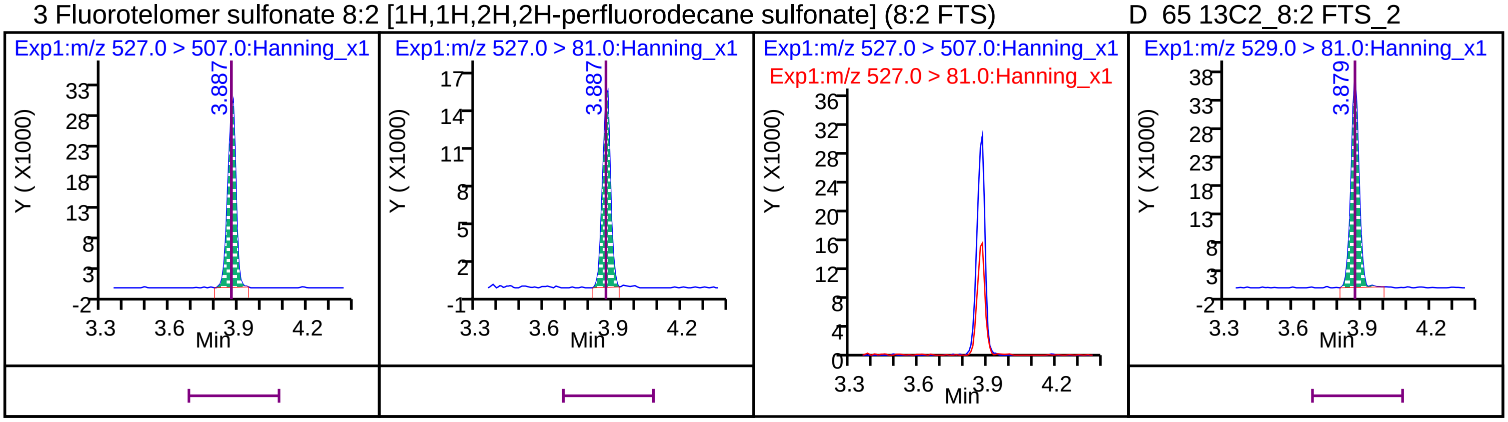
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



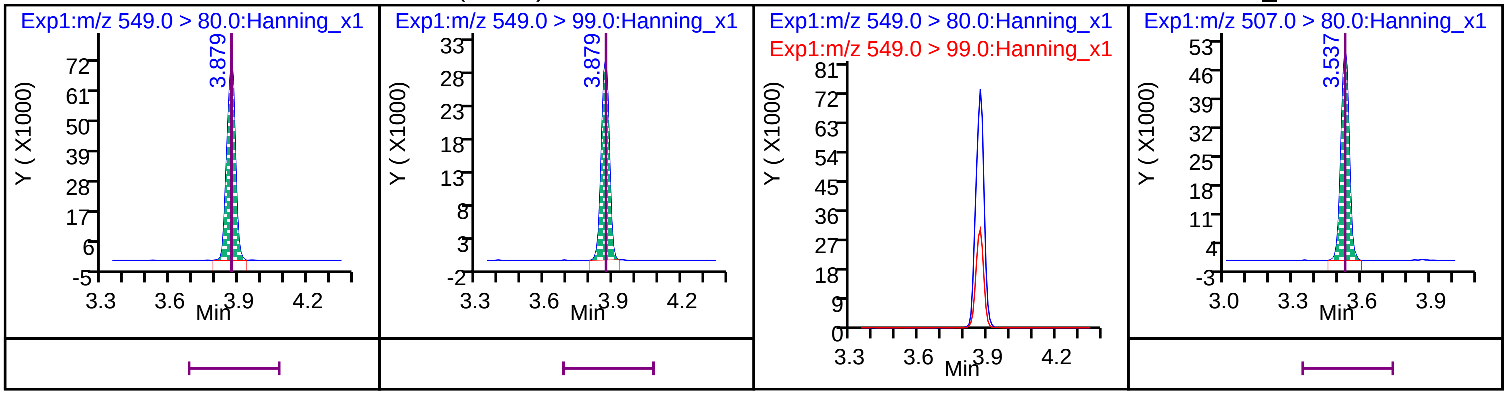
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



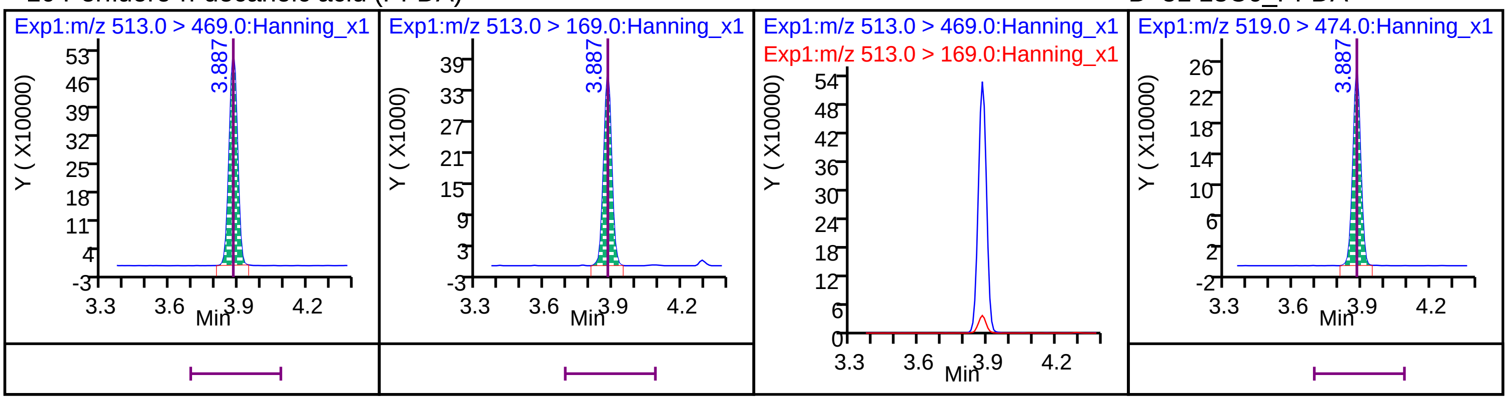
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



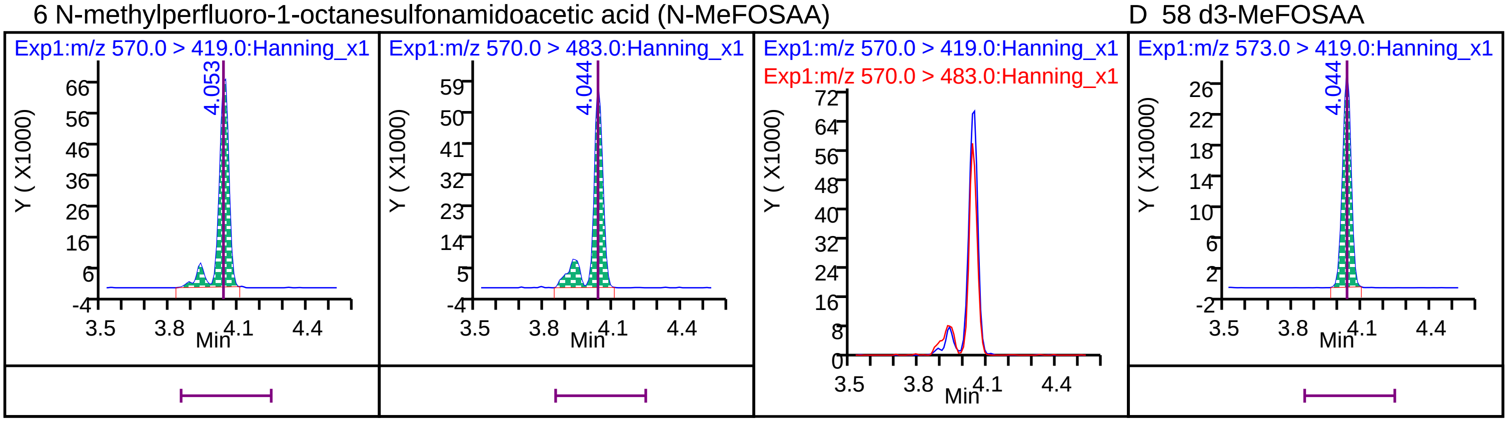
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



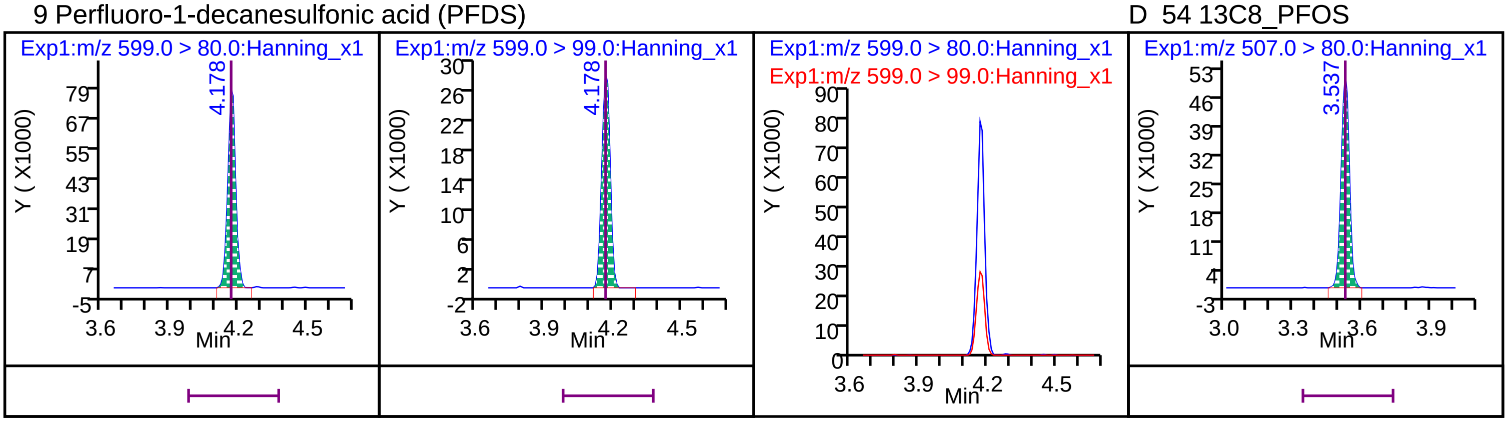
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



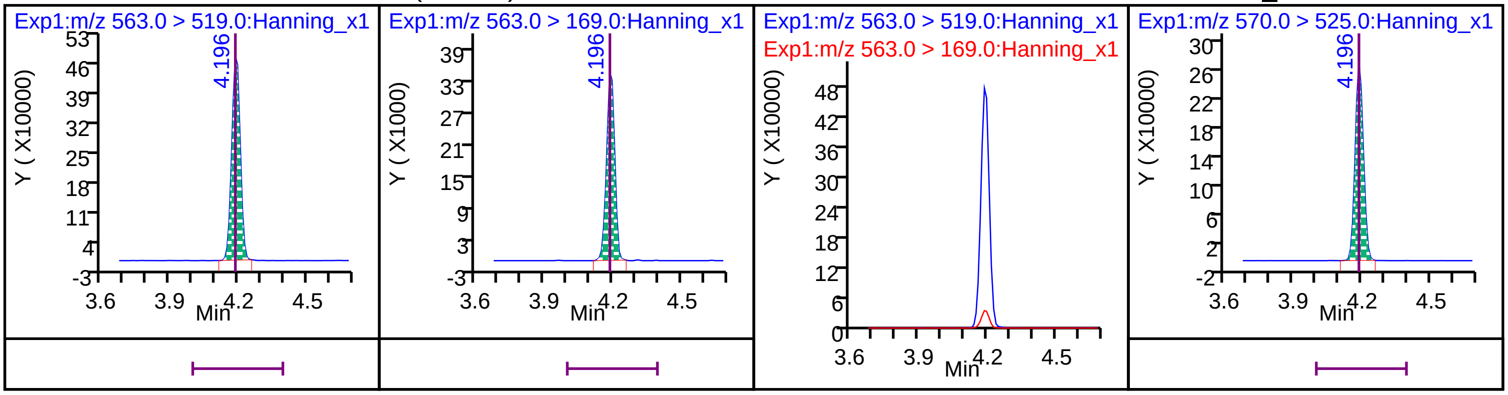
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



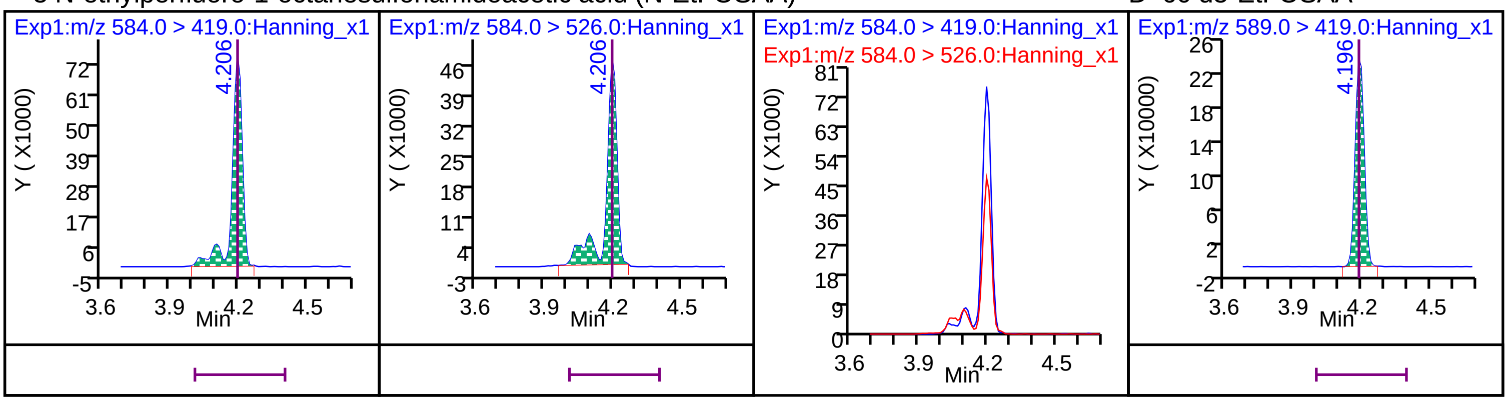
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



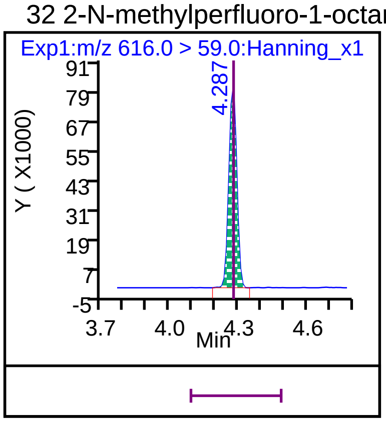
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

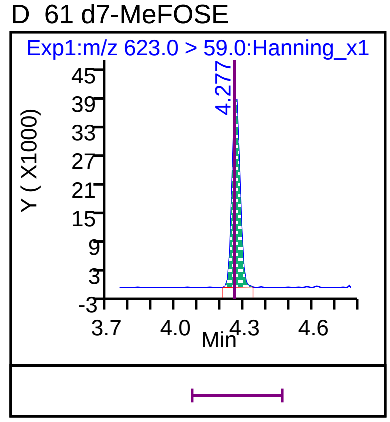


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

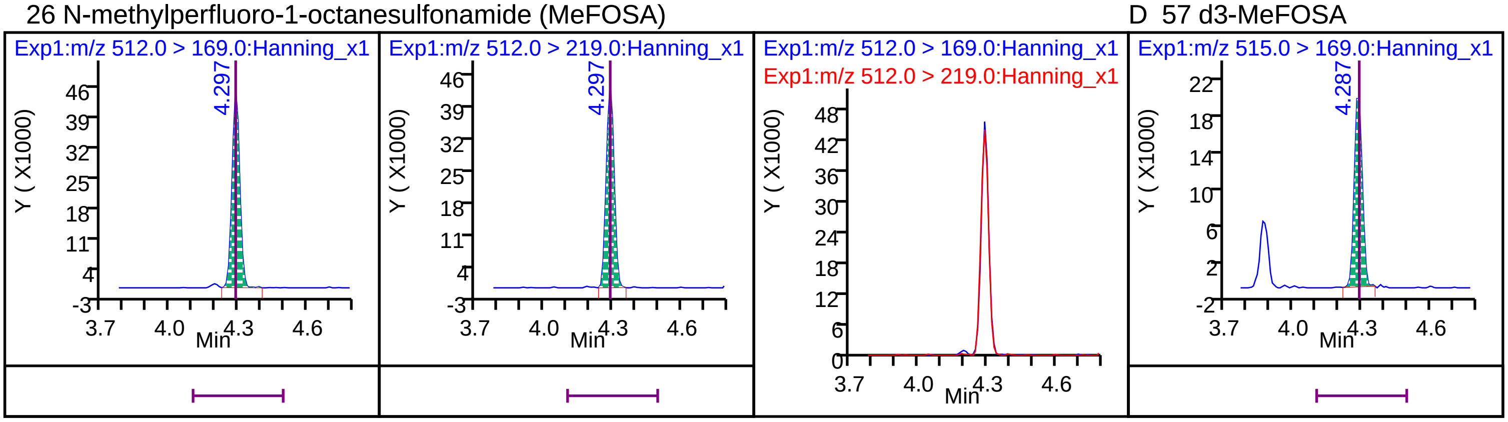


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



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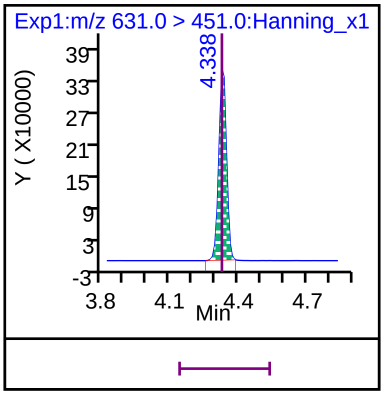
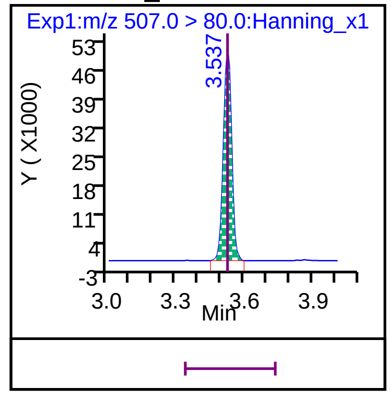
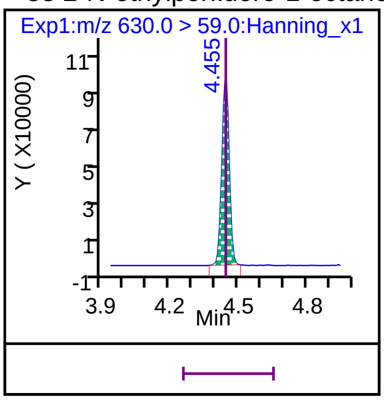
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



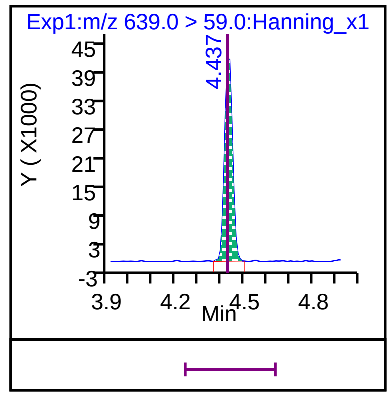
D 54 13C8_PFOS



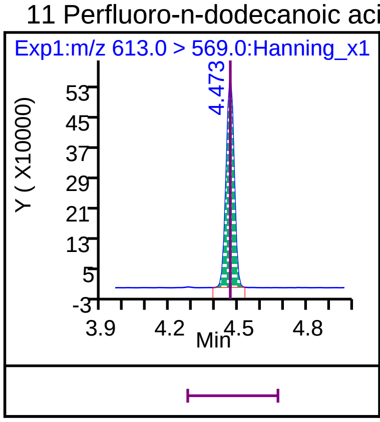
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

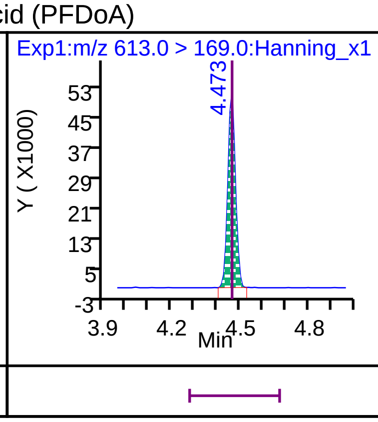


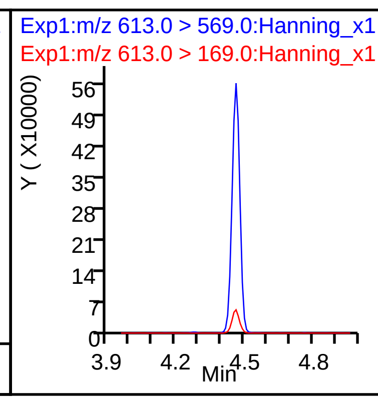
D 62 d9-EtFOSE



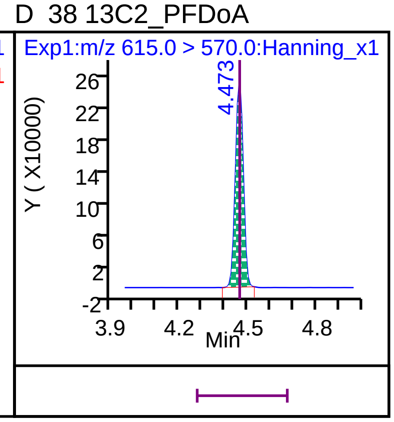
11 Perfluoro-n-dodecanoic acid (PFDoA)



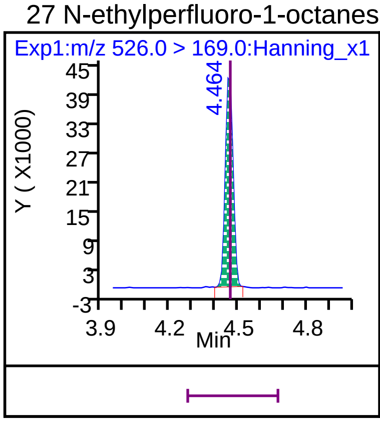


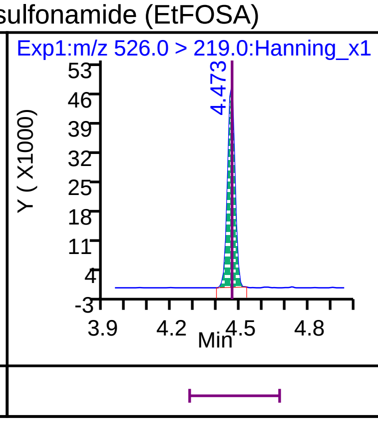


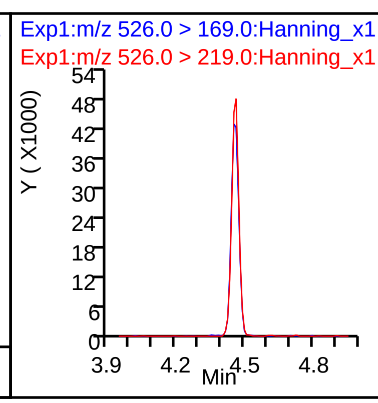
D 38 13C2_PFDoA



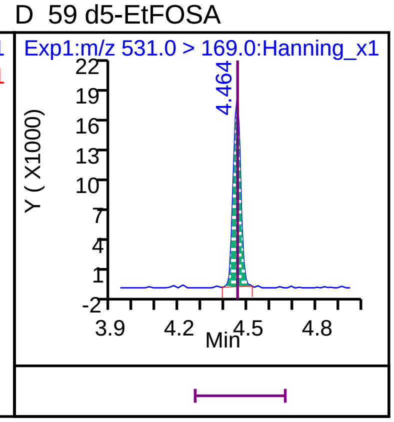
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



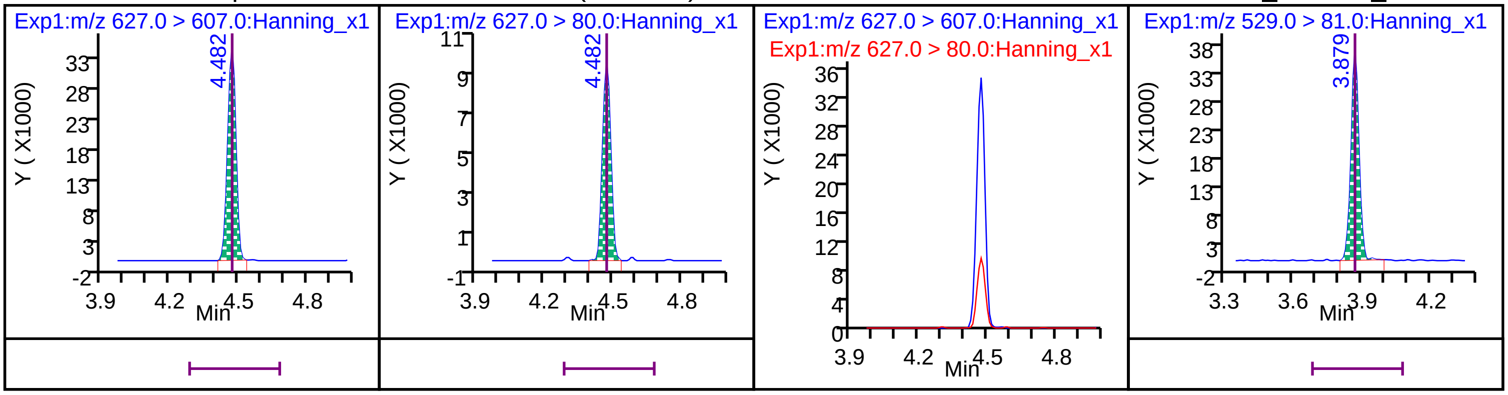




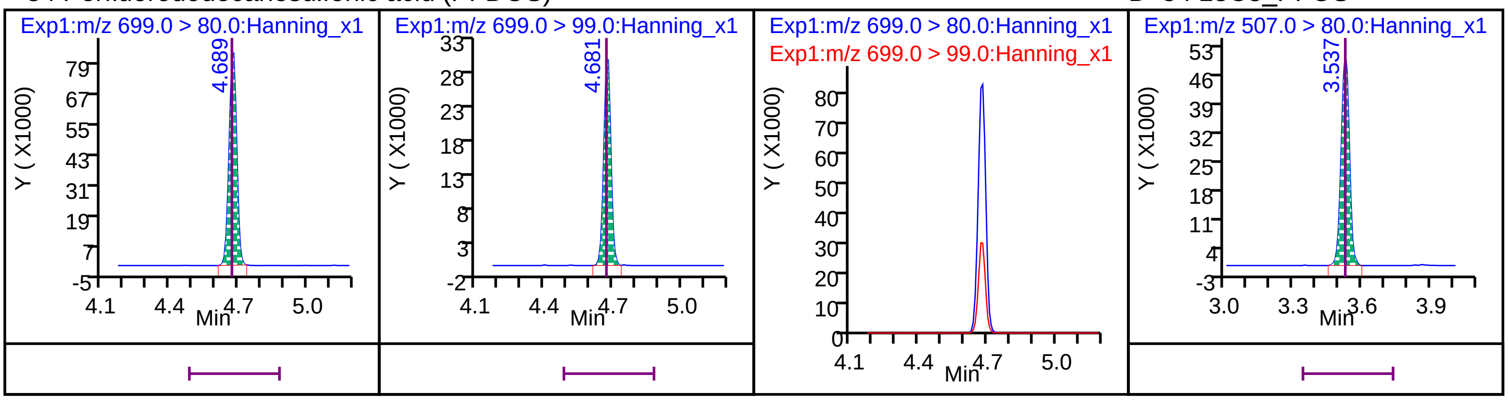
D 59 d5-EtFOSA



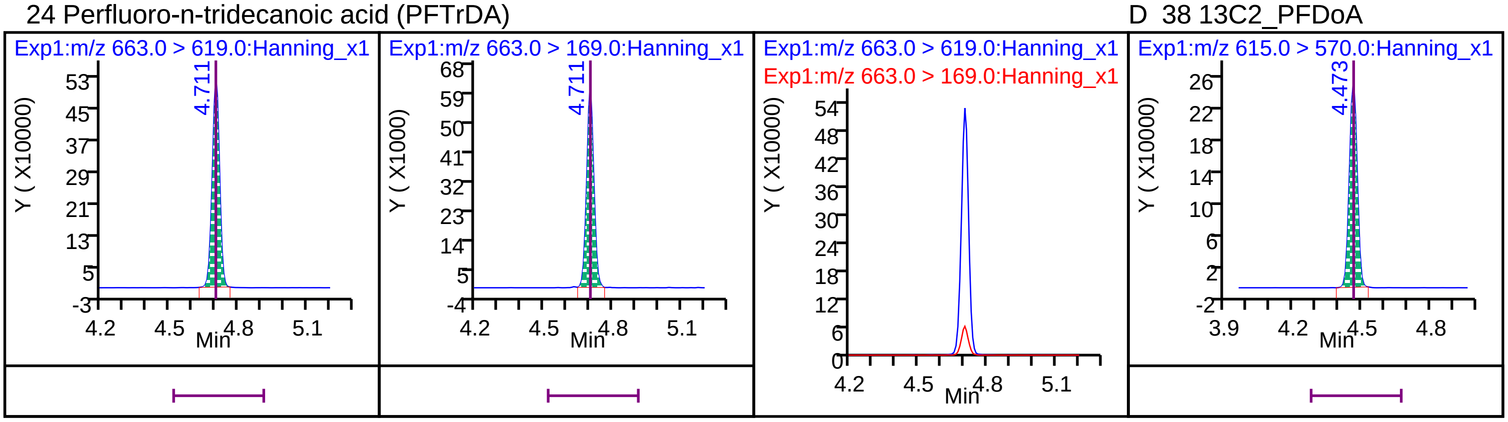
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



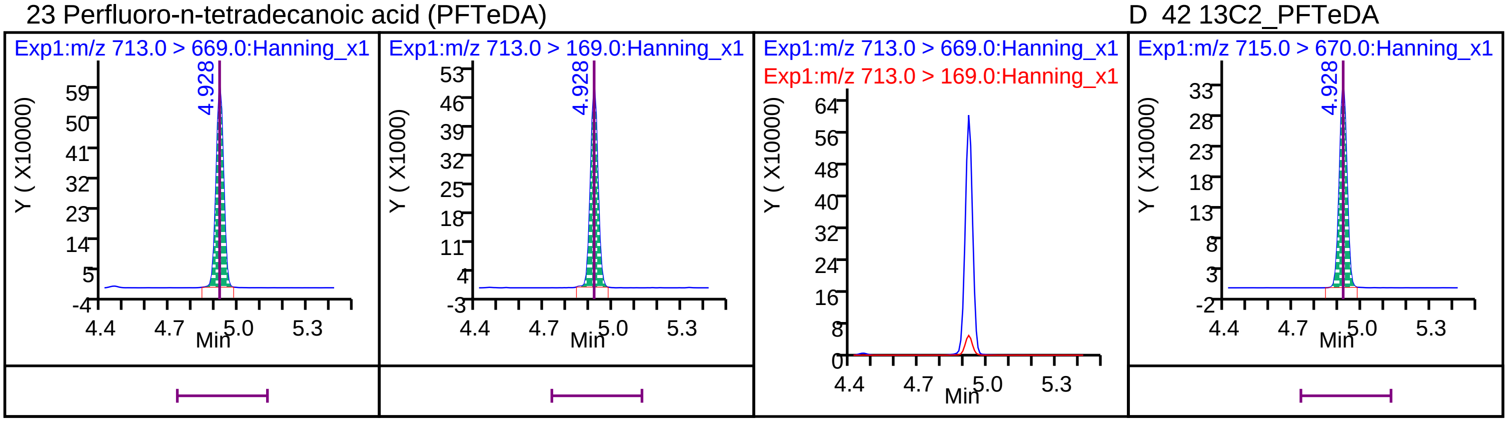
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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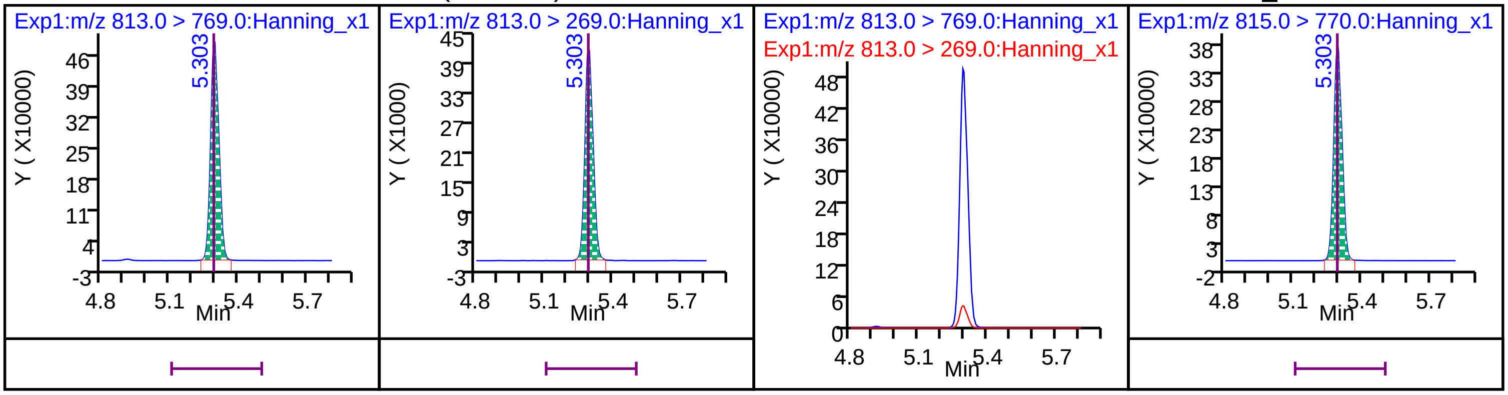
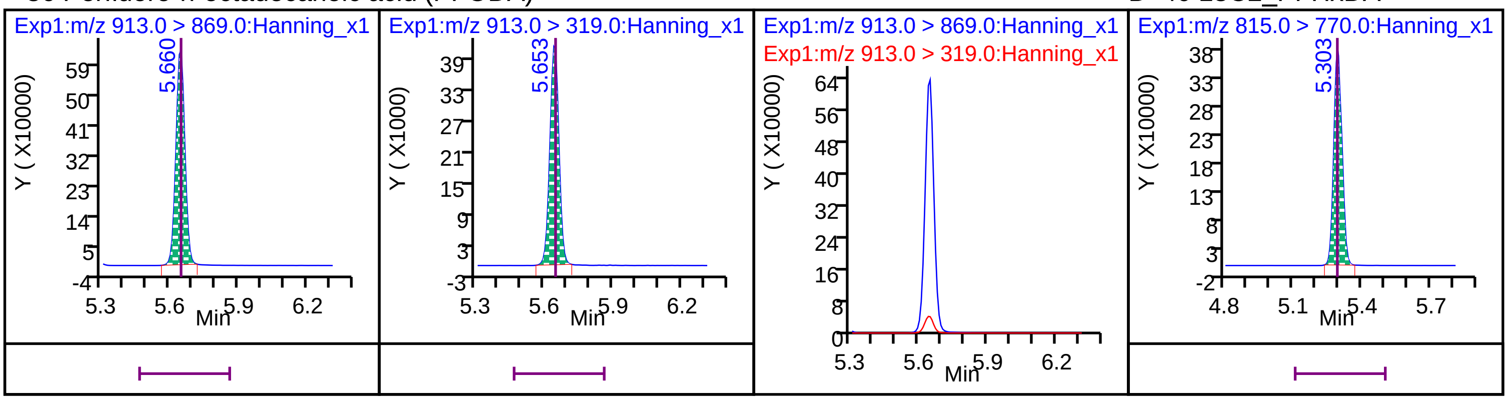
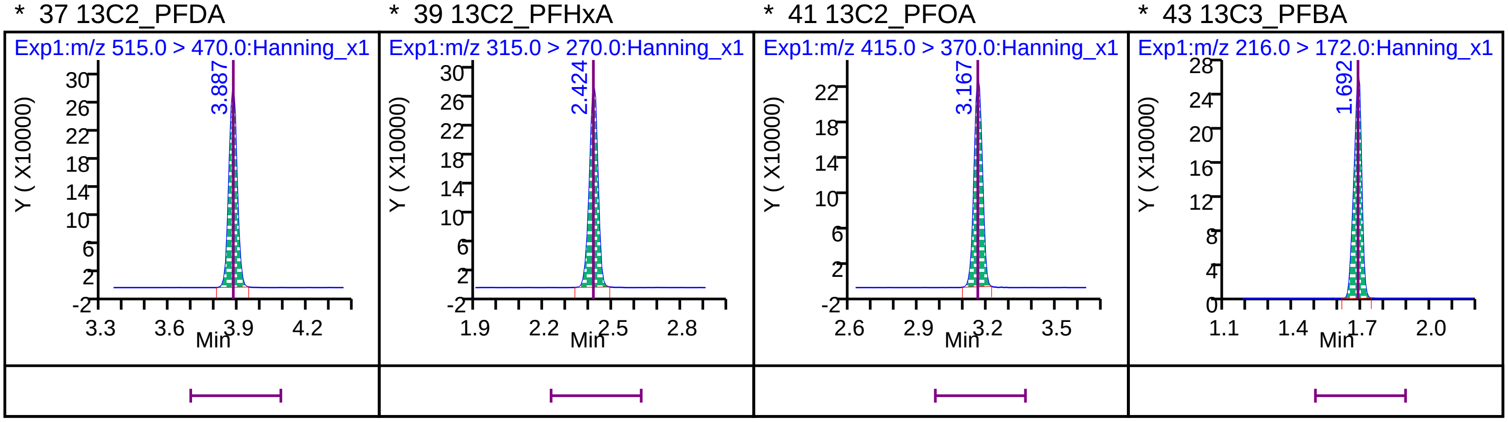
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



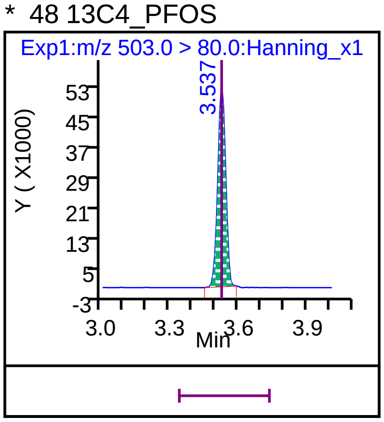
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

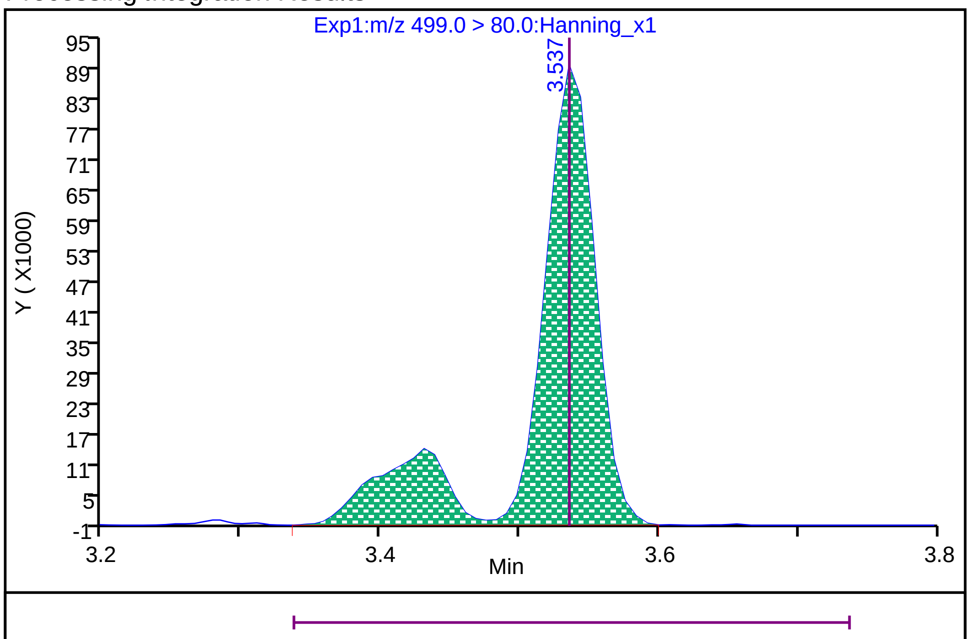
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621020.d		
Injection Date:	16-Nov-2021 17:34:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 2000_SVLC-1745
Sample Info:	F.L. ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin

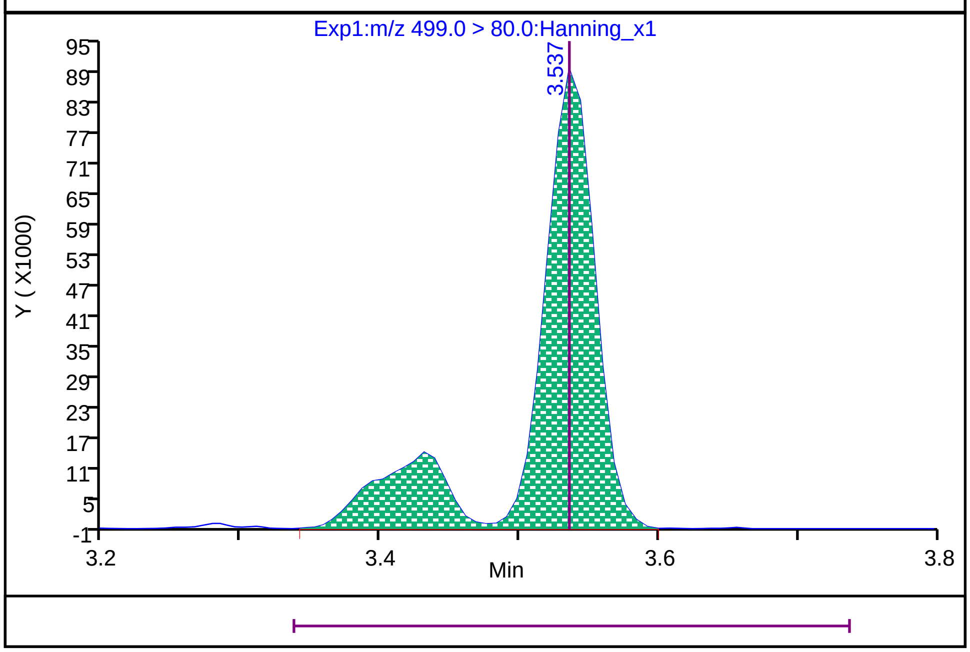
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.537
Area:	270362
Amount:	1857.64
Amount Units:	ng/L



RT:	3.537
Area:	272869
Amount:	1846.19
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:18

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621021.d		
Injection Date:	16-Nov-2021 17:44:55	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	7
Sample Info:	F.L. ICAL 5000_SVLC-1746	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	0	628071	20	>100:1			1000.00	1006.63	97.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	0/0	3347890	21	>100:1			5000.00	5095.22		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.066	2.067	0	593276	17	>100:1			1000.00	1024.38	99.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.066	2.067	0/0	3334100	17	>100:1			5000.00	5117.23		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.120	0	180992	17	>100:1			1000.00	1042.89	104.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.120	0/0	953549	15	>100:1	Target = 3.48		4420.00	4229.03		
298.9 > 99	44	2.119	2.120		276109	15	>100:1	3.45 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	0/0	717491	17	>100:1	Target = 3.03		4690.00	4478.40		
349 > 99	44	2.460	2.460		251739	18	>100:1	2.85 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.388	2.389	0	104559	18	>100:1			5000.00	4788.37	91.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.388	2.389	0/0	227497	17	>100:1	Target = 1.70		4670.00	5003.36		
327 > 81	63	2.388	2.389		118885	19	>100:1	1.91 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	0	626002	18	>100:1			1000.00	965.94	90.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	0/0	3528560	18	>100:1	Target = 18.47		5000.00	5326.83		
313 > 119	49	2.424	2.424		179423	17	>100:1	19.66 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	0	1093920	17	>100:1			5000.00	4885.38	94.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	0/0	1505951	18	>100:1	Target = 0.78		10000	10461		
285 > 185	66	2.540	2.540		1832713	18	>100:1	0.82 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.790	2.791	0	528292	18	>100:1			1000.00	1000.94	97.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.790	2.791	0/0	3093898	18	>100:1	Target = 3.92		5000.00	5121.37		
363 > 169	47	2.790	2.791		805656	18	>100:1	3.84 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	0	131543	19				1000.00	1029.96	96.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	0/0	636825	25	>100:1	Target = 3.14	5.16	4550.00	4294.29		
399 > 99	45	2.809	2.809		219887	26	>100:1	2.89 (1.57-4.71)	7.40				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	0/0	4777073	18	>100:1	Target = 3.33		4710.00	4669.23		
377 > 85	45	2.827	2.827		1377255	18	>100:1	3.46 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.174	3.174	0/0	594070	21	>100:1	Target = 3.02		4760.00	4645.19		
449 > 99	45	3.174	3.174		192373	21	>100:1	3.08 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	0	83347	21	>100:1			5000.00	4856.84	92.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.141	0/0	186675	20	>100:1	Target = 1.69		4740.00	4774.29		
427 > 81	64	3.141	3.141		107967	20	>100:1	1.72 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.167	3.168	0	518854	21	>100:1			1000.00	1001.67	93.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.167	3.168	0/0	2661356	21	>100:1	Target = 3.03		5000.00	4901.25		
413 > 169	53	3.167	3.168		885656	21	>100:1	3.00 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.536	3.537	0	124626	20	>100:1			1000.00	1001.01	94	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.536	3.537	0/0	679114	40	>100:1	Target = 3.42	3.57	4640.00	4587.66		M
499 > 99	54	3.536	3.537		202671	36	>100:1	3.35 (1.71-5.13)	7.05				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.746	3.740	1/1	2301220	20	>100:1			4660.00	4809.78		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.878	3.879	0/0	489617	19	>100:1	Target = 2.57		4800.00	5046.22		
549 > 99	54	3.878	3.879		177601	18	>100:1	2.75 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.176	4.178	0/0	469728	18	>100:1	Target = 2.71		4820.00	4688.90		
599 > 99	54	4.176	4.178		185338	16		2.53 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.346	4.338	1/1	1949511	16	>100:1			4710.00	4614.84		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.688	4.681	1/1	484672	18	>100:1	Target = 3.04		4840.00	4886.91		
699 > 99	54	4.688	4.681		159296	17		3.04 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.536	3.537	0	652821	20	>100:1			1000.00	1011.77	94.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.536	3.537	0/0	3584917	20	>100:1	Target = 7.14		5000.00	4985.01		
463 > 169	56	3.544	3.537		501031	20	>100:1	7.15 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.845	3.846	0	256916	18	>100:1			1000.00	1018.83	93.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.845	3.846	0/0	1342991	18	>100:1	Target = 32.83		5000.00	4757.39		
498>478	55	3.845	3.846		43681	17	>100:1	30.74 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.878	3.879	0	83674	17	>100:1			5000.00	5003.86	95	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.878	3.879	0/0	183896	18	>100:1	Target = 2.14		4790.00	4738.14		
527 > 81	65	3.878	3.879		101464	18	>100:1	1.81 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.481	4.482	0/0	204483	18		Target = 3.72		4820.00	4545.54		
627 > 80	65	4.481	4.482		61144	17		3.34 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.886	3.887	0	601516	18	>100:1			1000.00	1055.55	102.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.886	3.887	0/0	3531878	18	>100:1	Target = 14.16		5000.00	5007.95		
513 > 169	51	3.886	3.887		238878	18	>100:1	14.78 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.043	4.045	0	686862	18	>100:1			5000.00	5028.72	100.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.043	4.045	0/0	520620	30	>100:1	Target = 1.42	6.79	5000.00	4575.04		
570 > 483	58	4.043	4.045		408181	35	>100:1	1.27 (0.71-2.14)	3.95				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.204	4.196	1	615408	17	>100:1			5000.00	5068.42	100.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.204	4.206	0/-1	572708	30	>100:1	Target = 1.49	6.37	5000.00	4904.49		
584 > 526	60	4.204	4.206		378660	31	>100:1	1.51 (0.74-2.24)	3.91				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.195	4.196	0	646380	18	>100:1			1000.00	995.67	97.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.195	4.196	0/0	3018611	16	>100:1	Target = 14.37		5000.00	5033.41		
563 > 169	52	4.195	4.196		202990	19	>100:1	14.87 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.276	4.267	1	91740	13	>100:1			1000.00	1046.85	103.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.286	4.287	0/-1	486186	15	>100:1			5000.00	4800.26		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.296	4.298	0	46713	13	>100:1			1000.00	956.51	93.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.296	4.298	0/0	261537	14	>100:1	Target = 1.08		5000.00	5491.96		
512 > 219	57	4.296	4.298		236023	14	>100:1	1.10 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.444	4.437	1	100726	17	>100:1			1000.00	951.00	88.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.453	4.455	0/-1	548451	17	>100:1			5000.00	5340.96		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.464	0	45814	16	>100:1			1000.00	1045.71	100.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.472	4.473	0/0	255874	14	>100:1	Target = 0.97		5000.00	4742.78		
526 > 219	59	4.472	4.473		249915	15	>100:1	1.02 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.472	4.473	0	591849	18	>100:1			1000.00	991.58	94.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.472	4.473	0/0	3235276	17	>100:1	Target = 10.55		5000.00	5063.73		
613 > 169	38	4.472	4.473		287027	17	>100:1	11.27 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.710	4.711	0/0	2926868	19	>100:1	Target = 8.92		5000.00	5080.31		
663 > 169	38	4.710	4.711		325767	19	>100:1	8.98 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.927	4.928	0	756219	18	>100:1			1000.00	1002.79	95	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.935	4.928	1/1	3259145	17	>100:1	Target = 12.22		5000.00	4915.78		
713 > 169	42	4.927	4.928		263286	18	>100:1	12.37 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.306	5.302	1	912972	22	>100:1			1000.00	1015.34	98.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.306	5.302	1/0	2966007	22	>100:1	Target = 11.65		5000.00	4795.15		
813 > 269	40	5.306	5.302		251735	22	>100:1	11.78 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.657	5.660	0/-1	4339625	21	>100:1	Target = 15.15		5000.00	5051.72		
913 > 319	40	5.657	5.660		282327	20	>100:1	15.37 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.886	3.887	0	657463	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	0	675413	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.167	3.168	0	522128	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	0	578028	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.536	3.537	0	128426	20	>100:1			1000.00			

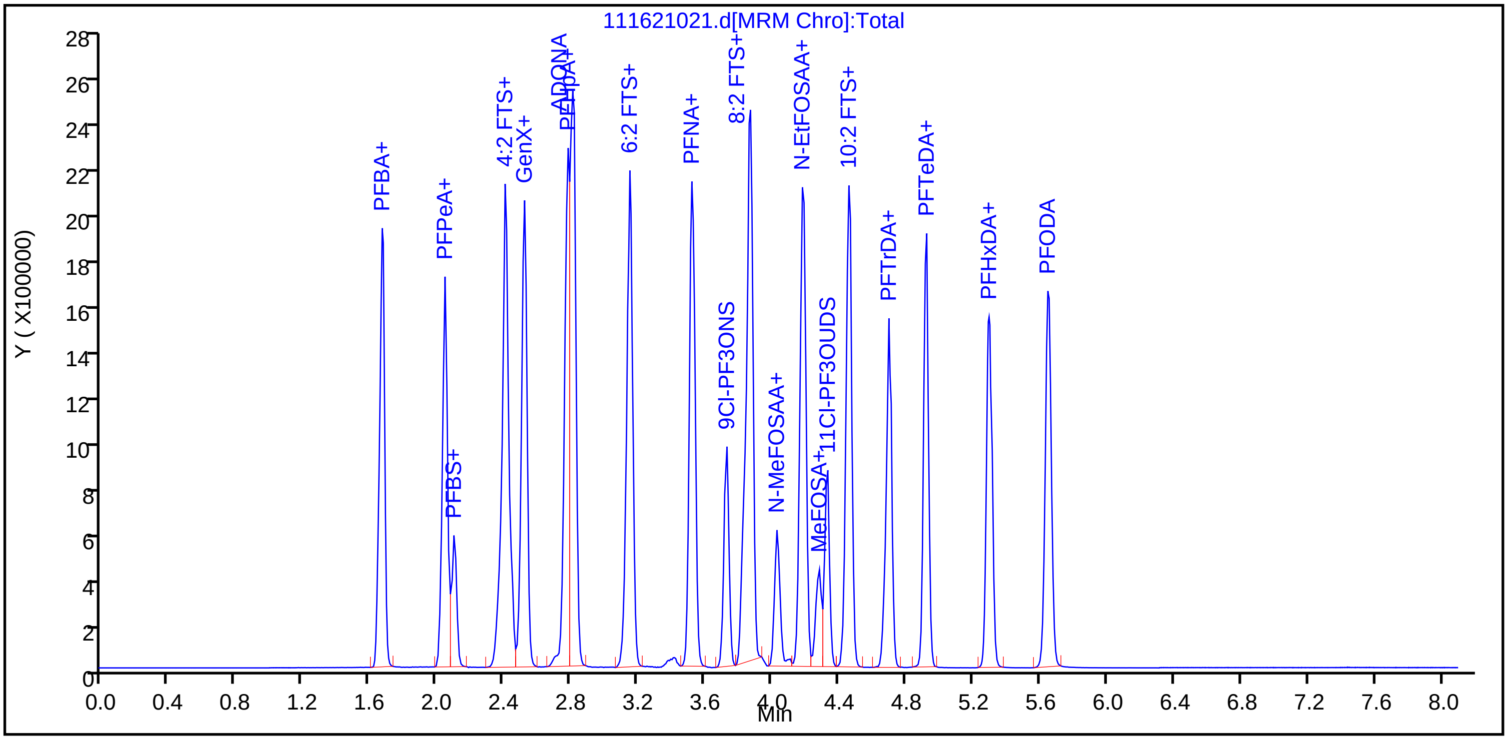
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

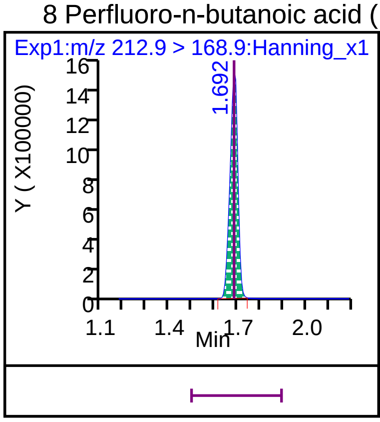
Report Date: 22-Nov-2021 08:59:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

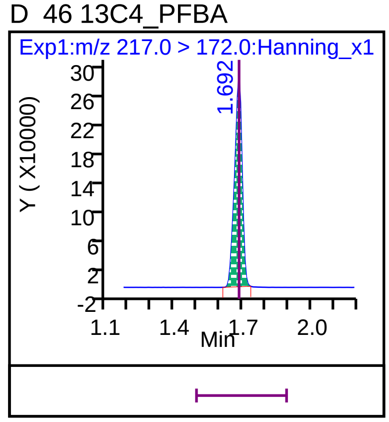
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621021.d		
Injection Date:	16-Nov-2021 17:44:55	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 5000_SVLC-1746
Sample Info:	F.L. ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin



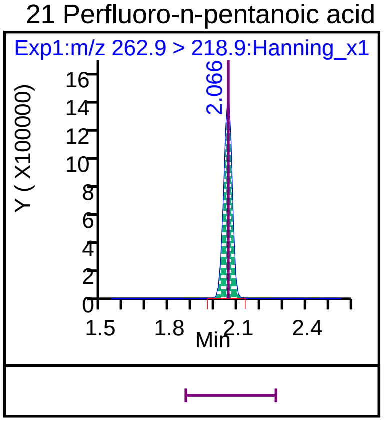
8 Perfluoro-n-butanoic acid (PFBA)



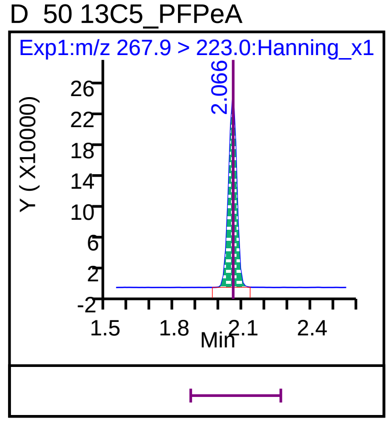
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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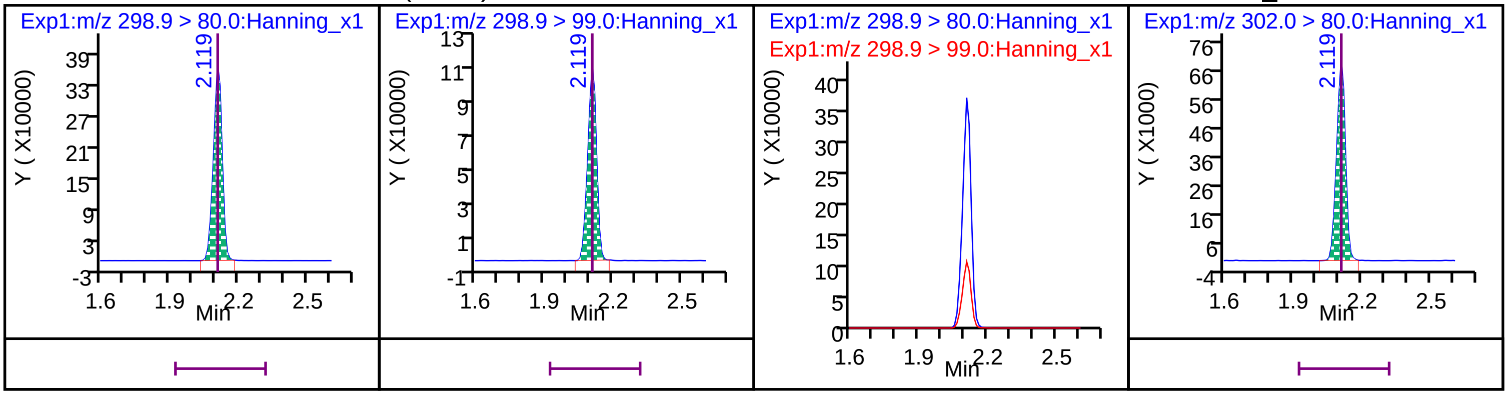
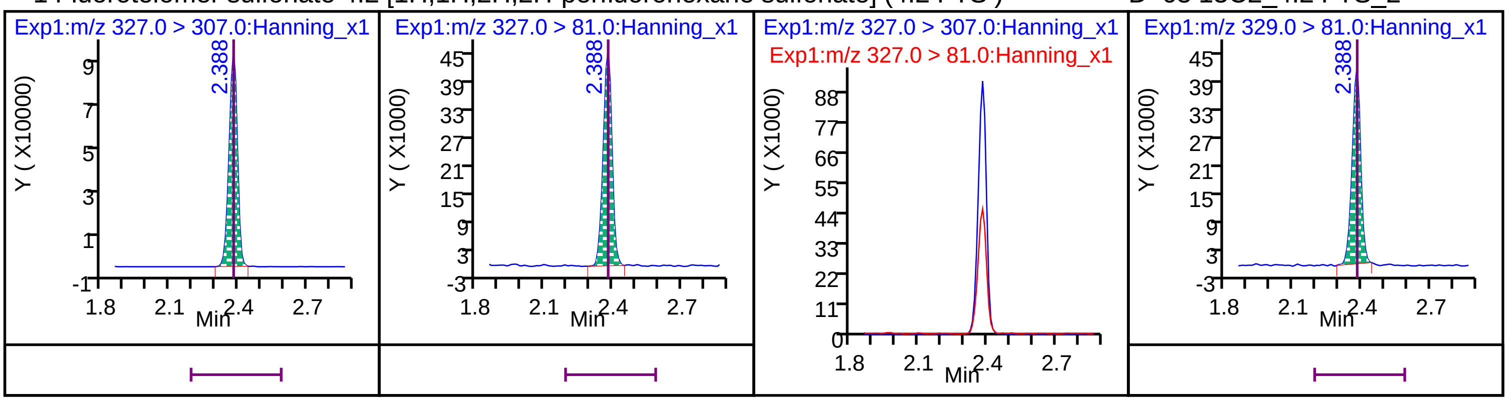
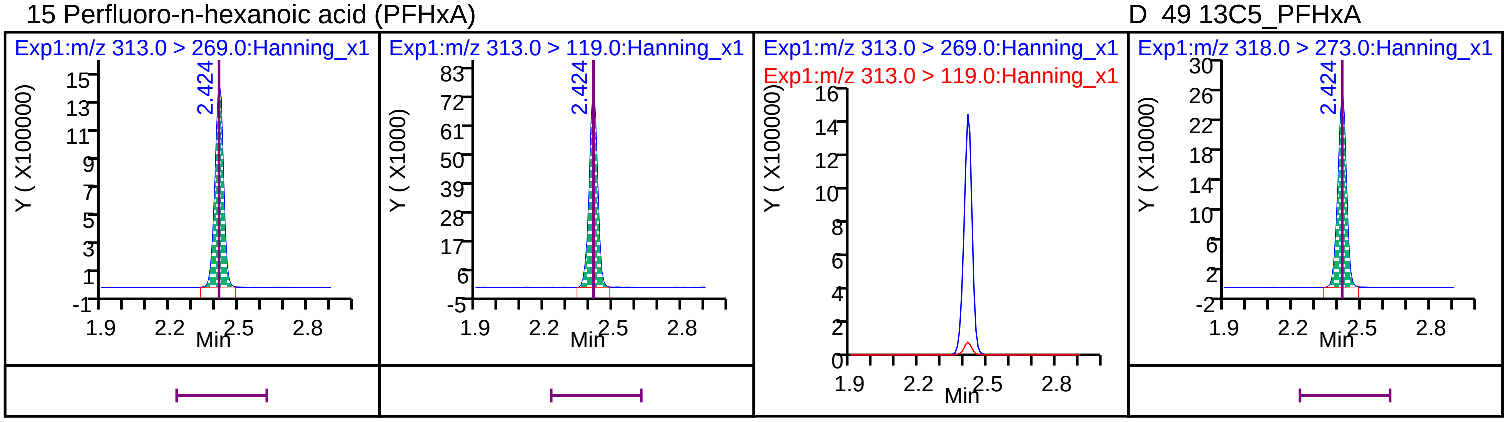
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



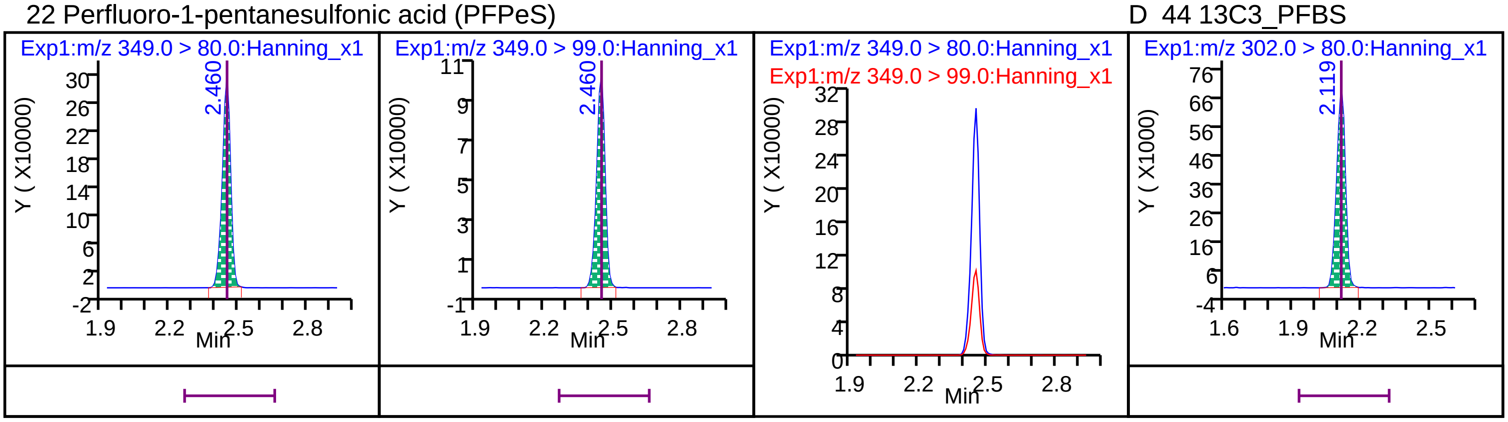
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



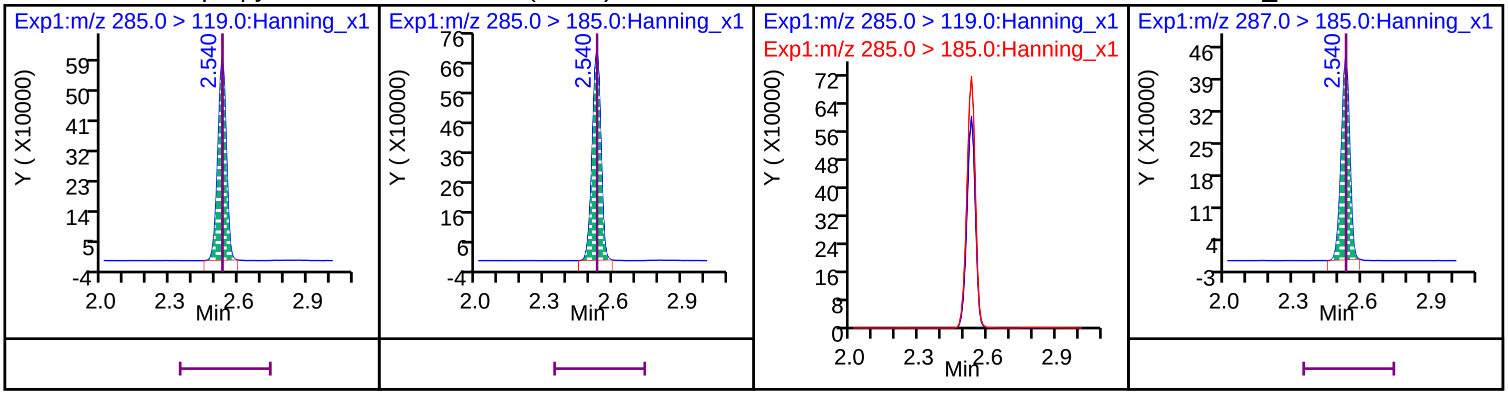
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



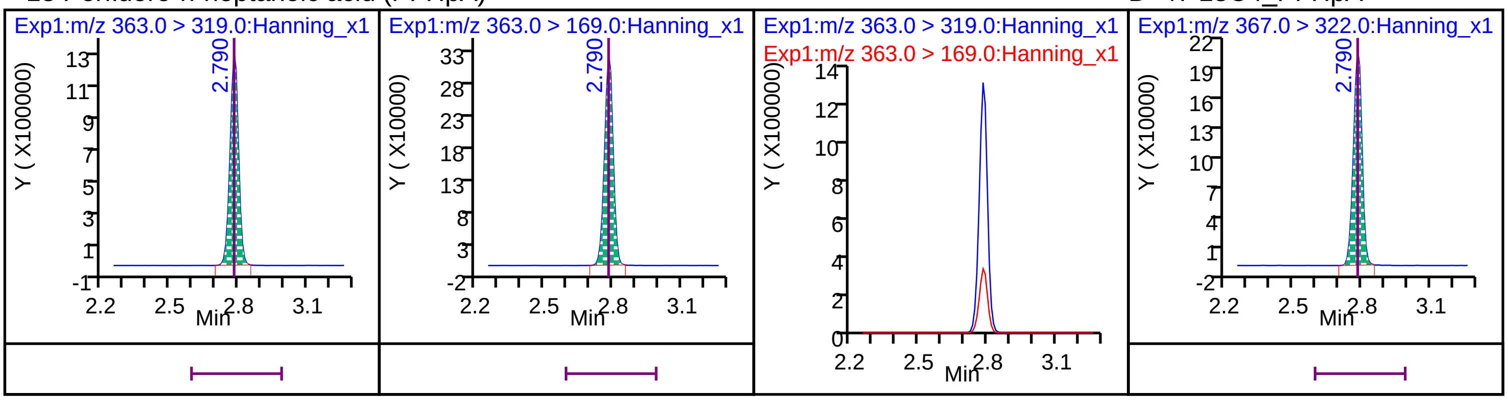
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



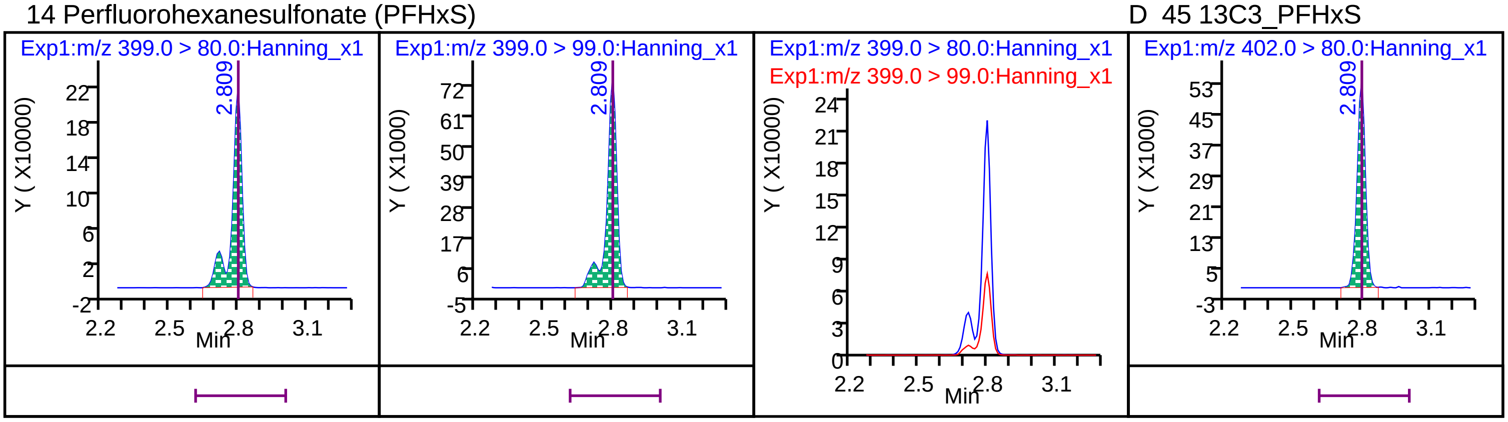
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



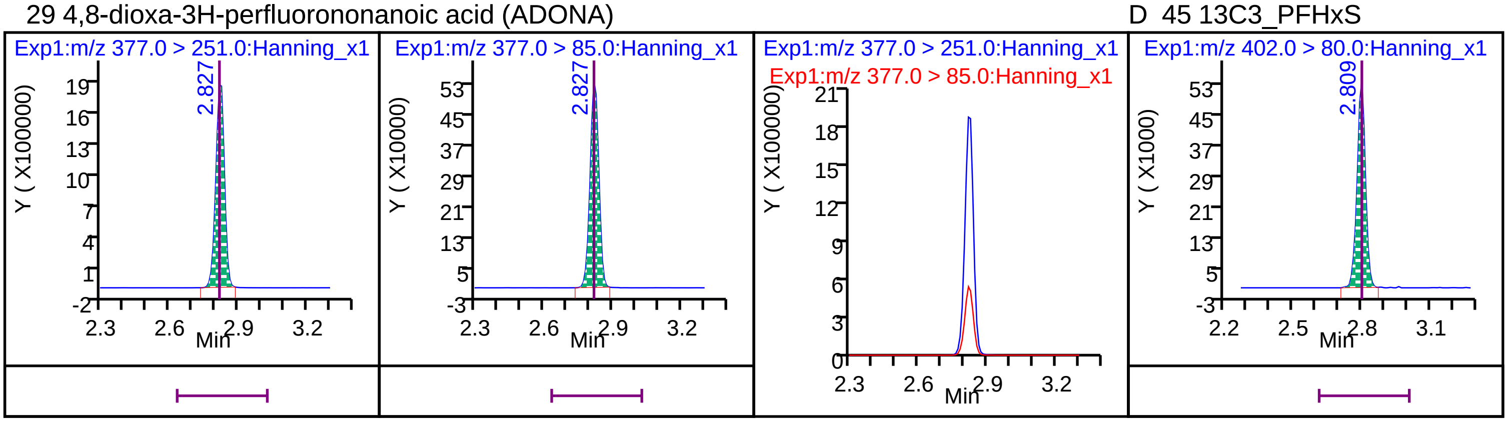
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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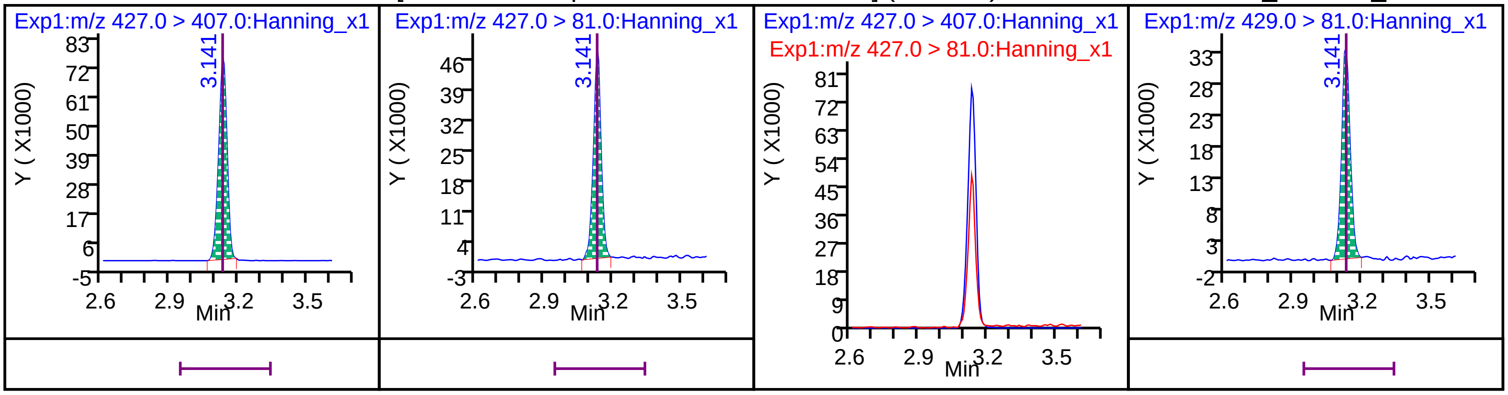
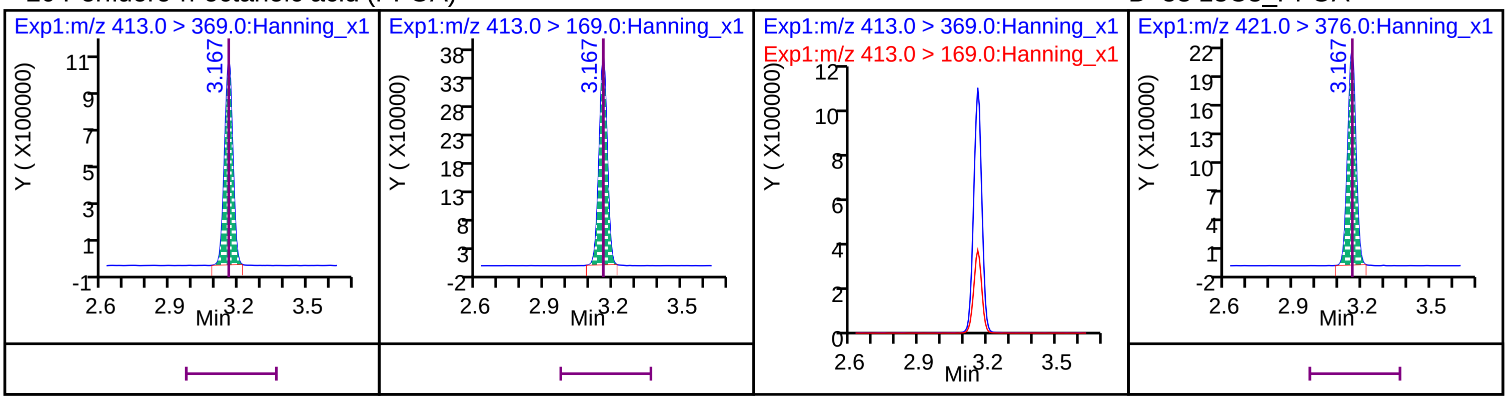
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621021.d

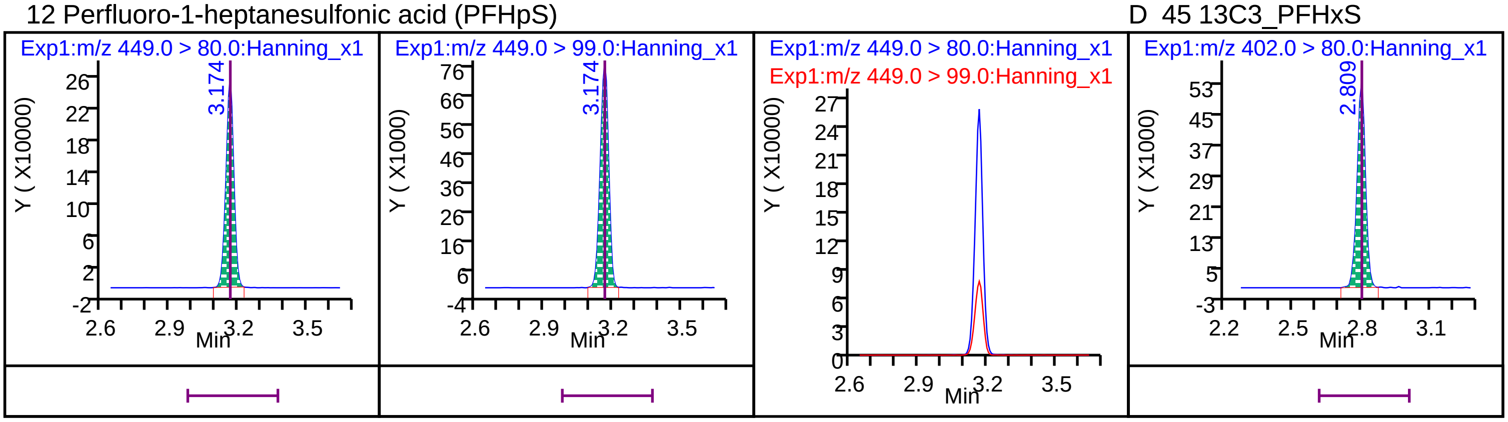
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



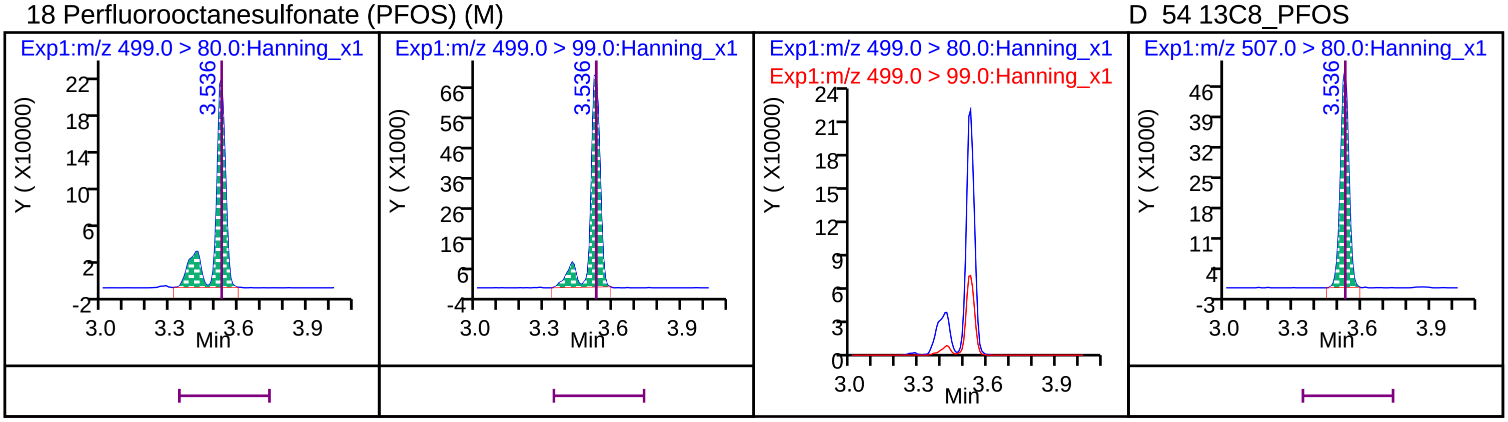
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



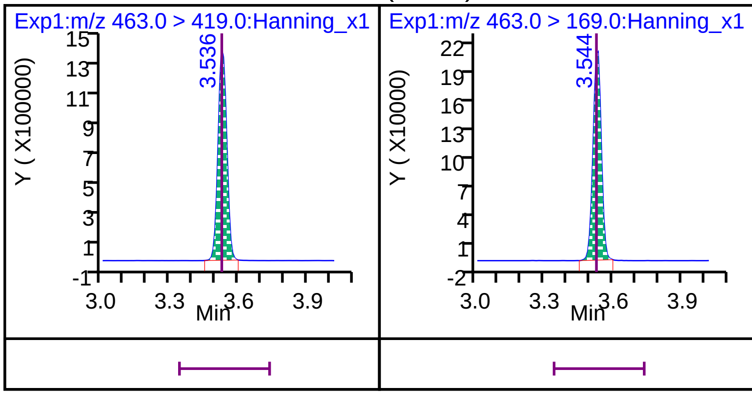
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



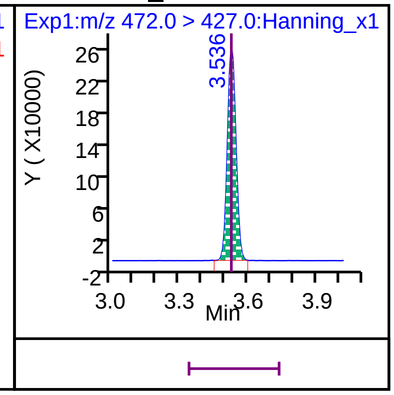
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



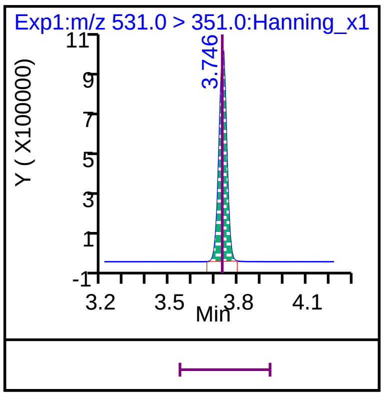
17 Perfluoro-n-nonanoic acid (PFNA)



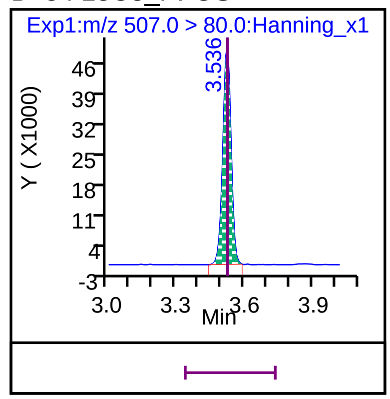
D 56 13C9_PFNA



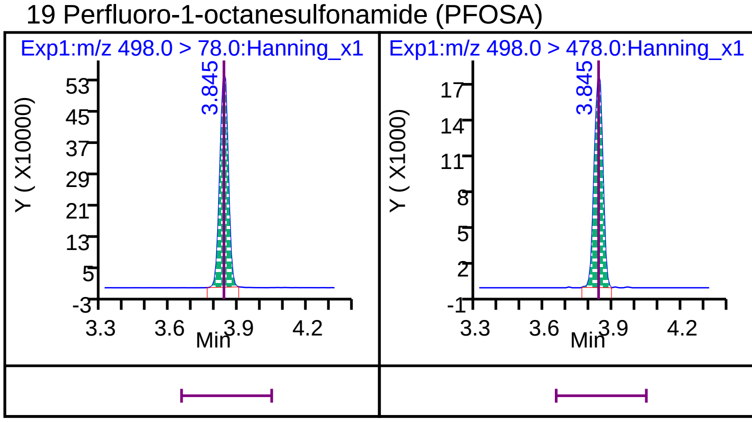
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



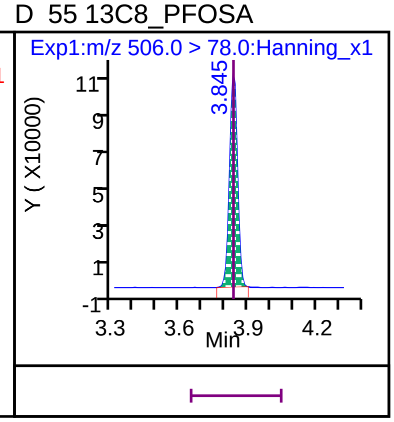
D 54 13C8_PFOS



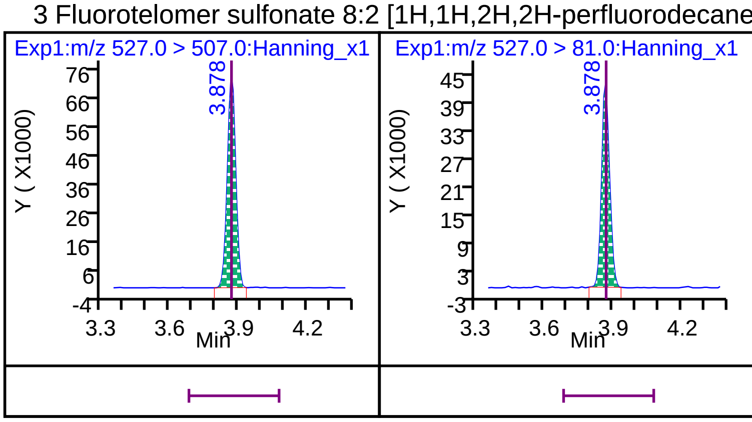
19 Perfluoro-1-octanesulfonamide (PFOSA)



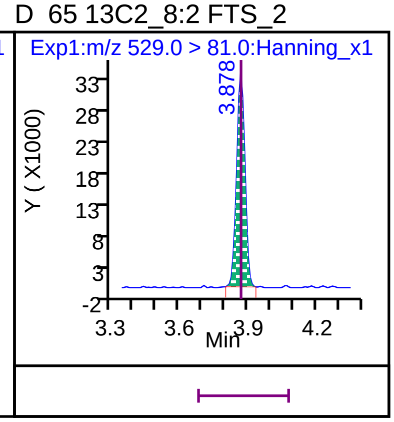
D 55 13C8_PFOSA



3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)



D 65 13C2_8:2 FTS_2



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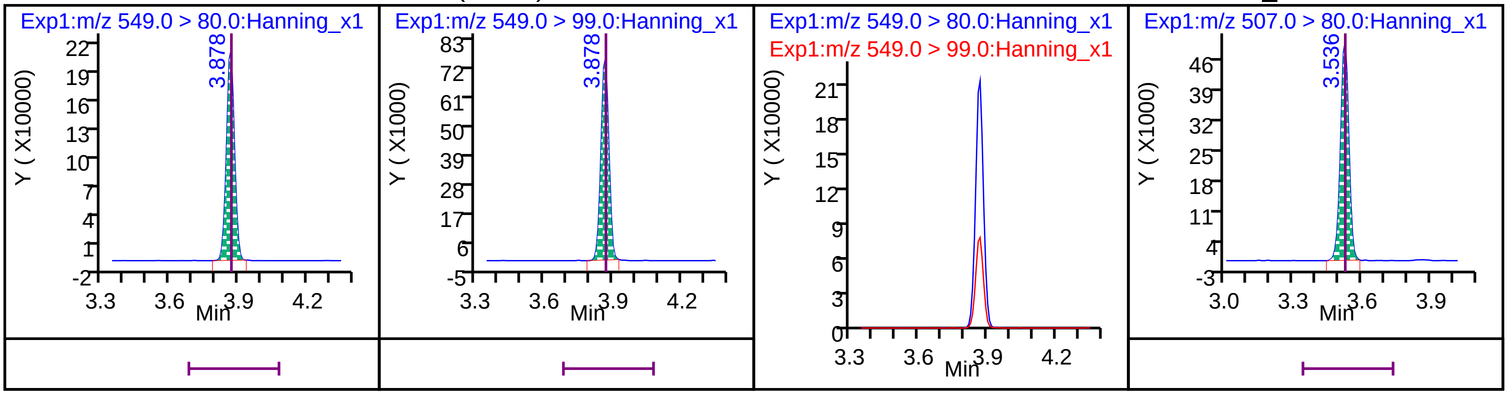
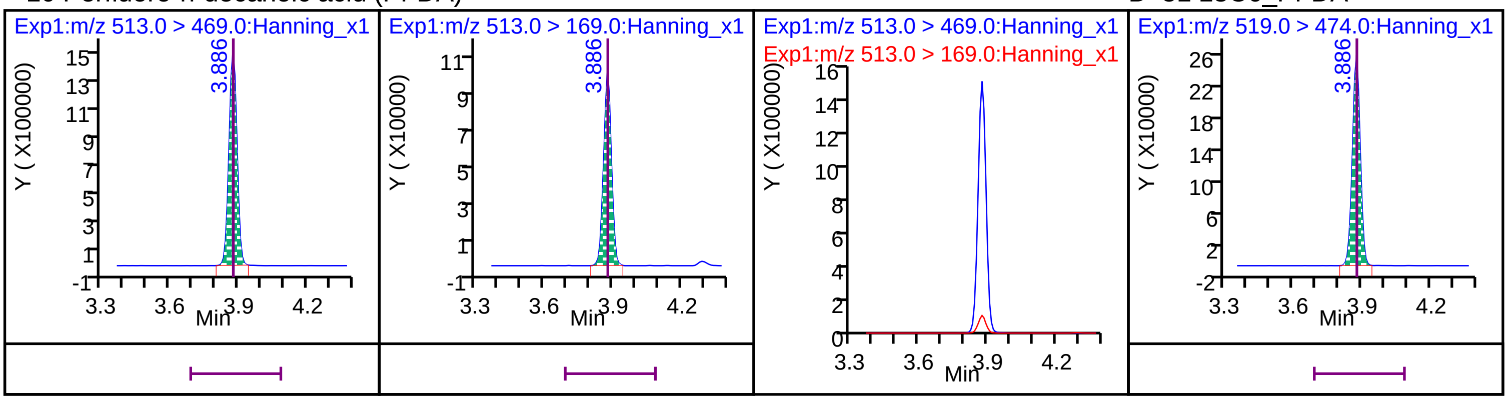
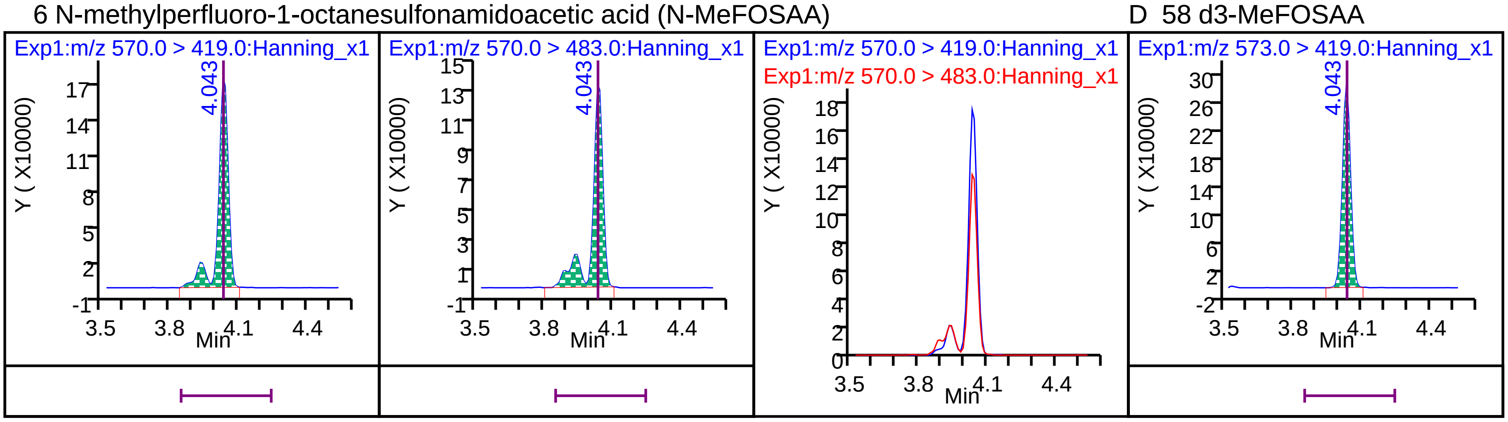
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



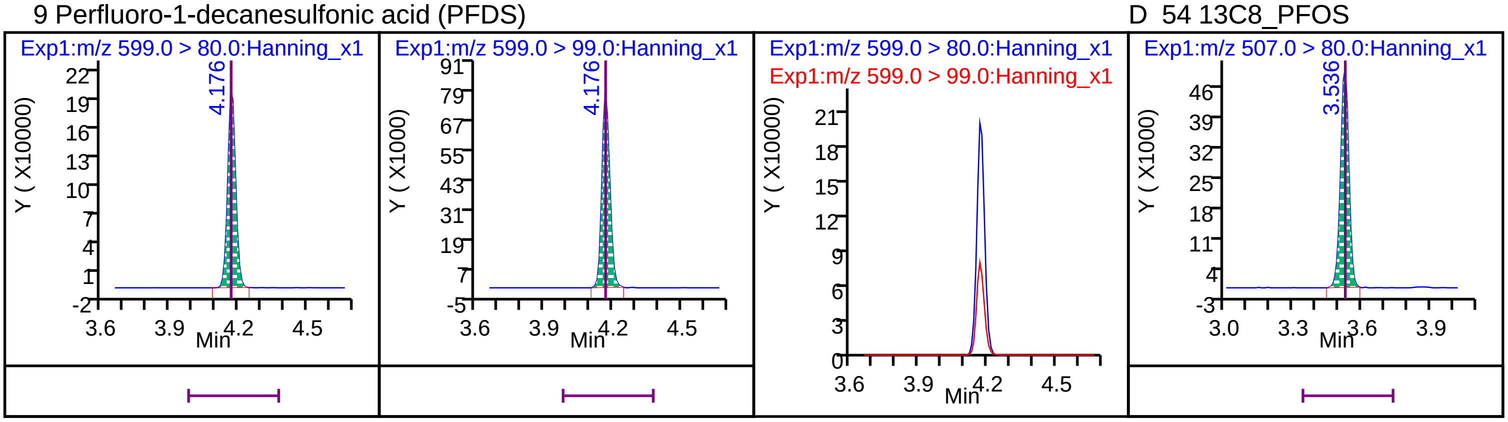
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



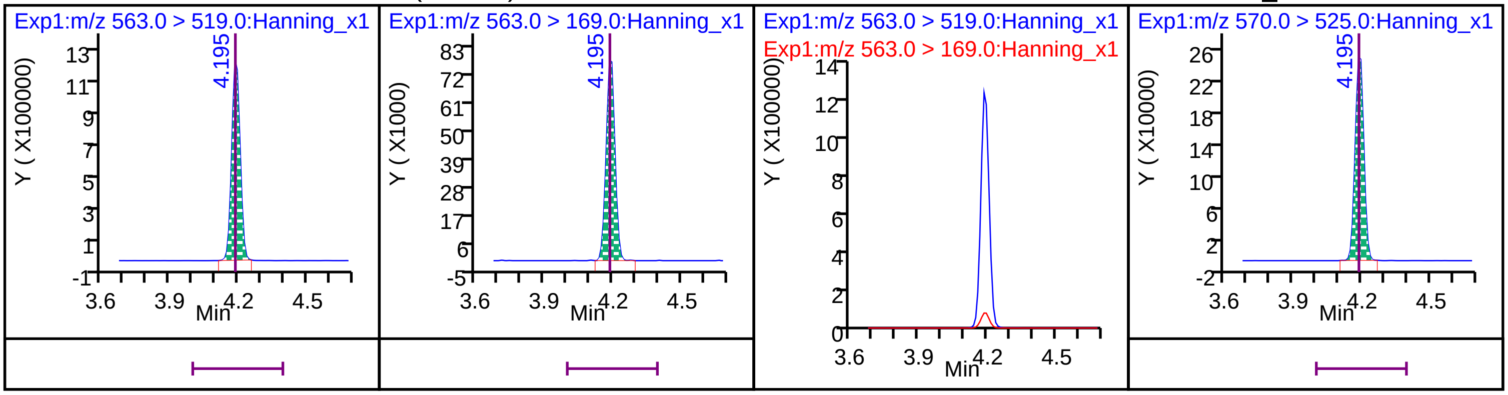
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



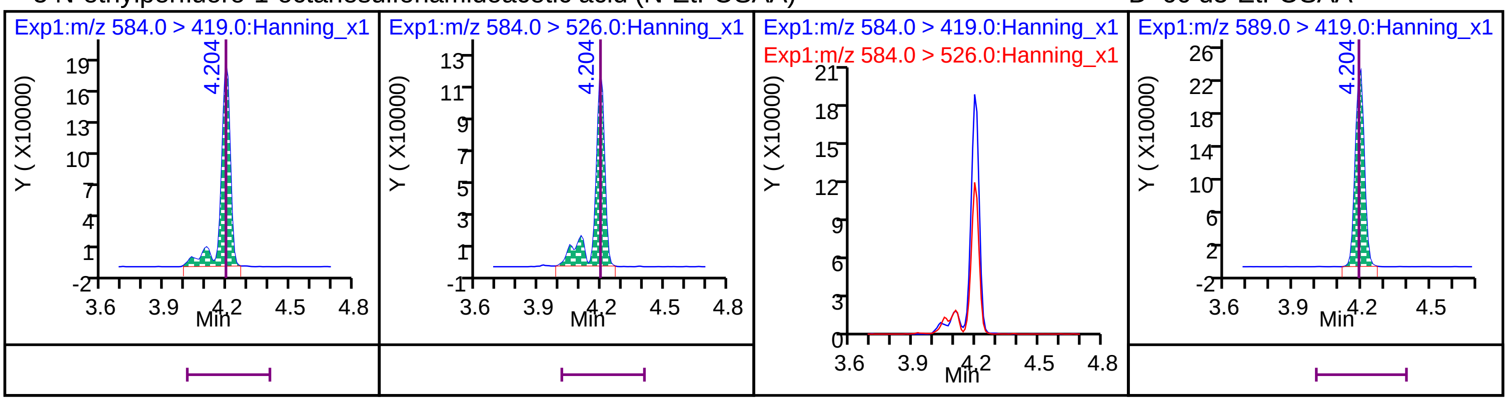
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



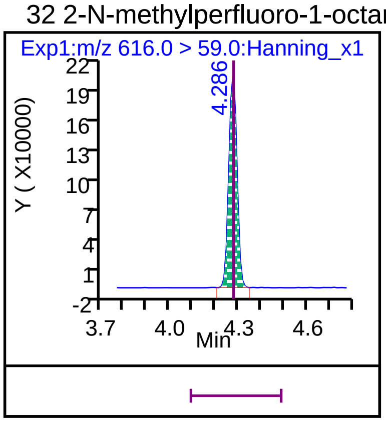
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

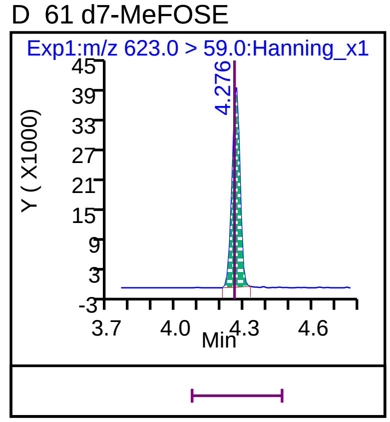


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

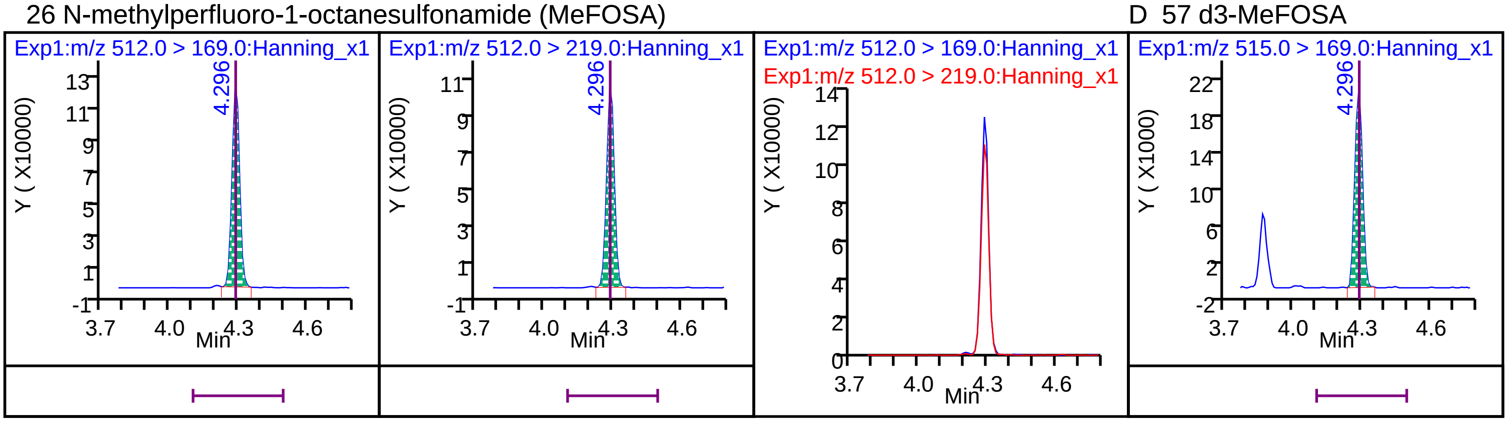


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





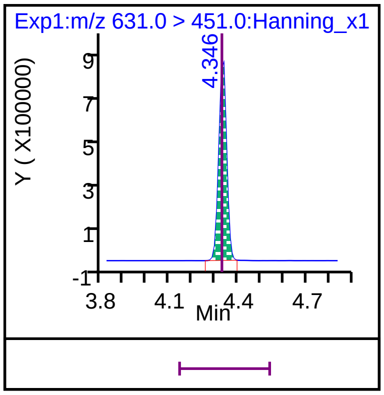
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



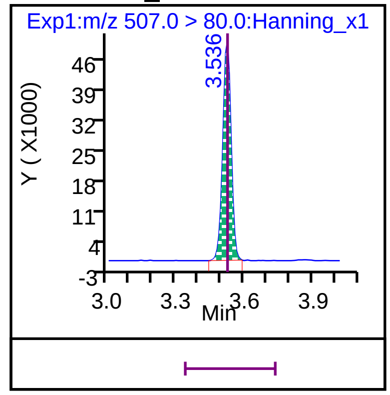
Report Date: 22-Nov-2021 08:59:51 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621021.d

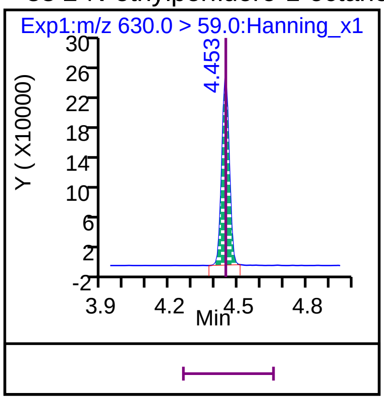
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



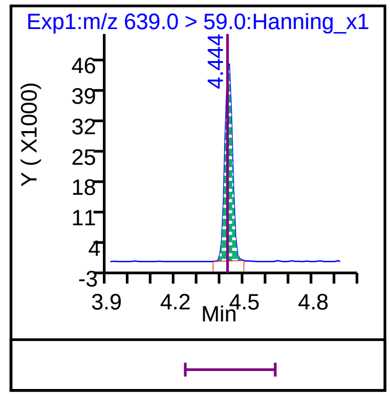
D 54 13C8_PFOS



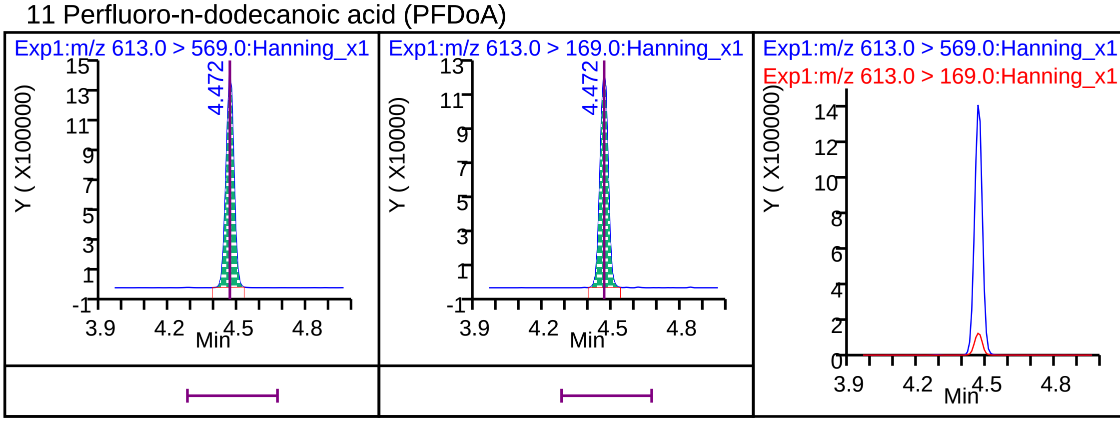
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



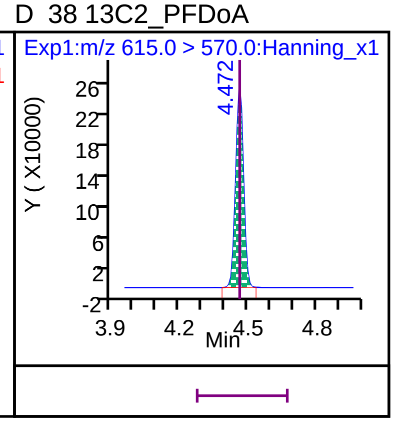
D 62 d9-EtFOSE



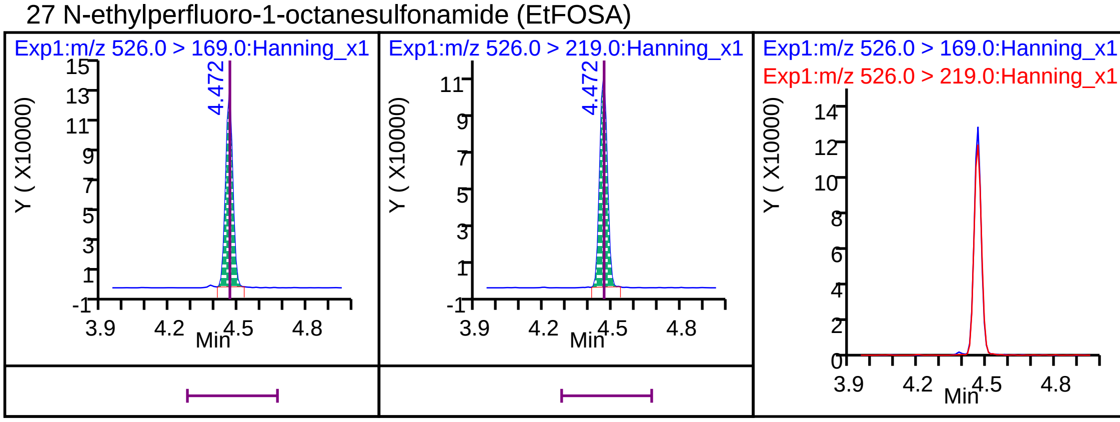
11 Perfluoro-n-dodecanoic acid (PFDoA)



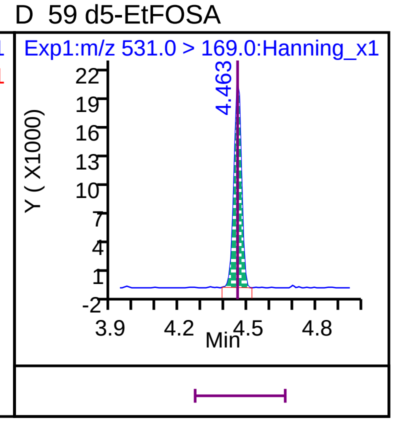
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

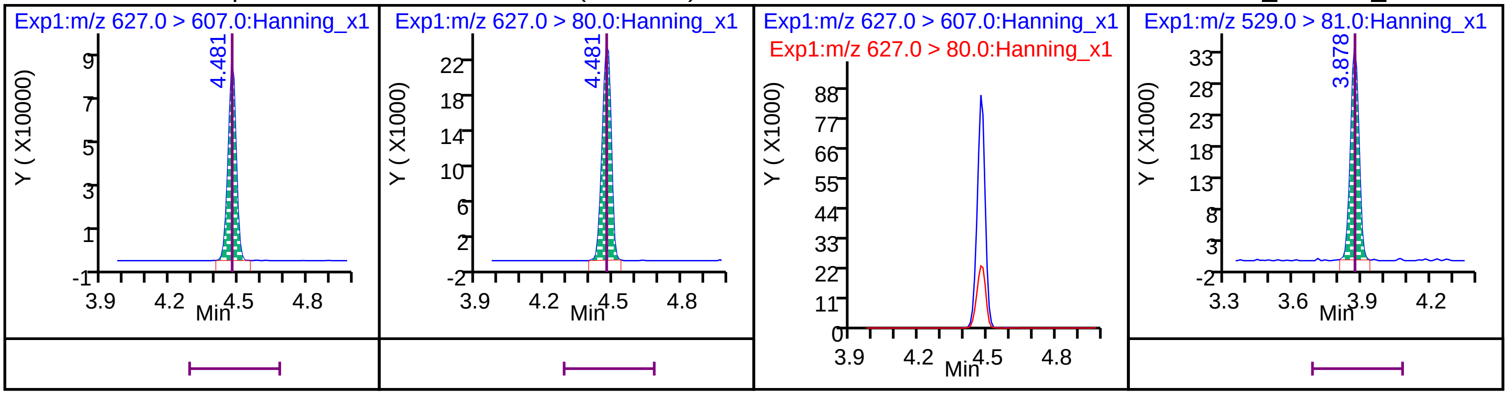


D 59 d5-EtFOSA

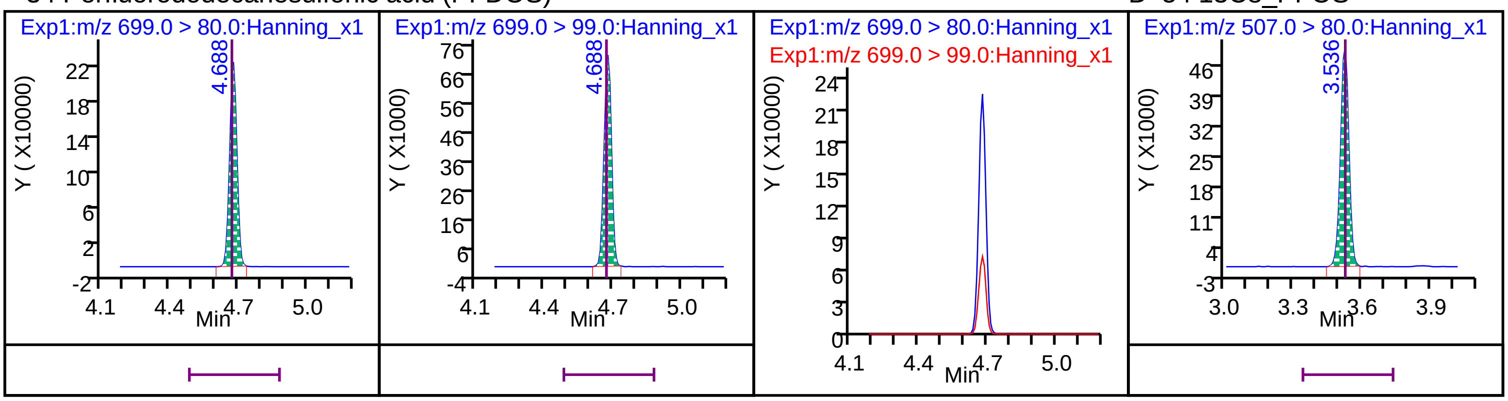


Report Date: 22-Nov-2021 08:59:51 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621021.d

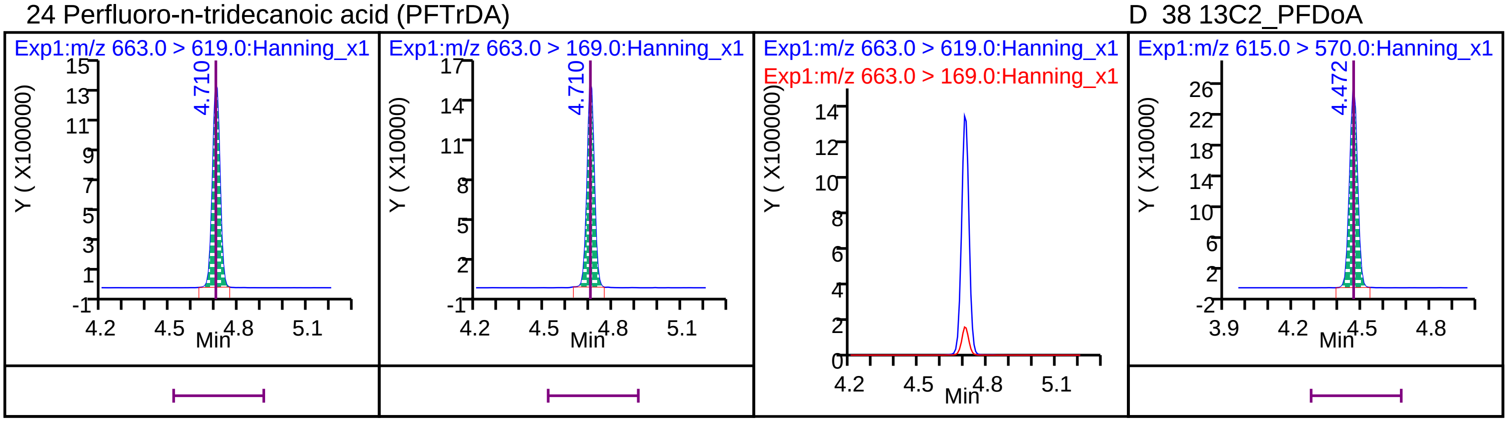
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



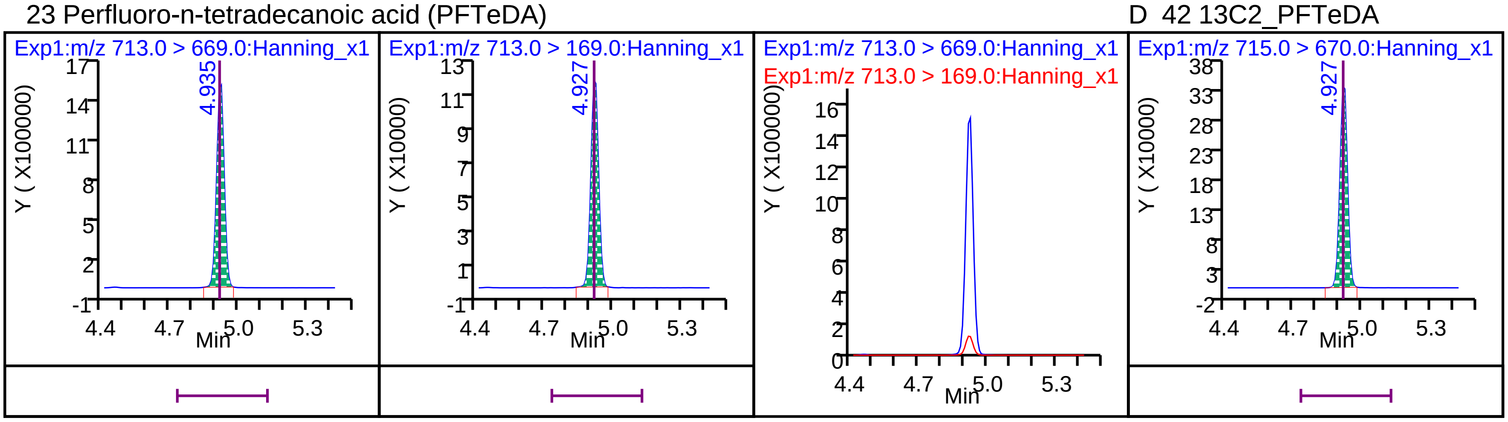
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



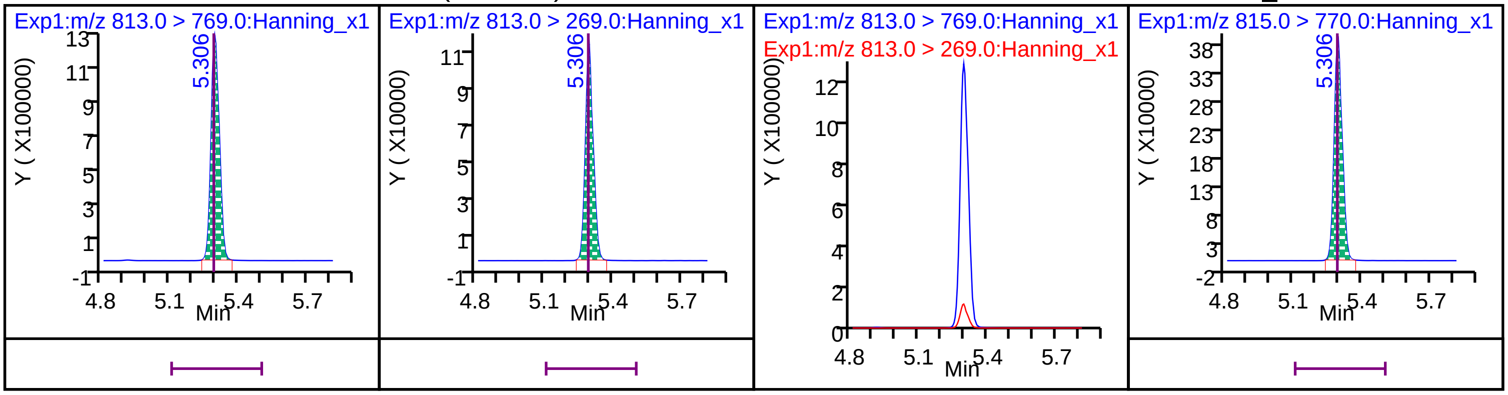
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



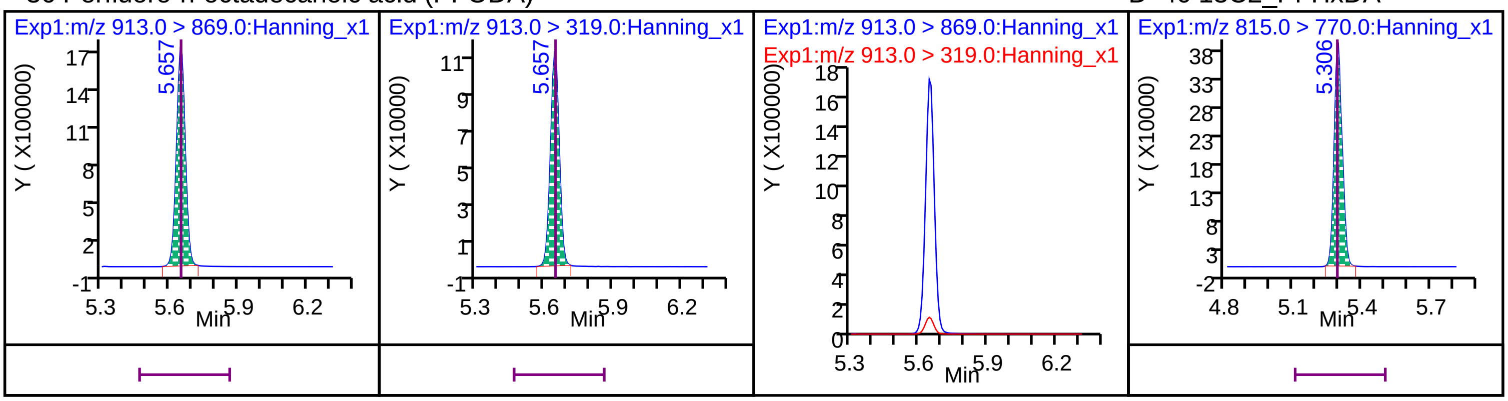
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



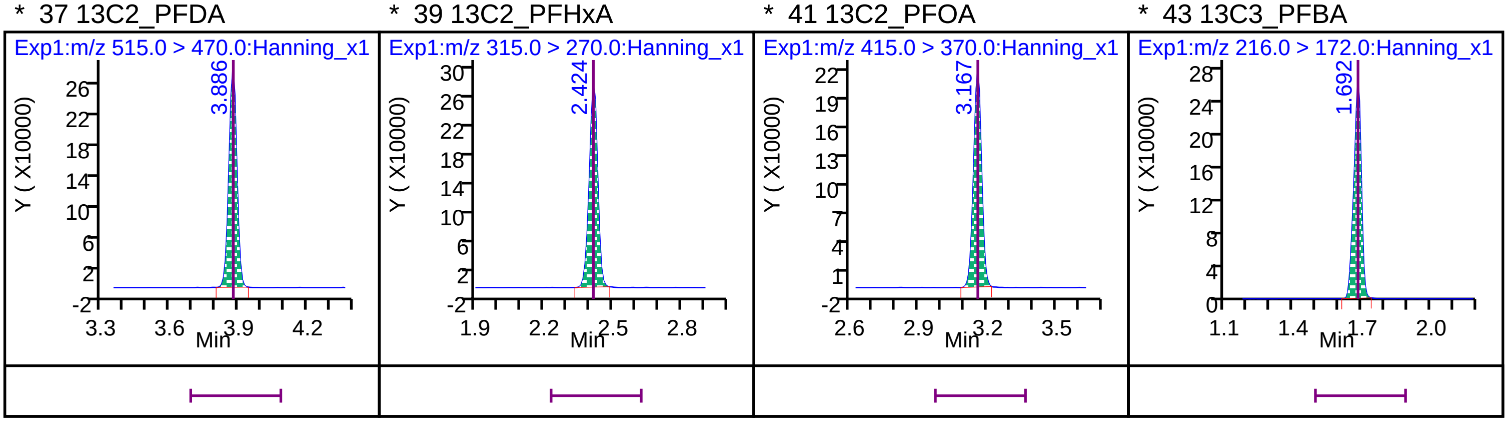
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



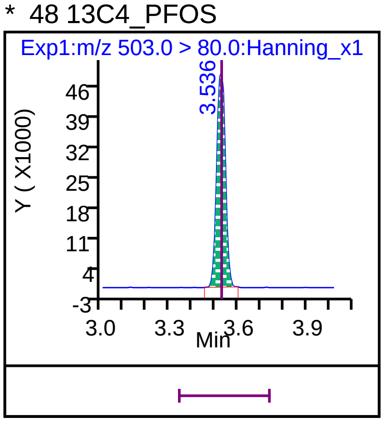
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

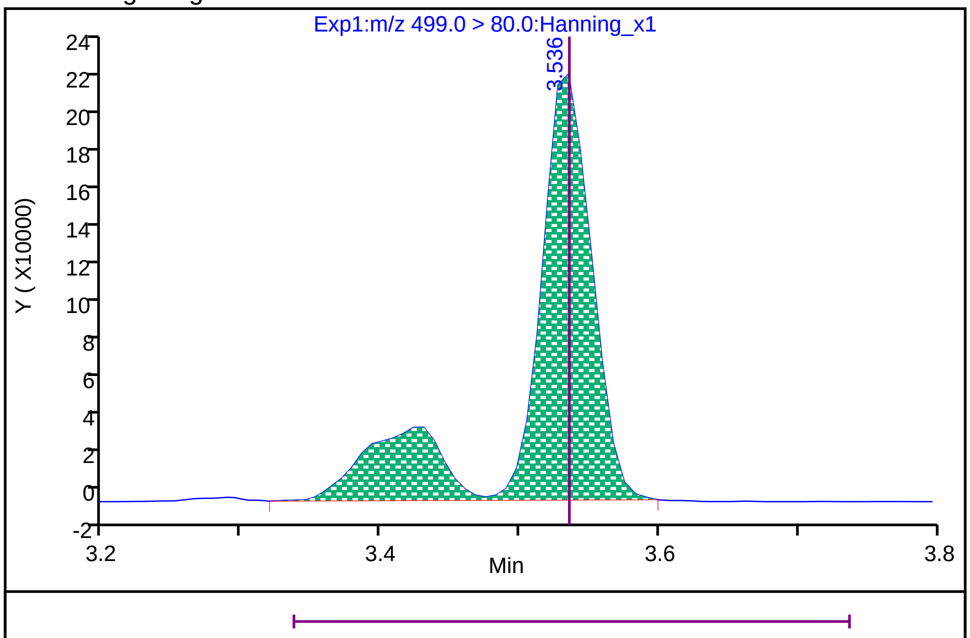
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621021.d		
Injection Date:	16-Nov-2021 17:44:55	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 5000_SVLC-1746
Sample Info:	F.L. ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin

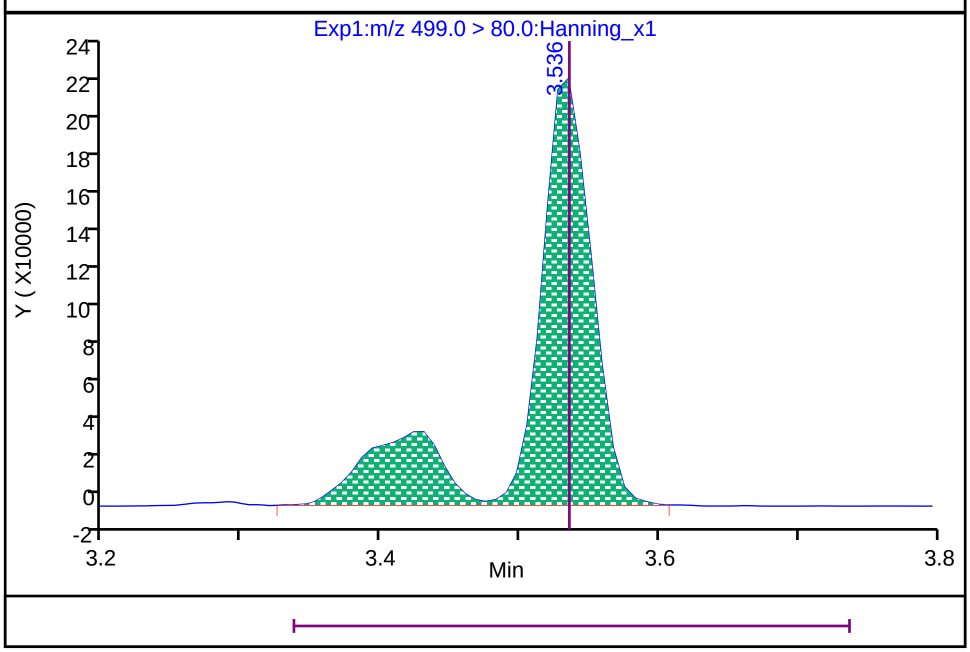
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.536
Area:	674718
Amount:	4641.31
Amount Units:	ng/L



RT:	3.536
Area:	679114
Amount:	4587.66
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:25

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621022.d		
Injection Date:	16-Nov-2021 17:55:28	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	8
Sample Info:	F.L. ICAL 10000_SVLC-1747	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	586290	19	>100:1			1000.00	939.67	90.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	1/0	6150621	20	>100:1			10000	10028		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	549623	17	>100:1			1000.00	949.01	92	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	6195702	17	>100:1			10000	10265		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	168423	15	>100:1			1000.00	970.47	96.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	1808491	15	>100:1	Target = 3.48		8840.00	8619.31		
298.9 > 99	44	2.120	2.120		516119	15	>100:1	3.50 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	1369408	17	>100:1	Target = 3.03		9380.00	9185.39		
349 > 99	44	2.460	2.460		469912	17	>100:1	2.91 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	100892	18	>100:1			5000.00	4620.43	88.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	1/0	430981	18		Target = 1.70		9340.00	9836.71		
327 > 81	63	2.389	2.389		222323	18	>100:1	1.93 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	1	625925	18	>100:1			1000.00	965.83	90.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	1/0	6541385	18	>100:1	Target = 18.47		10000	9876.30		
313 > 119	49	2.424	2.424		334789	18	>100:1	19.53 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	1	1072198	19	>100:1			5000.00	4788.37	92.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	1/0	2749904	19	>100:1	Target = 0.78		20000	19488		
285 > 185	66	2.540	2.540		3514202	17	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	521332	18	>100:1			1000.00	987.75	96.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	1/0	5710957	18	>100:1	Target = 3.92		10000	9579.62		
363 > 169	47	2.791	2.791		1416964	18	>100:1	4.03 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	126720	16	>100:1			1000.00	992.20	93.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.809	1/0	1207144	25	>100:1	Target = 3.14	5.23	9100.00	8449.93		
399 > 99	45	2.809	2.809		387680	25	>100:1	3.11 (1.57-4.71)	8.24				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	1/0	8848669	18	>100:1	Target = 3.33		9420.00	8978.08		
377 > 85	45	2.827	2.827		2636604	17	>100:1	3.35 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.174	3.174	1/0	1101135	21	>100:1	Target = 3.02		9520.00	8937.77		
449 > 99	45	3.174	3.174		353524	21	>100:1	3.11 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	1	78557	20	>100:1			5000.00	4577.72	87.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.141	1/0	347604	22	>100:1	Target = 1.69		9480.00	9432.19		
427 > 81	64	3.141	3.141		185065	22	>100:1	1.87 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.168	1	477103	21	>100:1			1000.00	921.07	85.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.168	3.168	1/0	5000905	21	>100:1	Target = 3.03		10000	10016		
413 > 169	53	3.168	3.168		1651226	21	>100:1	3.02 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	1	123482	19	>100:1			1000.00	991.82	93.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.537	3.537	1/0	1258682	37	>100:1	Target = 3.42	3.87	9280.00	8581.63		M
499 > 99	54	3.537	3.537		394261	39	>100:1	3.19 (1.71-5.13)	7.93				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.740	3.740	1/0	4299454	20	>100:1			9320.00	9069.54		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.879	3.879	1/0	893542	18	>100:1	Target = 2.57		9600.00	9294.58		
549 > 99	54	3.879	3.879		332565	19	>100:1	2.68 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.178	4.178	1/0	875970	17		Target = 2.71		9640.00	8825.09		
599 > 99	54	4.178	4.178		340662	16	>100:1	2.57 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.338	4.338	1/0	3759972	17	>100:1			9420.00	8982.98		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.690	4.681	1/0	904843	18	>100:1	Target = 3.04		9680.00	9207.99		
699 > 99	54	4.690	4.681		305390	18		2.96 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.537	3.537	1	610268	20	>100:1			1000.00	945.82	88.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.545	3.537	1/0	6598868	20	>100:1	Target = 7.14		10000	9815.90		
463 > 169	56	3.537	3.537		972304	20	>100:1	6.78 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.847	3.846	1	241446	18	>100:1			1000.00	957.48	88.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.847	3.846	1/0	2480891	18	>100:1	Target = 32.83		10000	9351.35		
498>478	55	3.847	3.846		87796	24		28.25 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	1	81573	17	>100:1			5000.00	4878.22	92.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.879	3.879	1/0	335708	18	>100:1	Target = 2.14		9580.00	8872.41		
527 > 81	65	3.879	3.879		159681	18	>100:1	2.10 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.483	4.482	1/0	410369	17		Target = 3.72		9640.00	9357.22		
627 > 80	65	4.483	4.482		114804	17		3.57 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.888	3.887	1	524400	19	>100:1			1000.00	920.23	89.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.888	3.887	1/0	6201460	18	>100:1	Target = 14.16		10000	10086		
513 > 169	51	3.888	3.887		438632	18	>100:1	14.13 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	1	664615	16	93:1			5000.00	4865.85	97.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.045	4.045	1/0	1031074	32	>100:1	Target = 1.42	7.07	10000	9364.05		
570 > 483	58	4.045	4.045		762595	31	>100:1	1.35 (0.71-2.14)	3.98				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.197	4.196	1	577750	18	>100:1			5000.00	4758.27	94.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.206	4.206	1/0	1098610	30	>100:1	Target = 1.49	5.99	10000	10021		
584 > 526	60	4.206	4.206		705178	32	>100:1	1.55 (0.74-2.24)	3.62				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.197	4.196	1	581608	17	>100:1			1000.00	895.90	87.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.197	4.196	1/0	5438287	17	>100:1	Target = 14.37		10000	10078		
563 > 169	52	4.197	4.196		396028	17		13.73 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.278	4.267	1	87382	16	>100:1			1000.00	997.12	98.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.288	4.287	1/0	930688	16	>100:1			10000	9647.25		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.298	1	50920	16	>100:1			1000.00	1042.65	101.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.298	4.298	1/0	477298	14	>100:1	Target = 1.08		10000	9194.61		
512 > 219	57	4.298	4.298		440316	14	>100:1	1.08 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.437	1	107777	16	>100:1			1000.00	1017.57	94.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.455	4.455	1/0	1010032	17	>100:1			10000	9192.47		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.464	0	41405	15	>100:1			1000.00	945.08	90.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.474	4.473	1/1	489107	15	>100:1	Target = 0.97		10000	10031		
526 > 219	59	4.464	4.473		481814	15	>100:1	1.01 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.474	4.473	1	540455	17	>100:1			1000.00	905.47	86.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.474	4.473	1/0	5793147	17	>100:1	Target = 10.55		10000	9929.44		
613 > 169	38	4.474	4.473		556201	17	>100:1	10.41 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.712	4.711	1/0	5154328	19	>100:1	Target = 8.92		10000	9797.39		
663 > 169	38	4.712	4.711		607347	18	>100:1	8.48 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	1	712766	18	>100:1			1000.00	945.17	89.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	1/0	6131217	18	>100:1	Target = 12.22		10000	9811.51		
713 > 169	42	4.928	4.928		504475	18	>100:1	12.15 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.303	5.302	1	875442	22	>100:1			1000.00	973.60	94.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.303	5.302	1/0	5539525	21	>100:1	Target = 11.65		10000	9339.69		
813 > 269	40	5.307	5.302		492431	22	>100:1	11.24 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.661	5.660	1/0	7991982	20	>100:1	Target = 15.15		10000	9702.24		
913 > 319	40	5.661	5.660		541601	21	>100:1	14.75 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.888	3.887	1	608395	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	1	653246	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.168	1	484523	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	540874	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	1	118518	20	>100:1			1000.00			

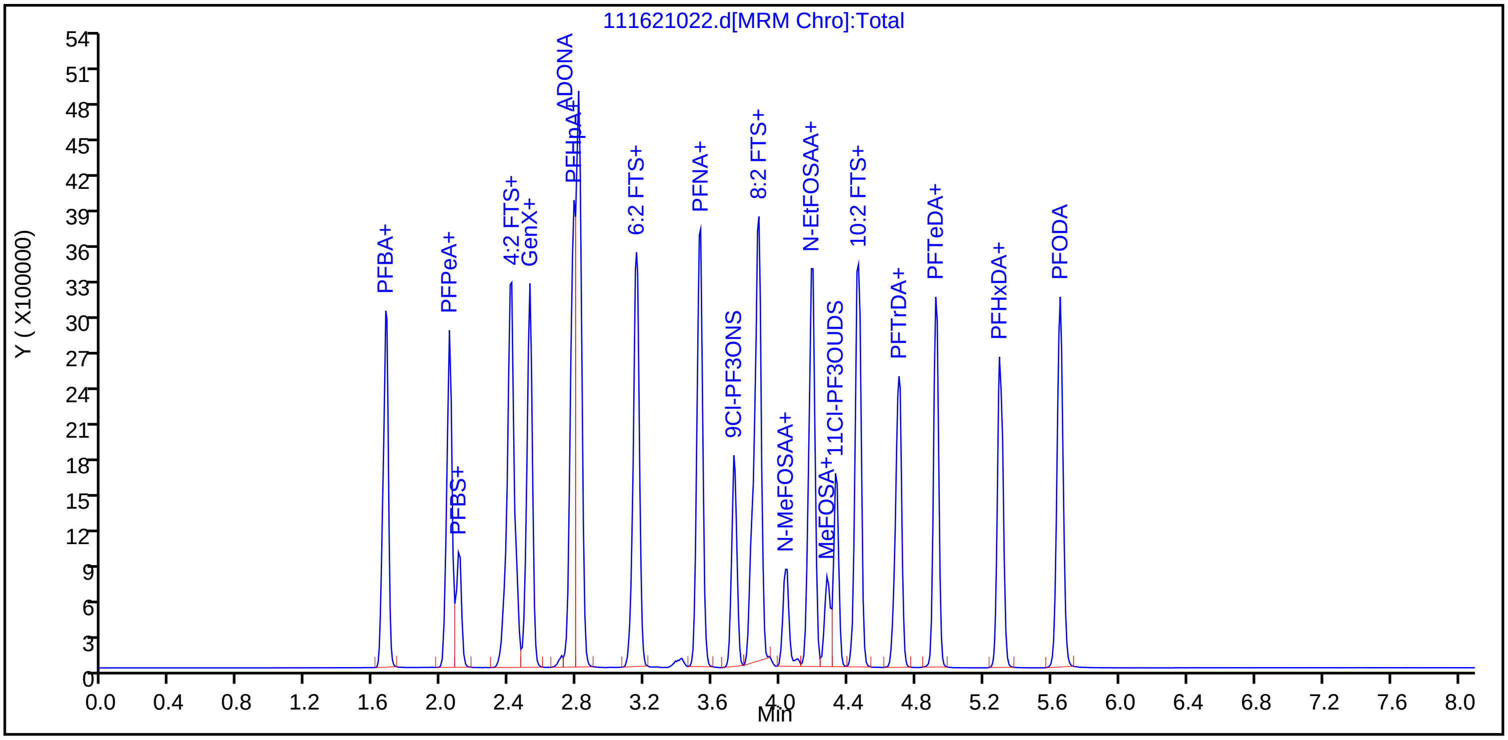
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

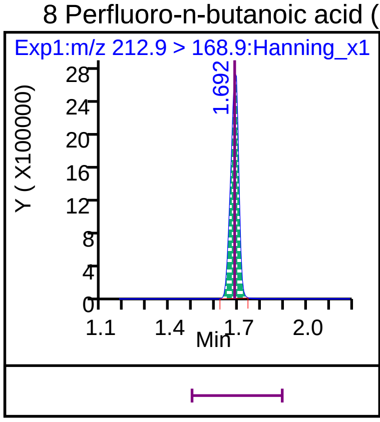
Report Date: 22-Nov-2021 08:59:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

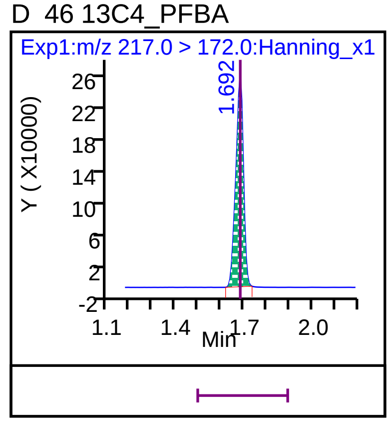
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621022.d		
Injection Date:	16-Nov-2021 17:55:28	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 10000_SVLC-1747
Sample Info:	F.L. ICAL 10000_SVLC-1747		
Dil. Factor:	1	Operator:	Justin Gavin



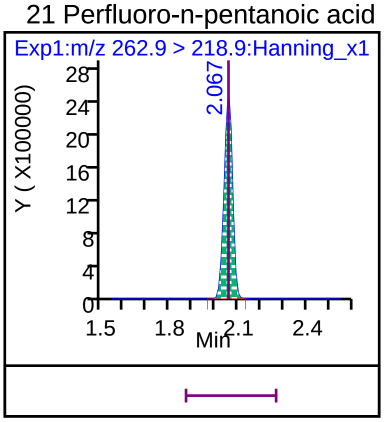
8 Perfluoro-n-butanoic acid (PFBA)



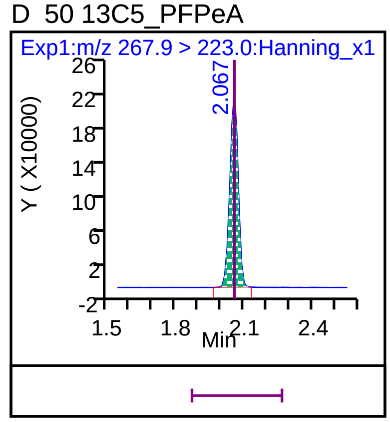
D 46 13C4_PFBA



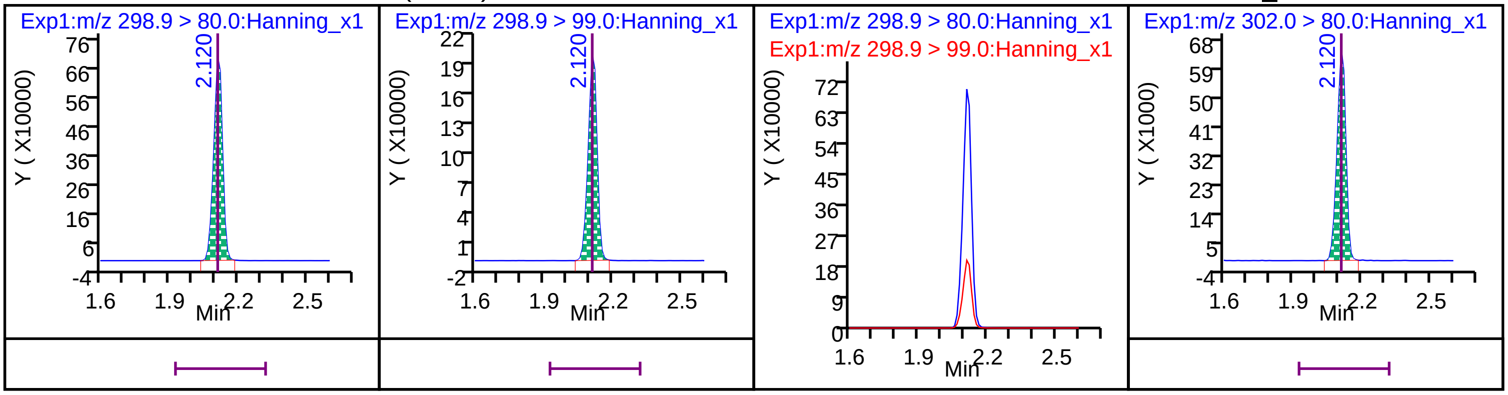
21 Perfluoro-n-pentanoic acid (PFPeA)



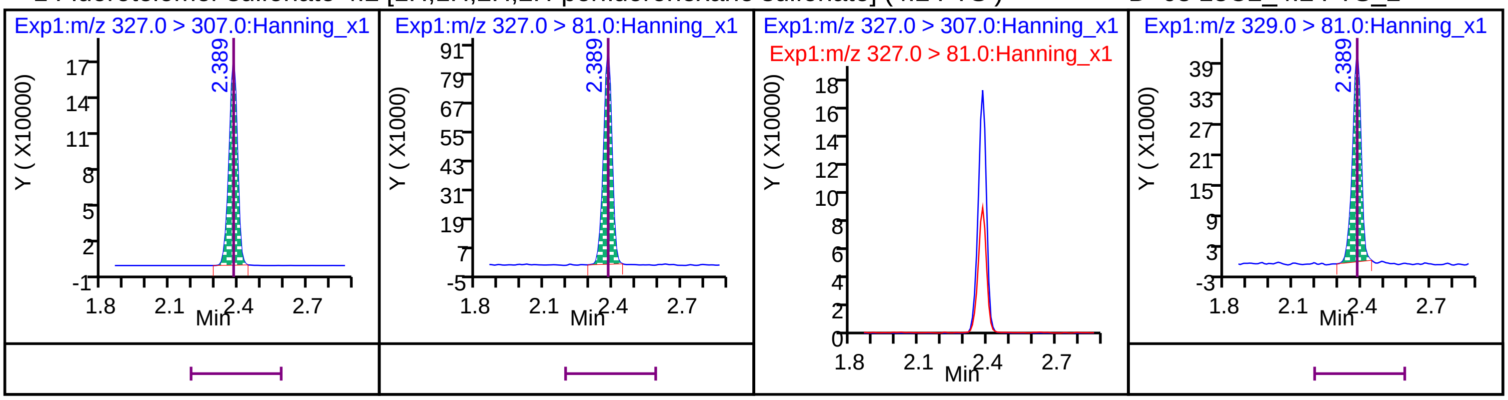
D 50 13C5_PFPeA



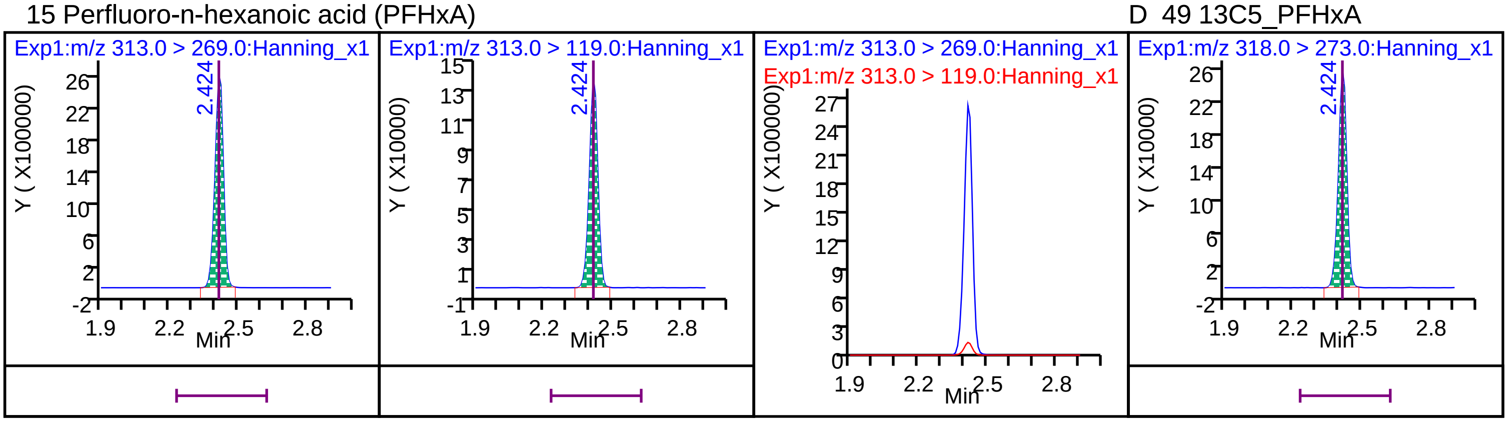
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



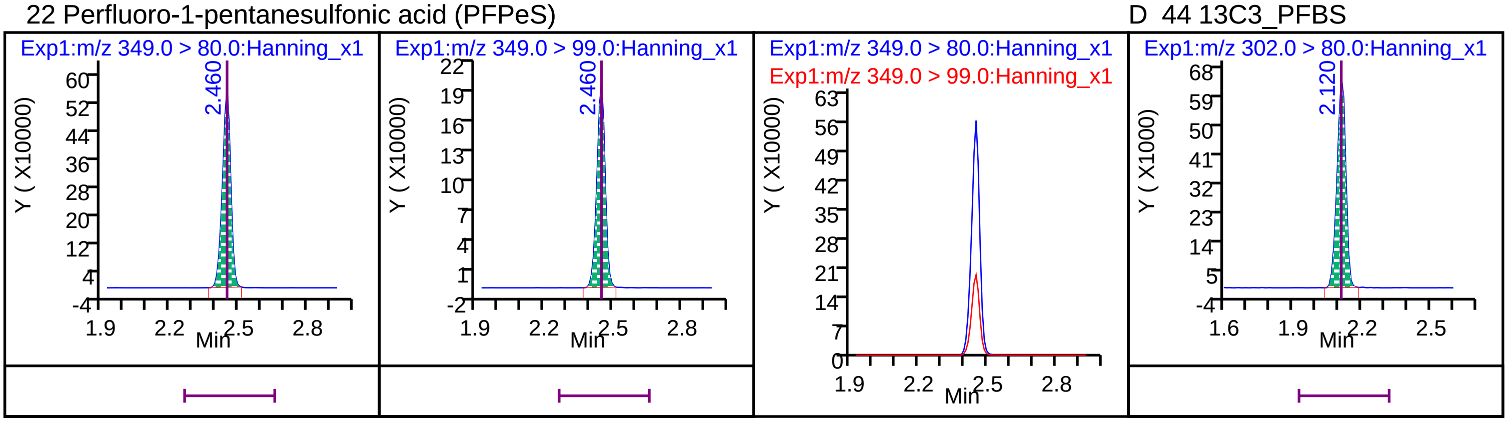
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



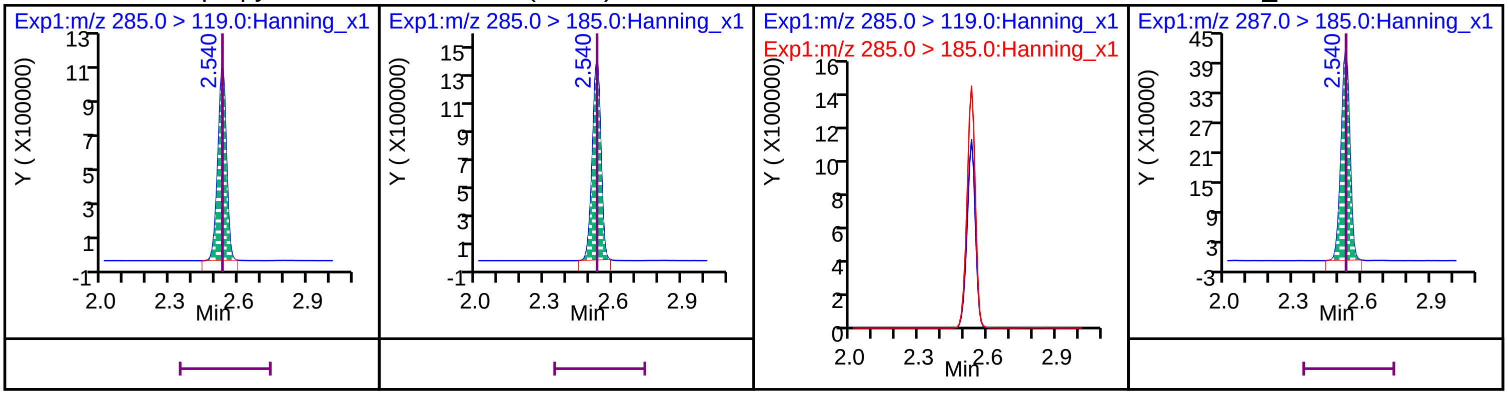
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



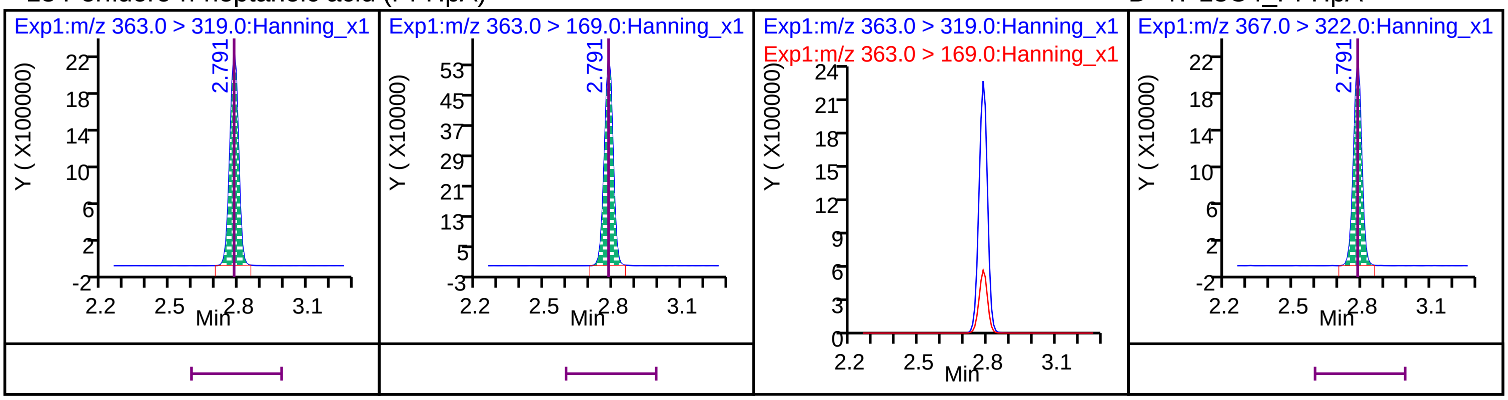
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



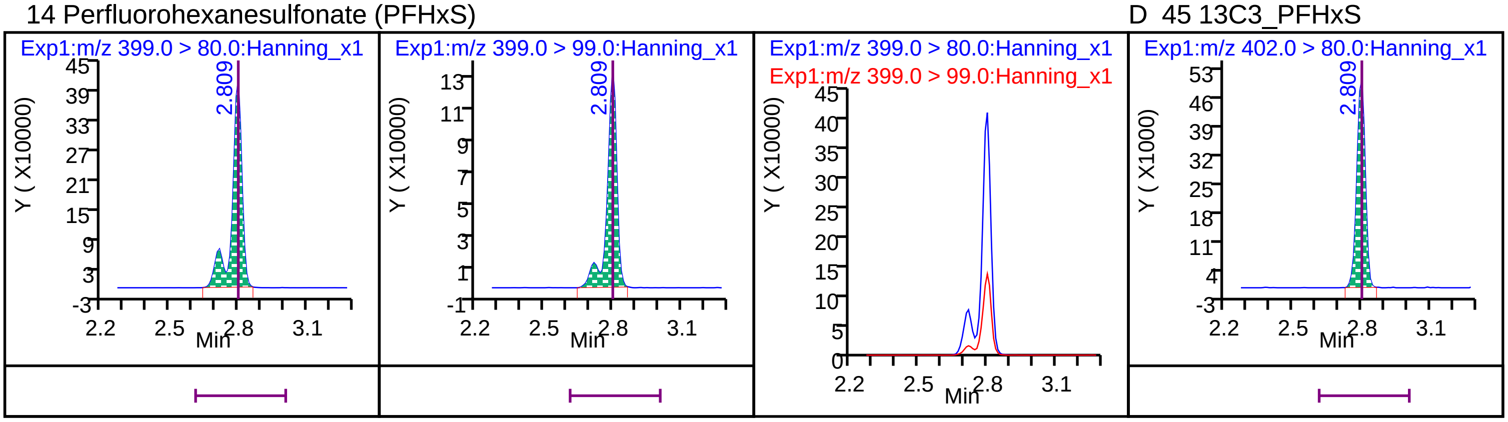
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



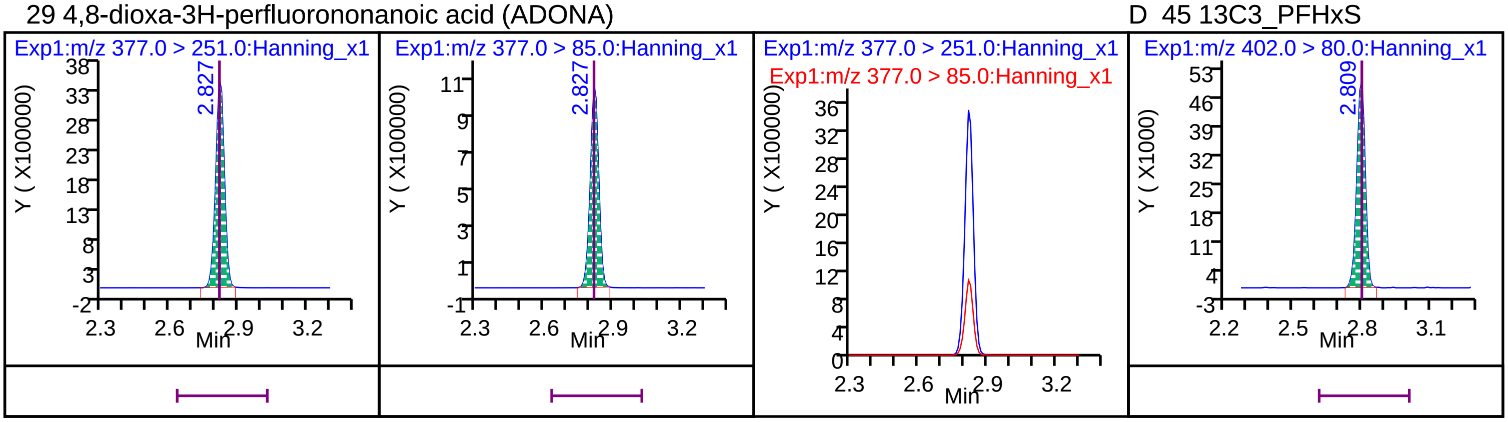
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



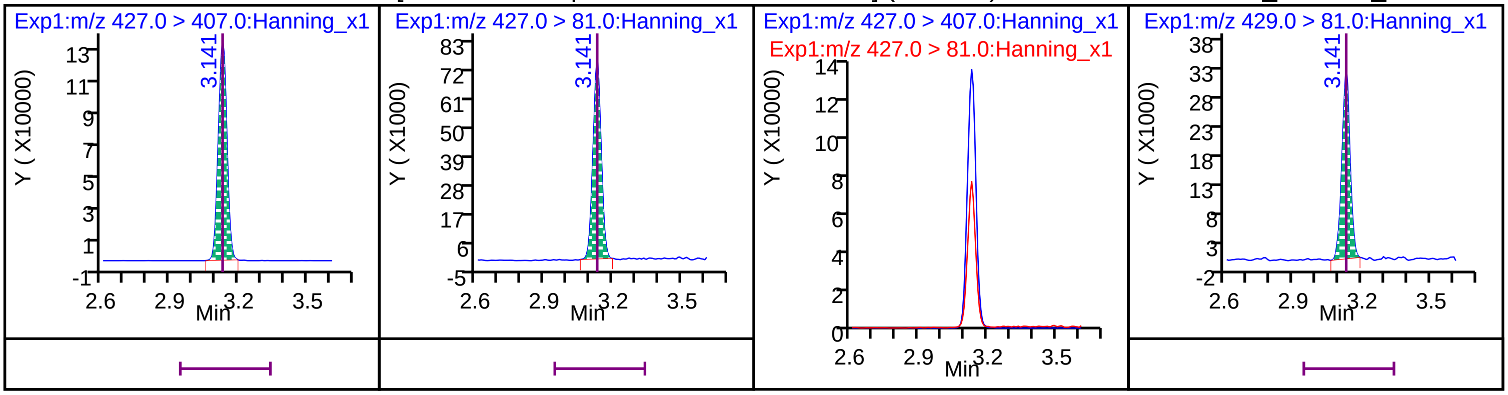
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



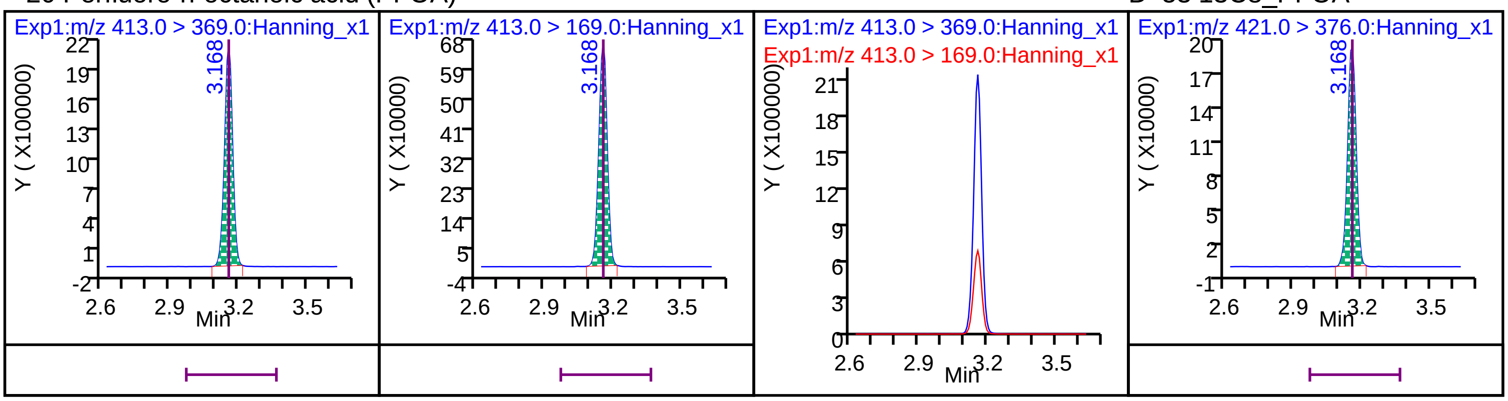
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



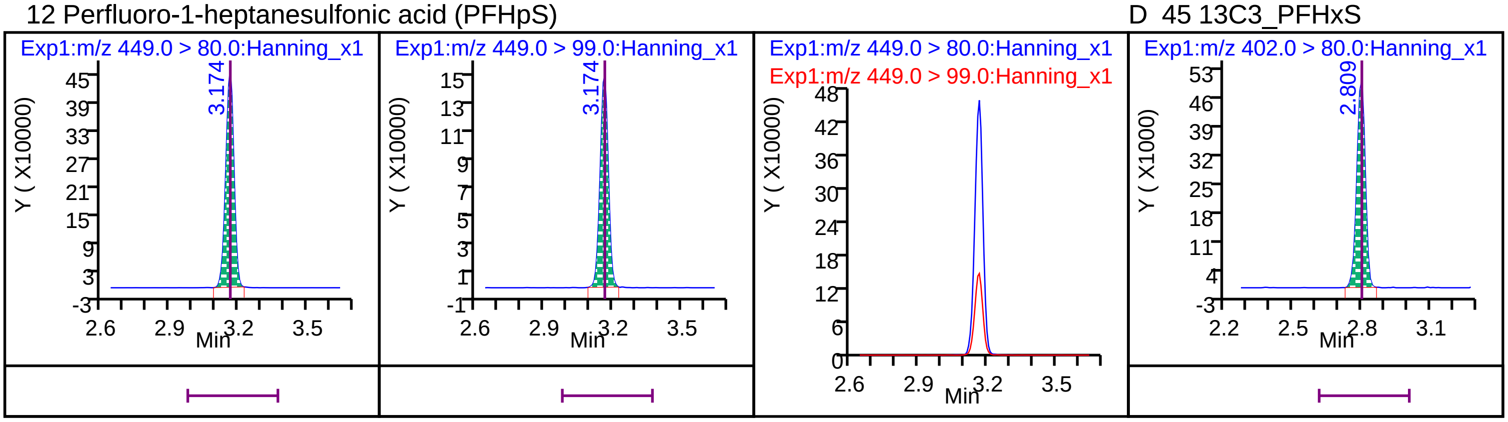
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



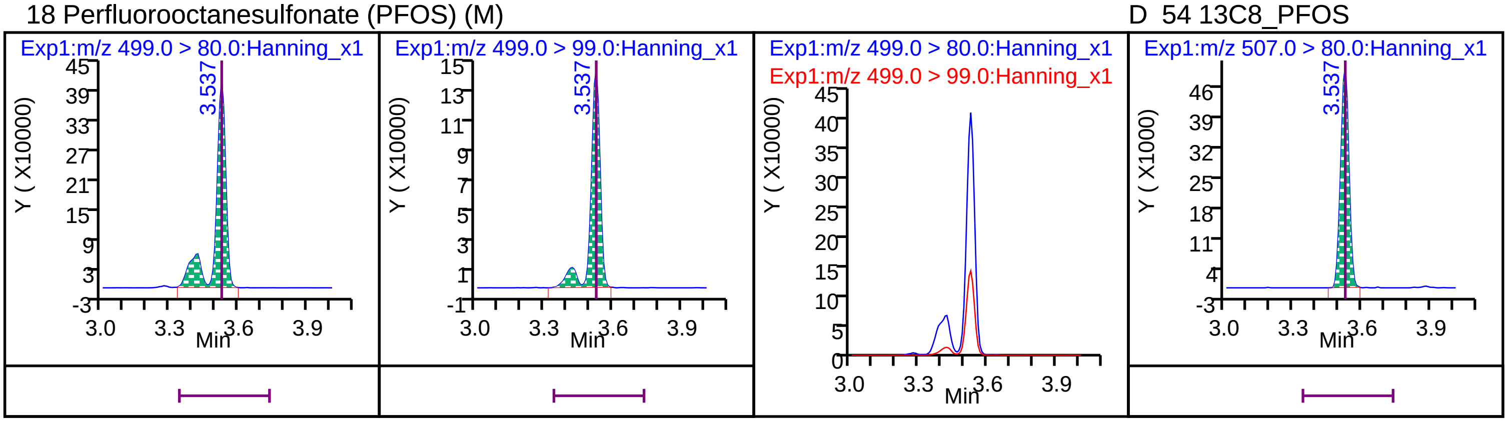
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



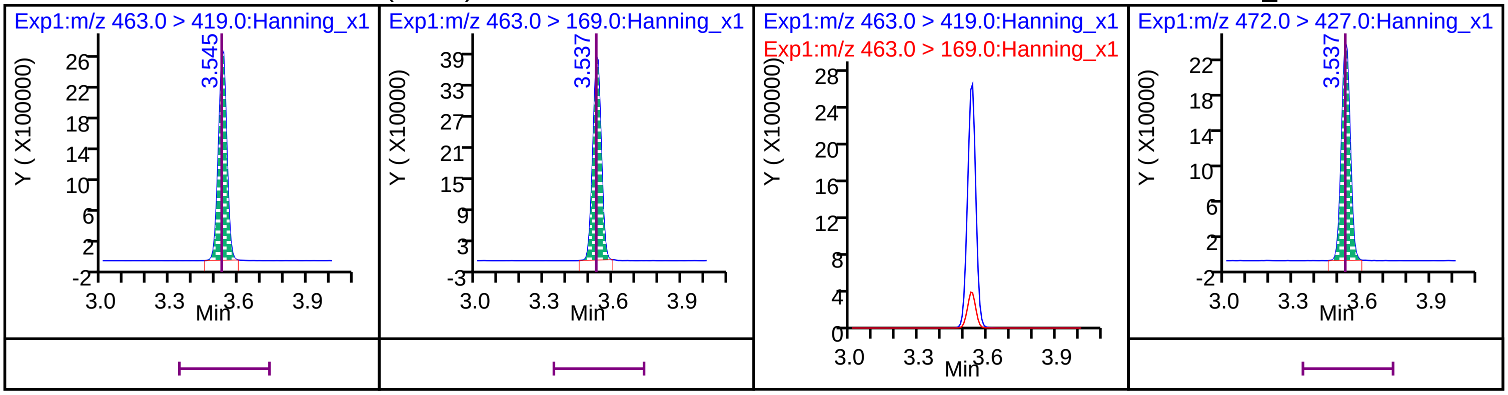
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



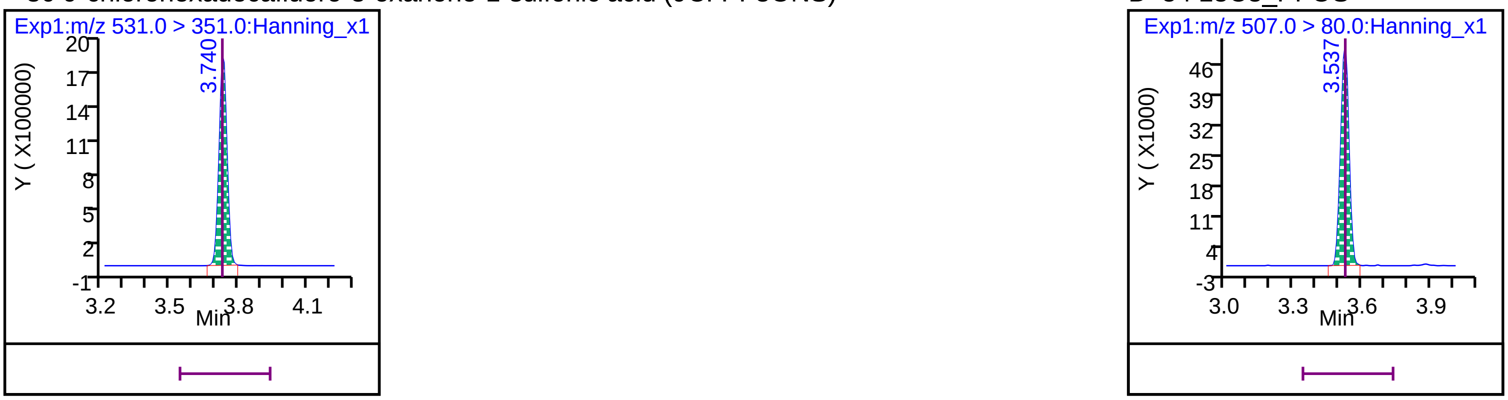
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



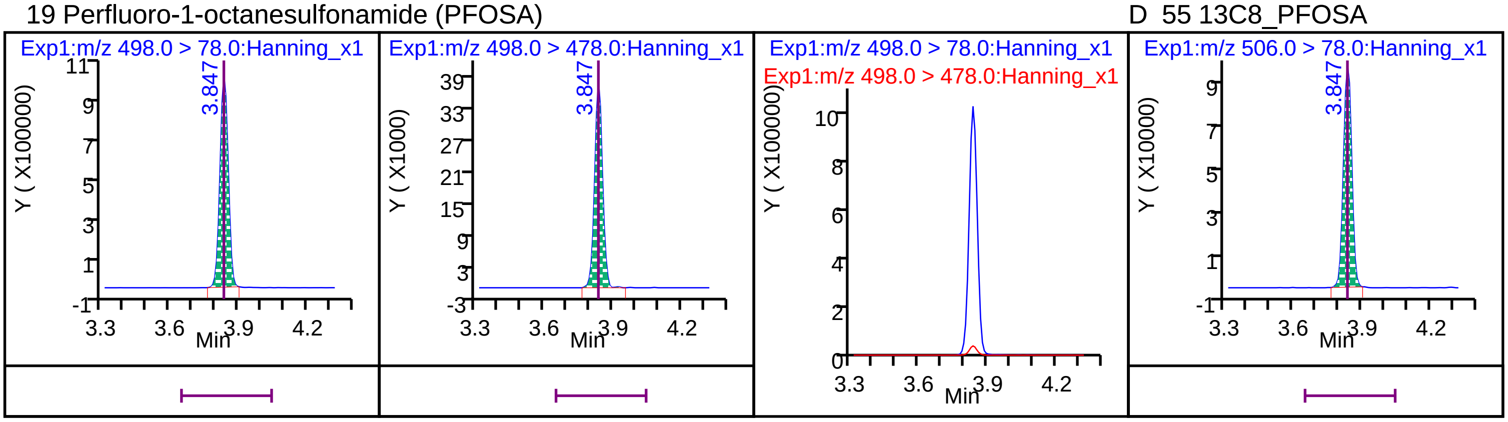
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



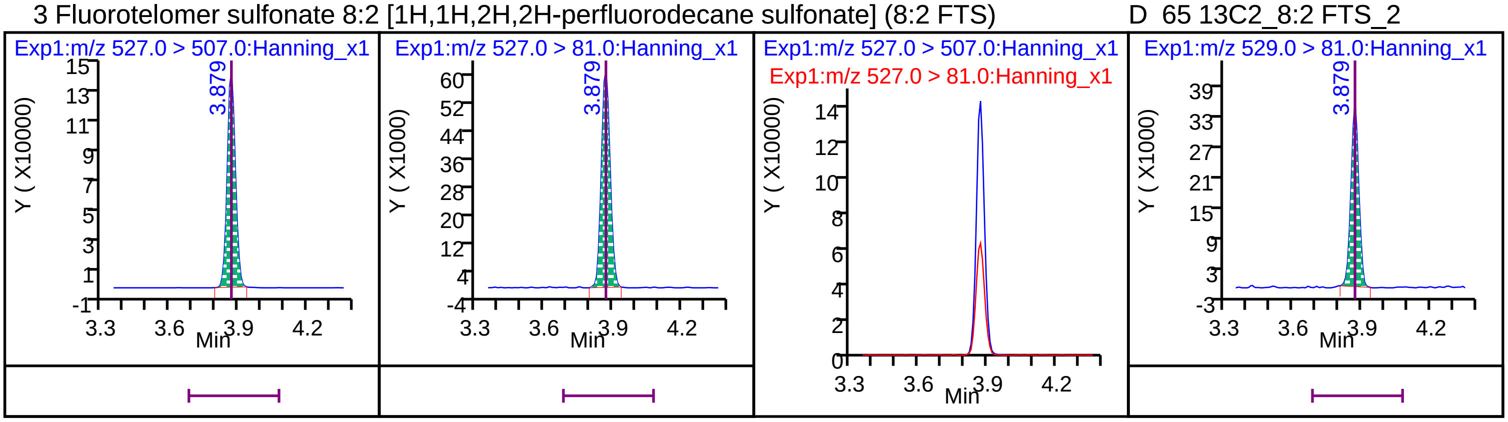
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



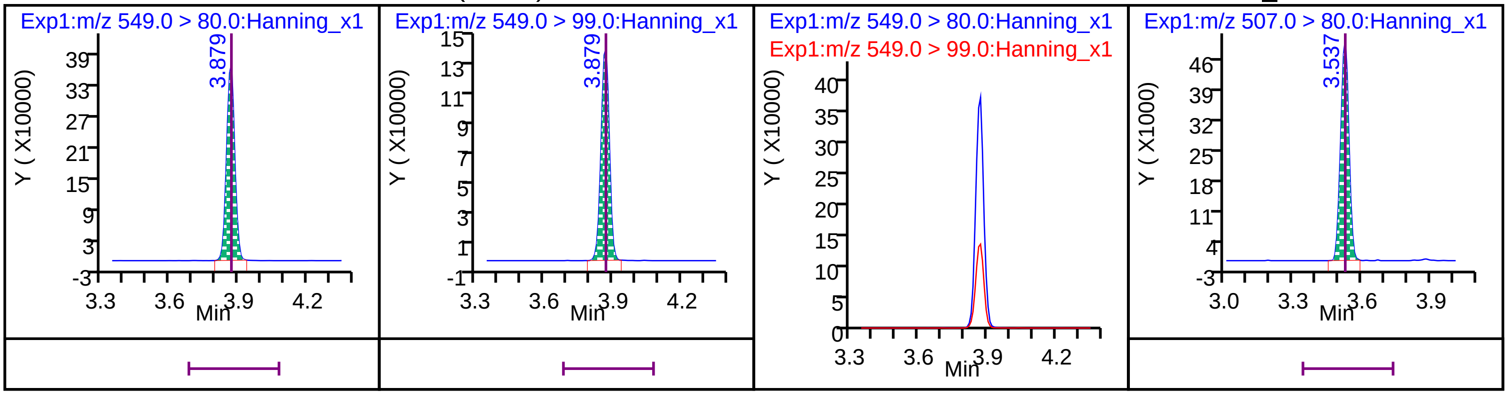
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



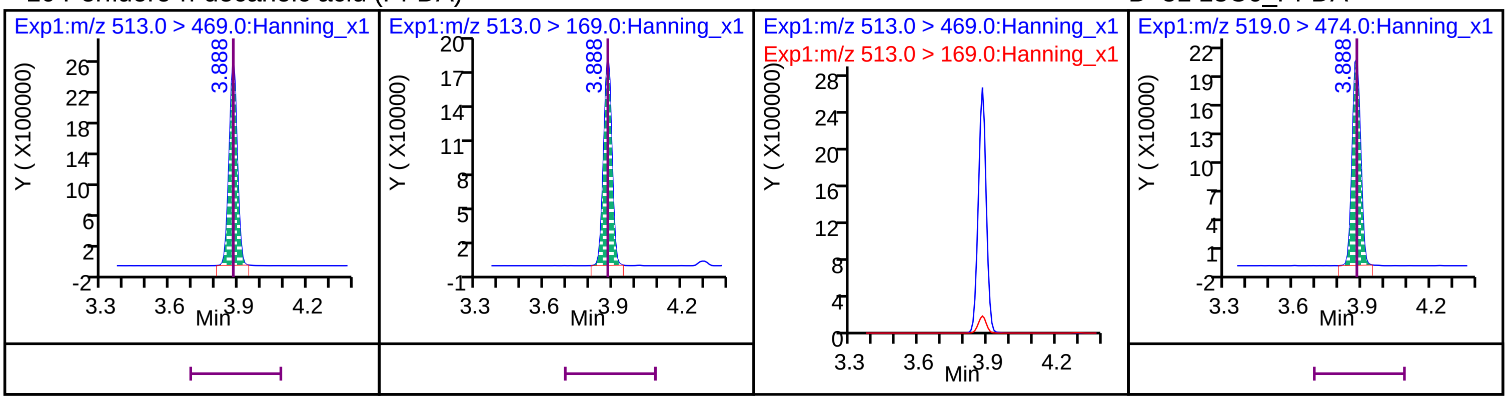
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



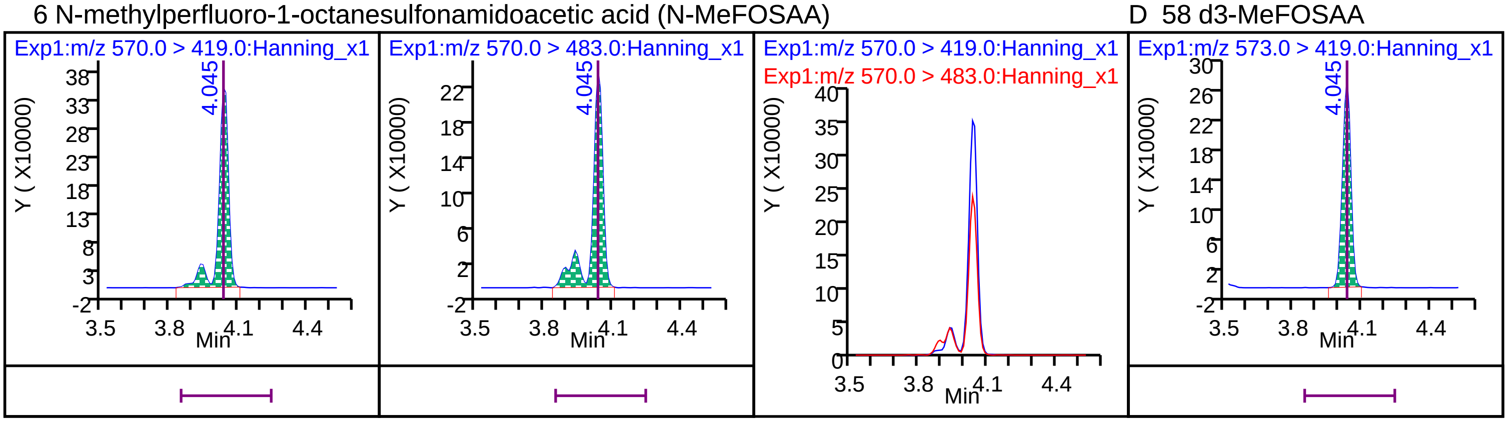
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



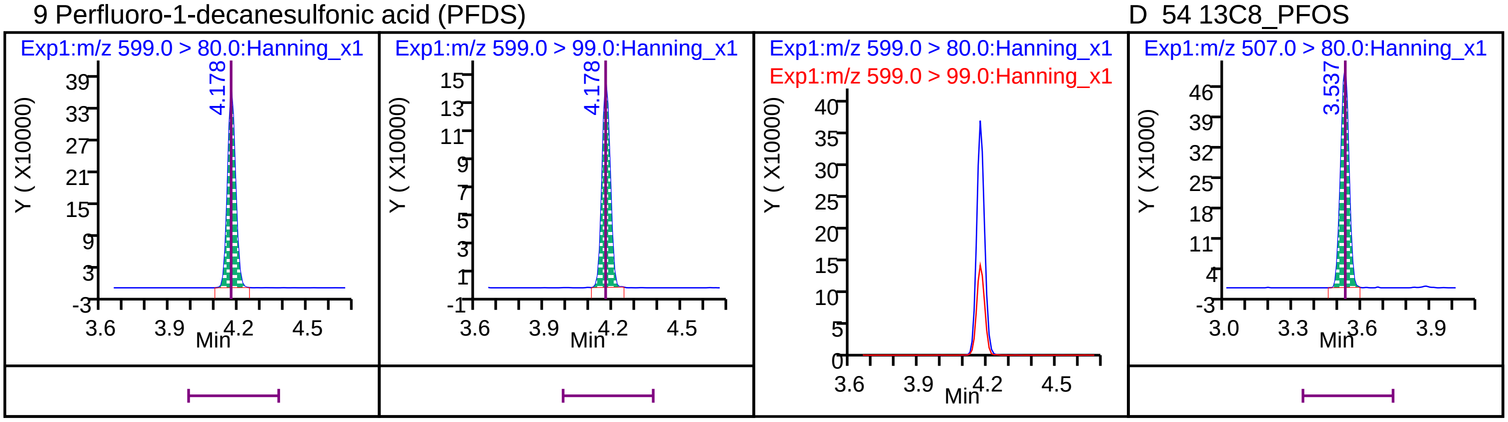
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



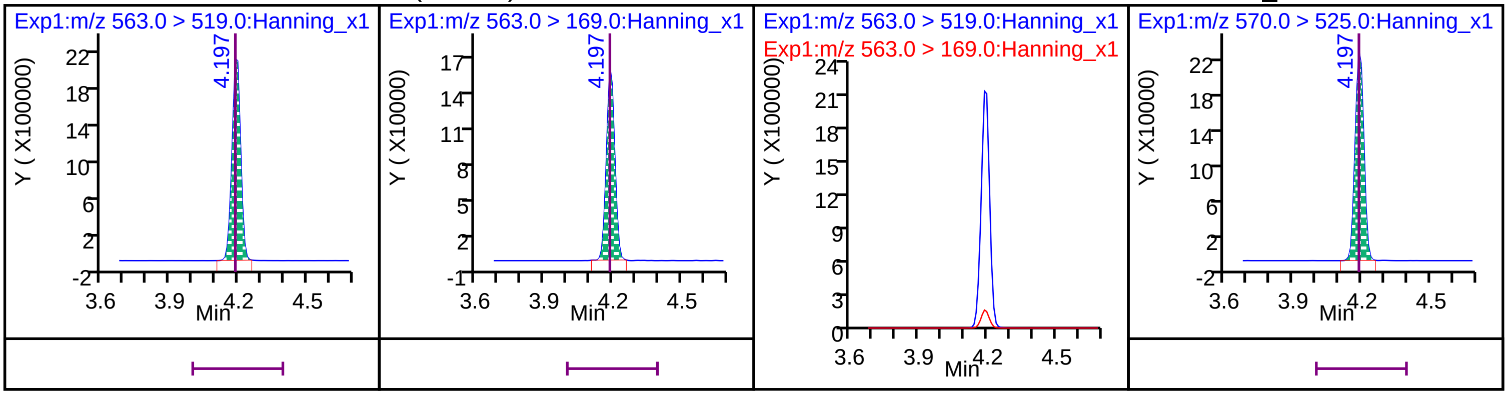
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



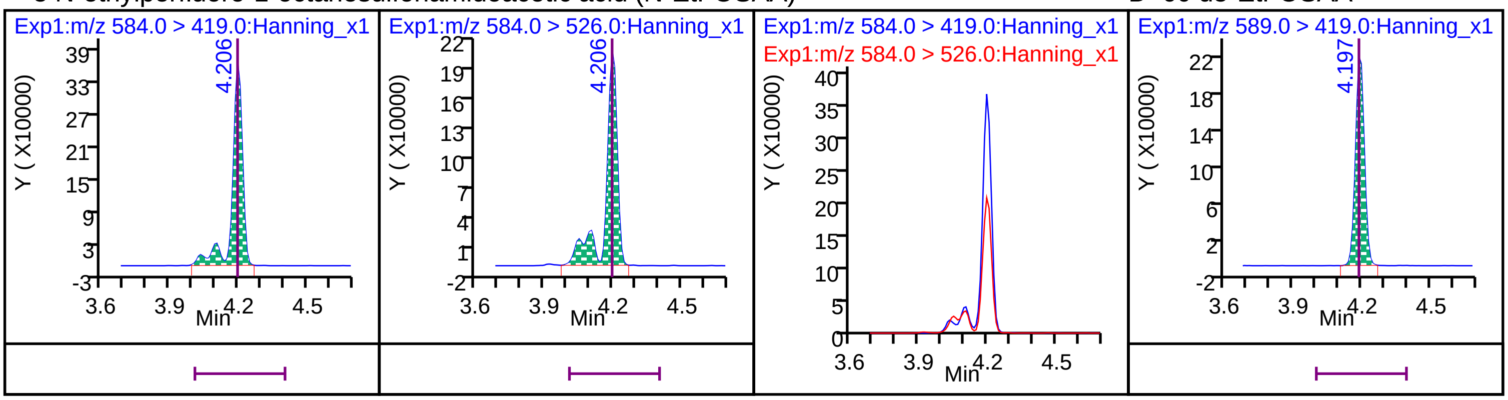
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



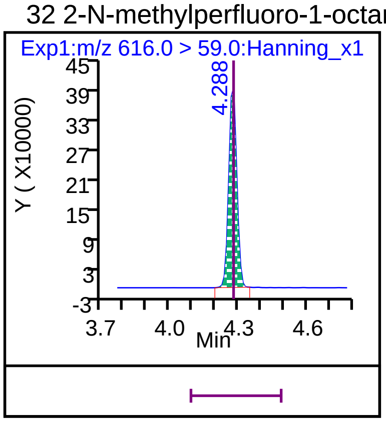
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



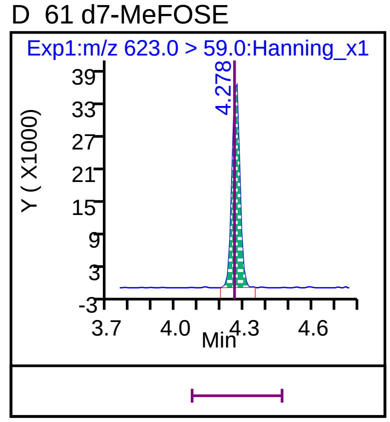
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



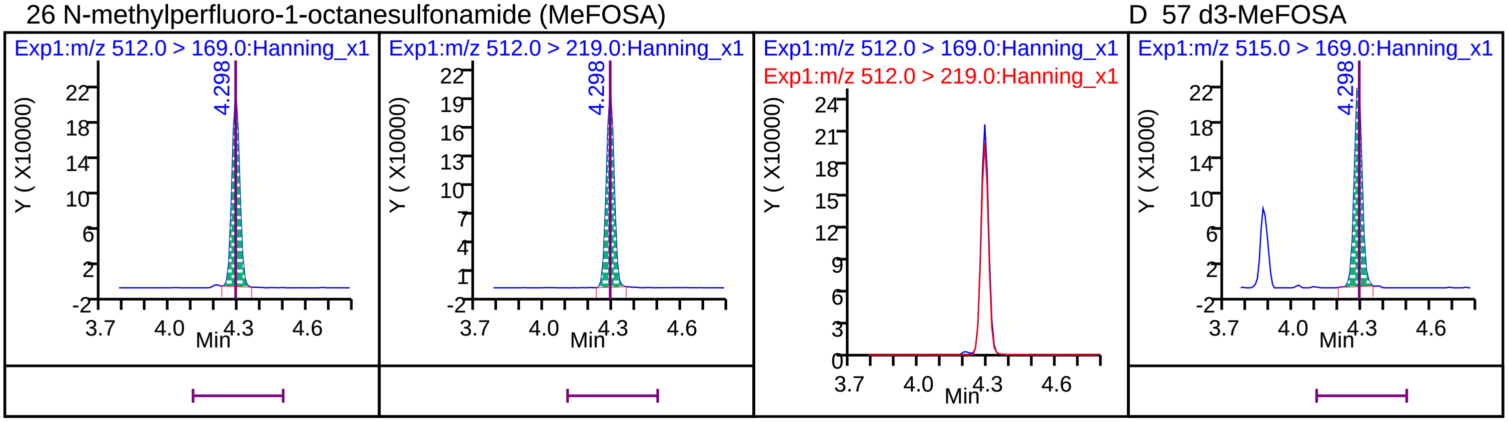
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



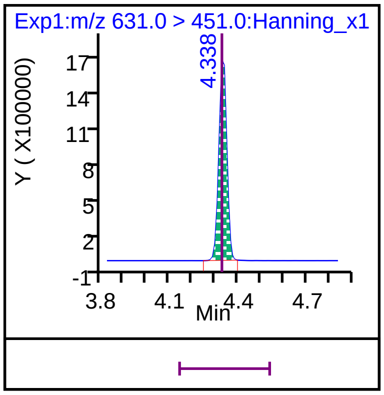
D 61 d7-MeFOSE



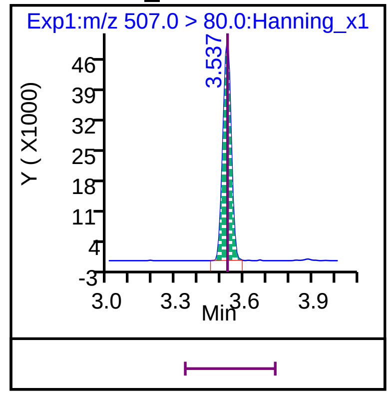
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



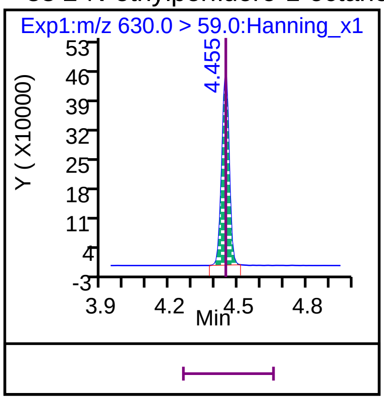
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



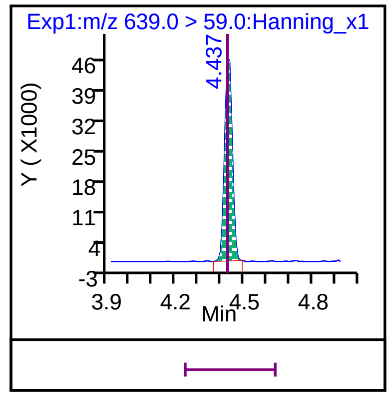
D 54 13C8_PFOS



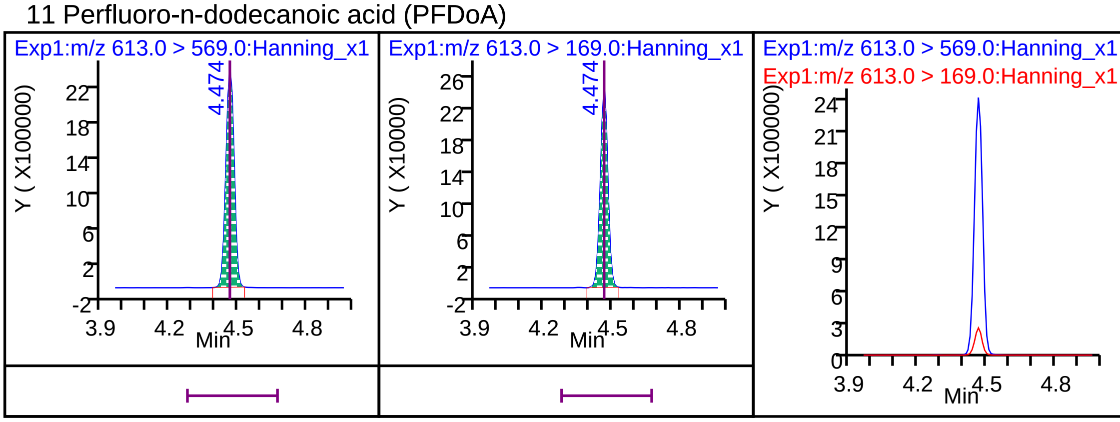
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



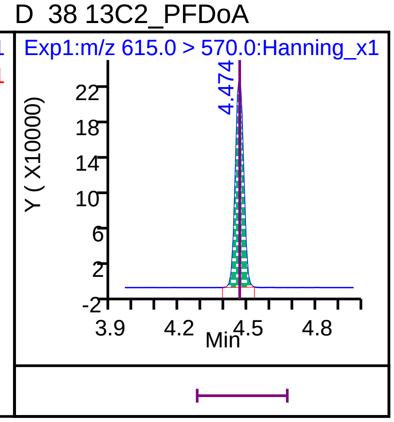
D 62 d9-EtFOSE



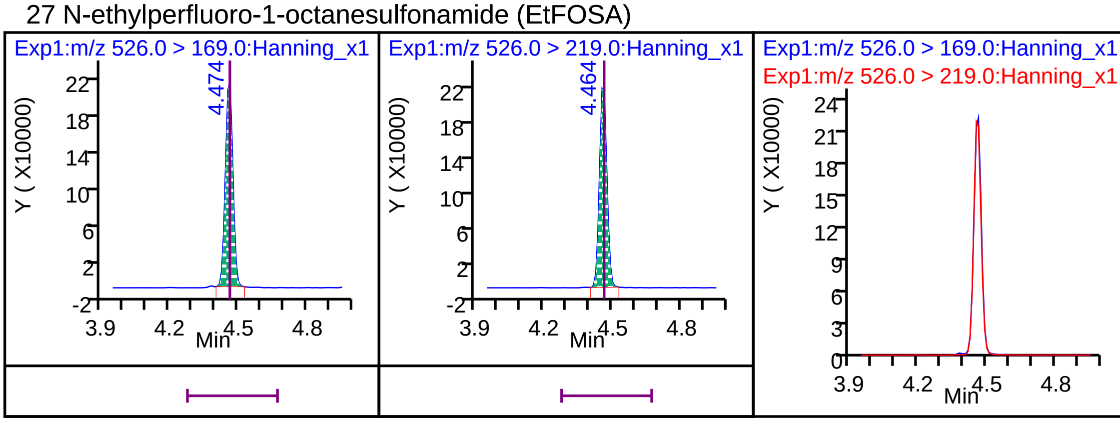
11 Perfluoro-n-dodecanoic acid (PFDoA)



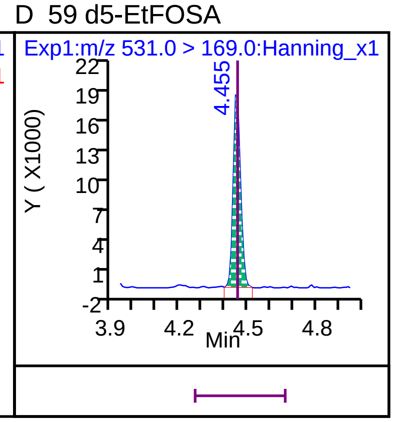
D 38 13C2_PFDoA



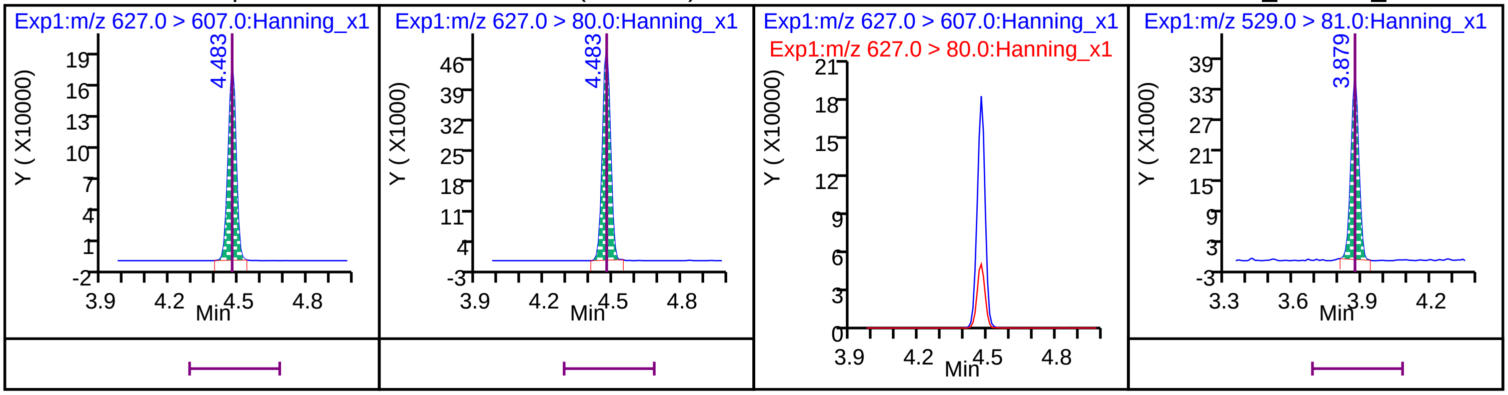
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



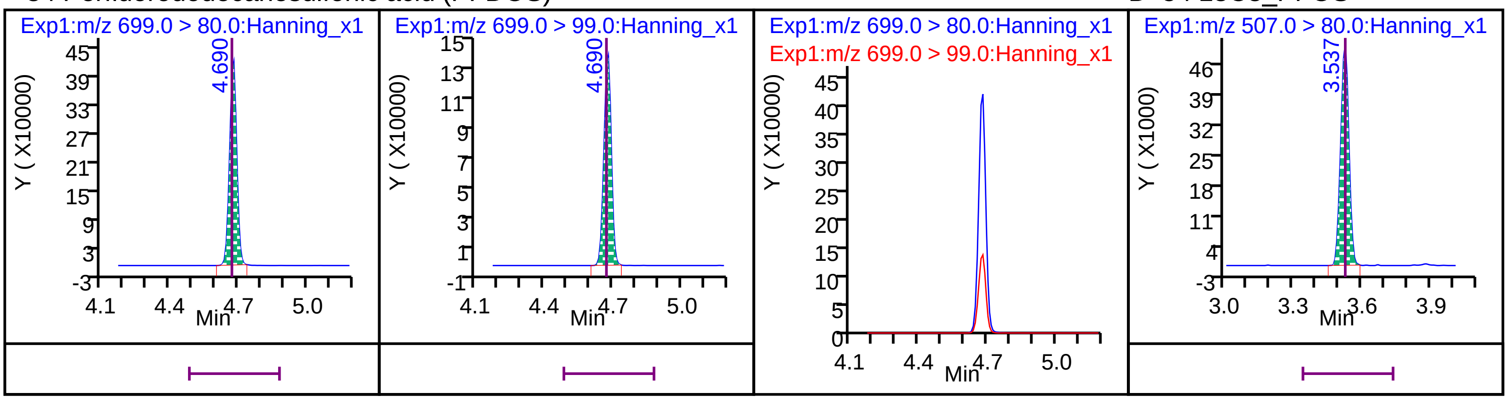
D 59 d5-EtFOSA



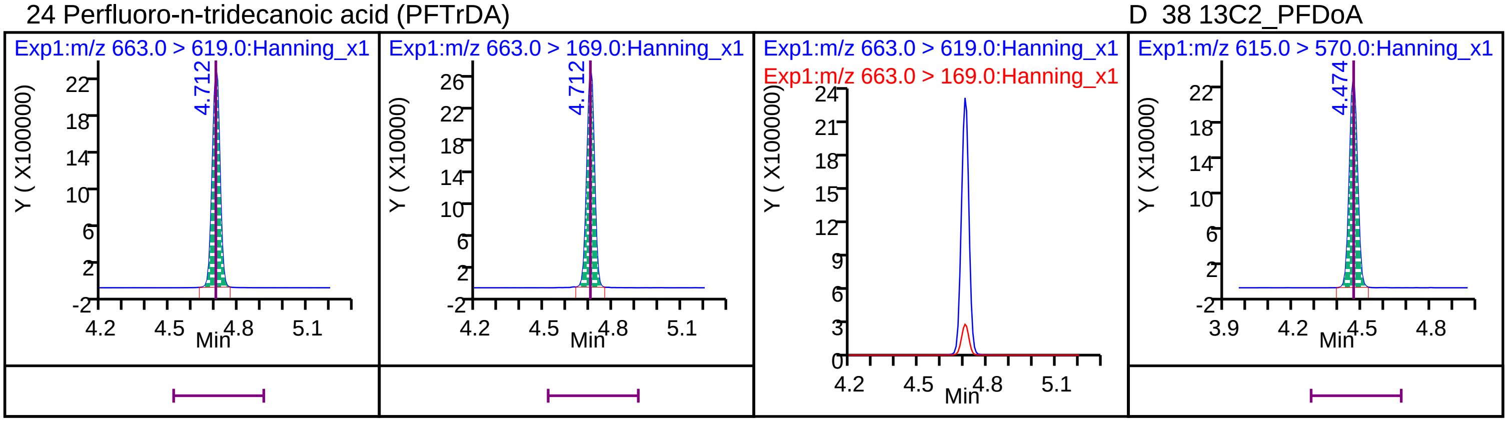
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



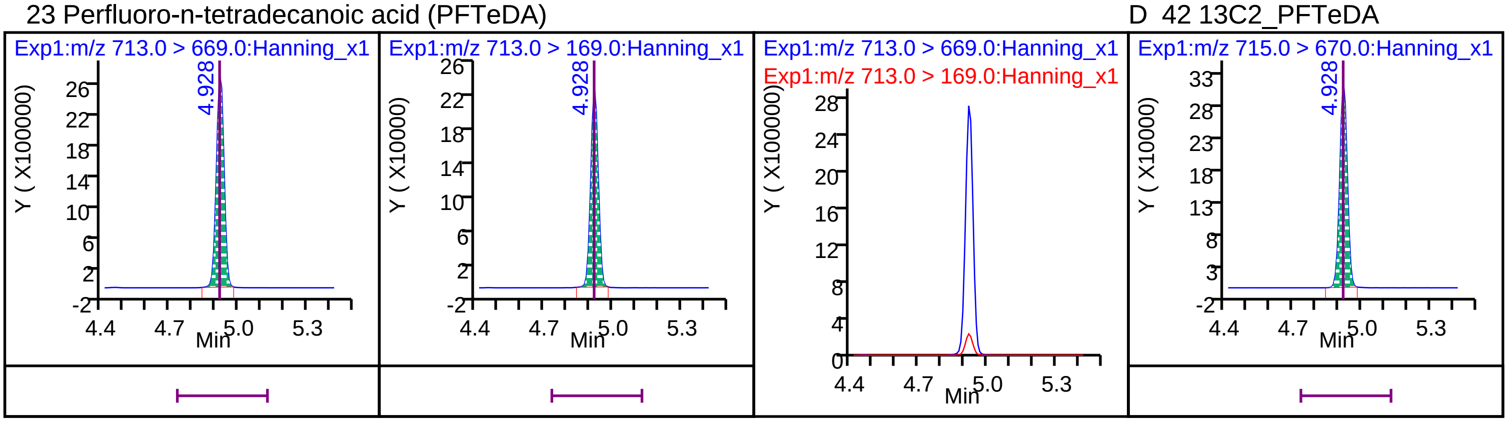
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



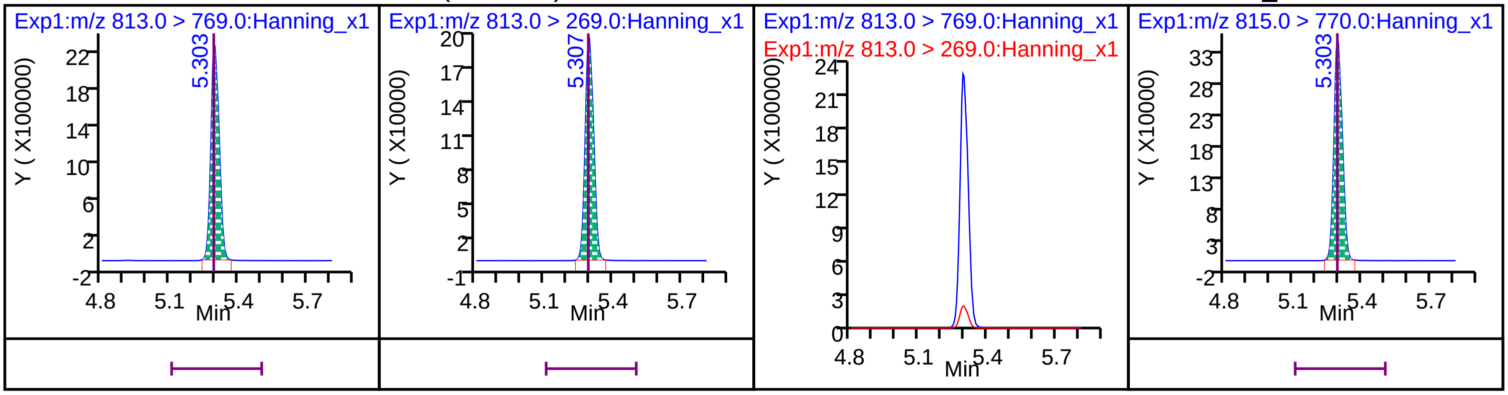
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



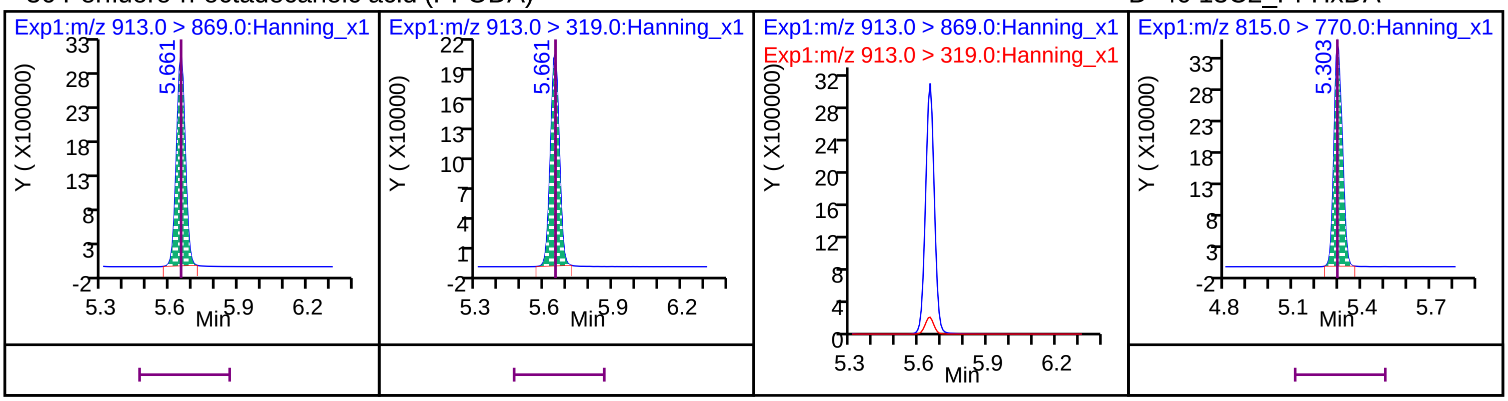
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



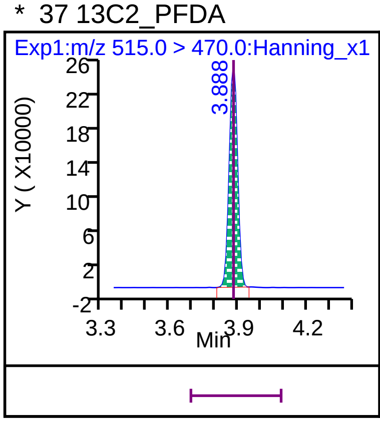
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



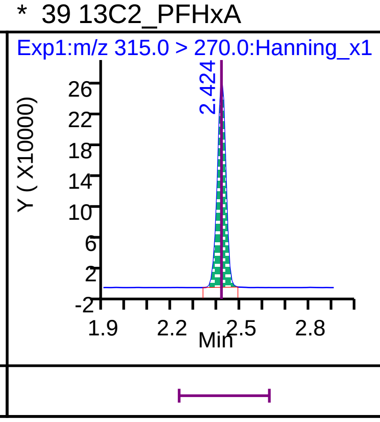
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



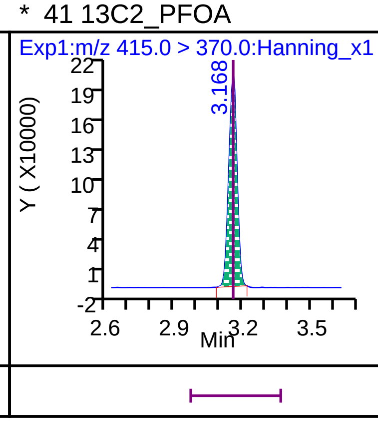
* 37 13C2_PFDA



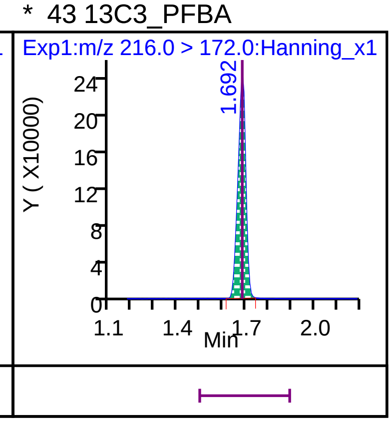
* 39 13C2_PFHxA



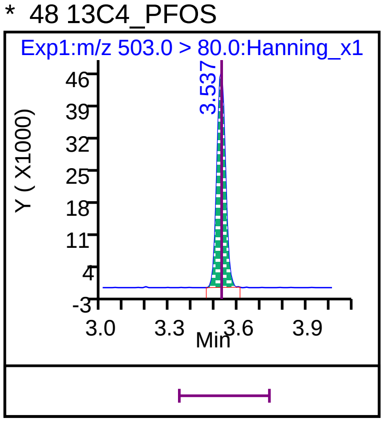
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621022.d

Injection Date: 16-Nov-2021 17:55:28 Inst. ID: LCMSMS02.i

Client ID: Lab ID: F.L. ICAL 10000_SVLC-1747

Sample Info: F.L. ICAL 10000_SVLC-1747

Dil. Factor: 1 Operator: Justin Gavin

18 PFOS, CAS: 1763-23-1

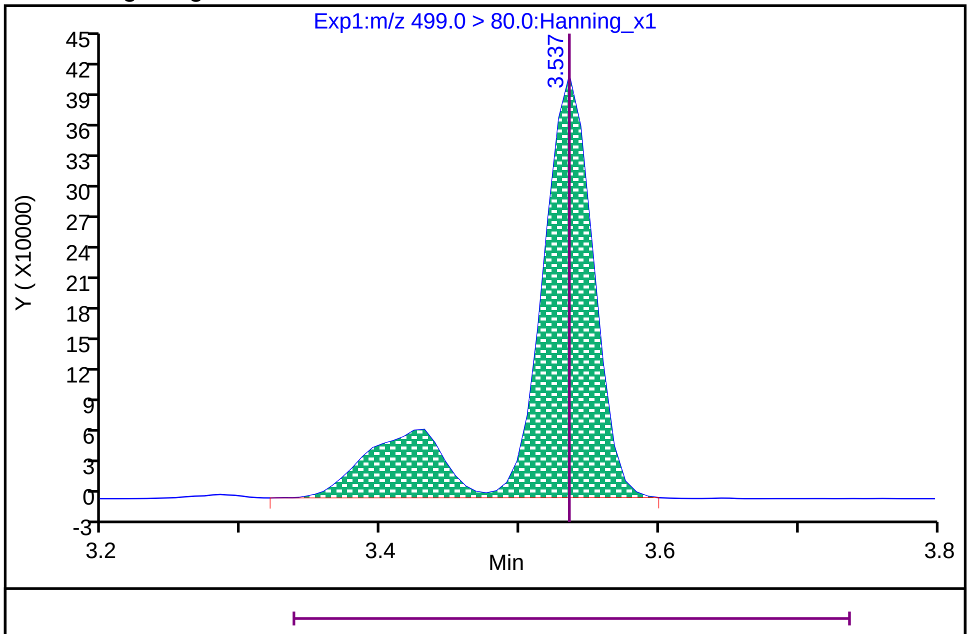
Processing Integration Results

RT: 3.537

Area: 1252410

Amount: 8525.12

Amount Units: ng/L

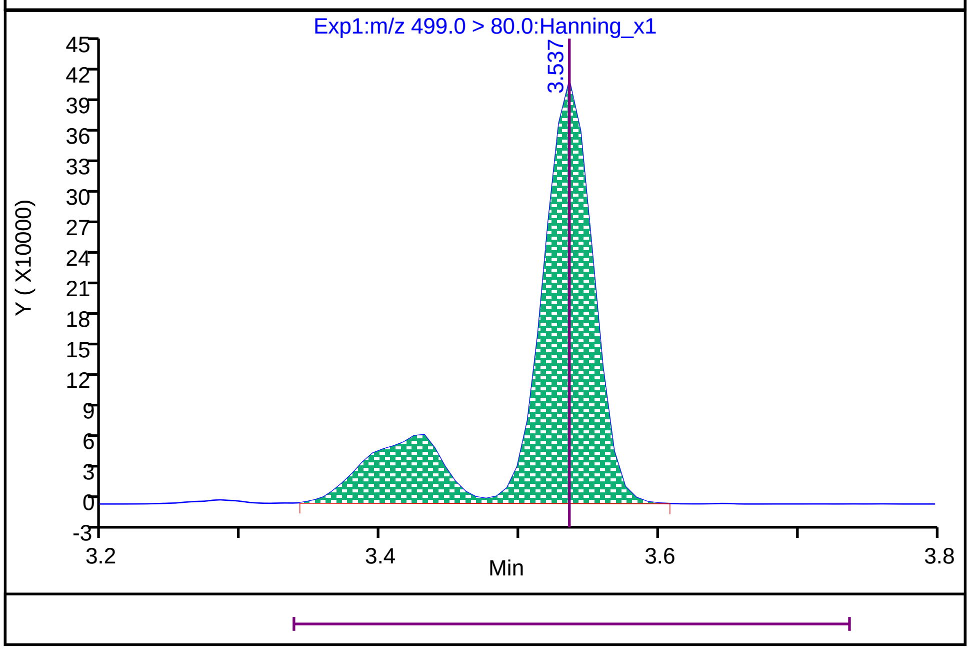


RT: 3.537

Area: 1258682

Amount: 8581.63

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:31

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d		
Injection Date:	16-Nov-2021 18:06:02	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	9
Sample Info:	F.L. ICAL 15000_SVLC-1748	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-9 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.690	1.692	0	574833	21	>100:1			1000.00	921.30	88.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.690	1.692	0/0	8837659	20	>100:1			15000	14696		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.062	2.067	0	543754	17	>100:1			1000.00	938.87	91	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.062	2.067	0/0	8631933	16	>100:1			15000	14455		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.115	2.120	0	156937	17	>100:1			1000.00	904.29	90.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.115	2.120	0/0	2705073	15	>100:1	Target = 3.48		13260	13836		
298.9 > 99	44	2.115	2.120		746146	15	>100:1	3.62 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.459	2.460	0/0	2068674	17	>100:1	Target = 3.03		14070	14891		
349 > 99	44	2.459	2.460		692320	17	>100:1	2.98 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.388	2.389	0	109343	18	>100:1			5000.00	5007.46	95.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.388	2.389	0/0	638349	17		Target = 1.70		14010	13449		
327 > 81	63	2.388	2.389		312774	16	>100:1	2.04 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.423	2.424	0	579965	17	>100:1			1000.00	894.91	84	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.423	2.424	0/0	9143743	18	>100:1	Target = 18.47		15000	14899		
313 > 119	49	2.423	2.424		491814	17	>100:1	18.59 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.539	2.540	0	1041308	17	>100:1			5000.00	4650.42	90.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.539	2.540	0/0	4035869	17	>100:1	Target = 0.78		30000	29451		
285 > 185	66	2.539	2.540		5041575	17	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.790	2.791	0	487740	18	>100:1			1000.00	924.11	90	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.790	2.791	0/0	8080272	18	>100:1	Target = 3.92		15000	14487		
363 > 169	47	2.790	2.791		2160639	17	>100:1	3.73 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.799	2.809	0	118445	17	>100:1			1000.00	927.41	87.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.808	2.809	0/0	1775752	25	>100:1	Target = 3.14	4.71	13650	13299		
399 > 99	45	2.808	2.809		579910	24	>100:1	3.06 (1.57-4.71)	7.22				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.826	2.827	0/0	13026241	18	>100:1	Target = 3.33		14130	14140		
377 > 85	45	2.826	2.827		4120546	18	>100:1	3.16 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.171	3.174	0/0	1576715	21	>100:1	Target = 3.02		14280	13692		
449 > 99	45	3.171	3.174		514716	21	>100:1	3.06 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.138	3.141	0	73262	20	>100:1			5000.00	4269.16	81.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.138	3.141	0/0	516843	22	>100:1	Target = 1.69		14220	15038		
427 > 81	64	3.138	3.141		269890	21	>100:1	1.91 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.165	3.168	0	458356	21	>100:1			1000.00	884.87	82.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.165	3.168	0/0	6843633	22	>100:1	Target = 3.03		15000	14267		
413 > 169	53	3.165	3.168		2351081	21	>100:1	2.91 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.534	3.537	0	110300	18	>100:1			1000.00	885.94	83.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.534	3.537	0/0	1875988	39	>100:1	Target = 3.42	3.38	13920	14319		M
499 > 99	54	3.534	3.537		562653	36	>100:1	3.33 (1.71-5.13)	7.44				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.743	3.740	1/1	6166181	20	>100:1			13980	14562		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.875	3.879	0/0	1271216	18	>100:1	Target = 2.57		14400	14803		
549 > 99	54	3.875	3.879		484810	18	>100:1	2.62 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.180	4.178	1/1	1306932	17	>100:1	Target = 2.71		14460	14740		
599 > 99	54	4.180	4.178		500449	16	>100:1	2.61 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.340	4.338	1/1	5575115	15	>100:1			14130	14911		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.684	4.681	1/1	1354533	17	>100:1	Target = 3.04		14520	15432		
699 > 99	54	4.684	4.681		448552	17		3.01 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.534	3.537	0	586378	20	>100:1			1000.00	908.80	84.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.542	3.537	1/1	9356718	19	>100:1	Target = 7.14		15000	14485		
463 > 169	56	3.534	3.537		1399840	20	>100:1	6.68 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.842	3.846	0	239110	19	>100:1			1000.00	948.22	87.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.850	3.846	1/1	3738865	18	>100:1	Target = 32.83		15000	14231		
498>478	55	3.842	3.846		122644	17	>100:1	30.48 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.875	3.879	0	72028	18	>100:1			5000.00	4307.41	81.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.883	3.879	1/1	484222	19	>100:1	Target = 2.14		14370	14493		
527 > 81	65	3.883	3.879		258071	18	>100:1	1.87 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.486	4.482	1/1	584431	17		Target = 3.72		14460	15092		
627 > 80	65	4.486	4.482		166140	17		3.51 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.883	3.887	0	516036	18	>100:1			1000.00	905.55	88	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.891	3.887	1/1	8731936	18	>100:1	Target = 14.16		15000	14432		
513 > 169	51	3.883	3.887		643053	18	>100:1	13.57 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.038	4.045	0	664187	17	>100:1			5000.00	4862.71	97	

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.047	4.045	1/1	1431315	32	>100:1	Target = 1.42	7.90	15000	13007		
570 > 483	58	4.047	4.045		1165473	33	>100:1	1.22 (0.71-2.14)	4.26				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.199	4.196	1	530911	17	>100:1			5000.00	4372.51	86.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.209	4.206	1/0	1617530	31	>100:1	Target = 1.49	5.86	15000	16057		
584 > 526	60	4.209	4.206		1034607	32	>100:1	1.56 (0.74-2.24)	3.49				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.199	4.196	1	609243	17	>100:1			1000.00	938.47	91.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.199	4.196	1/0	8216358	17	>100:1	Target = 14.37		15000	14536		
563 > 169	52	4.199	4.196		590745	16	>100:1	13.90 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.270	4.267	1	87630	15	>100:1			1000.00	999.95	99.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.280	4.287	0/-1	1323450	16	>100:1			15000	13680		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.290	4.298	0	45599	15	>100:1			1000.00	933.70	91	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.300	4.298	1/1	685026	13	>100:1	Target = 1.08		15000	14736		
512 > 219	57	4.300	4.298		666200	14	>100:1	1.02 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.437	1	95657	21	>100:1			1000.00	903.14	83.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.450	4.455	0/-1	1519876	17	>100:1			15000	15585		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.459	4.464	0	40385	19	>100:1			1000.00	921.79	88.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.468	4.473	0/0	731536	14	>100:1	Target = 0.97		15000	15382		
526 > 219	59	4.468	4.473		714435	15	>100:1	1.02 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.477	4.473	1	547334	17	>100:1			1000.00	917.00	87.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.477	4.473	1/0	8420514	17	>100:1	Target = 10.55		15000	14251		
613 > 169	38	4.477	4.473		800515	17		10.51 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.714	4.711	1/0	7488161	19	>100:1	Target = 8.92		15000	14055		
663 > 169	38	4.714	4.711		871530	19	>100:1	8.59 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.933	4.928	1	689837	17	>100:1			1000.00	914.77	86.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.933	4.928	1/0	8590827	17	>100:1	Target = 12.22		15000	14204		
713 > 169	42	4.933	4.928		704417	17	>100:1	12.19 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.305	5.302	1	856504	22	>100:1			1000.00	952.54	92.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.305	5.302	1/0	7922360	22	>100:1	Target = 11.65		15000	13653		
813 > 269	40	5.305	5.302		704724	22	>100:1	11.24 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.663	5.660	1/0	11567360	21	>100:1	Target = 15.15		15000	14353		
913 > 319	40	5.656	5.660		816818	20	>100:1	14.16 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.883	3.887	0	578666	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.423	2.424	0	630501	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.165	3.168	0	461790	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.690	1.692	0	533639	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.534	3.537	0	114106	19	>100:1			1000.00			

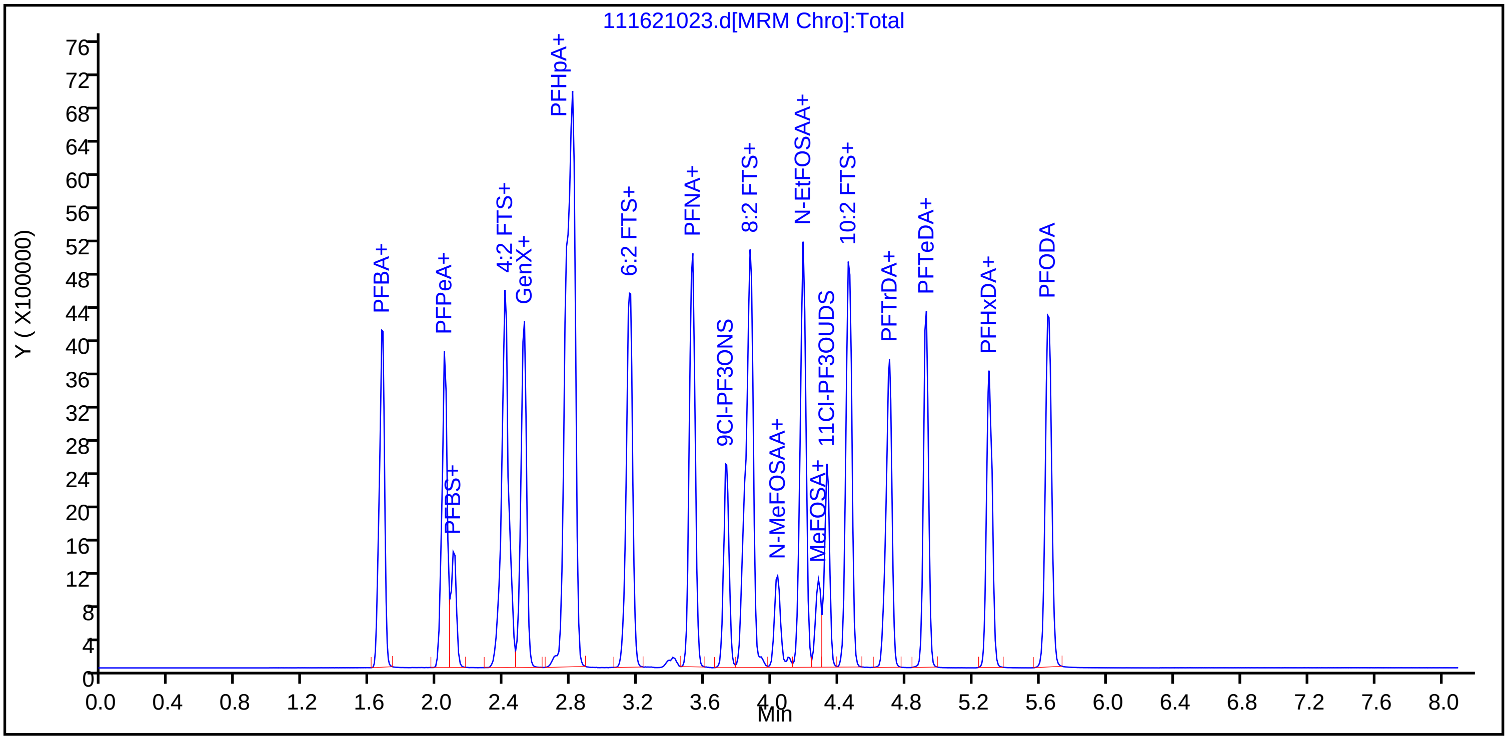
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

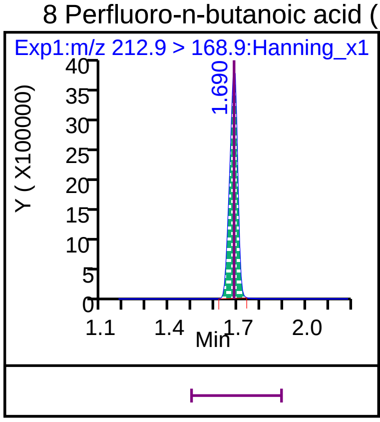
Report Date: 22-Nov-2021 08:59:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

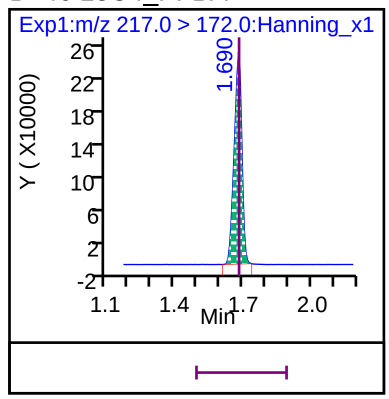
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d		
Injection Date:	16-Nov-2021 18:06:02	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 15000_SVLC-1748
Sample Info:	F.L. ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin



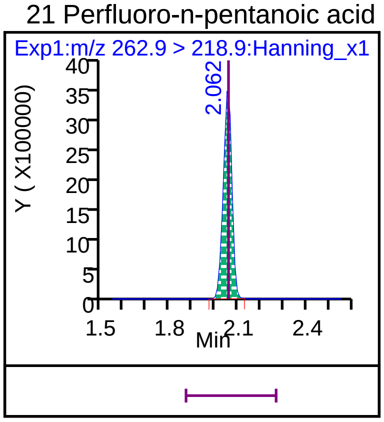
8 Perfluoro-n-butanoic acid (PFBA)



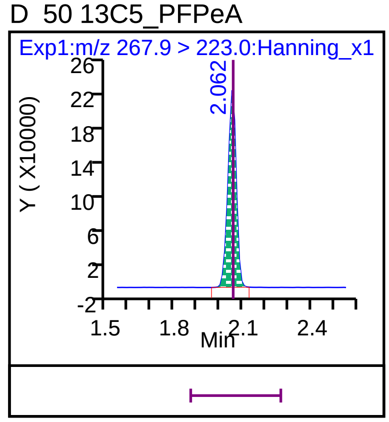
D 46 13C4_PFBA



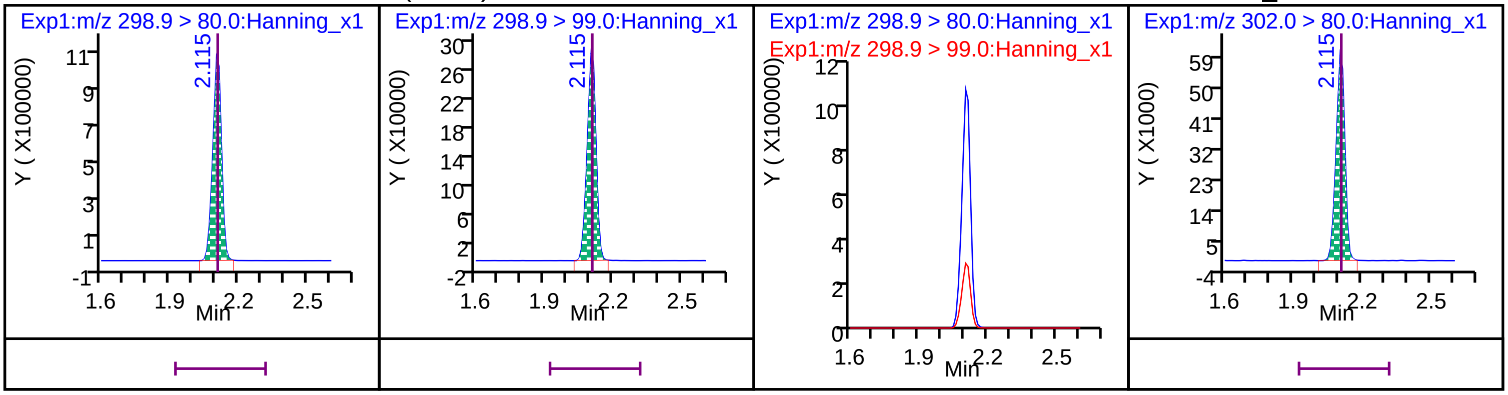
21 Perfluoro-n-pentanoic acid (PFPeA)



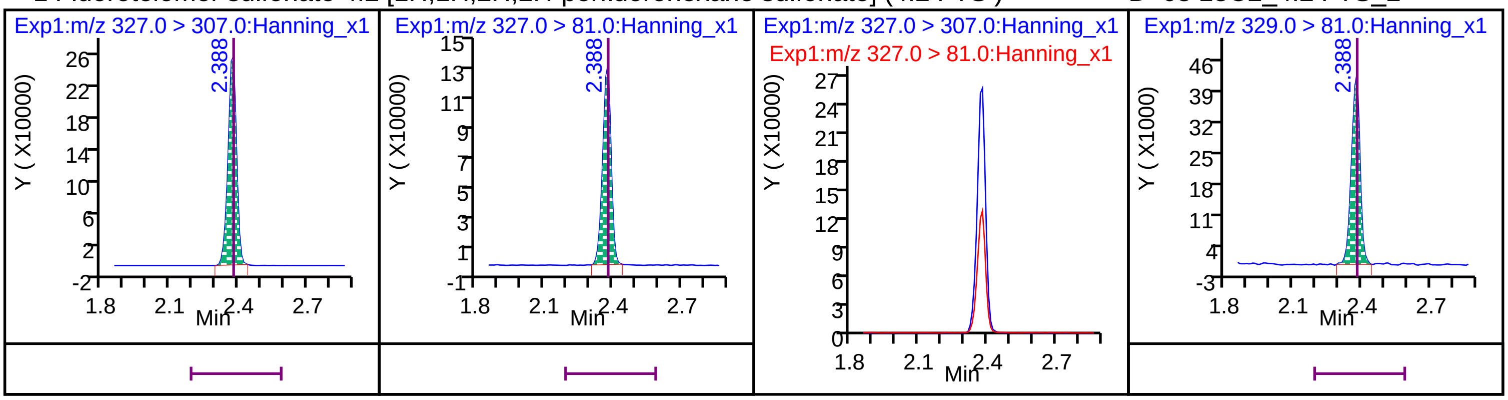
D 50 13C5_PFPeA



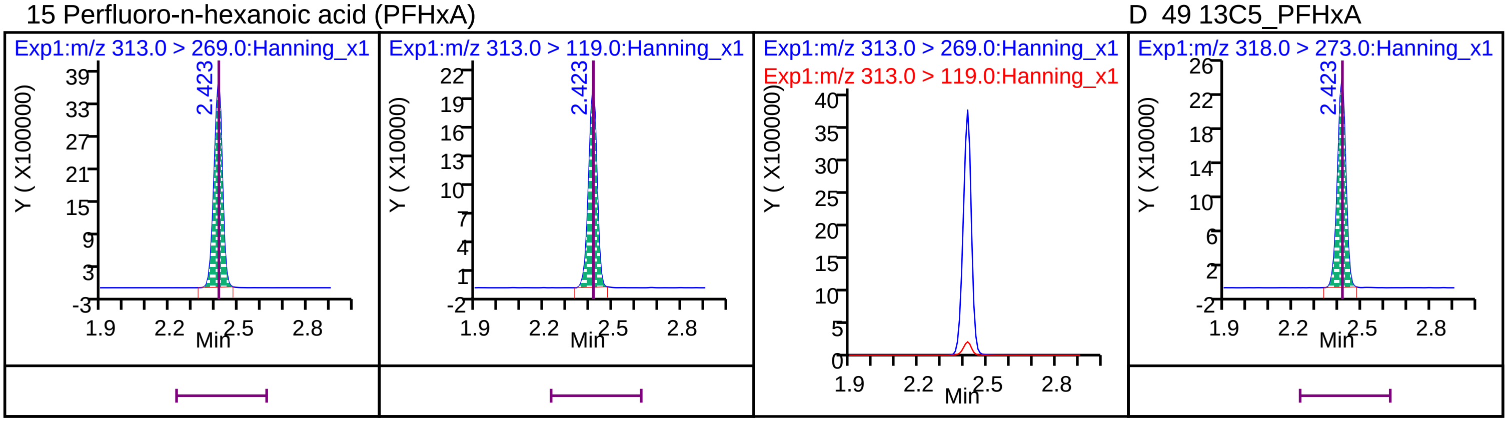
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



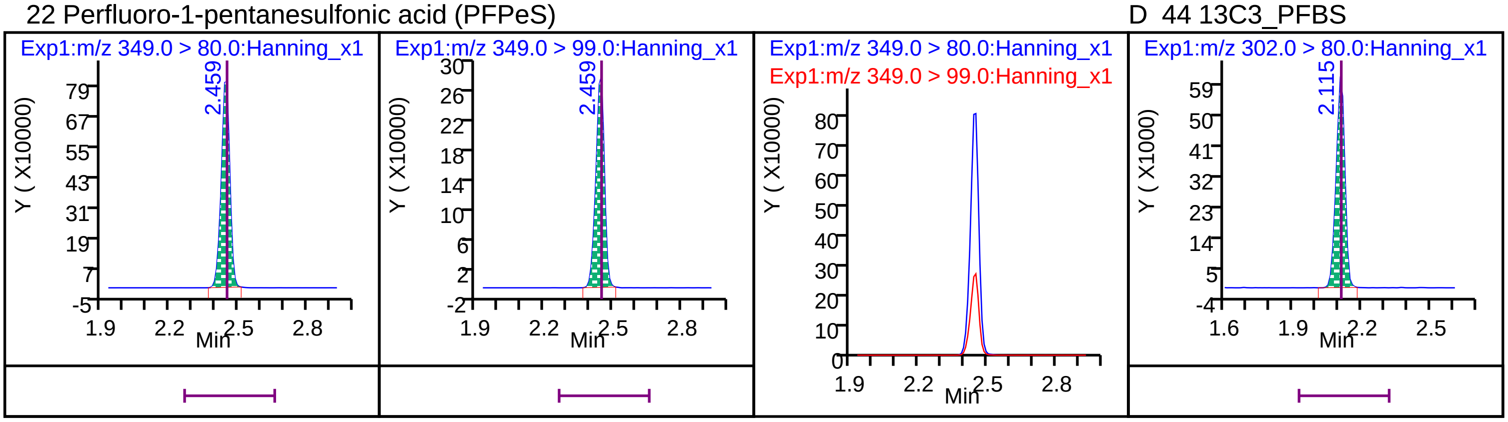
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



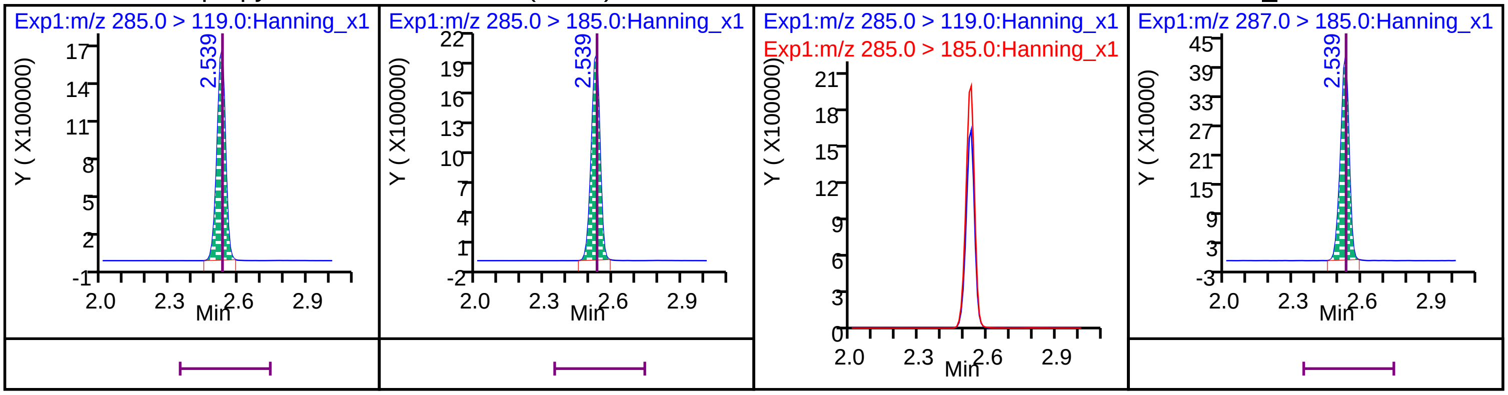
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



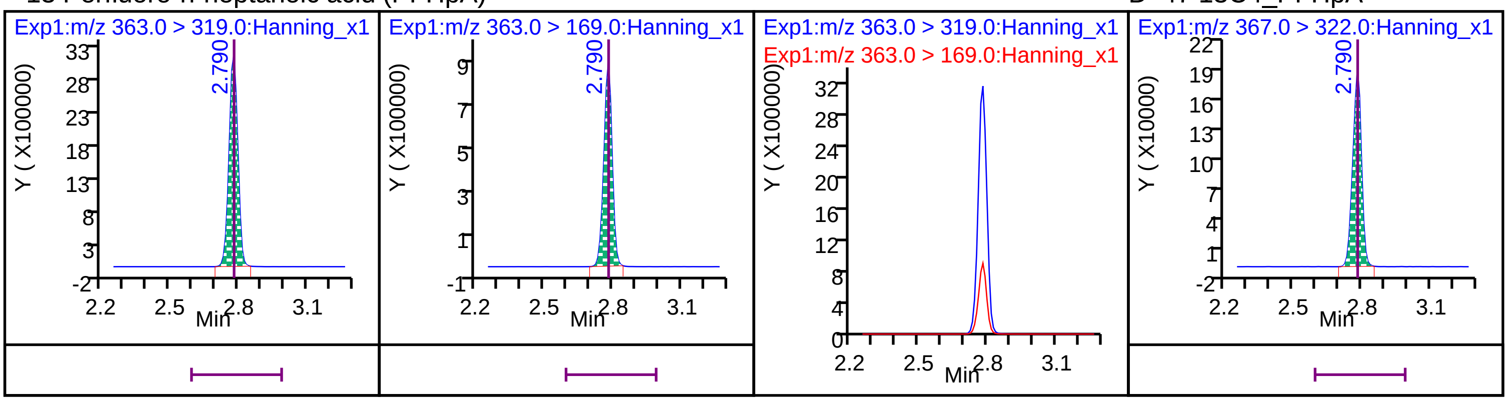
Report Date: 22-Nov-2021 08:59:52 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d

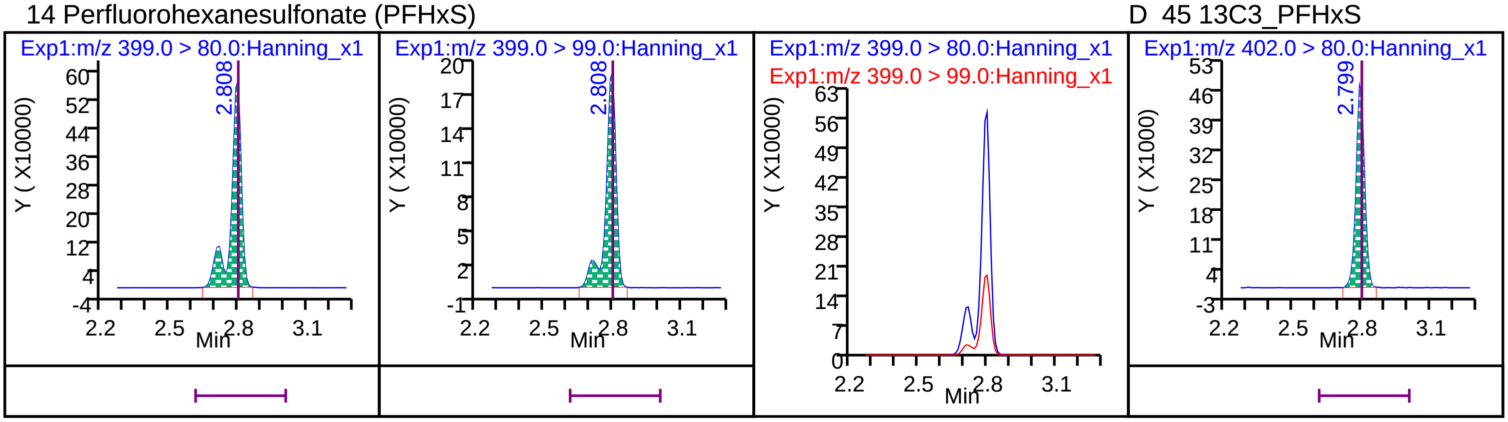
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



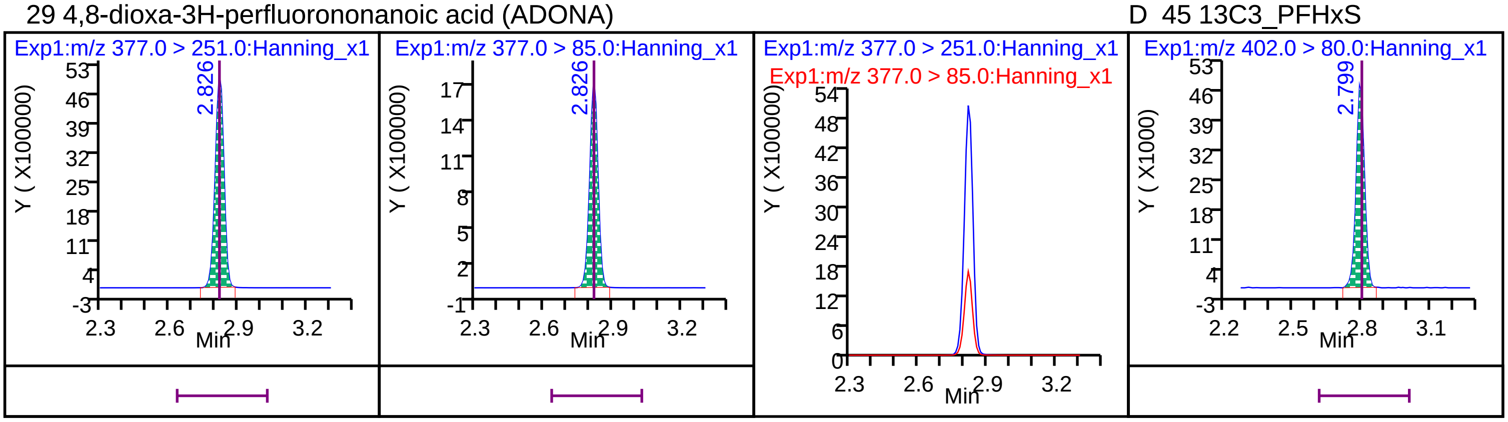
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



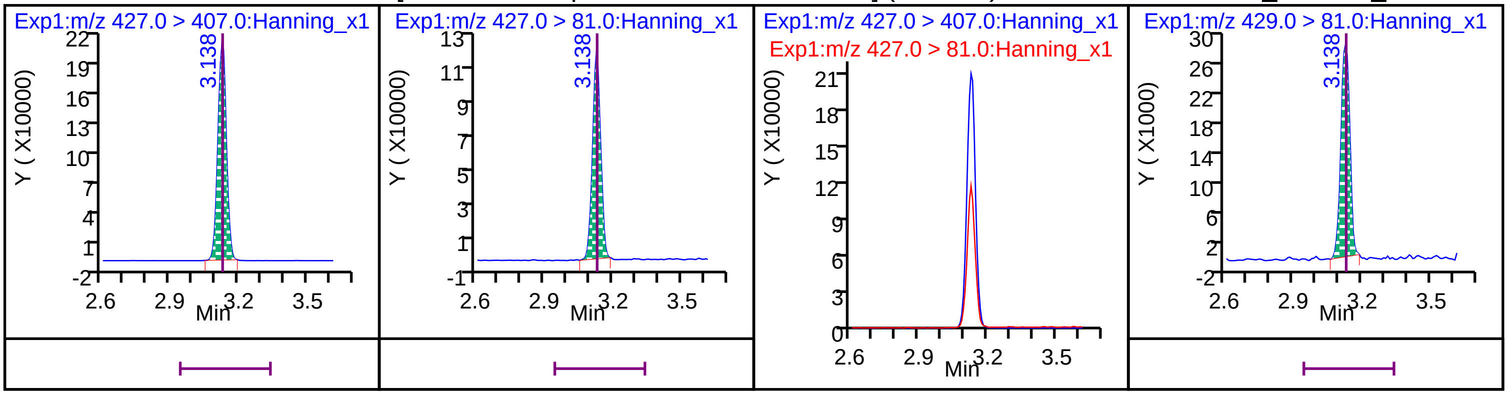
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



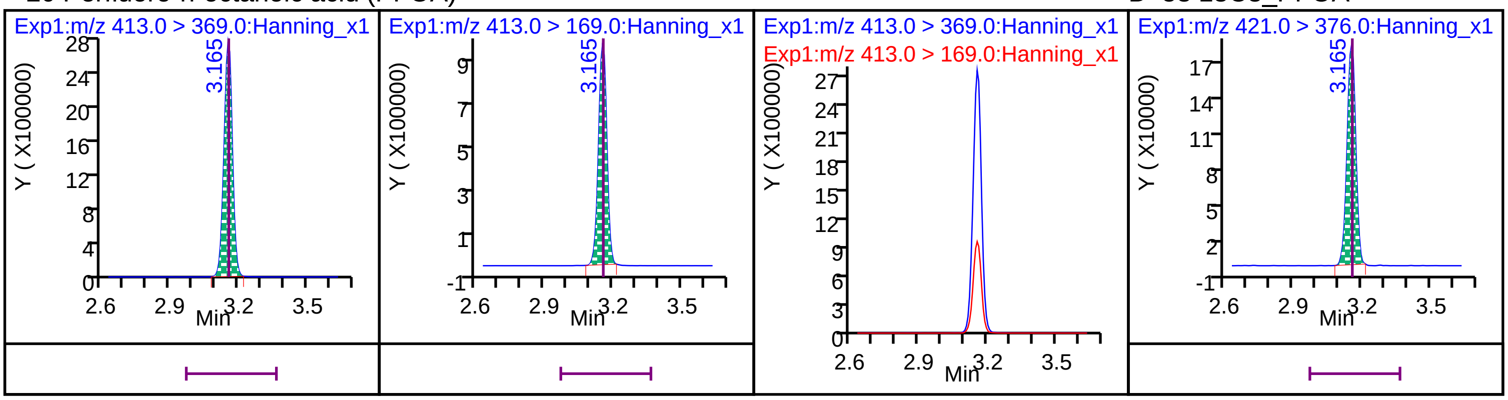
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



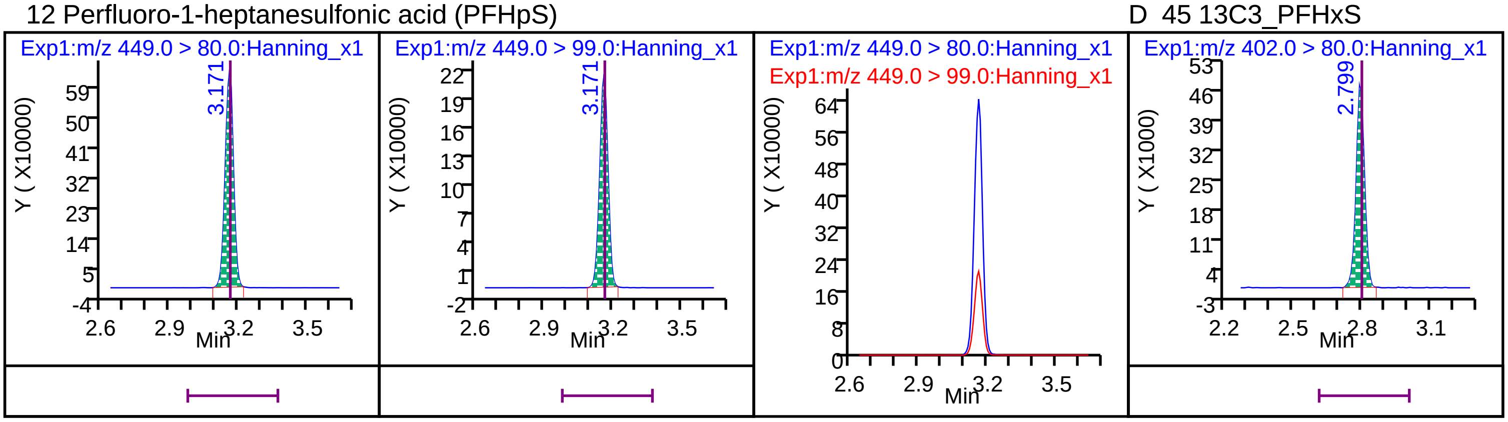
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



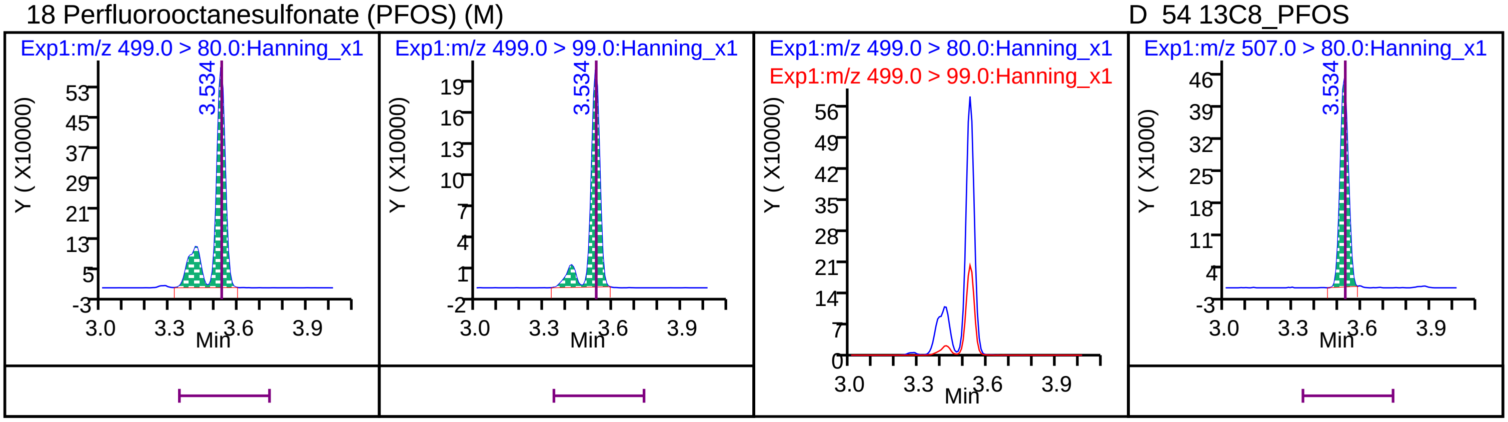
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



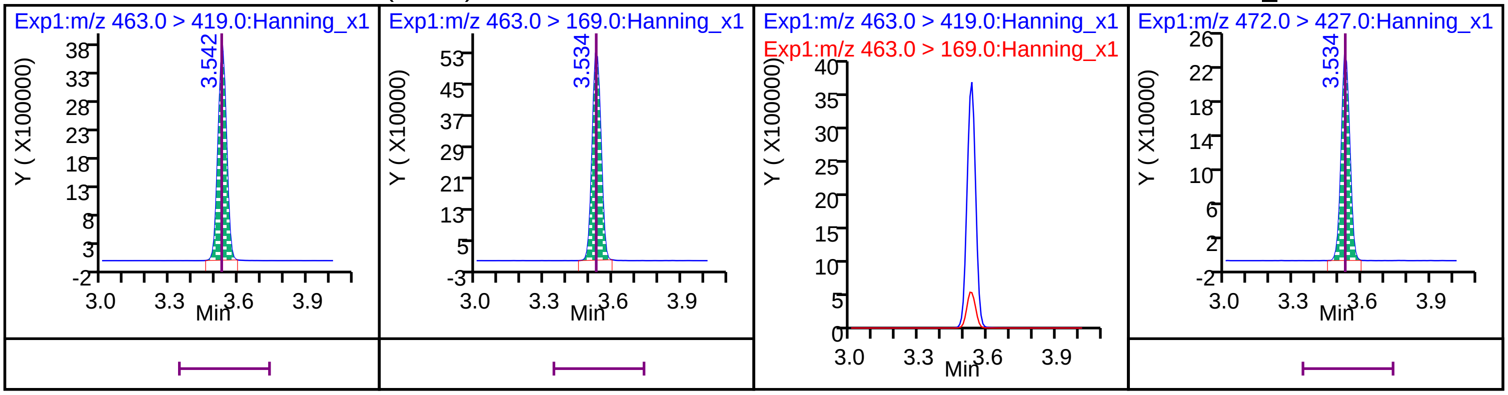
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



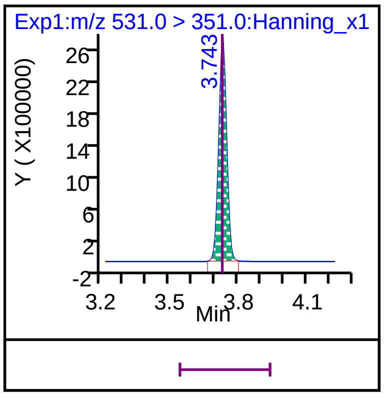
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

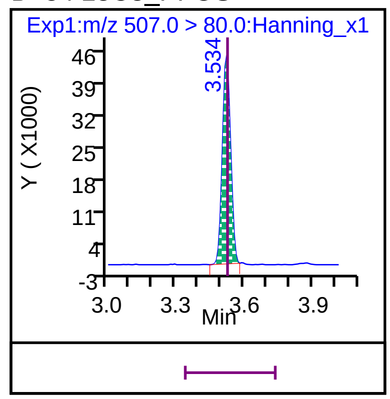


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

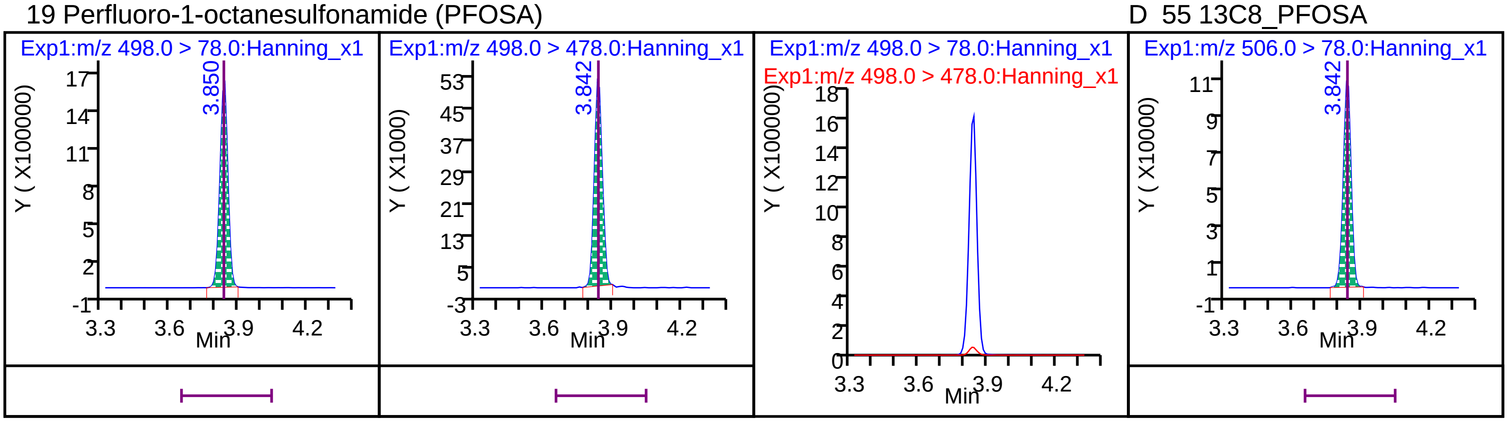


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

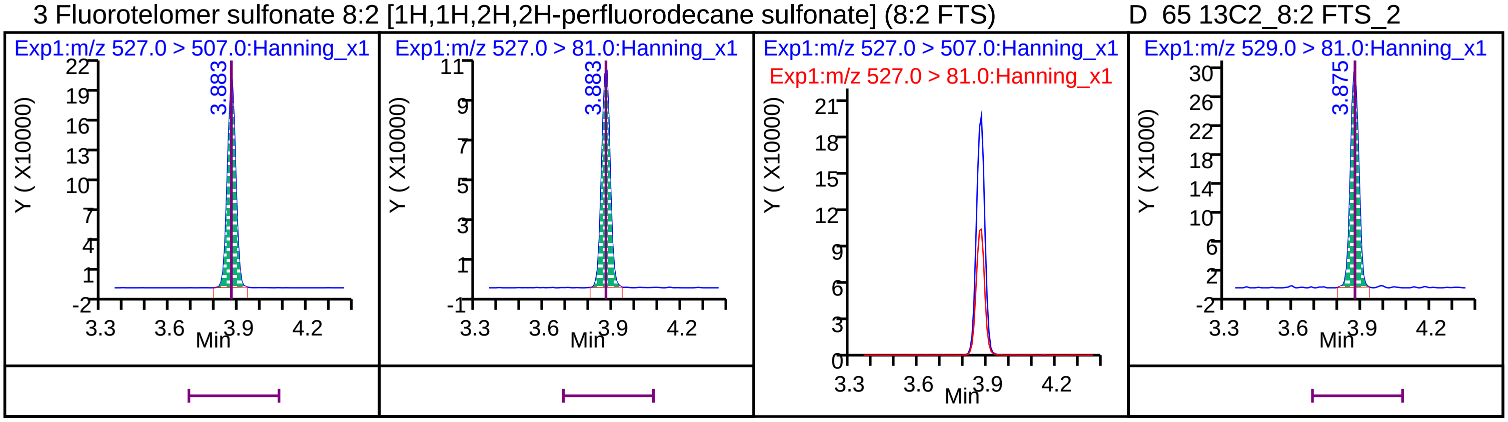




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

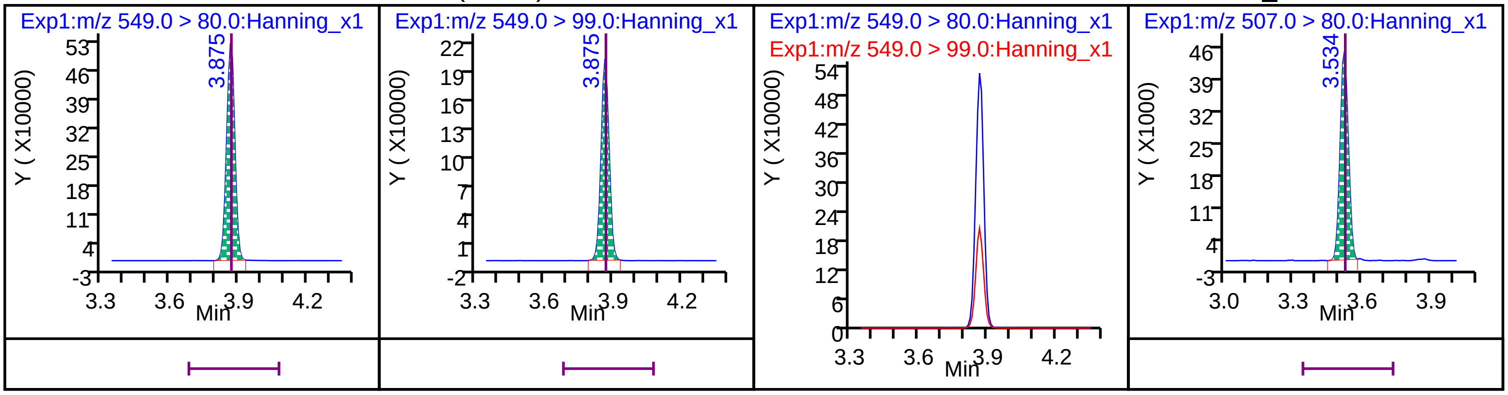


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

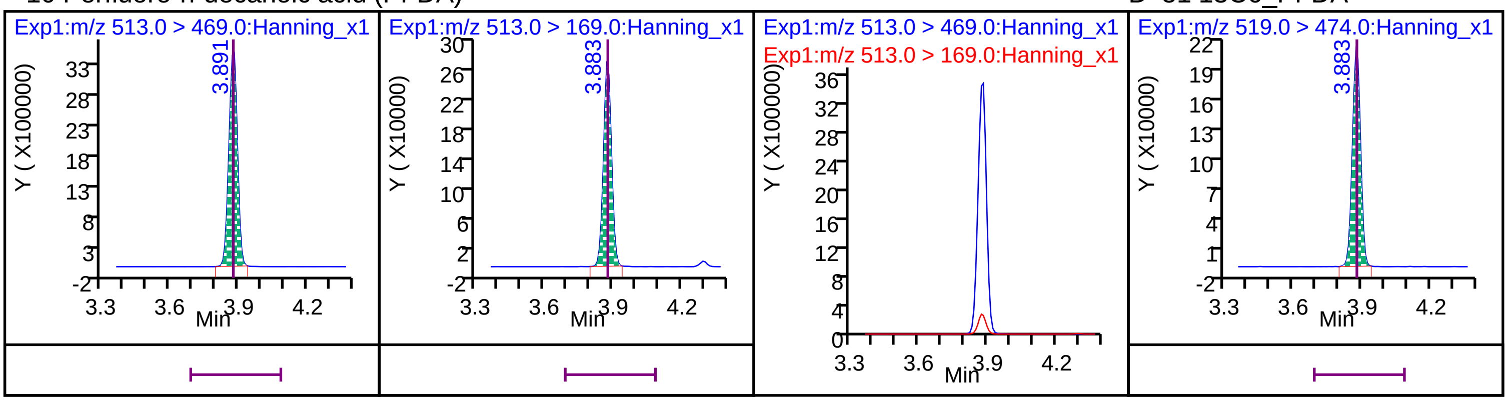


Report Date: 22-Nov-2021 08:59:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d

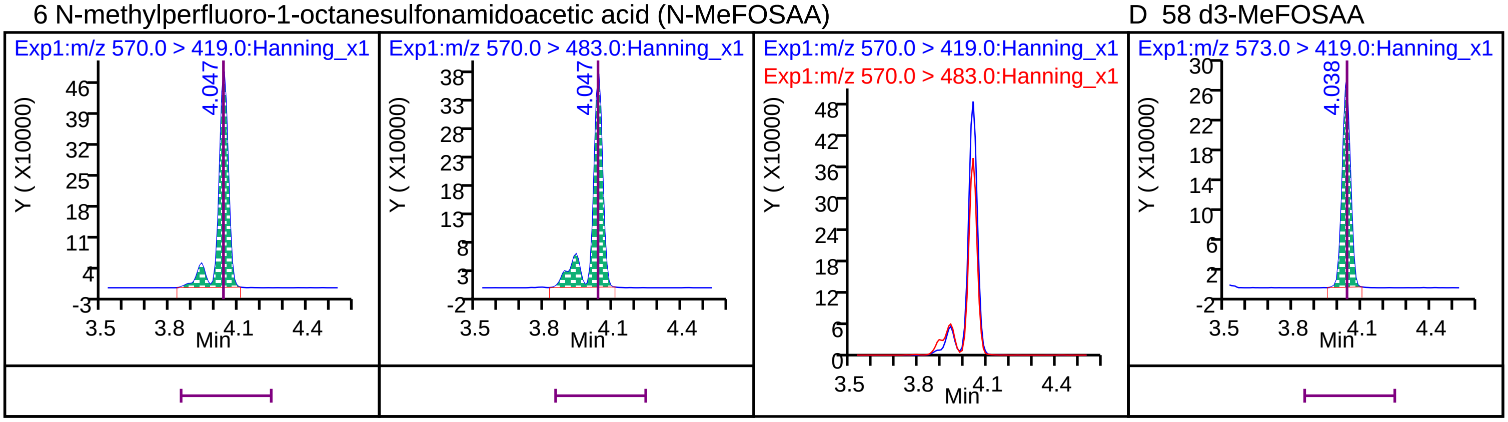
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



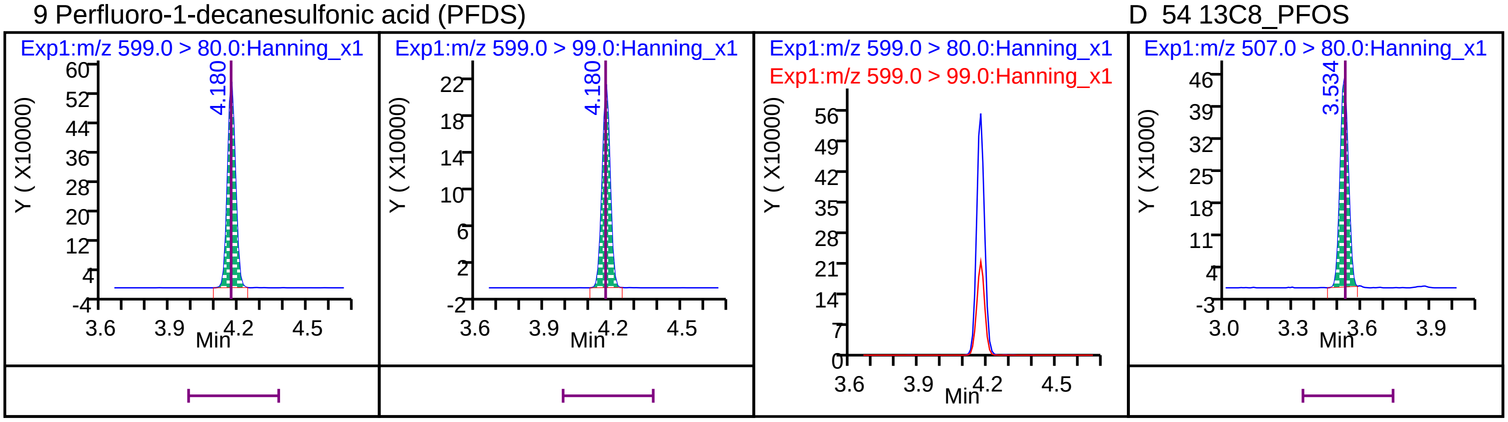
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



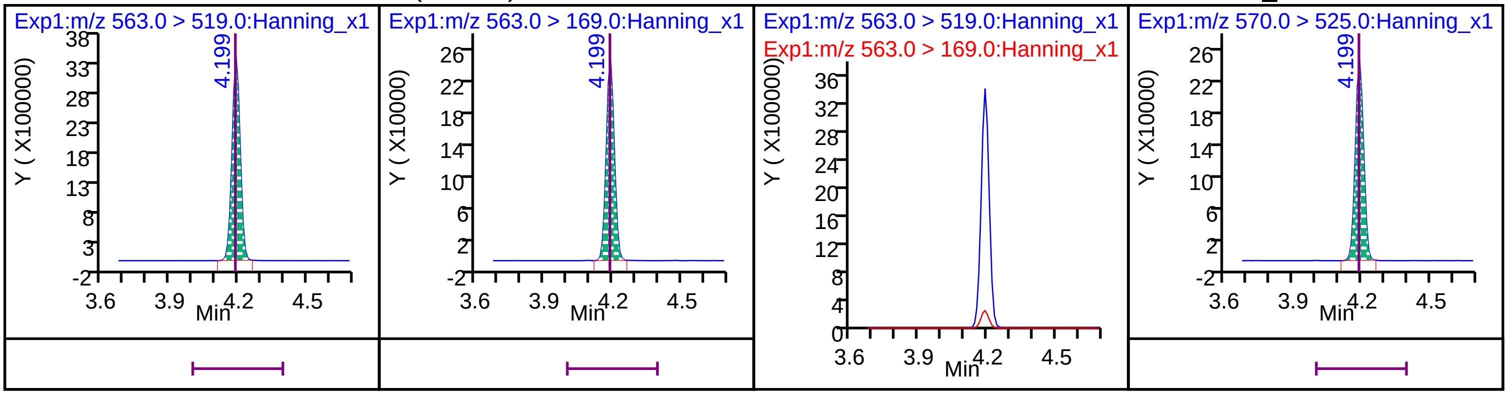
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



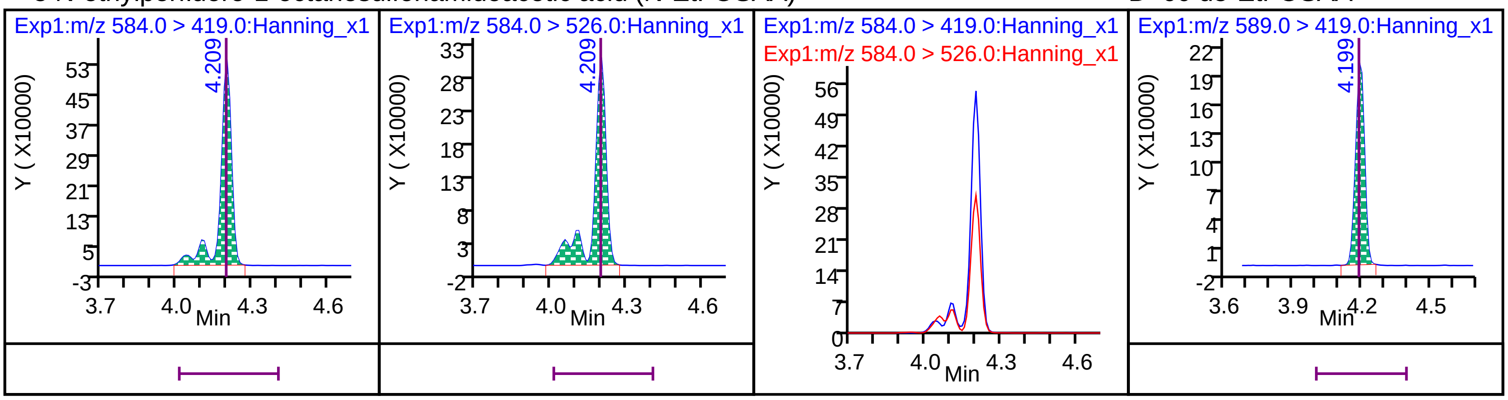
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



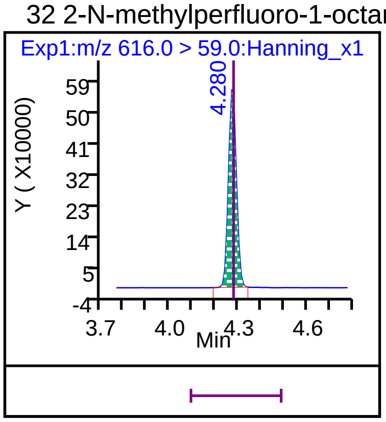
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

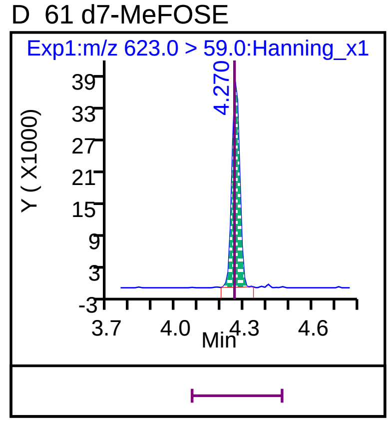


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

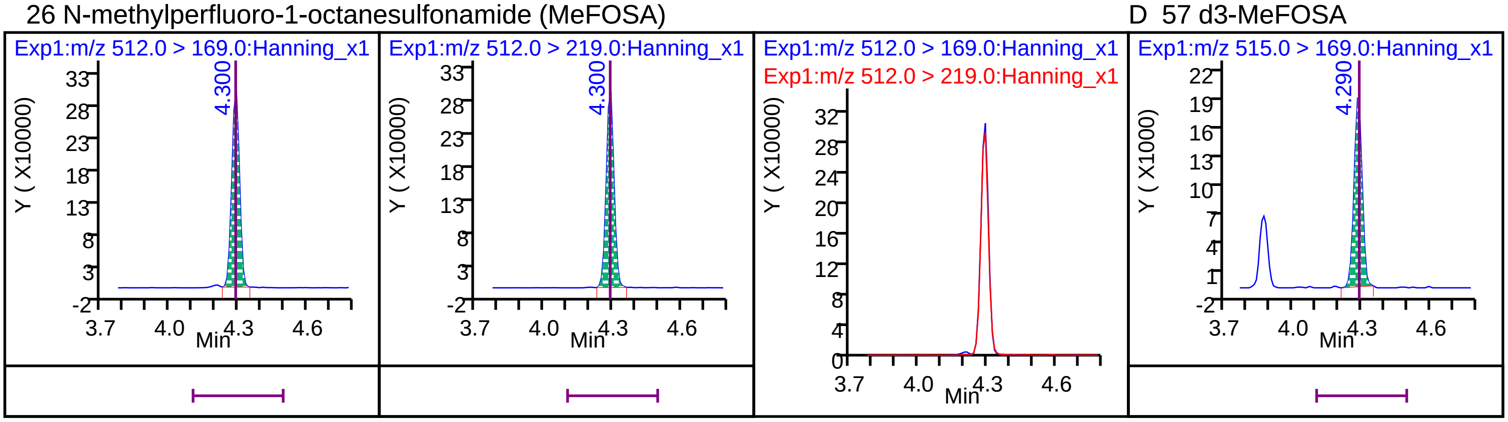


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





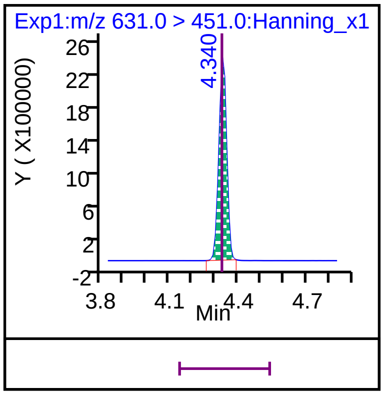
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



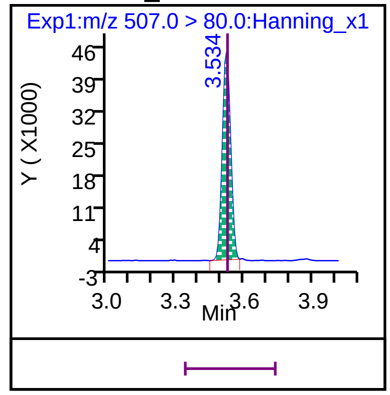
Report Date: 22-Nov-2021 08:59:52 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d

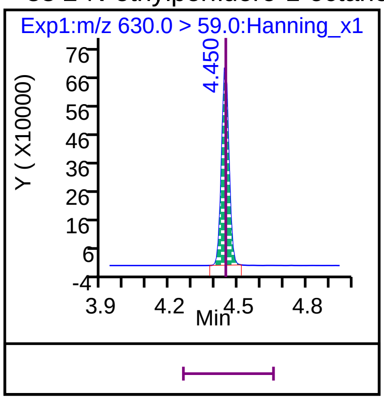
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



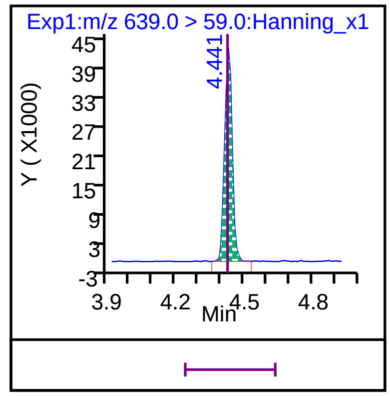
D 54 13C8_PFOS



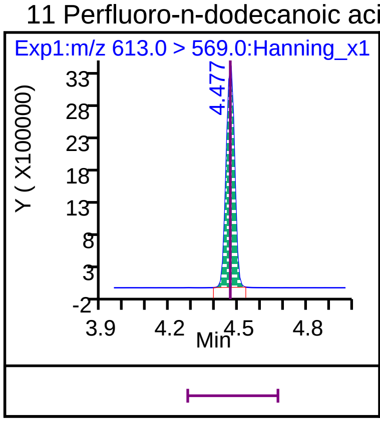
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

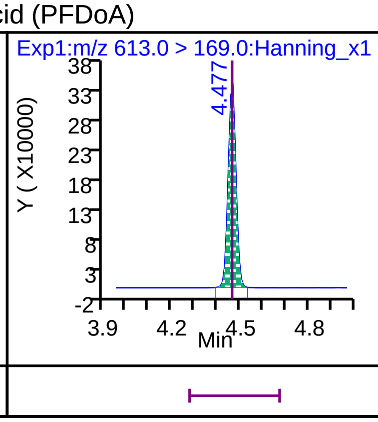


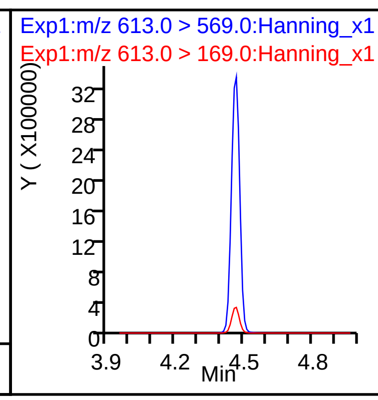
D 62 d9-EtFOSE



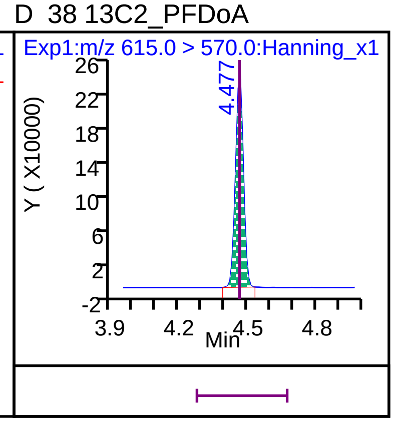
11 Perfluoro-n-dodecanoic acid (PFDoA)



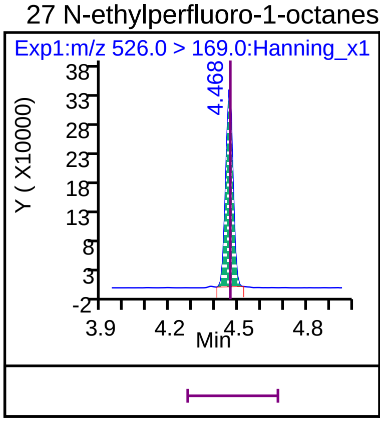


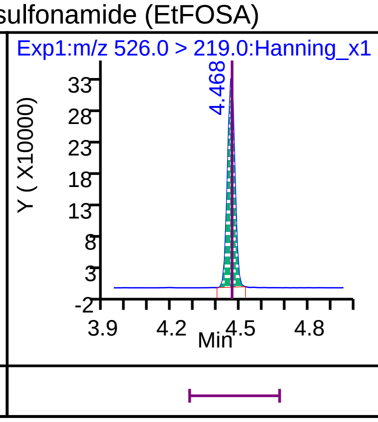


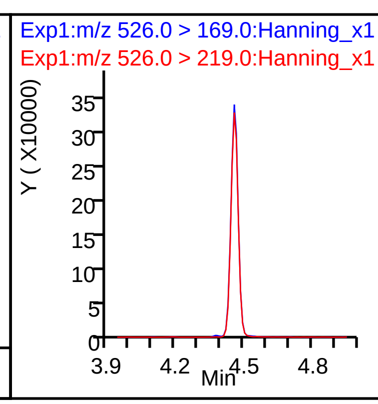
D 38 13C2_PFDoA



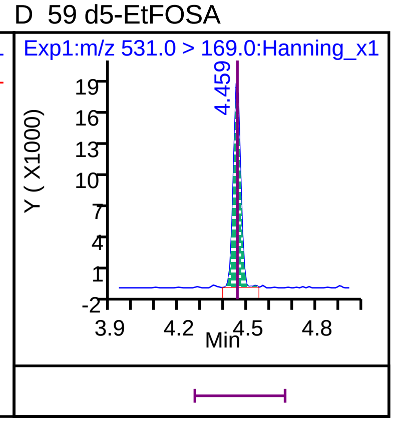
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



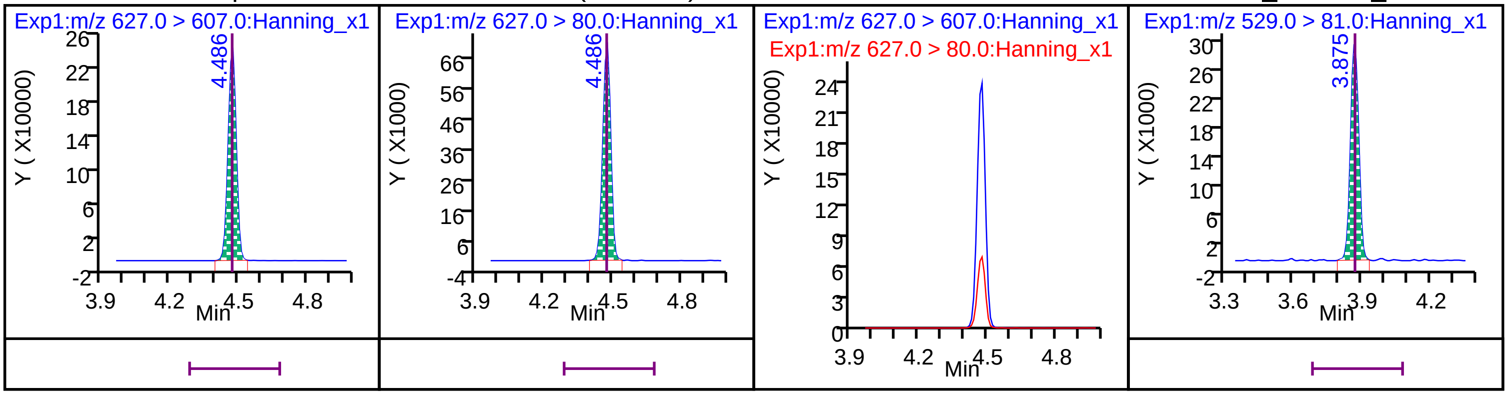




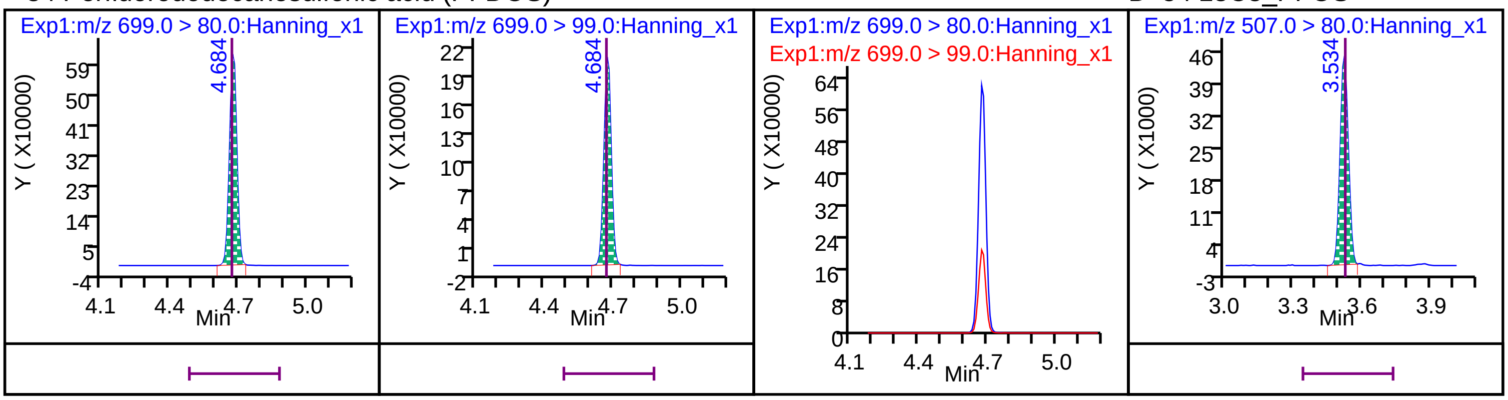
D 59 d5-EtFOSA



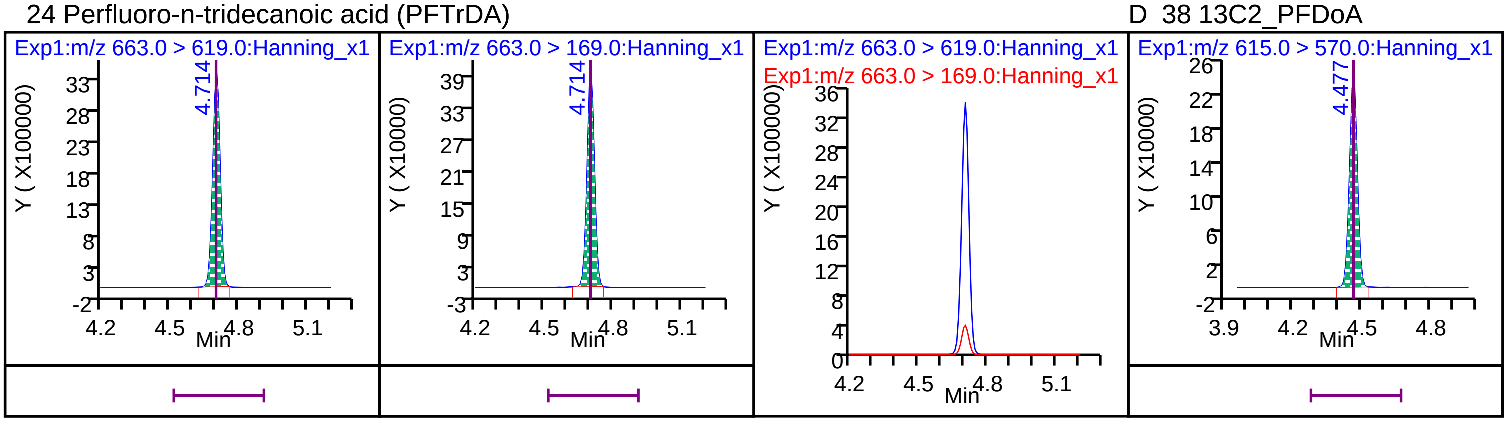
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



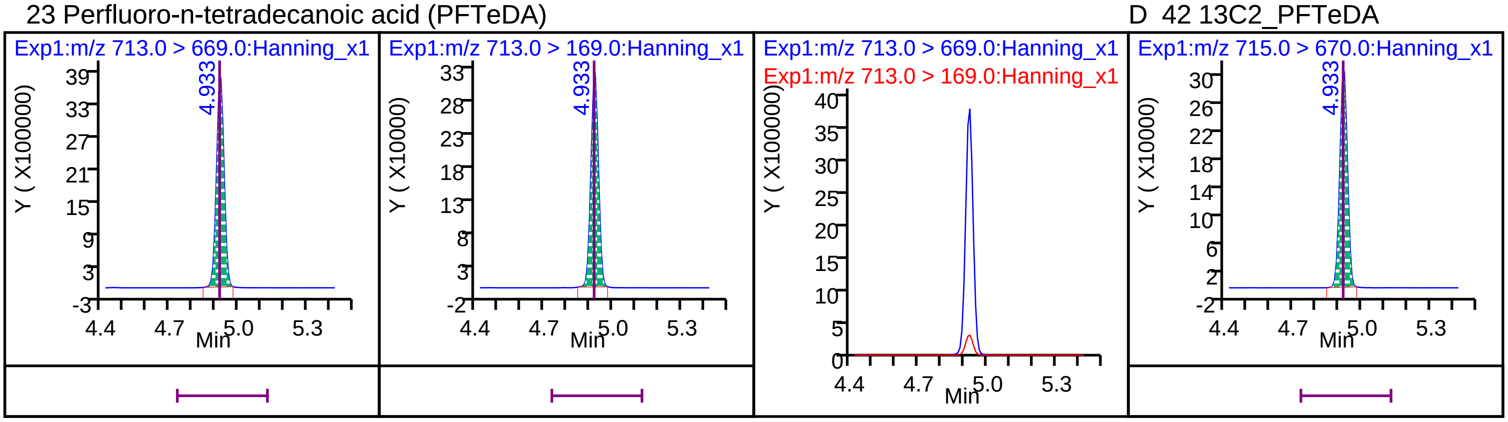
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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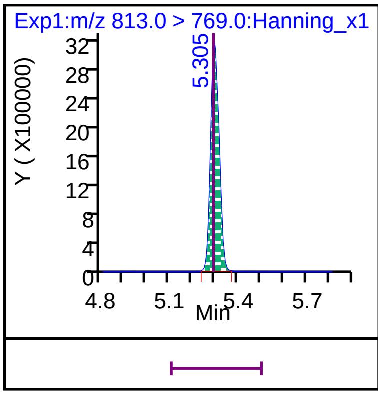
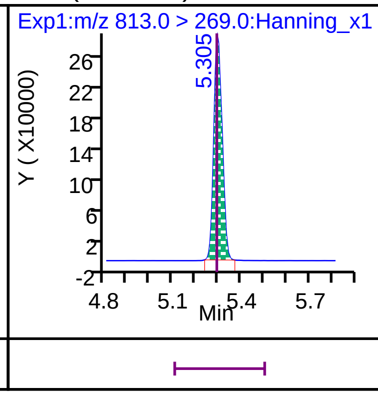
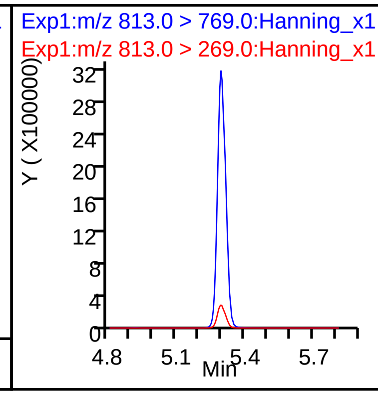
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d

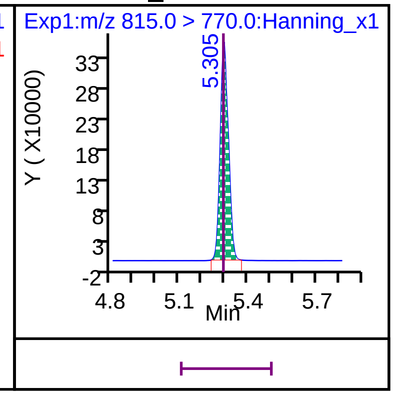
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



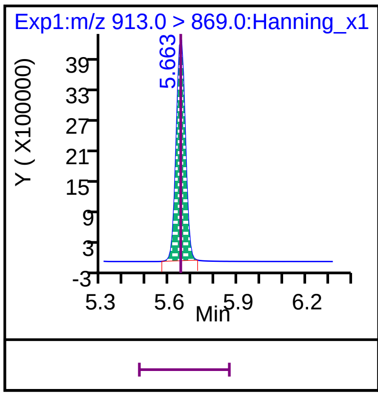


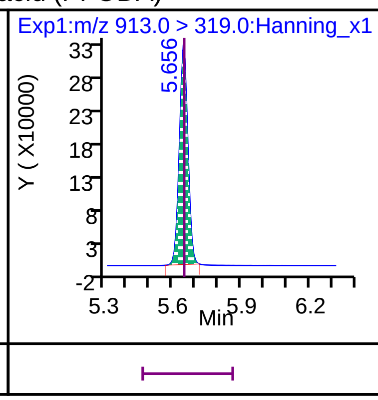


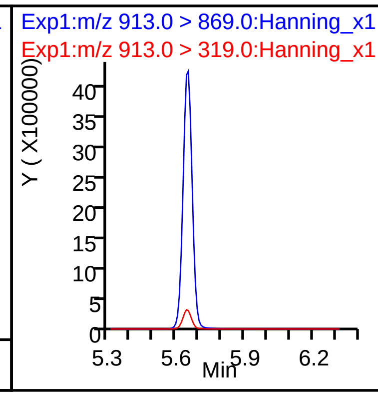
D 40 13C2_PFHxDA



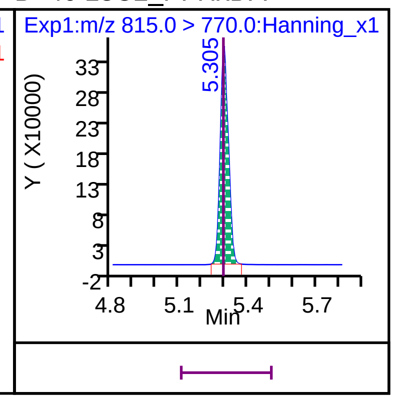
36 Perfluoro-n-octadecanoic acid (PFODA)



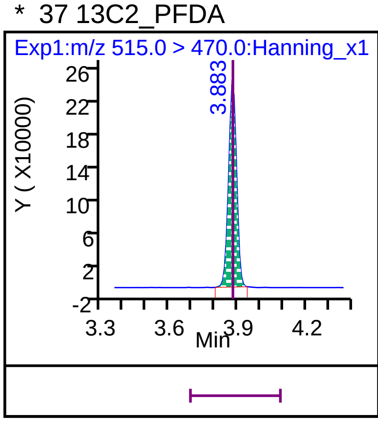




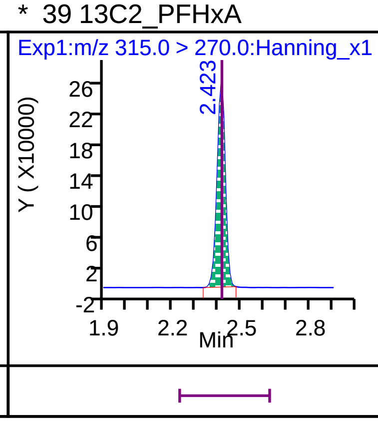
D 40 13C2_PFHxDA



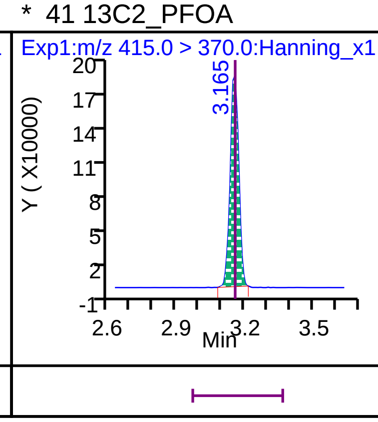
* 37 13C2_PFDA



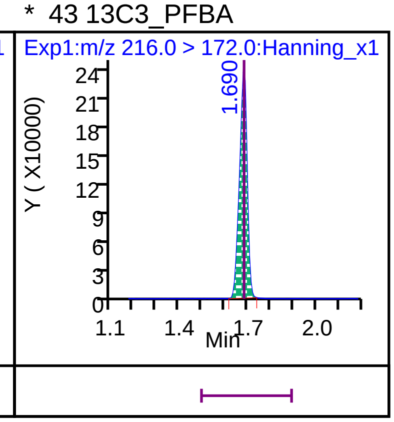
* 39 13C2_PFHxA



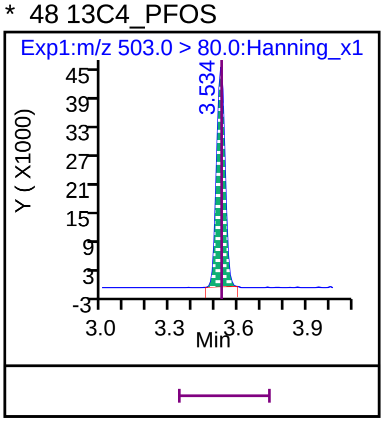
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

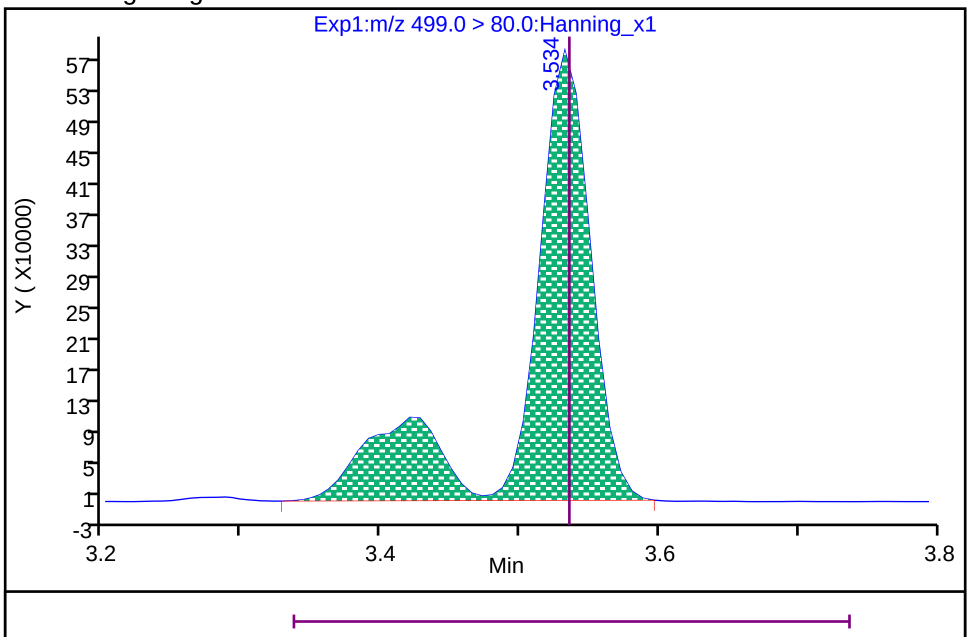
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621023.d		
Injection Date:	16-Nov-2021 18:06:02	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 15000_SVLC-1748
Sample Info:	F.L. ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin

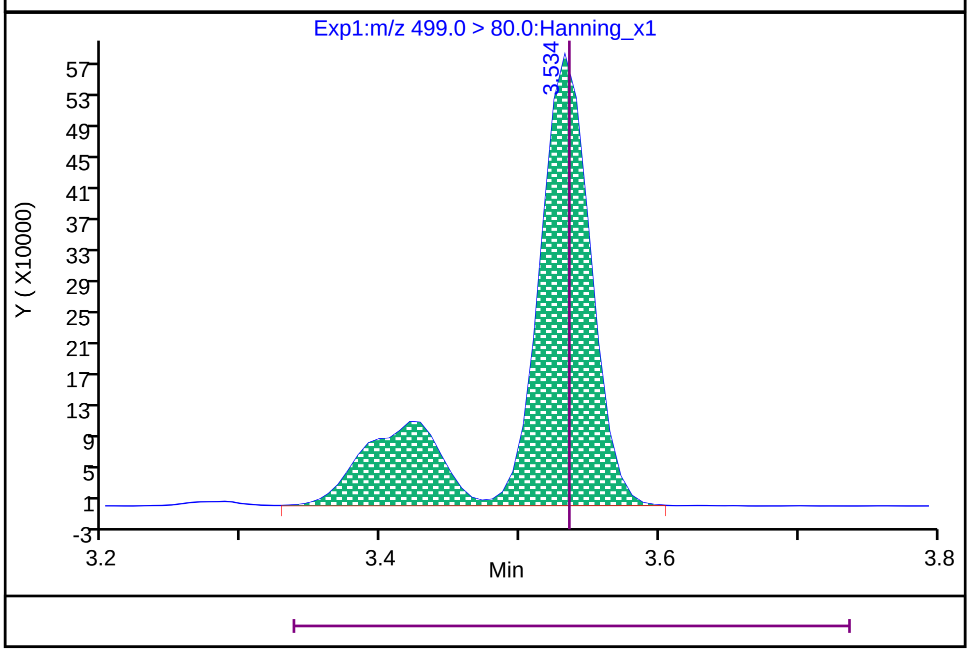
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.534
Area:	1858887
Amount:	14139
Amount Units:	ng/L



RT:	3.534
Area:	1875988
Amount:	14319
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:38

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621024.d		
Injection Date:	16-Nov-2021 18:16:36	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	10
Sample Info:	F.L. ICAL 20000_SVLC-1749	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.686	1.692	0	593589	21	>100:1			1000.00	951.36	91.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	0/0	12026746	20	>100:1			20000	19367		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.056	2.067	0	547933	16	>100:1			1000.00	946.09	91.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	0/0	12142535	15	>100:1			20000	20179		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.120	0	173645	15	>100:1			1000.00	1000.56	99.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.120	0/0	3778620	14	>100:1	Target = 3.48		17680	17467		
298.9 > 99	44	2.119	2.120		1060647	16	>100:1	3.56 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.451	2.460	0/0	2856845	18	>100:1	Target = 3.03		18760	18586		
349 > 99	44	2.451	2.460		944695	16	>100:1	3.02 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	105283	15	>100:1			5000.00	4821.52	92.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.380	2.389	0/0	895812	18	>100:1	Target = 1.70		18680	19607		
327 > 81	63	2.380	2.389		456607	17	>100:1	1.96 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.415	2.424	0	623308	18	>100:1			1000.00	961.79	90.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.424	0/0	12777653	18	>100:1	Target = 18.47		20000	19373		
313 > 119	49	2.424	2.424		676650	18	>100:1	18.88 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.531	2.540	0	1066635	18	>100:1			5000.00	4763.53	92.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.531	2.540	0/0	5538197	18	>100:1	Target = 0.78		40000	39454		
285 > 185	66	2.531	2.540		6911261	18	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.782	2.791	0	492597	17	>100:1			1000.00	933.31	90.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.791	0/0	11239920	18	>100:1	Target = 3.92		20000	19954		
363 > 169	47	2.791	2.791		2993183	18	>100:1	3.75 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.800	2.809	0	121523	18	>100:1			1000.00	951.51	89.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.800	2.809	0/0	2393108	26	>100:1	Target = 3.14	4.49	18200	17468		
399 > 99	45	2.800	2.809		773541	22	>100:1	3.09 (1.57-4.71)	6.86				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	0/0	17654255	18	>100:1	Target = 3.33		18840	18678		
377 > 85	45	2.827	2.827		5548672	17	>100:1	3.18 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.167	3.174	0/0	2129768	21	>100:1	Target = 3.02		19040	18026		
449 > 99	45	3.167	3.174		691412	22	>100:1	3.08 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.134	3.141	0	83863	19	>100:1			5000.00	4886.91	93.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.141	0/0	710991	21	>100:1	Target = 1.69		18960	18072		
427 > 81	64	3.141	3.141		365364	21	>100:1	1.94 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.161	3.168	0	452777	22	>100:1			1000.00	874.10	81.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.161	3.168	0/0	9063485	21	>100:1	Target = 3.03		20000	19128		
413 > 169	53	3.161	3.168		3098962	21	>100:1	2.92 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.536	3.537	0	123468	20	>100:1			1000.00	991.70	93.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.536	3.537	0/0	2675979	38	>100:1	Target = 3.42	3.62	18560	18247		M
499 > 99	54	3.536	3.537		781569	37	>100:1	3.42 (1.71-5.13)	7.33				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.739	3.740	0/0	8959792	20	>100:1			18640	18902		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.878	3.879	0/0	1778277	18	>100:1	Target = 2.57		19200	18500		
549 > 99	54	3.878	3.879		675377	18	>100:1	2.63 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.176	4.178	0/0	1834083	18	>100:1	Target = 2.71		19280	18480		
599 > 99	54	4.176	4.178		644068	17		2.84 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.346	4.338	1/1	7815887	16	>100:1			18840	18675		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.688	4.681	1/1	1839563	18	>100:1	Target = 3.04		19360	18722		
699 > 99	54	4.688	4.681		613040	17	>100:1	3.00 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.536	3.537	0	630046	20	>100:1			1000.00	976.47	91.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.536	3.537	0/0	13057073	20	>100:1	Target = 7.14		20000	18813		
463 > 169	56	3.536	3.537		2027248	20	>100:1	6.44 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.845	3.846	0	233388	18	>100:1			1000.00	925.53	85.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.845	3.846	0/0	5128637	19	>100:1	Target = 32.83		20000	19999		
498>478	55	3.845	3.846		166679	16	>100:1	30.76 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.878	3.879	0	81096	16	>100:1			5000.00	4849.69	92.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.878	3.879	0/0	706701	19	>100:1	Target = 2.14		19160	18787		
527 > 81	65	3.878	3.879		340491	19	>100:1	2.07 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.481	4.482	0/0	781037	17	>100:1	Target = 3.72		19280	17914		
627 > 80	65	4.481	4.482		215808	17		3.61 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.886	3.887	0	531225	18	>100:1			1000.00	932.20	90.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.886	3.887	0/0	11944032	19	>100:1	Target = 14.16		20000	19177		
513 > 169	51	3.886	3.887		907259	18	>100:1	13.16 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.043	4.045	0	674917	16	80:1			5000.00	4941.27	98.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.043	4.045	0/0	2142117	31	>100:1	Target = 1.42	7.59	20000	19157		
570 > 483	58	4.043	4.045		1615540	33	>100:1	1.32 (0.71-2.14)	4.41				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.195	4.196	0	520500	18	>100:1			5000.00	4286.77	85.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.205	4.206	0/0	2155994	31	>100:1	Target = 1.49	5.56	20000	21830		
584 > 526	60	4.205	4.206		1370836	31	>100:1	1.57 (0.74-2.24)	3.45				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.195	4.196	0	603194	16	>100:1			1000.00	929.15	90.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.195	4.196	0/0	10762420	18	>100:1	Target = 14.37		20000	19231		
563 > 169	52	4.195	4.196		748874	17	>100:1	14.37 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.276	4.267	1	88417	13	>100:1			1000.00	1008.93	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.286	4.287	0/-1	1941829	16	>100:1			20000	19893		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.286	4.298	0	54755	16	>100:1			1000.00	1121.18	109.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.296	4.298	0/0	938347	13	>100:1	Target = 1.08		20000	16810		
512 > 219	57	4.296	4.298		922688	15	>100:1	1.01 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.436	4.437	0	110249	16	>100:1			1000.00	1040.91	96.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.455	0/0	2058707	16	>100:1			20000	18317		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.464	0	43134	14	>100:1			1000.00	984.54	94.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.472	4.473	0/0	985620	15	>100:1	Target = 0.97		20000	19404		
526 > 219	59	4.472	4.473		950015	16	>100:1	1.03 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.472	4.473	0	547608	17	>100:1			1000.00	917.46	87.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.472	4.473	0/0	10913153	18	>100:1	Target = 10.55		20000	18461		
613 > 169	38	4.472	4.473		997494	17	>100:1	10.94 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.710	4.711	0/0	10548237	19	>100:1	Target = 8.92		20000	19788		
663 > 169	38	4.710	4.711		1234382	19	>100:1	8.54 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.927	4.928	0	733886	18	>100:1			1000.00	973.18	92.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.927	4.928	0/0	11737962	18	>100:1	Target = 12.22		20000	18243		
713 > 169	42	4.927	4.928		972394	18	>100:1	12.07 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.302	5.302	0	858539	23	>100:1			1000.00	954.80	92.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.306	5.302	1/1	10351666	23	>100:1	Target = 11.65		20000	17797		
813 > 269	40	5.302	5.302		946956	23	>100:1	10.93 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.656	5.660	0/0	15882403	20	>100:1	Target = 15.15		20000	19661		
913 > 319	40	5.656	5.660		1125879	20	>100:1	14.10 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.886	3.887	0	617288	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.415	2.424	0	638594	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.161	3.168	0	462097	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	0	543276	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.536	3.537	0	129437	19	>100:1			1000.00			

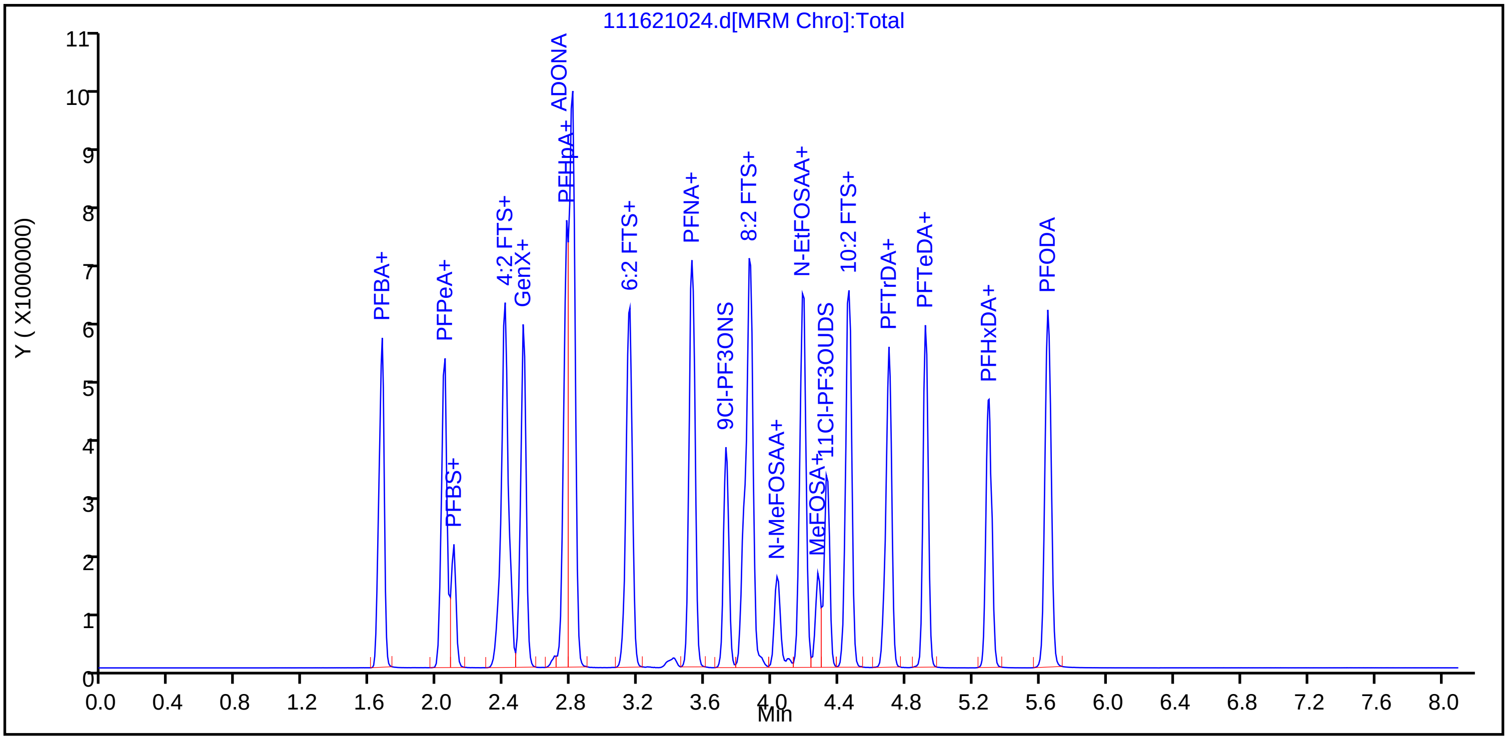
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

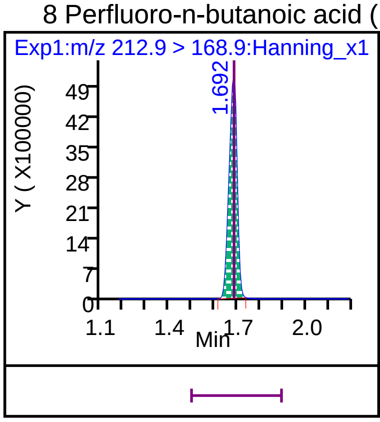
Report Date: 22-Nov-2021 08:59:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

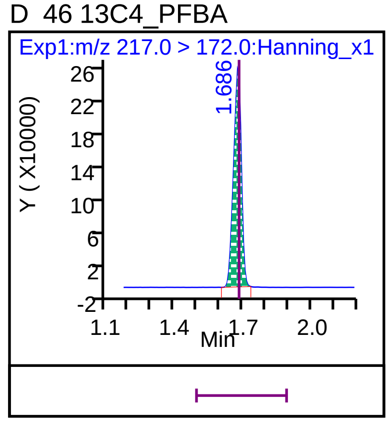
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621024.d		
Injection Date:	16-Nov-2021 18:16:36	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 20000_SVLC-1749
Sample Info:	F.L. ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin



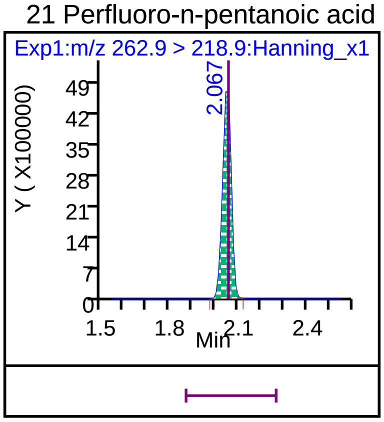
8 Perfluoro-n-butanoic acid (PFBA)



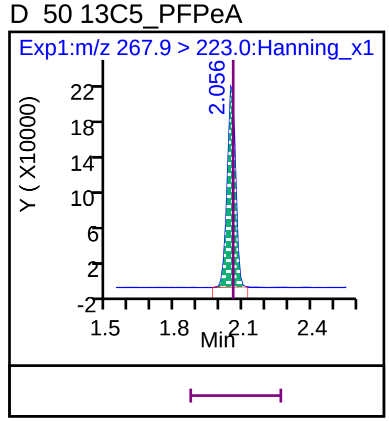
D 46 13C4_PFBA



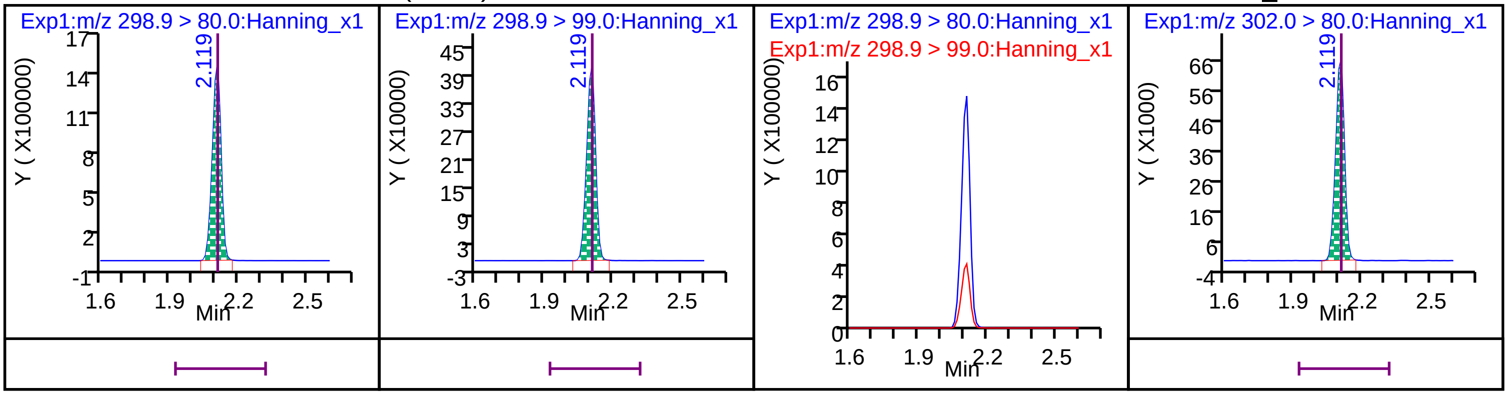
21 Perfluoro-n-pentanoic acid (PFPeA)



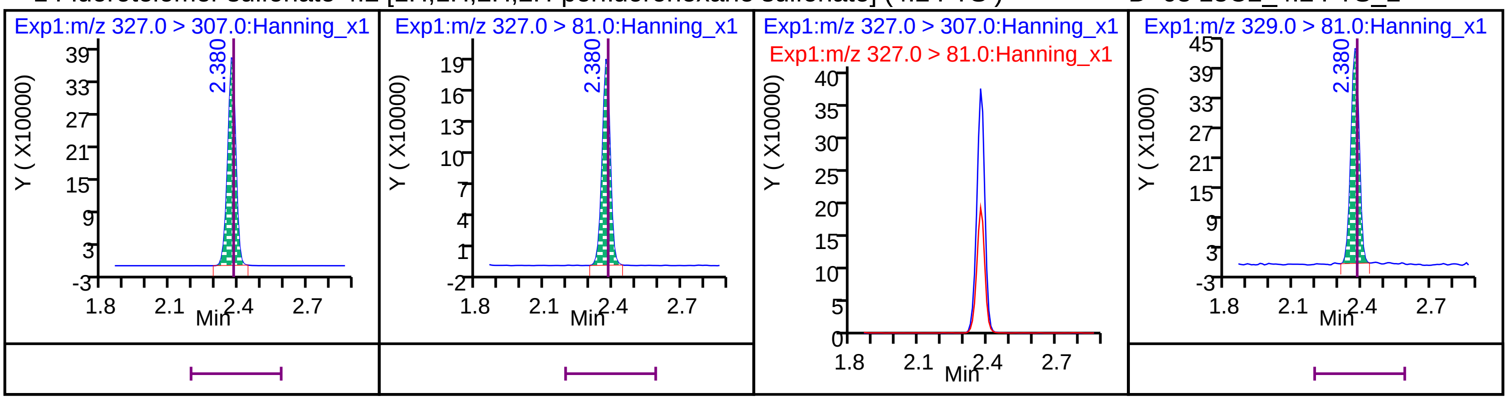
D 50 13C5_PFPeA



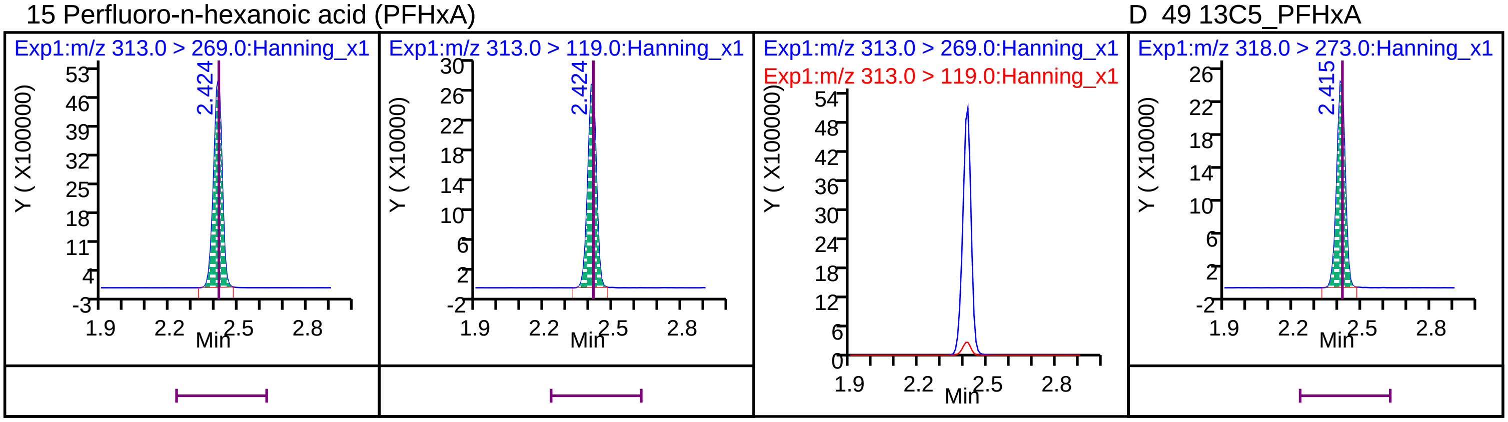
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



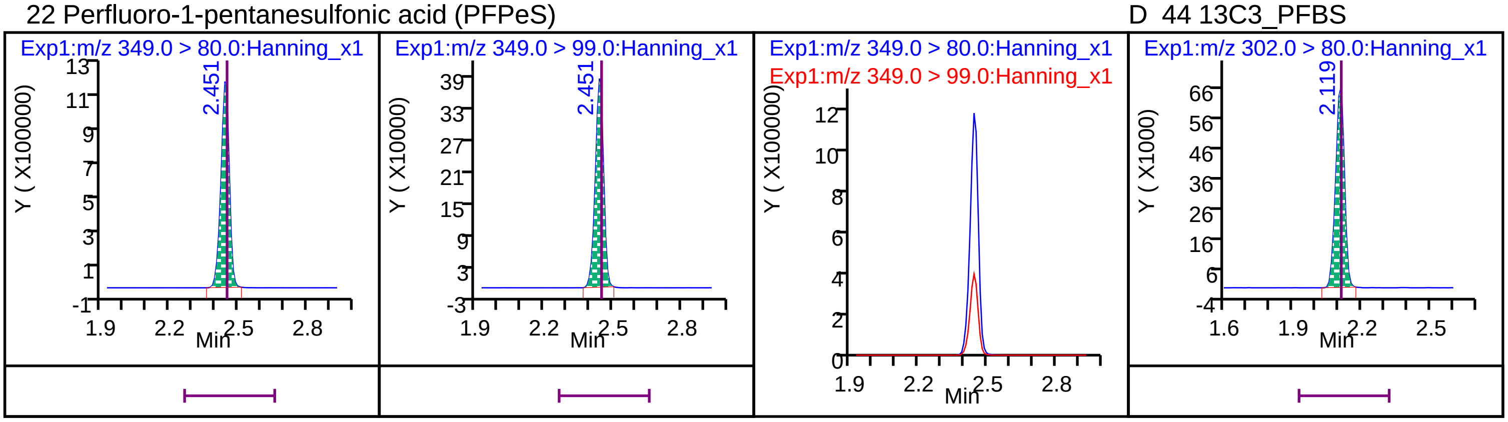
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



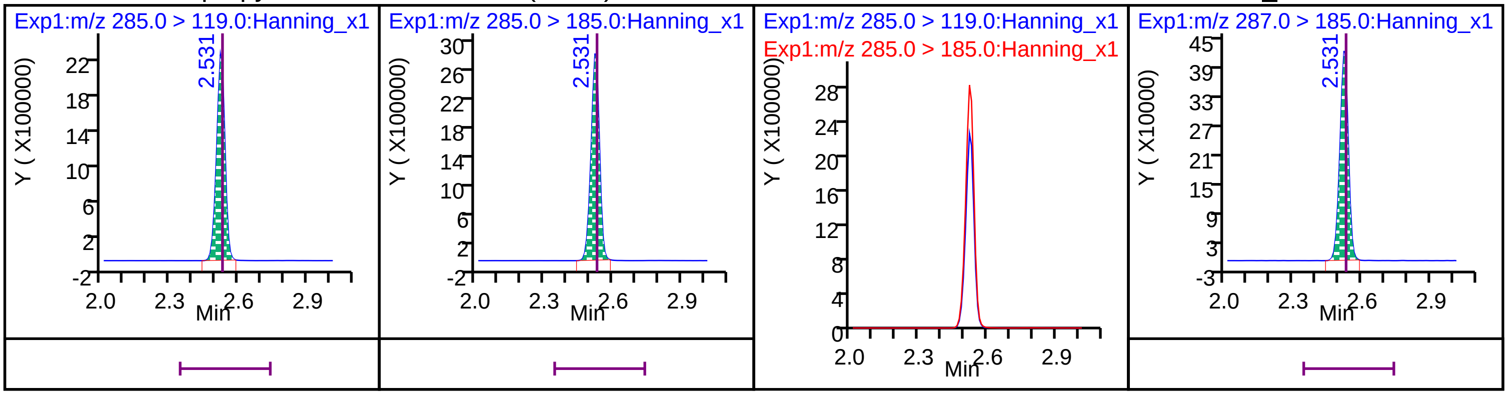
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



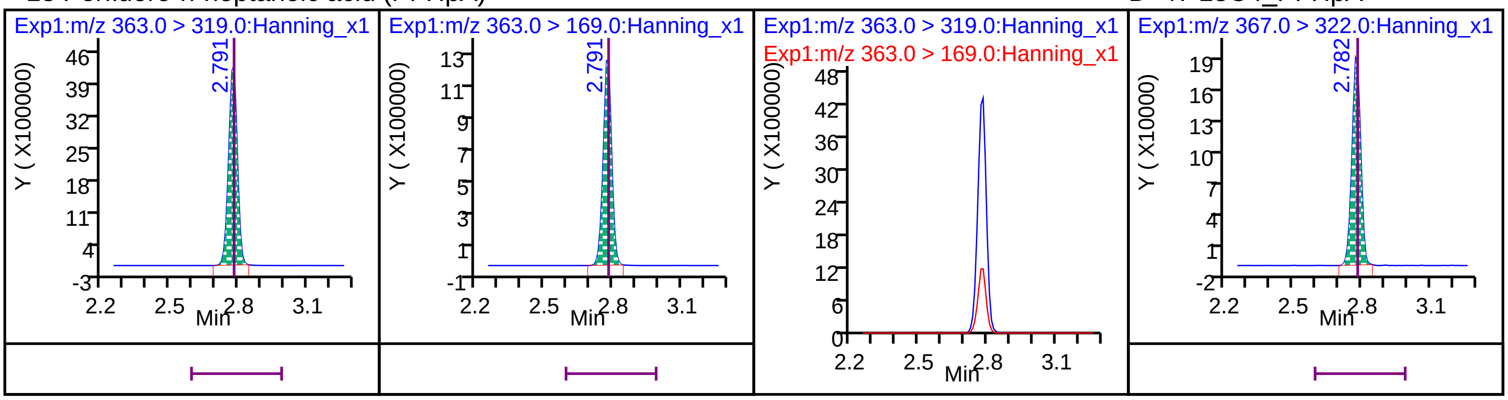
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



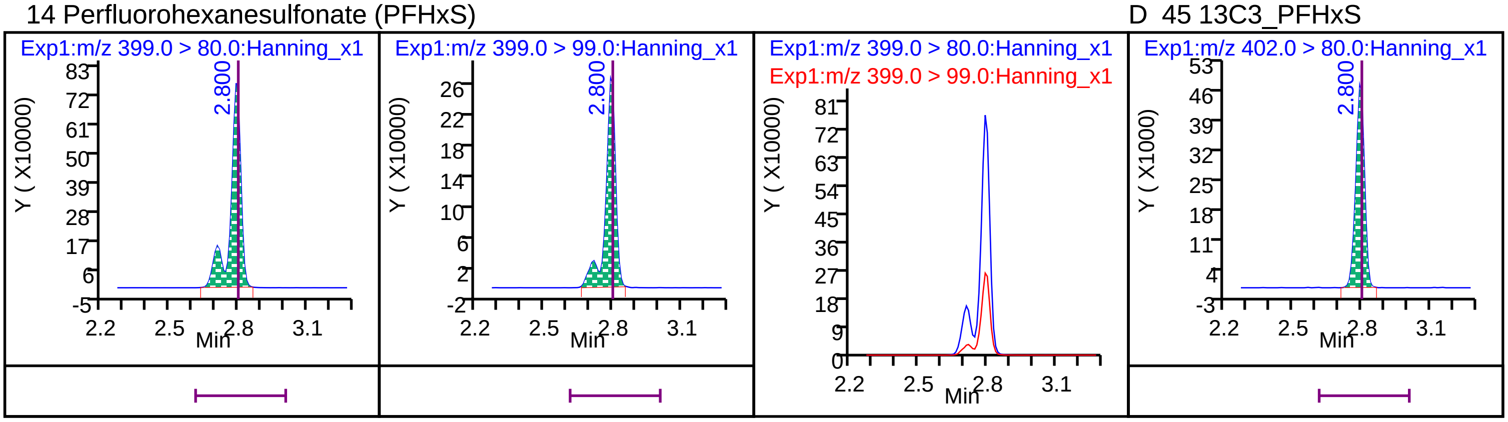
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



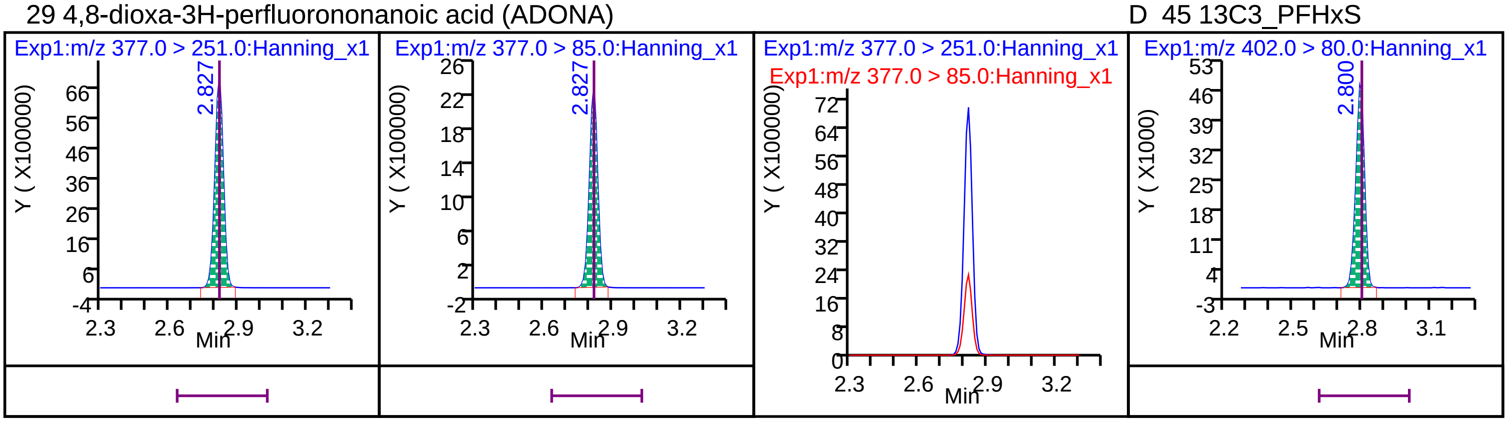
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

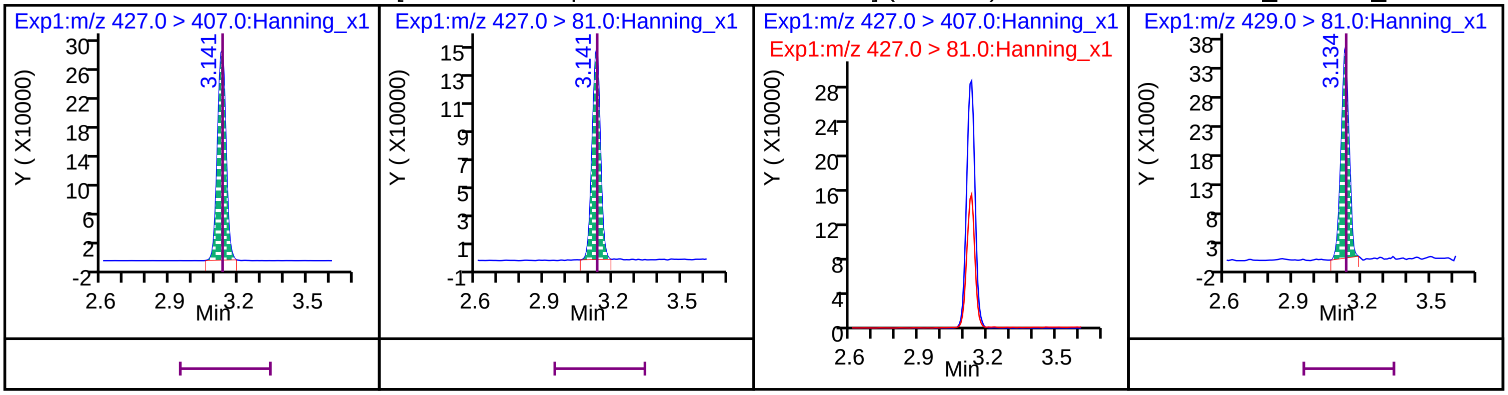


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

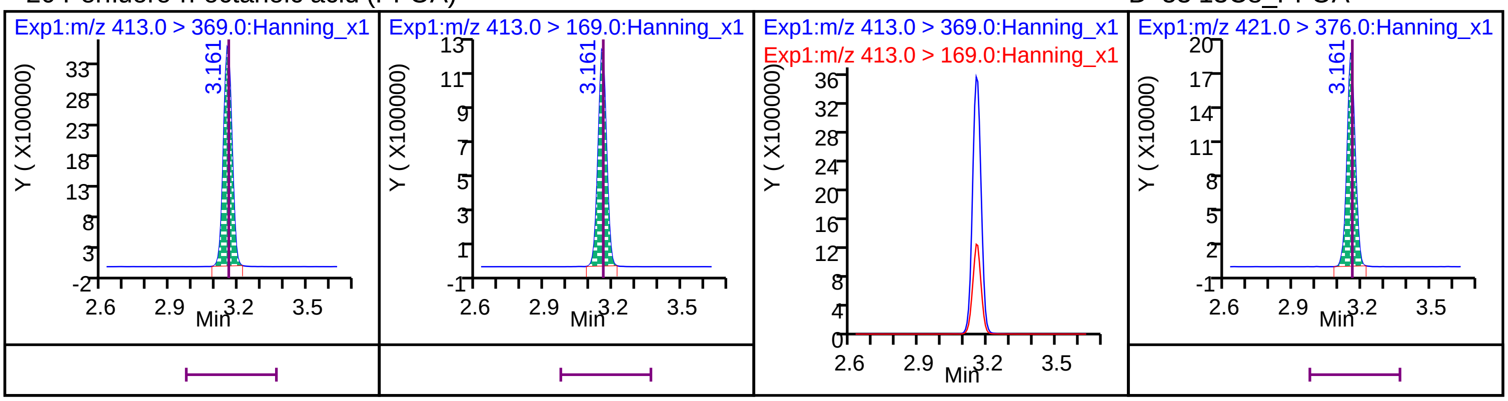


Report Date: 22-Nov-2021 08:59:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621024.d

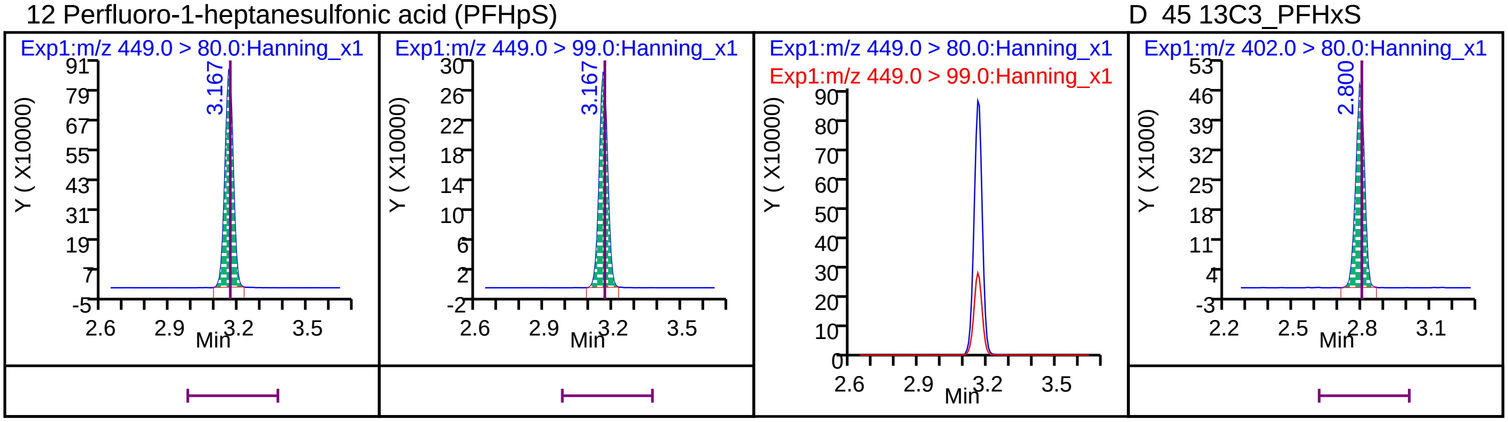
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



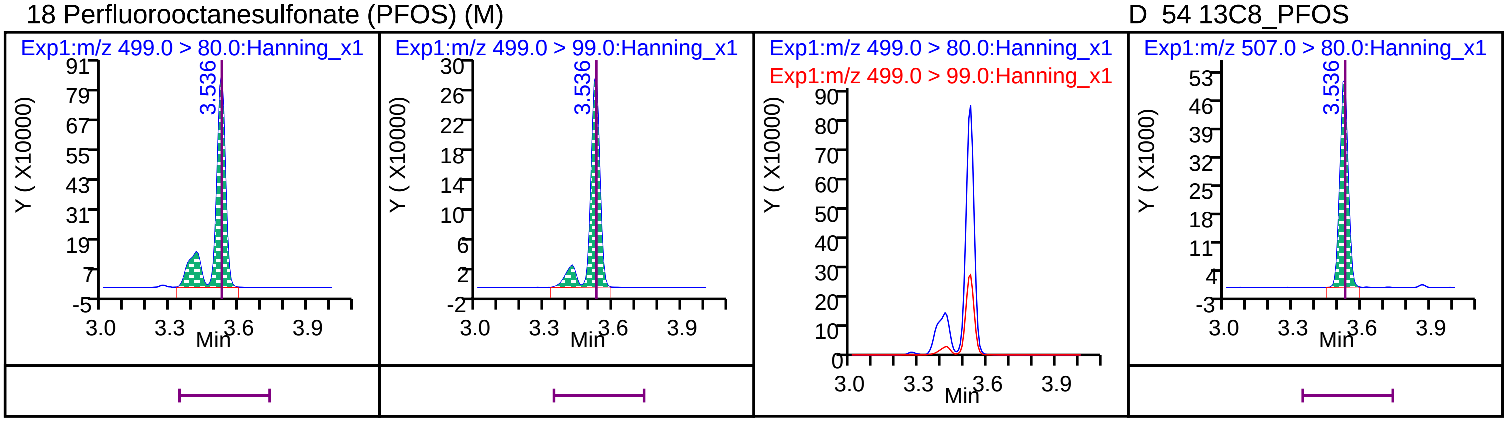
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

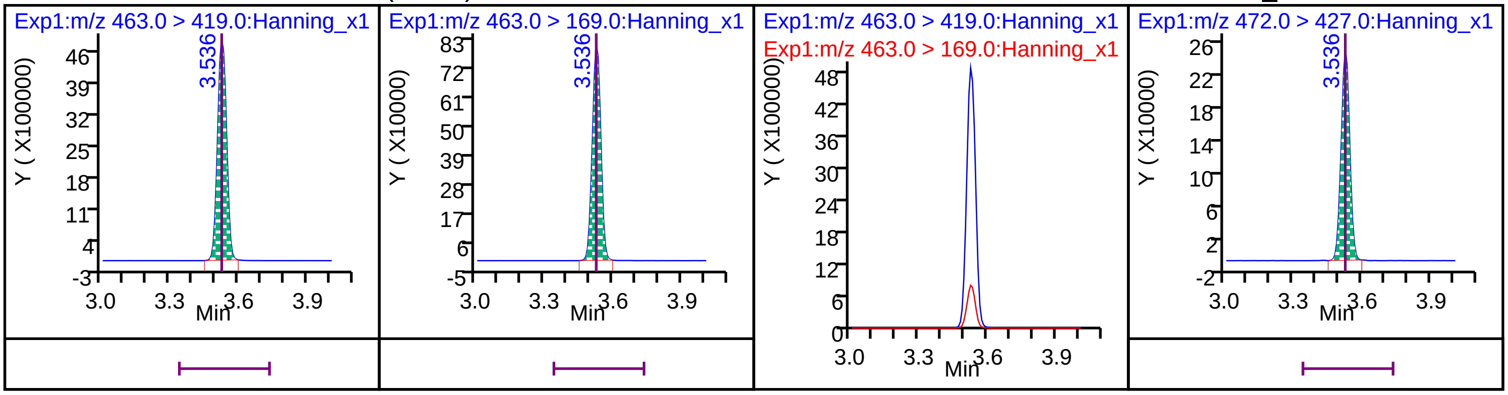


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

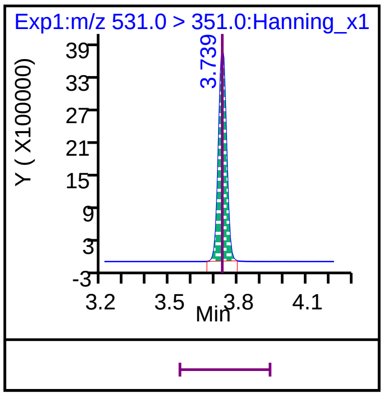


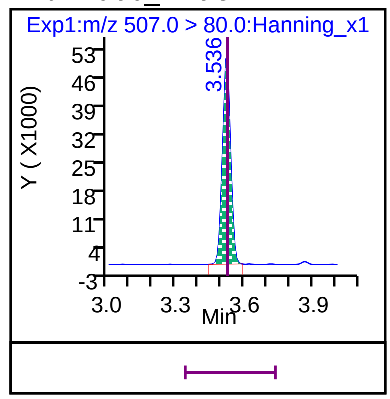
Report Date: 22-Nov-2021 08:59:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621024.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

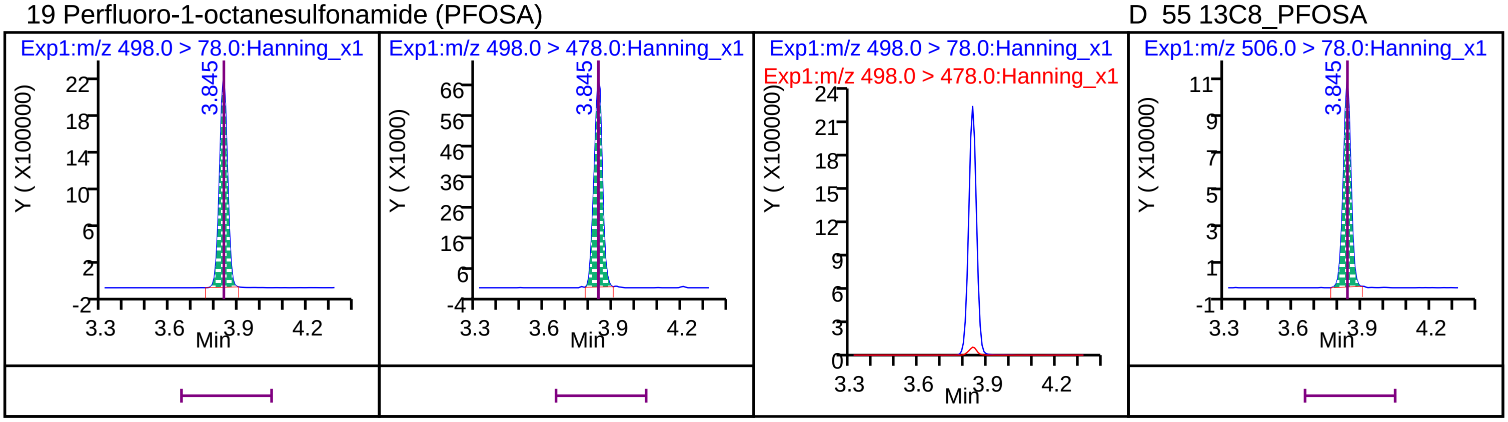


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

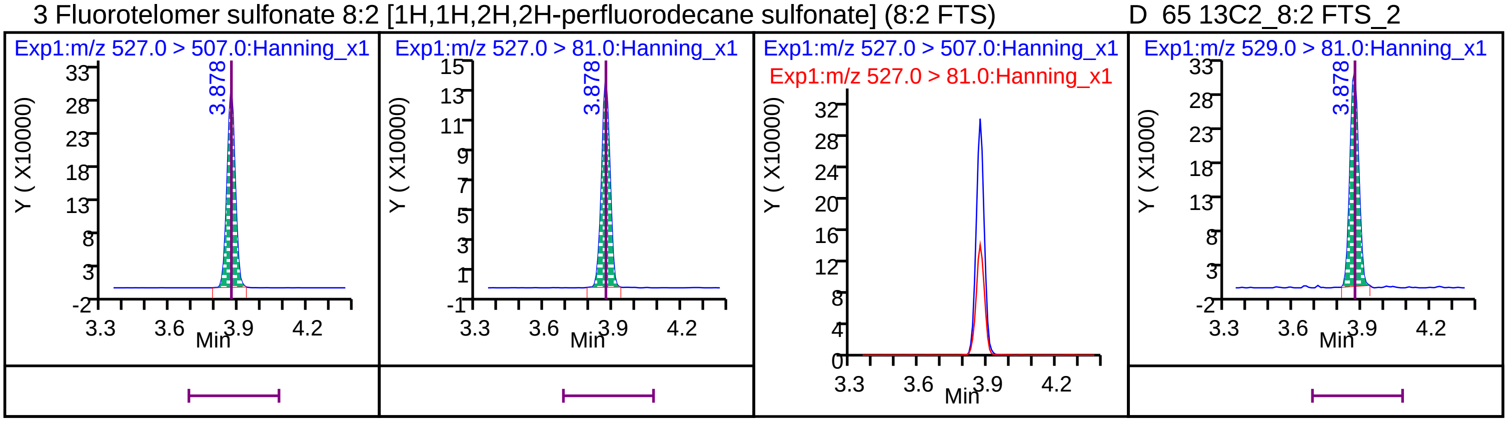




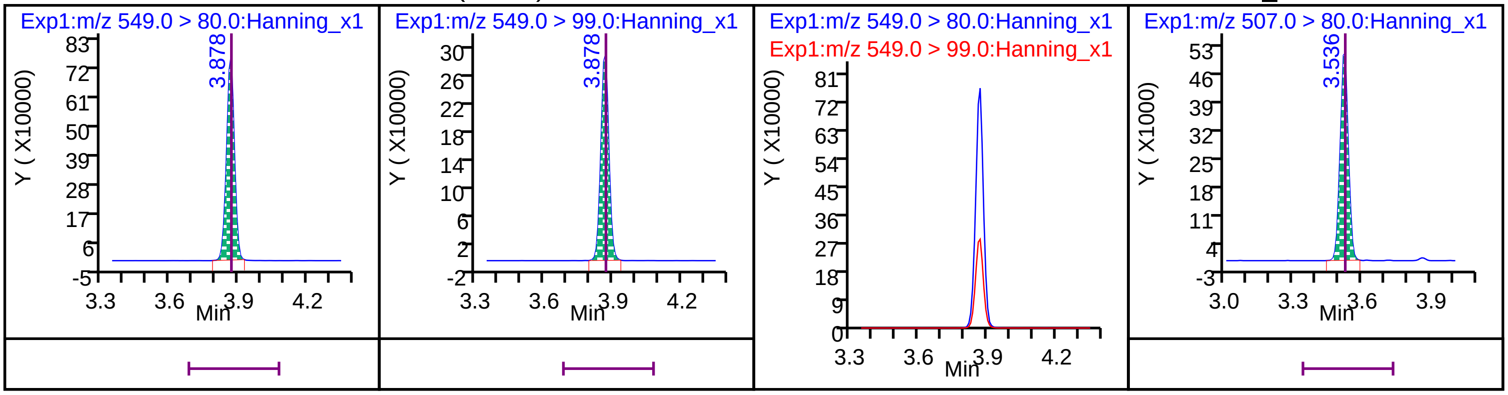
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



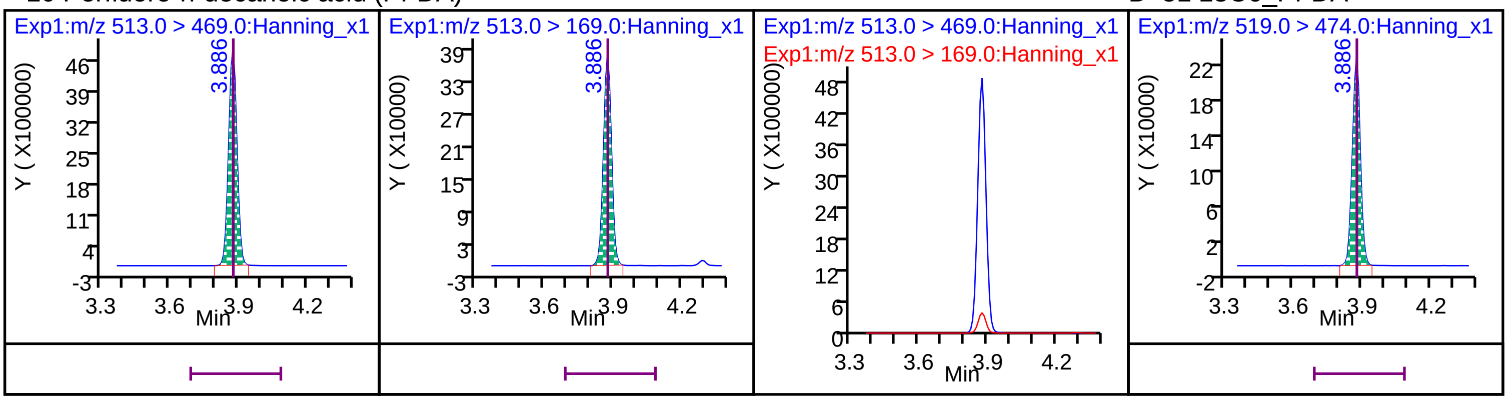
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



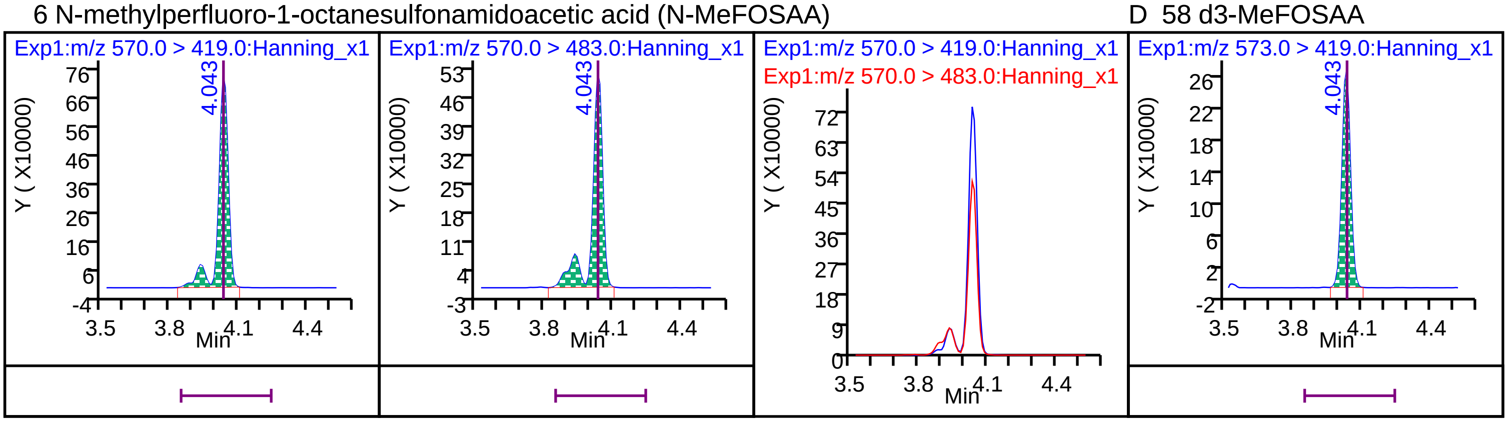
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



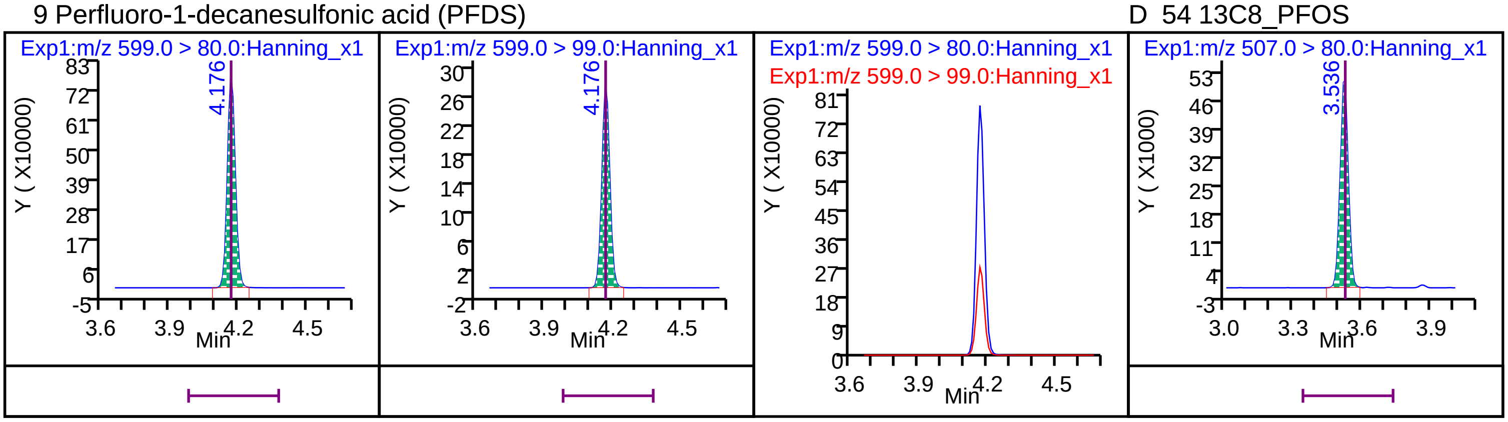
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



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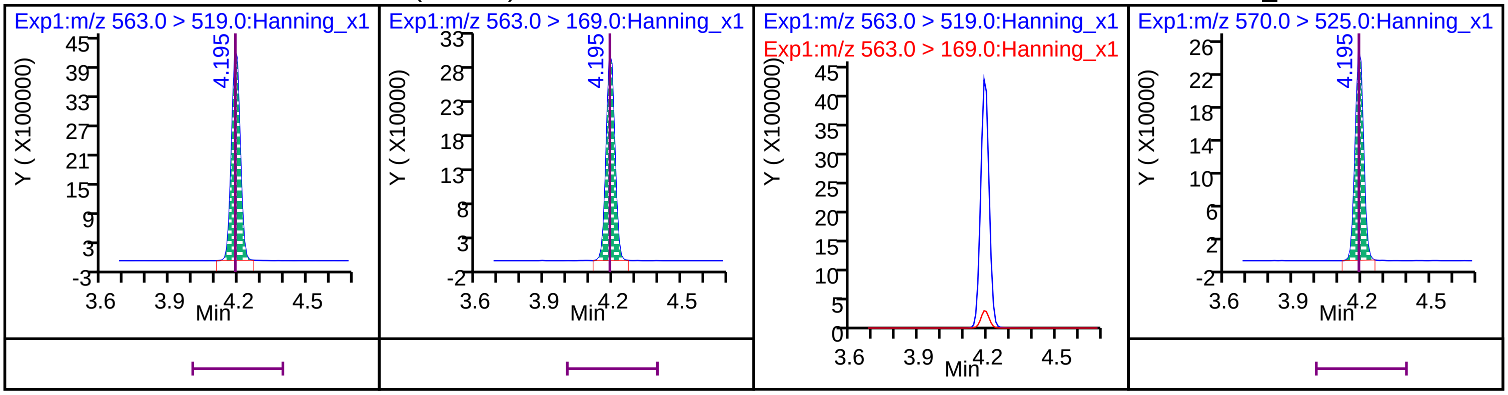
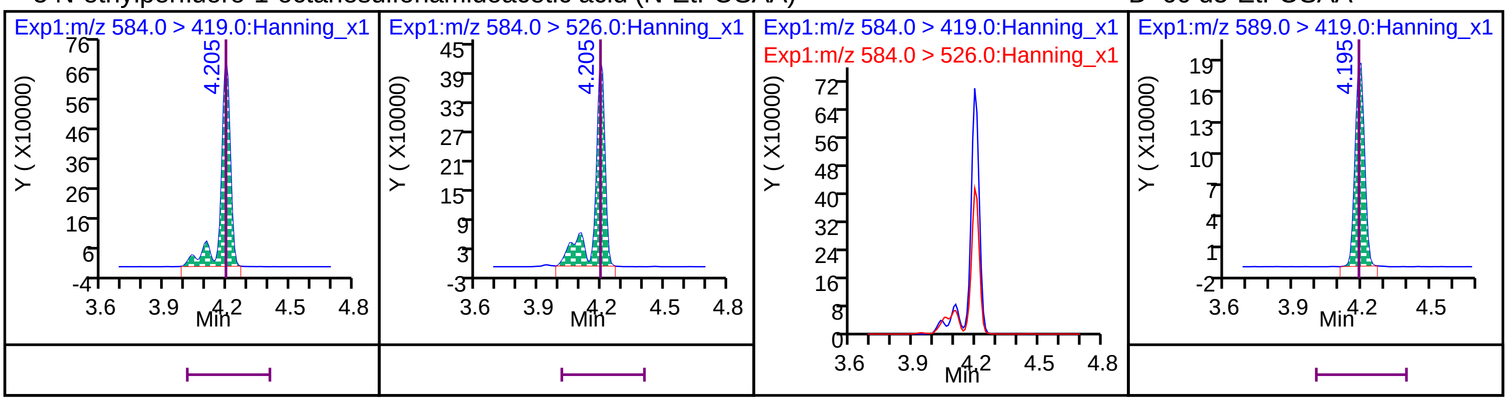
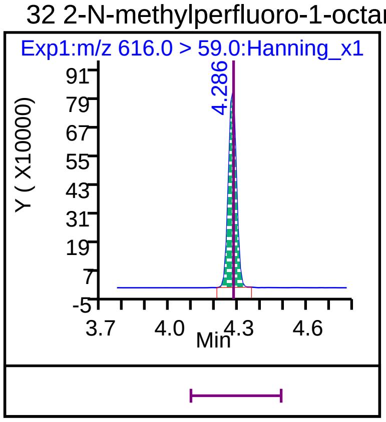
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

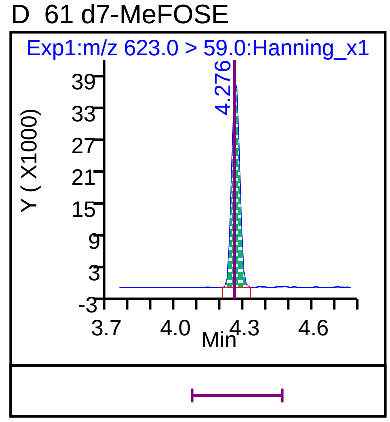


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

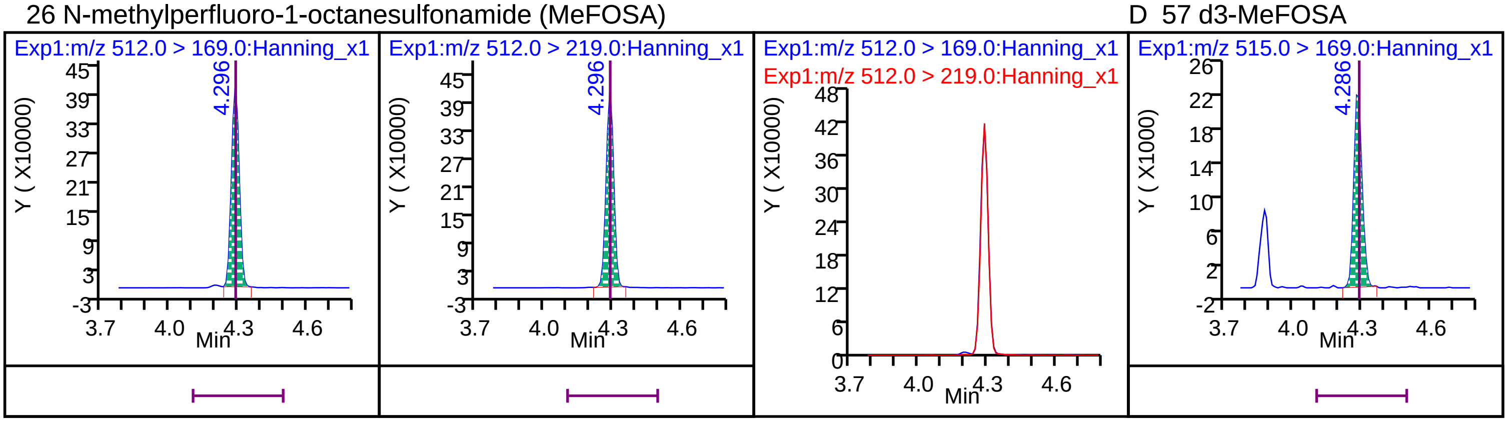


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

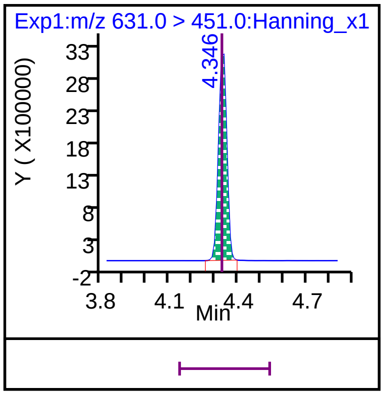




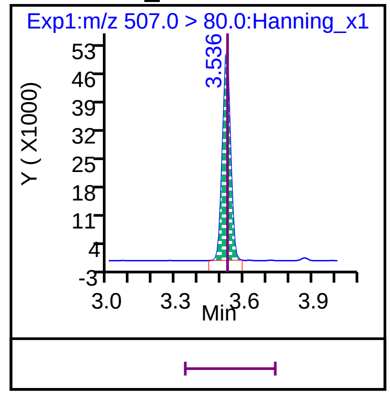
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



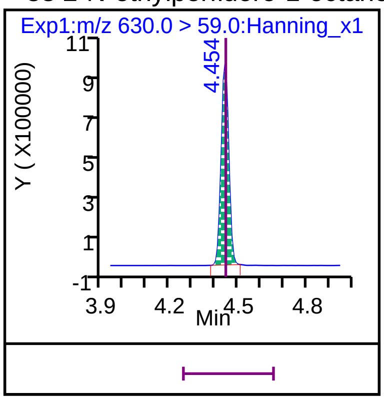
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



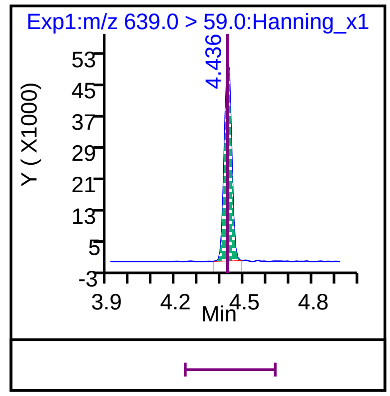
D 54 13C8_PFOS



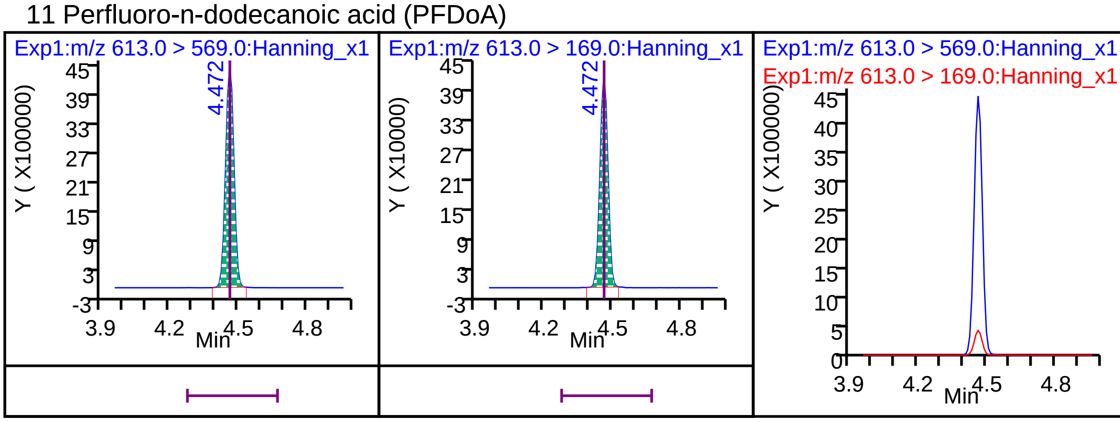
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



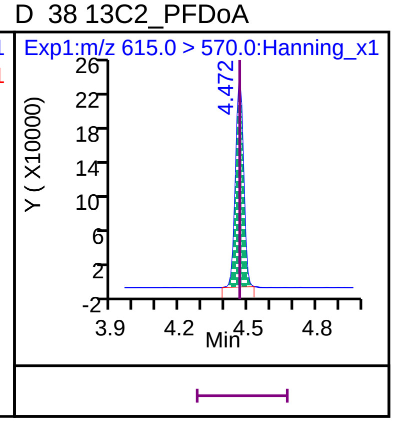
D 62 d9-EtFOSE



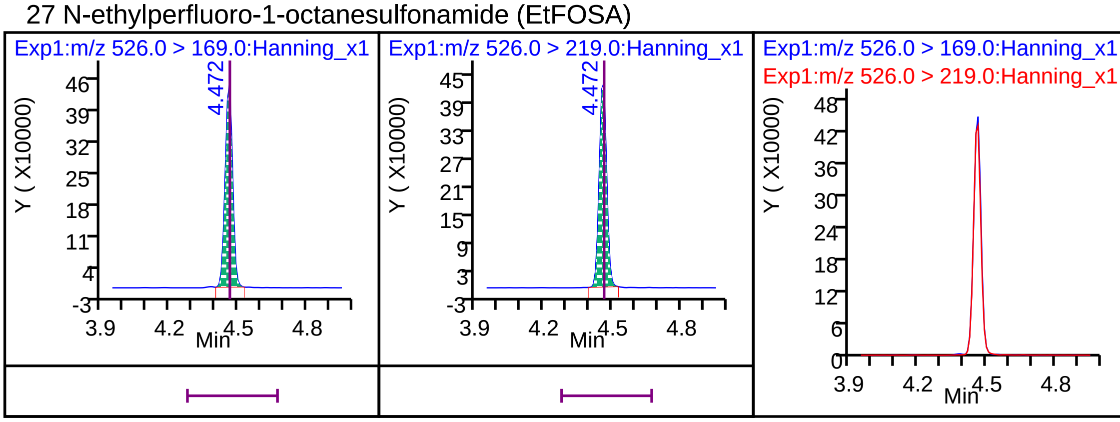
11 Perfluoro-n-dodecanoic acid (PFDoA)



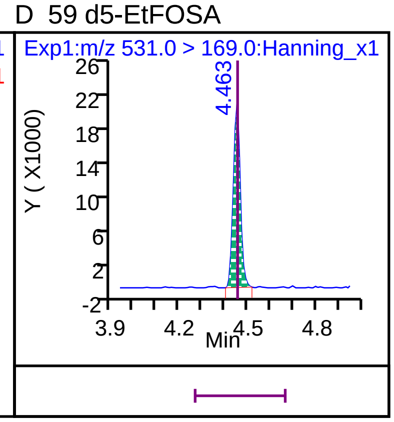
D 38 13C2_PFDoA



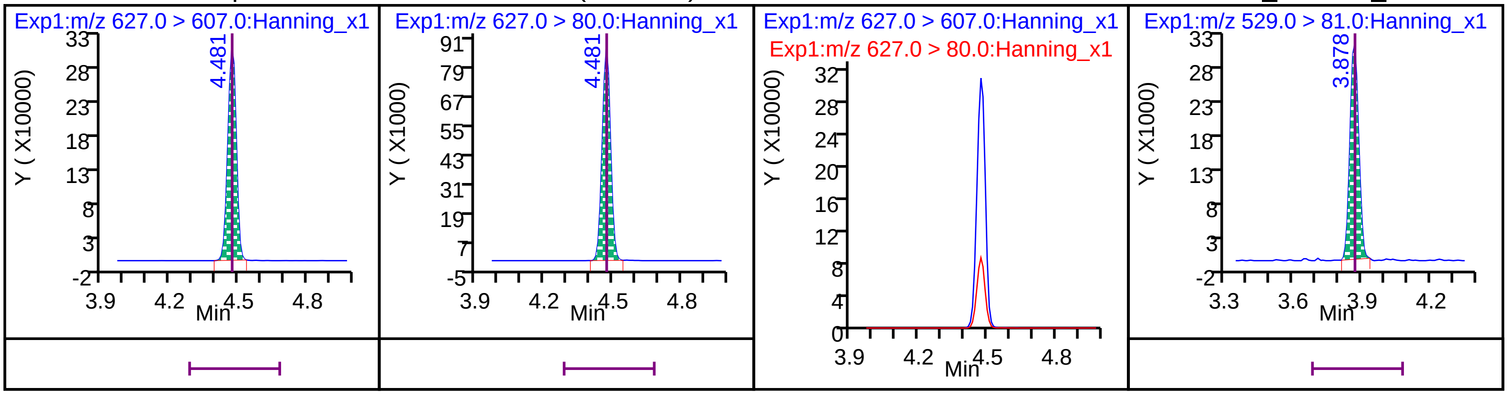
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



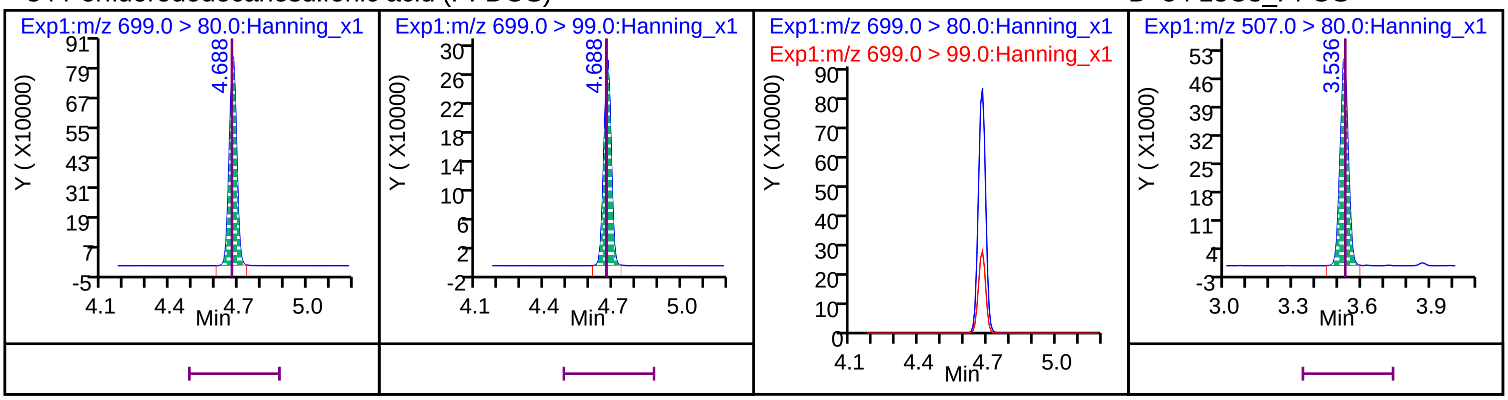
D 59 d5-EtFOSA



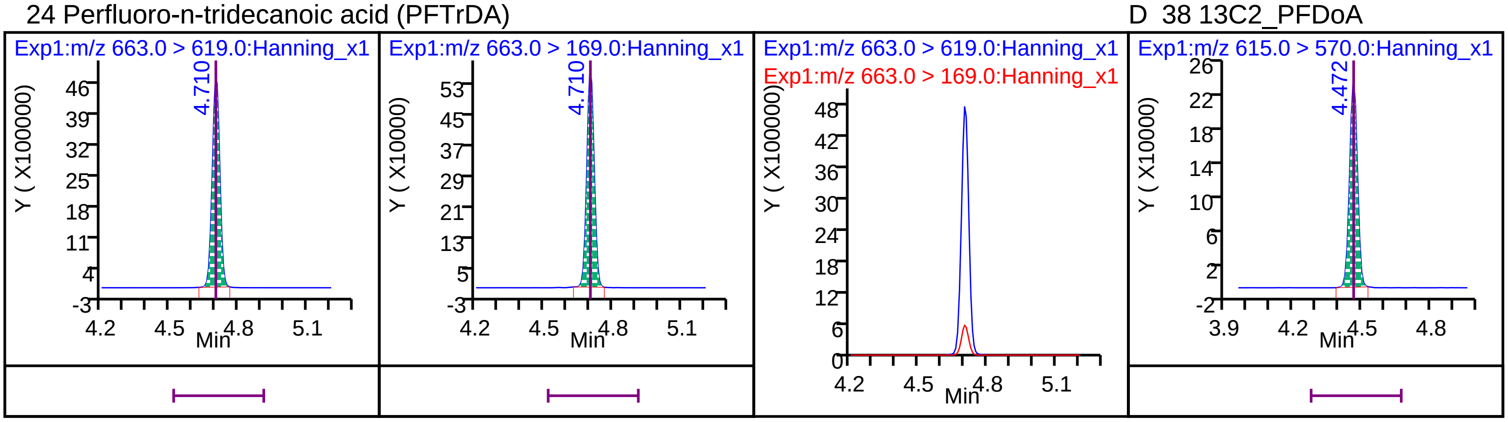
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



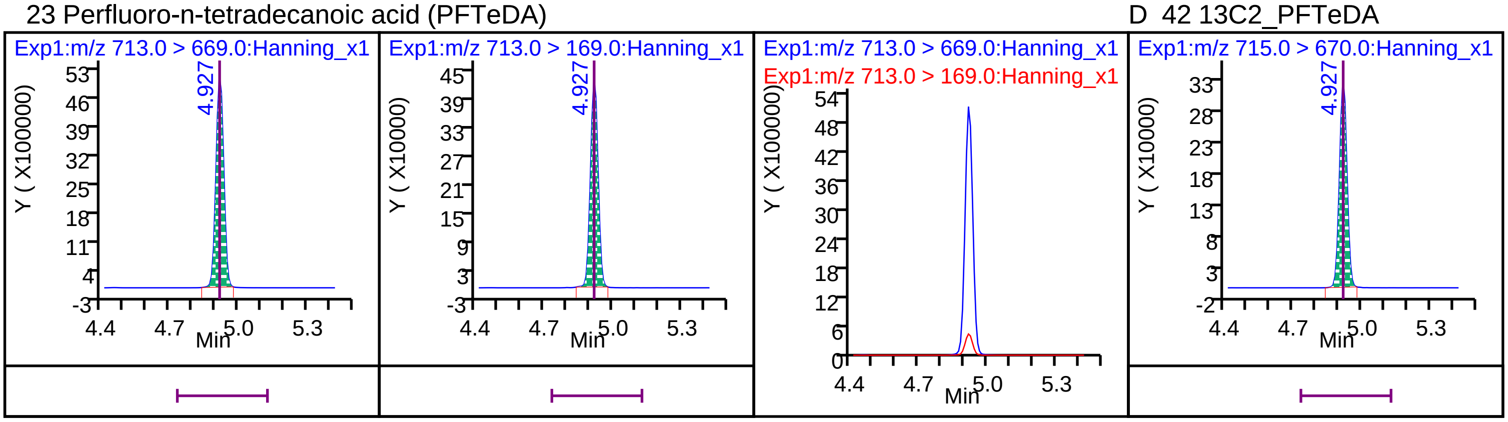
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



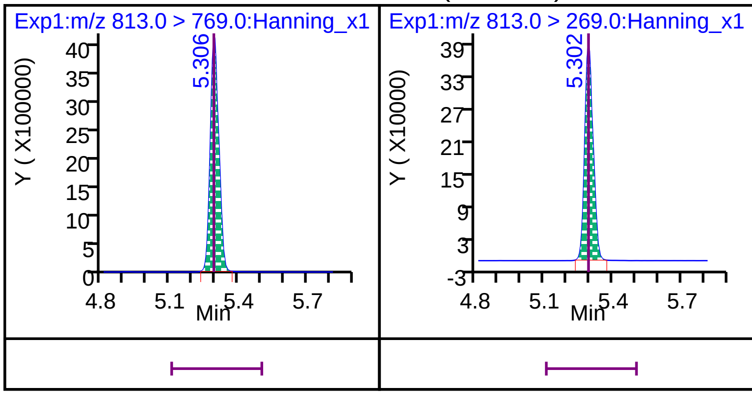
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



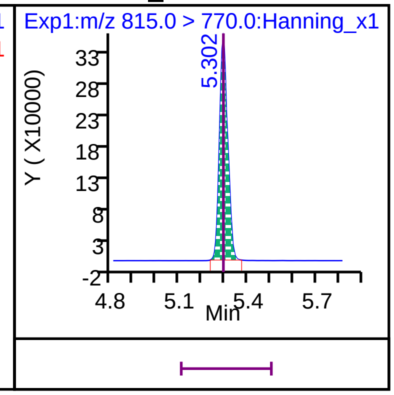
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



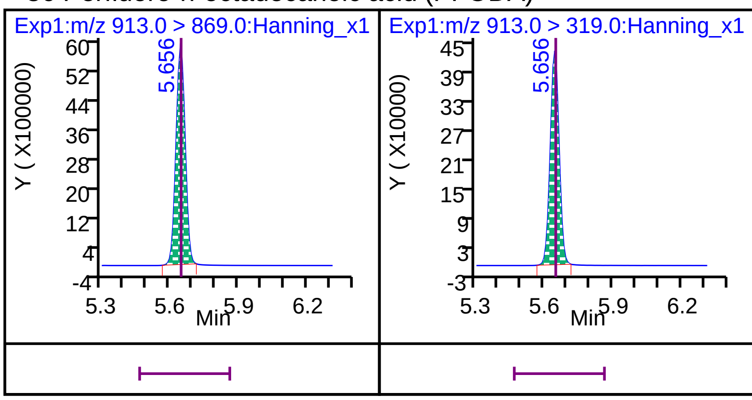
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



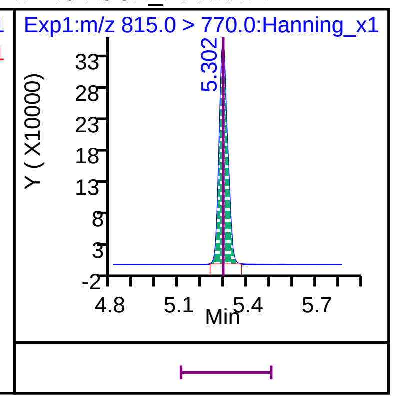
D 40 13C2_PFHxDA



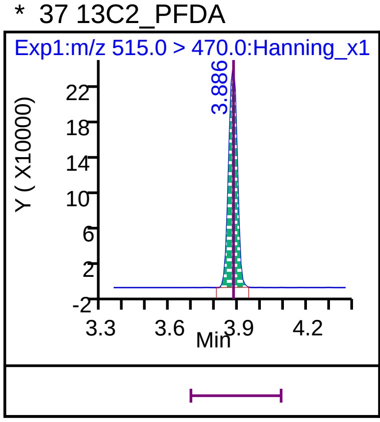
36 Perfluoro-n-octadecanoic acid (PFODA)



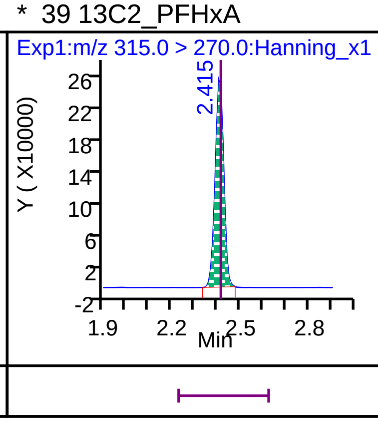
D 40 13C2_PFHxDA



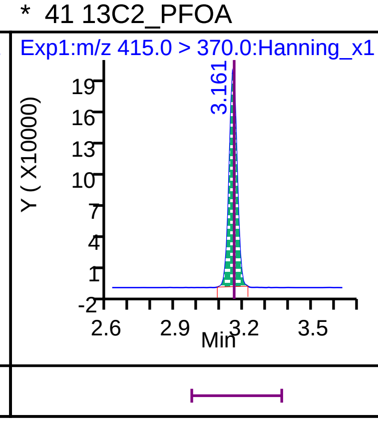
* 37 13C2_PFDA



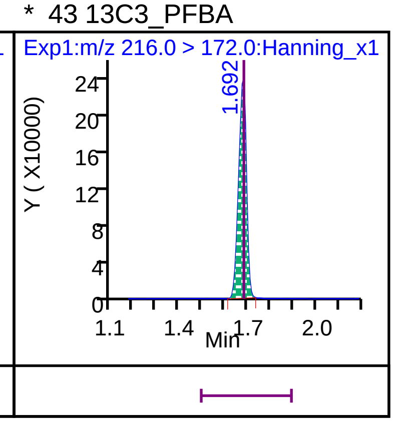
* 39 13C2_PFHxA



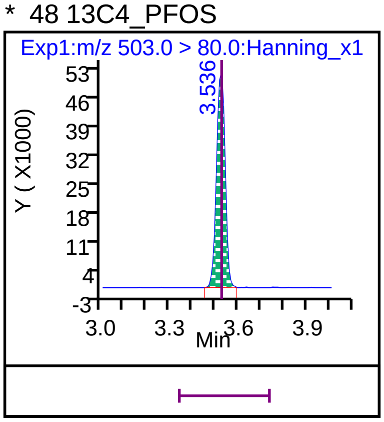
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

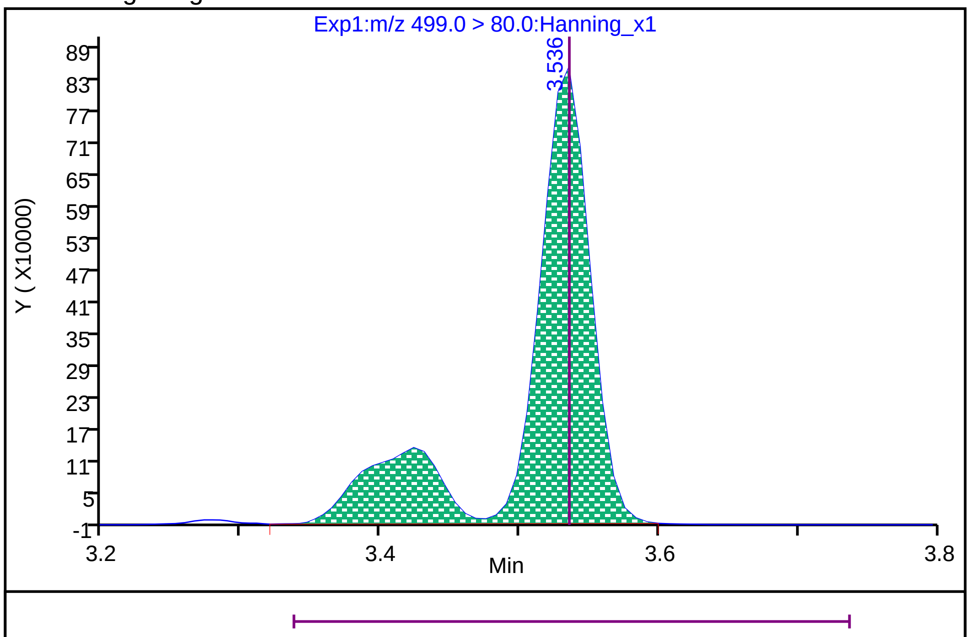
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621024.d		
Injection Date:	16-Nov-2021 18:16:36	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICAL 20000_SVLC-1749
Sample Info:	F.L. ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin

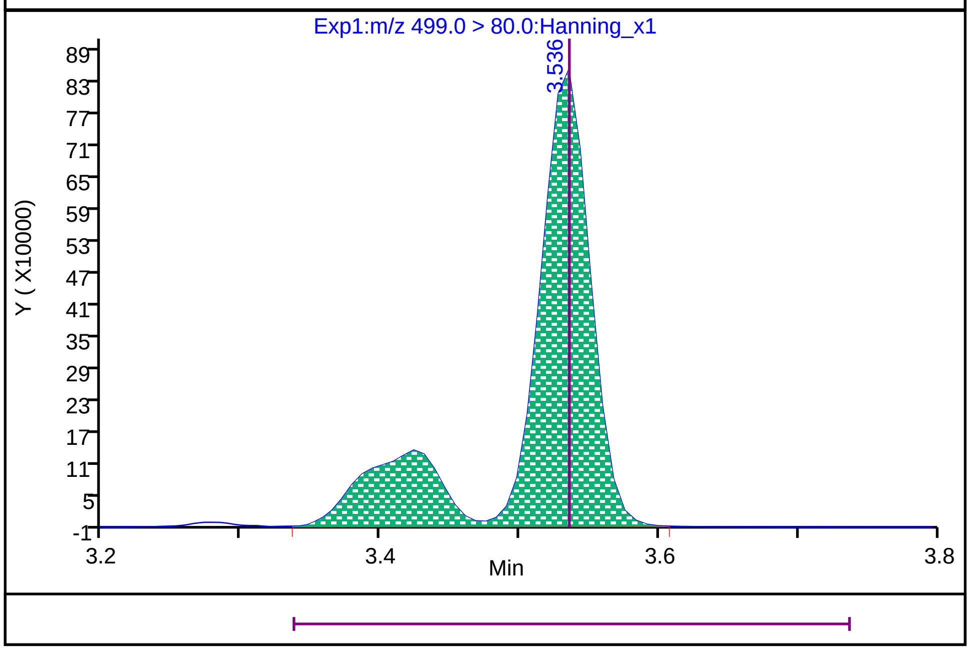
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.536
Area: 2646543
Amount: 17954
Amount Units: ng/L



RT: 3.536
Area: 2675979
Amount: 18247
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:45

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621025.d		
Injection Date:	16-Nov-2021 18:27:12	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	11
Lab Sample ID:	ID IBLK B	Lab Prep. Batch:	
Sample Info:	ID IBLK B	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.689	1.692	0	728296	19	>100:1			1001.00	1167.26	112.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.692		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.062	2.067	0	674391	16	>100:1			1001.00	1164.44	112.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.067		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.114	2.120	0	197193	15	>100:1			1001.00	1136.25	113.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.120		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.460		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.379	2.389	0	126806	17	>100:1			5005.00	5807.19	110.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.389		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.423	2.424	0	788416	18	>100:1			1001.00	1216.55	114.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.424		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.530	2.540	0	1293010	18	>100:1			5005.00	5774.51	111.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.540		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.789	2.791	0	602594	17	>100:1			1001.00	1141.72	111.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.791		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.799	2.809	0	149222	16	>100:1			1001.00	1168.39	109.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.809		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.827		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.174		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.138	3.141	0	94236	20	>100:1			5005.00	5491.37	104.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.141		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.158	3.168	0	625273	21	>100:1			1001.00	1207.11	112.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.168		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.533	3.537	0	124580	20	>100:1			1001.00	1000.64	94	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.537		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.740		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.879		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.178		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.349	4.338	1/1	1152	22	10:1			2.7307	2.7307		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.681		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.533	3.537	0	724185	19	>100:1			1001.00	1122.38	104.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.537		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.850	3.846	1	276112	18	>100:1			1001.00	1094.96	100.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.846		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.875	3.879	0	100791	18	>100:1			5005.00	6027.49	114.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.879		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.482		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.883	3.887	0	666442	18	>100:1			1001.00	1169.48	113.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.887		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.047	4.045	1	802210	16	>100:1			5005.00	5873.22	117.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.045		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.199	4.196	1	747062	16	>100:1			5005.00	6152.71	122.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.206		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.199	4.196	1	746004	16				1001.00	1149.13	112.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.196		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.270	4.267	1	98404	17	>100:1			1001.00	1122.89	111.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.287		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.290	4.298	0	57913	16	>100:1			1001.00	1185.84	115.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.298		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.437	1	127160	20	>100:1			1001.00	1200.57	111.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.455		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.459	4.464	0	50240	16	>100:1			1001.00	1146.74	109.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.473		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.477	4.473	1	686140	16	>100:1			1001.00	1149.55	109.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.473		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.711		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.924	4.928	0	864392	17	>100:1			1001.00	1146.24	108.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.928		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.301	5.302	0	1016173	23	>100:1			1001.00	1130.11	109.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.301	5.302	0/0	9601	19	42:1	Target = 11.65		13.960	13.960		
813 > 269	40	5.296	5.302		697	16	18:1	13.77 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.663	5.660	1/1	5499	18	0.954:1	Target = 15.15		5.7570	5.7570		
913 > 319	40	5.648	5.660		377	23	11:1	14.58 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.883	3.887	0	676813	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.423	2.424	0	726317	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.164	3.168	0	566876	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.689	1.692	0	632833	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.533	3.537	0	125645	18	>100:1			200.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

Report Date: 22-Nov-2021 08:59:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

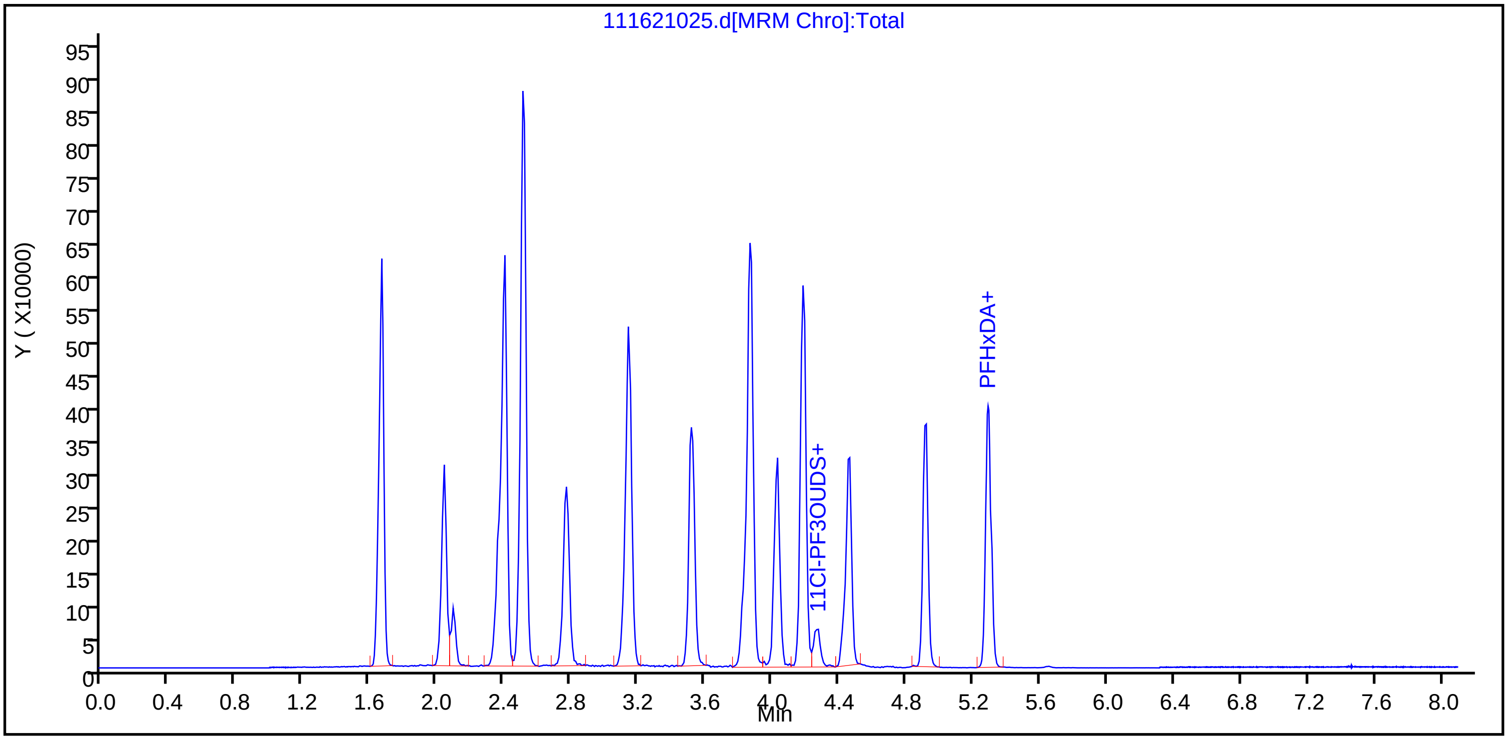
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621025.d

Injection Date: 16-Nov-2021 18:27:12 Inst. ID: LCMSMS02.i

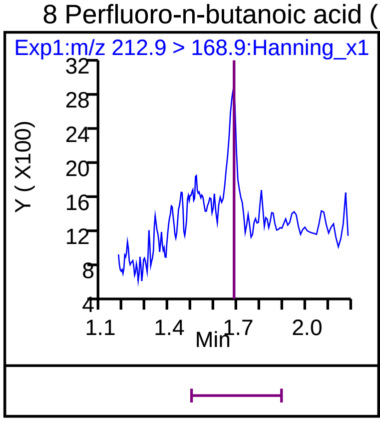
Client ID: Lab ID: ID IBLK B

Sample Info: ID IBLK B

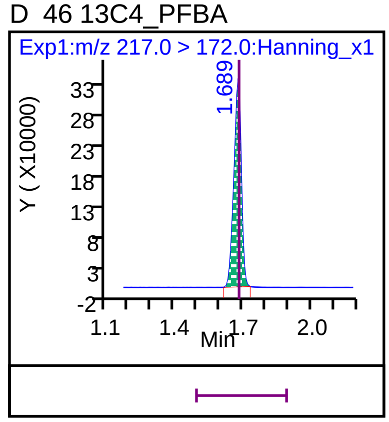
Dil. Factor: 1 Operator: Justin Gavin



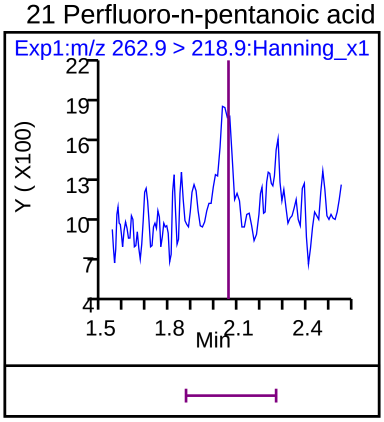
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



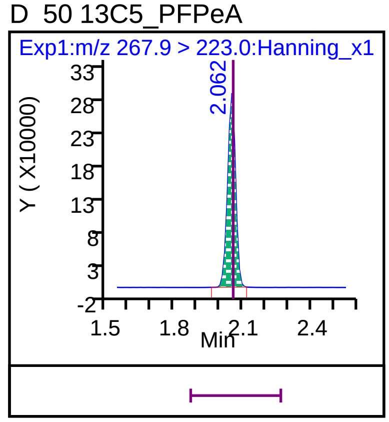
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)

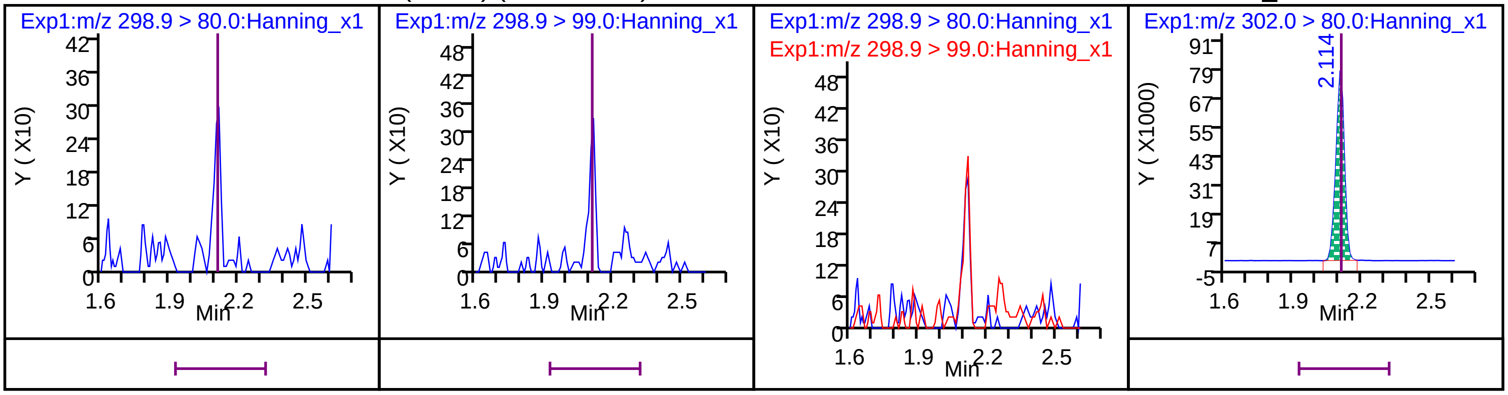


D 50 13C5_PFPeA

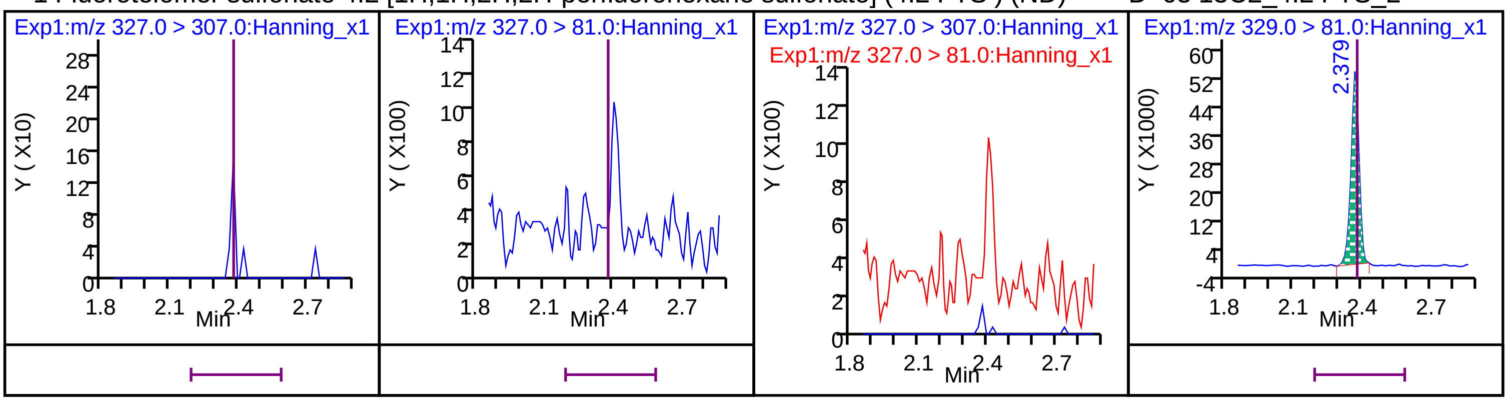


Report Date: 22-Nov-2021 08:59:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621025.d

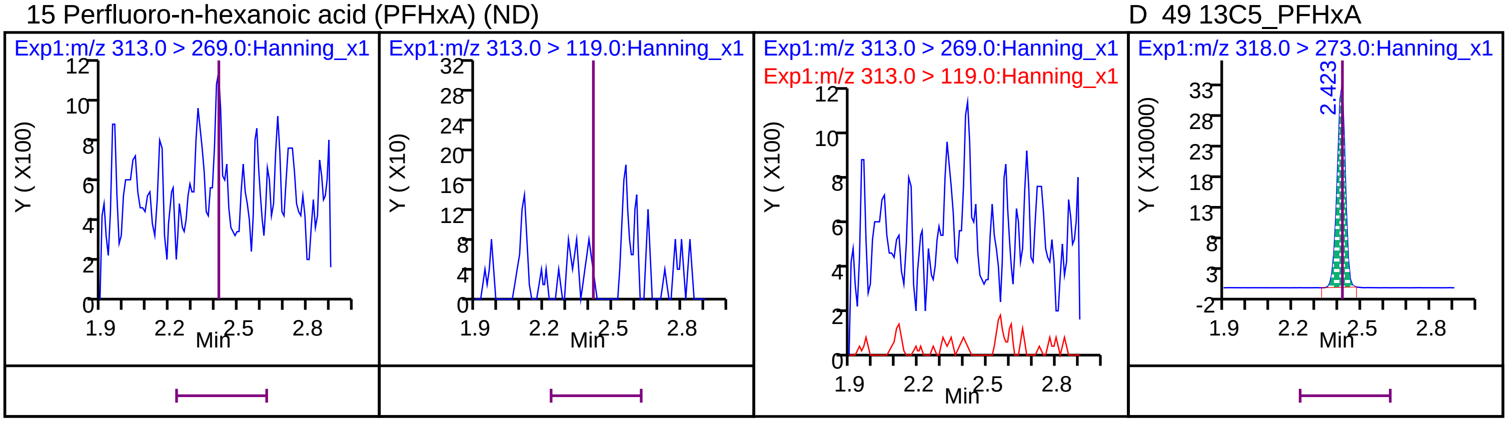
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



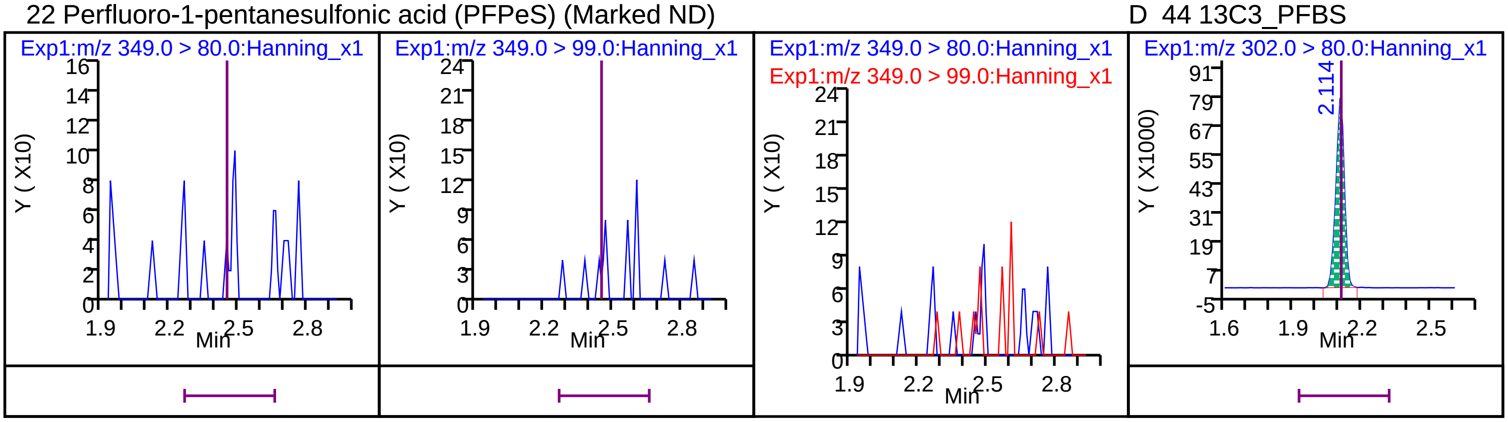
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



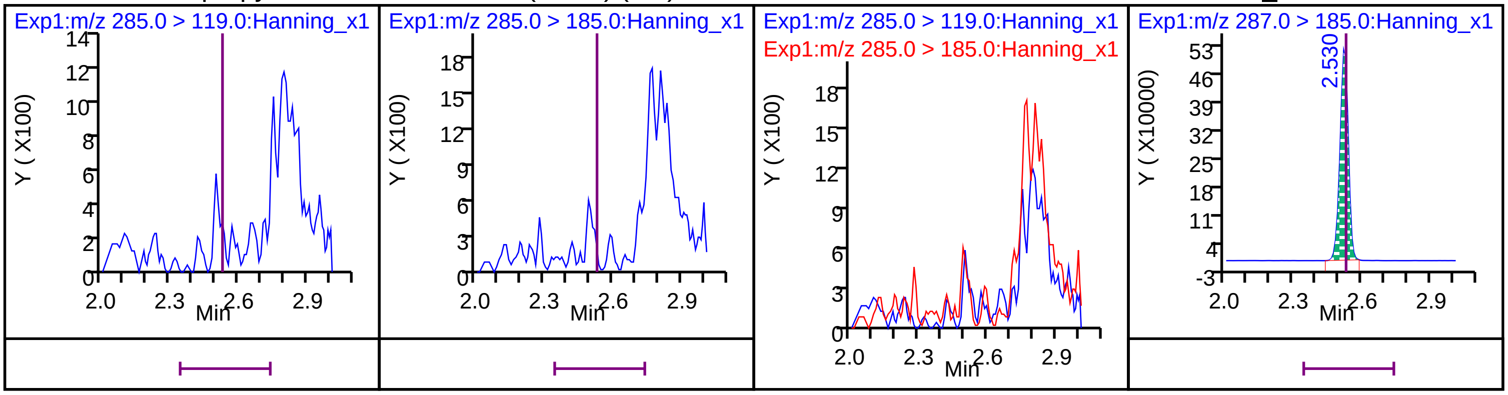
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



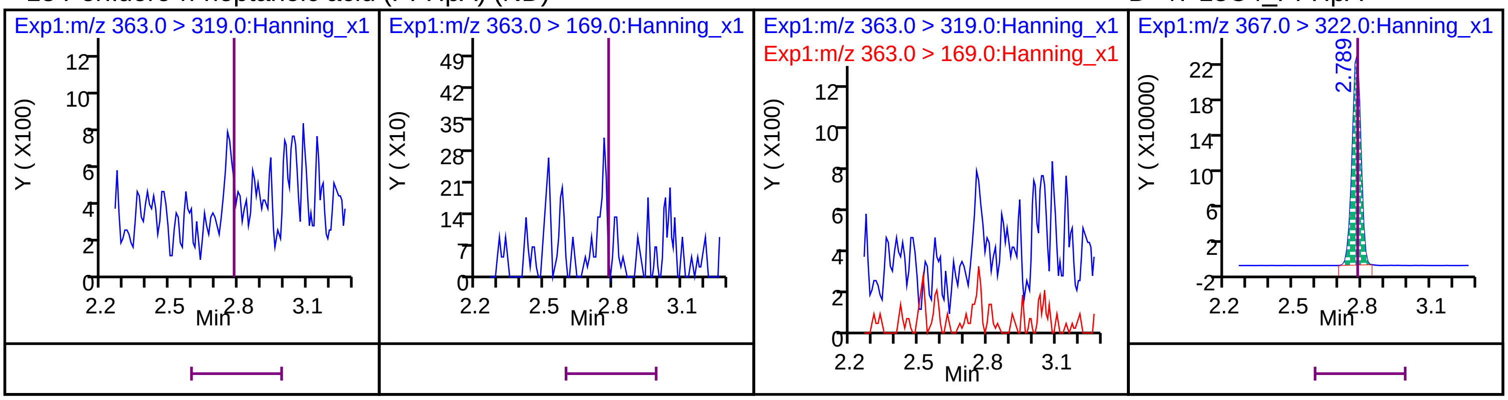
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



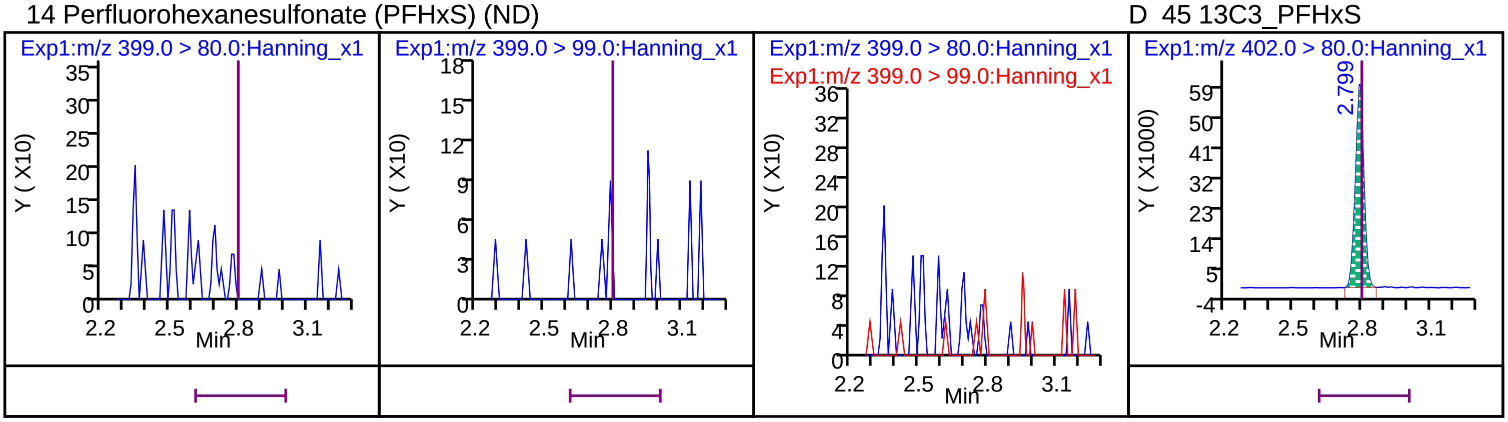
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



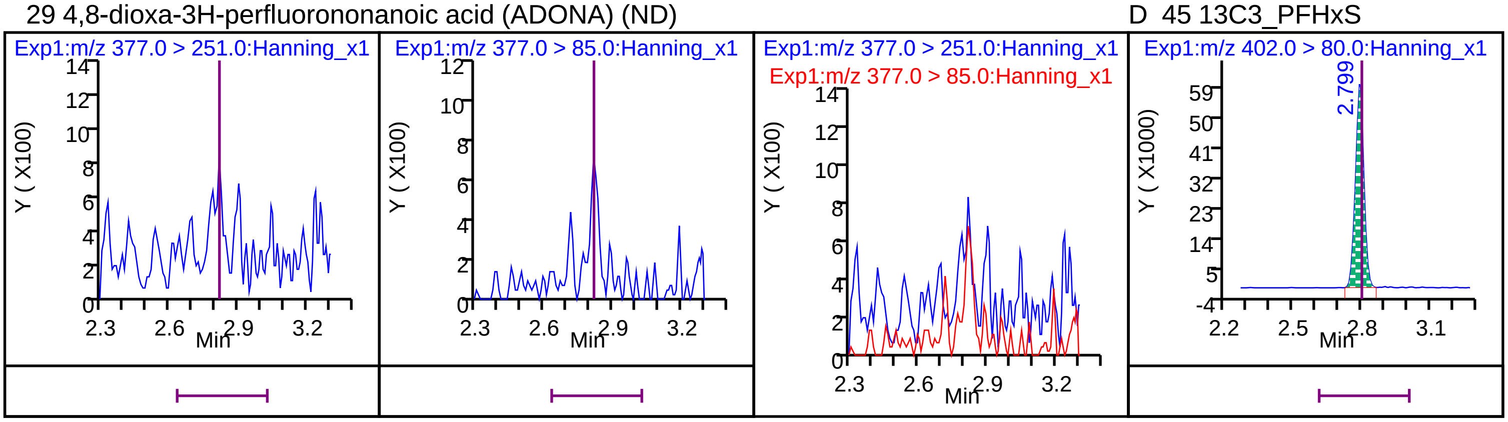
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



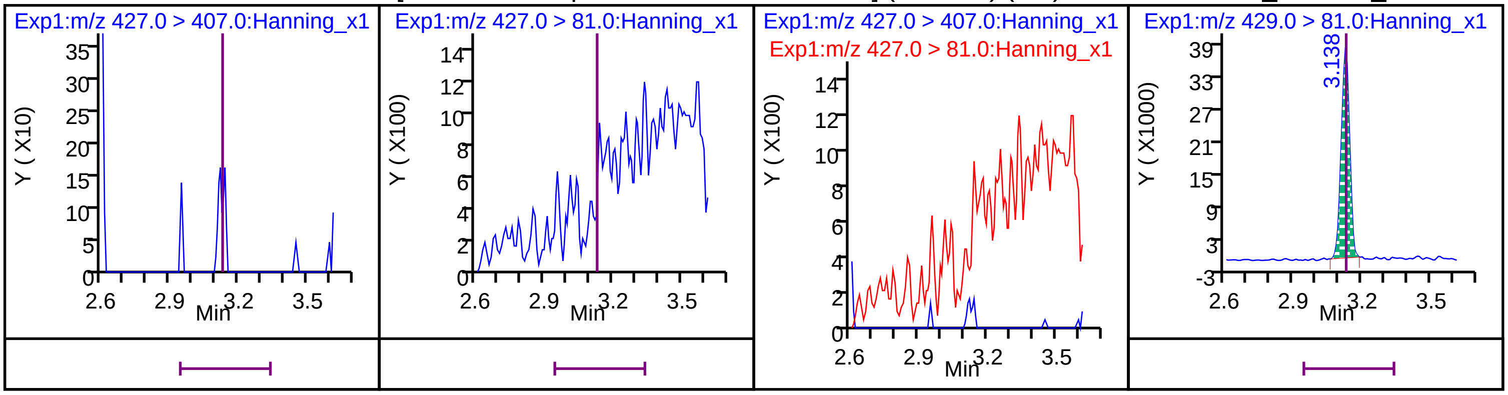
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



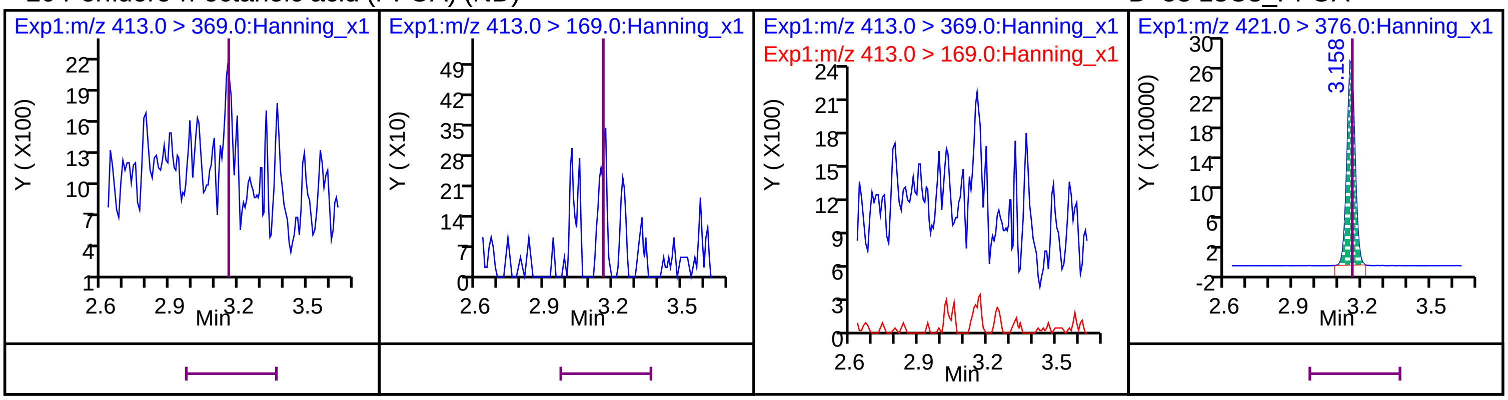
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



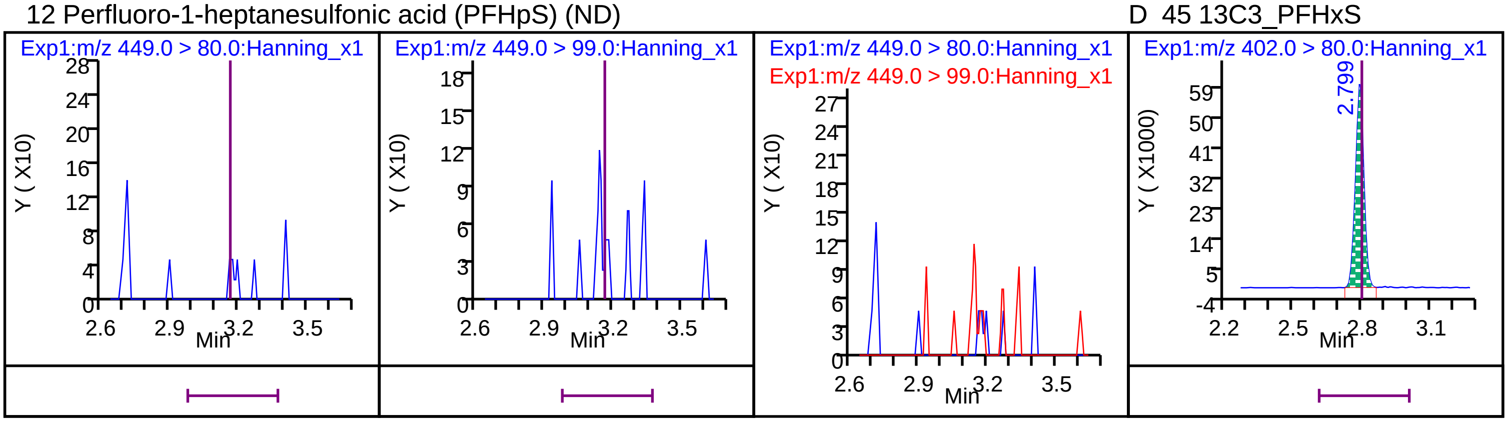
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



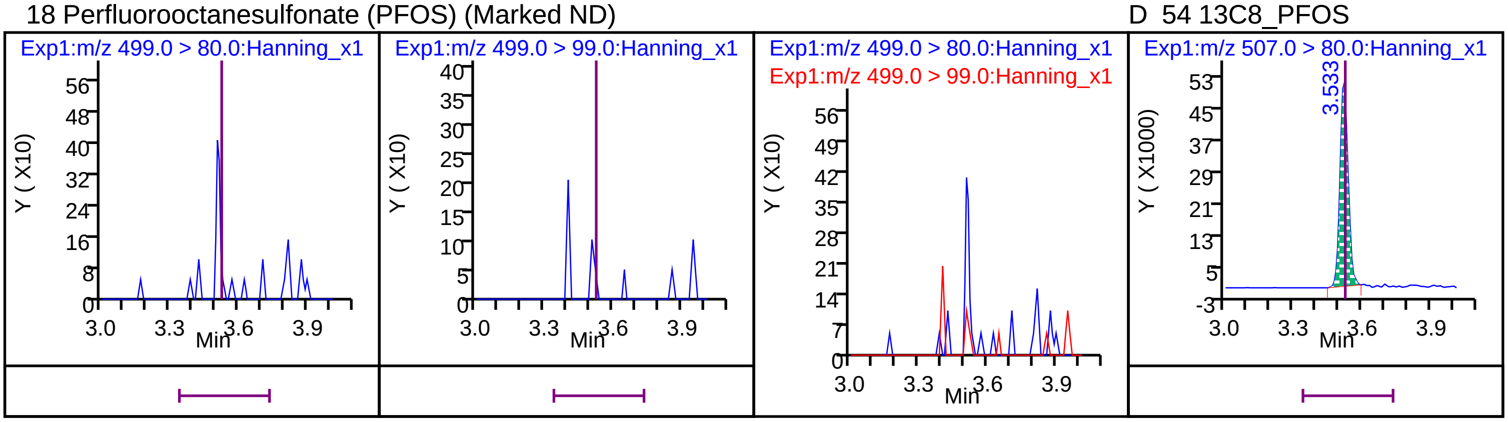
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



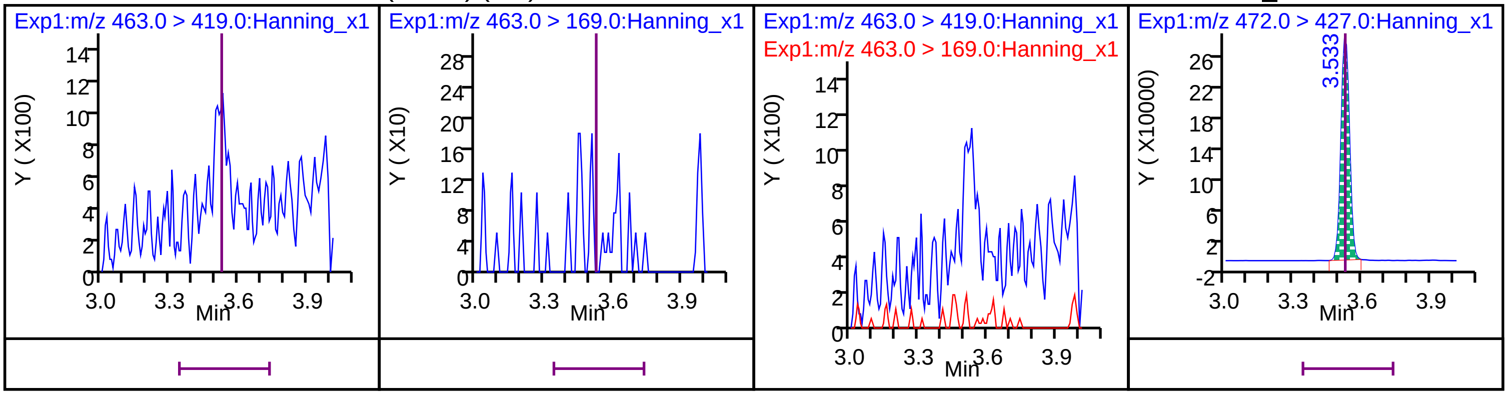
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



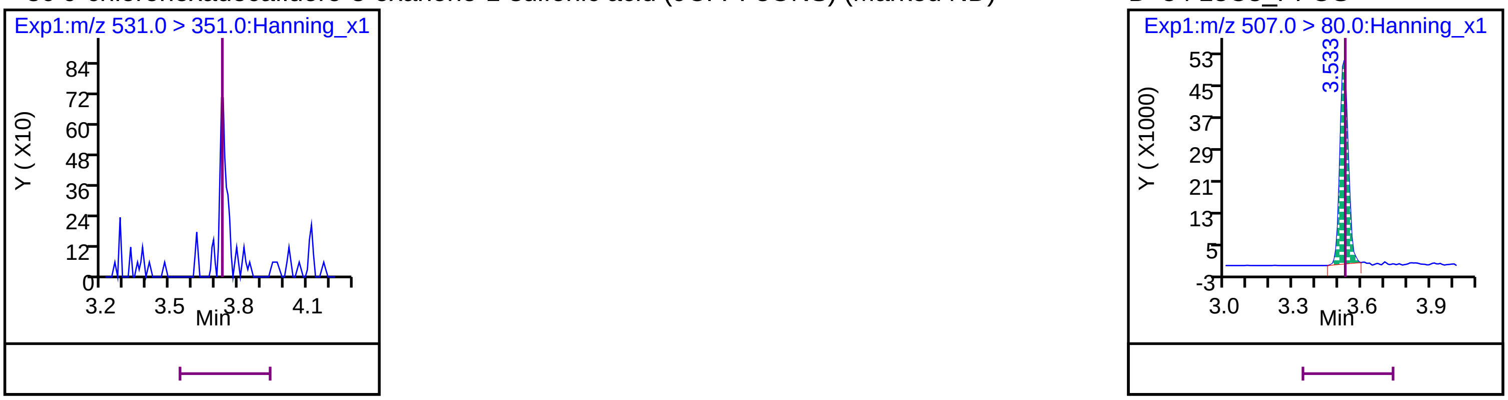
18 Perfluorooctanesulfonate (PFOS) (Marked ND) D 54 13C8_PFOS



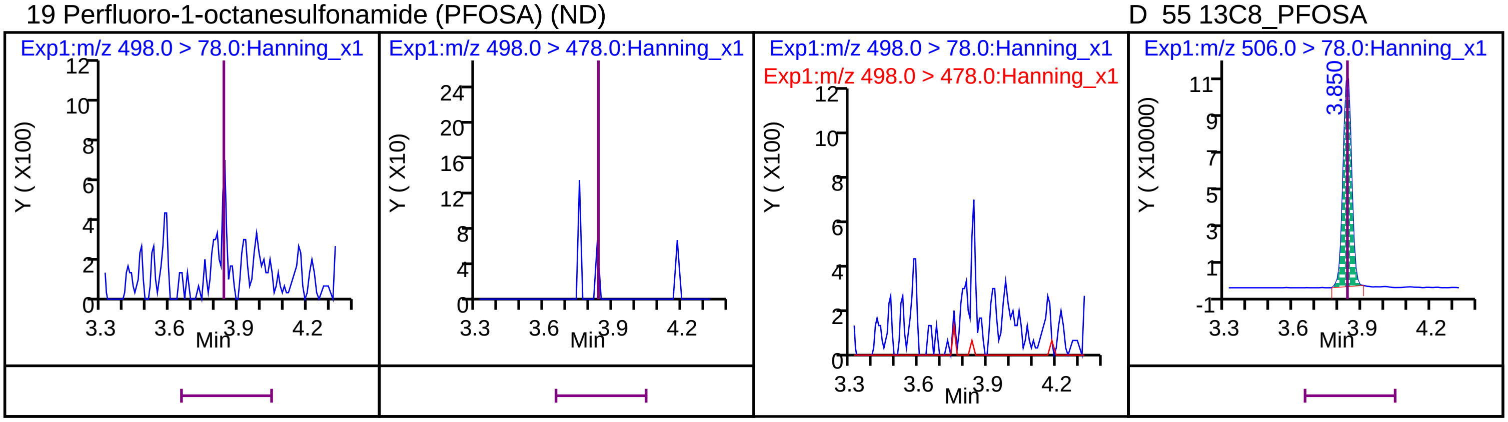
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



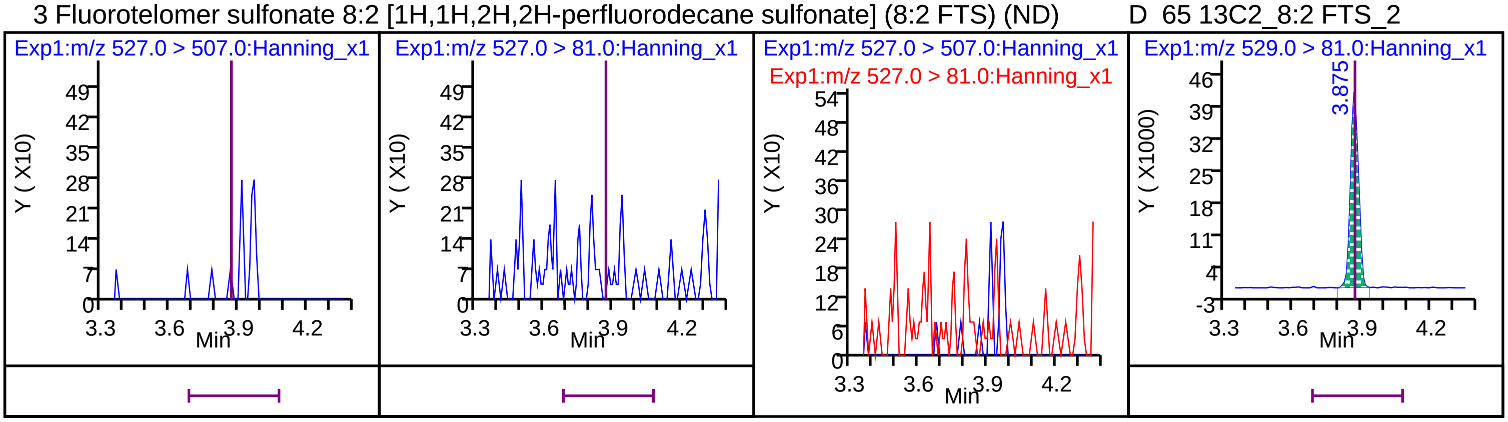
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



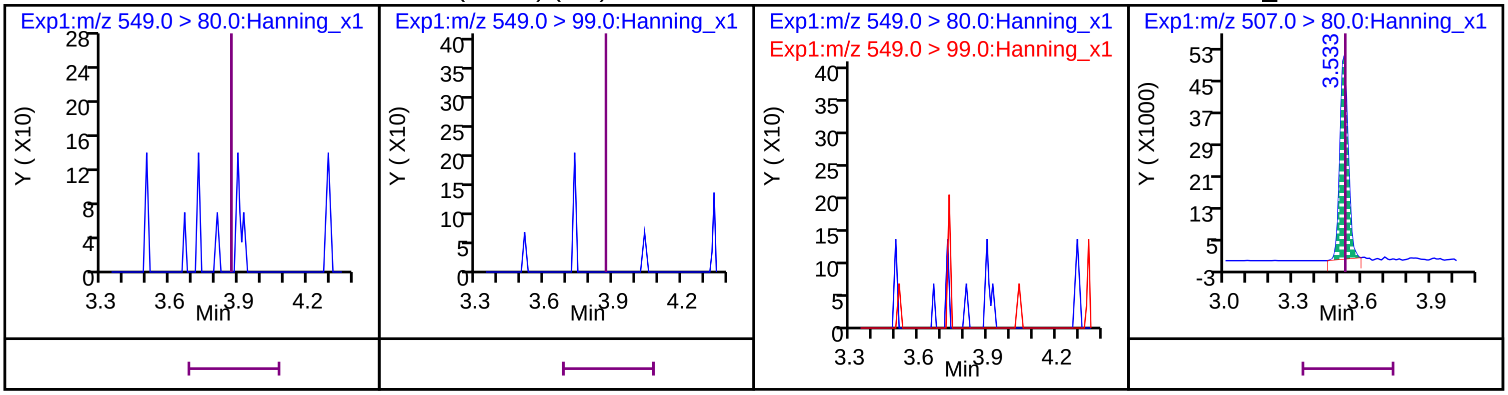
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



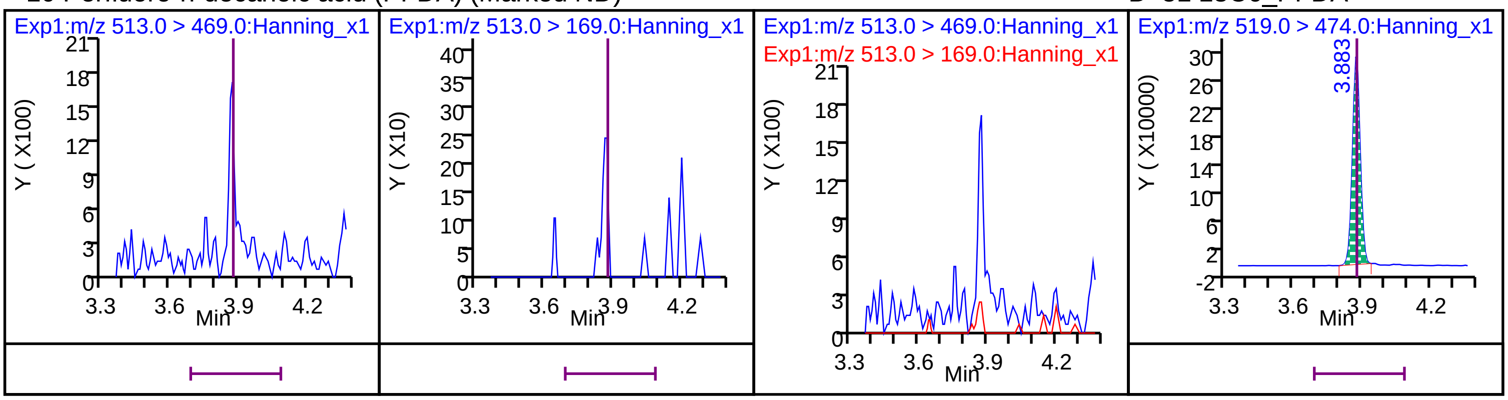
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



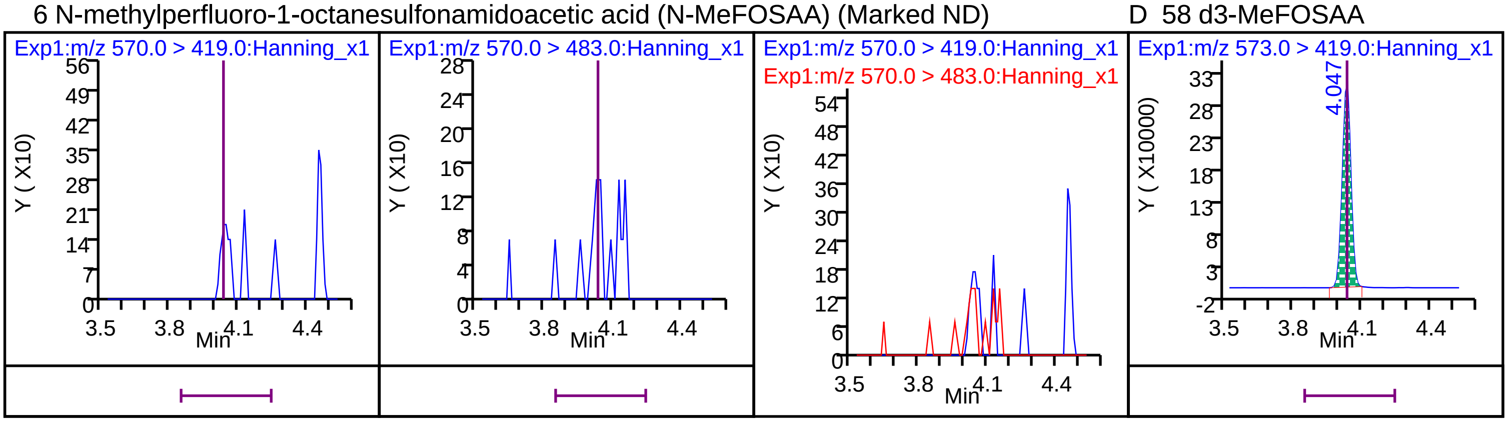
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



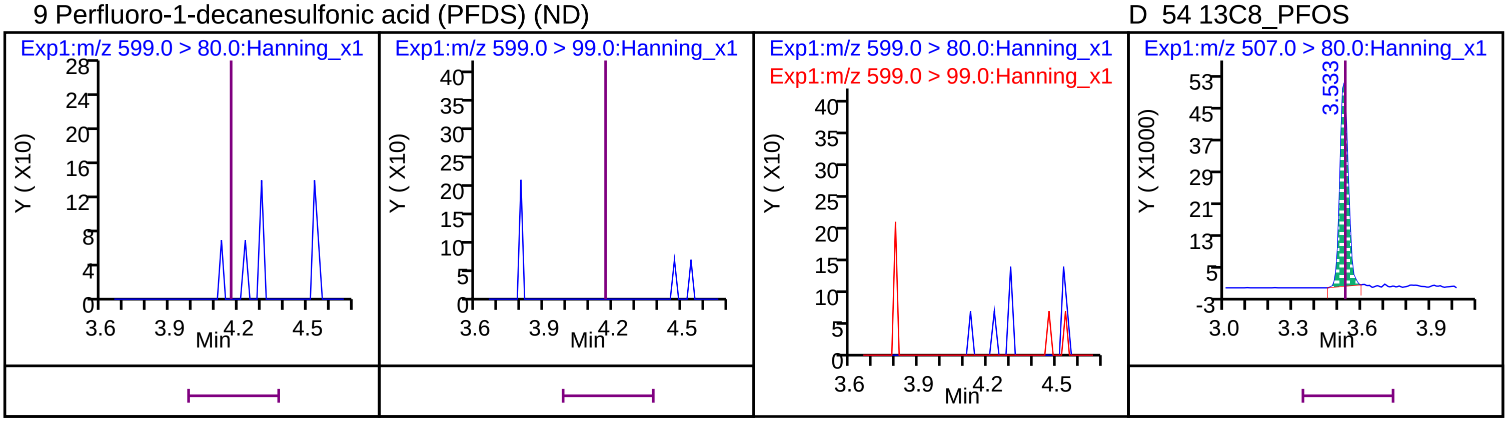
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA

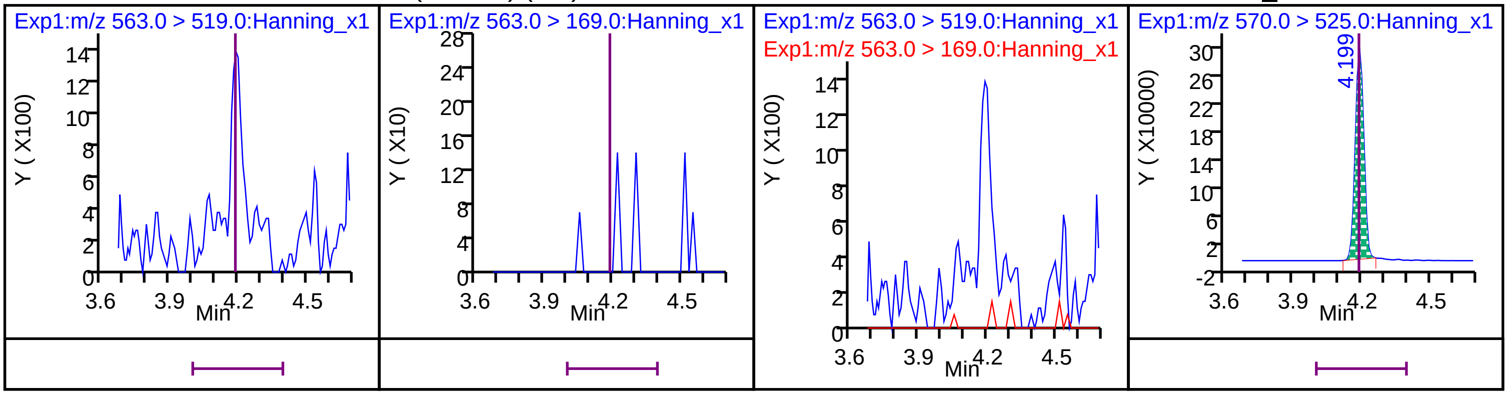


9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

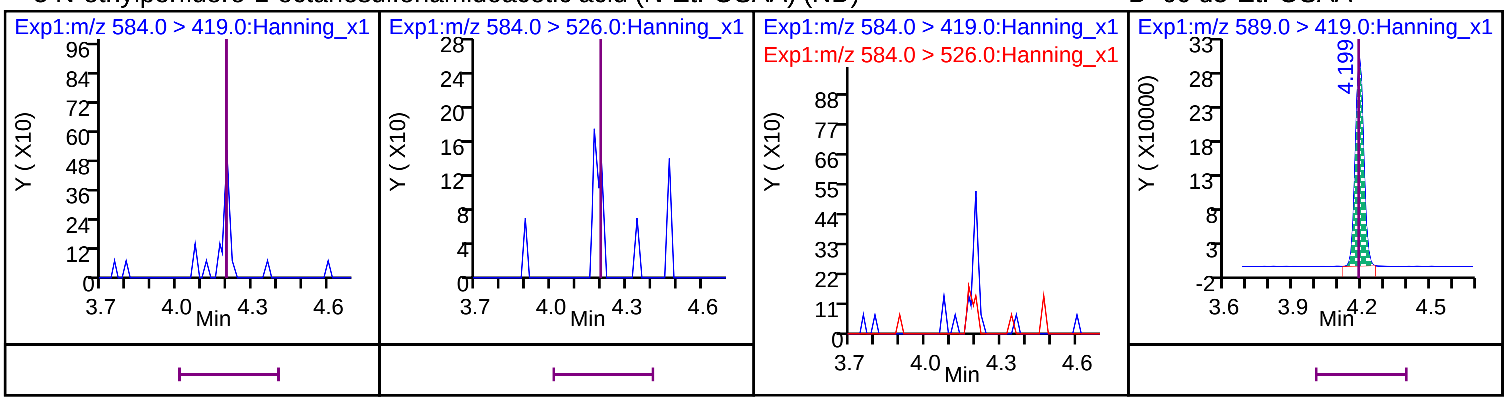


Report Date: 22-Nov-2021 08:59:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621025.d

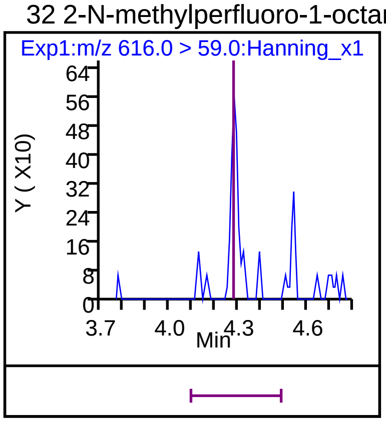
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

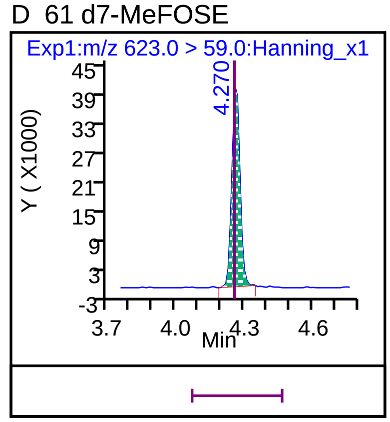


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

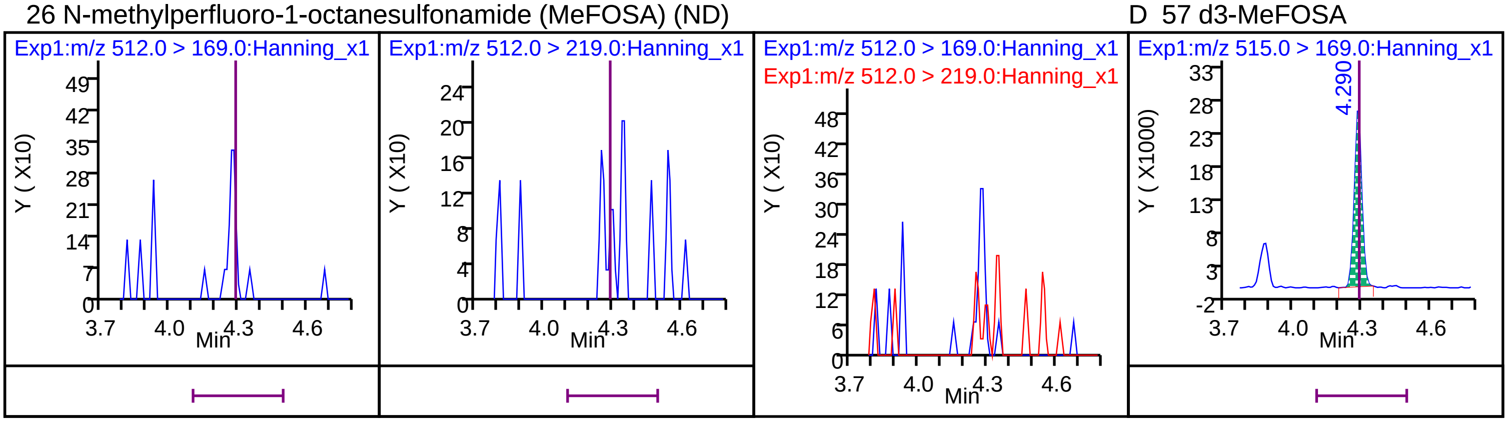


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

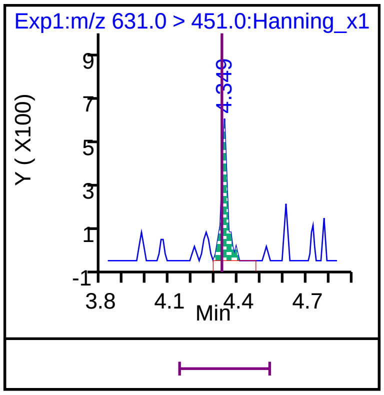




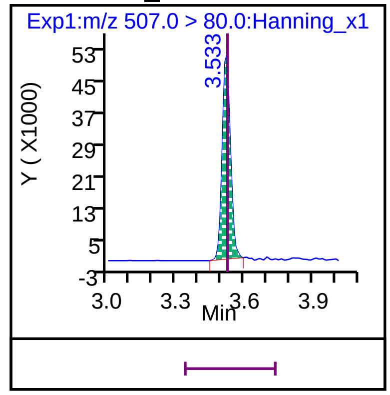
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



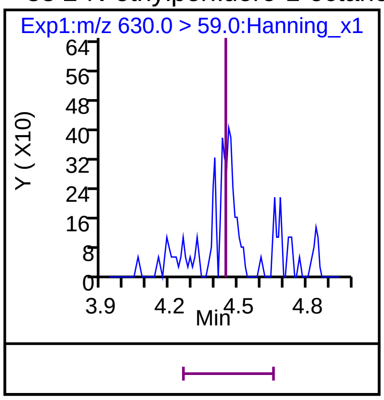
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



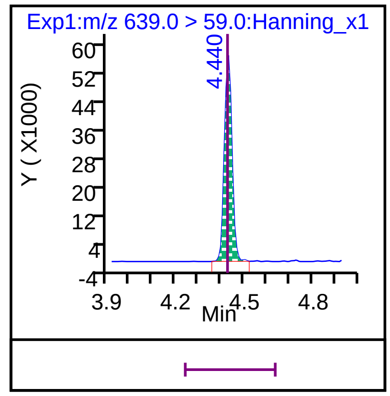
D 54 13C8_PFOS



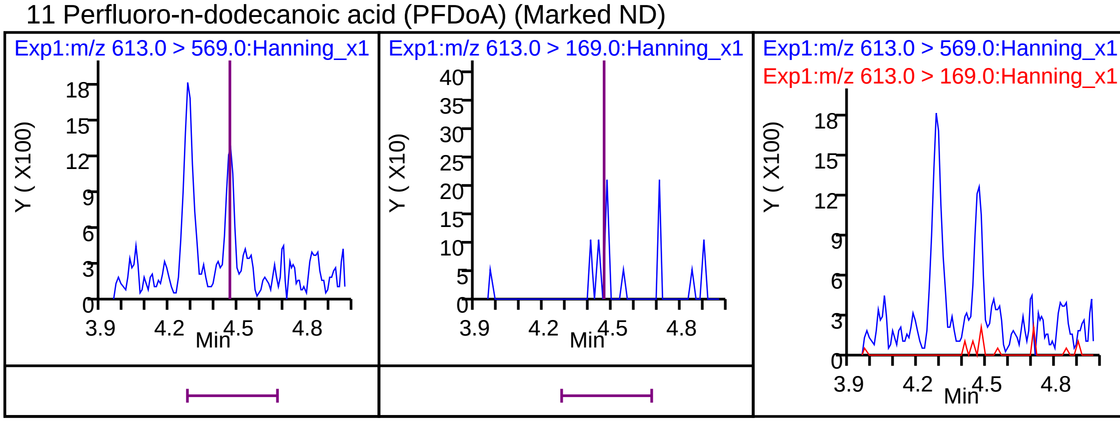
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)



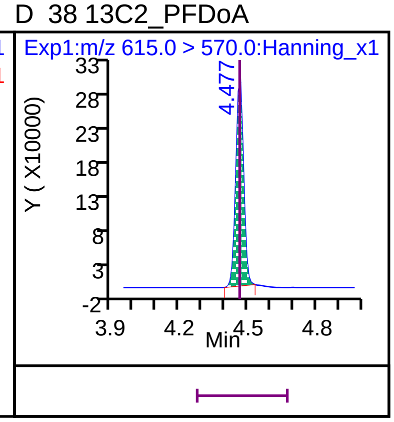
D 62 d9-EtFOSE



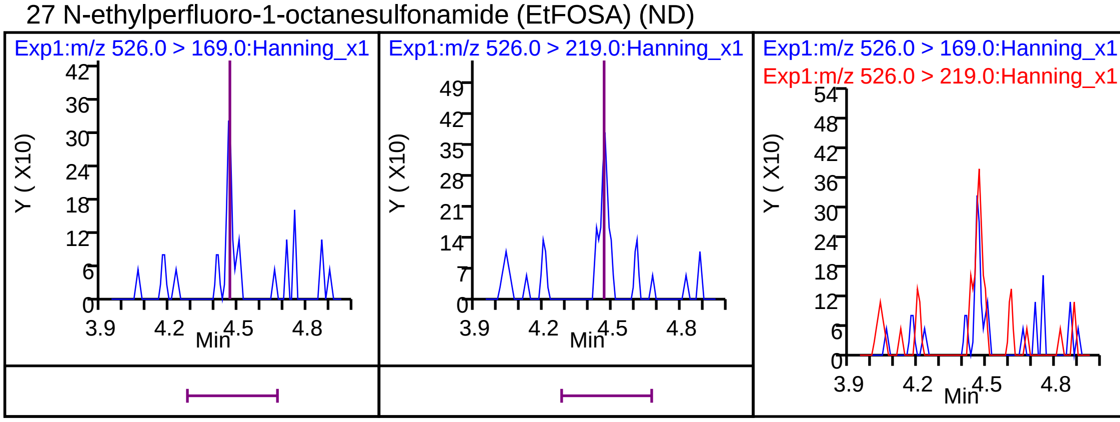
11 Perfluoro-n-dodecanoic acid (PFDoA) (Marked ND)



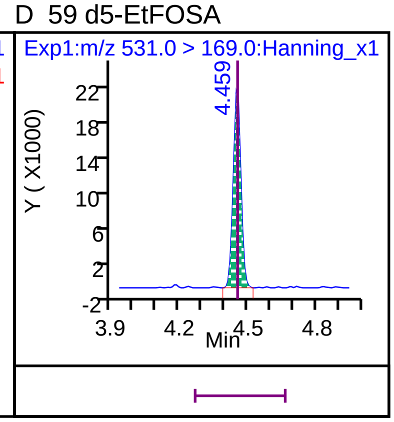
D 38 13C2_PFDoA



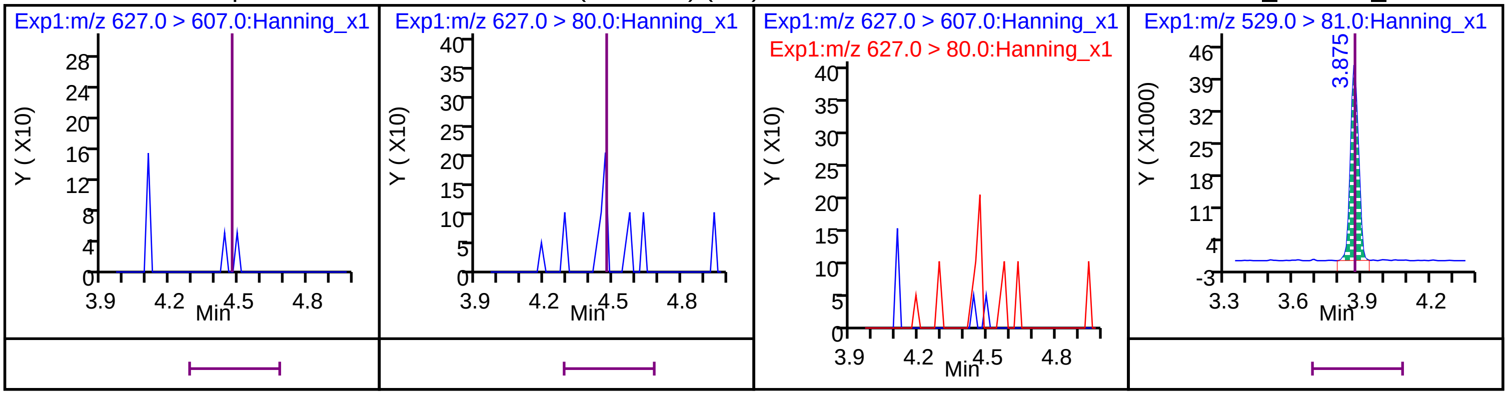
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



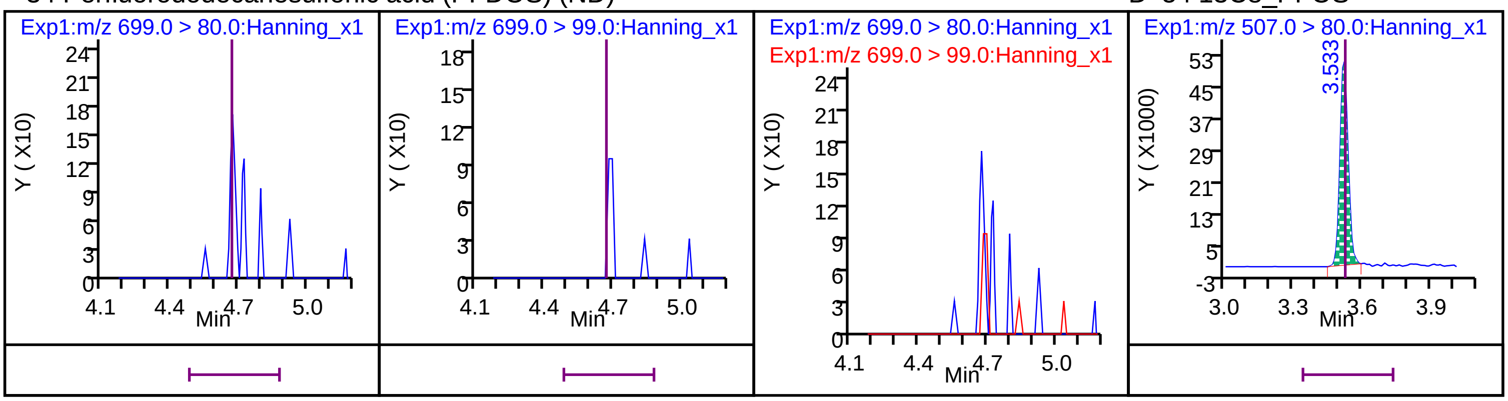
D 59 d5-EtFOSA



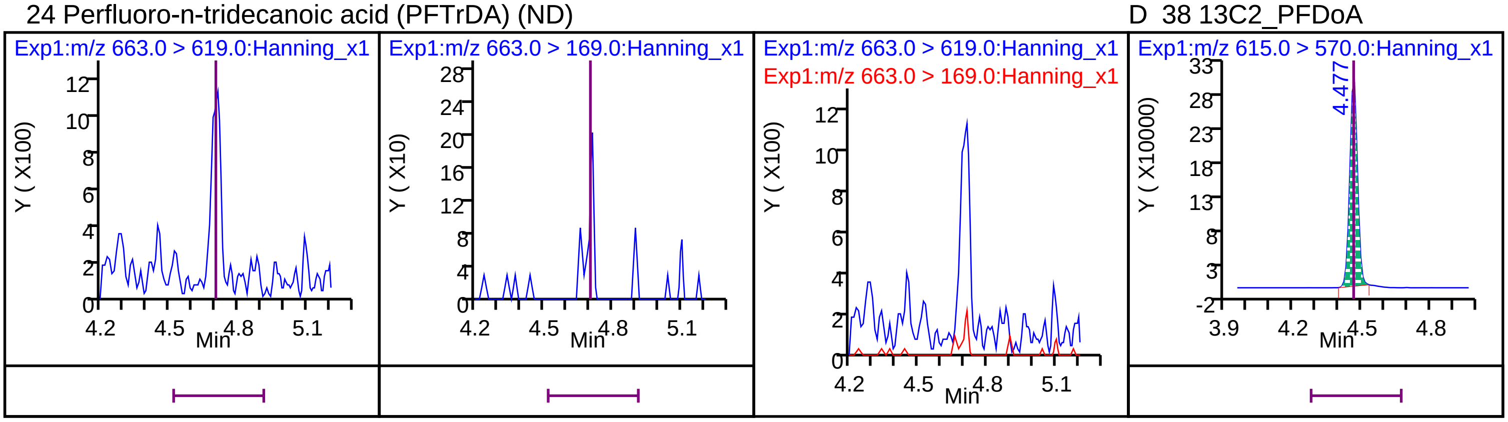
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



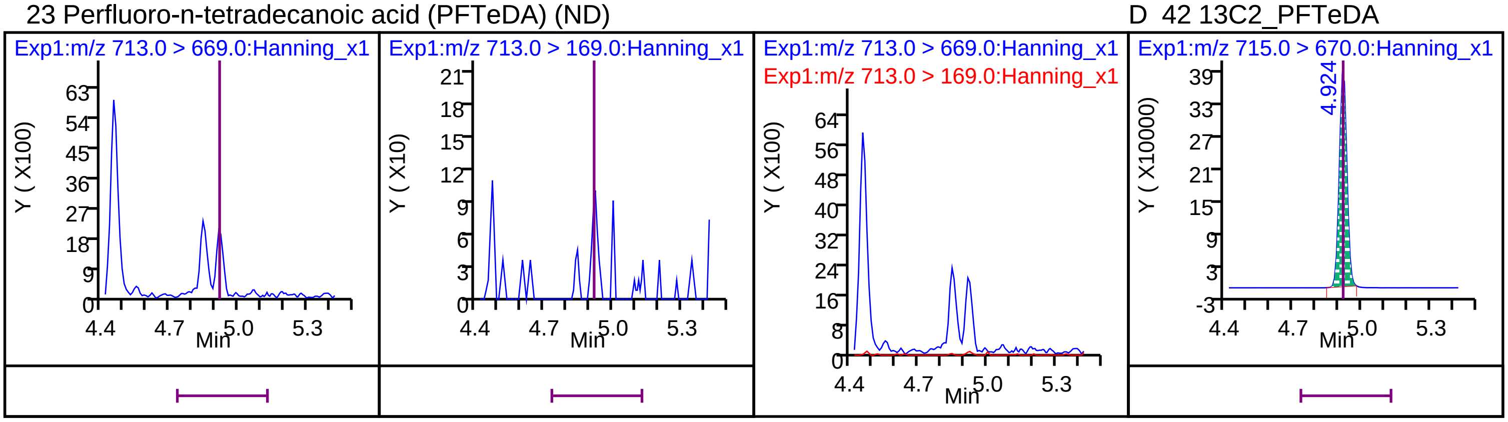
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA

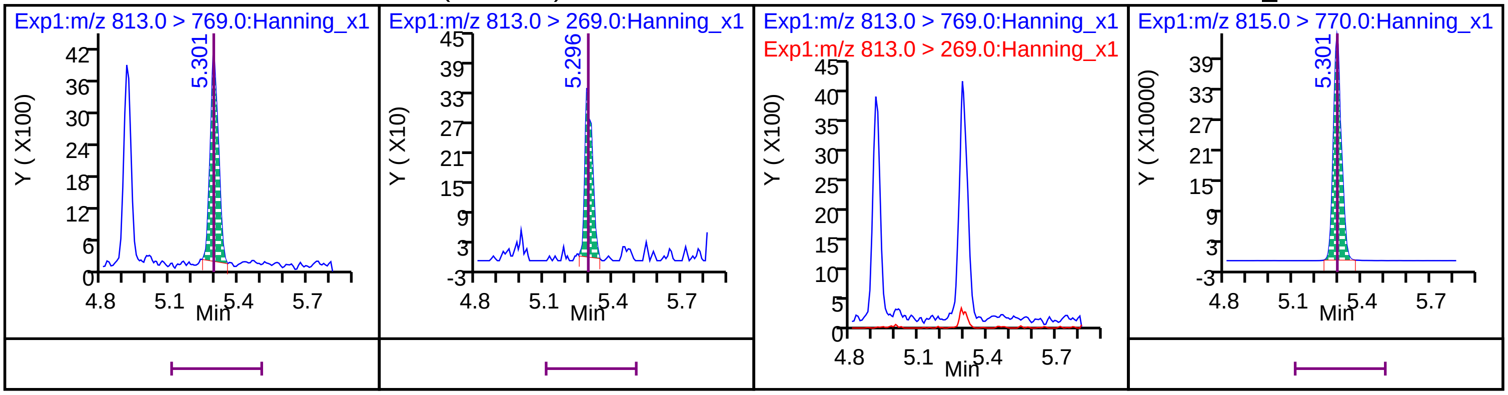


23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA

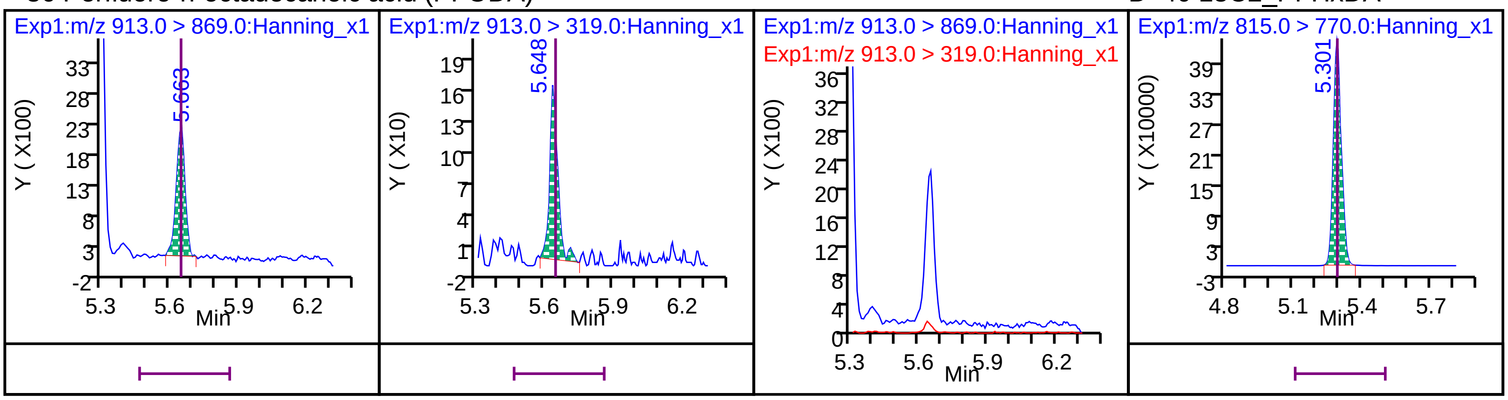


Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621025.d

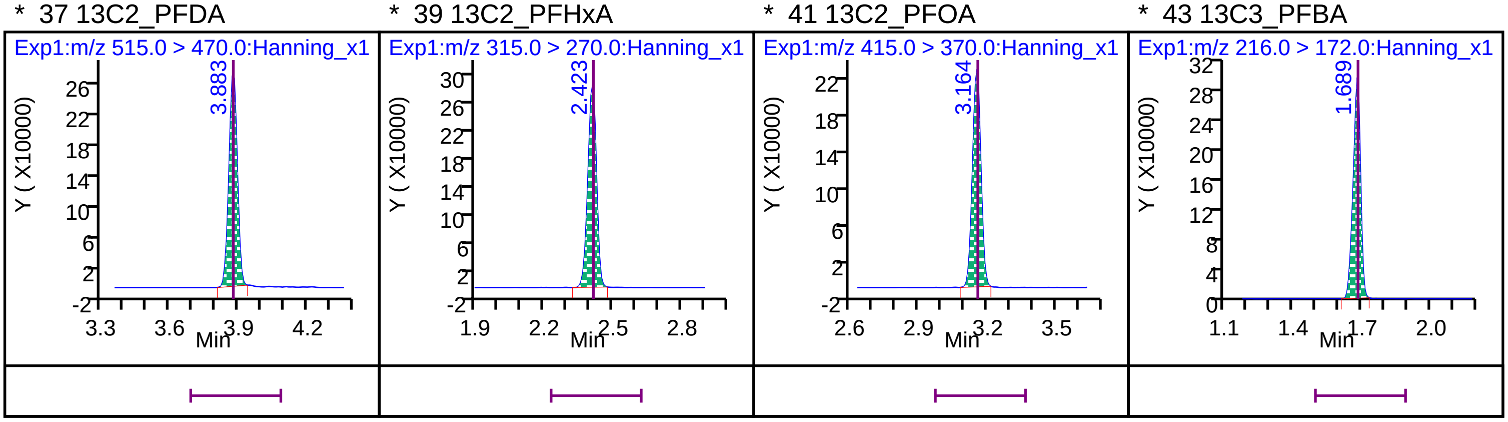
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



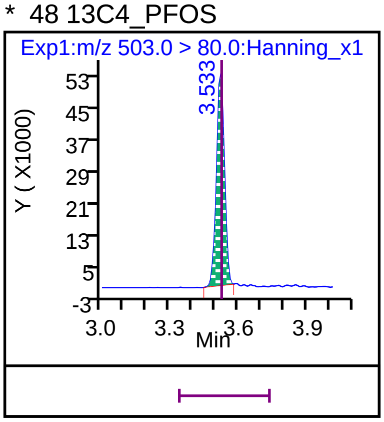
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Initial Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621026.d
Injection Date: 16-Nov-2021 18:37:42 Injection Vol: 10.0 uL
Sample Type: ICV Auto Sampler: 12
Sample Info: F.L. ICV 500_SVLC-1734 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			500.00	441.47	88.3	70 - 130
D 46 13C4_PFBA	646253	727057			112.5	50 - 150
D 50 13C5_PFPeA	597525	662985			111	50 - 150
21 PFPeA			500.00	455.52	91.1	70 - 130
7 PFBS			442.50	403.88	91.3	70 - 130
D 44 13C3_PFBS	173893	194000			111.6	50 - 150
1 4:2 FTS			467.50	397.04	84.9	70 - 130
D 63 13C2_4:2 FTS_2	114363	116773			102.1	50 - 150
D 49 13C5_PFHxA	690660	738168			106.9	50 - 150
15 PFHxA			500.00	441.99	88.4	70 - 130
22 PFPeS			470.00	449.41	95.6	70 - 130
28 GenX			2500.00	2404.22	96.2	70 - 130
D 66 13C3_GenX	1156071	1199983			103.8	50 - 150
D 47 13C4_PFHpA	541987	612918			113.1	50 - 150
13 PFHpA			500.00	452.78	90.6	70 - 130
D 45 13C3_PFHxS	135990	145078			106.7	50 - 150
14 PFHxS			456.00	373.56	81.9	70 - 130
29 ADONA			2355.00	2148.65	91.2	70 - 130
D 64 13C2_6:2 FTS_2	90012	95843			106.5	50 - 150
2 6:2 FTS			475.00	436.68	91.9	70 - 130
20 PFOA			500.00	437.43	87.5	70 - 130
D 53 13C8_PFOA	556700	615975			110.6	50 - 150
12 PFHpS			475.00	433.85	91.3	70 - 130
18 PFOS			462.75	390.34	84.4	70 - 130
17 PFNA			500.00	457.47	91.5	70 - 130
D 56 13C9_PFNA	690404	720580			104.4	50 - 150
D 54 13C8_PFOS	132590	143908			108.5	50 - 150
30 9Cl-PF3ONS			2330.00	2012.34	86.4	70 - 130
D 55 13C8_PFOSA	274090	267886			97.7	50 - 150
19 PFOSA			500.00	482.65	96.5	70 - 130
16 PFNS			480.00	427.53	89.1	70 - 130
D 65 13C2_8:2 FTS_2	88081	90010			102.2	50 - 150
3 8:2 FTS			480.00	448.09	93.4	70 - 130
10 PFDA			500.00	446.69	89.3	70 - 130
D 51 13C6_PFDA	586322	646224			110.2	50 - 150
6 N-MeFOSAA			500.00	510.69	102.1	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	684495	708095			103.4	50 - 150
9 PFDS			482.50	432.21	89.6	70 - 130
25 PFUdA			500.00	478.70	95.7	70 - 130
D 60 d5-EtFOSAA	610899	684873			112.1	50 - 150
D 52 13C7_PFUdA	665740	739137			111	50 - 150
5 N-EtFOSAA			500.00	542.33	108.5	70 - 130
D 61 d7-MeFOSE	88387	90784			102.7	50 - 150
D 57 d3-MeFOSA	50083	49093			98	50 - 150
31 11Cl-PF3OUDS			2355.00	2072.71	88	70 - 130
D 62 d9-EtFOSE	114206	112209			98.3	50 - 150
D 59 d5-EtFOSA	45730	48172			105.3	50 - 150
11 PFDoA			500.00	444.21	88.8	70 - 130
D 38 13C2_PFDoA	626804	735961			117.4	50 - 150
4 10:2 FTS			2410.00	3021.27	125.4	70 - 130
24 PFTrDA			500.00	492.72	98.5	70 - 130
23 PFTeDA			500.00	460.34	92.1	70 - 130
D 42 13C2_PFTeDA	795861	887532			111.5	50 - 150
D 40 13C2_PFHxDA	929181	948120			102	50 - 150

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621026.d		
Injection Date:	16-Nov-2021 18:37:42	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	12
Sample Info:	F.L. ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.686	1.692	0	727057	20	>100:1			1000.00	1165.28	112.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	1/1	335789	20	>100:1			500.00	441.47		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.056	2.067	0	662985	16	>100:1			1000.00	1144.75	111	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/1	331662	14	>100:1			500.00	455.52		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	194000	15	>100:1			1000.00	1117.85	111.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	97611	14	>100:1	Target = 3.48		442.50	403.88		
298.9 > 99	44	2.120	2.120		29693	15	>100:1	3.28 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.451	2.460	0/-1	77176	17	>100:1	Target = 3.03		470.00	449.41		
349 > 99	44	2.451	2.460		28008	16	>100:1	2.75 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	116773	18	>100:1			5000.00	5347.72	102.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.380	2.389	0/0	20820	18	>100:1	Target = 1.70		467.50	397.04		
327 > 81	63	2.380	2.389		13801	16	28:1	1.50 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.425	2.424	1	738168	18	>100:1			1000.00	1139.02	106.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.425	2.424	1/0	345242	17	>100:1	Target = 18.47		500.00	441.99		
313 > 119	49	2.416	2.424		16859	18	>100:1	20.47 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.532	2.540	0	1199983	18	>100:1			5000.00	5359.05	103.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.532	2.540	0/0	379677	17	>100:1	Target = 0.78		2500.00	2404.22		
285 > 185	66	2.532	2.540		472783	17	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.782	2.791	0	612918	17	>100:1			1000.00	1161.28	113.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.782	2.791	0/0	317349	18	>100:1	Target = 3.92		500.00	452.78		
363 > 169	47	2.782	2.791		81678	16	>100:1	3.88 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.800	2.809	0	145078	18	>100:1			1000.00	1135.94	106.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.800	2.809	0/0	61097	24	>100:1	Target = 3.14	6.66	456.00	373.56		
399 > 99	45	2.800	2.809		22629	25	>100:1	2.69 (1.57-4.71)	11.46				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	1/1	2424465	17	>100:1	Target = 3.33		2355.00	2148.65		
377 > 85	45	2.827	2.827		683320	17	>100:1	3.54 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.168	3.174	0/0	61194	20	>100:1	Target = 3.02		475.00	433.85		
449 > 99	45	3.168	3.174		19567	25	>100:1	3.12 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.134	3.141	0	95843	20	>100:1			5000.00	5585.02	106.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.141	1/1	19634	17	>100:1	Target = 1.69		475.00	436.68		
427 > 81	64	3.148	3.141		10882	17	28:1	1.80 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.161	3.168	0	615975	21	>100:1			1000.00	1189.16	110.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.161	3.168	0/0	281983	20	>100:1	Target = 3.03		500.00	437.43		
413 > 169	53	3.161	3.168		97493	19	>100:1	2.89 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.529	3.537	0	143908	18	>100:1			1000.00	1155.88	108.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.529	3.537	0/0	66723	35	>100:1	Target = 3.42	3.70	462.75	390.34		M
499 > 99	54	3.537	3.537		20139	34	>100:1	3.31 (1.71-5.13)	9.15				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.740	3.740	1/1	1111762	20	>100:1			2330.00	2012.34		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.880	3.879	1/1	47900	17		Target = 2.57		480.00	427.53		
549 > 99	54	3.871	3.879		15496	14	>100:1	3.09 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.178	4.178	1/1	49997	22	>100:1	Target = 2.71		482.50	432.21		
599 > 99	54	4.178	4.178		20841	23		2.39 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.339	4.338	1/1	1011075	16	>100:1			2355.00	2072.71		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.537	3.537	1	720580	19	>100:1			1000.00	1116.79	104.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.537	3.537	1/0	363132	20	>100:1	Target = 7.14		500.00	457.47		
463 > 169	56	3.537	3.537		53020	19	>100:1	6.84 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.847	3.846	1	267886	19	>100:1			1000.00	1062.33	97.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.847	3.846	1/0	142069	18	>100:1	Target = 32.83		500.00	482.65		
498>478	55	3.855	3.846		3081	18	37:1	46.11 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.880	3.879	1	90010	16	>100:1			5000.00	5382.77	102.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.871	3.879	0/-1	18708	18	79:1	Target = 2.14		480.00	448.09		
527 > 81	65	3.880	3.879		10621	16	55:1	1.76 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.483	4.482	1/0	146205	16		Target = 3.72		2410.00	3021.27		
627 > 80	65	4.483	4.482		43773	15		3.34 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.888	3.887	1	646224	18	>100:1			1000.00	1134.00	110.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.888	3.887	1/0	338446	19	>100:1	Target = 14.16		500.00	446.69		
513 > 169	51	3.888	3.887		23683	15	>100:1	14.29 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	1	708095	16	>100:1			5000.00	5184.18	103.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.045	4.045	1/0	59911	15	>100:1	Target = 1.42		500.00	510.69		
570 > 483	58	4.045	4.045		45132	15	>100:1	1.32 (0.71-2.14)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.197	4.196	1	684873	17	>100:1			5000.00	5640.53	112.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.206	4.206	1/0	70477	16	>100:1	Target = 1.49		500.00	542.33		
584 > 526	60	4.206	4.206		41040	22	>100:1	1.71 (0.74-2.24)					
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.197	4.196	1	739137	18	>100:1			1000.00	1138.55	111	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.197	4.196	1/0	328281	16	>100:1	Target = 14.37		500.00	478.70		
563 > 169	52	4.197	4.196		20106	14		16.32 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.268	4.267	1	90784	18	>100:1			1000.00	1035.94	102.7	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.288	4.298	0	49093	13	>100:1			1000.00	1005.24	98	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.437	1	112209	16	>100:1			1000.00	1059.42	98.3	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.464	0	48172	15	>100:1			1000.00	1099.53	105.3	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.465	4.473	0	735961	17	>100:1			1000.00	1233.02	117.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.474	4.473	1/1	352918	17	>100:1	Target = 10.55		500.00	444.21		
613 > 169	38	4.474	4.473		32340	14	>100:1	10.91 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.705	4.711	0/0	352989	19	>100:1	Target = 8.92		500.00	492.72		
663 > 169	38	4.712	4.711		37023	18	>100:1	9.53 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.920	4.928	0	887532	18	>100:1			1000.00	1176.92	111.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	1/1	358202	17	47:1	Target = 12.22		500.00	460.34		
713 > 169	42	4.920	4.928		26913	18	>100:1	13.30 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.298	5.302	0	948120	22	>100:1			1000.00	1054.43	102	
*** 37 13C2_PFDA**													
515 > 470		3.888	3.887	1	716520	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.425	2.424	1	713618	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.161	3.168	0	590968	20	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	624054	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.529	3.537	0	140368	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 22-Nov-2021 08:59:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621026.d		
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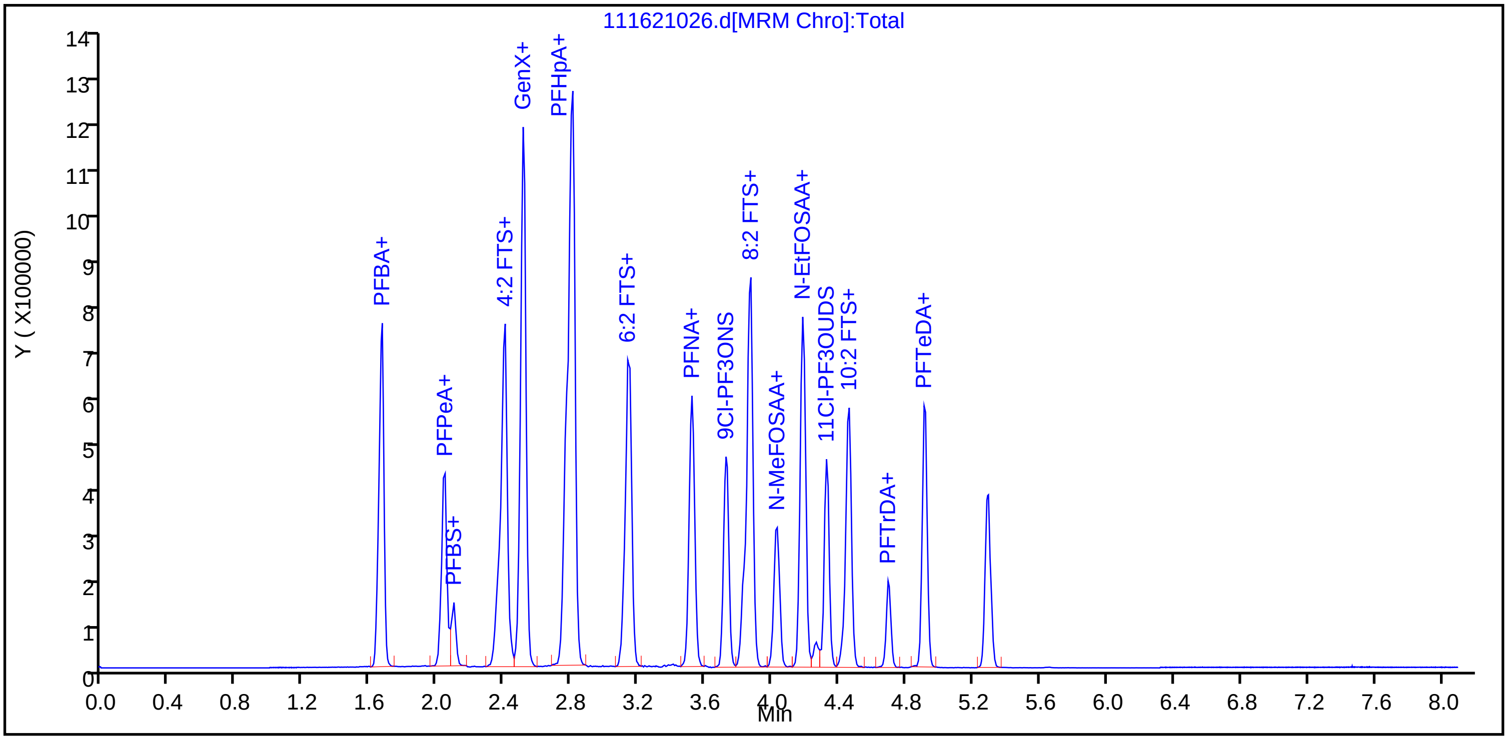
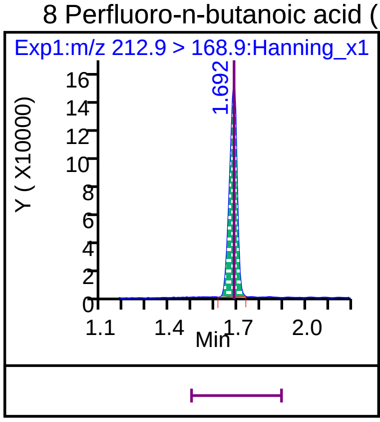
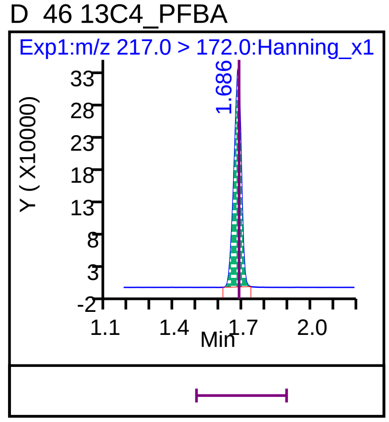
Client ID:		Lab ID:	F.L. ICV 500_SVLC-1734
Sample Info:	F.L. ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Justin Gavin



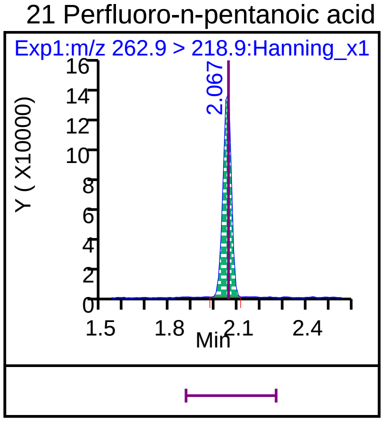
8 Perfluoro-n-butanoic acid (PFBA)



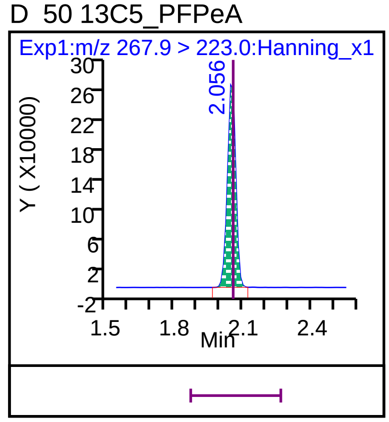
D 46 13C4_PFBA



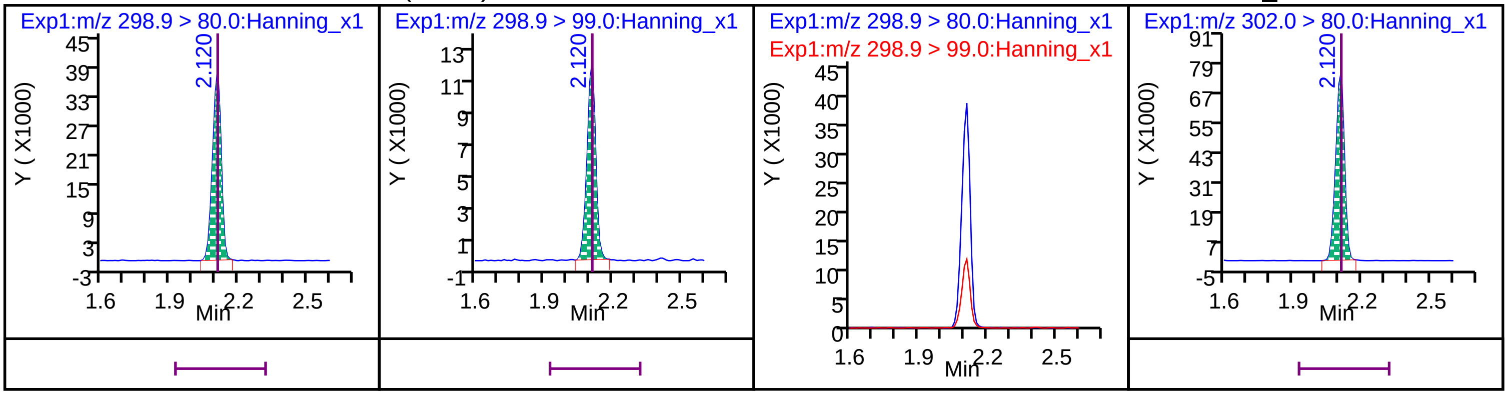
21 Perfluoro-n-pentanoic acid (PFPeA)



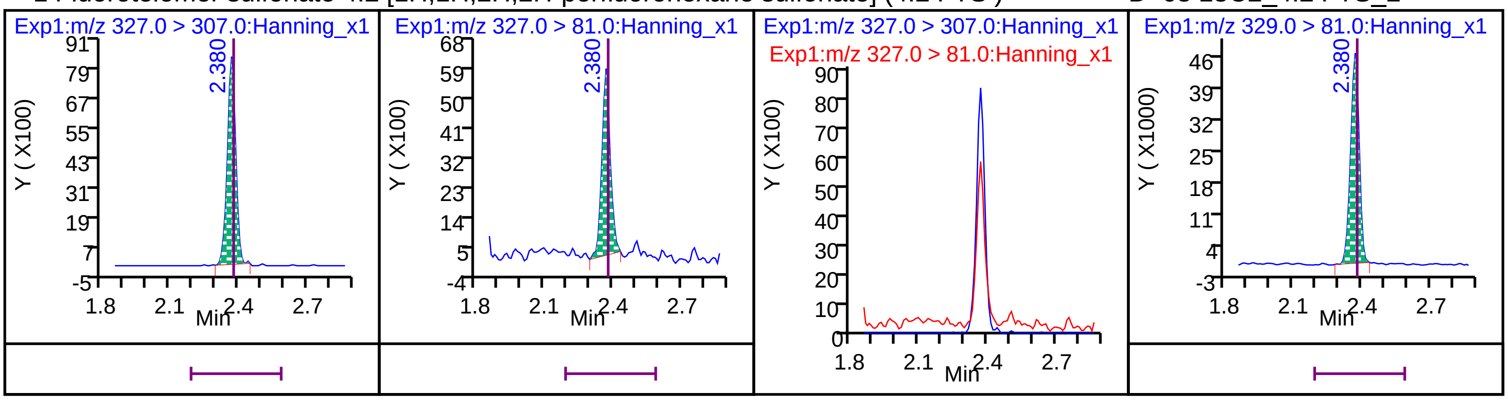
D 50 13C5_PFPeA



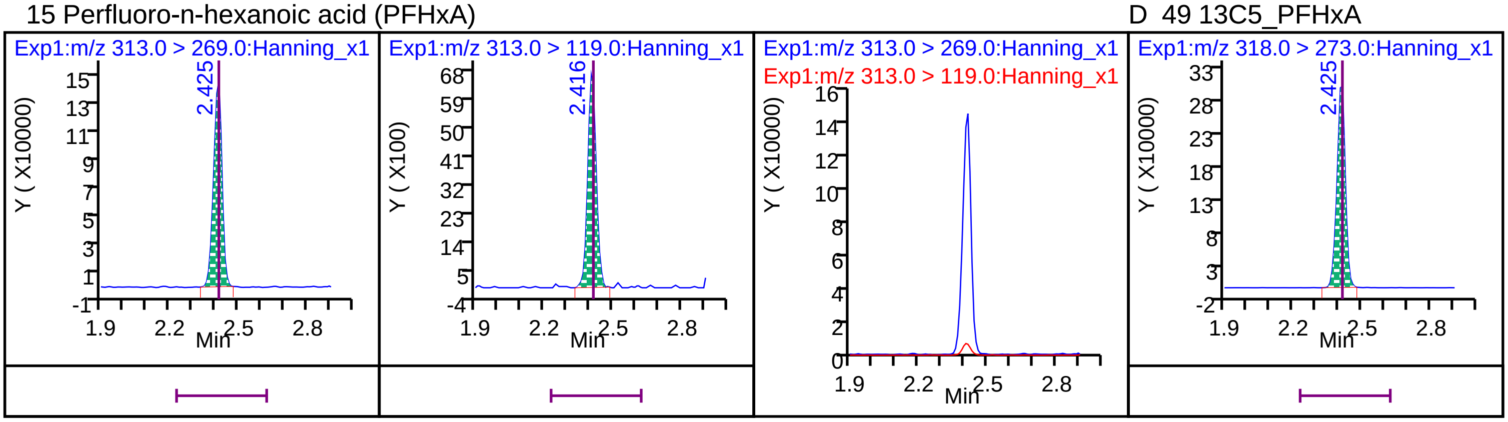
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



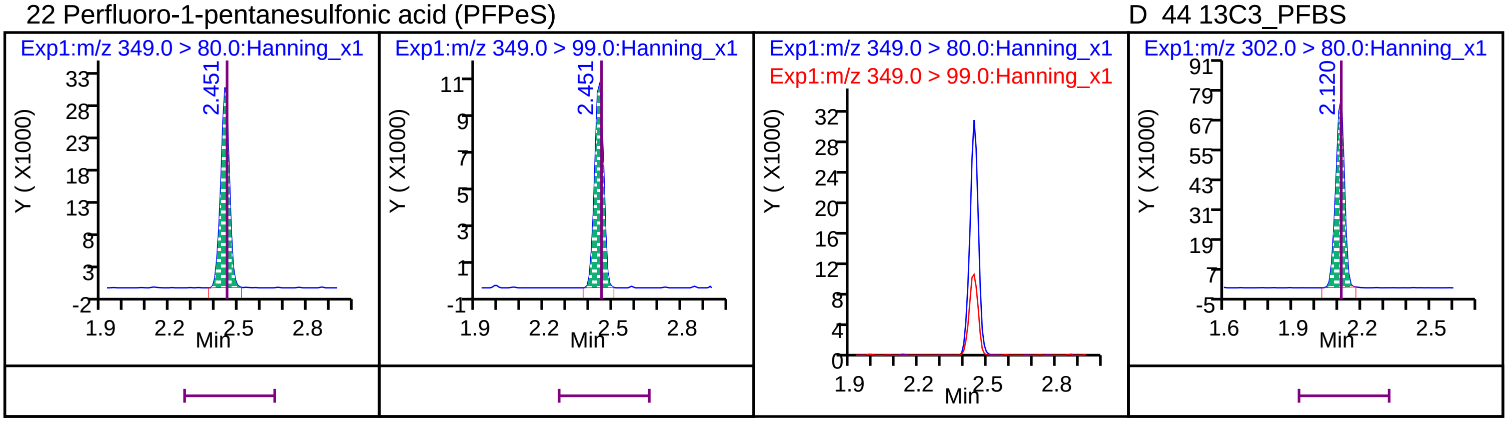
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



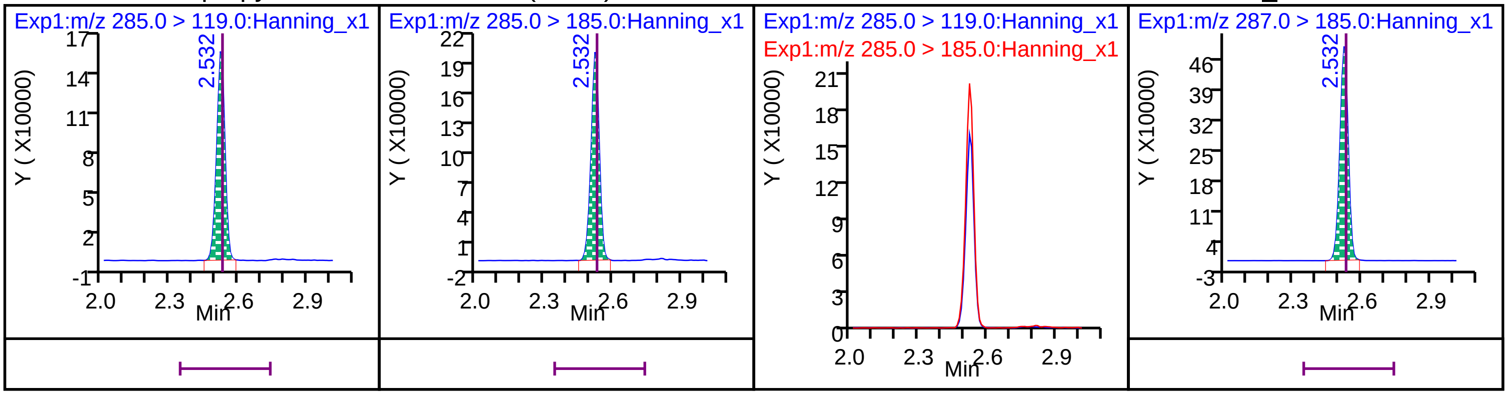
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



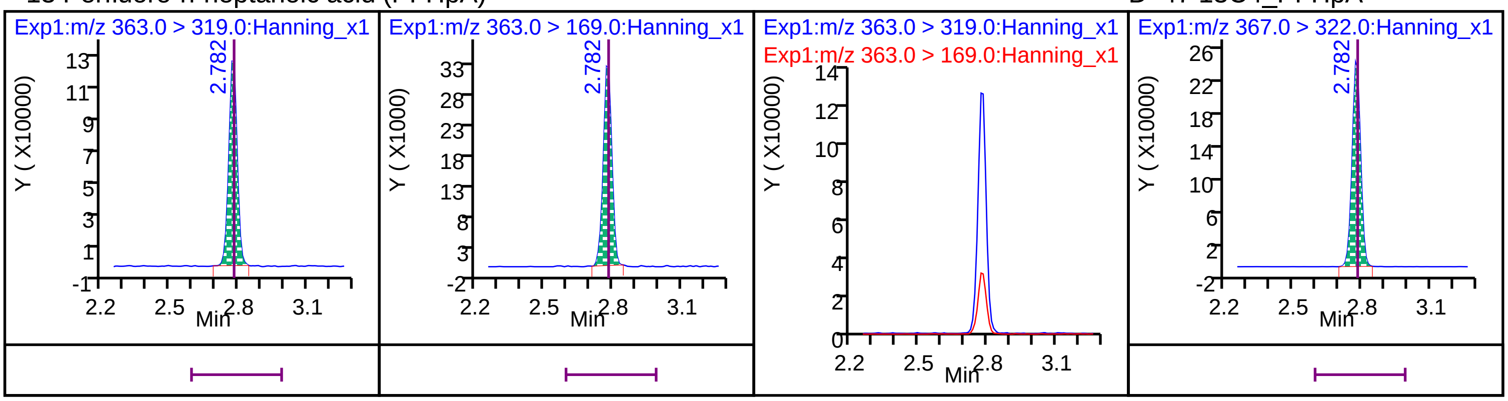
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



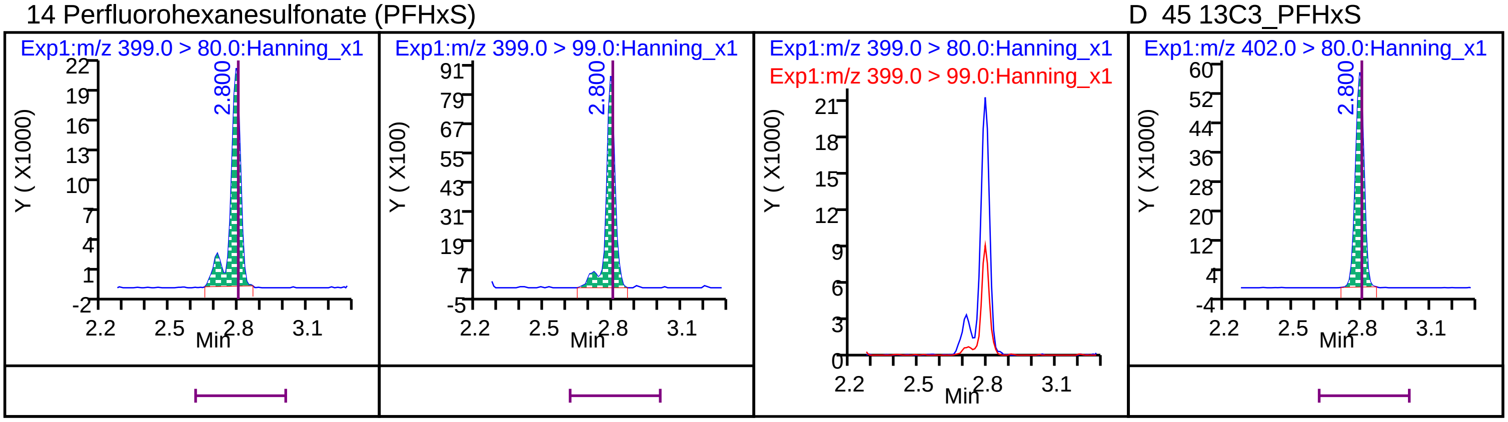
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



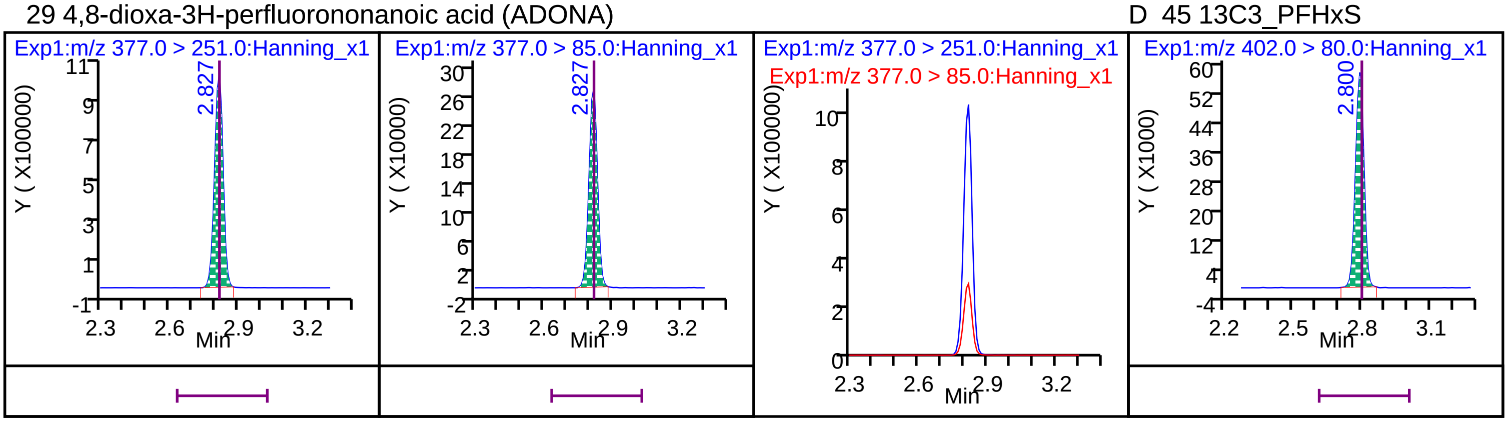
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

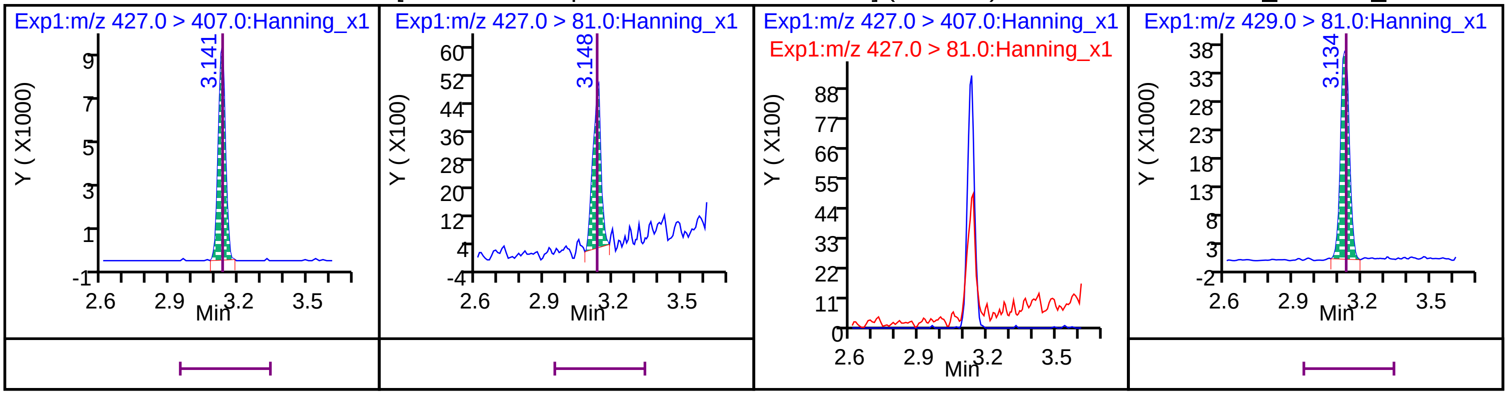


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

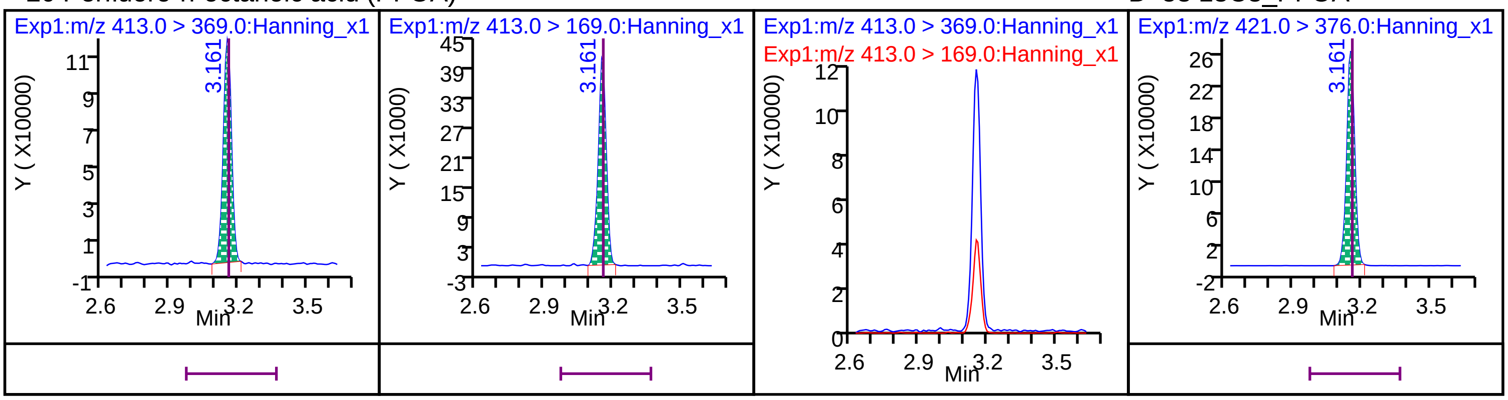


Report Date: 22-Nov-2021 08:59:55 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621026.d

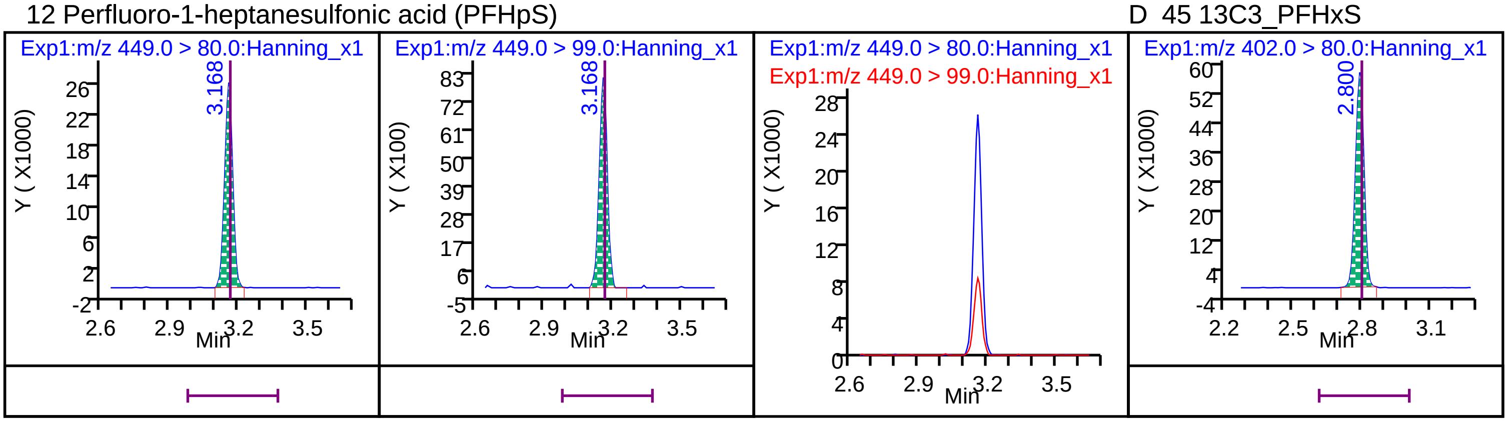
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



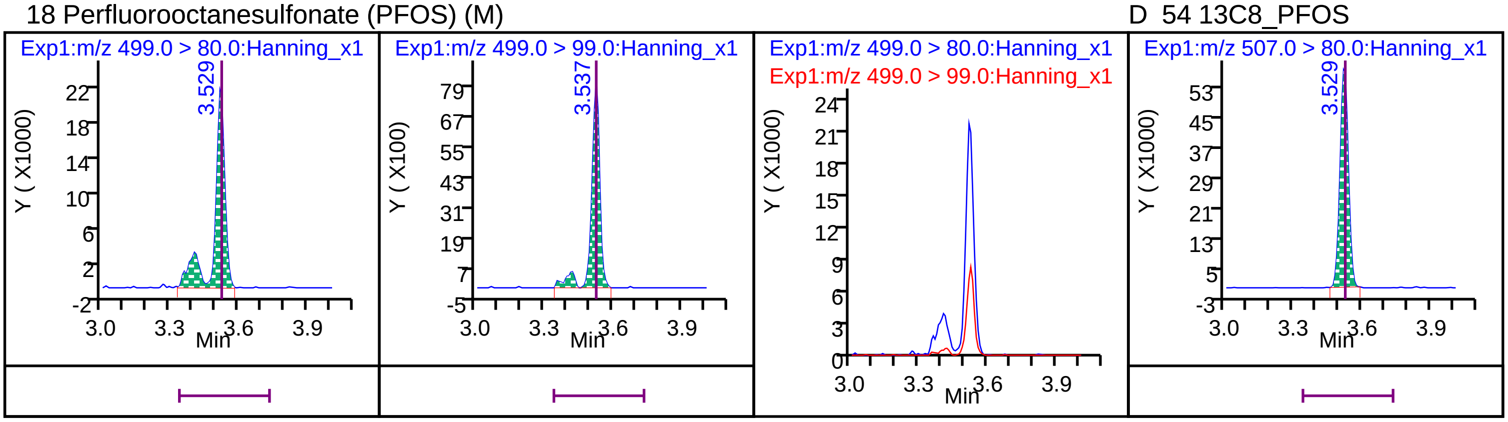
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



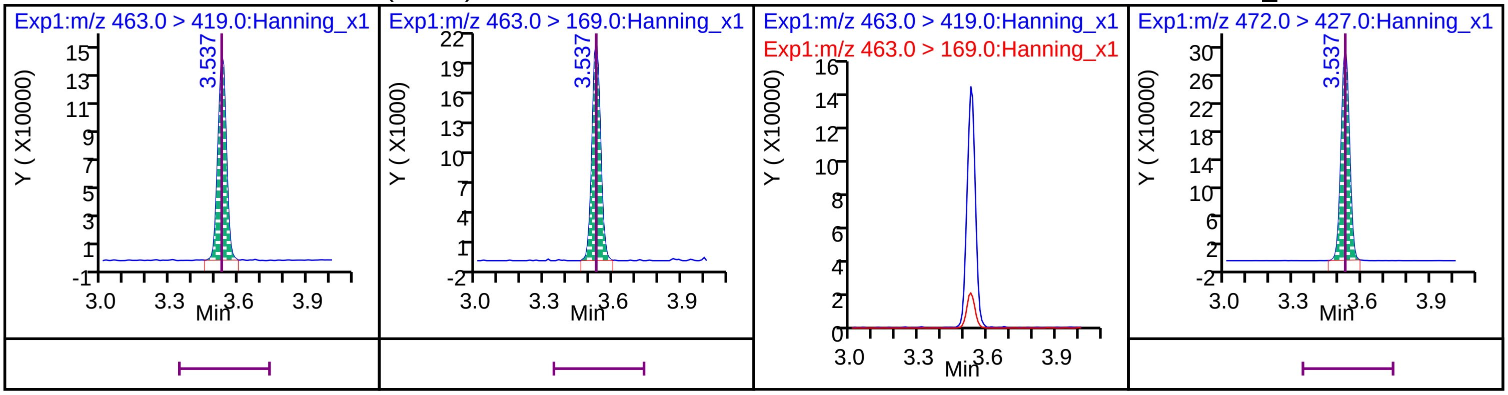
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



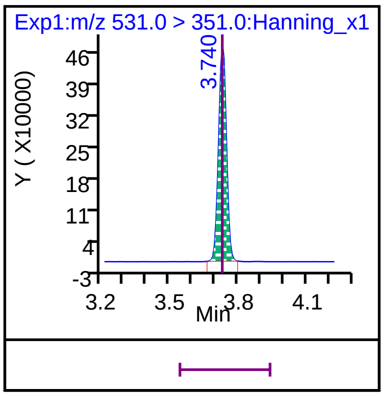
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



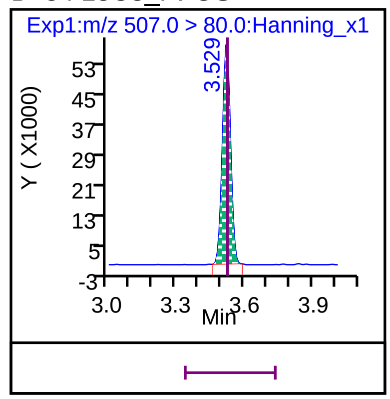
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



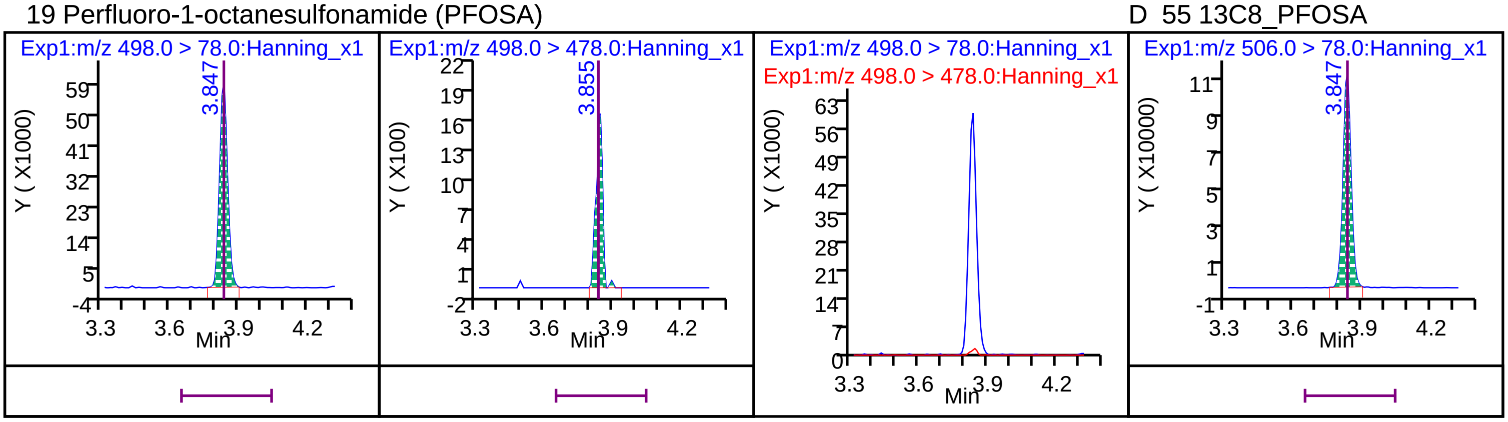
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



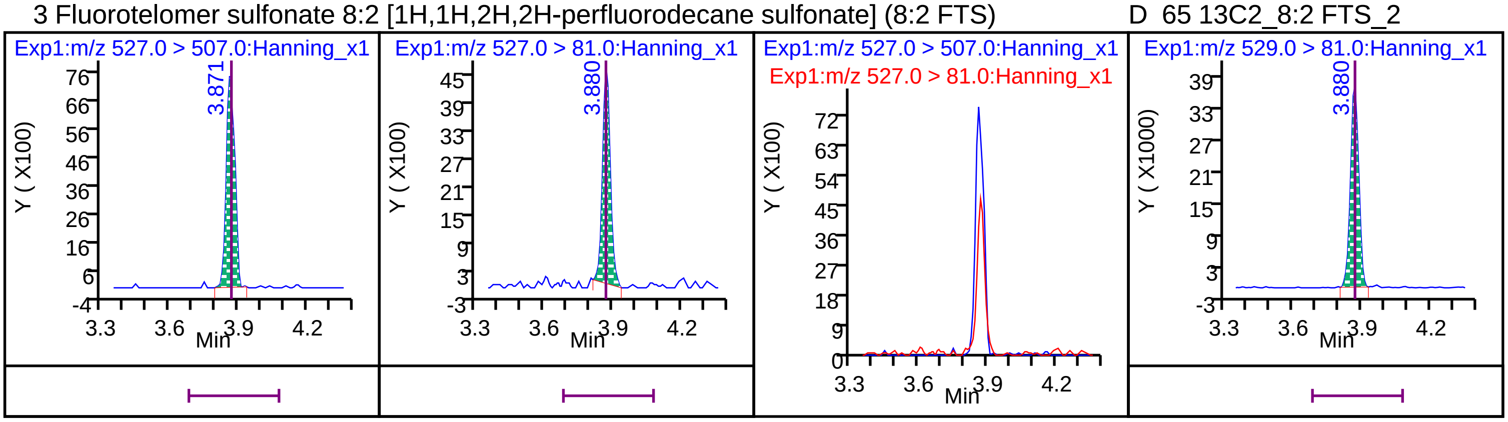
D 54 13C8_PFOS



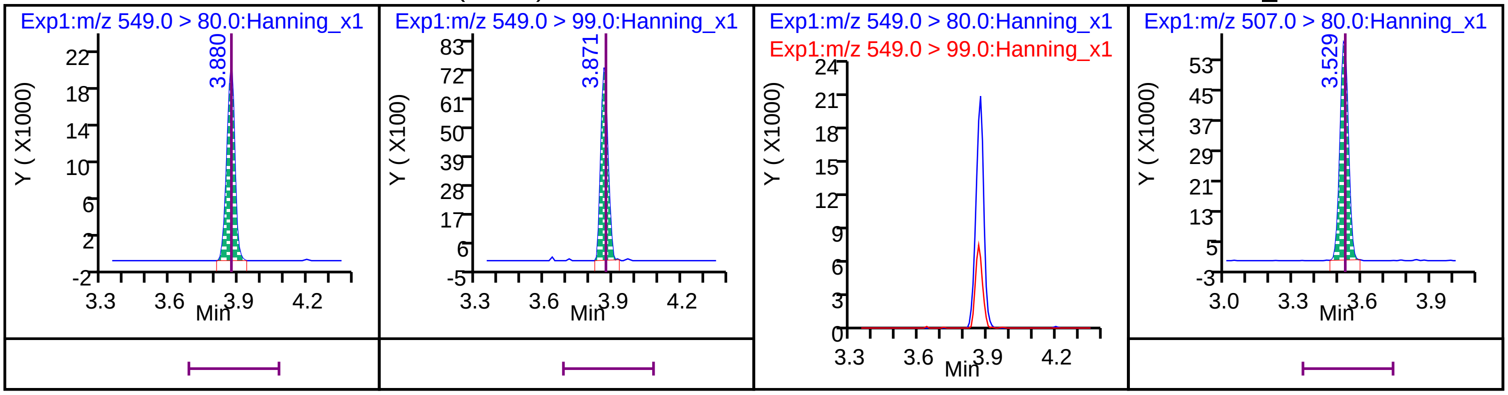
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



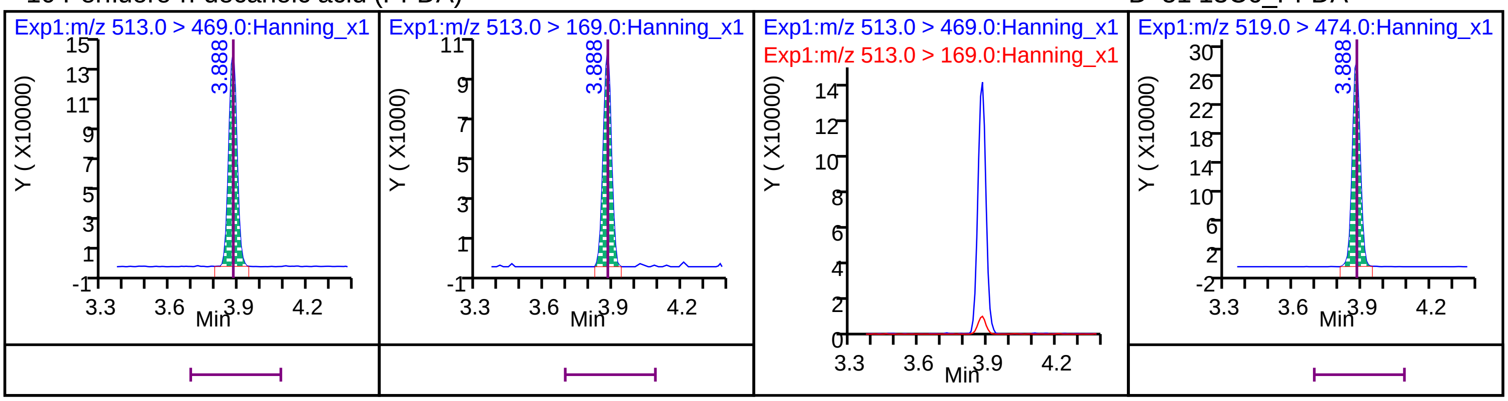
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



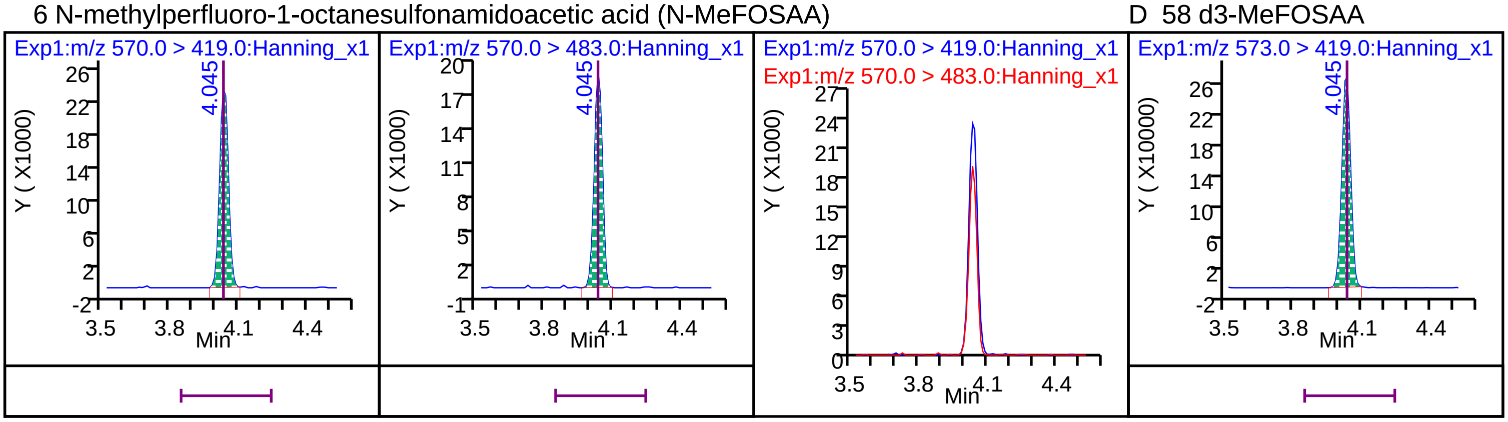
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



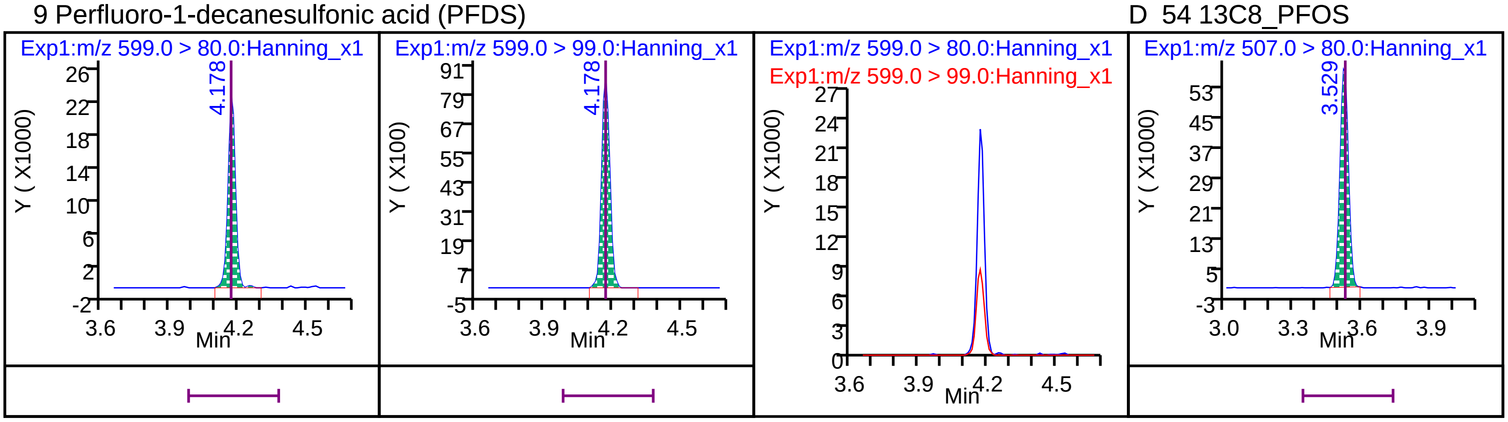
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



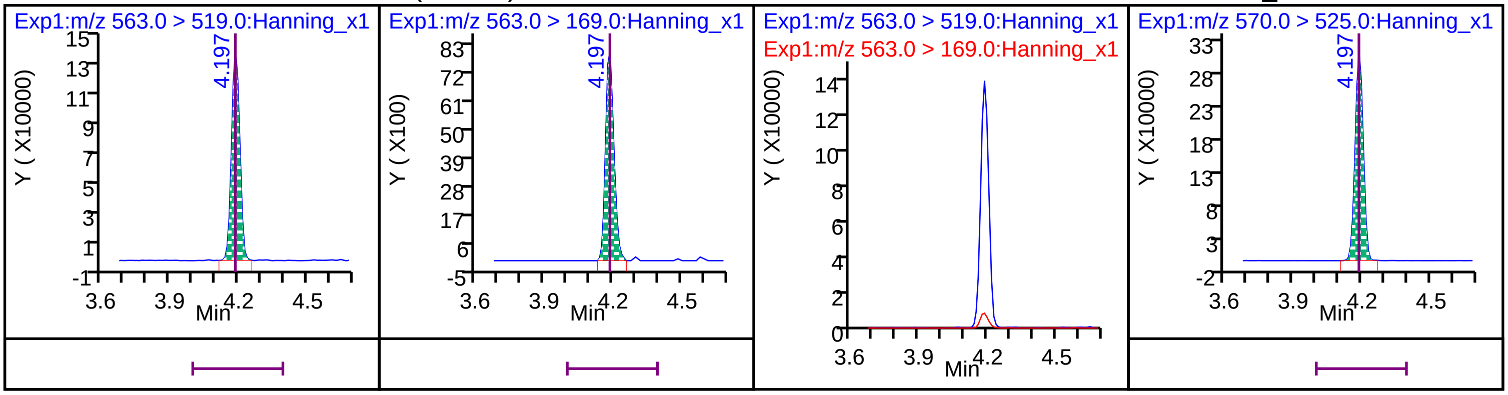
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



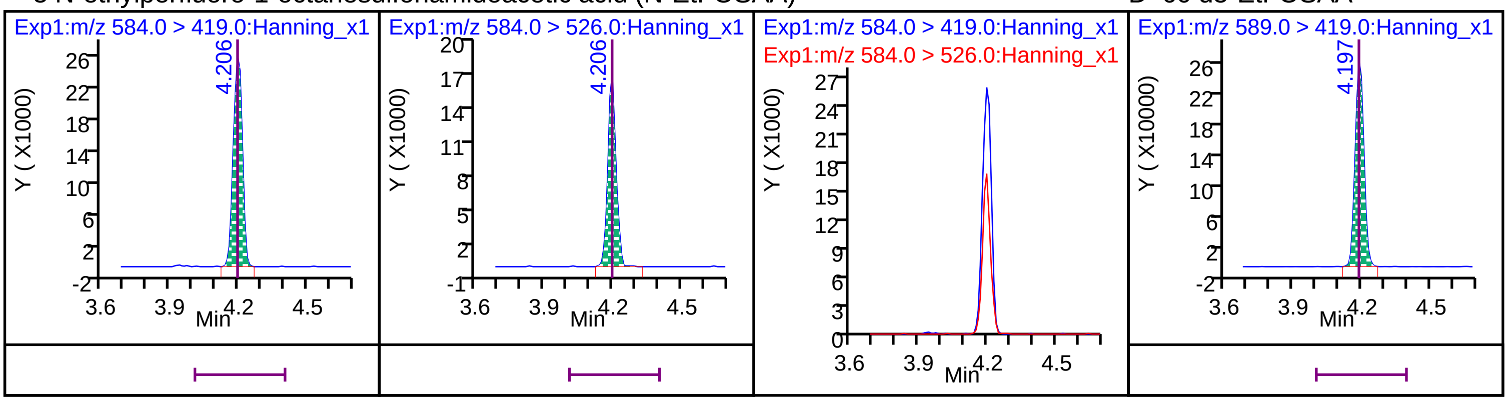
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



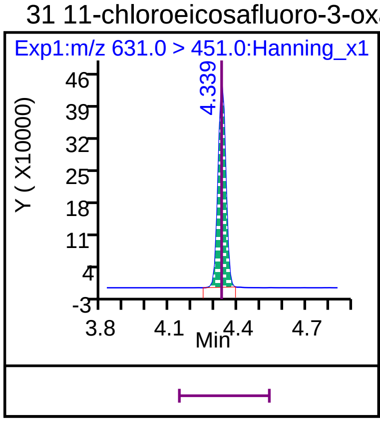
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



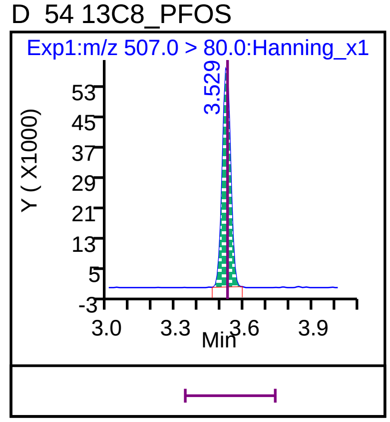
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



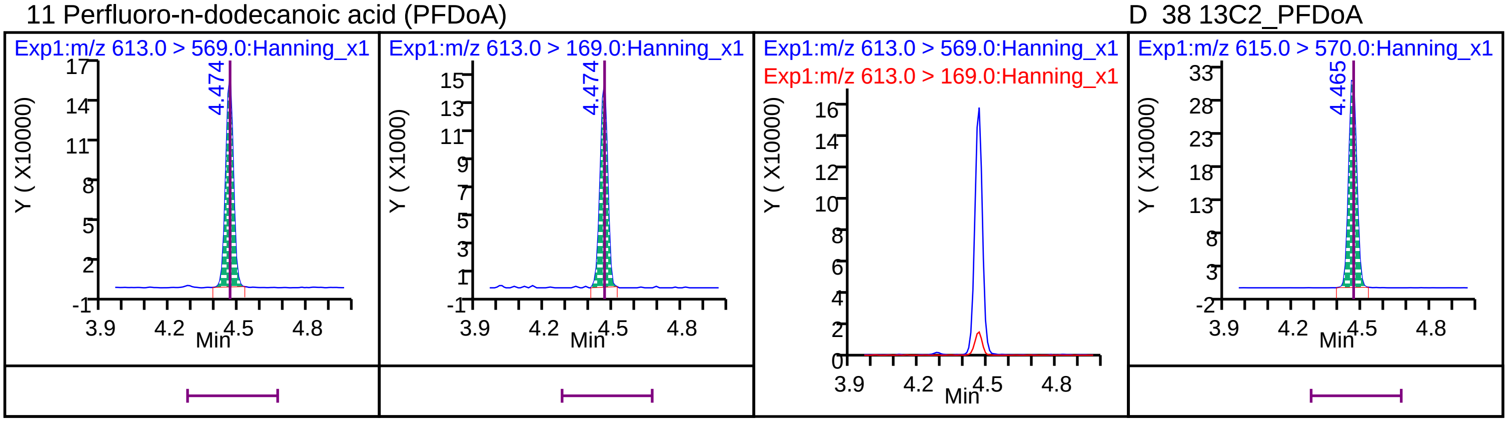
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



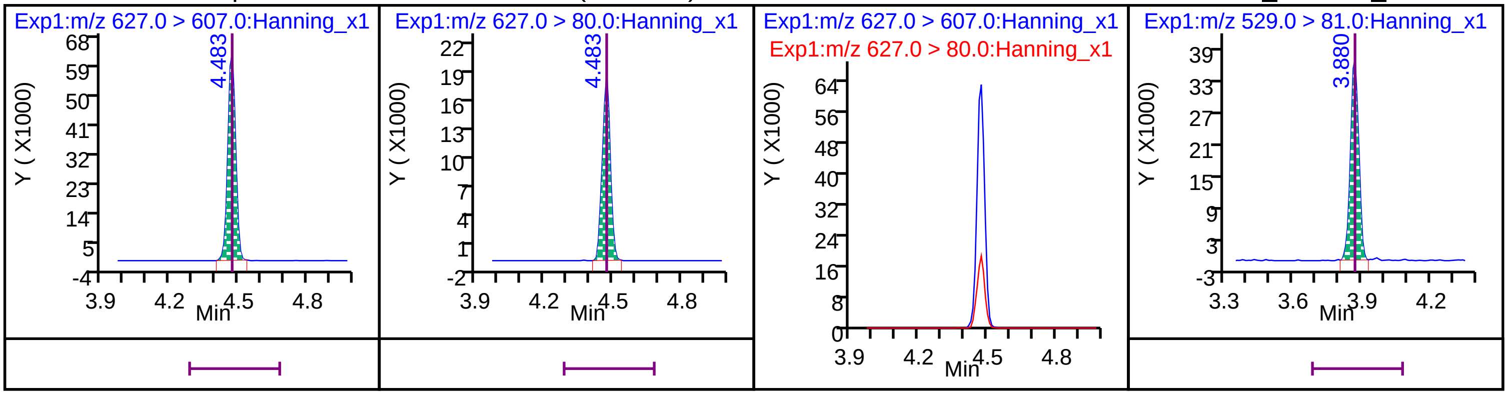
D 54 13C8_PFOS



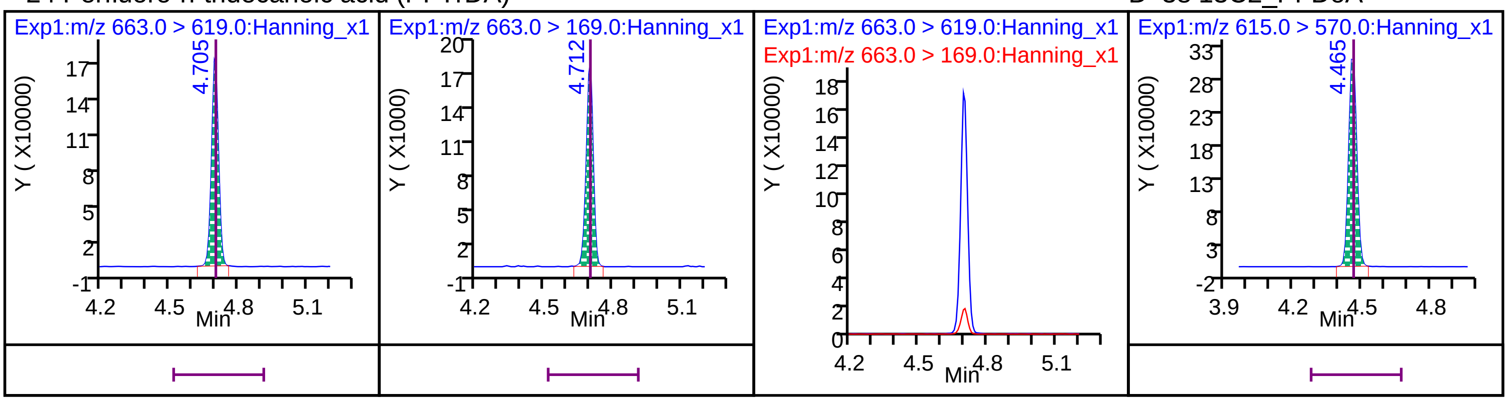
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



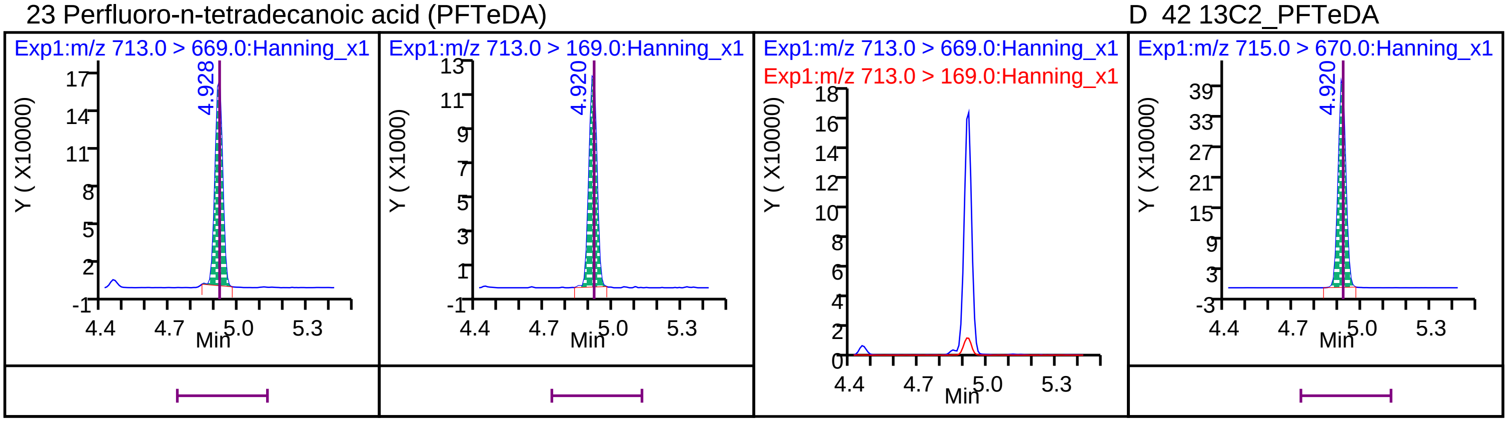
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



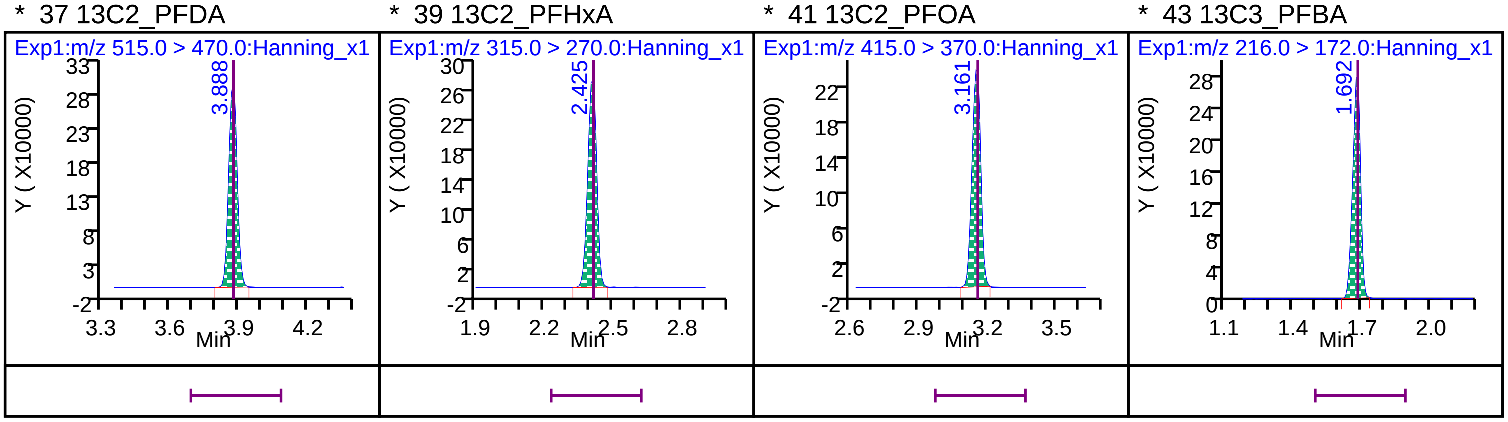
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

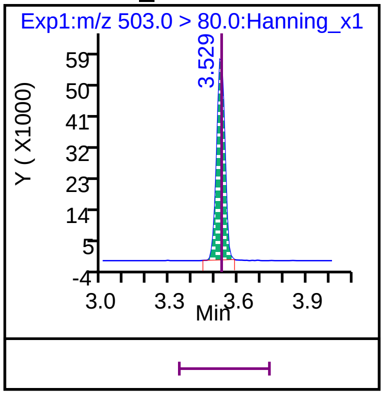


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



Report Date: 22-Nov-2021 08:59:55 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621026.d

* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

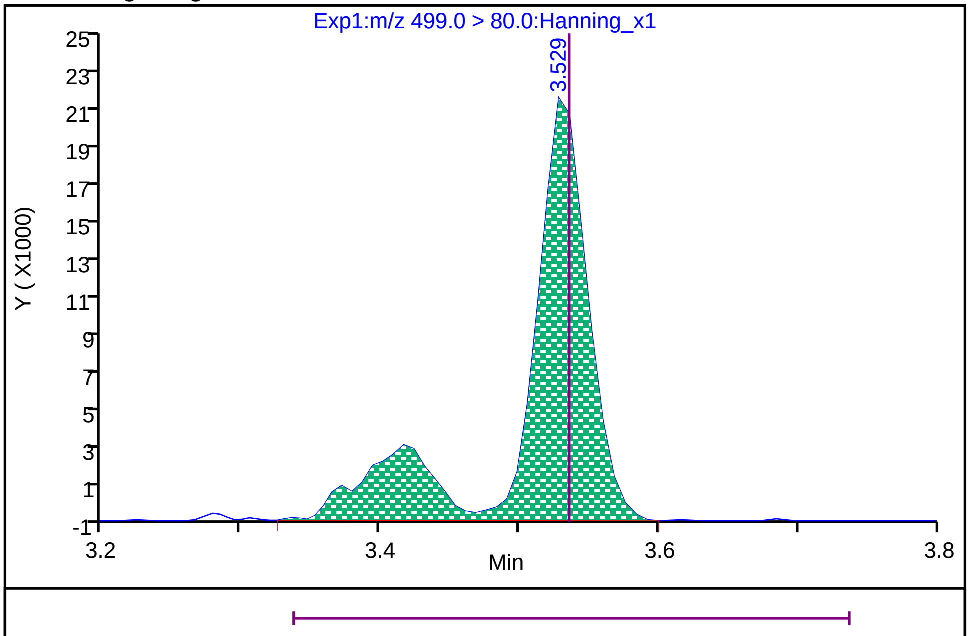
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621026.d		
Injection Date:	16-Nov-2021 18:37:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICV 500_SVLC-1734
Sample Info:	F.L. ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Justin Gavin

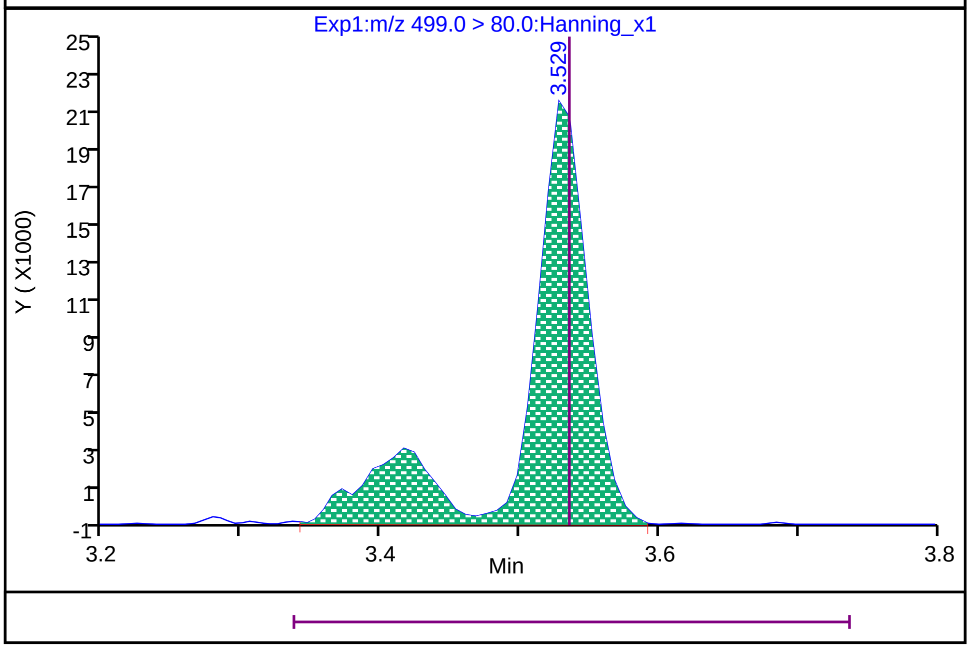
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.529
Area:	66142
Amount:	384.23
Amount Units:	ng/L



RT:	3.529
Area:	66723
Amount:	390.34
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 11:11:55

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621027.d		
Injection Date:	16-Nov-2021 18:48:12	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	13
Sample Info:	ISOMER CHECK_SVLC-1754	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: IsomerCheck Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.690	1.692	0	707662	20	>100:1			1000.00	1134.19	109.5	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.062	2.067	0	660866	15	>100:1			1000.00	1141.09	110.6	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.114	2.120	0	200830	17	>100:1			1000.00	1157.20	115.5	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.379	2.389	0	127893	16	>100:1			5000.00	5856.97	111.8	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.423	2.424	0	738176	17	>100:1			1000.00	1139.03	106.9	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.530	2.540	0	1300674	17	>100:1			5000.00	5808.73	112.5	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.790	2.791	0	614412	17	>100:1			1000.00	1164.11	113.4	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.799	2.809	0	141442	15	>100:1			1000.00	1107.47	104	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.145	3.141	1	97724	20	>100:1			5000.00	5694.63	108.6	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.165	3.168	0	592927	22	>100:1			1000.00	1144.67	106.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.165	3.168	0/0	6046040	41	>100:1	Target = 3.03	5.28	10000	9743.59		
413 > 169	53	3.165	3.168		2107043	33	>100:1	2.86 (1.51-4.55)	4.00				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.533	3.537	0	143841	17	>100:1			1000.00	1155.34	108.5	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.541	3.537	1	755831	19	>100:1			1000.00	1171.42	109.5	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.850	3.846	1	280496	17	>100:1			1000.00	1112.34	102.3	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.875	3.879	0	114851	18	>100:1			5000.00	6868.31	130.4	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.883	3.887	0	676036	17	>100:1			1000.00	1186.32	115.3	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.038	4.045	0	849969	17	>100:1			5000.00	6222.88	124.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.047	4.045	1/1	1461316	32	>100:1	Target = 1.42	7.63	10000	10377		
570 > 483	58	4.047	4.045		1145735	30	>100:1	1.27 (0.71-2.14)	3.86				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.199	4.196	1	867801	16	>100:1			5000.00	7147.10	142.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.208	4.206	1/0	1846338	31	>100:1	Target = 1.49	7.80	10000	11213		
584 > 526	60	4.208	4.206		1149999	32	>100:1	1.60 (0.74-2.24)	4.68				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.199	4.196	1	816463	16	>100:1			1000.00	1257.66	122.6	
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.270	4.267	1	107325	14	>100:1			1000.00	1224.69	121.4	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.290	4.298	0	55842	19	>100:1			1000.00	1143.43	111.5	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.437	1	126967	16	>100:1			1000.00	1198.75	111.2	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.458	4.464	0	50007	19	>100:1			1000.00	1141.42	109.4	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.468	4.473	0	863547	17	>100:1			1000.00	1446.78	137.8	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.924	4.928	0	1007859	17	>100:1			1000.00	1336.48	126.6	
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.301	5.302	0	1031387	23	>100:1			1000.00	1147.03	111	
*** 37 13C2_PFDA**													
515 > 470		3.883	3.887	0	783960	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.414	2.424	0	753203	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.165	3.168	0	581243	22	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.690	1.692	0	638120	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.533	3.537	0	143394	19	>100:1			1000.00			

Compound Type Legend

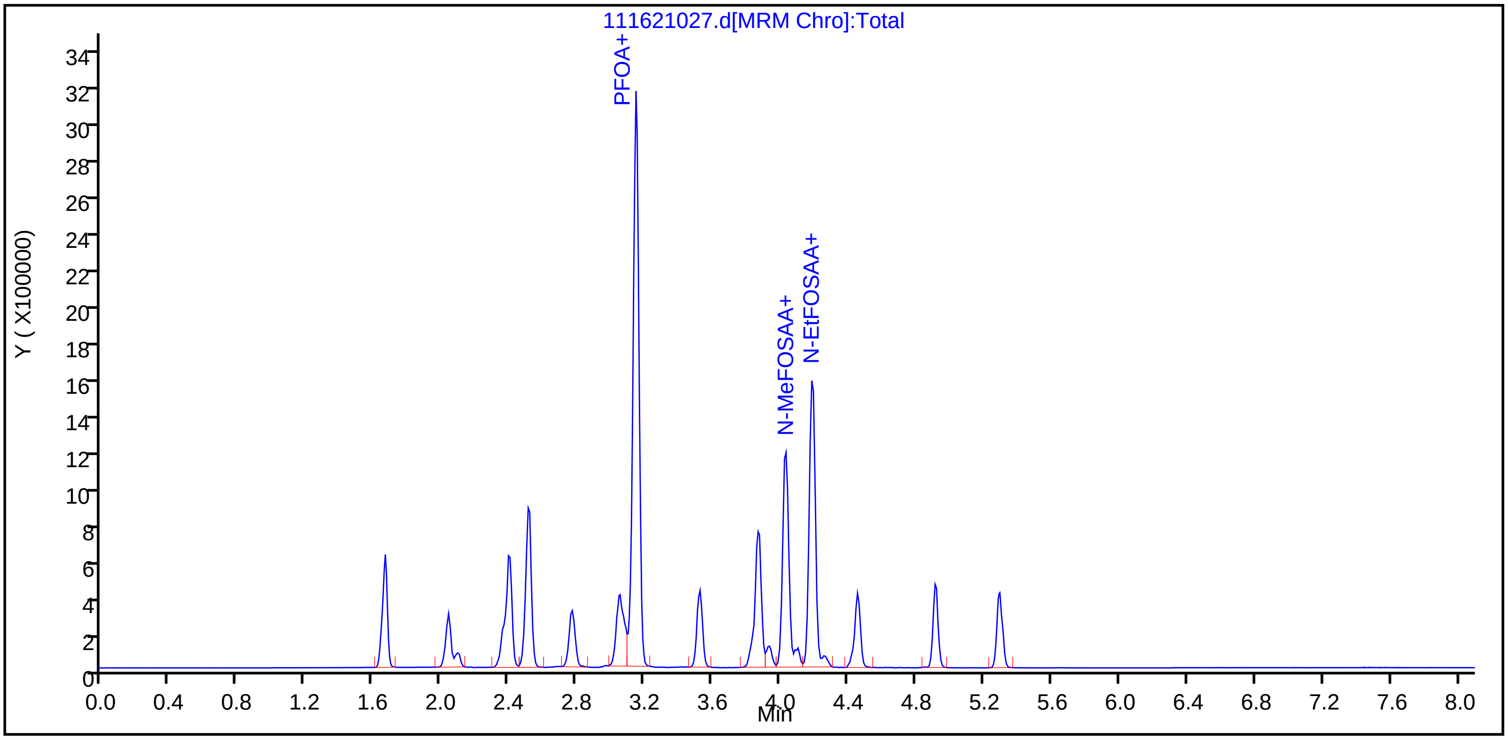
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

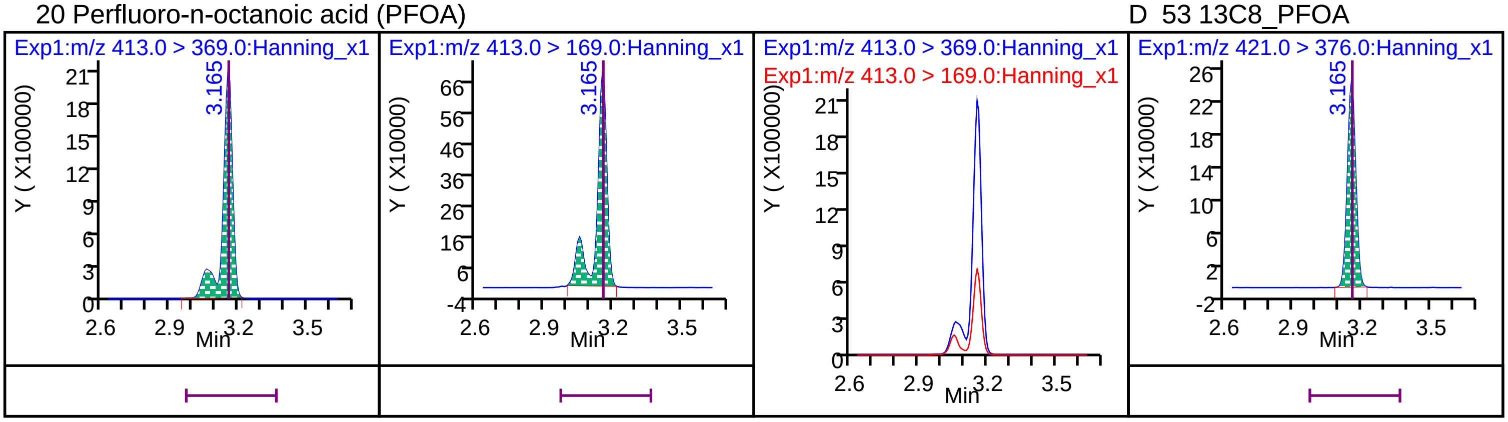
Report Date: 22-Nov-2021 08:59:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

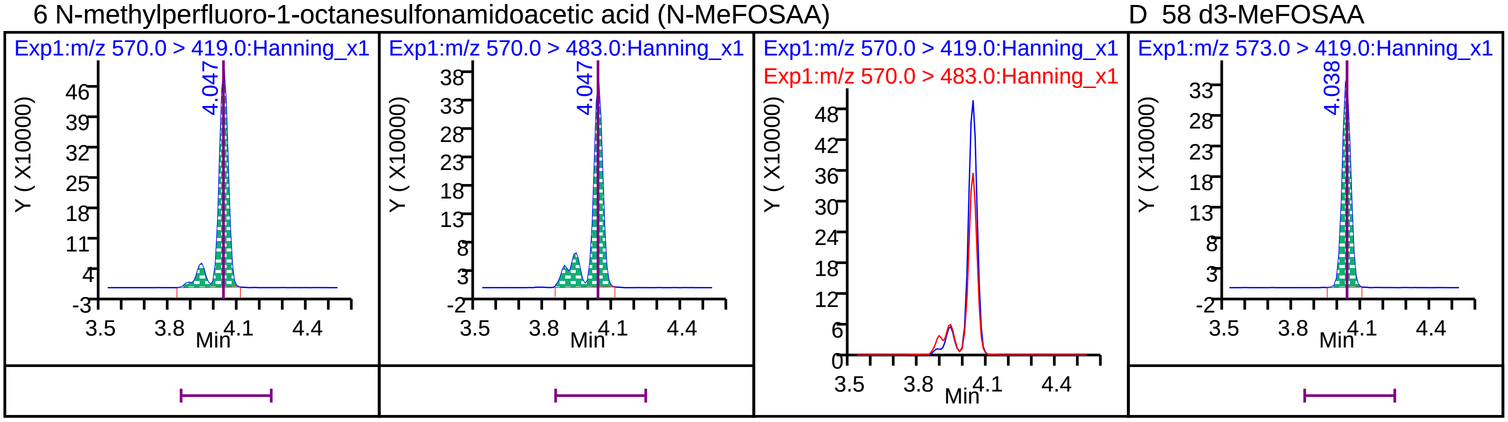
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621027.d		
Injection Date:	16-Nov-2021 18:48:12	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ISOMER CHECK_SVLC-1754
Sample Info:	ISOMER CHECK_SVLC-1754		
Dil. Factor:	1	Operator:	Justin Gavin



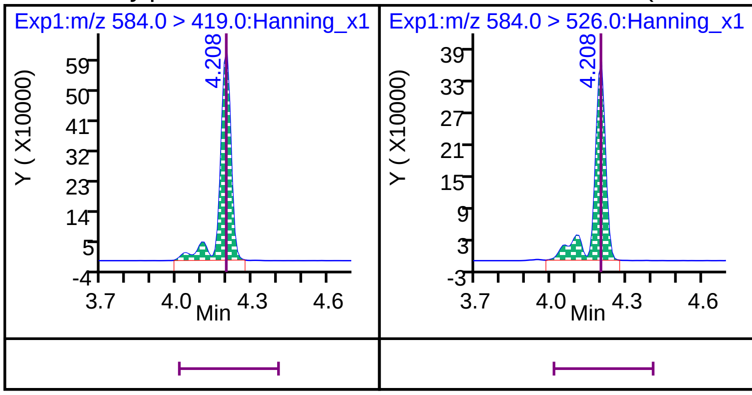
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



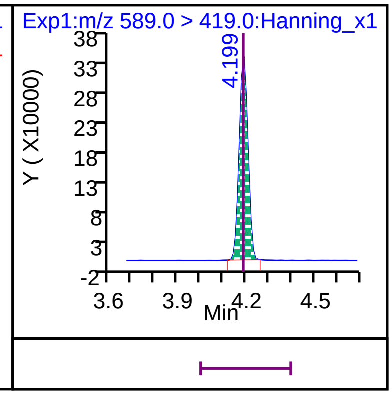
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



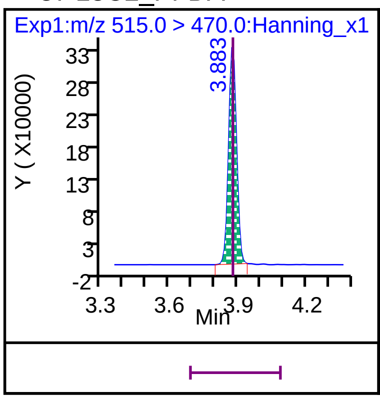
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



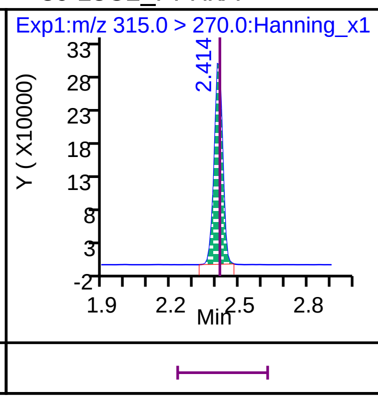
D 60 d5-EtFOSAA



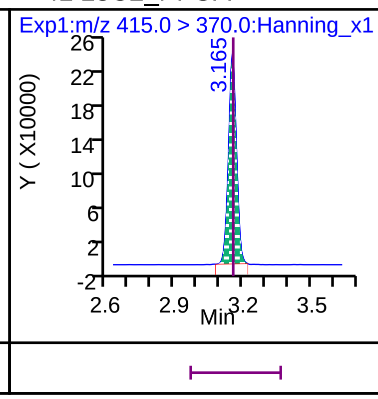
* 37 13C2_PFDA



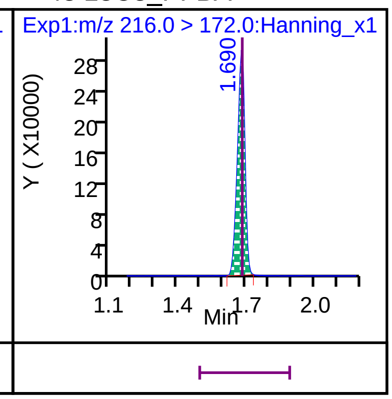
* 39 13C2_PFHxA



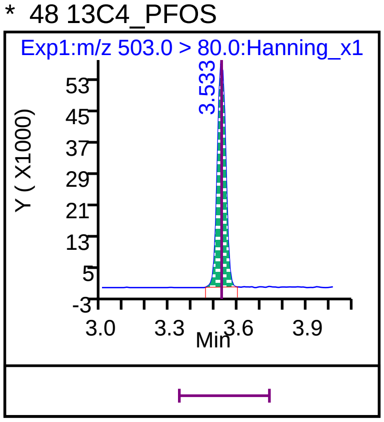
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	97.233	97.2	70 - 130
D 46 13C4_PFBA	635753	659044			103.7	50 - 150
21 PFPeA			100.00	102.12	102.1	70 - 130
D 50 13C5_PFPeA	580113	581857			100.3	50 - 150
D 44 13C3_PFBS	178463	164288			92.1	50 - 150
7 PFBS			88.400	96.436	109.1	70 - 130
1 4:2 FTS			93.400	113.56	121.6	70 - 130
D 63 13C2_4:2 FTS_2	112299	113327			100.9	50 - 150
D 49 13C5_PFHxA	664948	667779			100.4	50 - 150
15 PFHxA			100.00	110.83	110.8	70 - 130
22 PFPeS			93.800	98.531	105	70 - 130
28 GenX			200.00	198.75	99.4	70 - 130
D 66 13C3_GenX	1204882	1212655			100.6	50 - 150
D 47 13C4_PFHpA	532996	545849			102.4	50 - 150
13 PFHpA			100.00	108.76	108.8	70 - 130
D 45 13C3_PFHxS	129716	123814			95.5	50 - 150
14 PFHxS			91.000	96.665	106.2	70 - 130
29 ADONA			94.200	100.97	107.2	70 - 130
D 64 13C2_6:2 FTS_2	93946	97903			104.2	50 - 150
2 6:2 FTS			94.800	106.02	111.8	70 - 130
20 PFOA			100.00	105.95	105.9	70 - 130
D 53 13C8_PFOA	547741	574828			104.9	50 - 150
12 PFHpS			95.200	94.216	99	70 - 130
D 54 13C8_PFOS	131913	125685			95.3	50 - 150
18 PFOS			92.800	105.41	113.6	70 - 130
17 PFNA			100.00	103.15	103.2	70 - 130
D 56 13C9_PFNA	639032	690339			108	50 - 150
30 9Cl-PF3ONS			93.200	101.81	109.2	70 - 130
D 55 13C8_PFOSA	266767	270667			101.5	50 - 150
19 PFOSA			100.00	110.58	110.6	70 - 130
16 PFNS			96.000	82.441	85.9	70 - 130
10 PFDA			100.00	101.95	101.9	70 - 130
3 8:2 FTS			95.800	115.82	120.9	70 - 130
D 51 13C6_PFDA	575846	638513			110.9	50 - 150
D 65 13C2_8:2 FTS_2	78835	97932			124.2	50 - 150
6 N-MeFOSAA			100.00	122.07	122.1	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	734264			95	50 - 150
D 61 d7-MeFOSE	90070	82771			91.9	50 - 150
32 MeFOSE			100.00	114.31	114.3	70 - 130
26 MeFOSA			100.00	112.30	112.3	70 - 130
D 57 d3-MeFOSA	44997	48290			107.3	50 - 150
9 PFDS			96.400	103.24	107.1	70 - 130
D 52 13C7_PFUdA	634567	658476			103.8	50 - 150
D 60 d5-EtFOSAA	689688	654482			94.9	50 - 150
25 PFUdA			100.00	98.589	98.6	70 - 130
5 N-EtFOSAA			100.00	113.85	113.9	70 - 130
D 62 d9-EtFOSE	101585	100538			99	50 - 150
33 EtFOSE			100.00	117.29	117.3	70 - 130
D 59 d5-EtFOSA	42895	38708			90.2	50 - 150
31 11Cl-PF3OUDS			94.200	103.35	109.7	70 - 130
27 EtFOSA			100.00	129.19	129.2	70 - 130
D 38 13C2_PFDoA	604291	739968			122.5	50 - 150
11 PFDoA			100.00	99.99	100	70 - 130
4 10:2 FTS			96.400	113.92	118.2	70 - 130
34 PFDOS			96.800	91.196	94.2	70 - 130
24 PFTrDA			100.00	85.489	85.5	70 - 130
D 42 13C2_PFTeDA	838224	881166			105.1	50 - 150
23 PFTeDA			100.00	104.39	104.4	70 - 130
D 40 13C2_PFHxDA	877835	942416			107.4	50 - 150
35 PFHxDA			100.00	111.39	111.4	70 - 130
36 PFODA			100.00	104.56	104.6	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.718	1.718	1	659044	21	>100:1			1000.00	1060.11	103.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/-1	67582	19	73:1			100.00	97.233		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	1	581857	17	>100:1			1000.00	1017.96	100.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.120	1/0	66877	21	56:1			100.00	102.12		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.173	2.173	1	164288	17	>100:1			1000.00	949.81	92.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.173	2.173	1/0	19757	15	>100:1	Target = 3.53		88.400	96.436		
298.9 > 99	44	2.173	2.173		5322	16	60:1	3.71 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.532	2/1	15002	16	>100:1	Target = 3.10		93.800	98.531		
349 > 99	44	2.523	2.532		5082	17	30:1	2.95 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	2	113327	20	>100:1			5000.00	5004.79	100.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	2/0	5674	22		Target = 1.75		93.400	113.56		
327 > 81	63	2.443	2.451		4690	16	4.1:1	1.20 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.496	2	667779	18	>100:1			1000.00	1025.32	100.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.496	2/0	76953	17	>100:1	Target = 18.91		100.00	110.83		
313 > 119	49	2.496	2.496		4352	14	25:1	17.68 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.607	2.607	1	1212655	19	>100:1			5000.00	5232.46	100.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.614	2/1	31217	17	>100:1	Target = 0.79		200.00	198.75		
285 > 185	66	2.614	2.614		41819	18	>100:1	0.74 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.873	2	545849	19	>100:1			1000.00	1028.08	102.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.873	2.873	2/0	65234	18	>100:1	Target = 3.80		100.00	108.76		
363 > 169	47	2.881	2.873		14879	15	80:1	4.38 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.889	2.889	2	123814	18	>100:1			1000.00	985.47	95.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.889	2.889	1/-1	13158	27	>100:1	Target = 2.89	5.19	91.000	96.665		
399 > 99	45	2.881	2.889		3983	23	27:1	3.30 (1.44-4.34)	10.06				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.912	1/-1	96953	37	>100:1	Target = 3.23		94.200	100.97		
377 > 85	45	2.912	2.912		27617	18	>100:1	3.51 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	2/0	11981	23	>100:1	Target = 3.12		95.200	94.216		
449 > 99	45	3.282	3.276		3630	26	24:1	3.30 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.242	3.242	2	97903	19	>100:1			5000.00	5439.07	104.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													a
427 > 407	64	3.248	3.248	0/-2	4914	22	55:1	Target = 1.75		94.800	106.02		
427 > 81	64	3.228	3.248		3896	13	5.2:1	1.26 (0.87-2.62)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.269	2	574828	23	>100:1			1000.00	1095.59	104.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	3/1	62409	20	50:1	Target = 2.89		100.00	105.95		
413 > 169	53	3.276	3.276		18154	21	68:1	3.43 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.657	2	125685	20	>100:1			1000.00	1014.87	95.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.652	3.652	0/-2	15774	42	>100:1	Target = 3.30	4.76	92.800	105.41		
499 > 99	54	3.657	3.652		4206	35	31:1	3.75 (1.65-4.95)	8.87				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.872	3.872	3/1	48461	16	>100:1			93.200	101.81		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.017	4.017	4/2	8313	12	55:1	Target = 3.08		96.000	82.441		
549 > 99	54	4.006	4.017		2463	16	25:1	3.37 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.319	4.319	3/1	10154	20	100:1	Target = 2.72		96.400	103.24		
599 > 99	54	4.319	4.319		5137	17	26:1	1.97 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	3/1	44470	20	>100:1			94.200	103.35		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	3/1	9856	22	98:1	Target = 3.27		96.800	91.196		
699 > 99	54	4.842	4.842		3438	20	76:1	2.86 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	2	690339	22	>100:1			1000.00	1078.02	108	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	2/0	76755	20	>100:1	Target = 6.51		100.00	103.15		
463 > 169	56	3.668	3.662		11190	25	97:1	6.85 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.921	3.921	3	270667	18	>100:1			1000.00	1009.73	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.921	3.921	3/0	31491	18	>100:1	Target = 41.63		100.00	110.58		
498>478	55	3.921	3.921		784	16	11:1	40.16 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.027	3	638513	17	>100:1			1000.00	1111.11	110.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.027	3/0	75753	18	>100:1	Target = 13.80		100.00	101.95		
513 > 169	51	4.017	4.027		4614	10	36:1	16.41 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.017	3	97932	16	>100:1			5000.00	5665.89	124.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.006	2/-1	5126	21	23:1	Target = 1.94		95.800	115.82		
527 > 81	65	4.017	4.006		1398	10	7.9:1	3.66 (0.97-2.91)					J
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	3/0	5660	21	67:1	Target = 3.54		96.400	113.92		
627 > 80	65	4.631	4.631		1026	19	4.7:1	5.51 (1.77-5.31)					J
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	3	734264	17	>100:1			5000.00	4859.05	95	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.187	4.187	0/-3	14385	29	70:1	Target = 1.37	7.43	100.00	122.07		M
570 > 483	58	4.187	4.187		7318	27		1.96 (0.68-2.05)	3.59				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.329	4.329	4	82771	15	>100:1			1000.00	917.75	91.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.348	4.348	4/0	10340	19	57:1			100.00	114.31		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.348	4.348	4	48290	14	>100:1			1000.00	1026.55	107.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.367	4.367	4/0	5878	19	34:1	Target = 1.11		100.00	112.30		
512 > 219	57	4.358	4.367		4369	18	31:1	1.34 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.339	3	654482	15	>100:1			5000.00	5053.40	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	0/-3	14531	24	71:1	Target = 1.51	5.56	100.00	113.85		M
584 > 526	60	4.348	4.348		7526	28		1.93 (0.75-2.26)	3.50				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.339	3	658476	16	>100:1			1000.00	1093.36	103.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.339	3/0	62904	16	>100:1	Target = 14.52		100.00	98.589		
563 > 169	52	4.339	4.339		4278	20	19:1	14.70 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.501	4.501	4	100538	17	>100:1			1000.00	947.78	99	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.510	4.510	4/0	11479	13	87:1			100.00	117.29		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.519	4.519	4	38708	15	>100:1			1000.00	900.19	90.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.528	4.528	4/0	6526	19	23:1	Target = 1.06		100.00	129.19		
526 > 219	59	4.528	4.528		5703	13	37:1	1.14 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	3	739968	17	>100:1			1000.00	1232.59	122.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.614	3/0	78880	14	18:1	Target = 10.70		100.00	99.99		
613 > 169	38	4.614	4.614		6543	14	40:1	12.05 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.868	3/0	66491	18	>100:1	Target = 8.31		100.00	85.489		
663 > 169	38	4.868	4.868		7842	22	>100:1	8.47 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.087	5.087	3	881166	20	>100:1			1000.00	1083.86	105.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.093	5.093	3/0	80294	25	>100:1	Target = 12.17		100.00	104.39		
713 > 169	42	5.087	5.093		6202	25	89:1	12.94 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.512	5.512	2	942416	19	>100:1			1000.00	1085.69	107.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.512	5.512	2/0	67229	19	11:1	Target = 10.43		100.00	111.39		
813 > 269	40	5.512	5.512		5950	18	>100:1	11.29 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.944	5.944	2/0	89705	30	>100:1	Target = 13.67		100.00	104.56		
913 > 319	40	5.939	5.944		5969	38	>100:1	15.02 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.027	3	709700	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.496	2	706954	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.269	2	570039	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	1	588925	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	2	119235	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

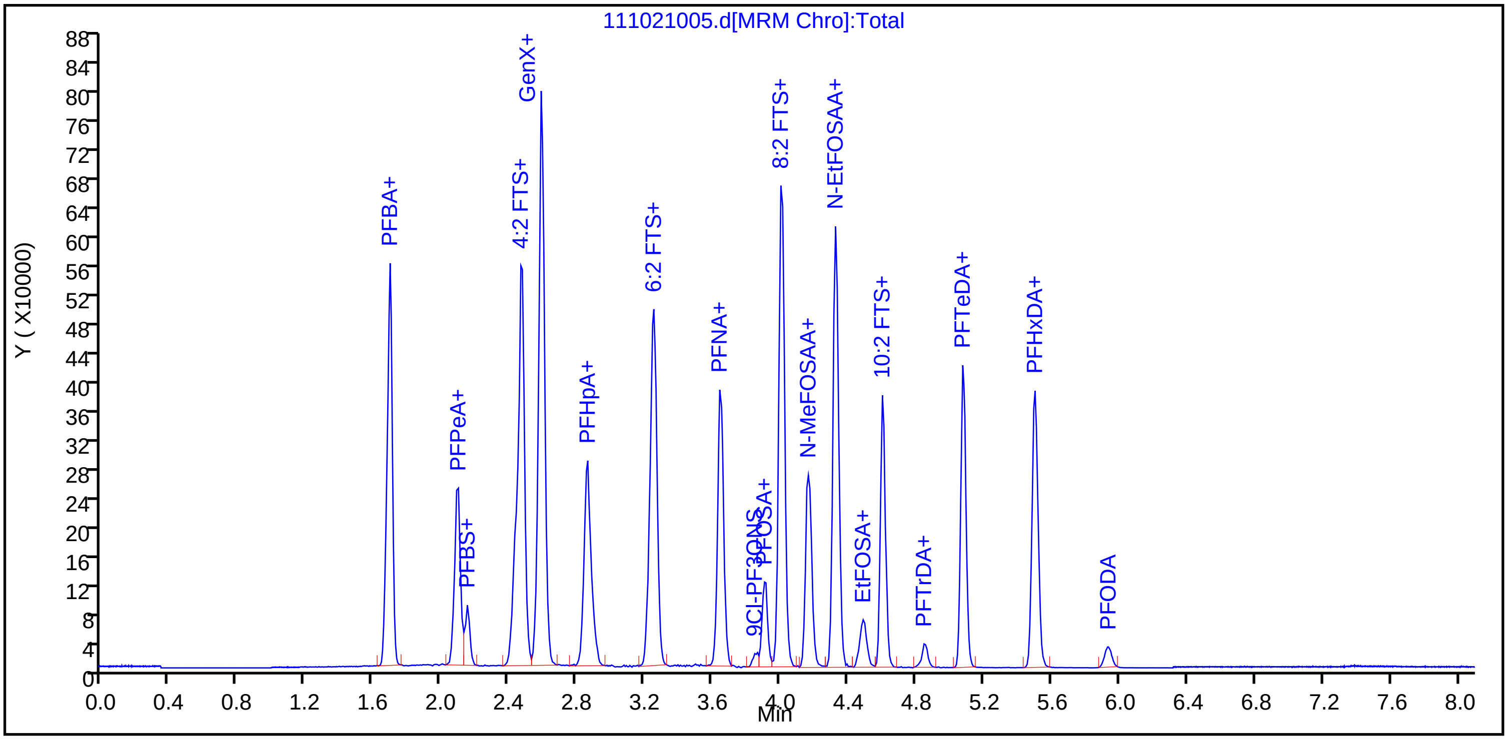
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

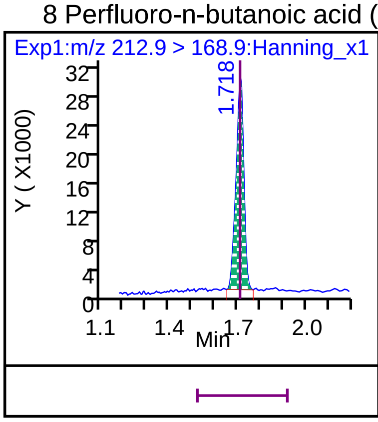
Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

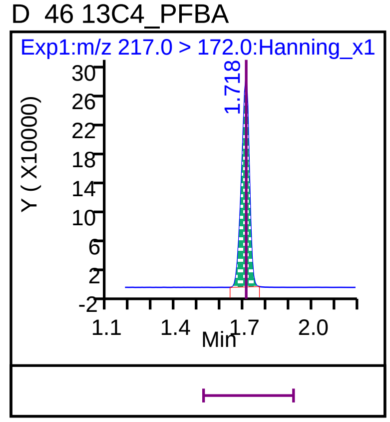
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



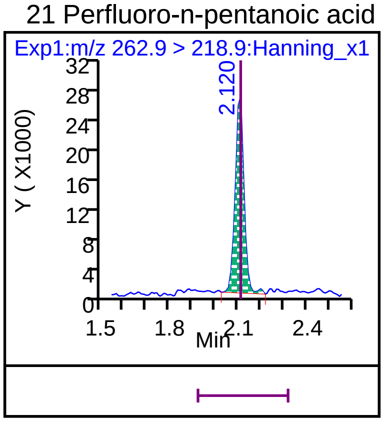
8 Perfluoro-n-butanoic acid (PFBA)



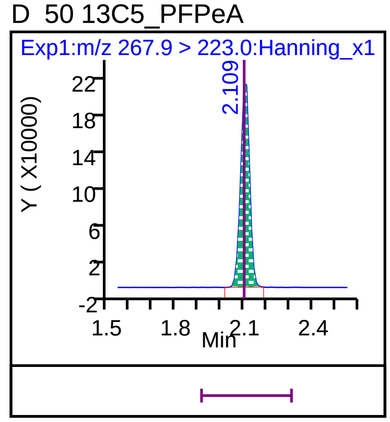
D 46 13C4_PFBA



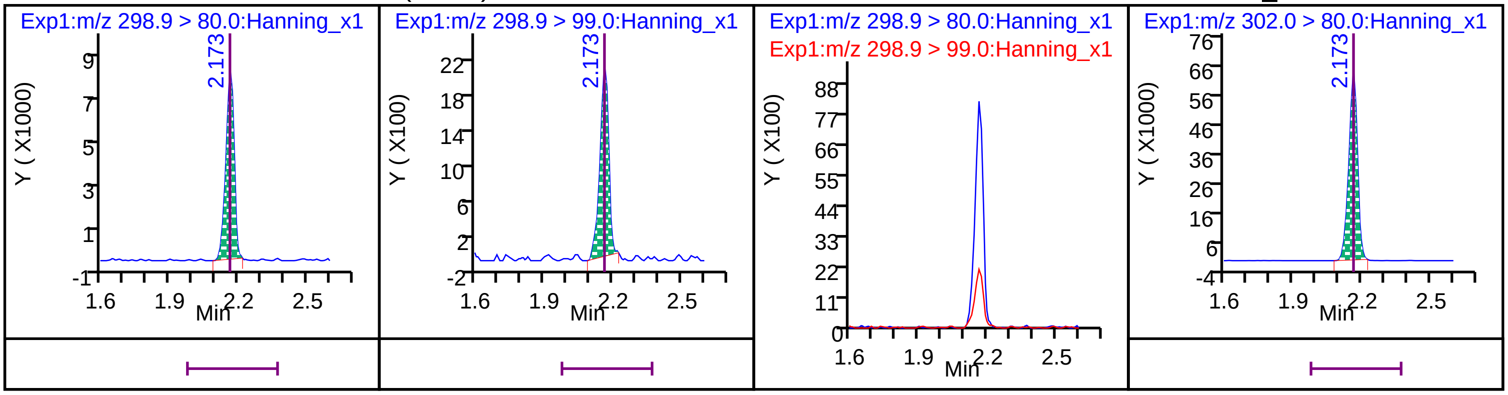
21 Perfluoro-n-pentanoic acid (PFPeA)



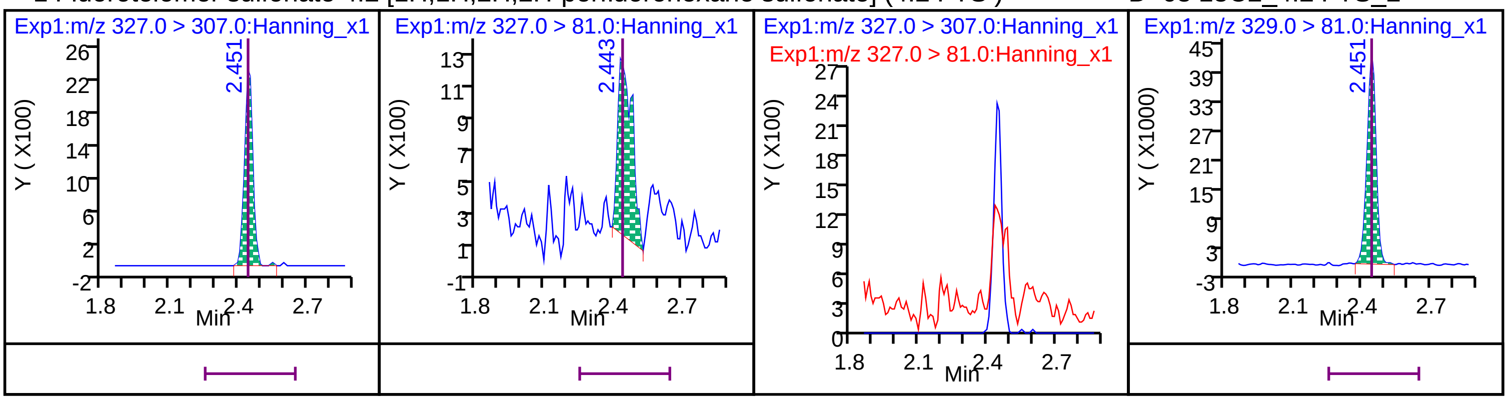
D 50 13C5_PFPeA



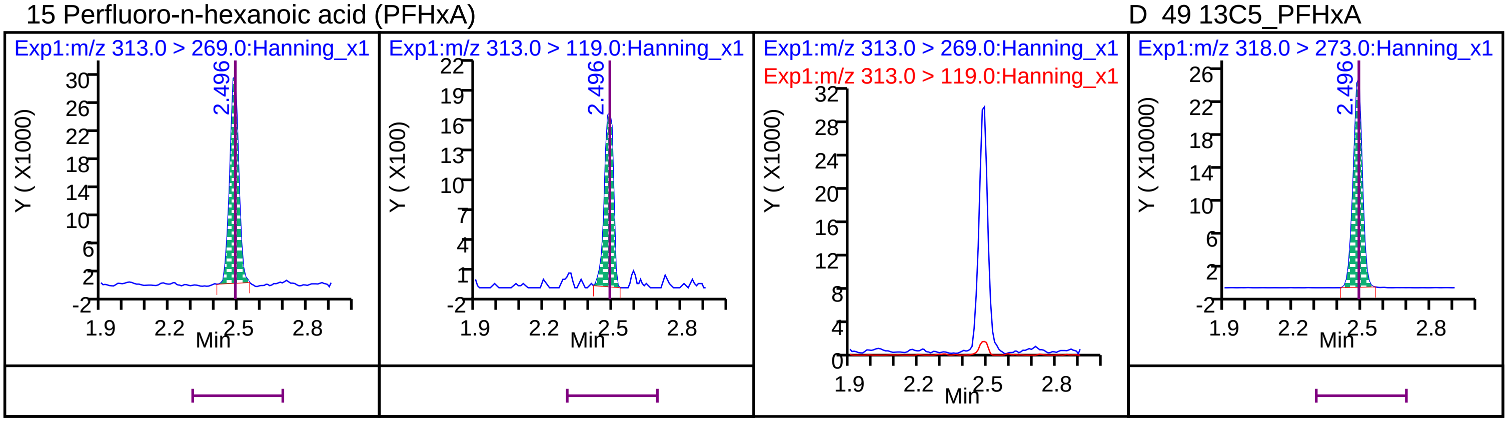
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



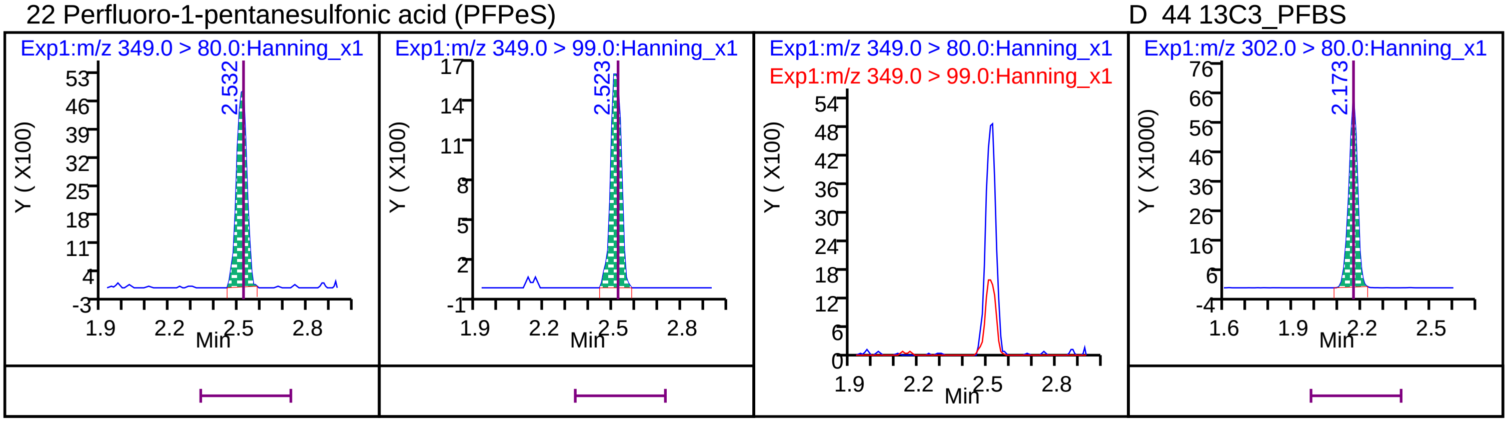
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

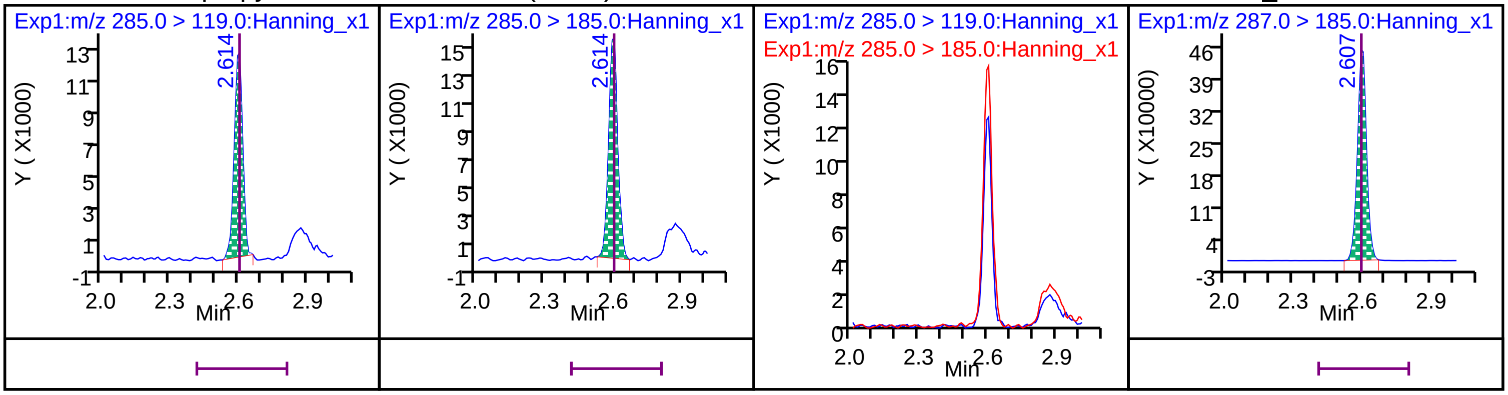


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

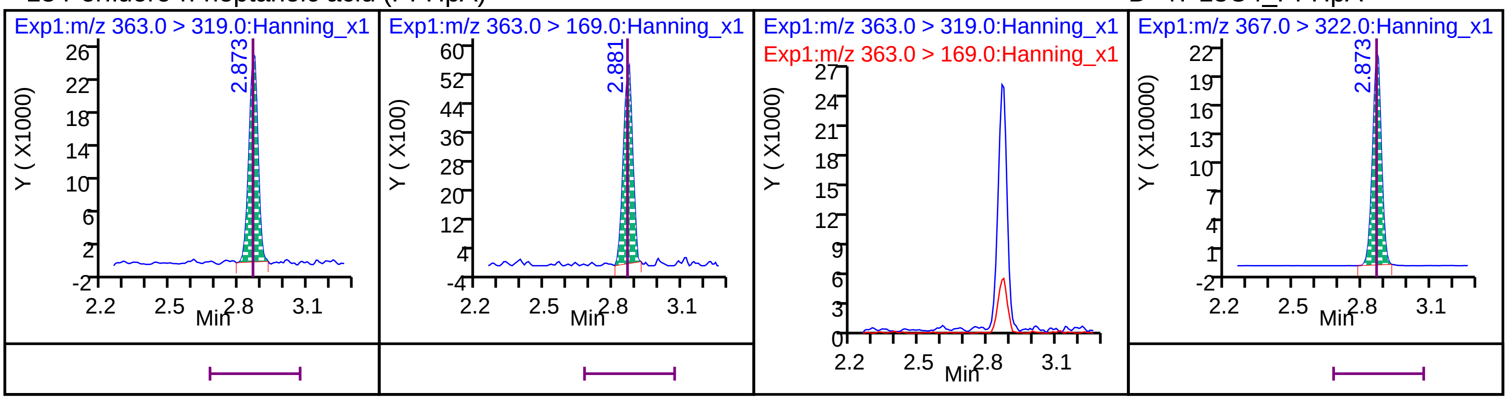


Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

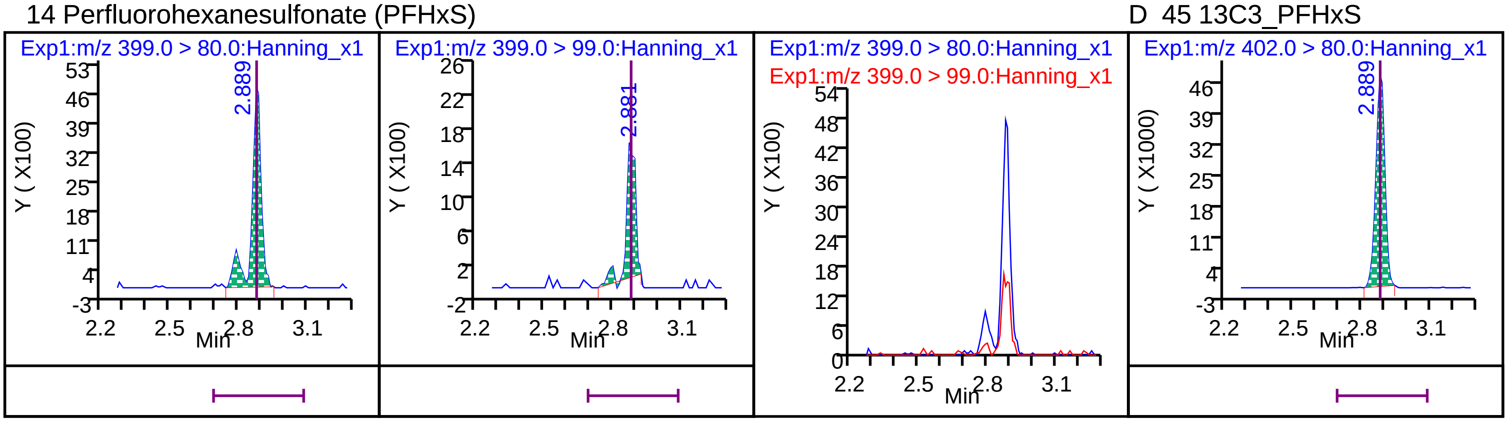
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



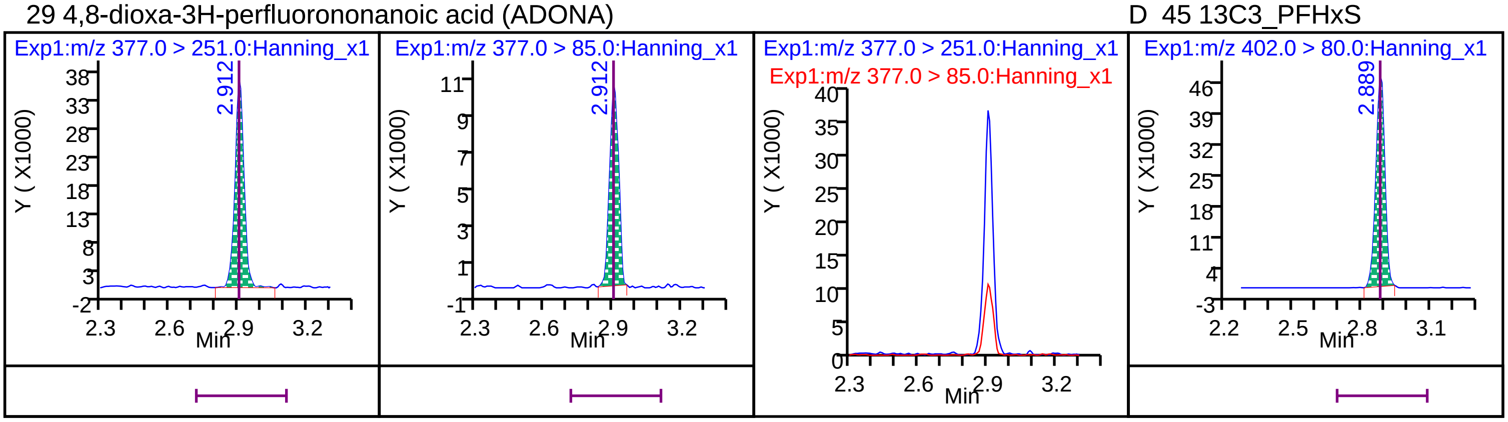
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

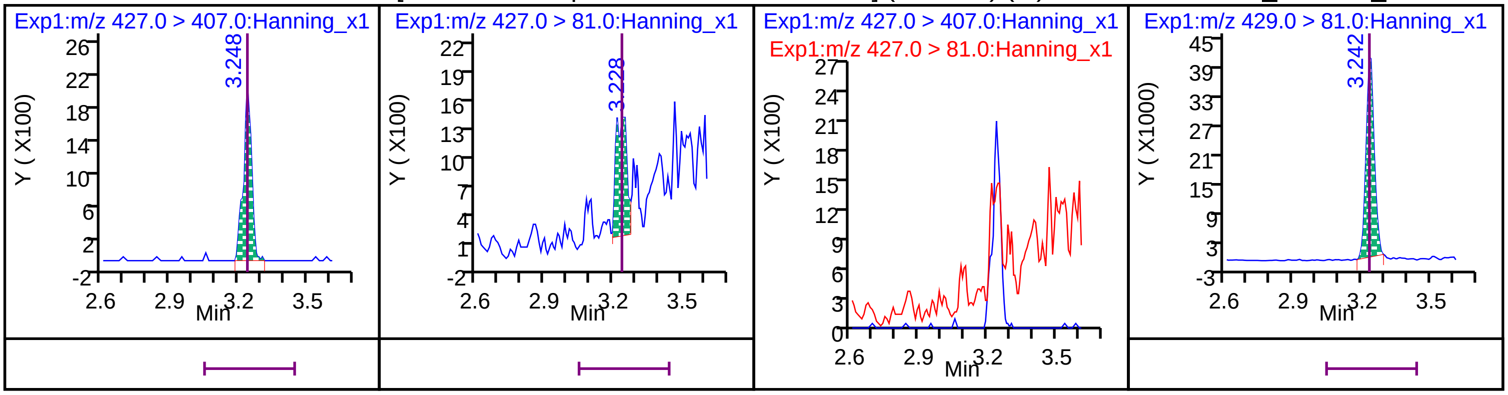


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

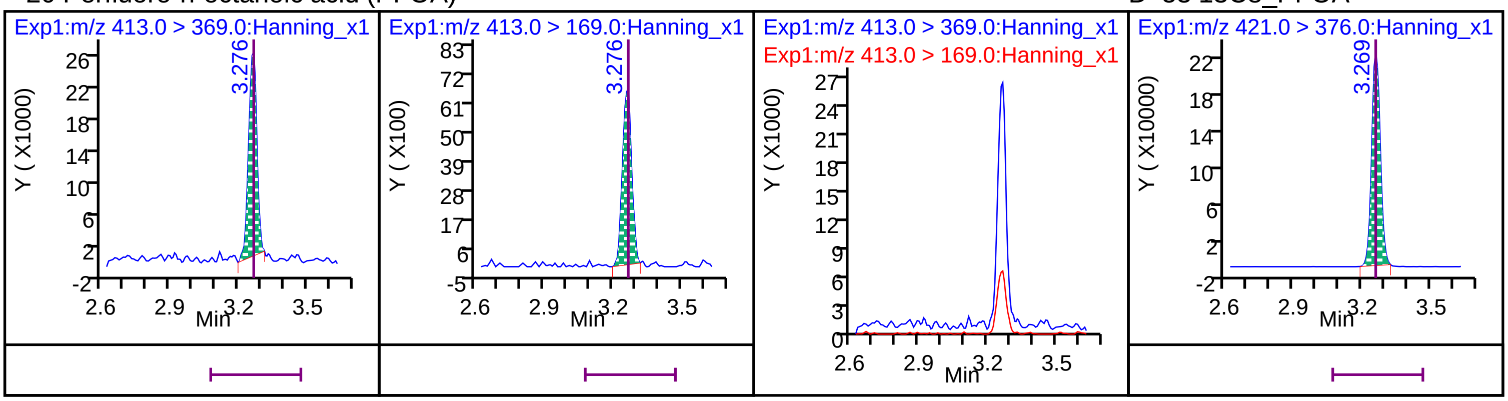


Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

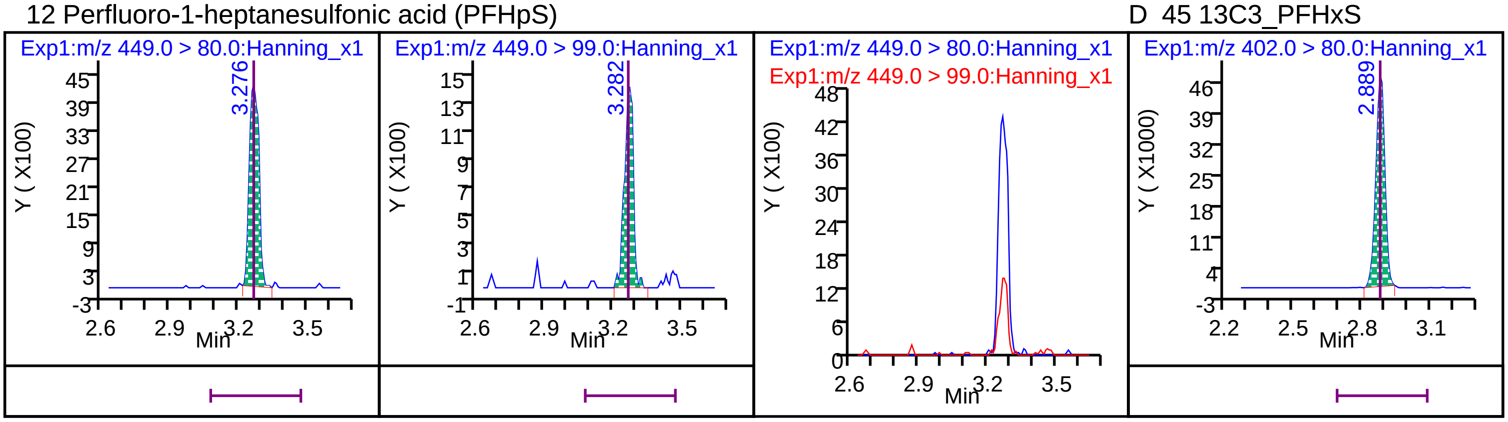
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



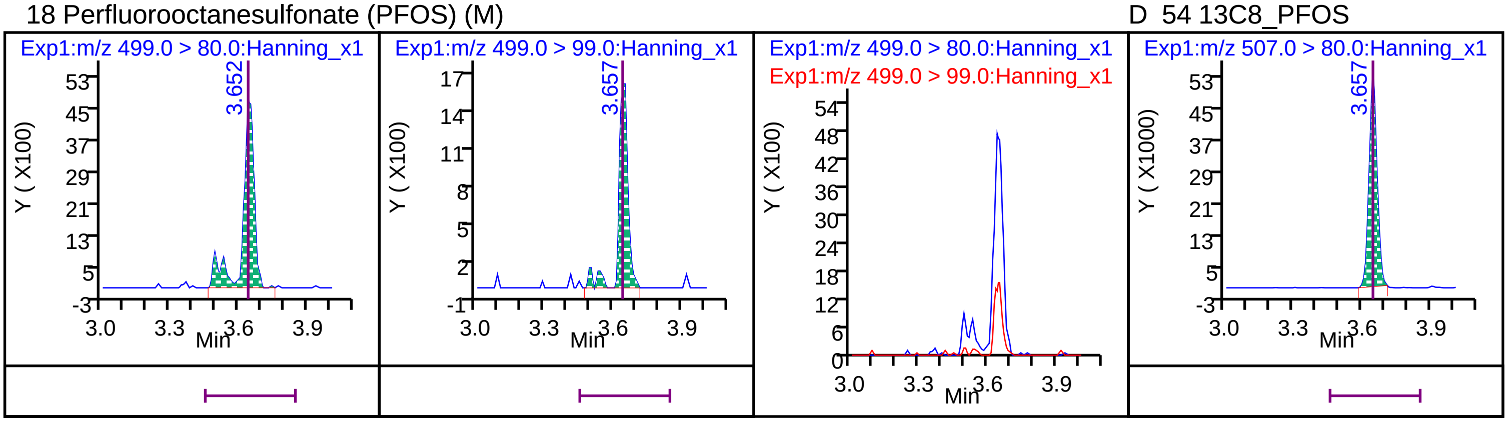
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



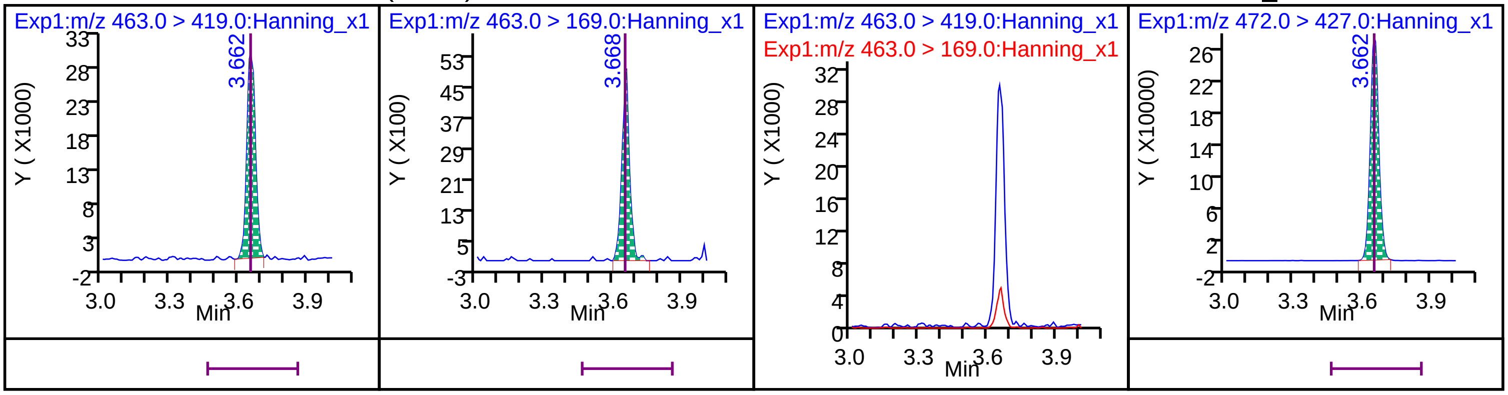
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



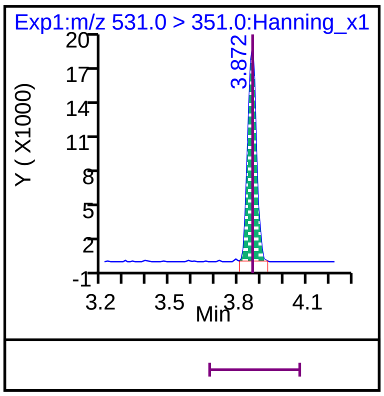
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

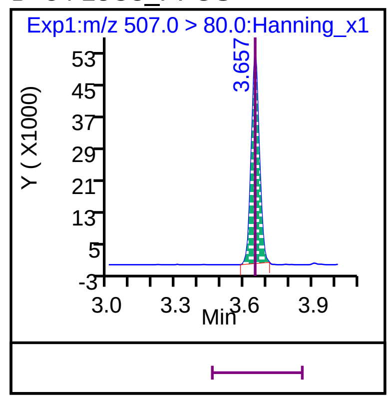


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

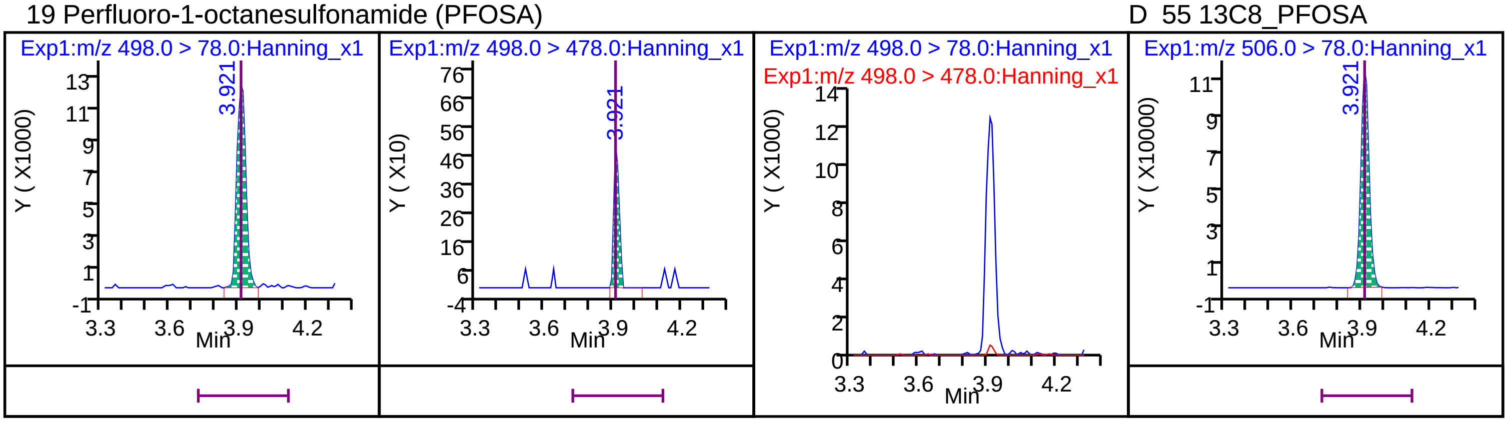


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

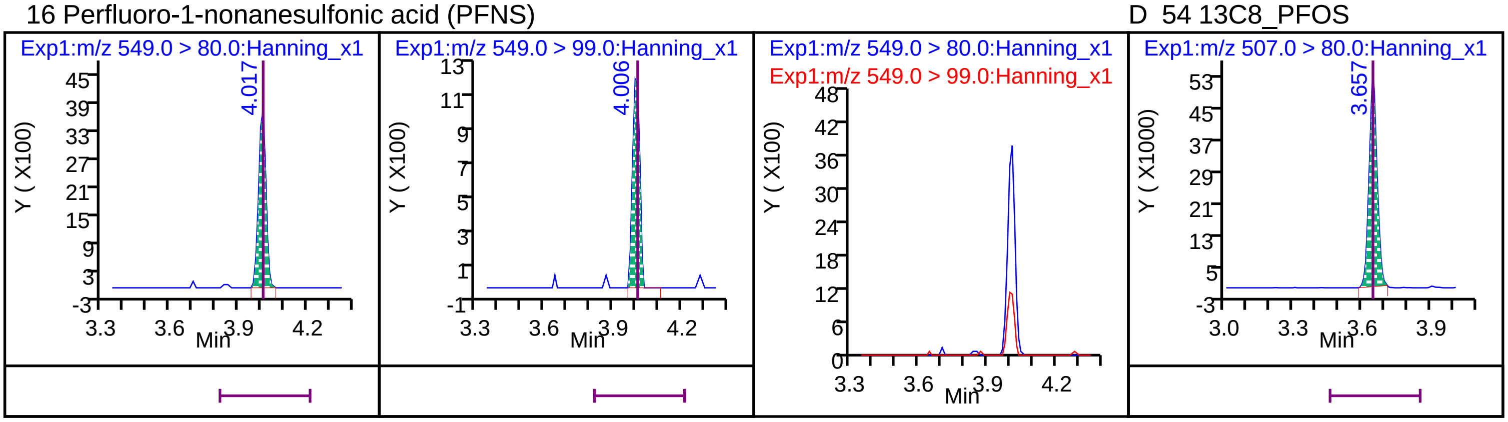




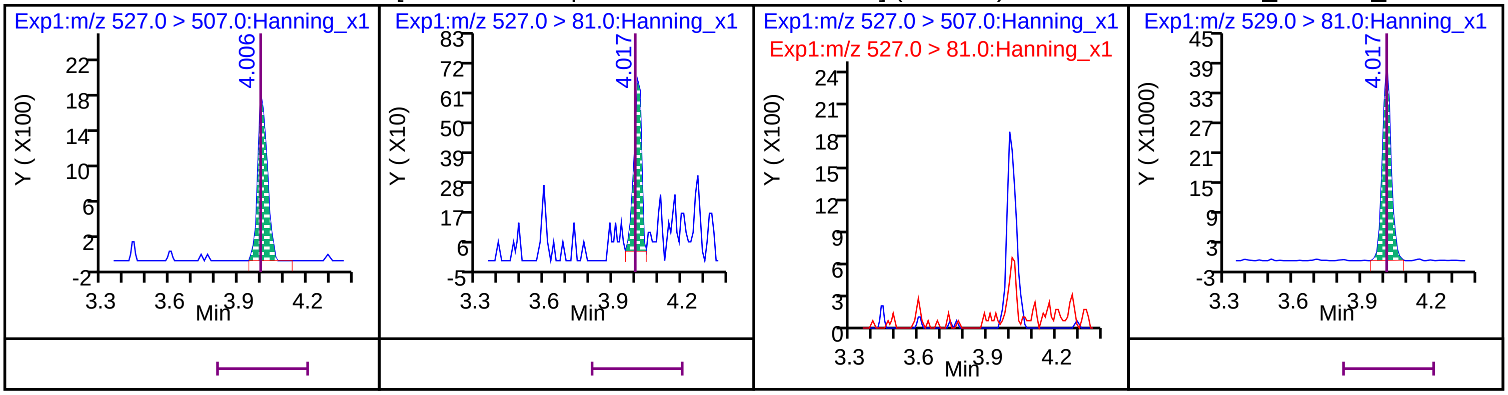
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



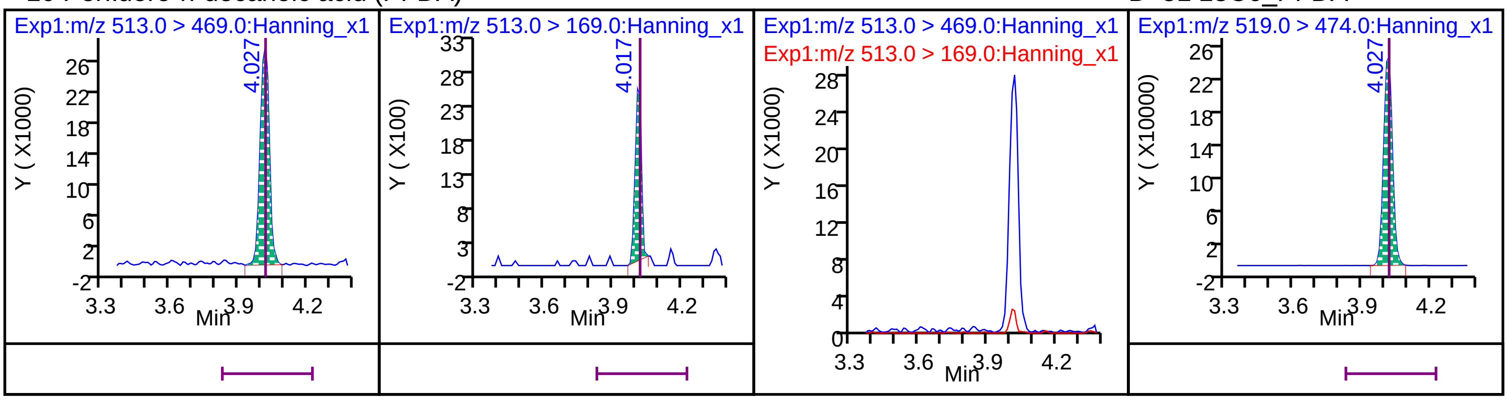
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



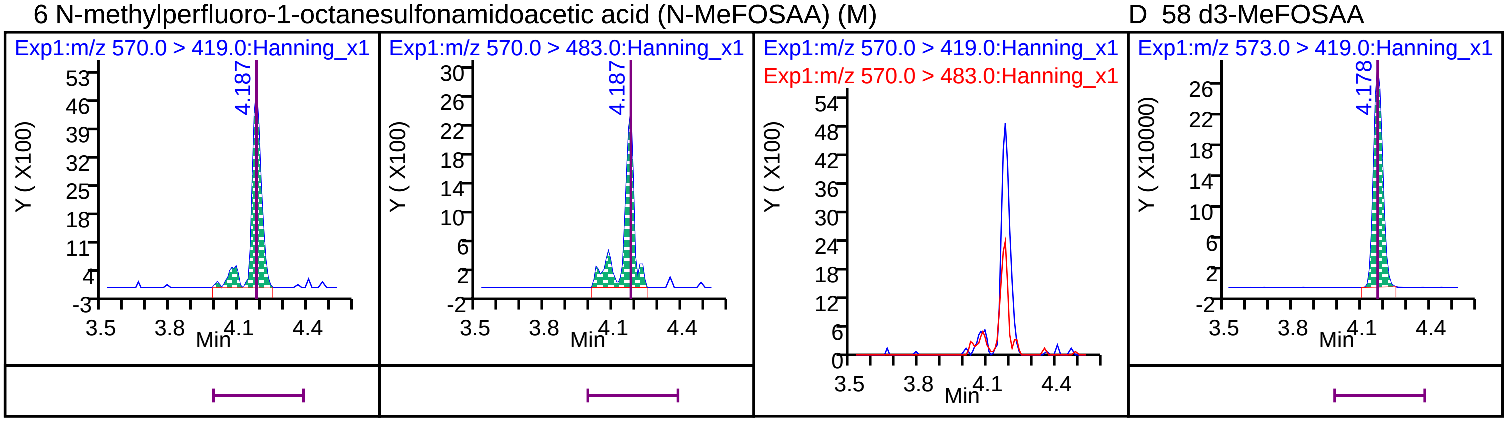
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



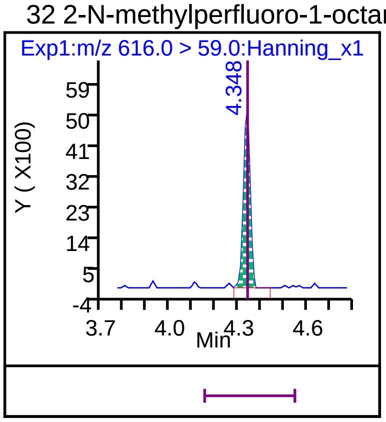
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

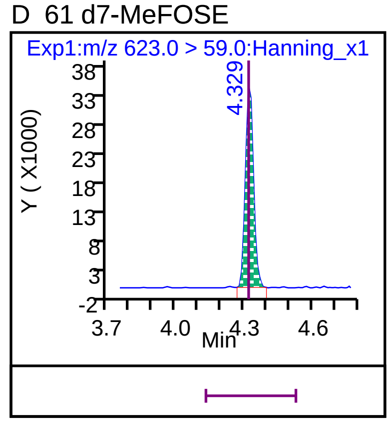


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

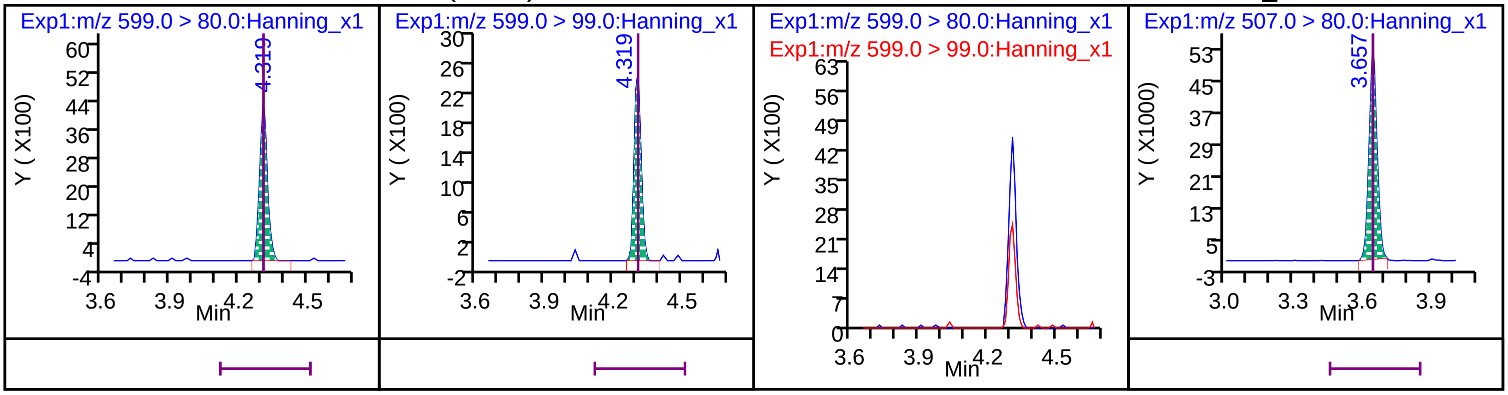




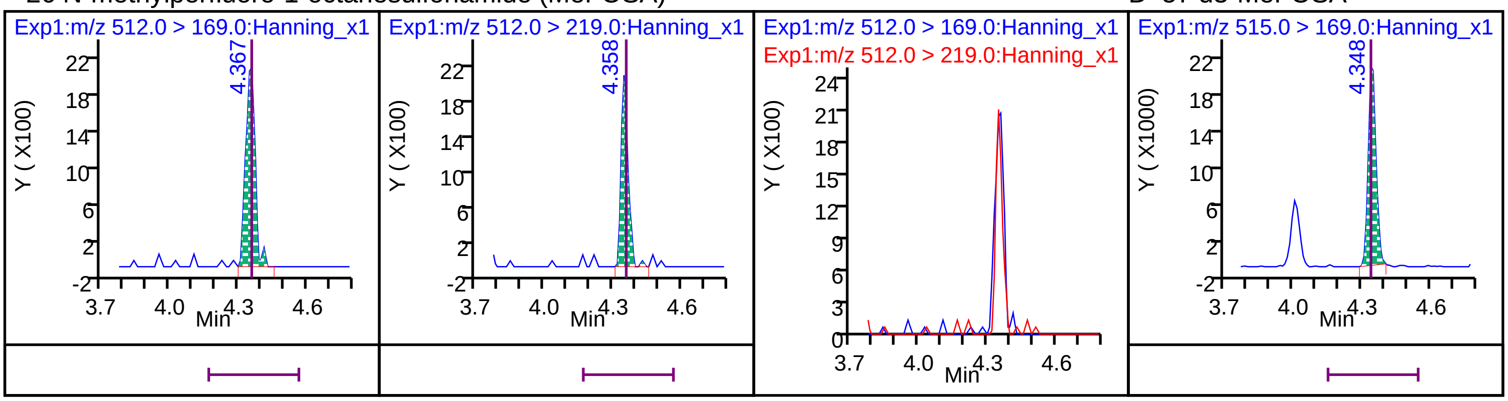
Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

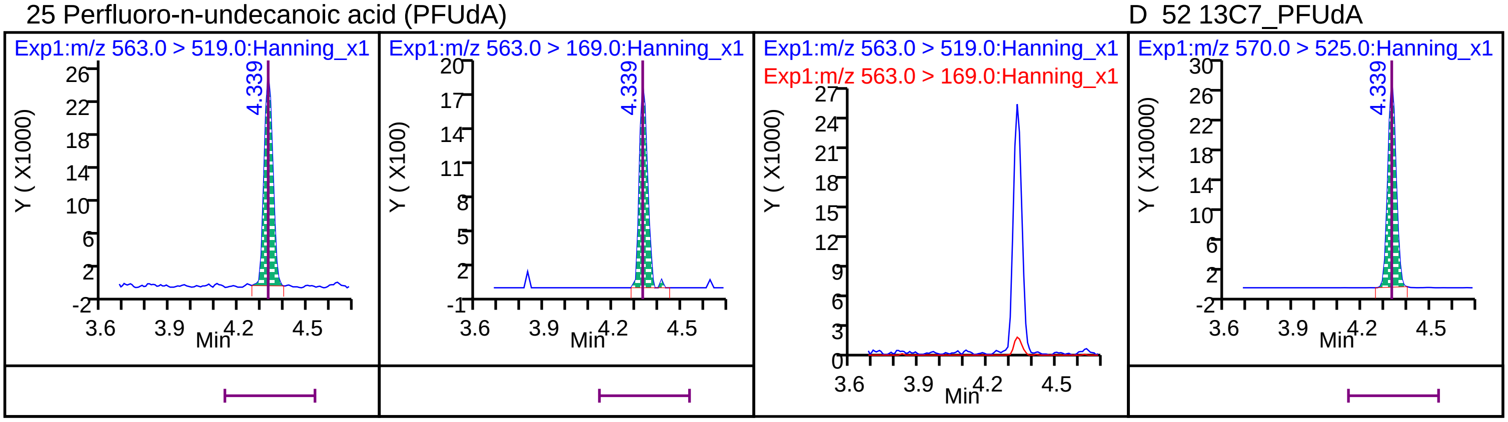
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



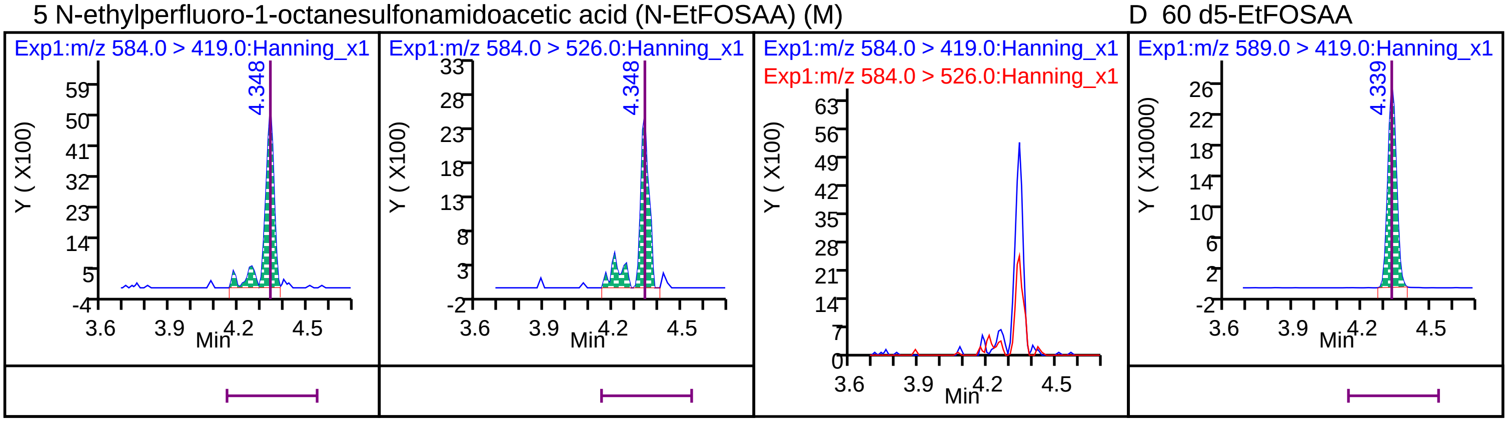
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



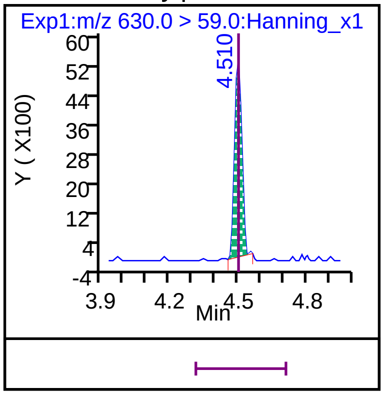
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



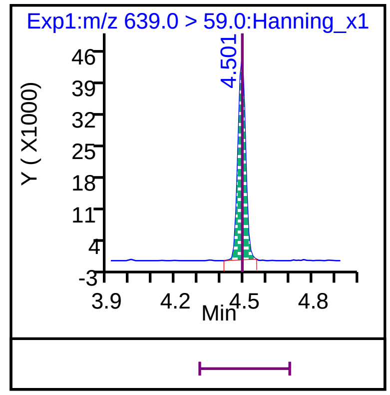
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



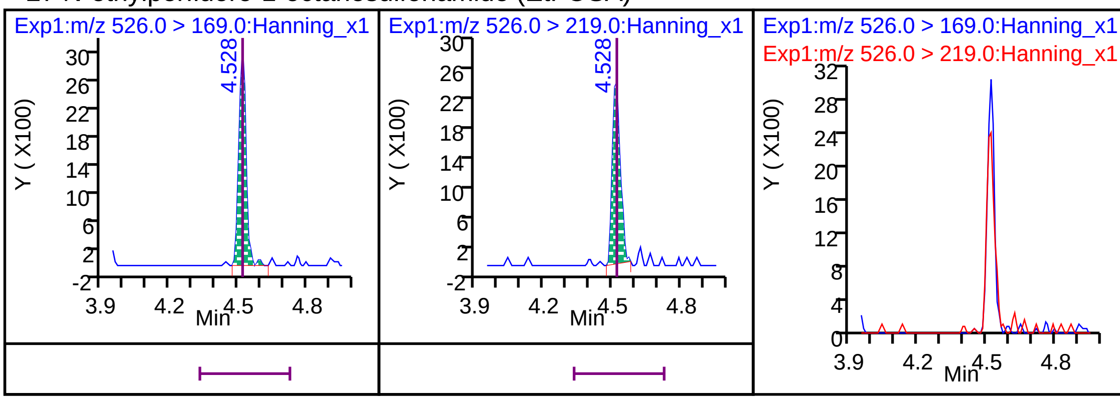
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



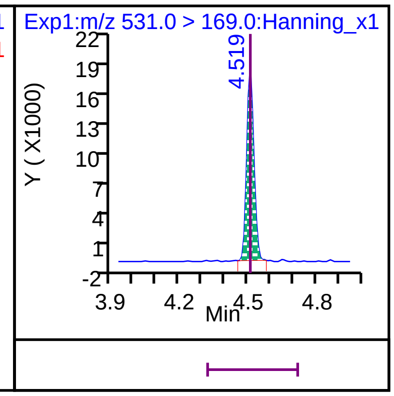
D 62 d9-EtFOSE



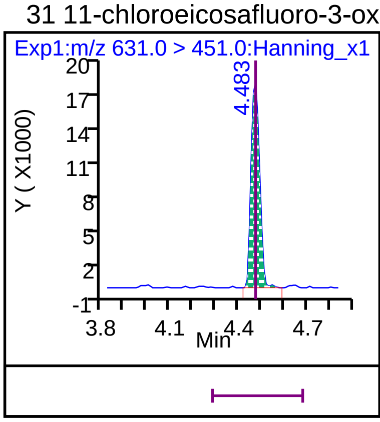
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



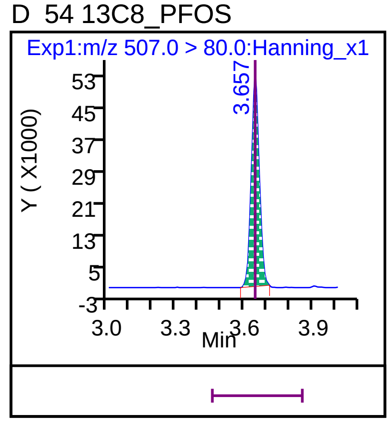
D 59 d5-EtFOSA



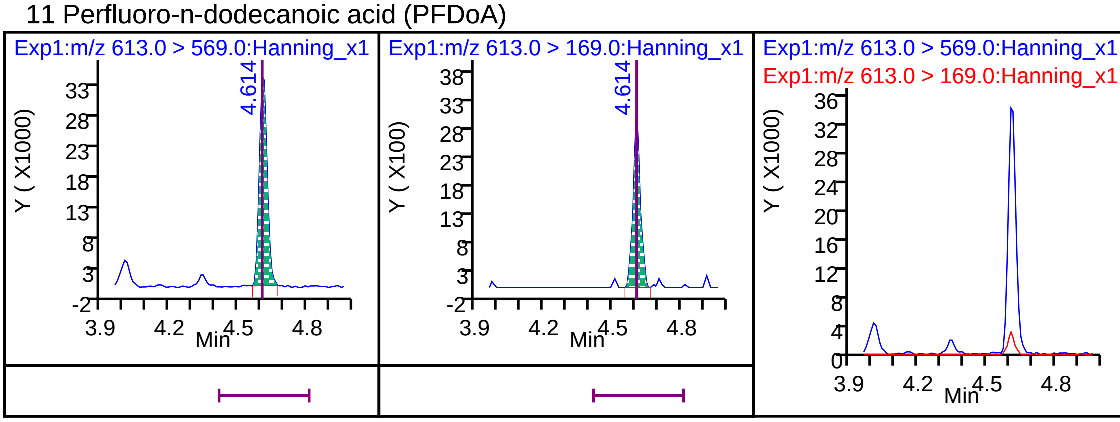
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



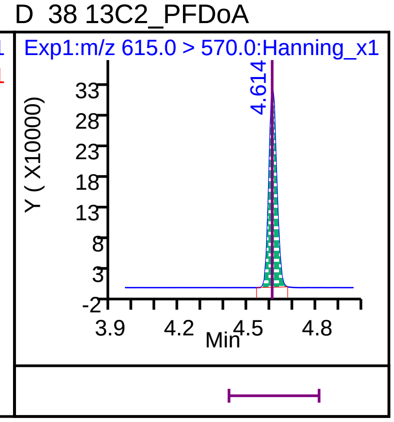
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)



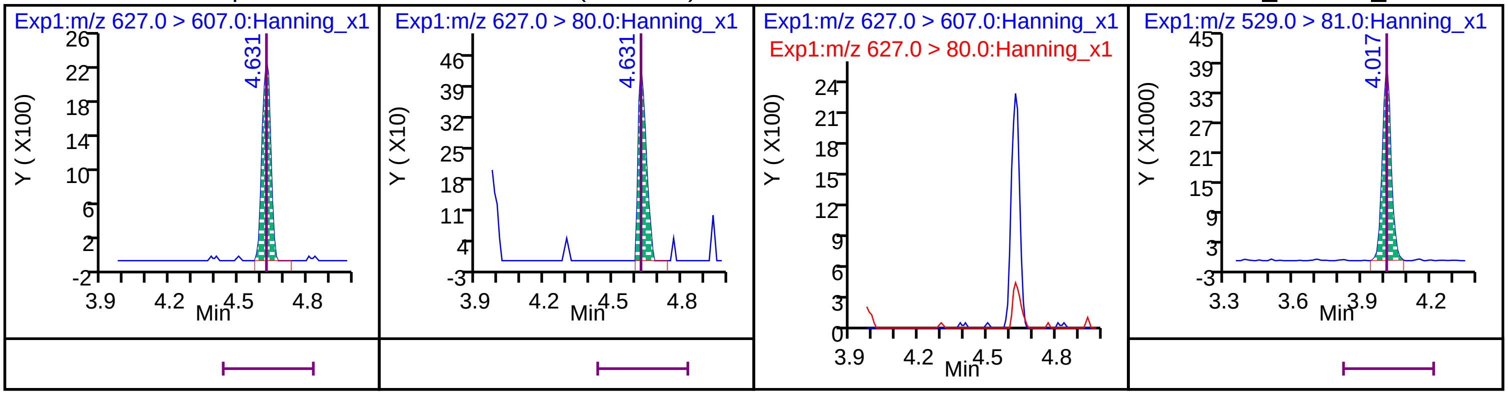
D 38 13C2_PFDoA



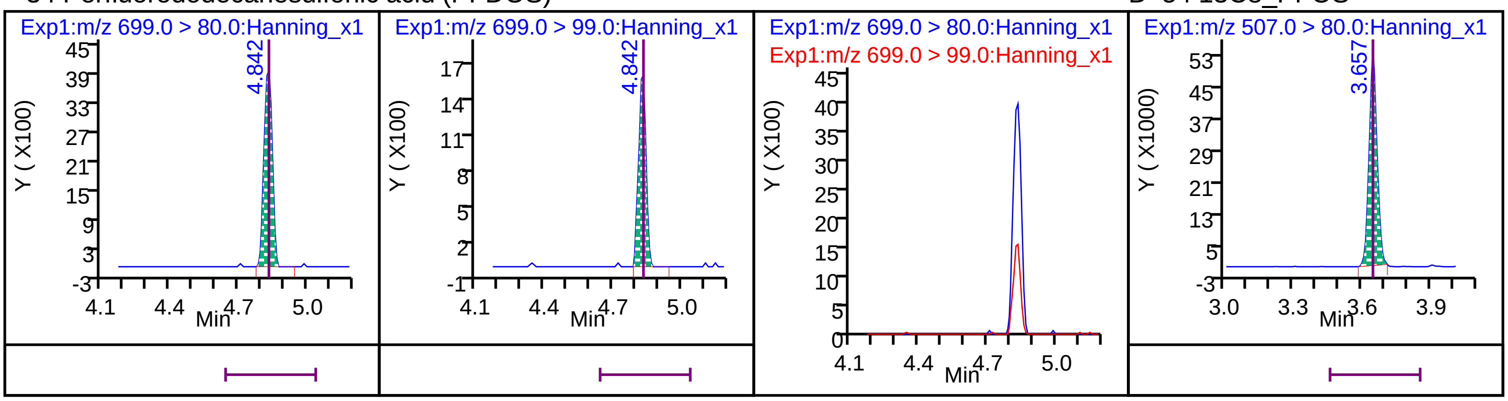
Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

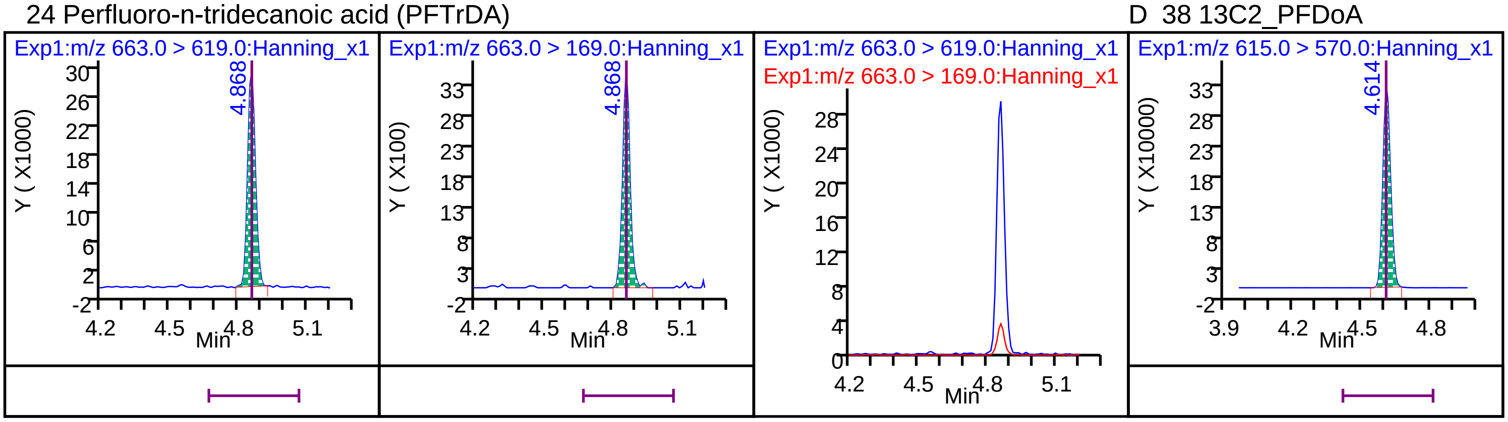
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



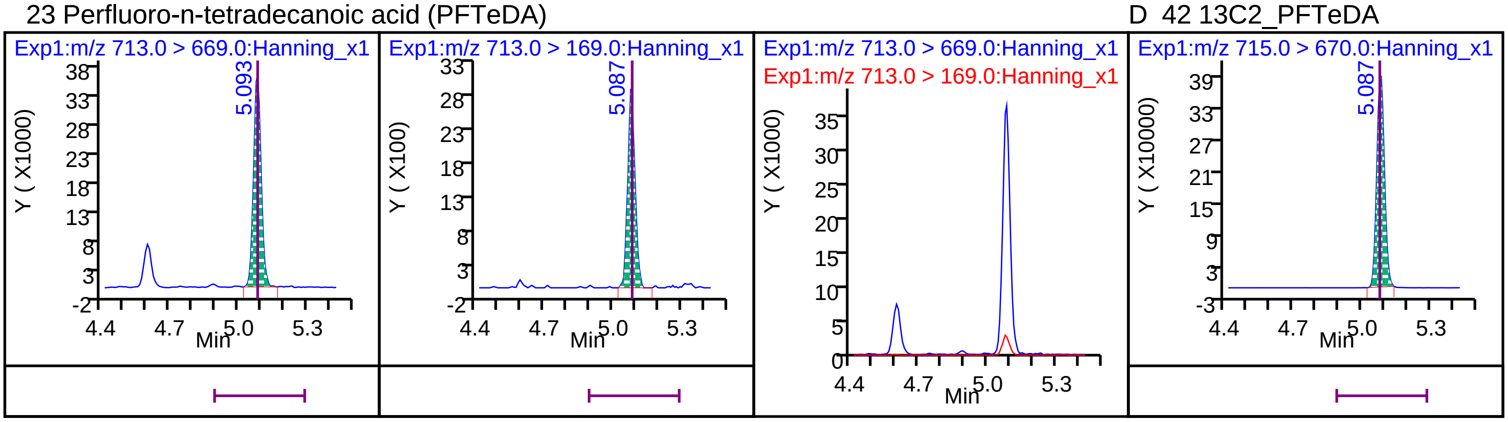
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



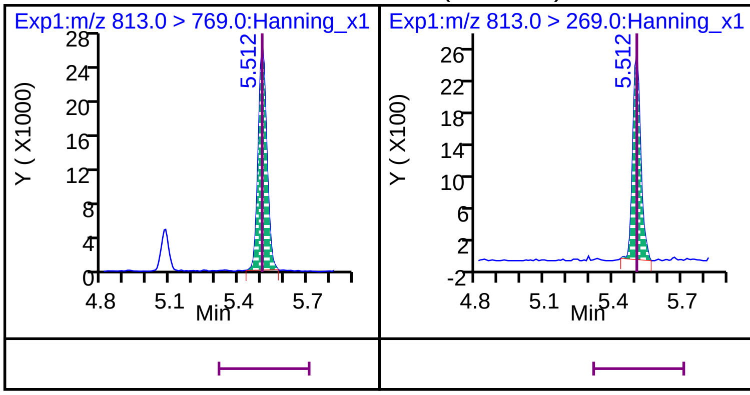
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



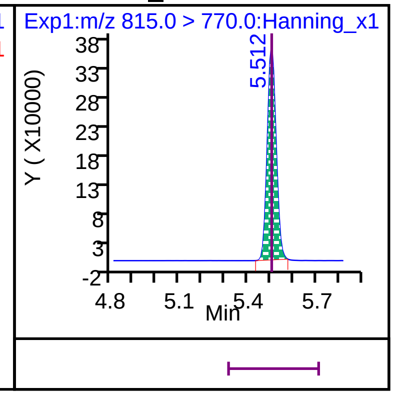
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



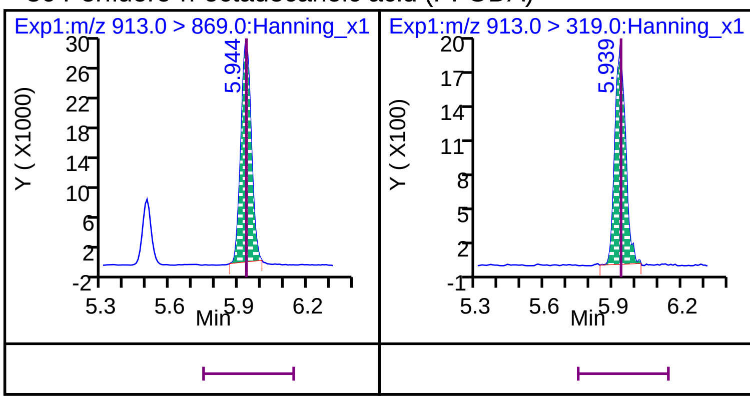
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



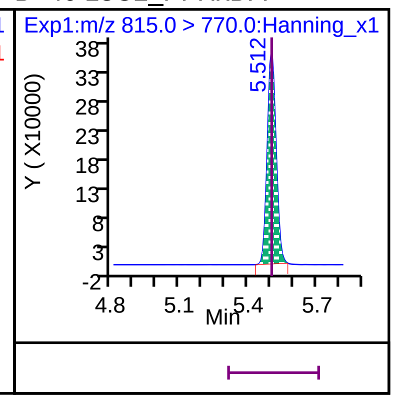
D 40 13C2_PFHxDA



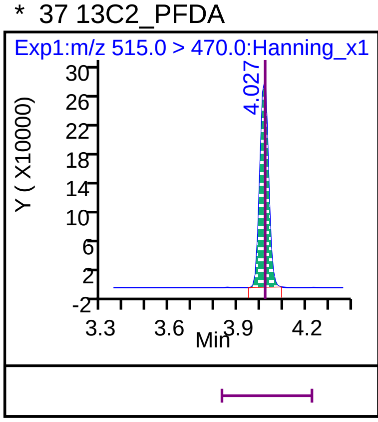
36 Perfluoro-n-octadecanoic acid (PFODA)



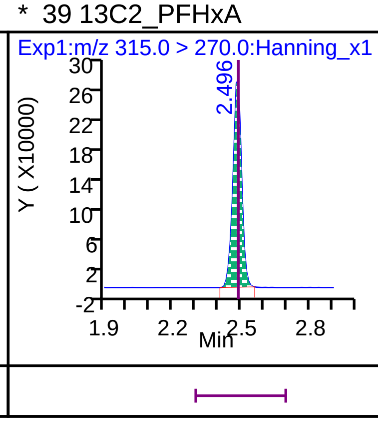
D 40 13C2_PFHxDA



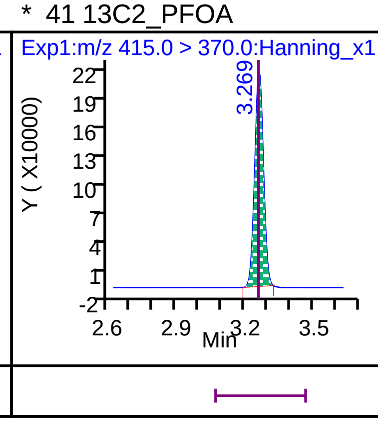
* 37 13C2_PFDA



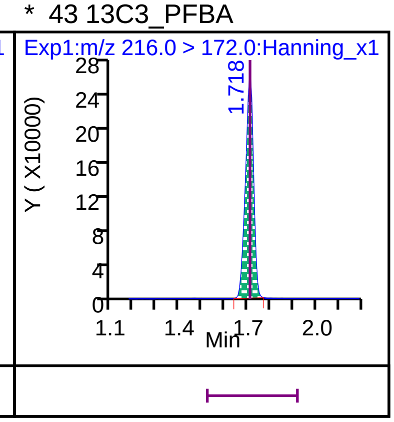
* 39 13C2_PFHxA



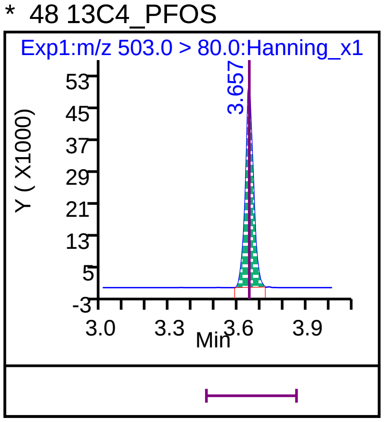
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

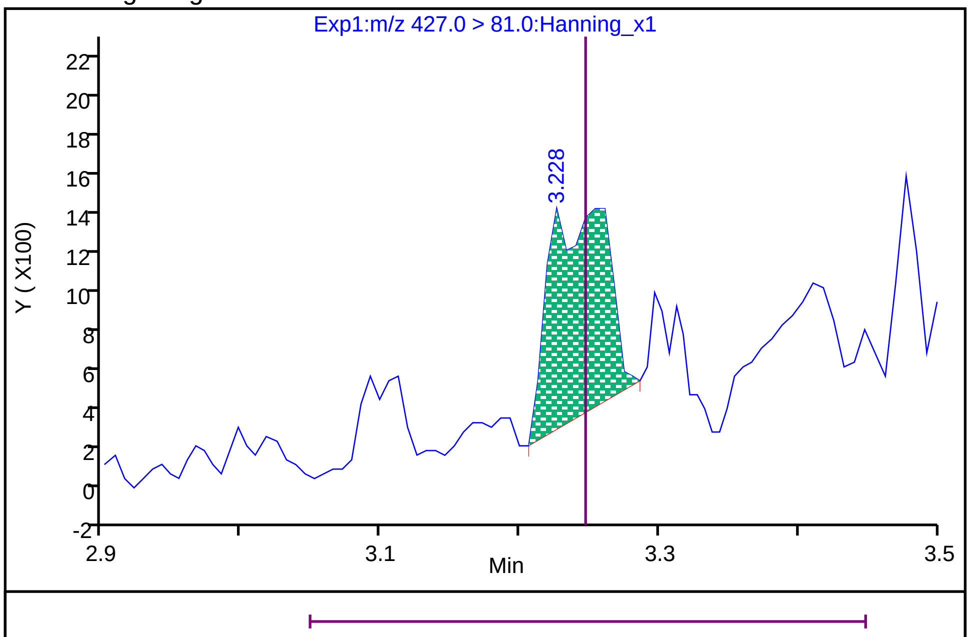
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT: 3.228
Area: 3020
Amount: 106.02
Amount Units: ng/L



RT: 3.228
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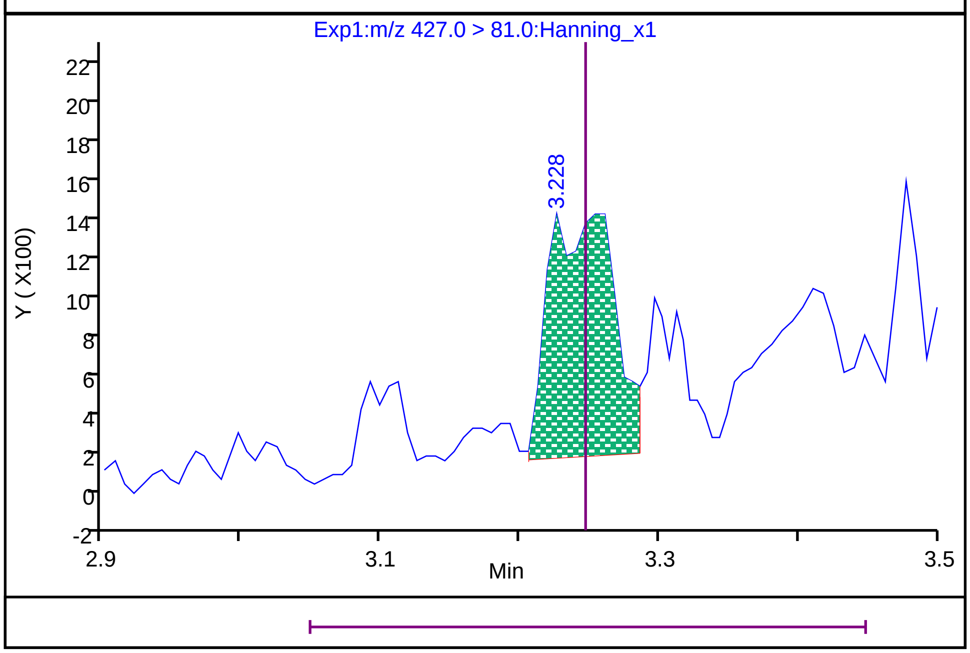
Amount: 106.02
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:32:34
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

Injection Date: 10-Nov-2021 13:49:27 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 100_SVLC-1741

Sample Info: ID CCV 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

18 PFOS, CAS: 1763-23-1

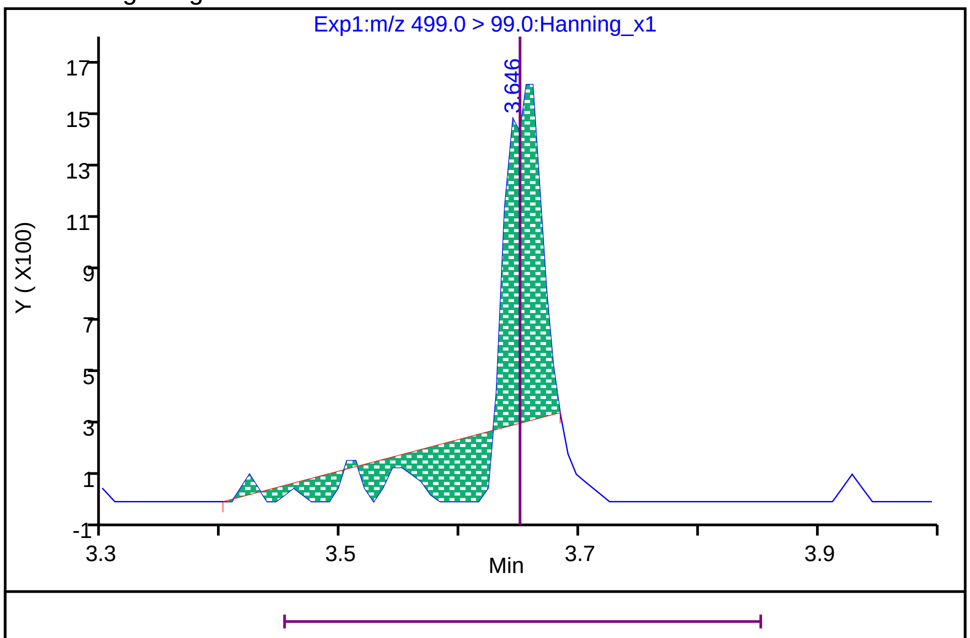
Processing Integration Results

RT: 3.646

Area: 1315

Amount: 105.41

Amount Units: ng/L

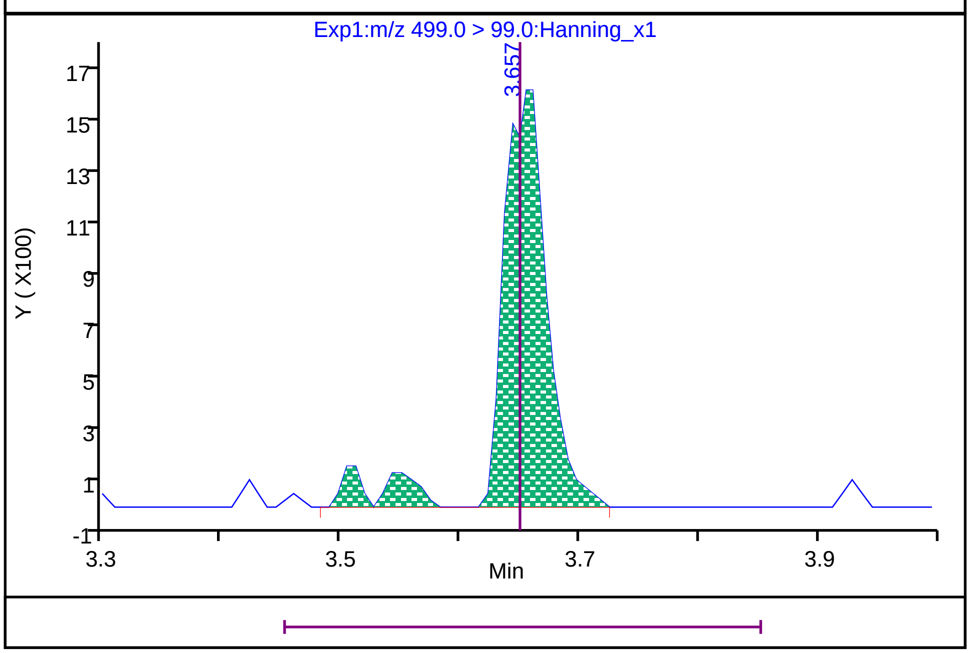


RT: 3.657

Area: 4206

Amount: 105.41

Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:32:47

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

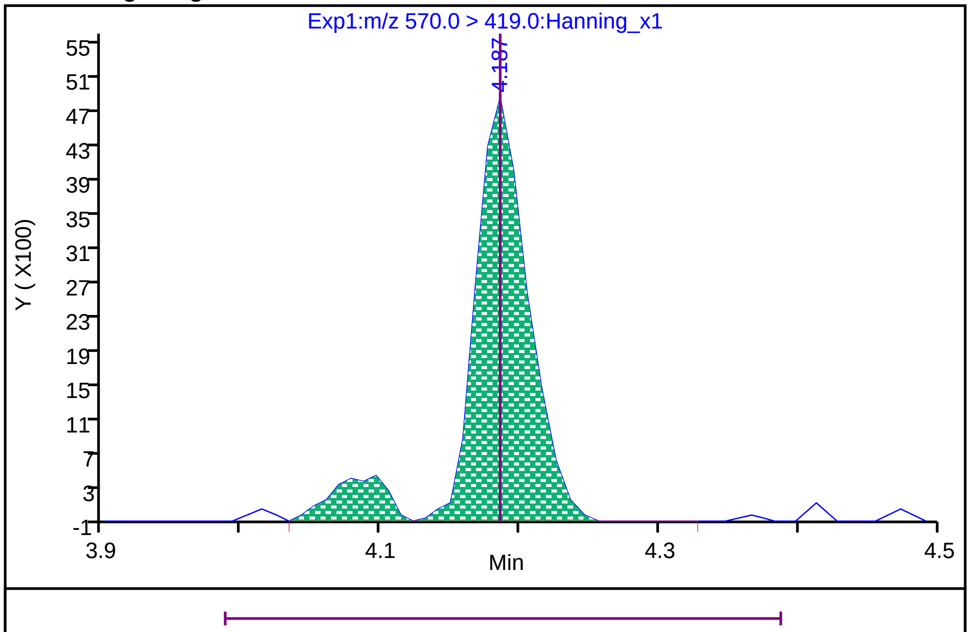
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

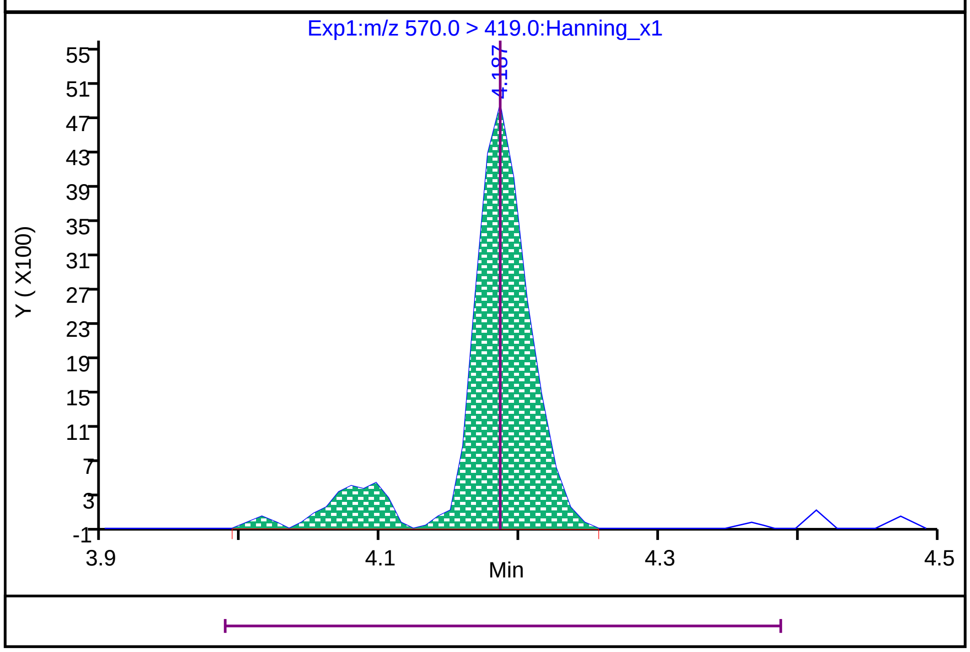
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.187
Area: 14100
Amount: 119.66
Amount Units: ng/L



RT: 4.187
Area: 14385
Amount: 122.07
Amount Units: ng/L



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Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

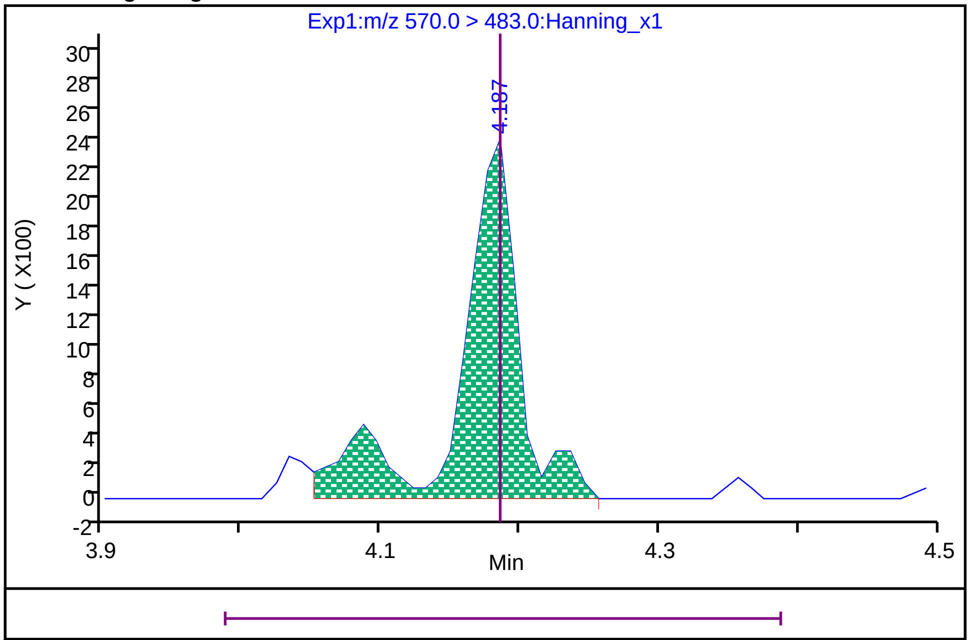
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

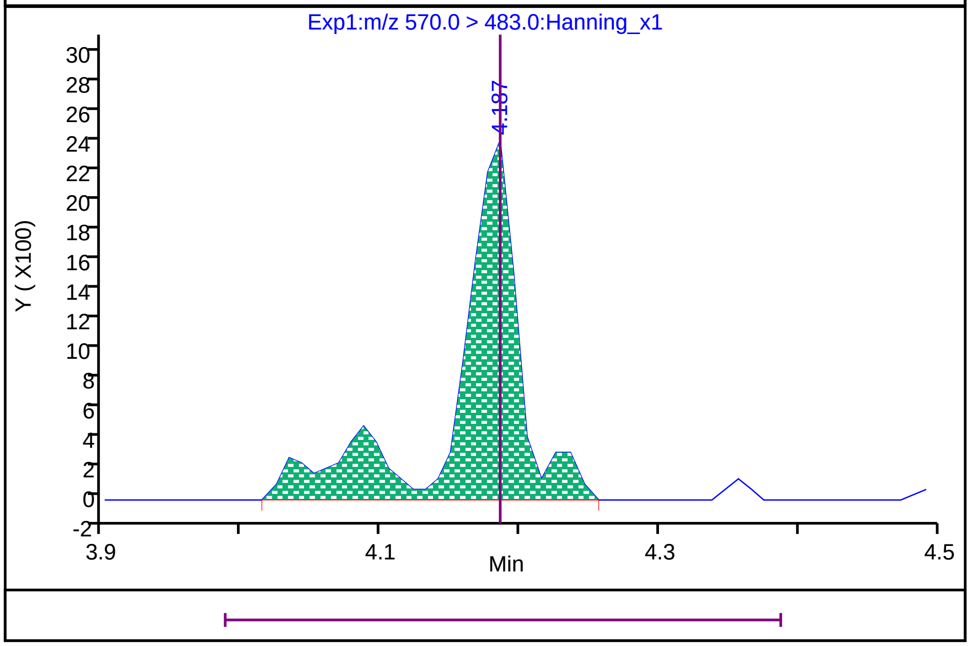
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.187
Area:	6922
Amount:	122.07
Amount Units:	ng/L



RT:	4.187
Area:	7318
Amount:	122.07
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:00

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

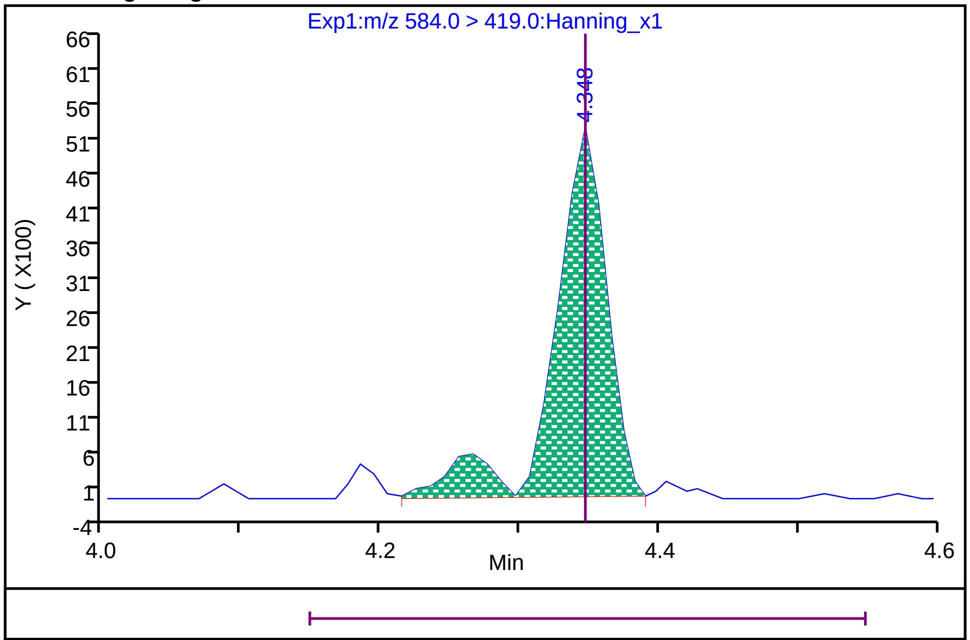
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

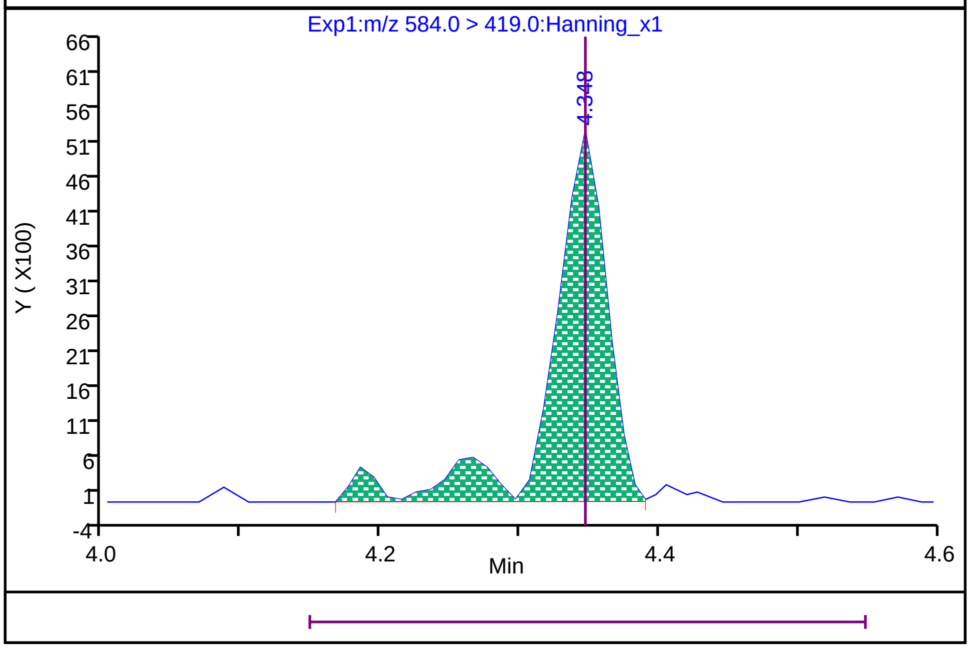
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.348
Area: 13759
Amount: 107.80
Amount Units: ng/L



RT: 4.348
Area: 14531
Amount: 113.85
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:10

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	197.74	98.9	70 - 130
D 46 13C4_PFBA	659044	646905			98.2	50 - 150
21 PFPeA			200.00	200.50	100.3	70 - 130
D 50 13C5_PFPeA	581857	586269			100.8	50 - 150
D 44 13C3_PFBS	164288	176549			107.5	50 - 150
7 PFBS			176.80	175.08	99	70 - 130
1 4:2 FTS			186.80	195.11	104.4	70 - 130
D 63 13C2_4:2 FTS_2	113327	112405			99.2	50 - 150
D 49 13C5_PFHxA	667779	692627			103.7	50 - 150
15 PFHxA			200.00	207.18	103.6	70 - 130
22 PFPeS			187.60	171.48	91.4	70 - 130
28 GenX			400.00	423.23	105.8	70 - 130
D 66 13C3_GenX	1212655	1205806			99.4	50 - 150
D 47 13C4_PFHpA	545849	542530			99.4	50 - 150
13 PFHpA			200.00	211.69	105.8	70 - 130
D 45 13C3_PFHxS	123814	126528			102.2	50 - 150
14 PFHxS			182.00	187.64	103.1	70 - 130
29 ADONA			188.40	202.46	107.5	70 - 130
D 64 13C2_6:2 FTS_2	97903	96806			98.9	50 - 150
2 6:2 FTS			189.60	220.56	116.3	70 - 130
20 PFOA			200.00	197.42	98.7	70 - 130
D 53 13C8_PFOA	574828	569327			99	50 - 150
12 PFHpS			190.40	195.91	102.9	70 - 130
D 54 13C8_PFOS	125685	118313			94.1	50 - 150
18 PFOS			185.60	200.89	108.2	70 - 130
17 PFNA			200.00	214.72	107.4	70 - 130
D 56 13C9_PFNA	690339	657736			95.3	50 - 150
30 9Cl-PF3ONS			186.40	209.43	112.4	70 - 130
D 55 13C8_PFOSA	270667	255377			94.4	50 - 150
19 PFOSA			200.00	209.68	104.8	70 - 130
16 PFNS			192.00	199.18	103.7	70 - 130
10 PFDA			200.00	203.32	101.7	70 - 130
3 8:2 FTS			191.60	185.28	96.7	70 - 130
D 51 13C6_PFDA	638513	624093			97.7	50 - 150
D 65 13C2_8:2 FTS_2	97932	98636			100.7	50 - 150
6 N-MeFOSAA			200.00	205.13	102.6	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	734264	701199			95.5	50 - 150
D 61 d7-MeFOSE	82771	93450			112.9	50 - 150
32 MeFOSE			200.00	198.99	99.5	70 - 130
26 MeFOSA			200.00	185.37	92.7	70 - 130
D 57 d3-MeFOSA	48290	48686			100.8	50 - 150
9 PFDS			192.80	190.14	98.6	70 - 130
D 52 13C7_PFUdA	658476	639746			97.2	50 - 150
D 60 d5-EtFOSAA	654482	657946			100.5	50 - 150
25 PFUdA			200.00	213.06	106.5	70 - 130
5 N-EtFOSAA			200.00	194.99	97.5	70 - 130
D 62 d9-EtFOSE	100538	107860			107.3	50 - 150
33 EtFOSE			200.00	210.86	105.4	70 - 130
D 59 d5-EtFOSA	38708	44616			115.3	50 - 150
31 11Cl-PF3OUDS			188.40	236.22	125.4	70 - 130
27 EtFOSA			200.00	215.49	107.7	70 - 130
D 38 13C2_PFDoA	739968	668534			90.3	50 - 150
11 PFDoA			200.00	210.87	105.4	70 - 130
4 10:2 FTS			192.80	200.60	104	70 - 130
34 PFDOS			193.60	213.14	110.1	70 - 130
24 PFTrDA			200.00	197.66	98.8	70 - 130
D 42 13C2_PFTeDA	881166	866291			98.3	50 - 150
23 PFTeDA			200.00	204.48	102.2	70 - 130
D 40 13C2_PFHxDA	942416	946765			100.5	50 - 150
35 PFHxDA			200.00	201.04	100.5	70 - 130
36 PFODA			200.00	203.61	101.8	70 - 130

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.718	0	646905	21	>100:1			1000.00	1040.58	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.722	1.718	1/1	134907	20	>100:1			200.00	197.74		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.115	2.109	1	586269	17	>100:1			1000.00	1025.68	100.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.115	2.120	0/-1	132300	15	>100:1			200.00	200.50		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.173	1	176549	17	>100:1			1000.00	1020.69	107.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.167	2.173	0/-1	38547	15	>100:1	Target = 3.53		176.80	175.08		
298.9 > 99	44	2.178	2.173		10842	15	76:1	3.55 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.530	2.532	0/-1	28058	18	>100:1	Target = 3.10		187.60	171.48		
349 > 99	44	2.521	2.532		9823	17	>100:1	2.85 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.450	2.451	0	112405	18	>100:1			5000.00	4964.07	99.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.459	2.451	1/1	9669	23	>100:1	Target = 1.75		186.80	195.11		
327 > 81	63	2.450	2.451		7393	22	12:1	1.30 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.496	0	692627	18	>100:1			1000.00	1063.47	103.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.495	2.496	0/0	149207	17	>100:1	Target = 18.91		200.00	207.18		
313 > 119	49	2.495	2.496		8354	22	44:1	17.86 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.607	1	1205806	19	>100:1			5000.00	5202.90	99.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.605	2.614	0/-1	66101	19	>100:1	Target = 0.79		400.00	423.23		
285 > 185	66	2.613	2.614		77341	20	>100:1	0.85 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.873	1	542530	18	>100:1			1000.00	1021.83	99.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.873	1/0	126197	19	>100:1	Target = 3.80		200.00	211.69		
363 > 169	47	2.872	2.873		35223	20	>100:1	3.58 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.889	0	126528	19	>100:1			1000.00	1007.07	102.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.887	2.889	0/0	26101	24	>100:1	Target = 2.89	4.15	182.00	187.64		
399 > 99	45	2.895	2.889		8334	26	27:1	3.13 (1.44-4.34)	4.14				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.917	2.912	1/1	198666	22	>100:1	Target = 3.23		188.40	202.46		
377 > 85	45	2.917	2.912		55864	20	>100:1	3.55 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.279	3.276	1/1	25459	20	>100:1	Target = 3.12		190.40	195.91		
449 > 99	45	3.279	3.276		8384	32	87:1	3.03 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.245	3.242	1	96806	19	>100:1			5000.00	5378.12	98.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													a
427 > 407	64	3.238	3.248	0/-1	10109	27		Target = 1.75		189.60	220.56		
427 > 81	64	3.259	3.248		6118	20	9.1:1	1.65 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.273	3.269	1	569327	23	>100:1			1000.00	1085.10	99	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.273	3.276	0/-1	115178	22	91:1	Target = 2.89		200.00	197.42		
413 > 169	53	3.273	3.276		39720	23	>100:1	2.89 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.654	3.657	0	118313	20				1000.00	955.35	94.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.659	3.652	1/1	28300	39	>100:1	Target = 3.30	3.30	185.60	200.89		
499 > 99	54	3.665	3.652		7780	33	49:1	3.63 (1.65-4.95)	13.01				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.867	3.872	0/0	93838	17	>100:1			186.40	209.43		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.010	4.017	0/0	18906	16	>100:1	Target = 3.08		192.00	199.18		
549 > 99	54	4.010	4.017		7825	18	40:1	2.41 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.320	4.319	1/1	17604	21		Target = 2.72		192.80	190.14		
599 > 99	54	4.320	4.319		8552	21	39:1	2.05 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.477	4.483	0/0	95682	15	>100:1			188.40	236.22		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.830	4.842	0/0	21684	17	>100:1	Target = 3.27		193.60	213.14		
699 > 99	54	4.830	4.842		6604	23	86:1	3.28 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.665	3.662	1	657736	21	>100:1			1000.00	1027.11	95.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.665	3.662	1/0	152227	39	>100:1	Target = 6.51		200.00	214.72		
463 > 169	56	3.665	3.662		22792	20	>100:1	6.67 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.924	3.921	1	255377	19	>100:1			1000.00	952.69	94.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.933	3.921	1/0	56341	17	>100:1	Target = 41.63		200.00	209.68		
498>478	55	3.924	3.921		1853	17	21:1	30.40 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.021	4.027	0	624093	16	>100:1			1000.00	1086.02	97.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.029	4.027	1/1	147670	17	>100:1	Target = 13.80		200.00	203.32		
513 > 169	51	4.021	4.027		7788	14	39:1	18.96 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.021	4.017	1	98636	16	>100:1			5000.00	5706.62	100.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.029	4.006	2/1	8259	21	64:1	Target = 1.94		191.60	185.28		
527 > 81	65	4.010	4.006		5482	16	18:1	1.50 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.617	4.631	0/-1	10038	17		Target = 3.54		192.80	200.60		
627 > 80	65	4.634	4.631		3138	20	16:1	3.19 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.180	4.178	1	701199	17	>100:1			5000.00	4640.24	95.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.180	4.187	0/-1	23084	30	>100:1	Target = 1.37	7.18	200.00	205.13		M
570 > 483	58	4.180	4.187		16372	28		1.40 (0.68-2.05)	2.76				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.331	4.329	1	93450	13	>100:1			1000.00	1036.16	112.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.340	4.348	0/-1	20322	15	>100:1			200.00	198.99		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.359	4.348	1	48686	15	>100:1			1000.00	1034.97	100.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.359	4.367	0/-1	9782	14	73:1	Target = 1.11		200.00	185.37		
512 > 219	57	4.359	4.367		8913	14	95:1	1.09 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.340	4.339	1	657946	18	>100:1			5000.00	5080.15	100.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.350	4.348	1/0	25018	28	83:1	Target = 1.51	5.58	200.00	194.99		M
584 > 526	60	4.350	4.348		19490	29		1.28 (0.75-2.26)	3.02				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.340	4.339	1	639746	17	>100:1			1000.00	1062.26	97.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.340	4.339	1/0	132074	17	>100:1	Target = 14.52		200.00	213.06		
563 > 169	52	4.331	4.339		7664	20	37:1	17.23 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.495	4.501	0	107860	23	>100:1			1000.00	1016.81	107.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.513	4.510	1/1	22140	16	>100:1			200.00	210.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.513	4.519	0	44616	14	>100:1			1000.00	1037.58	115.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.522	4.528	0/0	12076	22	63:1	Target = 1.06		200.00	215.49		
526 > 219	59	4.531	4.528		10213	19	98:1	1.18 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.617	4.614	1	668534	17	>100:1			1000.00	1113.60	90.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.617	4.614	1/0	150292	19	33:1	Target = 10.70		200.00	210.87		
613 > 169	38	4.617	4.614		14470	22	>100:1	10.38 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.864	4.868	0/-1	138896	18	>100:1	Target = 8.31		200.00	197.66		
663 > 169	38	4.856	4.868		14674	14	>100:1	9.46 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.087	0	866291	21	>100:1			1000.00	1065.56	98.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.085	5.093	0/0	154631	21	24:1	Target = 12.17		200.00	204.48		
713 > 169	42	5.091	5.093		11476	22	>100:1	13.47 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.508	5.512	0	946765	19	>100:1			1000.00	1090.70	100.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.508	5.512	0/0	121903	20	19:1	Target = 10.43		200.00	201.04		
813 > 269	40	5.508	5.512		9917	17	>100:1	12.29 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.933	5.944	0/0	175492	30	12:1	Target = 13.67		200.00	203.61		
913 > 319	40	5.933	5.944		11177	34	>100:1	15.70 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.021	4.027	0	693082	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.495	2.496	0	707810	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.266	3.269	0	579972	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	600474	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.659	3.657	1	130672	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

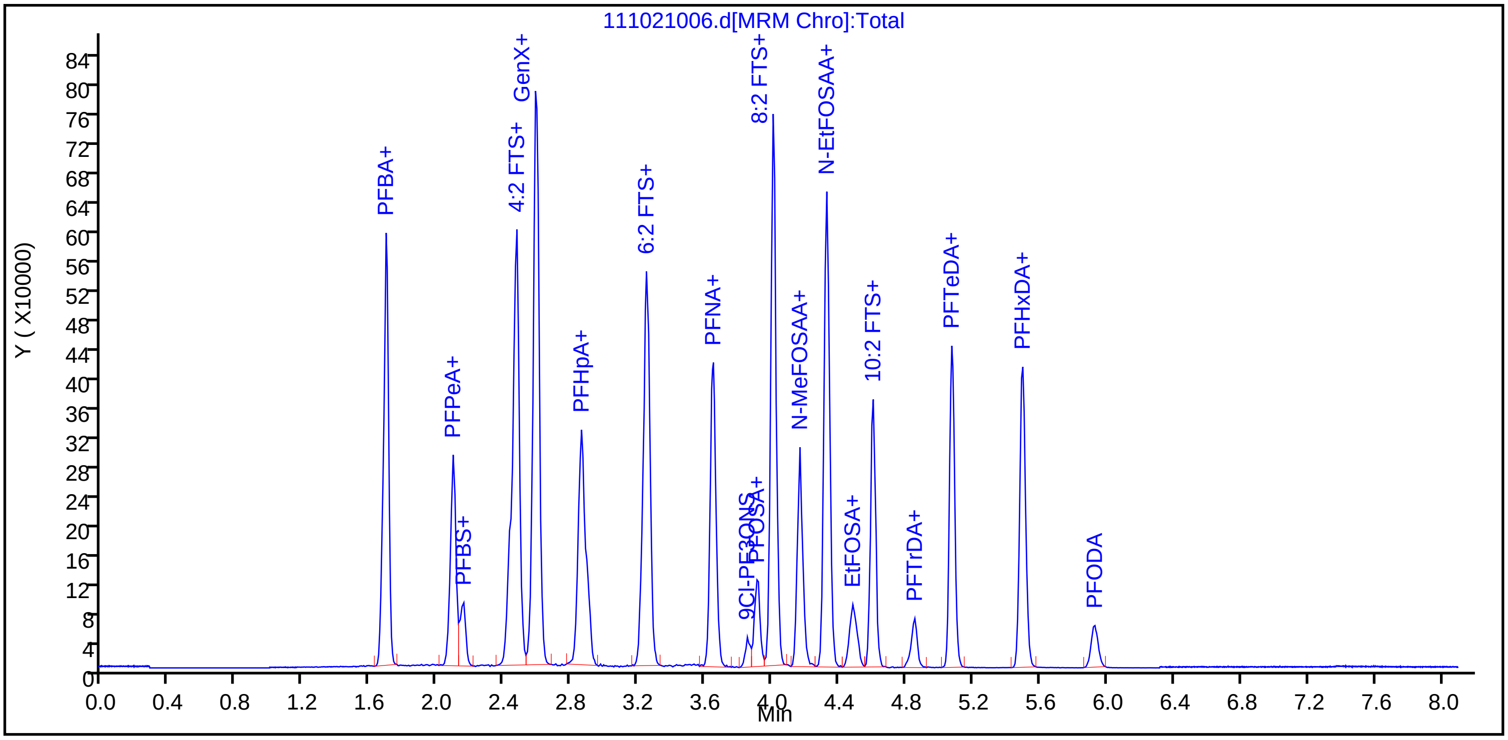
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

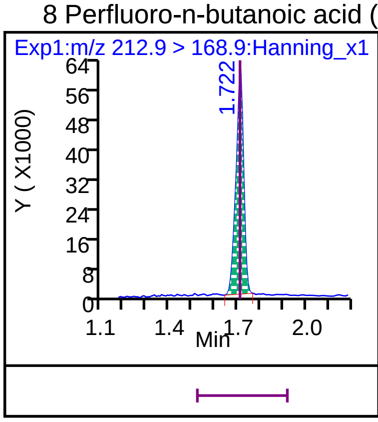
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

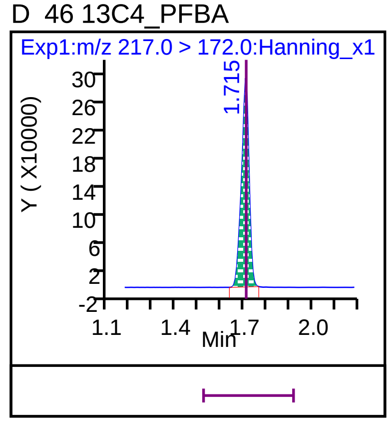
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



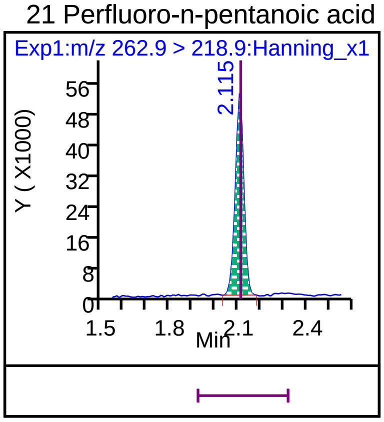
8 Perfluoro-n-butanoic acid (PFBA)



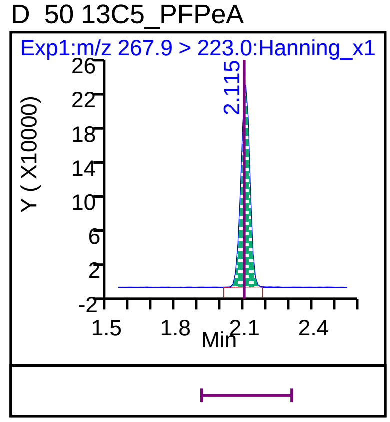
D 46 13C4_PFBA



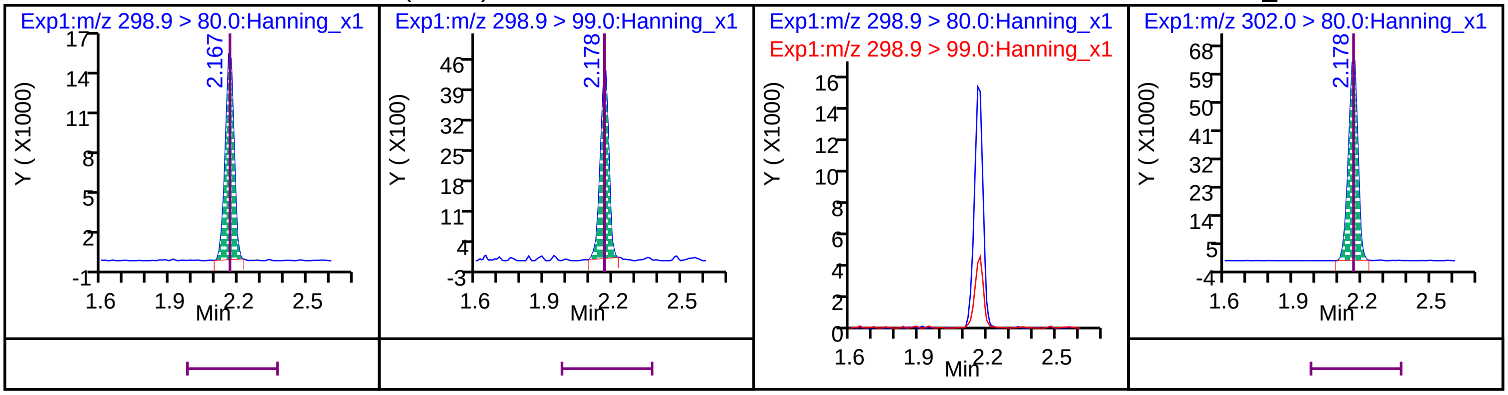
21 Perfluoro-n-pentanoic acid (PFPeA)



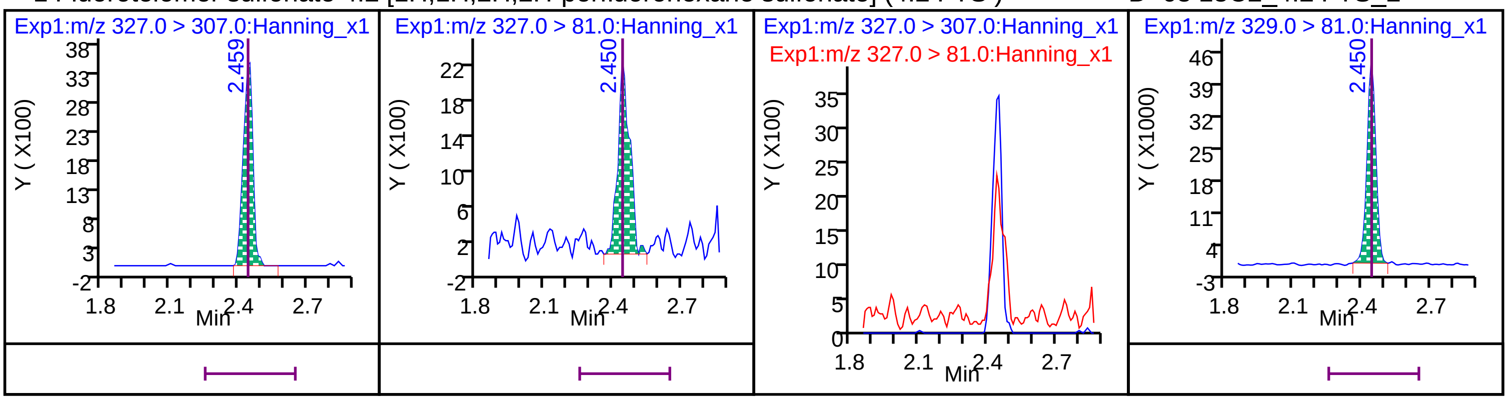
D 50 13C5_PFPeA



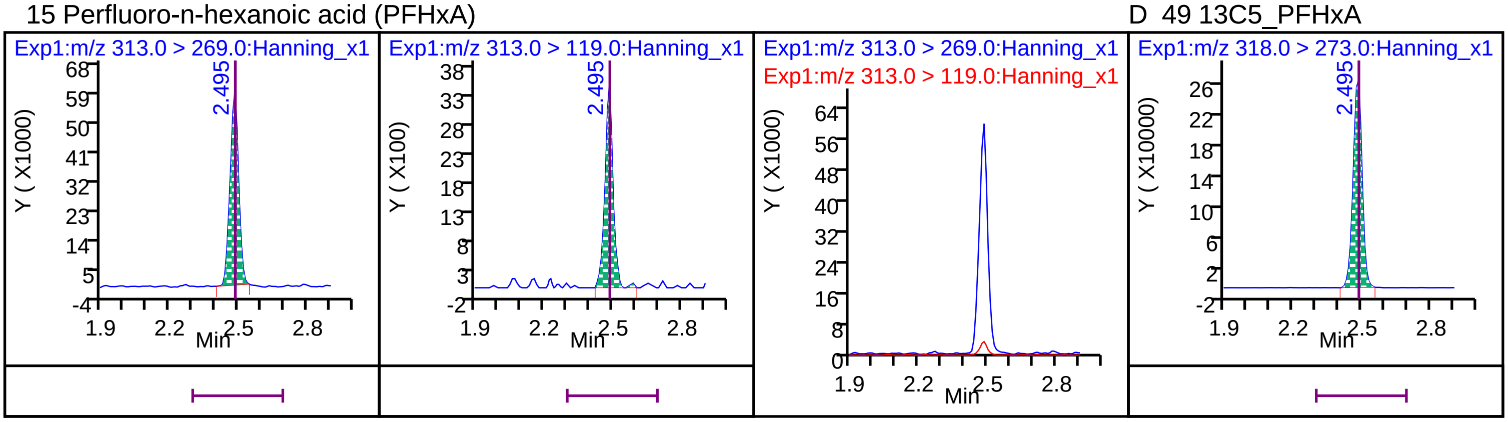
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



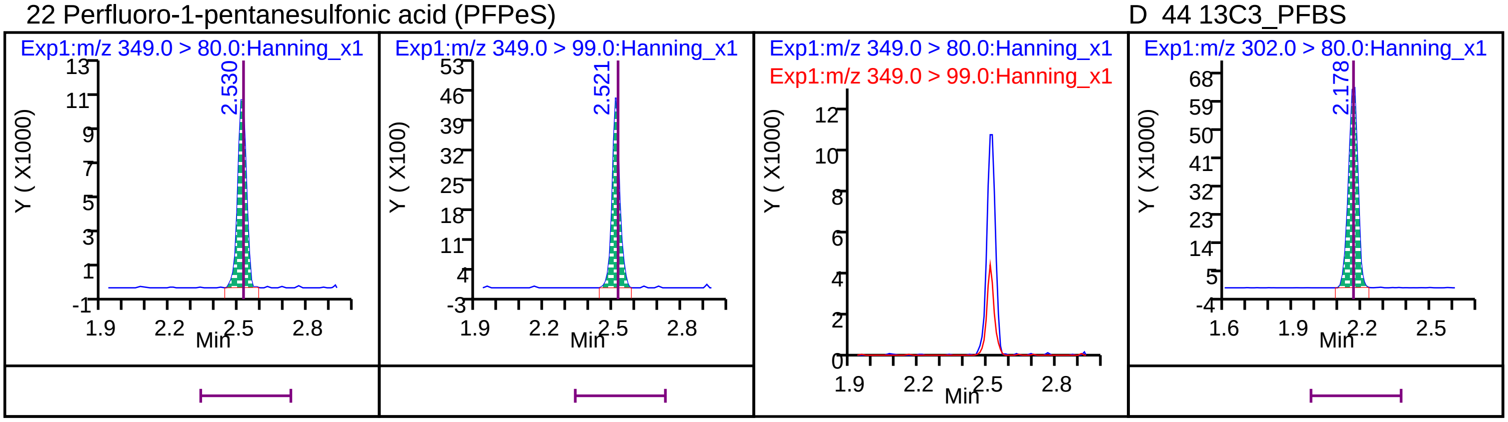
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



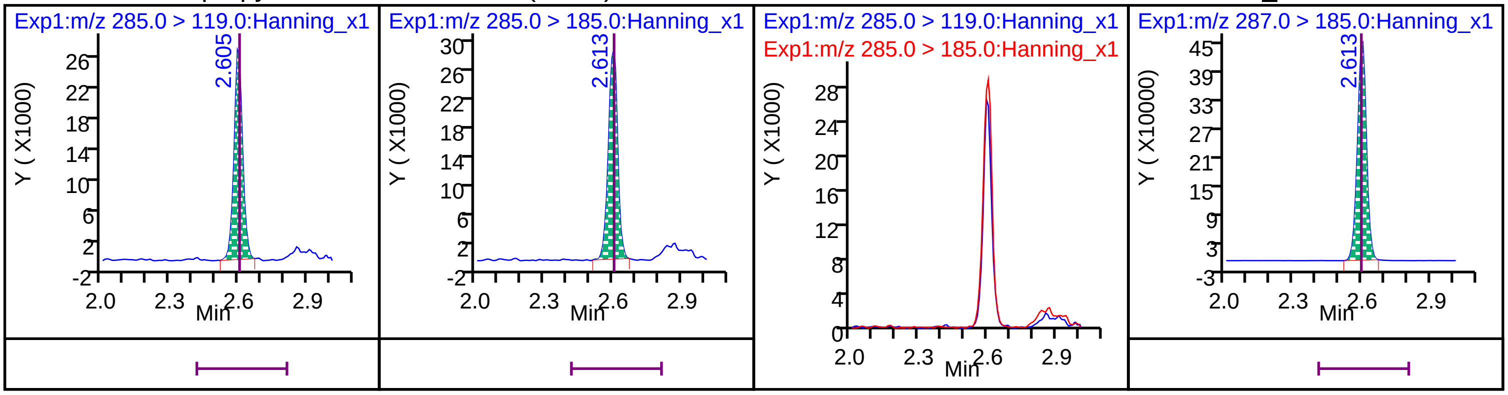
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



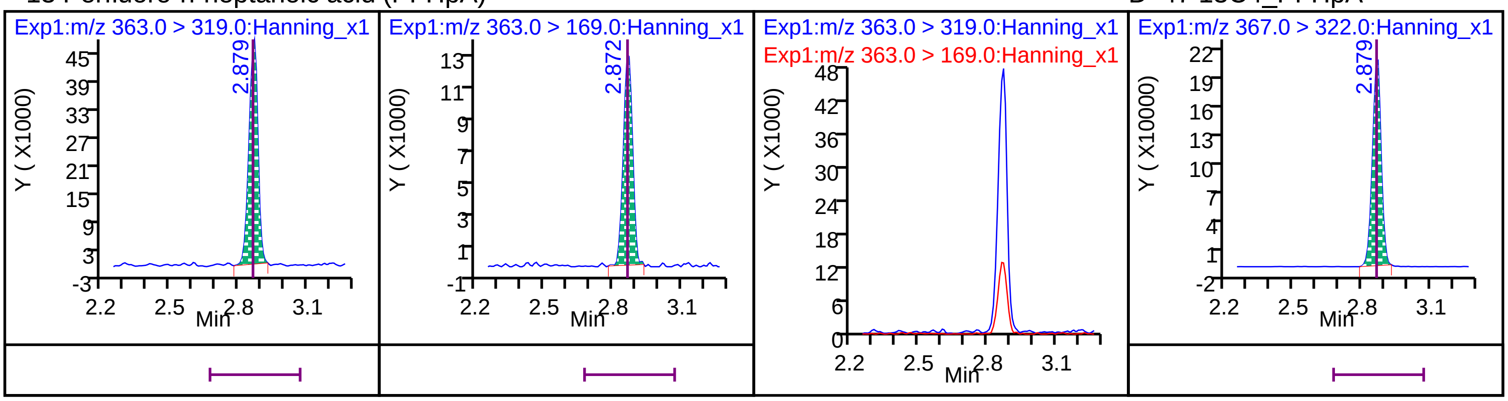
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



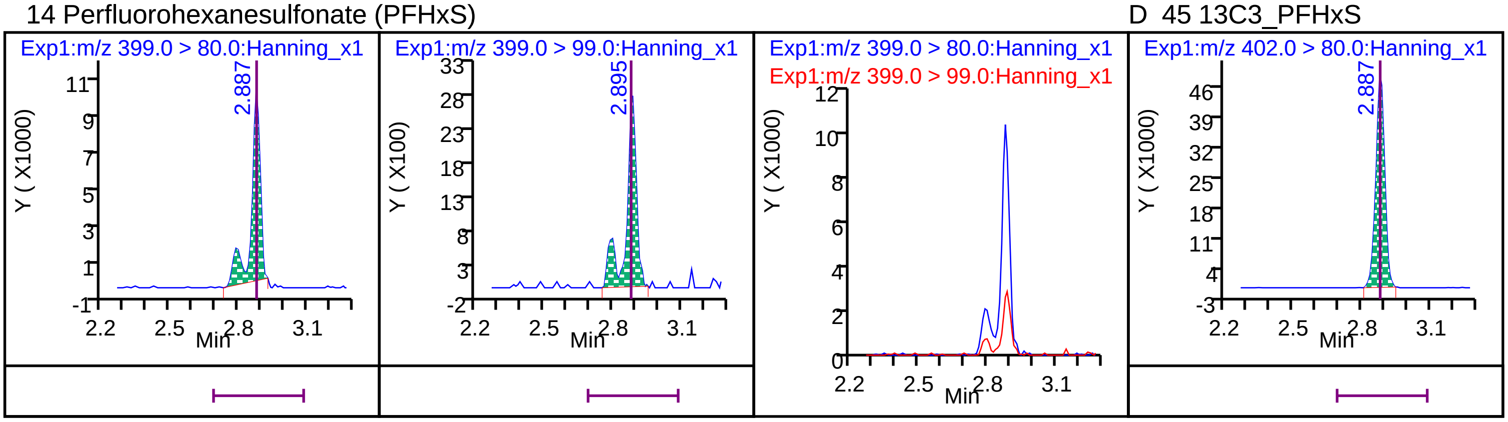
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



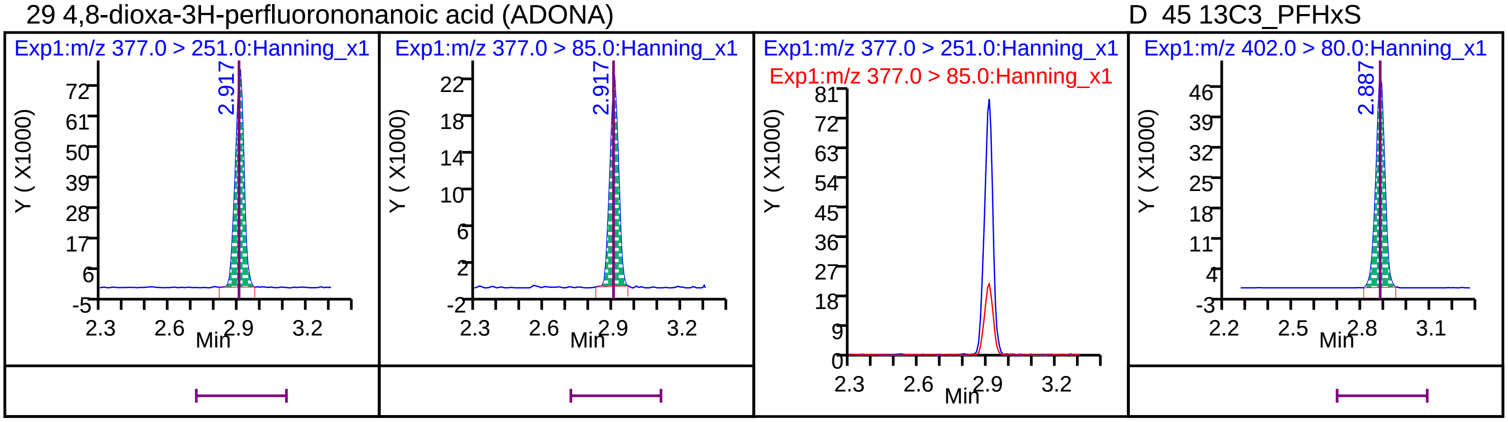
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



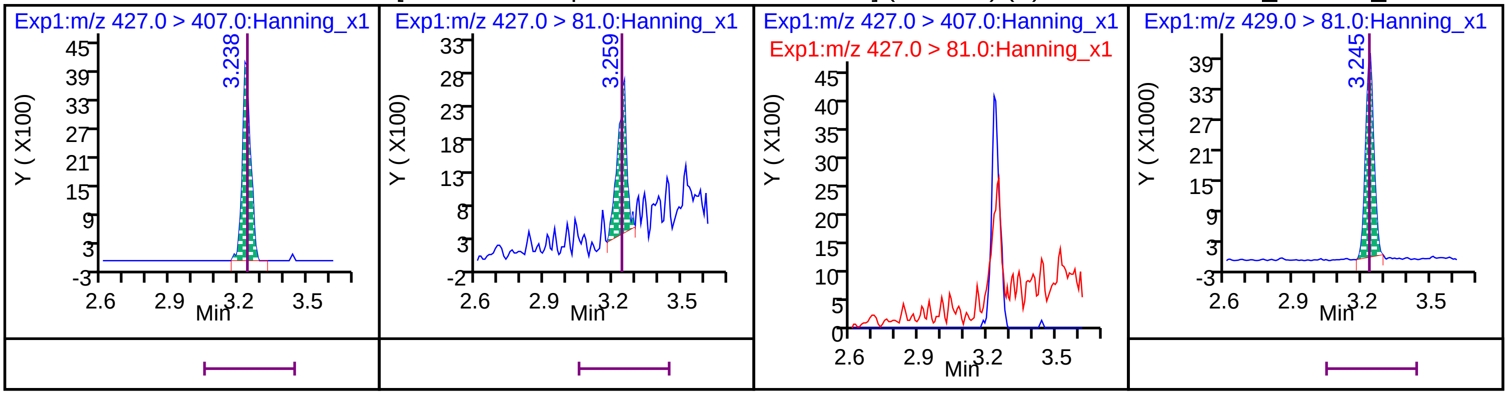
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



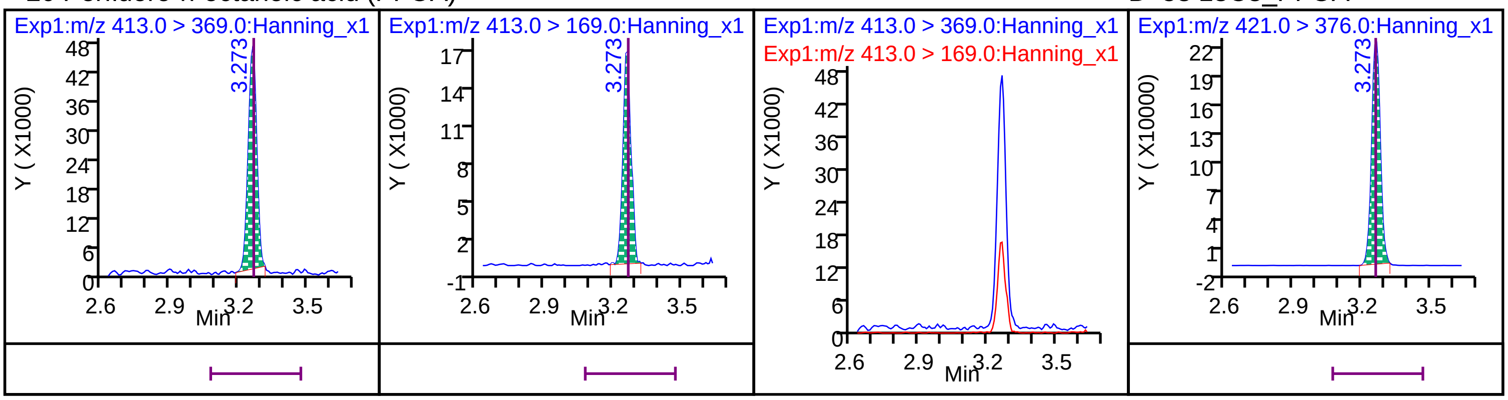
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

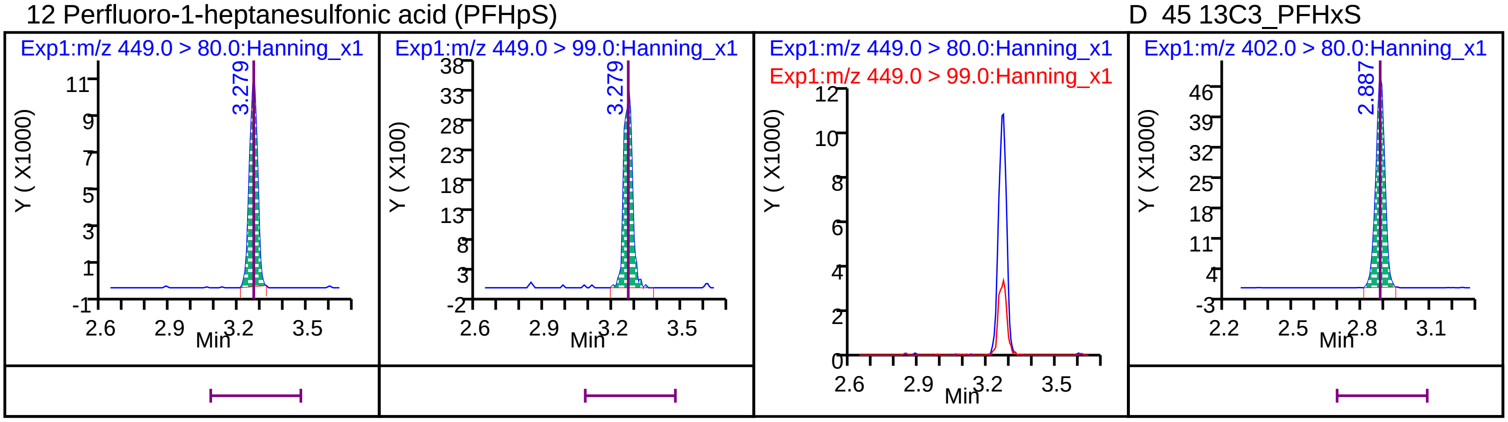
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (A) D 64 13C2_6:2 FTS_2



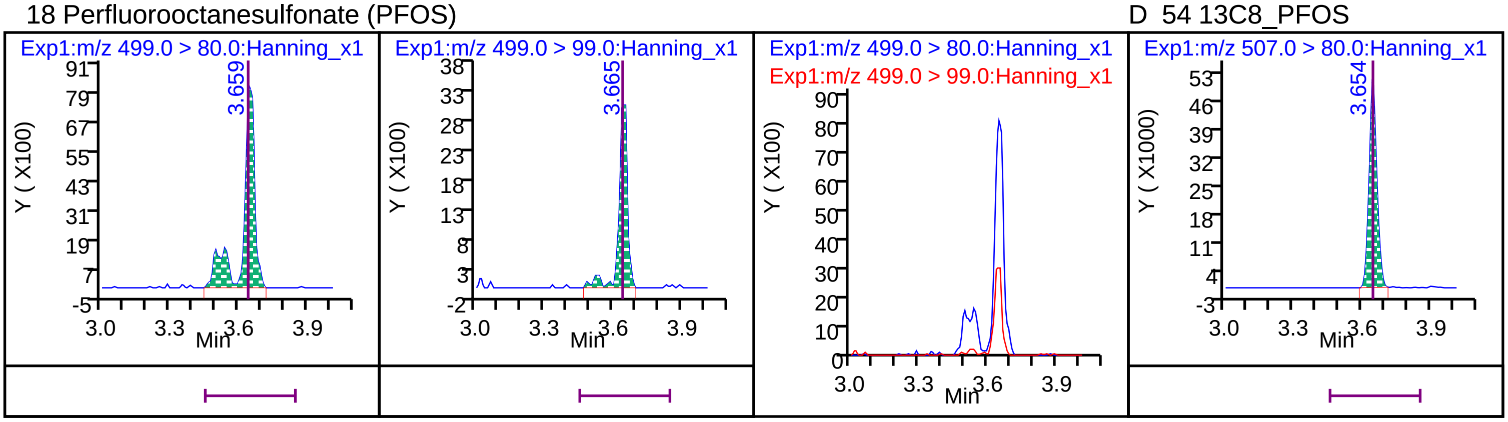
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



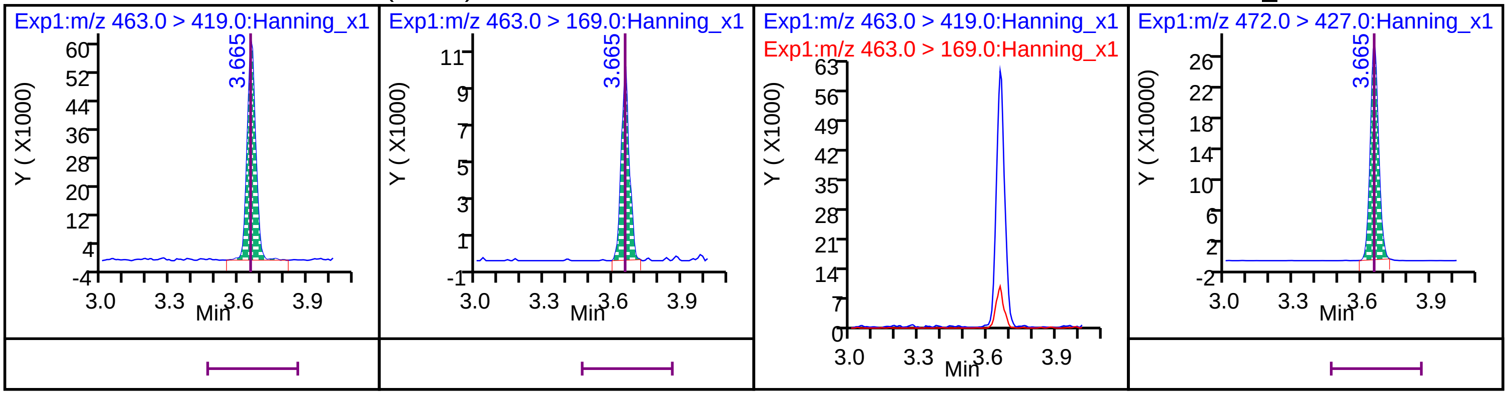
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



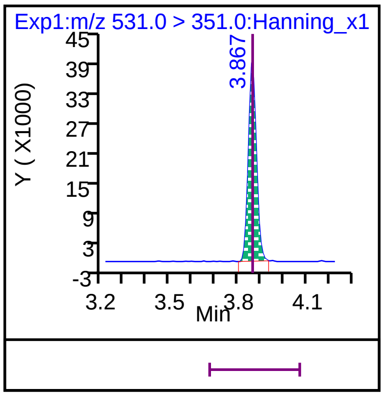
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

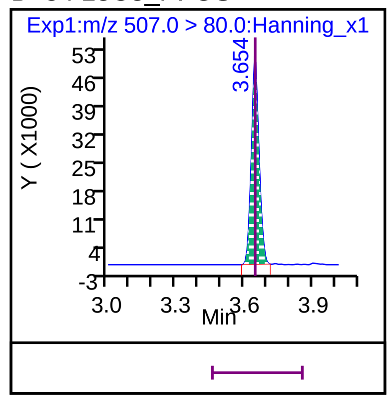


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

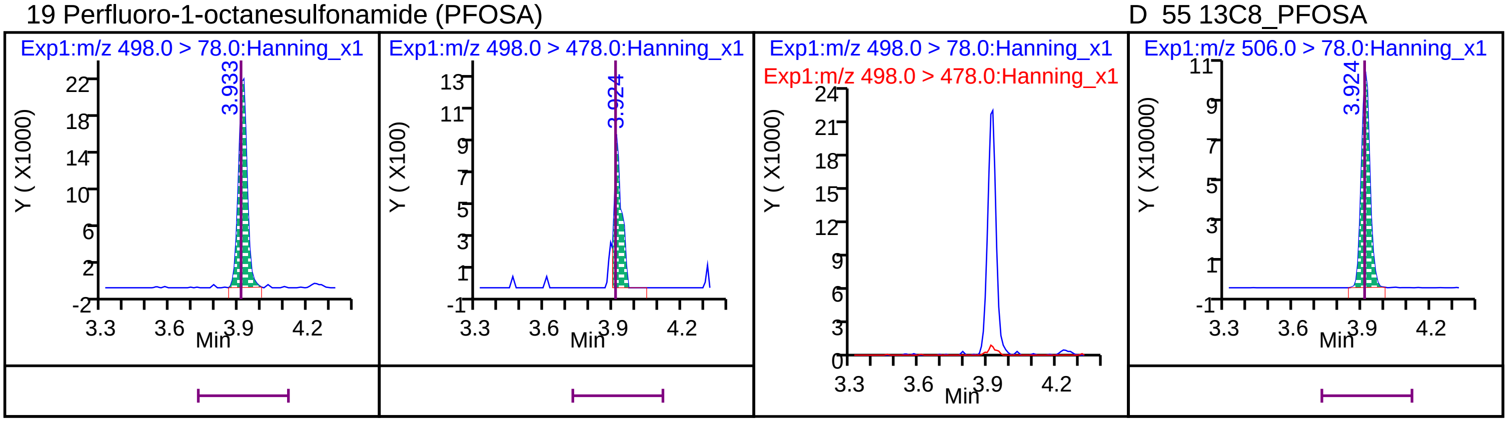


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

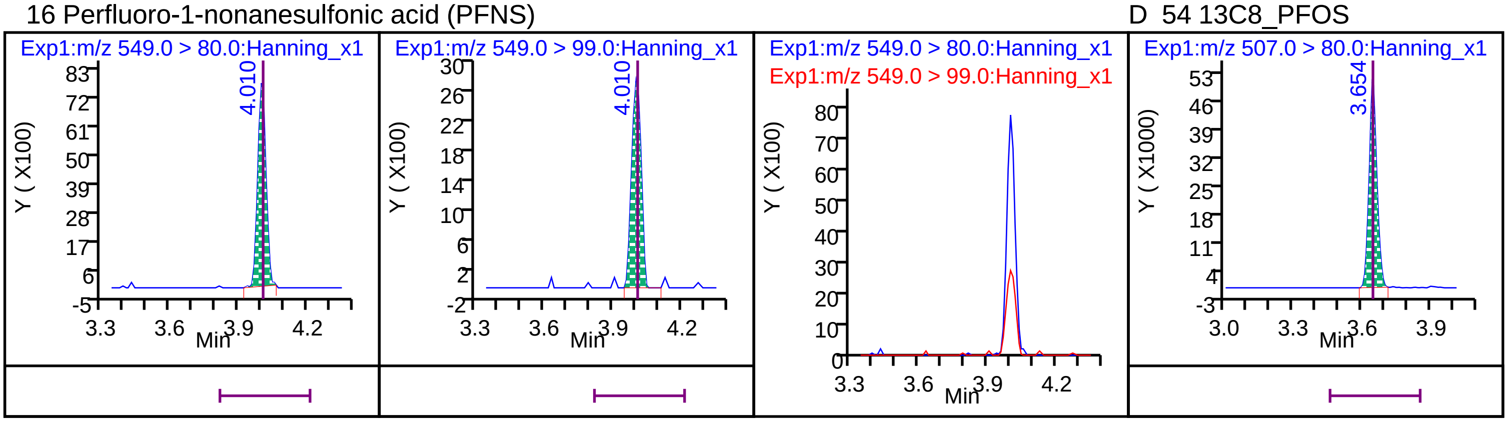




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

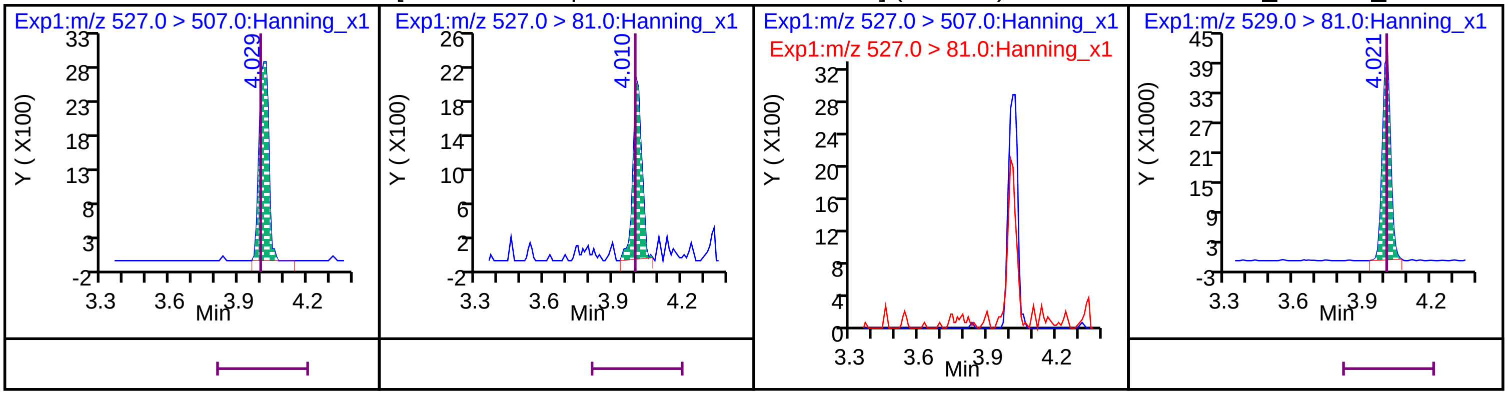


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



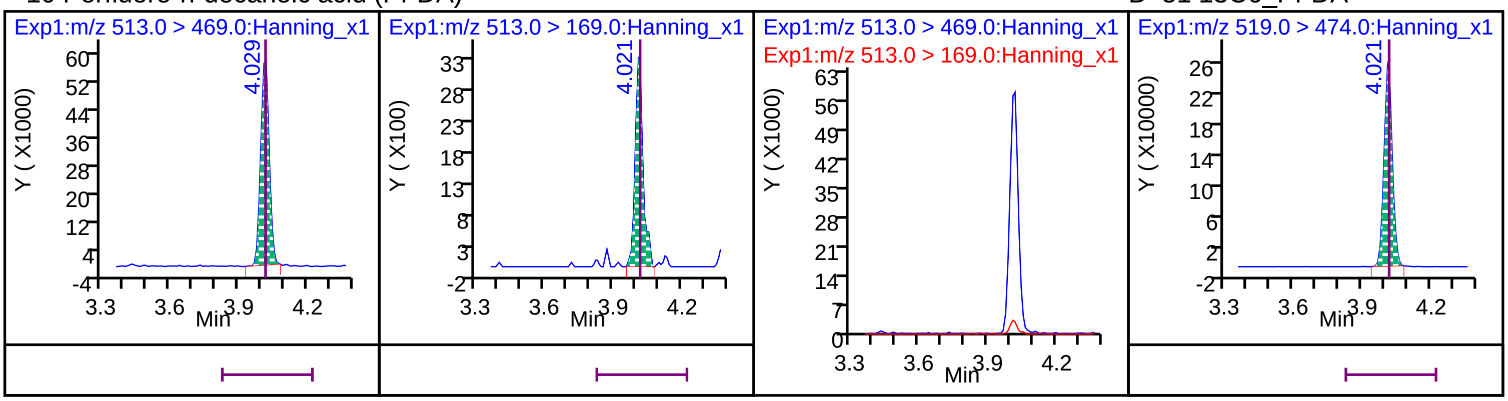
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



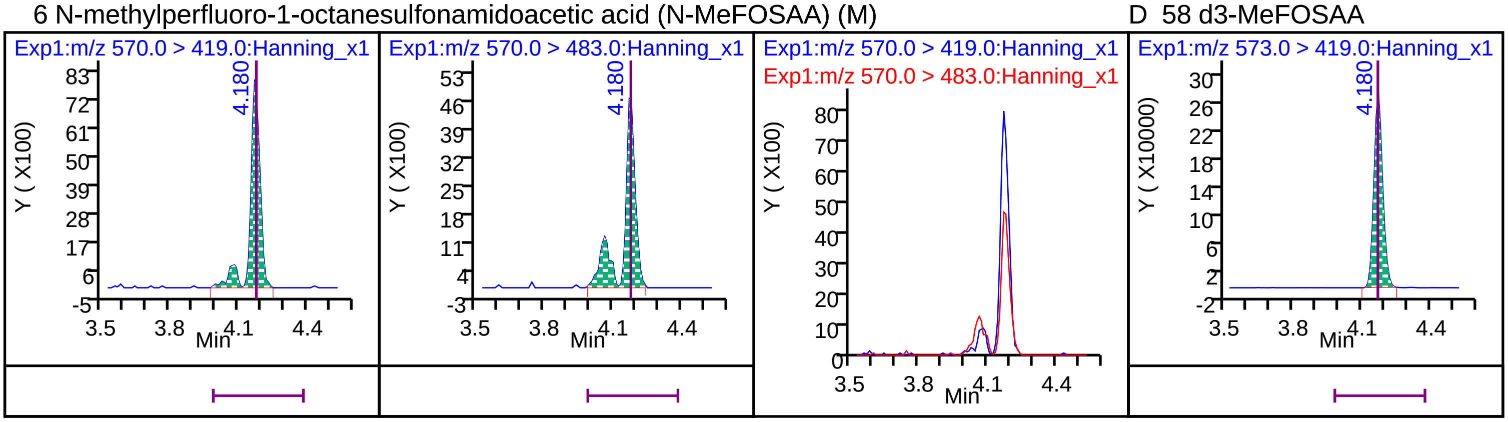
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



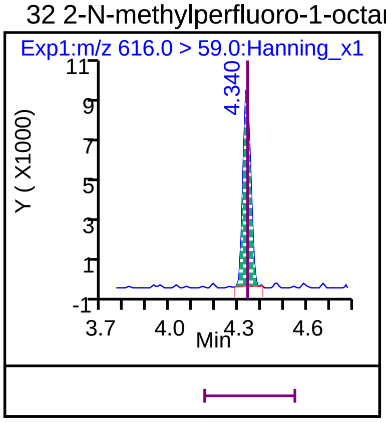
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)

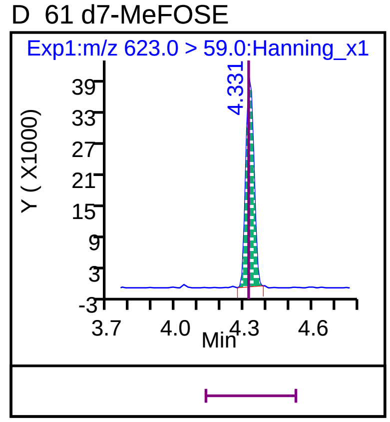
D 58 d3-MeFOSAA



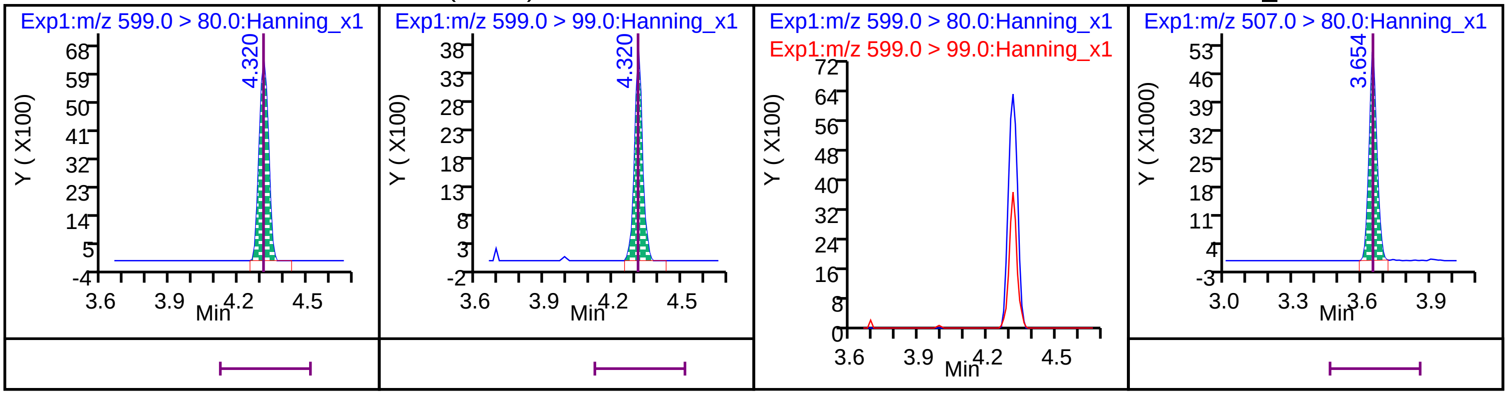
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

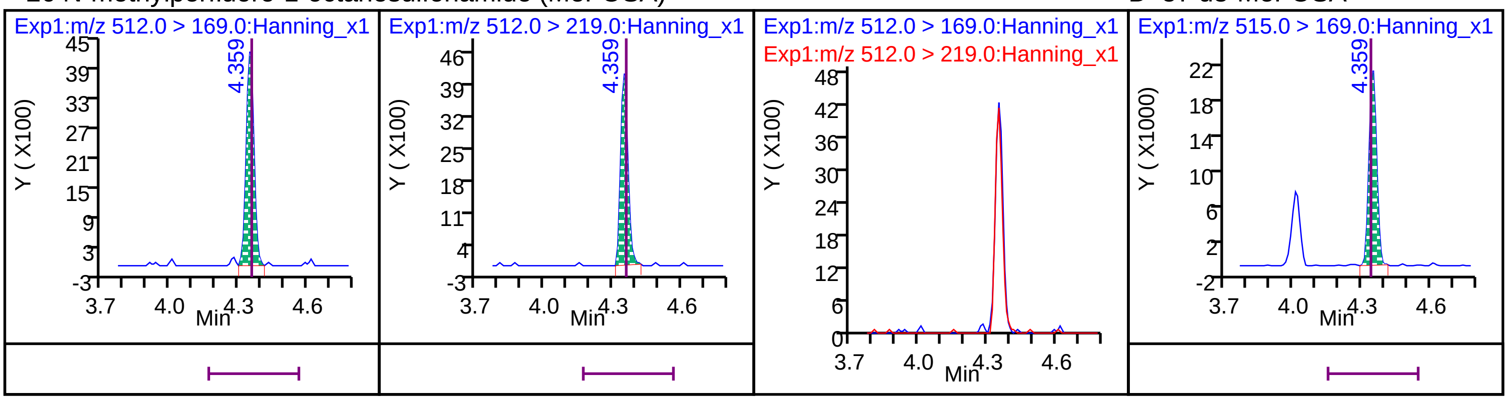




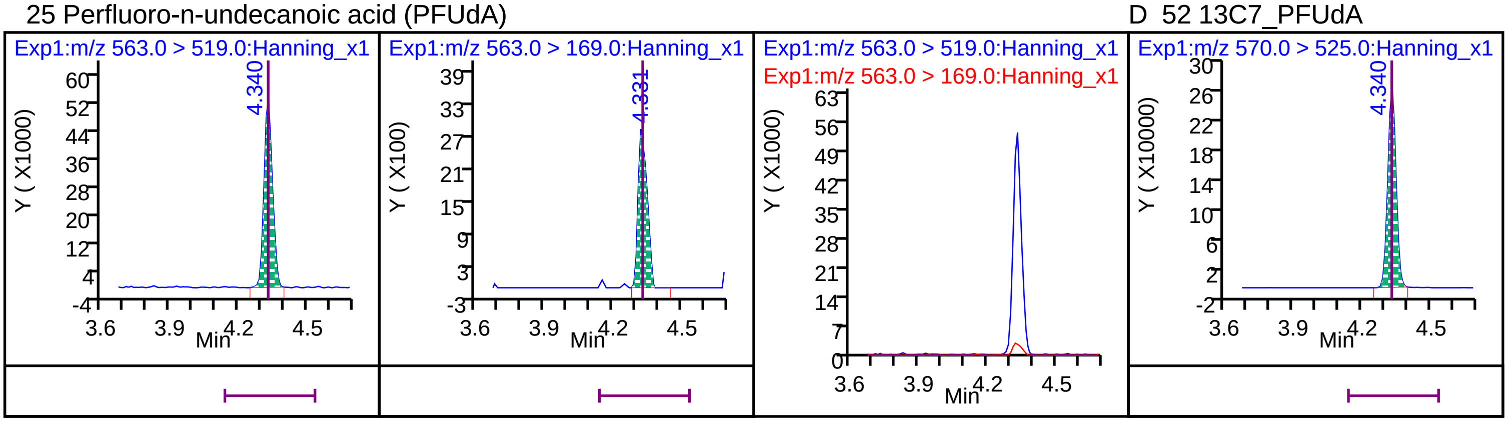
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



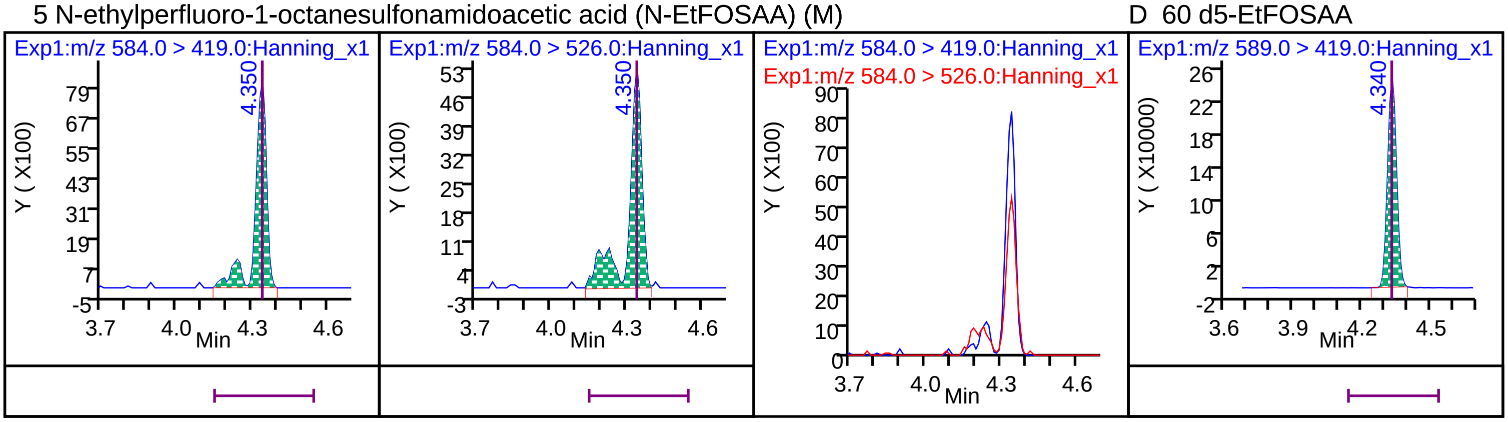
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



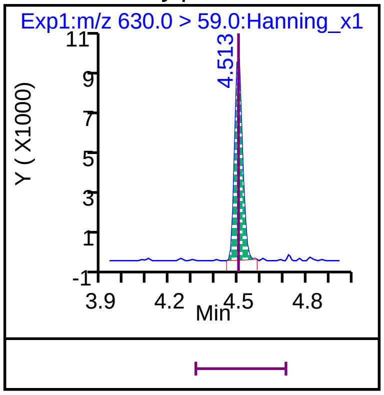
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



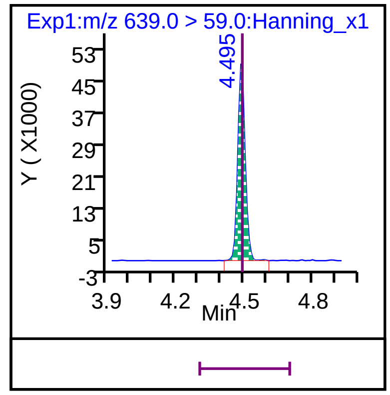
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



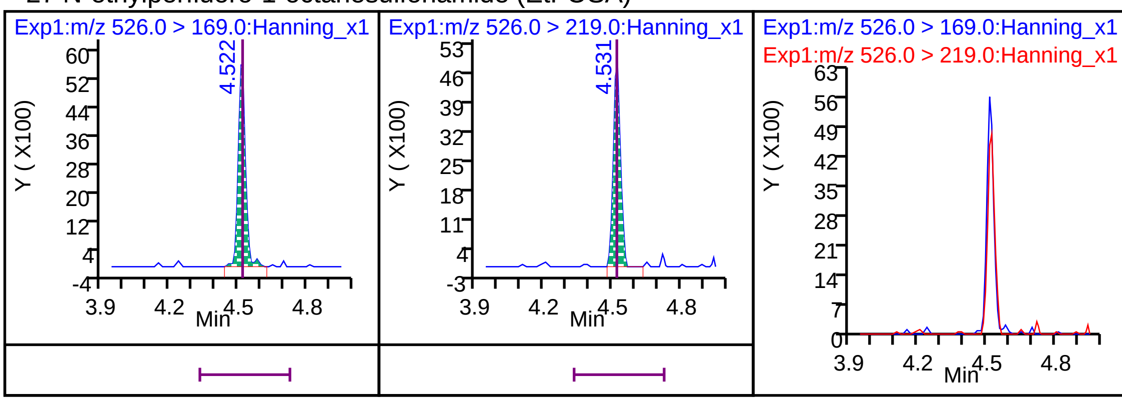
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



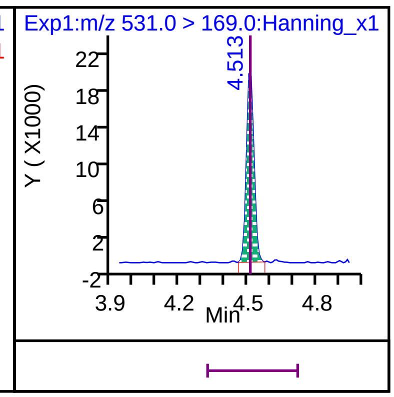
D 62 d9-EtFOSE



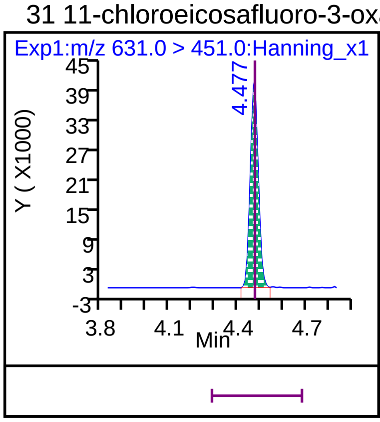
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



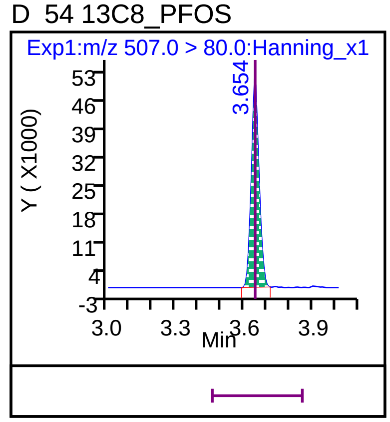
D 59 d5-EtFOSA



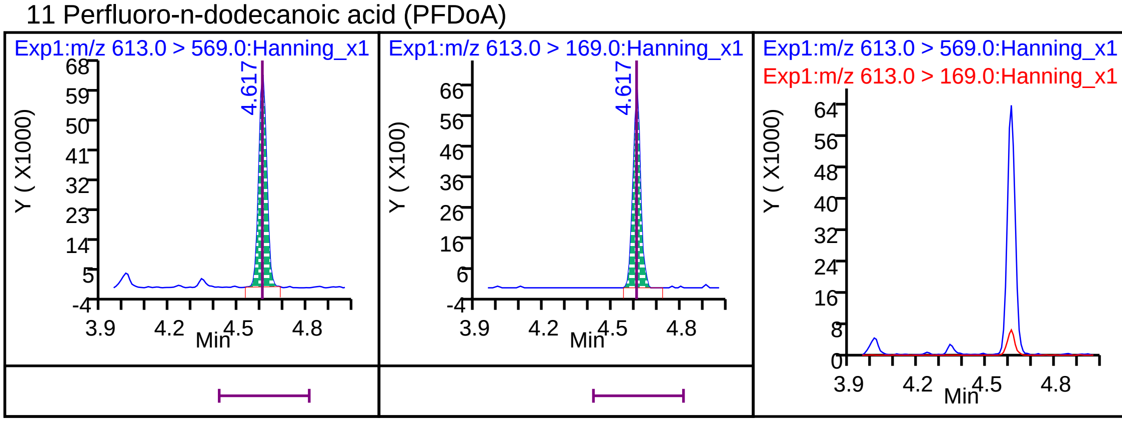
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



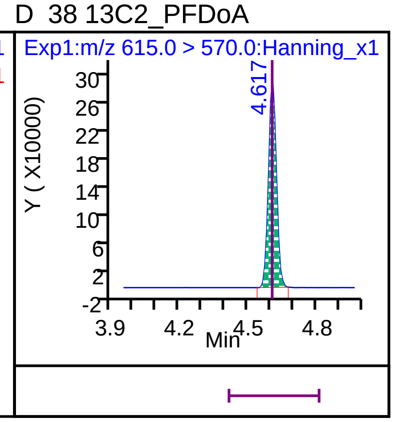
D 54 13C8_PFOS



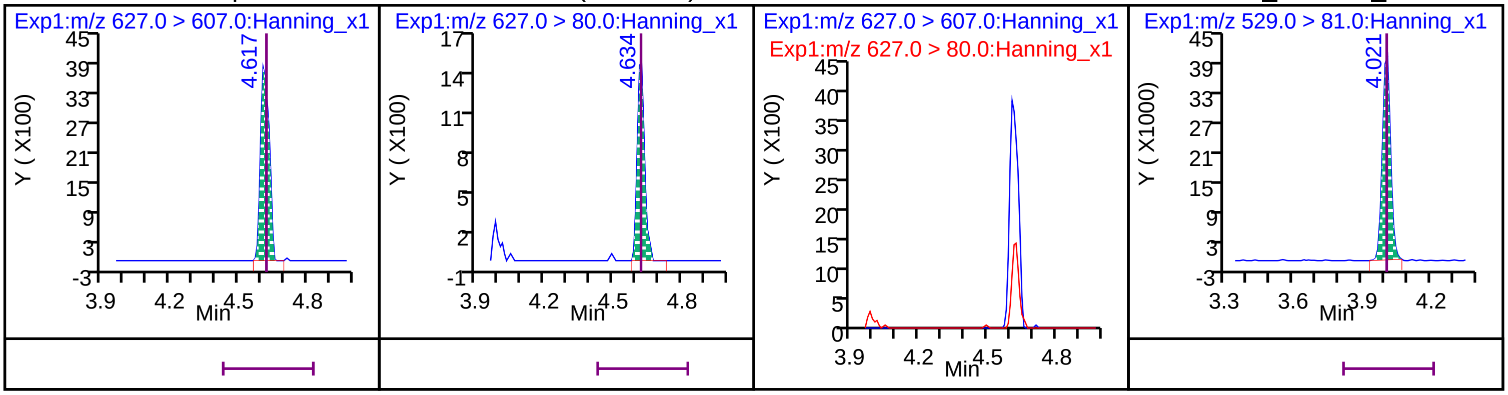
11 Perfluoro-n-dodecanoic acid (PFDoA)



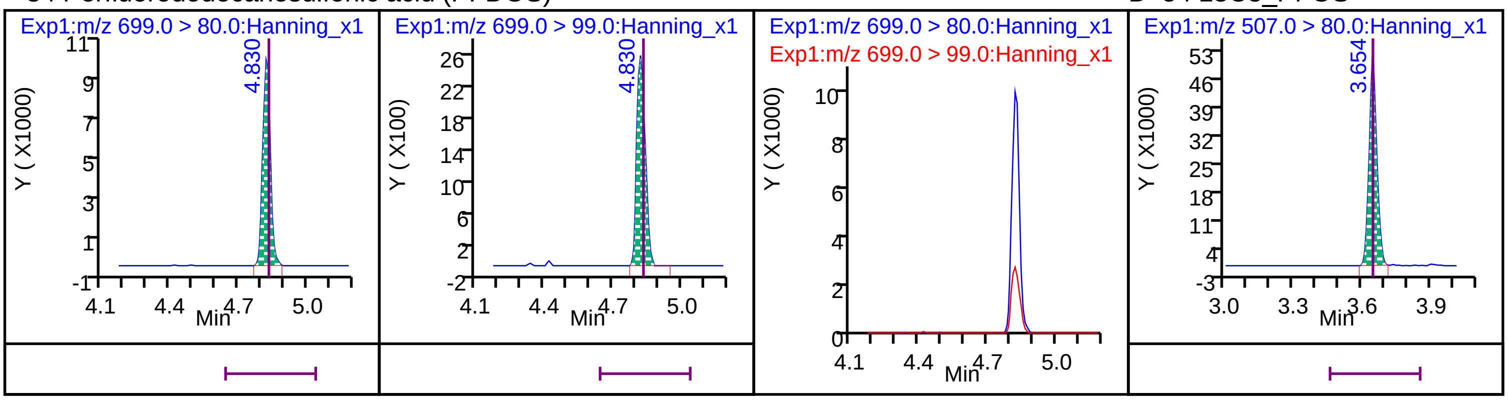
D 38 13C2_PFDoA



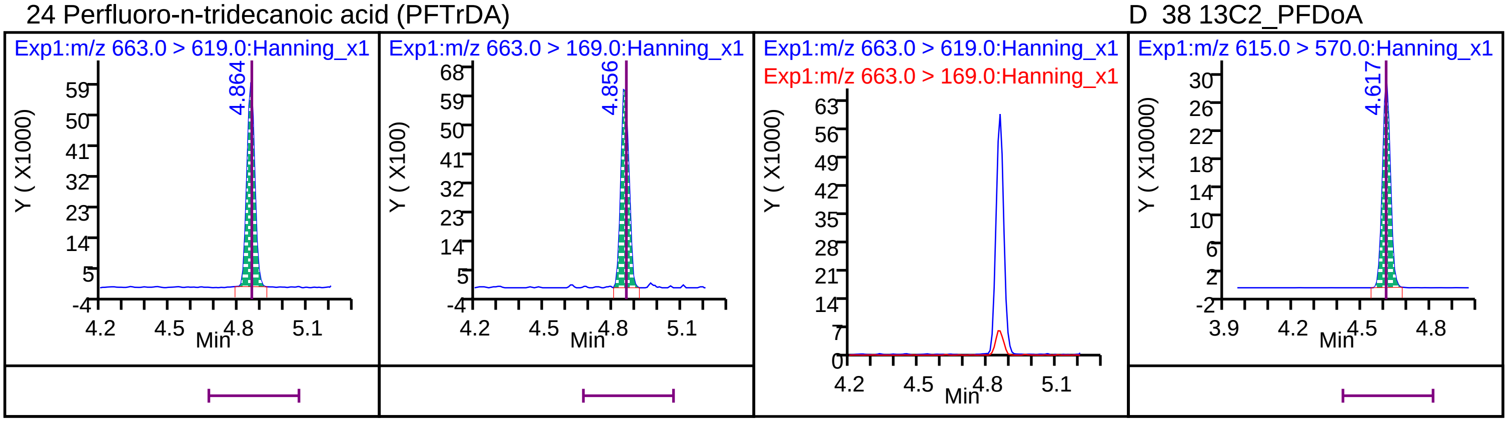
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



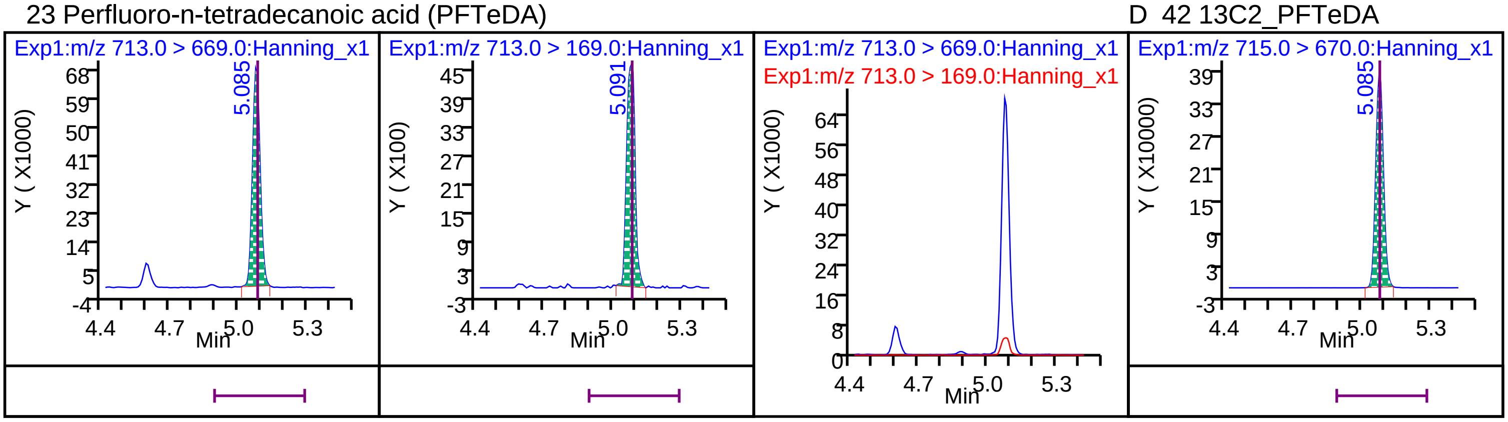
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



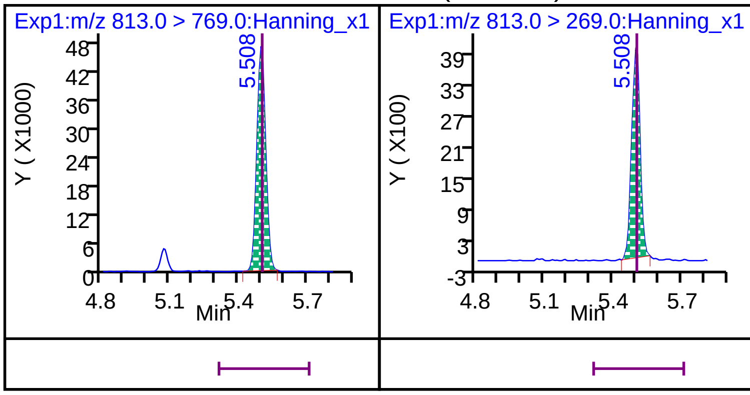
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



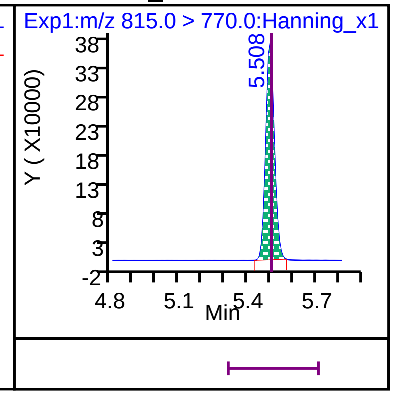
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



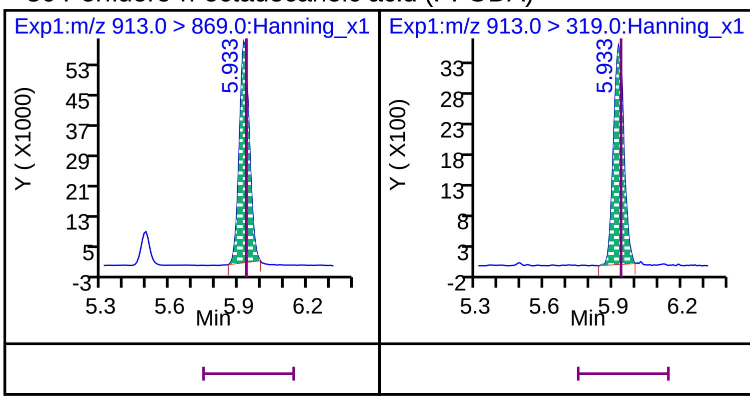
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



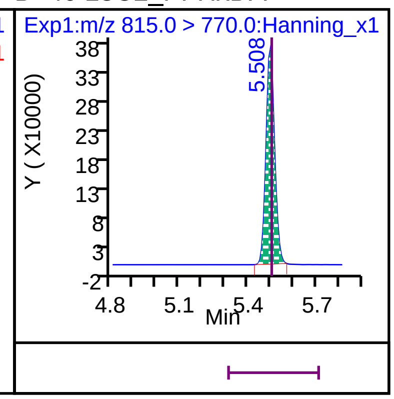
D 40 13C2_PFHxDA



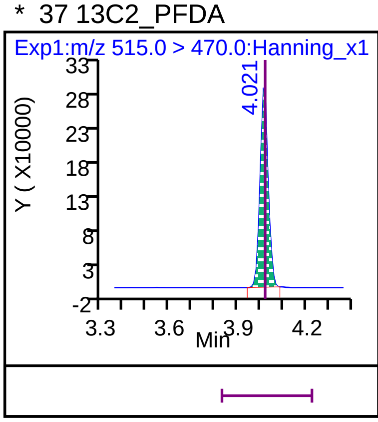
36 Perfluoro-n-octadecanoic acid (PFODA)



D 40 13C2_PFHxDA



* 37 13C2_PFDA



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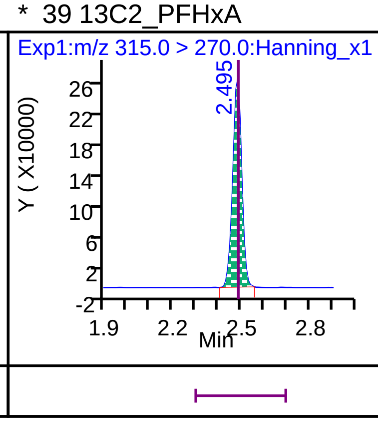

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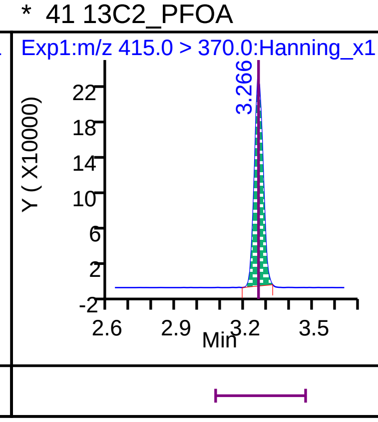

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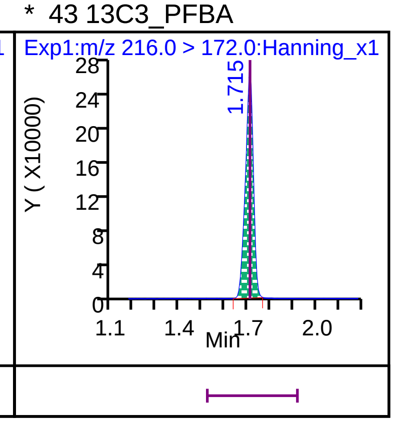

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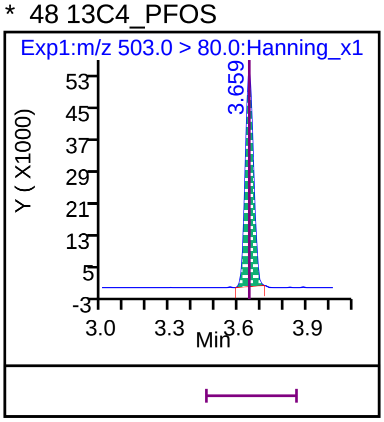

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

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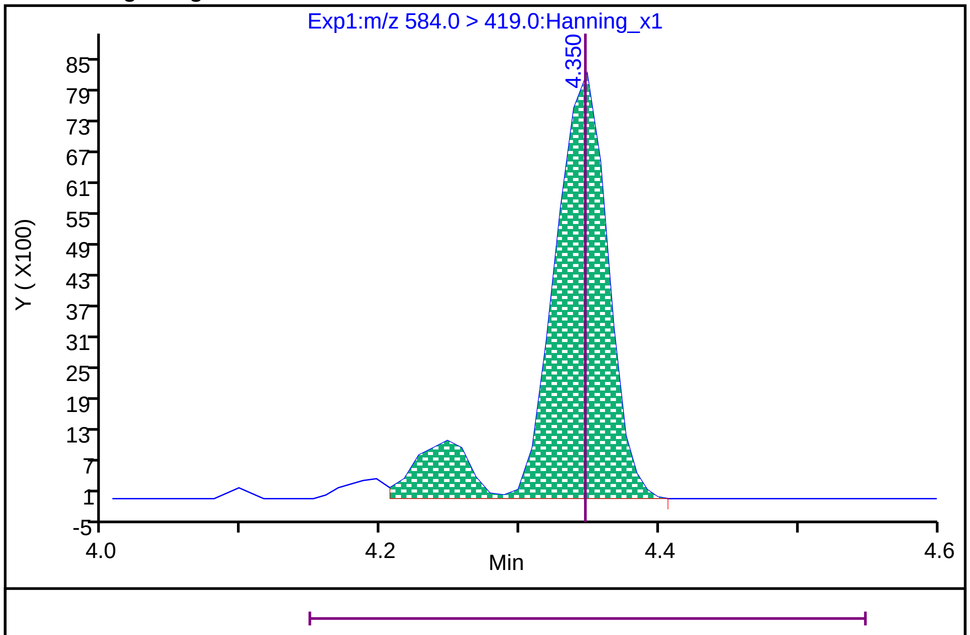
Area:	24258
Amount:	189.06
Amount Units:	ng/L



RT:	4.350
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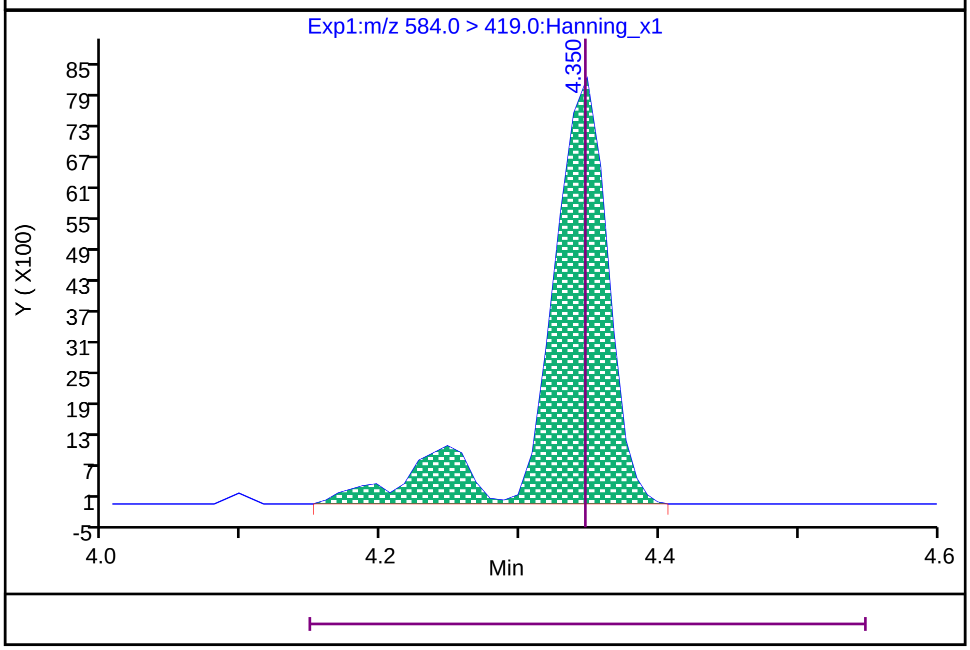

Data Editor: justin.gavin, 10-Nov-2021 14:33:52

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

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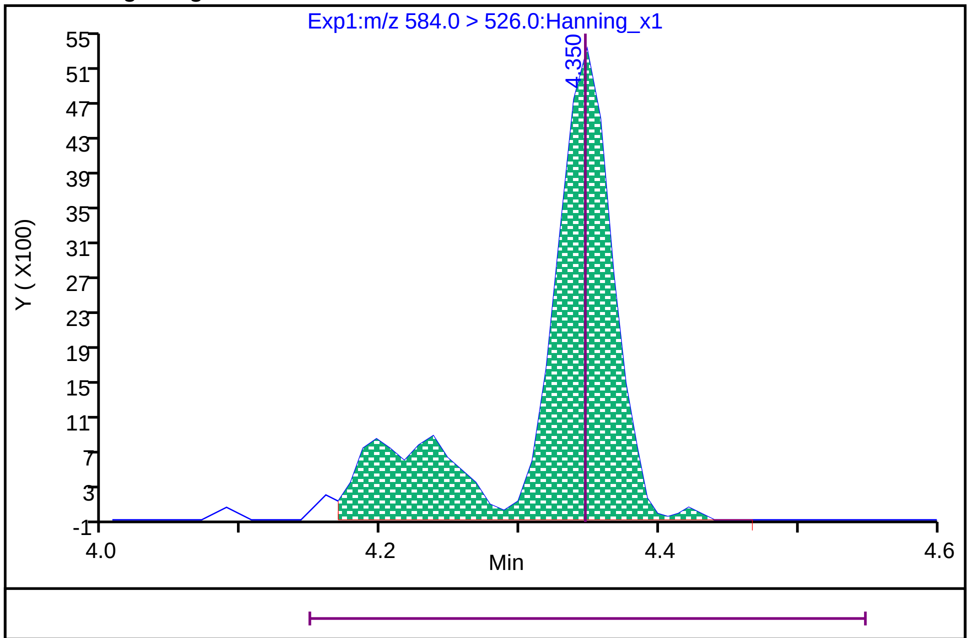

RT: 4.350
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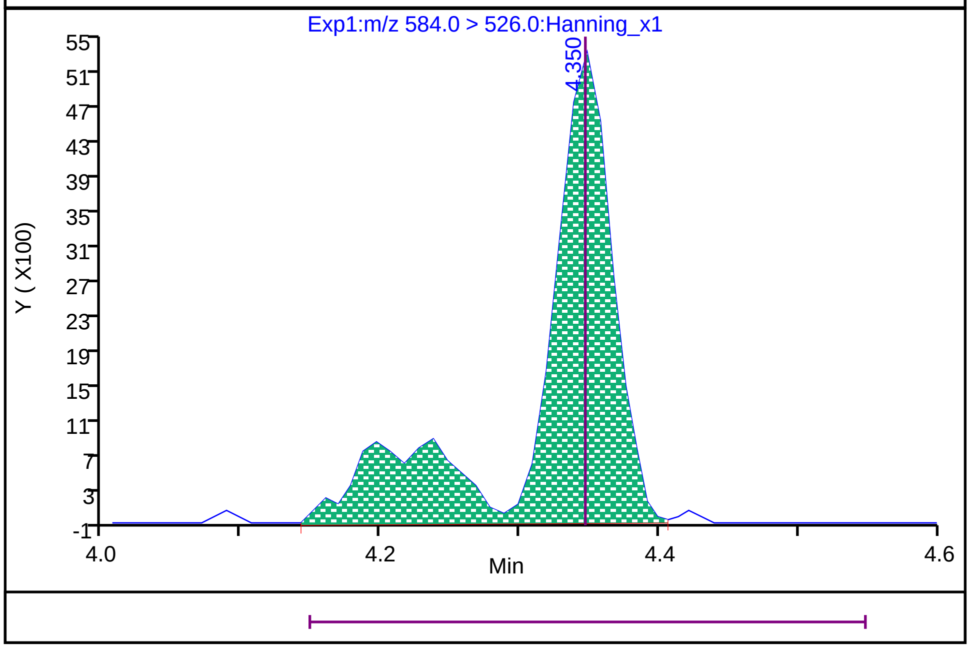

Data Editor: justin.gavin, 10-Nov-2021 14:33:57
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

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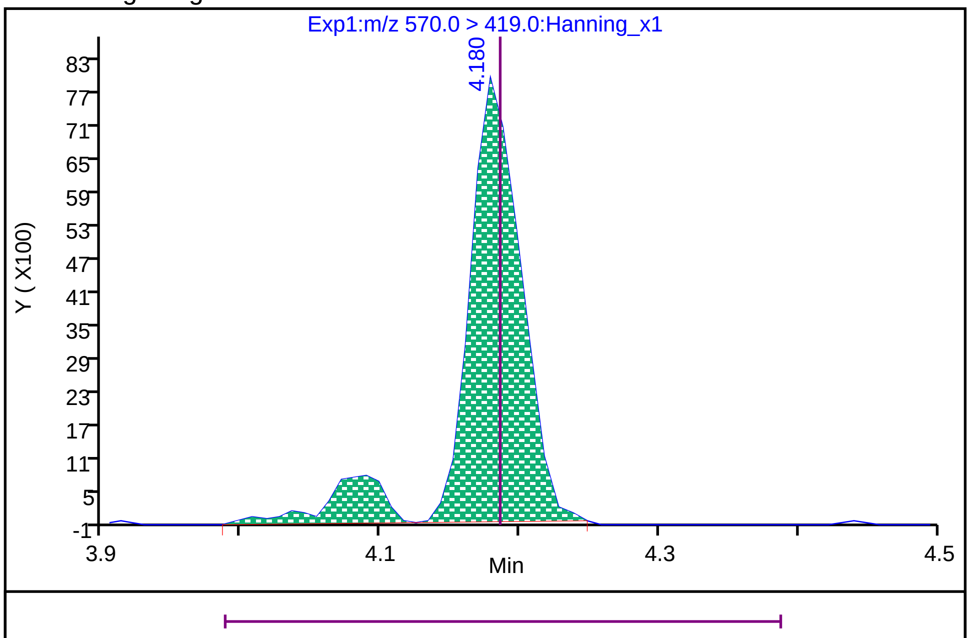
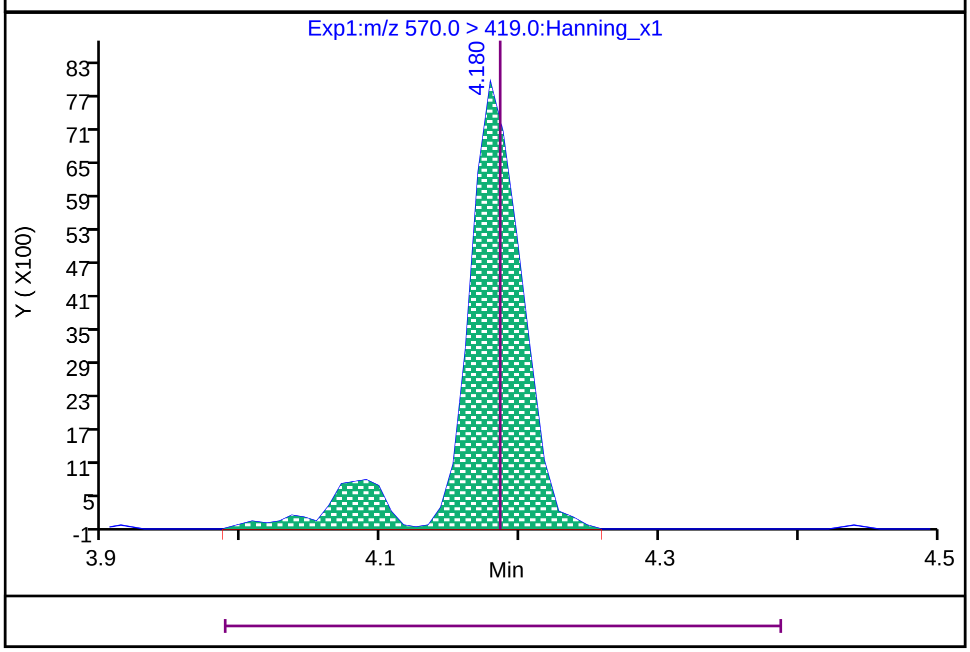
Amount Units:	ng/L



RT:	4.180
Area:	23084
Amount:	205.13
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:40

Audit Action: MInt

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

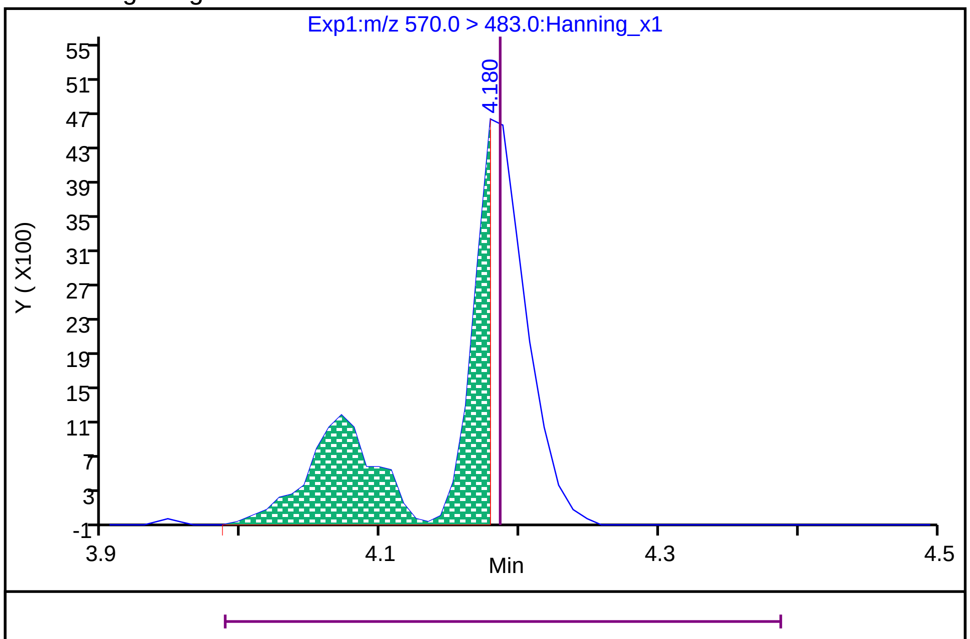
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

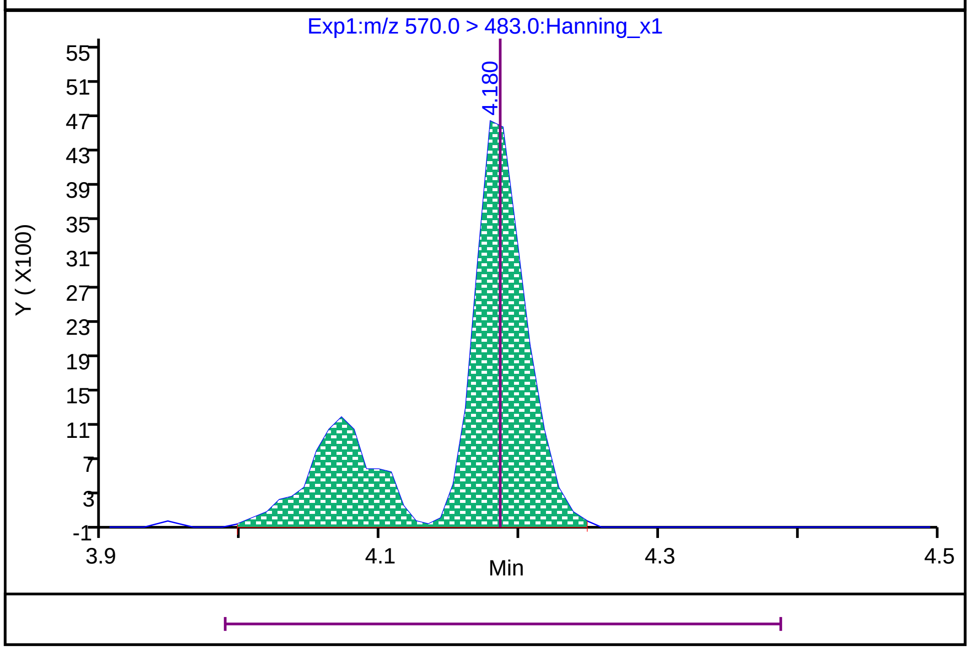
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.180
Area:	8274
Amount:	205.13
Amount Units:	ng/L



RT:	4.180
Area:	16372
Amount:	205.13
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:44

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	14
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	966.63	96.7	70 - 130
D 46 13C4_PFBA	659044	642719			97.5	50 - 150
21 PFPeA			1000.00	1000.63	100.1	70 - 130
D 50 13C5_PFPeA	581857	593333			102	50 - 150
D 44 13C3_PFBS	164288	172780			105.2	50 - 150
7 PFBS			884.00	836.35	94.6	70 - 130
1 4:2 FTS			934.00	879.50	94.2	70 - 130
D 63 13C2_4:2 FTS_2	113327	106659			94.1	50 - 150
D 49 13C5_PFHxA	667779	669033			100.2	50 - 150
15 PFHxA			1000.00	980.22	98	70 - 130
22 PFPeS			938.00	881.07	93.9	70 - 130
28 GenX			2000.00	1951.07	97.6	70 - 130
D 66 13C3_GenX	1212655	1146454			94.5	50 - 150
D 47 13C4_PFHpA	545849	546721			100.2	50 - 150
13 PFHpA			1000.00	1024.32	102.4	70 - 130
D 45 13C3_PFHxS	123814	129306			104.4	50 - 150
14 PFHxS			910.00	833.98	91.6	70 - 130
29 ADONA			942.00	923.30	98	70 - 130
D 64 13C2_6:2 FTS_2	97903	101701			103.9	50 - 150
2 6:2 FTS			948.00	978.79	103.2	70 - 130
20 PFOA			1000.00	952.11	95.2	70 - 130
D 53 13C8_PFOA	574828	573754			99.8	50 - 150
12 PFHpS			952.00	886.87	93.2	70 - 130
D 54 13C8_PFOS	125685	127490			101.4	50 - 150
18 PFOS			928.00	867.55	93.5	70 - 130
17 PFNA			1000.00	1056.00	105.6	70 - 130
D 56 13C9_PFNA	690339	620354			89.9	50 - 150
30 9Cl-PF3ONS			932.00	912.60	97.9	70 - 130
D 55 13C8_PFOSA	270667	267247			98.7	50 - 150
19 PFOSA			1000.00	967.46	96.7	70 - 130
16 PFNS			960.00	906.37	94.4	70 - 130
10 PFDA			1000.00	1047.48	104.7	70 - 130
3 8:2 FTS			958.00	1092.72	114.1	70 - 130
D 51 13C6_PFDA	638513	598826			93.8	50 - 150
D 65 13C2_8:2 FTS_2	97932	92438			94.4	50 - 150
6 N-MeFOSAA			1000.00	892.43	89.2	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	734264	723743			98.6	50 - 150
D 61 d7-MeFOSE	82771	91112			110.1	50 - 150
32 MeFOSE			1000.00	1034.35	103.4	70 - 130
26 MeFOSA			1000.00	1040.08	104	70 - 130
D 57 d3-MeFOSA	48290	43273			89.6	50 - 150
9 PFDS			964.00	931.89	96.7	70 - 130
D 52 13C7_PFUdA	658476	657505			99.9	50 - 150
D 60 d5-EtFOSAA	654482	637989			97.5	50 - 150
25 PFUdA			1000.00	996.06	99.6	70 - 130
5 N-EtFOSAA			1000.00	888.46	88.8	70 - 130
D 62 d9-EtFOSE	100538	97727			97.2	50 - 150
33 EtFOSE			1000.00	1070.98	107.1	70 - 130
D 59 d5-EtFOSA	38708	42512			109.8	50 - 150
31 11Cl-PF3OUDS			942.00	937.15	99.5	70 - 130
27 EtFOSA			1000.00	972.34	97.2	70 - 130
D 38 13C2_PFDoA	739968	658851			89	50 - 150
11 PFDoA			1000.00	1016.69	101.7	70 - 130
4 10:2 FTS			964.00	1092.76	113.4	70 - 130
34 PFDOS			968.00	946.62	97.8	70 - 130
24 PFTrDA			1000.00	973.23	97.3	70 - 130
D 42 13C2_PFTeDA	881166	855577			97.1	50 - 150
23 PFTeDA			1000.00	982.62	98.3	70 - 130
D 40 13C2_PFHxDA	942416	912422			96.8	50 - 150
35 PFHxDA			1000.00	970.89	97.1	70 - 130
36 PFODA			1000.00	1019.34	101.9	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	14
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.709	1.718	0	642719	21	>100:1			1000.00	1033.85	97.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.718	0/0	655211	21	>100:1			1000.00	966.63		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.109	0	593333	16	>100:1			1000.00	1038.04	102	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.104	2.120	0/0	668219	15	>100:1			1000.00	1000.63		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.157	2.173	0	172780	16	>100:1			1000.00	998.90	105.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.157	2.173	0/0	180201	16	>100:1	Target = 3.53		884.00	836.35		
298.9 > 99	44	2.157	2.173		55145	17	>100:1	3.26 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.513	2.532	-1/-1	141084	17	>100:1	Target = 3.10		938.00	881.07		
349 > 99	44	2.513	2.532		48338	17	>100:1	2.91 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.441	2.451	0	106659	18	>100:1			5000.00	4710.31	94.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.441	2.451	0/0	41357	19	>100:1	Target = 1.75		934.00	879.50		
327 > 81	63	2.441	2.451		22674	17	49:1	1.82 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.477	2.496	-1	669033	19	>100:1			1000.00	1027.25	100.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.477	2.496	-1/0	681873	18	>100:1	Target = 18.91		1000.00	980.22		
313 > 119	49	2.477	2.496		34498	23	>100:1	19.76 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.590	2.607	-1	1146454	19	>100:1			5000.00	4946.81	94.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.597	2.614	-1/0	289726	19	>100:1	Target = 0.79		2000.00	1951.07		
285 > 185	66	2.590	2.614		374434	20	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.853	2.873	-1	546721	18	>100:1			1000.00	1029.73	100.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.853	2.873	-1/0	615367	19	>100:1	Target = 3.80		1000.00	1024.32		
363 > 169	47	2.853	2.873		149134	18	>100:1	4.12 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.872	2.889	-1	129306	19	>100:1			1000.00	1029.18	104.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.872	2.889	-1/0	118557	27	>100:1	Target = 2.89	5.77	910.00	833.98		
399 > 99	45	2.872	2.889		39213	24	>100:1	3.02 (1.44-4.34)	7.41				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.895	2.912	-1/0	925889	21	>100:1	Target = 3.23		942.00	923.30		
377 > 85	45	2.895	2.912		270196	19	>100:1	3.42 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.252	3.276	-1/0	117781	22	>100:1	Target = 3.12		952.00	886.87		
449 > 99	45	3.259	3.276		37920	22	>100:1	3.10 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.225	3.242	-1	101701	23	>100:1			5000.00	5650.07	103.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.225	3.248	-1/0	47129	19	>100:1	Target = 1.75		948.00	978.79		
427 > 81	64	3.218	3.248		25874	19	68:1	1.82 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.245	3.269	-1	573754	20	>100:1			1000.00	1093.54	99.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.276	-1/0	559803	20	>100:1	Target = 2.89		1000.00	952.11		
413 > 169	53	3.252	3.276		195445	21	>100:1	2.86 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.635	3.657	-1	127490	21	>100:1			1000.00	1029.45	101.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.635	3.652	0/1	131694	39	>100:1	Target = 3.30	3.85	928.00	867.55		
499 > 99	54	3.635	3.652		35066	38		3.75 (1.65-4.95)	5.65				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.850	3.872	-1/0	440618	18	>100:1			932.00	912.60		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.989	4.017	-1/0	92707	16	>100:1	Target = 3.08		960.00	906.37		
549 > 99	54	3.989	4.017		34849	20	>100:1	2.66 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.300	4.319	-1/0	92970	14		Target = 2.72		964.00	931.89		
599 > 99	54	4.290	4.319		35783	15	>100:1	2.59 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.459	4.483	-1/0	409047	15	>100:1			942.00	937.15		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.812	4.842	-1/0	103775	20	>100:1	Target = 3.27		968.00	946.62		
699 > 99	54	4.806	4.842		34293	25		3.02 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.635	3.662	-1	620354	21	>100:1			1000.00	968.73	89.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.642	3.662	-1/0	706105	22	>100:1	Target = 6.51		1000.00	1056.00		
463 > 169	56	3.642	3.662		105343	21	>100:1	6.70 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.908	3.921	0	267247	18	>100:1			1000.00	996.97	98.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.908	3.921	0/0	272044	17	>100:1	Target = 41.63		1000.00	967.46		
498>478	55	3.908	3.921		8450	24		32.19 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.999	4.027	-1	598826	17	>100:1			1000.00	1042.05	93.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.999	4.027	-1/0	729967	16	>100:1	Target = 13.80		1000.00	1047.48		
513 > 169	51	3.999	4.027		48014	14	>100:1	15.20 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.989	4.017	-1	92438	23	>100:1			5000.00	5348.03	94.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.999	4.006	0/1	45648	15	>100:1	Target = 1.94		958.00	1092.72		
527 > 81	65	3.999	4.006		16932	15	65:1	2.69 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.608	4.631	-1/0	51246	16		Target = 3.54		964.00	1092.76		
627 > 80	65	4.608	4.631		15239	22	58:1	3.36 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.154	4.178	-1	723743	17	>100:1			5000.00	4789.43	98.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.163	4.187	-1/0	103656	30	>100:1	Target = 1.37	8.04	1000.00	892.43		M
570 > 483	58	4.163	4.187		86843	31	>100:1	1.19 (0.68-2.05)	4.34				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.321	4.329	0	91112	15	>100:1			1000.00	1010.24	110.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.331	4.348	-1/-1	102991	15	>100:1			1000.00	1034.35		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.340	4.348	0	43273	12	>100:1			1000.00	919.90	89.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.340	4.367	-1/-1	48783	20	>100:1	Target = 1.11		1000.00	1040.08		
512 > 219	57	4.340	4.367		41627	13	>100:1	1.17 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.321	4.339	-1	637989	15	>100:1			5000.00	4926.06	97.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.321	4.348	-1/0	110537	31	>100:1	Target = 1.51	6.41	1000.00	888.46		
584 > 526	60	4.321	4.348		76974	31	>100:1	1.43 (0.75-2.26)	3.73				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.321	4.339	-1	657505	15	>100:1			1000.00	1091.75	99.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.321	4.339	-1/0	634586	17	>100:1	Target = 14.52		1000.00	996.06		
563 > 169	52	4.321	4.339		38219	15	>100:1	16.60 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.486	4.501	0	97727	14	>100:1			1000.00	921.28	97.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.495	4.510	0/0	101888	17	>100:1			1000.00	1070.98		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.504	4.519	0	42512	13	>100:1			1000.00	988.65	109.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.513	4.528	0/0	49557	15	>100:1	Target = 1.06		1000.00	972.34		
526 > 219	59	4.513	4.528		48970	14	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.591	4.614	-1	658851	16	>100:1			1000.00	1097.47	89	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.591	4.614	-1/0	714105	17	>100:1	Target = 10.70		1000.00	1016.69		
613 > 169	38	4.591	4.614		63623	17	>100:1	11.22 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.839	4.868	-1/0	673971	18	>100:1	Target = 8.31		1000.00	973.23		
663 > 169	38	4.847	4.868		69686	18	>100:1	9.67 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.066	5.087	-1	855577	21	>100:1			1000.00	1052.38	97.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.066	5.093	-1/0	733878	21	>100:1	Target = 12.17		1000.00	982.62		
713 > 169	42	5.066	5.093		57108	21	>100:1	12.85 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.484	5.512	-1	912422	19	>100:1			1000.00	1051.13	96.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.484	5.512	-1/0	567353	19	>100:1	Target = 10.43		1000.00	970.89		
813 > 269	40	5.484	5.512		50951	19	>100:1	11.13 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.904	5.944	-2/-1	846723	39	62:1	Target = 13.67		1000.00	1019.34		
913 > 319	40	5.904	5.944		54673	33	>100:1	15.48 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.999	4.027	-1	699437	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.477	2.496	-1	685102	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.269	-1	582308	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	595265	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.628	3.657	-1	125951	21	>100:1			1000.00			

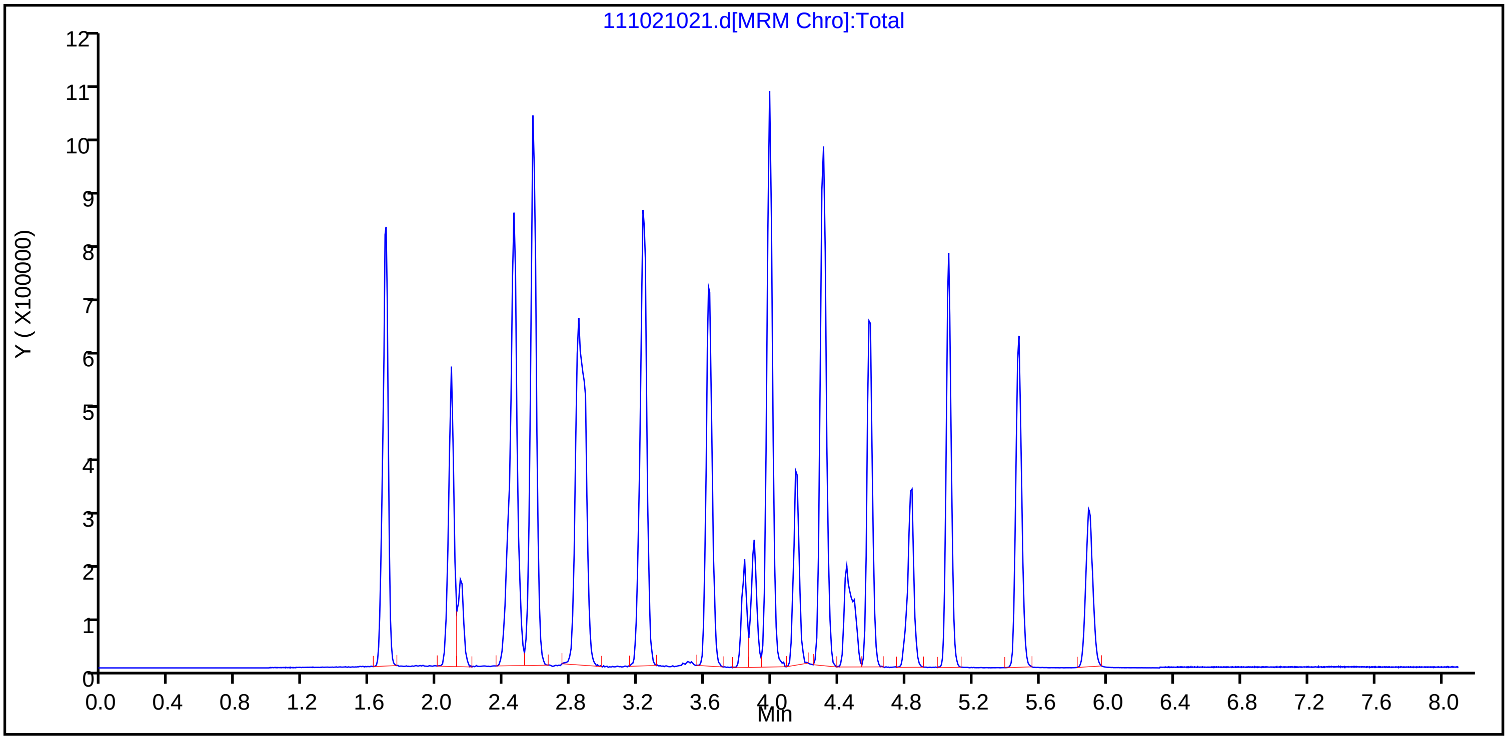
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

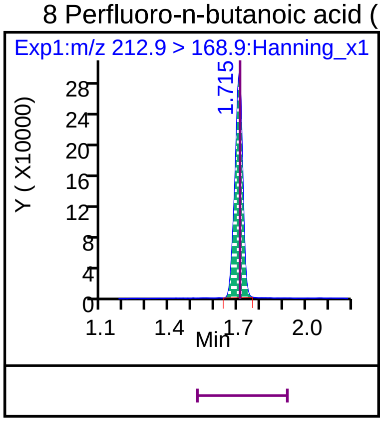
Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

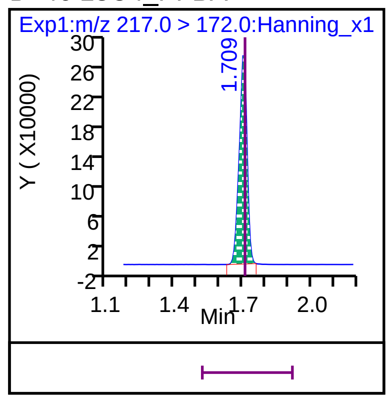
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



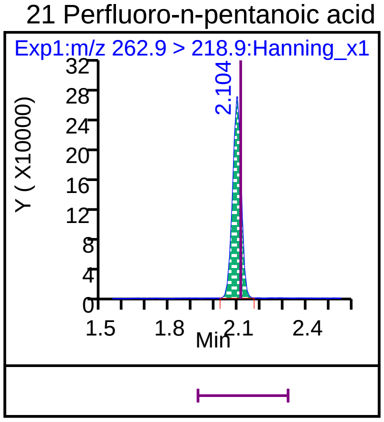
8 Perfluoro-n-butanoic acid (PFBA)



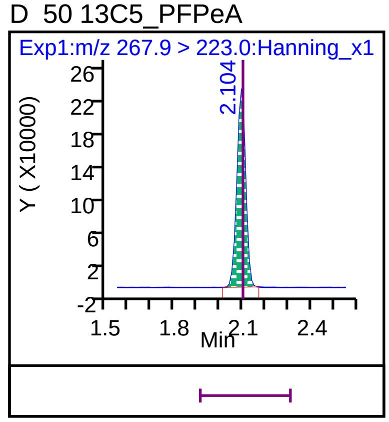
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



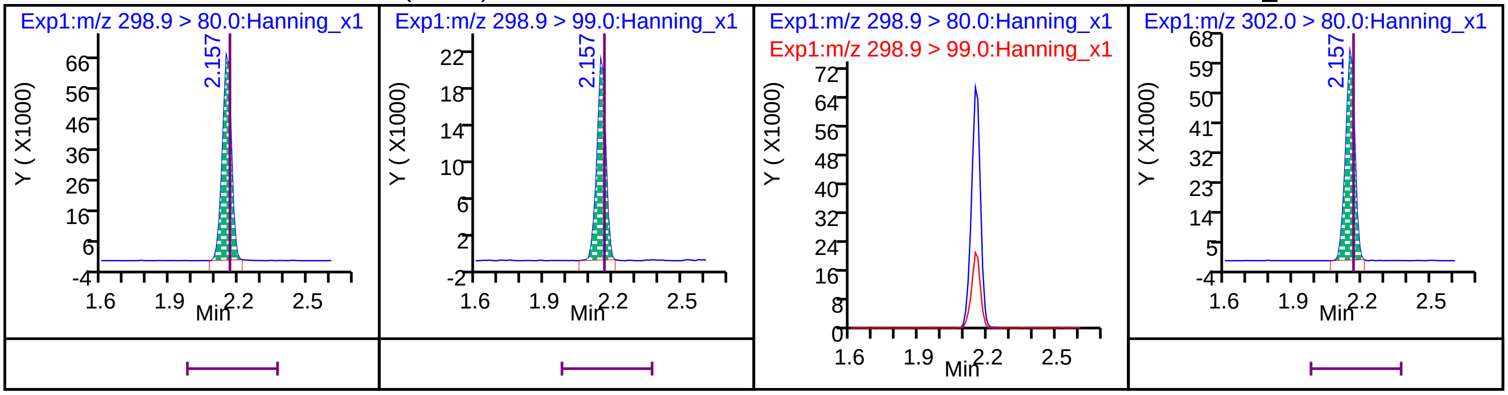
D 50 13C5_PFPeA



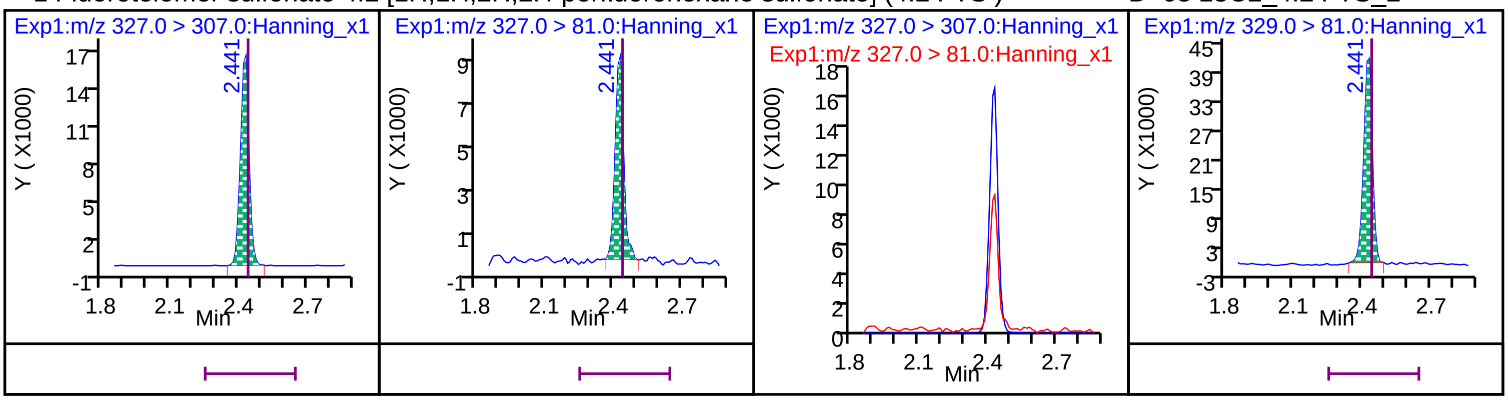
Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

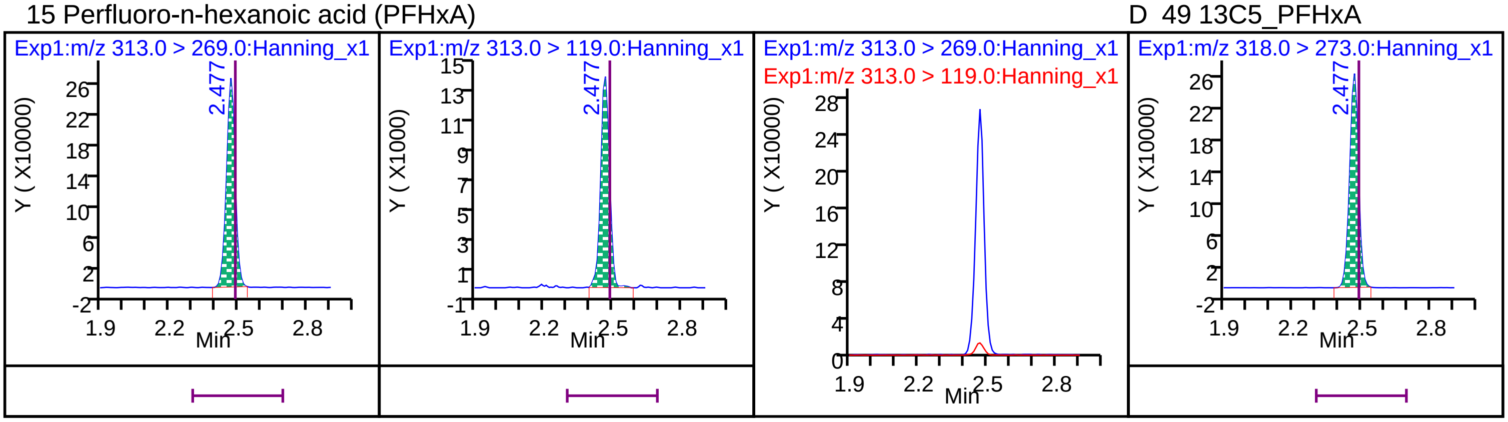
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



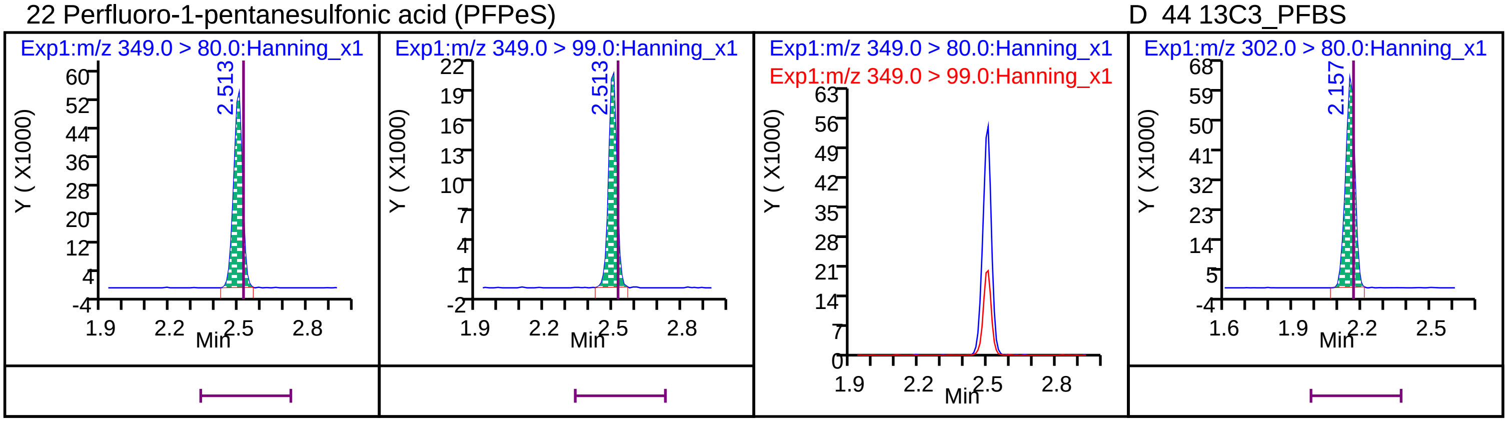
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



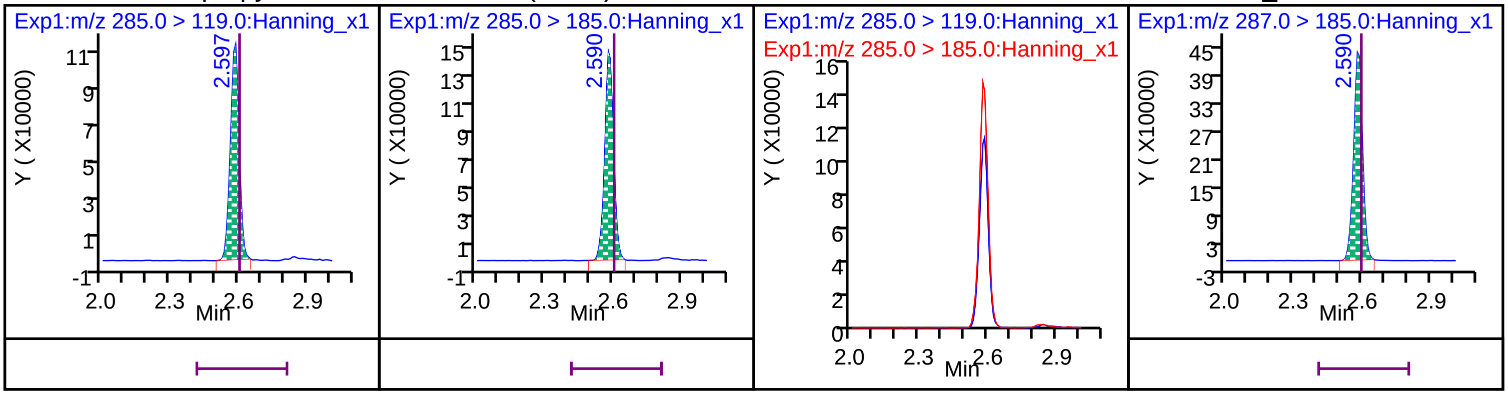
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



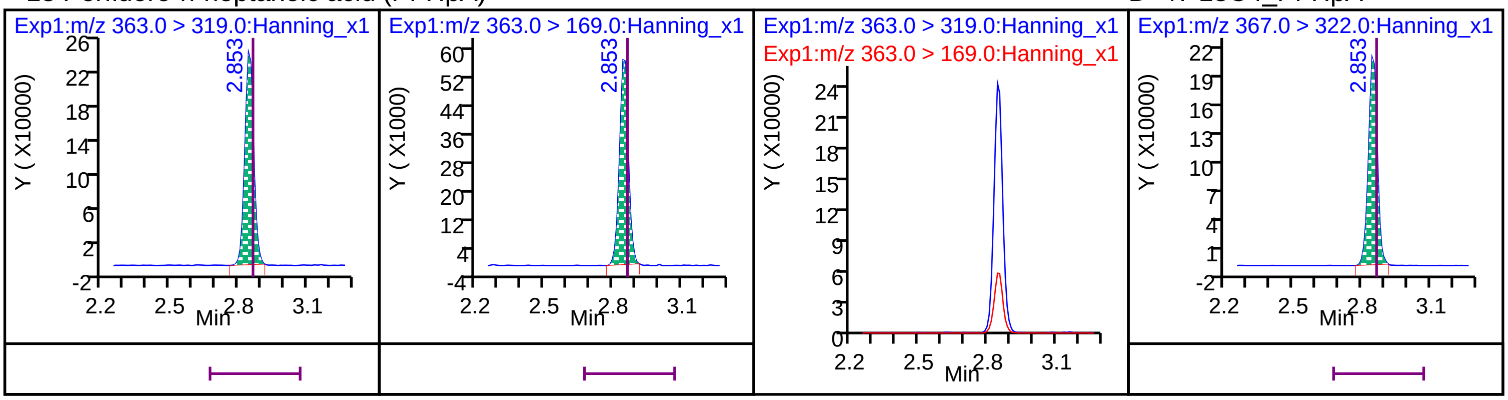
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



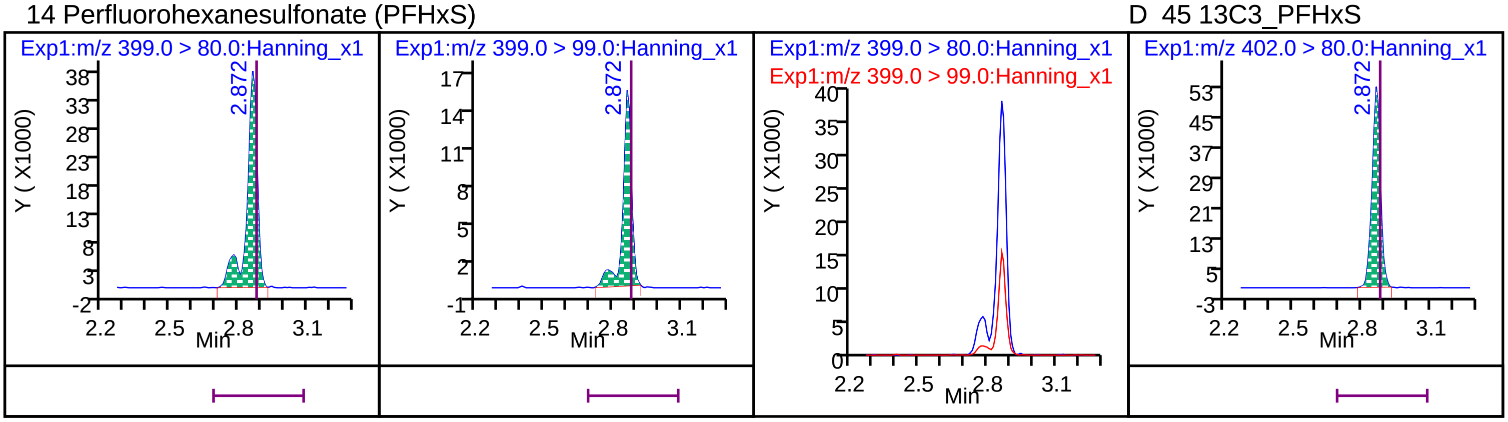
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



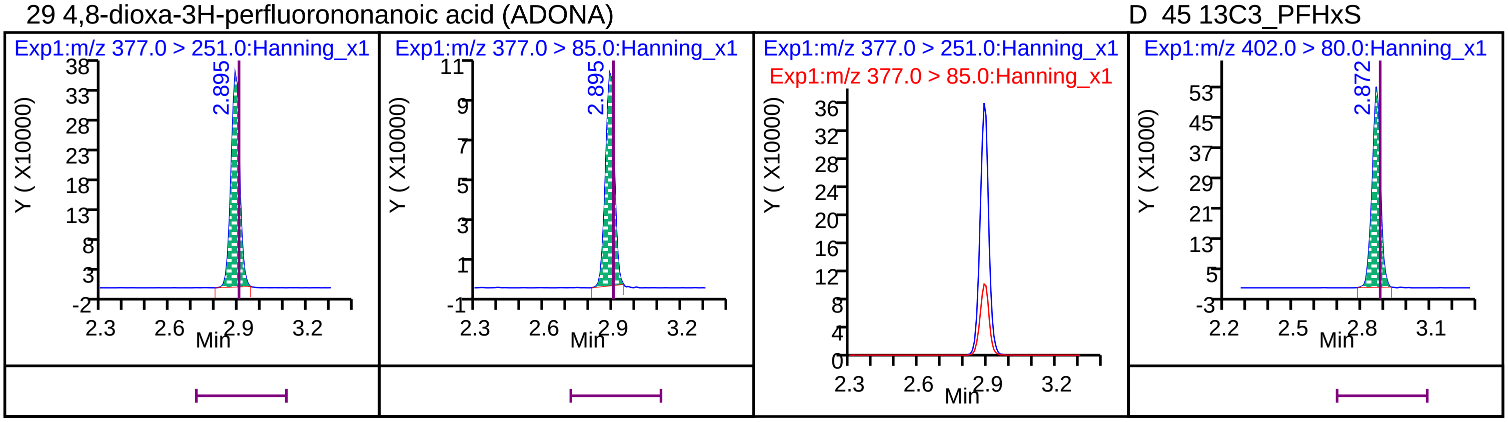
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



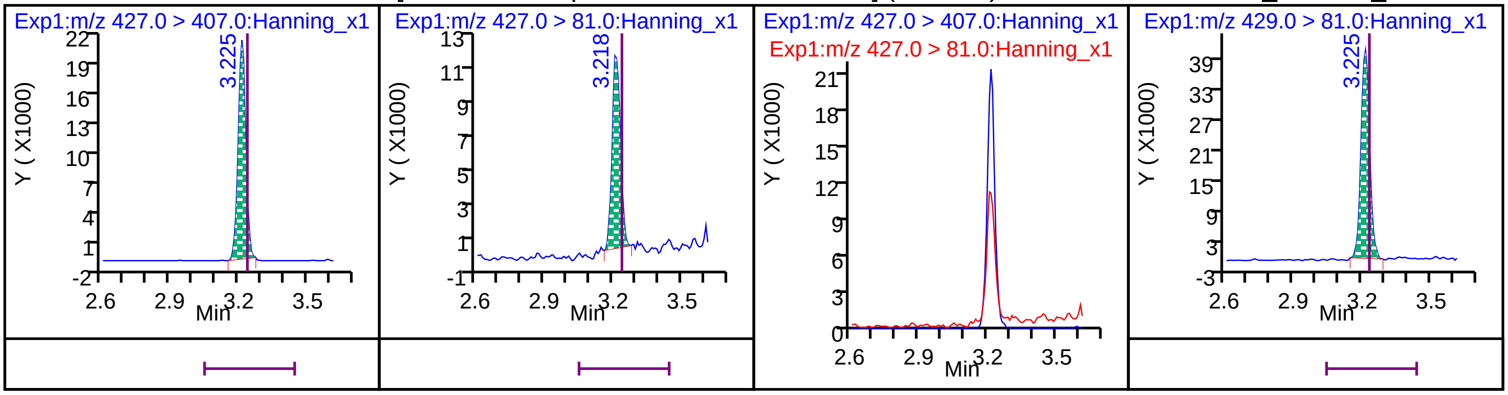
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



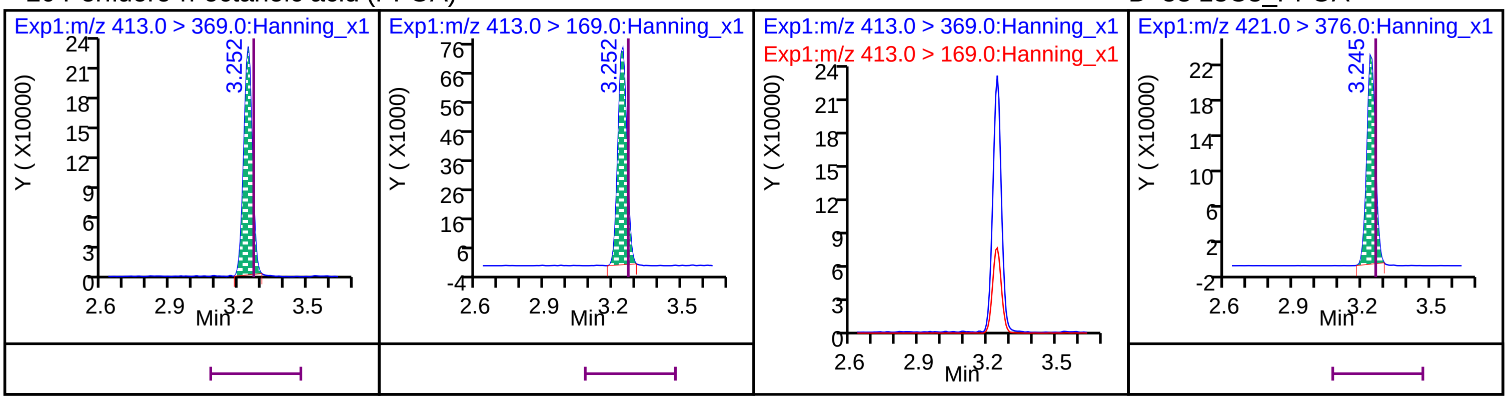
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



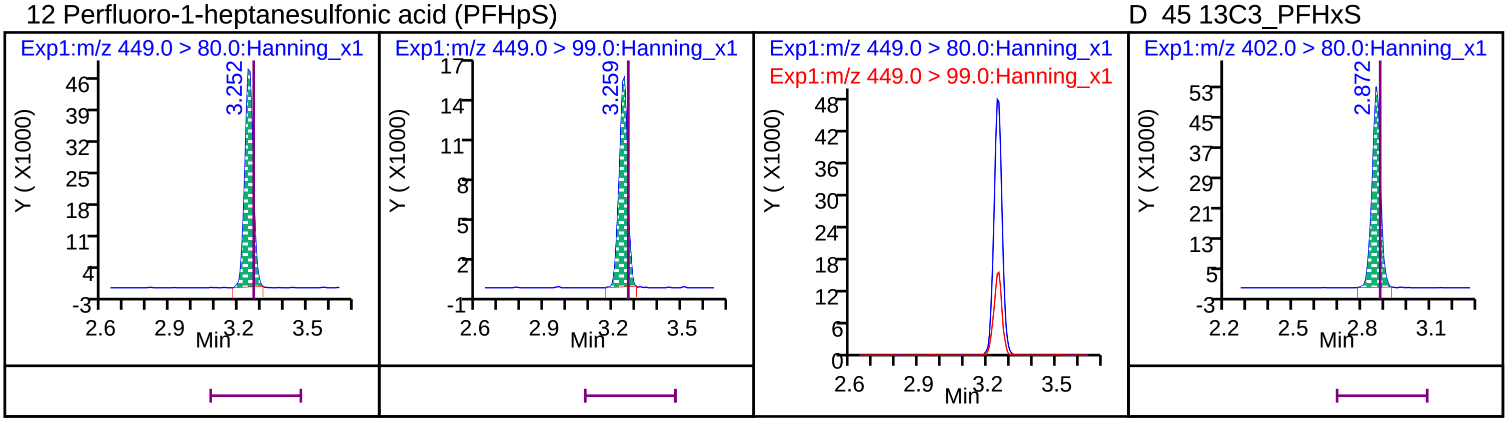
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



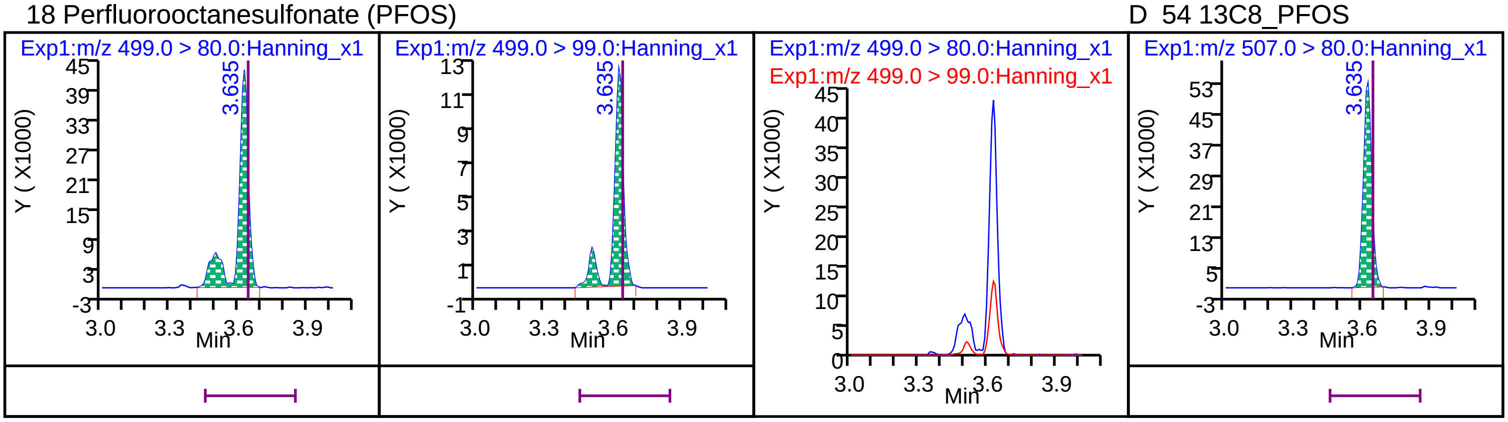
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



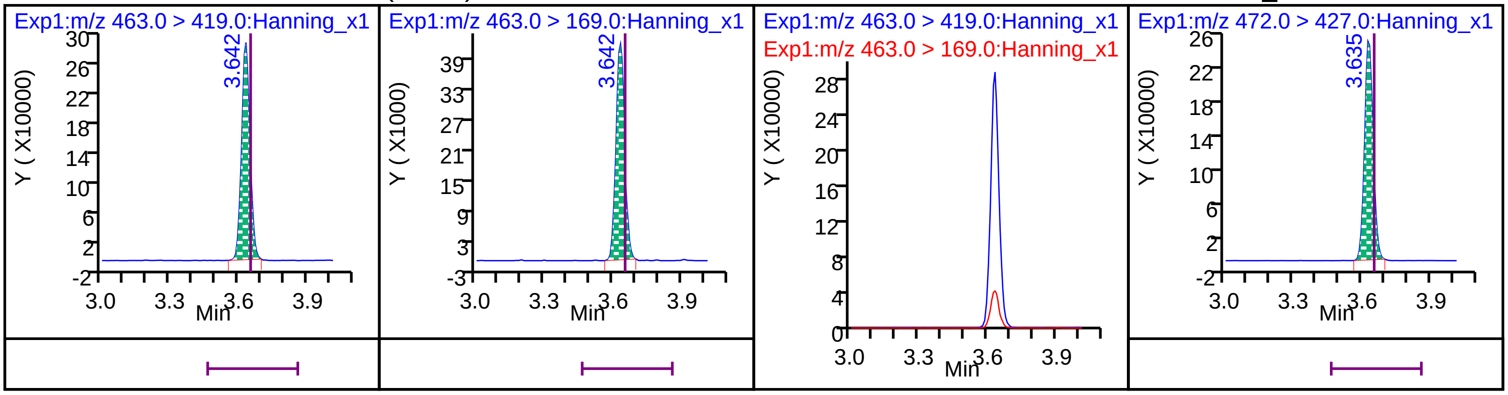
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



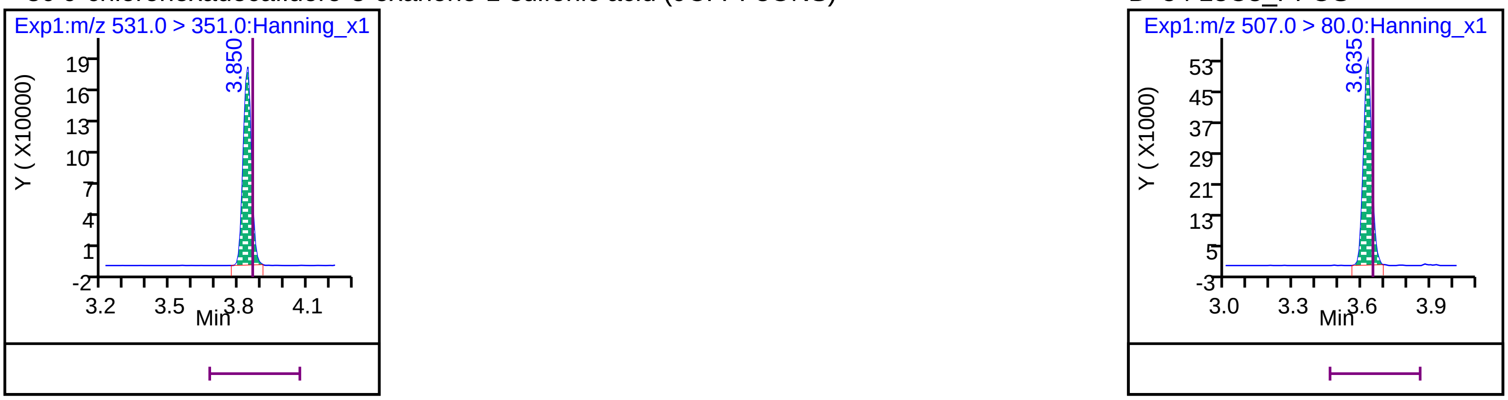
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



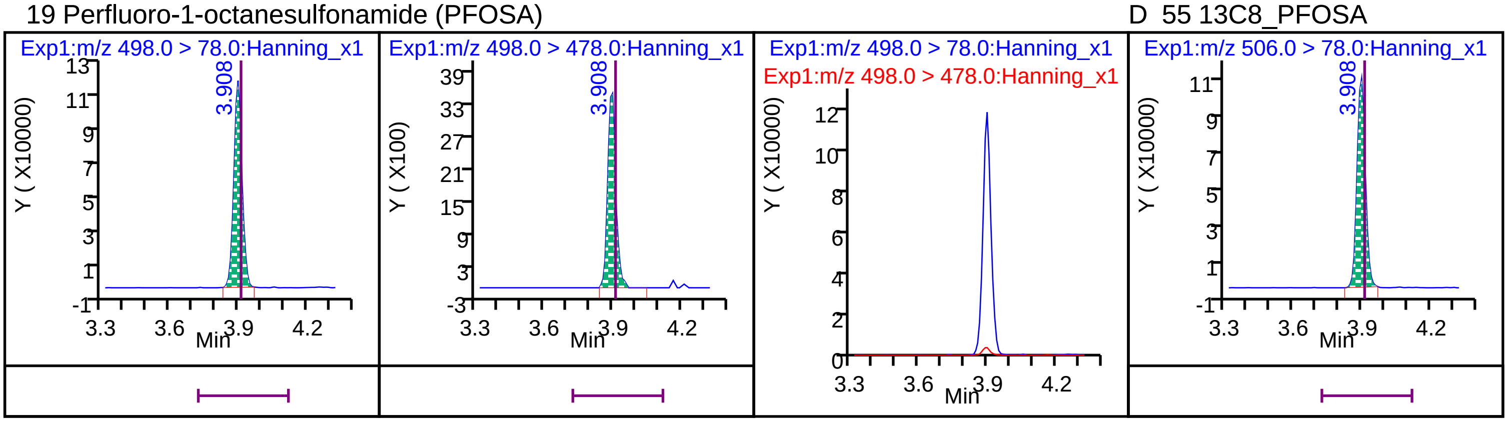
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



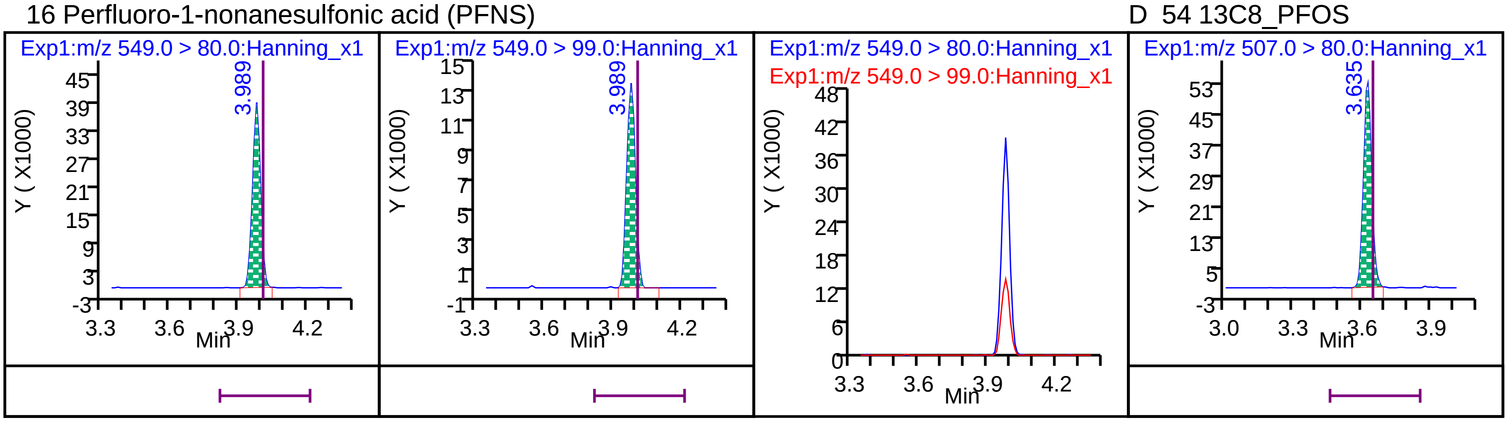
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

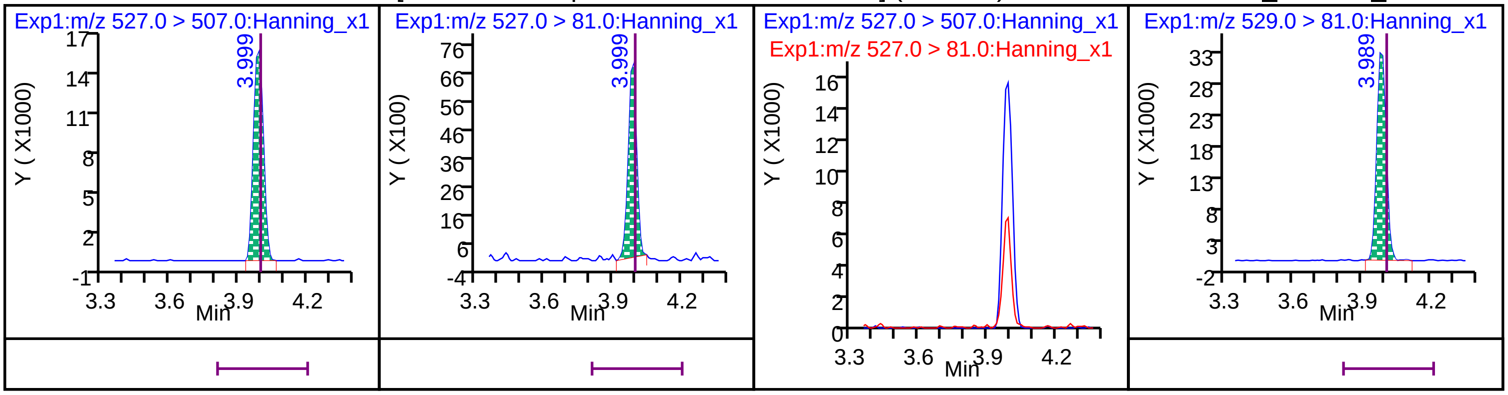


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

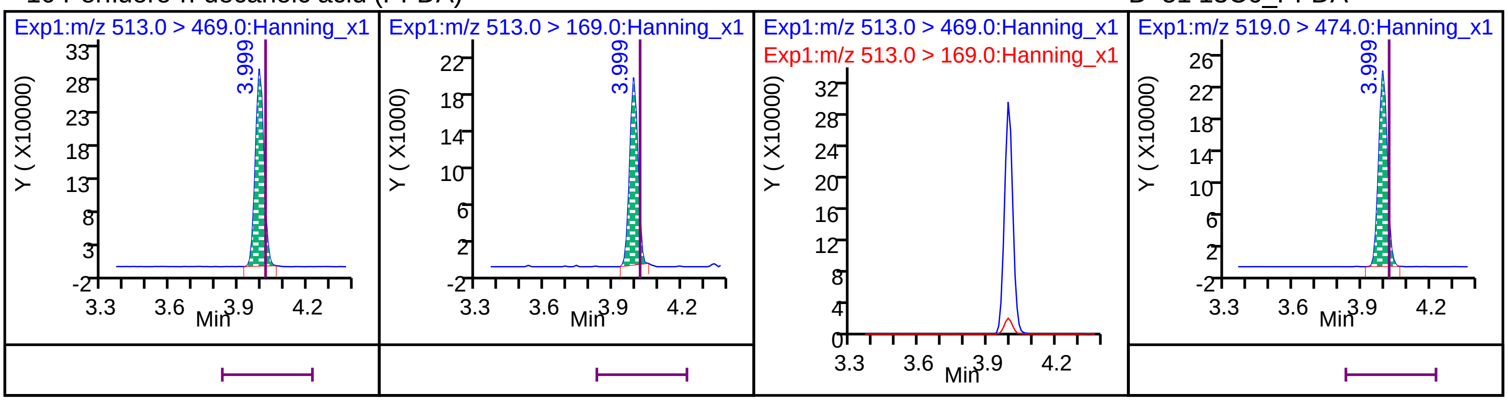


Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

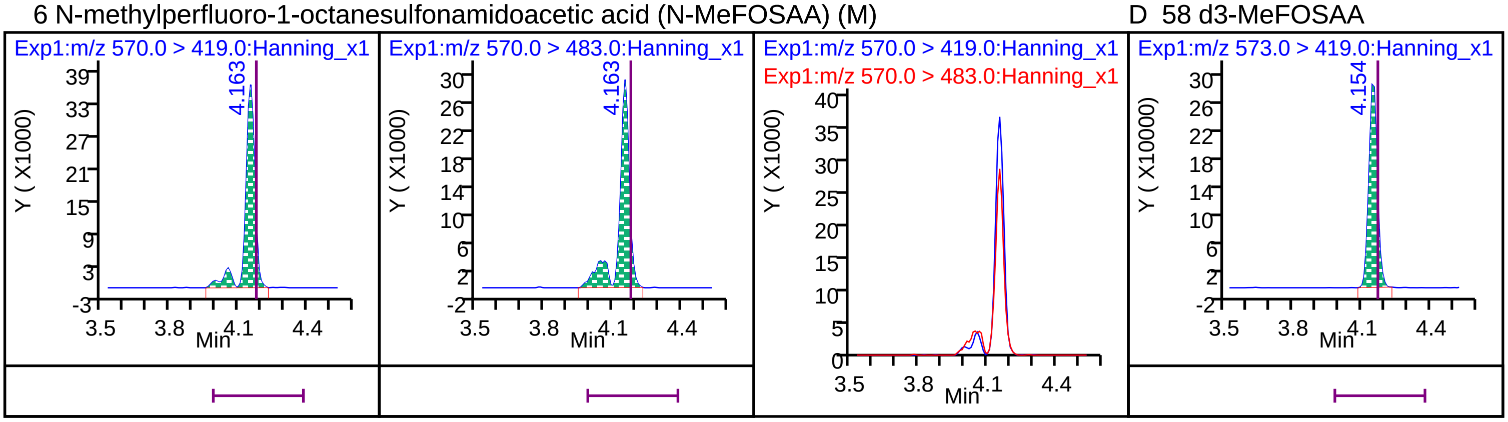
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



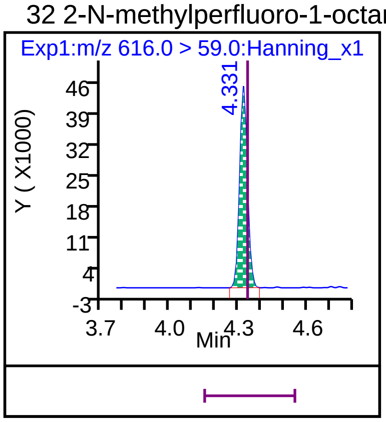
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

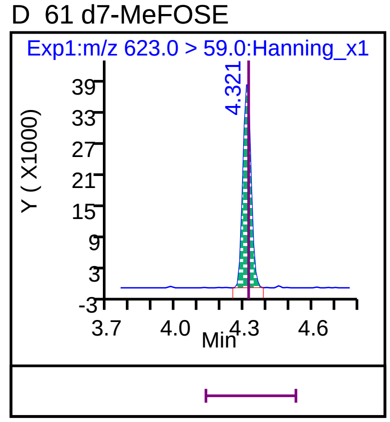


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

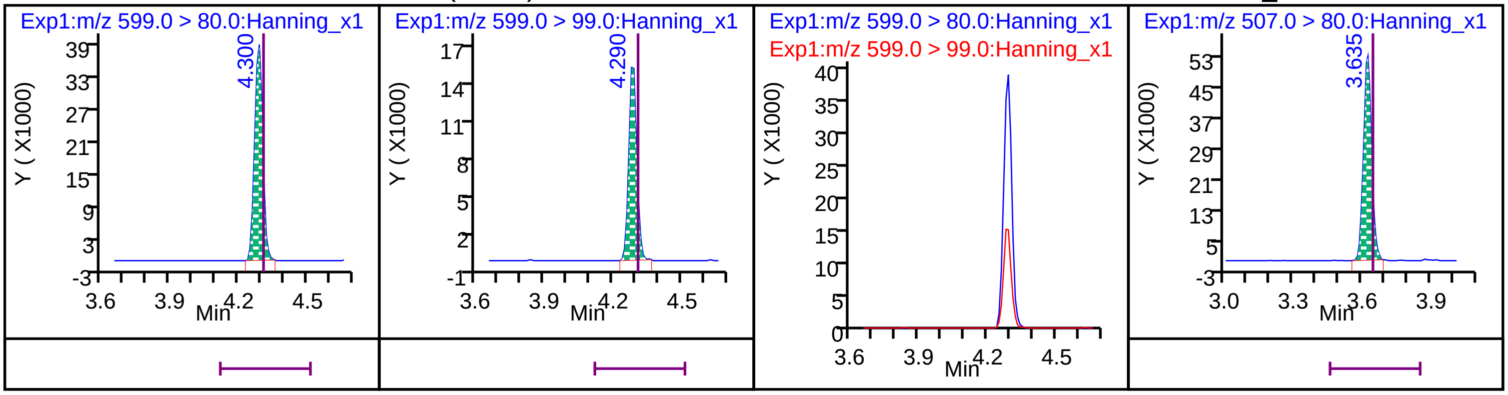


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

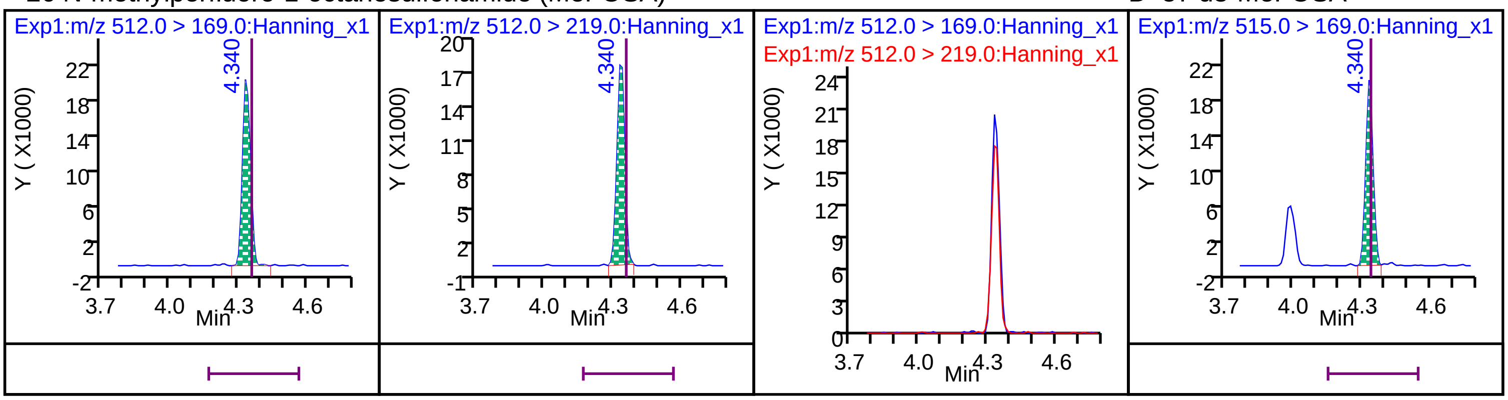




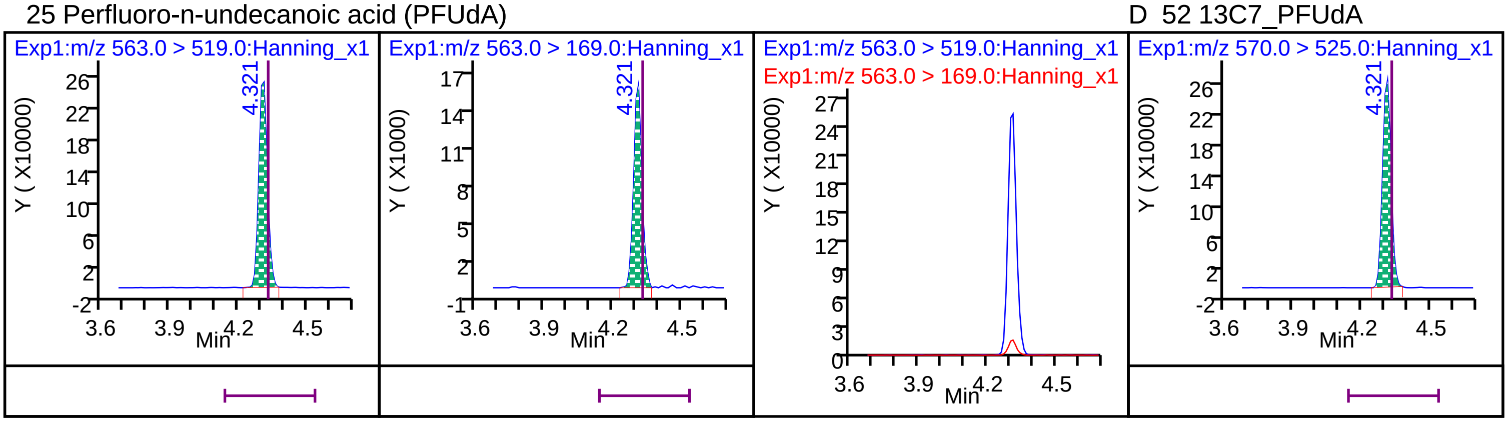
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



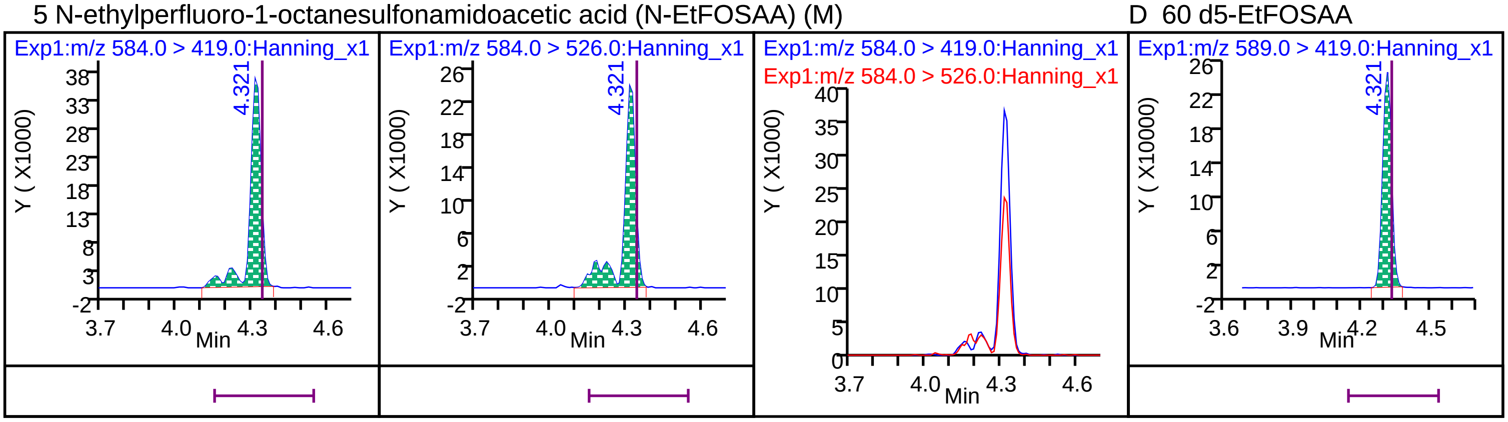
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



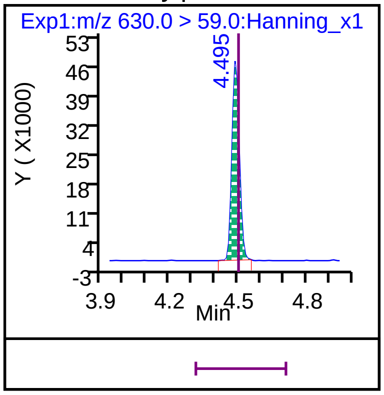
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



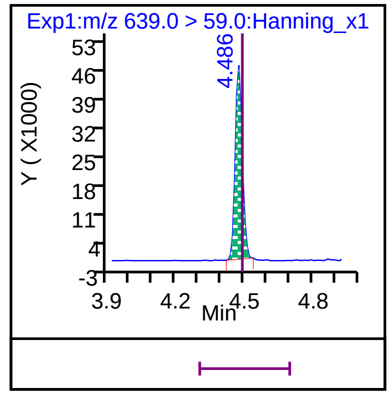
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



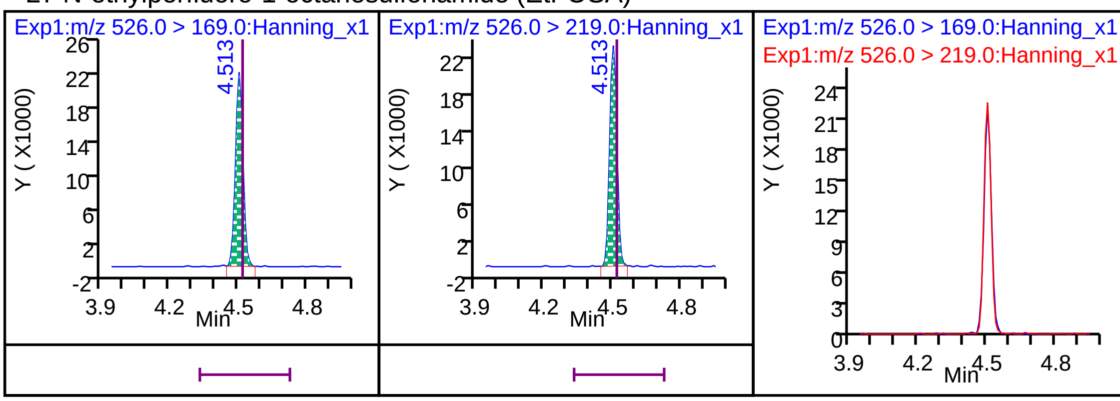
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



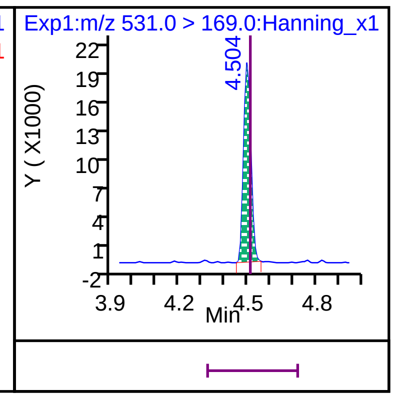
D 62 d9-EtFOSE



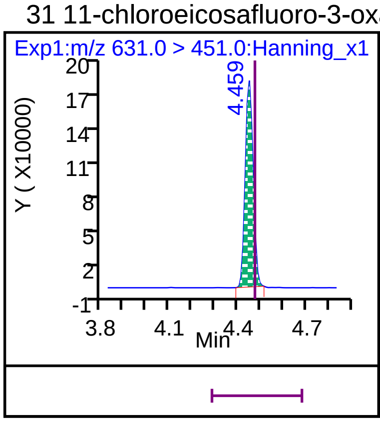
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



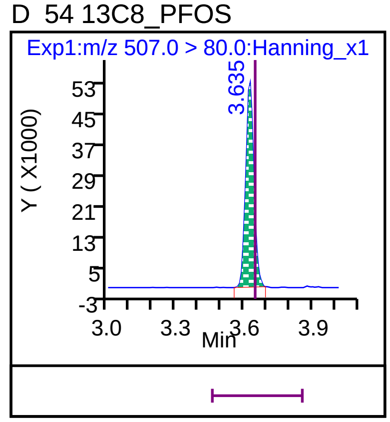
D 59 d5-EtFOSA



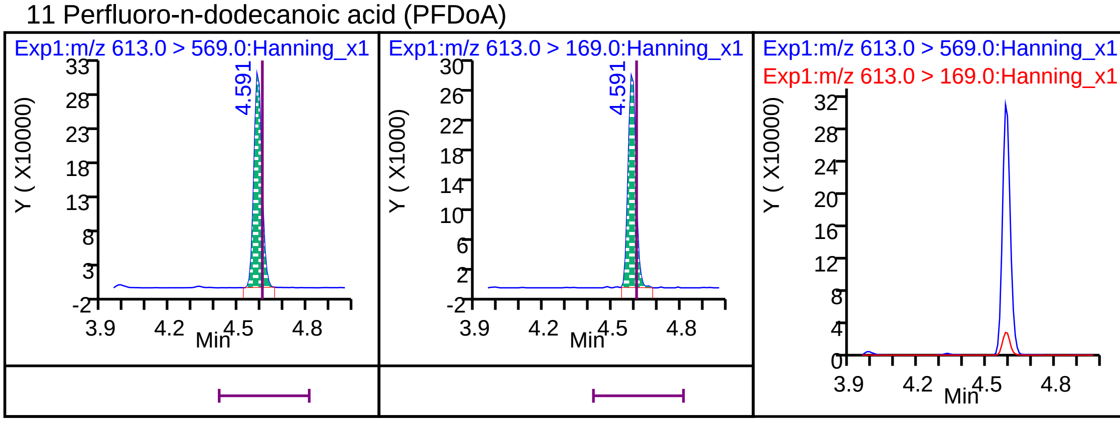
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



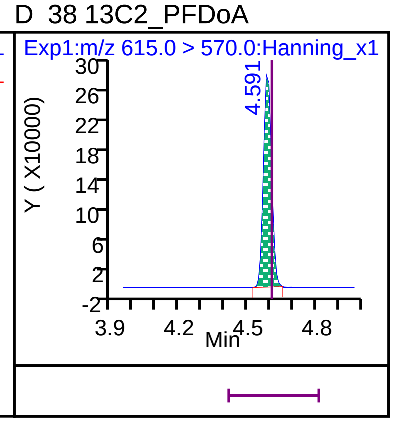
D 54 13C8_PFOS



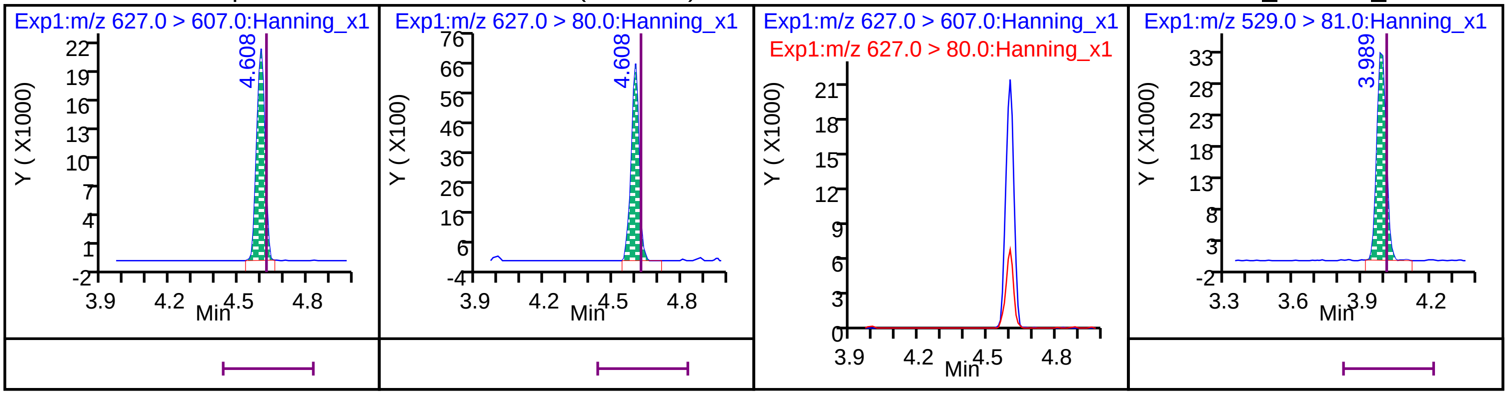
11 Perfluoro-n-dodecanoic acid (PFDoA)



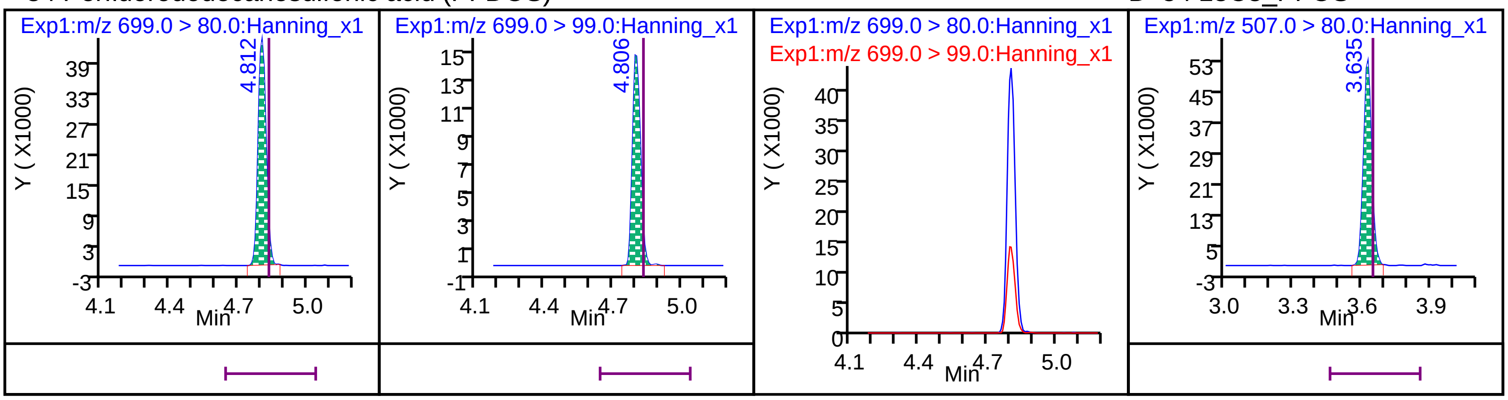
D 38 13C2_PFDoA



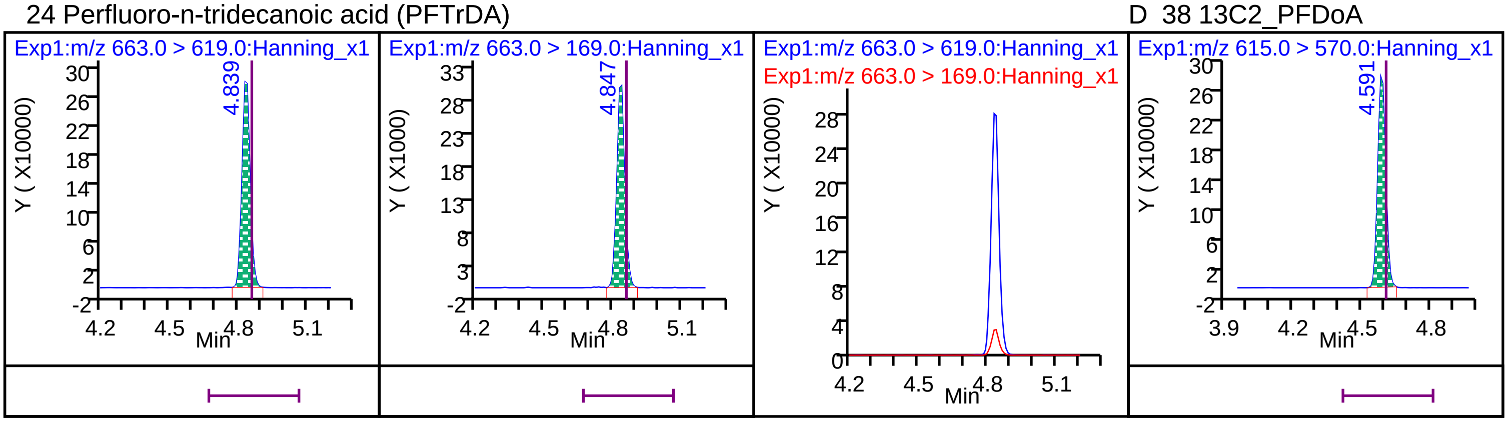
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



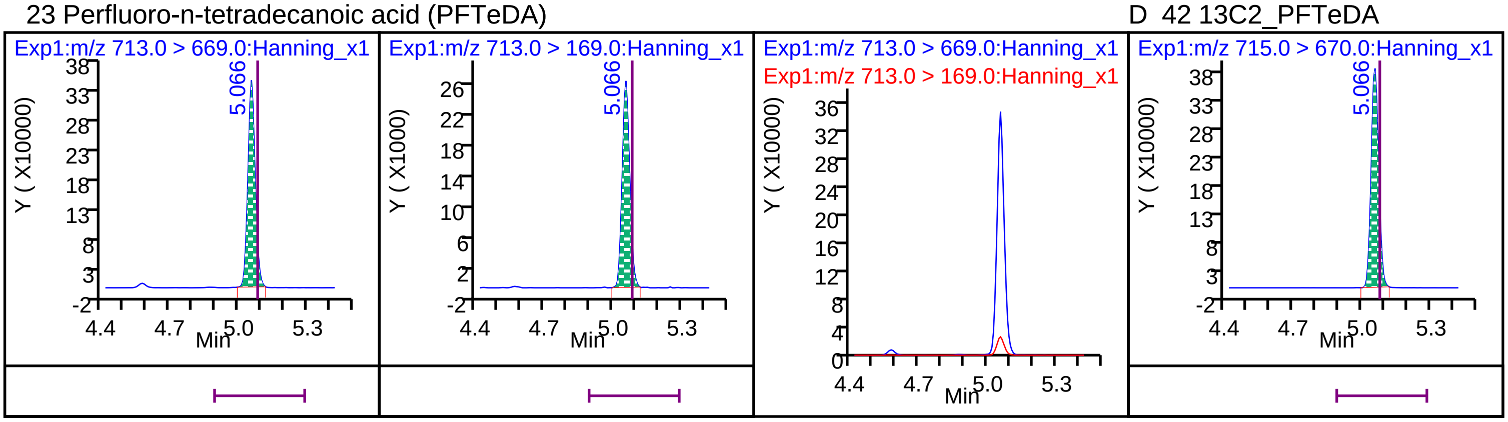
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



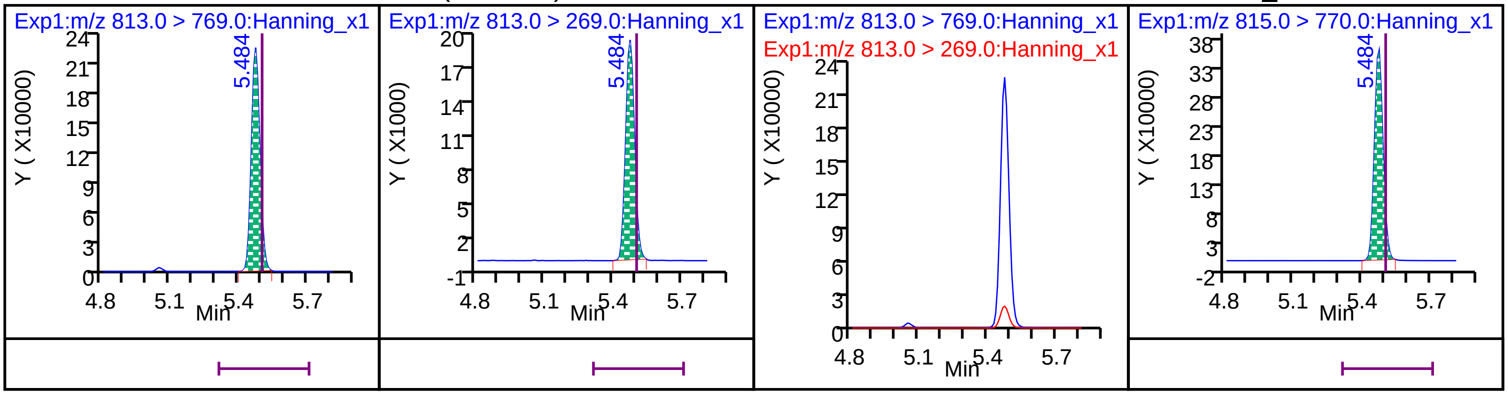
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



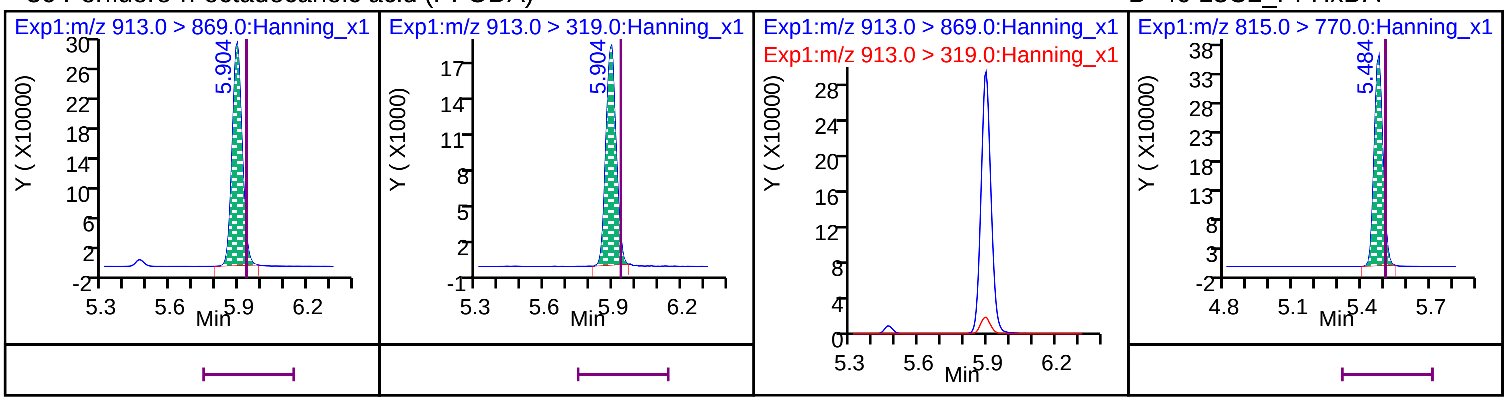
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



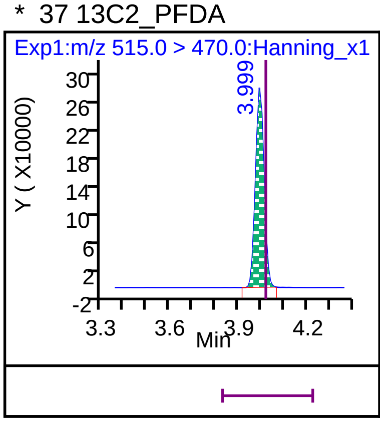
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



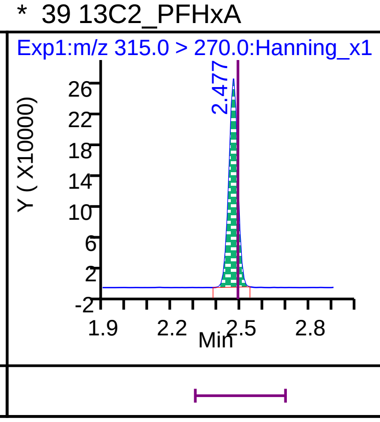
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



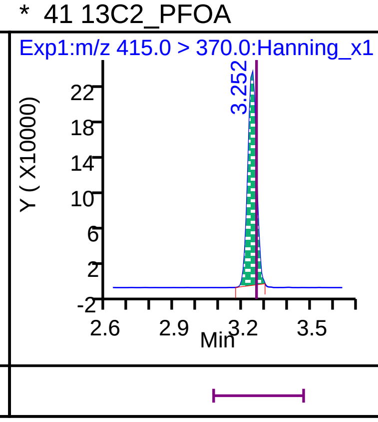
* 37 13C2_PFDA



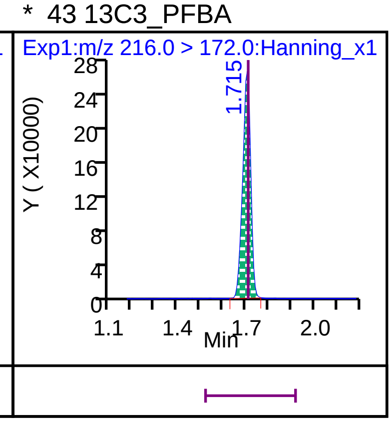
* 39 13C2_PFHxA



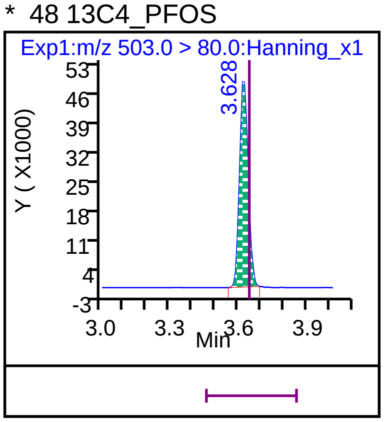
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

Injection Date: 10-Nov-2021 16:37:42 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000_SVLC-1744

Sample Info: ID CCV 1000_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

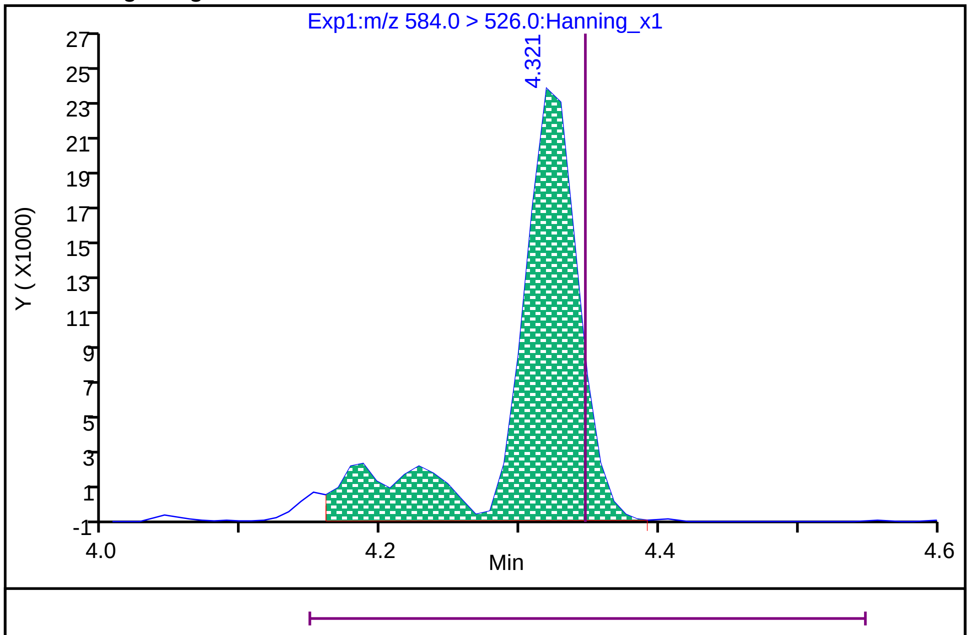
Processing Integration Results

RT: 4.321

Area: 74462

Amount: 888.46

Amount Units: ng/L

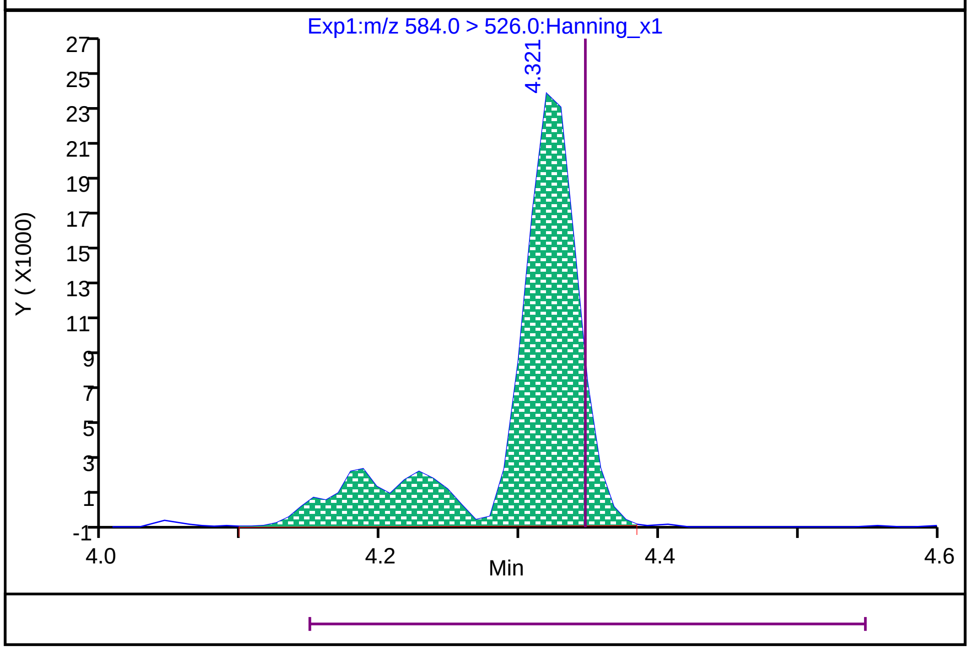


RT: 4.321

Area: 76974

Amount: 888.46

Amount Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 09:46:56

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

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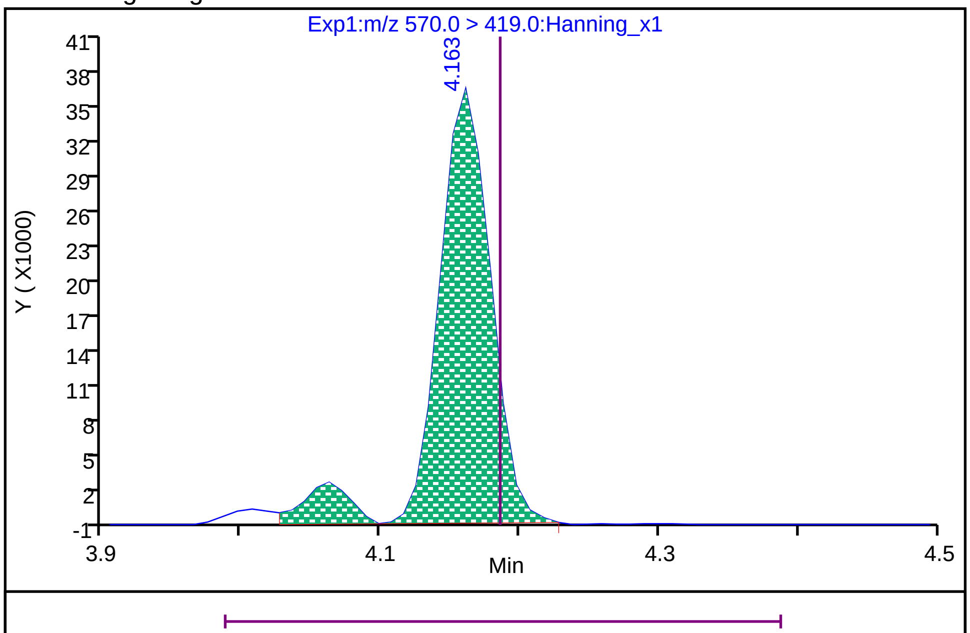
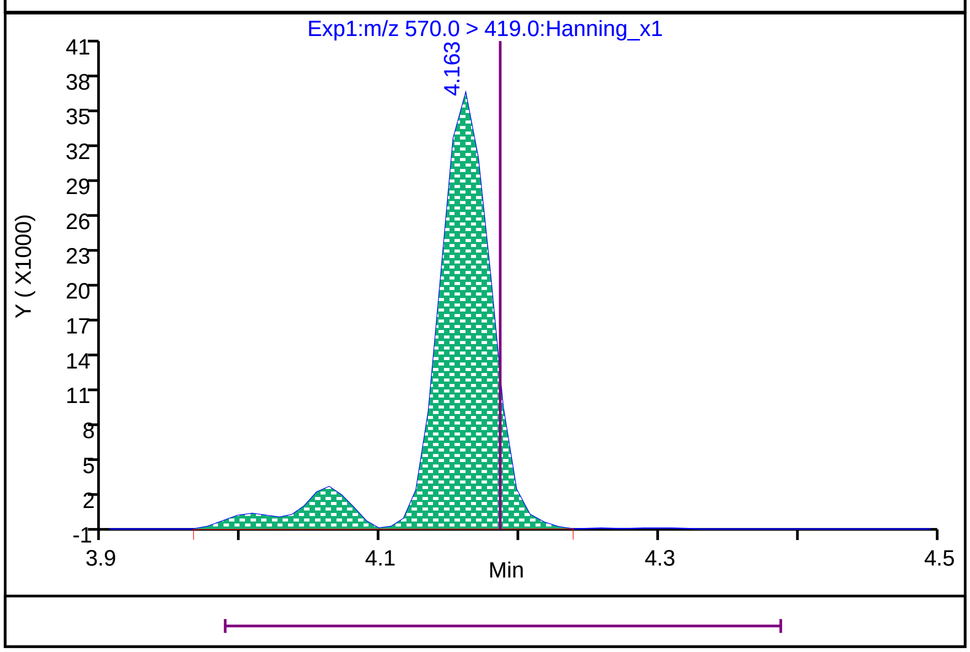
Amount:	855.48
Amount Units:	ng/L



RT:	4.163
Area:	103656
Amount:	892.43
Amount Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 09:46:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
Injection Date:	10-Nov-2021 18:44:01	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	978.30	97.8	70 - 130
D 46 13C4_PFBA	659044	644591			97.8	50 - 150
21 PFPeA			1000.00	959.89	96	70 - 130
D 50 13C5_PFPeA	581857	592470			101.8	50 - 150
D 44 13C3_PFBS	164288	180699			110	50 - 150
7 PFBS			884.00	817.74	92.5	70 - 130
1 4:2 FTS			934.00	969.30	103.8	70 - 130
D 63 13C2_4:2 FTS_2	113327	112481			99.3	50 - 150
D 49 13C5_PFHxA	667779	679812			101.8	50 - 150
15 PFHxA			1000.00	1010.76	101.1	70 - 130
22 PFPeS			938.00	894.82	95.4	70 - 130
28 GenX			2000.00	2027.69	101.4	70 - 130
D 66 13C3_GenX	1212655	1171070			96.6	50 - 150
D 47 13C4_PFHpA	545849	560964			102.8	50 - 150
13 PFHpA			1000.00	1000.08	100	70 - 130
D 45 13C3_PFHxS	123814	129173			104.3	50 - 150
14 PFHxS			910.00	891.67	98	70 - 130
29 ADONA			942.00	935.36	99.3	70 - 130
D 64 13C2_6:2 FTS_2	97903	110519			112.9	50 - 150
2 6:2 FTS			948.00	988.23	104.2	70 - 130
20 PFOA			1000.00	1032.06	103.2	70 - 130
D 53 13C8_PFOA	574828	556846			96.9	50 - 150
12 PFHpS			952.00	921.59	96.8	70 - 130
D 54 13C8_PFOS	125685	128828			102.5	50 - 150
18 PFOS			928.00	875.32	94.3	70 - 130
17 PFNA			1000.00	1001.64	100.2	70 - 130
D 56 13C9_PFNA	690339	655714			95	50 - 150
30 9Cl-PF3ONS			932.00	904.13	97	70 - 130
D 55 13C8_PFOSA	270667	268528			99.2	50 - 150
19 PFOSA			1000.00	984.44	98.4	70 - 130
16 PFNS			960.00	921.51	96	70 - 130
10 PFDA			1000.00	1018.85	101.9	70 - 130
3 8:2 FTS			958.00	853.19	89.1	70 - 130
D 51 13C6_PFDA	638513	603572			94.5	50 - 150
D 65 13C2_8:2 FTS_2	97932	99516			101.6	50 - 150
6 N-MeFOSAA			1000.00	867.70	86.8	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	734264	712589			97	50 - 150
D 61 d7-MeFOSE	82771	85288			103	50 - 150
32 MeFOSE			1000.00	1056.66	105.7	70 - 130
26 MeFOSA			1000.00	1173.94	117.4	70 - 130
D 57 d3-MeFOSA	48290	43374			89.8	50 - 150
9 PFDS			964.00	952.17	98.8	70 - 130
D 52 13C7_PFUdA	658476	696207			105.7	50 - 150
D 60 d5-EtFOSAA	654482	639916			97.8	50 - 150
25 PFUdA			1000.00	881.04	88.1	70 - 130
5 N-EtFOSAA			1000.00	930.27	93	70 - 130
D 62 d9-EtFOSE	100538	95556			95	50 - 150
33 EtFOSE			1000.00	1169.40	116.9	70 - 130
D 59 d5-EtFOSA	38708	46260			119.5	50 - 150
31 11Cl-PF3OUDS			942.00	907.46	96.3	70 - 130
27 EtFOSA			1000.00	886.78	88.7	70 - 130
D 38 13C2_PFDoA	739968	678758			91.7	50 - 150
11 PFDoA			1000.00	1005.04	100.5	70 - 130
4 10:2 FTS			964.00	961.58	99.7	70 - 130
34 PFDOS			968.00	953.72	98.5	70 - 130
24 PFTrDA			1000.00	968.70	96.9	70 - 130
D 42 13C2_PFTeDA	881166	859674			97.6	50 - 150
23 PFTeDA			1000.00	989.74	99	70 - 130
D 40 13C2_PFHxDA	942416	906562			96.2	50 - 150
35 PFHxDA			1000.00	952.16	95.2	70 - 130
36 PFODA			1000.00	1039.61	104	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
Injection Date:	10-Nov-2021 18:44:01	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.718	0	644591	20	>100:1			1000.00	1036.86	97.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/0	665056	22	>100:1			1000.00	978.30		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.109	0	592470	17	>100:1			1000.00	1036.53	101.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.120	0/0	640081	16	>100:1			1000.00	959.89		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.173	0	180699	17	>100:1			1000.00	1044.69	110	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.173	0/0	184267	15	>100:1	Target = 3.53		884.00	817.74		
298.9 > 99	44	2.162	2.173		51330	15	>100:1	3.58 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.532	-1/-1	149852	19	>100:1	Target = 3.10		938.00	894.82		
349 > 99	44	2.514	2.532		50478	17	>100:1	2.96 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.451	0	112481	17	>100:1			5000.00	4967.43	99.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.442	2.451	0/0	48068	15	>100:1	Target = 1.75		934.00	969.30		
327 > 81	63	2.442	2.451		25706	17	76:1	1.86 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.496	-1	679812	19	>100:1			1000.00	1043.80	101.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.496	-1/0	714449	18	>100:1	Target = 18.91		1000.00	1010.76		
313 > 119	49	2.478	2.496		37125	15	>100:1	19.24 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.599	2.607	0	1171070	19	>100:1			5000.00	5053.02	96.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.599	2.614	0/0	307568	19	>100:1	Target = 0.79		2000.00	2027.69		
285 > 185	66	2.599	2.614		384358	20	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.873	0	560964	18	>100:1			1000.00	1056.55	102.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.873	0/0	616453	17	>100:1	Target = 3.80		1000.00	1000.08		
363 > 169	47	2.864	2.873		158886	19	>100:1	3.87 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.881	2.889	0	129173	19	>100:1			1000.00	1028.12	104.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.873	2.889	0/0	126627	25	>100:1	Target = 2.89	5.08	910.00	891.67		
399 > 99	45	2.881	2.889		39357	29	>100:1	3.21 (1.44-4.34)	7.45				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.896	2.912	0/0	937018	19	>100:1	Target = 3.23		942.00	935.36		
377 > 85	45	2.904	2.912		282677	24	>100:1	3.31 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.262	3.276	0/0	122267	30	>100:1	Target = 3.12		952.00	921.59		
449 > 99	45	3.255	3.276		37403	21	>100:1	3.26 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.228	3.242	0	110519	19	>100:1			5000.00	6139.96	112.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.228	3.248	-1/-1	51709	20		Target = 1.75		948.00	988.23		
427 > 81	64	3.235	3.248		26851	21	52:1	1.92 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.255	3.269	0	556846	23	>100:1			1000.00	1061.31	96.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.255	3.276	-1/-1	588923	21	>100:1	Target = 2.89		1000.00	1032.06		
413 > 169	53	3.255	3.276		191196	21	>100:1	3.08 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.639	3.657	-1	128828	22	>100:1			1000.00	1040.25	102.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.639	3.652	0/1	134267	38	>100:1	Target = 3.30	3.50	928.00	875.32		M
499 > 99	54	3.639	3.652		39533	36	>100:1	3.39 (1.65-4.95)	8.75				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.846	3.872	-1/0	441113	18	>100:1			932.00	904.13		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.017	-1/0	95245	22	>100:1	Target = 3.08		960.00	921.51		
549 > 99	54	3.984	4.017		33685	21	>100:1	2.82 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.298	4.319	-1/0	95991	14	>100:1	Target = 2.72		964.00	952.17		
599 > 99	54	4.298	4.319		35404	14	>100:1	2.71 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.455	4.483	-1/0	400243	16	>100:1			942.00	907.46		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.810	4.842	-1/0	105651	17	>100:1	Target = 3.27		968.00	953.72		
699 > 99	54	4.810	4.842		32990	18		3.20 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.639	3.662	-1	655714	22	>100:1			1000.00	1023.95	95	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.639	3.662	-1/0	707938	22	>100:1	Target = 6.51		1000.00	1001.64		
463 > 169	56	3.639	3.662		105292	20	>100:1	6.72 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.904	3.921	-1	268528	18	>100:1			1000.00	1001.75	99.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.912	3.921	0/1	278143	18	>100:1	Target = 41.63		1000.00	984.44		
498>478	55	3.904	3.921		11002	15		25.28 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.995	4.027	-1	603572	15	>100:1			1000.00	1050.31	94.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.006	4.027	-1/0	715647	16	>100:1	Target = 13.80		1000.00	1018.85		
513 > 169	51	4.006	4.027		50572	13	>100:1	14.15 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.017	-1	99516	18	>100:1			5000.00	5757.53	101.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.995	4.006	0/1	38371	18	>100:1	Target = 1.94		958.00	853.19		
527 > 81	65	3.995	4.006		21401	16	75:1	1.79 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.605	4.631	-1/0	48547	16		Target = 3.54		964.00	961.58		
627 > 80	65	4.605	4.631		16266	15	62:1	2.98 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.160	4.178	-1	712589	17	>100:1			5000.00	4715.62	97	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.160	4.187	-1/0	99230	31	>100:1	Target = 1.37	7.74	1000.00	867.70		
570 > 483	58	4.160	4.187		94856	32	>100:1	1.04 (0.68-2.05)	5.27				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.329	0	85288	13	>100:1			1000.00	945.66	103	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.348	-1/-1	98487	15	>100:1			1000.00	1056.66		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.348	0	43374	20	>100:1			1000.00	922.04	89.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.348	4.367	-1/-1	55190	14	>100:1	Target = 1.11		1000.00	1173.94		
512 > 219	57	4.348	4.367		43394	14	>100:1	1.27 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.318	4.339	-1	639916	16	>100:1			5000.00	4940.93	97.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.318	4.348	-1/0	116089	31	>100:1	Target = 1.51	6.77	1000.00	930.27		
584 > 526	60	4.318	4.348		76514	29	>100:1	1.51 (0.75-2.26)	3.95				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.318	4.339	-1	696207	15	>100:1			1000.00	1156.01	105.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.318	4.339	-1/0	594353	15	>100:1	Target = 14.52		1000.00	881.04		
563 > 169	52	4.318	4.339		42742	21	>100:1	13.90 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.501	-1	95556	14	>100:1			1000.00	900.82	95	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.492	4.510	-1/0	108780	15	>100:1			1000.00	1169.40		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.501	4.519	-1	46260	16	>100:1			1000.00	1075.82	119.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.510	4.528	-1/0	49245	14	>100:1	Target = 1.06		1000.00	886.78		
526 > 219	59	4.510	4.528		49925	17	>100:1	0.98 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.588	4.614	-1	678758	17	>100:1			1000.00	1130.63	91.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.597	4.614	-1/0	727254	17	>100:1	Target = 10.70		1000.00	1005.04		
613 > 169	38	4.588	4.614		63485	16	>100:1	11.45 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.842	4.868	-1/0	691107	18	>100:1	Target = 8.31		1000.00	968.70		
663 > 169	38	4.842	4.868		73881	16	>100:1	9.35 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.062	5.087	-1	859674	20	>100:1			1000.00	1057.42	97.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.069	5.093	-1/0	742741	21	>100:1	Target = 12.17		1000.00	989.74		
713 > 169	42	5.062	5.093		53564	19	>100:1	13.86 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.481	5.512	-1	906562	19	>100:1			1000.00	1044.38	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.481	5.512	-1/0	552829	20	84:1	Target = 10.43		1000.00	952.16		
813 > 269	40	5.481	5.512		49799	20	>100:1	11.10 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.901	5.944	-2/-1	858016	38	54:1	Target = 13.67		1000.00	1039.61		
913 > 319	40	5.901	5.944		55892	36	>100:1	15.35 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.006	4.027	-1	714565	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.496	-1	686843	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.255	3.269	0	568702	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	0	595555	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.639	3.657	-1	121074	20	>100:1			1000.00			

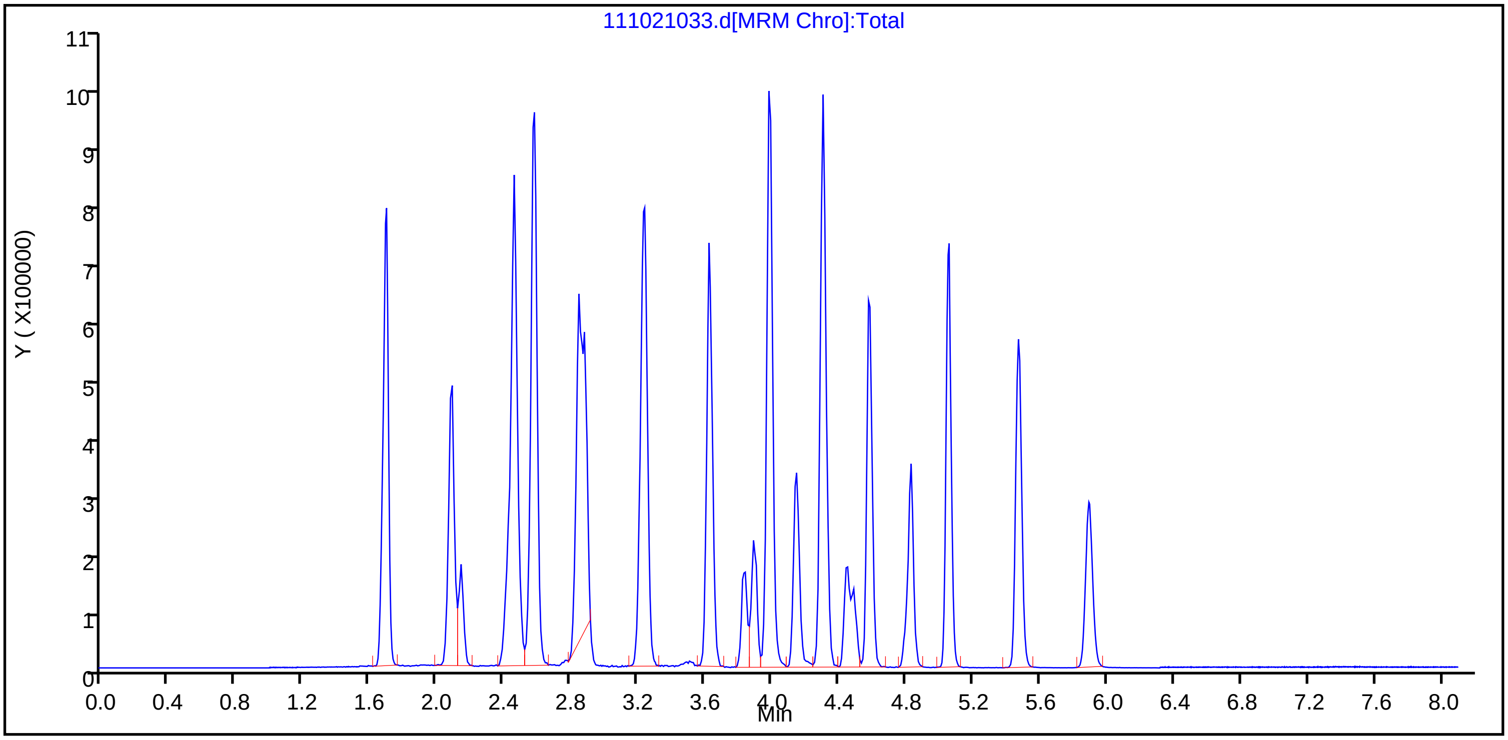
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

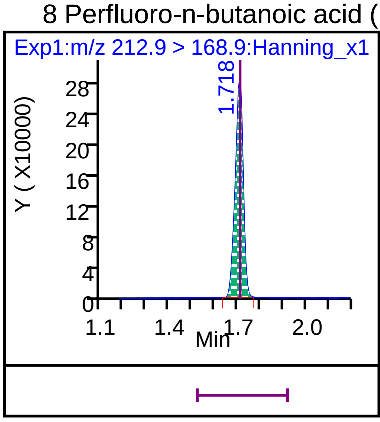
Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

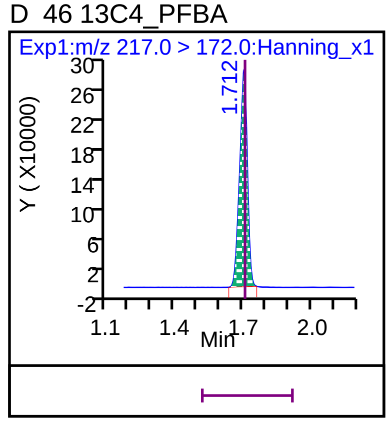
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
Injection Date:	10-Nov-2021 18:44:01	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



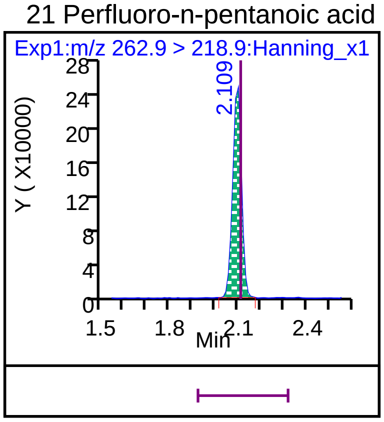
8 Perfluoro-n-butanoic acid (PFBA)



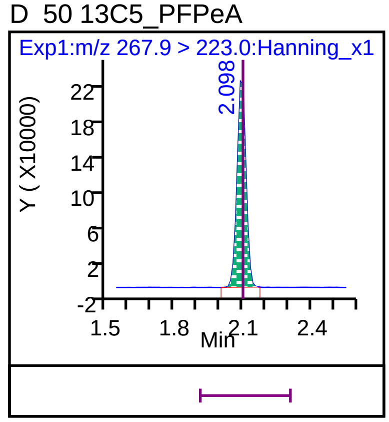
D 46 13C4_PFBA



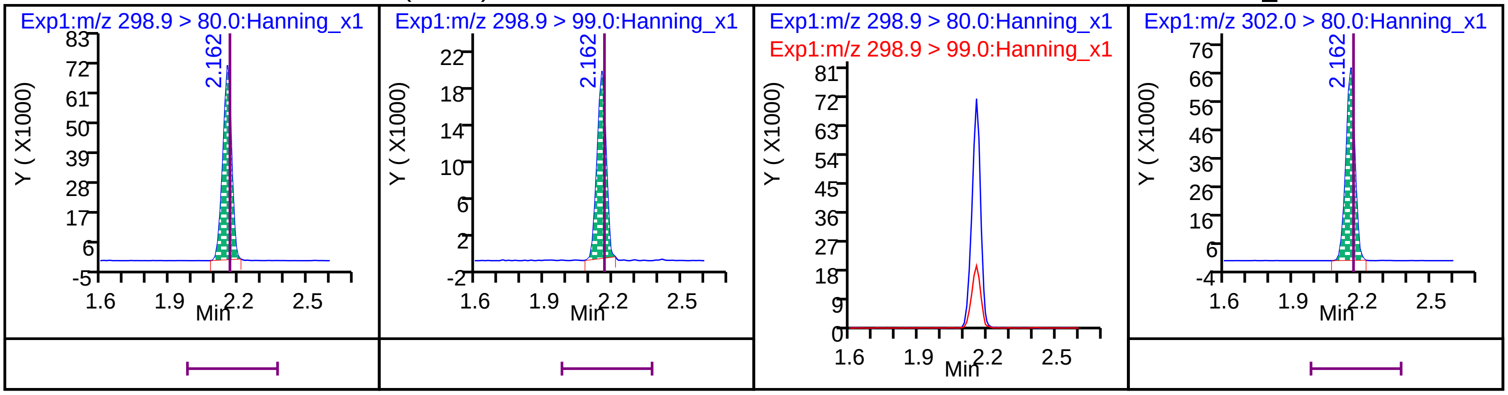
21 Perfluoro-n-pentanoic acid (PFPeA)



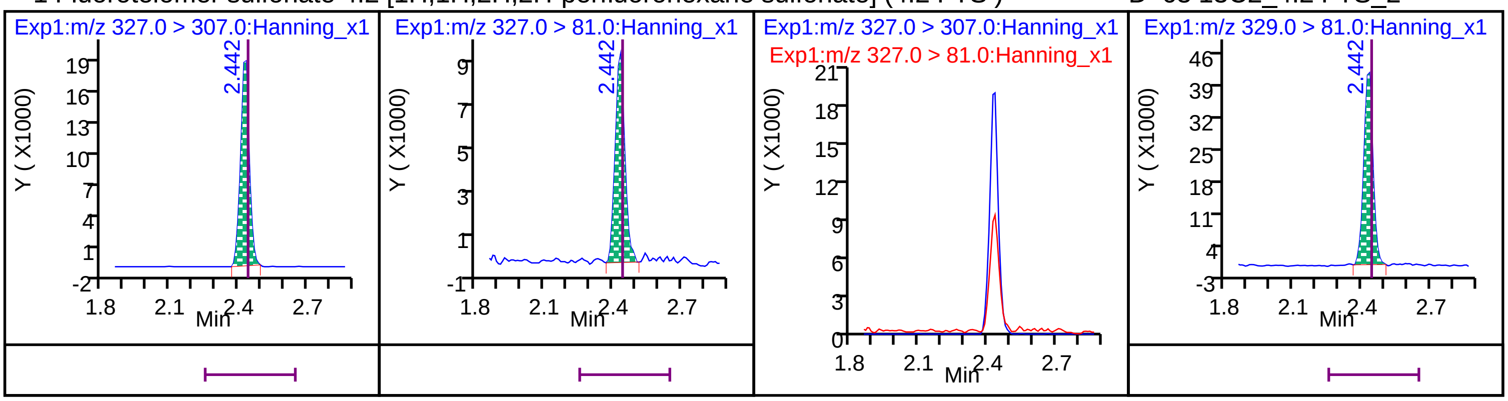
D 50 13C5_PFPeA



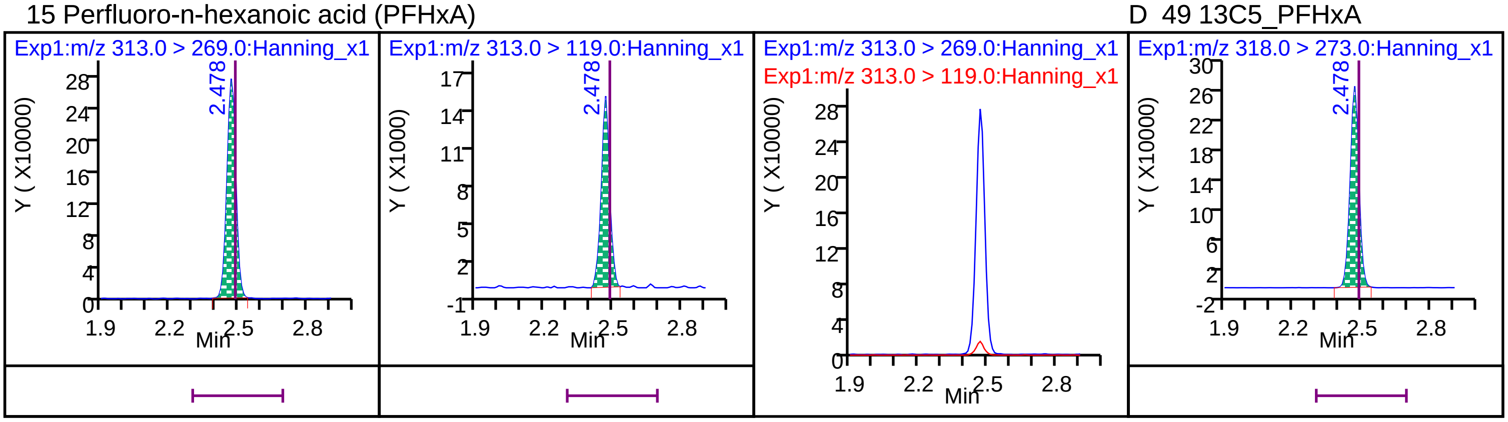
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



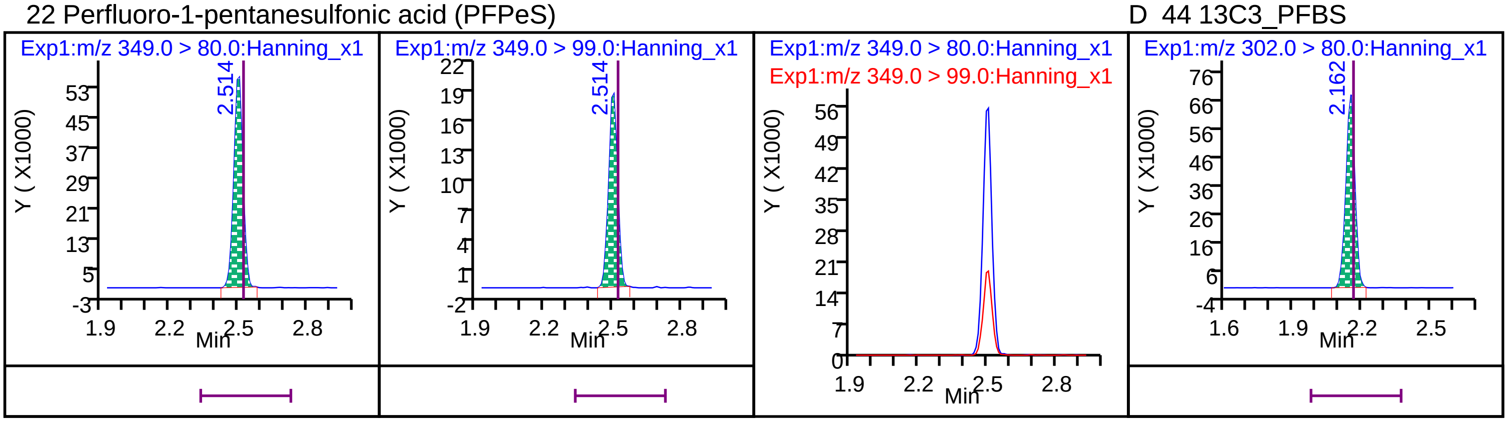
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



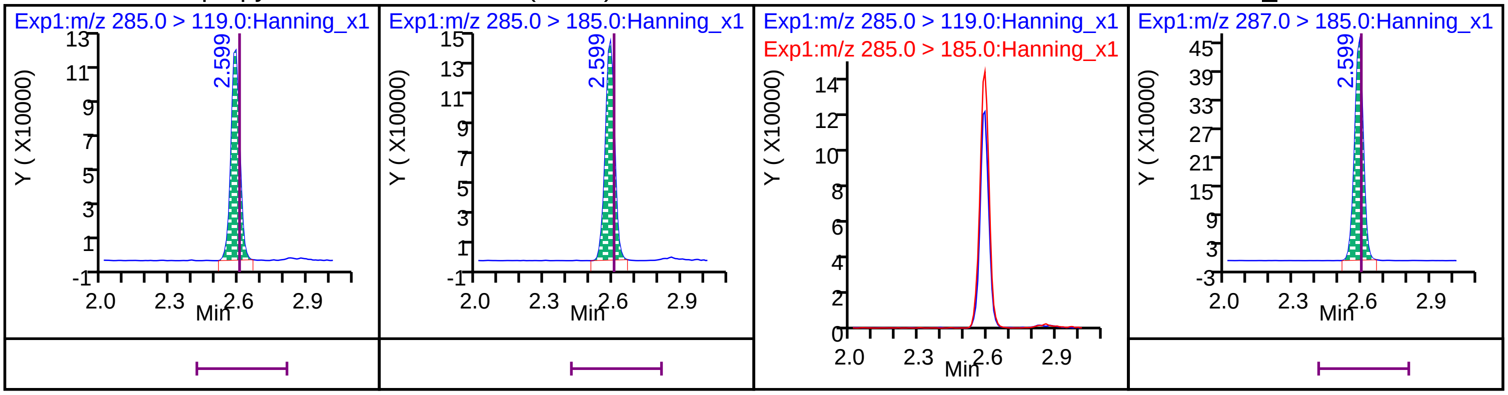
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



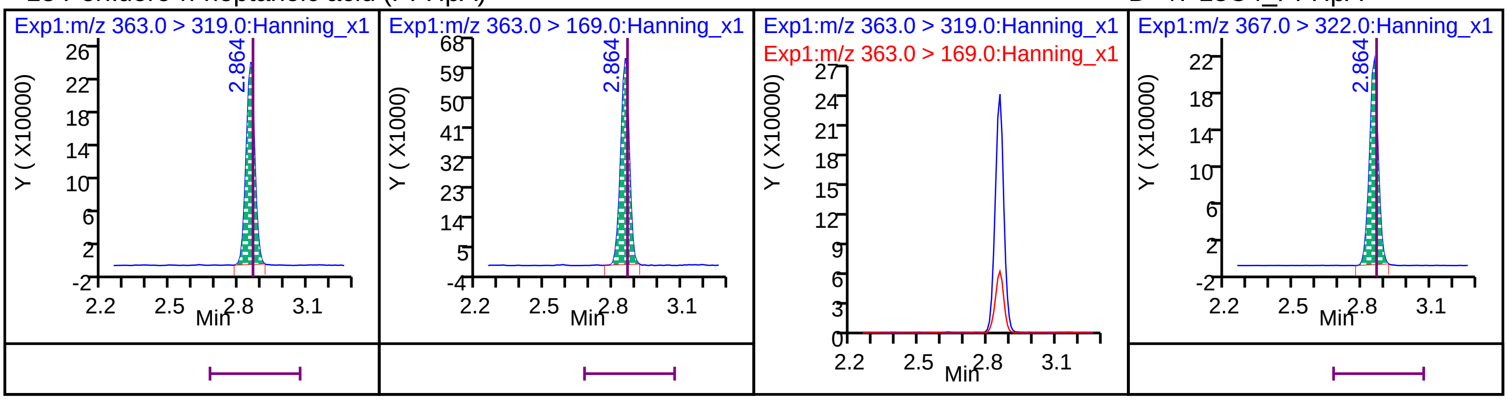
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



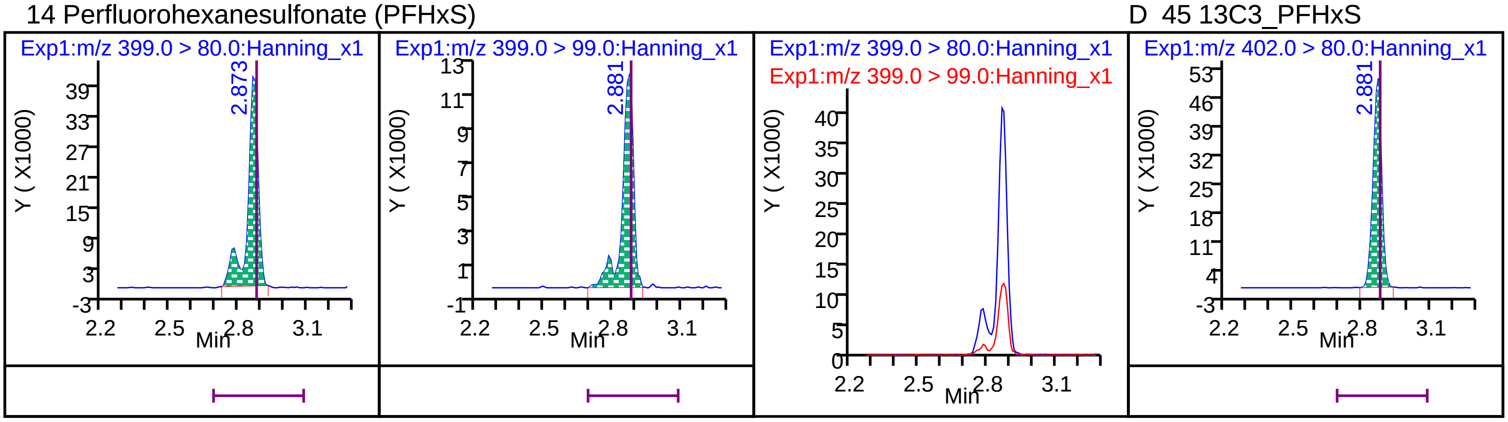
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



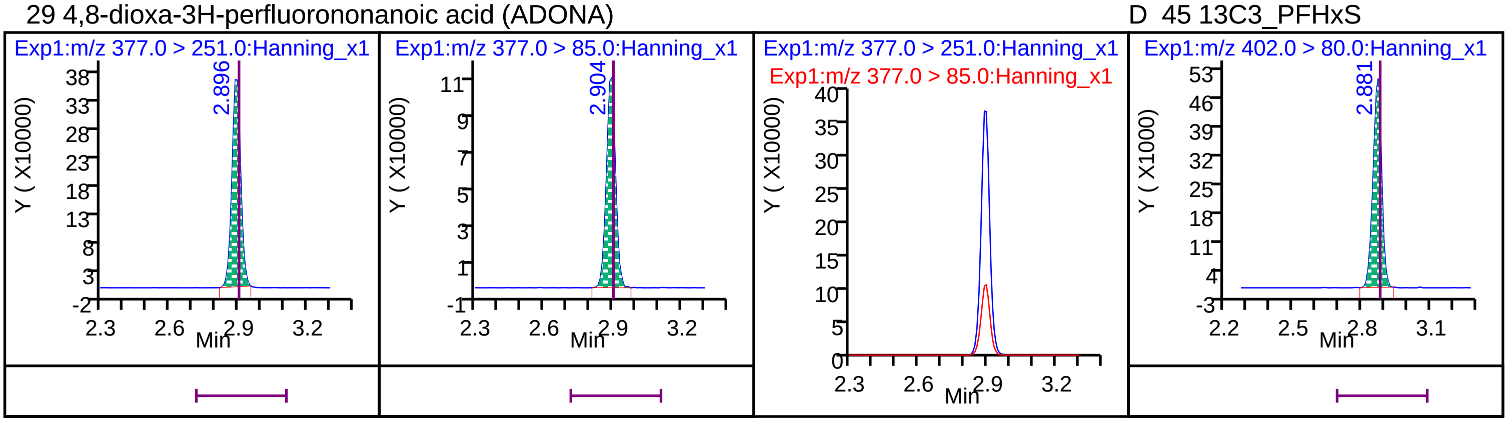
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

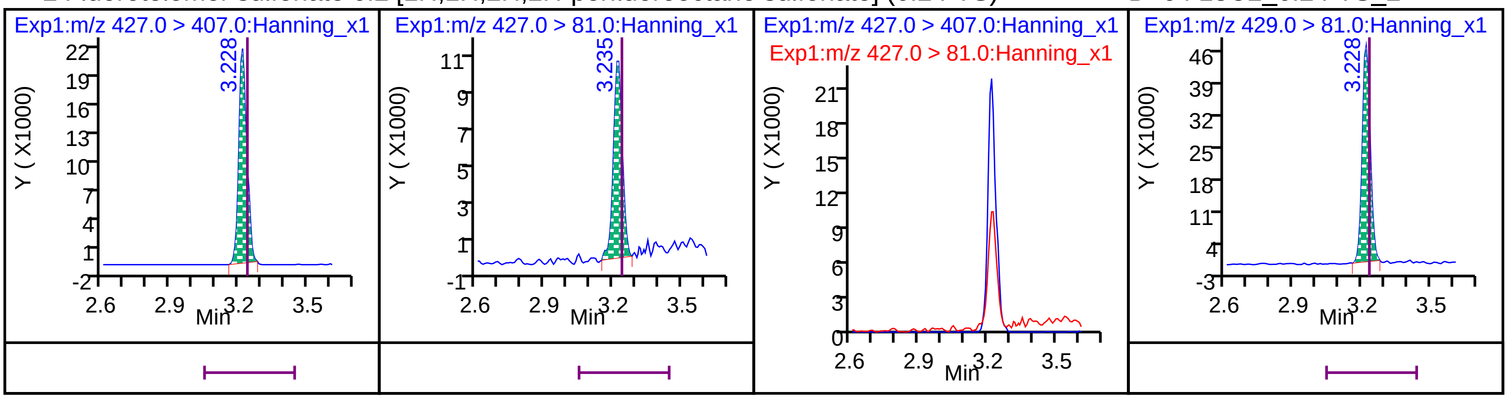


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

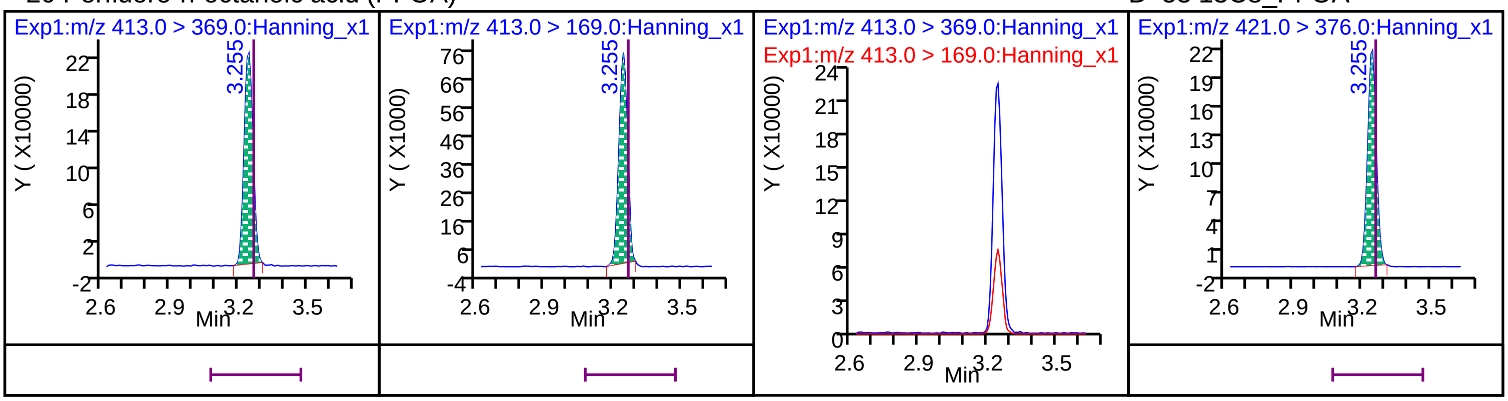


Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

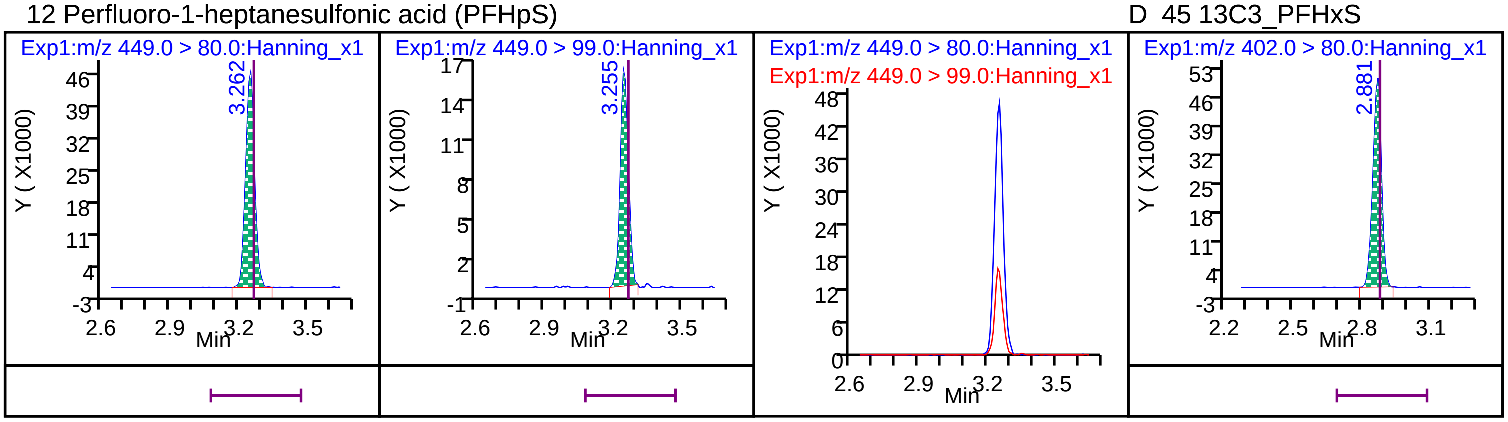
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



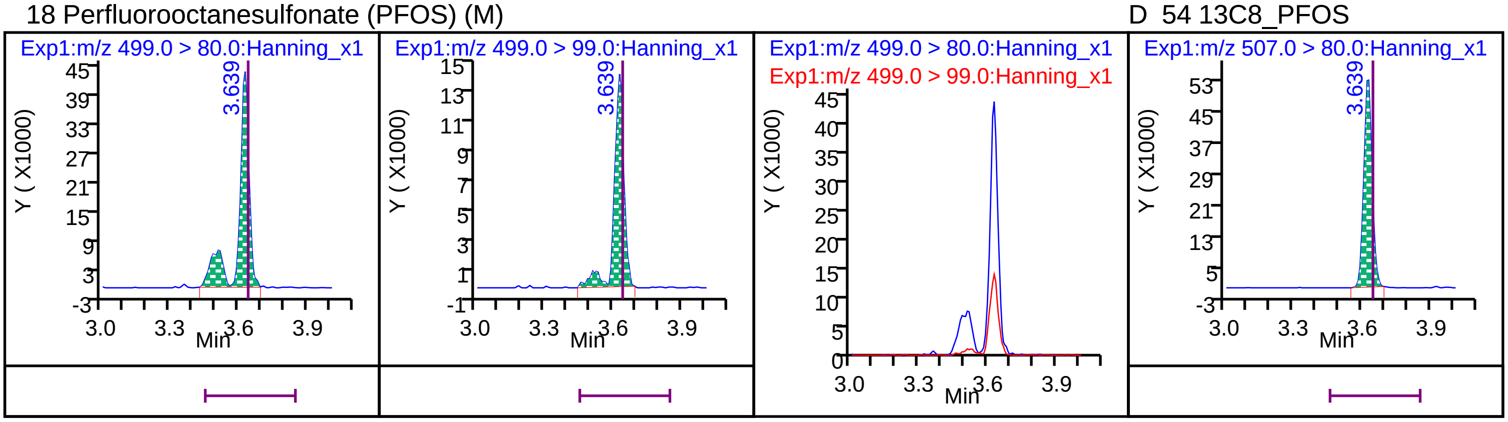
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

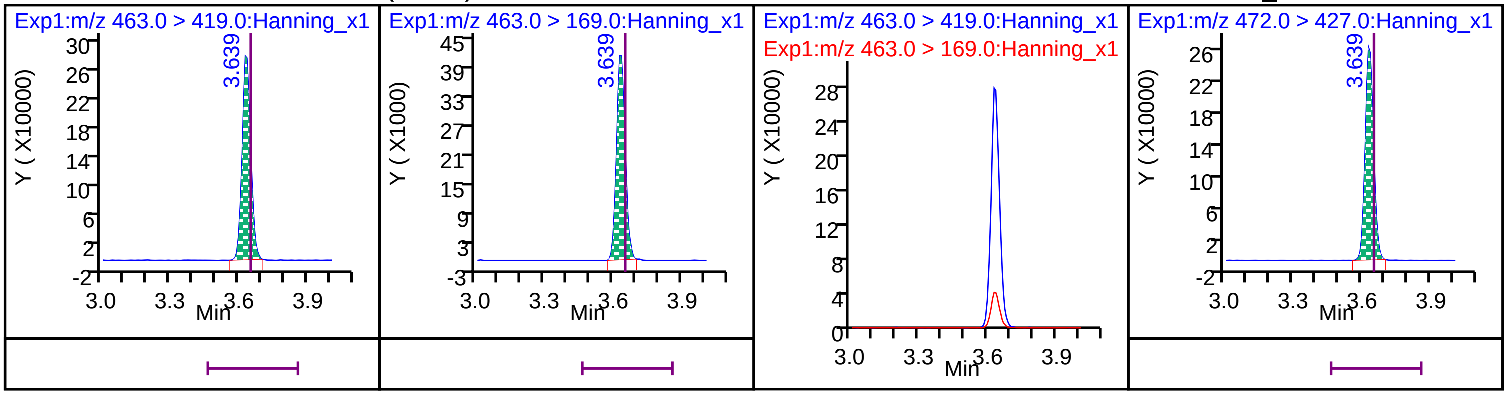


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

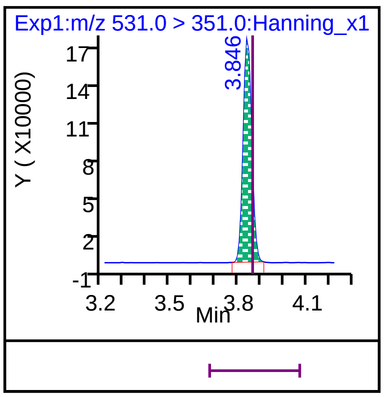


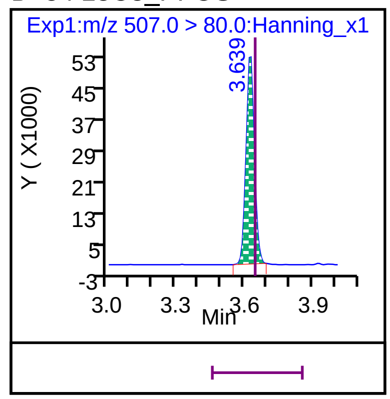
Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

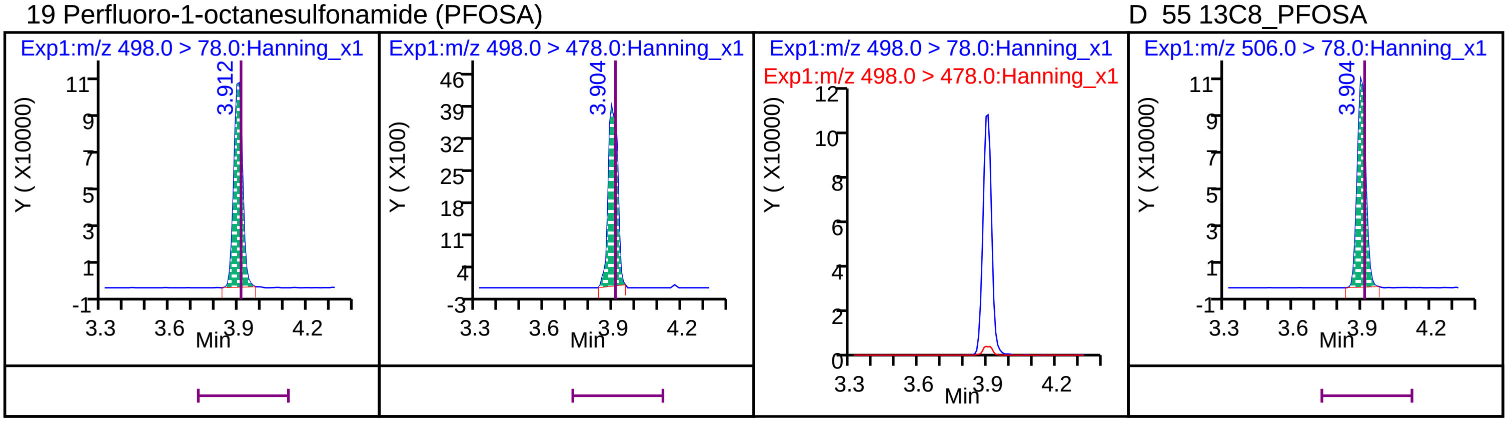


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

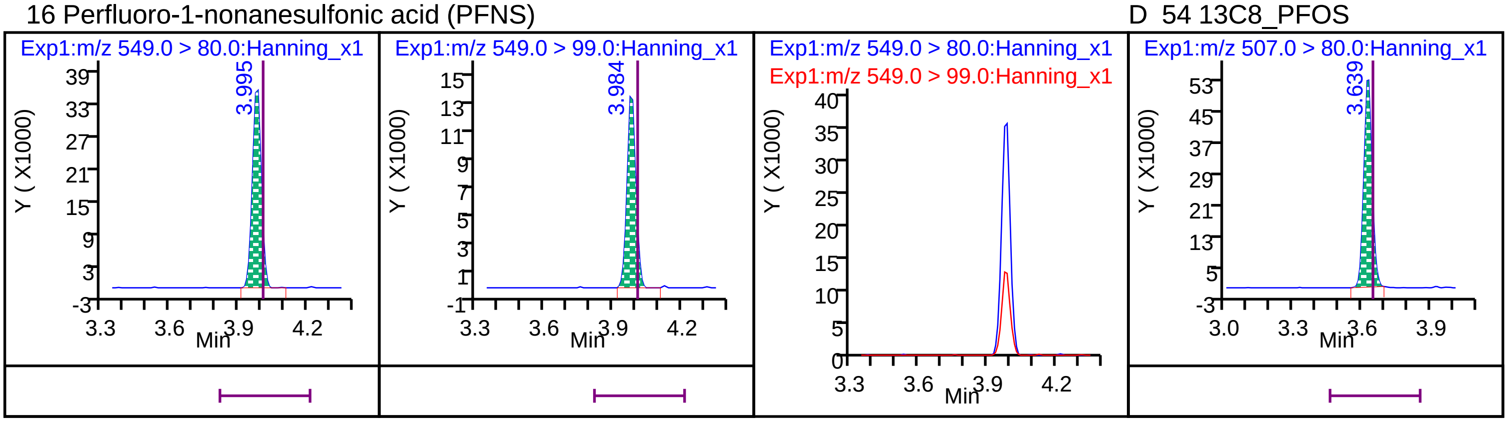




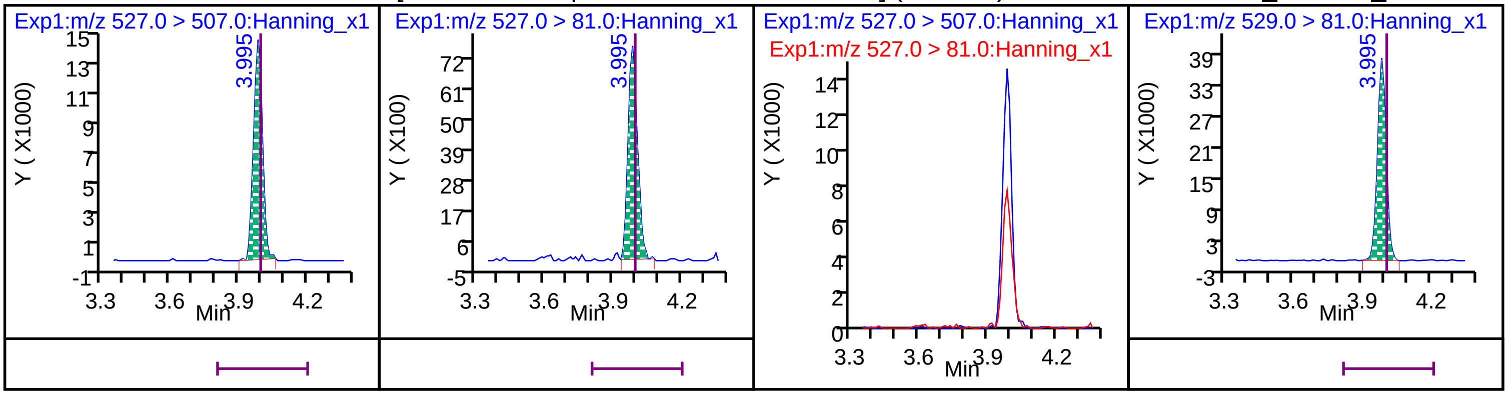
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



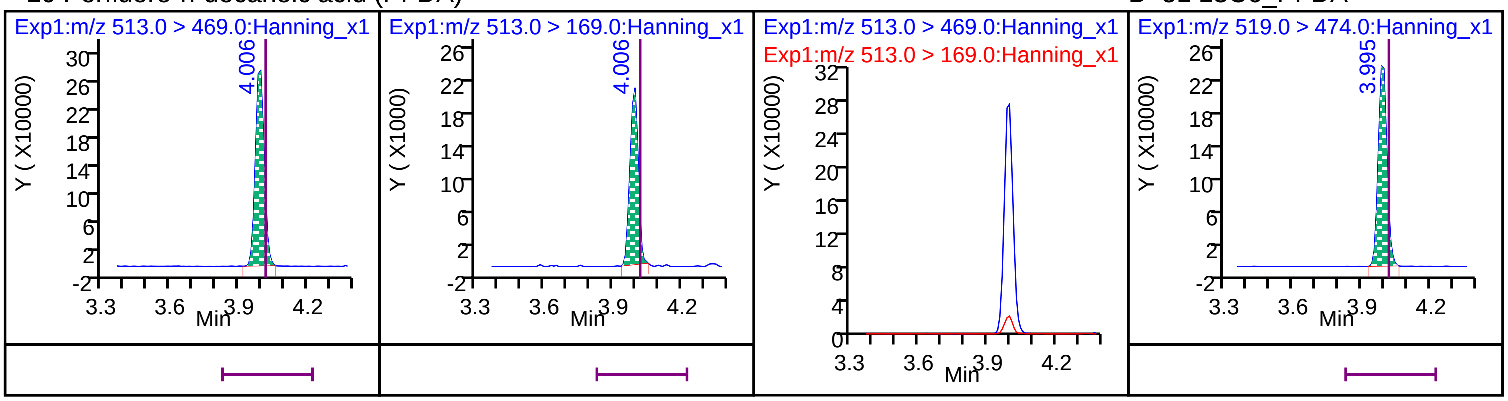
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



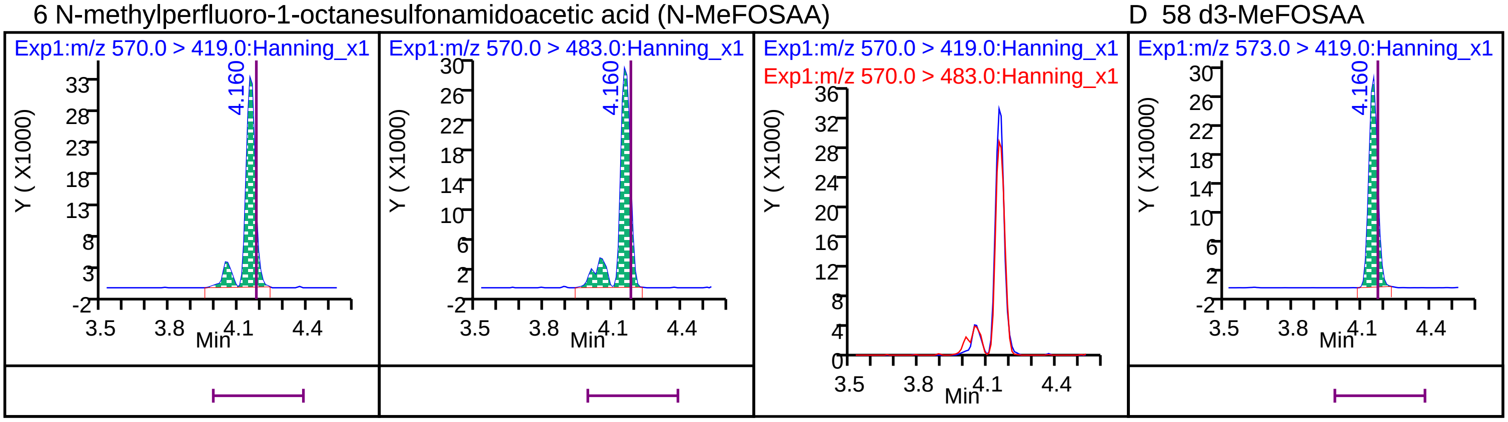
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

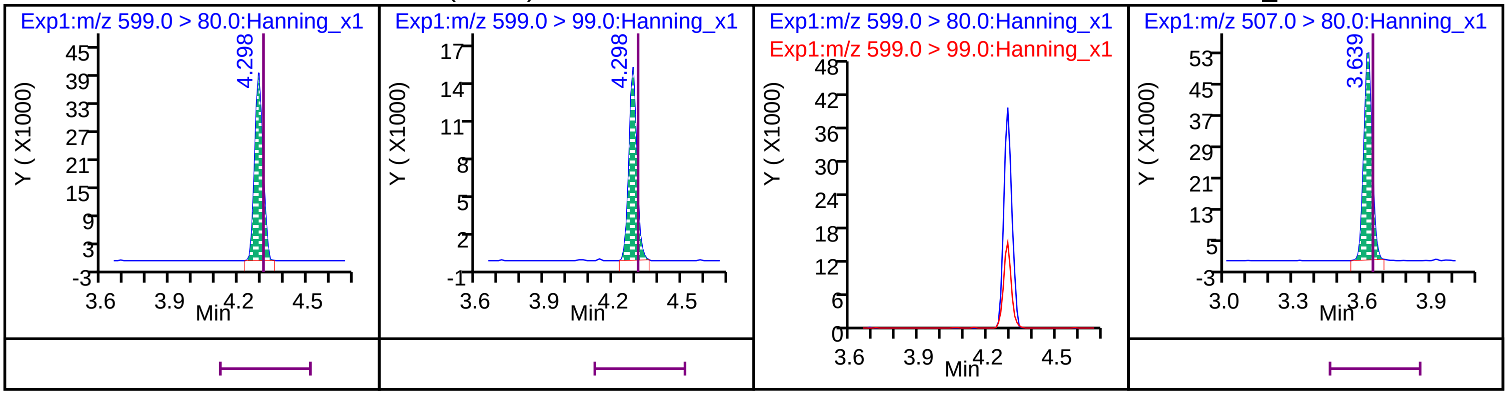


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

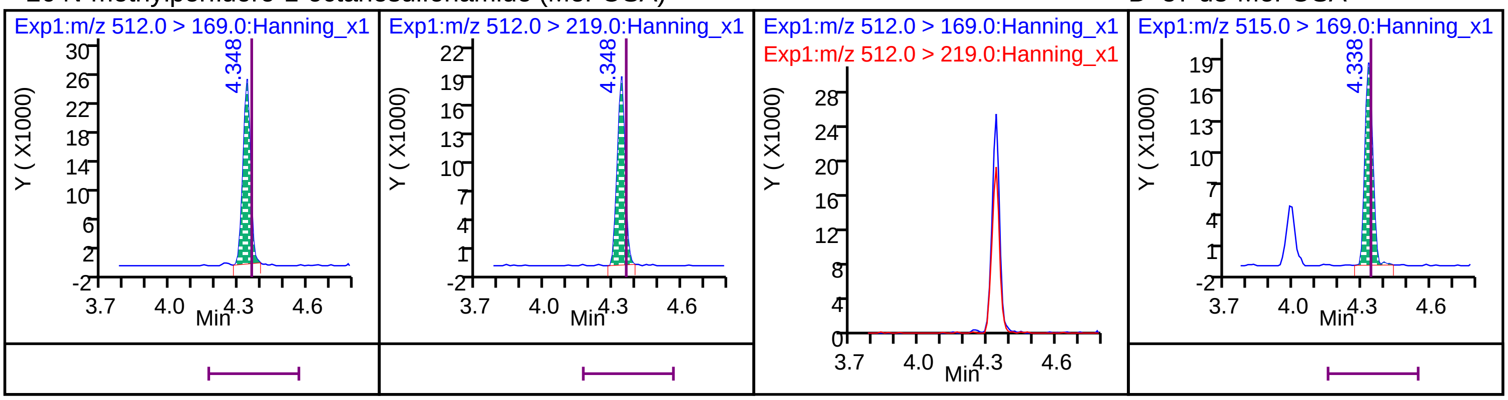


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

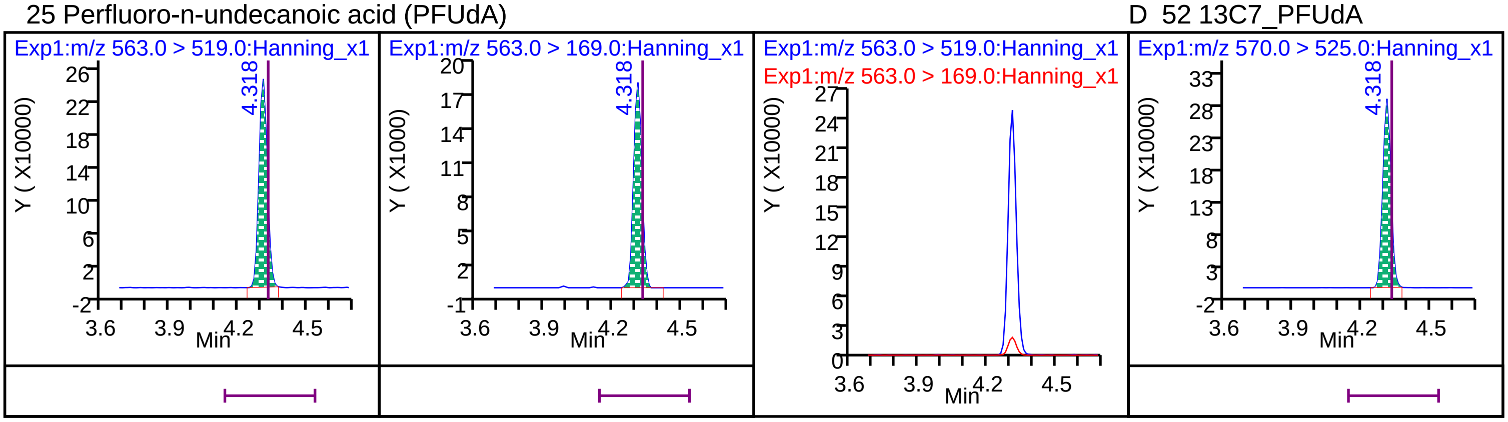
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



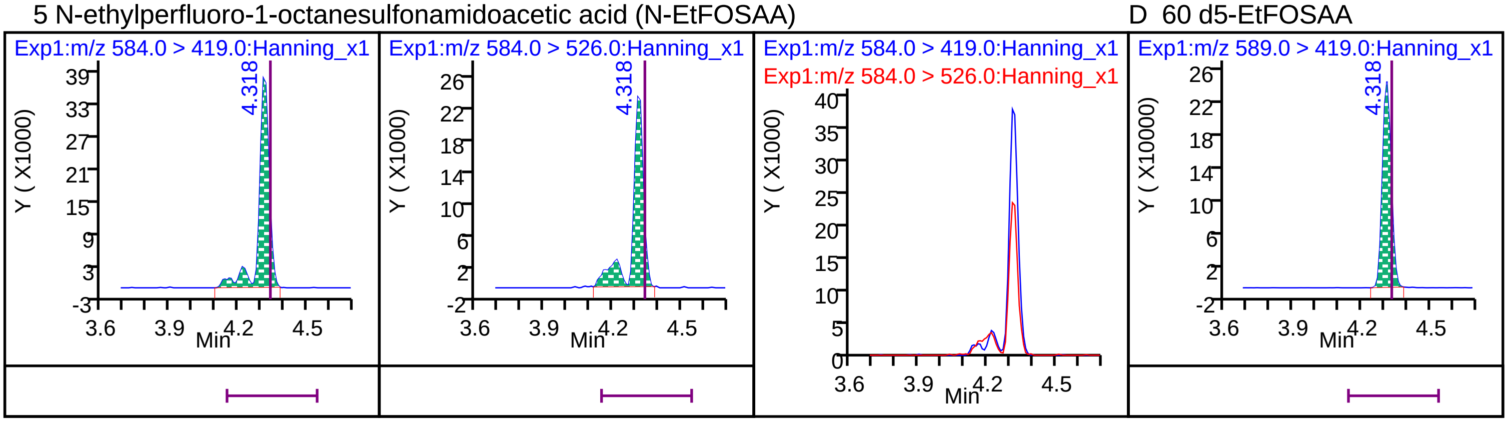
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



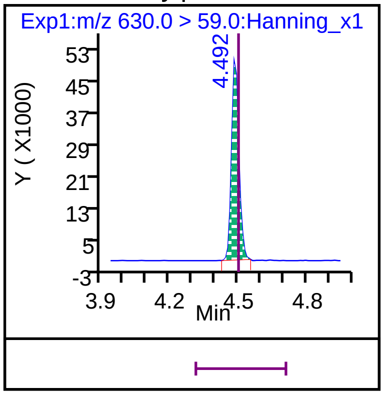
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



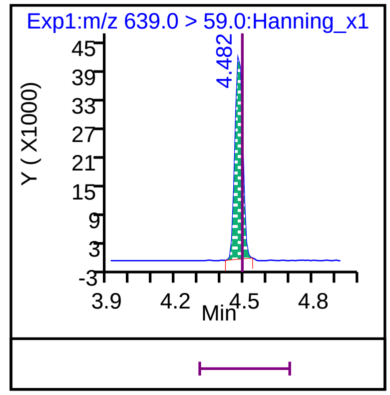
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

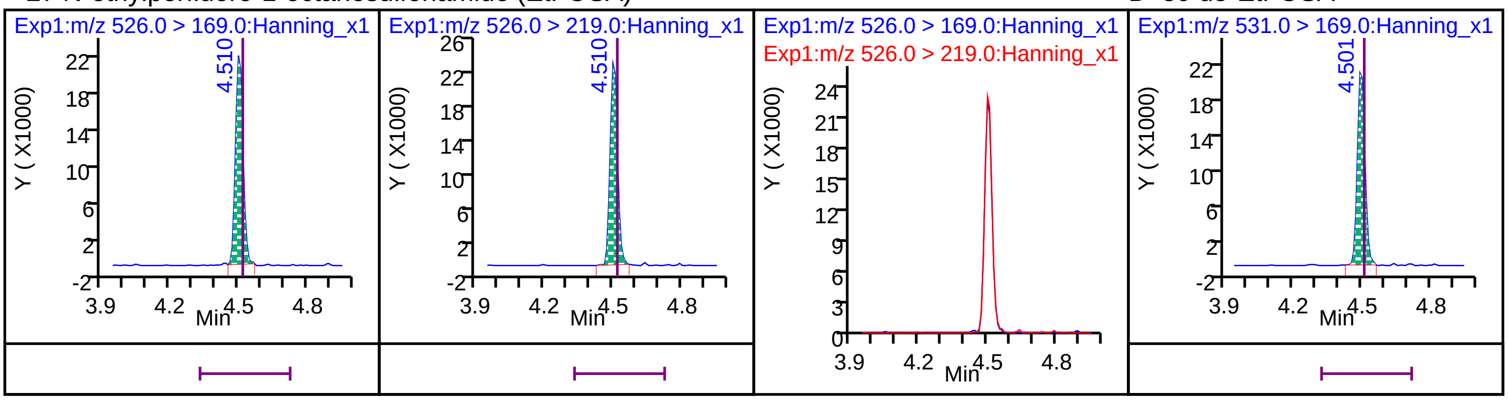


D 62 d9-EtFOSE

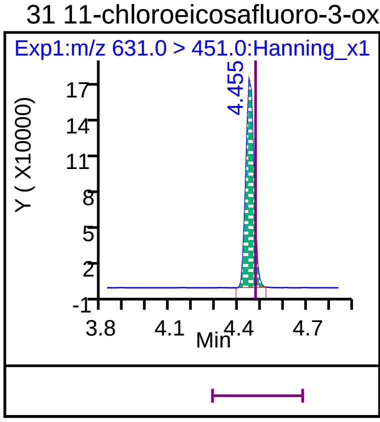


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

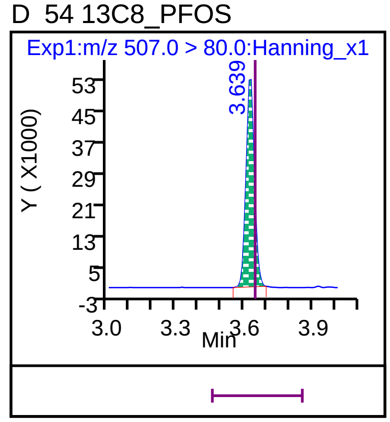
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

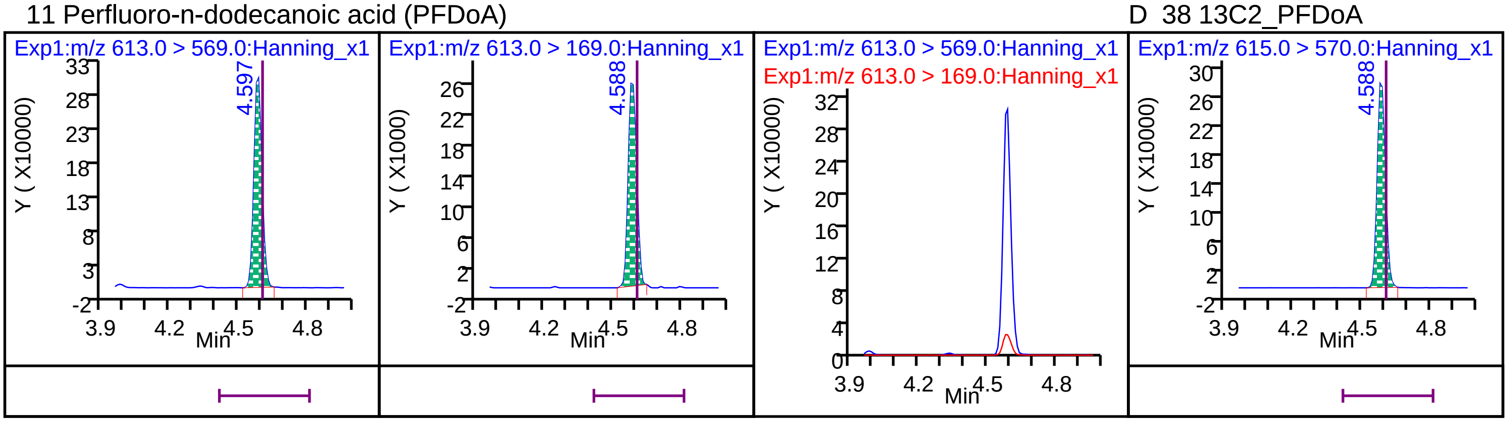


D 54 13C8_PFOS

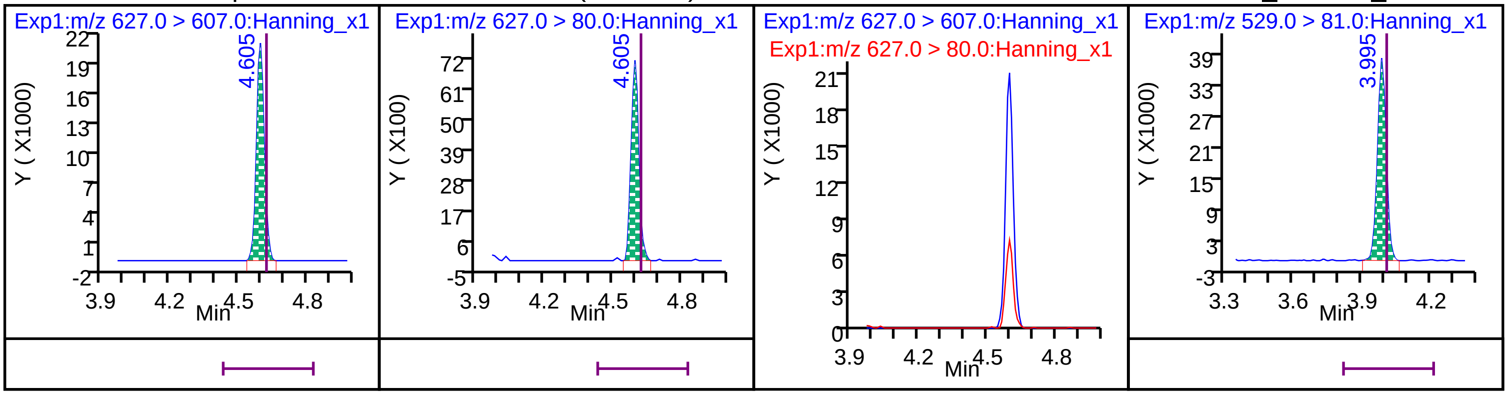


11 Perfluoro-n-dodecanoic acid (PFDoA)

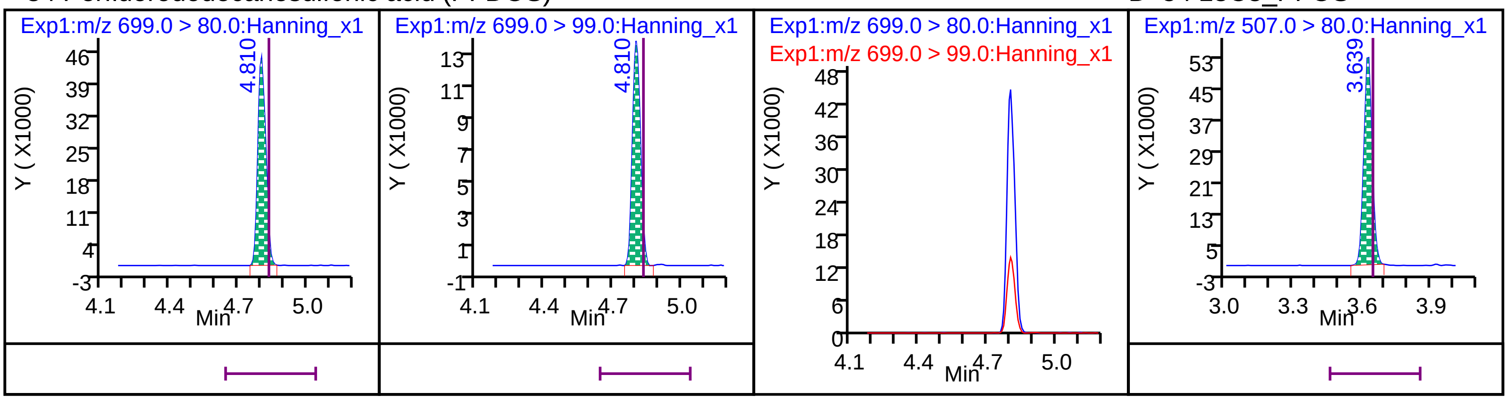
D 38 13C2_PFDoA



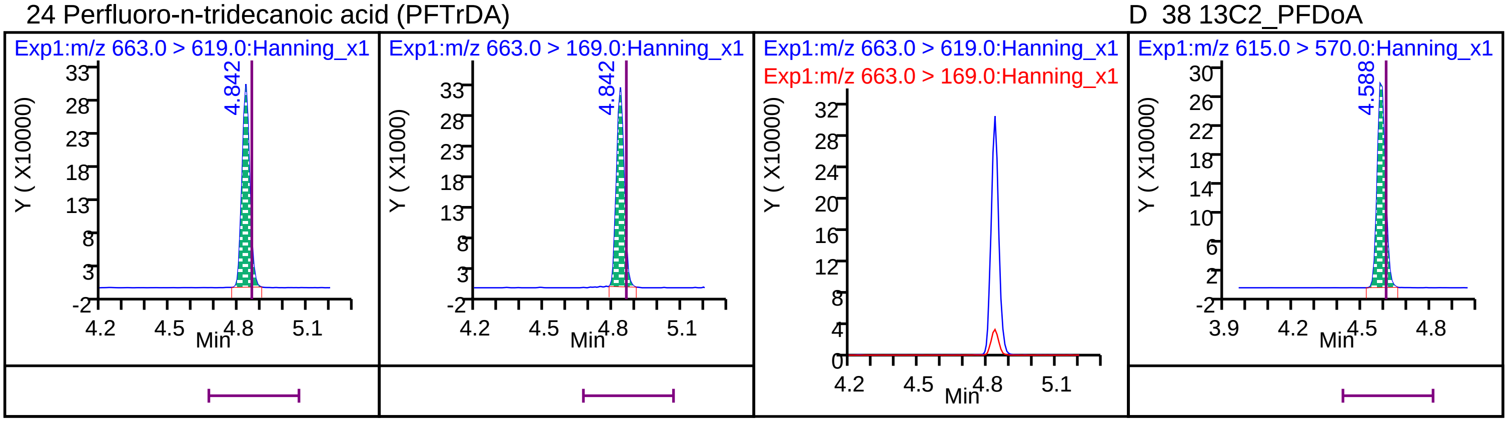
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



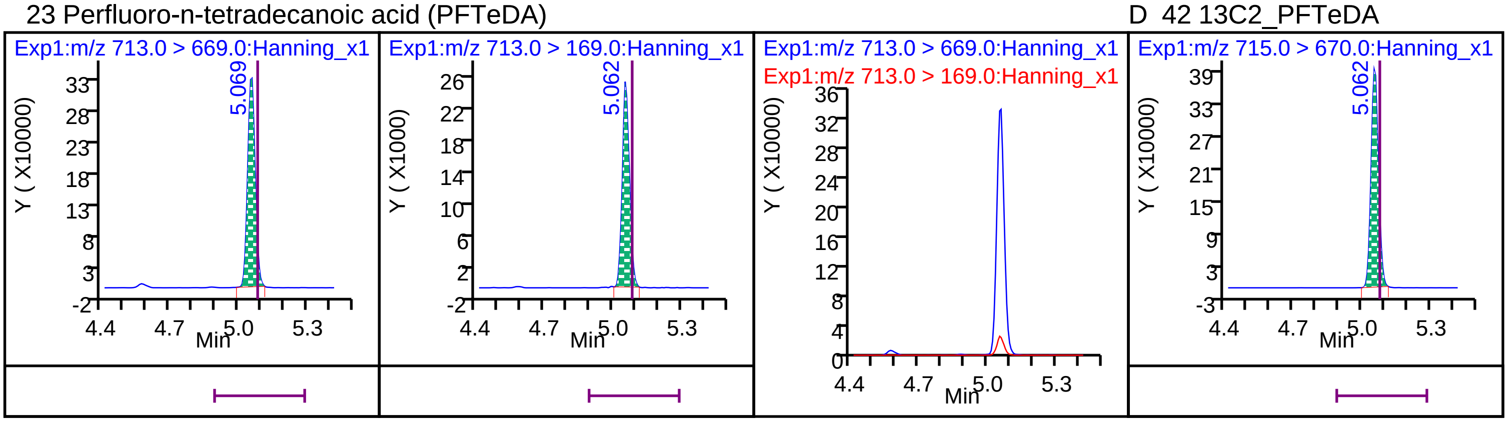
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



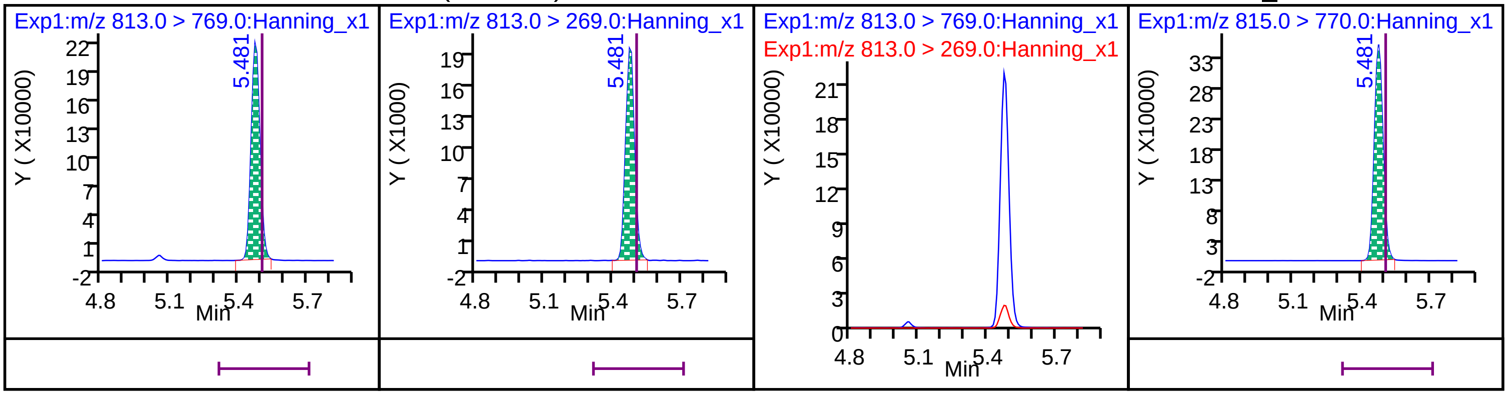
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



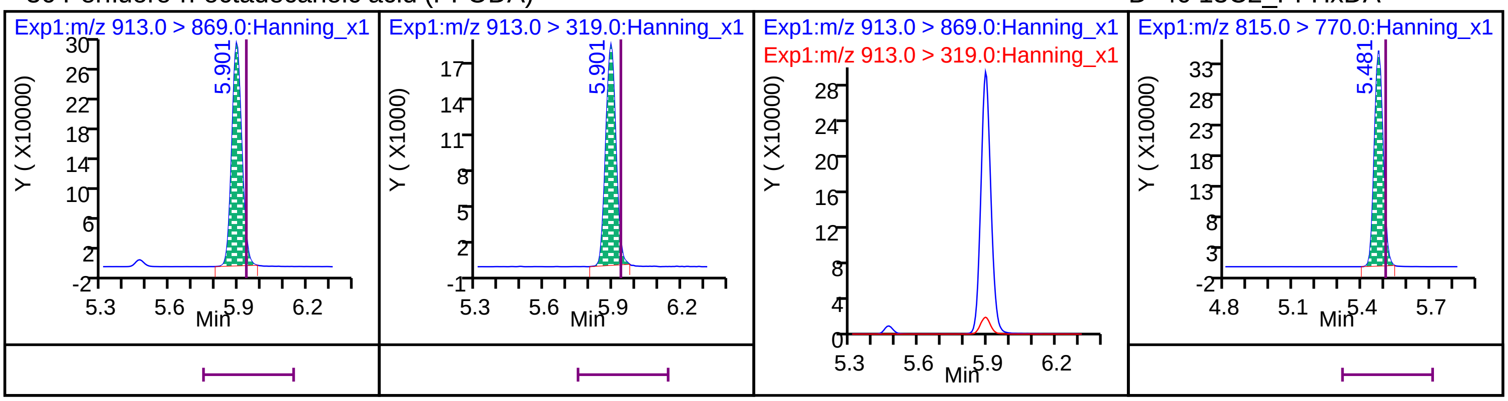
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



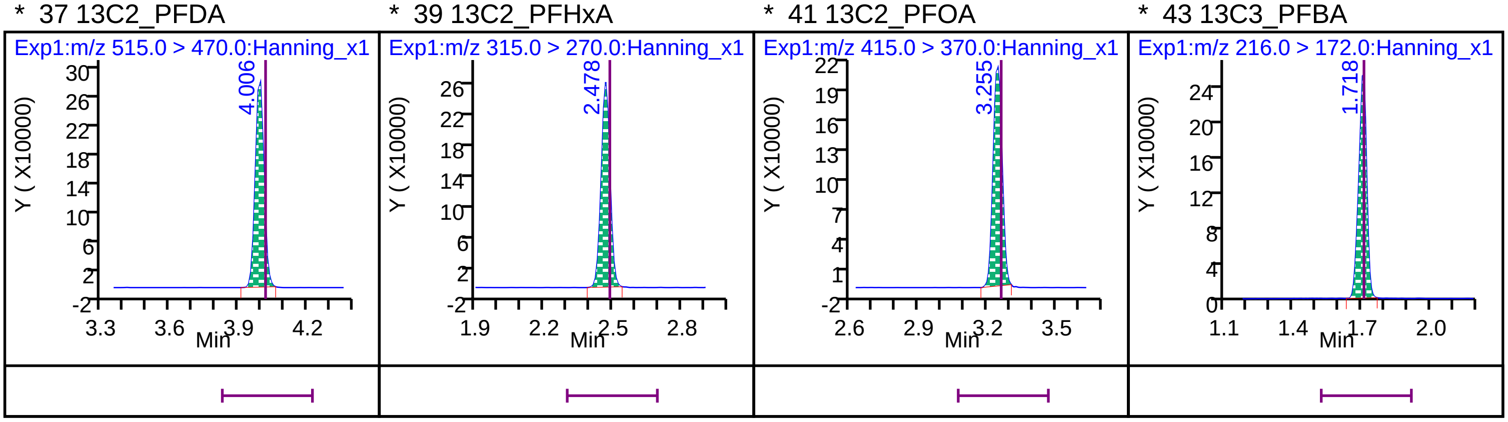
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



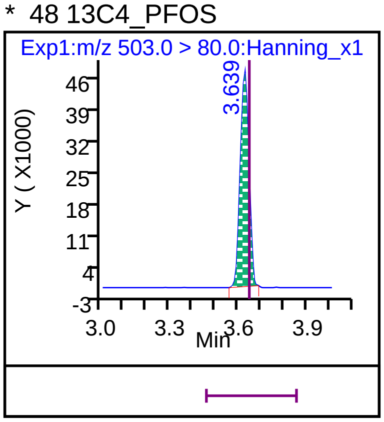
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

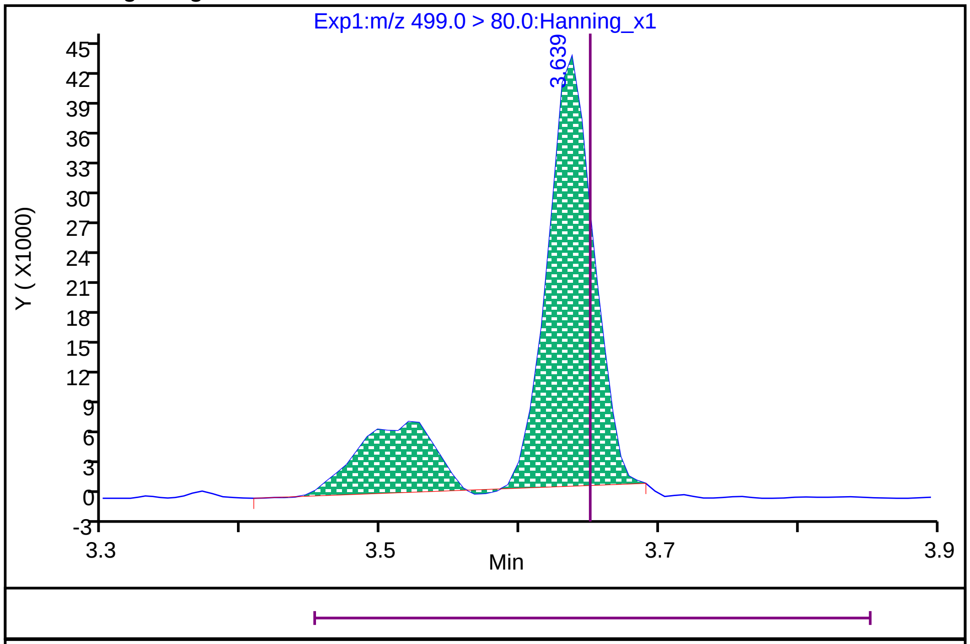
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
Injection Date:	10-Nov-2021 18:44:01	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

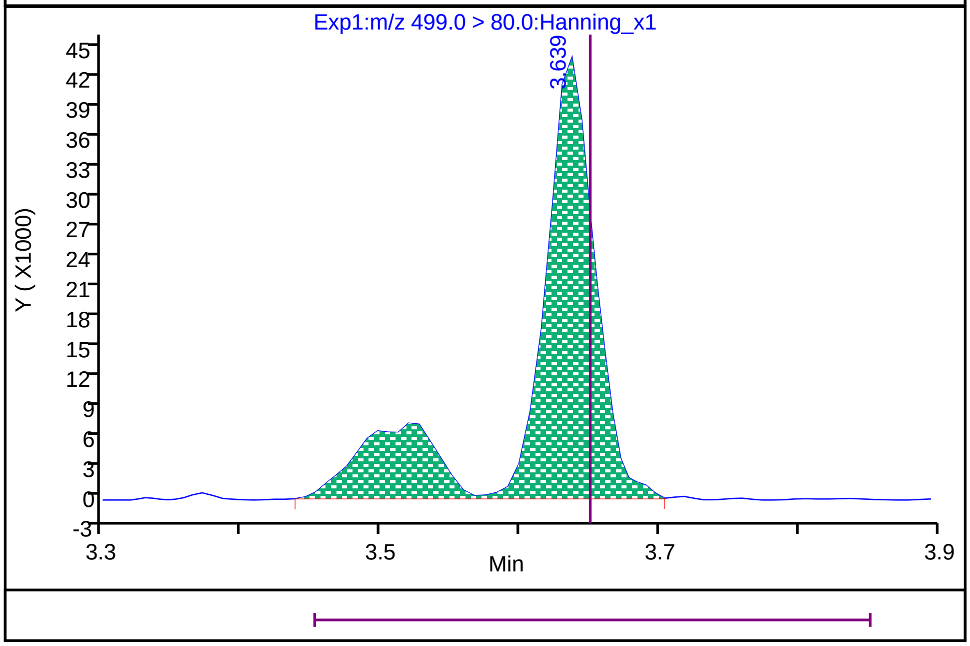
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.639
Area:	123166
Amount:	802.95
Amount Units:	ng/L



RT:	3.639
Area:	134267
Amount:	875.32
Amount Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 09:56:10

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d		
Injection Date:	16-Nov-2021 21:15:33	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	27
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	983.00	98.3	70 - 130
D 46 13C4_PFBA	646253	635521			98.3	50 - 150
D 50 13C5_PFPeA	597525	576980			96.6	50 - 150
21 PFPeA			1000.00	995.10	99.5	70 - 130
7 PFBS			884.00	871.19	98.6	70 - 130
D 44 13C3_PFBS	173893	174367			100.3	50 - 150
1 4:2 FTS			934.00	903.42	96.7	70 - 130
D 63 13C2_4:2 FTS_2	114363	114451			100.1	50 - 150
D 49 13C5_PFHxA	690660	683329			98.9	50 - 150
15 PFHxA			1000.00	922.02	92.2	70 - 130
22 PFPeS			938.00	931.49	99.3	70 - 130
28 GenX			2000.00	1948.38	97.4	70 - 130
D 66 13C3_GenX	1156071	1124331			97.3	50 - 150
D 47 13C4_PFHpA	541987	562537			103.8	50 - 150
13 PFHpA			1000.00	970.80	97.1	70 - 130
D 45 13C3_PFHxS	135990	135405			99.6	50 - 150
14 PFHxS			910.00	866.61	95.2	70 - 130
29 ADONA			942.00	902.52	95.8	70 - 130
D 64 13C2_6:2 FTS_2	90012	86597			96.2	50 - 150
2 6:2 FTS			948.00	887.59	93.6	70 - 130
20 PFOA			1000.00	948.15	94.8	70 - 130
D 53 13C8_PFOA	556700	556066			99.9	50 - 150
12 PFHpS			952.00	888.87	93.4	70 - 130
18 PFOS			928.00	852.70	91.9	70 - 130
17 PFNA			1000.00	987.95	98.8	70 - 130
D 56 13C9_PFNA	690404	671090			97.2	50 - 150
D 54 13C8_PFOS	132590	131226			99	50 - 150
30 9Cl-PF3ONS			932.00	904.52	97.1	70 - 130
D 55 13C8_PFOSA	274090	244542			89.2	50 - 150
19 PFOSA			1000.00	1059.65	106	70 - 130
16 PFNS			960.00	870.89	90.7	70 - 130
D 65 13C2_8:2 FTS_2	88081	93141			105.7	50 - 150
3 8:2 FTS			958.00	908.08	94.8	70 - 130
10 PFDA			1000.00	960.71	96.1	70 - 130
D 51 13C6_PFDA	586322	602567			102.8	50 - 150
6 N-MeFOSAA			1000.00	884.45	88.4	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	684495	707740			103.4	50 - 150
9 PFDS			964.00	1016.03	105.4	70 - 130
25 PFUdA			1000.00	1000.46	100	70 - 130
D 60 d5-EtFOSAA	610899	649927			106.4	50 - 150
D 52 13C7_PFUdA	665740	672120			101	50 - 150
5 N-EtFOSAA			1000.00	1034.49	103.4	70 - 130
D 61 d7-MeFOSE	88387	87400			98.9	50 - 150
32 MeFOSE			1000.00	995.88	99.6	70 - 130
26 MeFOSA			1000.00	1060.57	106.1	70 - 130
D 57 d3-MeFOSA	50083	44914			89.7	50 - 150
31 11Cl-PF3OUDS			942.00	905.92	96.2	70 - 130
D 62 d9-EtFOSE	114206	105274			92.2	50 - 150
33 EtFOSE			1000.00	982.84	98.3	70 - 130
D 59 d5-EtFOSA	45730	46990			102.8	50 - 150
27 EtFOSA			1000.00	921.12	92.1	70 - 130
11 PFDoA			1000.00	954.64	95.5	70 - 130
D 38 13C2_PFDoA	626804	633130			101	50 - 150
4 10:2 FTS			964.00	920.44	95.5	70 - 130
34 PFDOS			968.00	918.72	94.9	70 - 130
24 PFTrDA			1000.00	963.50	96.4	70 - 130
23 PFTeDA			1000.00	986.81	98.7	70 - 130
D 42 13C2_PFTeDA	795861	763034			95.9	50 - 150
35 PFHxDA			1000.00	968.74	96.9	70 - 130
D 40 13C2_PFHxDA	929181	890730			95.9	50 - 150
36 PFODA			1000.00	993.45	99.3	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d		
Injection Date:	16-Nov-2021 21:15:33	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	27
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.686	1.692	0	635521	20	>100:1			1000.00	1018.57	98.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	1/1	653555	19	>100:1			1000.00	983.00		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.056	2.067	0	576980	16	>100:1			1000.00	996.24	96.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.056	2.067	0/0	630541	16	>100:1			1000.00	995.10		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.109	2.120	0	174367	15	>100:1			1000.00	1004.72	100.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.109	2.120	0/0	189242	16	>100:1	Target = 3.48		884.00	871.19		
298.9 > 99	44	2.109	2.120		49466	14	>100:1	3.82 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.451	2.460	0/0	143772	16	>100:1	Target = 3.03		938.00	931.49		
349 > 99	44	2.451	2.460		47591	17	>100:1	3.02 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	114451	16	>100:1			5000.00	5241.38	100.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.380	2.389	0/0	45538	16	>100:1	Target = 1.70		934.00	903.42		
327 > 81	63	2.380	2.389		26274	16	53:1	1.73 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.416	2.424	0	683329	18	>100:1			1000.00	1054.40	98.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.416	2.424	0/0	666692	18	>100:1	Target = 18.47		1000.00	922.02		
313 > 119	49	2.416	2.424		34815	16	>100:1	19.14 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.531	2.540	0	1124331	18	>100:1			5000.00	5021.20	97.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.531	2.540	0/0	288292	18	>100:1	Target = 0.78		2000.00	1948.38		
285 > 185	66	2.531	2.540		367241	18	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	562537	18	>100:1			1000.00	1065.82	103.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.782	2.791	0/-1	624491	17	>100:1	Target = 3.92		1000.00	970.80		
363 > 169	47	2.782	2.791		160334	17	>100:1	3.89 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.800	2.809	0	135405	16	>100:1			1000.00	1060.20	99.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.800	2.809	0/0	132288	25	>100:1	Target = 3.14	5.67	910.00	866.61		
399 > 99	45	2.800	2.809		40563	26	>100:1	3.26 (1.57-4.71)	8.86				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	1/1	950480	18	>100:1	Target = 3.33		942.00	902.52		
377 > 85	45	2.827	2.827		289226	16	>100:1	3.28 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.168	3.174	0/0	117014	20	>100:1	Target = 3.02		952.00	888.87		
449 > 99	45	3.168	3.174		39200	19	>100:1	2.98 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.134	3.141	0	86597	19	>100:1			5000.00	5046.23	96.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.134	3.141	0/0	36058	16		Target = 1.69		948.00	887.59		M
427 > 81	64	3.134	3.141		22827	16	44:1	1.57 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.161	3.168	0	556066	21	>100:1			1000.00	1073.51	99.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.161	3.168	0/0	551766	19	>100:1	Target = 3.03		1000.00	948.15		
413 > 169	53	3.161	3.168		175883	20	>100:1	3.13 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.529	3.537	0	131226	20	>100:1			1000.00	1054.02	99	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.529	3.537	0/0	132910	44	>100:1	Target = 3.42	3.95	928.00	852.70		
499 > 99	54	3.529	3.537		36044	39	>100:1	3.68 (1.71-5.13)	8.70				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.740	3.740	1/1	455682	20	>100:1			932.00	904.52		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.871	3.879	0/0	88974	16	>100:1	Target = 2.57		960.00	870.89		
549 > 99	54	3.871	3.879		35431	17		2.51 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.178	4.178	1/1	107175	15	>100:1	Target = 2.71		964.00	1016.03		
599 > 99	54	4.178	4.178		35685	18	>100:1	3.00 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.338	4.338	1/1	402969	14	>100:1			942.00	905.92		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.682	4.681	1/1	95942	17	>100:1	Target = 3.04		968.00	918.72		
699 > 99	54	4.682	4.681		30595	16	>100:1	3.13 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.529	3.537	0	671090	19	>100:1			1000.00	1040.09	97.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.537	3.537	1/1	730352	18	>100:1	Target = 7.14		1000.00	987.95		
463 > 169	56	3.537	3.537		100692	19	>100:1	7.25 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.838	3.846	0	244542	18	>100:1			1000.00	969.76	89.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.838	3.846	0/0	284728	18	>100:1	Target = 32.83		1000.00	1059.65		
498>478	55	3.830	3.846		9806	22	44:1	29.03 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.880	3.879	1	93141	21	>100:1			5000.00	5570.01	105.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.880	3.879	1/0	39232	15	>100:1	Target = 2.14		958.00	908.08		
527 > 81	65	3.871	3.879		20089	18	85:1	1.95 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.483	4.482	1/0	46091	22		Target = 3.72		964.00	920.44		
627 > 80	65	4.483	4.482		12760	14		3.61 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.888	3.887	1	602567	18	>100:1			1000.00	1057.39	102.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.888	3.887	1/0	678728	18	>100:1	Target = 14.16		1000.00	960.71		
513 > 169	51	3.888	3.887		53676	22	>100:1	12.64 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	1	707740	17	>100:1			5000.00	5181.58	103.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.045	4.045	1/0	103706	28	>100:1	Target = 1.42	5.67	1000.00	884.45		
570 > 483	58	4.045	4.045		88802	31	>100:1	1.16 (0.71-2.14)	4.23				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.197	4.196	1	649927	16	>100:1			5000.00	5352.72	106.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.197	4.206	0/-1	127575	31	>100:1	Target = 1.49	6.57	1000.00	1034.49		
584 > 526	60	4.206	4.206		80849	30	>100:1	1.57 (0.74-2.24)	4.33				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.197	4.196	1	672120	17	>100:1			1000.00	1035.32	101	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.197	4.196	1/0	623886	17	>100:1	Target = 14.37		1000.00	1000.46		
563 > 169	52	4.197	4.196		42162	15	>100:1	14.79 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.268	4.267	1	87400	15	>100:1			1000.00	997.33	98.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.278	4.287	0/-1	96094	14	>100:1			1000.00	995.88		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.288	4.298	0	44914	15	>100:1			1000.00	919.67	89.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.288	4.298	0/0	48561	13	>100:1	Target = 1.08		1000.00	1060.57		
512 > 219	57	4.288	4.298		47110	18	>100:1	1.03 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.428	4.437	0	105274	17	>100:1			1000.00	993.94	92.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.446	4.455	0/0	105483	15	>100:1			1000.00	982.84		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.464	0	46990	17	>100:1			1000.00	1072.55	102.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.464	4.473	0/0	50970	16	>100:1	Target = 0.97		1000.00	921.12		
526 > 219	59	4.464	4.473		55220	14	>100:1	0.92 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.474	4.473	1	633130	17	>100:1			1000.00	1060.74	101	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.474	4.473	1/0	652472	16	>100:1	Target = 10.55		1000.00	954.64		
613 > 169	38	4.464	4.473		61997	15	>100:1	10.52 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.712	4.711	1/0	593810	19	>100:1	Target = 8.92		1000.00	963.50		
663 > 169	38	4.712	4.711		68608	16	>100:1	8.65 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	1	763034	18	>100:1			1000.00	1011.83	95.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.928	4.928	1/0	660149	17	>100:1	Target = 12.22		1000.00	986.81		
713 > 169	42	4.928	4.928		53354	17	>100:1	12.37 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.303	5.302	1	890730	22	>100:1			1000.00	990.60	95.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.303	5.302	1/0	584611	22	>100:1	Target = 11.65		1000.00	968.74		
813 > 269	40	5.303	5.302		53241	22	>100:1	10.98 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.661	5.660	1/0	832617	21	>100:1	Target = 15.15		1000.00	993.45		
913 > 319	40	5.653	5.660		57597	21	>100:1	14.45 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.880	3.887	0	676681	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.416	2.424	0	686037	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.161	3.168	0	546086	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	570872	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.529	3.537	0	128491	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

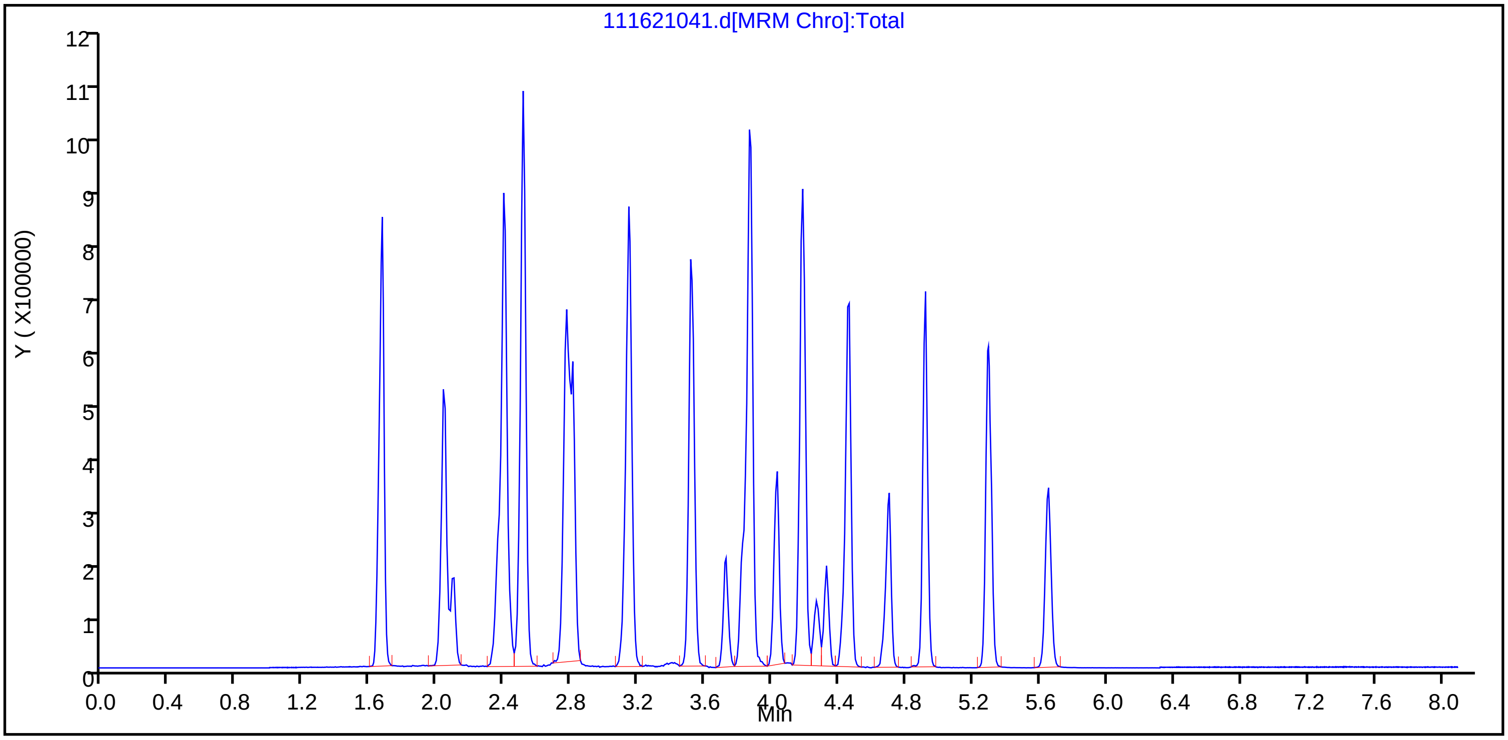
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

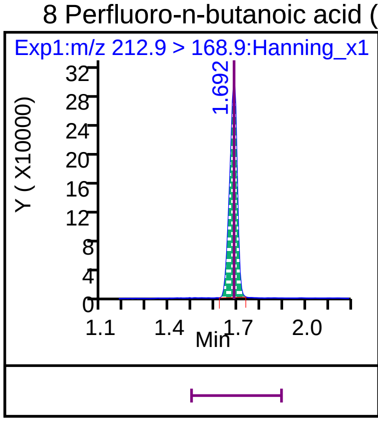
Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

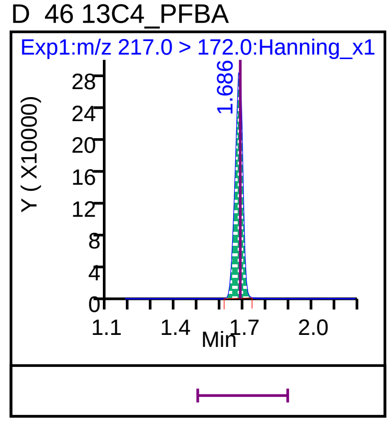
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d		
Injection Date:	16-Nov-2021 21:15:33	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



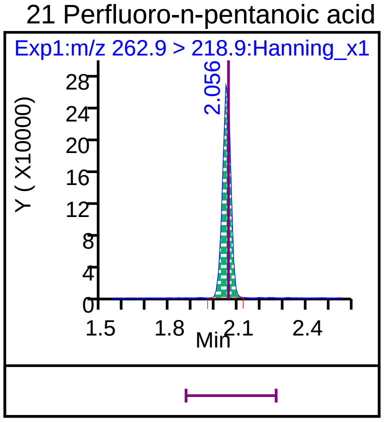
8 Perfluoro-n-butanoic acid (PFBA)



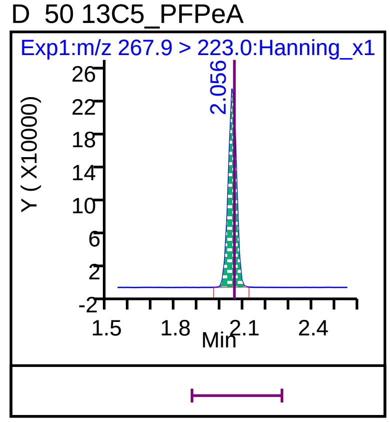
D 46 13C4_PFBA



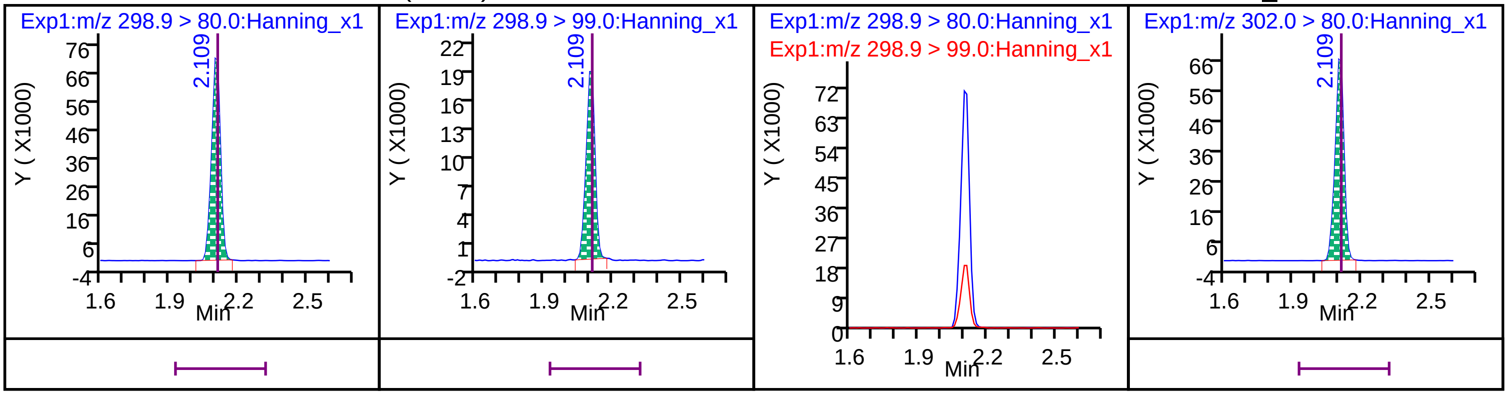
21 Perfluoro-n-pentanoic acid (PFPeA)



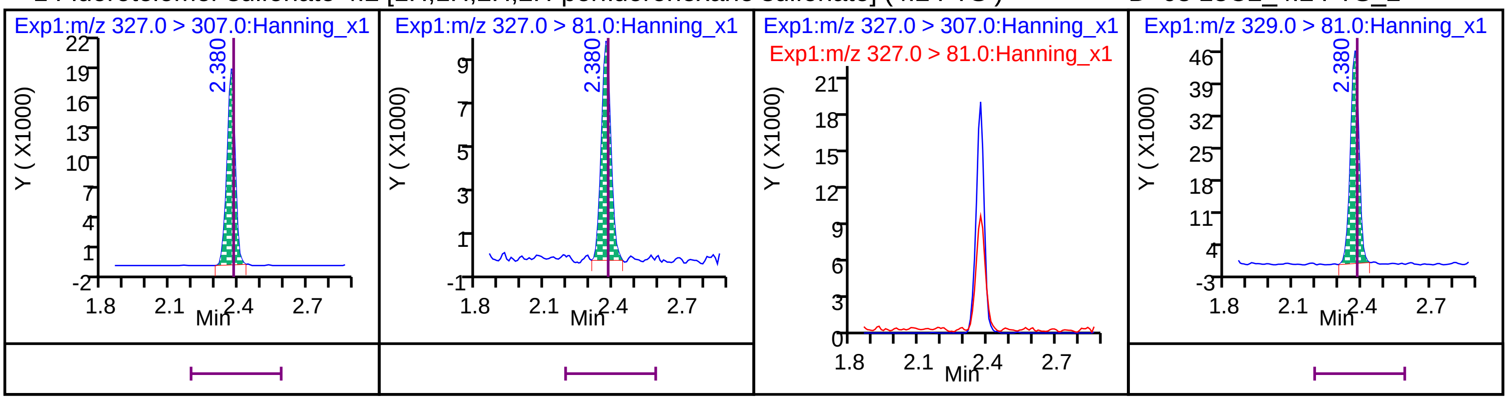
D 50 13C5_PFPeA



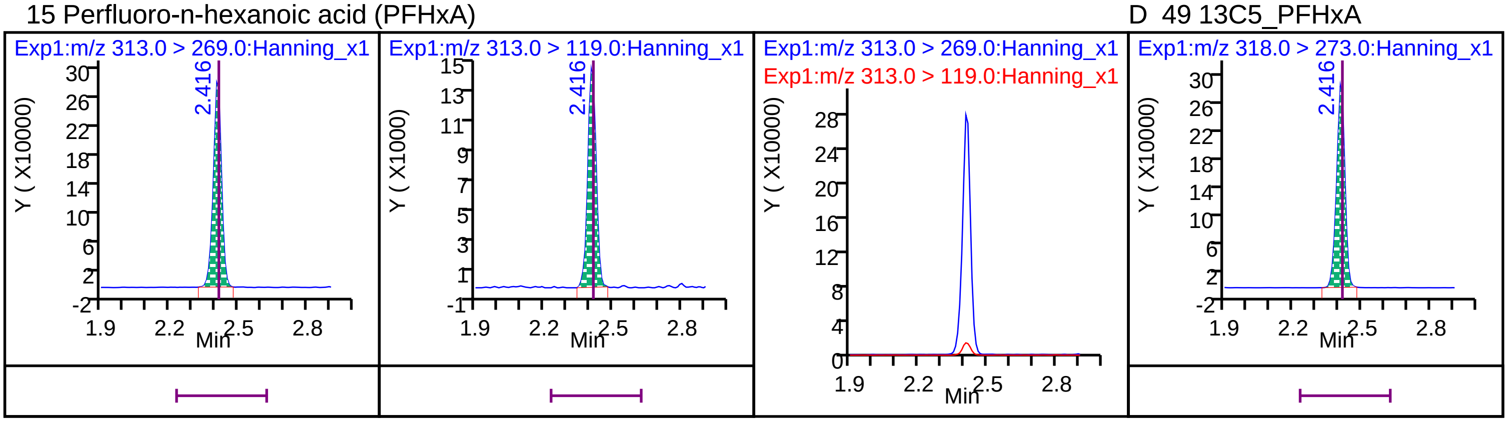
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



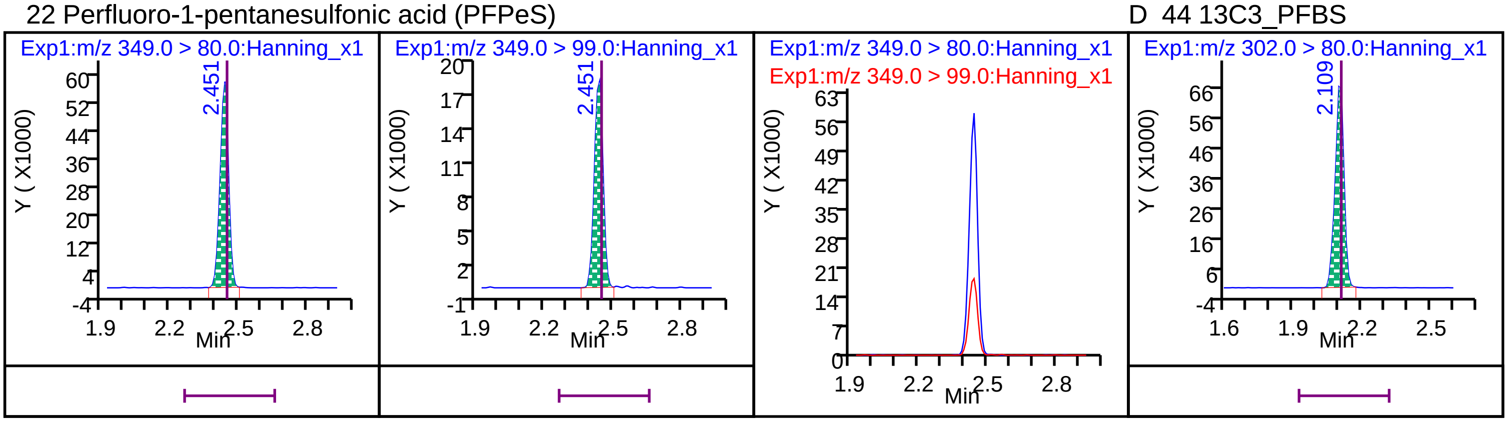
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



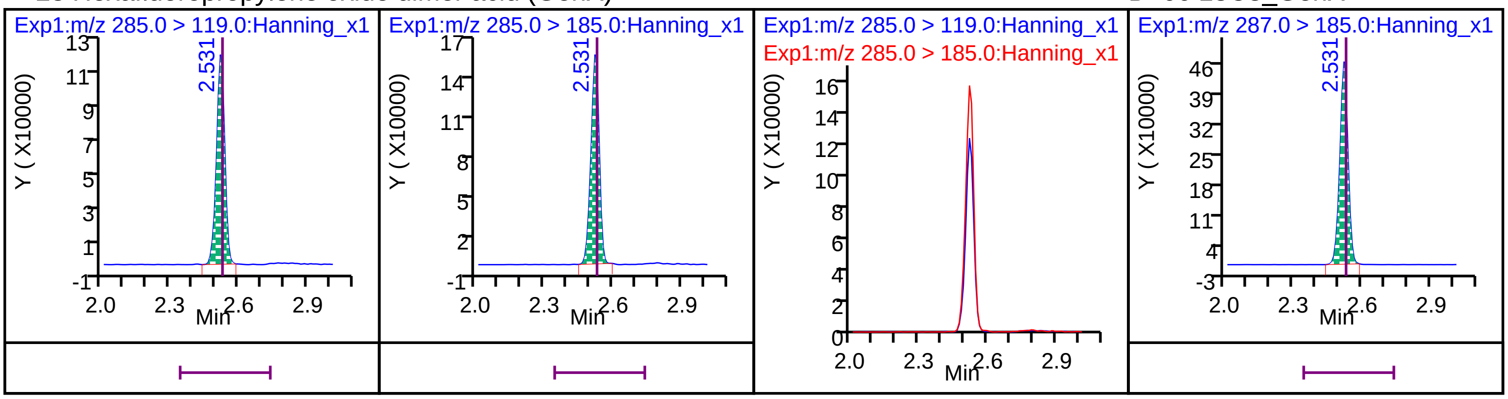
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



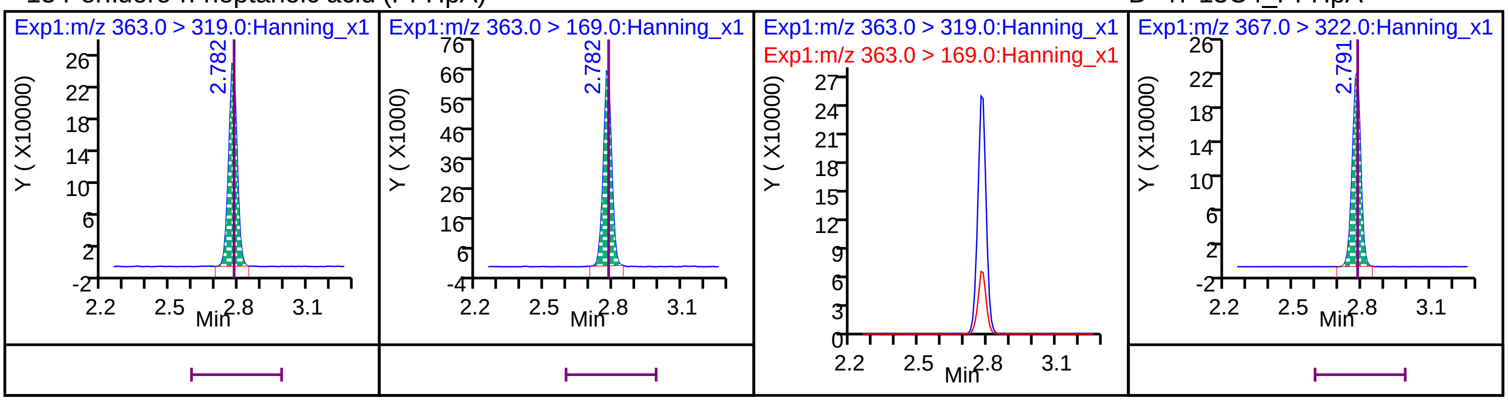
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



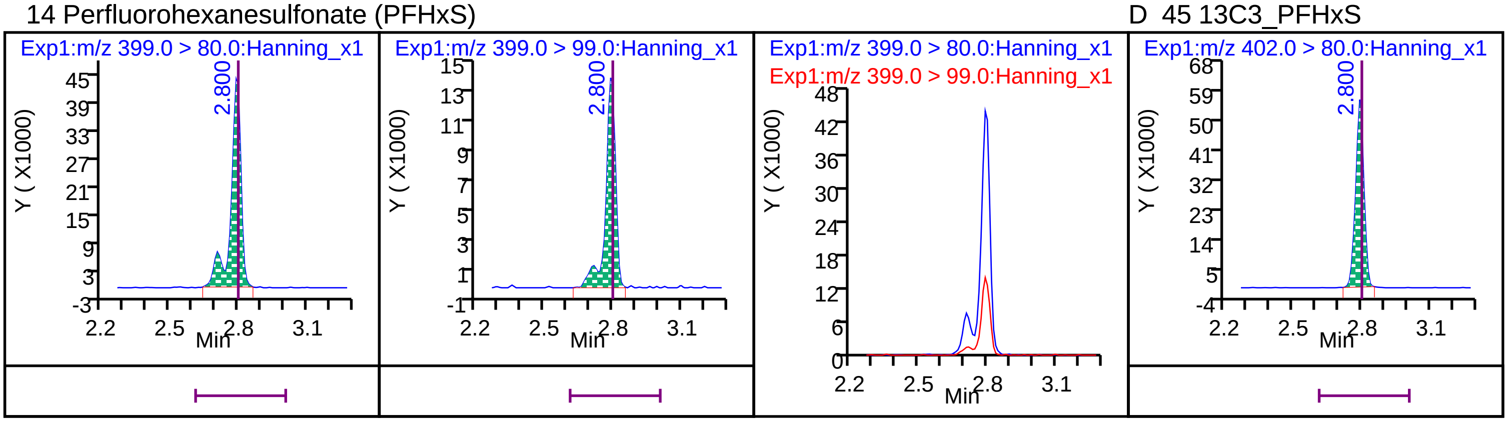
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



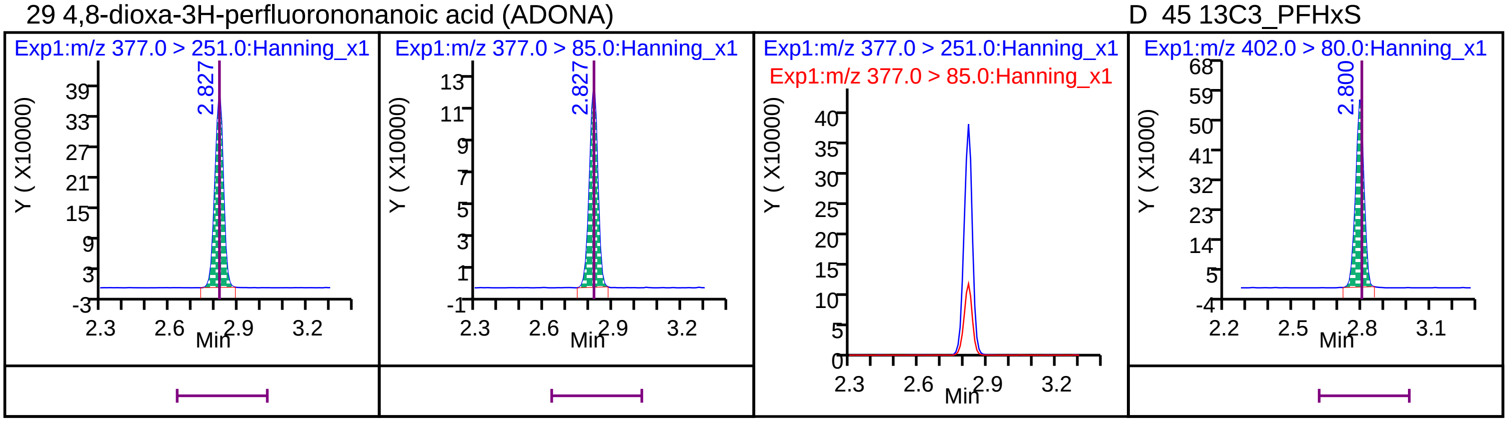
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

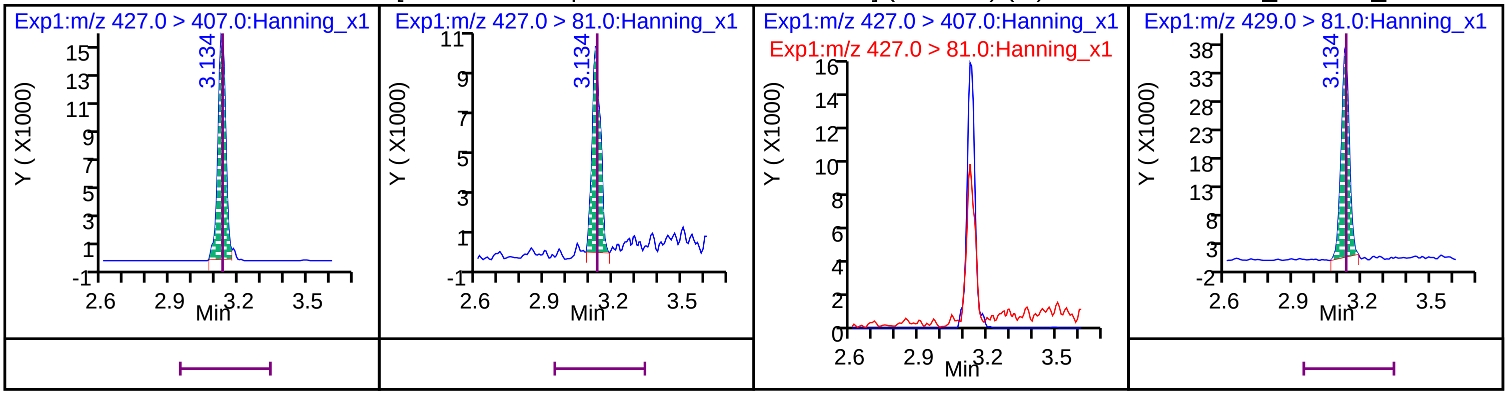


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

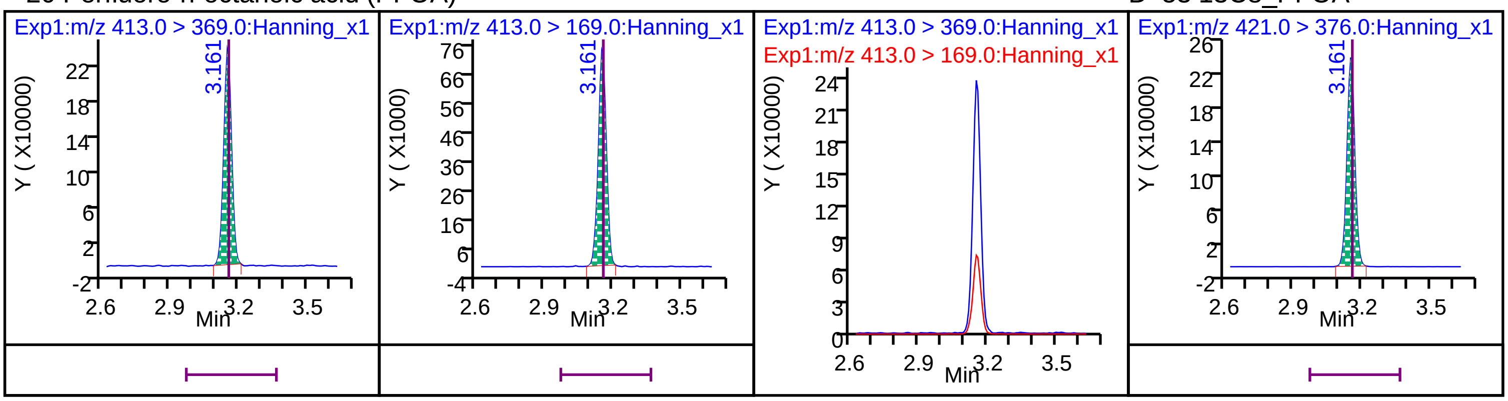


Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d

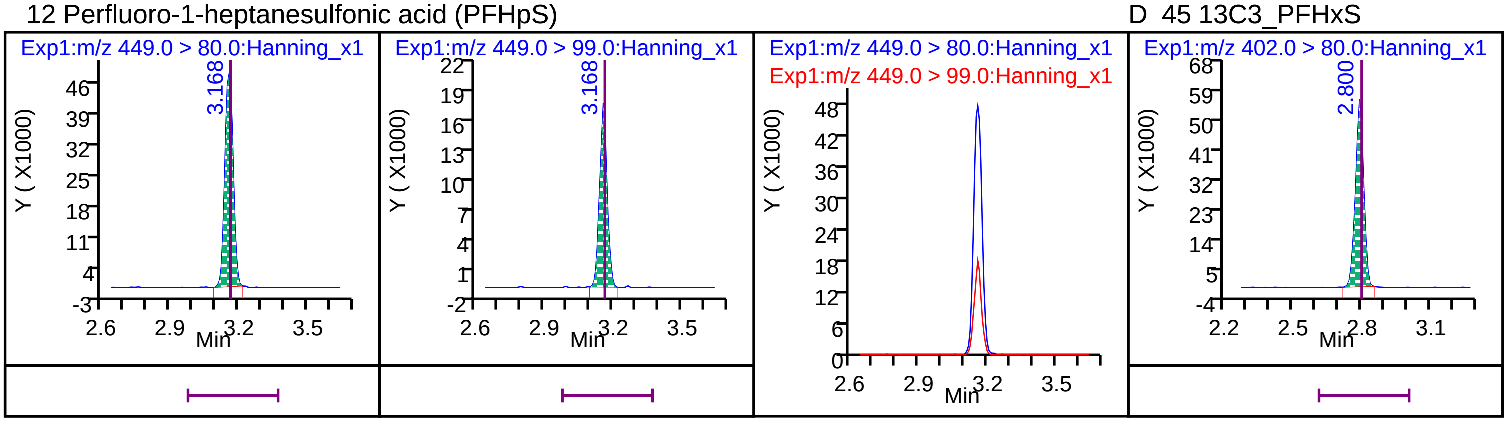
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



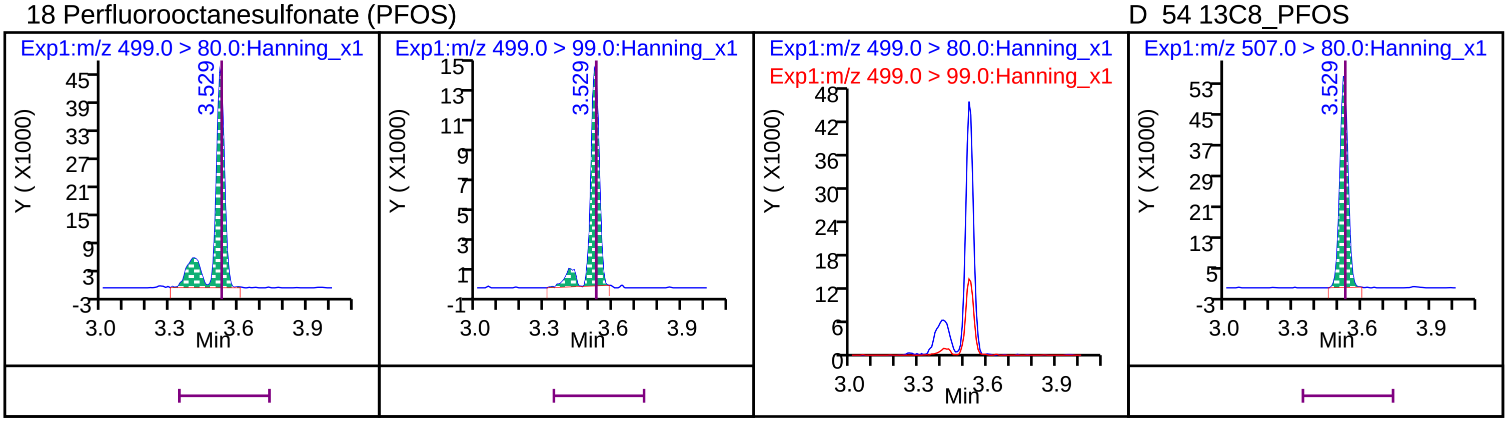
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



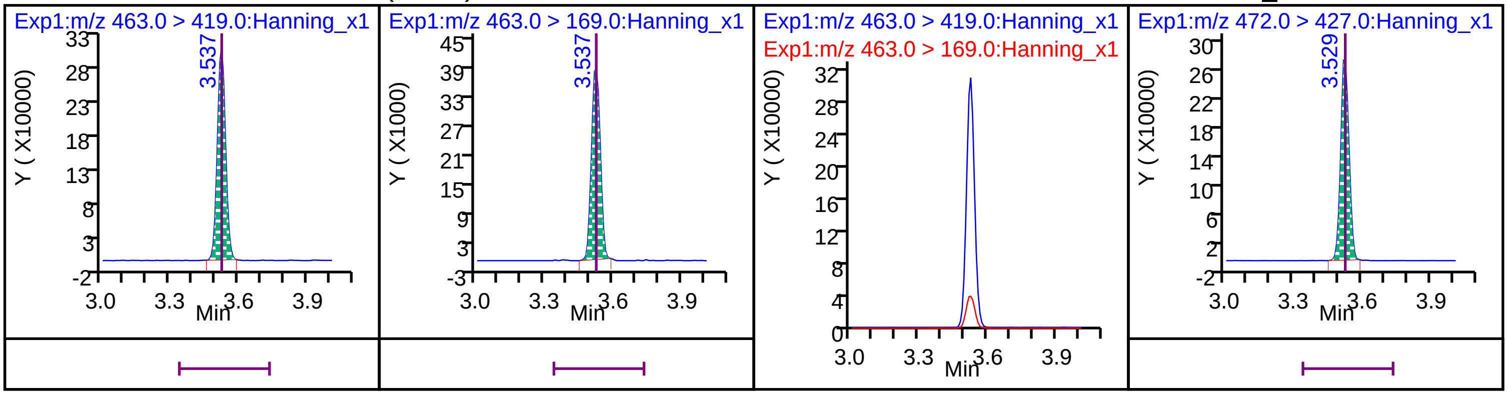
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



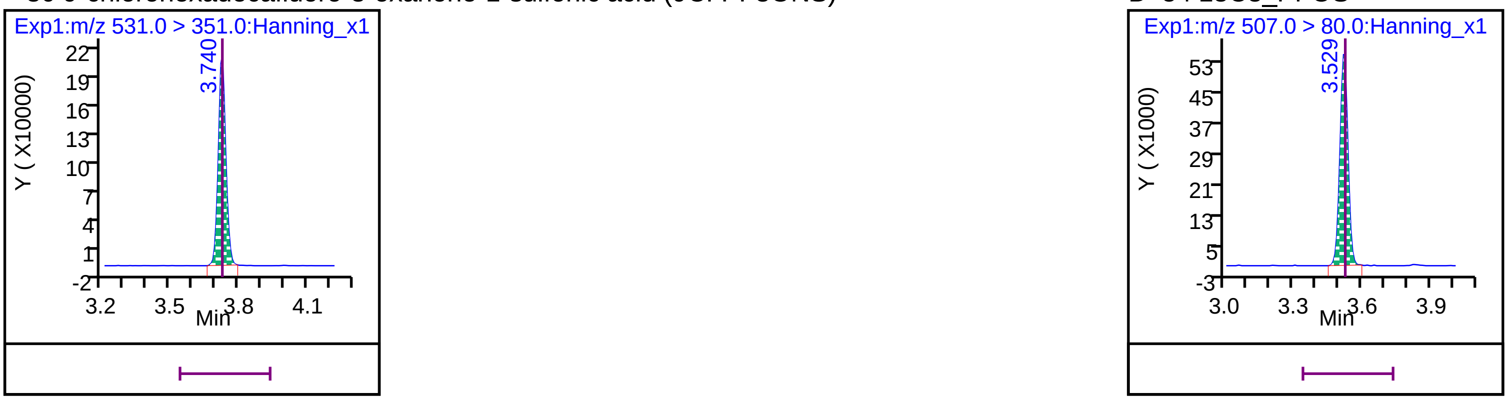
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



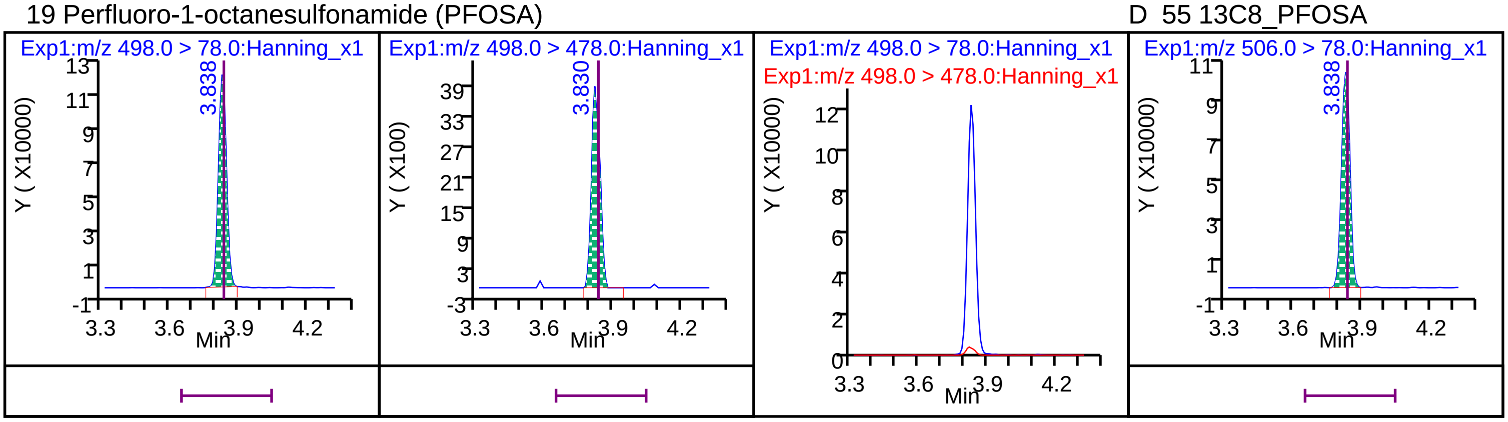
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



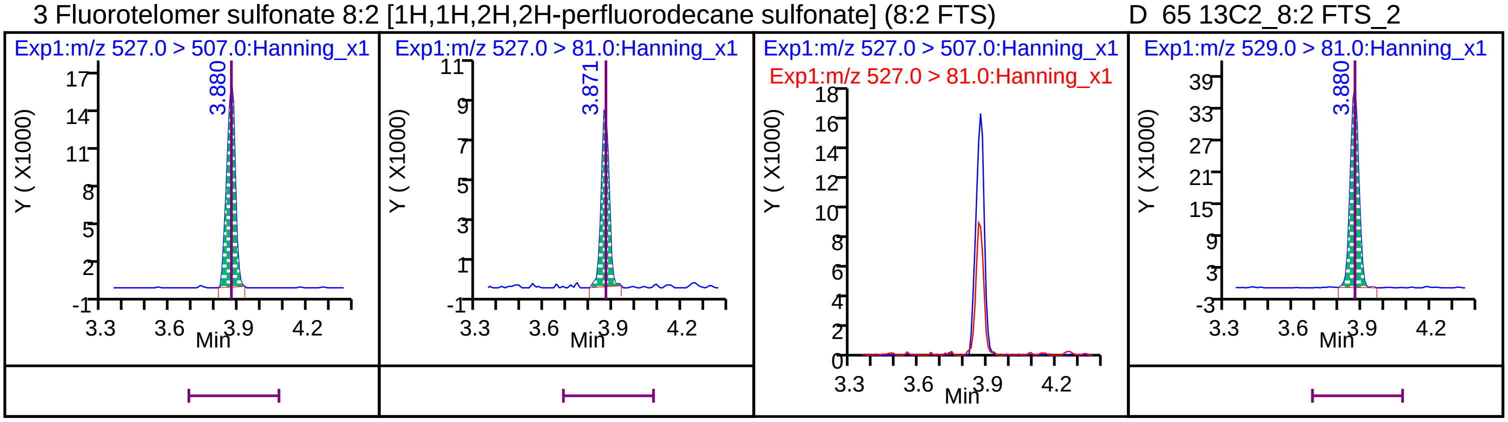
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



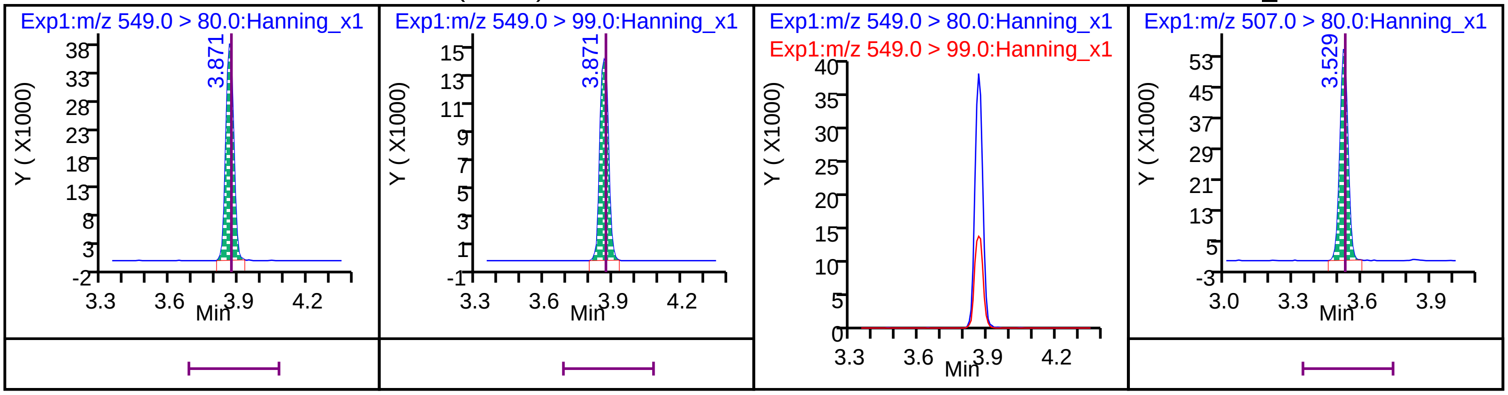
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



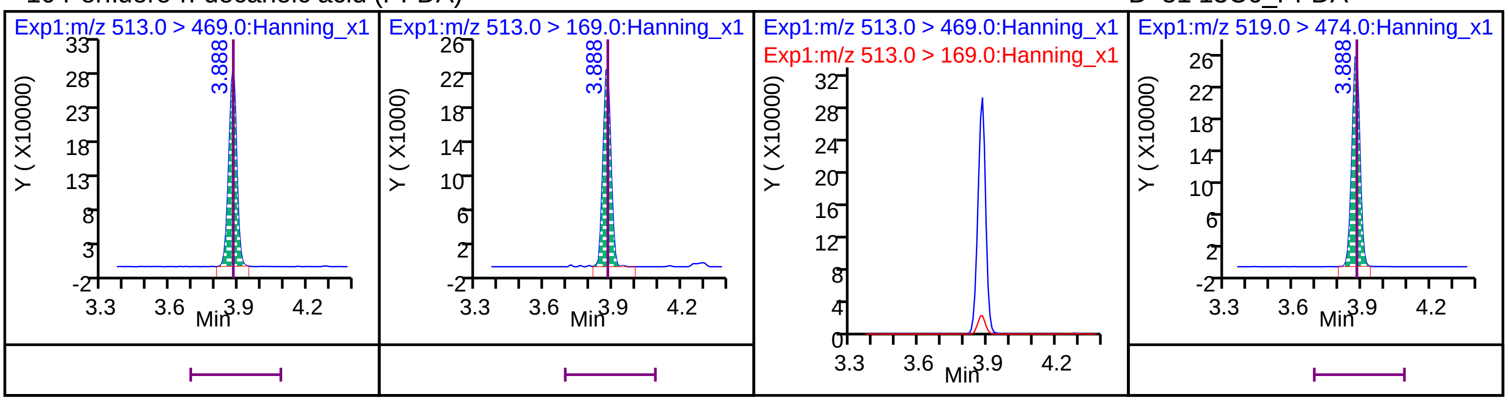
Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d

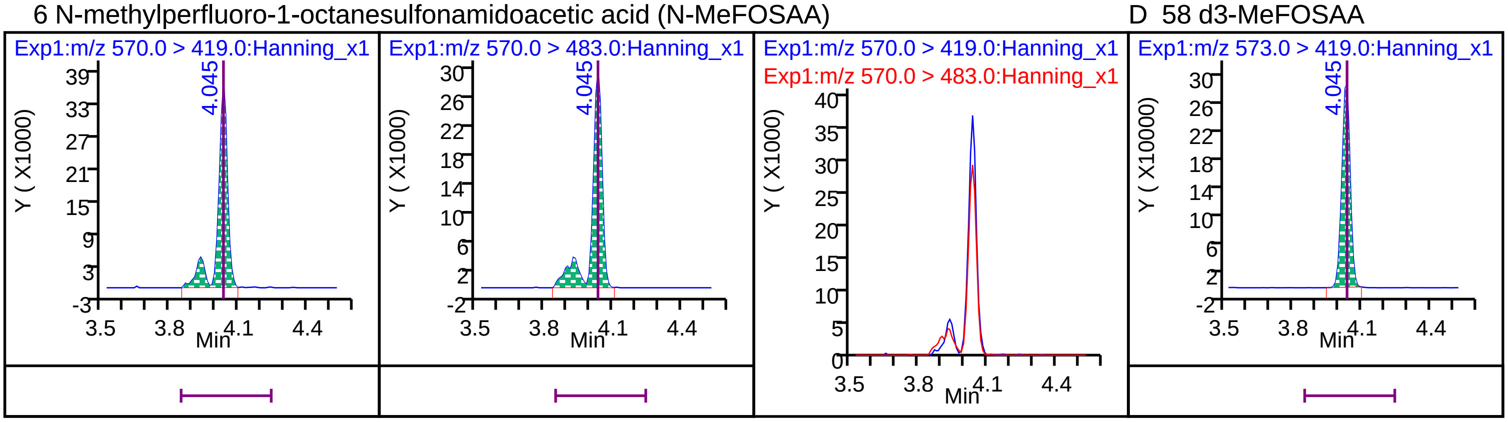
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



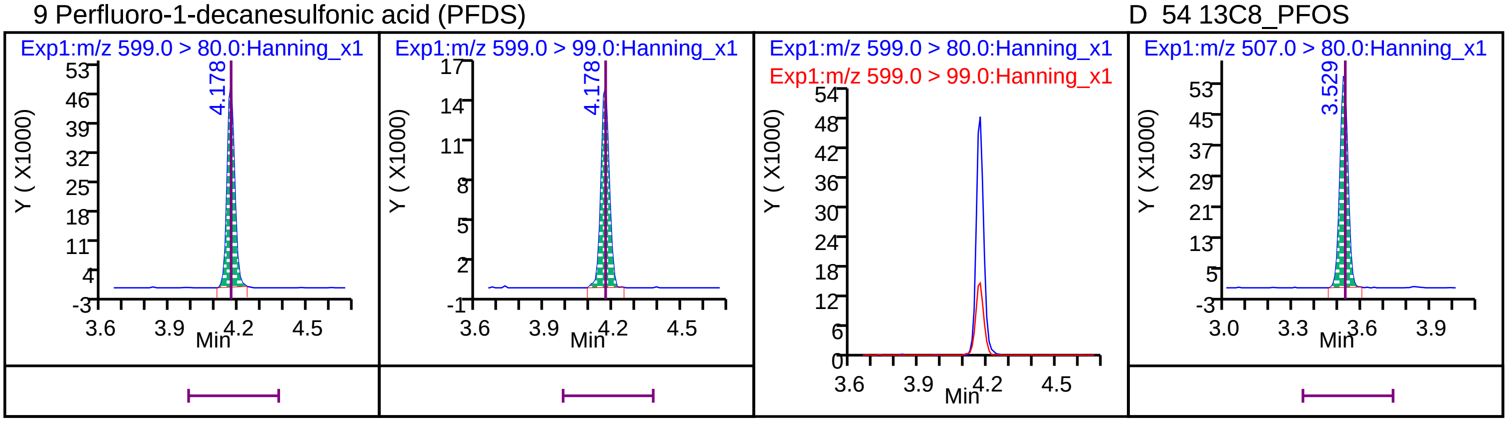
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



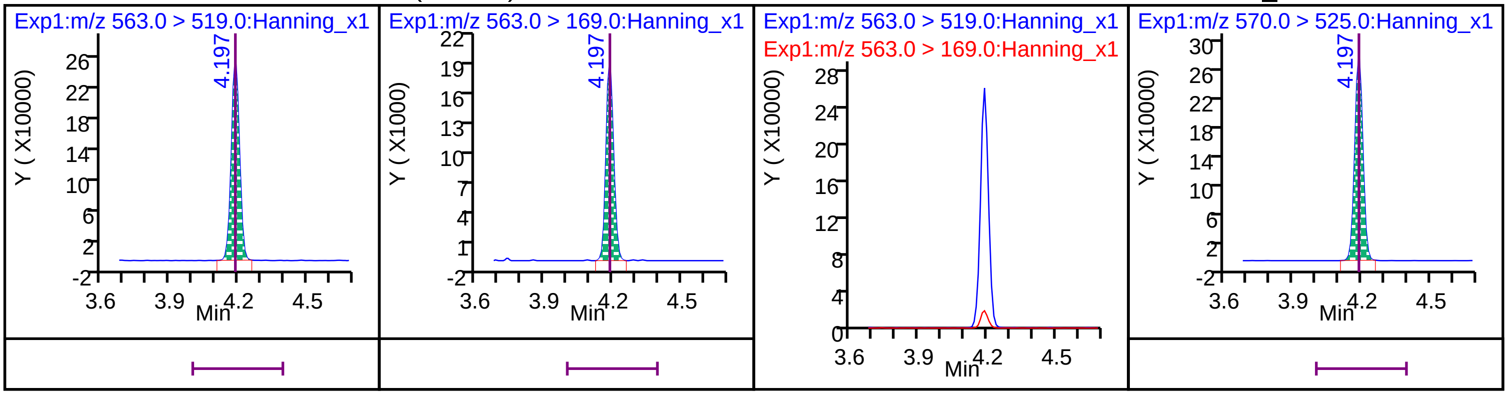
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



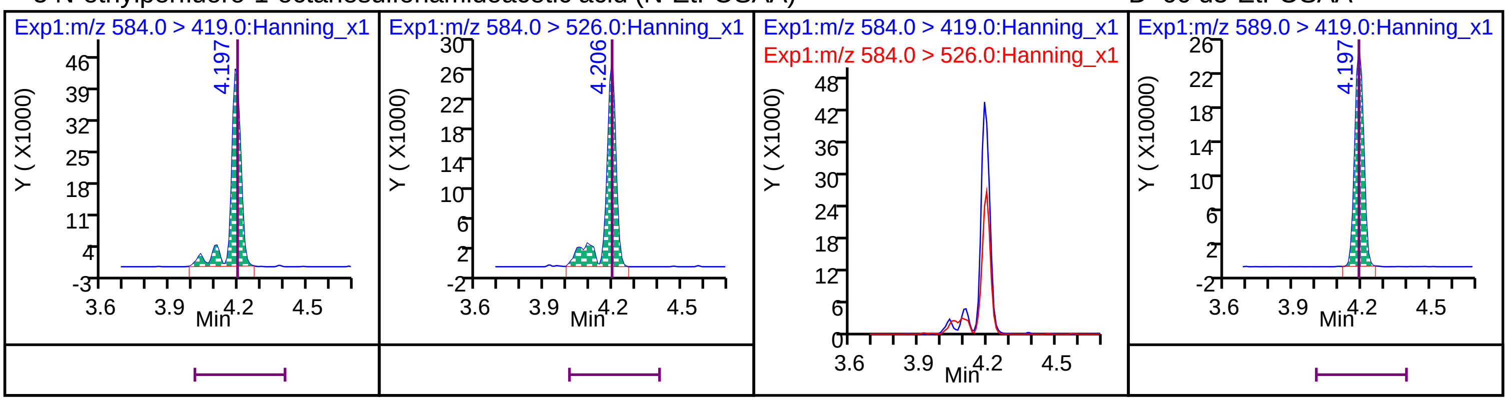
Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

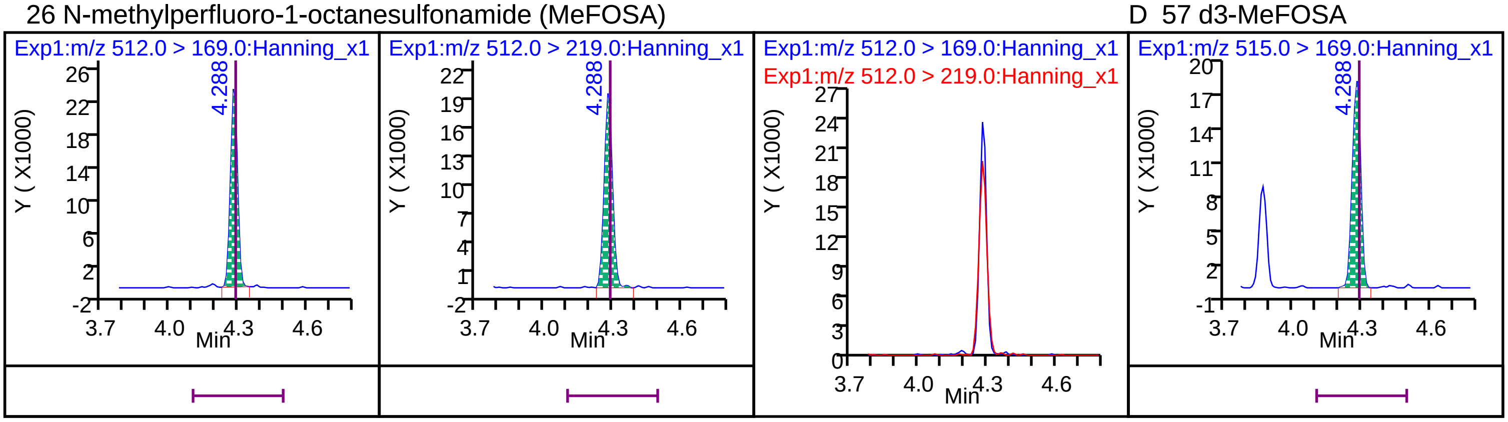


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



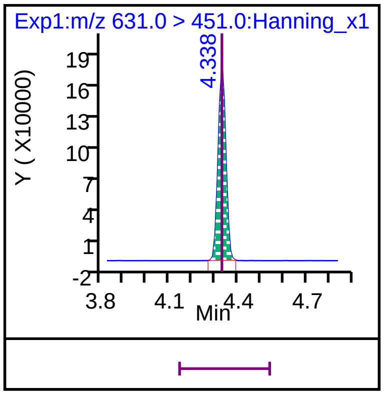
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

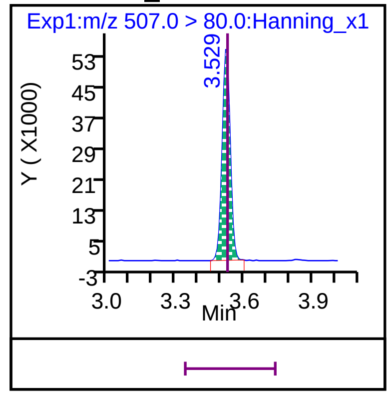


Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d

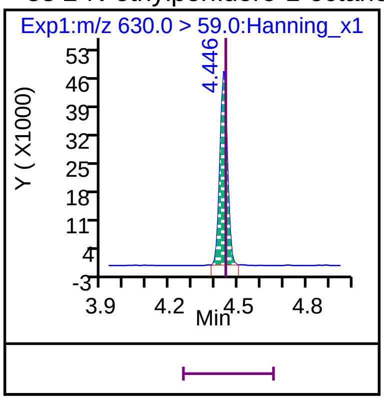
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



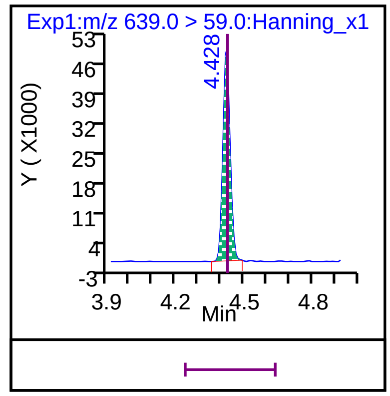
D 54 13C8_PFOS



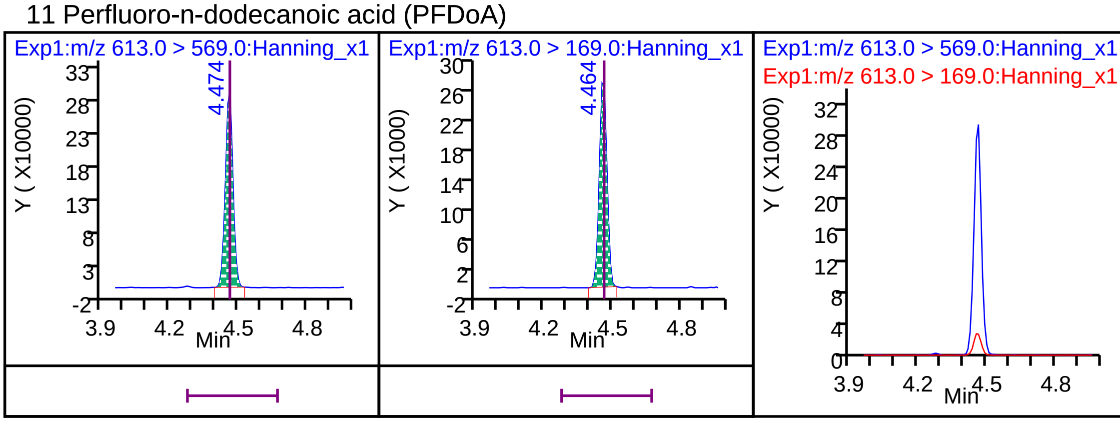
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



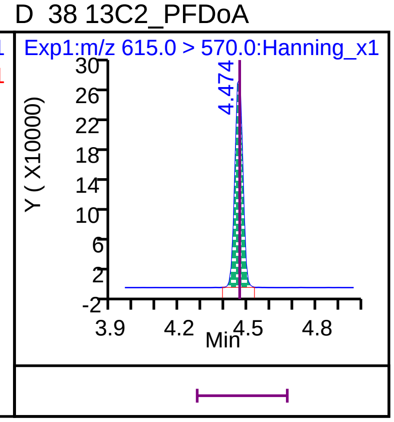
D 62 d9-EtFOSE



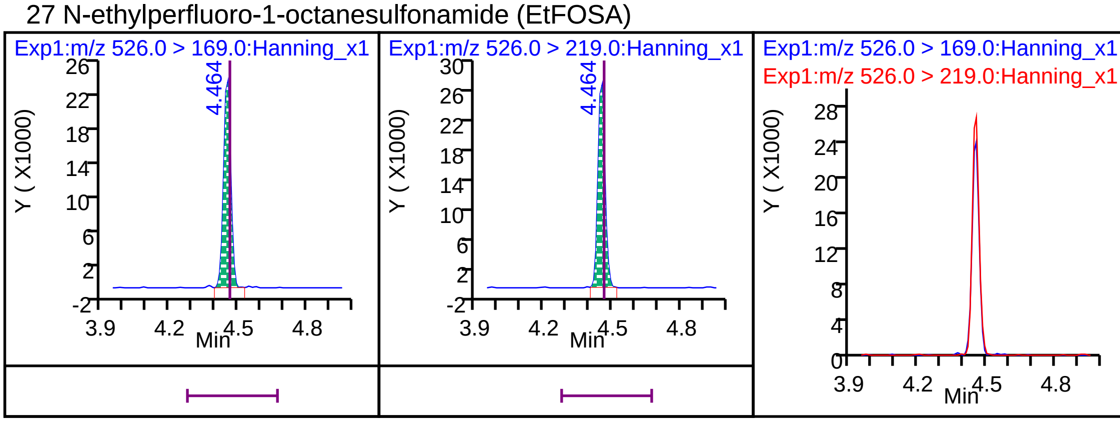
11 Perfluoro-n-dodecanoic acid (PFDoA)



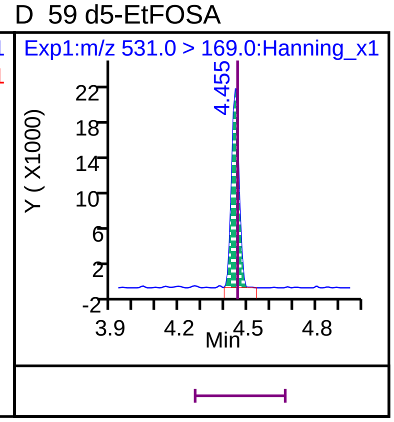
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

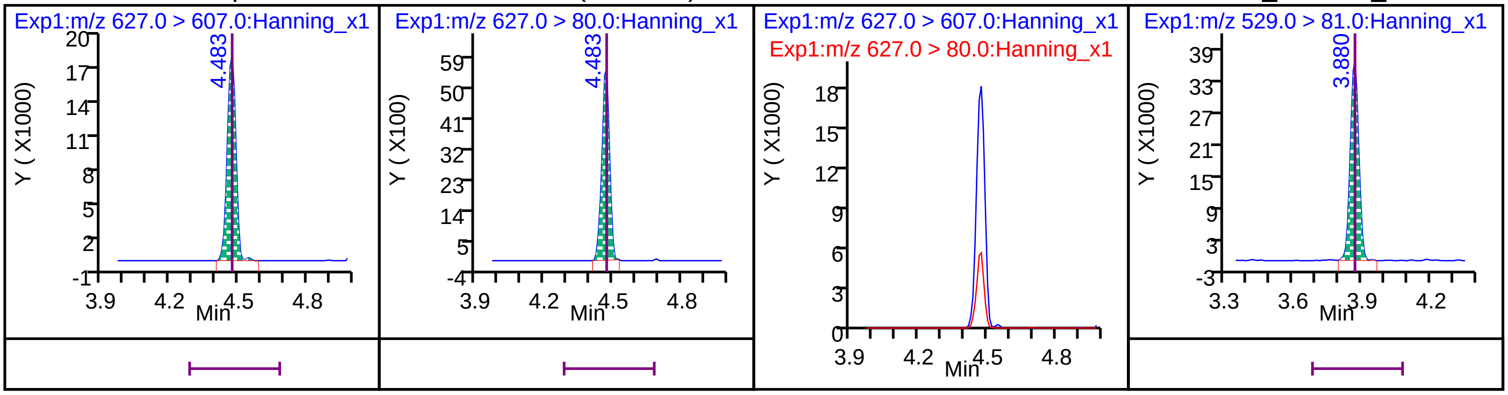


D 59 d5-EtFOSA

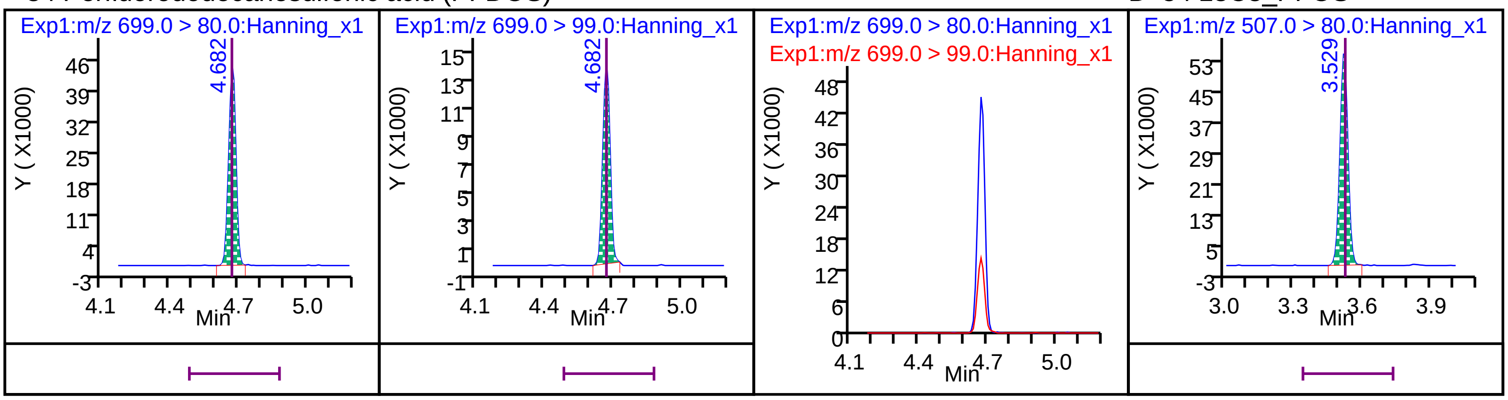


Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d

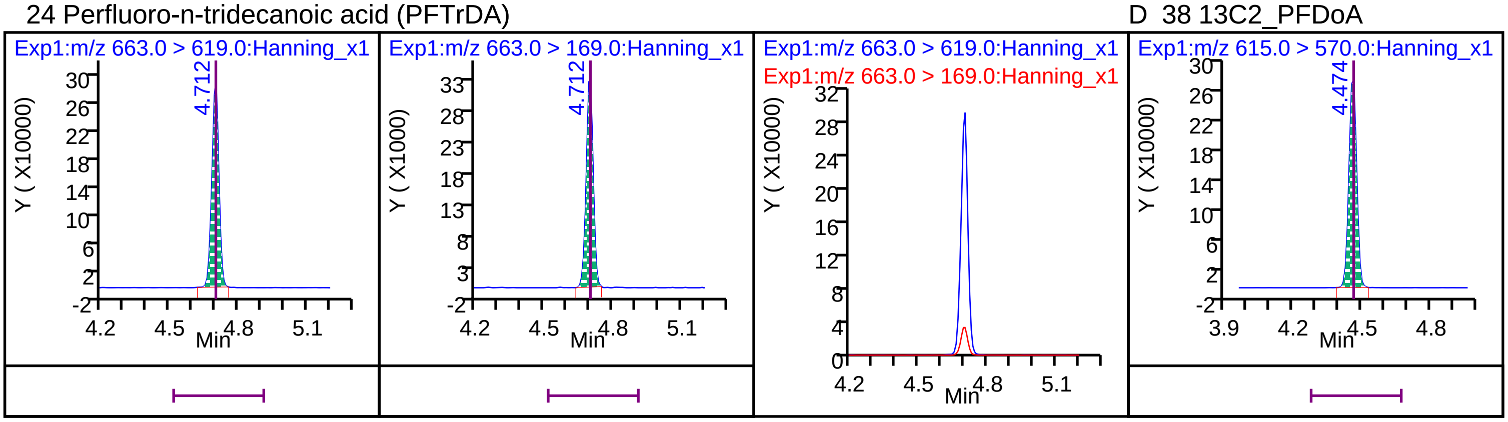
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



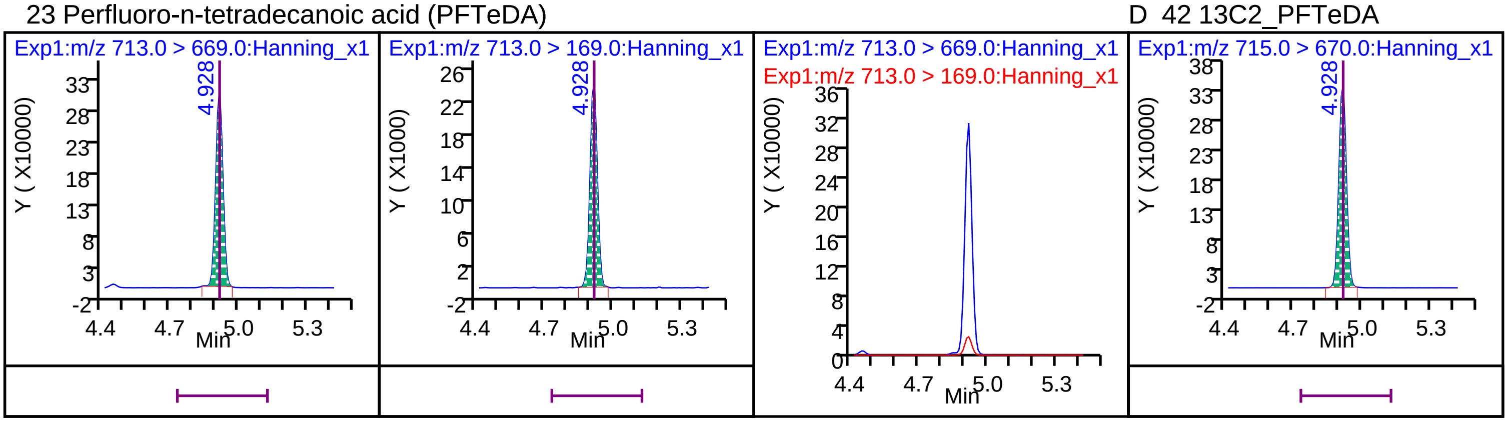
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

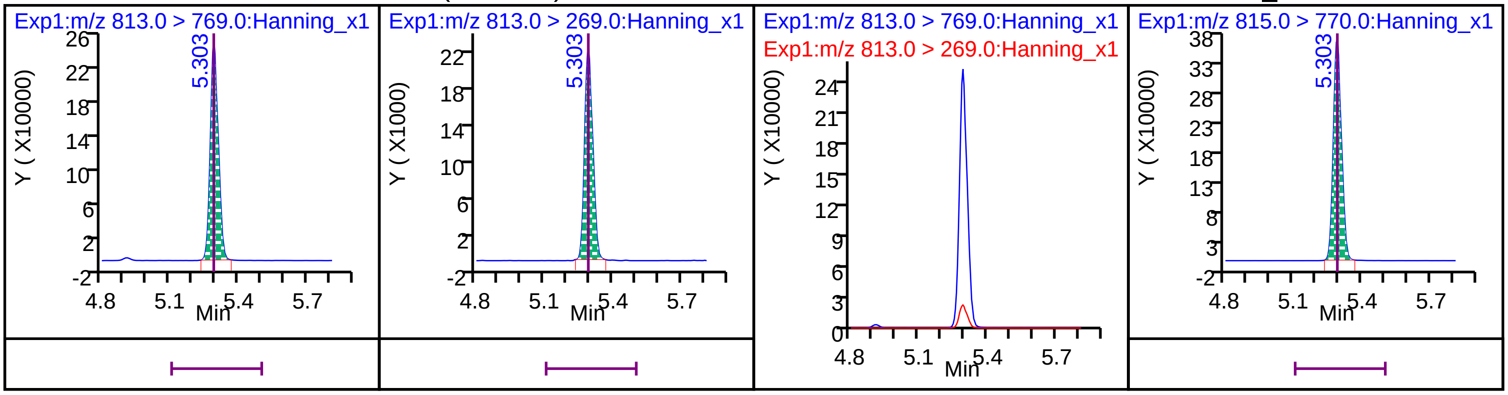


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

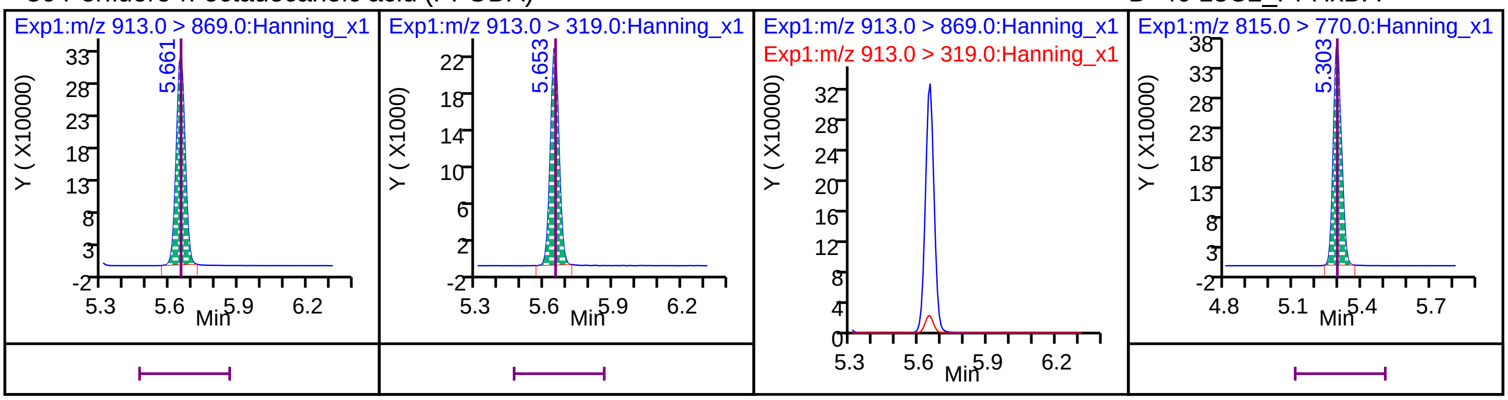


Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d

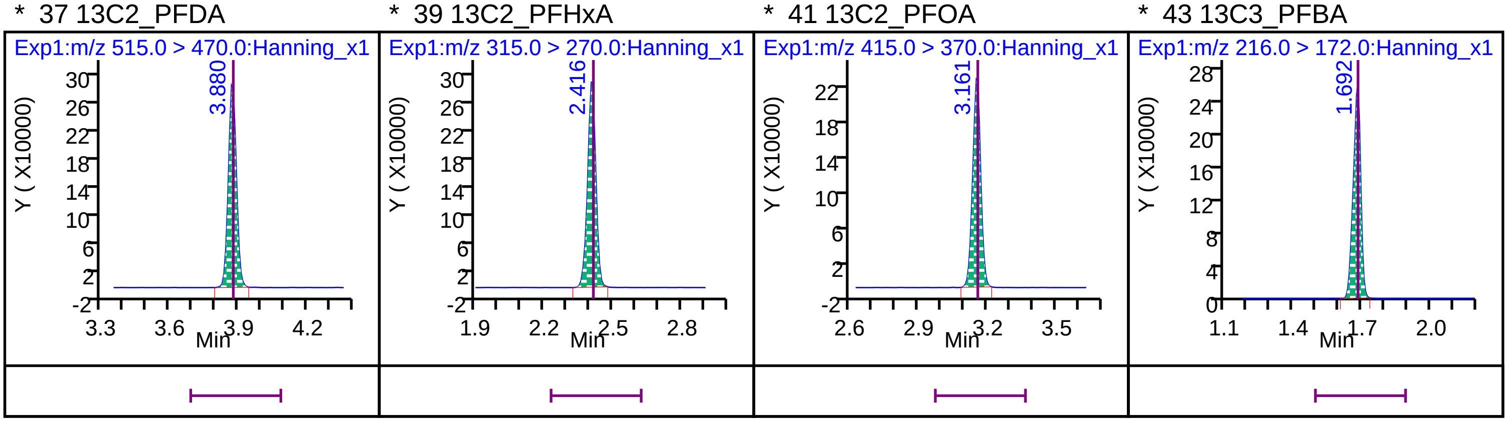
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



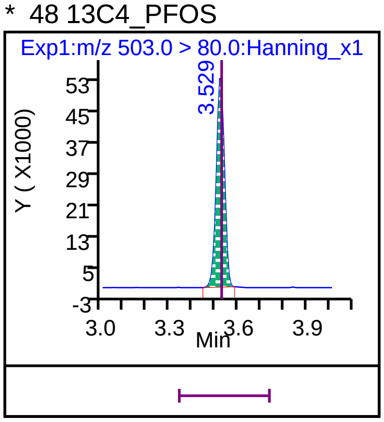
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 08:59:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

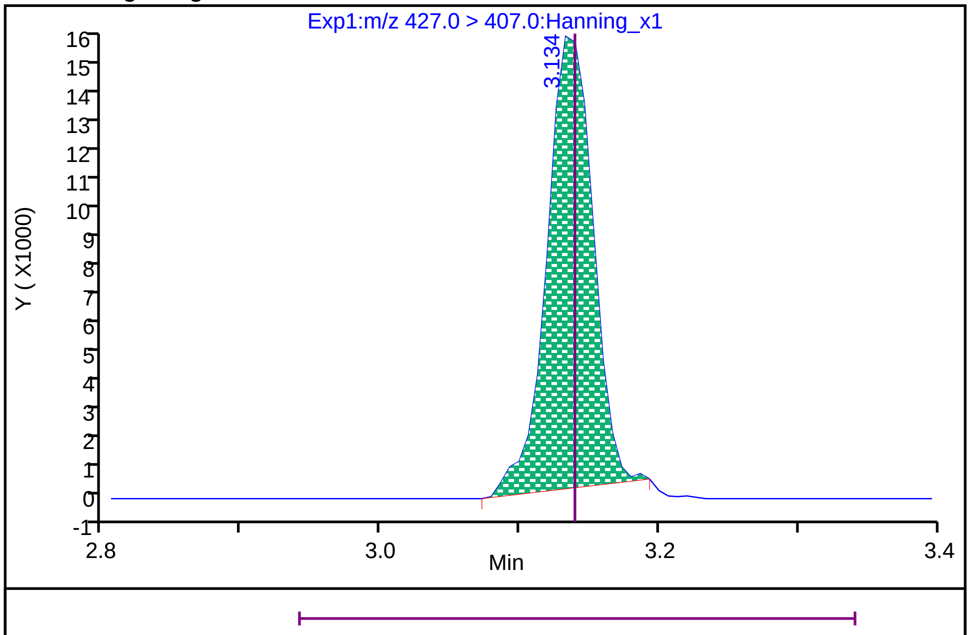
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621041.d		
Injection Date:	16-Nov-2021 21:15:33	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

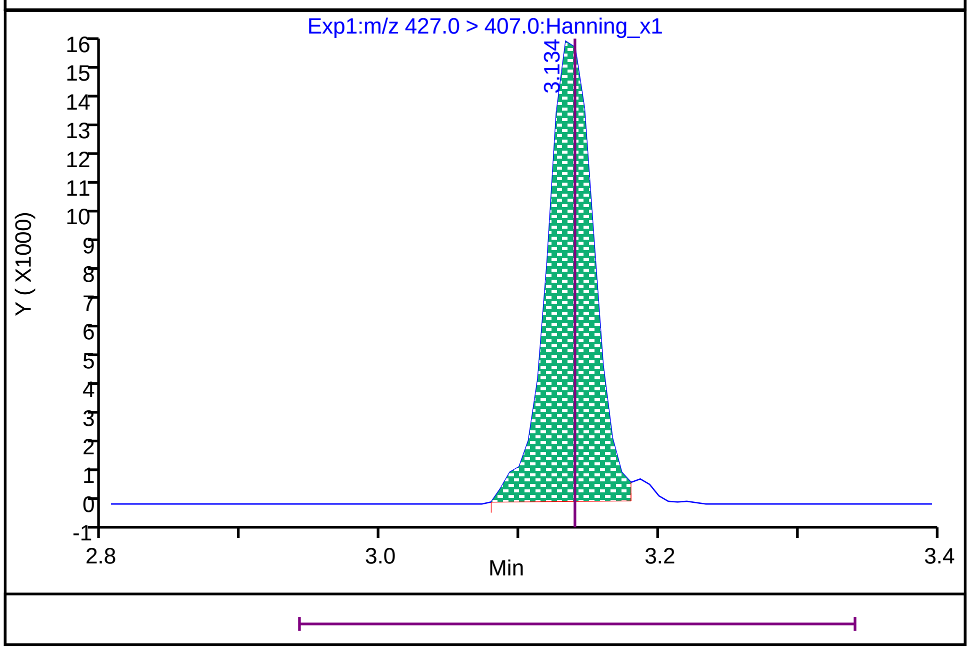
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT:	3.134
Area:	34812
Amount:	856.92
Amount Units:	ng/L



RT:	3.134
Area:	36058
Amount:	887.59
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 12:05:15

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d		
Injection Date:	16-Nov-2021 23:43:19	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	41
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	984.70	98.5	70 - 130
D 46 13C4_PFBA	646253	704391			109	50 - 150
D 50 13C5_PFPeA	597525	644490			107.9	50 - 150
21 PFPeA			1000.00	971.12	97.1	70 - 130
7 PFBS			884.00	843.03	95.4	70 - 130
D 44 13C3_PFBS	173893	199736			114.9	50 - 150
1 4:2 FTS			934.00	878.85	94.1	70 - 130
D 63 13C2_4:2 FTS_2	114363	135642			118.6	50 - 150
D 49 13C5_PFHxA	690660	720399			104.3	50 - 150
15 PFHxA			1000.00	1009.07	100.9	70 - 130
22 PFPeS			938.00	906.69	96.7	70 - 130
28 GenX			2000.00	1956.09	97.8	70 - 130
D 66 13C3_GenX	1156071	1255141			108.6	50 - 150
D 47 13C4_PFHpA	541987	632541			116.7	50 - 150
13 PFHpA			1000.00	939.50	94	70 - 130
D 45 13C3_PFHxS	135990	146521			107.7	50 - 150
14 PFHxS			910.00	891.57	98	70 - 130
29 ADONA			942.00	910.18	96.6	70 - 130
D 64 13C2_6:2 FTS_2	90012	101797			113.1	50 - 150
2 6:2 FTS			948.00	949.40	100.1	70 - 130
20 PFOA			1000.00	964.30	96.4	70 - 130
D 53 13C8_PFOA	556700	587411			105.5	50 - 150
12 PFHpS			952.00	899.92	94.5	70 - 130
18 PFOS			928.00	833.32	89.8	70 - 130
17 PFNA			1000.00	992.42	99.2	70 - 130
D 56 13C9_PFNA	690404	712087			103.1	50 - 150
D 54 13C8_PFOS	132590	148552			112	50 - 150
30 9Cl-PF3ONS			932.00	845.74	90.7	70 - 130
D 55 13C8_PFOSA	274090	266718			97.3	50 - 150
19 PFOSA			1000.00	1017.03	101.7	70 - 130
16 PFNS			960.00	929.02	96.8	70 - 130
D 65 13C2_8:2 FTS_2	88081	97743			111	50 - 150
3 8:2 FTS			958.00	900.64	94	70 - 130
10 PFDA			1000.00	1009.16	100.9	70 - 130
D 51 13C6_PFDA	586322	639140			109	50 - 150
6 N-MeFOSAA			1000.00	926.81	92.7	70 - 130

Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	684495	749576			109.5	50 - 150
9 PFDS			964.00	880.24	91.3	70 - 130
25 PFUdA			1000.00	961.49	96.1	70 - 130
D 60 d5-EtFOSAA	610899	719196			117.7	50 - 150
D 52 13C7_PFUdA	665740	764014			114.8	50 - 150
5 N-EtFOSAA			1000.00	976.86	97.7	70 - 130
D 61 d7-MeFOSE	88387	93739			106.1	50 - 150
32 MeFOSE			1000.00	1004.05	100.4	70 - 130
26 MeFOSA			1000.00	1006.55	100.7	70 - 130
D 57 d3-MeFOSA	50083	55111			110	50 - 150
31 11Cl-PF3OUDS			942.00	881.03	93.5	70 - 130
D 62 d9-EtFOSE	114206	105223			92.1	50 - 150
33 EtFOSE			1000.00	1080.58	108.1	70 - 130
D 59 d5-EtFOSA	45730	49337			107.9	50 - 150
27 EtFOSA			1000.00	930.98	93.1	70 - 130
11 PFDoA			1000.00	950.63	95.1	70 - 130
D 38 13C2_PFDoA	626804	714415			114	50 - 150
4 10:2 FTS			964.00	936.80	97.2	70 - 130
34 PFDOS			968.00	894.33	92.4	70 - 130
24 PFTrDA			1000.00	953.74	95.4	70 - 130
23 PFTeDA			1000.00	940.26	94	70 - 130
D 42 13C2_PFTeDA	795861	870446			109.4	50 - 150
35 PFHxDA			1000.00	974.48	97.4	70 - 130
D 40 13C2_PFHxDA	929181	961622			103.5	50 - 150
36 PFODA			1000.00	997.57	99.8	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d		
Injection Date:	16-Nov-2021 23:43:19	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	41
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.686	1.692	0	704391	20	>100:1			1000.00	1128.95	109	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.692	1/1	725630	19	>100:1			1000.00	984.70		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.056	2.067	0	644490	15	>100:1			1000.00	1112.81	107.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.056	2.067	0/0	687344	16	>100:1			1000.00	971.12		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.109	2.120	0	199736	17	>100:1			1000.00	1150.90	114.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.109	2.120	0/0	209769	15	>100:1	Target = 3.48		884.00	843.03		
298.9 > 99	44	2.109	2.120		63481	15	>100:1	3.30 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.442	2.460	-1/-1	160306	17	>100:1	Target = 3.03		938.00	906.69		
349 > 99	44	2.442	2.460		47876	16	>100:1	3.34 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.371	2.389	-1	135642	18	>100:1			5000.00	6211.84	118.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.380	2.389	0/1	52524	16	>100:1	Target = 1.70		934.00	878.85		
327 > 81	63	2.380	2.389		29173	17	69:1	1.80 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.416	2.424	0	720399	16	>100:1			1000.00	1111.60	104.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.416	2.424	0/0	769212	18	>100:1	Target = 18.47		1000.00	1009.07		
313 > 119	49	2.416	2.424		38873	15	>100:1	19.78 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.531	2.540	0	1255141	16	>100:1			5000.00	5605.39	108.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.531	2.540	0/0	323107	17	>100:1	Target = 0.78		2000.00	1956.09		
285 > 185	66	2.531	2.540		407442	17	>100:1	0.79 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.782	2.791	0	632541	17	>100:1			1000.00	1198.46	116.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.782	2.791	0/0	679566	18	>100:1	Target = 3.92		1000.00	939.50		
363 > 169	47	2.782	2.791		170377	16	>100:1	3.98 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.800	2.809	0	146521	23	>100:1			1000.00	1147.24	107.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.800	2.809	0/0	147270	25	>100:1	Target = 3.14	4.78	910.00	891.57		
399 > 99	45	2.800	2.809		47055	23	>100:1	3.12 (1.57-4.71)	7.43				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.827	2.827	1/1	1037235	17	>100:1	Target = 3.33		942.00	910.18		
377 > 85	45	2.827	2.827		321600	16	>100:1	3.22 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.167	3.174	0/0	128195	19	>100:1	Target = 3.02		952.00	899.92		
449 > 99	45	3.167	3.174		42881	18	>100:1	2.98 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.134	3.141	0	101797	20	>100:1			5000.00	5931.97	113.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.134	3.141	0/0	45339	18	>100:1	Target = 1.69		948.00	949.40		
427 > 81	64	3.134	3.141		24932	22	60:1	1.81 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.161	3.168	0	587411	21	>100:1			1000.00	1134.02	105.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.161	3.168	0/0	592797	20	>100:1	Target = 3.03		1000.00	964.30		
413 > 169	53	3.161	3.168		196421	21	>100:1	3.01 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.529	3.537	0	148552	18	>100:1			1000.00	1193.18	112	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.529	3.537	0/0	147040	35	>100:1	Target = 3.42	3.47	928.00	833.32		
499 > 99	54	3.529	3.537		45220	34	>100:1	3.25 (1.71-5.13)	7.29				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.740	3.740	0/0	482323	21	>100:1			932.00	845.74		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.871	3.879	0/0	107445	18	>100:1	Target = 2.57		960.00	929.02		
549 > 99	54	3.871	3.879		39043	22	>100:1	2.75 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.169	4.178	0/0	105111	16		Target = 2.71		964.00	880.24		
599 > 99	54	4.169	4.178		43243	16		2.43 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.338	4.338	0/0	443639	15	>100:1			942.00	881.03		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.673	4.681	0/0	105726	17	>100:1	Target = 3.04		968.00	894.33		
699 > 99	54	4.673	4.681		34583	23		3.05 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.529	3.537	0	712087	19	>100:1			1000.00	1103.63	103.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.529	3.537	0/0	778479	19	>100:1	Target = 7.14		1000.00	992.42		
463 > 169	56	3.537	3.537		124598	17	>100:1	6.24 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.838	3.846	0	266718	16	>100:1			1000.00	1057.70	97.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.838	3.846	0/0	298056	19	>100:1	Target = 32.83		1000.00	1017.03		
498>478	55	3.838	3.846		8785	20		33.92 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.871	3.879	0	97743	17	>100:1			5000.00	5845.22	111	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.871	3.879	0/0	40833	24	>100:1	Target = 2.14		958.00	900.64		
527 > 81	65	3.871	3.879		22057	19	89:1	1.85 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.473	4.482	0/0	49228	16		Target = 3.72		964.00	936.80		
627 > 80	65	4.473	4.482		14943	15		3.29 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.879	3.887	0	639140	18	>100:1			1000.00	1121.57	109	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.879	3.887	0/0	756233	18	>100:1	Target = 14.16		1000.00	1009.16		
513 > 169	51	3.879	3.887		55029	17	>100:1	13.74 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.036	4.045	0	749576	17	>100:1			5000.00	5487.87	109.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.044	4.045	0/0	115097	30	>100:1	Target = 1.42	7.88	1000.00	926.81		
570 > 483	58	4.036	4.045		89121	30	>100:1	1.29 (0.71-2.14)	4.19				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.186	4.196	0	719196	17	>100:1			5000.00	5923.21	117.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.196	4.206	0/0	133308	31	>100:1	Target = 1.49	6.59	1000.00	976.86		M
584 > 526	60	4.196	4.206		98473	29	>100:1	1.35 (0.74-2.24)	3.60				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.186	4.196	0	764014	16	>100:1			1000.00	1176.87	114.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.186	4.196	0/0	681559	15	>100:1	Target = 14.37		1000.00	961.49		
563 > 169	52	4.186	4.196		48958	21	>100:1	13.92 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.257	4.267	0	93739	14				1000.00	1069.66	106.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.267	4.287	-1/-1	103909	21	>100:1			1000.00	1004.05		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.277	4.298	-1	55111	14	>100:1			1000.00	1128.47	110	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.277	4.298	-1/0	56551	14	>100:1	Target = 1.08		1000.00	1006.55		
512 > 219	57	4.277	4.298		46702	15	>100:1	1.21 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.420	4.437	0	105223	18	>100:1			1000.00	993.46	92.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.437	4.455	-1/-1	115916	17	>100:1			1000.00	1080.58		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.446	4.464	-1	49337	17	>100:1			1000.00	1126.12	107.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.446	4.473	-1/0	54089	14	>100:1	Target = 0.97		1000.00	930.98		
526 > 219	59	4.455	4.473		53875	14	>100:1	1.00 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.464	4.473	0	714415	17	>100:1			1000.00	1196.92	114	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.464	4.473	0/0	733147	16	>100:1	Target = 10.55		1000.00	950.63		
613 > 169	38	4.464	4.473		68992	16	>100:1	10.62 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.704	4.711	0/0	663261	19	>100:1	Target = 8.92		1000.00	953.74		
663 > 169	38	4.697	4.711		76497	18	>100:1	8.67 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.919	4.928	0	870446	17	>100:1			1000.00	1154.27	109.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.919	4.928	0/0	717550	18	94:1	Target = 12.22		1000.00	940.26		
713 > 169	42	4.919	4.928		56598	18	>100:1	12.67 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.293	5.302	0	961622	22	>100:1			1000.00	1069.44	103.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.298	5.302	0/0	634879	22	>100:1	Target = 11.65		1000.00	974.48		
813 > 269	40	5.298	5.302		53621	22	>100:1	11.84 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.653	5.660	0/0	902614	20	>100:1	Target = 15.15		1000.00	997.57		
913 > 319	40	5.653	5.660		60923	19	>100:1	14.81 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.879	3.887	0	757442	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.416	2.424	0	778388	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.161	3.168	0	600654	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	660753	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.529	3.537	0	141756	19	>100:1			1000.00			

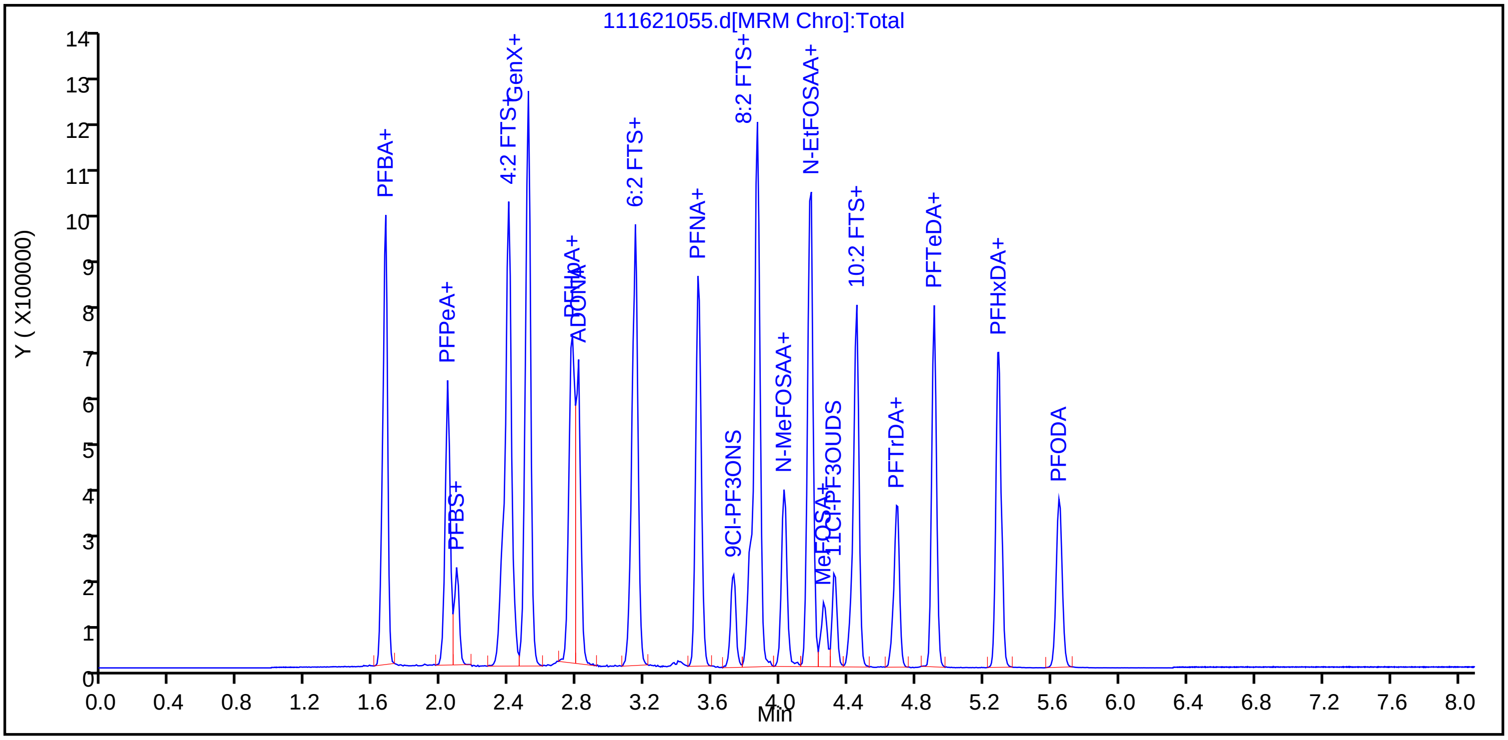
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

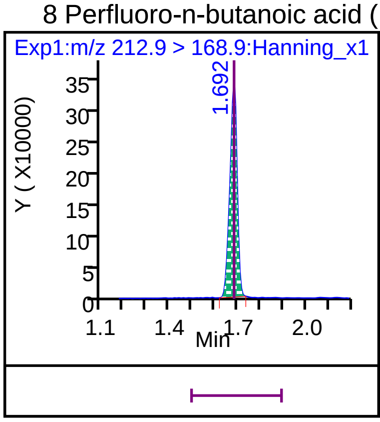
Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

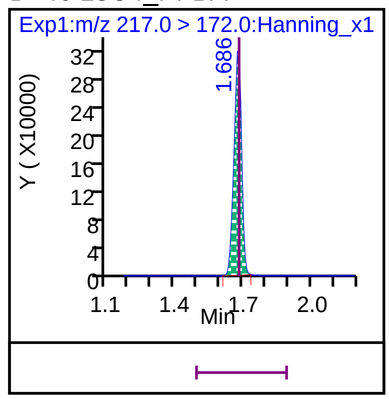
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d		
Injection Date:	16-Nov-2021 23:43:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



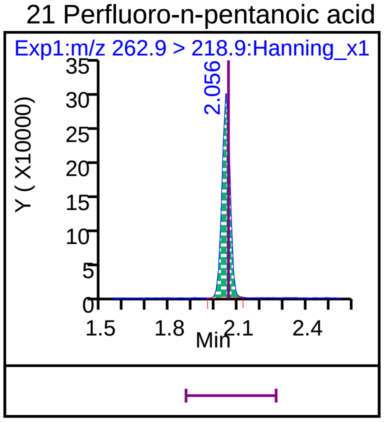
8 Perfluoro-n-butanoic acid (PFBA)



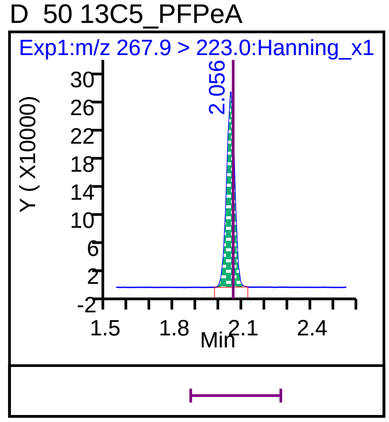
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



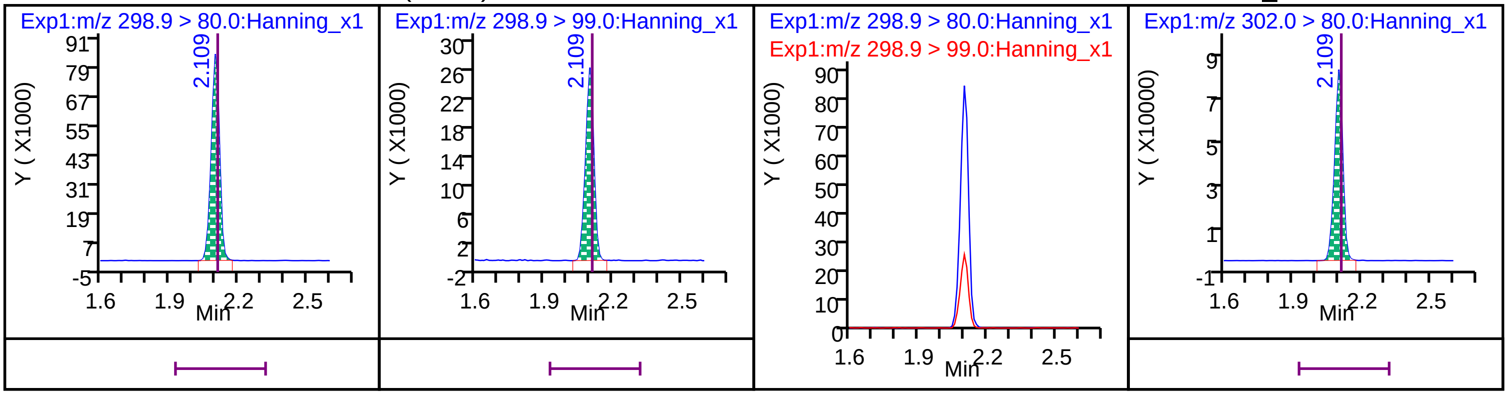
D 50 13C5_PFPeA



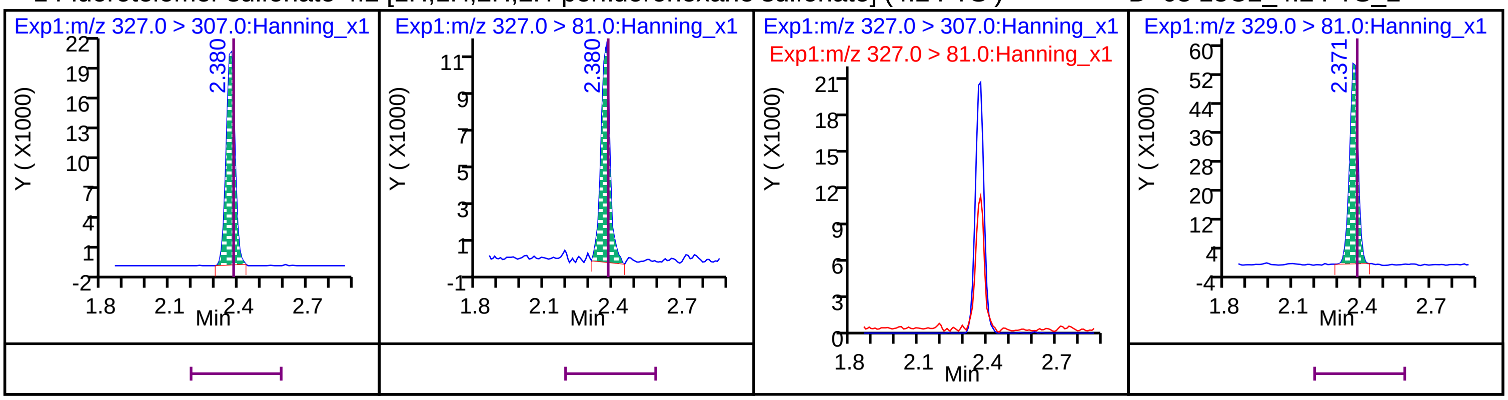
Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

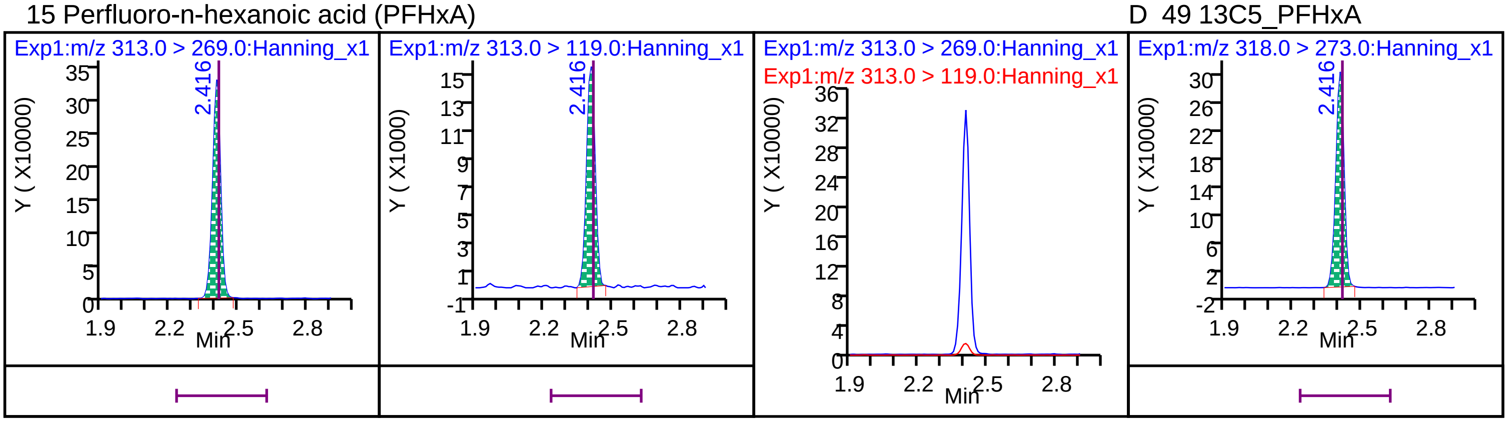
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



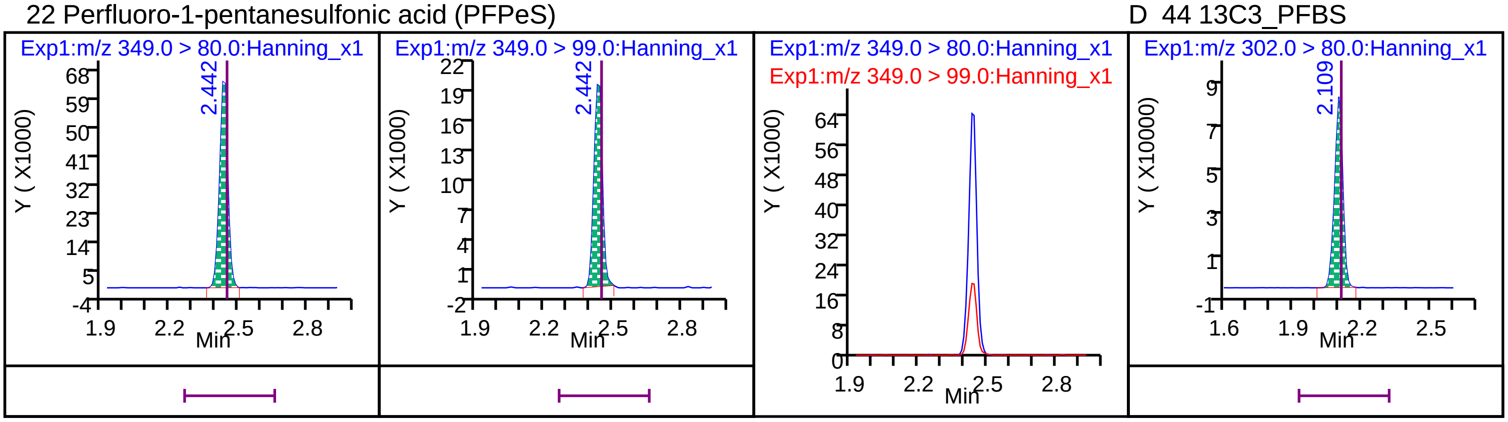
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

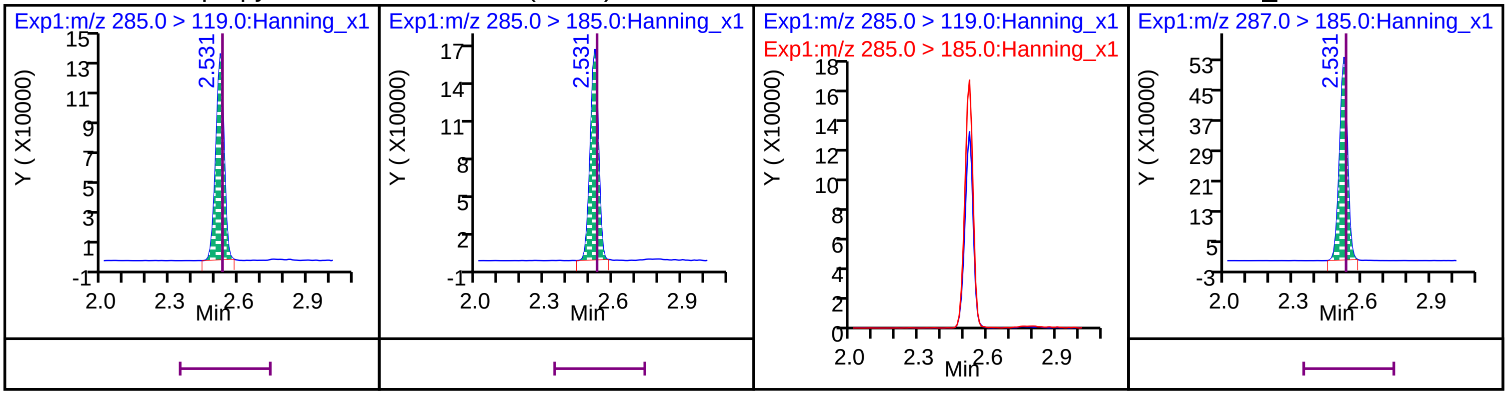


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

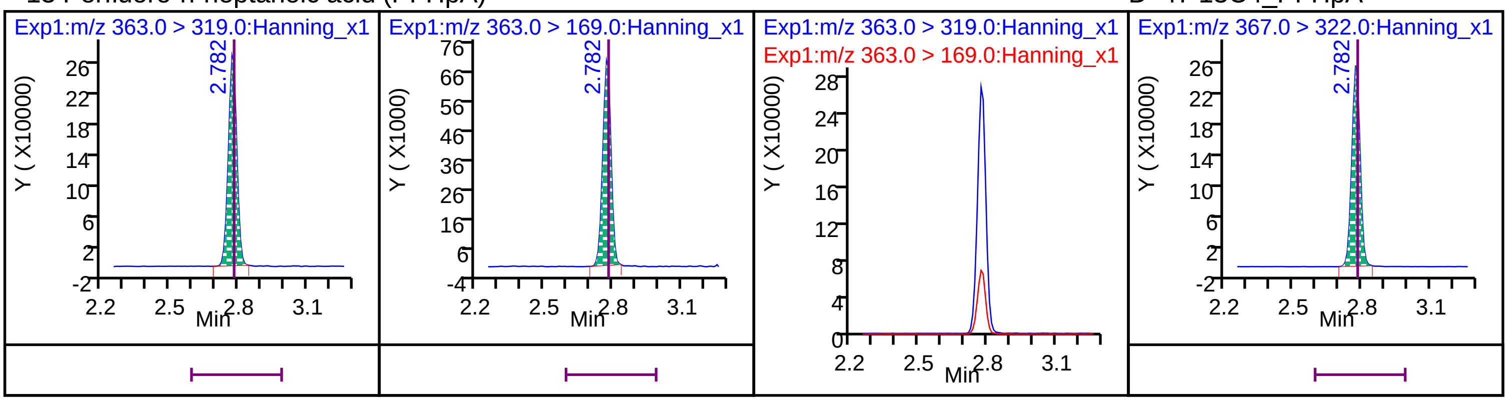


Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

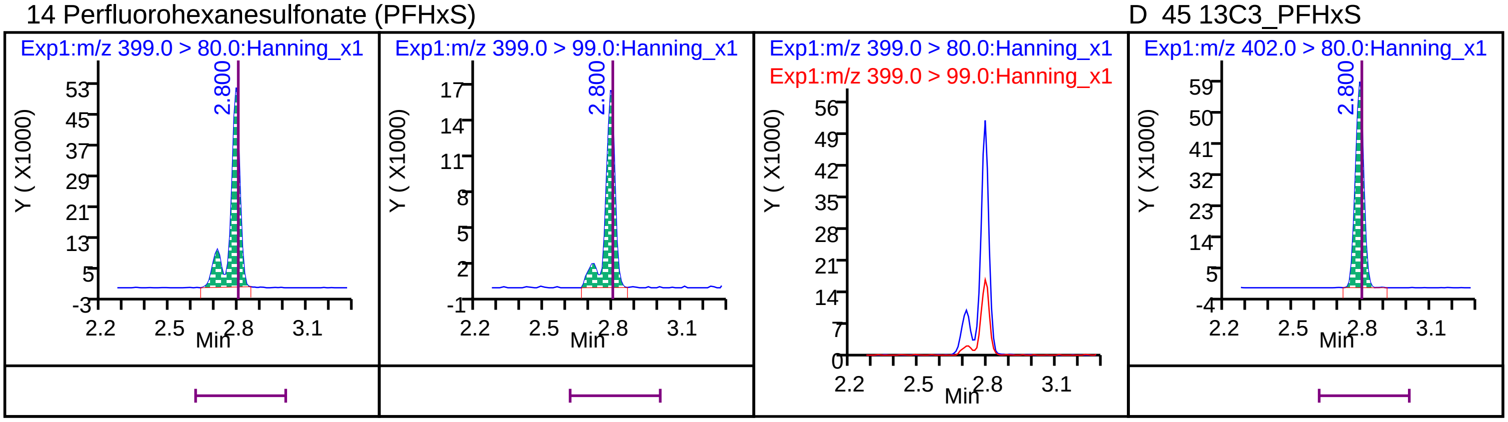
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



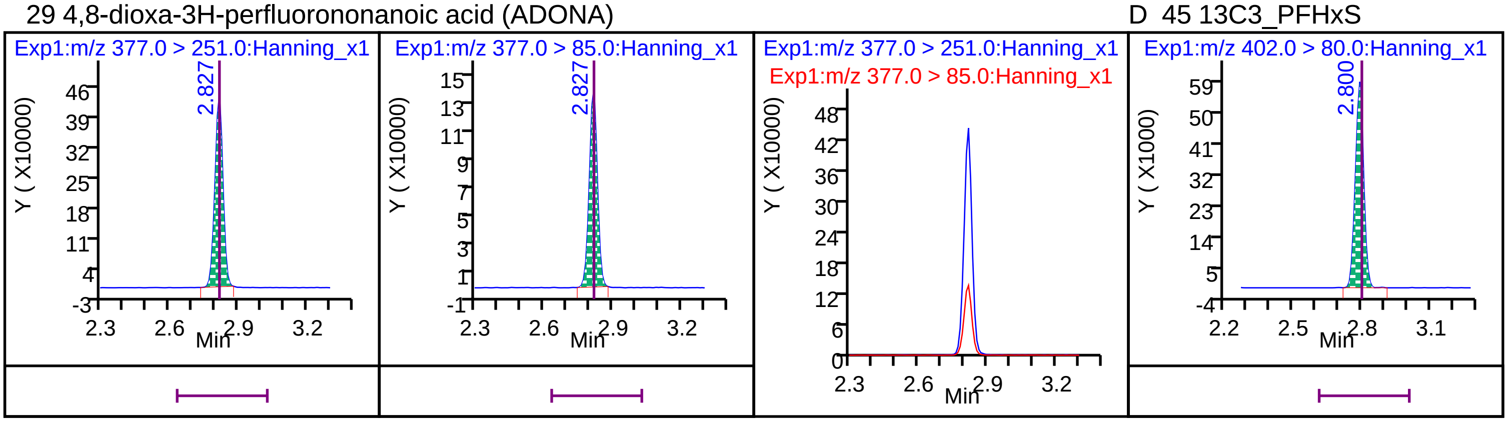
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



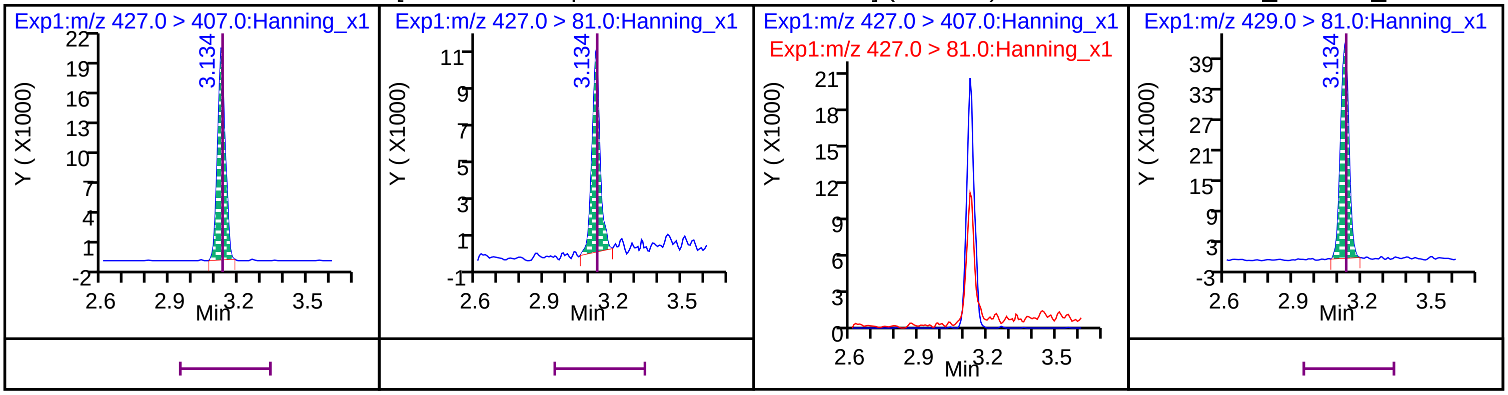
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



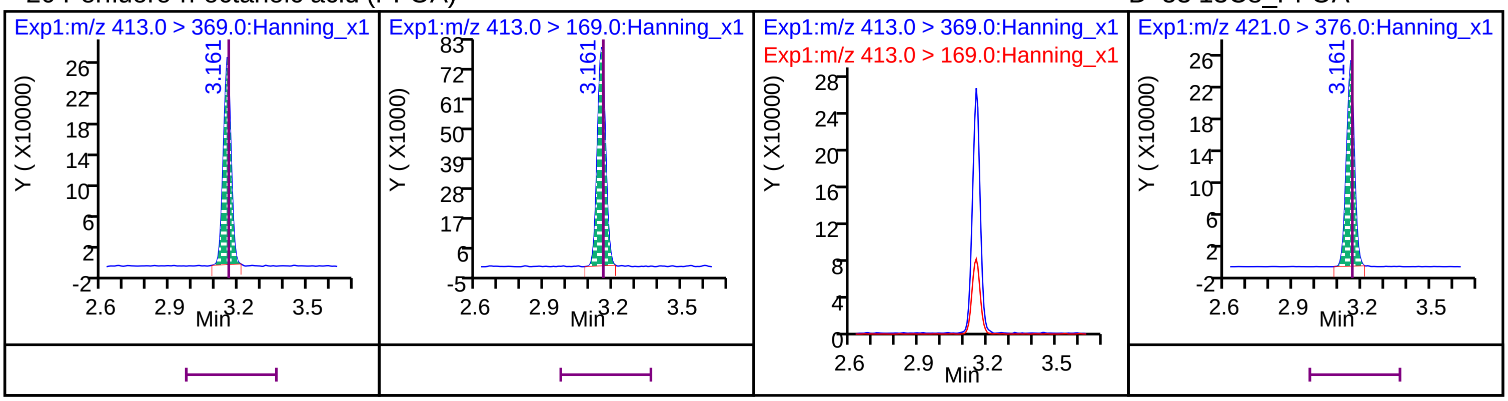
Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

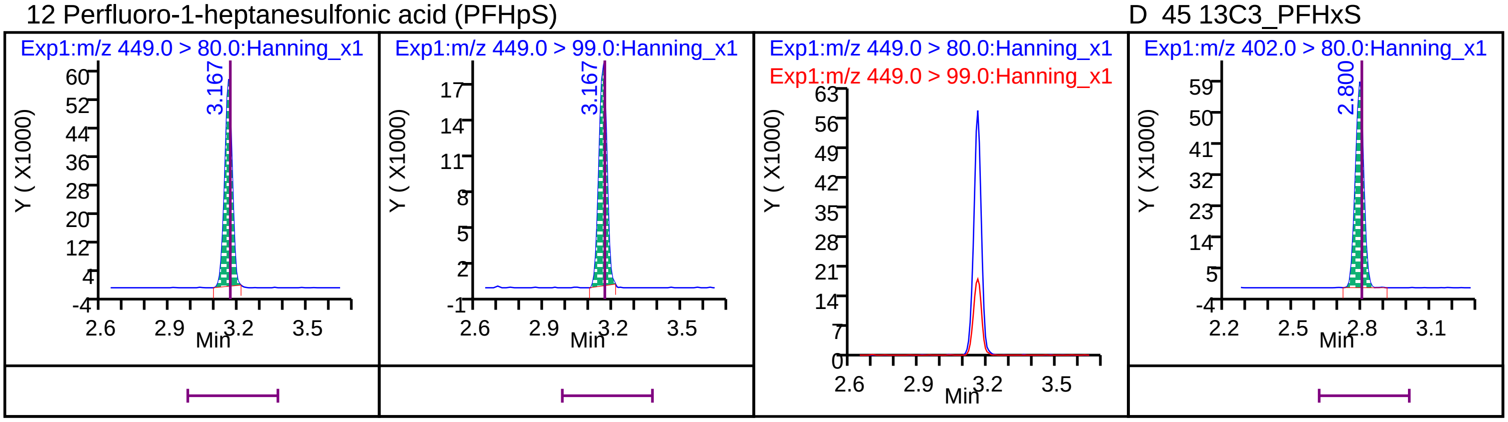
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



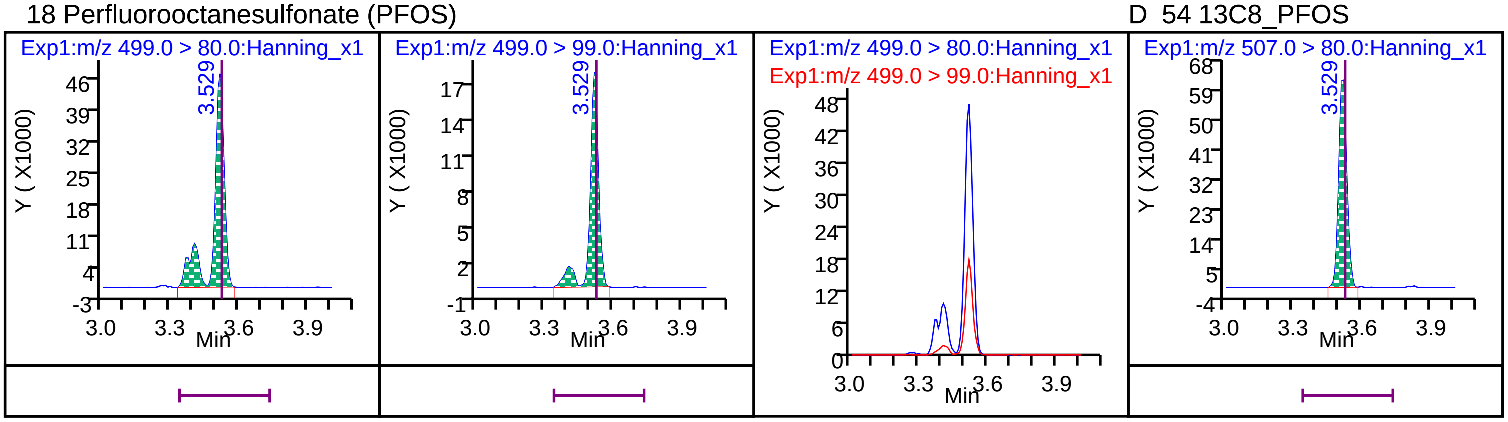
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



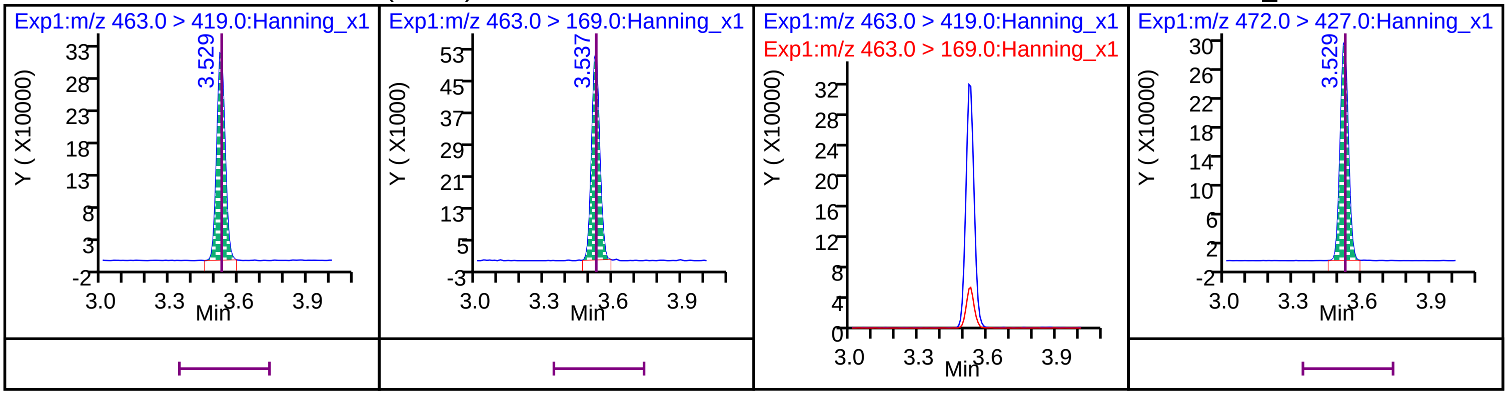
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



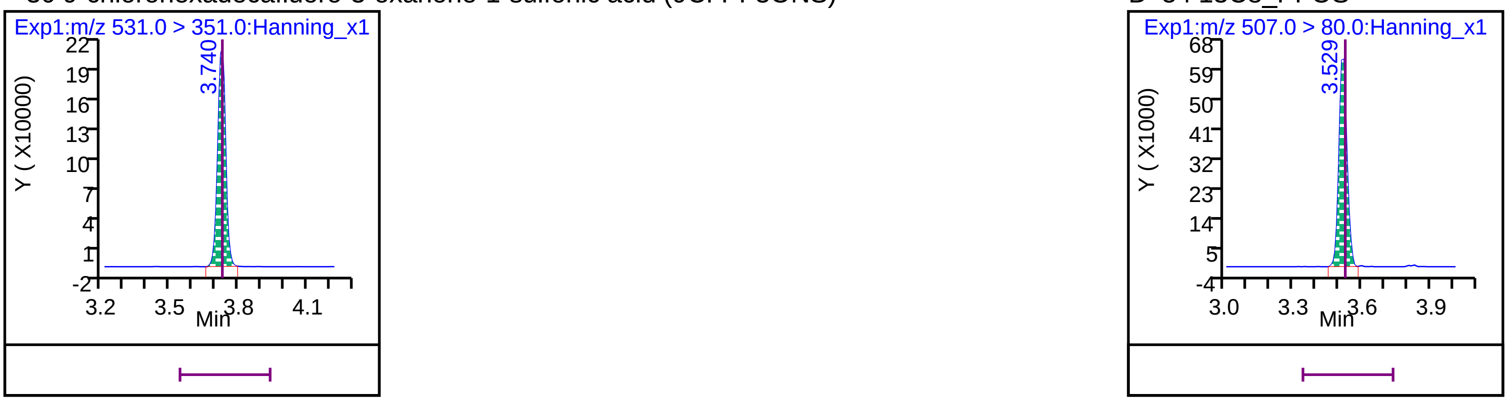
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



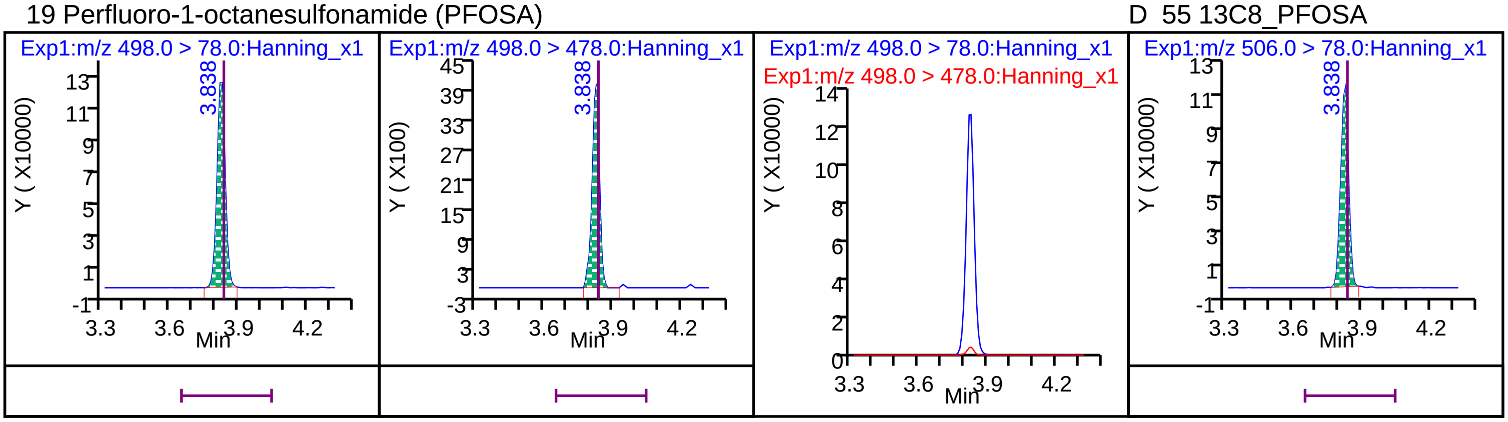
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



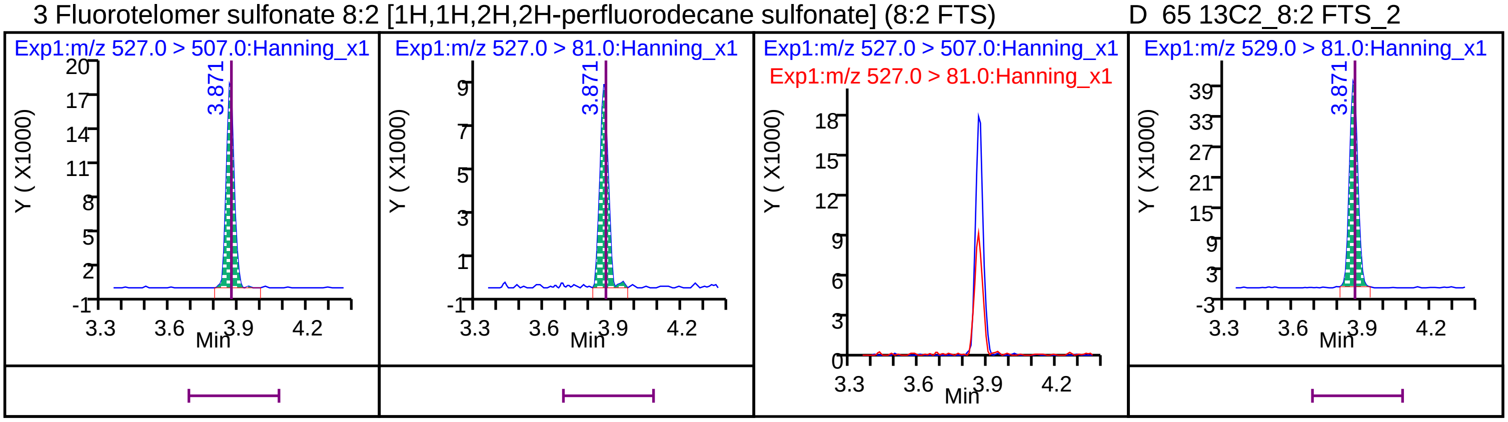
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



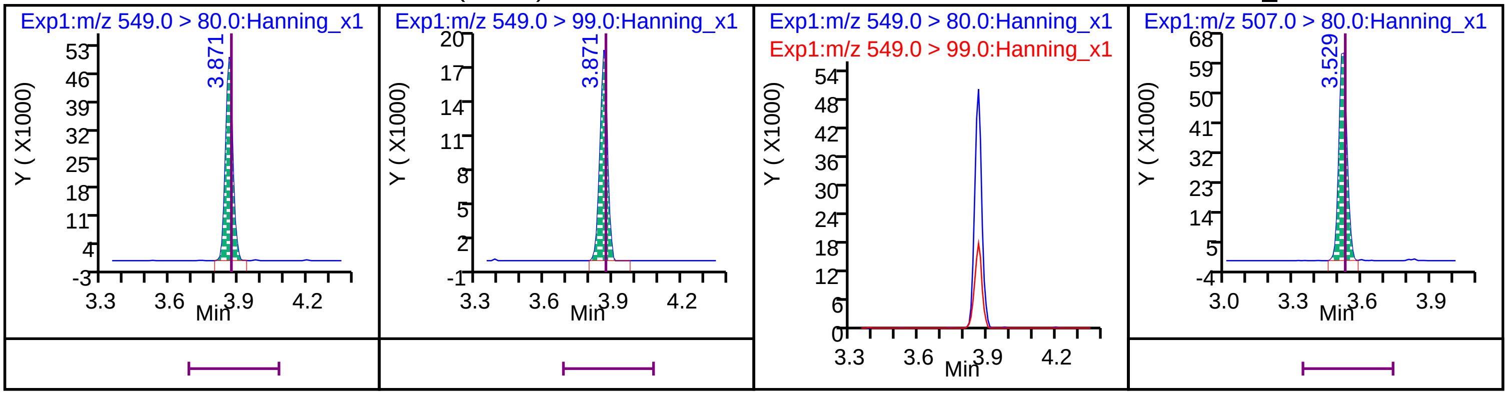
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



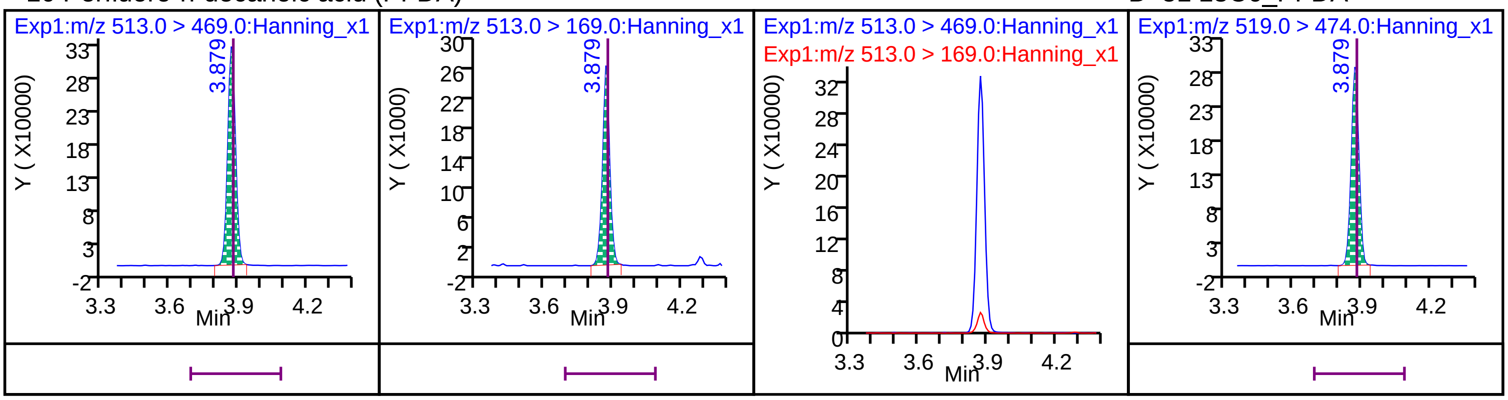
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



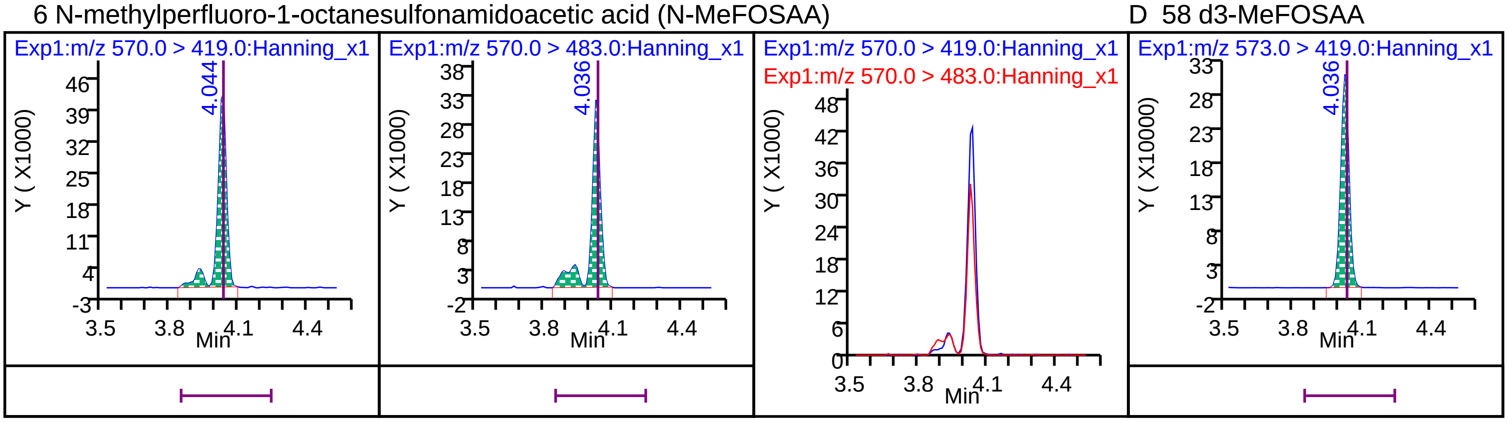
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



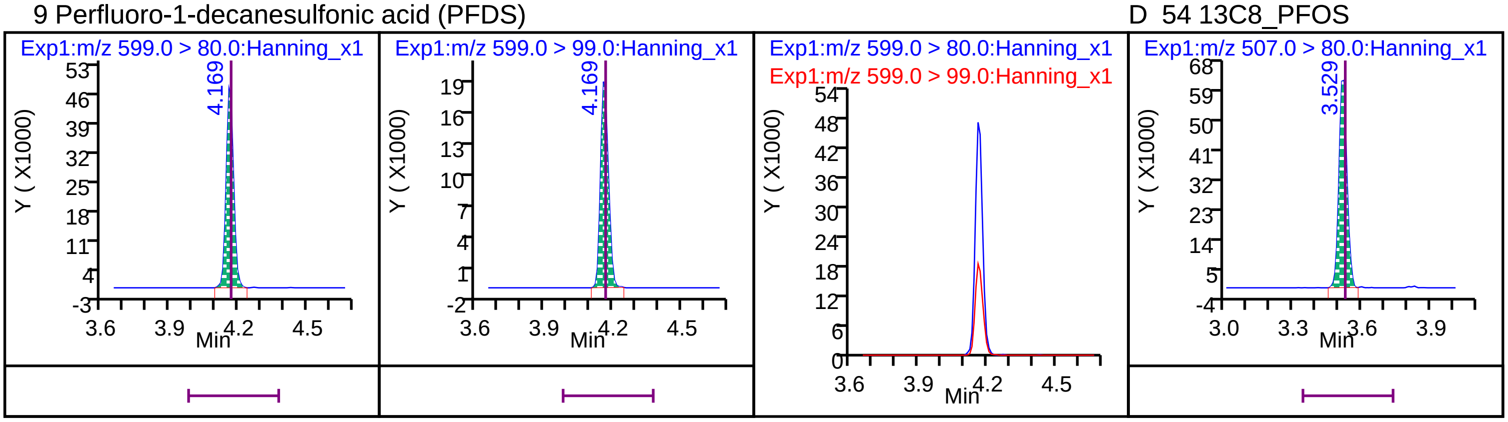
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



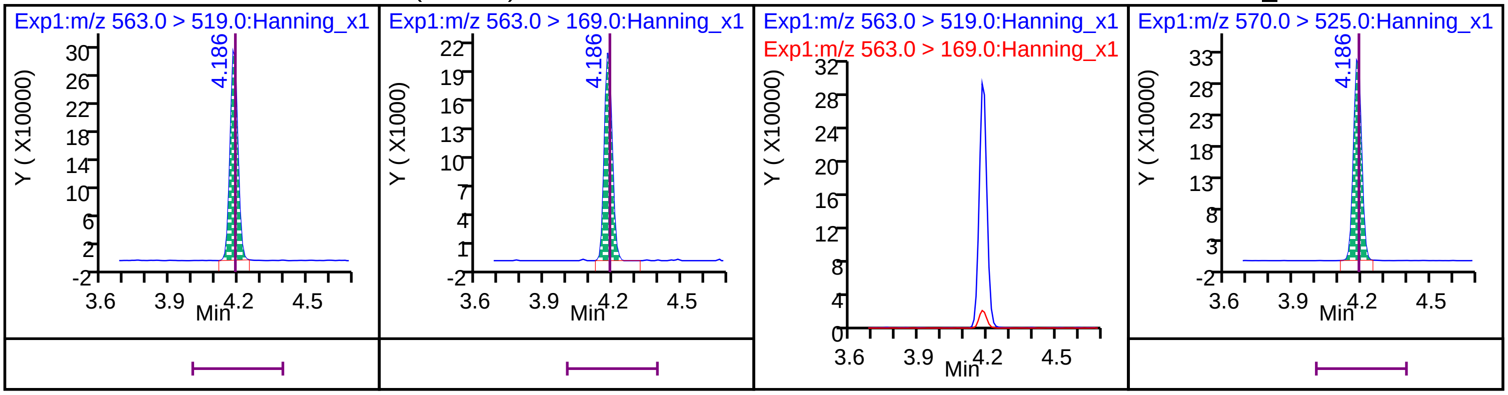
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



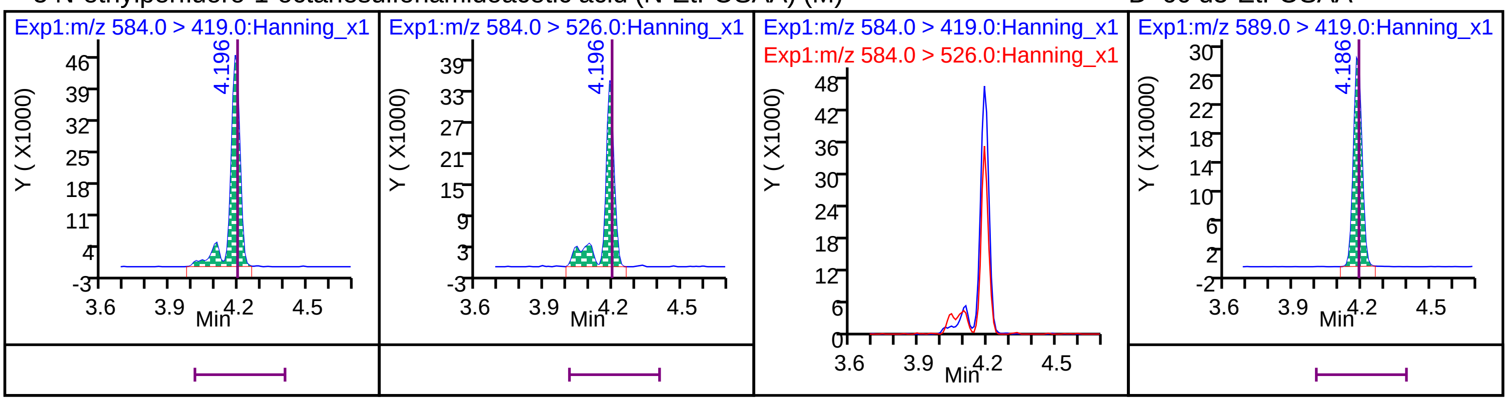
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

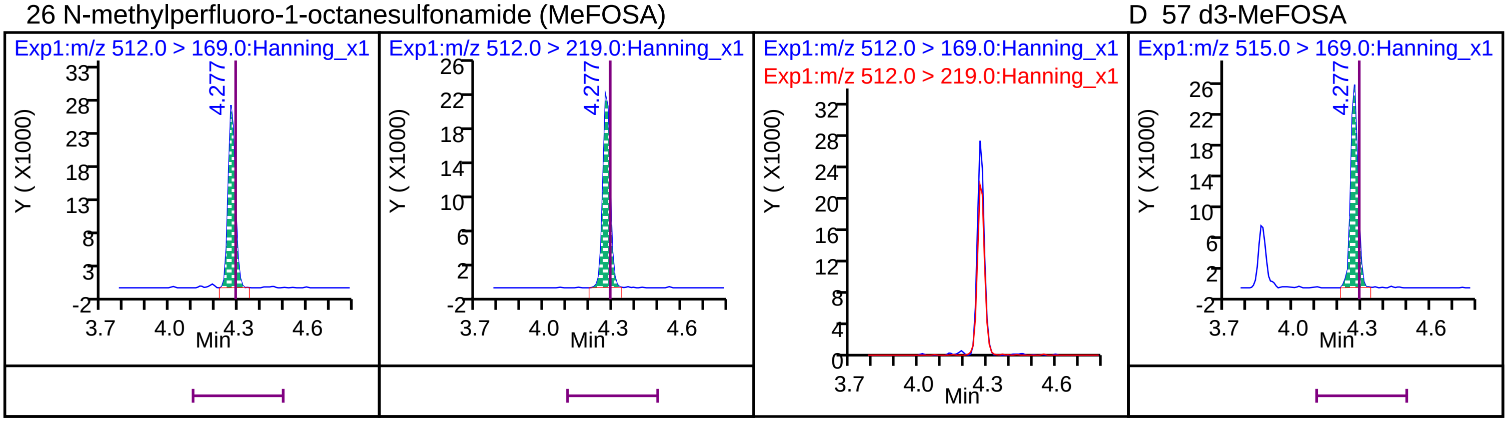


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

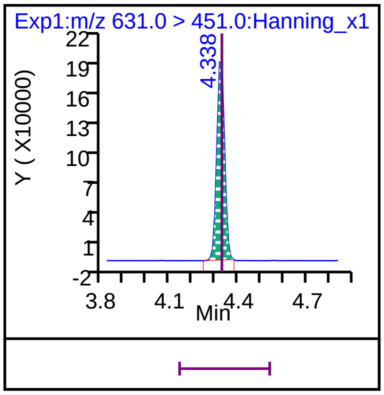


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

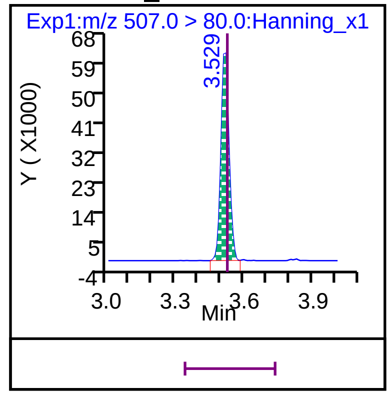
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



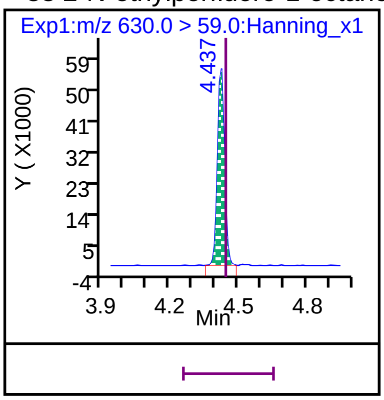
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



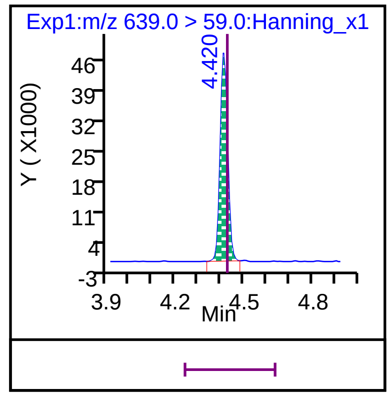
D 54 13C8_PFOS



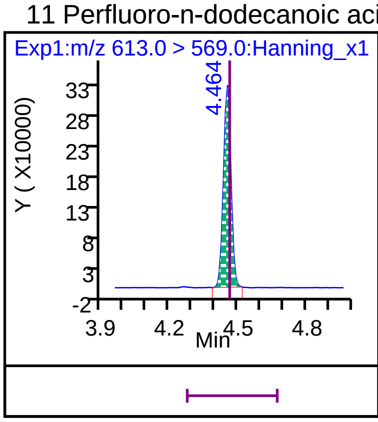
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

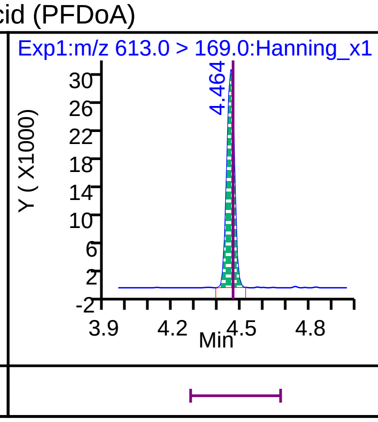


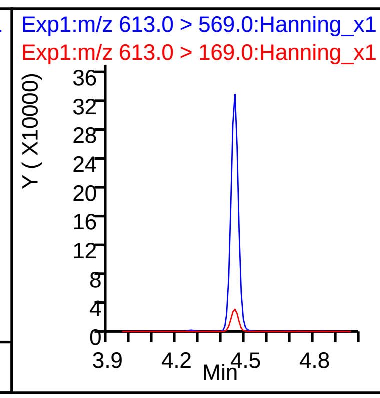
D 62 d9-EtFOSE



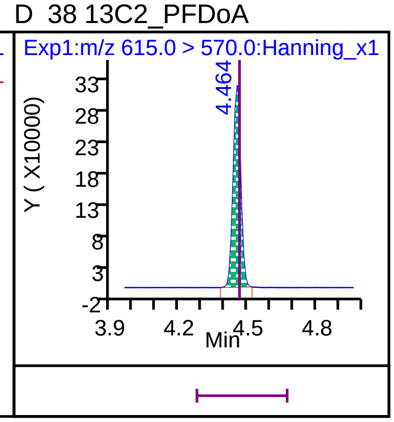
11 Perfluoro-n-dodecanoic acid (PFDoA)



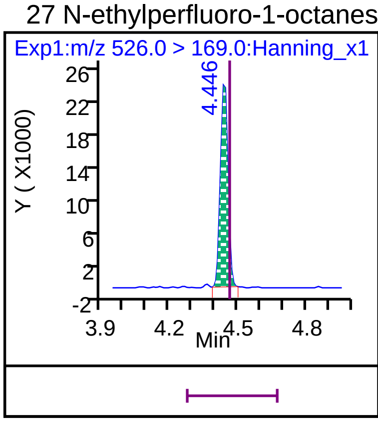


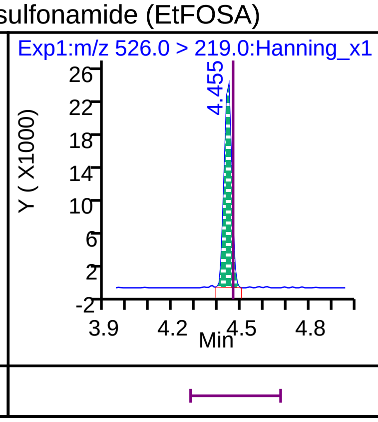


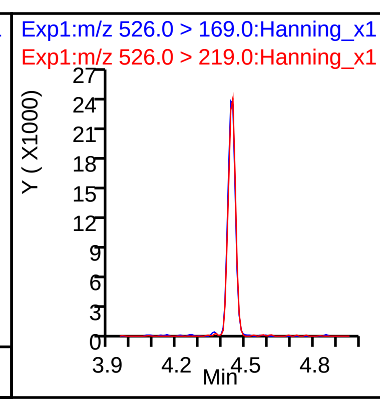
D 38 13C2_PFDoA



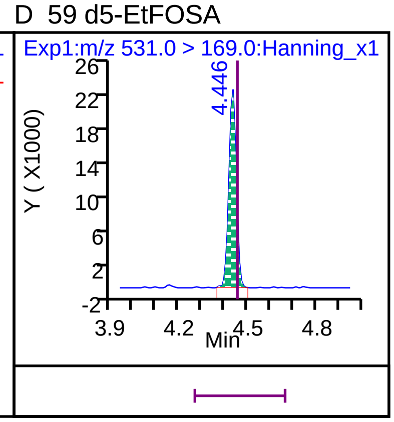
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)





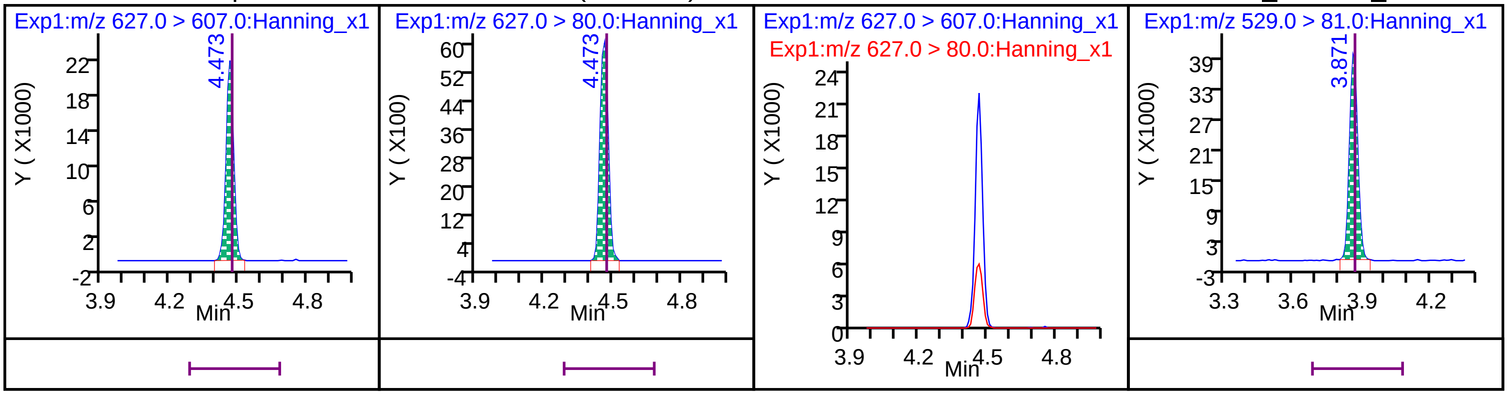


D 59 d5-EtFOSA

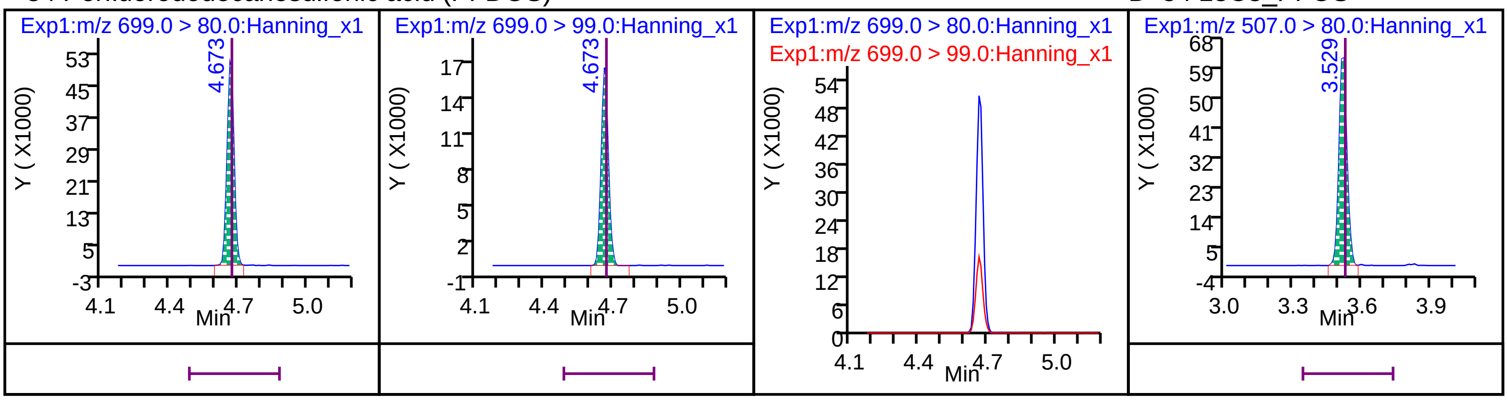


Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

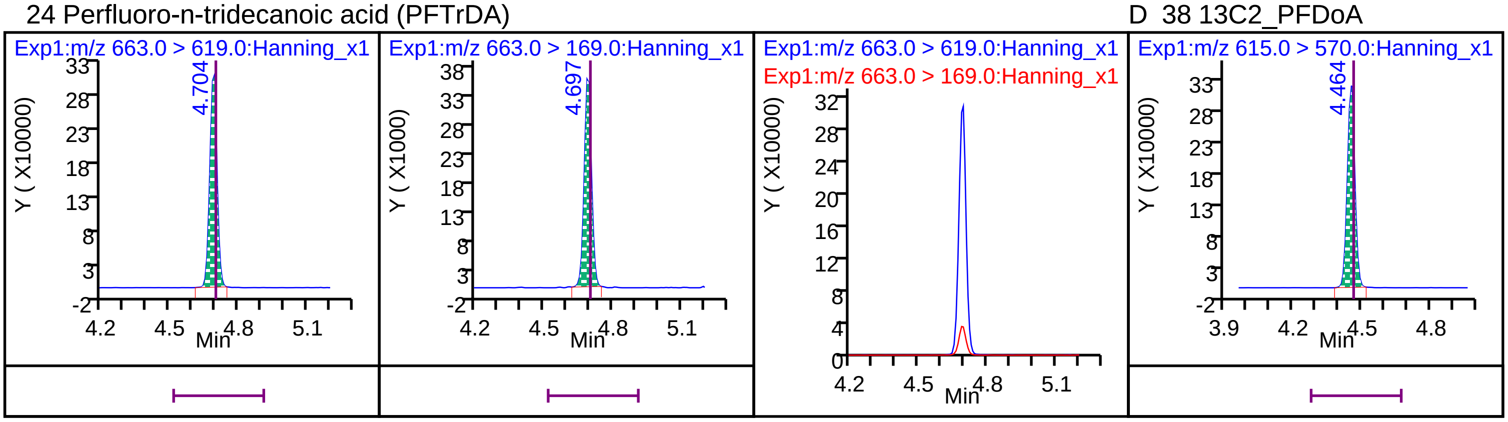
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



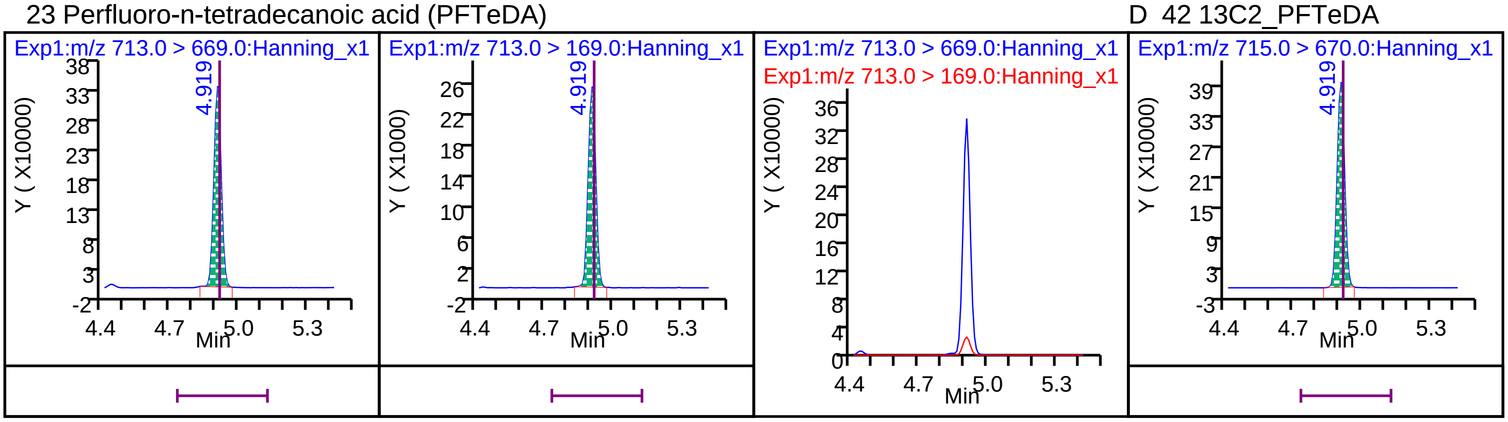
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

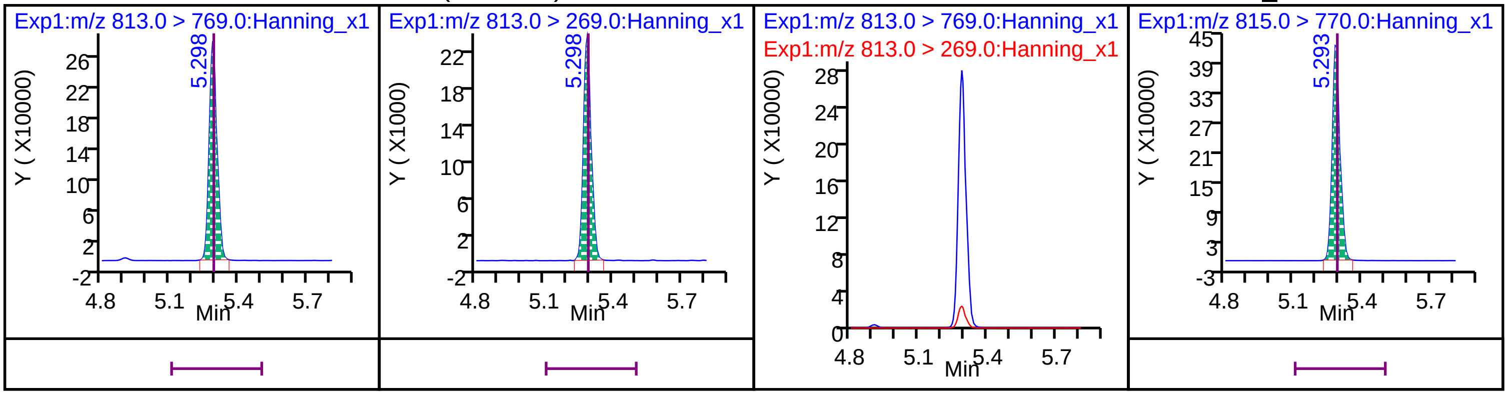


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

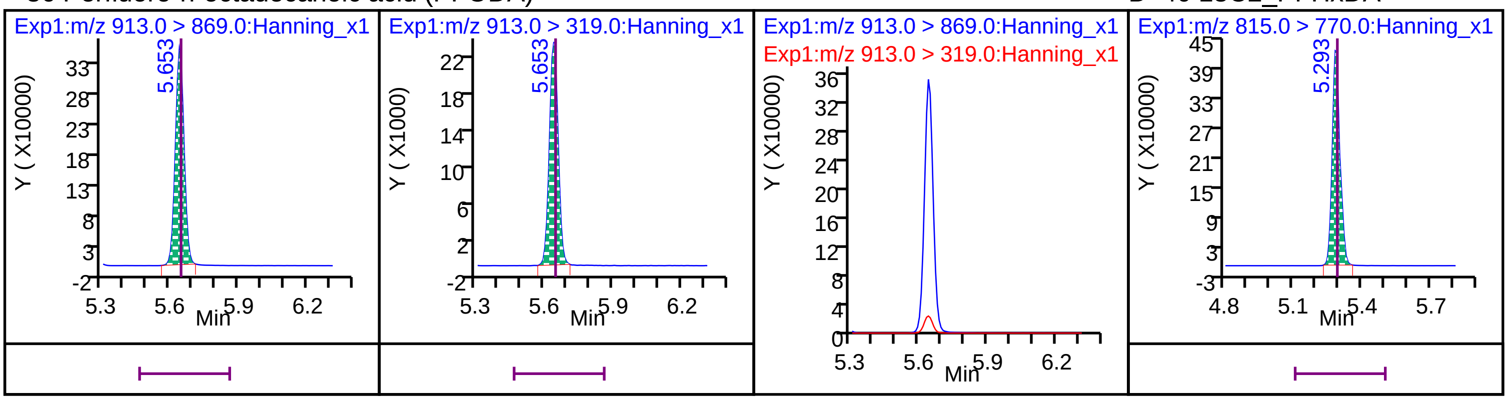


Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

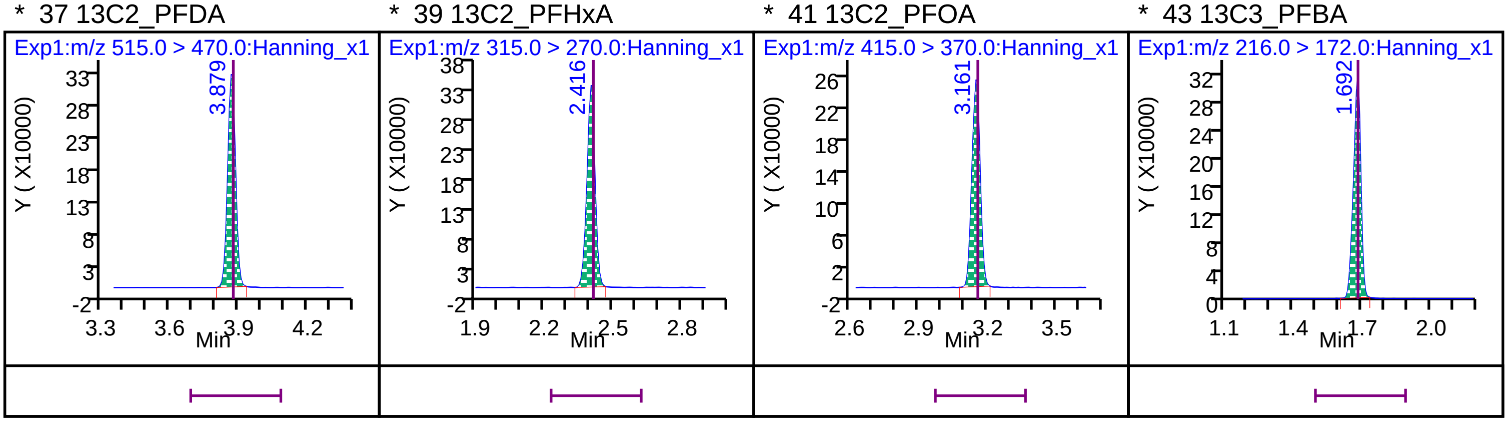
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



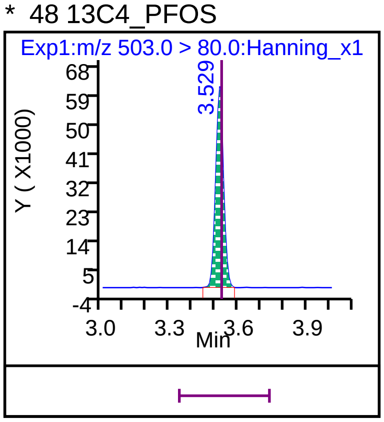
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 09:00:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621055.d

Injection Date: 16-Nov-2021 23:43:19 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000A_SVLC-1744

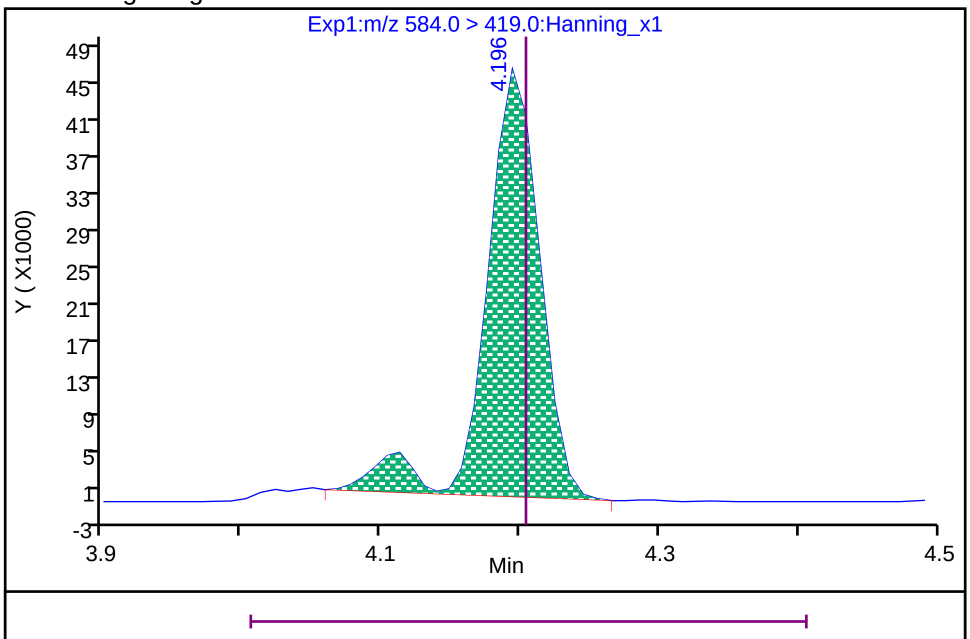
Sample Info: ID CCV 1000A_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

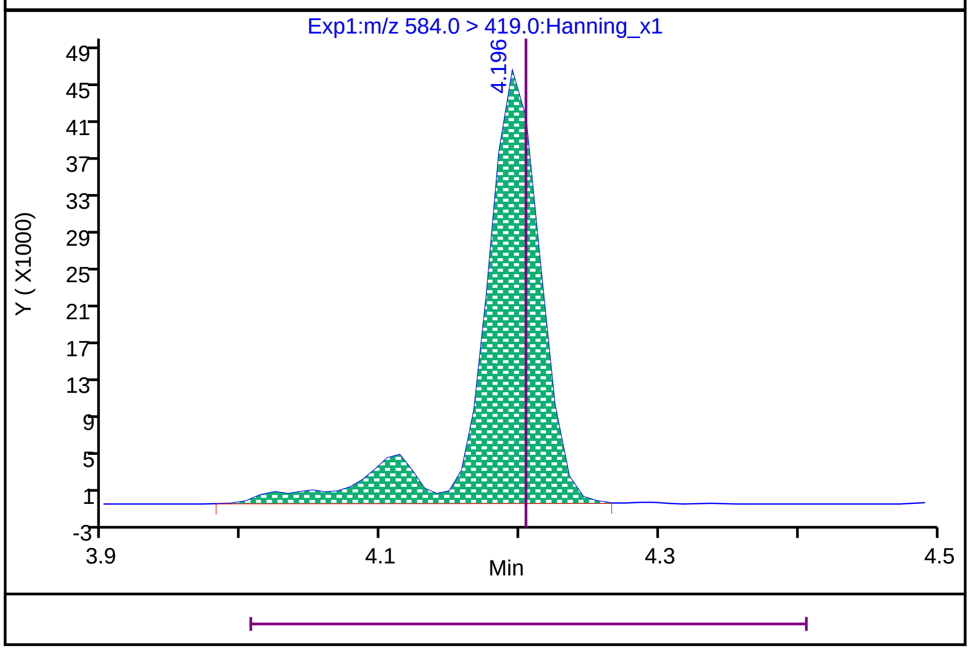
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.196
Area: 121418
Amount: 889.73
Amount Units: ng/L



RT: 4.196
Area: 133308
Amount: 976.86
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 12:21:05

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d
Injection Date: 17-Nov-2021 01:49:47 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 53
Sample Info: ID CCV 1000B_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	970.59	97.1	70 - 130
D 46 13C4_PFBA	646253	651348			100.8	50 - 150
D 50 13C5_PFPeA	597525	595379			99.6	50 - 150
21 PFPeA			1000.00	998.42	99.8	70 - 130
7 PFBS			884.00	841.78	95.2	70 - 130
D 44 13C3_PFBS	173893	185617			106.7	50 - 150
1 4:2 FTS			934.00	876.03	93.8	70 - 130
D 63 13C2_4:2 FTS_2	114363	125553			109.8	50 - 150
D 49 13C5_PFHxA	690660	688187			99.6	50 - 150
15 PFHxA			1000.00	999.58	100	70 - 130
22 PFPeS			938.00	907.32	96.7	70 - 130
28 GenX			2000.00	2000.37	100	70 - 130
D 66 13C3_GenX	1156071	1132592			98	50 - 150
D 47 13C4_PFHpA	541987	540455			99.7	50 - 150
13 PFHpA			1000.00	983.31	98.3	70 - 130
D 45 13C3_PFHxS	135990	129479			95.2	50 - 150
14 PFHxS			910.00	875.18	96.2	70 - 130
29 ADONA			942.00	933.01	99	70 - 130
D 64 13C2_6:2 FTS_2	90012	83524			92.8	50 - 150
2 6:2 FTS			948.00	966.59	102	70 - 130
20 PFOA			1000.00	945.04	94.5	70 - 130
D 53 13C8_PFOA	556700	558339			100.3	50 - 150
12 PFHpS			952.00	921.30	96.8	70 - 130
18 PFOS			928.00	943.35	101.7	70 - 130
17 PFNA			1000.00	972.93	97.3	70 - 130
D 56 13C9_PFNA	690404	669774			97	50 - 150
D 54 13C8_PFOS	132590	123663			93.3	50 - 150
30 9Cl-PF3ONS			932.00	901.76	96.8	70 - 130
D 55 13C8_PFOSA	274090	251666			91.8	50 - 150
19 PFOSA			1000.00	974.37	97.4	70 - 130
16 PFNS			960.00	999.27	104.1	70 - 130
D 65 13C2_8:2 FTS_2	88081	82822			94	50 - 150
3 8:2 FTS			958.00	1034.45	108	70 - 130
10 PFDA			1000.00	1007.78	100.8	70 - 130
D 51 13C6_PFDA	586322	598722			102.1	50 - 150
6 N-MeFOSAA			1000.00	977.70	97.8	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	684495	680891			99.5	50 - 150
9 PFDS			964.00	976.04	101.2	70 - 130
25 PFUdA			1000.00	1013.61	101.4	70 - 130
D 60 d5-EtFOSAA	610899	659221			107.9	50 - 150
D 52 13C7_PFUdA	665740	686320			103.1	50 - 150
5 N-EtFOSAA			1000.00	994.37	99.4	70 - 130
D 61 d7-MeFOSE	88387	89838			101.6	50 - 150
32 MeFOSE			1000.00	1004.70	100.5	70 - 130
26 MeFOSA			1000.00	869.03	86.9	70 - 130
D 57 d3-MeFOSA	50083	54741			109.3	50 - 150
31 11Cl-PF3OUDS			942.00	1029.22	109.3	70 - 130
D 62 d9-EtFOSE	114206	108810			95.3	50 - 150
33 EtFOSE			1000.00	984.45	98.4	70 - 130
D 59 d5-EtFOSA	45730	46086			100.8	50 - 150
27 EtFOSA			1000.00	917.98	91.8	70 - 130
11 PFDoA			1000.00	1079.24	107.9	70 - 130
D 38 13C2_PFDoA	626804	641926			102.4	50 - 150
4 10:2 FTS			964.00	1170.00	121.4	70 - 130
34 PFDOS			968.00	947.18	97.8	70 - 130
24 PFTrDA			1000.00	1049.48	104.9	70 - 130
23 PFTeDA			1000.00	979.50	97.9	70 - 130
D 42 13C2_PFTeDA	795861	865829			108.8	50 - 150
35 PFHxDA			1000.00	956.17	95.6	70 - 130
D 40 13C2_PFHxDA	929181	893602			96.2	50 - 150
36 PFODA			1000.00	998.83	99.9	70 - 130

Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d
Injection Date: 17-Nov-2021 01:49:47 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 53
Sample Info: ID CCV 1000B_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.691	1.692	0	651348	19	>100:1			1000.00	1043.94	100.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.691	1.692	0/0	661377	20	>100:1			1000.00	970.59		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.055	2.067	0	595379	17	>100:1			1000.00	1028.01	99.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.055	2.067	0/0	652822	15	>100:1			1000.00	998.42		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.108	2.120	0	185617	15	>100:1			1000.00	1069.54	106.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.108	2.120	0/0	194652	15	>100:1	Target = 3.48		884.00	841.78		
298.9 > 99	44	2.108	2.120		54312	15	>100:1	3.58 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.450	2.460	0/0	149077	17	>100:1	Target = 3.03		938.00	907.32		
349 > 99	44	2.450	2.460		46872	16	>100:1	3.18 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.379	2.389	0	125553	16	>100:1			5000.00	5749.81	109.8	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.379	2.389	0/0	48464	16	>100:1	Target = 1.70		934.00	876.03		
327 > 81	63	2.379	2.389		27919	24	49:1	1.73 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.415	2.424	0	688187	18	>100:1			1000.00	1061.90	99.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.415	2.424	0/0	727908	18	>100:1	Target = 18.47		1000.00	999.58		
313 > 119	49	2.415	2.424		38841	17	>100:1	18.74 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.531	2.540	0	1132592	18	>100:1			5000.00	5058.09	98	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.531	2.540	0/0	298159	18	>100:1	Target = 0.78		2000.00	2000.37		
285 > 185	66	2.531	2.540		371070	17	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.790	2.791	0	540455	18	>100:1			1000.00	1023.98	99.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.790	2.791	0/0	607709	18	>100:1	Target = 3.92		1000.00	983.31		
363 > 169	47	2.790	2.791		152528	17	>100:1	3.98 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.799	2.809	0	129479	17	>100:1			1000.00	1013.80	95.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.799	2.809	0/0	127749	24	>100:1	Target = 3.14	4.88	910.00	875.18		
399 > 99	45	2.808	2.809		42389	23	>100:1	3.01 (1.57-4.71)	11.10				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.826	2.827	0/0	939582	17	>100:1	Target = 3.33		942.00	933.01		
377 > 85	45	2.826	2.827		285349	24	>100:1	3.29 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.165	3.174	0/0	115976	20	>100:1	Target = 3.02		952.00	921.30		
449 > 99	45	3.165	3.174		37578	21	>100:1	3.08 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.138	3.141	0	83524	19	>100:1			5000.00	4867.16	92.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.138	3.141	0/0	37874	20	>100:1	Target = 1.69		948.00	966.59		
427 > 81	64	3.138	3.141		20829	18	45:1	1.81 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.165	3.168	0	558339	21	>100:1			1000.00	1077.90	100.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.158	3.168	0/0	552201	21	>100:1	Target = 3.03		1000.00	945.04		
413 > 169	53	3.158	3.168		186438	20	>100:1	2.96 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.527	3.537	0	123663	21	>100:1			1000.00	993.27	93.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.527	3.537	0/0	138566	40	>100:1	Target = 3.42	3.91	928.00	943.35		
499 > 99	54	3.527	3.537		39281	34	>100:1	3.52 (1.71-5.13)	7.99				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.737	3.740	0/0	428112	18	>100:1			932.00	901.76		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.868	3.879	0/0	96206	18	>100:1	Target = 2.57		960.00	999.27		
549 > 99	54	3.868	3.879		35841	16	>100:1	2.68 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.173	4.178	0/0	97023	14	>100:1	Target = 2.71		964.00	976.04		
599 > 99	54	4.173	4.178		34225	21	>100:1	2.83 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.333	4.338	0/0	431427	16				942.00	1029.22		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.677	4.681	0/0	93213	17	>100:1	Target = 3.04		968.00	947.18		
699 > 99	54	4.677	4.681		33623	15		2.77 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.534	3.537	0	669774	19	>100:1			1000.00	1038.05	97	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.534	3.537	0/0	717842	19	>100:1	Target = 7.14		1000.00	972.93		
463 > 169	56	3.534	3.537		105963	19	>100:1	6.77 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.835	3.846	0	251666	19	>100:1			1000.00	998.01	91.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.835	3.846	0/0	269441	18	>100:1	Target = 32.83		1000.00	974.37		
498>478	55	3.827	3.846		10124	15	>100:1	26.61 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.868	3.879	0	82822	19	>100:1			5000.00	4952.91	94	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.876	3.879	0/0	39740	18	>100:1	Target = 2.14		958.00	1034.45		
527 > 81	65	3.868	3.879		19817	24	85:1	2.00 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.469	4.482	0/0	52097	15		Target = 3.72		964.00	1170.00		
627 > 80	65	4.478	4.482		15778	14	88:1	3.30 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.876	3.887	0	598722	17	>100:1			1000.00	1050.65	102.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.884	3.887	0/0	707443	19	>100:1	Target = 14.16		1000.00	1007.78		
513 > 169	51	3.876	3.887		50719	14	>100:1	13.94 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.040	4.045	0	680891	17	>100:1			5000.00	4985.01	99.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.040	4.045	0/0	110291	33	>100:1	Target = 1.42	7.54	1000.00	977.70		
570 > 483	58	4.040	4.045		80974	30	>100:1	1.36 (0.71-2.14)	3.72				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.192	4.196	0	659221	17	>100:1			5000.00	5429.26	107.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.201	4.206	0/0	124382	31	>100:1	Target = 1.49	6.91	1000.00	994.37		M
584 > 526	60	4.201	4.206		81519	30	>100:1	1.52 (0.74-2.24)	4.18				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.192	4.196	0	686320	16	>100:1			1000.00	1057.19	103.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.192	4.196	0/0	645441	17	>100:1	Target = 14.37		1000.00	1013.61		
563 > 169	52	4.192	4.196		41451	22	>100:1	15.57 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.262	4.267	0	89838	20	>100:1			1000.00	1025.15	101.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.272	4.287	0/0	99649	15	>100:1			1000.00	1004.70		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.282	4.298	0	54741	13	>100:1			1000.00	1120.89	109.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.282	4.298	0/0	48497	14	>100:1	Target = 1.08		1000.00	869.03		
512 > 219	57	4.282	4.298		47073	13	>100:1	1.03 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.424	4.437	0	108810	14	>100:1			1000.00	1027.32	95.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.433	4.455	-1/-1	109204	17	>100:1			1000.00	984.45		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.442	4.464	-1	46086	14	>100:1			1000.00	1051.92	100.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.451	4.473	-1/0	49819	14	>100:1	Target = 0.97		1000.00	917.98		
526 > 219	59	4.451	4.473		54496	19	>100:1	0.91 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.469	4.473	0	641926	16	>100:1			1000.00	1075.48	102.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.469	4.473	0/0	747879	16	>100:1	Target = 10.55		1000.00	1079.24		
613 > 169	38	4.460	4.473		63969	16	>100:1	11.69 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.701	4.711	0/0	655783	17	>100:1	Target = 8.92		1000.00	1049.48		
663 > 169	38	4.701	4.711		70716	19	>100:1	9.27 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.925	4.928	0	865829	17	>100:1			1000.00	1148.14	108.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.925	4.928	0/0	743533	15	95:1	Target = 12.22		1000.00	979.50		
713 > 169	42	4.925	4.928		56848	17	>100:1	13.07 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.297	5.302	0	893602	23	>100:1			1000.00	993.80	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.301	5.302	0/0	578887	22	>100:1	Target = 11.65		1000.00	956.17		
813 > 269	40	5.297	5.302		49119	22	>100:1	11.78 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.656	5.660	0/0	839828	20	>100:1	Target = 15.15		1000.00	998.83		
913 > 319	40	5.656	5.660		55170	20	>100:1	15.22 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.884	3.887	0	693252	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.415	2.424	0	728896	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.158	3.168	0	560771	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.691	1.692	0	587344	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.527	3.537	0	130072	19	>100:1			1000.00			

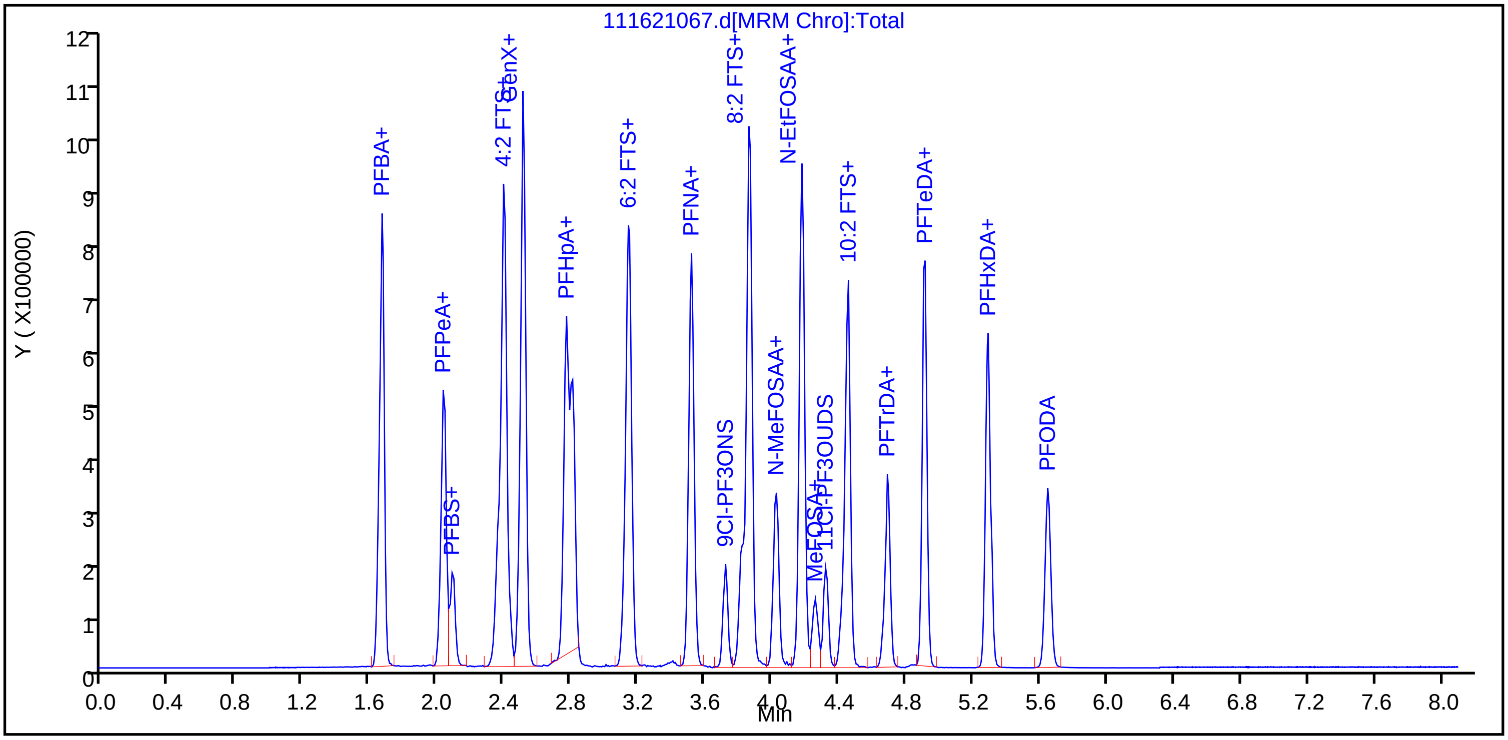
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

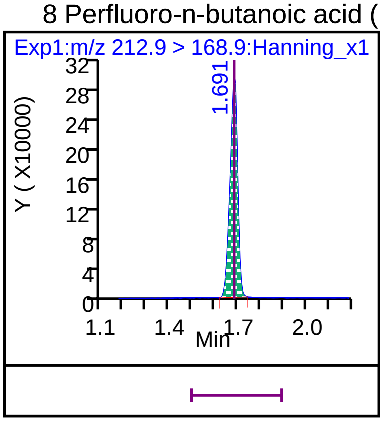
Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

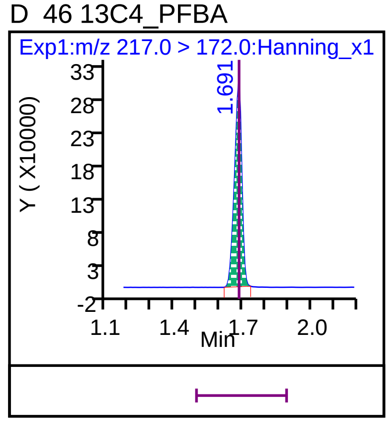
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d		
Injection Date:	17-Nov-2021 01:49:47	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



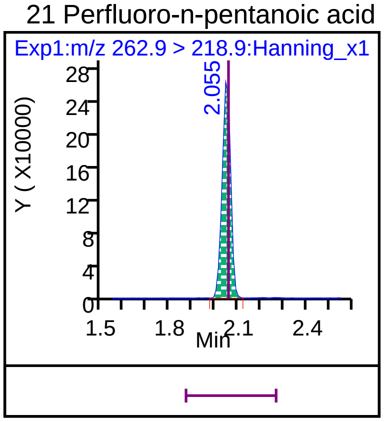
8 Perfluoro-n-butanoic acid (PFBA)



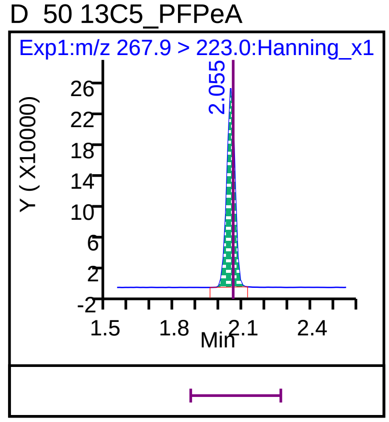
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

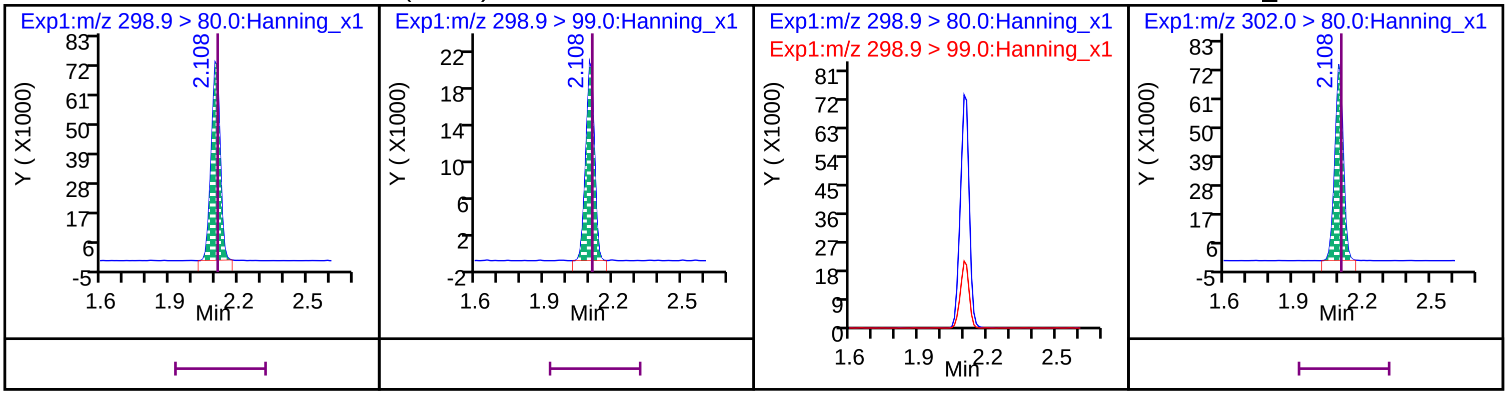


D 50 13C5_PFPeA

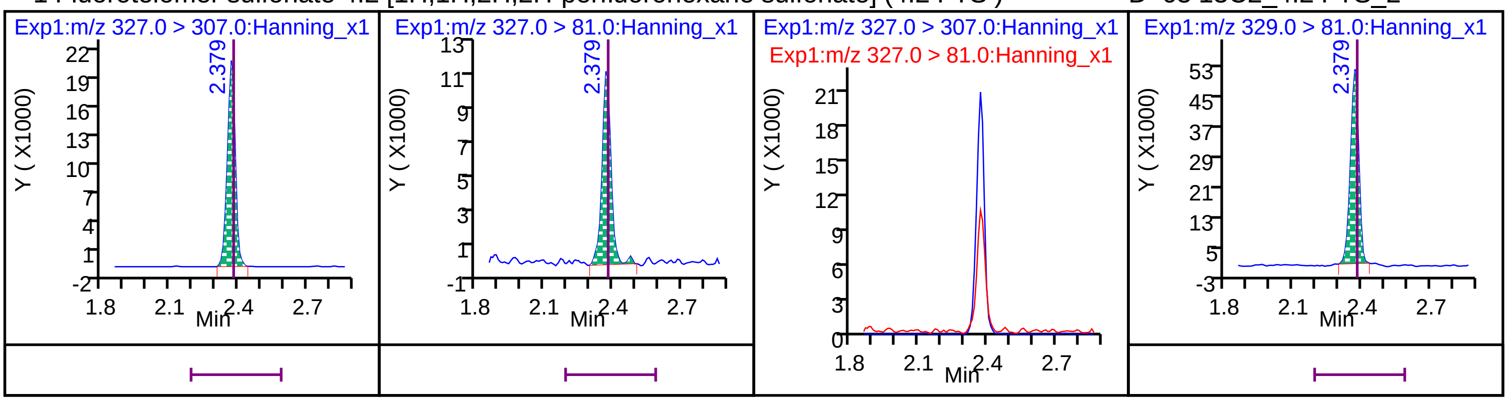


Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d

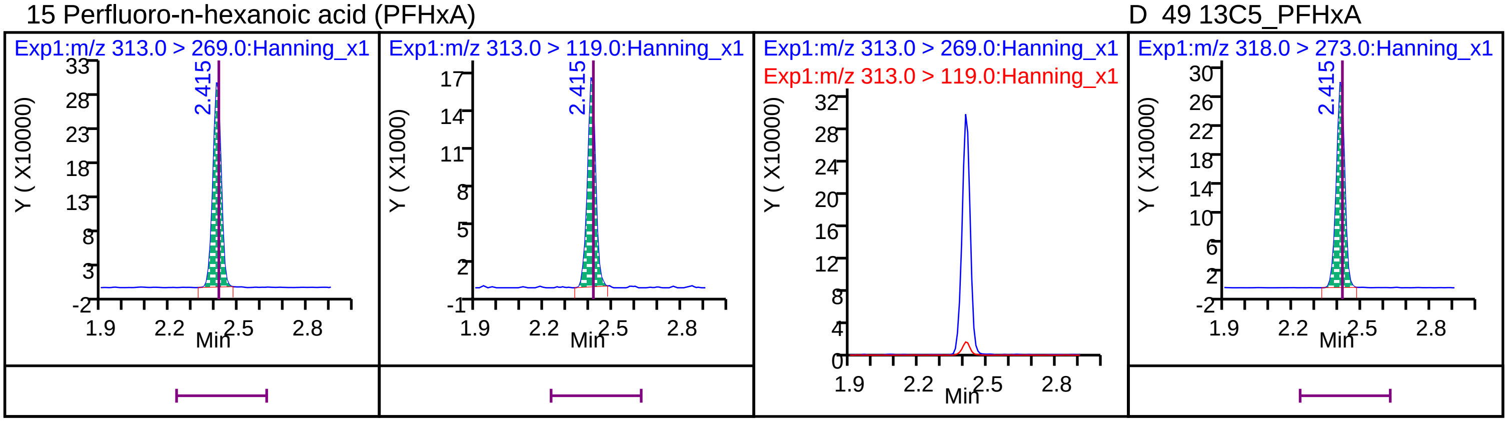
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



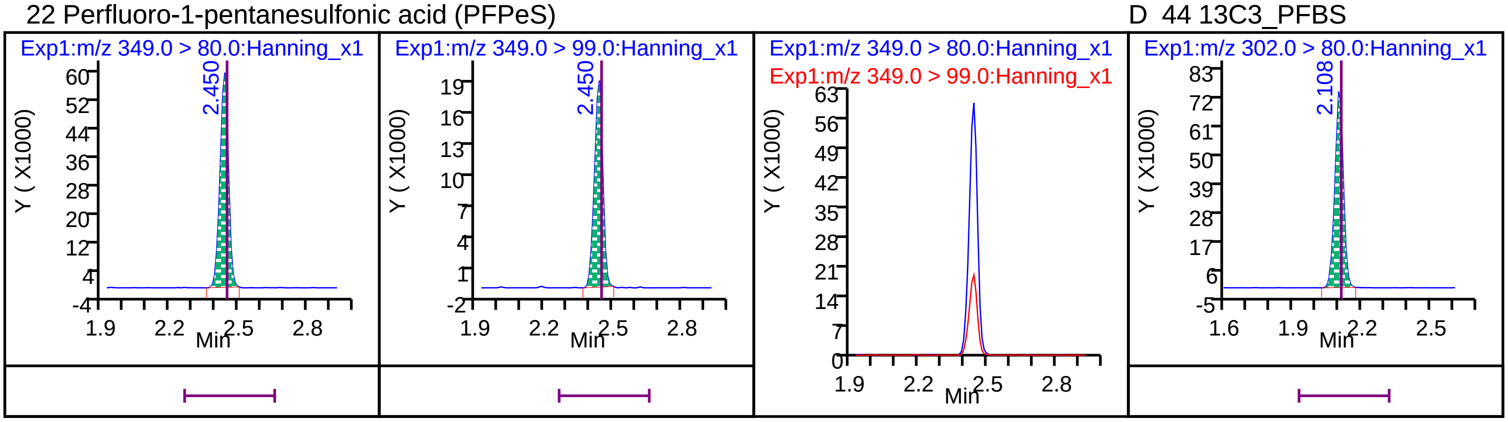
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



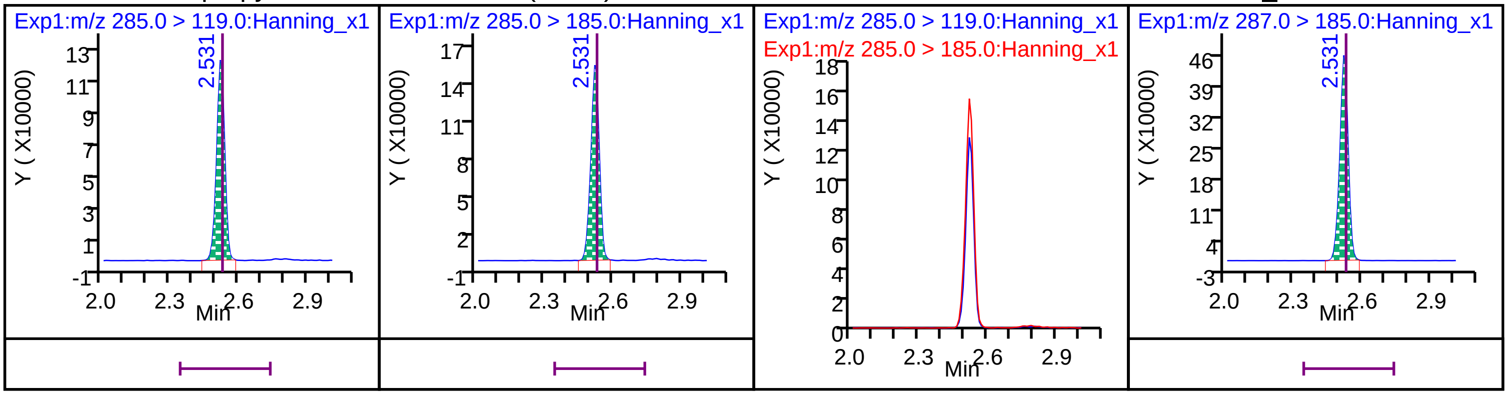
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



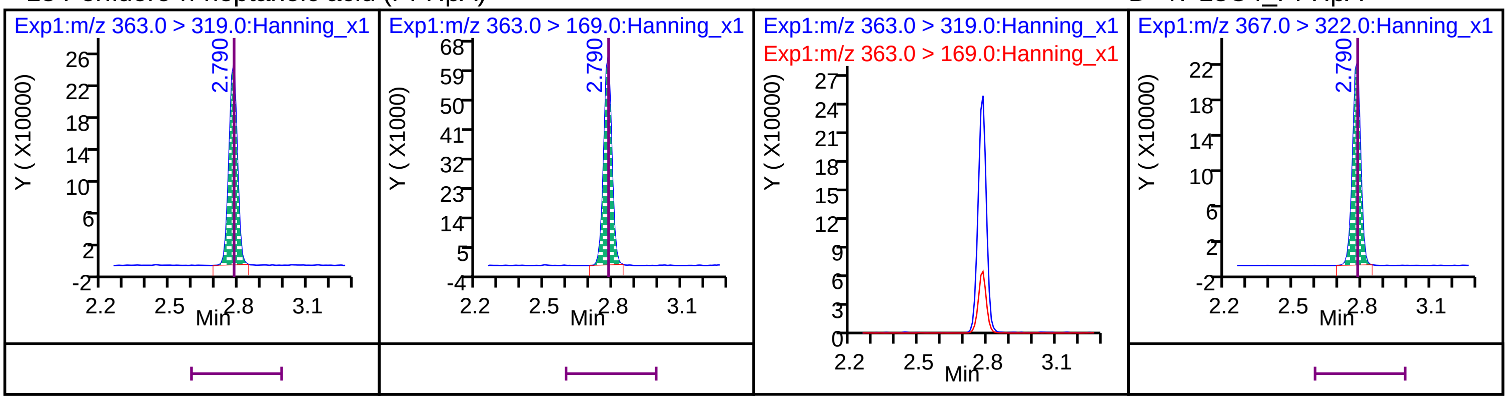
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



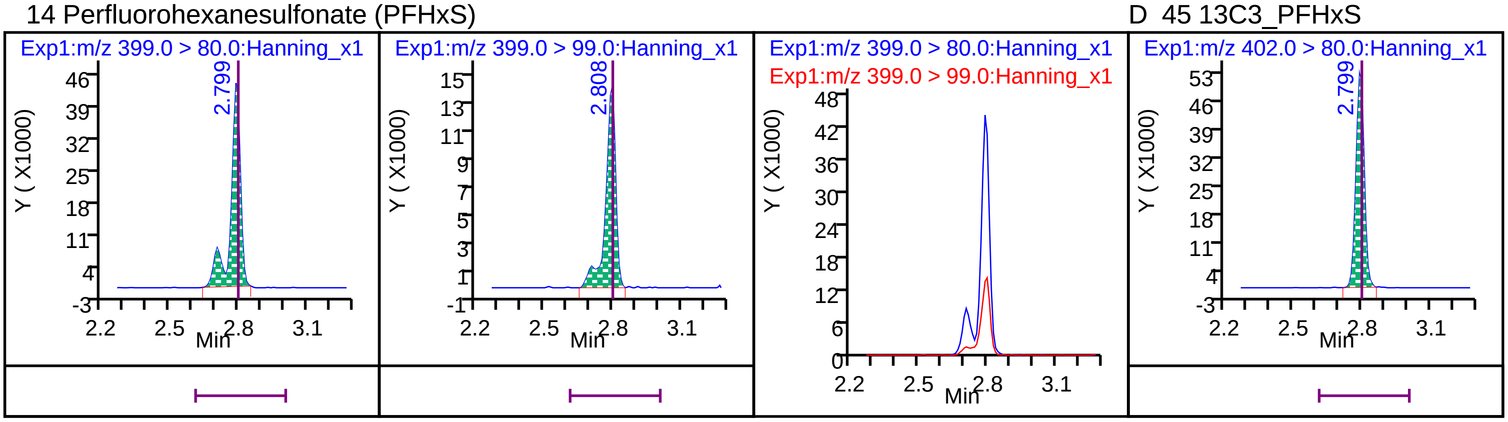
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



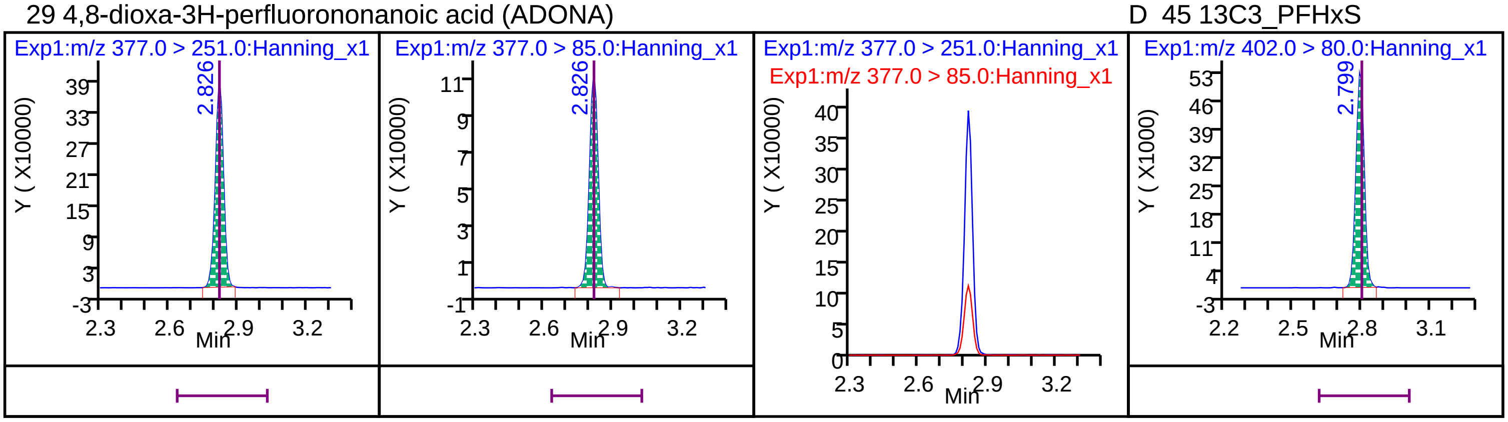
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

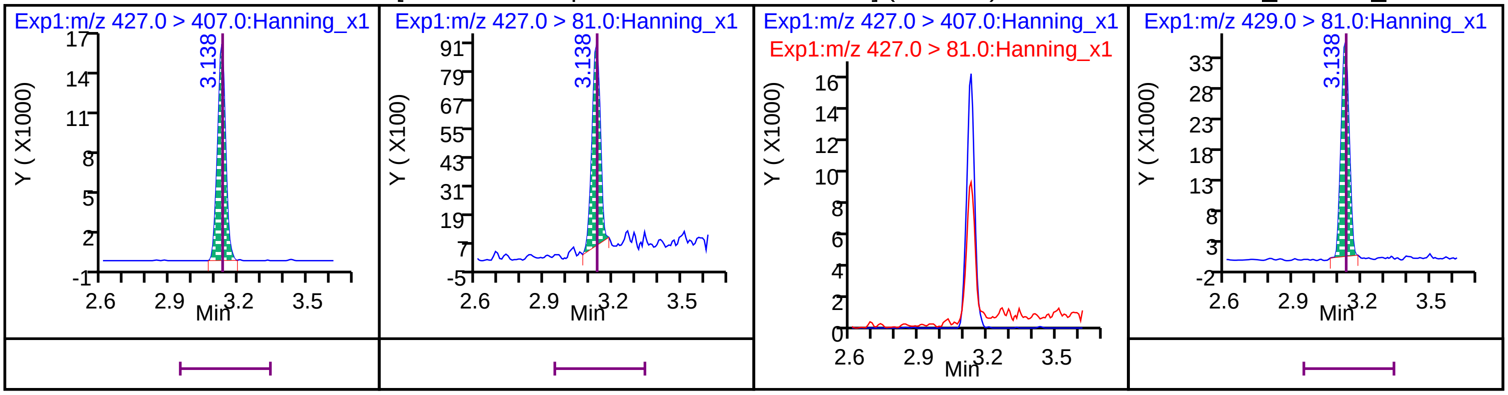


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

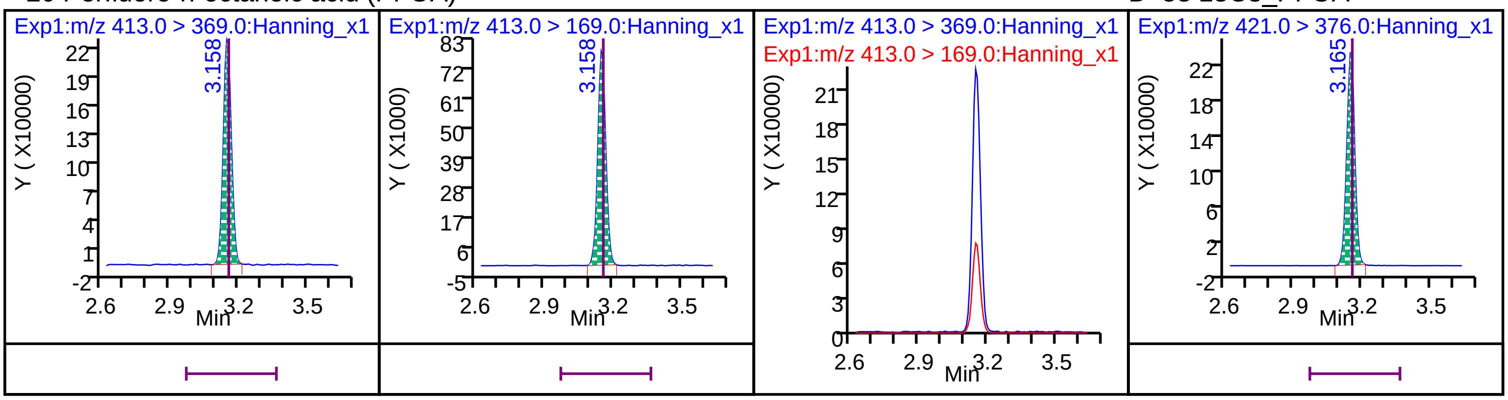


Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d

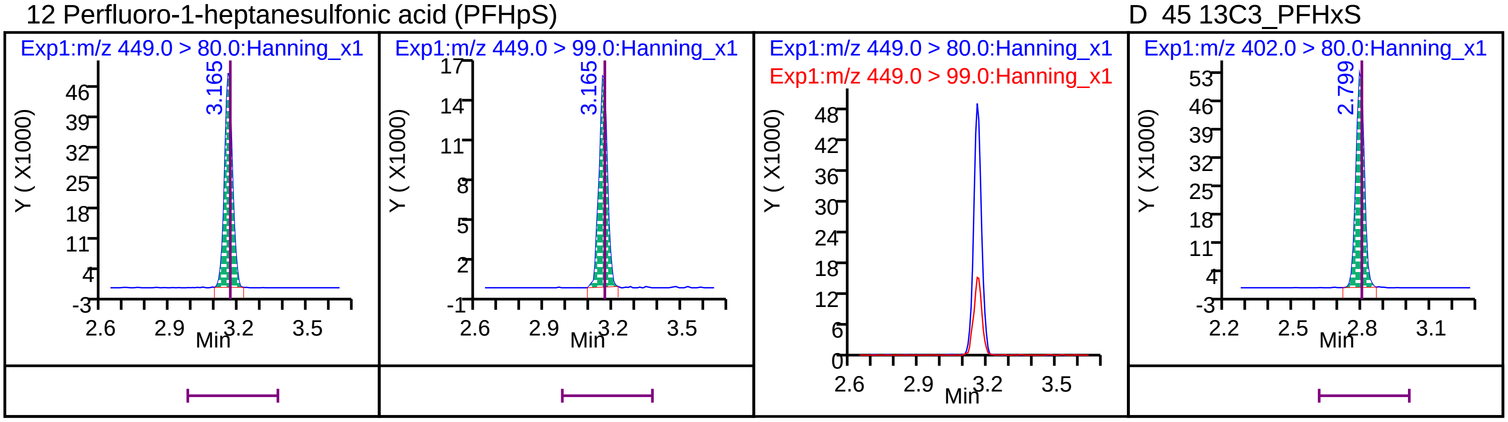
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



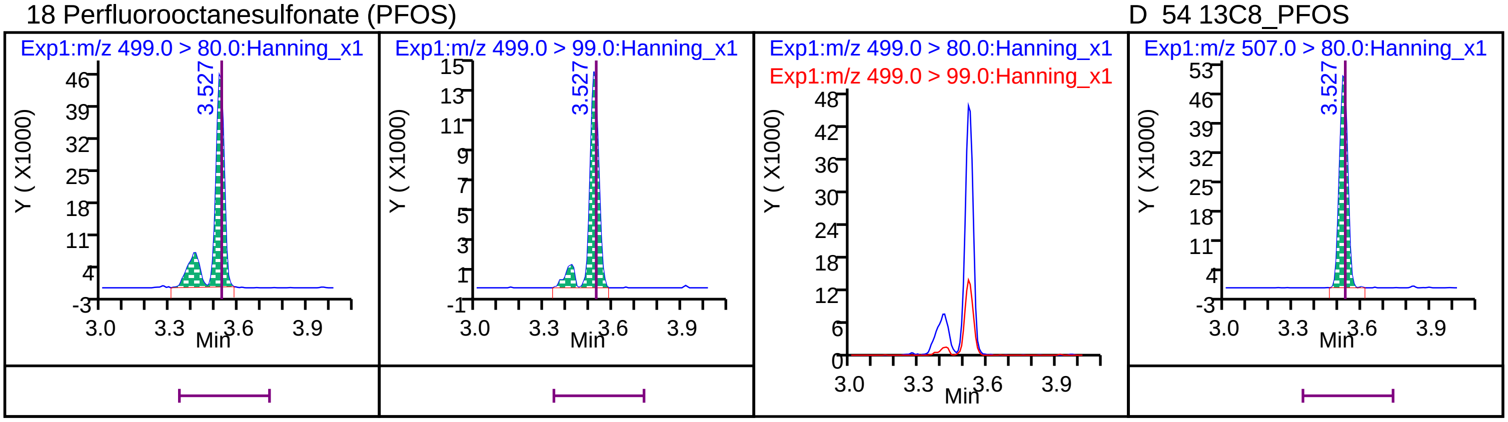
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



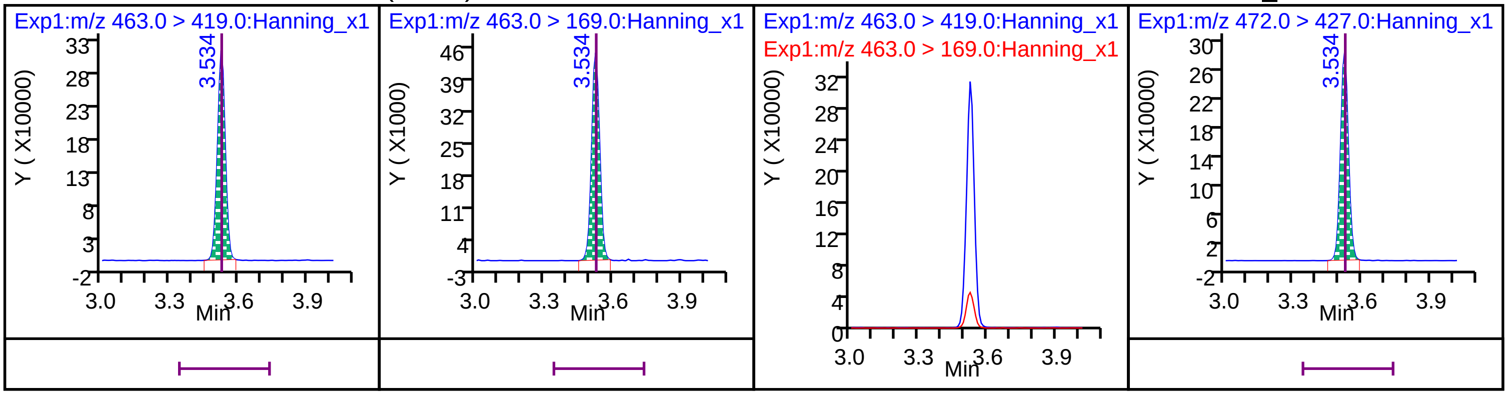
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



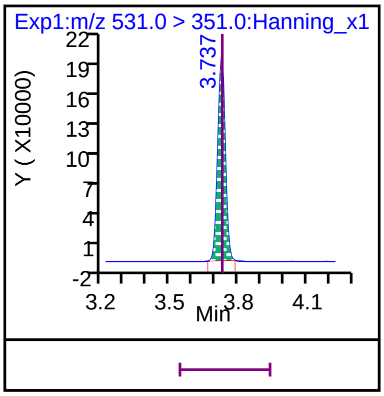
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

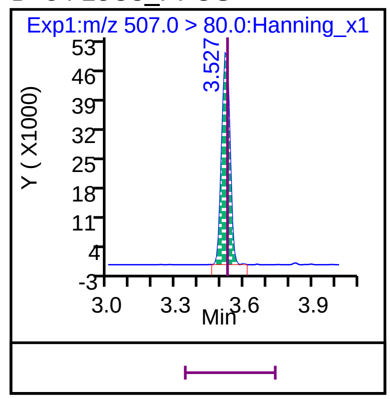


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

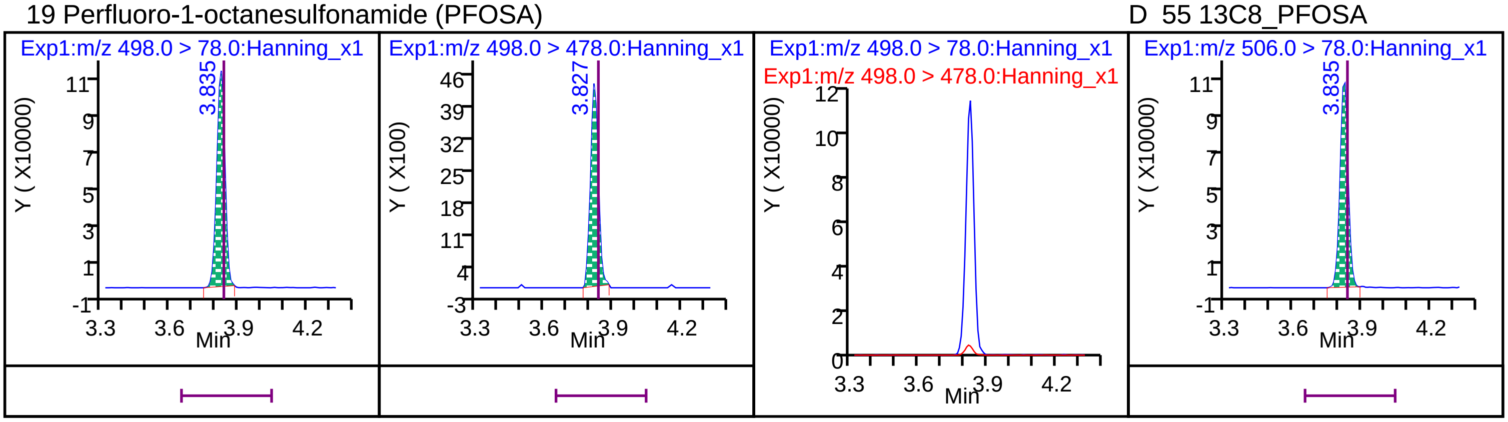


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

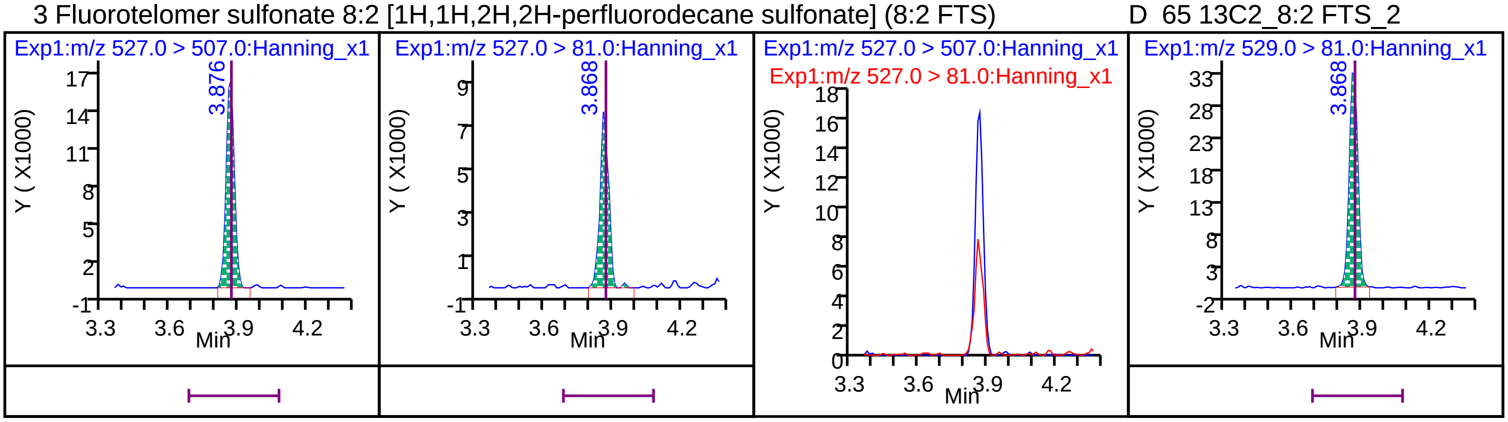




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

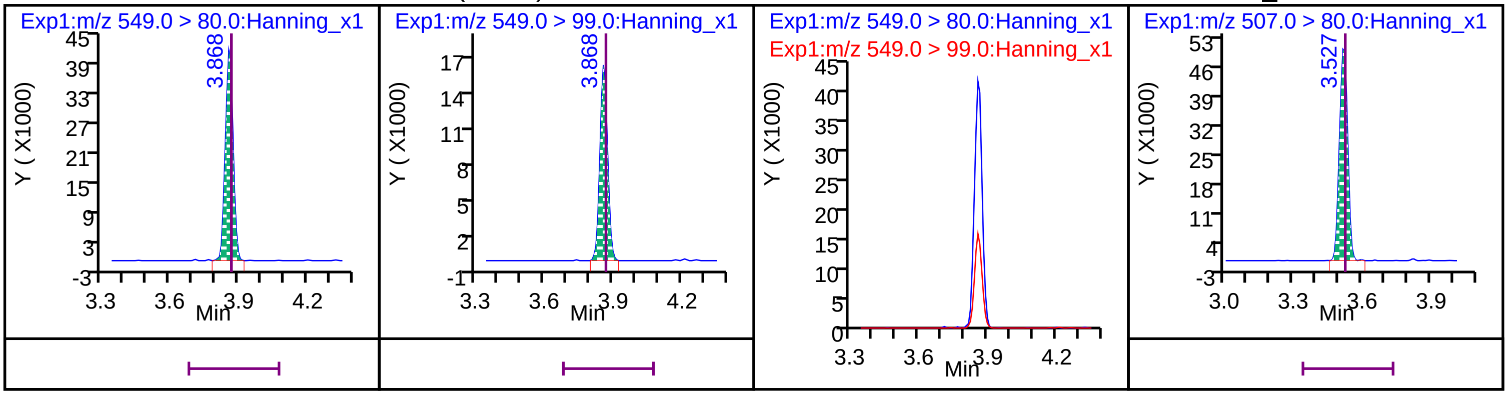


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

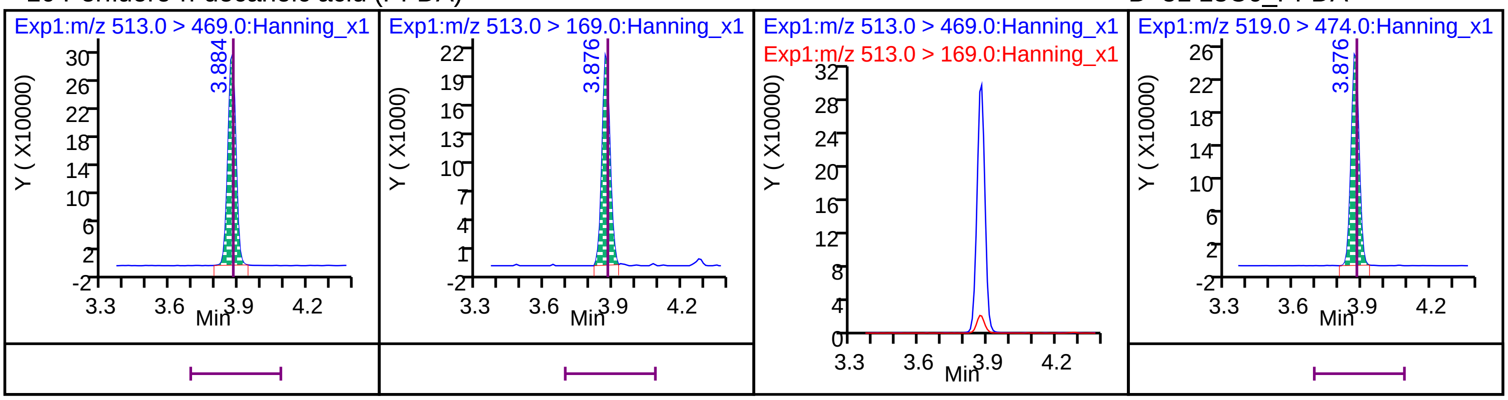


Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d

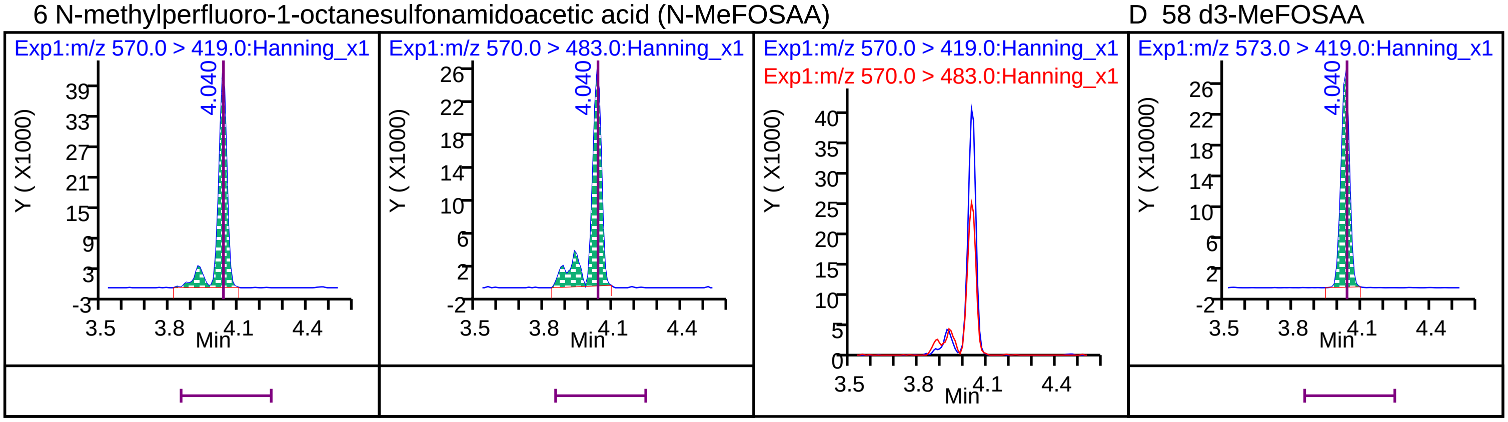
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



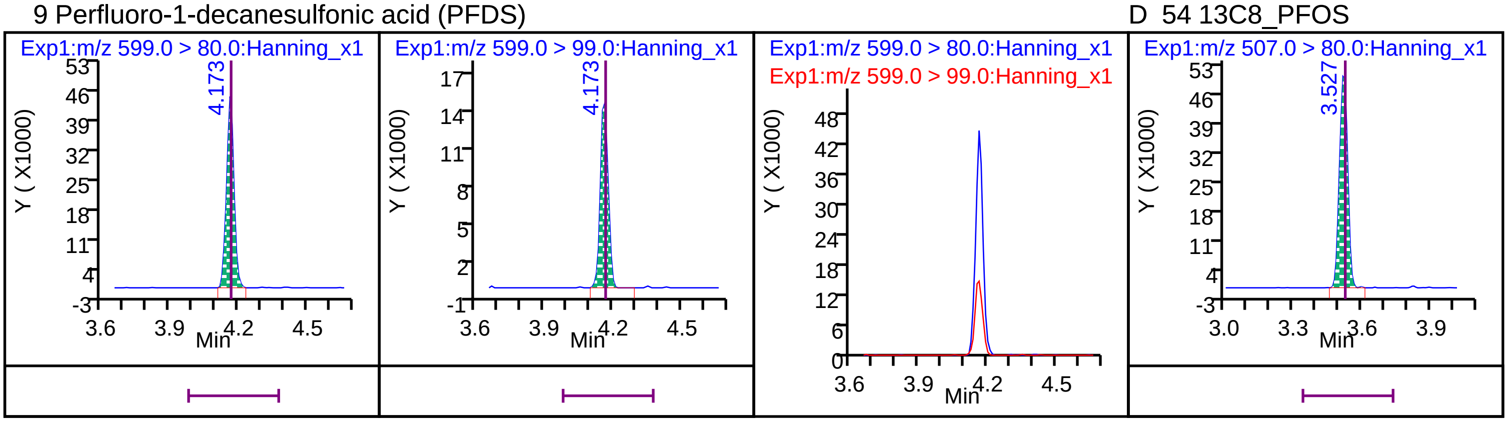
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



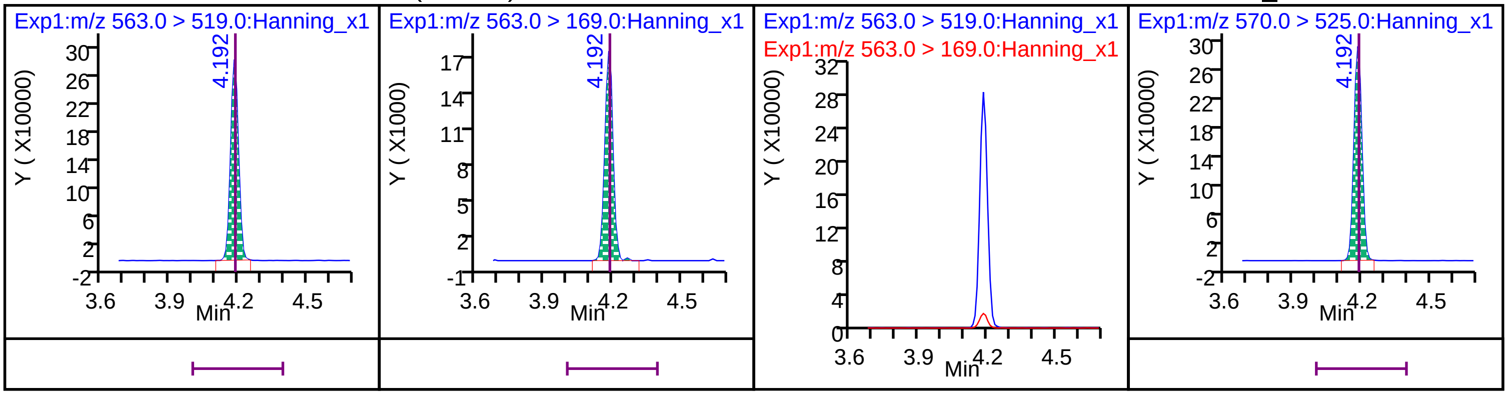
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



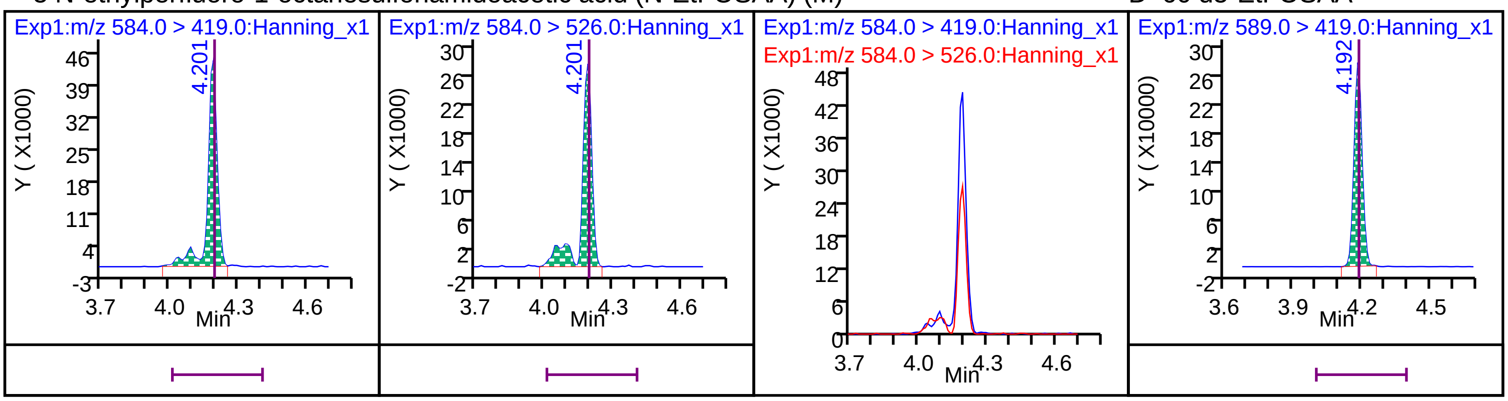
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



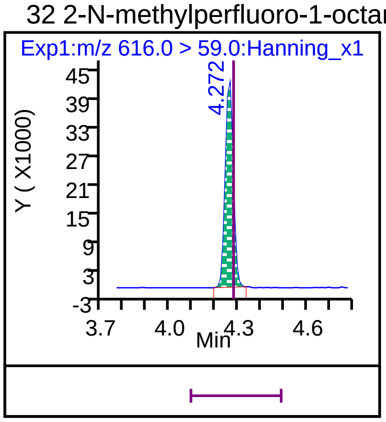
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



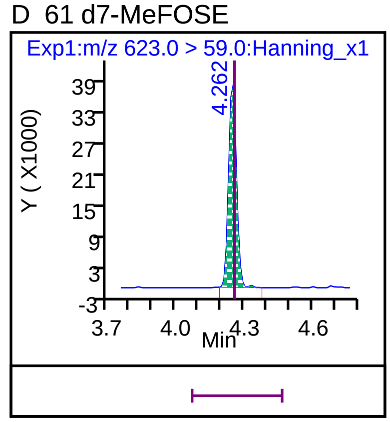
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



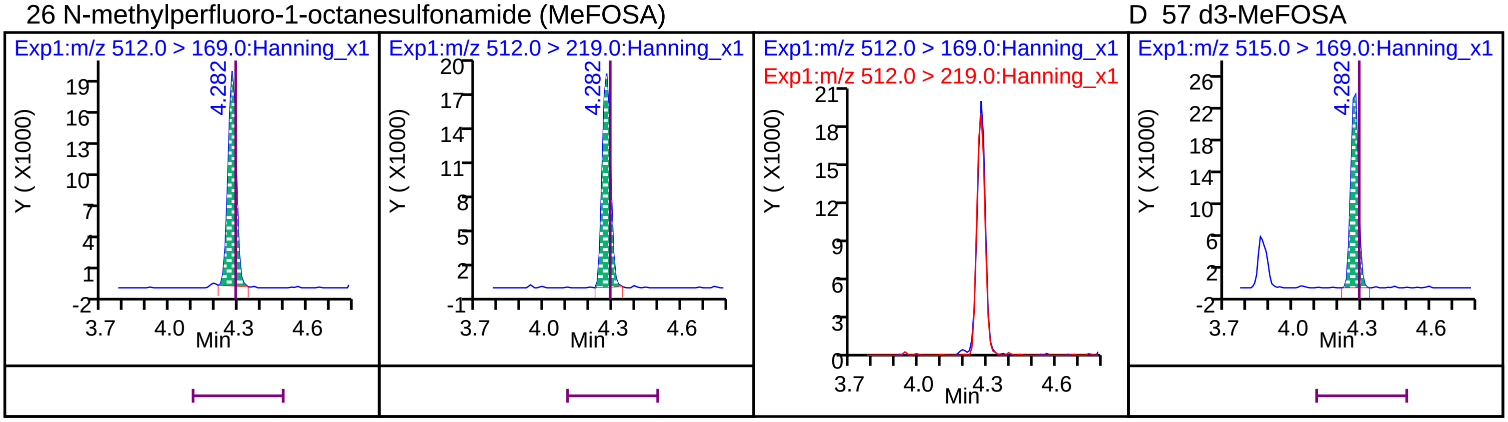
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



D 61 d7-MeFOSE

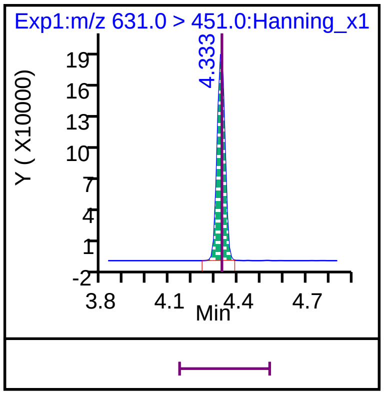


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

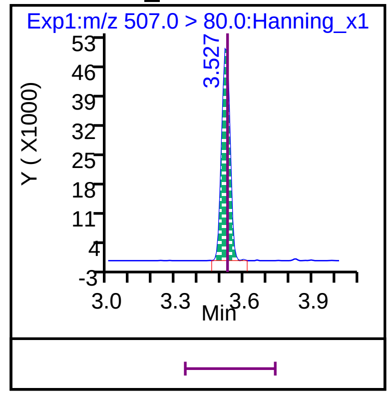


Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d

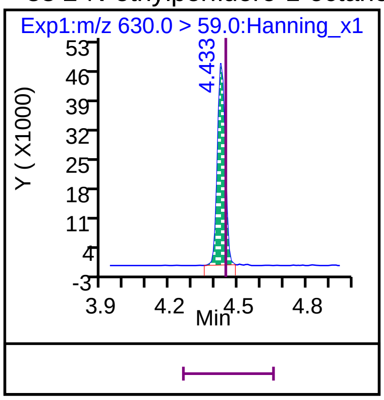
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



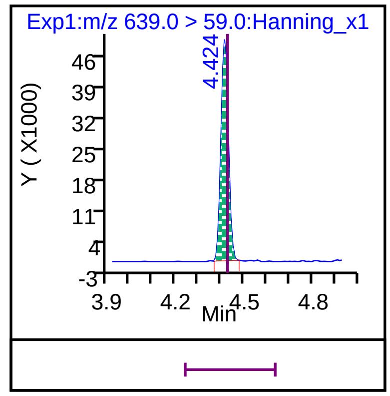
D 54 13C8_PFOS



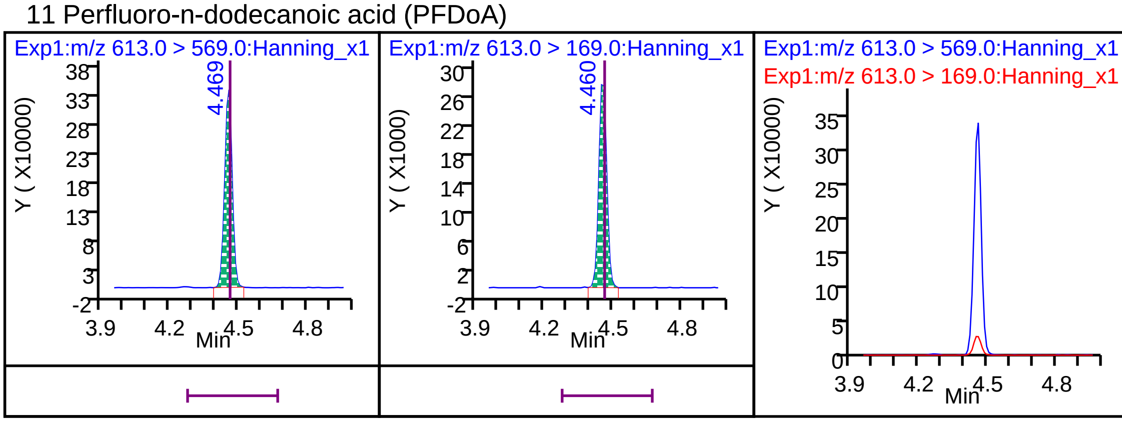
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



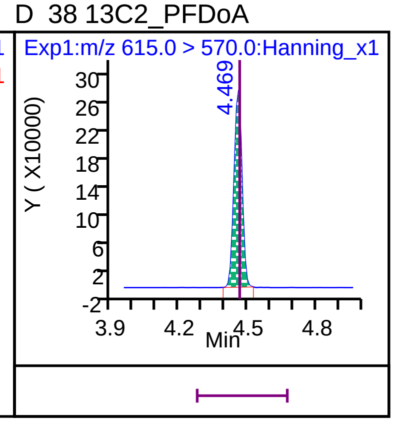
D 62 d9-EtFOSE



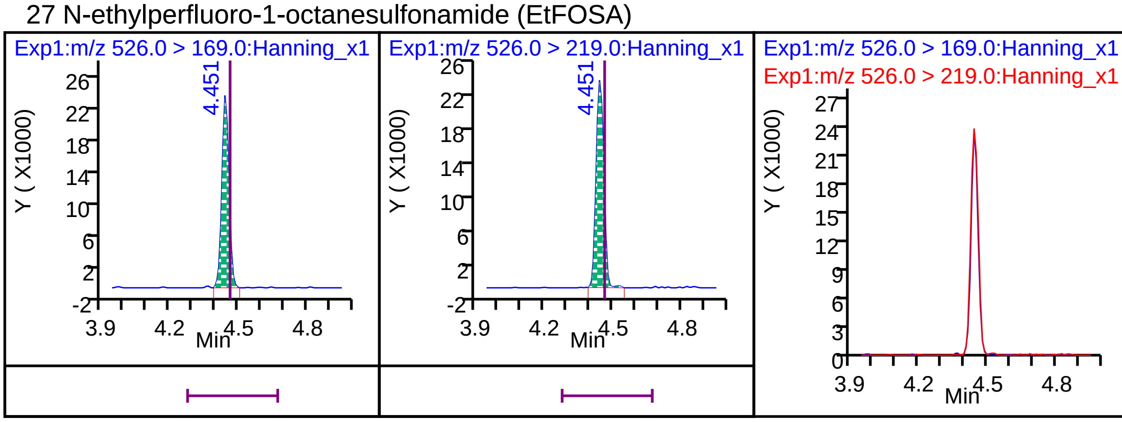
11 Perfluoro-n-dodecanoic acid (PFDoA)



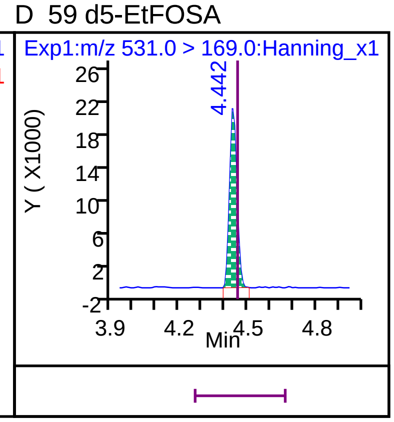
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

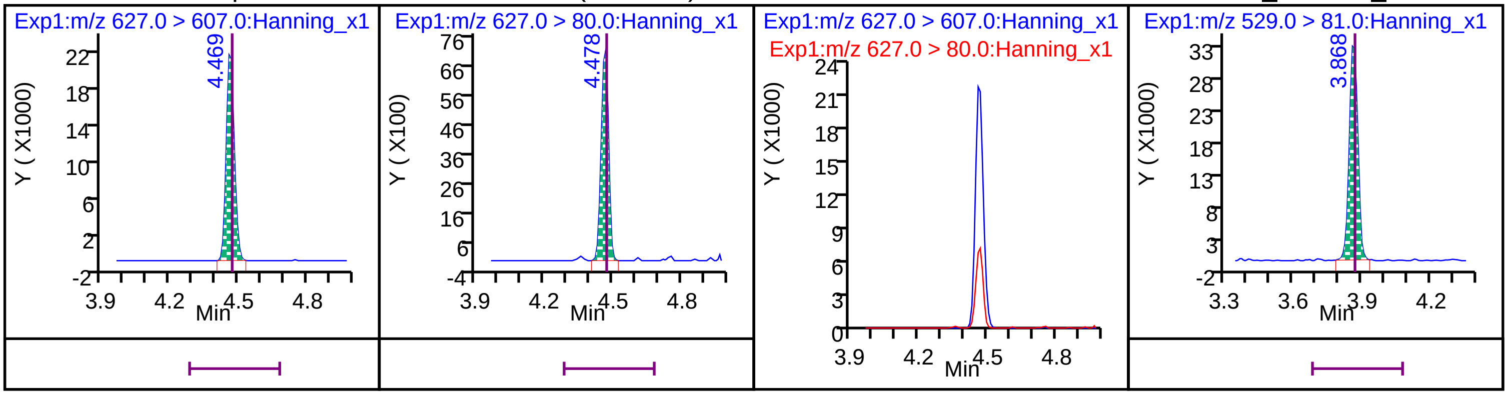


D 59 d5-EtFOSA

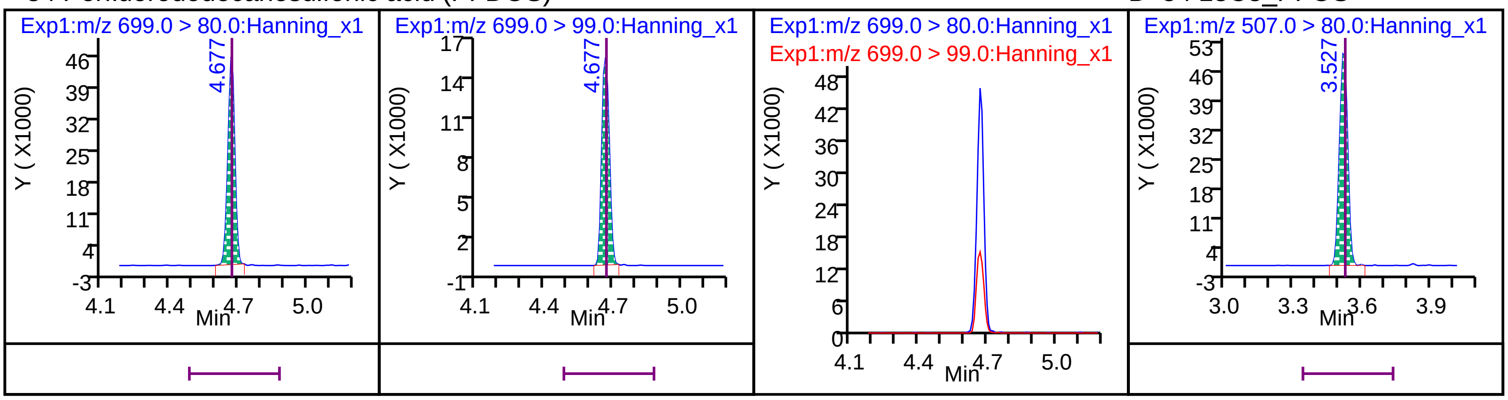


Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d

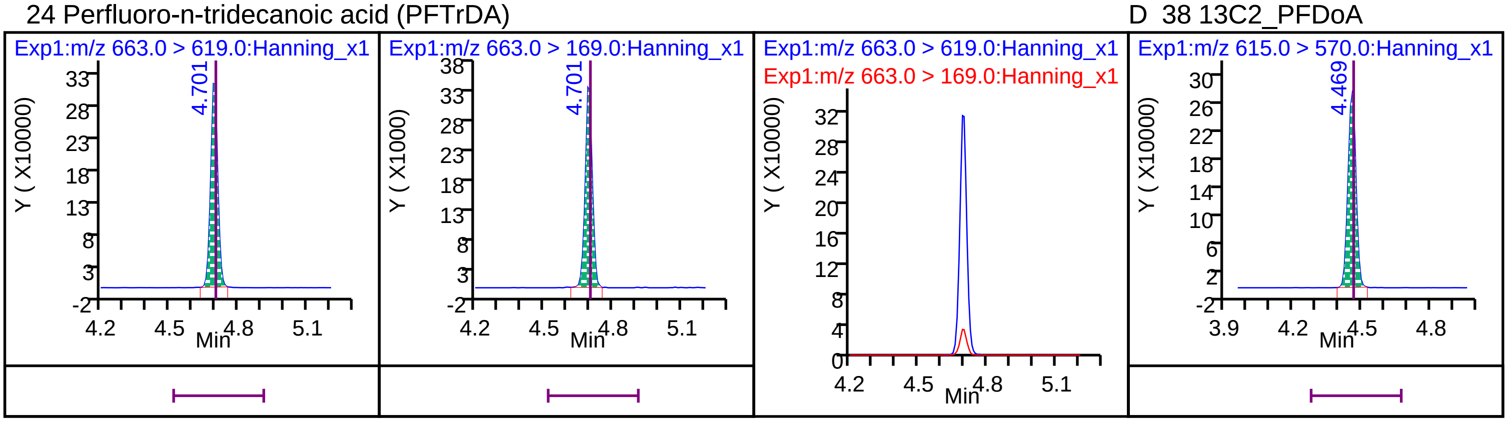
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



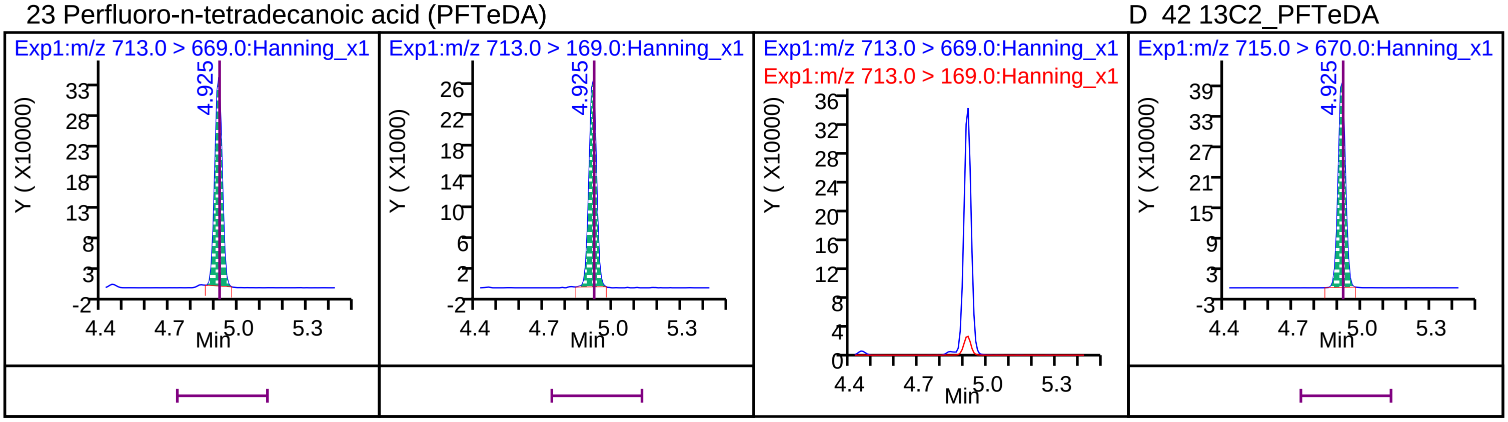
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



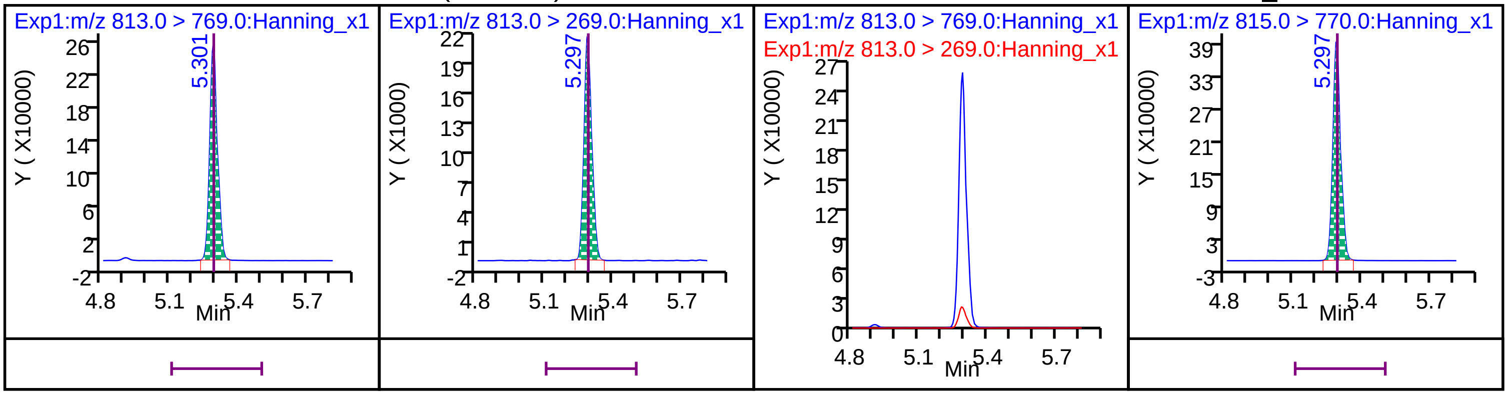
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



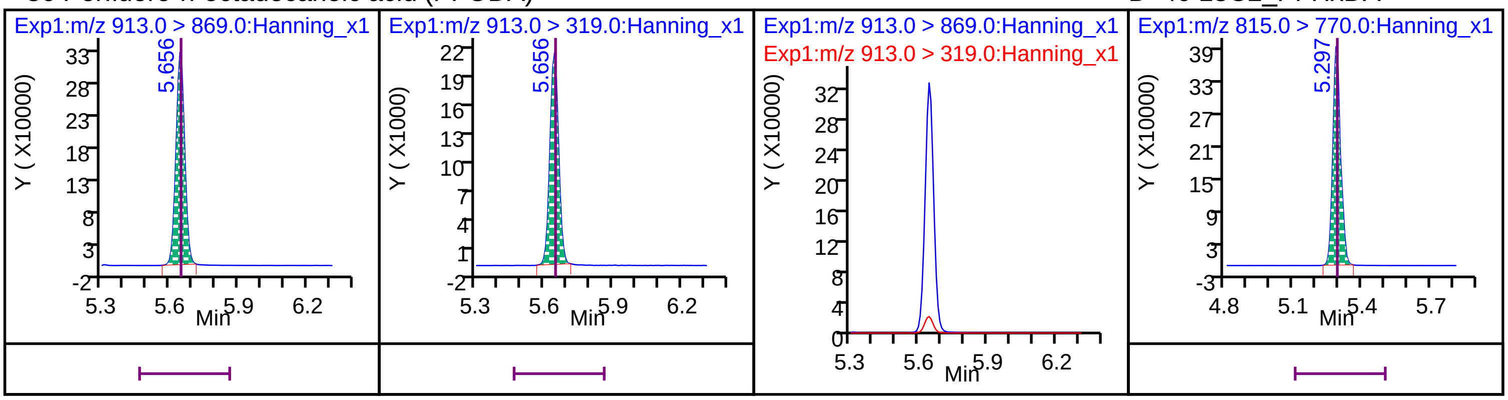
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



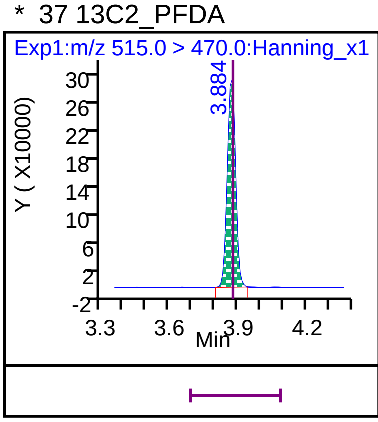
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



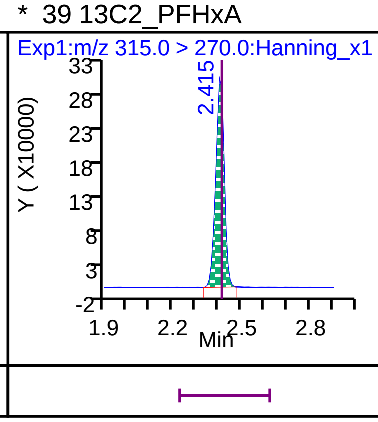
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



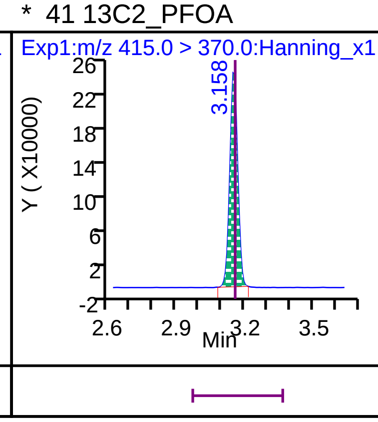
* 37 13C2_PFDA



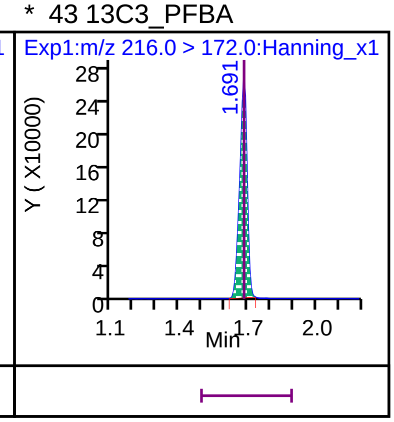
* 39 13C2_PFHxA



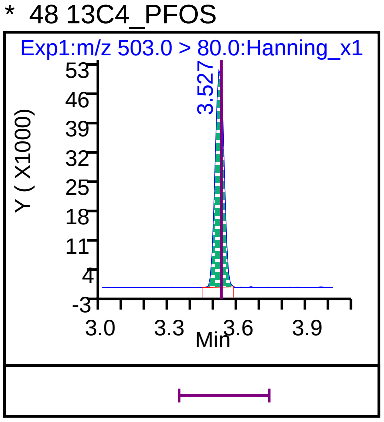
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621067.d

Injection Date: 17-Nov-2021 01:49:47 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000B_SVLC-1744

Sample Info: ID CCV 1000B_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

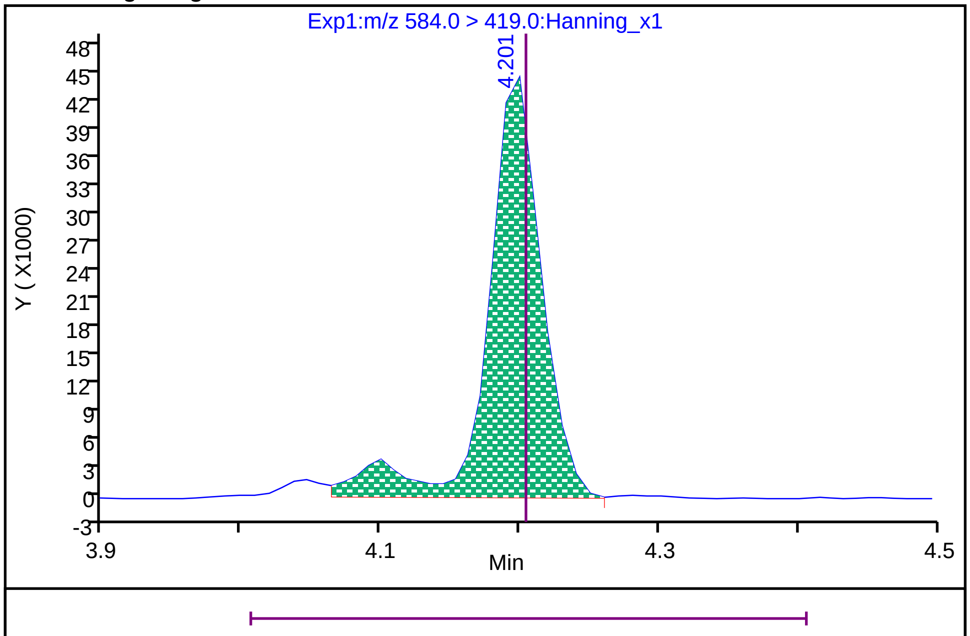
Processing Integration Results

RT: 4.201

Area: 119583

Amount: 956.01

Amount Units: ng/L

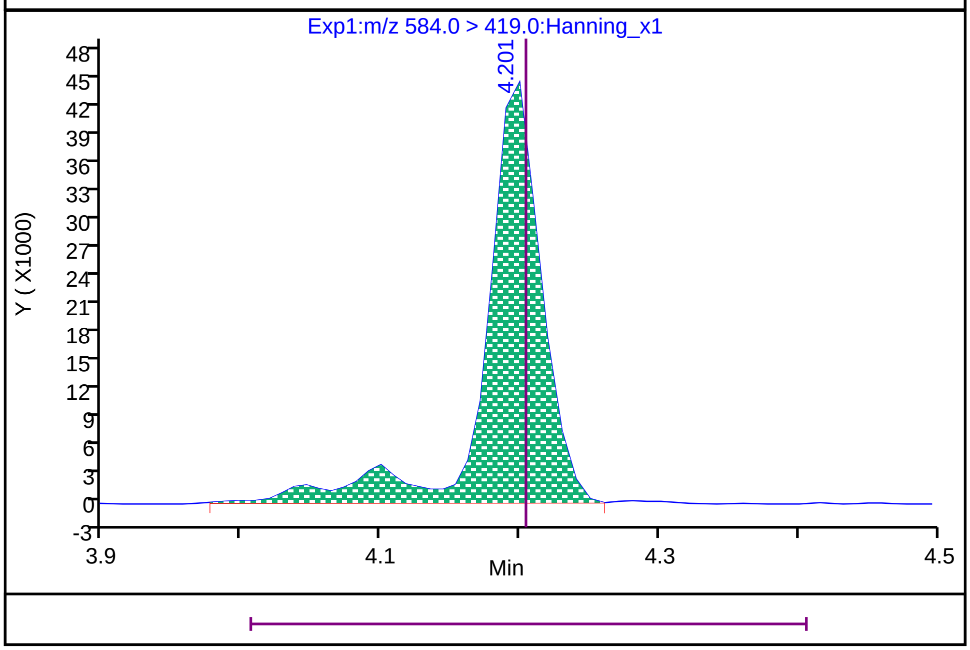


RT: 4.201

Area: 124382

Amount: 994.37

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 12:24:10

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721006.d		
Injection Date:	17-Nov-2021 13:37:39	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Analytes	Conc. Level:	L-2	Vol. Added:	1.00 ml
Reagent:	Analytes	Conc. Level:	L-3	Vol. Added:	1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	196.41	98.2	70 - 130
D 46 13C4_PFBA	646253	668395			103.4	50 - 150
D 50 13C5_PFPeA	597525	587067			98.2	50 - 150
21 PFPeA			200.00	210.54	105.3	70 - 130
7 PFBS			176.80	170.11	96.2	70 - 130
D 44 13C3_PFBS	173893	178175			102.5	50 - 150
1 4:2 FTS			186.80	200.98	107.6	70 - 130
D 63 13C2_4:2 FTS_2	114363	113673			99.4	50 - 150
D 49 13C5_PFHxA	690660	698559			101.1	50 - 150
15 PFHxA			200.00	200.59	100.3	70 - 130
22 PFPeS			187.60	184.67	98.4	70 - 130
28 GenX			400.00	394.98	98.7	70 - 130
D 66 13C3_GenX	1156071	1175107			101.6	50 - 150
D 47 13C4_PFHpA	541987	617327			113.9	50 - 150
13 PFHpA			200.00	190.59	95.3	70 - 130
D 45 13C3_PFHxS	135990	139172			102.3	50 - 150
14 PFHxS			182.00	168.39	92.5	70 - 130
29 ADONA			188.40	185.35	98.4	70 - 130
D 64 13C2_6:2 FTS_2	90012	87765			97.5	50 - 150
2 6:2 FTS			189.60	185.88	98	70 - 130
20 PFOA			200.00	193.99	97	70 - 130
D 53 13C8_PFOA	556700	576099			103.5	50 - 150
12 PFHpS			190.40	180.82	95	70 - 130
18 PFOS			185.60	165.62	89.2	70 - 130
17 PFNA			200.00	201.40	100.7	70 - 130
D 56 13C9_PFNA	690404	677086			98.1	50 - 150
D 54 13C8_PFOS	132590	125490			94.6	50 - 150
30 9Cl-PF3ONS			186.40	202.93	108.9	70 - 130
D 55 13C8_PFOSA	274090	262168			95.7	50 - 150
19 PFOSA			200.00	185.68	92.8	70 - 130
16 PFNS			192.00	184.12	95.9	70 - 130
D 65 13C2_8:2 FTS_2	88081	88202			100.1	50 - 150
3 8:2 FTS			191.60	197.74	103.2	70 - 130
10 PFDA			200.00	210.26	105.1	70 - 130
D 51 13C6_PFDA	586322	615512			105	50 - 150
6 N-MeFOSAA			200.00	165.74	82.9	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	684495	681022			99.5	50 - 150
9 PFDS			192.80	199.06	103.2	70 - 130
25 PFUdA			200.00	202.41	101.2	70 - 130
D 60 d5-EtFOSAA	610899	650725			106.5	50 - 150
D 52 13C7_PFUdA	665740	654908			98.4	50 - 150
5 N-EtFOSAA			200.00	199.59	99.8	70 - 130
D 61 d7-MeFOSE	88387	85524			96.8	50 - 150
32 MeFOSE			200.00	190.99	95.5	70 - 130
26 MeFOSA			200.00	242.38	121.2	70 - 130
D 57 d3-MeFOSA	50083	44687			89.2	50 - 150
31 11Cl-PF3OUDS			188.40	198.88	105.6	70 - 130
D 62 d9-EtFOSE	114206	100548			88	50 - 150
33 EtFOSE			200.00	221.05	110.5	70 - 130
D 59 d5-EtFOSA	45730	37834			82.7	50 - 150
27 EtFOSA			200.00	193.79	96.9	70 - 130
11 PFDoA			200.00	192.78	96.4	70 - 130
D 38 13C2_PFDoA	626804	677078			108	50 - 150
4 10:2 FTS			192.80	197.07	102.2	70 - 130
34 PFDOS			193.60	189.31	97.8	70 - 130
24 PFTrDA			200.00	204.45	102.2	70 - 130
23 PFTeDA			200.00	210.79	105.4	70 - 130
D 42 13C2_PFTeDA	795861	816988			102.7	50 - 150
35 PFHxDA			200.00	196.87	98.4	70 - 130
D 40 13C2_PFHxDA	929181	853968			91.9	50 - 150
36 PFODA			200.00	218.52	109.3	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721006.d		
Injection Date:	17-Nov-2021 13:37:39	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Analytes	Conc. Level:	L-2	Vol. Added:	1.00 ml
Reagent:	Analytes	Conc. Level:	L-3	Vol. Added:	1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	668395	20	>100:1			1000.00	1071.26	103.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.699	1/0	137337	19	>100:1			200.00	196.41		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	587067	17	>100:1			1000.00	1013.66	98.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	1/0	135740	16	>100:1			200.00	210.54		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	178175	15	>100:1			1000.00	1026.66	102.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	1/0	37759	15	>100:1	Target = 3.48		176.80	170.11		
298.9 > 99	44	2.120	2.120		11409	11	82:1	3.30 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	1/0	29125	15	>100:1	Target = 3.03		187.60	184.67		
349 > 99	44	2.469	2.460		9812	14	>100:1	2.96 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	113673	17	>100:1			5000.00	5205.75	99.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	1/0	10603	17		Target = 1.70		186.80	200.98		
327 > 81	63	2.389	2.389		5117	13	8.2:1	2.07 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.433	2.433	2	698559	17	>100:1			1000.00	1077.90	101.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.433	2.433	2/0	148271	16	>100:1	Target = 18.47		200.00	200.59		
313 > 119	49	2.433	2.433		9162	22	70:1	16.18 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.549	2.549	2	1175107	17	>100:1			5000.00	5247.96	101.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	1/-1	61083	15	>100:1	Target = 0.78		400.00	394.98		
285 > 185	66	2.549	2.540		81216	18	>100:1	0.75 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.800	2.800	1	617327	17	>100:1			1000.00	1169.63	113.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.800	2.800	2/1	134541	18	>100:1	Target = 3.92		200.00	190.59		
363 > 169	47	2.800	2.800		33448	17	>100:1	4.02 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.818	2.818	2	139172	16				1000.00	1089.70	102.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.818	2.818	2/0	26419	23	>100:1	Target = 3.14	5.22	182.00	168.39		
399 > 99	45	2.818	2.818		9136	24	>100:1	2.89 (1.57-4.71)	7.17				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.836	2.836	1/-1	200627	17	>100:1	Target = 3.33		188.40	185.35		
377 > 85	45	2.836	2.836		61260	16	>100:1	3.27 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.186	3.186	2/0	24466	21	>100:1	Target = 3.02		190.40	180.82		
449 > 99	45	3.186	3.186		8681	25	91:1	2.81 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.160	3.160	2	87765	20	>100:1			5000.00	5114.29	97.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.160	3.160	2/0	7653	18	78:1	Target = 1.69		189.60	185.88		
427 > 81	64	3.146	3.160		5152	17	7.2:1	1.48 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.180	3.180	2	576099	22	>100:1			1000.00	1112.18	103.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.180	3.180	2/0	116956	20	98:1	Target = 3.03		200.00	193.99		
413 > 169	53	3.180	3.180		40019	21	>100:1	2.92 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.552	3.552	2	125490	18	>100:1			1000.00	1007.95	94.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.552	3.552	2/0	24687	34	>100:1	Target = 3.42	3.59	185.60	165.62		
499 > 99	54	3.552	3.552		8385	35	77:1	2.94 (1.71-5.13)	6.87				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.766	3.766	2/0	97763	18	>100:1			186.40	202.93		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.893	3.893	2/0	17988	21	>100:1	Target = 2.57		192.00	184.12		
549 > 99	54	3.910	3.893		6709	22	66:1	2.68 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.203	4.203	2/0	20080	20		Target = 2.71		192.80	199.06		
599 > 99	54	4.203	4.203		5596	17		3.58 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.372	4.372	3/1	84598	16	>100:1			188.40	198.88		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.715	4.715	3/1	18905	18	>100:1	Target = 3.04		193.60	189.31		
699 > 99	54	4.715	4.715		7334	17		2.57 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.560	3.560	2	677086	19	>100:1			1000.00	1049.38	98.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.560	3.560	2/0	150218	19	>100:1	Target = 7.14		200.00	201.40		
463 > 169	56	3.560	3.560		24453	17	>100:1	6.14 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.844	3.844	1	262168	20				1000.00	1039.66	95.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.844	3.844	1/0	53488	17	>100:1	Target = 32.83		200.00	185.68		
498>478	55	3.852	3.844		2961	22	26:1	18.06 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.902	3.902	2	88202	18	>100:1			5000.00	5274.65	100.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.902	3.902	2/0	8090	20	80:1	Target = 2.14		191.60	197.74		
527 > 81	65	3.902	3.902		4721	19	18:1	1.71 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.507	4.507	2/0	9345	17		Target = 3.72		192.80	197.07		
627 > 80	65	4.516	4.507		2362	19	24:1	3.95 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.910	3.910	2	615512	19	>100:1			1000.00	1080.11	105	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.910	3.910	2/0	151736	17	>100:1	Target = 14.16		200.00	210.26		
513 > 169	51	3.910	3.910		8758	20	71:1	17.32 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.068	4.068	2	681022	16	>100:1			5000.00	4985.97	99.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.068	4.068	0/-2	18700	31	51:1	Target = 1.42	9.82	200.00	165.74		M
570 > 483	58	4.068	4.068		16874	26	>100:1	1.10 (0.71-2.14)	4.09				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.223	4.223	2	650725	16	>100:1			5000.00	5359.29	106.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.234	4.234	0/-2	24644	30	99:1	Target = 1.49	6.99	200.00	199.59		M
584 > 526	60	4.234	4.234		17600	27	40:1	1.40 (0.74-2.24)	4.05				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.223	4.223	2	654908	15	>100:1			1000.00	1008.81	98.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.223	4.223	2/0	122987	15	>100:1	Target = 14.37		200.00	202.41		
563 > 169	52	4.223	4.223		10278	19	15:1	11.96 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.264	4.264	0	85524	16	>100:1			1000.00	975.92	96.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.284	4.284	1/1	18033	13	100:1			200.00	190.99		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.284	4.284	0	44687	13	>100:1			1000.00	915.02	89.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.294	4.294	1/1	11042	13	56:1	Target = 1.08		200.00	242.38		
512 > 219	57	4.294	4.294		10548	13	54:1	1.04 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.434	4.434	1	100548	15	>100:1			1000.00	949.32	88	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.452	4.452	1/0	22659	15	>100:1			200.00	221.05		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.461	1	37834	13	>100:1			1000.00	863.57	82.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.461	4.461	0/-1	8634	14	66:1	Target = 0.97		200.00	193.79		
526 > 219	59	4.461	4.461		12202	20	57:1	0.70 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.498	4.498	2	677078	16	>100:1			1000.00	1134.37	108	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.498	4.498	2/0	140907	17	99:1	Target = 10.55		200.00	192.78		
613 > 169	38	4.498	4.498		14977	19	98:1	9.40 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.743	4.743	2/0	134747	19	>100:1	Target = 8.92		200.00	204.45		
663 > 169	38	4.743	4.743		14173	17	>100:1	9.50 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.959	4.959	2	816988	19	>100:1			1000.00	1083.38	102.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.959	4.959	2/0	150987	16	23:1	Target = 12.22		200.00	210.79		
713 > 169	42	4.959	4.959		11112	17	>100:1	13.58 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.353	5.353	3	853968	18	>100:1			1000.00	949.72	91.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.353	5.353	3/0	113904	17	29:1	Target = 11.65		200.00	196.87		
813 > 269	40	5.353	5.353		10162	17	>100:1	11.20 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.725	5.725	4/1	175583	21	15:1	Target = 15.15		200.00	218.52		
913 > 319	40	5.718	5.725		11339	20	>100:1	15.48 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.910	3.910	2	730521	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.433	2.433	2	752687	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.180	3.180	2	602162	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.699	1.699	1	611638	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.552	3.552	2	133269	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

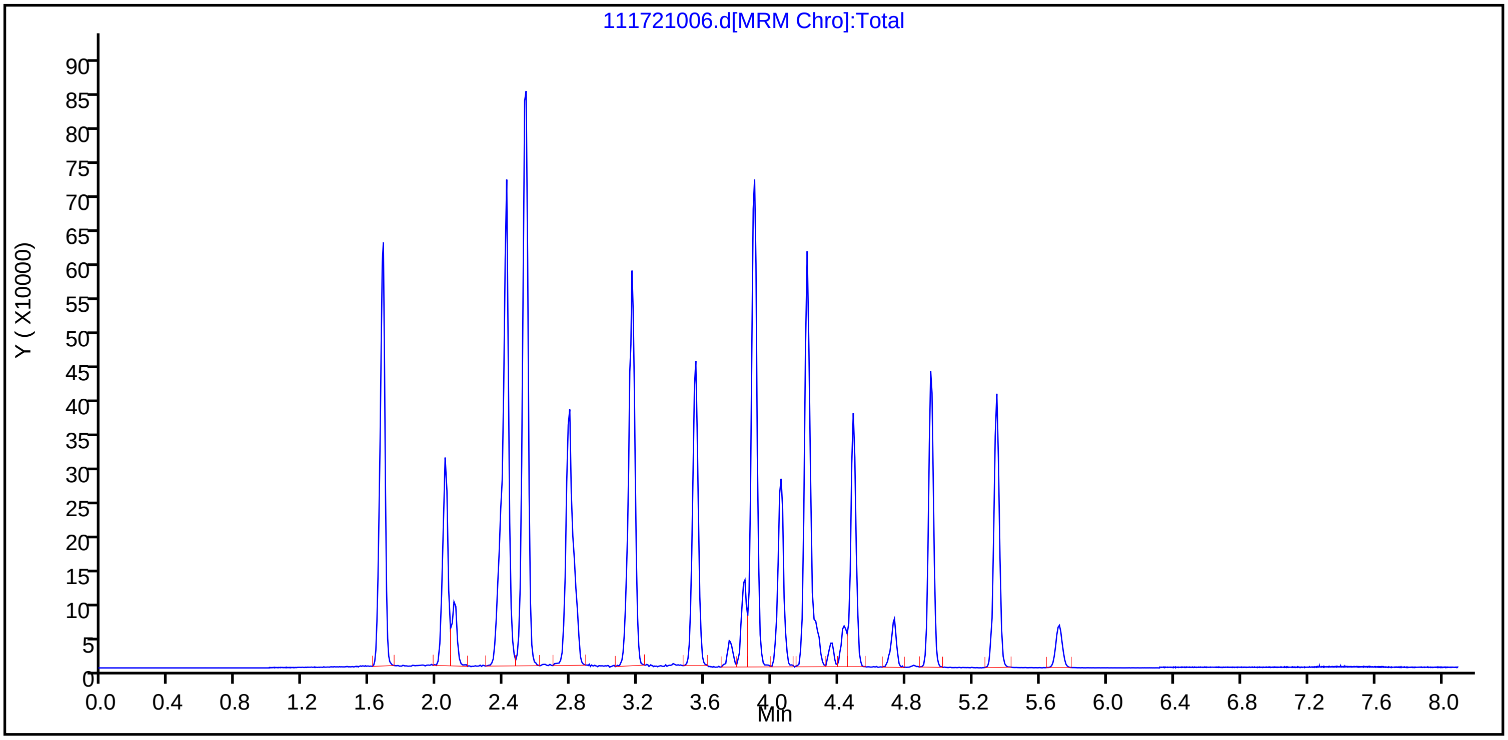
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

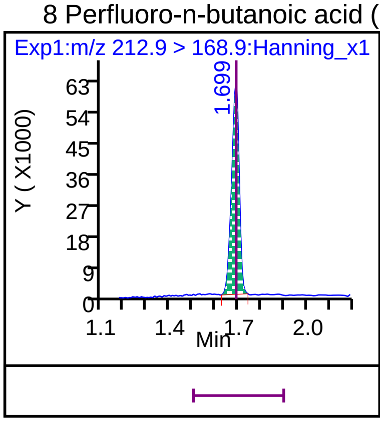
Report Date: 18-Nov-2021 18:20:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

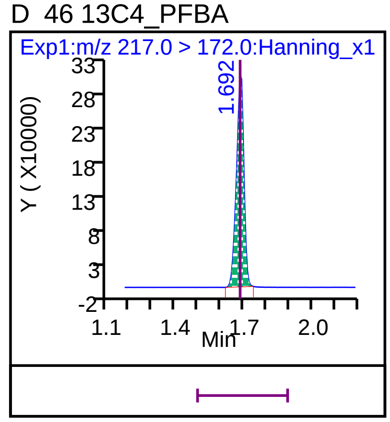
Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721006.d		
Injection Date:	17-Nov-2021 13:37:39	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



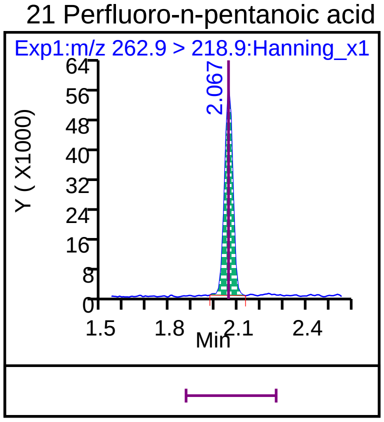
8 Perfluoro-n-butanoic acid (PFBA)



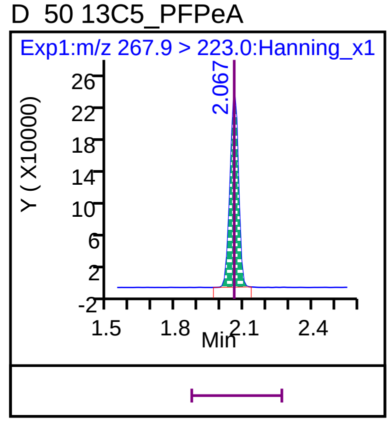
D 46 13C4_PFBA



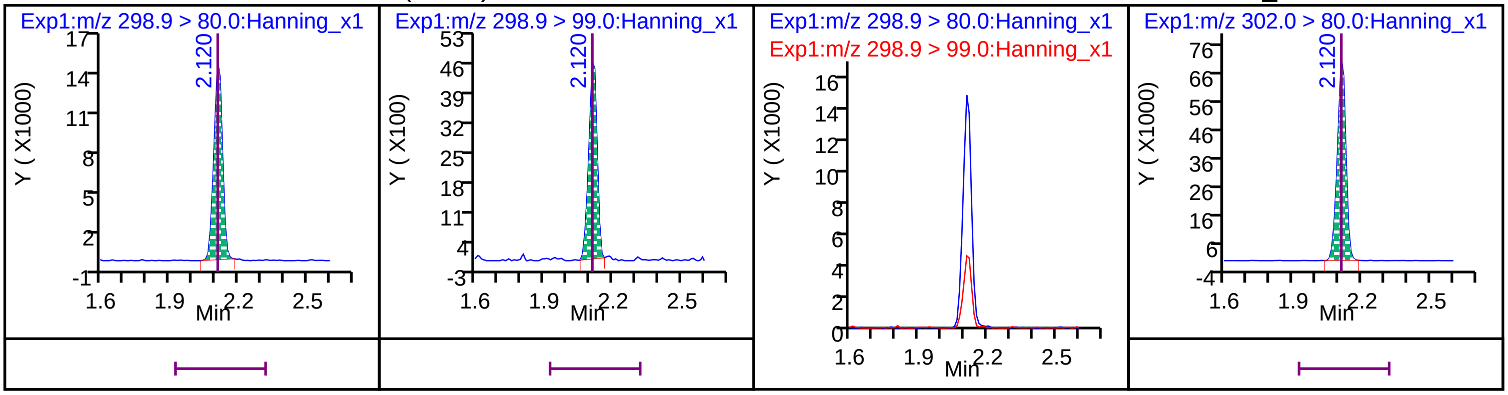
21 Perfluoro-n-pentanoic acid (PFPeA)



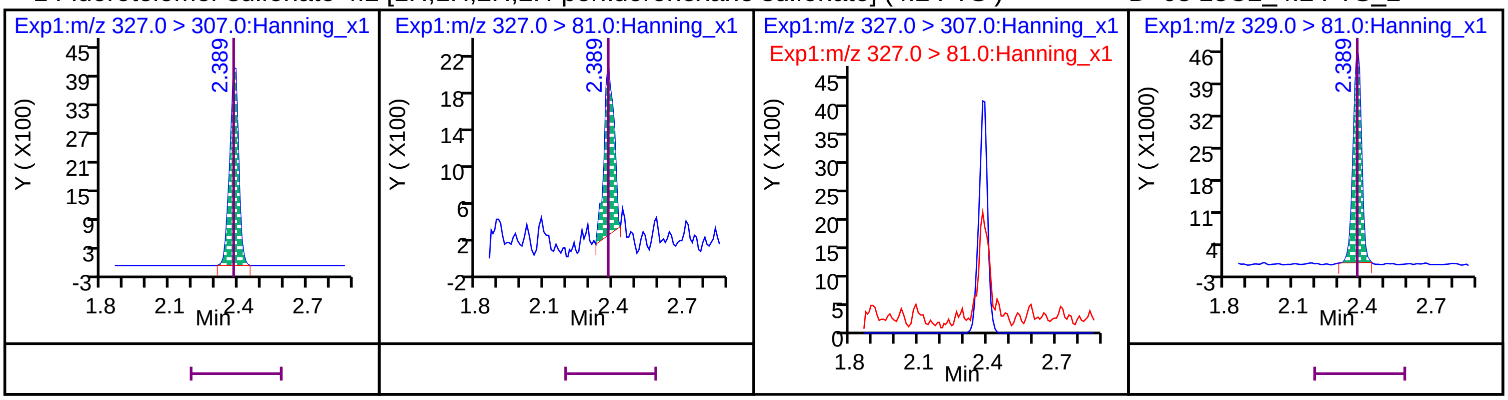
D 50 13C5_PFPeA



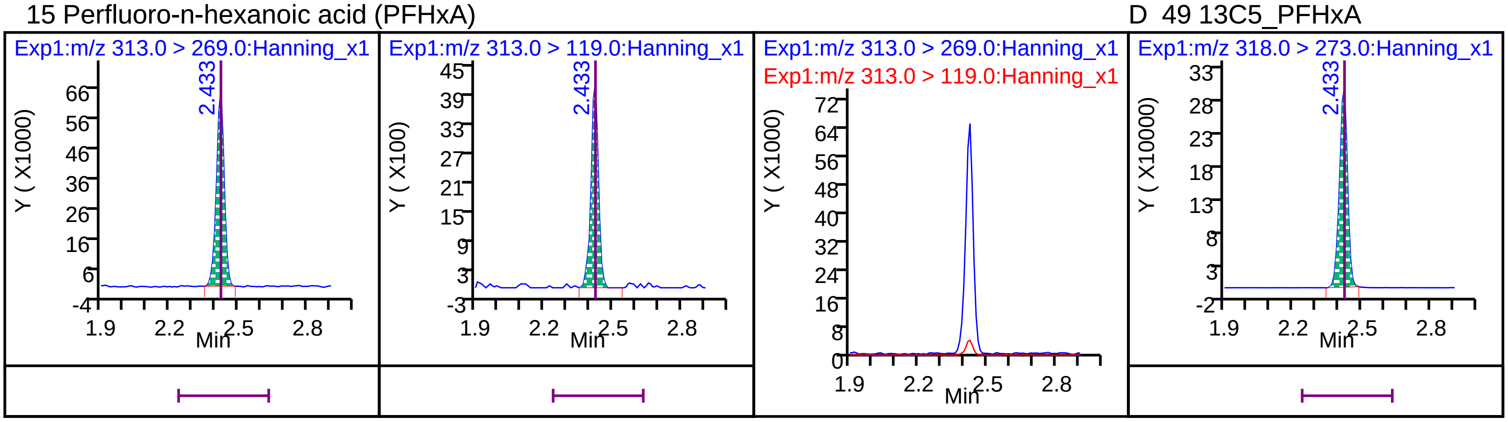
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



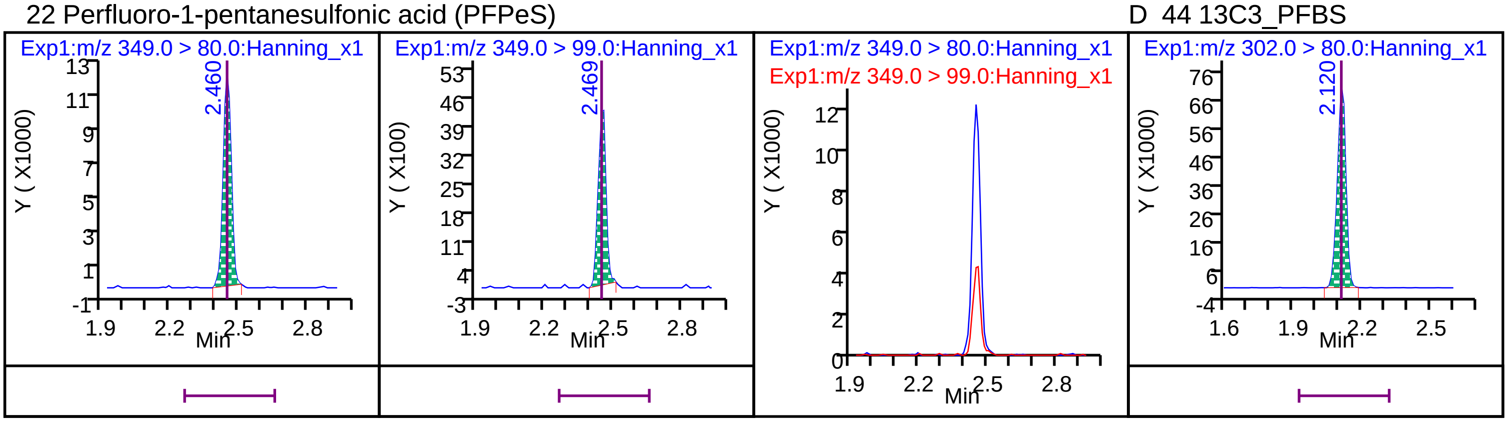
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



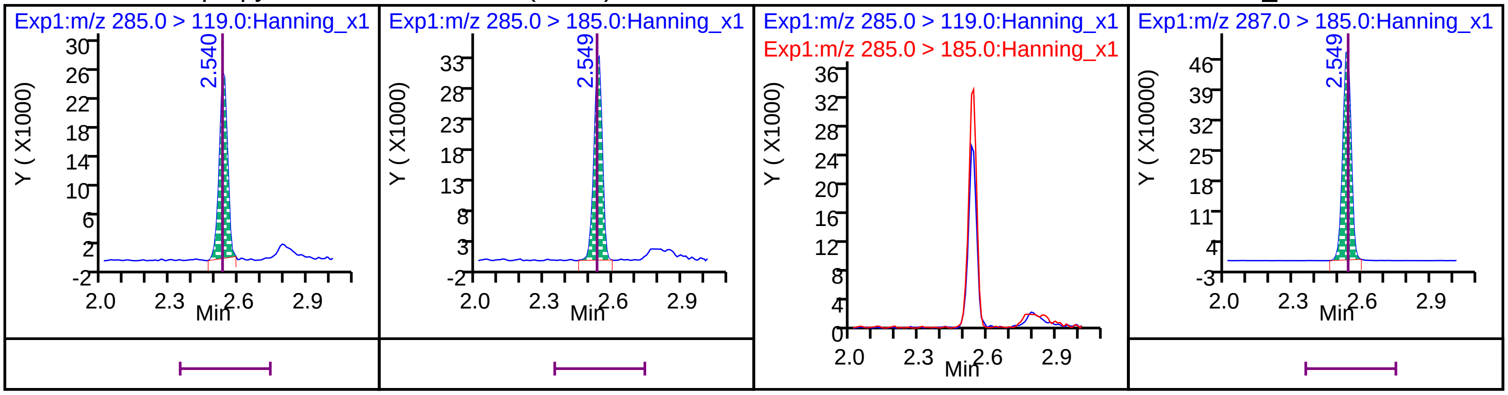
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



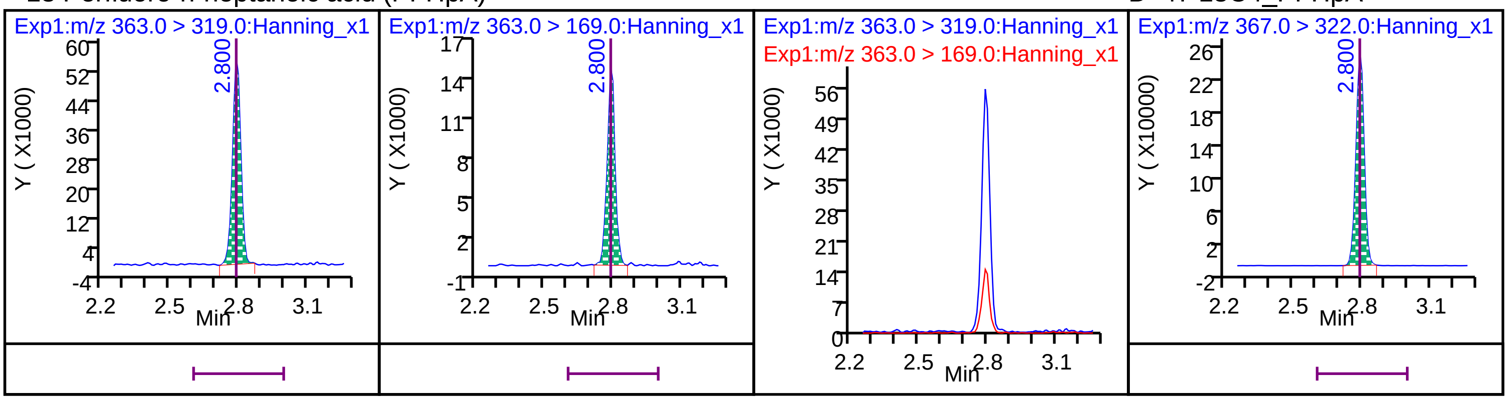
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



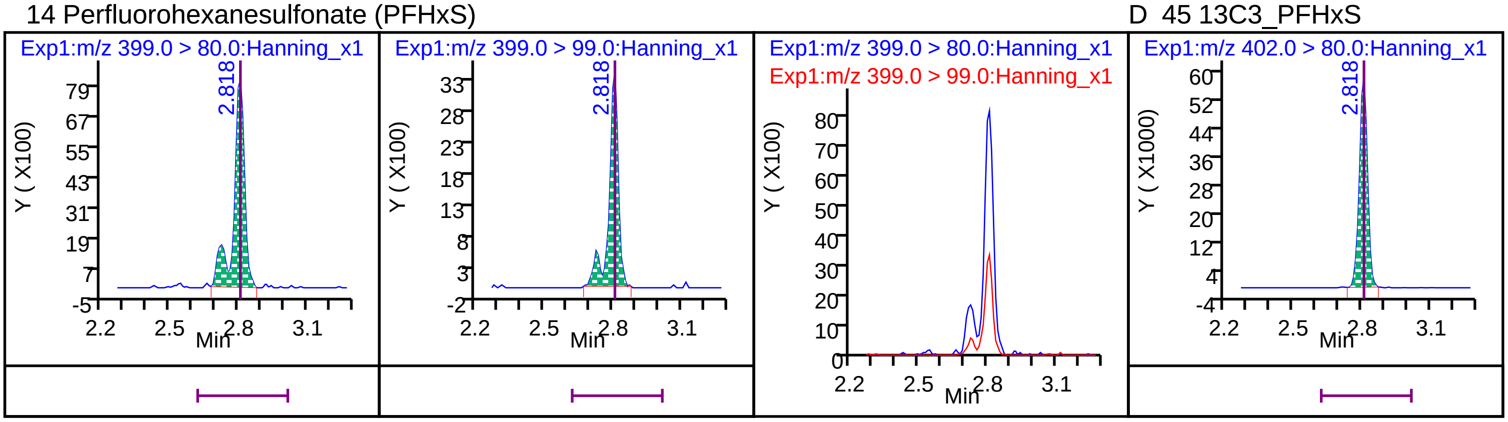
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



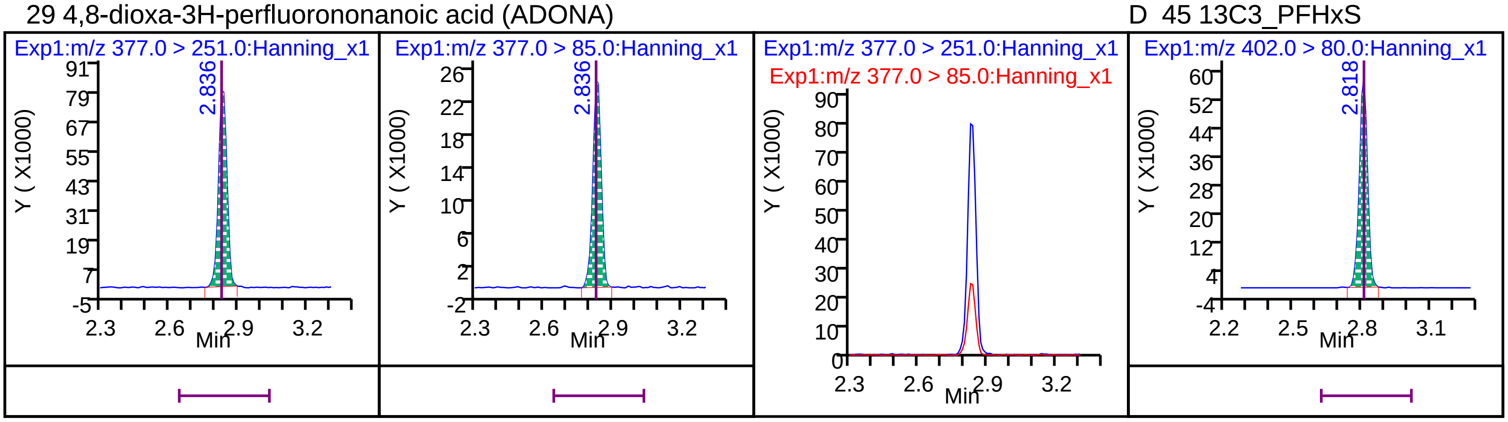
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



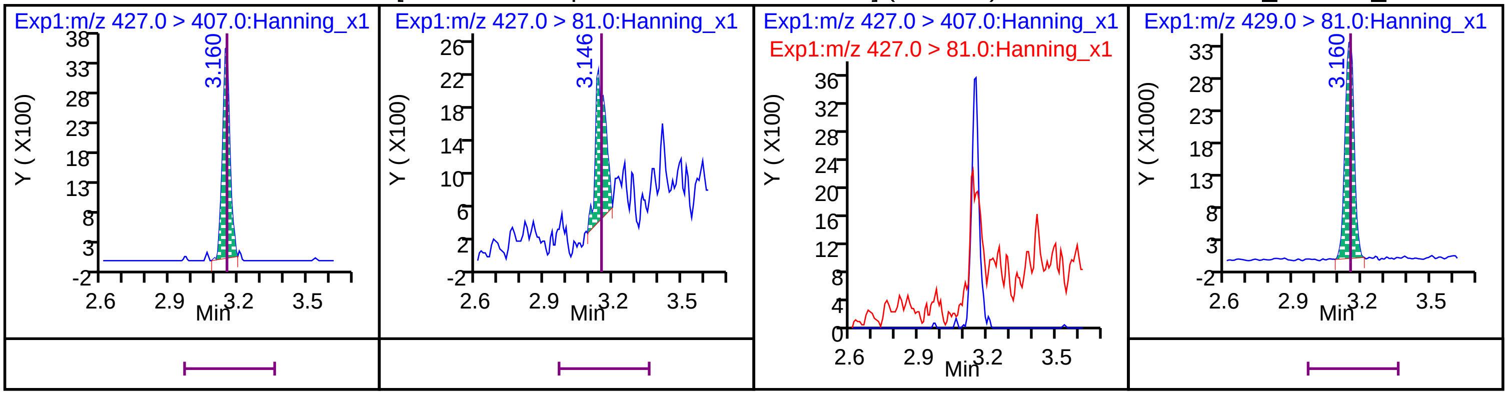
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



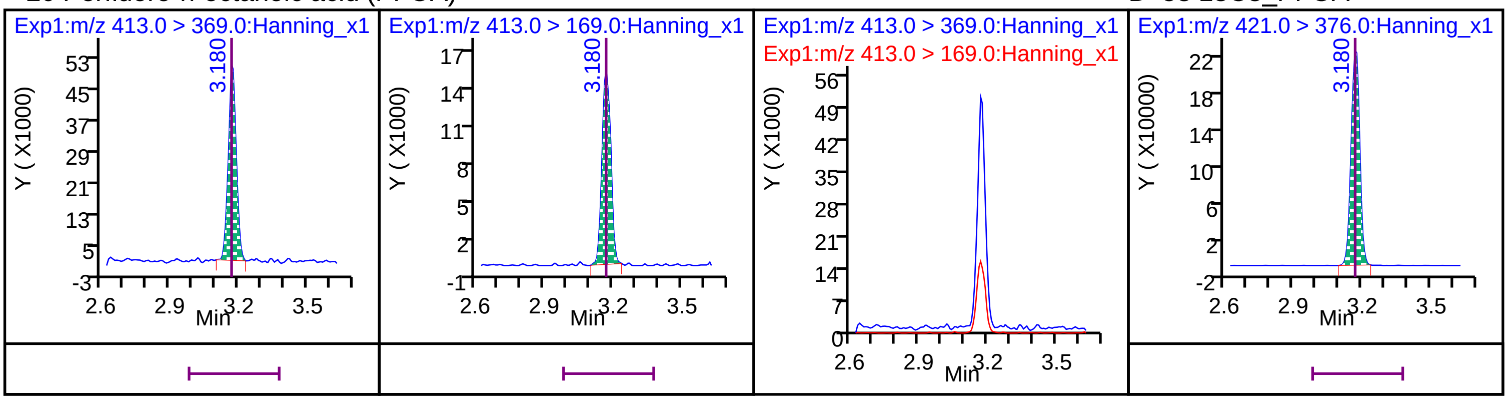
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



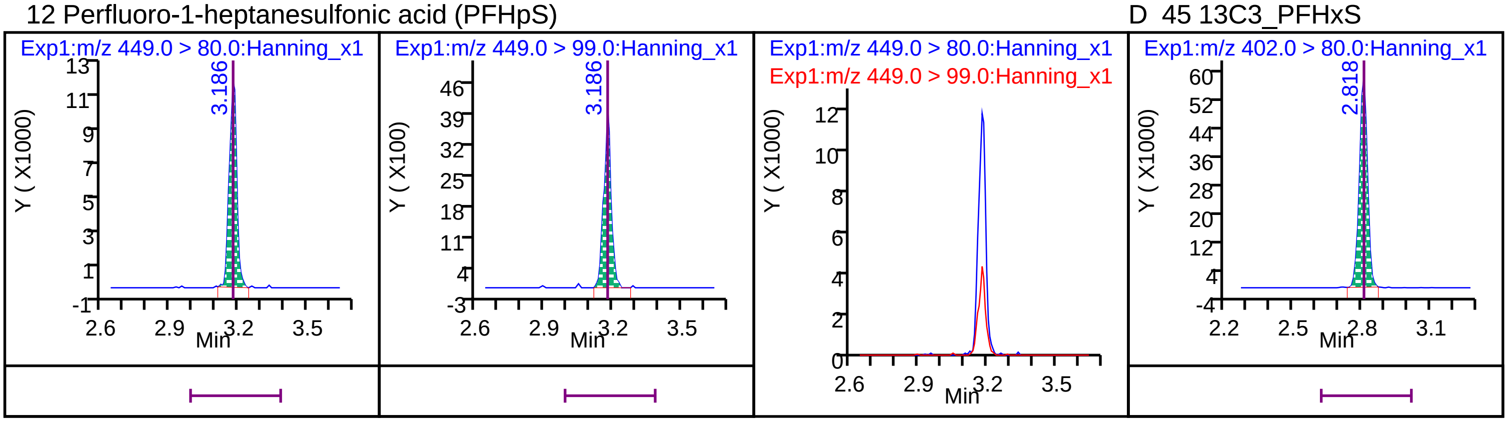
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



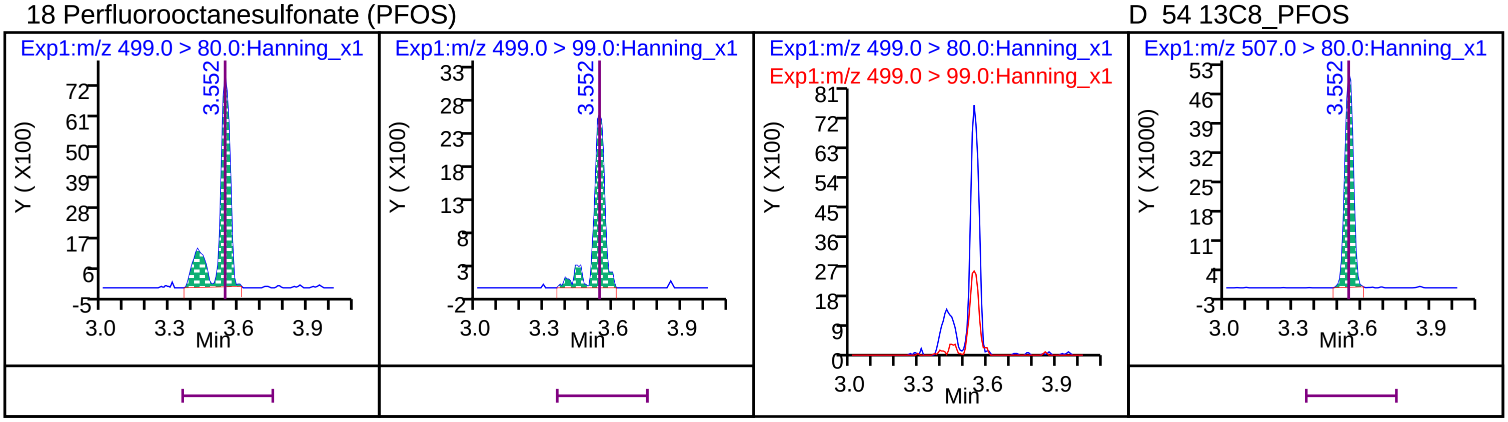
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



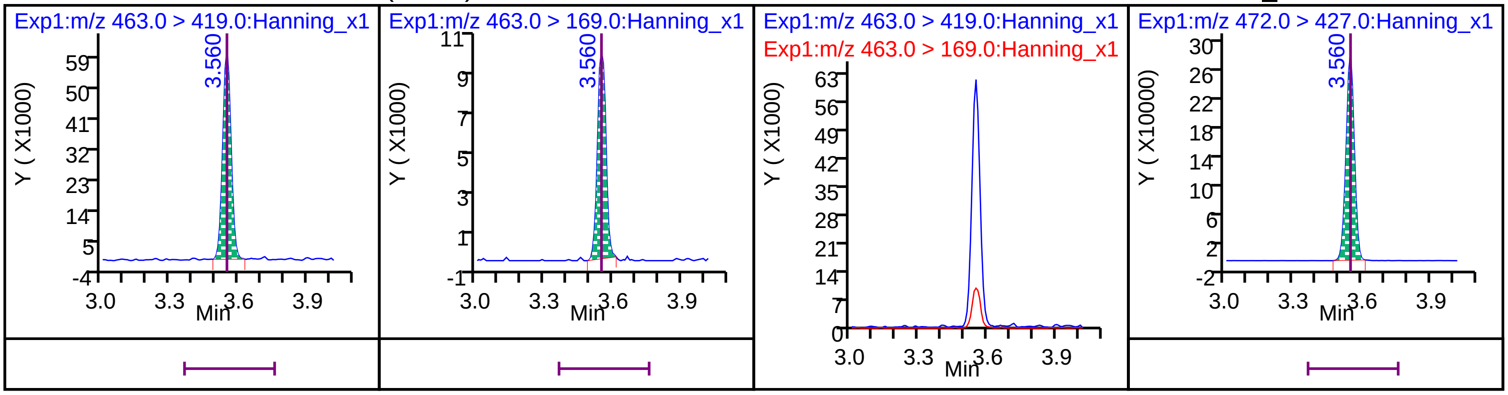
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



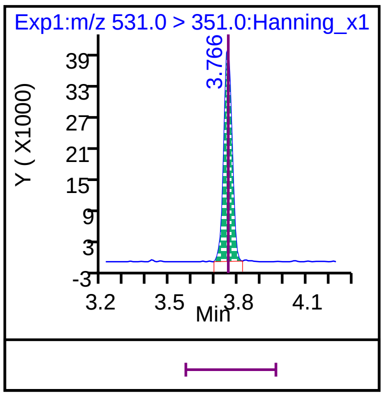
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

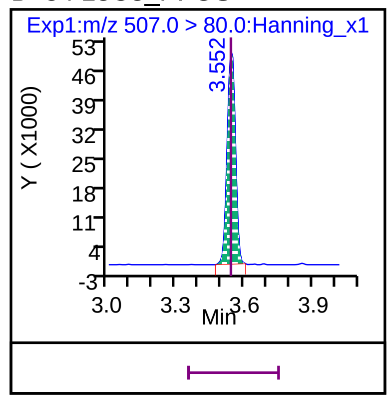


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

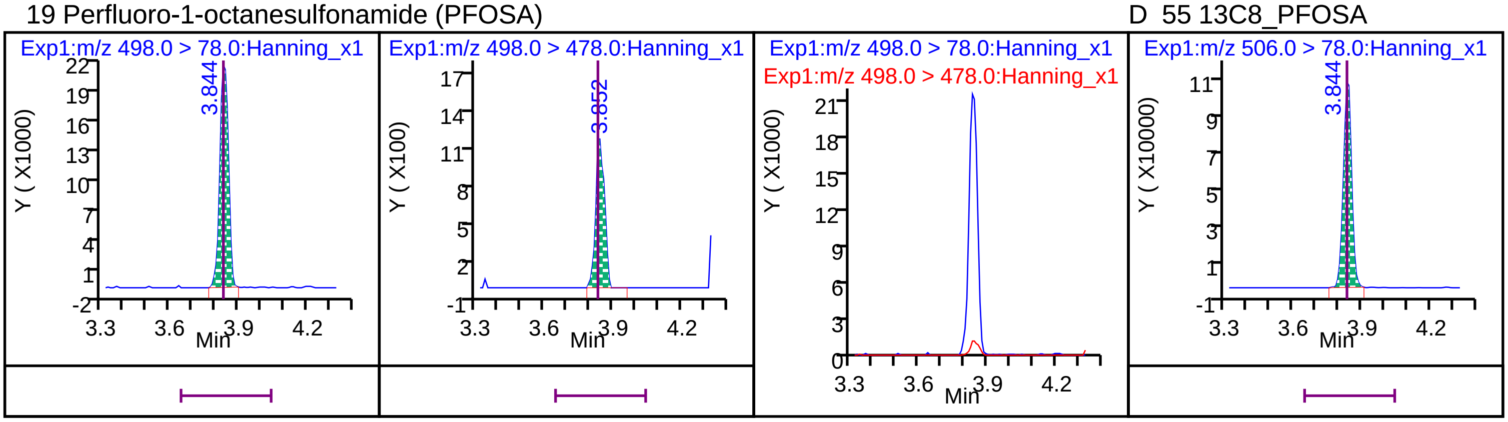


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

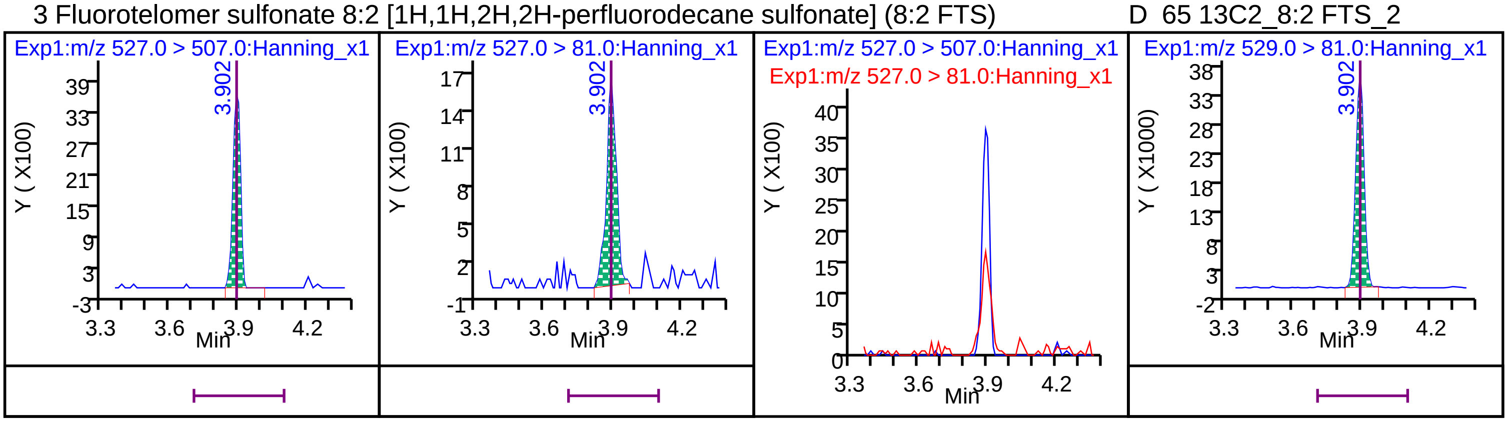




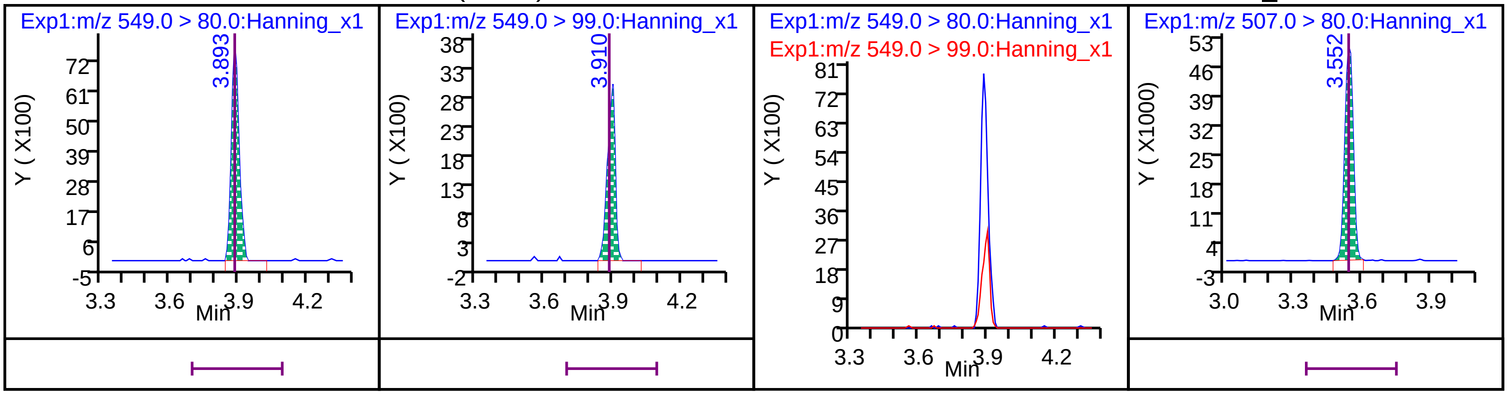
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



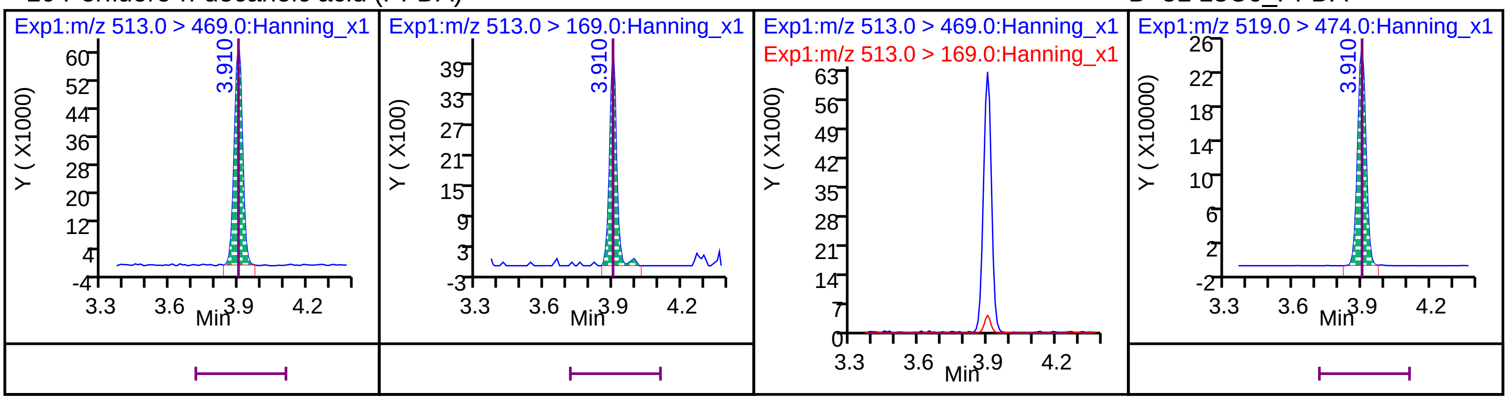
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



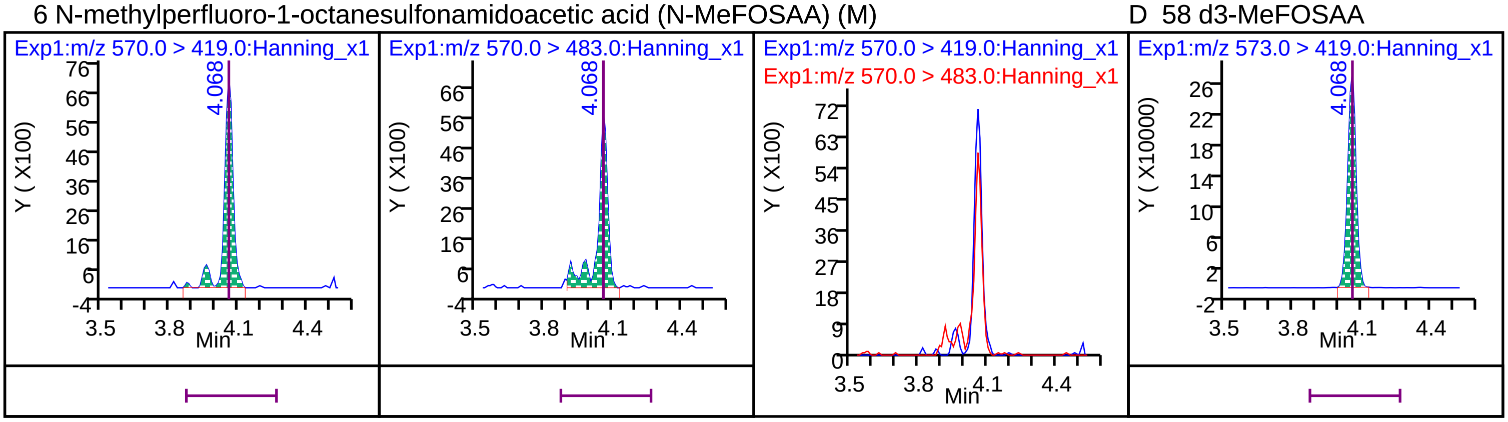
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



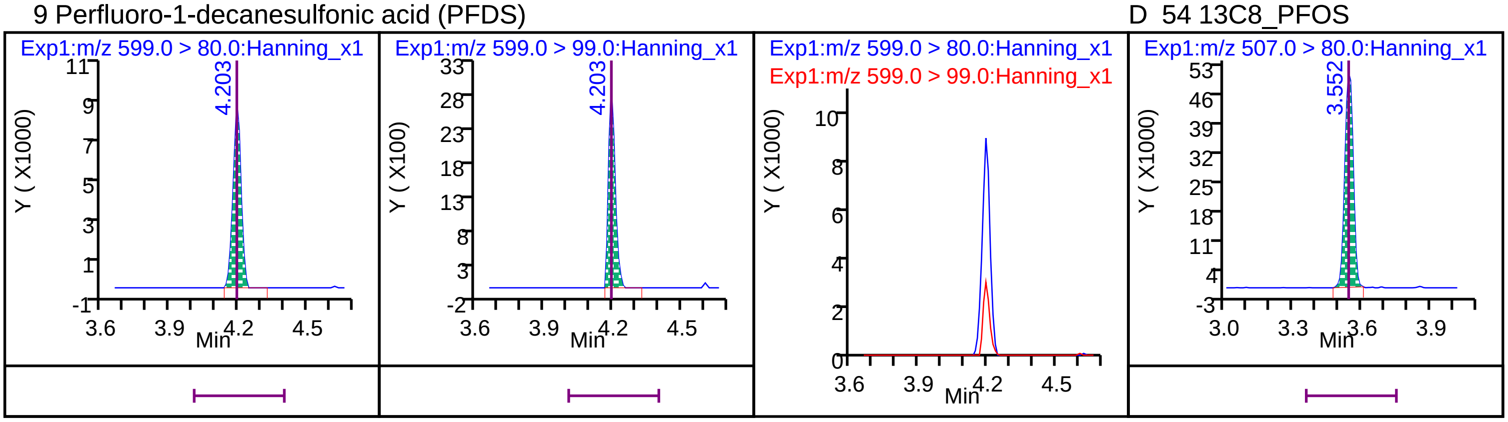
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



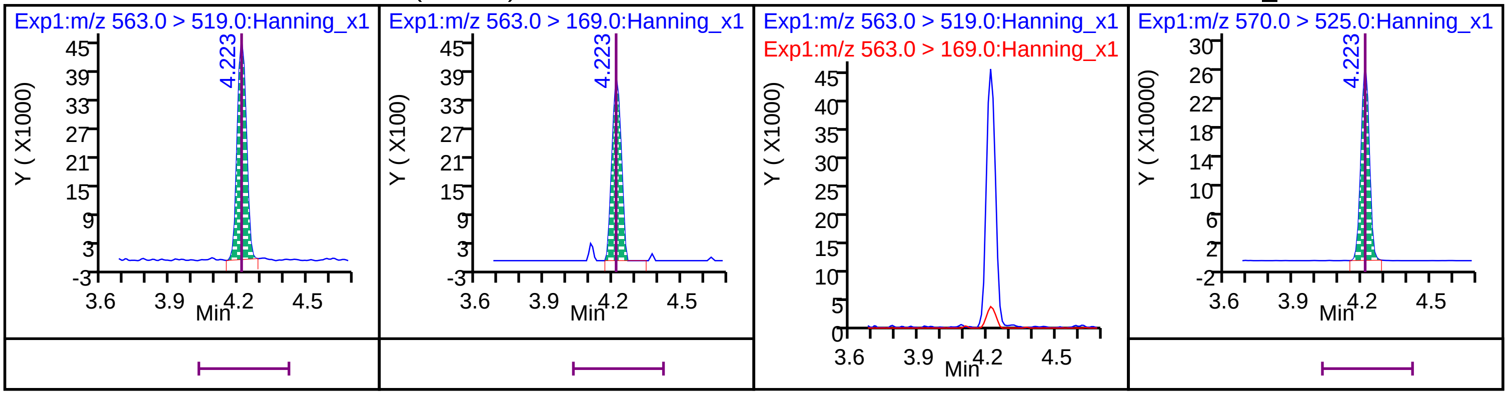
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



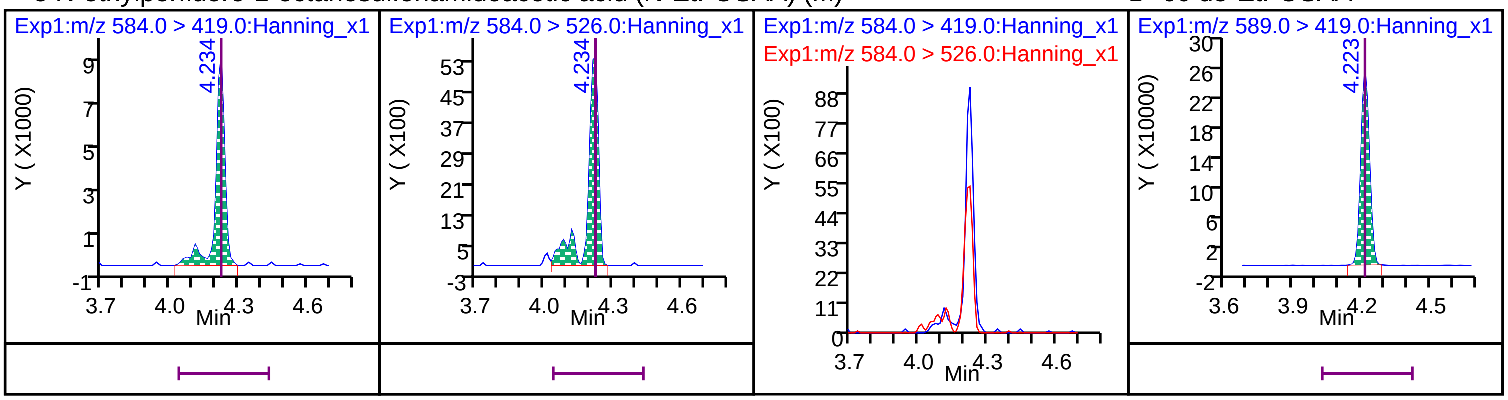
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



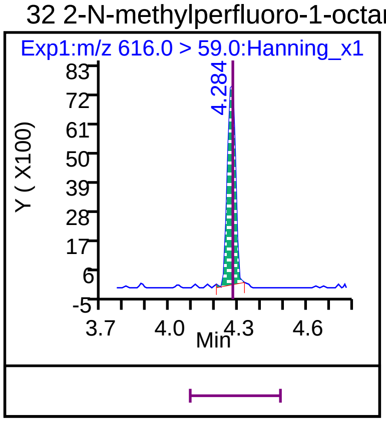
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

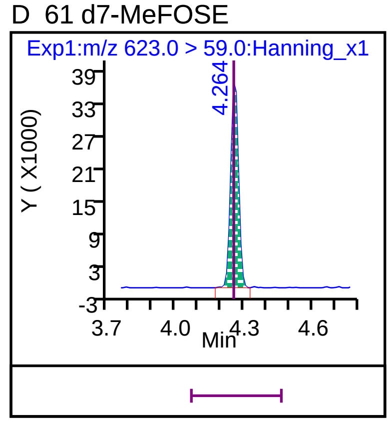


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

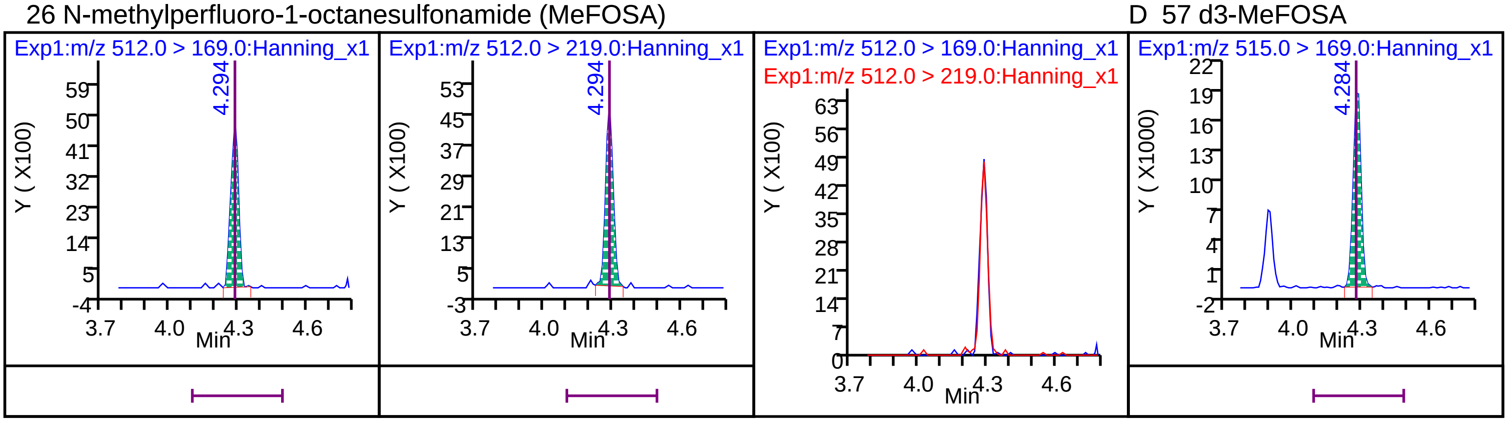


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

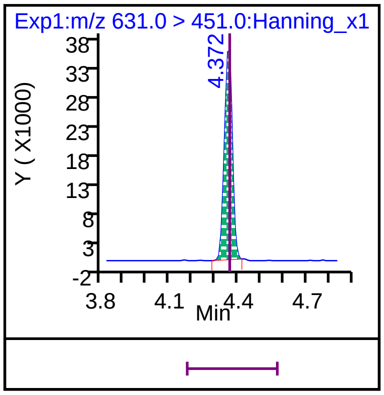




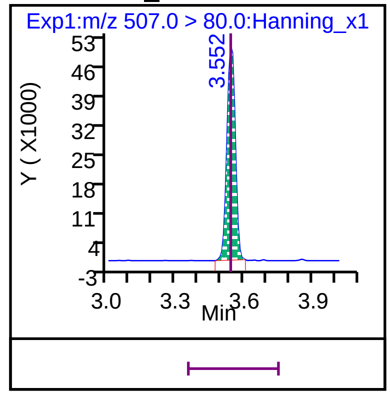
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



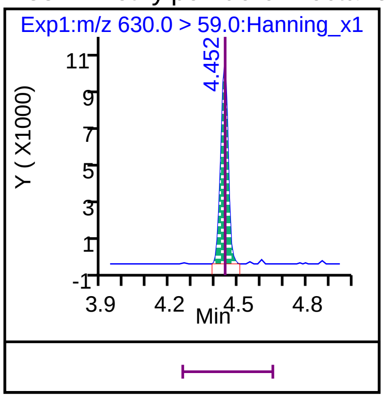
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



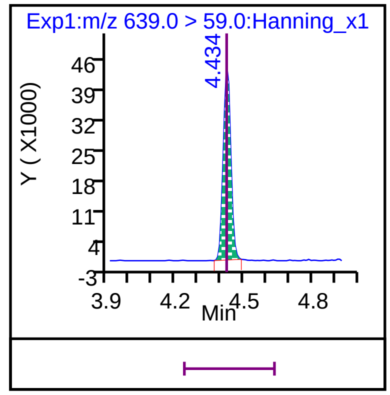
D 54 13C8_PFOS



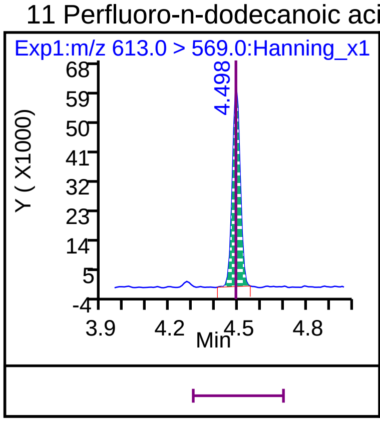
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

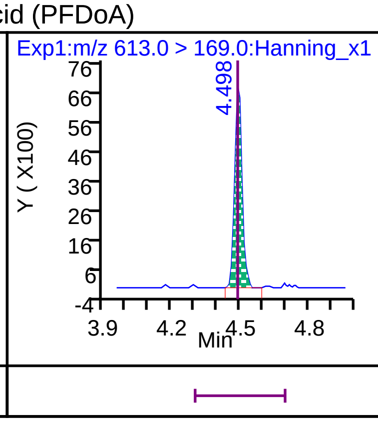


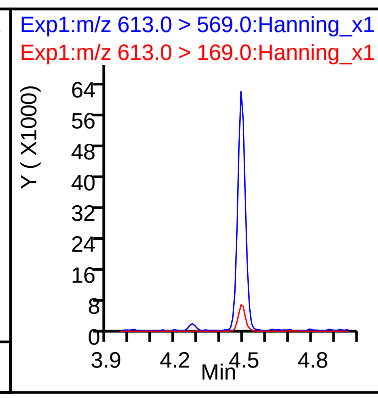
D 62 d9-EtFOSE



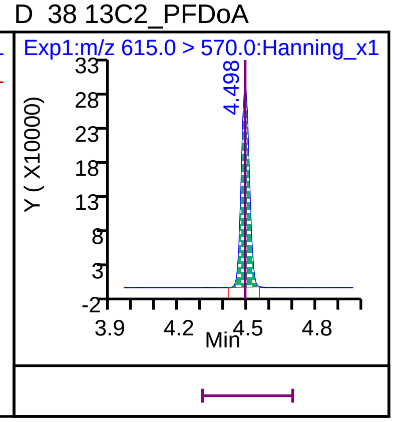
11 Perfluoro-n-dodecanoic acid (PFDoA)



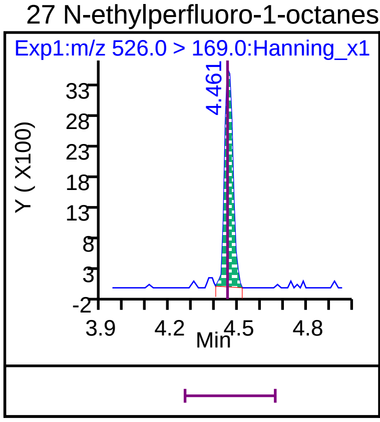


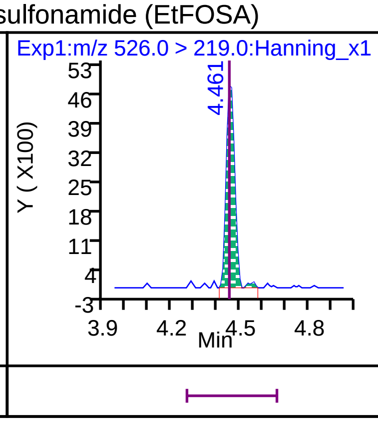


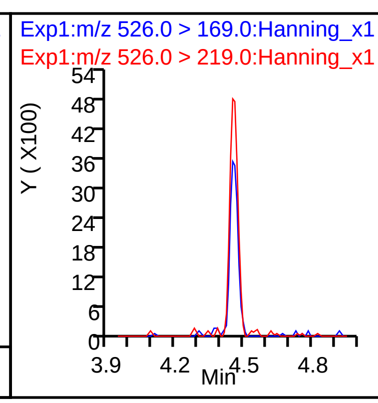
D 38 13C2_PFDoA



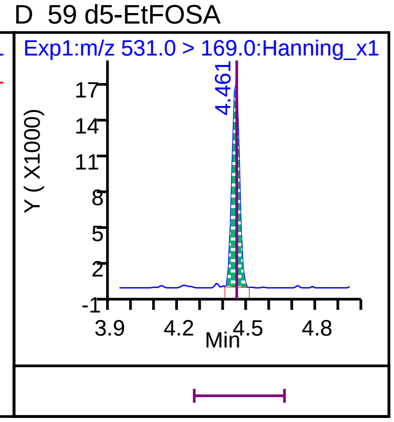
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



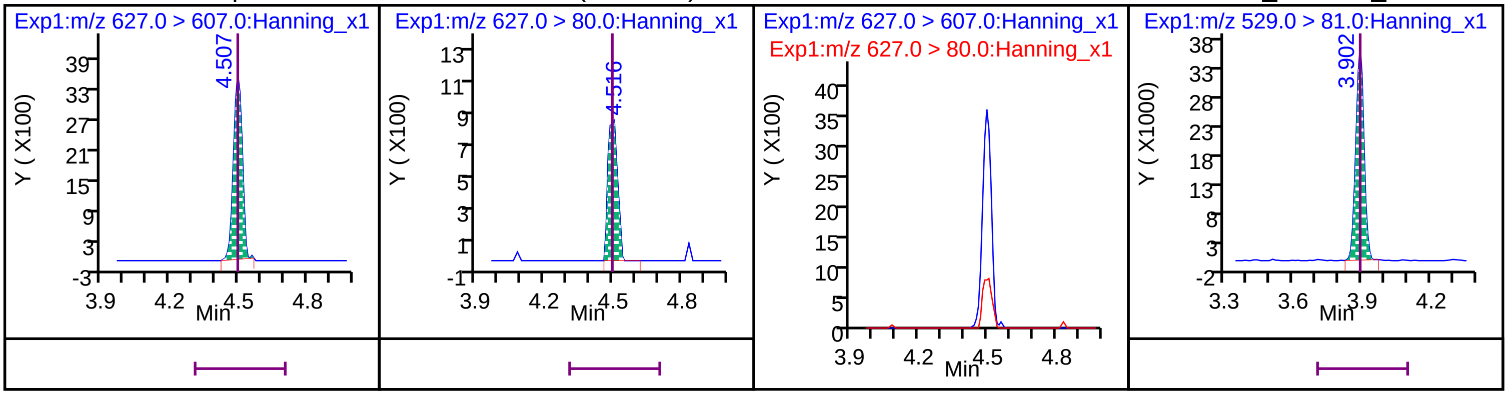




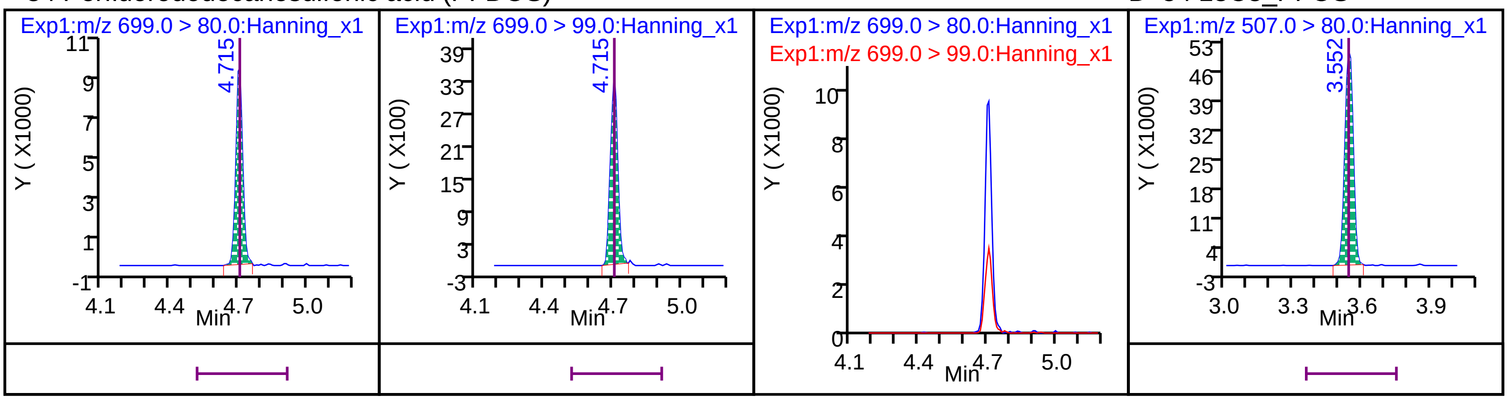
D 59 d5-EtFOSA



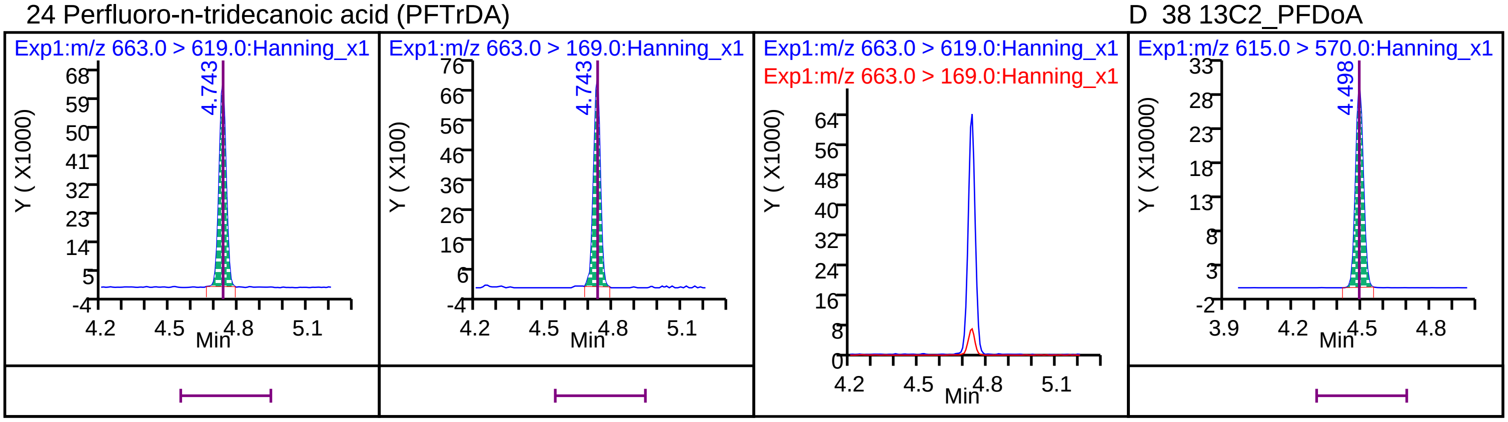
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



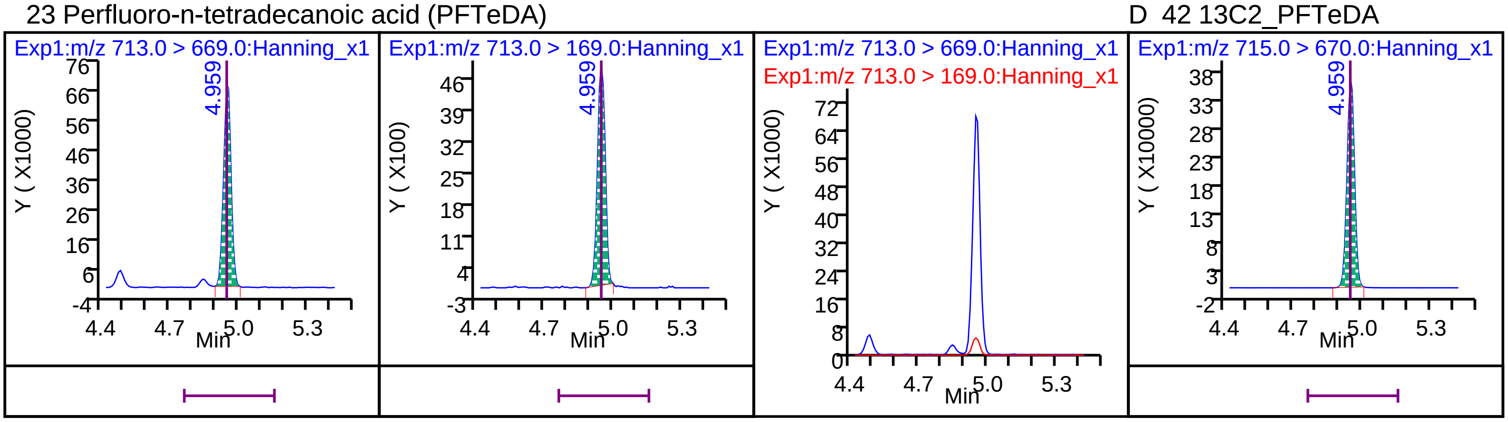
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



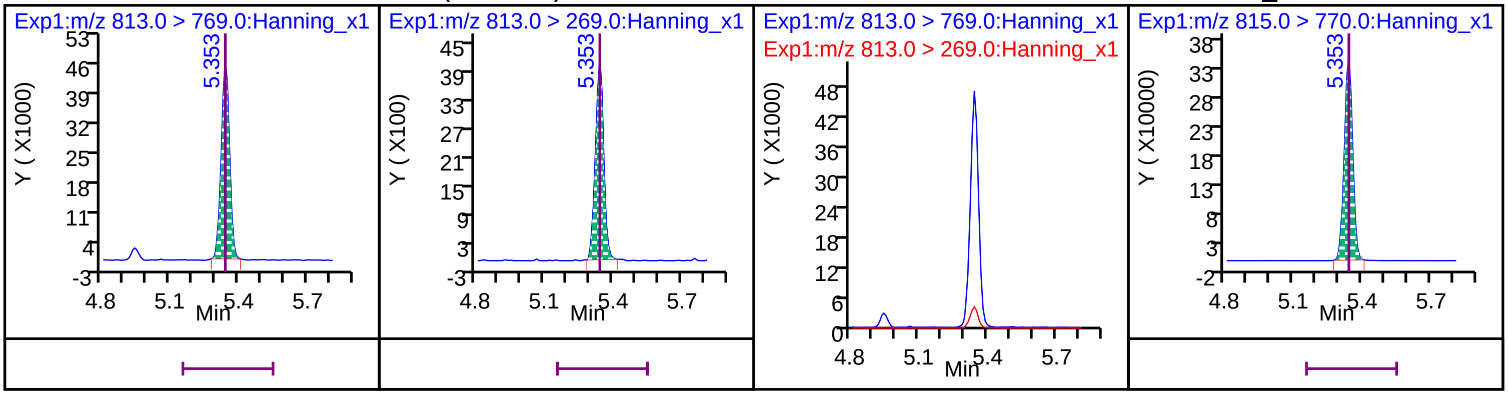
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



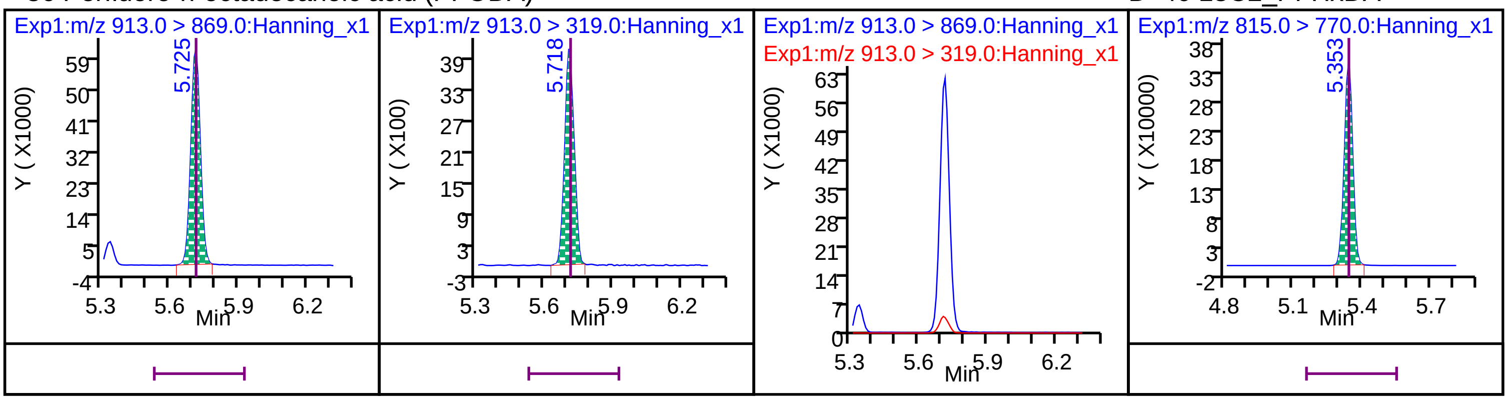
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



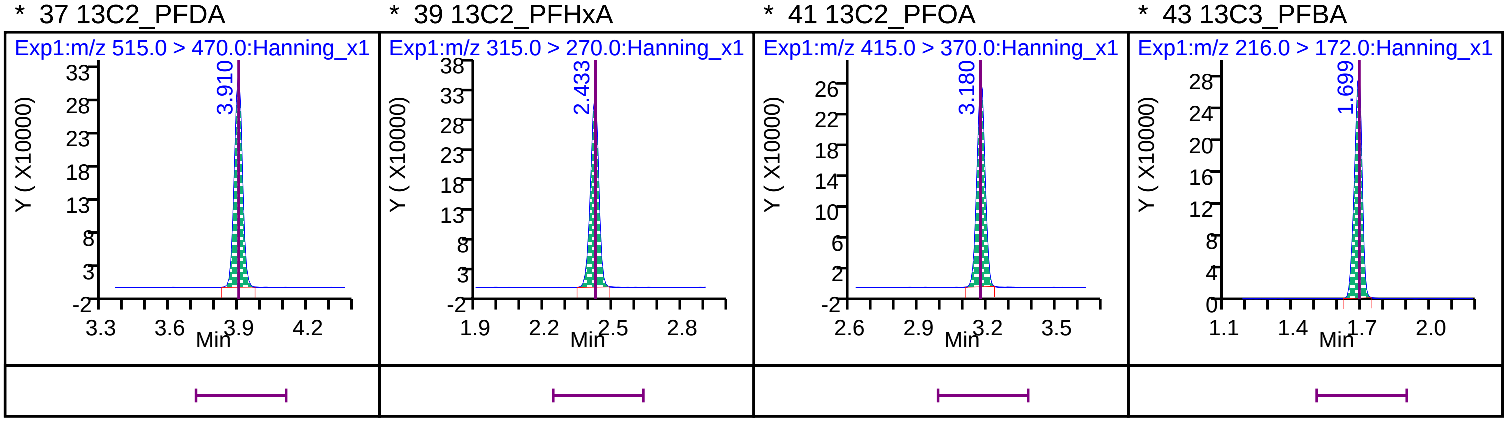
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



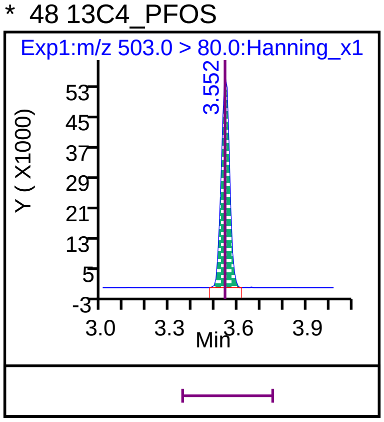
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:20:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721006.d

Injection Date: 17-Nov-2021 13:37:39 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 200_SVLC-1742

Sample Info: ID CCV 200_SVLC-1742

Dil. Factor: 1 Operator: Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

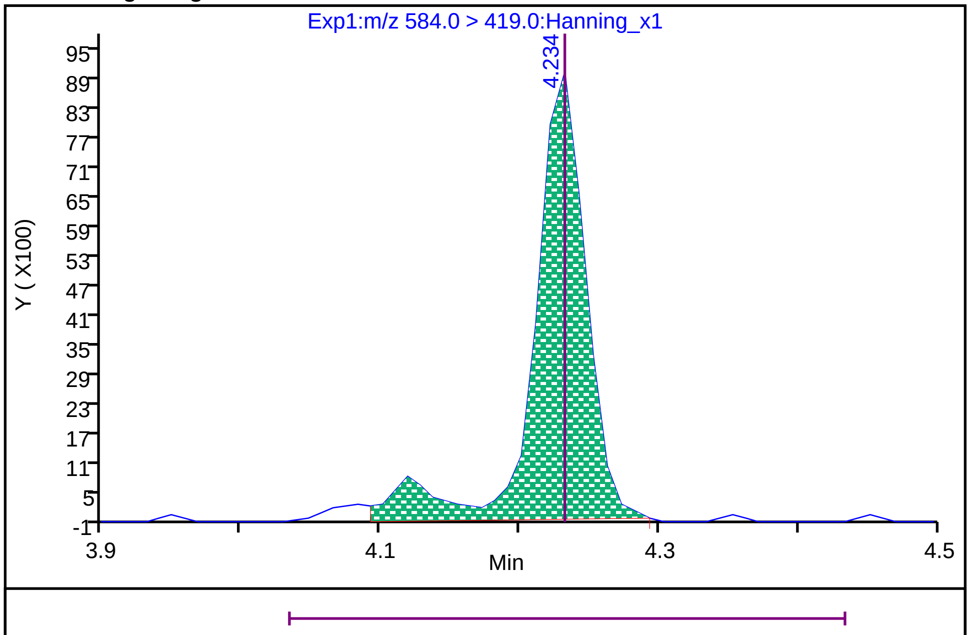
Processing Integration Results

RT: 4.234

Area: 23493

Amount: 190.27

Amount Units: ng/L

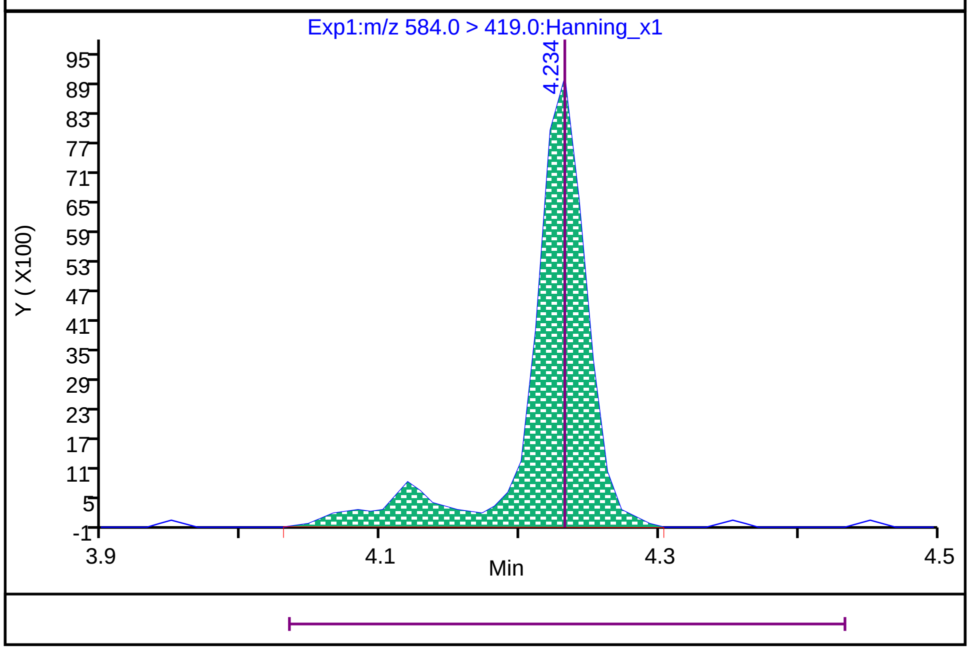


RT: 4.234

Area: 24644

Amount: 199.59

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:28:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

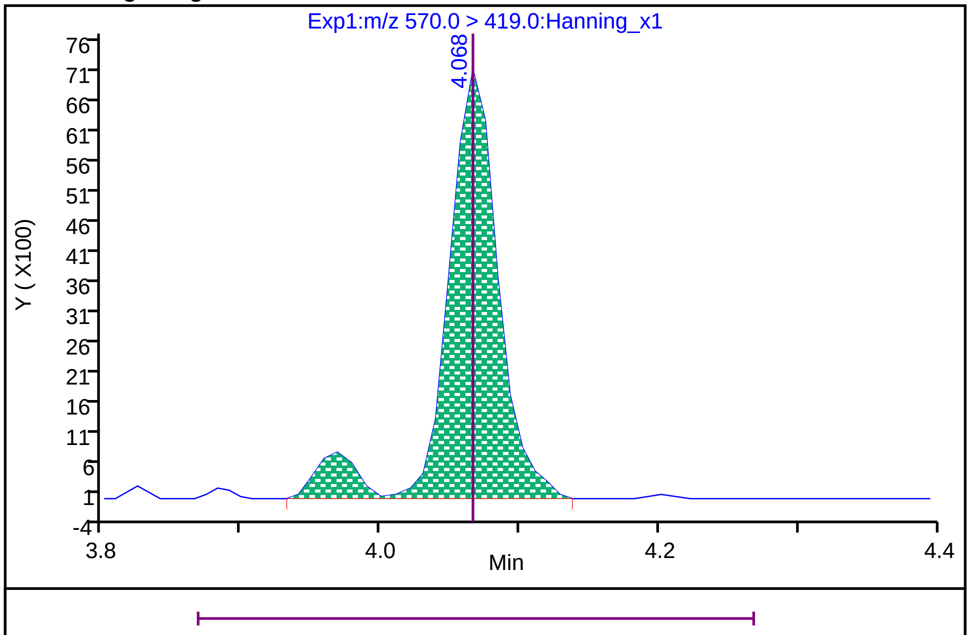
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721006.d		
Injection Date:	17-Nov-2021 13:37:39	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

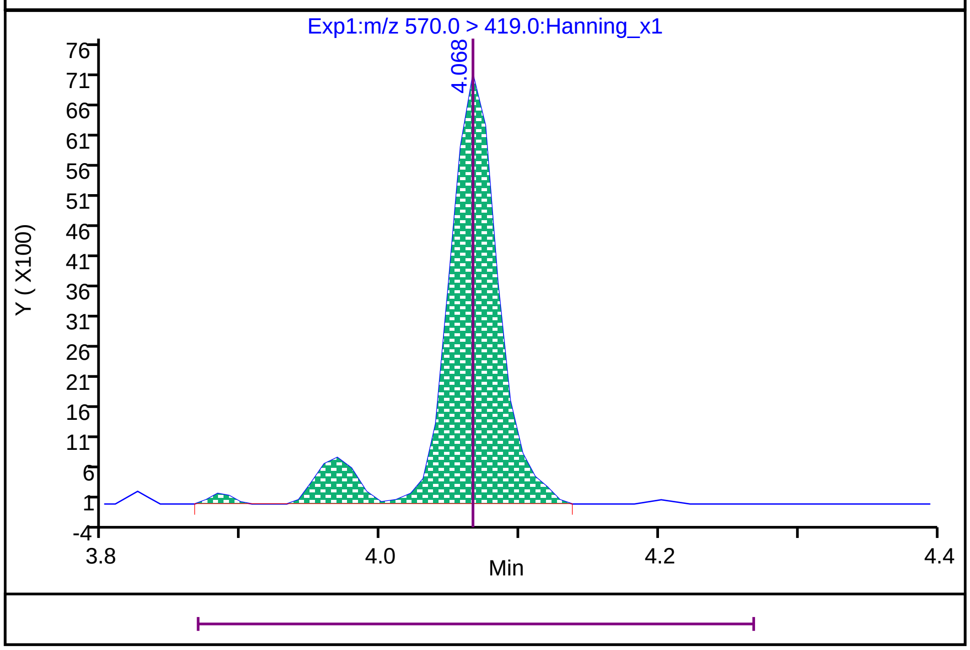
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.068
Area:	18590
Amount:	164.76
Amount Units:	ng/L



RT:	4.068
Area:	18700
Amount:	165.74
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:28:51

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d		
Injection Date:	17-Nov-2021 14:35:52	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	99
Sample Info:	ID CCV 100A_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	101.72	101.7	70 - 130
D 46 13C4_PFBA	668395	689037			103.1	50 - 150
D 50 13C5_PFPeA	587067	631561			107.6	50 - 150
21 PFPeA			100.00	100.44	100.4	70 - 130
7 PFBS			88.400	89.870	101.7	70 - 130
D 44 13C3_PFBS	178175	177700			99.7	50 - 150
1 4:2 FTS			93.400	85.631	91.7	70 - 130
D 63 13C2_4:2 FTS_2	113673	132952			117	50 - 150
D 49 13C5_PFHxA	698559	701314			100.4	50 - 150
15 PFHxA			100.00	108.39	108.4	70 - 130
22 PFPeS			93.800	90.364	96.3	70 - 130
28 GenX			200.00	212.06	106	70 - 130
D 66 13C3_GenX	1175107	1219928			103.8	50 - 150
D 47 13C4_PFHpA	617327	598244			96.9	50 - 150
13 PFHpA			100.00	100.24	100.2	70 - 130
D 45 13C3_PFHxS	139172	137167			98.6	50 - 150
14 PFHxS			91.000	88.375	97.1	70 - 130
29 ADONA			94.200	95.838	101.7	70 - 130
D 64 13C2_6:2 FTS_2	87765	107628			122.6	50 - 150
2 6:2 FTS			94.800	119.70	126.3	70 - 130
20 PFOA			100.00	96.612	96.6	70 - 130
D 53 13C8_PFOA	576099	598928			104	50 - 150
12 PFHpS			95.200	94.153	98.9	70 - 130
18 PFOS			92.800	102.48	110.4	70 - 130
17 PFNA			100.00	106.32	106.3	70 - 130
D 56 13C9_PFNA	677086	700699			103.5	50 - 150
D 54 13C8_PFOS	125490	127491			101.6	50 - 150
30 9Cl-PF3ONS			93.200	96.685	103.7	70 - 130
D 55 13C8_PFOSA	262168	260451			99.3	50 - 150
19 PFOSA			100.00	95.933	95.9	70 - 130
16 PFNS			96.000	91.248	95.1	70 - 130
D 65 13C2_8:2 FTS_2	88202	117966			133.7	50 - 150
3 8:2 FTS			95.800	60.656	63.3	70 - 130
10 PFDA			100.00	89.527	89.5	70 - 130
D 51 13C6_PFDA	615512	690063			112.1	50 - 150
6 N-MeFOSAA			100.00	111.36	111.4	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	681022	680360			99.9	50 - 150
9 PFDS			96.400	96.134	99.7	70 - 130
25 PFUdA			100.00	106.84	106.8	70 - 130
D 60 d5-EtFOSAA	650725	625578			96.1	50 - 150
D 52 13C7_PFUdA	654908	664179			101.4	50 - 150
5 N-EtFOSAA			100.00	103.98	104	70 - 130
D 61 d7-MeFOSE	85524	87155			101.9	50 - 150
32 MeFOSE			100.00	110.40	110.4	70 - 130
26 MeFOSA			100.00	109.55	109.5	70 - 130
D 57 d3-MeFOSA	44687	41790			93.5	50 - 150
31 11Cl-PF3OUDS			94.200	85.557	90.8	70 - 130
D 62 d9-EtFOSE	100548	107214			106.6	50 - 150
33 EtFOSE			100.00	105.43	105.4	70 - 130
D 59 d5-EtFOSA	37834	40635			107.4	50 - 150
27 EtFOSA			100.00	99.203	99.2	70 - 130
11 PFDoA			100.00	104.16	104.2	70 - 130
D 38 13C2_PFDoA	677078	702603			103.8	50 - 150
4 10:2 FTS			96.400	72.215	74.9	70 - 130
34 PFDOS			96.800	82.931	85.7	70 - 130
24 PFTrDA			100.00	105.45	105.4	70 - 130
23 PFTeDA			100.00	102.45	102.5	70 - 130
D 42 13C2_PFTeDA	816988	875604			107.2	50 - 150
35 PFHxDA			100.00	105.08	105.1	70 - 130
D 40 13C2_PFHxDA	853968	875294			102.5	50 - 150
36 PFODA			100.00	105.80	105.8	70 - 130

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d		
Injection Date:	17-Nov-2021 14:35:52	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	99
Sample Info:	ID CCV 100A_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.692	2	689037	20	>100:1			1000.00	1104.34	103.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.699	2/0	73325	18	48:1			100.00	101.72		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.067	2	631561	16	>100:1			1000.00	1090.49	107.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.067	2/0	69662	13	25:1			100.00	100.44		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.120	2	177700	15	>100:1			1000.00	1023.93	99.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.120	2/0	19895	22	>100:1	Target = 3.48		88.400	89.870		
298.9 > 99	44	2.151	2.120		5673	13	62:1	3.50 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.460	3/1	14214	21	>100:1	Target = 3.03		93.800	90.364		
349 > 99	44	2.496	2.460		4835	19	46:1	2.93 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.389	3	132952	16	91:1			5000.00	6088.65	117	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.389	3/0	5751	21	75:1	Target = 1.70		93.400	85.631		
327 > 81	63	2.424	2.389		4764	19	3.1:1	1.20 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.433	3	701314	16	>100:1			1000.00	1082.15	100.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.433	3/0	80440	16	>100:1	Target = 18.47		100.00	108.39		
313 > 119	49	2.460	2.433		5413	14	28:1	14.86 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.549	3	1219928	18	>100:1			5000.00	5448.13	103.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.540	3/0	34045	20	>100:1	Target = 0.78		200.00	212.06		
285 > 185	66	2.583	2.540		41643	20	>100:1	0.81 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.800	4	598244	17	>100:1			1000.00	1133.47	96.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.800	4/0	68578	16	>100:1	Target = 3.92		100.00	100.24		
363 > 169	47	2.845	2.800		18397	22	88:1	3.72 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.854	2.818	3	137167	16	>100:1			1000.00	1074.00	98.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.854	2.818	3/0	13666	22	97:1	Target = 3.14	4.08	91.000	88.375		
399 > 99	45	2.863	2.818		4241	31	54:1	3.22 (1.57-4.71)	6.41				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.880	2.836	4/1	102244	17	>100:1	Target = 3.33		94.200	95.838		
377 > 85	45	2.880	2.836		27936	17	95:1	3.65 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.232	3.186	4/1	12556	23	94:1	Target = 3.02		95.200	94.153		
449 > 99	45	3.226	3.186		4146	16	33:1	3.02 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.206	3.160	4	107628	20	>100:1			5000.00	6271.76	122.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.206	3.160	4/0	6044	23	56:1	Target = 1.69		94.800	119.70		
427 > 81	64	3.192	3.160		3227	9	3.5:1	1.87 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.226	3.180	4	598928	21	>100:1			1000.00	1156.25	104	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.226	3.180	4/0	60556	19	61:1	Target = 3.03		100.00	96.612		
413 > 169	53	3.219	3.180		19966	20	95:1	3.03 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.599	3.552	5	127491	17	>100:1			1000.00	1024.02	101.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.599	3.552	5/0	15519	41	50:1	Target = 3.42	3.69	92.800	102.48		
499 > 99	54	3.599	3.552		4322	22	45:1	3.59 (1.71-5.13)	9.75				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.812	3.766	5/0	47322	18	>100:1			93.200	96.685		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.943	3.893	5/0	9057	11	85:1	Target = 2.57		96.000	91.248		
549 > 99	54	3.934	3.893		3347	23	28:1	2.70 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.243	4.203	4/-1	9852	19	68:1	Target = 2.71		96.400	96.134		
599 > 99	54	4.243	4.203		3221	15		3.05 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.410	4.372	5/0	36974	17	>100:1			94.200	85.557		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.756	4.715	5/0	8414	17	>100:1	Target = 3.04		96.800	82.931		
699 > 99	54	4.756	4.715		3620	24	45:1	2.32 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.607	3.560	5	700699	19	>100:1			1000.00	1085.98	103.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.607	3.560	5/0	82070	18	>100:1	Target = 7.14		100.00	106.32		
463 > 169	56	3.615	3.560		12925	18	85:1	6.34 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.860	3.844	2	260451	19	>100:1			1000.00	1032.85	99.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.869	3.844	2/0	27454	24	>100:1	Target = 32.83		100.00	95.933		
498>478	55	3.869	3.844		1291	18	14:1	21.26 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.943	3.902	4	117966	19	>100:1			5000.00	7054.59	133.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.952	3.902	0/-4	3319	18		Target = 2.14		95.800	60.656		
527 > 81	65	3.952	3.902		3278	10	5.8:1	1.01 (1.07-3.21)					M
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.551	4.507	5/1	4580	20	62:1	Target = 3.72		96.400	72.215		
627 > 80	65	4.560	4.507		1091	19	14:1	4.19 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.952	3.910	4	690063	17	>100:1			1000.00	1210.93	112.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.952	3.910	4/0	72434	18	>100:1	Target = 14.16		100.00	89.527		
513 > 169	51	3.961	3.910		5211	13	39:1	13.90 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.112	4.068	5	680360	18	>100:1			5000.00	4981.12	99.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.112	4.068	0/-5	12552	28	40:1	Target = 1.42	4.51	100.00	111.36		M
570 > 483	58	4.112	4.068		7213	27		1.74 (0.71-2.14)	3.58				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.274	4.223	5	625578	16	>100:1			5000.00	5152.18	96.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.274	4.234	0/-5	12343	29	48:1	Target = 1.49	4.93	100.00	103.98		M
584 > 526	60	4.284	4.234		8917	35		1.38 (0.74-2.24)	2.74				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.264	4.223	5	664179	17	>100:1			1000.00	1023.09	101.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.274	4.223	5/0	65835	22	>100:1	Target = 14.37		100.00	106.84		
563 > 169	52	4.274	4.223		5958	19	53:1	11.04 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.274	4.264	2	87155	15	>100:1			1000.00	994.53	101.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.284	4.284	2/0	10623	19	48:1			100.00	110.40		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.284	2	41790	13	>100:1			1000.00	855.70	93.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.294	2/0	4667	18	19:1	Target = 1.08		100.00	109.55		
512 > 219	57	4.294	4.294		3875	18	44:1	1.20 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.443	4.434	1	107214	15	>100:1			1000.00	1012.25	106.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.461	4.452	2/1	11524	12	>100:1			100.00	105.43		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.470	4.461	2	40635	15	>100:1			1000.00	927.50	107.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.461	1/-1	4747	22	42:1	Target = 0.97		100.00	99.203		
526 > 219	59	4.470	4.461		5097	19	36:1	0.93 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.543	4.498	5	702603	18	>100:1			1000.00	1177.13	103.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.543	4.498	5/0	79004	14	50:1	Target = 10.55		100.00	104.16		
613 > 169	38	4.551	4.498		5675	20	40:1	13.92 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.783	4.743	5/0	72119	20	>100:1	Target = 8.92		100.00	105.45		
663 > 169	38	4.790	4.743		8421	18	>100:1	8.56 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.011	4.959	6	875604	20	>100:1			1000.00	1161.11	107.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.011	4.959	6/0	78649	19	>100:1	Target = 12.22		100.00	102.45		
713 > 169	42	5.011	4.959		5639	17	63:1	13.94 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.409	5.353	7	875294	18	>100:1			1000.00	973.44	102.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.409	5.353	7/0	62314	18	13:1	Target = 11.65		100.00	105.08		
813 > 269	40	5.409	5.353		5259	20	>100:1	11.84 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.804	5.725	9/2	87135	23	>100:1	Target = 15.15		100.00	105.80		
913 > 319	40	5.796	5.725		5503	21	>100:1	15.83 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.952	3.910	4	746840	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.433	3	729396	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.226	3.180	4	601891	19	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.699	2	623775	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.599	3.552	5	121387	17	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d		
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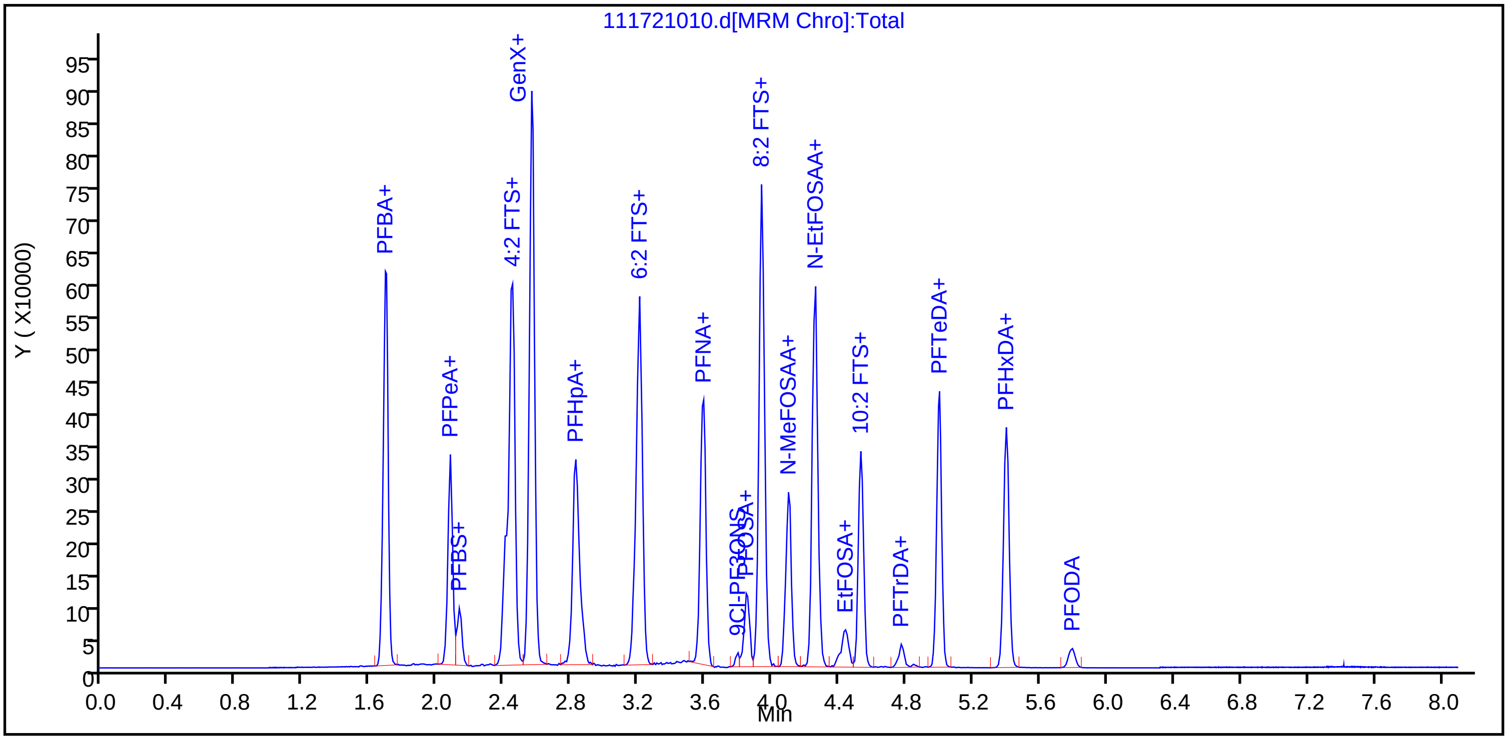
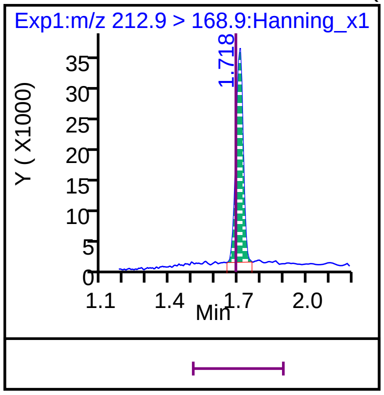
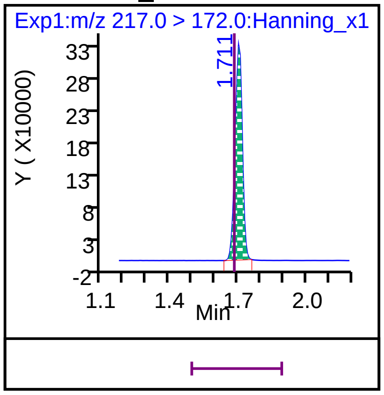
Client ID:		Lab ID:	ID CCV 100A_SVLC-1741
Sample Info:	ID CCV 100A_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



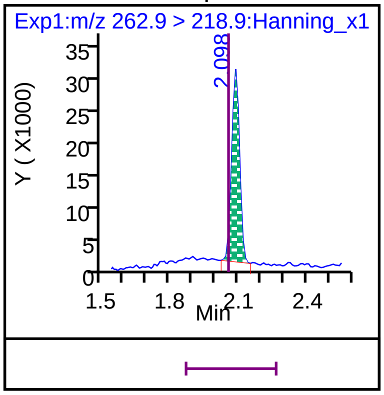
8 Perfluoro-n-butanoic acid (PFBA)



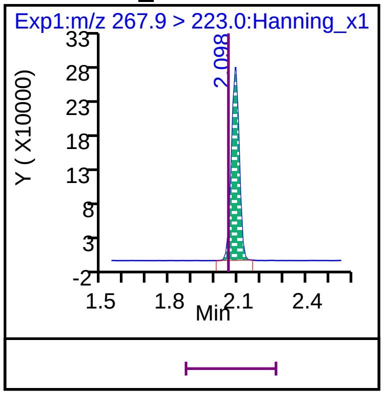
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

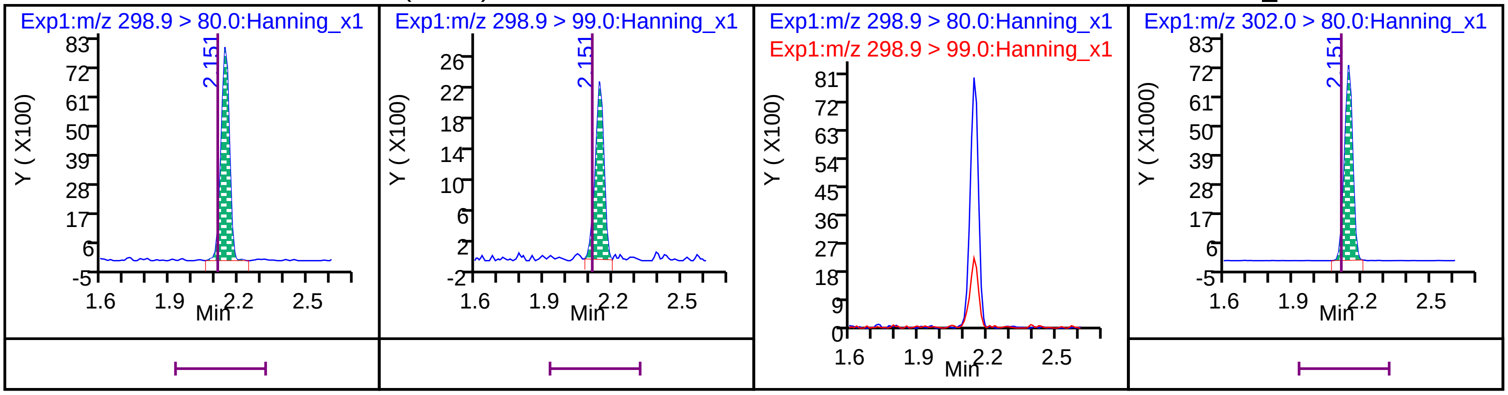


D 50 13C5_PFPeA

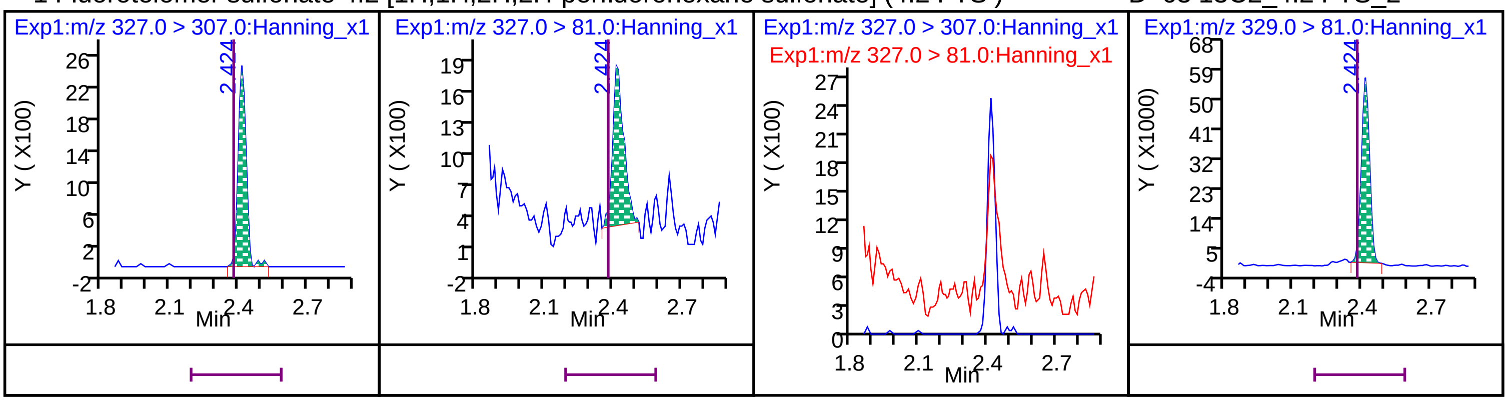


Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d

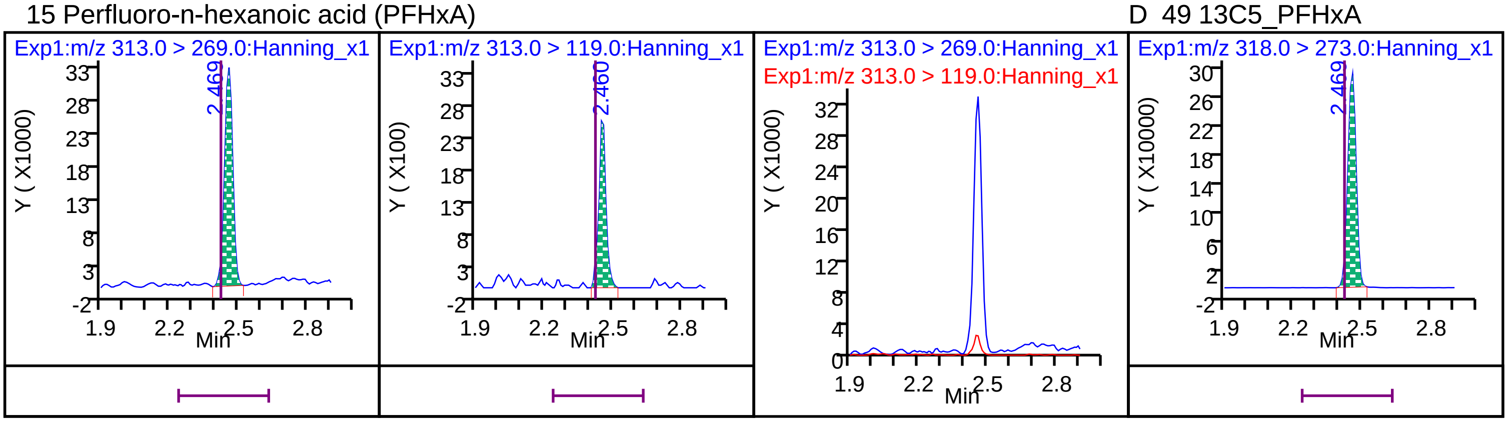
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



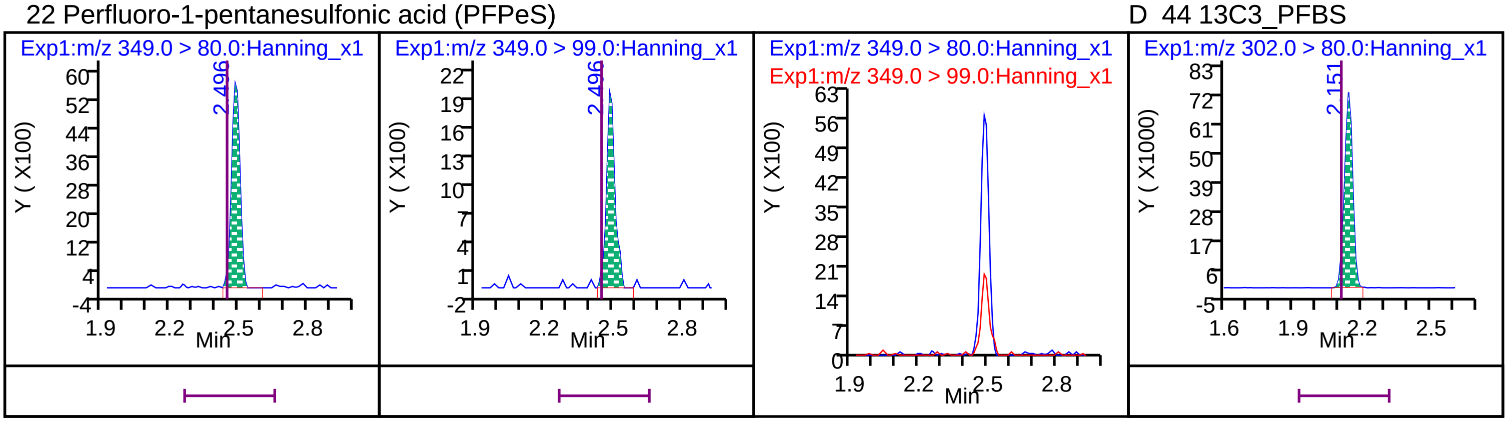
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812
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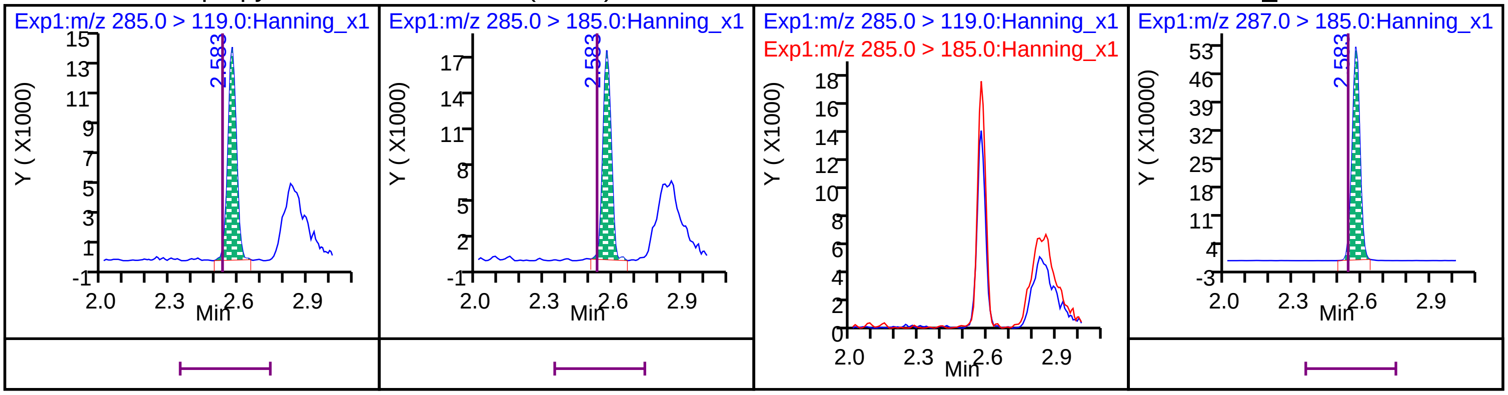
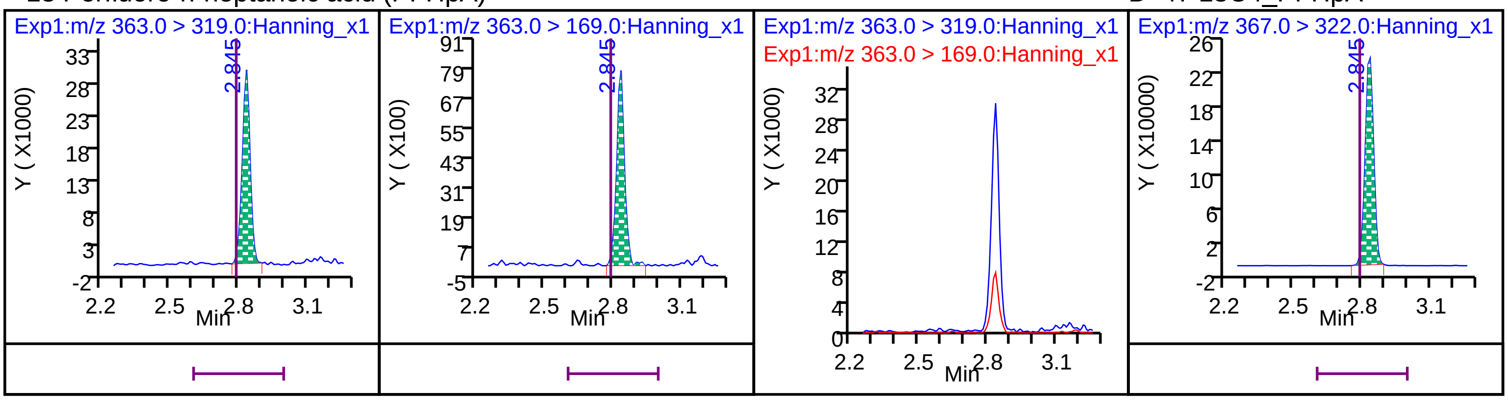
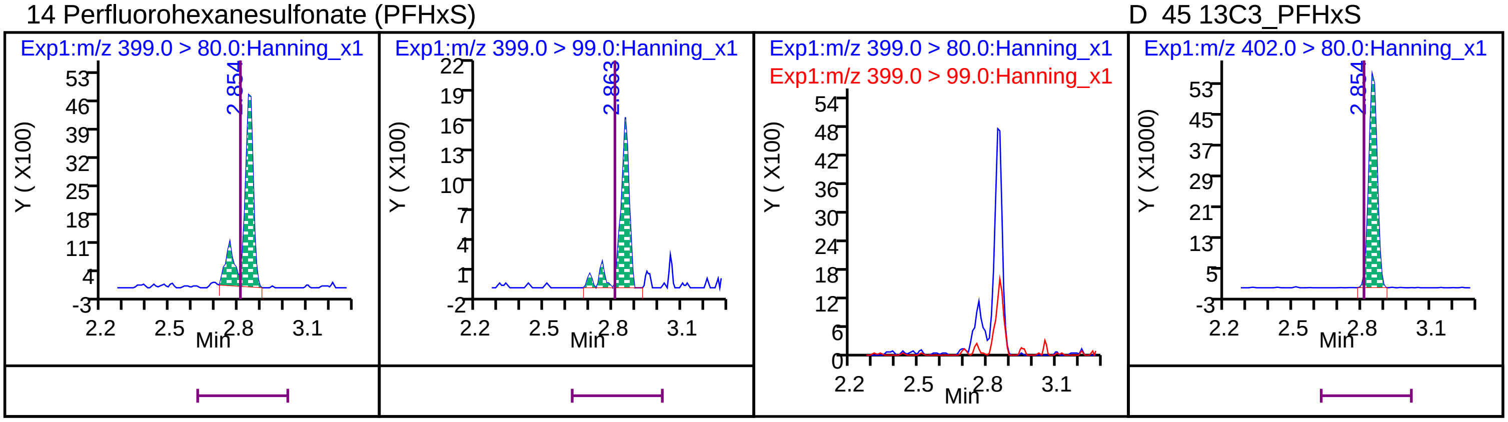
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



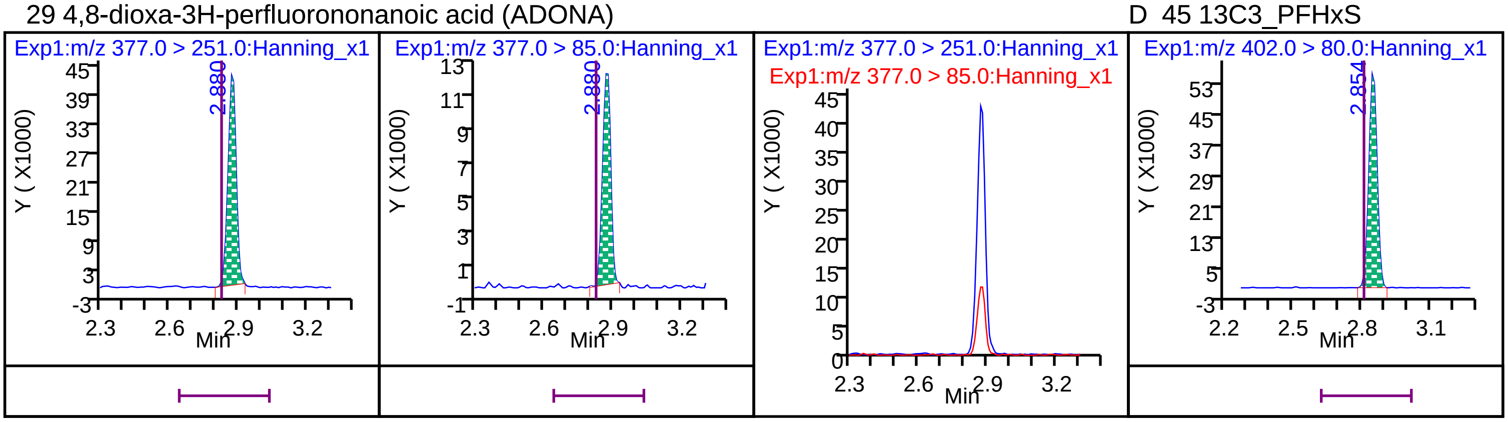
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



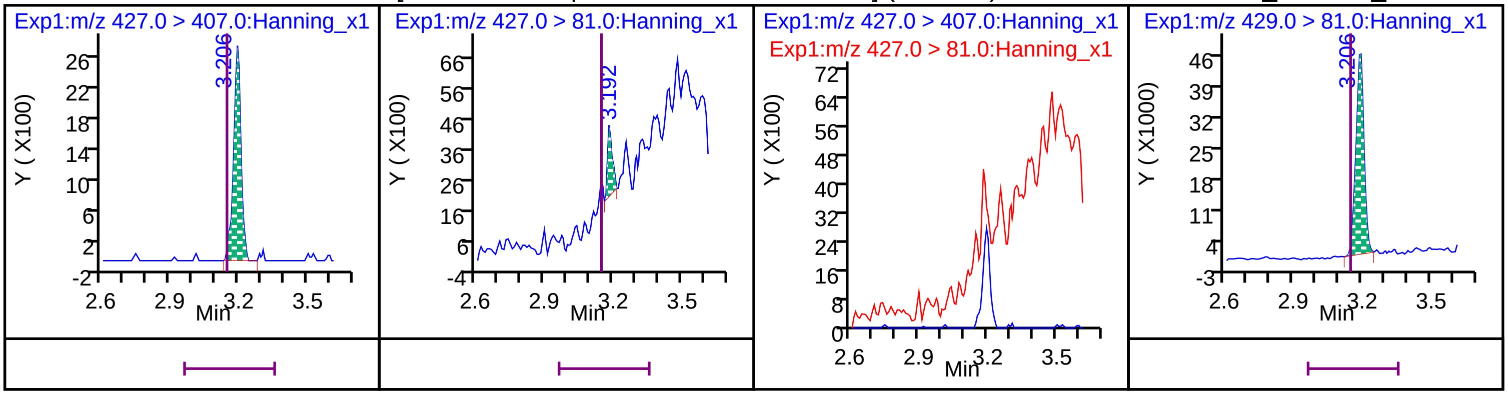
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



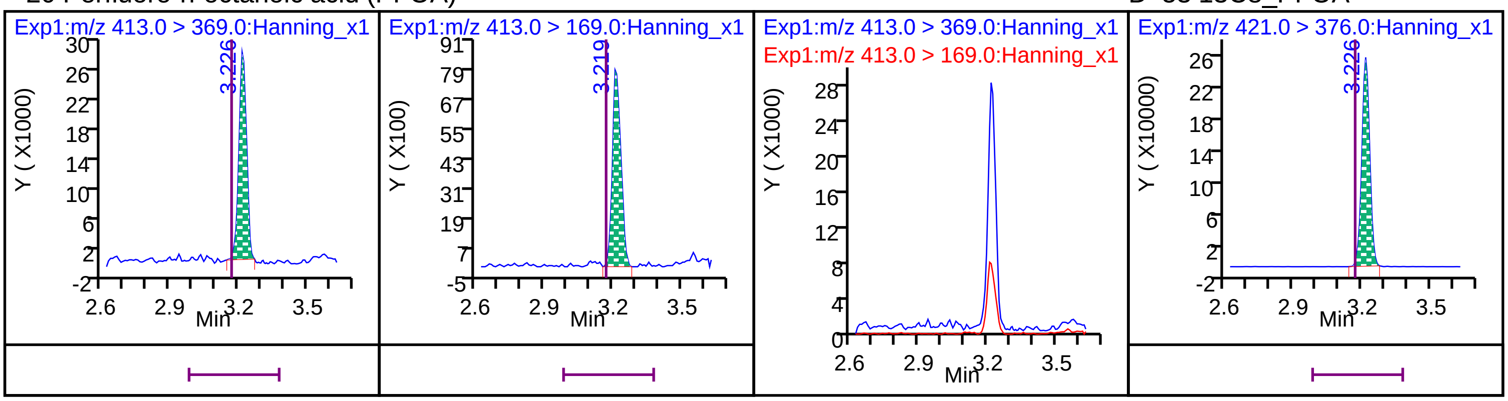
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



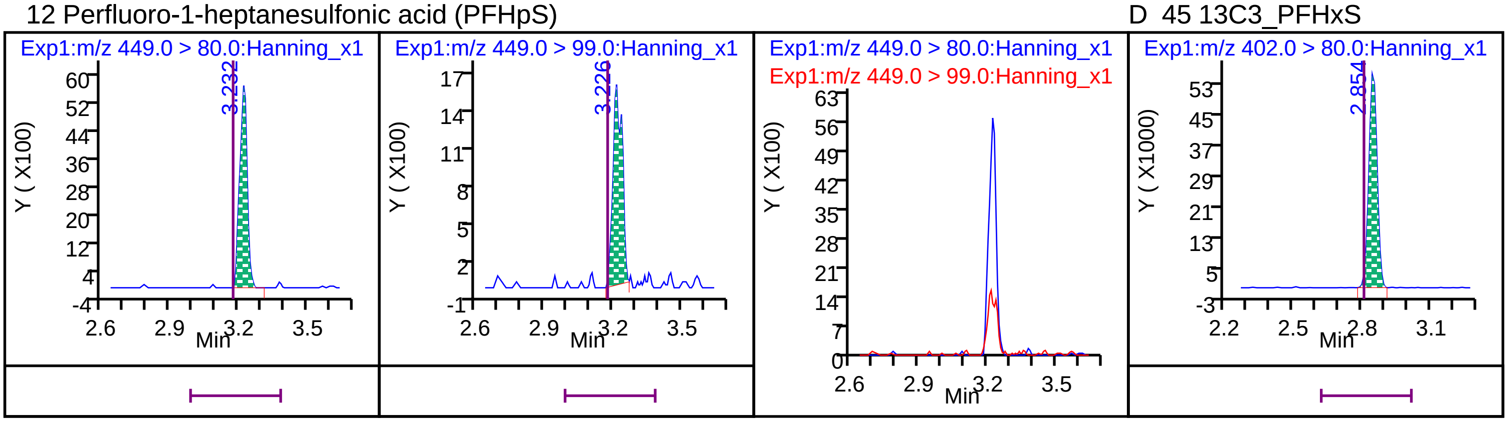
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



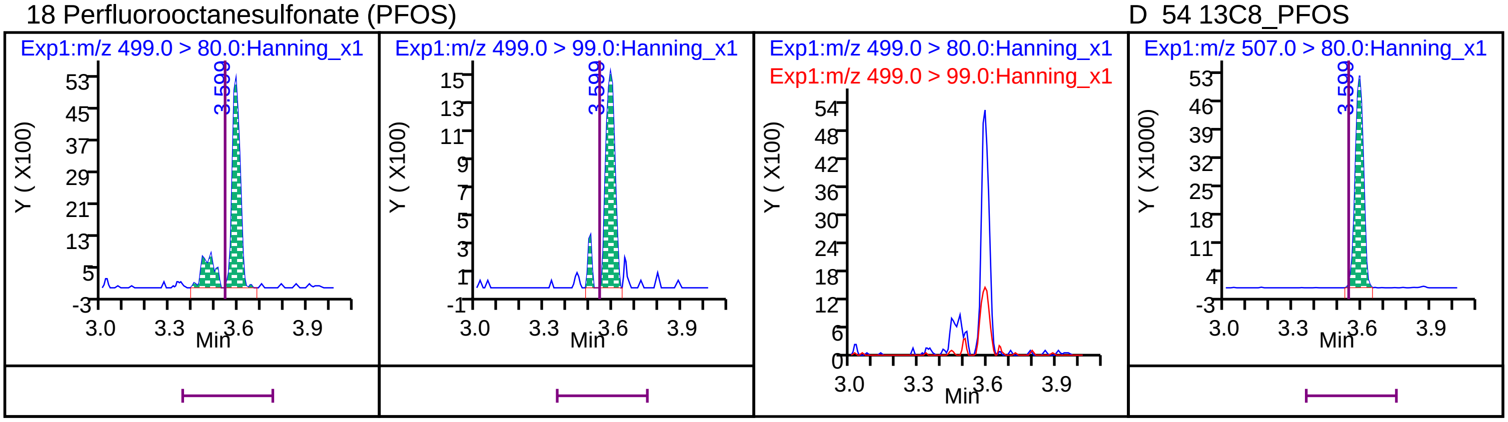
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



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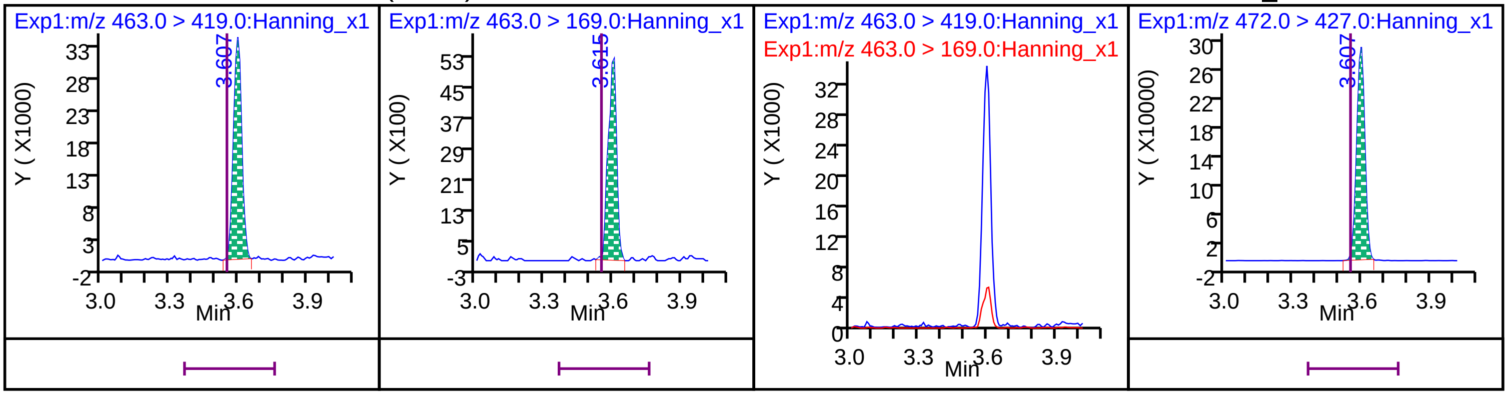
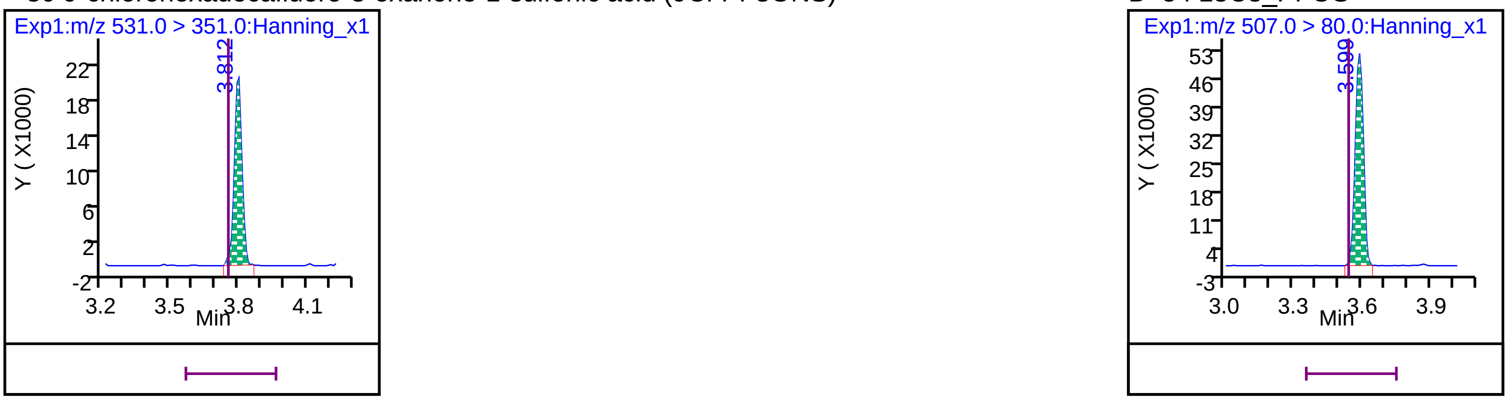
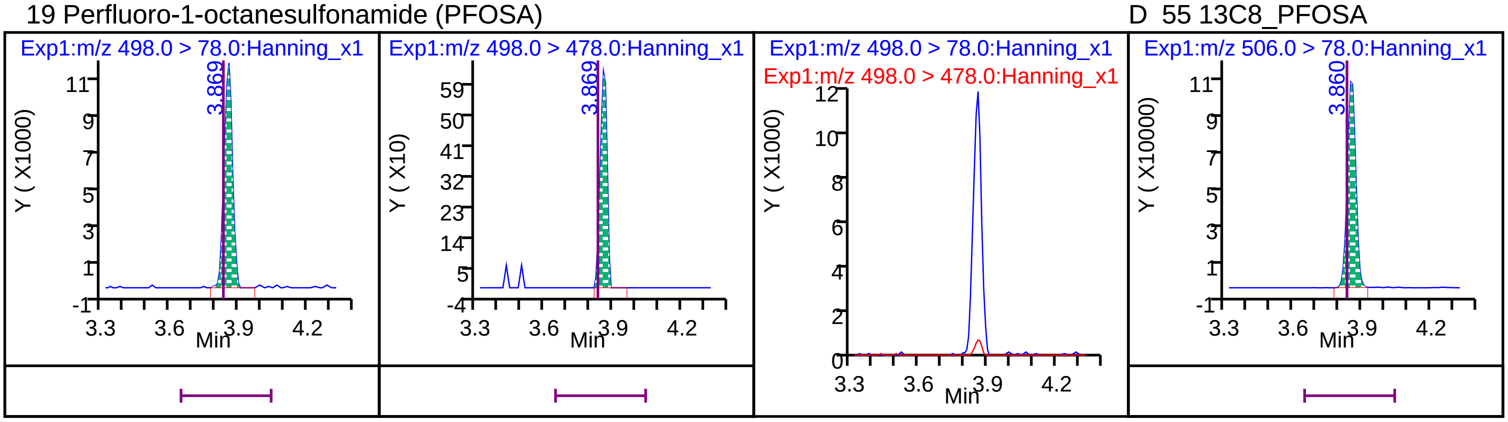
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



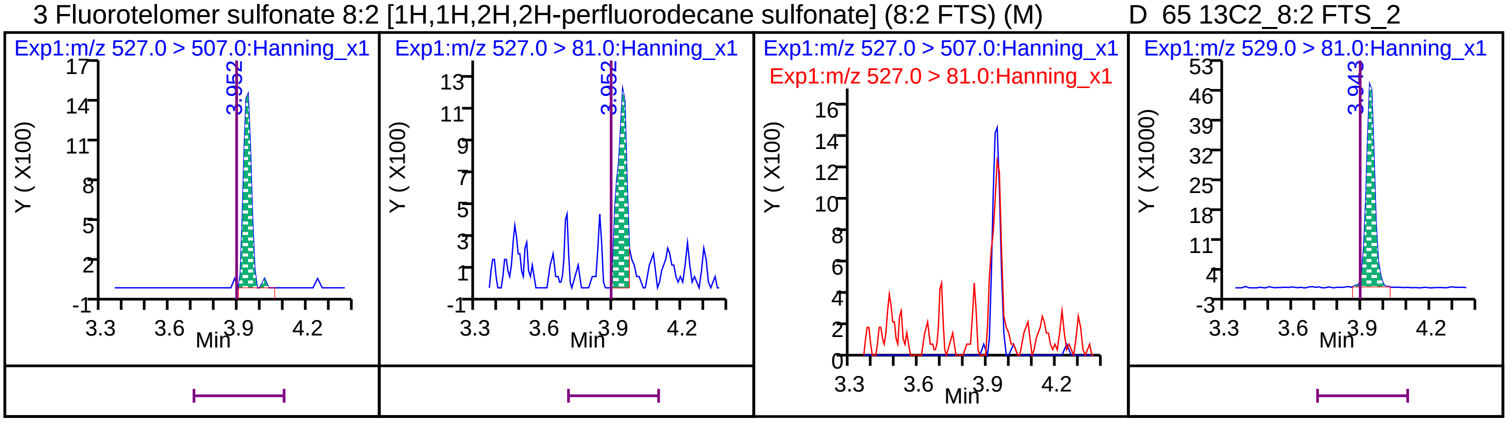
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



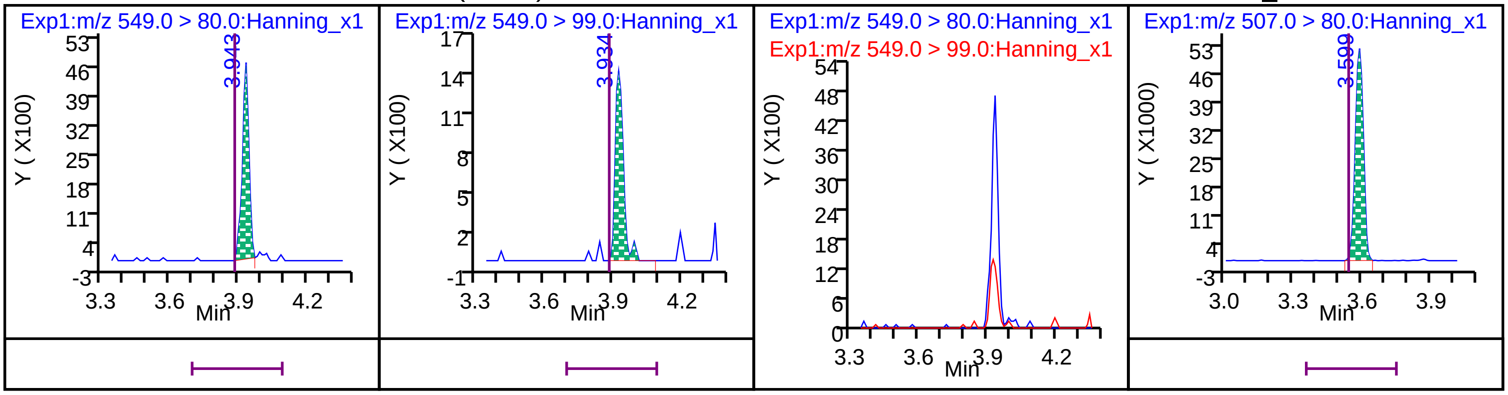
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



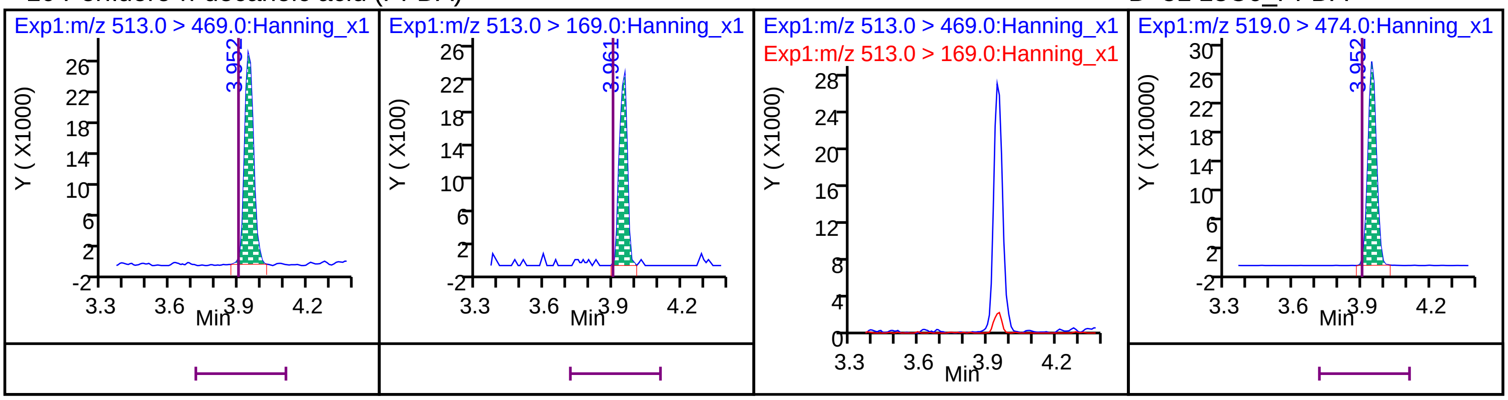
Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d

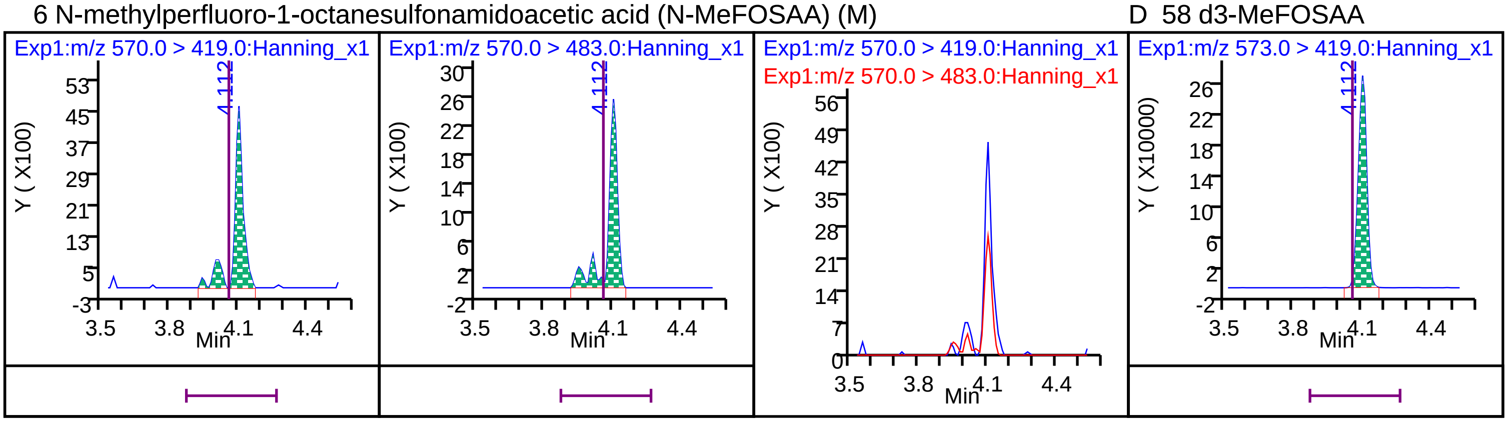
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



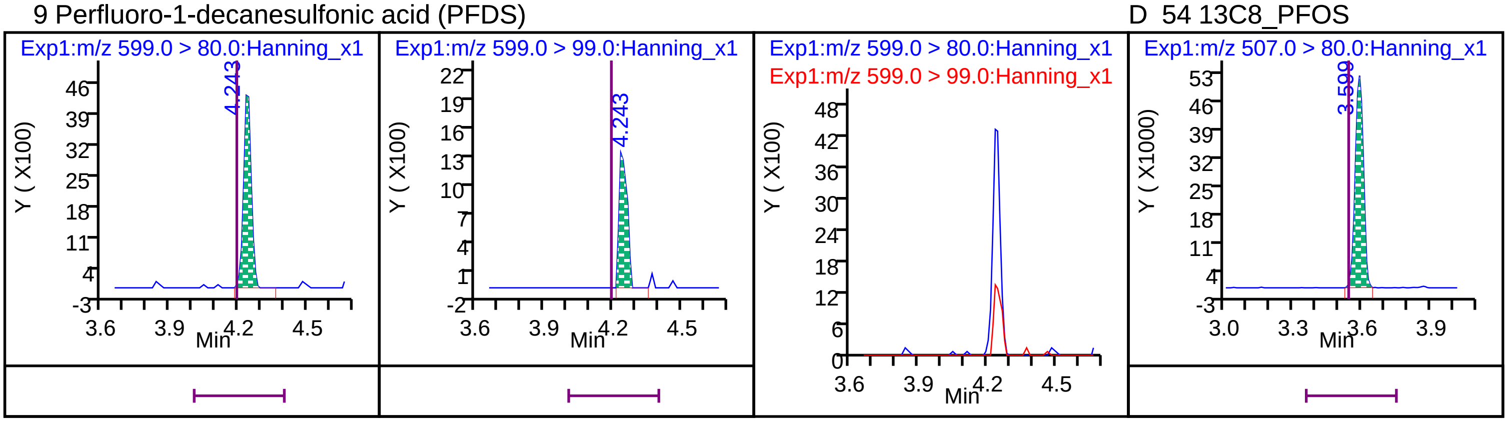
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



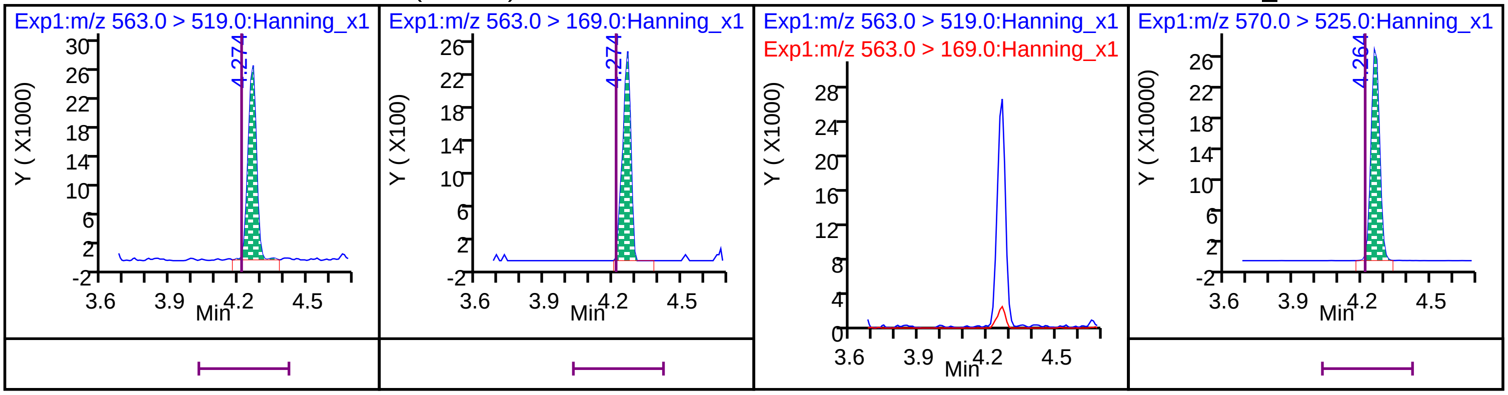
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



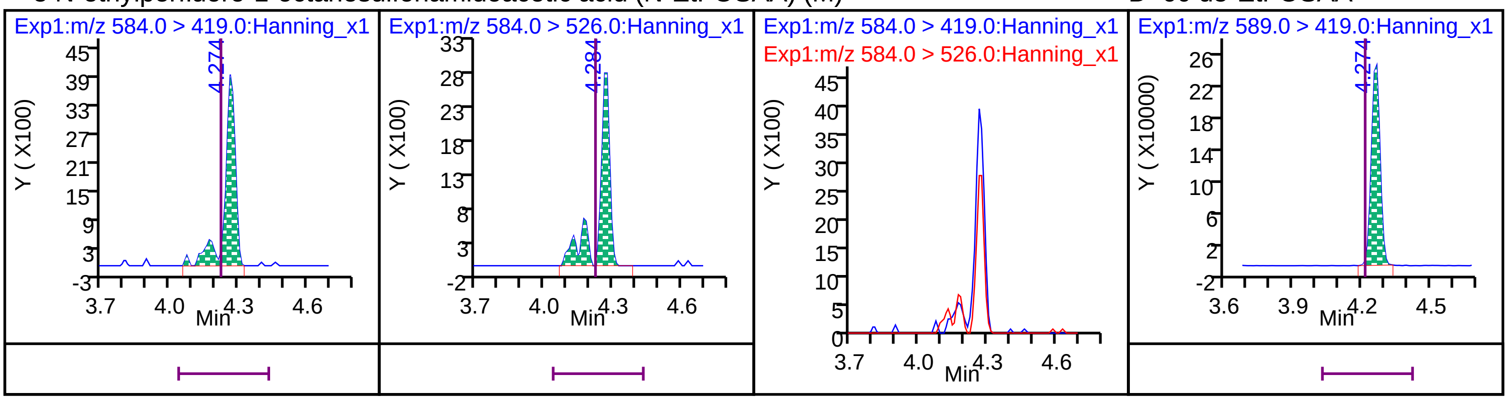
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

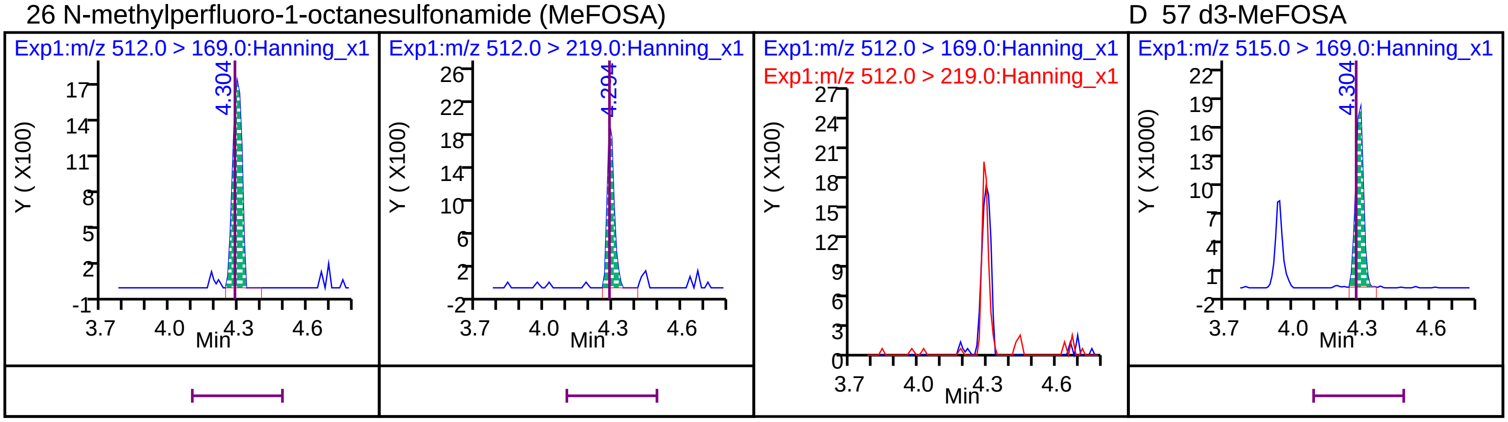


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

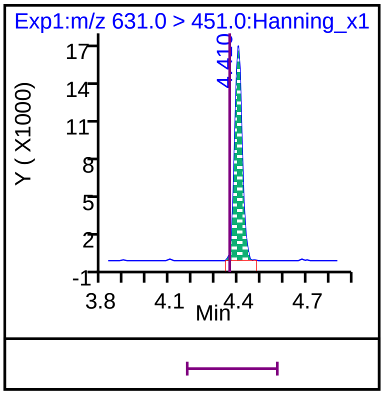


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

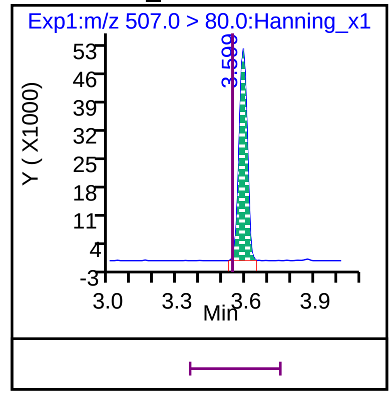
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



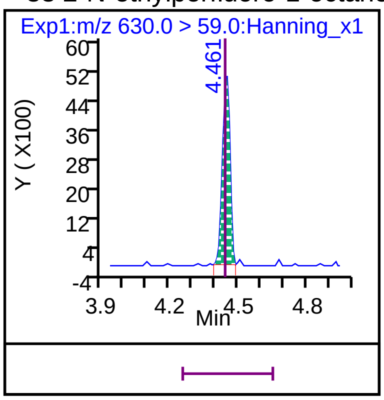
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



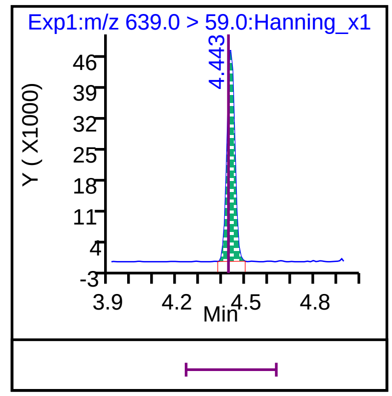
D 54 13C8_PFOS



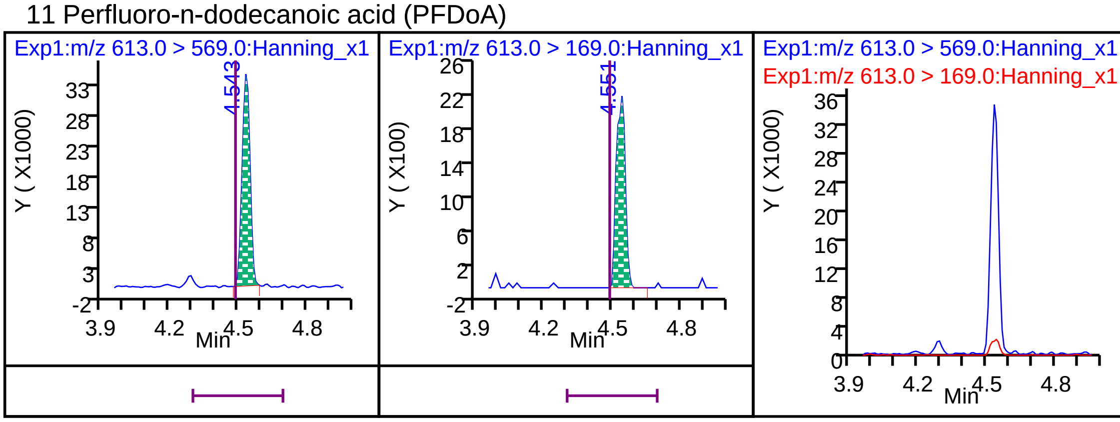
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



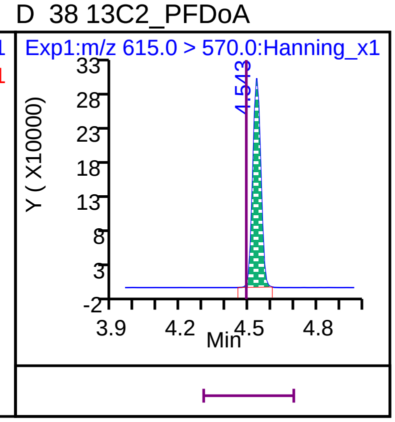
D 62 d9-EtFOSE



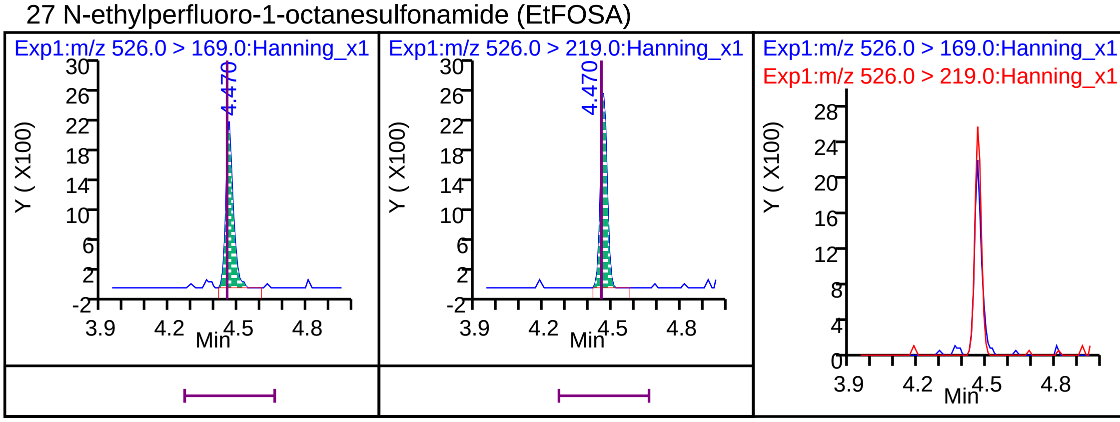
11 Perfluoro-n-dodecanoic acid (PFDoA)



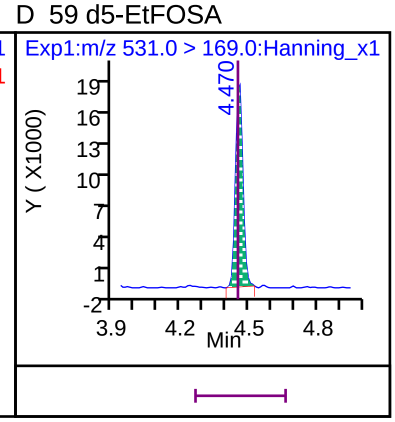
D 38 13C2_PFDoA



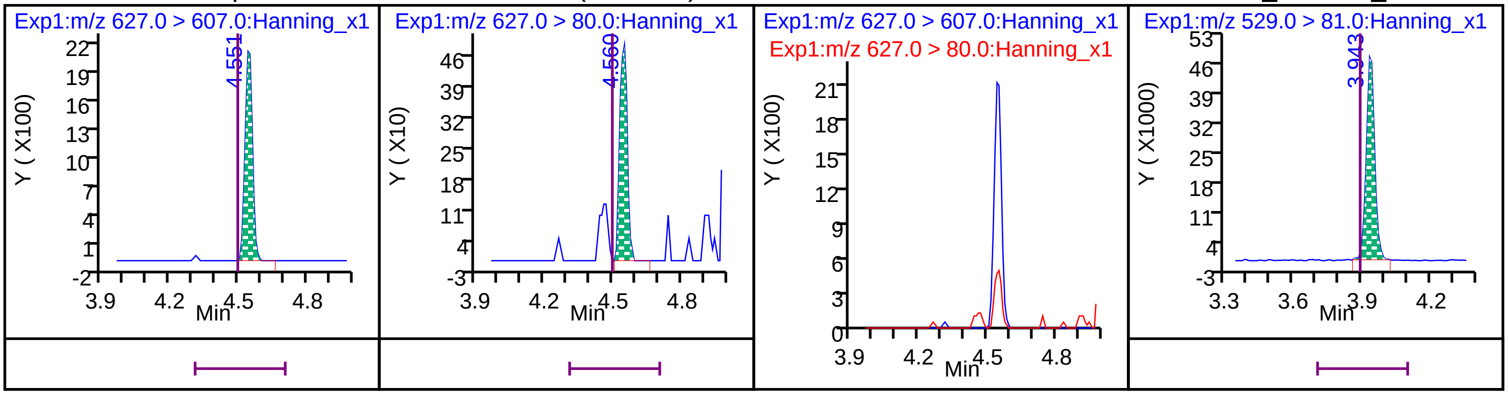
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



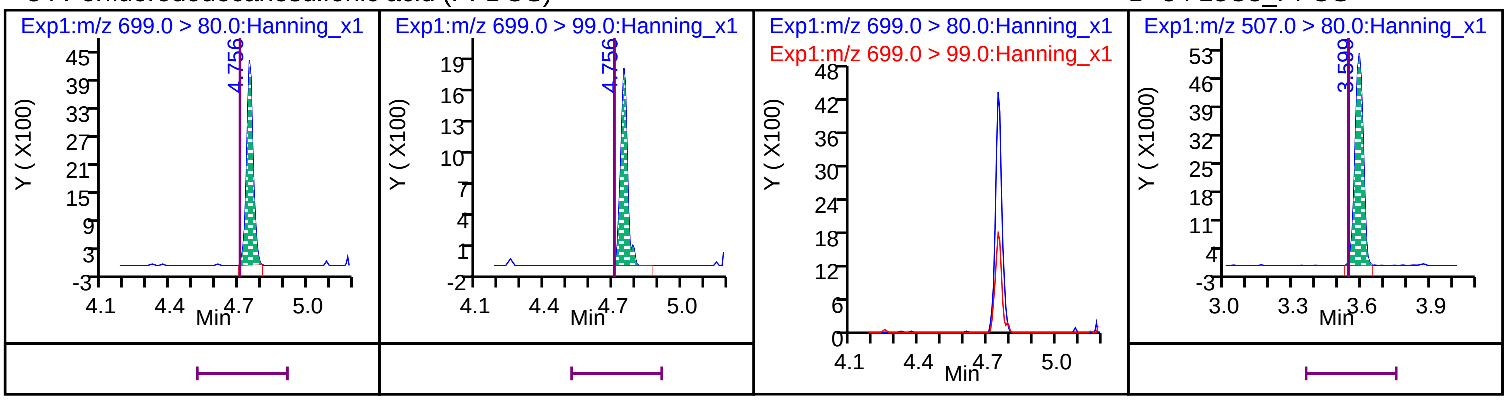
D 59 d5-EtFOSA



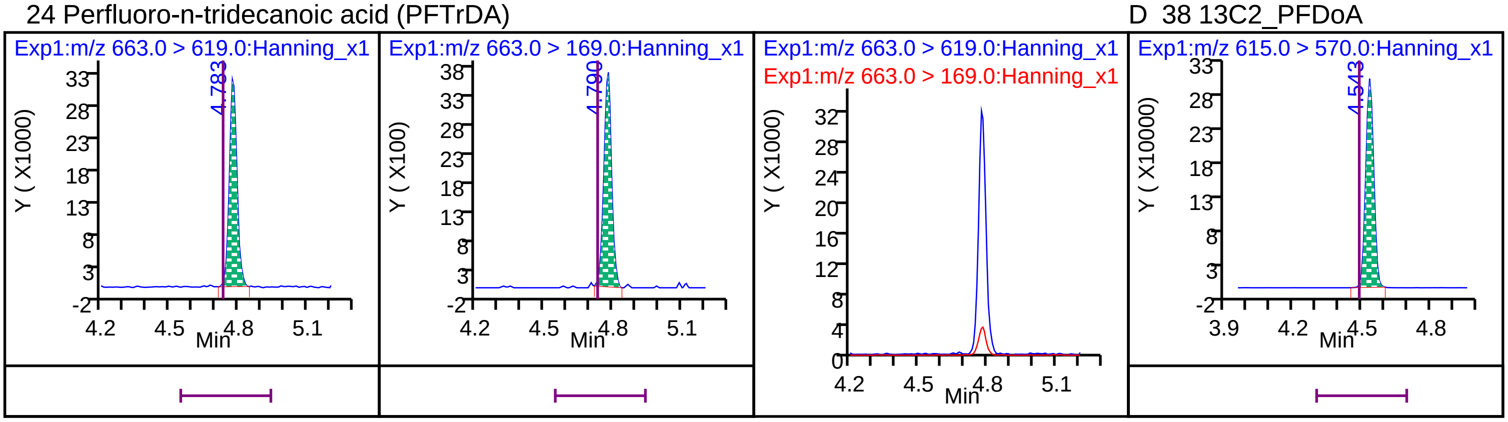
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



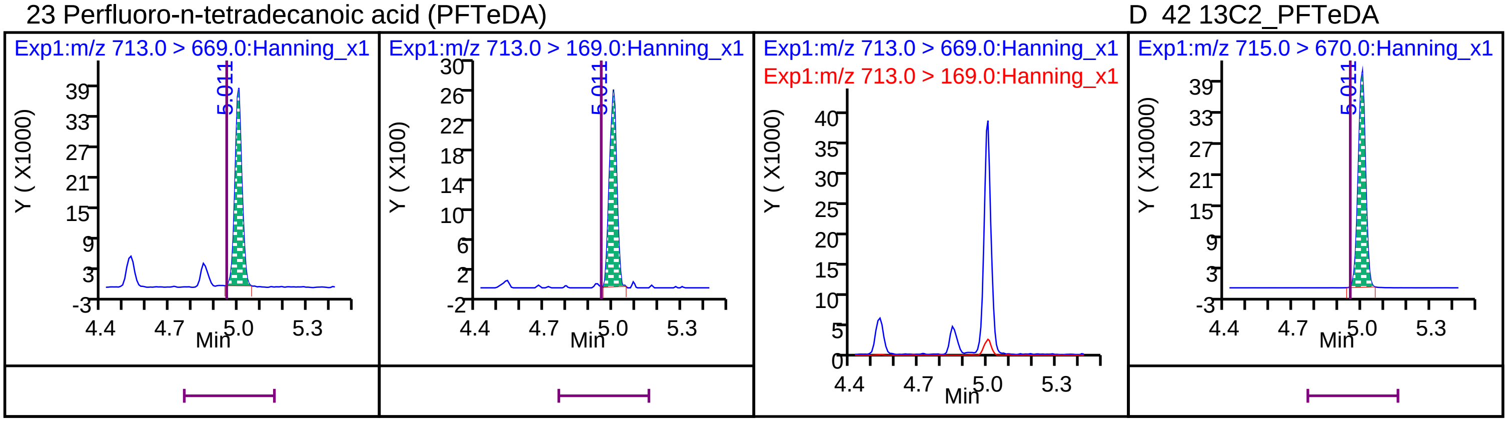
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



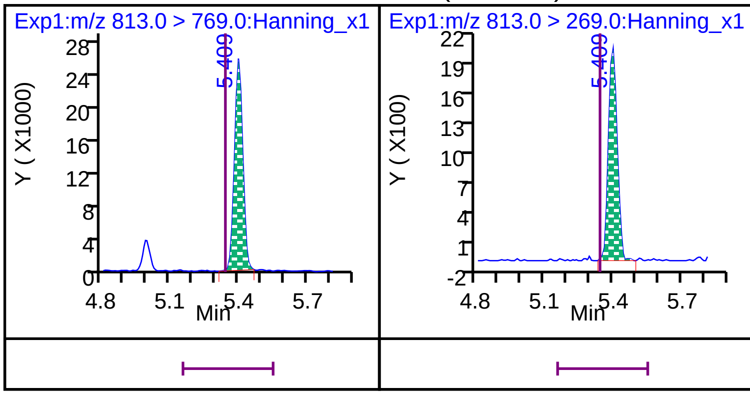
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



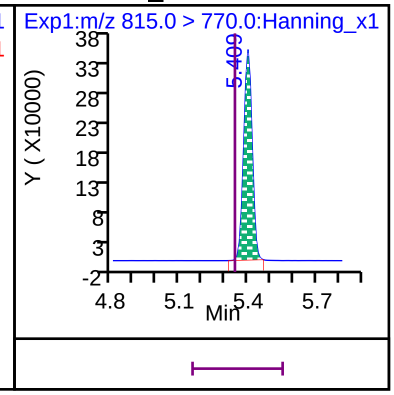
Report Date: 18-Nov-2021 18:20:54   AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d

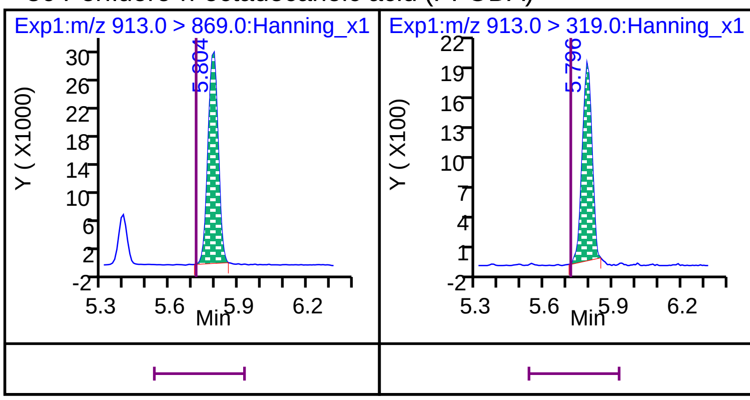
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



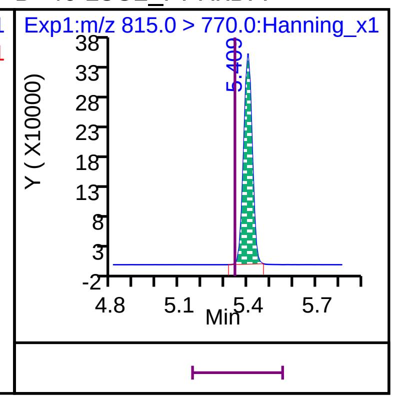
D 40 13C2_PFHxDA



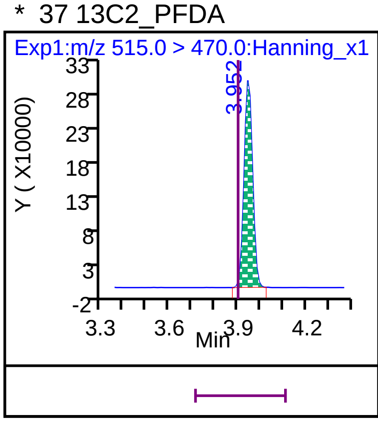
36 Perfluoro-n-octadecanoic acid (PFODA)



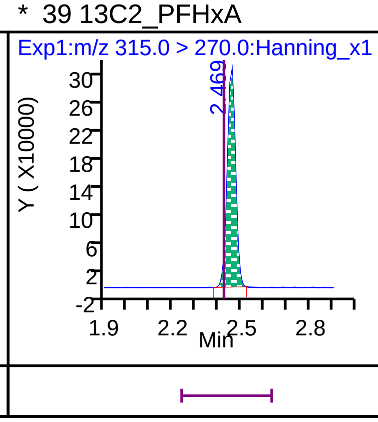
D 40 13C2_PFHxDA



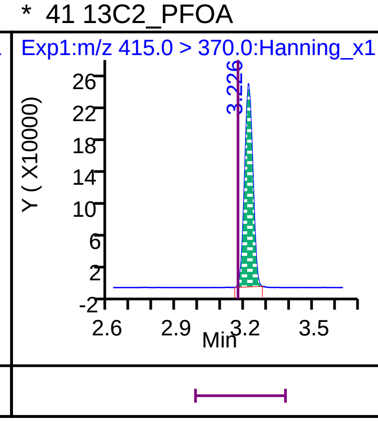
* 37 13C2_PFDA



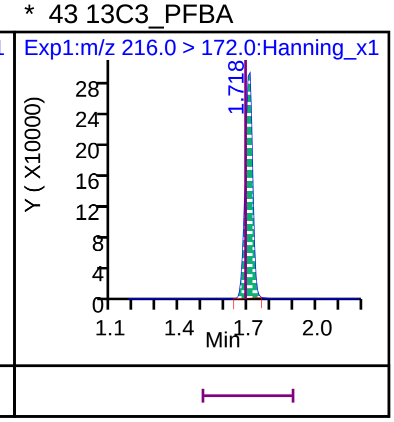
* 39 13C2_PFHxA



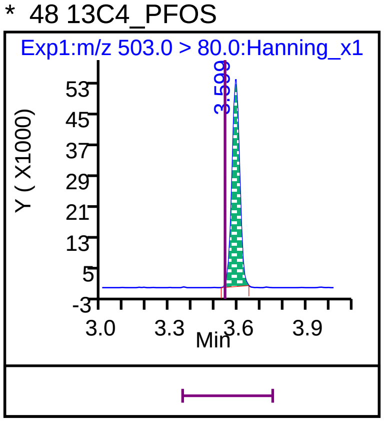
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

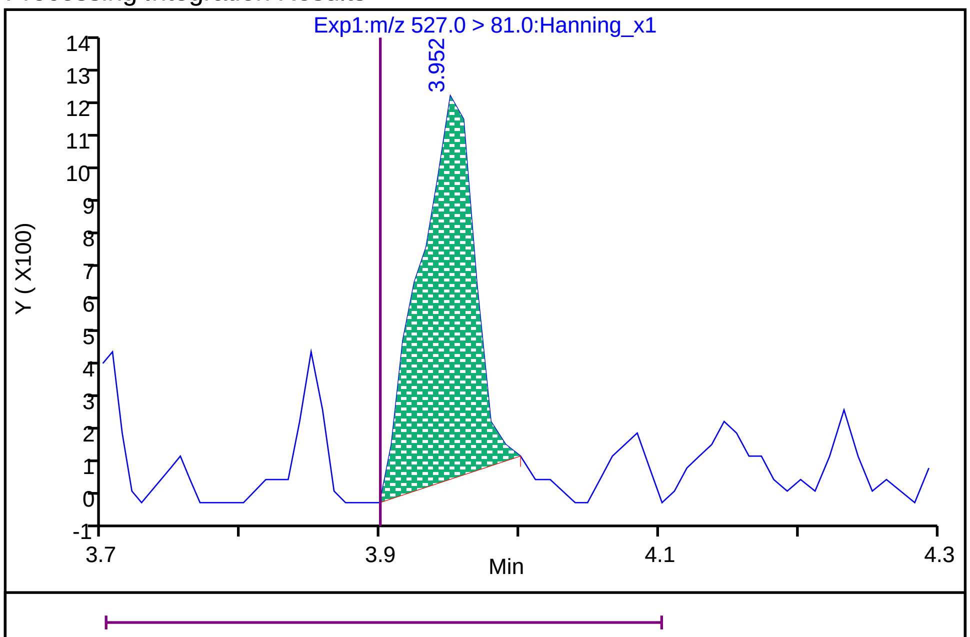
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d		
Injection Date:	17-Nov-2021 14:35:52	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100A_SVLC-1741
Sample Info:	ID CCV 100A_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

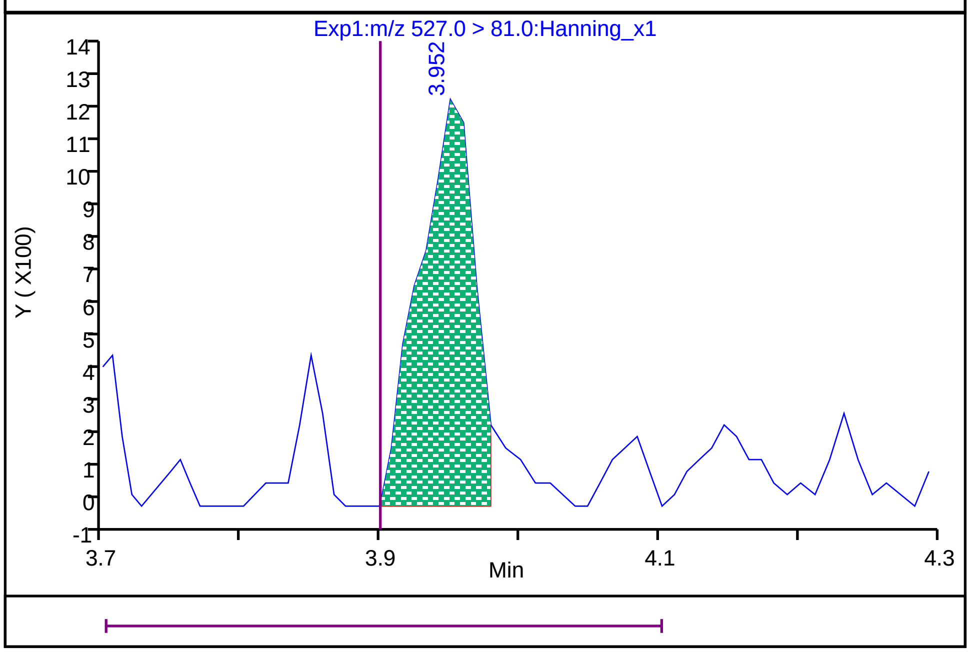
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT:	3.952
Area:	3087
Amount:	60.656
Amount Units:	ng/L



RT:	3.952
Area:	3278
Amount:	60.656
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:55:31

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:54   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

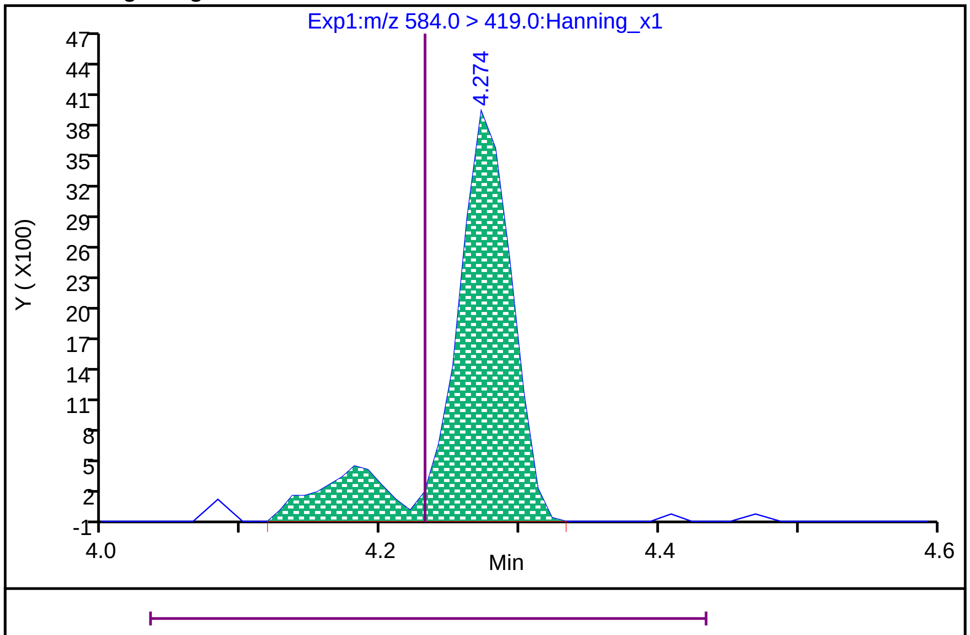
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d		
Injection Date:	17-Nov-2021 14:35:52	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100A_SVLC-1741
Sample Info:	ID CCV 100A_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

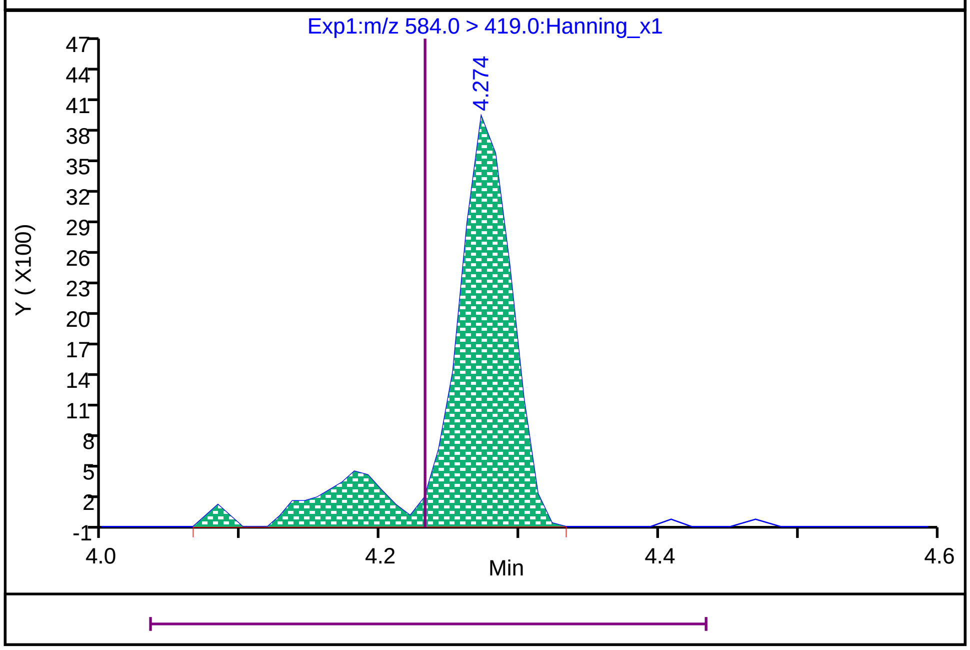
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.274
Area: 12057
Amount: 101.57
Amount Units: ng/L



RT: 4.274
Area: 12343
Amount: 103.98
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:55:51
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d

Injection Date: 17-Nov-2021 14:35:52 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 100A_SVLC-1741

Sample Info: ID CCV 100A_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

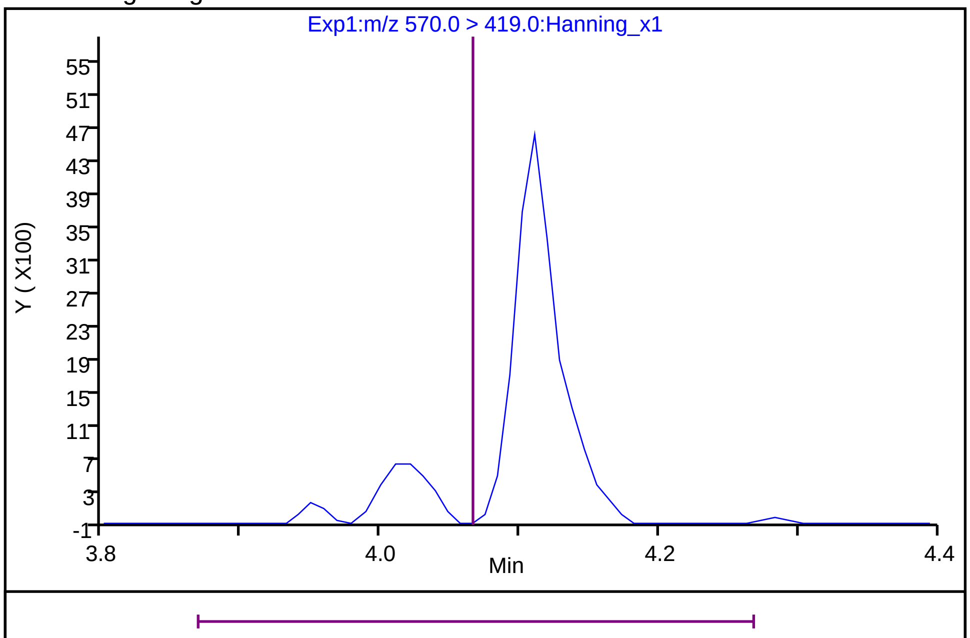
6 N-MeFOSAA, CAS: 2355-31-9

Not Detected

Expected RT: 4.068

RT Window: 3.868-4.268

Processing Integration Results

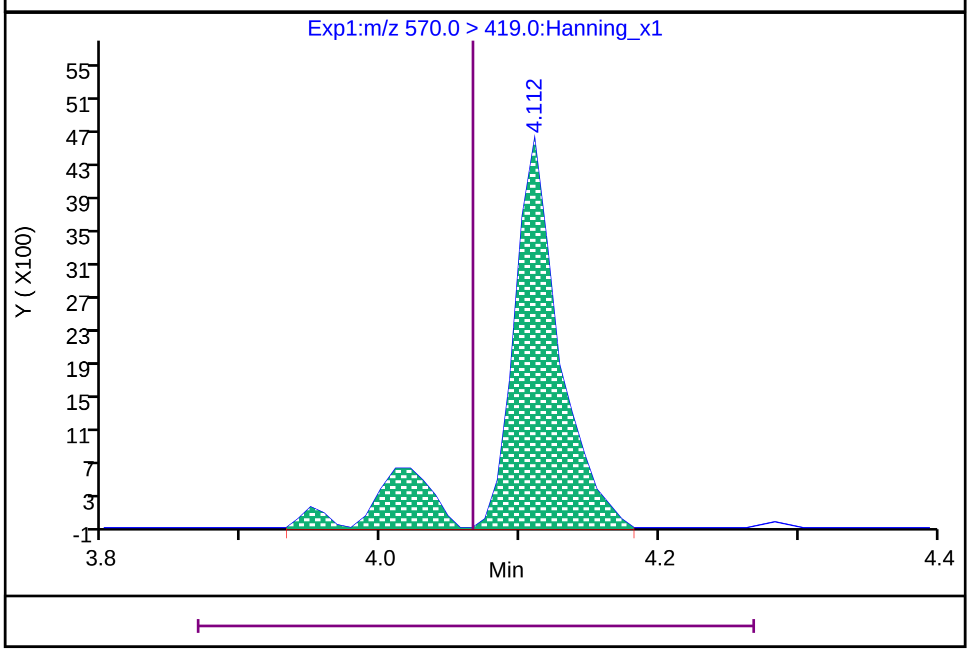


RT: 4.112

Area: 12552

Amount: 111.36

Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:54:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

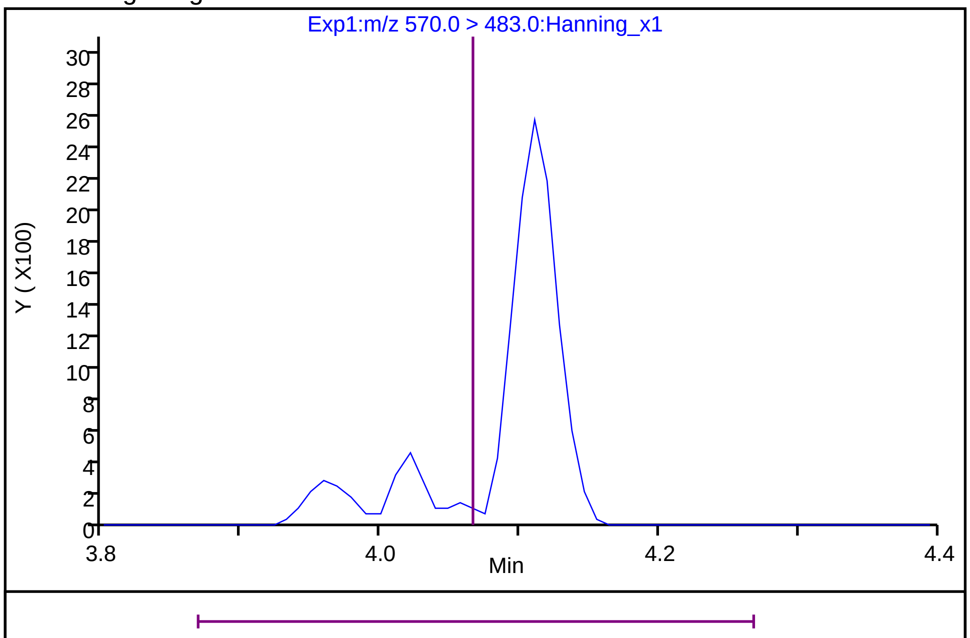
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721010.d		
Injection Date:	17-Nov-2021 14:35:52	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100A_SVLC-1741
Sample Info:	ID CCV 100A_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

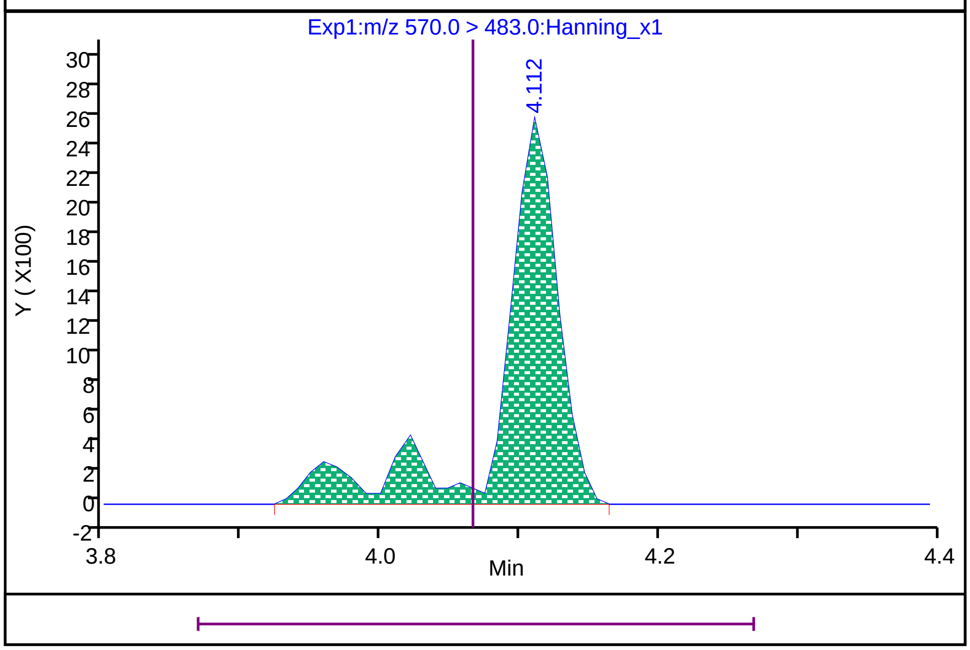
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected
Expected RT: 4.068
RT Window: 3.868-4.268



RT: 4.112
Area: 7213
Amount: 111.36
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:54:49
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d		
Injection Date:	17-Nov-2021 14:46:31	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	100
Sample Info:	ID CCV 100B_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	99.824	99.8	70 - 130
D 46 13C4_PFBA	668395	621792			93	50 - 150
D 50 13C5_PFPeA	587067	562610			95.8	50 - 150
21 PFPeA			100.00	99.297	99.3	70 - 130
7 PFBS			88.400	83.237	94.2	70 - 130
D 44 13C3_PFBS	178175	175658			98.6	50 - 150
1 4:2 FTS			93.400	65.170	69.8	70 - 130
D 63 13C2_4:2 FTS_2	113673	120638			106.1	50 - 150
D 49 13C5_PFHxA	698559	662584			94.9	50 - 150
15 PFHxA			100.00	97.372	97.4	70 - 130
22 PFPeS			93.800	84.501	90.1	70 - 130
28 GenX			200.00	212.82	106.4	70 - 130
D 66 13C3_GenX	1175107	1160562			98.8	50 - 150
D 47 13C4_PFHpA	617327	559158			90.6	50 - 150
13 PFHpA			100.00	100.13	100.1	70 - 130
D 45 13C3_PFHxS	139172	135421			97.3	50 - 150
14 PFHxS			91.000	92.751	101.9	70 - 130
29 ADONA			94.200	91.476	97.1	70 - 130
D 64 13C2_6:2 FTS_2	87765	86379			98.4	50 - 150
2 6:2 FTS			94.800	99.451	104.9	70 - 130
20 PFOA			100.00	102.32	102.3	70 - 130
D 53 13C8_PFOA	576099	542665			94.2	50 - 150
12 PFHpS			95.200	93.468	98.2	70 - 130
18 PFOS			92.800	82.893	89.3	70 - 130
17 PFNA			100.00	99.869	99.9	70 - 130
D 56 13C9_PFNA	677086	660129			97.5	50 - 150
D 54 13C8_PFOS	125490	120303			95.9	50 - 150
30 9Cl-PF3ONS			93.200	107.21	115	70 - 130
D 55 13C8_PFOSA	262168	258962			98.8	50 - 150
19 PFOSA			100.00	84.943	84.9	70 - 130
16 PFNS			96.000	100.53	104.7	70 - 130
D 65 13C2_8:2 FTS_2	88202	86852			98.5	50 - 150
3 8:2 FTS			95.800	110.98	115.8	70 - 130
10 PFDA			100.00	91.016	91	70 - 130
D 51 13C6_PFDA	615512	598850			97.3	50 - 150
6 N-MeFOSAA			100.00	112.16	112.2	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	681022	722317			106.1	50 - 150
9 PFDS			96.400	92.551	96	70 - 130
25 PFUdA			100.00	101.87	101.9	70 - 130
D 60 d5-EtFOSAA	650725	644747			99.1	50 - 150
D 52 13C7_PFUdA	654908	645662			98.6	50 - 150
5 N-EtFOSAA			100.00	117.70	117.7	70 - 130
D 61 d7-MeFOSE	85524	84463			98.8	50 - 150
32 MeFOSE			100.00	127.69	127.7	70 - 130
26 MeFOSA			100.00	162.62	162.6	70 - 130
D 57 d3-MeFOSA	44687	39660			88.8	50 - 150
31 11Cl-PF3OUDS			94.200	103.61	110	70 - 130
D 62 d9-EtFOSE	100548	105874			105.3	50 - 150
33 EtFOSE			100.00	100.34	100.3	70 - 130
D 59 d5-EtFOSA	37834	40728			107.6	50 - 150
27 EtFOSA			100.00	85.153	85.2	70 - 130
11 PFDoA			100.00	100.88	100.9	70 - 130
D 38 13C2_PFDoA	677078	634908			93.8	50 - 150
4 10:2 FTS			96.400	85.728	88.9	70 - 130
34 PFDOS			96.800	89.286	92.2	70 - 130
24 PFTrDA			100.00	101.57	101.6	70 - 130
23 PFTeDA			100.00	105.45	105.5	70 - 130
D 42 13C2_PFTeDA	816988	795515			97.4	50 - 150
35 PFHxDA			100.00	103.35	103.3	70 - 130
D 40 13C2_PFHxDA	853968	876070			102.6	50 - 150
36 PFODA			100.00	105.92	105.9	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d		
Injection Date:	17-Nov-2021 14:46:31	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	100
Sample Info:	ID CCV 100B_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.699	1.692	0	621792	19	>100:1			1000.00	996.57	93	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.699	-1/-1	64935	20	60:1			100.00	99.824		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.067	-1	562610	15	>100:1			1000.00	971.43	95.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.067	-1/0	61352	14	78:1			100.00	99.297		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.120	-1	175658	17	>100:1			1000.00	1012.16	98.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.120	-1/0	18215	18	>100:1	Target = 3.48		88.400	83.237		
298.9 > 99	44	2.131	2.120		6645	16	79:1	2.74 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.471	2.460	-1/0	13139	15	76:1	Target = 3.03		93.800	84.501		
349 > 99	44	2.471	2.460		5429	20	78:1	2.42 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.400	2.389	-1	120638	17	>100:1			5000.00	5524.72	106.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.400	2.389	-1/0	4148	22	78:1	Target = 1.70		93.400	65.170		
327 > 81	63	2.400	2.389		4637	20	7.2:1	0.89 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.436	2.433	-1	662584	17	>100:1			1000.00	1022.39	94.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.436	2.433	-1/0	68270	15	>100:1	Target = 18.47		100.00	97.372		
313 > 119	49	2.445	2.433		3870	24	23:1	17.64 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.551	2.549	-1	1160562	17	>100:1			5000.00	5183.00	98.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.560	2.540	-1/0	32505	18	>100:1	Target = 0.78		200.00	212.82		
285 > 185	66	2.560	2.540		38536	17	>100:1	0.84 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.810	2.800	-2	559158	18	>100:1			1000.00	1059.42	90.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.819	2.800	-1/1	64027	18	>100:1	Target = 3.92		100.00	100.13		
363 > 169	47	2.810	2.800		15177	25	82:1	4.21 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.828	2.818	-1	135421	16	>100:1			1000.00	1060.33	97.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.828	2.818	-1/0	14160	29	>100:1	Target = 3.14	6.74	91.000	92.751		
399 > 99	45	2.828	2.818		4475	28	31:1	3.16 (1.57-4.71)	9.26				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.856	2.836	-1/0	96348	18	>100:1	Target = 3.33		94.200	91.476		
377 > 85	45	2.856	2.836		28360	16	>100:1	3.39 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.201	3.186	-1/0	12306	27	>100:1	Target = 3.02		95.200	93.468		
449 > 99	45	3.201	3.186		4014	27	44:1	3.06 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.168	3.160	-2	86379	21	>100:1			5000.00	5033.52	98.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													a
427 > 407	64	3.161	3.160	-2/0	4030	19	63:1	Target = 1.69		94.800	99.451		
427 > 81	64	3.174	3.160		4128	19	5.4:1	0.97 (0.84-2.54)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.194	3.180	-1	542665	21	>100:1			1000.00	1047.64	94.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.194	3.180	-1/0	58108	23	47:1	Target = 3.03		100.00	102.32		
413 > 169	53	3.188	3.180		16028	20	77:1	3.62 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.569	3.552	-1	120303	19	>100:1			1000.00	966.28	95.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.553	3.552	-2/-1	11845	33	42:1	Target = 3.42	3.35	92.800	82.893		
499 > 99	54	3.569	3.552		3212	37	25:1	3.68 (1.71-5.13)	17.04				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.775	3.766	-2/-1	49514	19	>100:1			93.200	107.21		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.912	3.893	-1/0	9416	21	58:1	Target = 2.57		96.000	100.53		
549 > 99	54	3.912	3.893		2081	19	21:1	4.52 (1.29-3.87)					J
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.217	4.203	-1/0	8950	20	53:1	Target = 2.71		96.400	92.551		
599 > 99	54	4.217	4.203		4915	19		1.82 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.376	4.372	-2/-1	42251	15	>100:1			94.200	103.61		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.715	-1/0	8548	16	>100:1	Target = 3.04		96.800	89.286		
699 > 99	54	4.732	4.715		3119	24		2.74 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.569	3.560	-2	660129	20	>100:1			1000.00	1023.10	97.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.569	3.560	-2/0	72624	25	>100:1	Target = 7.14		100.00	99.869		
463 > 169	56	3.569	3.560		9105	25	89:1	7.97 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.847	3.844	0	258962	20	>100:1			1000.00	1026.95	98.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.847	3.844	-1/-1	24170	16	>100:1	Target = 32.83		100.00	84.943		
498>478	55	3.855	3.844		888	15		27.21 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.912	3.902	-1	86852	19	>100:1			5000.00	5193.91	98.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.921	3.902	-1/0	4471	15	28:1	Target = 2.14		95.800	110.98		
527 > 81	65	3.912	3.902		1769	11	12:1	2.52 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.507	-1/0	4003	19	53:1	Target = 3.72		96.400	85.728		
627 > 80	65	4.510	4.507		1138	12	4.6:1	3.51 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.921	3.910	-1	598850	18	>100:1			1000.00	1050.87	97.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.921	3.910	-1/0	63905	17	>100:1	Target = 14.16		100.00	91.016		
513 > 169	51	3.937	3.910		4720	15	15:1	13.53 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.081	4.068	-1	722317	19	>100:1			5000.00	5288.30	106.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.081	4.068	-1/0	13422	30	>100:1	Target = 1.42	5.43	100.00	112.16		
570 > 483	58	4.081	4.068		6862	21	32:1	1.95 (0.71-2.14)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.237	4.223	-2	644747	17	>100:1			5000.00	5310.05	99.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.247	4.234	-1/1	14399	22	72:1	Target = 1.49	14.09	100.00	117.70		
584 > 526	60	4.247	4.234		9371	38	28:1	1.53 (0.74-2.24)	3.25				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.237	4.223	-1	645662	16	>100:1			1000.00	994.57	98.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.237	4.223	-2/-1	61026	14	>100:1	Target = 14.37		100.00	101.87		
563 > 169	52	4.237	4.223		5904	19	34:1	10.33 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.268	4.264	0	84463	13	>100:1			1000.00	963.81	98.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.278	4.284	0/0	11907	15	>100:1			100.00	127.69		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.288	4.284	0	39660	15	>100:1			1000.00	812.09	88.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.298	4.294	0/0	6575	19	68:1	Target = 1.08		100.00	162.62		
512 > 219	57	4.288	4.294		5037	22		1.30 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.434	0	105874	16	>100:1			1000.00	999.60	105.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.446	4.452	0/0	10830	16	69:1			100.00	100.34		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.461	0	40728	13	>100:1			1000.00	929.62	107.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.465	4.461	0/0	4084	12	52:1	Target = 0.97		100.00	85.153		
526 > 219	59	4.465	4.461		5092	19	44:1	0.80 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.510	4.498	-1	634908	16	>100:1			1000.00	1063.72	93.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.510	4.498	-1/0	69142	15	36:1	Target = 10.55		100.00	100.88		
613 > 169	38	4.510	4.498		7488	17	38:1	9.23 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.743	-1/0	62771	19	>100:1	Target = 8.92		100.00	101.57		
663 > 169	38	4.753	4.743		7264	25	>100:1	8.64 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.976	4.959	-2	795515	19	>100:1			1000.00	1054.90	97.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.976	4.959	-2/0	73547	17	12:1	Target = 12.22		100.00	105.45		
713 > 169	42	4.976	4.959		5604	24	>100:1	13.12 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.369	5.353	-2	876070	18	>100:1			1000.00	974.30	102.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.378	5.353	-1/1	61340	15	13:1	Target = 11.65		100.00	103.35		
813 > 269	40	5.369	5.353		5194	22	>100:1	11.80 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.754	5.725	-2/0	87308	21	>100:1	Target = 15.15		100.00	105.92		
913 > 319	40	5.754	5.725		5643	18	>100:1	15.47 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.921	3.910	-1	649217	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.436	2.433	-1	685269	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.194	3.180	-1	544942	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.699	1.699	-1	564801	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.569	3.552	-1	116855	18	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

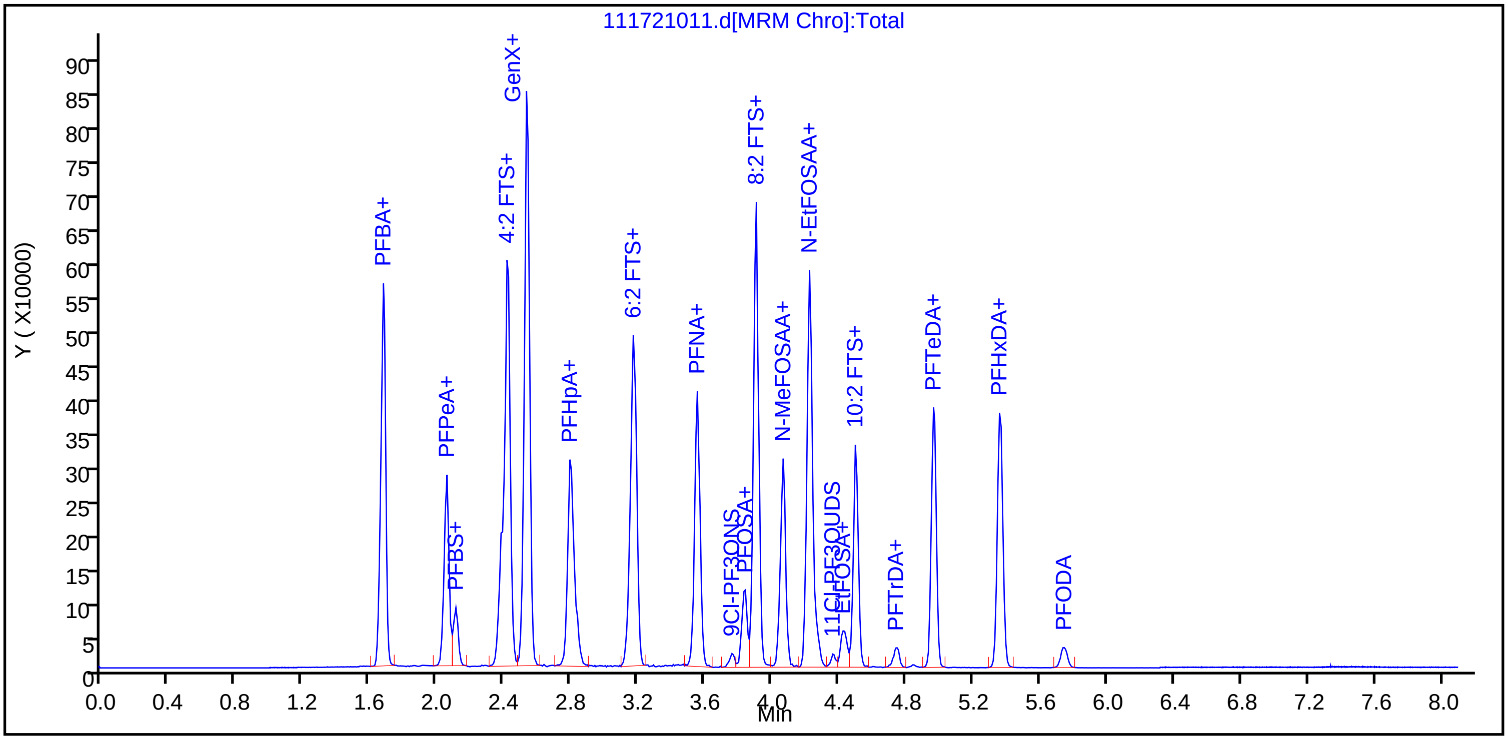
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

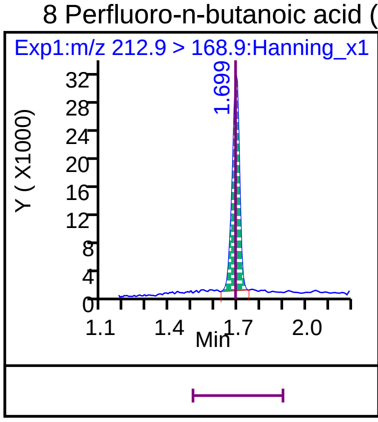
Report Date: 18-Nov-2021 18:20:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

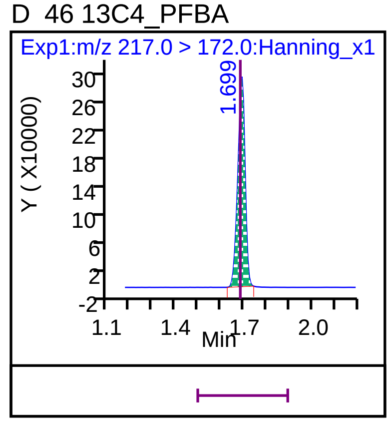
Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d		
Injection Date:	17-Nov-2021 14:46:31	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100B_SVLC-1741
Sample Info:	ID CCV 100B_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



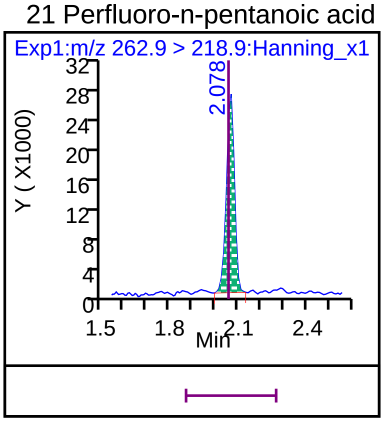
8 Perfluoro-n-butanoic acid (PFBA)



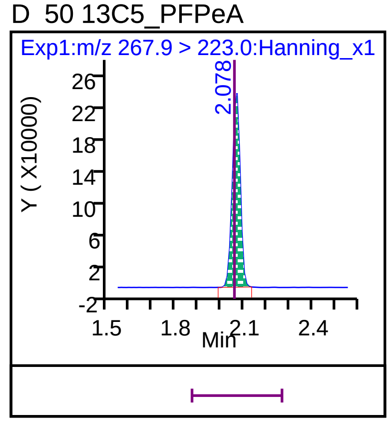
D 46 13C4_PFBA



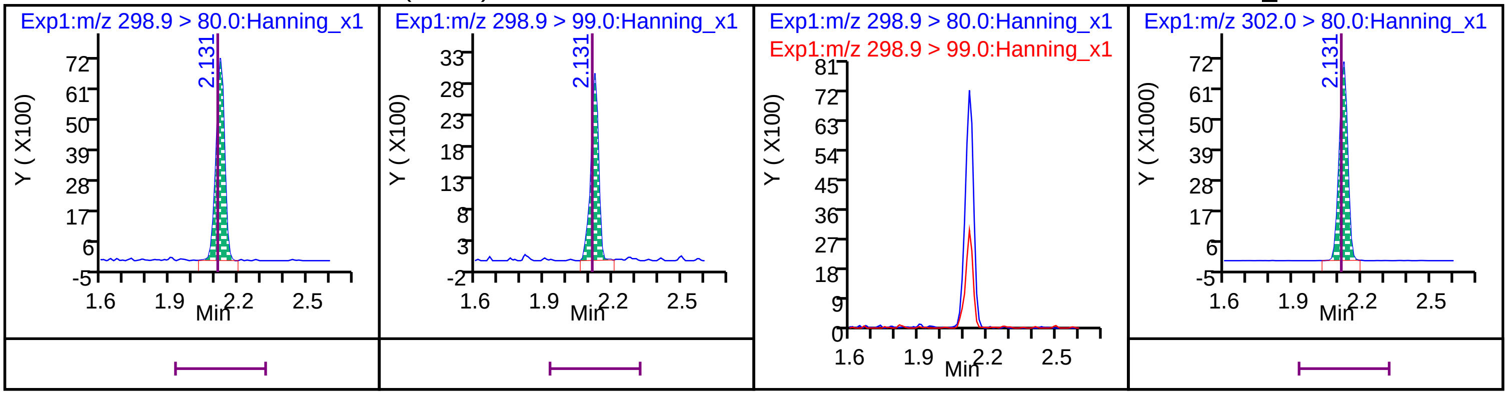
21 Perfluoro-n-pentanoic acid (PFPeA)



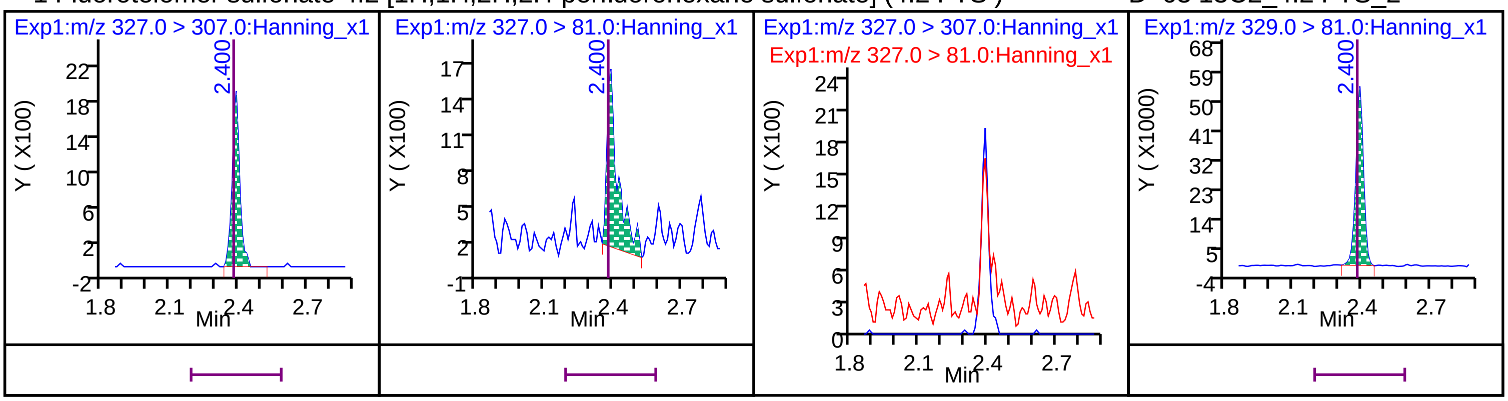
D 50 13C5_PFPeA



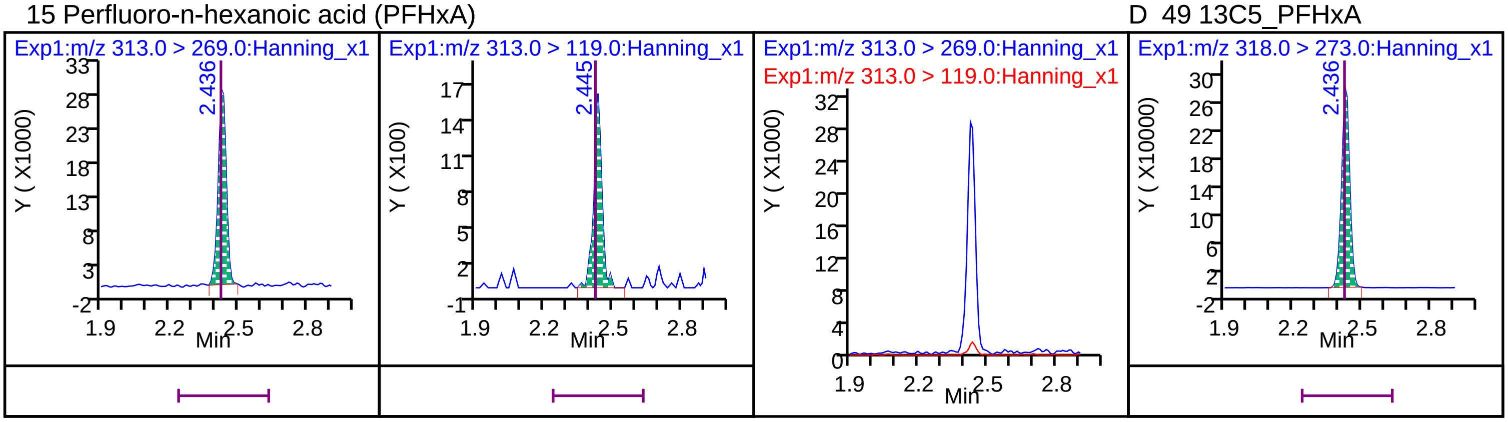
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



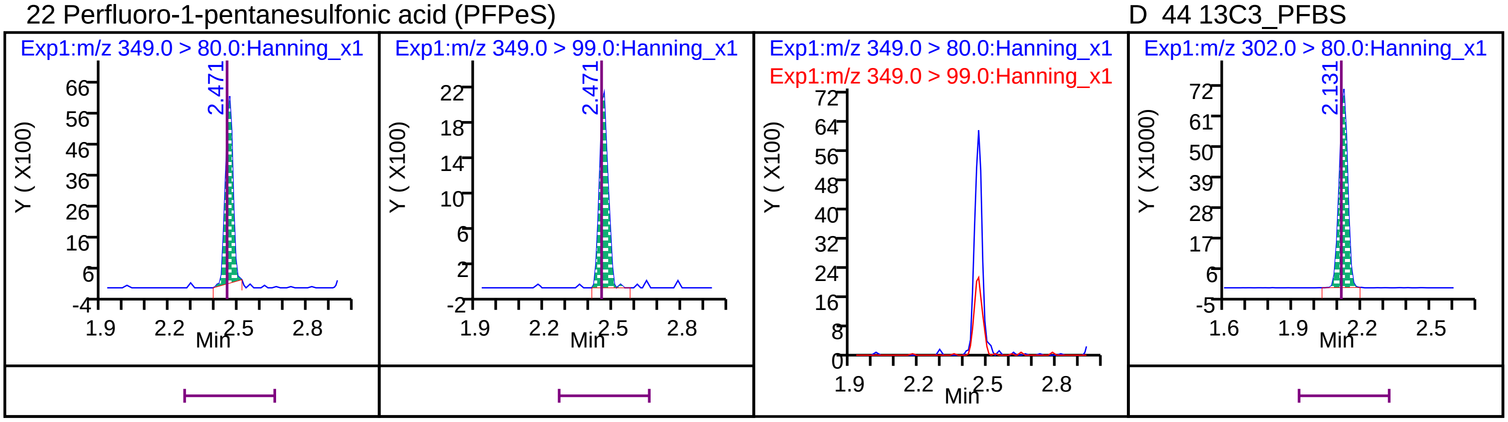
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



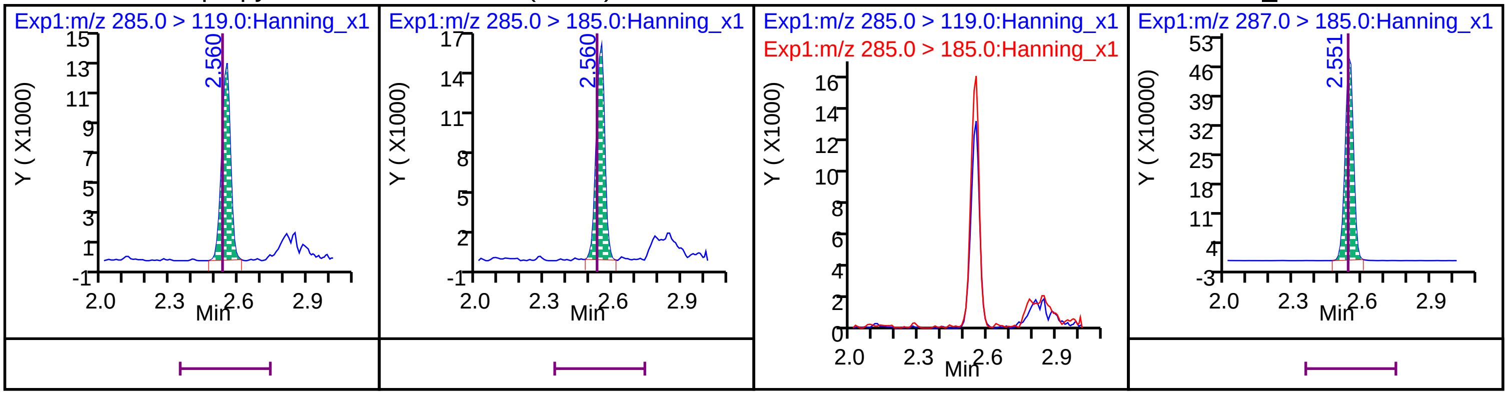
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



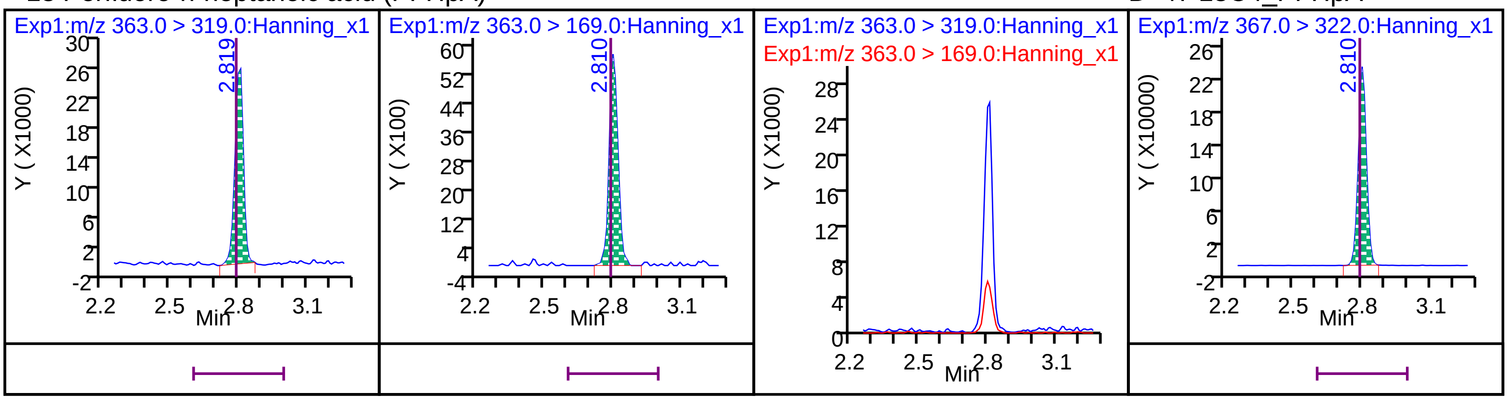
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



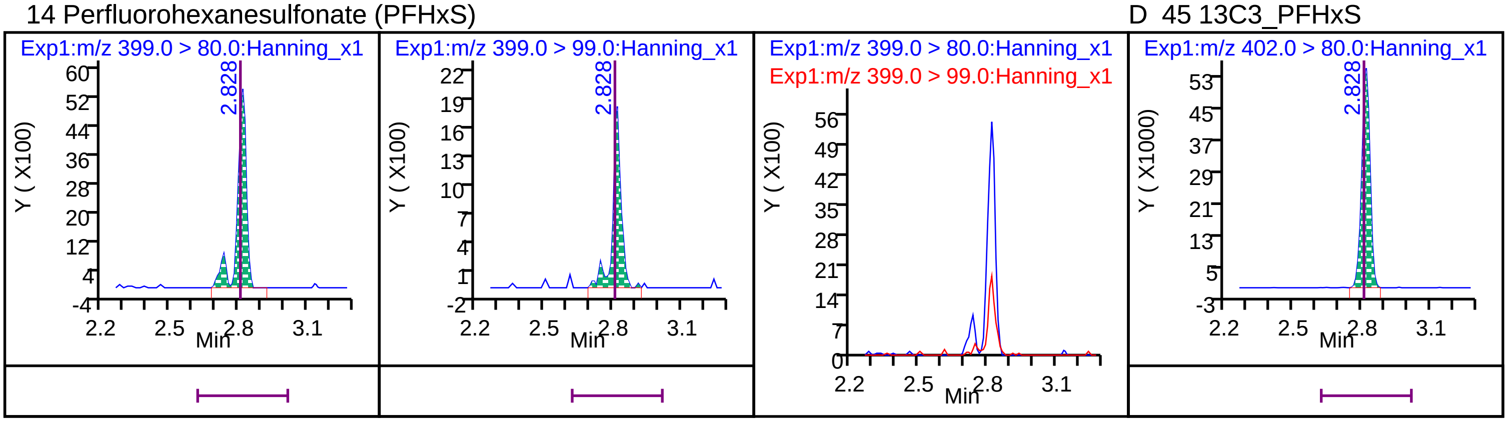
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



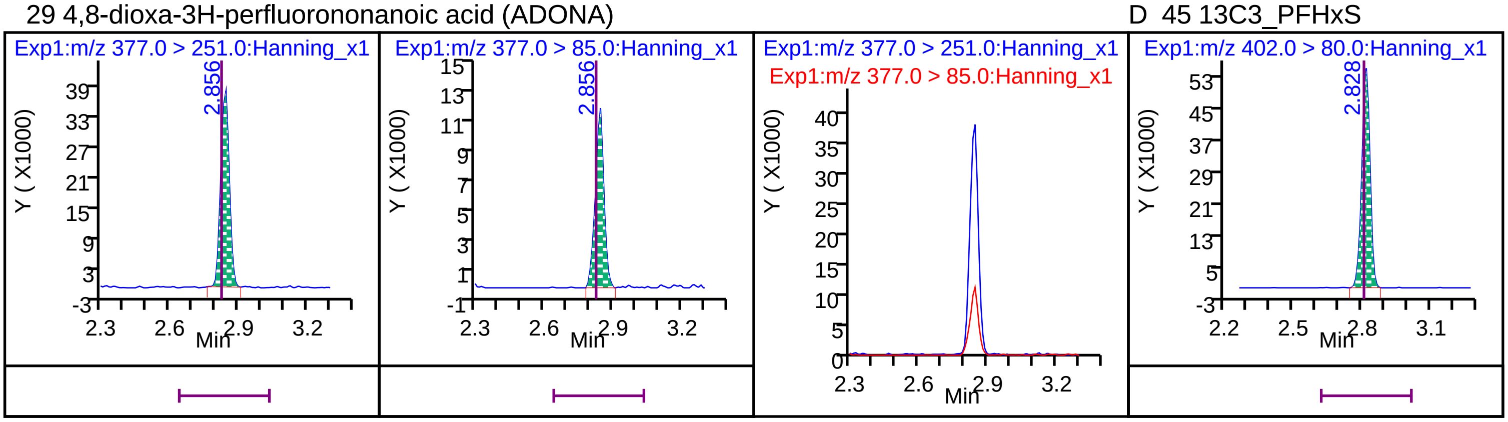
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



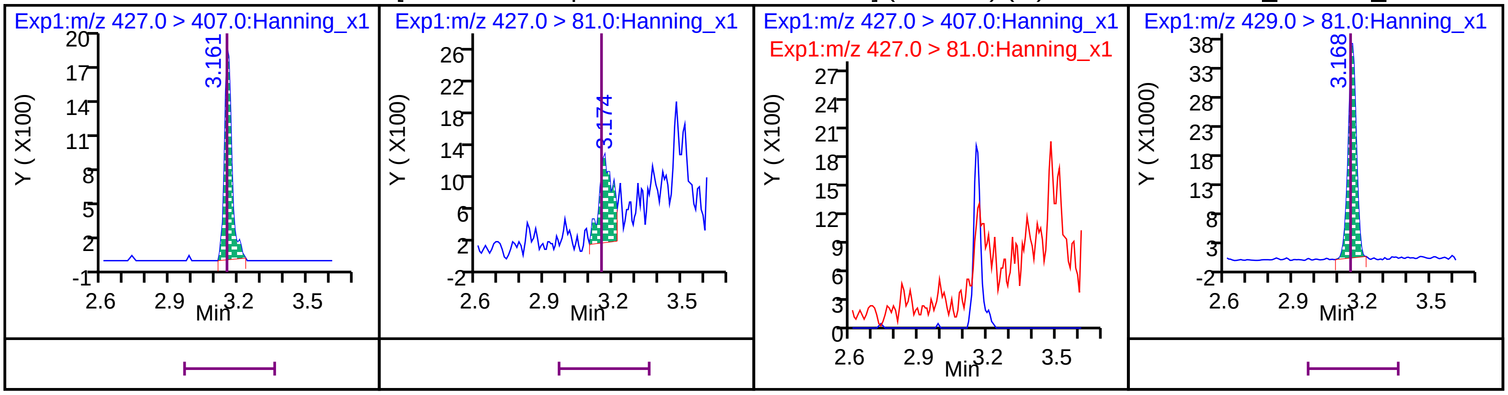
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



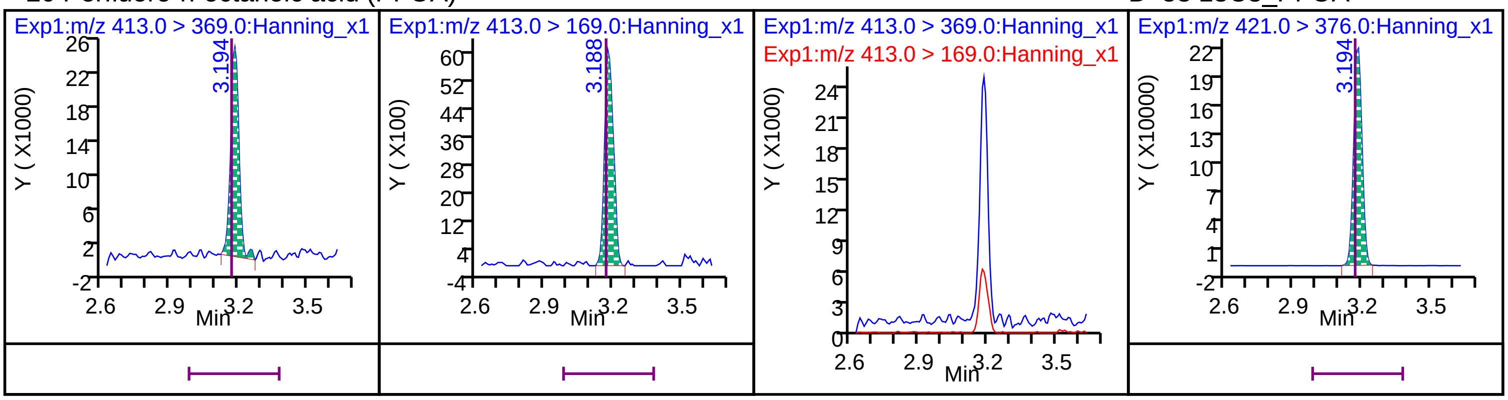
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



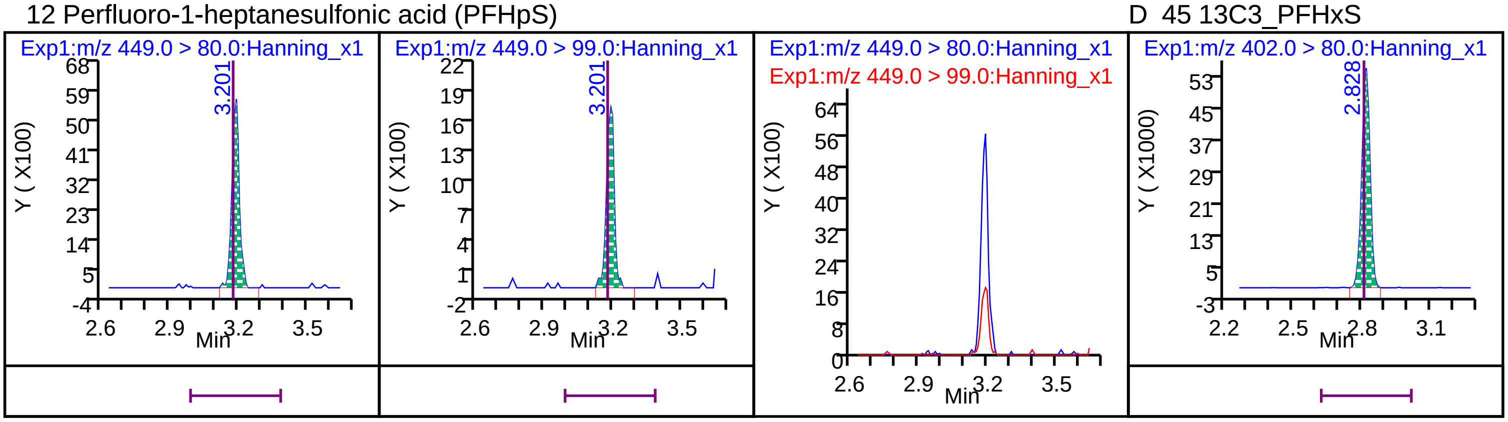
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



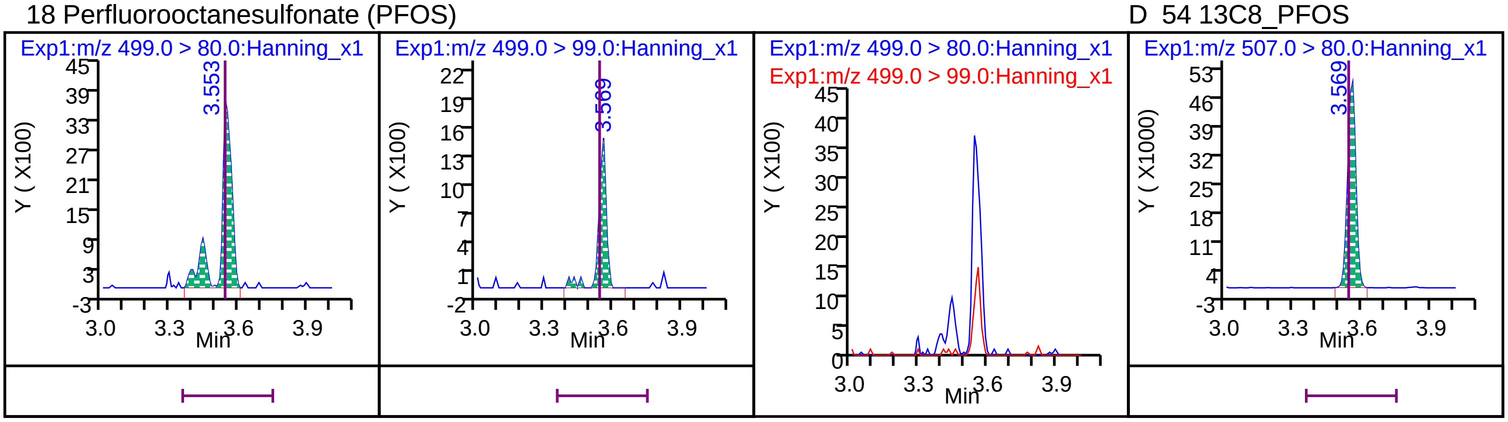
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

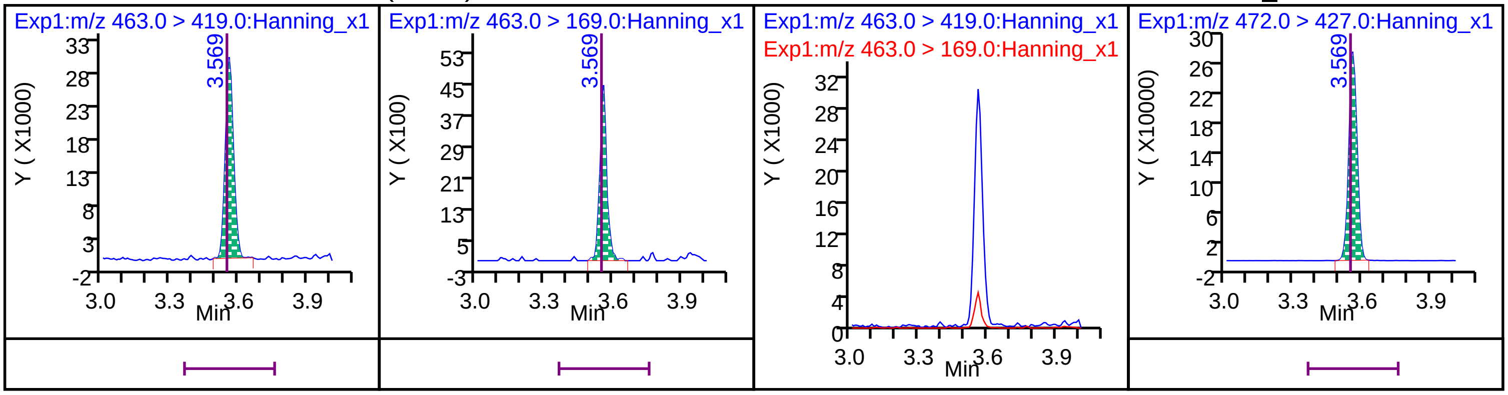


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

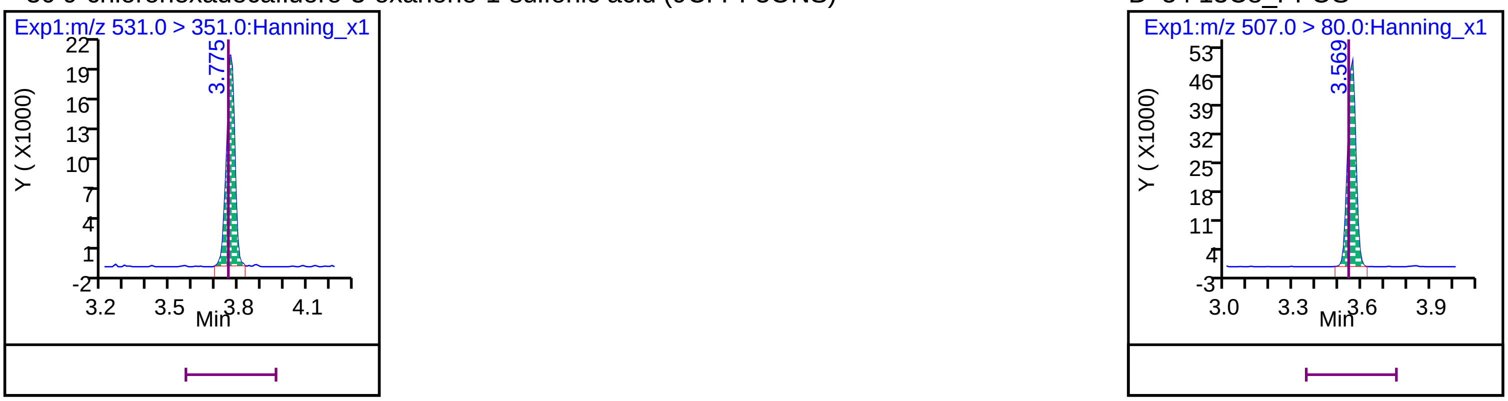


Report Date: 18-Nov-2021 18:20:55 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d

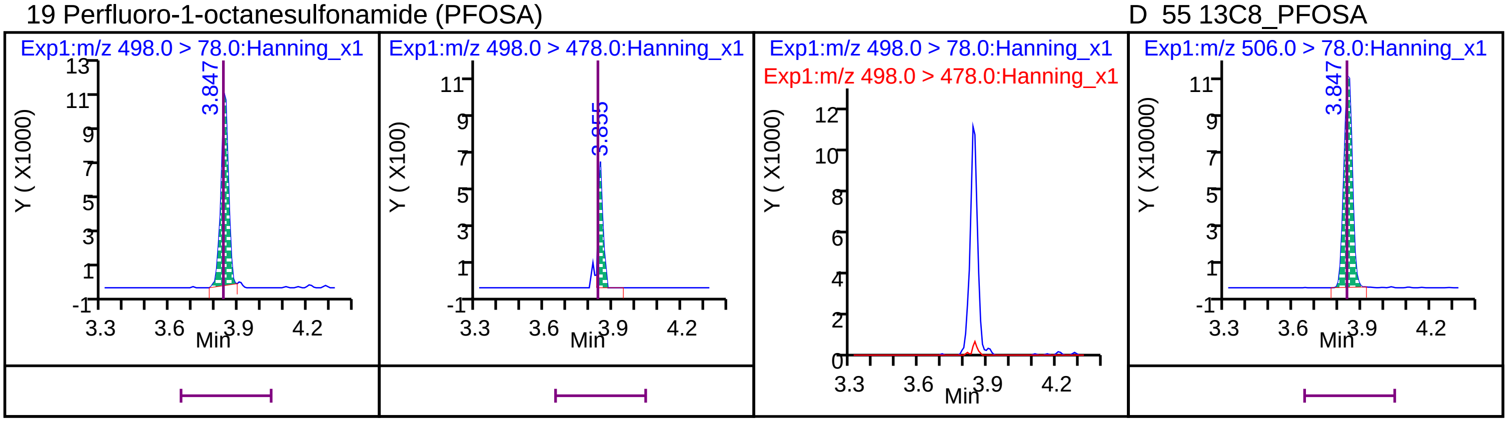
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



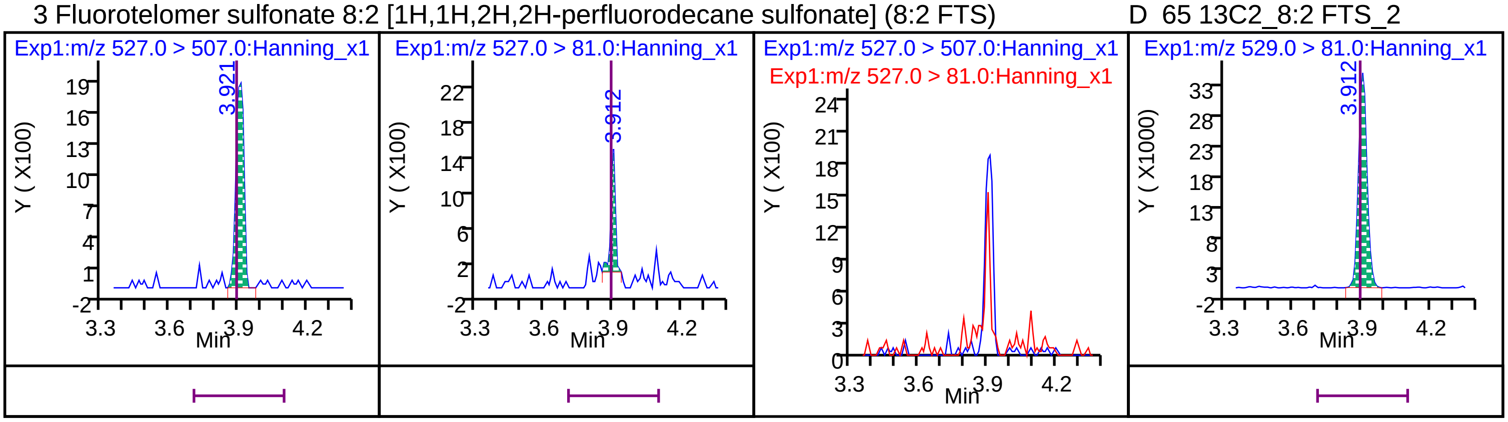
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



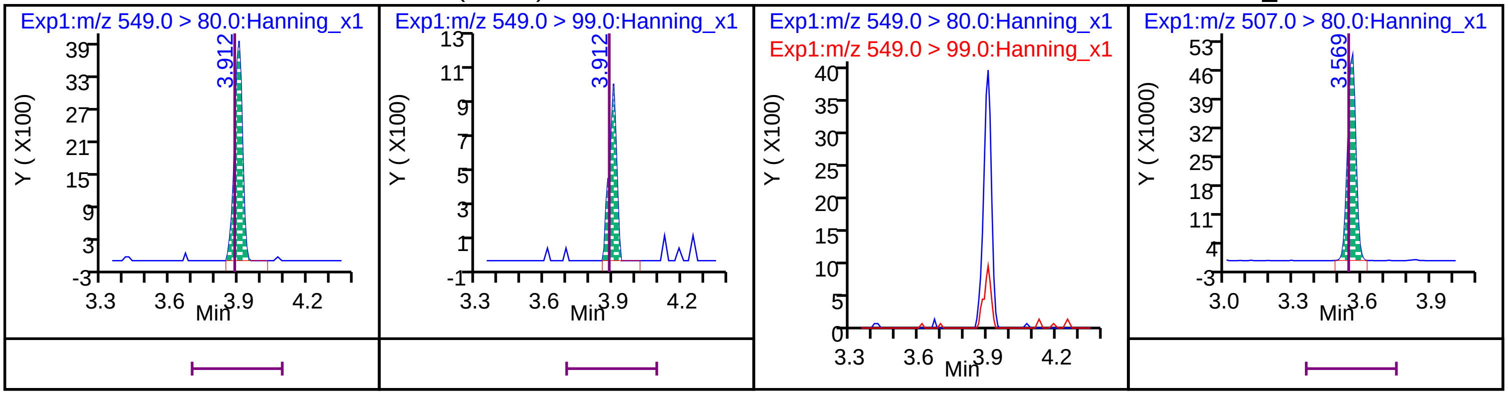
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



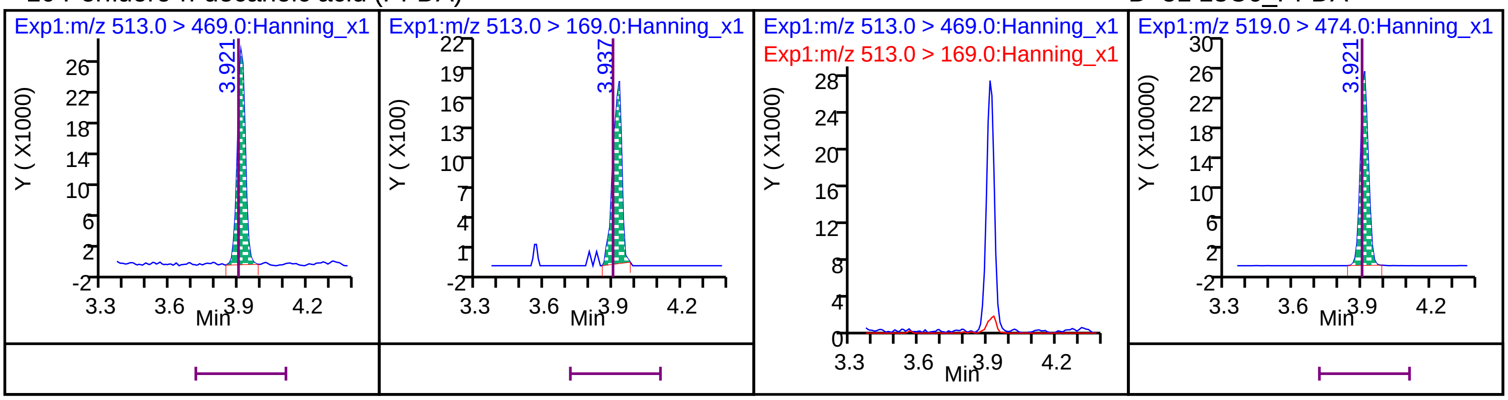
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



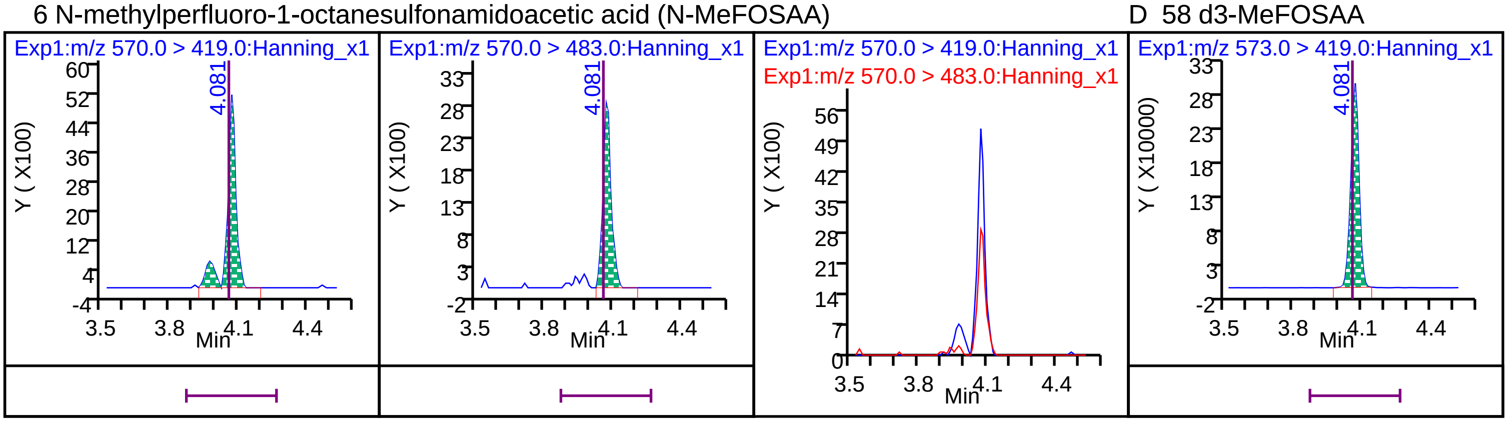
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



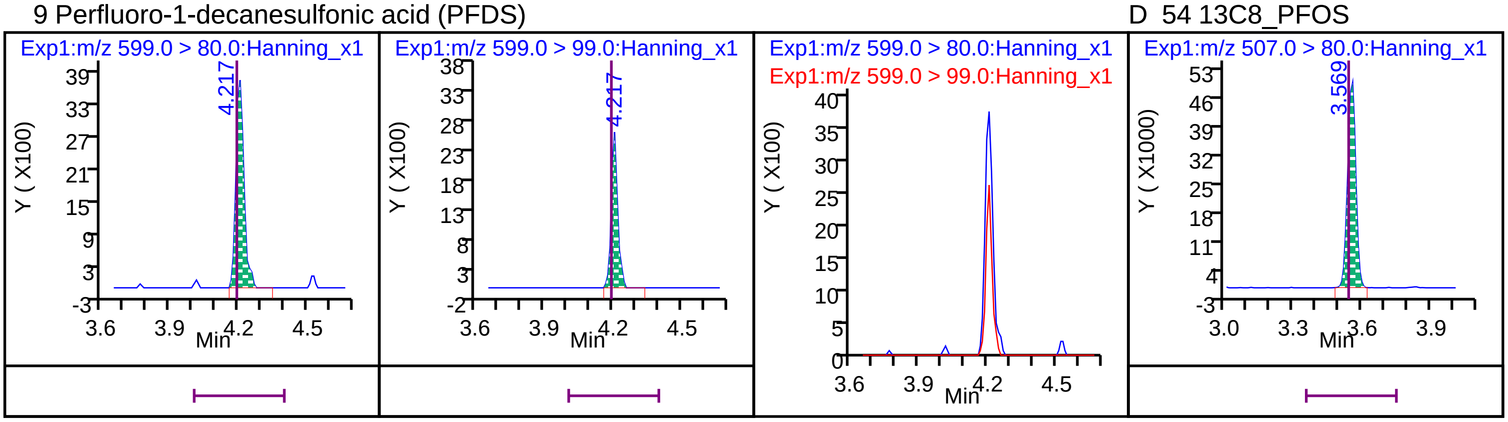
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



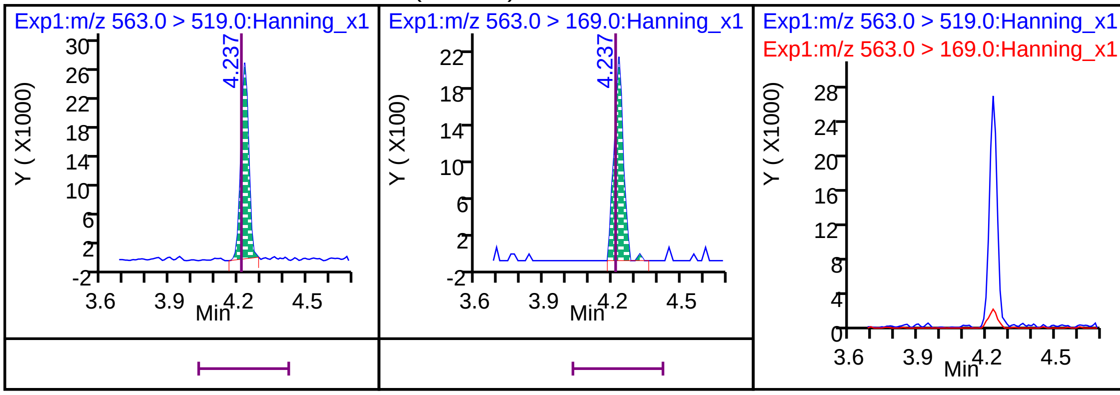
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



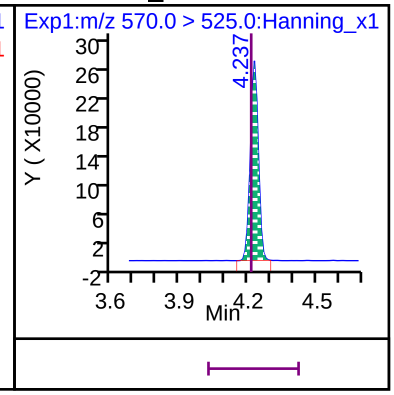
Report Date: 18-Nov-2021 18:20:55 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d

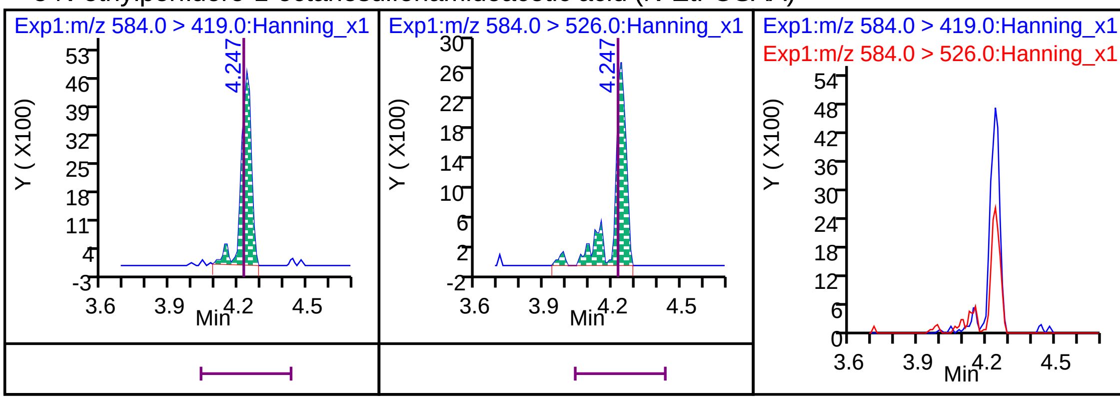
25 Perfluoro-n-undecanoic acid (PFUdA)



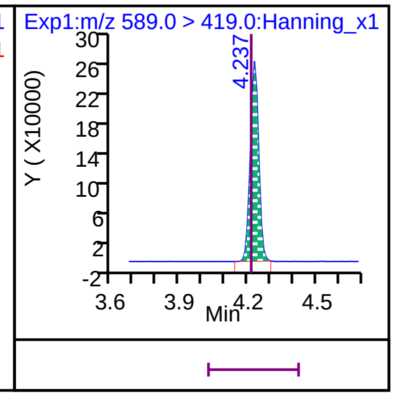
D 52 13C7_PFUdA



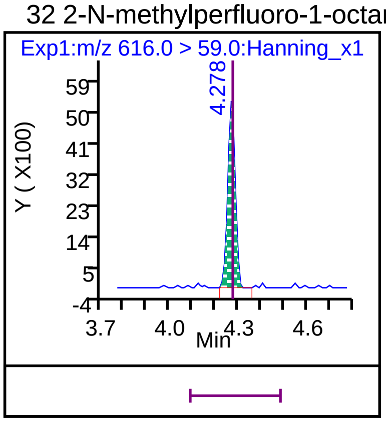
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



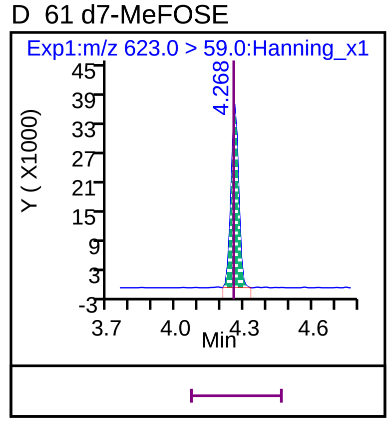
D 60 d5-EtFOSAA



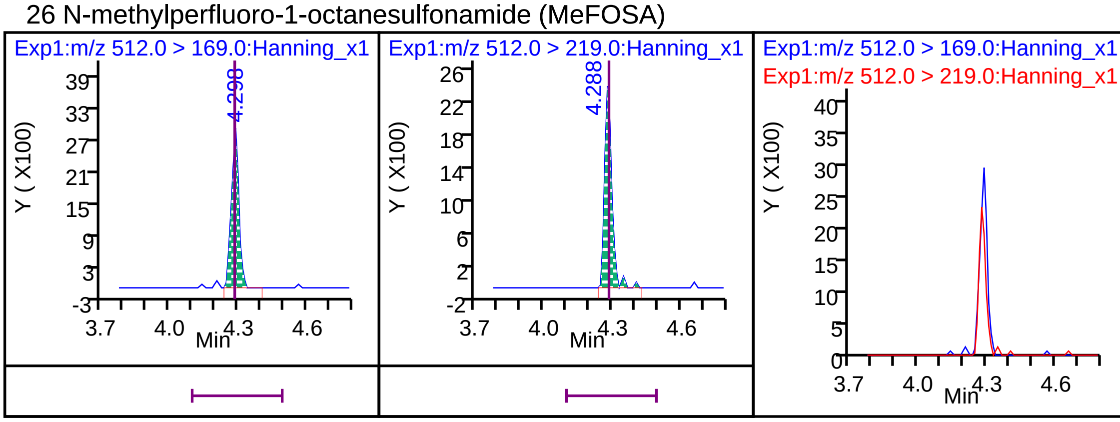
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



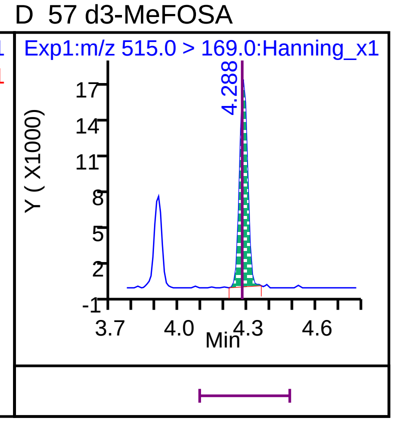
D 61 d7-MeFOSE



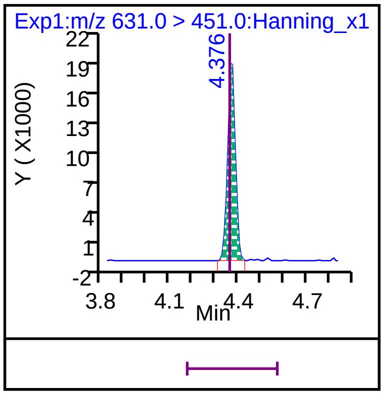
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)



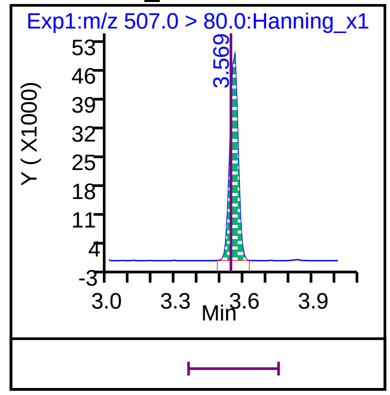
D 57 d3-MeFOSA



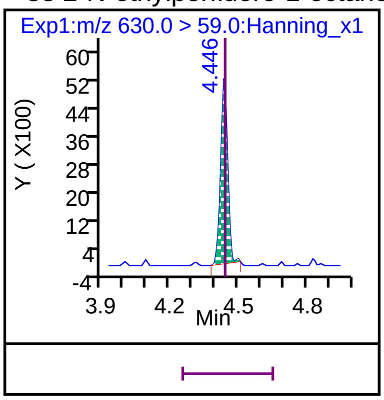
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



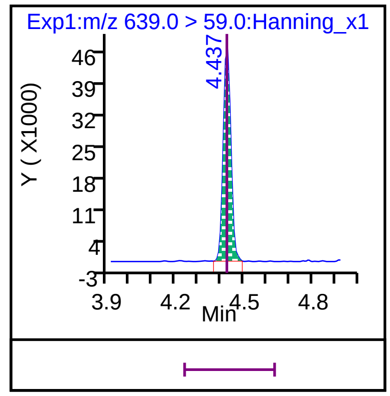
D 54 13C8_PFOS



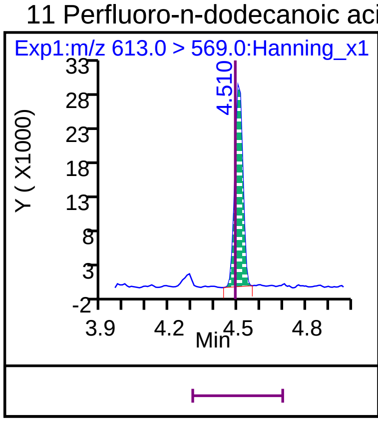
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

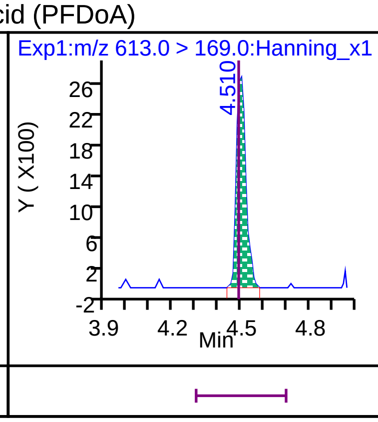


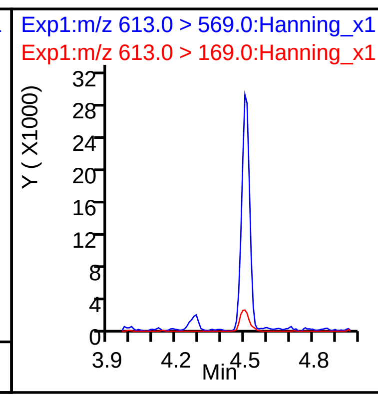
D 62 d9-EtFOSE



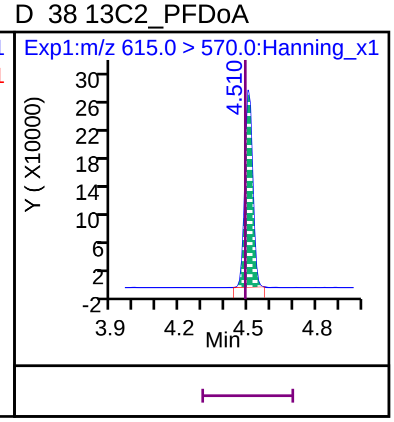
11 Perfluoro-n-dodecanoic acid (PFDoA)



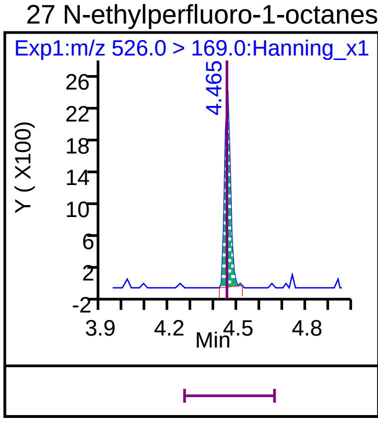


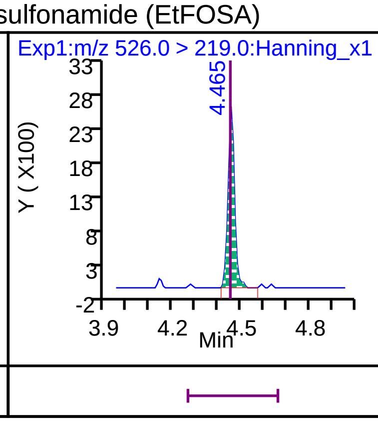


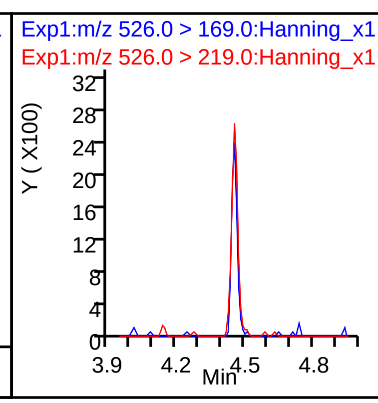
D 38 13C2_PFDoA



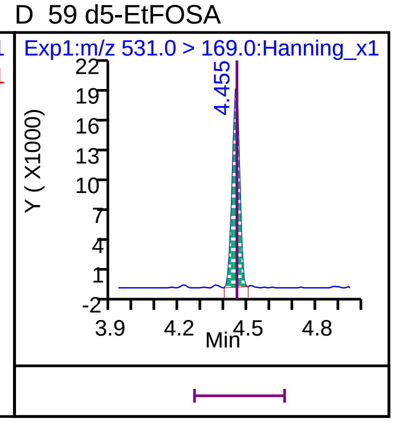
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



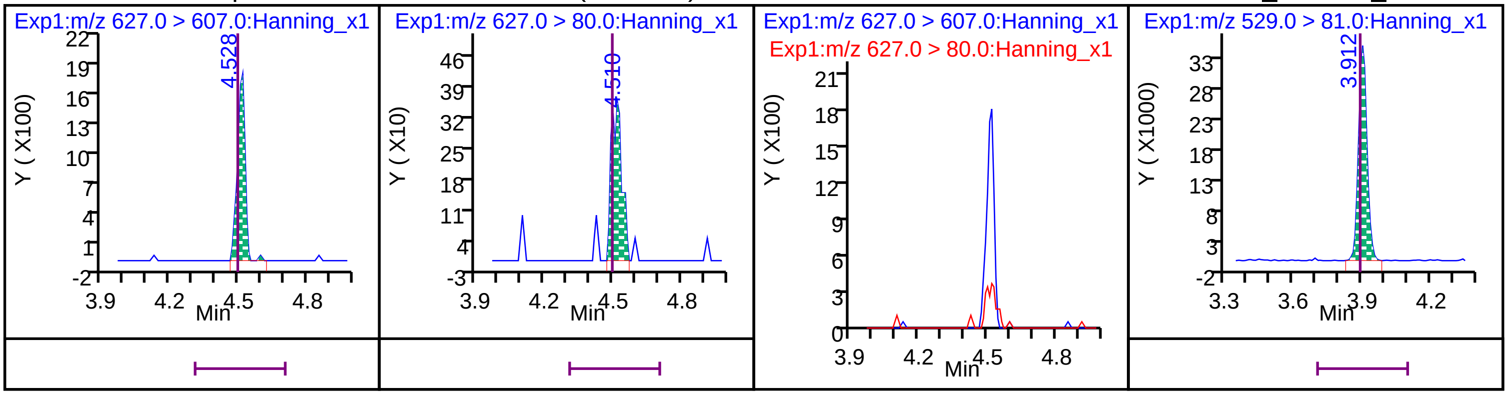




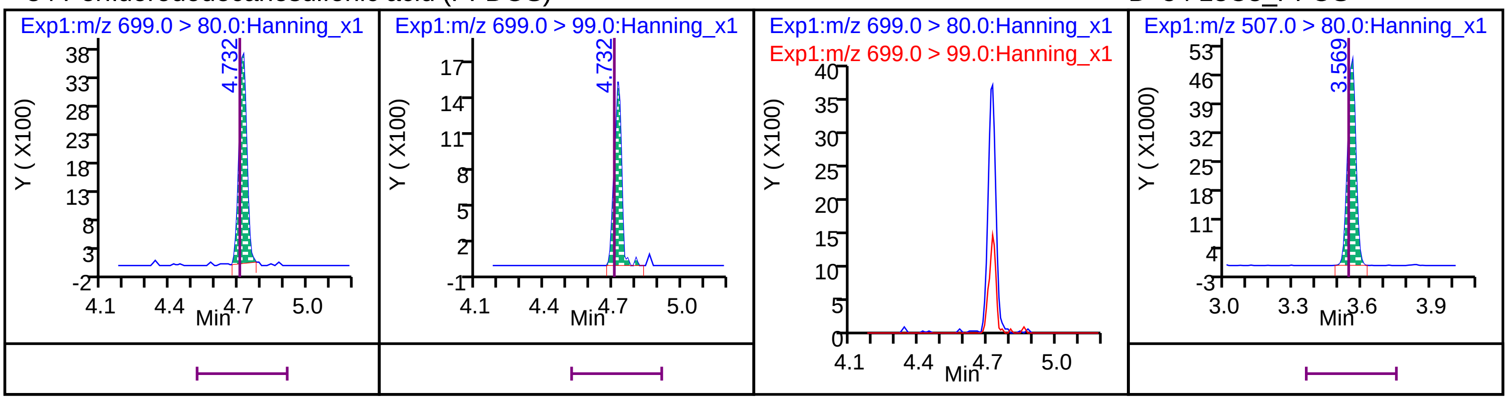
D 59 d5-EtFOSA



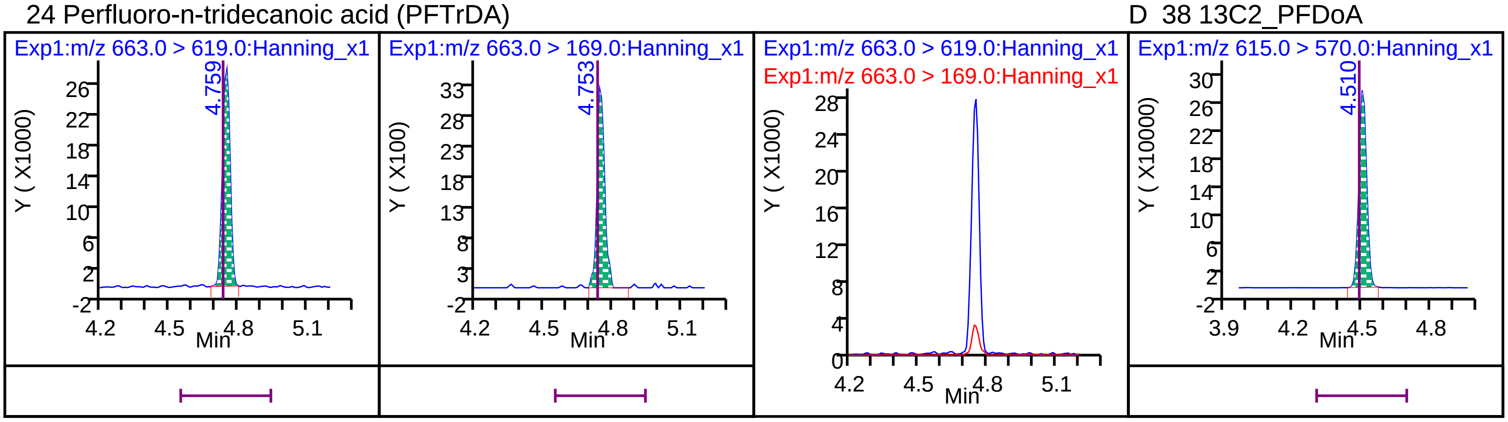
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



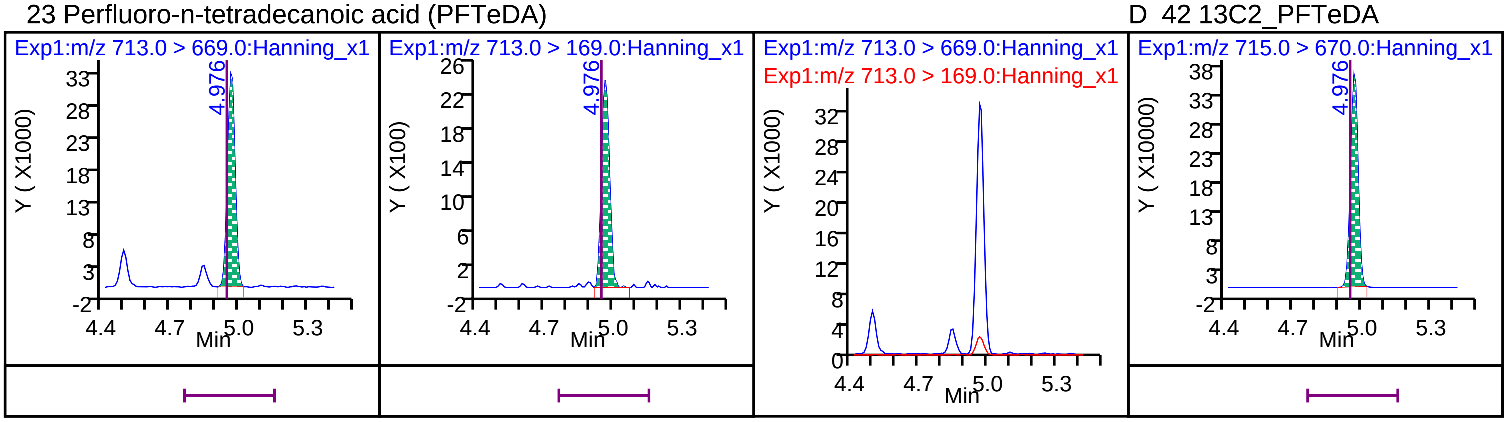
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

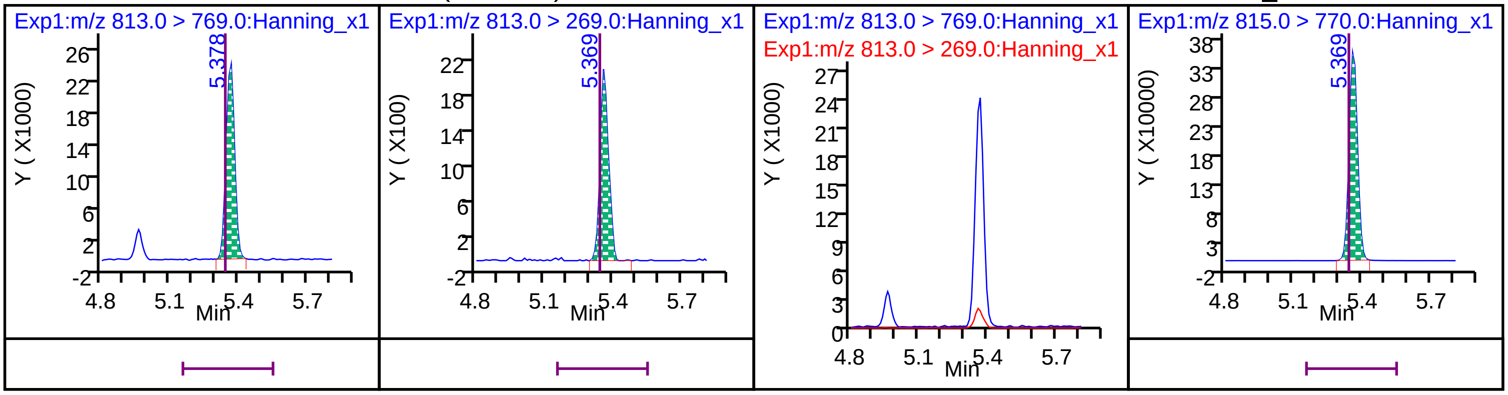


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

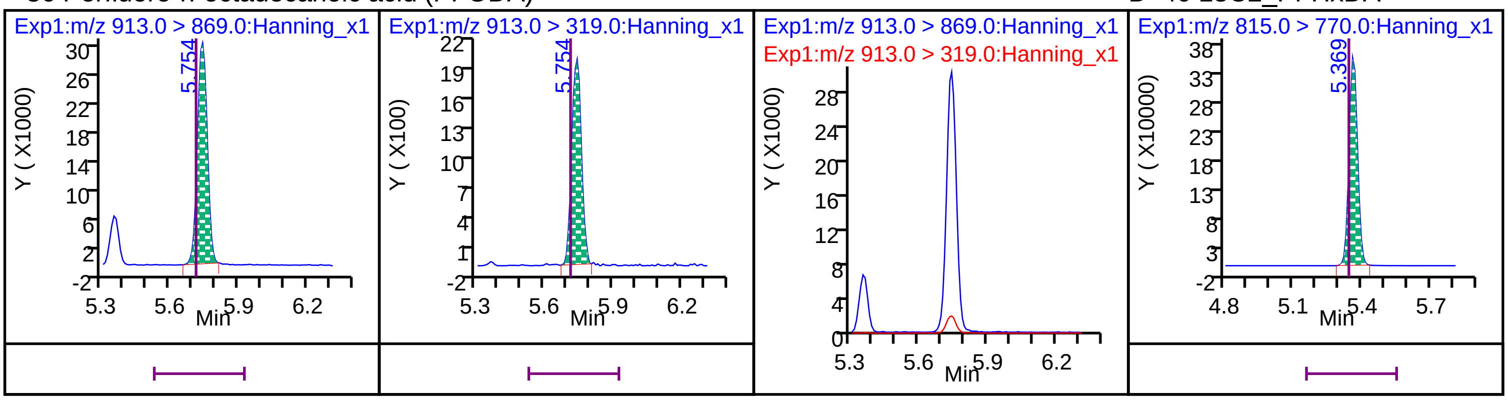


Report Date: 18-Nov-2021 18:20:55 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d

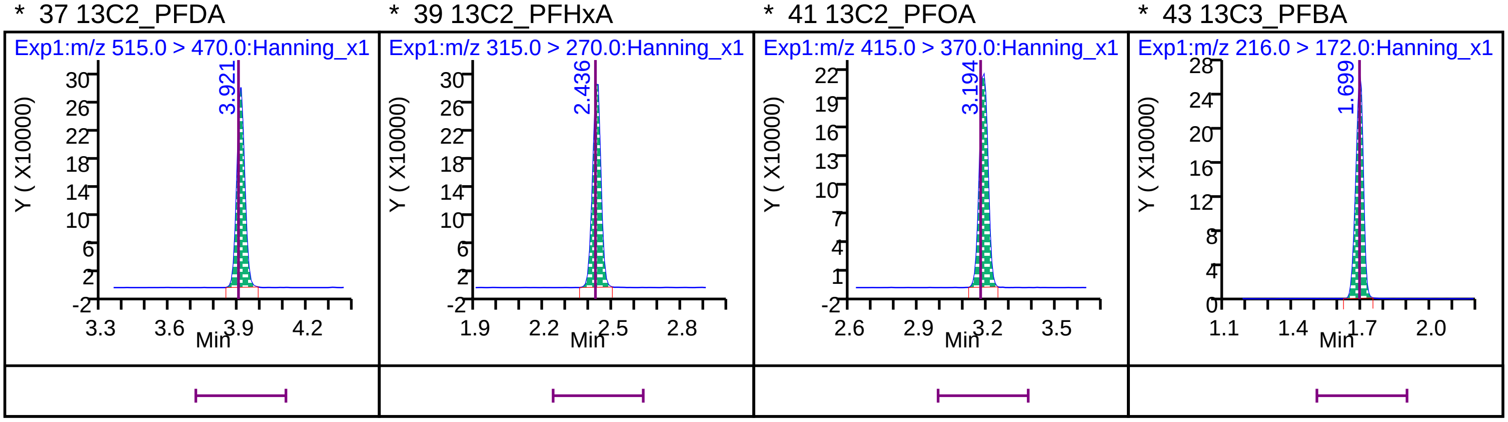
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



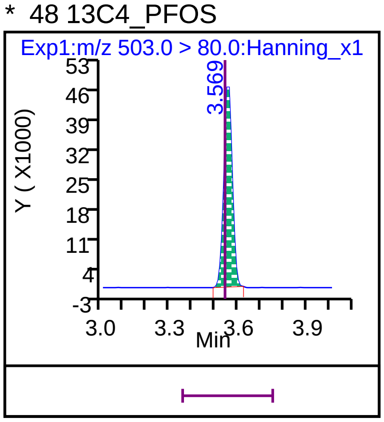
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:20:55 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

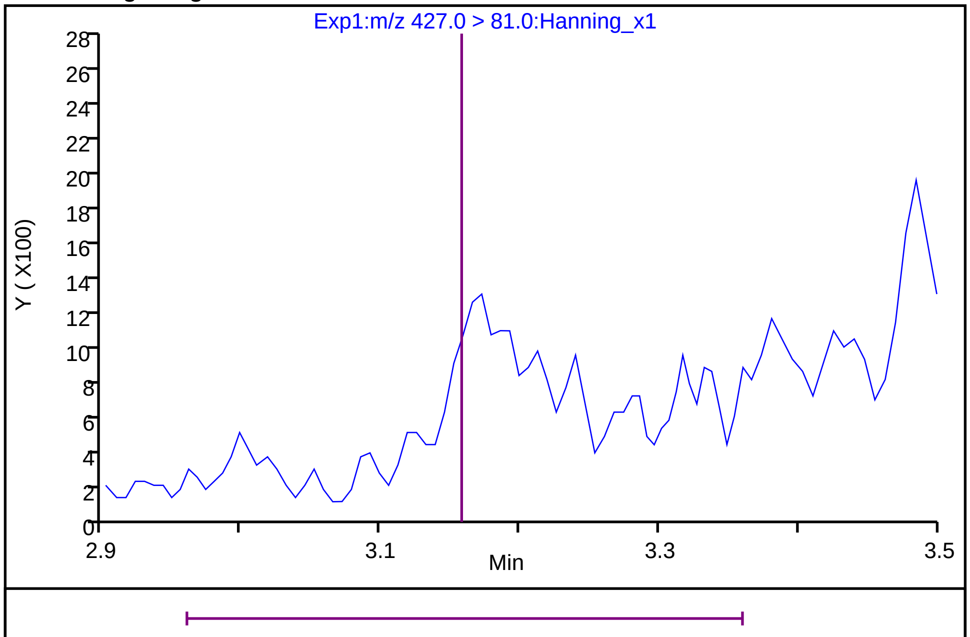
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721011.d		
Injection Date:	17-Nov-2021 14:46:31	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100B_SVLC-1741
Sample Info:	ID CCV 100B_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

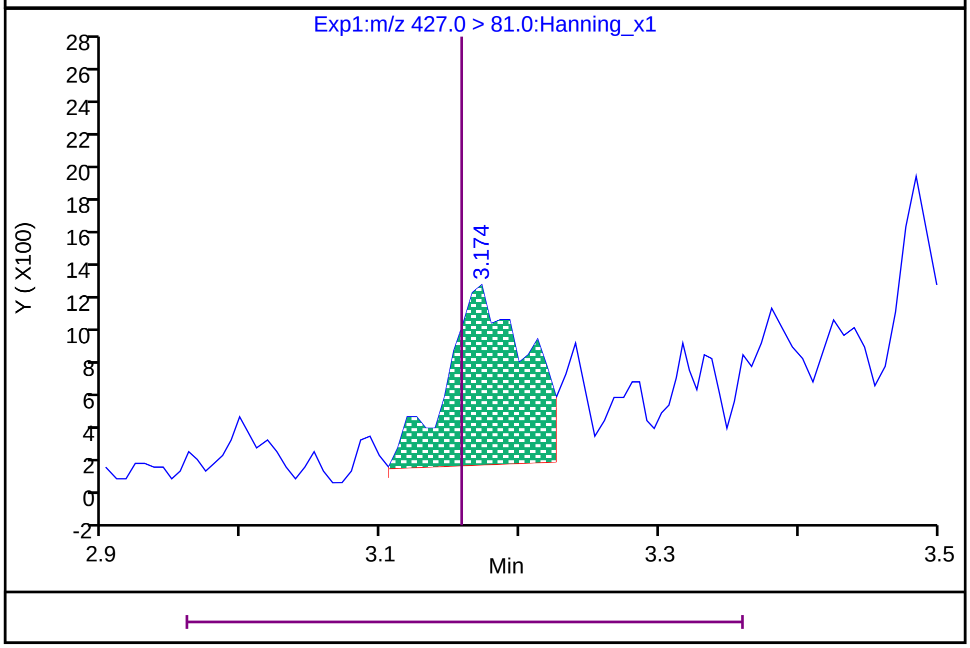
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected
Expected RT: 3.160
RT Window: 2.960-3.360



RT: 3.174
Area: 4128
Amount: 99.451
Amount Units: ng/L



Data Editor: justin.gavin, 17-Nov-2021 14:58:59
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d

Injection Date: 17-Nov-2021 15:49:40 Injection Vol: 10.0 uL

Sample Type: CCV Auto Sampler: 4

Sample Info: ID CCV 1000_SVLC-1744 Misc. Info:

Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04

Calib Method: PFAS-ID Lock State: Unlocked

Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	984.66	98.5	70 - 130
D 46 13C4_PFBA	668395	621365			93	50 - 150
D 50 13C5_PFPeA	587067	579799			98.8	50 - 150
21 PFPeA			1000.00	963.19	96.3	70 - 130
7 PFBS			884.00	832.90	94.2	70 - 130
D 44 13C3_PFBS	178175	175843			98.7	50 - 150
1 4:2 FTS			934.00	969.20	103.8	70 - 130
D 63 13C2_4:2 FTS_2	113673	107412			94.5	50 - 150
D 49 13C5_PFHxA	698559	635427			91	50 - 150
15 PFHxA			1000.00	1021.86	102.2	70 - 130
22 PFPeS			938.00	920.46	98.1	70 - 130
28 GenX			2000.00	1881.26	94.1	70 - 130
D 66 13C3_GenX	1175107	1181455			100.5	50 - 150
D 47 13C4_PFHpA	617327	563334			91.3	50 - 150
13 PFHpA			1000.00	959.03	95.9	70 - 130
D 45 13C3_PFHxS	139172	131490			94.5	50 - 150
14 PFHxS			910.00	875.74	96.2	70 - 130
29 ADONA			942.00	930.60	98.8	70 - 130
D 64 13C2_6:2 FTS_2	87765	87061			99.2	50 - 150
2 6:2 FTS			948.00	1004.47	106	70 - 130
20 PFOA			1000.00	978.49	97.8	70 - 130
D 53 13C8_PFOA	576099	540297			93.8	50 - 150
12 PFHpS			952.00	961.34	101	70 - 130
18 PFOS			928.00	829.74	89.4	70 - 130
17 PFNA			1000.00	982.51	98.3	70 - 130
D 56 13C9_PFNA	677086	636447			94	50 - 150
D 54 13C8_PFOS	125490	127057			101.2	50 - 150
30 9Cl-PF3ONS			932.00	928.51	99.6	70 - 130
D 55 13C8_PFOSA	262168	257622			98.3	50 - 150
19 PFOSA			1000.00	955.45	95.5	70 - 130
16 PFNS			960.00	948.92	98.8	70 - 130
D 65 13C2_8:2 FTS_2	88202	86506			98.1	50 - 150
3 8:2 FTS			958.00	1000.89	104.5	70 - 130
10 PFDA			1000.00	974.98	97.5	70 - 130
D 51 13C6_PFDA	615512	601352			97.7	50 - 150
6 N-MeFOSAA			1000.00	822.73	82.3	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	681022	779650			114.5	50 - 150
9 PFDS			964.00	917.53	95.2	70 - 130
25 PFUdA			1000.00	1020.63	102.1	70 - 130
D 60 d5-EtFOSAA	650725	634214			97.5	50 - 150
D 52 13C7_PFUdA	654908	637820			97.4	50 - 150
5 N-EtFOSAA			1000.00	1006.56	100.7	70 - 130
D 61 d7-MeFOSE	85524	80364			94	50 - 150
32 MeFOSE			1000.00	1170.52	117.1	70 - 130
26 MeFOSA			1000.00	1278.78	127.9	70 - 130
D 57 d3-MeFOSA	44687	41234			92.3	50 - 150
31 11Cl-PF3OUDS			942.00	940.16	99.8	70 - 130
D 62 d9-EtFOSE	100548	105521			104.9	50 - 150
33 EtFOSE			1000.00	951.25	95.1	70 - 130
D 59 d5-EtFOSA	37834	42325			111.9	50 - 150
27 EtFOSA			1000.00	1078.20	107.8	70 - 130
11 PFDoA			1000.00	1016.63	101.7	70 - 130
D 38 13C2_PFDoA	677078	596057			88	50 - 150
4 10:2 FTS			964.00	1021.67	106	70 - 130
34 PFDOS			968.00	992.45	102.5	70 - 130
24 PFTrDA			1000.00	1005.13	100.5	70 - 130
23 PFTeDA			1000.00	978.15	97.8	70 - 130
D 42 13C2_PFTeDA	816988	799547			97.9	50 - 150
35 PFHxDA			1000.00	912.95	91.3	70 - 130
D 40 13C2_PFHxDA	853968	918924			107.6	50 - 150
36 PFODA			1000.00	1018.39	101.8	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d		
Injection Date:	17-Nov-2021 15:49:40	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	4
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.690	1.692	2	621365	20	>100:1			1000.00	995.88	93	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.696	1.699	-11/-13	640076	20	>100:1			1000.00	984.66		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.062	2.067	0	579799	16	>100:1			1000.00	1001.11	98.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.062	2.067	0/0	613307	16	>100:1			1000.00	963.19		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.115	2.120	0	175843	16	>100:1			1000.00	1013.23	98.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.125	2.120	1/1	182458	15	>100:1	Target = 3.48		884.00	832.90		
298.9 > 99	44	2.115	2.120		54460	21	>100:1	3.35 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.459	2.460	0/0	143273	17	>100:1	Target = 3.03		938.00	920.46		
349 > 99	44	2.459	2.460		47357	17	>100:1	3.02 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.388	2.389	0	107412	15	>100:1			5000.00	4919.02	94.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.388	2.389	0/0	45801	17	>100:1	Target = 1.70		934.00	969.20		
327 > 81	63	2.388	2.389		22602	15	74:1	2.02 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.433	0	635427	17	>100:1			1000.00	980.49	91	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.424	2.433	0/0	687081	18	>100:1	Target = 18.47		1000.00	1021.86		
313 > 119	49	2.424	2.433		35523	16	>100:1	19.34 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.549	-4	1181455	18	>100:1			5000.00	5276.31	100.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	0/4	292503	17	>100:1	Target = 0.78		2000.00	1881.26		
285 > 185	66	2.540	2.540		377954	18	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.799	2.800	-10	563334	17	>100:1			1000.00	1067.33	91.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.799	2.800	-2/8	617792	17	>100:1	Target = 3.92		1000.00	959.03		
363 > 169	47	2.799	2.800		158168	18	>100:1	3.90 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.817	2.818	0	131490	17	>100:1			1000.00	1029.55	94.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.808	2.818	0/0	129816	25	>100:1	Target = 3.14	5.30	910.00	875.74		
399 > 99	45	2.817	2.818		39576	24	>100:1	3.28 (1.57-4.71)	7.37				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.835	2.836	0/0	951713	17	>100:1	Target = 3.33		942.00	930.60		
377 > 85	45	2.835	2.836		282560	18	>100:1	3.36 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.178	3.186	0/0	122896	20	>100:1	Target = 3.02		952.00	961.34		
449 > 99	45	3.185	3.186		40041	20	>100:1	3.06 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.152	3.160	0	87061	25	>100:1			5000.00	5073.27	99.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.152	3.160	0/0	41025	20		Target = 1.69		948.00	1004.47		
427 > 81	64	3.152	3.160		20559	21	50:1	1.99 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.178	3.180	-9	540297	21	>100:1			1000.00	1043.06	93.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.178	3.180	0/9	553274	21	>100:1	Target = 3.03		1000.00	978.49		
413 > 169	53	3.178	3.180		172621	20	>100:1	3.20 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.550	3.552	0	127057	18	>100:1			1000.00	1020.53	101.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.550	3.552	0/0	125223	35	>100:1	Target = 3.42	4.10	928.00	829.74		
499 > 99	54	3.550	3.552		45835	32	>100:1	2.73 (1.71-5.13)	6.30				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.758	3.766	0/0	452909	20	>100:1			932.00	928.51		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.893	3.893	0/0	93866	19	>100:1	Target = 2.57		960.00	948.92		
549 > 99	54	3.901	3.893		33269	18		2.82 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.201	4.203	0/0	93710	17		Target = 2.71		964.00	917.53		
599 > 99	54	4.201	4.203		37730	16		2.48 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.361	4.372	12/12	404913	15	>100:1			942.00	940.16		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.714	4.715	0/0	100349	18	>100:1	Target = 3.04		968.00	992.45		
699 > 99	54	4.707	4.715		30091	17		3.33 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.558	3.560	3	636447	19	>100:1			1000.00	986.39	94	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.558	3.560	0/-3	688841	19	>100:1	Target = 7.14		1000.00	982.51		
463 > 169	56	3.558	3.560		103311	18	>100:1	6.66 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.852	3.844	1	257622	19	>100:1			1000.00	1021.63	98.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.852	3.844	1/0	270462	17	>100:1	Target = 32.83		1000.00	955.45		
498>478	55	3.844	3.844		9068	20	100:1	29.82 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.901	3.902	9	86506	18	>100:1			5000.00	5173.22	98.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.901	3.902	0/-9	40161	15	>100:1	Target = 2.14		958.00	1000.89		
527 > 81	65	3.901	3.902		19990	19	65:1	2.00 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.505	4.507	0/-9	47516	16		Target = 3.72		964.00	1021.67		
627 > 80	65	4.505	4.507		11117	21	>100:1	4.27 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.901	3.910	0	601352	19	>100:1			1000.00	1055.26	97.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.909	3.910	0/0	687425	19	>100:1	Target = 14.16		1000.00	974.98		
513 > 169	51	3.909	3.910		53838	17	>100:1	12.76 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.067	4.068	0	779650	17	>100:1			5000.00	5708.05	114.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.067	4.068	0/0	106271	32	>100:1	Target = 1.42	6.02	1000.00	822.73		M
570 > 483	58	4.067	4.068		89440	31	>100:1	1.18 (0.71-2.14)	4.38				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.221	4.223	0	634214	16	>100:1			5000.00	5223.30	97.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.232	4.234	0/0	121130	31	>100:1	Target = 1.49	6.32	1000.00	1006.56		M
584 > 526	60	4.232	4.234		82144	32	>100:1	1.47 (0.74-2.24)	3.99				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.221	4.223	0	637820	17	>100:1			1000.00	982.49	97.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.221	4.223	0/0	603984	16	>100:1	Target = 14.37		1000.00	1020.63		
563 > 169	52	4.221	4.223		42008	14	>100:1	14.37 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.272	4.264	1	80364	16	>100:1			1000.00	917.04	94	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.282	4.284	0/-1	103853	20	>100:1			1000.00	1170.52		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.292	4.284	1	41234	13	>100:1			1000.00	844.32	92.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.303	4.294	1/0	53755	12	>100:1	Target = 1.08		1000.00	1278.78		
512 > 219	57	4.292	4.294		46947	18	>100:1	1.14 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.434	1	105521	16	>100:1			1000.00	996.27	104.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.450	4.452	0/-1	102332	15	>100:1			1000.00	951.25		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.459	4.461	-7	42325	15	>100:1			1000.00	966.07	111.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.468	4.461	1/8	53739	14	>100:1	Target = 0.97		1000.00	1078.20		
526 > 219	59	4.468	4.461		47989	14	>100:1	1.11 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.496	4.498	0	596057	15	>100:1			1000.00	998.63	88	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.496	4.498	0/0	654158	16	>100:1	Target = 10.55		1000.00	1016.63		
613 > 169	38	4.496	4.498		62108	22	>100:1	10.53 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.735	4.743	0/0	583193	19	>100:1	Target = 8.92		1000.00	1005.13		
663 > 169	38	4.735	4.743		65542	18	>100:1	8.89 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.958	4.959	-5	799547	17	>100:1			1000.00	1060.25	97.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.958	4.959	0/5	685669	17	>100:1	Target = 12.22		1000.00	978.15		
713 > 169	42	4.958	4.959		53474	18	>100:1	12.82 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.344	5.353	6	918924	19	>100:1			1000.00	1021.96	107.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.344	5.353	0/-6	568383	19	>100:1	Target = 11.65		1000.00	912.95		
813 > 269	40	5.344	5.353		50566	19	>100:1	11.24 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.718	5.725	0/-6	880537	21	66:1	Target = 15.15		1000.00	1018.39		
913 > 319	40	5.710	5.725		58487	21	>100:1	15.05 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.909	3.910	4	678265	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.433	11	677048	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.178	3.180	5	532772	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.696	1.699	0	570869	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.550	3.552	0	119591	20	>100:1			1000.00			

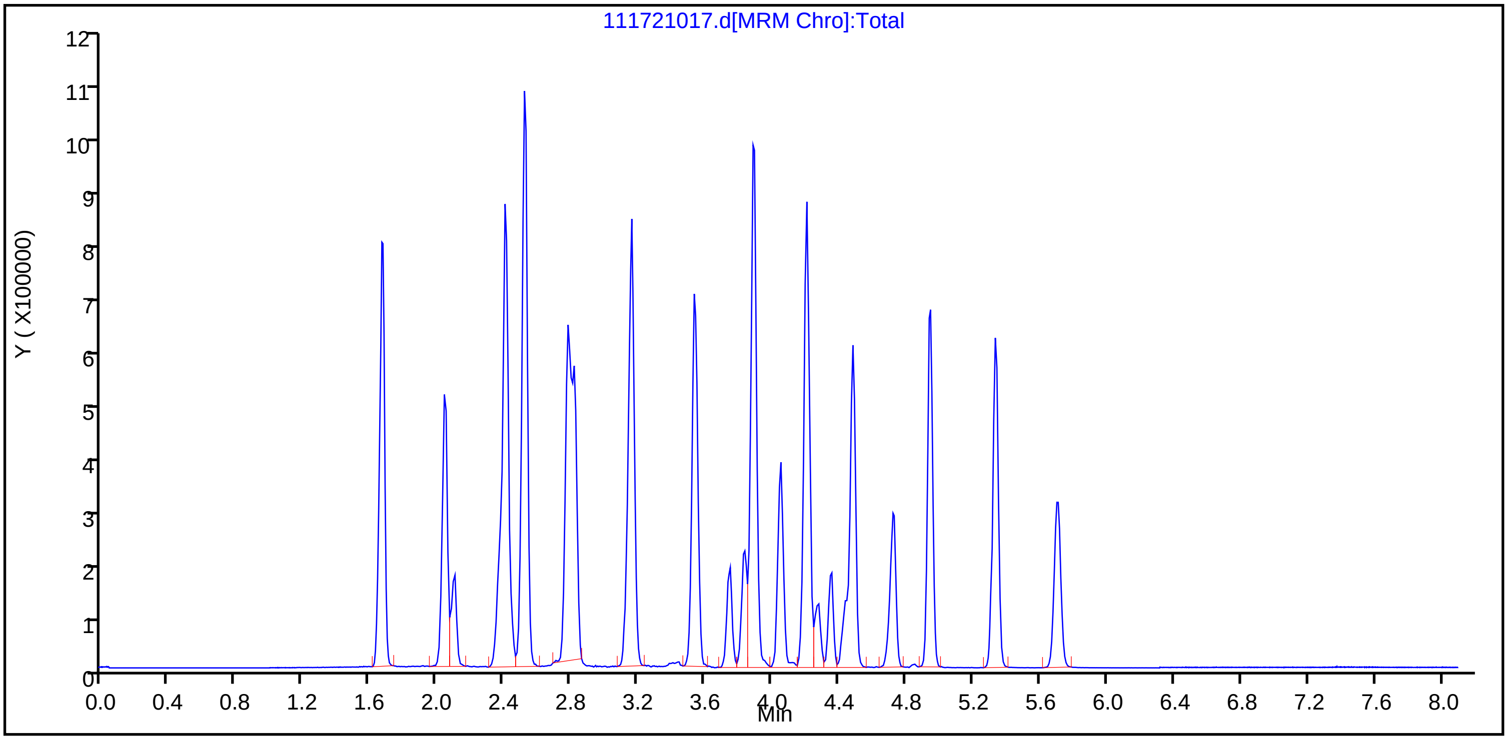
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

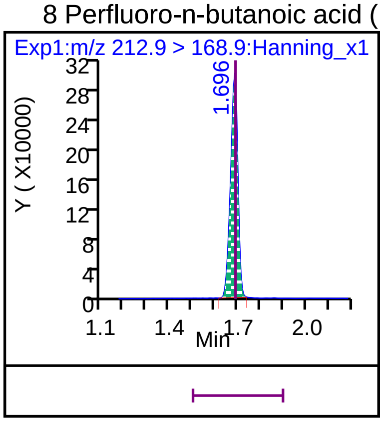
Report Date: 18-Nov-2021 18:20:58 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

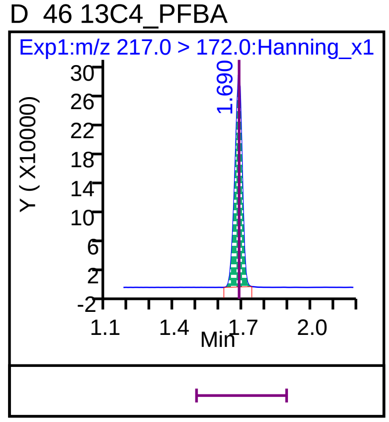
Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d		
Injection Date:	17-Nov-2021 15:49:40	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



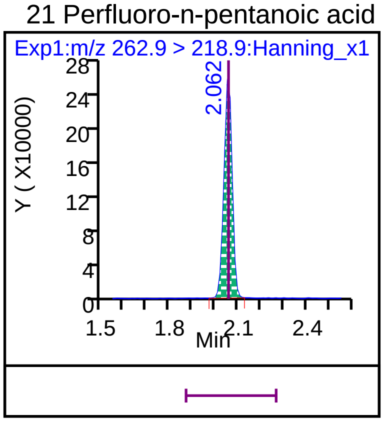
8 Perfluoro-n-butanoic acid (PFBA)



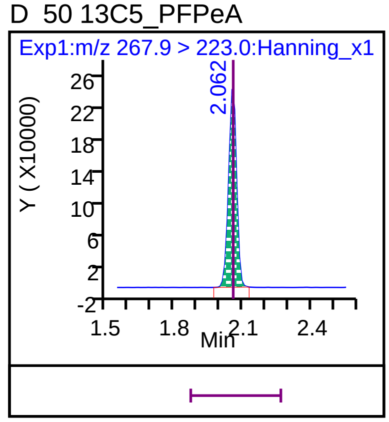
D 46 13C4_PFBA



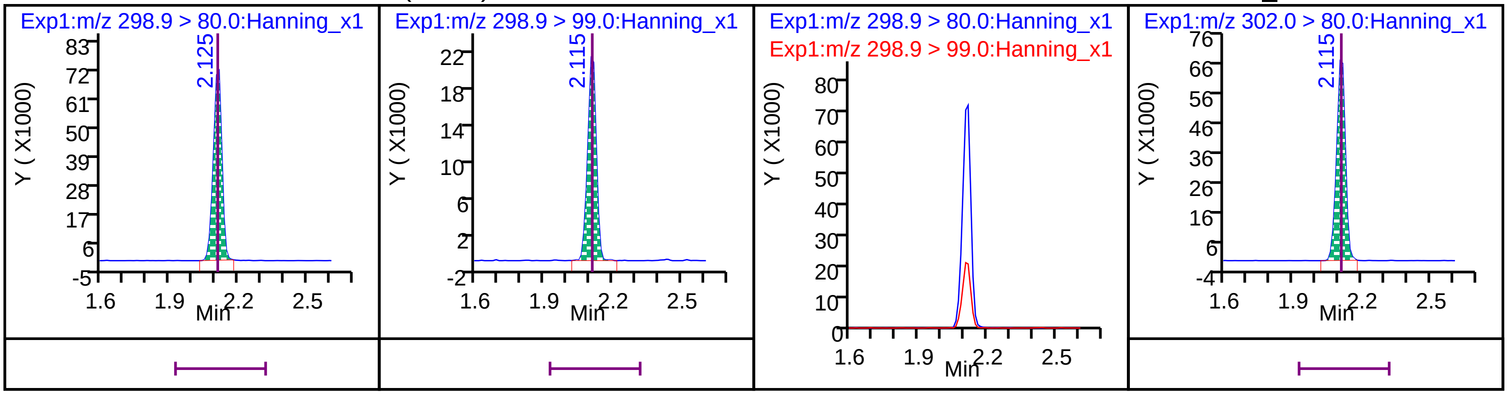
21 Perfluoro-n-pentanoic acid (PFPeA)



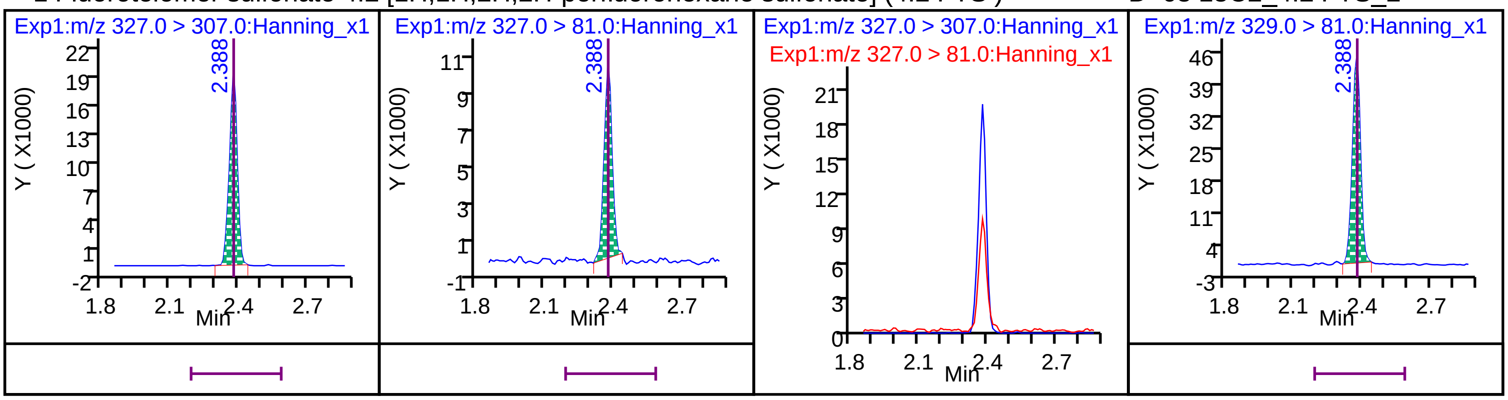
D 50 13C5_PFPeA



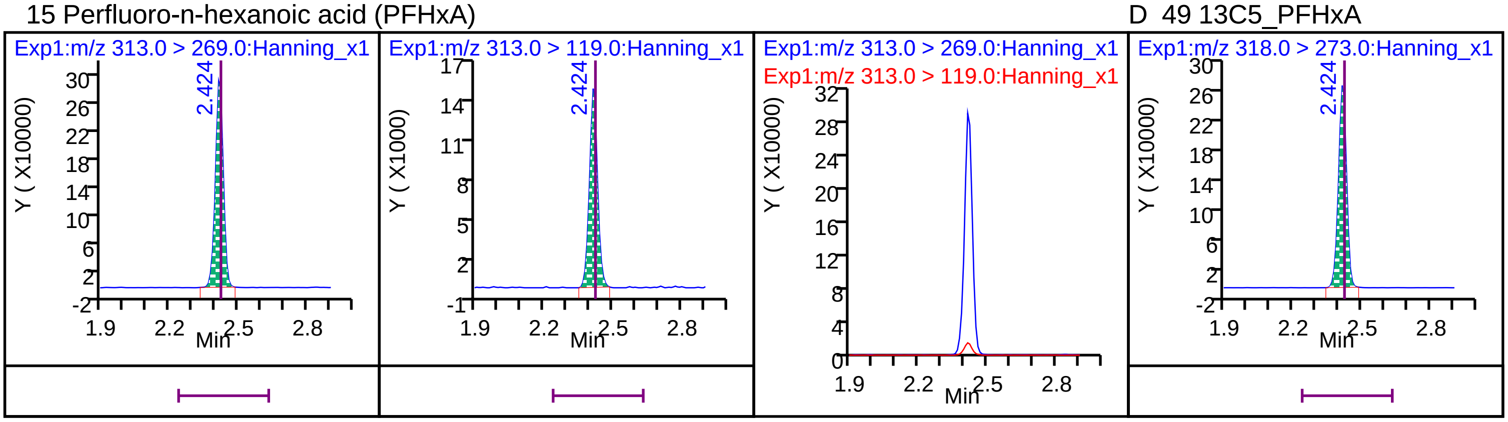
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



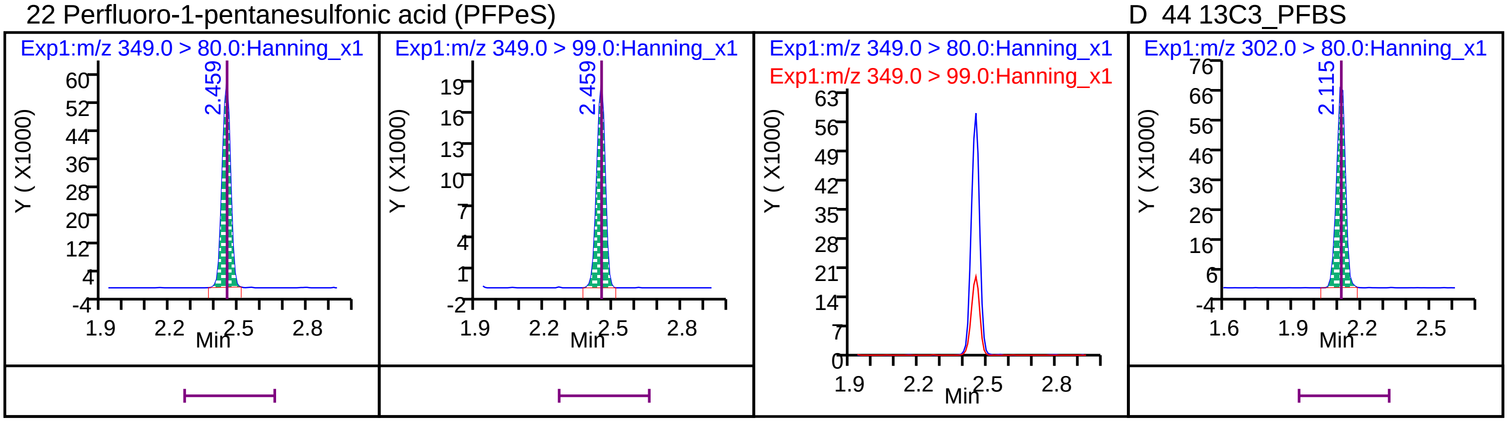
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

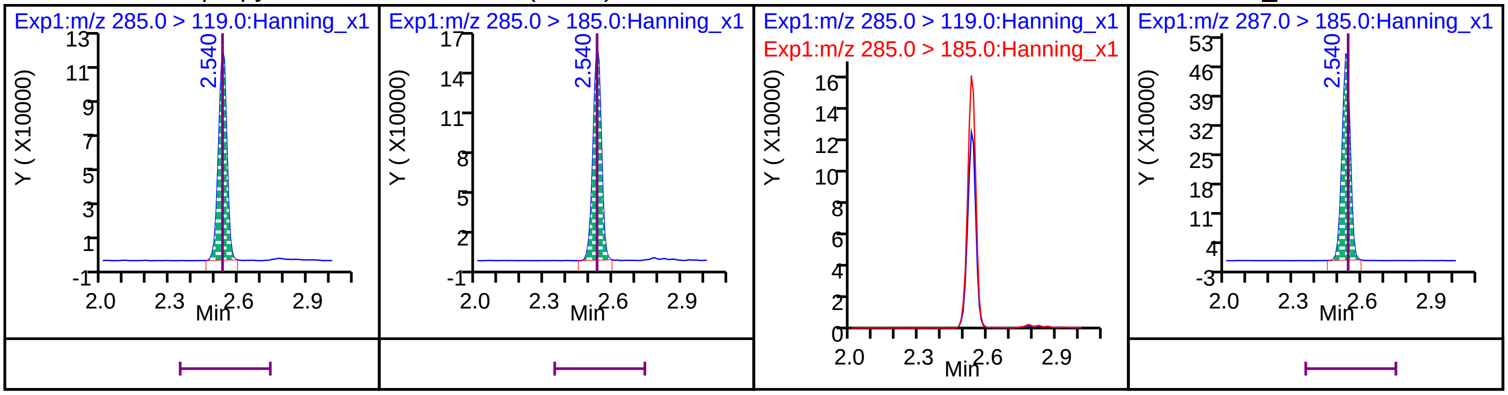


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

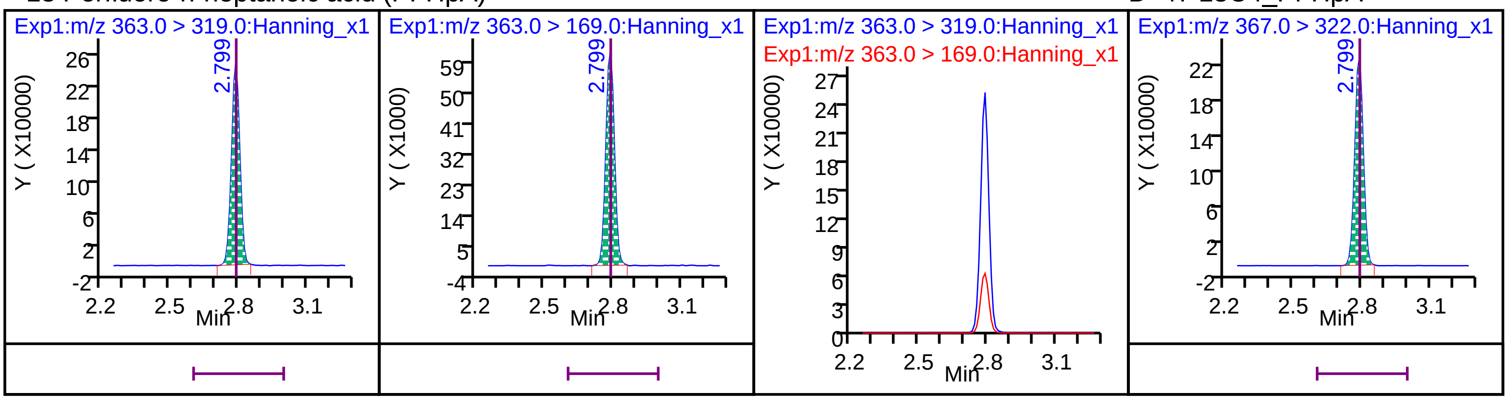


Report Date: 18-Nov-2021 18:20:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d

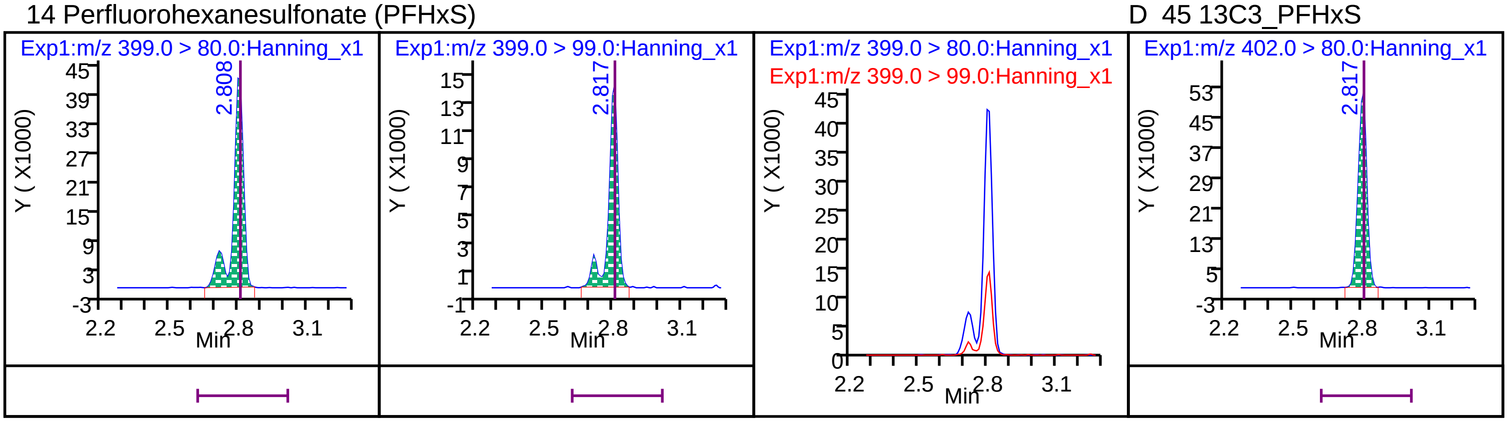
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



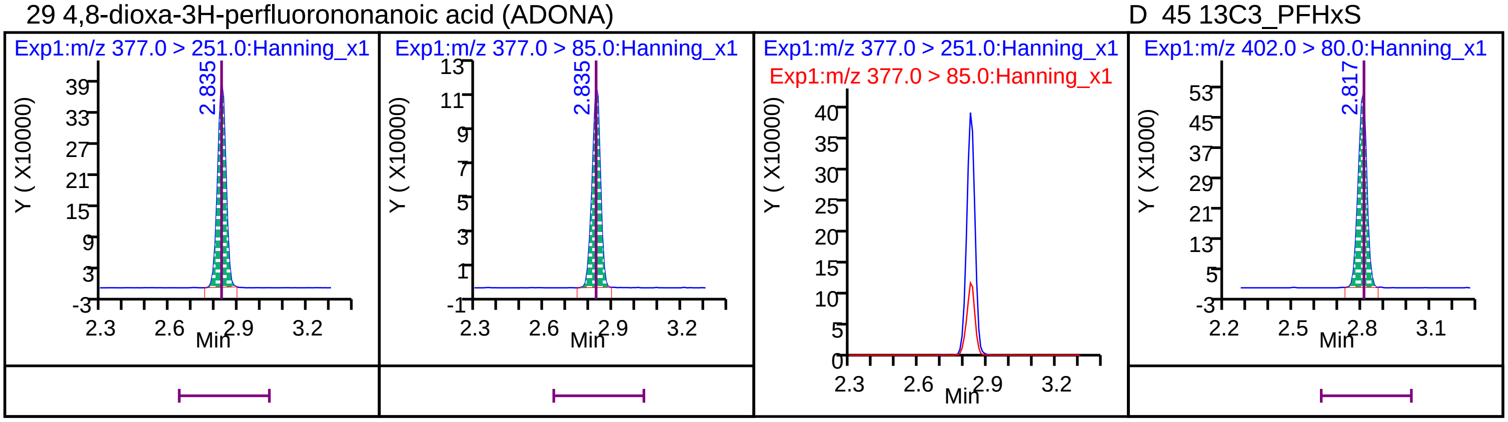
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

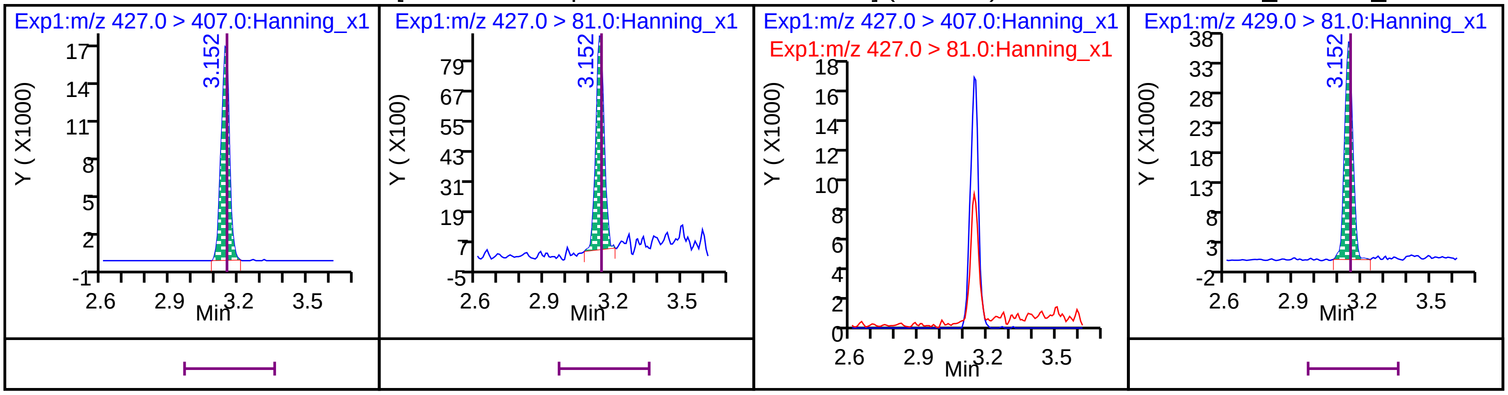


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

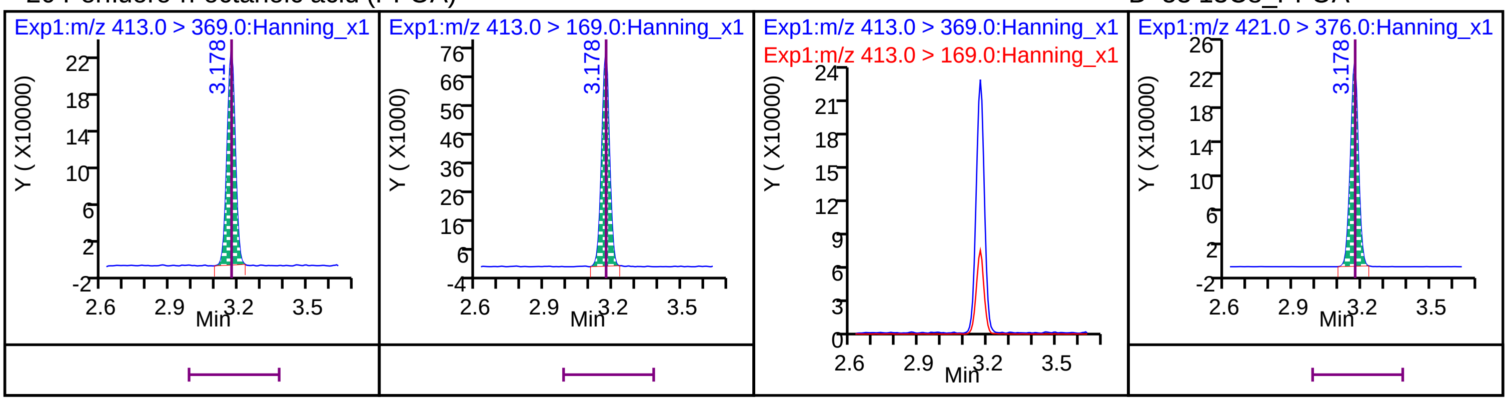


Report Date: 18-Nov-2021 18:20:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d

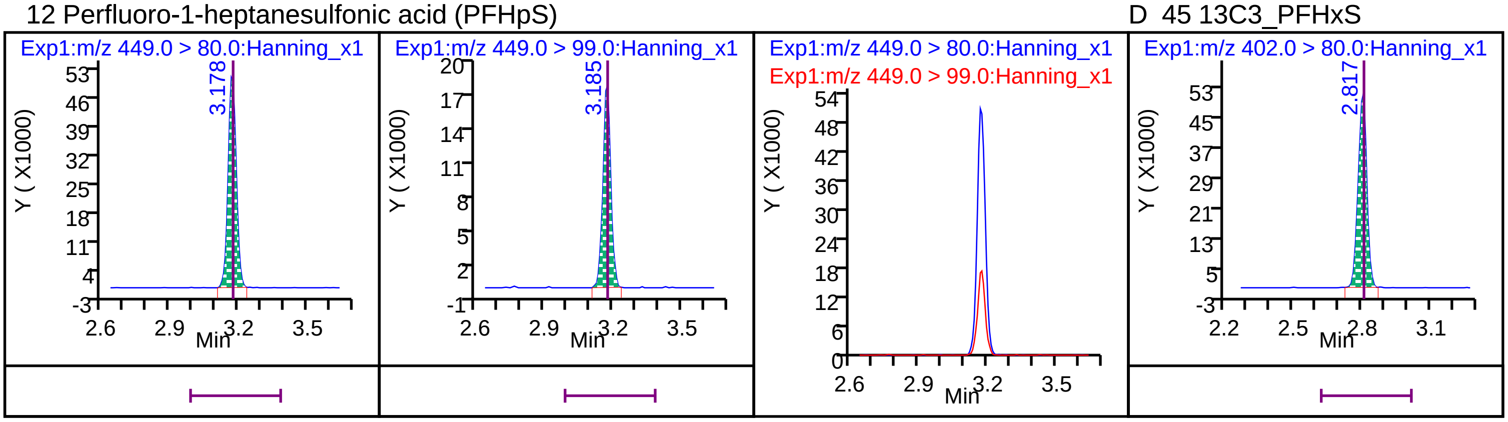
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



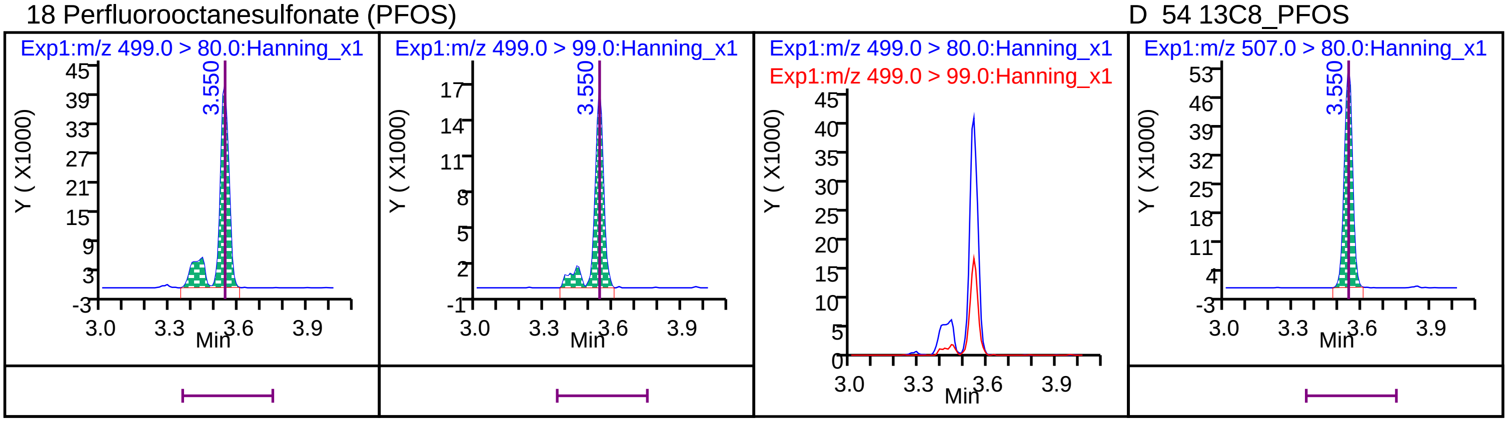
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



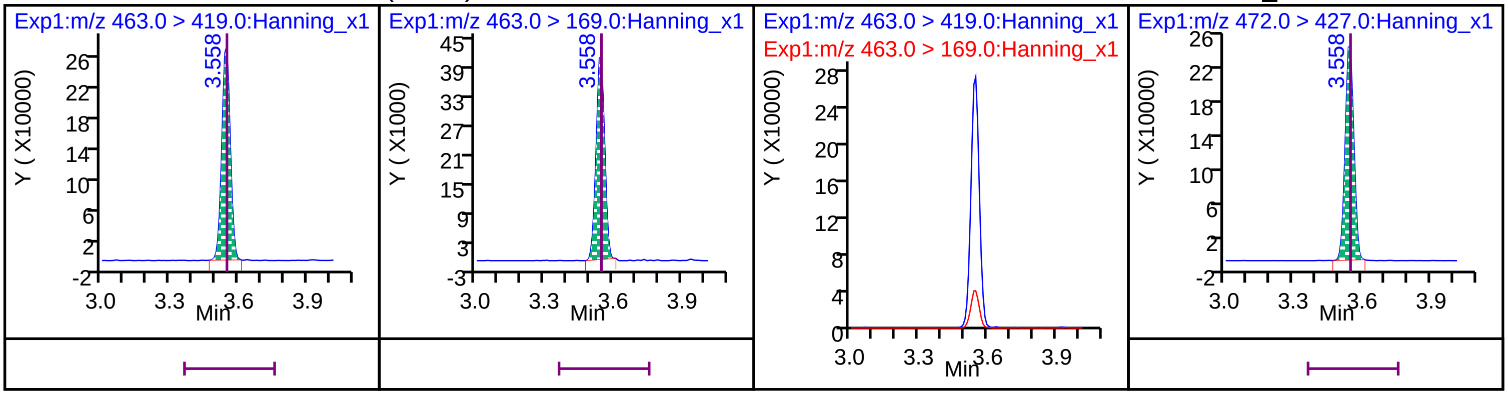
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



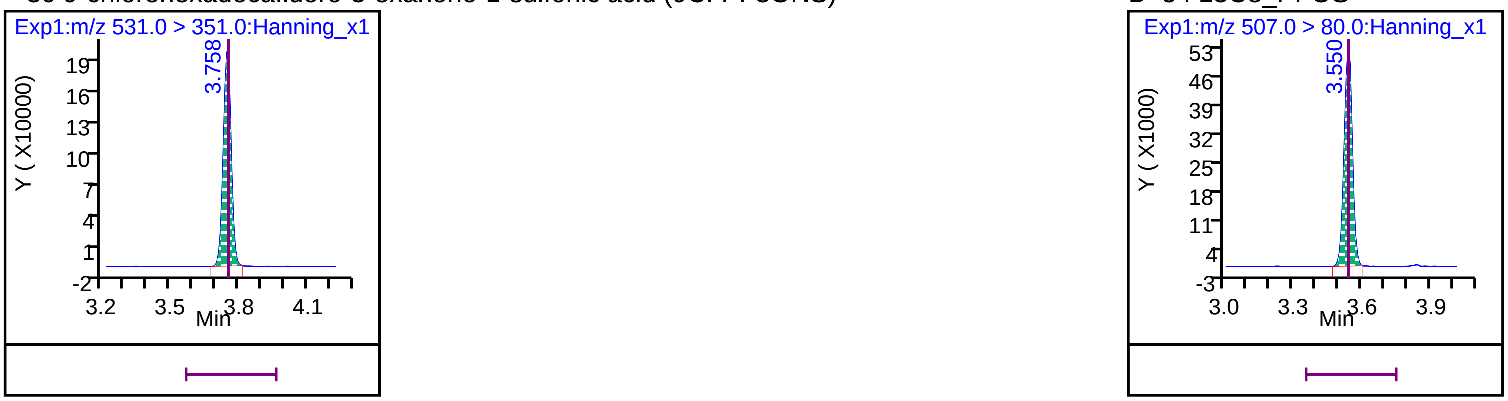
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



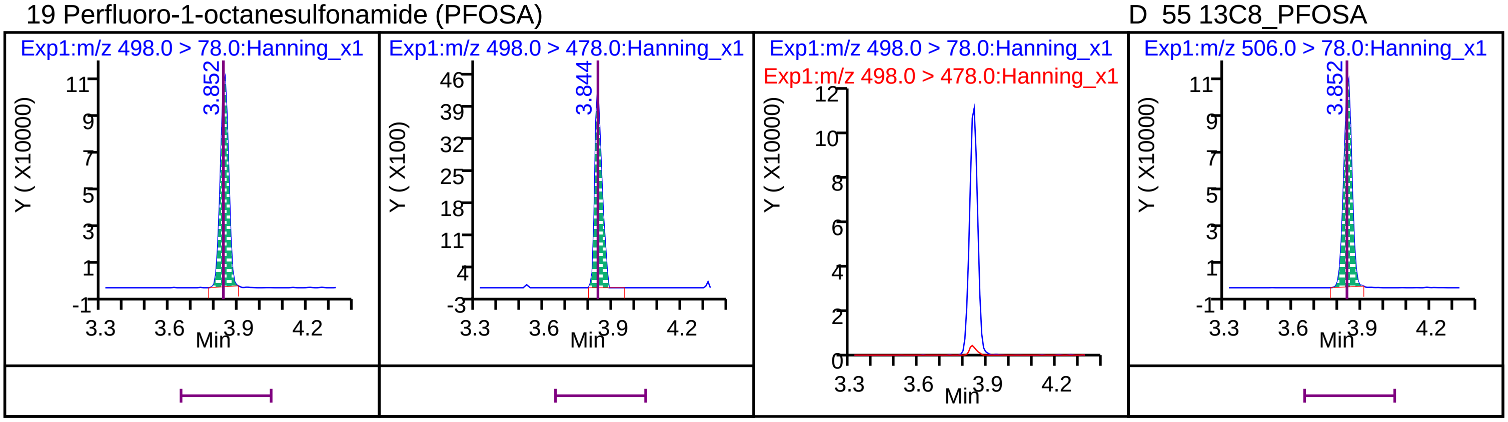
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



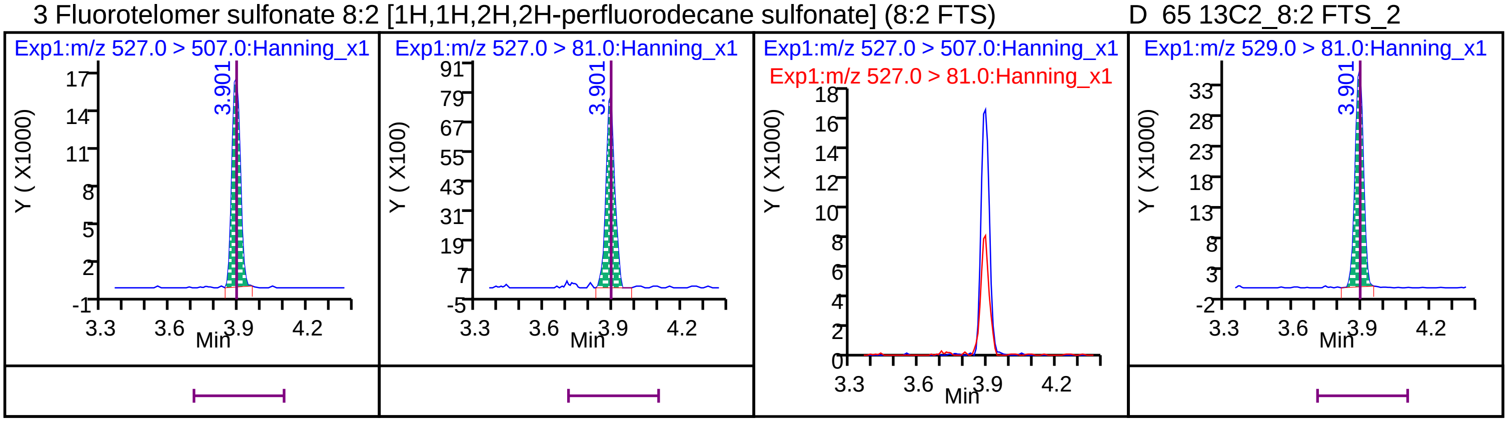
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



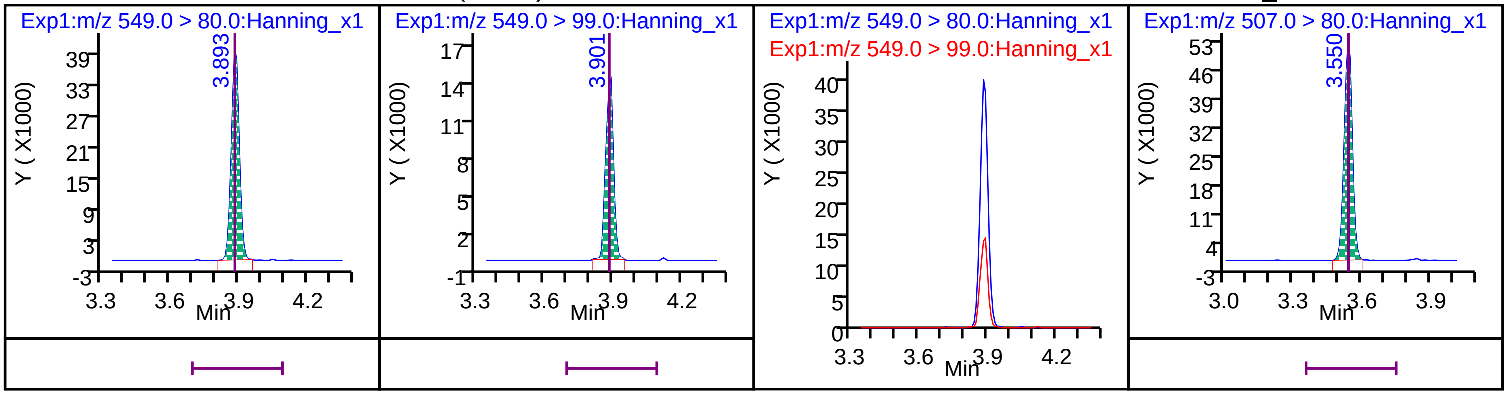
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



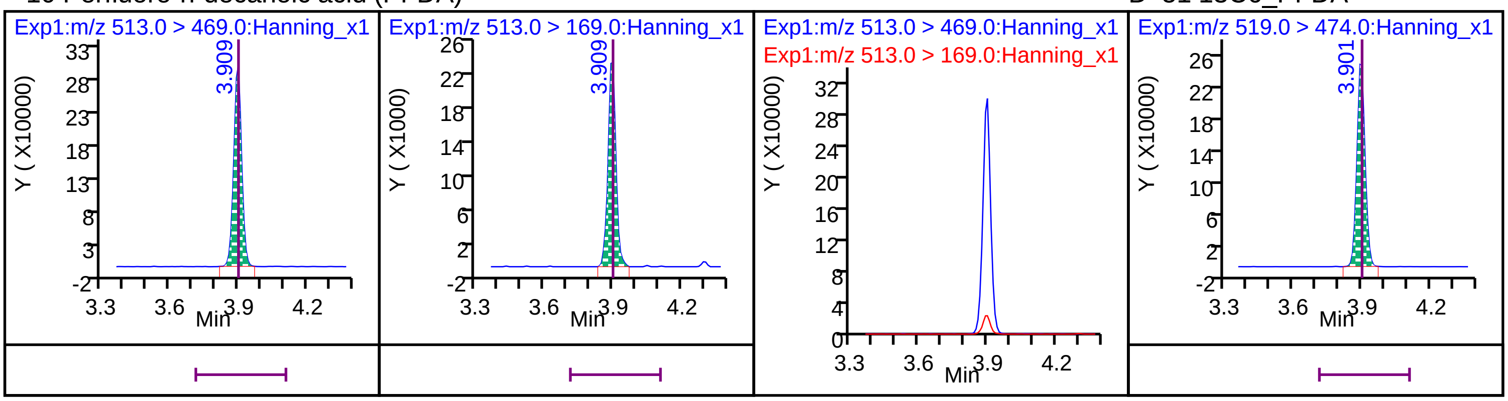
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



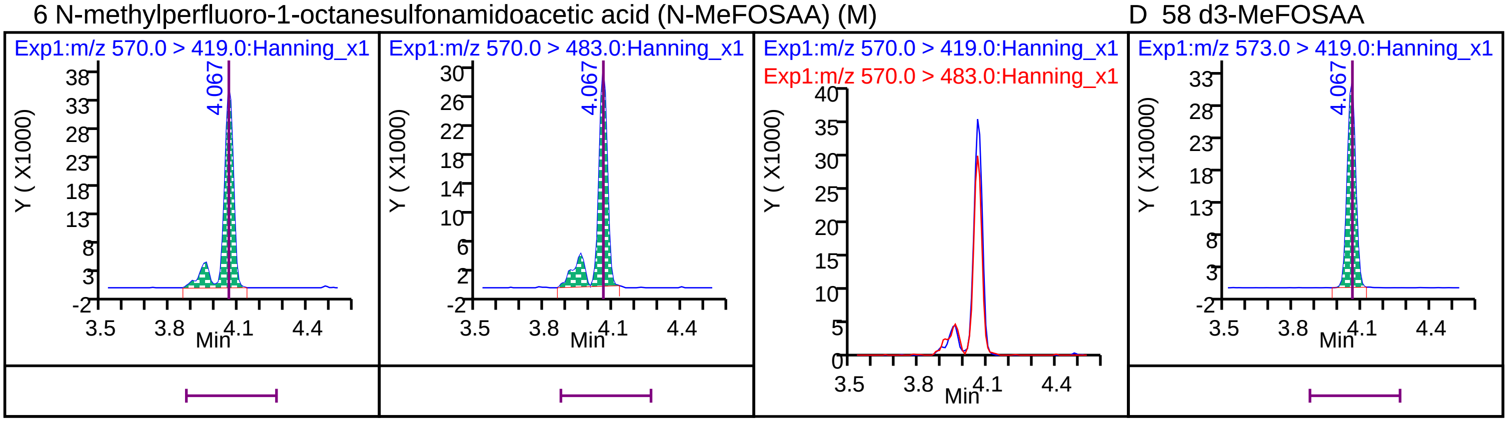
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



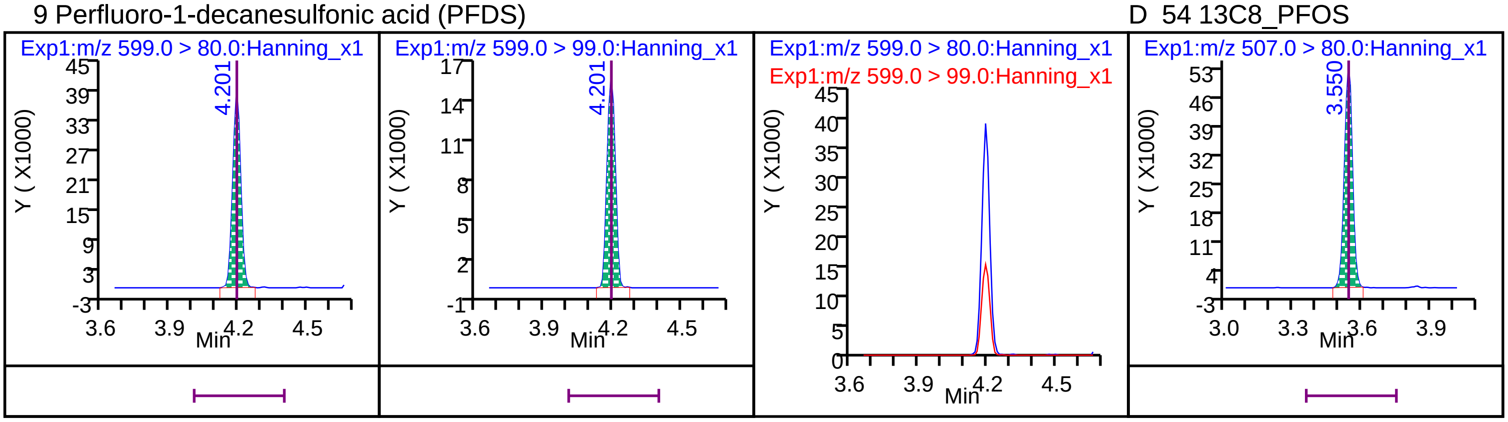
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



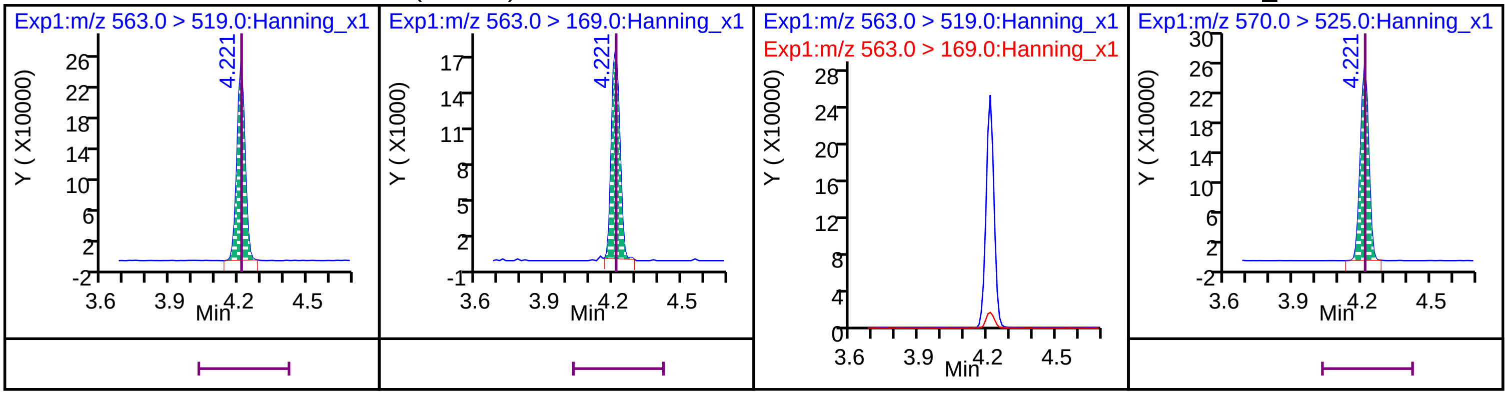
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



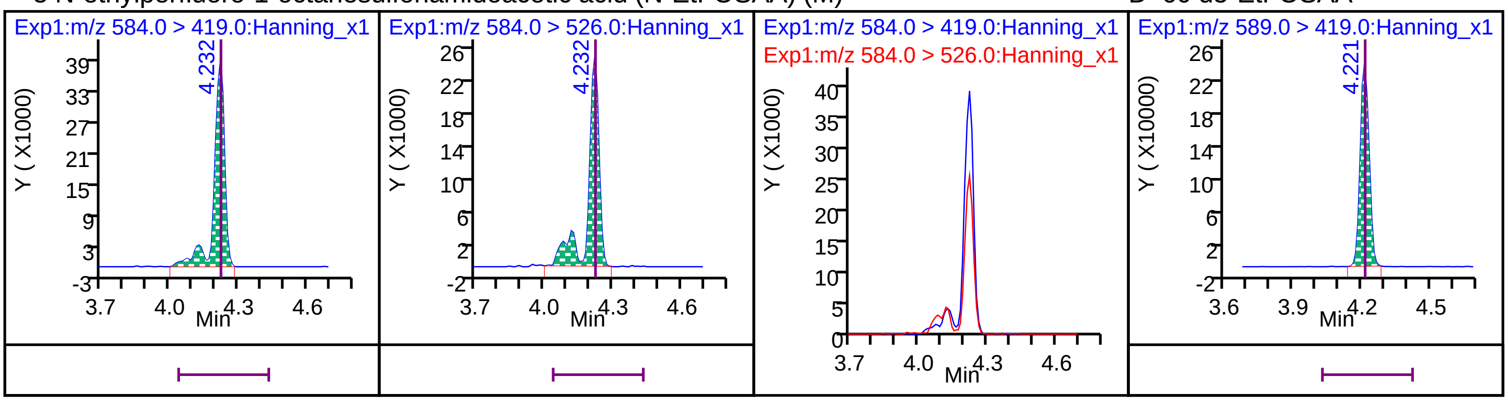
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



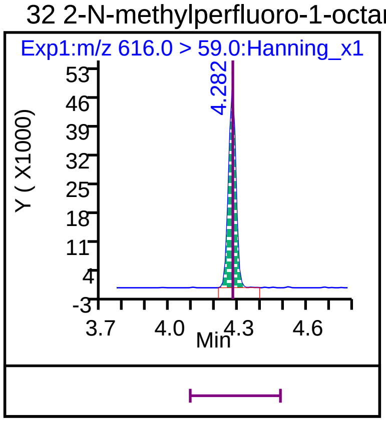
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

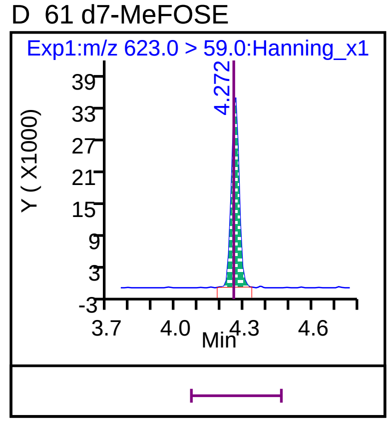


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

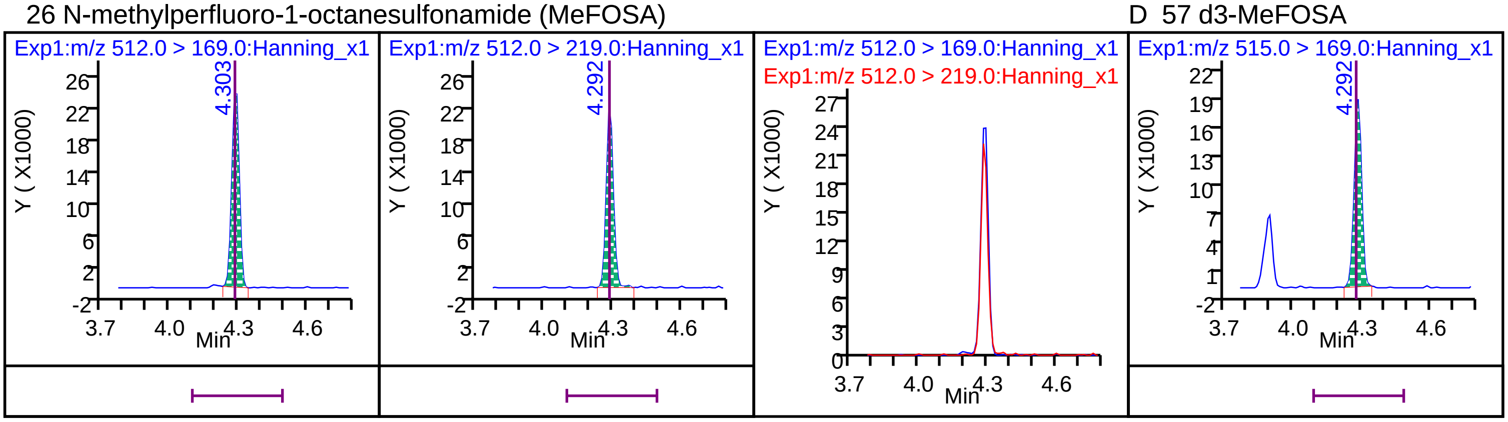


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

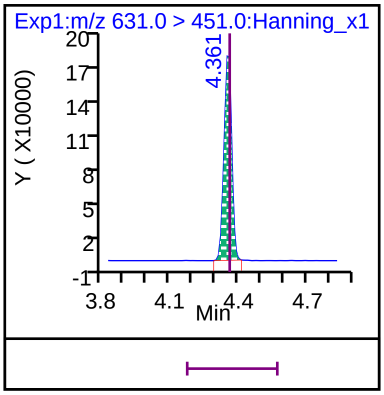




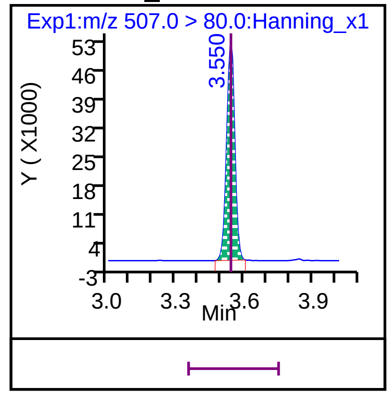
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



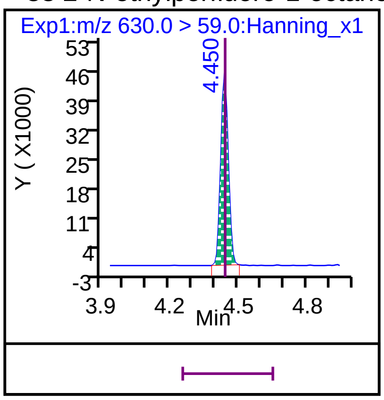
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



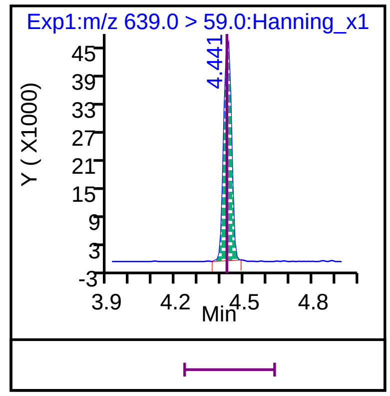
D 54 13C8_PFOS



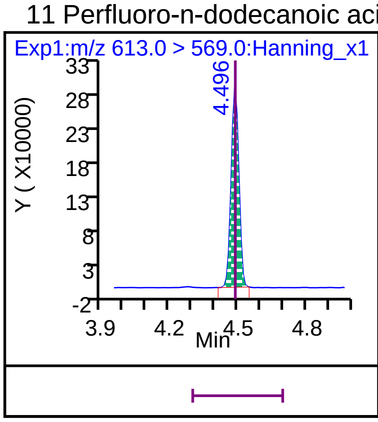
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

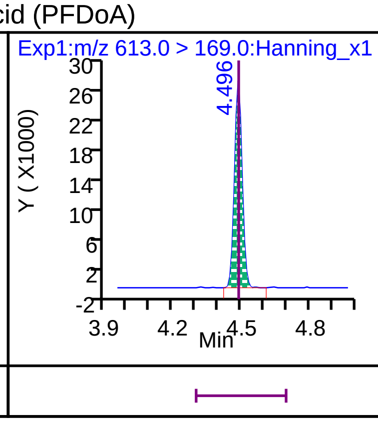


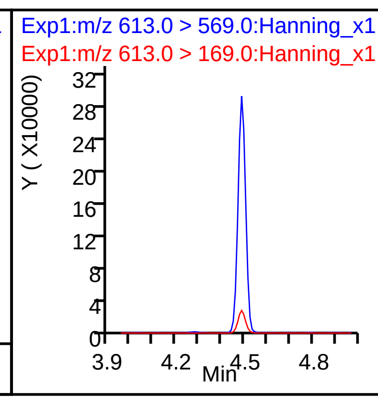
D 62 d9-EtFOSE



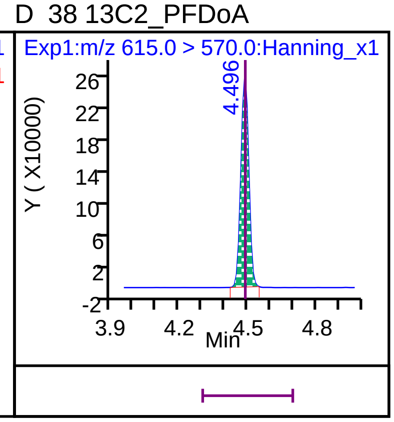
11 Perfluoro-n-dodecanoic acid (PFDoA)



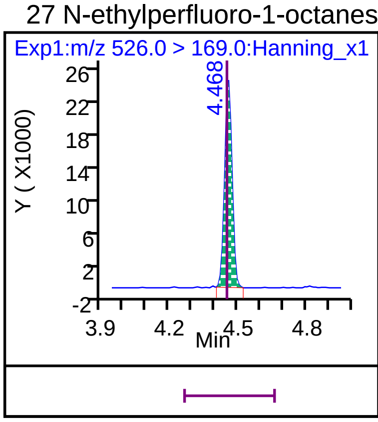


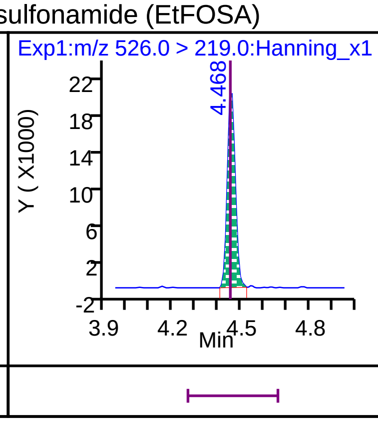


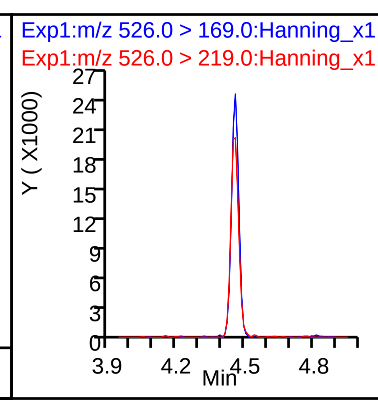
D 38 13C2_PFDoA



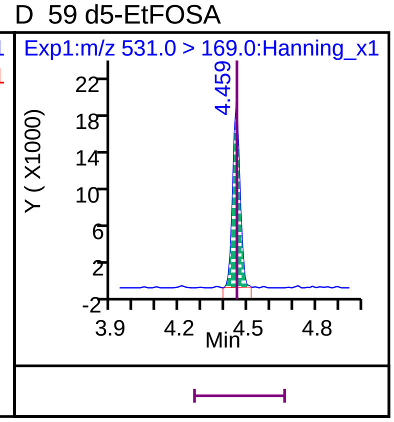
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



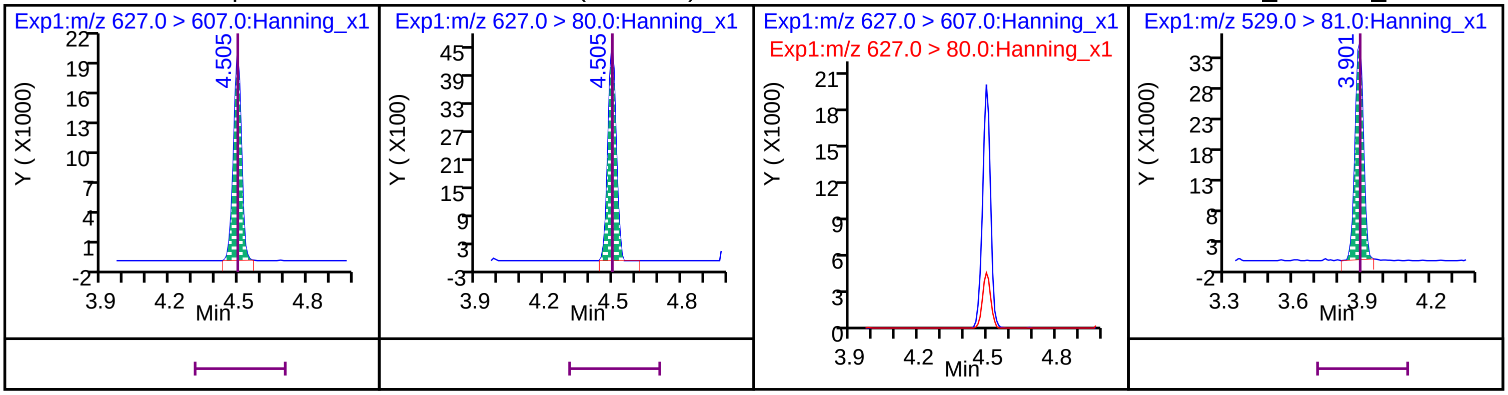




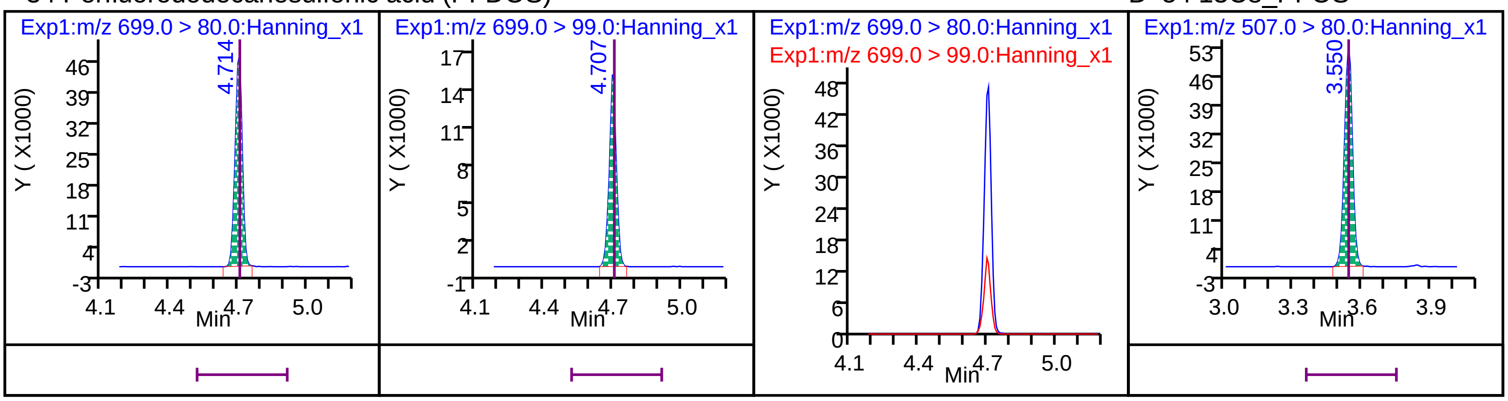
D 59 d5-EtFOSA



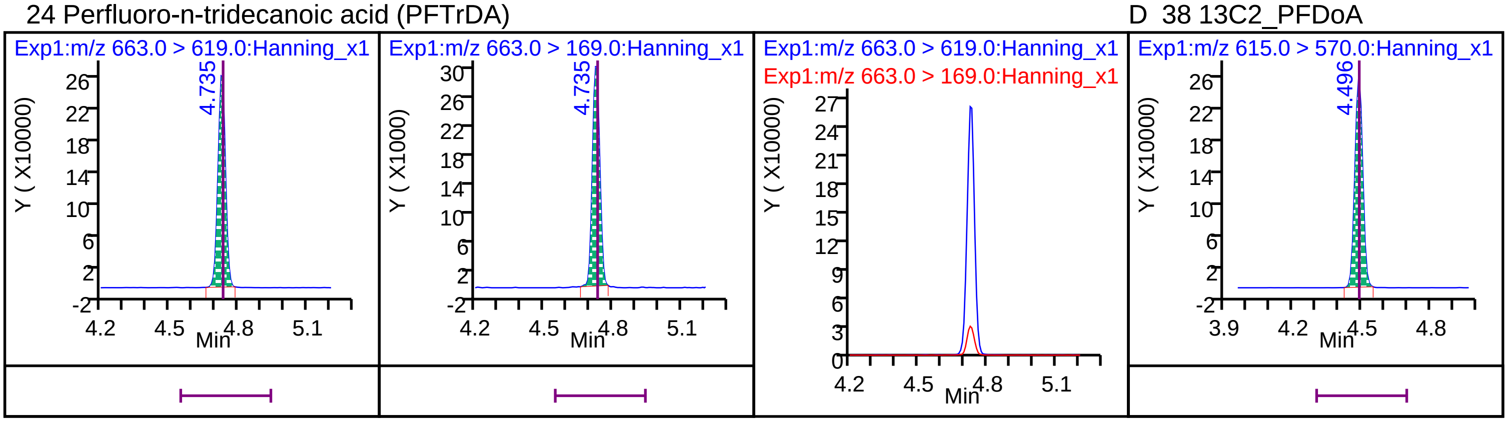
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



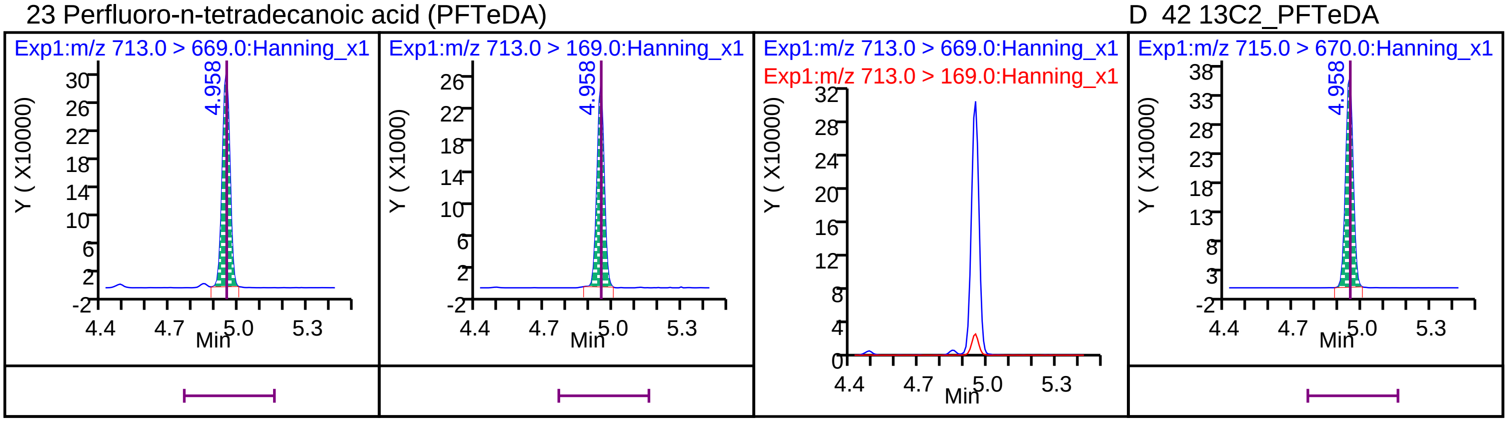
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

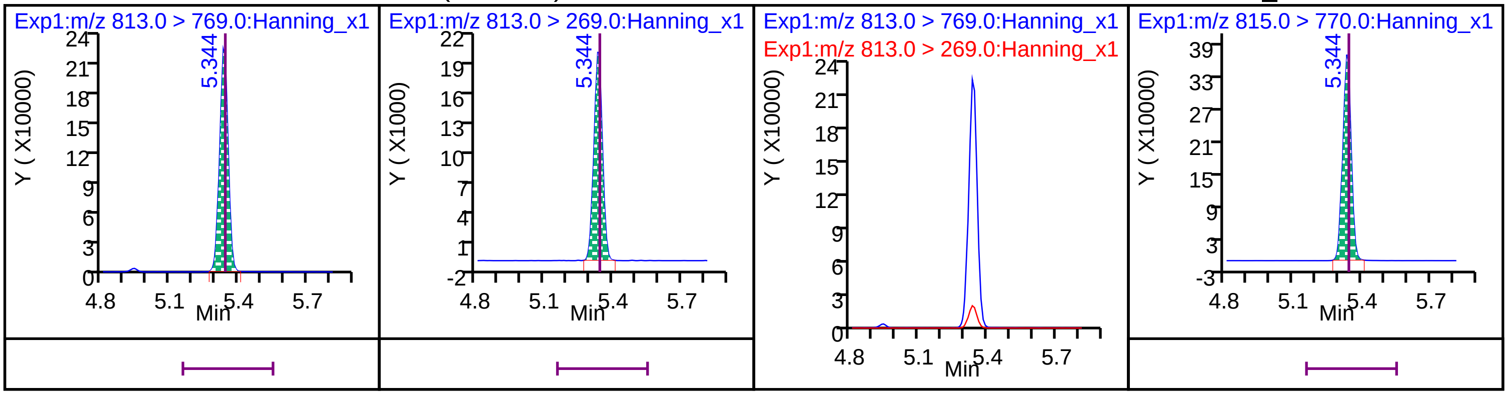


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

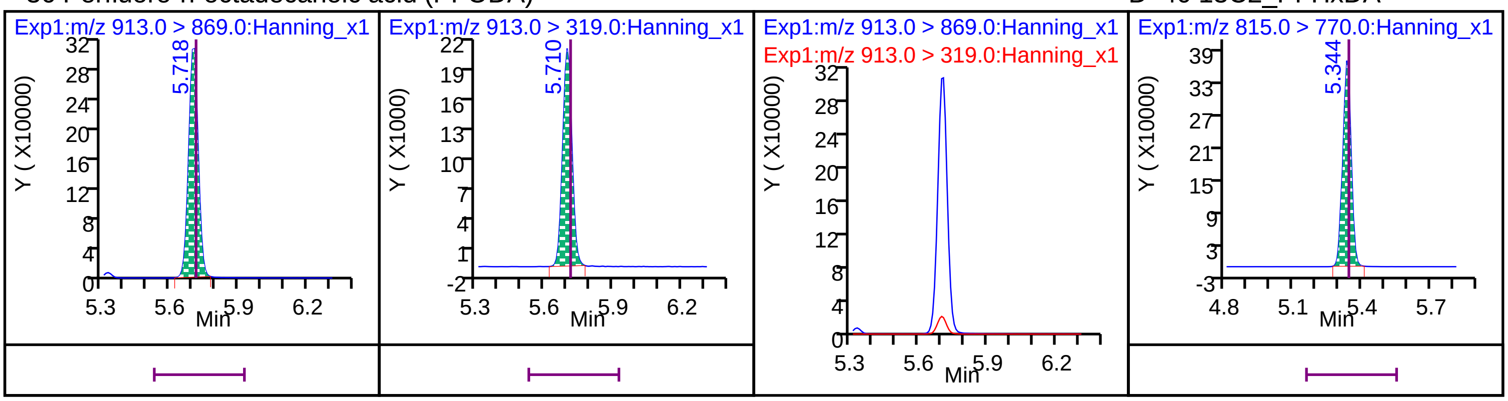


Report Date: 18-Nov-2021 18:20:58 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d

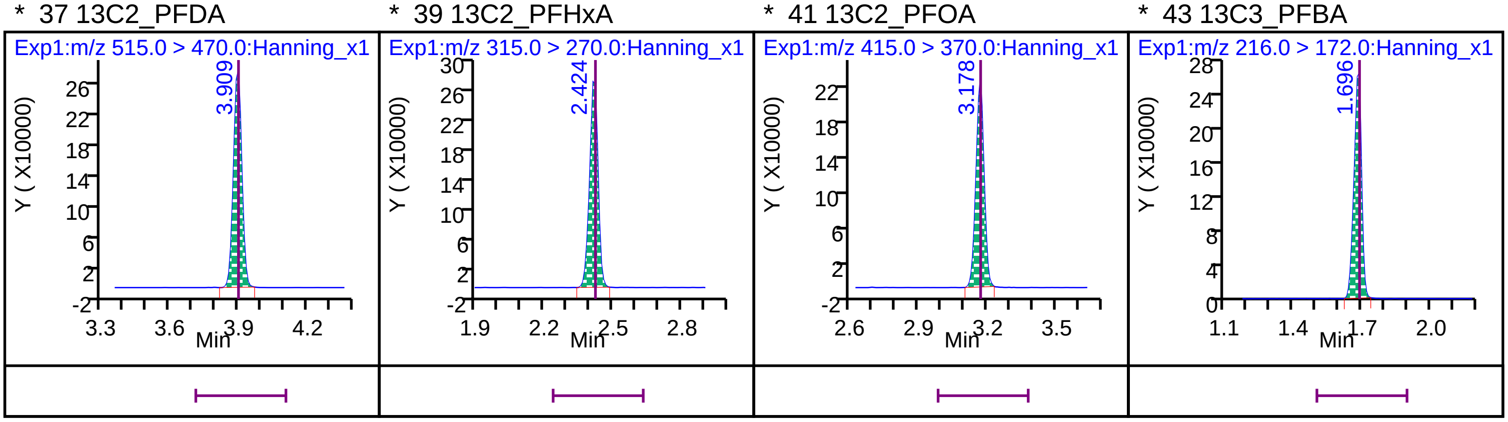
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



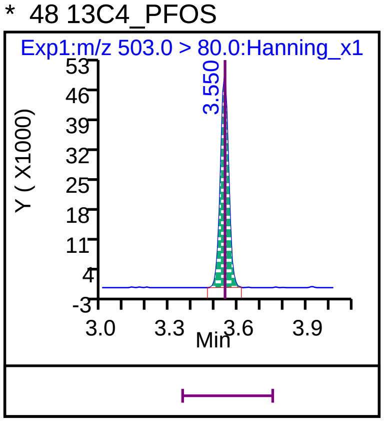
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:20:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

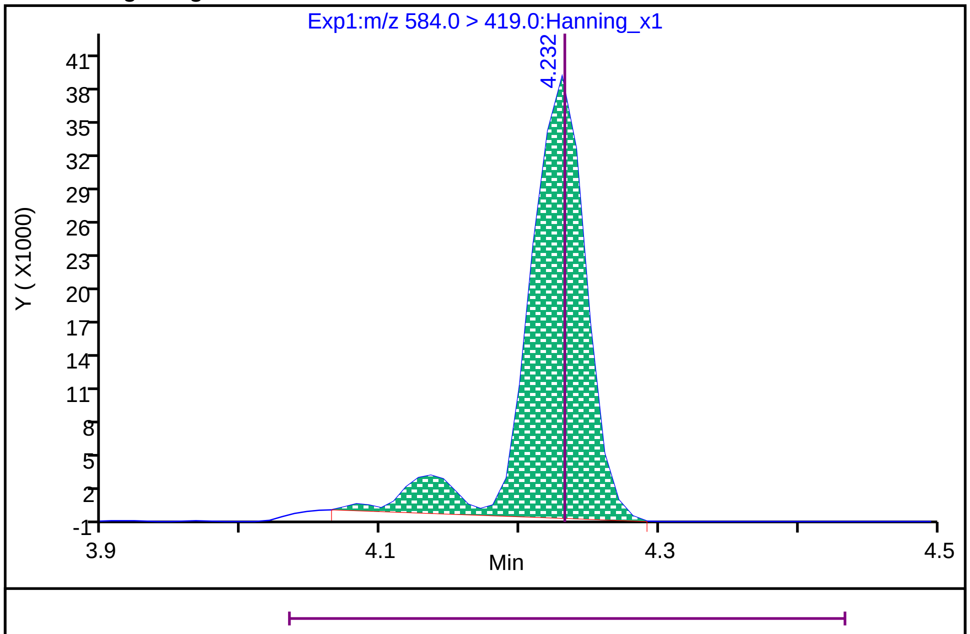
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d		
Injection Date:	17-Nov-2021 15:49:40	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

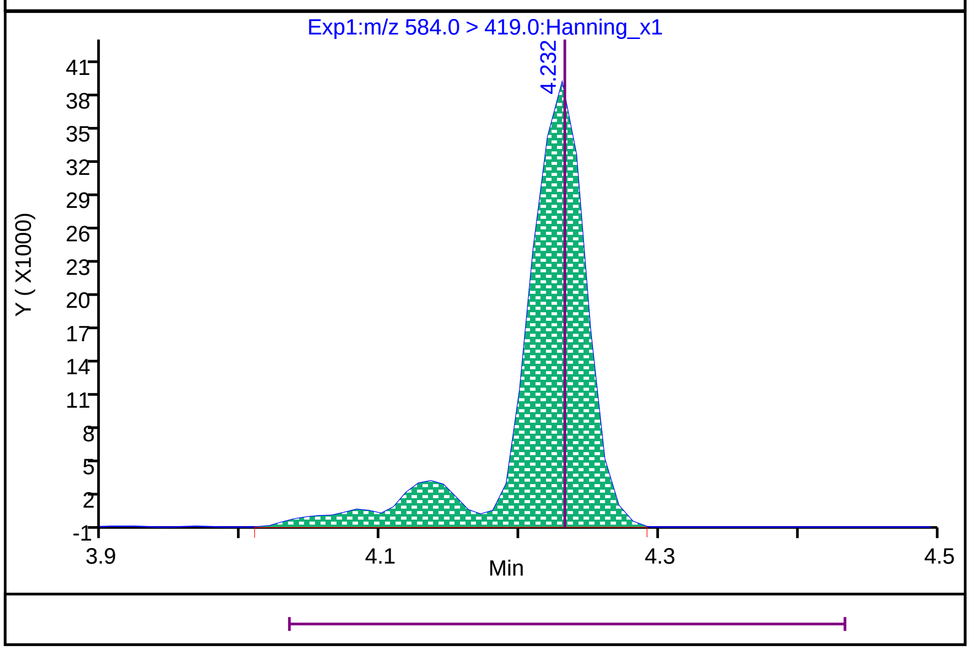
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.232
Area:	111929
Amount:	930.10
Amount Units:	ng/L



RT:	4.232
Area:	121130
Amount:	1006.56
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 16:41:23

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

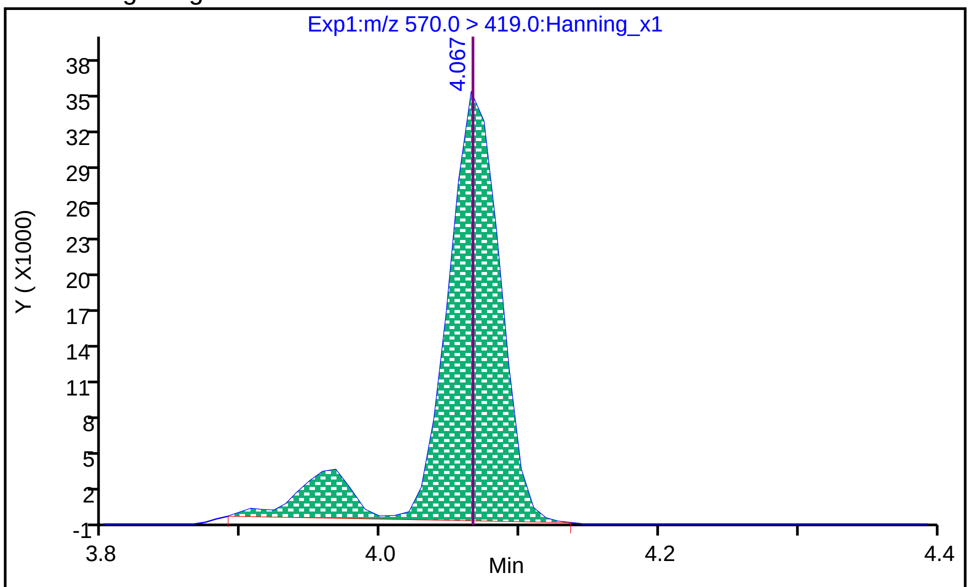
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721017.d		
Injection Date:	17-Nov-2021 15:49:40	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

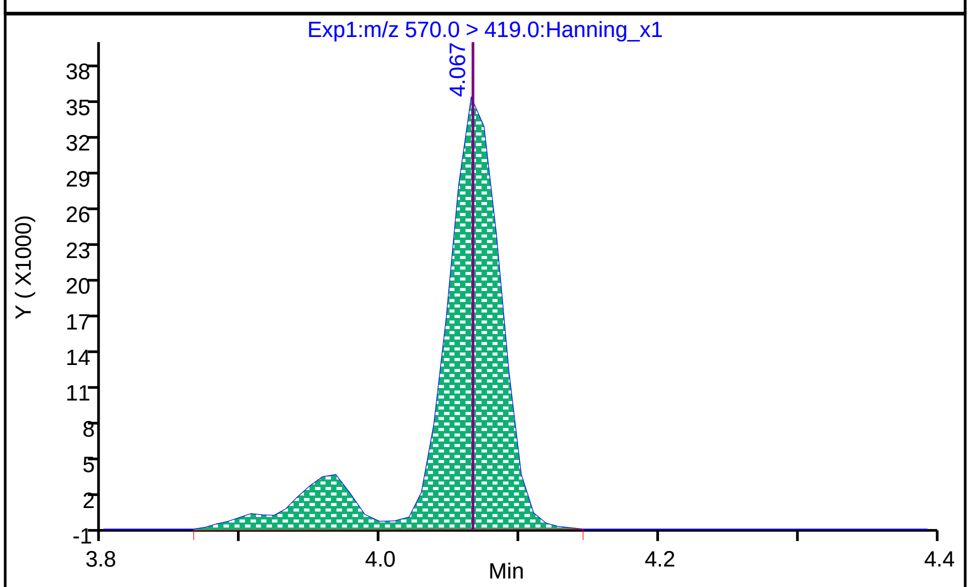
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.067
Area:	99767
Amount:	772.38
Amount Units:	ng/L



RT:	4.067
Area:	106271
Amount:	822.73
Amount Units:	ng/L



Data Editor: justin.gavin, 17-Nov-2021 16:41:16

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d
Injection Date: 17-Nov-2021 18:48:46 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 21
Sample Info: ID CCV 1000A_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	1000.07	100	70 - 130
D 46 13C4_PFBA	668395	641626			96	50 - 150
D 50 13C5_PFPeA	587067	584766			99.6	50 - 150
21 PFPeA			1000.00	1020.25	102	70 - 130
7 PFBS			884.00	878.43	99.4	70 - 130
D 44 13C3_PFBS	178175	183689			103.1	50 - 150
1 4:2 FTS			934.00	1019.61	109.2	70 - 130
D 63 13C2_4:2 FTS_2	113673	109794			96.6	50 - 150
D 49 13C5_PFHxA	698559	652354			93.4	50 - 150
15 PFHxA			1000.00	998.07	99.8	70 - 130
22 PFPeS			938.00	946.20	100.9	70 - 130
28 GenX			2000.00	1936.17	96.8	70 - 130
D 66 13C3_GenX	1175107	1190164			101.3	50 - 150
D 47 13C4_PFHpA	617327	570311			92.4	50 - 150
13 PFHpA			1000.00	931.89	93.2	70 - 130
D 45 13C3_PFHxS	139172	146455			105.2	50 - 150
14 PFHxS			910.00	901.62	99.1	70 - 130
29 ADONA			942.00	878.11	93.2	70 - 130
D 64 13C2_6:2 FTS_2	87765	90927			103.6	50 - 150
2 6:2 FTS			948.00	1006.61	106.2	70 - 130
20 PFOA			1000.00	938.22	93.8	70 - 130
D 53 13C8_PFOA	576099	565661			98.2	50 - 150
12 PFHpS			952.00	918.84	96.5	70 - 130
18 PFOS			928.00	890.44	96	70 - 130
17 PFNA			1000.00	1017.92	101.8	70 - 130
D 56 13C9_PFNA	677086	658804			97.3	50 - 150
D 54 13C8_PFOS	125490	135206			107.7	50 - 150
30 9Cl-PF3ONS			932.00	886.56	95.1	70 - 130
D 55 13C8_PFOSA	262168	287295			109.6	50 - 150
19 PFOSA			1000.00	891.02	89.1	70 - 130
16 PFNS			960.00	971.57	101.2	70 - 130
D 65 13C2_8:2 FTS_2	88202	86058			97.6	50 - 150
3 8:2 FTS			958.00	958.17	100	70 - 130
10 PFDA			1000.00	1007.31	100.7	70 - 130
D 51 13C6_PFDA	615512	584509			95	50 - 150
6 N-MeFOSAA			1000.00	950.03	95	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	681022	758037			111.3	50 - 150
9 PFDS			964.00	904.85	93.9	70 - 130
25 PFUdA			1000.00	1117.16	111.7	70 - 130
D 60 d5-EtFOSAA	650725	731187			112.4	50 - 150
D 52 13C7_PFUdA	654908	623123			95.1	50 - 150
5 N-EtFOSAA			1000.00	1031.94	103.2	70 - 130
D 61 d7-MeFOSE	85524	93778			109.7	50 - 150
32 MeFOSE			1000.00	965.28	96.5	70 - 130
26 MeFOSA			1000.00	982.51	98.3	70 - 130
D 57 d3-MeFOSA	44687	50557			113.1	50 - 150
31 11Cl-PF3OUDS			942.00	900.75	95.6	70 - 130
D 62 d9-EtFOSE	100548	107273			106.7	50 - 150
33 EtFOSE			1000.00	1019.80	102	70 - 130
D 59 d5-EtFOSA	37834	47626			125.9	50 - 150
27 EtFOSA			1000.00	1000.52	100.1	70 - 130
11 PFDoA			1000.00	997.79	99.8	70 - 130
D 38 13C2_PFDoA	677078	630754			93.2	50 - 150
4 10:2 FTS			964.00	922.23	95.7	70 - 130
34 PFDOS			968.00	953.50	98.5	70 - 130
24 PFTrDA			1000.00	985.06	98.5	70 - 130
23 PFTeDA			1000.00	1004.23	100.4	70 - 130
D 42 13C2_PFTeDA	816988	863683			105.7	50 - 150
35 PFHxDA			1000.00	930.89	93.1	70 - 130
D 40 13C2_PFHxDA	853968	1115000			130.6	50 - 150
36 PFODA			1000.00	956.18	95.6	70 - 130

Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d		
Injection Date:	17-Nov-2021 18:48:46	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	21
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.690	1.692	0	641626	21	>100:1			1000.00	1028.35	96	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.690	1.699	0/0	671294	21	>100:1			1000.00	1000.07		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.062	2.067	0	584766	15	>100:1			1000.00	1009.69	99.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.062	2.067	0/0	655201	15	>100:1			1000.00	1020.25		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.125	2.120	1	183689	14	>100:1			1000.00	1058.44	103.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.125	2.120	1/0	201017	15	>100:1	Target = 3.48		884.00	878.43		
298.9 > 99	44	2.125	2.120		58754	14	>100:1	3.42 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.459	2.460	0/-1	153851	18	>100:1	Target = 3.03		938.00	946.20		
349 > 99	44	2.459	2.460		51796	15	>100:1	2.97 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.388	2.389	0	109794	16	>100:1			5000.00	5028.11	96.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.388	2.389	0/0	49217	16		Target = 1.70		934.00	1019.61		
327 > 81	63	2.388	2.389		26585	18	59:1	1.85 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.423	2.433	0	652354	17	>100:1			1000.00	1006.61	93.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.423	2.433	0/0	688966	18	>100:1	Target = 18.47		1000.00	998.07		
313 > 119	49	2.423	2.433		36281	24	>100:1	18.98 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.539	2.549	0	1190164	17	>100:1			5000.00	5315.20	101.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.539	2.540	0/0	303260	18	>100:1	Target = 0.78		2000.00	1936.17		
285 > 185	66	2.539	2.540		378405	18	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.790	2.800	0	570311	17	>100:1			1000.00	1080.55	92.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.799	2.800	0/0	607744	18	>100:1	Target = 3.92		1000.00	931.89		
363 > 169	47	2.799	2.800		158151	17	>100:1	3.84 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.808	2.818	0	146455	18	>100:1			1000.00	1146.72	105.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.808	2.818	0/0	148864	25	>100:1	Target = 3.14	5.57	910.00	901.62		
399 > 99	45	2.817	2.818		43289	25	>100:1	3.43 (1.57-4.71)	7.88				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.835	2.836	0/0	1000238	17	>100:1	Target = 3.33		942.00	878.11		
377 > 85	45	2.835	2.836		302846	18	>100:1	3.30 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.178	3.186	0/0	130831	21	>100:1	Target = 3.02		952.00	918.84		
449 > 99	45	3.178	3.186		44341	27	>100:1	2.95 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.152	3.160	0	90927	18	>100:1			5000.00	5298.55	103.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.152	3.160	0/0	42938	20		Target = 1.69		948.00	1006.61		
427 > 81	64	3.158	3.160		20542	19	46:1	2.09 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.178	3.180	0	565661	21	>100:1			1000.00	1092.03	98.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.172	3.180	0/0	555405	21	>100:1	Target = 3.03		1000.00	938.22		
413 > 169	53	3.178	3.180		195981	21	>100:1	2.83 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.542	3.552	0	135206	18	>100:1			1000.00	1085.98	107.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.550	3.552	0/0	143002	37	>100:1	Target = 3.42	3.94	928.00	890.44		
499 > 99	54	3.550	3.552		41068	37	>100:1	3.48 (1.71-5.13)	6.09				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.758	3.766	0/0	460183	19	>100:1			932.00	886.56		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.892	3.893	0/0	102271	19	>100:1	Target = 2.57		960.00	971.57		
549 > 99	54	3.892	3.893		37631	17	>100:1	2.71 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.201	4.203	0/0	98342	15	>100:1	Target = 2.71		964.00	904.85		
599 > 99	54	4.201	4.203		34419	15		2.85 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.361	4.372	0/0	412820	16	>100:1			942.00	900.75		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.714	4.715	0/0	102594	18	>100:1	Target = 3.04		968.00	953.50		
699 > 99	54	4.708	4.715		35410	17	>100:1	2.89 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.550	3.560	0	658804	20	>100:1			1000.00	1021.04	97.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.550	3.560	0/0	738737	20	>100:1	Target = 7.14		1000.00	1017.92		
463 > 169	56	3.550	3.560		103627	20	>100:1	7.12 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.851	3.844	1	287295	17	>100:1			1000.00	1139.30	109.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.851	3.844	1/0	281274	18	>100:1	Target = 32.83		1000.00	891.02		
498>478	55	3.851	3.844		9723	24		28.92 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.901	3.902	0	86058	18	>100:1			5000.00	5146.43	97.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.892	3.902	0/0	38248	23	>100:1	Target = 2.14		958.00	958.17		
527 > 81	65	3.901	3.902		18818	15	68:1	2.03 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.505	4.507	0/0	42669	15		Target = 3.72		964.00	922.23		
627 > 80	65	4.505	4.507		11417	13		3.73 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.901	3.910	0	584509	17	>100:1			1000.00	1025.71	95	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.901	3.910	0/0	690326	18	>100:1	Target = 14.16		1000.00	1007.31		
513 > 169	51	3.901	3.910		52354	22	>100:1	13.18 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.058	4.068	0	758037	17	>100:1			5000.00	5549.82	111.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.066	4.068	0/0	119312	32		Target = 1.42	7.58	1000.00	950.03		
570 > 483	58	4.066	4.068		91846	33	91:1	1.29 (0.71-2.14)	4.44				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.221	4.223	0	731187	16	>100:1			5000.00	6021.96	112.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.231	4.234	0/0	143172	32		Target = 1.49	6.10	1000.00	1031.94		M
584 > 526	60	4.231	4.234		80342	32	>100:1	1.78 (0.74-2.24)	3.34				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.221	4.223	0	623123	17	>100:1			1000.00	959.85	95.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.221	4.223	0/0	645874	16	>100:1	Target = 14.37		1000.00	1117.16		
563 > 169	52	4.221	4.223		39440	15	>100:1	16.37 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.272	4.264	1	93778	13	>100:1			1000.00	1070.11	109.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.282	4.284	0/-1	99938	14	>100:1			1000.00	965.28		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.292	4.284	1	50557	13	>100:1			1000.00	1035.22	113.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.302	4.294	1/0	50639	13	>100:1	Target = 1.08		1000.00	982.51		
512 > 219	57	4.302	4.294		50829	14	>100:1	0.99 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.442	4.434	1	107273	17	>100:1			1000.00	1012.81	106.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.451	4.452	0/-1	111528	15	>100:1			1000.00	1019.80		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.460	4.461	0	47626	17	>100:1			1000.00	1087.07	125.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.469	4.461	1/1	56113	21	>100:1	Target = 0.97		1000.00	1000.52		
526 > 219	59	4.469	4.461		54210	21	>100:1	1.03 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.496	4.498	0	630754	16	>100:1			1000.00	1056.76	93.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.496	4.498	0/0	679404	15	>100:1	Target = 10.55		1000.00	997.79		
613 > 169	38	4.496	4.498		61484	16	>100:1	11.05 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.735	4.743	0/0	604820	19	>100:1	Target = 8.92		1000.00	985.06		
663 > 169	38	4.735	4.743		69093	19	>100:1	8.75 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.958	4.959	0	863683	19	>100:1			1000.00	1145.30	105.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.958	4.959	0/0	760413	16	>100:1	Target = 12.22		1000.00	1004.23		
713 > 169	42	4.958	4.959		59290	18	>100:1	12.82 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.343	5.353	0	1115000	19	>100:1			1000.00	1240.02	130.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.343	5.353	0/0	703208	19	>100:1	Target = 11.65		1000.00	930.89		
813 > 269	40	5.343	5.353		62728	19	>100:1	11.21 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.710	5.725	0/0	1003155	21	>100:1	Target = 15.15		1000.00	956.18		
913 > 319	40	5.703	5.725		67852	21	>100:1	14.78 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.901	3.910	0	696403	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.423	2.433	0	701662	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.178	3.180	0	571375	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.690	1.699	0	588535	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.542	3.552	0	128218	18	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d		
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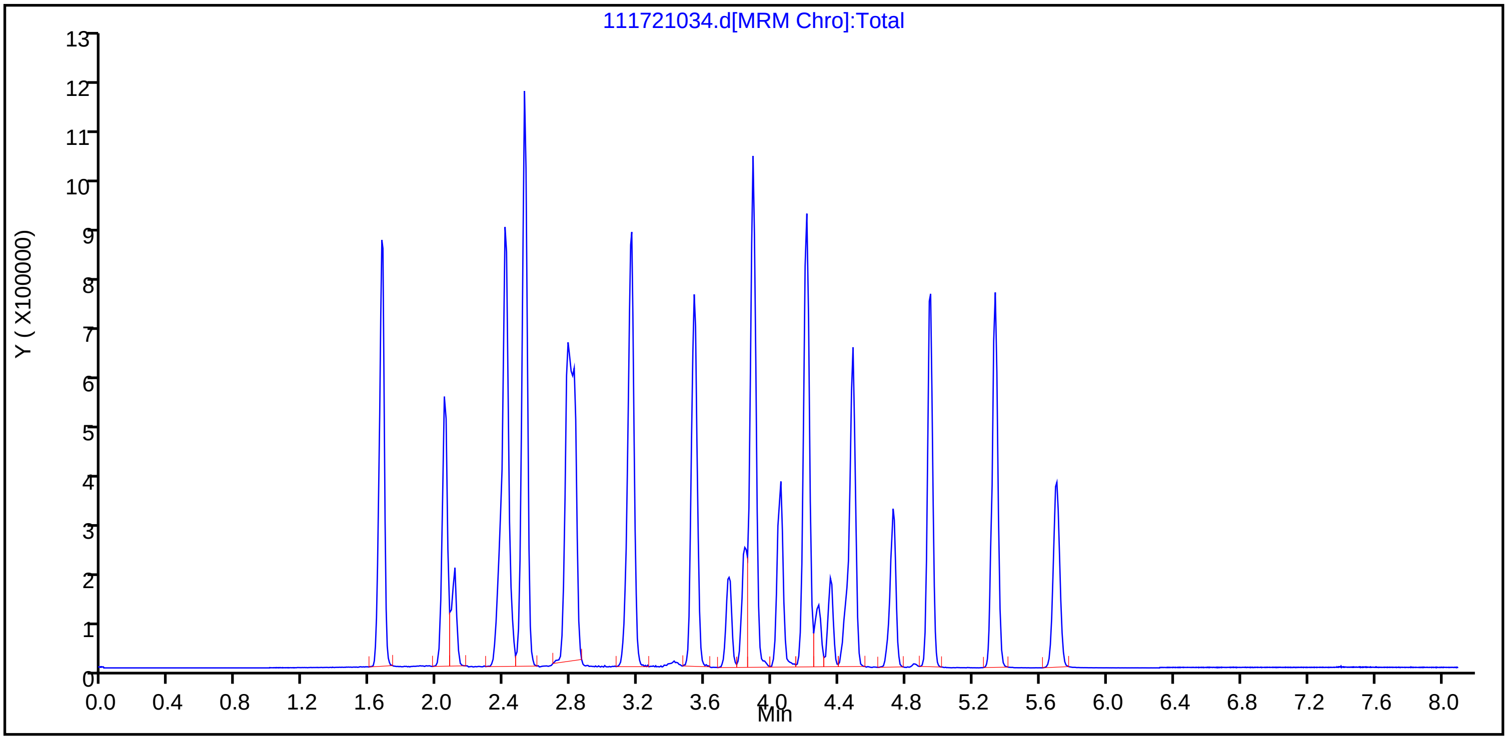
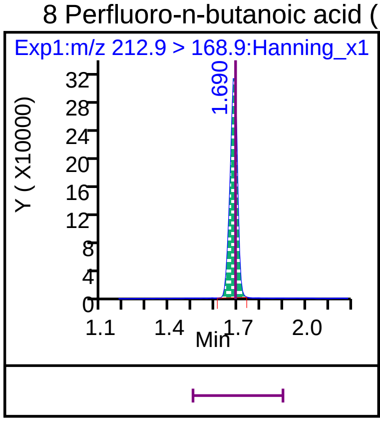
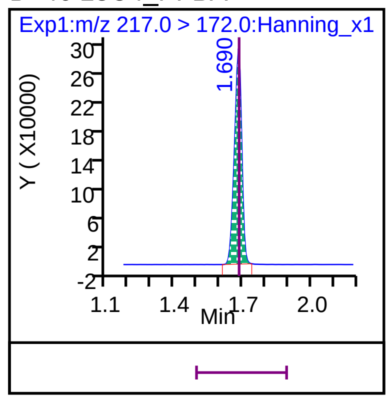
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



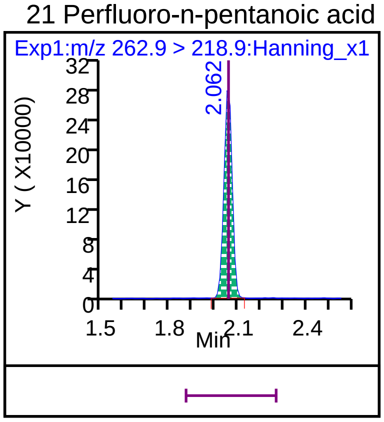
8 Perfluoro-n-butanoic acid (PFBA)



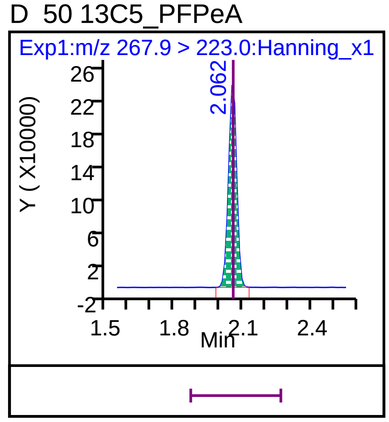
D 46 13C4_PFBA



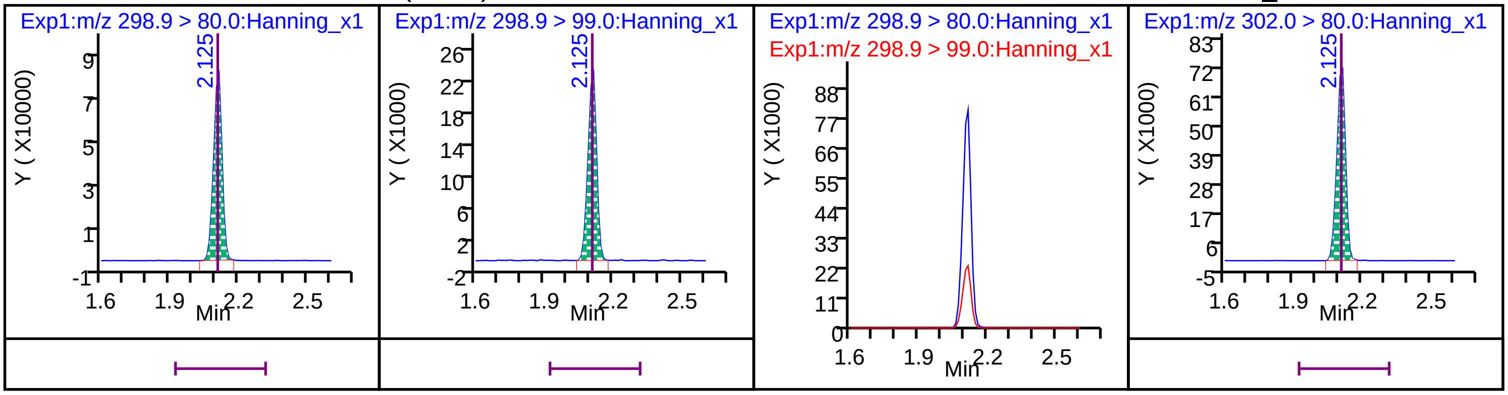
21 Perfluoro-n-pentanoic acid (PFPeA)



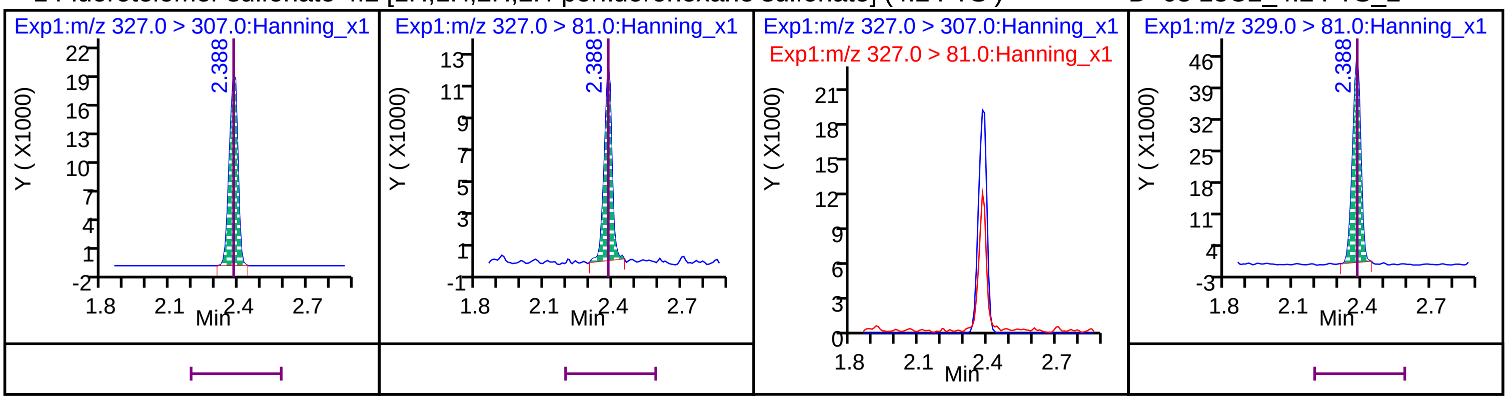
D 50 13C5_PFPeA



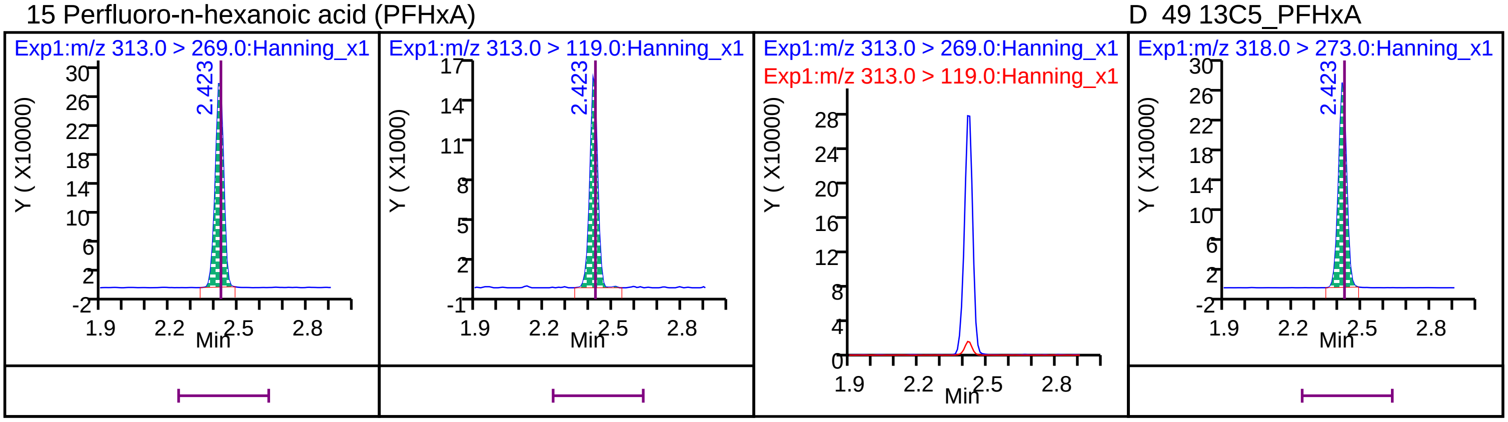
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



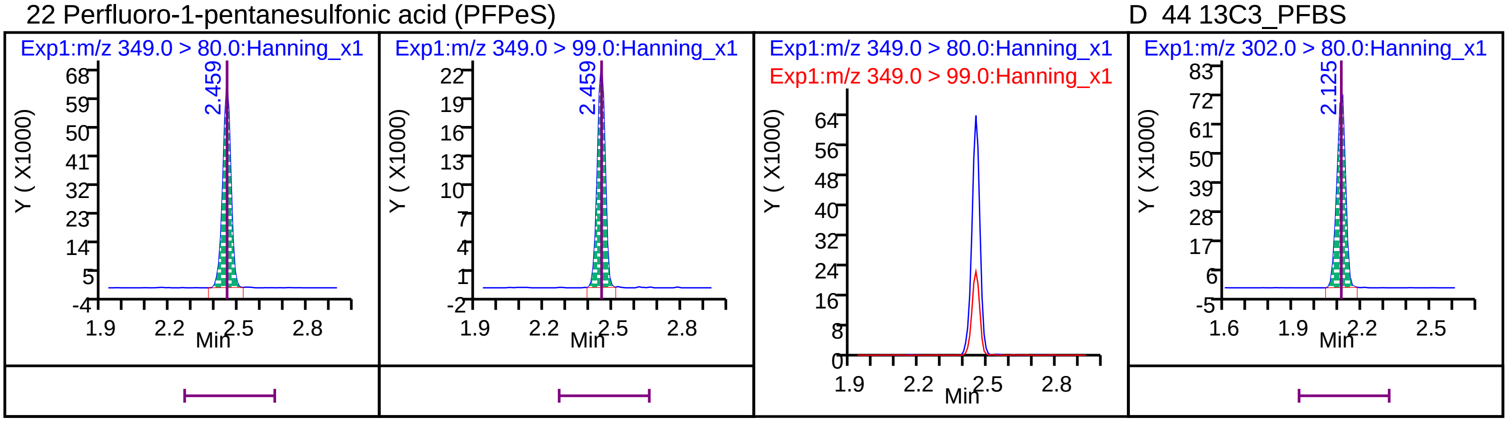
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



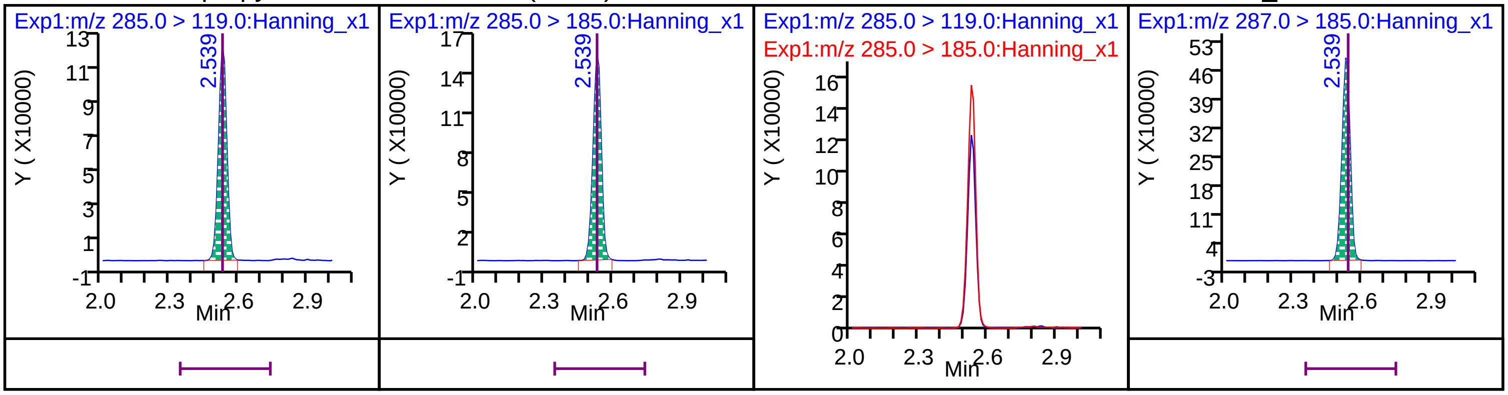
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



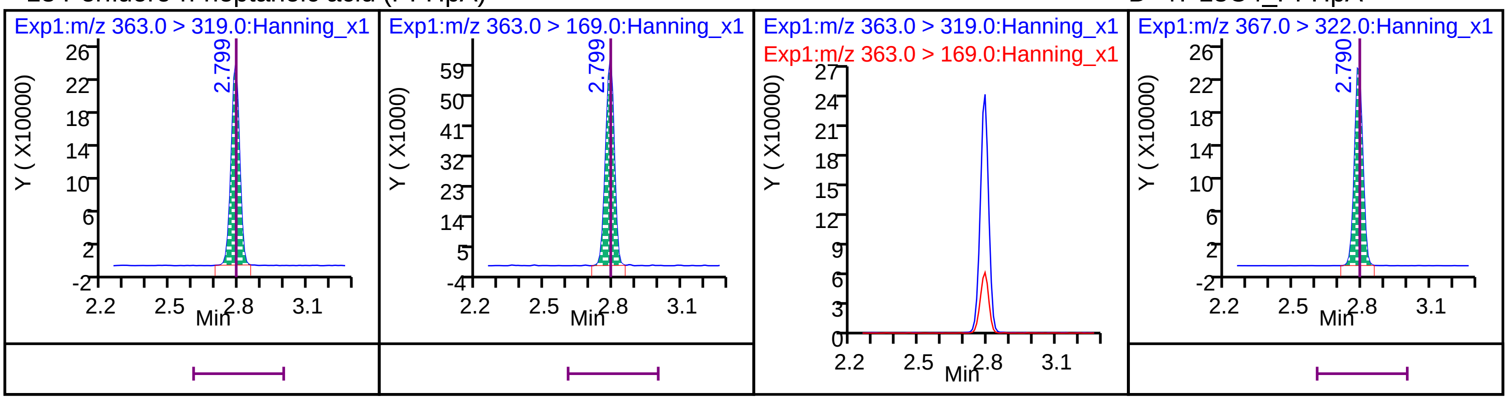
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



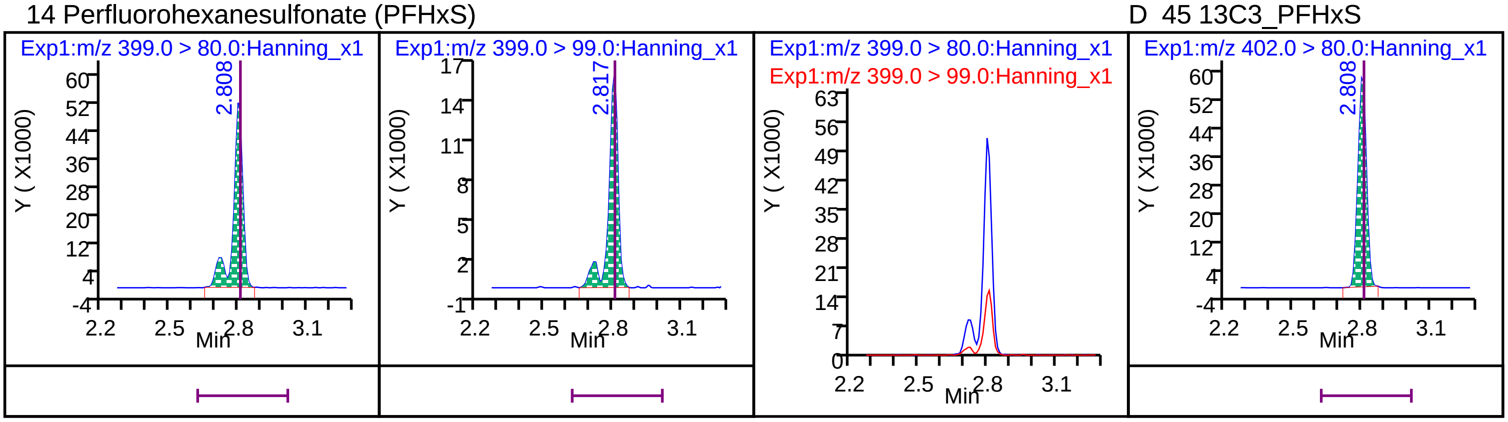
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



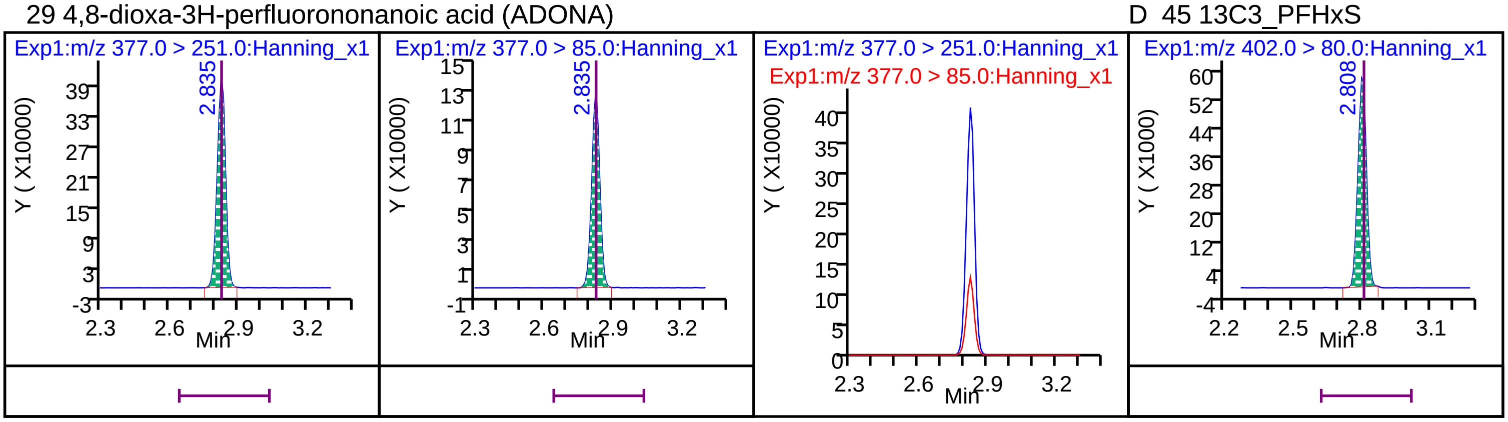
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



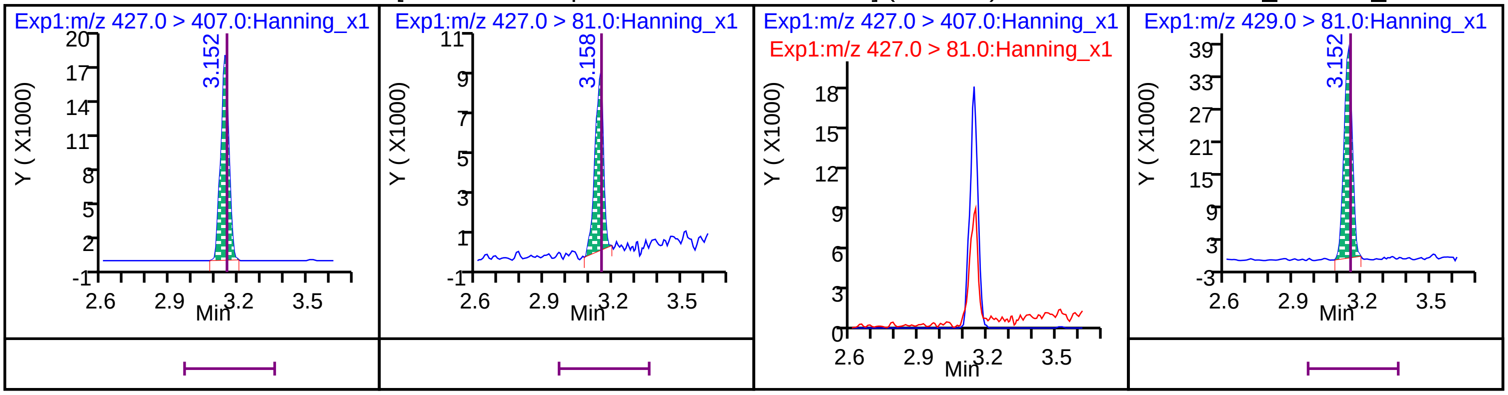
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



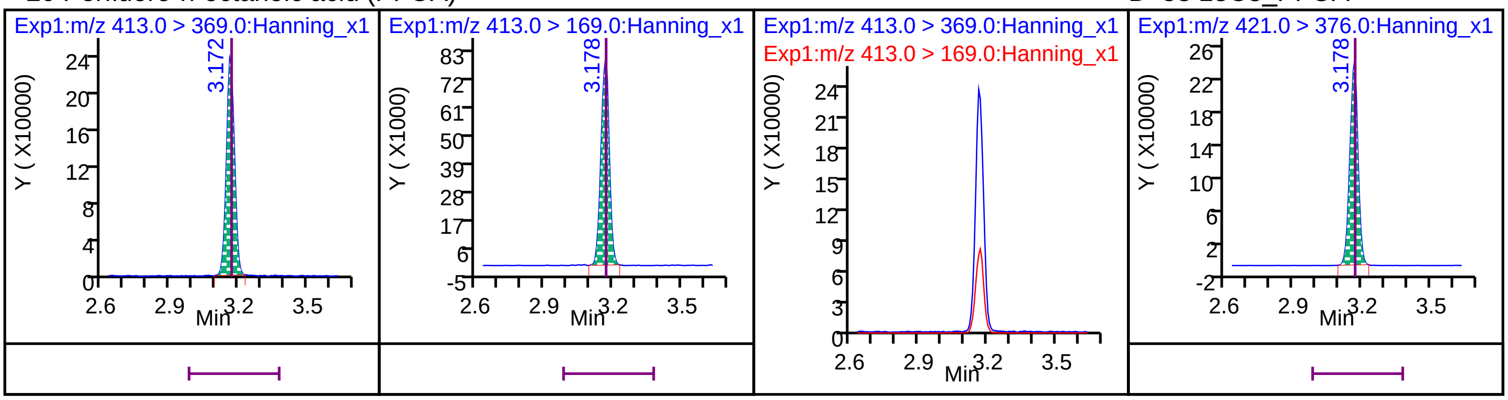
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



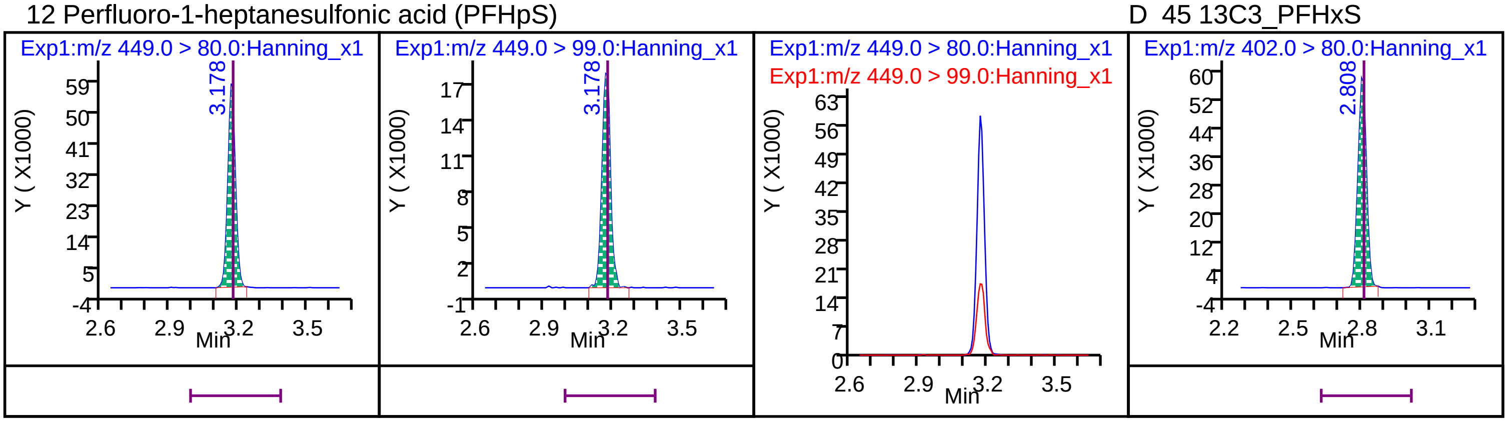
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



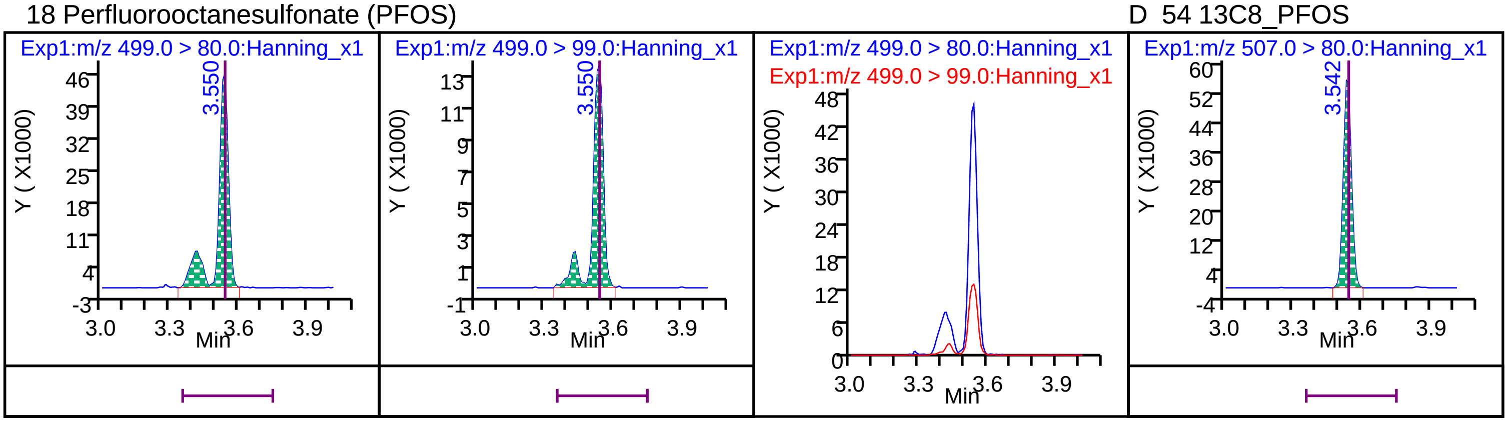
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



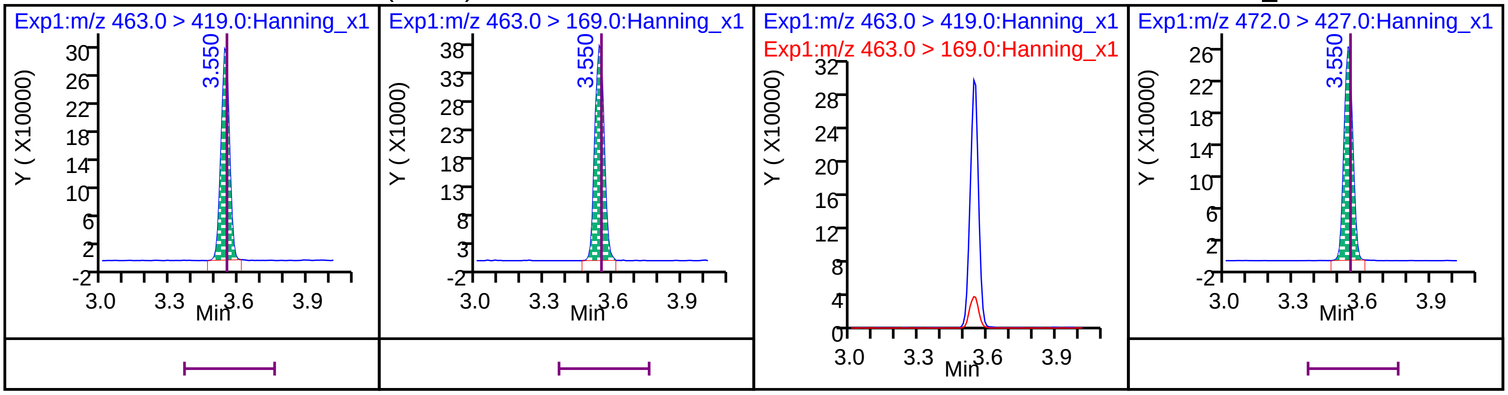
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



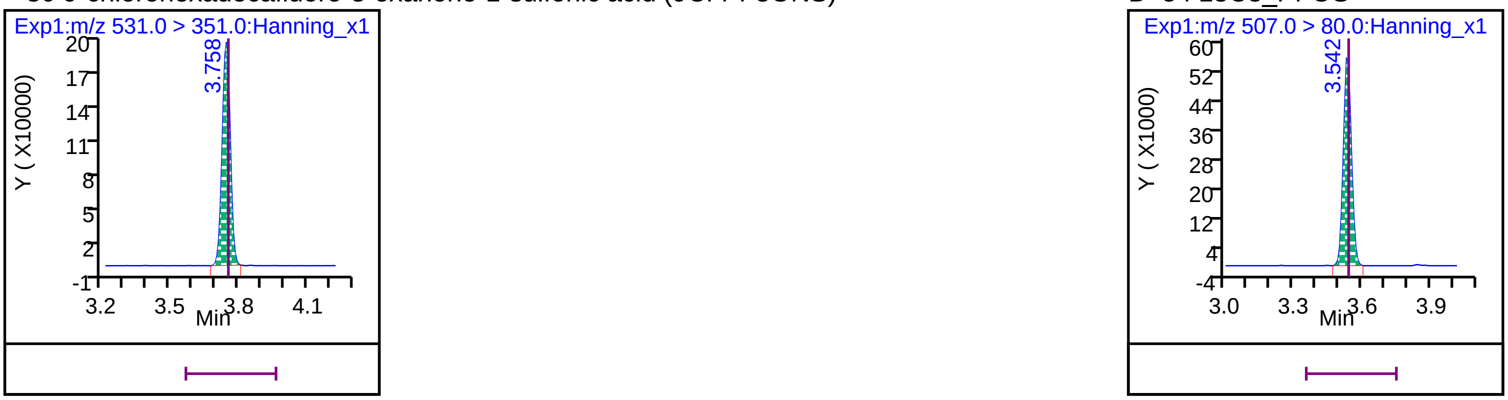
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



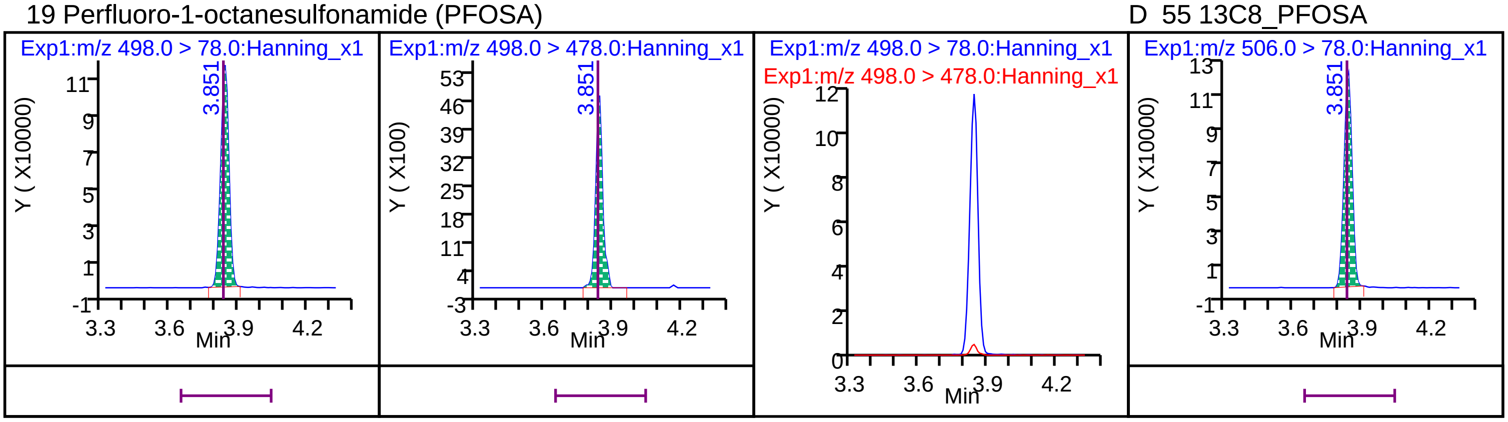
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



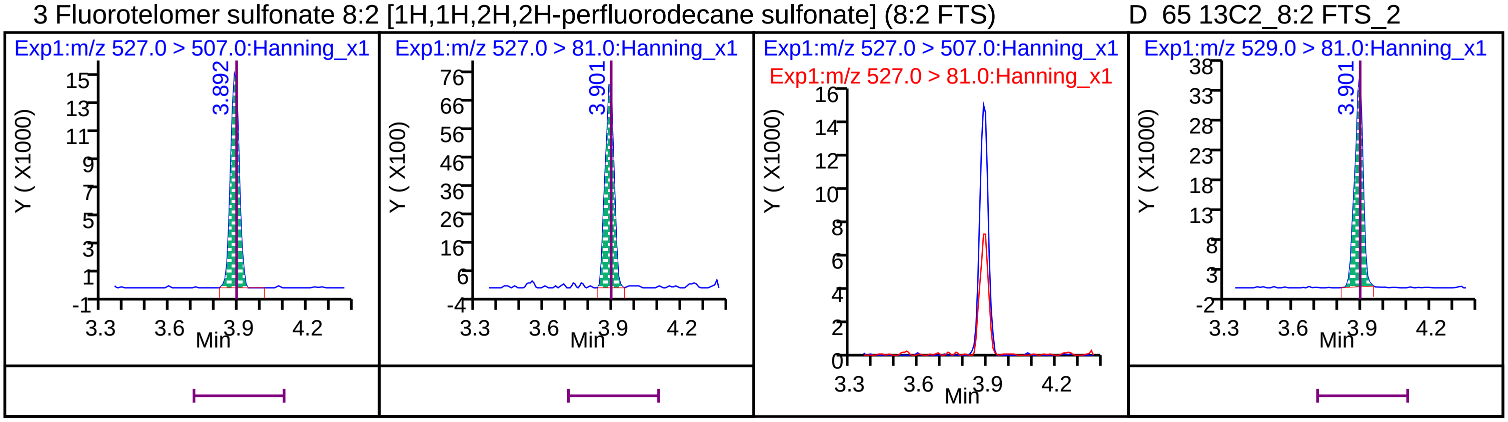
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



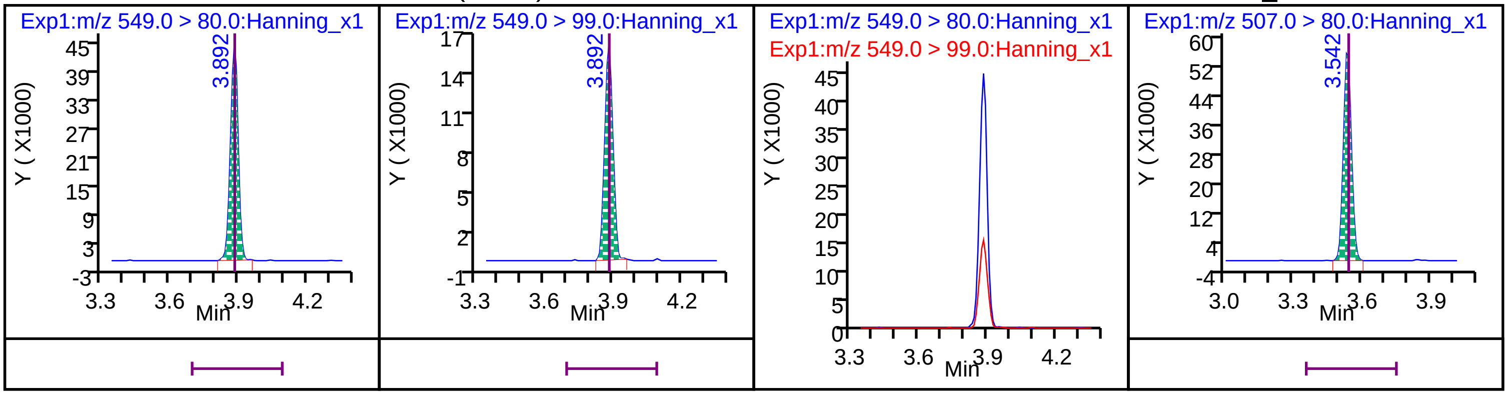
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



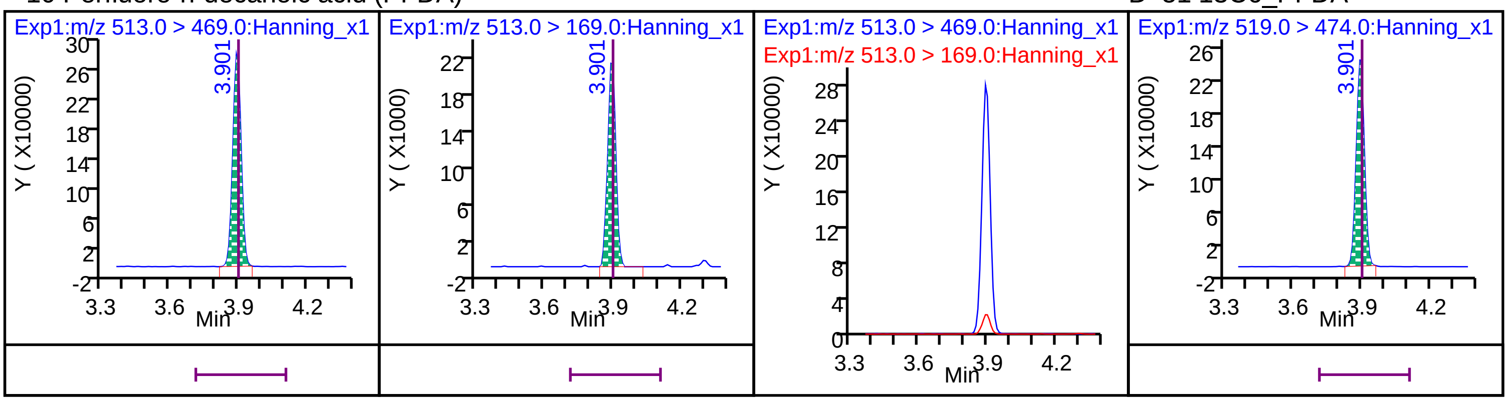
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



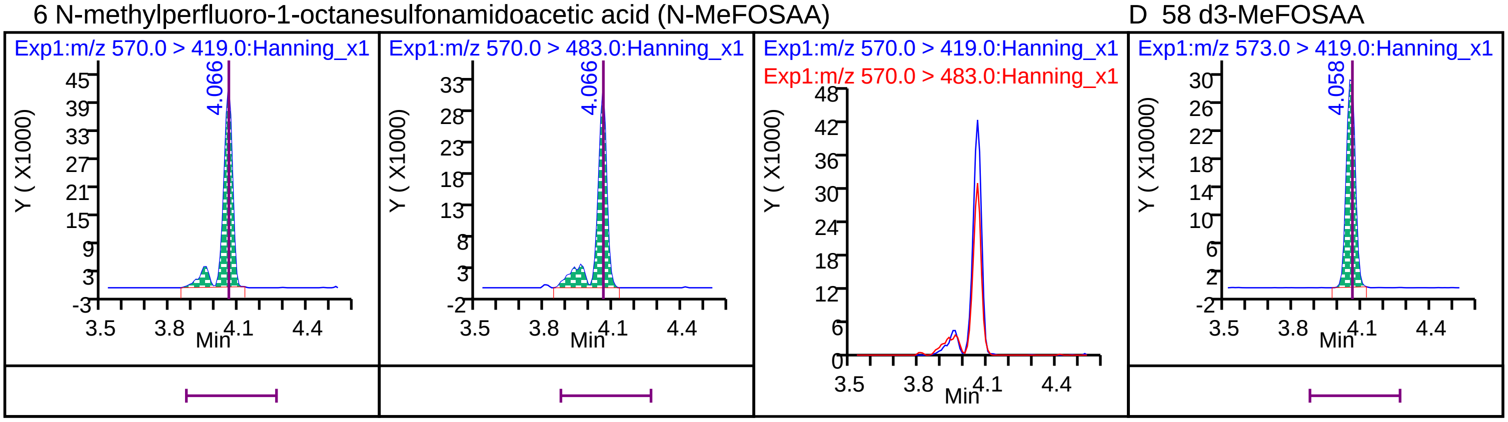
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



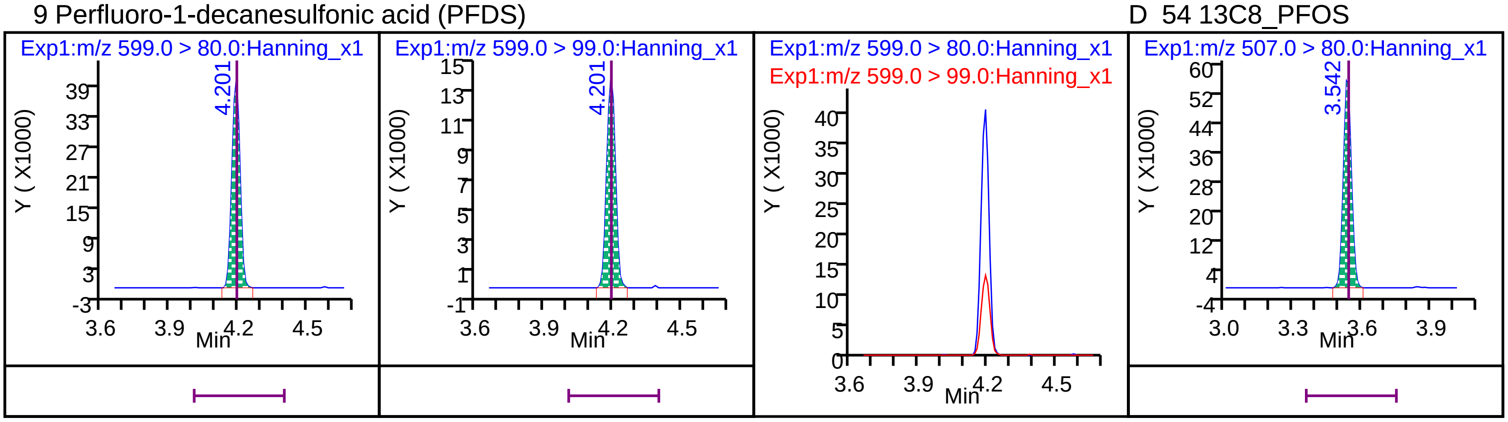
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

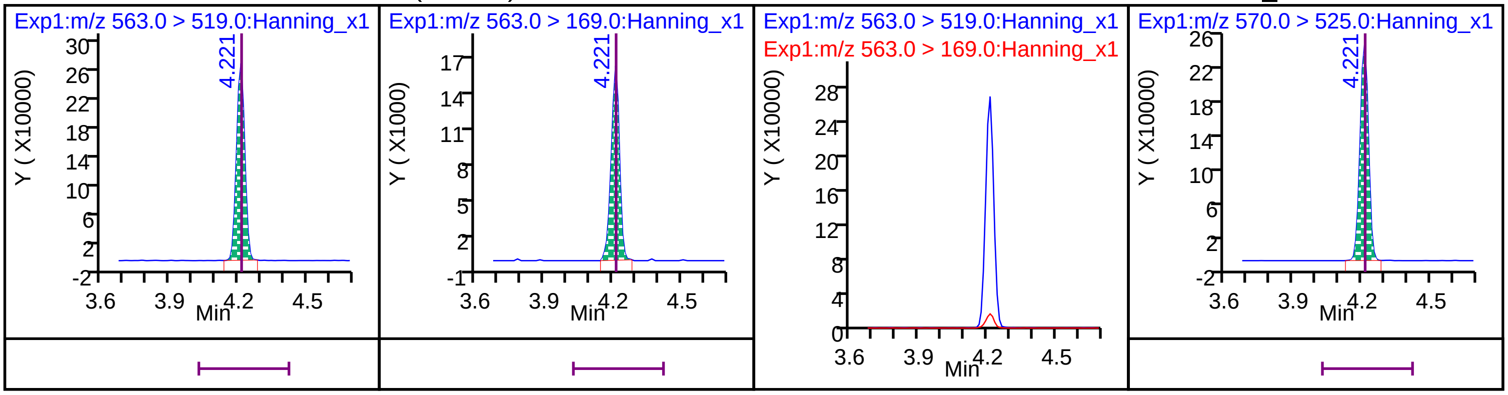


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

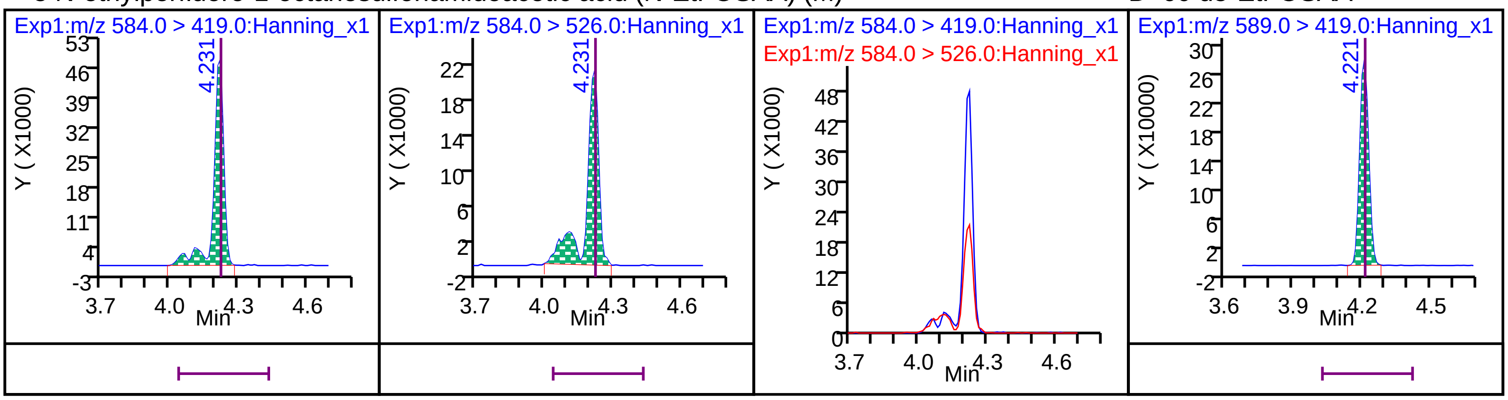


Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

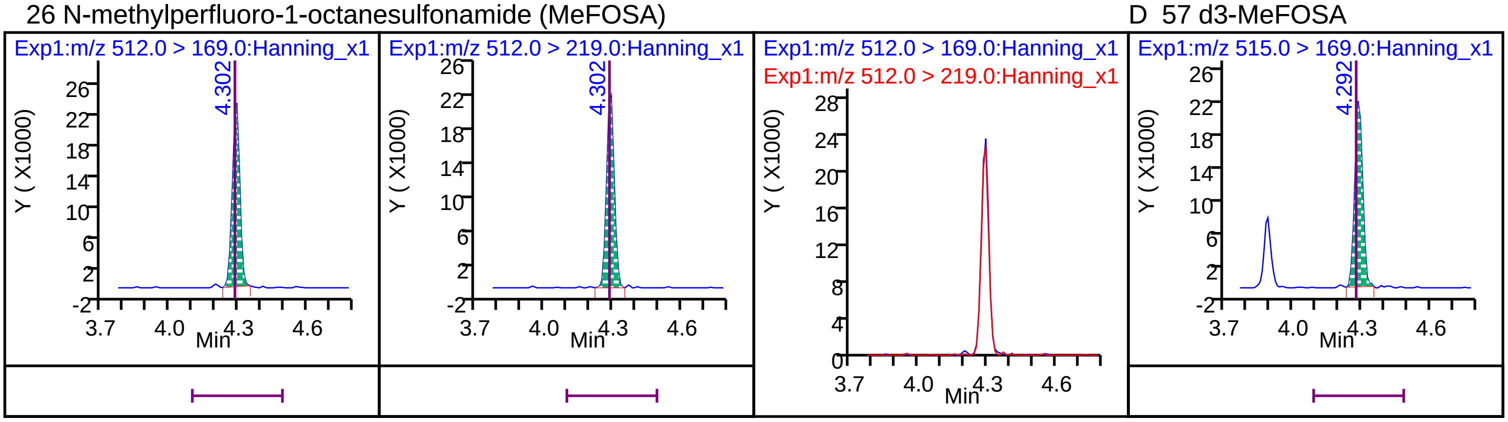


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

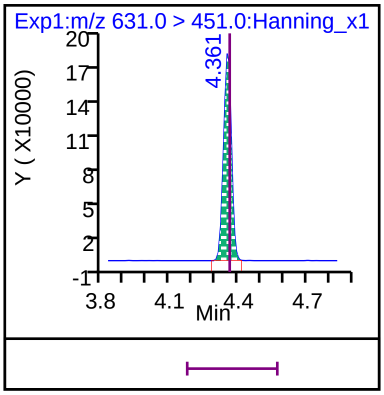


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

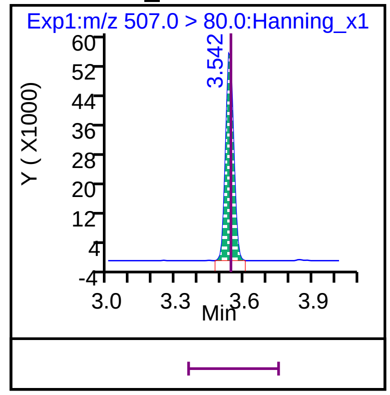
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



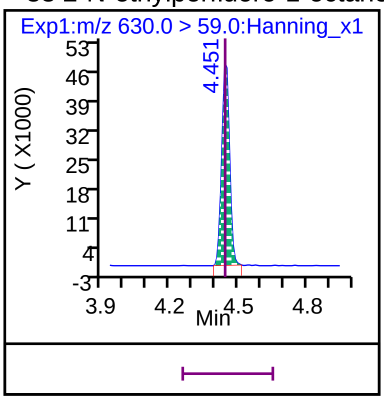
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



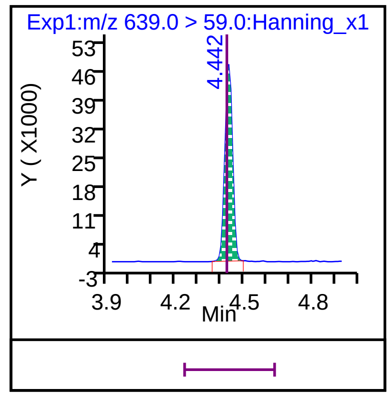
D 54 13C8_PFOS



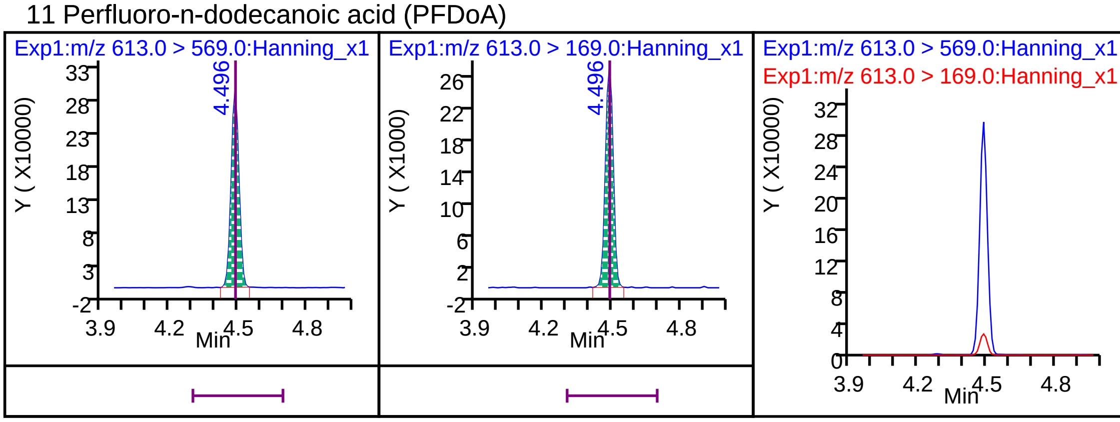
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



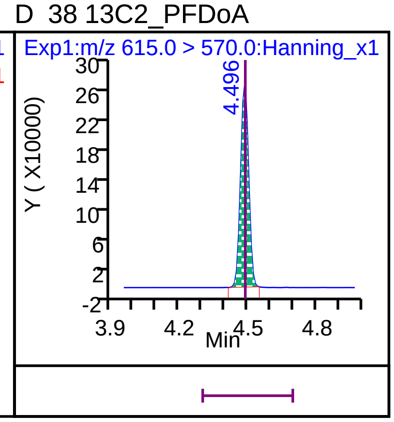
D 62 d9-EtFOSE



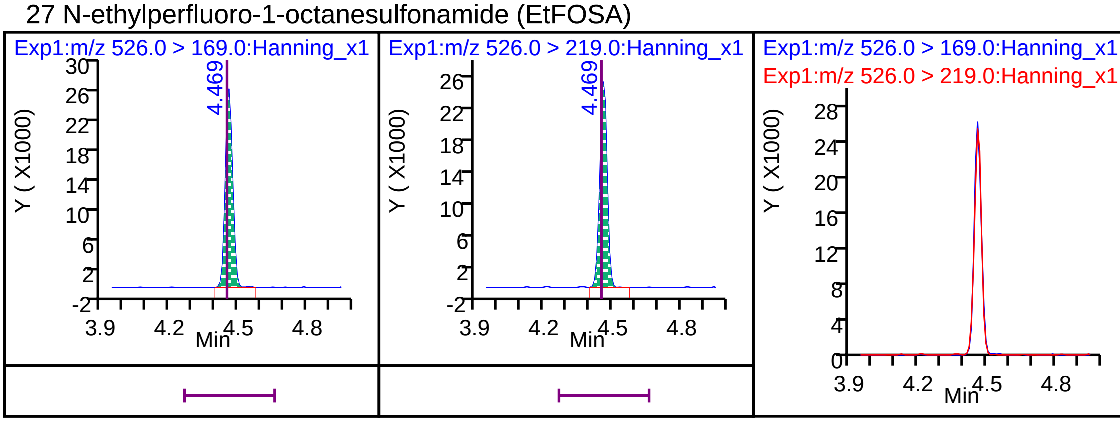
11 Perfluoro-n-dodecanoic acid (PFDoA)



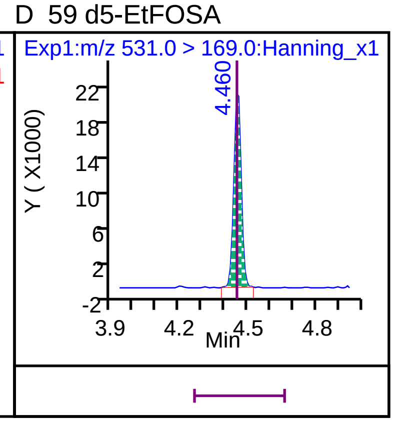
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

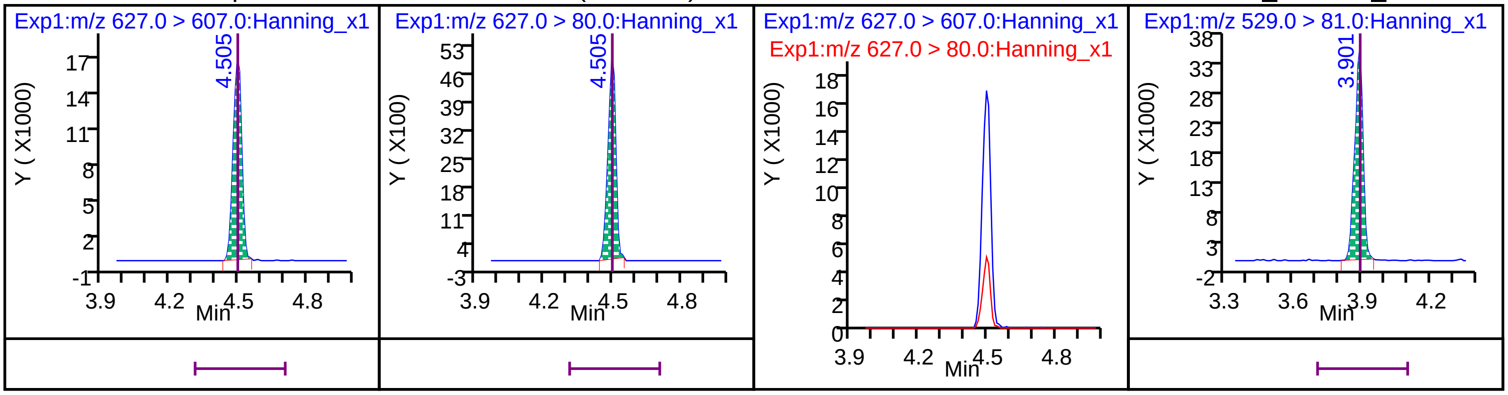


D 59 d5-EtFOSA

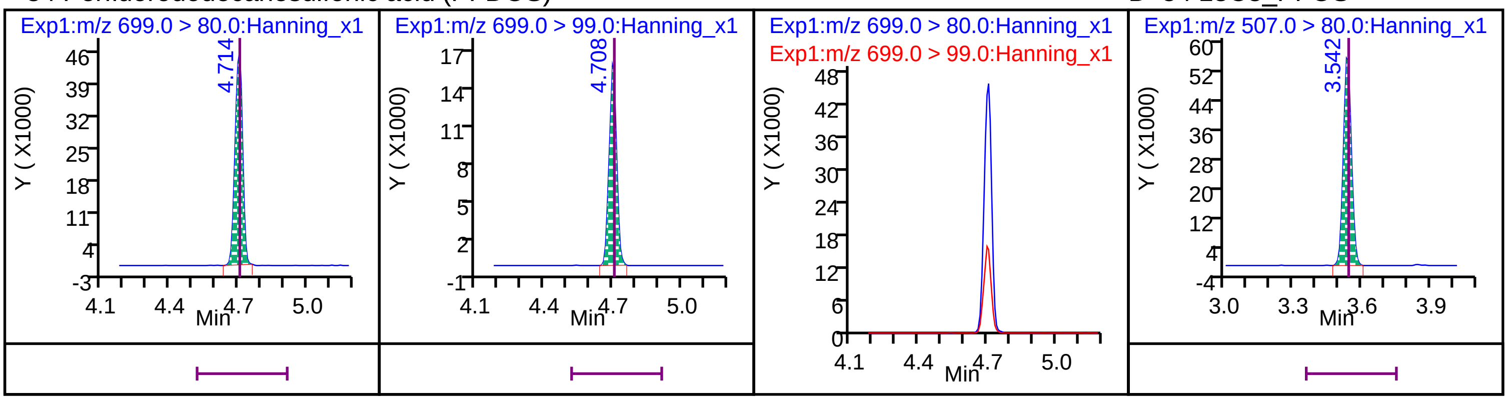


Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d

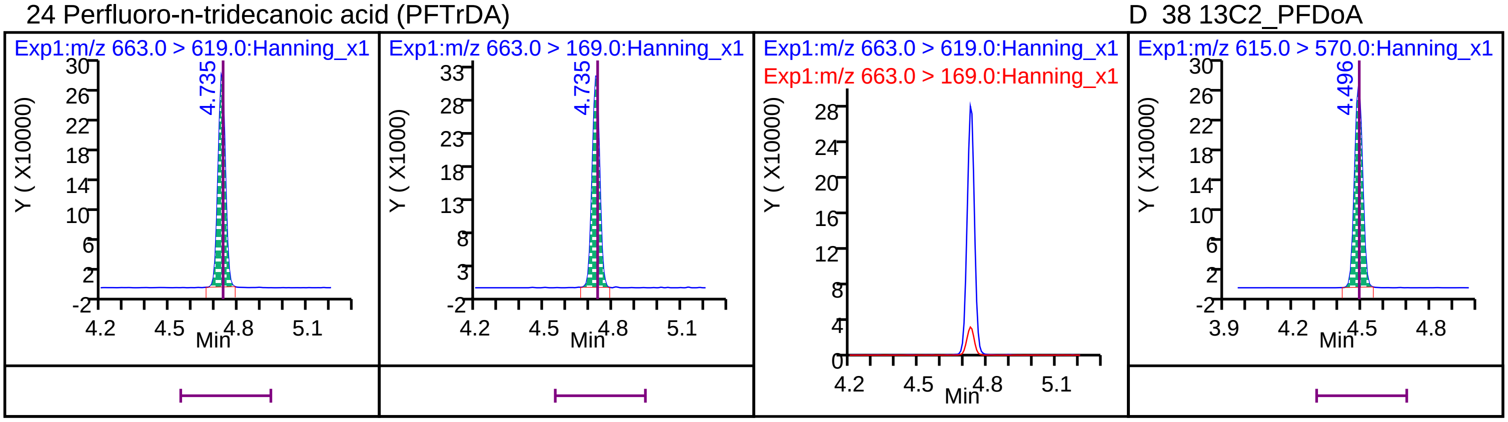
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



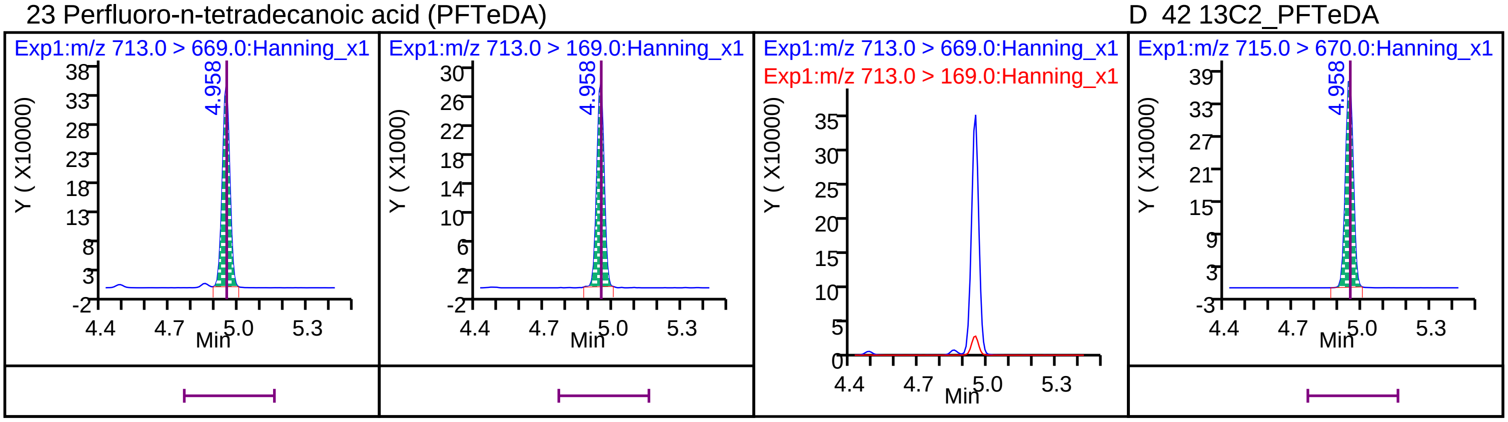
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

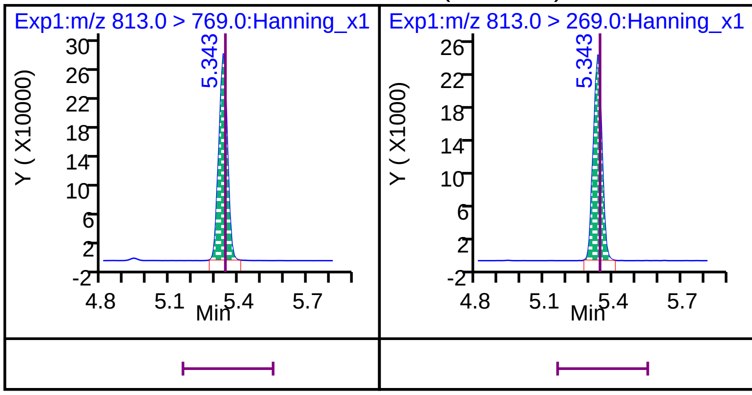


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

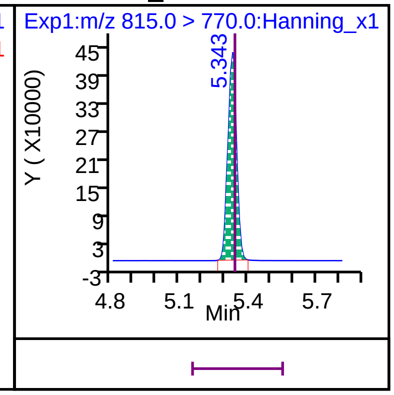


Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d

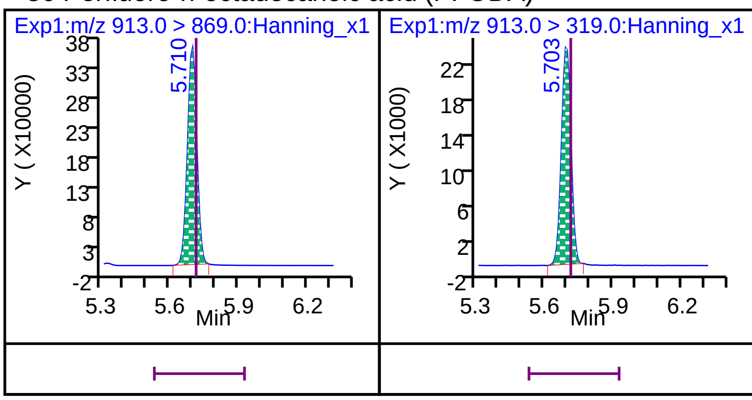
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



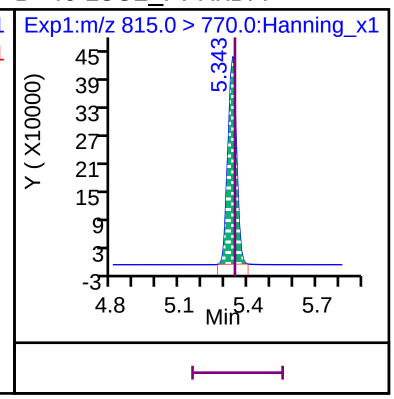
D 40 13C2_PFHxDA



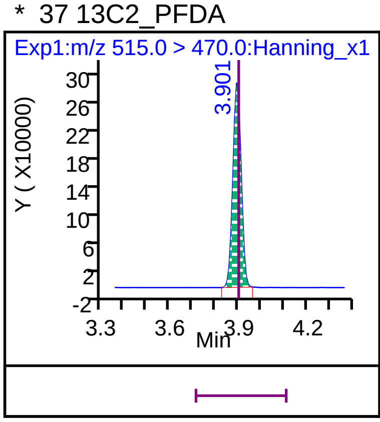
36 Perfluoro-n-octadecanoic acid (PFODA)



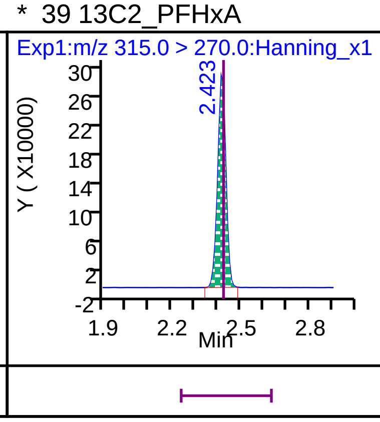
D 40 13C2_PFHxDA



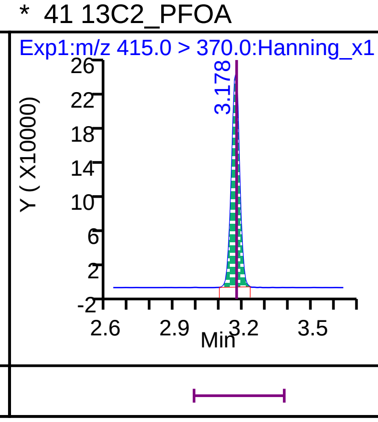
* 37 13C2_PFDA



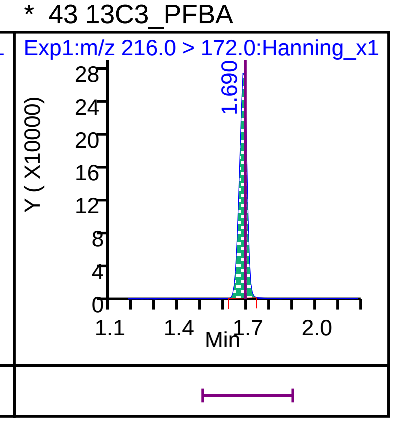
* 39 13C2_PFHxA



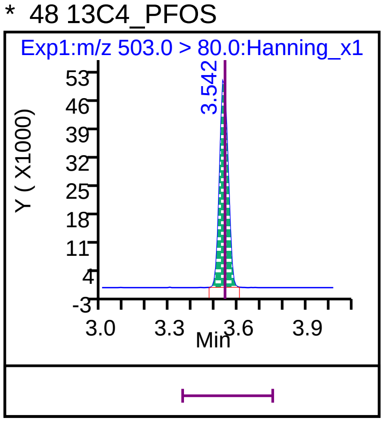
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

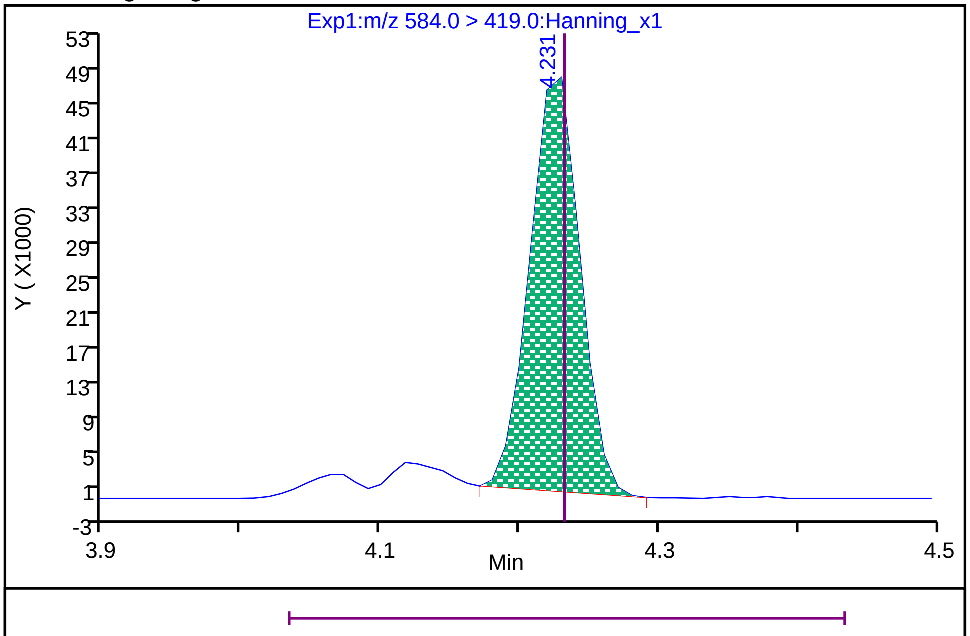
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d		
Injection Date:	17-Nov-2021 18:48:46	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

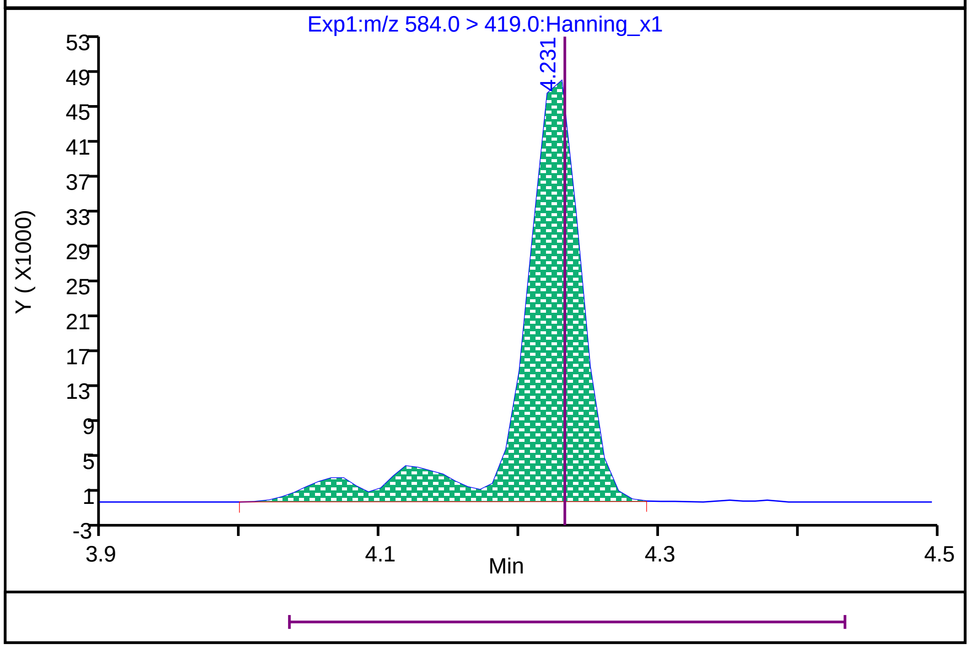
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.231
Area: 118051
Amount: 850.87
Amount Units: ng/L



RT: 4.231
Area: 143172
Amount: 1031.94
Amount Units: ng/L



Data Editor: justin.gavin, 18-Nov-2021 17:42:29
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:21:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

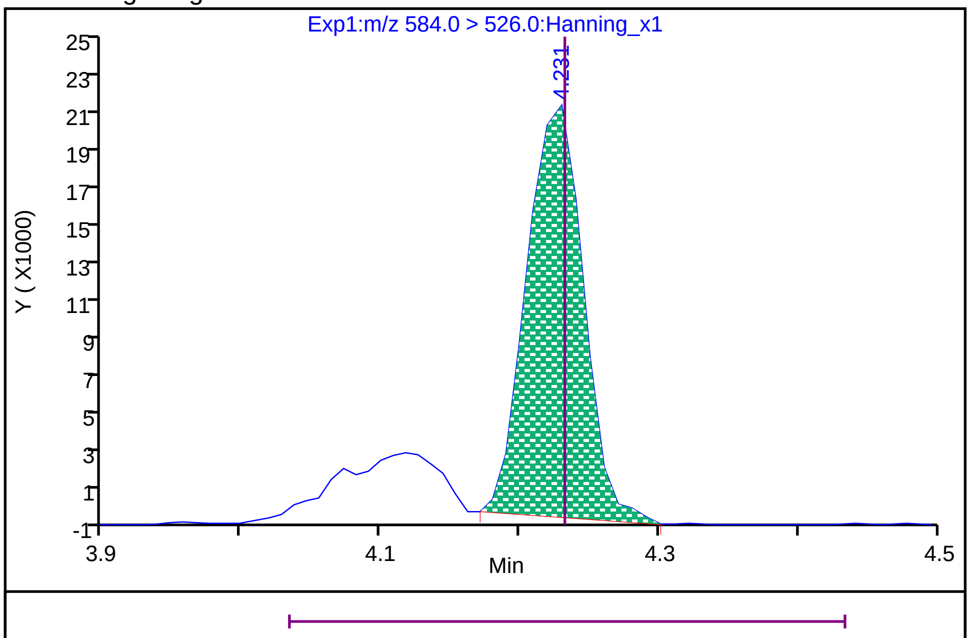
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721034.d		
Injection Date:	17-Nov-2021 18:48:46	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

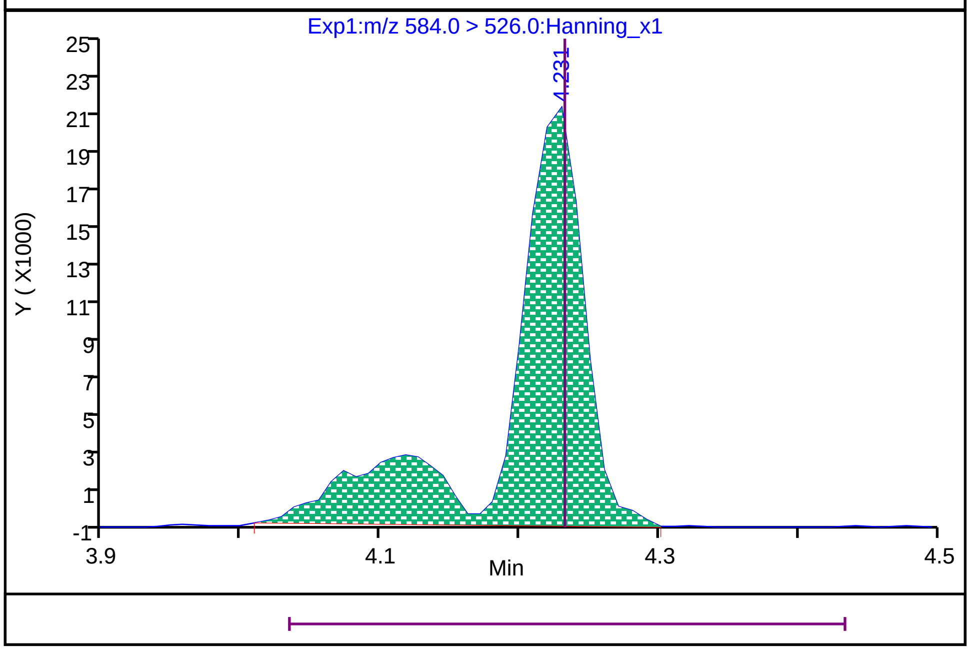
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.231
Area: 59555
Amount: 1031.94
Amount Units: ng/L



RT: 4.231
Area: 80342
Amount: 1031.94
Amount Units: ng/L



Data Editor: justin.gavin, 18-Nov-2021 17:42:34

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d		
Injection Date:	17-Nov-2021 20:55:05	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	33
Sample Info:	ID CCV 1000B_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	983.82	98.4	70 - 130
D 46 13C4_PFBA	668395	644186			96.4	50 - 150
D 50 13C5_PFPeA	587067	595159			101.4	50 - 150
21 PFPeA			1000.00	992.45	99.2	70 - 130
7 PFBS			884.00	882.46	99.8	70 - 130
D 44 13C3_PFBS	178175	180418			101.3	50 - 150
1 4:2 FTS			934.00	994.09	106.4	70 - 130
D 63 13C2_4:2 FTS_2	113673	112390			98.9	50 - 150
D 49 13C5_PFHxA	698559	674010			96.5	50 - 150
15 PFHxA			1000.00	937.02	93.7	70 - 130
22 PFPeS			938.00	968.38	103.2	70 - 130
28 GenX			2000.00	1978.73	98.9	70 - 130
D 66 13C3_GenX	1175107	1158017			98.5	50 - 150
D 47 13C4_PFHpA	617327	566932			91.8	50 - 150
13 PFHpA			1000.00	973.15	97.3	70 - 130
D 45 13C3_PFHxS	139172	135831			97.6	50 - 150
14 PFHxS			910.00	902.73	99.2	70 - 130
29 ADONA			942.00	921.81	97.9	70 - 130
D 64 13C2_6:2 FTS_2	87765	87205			99.4	50 - 150
2 6:2 FTS			948.00	971.35	102.5	70 - 130
20 PFOA			1000.00	966.14	96.6	70 - 130
D 53 13C8_PFOA	576099	559098			97	50 - 150
12 PFHpS			952.00	986.37	103.6	70 - 130
18 PFOS			928.00	821.45	88.5	70 - 130
17 PFNA			1000.00	982.36	98.2	70 - 130
D 56 13C9_PFNA	677086	654847			96.7	50 - 150
D 54 13C8_PFOS	125490	141584			112.8	50 - 150
30 9Cl-PF3ONS			932.00	881.24	94.6	70 - 130
D 55 13C8_PFOSA	262168	276363			105.4	50 - 150
19 PFOSA			1000.00	922.08	92.2	70 - 130
16 PFNS			960.00	933.17	97.2	70 - 130
D 65 13C2_8:2 FTS_2	88202	88951			100.8	50 - 150
3 8:2 FTS			958.00	857.74	89.5	70 - 130
10 PFDA			1000.00	1018.62	101.9	70 - 130
D 51 13C6_PFDA	615512	600017			97.5	50 - 150
6 N-MeFOSAA			1000.00	943.85	94.4	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	681022	743027			109.1	50 - 150
9 PFDS			964.00	877.35	91	70 - 130
25 PFUdA			1000.00	1133.00	113.3	70 - 130
D 60 d5-EtFOSAA	650725	701600			107.8	50 - 150
D 52 13C7_PFUdA	654908	611212			93.3	50 - 150
5 N-EtFOSAA			1000.00	999.01	99.9	70 - 130
D 61 d7-MeFOSE	85524	102453			119.8	50 - 150
32 MeFOSE			1000.00	939.43	93.9	70 - 130
26 MeFOSA			1000.00	928.30	92.8	70 - 130
D 57 d3-MeFOSA	44687	48690			109	50 - 150
31 11Cl-PF3OUDS			942.00	865.60	91.9	70 - 130
D 62 d9-EtFOSE	100548	104811			104.2	50 - 150
33 EtFOSE			1000.00	999.61	100	70 - 130
D 59 d5-EtFOSA	37834	47164			124.7	50 - 150
27 EtFOSA			1000.00	935.54	93.6	70 - 130
11 PFDoA			1000.00	1010.20	101	70 - 130
D 38 13C2_PFDoA	677078	617336			91.2	50 - 150
4 10:2 FTS			964.00	978.24	101.5	70 - 130
34 PFDOS			968.00	934.99	96.6	70 - 130
24 PFTrDA			1000.00	1003.02	100.3	70 - 130
23 PFTeDA			1000.00	985.39	98.5	70 - 130
D 42 13C2_PFTeDA	816988	822623			100.7	50 - 150
35 PFHxDA			1000.00	920.49	92	70 - 130
D 40 13C2_PFHxDA	853968	991694			116.1	50 - 150
36 PFODA			1000.00	1000.98	100.1	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d		
Injection Date:	17-Nov-2021 20:55:05	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	33
Sample Info:	ID CCV 1000B_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	0	644186	21	>100:1			1000.00	1032.46	96.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.699	0/0	663020	20	>100:1			1000.00	983.82		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	0	595159	15	>100:1			1000.00	1027.63	101.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	0/0	648677	15	>100:1			1000.00	992.45		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.119	2.120	0	180418	15	>100:1			1000.00	1039.59	101.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.119	2.120	0/0	198343	16	>100:1	Target = 3.48		884.00	882.46		
298.9 > 99	44	2.119	2.120		56676	17	>100:1	3.49 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.460	2.460	0/0	154654	17	>100:1	Target = 3.03		938.00	968.38		
349 > 99	44	2.460	2.460		53269	16	>100:1	2.90 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	0	112390	17	>100:1			5000.00	5147.00	98.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.389	2.389	0/0	49137	16	>100:1	Target = 1.70		934.00	994.09		
327 > 81	63	2.389	2.389		24479	15	49:1	2.00 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.433	2.433	0	674010	18	>100:1			1000.00	1040.02	96.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.433	2.433	0/0	668293	18	>100:1	Target = 18.47		1000.00	937.02		
313 > 119	49	2.424	2.433		33667	17	>100:1	19.85 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.549	0	1158017	17	>100:1			5000.00	5171.64	98.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	0/0	301555	18	>100:1	Target = 0.78		2000.00	1978.73		
285 > 185	66	2.540	2.540		377696	17	>100:1	0.79 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.800	2.800	0	566932	18	>100:1			1000.00	1074.15	91.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.800	2.800	0/0	630896	18	>100:1	Target = 3.92		1000.00	973.15		
363 > 169	47	2.800	2.800		167364	17	>100:1	3.76 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.818	2.818	0	135831	17	>100:1			1000.00	1063.54	97.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.818	2.818	0/0	138235	25	>100:1	Target = 3.14	5.37	910.00	902.73		
399 > 99	45	2.818	2.818		44994	24	>100:1	3.07 (1.57-4.71)	8.59				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.836	2.836	0/0	973840	18	>100:1	Target = 3.33		942.00	921.81		
377 > 85	45	2.836	2.836		308175	17	>100:1	3.16 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.181	3.186	0/0	130258	19	>100:1	Target = 3.02		952.00	986.37		
449 > 99	45	3.181	3.186		42035	20	>100:1	3.09 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.154	3.160	0	87205	18	>100:1			5000.00	5081.66	99.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.154	3.160	0/0	39738	19	>100:1	Target = 1.69		948.00	971.35		
427 > 81	64	3.147	3.160		21515	19	55:1	1.84 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.174	3.180	0	559098	21	>100:1			1000.00	1079.36	97	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.181	3.180	1/1	565299	21	>100:1	Target = 3.03		1000.00	966.14		
413 > 169	53	3.174	3.180		185691	19	>100:1	3.04 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.545	3.552	0	141584	19	>100:1			1000.00	1137.21	112.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.545	3.552	0/0	138146	36	>100:1	Target = 3.42	3.81	928.00	821.45		
499 > 99	54	3.553	3.552		42380	35	>100:1	3.25 (1.71-5.13)	7.04				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.753	3.766	0/0	478995	20	>100:1			932.00	881.24		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.887	3.893	0/0	102862	25	>100:1	Target = 2.57		960.00	933.17		
549 > 99	54	3.887	3.893		36352	16	>100:1	2.82 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.196	4.203	0/0	99851	20		Target = 2.71		964.00	877.35		
599 > 99	54	4.196	4.203		43249	15	>100:1	2.30 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.357	4.372	0/0	415424	16	>100:1			942.00	865.60		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.704	4.715	0/0	105348	19	>100:1	Target = 3.04		968.00	934.99		
699 > 99	54	4.704	4.715		34821	17	>100:1	3.02 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.553	3.560	0	654847	19	>100:1			1000.00	1014.91	96.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.553	3.560	0/0	708643	19	>100:1	Target = 7.14		1000.00	982.36		
463 > 169	56	3.553	3.560		107250	20	>100:1	6.60 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.844	1	276363	17				1000.00	1095.95	105.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.846	3.844	1/0	280004	17	>100:1	Target = 32.83		1000.00	922.08		
498>478	55	3.846	3.844		11284	21	>100:1	24.81 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.895	3.902	0	88951	17	>100:1			5000.00	5319.44	100.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.895	3.902	0/0	35390	18	>100:1	Target = 2.14		958.00	857.74		
527 > 81	65	3.887	3.902		18899	21	>100:1	1.87 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.500	4.507	0/0	46782	15		Target = 3.72		964.00	978.24		
627 > 80	65	4.491	4.507		13611	17	>100:1	3.43 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.903	3.910	0	600017	18	>100:1			1000.00	1052.92	97.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.895	3.910	0/0	716599	17	>100:1	Target = 14.16		1000.00	1018.62		
513 > 169	51	3.903	3.910		43226	16	>100:1	16.57 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.053	4.068	0	743027	17	>100:1			5000.00	5439.92	109.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.062	4.068	0/0	116188	34		Target = 1.42	6.71	1000.00	943.85		M
570 > 483	58	4.062	4.068		89539	30	>100:1	1.29 (0.71-2.14)	4.02				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.223	0	701600	16	>100:1			5000.00	5778.29	107.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.226	4.234	0/0	132995	33	>100:1	Target = 1.49	5.29	1000.00	999.01		M
584 > 526	60	4.216	4.234		86771	33	>100:1	1.53 (0.74-2.24)	4.10				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.223	0	611212	17	>100:1			1000.00	941.50	93.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.223	0/0	642507	17	>100:1	Target = 14.37		1000.00	1133.00		
563 > 169	52	4.216	4.223		39349	16	>100:1	16.32 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.267	4.264	1	102453	14	>100:1			1000.00	1169.10	119.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.277	4.284	0/-1	106260	14	>100:1			1000.00	939.43		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.284	1	48690	13	>100:1			1000.00	996.99	109	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.297	4.294	1/0	46078	13	>100:1	Target = 1.08		1000.00	928.30		
512 > 219	57	4.297	4.294		52850	17	>100:1	0.87 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.434	1	104811	16	>100:1			1000.00	989.57	104.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.446	4.452	0/-1	106811	17	>100:1			1000.00	999.61		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.461	0	47164	14	>100:1			1000.00	1076.53	124.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.464	4.461	1/1	51960	17	>100:1	Target = 0.97		1000.00	935.54		
526 > 219	59	4.464	4.461		50110	16	>100:1	1.03 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.491	4.498	0	617336	16				1000.00	1034.28	91.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.491	4.498	0/0	673221	15	>100:1	Target = 10.55		1000.00	1010.20		
613 > 169	38	4.491	4.498		60712	16	>100:1	11.08 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.732	4.743	0/0	602746	19	>100:1	Target = 8.92		1000.00	1003.02		
663 > 169	38	4.732	4.743		66828	18	>100:1	9.01 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.953	4.959	0	822623	18	>100:1			1000.00	1090.85	100.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.953	4.959	0/0	710679	16	>100:1	Target = 12.22		1000.00	985.39		
713 > 169	42	4.953	4.959		56716	16	>100:1	12.53 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.340	5.353	0	991694	19	>100:1			1000.00	1102.89	116.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.340	5.353	0/0	618454	19	>100:1	Target = 11.65		1000.00	920.49		
813 > 269	40	5.340	5.353		53450	19	>100:1	11.57 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.699	5.725	-1/-1	934024	21	83:1	Target = 15.15		1000.00	1000.98		
913 > 319	40	5.699	5.725		65011	22	>100:1	14.36 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.895	3.910	0	683504	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.433	0	717994	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.174	3.180	0	568859	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.699	0	596272	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.545	3.552	0	131393	19				1000.00			

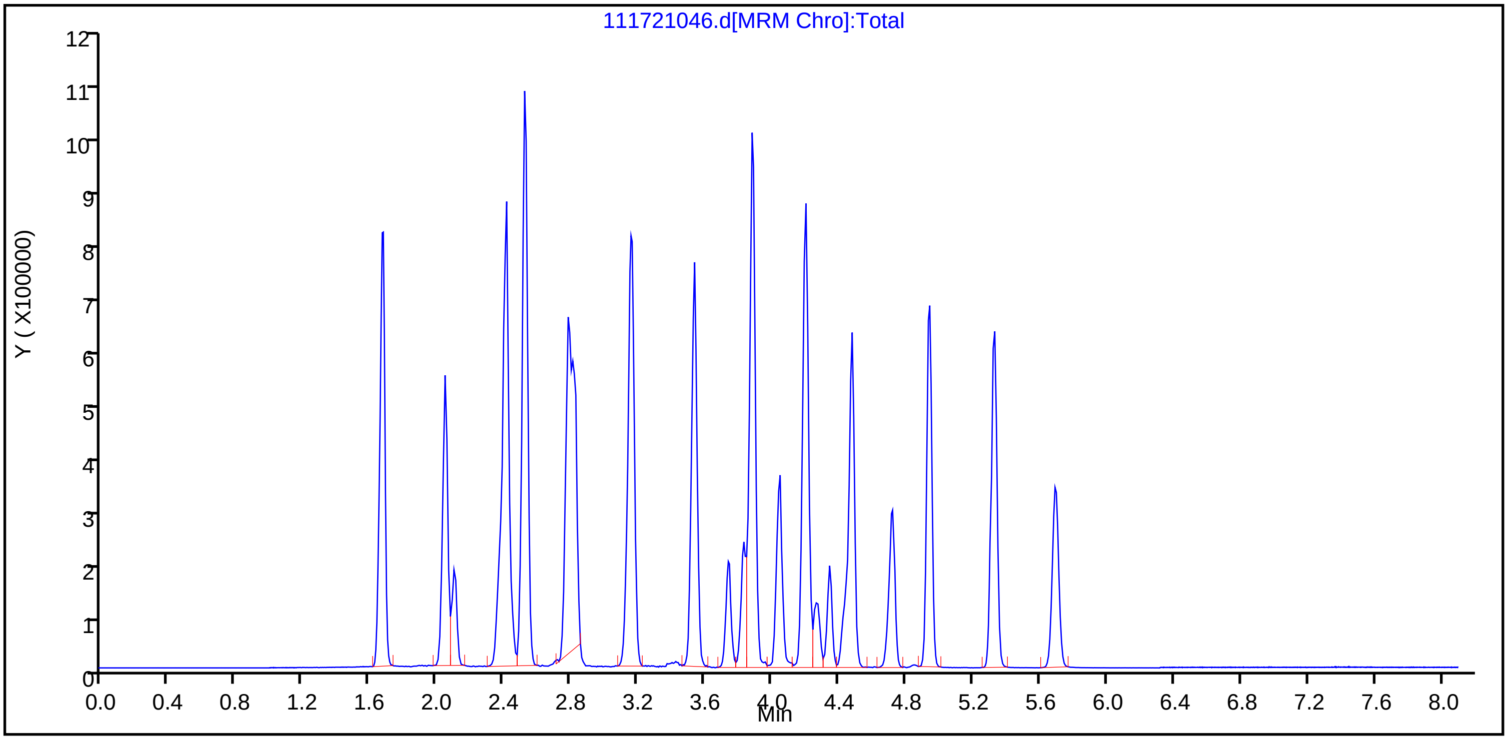
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

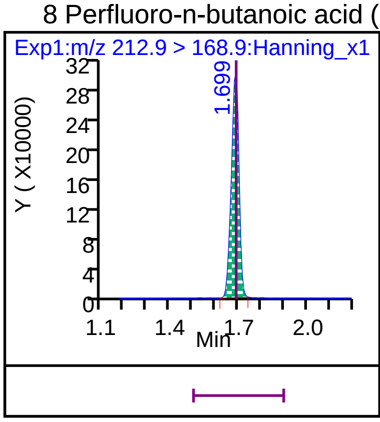
Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

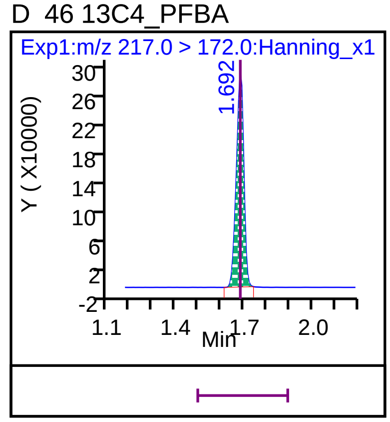
Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d		
Injection Date:	17-Nov-2021 20:55:05	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



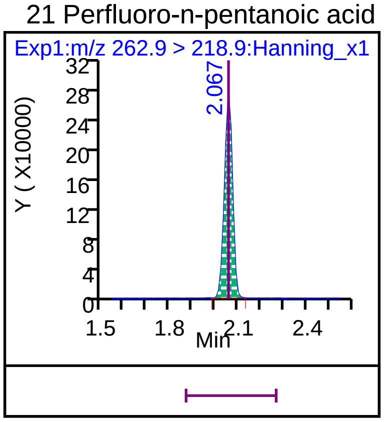
8 Perfluoro-n-butanoic acid (PFBA)



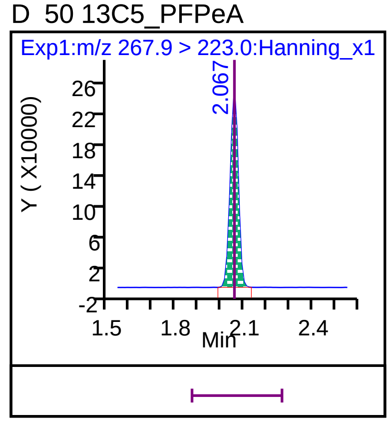
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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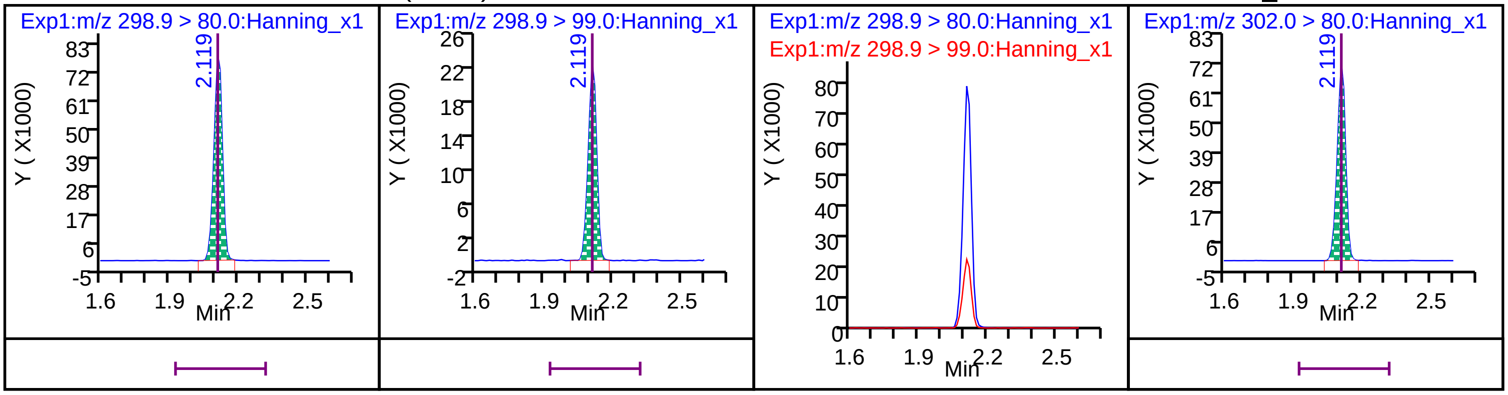
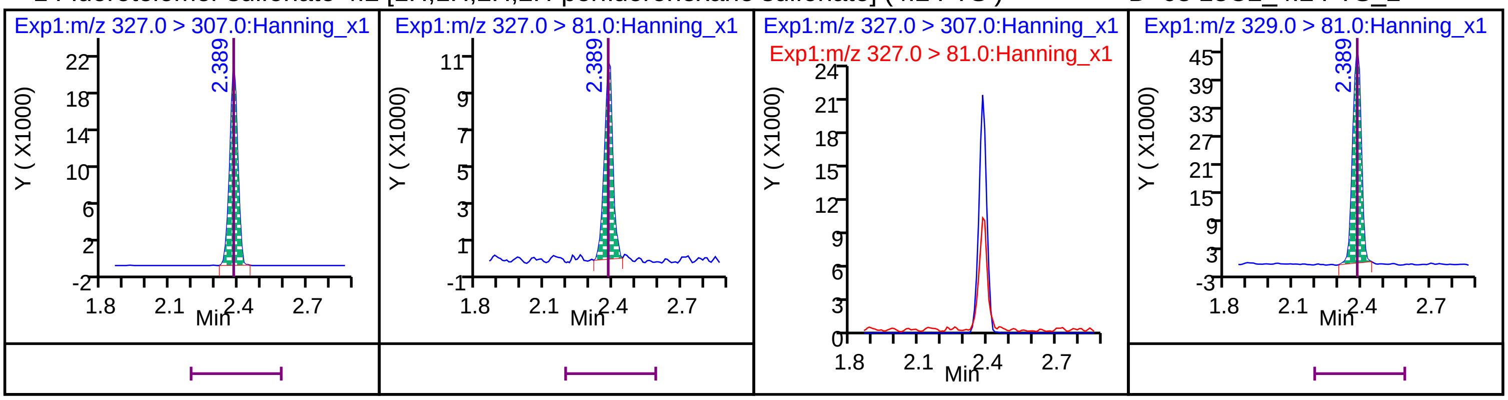
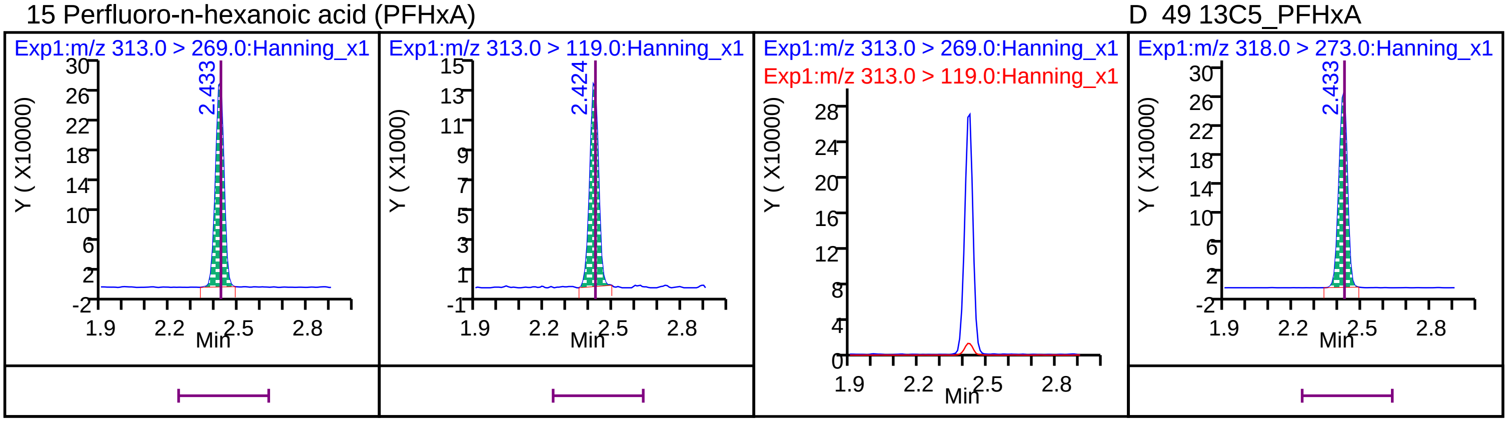
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



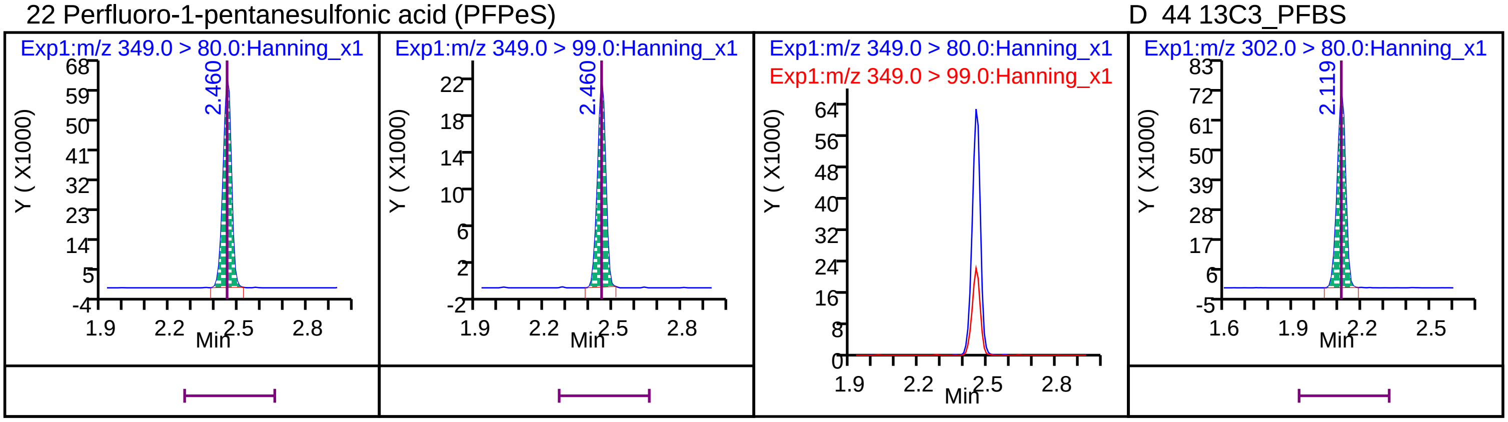
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

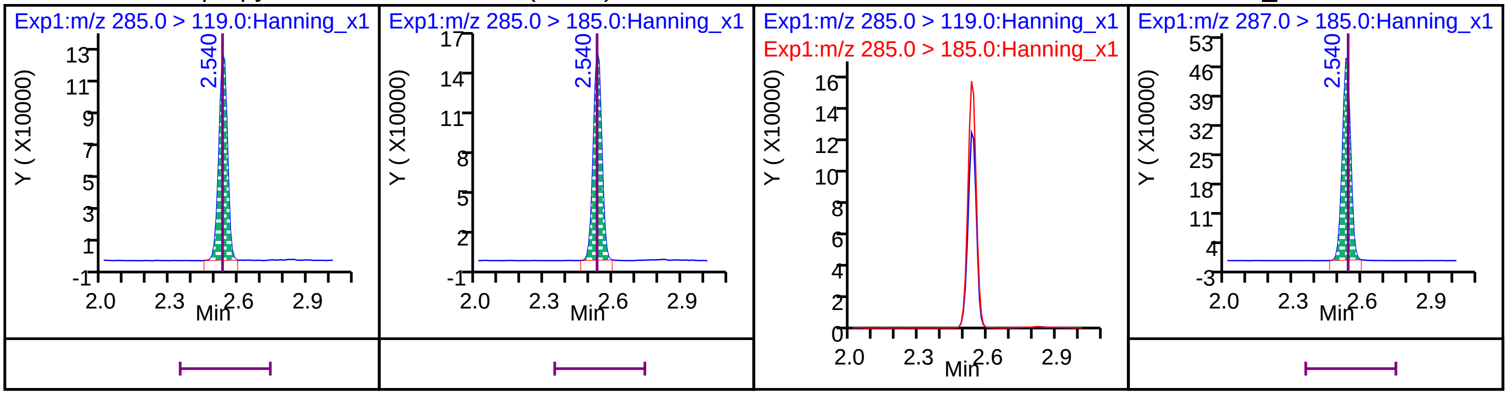


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

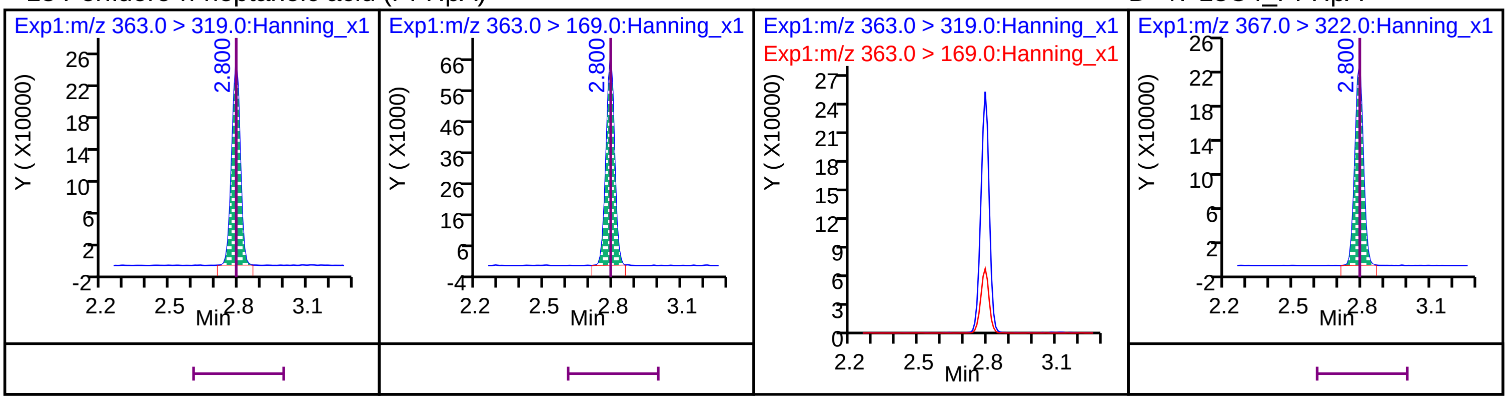


Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d

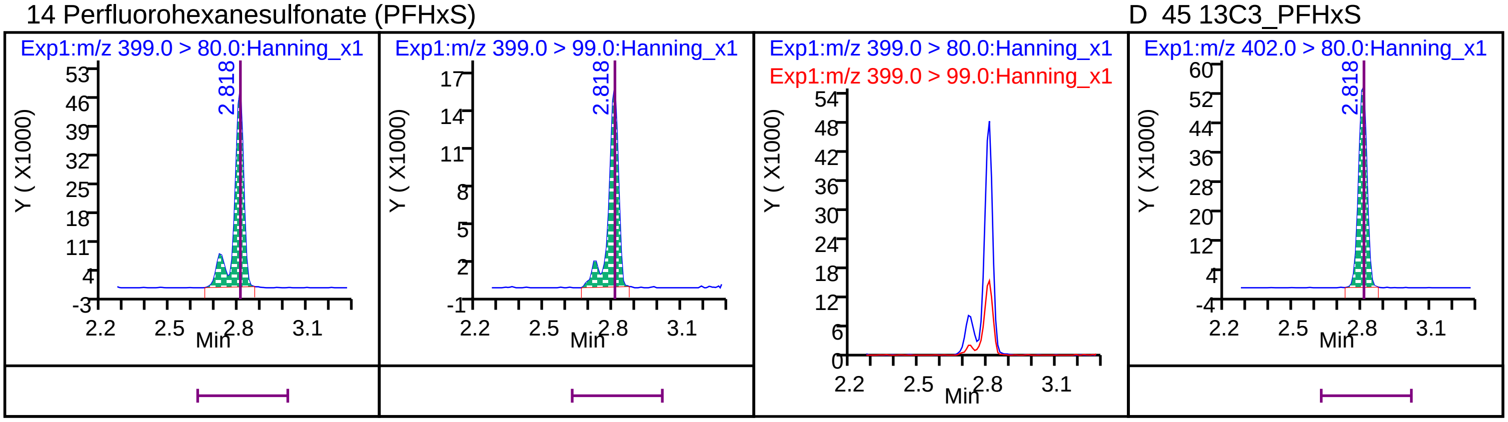
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



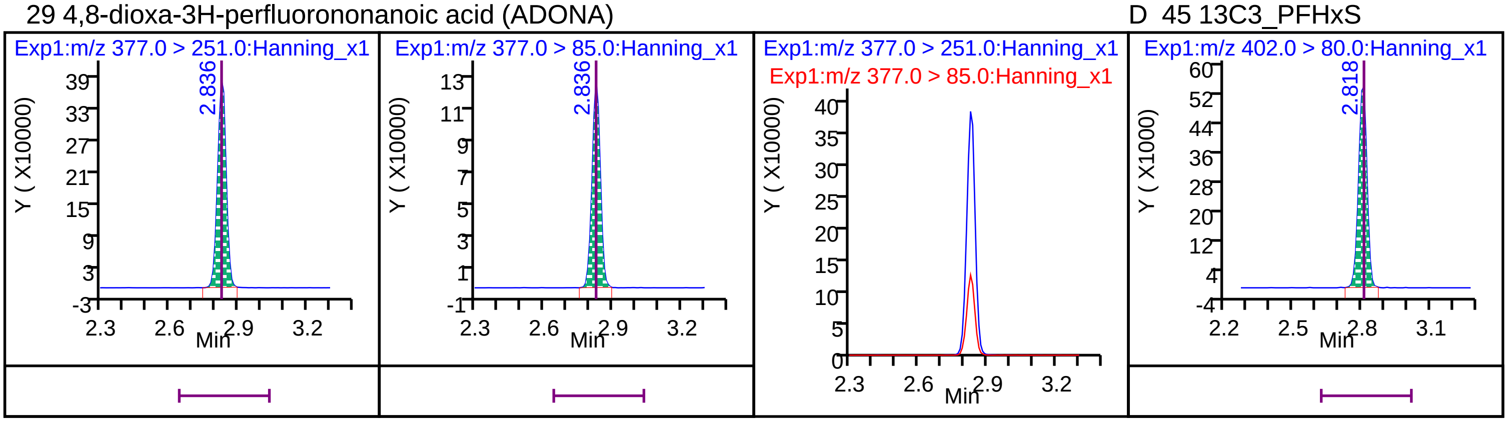
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

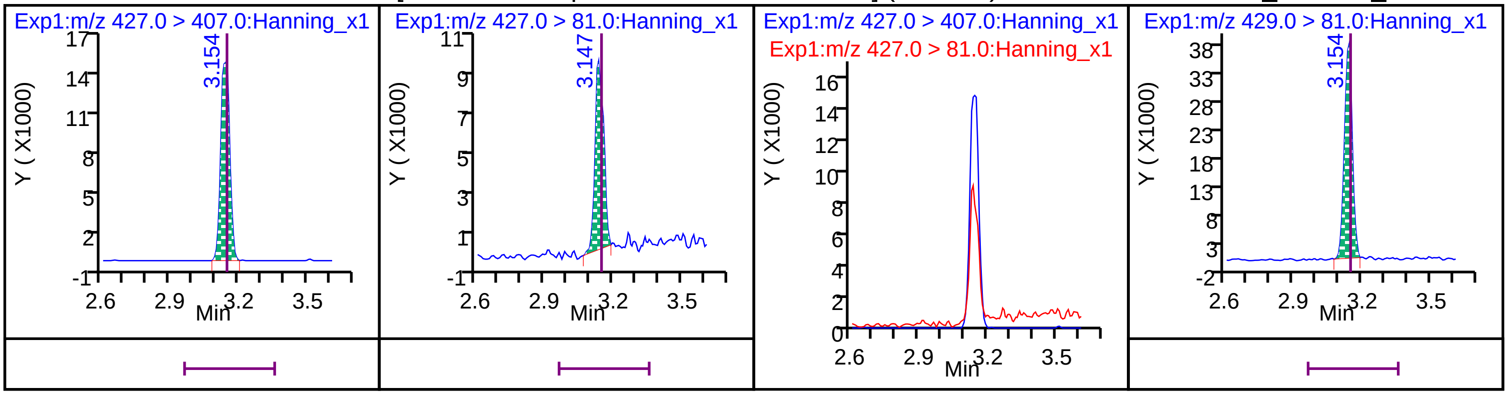


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

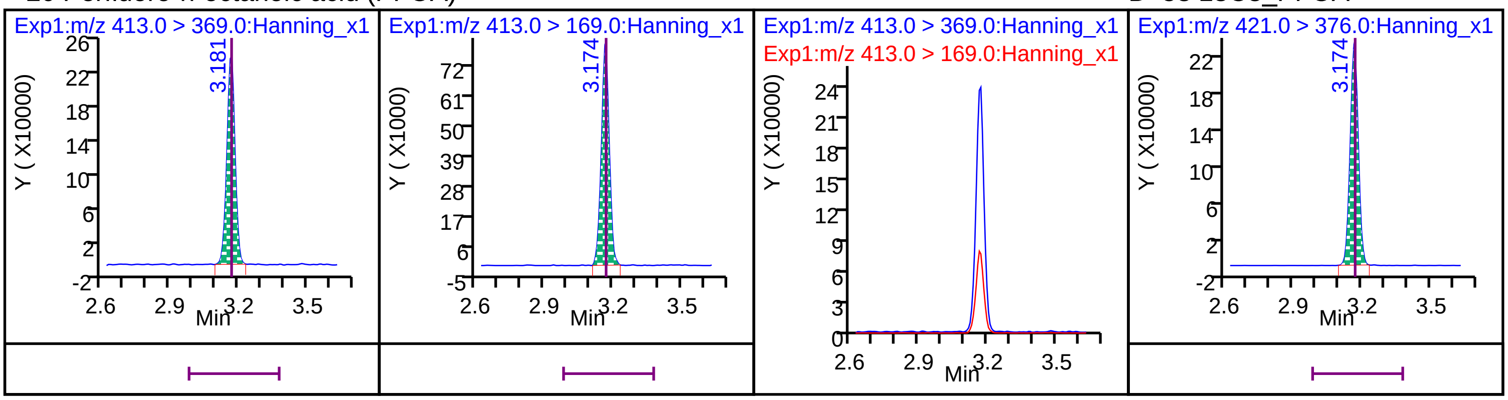


Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d

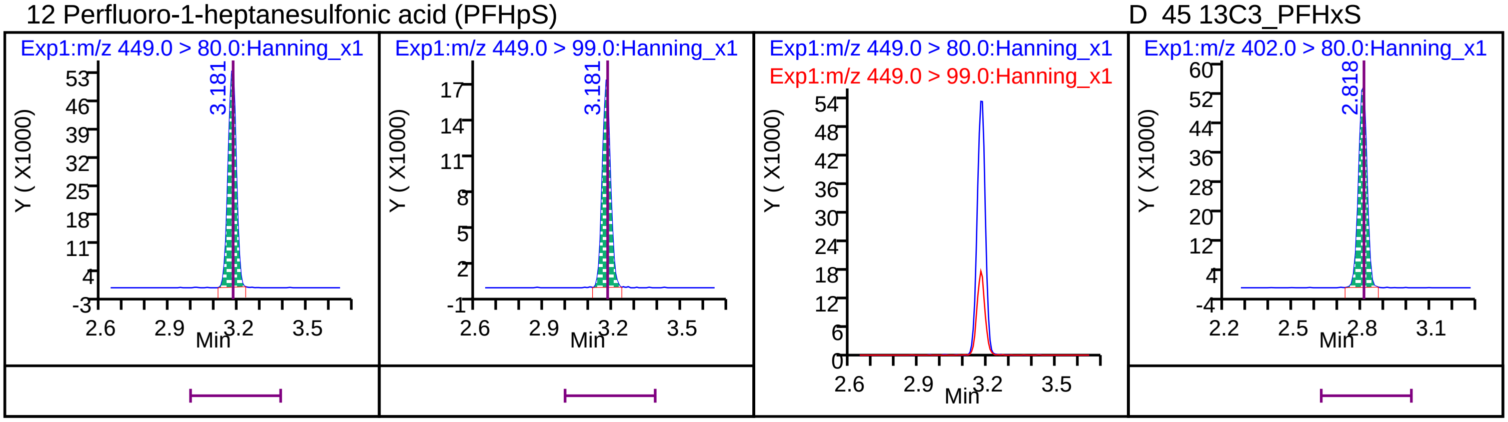
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



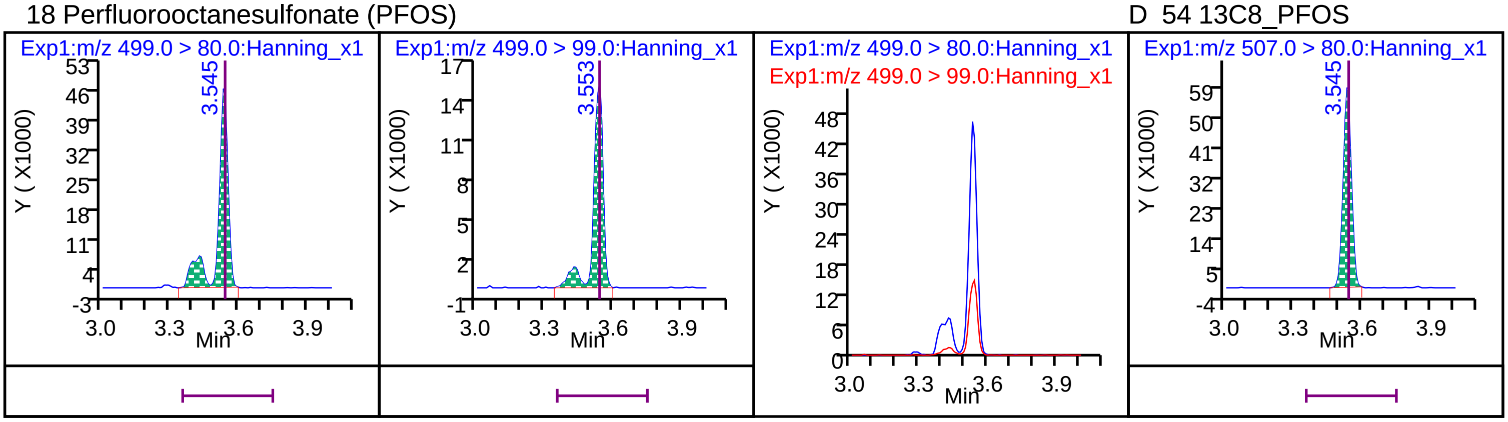
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

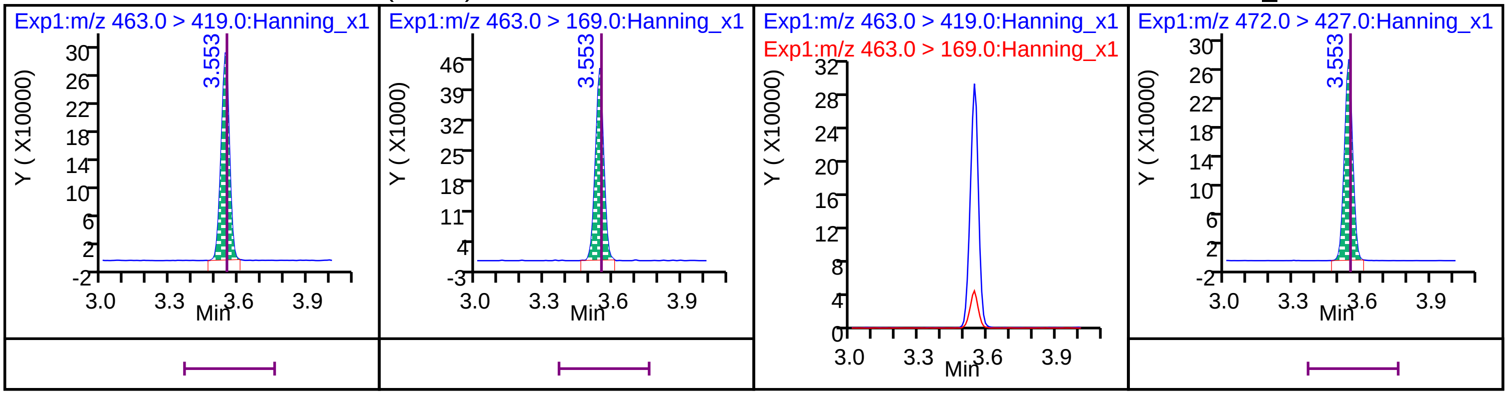


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

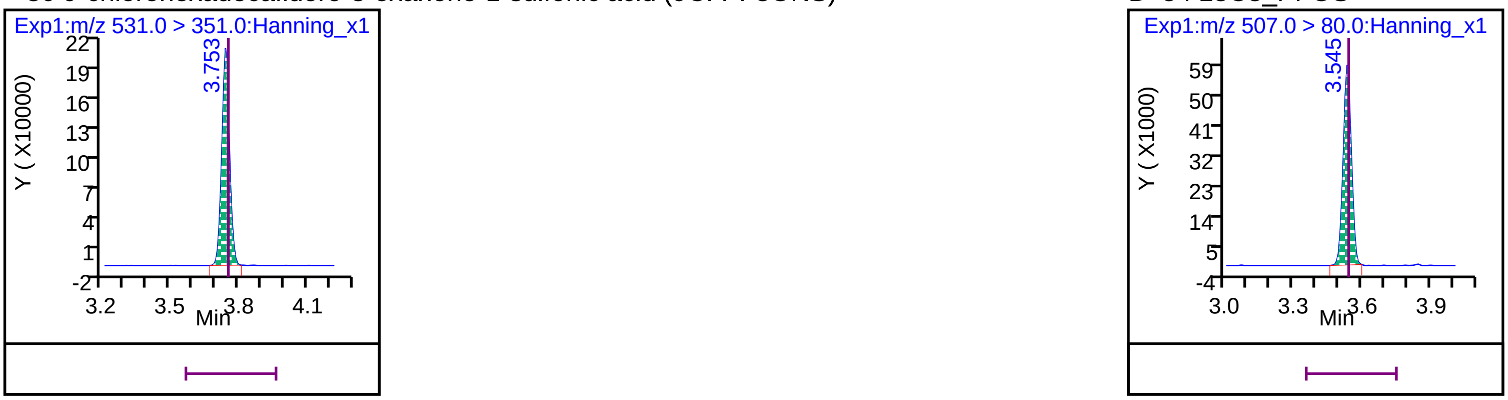


Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d

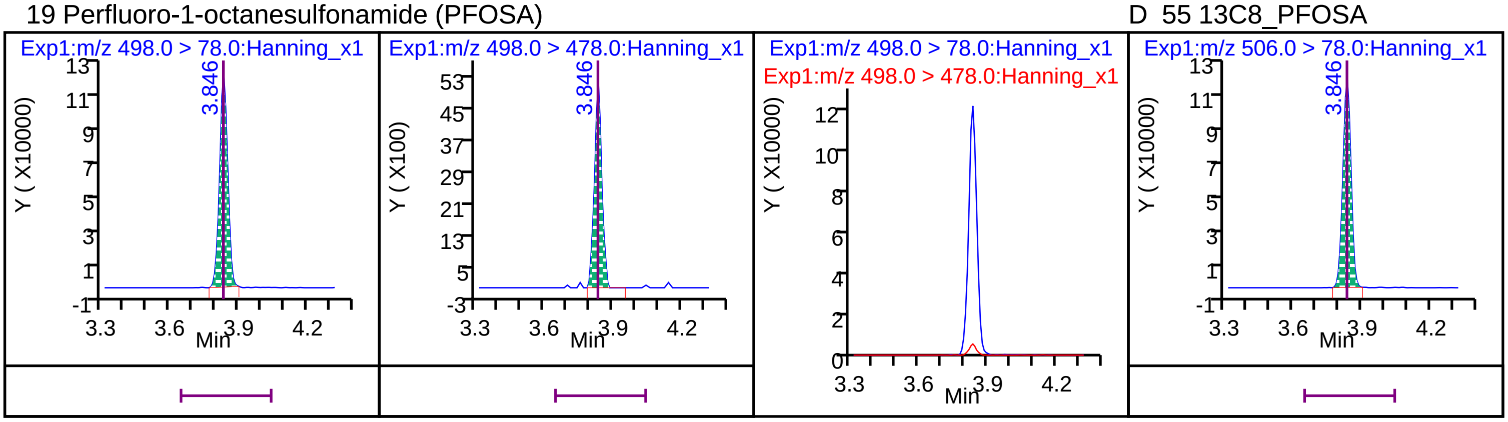
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



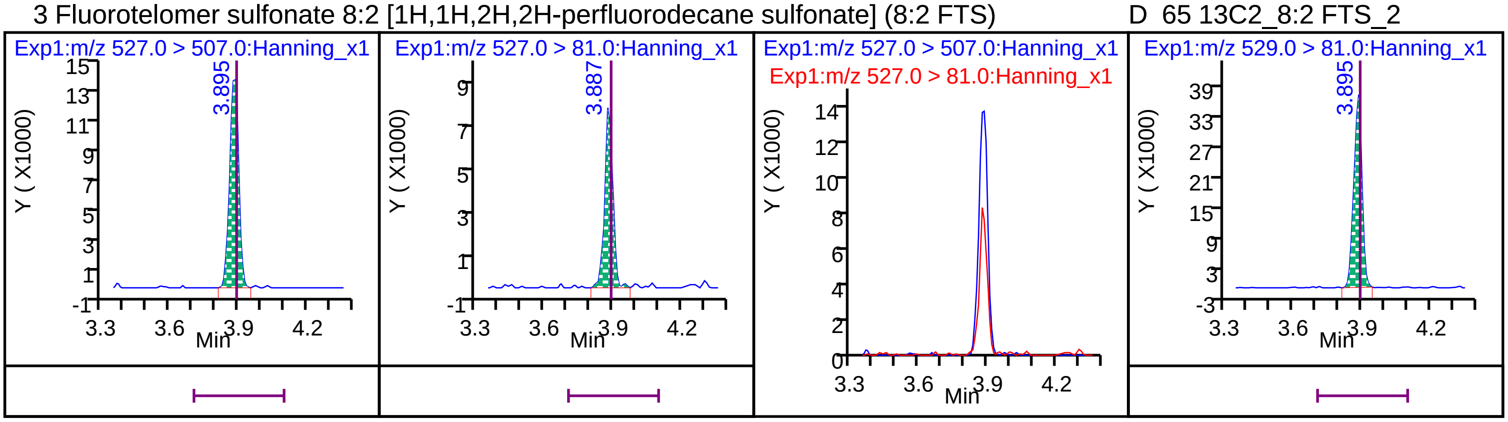
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



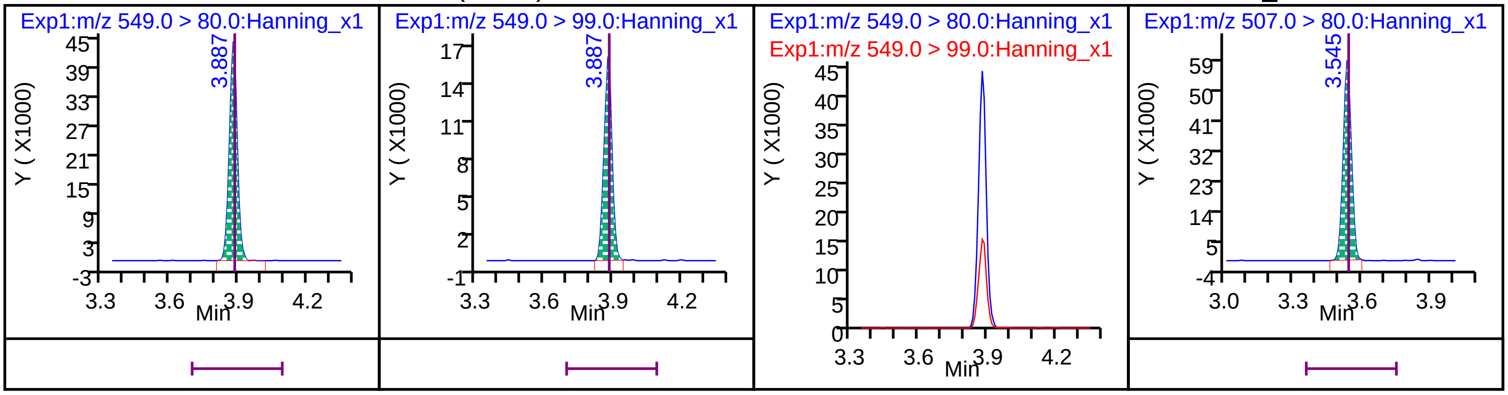
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



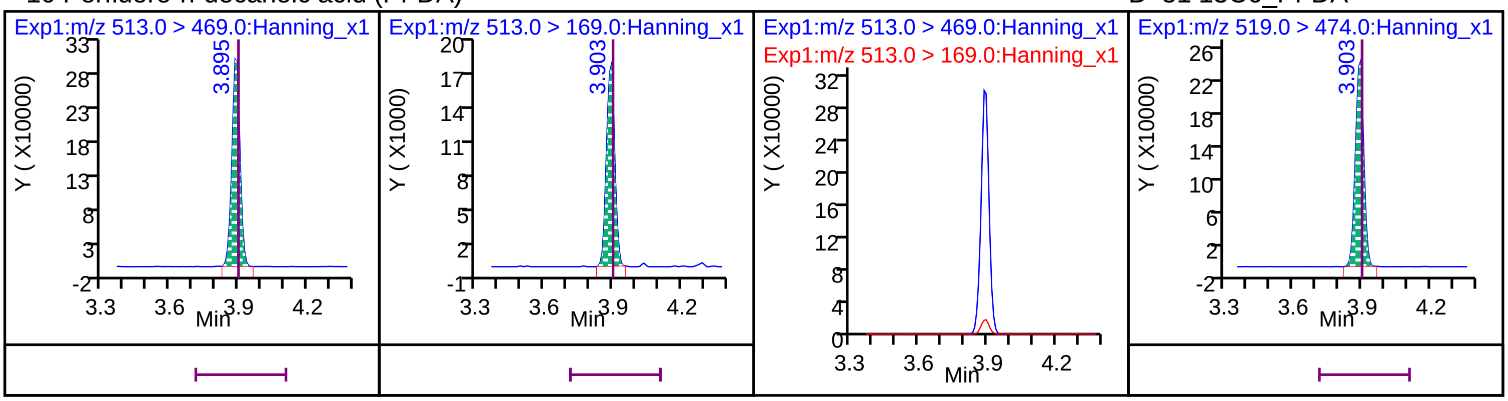
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



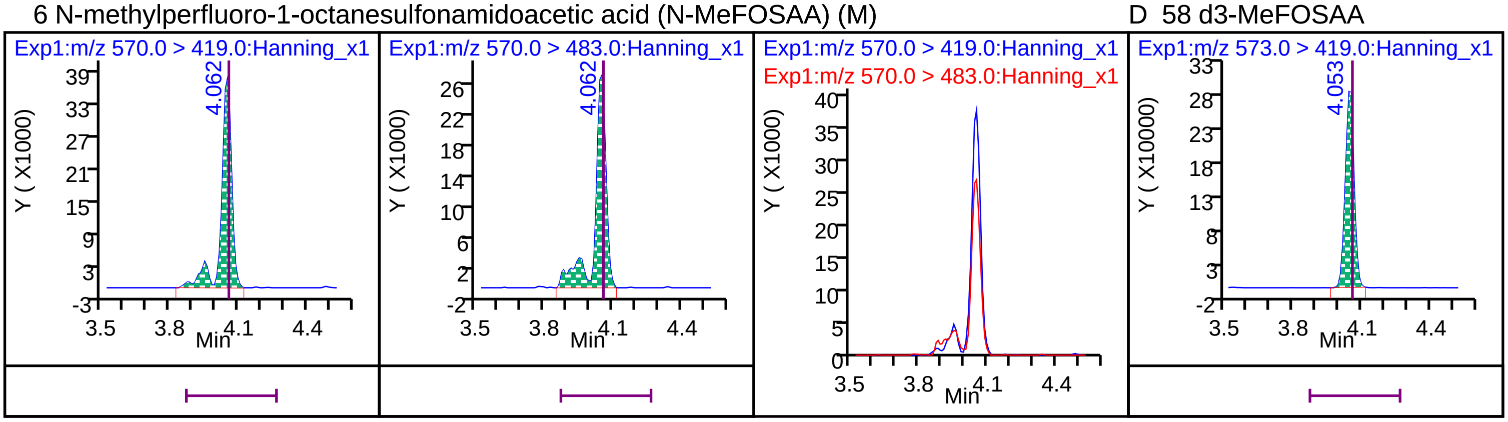
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



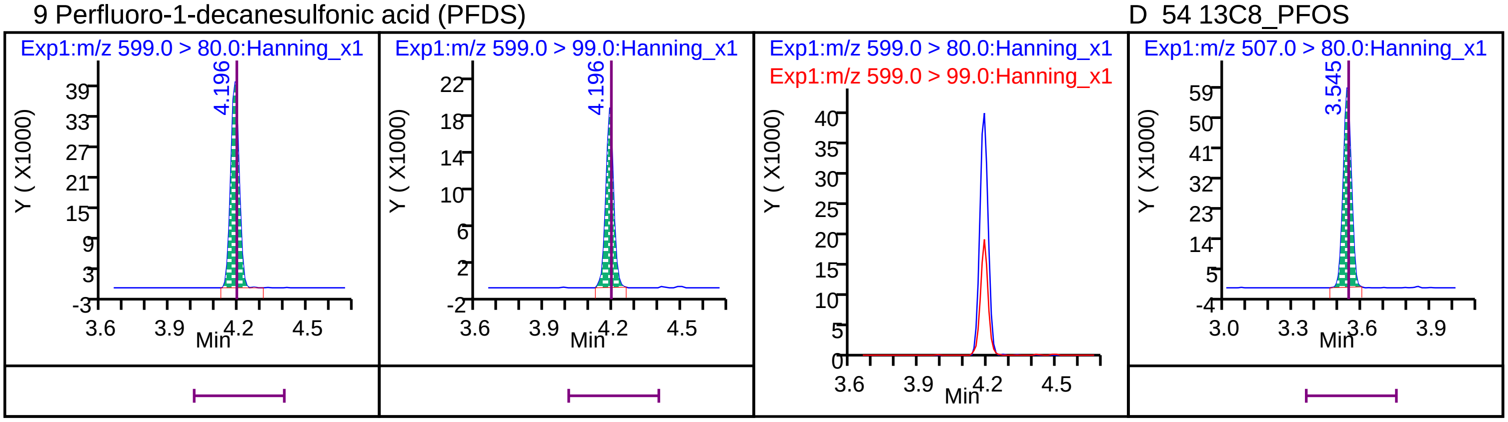
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

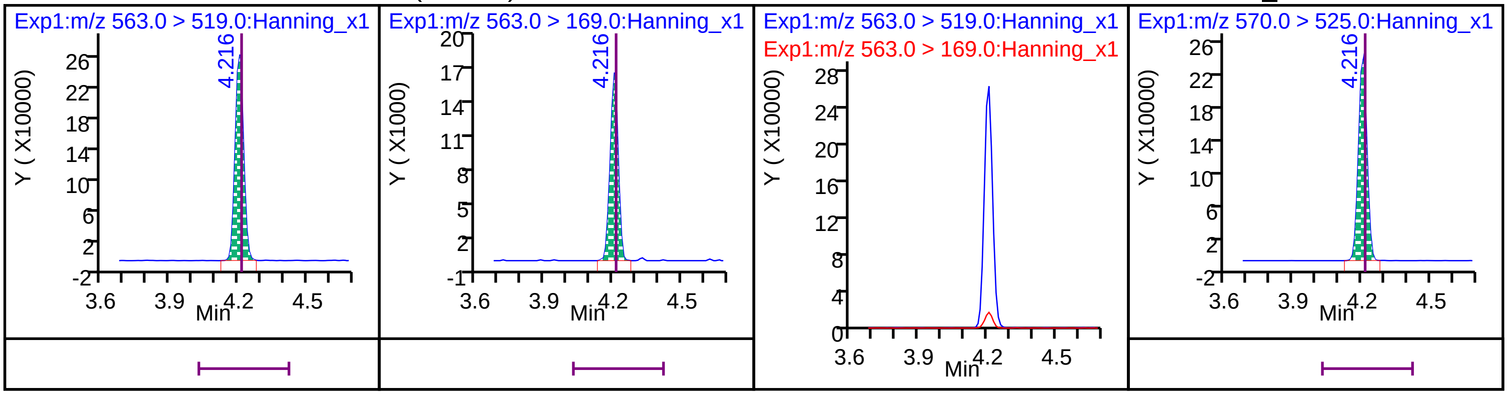


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

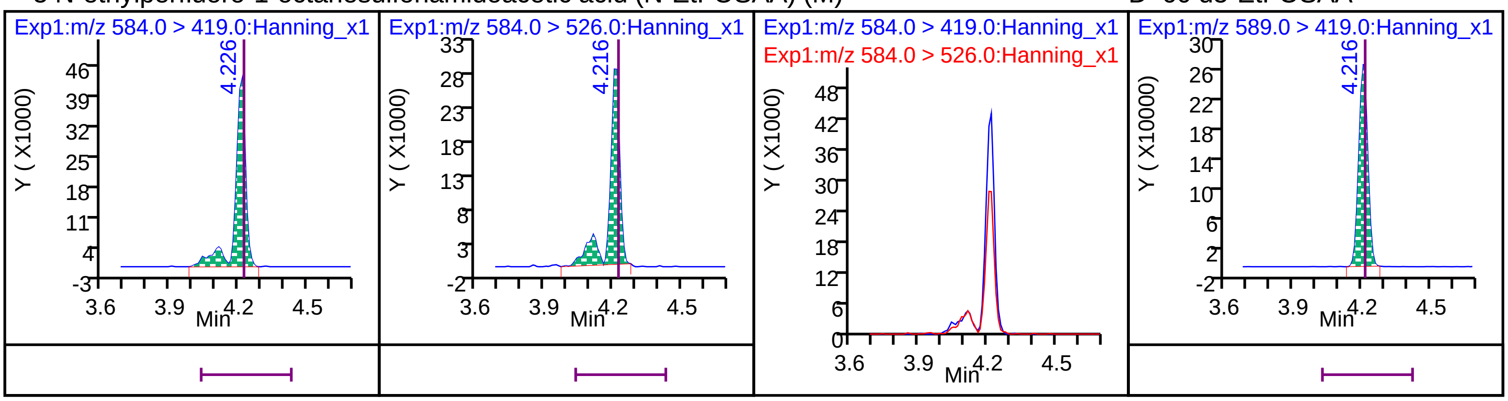


Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d

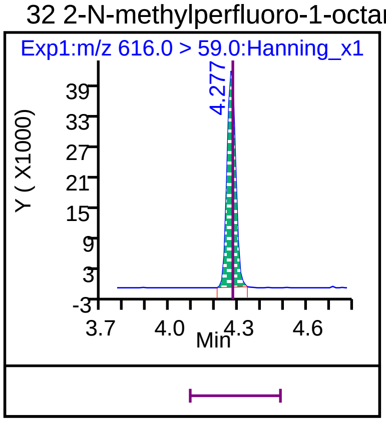
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

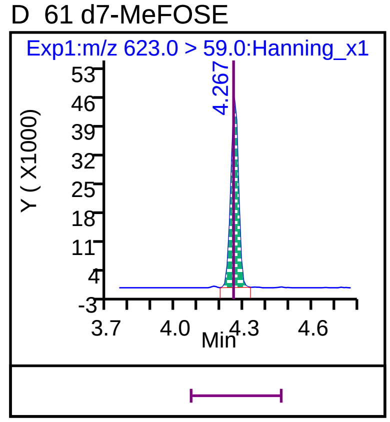


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

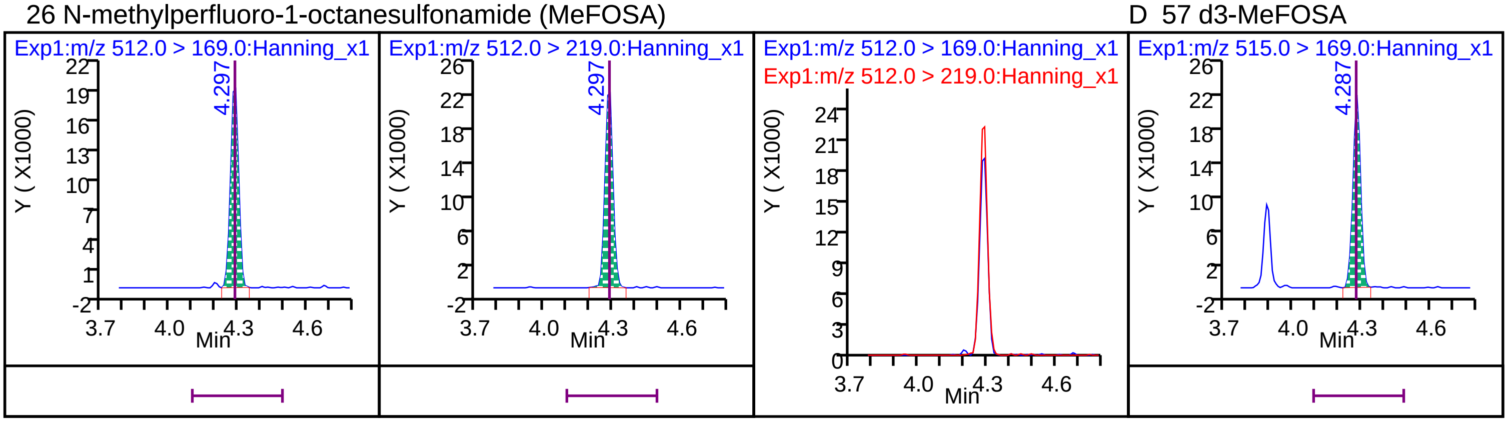


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

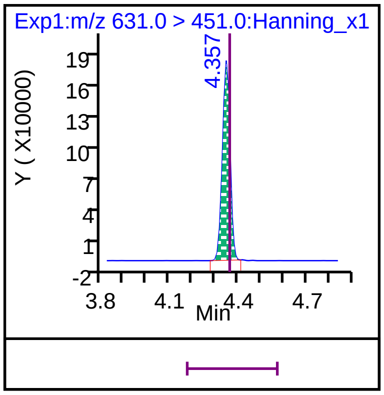




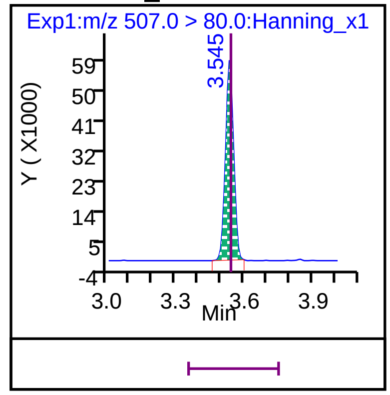
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



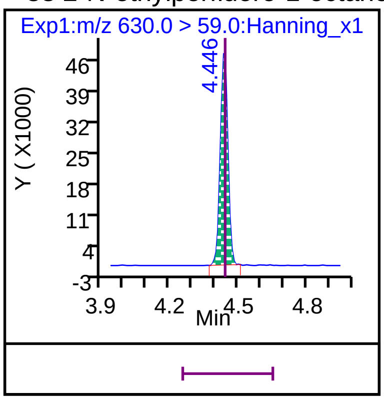
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



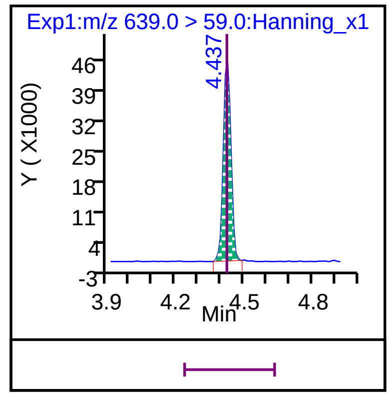
D 54 13C8_PFOS



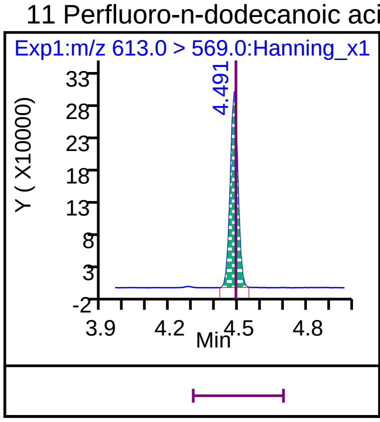
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

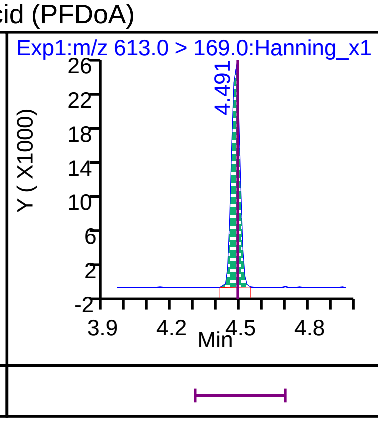


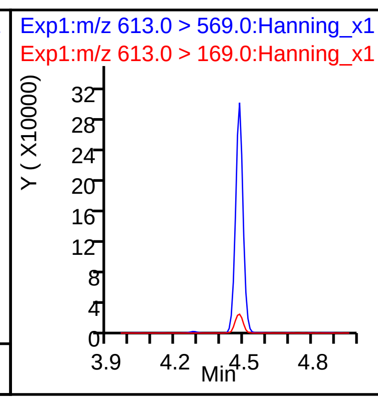
D 62 d9-EtFOSE



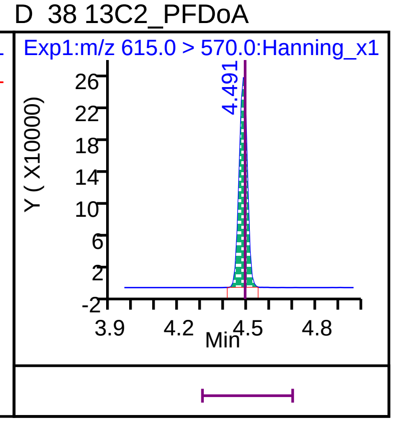
11 Perfluoro-n-dodecanoic acid (PFDoA)



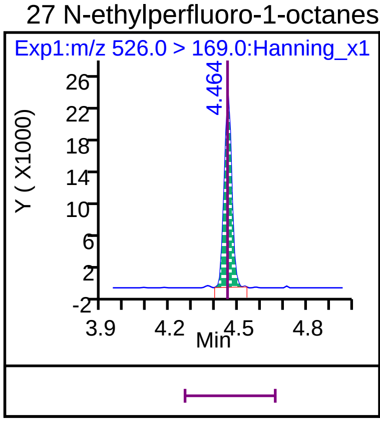


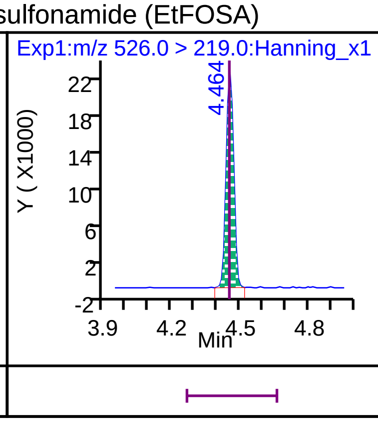


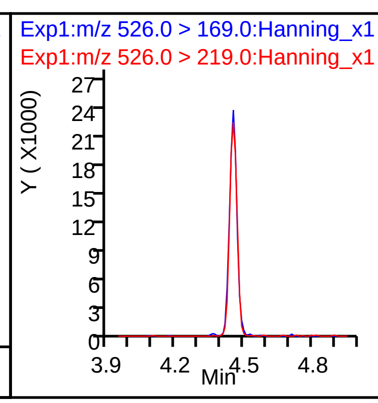
D 38 13C2_PFDoA



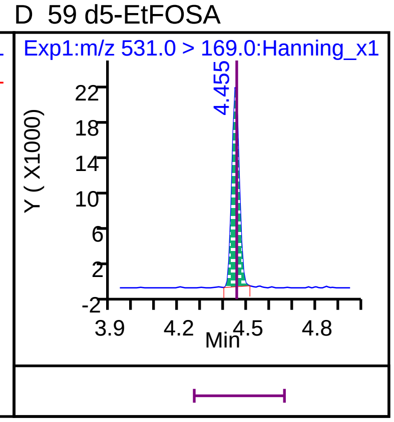
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



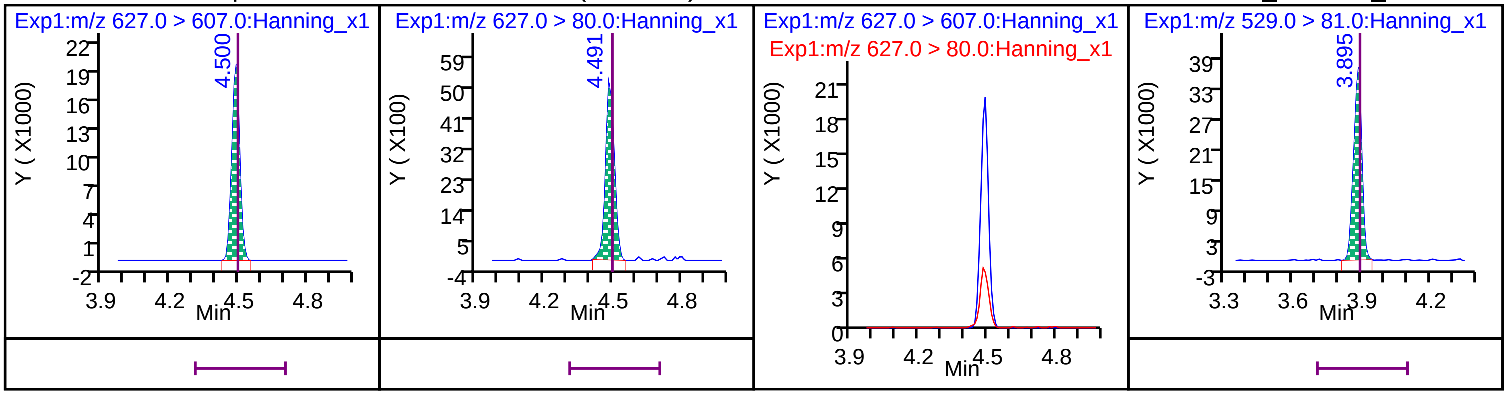




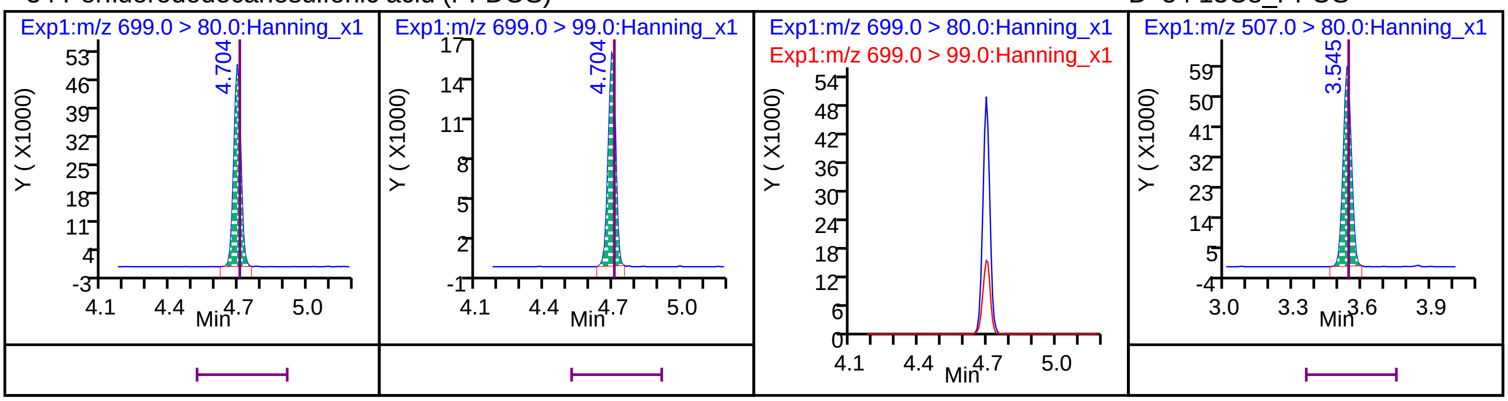
D 59 d5-EtFOSA



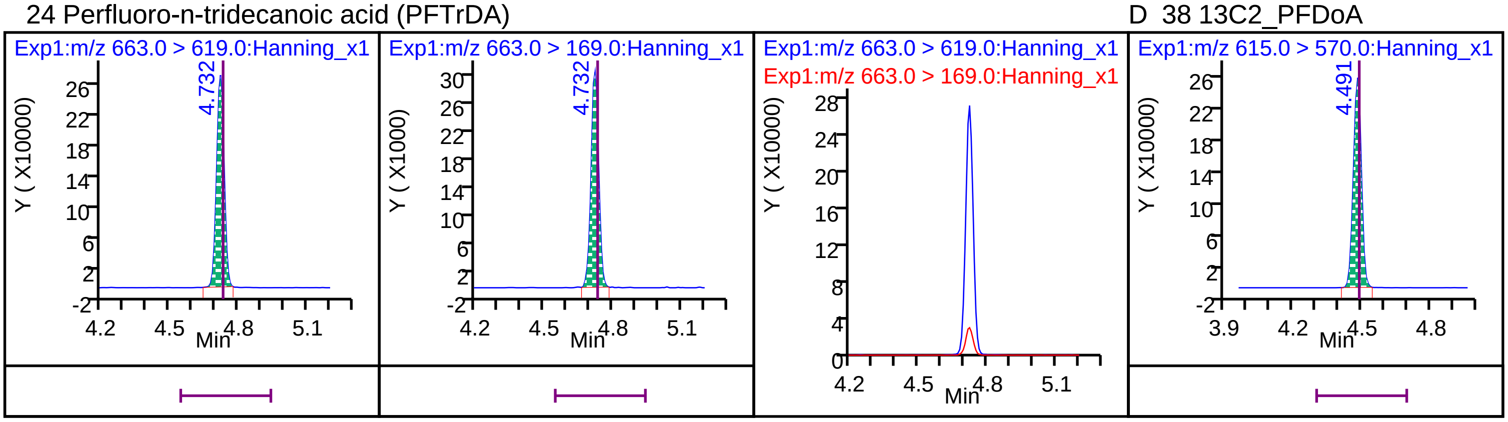
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



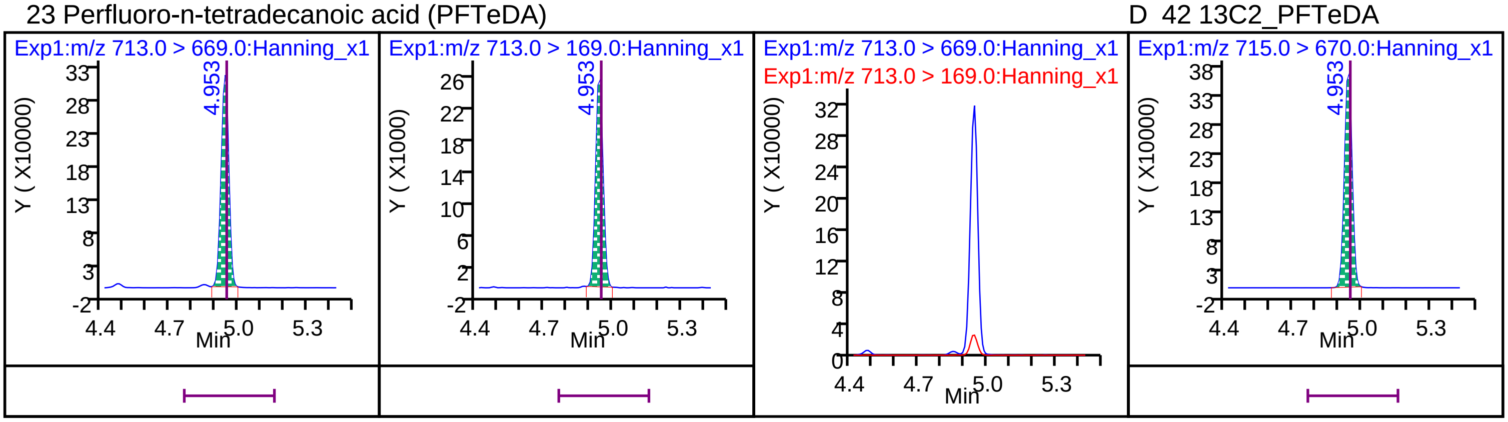
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



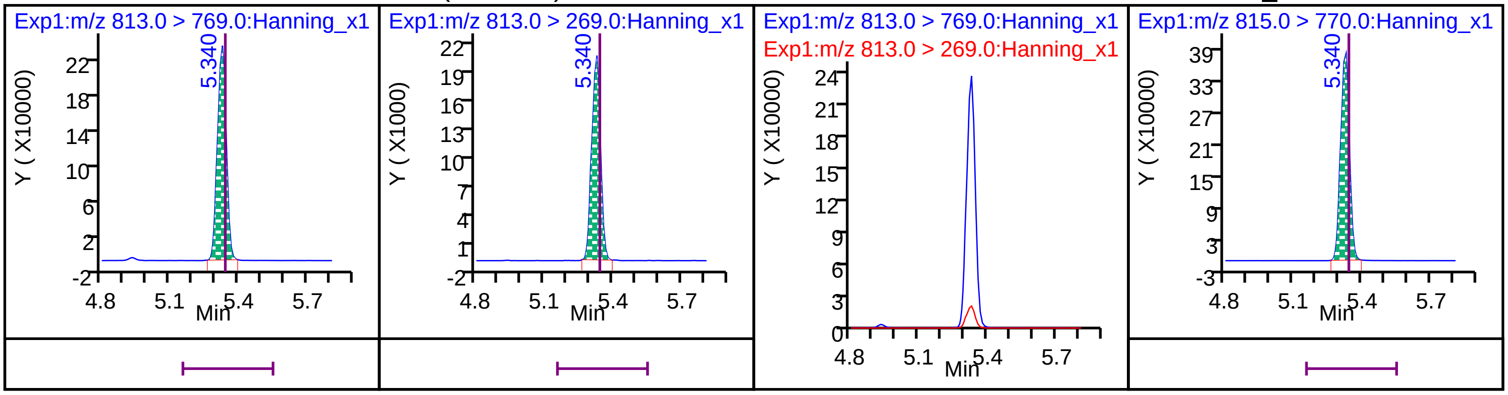
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



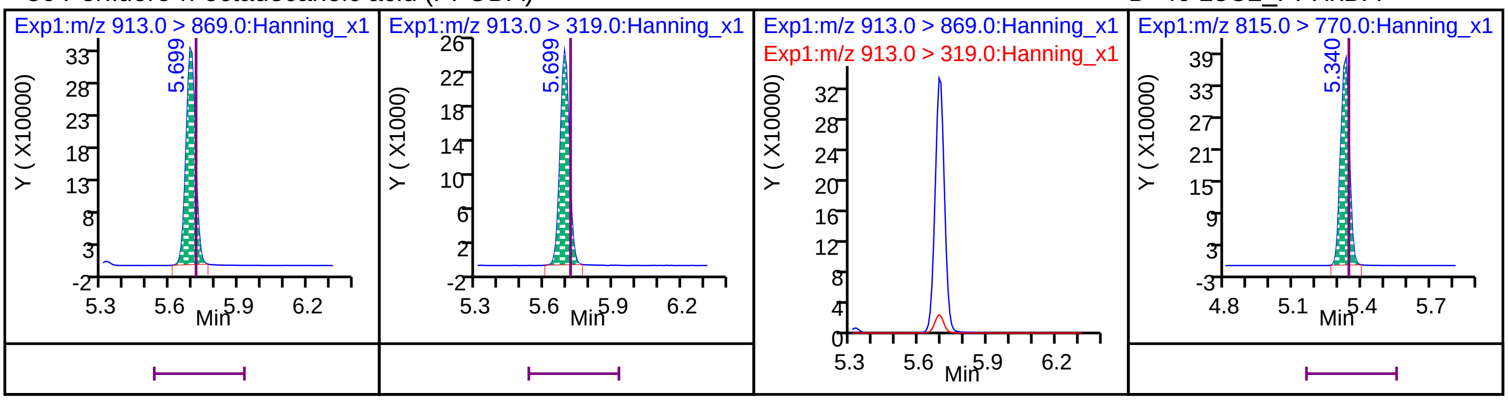
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



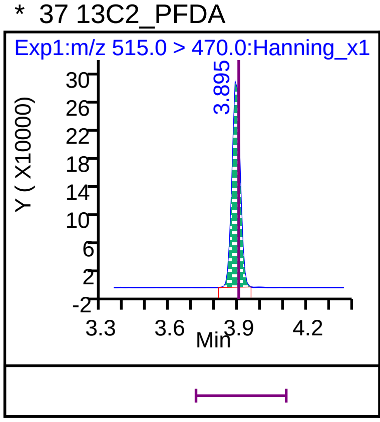
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



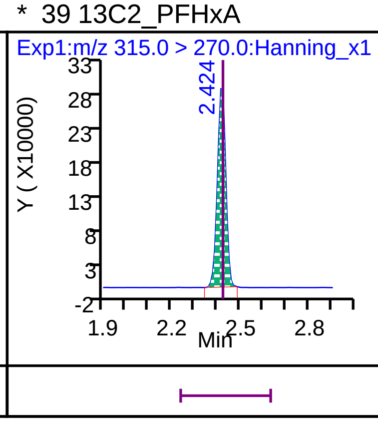
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



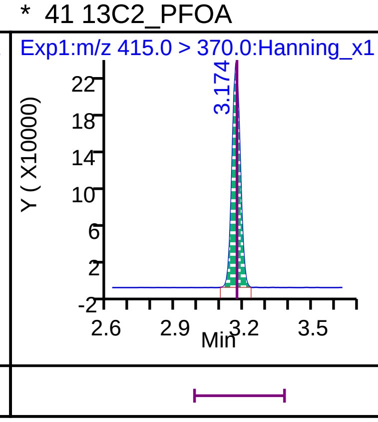
* 37 13C2_PFDA



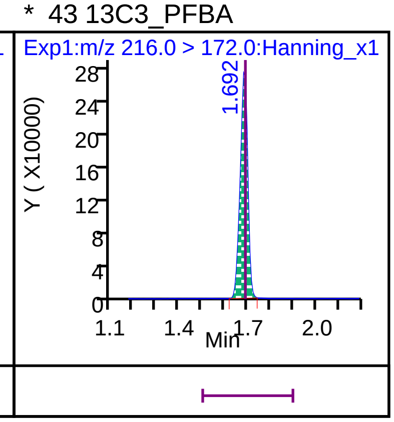
* 39 13C2_PFHxA



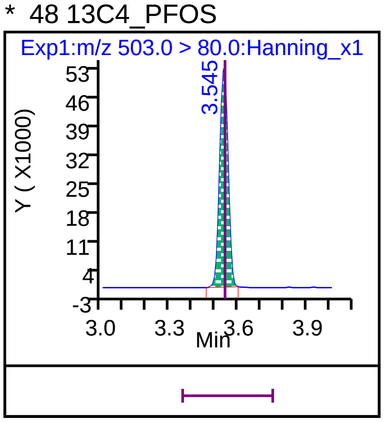
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

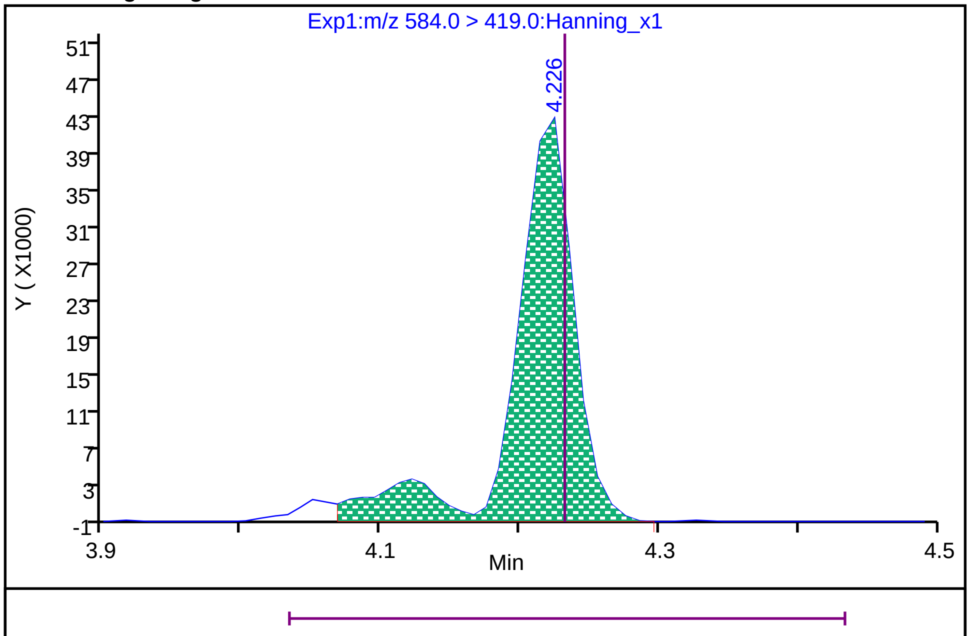
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d		
Injection Date:	17-Nov-2021 20:55:05	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

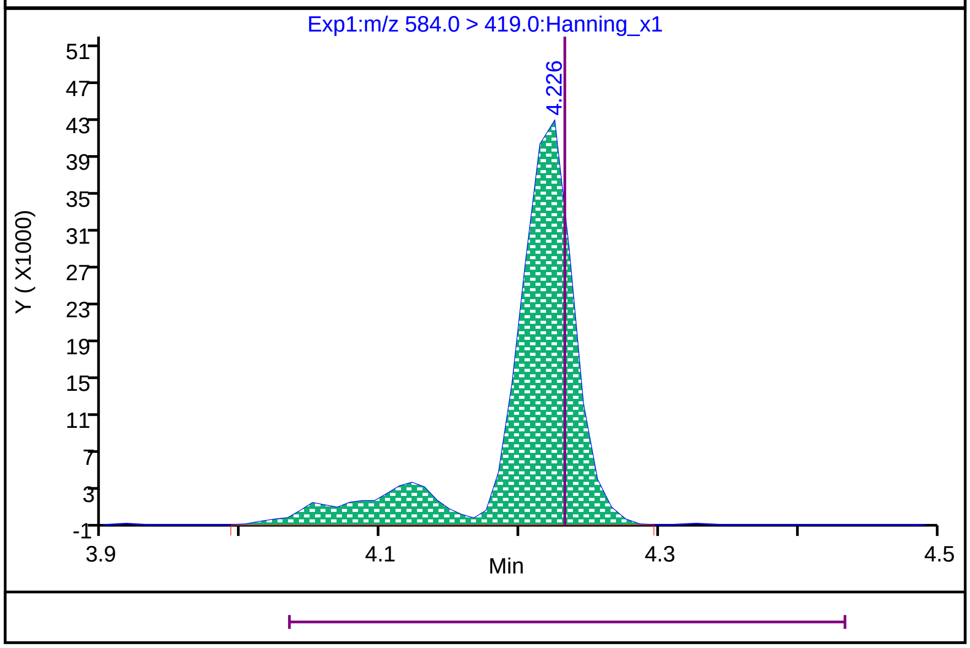
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.226
Area:	127694
Amount:	959.19
Amount Units:	ng/L



RT:	4.226
Area:	132995
Amount:	999.01
Amount Units:	ng/L



Data Editor: justin.gavin, 18-Nov-2021 18:11:05

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

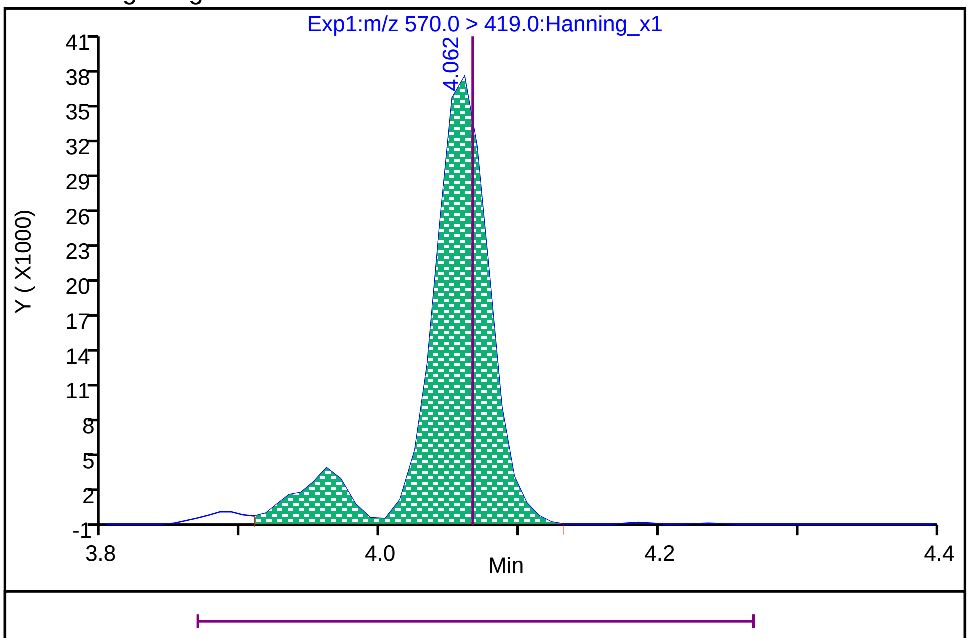
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d		
Injection Date:	17-Nov-2021 20:55:05	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

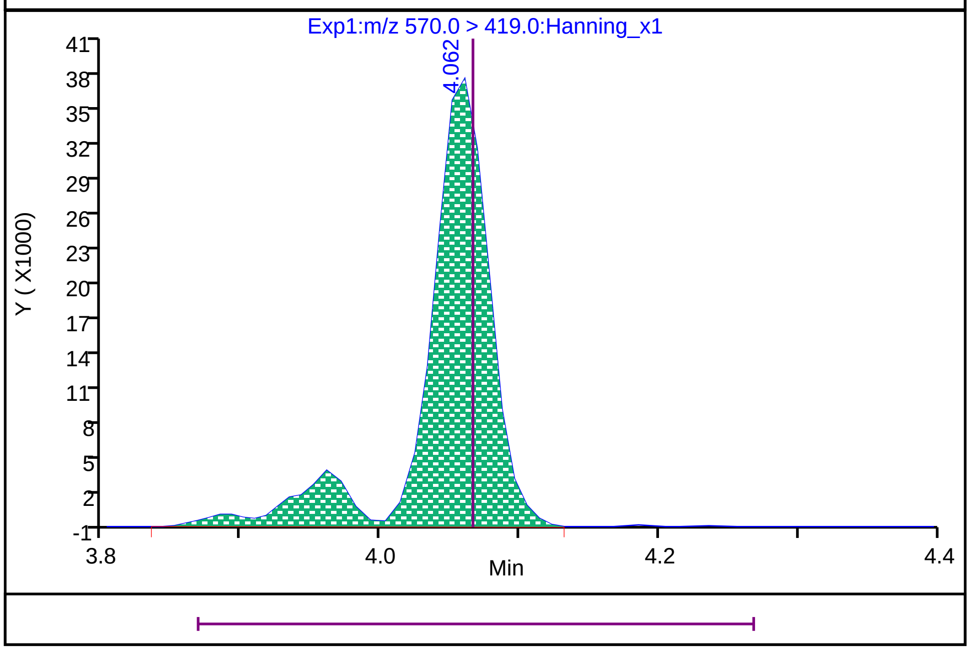
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.062
Area: 113418
Amount: 921.34
Amount Units: ng/L



RT: 4.062
Area: 116188
Amount: 943.85
Amount Units: ng/L



Data Editor: justin.gavin, 18-Nov-2021 18:10:51
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:21:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721046.d

Injection Date: 17-Nov-2021 20:55:05 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000B_SVLC-1744

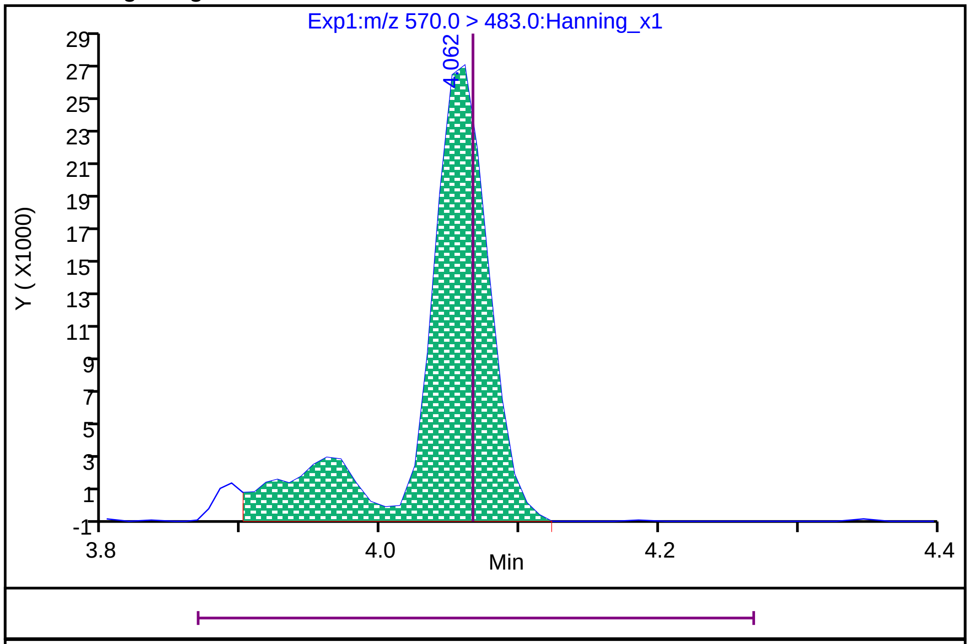
Sample Info: ID CCV 1000B_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

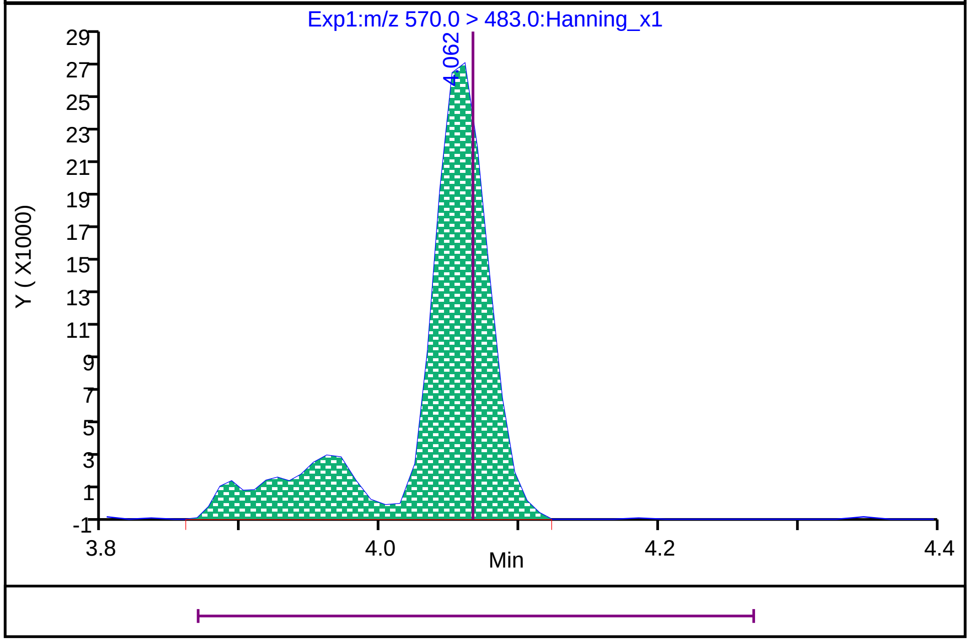
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.062
Area: 86459
Amount: 943.85
Amount Units: ng/L



RT: 4.062
Area: 89539
Amount: 943.85
Amount Units: ng/L



Data Editor: justin.gavin, 18-Nov-2021 18:10:57

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d		
Injection Date:	17-Nov-2021 21:47:49	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	38
Sample Info:	ID CCV 1000C_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	970.48	97	70 - 130
D 46 13C4_PFBA	668395	652979			97.7	50 - 150
D 50 13C5_PFPeA	587067	584423			99.5	50 - 150
21 PFPeA			1000.00	995.29	99.5	70 - 130
7 PFBS			884.00	836.96	94.7	70 - 130
D 44 13C3_PFBS	178175	189987			106.6	50 - 150
1 4:2 FTS			934.00	923.89	98.9	70 - 130
D 63 13C2_4:2 FTS_2	113673	116566			102.5	50 - 150
D 49 13C5_PFHxA	698559	670545			96	50 - 150
15 PFHxA			1000.00	1011.29	101.1	70 - 130
22 PFPeS			938.00	901.21	96.1	70 - 130
28 GenX			2000.00	1885.48	94.3	70 - 130
D 66 13C3_GenX	1175107	1215201			103.4	50 - 150
D 47 13C4_PFHpA	617327	587684			95.2	50 - 150
13 PFHpA			1000.00	962.74	96.3	70 - 130
D 45 13C3_PFHxS	139172	145594			104.6	50 - 150
14 PFHxS			910.00	855.22	94	70 - 130
29 ADONA			942.00	873.58	92.7	70 - 130
D 64 13C2_6:2 FTS_2	87765	97604			111.2	50 - 150
2 6:2 FTS			948.00	943.95	99.6	70 - 130
20 PFOA			1000.00	999.50	99.9	70 - 130
D 53 13C8_PFOA	576099	550407			95.5	50 - 150
12 PFHpS			952.00	906.41	95.2	70 - 130
18 PFOS			928.00	834.26	89.9	70 - 130
17 PFNA			1000.00	984.18	98.4	70 - 130
D 56 13C9_PFNA	677086	674310			99.6	50 - 150
D 54 13C8_PFOS	125490	137419			109.5	50 - 150
30 9Cl-PF3ONS			932.00	884.75	94.9	70 - 130
D 55 13C8_PFOSA	262168	280005			106.8	50 - 150
19 PFOSA			1000.00	943.90	94.4	70 - 130
16 PFNS			960.00	930.11	96.9	70 - 130
D 65 13C2_8:2 FTS_2	88202	96786			109.7	50 - 150
3 8:2 FTS			958.00	833.10	87	70 - 130
10 PFDA			1000.00	978.16	97.8	70 - 130
D 51 13C6_PFDA	615512	619689			100.7	50 - 150
6 N-MeFOSAA			1000.00	947.18	94.7	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	681022	765548			112.4	50 - 150
9 PFDS			964.00	929.36	96.4	70 - 130
25 PFUdA			1000.00	1052.22	105.2	70 - 130
D 60 d5-EtFOSAA	650725	692058			106.4	50 - 150
D 52 13C7_PFUdA	654908	671243			102.5	50 - 150
5 N-EtFOSAA			1000.00	979.65	98	70 - 130
D 61 d7-MeFOSE	85524	101261			118.4	50 - 150
32 MeFOSE			1000.00	926.68	92.7	70 - 130
26 MeFOSA			1000.00	1015.04	101.5	70 - 130
D 57 d3-MeFOSA	44687	54538			122	50 - 150
31 11Cl-PF3OUDS			942.00	902.39	95.8	70 - 130
D 62 d9-EtFOSE	100548	115288			114.7	50 - 150
33 EtFOSE			1000.00	1018.01	101.8	70 - 130
D 59 d5-EtFOSA	37834	50929			134.6	50 - 150
27 EtFOSA			1000.00	910.03	91	70 - 130
11 PFDoA			1000.00	986.53	98.7	70 - 130
D 38 13C2_PFDoA	677078	660510			97.6	50 - 150
4 10:2 FTS			964.00	808.42	83.9	70 - 130
34 PFDOS			968.00	956.40	98.8	70 - 130
24 PFTrDA			1000.00	954.18	95.4	70 - 130
23 PFTeDA			1000.00	982.68	98.3	70 - 130
D 42 13C2_PFTeDA	816988	829758			101.6	50 - 150
35 PFHxDA			1000.00	949.44	94.9	70 - 130
D 40 13C2_PFHxDA	853968	998078			116.9	50 - 150
36 PFODA			1000.00	988.62	98.9	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d		
Injection Date:	17-Nov-2021 21:47:49	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	38
Sample Info:	ID CCV 1000C_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	0	652979	20	>100:1			1000.00	1046.55	97.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.699	0/0	662955	20	>100:1			1000.00	970.48		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.056	2.067	0	584423	15	>100:1			1000.00	1009.10	99.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.067	2.067	0/0	638799	16	>100:1			1000.00	995.29		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	0	189987	16	>100:1			1000.00	1094.72	106.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	0/0	198093	14	>100:1	Target = 3.48		884.00	836.96		
298.9 > 99	44	2.120	2.120		59970	16	>100:1	3.30 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.451	2.460	0/0	151559	16	>100:1	Target = 3.03		938.00	901.21		
349 > 99	44	2.451	2.460		50356	19	>100:1	3.00 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	116566	16	>100:1			5000.00	5338.24	102.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.380	2.389	0/0	47414	17	>100:1	Target = 1.70		934.00	923.89		
327 > 81	63	2.380	2.389		23744	17	31:1	1.99 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.425	2.433	0	670545	17	>100:1			1000.00	1034.68	96	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.425	2.433	0/0	717558	17	>100:1	Target = 18.47		1000.00	1011.29		
313 > 119	49	2.425	2.433		39363	17	>100:1	18.22 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.549	0	1215201	17	>100:1			5000.00	5427.02	103.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.540	2.540	0/0	301533	17	>100:1	Target = 0.78		2000.00	1885.48		
285 > 185	66	2.540	2.540		384442	17	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.800	0	587684	18	>100:1			1000.00	1113.47	95.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.791	2.800	0/0	646989	18	>100:1	Target = 3.92		1000.00	962.74		
363 > 169	47	2.791	2.800		168132	21	>100:1	3.84 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.818	0	145594	16	>100:1			1000.00	1139.98	104.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.809	2.818	0/0	140373	25	>100:1	Target = 3.14	4.68	910.00	855.22		
399 > 99	45	2.809	2.818		45932	24	>100:1	3.05 (1.57-4.71)	7.31				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.836	2.836	0/0	989226	17	>100:1	Target = 3.33		942.00	873.58		
377 > 85	45	2.836	2.836		299185	17	>100:1	3.30 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.181	3.186	0/0	128302	19	>100:1	Target = 3.02		952.00	906.41		
449 > 99	45	3.174	3.186		41750	19	>100:1	3.07 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.148	3.160	0	97604	20	>100:1			5000.00	5687.63	111.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.141	3.160	-1/-1	43222	21	>100:1	Target = 1.69		948.00	943.95		
427 > 81	64	3.148	3.160		20819	14	42:1	2.07 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.180	0	550407	21	>100:1			1000.00	1062.58	95.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.168	3.180	0/0	575727	21	>100:1	Target = 3.03		1000.00	999.50		
413 > 169	53	3.168	3.180		196839	21	>100:1	2.92 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.552	0	137419	18	>100:1			1000.00	1103.76	109.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.545	3.552	0/0	136173	37	>100:1	Target = 3.42	3.92	928.00	834.26		
499 > 99	54	3.545	3.552		41474	35	>100:1	3.28 (1.71-5.13)	8.00				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.753	3.766	0/0	466760	21	>100:1			932.00	884.75		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.887	3.893	0/0	99509	17	>100:1	Target = 2.57		960.00	930.11		
549 > 99	54	3.887	3.893		35912	17	>100:1	2.77 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.196	4.203	0/0	102659	16	>100:1	Target = 2.71		964.00	929.36		
599 > 99	54	4.196	4.203		40808	19	>100:1	2.51 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.357	4.372	0/0	420341	15	>100:1			942.00	902.39		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.705	4.715	0/0	104590	17	>100:1	Target = 3.04		968.00	956.40		
699 > 99	54	4.705	4.715		33701	15	>100:1	3.10 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.545	3.560	0	674310	19	>100:1			1000.00	1045.08	99.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.545	3.560	0/0	731057	19	>100:1	Target = 7.14		1000.00	984.18		
463 > 169	56	3.545	3.560		105350	19	>100:1	6.93 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.838	3.844	0	280005	17	>100:1			1000.00	1110.39	106.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.838	3.844	0/0	290406	18	>100:1	Target = 32.83		1000.00	943.90		
498>478	55	3.846	3.844		10538	15		27.55 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.887	3.902	0	96786	18	>100:1			5000.00	5787.99	109.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.887	3.902	0/0	37401	22	>100:1	Target = 2.14		958.00	833.10		
527 > 81	65	3.895	3.902		19389	17	65:1	1.92 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.491	4.507	0/0	42066	15		Target = 3.72		964.00	808.42		
627 > 80	65	4.500	4.507		12582	11		3.34 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.895	3.910	0	619689	17	>100:1			1000.00	1087.44	100.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.895	3.910	0/0	710695	18	>100:1	Target = 14.16		1000.00	978.16		
513 > 169	51	3.904	3.910		51069	16	>100:1	13.91 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.053	4.068	0	765548	18	>100:1			5000.00	5604.81	112.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.062	4.068	0/0	120133	31		Target = 1.42	6.02	1000.00	947.18		M
570 > 483	58	4.062	4.068		92725	30	>100:1	1.29 (0.71-2.14)	4.06				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.223	0	692058	16	>100:1			5000.00	5699.70	106.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.226	4.234	0/0	128644	32		Target = 1.49	6.68	1000.00	979.65		M
584 > 526	60	4.216	4.234		85591	30	>100:1	1.50 (0.74-2.24)	3.77				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.223	0	671243	16	>100:1			1000.00	1033.97	102.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.223	0/0	655303	15	>100:1	Target = 14.37		1000.00	1052.22		
563 > 169	52	4.216	4.223		42414	14	>100:1	15.45 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.267	4.264	1	101261	15	>100:1			1000.00	1155.50	118.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.277	4.284	0/-1	103598	15	>100:1			1000.00	926.68		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.284	1	54538	13	>100:1			1000.00	1116.73	122	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.287	4.294	0/-1	56435	13	>100:1	Target = 1.08		1000.00	1015.04		
512 > 219	57	4.287	4.294		47381	19	>100:1	1.19 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.428	4.434	0	115288	23	>100:1			1000.00	1088.49	114.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.446	4.452	0/0	119650	16	>100:1			1000.00	1018.01		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.461	0	50929	15	>100:1			1000.00	1162.46	134.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.464	4.461	1/1	54578	14	>100:1	Target = 0.97		1000.00	910.03		
526 > 219	59	4.464	4.461		55959	23	>100:1	0.97 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.482	4.498	0	660510	17	>100:1			1000.00	1106.61	97.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.491	4.498	0/0	703426	17	>100:1	Target = 10.55		1000.00	986.53		
613 > 169	38	4.482	4.498		60008	17	>100:1	11.72 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.732	4.743	0/0	613498	18	>100:1	Target = 8.92		1000.00	954.18		
663 > 169	38	4.725	4.743		70048	19	>100:1	8.75 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.945	4.959	0	829758	17	>100:1			1000.00	1100.31	101.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.945	4.959	0/0	714869	16	>100:1	Target = 12.22		1000.00	982.68		
713 > 169	42	4.945	4.959		55788	19	>100:1	12.81 (6.11-18.34)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.331	5.353	-1	998078	20	>100:1			1000.00	1109.99	116.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.353	-1/0	642016	19	>100:1	Target = 11.65		1000.00	949.44		
813 > 269	40	5.331	5.353		55705	20	>100:1	11.52 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.700	5.725	-1/0	928427	21	74:1	Target = 15.15		1000.00	988.62		
913 > 319	40	5.692	5.725		61350	20	>100:1	15.13 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.895	3.910	0	709646	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.425	2.433	0	722779	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.180	0	566485	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.692	1.699	0	590810	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.552	0	137153	19	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d		
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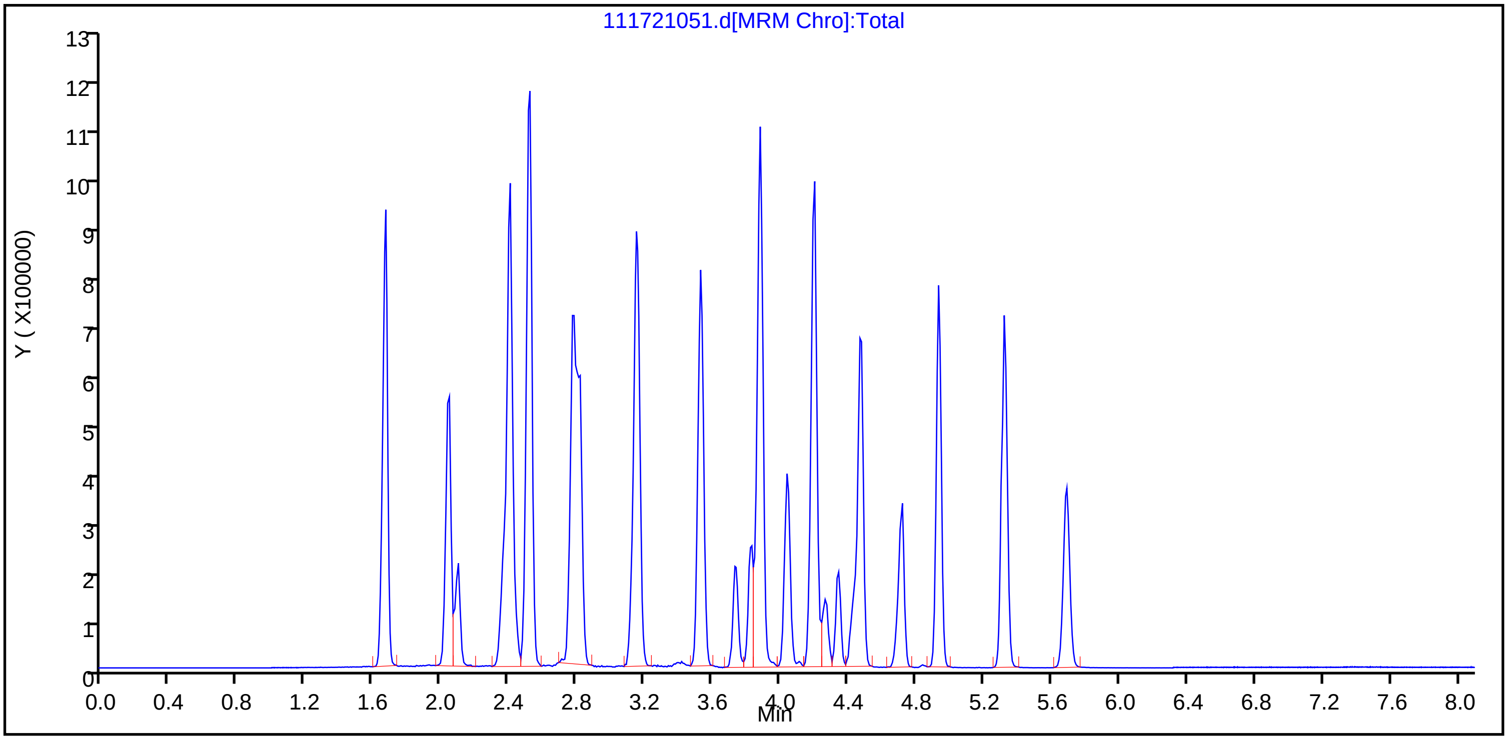
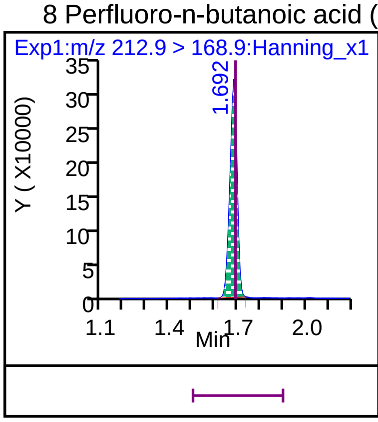
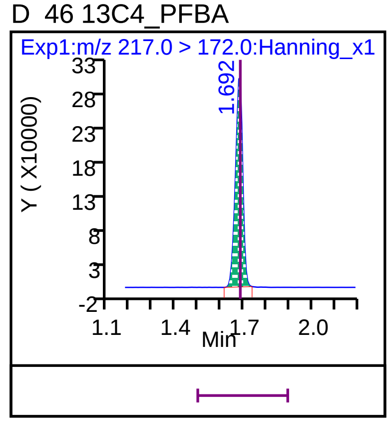
Sample Info:	ID CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



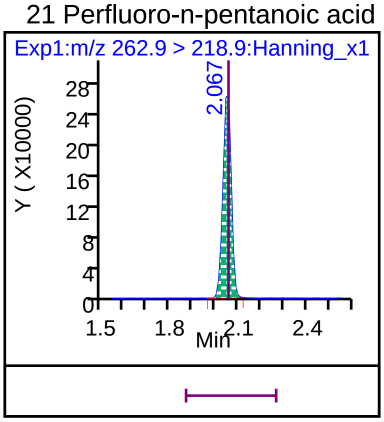
8 Perfluoro-n-butanoic acid (PFBA)



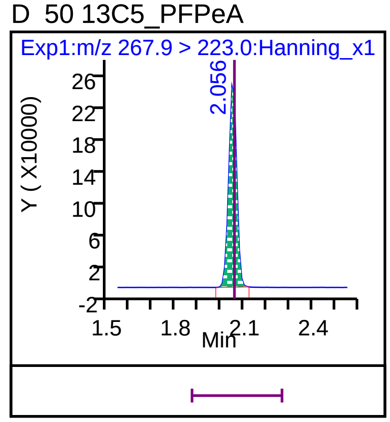
D 46 13C4_PFBA



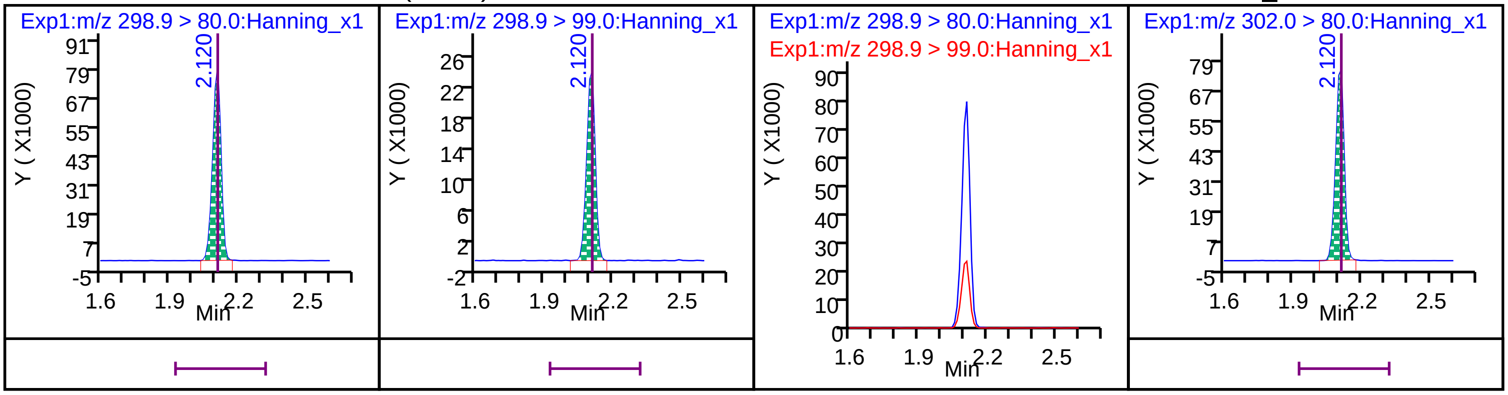
21 Perfluoro-n-pentanoic acid (PFPeA)



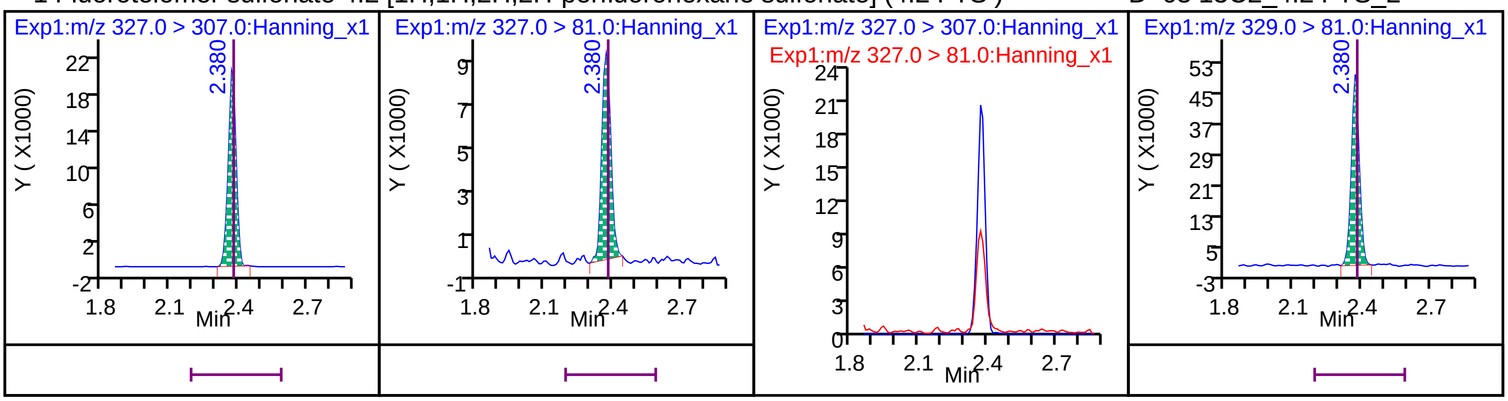
D 50 13C5_PFPeA



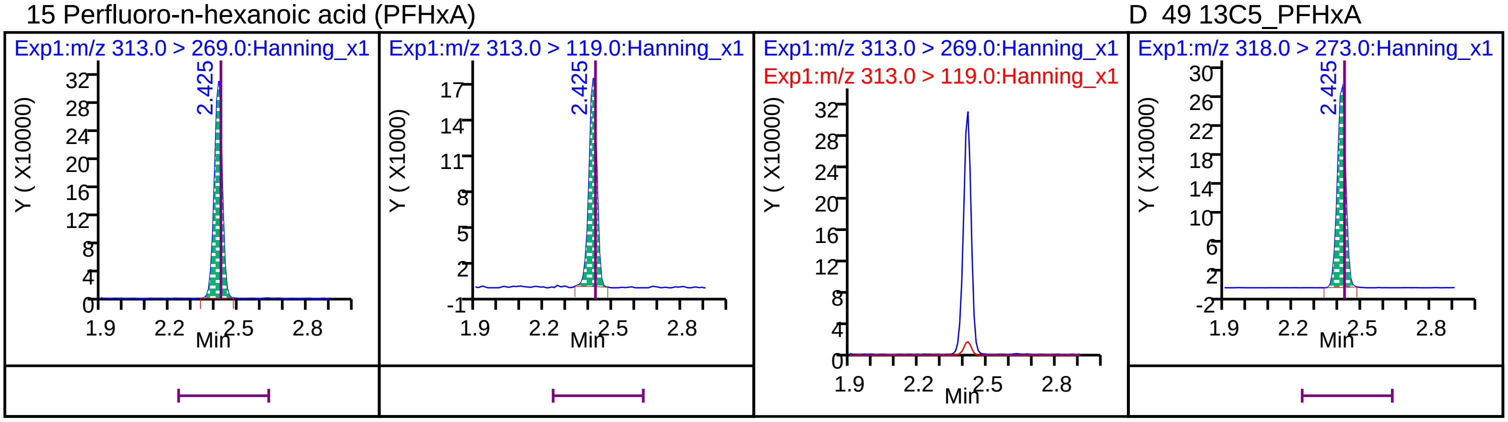
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



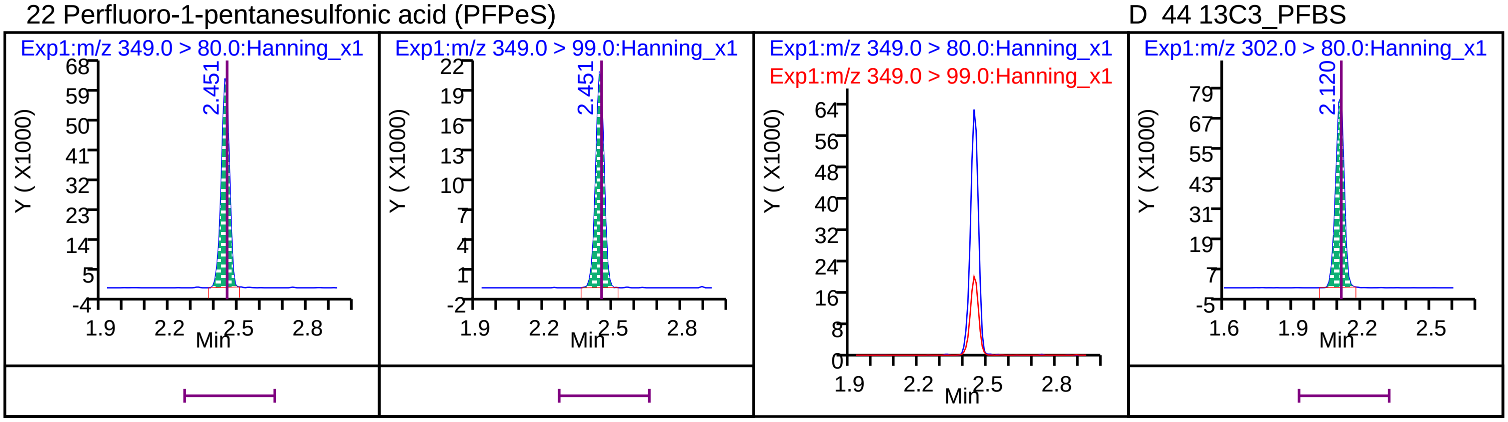
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



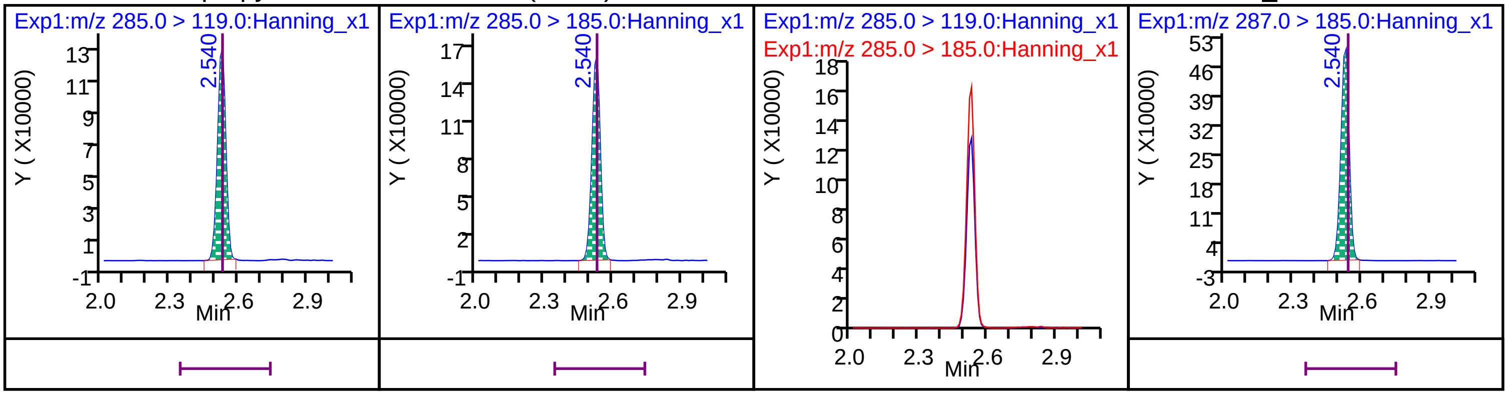
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



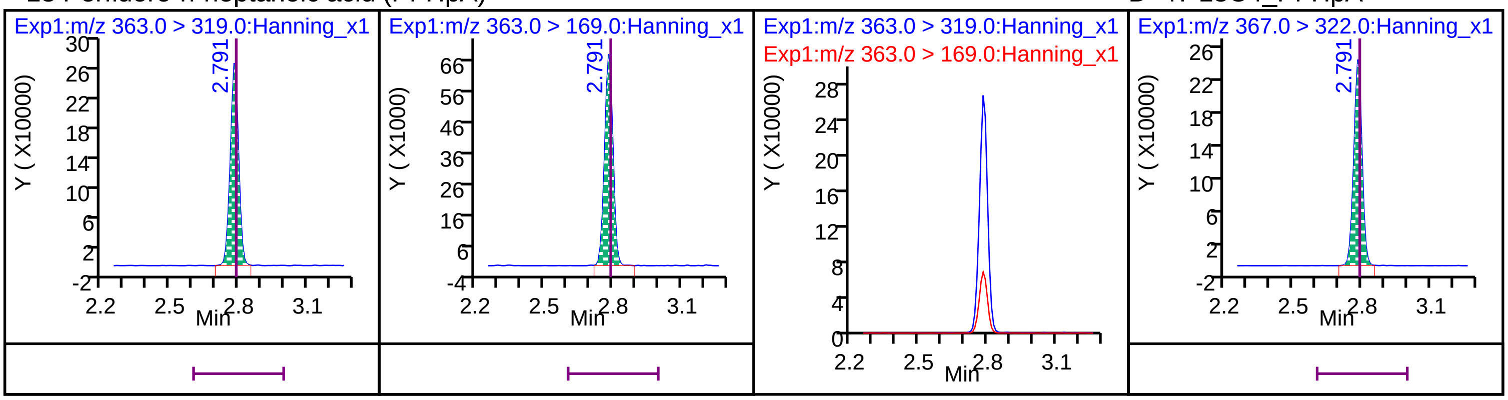
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



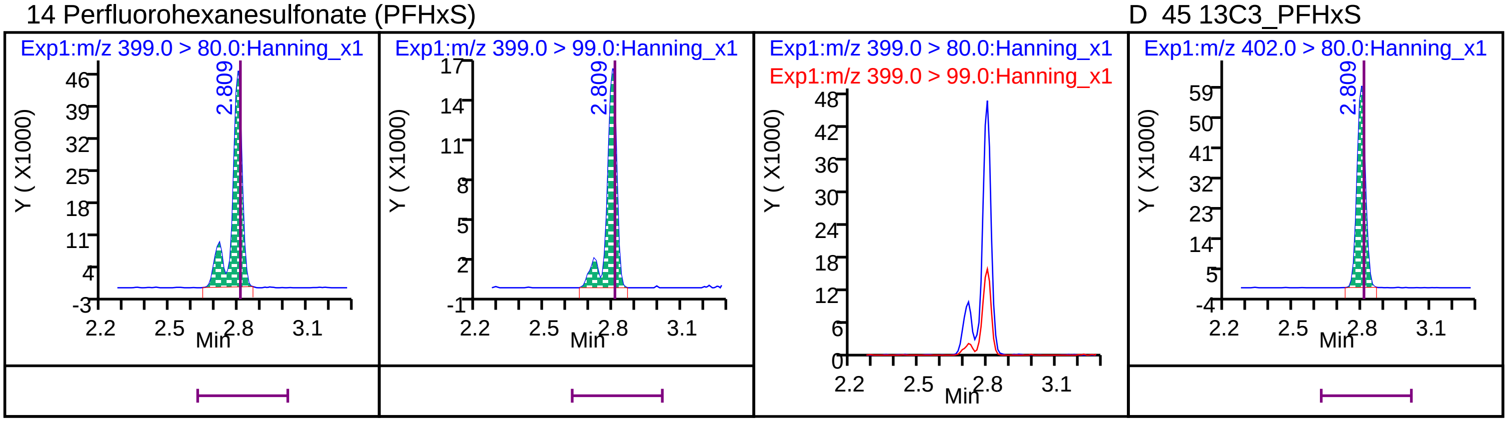
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



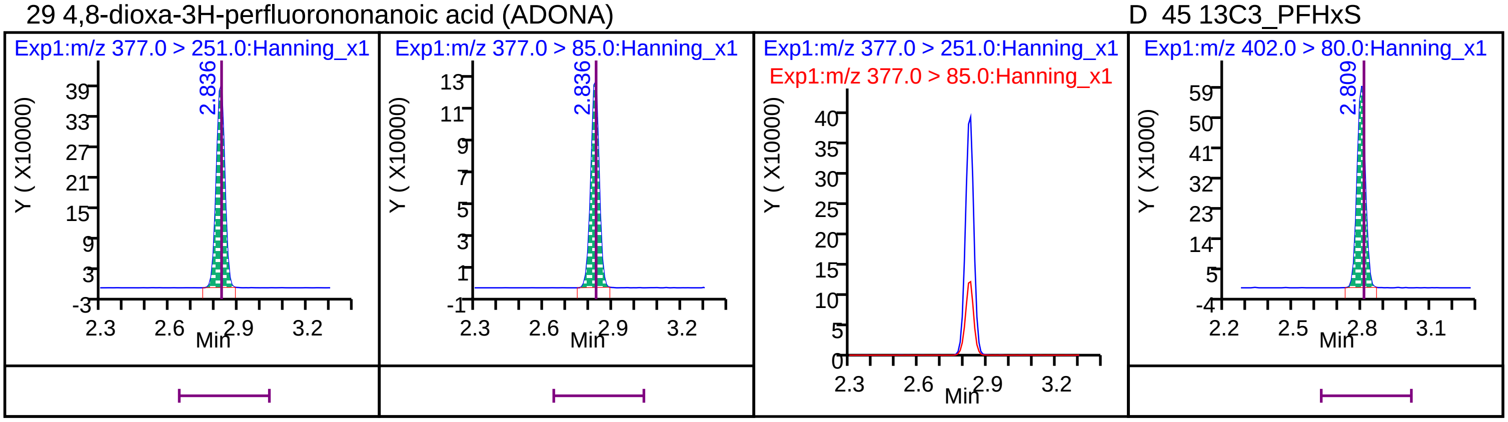
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

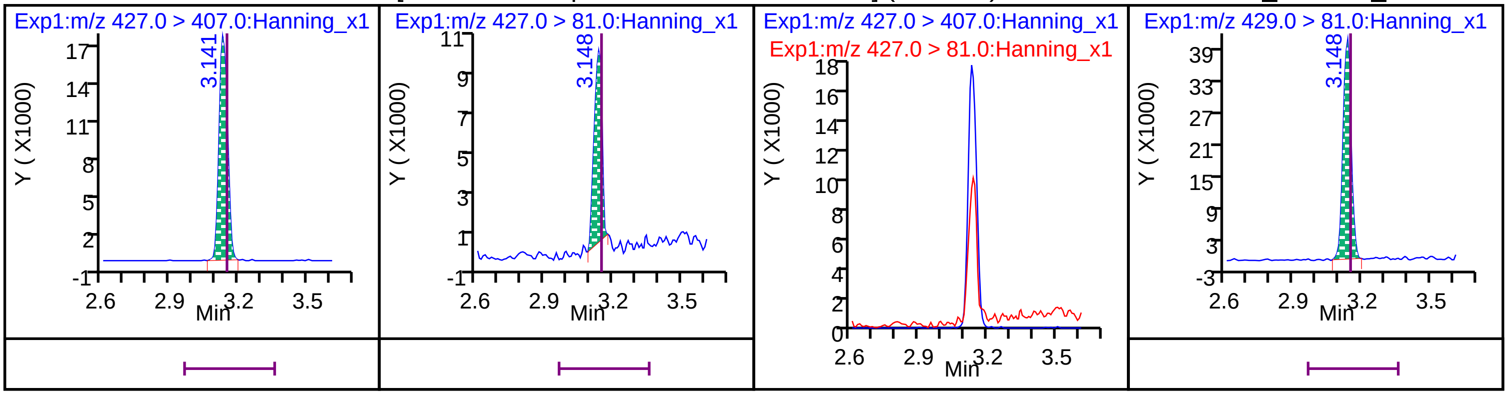


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

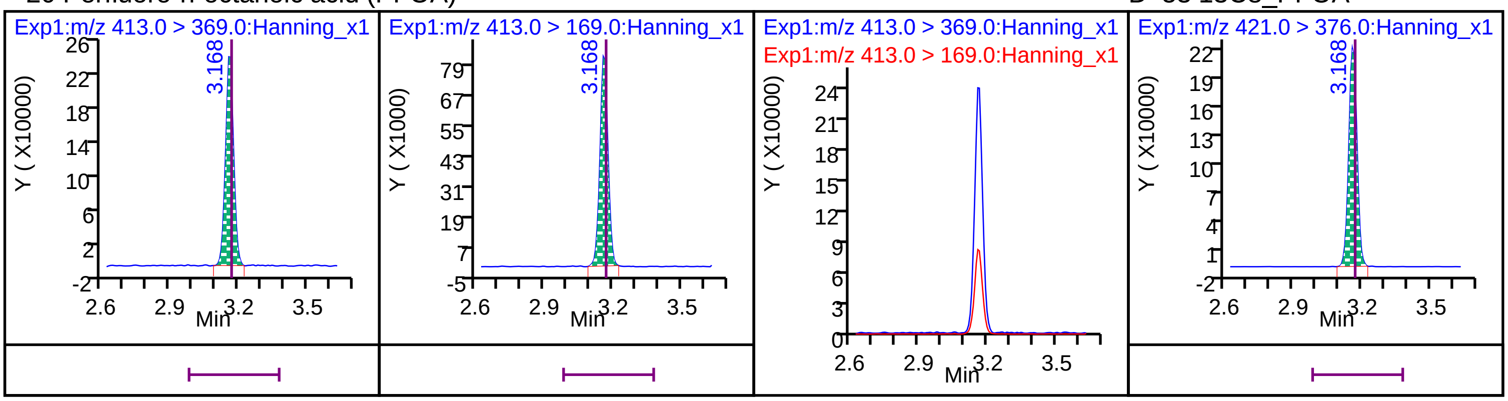


Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d

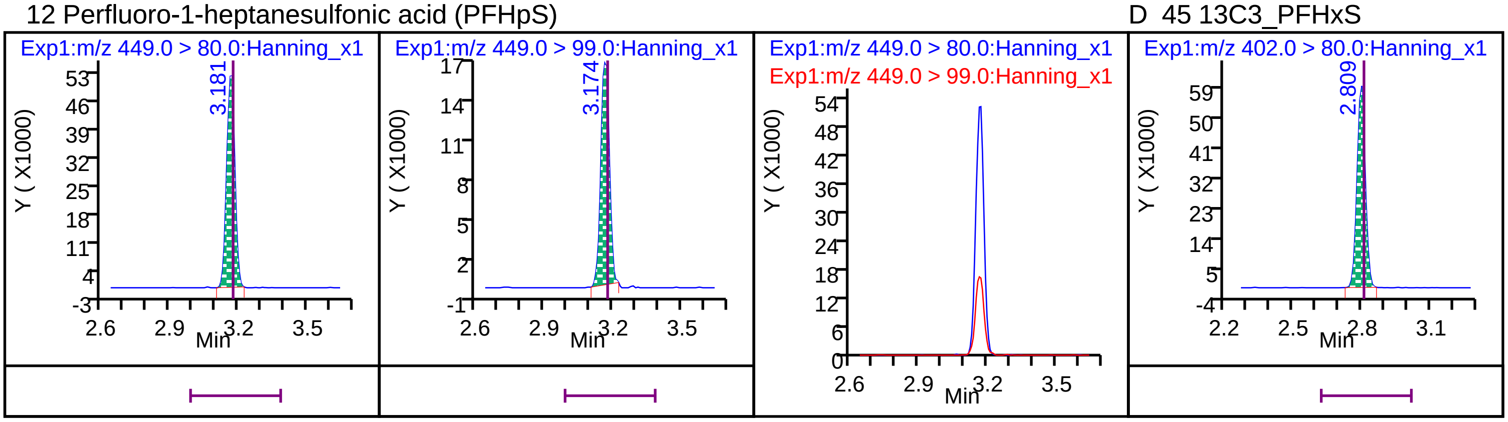
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



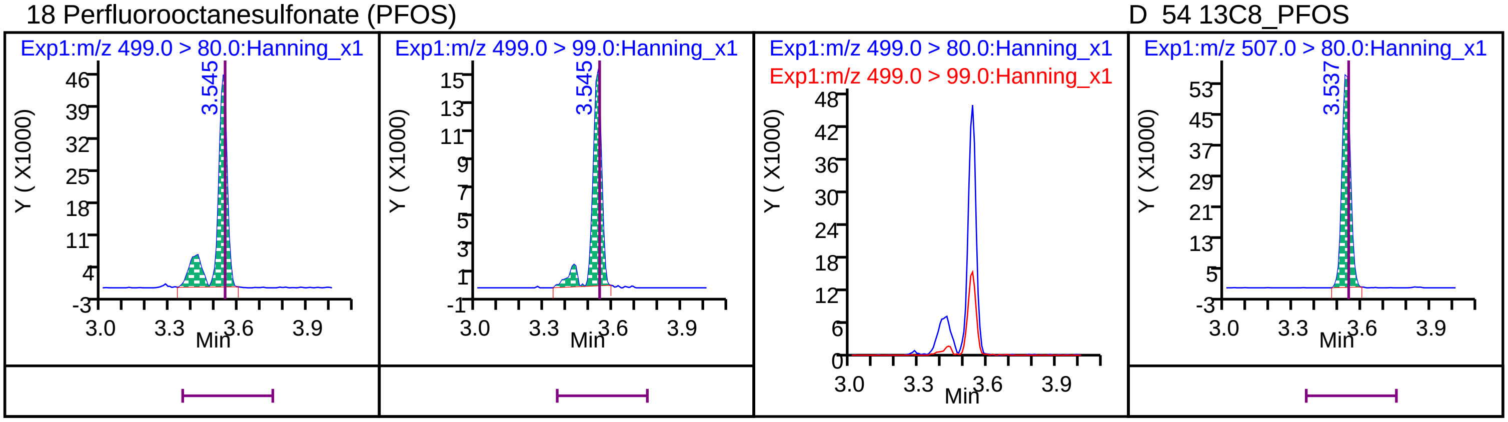
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



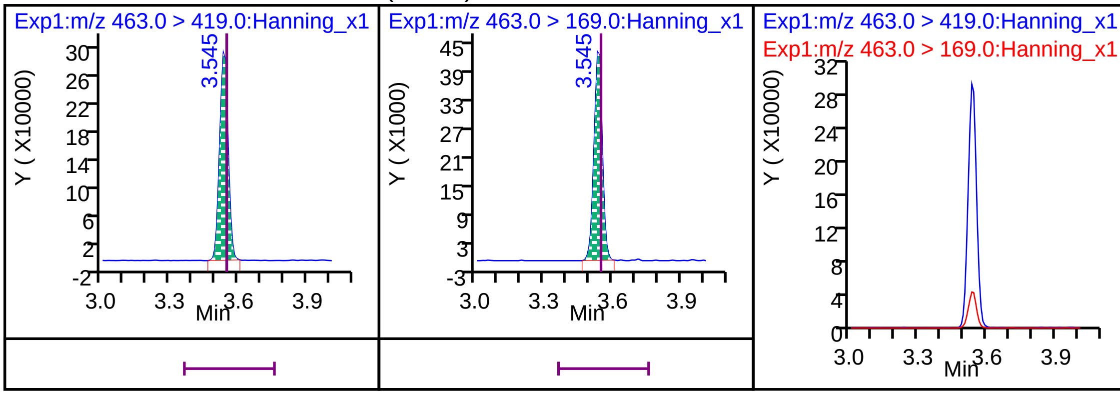
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



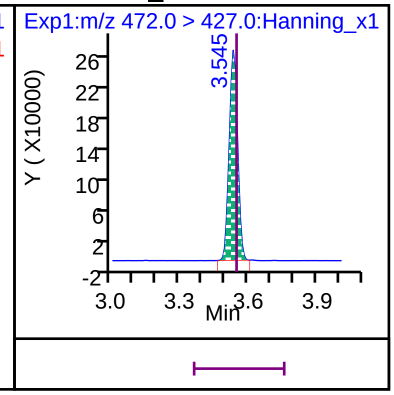
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



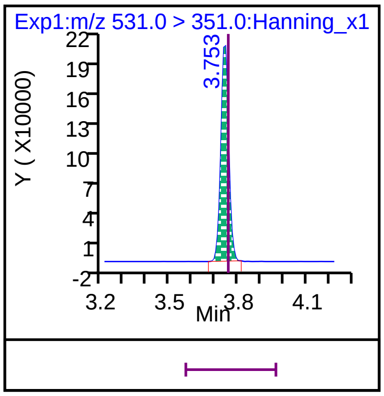
17 Perfluoro-n-nonanoic acid (PFNA)



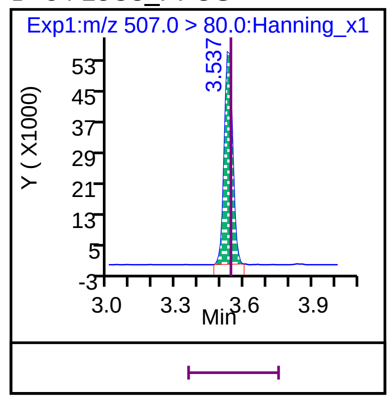
D 56 13C9_PFNA



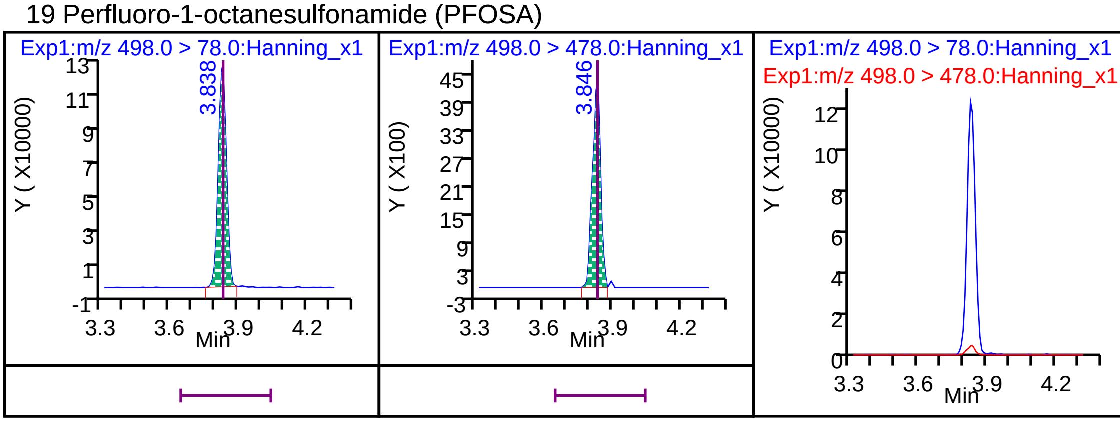
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA)



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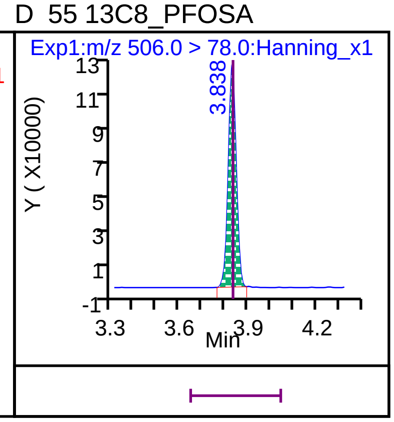
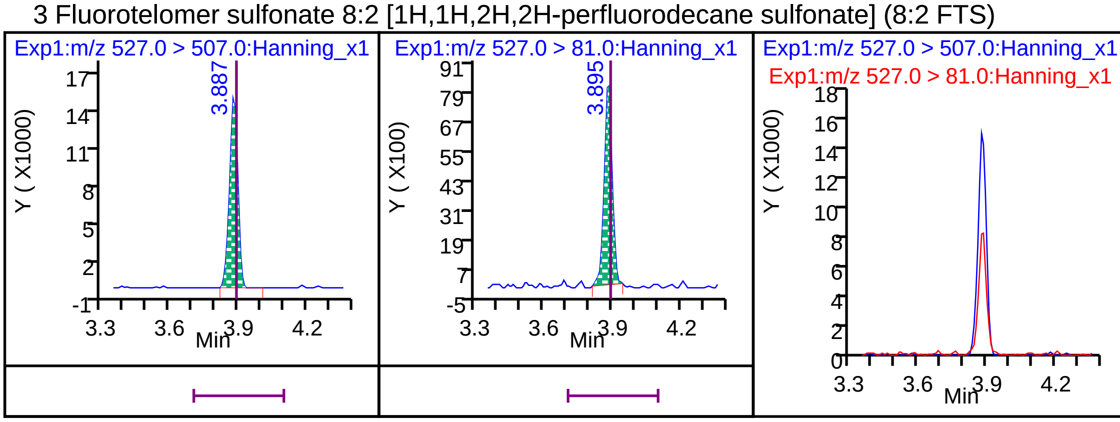
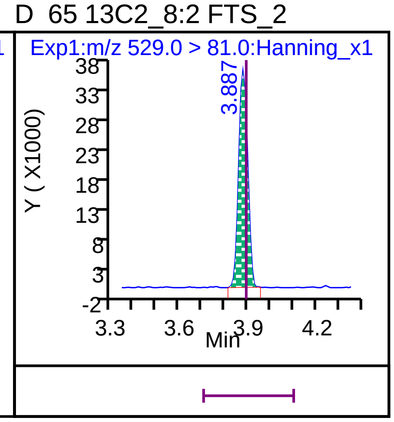


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)



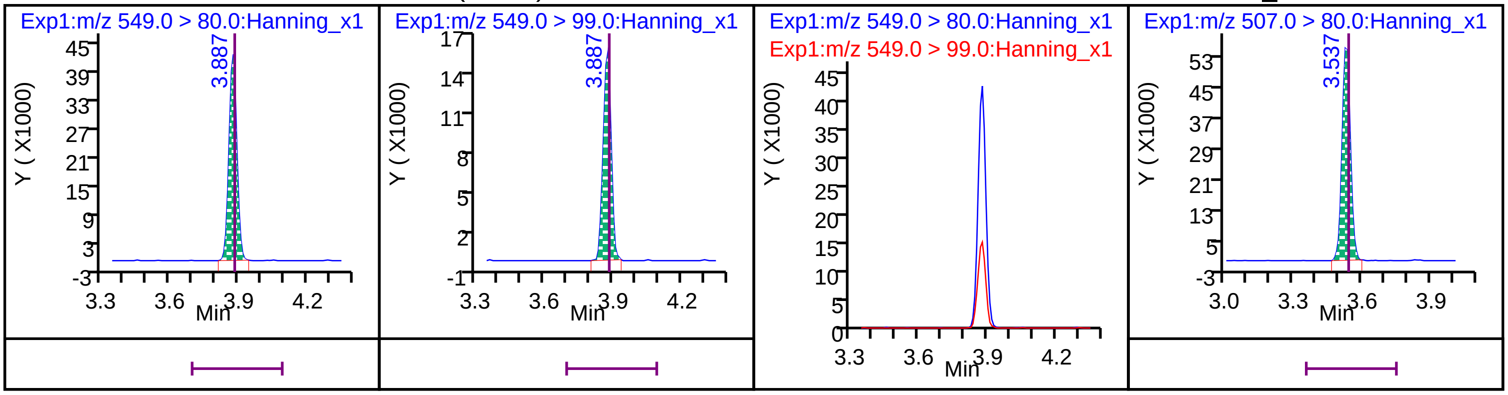
D 65 13C2_8:2 FTS_2



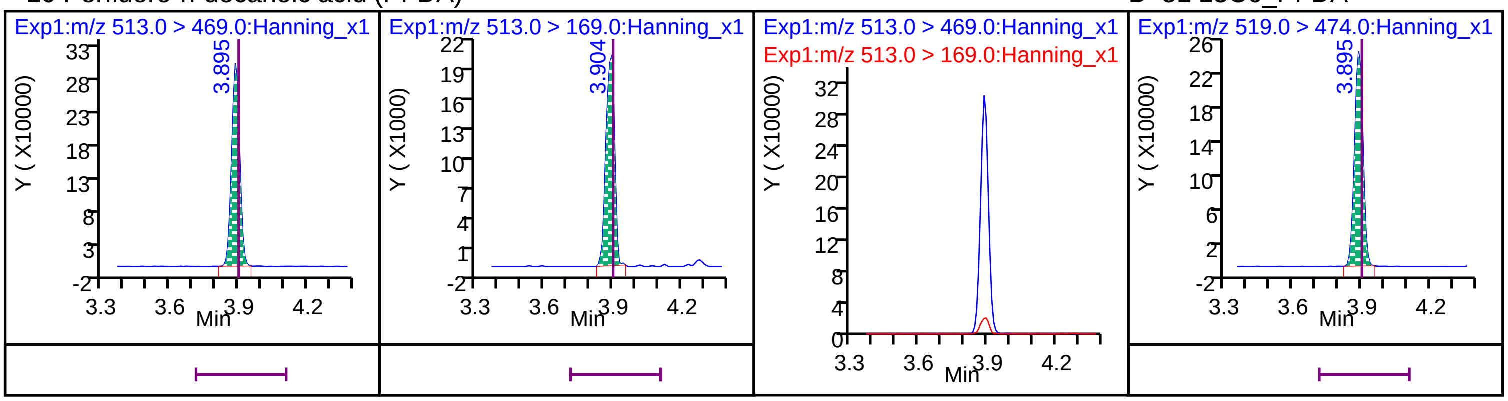
Report Date: 18-Nov-2021 18:20:52   AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d

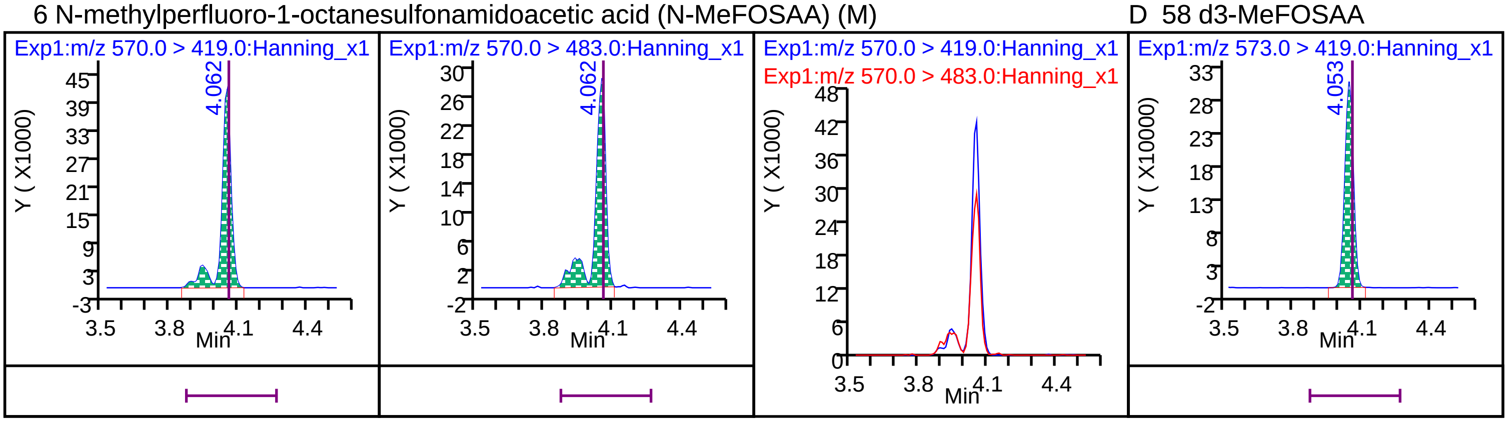
16 Perfluoro-1-nonanesulfonic acid (PFNS)   D 54 13C8_PFOS



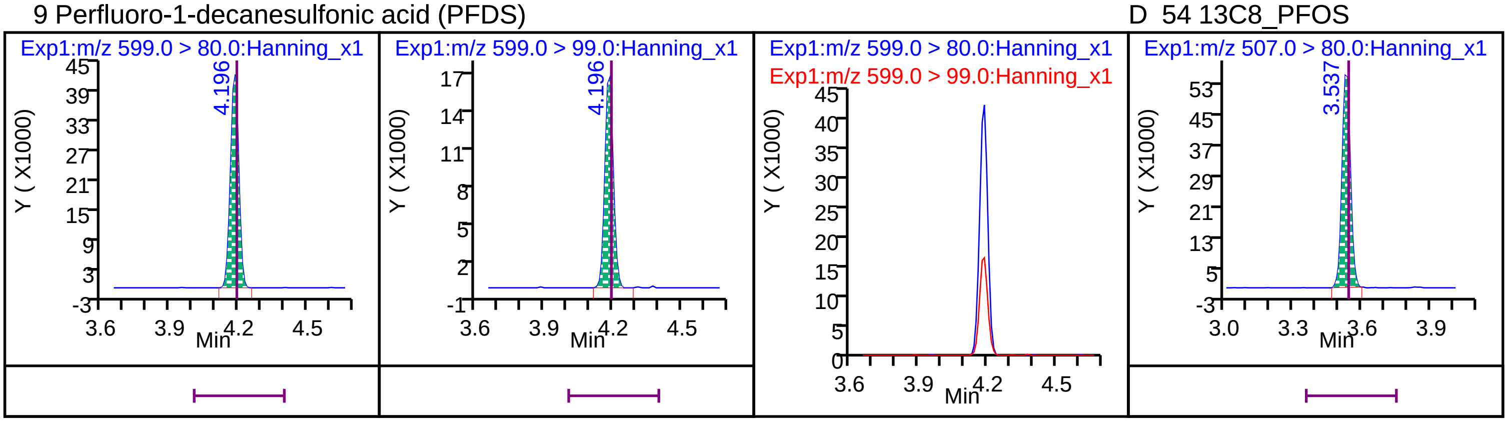
10 Perfluoro-n-decanoic acid (PFDA)   D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)   D 58 d3-MeFOSAA



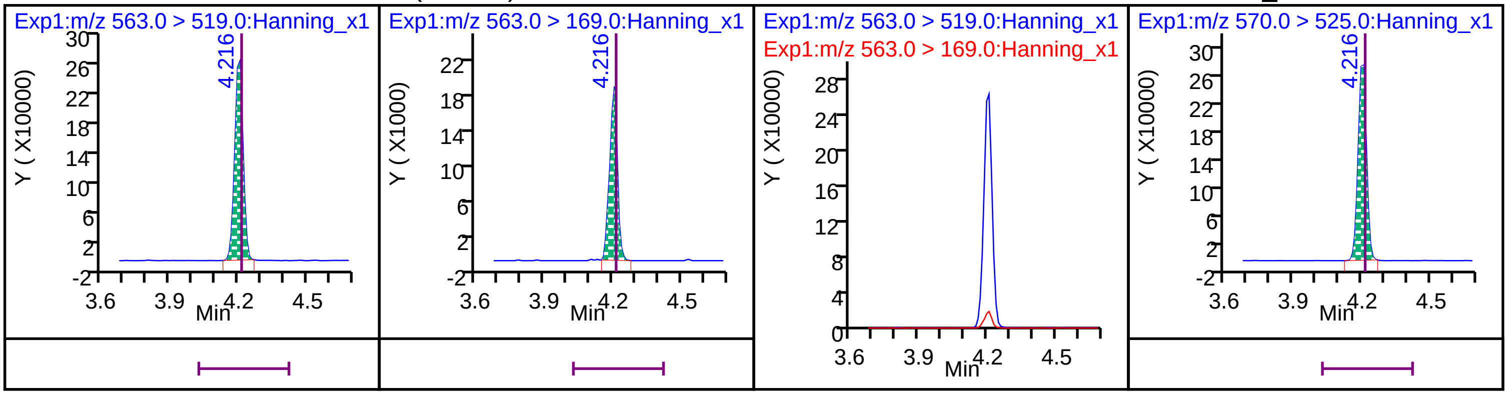
9 Perfluoro-1-decanesulfonic acid (PFDS)   D 54 13C8_PFOS



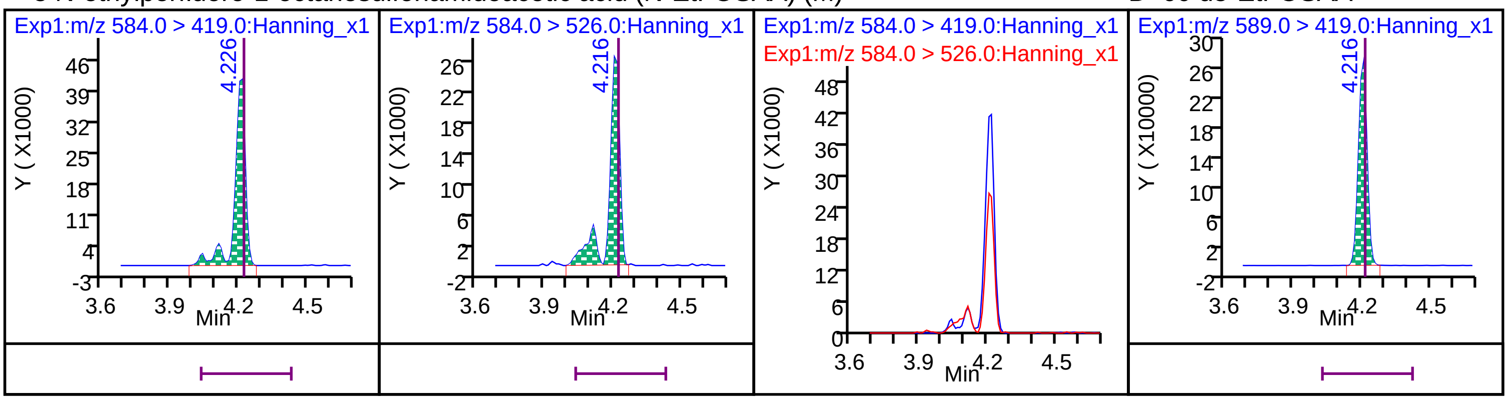
Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d

25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

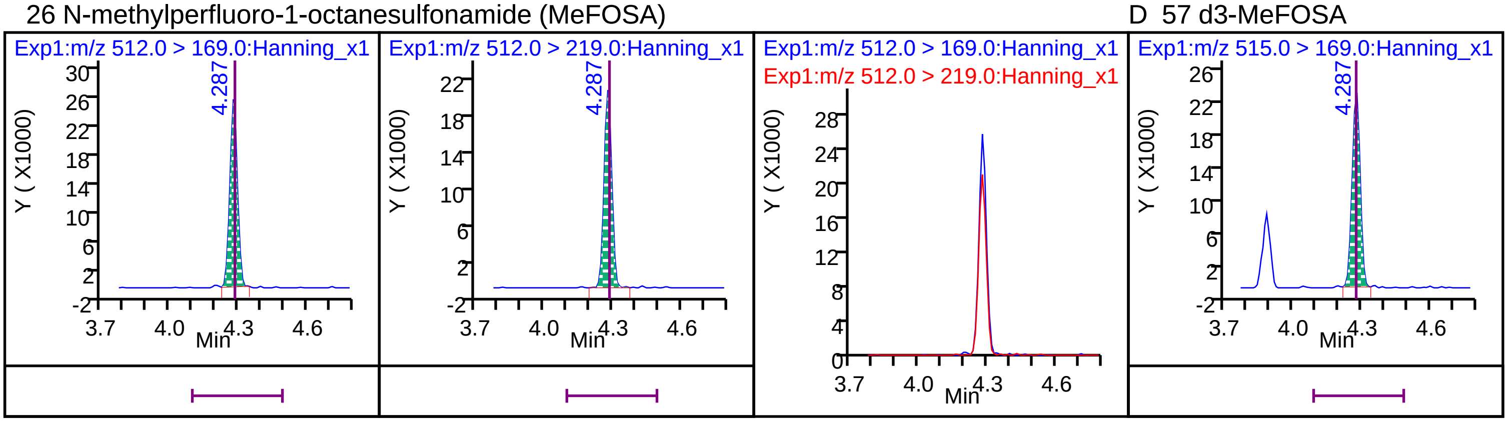


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

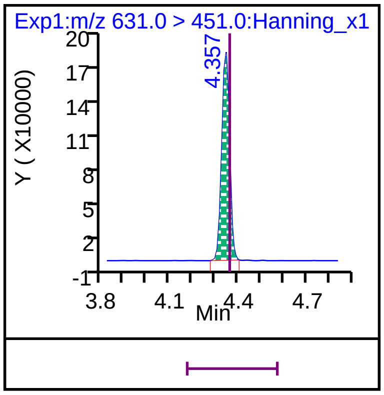


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

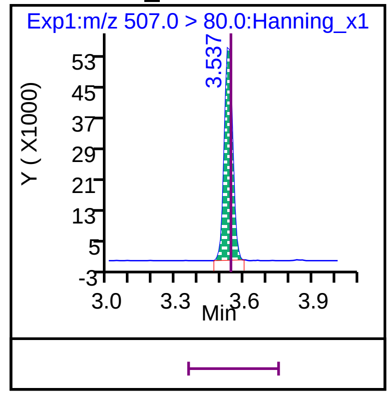
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



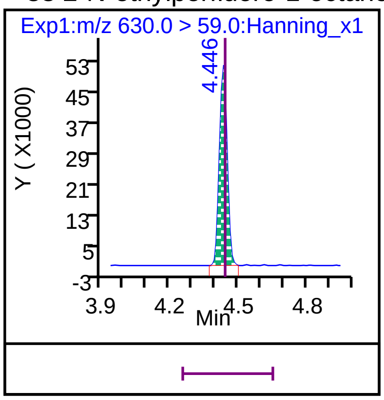
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



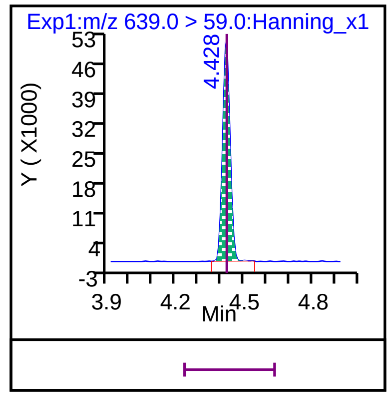
D 54 13C8_PFOS



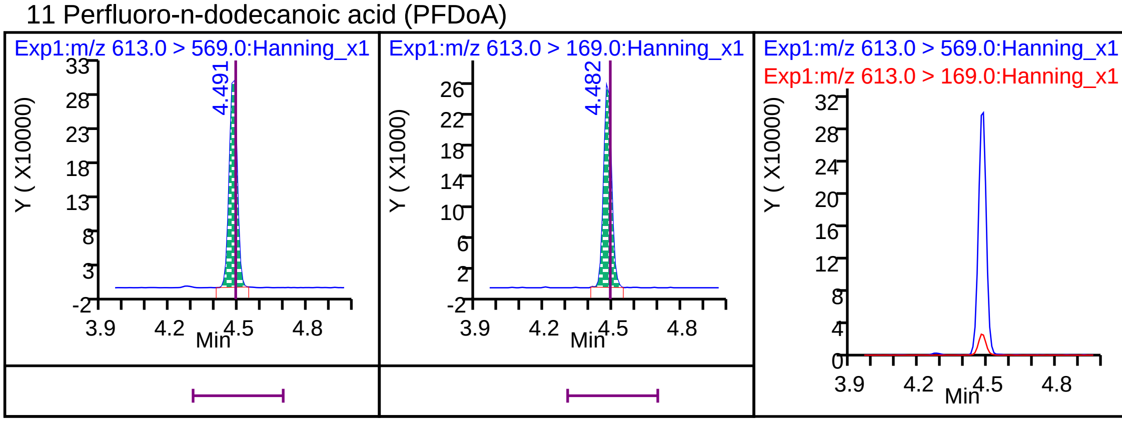
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



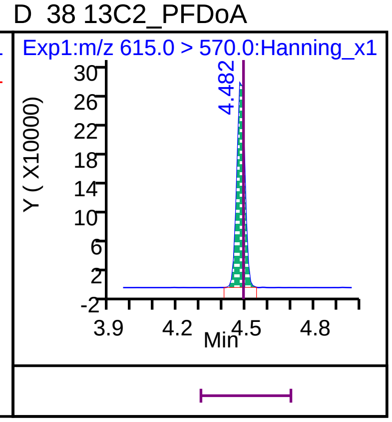
D 62 d9-EtFOSE



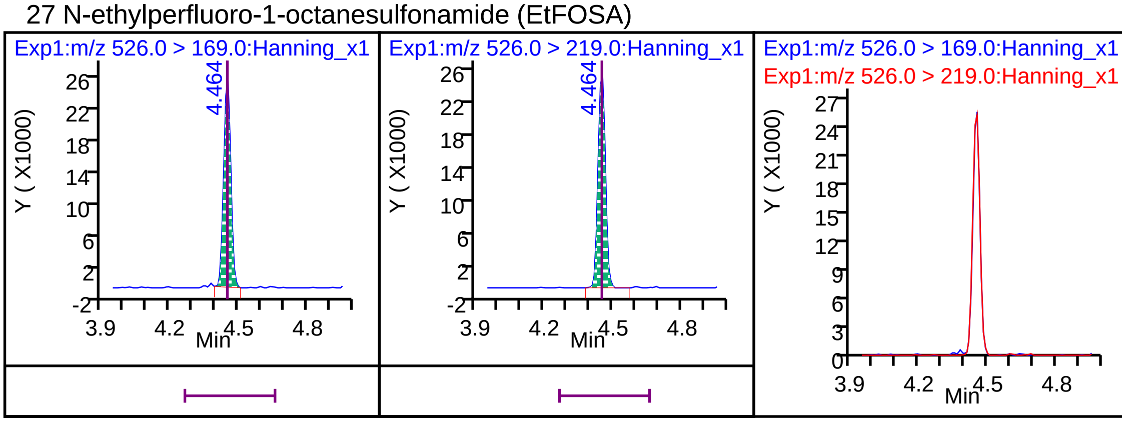
11 Perfluoro-n-dodecanoic acid (PFDoA)



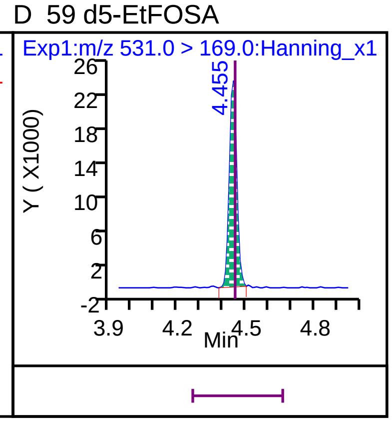
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

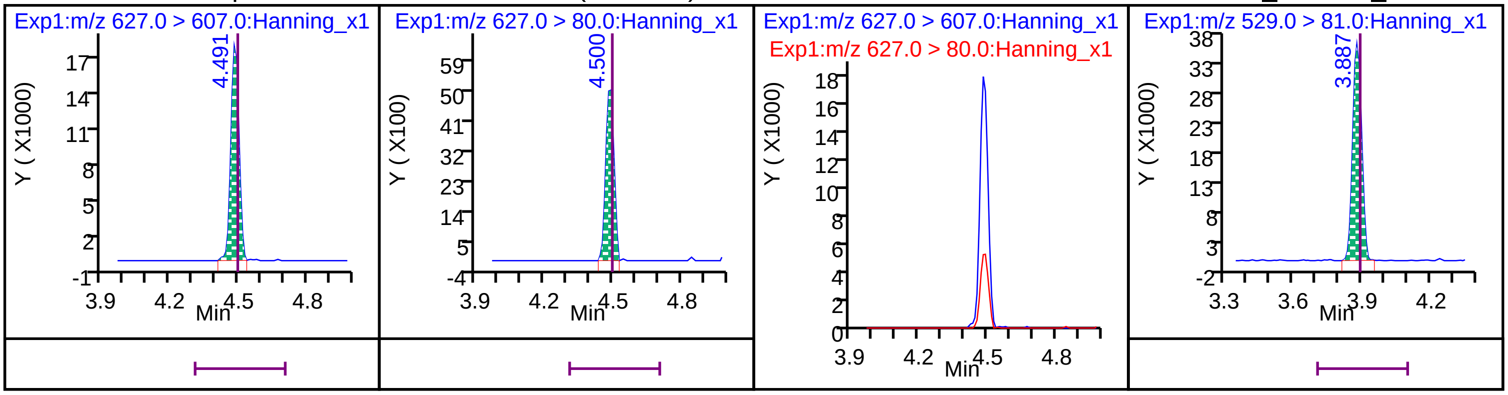


D 59 d5-EtFOSA

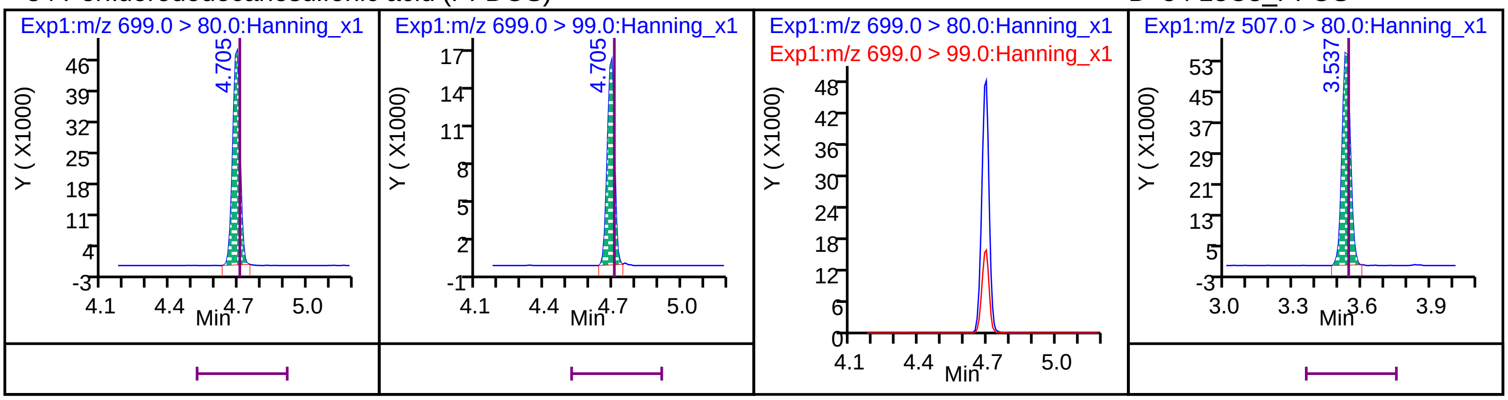


Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d

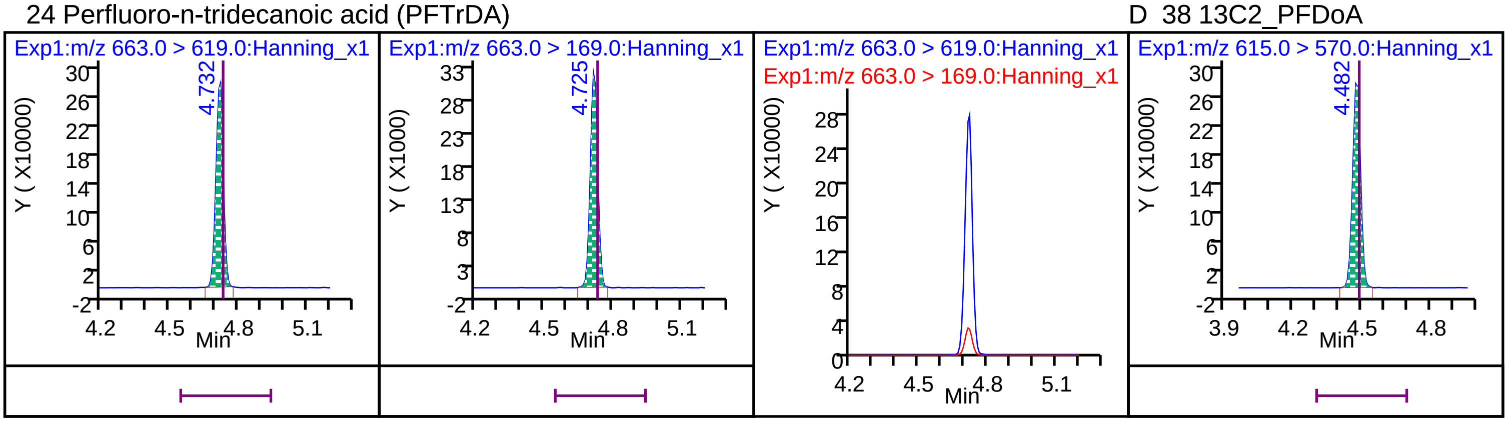
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



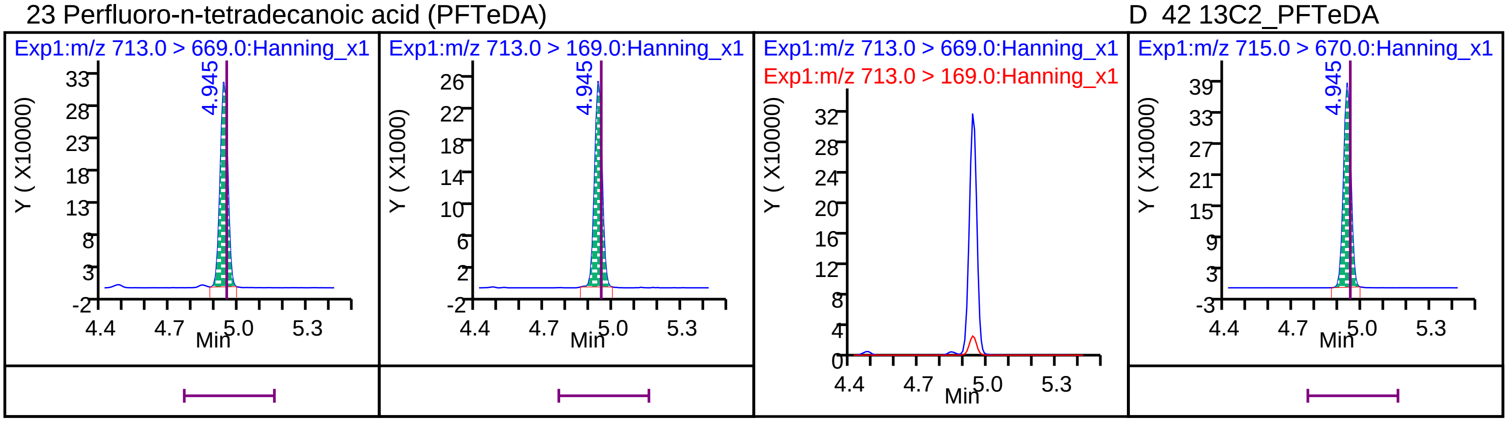
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



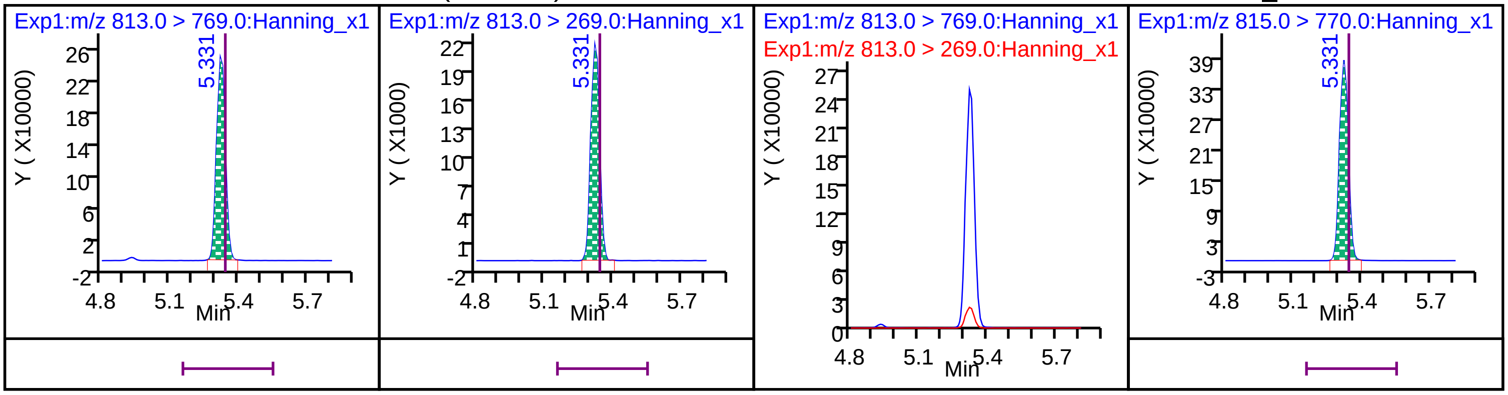
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



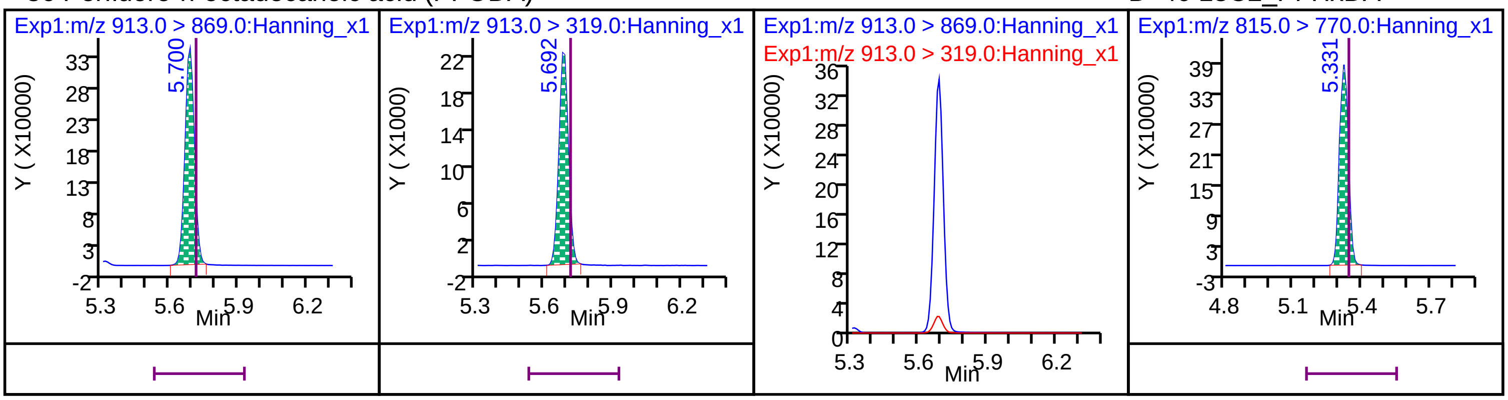
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



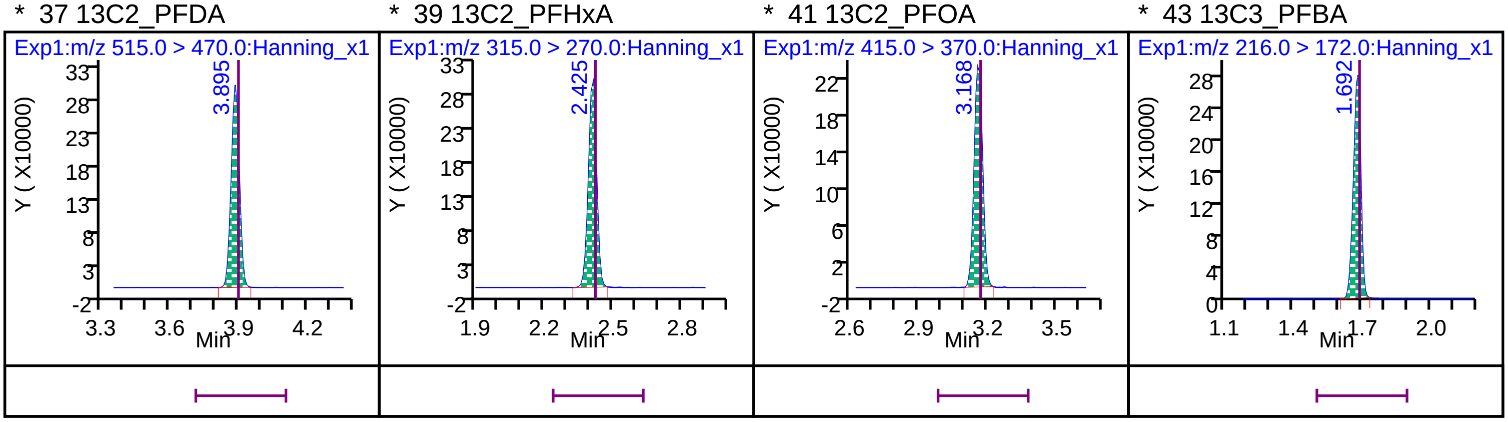
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



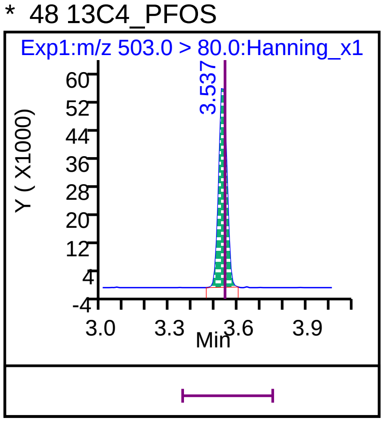
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d

Injection Date: 17-Nov-2021 21:47:49 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000C_SVLC-1744

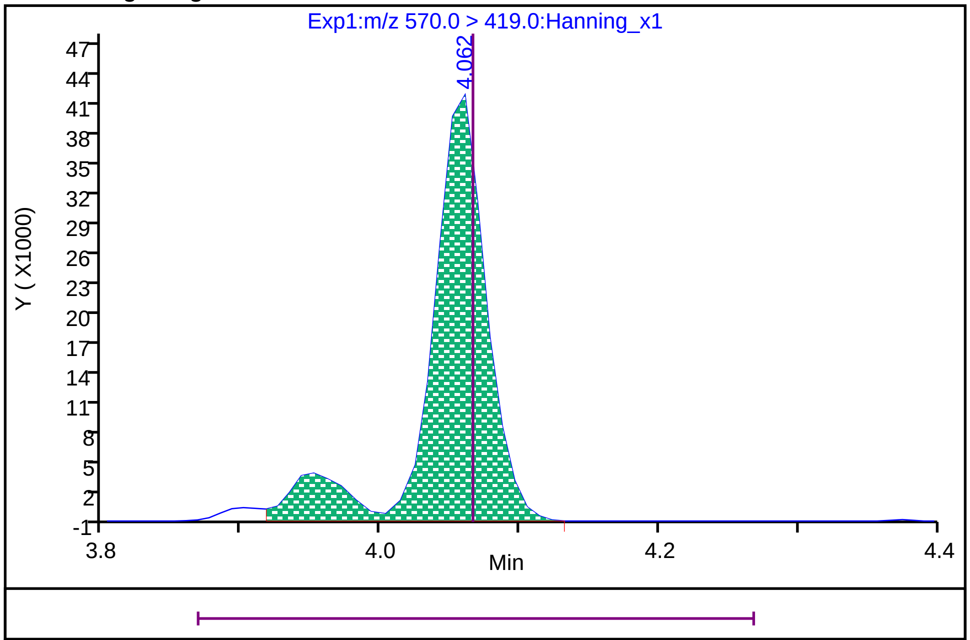
Sample Info: ID CCV 1000C_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

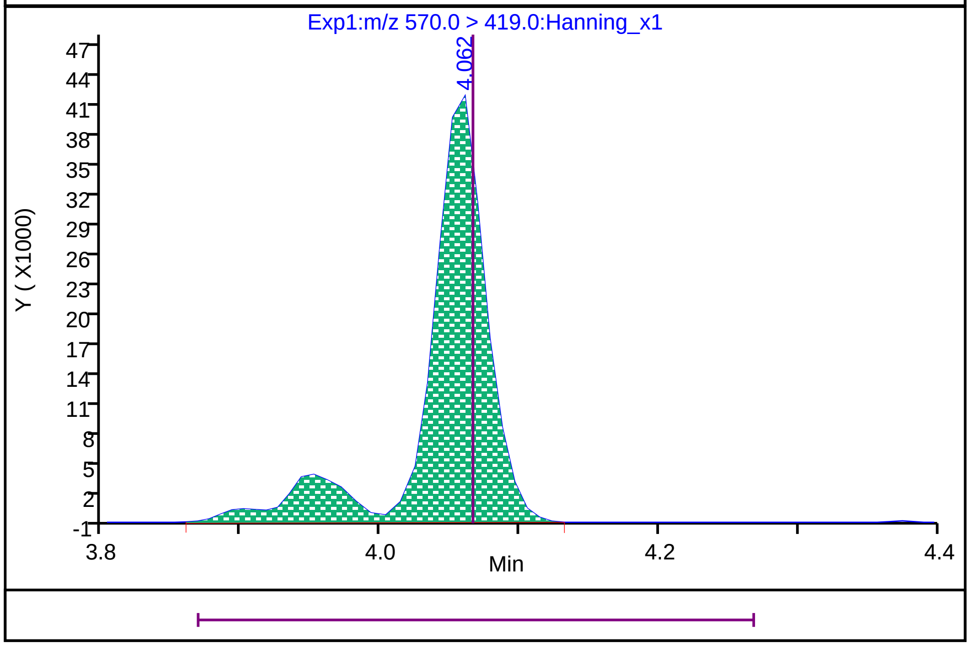
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.062
Area: 116738
Amount: 920.42
Amount Units: ng/L



RT: 4.062
Area: 120133
Amount: 947.18
Amount Units: ng/L



Data Editor: justin.gavin, 18-Nov-2021 18:15:06

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

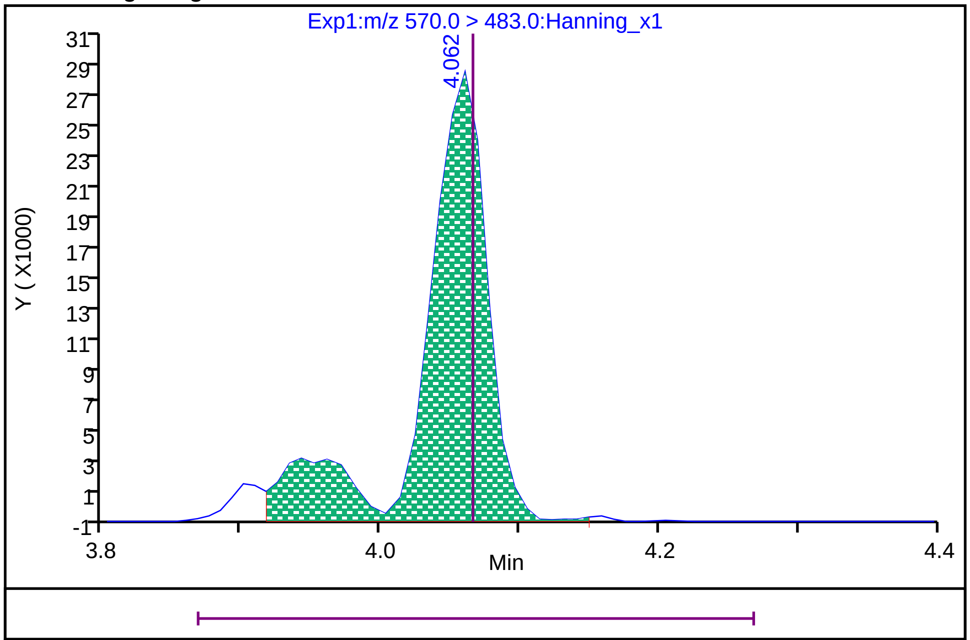
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d		
Injection Date:	17-Nov-2021 21:47:49	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000C_SVLC-1744
Sample Info:	ID CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

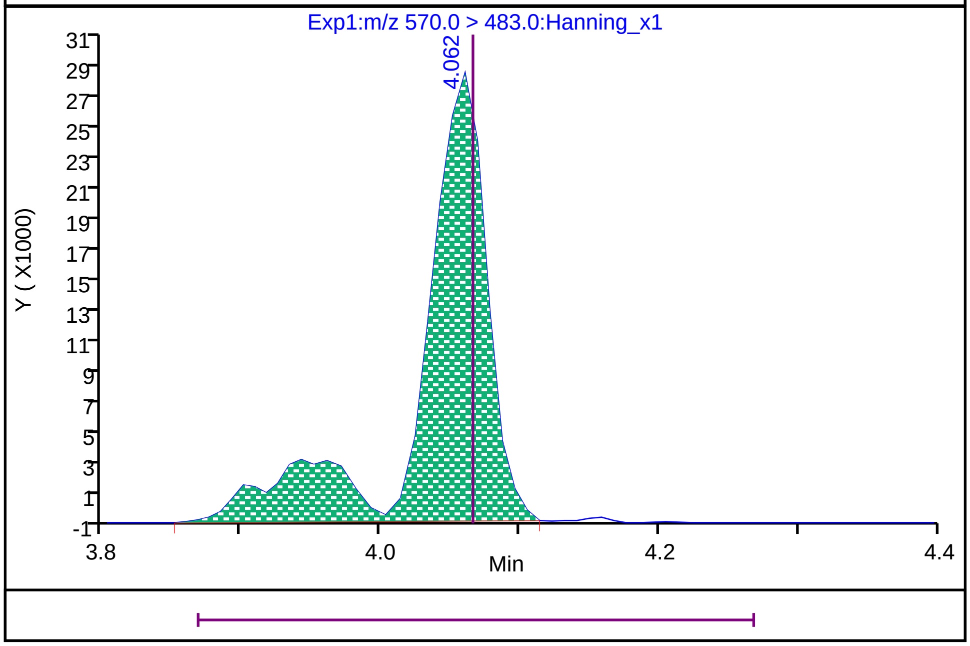
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.062
Area: 89667
Amount: 947.18
Amount Units: ng/L



RT: 4.062
Area: 92725
Amount: 947.18
Amount Units: ng/L



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Audit Reason: Invalid Integration

Report Date: 18-Nov-2021 18:20:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

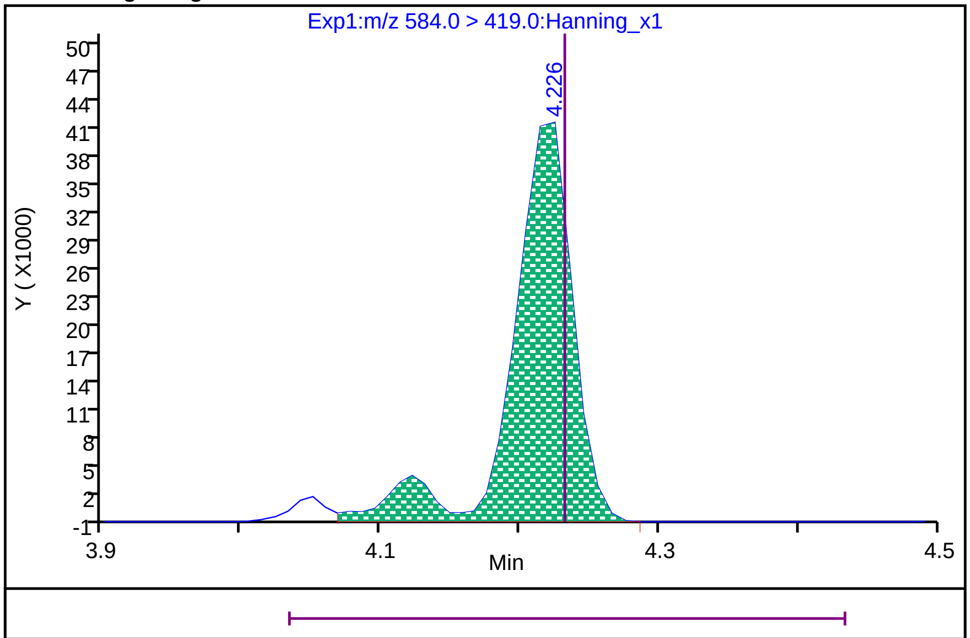
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721051.d		
Injection Date:	17-Nov-2021 21:47:49	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000C_SVLC-1744
Sample Info:	ID CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

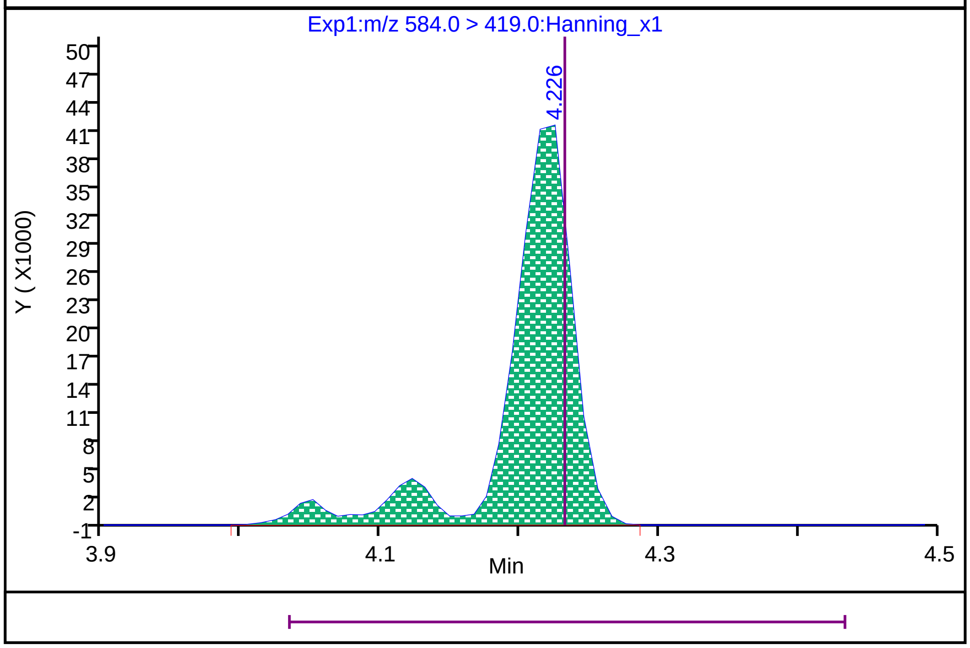
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.226
Area:	123888
Amount:	943.43
Amount Units:	ng/L



RT:	4.226
Area:	128644
Amount:	979.65
Amount Units:	ng/L



Data Editor: justin.gavin, 18-Nov-2021 18:15:27

Audit Action: Mint

Audit Reason: Invalid Integration

RAW QC DATA

SCIEX Triple Quad™ 4500/4500MD Systems

Planned Maintenance Procedure

GEN-IDV-08-6710-E

October 2020

EC REP

AB Sciex UK Limited
Phoenix House
Lakeside Drive, Centre Park
Warrington Cheshire
WA1 1RX, UK

AB Sciex Pte. Ltd.
Blk33, #04-06 Marsiling Industrial Estate Road 3
Woodlands Central Industrial Estate, Singapore 739256

Contents

Introduction 1

Note: For regulatory and safety information for the mass spectrometer, refer to the *System User Guide*.

The planned maintenance (PM) procedure is designed to help maintain overall system performance.

The PM is not intended to take the place of an Operational Qualification (OQ) nor is it intended to verify the instrument specifications. Separate Installation Qualification (IQ) and OQ services are available. Contact a SCIEX representative.

The procedure must be performed by a trained SCIEX Field Service Employee (FSE).

The procedure has been developed for the SCIEX Triple Quad™ 4500/4500MD System with the Turbo V™ Ion Source. It does not apply to any other products or processes.

The procedure does not address any customer-specific analytical protocol (performance qualification) or method validation.

Note: If an issue is identified and the system requires repair, then the customer is responsible for the repair at the expense of the customer, except to the extent that the system and the required repairs are covered by a SCIEX warranty or service contract. A separate repair service call must be opened and the repair hours must not be charged against this procedure.

Planned Maintenance Tasks 2

Note: Perform all procedures using the Turbo V™ Ion Source, unless otherwise specified.

Pre-Planned Maintenance

Note: Guideline values are for reference only. The pre-PM test results are not required to meet or exceed these values.

Pre-PM Tasks

Task	Complete	N/A
Ask the customer about system performance since the last visit and record comments.	✓	—
If the customer maintains a log for the system, then review it.	○	◉
Review the work to be performed with the customer.	✓	—

PC Health Check

Task	Complete	N/A
Inspect the status of the RAID 1 hard drives.		—

Vacuum System Tests

<table>
<tr><th colspan="3">Task</th><th>Complete</th></tr>
<tr><td colspan="3">Record the turbo pump operational values.
<table>
<tr><th>Parameter</th><th>Results</th></tr>
<tr><td>Temperature (ºC)</td><td>see notes</td></tr>
<tr><td>Current (A)</td><td>see notes</td></tr>
<tr><td>Voltage (V)</td><td>see notes</td></tr>
<tr><td>Power (W)</td><td>see notes</td></tr>
<tr><td>Driving frequency (Hz)</td><td>see notes</td></tr>
</table></td><td></td></tr>
<tr><td rowspan="2">Inspect the vacuum gauge filament using the Analyst® Service Diagnostics (ASD) Software and identify the filament position. If the mass spectrometer is using filament 2, then order a replacement vacuum gauge as a separate service call.</td><td>1</td><td>○</td><td rowspan="2"></td></tr>
<tr><td>2</td><td>○</td></tr>
</table>

Pre-PM Pressure Test

Pre-PM Pressure Test is Complete	✓

Test	Guideline	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.4e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.1e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Pre-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	2.5e7	0.6 to 0.8	0.87
500.380	$\geq 8.0 \times 10^6$	2.4e7	0.6 to 0.8	0.81
906.673	$\geq 2.0 \times 10^7$	3.9e7	0.6 to 0.8	0.79
1,952.427	$\geq 8.8 \times 10^5$	7.7e6	0.6 to 0.8	1.1

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	3.0e7	0.6 to 0.8	0.75
500.380	$\geq 8.0 \times 10^6$	2.7e7	0.6 to 0.8	0.81
906.673	$\geq 2.0 \times 10^7$	4.7e7	0.6 to 0.8	0.78
1,952.427	$\geq 8.8 \times 10^5$	7.8e6	0.6 to 0.8	0.85

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	≥ 1.8×10^7	2.4e7	0.6 to 0.8	0.65
1,863.306	≥ 1.4×10^6	3.7e6	0.6 to 0.8	0.73

Q3 Negative MS Test is Complete	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	3.1e7	0.6 to 0.8	0.79
1,863.306	$\geq 2.0 \times 10^6$	6.2e6	0.6 to 0.8	0.76

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Guideline	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100 \geq 10\%$	6.6%

Planned Maintenance

Mass Spectrometer Maintenance

Task	Complete	N/A
Shut down the system and then disconnect the mains supply power cable.	✓	—
If required, replace the roughing pump oil. The recommended interval is every 3 years. **Note:** If an oil change is not required, then inspect the oil level and top up, if necessary. **CAUTION: Potential System Damage. Do not mix different types of oil. Mixing mineral oil with synthetic oil can cause pump failure.**	✓	—
If required, replace the roughing pump oil exhaust filter. The recommended interval is every 3 years.	◉	○
Confirm that there is no excessive roughing pump oil leakage. Clean up any oil.		—
Make sure that the roughing pump exhaust is properly routed to the ventilation system.	✓	—

Planned Maintenance Tasks

Task	Complete	N/A
Inspect the exhaust system: • Make sure that all of the gas fittings at the rear bulkhead are tight. • Make sure that all of the exhaust hoses are free of kinks. • Make sure that all of the hoses at the waste bottle are secure, and there are no signs of leaks. • Make sure that the waste bottle is in an upright position. • Make sure that the exhaust hose is secured to the lab ventilation system. • Confirm that no liquid is trapped in the exhaust lines.	✓	—
Clean or replace the four air filters in the base of the mass spectrometer chassis.	✓	—
(If applicable) Clean the turbo pump filter screen.	○	◉
(If applicable) Verify the operation of the SCIEX-supplied bench cooling fans.	◉	○
Clean the curtain plate.	✓	—
Clean the orifice plate.	✓	—
Clean the QJet® Ion Guide and IQ0 lens.	✓	—
(If contamination is detected) Clean the Q0 region and the IQ1 lens.	◉	○
Inspect the cable connections: • Make sure that the power cables for the mass spectrometer, LC system, roughing pump, syringe pump, gas generator, and UPS are securely connected. • Make sure that the communications cables for the GPIB/Ethernet ports, LC connections, and roughing pump are securely connected.	✓	—

Task	Complete	N/A
Verify system support functions — gas: • Confirm the input gas pressures at the regulators are within specifications. • Confirm that there is no liquid present in the gas lines.	✓	—
Verify the expiry date on the battery system for the UPS (sold by SCIEX), and then recommend replacement of the battery tray, if required.	○	◉
Start up the system.	✓	—

Turbo V™ Ion Source Maintenance

Task	Complete	N/A
If necessary, replace the electrode in the TurboIonSpray® and APCI Probes.	◉	○
With the TurboIonSpray® probe installed, verify that the temperature (TEM) reaches the recommended set point of 500 °C.	✓	—
(If applicable) With the APCI probe installed, verify that the temperature (TEM) reaches the recommended set point of 400 °C.	○	◉
Inspect the ion source and, if visible signs of contamination are present, clean the inner surfaces using lint-free wipes and a 50:50 methanol:water solution. **Note:** Remove the corona discharge needle before cleaning.	◉	○

Software Maintenance

Note: This task is not applicable to MD systems.

Task	Complete	N/A
(Obtain customer approval first) Install any applicable Analyst® Software HotFixes. **Note:** Make sure that the compatible instrument firmware is installed.	○	◉

Post-Planned Maintenance

Voltage Tests

<table>
<tr><th>Task</th><th>Complete</th></tr>
<tr><td>Inspect the RF tuning voltages at the QPS amplifier module and then, if required, tune the coil boxes.</td><td>✓</td></tr>
<tr><td>Inspect the detector voltage. Optimize, if required.<table><tr><td>Detector voltage</td><td>2100</td></tr></table></td><td>✓</td></tr>
</table>

Post-PM Pressure Test

Post-PM Pressure Test is Complete	✓

Test	Specification	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\,0} \leq 1.1 \times 10^{-5}$ torr	0.8e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\,12} - P_{CAD\,0}) \leq 2.8 \times 10^{-5}$ torr	2.5e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Post-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	2.1e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^6$	2.8e7	0.6 to 0.8	0.70
906.673	$\geq 2.0 \times 10^7$	3.8e7	0.6 to 0.8	0.73
1,952.427	$\geq 8.8 \times 10^5$	6.0e6	0.6 to 0.8	0.69

Q1 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	≥ 8.0×10^6	2.8e7	0.6 to 0.8	0.73
500.380	≥ 8.0×10^6	3.1e7	0.6 to 0.8	0.70
906.673	≥ 2.0×10^7	4.6e7	0.6 to 0.8	0.69
1,952.427	≥ 8.8×10^5	5.5e6	0.6 to 0.8	0.69

Q3 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	2.6e7	0.6 to 0.8	0.70
1,863.306	$\geq 1.4 \times 10^6$	4.3e6	0.6 to 0.8	0.71

Q1 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	3.4e7	0.6 to 0.8	0.77
1,863.306	$\geq 2.0 \times 10^6$	5.6e6	0.6 to 0.8	0.72

Q3 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Specification	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	11%

Post-PM Tasks

Task	Complete	N/A
Delete any unnecessary files.	✓	—
Back up the Analyst Data folder.	✓	—
(If applicable) Defragment the hard drive.	○	◉
(Not applicable for MD instrument families) If the customer has a Software Support Plan, then perform the Software Health Check: • (Obtain customer approval first) Install any compatible HotFixes and updates for SCIEX add-on software.	○	◉

StatusScope® Remote Monitoring Service Tasks

The StatusScope® Remote Monitoring Service is not applicable for MD systems.

Planned Maintenance Tasks

Task	Complete	N/A
Note: Installation of the StatusScope® Remote Monitoring Service is available only to warranty and eligible contract customers. Refer to sciex.com/instrument-service-and-support/statusscope-remote-monitoring for a list of eligible contracts. If the StatusScope® Remote Monitoring Service is not installed, then perform these tasks: • If the customer does not want the StatusScope® Remote Monitoring Service installed, then skip the remaining steps in this section. • If the customer wants the StatusScope® Remote Monitoring Service installed, then complete the steps in this section.	○	●
Verify the connection to the server for the StatusScope® Remote Monitoring Service. **Note:** Use the **StatusScopePortCheck.exe**. The utility is included with the StatusScope® installer.	○	●
Install the agent for the StatusScope® Remote Monitoring Service.	○	●
Ask the customer to log on to SCIEX Now™ to verify that the instrument is connected to the server for the StatusScope® Remote Monitoring Service. **Note:** The instrument is shown under the account of the Primary Contact.	○	●

Wrap-up

Task	Complete	N/A
Review the work performed with the customer.	✓	—
Record the test results in this document and then attach all of the test data.	✓	—
Review the routine maintenance schedule and the procedures with the customer.	✓	—
Complete this document: • Review the test results with the customer. • Provide the customer with the completed document and the test data. • If an electronic copy of the document is supplied to the customer, then save a copy on the Service drive.	✓	—

Signoff 3

Organization	Pace South Carolina		
Mass spectrometer serial number	EB250231807	Service request number	5030888
FSE name	Lynne Russell	Date (yyyy-mm-dd)	2021-03-25
FSE signature	Lynne Russell		

Comments and Exceptions

Unable to check RAID and perform vacuum system test because I did not have admin privileges on the customer computer. LER 25MAR2021

Inspect for Contamination A

Perform a Q1 and Q3 charging test to determine whether front end contamination is present.

1. Run the **Pos PPG** method for 10 minutes, monitoring the Total Ion Count (TIC) for degradation of the signal or a decrease in sensitivity.
2. Change the polarity to Negative, and then scan for one minute.
3. Change the polarity to Positive, and then make sure that the **IS** parameter returns to the original value.
4. Run the method.

   If the signal sensitivity is restored temporarily but the Total Ion Count (TIC) again degrades by more than 5% over a 10 minute run, then a possible front-end contamination is indicated.
5. Repeat the test in Negative polarity using the Q1 Neg PPG method.

Guidelines for Cleaning the Front End

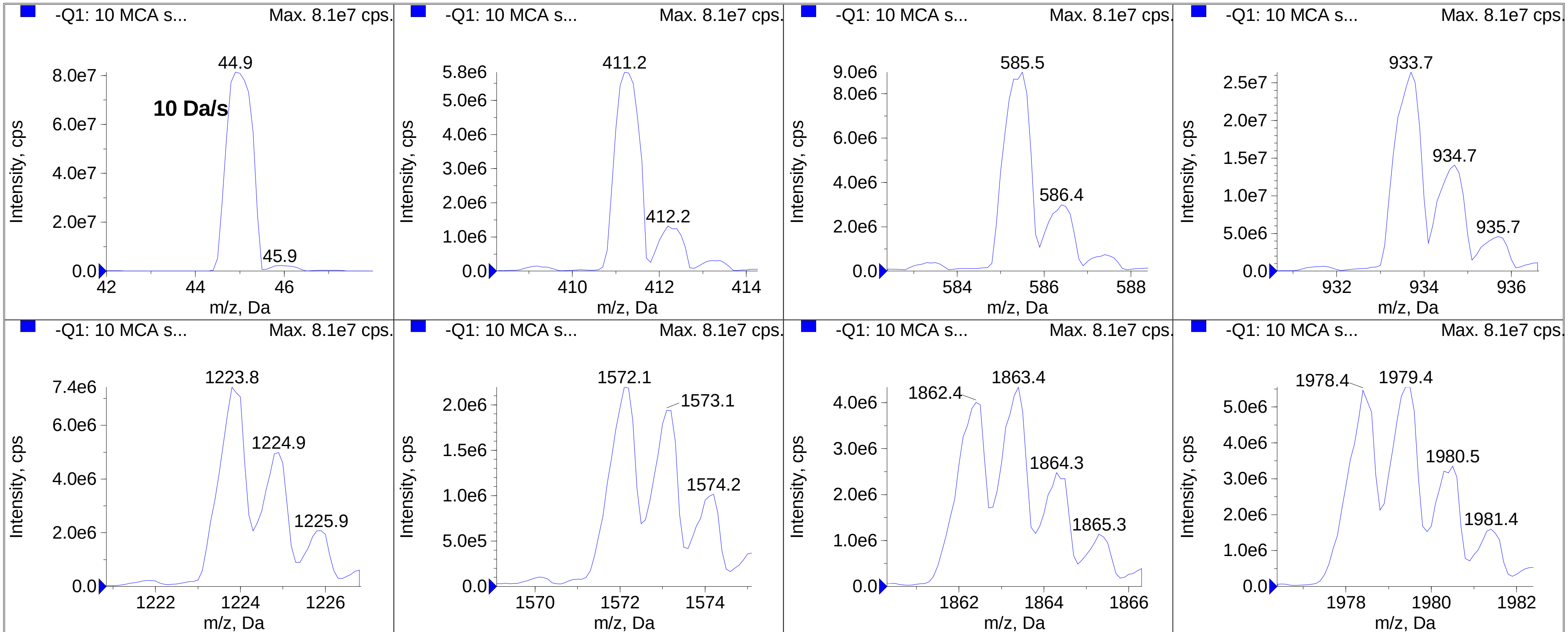
If charging tests indicate that cleaning is necessary, then clean the front-end components, including the QJet® Ion Guide, IQ0 lens, Q0 quadrupole, and IQ1 lens.

Removing the ion optics is considered a repair activity. FSEs must open a separate service repair call.

Note: This procedure does not provide troubleshooting for all technical root causes of signal degradation or charging effect. Signal degradation might also result from a contaminated TurboIonSpray® Probe or electrode, method parameters that are not optimized, or other factors.

Acq. Time: 15:30
Acq. Date: Thursday, March 25, 2021

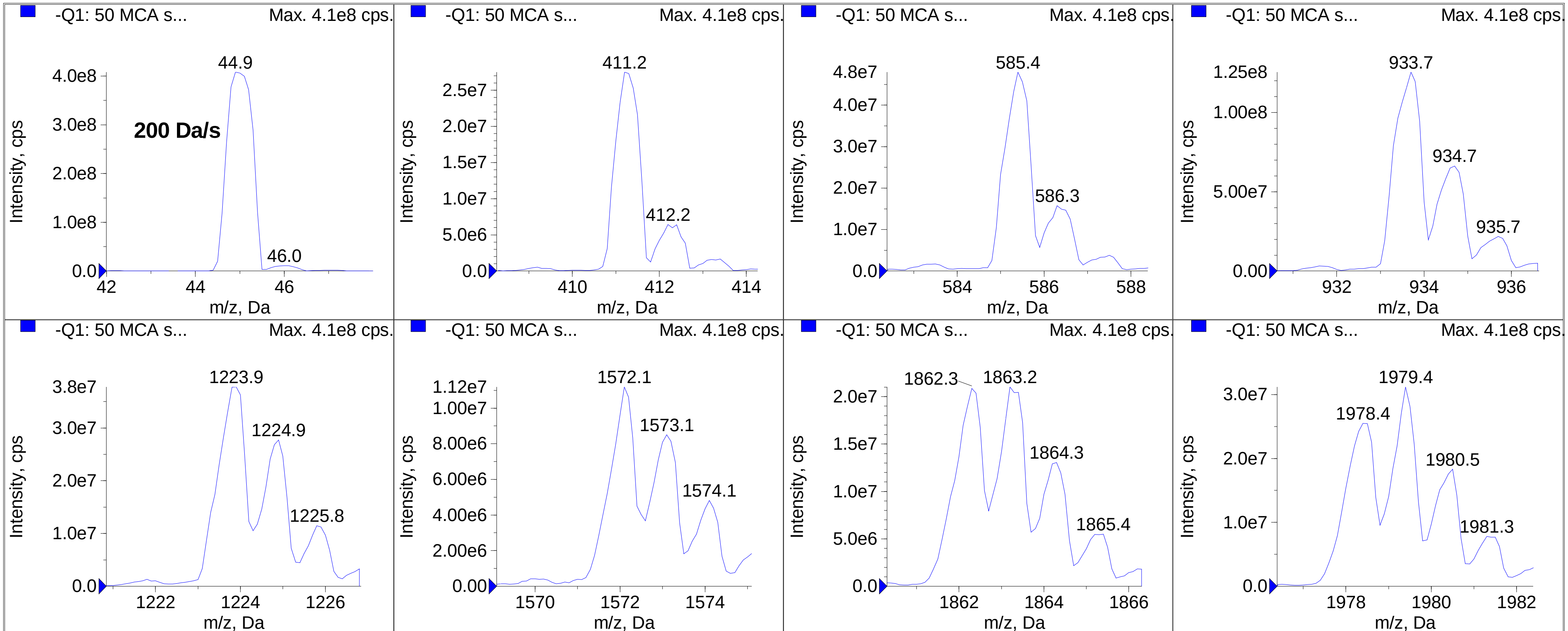
Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " -Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325153056.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9982	8.1378e7	0.6996	-1.8169e-4
2	411.2590	411.2637	5.8256e6	0.6783	-4.6770e-3
3	585.3850	585.3916	8.9716e6	0.7217	-6.5574e-3
4	933.6360	933.6386	2.6418e7	0.7048	-2.5651e-3
5	1223.8450	1223.8346	7.4223e6	0.6965	0.0104
6	1572.0970	1572.0866	2.1958e6	0.7080	0.0104
7	1863.3060	1863.3085	4.3403e6	0.7132	-2.4789e-3
8	1979.3890	1979.3775	5.5539e6	0.7610	0.0115

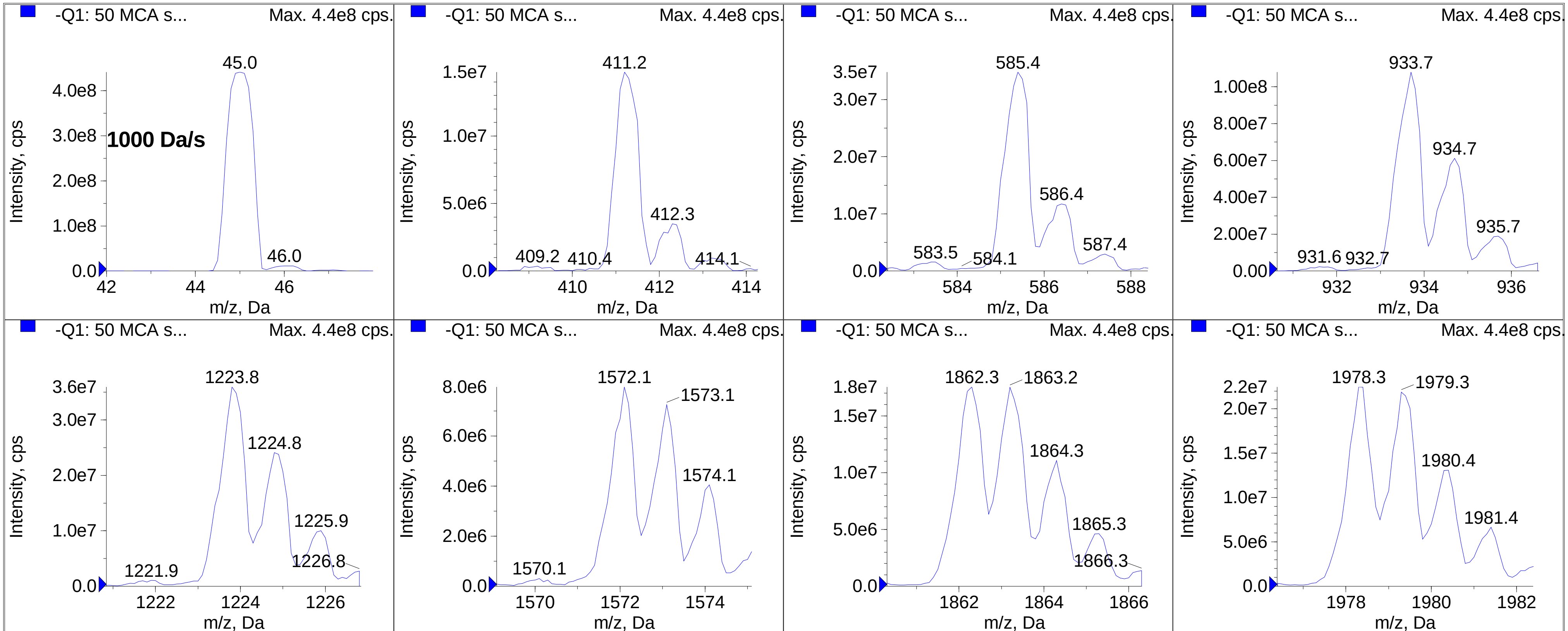
*Post-PM
*FSE: Lynne Russell



Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325154041.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0052	4.0797e8	0.6918	-7.1801e-3
2	411.2590	411.2692	2.7506e7	0.6518	-0.0102
3	585.3850	585.3988	4.7952e7	0.6984	-0.0138
4	933.6360	933.6373	1.2546e8	0.7143	-1.2816e-3
5	1223.8450	1223.8305	3.7770e7	0.7208	0.0145
6	1572.0970	1572.0944	1.1188e7	0.6425	2.5631e-3
7	1863.3060	1863.2675	2.1018e7	0.7283	0.0385
8	1979.3890	1979.3876	3.1194e7	0.6386	1.4045e-3

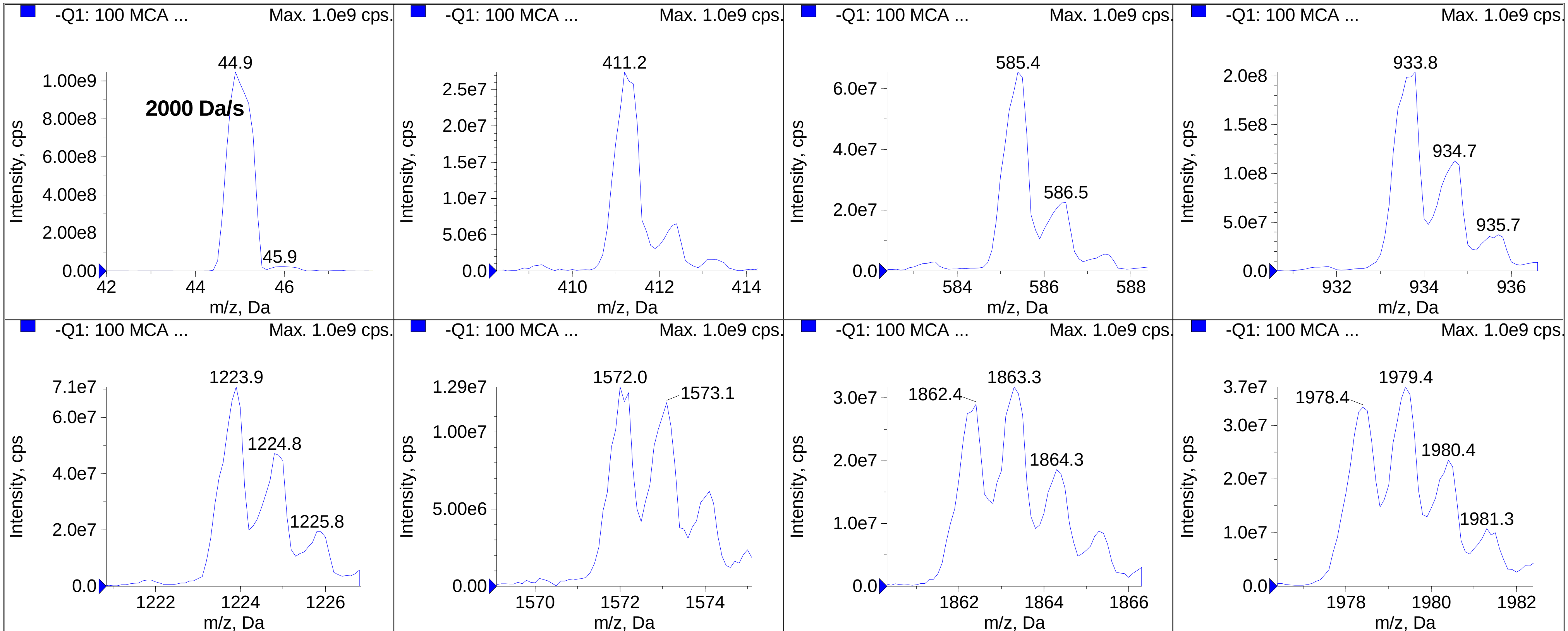
*Post-PM
*FSE: Lynne Russell



Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325154310.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0055	4.4107e8	0.6916	-7.5381e-3
2	411.2590	411.2622	1.4730e7	0.6031	-3.2201e-3
3	585.3850	585.3923	3.4800e7	0.6373	-7.3251e-3
4	933.6360	933.6730	1.0796e8	0.6246	-0.0370
5	1223.8450	1223.8482	3.5950e7	0.6244	-3.2403e-3
6	1572.0970	1572.0829	7.9600e6	0.6014	0.0141
7	1863.3060	1863.2333	1.7520e7	0.7148	0.0727
8	1979.3890	1979.3550	2.1880e7	0.6567	0.0340

*Post-PM
*FSE: Lynne Russell



Peak List for " -Q1: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210325154503.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0053	1.0460e9	0.6770	-7.2773e-3
2	411.2590	411.2682	2.7420e7	0.6195	-9.2040e-3
3	585.3850	585.3714	6.5440e7	0.6325	0.0136
4	933.6360	933.6142	2.0390e8	0.6583	0.0218
5	1223.8450	1223.8436	7.0800e7	0.6346	1.3792e-3
6	1572.0970	1572.0493	1.2920e7	0.6333	0.0477
7	1863.3060	1863.2900	3.1740e7	0.7335	0.0160
8	1979.3890	1979.3666	3.7140e7	0.7032	0.0224

*Post-PM
*FSE: Lynne Russell

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Acq. Time: 15:51                                        Analyst Version: 1.7.0
Acq. Date: Thursday, March 25, 2021                     *SN: EB250231807
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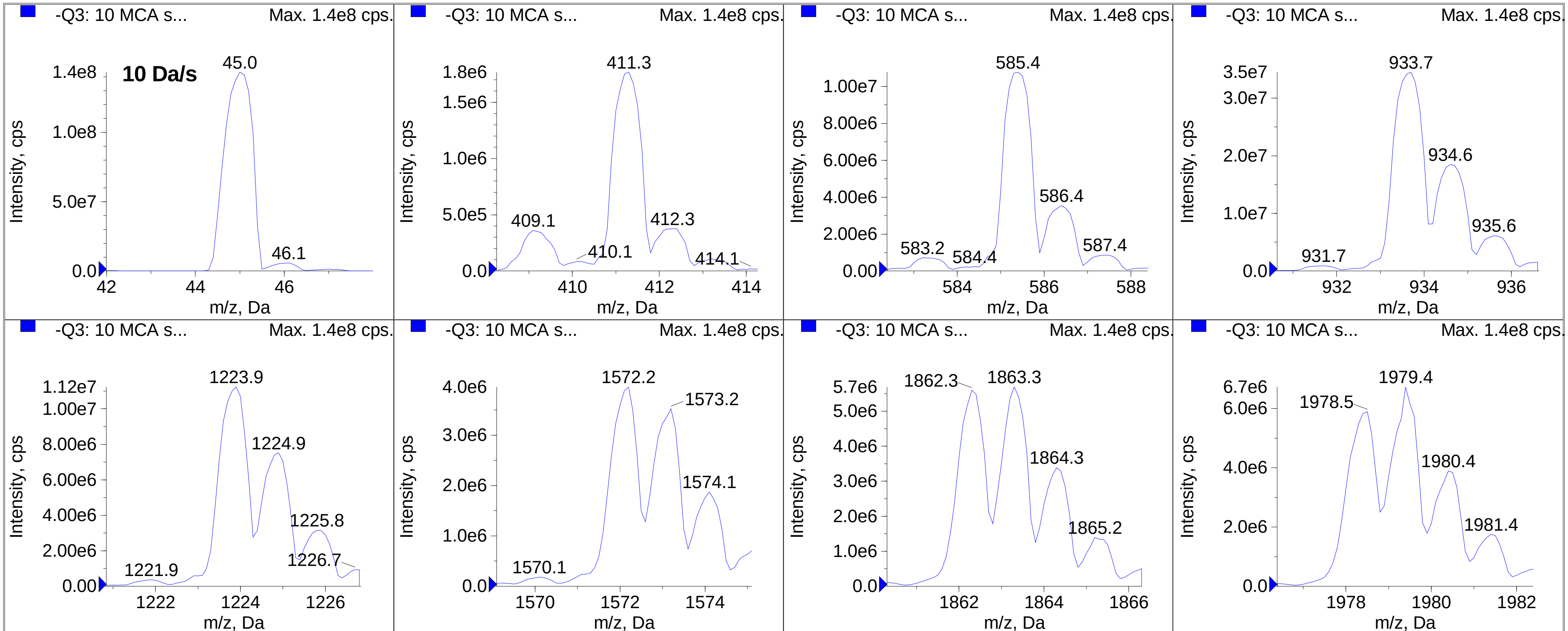


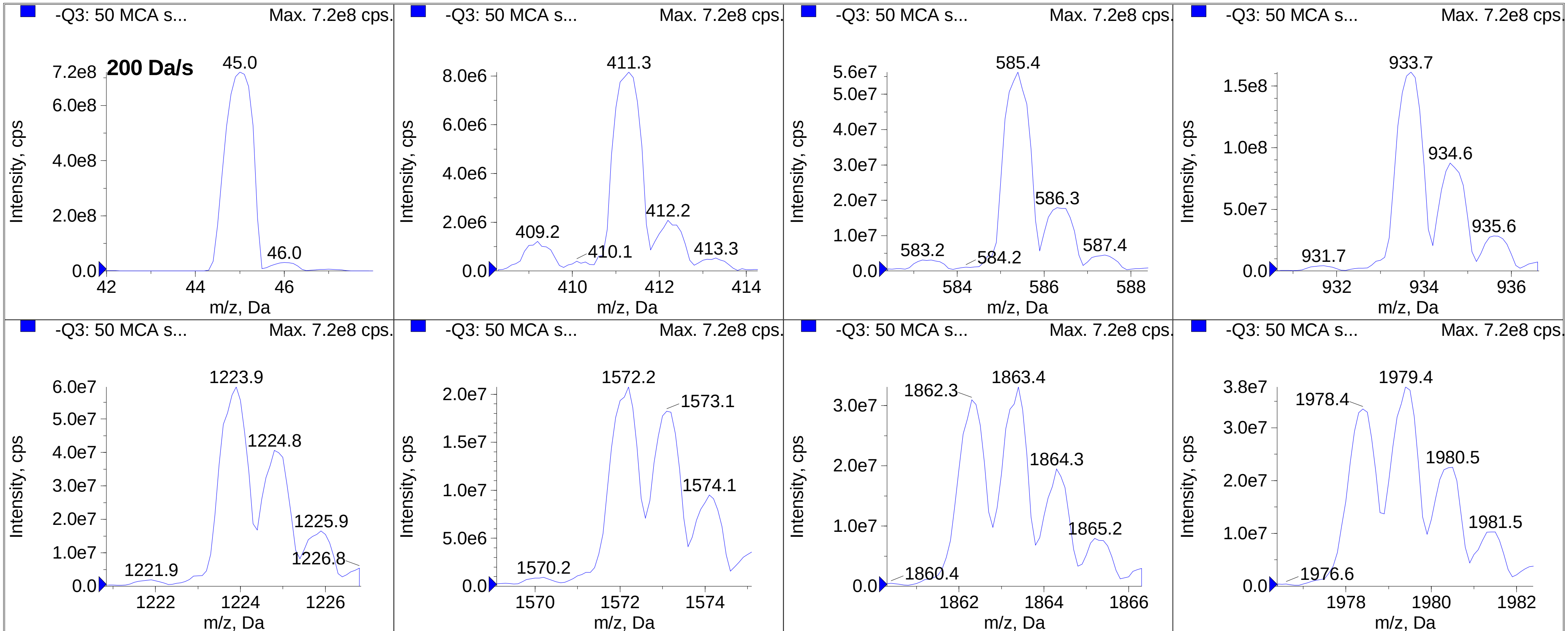
Peak List for " -Q3: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325155103.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9928	1.4333e8	0.7518	5.2161e-3
2	411.2590	411.2614	1.7681e6	0.7448	-2.4303e-3
3	585.3850	585.3870	1.0776e7	0.7128	-2.0136e-3
4	933.6360	933.6360	3.4515e7	0.7726	-4.7548e-5
5	1223.8450	1223.8332	1.1233e7	0.7640	0.0118
6	1572.0970	1572.1103	3.9565e6	0.7359	-0.0133
7	1863.3060	1863.3122	5.6912e6	0.7229	-6.2488e-3
8	1979.3890	1979.3896	6.7287e6	0.7704	-5.7240e-4

```
*Post-PM
*FSE: Lynne Russell
```

Acq. Time: 15:56
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



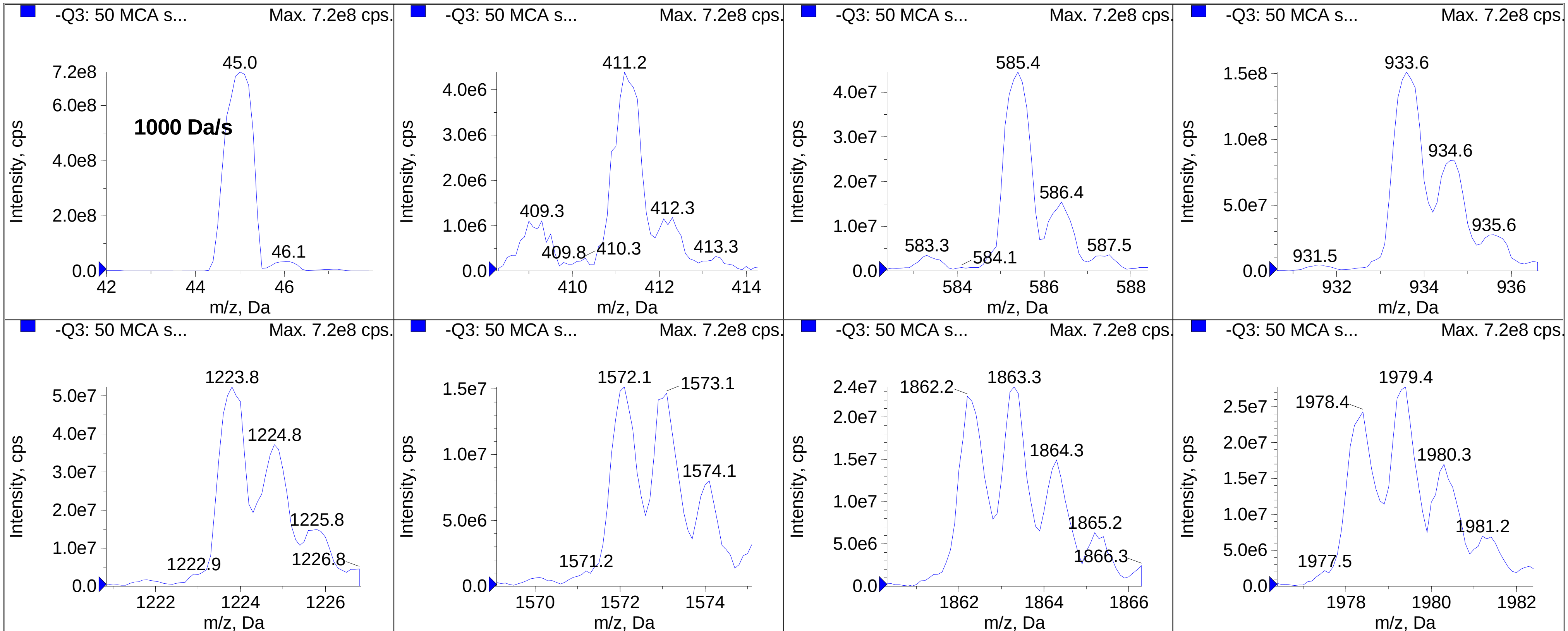
Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325155632.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0036	7.2093e8	0.7442	-5.6313e-3
2	411.2590	411.2597	8.1560e6	0.7536	-6.7665e-4
3	585.3850	585.3754	5.6260e7	0.7135	9.6286e-3
4	933.6360	933.6677	1.6115e8	0.6857	-0.0317
5	1223.8450	1223.8456	5.9576e7	0.7722	-6.3307e-4
6	1572.0970	1572.1074	2.0762e7	0.7675	-0.0104
7	1863.3060	1863.3270	3.3080e7	0.6901	-0.0210
8	1979.3890	1979.3887	3.7714e7	0.7590	3.3123e-4

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:59
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



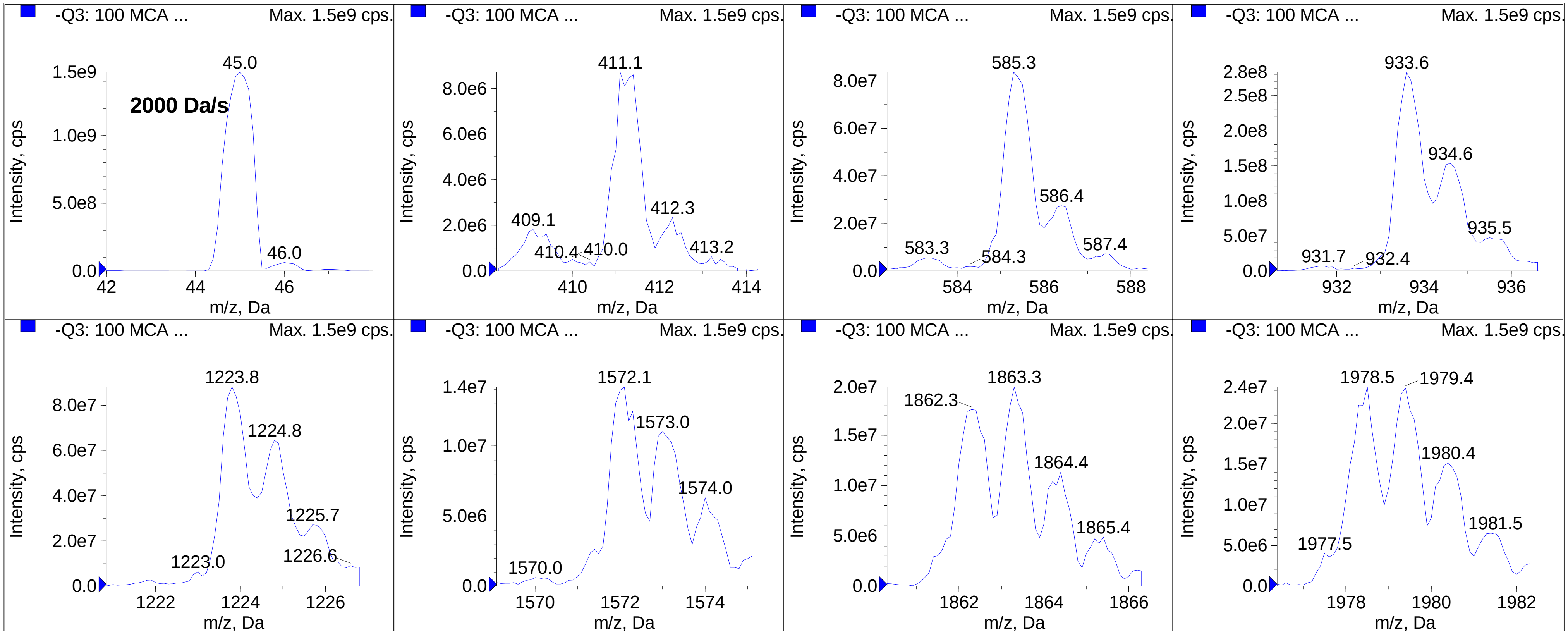
Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325155913.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9973	7.2143e8	0.7496	7.4490e-4
2	411.2590	411.2659	4.3900e6	0.7407	-6.8936e-3
3	585.3850	585.3767	4.4490e7	0.6952	8.2998e-3
4	933.6360	933.6150	1.5117e8	0.7331	0.0210
5	1223.8450	1223.8054	5.2360e7	0.7233	0.0396
6	1572.0970	1572.0802	1.5140e7	0.7208	0.0168
7	1863.3060	1863.2985	2.3550e7	0.6589	7.4811e-3
8	1979.3890	1979.3342	2.7740e7	0.7048	0.0548

*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:06
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " -Q3: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210325160625.wiff (Turbo Spray)"

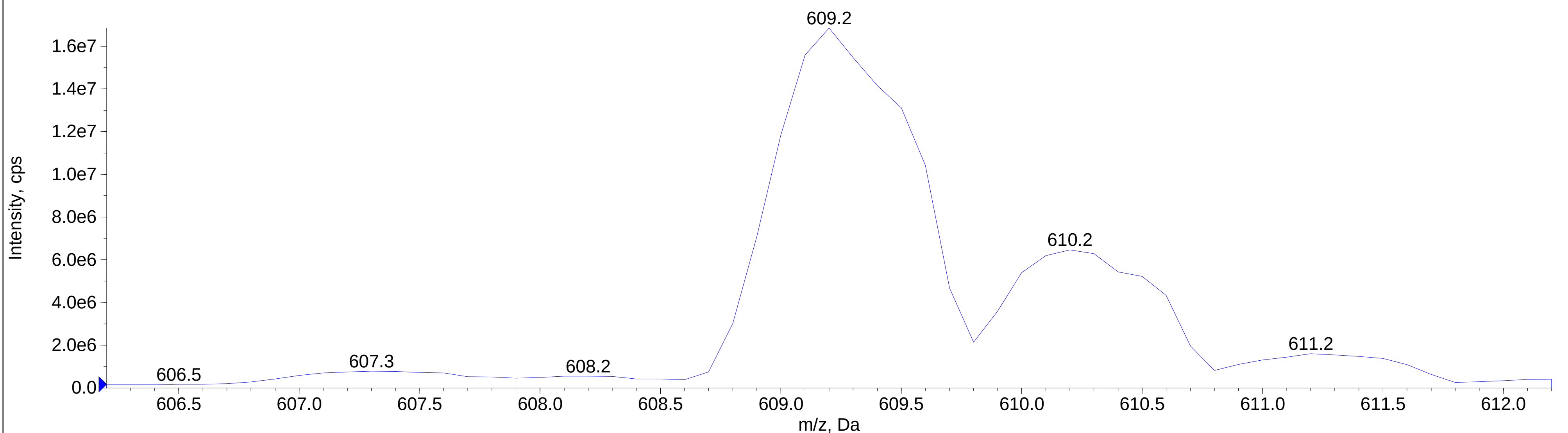
	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9931	1.4679e9	0.7570	4.8703e-3
2	411.2590	411.2696	8.7200e6	0.7171	-0.0106
3	585.3850	585.3799	8.3660e7	0.6993	5.0522e-3
4	933.6360	933.6423	2.8370e8	0.6606	-6.3190e-3
5	1223.8450	1223.8362	8.8060e7	0.6786	8.7632e-3
6	1572.0970	1572.0860	1.4200e7	0.7660	0.0110
7	1863.3060	1863.3234	1.9800e7	0.7225	-0.0174
8	1979.3890	1979.4044	2.4340e7	0.7994	-0.0154

*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:32
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807

+Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163206.wiff (Turbo Spray) Max. 1.7e7 cps.



Peak List for " +Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163206.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	174.1000	n/a	n/a	n/a	n/a
2	195.1000	n/a	n/a	n/a	n/a
3	397.2000	n/a	n/a	n/a	n/a
4	448.1000	n/a	n/a	n/a	n/a
5	609.2810	609.2691	1.6853e7	0.7063	0.0119

*Post-PM
*FSE: Lynne Russell

State Parameter Editor

Ion Source: Turbo Spray
Ion Source Temperature Reached
Curtain Gas (CUR): 30.0
IonSpray Voltage (IS): 3800.0
Temperature (TEM): 0.0
Ion Source Gas 1 (GS1): 25.0
Ion Source Gas 2 (GS2): 0.0

Entrance Potential (EP): 10.0

Q1 Resolution: Unit
Ion Energy 1 (IE1): 1.0

Deflector (DF): -200.0
CEM (CEM): 2100.0

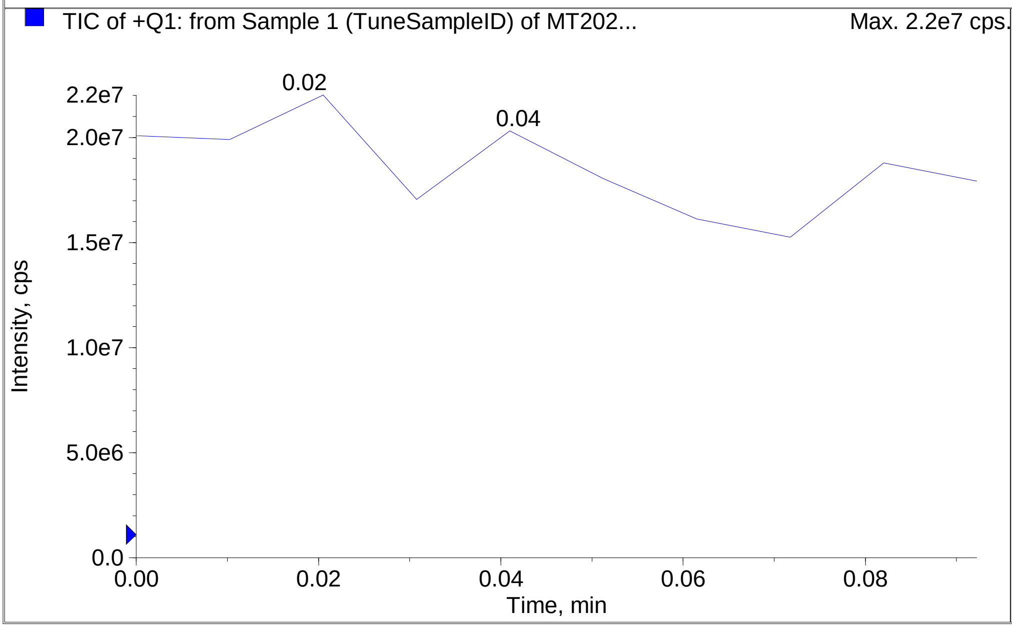
Mass Spectrometer Method Properties

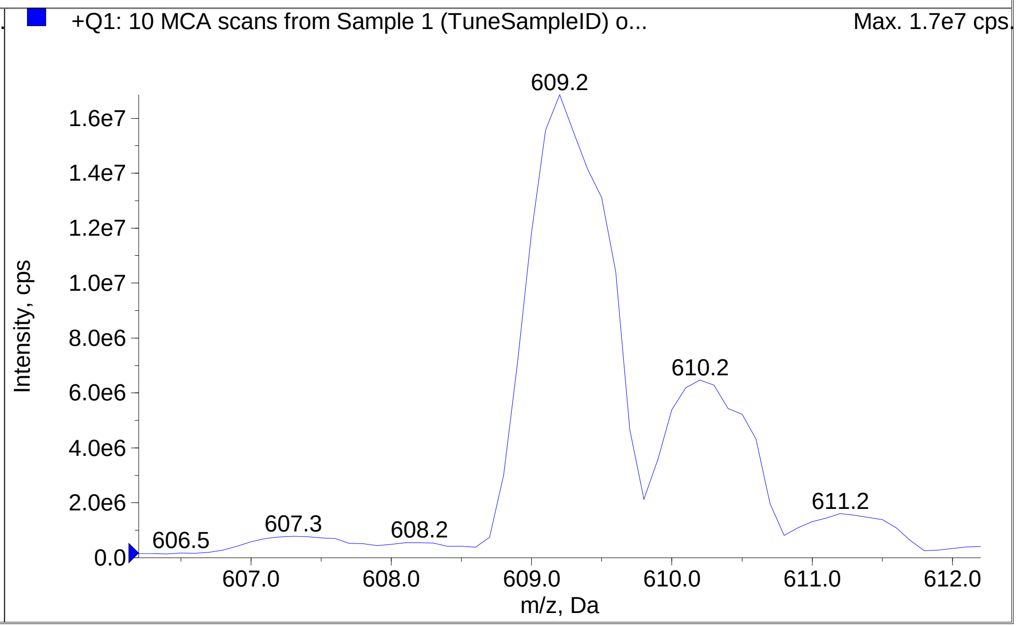
Period 1:

Scans in Period: 10
Relative Start Time: 0.00 msec
Scheduled Ionization: Off
Experiments in Period: 1

Period 1 Experiment 1:

Scan Type: Q1 MS (Q1)
Polarity: Positive
Scan Mode: Profile
Ion Source: Turbo Spray
Scans to Sum: 1





*Post-PM
*FSE: Lynne Russell

State Parameter Editor

Ion Source: Turbo Spray
Ion Source Temperature Reached
Curtain Gas (CUR): 30.0
Collision Gas (CAD): 8
IonSpray Voltage (IS): 3800.0
Temperature (TEM): 0.0
Ion Source Gas 1 (GS1): 25.0
Ion Source Gas 2 (GS2): 0.0

Entrance Potential (EP): 10.0
Collision Energy (CE): 44.0
Collision Cell Exit Potential (CXP): 7.0

Q1 Resolution: UnitQ3 Resolution: Unit
Ion Energy 1 (IE1): 1.0

Mass Spectrometer Method Properties

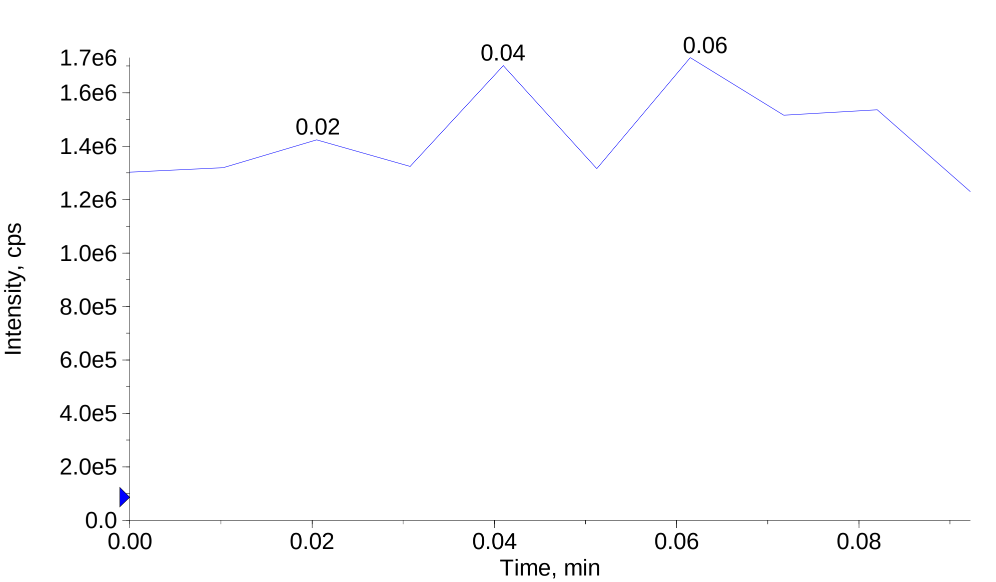
Period 1:

Scans in Period: 10
Relative Start Time: 0.00 msec
Scheduled Ionization: Off
Experiments in Period: 1

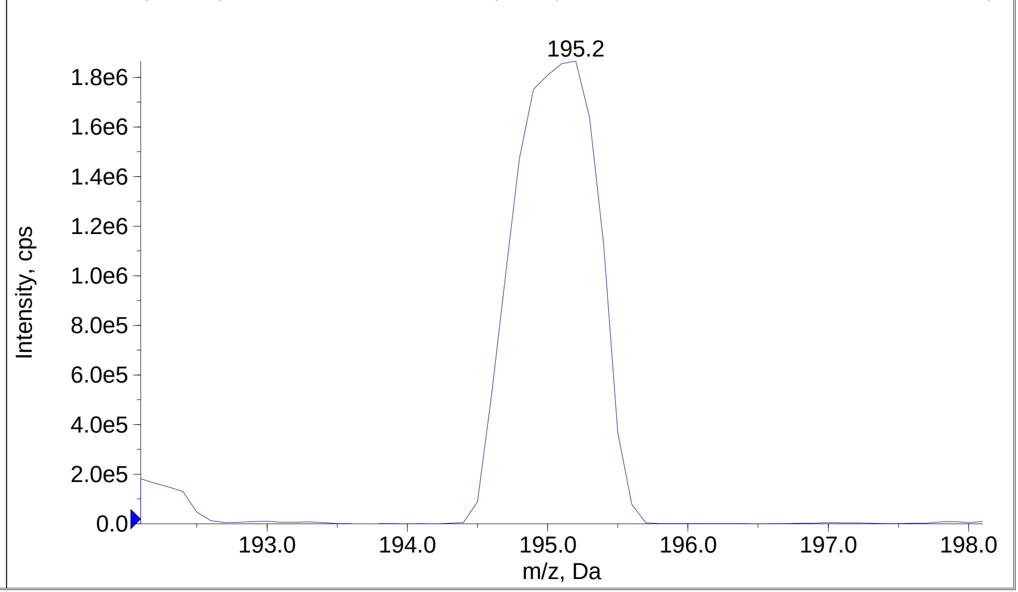
Period 1 Experiment 1:

Scan Type: Product Ion (MS2)
Polarity: Positive
Scan Mode: Profile
Ion Source: Turbo Spray
Scans to Sum: 1

TIC of +MS2 (609.20): from Sample 1 (TuneSampleID) ... Max. 1.7e6 cps.



+MS2 (609.20): 10 MCA scans from Sample 1 (TuneS... Max. 1.9e6 cps.



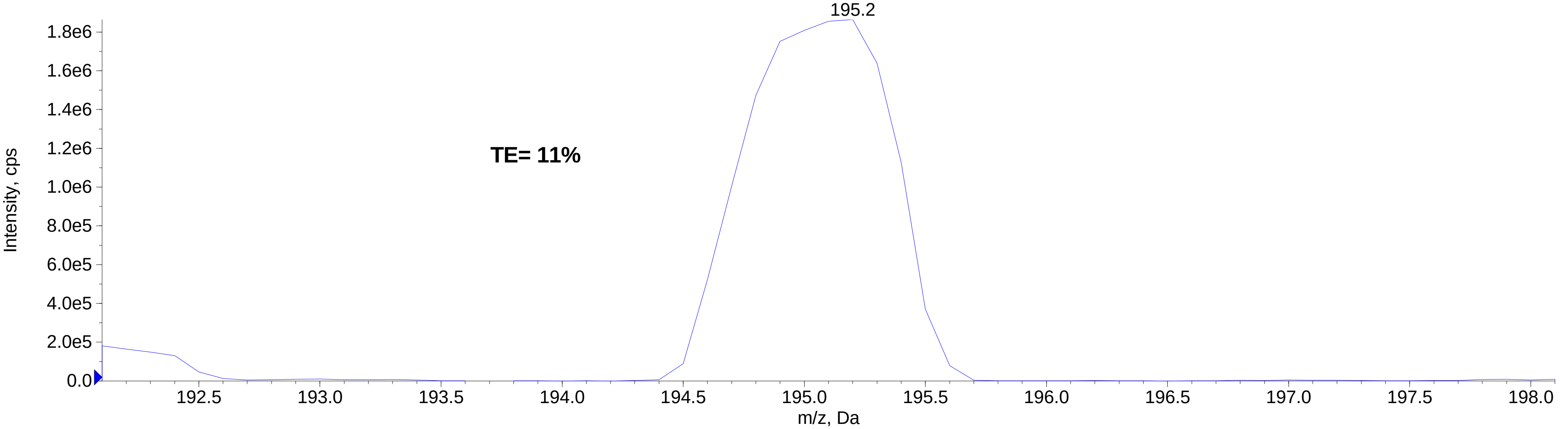
*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:33
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807

+MS2 (609.20): 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163348.wiff (Turbo Spray)

Max. 1.9e6 cps.



Peak List for " +MS2 (609.20): 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163348.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	174.1000	n/a	n/a	n/a	n/a
2	195.1000	195.0703	1.8646e6	0.7410	0.0297
3	397.2000	n/a	n/a	n/a	n/a
4	448.1000	n/a	n/a	n/a	n/a
5	609.2810	n/a	n/a	n/a	n/a

*Post-PM
*FSE: Lynne Russell

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d		
Injection Date:	10-Nov-2021 14:10:25	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.718	0	705461	22	>100:1			1001.00	1134.78	107	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.115	2.109	1	626847	16	>100:1			1001.00	1096.67	107.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.120		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.173	0	180920	15	>100:1			1001.00	1045.96	110.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.173		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.532		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.450	2.451	0	117349	18	>100:1			5005.00	5182.41	103.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.486	2.496	0	721066	17	>100:1			1001.00	1107.14	108	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.496		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.605	2.607	0	1269384	20	>100:1			5005.00	5477.23	104.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.873	0	584233	19	>100:1			1001.00	1100.38	107	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.873		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.889	0	139116	21	>100:1			1001.00	1107.26	112.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.903	2.889	1/1	544	27	8.2:1	Target = 2.89	4.78	3.5605	3.5605		
399 > 99	45	2.918	2.889		284	44		1.91 (1.44-4.34)	2.15				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.276		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.239	3.242	0	113088	22	>100:1			5005.00	6282.68	115.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.269	0	623371	23	>100:1			1001.00	1188.11	108.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.654	3.657	0	113990	19	>100:1			1001.00	920.44	90.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.652		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.859	3.872	0/0	1383	17	10:1			3.2069	3.2069		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.495	4.483	1/1	465	11	6.7:1			1.1927	1.1927		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.842		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.659	3.662	0	728937	23	>100:1			1001.00	1138.29	105.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.662		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.924	3.921	1	276295	17	>100:1			1001.00	1030.73	102.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.921		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.021	4.027	0	649304	16	>100:1			1001.00	1129.89	101.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.010	4.017	0	99355	23	>100:1			5005.00	5748.21	101.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.631		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.180	4.178	1	765304	18	>100:1			5005.00	5064.46	104.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.331	4.329	1	95192	15	>100:1			1001.00	1055.47	115	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.348		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.350	4.348	1	49475	13	>100:1			1001.00	1051.74	102.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.367		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.340	4.339	1	704612	17	>100:1			5005.00	5440.47	107.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.340	4.339	1	669087	15	>100:1			1001.00	1110.98	101.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.495	4.501	0	108865	16	>100:1			1001.00	1026.28	108.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.510		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.522	4.519	1	38247	14	>100:1			1001.00	889.47	98.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.617	4.614	1	702102	16	>100:1			1001.00	1169.51	94.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.087	0	944607	20	>100:1			1001.00	1161.89	107.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.508	5.512	0	996635	19	>100:1			1001.00	1148.15	105.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.508	5.512	0/0	6475	16	26:1	Target = 10.43		10.154	10.154		
813 > 269	40	5.515	5.512		522	16	7.4:1	12.40 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.944		ND								
*** 37 13C2_PFDA**													
515 > 470		4.021	4.027	0	785529	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.496	0	769540	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.269	1	654144	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	682893	22	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.654	3.657	0	134774	29	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

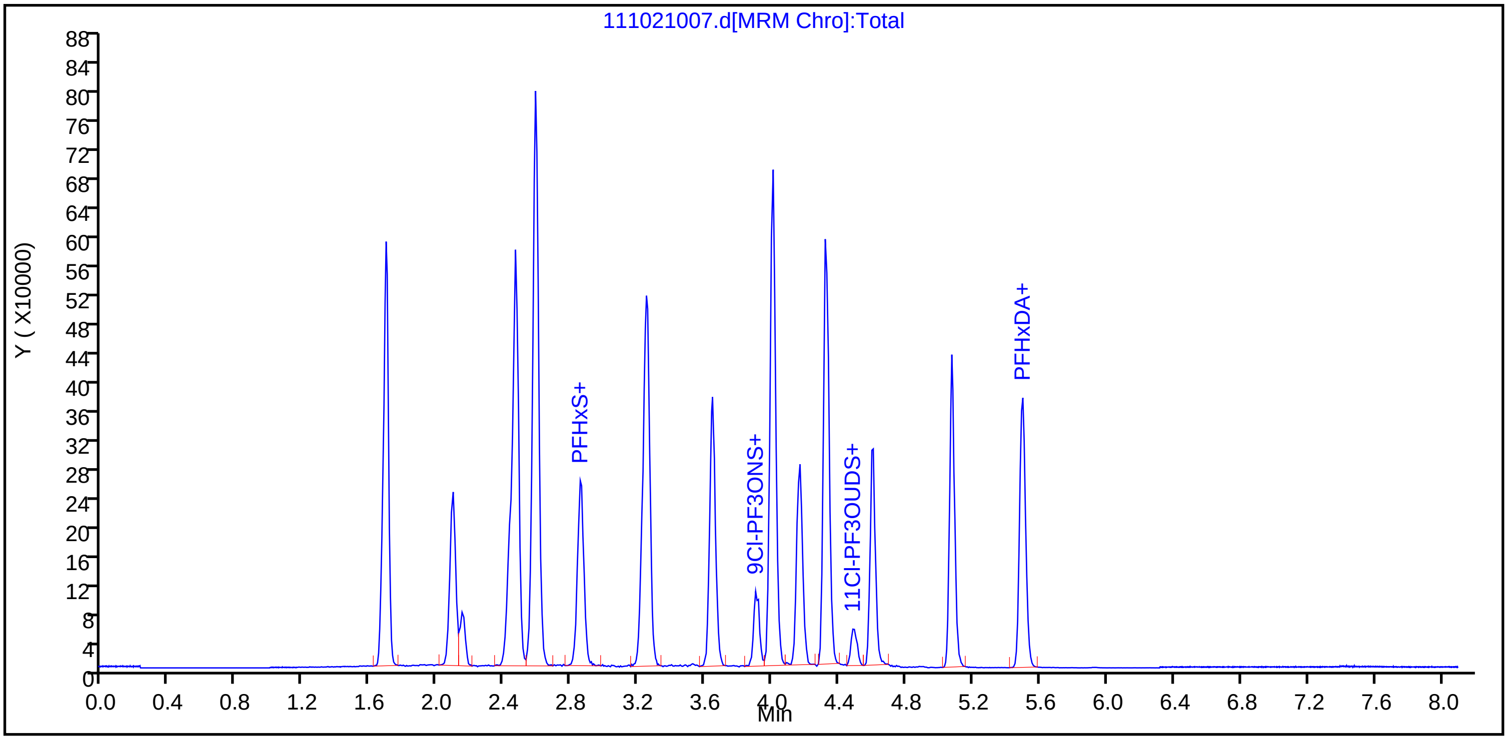
QC Flag Legend

U - Result Less Than Method Detection Limit

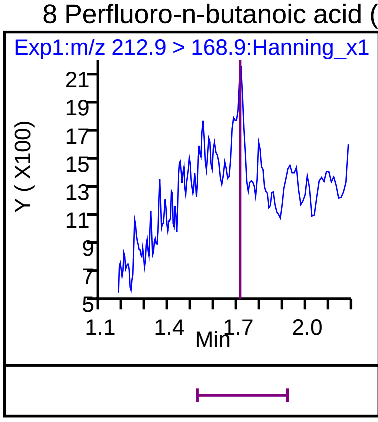
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

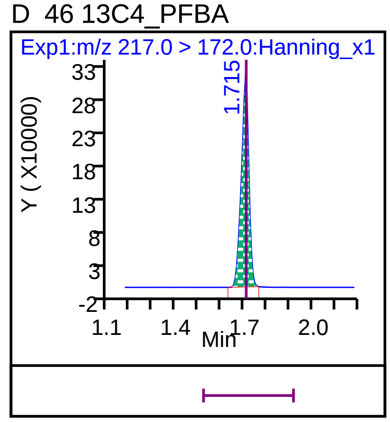
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d		
Injection Date:	10-Nov-2021 14:10:25	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Justin Gavin



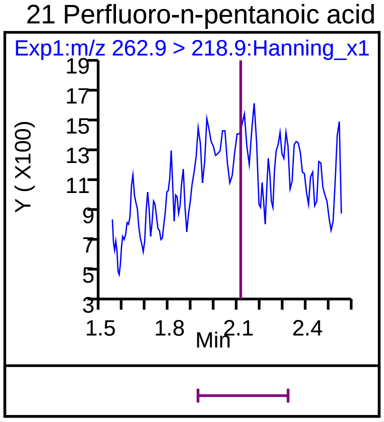
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



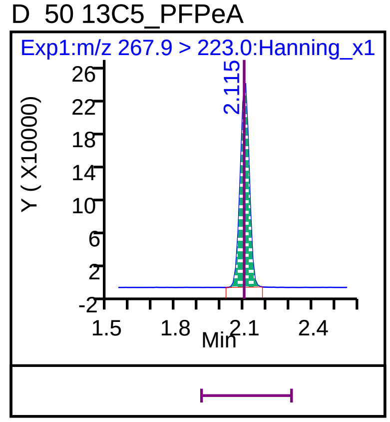
D 46 13C4_PFBA



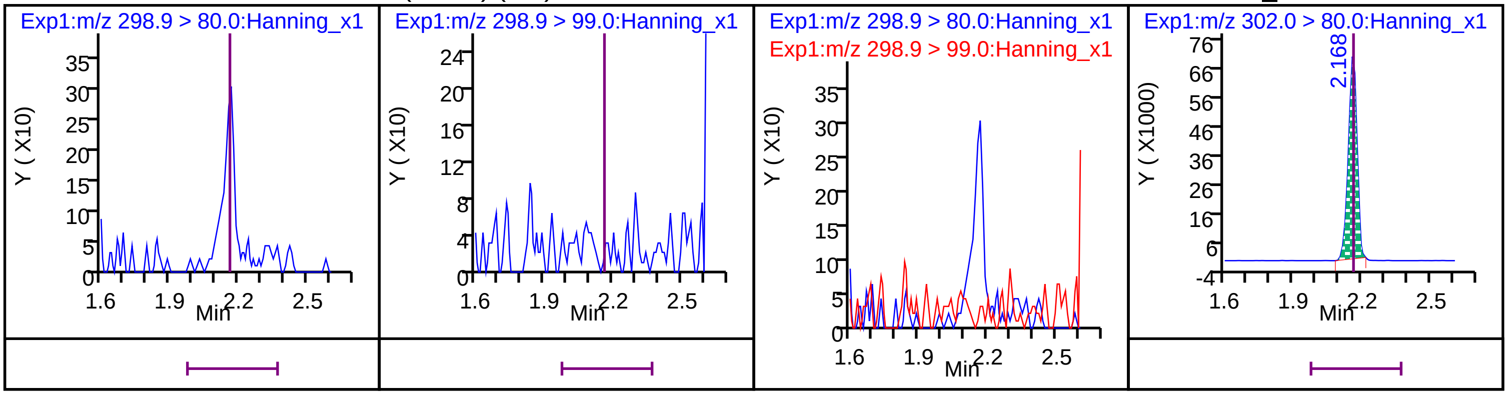
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



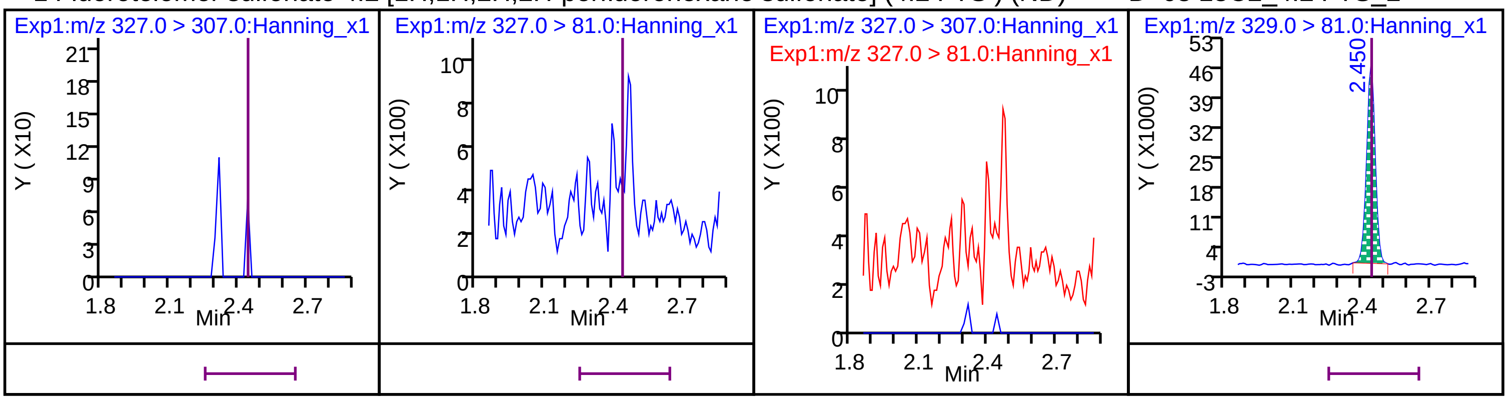
D 50 13C5_PFPeA



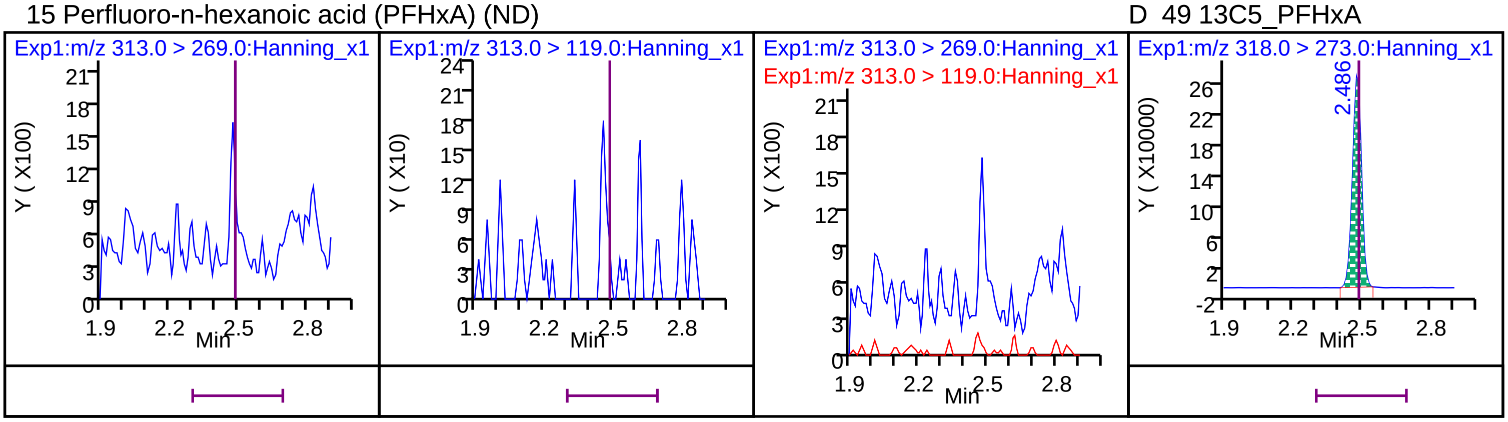
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



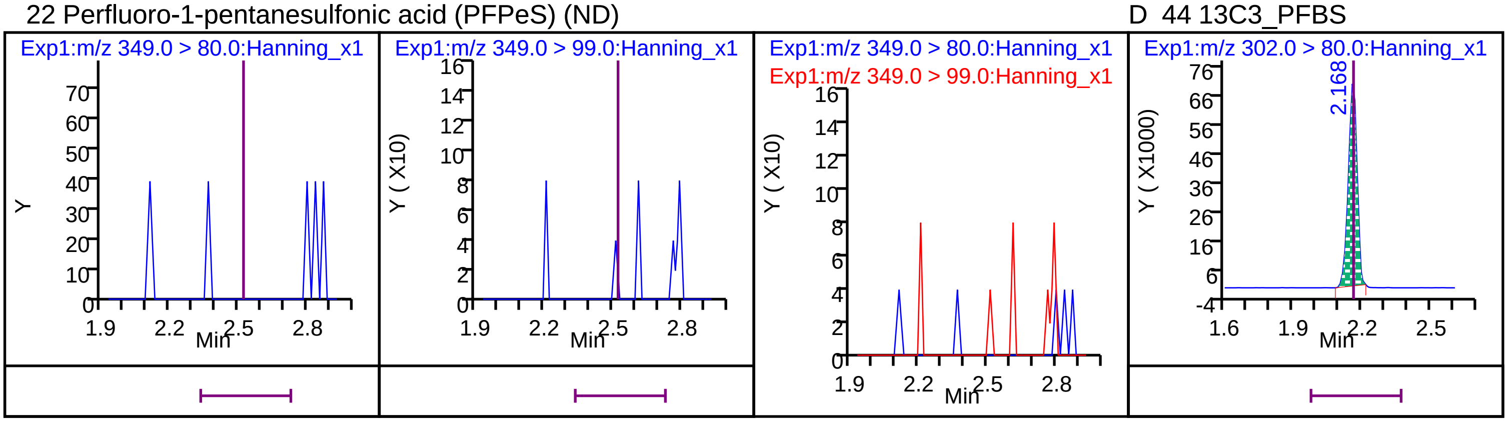
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA

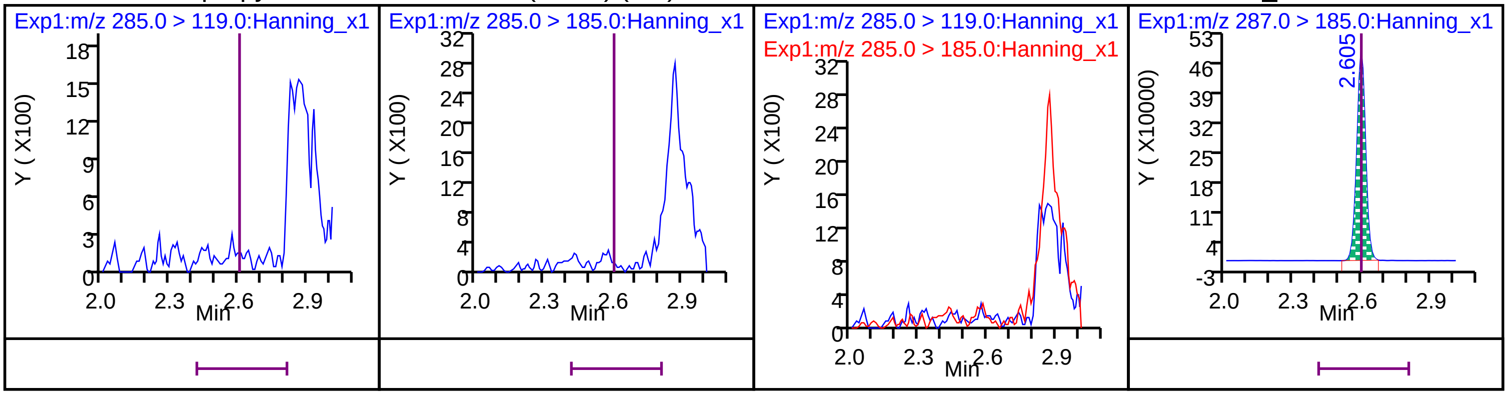


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

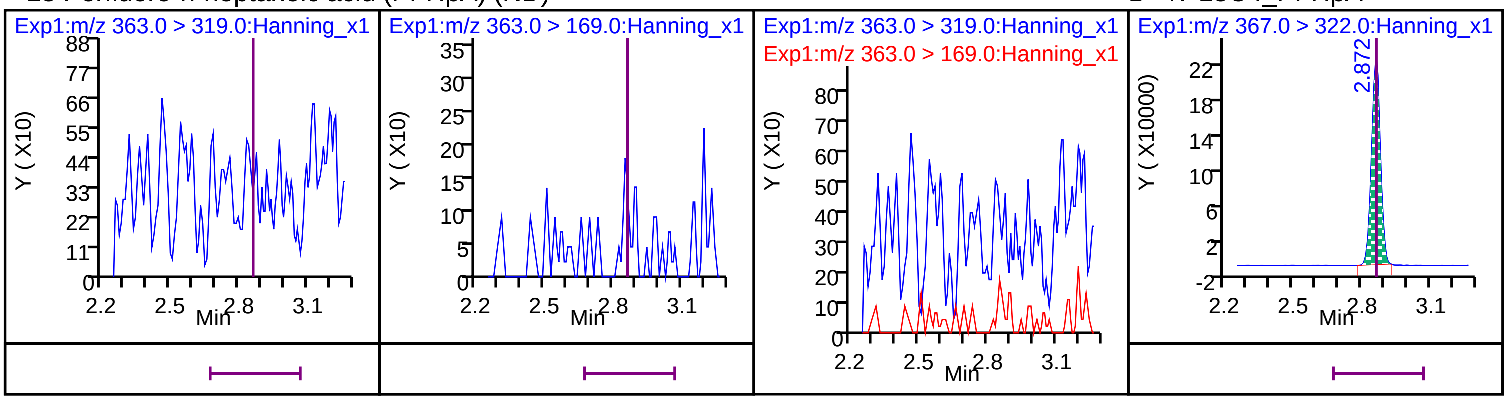


Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d

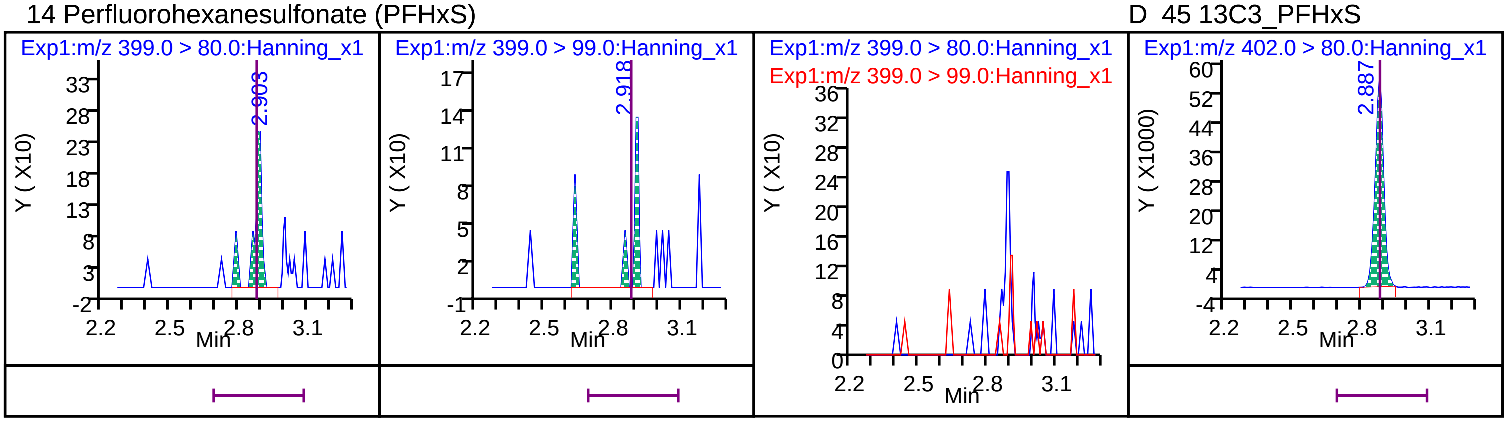
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



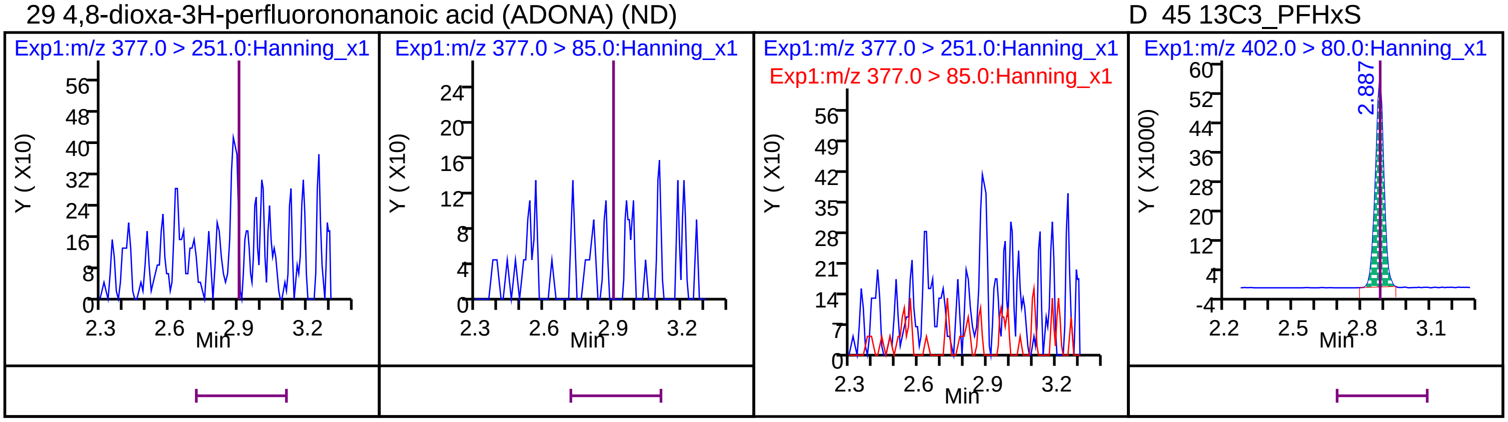
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



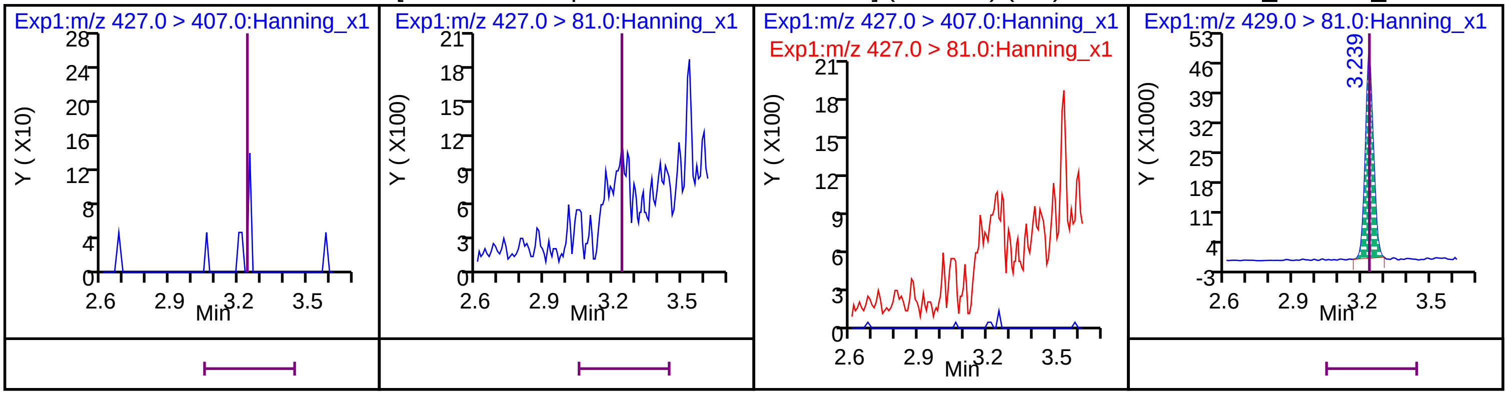
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



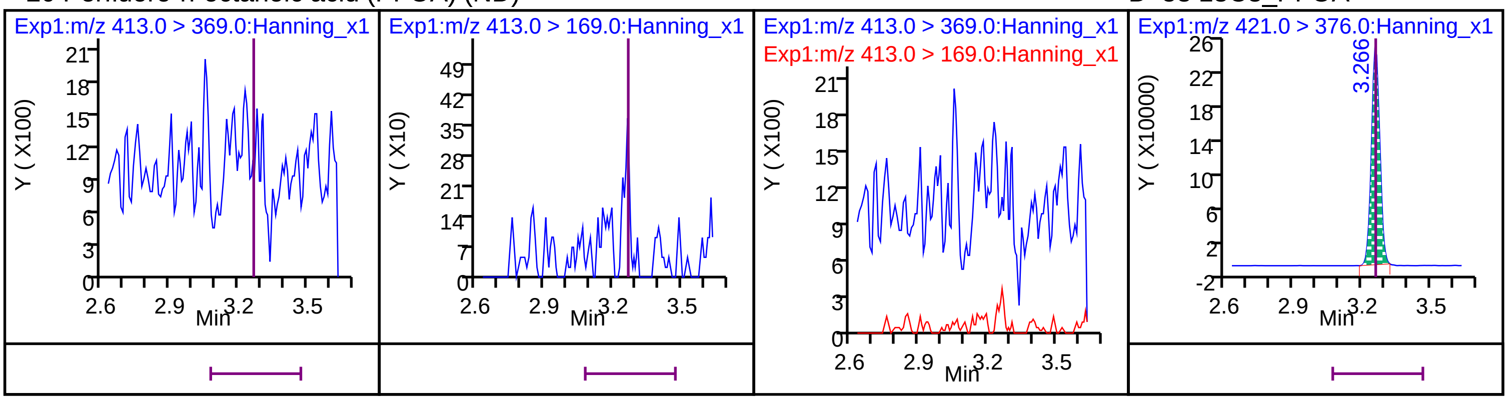
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



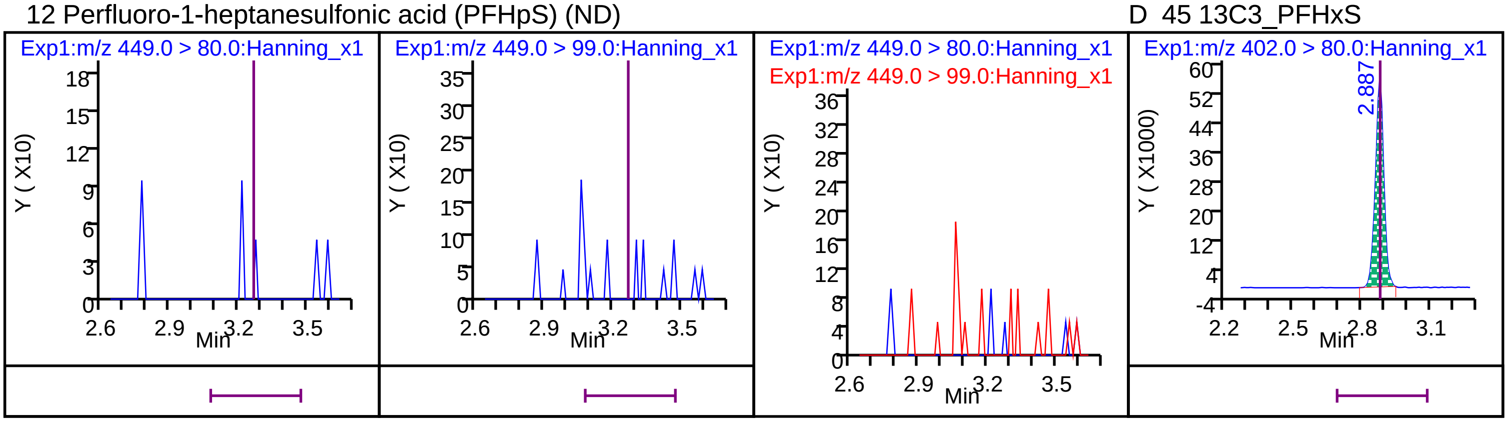
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



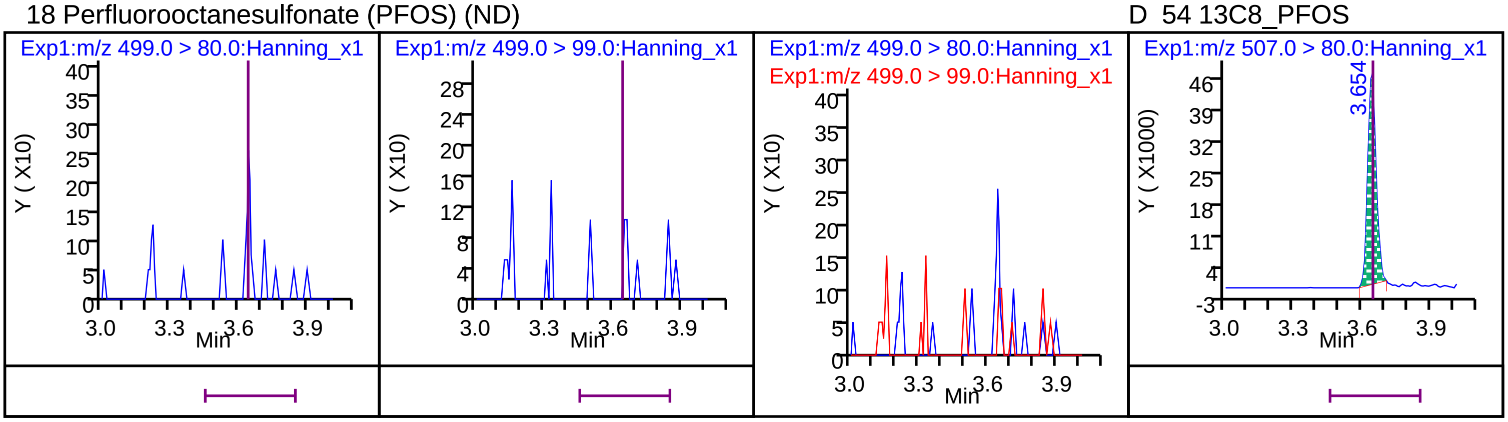
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS

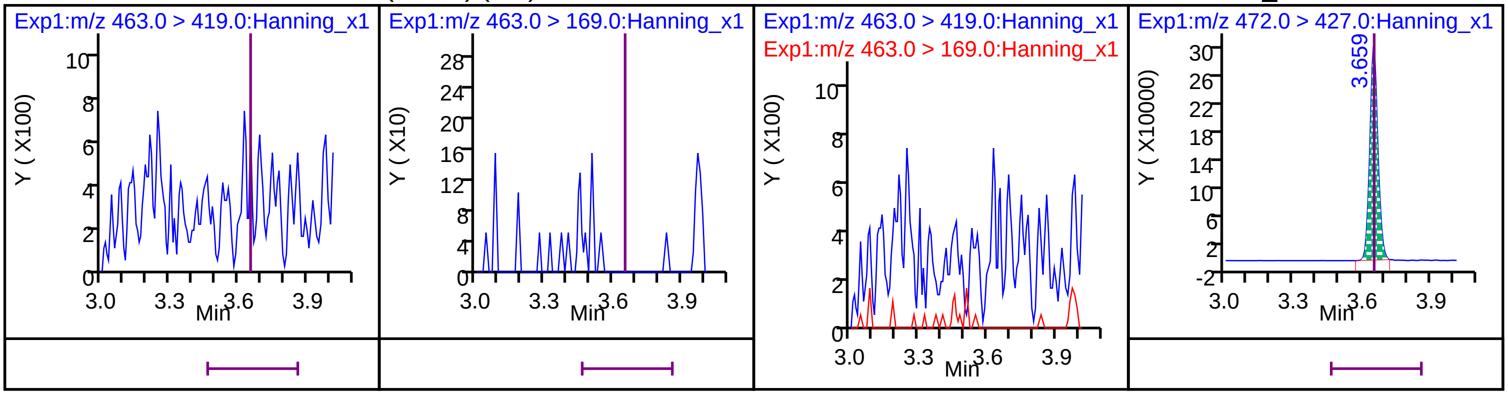


18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS

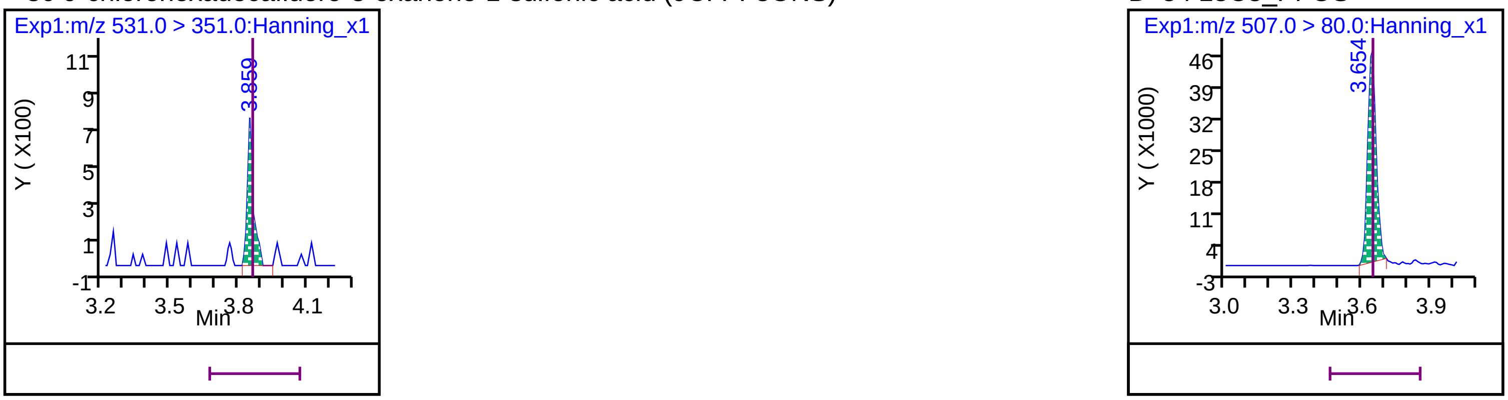


Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d

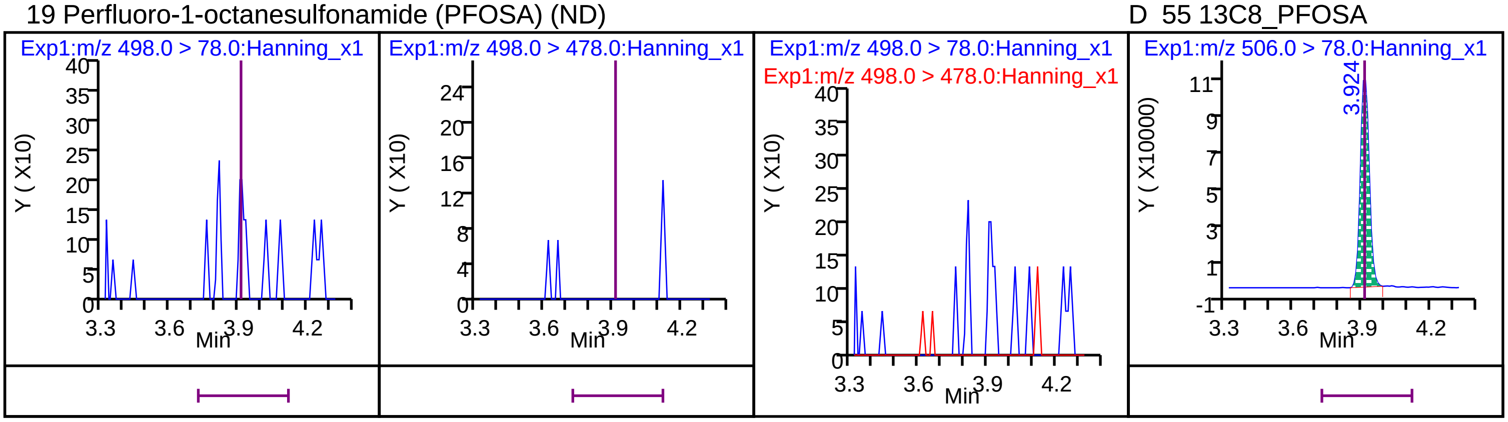
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



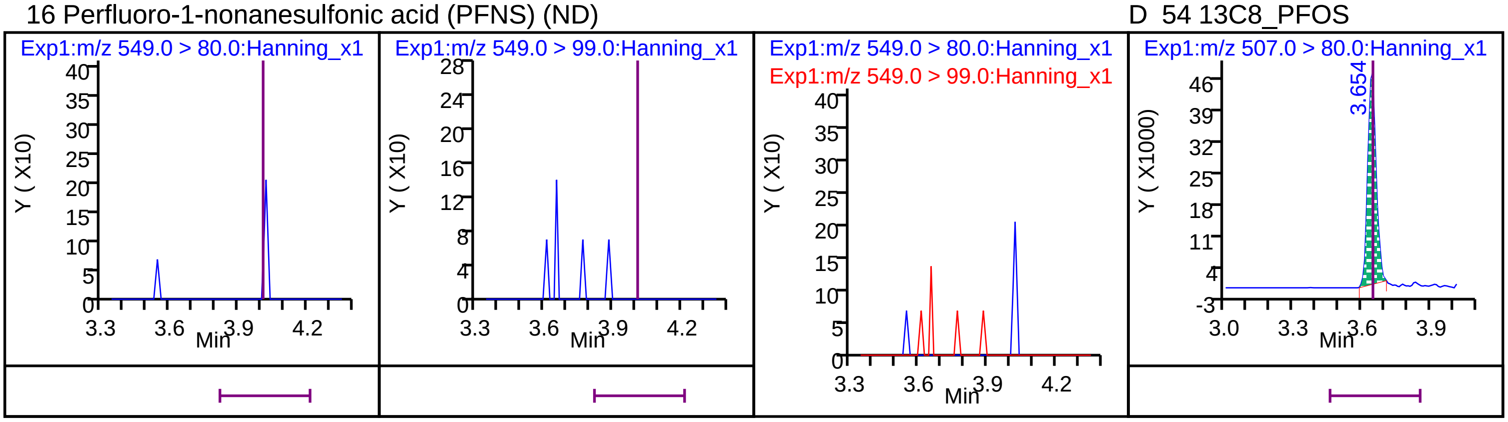
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



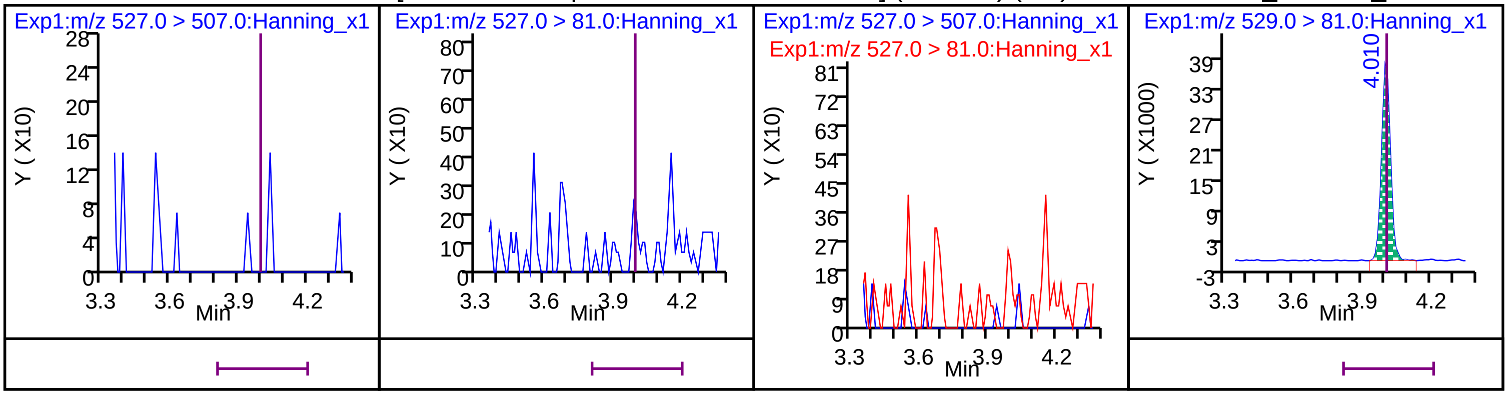
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



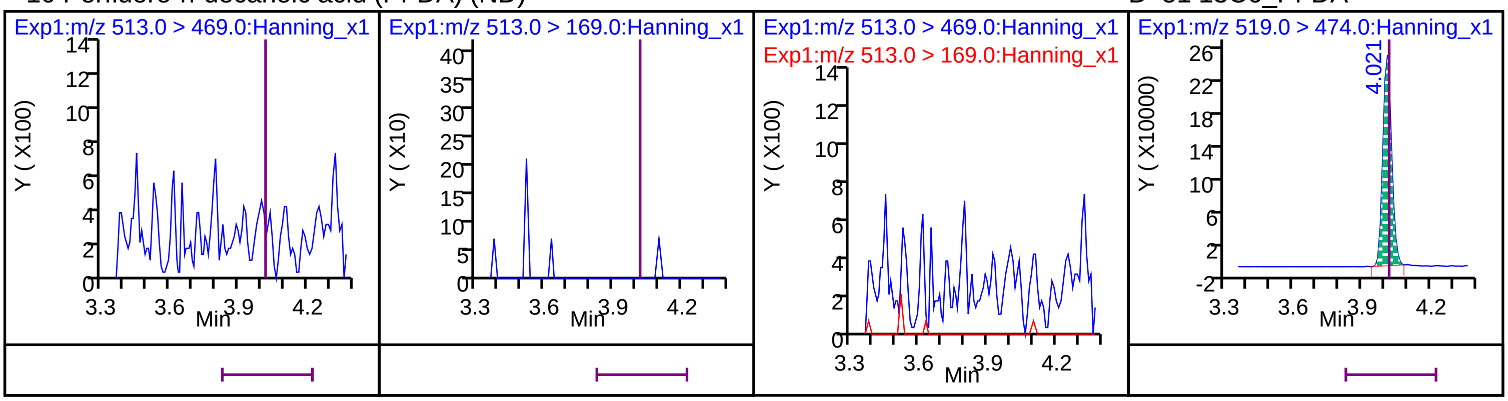
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



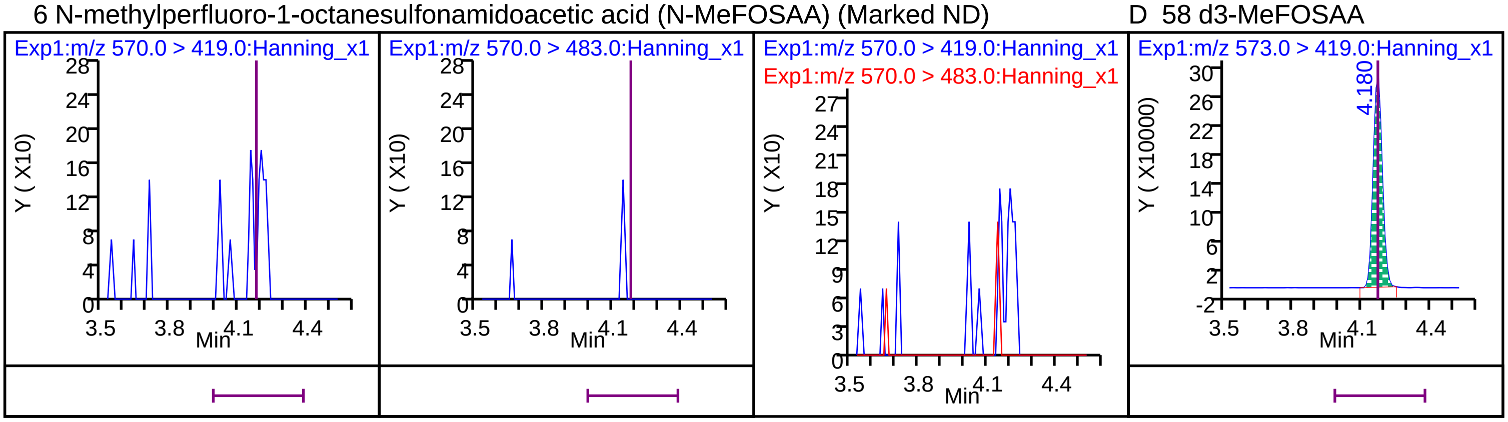
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



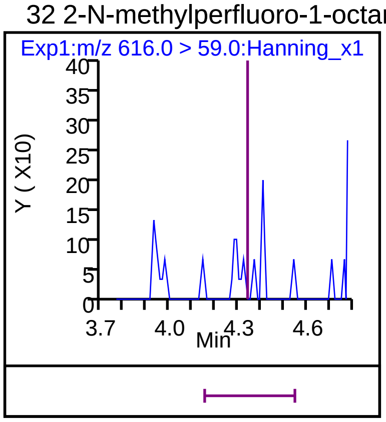
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA

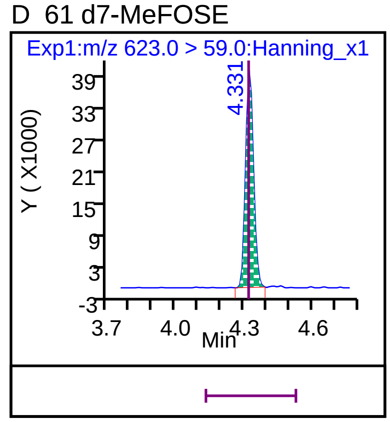


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA

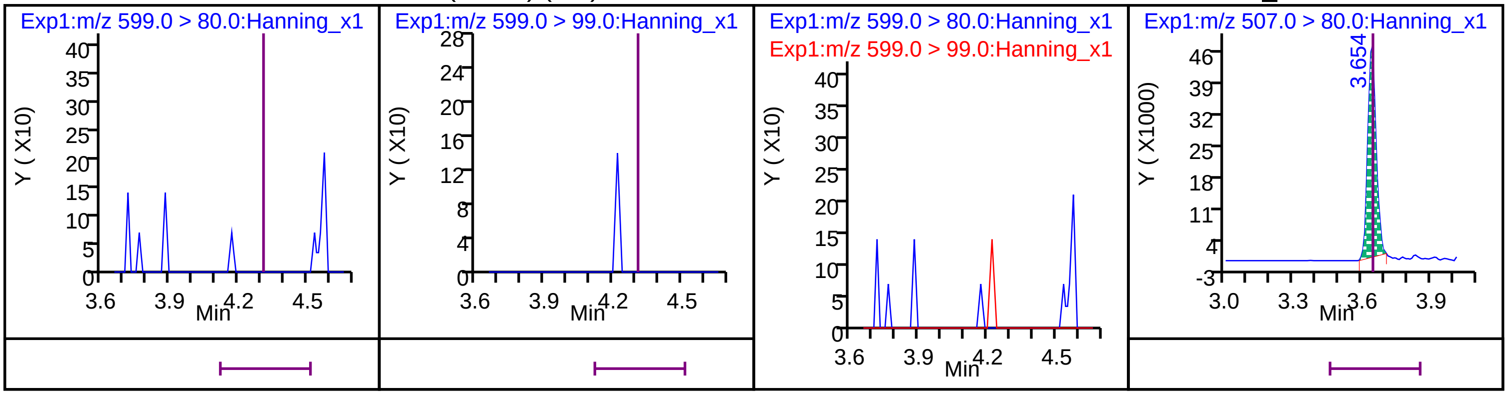


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

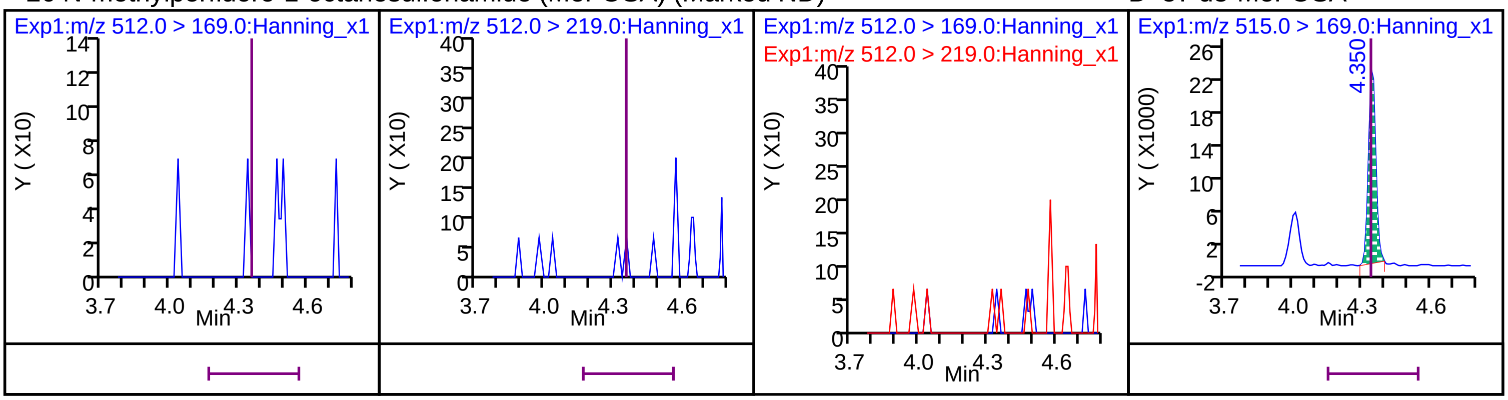




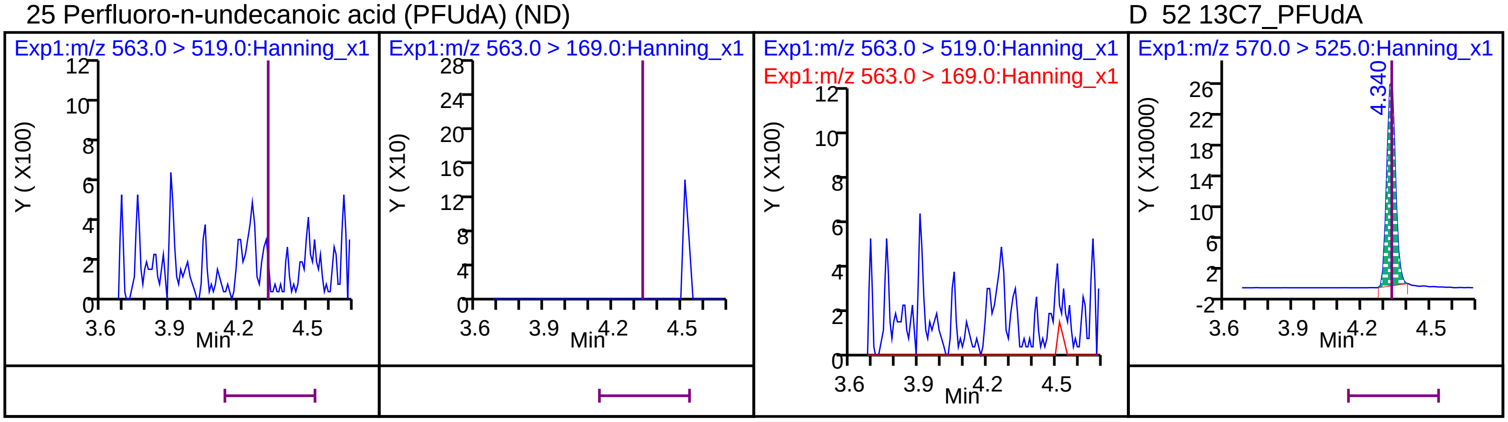
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



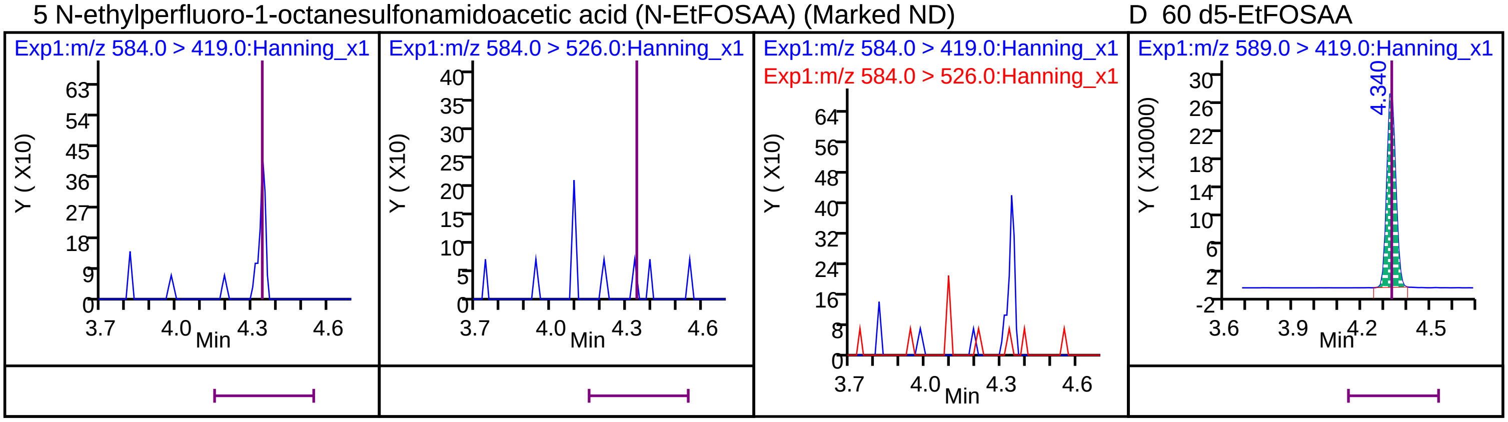
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (Marked ND) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



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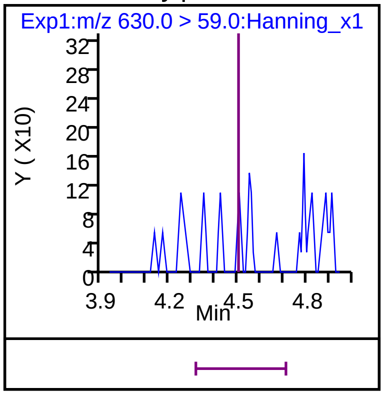
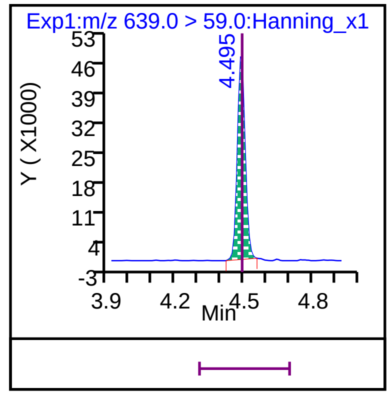
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d

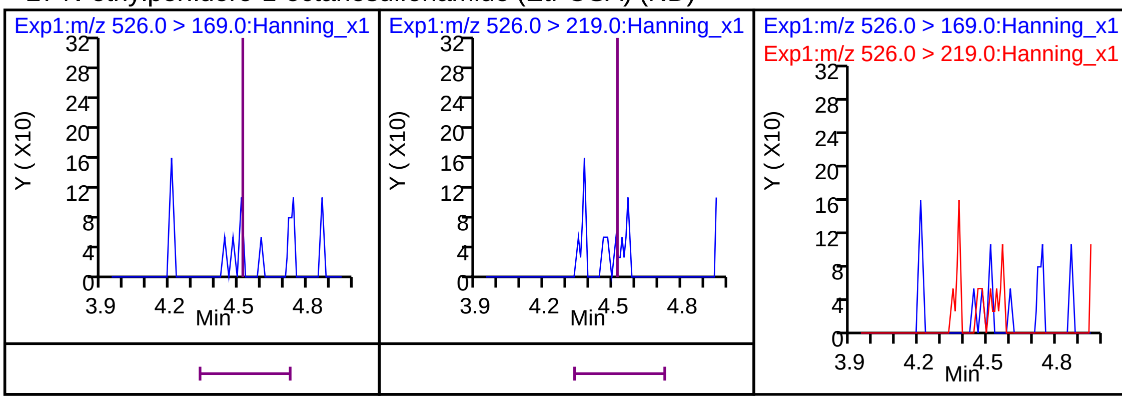
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)



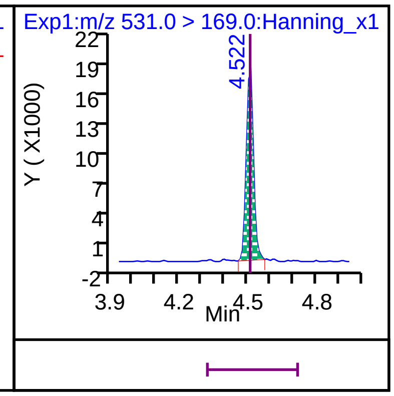
D 62 d9-EtFOSE



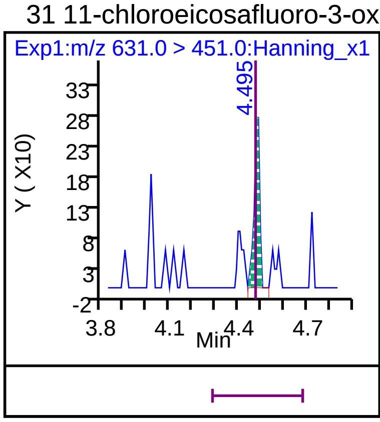
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



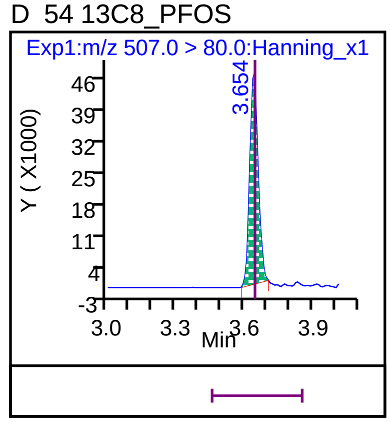
D 59 d5-EtFOSA



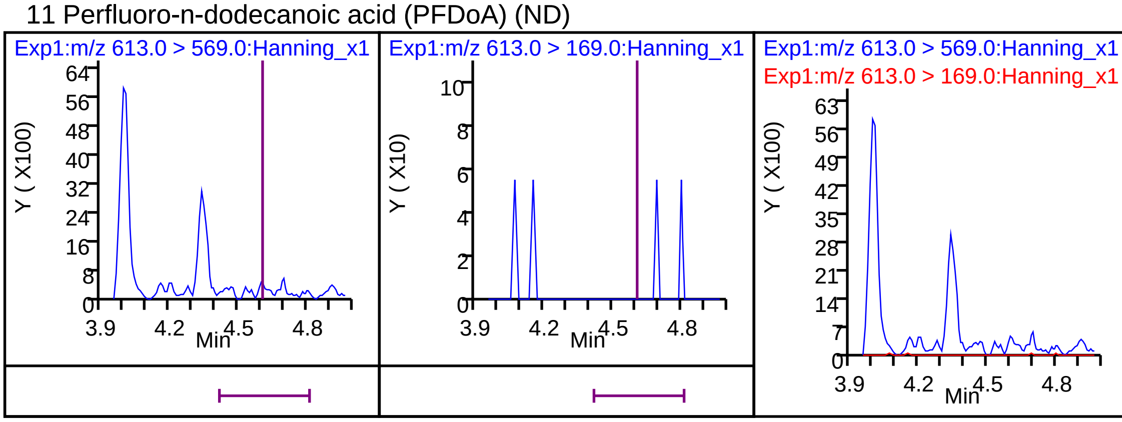
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



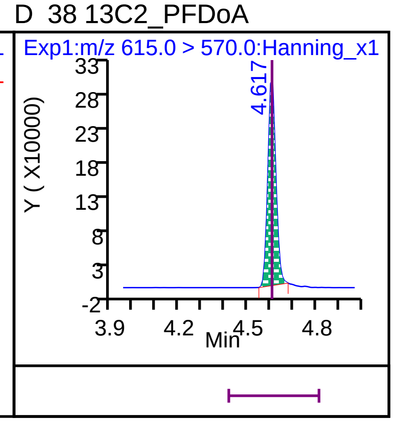
D 54 13C8_PFOS



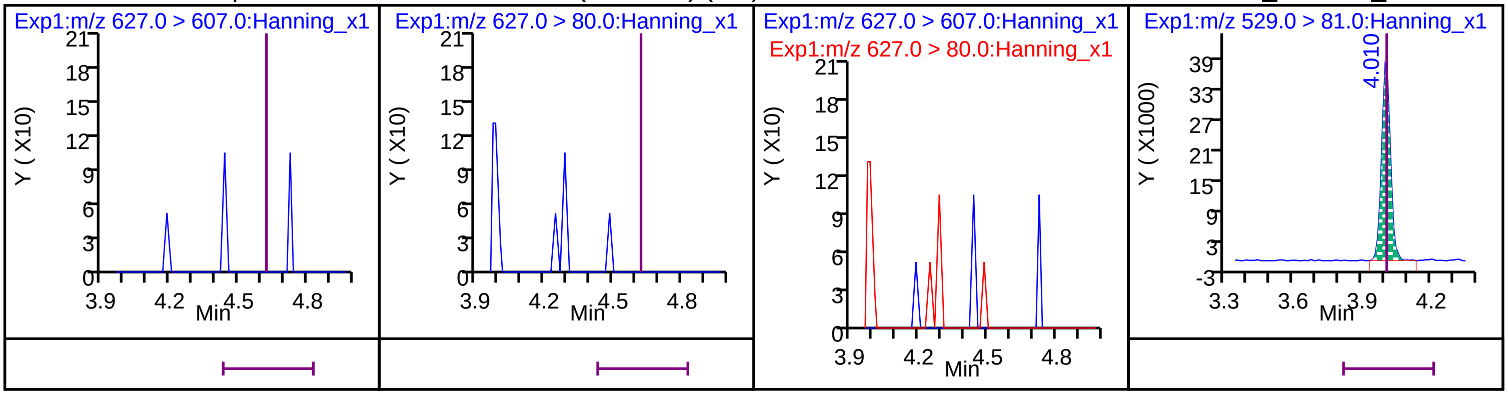
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



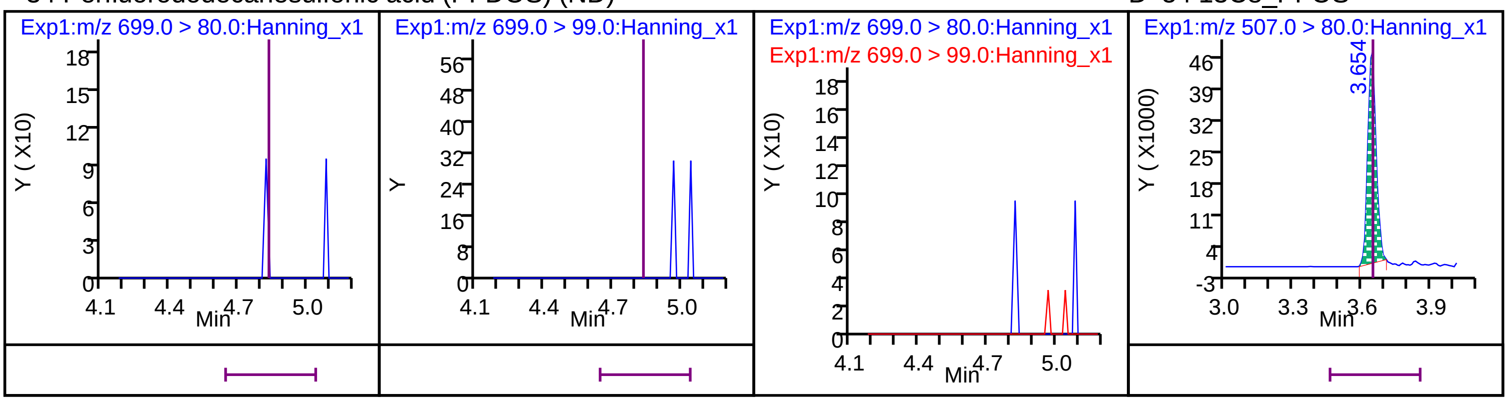
D 38 13C2_PFDoA



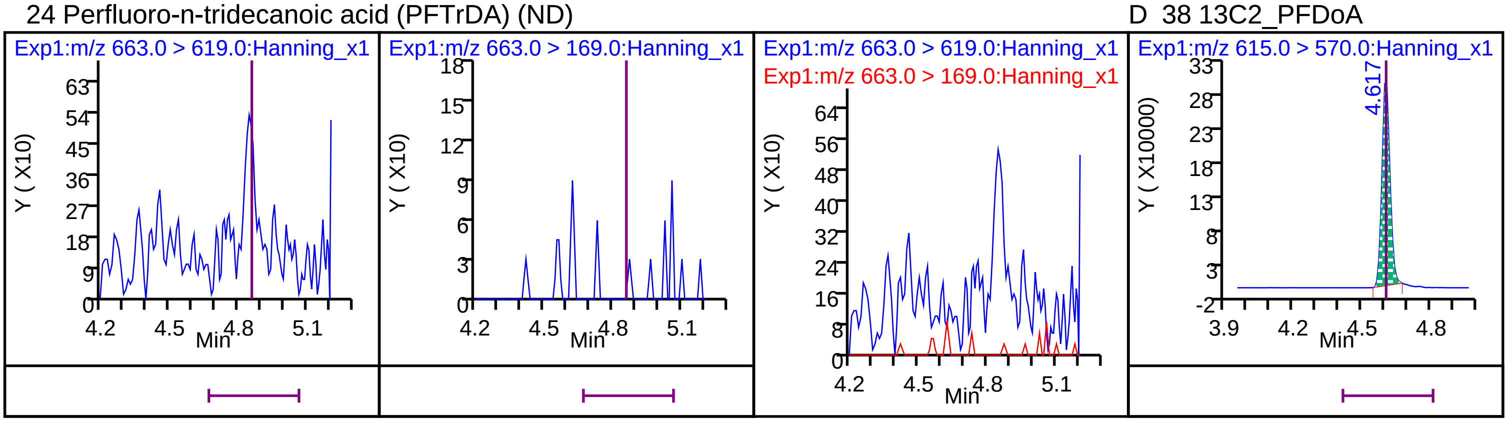
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



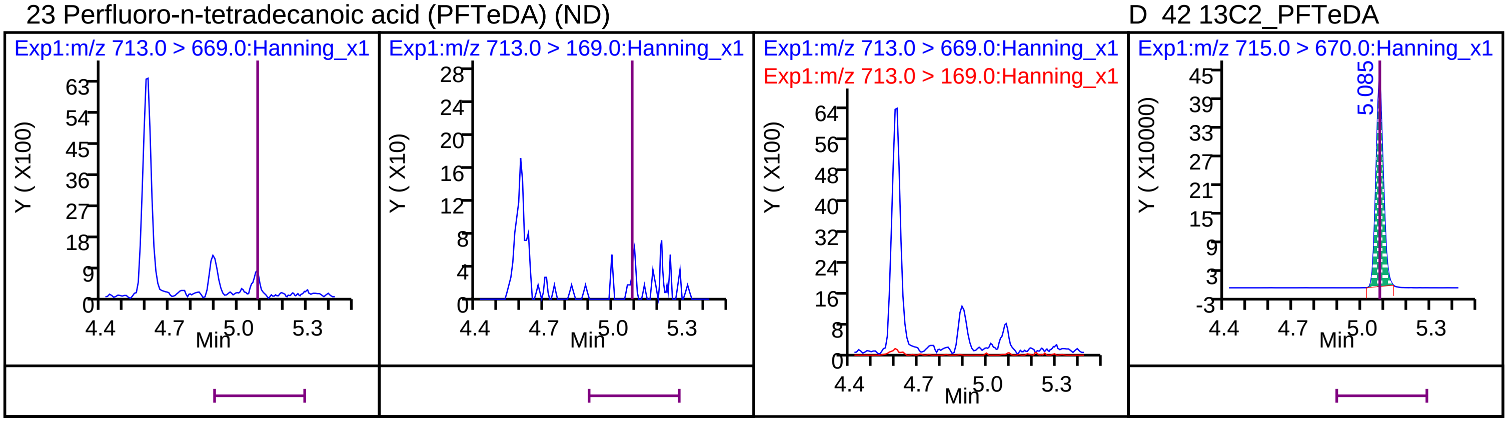
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA

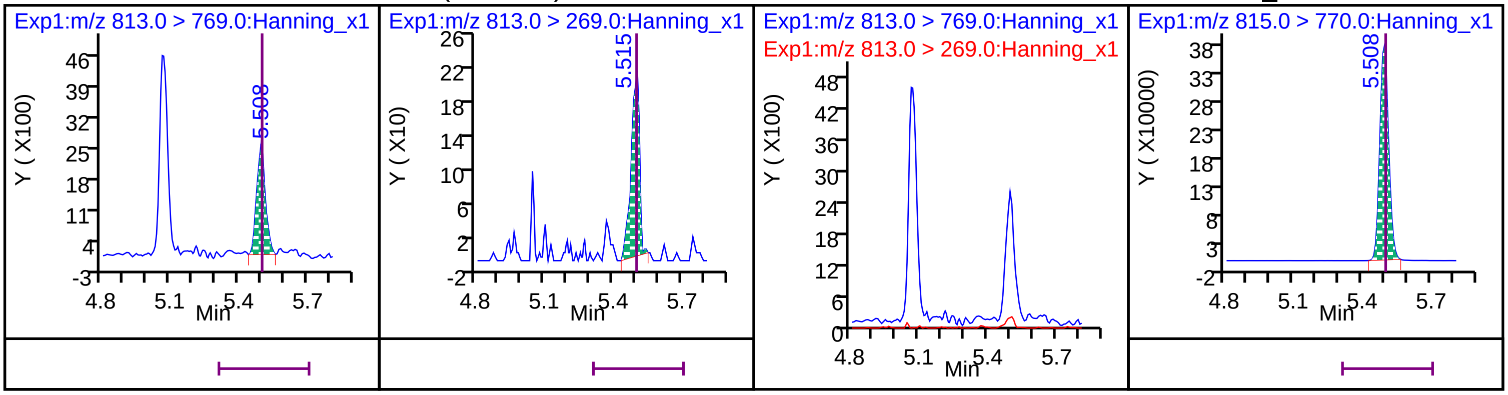


23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA

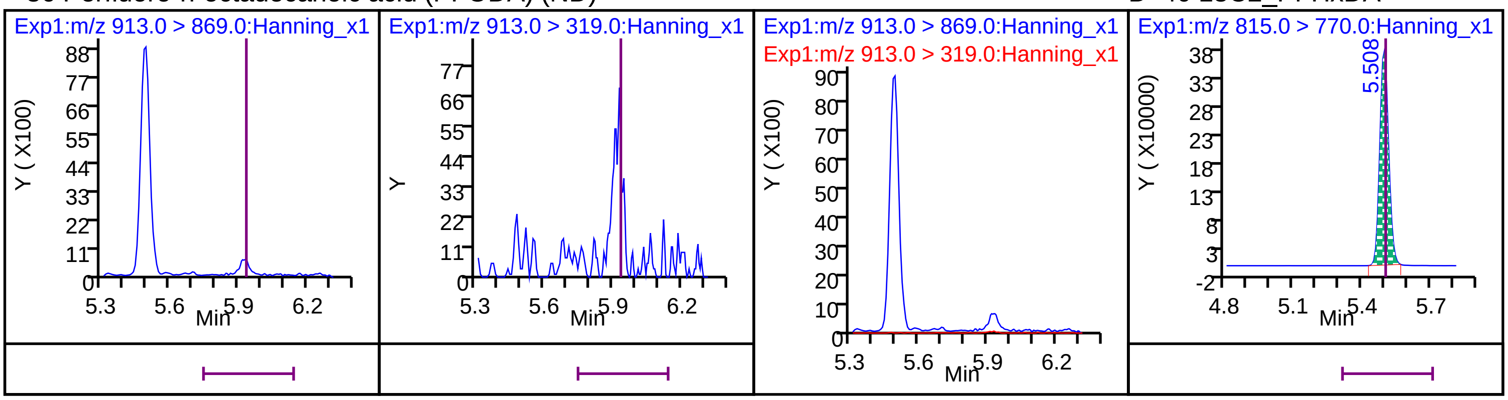


Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d

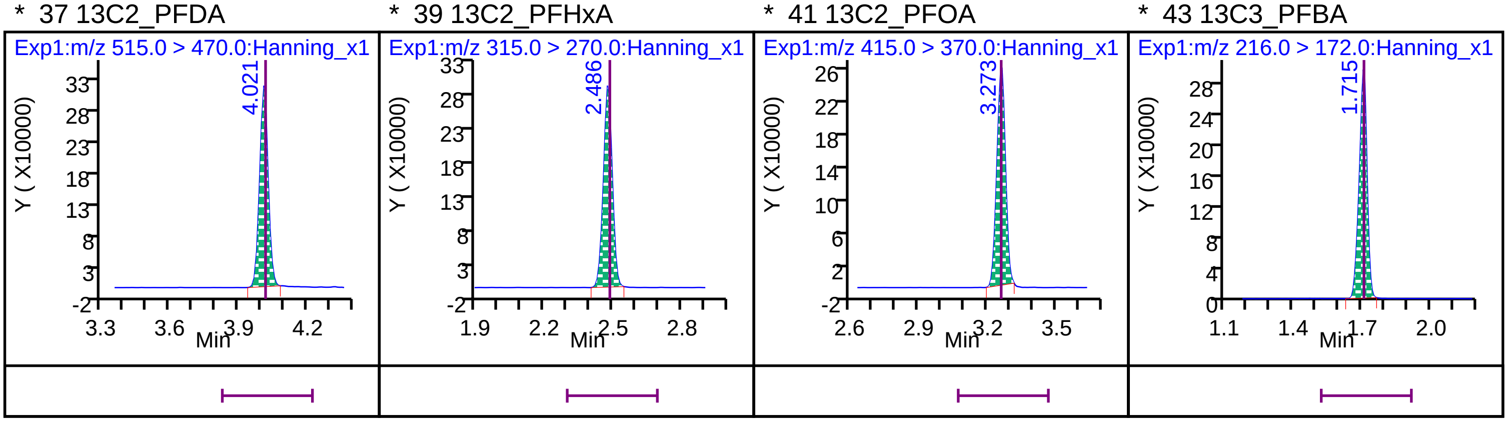
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



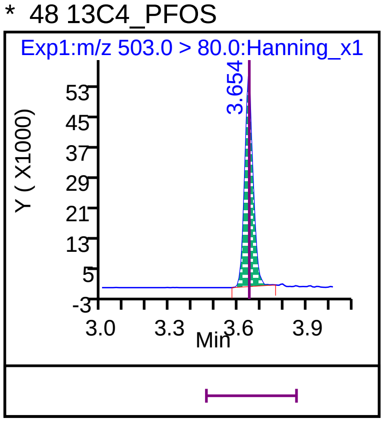
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621028.d		
Injection Date:	16-Nov-2021 18:58:42	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	14
Lab Sample ID:	ID IBLK C	Lab Prep. Batch:	
Sample Info:	ID IBLK C	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	↑ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.686	1.692	0	713635	20	>100:1			1001.00	1143.77	110.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.692		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.056	2.067	0	666132	16	>100:1			1001.00	1150.18	111.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.067		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	200516	14	>100:1			1001.00	1155.39	115.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.120		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.460		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.380	2.389	0	120382	17	>100:1			5005.00	5513.00	105.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.389		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.425	2.424	1	744714	17	>100:1			1001.00	1149.12	107.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.424		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.532	2.540	0	1342290	18	>100:1			5005.00	5994.59	116.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.540		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	621697	18	>100:1			1001.00	1177.91	114.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.791		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	134309	18	>100:1			1001.00	1051.62	98.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.809		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.827		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.174		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	1	98676	19	>100:1			5005.00	5750.10	109.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.141		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.161	3.168	0	601203	21	>100:1			1001.00	1160.65	108	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.168		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	1	129663	18	>100:1			1001.00	1041.46	97.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.537		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.740		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.879		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.178		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.338		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.681		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.537	3.537	1	708912	20	>100:1			1001.00	1098.70	102.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.537		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.846	1	289052	23	>100:1			1001.00	1146.27	105.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.846		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	1	93942	18	>100:1			5005.00	5617.91	106.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.879		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.482		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.887	3.887	1	641013	18	>100:1			1001.00	1124.86	109.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.887		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	1	786672	18	>100:1			5005.00	5759.46	114.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.045		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.196	4.196	1	771063	16	>100:1			5005.00	6350.38	126.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.206		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.196	4.196	1	730899	16	>100:1			1001.00	1125.86	109.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.196		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.267	4.267	1	104149	14	>100:1			1001.00	1188.45	117.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.287		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.298	0	57810	13	>100:1			1001.00	1183.73	115.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.298		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.437	1	117370	17	>100:1			1001.00	1108.14	102.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.455		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.464	0	49685	14	>100:1			1001.00	1134.07	108.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.473		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.473	4.473	1	716937	16	>100:1			1001.00	1201.15	114.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.473		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.711		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	1	880730	17	>100:1			1001.00	1167.90	110.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.928		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.303	5.302	1	1091053	22	>100:1			1001.00	1213.39	117.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.303	5.302	1/0	7710	20	40:1	Target = 11.65		10.441	10.441		
813 > 269	40	5.308	5.302		477	16	14:1	16.16 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.661	5.660	1/0	1567	15	0.081:1	Target = 15.15		1.5279	1.5279		
913 > 319	40	5.653	5.660		121	15	6.3:1	12.95 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.887	3.887	1	719028	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.425	2.424	1	739583	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.168	1	589566	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	621207	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	1	123165	19	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

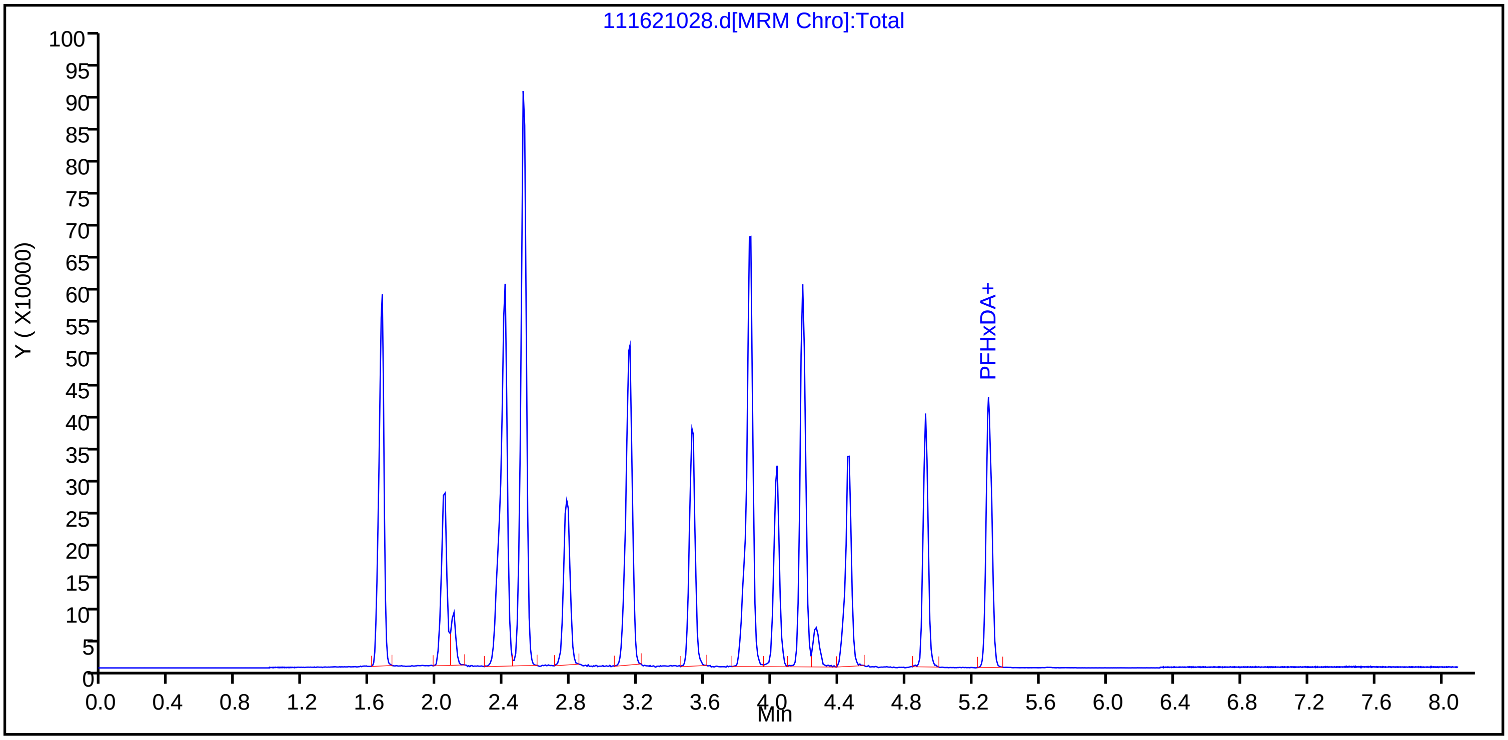
QC Flag Legend

U - Result Less Than Method Detection Limit

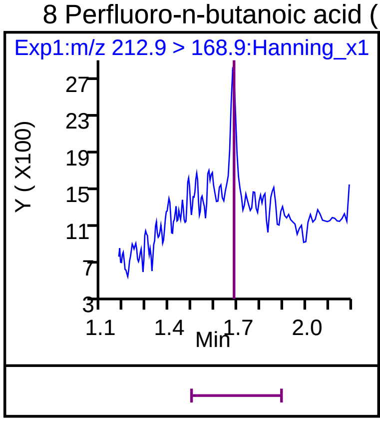
Report Date: 22-Nov-2021 08:59:56 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

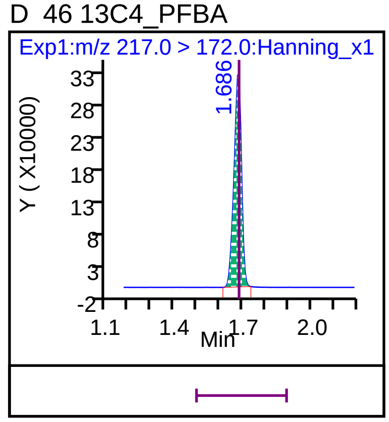
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621028.d		
Injection Date:	16-Nov-2021 18:58:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK C
Sample Info:	ID IBLK C		
Dil. Factor:	1	Operator:	Justin Gavin



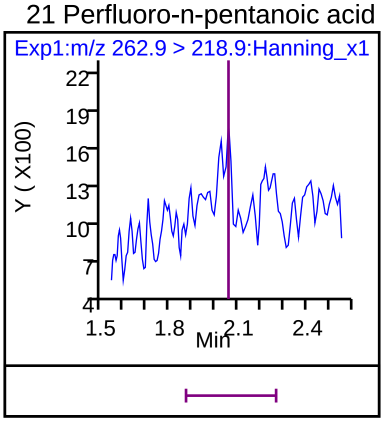
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



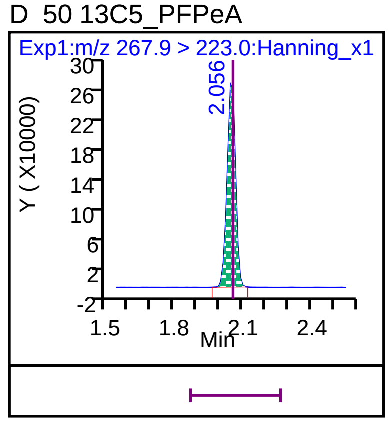
D 46 13C4_PFBA



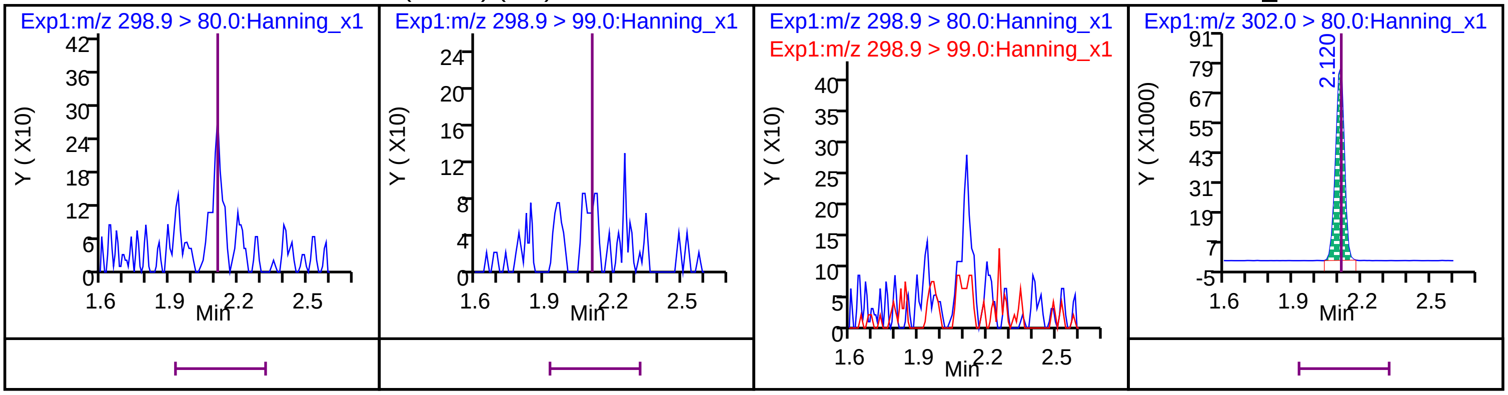
21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)



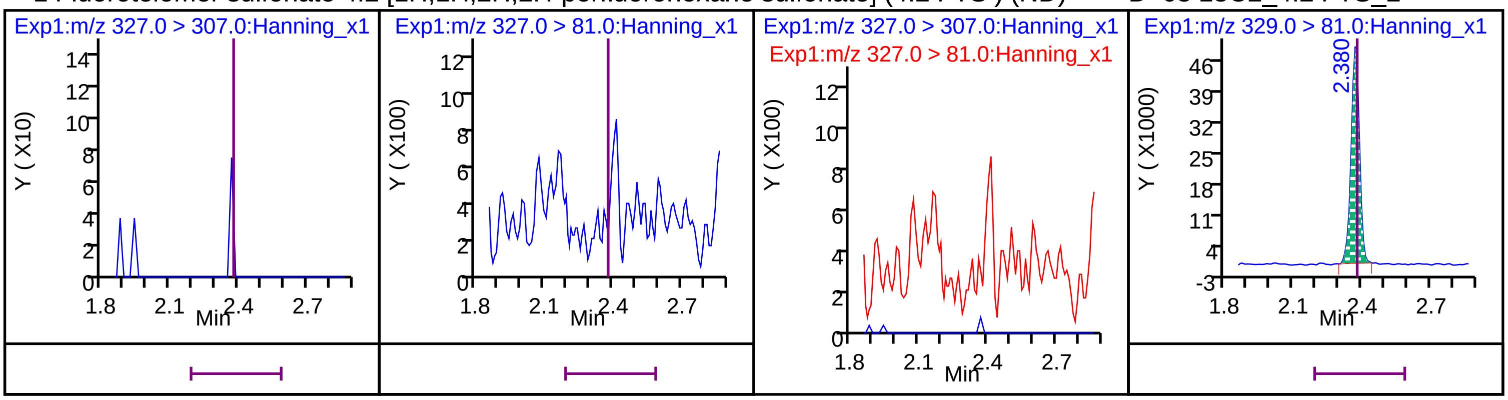
D 50 13C5_PFPeA



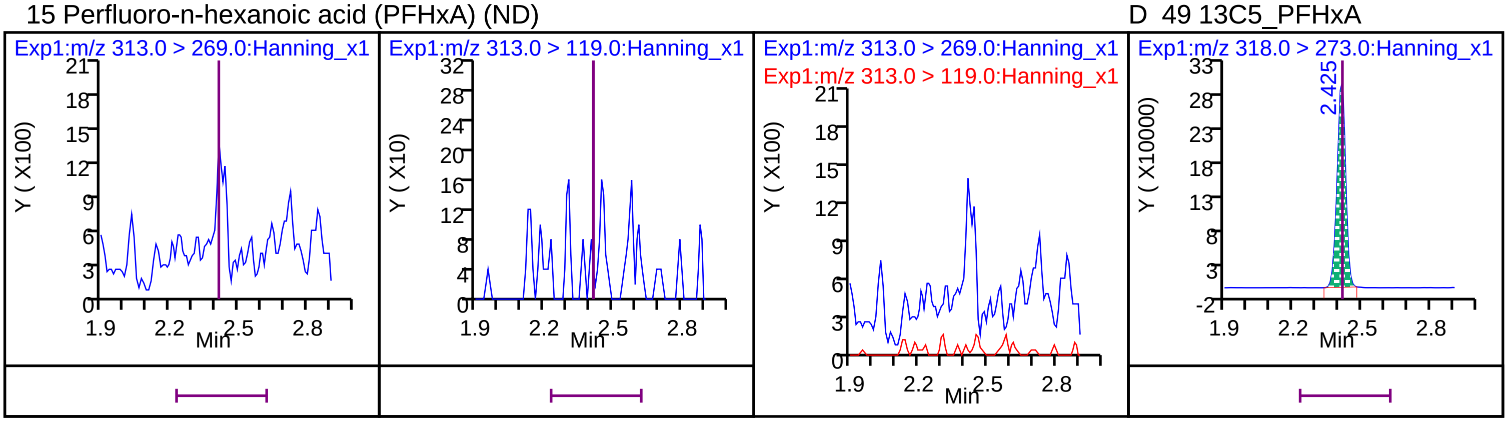
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



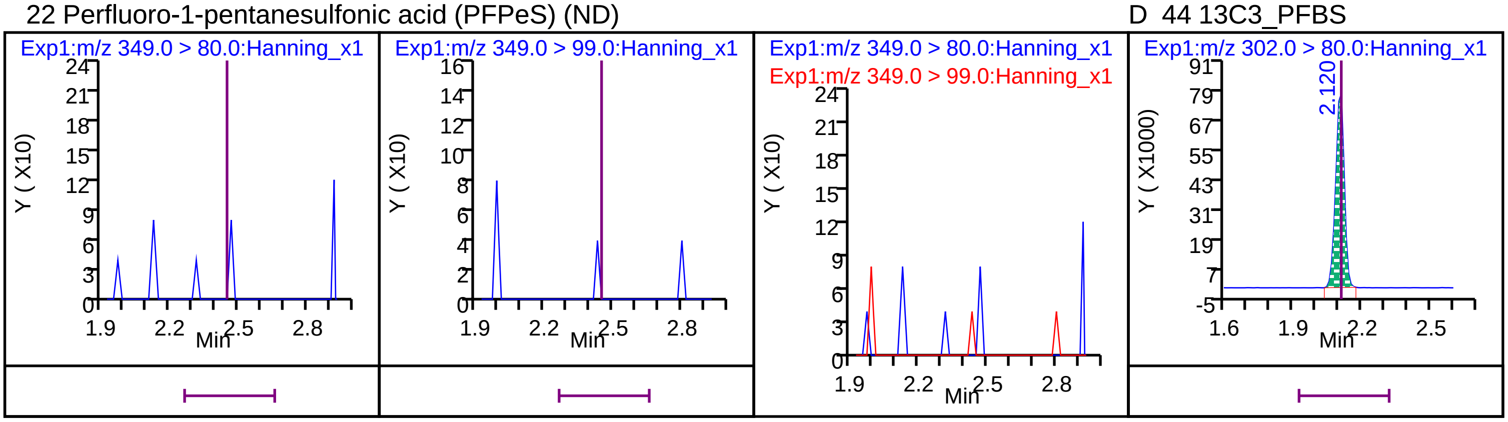
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



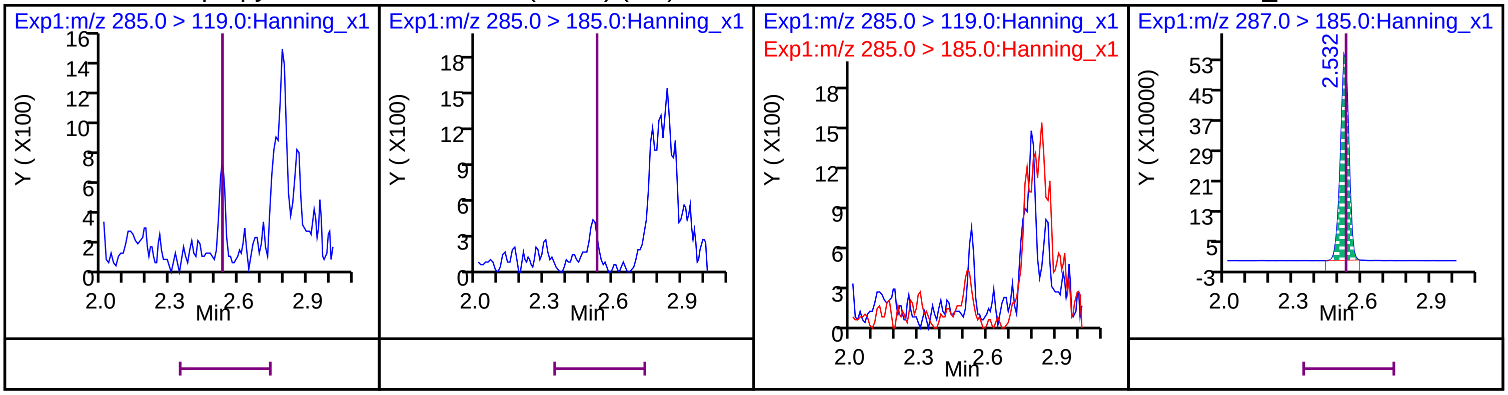
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



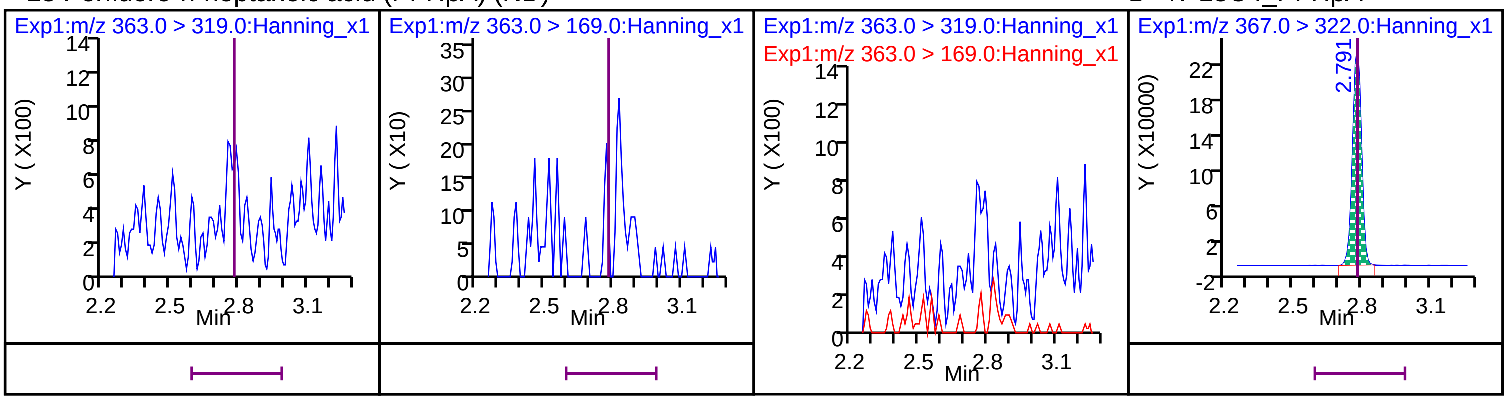
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



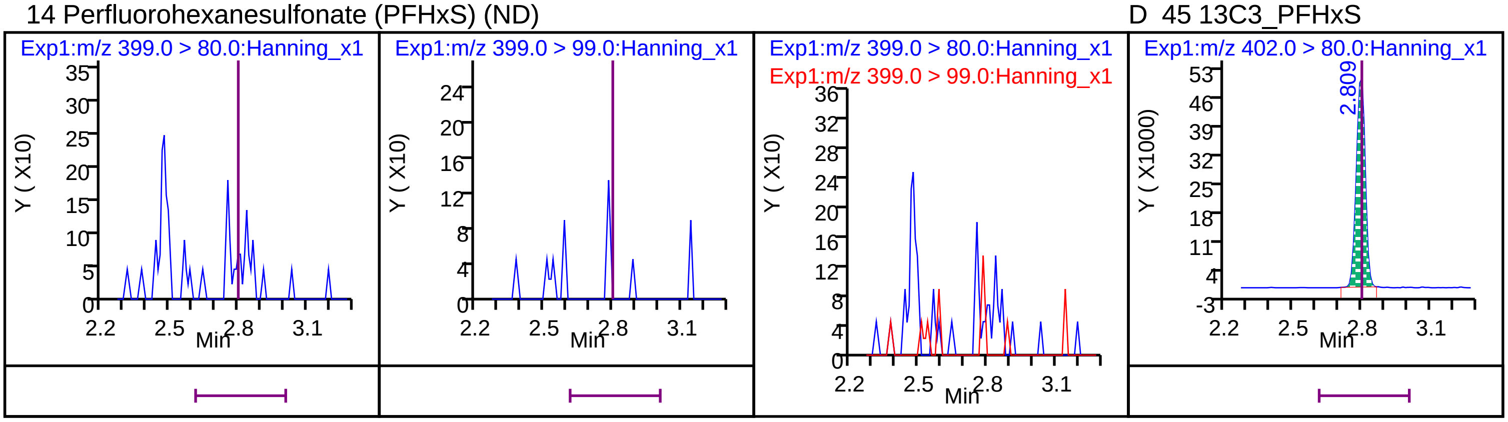
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



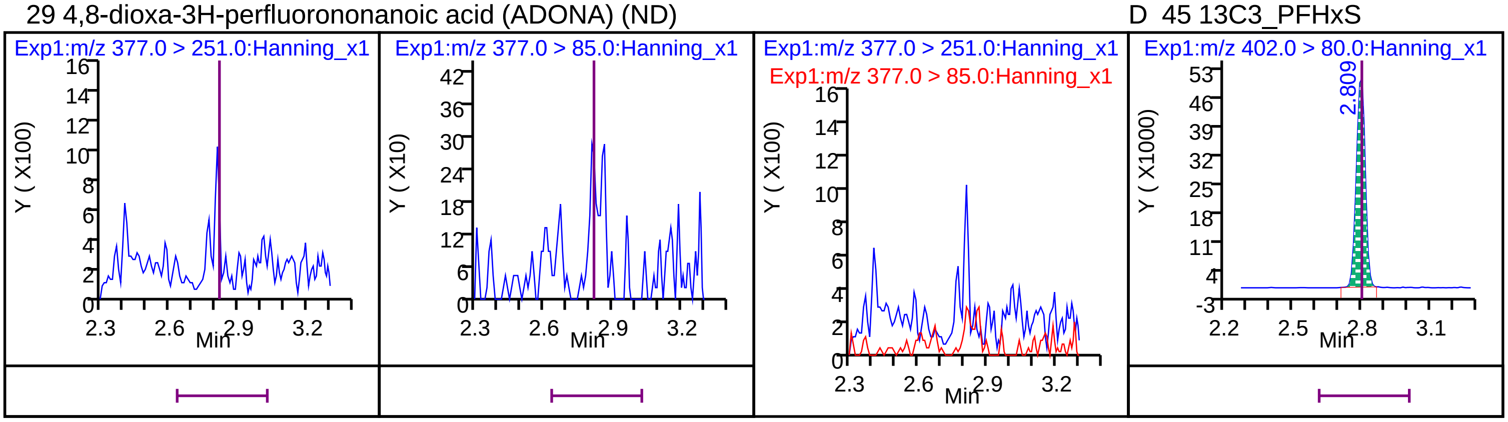
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

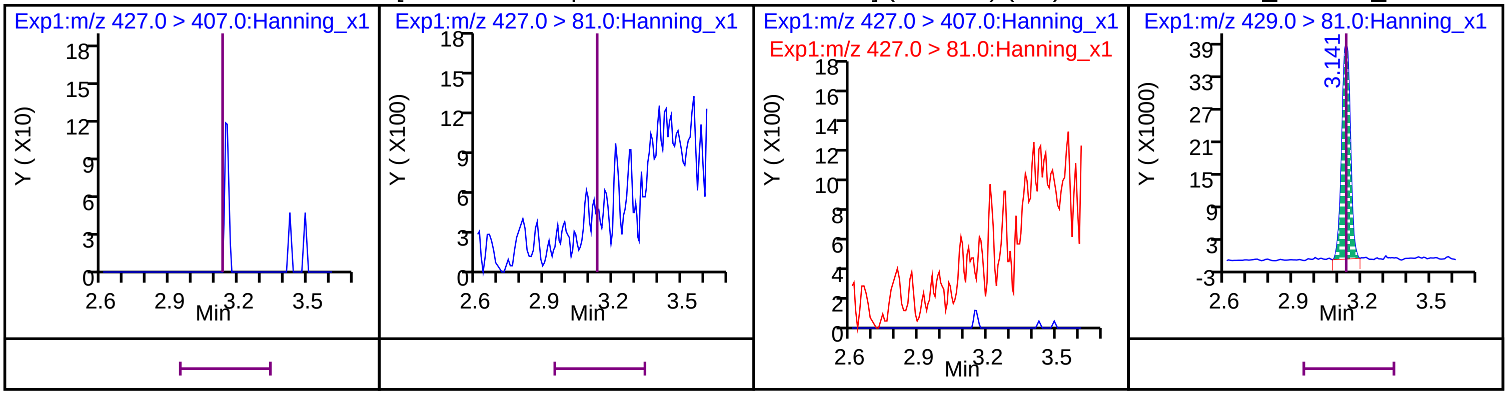


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

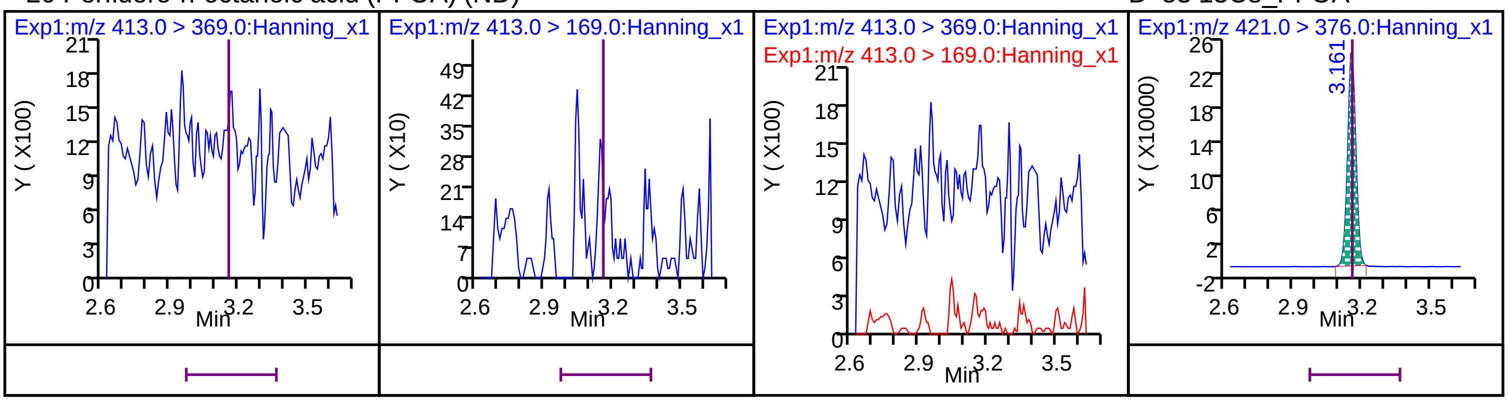


Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621028.d

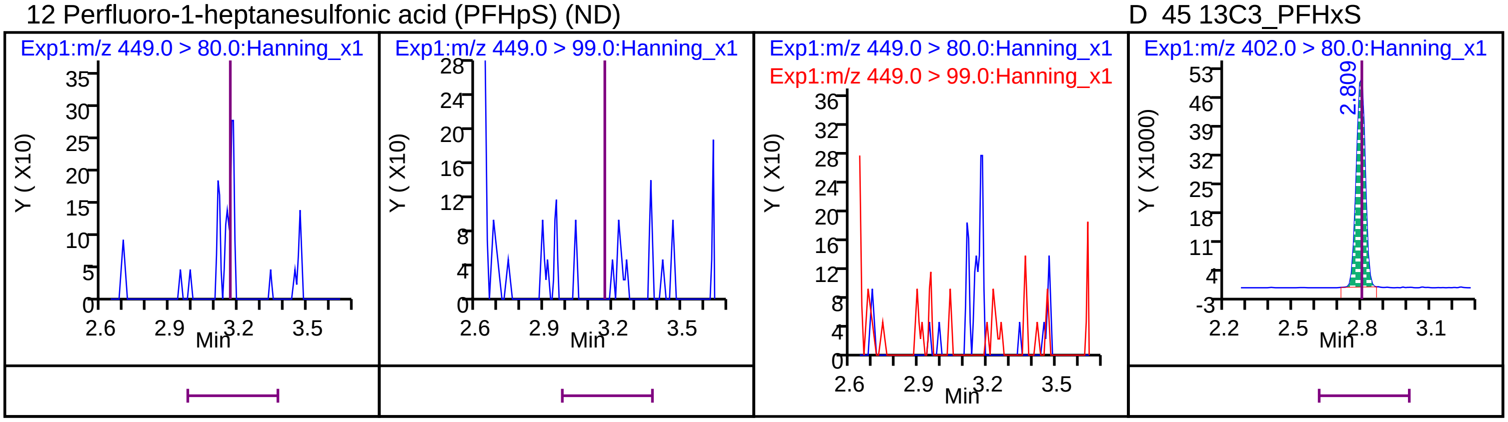
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



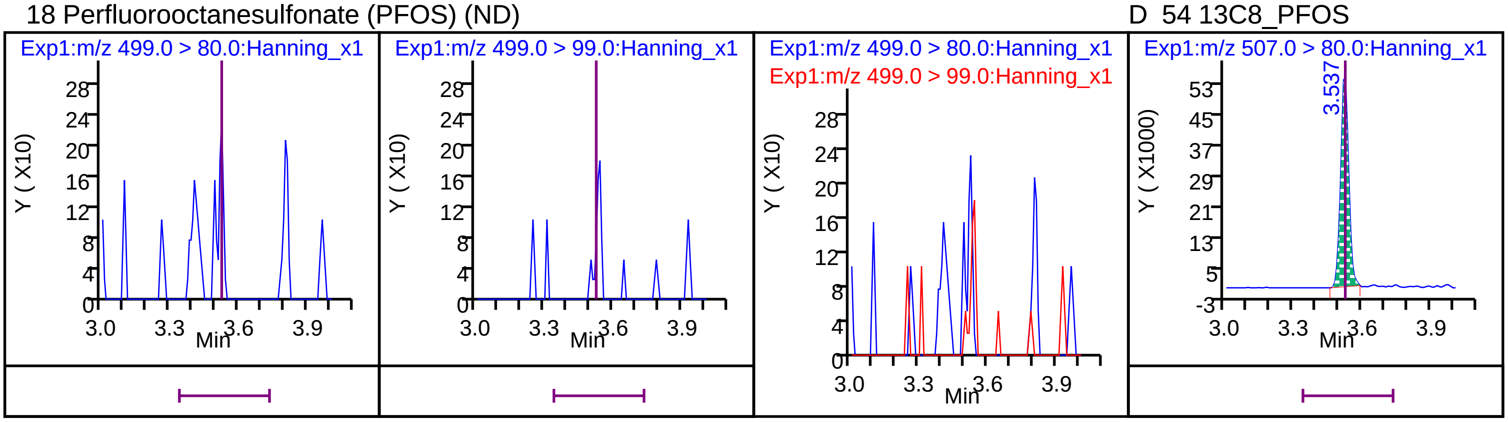
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



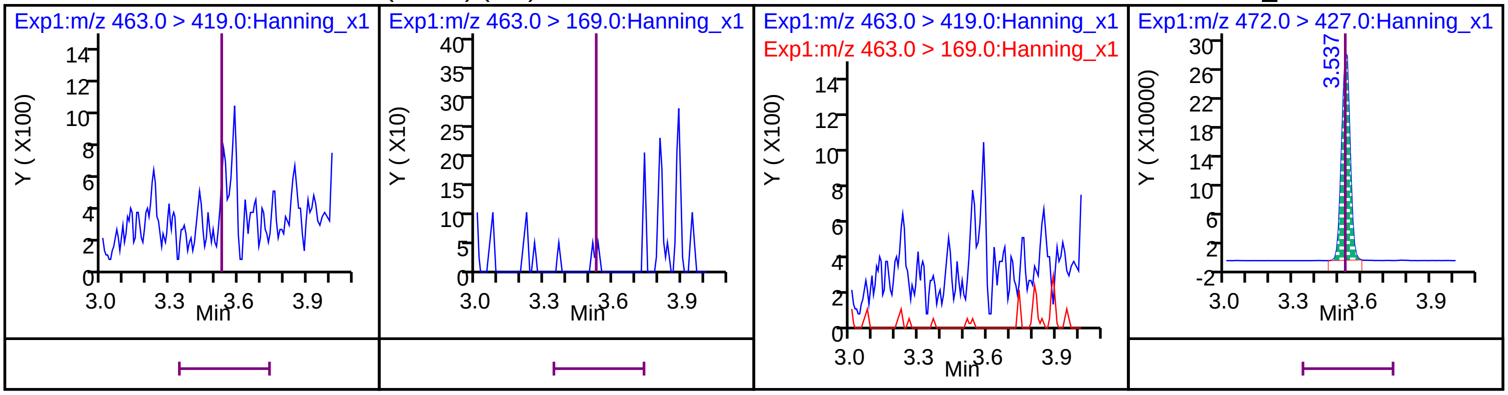
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



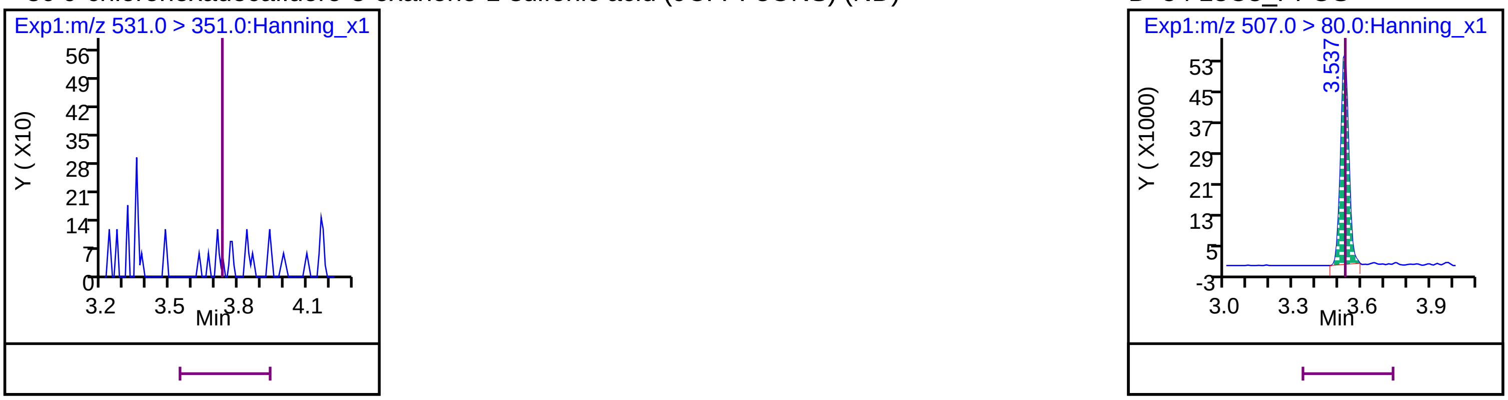
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



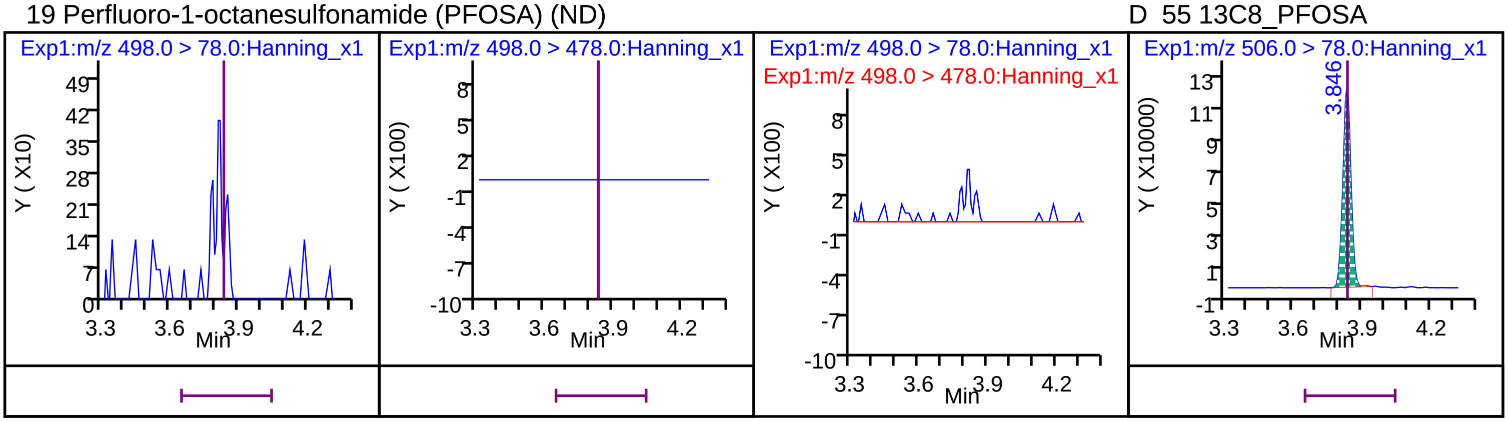
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



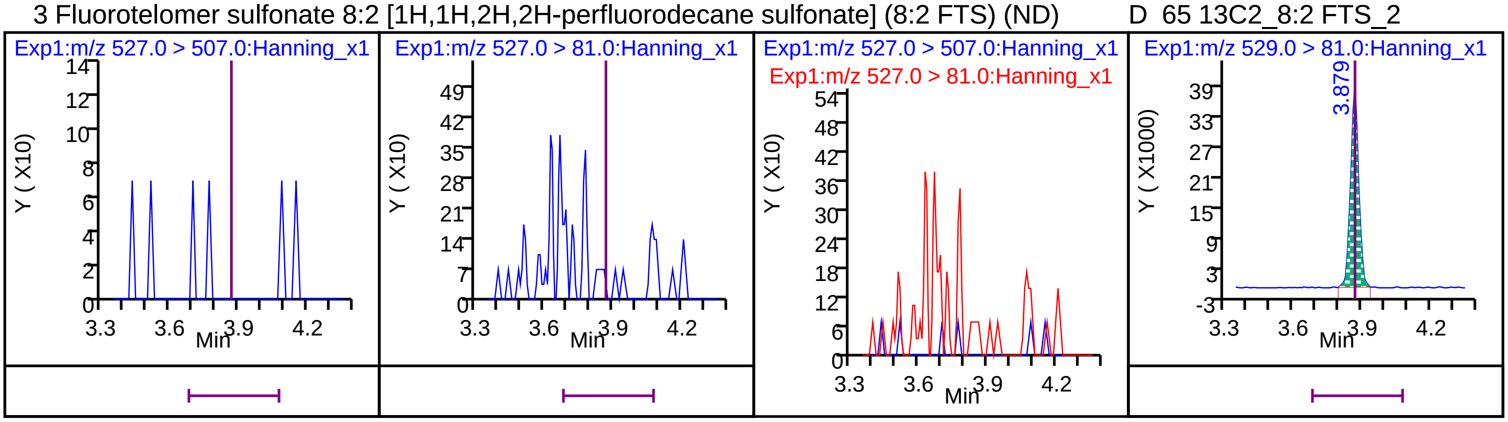
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



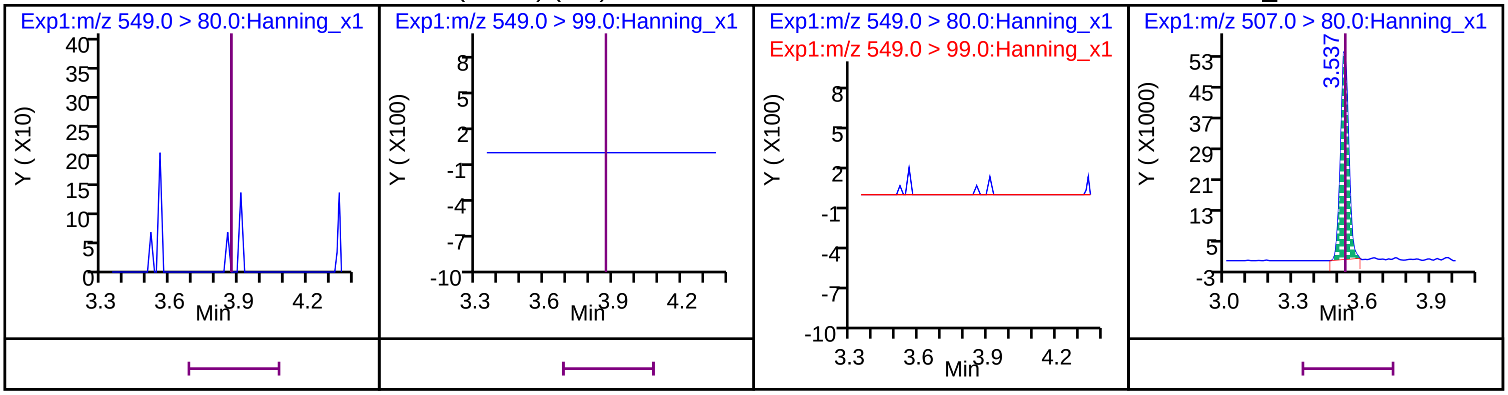
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



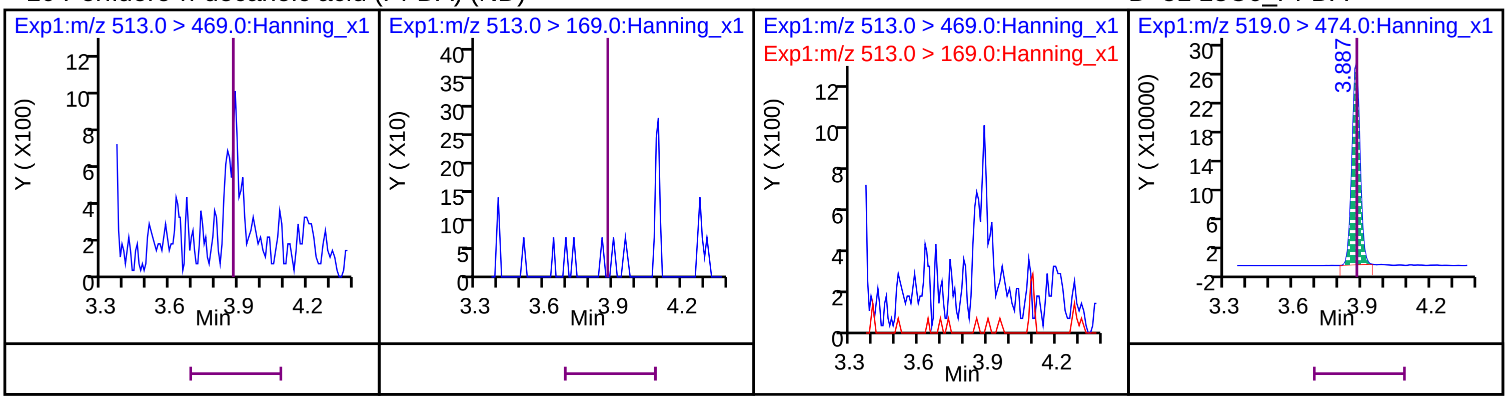
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



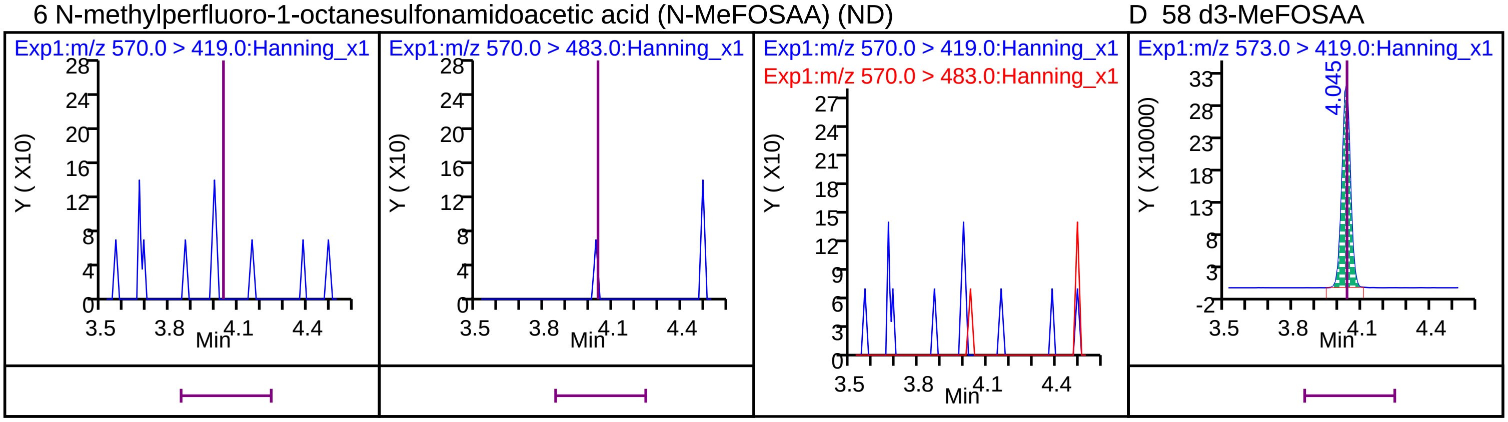
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



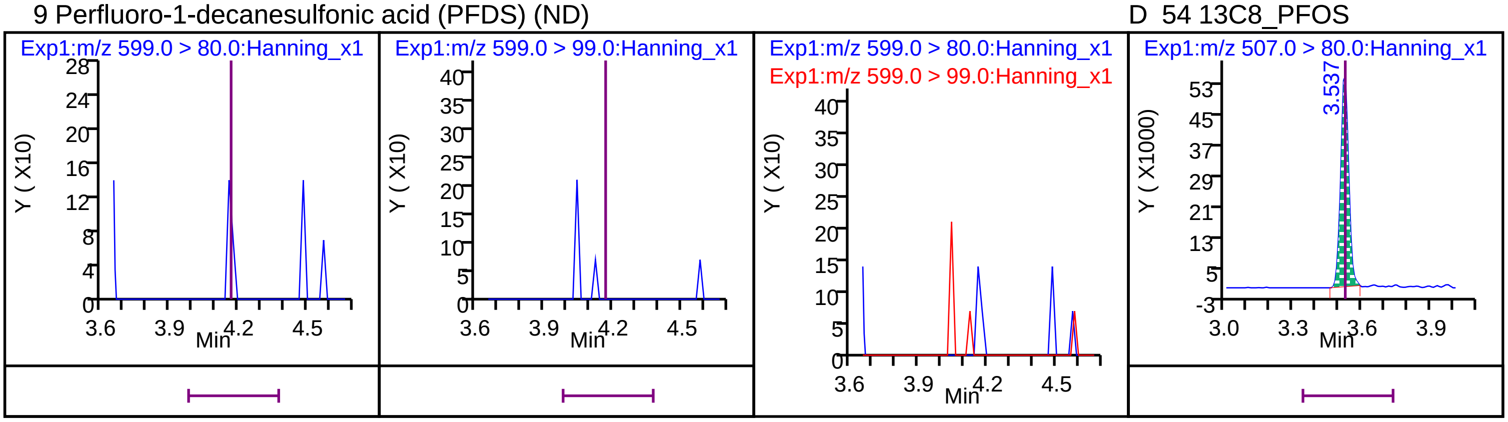
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA

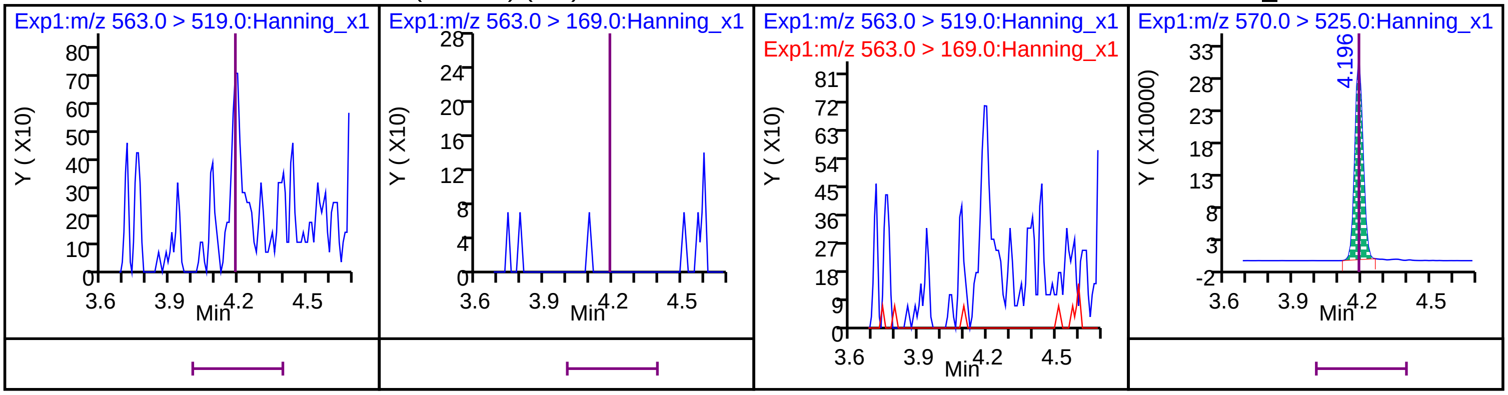


9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

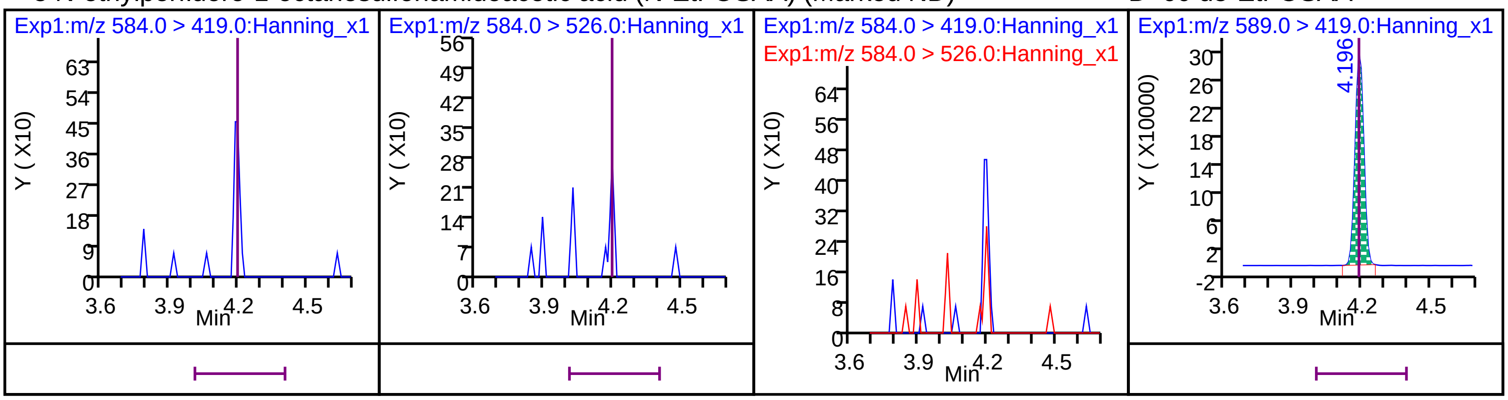


Report Date: 22-Nov-2021 08:59:56 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621028.d

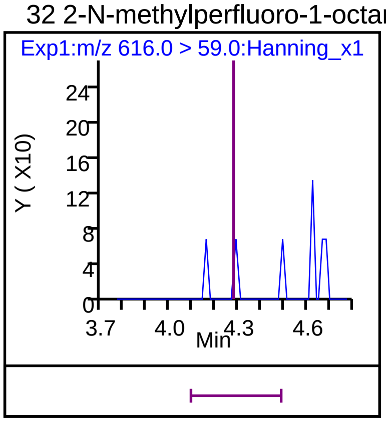
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

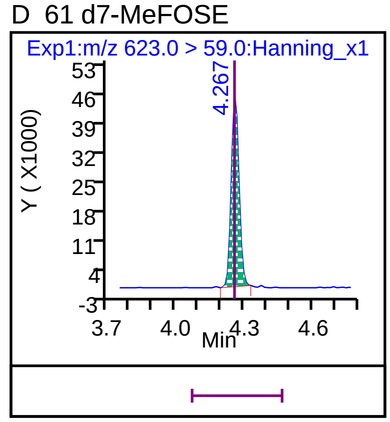


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA

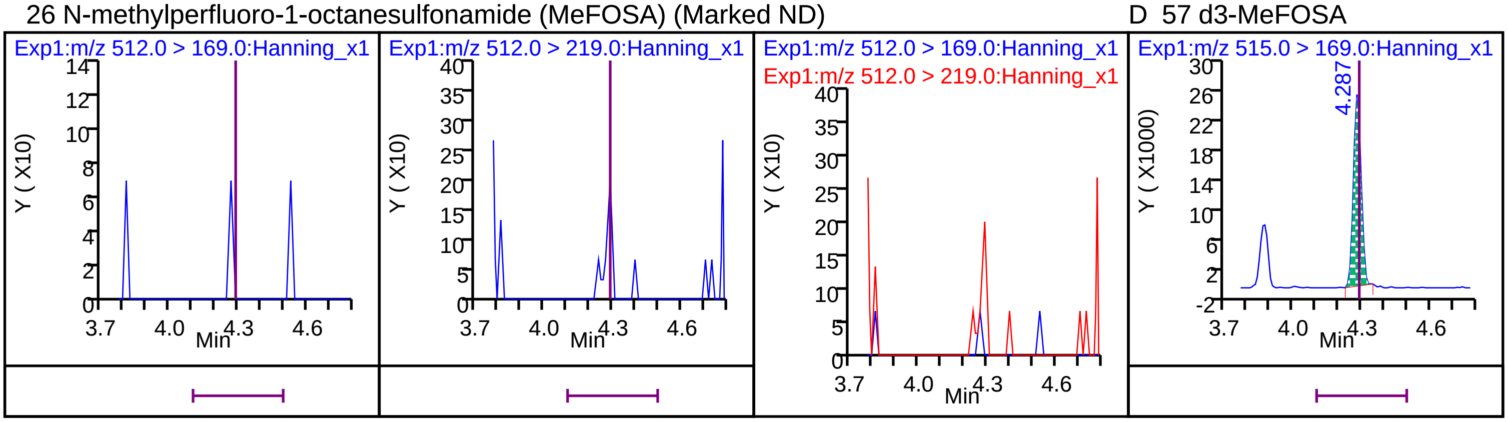


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

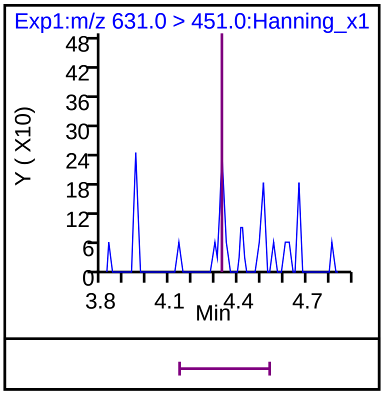




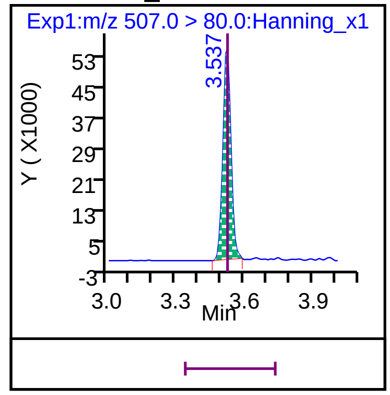
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (Marked ND) D 57 d3-MeFOSA



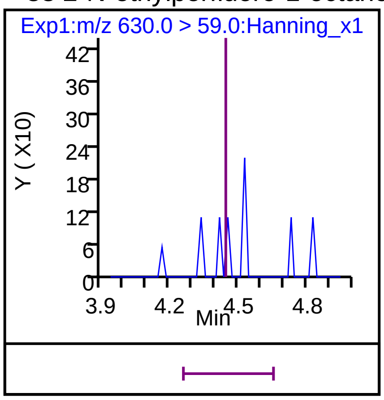
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



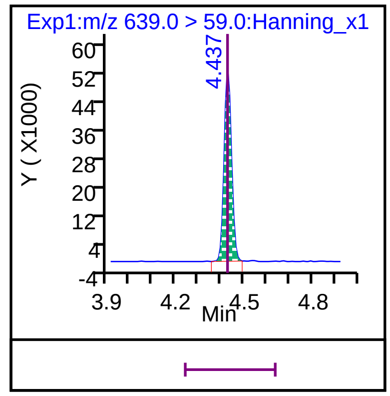
D 54 13C8_PFOS



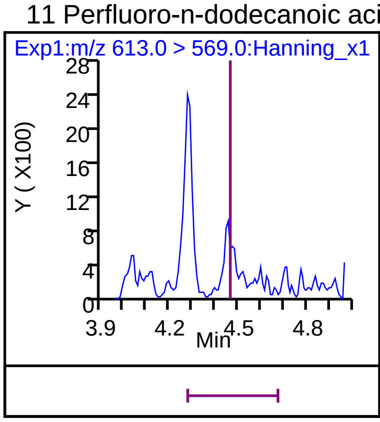
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)

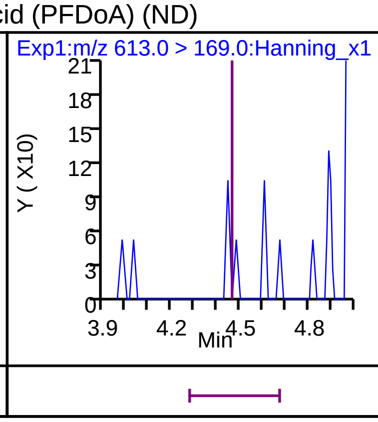


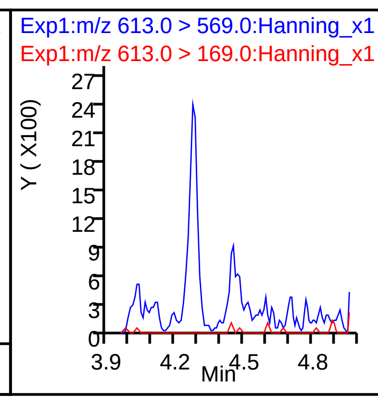
D 62 d9-EtFOSE



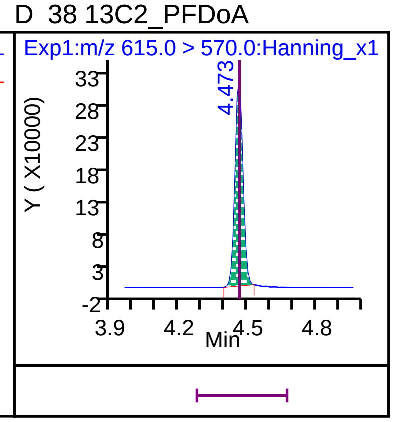
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



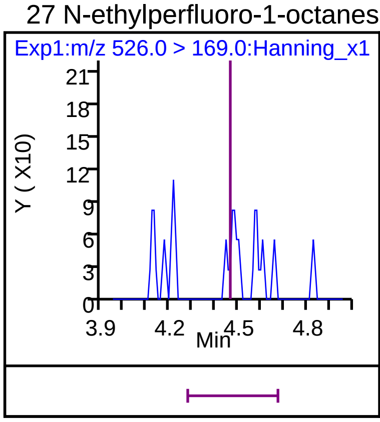


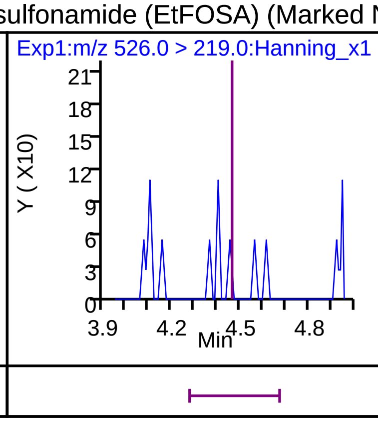


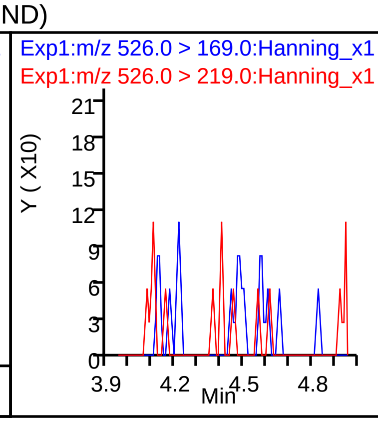
D 38 13C2_PFDoA



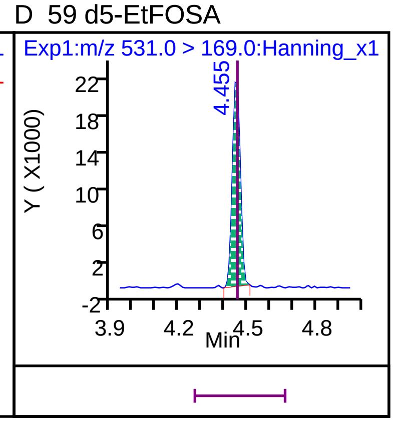
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND)





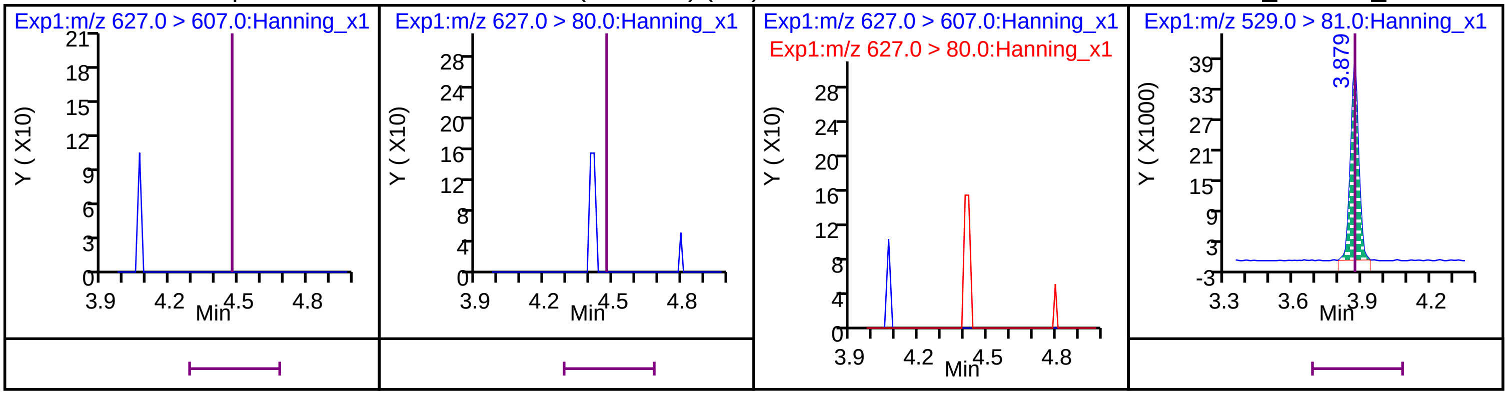


D 59 d5-EtFOSA

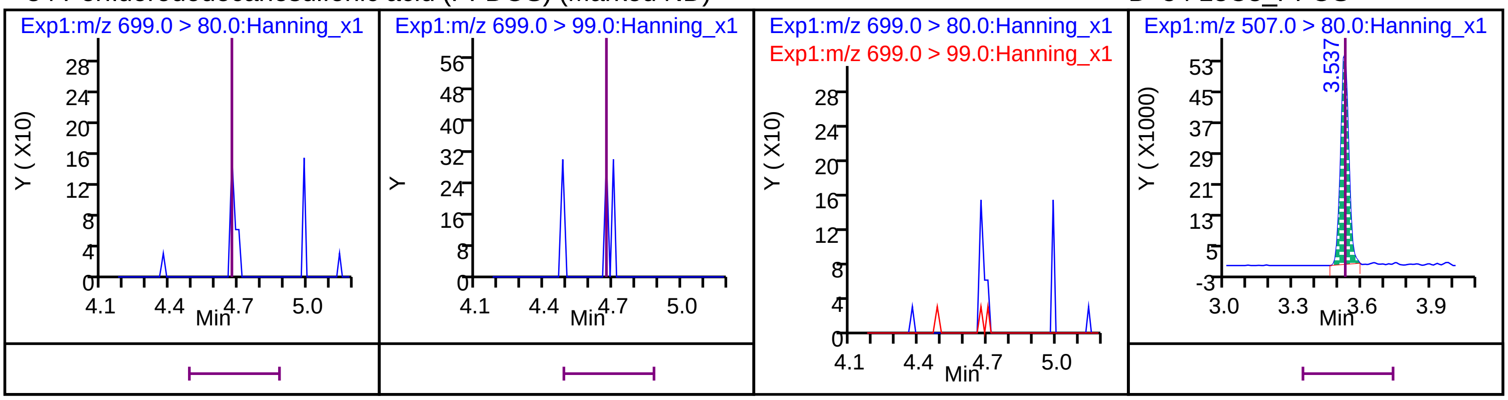


Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621028.d

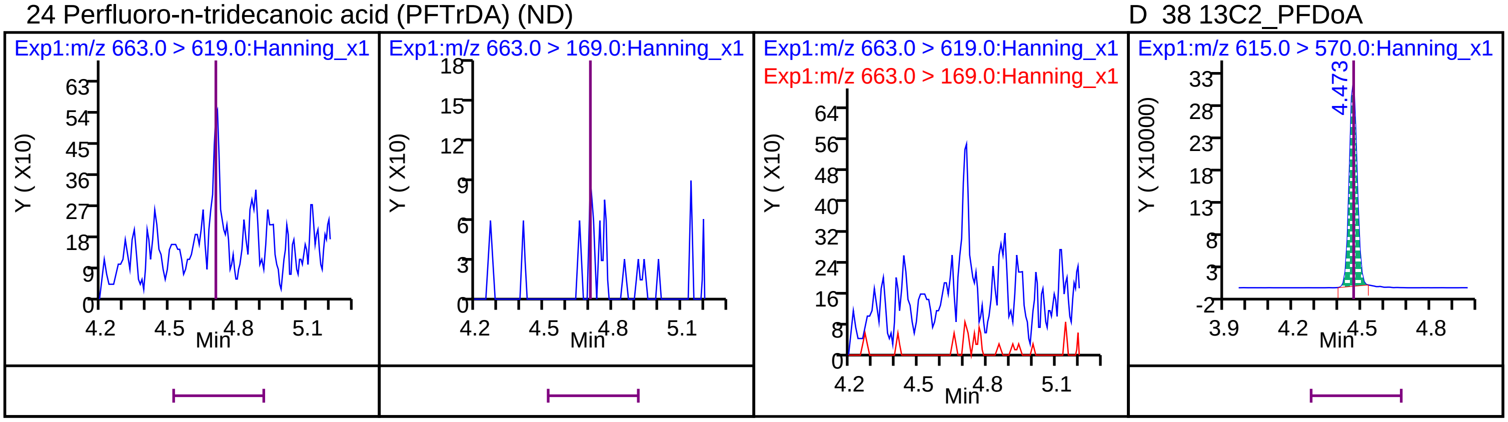
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



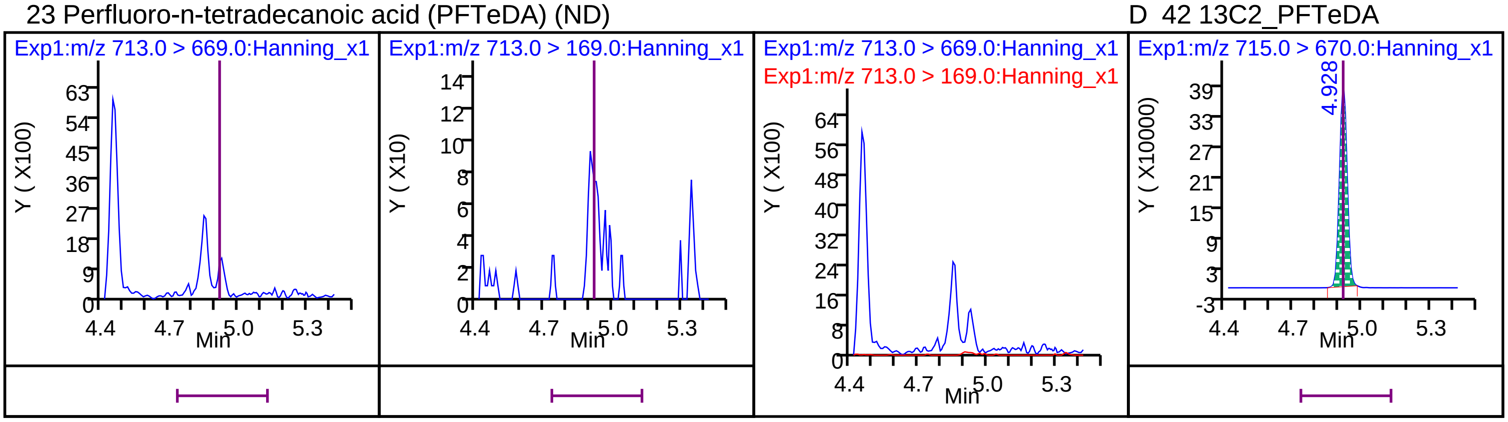
34 Perfluorododecanesulfonic acid (PFDOS) (Marked ND) D 54 13C8_PFOS



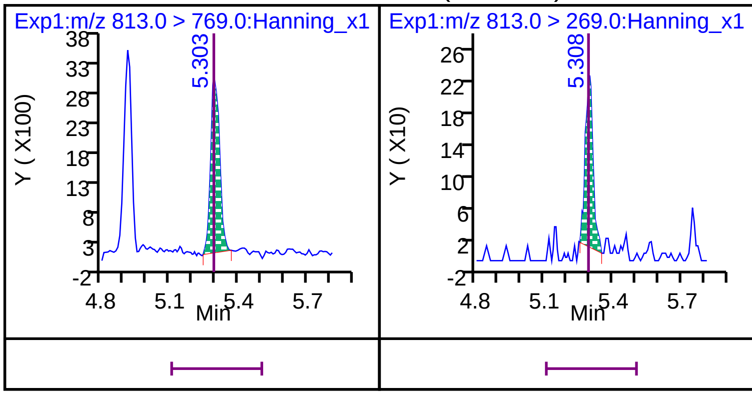
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



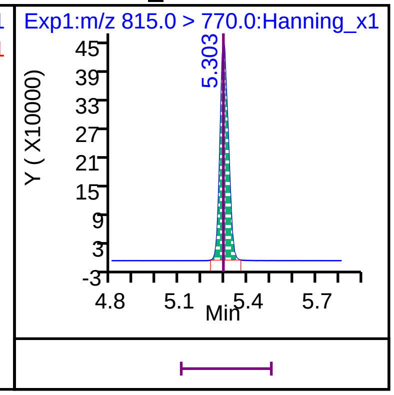
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



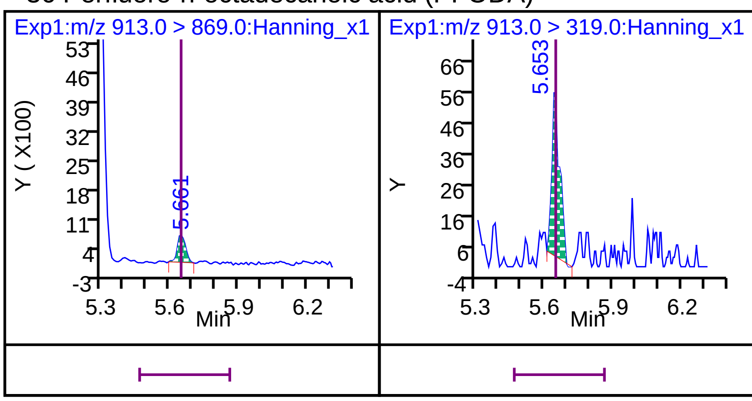
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA)



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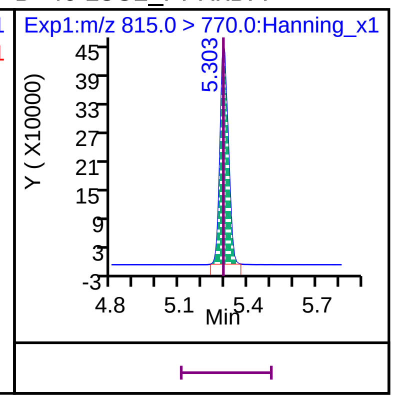
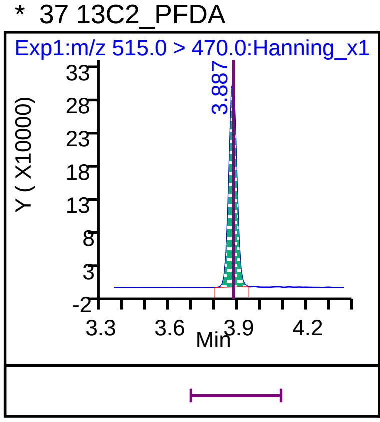
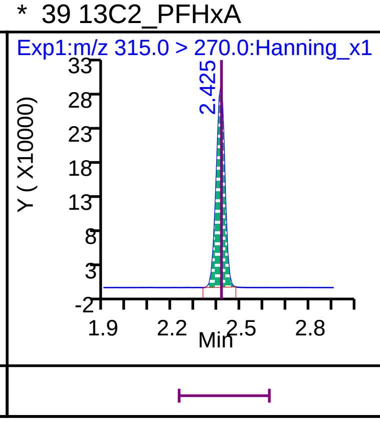


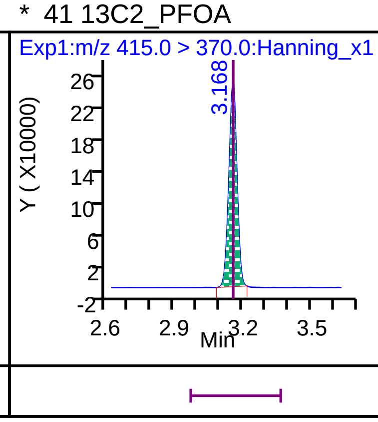
* 37 13C2_PFDA



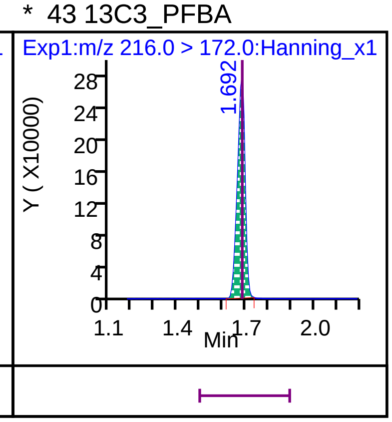
* 39 13C2_PFHxA



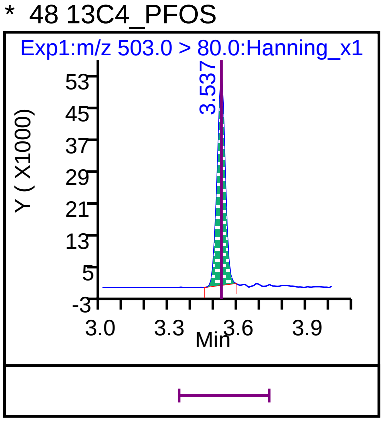
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Analyte Quantitation Report

Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721007.d
Injection Date: 17-Nov-2021 13:48:08 Injection Vol: 10.0 uL
Sample Type: InstBlk Auto Sampler: 97
Lab Sample ID: ID IBLK A Lab Prep. Batch:
Sample Info: ID IBLK A Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Istds Conc. Level: Smp Vol. Added: 0.0100 ml
Reagent: Surrogates Conc. Level: Smp Vol. Added: 0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	0	721717	21	>100:1			1001.00	1156.72	108	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.692	1.699	0/0	2659	17	0.186:1			200.00	3.5252		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	0	674942	17	>100:1			1001.00	1165.39	115	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.088	2.067	2/2	3138	16	-0.061:1			200.00	4.2377		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	0	200882	15	>100:1			1001.00	1157.50	112.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.120	2.120	0/0	1050	17	9.3:1	Target = 3.48		176.80	4.1999		
298.9 > 99	44	2.098	2.120		258	11	2.5:1	4.06 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.460		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	0	135677	16	>100:1			5005.00	6213.44	119.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.389		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.433	2.433	0	777683	17	>100:1			1001.00	1199.99	111.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.433		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.549	0	1334066	18	>100:1			5005.00	5957.86	113.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.540		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.800	2.800	0	677439	16	>100:1			1001.00	1283.52	109.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.800		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.818	2.818	0	152454	16	>100:1			1001.00	1193.69	109.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.818	2.818	0/0	471	47		Target = 3.14	4.10	182.00	2.7432		
399 > 99	45	2.800	2.818		440	38	1.6:1	1.07 (1.57-4.71)	2.65				J
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.836		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.186		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.154	3.160	0	96389	24	>100:1			5005.00	5616.83	109.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.160		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.181	3.180	1	639595	21	>100:1			1001.00	1234.76	111	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.180		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.553	3.552	1	136360	18	>100:1			1001.00	1095.25	108.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.553	3.552	1/0	865	39	7.4:1	Target = 3.42	1.21	185.60	5.3459		
499 > 99	54	3.545	3.552		277	30		3.12 (1.71-5.13)	1.15				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.767	3.766	1/0	361	14	4.9:1			186.40	0.69029		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.893		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.203		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.571	4.372	12/11	185	16	2.3:1			188.40	0.40064		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.715		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.561	3.560	1	756099	19	>100:1			1001.00	1171.84	111.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.560		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.844	1	297022	17	>100:1			1001.00	1177.88	113.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.844		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.904	3.902	1	102516	18	>100:1			5005.00	6130.65	116.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.902		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.507		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.904	3.910	0	698845	17	>100:1			1001.00	1226.35	113.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.910		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.062	4.068	0	826795	17	>100:1			5005.00	6053.21	121.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.068		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.226	4.223	1	749984	17	>100:1			5005.00	6176.77	115.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.234		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.223	0	726603	15	>100:1			1001.00	1119.25	110.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.223		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.267	4.264	1	97494	16	>100:1			1001.00	1112.51	114	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.237	4.284	-2/-3	161	13				200.00	1.4973		

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Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.287	4.284	1	52800	13	>100:1			1001.00	1081.15	118.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.298	4.294	1/0	78	13	1.5:1	Target = 1.08		200.00	1.4505		
512 > 219	57	4.318	4.294		237	11	4.3:1	0.32 (0.54-1.63)					J
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.434	1	119130	16	>100:1			1001.00	1124.76	118.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.420	4.452	-1/-2	207	12	4.4:1			200.00	1.7061		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.455	4.461	0	49462	15	>100:1			1001.00	1128.98	130.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.375	4.461	-5/-5	211	14	0.732:1	Target = 0.97		200.00	3.6262		
526 > 219	59	4.390	4.461		283	10	0.758:1	0.74 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.500	4.498	1	708867	15	>100:1			1001.00	1187.63	104.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.498		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.743		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.961	4.959	1	924254	19	>100:1			1001.00	1225.62	113.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.959		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.350	5.353	0	1027791	19	>100:1			1001.00	1143.03	120.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.350	5.353	0/0	7375	16	34:1	Target = 11.65		200.00	10.602		
813 > 269	40	5.350	5.353		762	17	29:1	9.67 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.725		ND								
*** 37 13C2_PFDA**													
515 > 470		3.912	3.910	1	798384	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.433	2.433	0	807765	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.181	3.180	1	644924	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.692	1.699	0	662845	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.553	3.552	1	129632	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

U - Result Less Than Method Detection Limit

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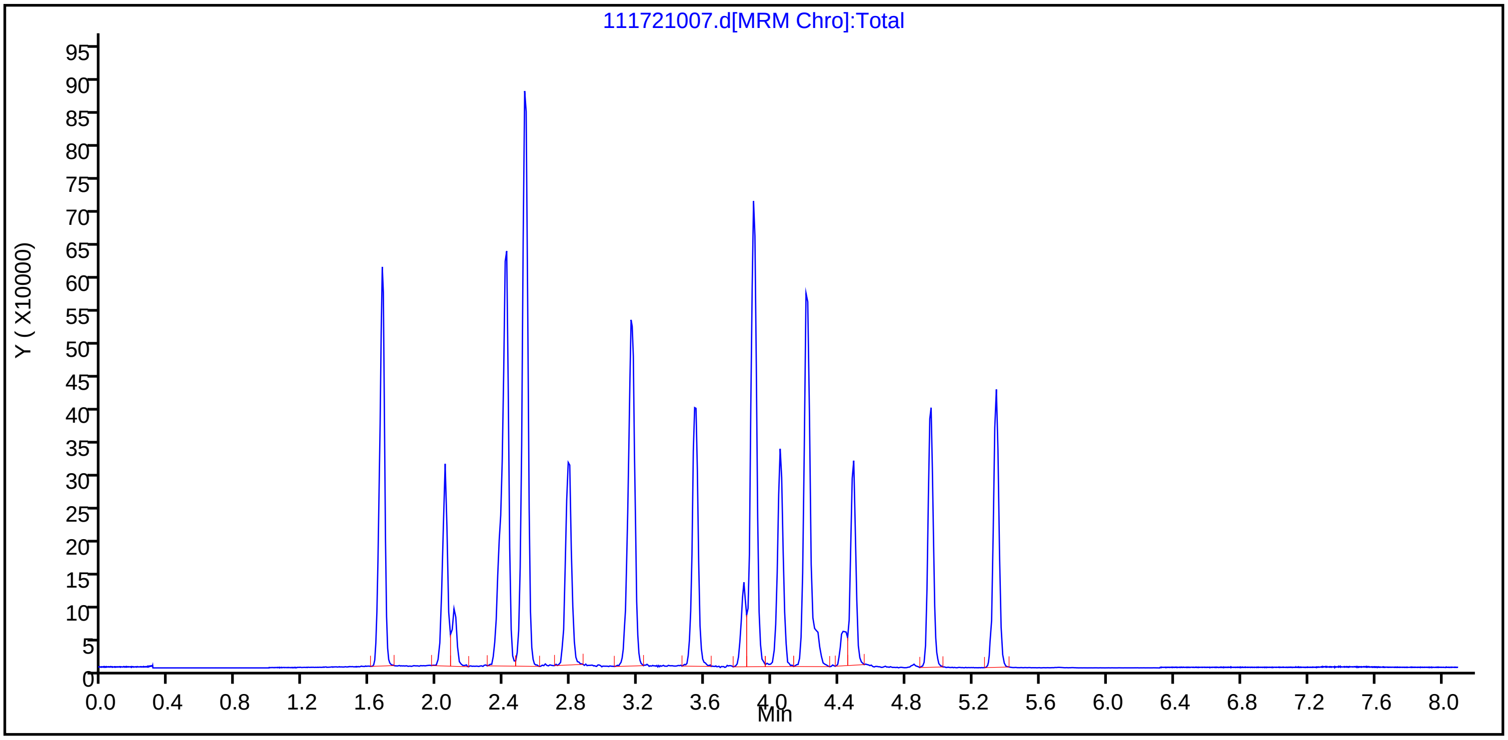
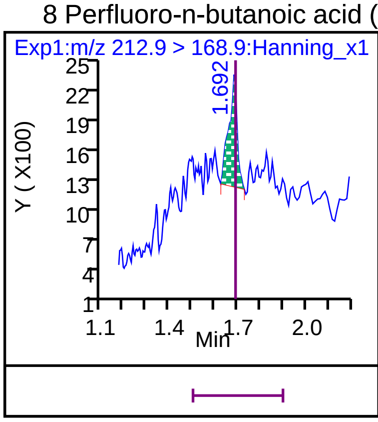
Pace Environmental Services, LLC

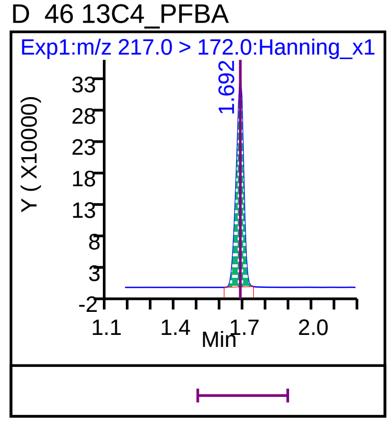
Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721007.d		
Injection Date:	17-Nov-2021 13:48:08	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Justin Gavin



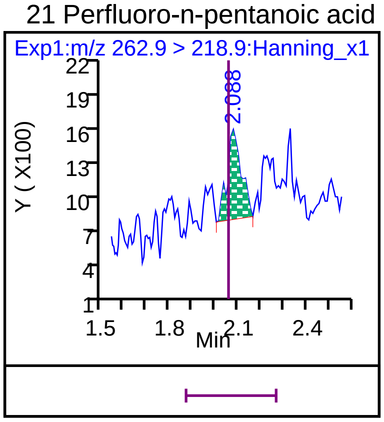
8 Perfluoro-n-butanoic acid (PFBA)



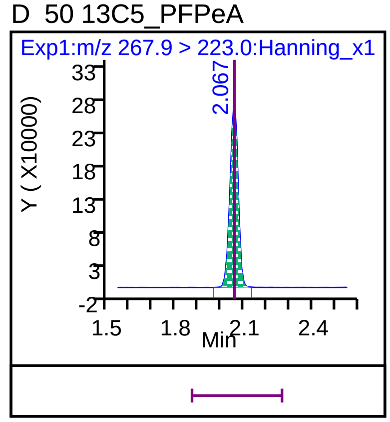
D 46 13C4_PFBA



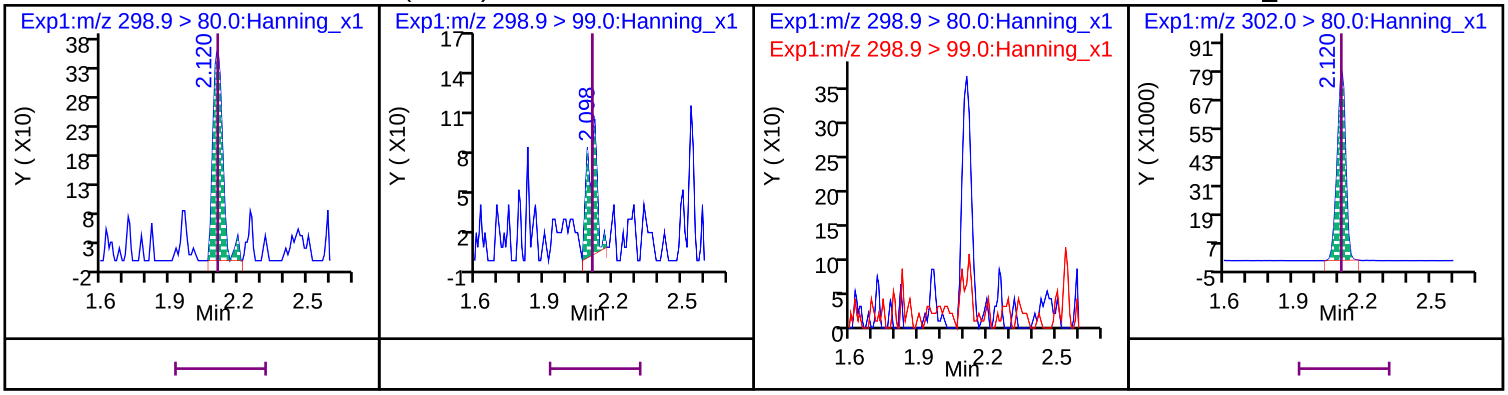
21 Perfluoro-n-pentanoic acid (PFPeA)



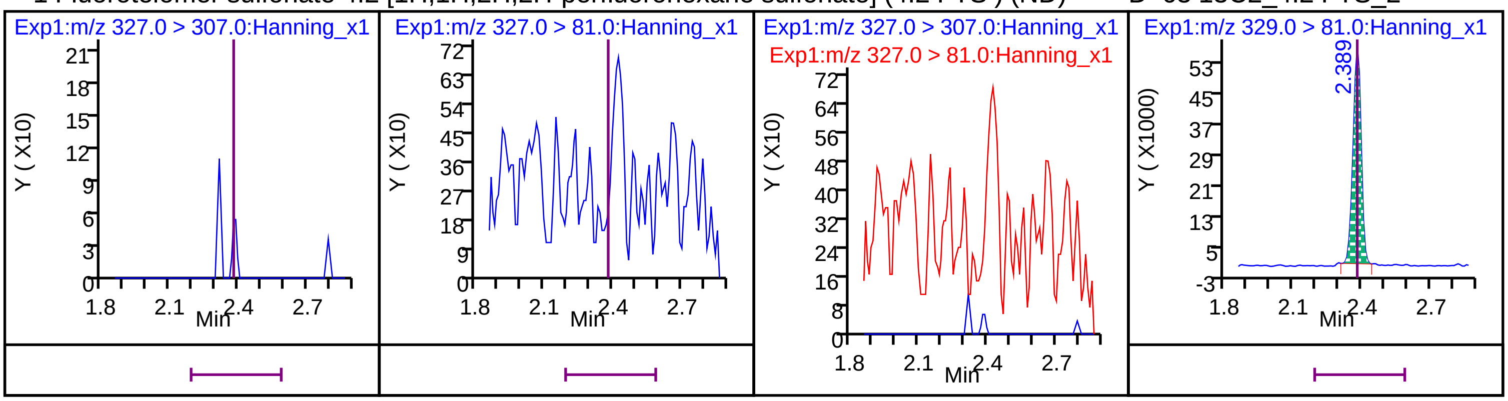
D 50 13C5_PFPeA



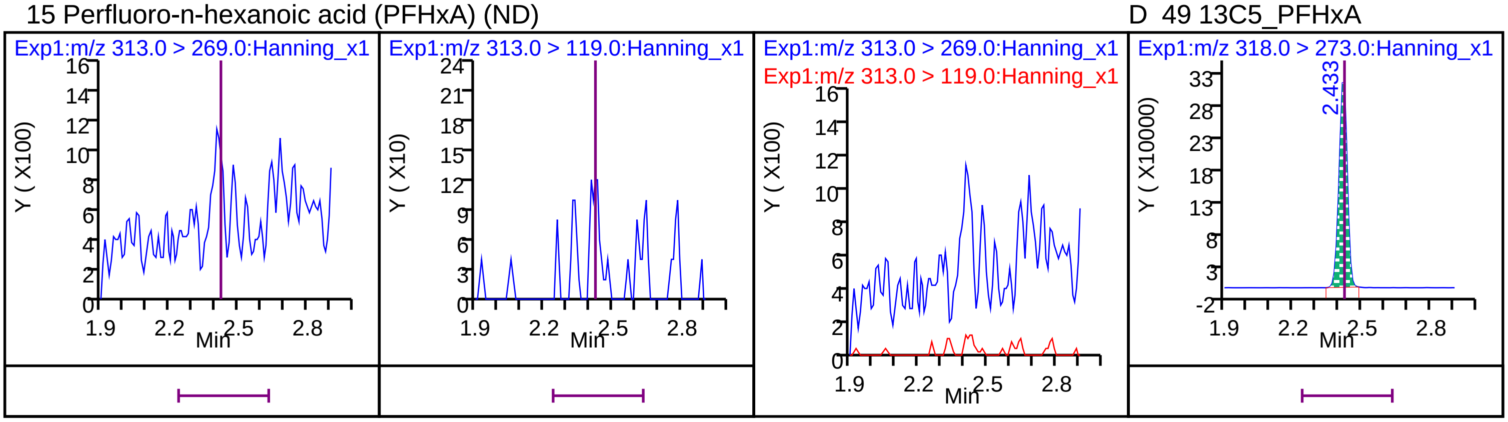
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



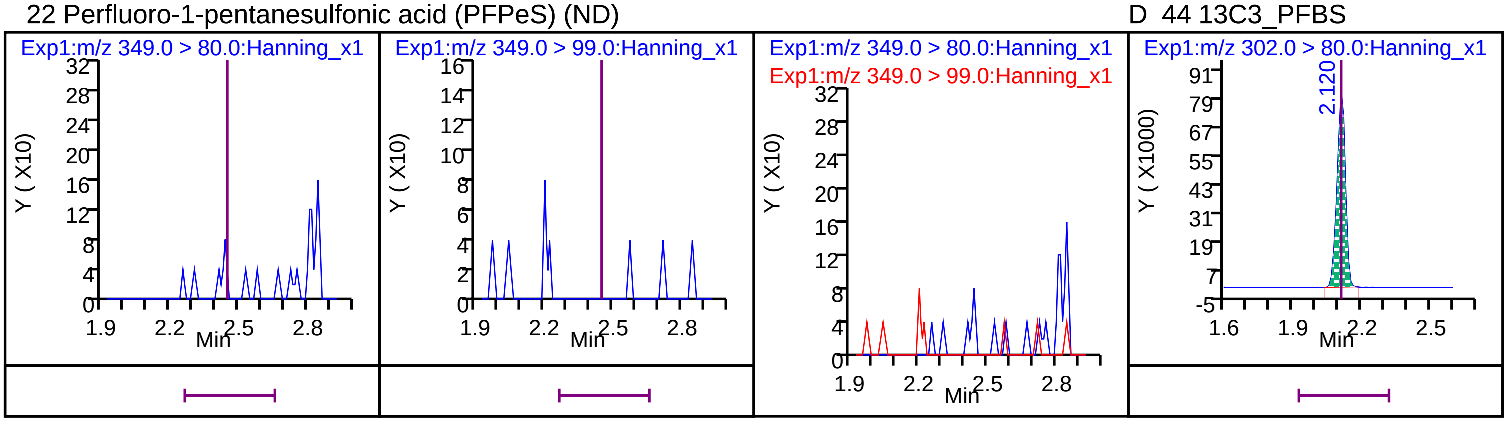
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



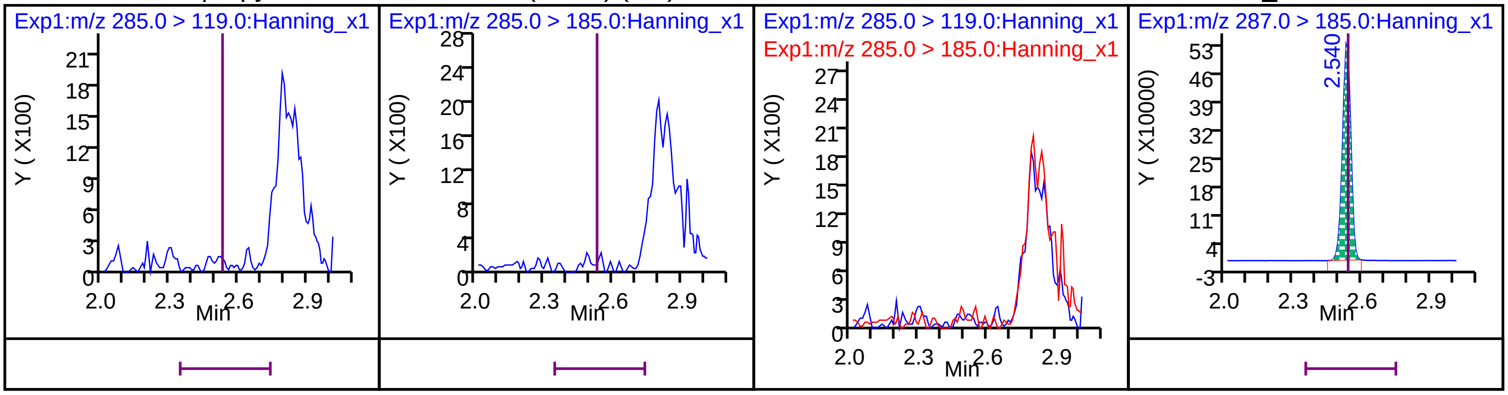
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



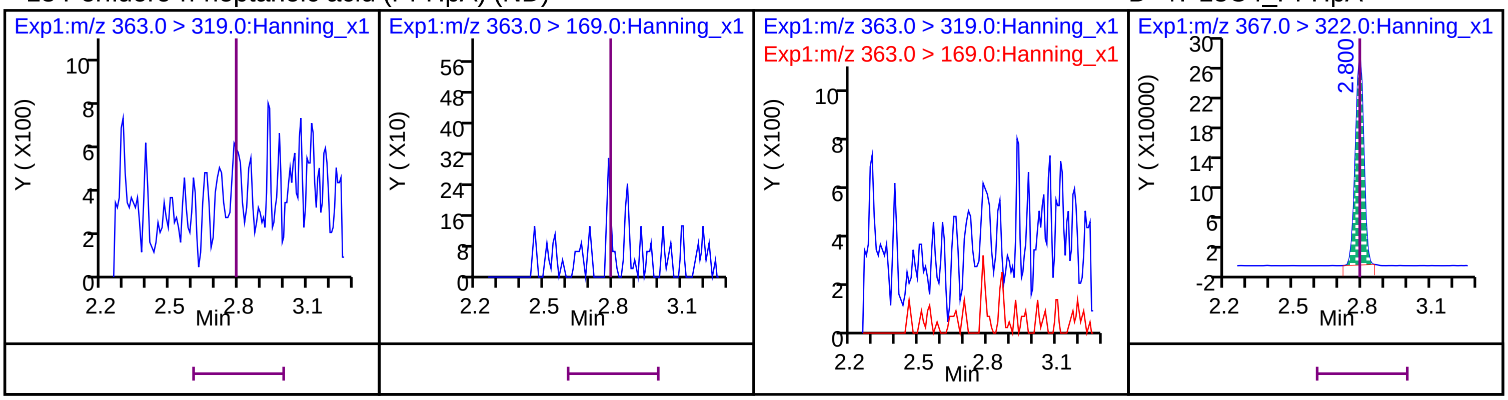
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



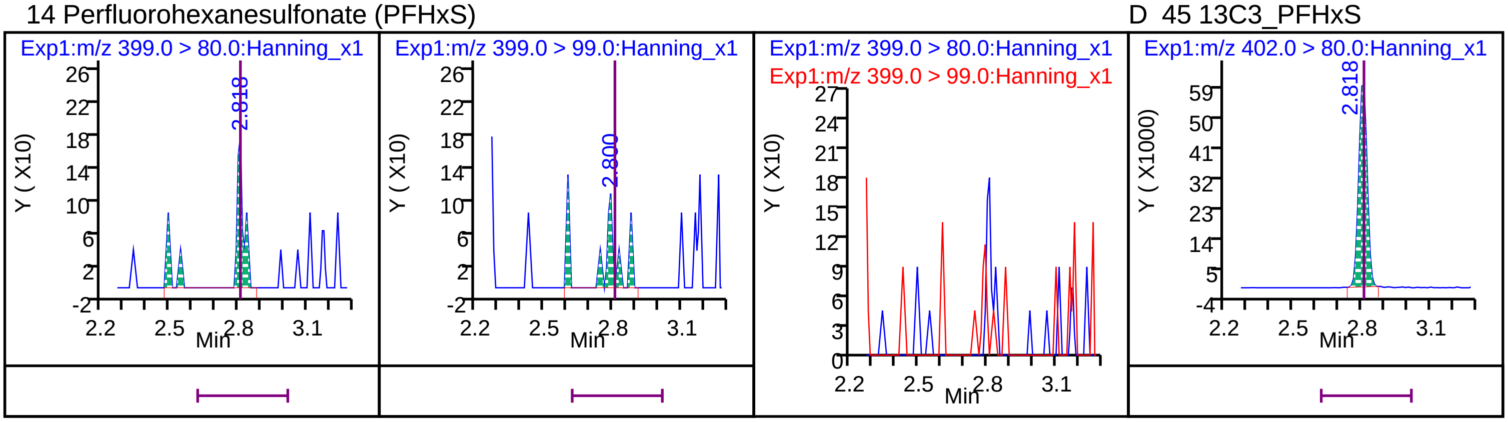
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



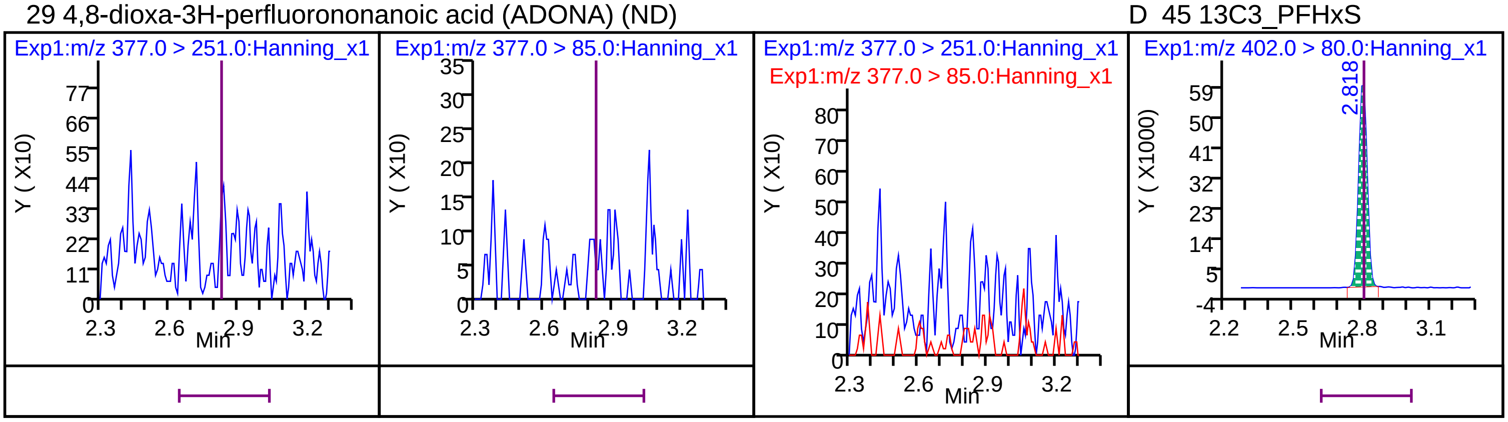
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



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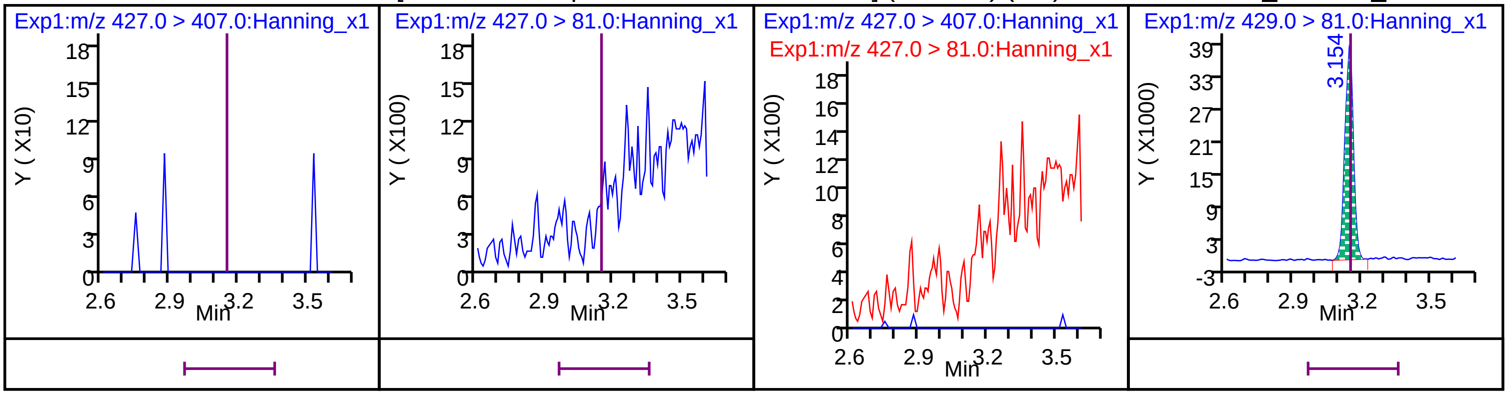
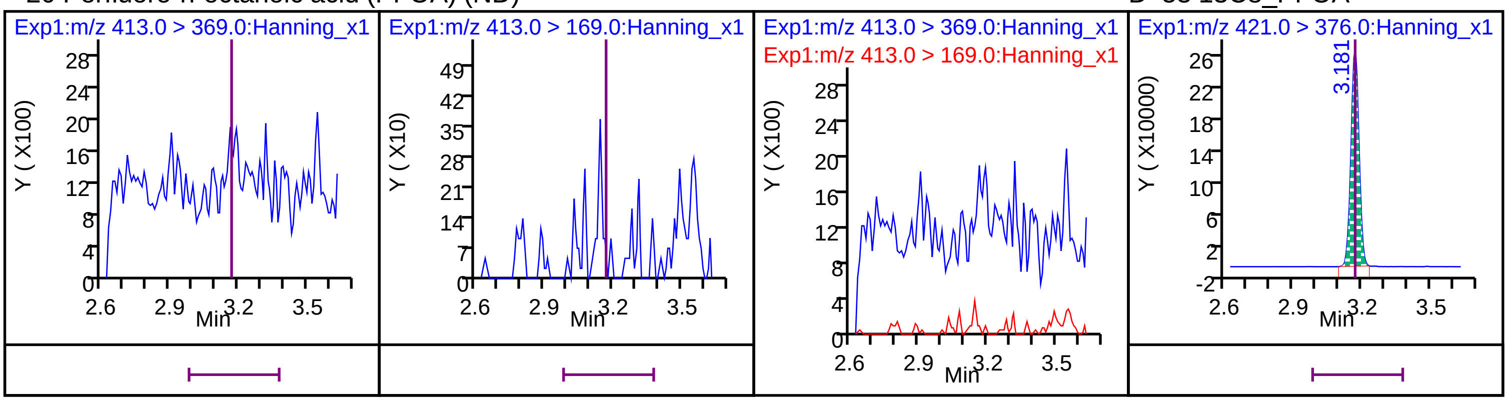
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721007.d

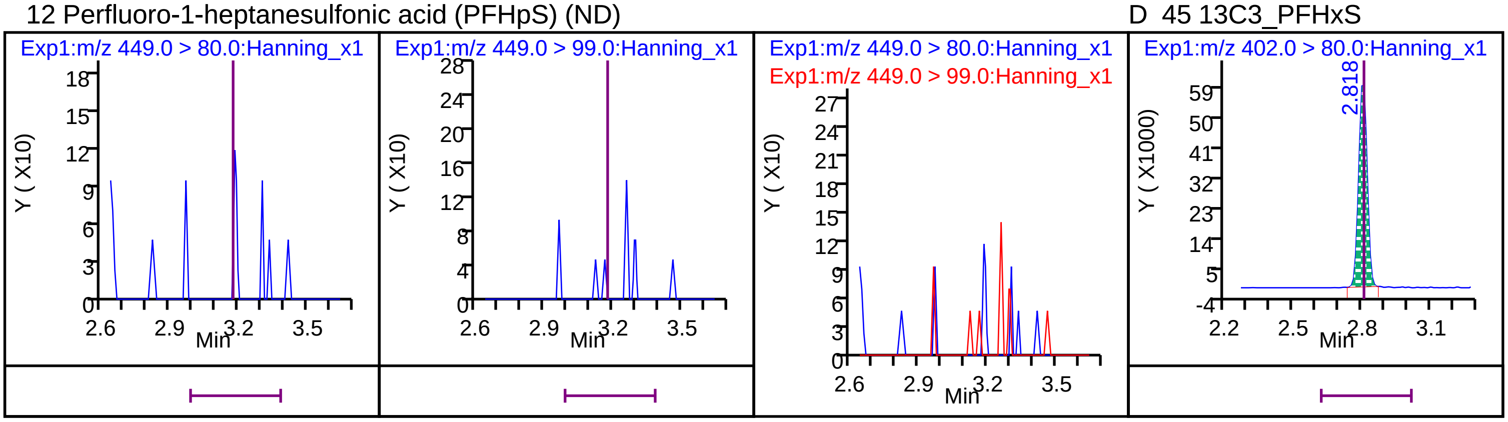
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



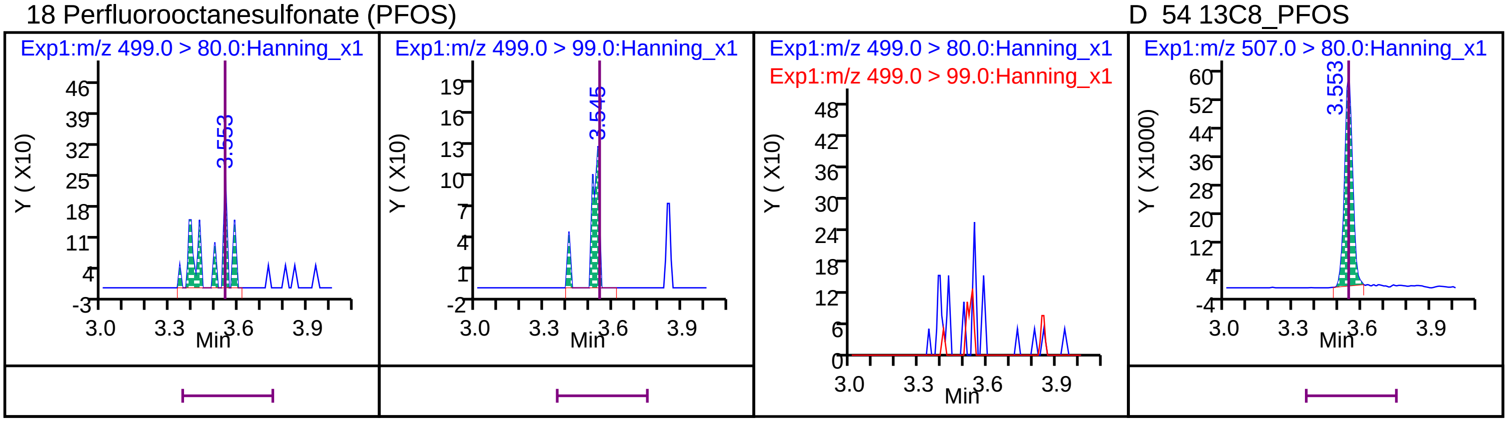
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



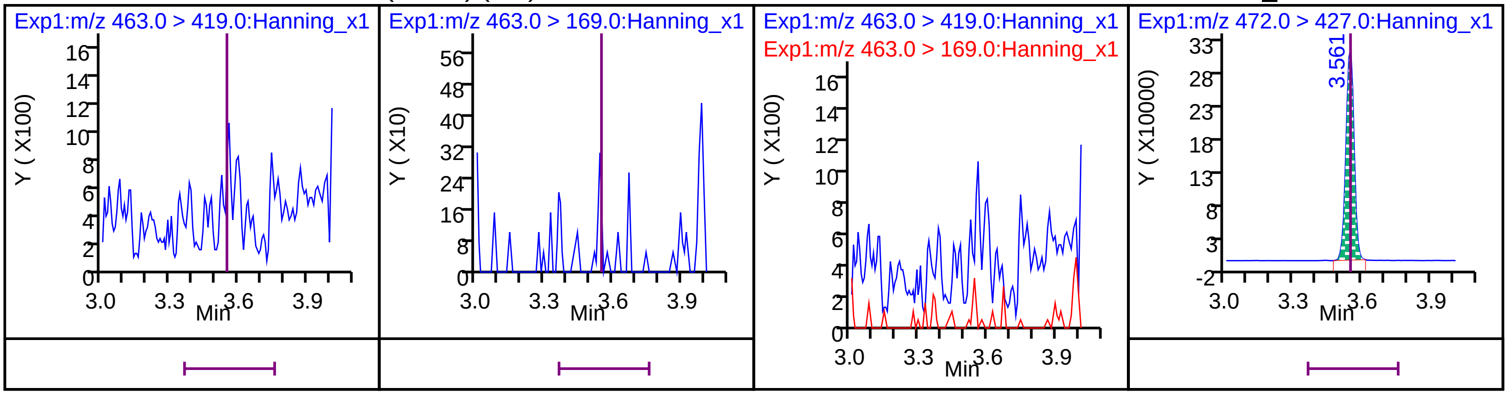
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



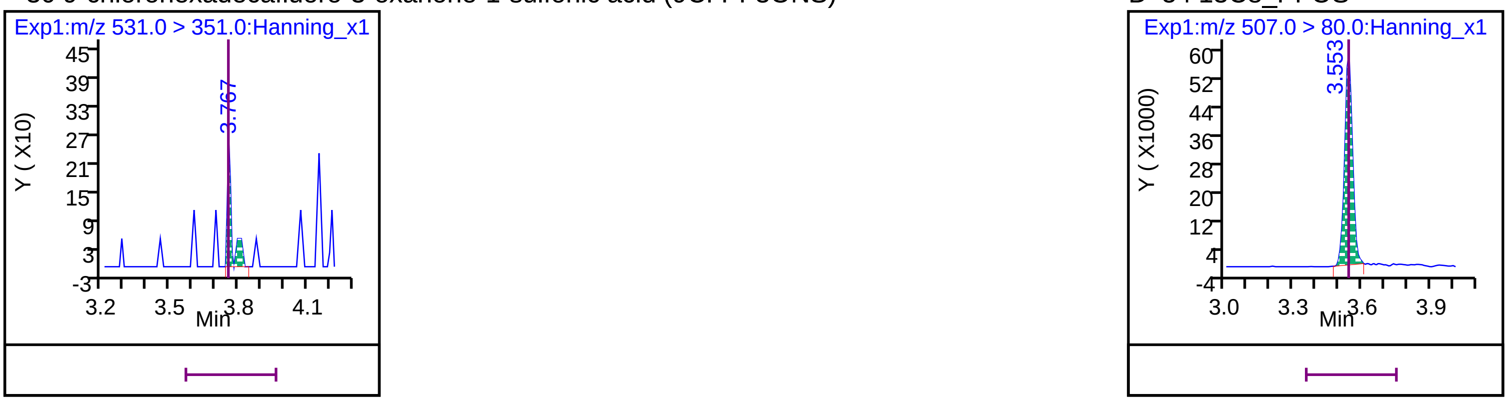
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



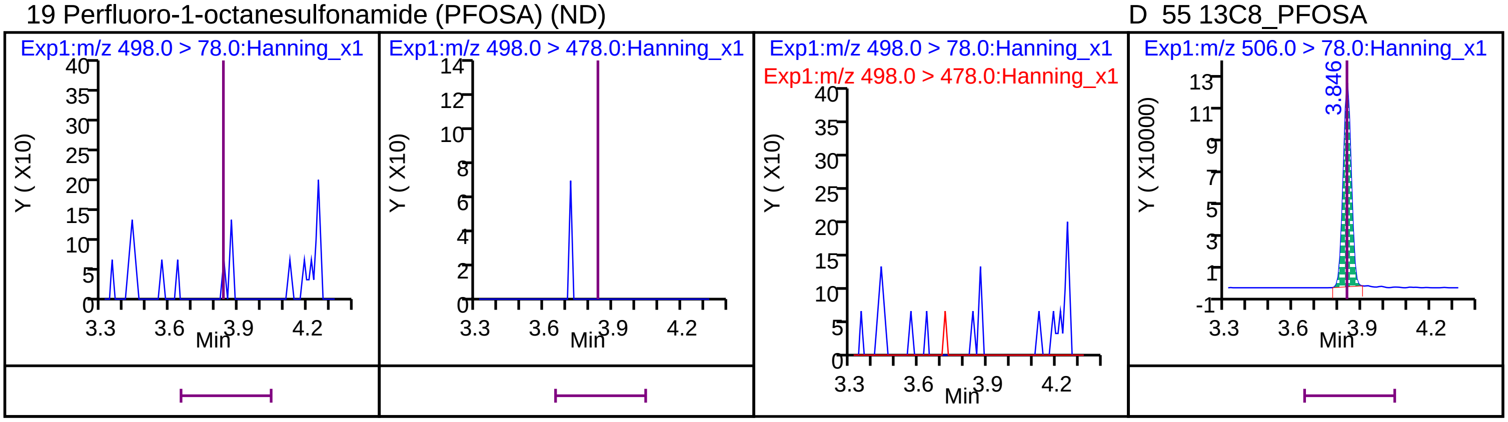
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



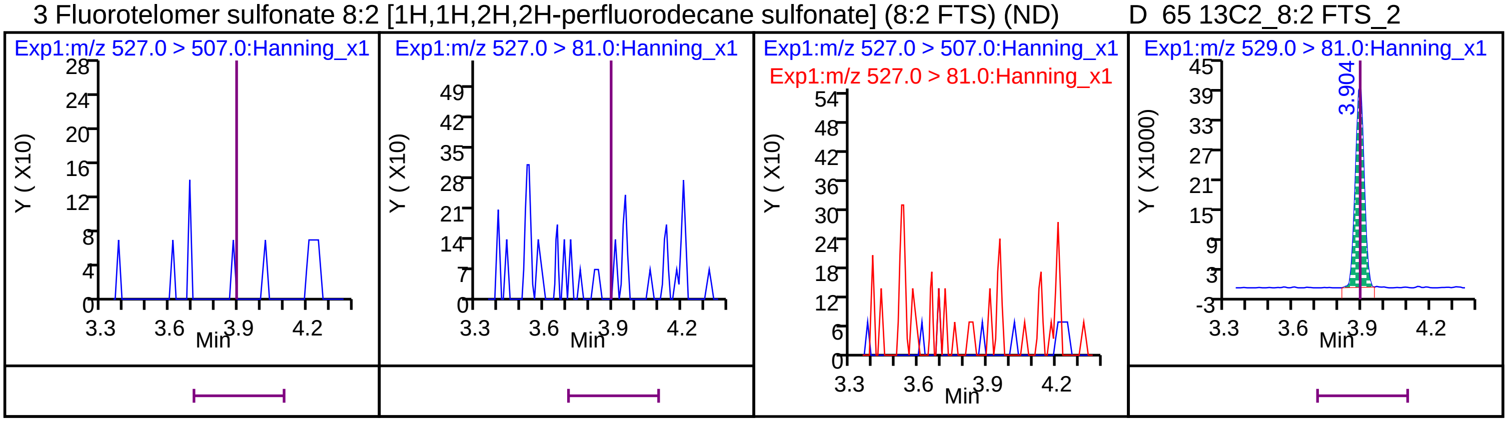
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



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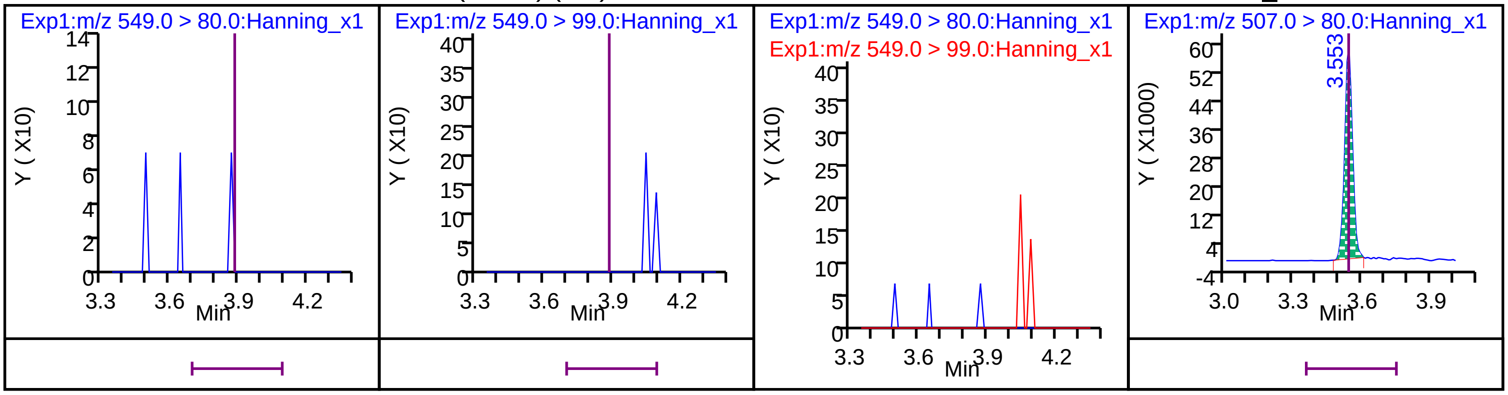
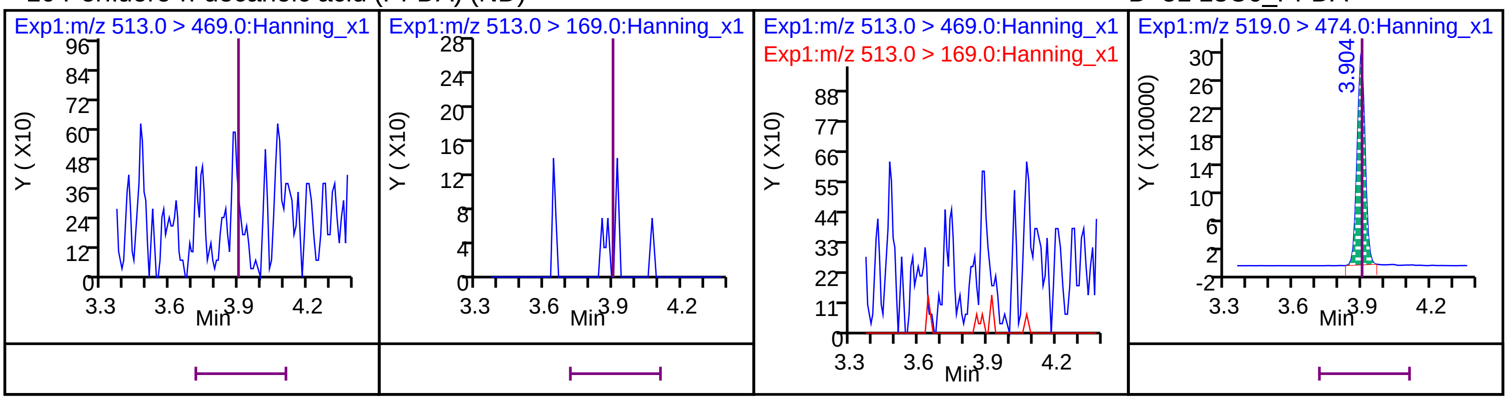
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721007.d

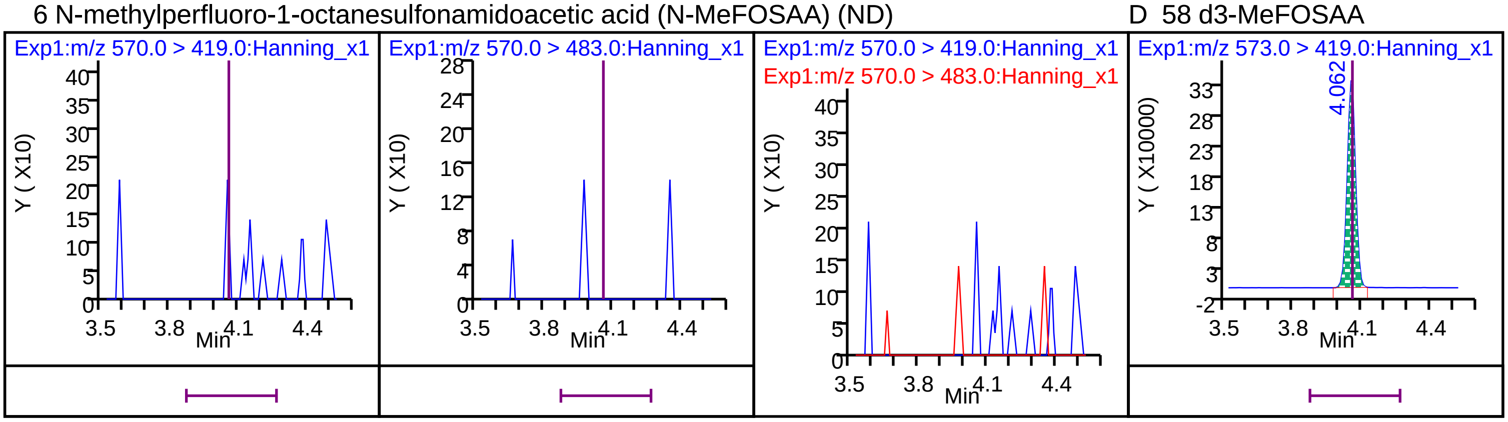
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



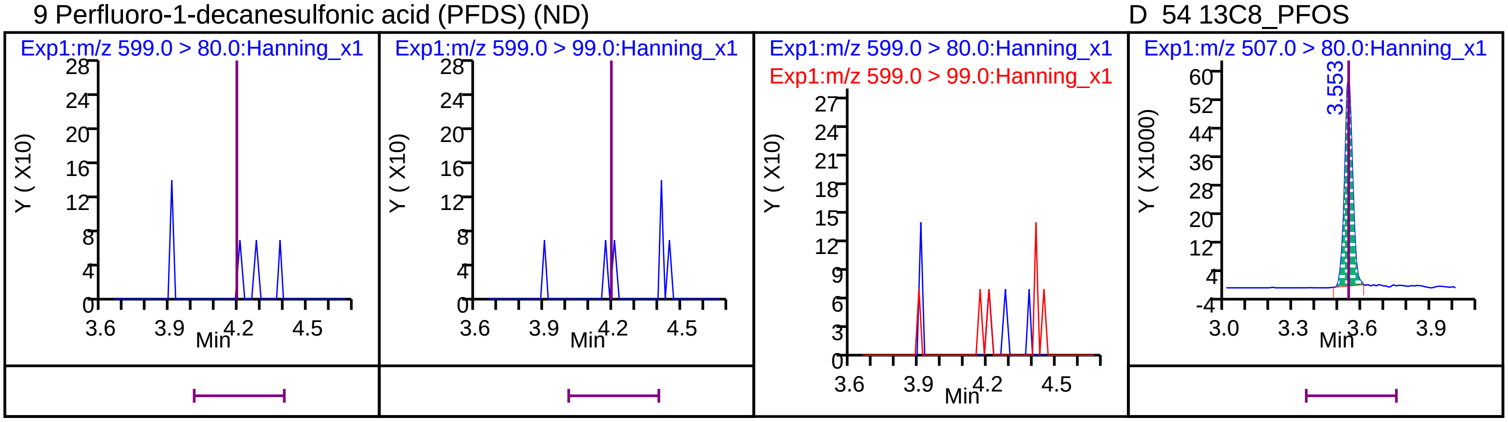
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



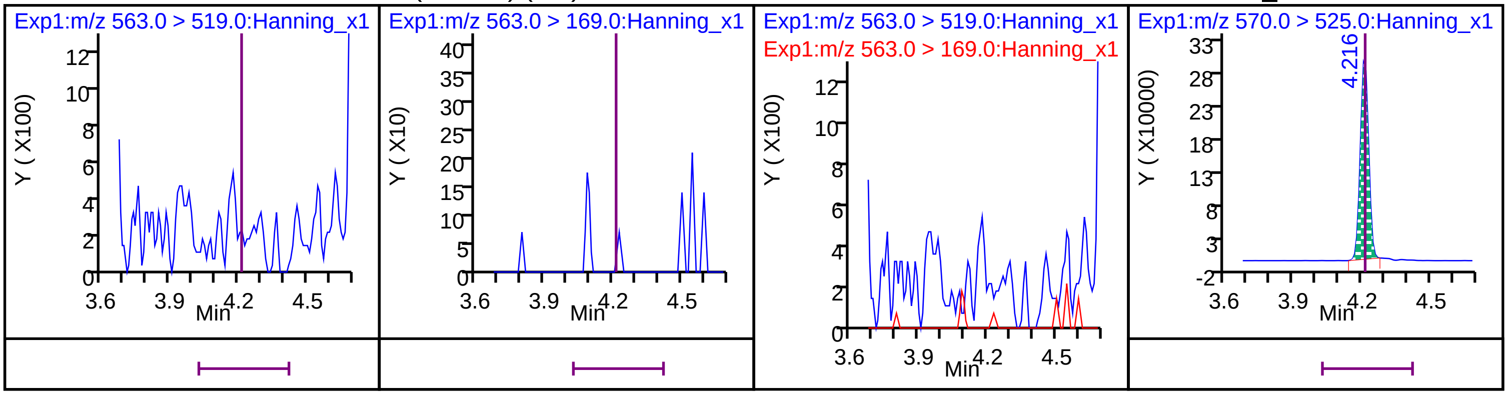
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



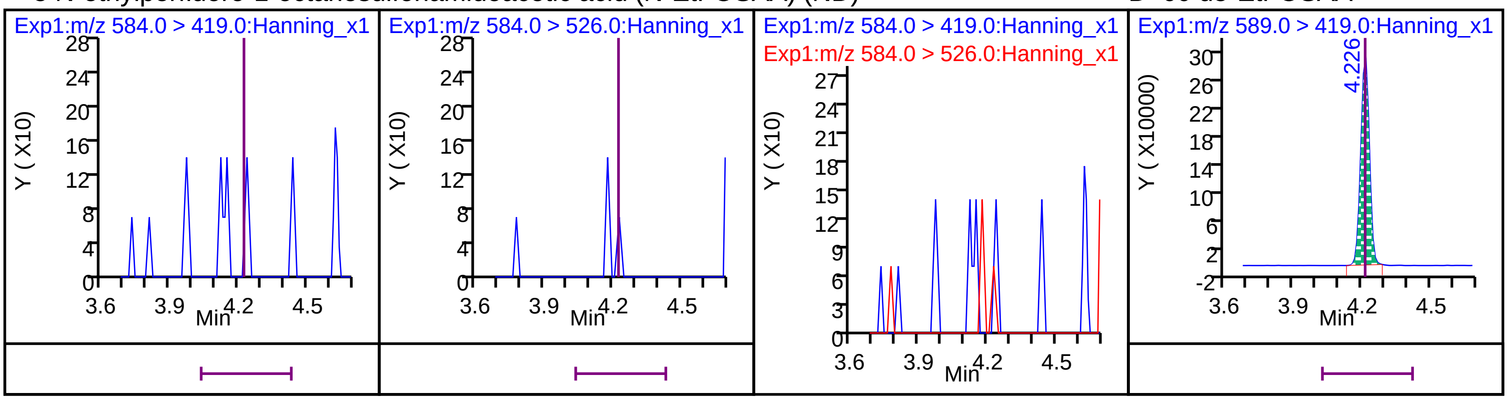
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



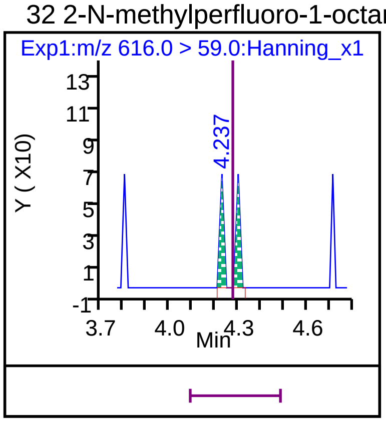
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

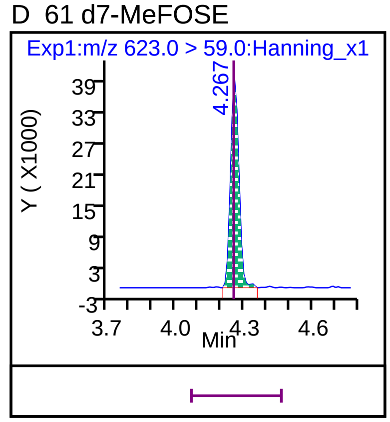


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

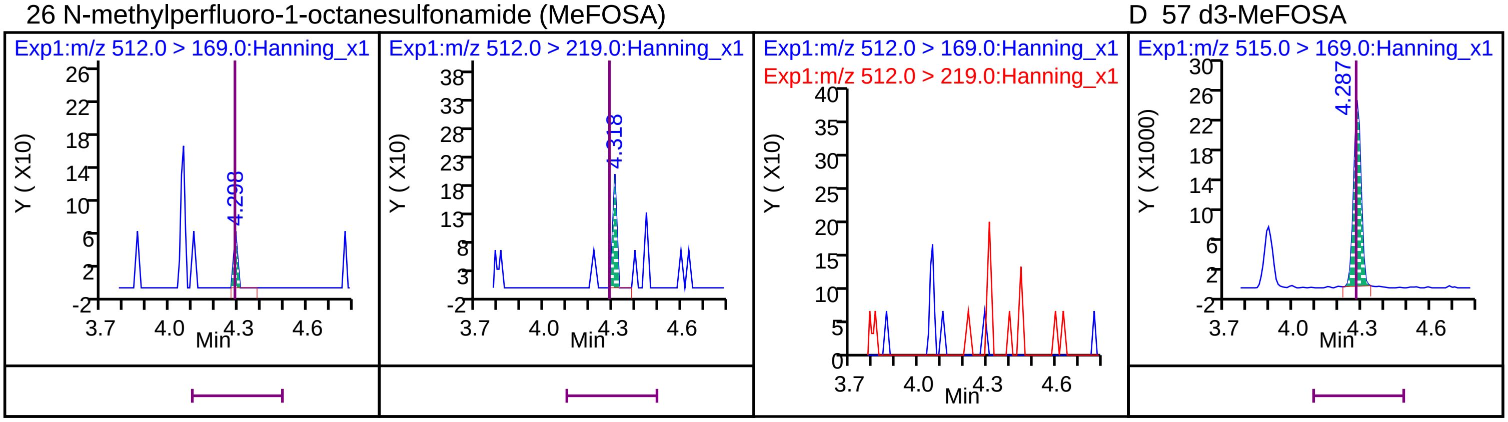


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

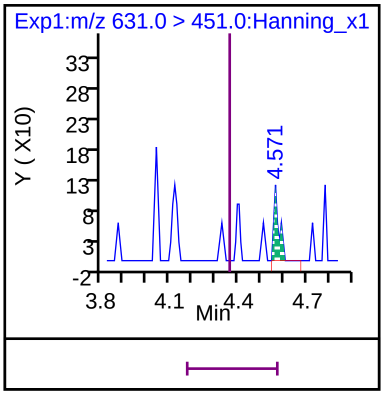




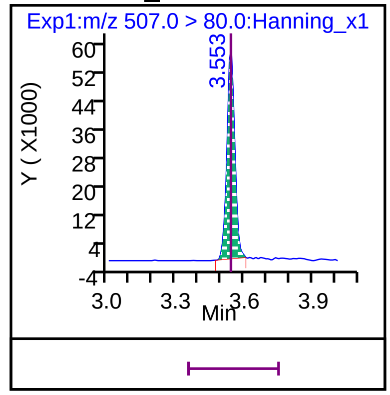
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



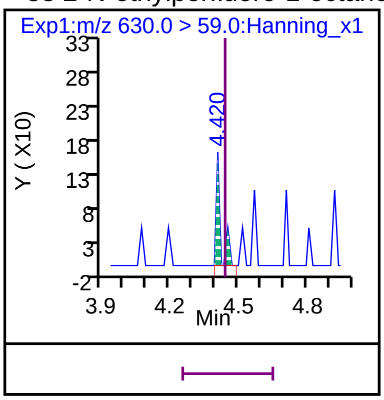
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



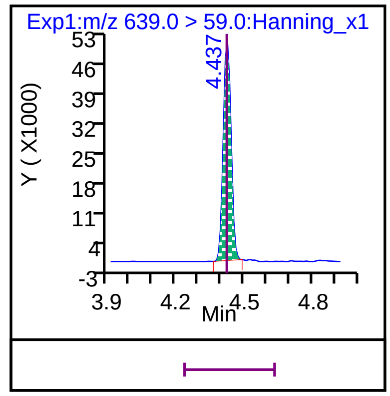
D 54 13C8_PFOS



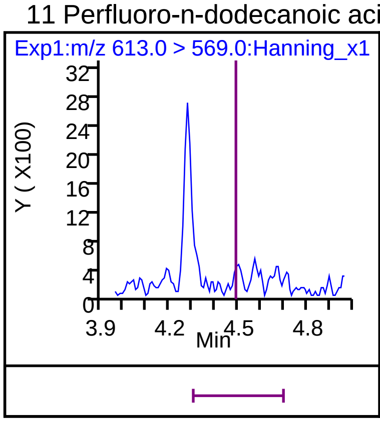
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

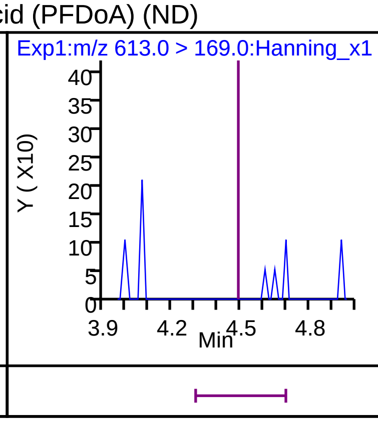


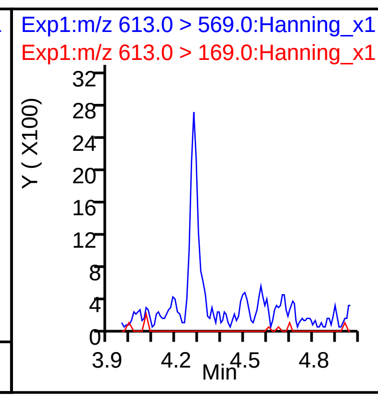
D 62 d9-EtFOSE



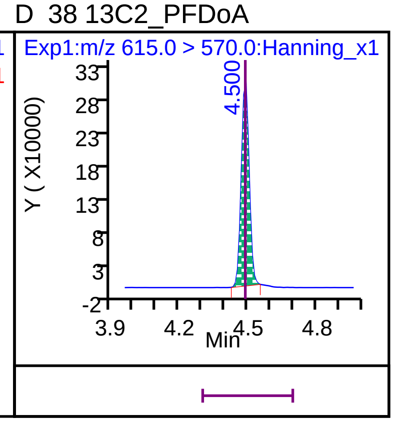
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



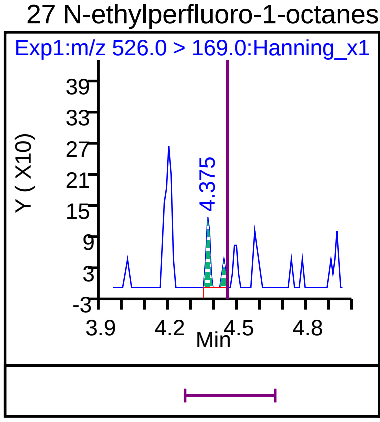


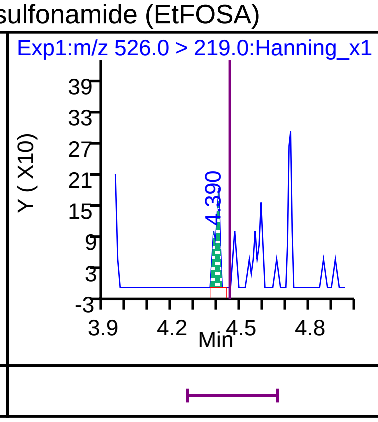


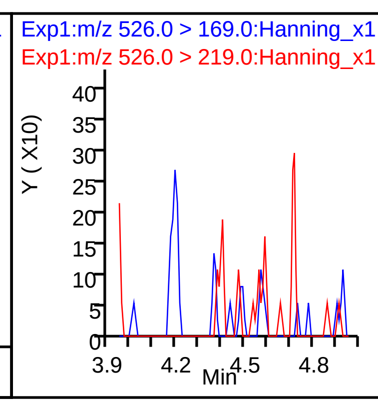
D 38 13C2_PFDoA



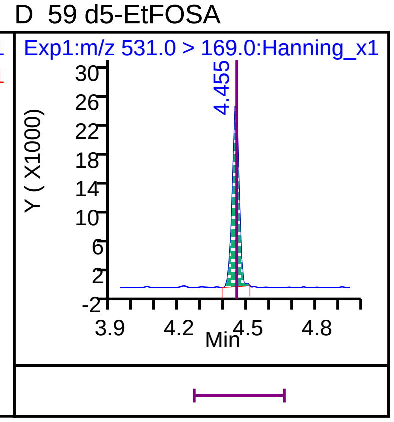
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)





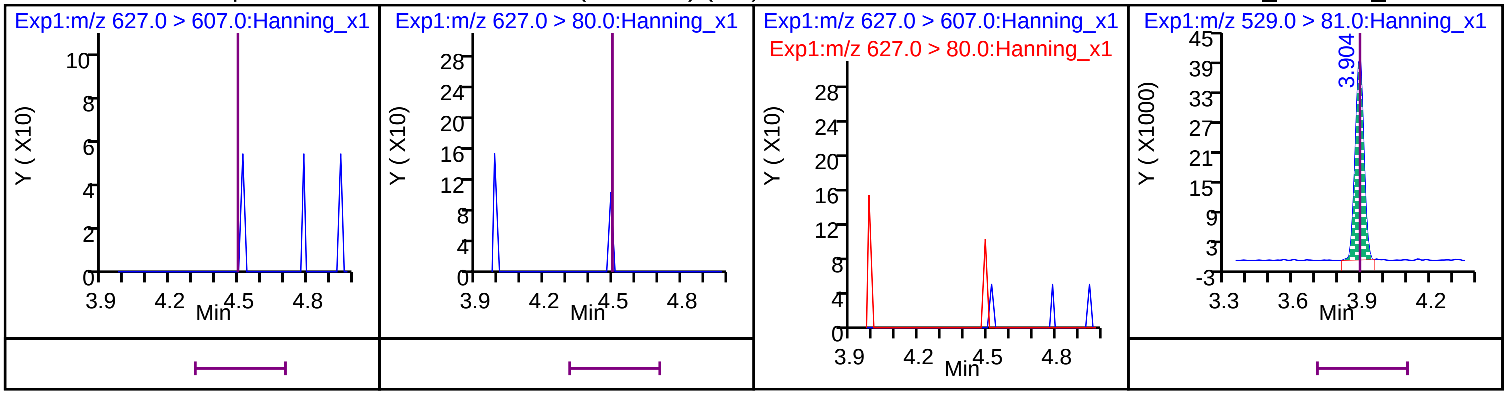


D 59 d5-EtFOSA

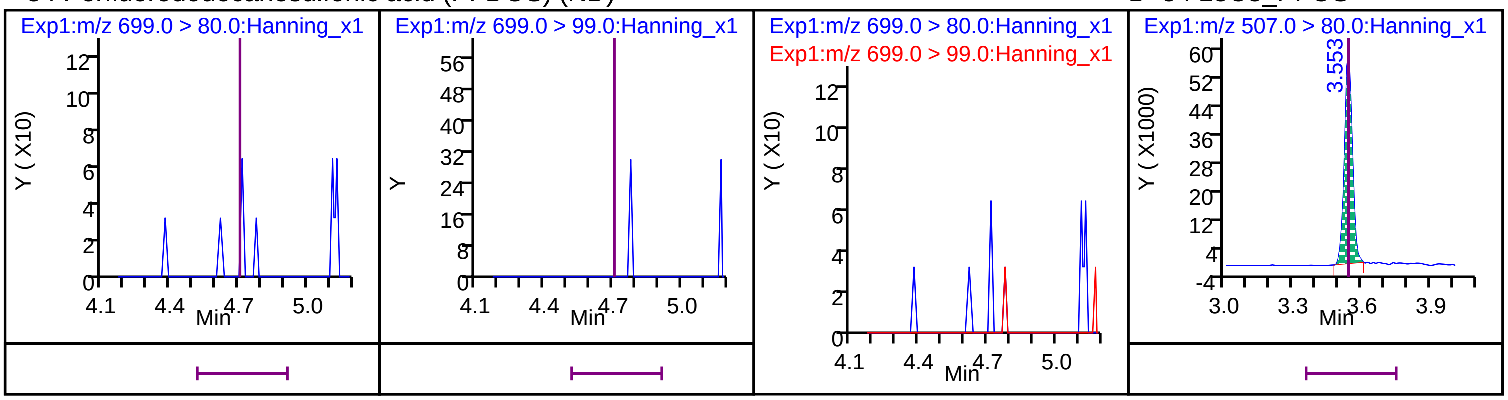


Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721007.d

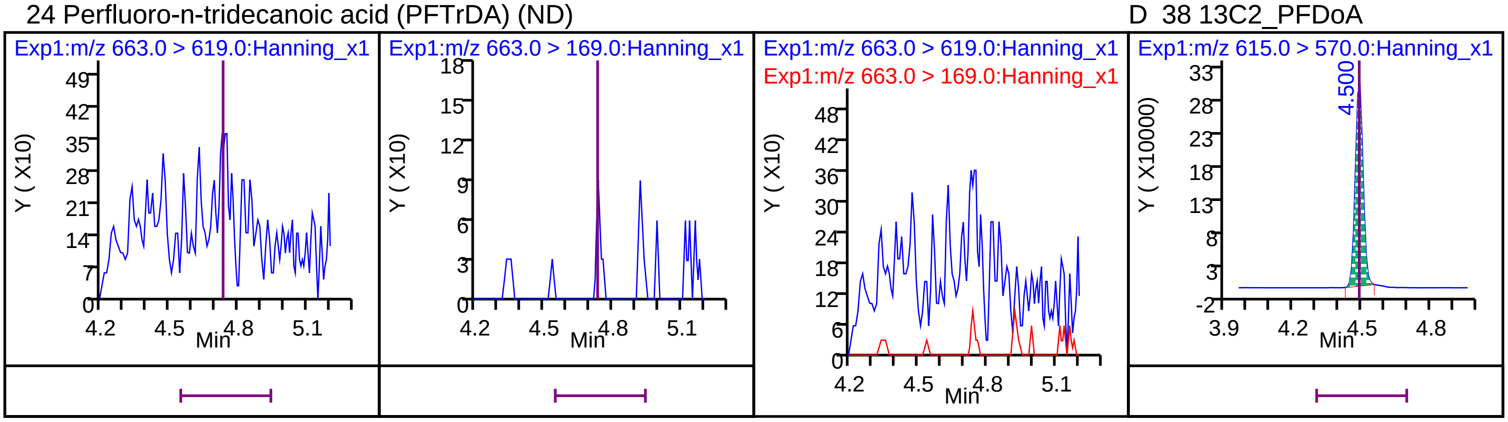
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



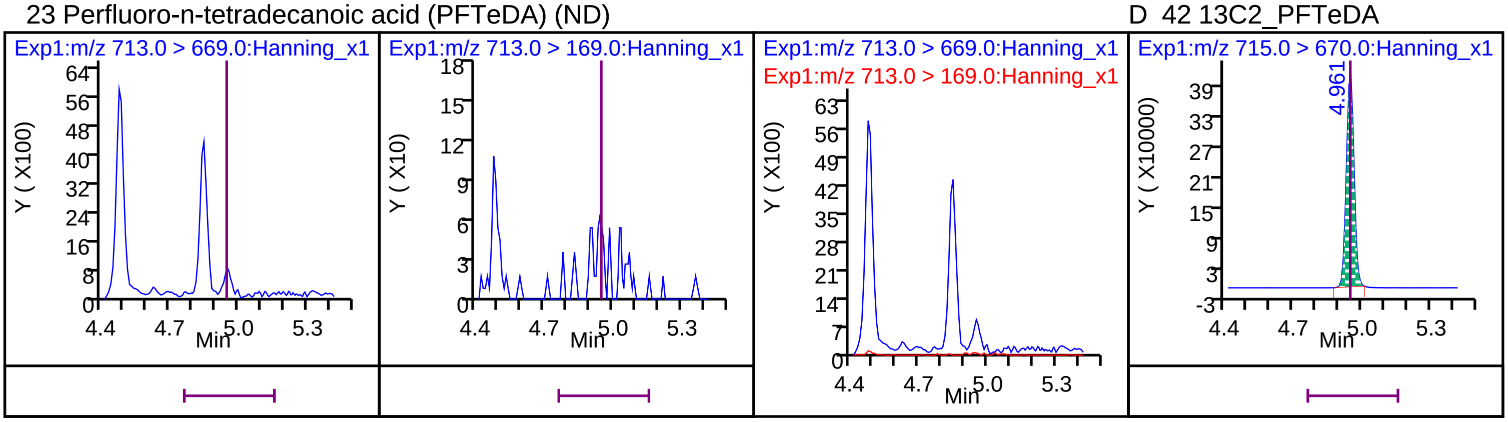
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



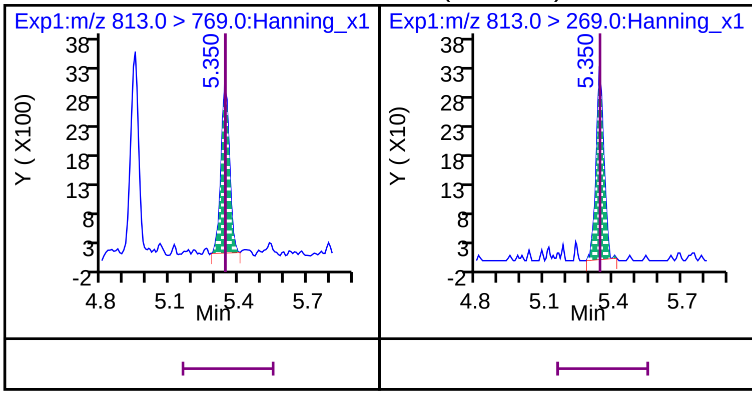
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



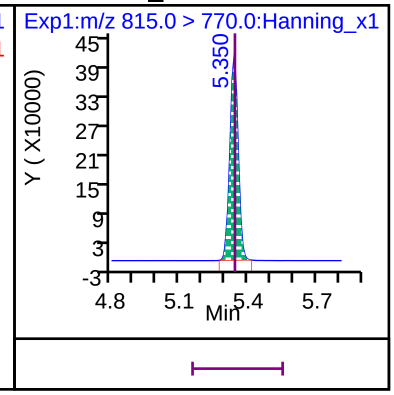
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



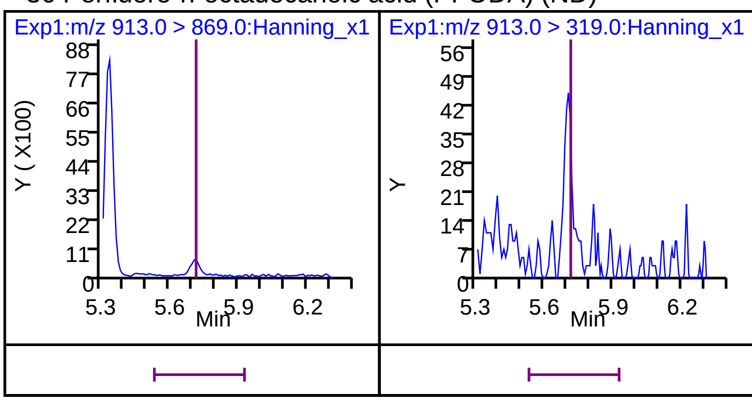
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



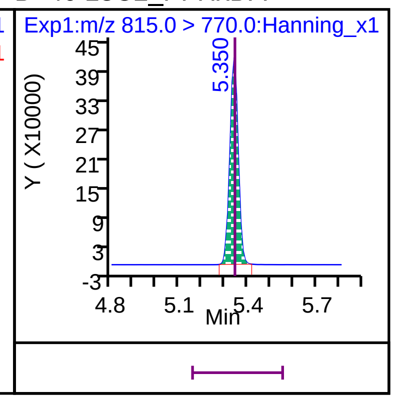
D 40 13C2_PFHxDA



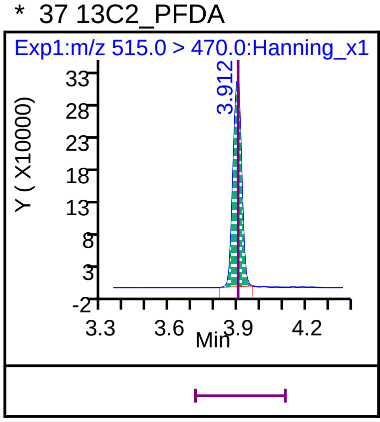
36 Perfluoro-n-octadecanoic acid (PFODA) (ND)



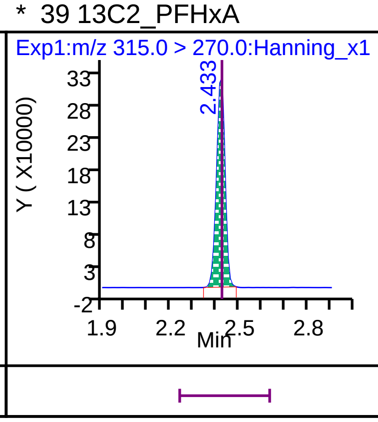
D 40 13C2_PFHxDA



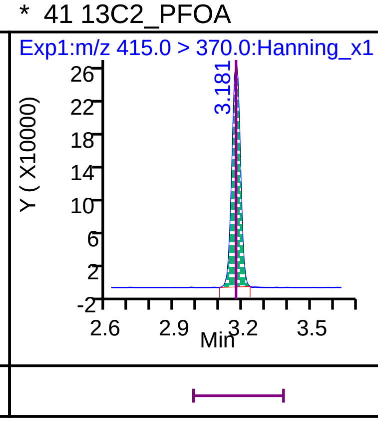
* 37 13C2_PFDA



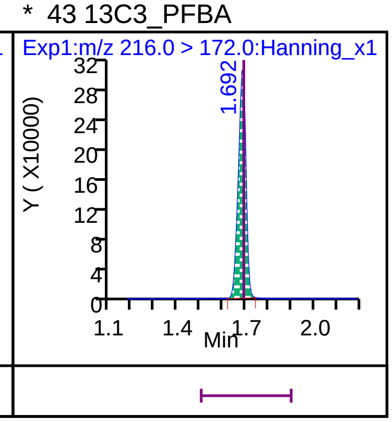
* 39 13C2_PFHxA



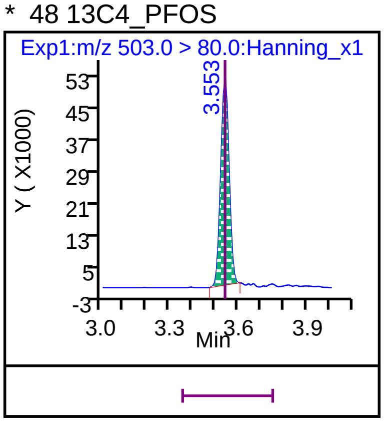
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - MB

Sample ID:	WQ21749-001	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/10/2021 1420
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/10/2021 1420

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	50-150
13C2_6:2FTS	N	169	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ21749-001	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		106	50-150
13C8_PFOS		98	50-150
13C9_PFNA		100	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021008.d		
Injection Date:	10-Nov-2021 14:20:57	Injection Vol:	10.0 uL
Sample Type:	MBlk	Auto Sampler:	1
Lab Sample ID:	WQ21749-001	Lab Prep. Batch:	21749
Sample Info:	WQ21749-001	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.718	0	669386	20	>100:1			1001.00	1076.75	101.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.115	2.109	1	601830	17	>100:1			1001.00	1052.90	103.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.120		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.167	2.173	0	176204	15	>100:1			1001.00	1018.70	107.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.173		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.532		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.450	2.451	0	119105	18	>100:1			5005.00	5259.96	105.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.486	2.496	0	684585	17	>100:1			1001.00	1051.13	102.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.496		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.605	2.607	0	1246487	18	>100:1			5005.00	5378.44	102.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.873	0	562691	17	>100:1			1001.00	1059.80	103.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.873		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.889	0	130493	17	>100:1			1001.00	1038.63	105.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.889		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.276		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.245	3.242	1	165243	20	>100:1			5005.00	9180.19	168.8*	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.269	0	607302	21	>100:1			1001.00	1157.48	105.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.654	3.657	0	123131	21	>100:1			1001.00	994.25	98	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.652		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.872		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.483		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.665	3.662	1	688876	21	>100:1			1001.00	1075.73	99.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.662		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.924	3.921	1	261625	16	>100:1			1001.00	976.00	96.7	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.021	4.027	0	634539	16	>100:1			1001.00	1104.20	99.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.010	4.017	0	102653	14	>100:1			5005.00	5939.02	104.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.180	4.178	1	748001	17	>100:1			5005.00	4949.96	101.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.331	4.329	1	78748	17	>100:1			1001.00	873.15	95.1	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.359	4.348	1	25716	13	90:1			1001.00	546.67	53.3	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.331	4.339	0	641424	15	>100:1			5005.00	4952.58	98	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.340	4.339	1	679834	16	>100:1			1001.00	1128.82	103.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.495	4.501	0	92168	14	>100:1			1001.00	868.88	91.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.522	4.519	1	26036	14	90:1			1001.00	605.49	67.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.608	4.614	0	685418	17	>100:1			1001.00	1141.72	92.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.087	0	709247	22	>100:1			1001.00	872.39	80.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.500	5.512	0	624142	20	>100:1			1001.00	719.03	66.2	
*** 37 13C2_PFDA**													
515 > 470		4.021	4.027	0	775930	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.496	0	789770	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.269	1	684674	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	698277	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.654	3.657	0	149986	20	>100:1			200.00			

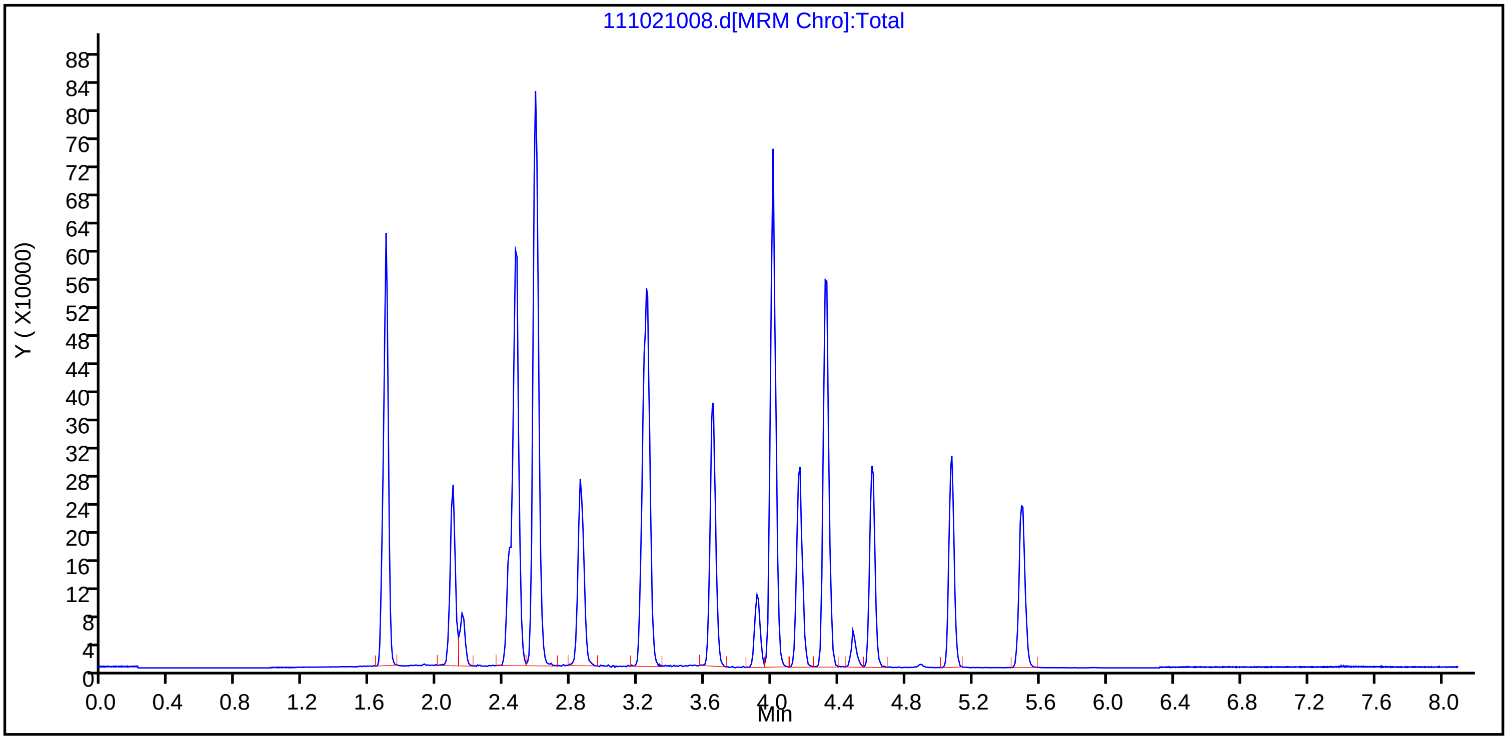
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

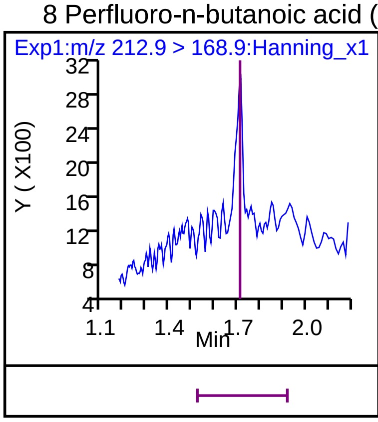
Report Date: 11-Nov-2021 20:41:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

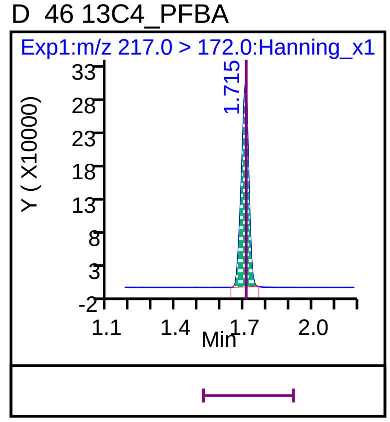
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021008.d		
Injection Date:	10-Nov-2021 14:20:57	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21749-001
Sample Info:	WQ21749-001		
Dil. Factor:	1	Operator:	Justin Gavin



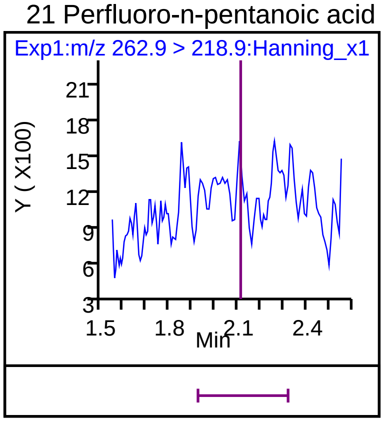
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



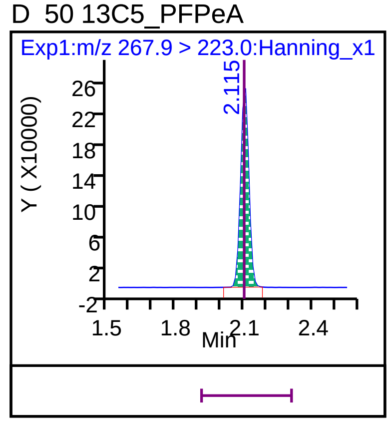
D 46 13C4_PFBA



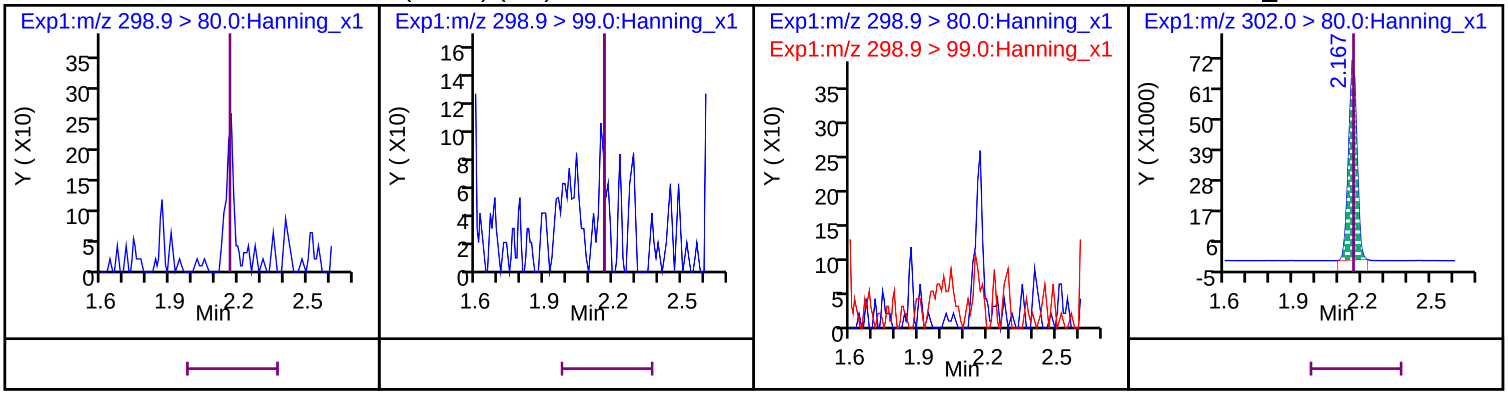
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



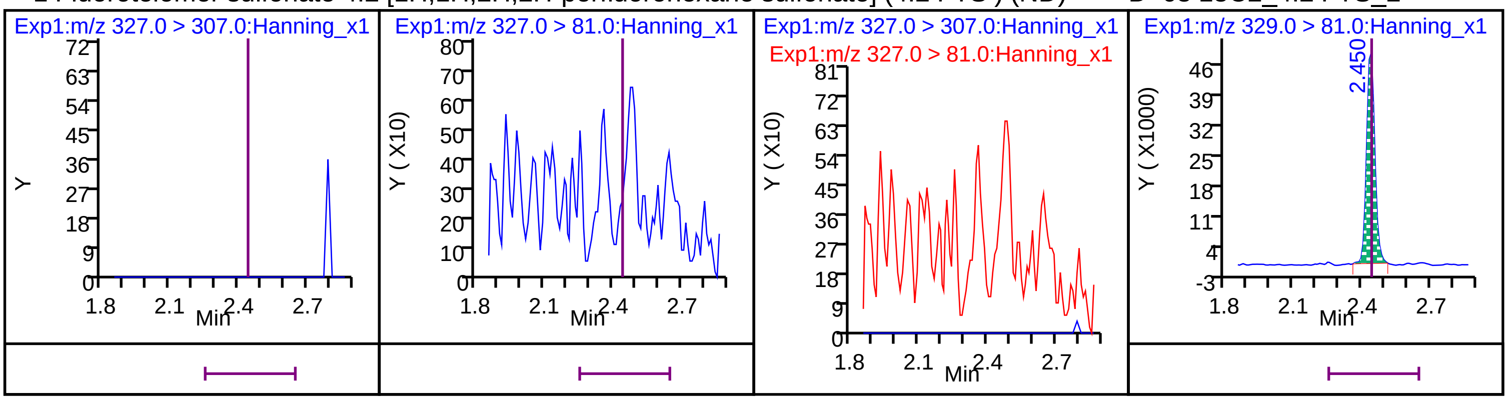
D 50 13C5_PFPeA



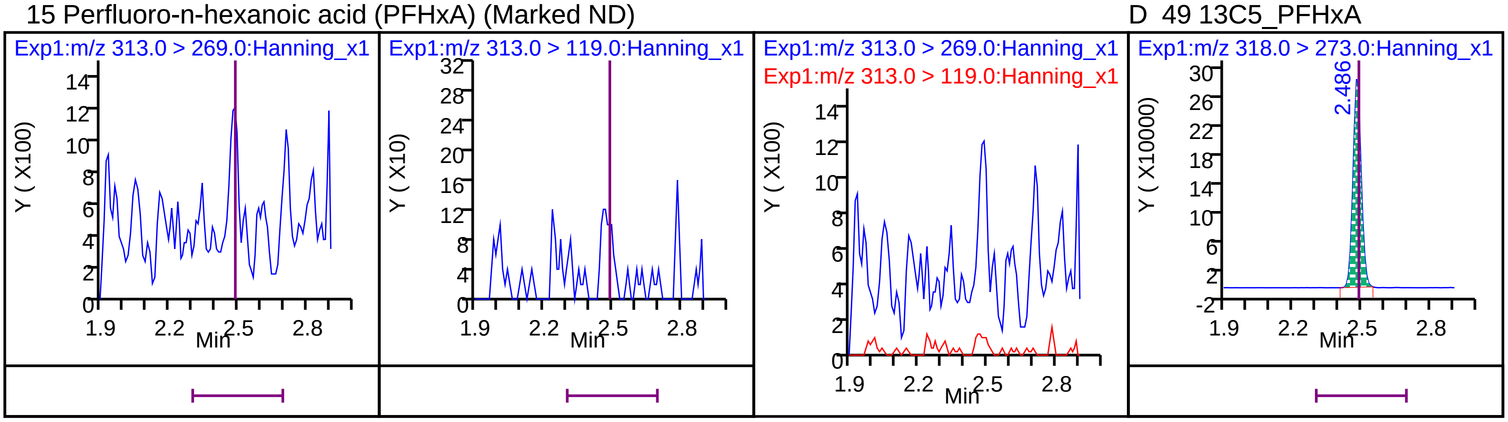
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



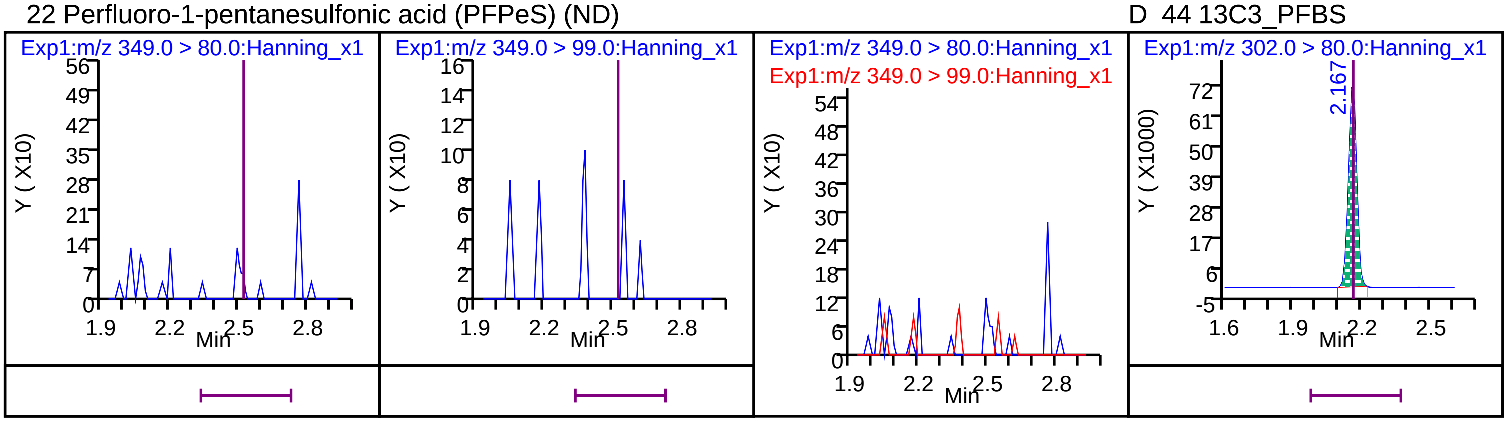
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



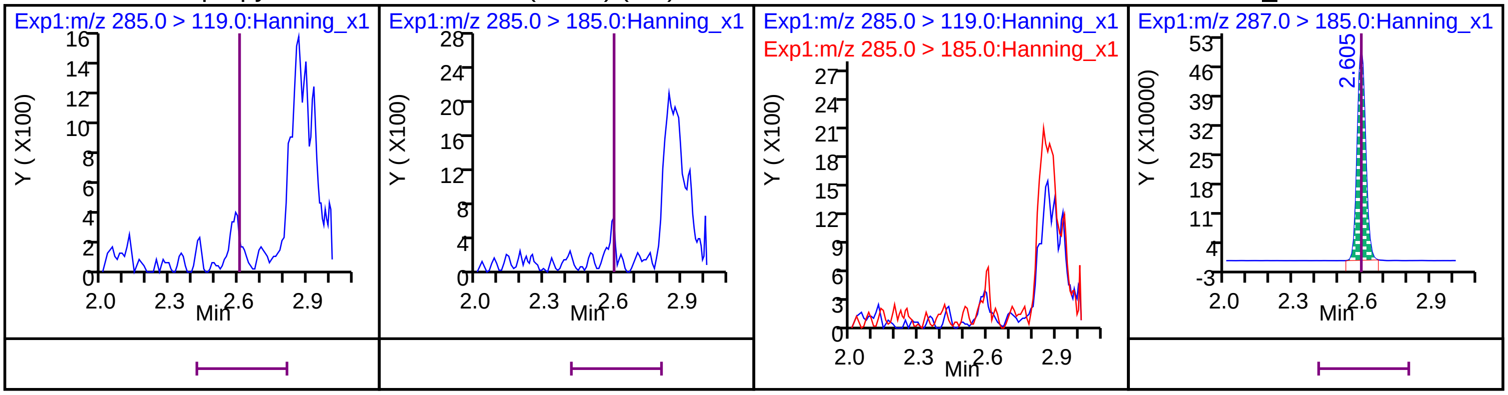
15 Perfluoro-n-hexanoic acid (PFHxA) (Marked ND) D 49 13C5_PFHxA



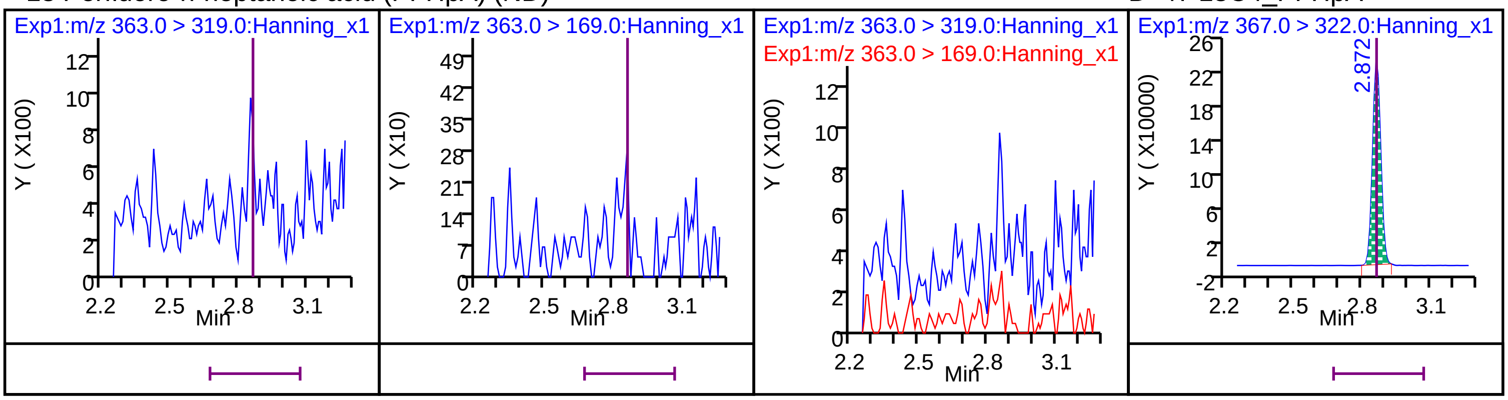
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



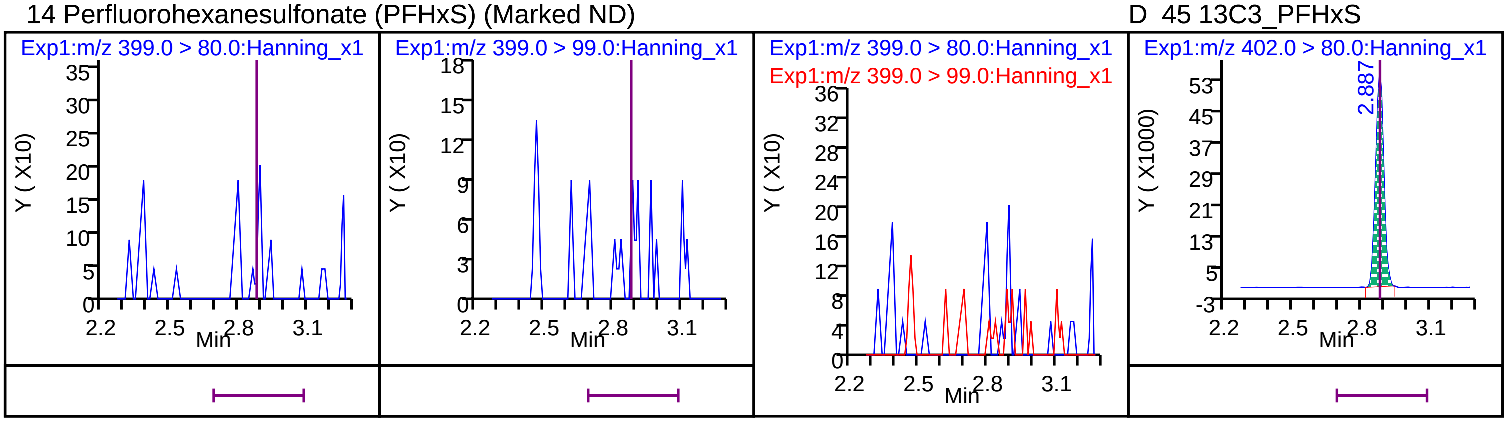
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



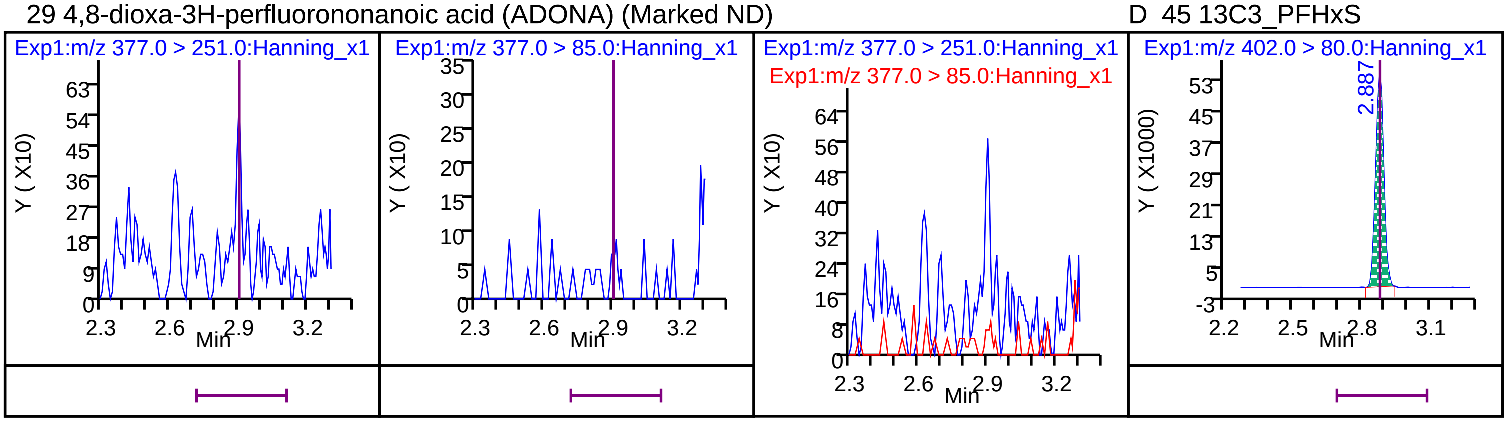
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (Marked ND) D 45 13C3_PFHxS

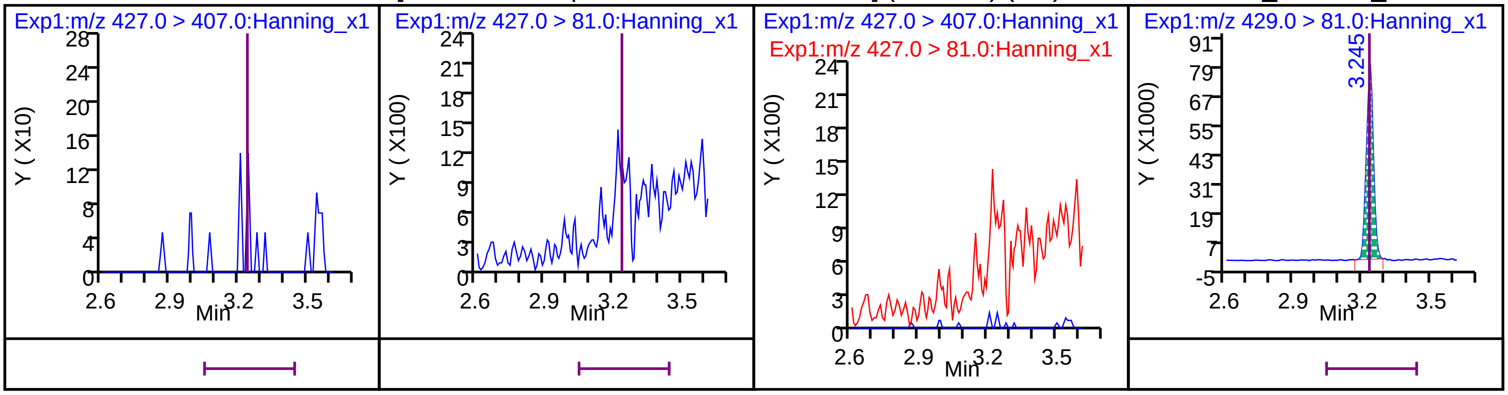


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (Marked ND) D 45 13C3_PFHxS

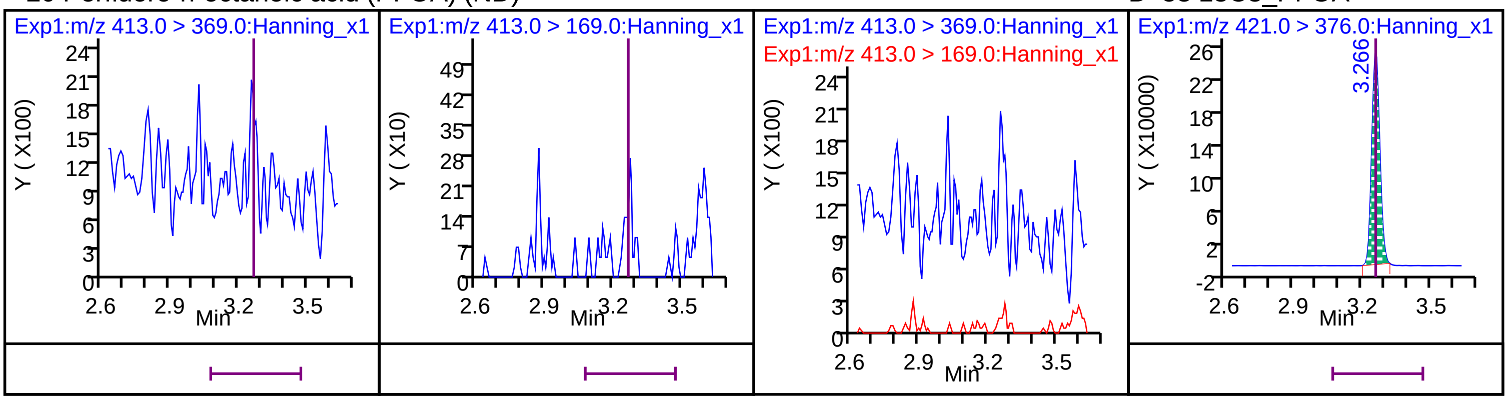


Report Date: 11-Nov-2021 20:41:39 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021008.d

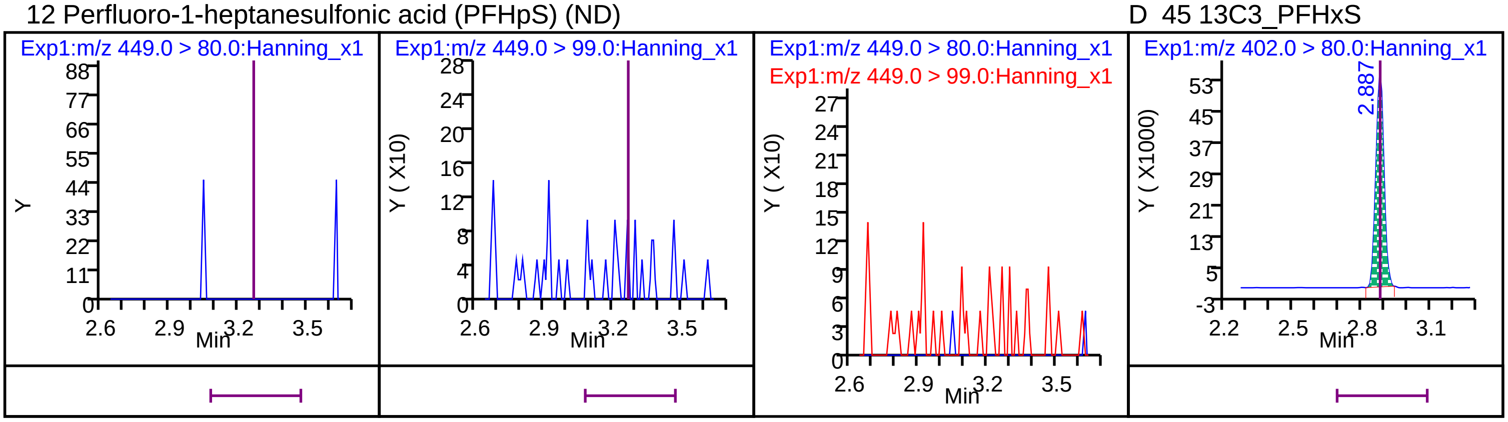
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



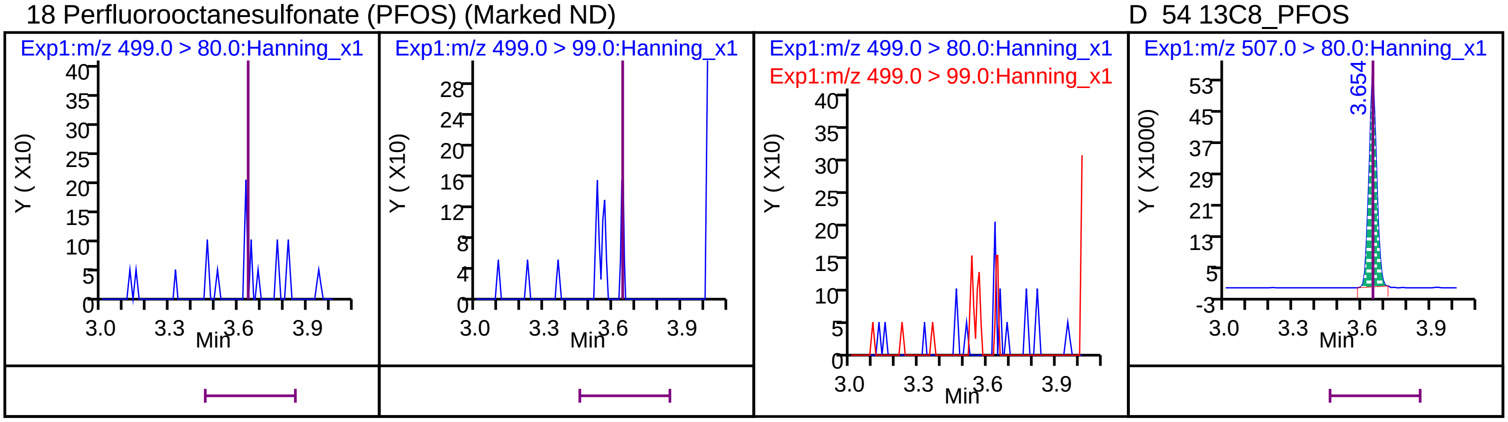
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



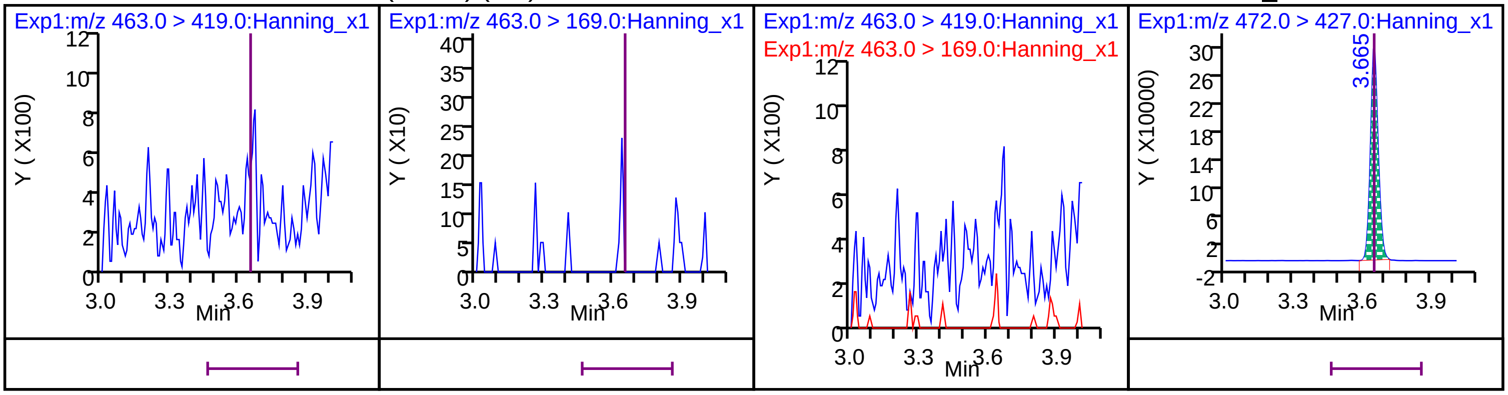
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



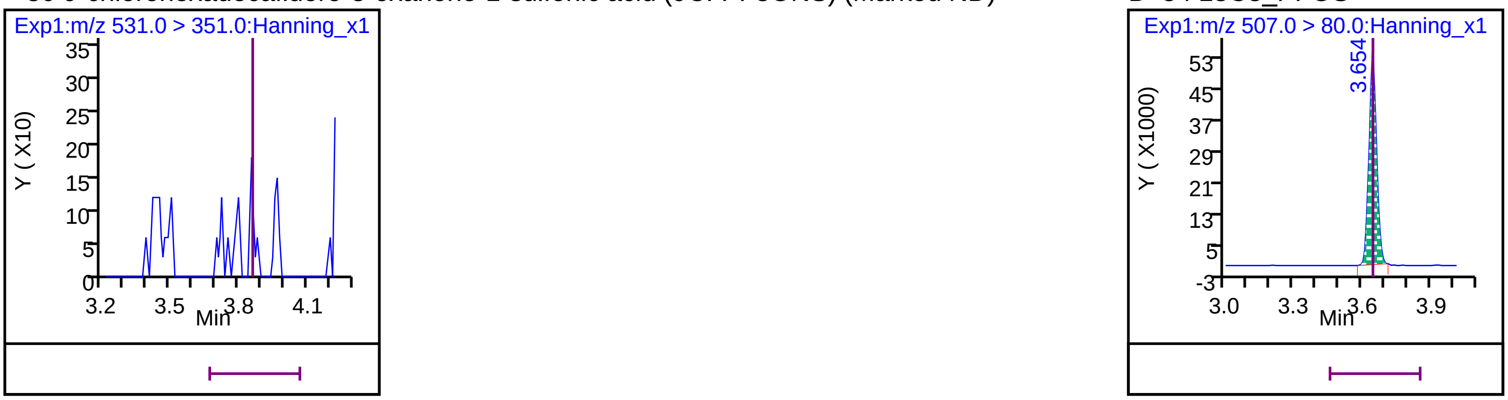
18 Perfluorooctanesulfonate (PFOS) (Marked ND) D 54 13C8_PFOS



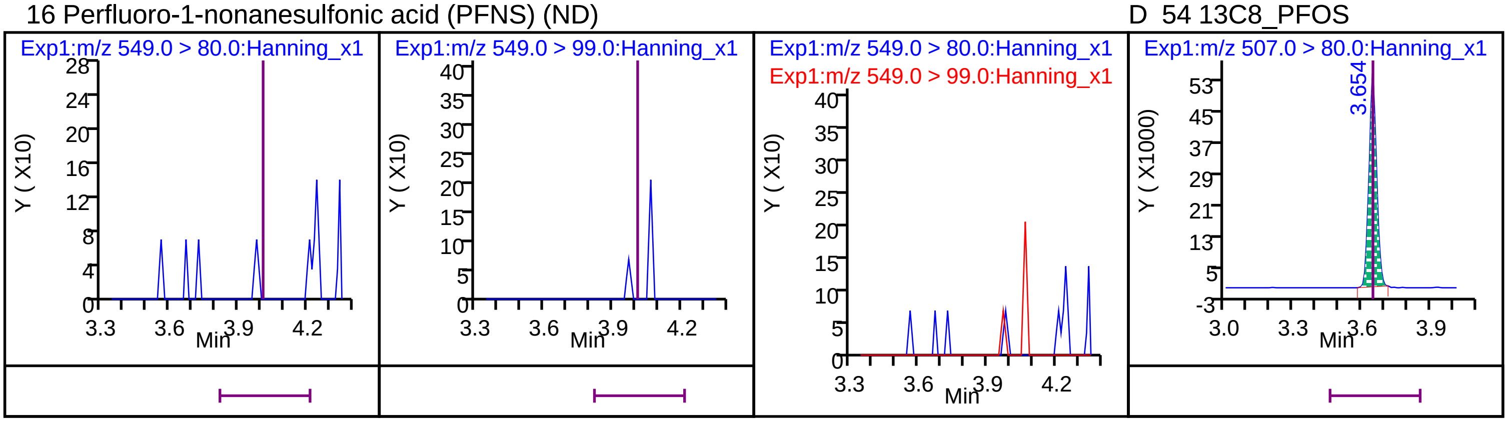
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



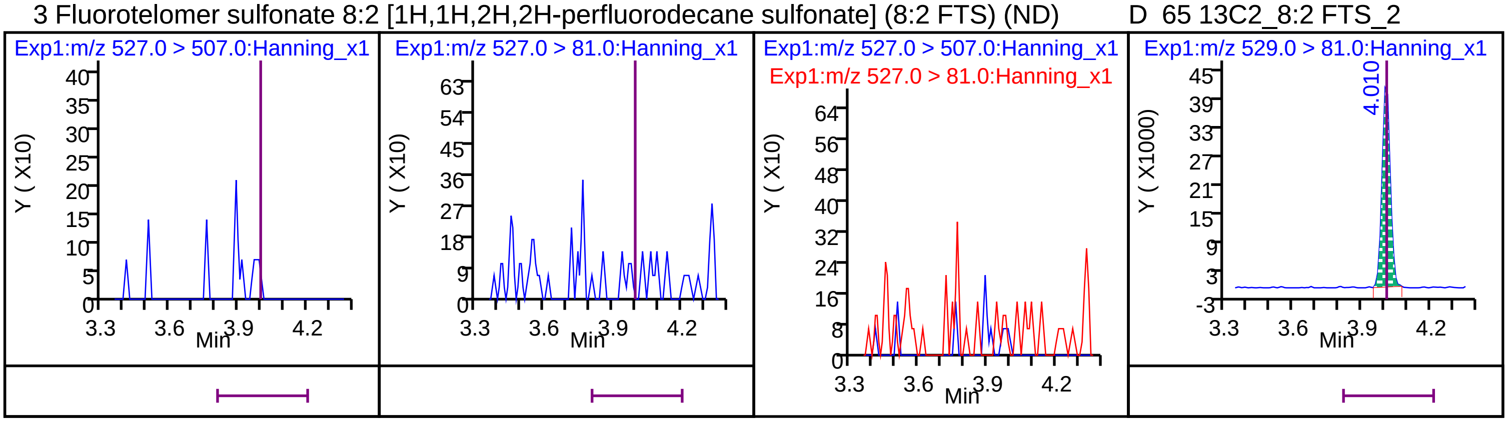
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



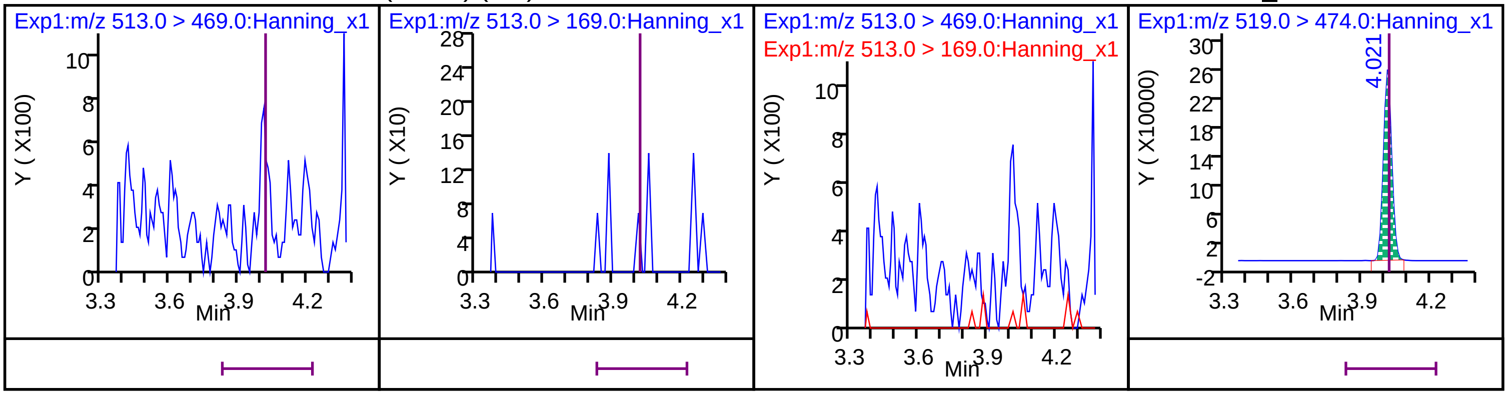
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



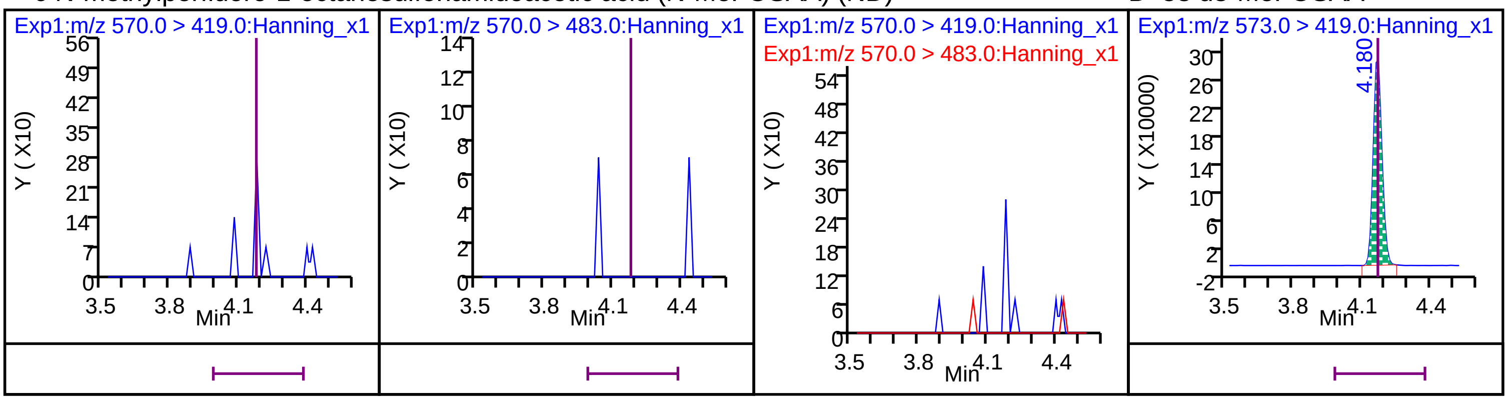
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



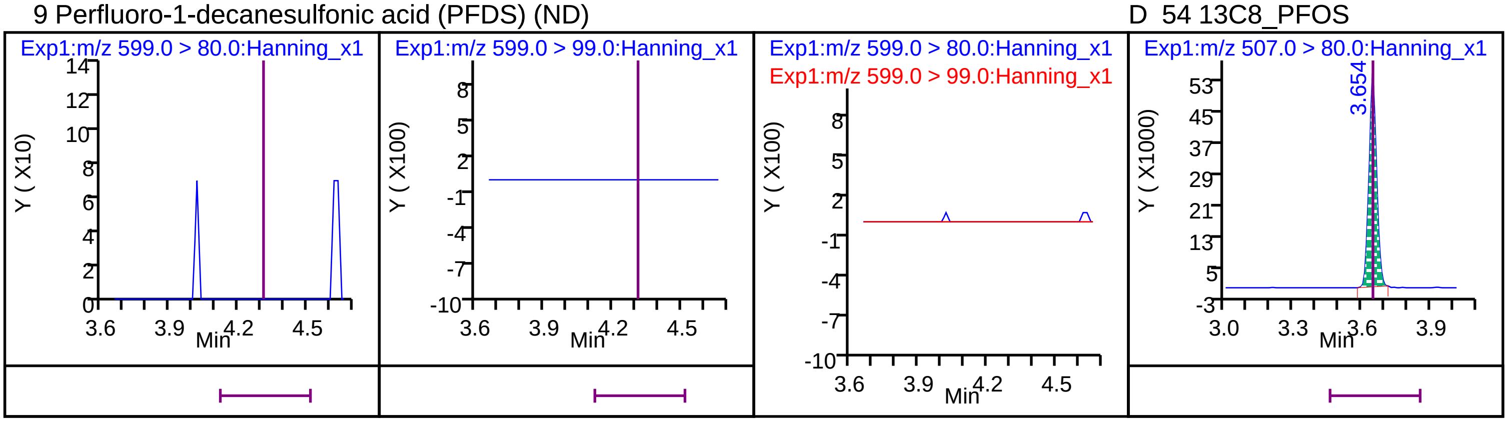
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



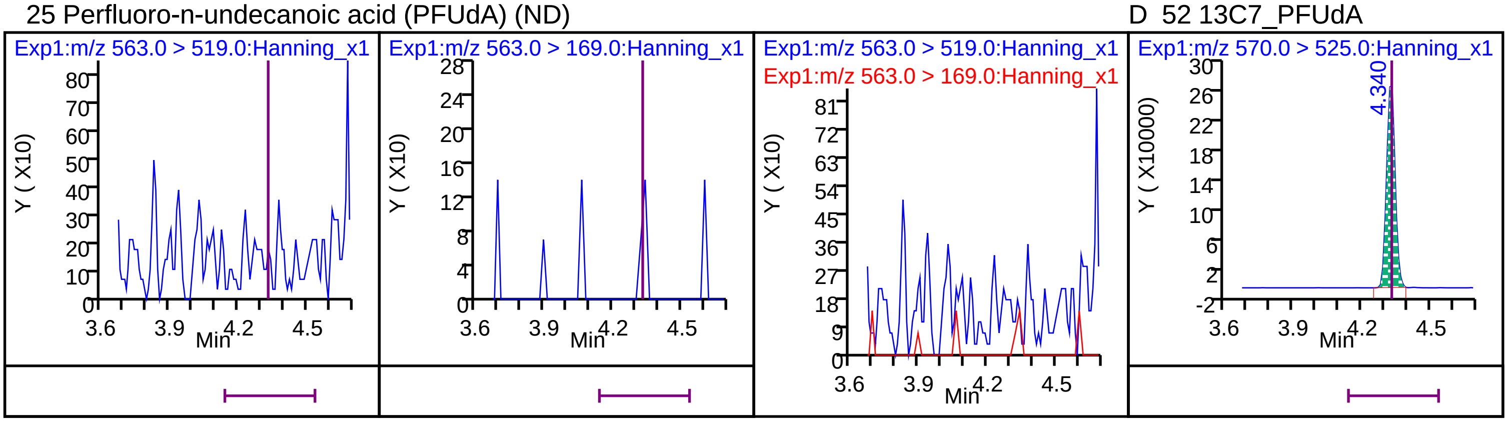
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



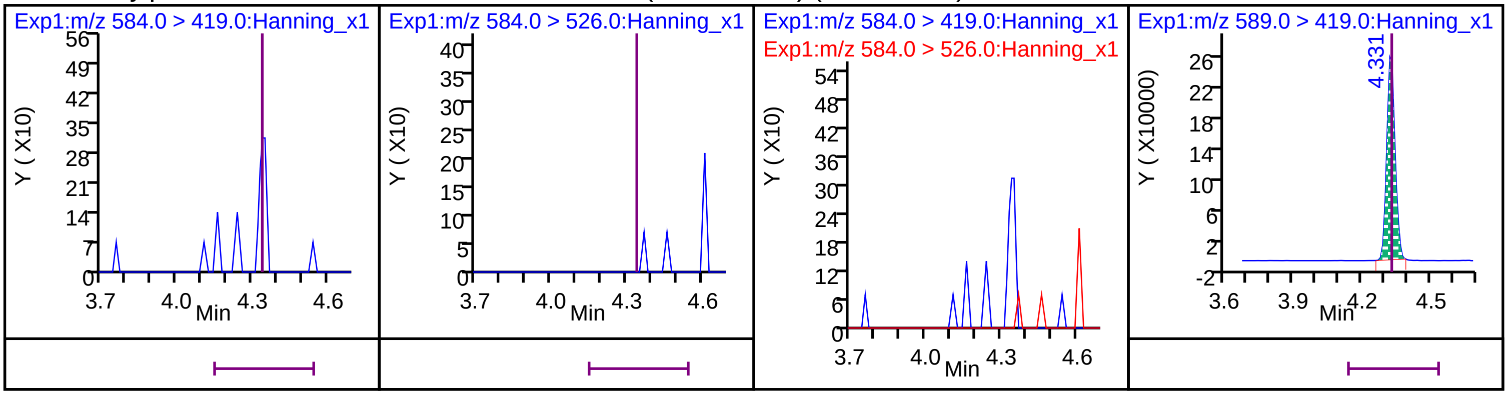
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



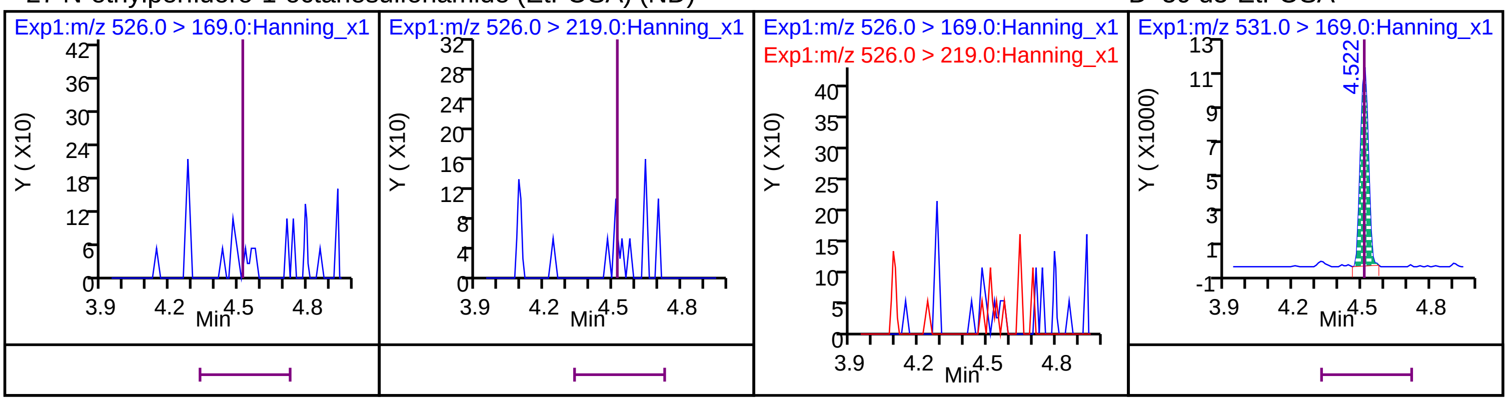
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



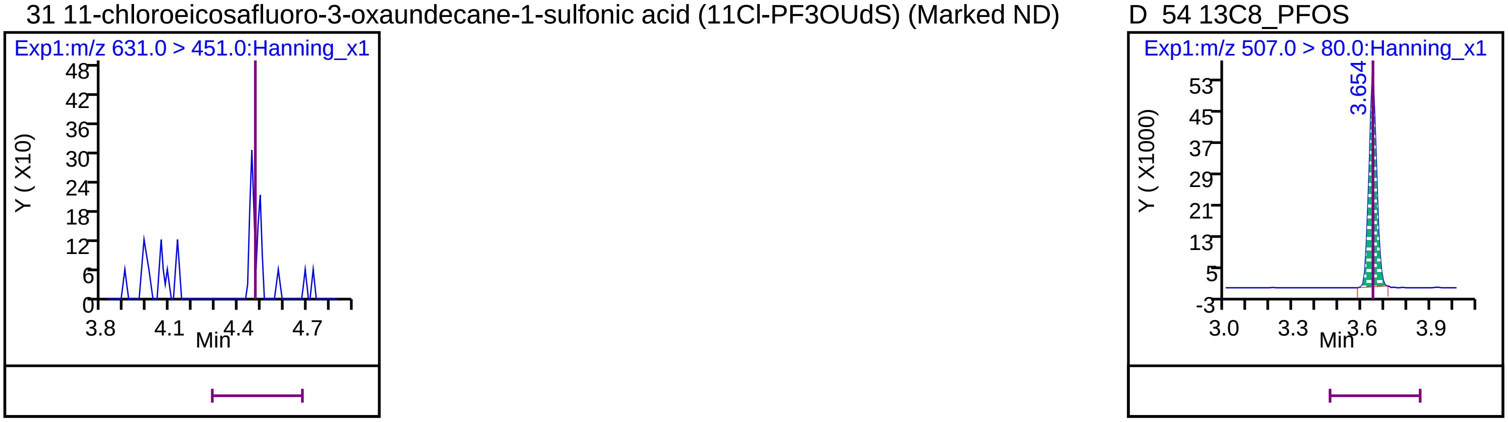
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



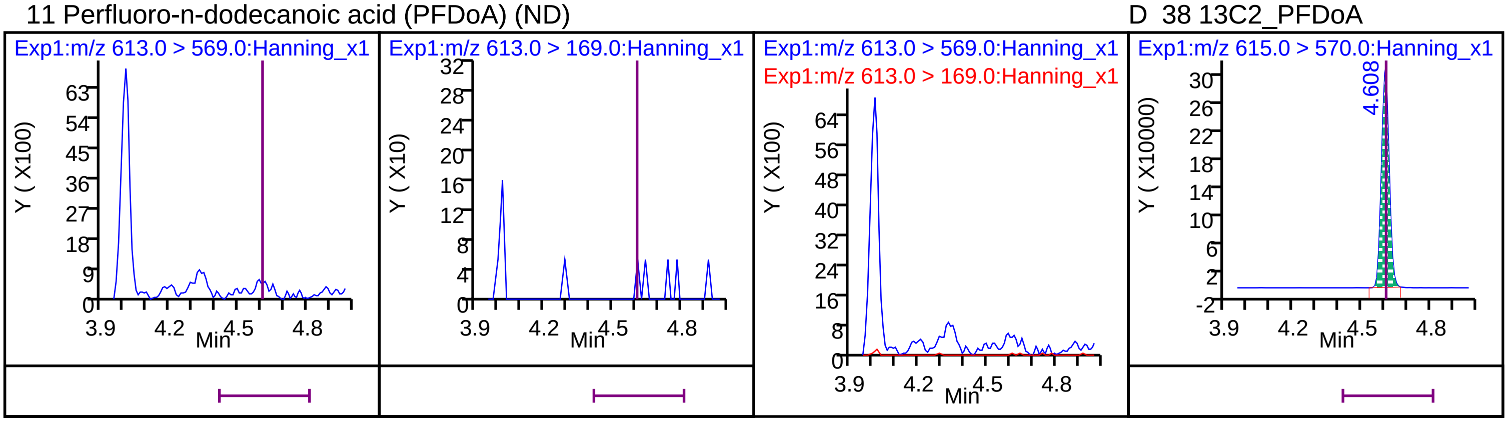
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

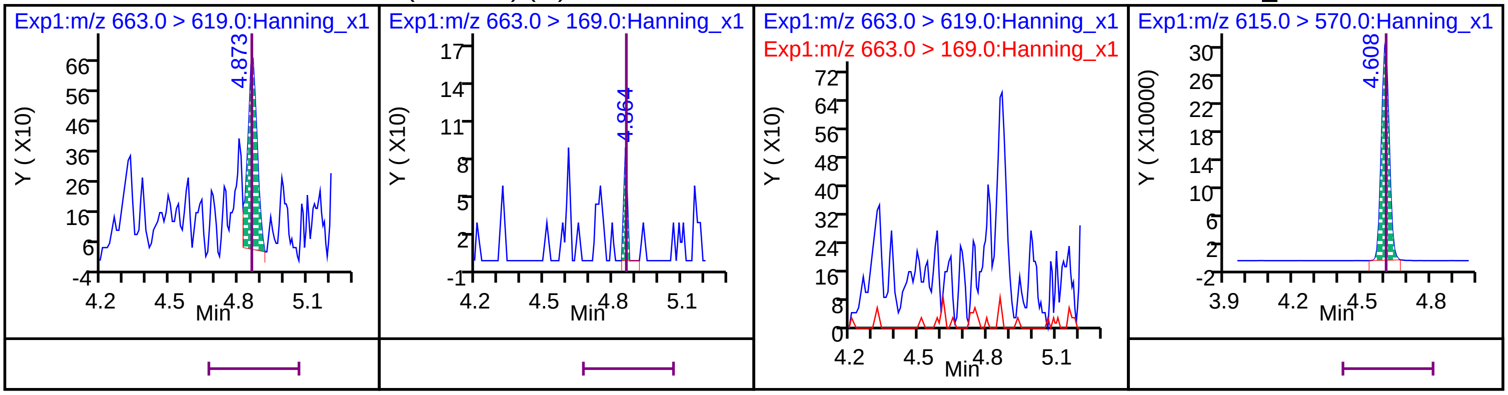


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



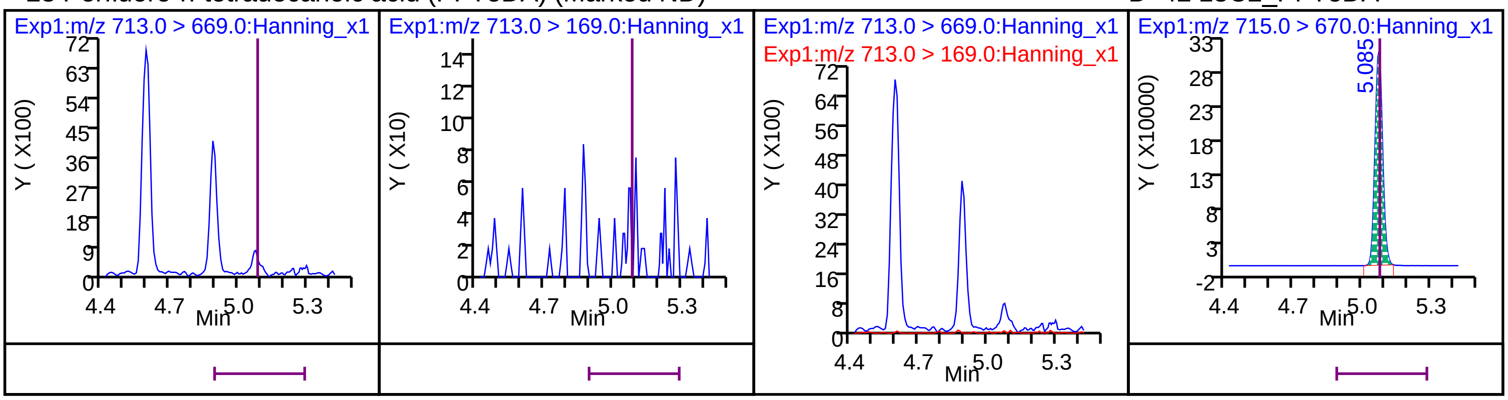
24 Perfluoro-n-tridecanoic acid (PFTrDA) (M)

D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND)

D 42 13C2_PFTeDA

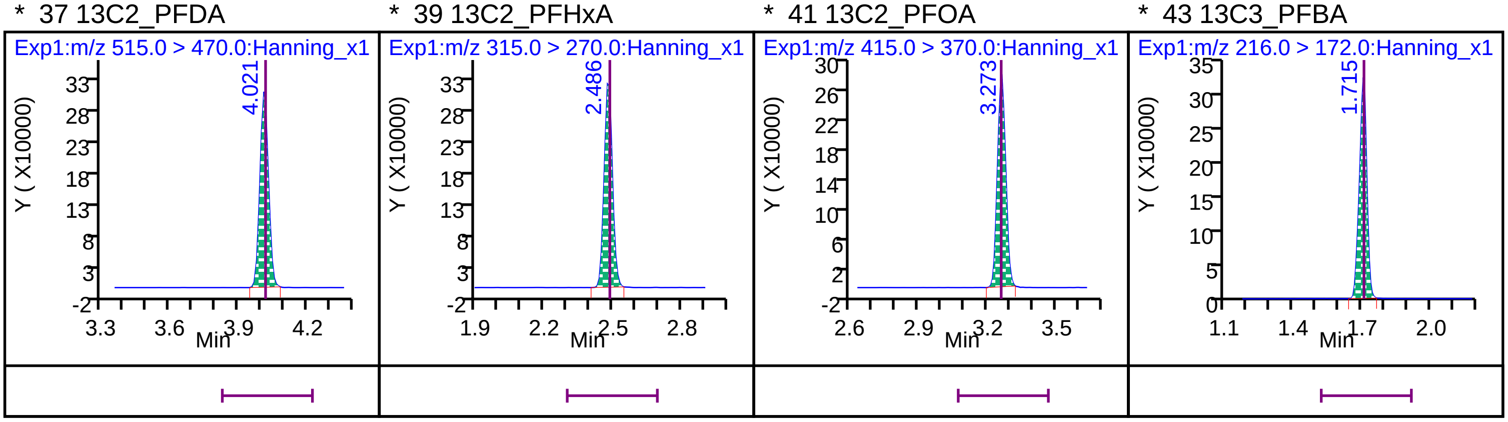


* 37 13C2_PFDA

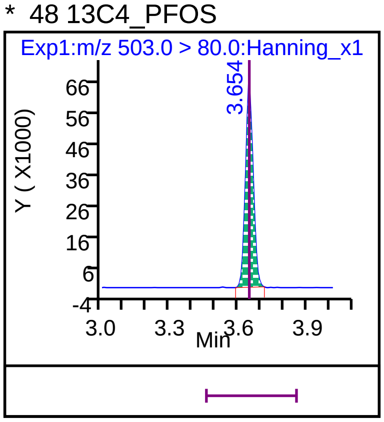
* 39 13C2_PFHxA

* 41 13C2_PFOA

* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - MB

Sample ID:	WQ22543-001	Matrix:	Aqueous
Batch:	22543	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/15/2021 1738

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/16/2021 1909
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/16/2021 1909

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		96	50-150
13C8_PFOS		100	50-150
13C9_PFNA		99	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621029.d		
Injection Date:	16-Nov-2021 19:09:13	Injection Vol:	10.0 uL
Sample Type:	MBlk	Auto Sampler:	15
Lab Sample ID:	WQ22543-001	Lab Prep. Batch:	22543
Sample Info:	WQ22543-001 (22544-001)	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.692	1.692	1	603202	20	>100:1			1001.00	966.77	93.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.692		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.067	2.067	1	569995	16	>100:1			1001.00	984.18	95.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.067		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.120	2.120	1	171918	15	>100:1			1001.00	990.61	98.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.120		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.460		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.389	2.389	1	105628	15	>100:1			5005.00	4837.32	92.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.389		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.424	2.424	1	641408	17	>100:1			1001.00	989.72	92.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.424		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.540	2.540	1	1087095	17	>100:1			5005.00	4854.90	94	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.540		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.791	2.791	1	528818	18	>100:1			1001.00	1001.94	97.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.791		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.809	2.809	1	124308	15	>100:1			1001.00	973.31	91.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.809		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.827		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.174		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.141	3.141	1	88716	19	>100:1			5005.00	5169.71	98.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.141		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.168	3.168	1	532086	20	>100:1			1001.00	1027.21	95.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.168		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.537	3.537	1	132215	18	>100:1			1001.00	1061.96	99.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.537		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.740		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.879		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.178		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.338		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.537	3.537	1	684140	18	>100:1			1001.00	1060.31	99.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.537		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.846	3.846	1	241112	17	>100:1			1001.00	956.16	88	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.879	3.879	0	84095	17	>100:1			5005.00	5029.04	95.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.879		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.887	3.887	0	549272	18	>100:1			1001.00	963.87	93.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.887		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.045	4.045	0	668190	17	>100:1			5005.00	4892.02	97.6	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.045		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.196	4.196	0	581457	16	>100:1			5005.00	4788.81	95.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.206		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.196	4.196	0	622057	17	>100:1			1001.00	958.20	93.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.196		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.267	4.267	0	77690	15	>100:1			1001.00	886.53	87.9	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.298	0	23033	14	89:1			1001.00	471.63	46*	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.437	4.437	0	89061	17	>100:1			1001.00	840.86	78	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.464	4.464	0	26785	15	>100:1			1001.00	611.37	58.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.473		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.473	4.473	0	568425	17	>100:1			1001.00	952.33	90.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.473		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.711		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.928	4.928	0	525005	18	>100:1			1001.00	696.19	66	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.928		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.302	5.302	0	433210	22	>100:1			1001.00	481.78	46.6*	
*** 37 13C2_PFDA**													
515 > 470		3.887	3.887	0	738075	17				200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.424	2.424	1	737960	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.168	3.168	1	619791	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.692	1.692	1	627803	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.537	3.537	1	143634	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

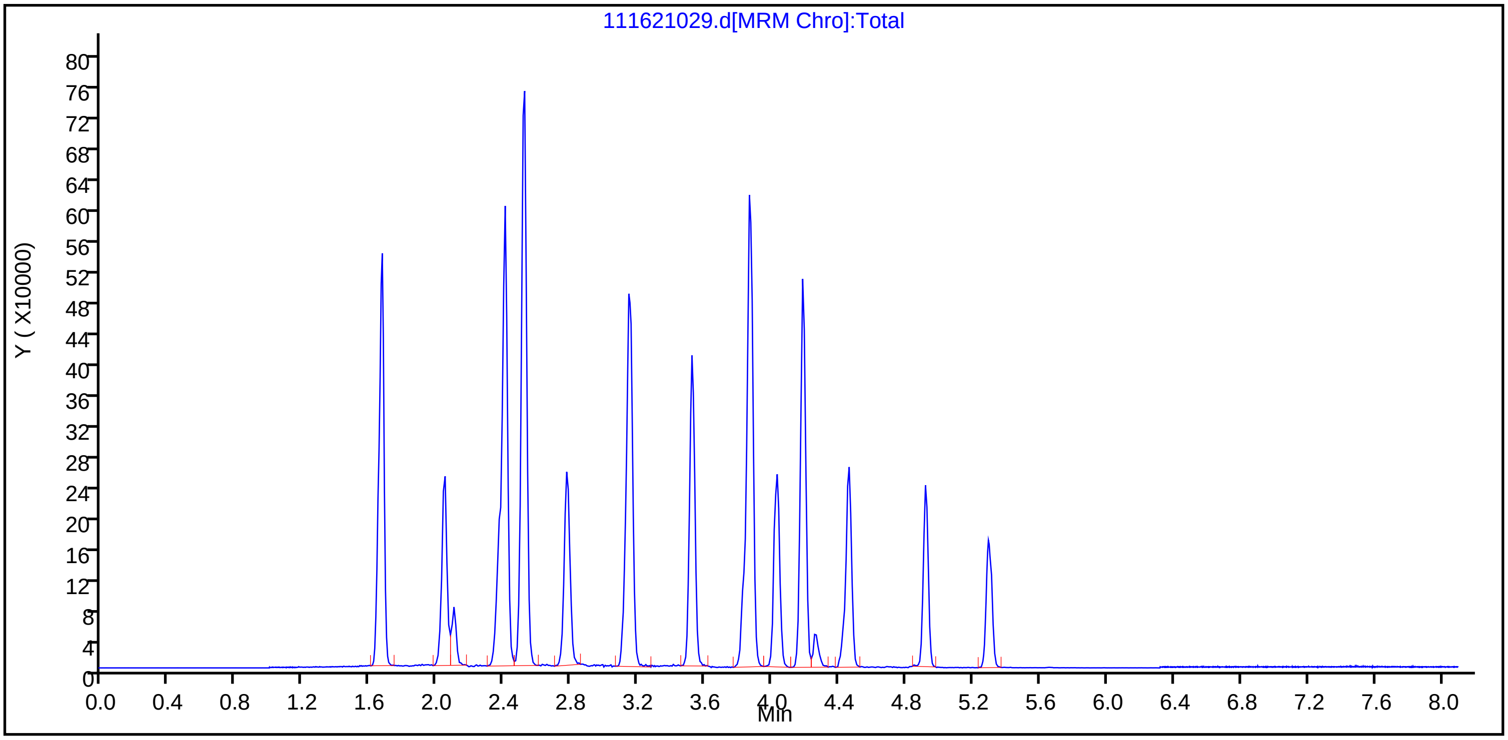
QC Flag Legend

U - Result Less Than Method Detection Limit

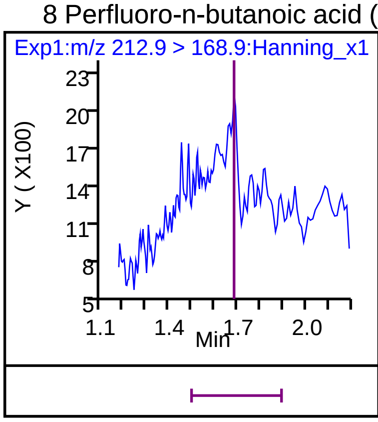
Report Date: 22-Nov-2021 08:59:56 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

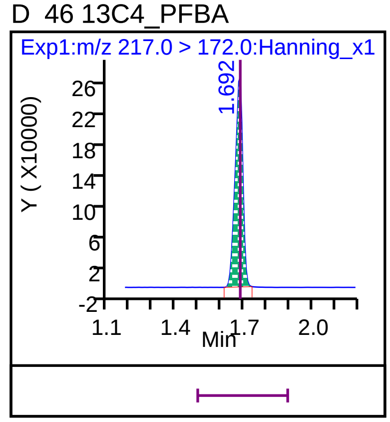
Data File:	\\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621029.d		
Injection Date:	16-Nov-2021 19:09:13	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ22543-001
Sample Info:	WQ22543-001 (22544-001)		
Dil. Factor:	1	Operator:	Justin Gavin



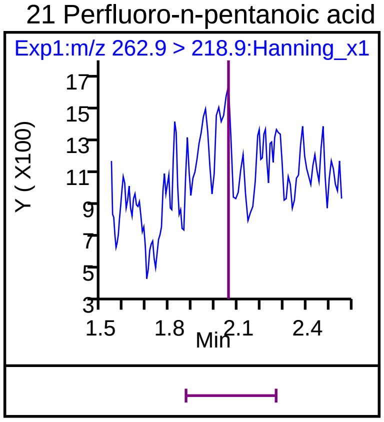
8 Perfluoro-n-butanoic acid (PFBA) (ND)



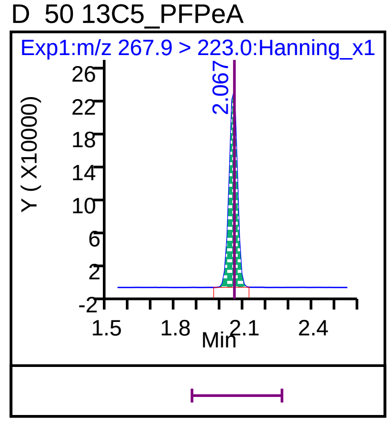
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)



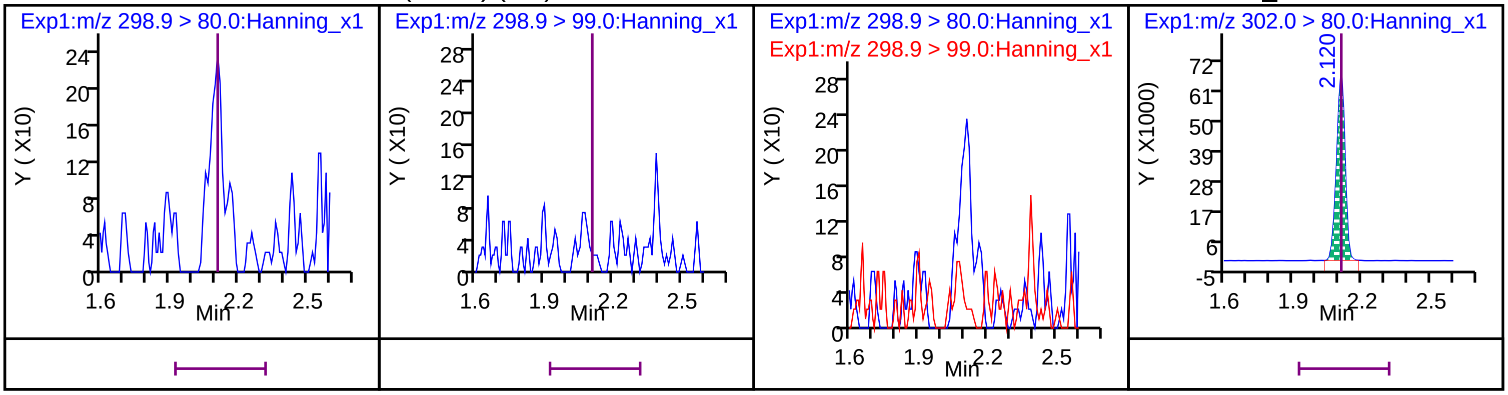
D 50 13C5_PFPeA



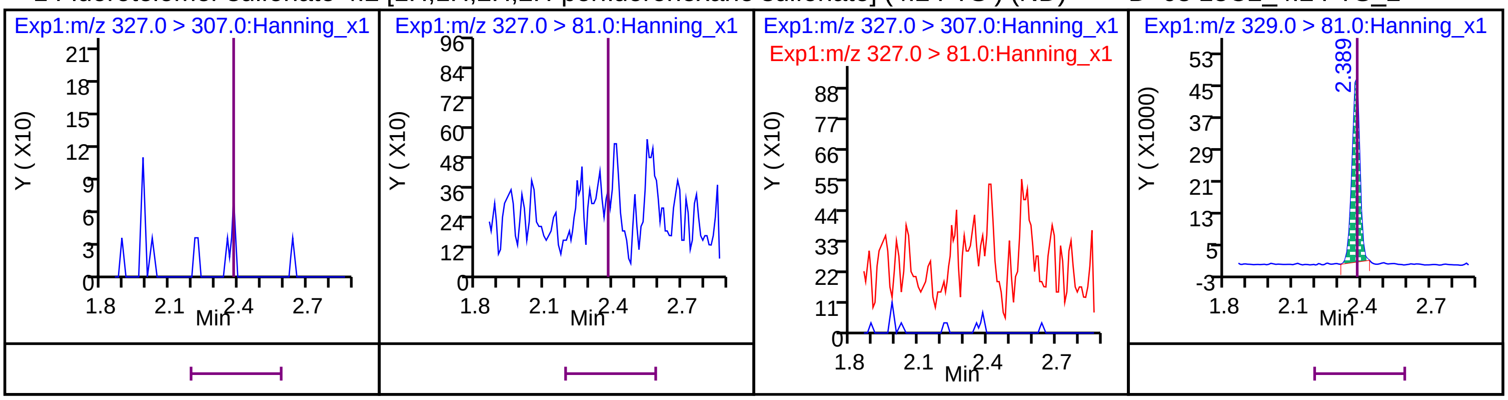
Report Date: 22-Nov-2021 08:59:56 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621029.d

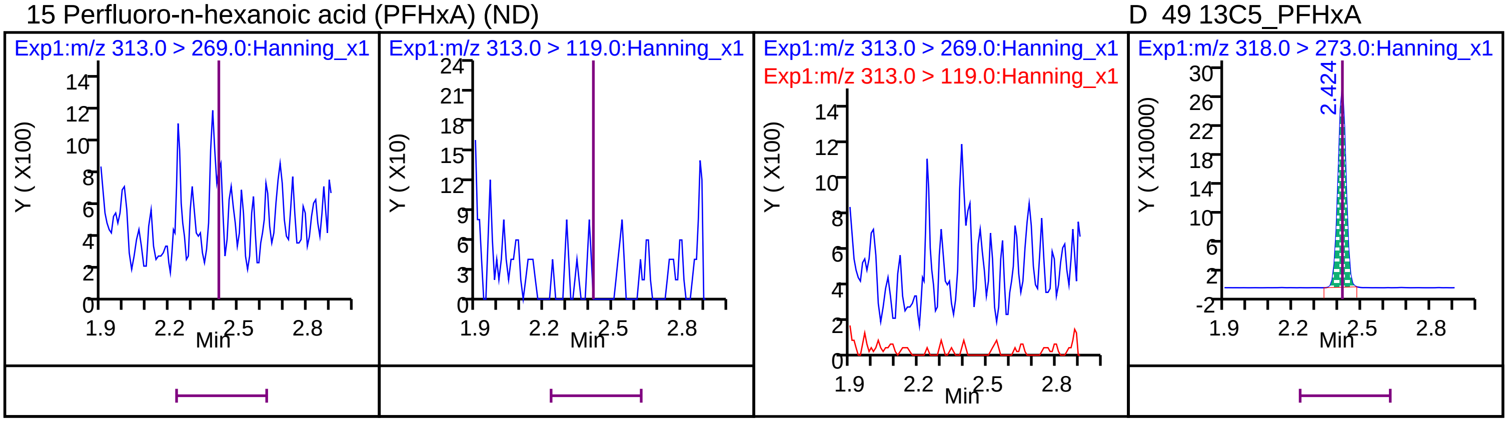
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



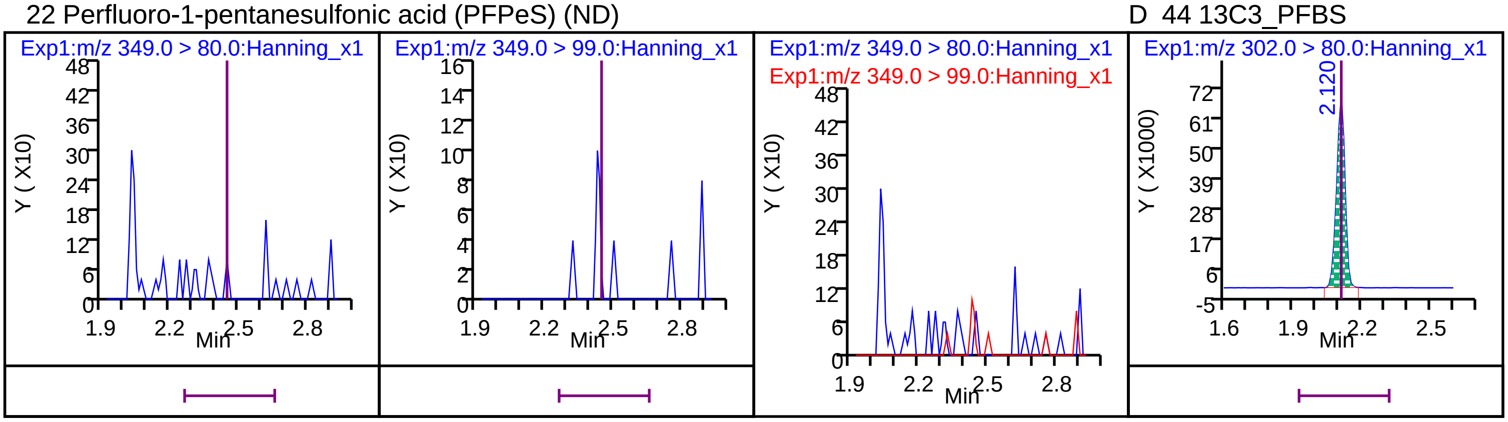
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



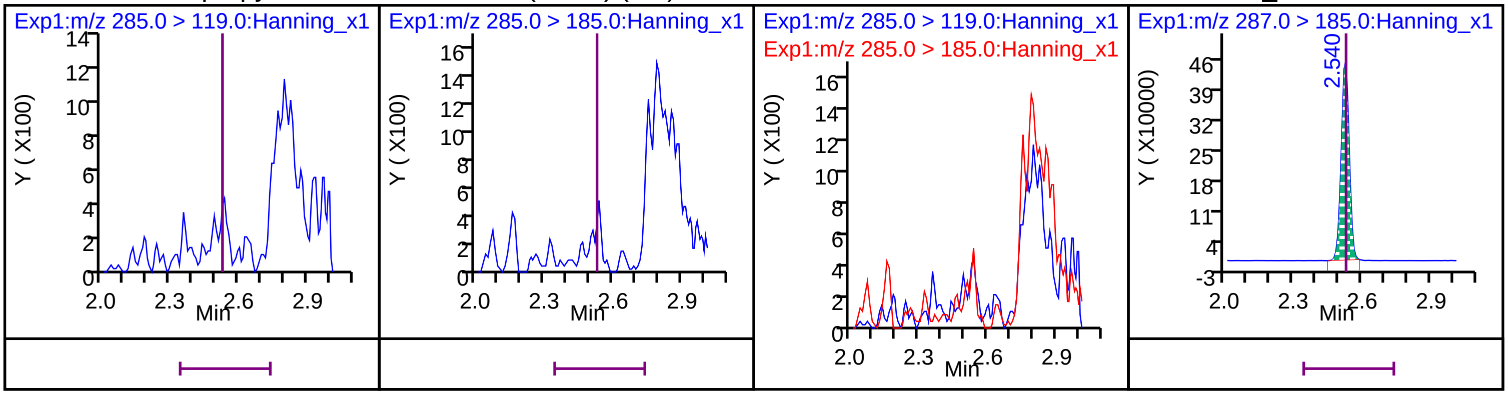
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



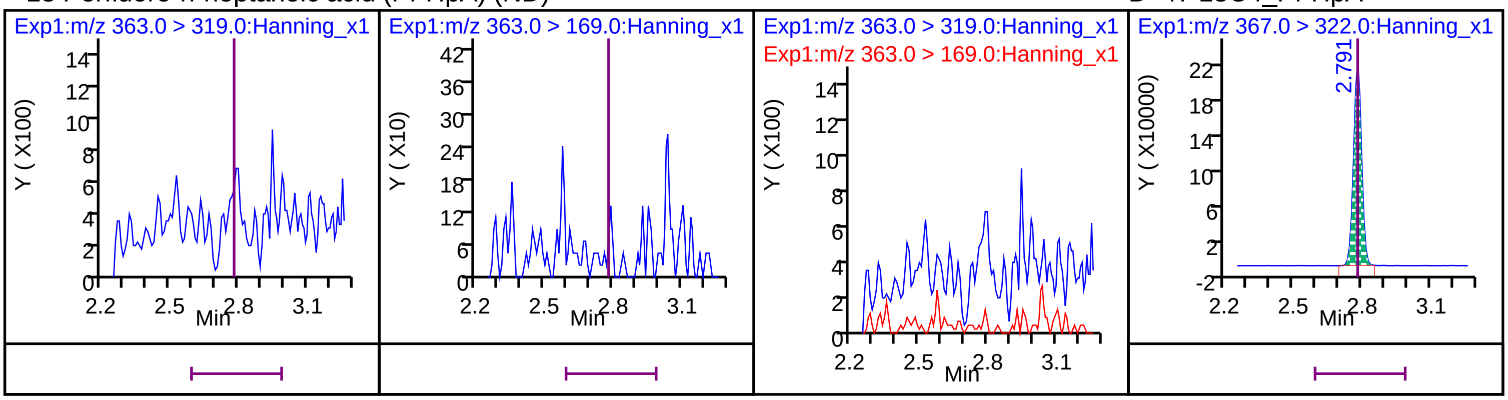
Report Date: 22-Nov-2021 08:59:56 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621029.d

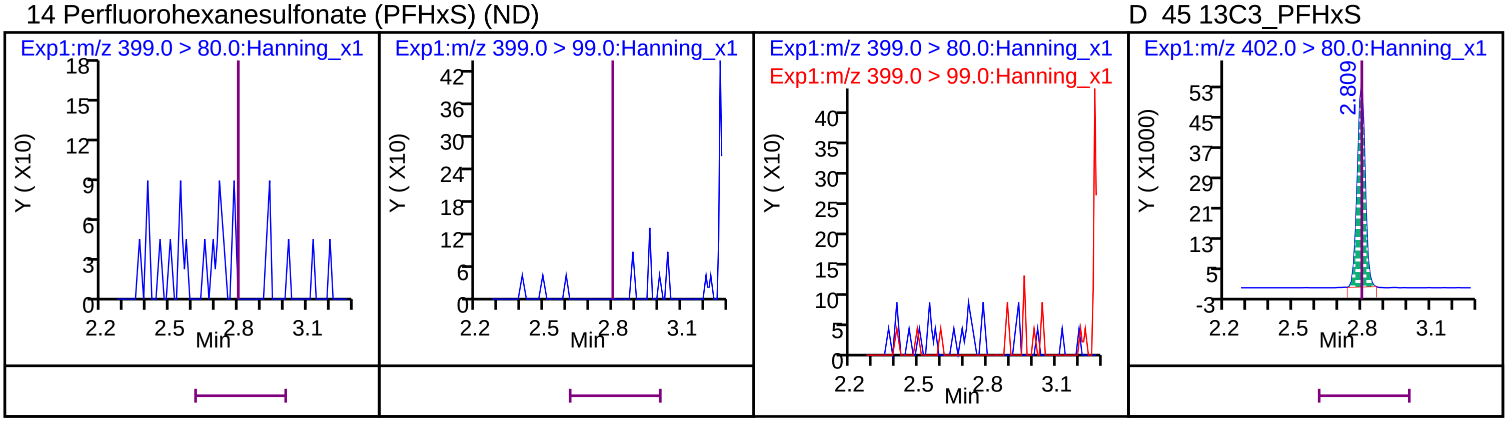
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



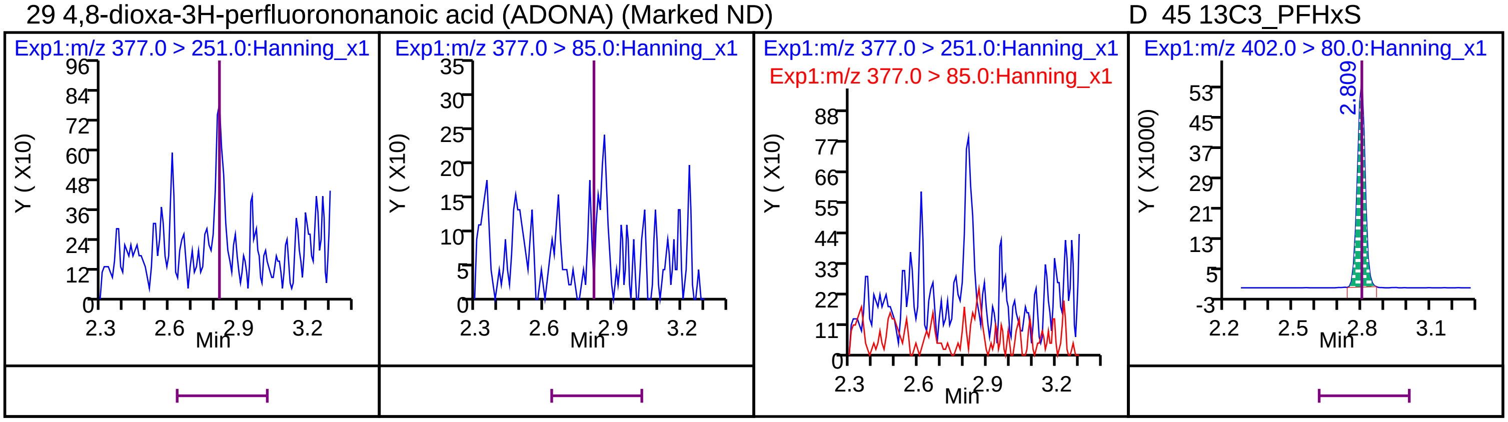
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



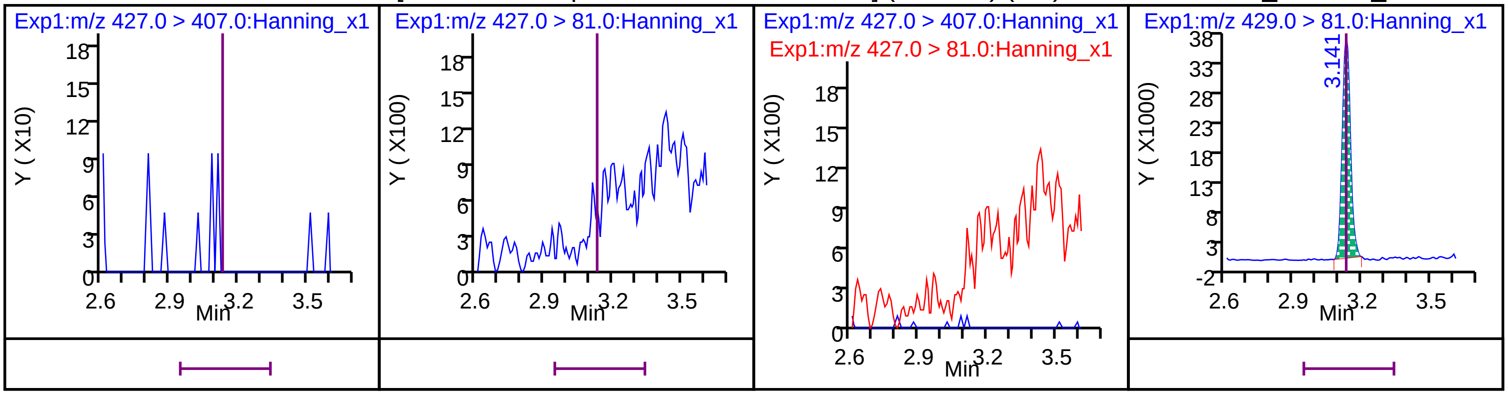
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



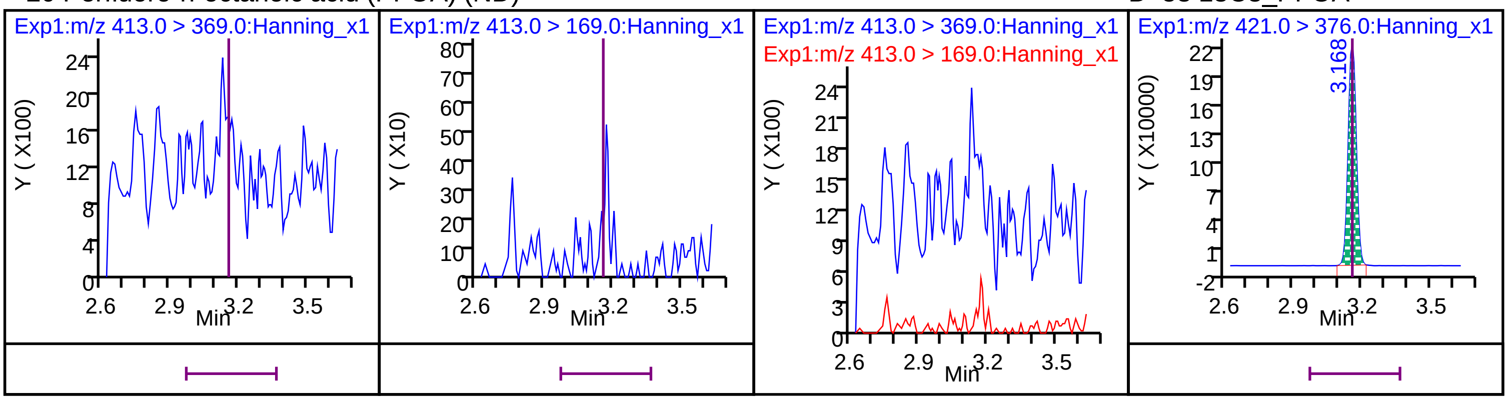
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (Marked ND) D 45 13C3_PFHxS



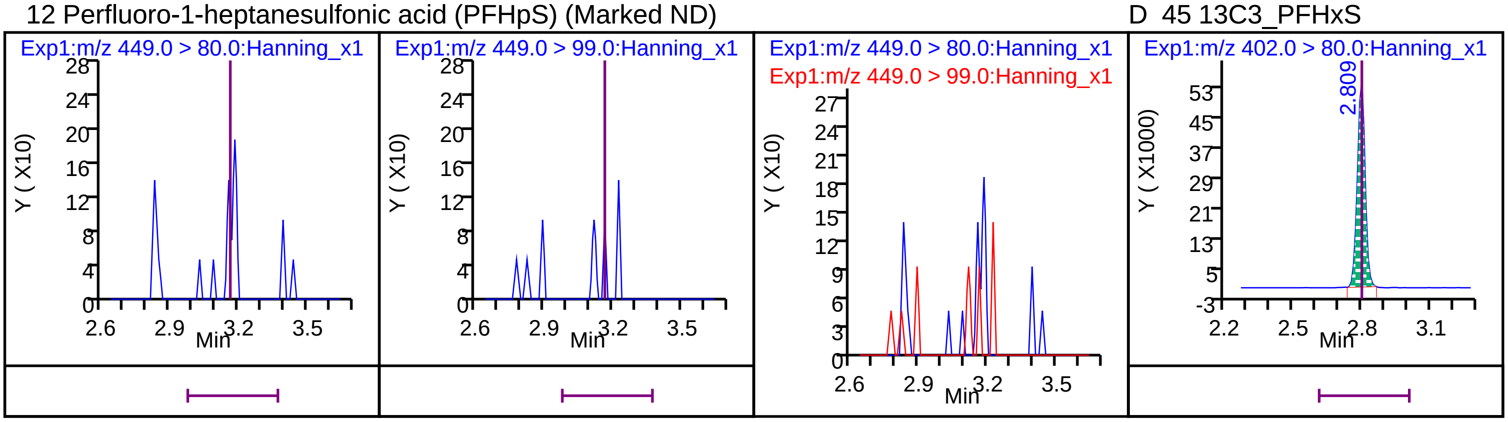
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



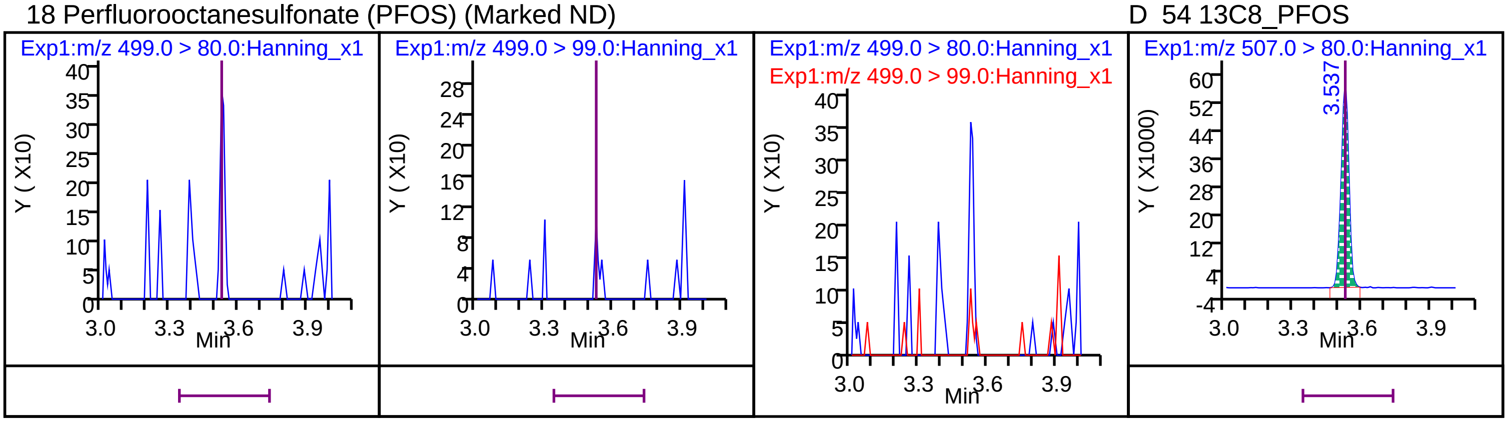
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (Marked ND) D 45 13C3_PFHxS

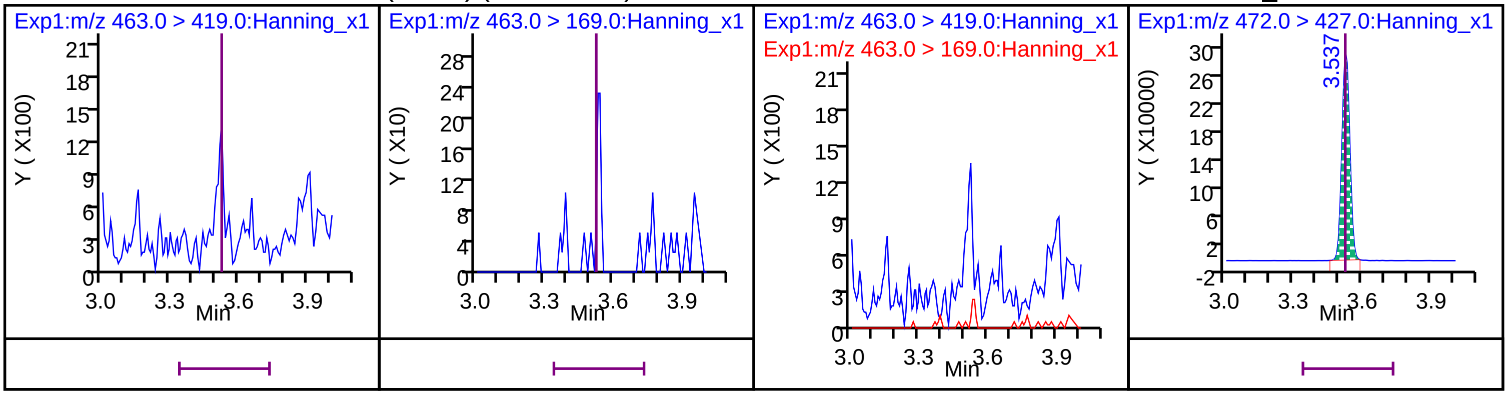


18 Perfluorooctanesulfonate (PFOS) (Marked ND) D 54 13C8_PFOS



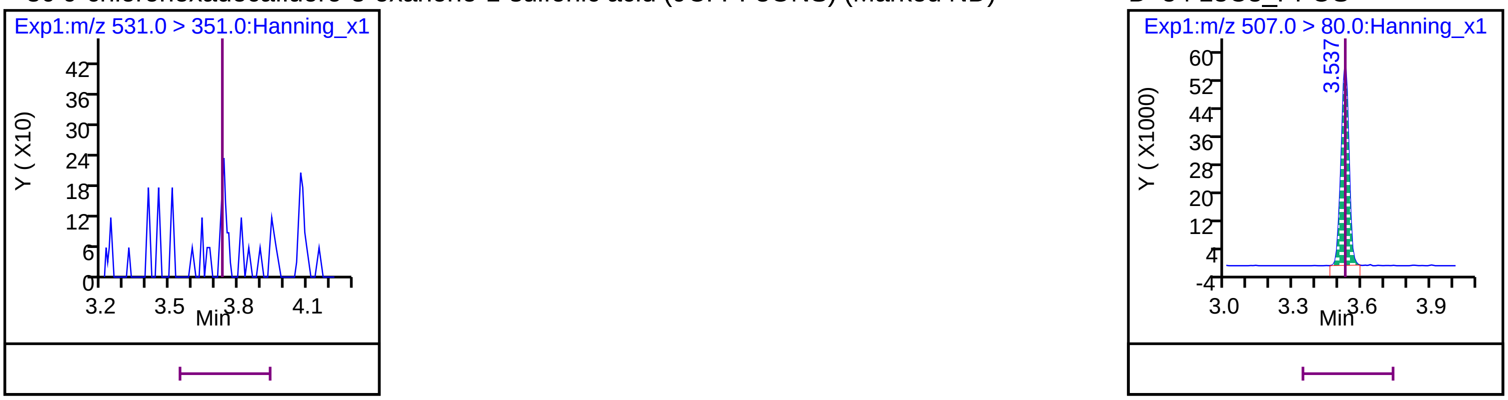
17 Perfluoro-n-nonanoic acid (PFNA) (Marked ND)

D 56 13C9_PFNA



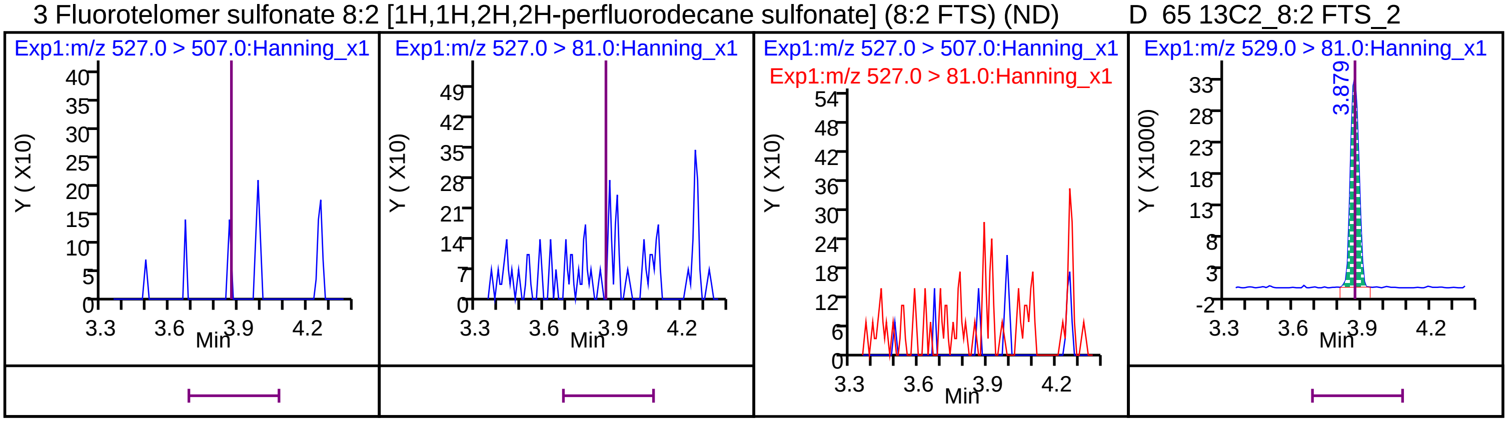
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND)

D 54 13C8_PFOS



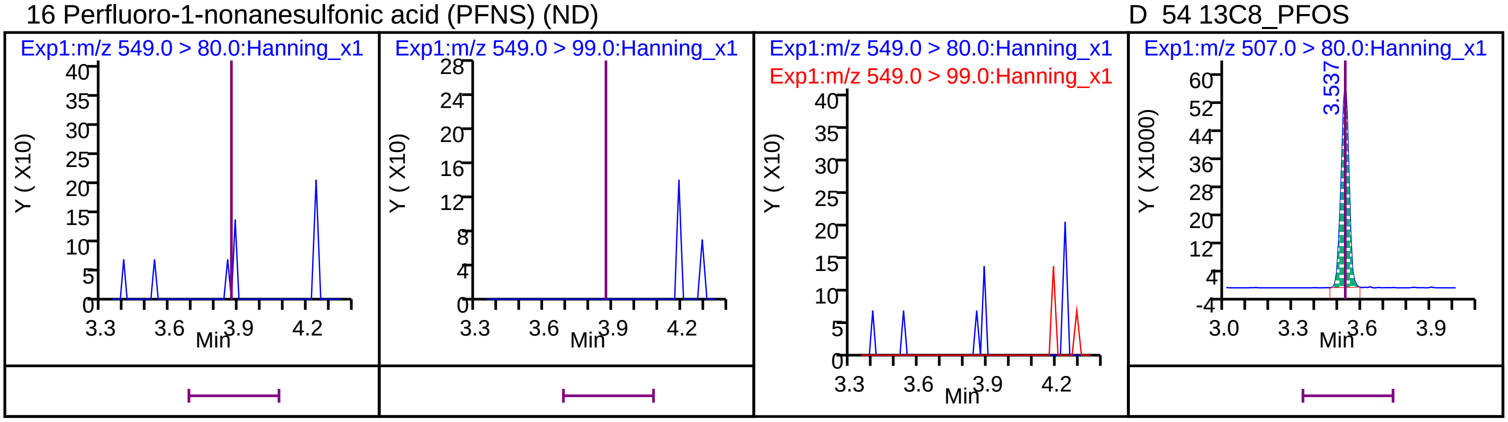
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND)

D 65 13C2_8:2 FTS_2

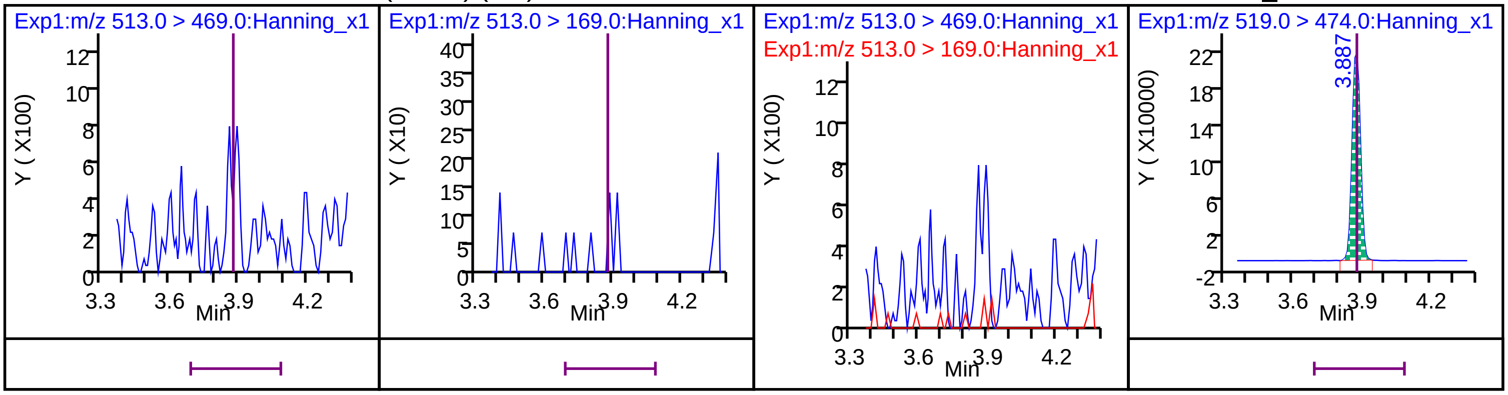


16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND)

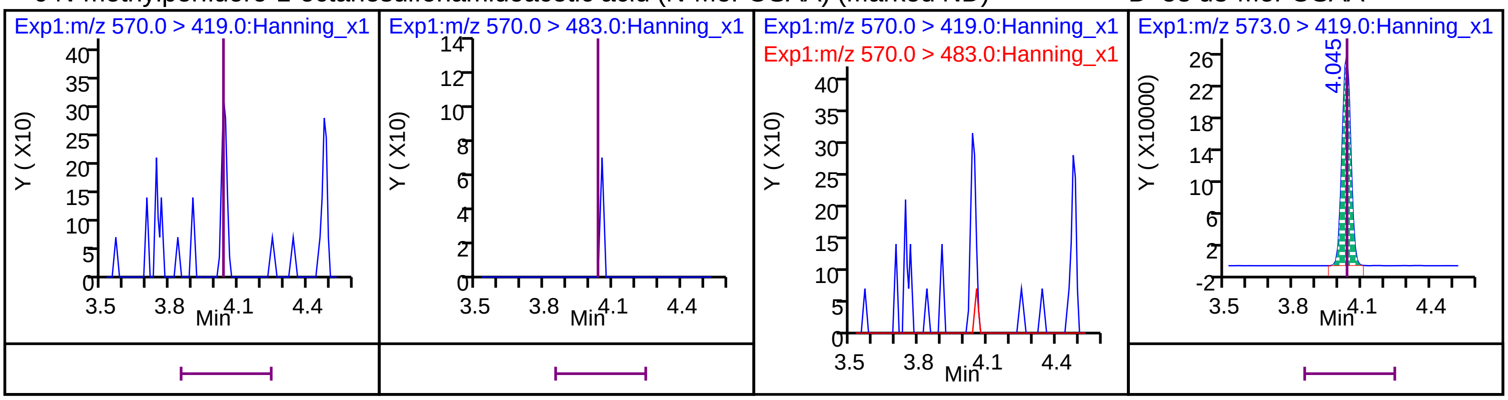
D 54 13C8_PFOS



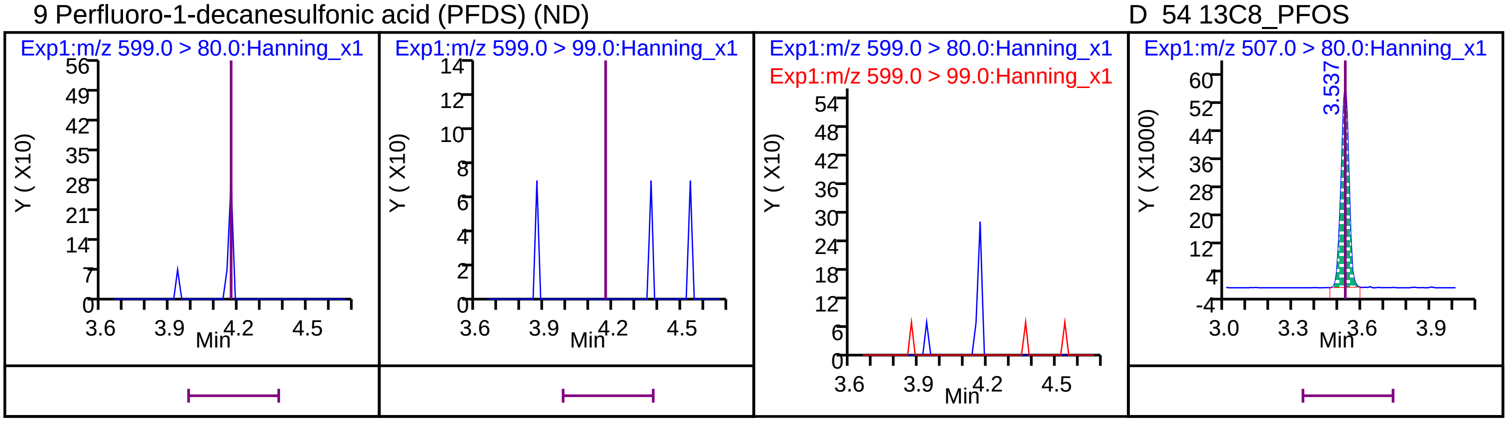
10 Perfluoro-n-decanoic acid (PFDA) (ND) — D 51 13C6_PFDA



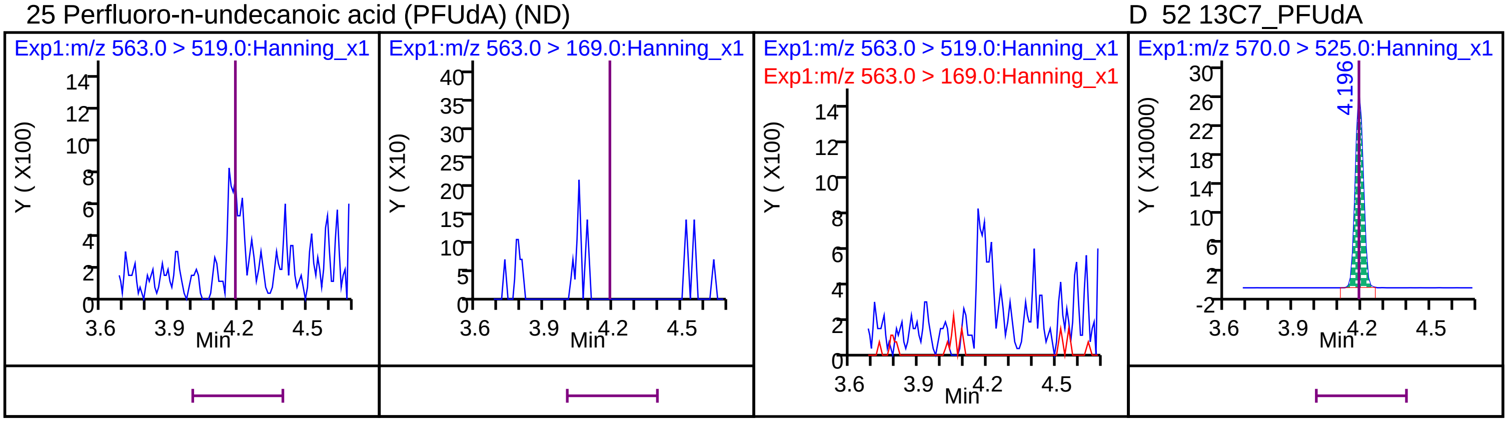
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) — D 58 d3-MeFOSAA



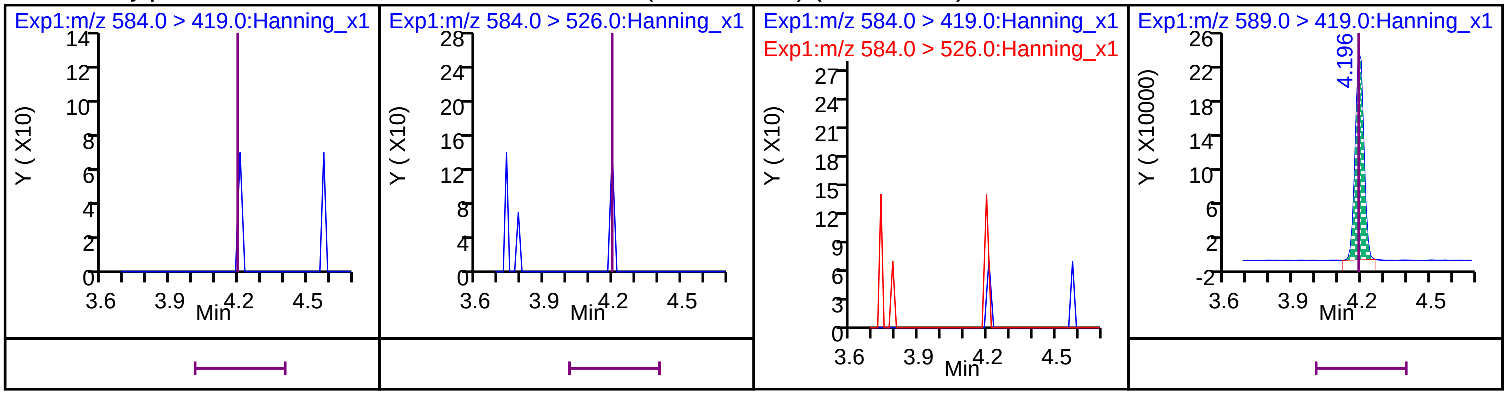
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) — D 54 13C8_PFOS



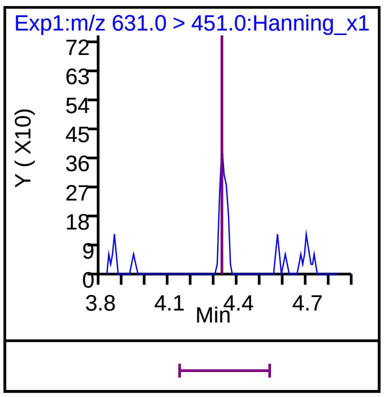
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) — D 52 13C7_PFUdA

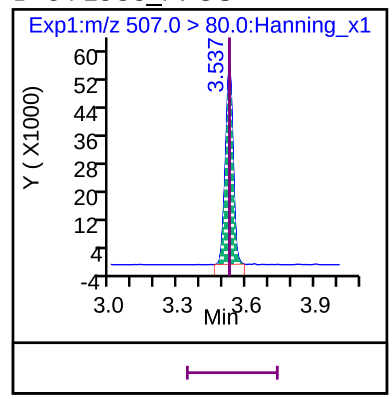


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA

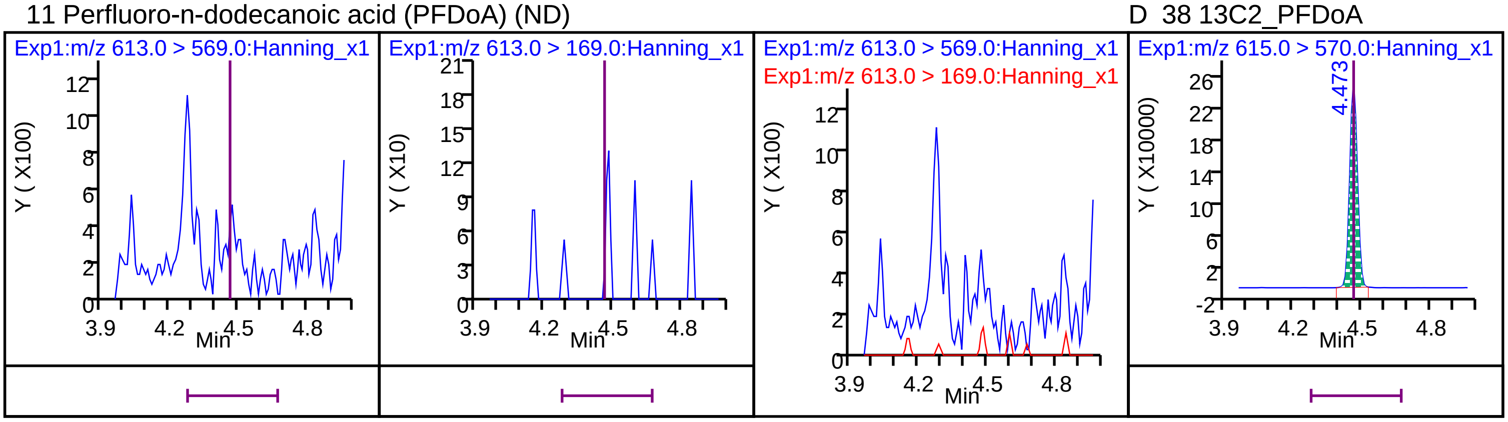


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

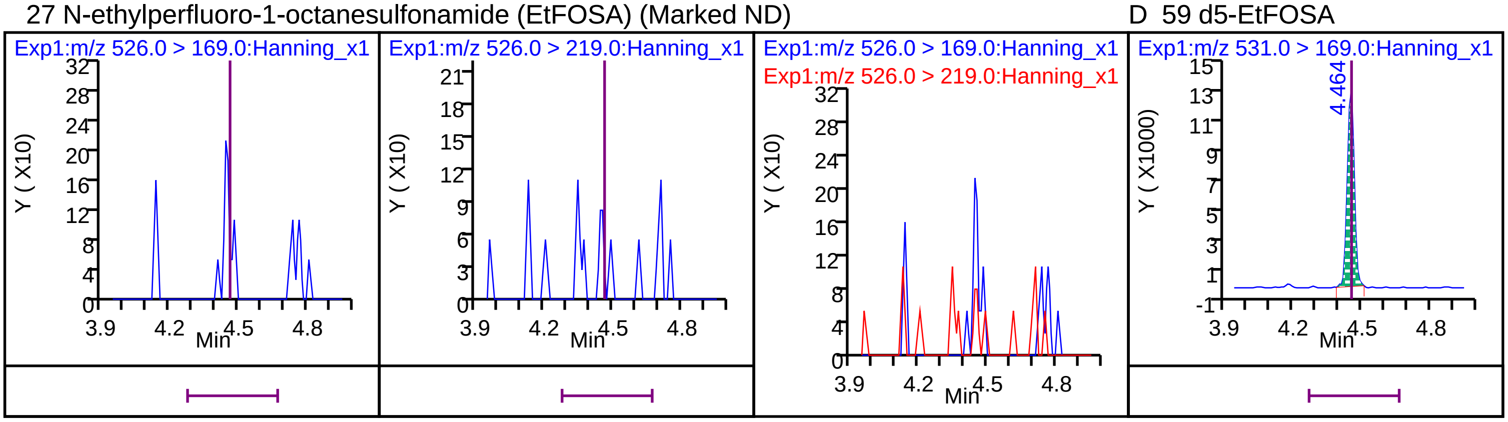




11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



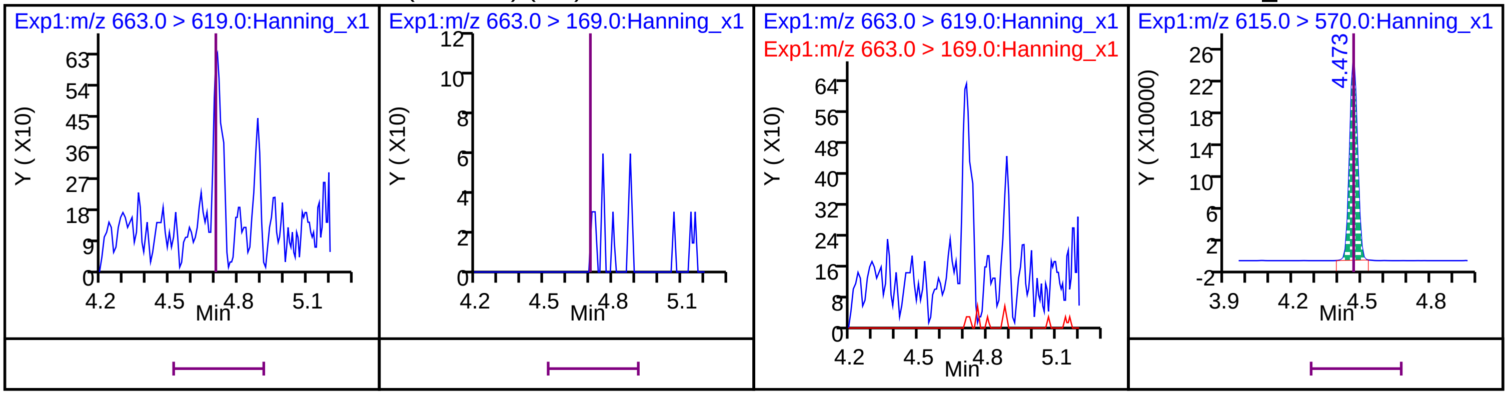
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND) D 59 d5-EtFOSA



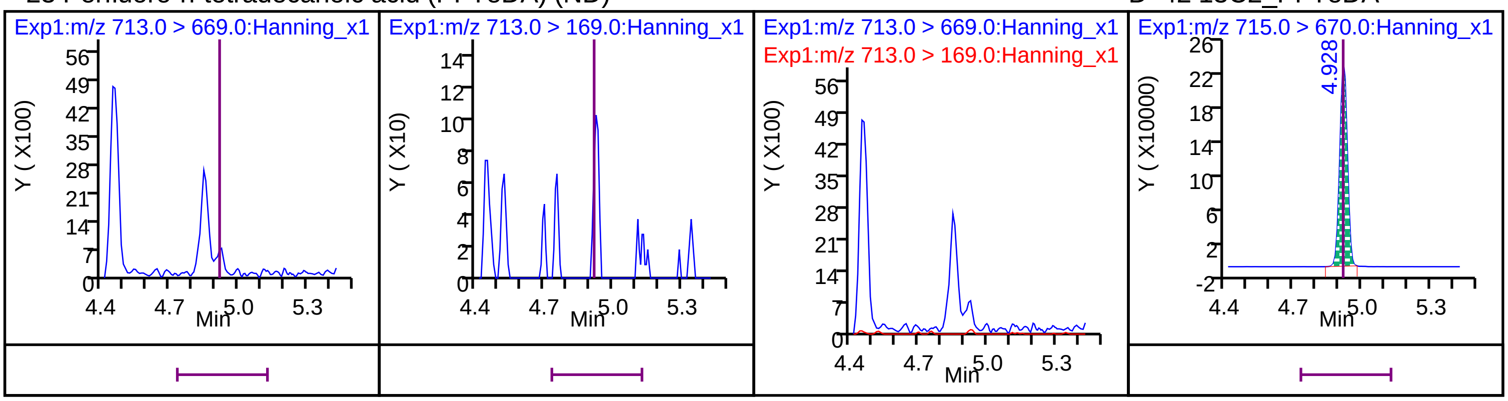
Report Date: 22-Nov-2021 08:59:56 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b\111621029.d

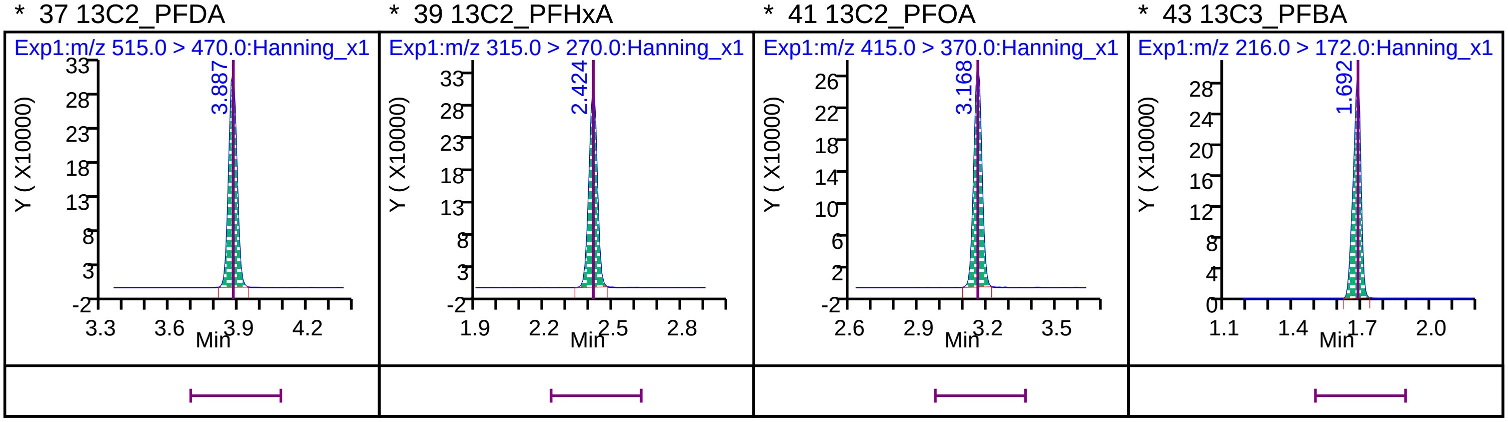
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



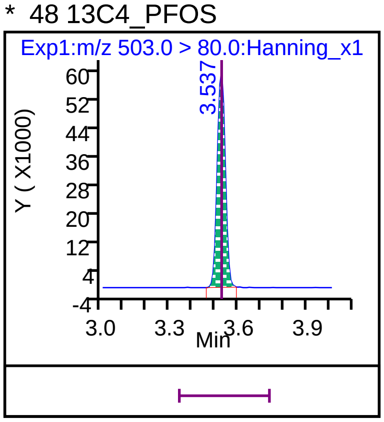
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - LCS

Sample ID: WQ21749-002
Batch: 21749
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1014

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	17		1	111	70-150	11/10/2021 1431
11Cl-PF3OUdS	15	16		1	106	70-150	11/10/2021 1431
8:2 FTS	15	19		1	124	67-138	11/10/2021 1431
6:2 FTS	15	16		1	104	64-140	11/10/2021 1431
4:2 FTS	15	14		1	94	63-143	11/10/2021 1431
GenX	32	38		1	119	70-150	11/10/2021 1431
ADONA	15	16		1	107	70-150	11/10/2021 1431
EtFOSA	16	16		1	98	70-150	11/10/2021 1431
EtFOSAA	16	16		1	99	61-135	11/10/2021 1431
MeFOSAA	16	17		1	105	65-136	11/10/2021 1431
PFBS	14	14		1	98	72-130	11/10/2021 1431
PFDS	15	14		1	92	53-142	11/10/2021 1431
PFHpS	15	15		1	99	69-134	11/10/2021 1431
PFNS	15	14		1	94	69-127	11/10/2021 1431
PFPeS	15	15		1	102	71-127	11/10/2021 1431
PFHxS	15	15		1	106	68-131	11/10/2021 1431
PFBA	16	17		1	105	73-129	11/10/2021 1431
PFDA	16	18		1	110	71-129	11/10/2021 1431
PFDoA	16	17		1	109	72-134	11/10/2021 1431
PFHpA	16	17		1	105	72-130	11/10/2021 1431
PFHxA	16	17		1	107	72-129	11/10/2021 1431
PFNA	16	18		1	110	69-130	11/10/2021 1431
PFOA	16	17		1	106	71-133	11/10/2021 1431
PFPeA	16	18		1	112	72-129	11/10/2021 1431
PFTeDA	16	17		1	108	71-132	11/10/2021 1431
PFTrDA	16	14		1	91	65-144	11/10/2021 1431
PFUdA	16	16		1	97	69-133	11/10/2021 1431
PFOS	15	15		1	104	65-140	11/10/2021 1431

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		112	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		112	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		103	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ21749-002	Matrix:	Aqueous
Batch:	21749	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/09/2021 1014

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		105	50-150
13C8_PFOA		104	50-150
13C8_PFOS		102	50-150
13C9_PFNA		101	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021009.d		
Injection Date:	10-Nov-2021 14:31:25	Injection Vol:	10.0 uL
Sample Type:	LCS	Auto Sampler:	2
Lab Sample ID:	WQ21749-002	Lab Prep. Batch:	21749
Sample Info:	WQ21749-002	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:		Conc. Level:		Vol. Added:	
Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml
Reagent:	Analytes	Conc. Level:	100x PDS	Vol. Added:	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.718	0	678231	19	>100:1			1001.00	1090.97	102.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/0	272582	20	>100:1			381.46	16.768		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	0	597843	15	>100:1			1001.00	1045.93	102.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.120	0/0	274677	17	>100:1			408.62	17.962		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.172	2.173	0	183477	16	>100:1			1001.00	1060.75	111.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.172	2.173	0/0	72105	16	>100:1	Target = 3.53		315.46	13.866		
298.9 > 99	44	2.172	2.173		21356	15	>100:1	3.37 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.522	2.532	0/0	59390	17	>100:1	Target = 3.10		349.62	15.368		
349 > 99	44	2.522	2.532		19640	16	>100:1	3.02 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	0	127037	19	>100:1			5005.00	5610.25	112.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	0/0	17969	16	>100:1	Target = 1.75		321.15	14.117		
327 > 81	63	2.451	2.451		10496	17	22:1	1.71 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.496	0	712772	17	>100:1			1001.00	1094.41	106.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.496	0/0	288432	16	>100:1	Target = 18.91		389.58	17.124		
313 > 119	49	2.487	2.496		16621	16	89:1	17.35 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.607	0	1266773	18	>100:1			5005.00	5465.97	104.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.614	0/0	142089	18	>100:1	Target = 0.79		866.84	38.103		
285 > 185	66	2.606	2.614		175720	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.873	0	592419	17	>100:1			1001.00	1115.80	108.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.872	2.873	0/0	247417	17	>100:1	Target = 3.80		380.46	16.723		
363 > 169	47	2.872	2.873		65063	21	>100:1	3.80 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.889	0	134871	16	>100:1			1001.00	1073.48	108.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.889	0/0	52079	26	>100:1	Target = 2.89	4.95	351.58	15.454		M
399 > 99	45	2.896	2.889		16280	27	>100:1	3.19 (1.44-4.34)	7.28				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.912	0/0	385015	18	>100:1	Target = 3.23		368.47	16.196		
377 > 85	45	2.912	2.912		110242	17	>100:1	3.49 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	47336	21	>100:1	Target = 3.12		342.07	15.036		
449 > 99	45	3.269	3.276		15093	17	>100:1	3.13 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.242	0	107192	22	>100:1			5005.00	5955.12	109.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	18129	19	>100:1	Target = 1.75		357.58	15.718		
427 > 81	64	3.241	3.248		11888	16	20:1	1.52 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.269	0	597513	21	>100:1			1001.00	1138.82	103.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	235535	21	>100:1	Target = 2.89		385.05	16.925		
413 > 169	53	3.269	3.276		80037	22	>100:1	2.94 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.657	0	127993	20	>100:1			1001.00	1033.51	101.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.656	3.652	1/1	53317	38	>100:1	Target = 3.30	4.06	350.20	15.394		
499 > 99	54	3.651	3.652		16588	34	>100:1	3.21 (1.65-4.95)	7.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.862	3.872	0/0	182916	17	>100:1			377.74	16.604		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.017	0/0	33789	14	>100:1	Target = 3.08		329.38	14.478		
549 > 99	54	4.005	4.017		13957	14	>100:1	2.42 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.317	4.319	0/0	32264	14	>100:1	Target = 2.72		322.45	14.174		
599 > 99	54	4.307	4.319		13594	14	>100:1	2.37 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.473	4.483	0/0	159282	14	>100:1			363.85	15.994		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.825	4.842	-1/-1	29587	19	>100:1	Target = 3.27		269.10	11.828		
699 > 99	54	4.825	4.842		8232	17	88:1	3.59 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.656	3.662	0	698906	21	>100:1			1001.00	1091.40	101.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	302470	22	>100:1	Target = 6.51		401.91	17.666		
463 > 169	56	3.656	3.662		41397	18	>100:1	7.30 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.920	3.921	0	274709	17	>100:1			1001.00	1024.81	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.920	3.921	0/0	109062	16	>100:1	Target = 41.63		377.70	16.602		
498>478	55	3.920	3.921		4577	17		23.82 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.027	0	631072	15	>100:1			1001.00	1098.17	98.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.027	0/0	292777	16	>100:1	Target = 13.80		399.06	17.541		
513 > 169	51	4.016	4.027		19228	19	>100:1	15.22 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.017	0	95741	15	>100:1			5005.00	5539.12	97.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.005	4.006	0/0	18620	24	>100:1	Target = 1.94		430.78	18.935		
527 > 81	65	4.005	4.006		6166	20	19:1	3.01 (0.97-2.91)					J
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.622	4.631	0/0	15283	17	>100:1	Target = 3.54		314.96	13.845		
627 > 80	65	4.630	4.631		3665	14	28:1	4.16 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.177	4.178	0	755375	18	>100:1			5005.00	4998.76	102.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.177	4.187	0/0	46145	28	>100:1	Target = 1.37	12.46	381.03	16.749		
570 > 483	58	4.177	4.187		38730	37		1.19 (0.68-2.05)	4.43				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.338	4.329	1	79161	14	>100:1			1001.00	877.73	95.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.347	4.348	0/-1	31780	21	>100:1			367.72	16.164		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.357	4.348	1	32495	14	>100:1			1001.00	690.78	67.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.366	4.367	0/-1	13908	14	>100:1	Target = 1.11		395.27	17.375		
512 > 219	57	4.357	4.367		11974	13	>100:1	1.16 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.339	0	682029	16	>100:1			5005.00	5266.10	104.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.338	4.348	0/0	47914	30	>100:1	Target = 1.51	7.77	360.61	15.851		M
584 > 526	60	4.338	4.348		28725	27	81:1	1.66 (0.75-2.26)	3.73				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.339	0	693668	15	>100:1			1001.00	1151.79	105.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.339	0/0	237060	16	>100:1	Target = 14.52		353.05	15.519		
563 > 169	52	4.328	4.339		15833	14	>100:1	14.97 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.500	4.501	0	98659	21	>100:1			1001.00	930.07	98.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.509	4.510	0/0	39594	13	>100:1			412.67	18.139		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.518	4.519	0	27976	14	>100:1			1001.00	650.61	72.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.527	4.528	0/0	12175	12	96:1	Target = 1.06		354.99	15.604		
526 > 219	59	4.527	4.528		11933	12	>100:1	1.02 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.613	4.614	0	691468	18	>100:1			1001.00	1151.80	93.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.613	4.614	0/0	291375	17	51:1	Target = 10.70		395.66	17.392		
613 > 169	38	4.605	4.614		28042	16	>100:1	10.39 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.859	4.868	0/0	239347	18	>100:1	Target = 8.31		329.65	14.490		
663 > 169	38	4.859	4.868		24914	23	>100:1	9.60 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.081	5.087	0	711001	21	>100:1			1001.00	874.55	80.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.087	5.093	0/0	244459	20	32:1	Target = 12.17		394.27	17.330		
713 > 169	42	5.081	5.093		17938	19	>100:1	13.62 (6.08-18.25)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.505	5.512	0	715188	20	>100:1			1001.00	823.91	75.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.505	5.512	0/0	178080	19	33:1	Target = 10.43		389.17	17.107		
813 > 269	40	5.497	5.512		15293	18	>100:1	11.64 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.930	5.944	0/0	199409	30	17:1	Target = 13.67		306.57	13.476		
913 > 319	40	5.925	5.944		13150	40	>100:1	15.16 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.027	0	760439	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.496	0	778136	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.269	0	653197	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	0	670350	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.651	3.657	0	140934	21	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

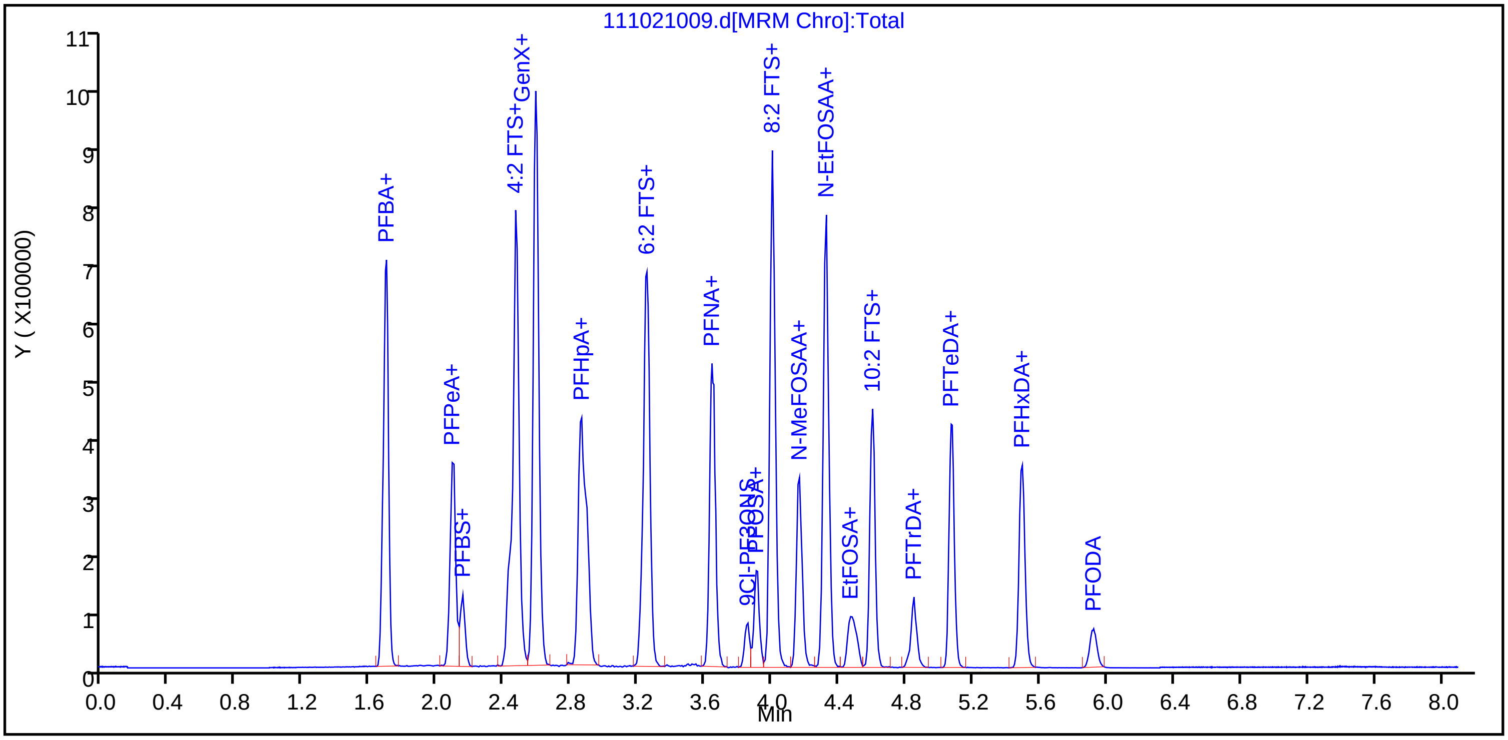
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

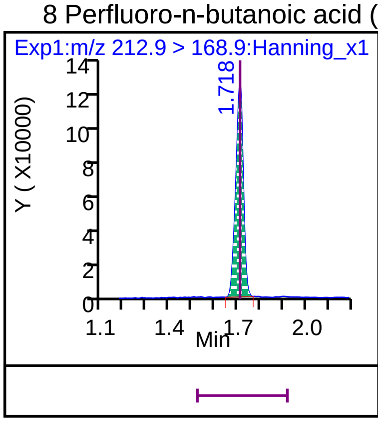
Report Date: 11-Nov-2021 20:41:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

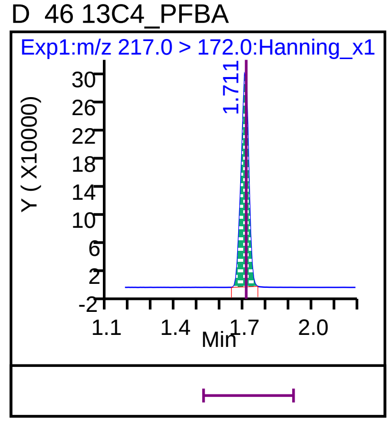
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021009.d		
Injection Date:	10-Nov-2021 14:31:25	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21749-002
Sample Info:	WQ21749-002		
Dil. Factor:	1	Operator:	Justin Gavin



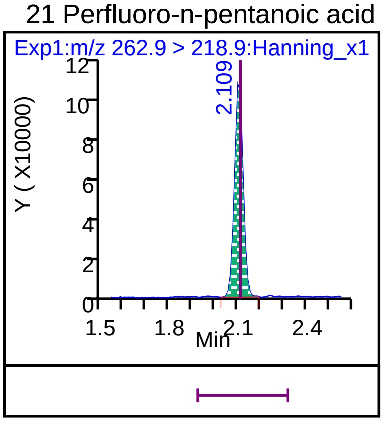
8 Perfluoro-n-butanoic acid (PFBA)



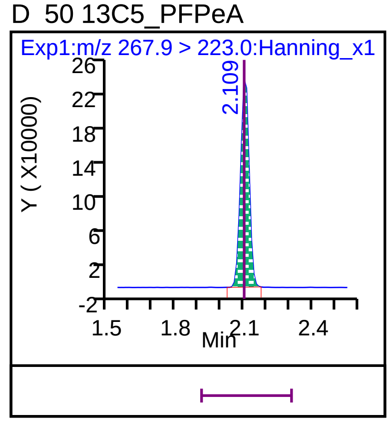
D 46 13C4_PFBA



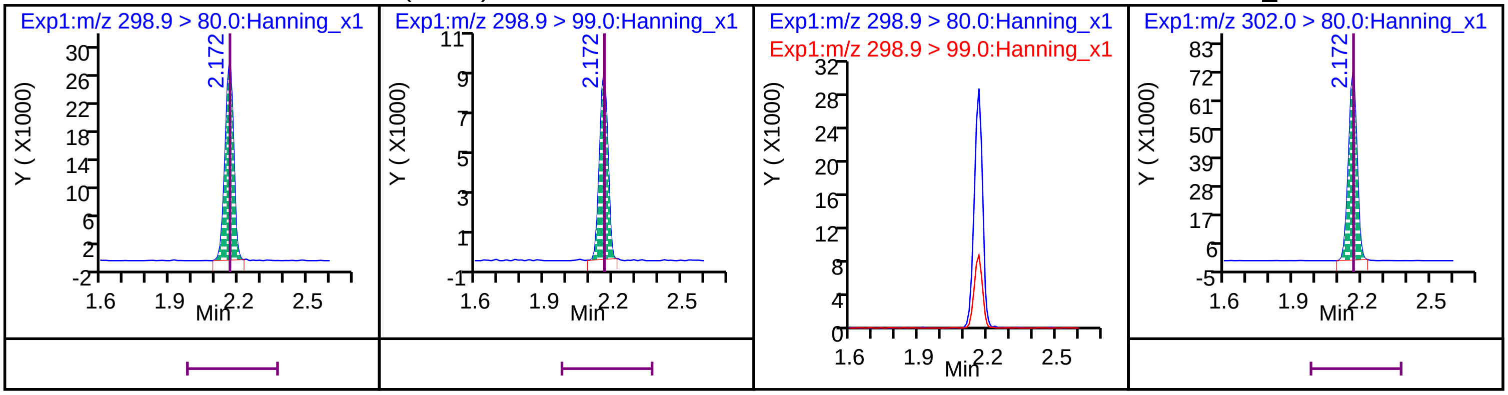
21 Perfluoro-n-pentanoic acid (PFPeA)



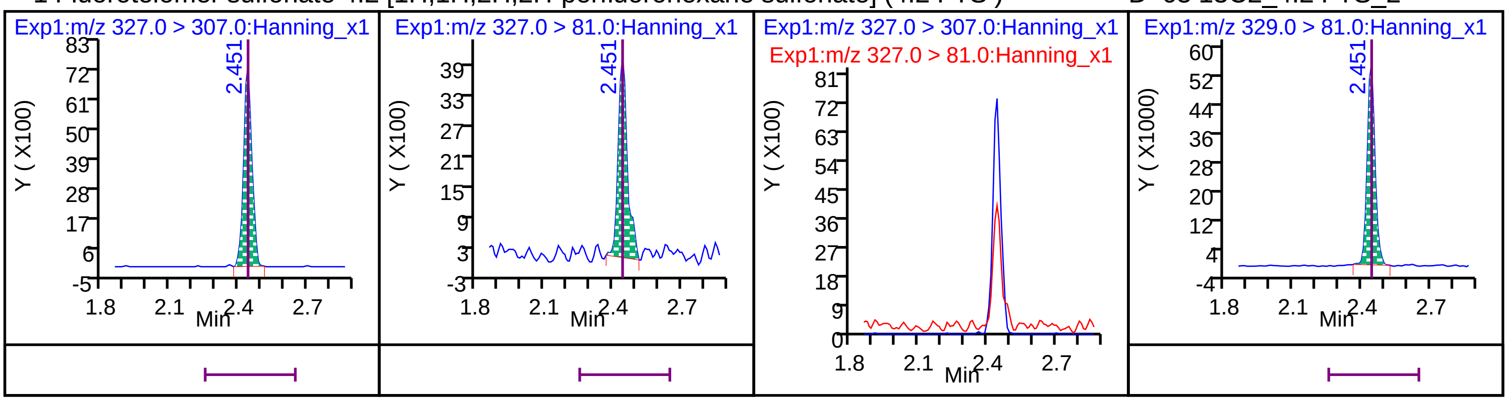
D 50 13C5_PFPeA



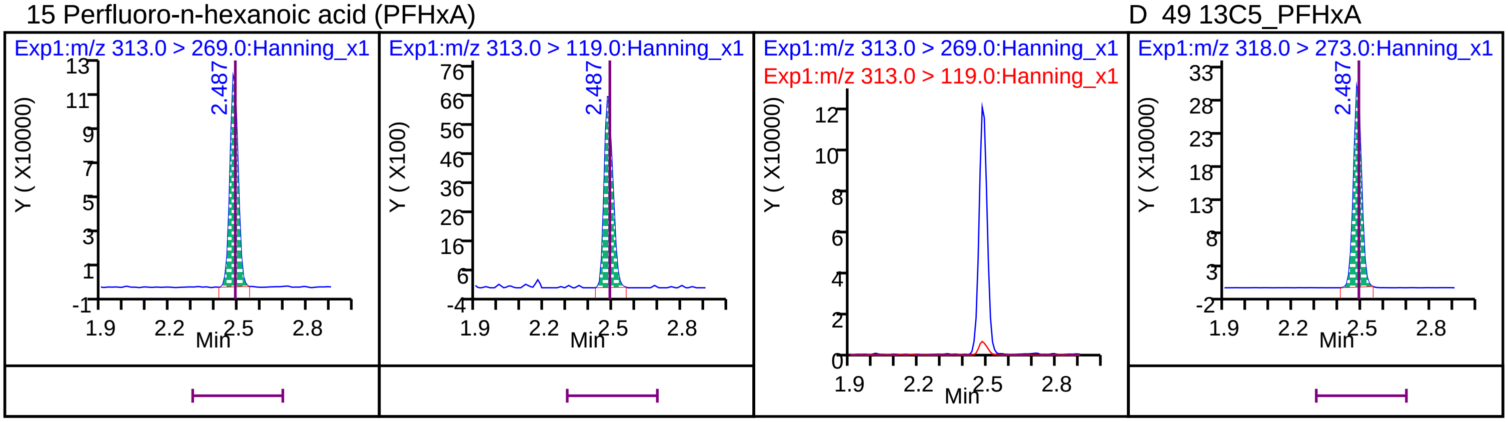
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



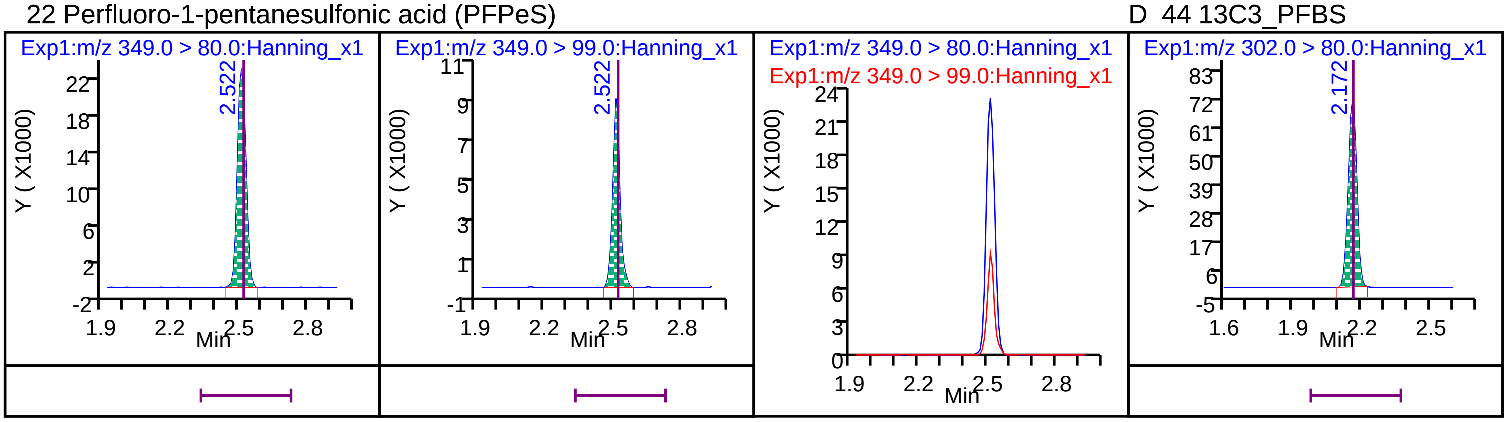
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



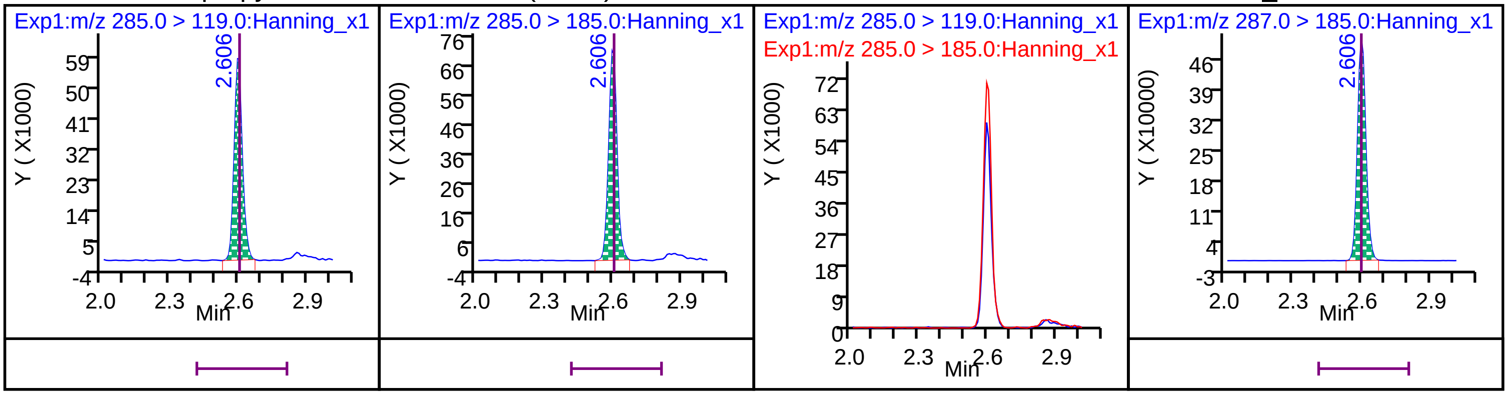
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



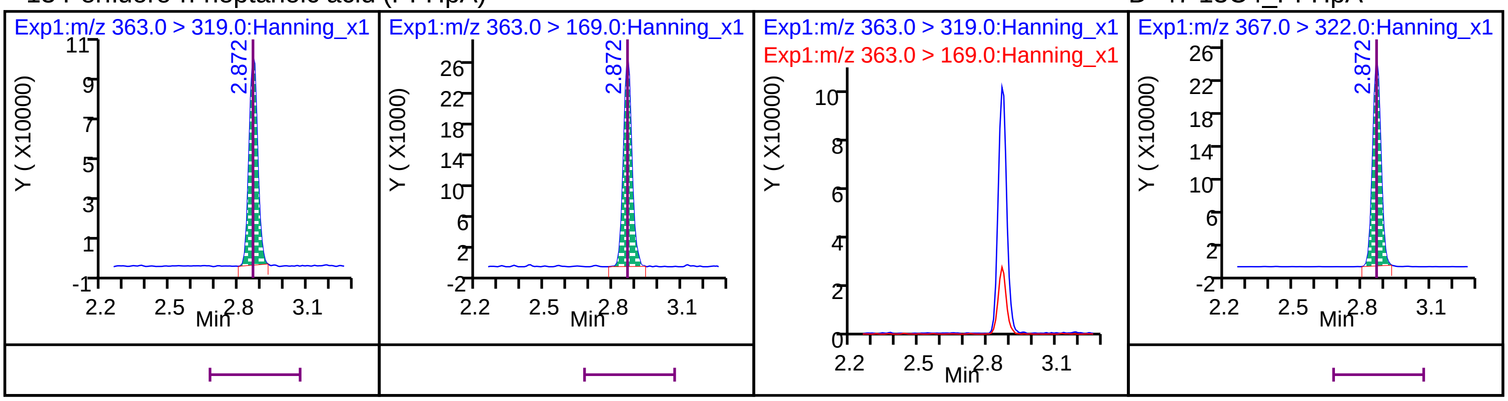
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



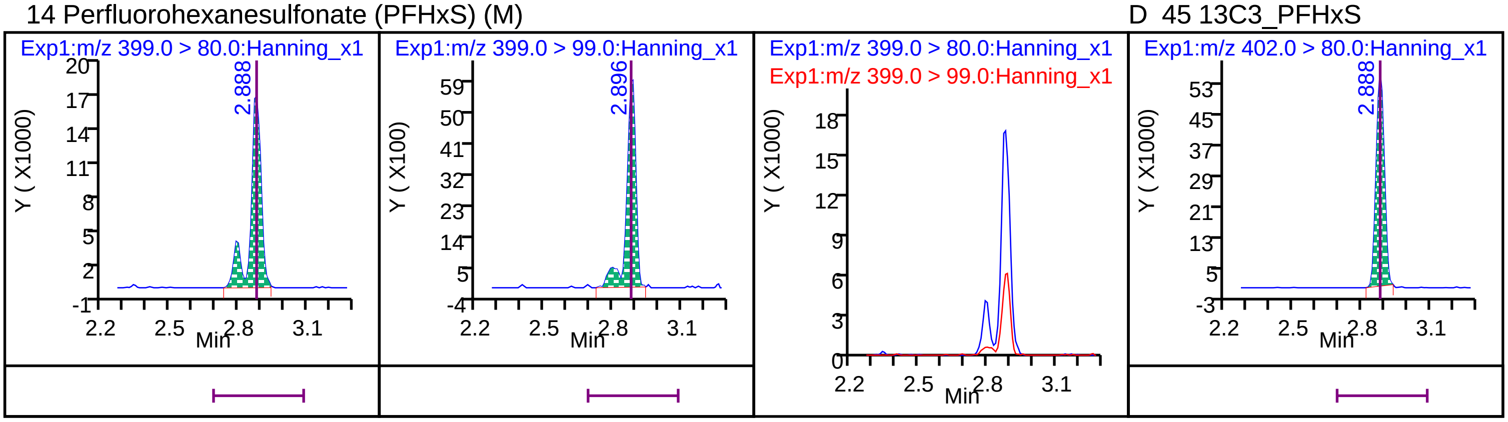
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



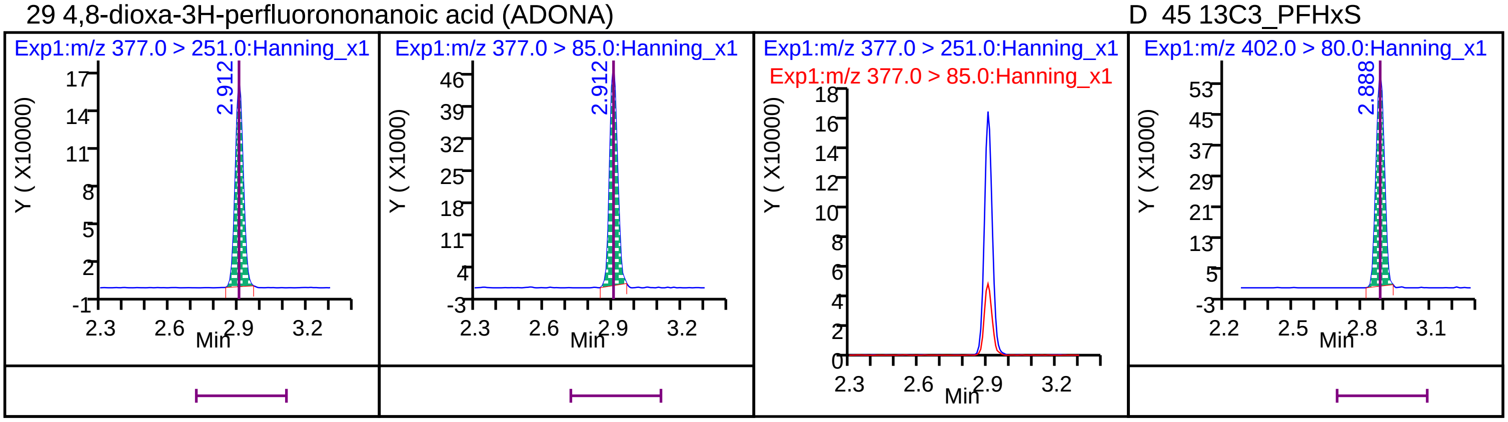
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



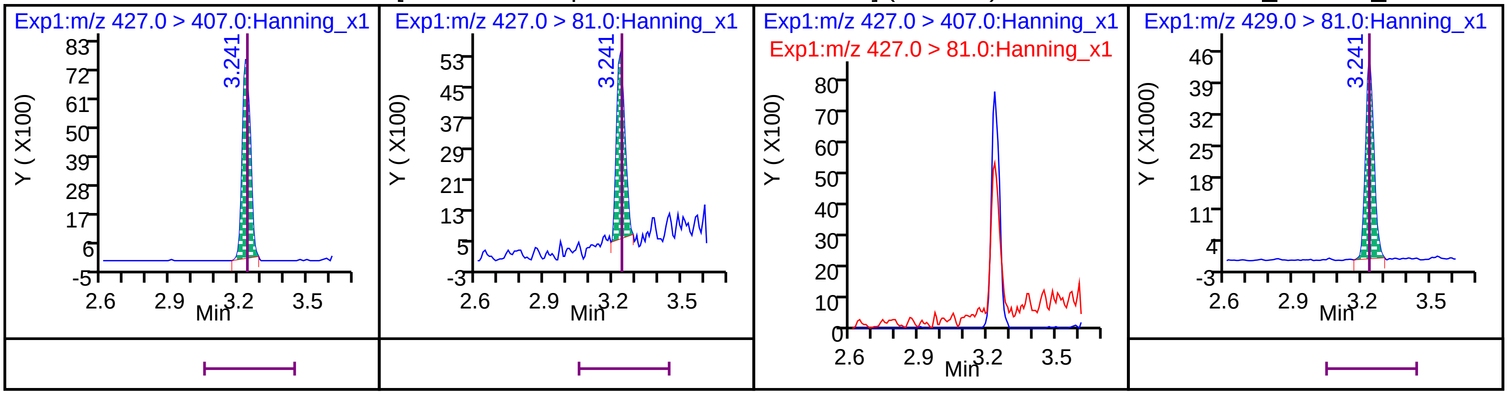
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



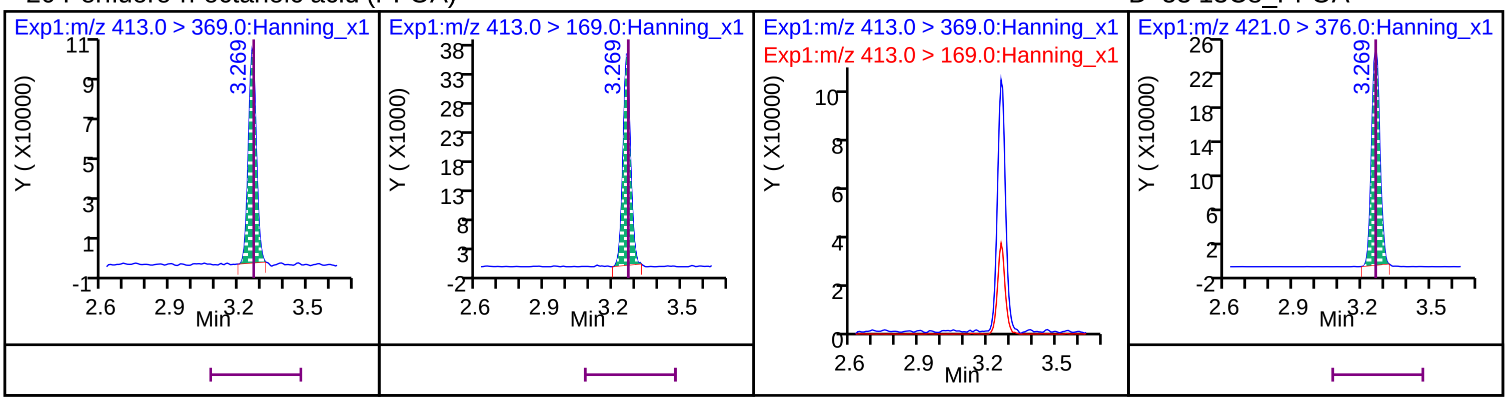
Report Date: 11-Nov-2021 20:41:39 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021009.d

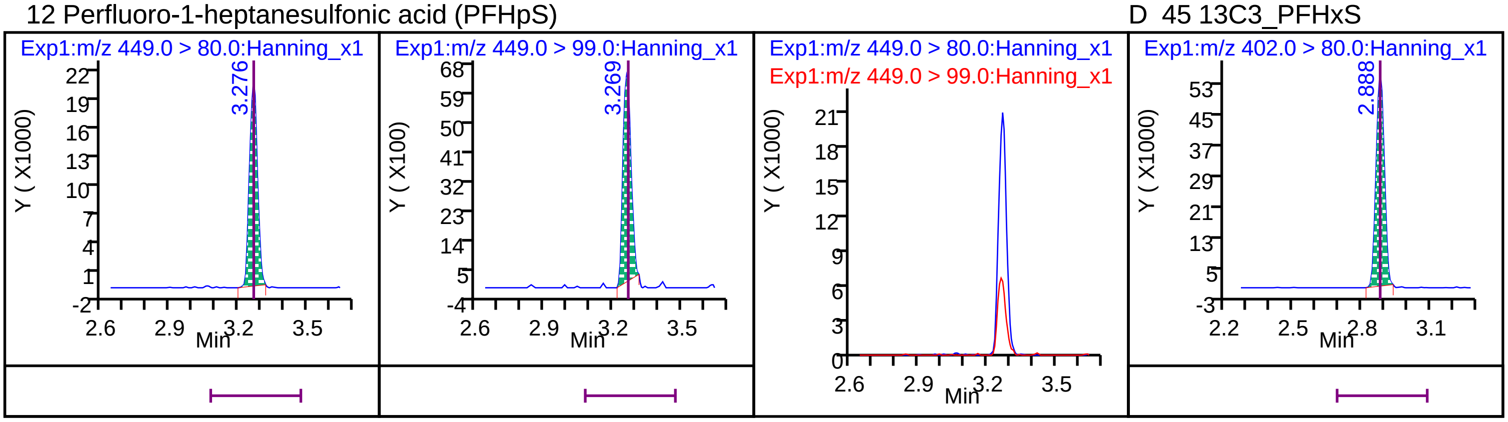
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



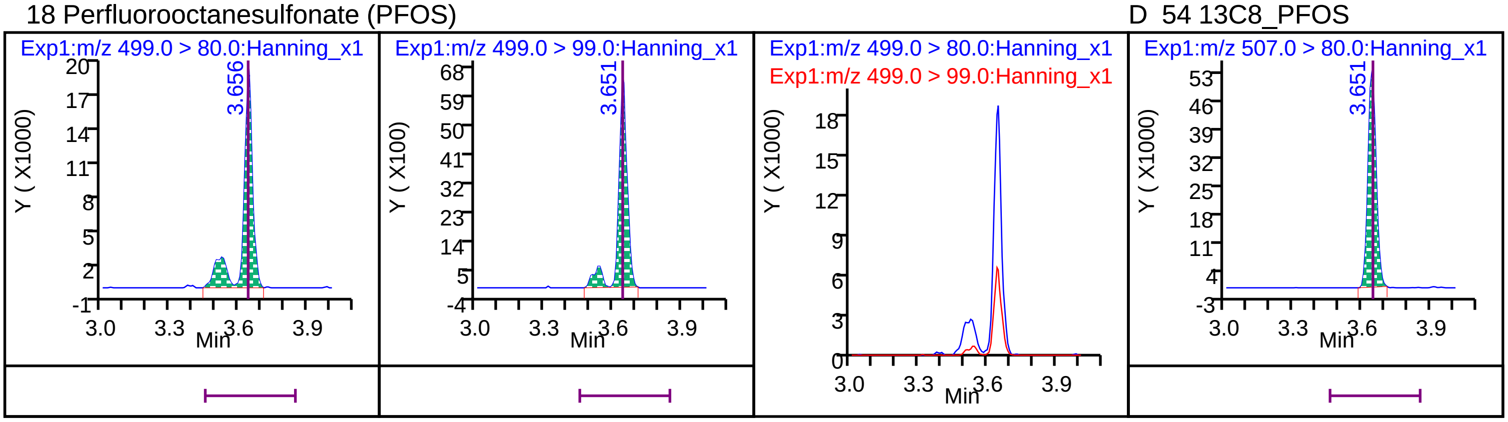
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



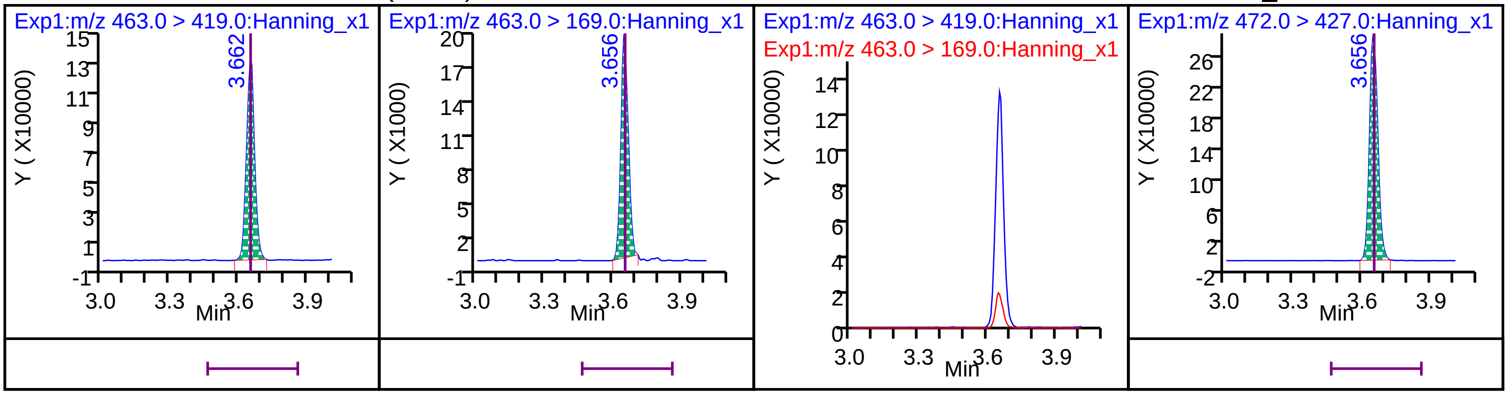
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



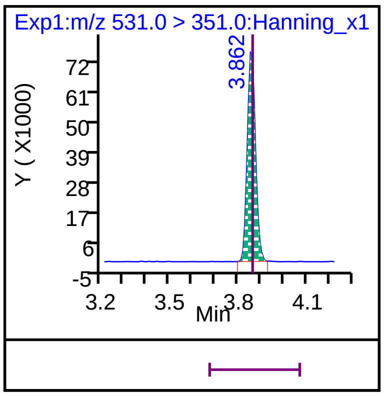
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

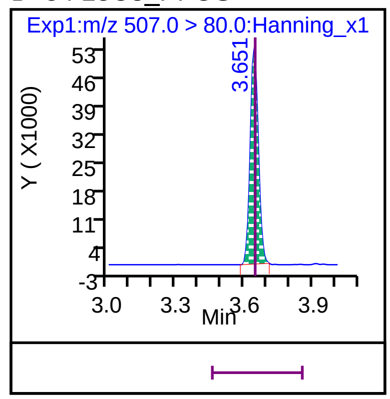


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

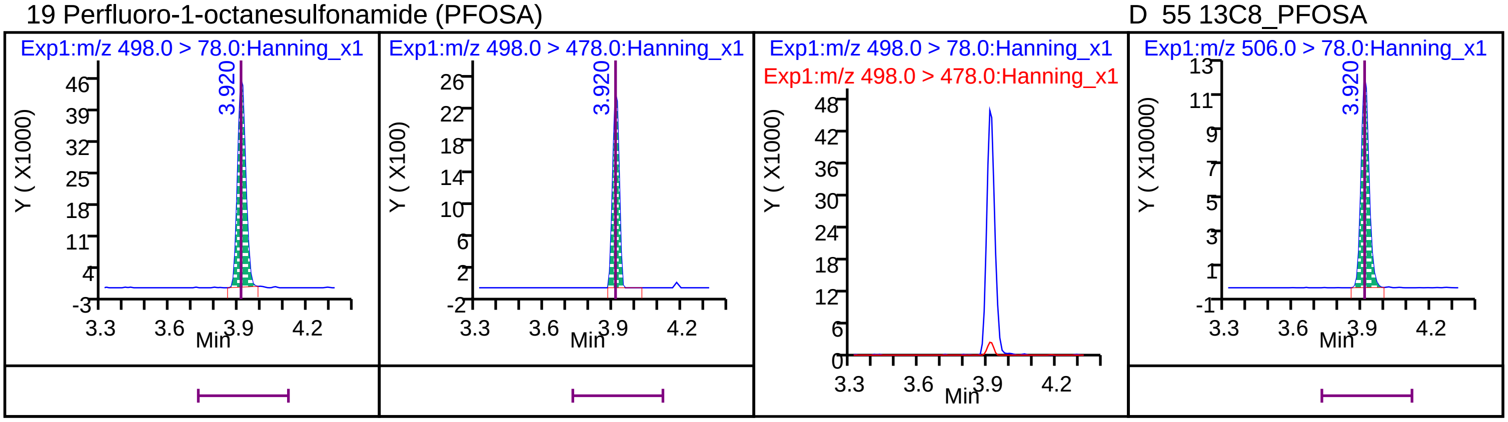


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

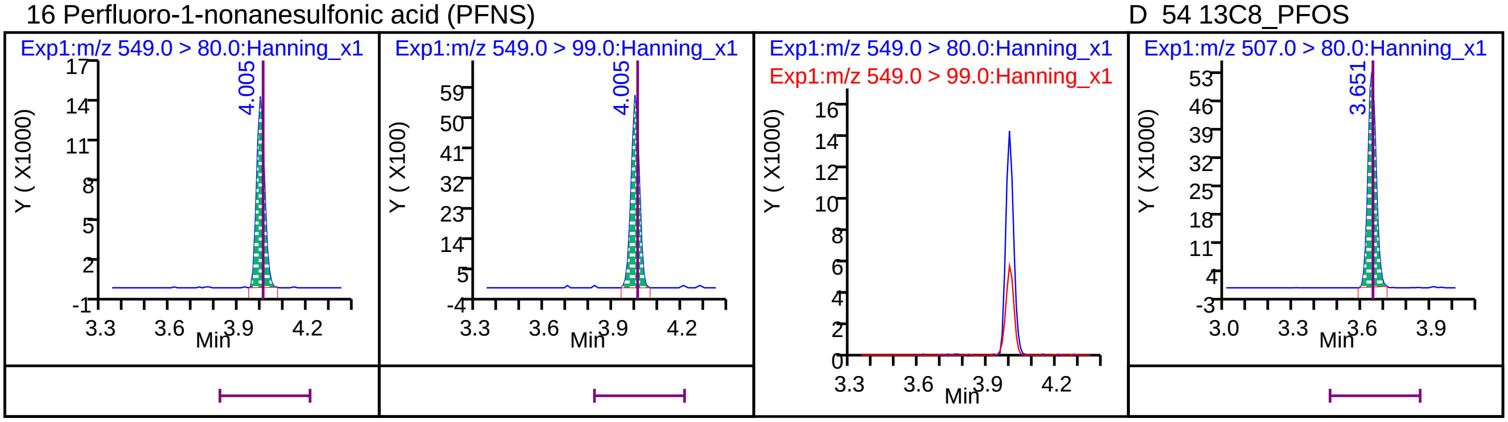




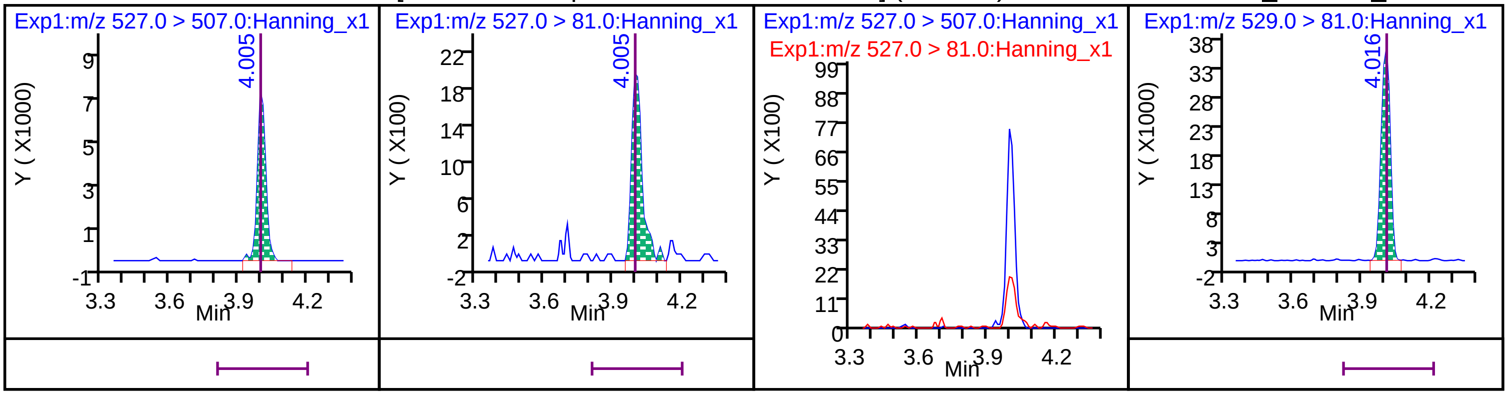
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



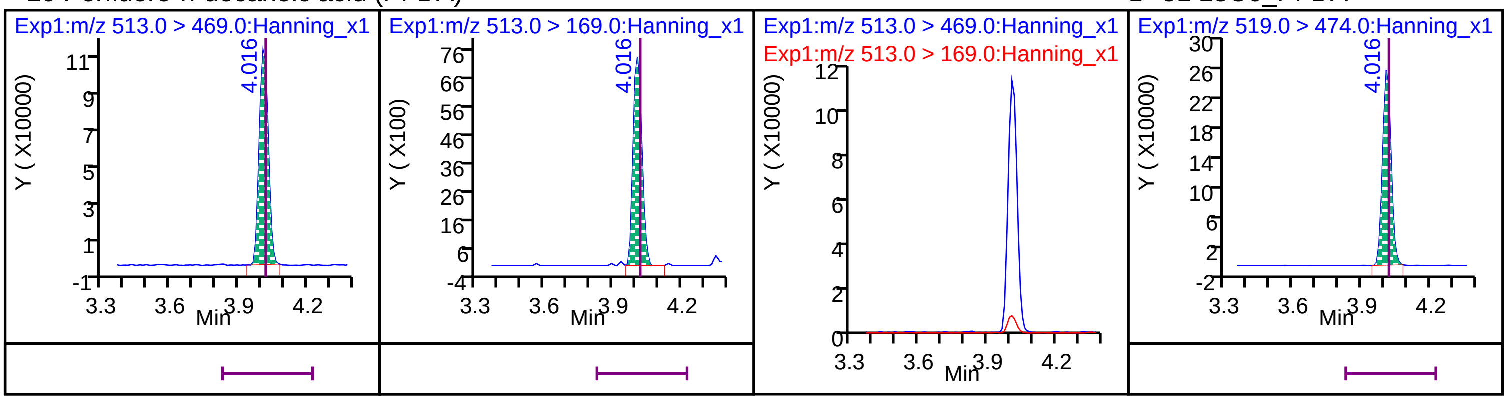
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



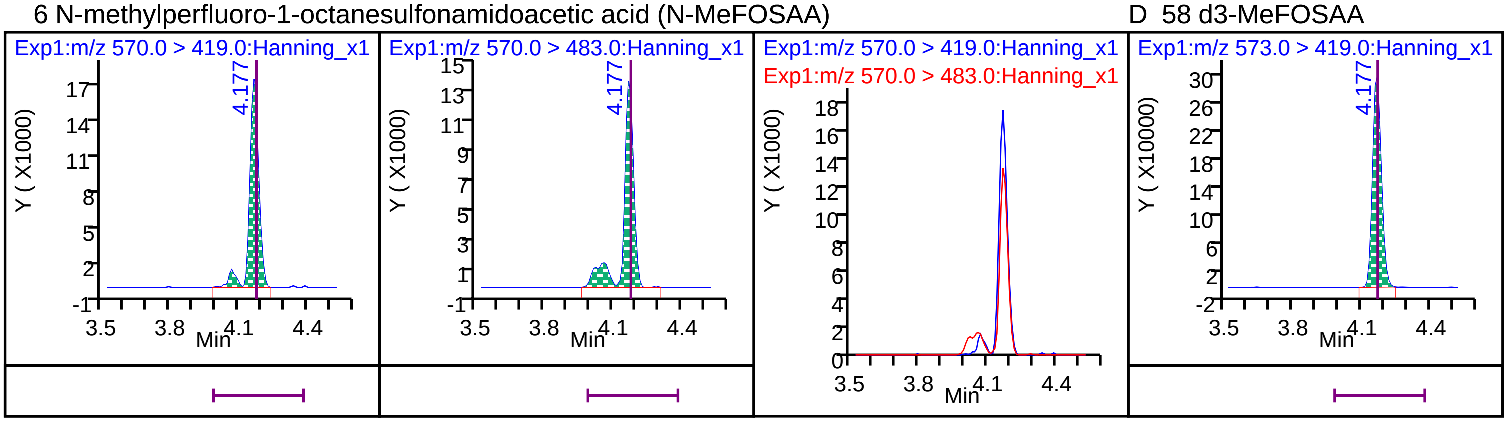
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)   D 65 13C2_8:2 FTS_2



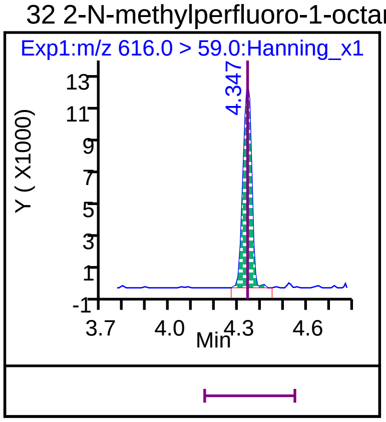
10 Perfluoro-n-decanoic acid (PFDA)   D 51 13C6_PFDA

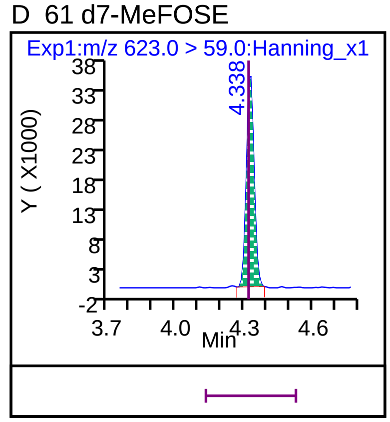


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)   D 58 d3-MeFOSAA

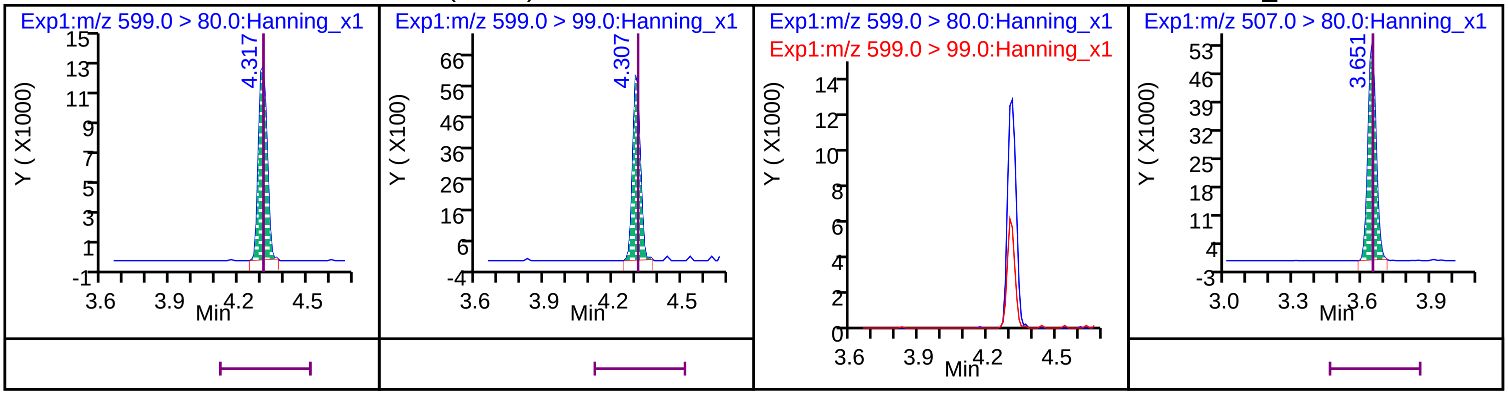


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)   D 61 d7-MeFOSE

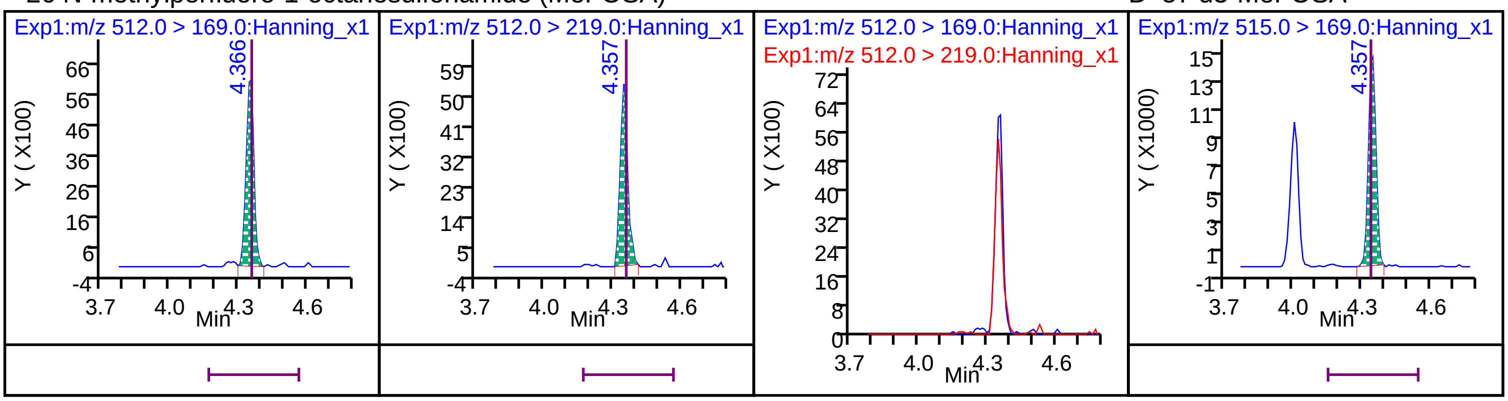




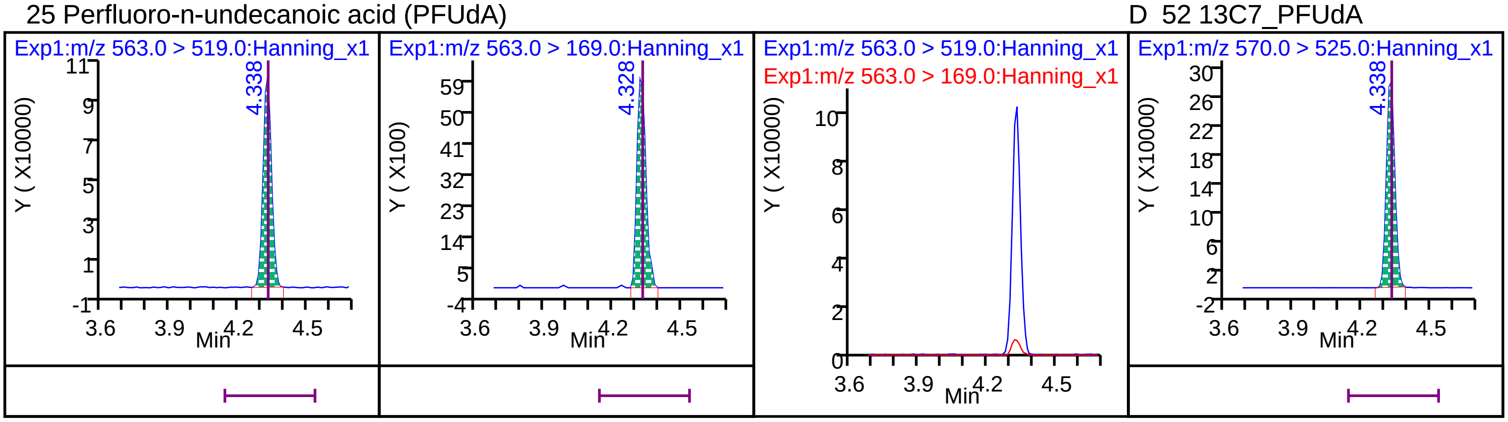
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



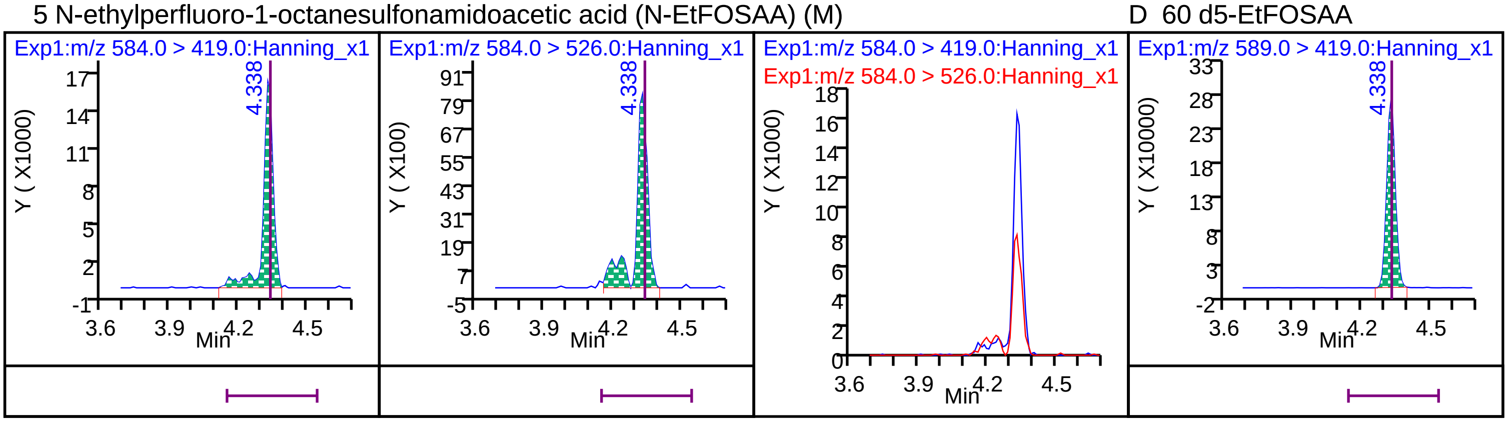
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



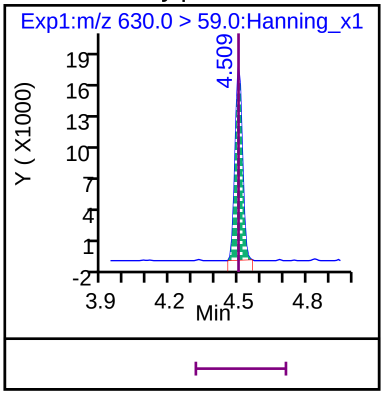
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



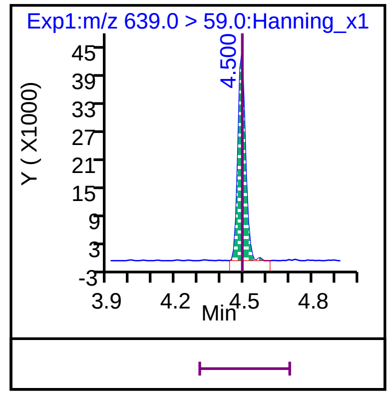
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

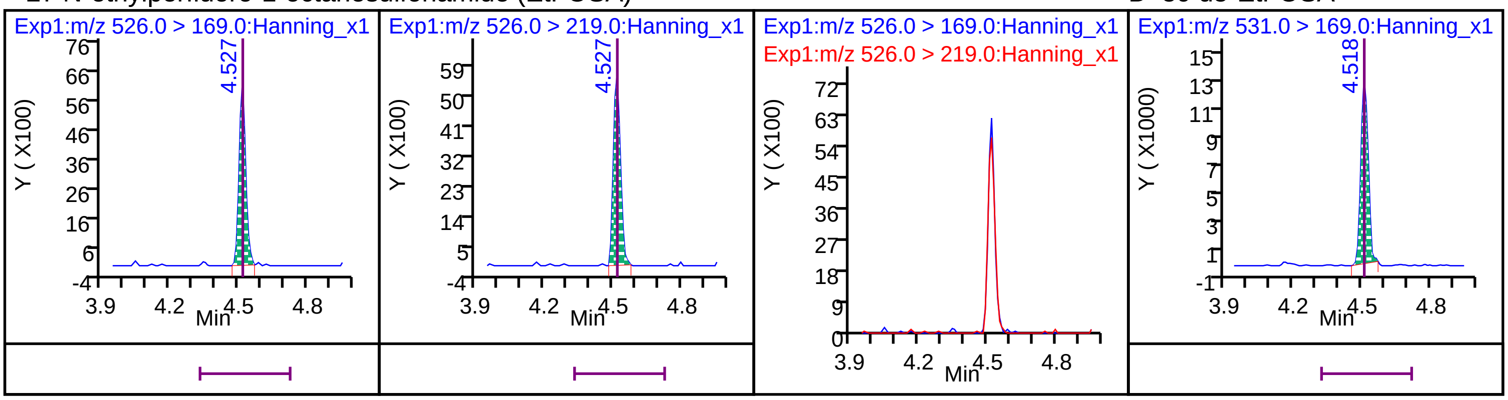


D 62 d9-EtFOSE

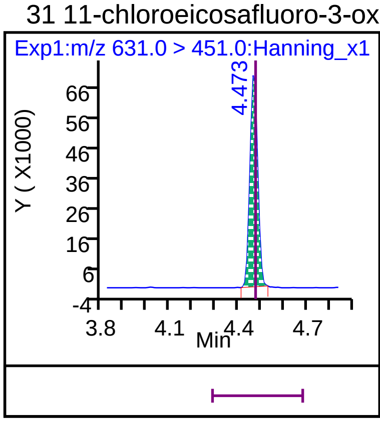


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

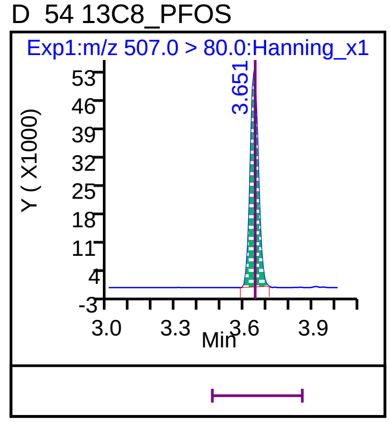
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

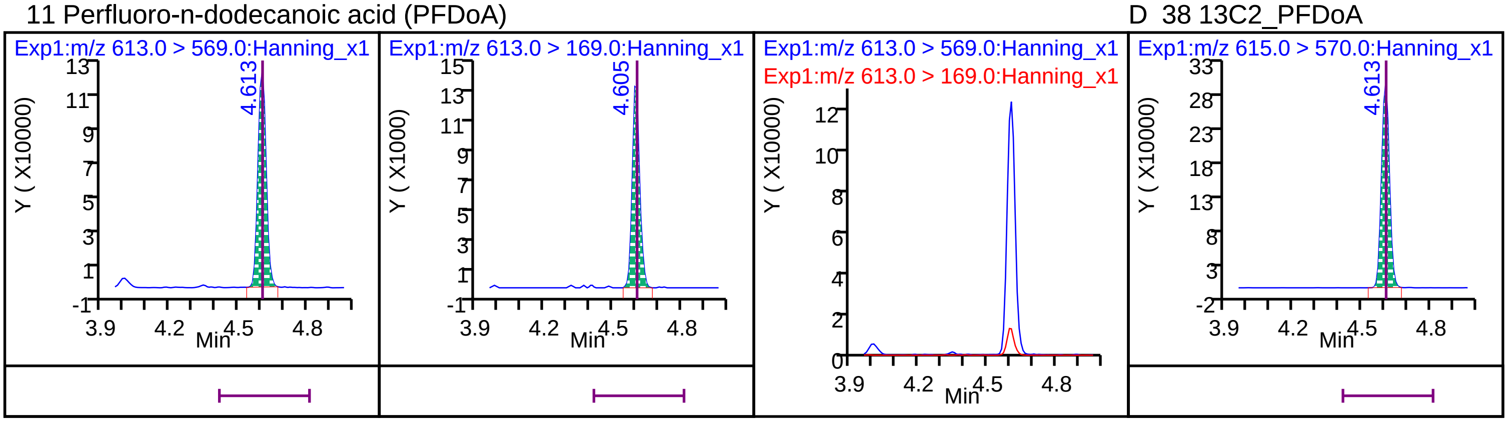


D 54 13C8_PFOS

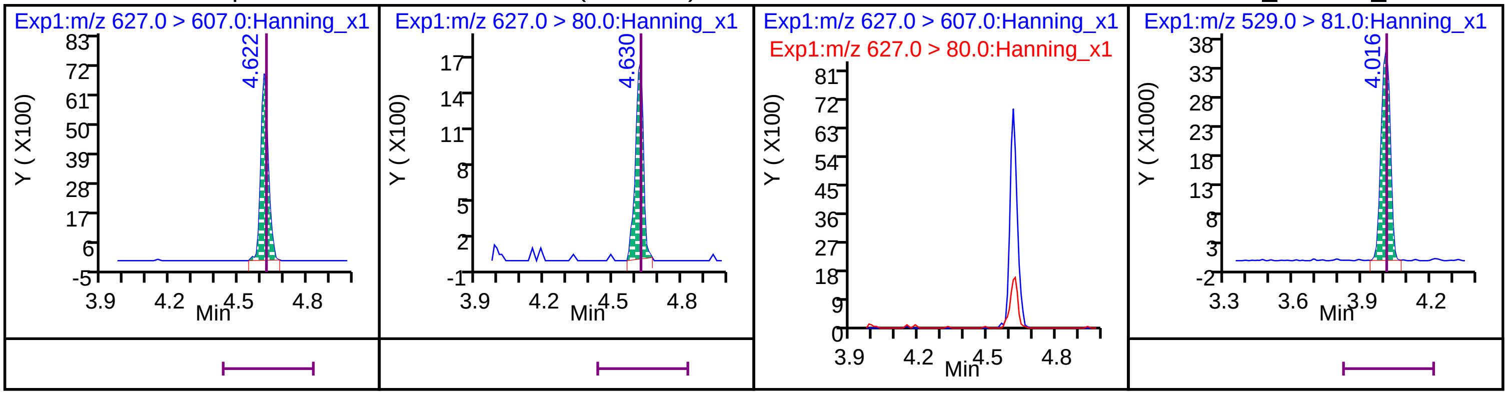


11 Perfluoro-n-dodecanoic acid (PFDoA)

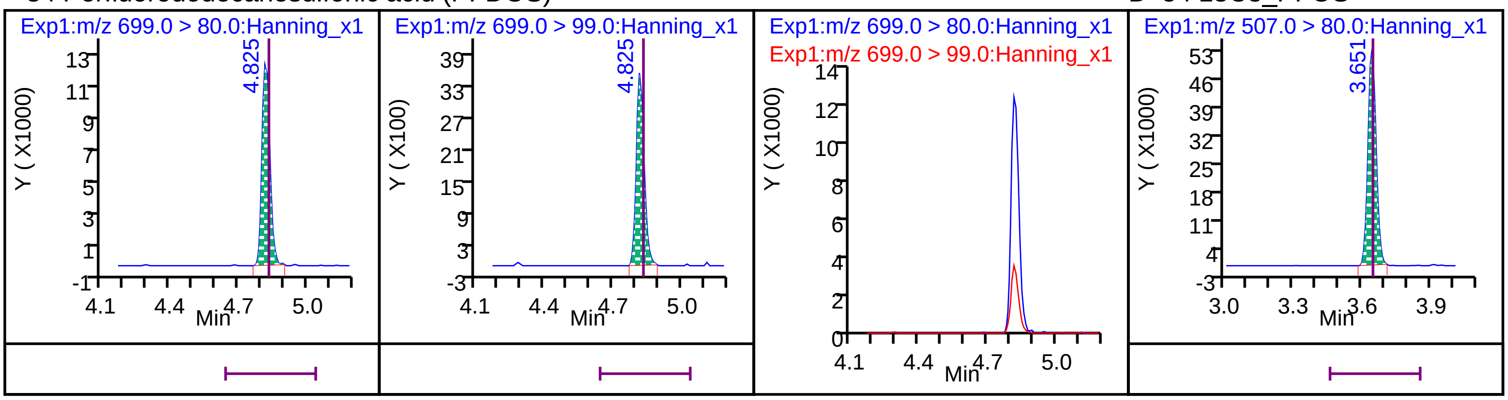
D 38 13C2_PFDoA



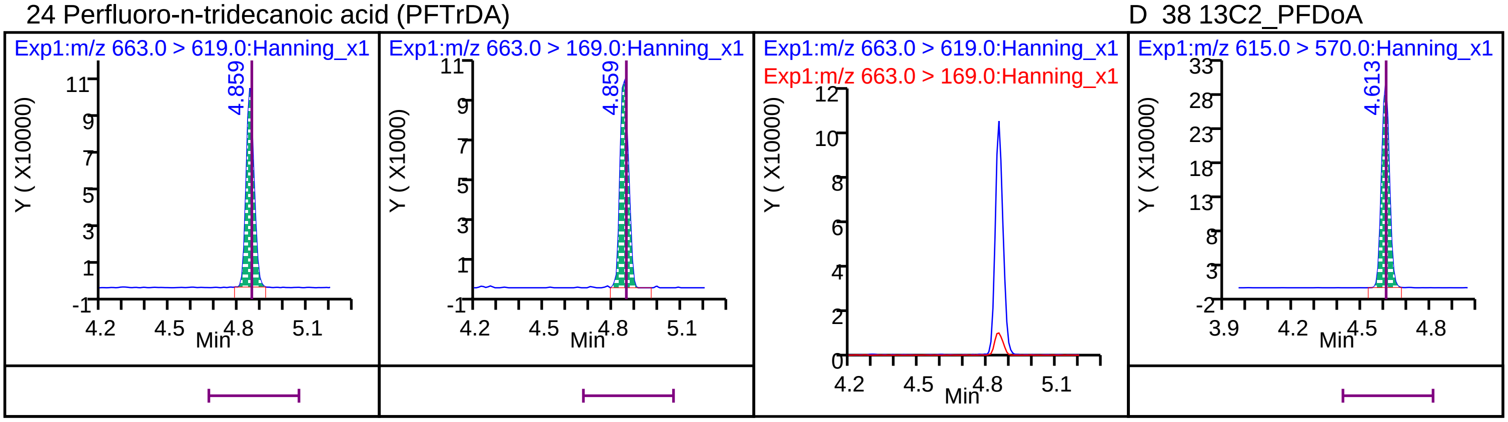
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



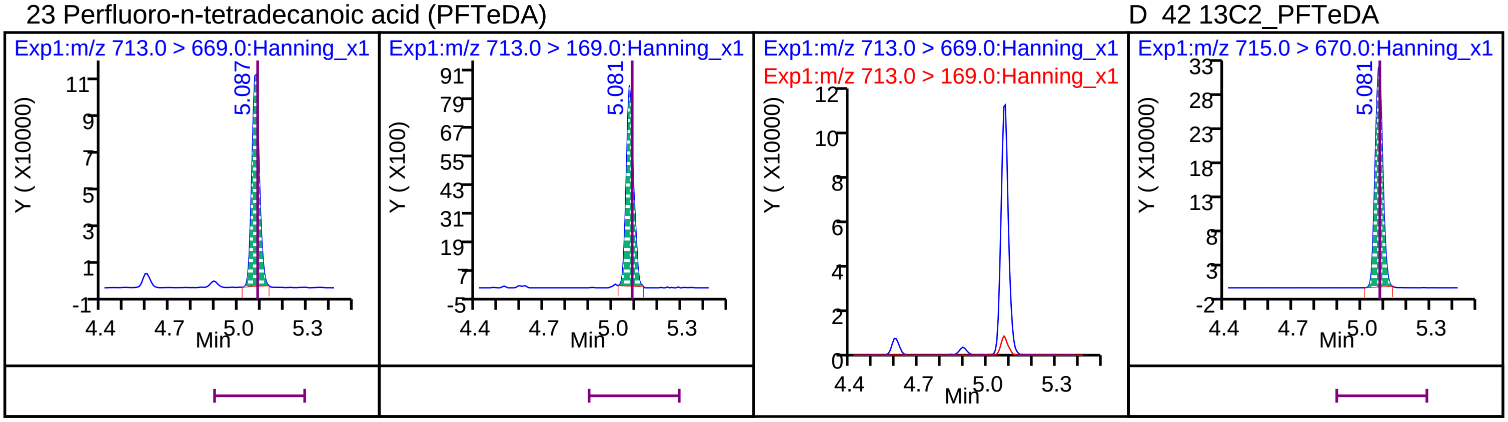
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



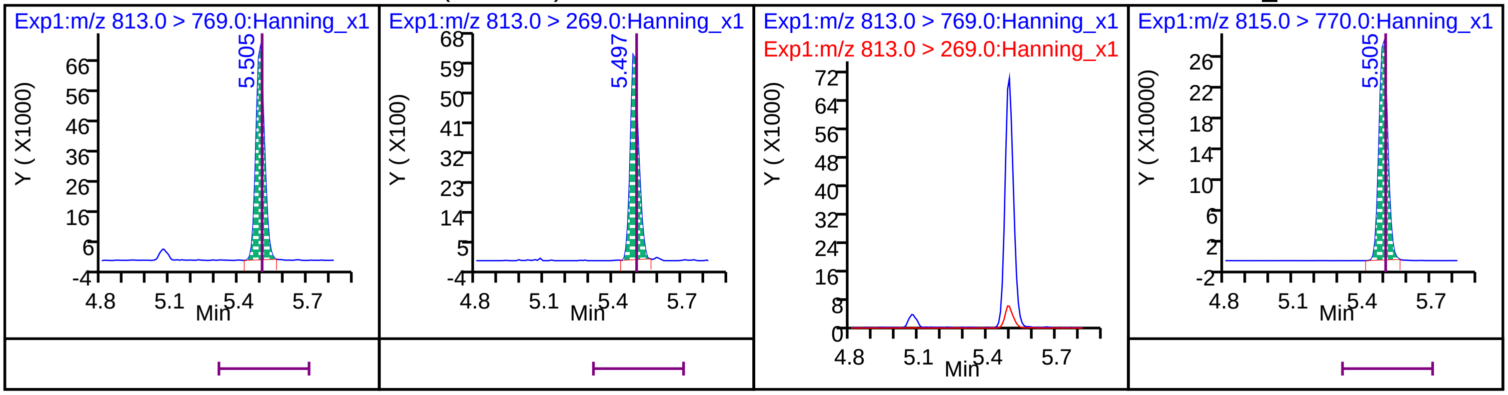
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



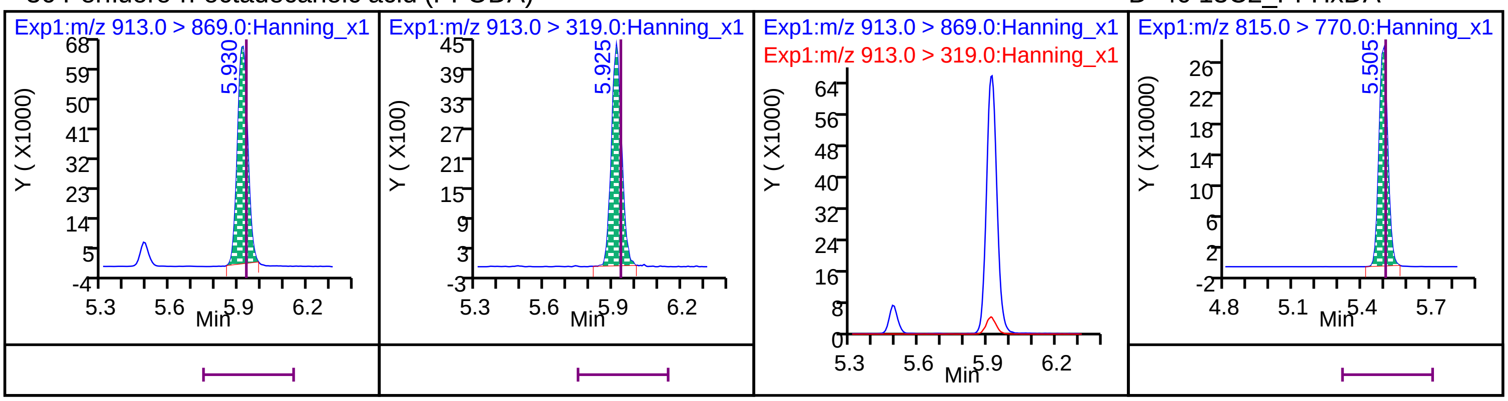
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



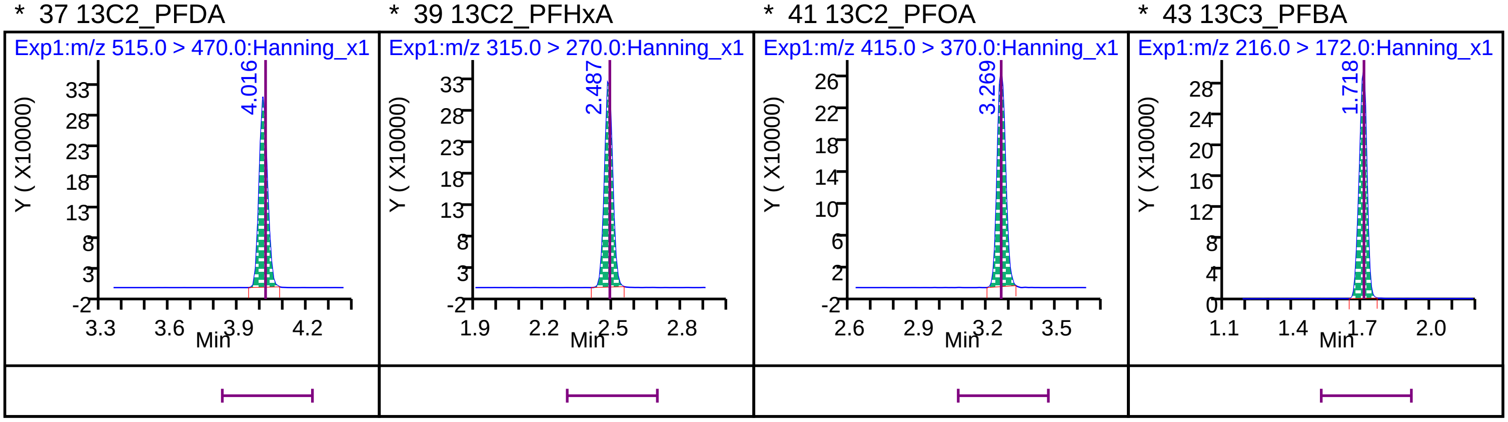
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



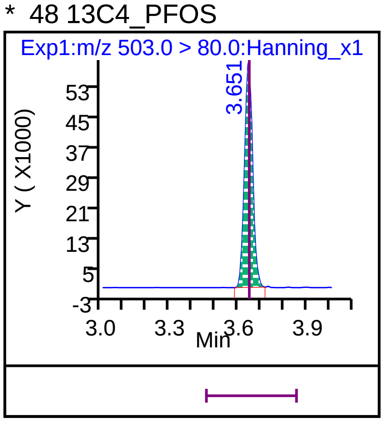
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

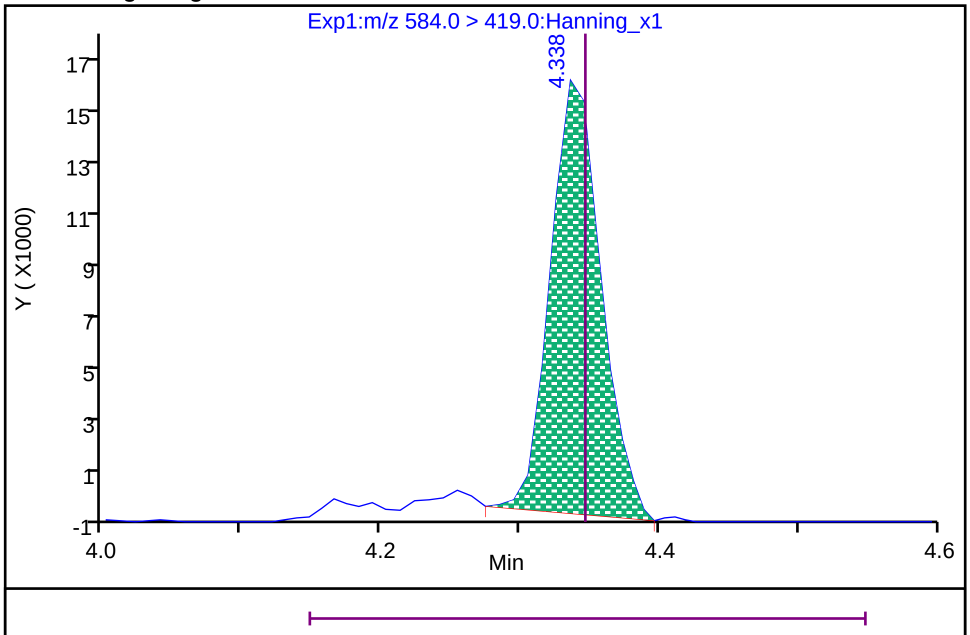
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021009.d		
Injection Date:	10-Nov-2021 14:31:25	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21749-002
Sample Info:	WQ21749-002		
Dil. Factor:	1	Operator:	Justin Gavin

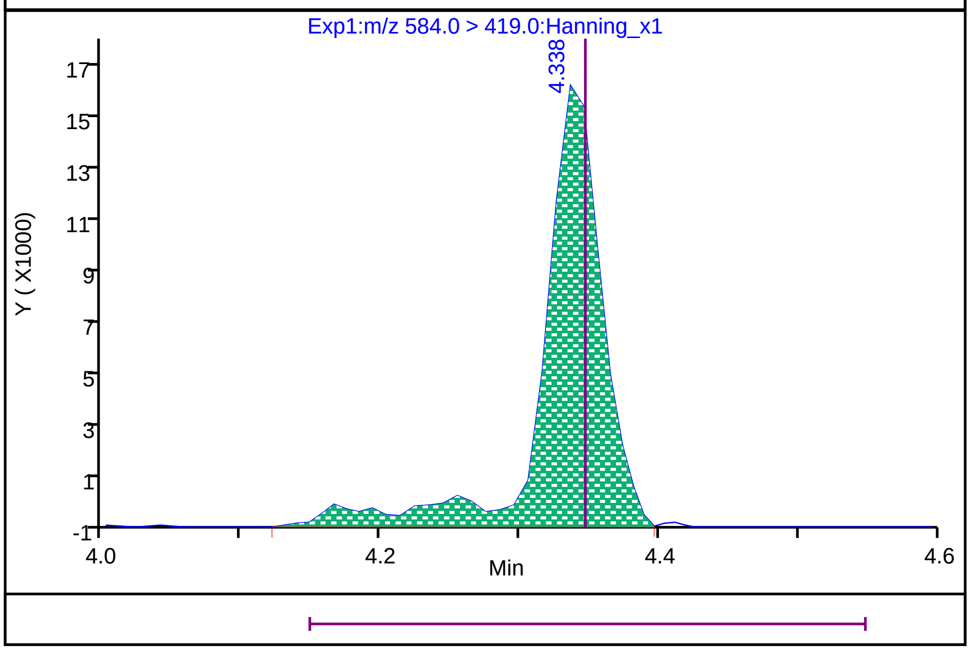
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.338
Area: 40262
Conc: 13.319
Conc Units: ng/L



RT: 4.338
Area: 47914
Conc: 15.851
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 19:16:21

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

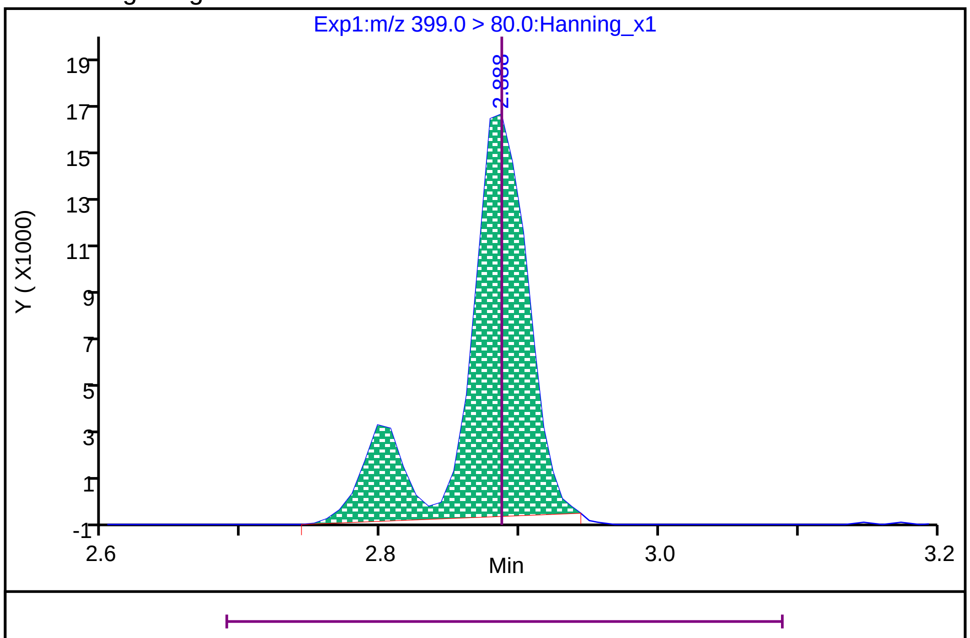
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021009.d		
Injection Date:	10-Nov-2021 14:31:25	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21749-002
Sample Info:	WQ21749-002		
Dil. Factor:	1	Operator:	Justin Gavin

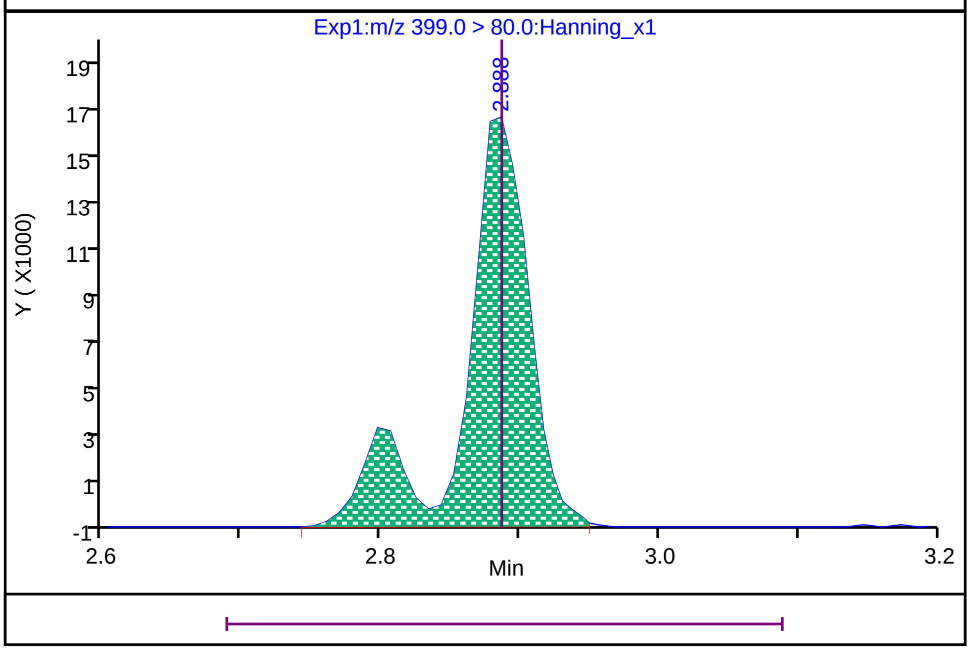
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.888
Area:	49265
Conc:	14.619
Conc Units:	ng/L



RT:	2.888
Area:	52079
Conc:	15.454
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 19:16:08

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS - LCS

Sample ID: WQ22543-002
Batch: 22543
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/15/2021 1738

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	70-150	11/17/2021 1621
11Cl-PF3OUdS	15	13		1	88	70-150	11/17/2021 1621
EtFOSAA	16	16		1	98	61-135	11/17/2021 1621
PFDS	15	13		1	81	53-142	11/17/2021 1621
PFNS	15	14		1	90	69-127	11/17/2021 1621
PFDoA	16	15		1	95	72-134	11/17/2021 1621
PFTeDA	16	15		1	96	71-132	11/17/2021 1621
PFTrDA	16	15		1	97	65-144	11/17/2021 1621
PFOS	15	13		1	91	65-140	11/17/2021 1621

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		101	50-150
13C8_PFOS		105	50-150
13C9_PFNA		96	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111721-DOD.b\111721020.d		
Injection Date:	17-Nov-2021 16:21:12	Injection Vol:	10.0 uL
Sample Type:	LCS	Auto Sampler:	7
Lab Sample ID:	WQ22543-002	Lab Prep. Batch:	22543
Sample Info:	WQ22543-002(22544-002)	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml
Analytes	100x PDS	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.690	1.692	0	627925	20	>100:1			1001.00	1006.40	93.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.696	1.699	0/0	226806	19	>100:1			345.61	15.191		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.062	2.067	0	571390	16	>100:1			1001.00	986.59	97.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.062	2.067	0/0	218524	16	>100:1			348.59	15.323		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.125	2.120	1	172265	16	>100:1			1001.00	992.61	96.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.125	2.120	1/0	65370	16	>100:1	Target = 3.48		304.91	13.403		
298.9 > 99	44	2.125	2.120		19715	23	>100:1	3.31 (1.74-5.22)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.468	2.460	1/0	52490	23	>100:1	Target = 3.03		344.57	15.146		
349 > 99	44	2.459	2.460		17875	15	>100:1	2.93 (1.51-4.55)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.397	2.389	1	120108	16	>100:1			5005.00	5500.45	105.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.397	2.389	1/0	16599	15	>100:1	Target = 1.70		304.90	13.402		
327 > 81	63	2.388	2.389		8587	14	23:1	1.93 (0.85-2.55)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.432	2.433	0	674960	16	>100:1			1001.00	1041.49	96.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.432	2.433	0/0	236812	17	>100:1	Target = 18.47		331.90	14.589		
313 > 119	49	2.432	2.433		11579	20	>100:1	20.45 (9.23-27.71)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.548	2.549	0	1152561	17	>100:1			5005.00	5147.27	98.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.548	2.540	1/1	103391	17	>100:1	Target = 0.78		682.32	29.992		
285 > 185	66	2.548	2.540		133725	17	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.799	2.800	0	582556	17	>100:1			1001.00	1103.75	94.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.799	2.800	0/0	220832	16	>100:1	Target = 3.92		331.83	14.586		
363 > 169	47	2.799	2.800		60350	22	>100:1	3.65 (1.96-5.88)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.817	2.818	0	128834	17	>100:1			1001.00	1008.75	92.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.817	2.818	0/0	50046	27	>100:1	Target = 3.14	4.77	344.92	15.161		
399 > 99	45	2.817	2.818		15064	16	>100:1	3.32 (1.57-4.71)					
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.844	2.836	1/1	347499	17	>100:1	Target = 3.33		347.14	15.259		
377 > 85	45	2.844	2.836		113824	20	>100:1	3.05 (1.66-5.00)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.191	3.186	1/1	45237	20	>100:1	Target = 3.02		361.52	15.891		
449 > 99	45	3.185	3.186		13312	24	>100:1	3.39 (1.51-4.53)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.158	3.160	0	93449	21	>100:1			5005.00	5445.51	106.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.151	3.160	0/0	17179	26	>100:1	Target = 1.69		392.26	17.242		
427 > 81	64	3.165	3.160		10633	21	20:1	1.61 (0.84-2.54)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.185	3.180	1	582573	20	>100:1			1001.00	1124.68	101.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.185	3.180	1/0	205734	19	>100:1	Target = 3.03		337.78	14.848		
413 > 169	53	3.185	3.180		67635	19	>100:1	3.04 (1.51-4.55)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.549	3.552	0	131274	19	>100:1			1001.00	1054.40	104.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.557	3.552	1/1	47717	36	>100:1	Target = 3.42	3.78	306.33	13.465		
499 > 99	54	3.549	3.552		13826	33	71:1	3.45 (1.71-5.13)	10.00				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.757	3.766	0/0	163357	19	>100:1			324.47	14.262		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.900	3.893	1/1	31991	14	>100:1	Target = 2.57		313.33	13.773		
549 > 99	54	3.900	3.893		12170	15	>100:1	2.62 (1.29-3.87)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.199	4.203	0/0	30077	15	>100:1	Target = 2.71		285.31	12.541		
599 > 99	54	4.199	4.203		13068	22	>100:1	2.30 (1.35-4.06)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.372	0/0	134689	17	>100:1			302.99	13.318		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.707	4.715	0/0	31601	17	>100:1	Target = 3.04		302.80	13.310		
699 > 99	54	4.707	4.715		10991	21		2.87 (1.52-4.56)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.557	3.560	0	649144	19	>100:1			1001.00	1006.07	95.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.557	3.560	0/0	259236	19	>100:1	Target = 7.14		362.89	15.951		
463 > 169	56	3.557	3.560		39671	16	>100:1	6.53 (3.56-10.71)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.850	3.844	1	265203	18	>100:1			1001.00	1051.69	101.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.850	3.844	1/0	95207	16	>100:1	Target = 32.83		327.05	14.376		
498>478	55	3.850	3.844		3479	20		27.36 (16.41-49.25)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.900	3.902	0	89520	17	>100:1			5005.00	5353.47	101.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.891	3.902	0/0	13939	23	57:1	Target = 2.14		336.03	14.770		
527 > 81	65	3.900	3.902		6242	14	22:1	2.23 (1.07-3.21)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.495	4.507	0/0	16915	14		Target = 3.72		351.81	15.464		
627 > 80	65	4.513	4.507		4295	20	52:1	3.93 (1.86-5.58)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.908	3.910	0	589031	16	>100:1			1001.00	1033.64	95.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.908	3.910	0/0	260369	22	>100:1	Target = 14.16		377.39	16.588		
513 > 169	51	3.900	3.910		18503	21	>100:1	14.07 (7.08-21.25)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.065	4.068	0	715212	16	>100:1			5005.00	5236.28	105	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.065	4.068	0/0	43749	30	>100:1	Target = 1.42	7.26	369.58	16.245		
570 > 483	58	4.065	4.068		30010	29	>100:1	1.45 (0.71-2.14)	4.65				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.219	4.223	0	660980	17	>100:1			5005.00	5443.75	101.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.229	4.234	0/0	44757	32	>100:1	Target = 1.49	6.08	357.22	15.702		
584 > 526	60	4.219	4.234		31145	30	>100:1	1.43 (0.74-2.24)	3.23				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.219	4.223	0	665308	15	>100:1			1001.00	1024.83	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.219	4.223	0/0	209172	15	>100:1	Target = 14.37		339.20	14.910		
563 > 169	52	4.219	4.223		15016	18	>100:1	13.92 (7.18-21.56)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.270	4.264	1	72984	16	>100:1			1001.00	832.83	85.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.280	4.284	0/-1	29885	14	>100:1			371.26	16.319		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.290	4.284	1	19176	19	70:1			1001.00	392.65	42.9*	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.290	4.294	0/-1	10303	17	>100:1	Target = 1.08		527.56	23.189		
512 > 219	57	4.290	4.294		8914	19	65:1	1.15 (0.54-1.63)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.434	1	96255	17	>100:1			1001.00	908.79	95.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.450	4.452	0/-1	34775	14	>100:1			354.73	15.593		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.459	4.461	0	20491	14	71:1			1001.00	467.71	54.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.468	4.461	1/1	9967	15	>100:1	Target = 0.97		413.47	18.174		
526 > 219	59	4.468	4.461		9903	17	64:1	1.00 (0.48-1.45)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.495	4.498	0	622233	16	>100:1			1001.00	1042.48	91.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.495	4.498	0/0	231395	17	>100:1	Target = 10.55		344.83	15.157		
613 > 169	38	4.495	4.498		19581	19	>100:1	11.81 (5.27-15.83)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.734	4.743	0/0	212644	20	>100:1	Target = 8.92		351.42	15.447		
663 > 169	38	4.734	4.743		25147	23	>100:1	8.45 (4.46-13.38)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.958	4.959	0	755579	18	>100:1			1001.00	1001.94	92.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.958	4.959	0/0	231516	16	43:1	Target = 12.22		349.84	15.378		
713 > 169	42	4.958	4.959		19429	17	>100:1	11.91 (6.11-18.34)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.343	5.353	0	831074	19	>100:1			1001.00	924.26	97.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.343	5.353	0/0	196831	19	43:1	Target = 11.65		349.93	15.381		
813 > 269	40	5.343	5.353		17502	23	>100:1	11.24 (5.82-17.48)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.710	5.725	0/0	259031	21	21:1	Target = 15.15		331.58	14.575		
913 > 319	40	5.710	5.725		16601	21	>100:1	15.60 (7.57-22.73)					
*** 37 13C2_PFDA**													
515 > 470		3.908	3.910	0	716167	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.432	2.433	0	736022	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.185	3.180	1	624605	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.696	1.699	0	599316	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.549	3.552	0	135619	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

Report Date: 18-Nov-2021 18:21:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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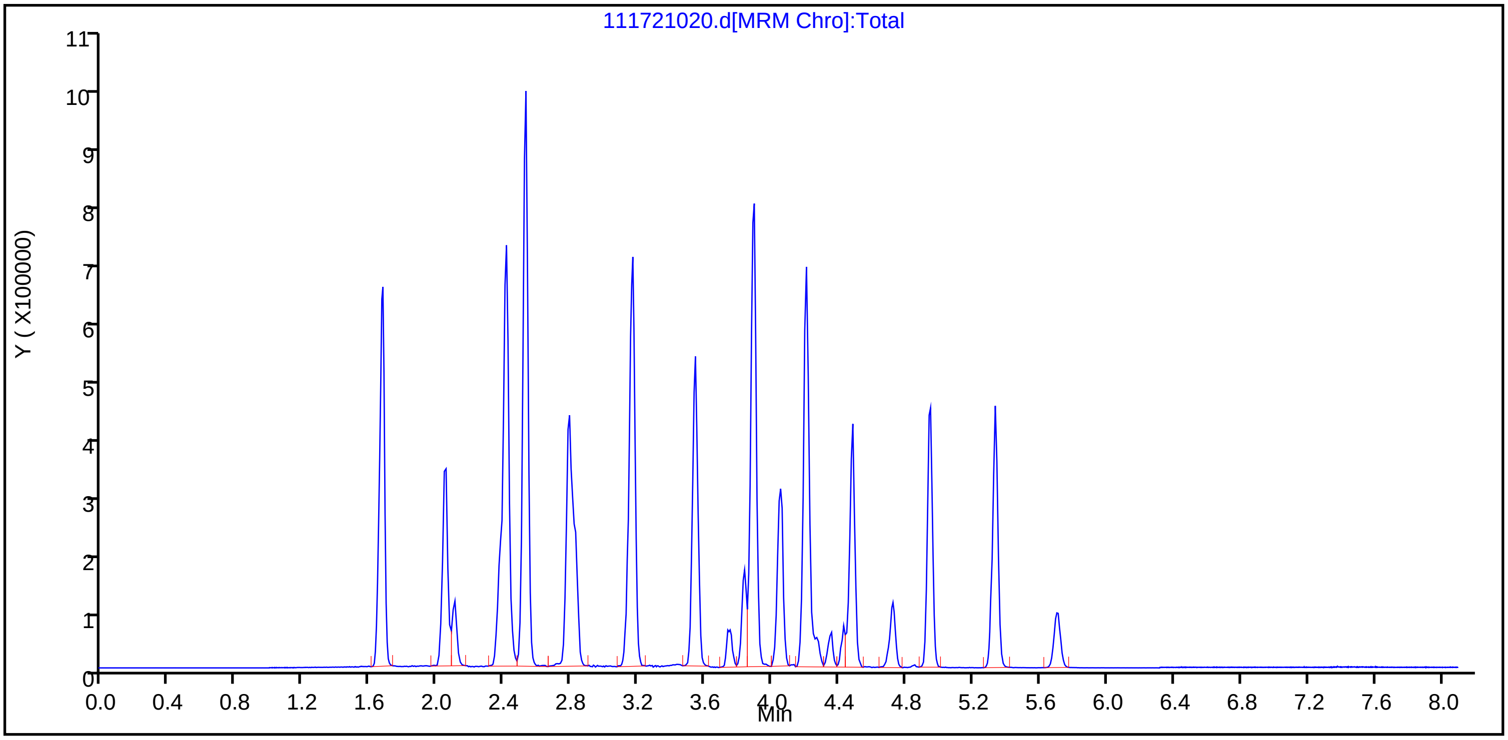
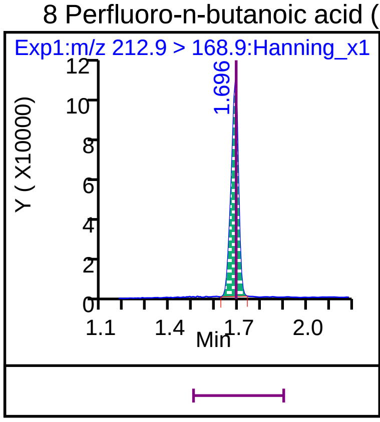
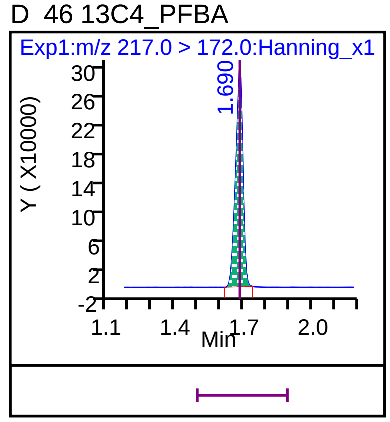
Sample Info:	WQ22543-002(22544-002)		
Dil. Factor:	1	Operator:	Justin Gavin



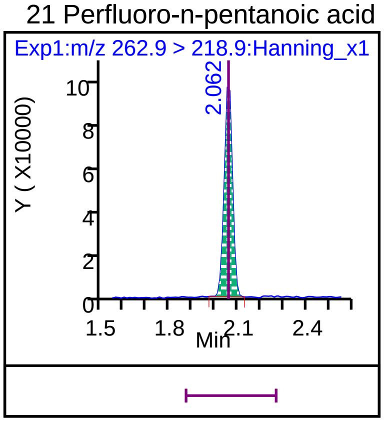
8 Perfluoro-n-butanoic acid (PFBA)



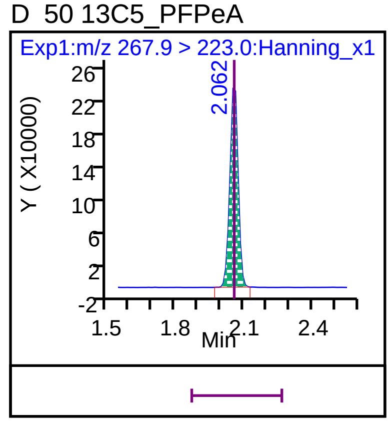
D 46 13C4_PFBA



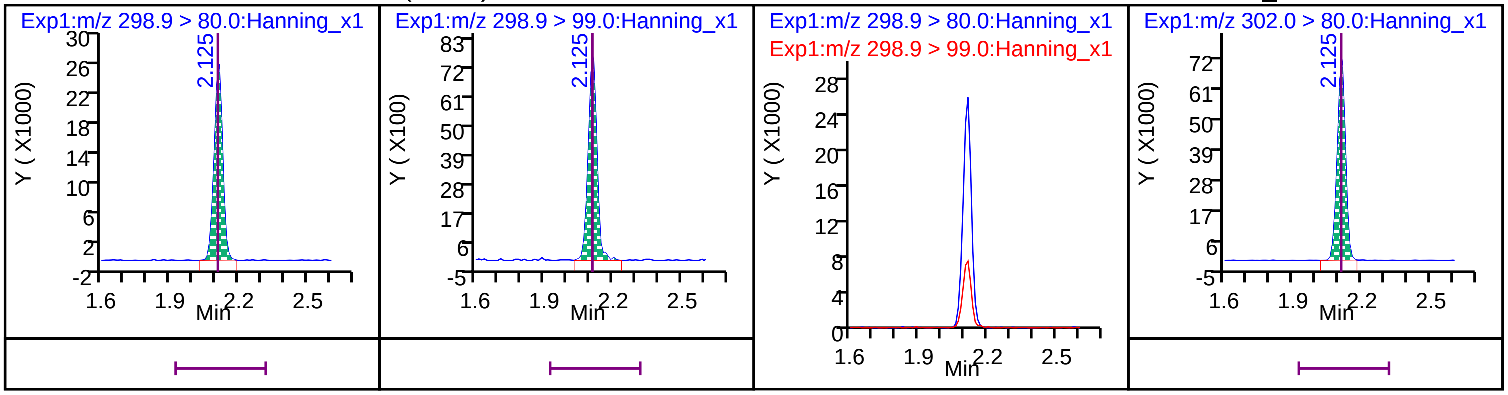
21 Perfluoro-n-pentanoic acid (PFPeA)



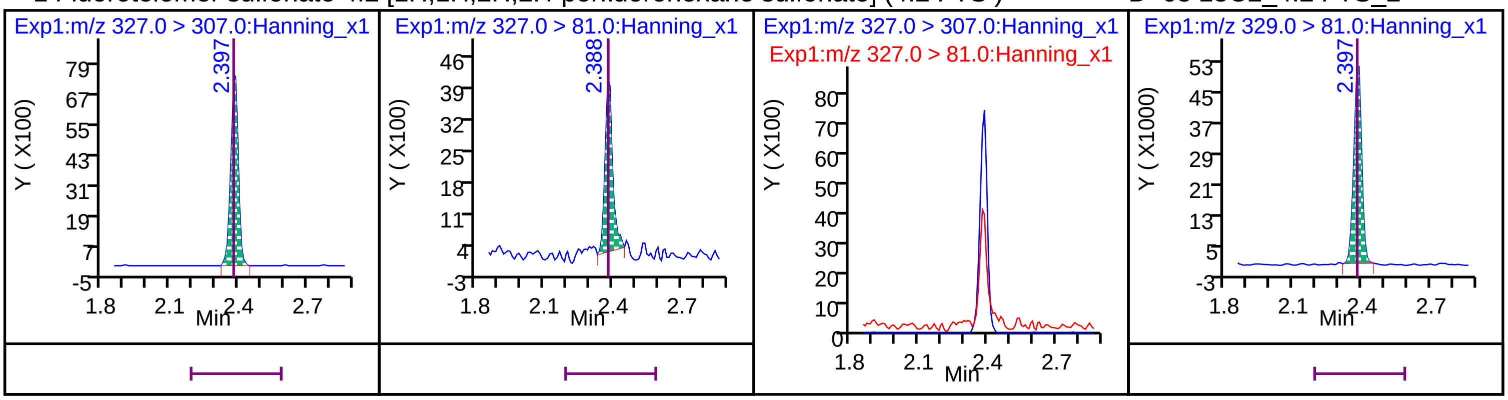
D 50 13C5_PFPeA



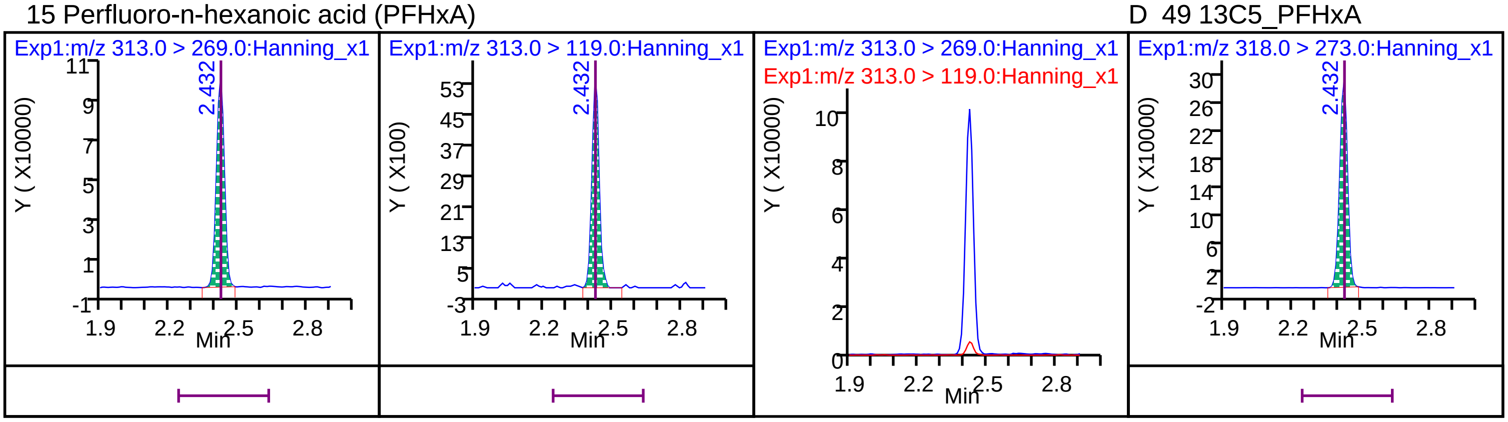
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



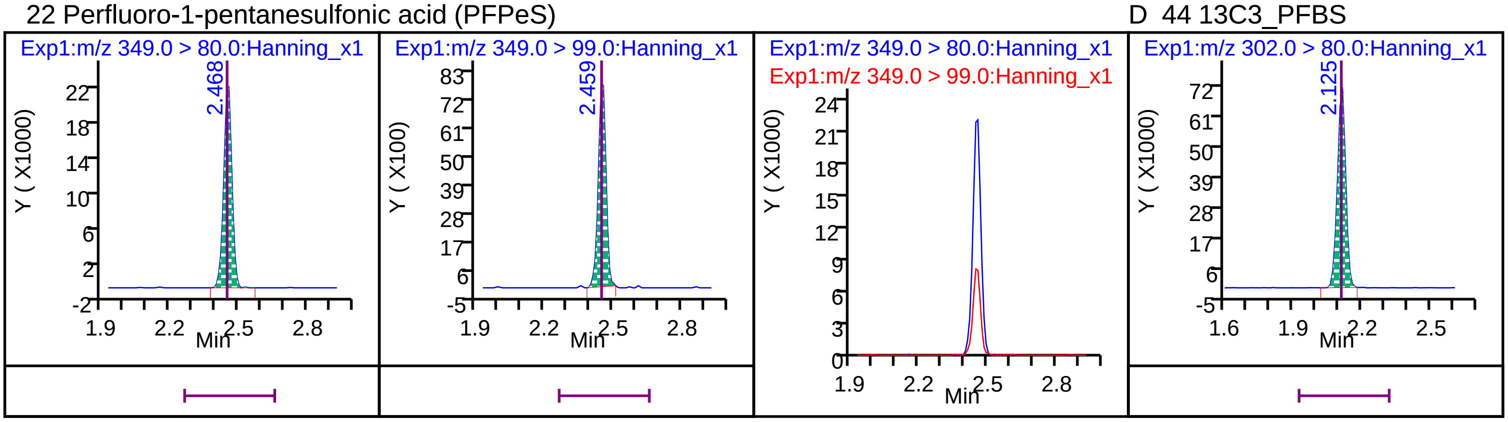
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



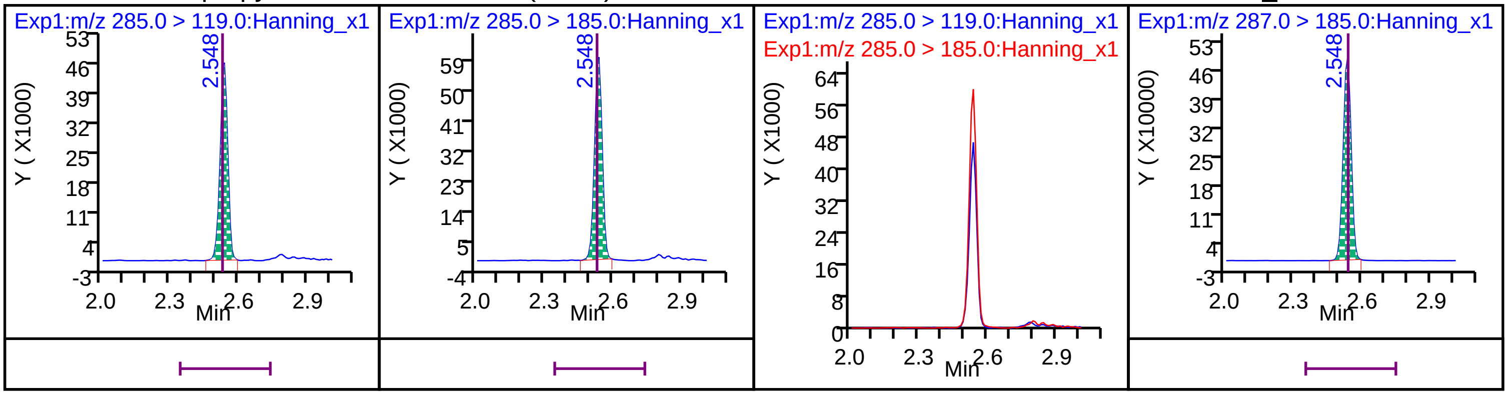
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



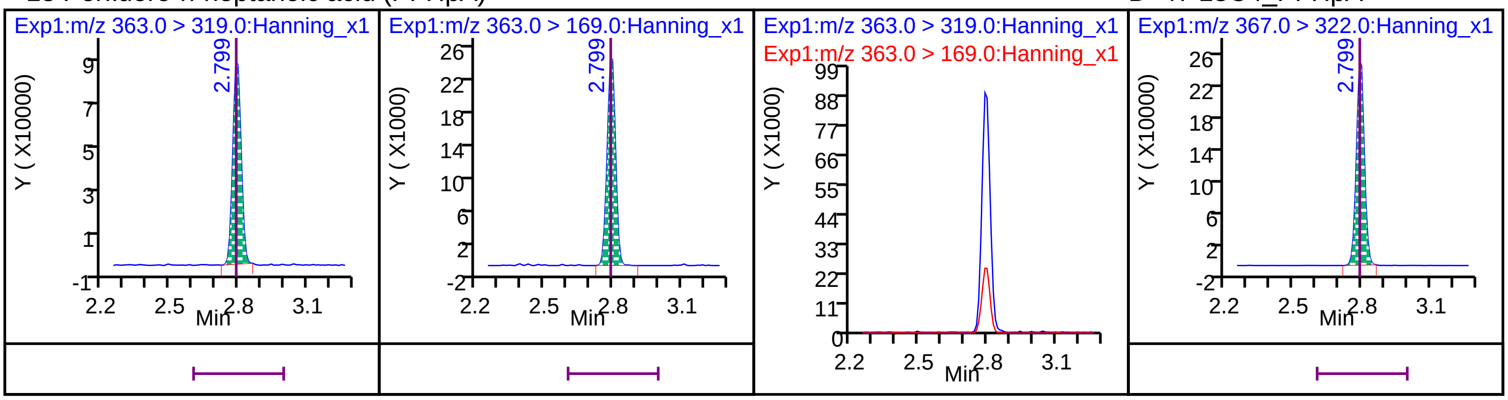
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



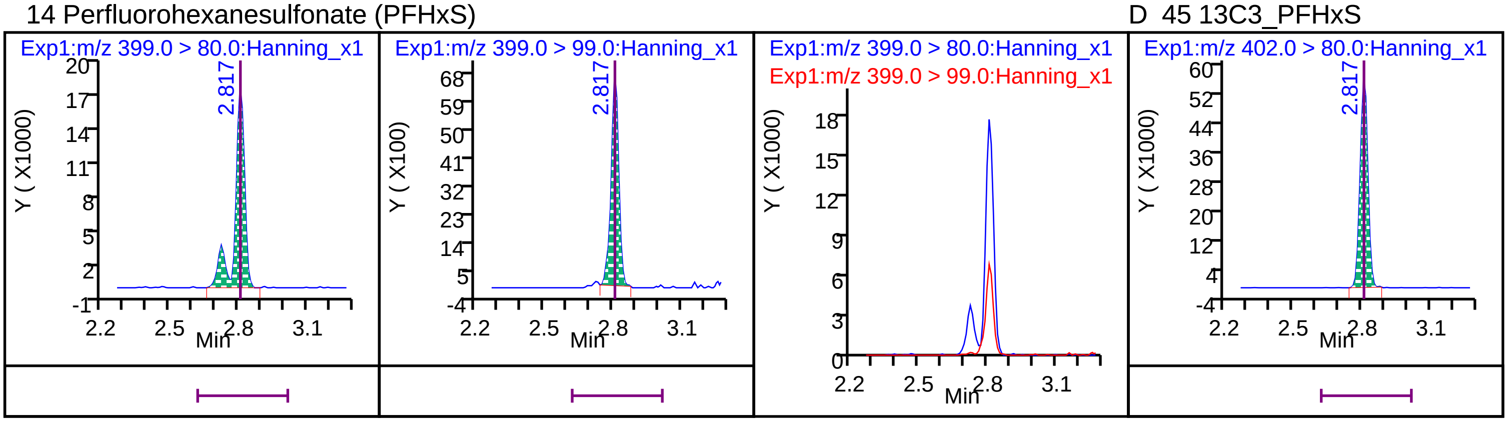
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



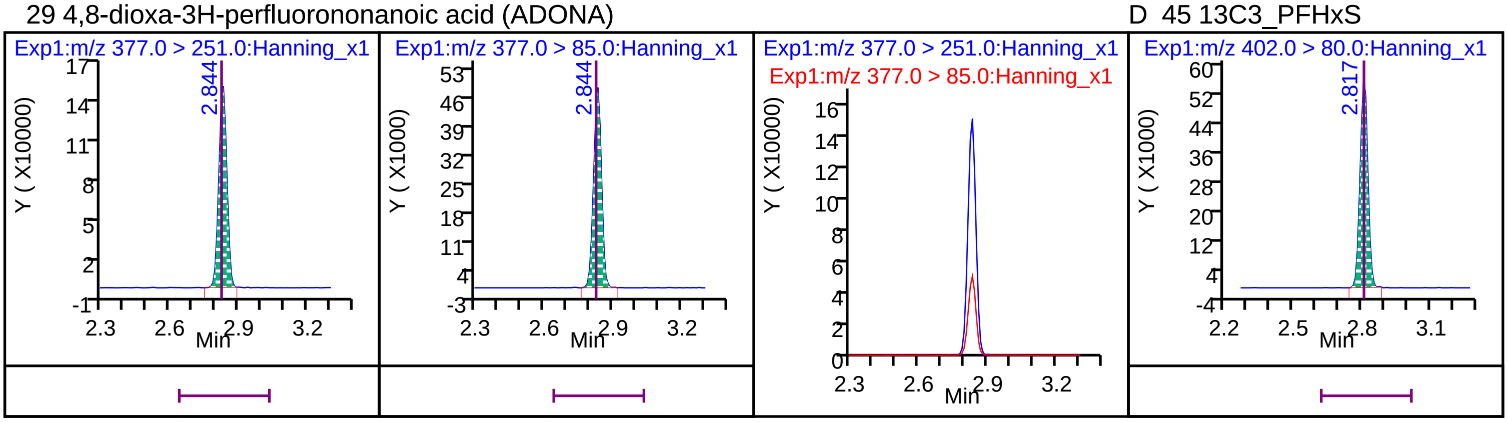
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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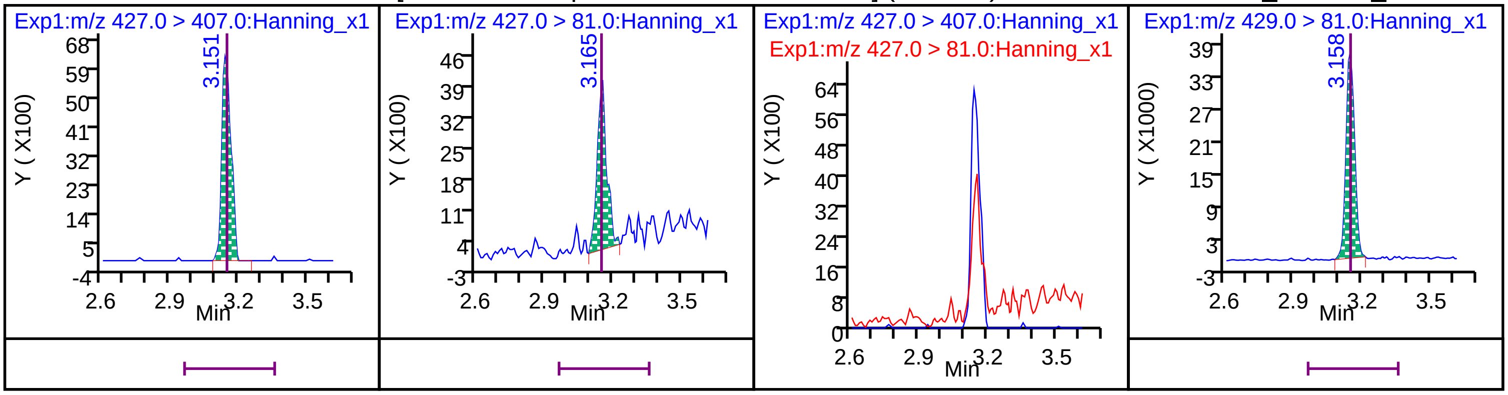
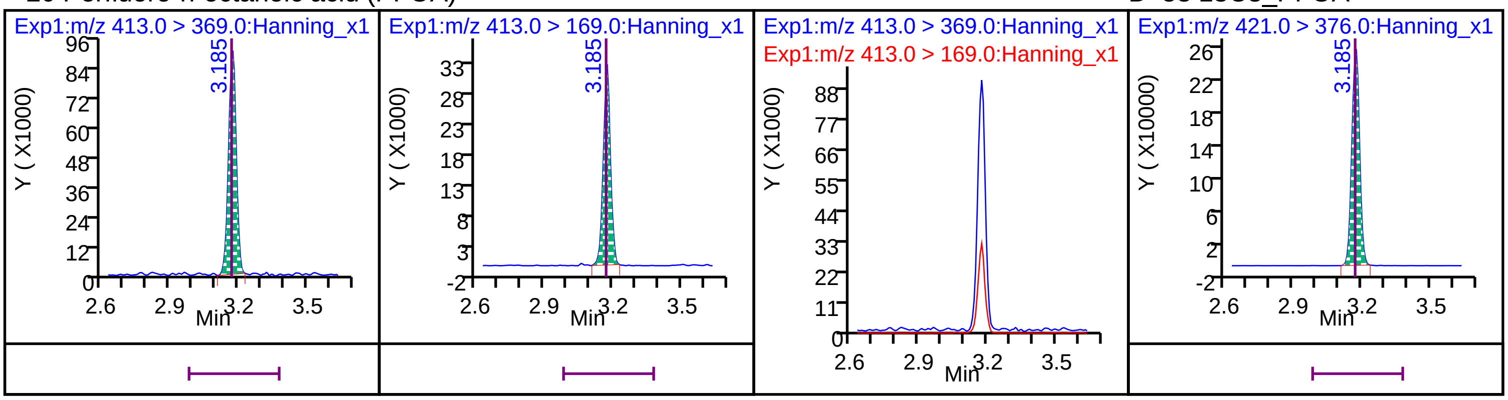
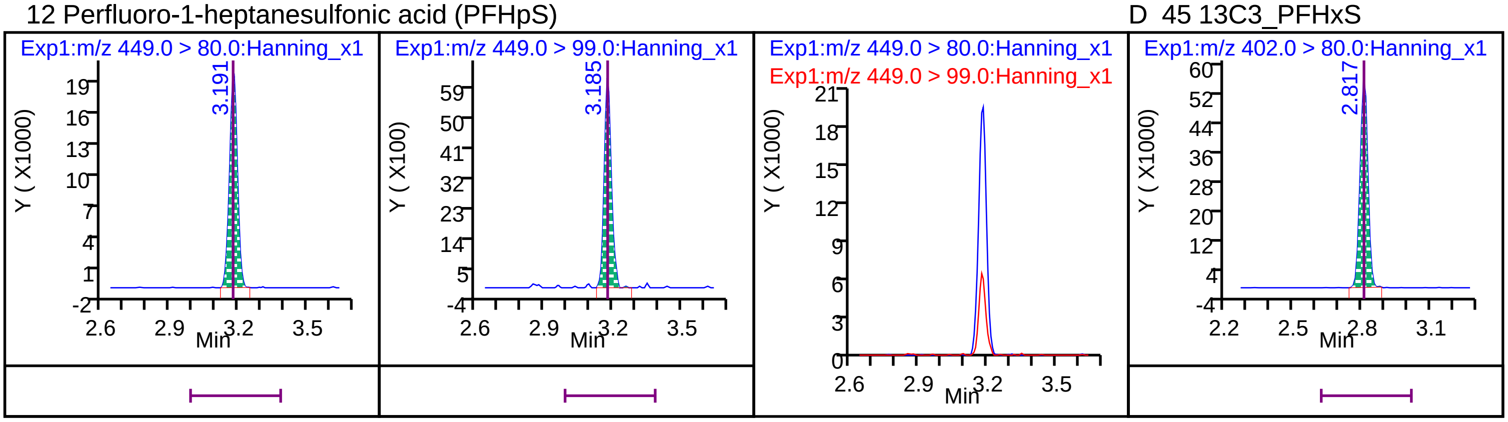
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



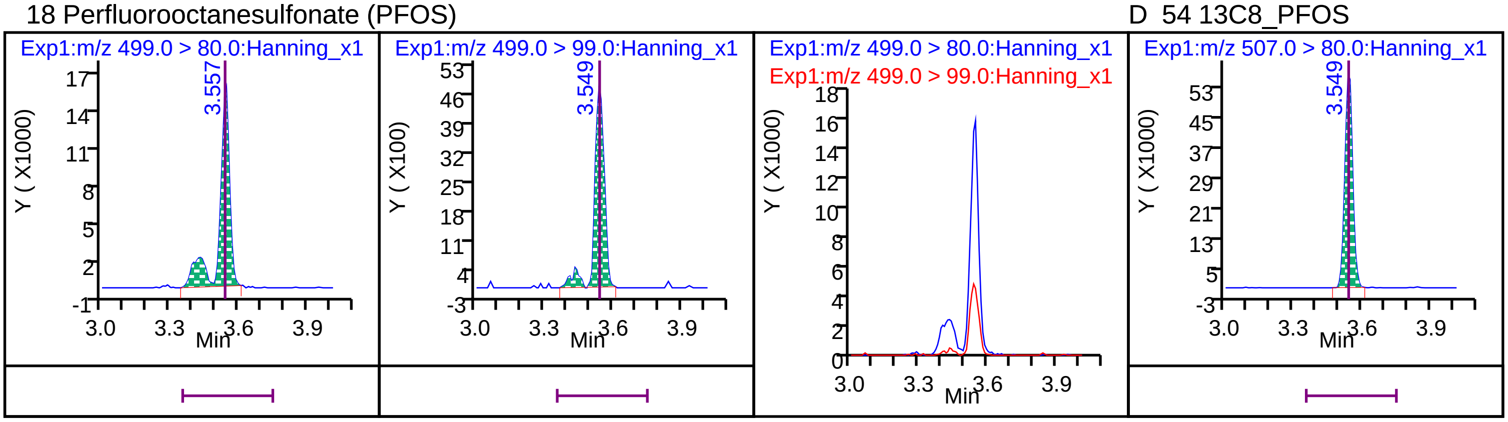
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



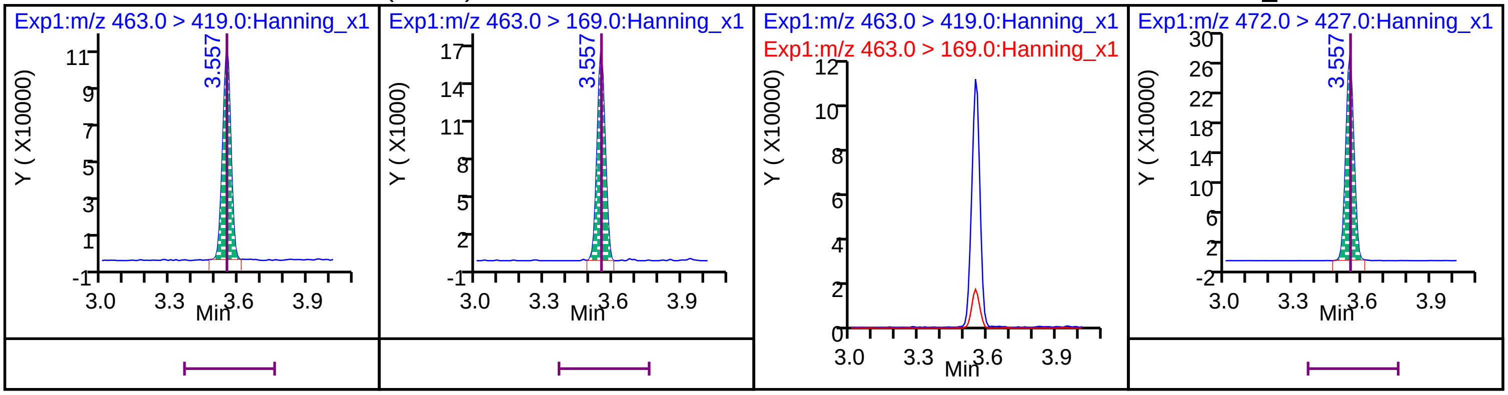
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



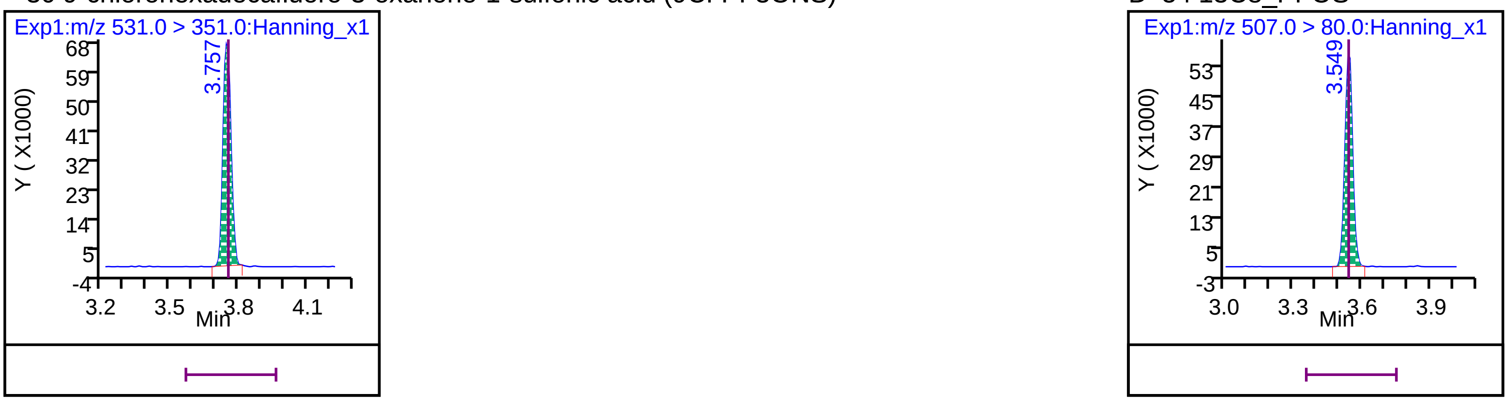
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



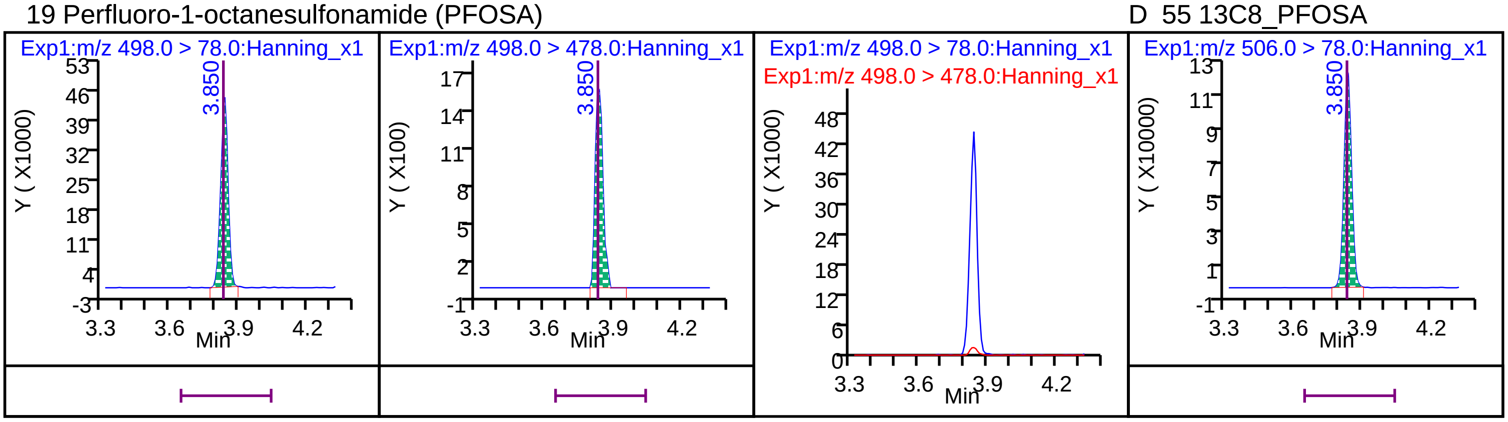
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



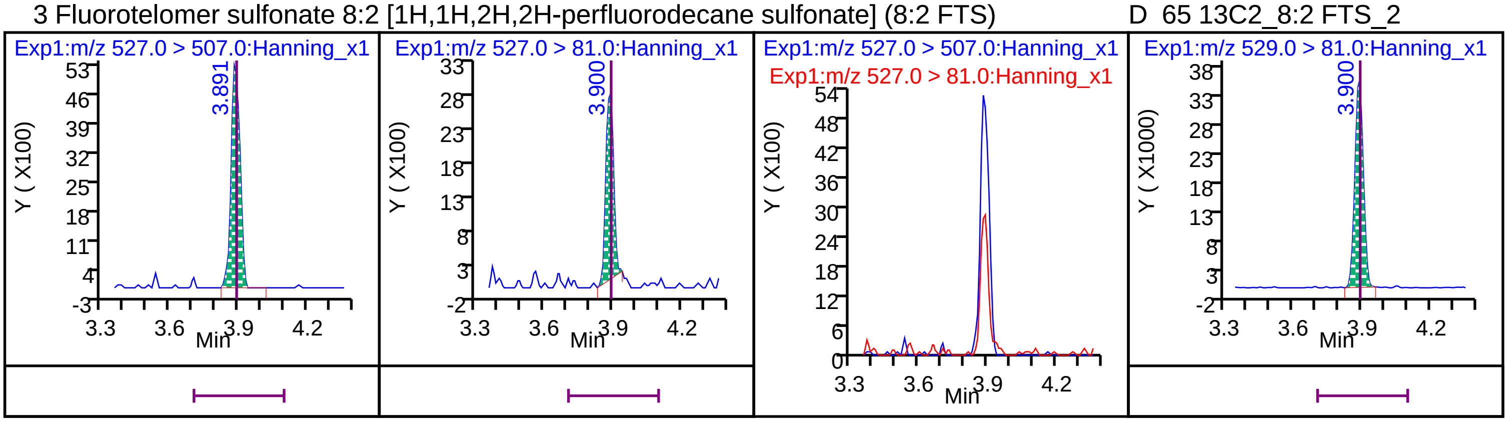
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

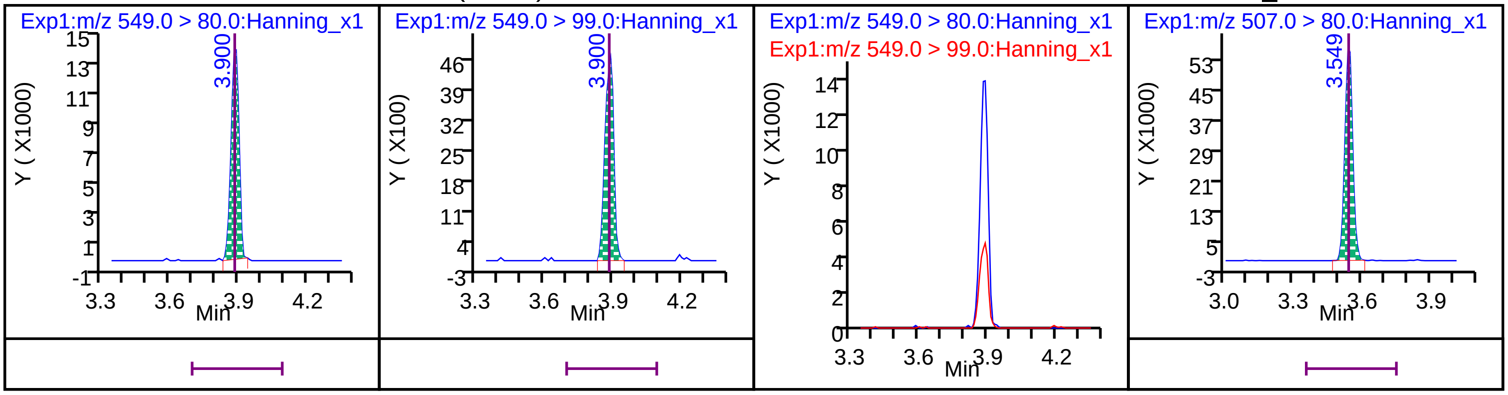


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

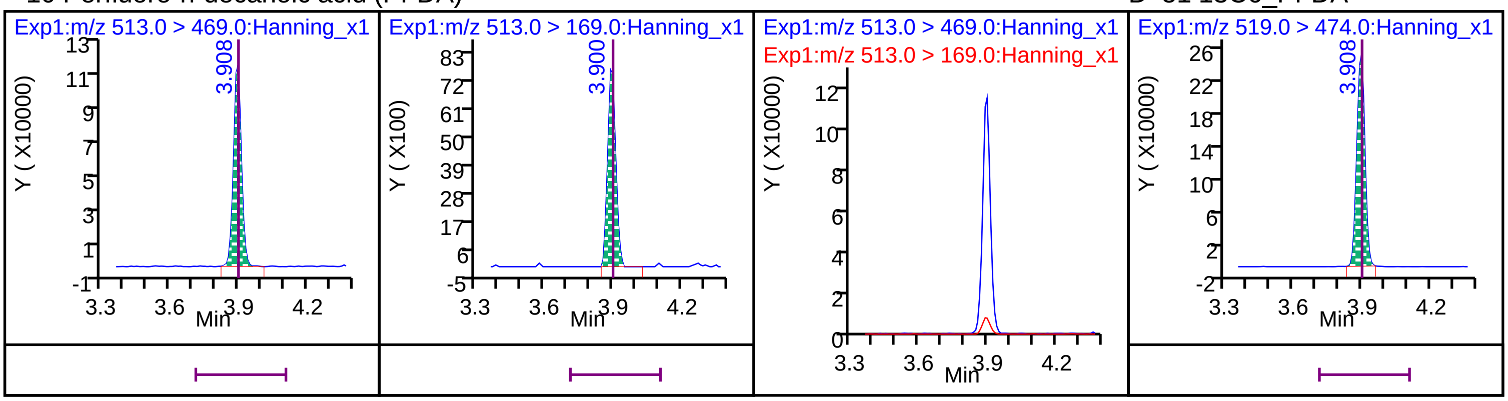


Report Date: 18-Nov-2021 18:21:00 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111721-DOD.b\111721020.d

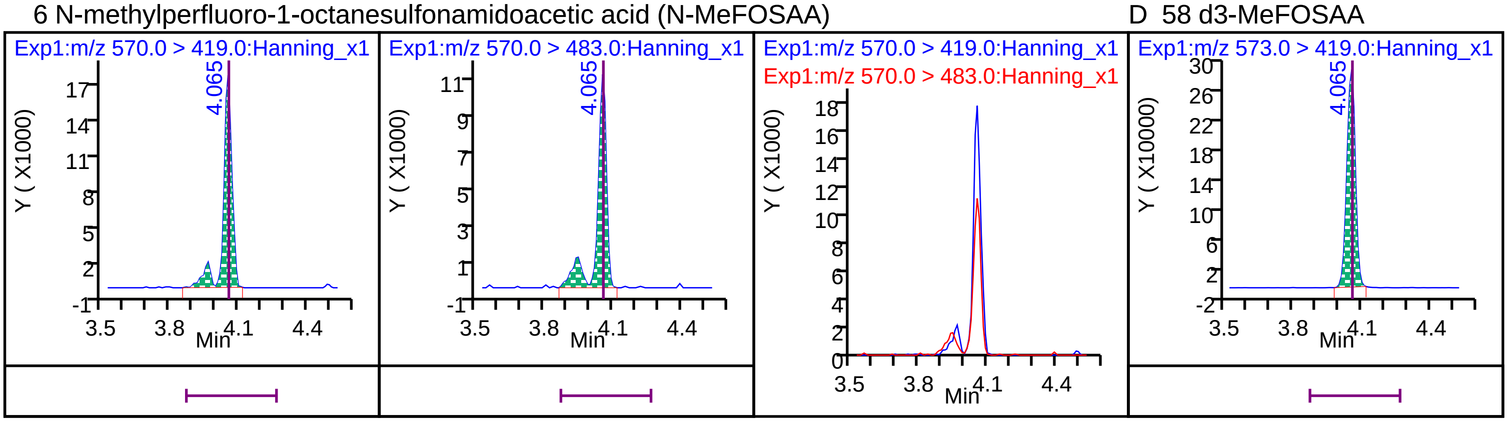
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



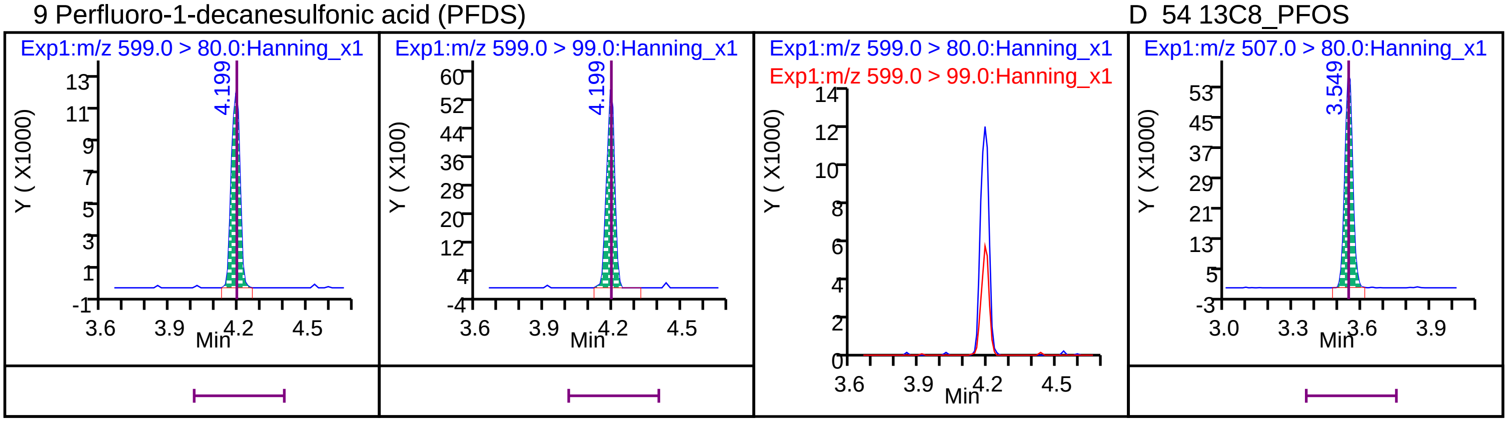
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



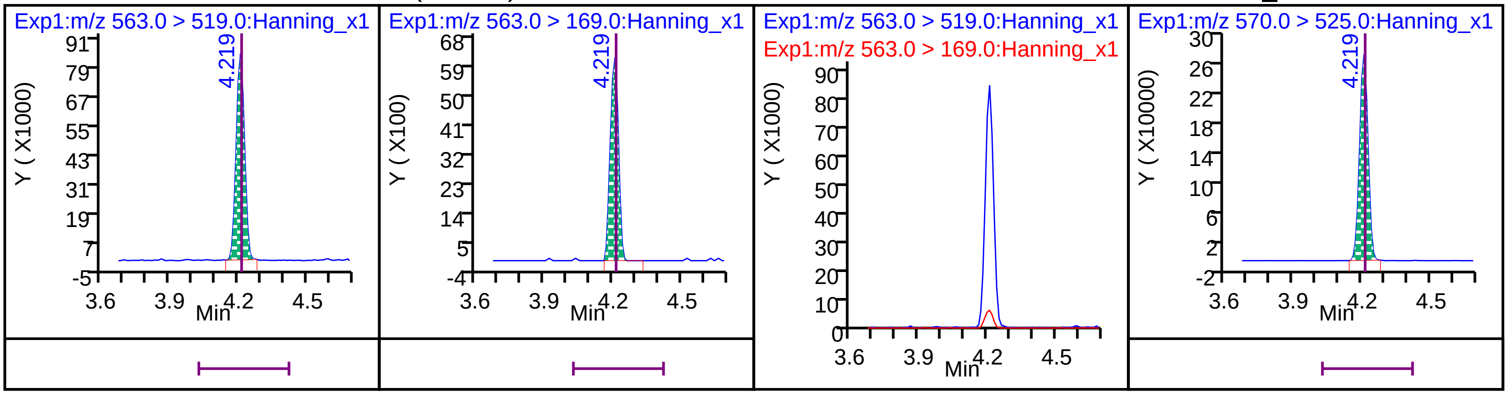
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



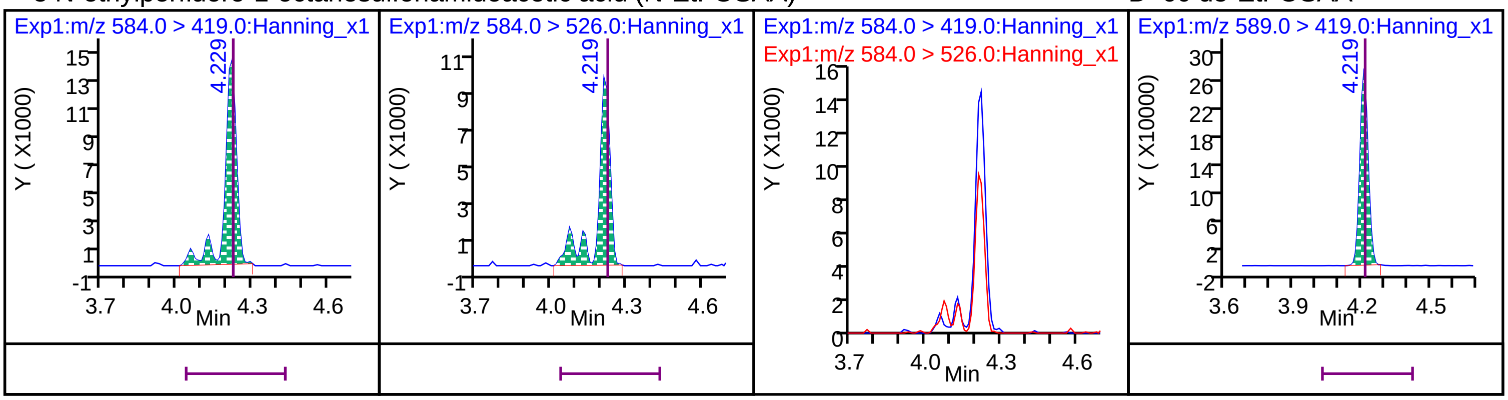
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



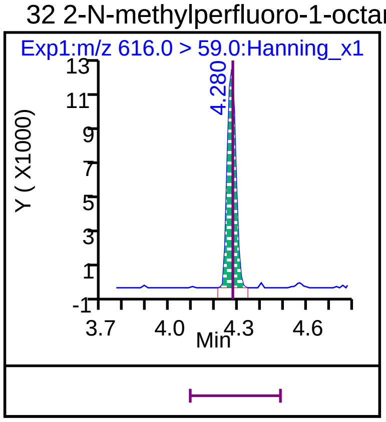
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

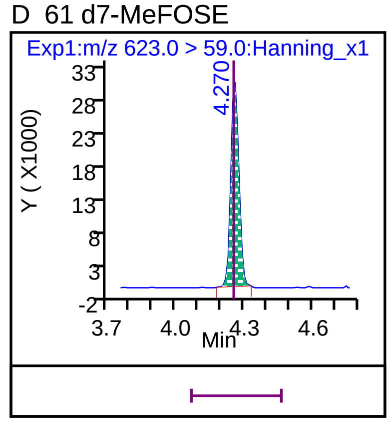


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

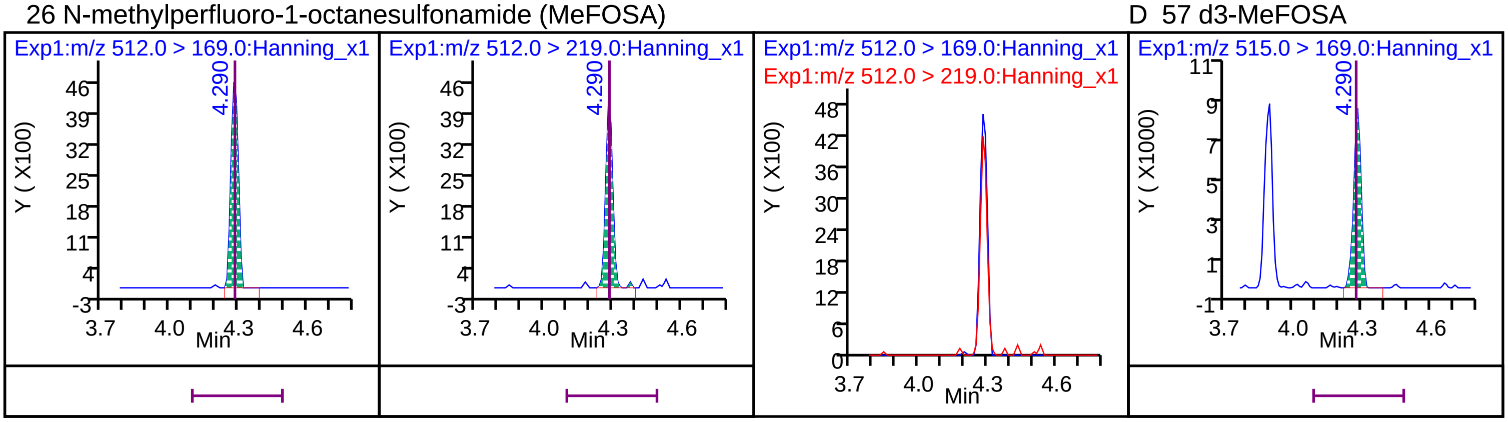


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

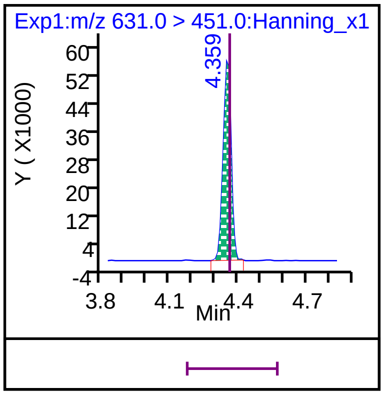




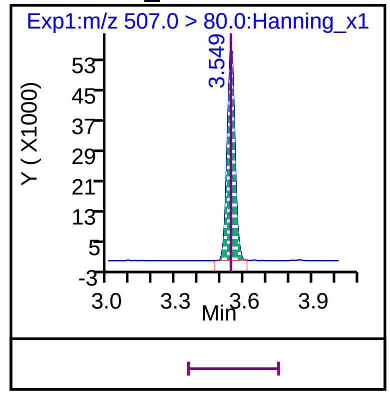
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



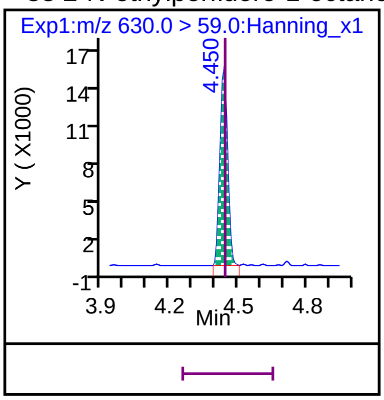
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



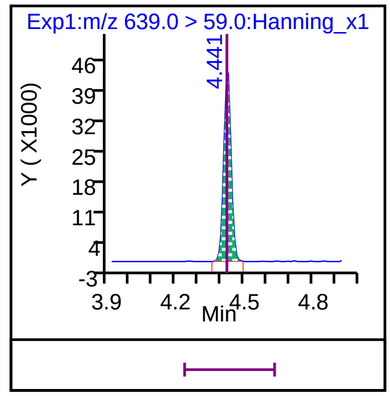
D 54 13C8_PFOS



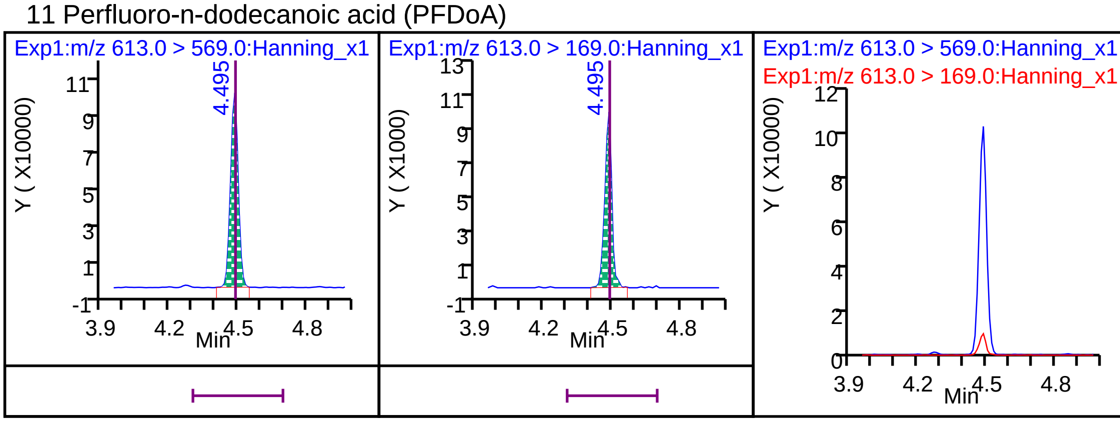
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



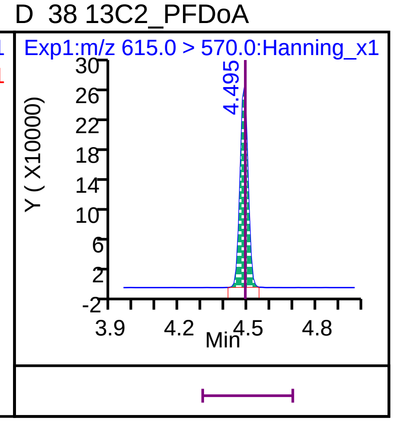
D 62 d9-EtFOSE



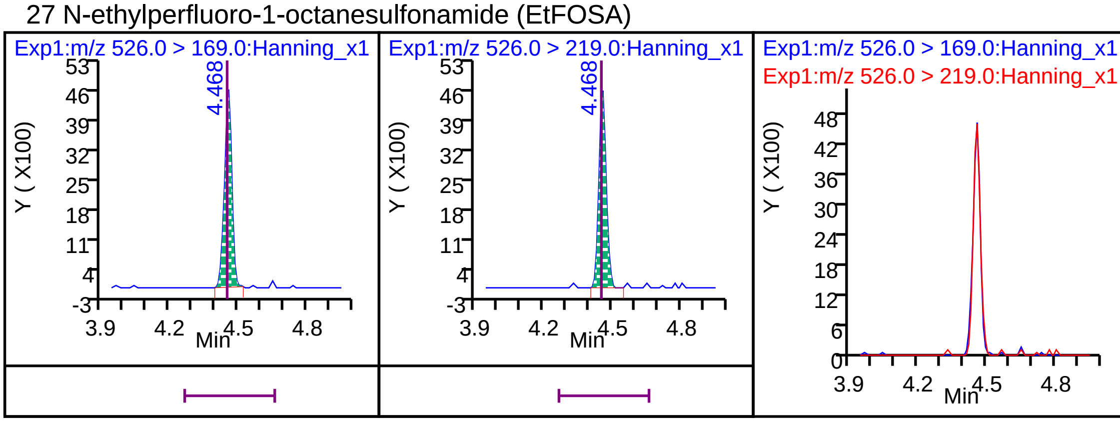
11 Perfluoro-n-dodecanoic acid (PFDoA)



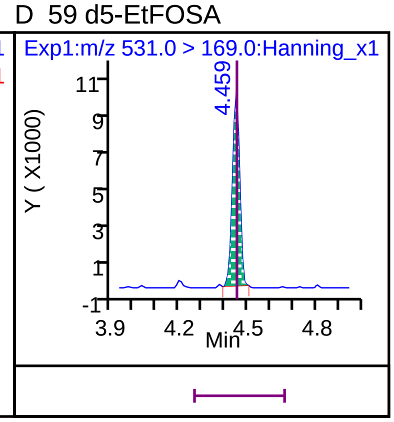
D 38 13C2_PFDoA



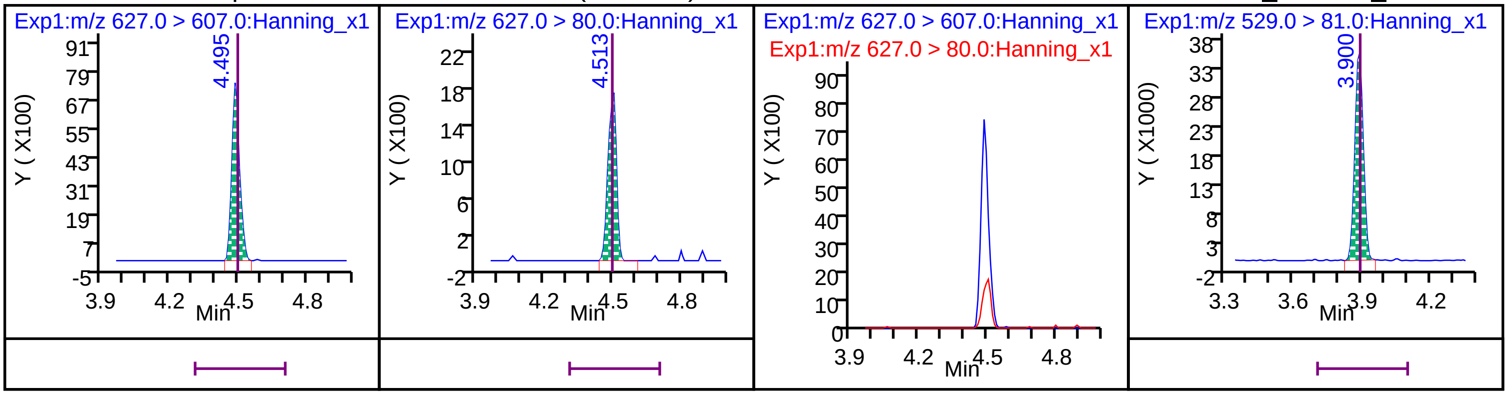
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



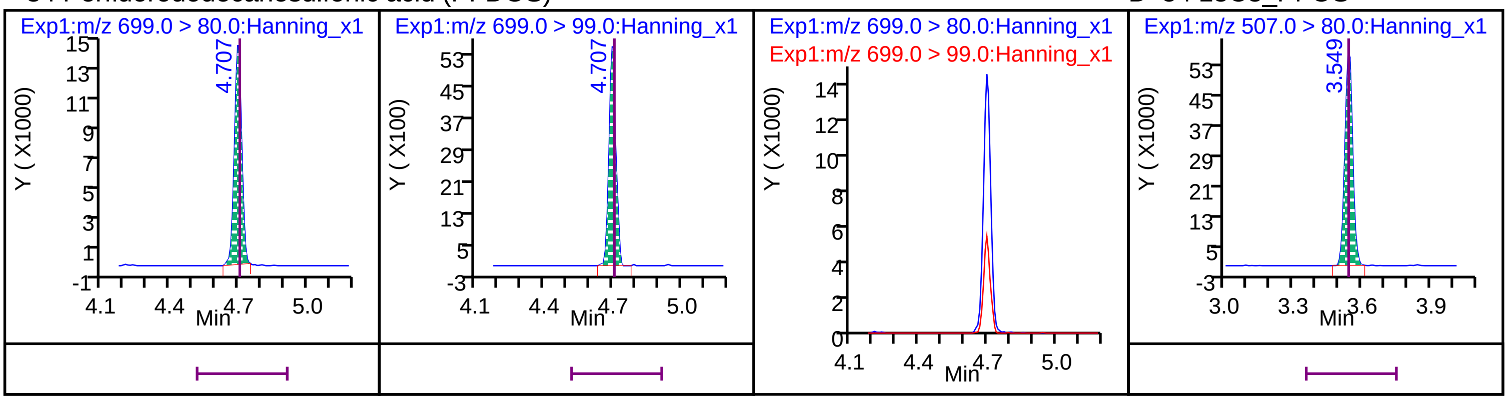
D 59 d5-EtFOSA



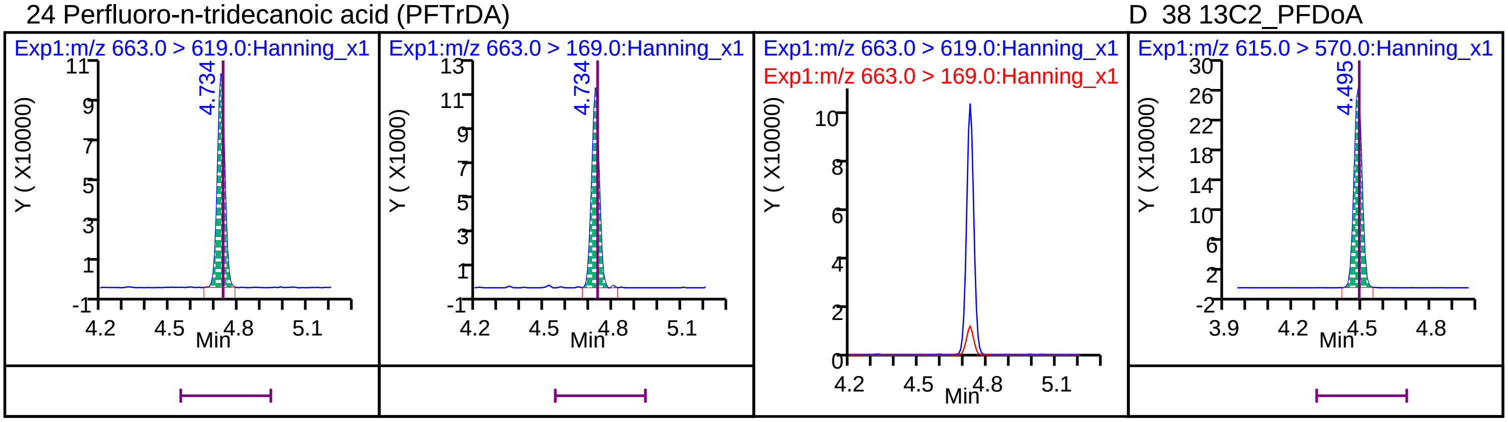
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



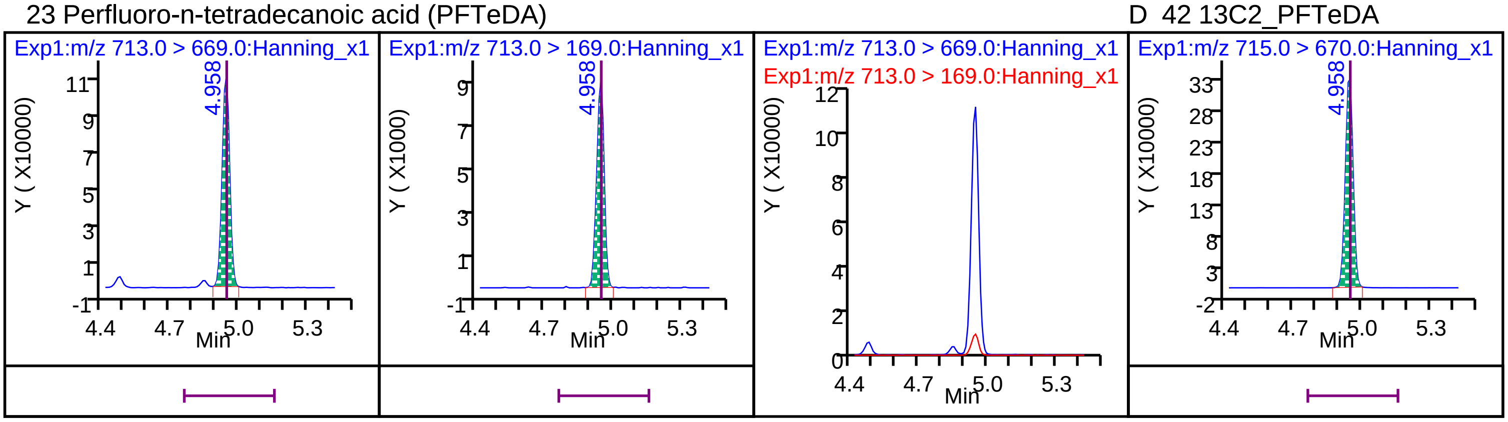
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



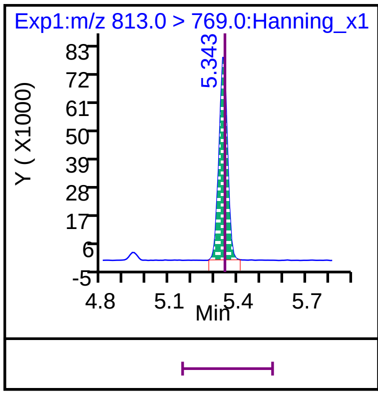
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

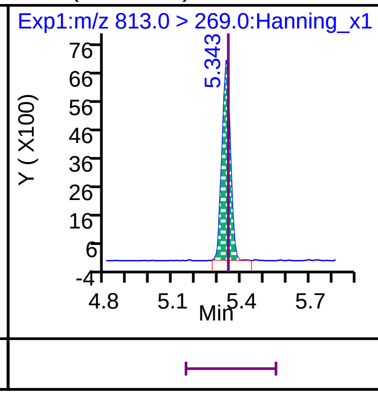


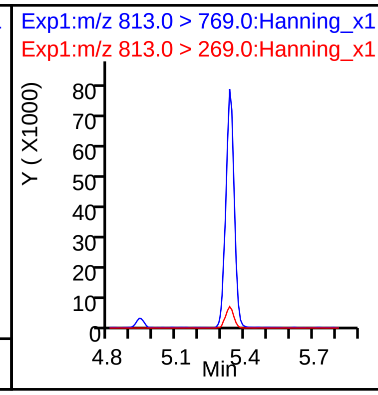
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



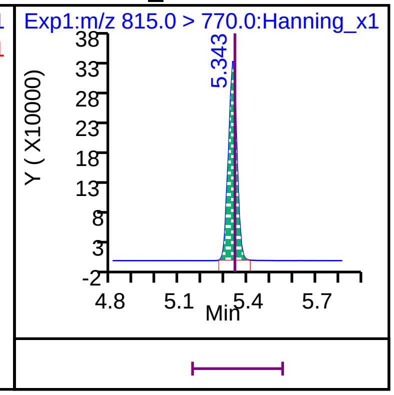
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



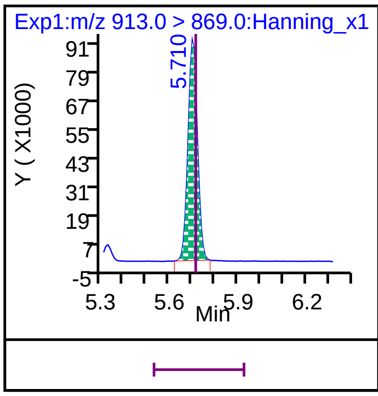


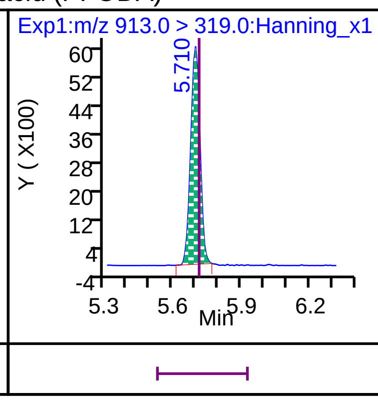


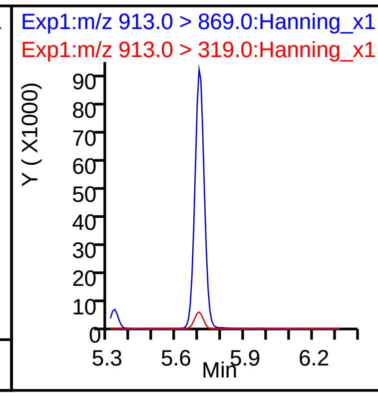
D 40 13C2_PFHxDA



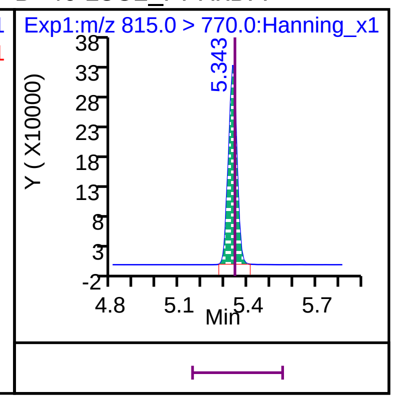
36 Perfluoro-n-octadecanoic acid (PFODA)



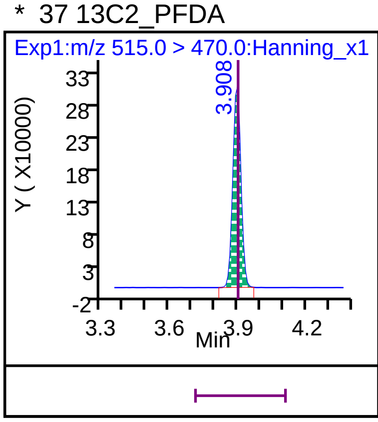




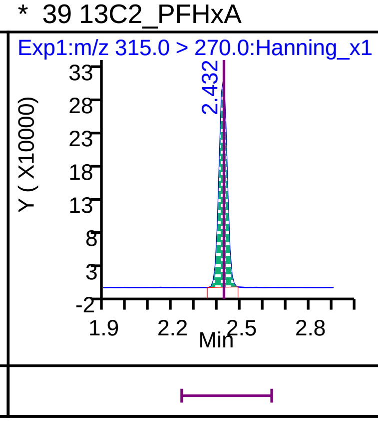
D 40 13C2_PFHxDA



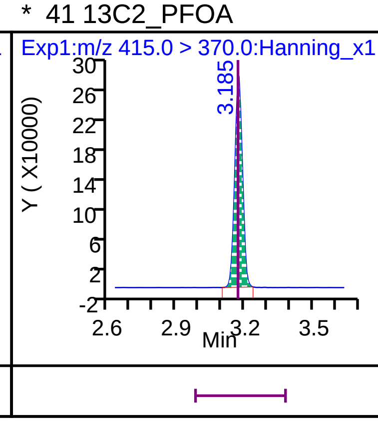
* 37 13C2_PFDA



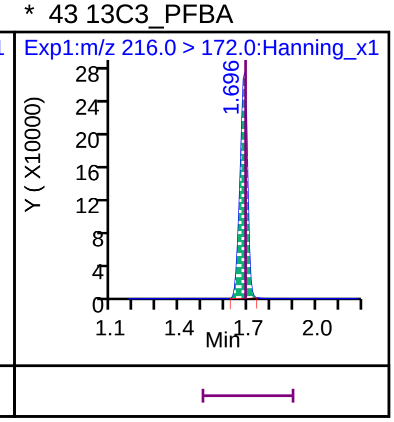
* 39 13C2_PFHxA



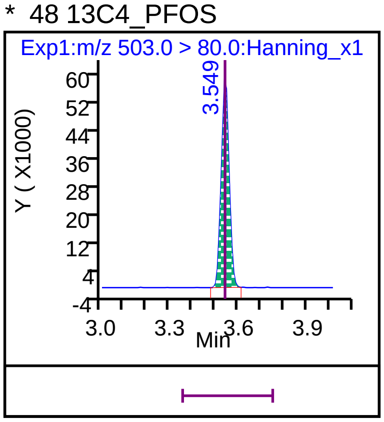
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



MISC. DATA

Extract Dilution Preparations

537	**1X**	**5X**	**10X**	**20X**	**50X**	**100X**	**200X**	**500X**	**1000X**	**2000X**
EXTRACT (uL)	950	200	100	50	20	10	20	8	4	2
IS (uL)	50	40	45	47.5	49	49.5	199	199.6	199.8	199.9
96% MeOH (uL)	-	760	855	902.5	931	940.5	3781	3792.4	3796.2	3798.1
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/Vol	1/(Vol*0.2)	1/(Vol*0.1)	1/(Vol*0.05)	1/(Vol*0.02)	1/(Vol*0.01)	1/(Vol*0.005)	1/(Vol*0.002)	1/(Vol*0.001)	1/(Vol*0.0005)

ID Aq	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	(1/0.91)* (FV/V_o)	5* (FV/V_o)	10* (FV/V_o)	20* (FV/V_o)	50* (FV/V_o)	100* (FV/V_o)	200* (FV/V_o)	500* (FV/V_o)	1000* (FV/V_o)	2000* (FV/V_o)

DAI	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
SAMPLE (uL)	700	140	70	35	14	7	14	5.6	2.8	1.4
SUR (uL)	25	25	25	25	25	25	100	100	100	100
MeOH (uL)	275	275	275	275	275	275	1100	1100	1100	1100
Water (uL)	0	560	630	665	686	693	2786	2794.4	2797.2	2798.6
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/.7	1/.14	1/.07	1/.035	1/.014	1/.007	4/.014	4/.0056	4/.0028	4/.0014

ID Solid	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	$((V_E/(M*S))/0.91)/1000$	$((V_E/(M*S))/0.2)/1000$	$((V_E/(M*S))/0.1)/1000$	$((V_E/(M*S))/0.05)/1000$	$((V_E/(M*S))/0.02)/1000$	$((V_E/(M*S))/0.01)/1000$	$((V_E/(M*S))/0.005)/1000$	$((V_E/(M*S))/0.002)/1000$	$((V_E/(M*S))/0.001)/1000$	$((V_E/(M*S))/0.0005)/1000$

NOTE: Dilutions of 100x or below will be prepped in 1-mL FV; dilutions higher than 100x and will be prepped in 4-mL FV.

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
75	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44	110721A12.d	ICal					Analytes	L-1	1.00		
76	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19	110721A13.d	ICal					Analytes	L-2	1.00		
77	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54	110721A14.d	ICal					Analytes	L-3	1.00		
78	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30	110721A15.d	ICal					Analytes	L-4	1.00		
79	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06	110721A16.d	ICal					Analytes	L-5	1.00		
80	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43	110721A17.d	ICal					Analytes	L-6	1.00		
81	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18	110721A18.d	ICal					Analytes	L-7	1.00		
82	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42	110721A19.d	ICal					Analytes	L-8	1.00		
83	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06	110721A20.d	ICal					Analytes	L-9	1.00		
84	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32	110721A21.d	ICal					Analytes	L-10	1.00		
85	ID IBLK B	07-Nov-2021 20:32:59	110721A22.d	InstBlk					Surrogates	Smp	0.1100		
86	F.L. ICV 500_SVLC-1734	07-Nov-2021 20:43:28	110721A23.d	ICV					Analytes	ICV	1.00		
87	ISOMER CHECK_SVLC-1652	07-Nov-2021 20:53:57	110721A24.d	CheckStd					IsomerCheck	Smp	1.00		
88	ID IBLK C	07-Nov-2021 21:04:26	110721A25.d	InstBlk					Surrogates	Smp	0.1100		SUR:8:2,EFOSAA,DoA(high)
15	ID CCV 1000_SVLC-1717	07-Nov-2021 23:42:08	110721A40.d	CCV					Analytes	L-5	1.00		
16	CCB 1	07-Nov-2021 23:52:38	110721A41.d	InstBlk					Surrogates	Smp	0.1100		
17	WQ21364-001	08-Nov-2021 00:03:10	110721A42.d	MBlk		Aqueous	1	21367	Surrogates	Smp	0.1100		
18	WQ21367-002	08-Nov-2021 00:13:41	110721A43.d	LCS		Aqueous	1	21367	Analytes	100x PDS	0.2000		
21	WJ28013-001	08-Nov-2021 00:45:23	110721A46.d	Client	EFF-5	Aqueous	1	21364	Surrogates	Smp	0.1100		
22	WJ28013-002	08-Nov-2021 00:55:51	110721A47.d	Client	EFF-5D	Aqueous	1	21364	Surrogates	Smp	0.1100		
23	WJ28013-003	08-Nov-2021 01:06:20	110721A48.d	Client	Field Blank 5	Aqueous	1	21364	Surrogates	Smp	0.1100		
24	WJ28014-001	08-Nov-2021 01:16:51	110721A49.d	Client	EFF-6	Aqueous	1	21364	Surrogates	Smp	0.1100		
25	WJ28014-002	08-Nov-2021 01:27:22	110721A50.d	Client	EFF-6D	Aqueous	1	21364	Surrogates	Smp	0.1100		
26	WJ28014-003	08-Nov-2021 01:37:53	110721A51.d	Client	Field Blank 6	Aqueous	1	21364	Surrogates	Smp	0.1100		
27	WJ28018-001	08-Nov-2021 01:48:24	110721A52.d	Client	EFF-7	Aqueous	1	21364	Surrogates	Smp	0.1100		
28	WJ28018-002	08-Nov-2021 01:58:57	110721A53.d	Client	EFF-7D	Aqueous	1	21364	Surrogates	Smp	0.1100		
29	ID CCV 1000A_SVLC-1744	08-Nov-2021 02:09:30	110721A54.d	CCV					Analytes	L-5	1.00		
30	CCB 2	08-Nov-2021 02:20:02	110721A55.d	InstBlk					Surrogates	Smp	0.1100		
33	WJ28018-003	08-Nov-2021 02:51:36	110721A58.d	Client	Field Blank 7	Aqueous	1	21364	Surrogates	Smp	0.1100		RR-1X
38	WK03079-001	08-Nov-2021 03:44:21	110721A63.d	Client	STEW-EFF2-110221	Aqueous	1	21297	Surrogates	Smp	0.1100		RR-1X
45	ID CCV 1000B_SVLC-1744	08-Nov-2021 04:58:07	110721A70.d	CCV					Analytes	L-5	1.00		POOR INJECTION, RR PREVIOUS/NEXT WINDOW

Report Date: 11-Nov-2021 20:41:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\111021-DOD.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	ID CCV 100_SVLC-1741	10-Nov-2021 13:49:27	111021005.d	CCV					Analytes	L-2	1.00		
96	ID CCV 200_SVLC-1742	10-Nov-2021 13:59:56	111021006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	10-Nov-2021 14:10:25	111021007.d	InstBlk					Surrogates	Smp	0.1100		
1	WQ21749-001	10-Nov-2021 14:20:57	111021008.d	MBlk		Aqueous	1	21749	Surrogates	Smp	0.1100		SUR:6:2(HIGH), RR TO CONFIRM
2	WQ21749-002	10-Nov-2021 14:31:25	111021009.d	LCS		Aqueous	1	21749	Analytes	100x PDS	0.2000		
3	WQ21639-002	10-Nov-2021 14:41:55	111021010.d	LCS		Aqueous	1	21639	Surrogates	Smp	0.1100		
4	WQ21515-001	10-Nov-2021 14:52:26	111021011.d	MBlk		Aqueous	1	21515	Surrogates	Smp	0.1100		
5	WJ16026-005	10-Nov-2021 15:02:56	111021012.d	Client	HBF-DPT0388-035.0-202110	Aqueous	1	21421	Surrogates	Smp	0.1100		SUR: 4:2(ND),6:2(DET),EFOSA(LOW),TeDA(LOW),RX
6	WK03035-003	10-Nov-2021 15:13:26	111021013.d	Client	SW3-DPT-0143-032.0-20211	Aqueous	1	21582	Surrogates	Smp	0.1100		Reporting 6:2 only
7	WJ12026-004	10-Nov-2021 15:23:57	111021014.d	Client	HBF-DPT0391-045.0-202110	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:4:2(ND),6:2(ND),NCM
8	WJ14015-017	10-Nov-2021 15:34:30	111021015.d	Client	HBF-DPT0390-045.0-202110	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:4:2(DET),6:2(DET),CENT,NCM
9	WJ16026-008	10-Nov-2021 15:45:04	111021016.d	Client	HBF-DPT0385-005.0-202110	Aqueous	100	21421	Surrogates	Smp	0.1100		
10	WK03035-006	10-Nov-2021 15:55:38	111021017.d	Client	SW3-DPT-0144-022.0-20211	Aqueous	5000	21582	Surrogates	Smp	0.1100		
14	ID CCV 1000_SVLC-1744	10-Nov-2021 16:37:42	111021021.d	CCV					Analytes	L-5	1.00		
15	CCB 1	10-Nov-2021 16:48:12	111021022.d	InstBlk					Surrogates	Smp	0.1100		
16	WJ27023-001	10-Nov-2021 16:58:43	111021023.d	Client	POL-DPT0129-012.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		
17	WJ27023-002	10-Nov-2021 17:09:14	111021024.d	Client	POL-DPT0129-022.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
18	WJ27023-003	10-Nov-2021 17:19:46	111021025.d	Client	POL-DPT0129-032.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		SUR:BA(LOW),4:2(ND),EFOSA,TeDA(low),MTX,NCM
19	WJ27023-004	10-Nov-2021 17:30:19	111021026.d	Client	POL-DPT0129-042.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		Multiple sur failures,RR/RX
20	WJ25007-001	10-Nov-2021 17:40:55	111021027.d	Client	HBF-DRUM220294-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-20X,SUR:4:2(DET),6:2(DET),RX?
21	WJ25007-002	10-Nov-2021 17:51:29	111021028.d	Client	HBF-DRUM220295-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-10X, sur: 4:2(det),8:2(det),confirmed by MS,NCM
22	WJ25007-002MS	10-Nov-2021 18:01:58	111021029.d	MS		Aqueous	1	21749	Analytes	100x PDS	0.2000		
23	WJ25007-003	10-Nov-2021 18:12:27	111021030.d	Client	HBF-DRUM220296-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-10X, 4:2(DET),6:2(DET),CONFIRMED BY DUP,NCM
24	WJ25007-003DU	10-Nov-2021 18:22:58	111021031.d	Client		Aqueous	1	21749	Surrogates	Smp	0.1100		
25	WJ25007-004	10-Nov-2021 18:33:29	111021032.d	Client	HBF-DRUM220297-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-20X,sur: 4:2(DET),6:2(DET)
26	ID CCV 1000A_SVLC-1744	10-Nov-2021 18:44:01	111021033.d	CCV					Analytes	L-5	1.00		
51	WJ16026-014	10-Nov-2021 23:07:42	111021058.d	Client	HBF-DPT0390-010.0-202110	Aqueous	50	21515	Surrogates	Smp	0.1100		RR-20X
52	WJ16026-017	10-Nov-2021 23:18:14	111021059.d	Client	HBF-DPT0390-045.0-202110	Aqueous	50	21515	Surrogates	Smp	0.1100		RR-5X
53	WJ16003-004	10-Nov-2021 23:28:46	111021060.d	Client	HBF-DPT0378-045.0-202110	Aqueous	50	21515	Surrogates	Smp	0.1100		RR-20X

Report Date: 22-Nov-2021 09:00:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\111621-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 16-Nov-2021 16:41:56 Cal End Date: 16-Nov-2021 18:16:36

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
1	F.L. ICAL 50_SVLC-1740	16-Nov-2021 16:41:56	111621015.d	ICal					Analytes	L-1	1.00		
2	F.L. ICAL 100_SVLC-1741	16-Nov-2021 16:52:24	111621016.d	ICal					Analytes	L-2	1.00		
3	F.L. ICAL 200_SVLC-1742	16-Nov-2021 17:02:54	111621017.d	ICal					Analytes	L-3	1.00		
4	F.L. ICAL 500_SVLC-1743	16-Nov-2021 17:13:24	111621018.d	ICal					Analytes	L-4	1.00		
5	F.L. ICAL 1000_SVLC-1744	16-Nov-2021 17:23:54	111621019.d	ICal					Analytes	L-5	1.00		
6	F.L. ICAL 2000_SVLC-1745	16-Nov-2021 17:34:24	111621020.d	ICal					Analytes	L-6	1.00		
7	F.L. ICAL 5000_SVLC-1746	16-Nov-2021 17:44:55	111621021.d	ICal					Analytes	L-7	1.00		
8	F.L. ICAL 10000_SVLC-1747	16-Nov-2021 17:55:28	111621022.d	ICal					Analytes	L-8	1.00		
9	F.L. ICAL 15000_SVLC-1748	16-Nov-2021 18:06:02	111621023.d	ICal					Analytes	L-9	1.00		
10	F.L. ICAL 20000_SVLC-1749	16-Nov-2021 18:16:36	111621024.d	ICal					Analytes	L-10	1.00		
11	ID IBLK B	16-Nov-2021 18:27:12	111621025.d	InstBlk					Surrogates	Smp	0.1100		
12	F.L. ICV 500_SVLC-1734	16-Nov-2021 18:37:42	111621026.d	ICV					Analytes	ICV	1.00		
13	ISOMER CHECK_SVLC-1754	16-Nov-2021 18:48:12	111621027.d	CheckStd					IsomerCheck	Smp	1.00		
14	ID IBLK C	16-Nov-2021 18:58:42	111621028.d	InstBlk					Surrogates	Smp	0.1100		
15	WQ22543-001	16-Nov-2021 19:09:13	111621029.d	MBlk		Aqueous	1	22543	Surrogates	Smp	0.1100		SUR:MFOSA(LOW),RR TO CONFIRM
16	WQ22543-002	16-Nov-2021 19:19:43	111621030.d	LCS		Aqueous	1	22543	Analytes	100x PDS	0.2000		SUR:EFOSA,MFOSA(LOW), RR TO CONFIRM
25	WJ27023-004	16-Nov-2021 20:54:30	111621039.d	Client	POL-DPT0129-042.0-202110	Aqueous	1	22543	Surrogates	Smp	0.1100		SUR:4:2(ND)EFOSA(LOW,CONFIRMS),RPT BOTH RUNS
26	WJ25007-004	16-Nov-2021 21:05:01	111621040.d	Client	HBF-DRUM220297-20211021	Aqueous	1	22543	Surrogates	Smp	0.1100		SUR:4:2(DET,CONFIRMS),NCM, RR-20X
27	ID CCV 1000_SVLC-1744	16-Nov-2021 21:15:33	111621041.d	CCV					Analytes	L-5	1.00		
41	ID CCV 1000A_SVLC-1744	16-Nov-2021 23:43:19	111621055.d	CCV					Analytes	L-5	1.00		
42	CCB 2	16-Nov-2021 23:53:48	111621056.d	InstBlk					Surrogates	Smp	0.1100		
45	WK05086-004	17-Nov-2021 00:25:23	111621059.d	Client	OU2-INF-1121A	Aqueous	1	22317	Surrogates	Smp	0.1100		
53	ID CCV 1000B_SVLC-1744	17-Nov-2021 01:49:47	111621067.d	CCV					Analytes	L-5	1.00		

Report Date: 18-Nov-2021 18:21:11 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\111721-DOD.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 16-Nov-2021 16:41:56 Cal End Date: 16-Nov-2021 18:16:36

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
96	ID CCV 200_SVLC-1742	17-Nov-2021 13:37:39	111721006.d	CCV					Analytes	L-2	1.00		
97	ID IBLK A	17-Nov-2021 13:48:08	111721007.d	InstBlk					Surrogates	Smp	0.1100		
99	ID CCV 100A_SVLC-1741	17-Nov-2021 14:35:52	111721010.d	CCV					Analytes	L-2	1.00		
100	ID CCV 100B_SVLC-1741	17-Nov-2021 14:46:31	111721011.d	CCV					Analytes	L-2	1.00		
97	ID IBLK B	17-Nov-2021 14:57:09	111721012.d	InstBlk					Surrogates	Smp	0.1100		
1	WQ22682-001	17-Nov-2021 15:18:11	111721014.d	Client		Aqueous	1	22682	Surrogates	Smp	0.1100		
2	WQ22682-002	17-Nov-2021 15:28:40	111721015.d	LCS		Aqueous	1	22682	Analytes	100x PDS	0.2000		
3	WK12048-004	17-Nov-2021 15:39:09	111721016.d	Client	FT007P-DPT2-06D-GW-11122	Aqueous	1	22682	Surrogates	Smp	0.1100		SUR:6:2(DET,CONFIRMS),NCM
4	ID CCV 1000_SVLC-1744	17-Nov-2021 15:49:40	111721017.d	CCV					Analytes	L-5	1.00		
5	CCB 1	17-Nov-2021 16:00:11	111721018.d	InstBlk					Surrogates	Smp	0.1100		
6	WQ22543-001	17-Nov-2021 16:10:41	111721019.d	MBlk		Aqueous	1	22543	Surrogates	Smp	0.1100		low HxDA rec% NCM/RX affected samples
7	WQ22543-002	17-Nov-2021 16:21:12	111721020.d	LCS		Aqueous	1	22543	Analytes	100x PDS	0.2000		high meFOSA rec%,
12	WJ25007-004	17-Nov-2021 17:14:00	111721025.d	Client	HBF-DRUM220297-20211021	Aqueous	20	22543	Surrogates	Smp	0.1100		
21	ID CCV 1000A_SVLC-1744	17-Nov-2021 18:48:46	111721034.d	CCV					Analytes	L-5	1.00		
22	CCB 2	17-Nov-2021 18:59:16	111721035.d	Client		Aqueous	1		Surrogates	Smp	0.1100		
23	WK16031-001	17-Nov-2021 19:09:46	111721036.d	Client	FT007P-DPT2-05S-GW-11122	Aqueous	1	22682	Surrogates	Smp	0.1100		RR 20X
24	WK16031-002	17-Nov-2021 19:20:16	111721037.d	Client	FT007P-DPT2-08S-GW-11122	Aqueous	1	22682	Surrogates	Smp	0.1100		RR 10X
25	WK16031-003	17-Nov-2021 19:30:48	111721038.d	Client	FT007P-DPT2-09S-GW-11122	Aqueous	1	22682	Surrogates	Smp	0.1100		RR 50X
26	WK16031-004	17-Nov-2021 19:41:20	111721039.d	Client	FT007P-DPT2-10S-GW-11122	Aqueous	1	22682	Surrogates	Smp	0.1100		NOT GOOD, NO SIGNAL
27	WK16031-005	17-Nov-2021 19:51:52	111721040.d	Client	FT001P-SHAW01-MW116A-00-	Aqueous	1	22682	Surrogates	Smp	0.1100		
28	WK16031-006	17-Nov-2021 20:02:24	111721041.d	Client	FT007P-DPT2-06S-GW-11122	Aqueous	1	22682	Surrogates	Smp	0.1100		
29	WK16031-007	17-Nov-2021 20:12:58	111721042.d	Client	FT007P-FRB-01-111221	Aqueous	1	22682	Surrogates	Smp	0.1100		
30	WK16031-008	17-Nov-2021 20:23:30	111721043.d	Client	FT007P-EB-01-111221	Aqueous	1	22682	Surrogates	Smp	0.1100		
31	WK16031-009	17-Nov-2021 20:34:06	111721044.d	Client	FT001P-SHAW01-MW116-00-1	Aqueous	1	22682	Surrogates	Smp	0.1100		
32	WK16031-010	17-Nov-2021 20:44:36	111721045.d	Client	FT001P-SHAW01-MW116-01-1	Aqueous	1	22682	Surrogates	Smp	0.1100		
33	ID CCV 1000B_SVLC-1744	17-Nov-2021 20:55:05	111721046.d	CCV					Analytes	L-5	1.00		
34	CCB 3	17-Nov-2021 21:05:37	111721047.d	InstBlk					Surrogates	Smp	0.1100		
35	WK16031-011	17-Nov-2021 21:16:10	111721048.d	Client	FT001P-FRB-01-111221	Aqueous	1	22682	Surrogates	Smp	0.1100		
36	WK16031-012	17-Nov-2021 21:26:42	111721049.d	Client	FT001P-SHAW01-MW112A-00-	Aqueous	1	22682	Surrogates	Smp	0.1100		
37	WK16031-013	17-Nov-2021 21:37:15	111721050.d	Client	FT001P-SHAW01-MW112-00-1	Aqueous	1	22682	Surrogates	Smp	0.1100		RR 50X
38	ID CCV 1000C_SVLC-1744	17-Nov-2021 21:47:49	111721051.d	CCV					Analytes	L-5	1.00		

Analyst: ASD **Level 2 Analyst:** N/A

Status: Level 1 review released

Matrix: Aqueous

Printed: 11/22/21 0807

Prep Batch: 21749

PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/09/2021 1014
End Date: 11/09/2021 1531

Conc Analyst: ASD
Conc Start Date: 11/09/2021 0852
Conc End Date: 11/09/2021 0852

Ext Solvent: 96%MEOH/4%H2O
Reagents Vol. (mL): 10
Chem ID: 21-2252>21-2252/21-2505

Surrogate: SVLG-1736
Surrogate Vol. (mL): 0.110

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WQ21749-001	MB		1	PFAS by ID SOP QSM B-15	280	30	250		0.000	10.0	MB init:280.61g,fin:g;LCS init:274.75g,fin:g;
WQ21749-002	LCS		1	PFAS by ID SOP QSM B-15	280	30	250	SVLG-1731	0.200	10.0	Sorbent dry start/end:1st: 1423/1428 Buffer:SV21-786; Amm-MeOH SV21-791(4mL); QC Water: PFAS-21-010;
W027023-001	Sample	PCL-DPT0129-012.0-20211022	1	PFAS by ID SOP QSM B-15	25	0	25		0.000	10.0	init:299.60g,fin:32.40g;
W027023-002	Sample	PCL-DPT0129-022.0-20211022	1	PFAS by ID SOP QSM B-15	309.45	31.51	278		0.000	10.0	Bottletop#329; Pipettes:21-1288,21-1707; QC Bottles: M-1-259-02BB; GCB/WAX 500/50:21-2327;
W027023-003	Sample	PCL-DPT0129-032.0-20211022	1	PFAS by ID SOP QSM B-15	320.47	77.72	243		0.000	10.0	Reservoirs:21-1930; Elution tubes:21-1415; Falcon tubes:21-1651; Centrifuge tubes:21-2028; Storage bottles:21-2556;
W027023-004	Sample	PCL-DPT0129-042.0-20211022	1	PFAS by ID SOP QSM B-15	319.29	32.08	287		0.000	10.0	MeOH Ext:4mL, Filt:2mL; IS: SVLG-1727(0.010mL); ASV/Caps: 21-1476/21-1813;
W025007-001	Sample	HBF-DRUM220294-20211021	1	PFAS by ID SOP QSM B-15	323.32	32.45	291		0.000	10.0	
W025007-002	Sample	HBF-DRUM220295-20211021	1	PFAS by ID SOP QSM B-15	308.67	32.62	276		0.000	10.0	
W025007-002MS	MS		1	PFAS by ID SOP QSM B-15	304.71	32.58	272	SVLG-1731	0.200	10.0	
W025007-003	Sample	HBF-DRUM220296-20211021	1	PFAS by ID SOP QSM B-15	313.06	32.35	281		0.000	10.0	
W025007-003DU	Duplicate		1	PFAS by ID SOP QSM B-15	302.02	32.49	270		0.000	10.0	
W025007-004	Sample	HBF-DRUM220297-20211021	1	PFAS by ID SOP QSM B-15	318.15	32.51	286		0.000	10.0	

(end of report) **Total Samples: 8**

Analyst: ALM **Level 2 Analyst:** N/A

Status: Level 1 review released

Matrix: Aqueous

Printed: 11/22/21 0808

Prep Batch: 22543

PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/15/2021 1738
End Date: 11/15/2021 2359

Conc Analyst: ALM
Conc Start Date: 11/15/2021 0000
Conc End Date: 11/15/2021 0000

Ext Solvent: MEOH>96%MEOH/4%H2O
Reagents Vol. (mL): 10
Chem ID: 21-2252>21-2252/21-2505

Surrogate: SVLG-1752
Surrogate Vol. (mL): 0.110

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WQ22543-001	MB		1	PFAS by ID SOP QSM B-15	250		250		0.000	10.0	Init: 276.12g; Final: 32.14g; Shared with Batch 22544; NCM63588
WQ22543-002	LCS		1	PFAS by ID SOP QSM B-15	250		250	SVLG-1738	0.200	10.0	Init: 286.73g; Final: 31.94g
WJ27023-004	Sample	PCL-DPT0129-042.0-20211022	2	PFAS by ID SOP QSM B-15	322.42	32.22	290		0.000	10.0	NCM63587
WJ25007-004	Sample	HBF-DRUM220297-20211021	3	PFAS by ID SOP QSM B-15	310.2	32.59	278		0.000	10.0	Prep info in Batch 22544

(end of report) **Total Samples: 2**

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 9/15/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1652
Mix Name: ISOMER CHECK STD
Solvent ID #: SV21-702
Solvent Name: Methanol/Water

Level 2 Reviewed by: ARC2
Date: 9/15/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Isomer Check 50X Mix	SVLC-0588	1,000	20	2	10	1	-	3/11/2019	2/7/2020
ID IS 20ppb	SVLC-1648	20	100		1	1	-	9/13/2021	4/14/2022
ID SUR 20ppb	SVLC-1633	20	100		1	1	-	9/2/2021	6/15/2022
96% Methanol	SV21-702	pure	1,780		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	MMM	Mix ID #:	SVLC- 1717	Level 2 Reviewed by:	ALM
Prep. Date:	10/19/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	10/23/2021
Exp. Date:	6/15/2022	Solvent ID #:	21-758		
Pipet ID:	20-2533,20-1360	Solvent Name:	96% Methanol		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1710	20,000	750	15	1000	1,2	-	10/12/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	750		1000	1	-	10/16/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	750		1000	1	-	10/13/2021	10/13/2022
96% Methanol	21-758	pure	12,750		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: arc2
Prep. Date: 11/01/21
Exp. Date: 11/19/21
Pipet ID: 21-1600

Mix ID #: SVLC- 1731
Mix Name: Full List 100X PDS
Solvent ID #: 21-771
Solvent Name: 96% Methanol

Level 2 Reviewed by: NK1
Date: 11/11/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std. (ng/mL)	Aliquoted Volume (uL)	Dilution Volume (mL)	Final Conc. (ng/mL)	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
Full List Stock PDS (10X)	SVLC-1693	200.0	1,500	15	20	1,2	-	10/4/2021	11/19/2021
96% Methanol	21-771	pure	13,500		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water. 2. GenX is present at twice (2x) the concentration listed - 40ng/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 11/3/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1734
Mix Name: PFAS Full List ICV, 500ppt
Solvent ID #: 21-2252/21-2249
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/4/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/mL	uL	mL	pg/mL				
PFAS ICV 100X Mix	SVLC-1025	20,000.0	50	2	500	1,2	-	6/8/2020	9/20/2022
ID SUR 20ppb	SVLC-1713	20,000.0	100		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1727	20,000.0	100		1000	1	-	10/28/2021	4/14/2022
Methanol	21-2252	pure	1,680		#VALUE!	1	7/31/2026	10/14/2021	7/31/2026
Water	21-2249	pure	70		#VALUE!	1	8/31/2026	10/13/2021	8/31/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at a final concentration of 2500 pg/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	arc2	Mix ID #:	SVLC- 1736	Level 2 Reviewed by:	glt
Prep. Date:	11/04/21	Mix Name:	PFAS ID SUR 100ppb	Date:	11/13/2021
Exp. Date:	06/15/22	Solvent ID #:	21-2252/21-2249		
Pipet ID:	20-1360, 20-2534	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
MPFAC-C-ES	21-2535	2,000	2,200	44	100	1	1/13/2026	11/4/2021	11/4/2022
ID 50X SUR Mix	SVLC-1735	1,000	4,400		100	1,2	-	11/4/2021	6/15/2022
Methanol	21-2252	pure	35,816		#VALUE!	1	6/30/2026	7/27/2021	6/30/2026
Water	21-2249	pure	1,584		#VALUE!	1	4/30/2026	7/15/2021	4/30/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. 13C3-GenX, 13C2-4:2FTS, 13C2-6:2FTS, 13C2-8:2FTS, d5-EtFOSAA,

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: mmm
Prep. Date: 11/05/21
Exp. Date: 02/04/22
Pipet ID: 20-1360,20-2533

Mix ID #: SVLC- 1738
Mix Name: Full List 100X PDS
Solvent ID #: 21-789
Solvent Name: 96% Methanol

Level 2 Reviewed by: arc2
Date: 11/10/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Full List Stock PDS (10X)	SVLC-1733	200.0	1,500	15	20	1,2	-	11/2/2021	2/4/2022
96% Methanol	21-771	pure	13,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water. 2. GenX is present at twice (2x) the concentration listed - 40ng/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1741	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	500	10	100	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1740	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	125	5	50	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: mmm
Prep. Date: 11/6/2021
Exp. Date: 2/4/2022
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1742
Mix Name: 200 ppt PFAS FL ICAL (L3)
Solvent ID #: SV21-789
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/10/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	1,000	10	200	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1743	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	500 ppt PFAS FL ICAL (L4)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	125	5	500	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: mmm
Prep. Date: 11/6/2021
Exp. Date: 2/4/2022
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1744
Mix Name: 1000 ppt PFAS FL ICAL (L5)
Solvent ID #: SV21-789
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/10/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	750	15	1000	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	750		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	750		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	12,750		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1745	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	2000 ppt PFAS FL ICAL (L6)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	500	5	2000	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: mmm
Prep. Date: 11/6/2021
Exp. Date: 2/4/2022
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1746
Mix Name: 5000 ppt PFAS FL ICAL (L7)
Solvent ID #: SV21-789
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/10/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	125	5	5000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1747	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	10000 ppt PFAS FL ICAL (L8)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	500	10	10000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1748	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	15000 ppt PFAS FL ICAL (L9)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	750	10	15000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,250		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: mmm
Prep. Date: 11/6/2021
Exp. Date: 2/4/2022
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1749
Mix Name: 20000 ppt PFAS FL ICAL (L10)
Solvent ID #: SV21-789
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/10/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	1,500	15	20000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	750		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	750		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	12,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	glt	Mix ID #:	SVLC- 1752	Level 2 Reviewed by:	arc2
Prep. Date:	11/12/21	Mix Name:	PFAS ID SUR 100ppb	Date:	11/14/2021
Exp. Date:	06/15/22	Solvent ID #:	21-2252/21-2249		
Pipet ID:	20-1360, 20-2534	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
MPFAC-C-ES	21-2525	2,000	2,200	44	100	1	1/13/2026	11/12/2021	11/12/2022
ID 50X SUR Mix	SVLC-1735	1,000	4,400		100	1,2	-	11/4/2021	6/15/2022
Methanol	21-2252	pure	35,816		#VALUE!	1	6/30/2026	7/27/2021	6/30/2026
Water	21-2249	pure	1,584		#VALUE!	1	4/30/2026	7/15/2021	4/30/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. 13C3-GenX, 13C2-4:2FTS, 13C2-6:2FTS, 13C2-8:2FTS, d5-EtFOSAA, a

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1754	Level 2 Reviewed by:	arc2
Prep. Date:	11/16/2021	Mix Name:	ISOMER CHECK STD	Date:	11/16/2021
Exp. Date:	4/14/2022	Solvent ID #:	SV21-803		
Pipet ID:	20-318,20-2534	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std. (ng/mL)	Aliquoted Volume (uL)	Dilution Volume (mL)	Final Conc. (ng/mL)	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
Isomer Check 50X Mix	SVLC-0588	1,000	20	2	10	1	-	3/11/2019	2/7/2020
ID IS 20ppb	SVLC-1737	20	100		1	1	-	11/5/2021	4/14/2022
ID SUR 20ppb	SVLC-1728	20	100		1	1	-	10/28/2021	6/15/2022
96% Methanol	SV21-803	pure	1,780		#VALUE!	1	-	11/16/2021	11/16/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-POL

Project Number: 112G09581

Lot Number:**WK01012**

Date Completed:11/30/2021

Kathy Smith

12/01/2021 9:11 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: WK01012

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation:

Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Samples WK01012-002, WK01012-003, and WK01012-004 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Despite centrifugation, for samples WK01012-002, WK01012-003, and WK01012-004, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Sample WK01012-001 was extracted at a 10x dilution due to matrix and color of sample.

Samples WK01012-003, WK01012-004 had multiple surrogates recovered outside of the acceptance limits due to confirmed matrix interference.

Sample Summary

Tetra Tech

Lot Number: WK01012

Project Name: KSC-POL

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	POL-DPT0136-012.0-20211028	Aqueous	10/28/2021 0950	10/29/2021
002	POL-DPT0136-022.0-20211028	Aqueous	10/28/2021 1035	10/29/2021
003	POL-DPT0136-032.0-20211028	Aqueous	10/28/2021 1110	10/29/2021
004	POL-DPT0136-042.0-20211028	Aqueous	10/28/2021 1305	10/29/2021

(4 samples)

Detection Summary

Tetra Tech

Lot Number: WK01012

Project Name: KSC-POL

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	POL-DPT0136-022.0-20211028	Aqueous	PFBS	PFAS by ID	5.8		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFPeS	PFAS by ID	3.3	I	ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFHxS	PFAS by ID	29		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFBA	PFAS by ID	65		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFHpA	PFAS by ID	6.9		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFHxA	PFAS by ID	13		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFOA	PFAS by ID	7.6		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFPeA	PFAS by ID	15		ng/L	8
002	POL-DPT0136-022.0-20211028	Aqueous	PFOS	PFAS by ID	7.2		ng/L	8
003	POL-DPT0136-032.0-20211028	Aqueous	6:2 FTS	PFAS by ID	81	Q	ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFBS	PFAS by ID	49		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFHpS	PFAS by ID	3.8		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFPeS	PFAS by ID	51		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFHxS	PFAS by ID	270		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFBA	PFAS by ID	39		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFHpA	PFAS by ID	52		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFHxA	PFAS by ID	100		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFNA	PFAS by ID	9.3		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFOA	PFAS by ID	44		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFPeA	PFAS by ID	85		ng/L	10
003	POL-DPT0136-032.0-20211028	Aqueous	PFOS	PFAS by ID	110		ng/L	10
004	POL-DPT0136-042.0-20211028	Aqueous	6:2 FTS	PFAS by ID	5.5	I	ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFBS	PFAS by ID	2.1	I	ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFPeS	PFAS by ID	2.4	I	ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFHxS	PFAS by ID	9.8		ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFBA	PFAS by ID	4.3		ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFHpA	PFAS by ID	9.6		ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFHxA	PFAS by ID	9.1		ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFOA	PFAS by ID	11		ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFPeA	PFAS by ID	10		ng/L	12
004	POL-DPT0136-042.0-20211028	Aqueous	PFOS	PFAS by ID	0.92	I	ng/L	12

(31 detections)

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-001	
Description: POL-DPT0136-012.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 0950	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1616	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	50-150
13C2_6:2FTS		124	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		114	50-150
13C2_PFTeDA		112	50-150
13C3_PFBS		110	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		118	50-150
13C4_PFBA		113	50-150
13C4_PFHpA		110	50-150
13C5_PFHxA		113	50-150
13C5_PFPeA		115	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-001
Description: POL-DPT0136-012.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 0950	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		118	50-150
13C9_PFNA		114	50-150
d-EtFOSA		106	50-150
d5-EtFOSAA		121	50-150
d3-MeFOSAA		121	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK01012-002
Description: POL-DPT0136-022.0-20211028			Matrix: Aqueous
Date Sampled: 10/28/2021 1035	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1627	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.8		4.2	2.1	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	3.3	I	4.2	2.1	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	29		4.2	2.1	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	65		4.2	2.1	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.9		4.2	2.1	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13		4.2	2.1	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.6		4.2	2.1	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	15		4.2	2.1	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	7.2		4.2	2.1	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		150	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		69	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-002
Description: POL-DPT0136-022.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 1035	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		91	50-150
13C9_PFNA		94	50-150
d-EtFOSA		58	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-003	
Description: POL-DPT0136-032.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1110	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1637	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	81	Q	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	49		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.8		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	51		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	39		3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	52		3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	100		3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	9.3		3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	44		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	85		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	194	50-150
13C2_6:2FTS	N	175	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		78	50-150
13C2_PFTeDA	N	37	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		60	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		89	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-003	
Description: POL-DPT0136-032.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1110	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		103	50-150
13C9_PFNA		108	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-004	
Description: POL-DPT0136-042.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1305	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1648	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.5	I	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.4	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	9.8		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.3		3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	9.6		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.1		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	11		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	10		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.92	I	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150
13C2_6:2FTS		146	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	48	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		63	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		81	50-150
13C7_PFUdA		78	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-004
Description: POL-DPT0136-042.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 1305	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	50-150
13C8_PFOS		87	50-150
13C9_PFNA		96	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	WQ22105-001	Matrix:	Aqueous
Batch:	22105	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/11/2021 1232

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		114	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		108	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ22105-001
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		104	50-150
13C8_PFOS		99	50-150
13C9_PFNA		104	50-150
d-EtFOSA		100	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ22105-002
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	109	70-150	11/12/2021 1524
11Cl-PF3OUdS	15	17		1	110	70-150	11/12/2021 1524
8:2 FTS	15	17		1	111	67-138	11/12/2021 1524
6:2 FTS	15	16		1	107	64-140	11/12/2021 1524
4:2 FTS	15	17		1	114	63-143	11/12/2021 1524
GenX	32	37		1	115	70-150	11/12/2021 1524
ADONA	15	17		1	114	70-150	11/12/2021 1524
EtFOSA	16	18		1	112	70-150	11/12/2021 1524
EtFOSAA	16	16		1	99	61-135	11/12/2021 1524
MeFOSAA	16	15		1	96	65-136	11/12/2021 1524
PFBS	14	15		1	103	72-130	11/12/2021 1524
PFDS	15	18		1	114	53-142	11/12/2021 1524
PFHpS	15	16		1	105	69-134	11/12/2021 1524
PFNS	15	15		1	97	69-127	11/12/2021 1524
PFPeS	15	16		1	105	71-127	11/12/2021 1524
PFHxS	15	15		1	104	68-131	11/12/2021 1524
PFBA	16	17		1	107	73-129	11/12/2021 1524
PFDA	16	18		1	110	71-129	11/12/2021 1524
PFDoA	16	18		1	110	72-134	11/12/2021 1524
PFHpA	16	17		1	108	72-130	11/12/2021 1524
PFHxA	16	17		1	107	72-129	11/12/2021 1524
PFNA	16	17		1	106	69-130	11/12/2021 1524
PFOA	16	17		1	106	71-133	11/12/2021 1524
PFPeA	16	17		1	109	72-129	11/12/2021 1524
PFTeDA	16	17		1	108	71-132	11/12/2021 1524
PFTrDA	16	17		1	105	65-144	11/12/2021 1524
PFUdA	16	18		1	113	69-133	11/12/2021 1524
PFOS	15	15		1	102	65-140	11/12/2021 1524

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		104	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		109	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		111	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		117	50-150
13C4_PFBA		111	50-150
13C4_PFHpA		112	50-150
13C5_PFHxA		113	50-150
13C5_PFPeA		107	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ22105-002
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		109	50-150
13C8_PFOA		111	50-150
13C8_PFOS		115	50-150
13C9_PFNA		117	50-150
d-EtFOSA		101	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		116	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria
DL = Detection Limit   I = Estimated result < LOQ and ≥ DL   P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 3233 | PAGE 1 OF 1

PROJECT NO: 112G09020	FACILITY: KSC-POL
SAMPLERS (SIGNATURE)	Kyle Kercher
PROJECT MANAGER	Mark Jonnet
PHONE NUMBER	(412) 921-7090
FIELD OPERATIONS LEADER	Rob Siegel
PHONE NUMBER	(954) 649-3637
CARRIER/WAYBILL NUMBER	
LABORATORY NAME AND CONTACT:	PACE Analytical - Kathy Smith
ADDRESS	106 Vantage Point Dr
CITY, STATE	West Columbia, SC

STANDARD TAT ☐
RUSH TAT ☒
☐ 24 hr. ☐ 48 hr. ☒ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: Ice 4oC
TYPE OF ANALYSIS: PFAS QSM Table B-15

WK01012

DATE YEAR 2021	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
10/28	0950	POL-DPT0136-0120-20211028		10	14	GW	G	2	X	
|	1035	POL-DPT0136-0220-20211028		20	24	|	|	|	|	
|	1108	POL-DPT0136-0320-20211028		30	34	|	|	|	|	
10/28	1305	POL-DPT0136-0420-20211028		40	44	GW	G	2	X	

1. RELINQUISHED BY	DATE 10/28/2021	TIME 1530	1. RECEIVED BY	T: 1.2°C	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY		DATE	TIME
3. RELINQUISHED BY FedEx	DATE 10/29/21	TIME 1435	3. RECEIVED BY		DATE 10/29/21	TIME 1435

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech   Cooler Inspected by/date: KSC / 11/01/2021   Lot #: WK01012

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

1.2 / 1.2 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ______
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KSC   Date: 11/01/2021

Comments:

PFAS

QC SUMMARY

PFAS by LC/MS/MS

Client: Tetra Tech | Laboratory ID: WK01012-001
Description: POL-DPT0136-012.0-20211028 | Matrix: Aqueous
Date Sampled: 10/28/2021 0950 | Project Name: KSC-POL
Date Received: 10/29/2021 | Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1616	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	50-150
13C2_6:2FTS		124	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		114	50-150
13C2_PFTeDA		112	50-150
13C3_PFBS		110	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		118	50-150
13C4_PFBA		113	50-150
13C4_PFHpA		110	50-150
13C5_PFHxA		113	50-150
13C5_PFPeA		115	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WK01012-001	
Description: POL-DPT0136-012.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 0950	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		118	50-150
13C9_PFNA		114	50-150
d-EtFOSA		106	50-150
d5-EtFOSAA		121	50-150
d3-MeFOSAA		121	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-002
Description: POL-DPT0136-022.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 1035	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1627	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.8		4.2	2.1	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	3.3	I	4.2	2.1	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	29		4.2	2.1	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	65		4.2	2.1	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.9		4.2	2.1	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13		4.2	2.1	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.6		4.2	2.1	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	15		4.2	2.1	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	7.2		4.2	2.1	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		150	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		69	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-002	
Description: POL-DPT0136-022.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1035	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		91	50-150
13C9_PFNA		94	50-150
d-EtFOSA		58	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-003	
Description: POL-DPT0136-032.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1110	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1637	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	81	Q	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	49		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.8		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	51		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	39		3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	52		3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	100		3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	9.3		3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	44		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	85		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	194	50-150
13C2_6:2FTS	N	175	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		78	50-150
13C2_PFTeDA	N	37	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		60	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		89	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-003
Description: POL-DPT0136-032.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 1110	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		103	50-150
13C9_PFNA		108	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-004	
Description: POL-DPT0136-042.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1305	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1648	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.5	I	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.4	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	9.8		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.3		3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	9.6		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.1		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	11		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	10		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.92	I	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150
13C2_6:2FTS		146	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	48	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		63	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		81	50-150
13C7_PFUdA		78	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-004
Description: POL-DPT0136-042.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 1305	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	50-150
13C8_PFOS		87	50-150
13C9_PFNA		96	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS - MB

Sample ID:	WQ22105-001	Matrix:	Aqueous
Batch:	22105	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/11/2021 1232

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		114	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		108	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria

DL = Detection Limit   I = Estimated result < LOQ and ≥ DL   P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ22105-001
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		104	50-150
13C8_PFOS		99	50-150
13C9_PFNA		104	50-150
d-EtFOSA		100	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ22105-002	Matrix:	Aqueous
Batch:	22105	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/11/2021 1232

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	109	70-150	11/12/2021 1524
11Cl-PF3OUdS	15	17		1	110	70-150	11/12/2021 1524
8:2 FTS	15	17		1	111	67-138	11/12/2021 1524
6:2 FTS	15	16		1	107	64-140	11/12/2021 1524
4:2 FTS	15	17		1	114	63-143	11/12/2021 1524
GenX	32	37		1	115	70-150	11/12/2021 1524
ADONA	15	17		1	114	70-150	11/12/2021 1524
EtFOSA	16	18		1	112	70-150	11/12/2021 1524
EtFOSAA	16	16		1	99	61-135	11/12/2021 1524
MeFOSAA	16	15		1	96	65-136	11/12/2021 1524
PFBS	14	15		1	103	72-130	11/12/2021 1524
PFDS	15	18		1	114	53-142	11/12/2021 1524
PFHpS	15	16		1	105	69-134	11/12/2021 1524
PFNS	15	15		1	97	69-127	11/12/2021 1524
PFPeS	15	16		1	105	71-127	11/12/2021 1524
PFHxS	15	15		1	104	68-131	11/12/2021 1524
PFBA	16	17		1	107	73-129	11/12/2021 1524
PFDA	16	18		1	110	71-129	11/12/2021 1524
PFDoA	16	18		1	110	72-134	11/12/2021 1524
PFHpA	16	17		1	108	72-130	11/12/2021 1524
PFHxA	16	17		1	107	72-129	11/12/2021 1524
PFNA	16	17		1	106	69-130	11/12/2021 1524
PFOA	16	17		1	106	71-133	11/12/2021 1524
PFPeA	16	17		1	109	72-129	11/12/2021 1524
PFTeDA	16	17		1	108	71-132	11/12/2021 1524
PFTrDA	16	17		1	105	65-144	11/12/2021 1524
PFUdA	16	18		1	113	69-133	11/12/2021 1524
PFOS	15	15		1	102	65-140	11/12/2021 1524

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		104	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		109	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		111	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		117	50-150
13C4_PFBA		111	50-150
13C4_PFHpA		112	50-150
13C5_PFHxA		113	50-150
13C5_PFPeA		107	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ22105-002
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		109	50-150
13C8_PFOA		111	50-150
13C8_PFOS		115	50-150
13C9_PFNA		117	50-150
d-EtFOSA		101	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		116	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK01012

Project No.: 112G09581

AnalyticalMethod: PFAS by ID SOP QSM B-15   Matrix: Water

CLIENT SAMPLE ID	IDS1	IDS2	IDS3	IDS4	IDS5	IDS6	IDS7	IDS8	IDS9
POL-DPT0136-012.0-20211028	118	124	105	114	112	110	110	118	113
POL-DPT0136-022.0-20211028	150	121	99	79	59	90	97	93	69
POL-DPT0136-032.0-20211028	194 *	175 *	117	78	37 *	94	100	97	60
POL-DPT0136-042.0-20211028	177 *	146	87	71	48 *	89	88	87	63
WQ22105-001	103	110	100	92	91	108	114	101	106
WQ22105-002	104	119	117	109	103	111	112	117	111

	QC LIMITS
IDS1 = 13C2_4:2FTS	50-150
IDS2 = 13C2_6:2FTS	50-150
IDS3 = 13C2_8:2FTS	50-150
IDS4 = 13C2_PFDoA	50-150
IDS5 = 13C2_PFTeDA	50-150
IDS6 = 13C3_PFBS	50-150
IDS7 = 13C3_PFHxS	50-150
IDS8 = 13C3-HFPO-DA	50-150
IDS9 = 13C4_PFBA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK01012

Project No.: 112G09581

AnalyticalMethod: PFAS by ID SOP QSM B-15   Matrix: Water

CLIENT SAMPLE ID	IDS10	IDS11	IDS12	IDS13	IDS14	IDS15	IDS16	IDS17	
POL-DPT0136-012.0-20211028	110	113	115	107	109	114	118	114	
POL-DPT0136-022.0-20211028	97	92	88	85	80	94	91	94	
POL-DPT0136-032.0-20211028	102	99	89	94	94	105	103	108	
POL-DPT0136-042.0-20211028	97	91	85	81	78	90	87	96	
WQ22105-001	107	105	108	99	102	104	99	104	
WQ22105-002	112	113	107	106	109	111	115	117	

	QC LIMITS
IDS10 = 13C4_PFHpA	50-150
IDS11 = 13C5_PFHxA	50-150
IDS12 = 13C5_PFPeA	50-150
IDS13 = 13C6_PFDA	50-150
IDS14 = 13C7_PFUdA	50-150
IDS15 = 13C8_PFOA	50-150
IDS16 = 13C8_PFOS	50-150
IDS17 = 13C9_PFNA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK01012

Project No.: 112G09581

AnalyticalMethod: PFAS by ID SOP QSM B-15   Matrix: Water

CLIENT SAMPLE ID	IDS18	IDS19	IDS20						TOT OUT
POL-DPT0136-012.0-20211028	106	121	121						0
POL-DPT0136-022.0-20211028	58	92	97						0
POL-DPT0136-032.0-20211028	40 *	100	103						4
POL-DPT0136-042.0-20211028	53	88	90						2
WQ22105-001	100	105	105						0
WQ22105-002	101	112	116						0

	QC LIMITS
IDS18 = d-EtFOSA	50-150
IDS19 = d5-EtFOSAA	50-150
IDS20 = d3-MeFOSAA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 3

LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK01012

Project No.: 112G09581

Analytical Method: PFAS by ID SOP QSM B-15   Matrix: Water

Client Sample ID: WQ22105-002   Lab Sample ID: WQ22105-002

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCS CONCENTRATION	LCS %REC #	QC LIMITS REC.
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	17	110	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	17	111	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	16	107	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	17	114	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	17	114	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	16	109	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	37	115	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	18	112	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	16	99	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	15	96	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	15	103	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	18	114	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	16	105	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	15	97	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	16	105	71-127
Perfluoro-n-butanoic acid (PFBA)	16	17	107	73-129
Perfluoro-n-decanoic acid (PFDA)	16	18	110	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	18	110	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	17	108	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	17	107	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	17	106	69-130
Perfluoro-n-octanoic acid (PFOA)	16	17	106	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	17	109	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	17	108	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	17	105	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	18	113	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	15	104	68-131
Perfluorooctanesulfonic acid (PFOS)	15	15	102	65-140

* Values outside of QC Limits

CLIENT SAMPLE ID

WQ22105-001

FORM 4
METHOD BLANK SUMMARY

Lab Name: Pace Analytical Services, LLC

Lot No.: WK01012

Project No.: 112G09581

Lab Sample ID: WQ22105-001

Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Water

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Lab File ID: WQ22105-001.txt

Extraction Type: SOP SPE

Date Extracted: 11/11/2021

LC Column: Gemini C18 ID: 2.00 (mm)

Date Analyzed: 11/15/2021

Time Analyzed: 13:46

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED
POL-DPT0136-012.0-20211028	WK01012-001	WK01012-001.txt	16:16
POL-DPT0136-022.0-20211028	WK01012-002	WK01012-002.txt	16:27
POL-DPT0136-032.0-20211028	WK01012-003	WK01012-003.txt	16:37
POL-DPT0136-042.0-20211028	WK01012-004	WK01012-004.txt	16:48
WQ22105-002	WQ22105-002	WQ22105-002.txt	15:24

RAW SAMPLE DATA

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	WK01012-001
Description:	POL-DPT0136-012.0-20211028	Matrix:	Aqueous
Date Sampled:	10/28/2021 0950	Project Name:	KSC-POL
Date Received:	10/29/2021	Project Number:	112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1616	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	50-150
13C2_6:2FTS		124	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		114	50-150
13C2_PFTeDA		112	50-150
13C3_PFBS		110	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		118	50-150
13C4_PFBA		113	50-150
13C4_PFHpA		110	50-150
13C5_PFHxA		113	50-150
13C5_PFPeA		115	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK01012-001
Description: POL-DPT0136-012.0-20211028			Matrix: Aqueous
Date Sampled: 10/28/2021 0950	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		118	50-150
13C9_PFNA		114	50-150
d-EtFOSA		106	50-150
d5-EtFOSAA		121	50-150
d3-MeFOSAA		121	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221017.d		
Injection Date:	12-Nov-2021 16:16:46	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	15
Lab Sample ID:	WK01012-001	Lab Prep. Batch:	22105
Client ID:	POL-DPT0136-012.0-20211028	Sample Group:	WK01012
Sample Info:	WK01012-001	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.4395604

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	25	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.709	1.705	1	700706	19	>100:1			1001.00	1127.13	115.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.712		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.099	1	629294	16	>100:1			1001.00	1100.95	115.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.099		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.157	2.151	1	178274	15	>100:1			1001.00	1030.67	109.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.151		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.441	2.425	1	122484	15	>100:1			5005.00	5409.18	117.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.433		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.486	2.469	1	734857	16	>100:1			1001.00	1128.32	117.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.469		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.597	2.583	1	1269746	18	>100:1			5005.00	5478.80	115.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.862	2.845	2	580675	17	>100:1			1001.00	1093.68	110.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.845		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.879	2.864	1	135758	15	>100:1			1001.00	1080.54	117.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.864		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.241		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.239	3.214	2	100269	22	>100:1			5005.00	5570.51	120.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.214		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.259	3.241	2	606086	20	>100:1			1001.00	1155.16	117.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.241		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.649	3.625	2	138618	21	>100:1			1001.00	1119.31	126.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.625		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.838		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.974		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.288		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.446		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.654	3.632	2	705059	21	>100:1			1001.00	1101.01	119.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.632		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.022	3.984	3	661577	16	>100:1			1001.00	1151.25	111.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.995		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.011	3.984	2	97592	17	>100:1			5005.00	5646.21	118.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.984		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.173	4.142	2	803217	17	>100:1			5005.00	5315.36	121.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.142		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.332	4.308	2	717903	15	>100:1			5005.00	5543.09	118.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.308		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.332	4.308	2	710430	16	>100:1			1001.00	1179.63	112.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.308		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.505	4.501	1	41283	16	>100:1			1001.00	960.07	114.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.510		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.618	4.580	3	694638	17	>100:1			1001.00	1157.08	114.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.580		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.825		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.050	3	886257	21	>100:1			1001.00	1090.12	112.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.050		ND								
*** 37 13C2_PFDA**													
515 > 470		4.022	3.984	3	569242	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.469	1	571217	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.266	3.241	2	463147	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.709	1.705	1	509052	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.654	3.625	2	104638	20	>100:1			200.00			

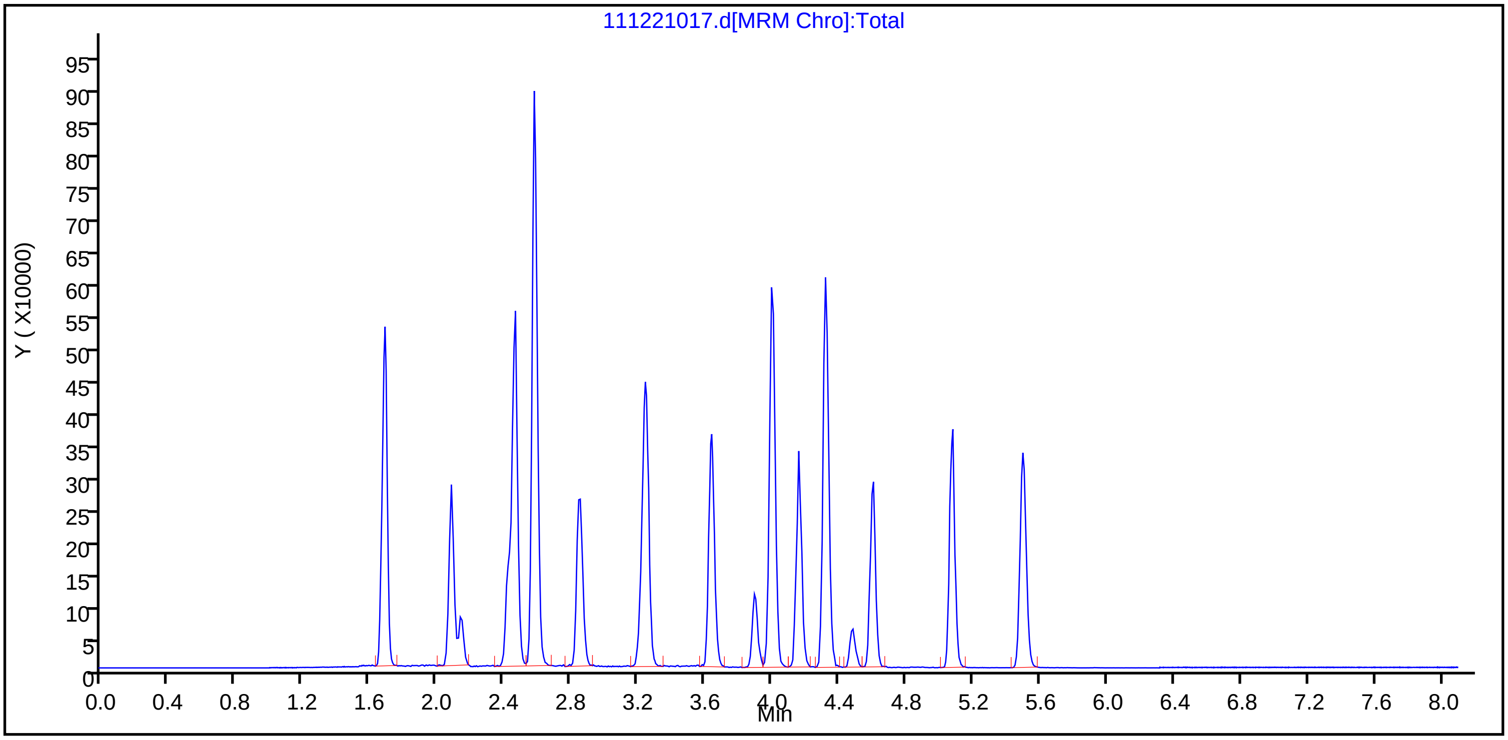
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

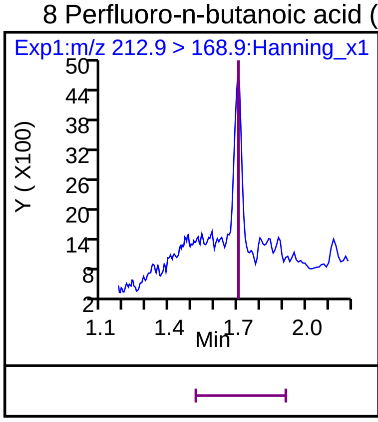
Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

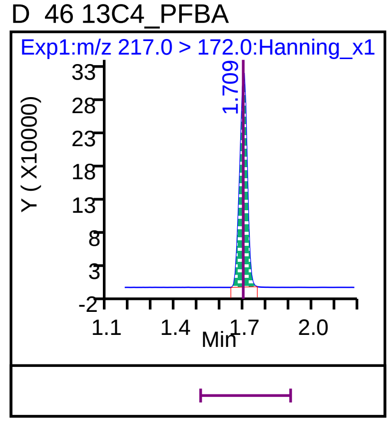
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221017.d		
Injection Date:	12-Nov-2021 16:16:46	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-012.0-20211028	Lab ID:	WK01012-001
Sample Info:	WK01012-001		
Dil. Factor:	1	Operator:	Justin Gavin



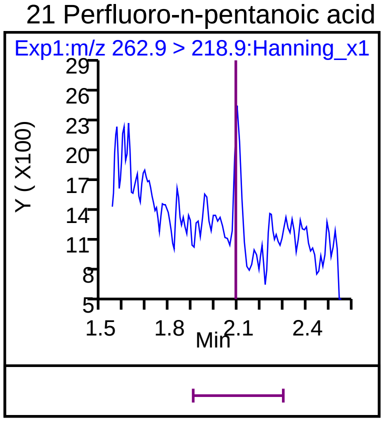
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



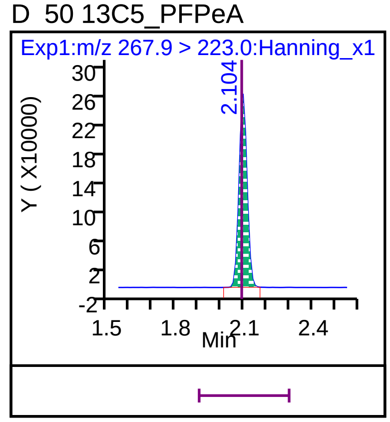
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)

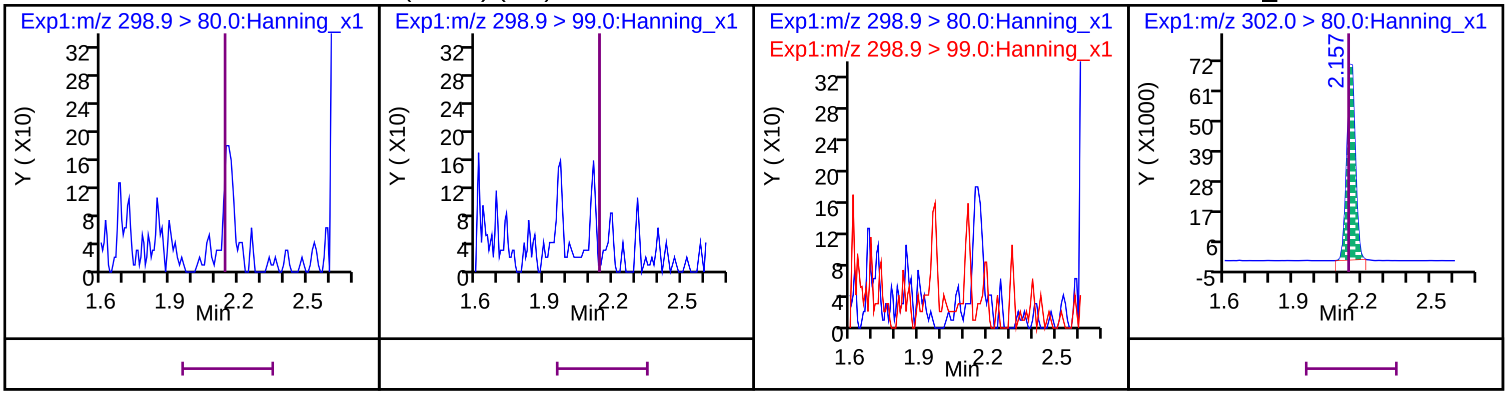


D 50 13C5_PFPeA

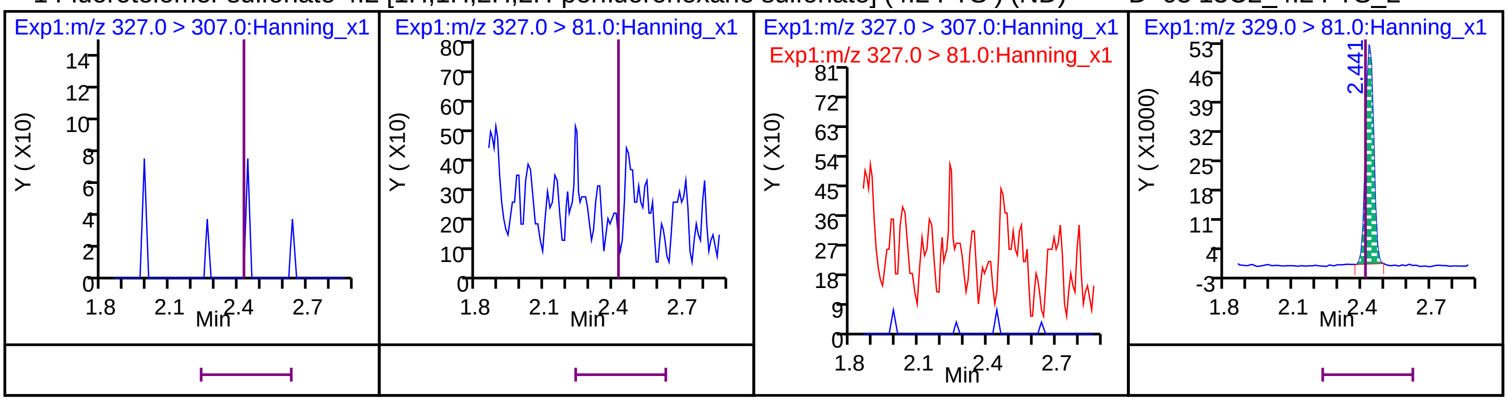


Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221017.d

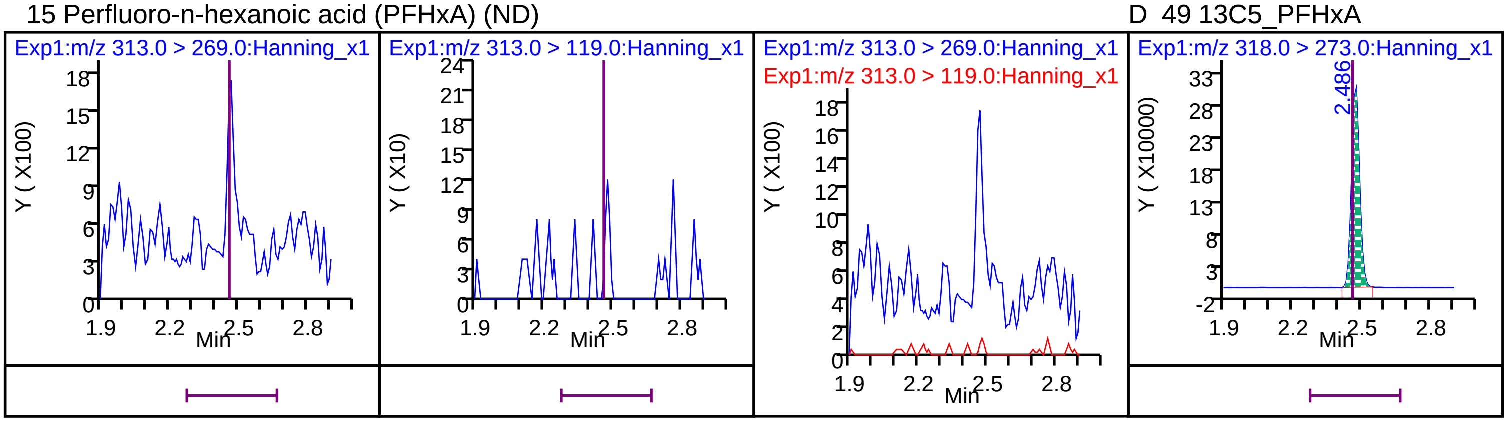
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



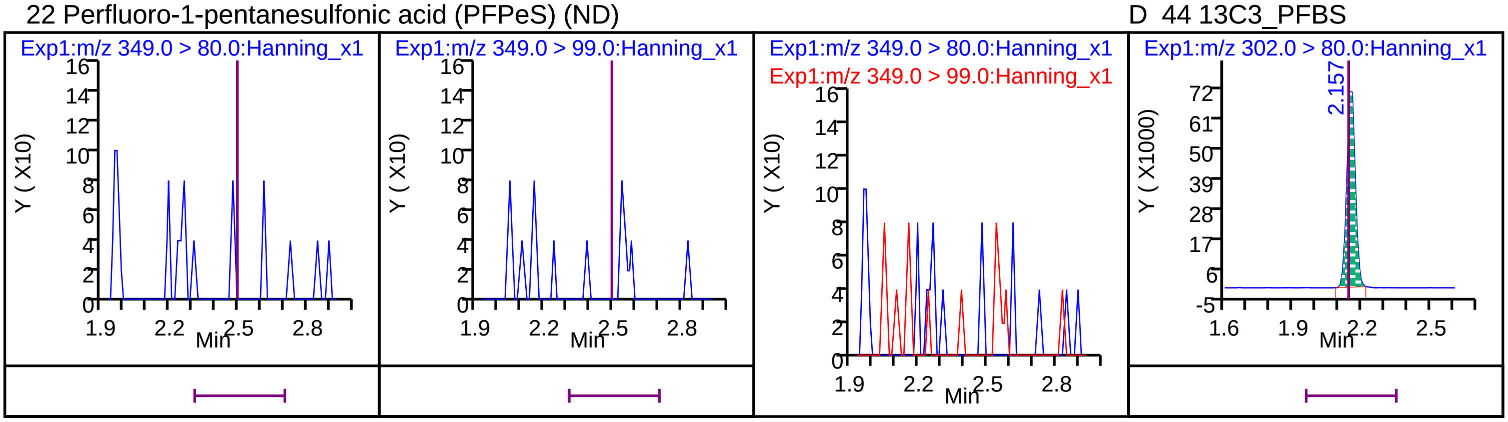
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



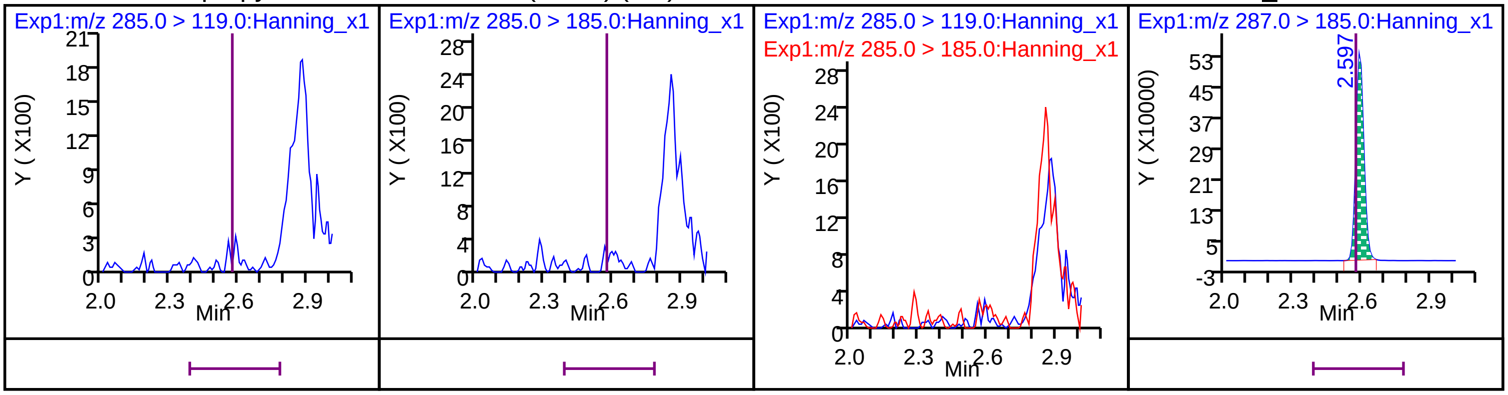
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



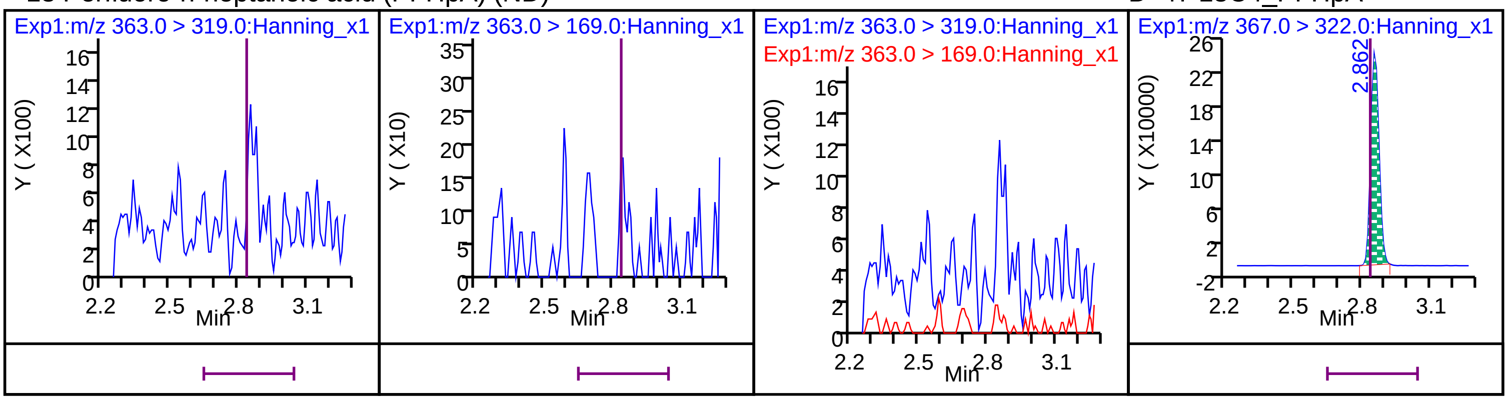
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



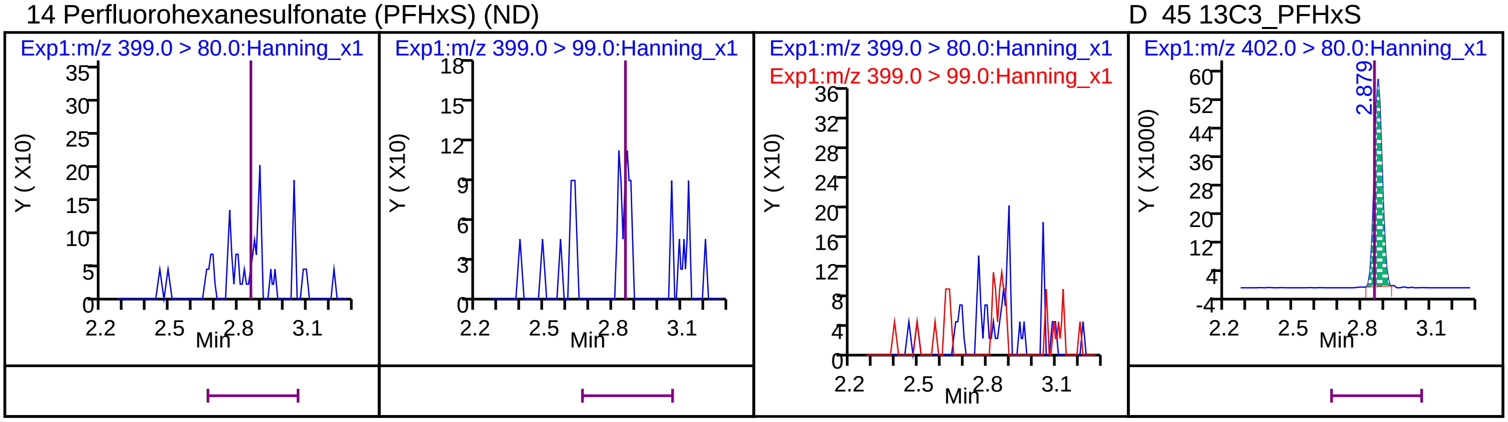
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



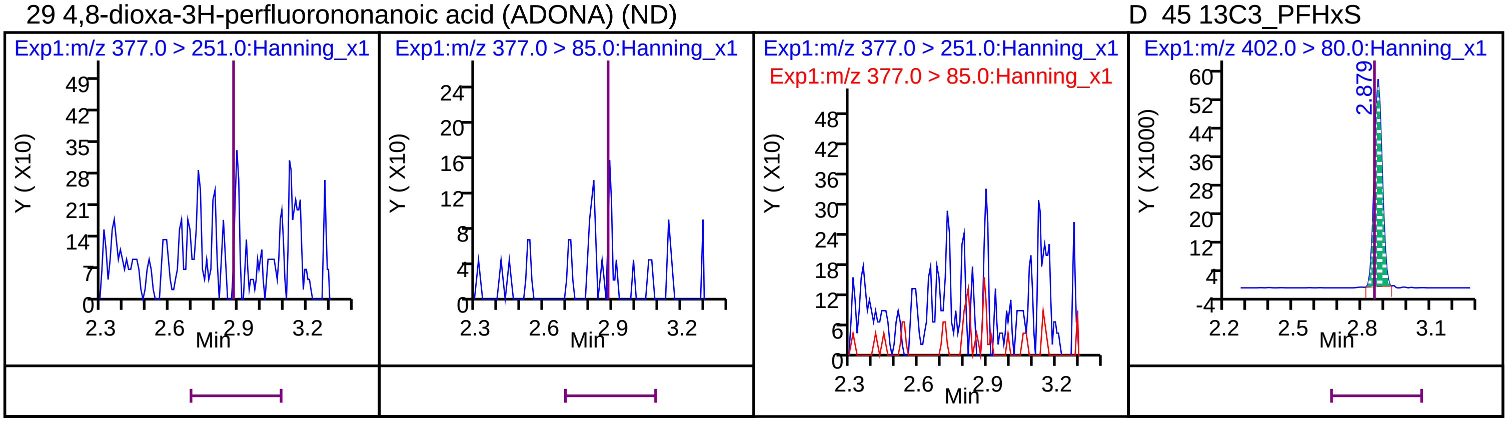
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



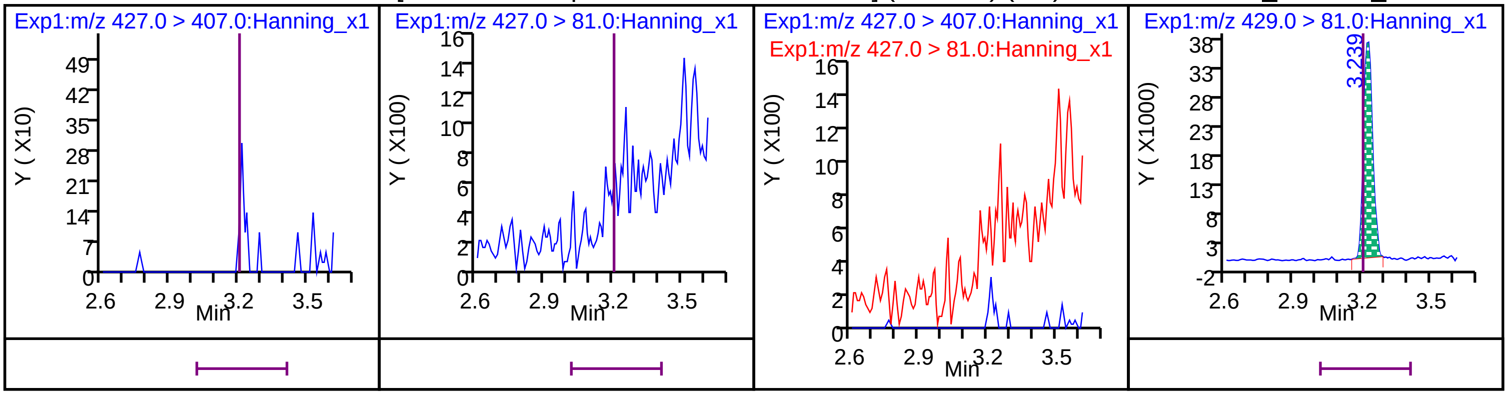
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



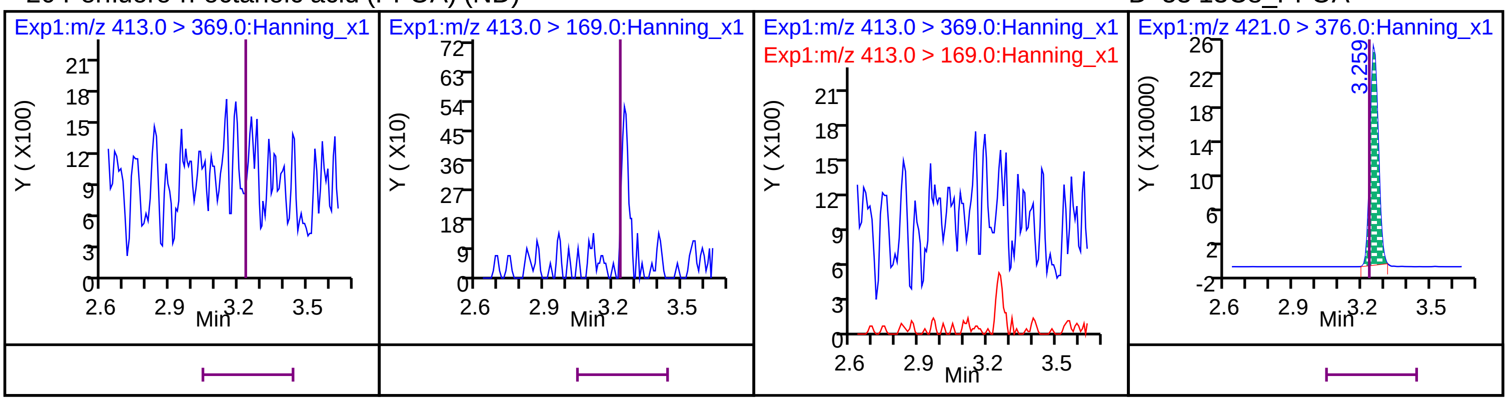
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



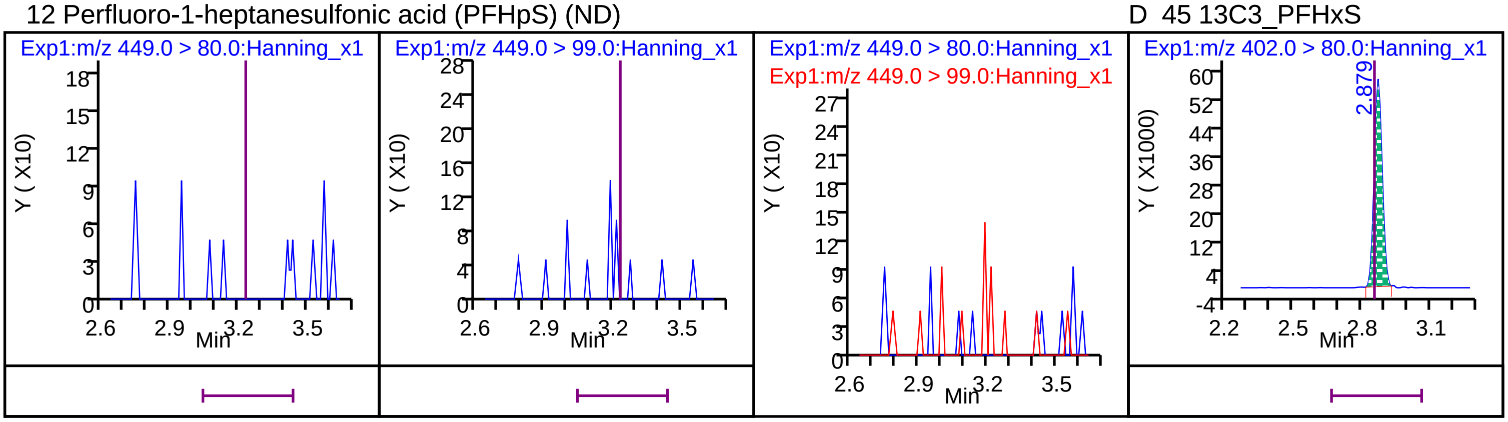
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



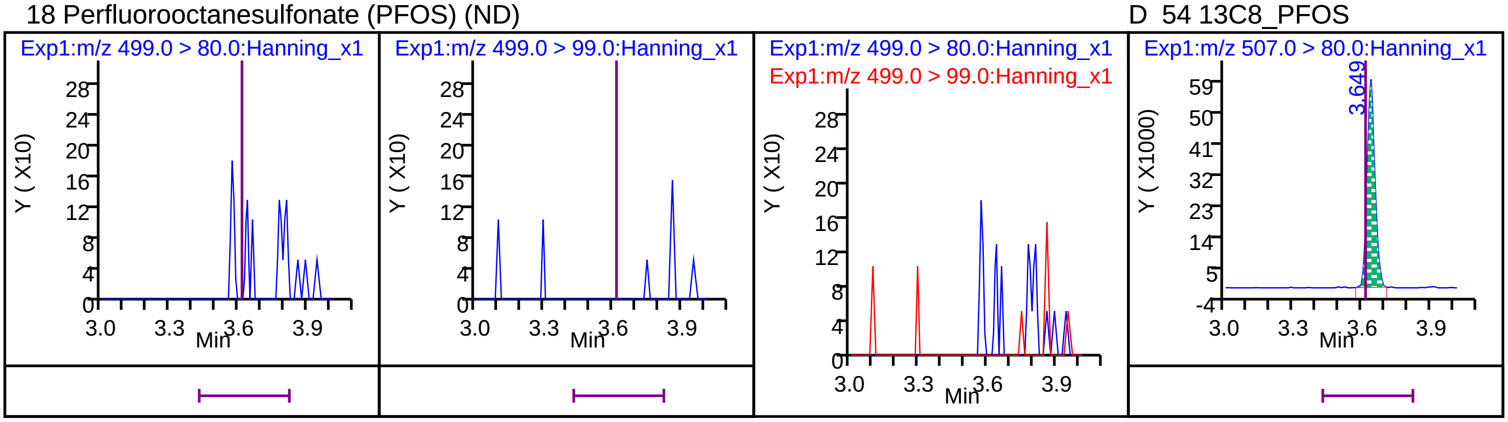
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS

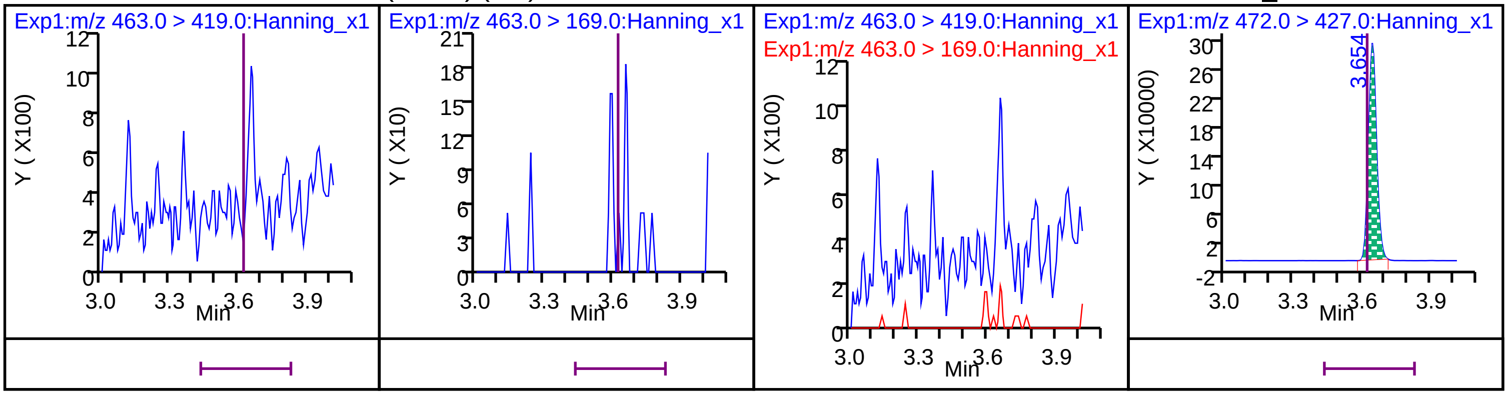


18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS

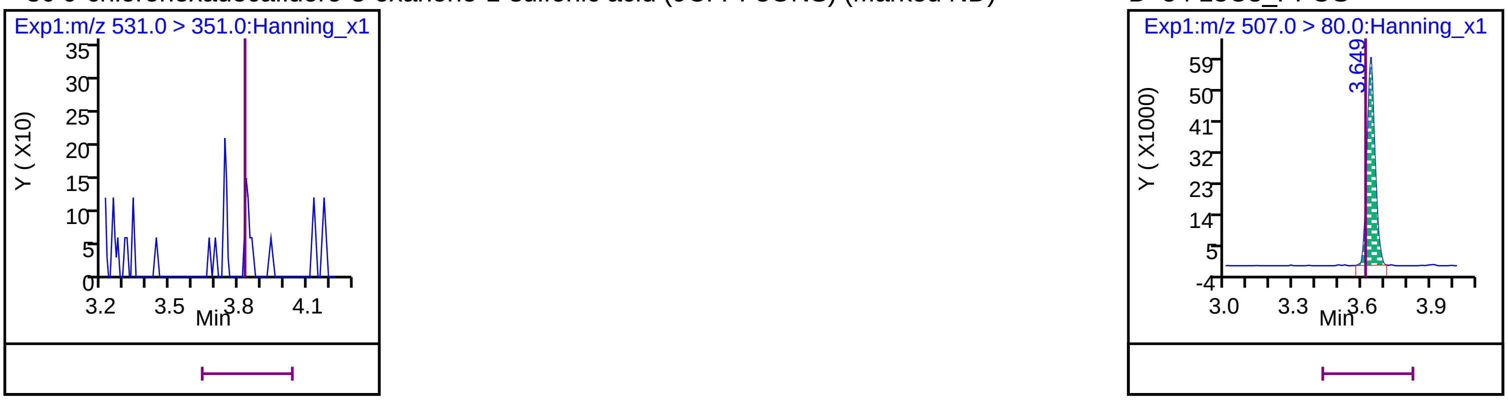


Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221017.d

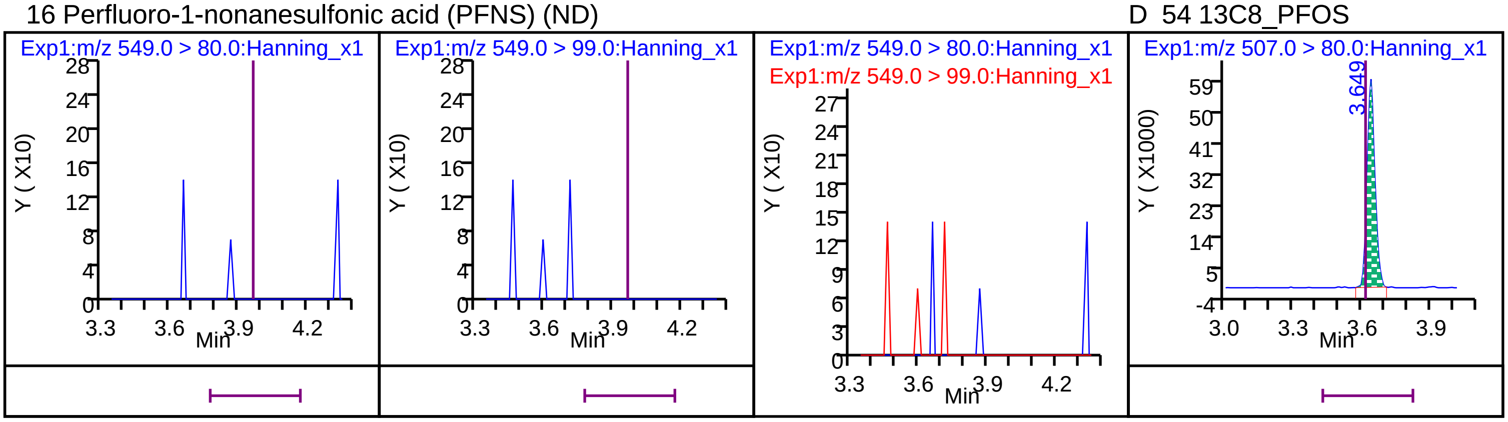
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



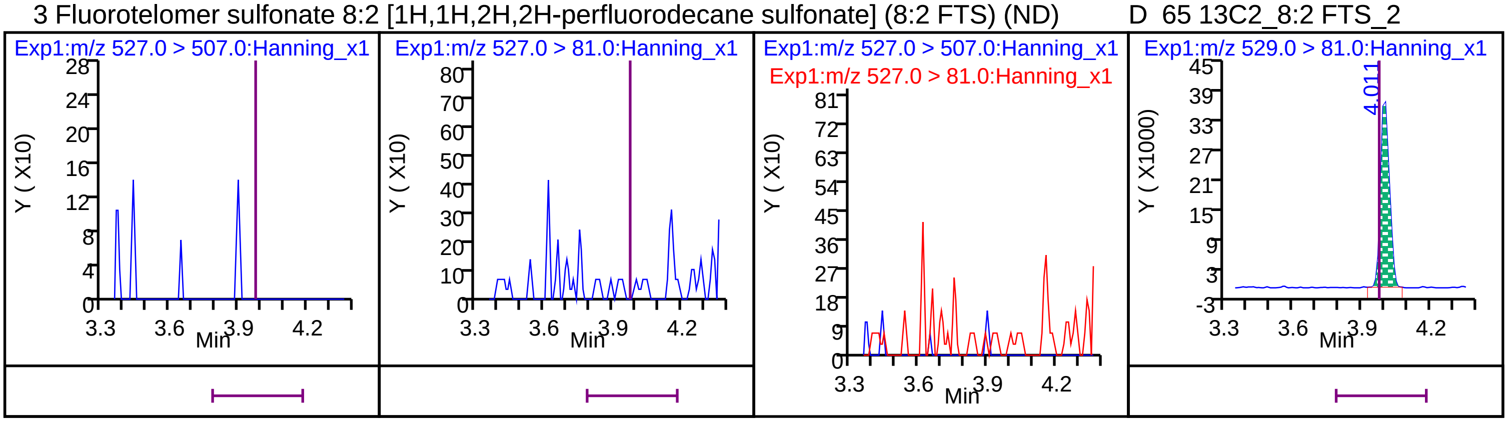
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



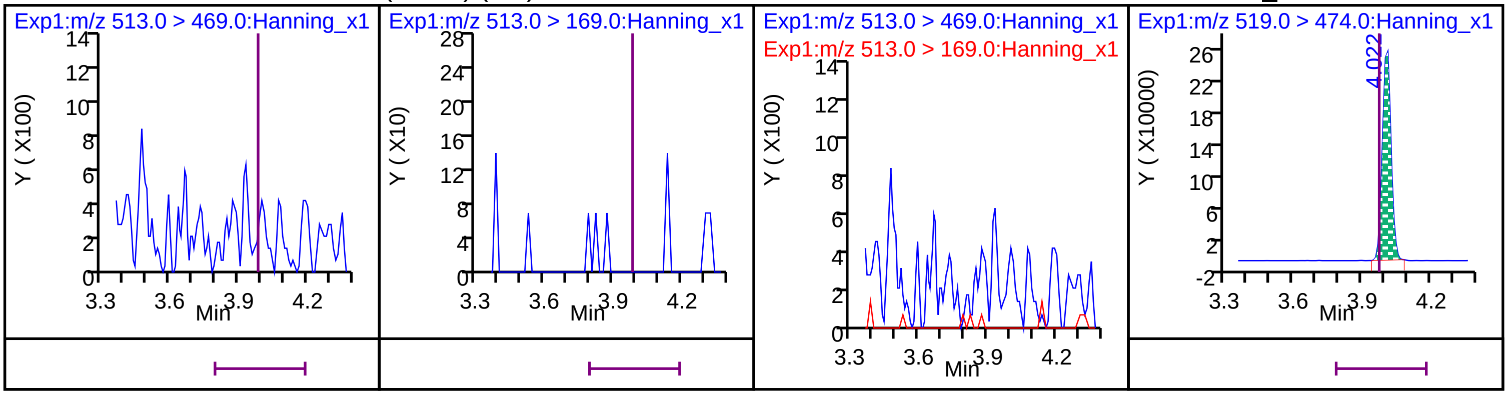
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



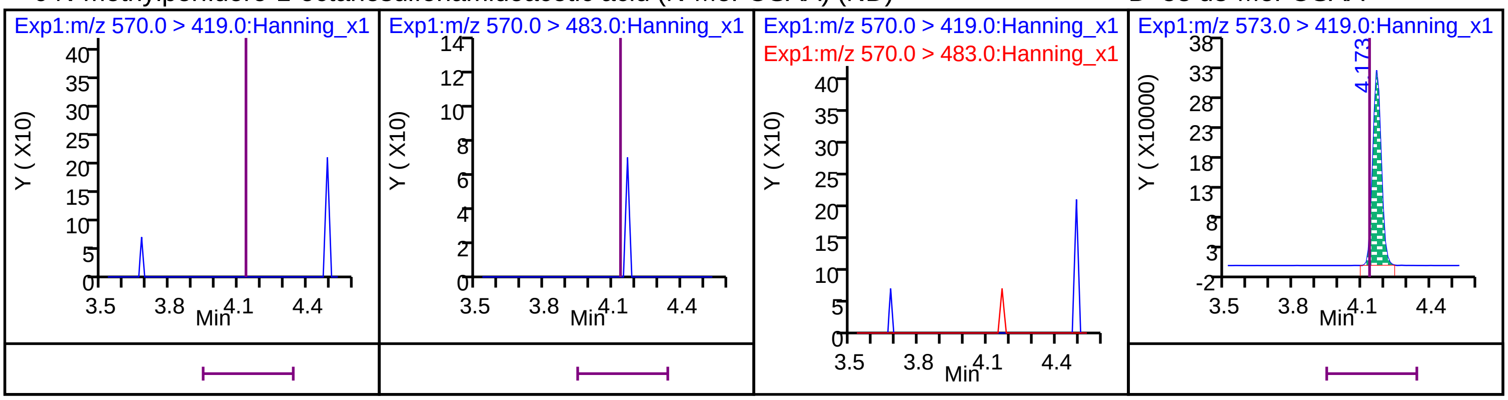
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



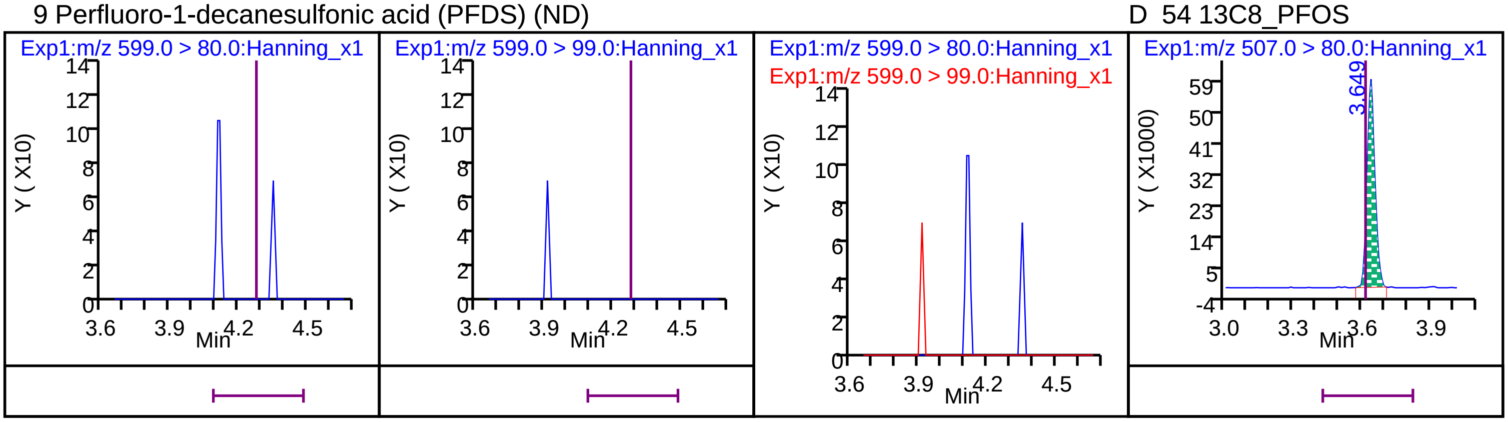
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



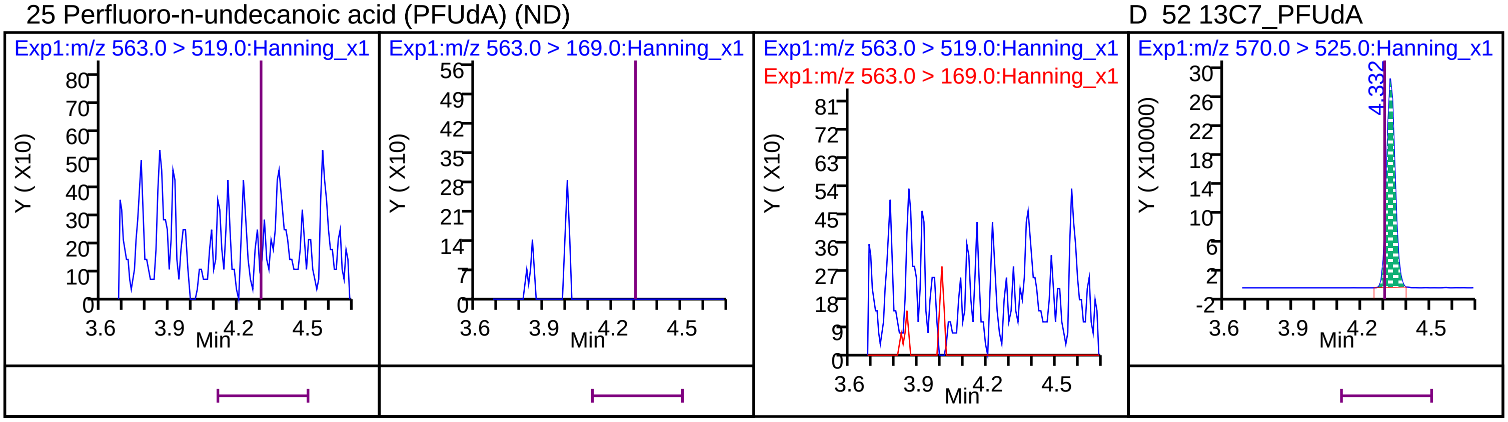
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



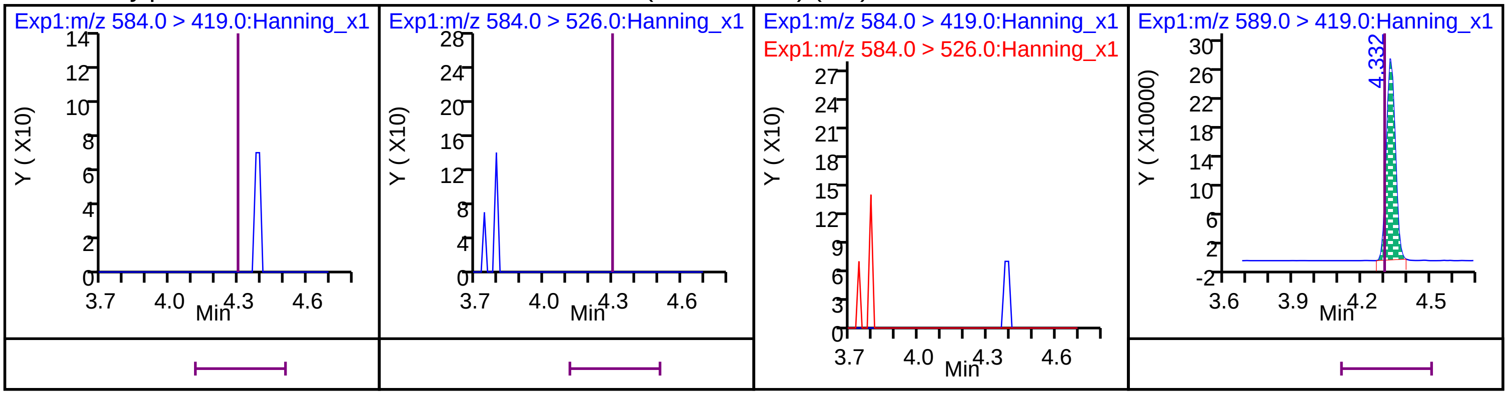
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221017.d

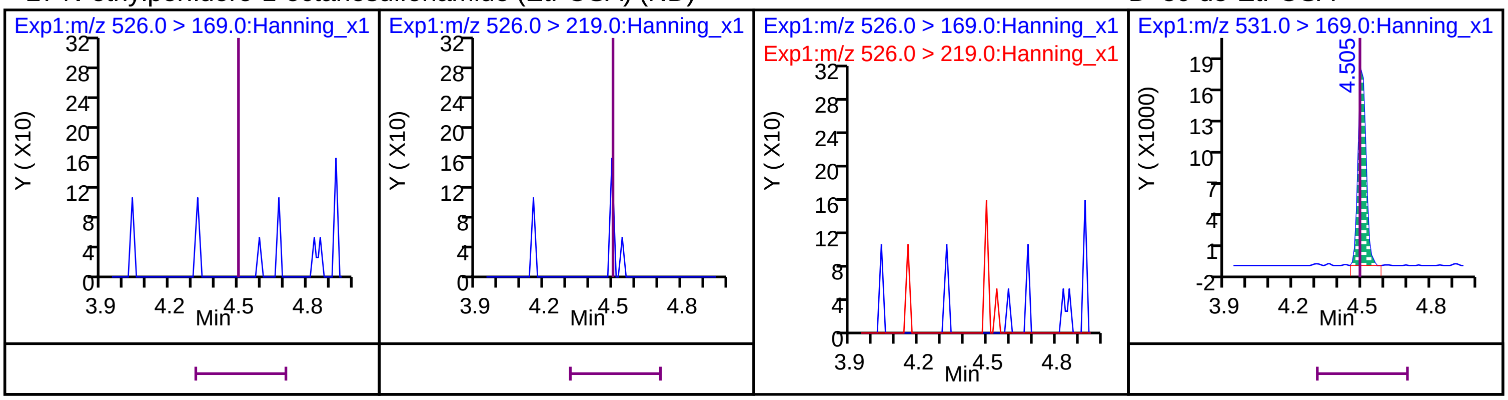
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)

D 60 d5-EtFOSAA



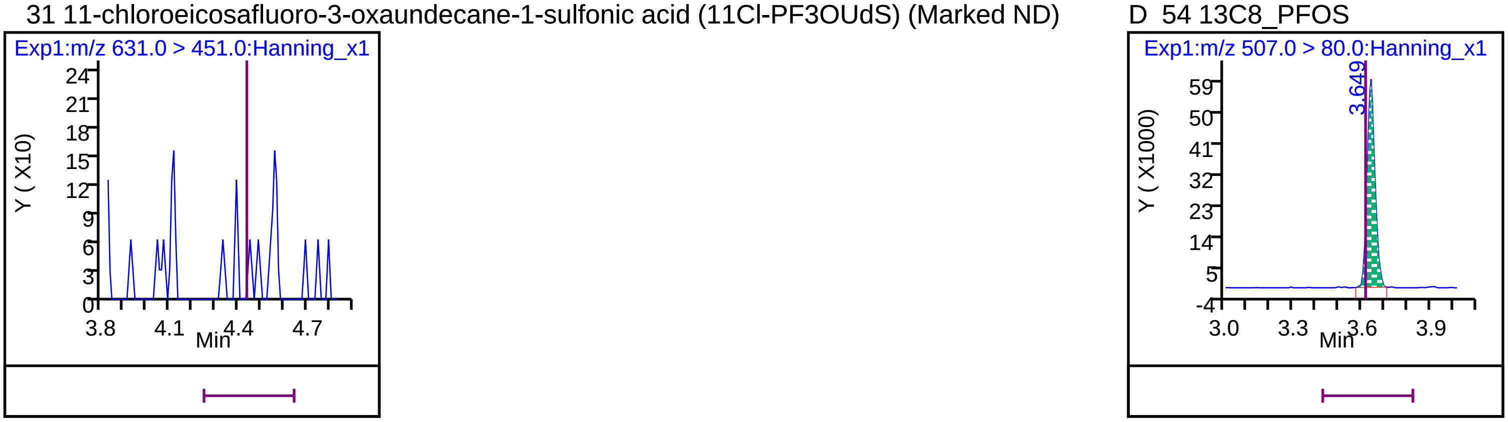
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

D 59 d5-EtFOSA



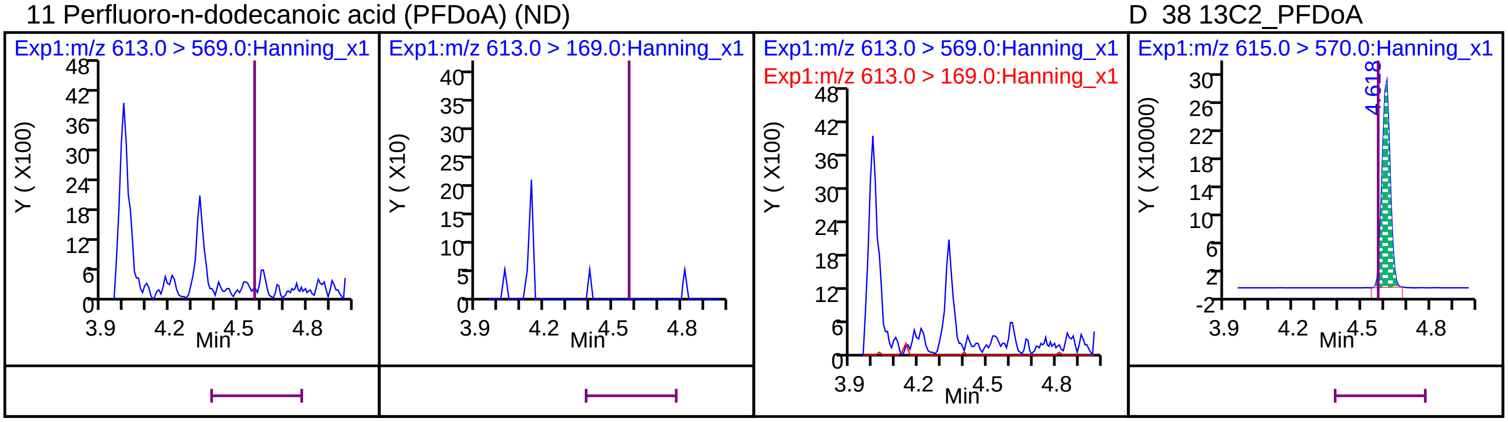
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

D 54 13C8_PFOS

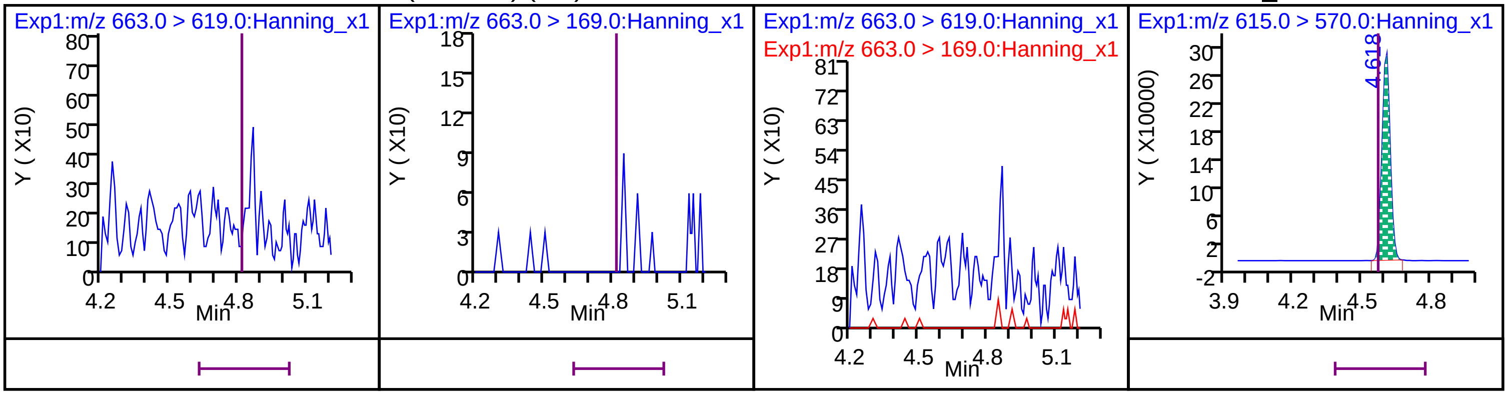


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

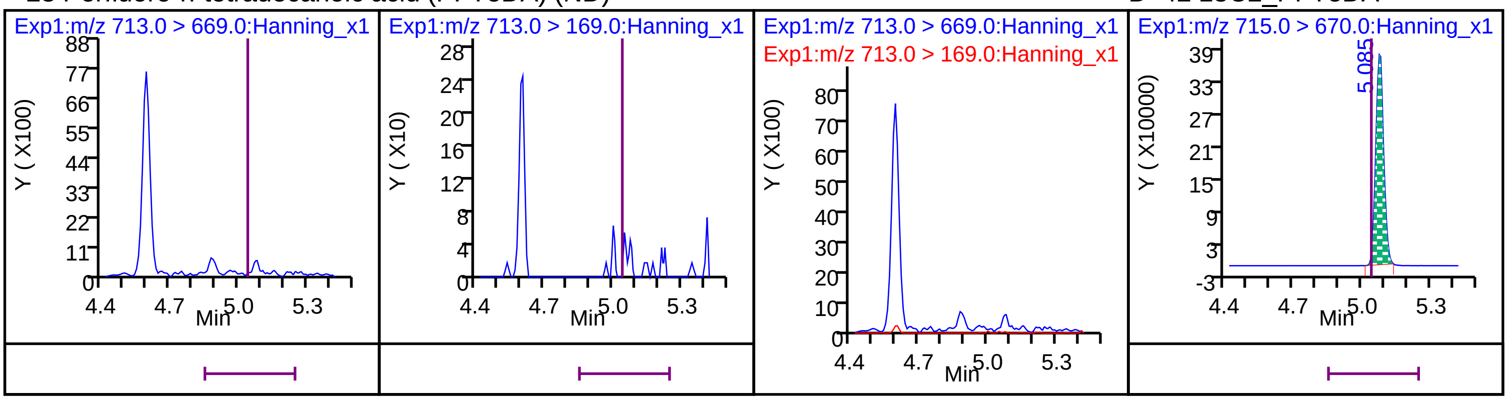
D 38 13C2_PFDoA



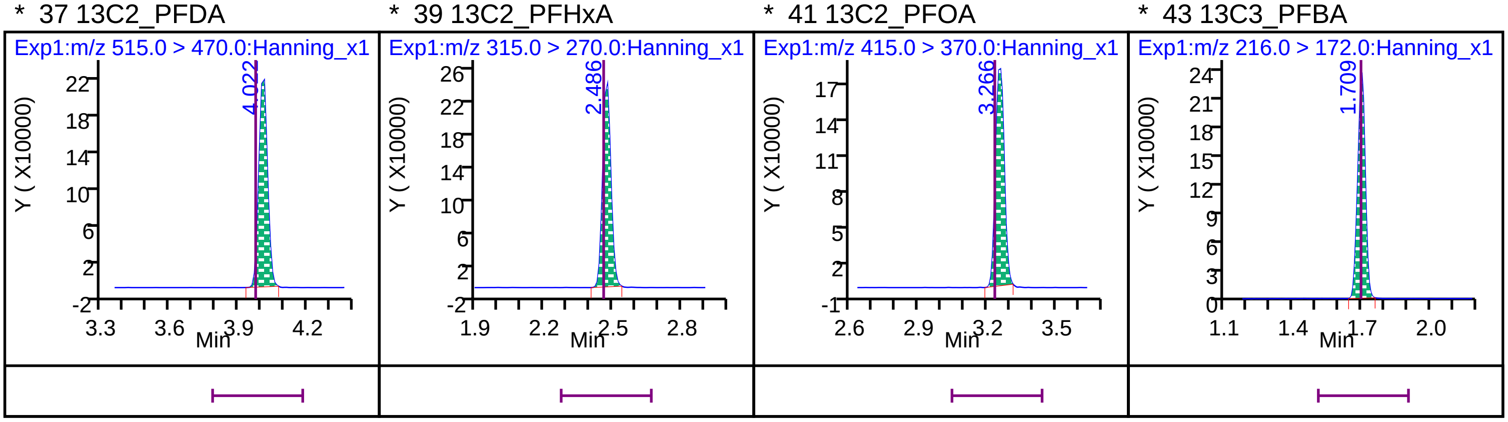
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



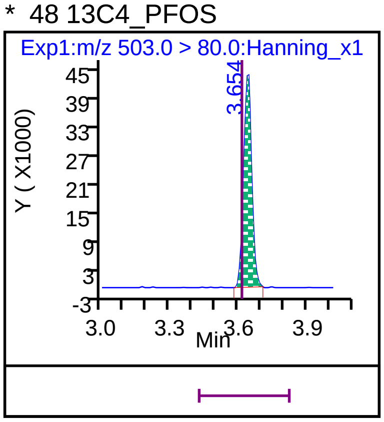
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-002	
Description: POL-DPT0136-022.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1035	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1627	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.2	U	8.4	4.2	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.8		4.2	2.1	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	3.3	I	4.2	2.1	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	29		4.2	2.1	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	65		4.2	2.1	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.9		4.2	2.1	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13		4.2	2.1	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.6		4.2	2.1	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	15		4.2	2.1	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.2	2.1	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	7.2		4.2	2.1	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		150	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		69	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-002	
Description: POL-DPT0136-022.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1035	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		91	50-150
13C9_PFNA		94	50-150
d-EtFOSA		58	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d		
Injection Date:	12-Nov-2021 16:27:16	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	16
Lab Sample ID:	WK01012-002	Lab Prep. Batch:	22105
Client ID:	POL-DPT0136-022.0-20211028	Sample Group:	WK01012
Sample Info:	WK01012-002	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0463671

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	237	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	426629	18	>100:1			1001.00	686.26	70.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.712	0/0	634896	17	91:1			1412.49	65.493		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.099	1	482875	14	>100:1			1001.00	844.79	88.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.099	1/0	171039	15	35:1			315.03	14.607		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.151	1	145675	17	>100:1			1001.00	842.20	89.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.151	1/0	22752	15	72:1	Target = 3.53		125.37	5.8130		
298.9 > 99	44	2.162	2.151		6787	14	14:1	3.35 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													J
349 > 80	44	2.523	2.505	2/1	9568	14	45:1	Target = 3.10		70.941	3.2893		
349 > 99	44	2.514	2.505		3452	20	16:1	2.77 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.425	1	154946	14	>100:1			5005.00	6842.78	148.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.433		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.469	2	596911	15	>100:1			1001.00	916.51	95.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.469	2/0	173780	12	64:1	Target = 18.91		280.28	12.996		M
313 > 119	49	2.478	2.469		9302	15	44:1	18.68 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.599	2.583	1	1000410	18	>100:1			5005.00	4316.65	90.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.845	2	511539	16	>100:1			1001.00	963.46	97	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.845	1/-1	83810	20	35:1	Target = 3.80		149.25	6.9204		
363 > 169	47	2.864	2.845		20026	16	>100:1	4.18 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.881	2.864	2	119376	16	>100:1			1001.00	950.15	103.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.881	2.864	2/0	81126	24	>100:1	Target = 2.89	6.42	618.77	28.690		
399 > 99	45	2.881	2.864		30207	25	>100:1	2.68 (1.44-4.34)	7.40				M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.241		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.235	3.214	2	97478	21	>100:1			5005.00	5415.46	117	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.214		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.262	3.241	2	503557	21	>100:1			1001.00	959.75	98	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.262	3.241	2/0	84384	33	68:1	Target = 2.89	8.74	163.69	7.5899		
413 > 169	53	3.262	3.241		27890	40	>100:1	3.02 (1.44-4.34)	8.50				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.652	3.625	2	106363	21	>100:1			1001.00	858.85	97.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.522	3.625	-6/-8	19869	36	65:1	Target = 3.30		157.05	7.2817		M
499 > 99	54	3.652	3.625		6283	97		3.16 (1.65-4.95)	0.91				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.838		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.974		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.288		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.446		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.632	2	584484	21	>100:1			1001.00	912.72	99.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.632		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	3.984	2	528376	16	>100:1			1001.00	919.46	89.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.995		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	3.984	2	92041	15	>100:1			5005.00	5325.06	111.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.984		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.170	4.142	2	643962	18	>100:1			5005.00	4261.47	97.3	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.142		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.329	4.308	2	543286	16	>100:1			5005.00	4194.83	89.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.308		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.329	4.308	2	521578	16	>100:1			1001.00	866.05	82.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.308		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.501	1	22640	14	>100:1			1001.00	526.51	62.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.510		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.580	2	482578	17	>100:1			1001.00	803.85	79.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.580		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.825		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.081	5.050	2	461061	20	>100:1			1001.00	567.12	58.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.050		ND								
*** 37 13C2_PFDA**													
515 > 470		4.017	3.984	2	704909	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.469	2	641858	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.262	3.241	2	540160	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.705	1	405645	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.625	2	120625	21	>100:1			200.00			

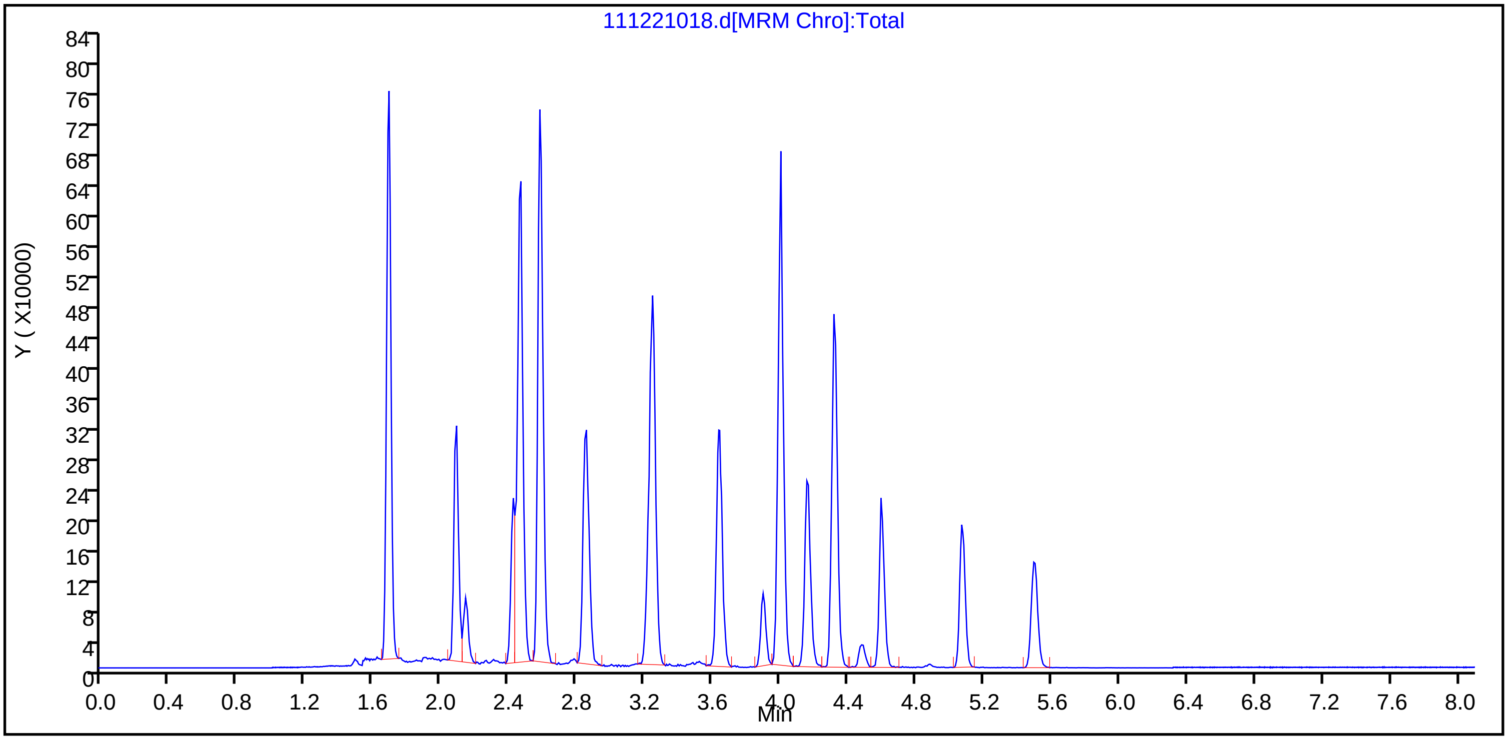
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

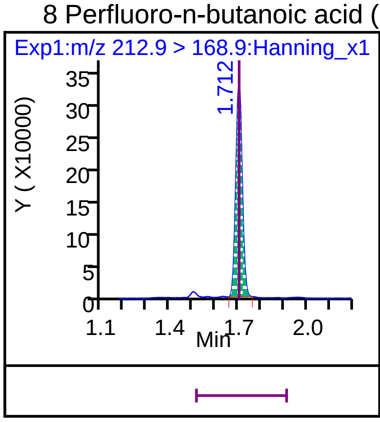
Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

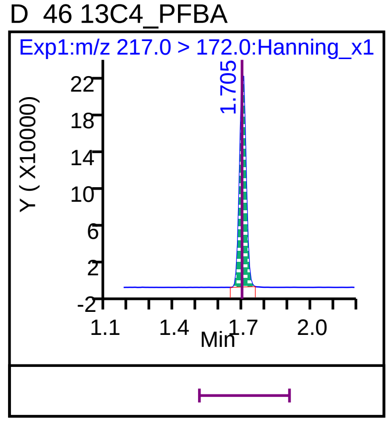
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d		
Injection Date:	12-Nov-2021 16:27:16	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-022.0-20211028	Lab ID:	WK01012-002
Sample Info:	WK01012-002		
Dil. Factor:	1	Operator:	Justin Gavin



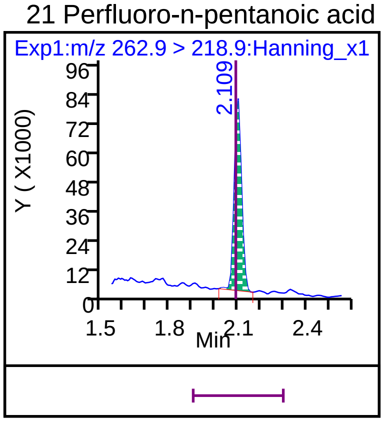
8 Perfluoro-n-butanoic acid (PFBA)



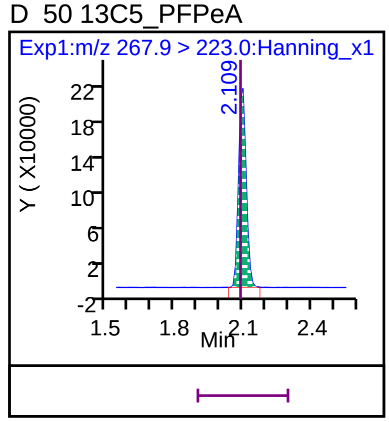
D 46 13C4_PFBA



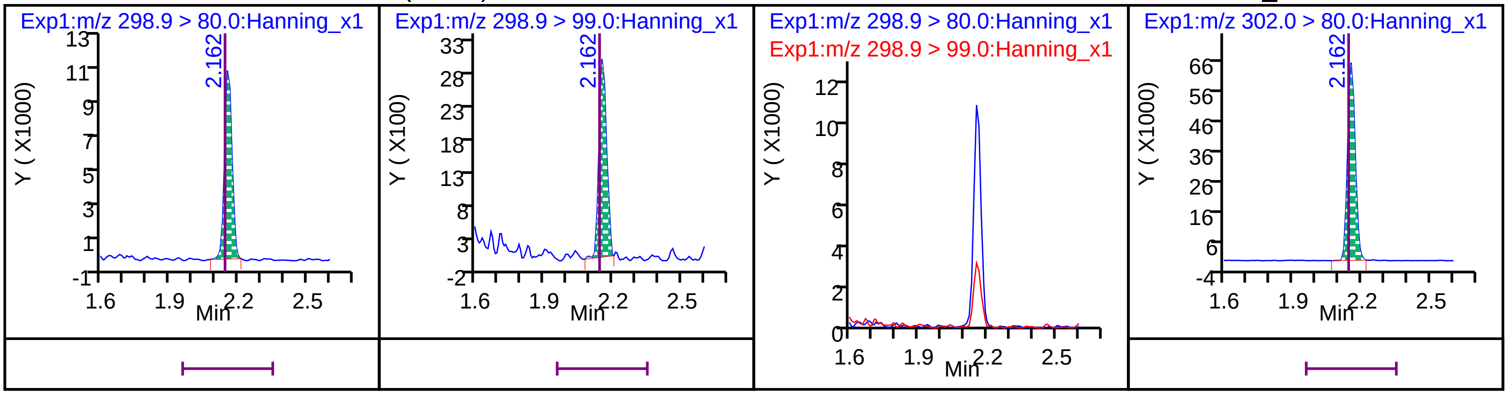
21 Perfluoro-n-pentanoic acid (PFPeA)



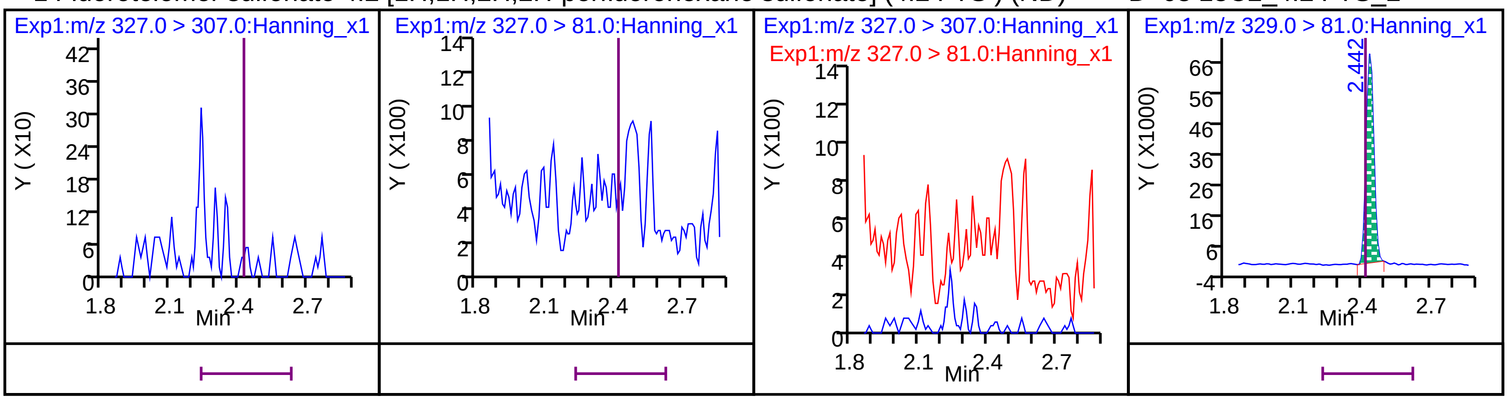
D 50 13C5_PFPeA



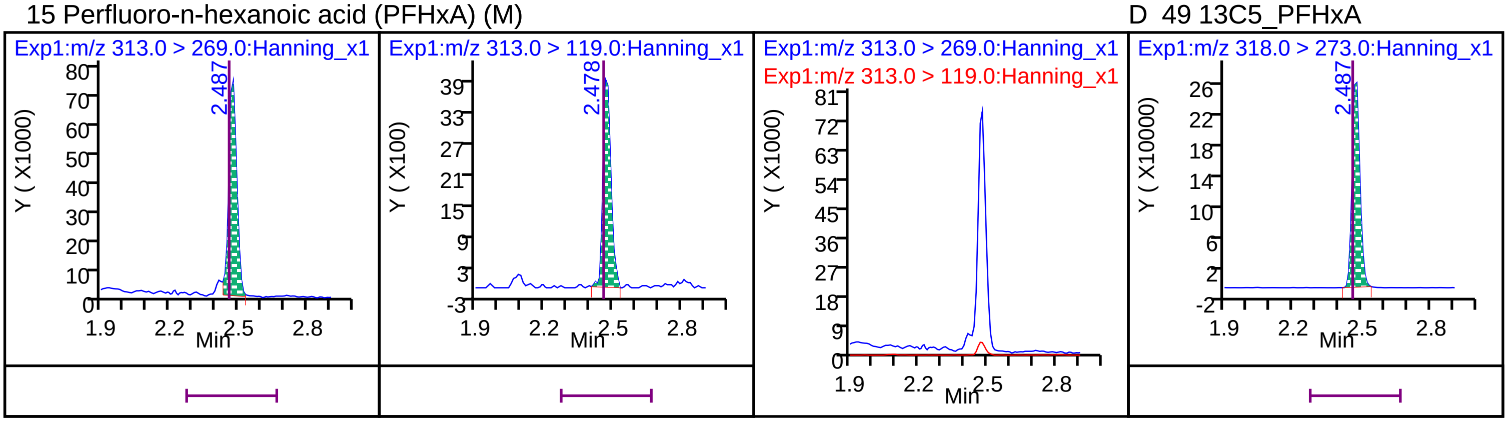
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



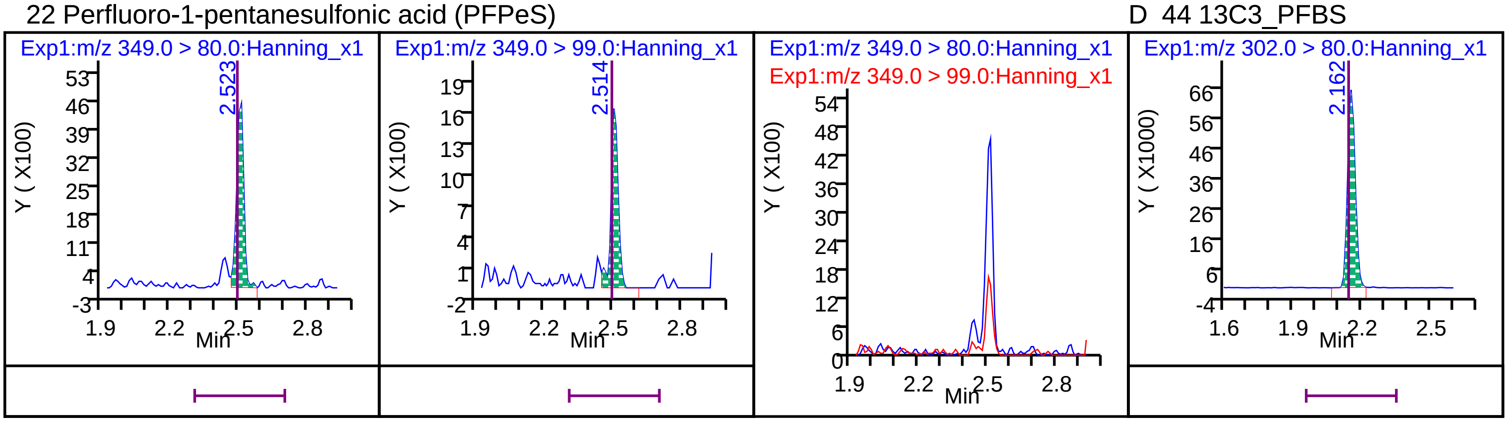
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA

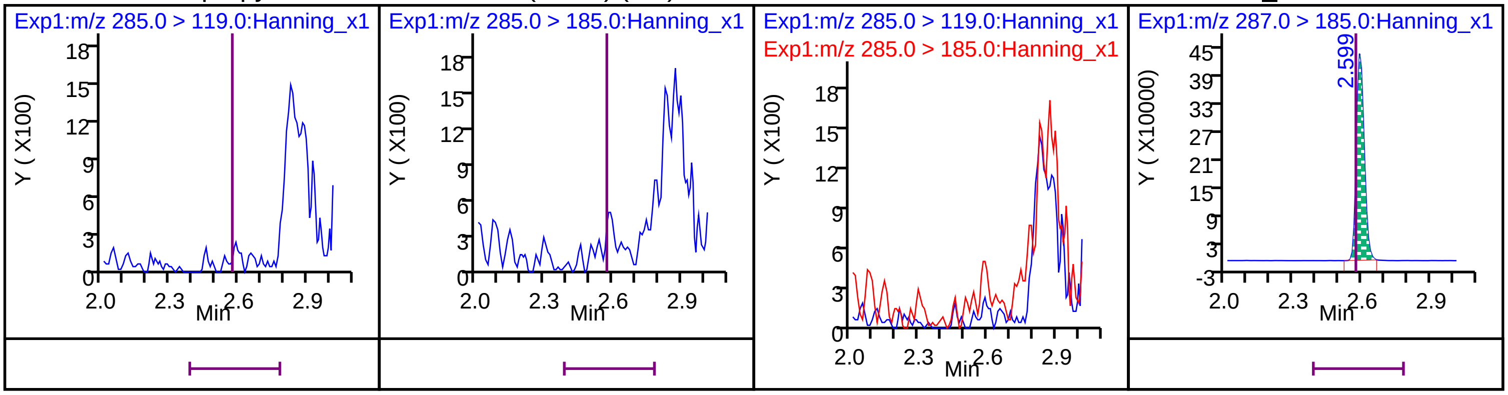


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

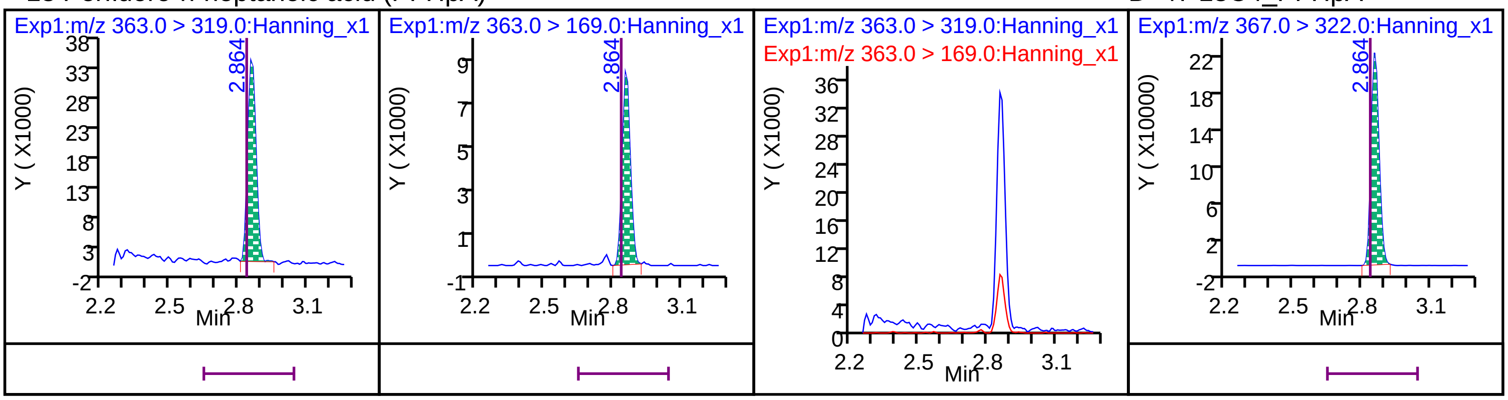


Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d

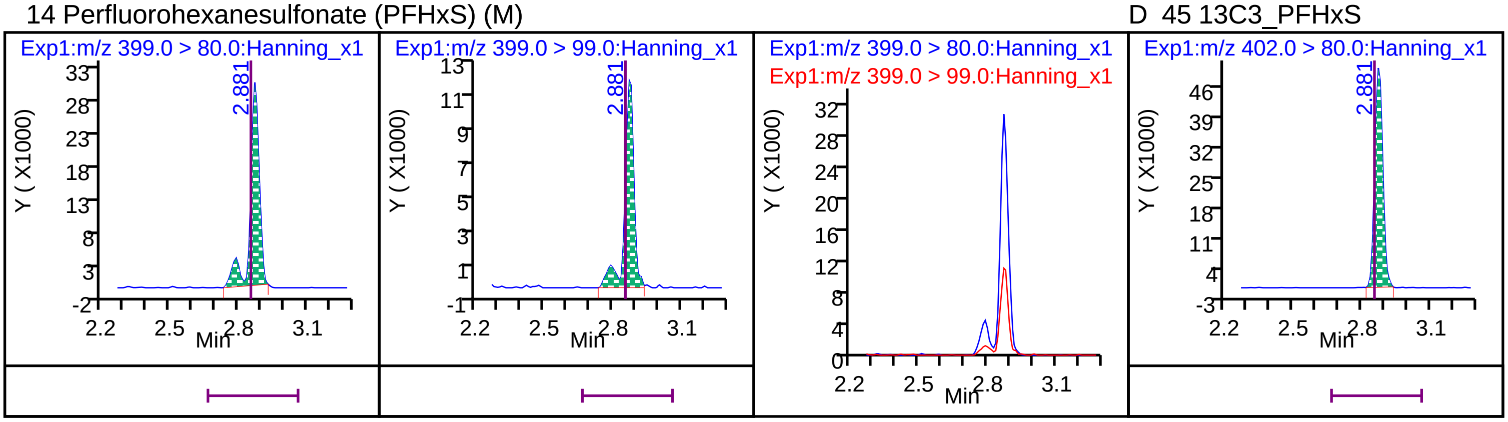
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



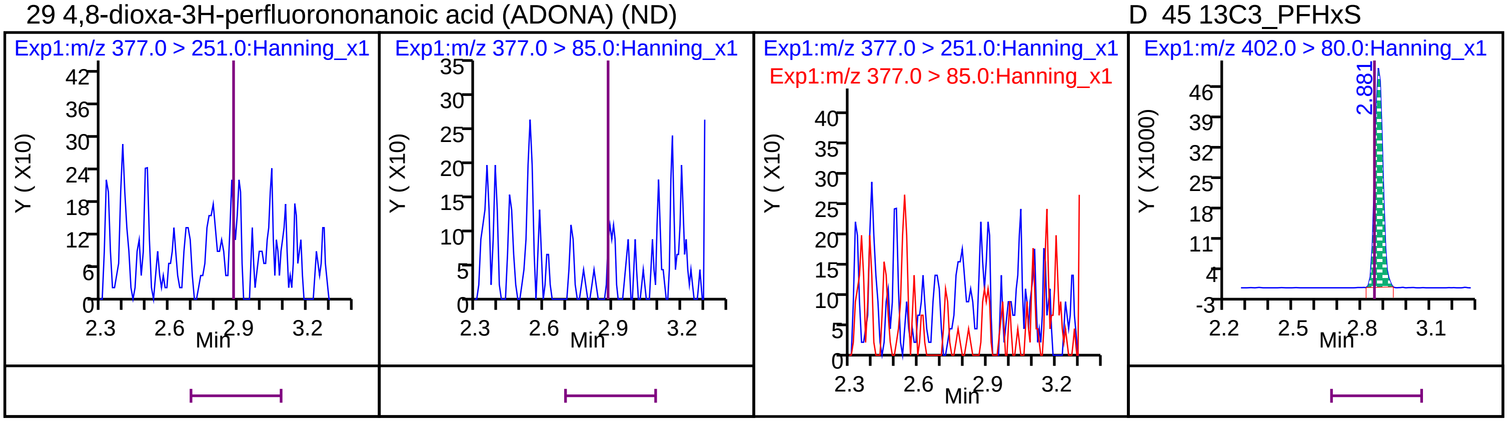
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



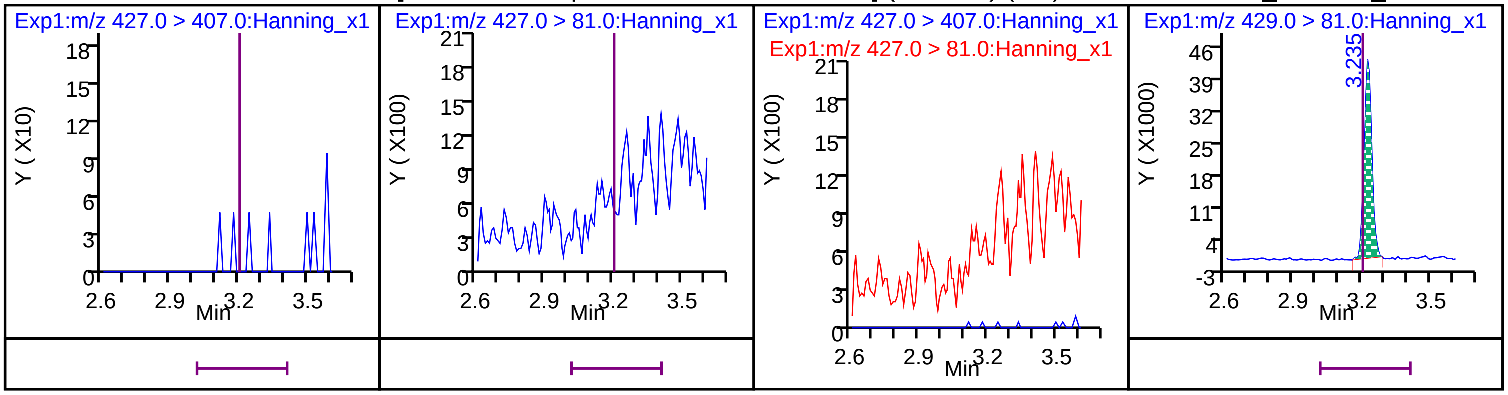
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



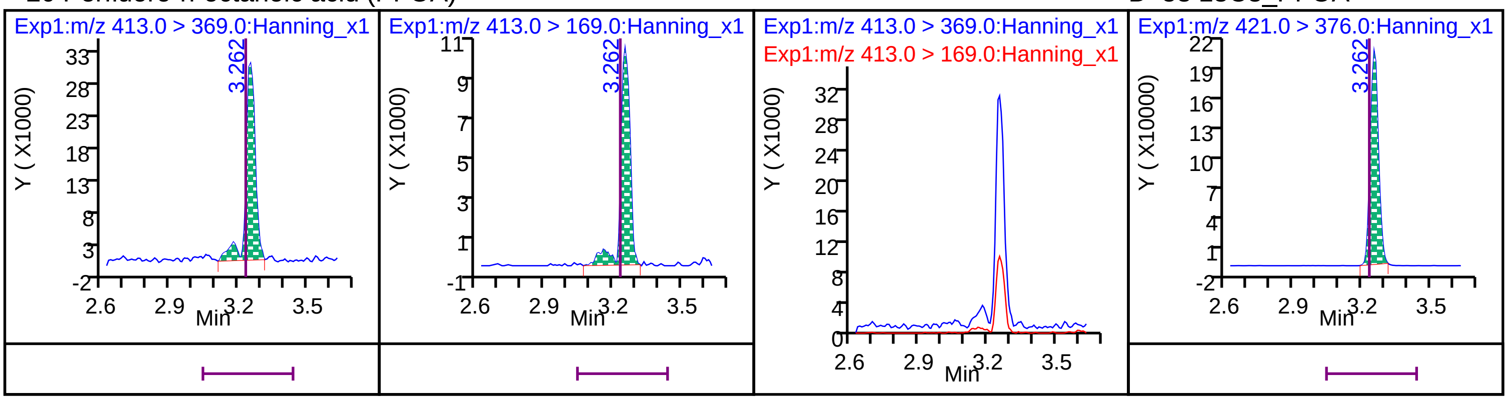
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



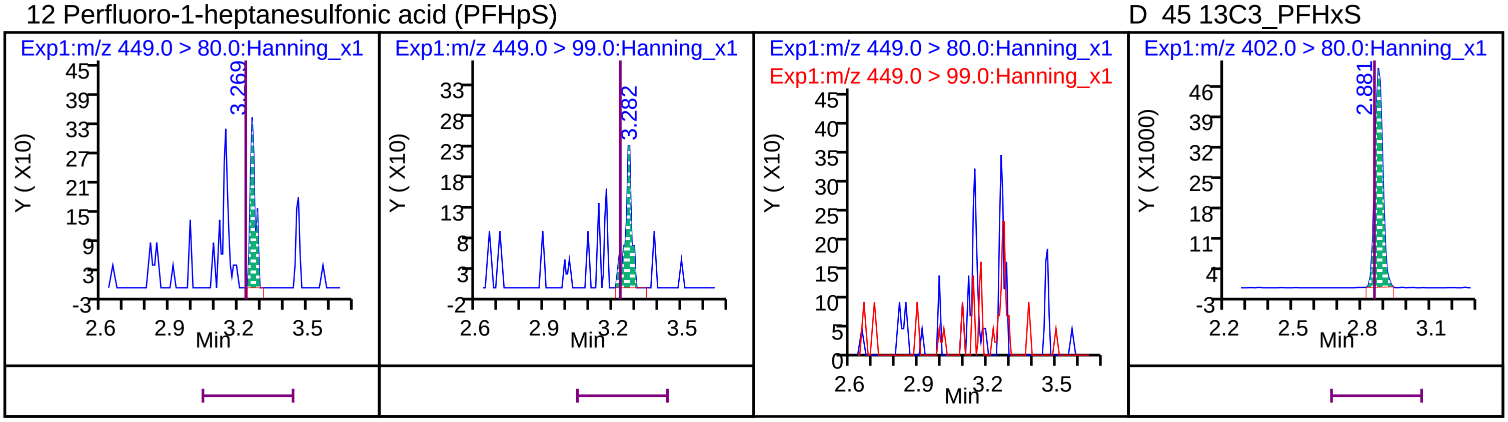
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



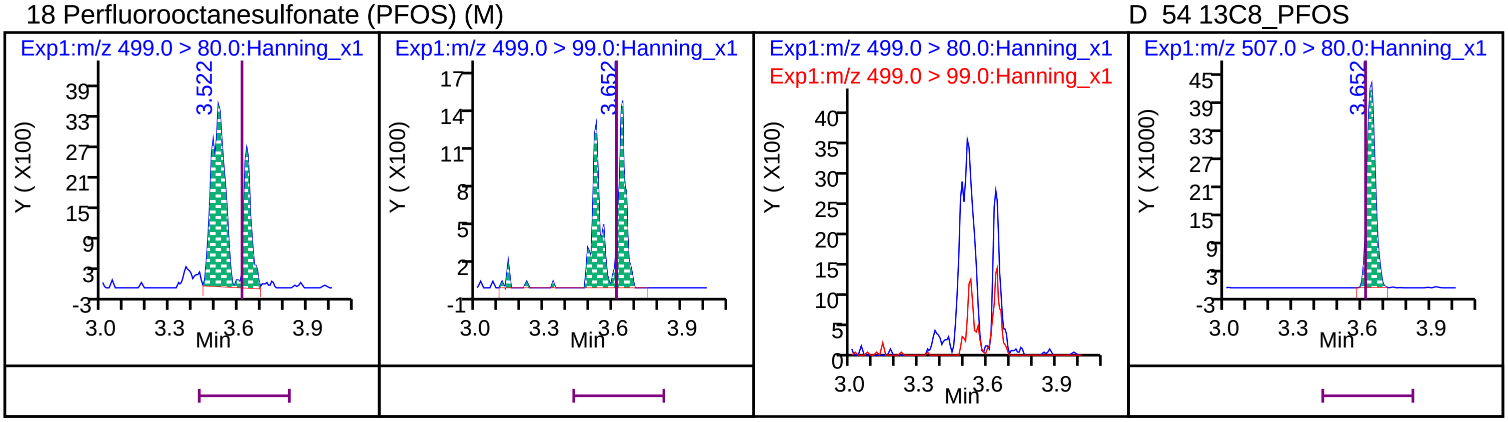
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



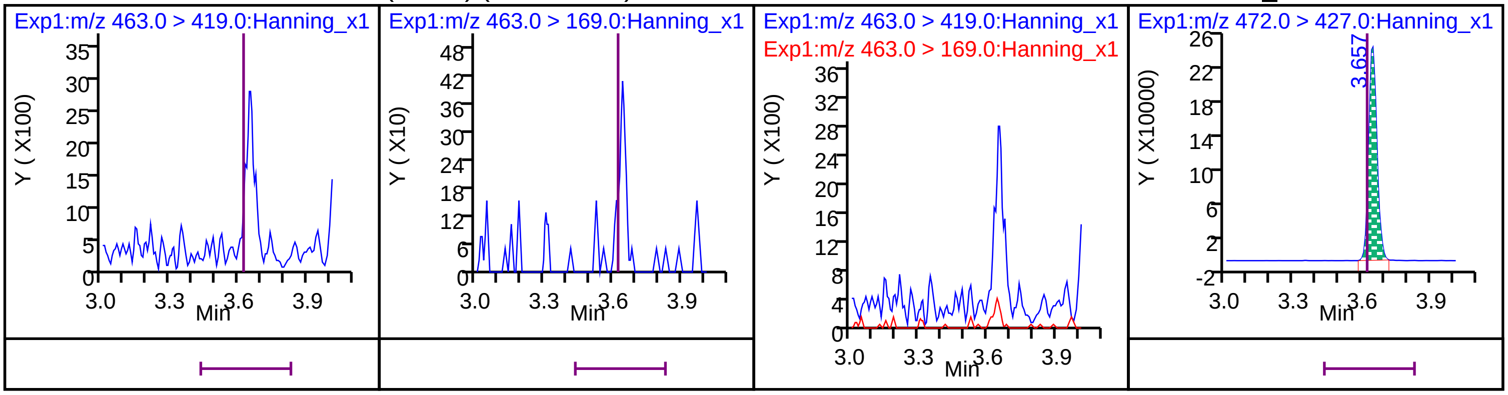
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



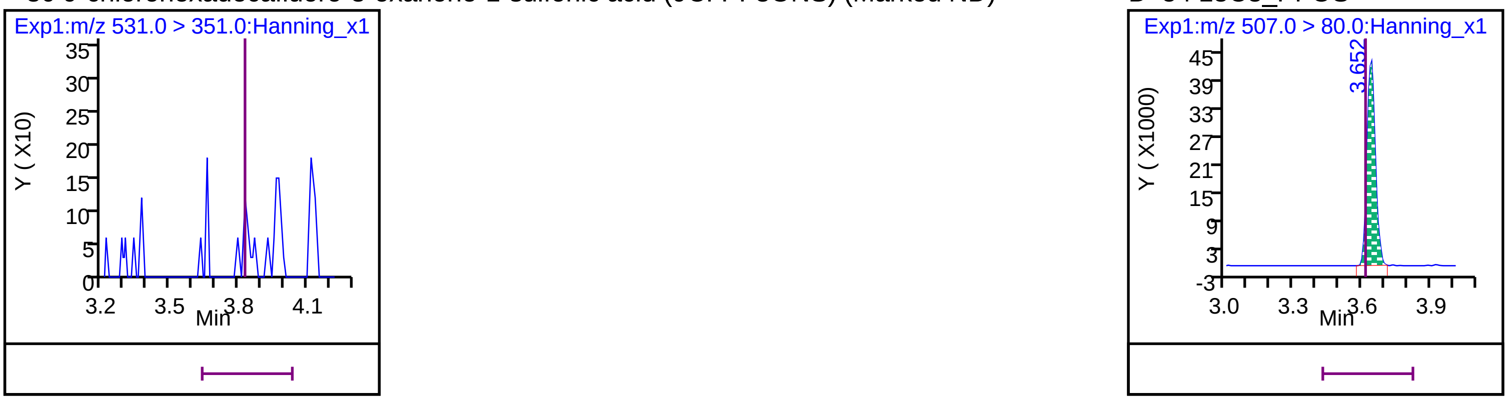
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



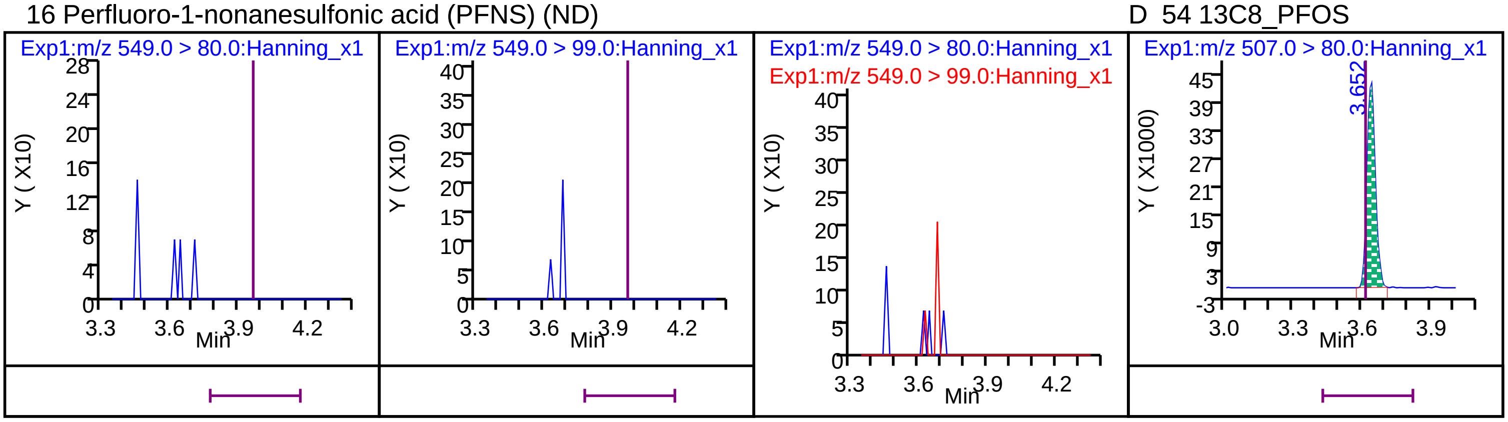
17 Perfluoro-n-nonanoic acid (PFNA) (Marked ND) D 56 13C9_PFNA



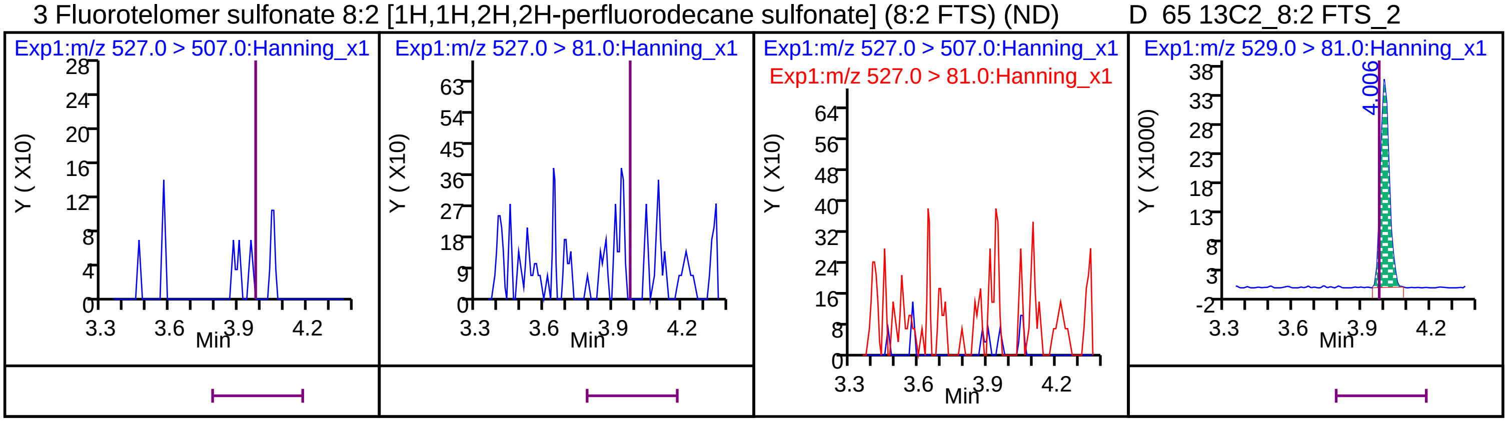
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



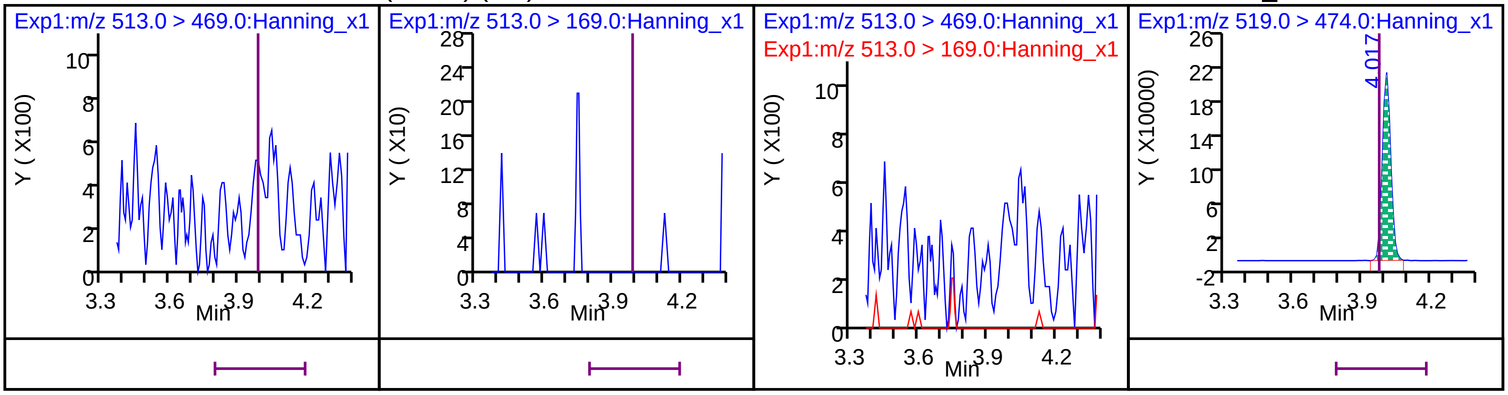
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



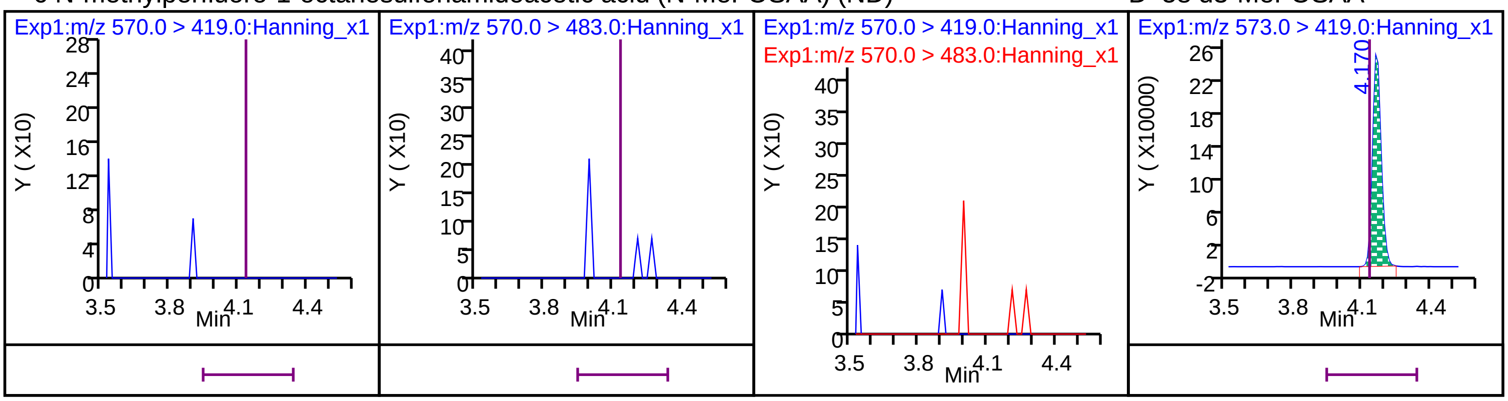
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



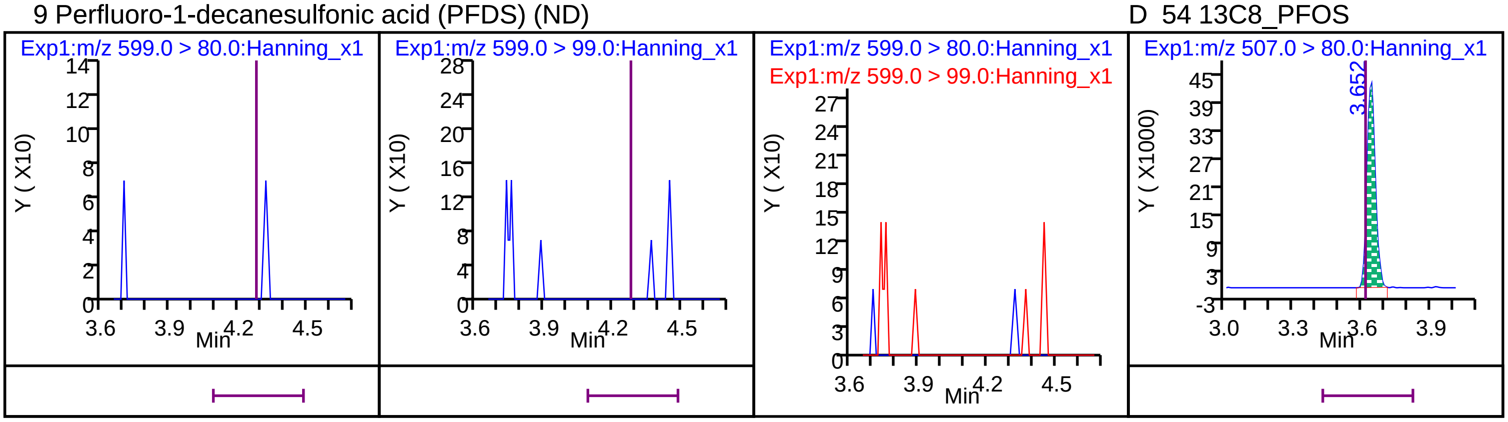
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



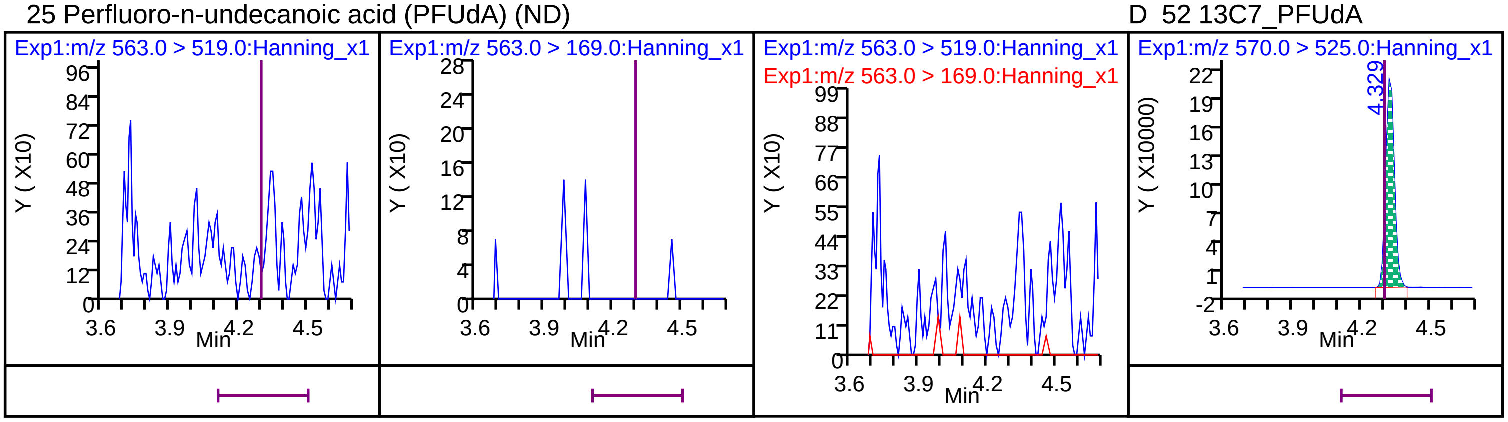
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



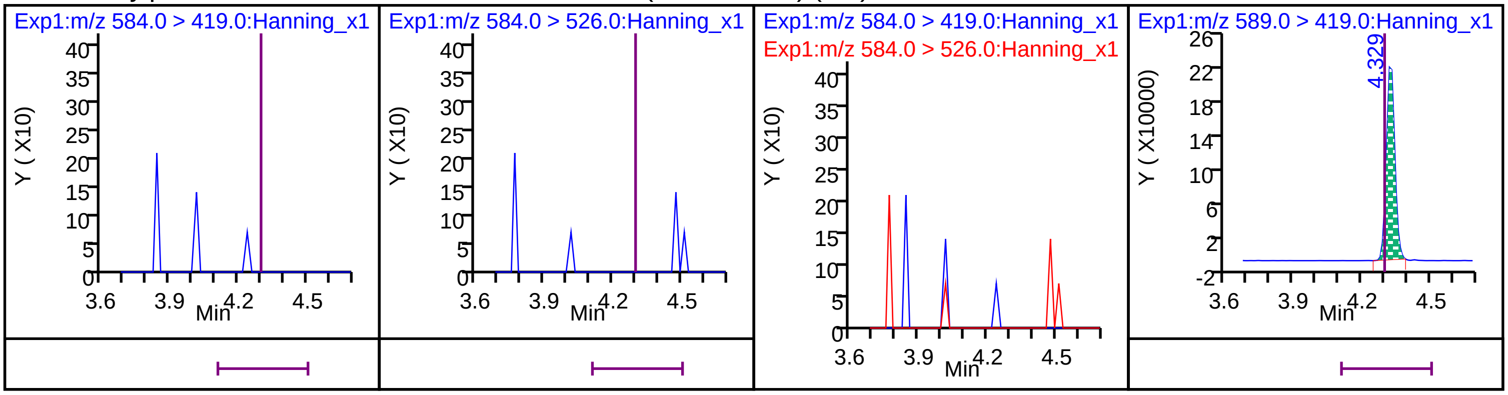
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



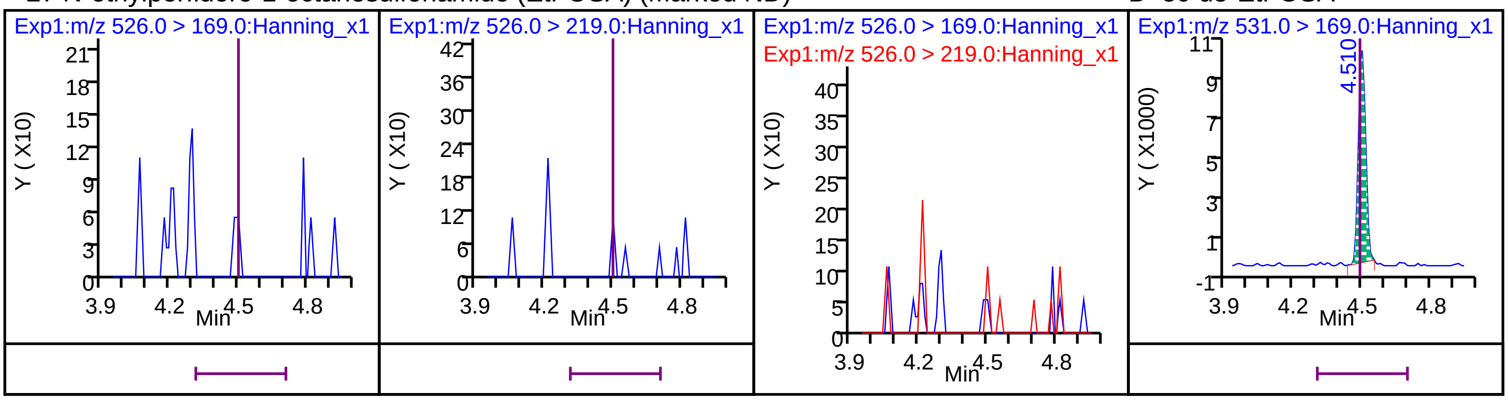
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



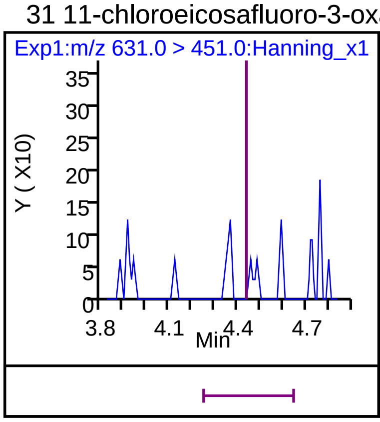
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

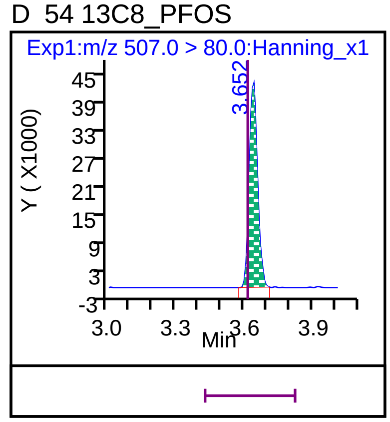


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND) D 59 d5-EtFOSA

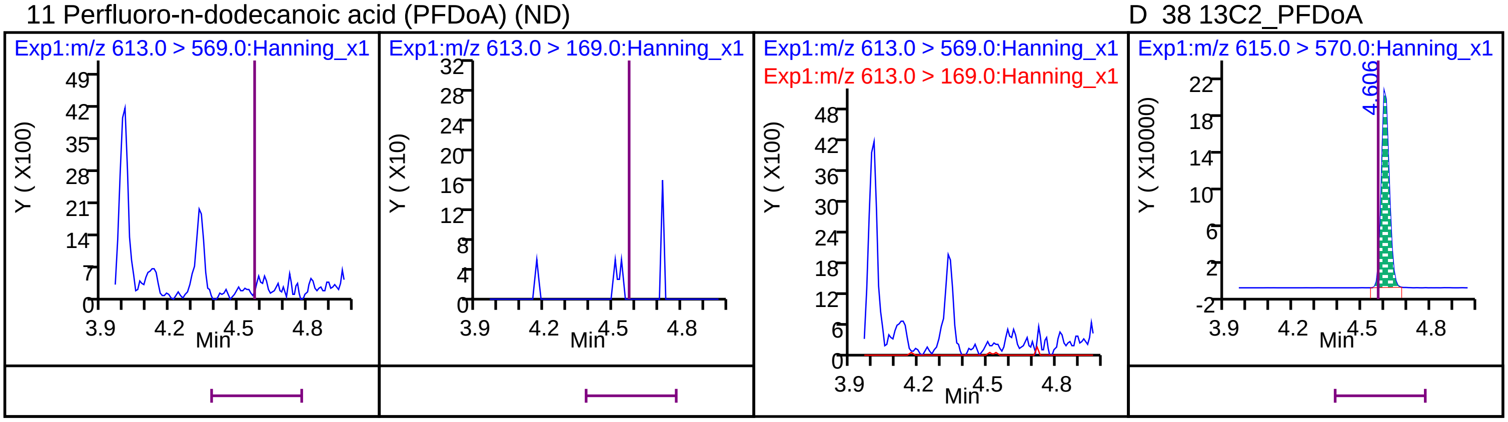


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ND) D 54 13C8_PFOS





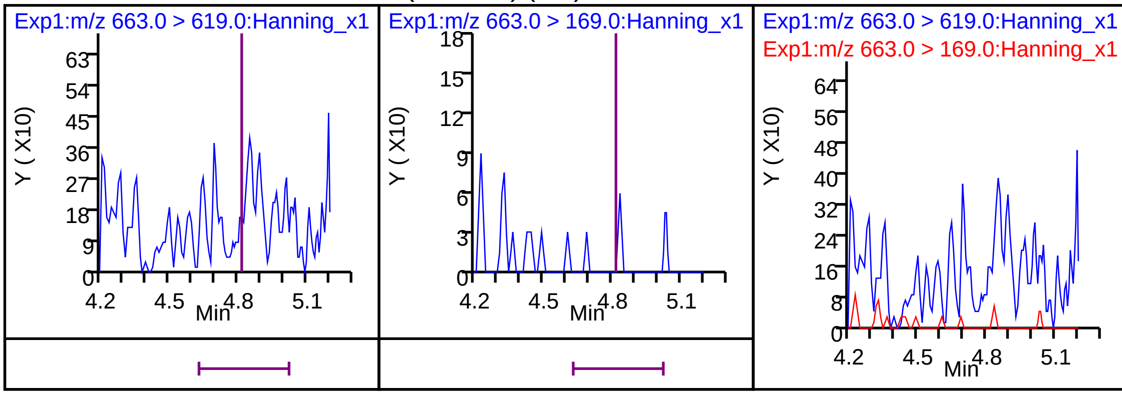
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



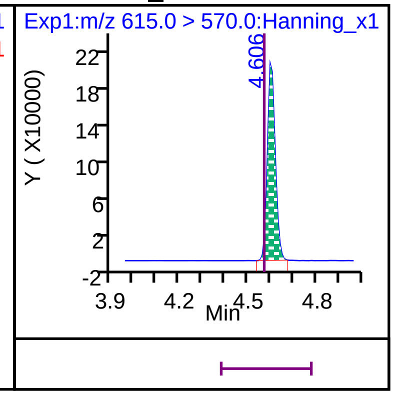
Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d

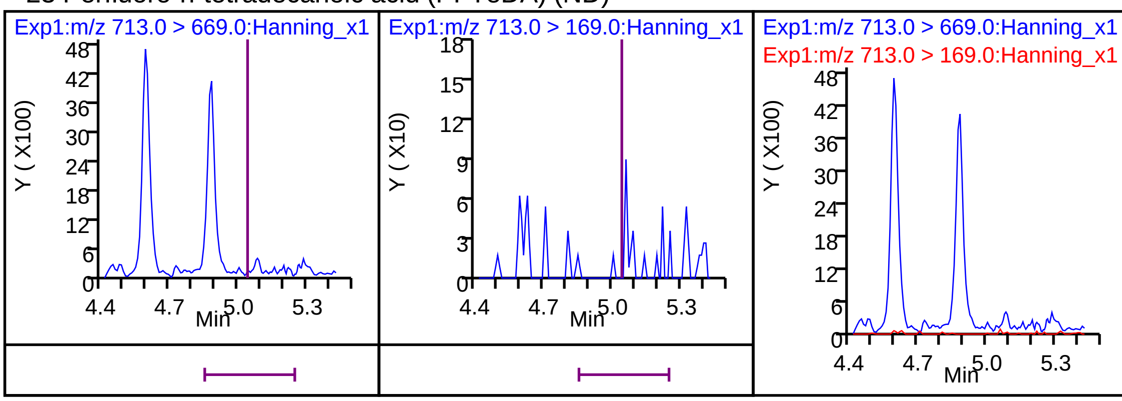
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



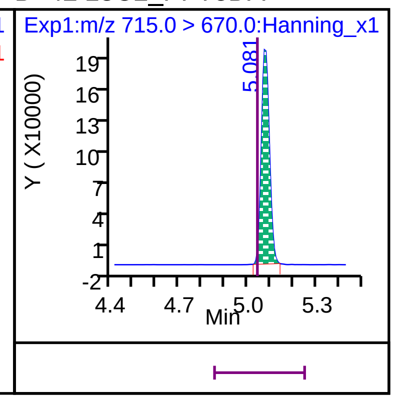
D 38 13C2_PFDoA



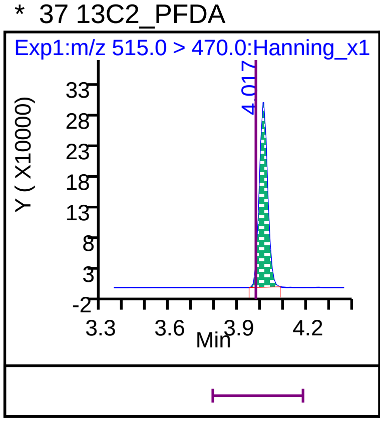
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



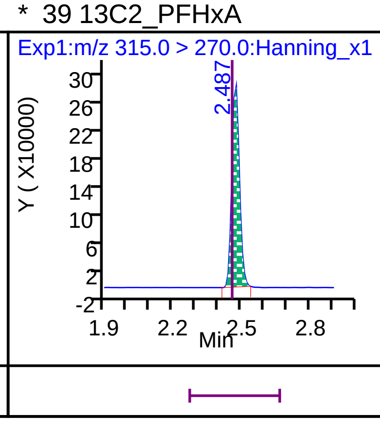
D 42 13C2_PFTeDA



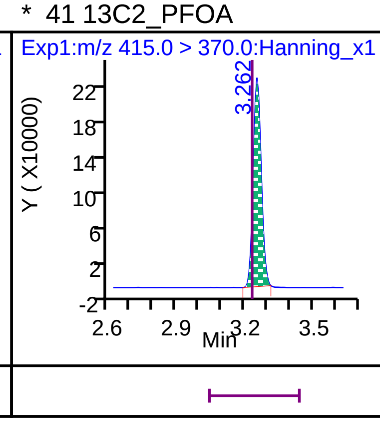
* 37 13C2_PFDA



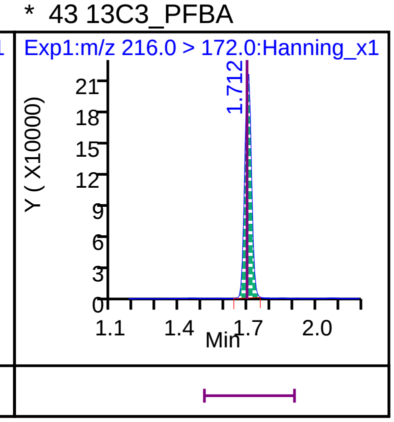
* 39 13C2_PFHxA



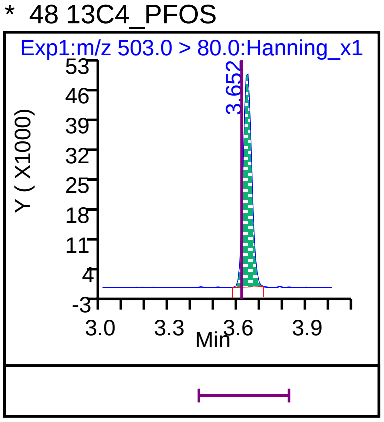
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

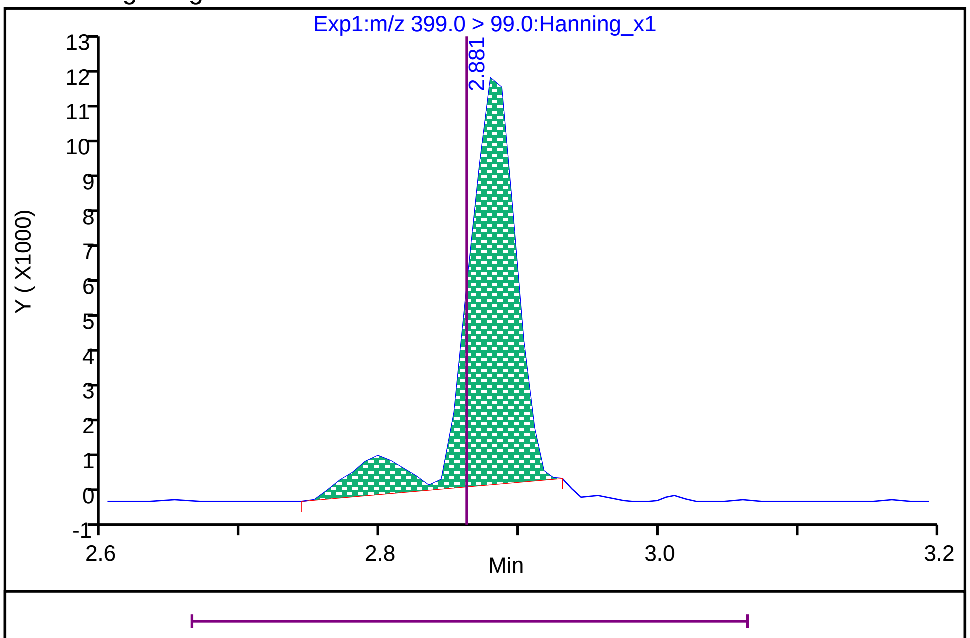
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d		
Injection Date:	12-Nov-2021 16:27:16	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-022.0-20211028	Lab ID:	WK01012-002
Sample Info:	WK01012-002		
Dil. Factor:	1	Operator:	Justin Gavin

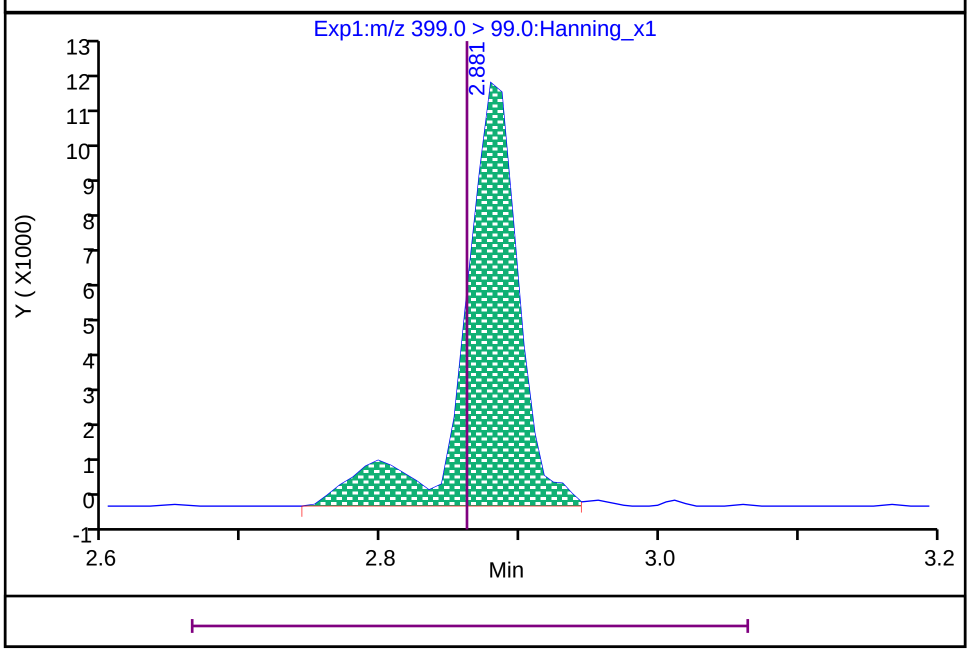
14 PFHxS, CAS: 355-46-4

RT:	2.881
Area:	26654
Conc:	28.690
Conc Units:	ng/L

Processing Integration Results



RT:	2.881
Area:	30207
Conc:	28.690
Conc Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:33:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

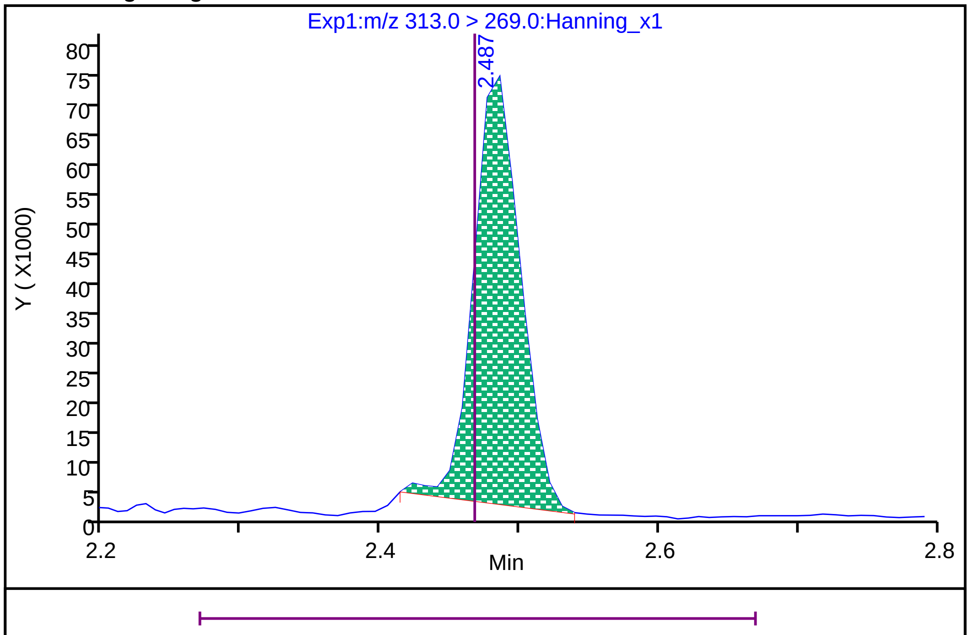
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d		
Injection Date:	12-Nov-2021 16:27:16	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-022.0-20211028	Lab ID:	WK01012-002
Sample Info:	WK01012-002		
Dil. Factor:	1	Operator:	Justin Gavin

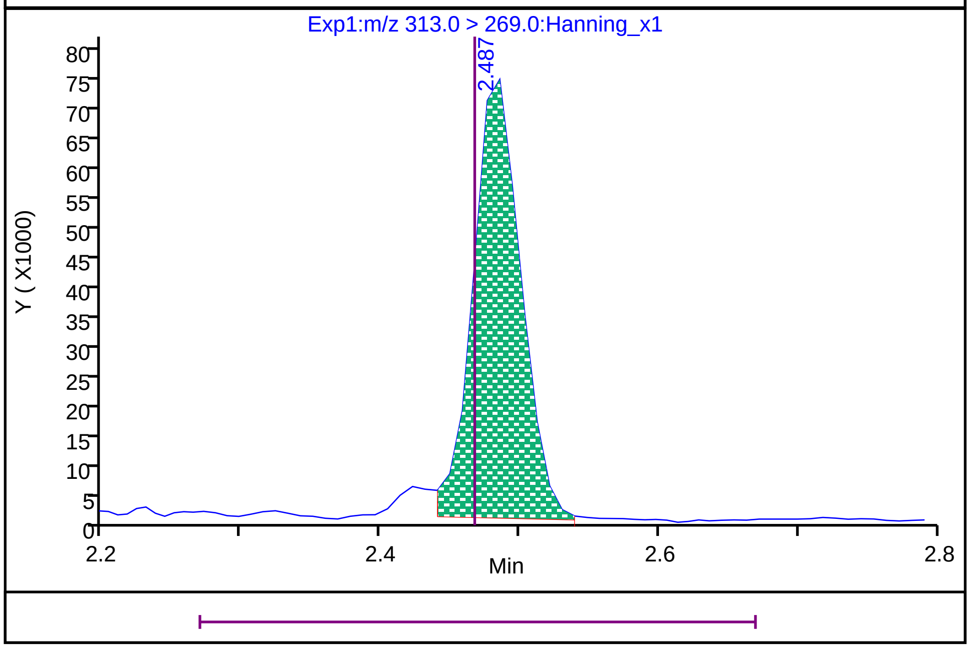
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.487
Area:	166540
Conc:	12.454
Conc Units:	ng/L



RT:	2.487
Area:	173780
Conc:	12.996
Conc Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:33:15

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

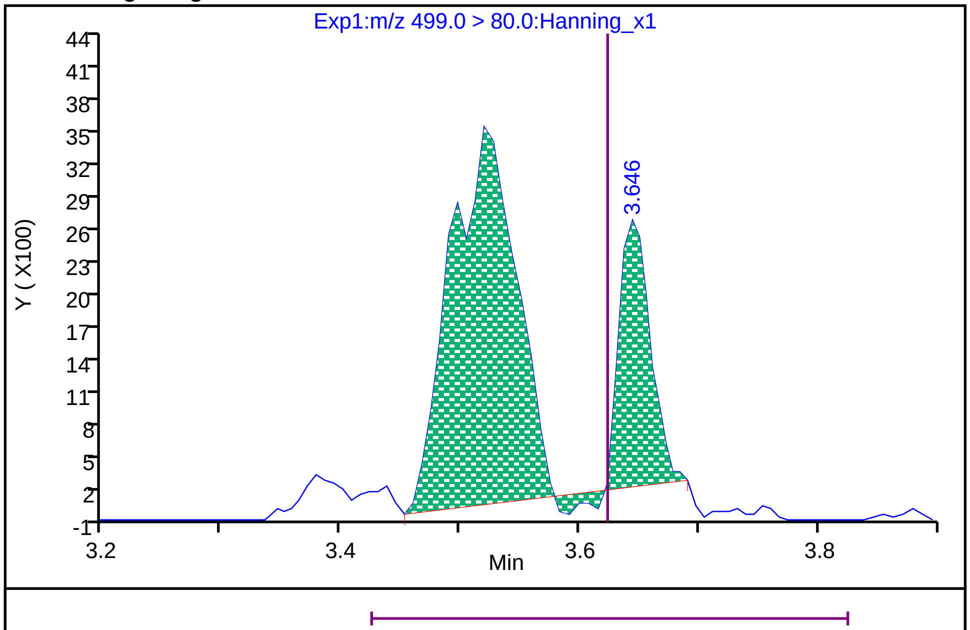
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221018.d		
Injection Date:	12-Nov-2021 16:27:16	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-022.0-20211028	Lab ID:	WK01012-002
Sample Info:	WK01012-002		
Dil. Factor:	1	Operator:	Justin Gavin

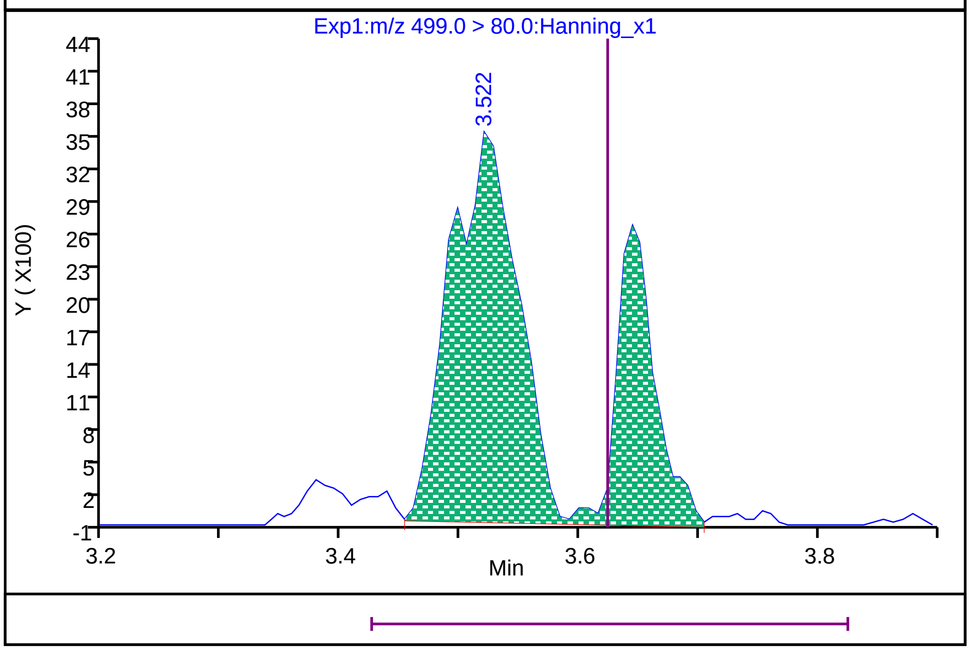
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.646
Area:	16994
Conc:	6.1748
Conc Units:	ng/L



RT:	3.522
Area:	19869
Conc:	7.2817
Conc Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:33:38

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-003	
Description: POL-DPT0136-032.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1110	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1637	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	81	Q	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	49		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.8		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	51		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	270		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	39		3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	52		3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	100		3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	9.3		3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	44		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	85		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	194	50-150
13C2_6:2FTS	N	175	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		78	50-150
13C2_PFTeDA	N	37	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		60	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		89	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK01012-003
Description: POL-DPT0136-032.0-20211028	Matrix: Aqueous
Date Sampled: 10/28/2021 1110	Project Name: KSC-POL
Date Received: 10/29/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		103	50-150
13C9_PFNA		108	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d		
Injection Date:	12-Nov-2021 16:37:47	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	17
Lab Sample ID:	WK01012-003	Lab Prep. Batch:	22105
Client ID:	POL-DPT0136-032.0-20211028	Sample Group:	WK01012
Sample Info:	WK01012-003	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0410038

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	268	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	1	370704	18	>100:1			1001.00	596.30	61.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.712	1/0	375056	17	52:1			960.29	39.375		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.099	1	486213	16	>100:1			1001.00	850.63	89.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.099	1/0	1138647	12	>100:1			2082.82	85.403		M
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.151	1	152445	15	>100:1			1001.00	881.34	93.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.151	1/0	227367	17	>100:1	Target = 3.53		1197.21	49.090		
298.9 > 99	44	2.162	2.151		74460	16	>100:1	3.05 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.505	1/0	174988	14	>100:1	Target = 3.10		1239.82	50.837		
349 > 99	44	2.514	2.505		62624	14	>100:1	2.79 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.443	2.425	1	200759	17	>100:1			5005.00	8865.99	192.2*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.433		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.469	1	644998	15	>100:1			1001.00	990.34	103.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.469	2/1	1635692	14	>100:1	Target = 18.91		2441.43	100.11		M
313 > 119	49	2.487	2.469		80678	17	>100:1	20.27 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.599	2.583	1	1051006	17	>100:1			5005.00	4534.96	95.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.845	2	541012	17	>100:1			1001.00	1018.97	102.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.845	1/-1	759172	15	>100:1	Target = 3.80		1278.31	52.416		
363 > 169	47	2.864	2.845		202904	16	>100:1	3.74 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.881	2.864	2	122617	18	>100:1			1001.00	975.94	105.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.881	2.864	2/0	884105	27	>100:1	Target = 2.89	4.72	6565.03	269.19		
399 > 99	45	2.881	2.864		274927	26	>100:1	3.21 (1.44-4.34)	6.66				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.268	3.241	2/0	11789	17	56:1	Target = 3.12		93.705	3.8423		M
449 > 99	45	3.268	3.241		5204	25	79:1	2.26 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.234	3.214	2	141297	20	>100:1			5005.00	7849.85	169.6*	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.234	3.214	2/0	131980	20	>100:1	Target = 1.75		1974.87	80.977		
427 > 81	64	3.234	3.214		66644	20	100:1	1.98 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.261	3.241	2	559191	19	>100:1			1001.00	1065.78	108.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.261	3.241	2/0	616289	41	>100:1	Target = 2.89	6.00	1076.56	44.143		
413 > 169	53	3.261	3.241		194317	34	>100:1	3.17 (1.44-4.34)	4.89				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.649	3.625	2	120222	21	>100:1			1001.00	970.76	109.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.649	3.625	2/0	403887	57	>100:1	Target = 3.30	0.67	2824.33	115.81		M
499 > 99	54	3.649	3.625		96780	40		4.17 (1.65-4.95)	1.94				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.838		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.974		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.288		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.446		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.655	3.632	2	668397	22	>100:1			1001.00	1043.75	113.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.660	3.632	2/0	162861	21	>100:1	Target = 6.51		226.28	9.2784		
463 > 169	56	3.655	3.632		23301	21	>100:1	6.98 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.023	3.984	3	583423	16	>100:1			1001.00	1015.25	98.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.995		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.012	3.984	2	109522	17	>100:1			5005.00	6336.43	133.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.984		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.174	4.142	2	688775	16	>100:1			5005.00	4558.03	104.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.142		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.334	4.308	2	592041	16	>100:1			5005.00	4571.28	97.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.308		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.334	4.308	2	611960	16				1001.00	1016.12	96.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.308		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.506	4.501	1	15677	15	76:1			1001.00	364.58	43.4*	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.510		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.610	4.580	2	477067	18	>100:1			1001.00	794.67	78.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.580		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.825		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.050	3	292171	21	>100:1			1001.00	359.38	37.1*	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.050		ND								
*** 37 13C2_PFDA**													
515 > 470		4.012	3.984	2	847302	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.469	2	799045	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.261	3.241	2	633653	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.705	1	392767	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.649	3.625	2	143688	21	>100:1			200.00			

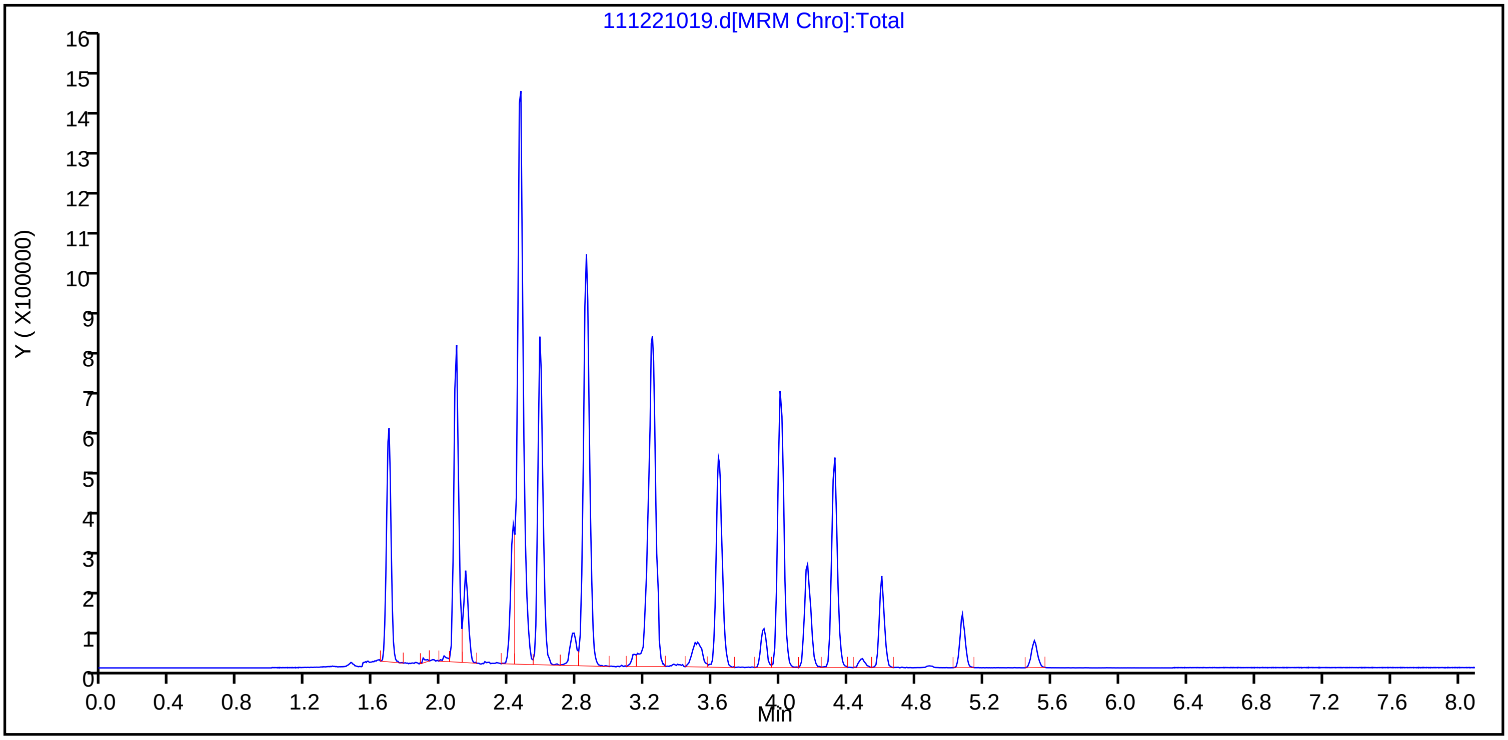
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated

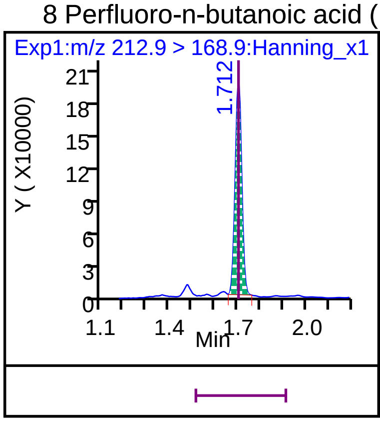
Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

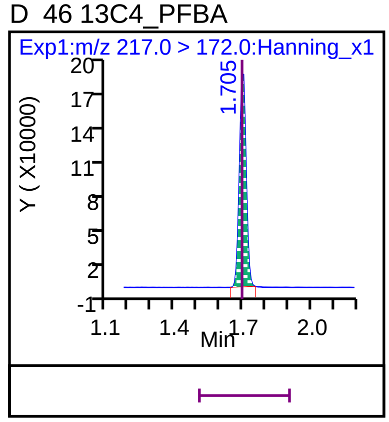
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d		
Injection Date:	12-Nov-2021 16:37:47	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-032.0-20211028	Lab ID:	WK01012-003
Sample Info:	WK01012-003		
Dil. Factor:	1	Operator:	Justin Gavin



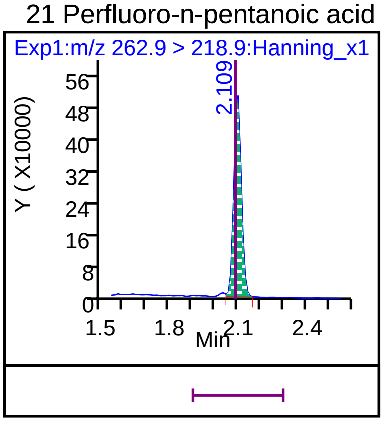
8 Perfluoro-n-butanoic acid (PFBA)



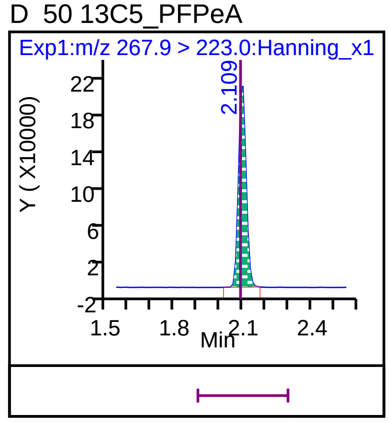
D 46 13C4_PFBA



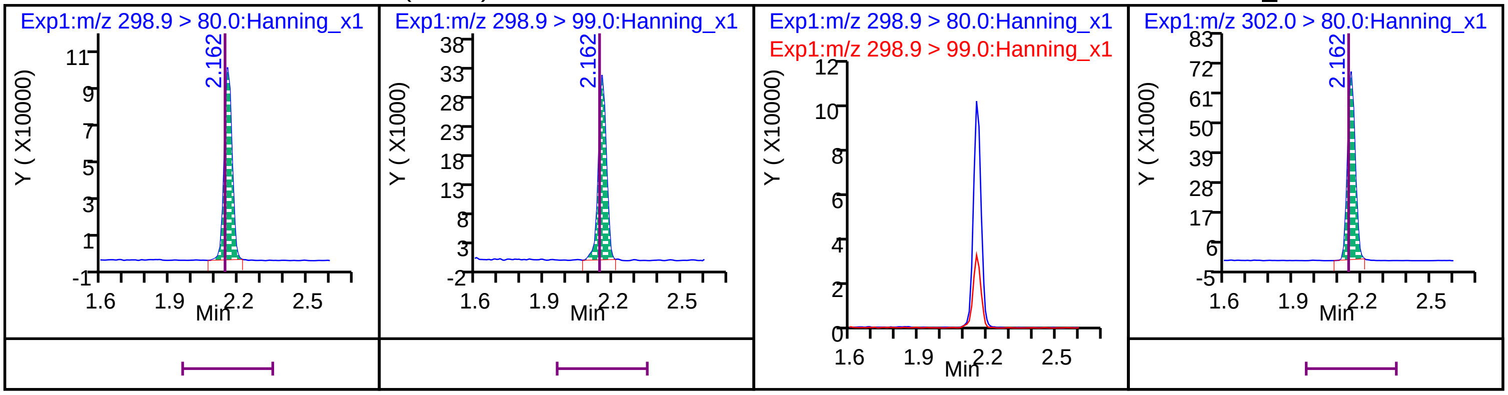
21 Perfluoro-n-pentanoic acid (PFPeA) (M)



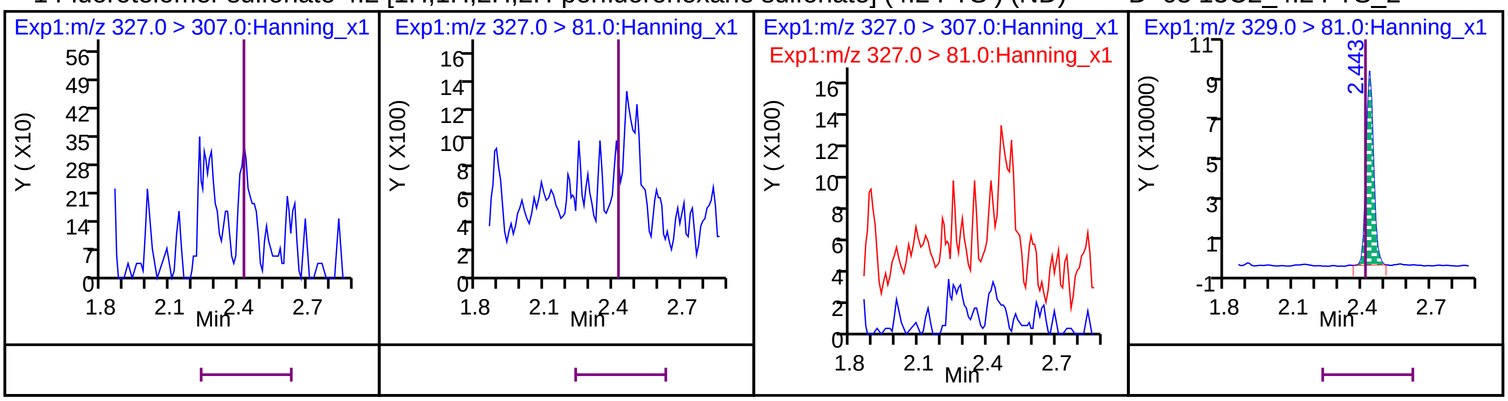
D 50 13C5_PFPeA



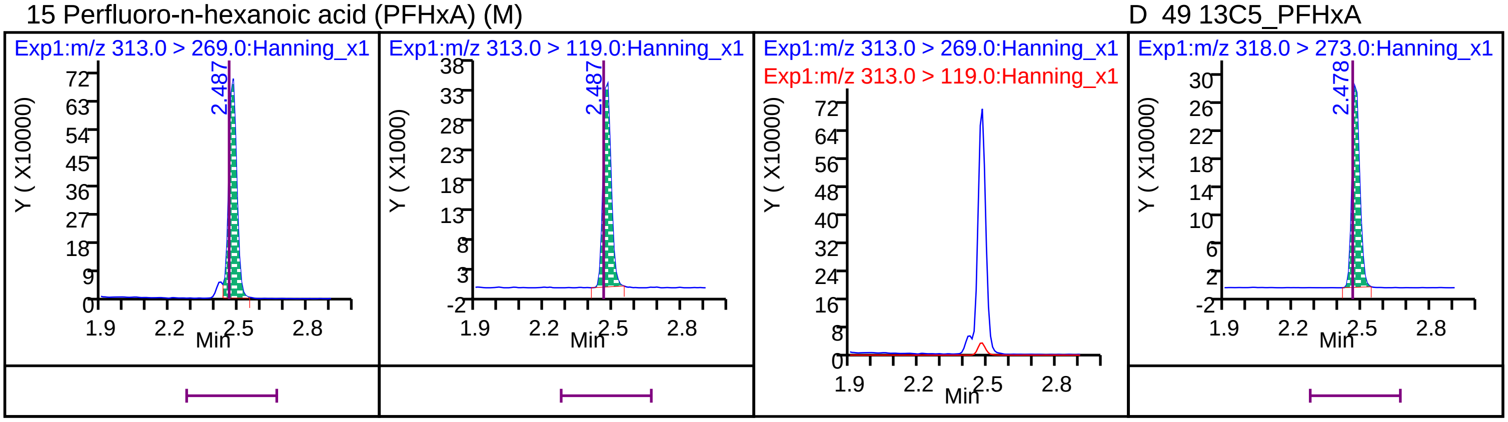
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



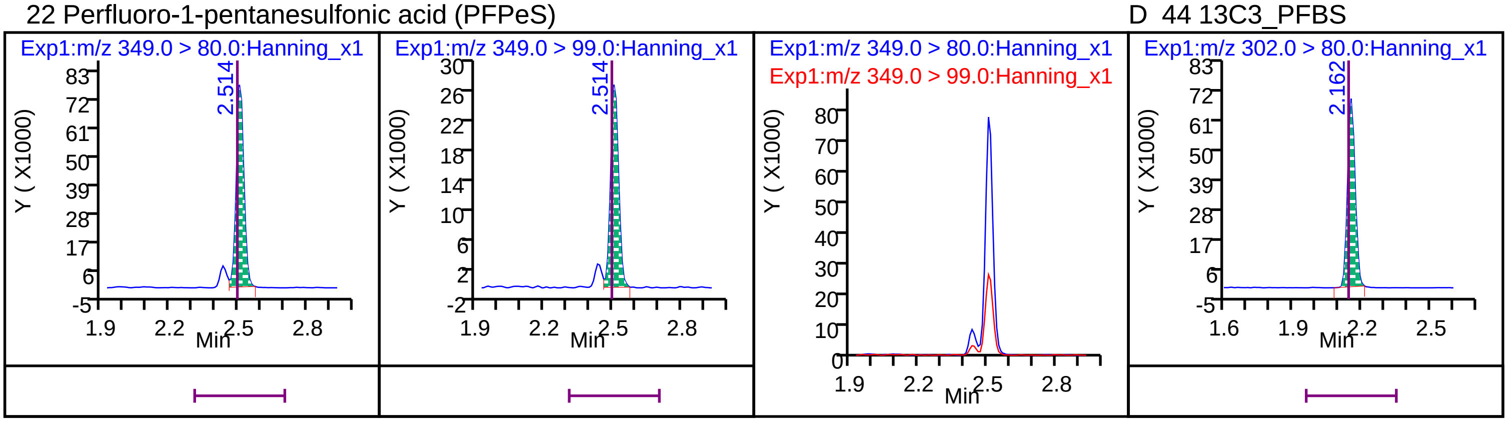
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



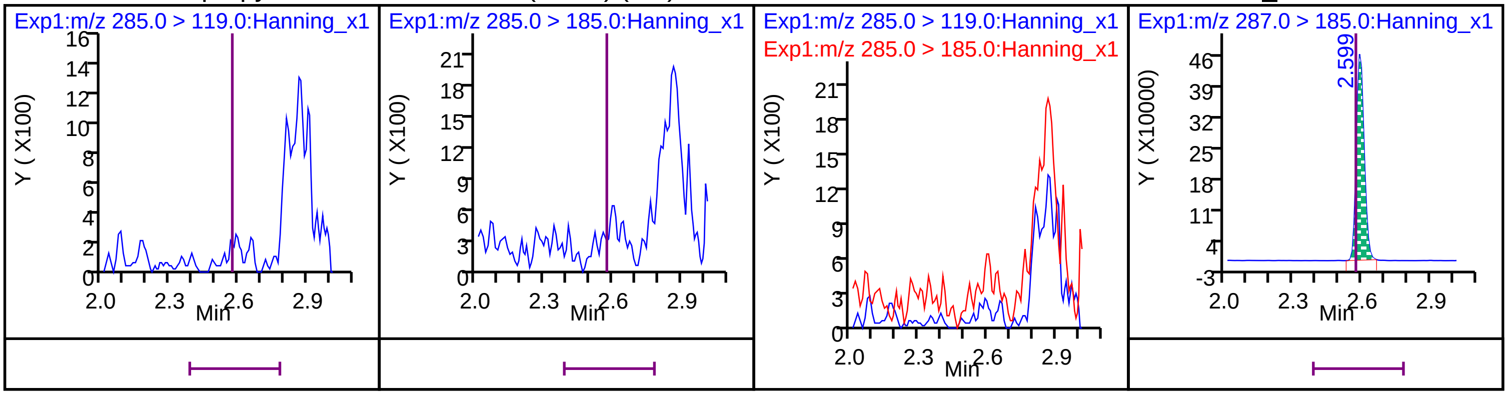
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



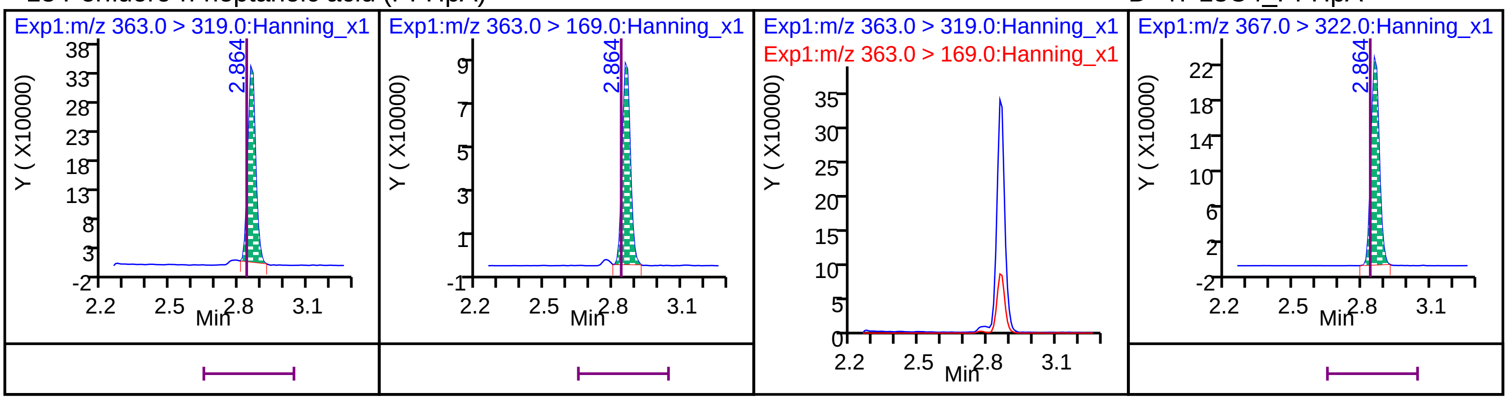
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



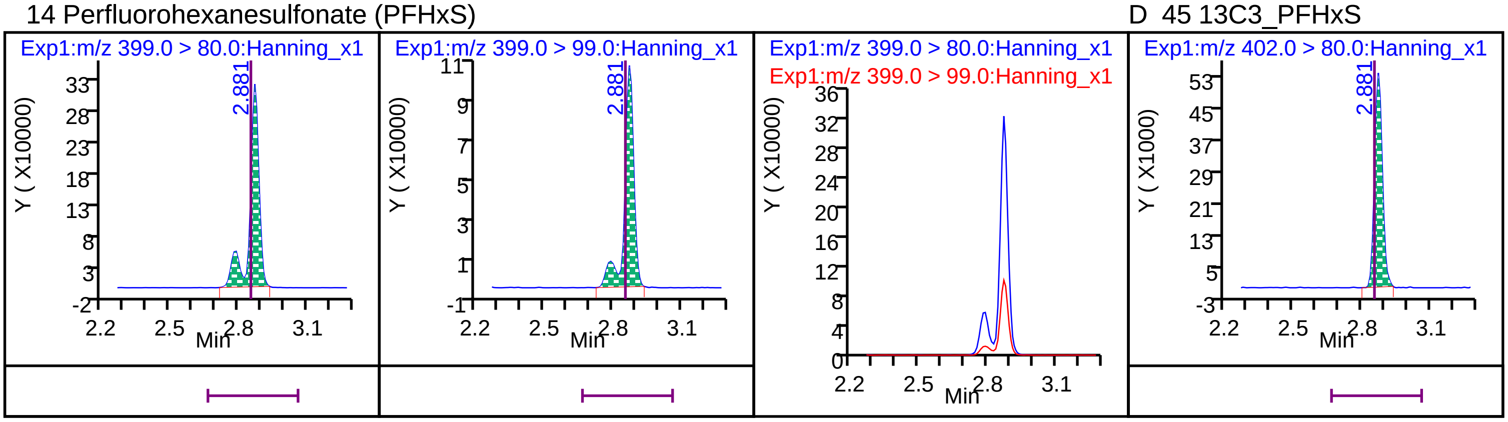
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



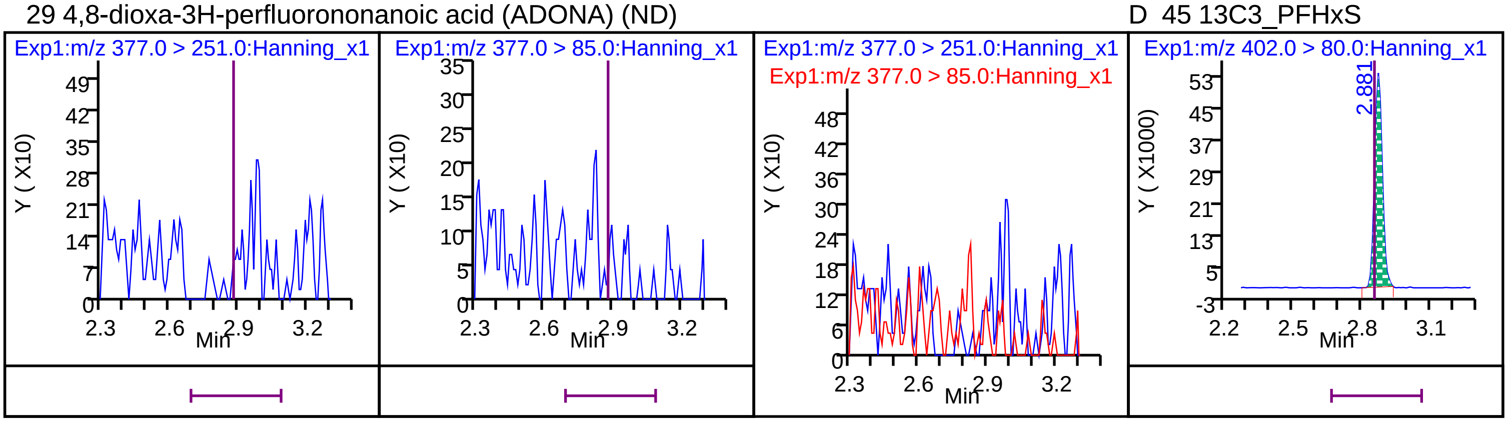
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



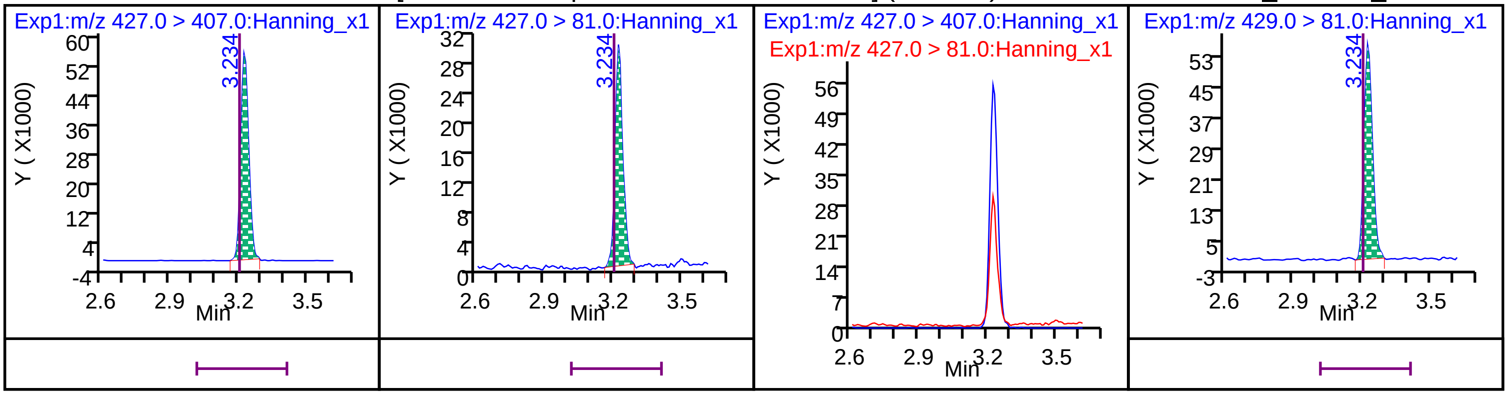
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



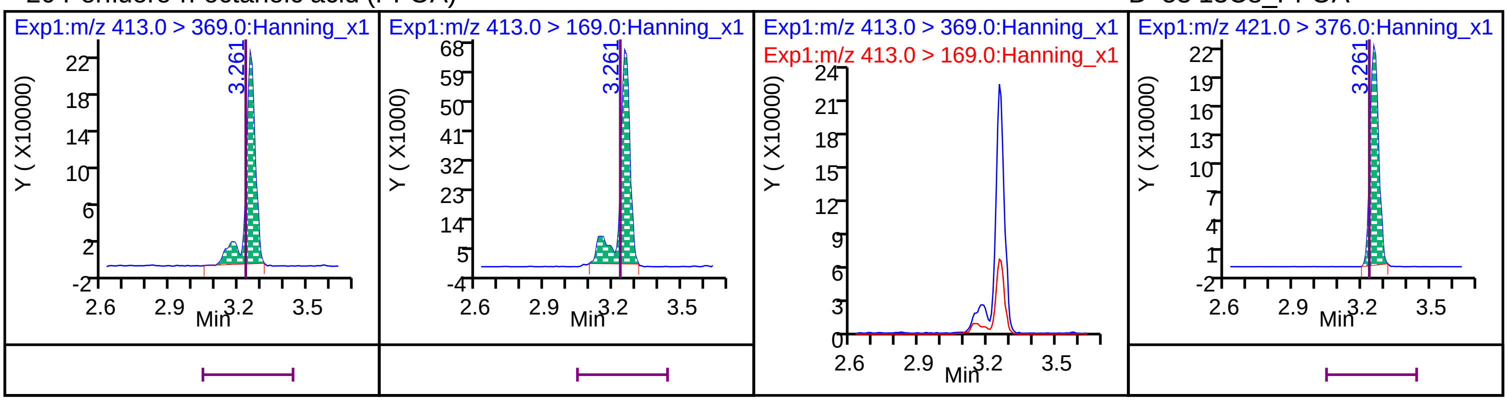
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



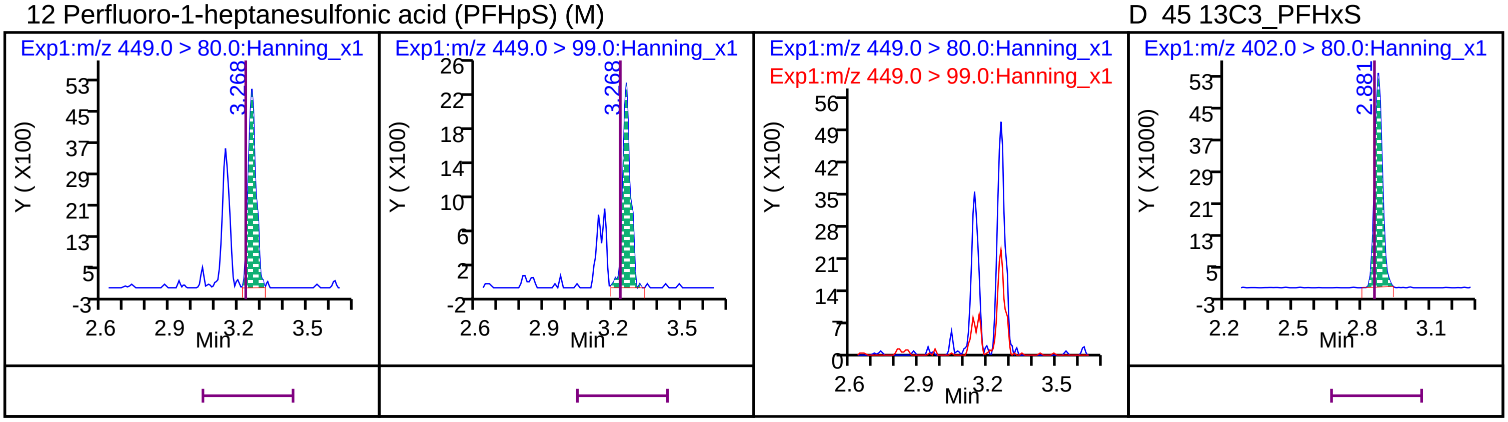
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



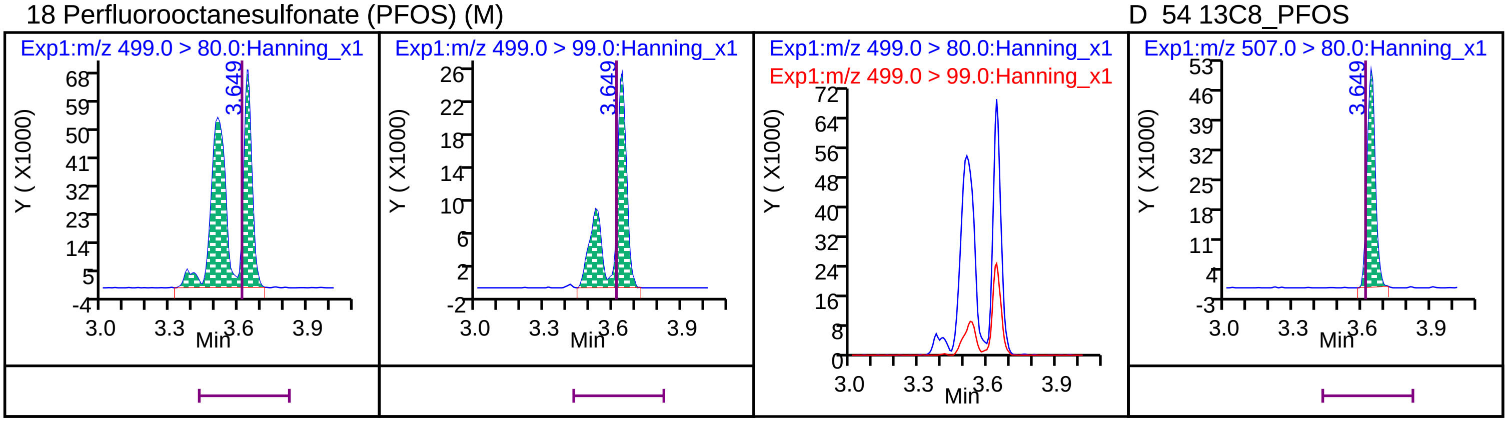
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS

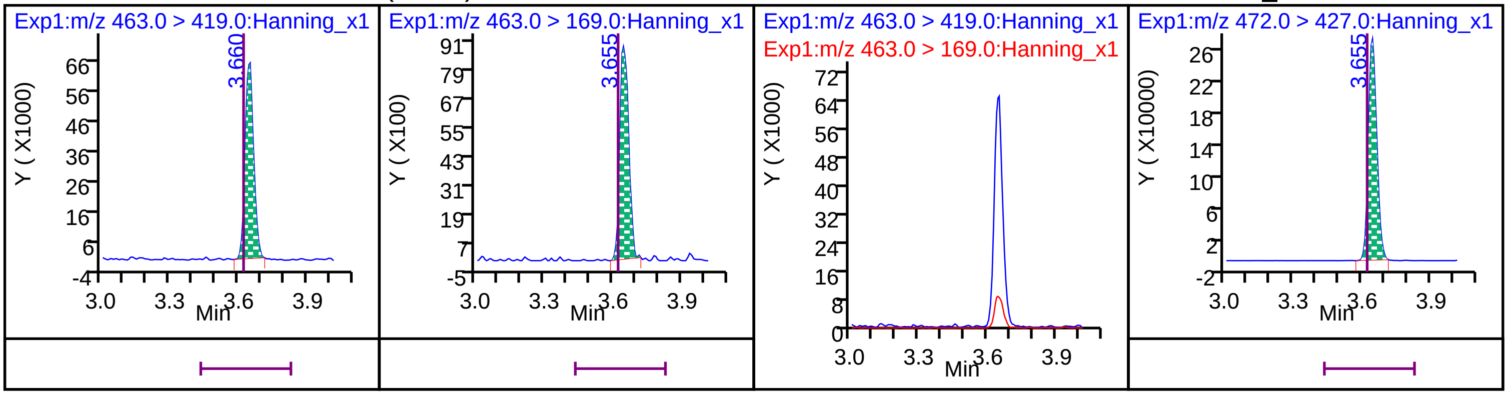


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

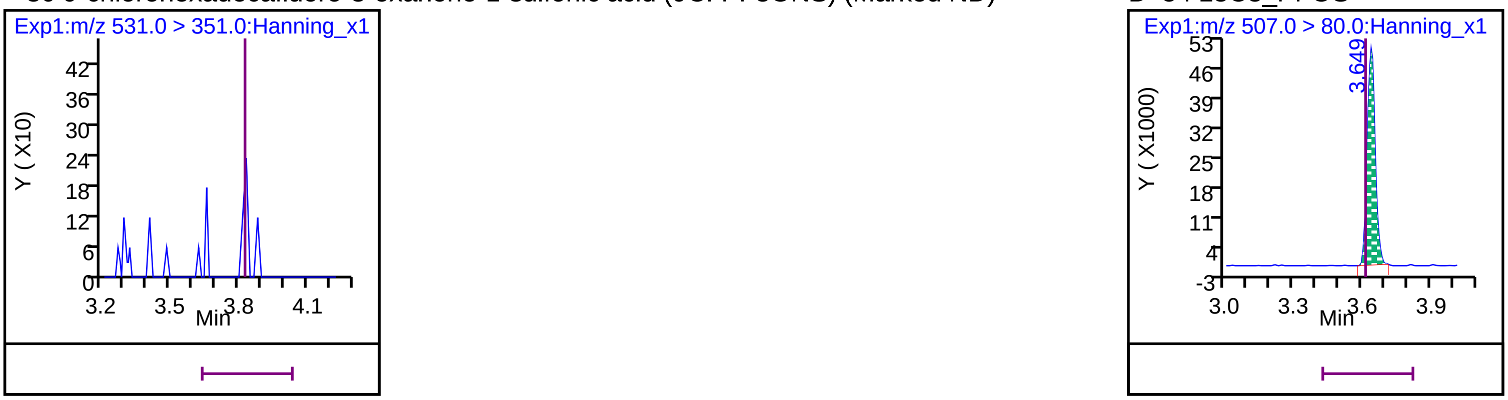


Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d

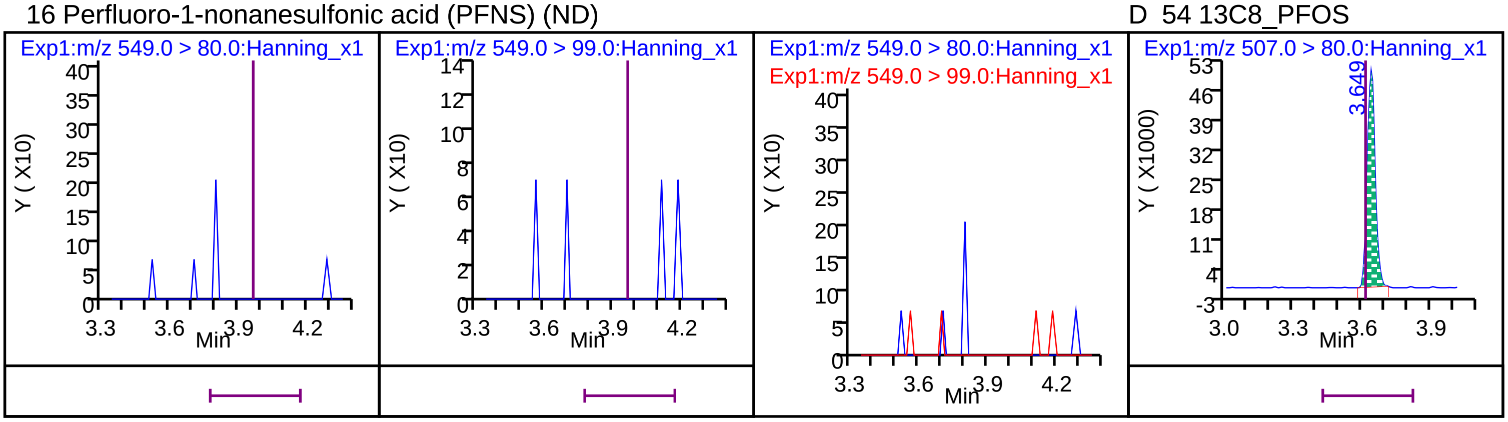
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



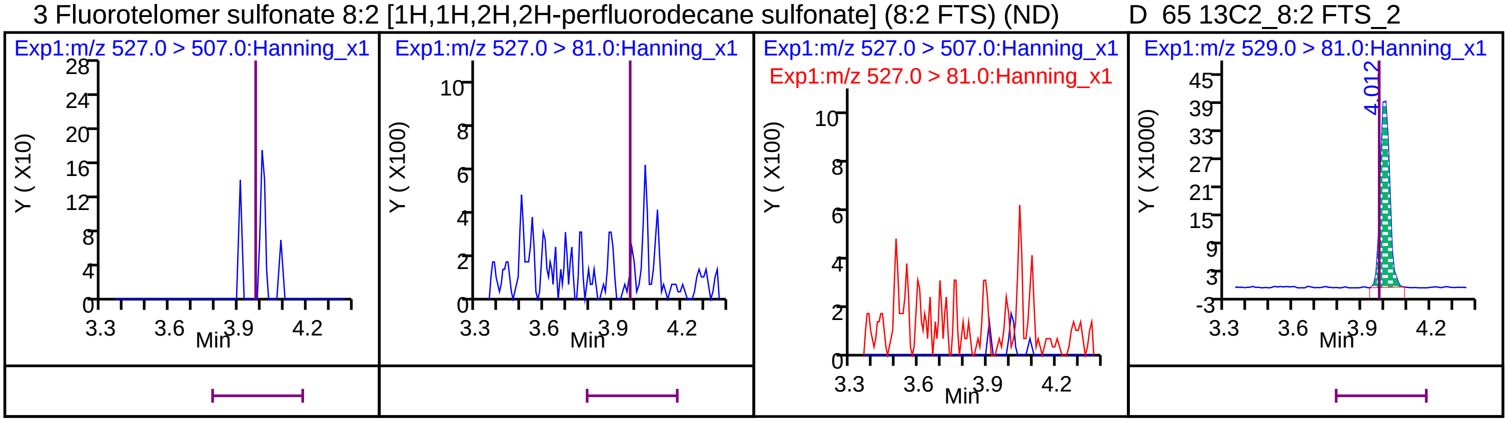
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



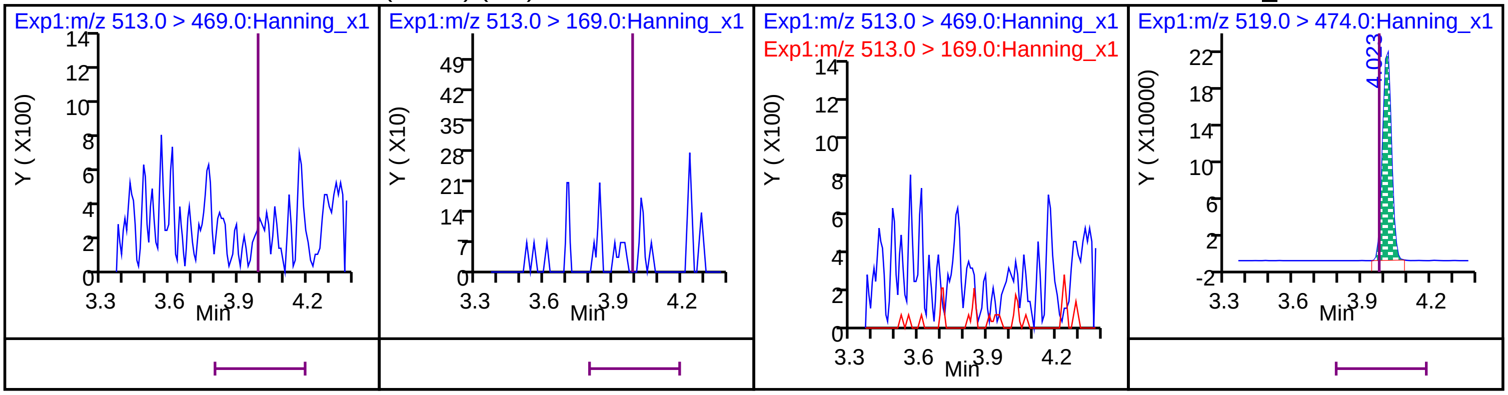
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



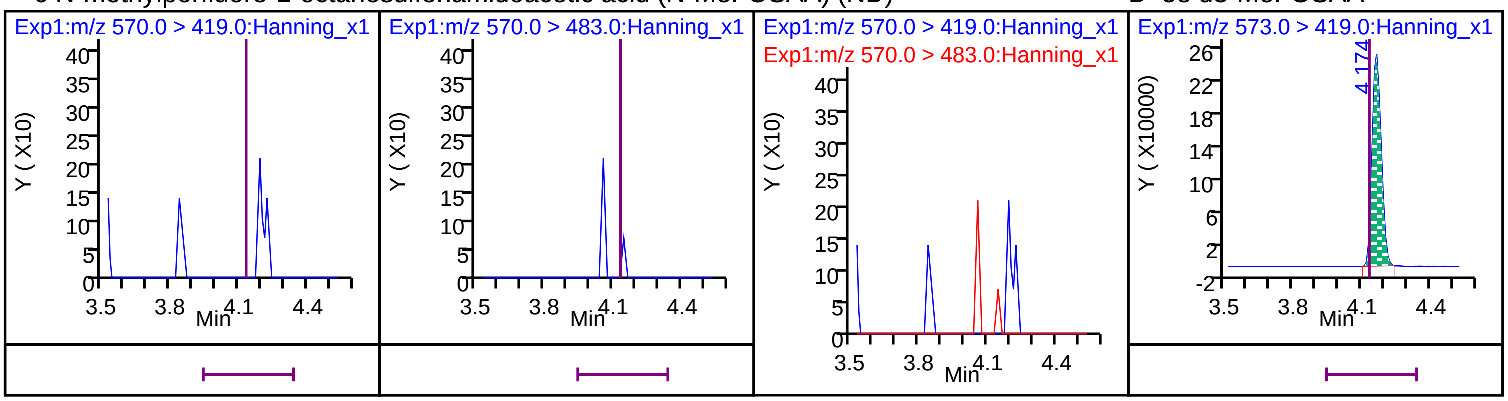
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



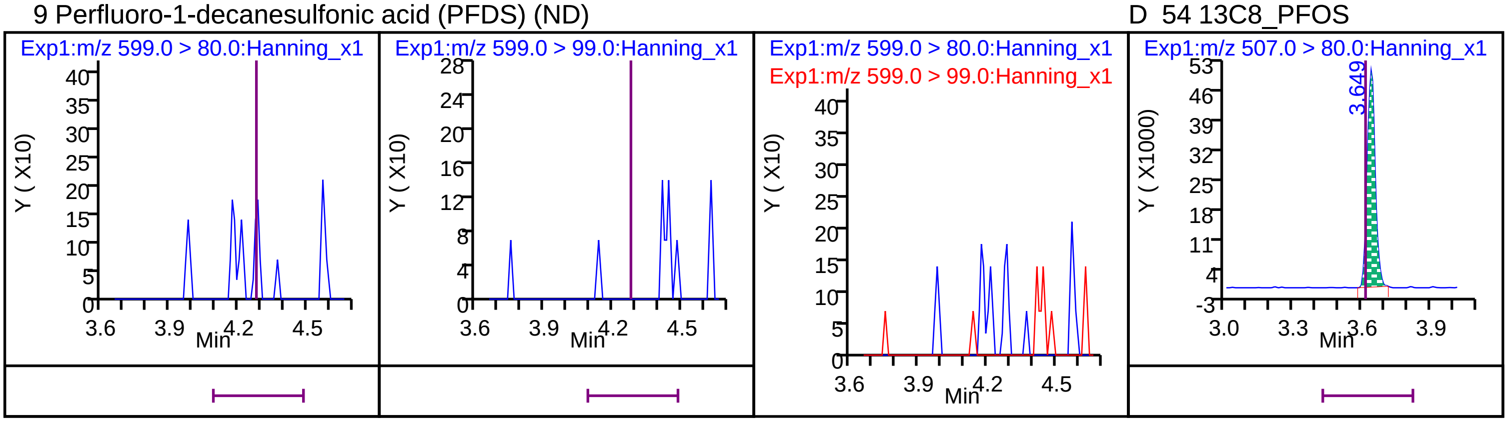
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



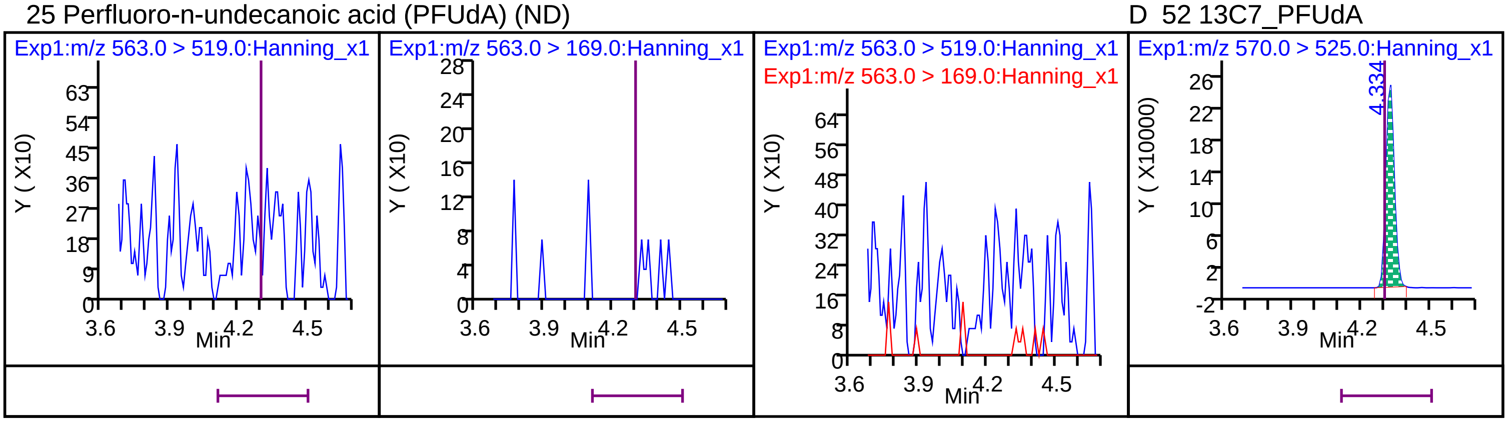
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

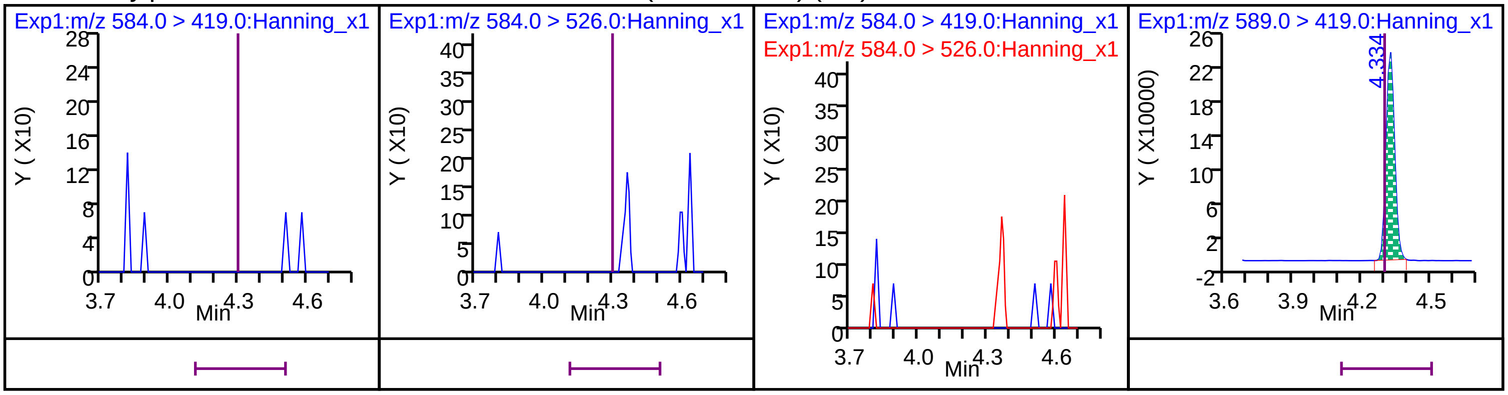


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

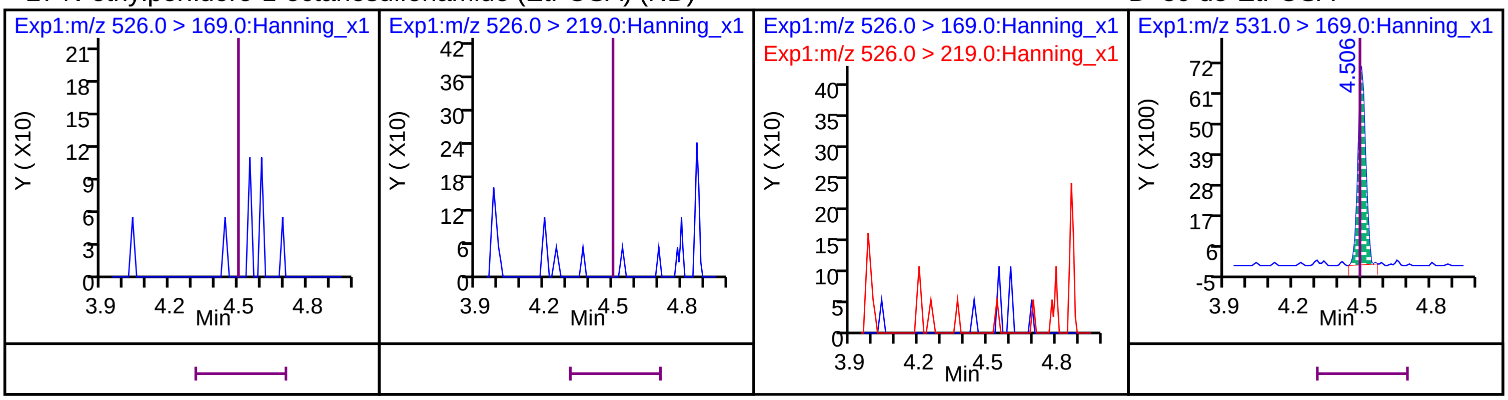


Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d

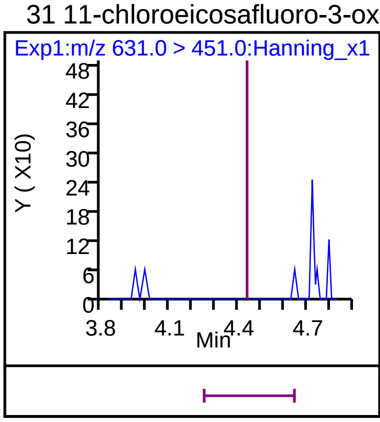
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

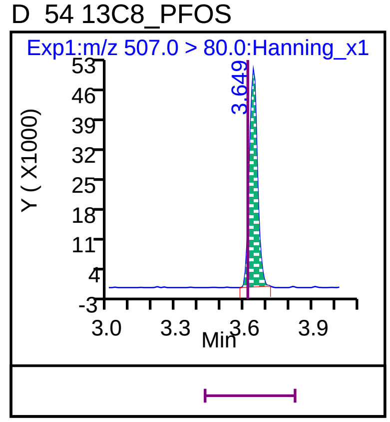


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA

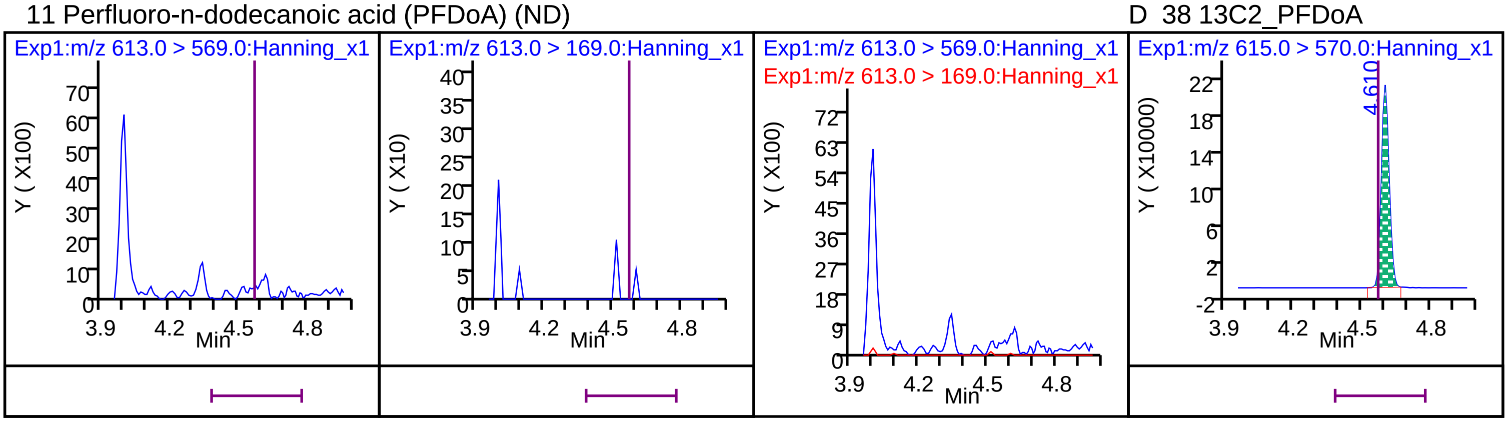


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ND) D 54 13C8_PFOS

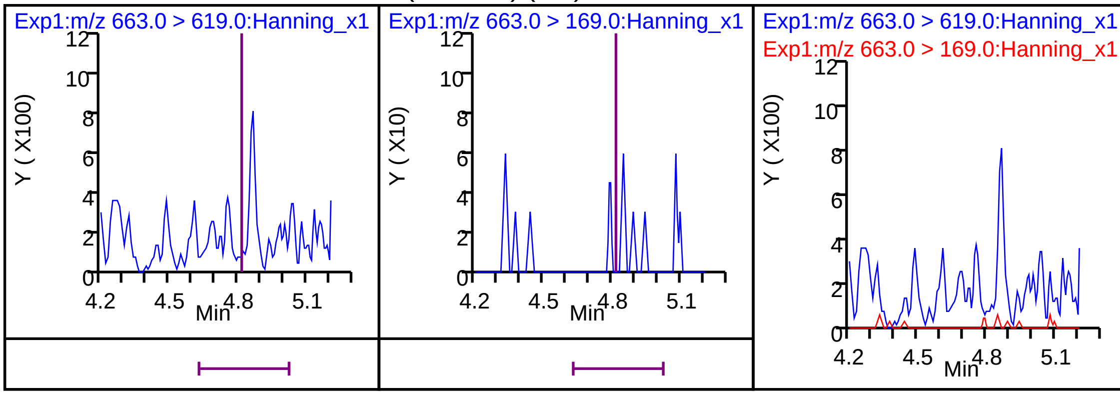




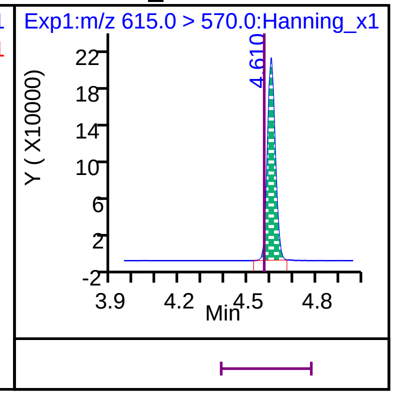
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



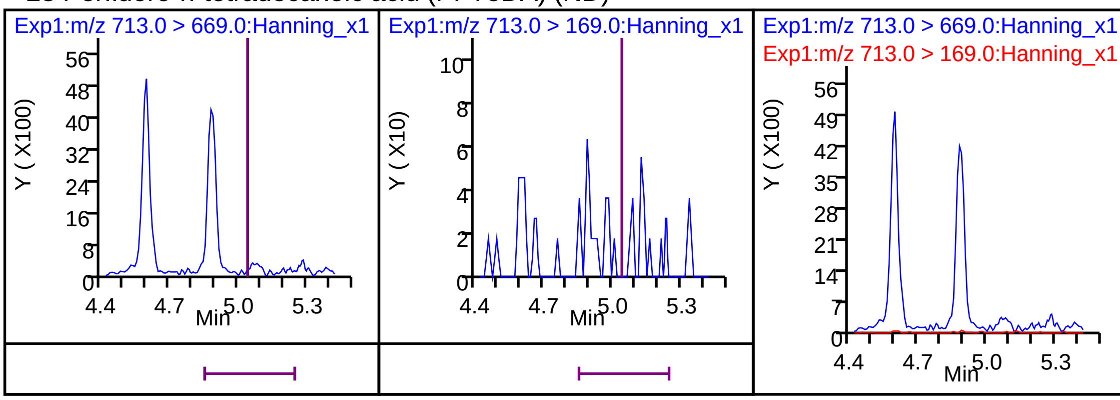
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



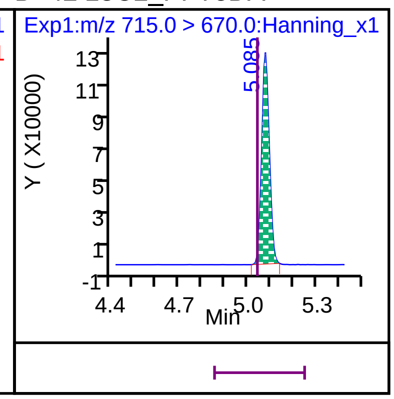
D 38 13C2_PFDoA



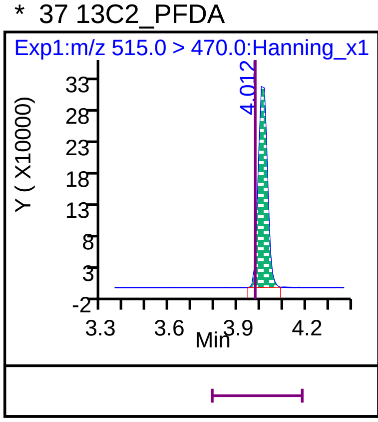
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



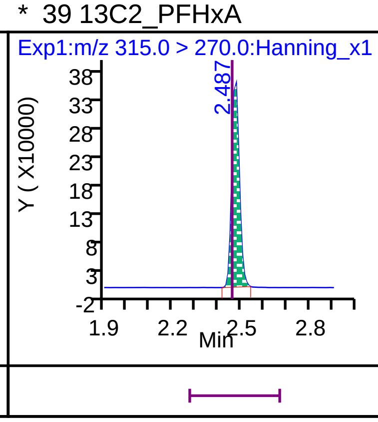
D 42 13C2_PFTeDA



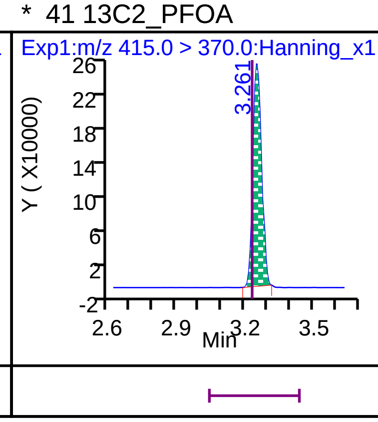
* 37 13C2_PFDA



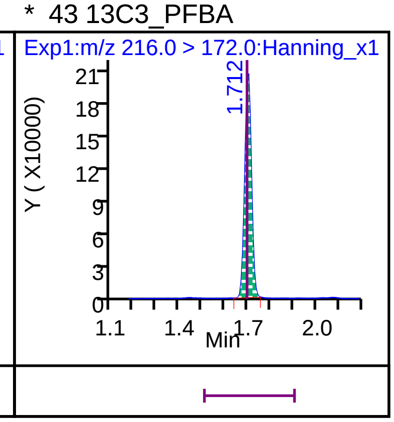
* 39 13C2_PFHxA



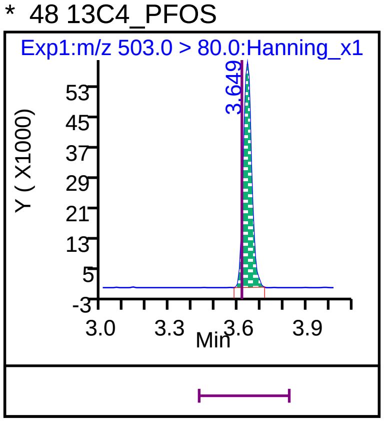
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

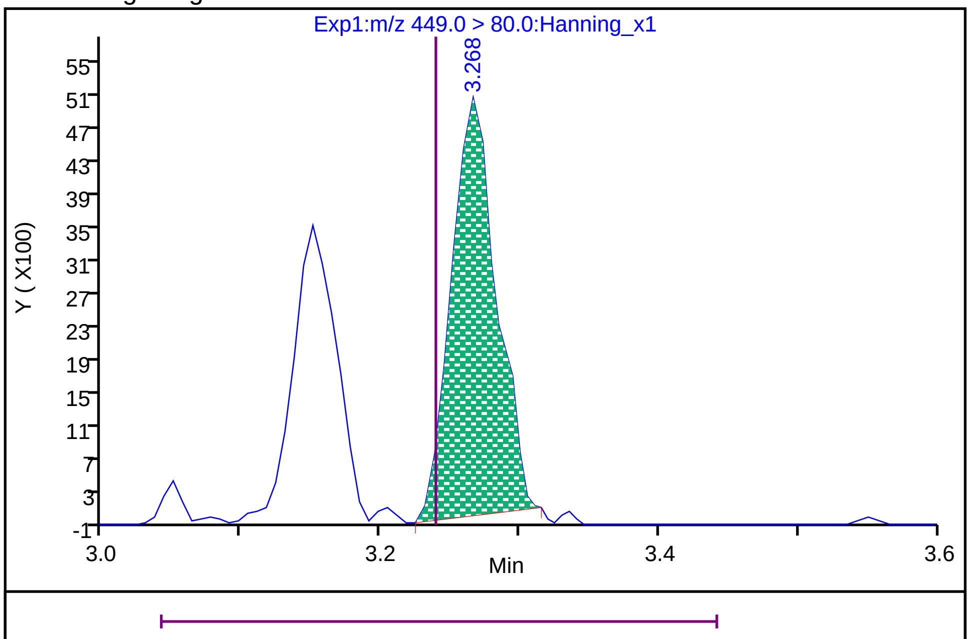
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d
Injection Date:	12-Nov-2021 16:37:47
Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-032.0-20211028
Lab ID:	WK01012-003
Sample Info:	WK01012-003
Dil. Factor:	1
Operator:	Justin Gavin

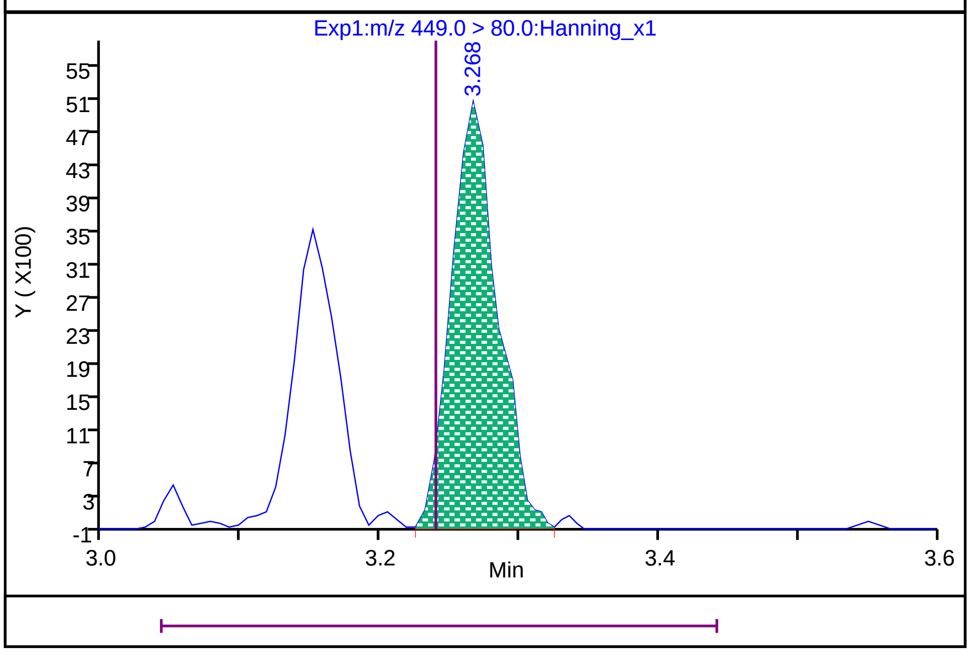
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT: 3.268
Area: 11122
Conc: 3.6249
Conc Units: ng/L



RT: 3.268
Area: 11789
Conc: 3.8423
Conc Units: ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:34:22
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

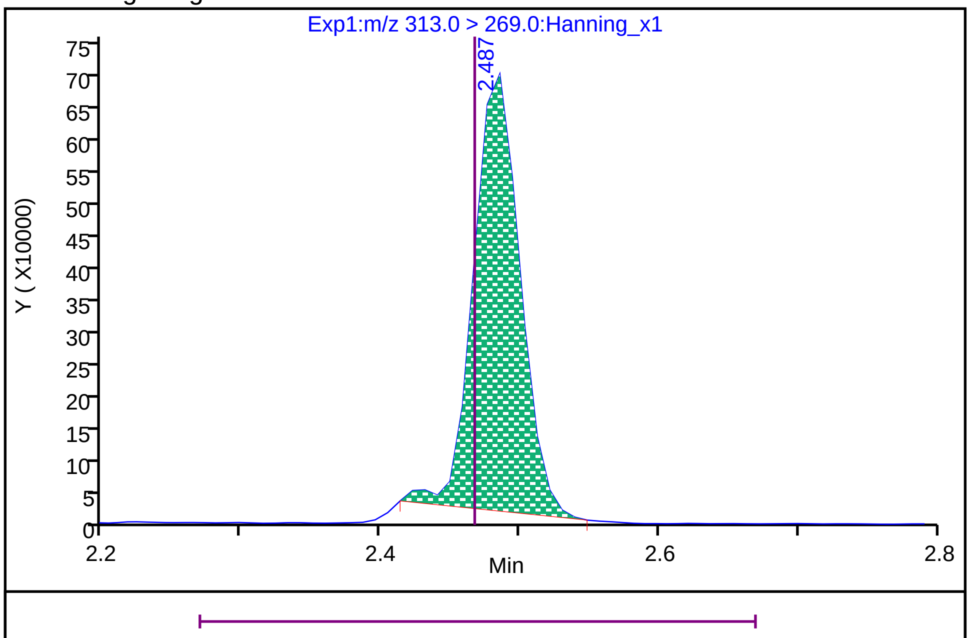
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d		
Injection Date:	12-Nov-2021 16:37:47	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-032.0-20211028	Lab ID:	WK01012-003
Sample Info:	WK01012-003		
Dil. Factor:	1	Operator:	Justin Gavin

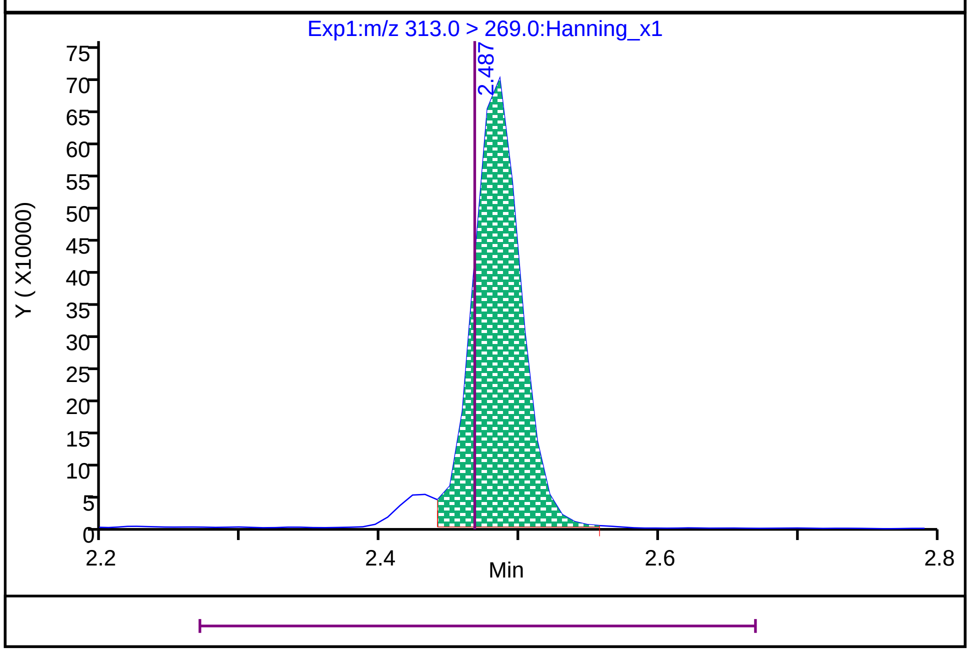
15 PFHxA, CAS: 307-24-4

RT: 2.487
Area: 1558365
Conc: 95.375
Conc Units: ng/L

Processing Integration Results



RT: 2.487
Area: 1635692
Conc: 100.11
Conc Units: ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:34:09
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Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

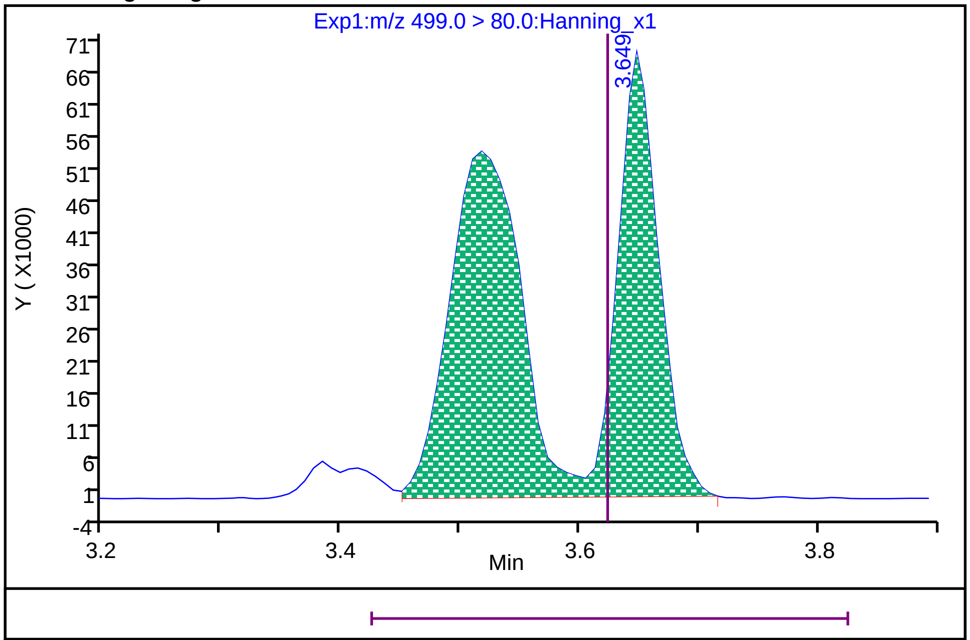
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d		
Injection Date:	12-Nov-2021 16:37:47	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-032.0-20211028	Lab ID:	WK01012-003
Sample Info:	WK01012-003		
Dil. Factor:	1	Operator:	Justin Gavin

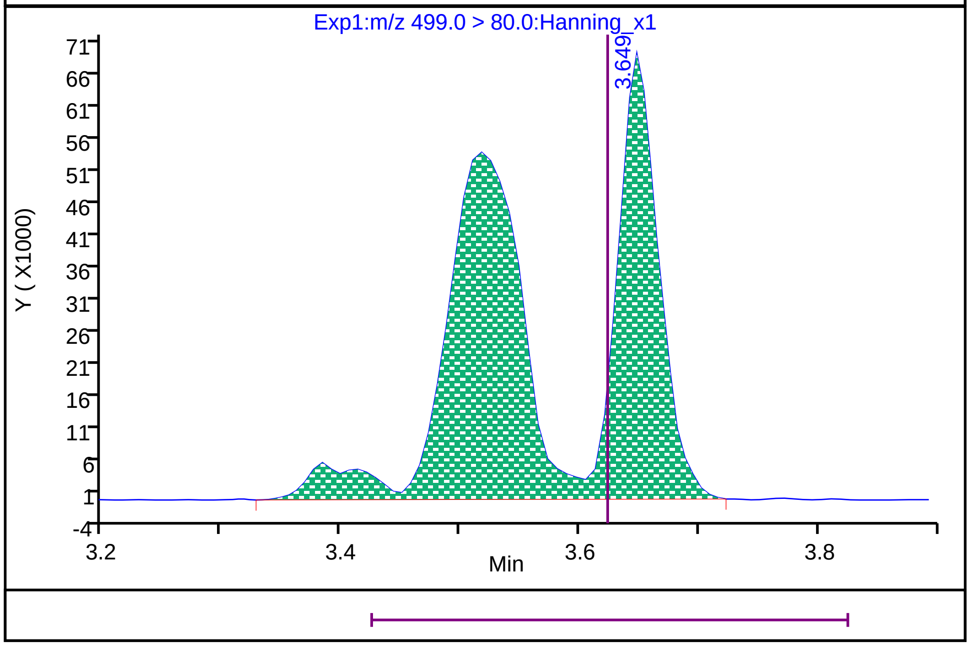
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.649
Area:	382518
Conc:	108.74
Conc Units:	ng/L



RT:	3.649
Area:	403887
Conc:	115.81
Conc Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:34:29

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

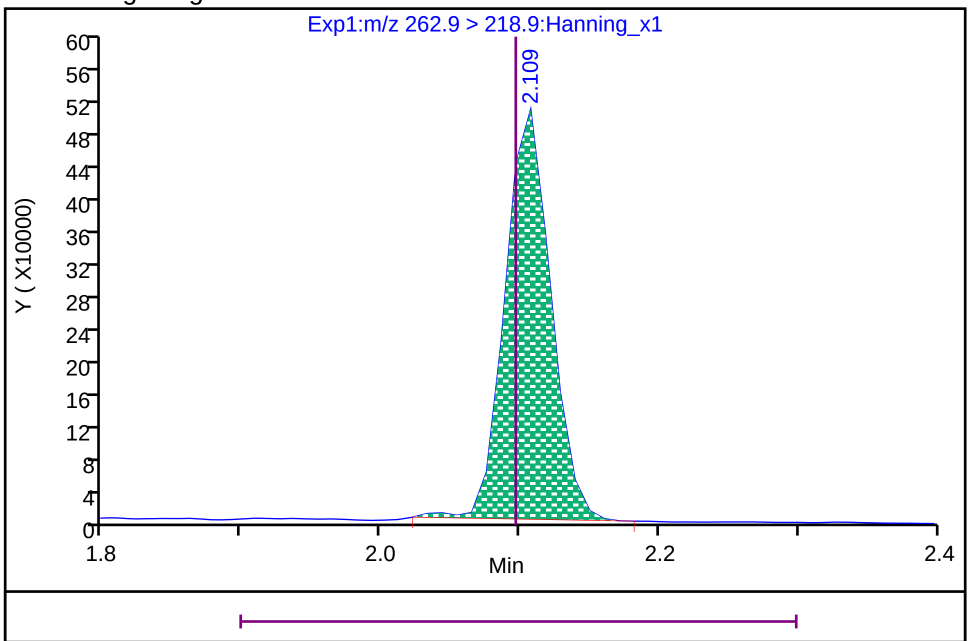
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221019.d		
Injection Date:	12-Nov-2021 16:37:47	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-032.0-20211028	Lab ID:	WK01012-003
Sample Info:	WK01012-003		
Dil. Factor:	1	Operator:	Justin Gavin

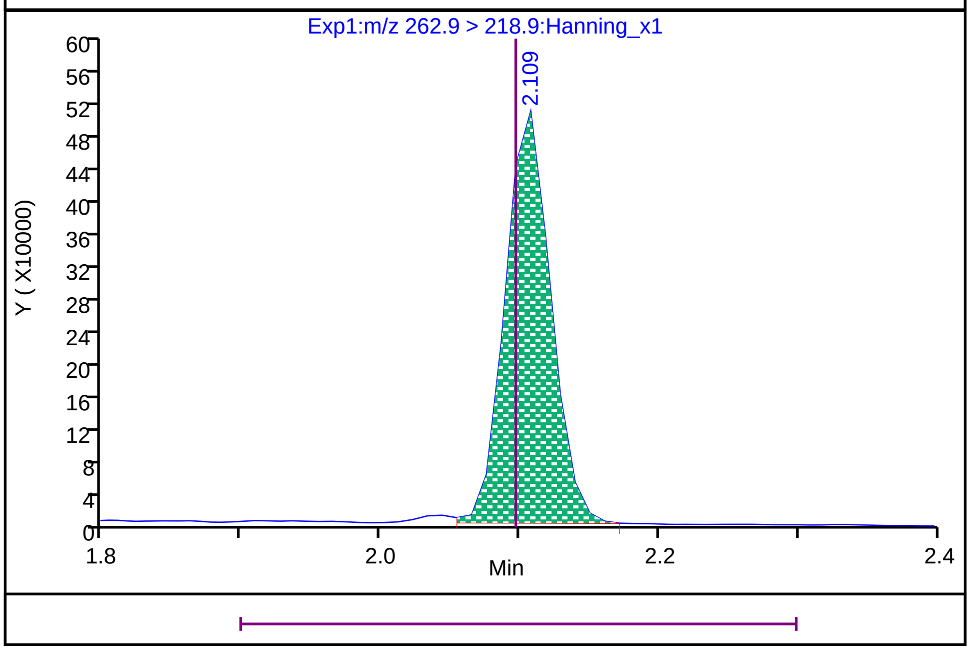
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT:	2.109
Area:	1133988
Conc:	85.054
Conc Units:	ng/L



RT:	2.109
Area:	1138647
Conc:	85.403
Conc Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:34:00

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK01012-004	
Description: POL-DPT0136-042.0-20211028		Matrix: Aqueous	
Date Sampled: 10/28/2021 1305	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/12/2021 1648	JJG	11/11/2021 1232	22105

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.5	I	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.4	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	9.8		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.3		3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	9.6		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.1		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	11		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	10		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.92	I	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150
13C2_6:2FTS		146	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	48	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		63	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		81	50-150
13C7_PFUdA		78	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK01012-004
Description: POL-DPT0136-042.0-20211028			Matrix: Aqueous
Date Sampled: 10/28/2021 1305	Project Name: KSC-POL		
Date Received: 10/29/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	50-150
13C8_PFOS		87	50-150
13C9_PFNA		96	50-150
d-EtFOSA		53	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221020.d		
Injection Date:	12-Nov-2021 16:48:18	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	18
Lab Sample ID:	WK01012-004	Lab Prep. Batch:	22105
Client ID:	POL-DPT0136-042.0-20211028	Sample Group:	WK01012
Sample Info:	WK01012-004	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0392465

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	280	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.709	1.705	1	390669	18	>100:1			1001.00	628.41	64.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.709	1.712	0/-1	44989	16	11:1			109.30	4.2897		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.099	1	467172	16	>100:1			1001.00	817.32	85.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.104	2.099	1/0	137242	12	25:1			261.28	10.254		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.167	2.151	1	144563	14	>100:1			1001.00	835.77	88.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													J
298.9 > 80	44	2.167	2.151	1/0	9591	11	25:1	Target = 3.53		53.255	2.0901		
298.9 > 99	44	2.167	2.151		2947	12	8.1:1	3.25 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													J
349 > 80	44	2.522	2.505	2/1	8277	18	34:1	Target = 3.10		61.841	2.4270		
349 > 99	44	2.513	2.505		2672	16	8.6:1	3.09 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.441	2.425	1	183646	17	>100:1			5005.00	8110.24	175.8*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.433		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.486	2.469	2	591936	16	>100:1			1001.00	908.87	94.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.486	2.469	2/0	143259	13	25:1	Target = 18.91		233.00	9.1443		
313 > 119	49	2.486	2.469		8996	16	45:1	15.92 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.597	2.583	1	938818	18	>100:1			5005.00	4050.88	85.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.862	2.845	2	510523	17	>100:1			1001.00	961.55	96.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.872	2.845	2/0	137503	21	63:1	Target = 3.80		245.36	9.6294		
363 > 169	47	2.862	2.845		36025	16	>100:1	3.81 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.879	2.864	1	107755	16	>100:1			1001.00	857.65	93	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.879	2.864	1/0	29438	28	>100:1	Target = 2.89	3.37	248.75	9.7624		
399 > 99	45	2.879	2.864		8838	24	43:1	3.33 (1.44-4.34)	5.12				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.241		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.232	3.214	2	118166	19	>100:1			5005.00	6564.79	141.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													J
427 > 407	64	3.239	3.214	2/0	7882	30	62:1	Target = 1.75		141.03	5.5349		
427 > 81	64	3.232	3.214		3319	13	4.2:1	2.37 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.259	3.241	2	482961	21	>100:1			1001.00	920.49	94	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.259	3.241	2/0	134335	36	>100:1	Target = 2.89	5.10	271.70	10.663		
413 > 169	53	3.266	3.241		44550	35	>100:1	3.01 (1.44-4.34)	4.77				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.649	3.625	2	102052	22	>100:1			1001.00	824.04	93.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													J
499 > 80	54	3.527	3.625	-5/-7	2859	40	9.7:1	Target = 3.30	0.91	23.552	0.92434		
499 > 99	54	3.534	3.625		745	26		3.83 (1.65-4.95)					M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.838		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.974		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.288		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.446		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.655	3.632	2	593250	22	>100:1			1001.00	926.41	100.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.632		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.011	3.984	2	499595	17	>100:1			1001.00	869.37	84.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.995		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.011	3.984	2	81054	17	>100:1			5005.00	4689.40	98.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.984		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.173	4.142	2	598715	17	>100:1			5005.00	3962.05	90.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.142		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.333	4.308	2	519092	16	>100:1			5005.00	4008.03	85.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.308		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.333	4.308	2	508840	16	>100:1			1001.00	844.90	80.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.308		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.514	4.501	1	20507	17	>100:1			1001.00	476.91	56.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.510		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.609	4.580	2	437223	16	>100:1			1001.00	728.30	71.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.580		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.825		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.050	3	374715	22	>100:1			1001.00	460.91	47.6*	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.050		ND								
*** 37 13C2_PFDA**													
515 > 470		4.011	3.984	2	453014	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.469	2	482577	14	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.259	3.241	2	391671	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.709	1.705	1	282952	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.649	3.625	2	85026	21	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

Report Date: 15-Nov-2021 10:46:20　　AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

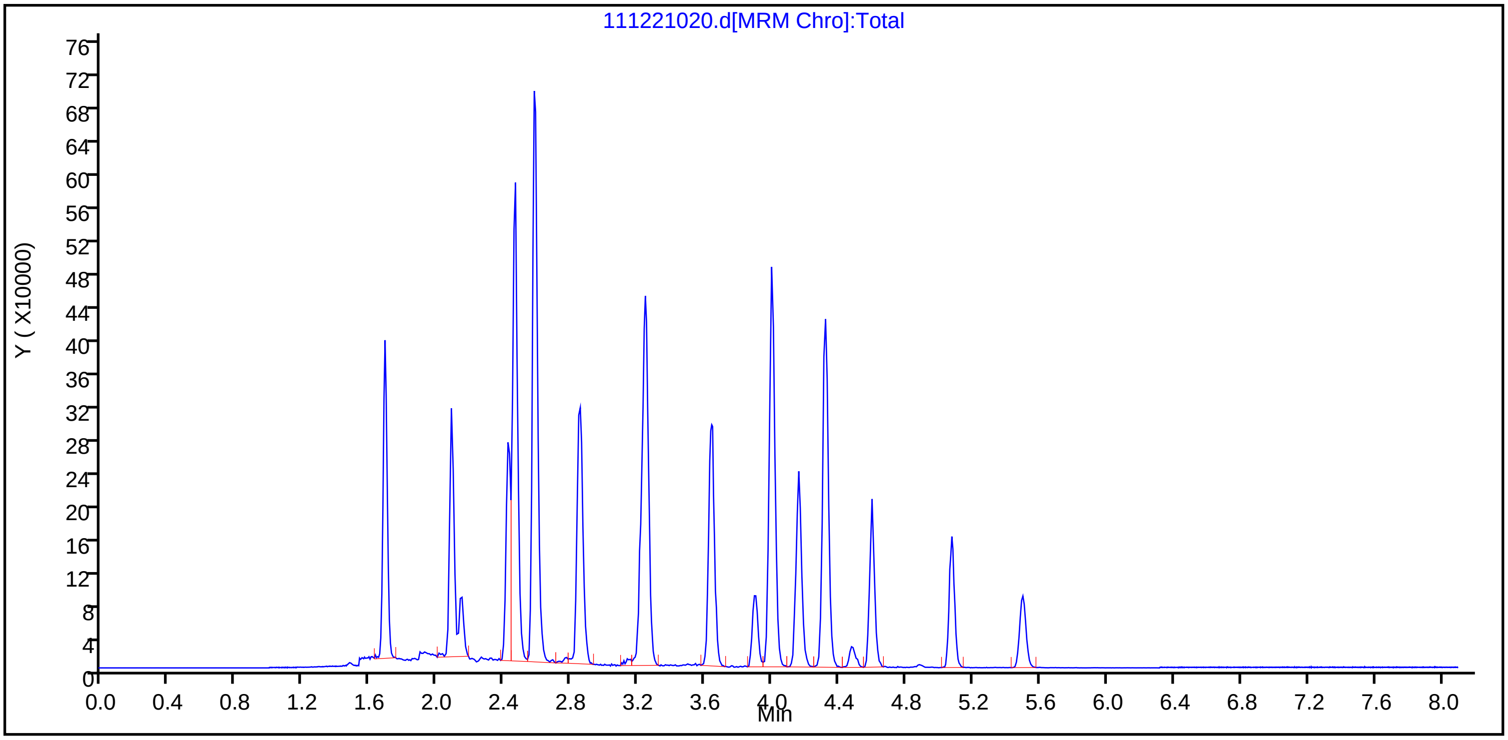
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221020.d

Injection Date: 12-Nov-2021 16:48:18　　Inst. ID: LCMSMS02.i

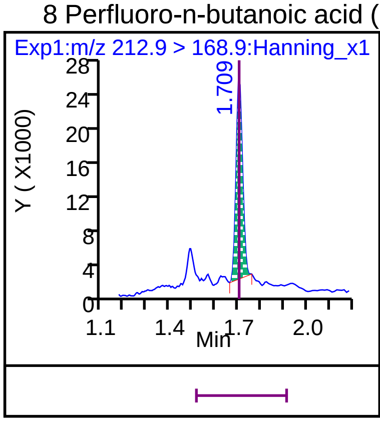
Client ID: POL-DPT0136-042.0-20211028　　Lab ID: WK01012-004

Sample Info: WK01012-004

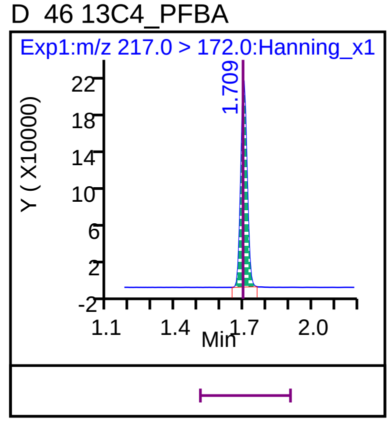
Dil. Factor: 1　　Operator: Justin Gavin



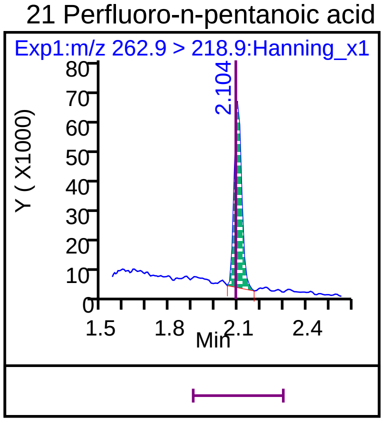
8 Perfluoro-n-butanoic acid (PFBA)



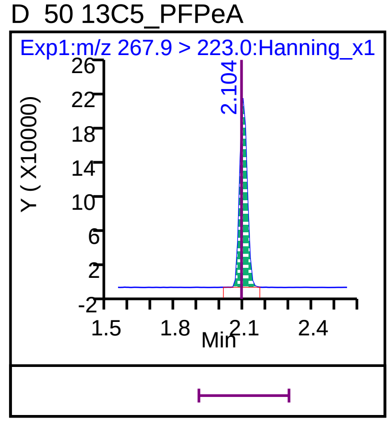
D 46 13C4_PFBA



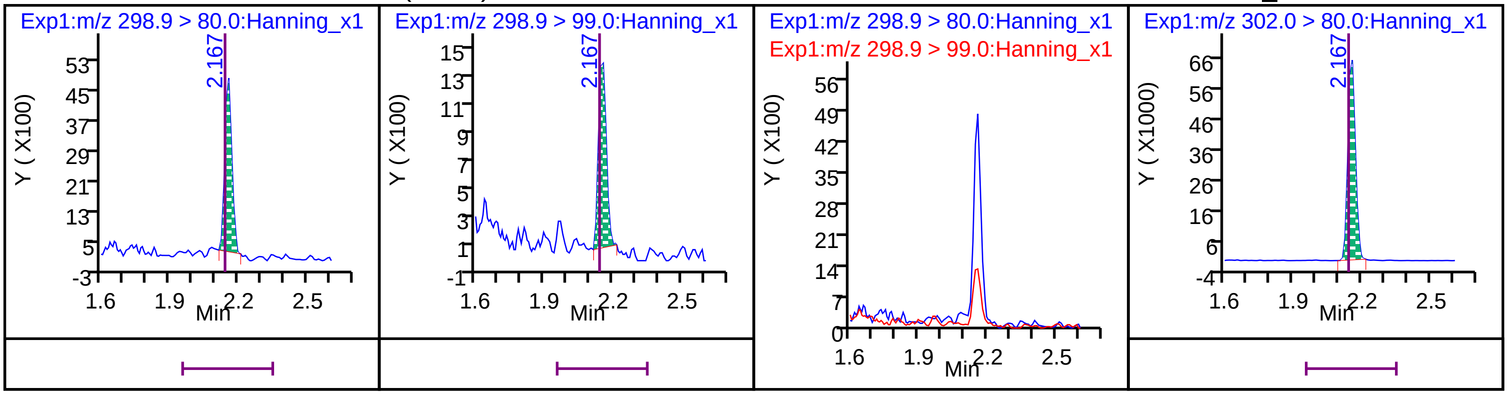
21 Perfluoro-n-pentanoic acid (PFPeA)



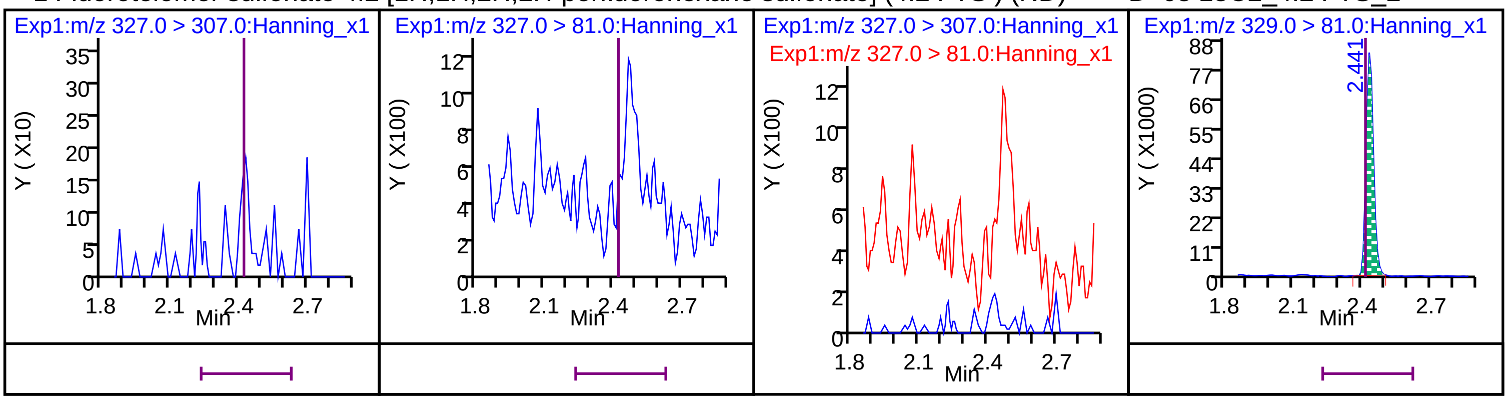
D 50 13C5_PFPeA



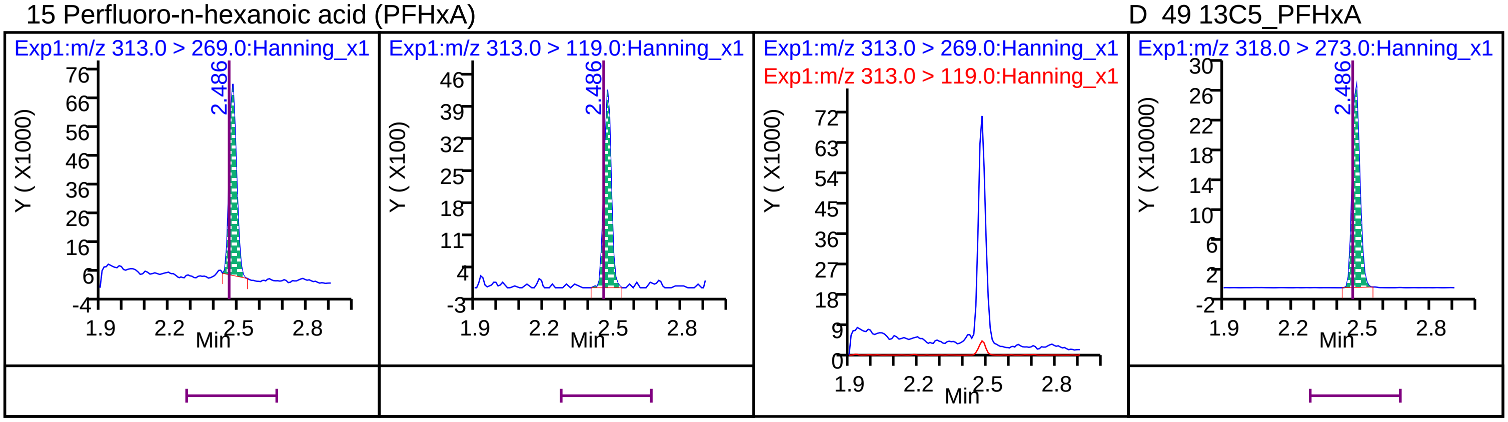
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



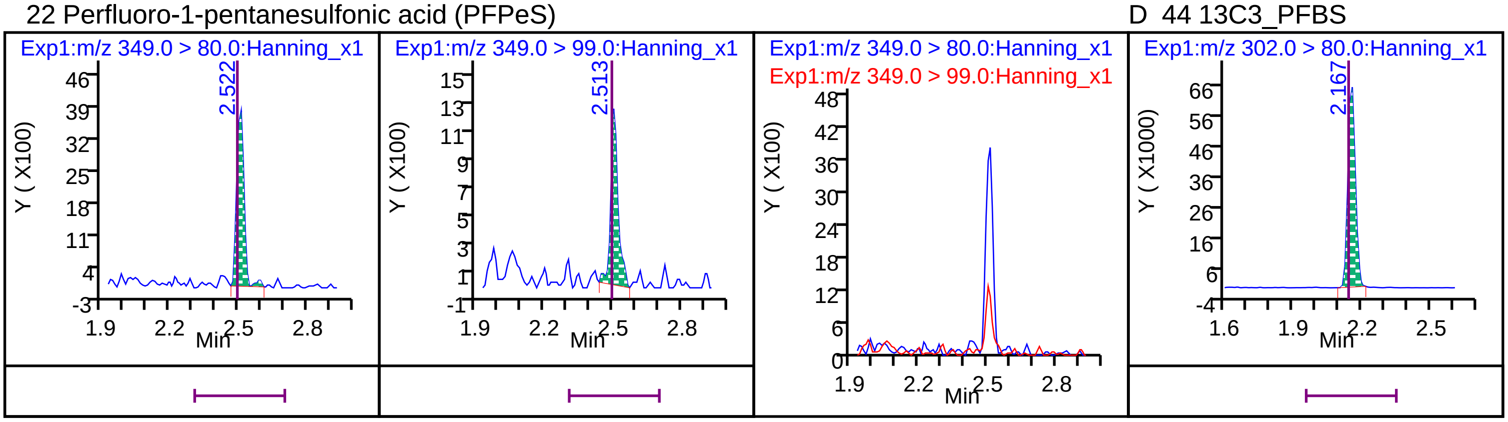
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

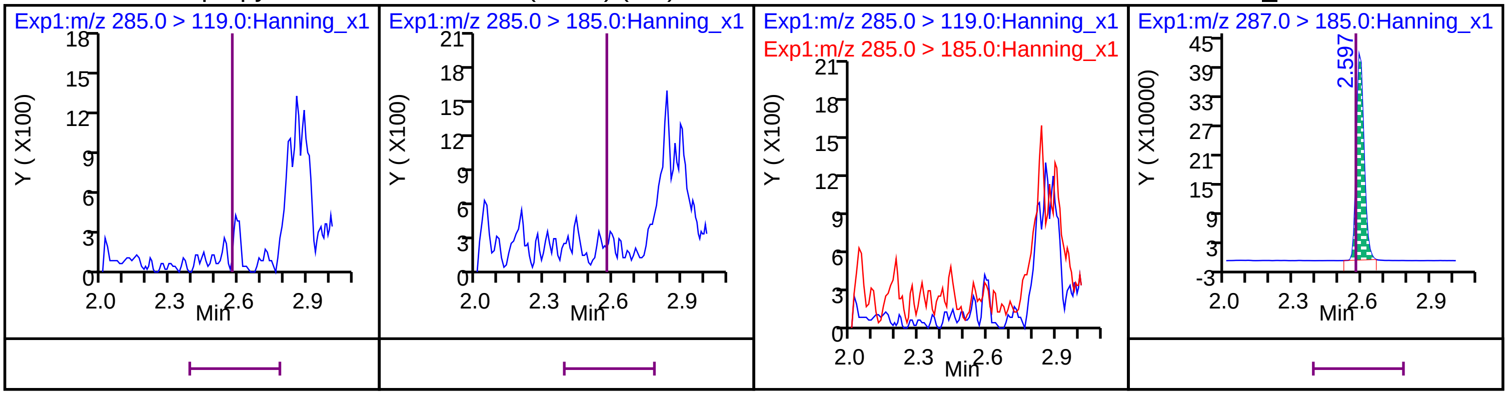


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

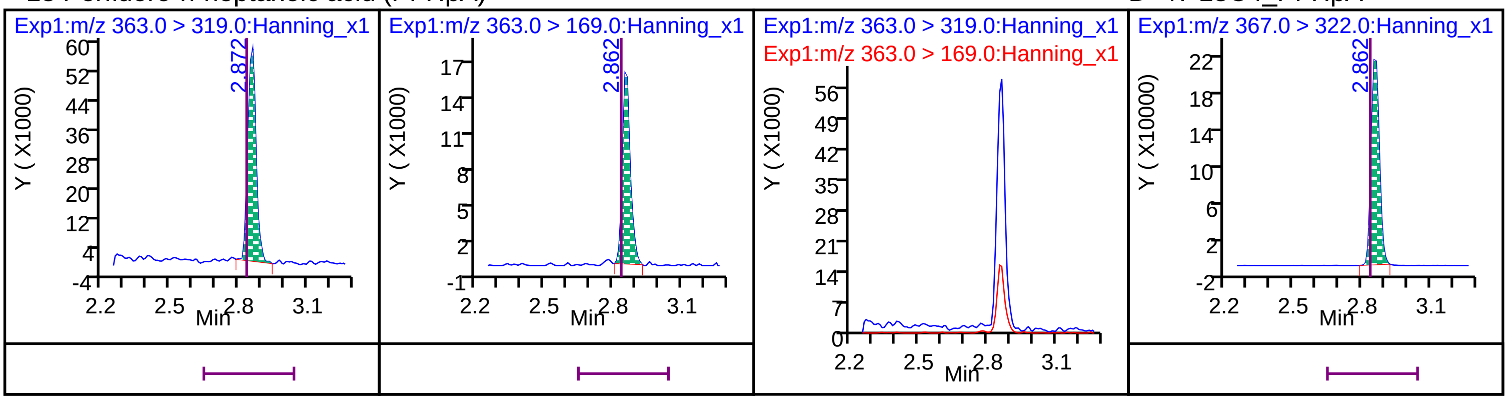


Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221020.d

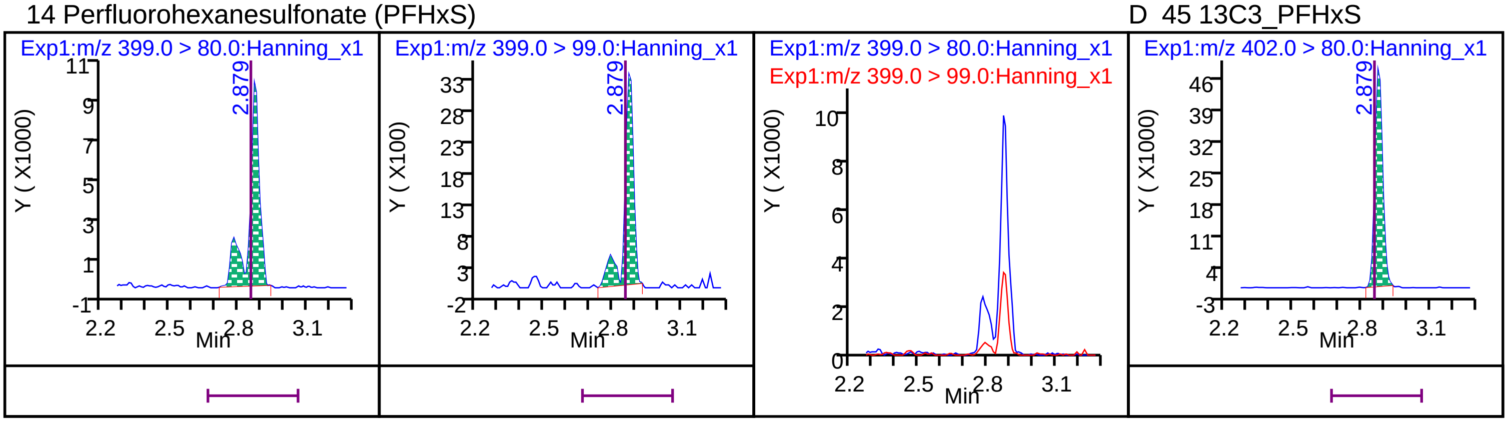
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



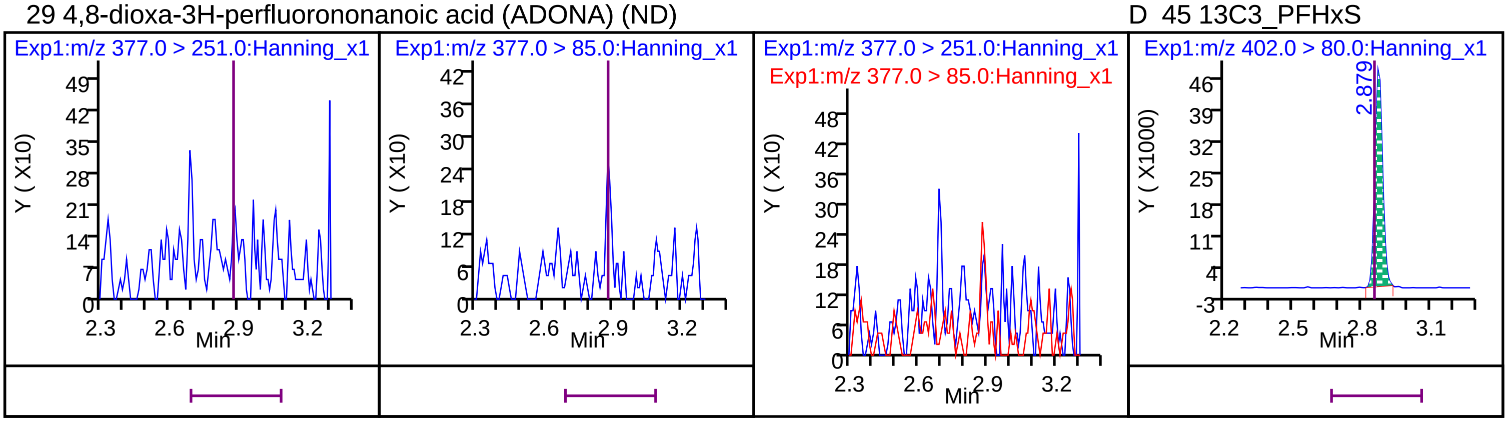
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



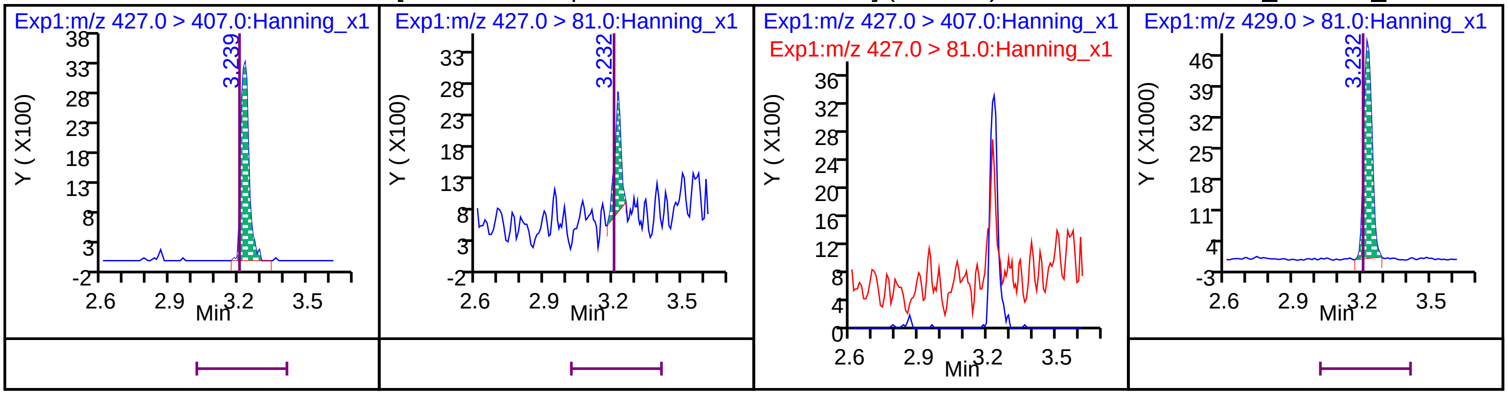
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



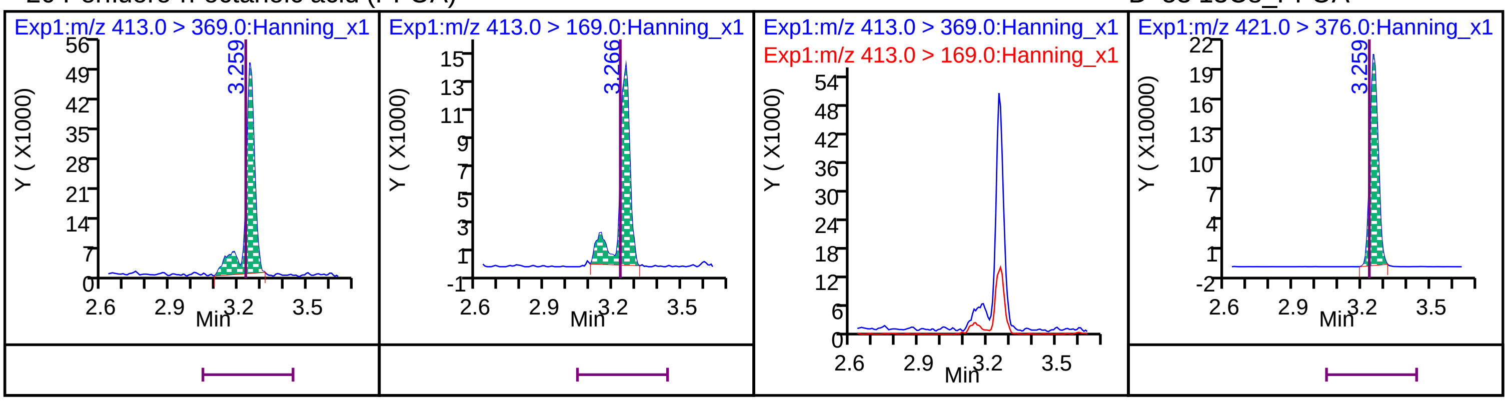
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



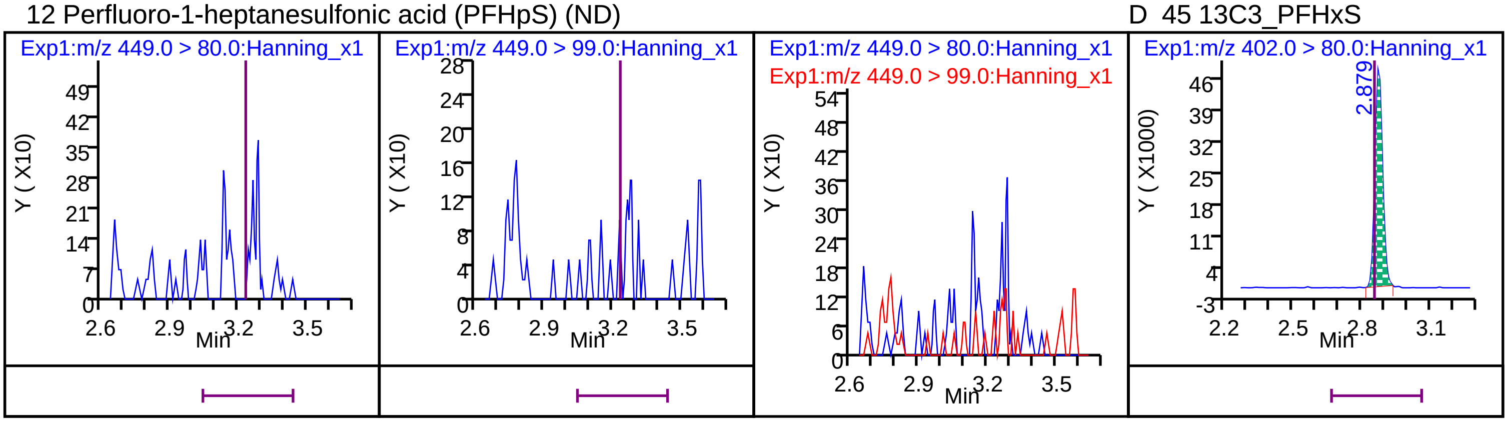
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



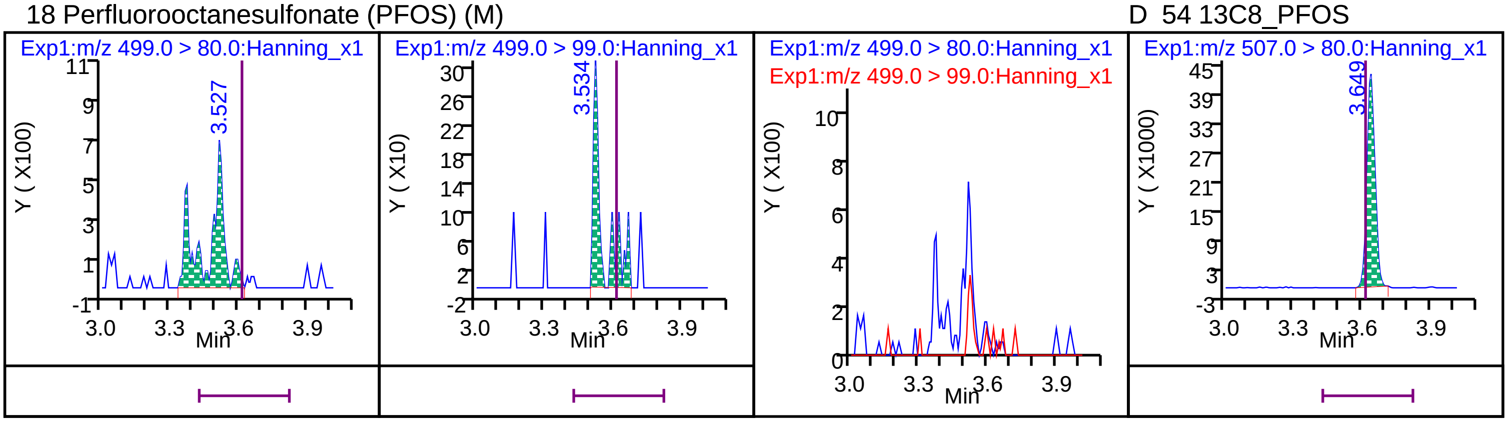
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



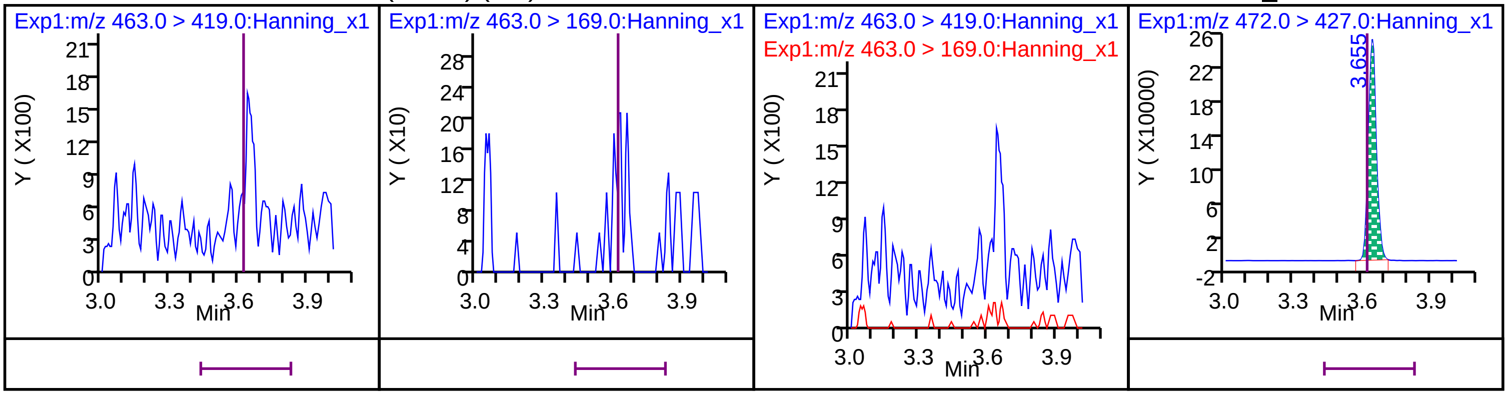
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



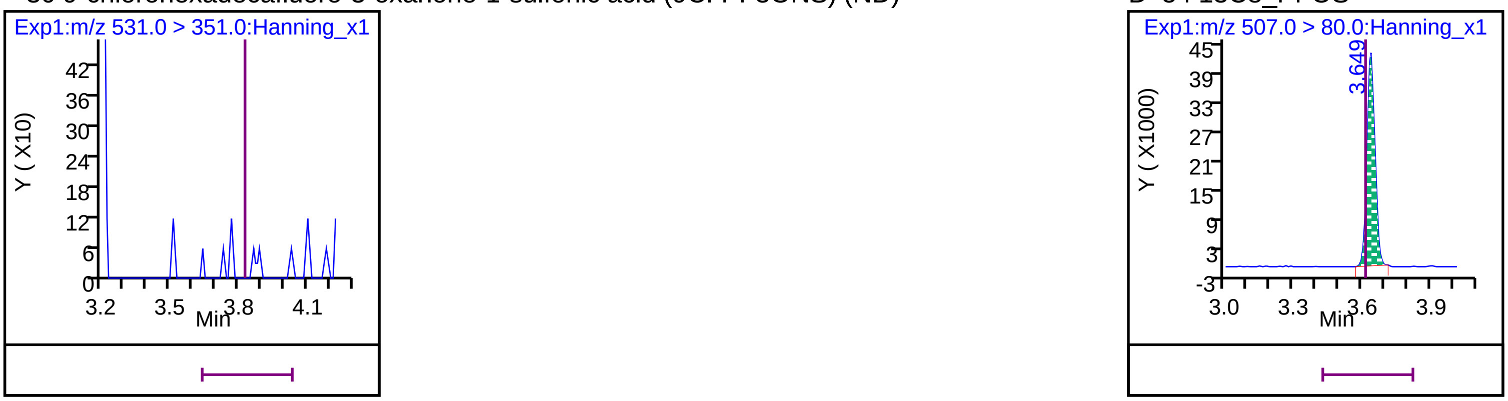
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



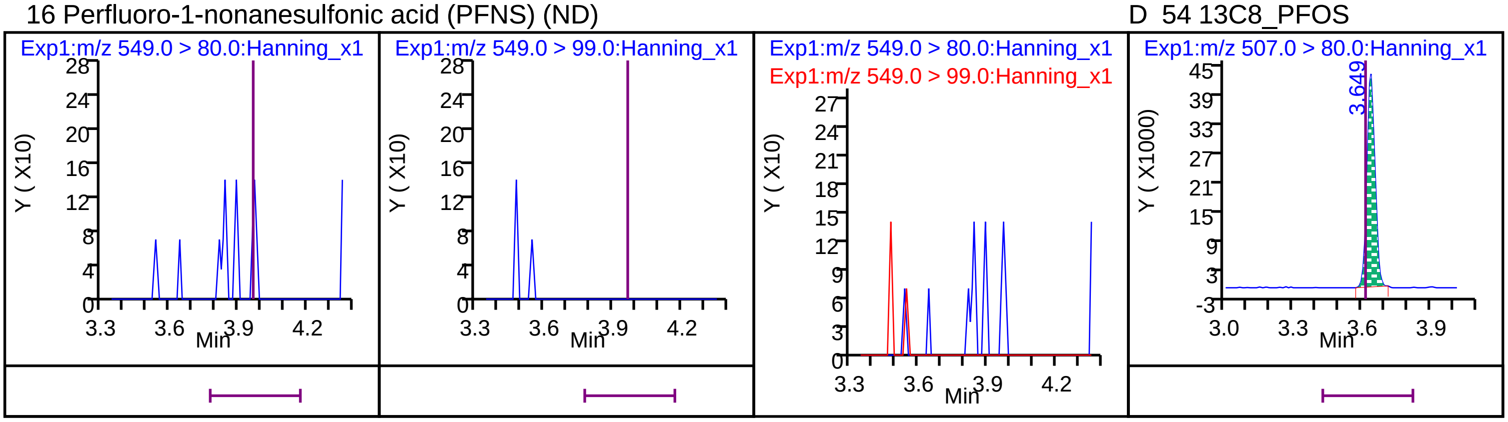
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



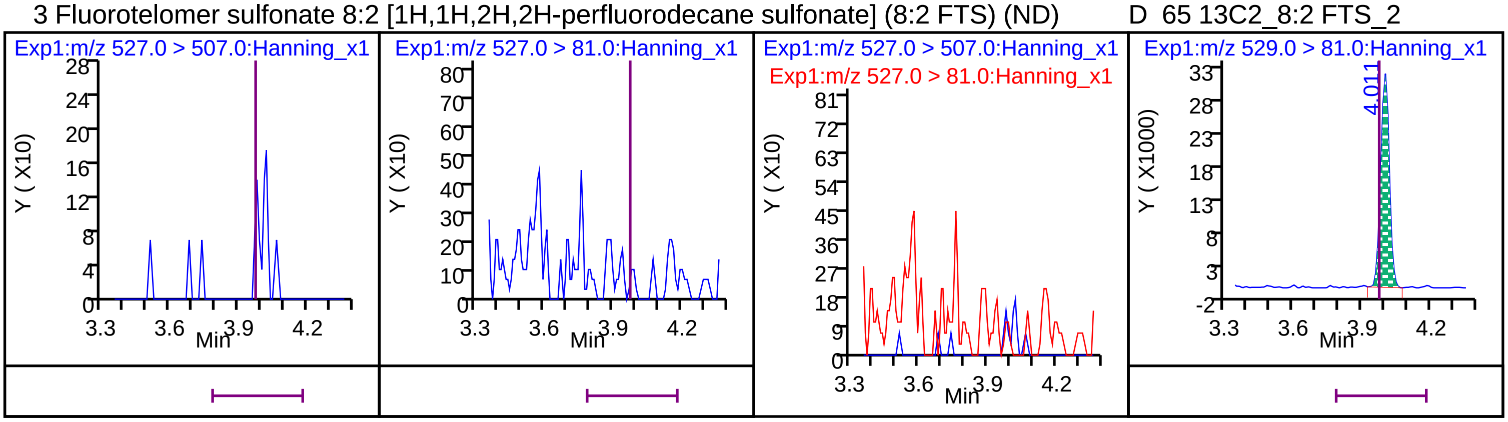
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



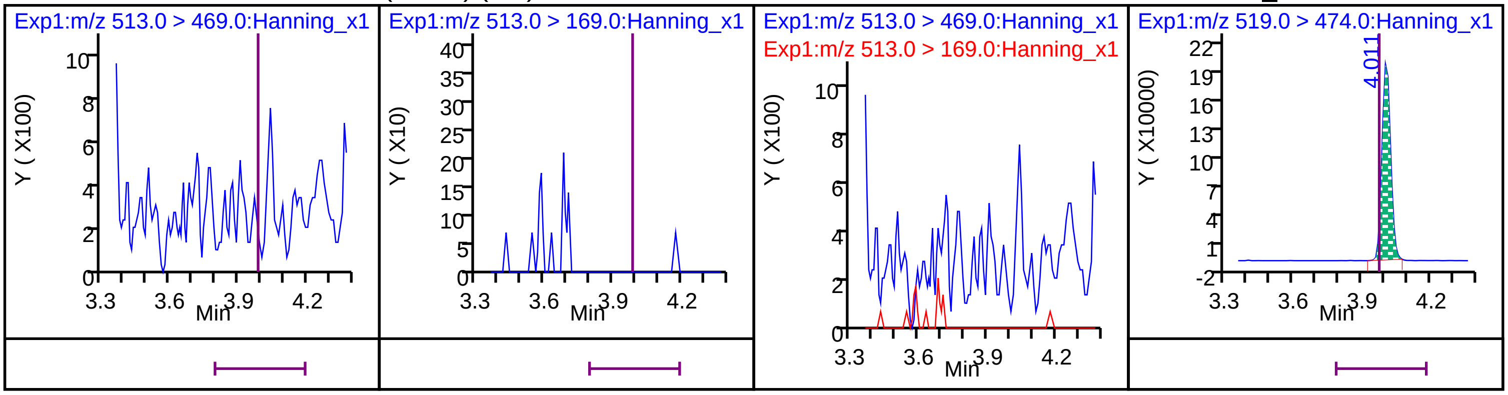
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



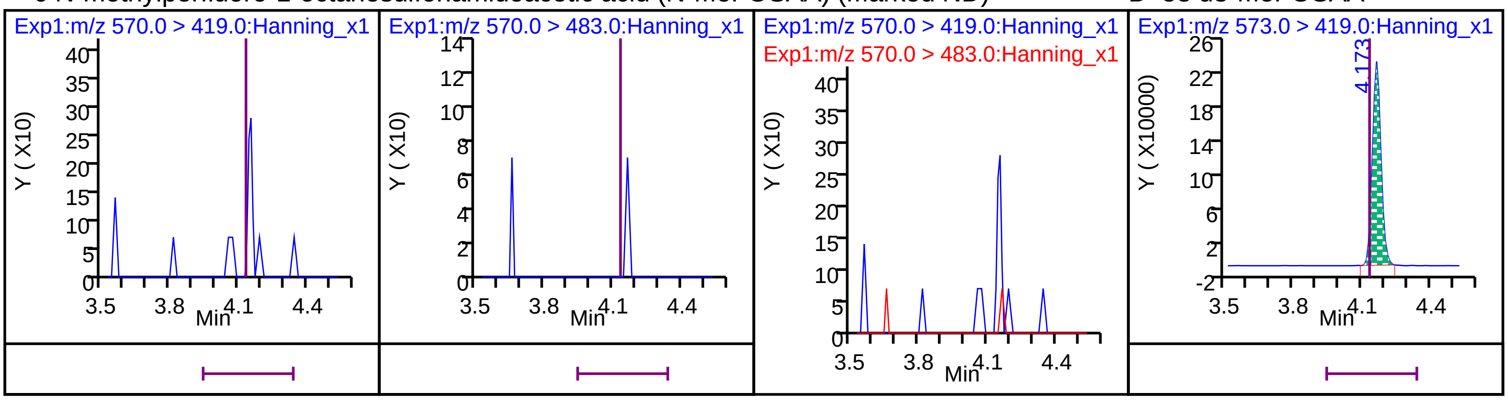
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



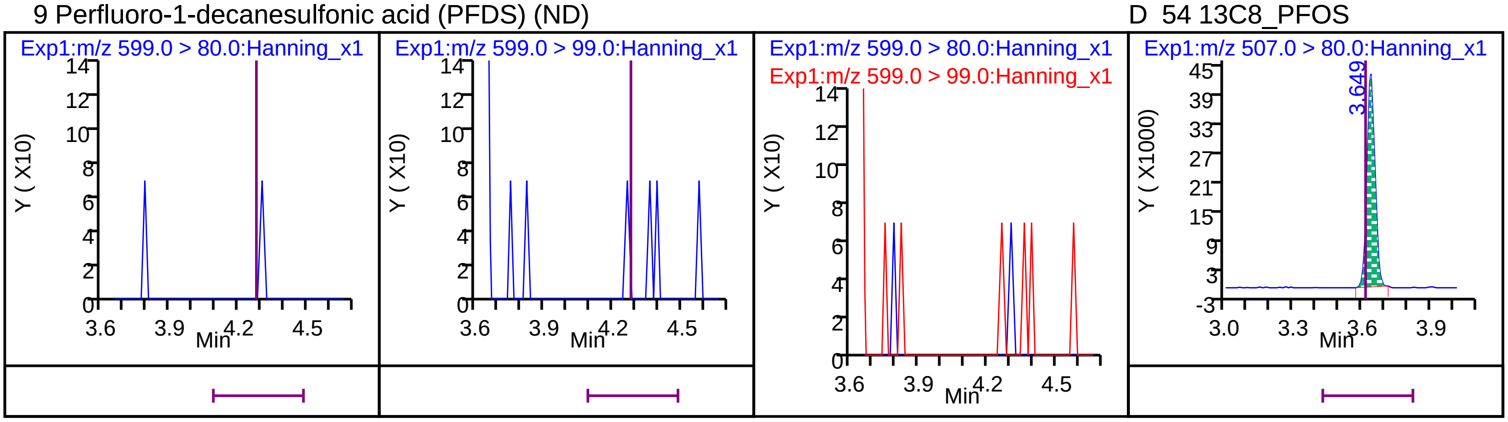
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



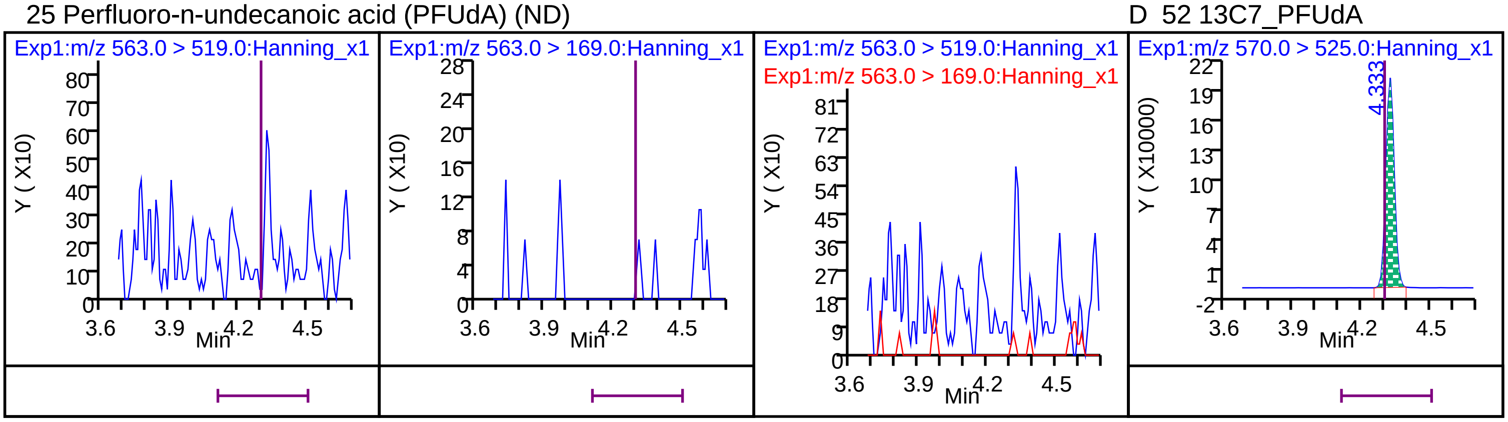
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

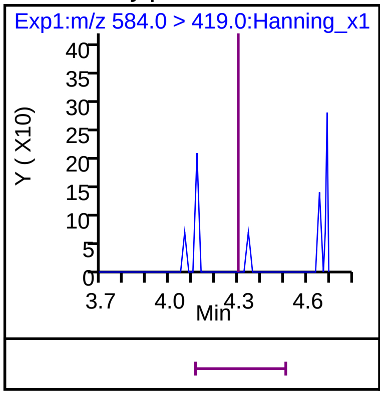


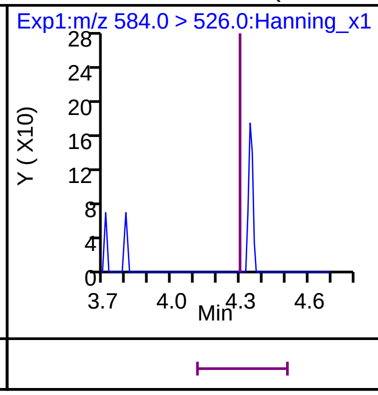
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

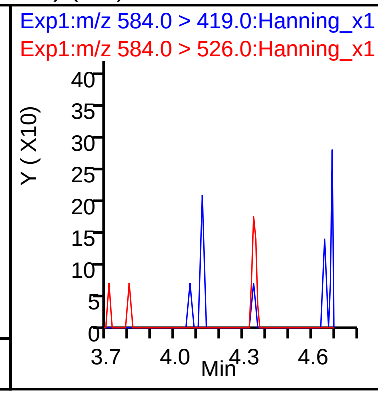


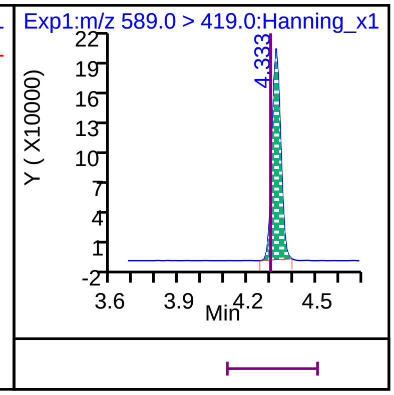
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)

D 60 d5-EtFOSAA



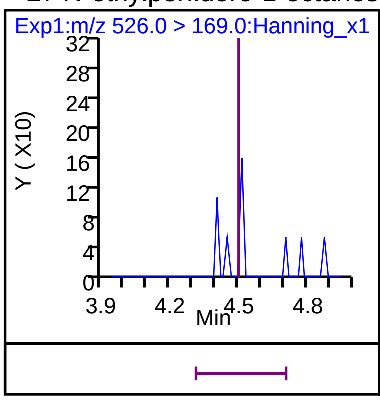


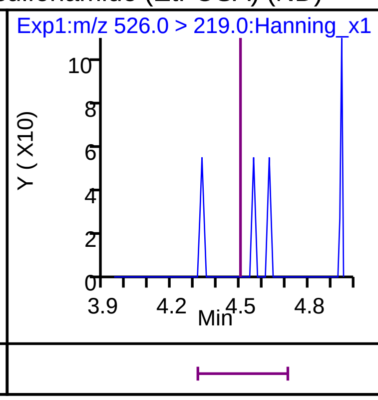


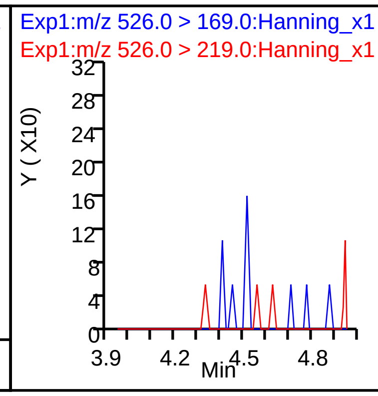


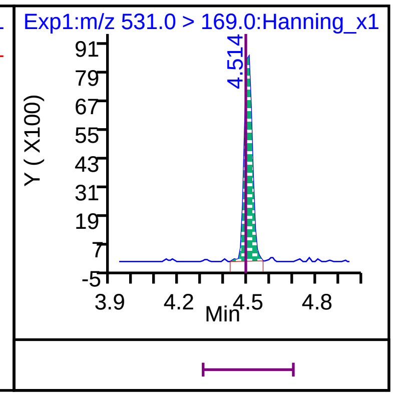
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

D 59 d5-EtFOSA



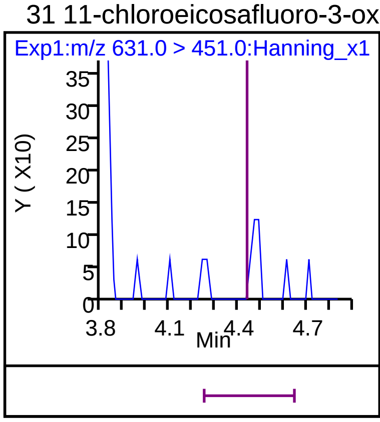


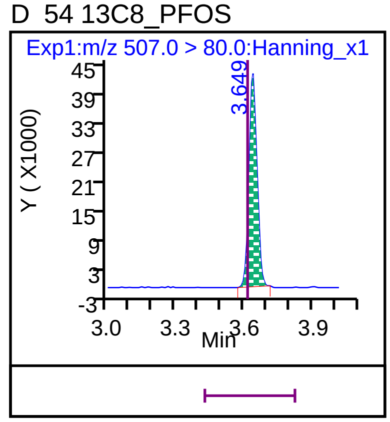




31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

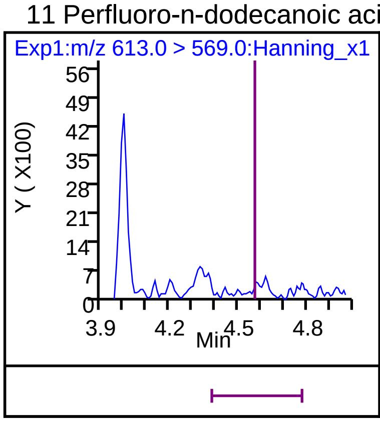
D 54 13C8_PFOS

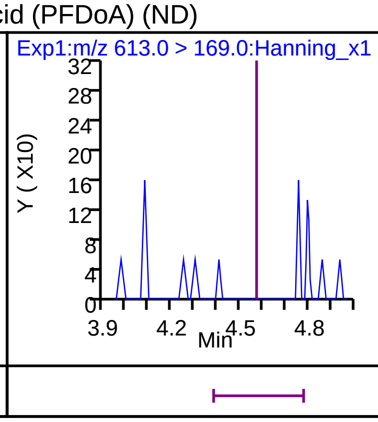


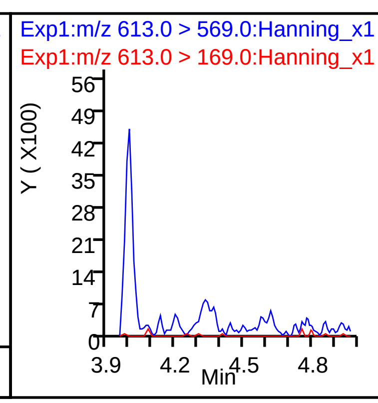


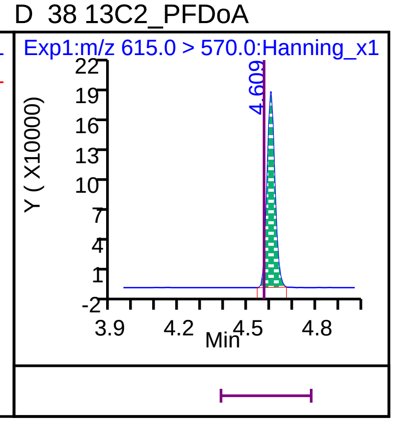
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

D 38 13C2_PFDoA

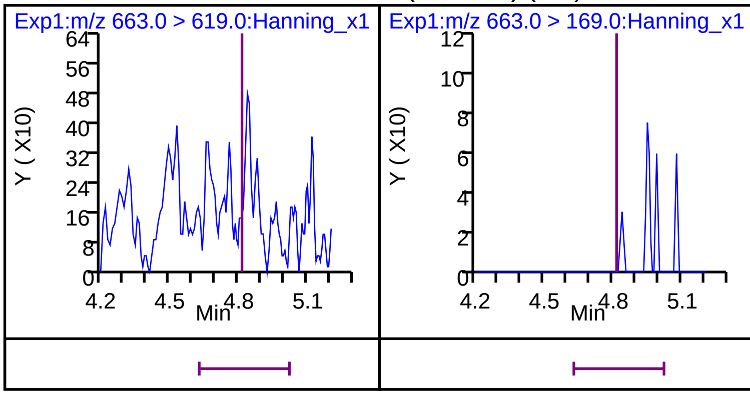




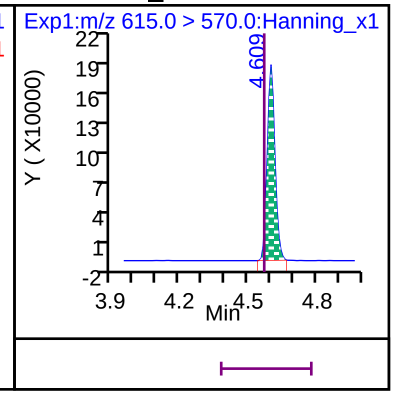




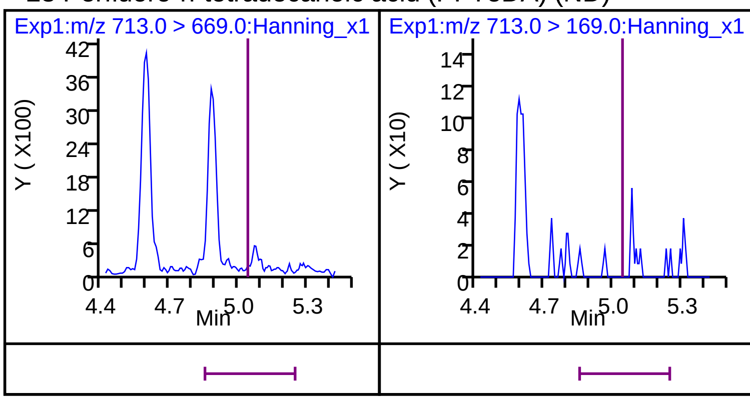
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



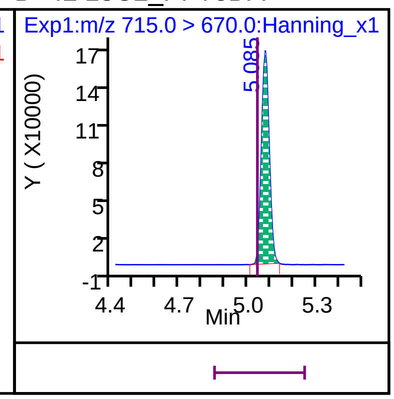
D 38 13C2_PFDoA



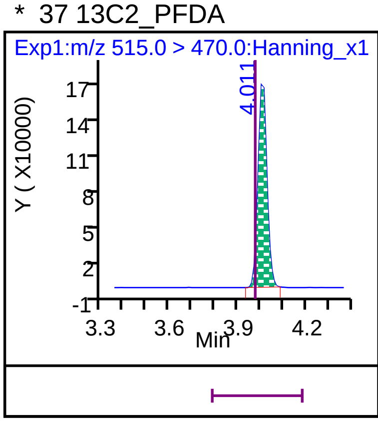
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



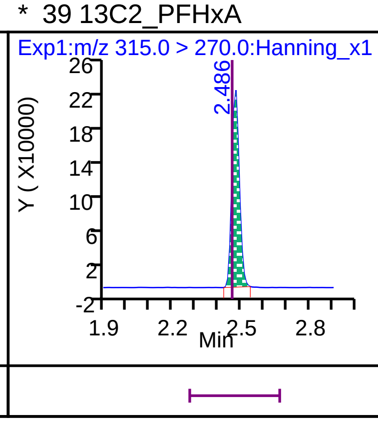
D 42 13C2_PFTeDA



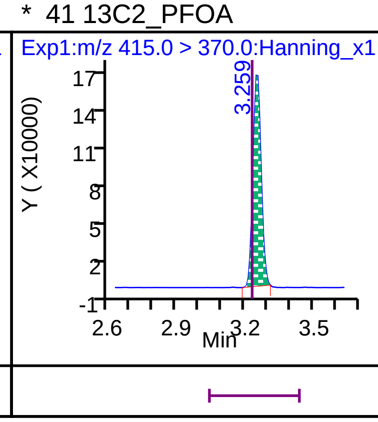
* 37 13C2_PFDA



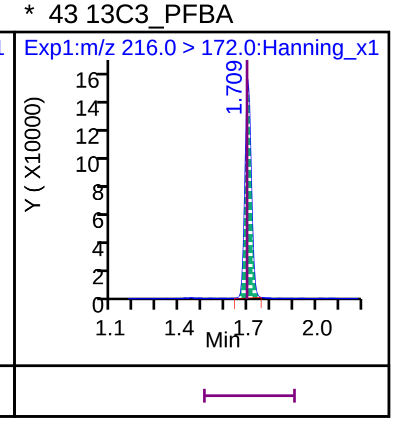
* 39 13C2_PFHxA



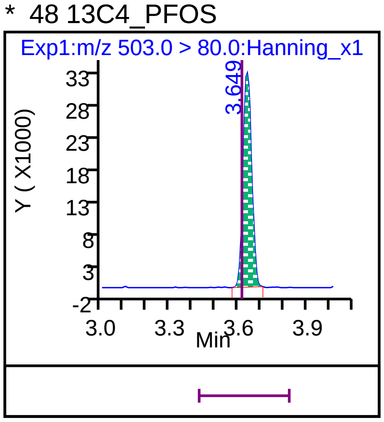
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

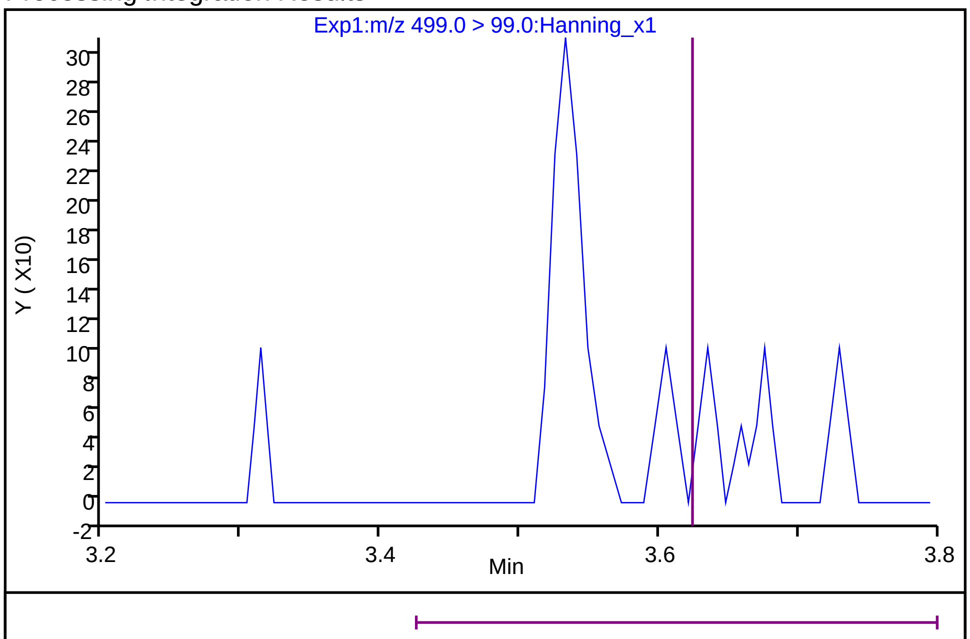
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221020.d		
Injection Date:	12-Nov-2021 16:48:18	Inst. ID:	LCMSMS02.i
Client ID:	POL-DPT0136-042.0-20211028	Lab ID:	WK01012-004
Sample Info:	WK01012-004		
Dil. Factor:	1	Operator:	Justin Gavin

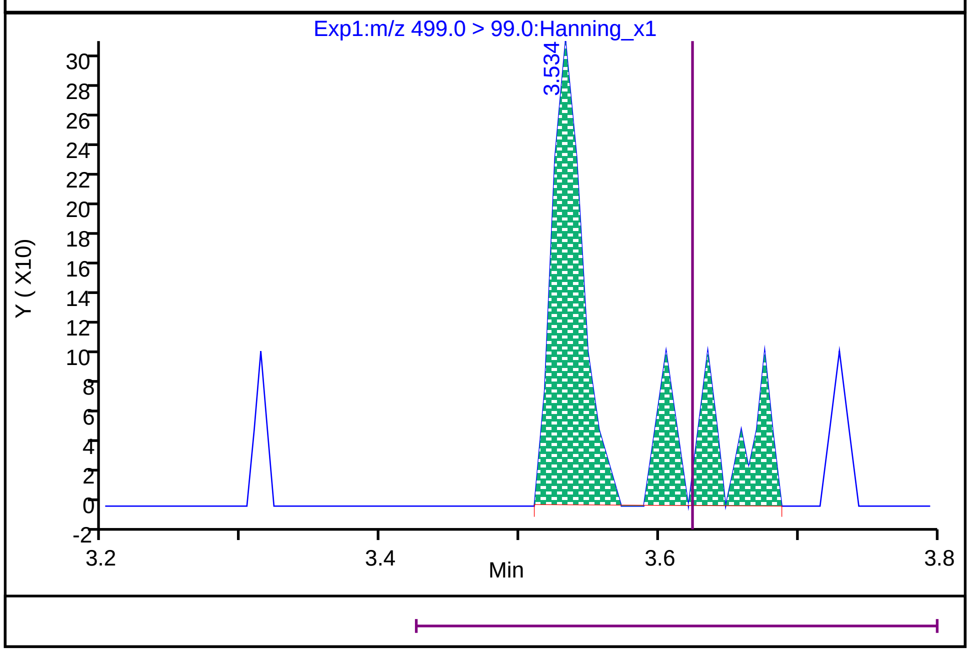
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.534
Area:	704
Conc:	0.92434
Conc Units:	ng/L



RT:	3.534
Area:	745
Conc:	0.92434
Conc Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 19:37:43

Audit Action: Mint

Audit Reason: Invalid Integration

CALIBRATION DATA

Report Date: 08-Nov-2021 12:29:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.634	3.197	3.738	3.673	3.397	3.639	3.447	3.523	3.554	3.568	3.537	3.080-3.993	0.15212	1.768
1 4:2 FTS	1.893	1.412	1.266	1.684	1.636	1.878	1.837	2.042	1.940	1.920	1.750	0.995-2.506	0.25181	0.875
15 PFHxA	15.856	22.669	18.862	17.962	18.726	19.217	19.405	19.267	18.592	18.615	18.917	14.119-23.714	1.59907	9.458
22 PFPeS	3.578	3.757	2.495	3.096	3.130	2.987	3.000	3.001	3.002	3.023	3.106	2.089-4.124	0.33920	1.553
28 GenX	0.824	0.765	0.831	0.788	0.776	0.800	0.764	0.789	0.783	0.801	0.792	0.722-0.861	0.02315	0.396
13 PFHpA	4.108	3.712	3.770	3.703	3.651	3.876	3.934	3.962	3.653	3.676	3.804	3.343-4.265	0.15353	1.902
14 PFHxS	1.874	2.322	3.190	3.259	2.988	2.846	3.107	3.105	3.108	3.176	2.897	1.416-4.378	0.49357	1.448
29 ADONA	3.655	3.261	2.962	3.089	3.373	3.349	3.221	3.256	3.098	3.121	3.238	2.684-3.792	0.18471	1.619
2 6:2 FTS	0.000	1.614	1.642	1.778	1.698	1.804	1.804	1.802	1.783	1.850	1.752	1.341-2.164	0.13709	0.876
20 PFOA	2.873	2.489	3.050	3.082	2.950	2.853	2.888	2.971	2.922	2.884	2.896	2.426-3.365	0.15650	1.448
12 PFHpS	4.029	2.614	3.357	2.784	3.057	3.223	3.126	3.028	2.961	3.080	3.125	1.981-4.269	0.38136	1.562
18 PFOS	3.445	3.037	3.173	3.219	3.251	3.227	3.451	3.436	3.401	3.420	3.306	2.711-3.900	0.19818	1.653
17 PFNA	5.539	6.259	6.790	6.458	6.946	6.819	6.644	6.584	6.577	6.507	6.512	5.371-7.653	0.38033	3.256
19 PFOSA	18.235	149.762	27.748	32.307	26.924	32.142	31.344	32.880	33.286	31.697	41.632	71.284-154.54	37.63888	20.816
16 PFNS	5.558	2.825	3.406	2.743	3.152	2.411	2.846	2.751	2.511	2.649	3.085	0.363-5.807	0.90728	1.542
3 8:2 FTS	Disabled	1.522	2.213	1.803	2.194	2.011	1.997	1.878	1.900	1.952	1.941	1.280-2.601	0.22011	0.970
10 PFDA	14.280	16.419	10.754	13.070	14.384	13.700	14.292	14.213	12.828	14.103	13.804	9.593-18.014	1.40352	6.902
6 N-MeFOSAA	1.186	1.787	1.319	1.227	1.475	1.316	1.353	1.379	1.344	1.343	1.372	0.886-1.859	0.16227	0.686
9 PFDS	2.547	3.124	3.158	2.639	2.448	2.551	2.689	2.671	2.657	2.735	2.721	2.020-3.423	0.23372	1.360
26 MeFOSA	1.063	1.009	1.066	1.428	1.202	0.990	1.136	1.066	1.094	1.085	1.113	0.718-1.509	0.13175	0.556
25 PFUdA	11.976	14.485	13.569	15.701	14.269	15.663	15.085	15.205	15.058	14.239	14.525	11.279-17.770	1.08167	7.262
5 N-EtFOSAA	1.955	1.081	1.363	1.509	1.626	1.545	1.417	1.488	1.570	1.550	1.510	0.874-2.146	0.21210	0.755
27 EtFOSA	1.094	1.499	1.138	0.851	0.954	1.056	1.014	0.960	1.026	1.034	1.062	0.534-1.590	0.17611	0.531
11 PFDoA	8.889	9.847	12.326	11.248	11.074	10.936	11.003	10.790	10.792	10.157	10.706	8.032-13.380	0.89128	5.353
4 10:2 FTS	6.655	2.764	3.147	2.371	3.143	3.722	3.362	3.478	3.544	3.227	3.541	0.183-6.898	1.11912	1.770
34 PFDOS	4.347	3.215	3.153	3.264	3.341	3.202	2.998	3.020	3.067	3.094	3.270	2.052-4.487	0.40573	1.635
24 PFTrDA	7.726	7.768	8.470	8.201	8.334	8.577	8.885	8.628	8.384	8.197	8.317	7.256-9.377	0.35356	4.158
23 PFTeDA	11.631	12.616	12.732	11.936	12.074	11.949	12.369	12.474	11.973	11.964	12.171	11.039-13.304	0.37747	6.085
35 PFHxDA	11.012	10.679	10.177	10.398	10.446	10.508	10.500	10.210	10.326	10.141	10.439	9.651-11.228	0.26290	5.219
36 PFODA	13.717	12.677	13.595	13.678	14.012	13.889	13.933	13.924	13.769	13.597	13.679	12.518-14.839	0.38693	6.839

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area

Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None

Org: Origin, F-Force, I-Include, N-Neither

Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	639	639	635	624	636	632	608	613	590	601	Avg:A Wt:C2	622		RSD=2.8	
	102.8	102.8	102.2	100.4	102.3	101.7	97.7	98.6	94.8	96.7	Org:N Dep:R				
8 PFBA	1.093604	1.044216	1.054876	1.085637	1.058922	1.056054	1.064531	1.042459	1.025815	1.020220	Avg:A Wt:C2	1.054633		RSD=2.2	
	103.7	99	100	102.9	100.4	100.1	100.9	98.8	97.3	96.7	Org:N Dep:R				
D 50 13C5_PFPeA	575	580	577	592	580	591	542	575	542	563	Avg:A Wt:C2	572		RSD=3.1	
	100.6	101.4	100.9	103.6	101.5	103.4	94.8	100.5	94.9	98.4	Org:N Dep:R				
21 PFPeA	1.220626	1.173679	1.170037	1.103992	1.080300	1.089167	1.142643	1.073904	1.108750	1.091886	Avg:A Wt:C2	1.125498		RSD=4.3	
	108.5	104.3	104	98.1	96	96.8	101.5	95.4	98.5	97	Org:N Dep:R				
D 44 13C3_PFBS	176	172	176	176	178	169	170	170	170	173	Avg:A Wt:C2	173		RSD=1.9	
	101.6	99.6	101.5	101.8	103.2	97.5	98.4	98.3	98.4	99.7	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.228740	1.376090	1.248048	1.278962	1.178356	1.291760	1.223638	1.217217	1.186756	1.240756	Avg:A Wt:C2	1.247032		RSD=4.6	
	98.5	110.3	100.1	102.6	94.5	103.6	98.1	97.6	95.2	99.5	Org:N Dep:R				
1 4:2 FTS	2.204134	2.099897	2.048929	2.242499	2.191925	2.141071	2.403999	2.020901	2.482072	2.208397	Avg:A Wt:C2	2.204382		RSD=6.6	
	100	95.3	92.9	101.7	99.4	97.1	109.1	91.7	112.6	100.2	Org:N Dep:R				
D 63 13C2_4:2 FTS_2	23.9476	23.4130	23.6244	21.9442	22.4598	23.3938	19.7876	25.5426	20.0558	22.2684	Avg:A Wt:C2	22.6437		RSD=7.8	
	105.8	103.4	104.3	96.9	99.2	103.3	87.4	112.8	88.6	98.3	Org:N Dep:R				
D 49 13C5_PFHxA	664	671	647	676	665	635	646	645	634	630	Avg:A Wt:C2	651		RSD=2.5	
	102	103	99.4	103.7	102.1	97.5	99.1	99.1	97.3	96.8	Org:N Dep:R				
15 PFHxA	1.152929	0.997028	1.062543	1.040881	1.028211	1.046735	1.022696	1.006346	1.003983	1.036231	Avg:A Wt:C2	1.039758		RSD=4.3	
	110.9	95.9	102.2	100.1	98.9	100.7	98.4	96.8	96.6	99.7	Org:N Dep:R				
22 PFPeS	1.065959	0.960891	0.850038	0.939012	0.871228	0.928577	0.904603	0.911903	0.905064	0.930429	Avg:A Wt:C2	0.926770		RSD=6.3	
	115	103.7	91.7	101.3	94	100.2	97.6	98.4	97.7	100.4	Org:N Dep:R				
28 GenX	0.693832	0.612990	0.641206	0.659909	0.627348	0.649947	0.634083	0.653577	0.642220	0.661199	Avg:A Wt:C2	0.647631		RSD=3.4	
	107.1	94.7	99	101.9	96.9	100.4	97.9	100.9	99.2	102.1	Org:N Dep:R				
D 66 13C3_GenX	235	240	240	233	241	238	227	227	219	218	Avg:A Wt:C2	232		RSD=3.7	
	101.6	103.4	103.6	100.5	104	102.8	97.8	97.9	94.6	93.9	Org:N Dep:R				
13 PFHpA	1.279100	1.093710	1.103691	1.103542	1.084325	1.036241	1.121621	1.112854	0.989808	1.063427	Avg:A Wt:C2	1.098832		RSD=6.8	
	116.4	99.5	100.4	100.4	98.7	94.3	102.1	101.3	90.1	96.8	Org:N Dep:R				
D 47 13C4_PFHpA	533	549	547	538	533	554	513	512	523	508	Avg:A Wt:C2	531		RSD=3.1	
	100.4	103.4	103.1	101.3	100.4	104.4	96.6	96.4	98.4	95.7	Org:N Dep:R				
14 PFHxS	0.990168	1.066144	1.184213	1.118151	1.084169	1.050532	1.155686	1.089155	1.122447	1.133206	Avg:A Wt:C2	1.099387		RSD=5.1	
	90.1	97	107.7	101.7	98.6	95.6	105.1	99.1	102.1	103.1	Org:N Dep:R				
D 45 13C3_PFHxS	128	126	130	133	130	128	122	123	117	118	Avg:A Wt:C2	126		RSD=4.2	
	101.8	100.2	103.6	106.2	103.2	102.2	97.2	98.1	93.5	93.8	Org:N Dep:R				
29 ADONA	8.316831	8.040642	7.300605	7.321912	7.828526	7.769082	7.983214	7.657087	7.605731	7.728870	Avg:A Wt:C2	7.755250		RSD=4.0	
	107.2	103.7	94.1	94.4	100.9	100.2	102.9	98.7	98.1	99.7	Org:N Dep:R				
2 6:2 FTS	2.396080	2.951233	2.340941	2.292609	2.181824	2.311379	2.316137	2.469699	2.295395	2.117074	Avg:A Wt:C2	2.367237		RSD=9.6	
	101.2	124.7	98.9	96.8	92.2	97.6	97.8	104.3	97	89.4	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	18.2788	18.6470	18.1596	18.8912	18.7892	18.5258	17.0896	16.5418	16.8202	18.2564	Avg:A Wt:C2	18.0000		RSD=4.8	
	101.5	103.6	100.9	105	104.4	102.9	94.9	91.9	93.4	101.4	Org:N Dep:R				
D 53 13C8_PFOA	566	554	528	524	548	534	496	502	493	501	Avg:A Wt:C2	525		RSD=5.0	
	107.9	105.6	100.6	99.9	104.4	101.8	94.6	95.7	94	95.6	Org:N Dep:R				
20 PFOA	1.153060	0.938381	1.041106	1.074437	1.017702	1.008160	1.042997	1.007636	0.985356	0.978720	Avg:A Wt:C2	1.024756		RSD=5.8	
	112.5	91.6	101.6	104.8	99.3	98.4	101.8	98.3	96.2	95.5	Org:N Dep:R				
12 PFHpS	1.185281	1.095679	1.044224	0.912560	0.996569	1.044817	1.002795	0.992578	0.983259	1.012883	Avg:A Wt:C2	1.027065		RSD=7.1	
	115.4	106.7	101.7	88.9	97	101.7	97.6	96.6	95.7	98.6	Org:N Dep:R				
D 54 13C8_PFOS	121	121	122	130	132	132	120	120	122	117	Avg:A Wt:C2	124		RSD=4.4	
	97.7	97.9	98.8	104.8	106.5	106.9	97.3	97	98.5	94.5	Org:N Dep:R				
18 PFOS	1.387235	1.268998	1.211515	1.146369	1.104372	1.097088	1.159871	1.181776	1.126016	1.223539	Avg:A Wt:C2	1.190678		RSD=7.4	
	116.5	106.6	101.8	96.3	92.8	92.1	97.4	99.3	94.6	102.8	Org:N Dep:R				
17 PFNA	1.050870	1.071600	1.096972	1.100487	1.083246	1.090361	1.077734	1.072861	1.066654	1.067938	Avg:A Wt:C2	1.077872		RSD=1.4	
	97.5	99.4	101.8	102.1	100.5	101.2	100	99.5	99	99.1	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 56 13C9_PFNA	674	668	650	653	639	666	629	622	601	602	Avg:A Wt:C2	640		RSD=4.1	
	105.2	104.3	101.5	101.9	99.8	104.1	98.2	97.2	93.9	93.9	Org:N Dep:R				
30 9Cl-PF3ONS	3.804328	3.764996	3.910266	3.641353	3.531021	3.768664	3.804656	3.931447	3.721179	3.993131	Avg:A Wt:C2	3.787104		RSD=3.6	
	100.5	99.4	103.3	96.2	93.2	99.5	100.5	103.8	98.3	105.4	Org:N Dep:R				
19 PFOSA	1.079234	0.994144	1.026780	1.080506	1.070462	1.093312	1.009769	1.044775	1.066238	1.056609	Avg:A Wt:C2	1.052183		RSD=3.1	
	102.6	94.5	97.6	102.7	101.7	103.9	96	99.3	101.3	100.4	Org:N Dep:R				
D 55 13C8_PFOSA	262	279	271	279	267	271	276	257	255	265	Avg:A Wt:C2	268		RSD=3.2	
	97.6	104	101	104.1	99.5	101.2	102.9	95.9	95.2	98.8	Org:N Dep:R				
16 PFNS	0.966286	0.800304	0.726913	0.796849	0.762371	0.737477	0.846127	0.803489	0.752232	0.830833	Avg:A Wt:C2	0.802288		RSD=8.7	
	120.4	99.8	90.6	99.3	95	91.9	105.5	100.1	93.8	103.6	Org:N Dep:R				
3 8:2 FTS	Disabled	1.847311	2.645265	2.308095	2.775809	2.072917	2.297090	1.977371	2.296578	2.116028	Avg:A Wt:C2	2.259607		RSD=13.3	
	Disabled	81.8	117.1	102.1	122.8	91.7	101.7	87.5	101.6	93.6	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	18.6108	17.9576	18.2940	16.8862	15.7670	18.9888	16.4626	17.3706	15.2564	17.2510	Avg:A Wt:C2	17.2845		RSD=7.1	
	107.7	103.9	105.8	97.7	91.2	109.9	95.2	100.5	88.3	99.8	Org:N Dep:R				
D 51 13C6_PFDA	610	567	576	591	576	617	563	570	545	532	Avg:A Wt:C2	575		RSD=4.6	
	106.1	98.6	100.3	102.9	100.2	107.3	98	99.2	94.8	92.5	Org:N Dep:R				
10 PFDA	1.068077	1.203242	1.144485	1.200156	1.221802	1.151593	1.220548	1.159487	1.105462	1.162616	Avg:A Wt:C2	1.163747		RSD=4.3	
	91.8	103.4	98.3	103.1	105	99	104.9	99.6	95	99.9	Org:N Dep:R				
D 58 d3-MeFOSAA	154	151	150	149	155	157	152	147	143	153	Avg:A Wt:C2	151		RSD=2.7	
	102.1	100.2	99.4	98.6	102.3	104.1	100.6	97.1	94.7	101	Org:N Dep:R				
6 N-MeFOSAA	0.821729	0.805199	0.886579	0.770566	0.839126	0.770432	0.762918	0.804530	0.781896	0.781274	Avg:A Wt:C2	0.802425		RSD=4.8	
	102.4	100.3	110.5	96	104.6	96	95.1	100.3	97.4	97.4	Org:N Dep:R				
D 61 d7-MeFOSE	89.3790	97.5870	89.9580	94.5070	90.0700	85.7370	86.5710	86.1910	88.6230	93.2650	Avg:A Wt:C2	90.1888		RSD=4.3	
	99.1	108.2	99.7	104.8	99.9	95.1	96	95.6	98.3	103.4	Org:N Dep:R				
32 MeFOSE	1.397644	0.929325	0.988072	0.977113	1.097280	1.212843	1.114868	1.137026	1.073985	1.000270	Avg:A Wt:C2	1.092842		RSD=12.6	
	127.9	85	90.4	89.4	100.4	111	102	104	98.3	91.5	Org:N Dep:R				
9 PFDS	0.906913	0.773802	0.851604	0.750876	0.748851	0.733544	0.791521	0.756089	0.735397	0.776763	Avg:A Wt:C2	0.782536		RSD=7.1	
	115.9	98.9	108.8	96	95.7	93.7	101.1	96.6	94	99.3	Org:N Dep:R				
26 MeFOSA	1.114709	0.937183	1.076227	1.235609	1.174256	1.096348	1.025609	1.121700	1.052213	1.004998	Avg:A Wt:C2	1.083885		RSD=7.9	
	102.8	86.5	99.3	114	108.3	101.1	94.6	103.5	97.1	92.7	Org:N Dep:R				
D 57 d3-MeFOSA	45.0880	51.3240	50.1660	51.1100	44.9970	47.1830	47.3110	42.3910	44.3290	46.5130	Avg:A Wt:C2	47.0412		RSD=6.4	
	95.8	109.1	106.6	108.6	95.7	100.3	100.6	90.1	94.2	98.9	Org:N Dep:R				
D 60 d5-EtFOSAA	138	140	132	142	138	128	131	122	117	107	Avg:A Wt:C2	130		RSD=8.6	
	106.5	108.1	101.9	109.3	106.5	99.2	101.1	94.1	90.3	82.9	Org:N Dep:R				
25 PFUdA	0.968905	1.004448	1.014149	0.904867	0.952735	0.954277	1.001736	0.967584	1.005611	0.915340	Avg:A Wt:C2	0.968965		RSD=3.9	
	100	103.7	104.7	93.4	98.3	98.5	103.4	99.9	103.8	94.5	Org:N Dep:R				
D 52 13C7_PFUdA	633	606	622	645	635	645	567	587	527	556	Avg:A Wt:C2	602		RSD=6.8	
	105.1	100.6	103.3	107.1	105.4	107	94.2	97.4	87.6	92.4	Org:N Dep:R				
5 N-EtFOSAA	1.195885	0.762096	0.986538	0.881703	1.027486	0.953052	0.930356	0.961725	0.976301	1.075368	Avg:A Wt:C2	0.975051		RSD=11.8	
	122.6	78.2	101.2	90.4	105.4	97.7	95.4	98.6	100.1	110.3	Org:N Dep:R				
D 62 d9-EtFOSE	115	112	104	104	102	104	101	106	105	107	Avg:A Wt:C2	106		RSD=4.1	
	108	105.9	98.1	98.4	95.8	98.3	95.2	100.3	99	101	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
33 EtFOSE	0.998097	0.918667	0.904640	0.929645	1.041532	1.027513	1.062925	0.959872	0.960782	0.931131	Avg:A Wt:C2	0.973480		RSD=5.7	
	102.5	94.4	92.9	95.5	107	105.6	109.2	98.6	98.7	95.6	Org:N Dep:R				
D 59 d5-EtFOSA	44.5470	41.1580	43.2240	44.9430	42.8950	42.6590	42.7900	40.7960	43.6680	43.3190	Avg:A Wt:C2	42.9999		RSD=3.0	
	103.6	95.7	100.5	104.5	99.8	99.2	99.5	94.9	101.6	100.7	Org:N Dep:R				
31 11Cl-PF3OUDS	3.668871	3.605975	3.692567	3.254992	3.203625	3.229571	3.367778	3.488174	3.167200	3.557629	Avg:A Wt:C2	3.423638		RSD=5.9	
	107.2	105.3	107.9	95.1	93.6	94.3	98.4	101.9	92.5	103.9	Org:N Dep:R				
27 EtFOSA	1.193346	1.622285	1.335138	1.162183	1.165008	1.228568	1.184394	1.202807	1.152069	1.195907	Ln:A Wt:C	1.182603	15.8204	R^2=0.999	
	74.2	123.8	106.2	95.6	97.2	103.2	99.9	101.6	97.3	101.1	Org:N Dep:R			RSE=12.9	
D 38 13C2_PFDoA	595	610	601	603	604	603	568	599	640	580	Avg:A Wt:C2	600		RSD=3.1	
	99.1	101.6	100.1	100.5	100.7	100.4	94.7	99.7	106.7	96.6	Org:N Dep:R				
11 PFDoA	1.048769	1.023111	1.145845	1.084212	1.068810	1.118181	1.115233	1.042366	0.968551	1.045669	Avg:A Wt:C2	1.066075		RSD=4.9	
	98.4	96	107.5	101.7	100.3	104.9	104.6	97.8	90.9	98.1	Org:N Dep:R				
4 10:2 FTS	2.285292	3.033887	2.202386	2.237826	2.831693	2.398635	2.546360	2.525754	2.880110	2.424145	Avg:A Wt:C2	2.536609		RSD=11.4	
	90.1	119.6	86.8	88.2	111.6	94.6	100.4	99.6	113.5	95.6	Org:N Dep:R				
34 PFDOS	1.021971	0.807150	0.858975	0.794433	0.830829	0.786619	0.858952	0.869142	0.809819	0.960994	Avg:A Wt:C2	0.859888		RSD=8.9	
	118.8	93.9	99.9	92.4	96.6	91.5	99.9	101.1	94.2	111.8	Org:N Dep:R				
24 PFTrDA	1.175527	1.043726	1.061081	1.082422	1.067820	1.090161	1.128893	1.055680	0.844959	0.960614	Avg:A Wt:C2	1.051088		RSD=8.7	
	111.8	99.3	101	103	101.6	103.7	107.4	100.4	80.4	91.4	Org:N Dep:R				
D 42 13C2_PFTeDA	843	822	812	818	838	821	789	801	787	798	Avg:A Wt:C2	813		RSD=2.4	
	103.7	101.1	99.8	100.6	103.1	101	97.1	98.5	96.8	98.2	Org:N Dep:R				
23 PFTeDA	0.949070	0.890846	0.909849	0.891955	0.844266	0.871775	0.887309	0.863476	0.814294	0.806494	Avg:A Wt:C2	0.872933		RSD=5.0	
	108.7	102.1	104.2	102.2	96.7	99.9	101.6	98.9	93.3	92.4	Org:N Dep:R				
D 40 13C2_PFHxDA	905	862	859	852	878	874	844	880	870	856	Avg:A Wt:C2	868		RSD=2.0	
	104.2	99.3	98.9	98.1	101.1	100.7	97.3	101.4	100.2	98.6	Org:N Dep:R				
35 PFHxDA	0.787907	0.689110	0.661678	0.650915	0.609247	0.621284	0.622652	0.582303	0.593215	0.586194	Avg:A Wt:C2	0.640451		RSD=9.7	
	123	107.6	103.3	101.6	95.1	97	97.2	90.9	92.6	91.5	Org:N Dep:R				
36 PFODA	0.964798	0.930131	0.923499	0.945970	0.936326	0.943438	0.906510	0.862526	0.815725	0.874939	Avg:A Wt:C2	0.910386		RSD=5.1	
	106	102.2	101.4	103.9	102.8	103.6	99.6	94.7	89.6	96.1	Org:N Dep:R				

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	664485	665974	635729	690187	652287	684156	646194	625216	641184	627731	1.42
* 39 13C2_PFHxA	686523	662021	662023	670207	682639	687359	655717	669175	626878	669431	0.63
* 41 13C2_PFOA	569415	543161	531844	553624	562836	543856	519402	506174	503361	495600	3.46
* 43 13C3_PFBA	601508	568408	575690	590590	589407	590309	554269	565087	532630	550746	2.20
* 48 13C4_PFOS	127140	128160	131882	132512	130980	132467	122600	116530	118944	118894	1.67

13C2_PFDA	((|627731 - 664485| / (627731 + 664485)) / 2) * 100	= 1.42
13C2_PFHxA	((|669431 - 686523| / (669431 + 686523)) / 2) * 100	= 0.63
13C2_PFOA	((|495600 - 569415| / (495600 + 569415)) / 2) * 100	= 3.47
13C3_PFBA	((|550746 - 601508| / (550746 + 601508)) / 2) * 100	= 2.20
13C4_PFOS	((|118894 - 127140| / (118894 + 127140)) / 2) * 100	= 1.68

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA	* 39 13C2_PFHxA	* 41 13C2_PFOA
* 43 13C3_PFBA	* 48 13C4_PFOS	D 38 13C2_PFDoA
D 40 13C2_PFHxDA	D 42 13C2_PFTeDA	D 44 13C3_PFBS
D 45 13C3_PFHxS	D 46 13C4_PFBA	D 47 13C4_PFHpA
D 49 13C5_PFHxA	D 50 13C5_PFPeA	D 51 13C6_PFDA
D 52 13C7_PFUdA	D 53 13C8_PFOA	D 54 13C8_PFOS
D 55 13C8_PFOSA	D 56 13C9_PFNA	D 57 d3-MeFOSA
D 58 d3-MeFOSAA	D 59 d5-EtFOSA	D 60 d5-EtFOSAA
D 61 d7-MeFOSE	D 62 d9-EtFOSE	D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2	D 65 13C2_8:2 FTS_2	D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	638915	639140	635065	624336	635753	631978	607576	612919	589637	601428	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	34936	66740	133983	338901	673213	1334806	3233918	6389427	9072875	12271777	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	574918	579707	576704	592341	580113	590743	541862	574561	542414	562559	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	35088	68039	134953	326970	626696	1286836	3095773	6170232	9021019	12285003	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	175823	172237	175591	176030	178463	168596	170276	170031	170122	172528	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	9549	20952	38745	99510	185899	385045	920934	1829568	2677106	3784673	
1 4:2 FTS	46.700	93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
	2465	4592	9042	22981	45981	93564	222149	482122	697417	918635	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	119738	117065	118122	109721	112299	116969	98938	127713	100279	111342	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	664013	670974	647409	675545	664948	635316	645583	645118	633613	630351	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	686523	662021	662023	670207	682639	687359	655717	669175	626878	669431	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	38278	66898	137580	351581	683707	1330015	3301175	6492122	9542047	13063789	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	8790	15524	28001	77523	145842	293696	722411	1454385	2166376	3011449	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	16330	29374	61561	153699	302352	619228	1437846	2964456	4224675	5757611	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	1176798	1197981	1200102	1164547	1204882	1190921	1133799	1133936	1096372	1088480	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	34076	60017	120846	296723	577941	1148679	2877261	5693105	7758440	10807866	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	532812	548747	547463	537765	532996	554253	513054	511577	522555	508162	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	5763	12218	28059	67873	127977	245510	642452	1221767	1799881	2431672	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	127917	125934	130188	133409	129716	128407	122177	123270	117475	117903	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	50108	95386	179065	460077	956587	1879487	4593970	8891435	12624919	17168081	
2 6:2 FTS	47.400	94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
	2076	5217	8060	20529	38863	81187	187618	387289	549020	732807	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	91394	93235	90798	94456	93946	92629	85448	82709	84101	91282	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	569415	543161	531844	553624	562836	543856	519402	506174	503361	495600	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	566059	554295	527785	524379	547741	533931	496199	501858	493065	501453	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	32635	52014	109896	281706	557437	1076576	2587671	5056901	7287671	9815646	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	7217	13136	25884	57950	123066	255444	583188	1164821	1649459	2273794	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	121039	121269	122371	129829	131913	132396	120487	120102	122035	116988	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	127140	128160	131882	132512	130980	132467	122600	116530	118944	118894	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	7791	14281	27516	69058	135192	269584	648437	1317144	1912794	2656667	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	35389	71588	142641	359052	692229	1453207	3388713	6678173	9619483	12848388	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	673518	668048	650158	652533	639032	666388	628859	622464	601225	601551	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	21458	42553	89193	220303	434114	930054	2136198	4400668	6348515	8707646	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	14114	27706	55580	150716	285564	593408	1391997	2684423	4080280	5595676	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	261556	278692	270652	278973	266767	271381	275706	256938	255120	264794	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	5614	9317	17079	49658	96544	187467	489347	926406	1321901	1866192	
3 8:2 FTS	Disabled	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	Disabled	3178	9272	18669	41928	75418	181139	329055	503489	699409	
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	664485	665974	635729	690187	652287	684156	646194	625216	641184	627731	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	93054	89788	91470	84431	78835	94944	82313	86853	76282	86255	
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	609675	566586	576412	591408	575846	616544	563256	570320	544823	531731	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	32559	68174	131939	354891	703570	1420016	3437405	6612786	9034213	12363983	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	771544	757204	751315	744712	772780	786283	759801	733412	715483	763092	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	6340	12194	26644	57385	129692	242311	579666	1180104	1678300	2384735	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	89379	97587	89958	94507	90070	85737	86571	86191	88623	93265	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	6246	9069	17777	46172	98832	207971	482576	980014	1427696	1865803	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	5291	9046	20092	46988	95227	187244	459674	875387	1297701	1752012	
26 MeFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	2513	4810	10798	31576	52838	103458	242613	475500	699653	934909	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	45088	51324	50166	51110	44997	47183	47311	42391	44329	46513	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	689949	700240	659630	708039	689688	642300	654701	609480	584720	536911	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	30659	60854	126197	291697	604574	1230135	2841498	5676476	7956538	10184582	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	632859	605845	622182	644729	634567	644538	567315	586665	527476	556328	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	8251	10673	26030	62428	141729	244858	609105	1172304	1712589	2309508	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	114558	112304	104069	104371	101585	104277	101022	106365	105046	107173	
33 EtFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	5717	10317	18829	48514	105804	214292	536894	1020968	1513895	1995842	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	44547	41158	43224	44943	42895	42659	42790	40796	43668	43319	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	20916	41193	85131	199041	398089	805565	1911193	3946384	5461375	7841206	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	2658	6677	11542	26116	49973	104819	253401	490697	754628	1036110	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	594678	609758	600845	603349	604291	602891	568288	598735	640359	580173	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	31184	62385	137695	327079	645872	1348282	3168869	6241011	9303305	12133384	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	2050	5252	7768	18214	43040	87815	202053	422944	635374	806269	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	5987	9475	20350	49920	106090	201625	500904	1010453	1434957	2176544	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	34953	63642	127509	326539	645274	1314496	3207682	6320725	8116160	11146450	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	843457	821567	811547	818088	838224	821412	789132	800702	787350	798422	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	40025	73189	147677	364849	707684	1432173	3501019	6913870	9617011	12878458	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	904853	861836	858869	851524	877835	874416	844444	880463	870178	855945	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	35647	59390	113659	277135	534818	1086521	2628973	5126962	7743034	10035004	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	43650	80162	158633	402758	821940	1649914	3827486	7594218	10647394	14977998	

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.731	1.724	1.724	1.724	1.731	1.731	1.731	1.731	1.728	1.724	1.727	0.173
8 PFBA	1.731	1.731	1.731	1.731	1.731	1.731	1.731	1.731	1.734	1.731	1.730	0.073
D 50 13C5_PFPeA	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.119	2.125	2.120	2.127	0.221
21 PFPeA	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.119	2.125	2.120	2.127	0.221
D 44 13C3_PFBS	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.178	2.183	2.182	0.080
7 PFBS	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.178	2.183	2.182	0.080
1 4:2 FTS	2.451	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.460	2.459	0.116
D 63 13C2_4:2 FTS_2	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.460	2.460	0.026
D 49 13C5_PFHxA	2.505	2.496	2.505	2.505	2.505	2.496	2.496	2.496	2.495	2.496	2.499	0.190
* 39 13C2_PFHxA	2.505	2.505	2.505	2.496	2.505	2.505	2.496	2.496	2.503	2.496	2.500	0.183
15 PFHxA	2.505	2.505	2.505	2.505	2.505	2.505	2.505	2.496	2.503	2.496	2.502	0.150
22 PFPeS	2.540	2.531	2.532	2.531	2.531	2.532	2.531	2.531	2.530	2.532	2.532	0.114
28 GenX	2.622	2.622	2.622	2.622	2.622	2.614	2.614	2.614	2.613	2.614	2.617	0.151
D 66 13C3_GenX	2.622	2.622	2.622	2.614	2.622	2.614	2.614	2.614	2.613	2.614	2.617	0.147
13 PFHpA	2.888	2.880	2.881	2.881	2.880	2.881	2.880	2.880	2.879	2.881	2.881	0.090
D 47 13C4_PFHpA	2.880	2.880	2.881	2.881	2.880	2.881	2.880	2.880	2.879	2.873	2.879	0.087
14 PFHxS	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.895	2.888	2.895	0.088
D 45 13C3_PFHxS	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.895	2.896	2.896	0.022
29 ADONA	2.918	2.919	2.919	2.919	2.919	2.919	2.918	2.918	2.917	2.919	2.918	0.011
2 6:2 FTS	3.255	3.248	3.255	3.248	3.248	3.248	3.248	3.241	3.245	3.241	3.248	0.142
D 64 13C2_6:2 FTS_2	3.248	3.248	3.248	3.255	3.248	3.248	3.248	3.241	3.238	3.241	3.246	0.152
* 41 13C2_PFOA	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.276	3.273	3.269	3.273	0.090
D 53 13C8_PFOA	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.269	3.266	3.269	3.272	0.125
20 PFOA	3.282	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.266	3.269	3.273	0.145
12 PFHpS	3.276	3.282	3.287	3.282	3.276	3.276	3.276	3.276	3.273	3.276	3.277	0.137
D 54 13C8_PFOS	3.657	3.657	3.657	3.652	3.651	3.657	3.651	3.651	3.648	3.646	3.652	0.105
* 48 13C4_PFOS	3.657	3.657	3.657	3.652	3.657	3.657	3.657	3.651	3.648	3.652	3.654	0.085
18 PFOS	3.662	3.651	3.657	3.662	3.662	3.657	3.657	3.651	3.648	3.652	3.656	0.143
17 PFNA	3.668	3.668	3.662	3.662	3.662	3.662	3.662	3.662	3.659	3.657	3.662	0.089
D 56 13C9_PFNA	3.668	3.668	3.662	3.662	3.662	3.662	3.662	3.657	3.659	3.657	3.661	0.103
30 9Cl-PF3ONS	3.871	3.871	3.871	3.871	3.863	3.863	3.862	3.863	3.858	3.863	3.865	0.122
19 PFOSA	3.895	3.895	3.896	3.896	3.896	3.896	3.895	3.896	3.891	3.896	3.895	0.036

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 55 13C8_PFOSA	3.895	3.895	3.896	3.896	3.896	3.896	3.895	3.888	3.891	3.888	3.893	0.091
16 PFNS	4.005	4.005	4.006	4.006	4.006	4.006	4.005	4.006	3.999	3.995	4.004	0.091
3 8:2 FTS	Disabled	4.027	4.017	4.017	4.016	4.017	4.016	4.016	4.010	4.006	4.015	0.137
* 37 13C2_PFDA	4.027	4.027	4.027	4.027	4.016	4.017	4.016	4.016	4.010	4.017	4.019	0.161
D 65 13C2_8:2 FTS_2	4.016	4.016	4.017	4.017	4.016	4.017	4.005	4.006	3.999	4.006	4.011	0.164
D 51 13C6_PFDA	4.027	4.027	4.017	4.017	4.016	4.017	4.016	4.016	4.020	4.017	4.018	0.106
10 PFDA	4.027	4.027	4.027	4.017	4.016	4.017	4.016	4.016	4.010	4.017	4.018	0.148
D 58 d3-MeFOSAA	4.178	4.187	4.178	4.178	4.178	4.178	4.178	4.178	4.171	4.169	4.177	0.109
6 N-MeFOSAA	4.196	4.178	4.178	4.187	4.178	4.178	4.178	4.178	4.171	4.169	4.179	0.183
D 61 d7-MeFOSE	4.287	4.287	4.288	4.288	4.288	4.288	4.297	4.288	4.290	4.288	4.289	0.073
32 MeFOSE	4.308	4.298	4.308	4.298	4.298	4.298	4.297	4.298	4.300	4.298	4.300	0.098
9 PFDS	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.308	4.310	4.308	4.315	0.101
26 MeFOSA	4.328	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.320	4.318	4.319	0.069
D 57 d3-MeFOSA	4.308	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.310	4.308	4.315	0.107
D 60 d5-EtFOSAA	4.348	4.347	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.338	0.139
25 PFUdA	4.348	4.338	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.337	0.118
D 52 13C7_PFUdA	4.338	4.338	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.336	0.086
5 N-EtFOSAA	4.348	4.347	4.348	4.339	4.348	4.348	4.347	4.348	4.340	4.339	4.345	0.100
D 62 d9-EtFOSE	4.455	4.455	4.456	4.455	4.455	4.465	4.455	4.455	4.459	4.455	4.456	0.069
33 EtFOSE	4.473	4.464	4.474	4.474	4.464	4.474	4.473	4.474	4.468	4.465	4.470	0.099
D 59 d5-EtFOSA	4.482	4.482	4.474	4.474	4.483	4.483	4.482	4.483	4.477	4.474	4.479	0.097
31 11Cl-PF3OUDS	4.482	4.482	4.483	4.483	4.483	4.474	4.473	4.474	4.477	4.474	4.478	0.104
27 EtFOSA	4.482	4.482	4.483	4.483	4.483	4.492	4.482	4.483	4.486	4.483	4.483	0.065
D 38 13C2_PFDoA	4.622	4.622	4.623	4.623	4.614	4.623	4.613	4.614	4.608	4.606	4.616	0.142
11 PFDoA	4.622	4.622	4.623	4.623	4.622	4.623	4.613	4.614	4.617	4.606	4.618	0.127
4 10:2 FTS	4.639	4.631	4.631	4.631	4.631	4.631	4.630	4.631	4.625	4.623	4.630	0.095
34 PFDOS	4.851	4.851	4.843	4.843	4.842	4.843	4.842	4.834	4.838	4.825	4.840	0.158
24 PFTrDA	4.876	4.877	4.877	4.877	4.877	4.868	4.868	4.868	4.864	4.860	4.871	0.128
D 42 13C2_PFTeDA	5.112	5.112	5.106	5.106	5.106	5.106	5.099	5.100	5.097	5.094	5.103	0.118
23 PFTeDA	5.112	5.112	5.106	5.106	5.106	5.106	5.099	5.100	5.097	5.094	5.103	0.118
D 40 13C2_PFHxDA	5.559	5.552	5.552	5.552	5.544	5.544	5.543	5.536	5.539	5.529	5.544	0.162
35 PFHxDA	5.559	5.552	5.552	5.552	5.552	5.544	5.543	5.536	5.539	5.536	5.546	0.140
36 PFODA	6.026	6.031	6.021	6.017	6.026	6.012	6.001	6.007	6.000	6.002	6.014	0.189

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	75
Sample Info:	ID ICAL 50_SVLC-1740	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	5	638915	20	>100:1			1000.00	1027.73	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	5/0	34936	18	44:1			50.000	51.848		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	7	574918	16	>100:1			1000.00	1005.82	99.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	7/0	35088	14	43:1			50.000	54.226		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	7	175823	16	>100:1			1000.00	1016.50	98.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	7/0	9549	17	>100:1	Target = 3.53		44.200	43.552		
298.9 > 99	44	2.183	2.183		2627	13	27:1	3.63 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.540	2.531	9/2	8790	25	>100:1	Target = 3.10		46.900	53.944		
349 > 99	44	2.522	2.531		2456	19	17:1	3.57 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	8	119738	17	>100:1			5000.00	5287.91	106.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													a
327 > 307	63	2.451	2.460	0/-8	2465	21		Target = 1.75		46.700	46.695		
327 > 81	63	2.487	2.460		1302	10	1.1:1	1.89 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	9	664013	16	>100:1			1000.00	1019.54	99.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	9/0	38278	17	72:1	Target = 18.91		50.000	55.442		
313 > 119	49	2.496	2.505		2414	18	12:1	15.85 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	9	1176798	19	>100:1			5000.00	5077.74	97.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	9/0	16330	18	57:1	Target = 0.79		100.00	107.13		
285 > 185	66	2.622	2.622		19809	17	>100:1	0.82 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	10	532812	18	>100:1			1000.00	1003.53	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.888	2.880	10/0	34076	16	59:1	Target = 3.80		50.000	58.203		
363 > 169	47	2.888	2.880		8295	16	71:1	4.10 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	10	127917	20	>100:1			1000.00	1018.13	98.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/-4	5763	24	23:1	Target = 2.89	4.10	45.500	40.980		M
399 > 99	45	2.888	2.896		3074	26	22:1	1.87 (1.44-4.34)	5.41				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	9/-1	50108	19	>100:1	Target = 3.23		47.100	50.511		
377 > 85	45	2.918	2.919		13707	16	>100:1	3.65 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	11/1	7217	26	97:1	Target = 3.12		47.600	54.933		
449 > 99	45	3.287	3.276		1791	17	19:1	4.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	11	91394	23	>100:1			5000.00	5077.46	97.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.255	3.248	1/-10	2076	11	39:1	Target = 1.75		47.400	47.978		M
427 > 81	64	0.000	3.248		0	1		0.00 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	11	566059	22	>100:1			1000.00	1078.87	103.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.282	3.276	1/-10	32635	16	21:1	Target = 2.89		50.000	56.260		M
413 > 169	53	3.282	3.276		11356	31	73:1	2.87 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	12	121039	21	>100:1			1000.00	977.36	91.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	12/0	7791	35	72:1	Target = 3.30	3.27	46.400	54.060		
499 > 99	54	3.668	3.662		2261	39	35:1	3.44 (1.65-4.95)	6.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	12/0	21458	16	>100:1			46.600	46.812		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	12/0	5614	21	48:1	Target = 3.08		48.000	57.812		
549 > 99	54	4.005	4.006		1010	14	4.1:1	5.55 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	12/0	5291	18		Target = 2.72		48.200	55.861		
599 > 99	54	4.338	4.318		2077	17	9.8:1	2.54 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.483	12/0	20916	19	>100:1			47.100	50.474		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.851	4.842	10/-2	5987	22	51:1	Target = 3.27		48.400	57.523		
699 > 99	54	4.842	4.842		1377	18	36:1	4.34 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.662	12	673518	22	>100:1			1000.00	1051.75	105.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.662	12/0	35389	21	80:1	Target = 6.51		50.000	48.747		
463 > 169	56	3.668	3.662		6388	27	42:1	5.53 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	8	261556	16				1000.00	975.74	98	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	8/0	14114	15	67:1	Target = 41.63		50.000	51.285		
498>478	55	3.895	3.896		774	16	11:1	18.23 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													a
519 > 474		4.027	4.016	1	609675	16	>100:1			1000.00	1060.93	105.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/0	32559	12	65:1	Target = 13.80		50.000	45.890		M
513 > 169	51	4.027	4.016		2280	21	17:1	14.28 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	12	93054	18	>100:1			5000.00	5383.67	118	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/-12	2894	11	21:1	Target = 1.94		47.900	68.818		M
527 > 81	65	3.995	4.016		1153	11	4.8:1	2.50 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.639	4.631	1/-11	2050	23	22:1	Target = 3.54		48.200	43.425		
627 > 80	65	4.639	4.631		308	15	6.8:1	6.65 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	12	771544	17	>100:1			5000.00	5105.76	99.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.196	4.178	2/-10	6340	24	45:1	Target = 1.37	5.84	50.000	51.203		M
570 > 483	58	4.196	4.178		5342	25		1.18 (0.68-2.05)	6.95				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.288	6	89379	14	>100:1			1000.00	991.02	99.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.298	7/1	6246	13	43:1			50.000	63.945		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	45088	12	>100:1			1000.00	958.48	100.2	M
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.328	4.318	7/1	2513	17		Target = 1.11		50.000	51.422		
512 > 219	57	4.318	4.318		2364	15	18:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.348	4.338	12	689949	18	>100:1			5000.00	5327.25	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	12/0	8251	24	66:1	Target = 1.51	5.95	50.000	61.324		
584 > 526	60	4.348	4.348		4220	47		1.95 (0.75-2.26)	4.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	12	632859	17	>100:1			1000.00	1050.82	99.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.348	4.338	12/0	30659	15	86:1	Target = 14.52		50.000	49.997		
563 > 169	52	4.338	4.338		2560	21	12:1	11.97 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	6	114558	15	>100:1			1000.00	1079.95	112.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.464	7/1	5717	21	47:1			50.000	51.264		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	7	44547	16	>100:1			1000.00	1035.98	103.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	6/-1	2658	18	44:1	Target = 1.06		50.000	37.077		
526 > 219	59	4.482	4.483		2428	22	30:1	1.09 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.614	12	594678	17	>100:1			1000.00	990.57	98.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	12/0	31184	14	>100:1	Target = 10.70		50.000	49.188		
613 > 169	38	4.631	4.622		3508	22	30:1	8.88 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.876	4.877	12/0	34953	16	>100:1	Target = 8.31		50.000	55.920		
663 > 169	38	4.885	4.877		4524	21	65:1	7.72 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.112	5.106	12	843457	22	>100:1			1000.00	1037.48	100.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													a
713 > 669	42	5.112	5.106	1/-11	40025	21	>100:1	Target = 12.17		50.000	54.361		
713 > 169	42	5.112	5.106		3441	20	48:1	11.63 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.559	5.544	15	904853	22	>100:1			1000.00	1042.41	103.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.559	5.552	15	35647	20	>100:1	Target = 10.43		50.000	61.512		
813 > 269	40	5.567	5.552		3237	21	76:1	11.01 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.026	6.026	0/-15	43650	36	>100:1	Target = 13.67		50.000	52.988		M
913 > 319	40	6.021	6.026		3182	39	>100:1	13.71 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	12	664485	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	9	686523	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	11	569415	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	5	601508	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	12	127140	20	>100:1			1000.00			

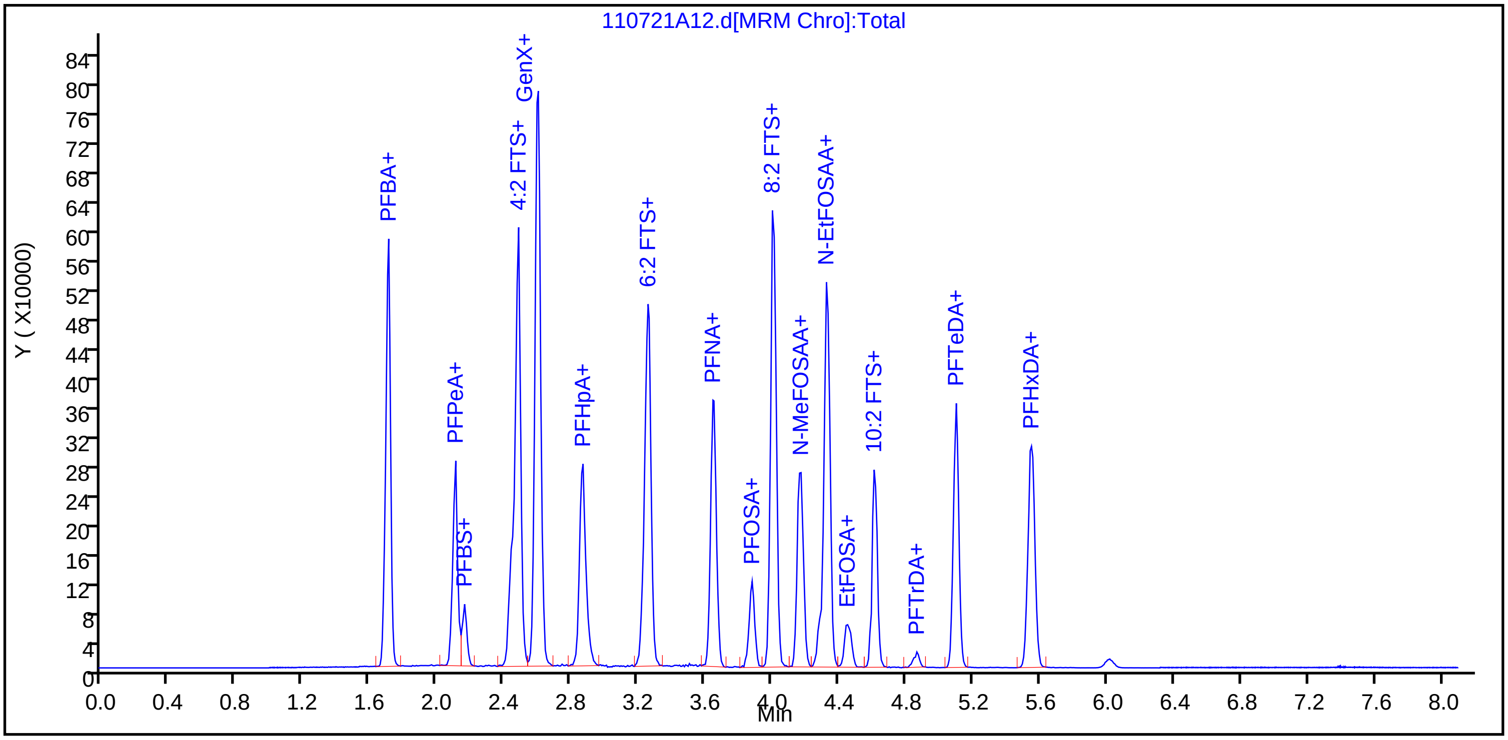
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

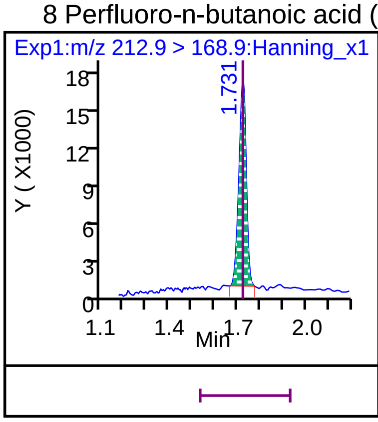
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

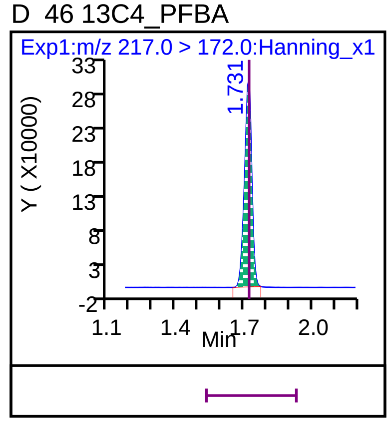
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin



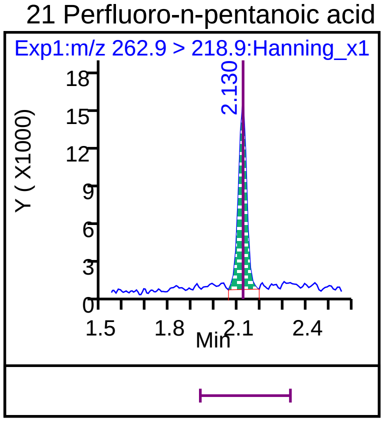
8 Perfluoro-n-butanoic acid (PFBA)



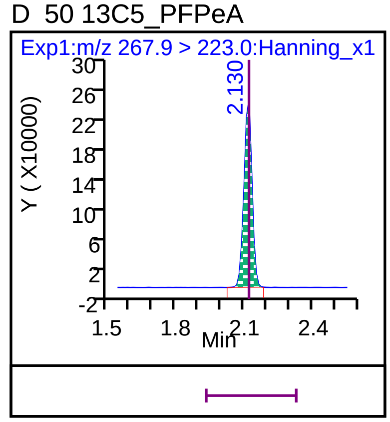
D 46 13C4_PFBA



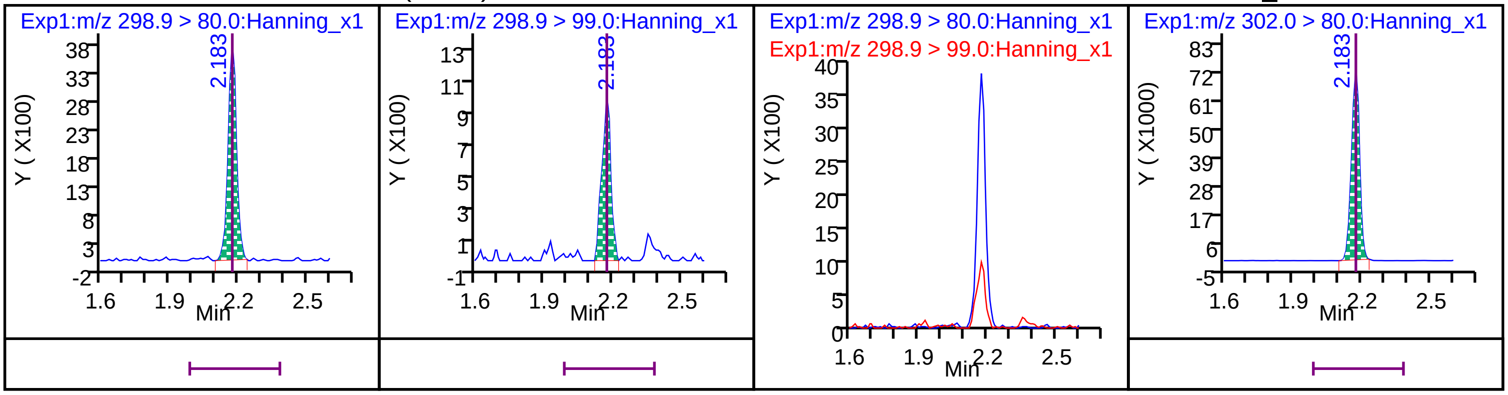
21 Perfluoro-n-pentanoic acid (PFPeA)



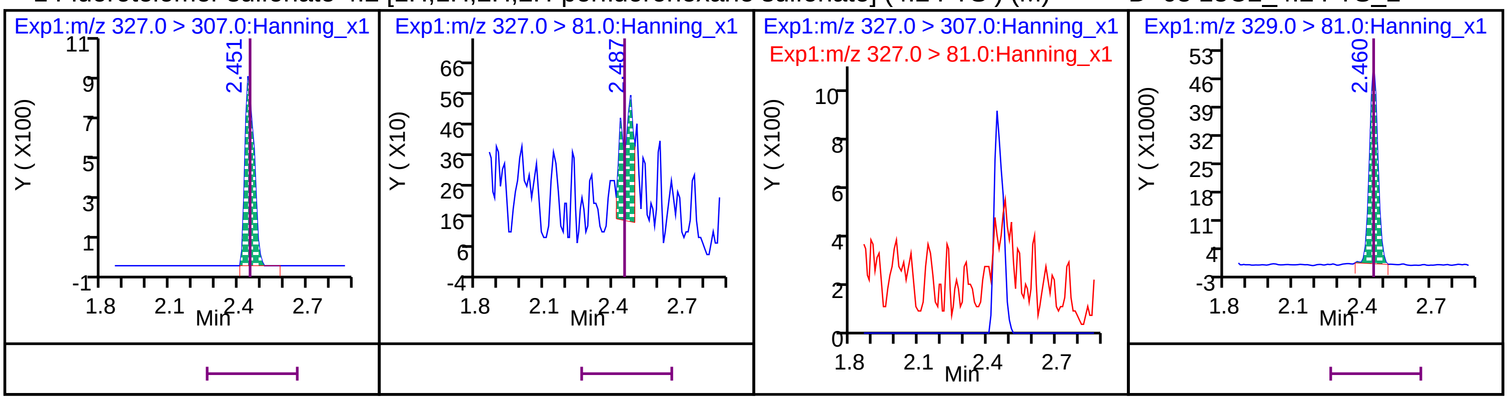
D 50 13C5_PFPeA



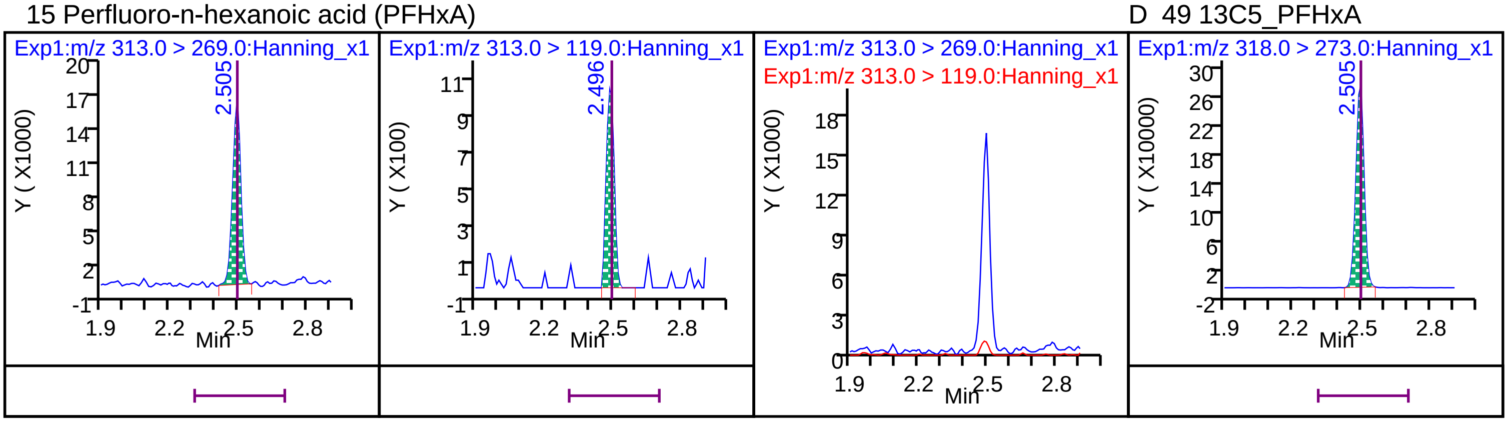
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



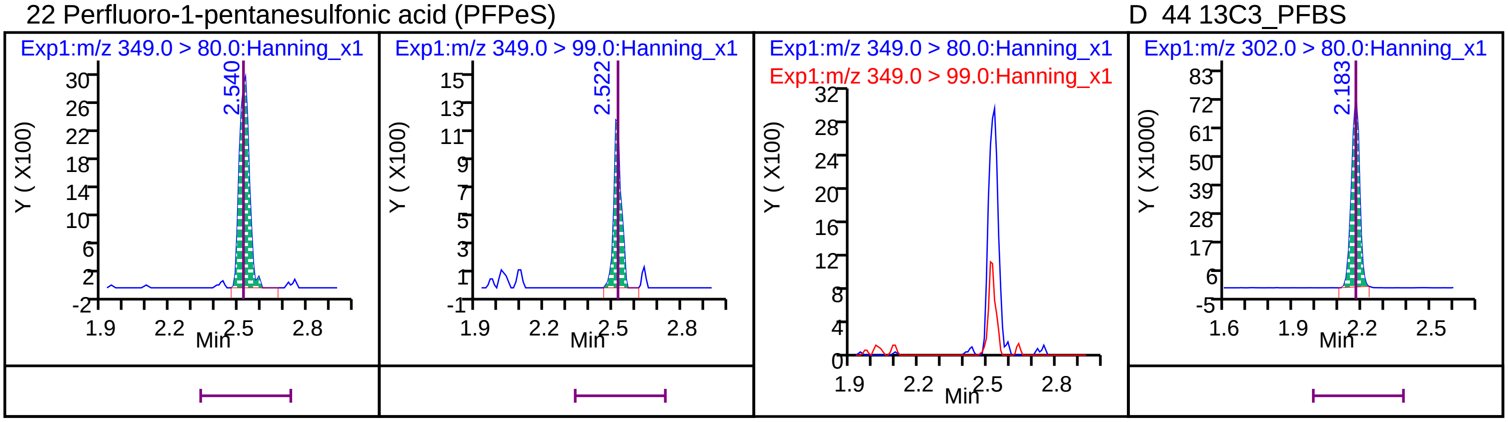
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



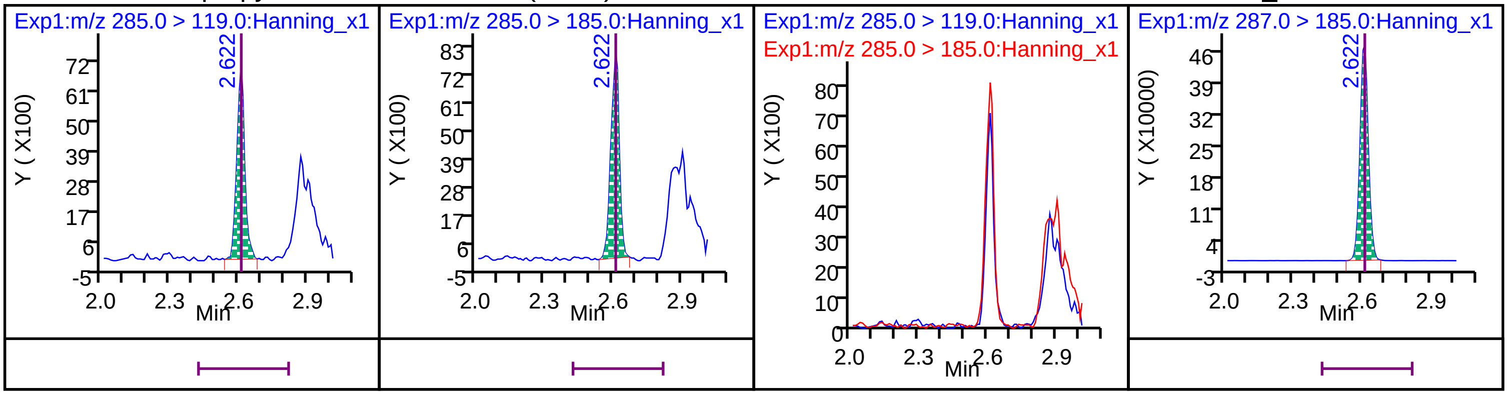
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



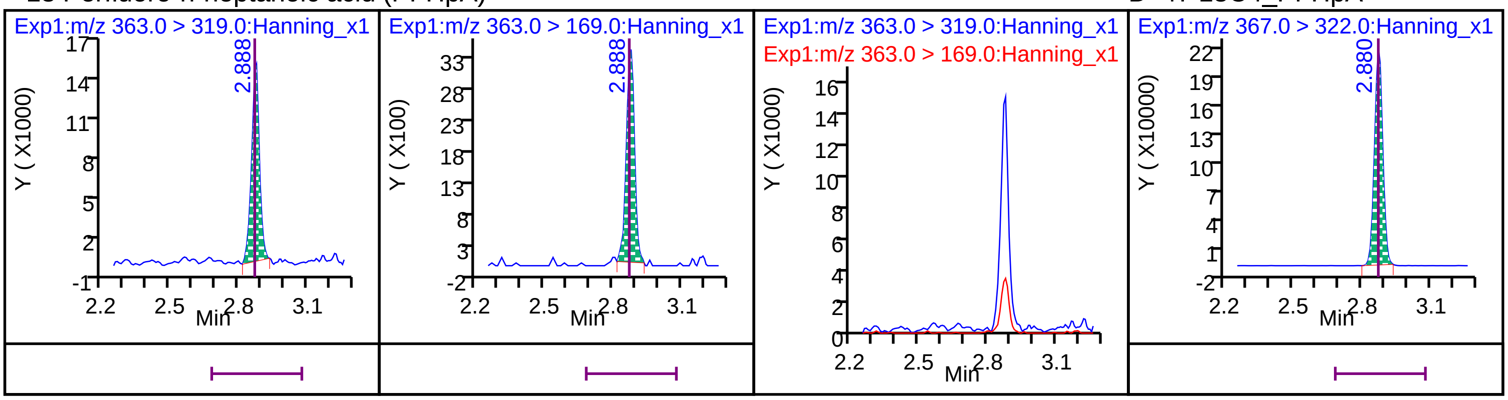
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



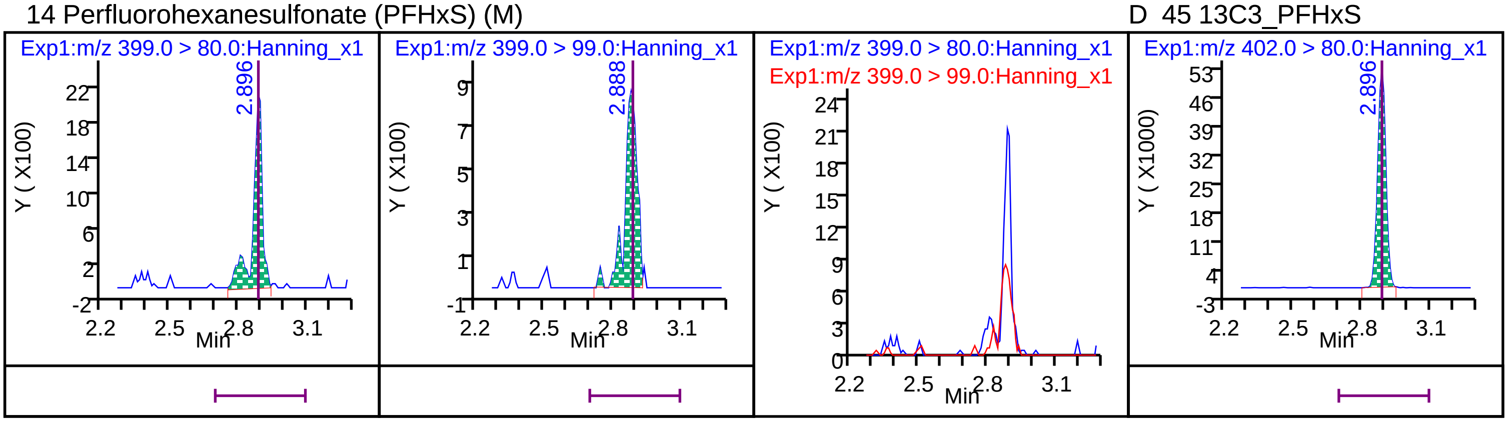
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



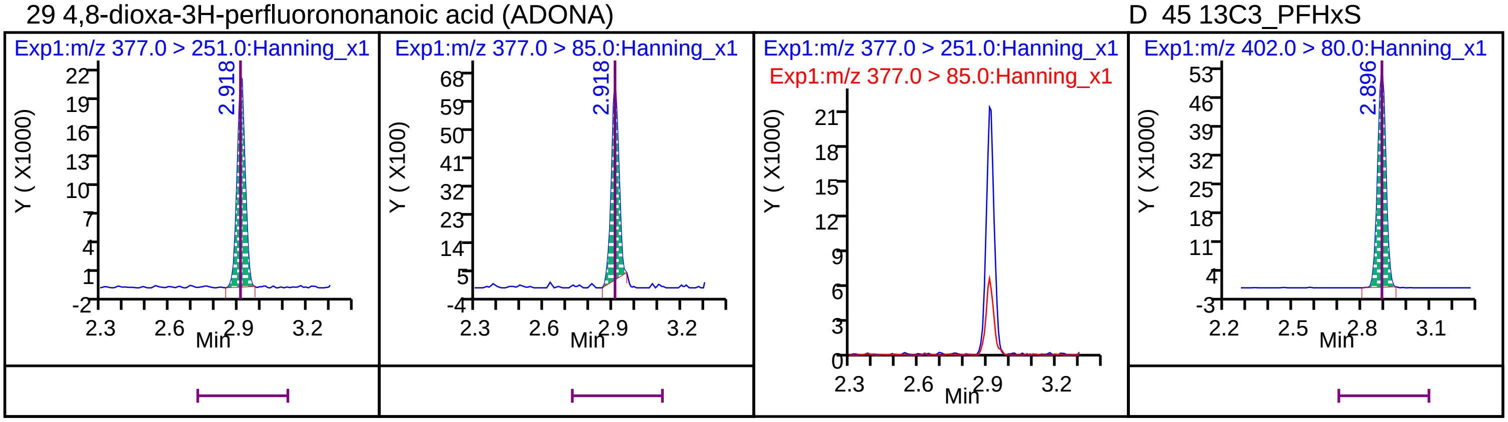
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



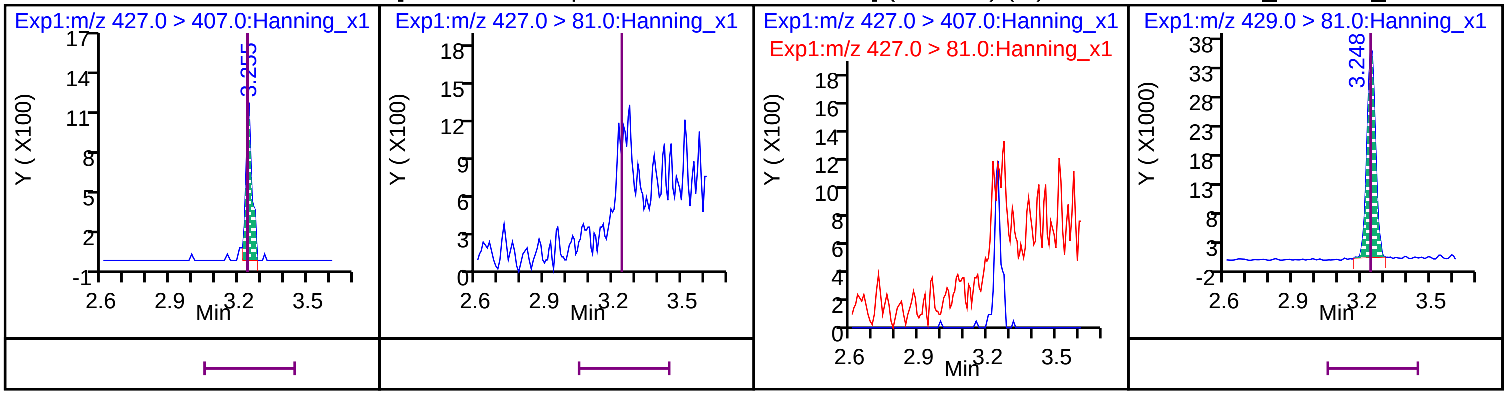
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



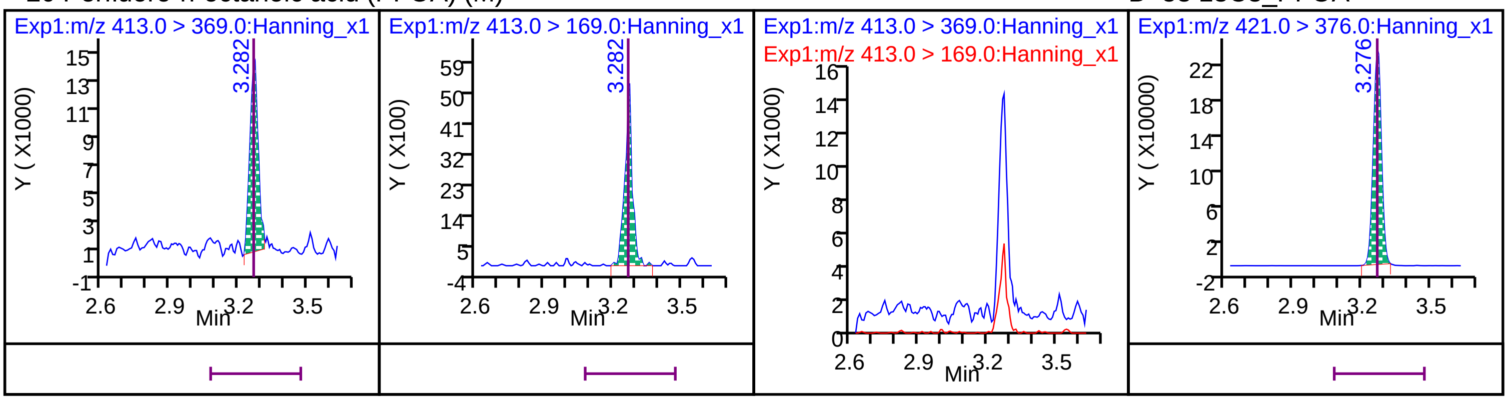
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

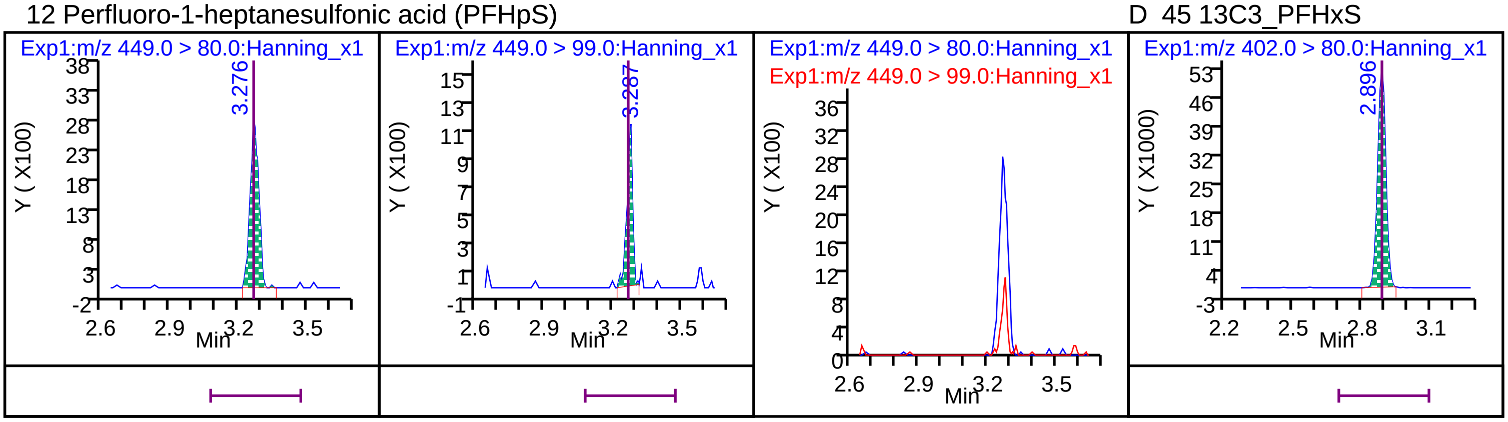
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



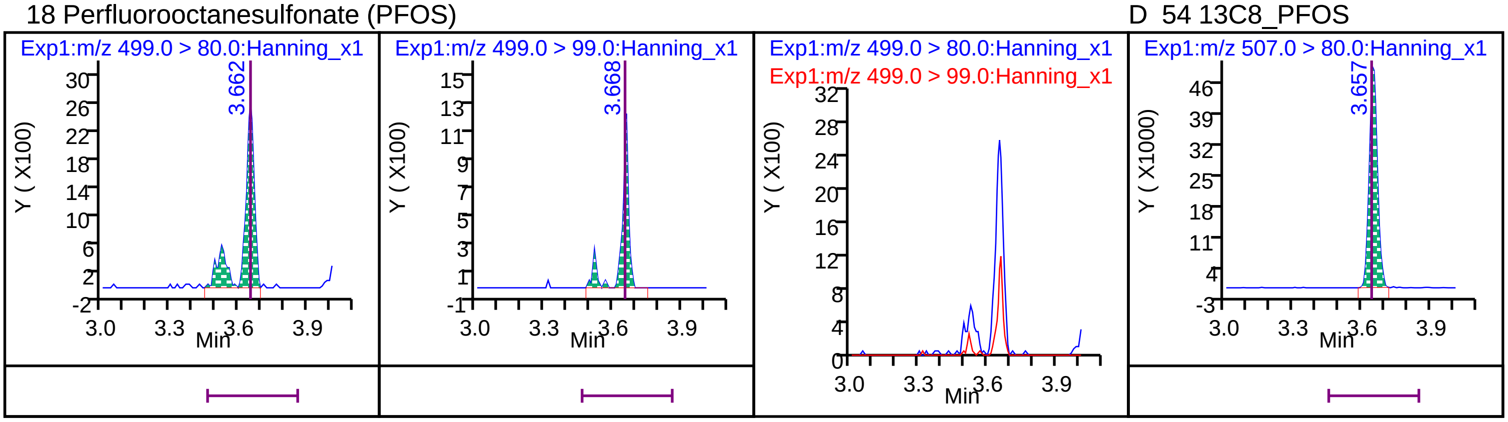
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



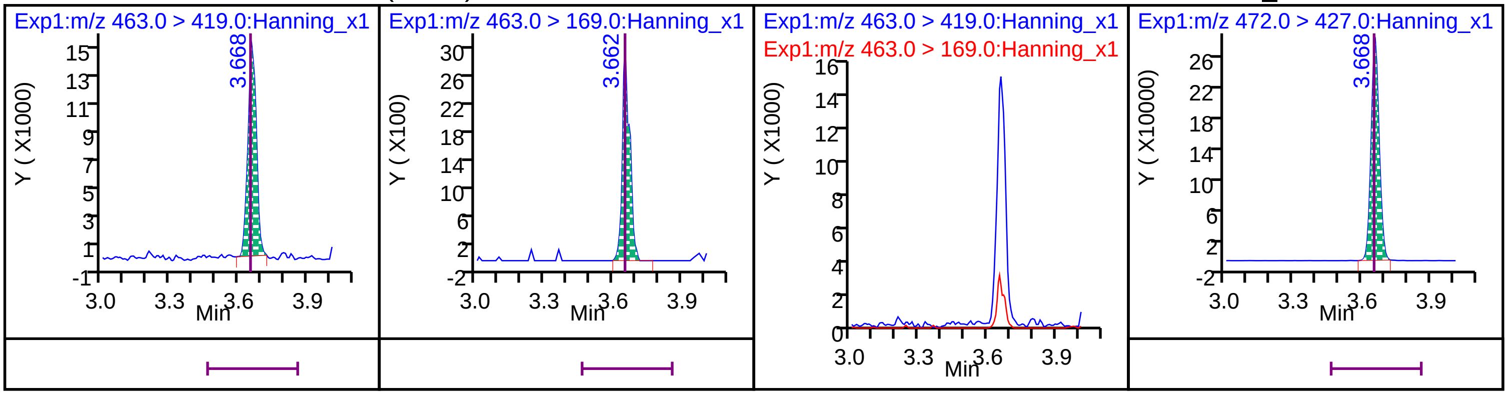
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



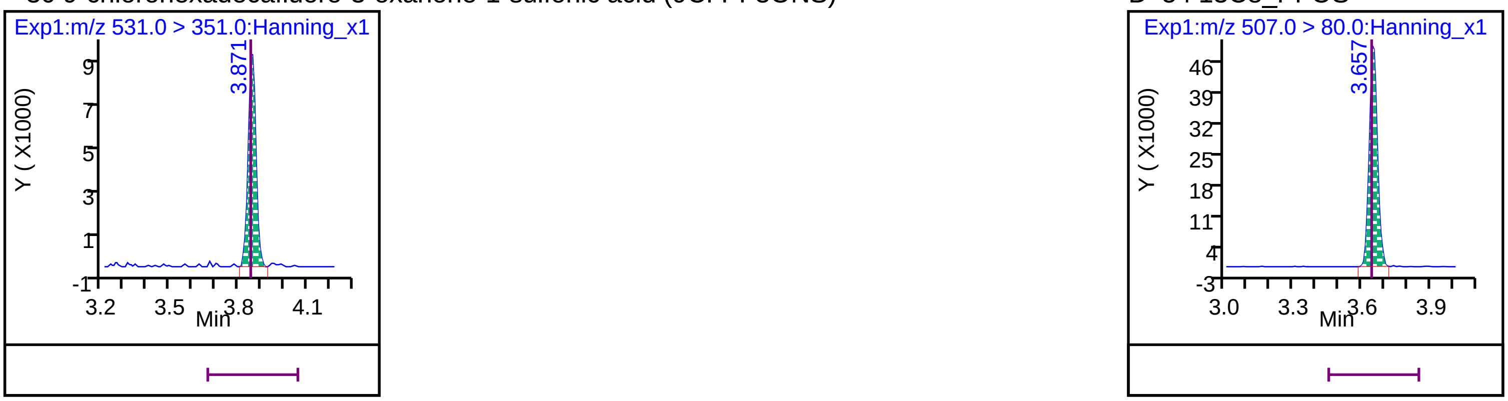
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



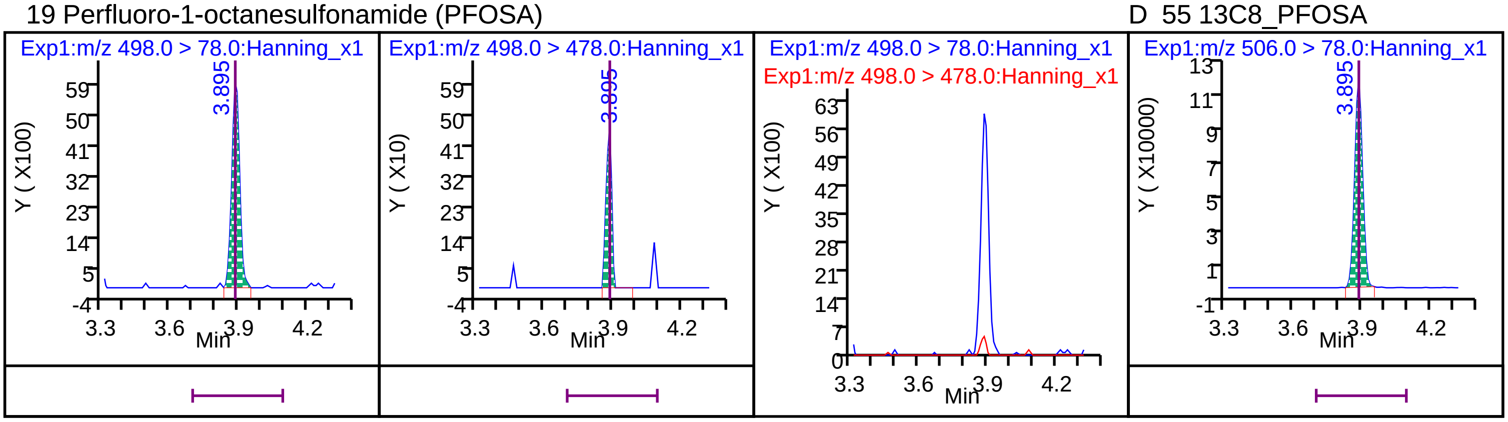
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



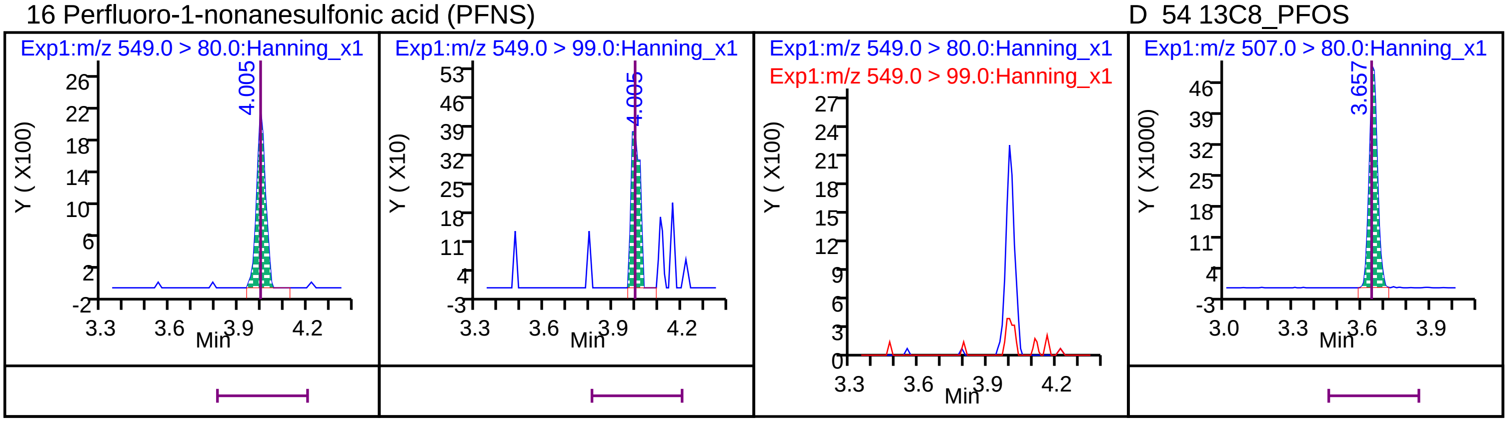
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



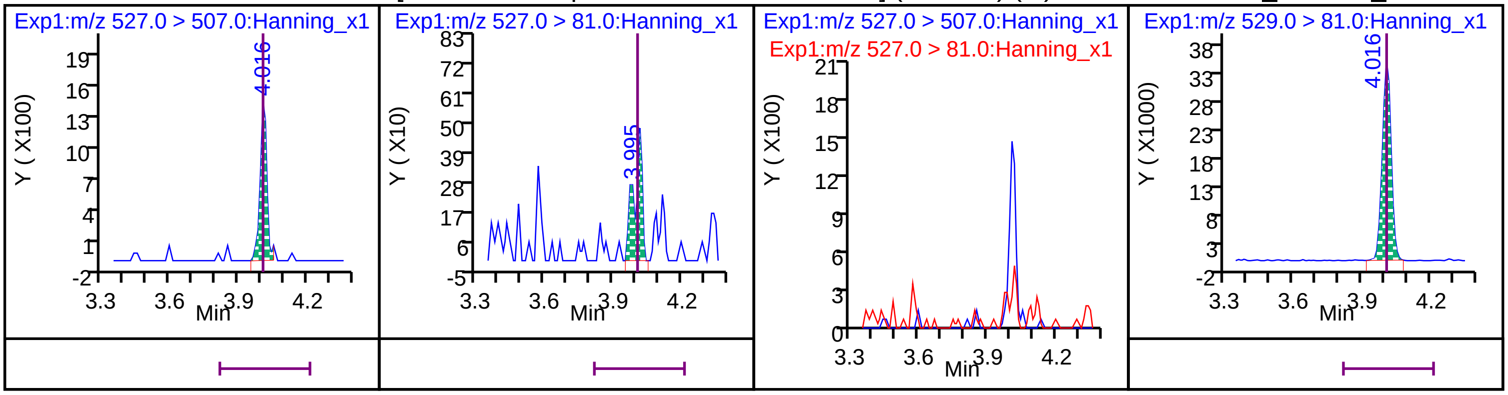
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



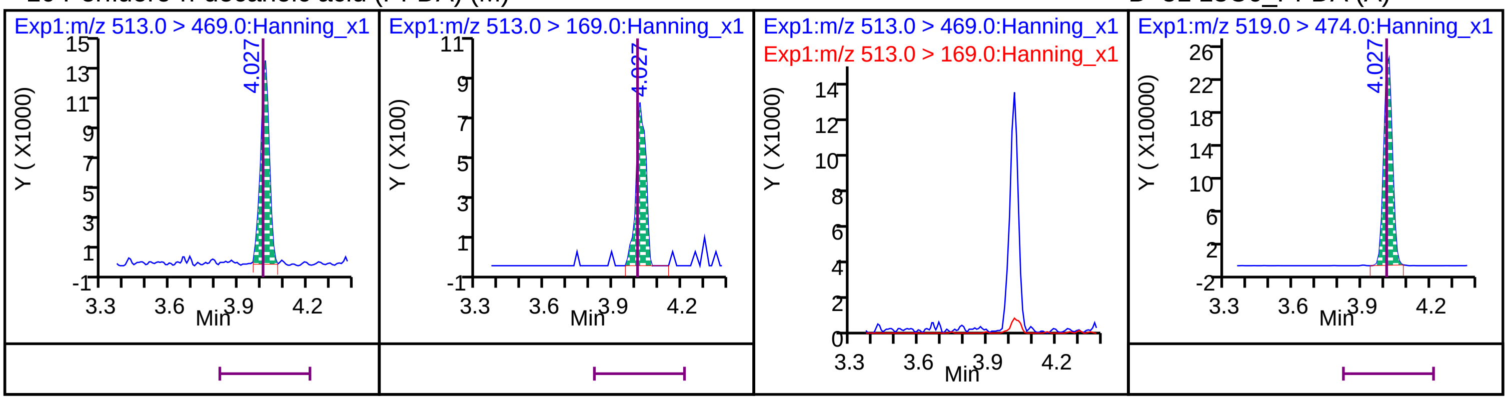
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



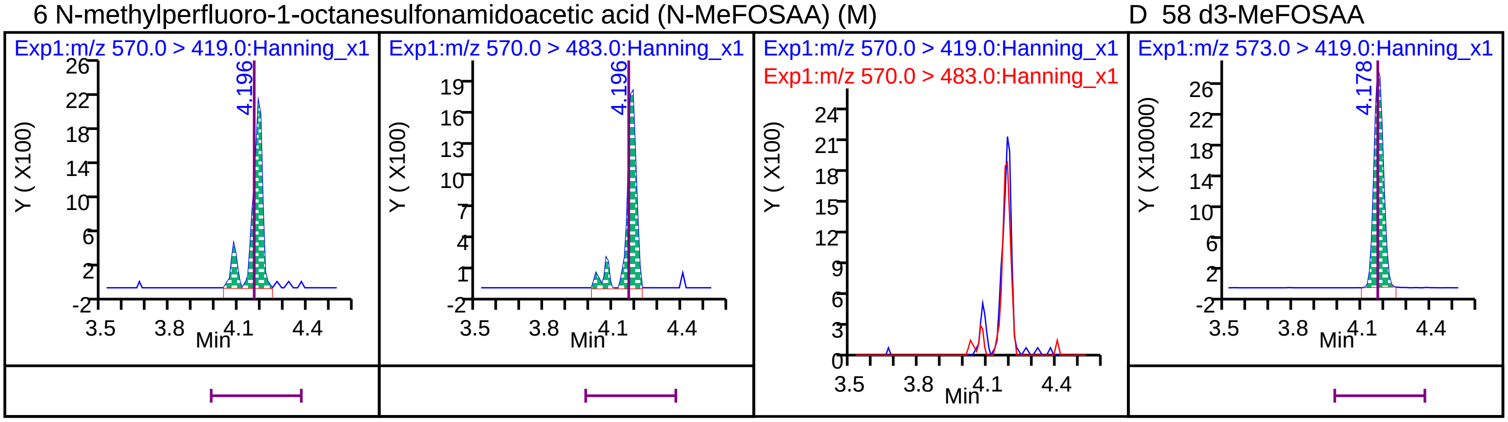
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M)   D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) (M)   D 51 13C6_PFDA (A)



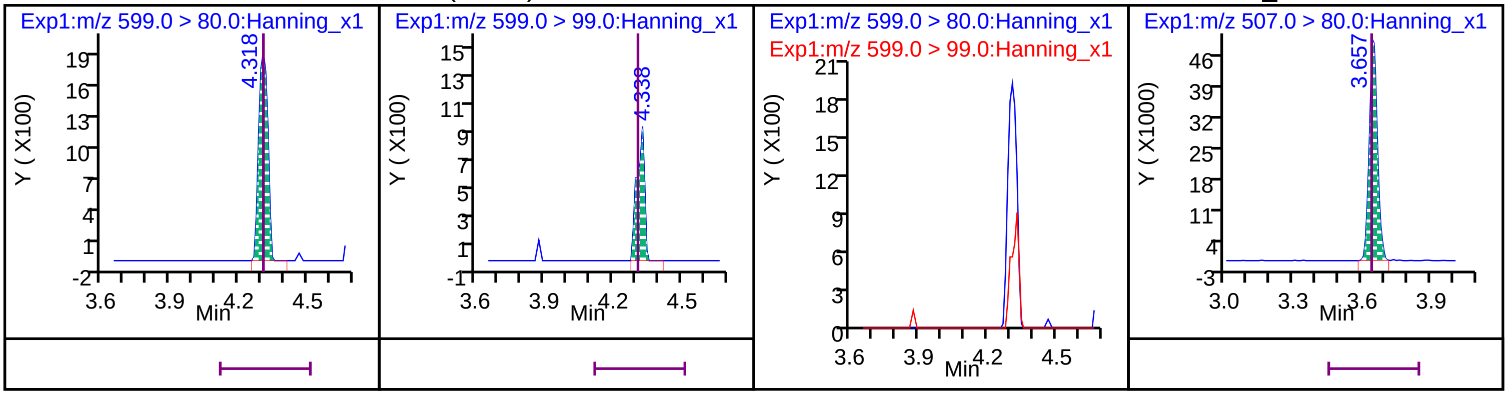
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)   D 58 d3-MeFOSAA



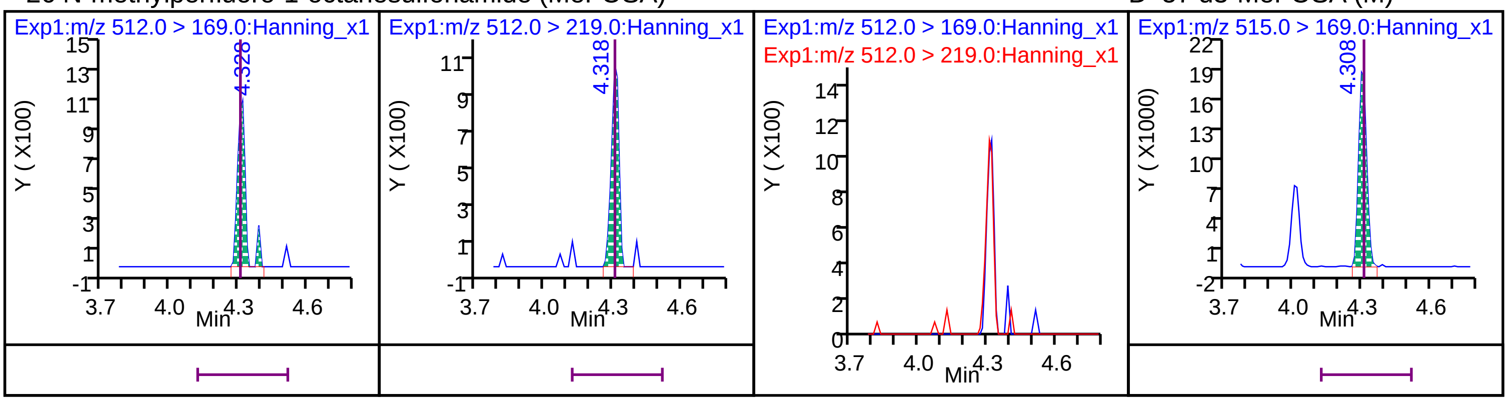
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)   D 61 d7-MeFOSE

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

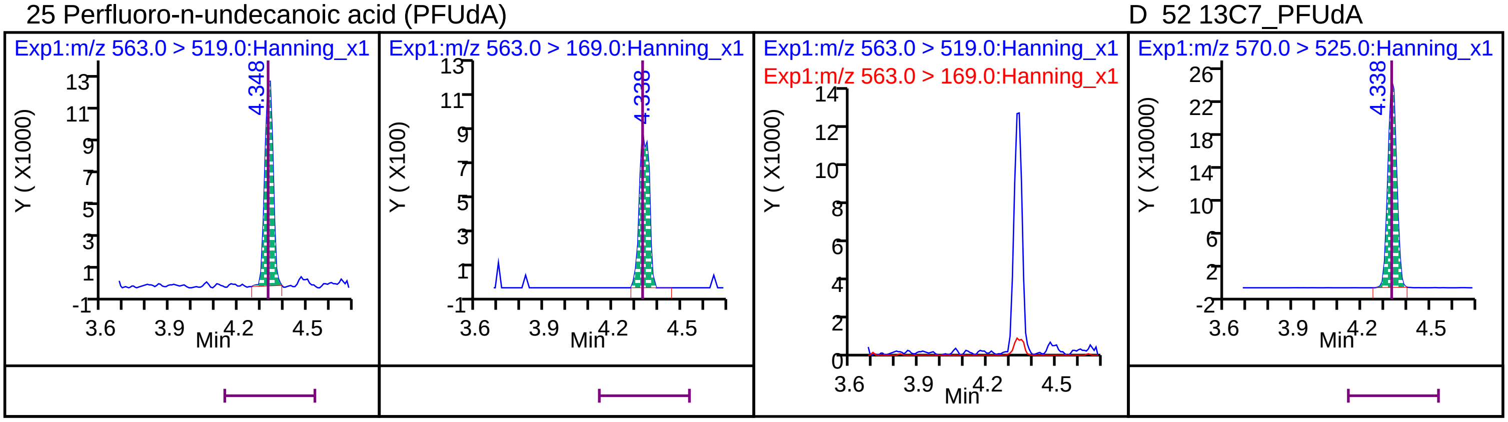
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



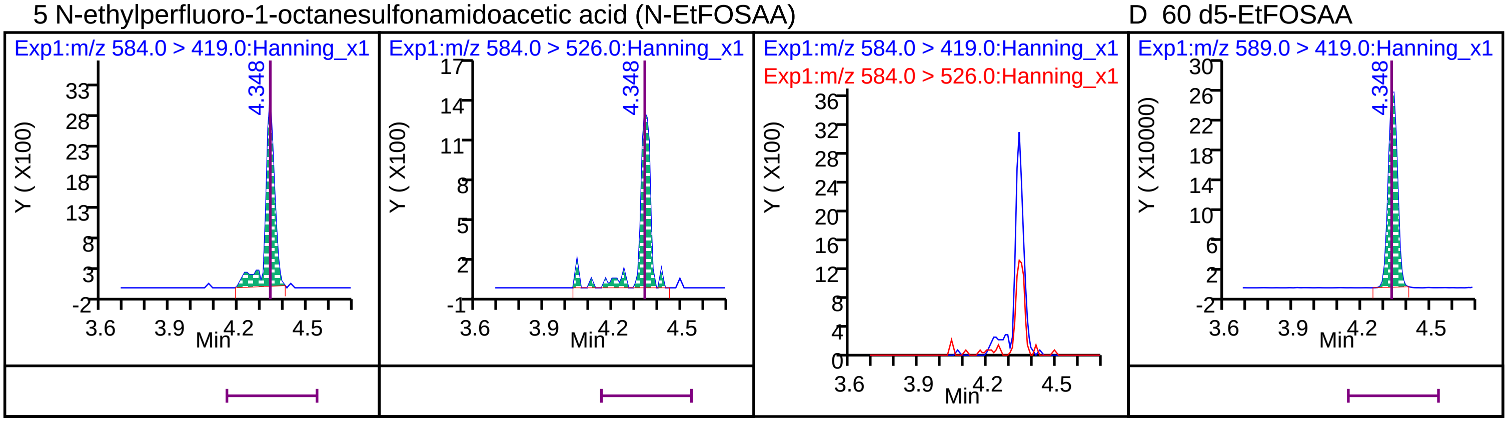
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA (M)



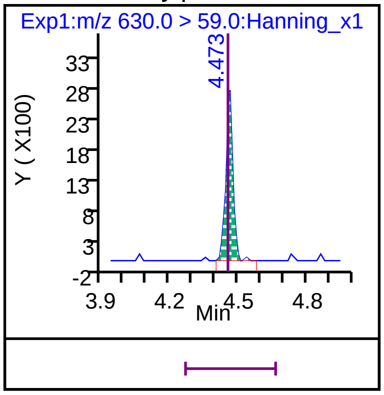
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



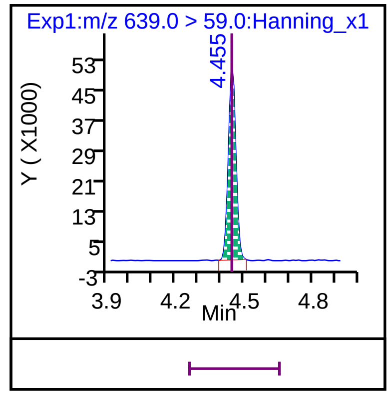
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



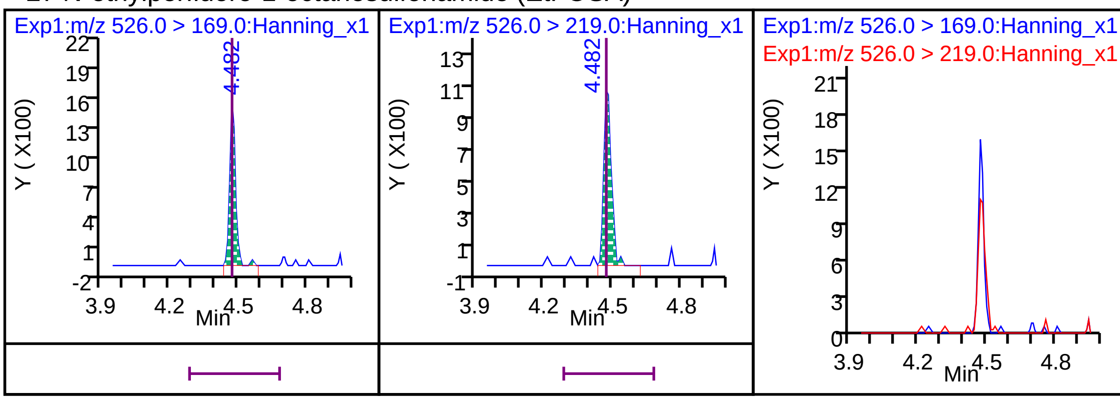
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



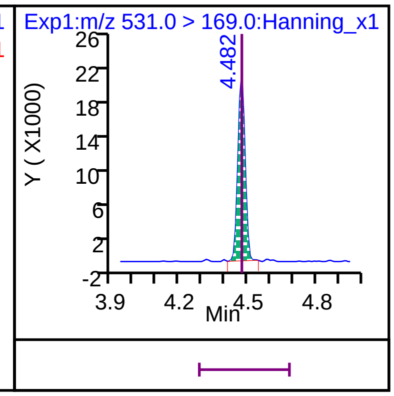
D 62 d9-EtFOSE



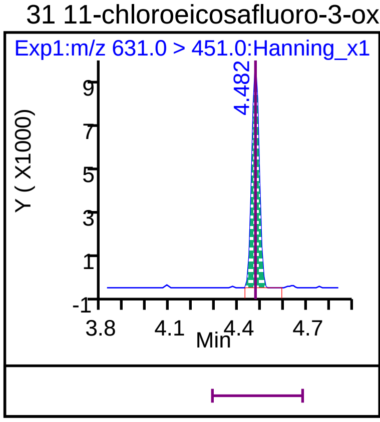
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



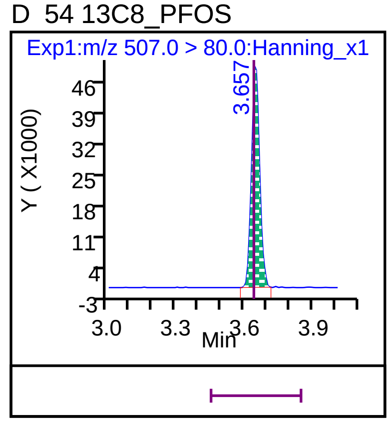
D 59 d5-EtFOSA



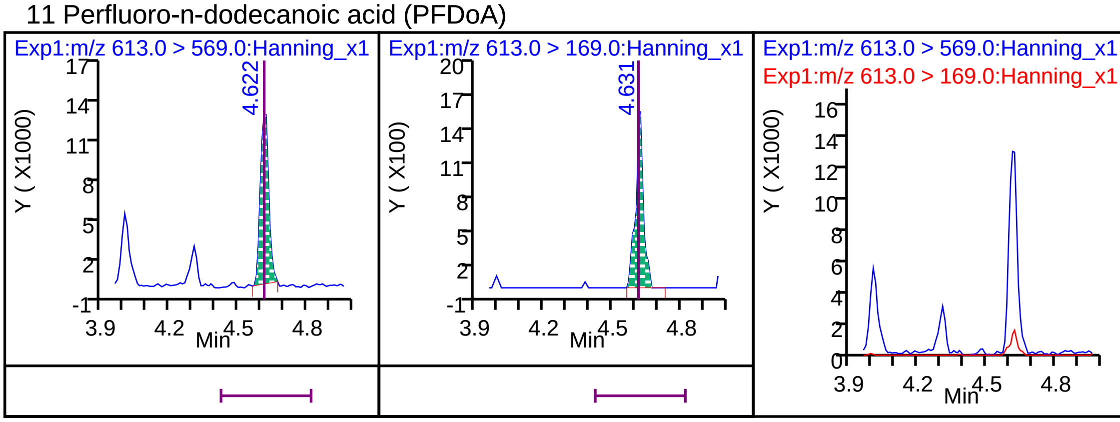
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



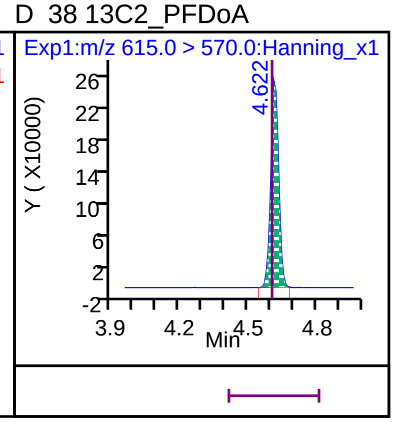
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)



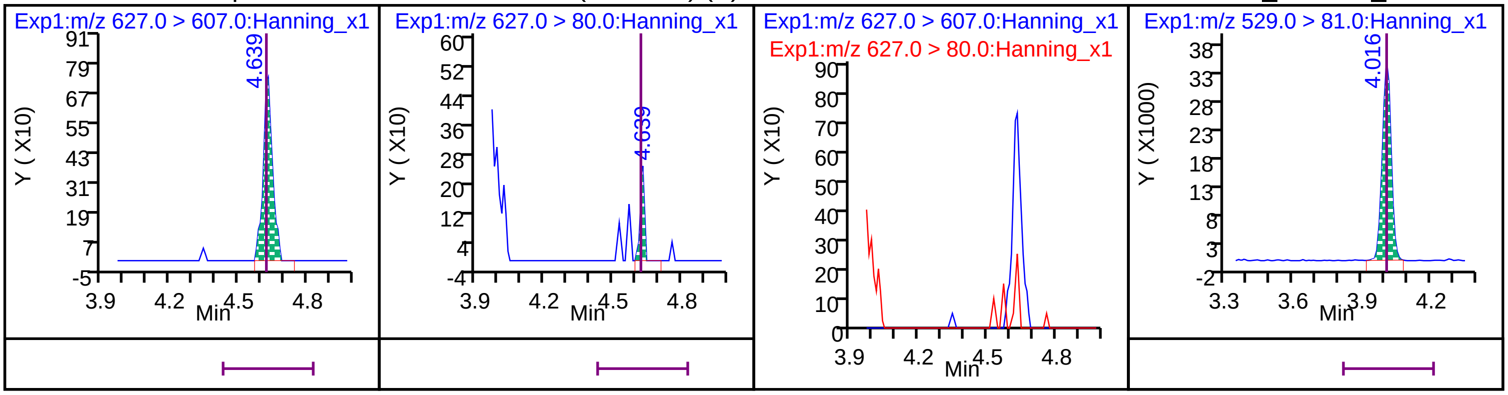
D 38 13C2_PFDoA



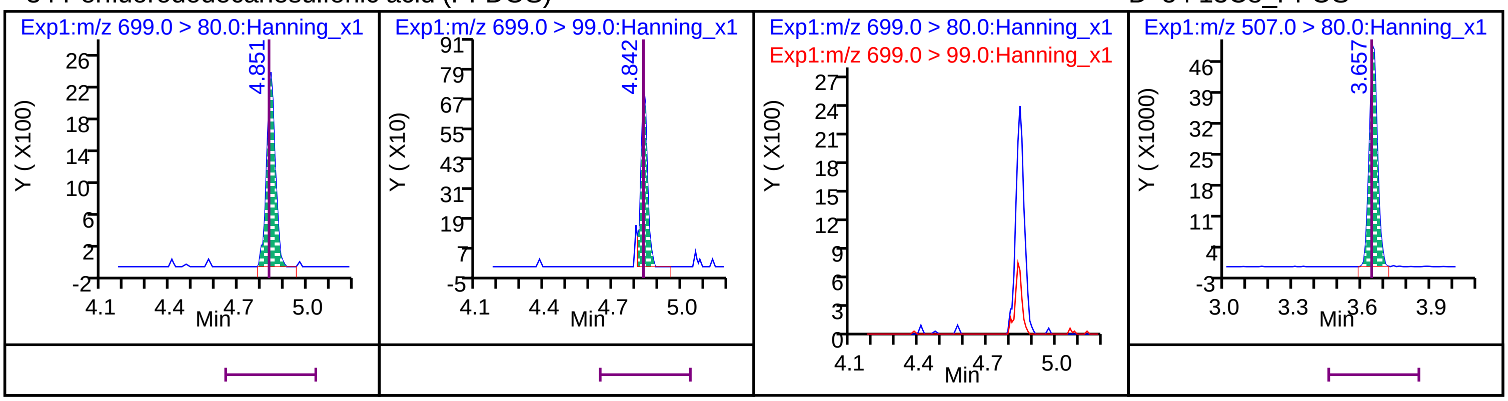
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

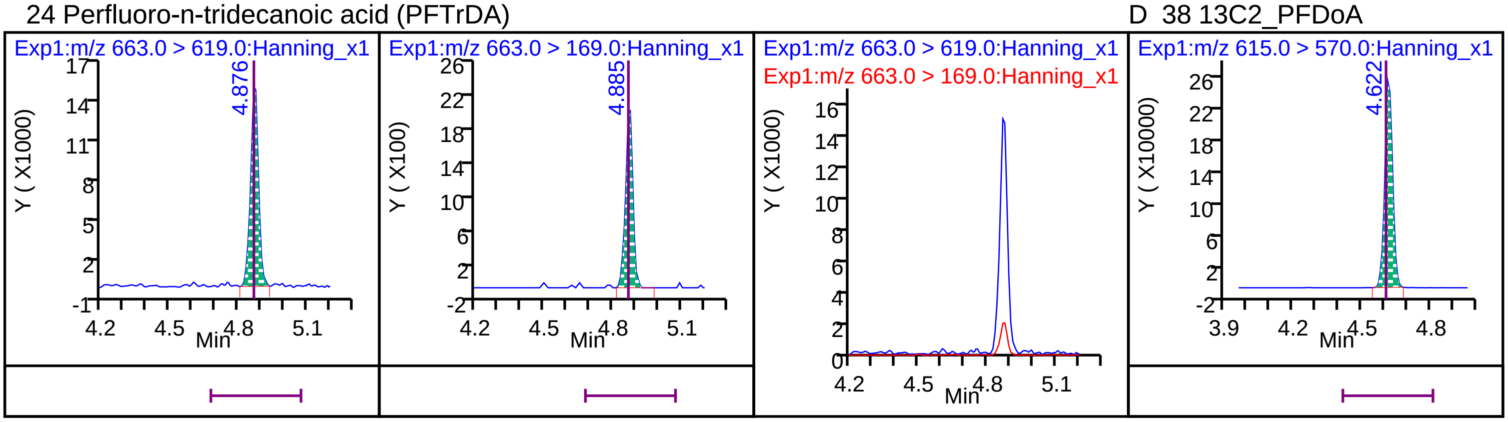
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



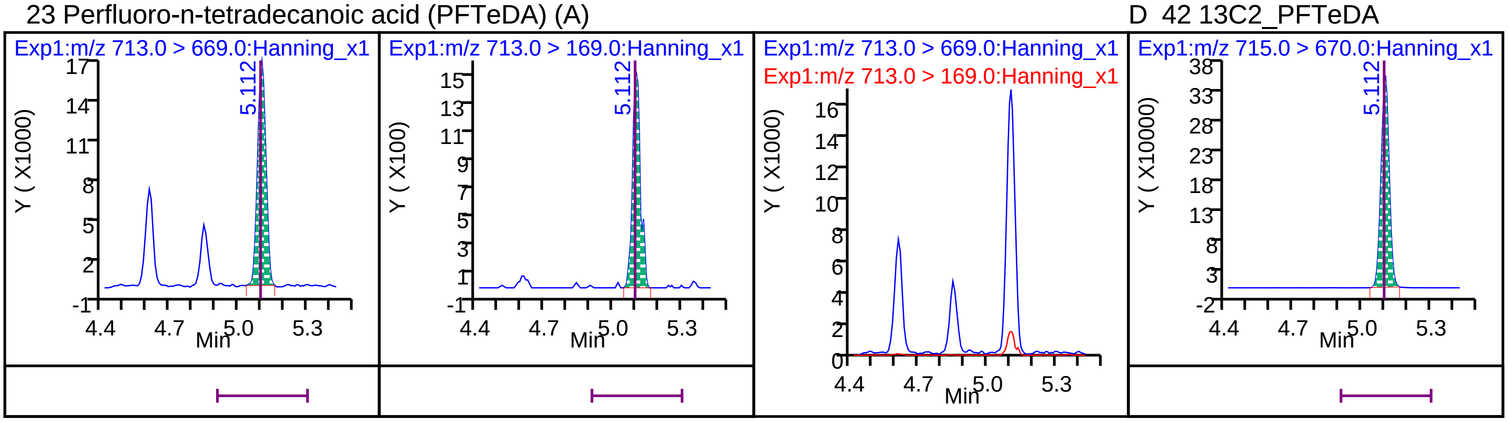
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



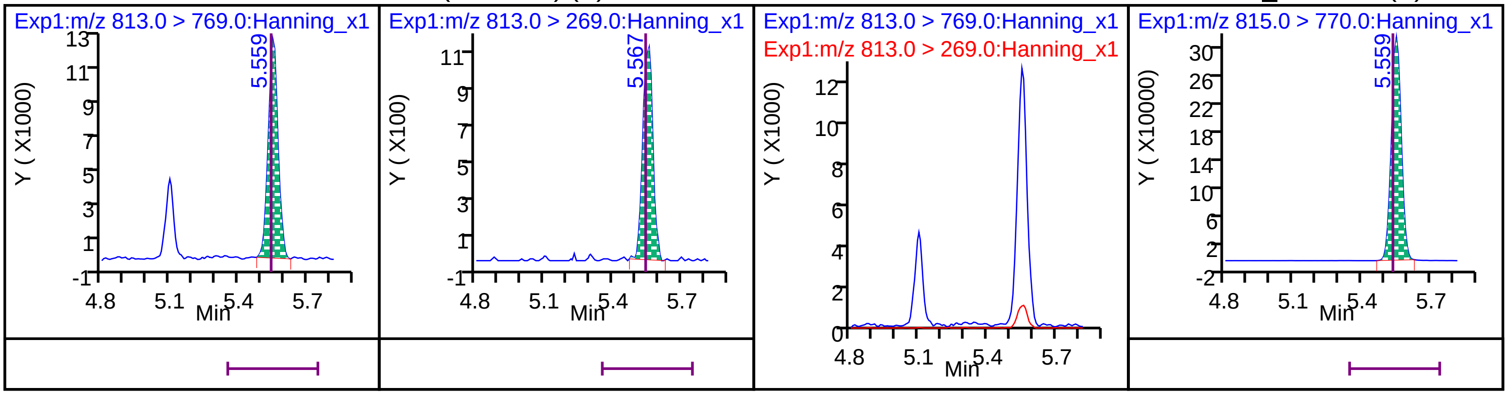
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



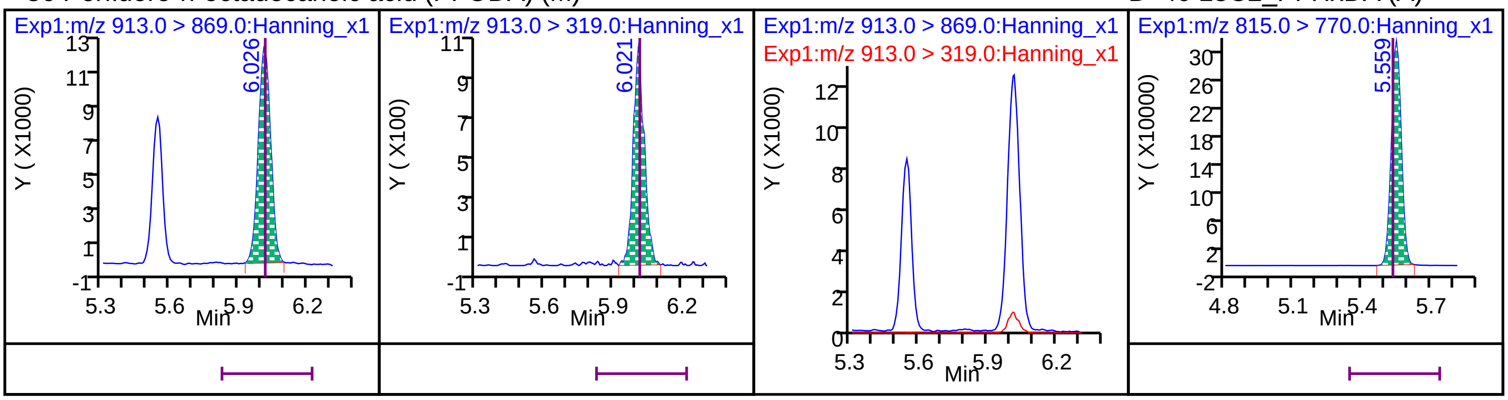
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (A) D 42 13C2_PFTeDA



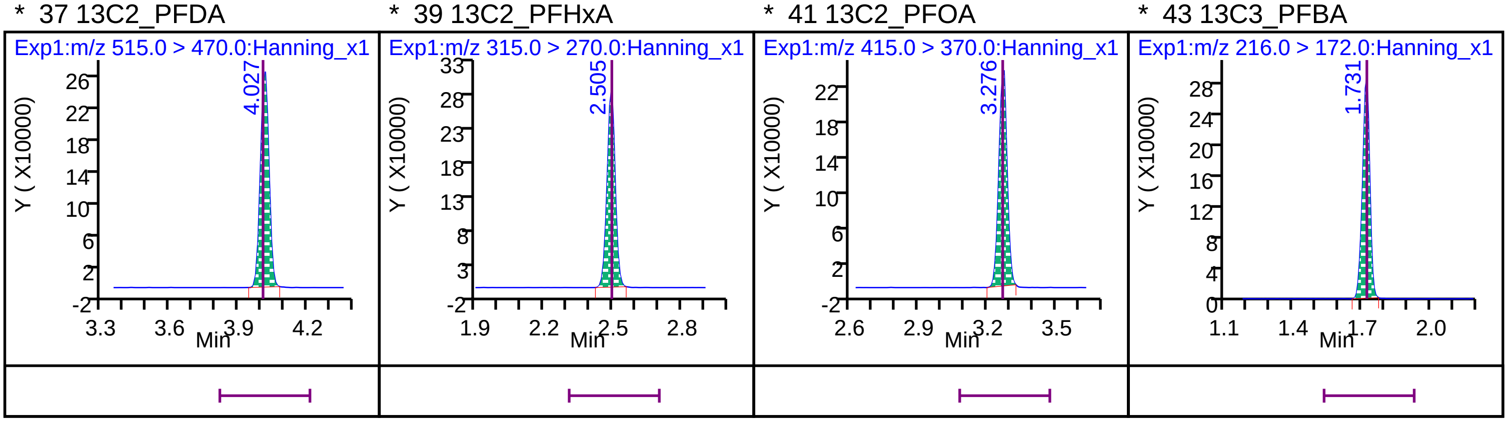
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A) D 40 13C2_PFHxDA (A)



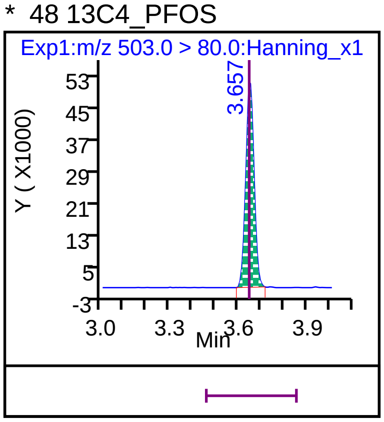
36 Perfluoro-n-octadecanoic acid (PFODA) (M) D 40 13C2_PFHxDA (A)



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

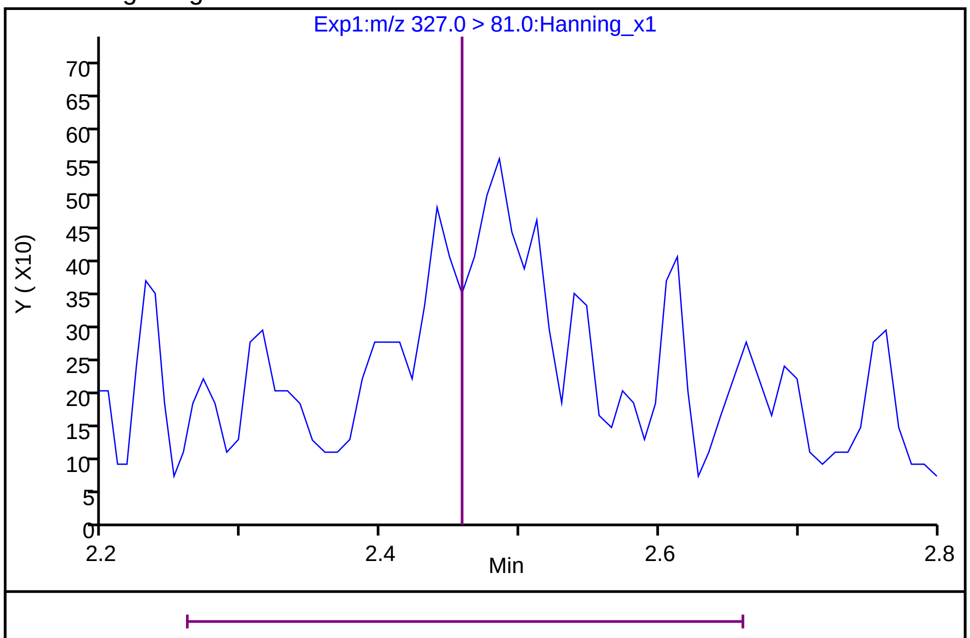
1 4:2 FTS, CAS: 757124-72-4

Not Detected

Expected RT: 2.460

RT Window: 2.260-2.660

Processing Integration Results

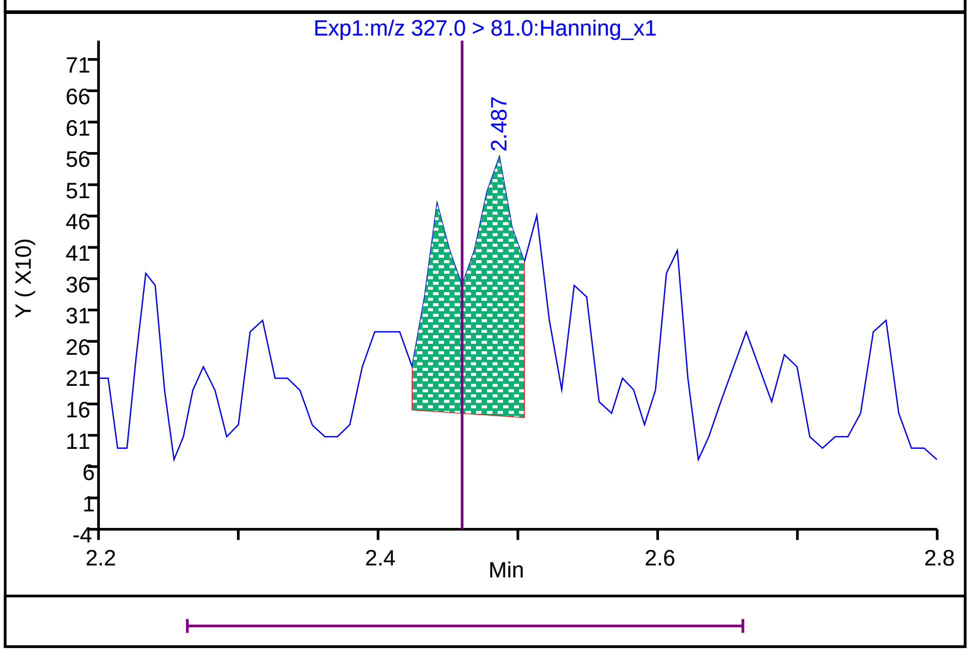


RT: 2.487

Area: 1302

Amount: 46.695

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:38

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

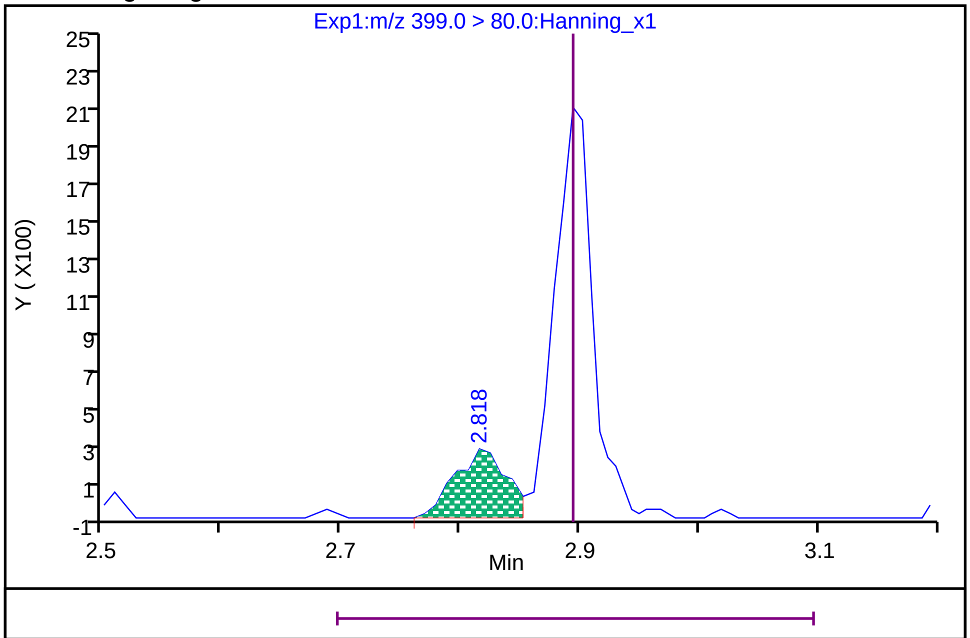
Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

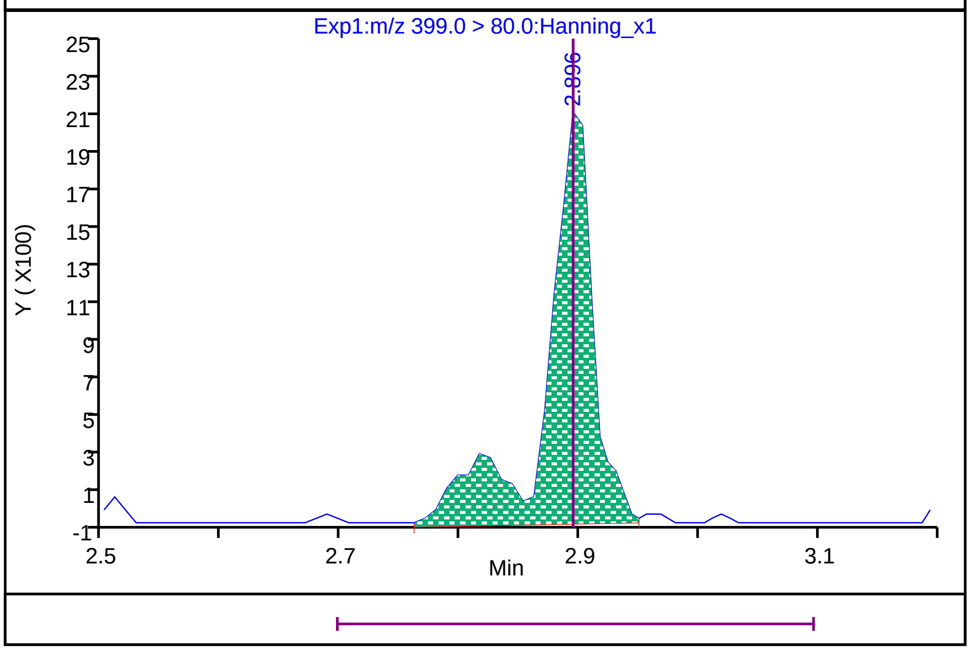
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 1033
Amount: -979.48
Amount Units: ng/L



RT: 2.896
Area: 5763
Amount: 40.980
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:56

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

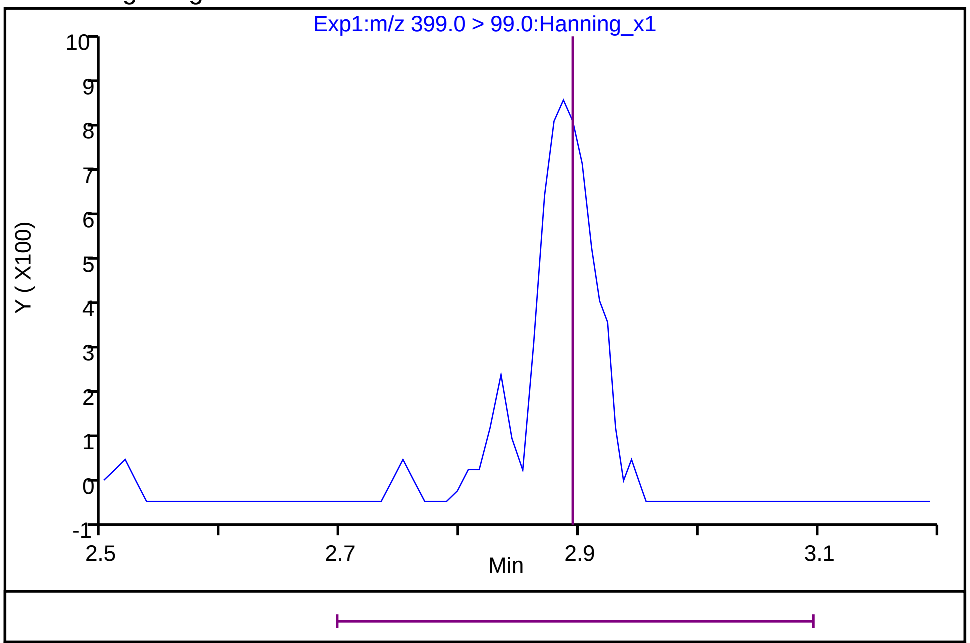
Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

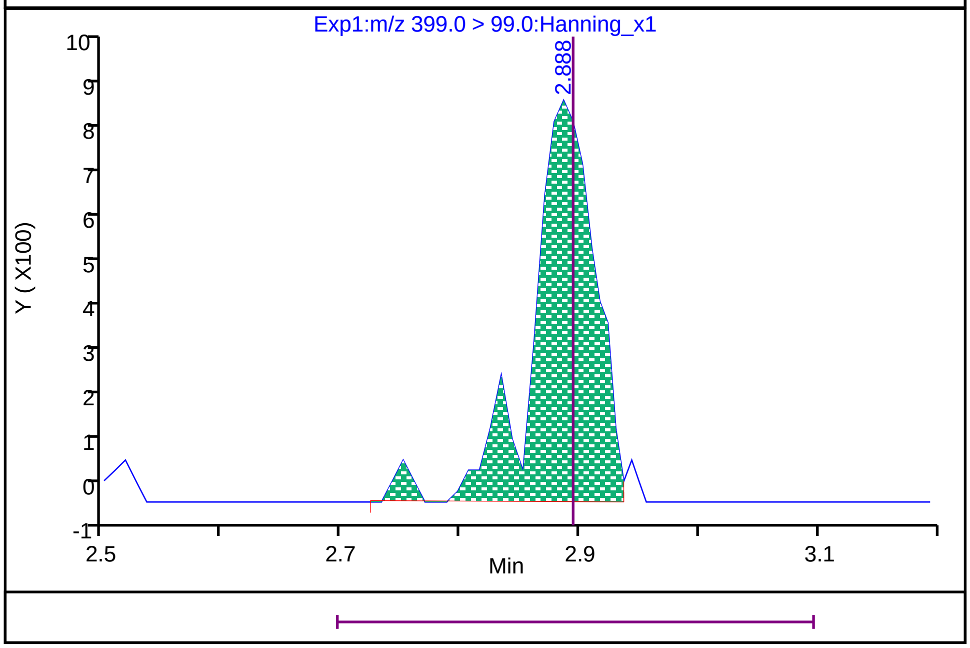
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.836
Area: 634
Amount: 40.980
Amount Units: ng/L



RT: 2.888
Area: 3074
Amount: 40.980
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

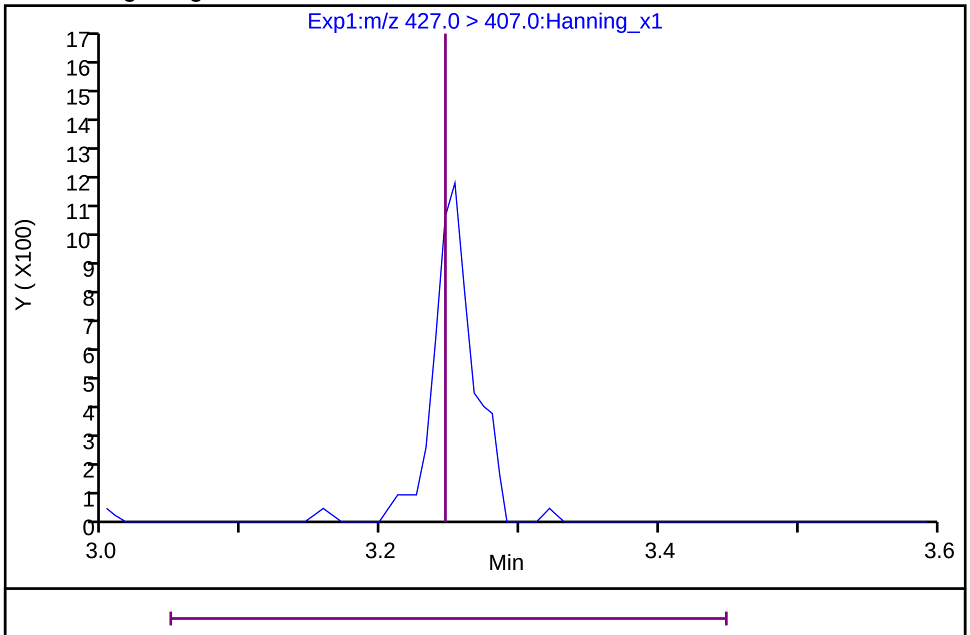
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

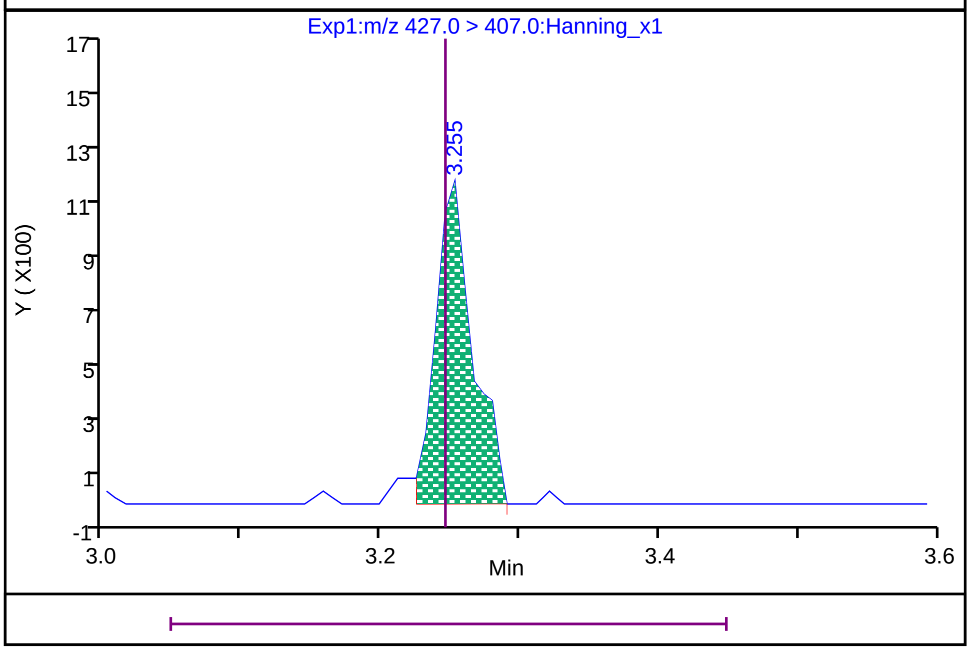
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected
Expected RT: 3.248
RT Window: 3.048-3.448



RT: 3.255
Area: 2076
Amount: 47.978
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:49
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

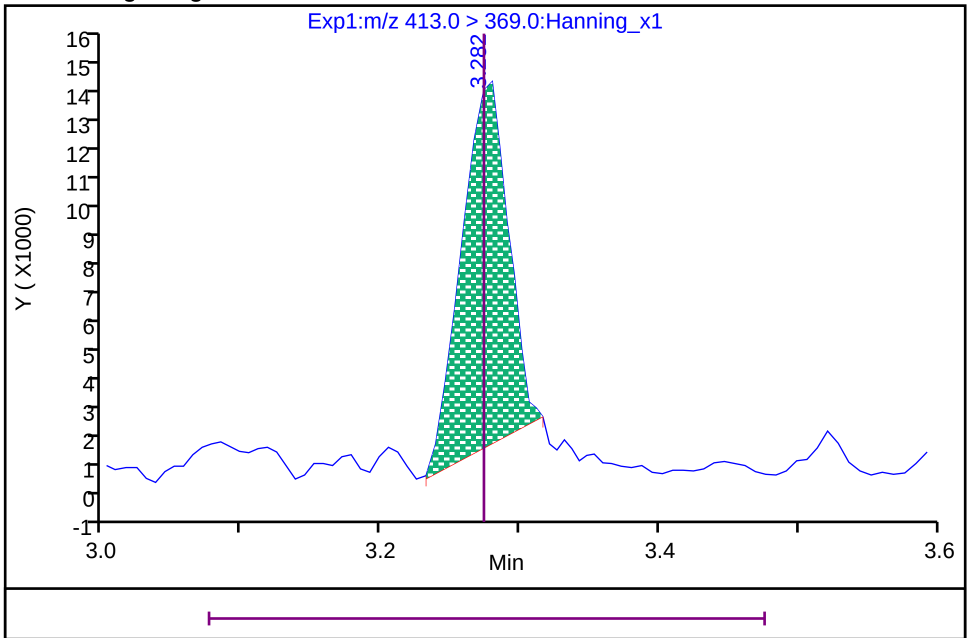
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

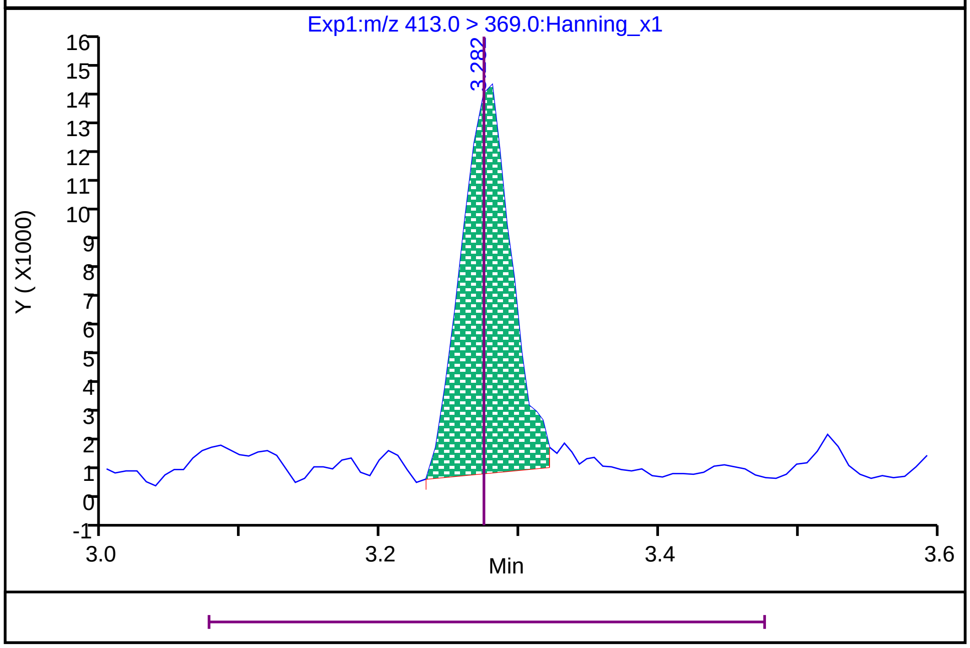
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.282
Area:	28523
Amount:	49.879
Amount Units:	ng/L



RT:	3.282
Area:	32635
Amount:	56.260
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:54:54

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

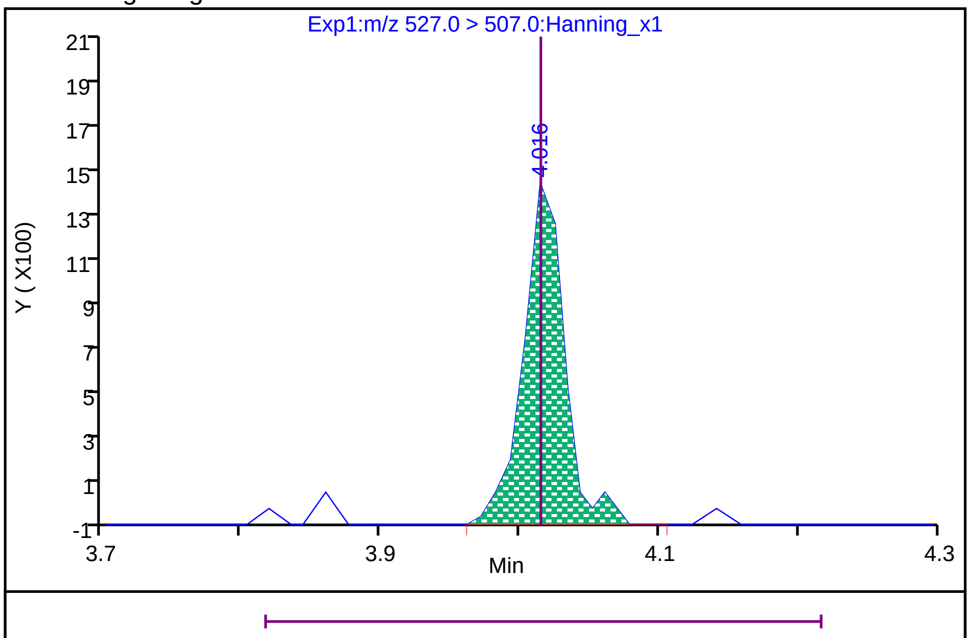
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

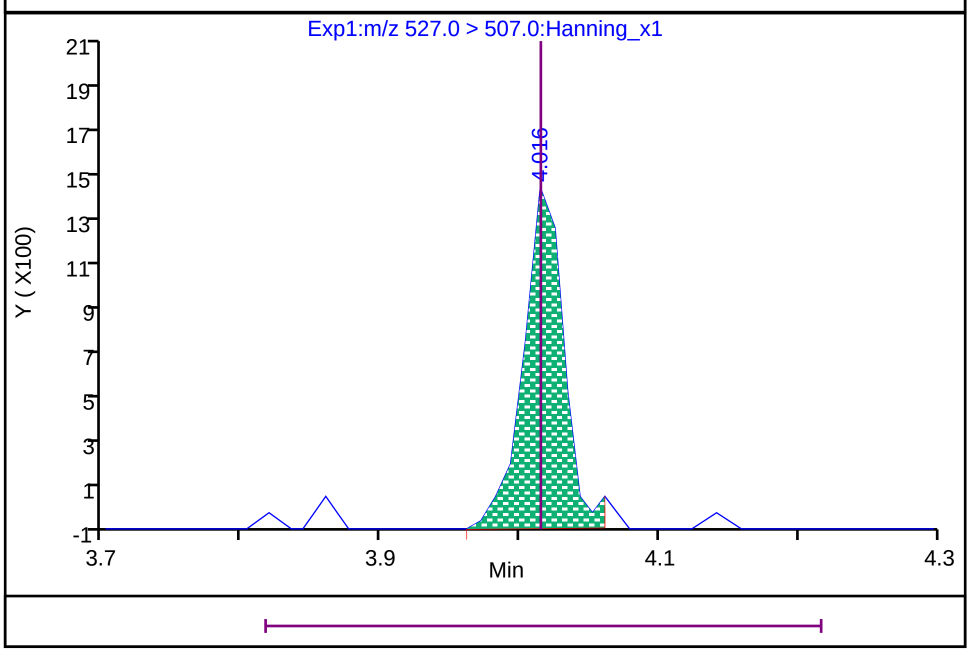
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT: 4.016
Area: 2973
Amount: 67.485
Amount Units: ng/L



RT: 4.016
Area: 2894
Amount: 68.818
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:19

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

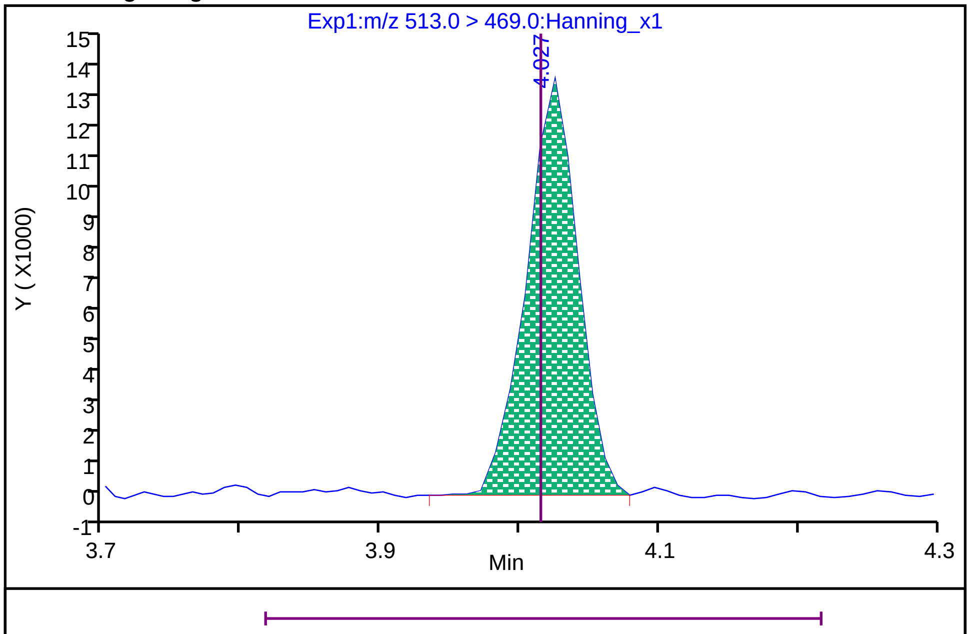
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

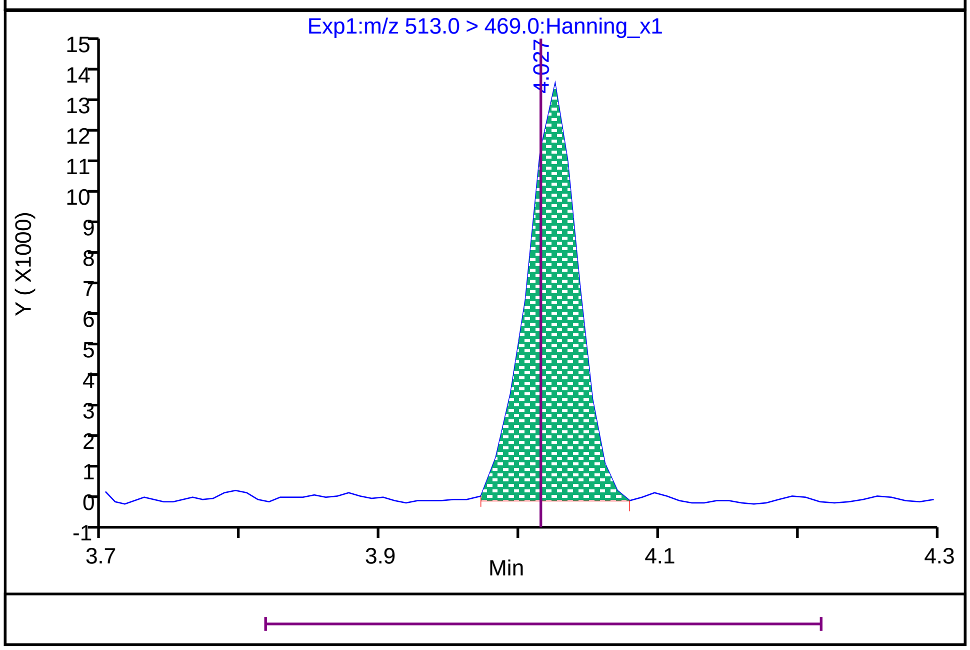
10 PFDA, CAS: 335-76-2

Processing Integration Results

RT: 4.027
Area: 32568
Amount: 71.158
Amount Units: ng/L



RT: 4.027
Area: 32559
Amount: 45.890
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:57
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

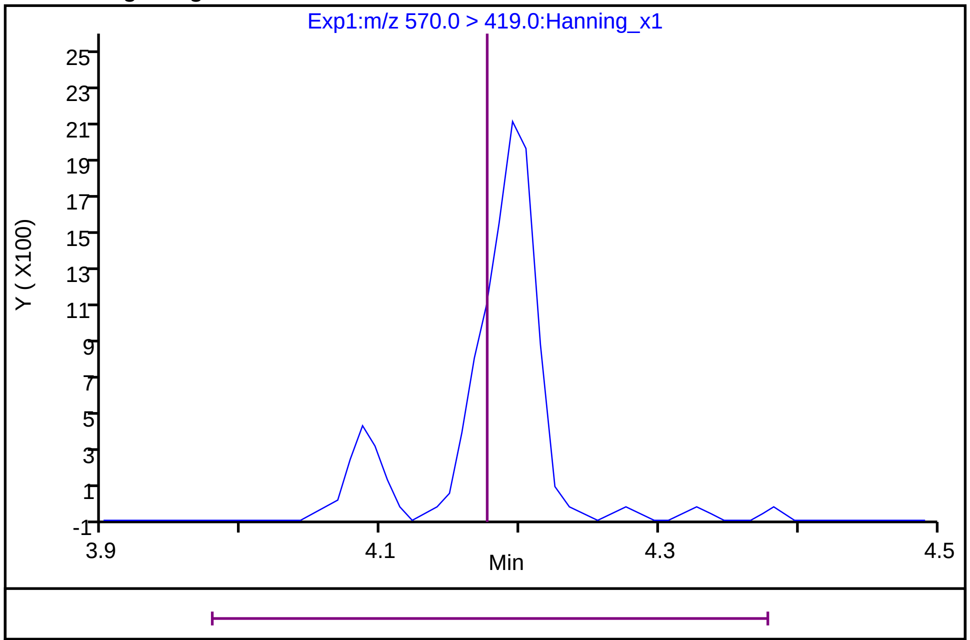
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

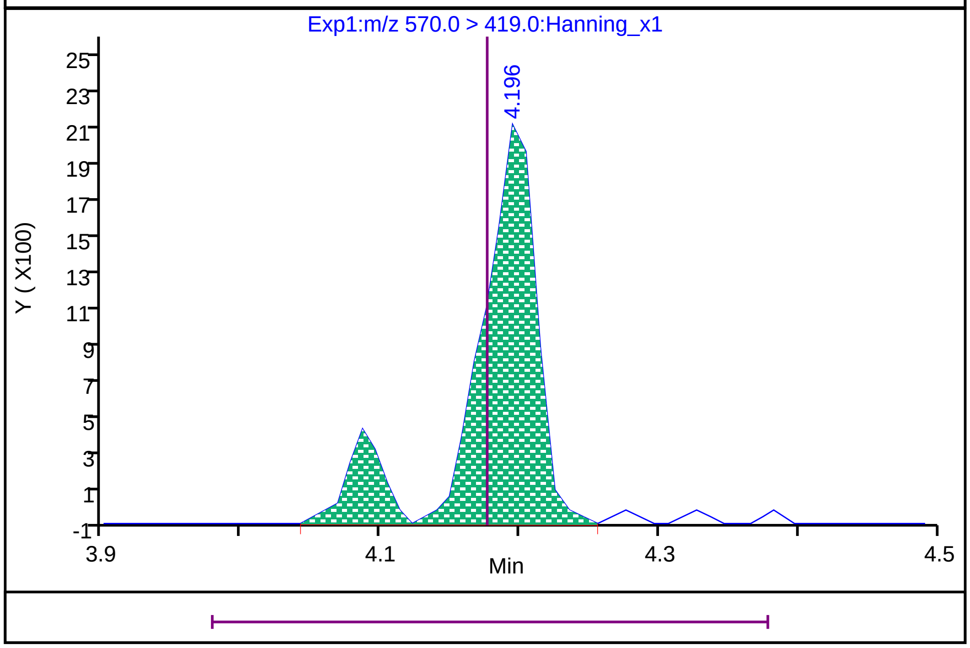
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected
Expected RT: 4.178
RT Window: 3.978-4.378



RT: 4.196
Area: 6340
Amount: 51.203
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:44
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

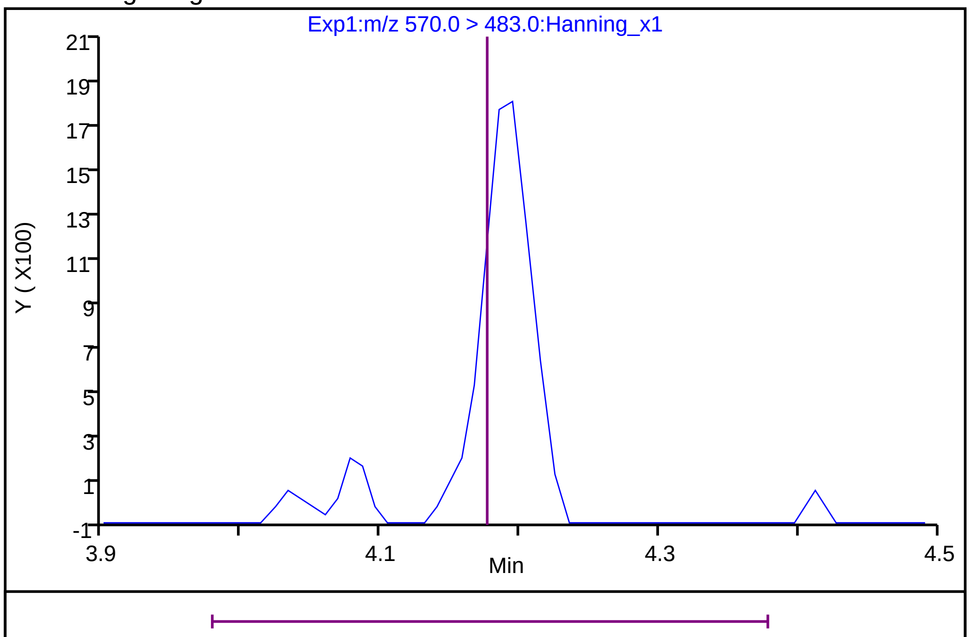
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

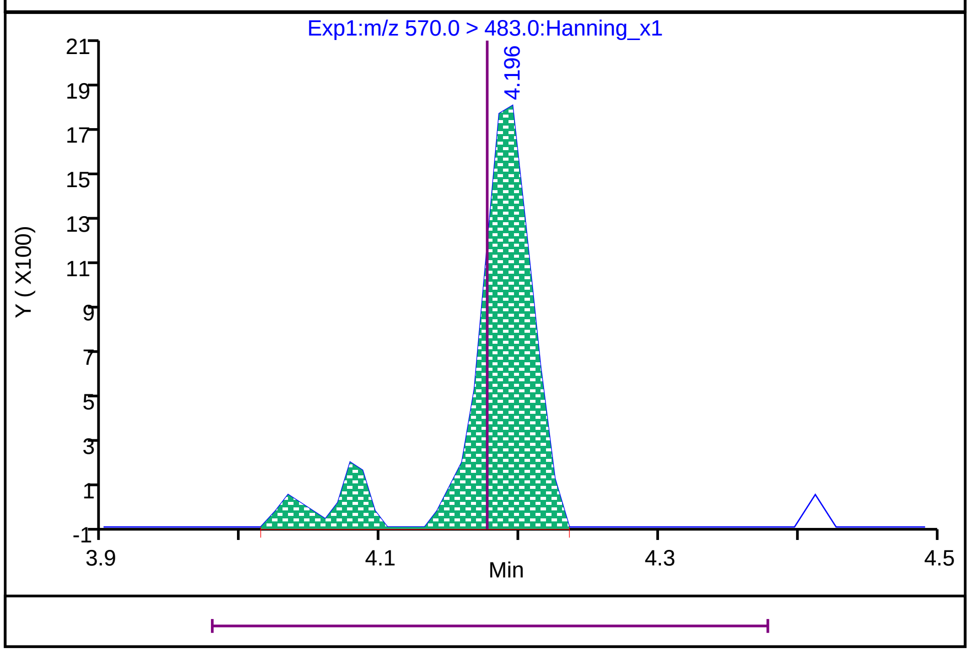
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected
Expected RT: 4.178
RT Window: 3.978-4.378



RT: 4.196
Area: 5342
Amount: 51.203
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:48
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC

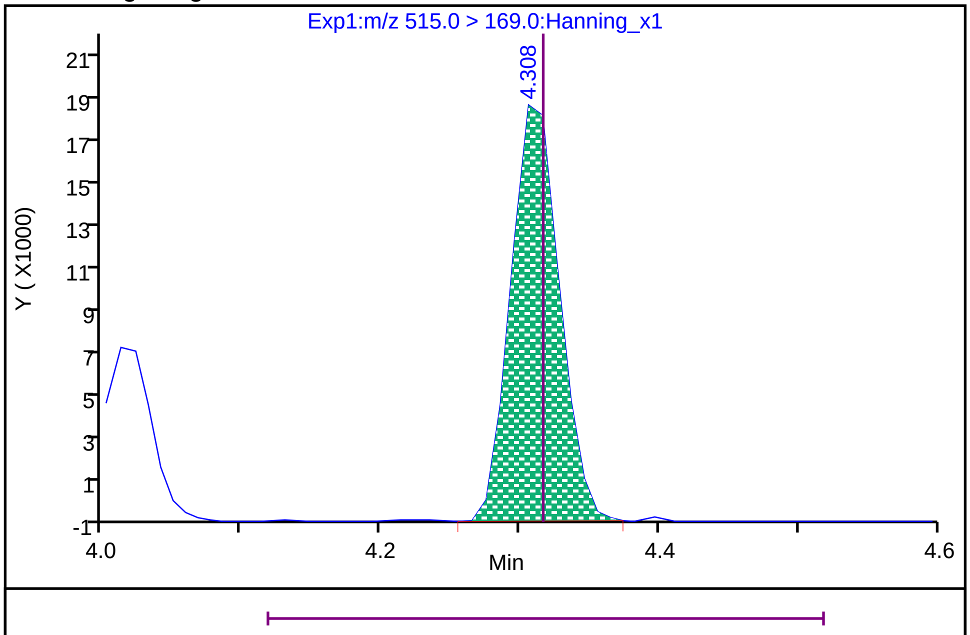
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

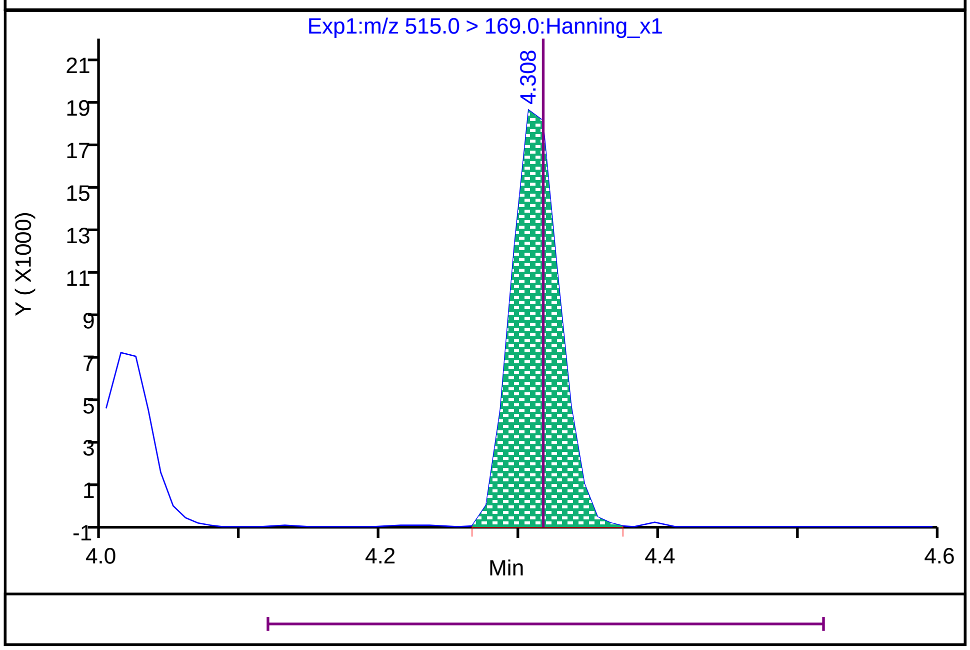
D 57 d3-MeFOSA, CAS: SESI-0109

Processing Integration Results

RT: 4.308
Area: 44820
Amount: 953.32
Amount Units: ng/L



RT: 4.308
Area: 45088
Amount: 958.48
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:55:16
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

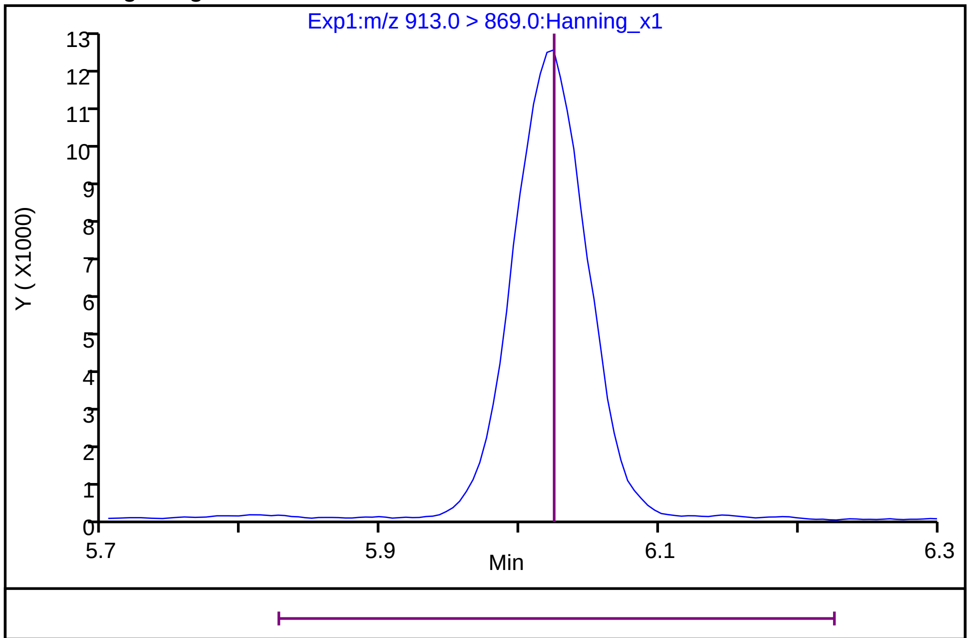
36 PFODA, CAS: 16517-11-6

Processing Integration Results

Not Detected

Expected RT: 6.026

RT Window: 5.826-6.226

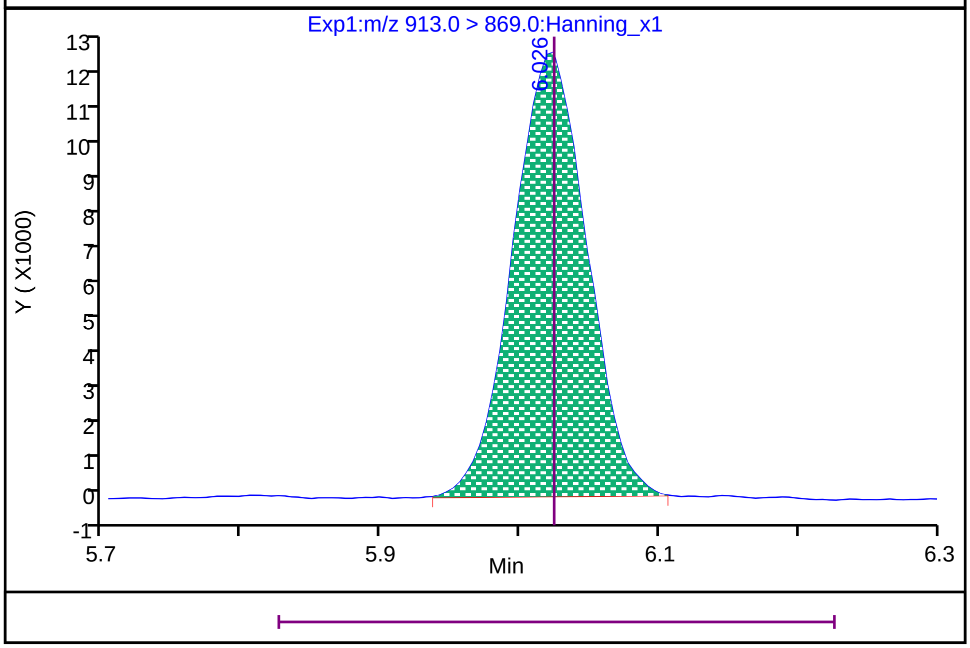


RT: 6.026

Area: 43650

Amount: 52.988

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:55:05

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	76
Sample Info:	ID ICAL 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	639140	20	>100:1			1000.00	1028.09	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	66740	19	97:1			100.00	99.012		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	579707	15	>100:1			1000.00	1014.20	99.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	68039	14	70:1			100.00	104.28		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	172237	16	>100:1			1000.00	995.76	96.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	20952	14	>100:1	Target = 3.53		88.400	97.549		
298.9 > 99	44	2.183	2.183		6553	19	83:1	3.19 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	1/1	15524	16	>100:1	Target = 3.10		93.800	97.253		
349 > 99	44	2.531	2.531		4132	12	58:1	3.75 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	117065	14	>100:1			5000.00	5169.87	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	4592	14	72:1	Target = 1.75		93.400	88.973		M
327 > 81	63	2.460	2.460		3250	11		1.41 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	670974	17	>100:1			1000.00	1030.23	100.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/1	66898	21	>100:1	Target = 18.91		100.00	95.890		
313 > 119	49	2.505	2.505		2951	11	42:1	22.66 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	1	1197981	19	>100:1			5000.00	5169.14	99.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	29374	16	100:1	Target = 0.79		200.00	189.30		M
285 > 185	66	2.622	2.622		38380	18	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	1	548747	18	>100:1			1000.00	1033.54	103	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	1/0	60017	18	>100:1	Target = 3.80		100.00	99.534		
363 > 169	47	2.888	2.880		16168	16	>100:1	3.71 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	125934	19	>100:1			1000.00	1002.34	97.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													a
399 > 80	45	2.896	2.896	6/5	12218	24	61:1	Target = 2.89	5.96	91.000	88.248		M
399 > 99	45	2.888	2.896		5261	20	69:1	2.32 (1.44-4.34)	9.97				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	95386	17	>100:1	Target = 3.23		94.200	97.667		
377 > 85	45	2.925	2.919		29244	18	>100:1	3.26 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.282	3.276	1/0	13136	20	>100:1	Target = 3.12		95.200	101.56		
449 > 99	45	3.282	3.276		5024	20	45:1	2.61 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	93235	24	>100:1			5000.00	5179.73	99.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	5217	19		Target = 1.75		94.800	118.19		
427 > 81	64	3.241	3.248		3232	14	5.0:1	1.61 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	0	554295	23	>100:1			1000.00	1056.45	101.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	52014	21	42:1	Target = 2.89		100.00	91.571		
413 > 169	53	3.282	3.276		20893	21	>100:1	2.48 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	121269	21	>100:1			1000.00	979.22	91.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.662	0/-1	14281	45	34:1	Target = 3.30	3.55	92.800	98.904		
499 > 99	54	3.657	3.662		4701	29	62:1	3.03 (1.65-4.95)	14.37				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/0	42553	19	>100:1			93.200	92.656		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	0/-1	9317	18		Target = 3.08		96.000	95.763		
549 > 99	54	4.005	4.006		3298	20	13:1	2.82 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/-1	9046	20	36:1	Target = 2.72		96.400	95.324		
599 > 99	54	4.318	4.318		2895	18	23:1	3.12 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.483	0/-1	41193	16	>100:1			94.200	99.217		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.851	4.842	1/0	9475	26	65:1	Target = 3.27		96.800	90.863		
699 > 99	54	4.851	4.842		2947	19		3.21 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.662	1	668048	22	>100:1			1000.00	1043.21	104.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.662	1/0	71588	21	>100:1	Target = 6.51		100.00	99.418		
463 > 169	56	3.668	3.662		11437	21	>100:1	6.25 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	0	278692	17	>100:1			1000.00	1039.67	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	0/0	27706	13	>100:1	Target = 41.63		100.00	94.484		
498>478	55	3.912	3.896		185	13		149.76 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.016	1	566586	16	>100:1			1000.00	985.95	98.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/0	68174	18	>100:1	Target = 13.80		100.00	103.39		
513 > 169	51	4.027	4.016		4152	21		16.41 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	0	89788	16	>100:1			5000.00	5194.71	113.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.027	4.016	1/1	3178	19	15:1	Target = 1.94		95.800	78.320		
527 > 81	65	4.027	4.016		2087	10	8.9:1	1.52 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	5252	15		Target = 3.54		96.400	115.30		
627 > 80	65	4.631	4.631		1900	23	5.8:1	2.76 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.187	4.178	1	757204	17	>100:1			5000.00	5010.86	98	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/-1	12194	23	66:1	Target = 1.37	10.57	100.00	100.35		
570 > 483	58	4.187	4.178		6822	27	25:1	1.78 (0.68-2.05)	5.14				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.288	0	97587	14	>100:1			1000.00	1082.03	108.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/0	9069	19	56:1			100.00	85.037		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	51324	14	>100:1			1000.00	1091.04	114.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	4810	16	25:1	Target = 1.11		100.00	86.465		
512 > 219	57	4.318	4.318		4765	21	32:1	1.00 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.347	4.338	1	700240	16	>100:1			5000.00	5406.71	101.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.347	4.348	0/-1	10673	29		Target = 1.51	8.24	100.00	78.160		
584 > 526	60	4.347	4.348		9865	33		1.08 (0.75-2.26)	3.20				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	605845	17	>100:1			1000.00	1005.97	95.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	60854	16	>100:1	Target = 14.52		100.00	103.66		
563 > 169	52	4.347	4.338		4201	21		14.48 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	112304	14	>100:1			1000.00	1058.70	110.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.464	0/0	10317	20	57:1			100.00	94.369		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	0	41158	16	>100:1			1000.00	957.17	96	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	0/0	6677	12	41:1	Target = 1.06		100.00	123.80		
526 > 219	59	4.482	4.483		4453	19	22:1	1.49 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.614	1	609758	17	>100:1			1000.00	1015.69	100.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	0/-1	62385	14	15:1	Target = 10.70		100.00	95.970		
613 > 169	38	4.631	4.622		6335	15	26:1	9.84 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	0/-1	63642	18	>100:1	Target = 8.31		100.00	99.300		
663 > 169	38	4.877	4.877		8192	21	>100:1	7.76 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.112	5.106	1	821567	22	>100:1			1000.00	1010.55	98	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.112	5.106	1/0	73189	20	18:1	Target = 12.17		100.00	102.05		
713 > 169	42	5.106	5.106		5801	21	97:1	12.61 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.552	5.544	0	861836	21	>100:1			1000.00	992.86	98.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.552	5.552	0/0	59390	21	8.1:1	Target = 10.43		100.00	107.60		
813 > 269	40	5.560	5.552		5561	25	>100:1	10.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.031	6.026	1/1	80162	32	>100:1	Target = 13.67		100.00	102.17		
913 > 319	40	6.031	6.026		6323	38	>100:1	12.67 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	665974	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	662021	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	543161	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	568408	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	128160	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

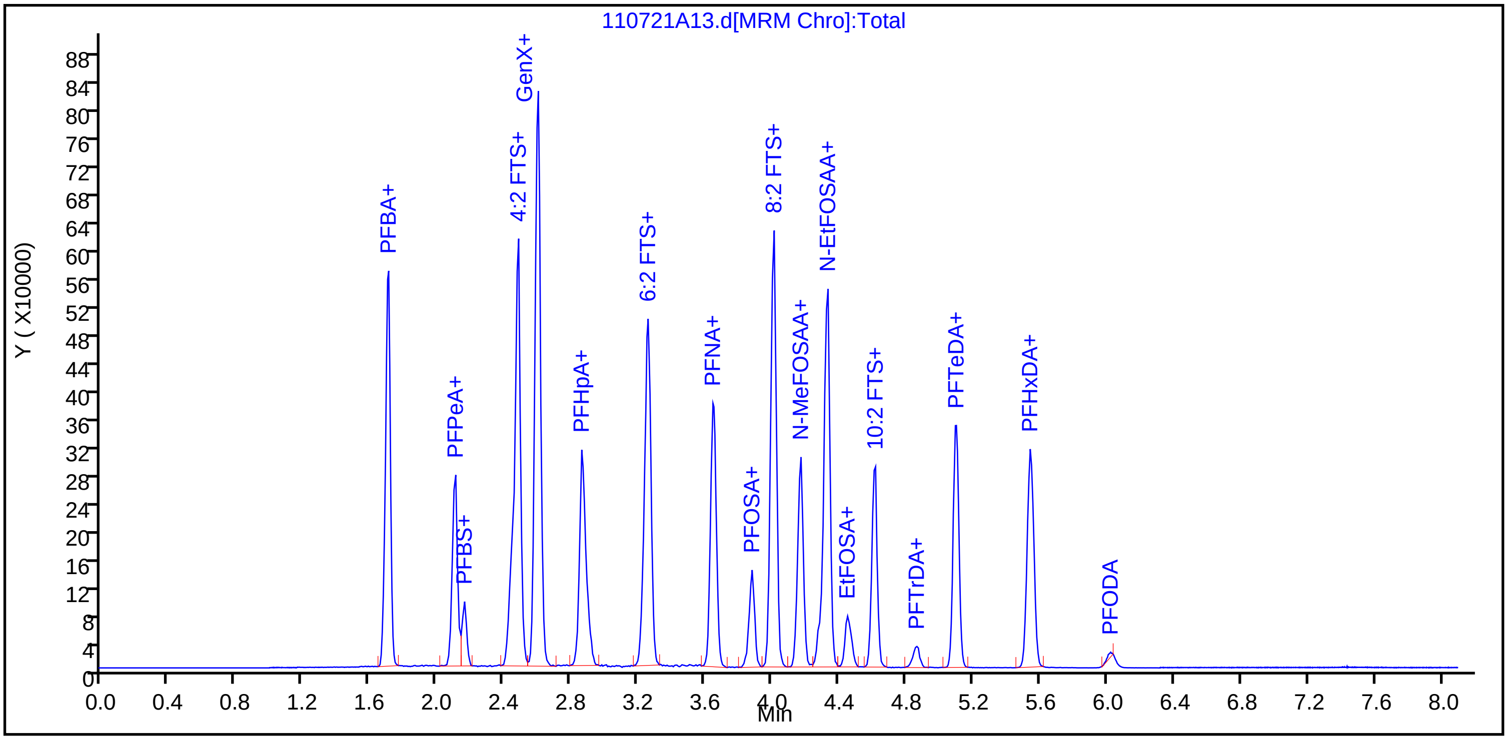
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

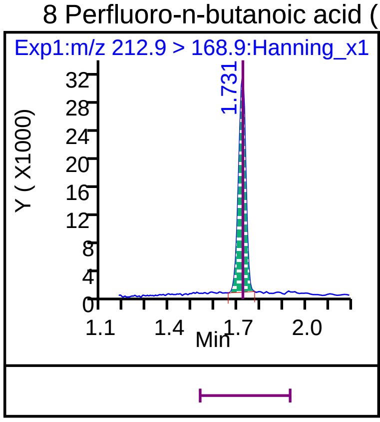
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

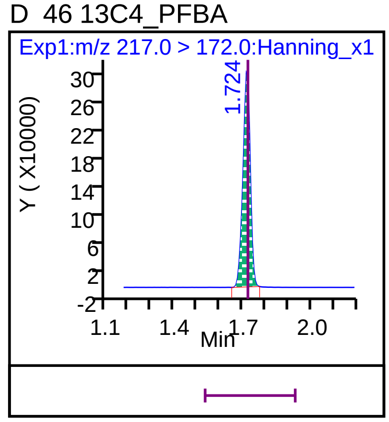
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



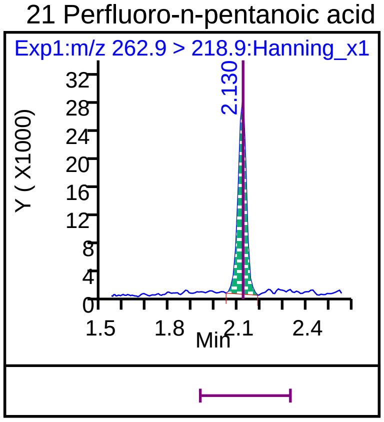
8 Perfluoro-n-butanoic acid (PFBA)



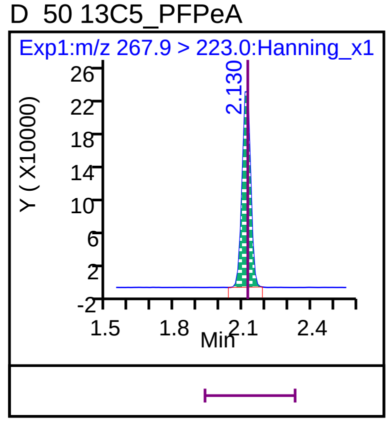
D 46 13C4_PFBA



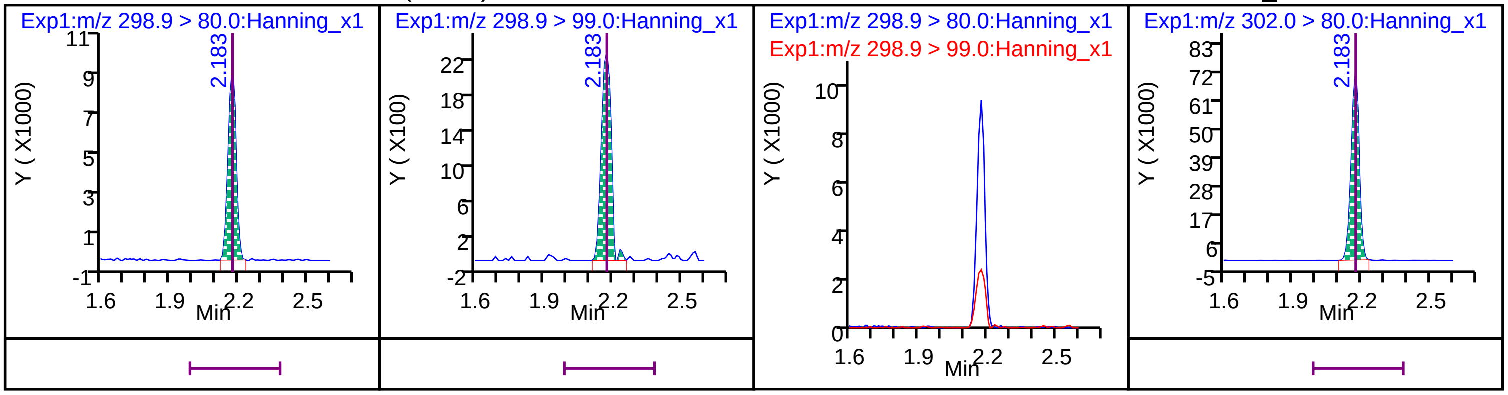
21 Perfluoro-n-pentanoic acid (PFPeA)



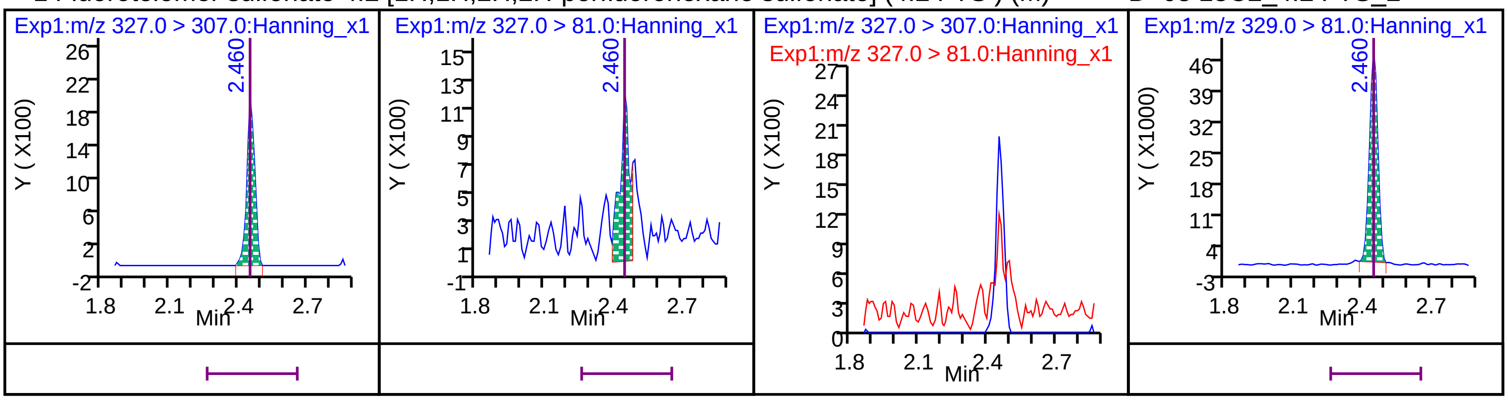
D 50 13C5_PFPeA



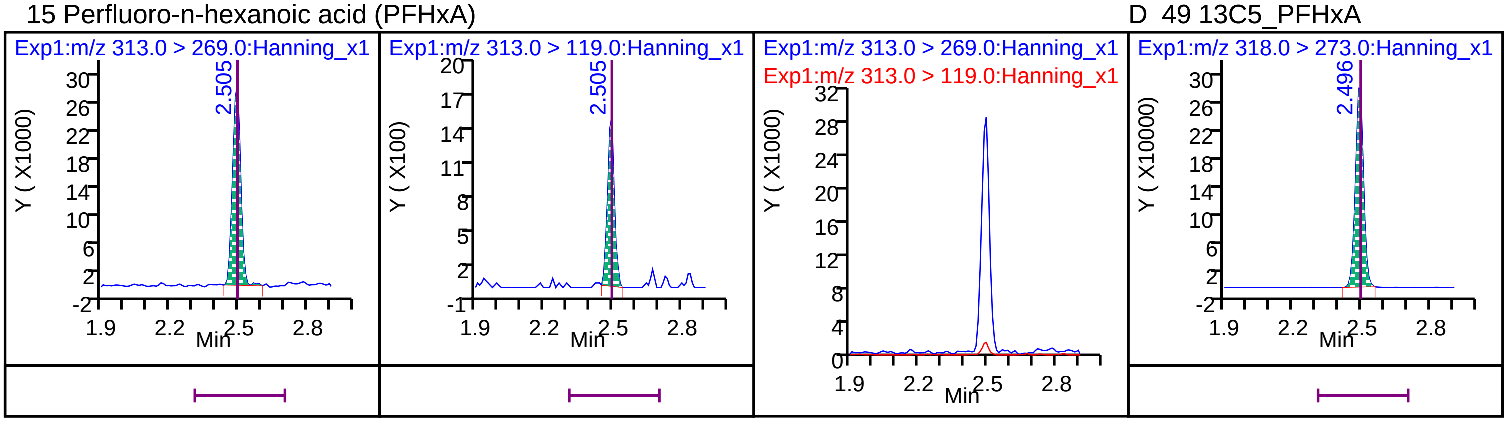
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



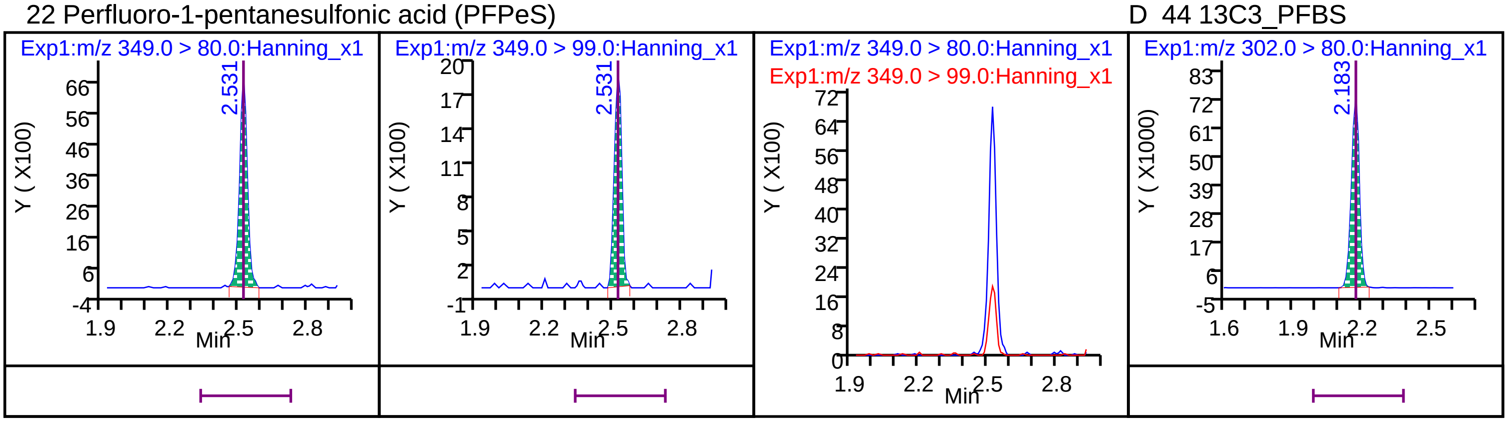
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

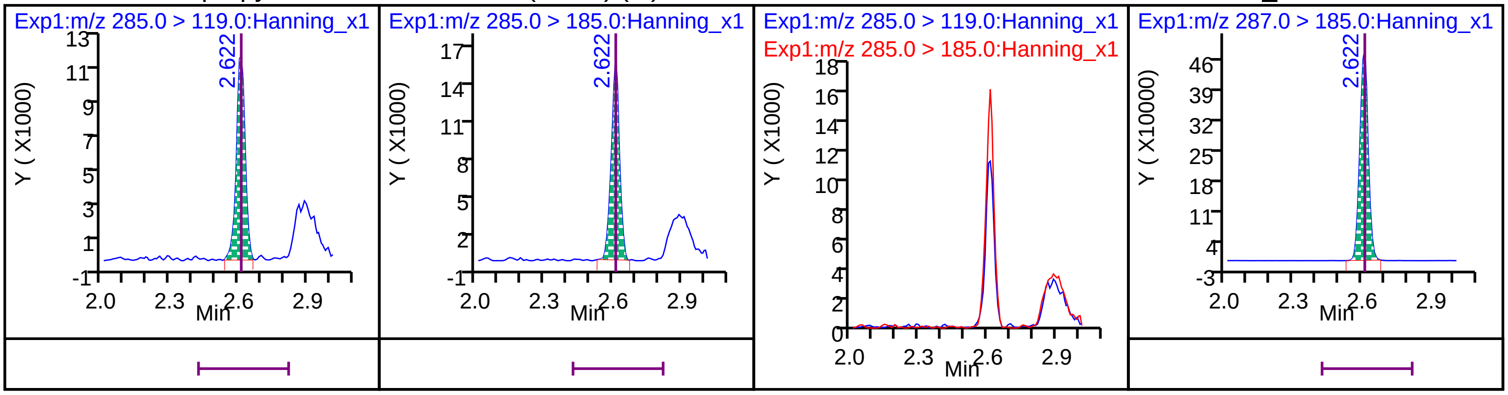


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

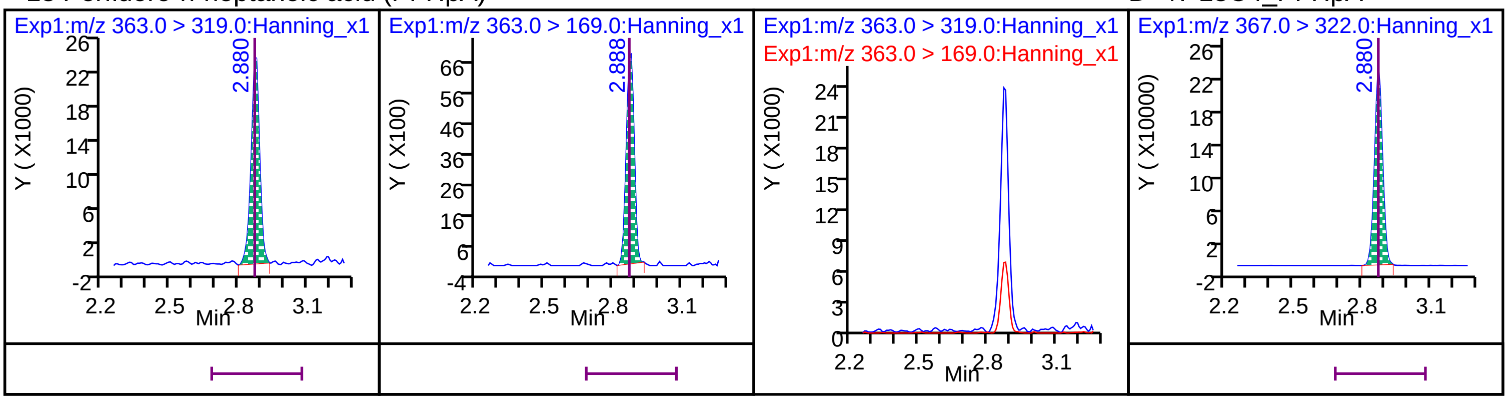


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

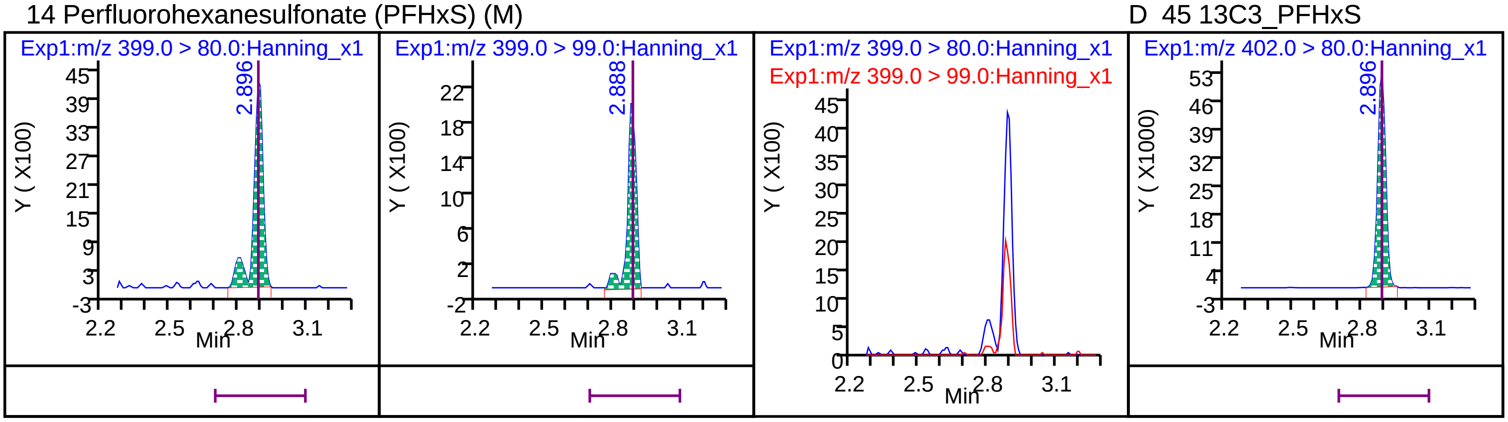
28 Hexafluoropropylene oxide dimer acid (GenX) (M) D 66 13C3_GenX



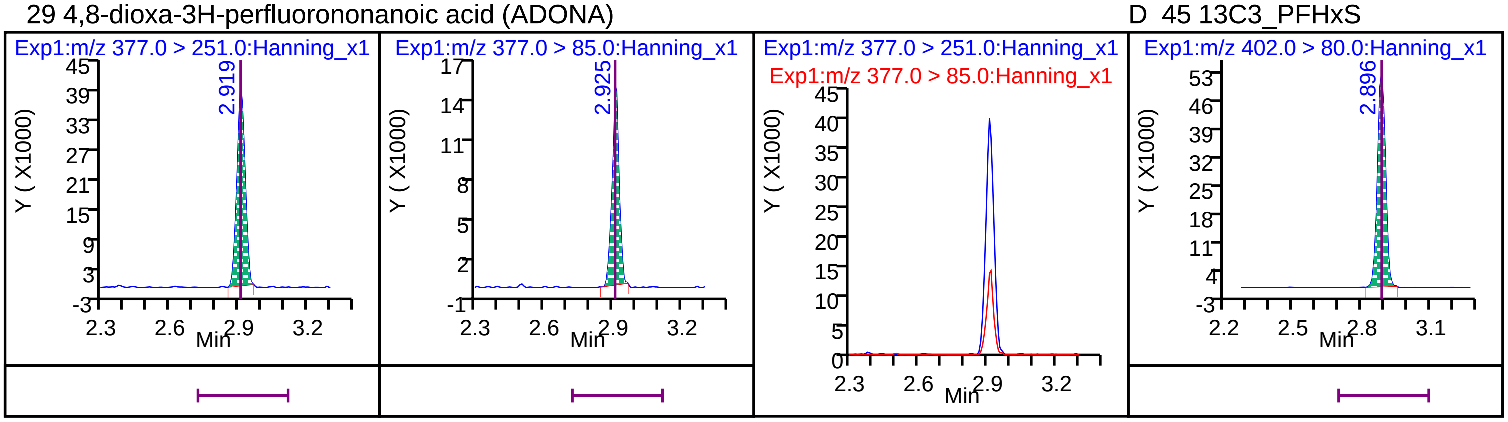
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



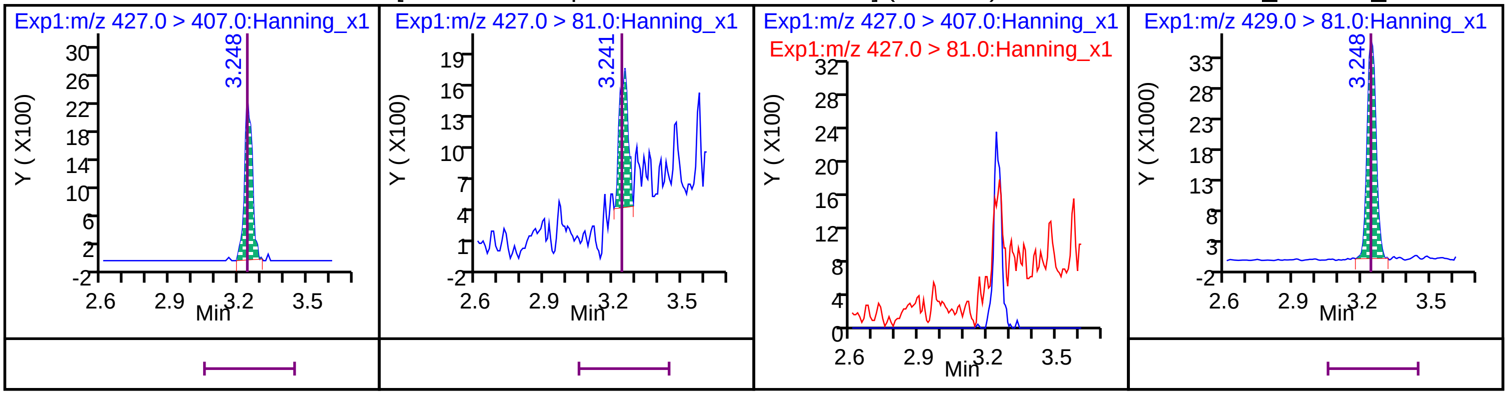
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



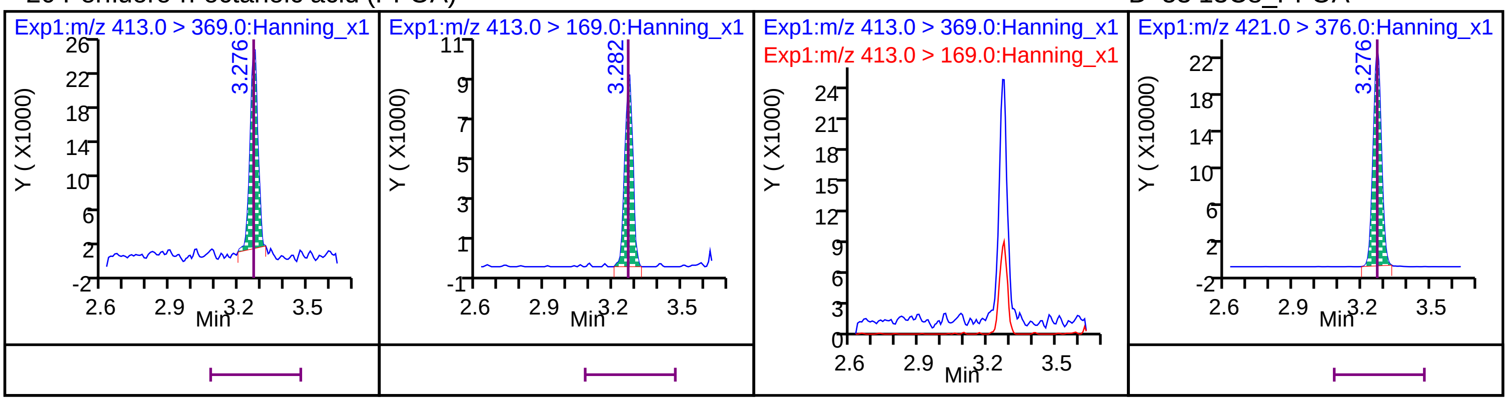
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



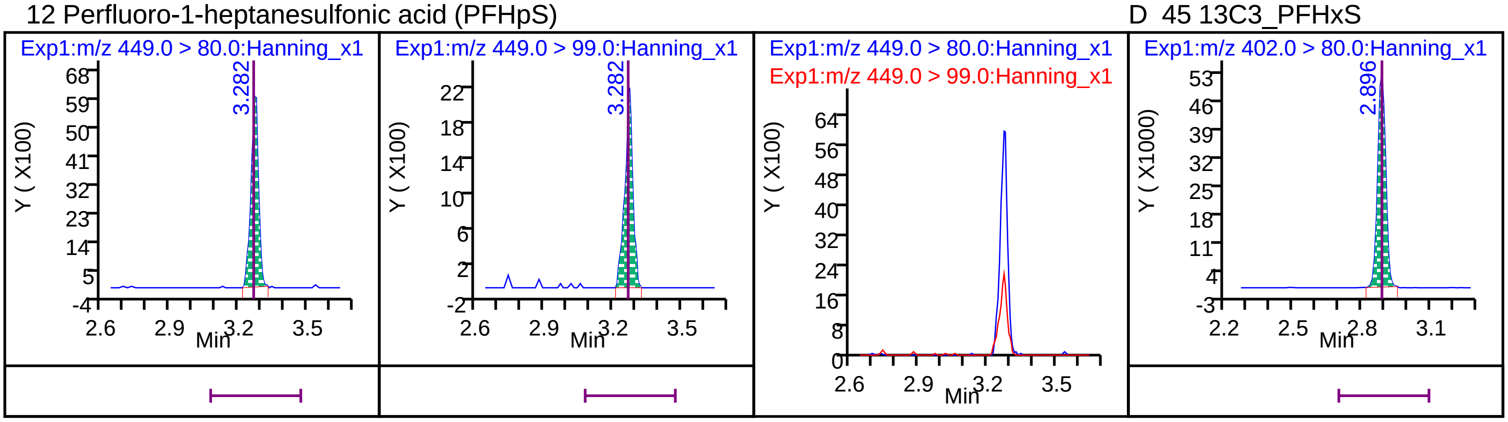
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



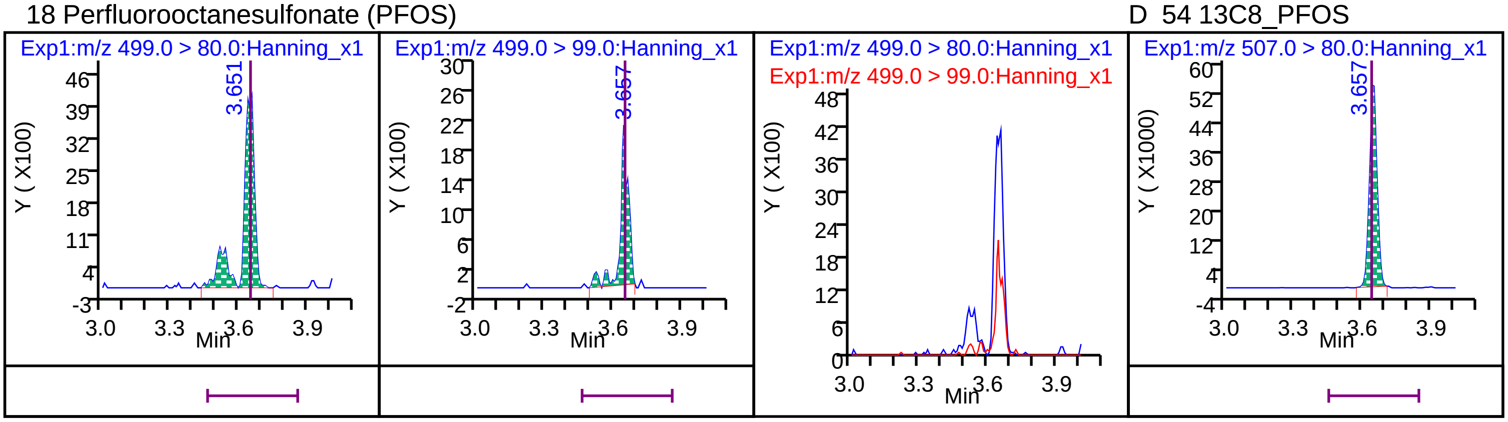
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



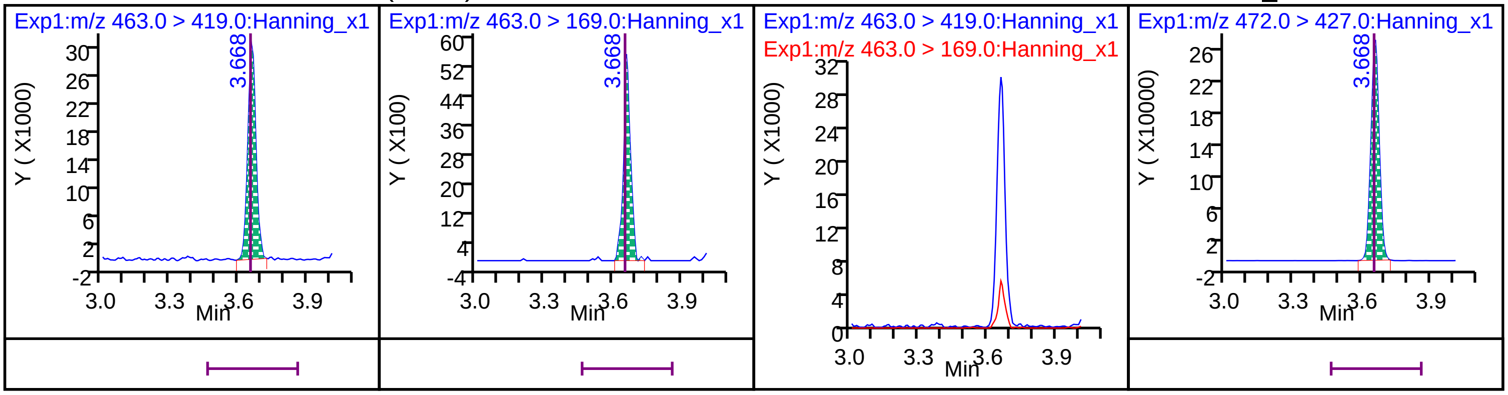
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



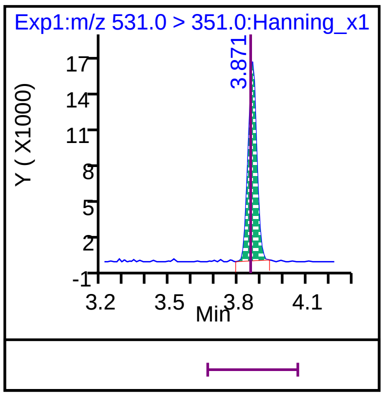
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

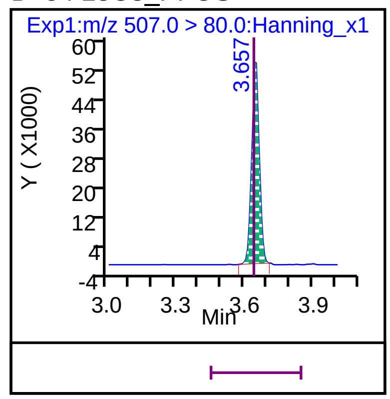


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

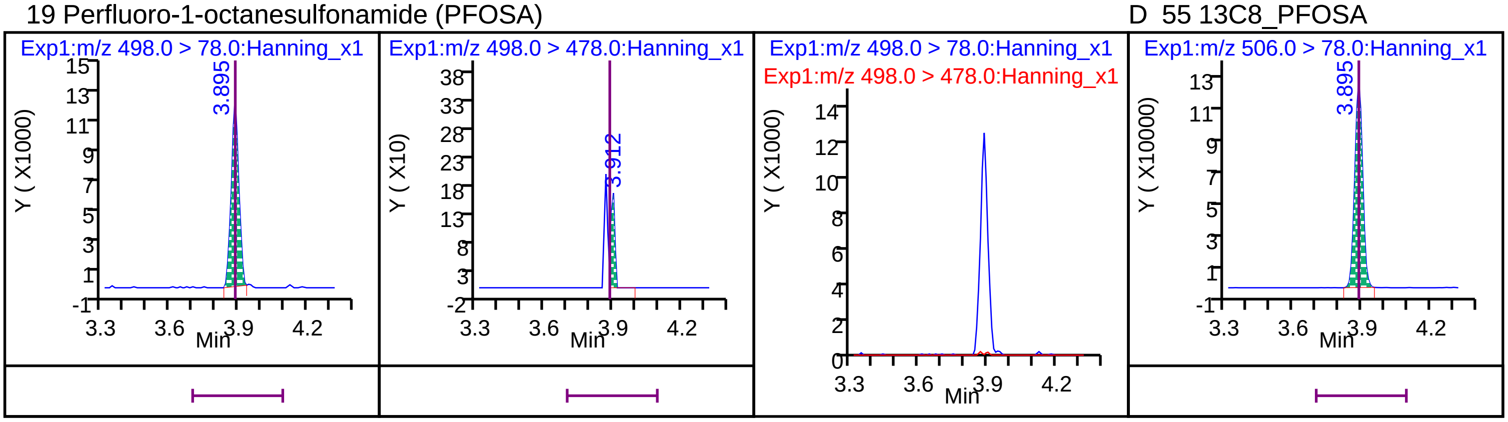


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

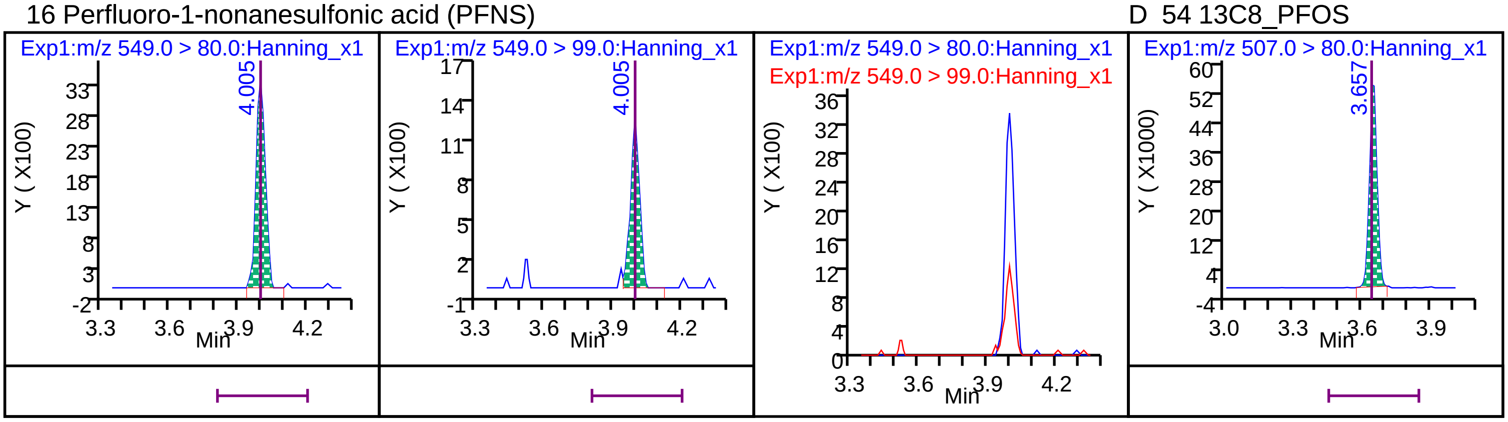




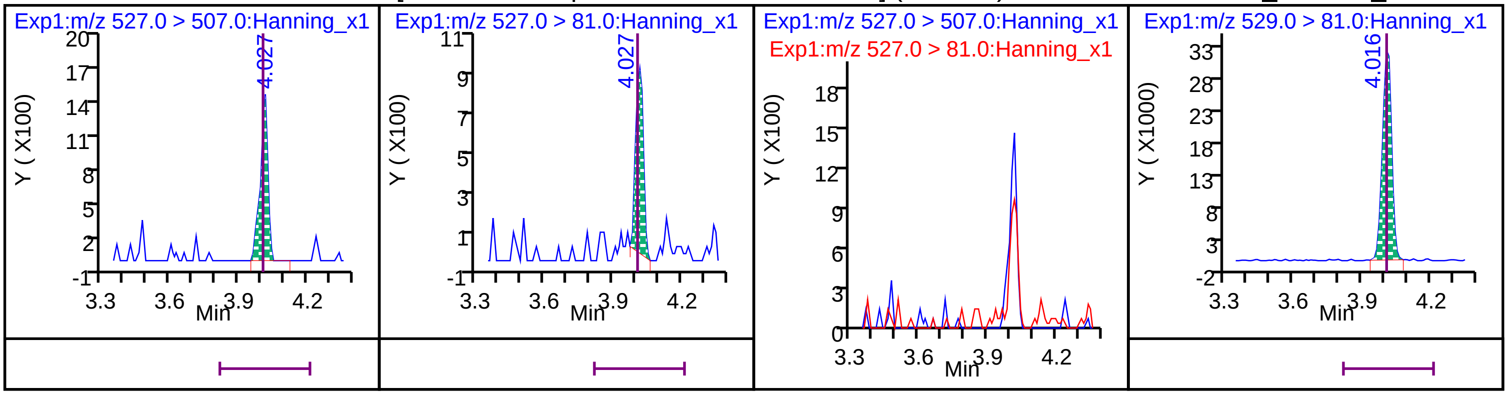
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



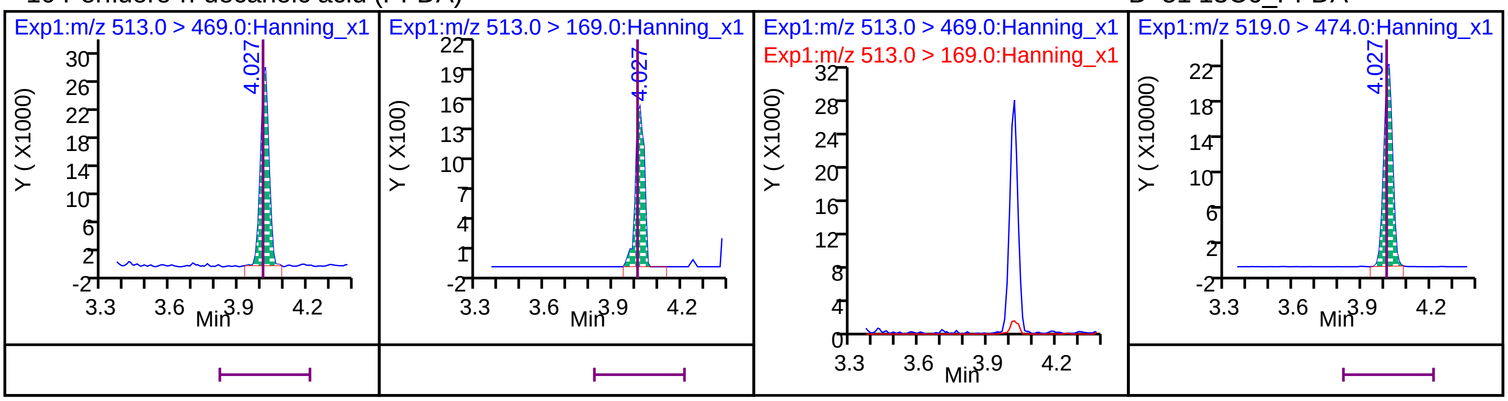
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



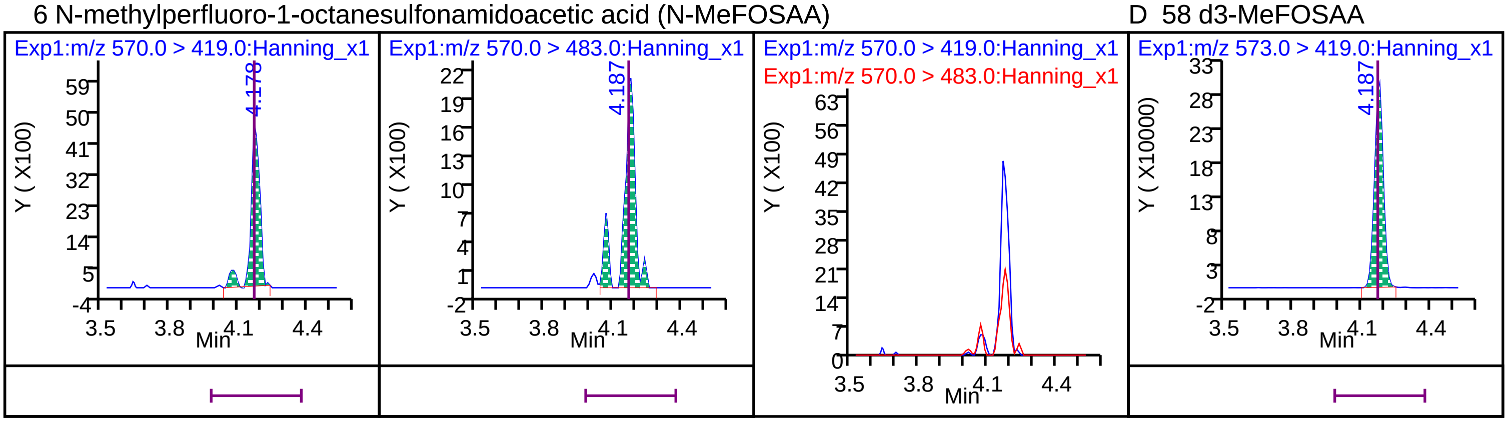
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



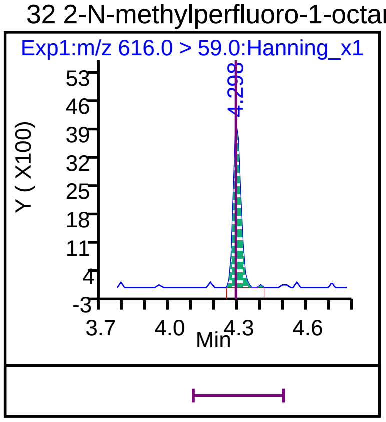
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

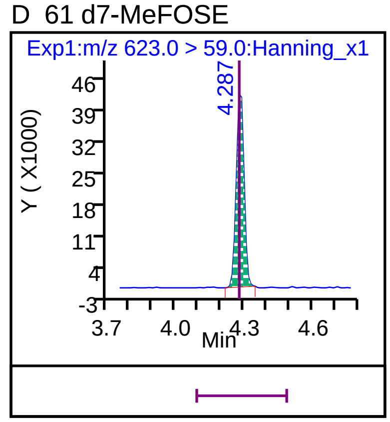


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

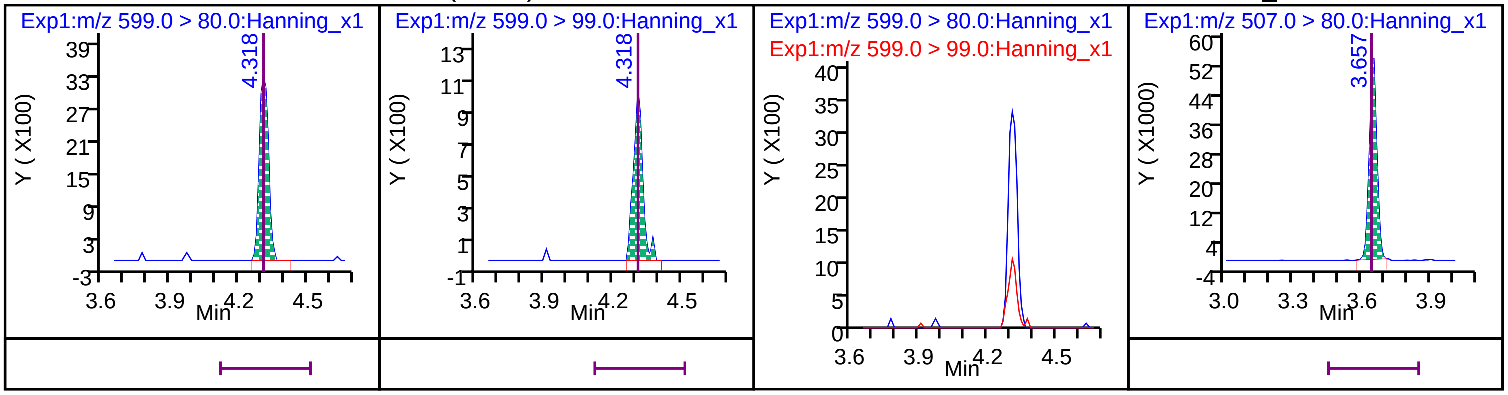


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

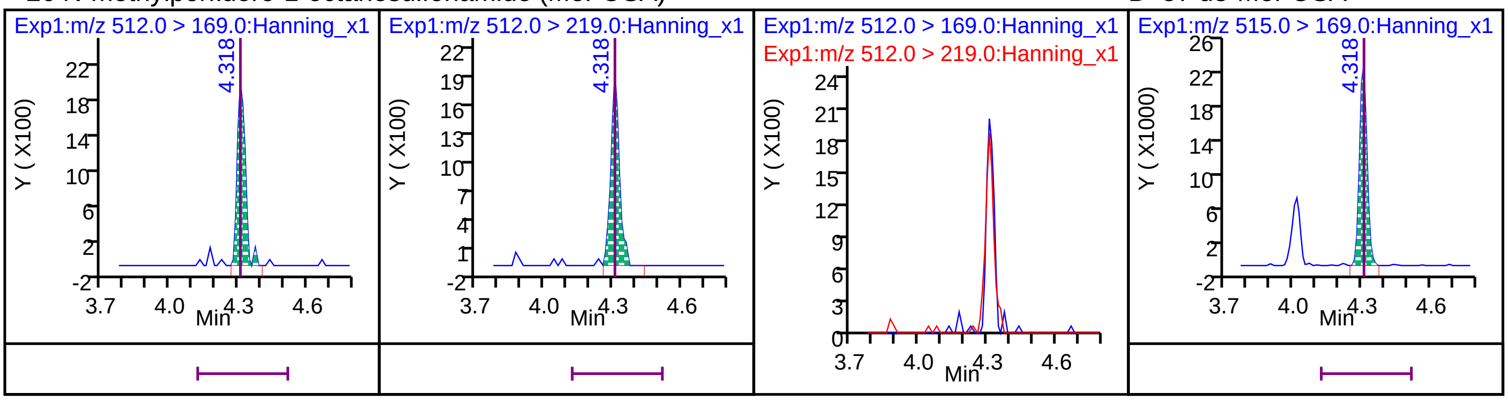




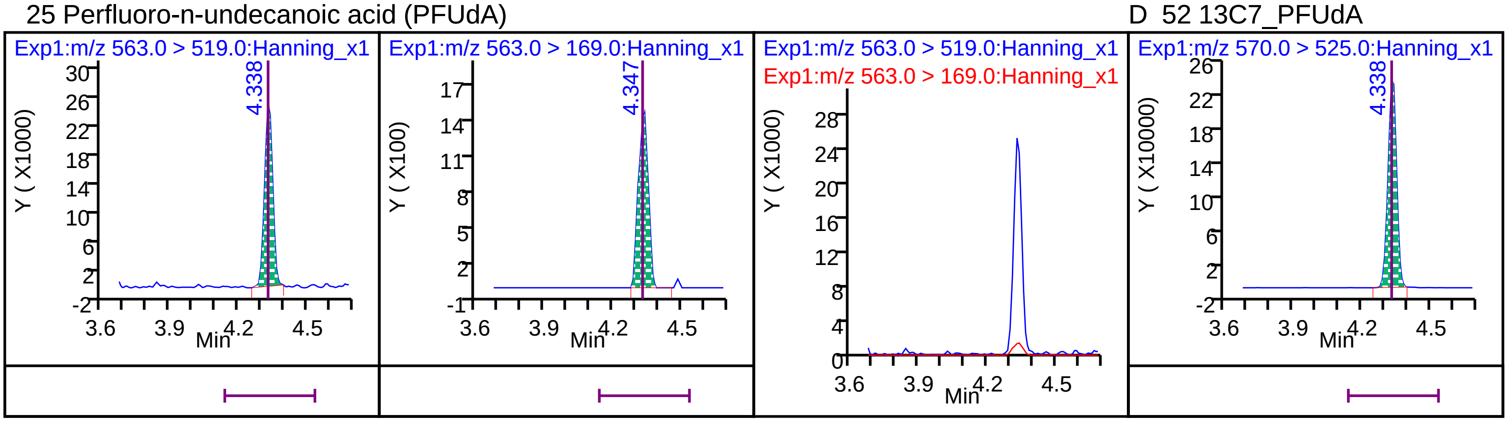
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



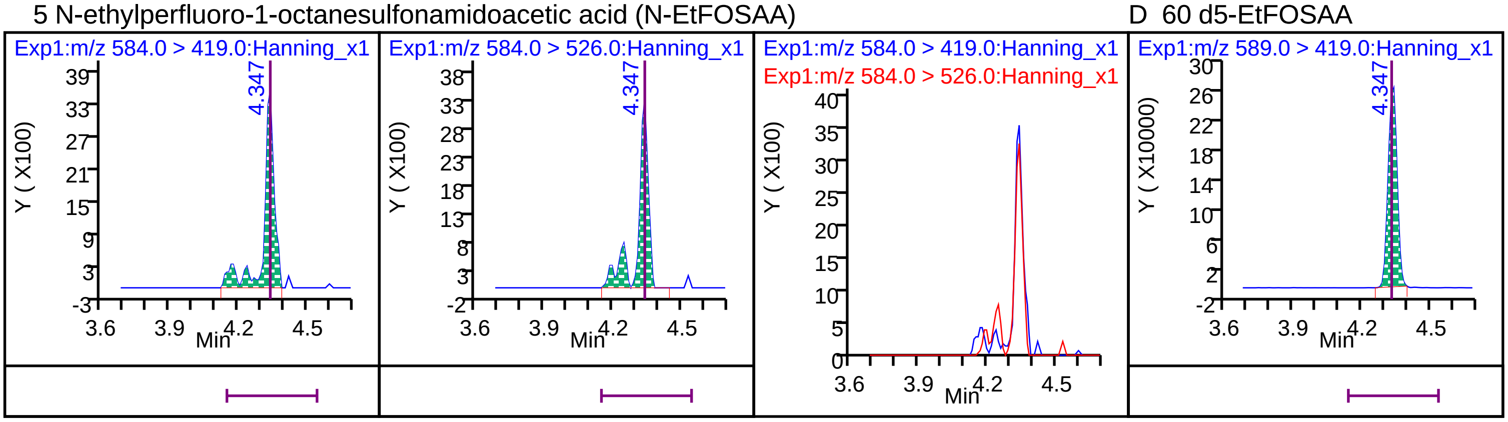
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



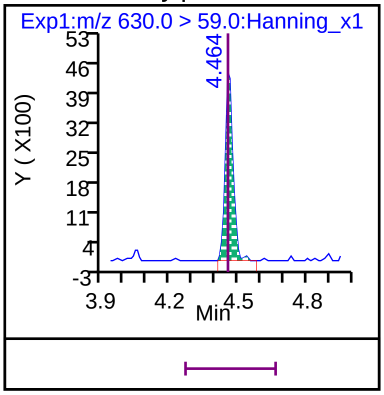
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



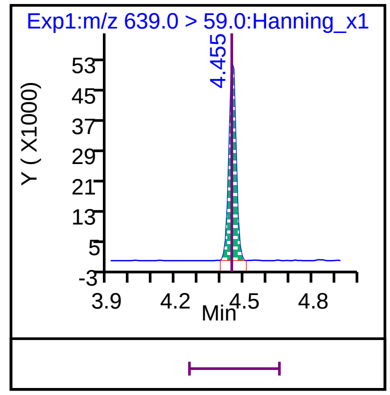
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



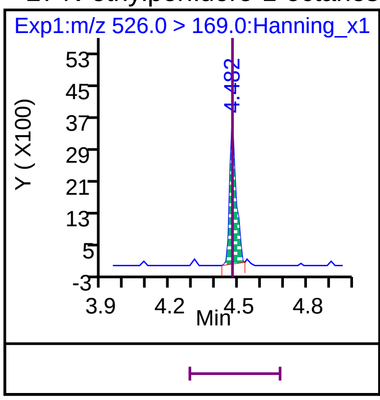
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

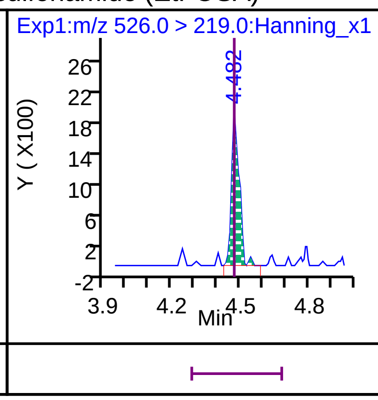


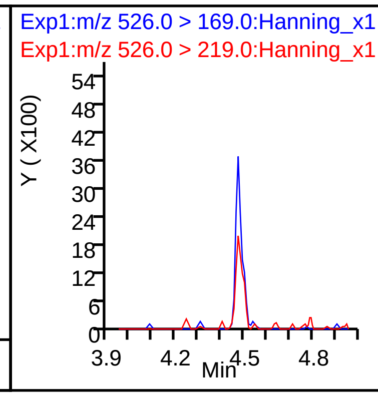
D 62 d9-EtFOSE



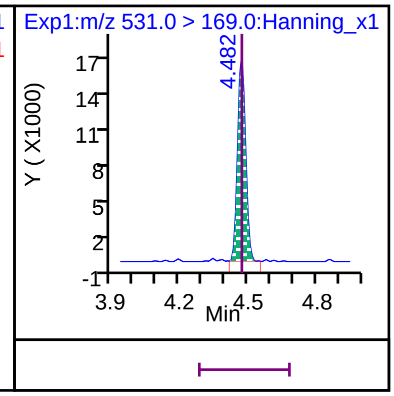
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



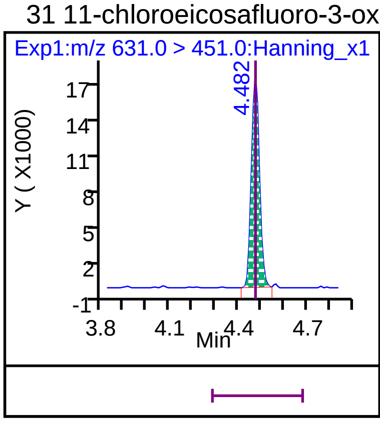




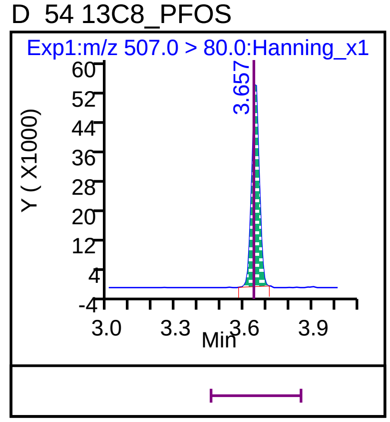
D 59 d5-EtFOSA



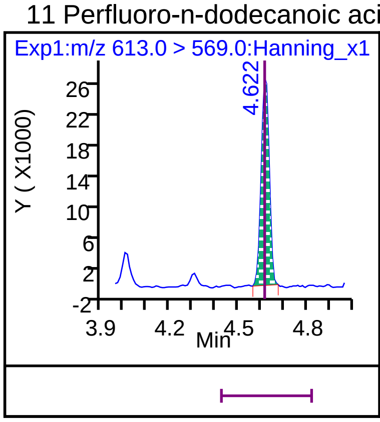
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

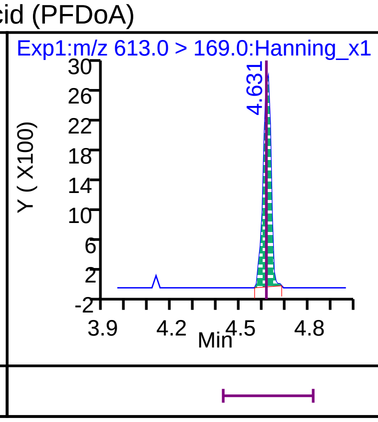


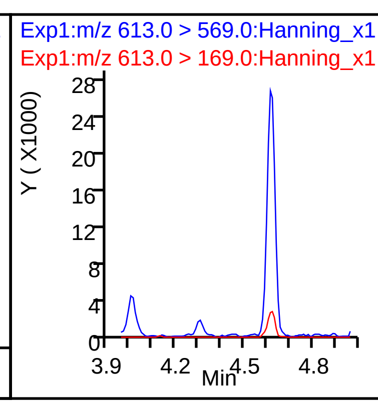
D 54 13C8_PFOS



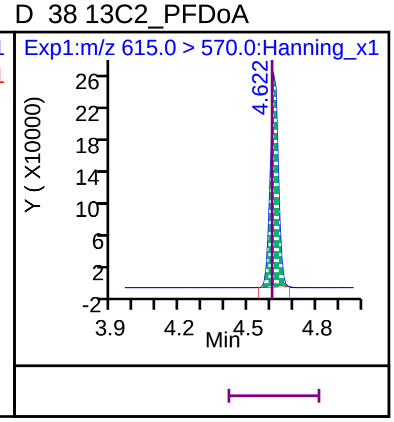
11 Perfluoro-n-dodecanoic acid (PFDoA)



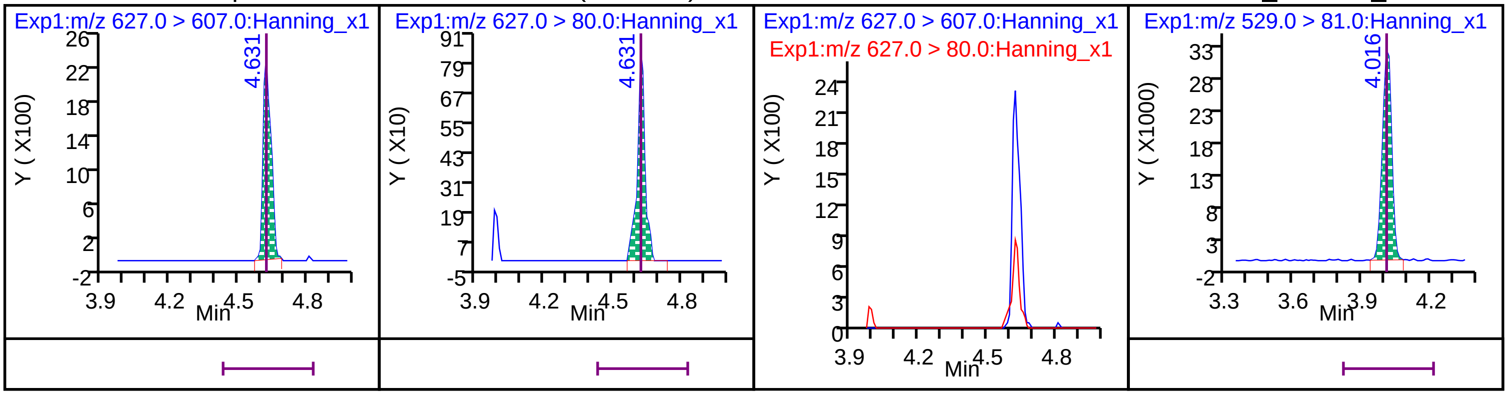




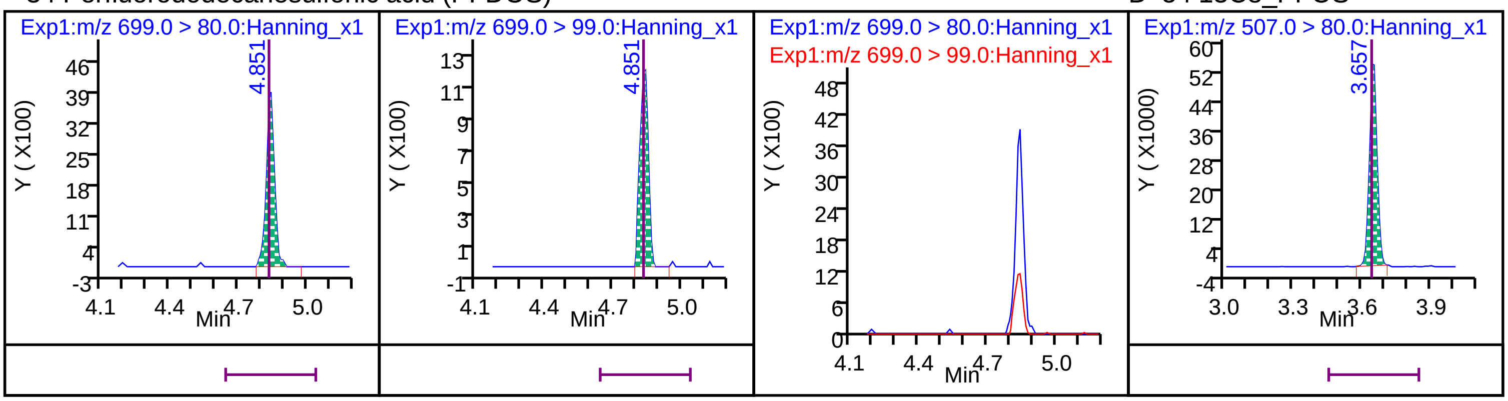
D 38 13C2_PFDoA



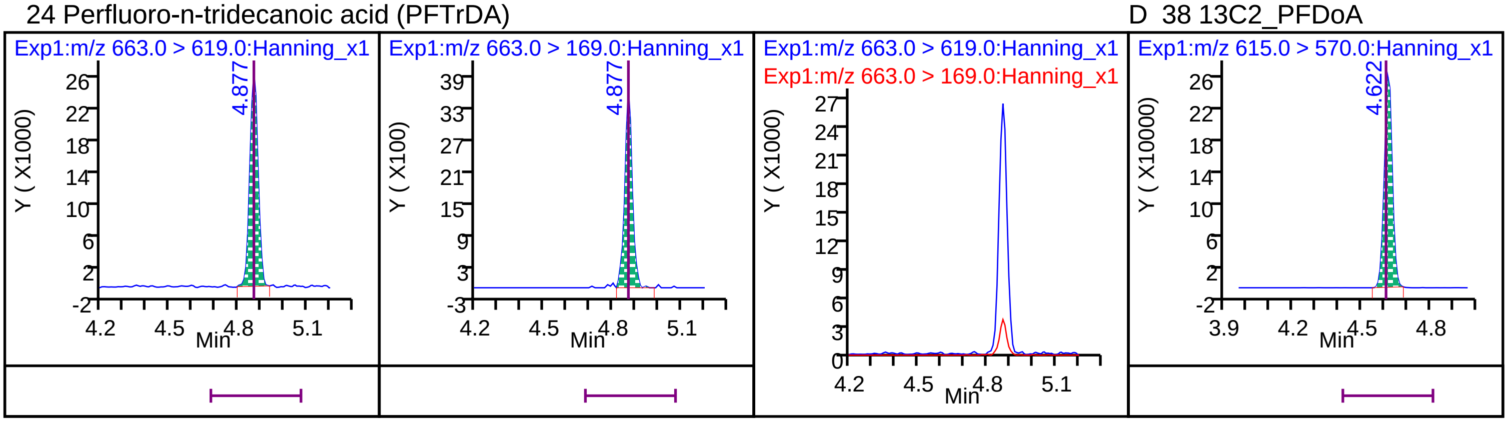
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



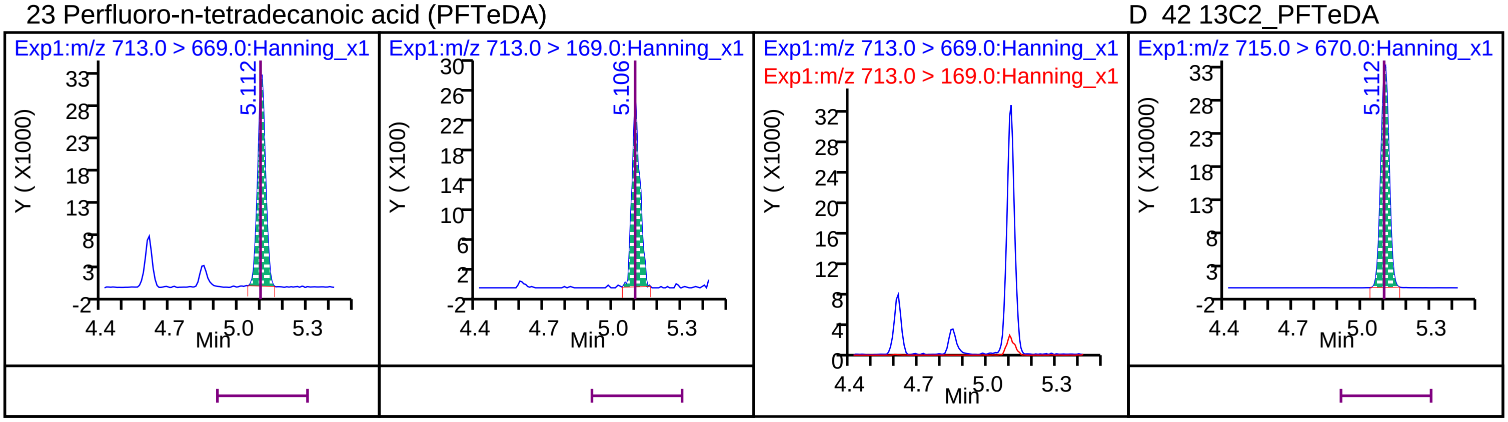
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



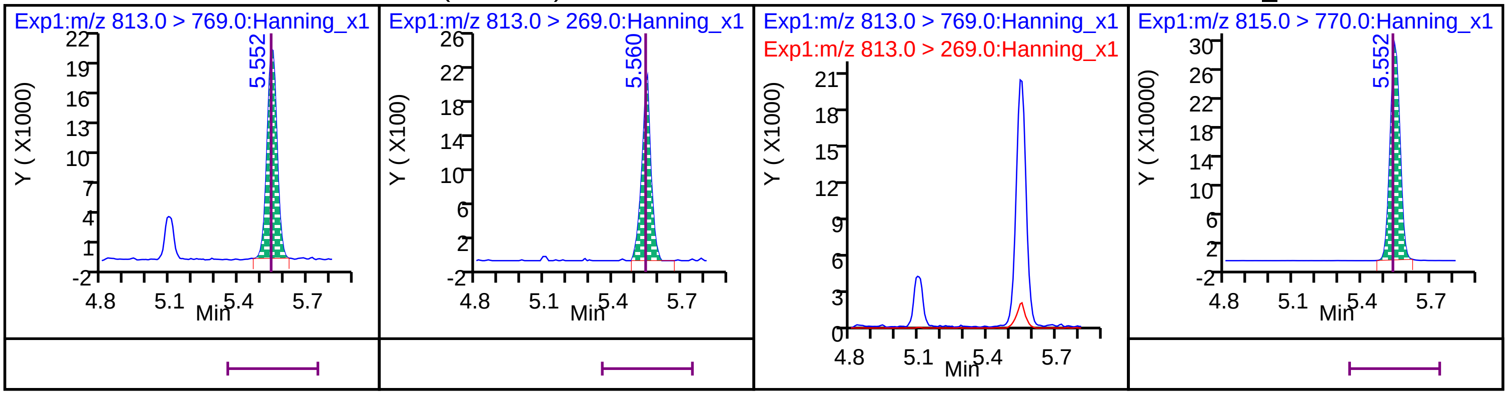
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



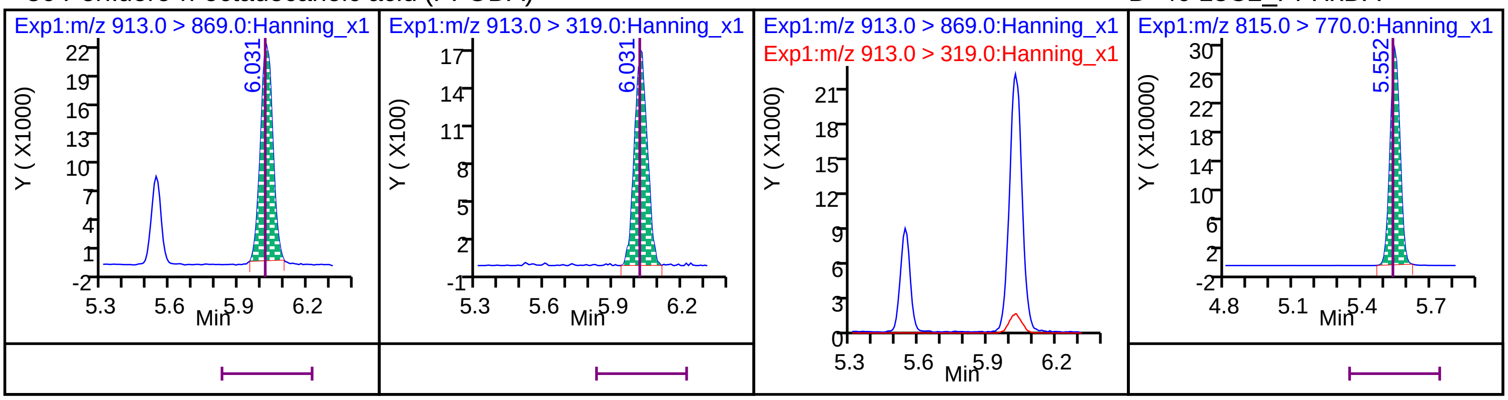
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



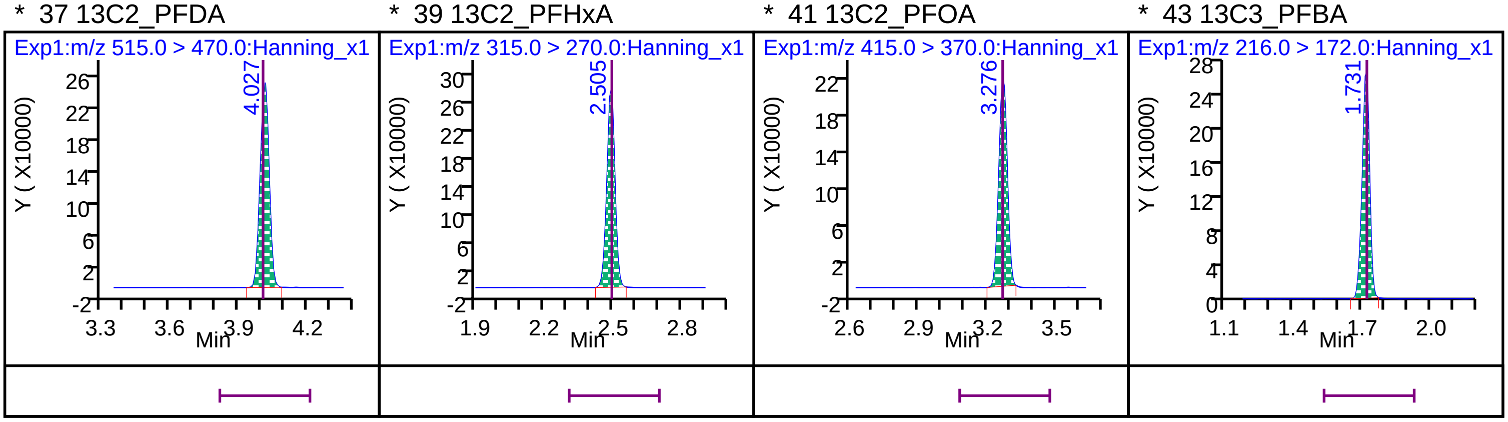
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



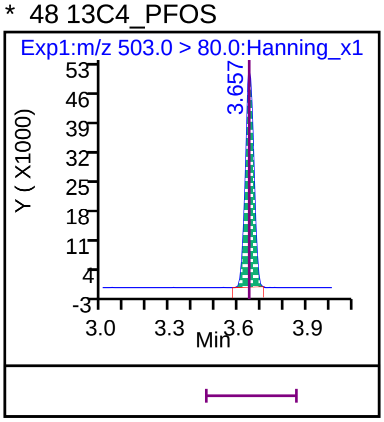
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

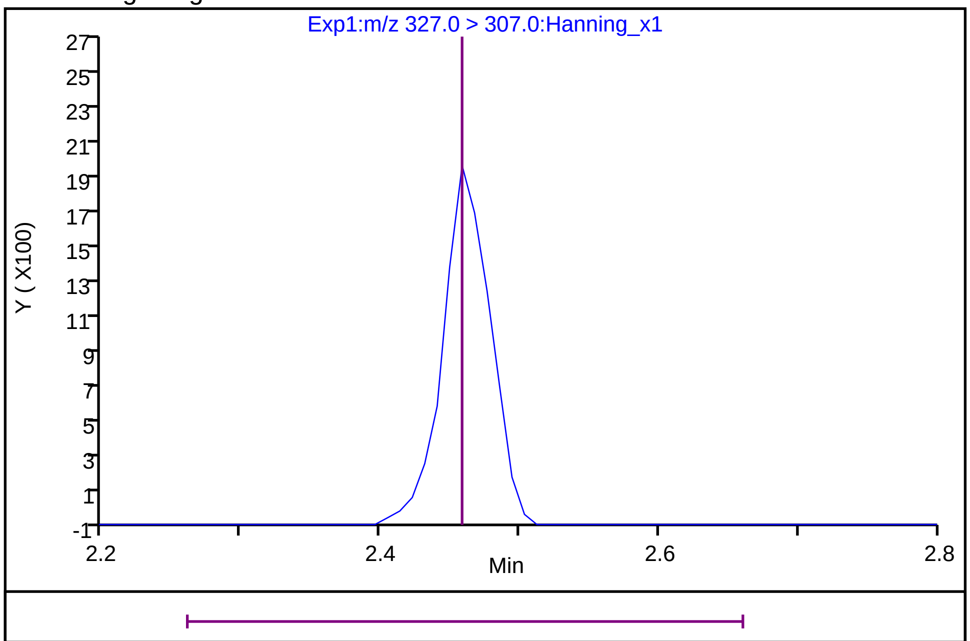
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

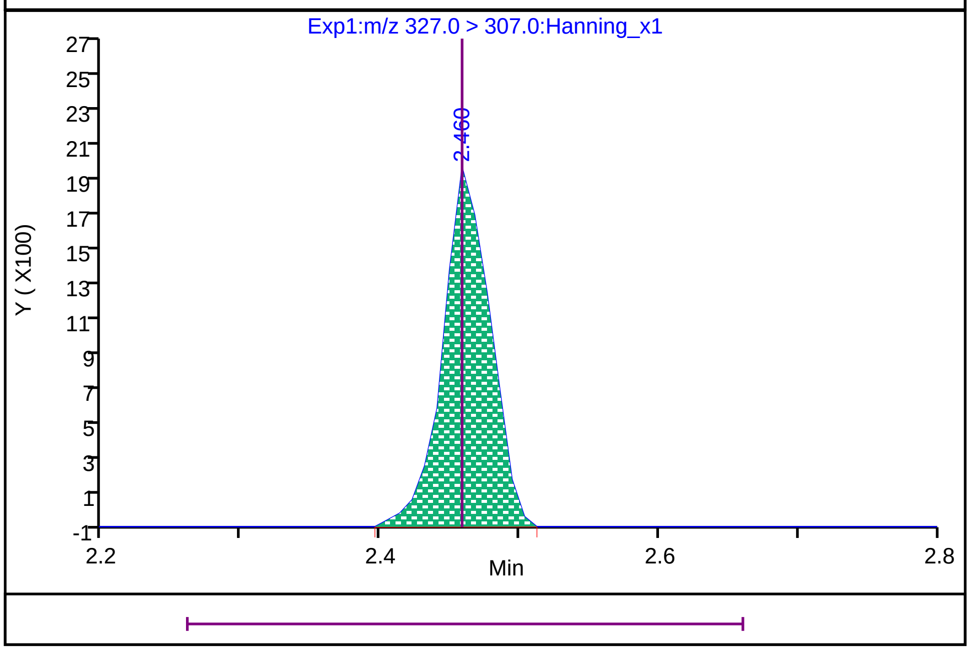
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected
Expected RT: 2.460
RT Window: 2.260-2.660



RT: 2.460
Area: 4592
Amount: 88.973
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:54
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

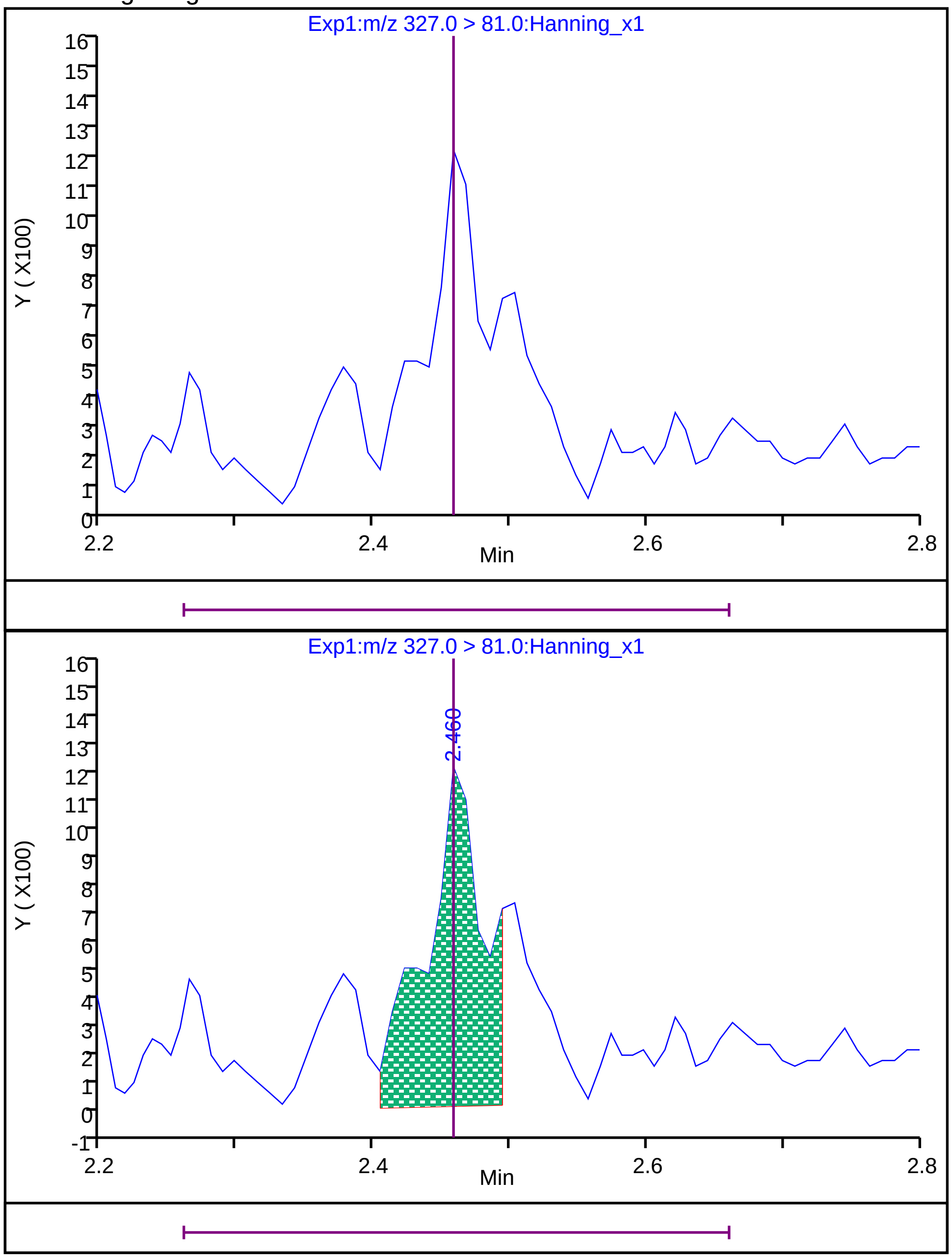
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

1 4:2 FTS, CAS: 757124-72-4

Not Detected
Expected RT: 2.460
RT Window: 2.260-2.660

Processing Integration Results



RT: 2.460
Area: 3250
Amount: 88.973
Amount Units: ng/L

Data Editor: justin.gavin, 08-Nov-2021 08:49:37
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

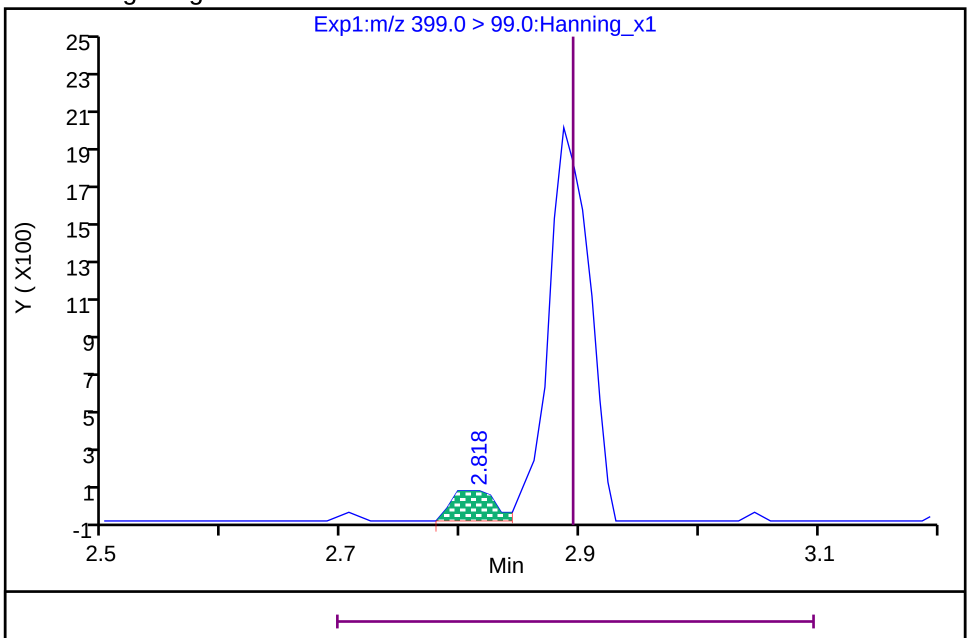
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

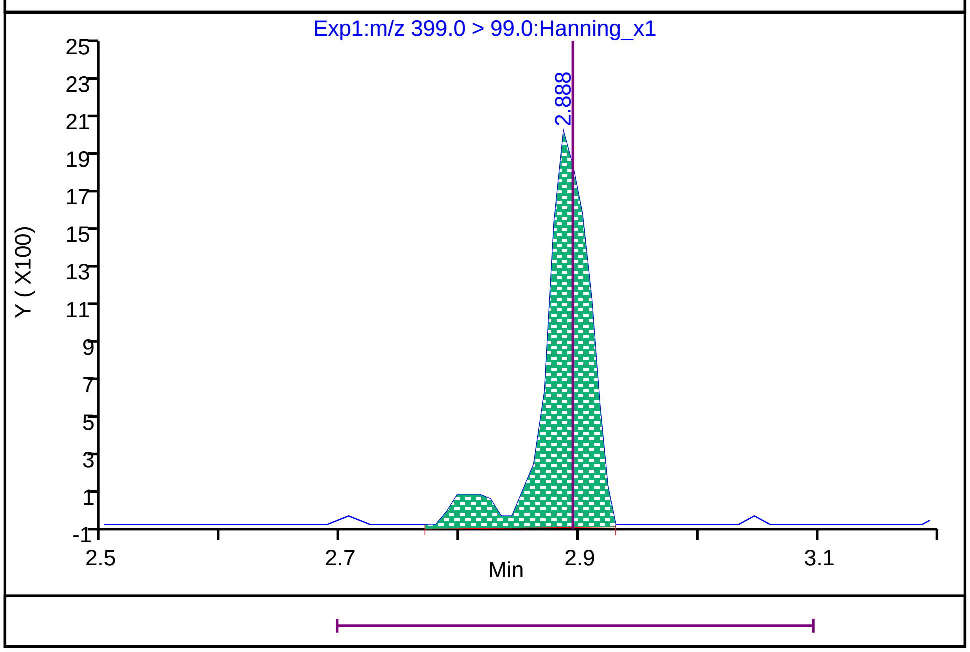
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 392
Amount: 88.248
Amount Units: ng/L



RT: 2.888
Area: 5261
Amount: 88.248
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:21

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

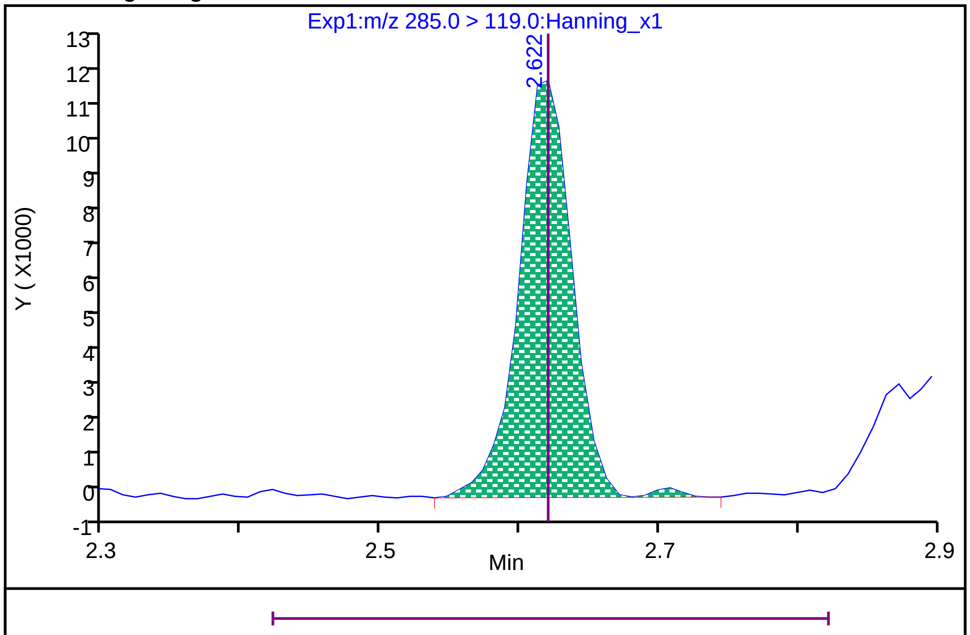
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

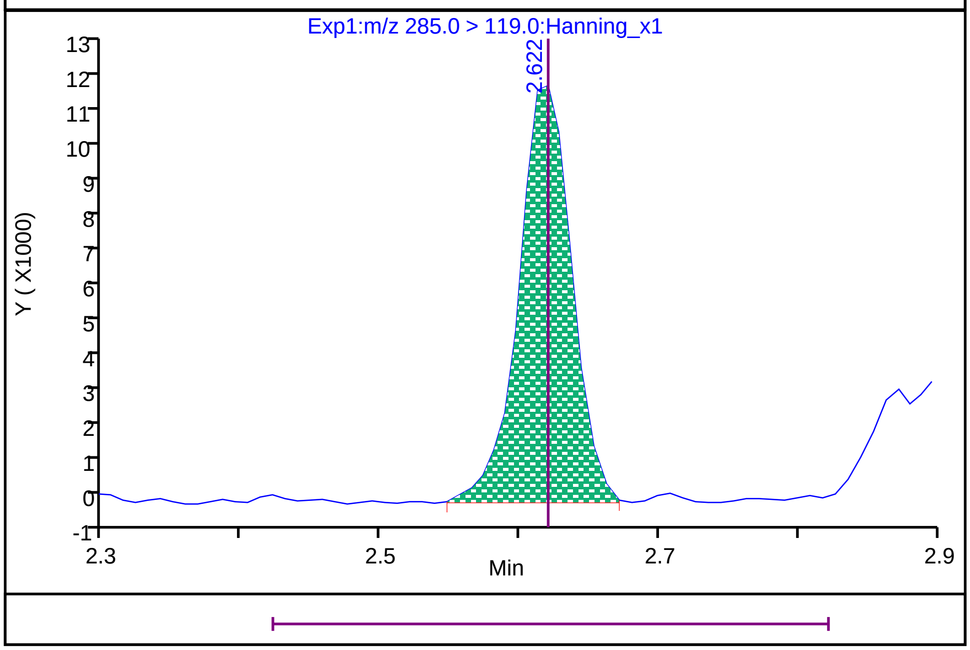
28 GenX, CAS: 13252-13-6

Processing Integration Results

RT:	2.622
Area:	29787
Amount:	191.71
Amount Units:	ng/L



RT:	2.622
Area:	29374
Amount:	189.30
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:49:46

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	77
Sample Info:	ID ICAL 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	635065	20	>100:1			1000.00	1021.54	99.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	133983	24	>100:1			200.00	200.05		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	576704	16	>100:1			1000.00	1008.94	99.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	134953	14	>100:1			200.00	207.91		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	175591	16	>100:1			1000.00	1015.15	98.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	38745	18	>100:1	Target = 3.53		176.80	176.94		
298.9 > 99	44	2.183	2.183		10365	16	>100:1	3.73 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	0/-1	28001	15	>100:1	Target = 3.10		187.60	172.07		
349 > 99	44	2.532	2.531		11219	17	60:1	2.49 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	118122	17	>100:1			5000.00	5216.55	105.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	8/7	9042	22		Target = 1.75		186.80	173.63		
327 > 81	63	2.469	2.460		7137	22	10.0:1	1.26 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	1	647409	17	>100:1			1000.00	994.05	97.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/0	137580	17	>100:1	Target = 18.91		200.00	204.38		
313 > 119	49	2.505	2.505		7294	15	53:1	18.86 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	1	1200102	19	>100:1			5000.00	5178.29	99.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	61561	19	>100:1	Target = 0.79		400.00	396.03		
285 > 185	66	2.622	2.622		74073	18	>100:1	0.83 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	547463	18	>100:1			1000.00	1031.12	102.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	0/-1	120846	17	>100:1	Target = 3.80		200.00	200.88		
363 > 169	47	2.888	2.880		32050	19	>100:1	3.77 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	130188	19	>100:1			1000.00	1036.20	100.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/5	28059	25	>100:1	Target = 2.89	6.88	182.00	196.04		M
399 > 99	45	2.896	2.896		8795	22		3.19 (1.44-4.34)	10.98				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	179065	19	>100:1	Target = 3.23		188.40	177.36		
377 > 85	45	2.925	2.919		60441	24	>100:1	2.96 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.287	3.276	1/0	25884	41	>100:1	Target = 3.12		190.40	193.58		
449 > 99	45	3.276	3.276		7710	16	58:1	3.35 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	1	90798	21	>100:1			5000.00	5044.34	96.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.255	3.248	1/0	8060	27	47:1	Target = 1.75		189.60	187.49		
427 > 81	64	3.255	3.248		4906	19	9.5:1	1.64 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	527785	21	>100:1			1000.00	1005.92	96.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/-1	109896	22	90:1	Target = 2.89		200.00	203.19		
413 > 169	53	3.276	3.276		36021	28	>100:1	3.05 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	122371	25	>100:1			1000.00	988.11	92.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	1/0	27516	40	92:1	Target = 3.30	3.84	185.60	188.85		
499 > 99	54	3.657	3.662		8671	34	>100:1	3.17 (1.65-4.95)	7.44				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/0	89193	17	>100:1			186.40	192.46		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	17079	19	>100:1	Target = 3.08		192.00	173.96		
549 > 99	54	4.006	4.006		5014	19		3.40 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/0	20092	14		Target = 2.72		192.80	209.82		
599 > 99	54	4.318	4.318		6361	18	28:1	3.15 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	1/0	85131	16	>100:1			188.40	203.20		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	0/-1	20350	17		Target = 3.27		193.60	193.39		
699 > 99	54	4.851	4.842		6453	17	66:1	3.15 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	650158	20	>100:1			1000.00	1015.27	101.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	142641	21	>100:1	Target = 6.51		200.00	203.54		
463 > 169	56	3.668	3.662		21007	27	>100:1	6.79 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	270652	18	>100:1			1000.00	1009.68	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	55580	18	>100:1	Target = 41.63		200.00	195.17		
498>478	55	3.904	3.896		2003	18		27.74 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	12	576412	15	>100:1			1000.00	1003.05	100.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/-11	131939	15	>100:1	Target = 13.80		200.00	196.69		
513 > 169	51	4.017	4.016		12268	14	65:1	10.75 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	91470	14	>100:1			5000.00	5292.02	116	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	0/-1	9272	17	25:1	Target = 1.94		191.60	224.30		
527 > 81	65	4.027	4.016		4188	14	15:1	2.21 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.631	4.631	1/0	7768	15	>100:1	Target = 3.54		192.80	167.40		
627 > 80	65	4.614	4.631		2468	23	4.0:1	3.14 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	751315	17	>100:1			5000.00	4971.89	97.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/1	26644	29	92:1	Target = 1.37	7.51	200.00	220.97		M
570 > 483	58	4.178	4.178		20187	28	86:1	1.31 (0.68-2.05)	4.44				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	89958	13	>100:1			1000.00	997.44	99.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.298	1/0	17777	16	>100:1			200.00	180.83		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	50166	14	>100:1			1000.00	1066.43	111.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/-1	10798	16	85:1	Target = 1.11		200.00	198.59		
512 > 219	57	4.318	4.318		10129	18	82:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	0	659630	16	>100:1			5000.00	5093.15	95.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/1	26030	29	56:1	Target = 1.51	5.75	200.00	202.36		
584 > 526	60	4.348	4.348		19087	28	51:1	1.36 (0.75-2.26)	2.06				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	622182	16	>100:1			1000.00	1033.10	98	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	0/-1	126197	14	>100:1	Target = 14.52		200.00	209.33		
563 > 169	52	4.348	4.338		9300	18	47:1	13.56 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.455	1	104069	15	>100:1			1000.00	981.07	102.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	18829	17	>100:1			200.00	185.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	43224	14	>100:1			1000.00	1005.21	100.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	11542	14	>100:1	Target = 1.06		200.00	212.42		
526 > 219	59	4.483	4.483		10137	13	67:1	1.13 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	600845	16	>100:1			1000.00	1000.85	99.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	137695	16	27:1	Target = 10.70		200.00	214.97		
613 > 169	38	4.623	4.622		11171	21	68:1	12.32 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	1/0	127509	15	>100:1	Target = 8.31		200.00	201.90		
663 > 169	38	4.877	4.877		15054	23	98:1	8.47 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	811547	22	>100:1			1000.00	998.22	96.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	12/12	147677	22	21:1	Target = 12.17		200.00	208.46		
713 > 169	42	5.112	5.106		11598	23	>100:1	12.73 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.552	5.544	0	858869	22	>100:1			1000.00	989.44	97.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.552	5.552	0	113659	21	16:1	Target = 10.43		200.00	206.63		
813 > 269	40	5.552	5.552		11168	21	>100:1	10.17 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	6.021	6.026	0	158633	32	9.1:1	Target = 13.67		200.00	202.88		
913 > 319	40	6.017	6.026		11668	45	>100:1	13.59 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	635729	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	662023	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	531844	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	575690	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	1	131882	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

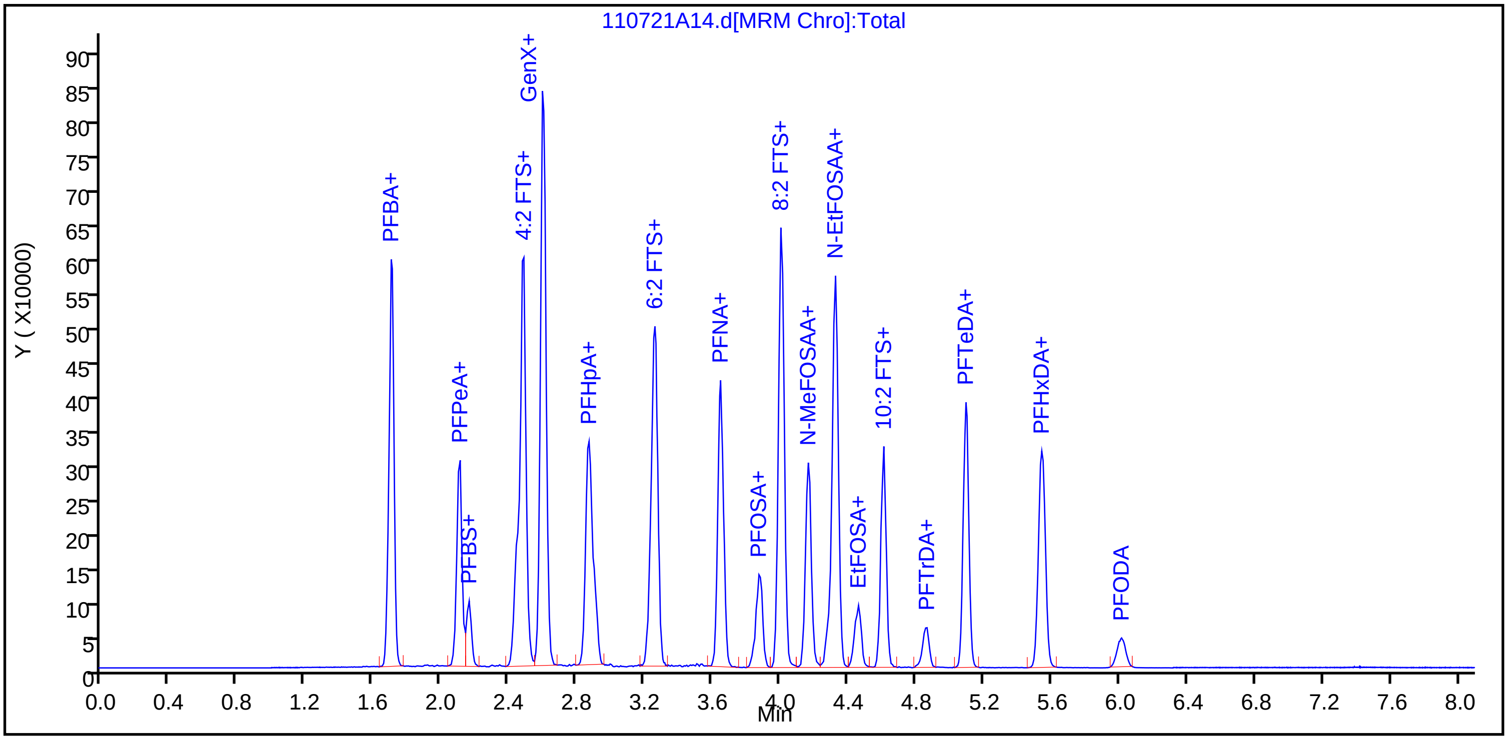
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

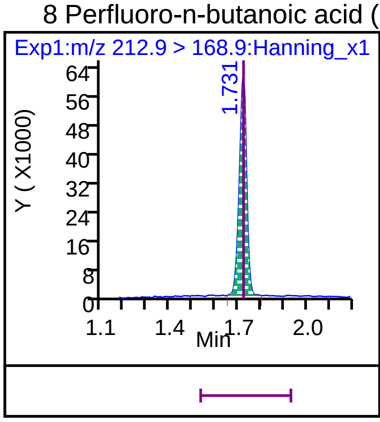
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

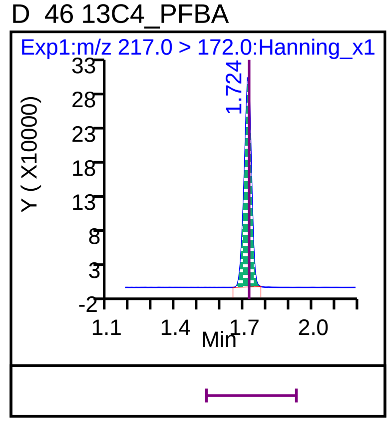
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



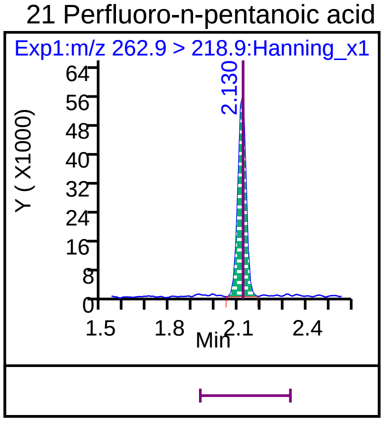
8 Perfluoro-n-butanoic acid (PFBA)



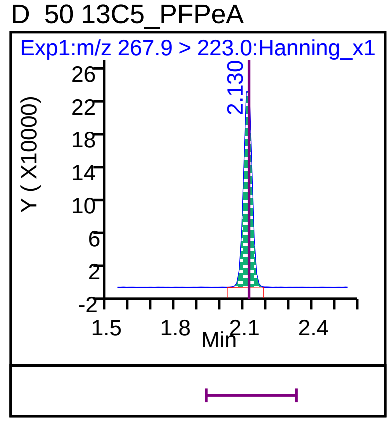
D 46 13C4_PFBA



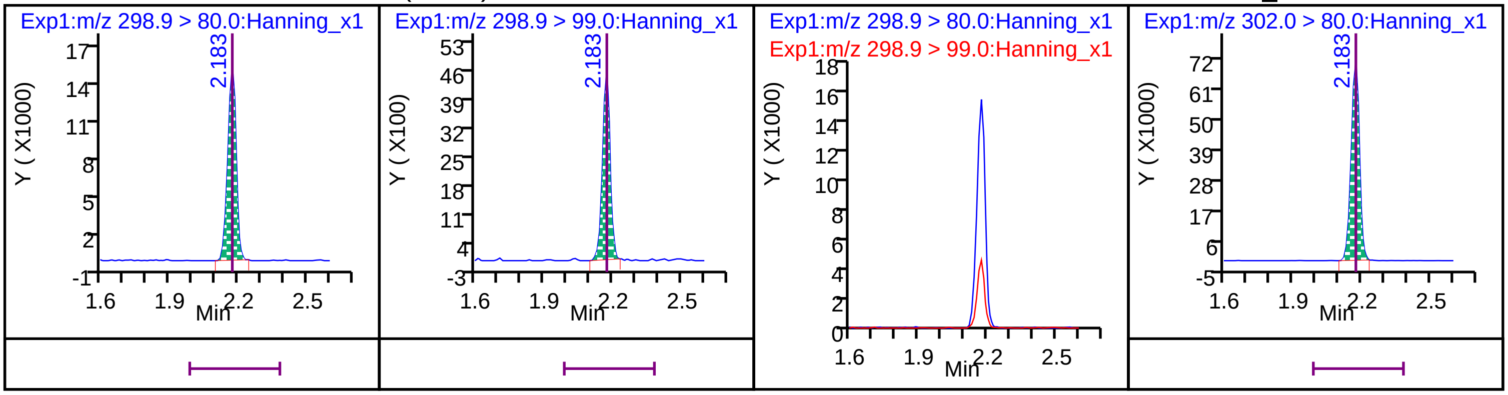
21 Perfluoro-n-pentanoic acid (PFPeA)



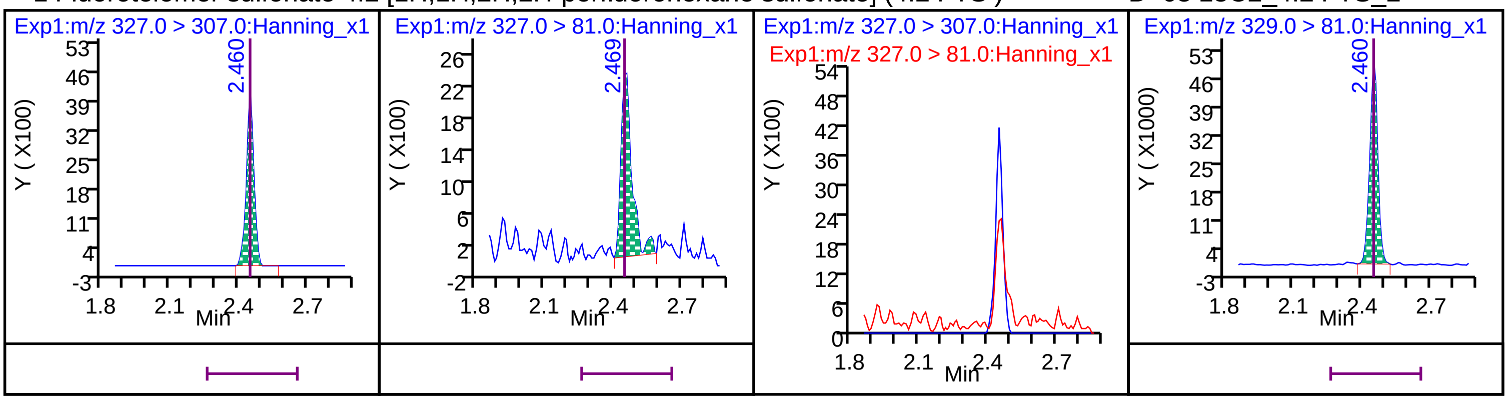
D 50 13C5_PFPeA



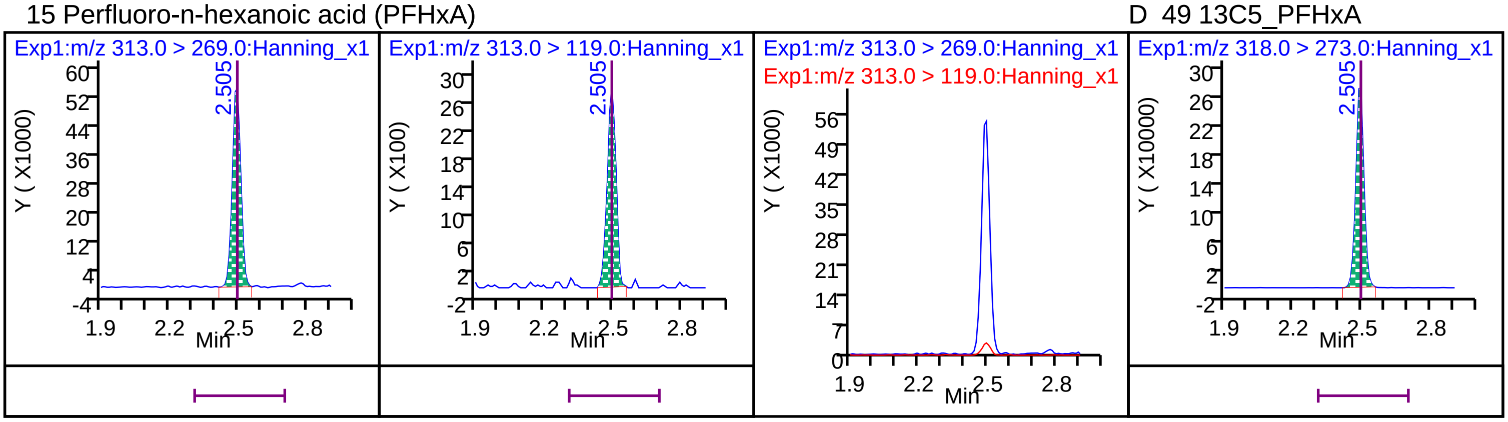
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



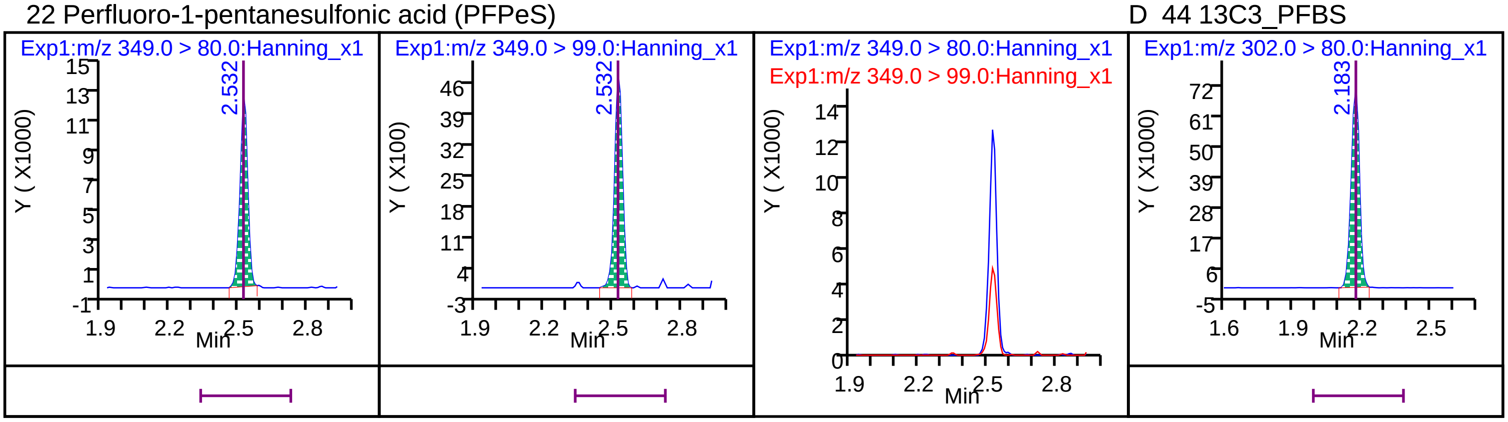
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



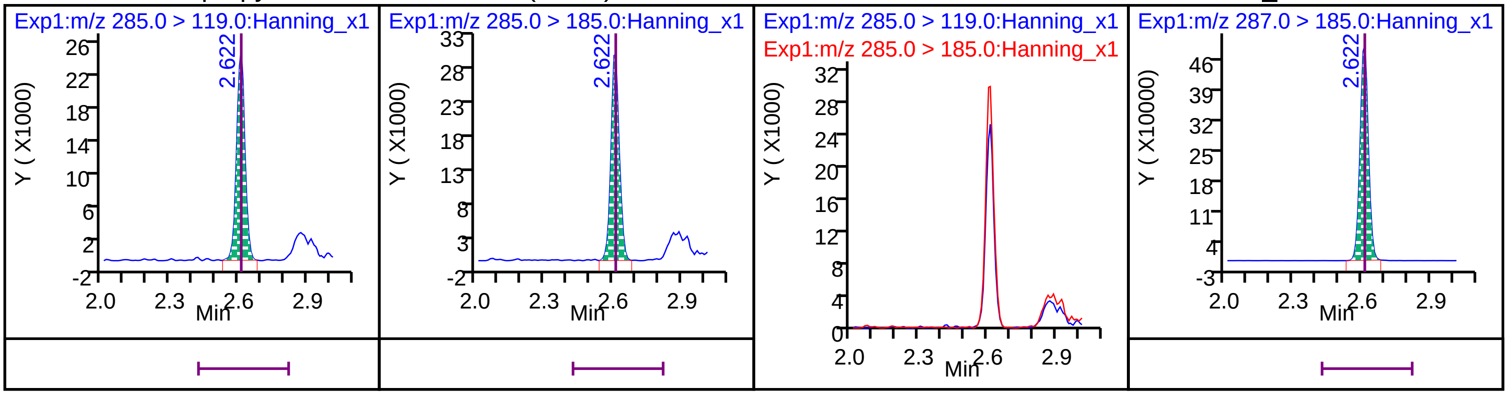
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



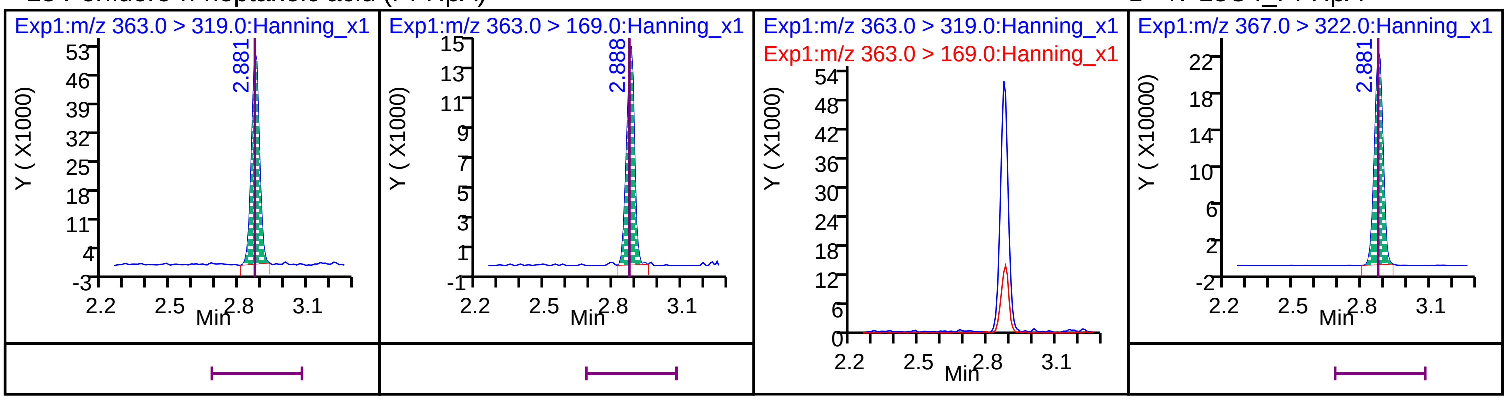
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



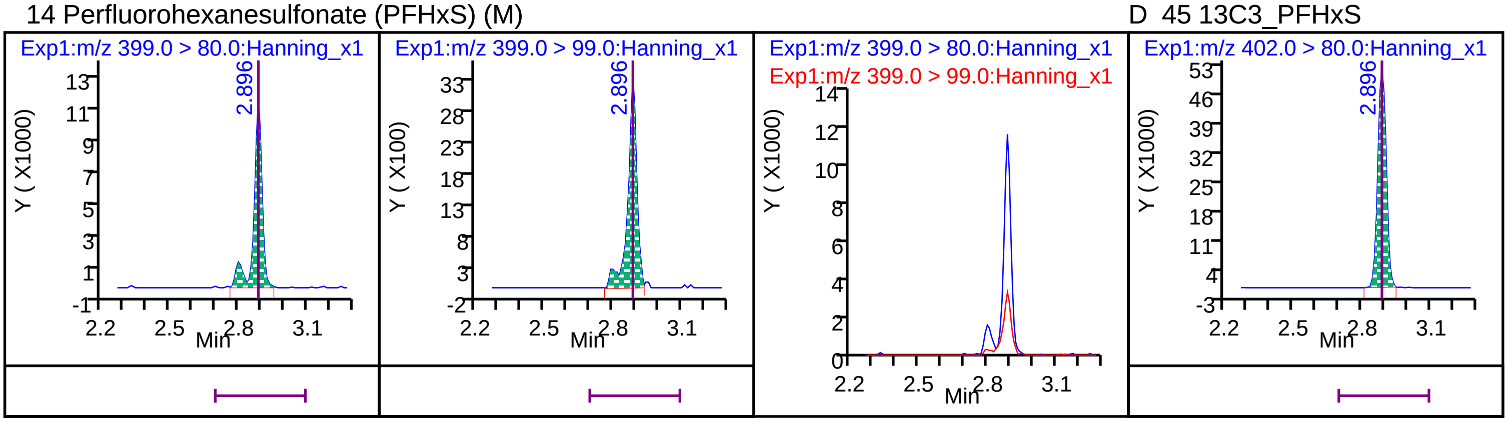
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



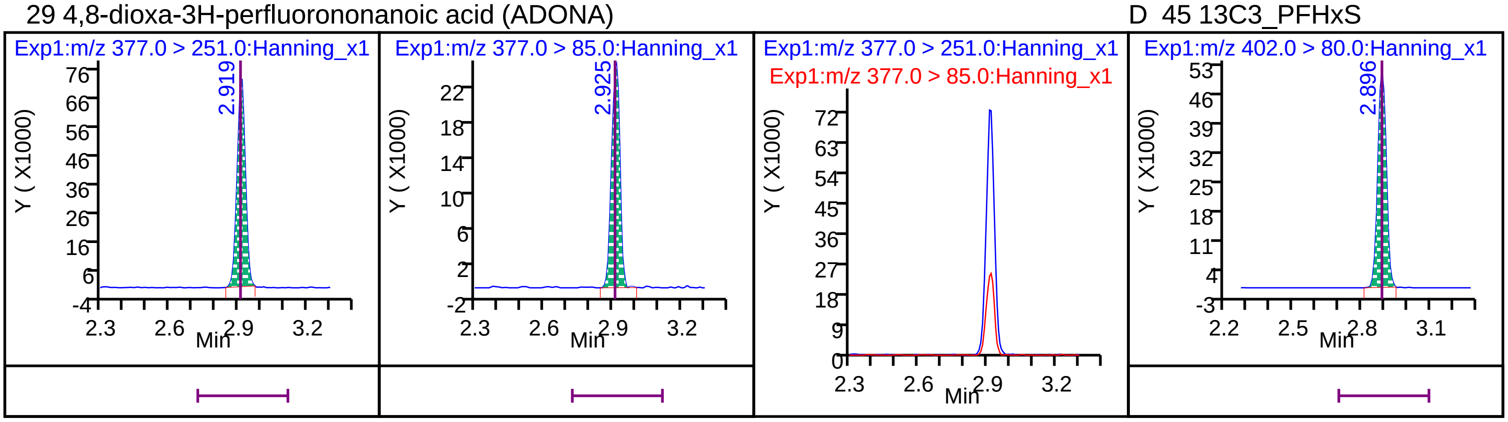
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



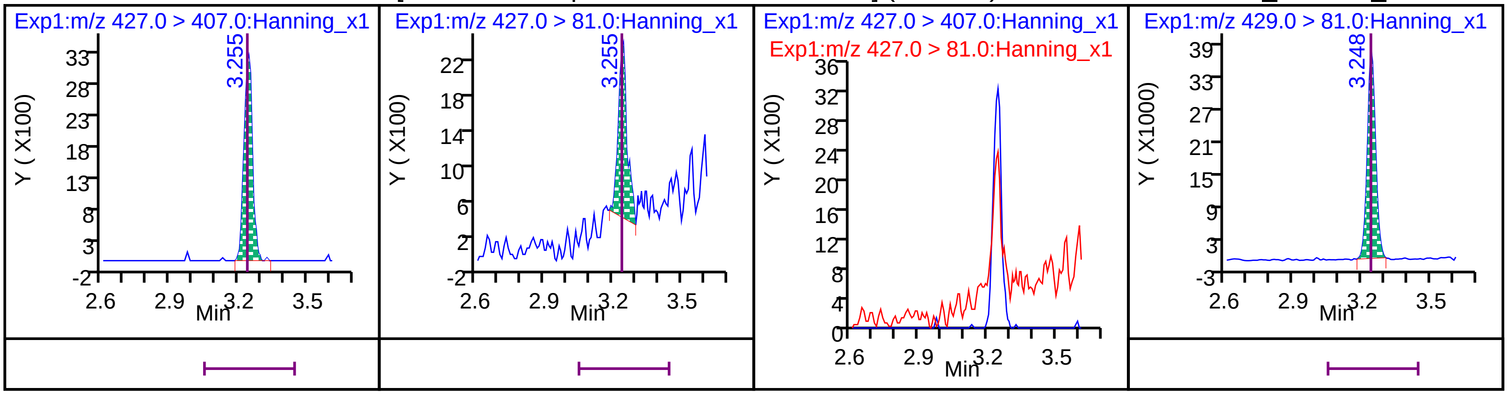
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



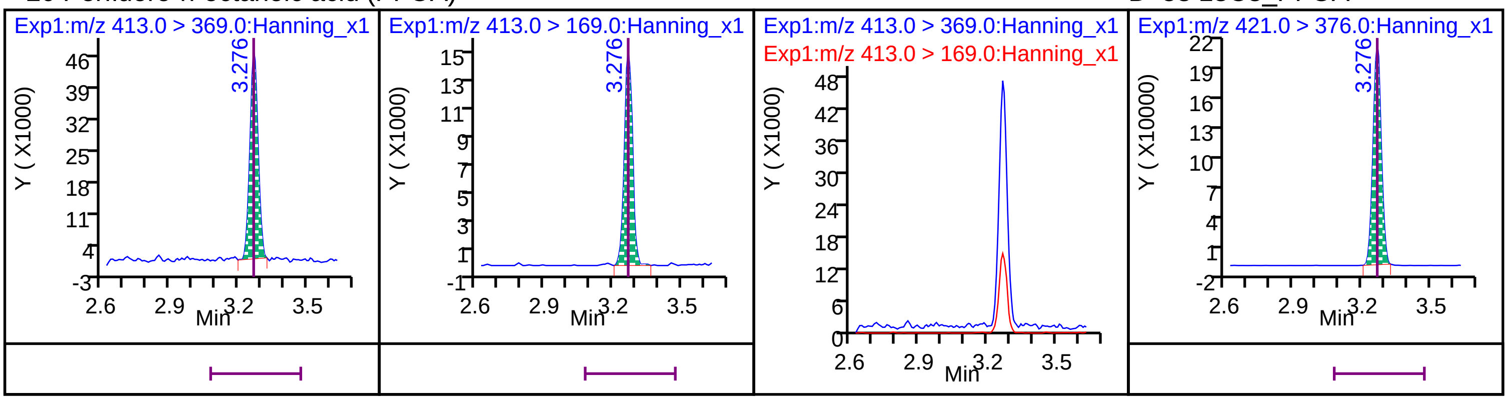
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



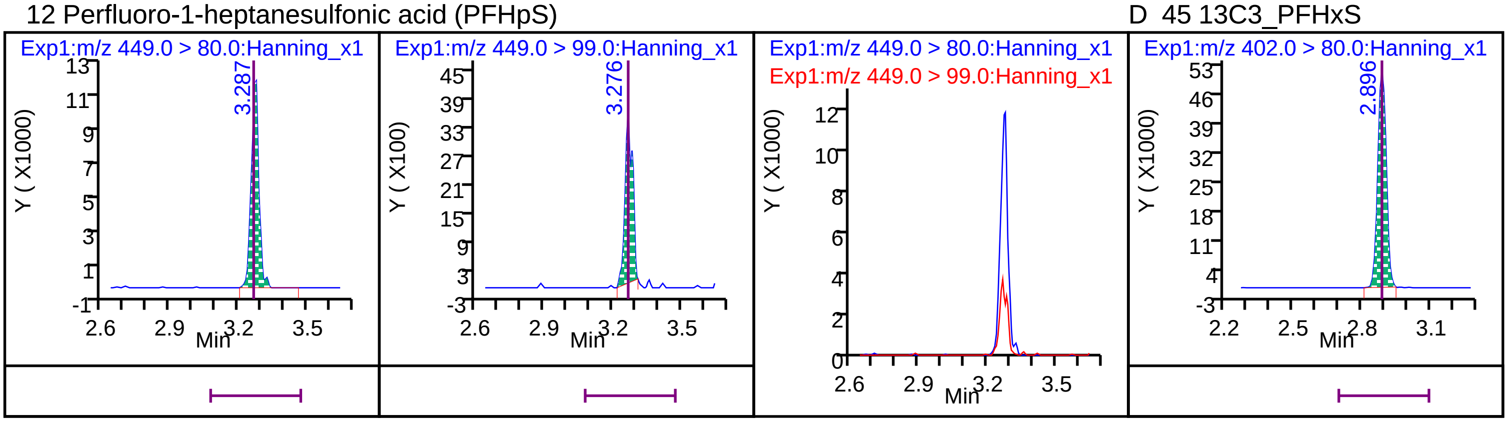
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



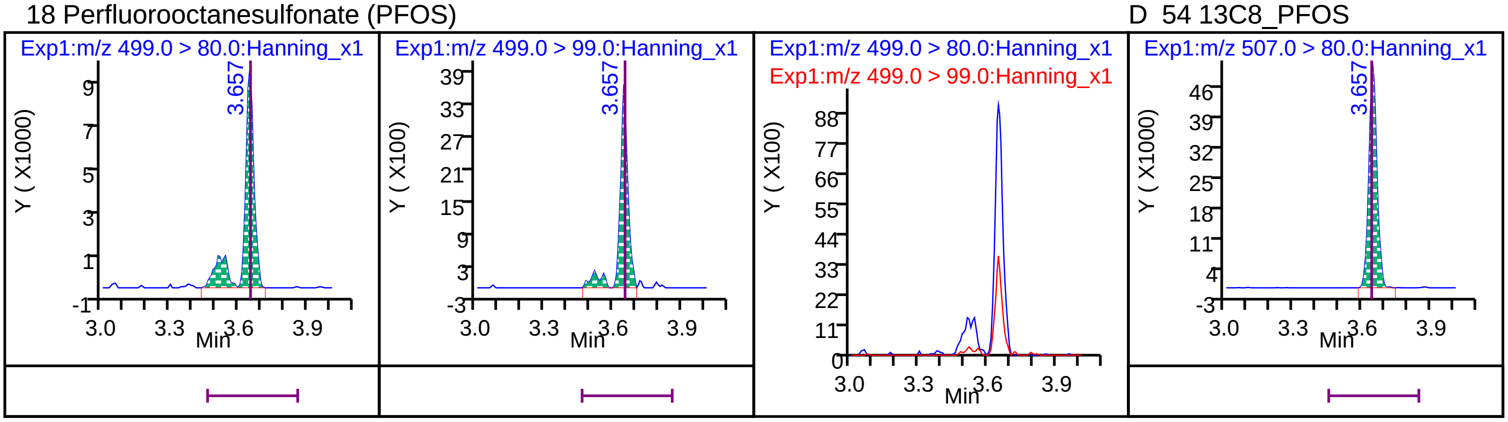
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



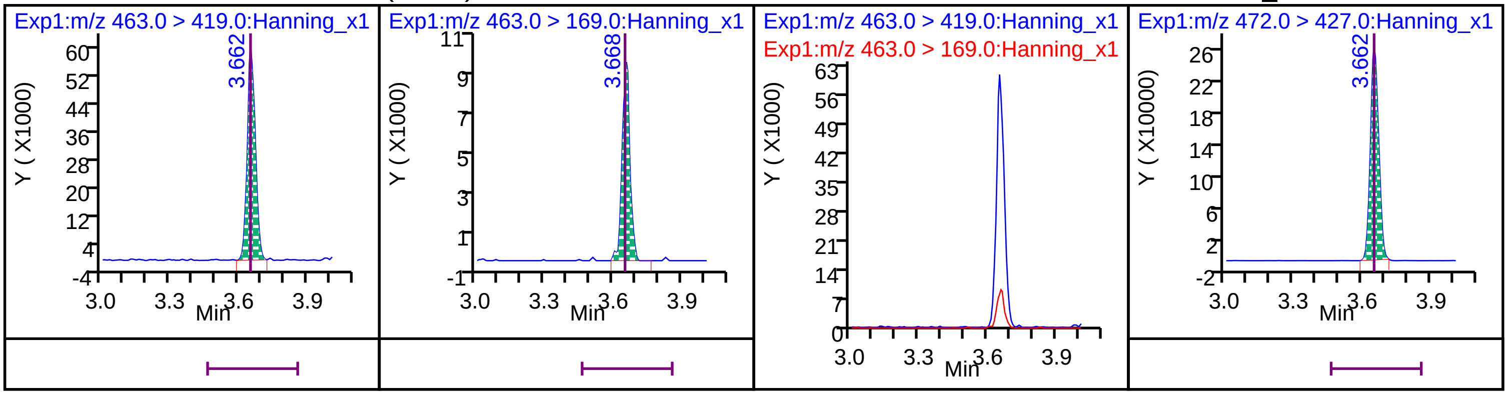
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



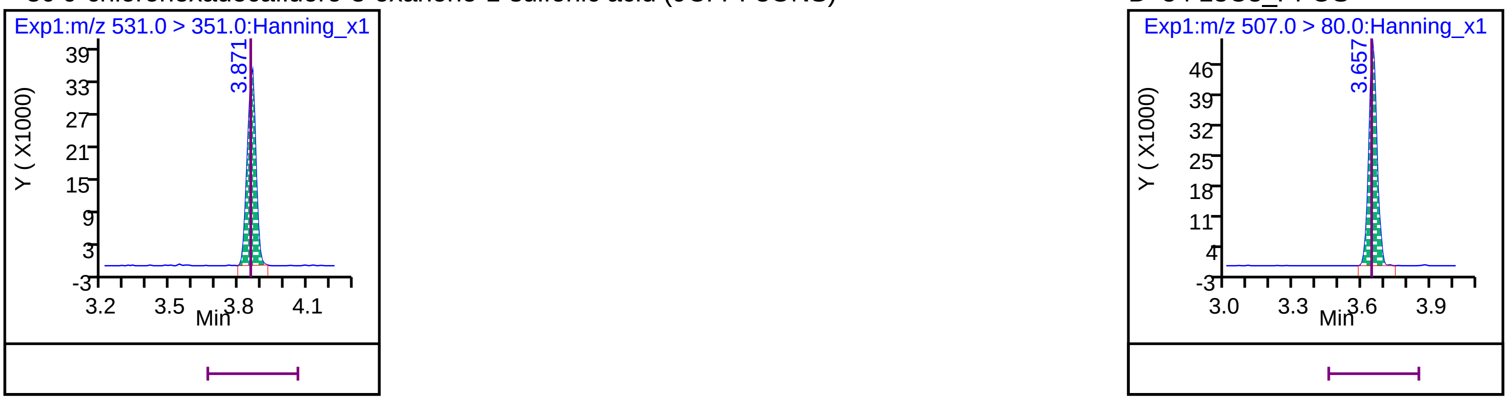
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



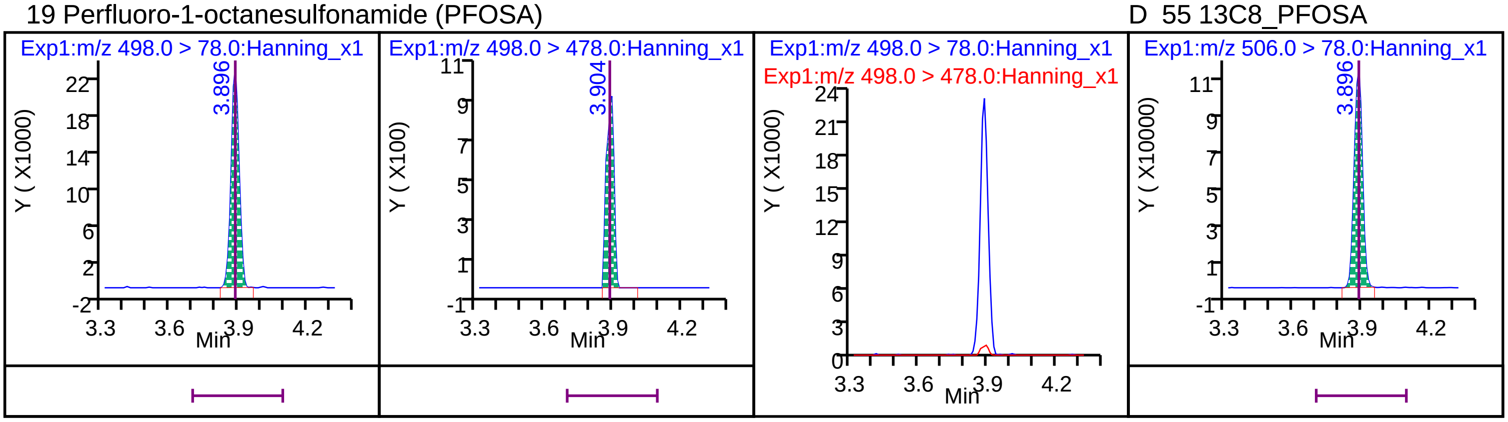
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



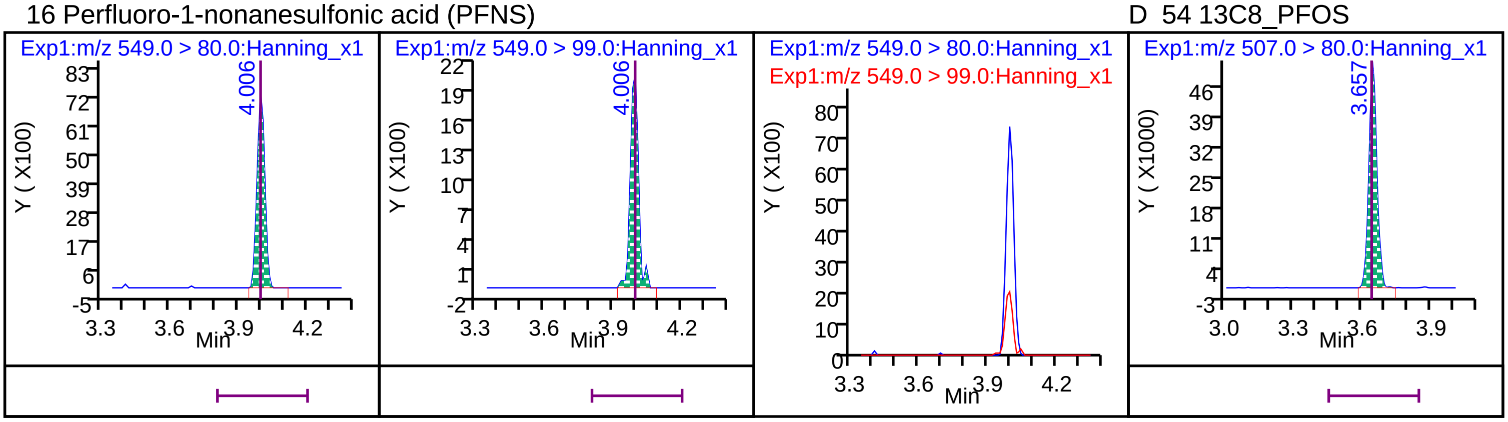
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



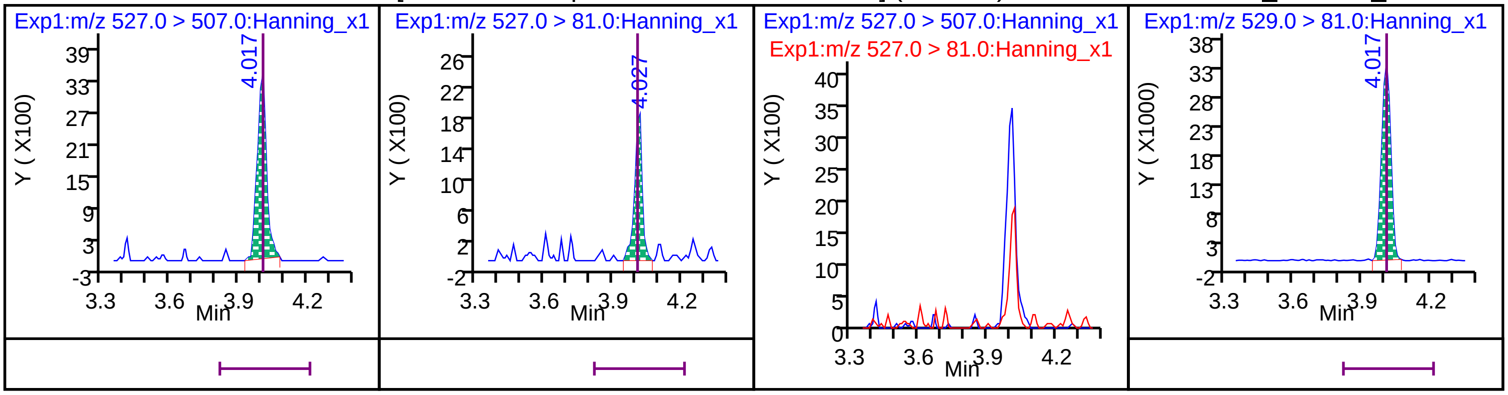
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



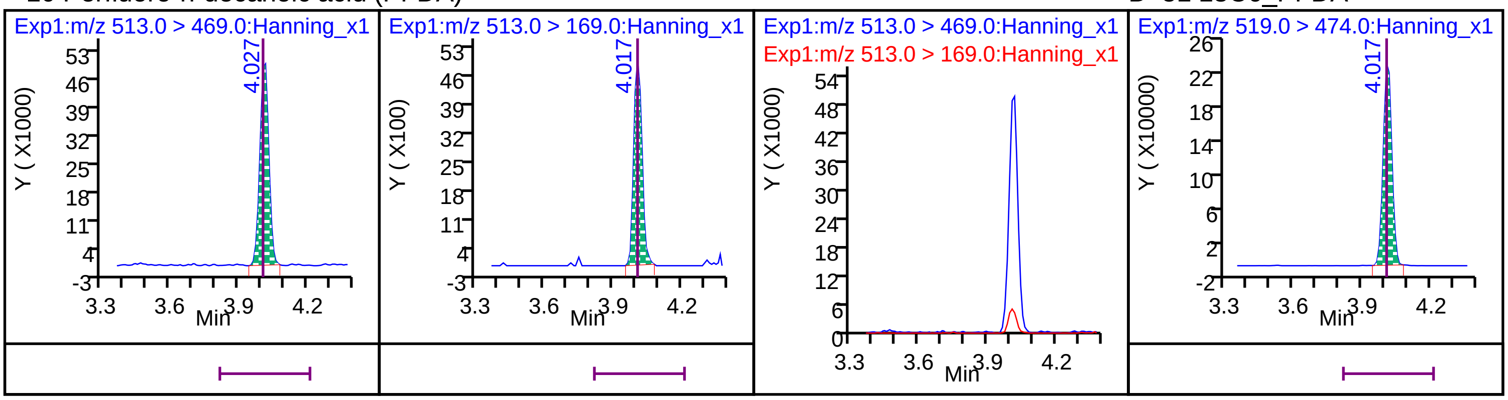
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



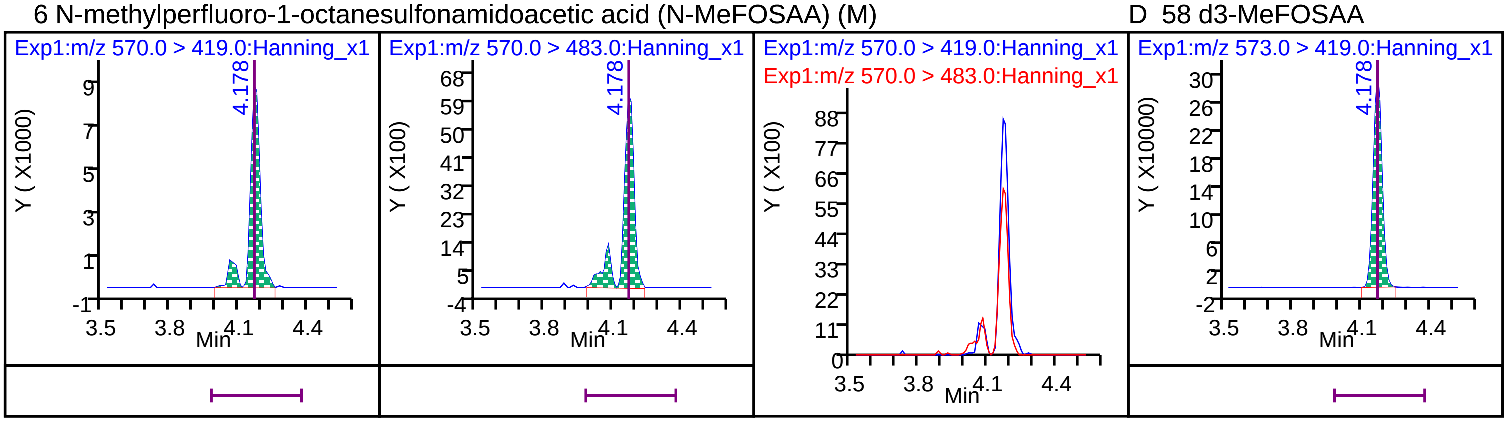
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

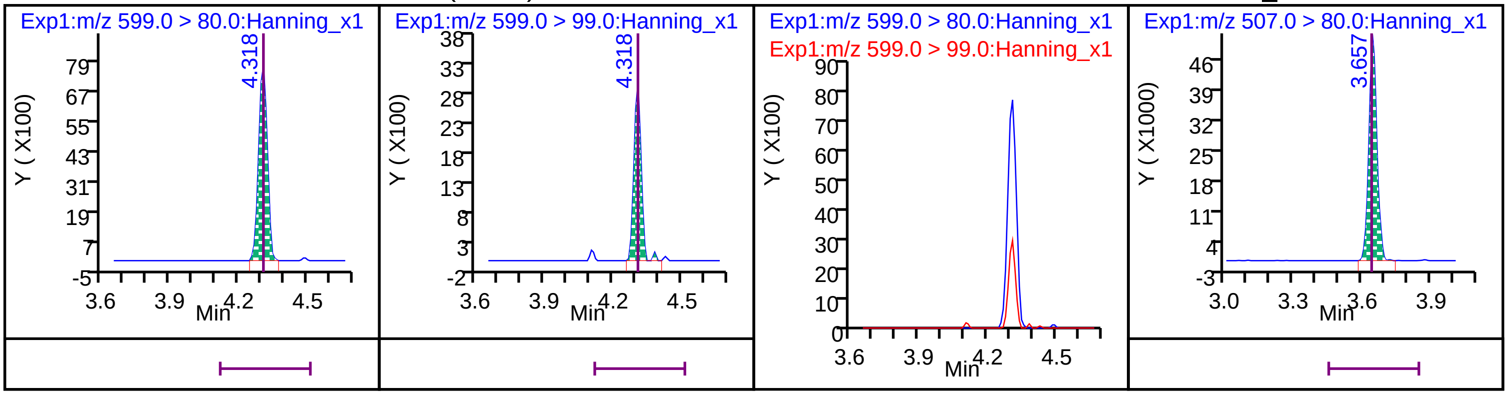


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

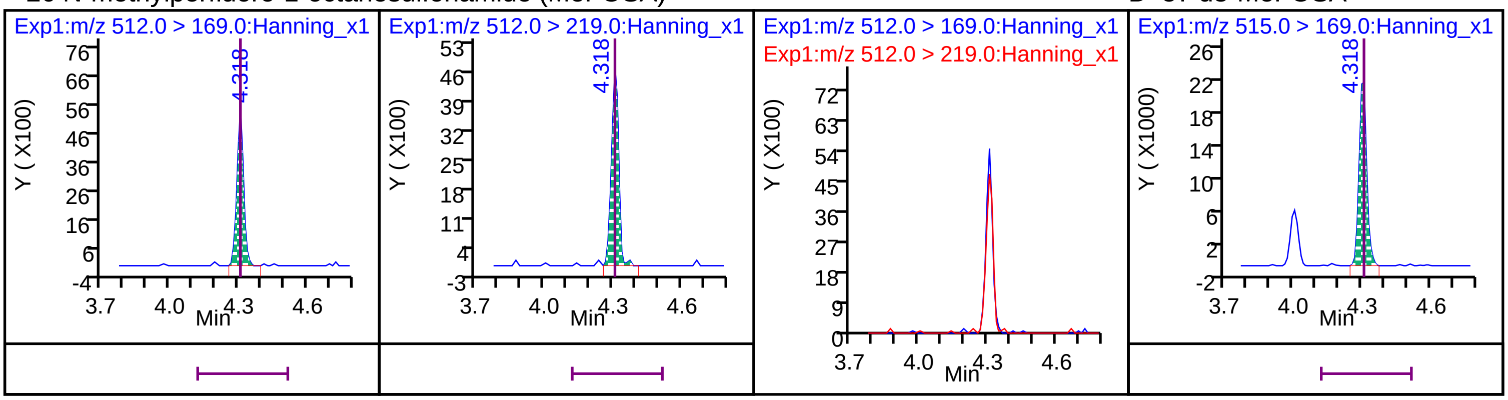
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

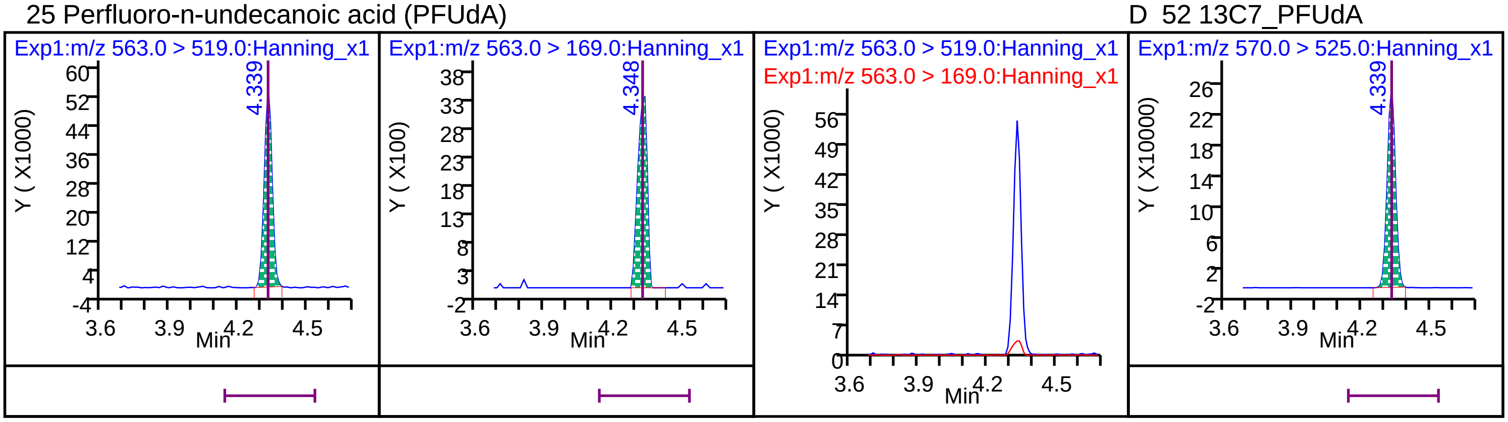
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



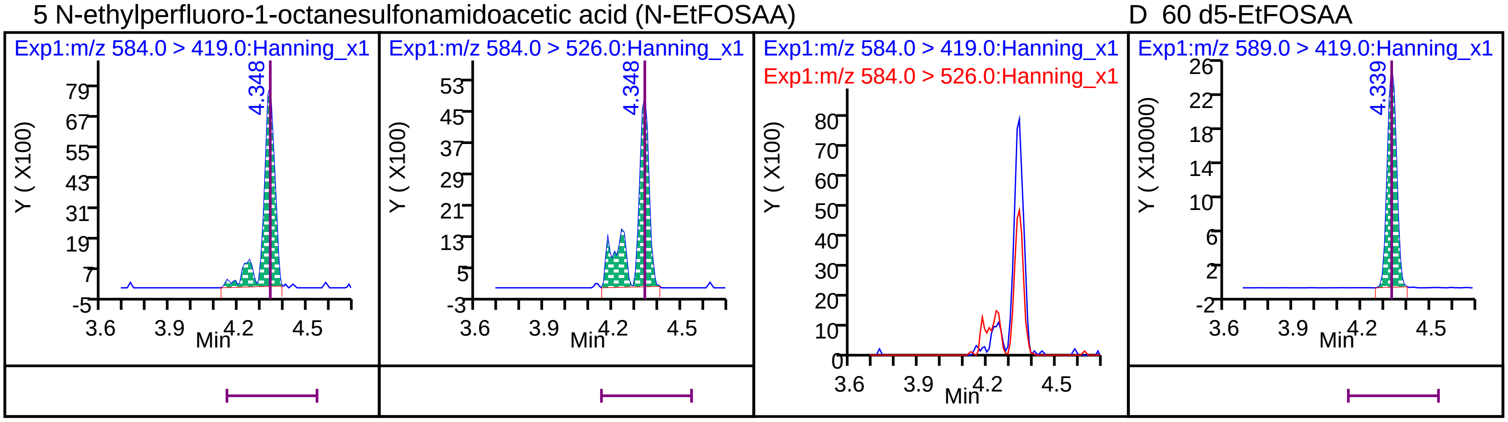
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



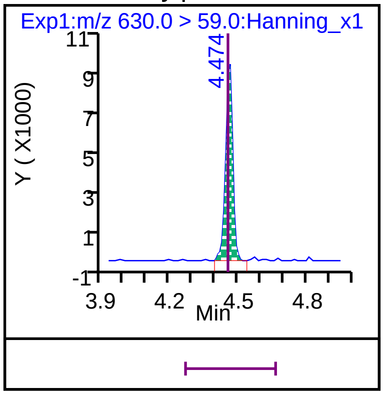
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



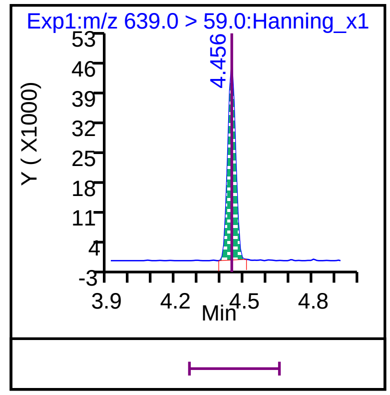
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



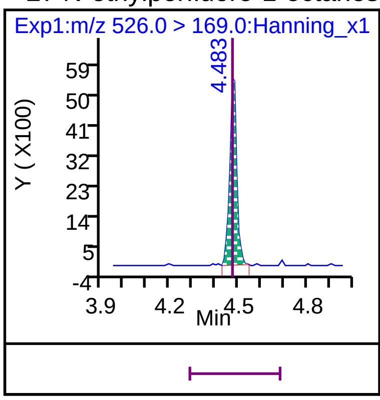
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

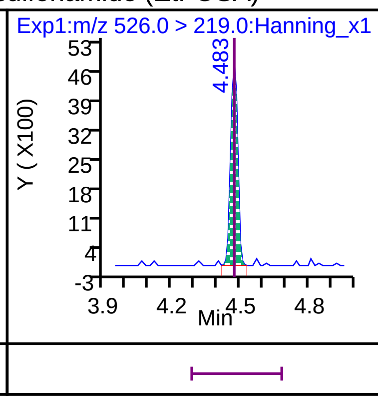


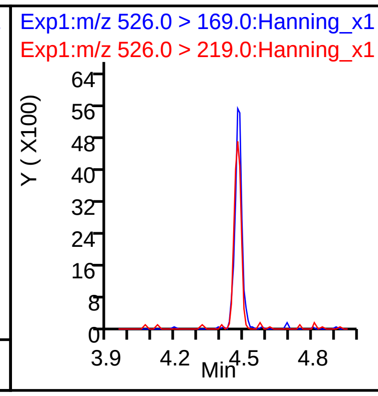
D 62 d9-EtFOSE



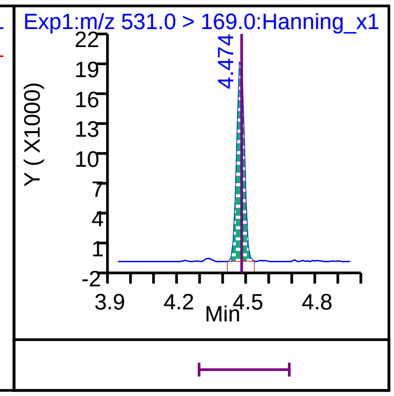
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



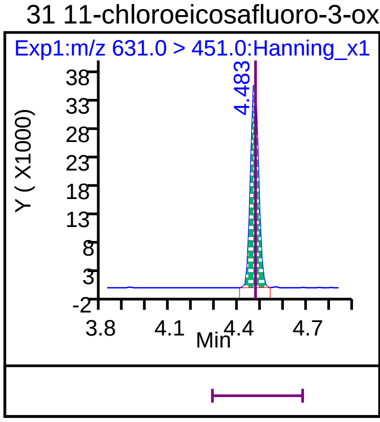




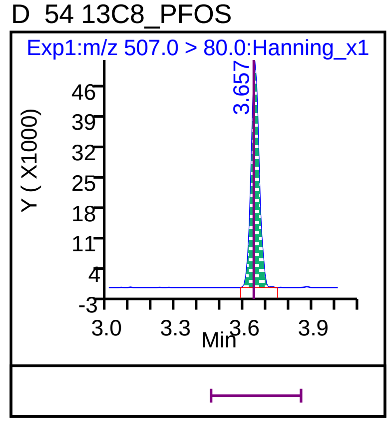
D 59 d5-EtFOSA



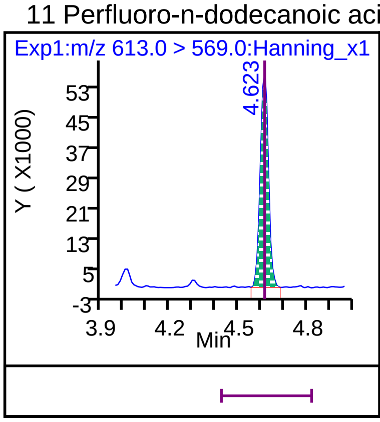
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

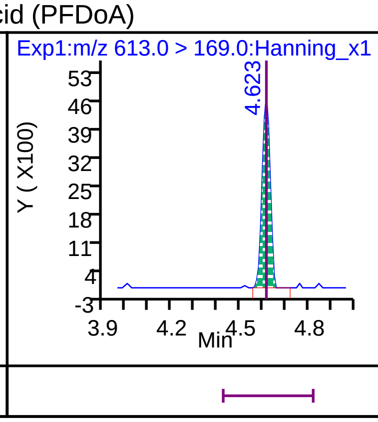


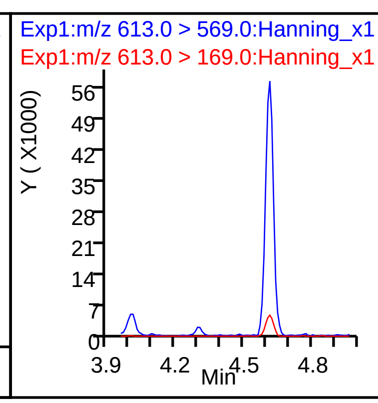
D 54 13C8_PFOS



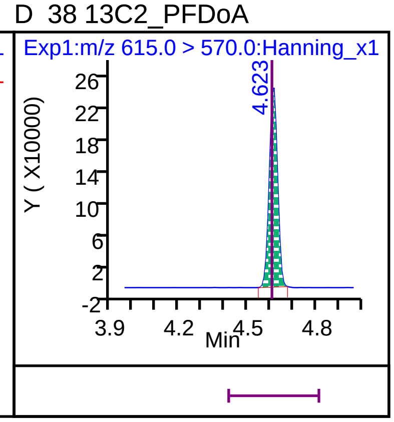
11 Perfluoro-n-dodecanoic acid (PFDoA)





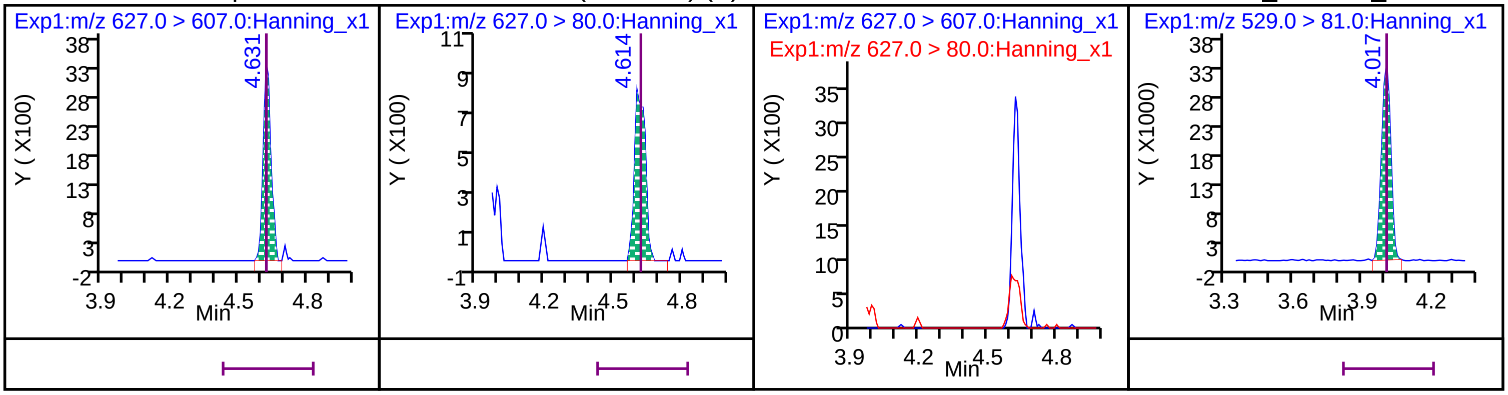


D 38 13C2_PFDoA

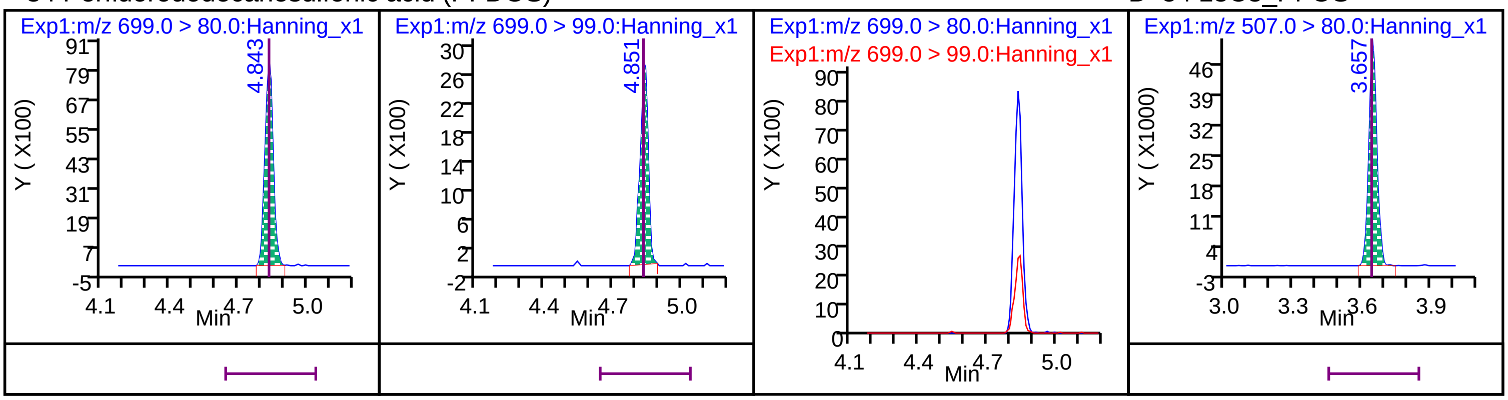


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

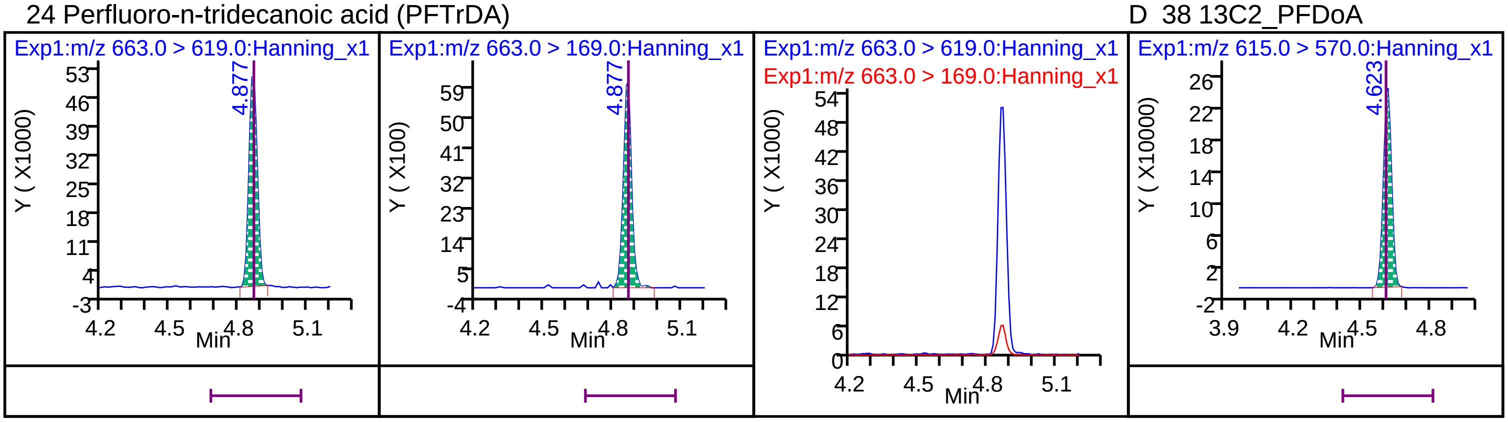
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



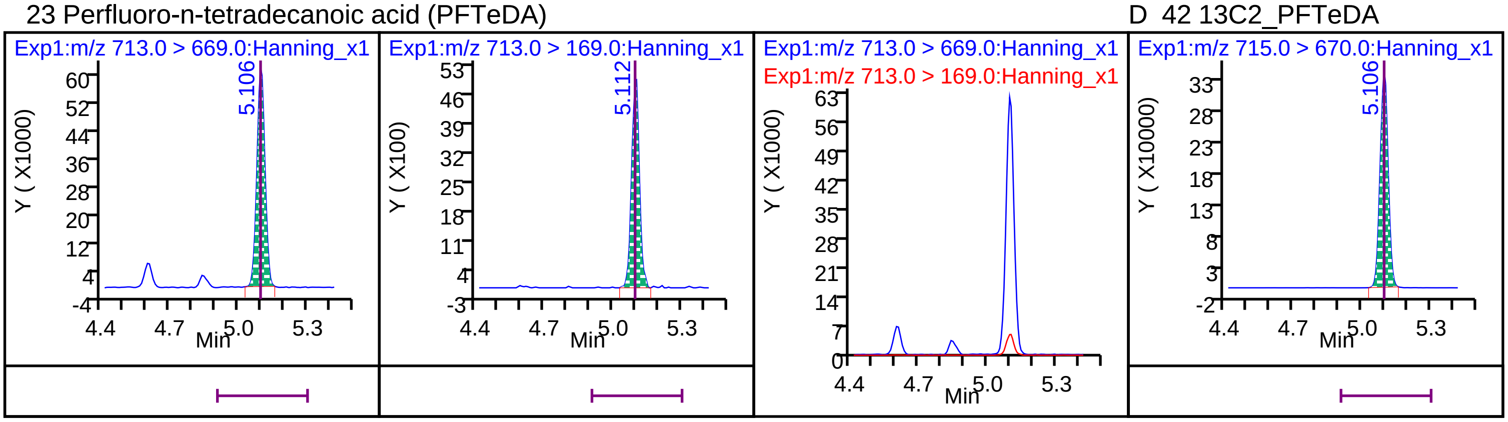
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



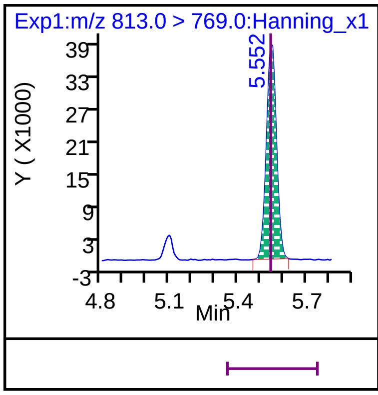
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

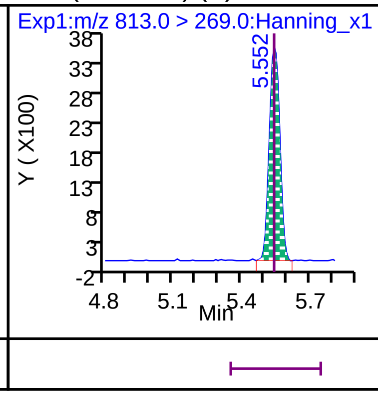


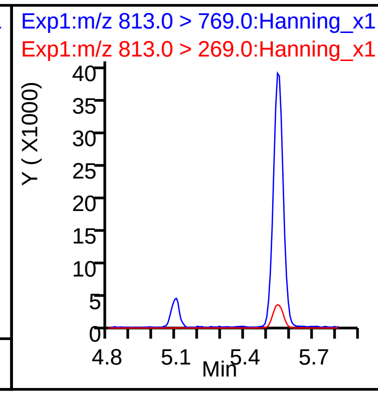
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



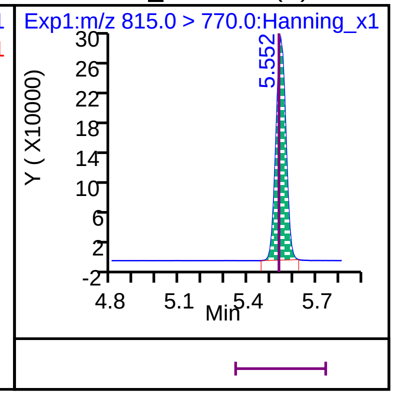
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A)



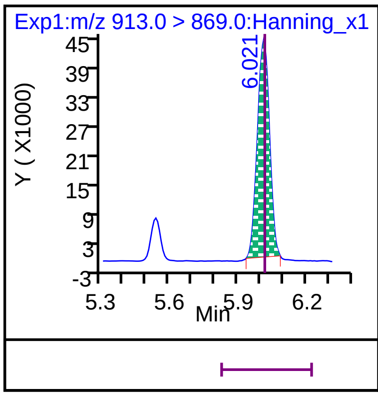


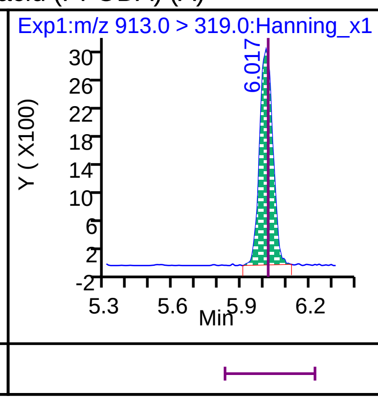


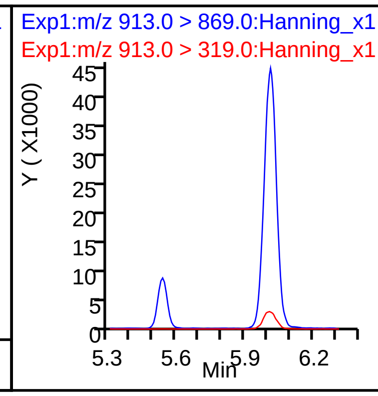
D 40 13C2_PFHxDA (A)



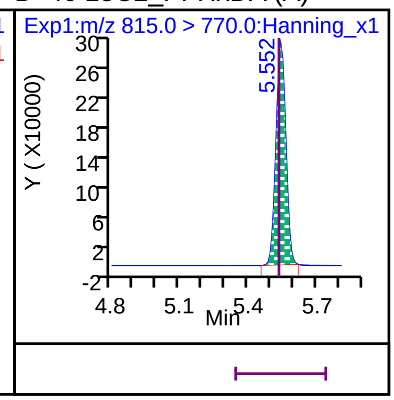
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



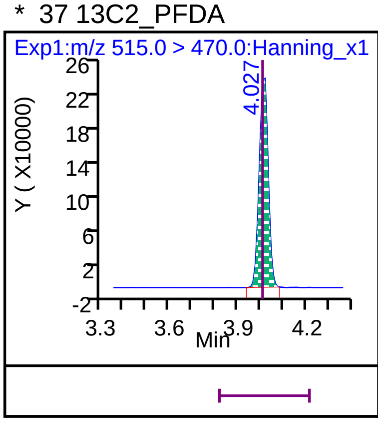




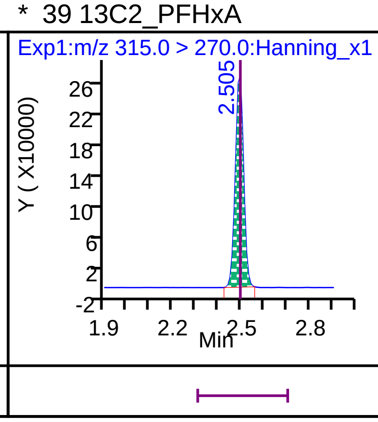
D 40 13C2_PFHxDA (A)



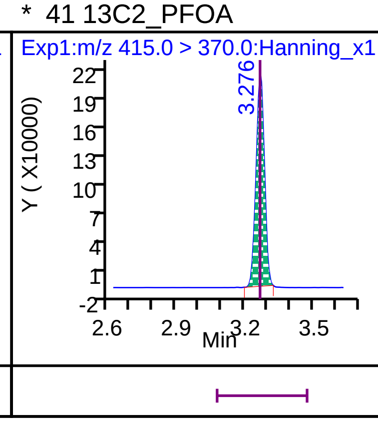
* 37 13C2_PFDA



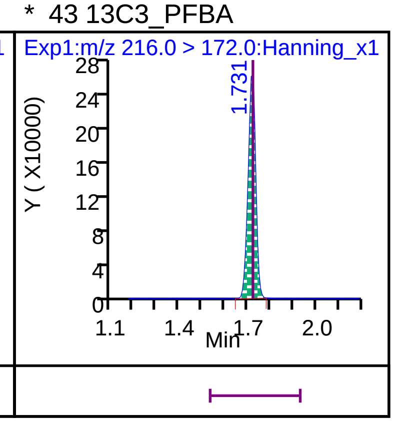
* 39 13C2_PFHxA



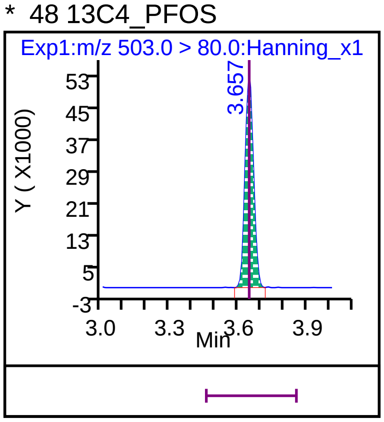
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

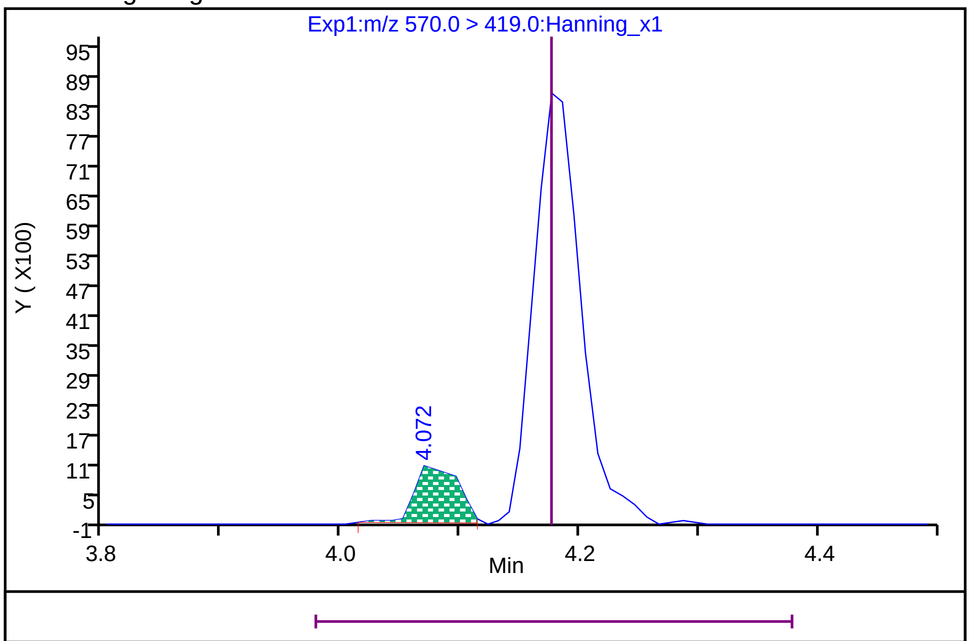
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

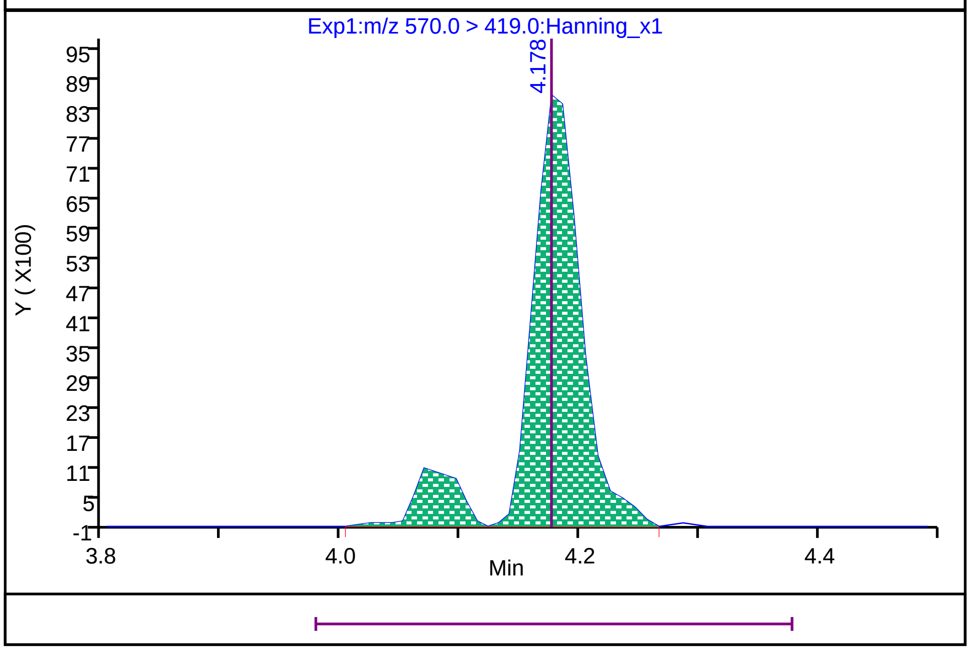
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.072
Area:	2850
Amount:	44.406
Amount Units:	ng/L



RT:	4.178
Area:	26644
Amount:	220.97
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:26

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

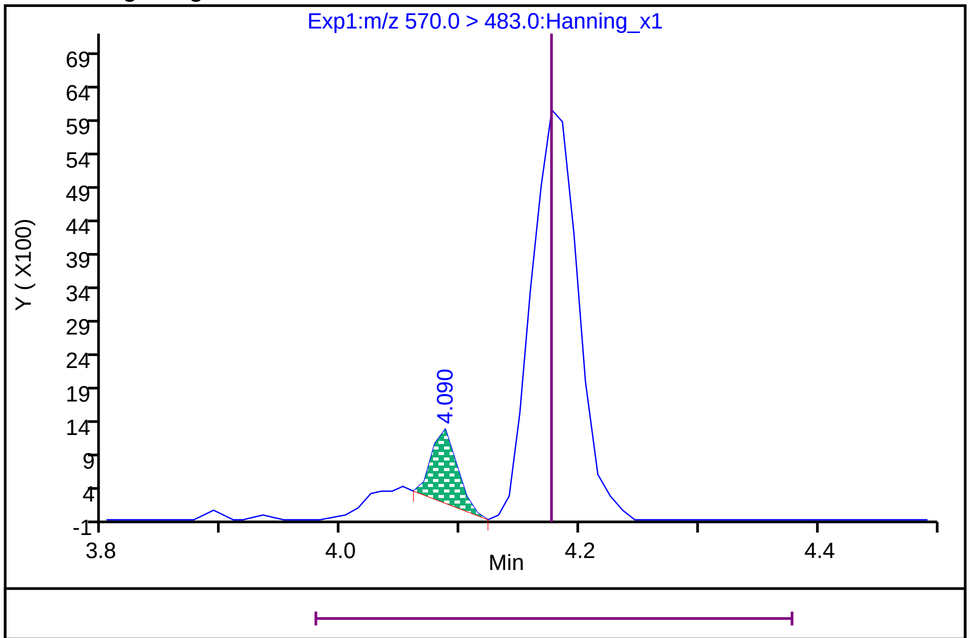
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

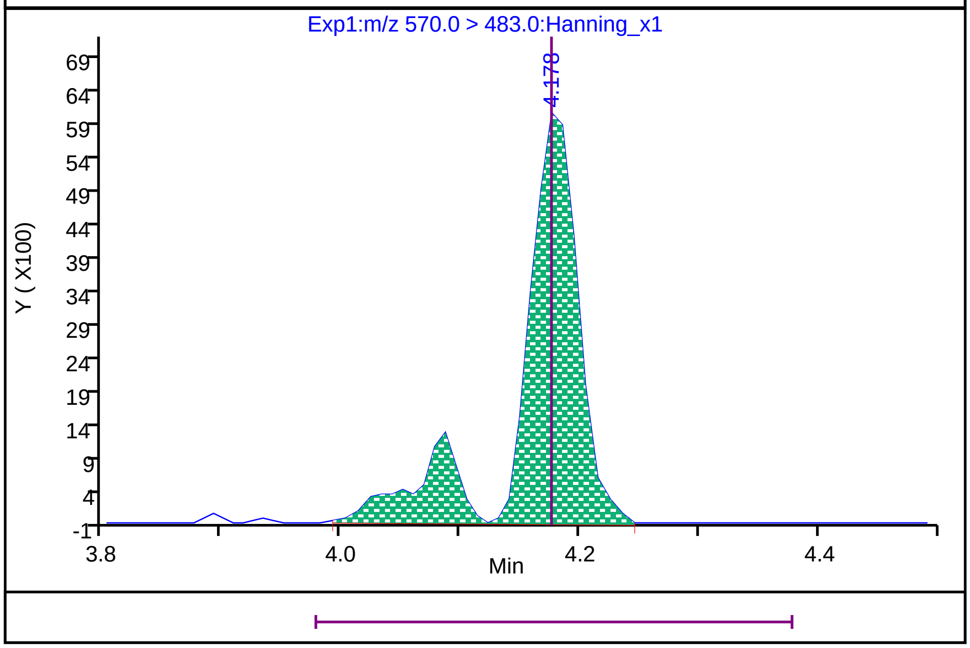
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.090
Area: 1622
Amount: 220.97
Amount Units: ng/L



RT: 4.178
Area: 20187
Amount: 220.97
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:28
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

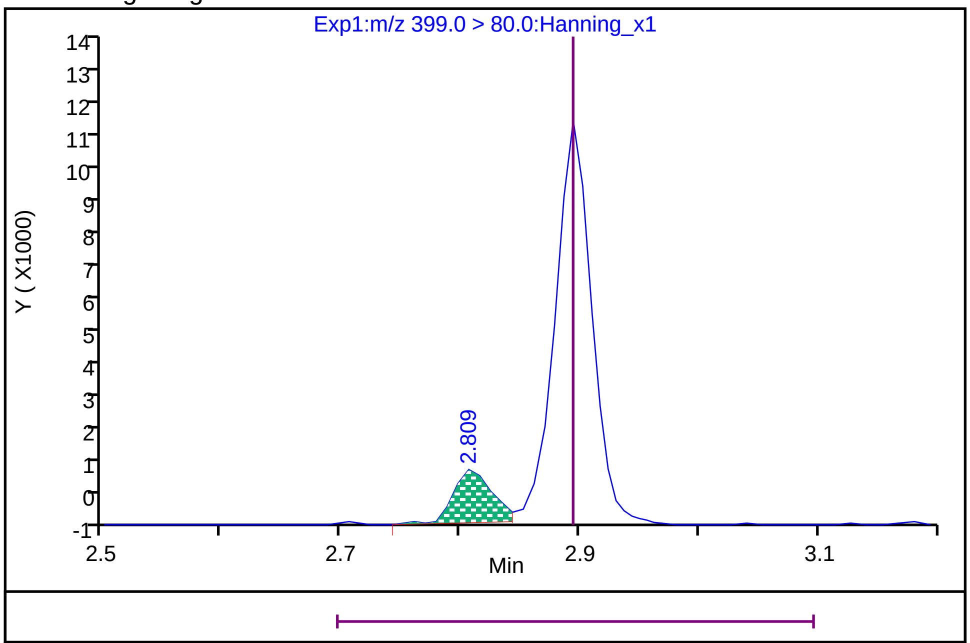
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

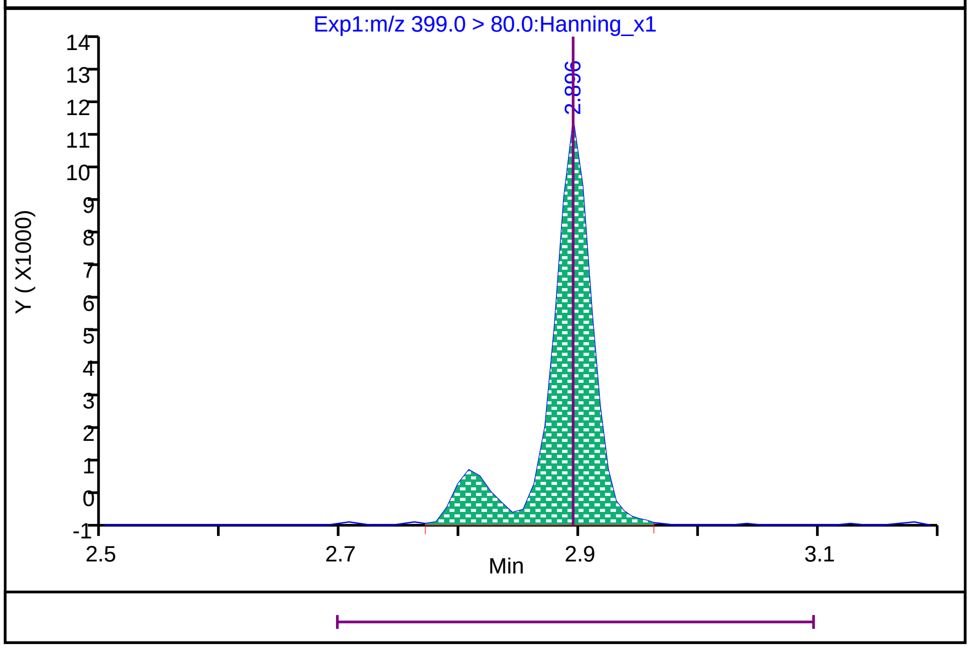
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 3354
Amount: -996.38
Amount Units: ng/L



RT: 2.896
Area: 28059
Amount: 196.04
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:09
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

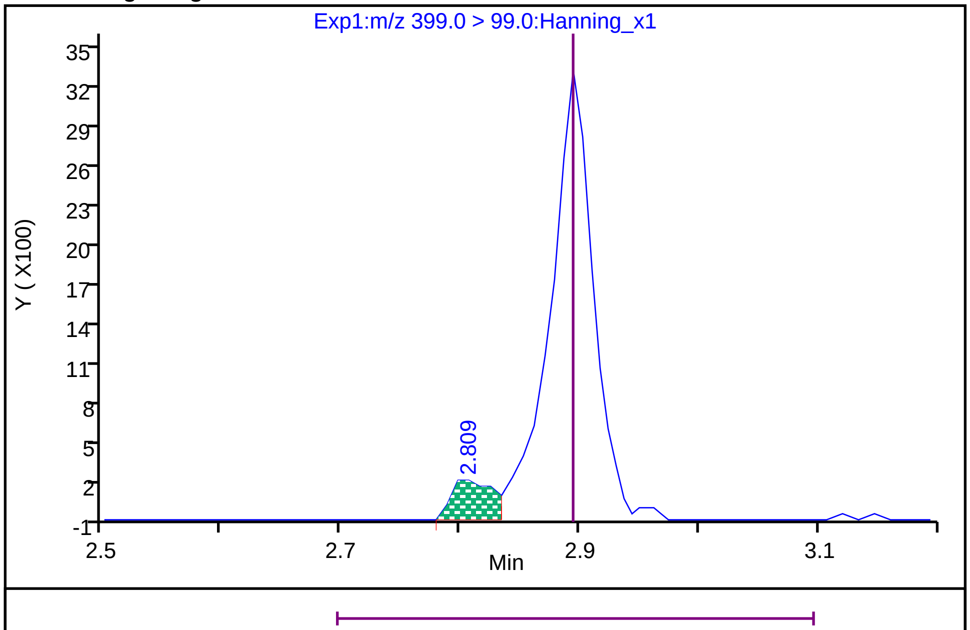
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

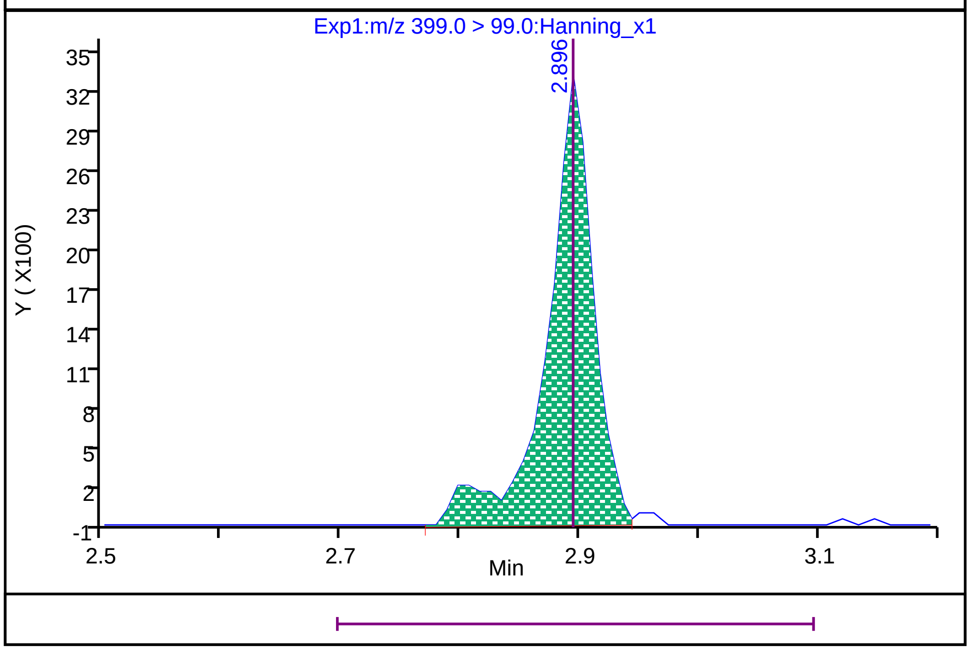
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 681
Amount: 196.04
Amount Units: ng/L



RT: 2.896
Area: 8795
Amount: 196.04
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:12

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	78
Sample Info:	ID ICAL 500_SVLC-1743	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	624336	20	>100:1			1000.00	1004.28	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	338901	19	>100:1			500.00	514.70		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	592341	16	>100:1			1000.00	1036.30	102.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	326970	16	>100:1			500.00	490.45		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	176030	16	>100:1			1000.00	1017.69	98.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	99510	18	>100:1	Target = 3.53		442.00	453.32		
298.9 > 99	44	2.183	2.183		27088	23	>100:1	3.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/-1	77523	18	>100:1	Target = 3.10		469.00	475.19		
349 > 99	44	2.531	2.531		25032	17	>100:1	3.09 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	109721	16	>100:1			5000.00	4845.54	97.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/-1	22981	16		Target = 1.75		467.00	475.08		
327 > 81	63	2.469	2.460		13645	19	31:1	1.68 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	1	675545	17	>100:1			1000.00	1037.25	101.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/0	351581	16	>100:1	Target = 18.91		500.00	500.54		
313 > 119	49	2.505	2.505		19573	15	>100:1	17.96 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1164547	19	>100:1			5000.00	5024.88	96.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/1	153699	19	>100:1	Target = 0.79		1000.00	1018.96		
285 > 185	66	2.622	2.622		194997	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	537765	18	>100:1			1000.00	1012.86	100.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	0/-1	296723	17	>100:1	Target = 3.80		500.00	502.14		
363 > 169	47	2.881	2.880		80115	20	>100:1	3.70 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	133409	18	>100:1			1000.00	1061.84	102.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/5	67873	27	>100:1	Target = 2.89	4.35	455.00	462.77		M
399 > 99	45	2.896	2.896		20824	25	>100:1	3.25 (1.44-4.34)	7.53				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	460077	20	>100:1	Target = 3.23		471.00	444.68		
377 > 85	45	2.919	2.919		148929	21	>100:1	3.08 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.282	3.276	1/0	57950	21	>100:1	Target = 3.12		476.00	422.93		
449 > 99	45	3.276	3.276		20808	19	>100:1	2.78 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.255	3.248	1	94456	20	>100:1			5000.00	5247.57	100.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/-1	20529	20		Target = 1.75		474.00	459.06		
427 > 81	64	3.255	3.248		11546	19	28:1	1.77 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	524379	22	>100:1			1000.00	999.43	95.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/-1	281706	20	>100:1	Target = 2.89		500.00	524.24		
413 > 169	53	3.276	3.276		91375	23	>100:1	3.08 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.652	3.651	0	129829	20	>100:1			1000.00	1048.34	98.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	1/1	69058	41	>100:1	Target = 3.30	3.54	464.00	446.73		M
499 > 99	54	3.652	3.662		21453	44	>100:1	3.21 (1.65-4.95)	5.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/1	220303	17	>100:1			466.00	448.07		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/1	49658	21	>100:1	Target = 3.08		480.00	476.75		
549 > 99	54	4.006	4.006		18097	22	>100:1	2.74 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/1	46988	20	>100:1	Target = 2.72		482.00	462.50		
599 > 99	54	4.318	4.318		17800	20		2.63 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	1/1	199041	17	>100:1			471.00	447.80		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	0/0	49920	17	>100:1	Target = 3.27		484.00	447.16		
699 > 99	54	4.843	4.842		15294	16	>100:1	3.26 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	652533	21	>100:1			1000.00	1018.98	102.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	359052	23	>100:1	Target = 6.51		500.00	510.49		
463 > 169	56	3.662	3.662		55590	21	>100:1	6.45 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	278973	18	>100:1			1000.00	1040.72	104.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	150716	17	>100:1	Target = 41.63		500.00	513.46		
498>478	55	3.888	3.896		4665	15	28:1	32.30 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	0	591408	17	>100:1			1000.00	1029.14	102.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	0/0	354891	17	>100:1	Target = 13.80		500.00	515.64		
513 > 169	51	4.027	4.016		27152	20	>100:1	13.07 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	84431	15	>100:1			5000.00	4884.78	107.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	0/-1	18669	17	85:1	Target = 1.94		479.00	489.28		
527 > 81	65	4.017	4.016		10352	15	37:1	1.80 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.631	4.631	1/0	18214	16		Target = 3.54		482.00	425.23		
627 > 80	65	4.631	4.631		7681	15	20:1	2.37 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	744712	18	>100:1			5000.00	4928.20	96.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.187	4.178	7/7	57385	27	>100:1	Target = 1.37	10.02	500.00	480.15		
570 > 483	58	4.178	4.178		46738	31	>100:1	1.22 (0.68-2.05)	4.99				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	94507	15	>100:1			1000.00	1047.88	104.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/-1	46172	14	>100:1			500.00	447.05		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	51110	14	>100:1			1000.00	1086.49	113.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/-1	31576	13	>100:1	Target = 1.11		500.00	569.99		
512 > 219	57	4.318	4.318		22112	11	>100:1	1.42 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	0	708039	16	>100:1			5000.00	5466.93	102.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.348	0/0	62428	21	36:1	Target = 1.51	10.51	500.00	452.13		
584 > 526	60	4.348	4.348		41356	30	66:1	1.50 (0.75-2.26)	3.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	644729	15	>100:1			1000.00	1070.53	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	0/-1	291697	15	>100:1	Target = 14.52		500.00	466.92		
563 > 169	52	4.339	4.338		18578	20	>100:1	15.70 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	104371	16	>100:1			1000.00	983.92	102.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	48514	15	>100:1			500.00	477.49		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	44943	16	>100:1			1000.00	1045.19	104.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	26116	20	>100:1	Target = 1.06		500.00	477.99		
526 > 219	59	4.483	4.483		30666	15	>100:1	0.85 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	603349	17	>100:1			1000.00	1005.02	99.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	327079	18	75:1	Target = 10.70		500.00	508.51		
613 > 169	38	4.623	4.622		29077	16	>100:1	11.24 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	1/0	326539	17	>100:1	Target = 8.31		500.00	514.91		
663 > 169	38	4.877	4.877		39813	15	>100:1	8.20 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	818088	22	>100:1			1000.00	1006.27	97.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	1/1	364849	22	50:1	Target = 12.17		500.00	510.90		
713 > 169	42	5.106	5.106		30567	23	>100:1	11.93 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.552	5.544	0	851524	21	>100:1			1000.00	980.98	97	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.552	5.552	0	277135	22	40:1	Target = 10.43		500.00	508.17		
813 > 269	40	5.552	5.552		26652	21	>100:1	10.39 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	6.017	6.026	0	402758	33	23:1	Target = 13.67		500.00	519.54		
913 > 319	40	6.017	6.026		29444	42	>100:1	13.67 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	690187	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	670207	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	553624	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	590590	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.657	0	132512	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

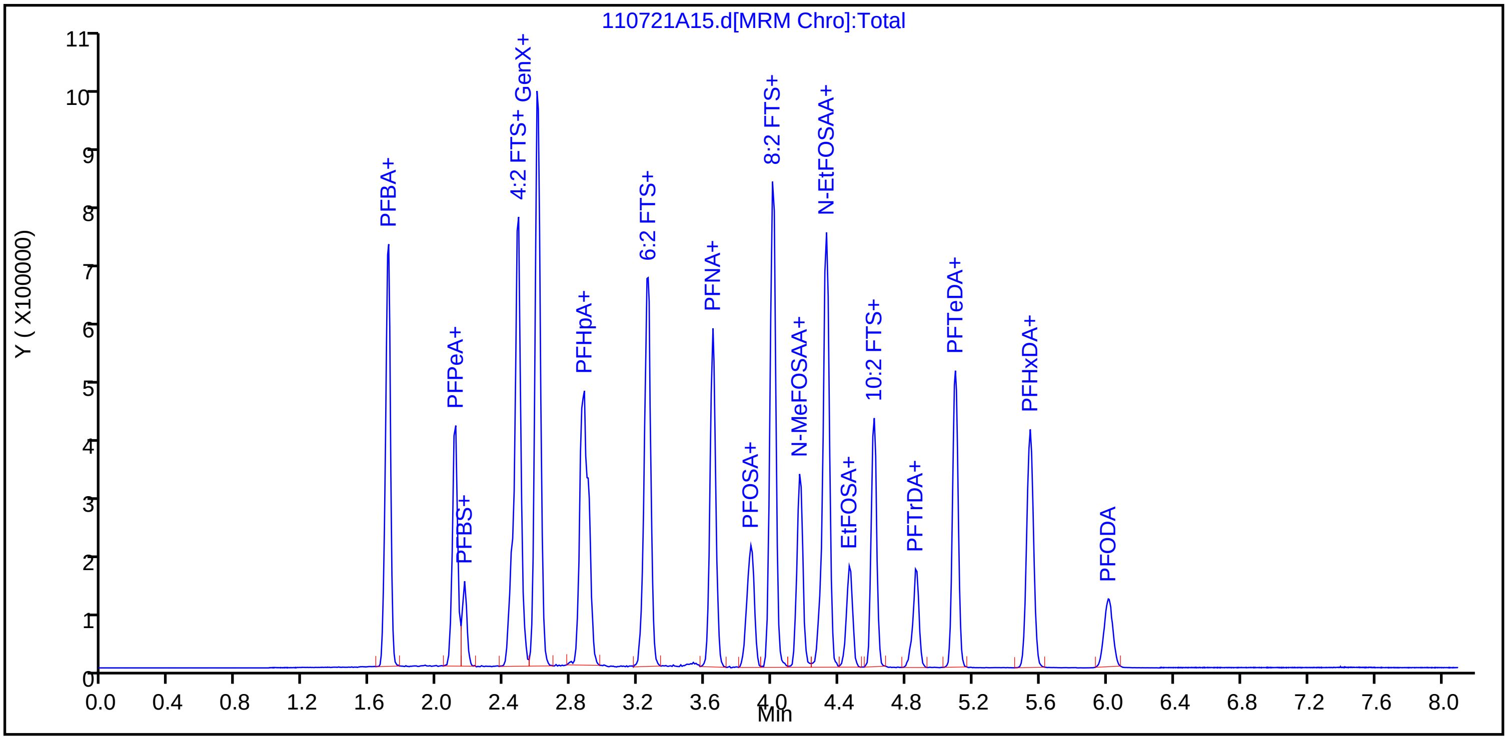
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

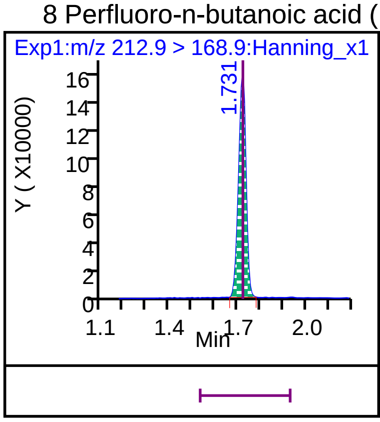
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

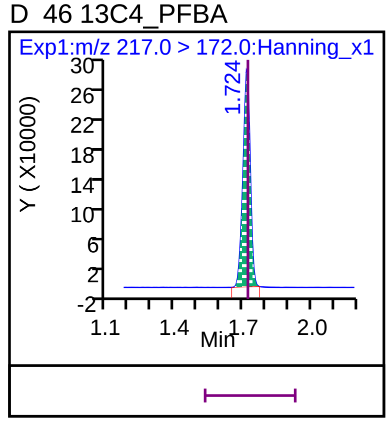
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin



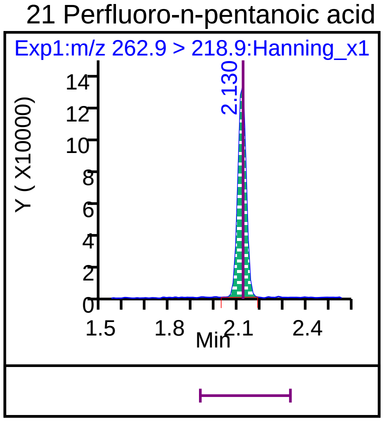
8 Perfluoro-n-butanoic acid (PFBA)



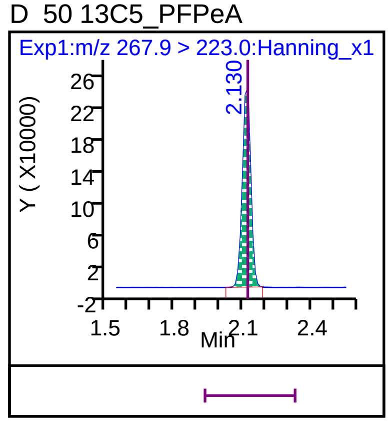
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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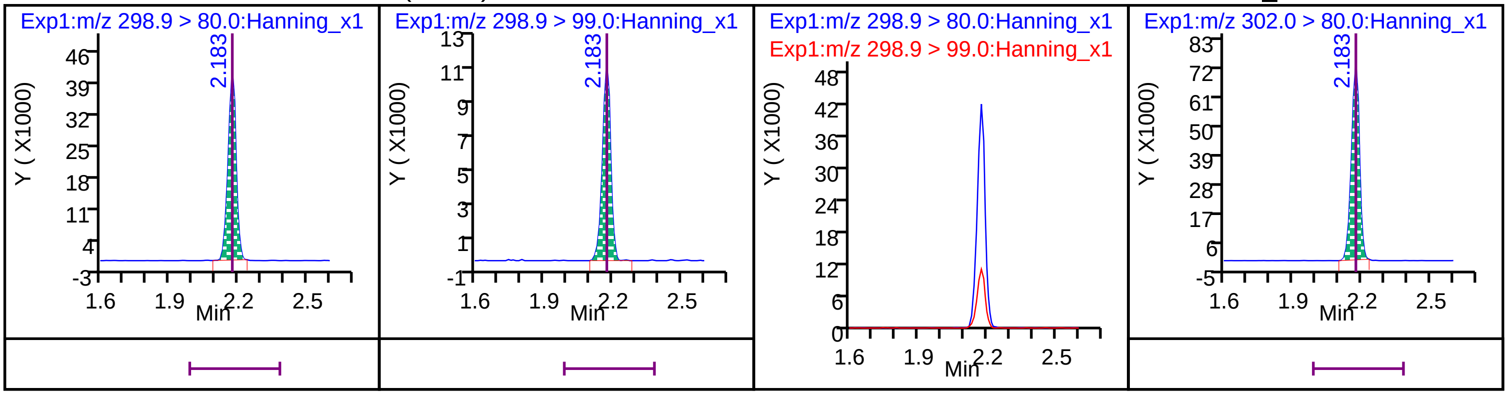
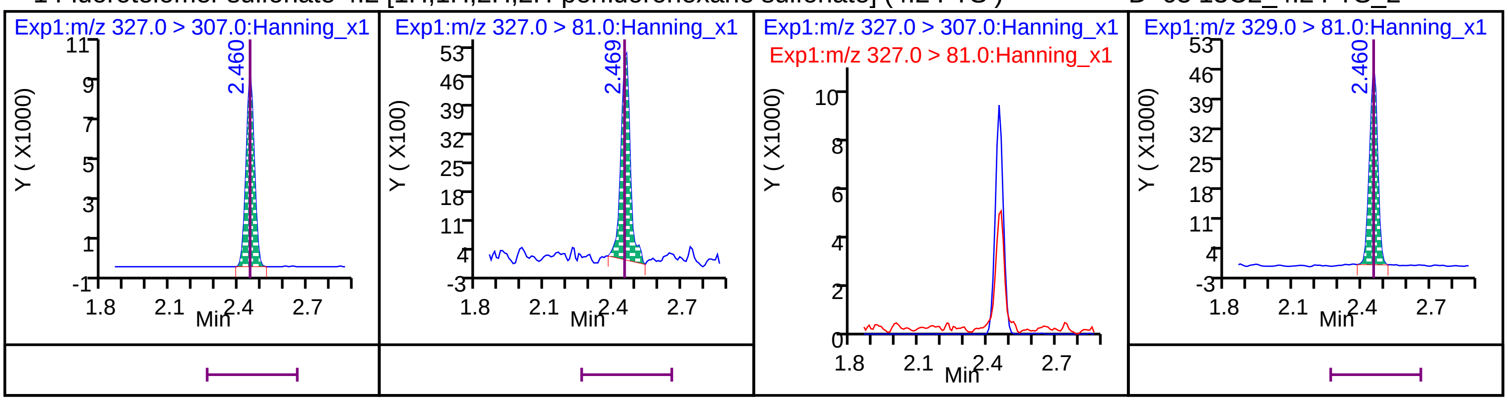
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

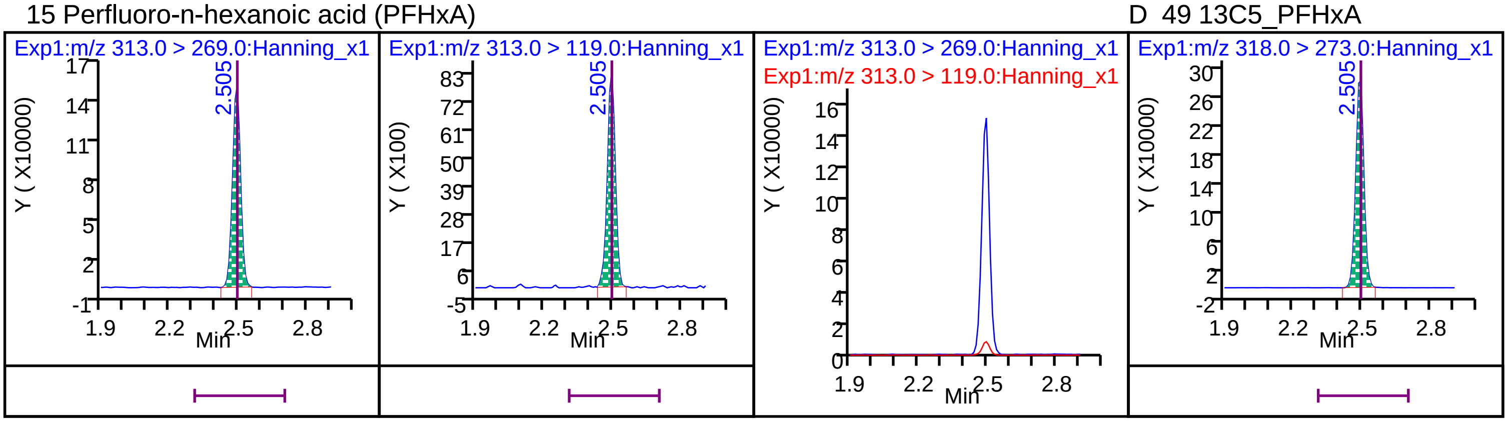
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



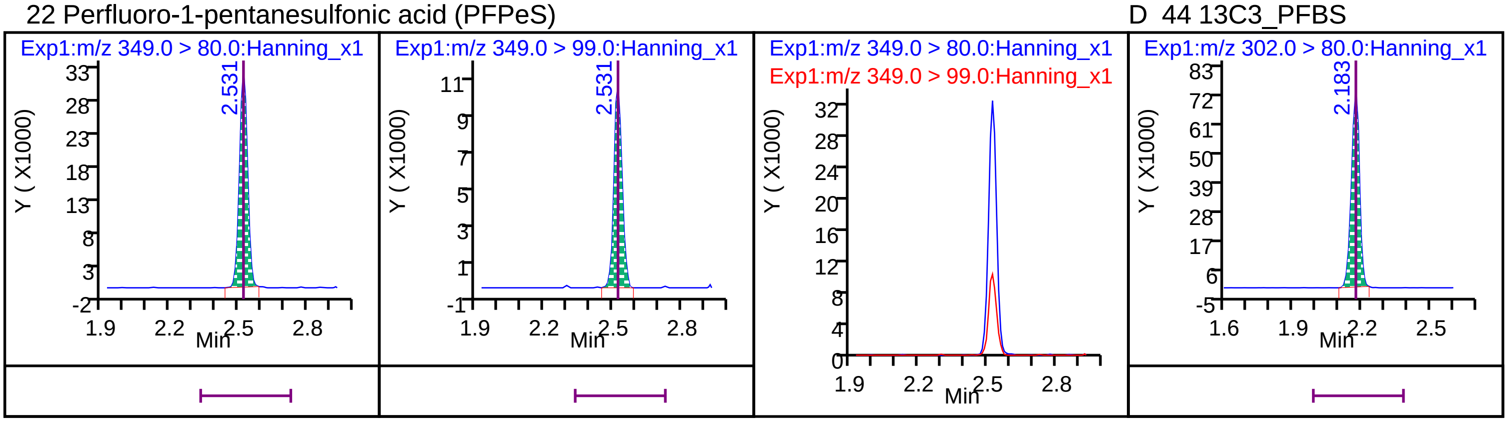
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



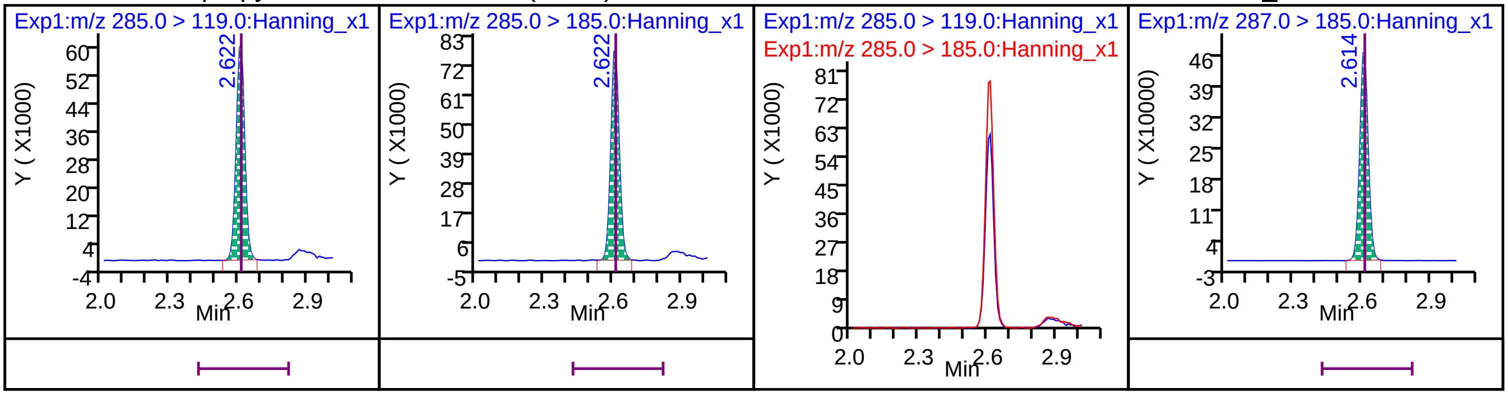
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



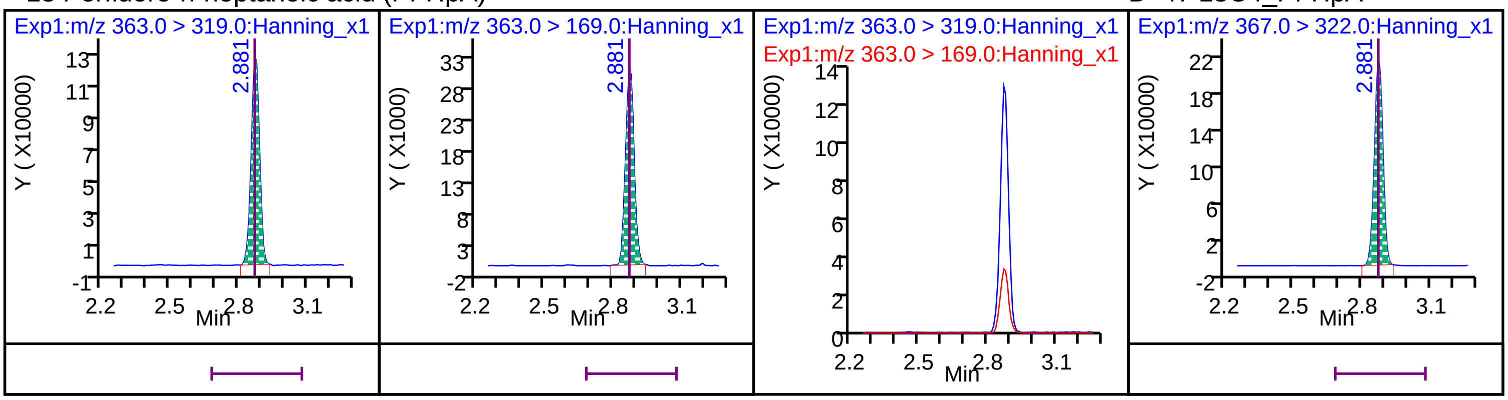
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



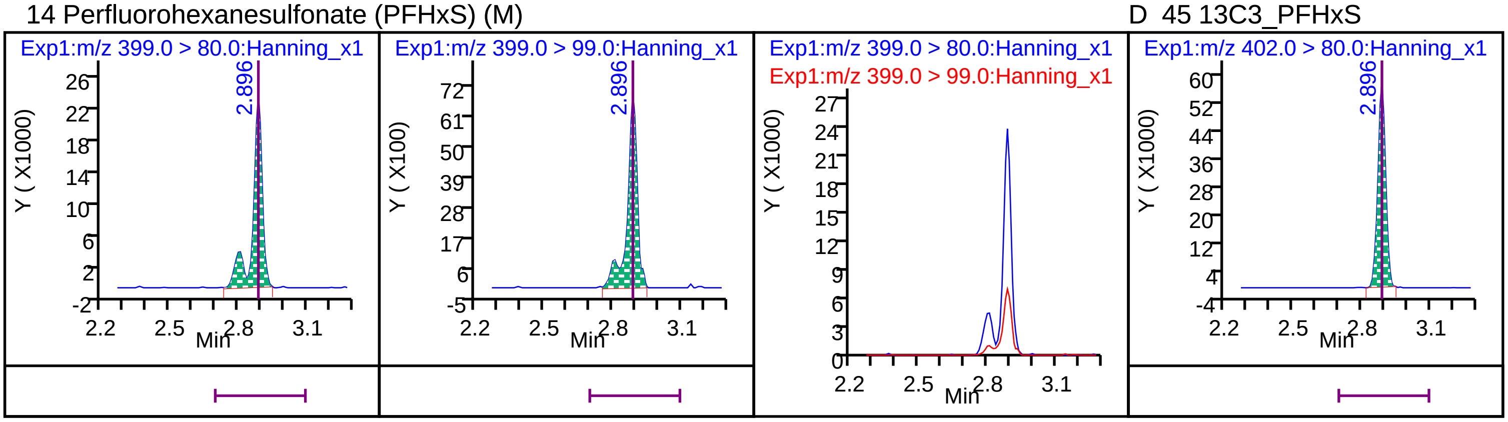
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



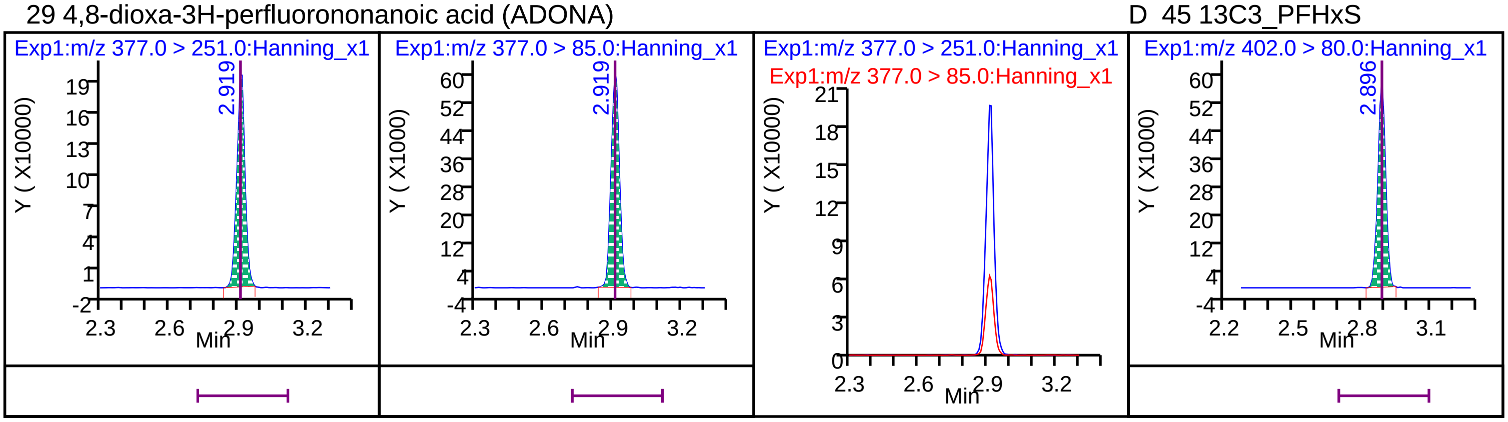
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



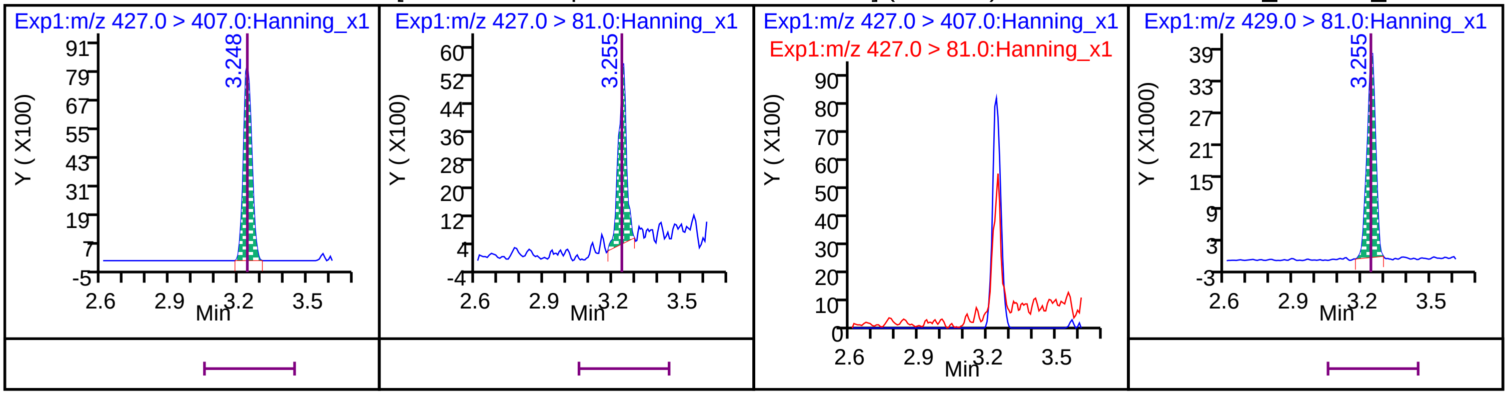
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



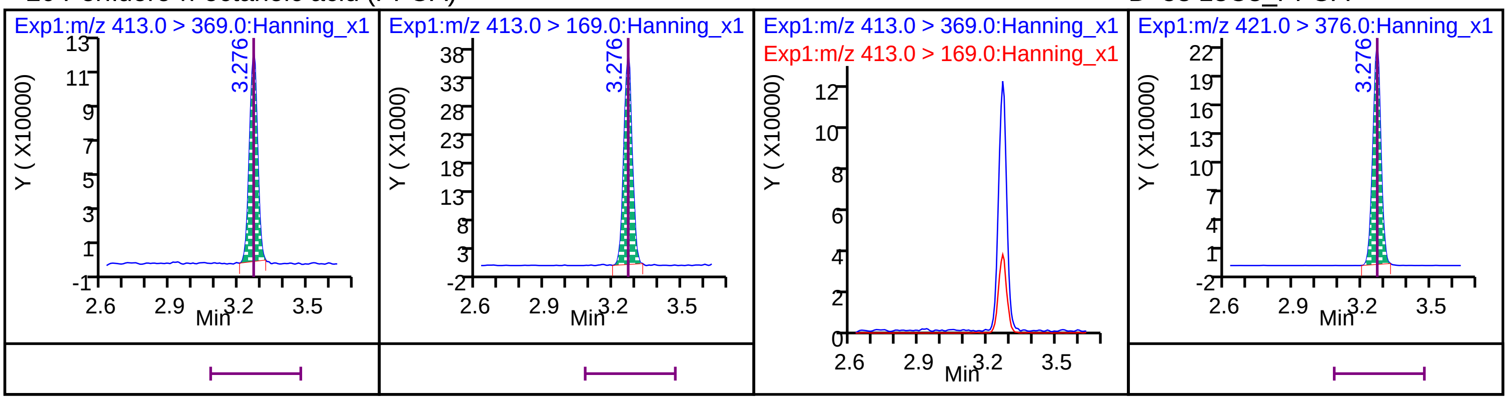
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



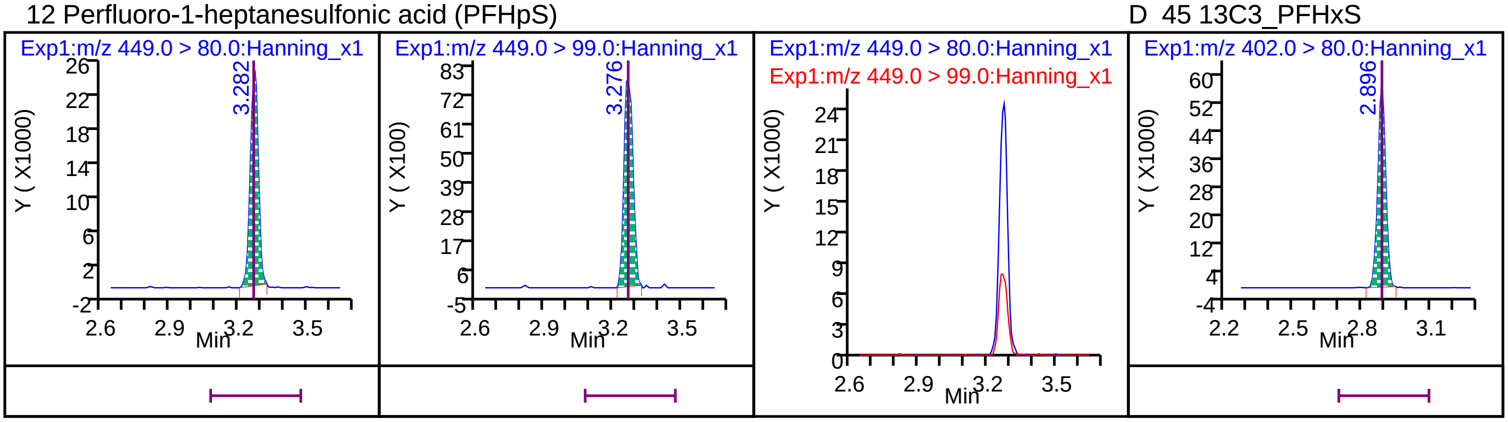
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



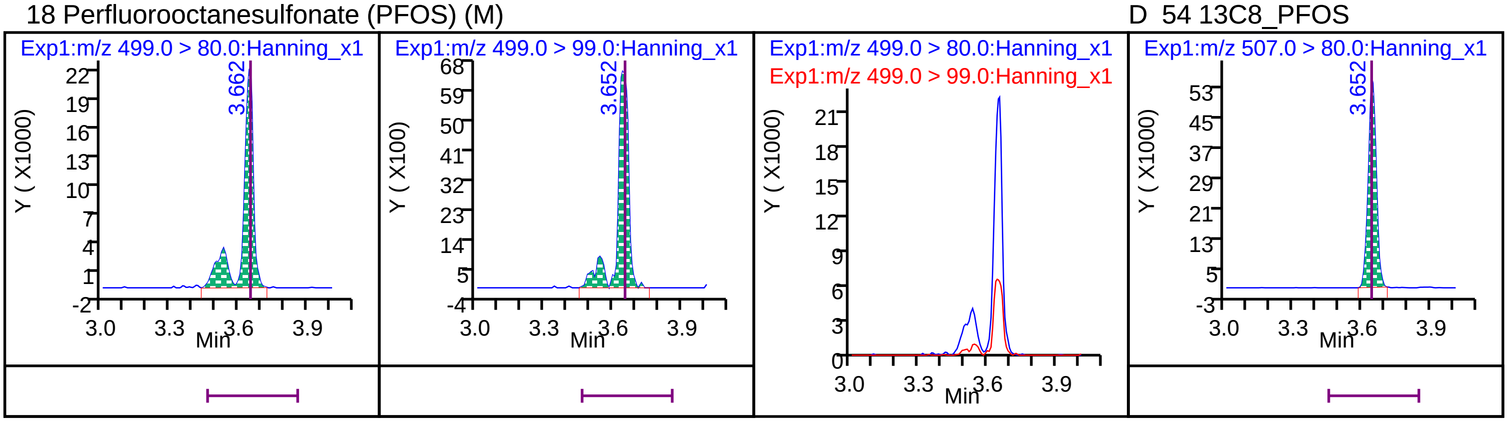
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



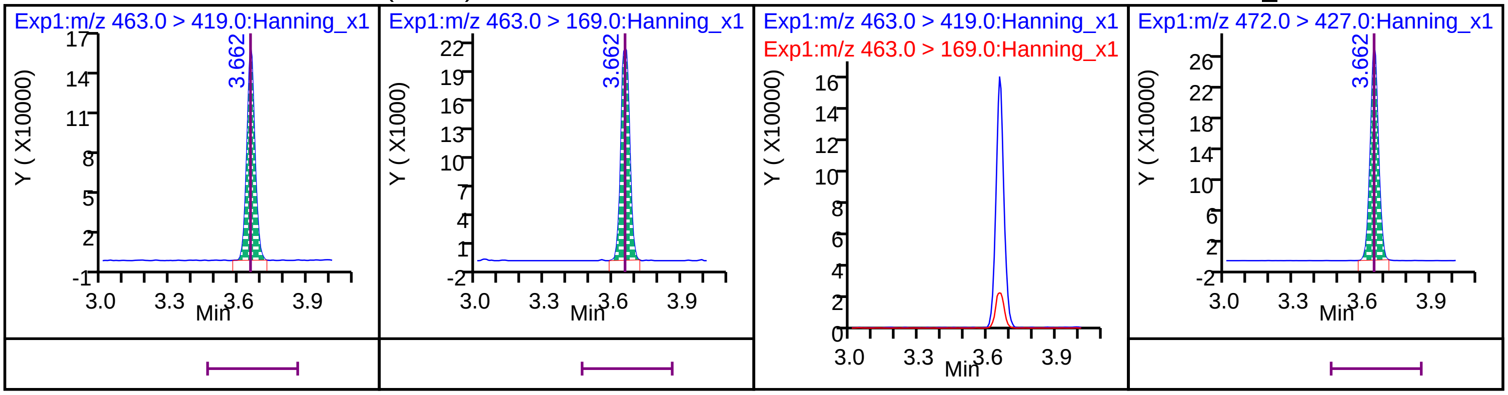
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



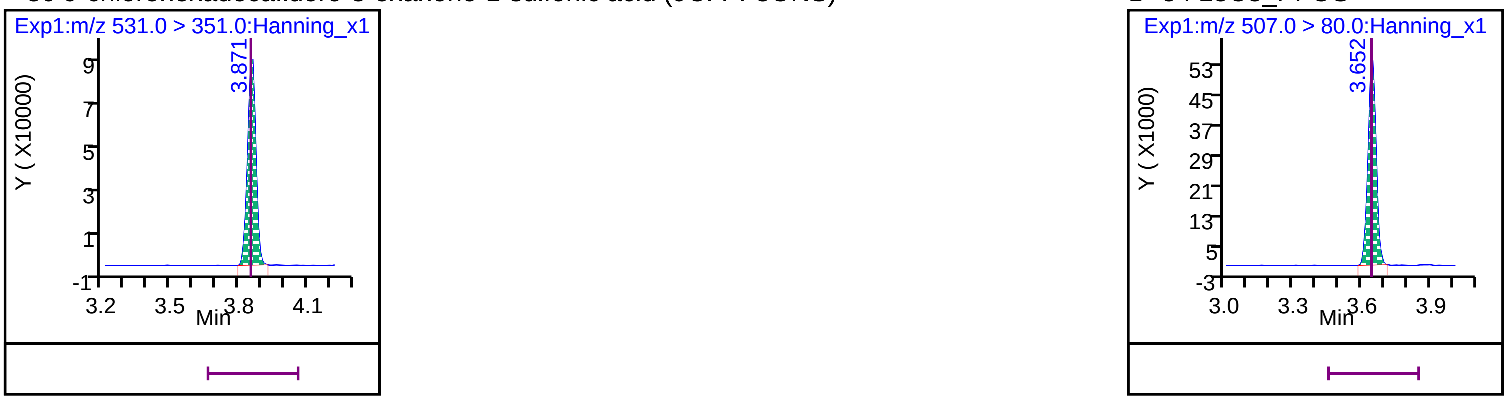
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



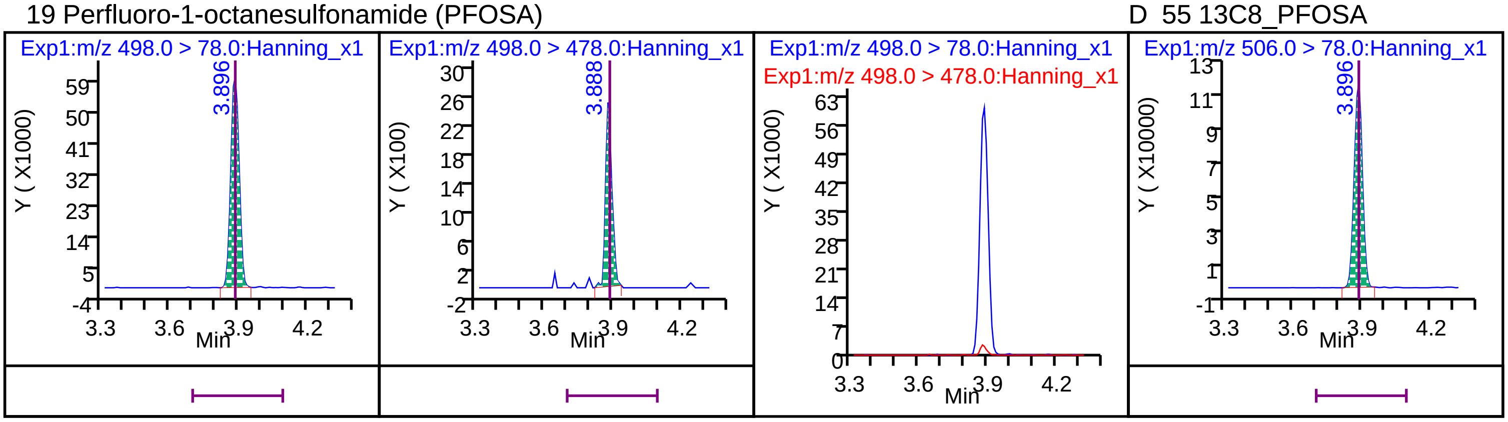
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



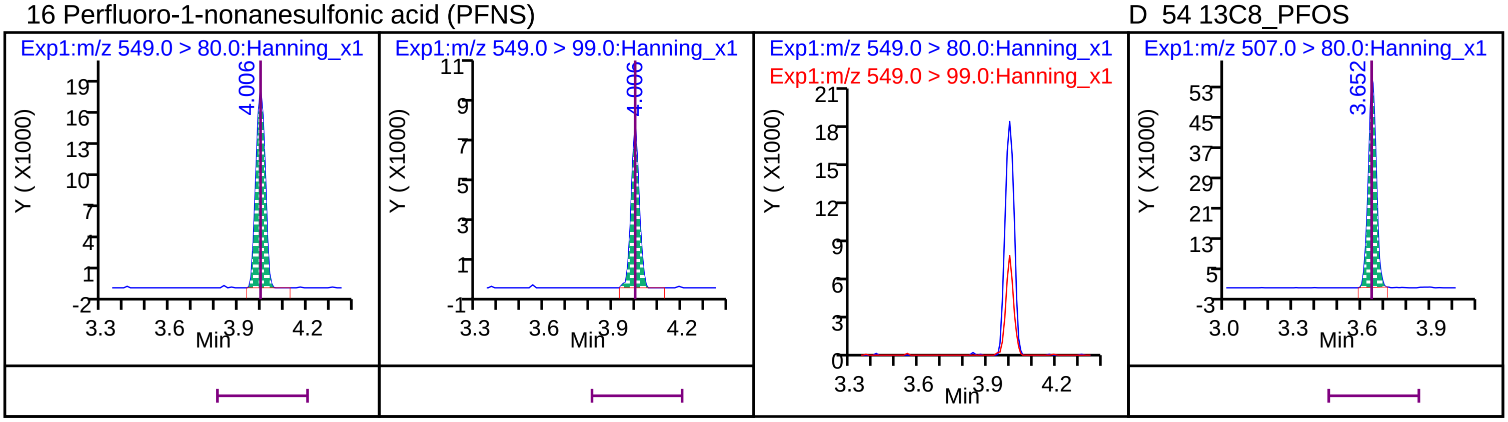
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



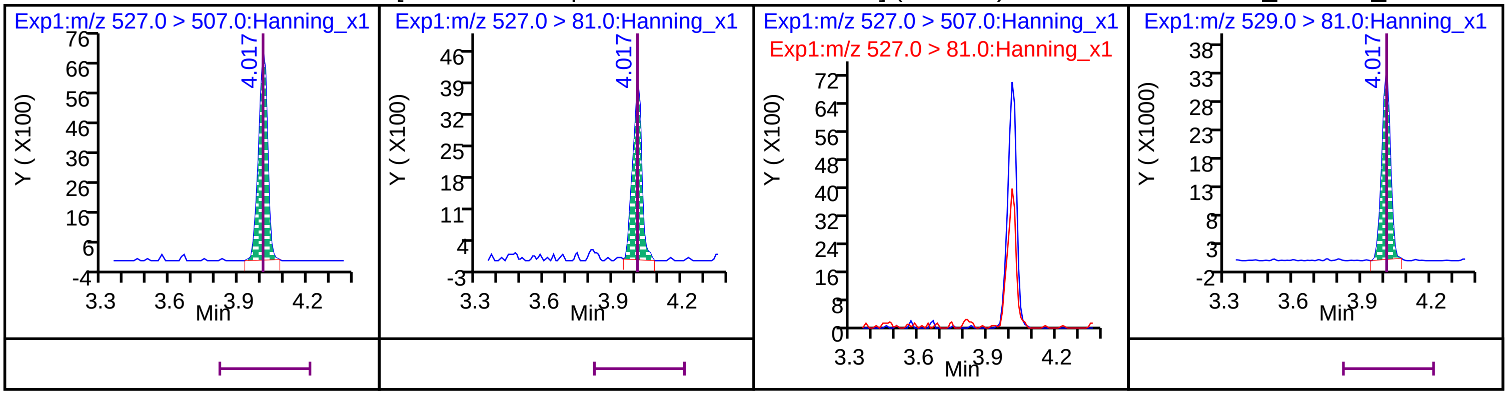
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



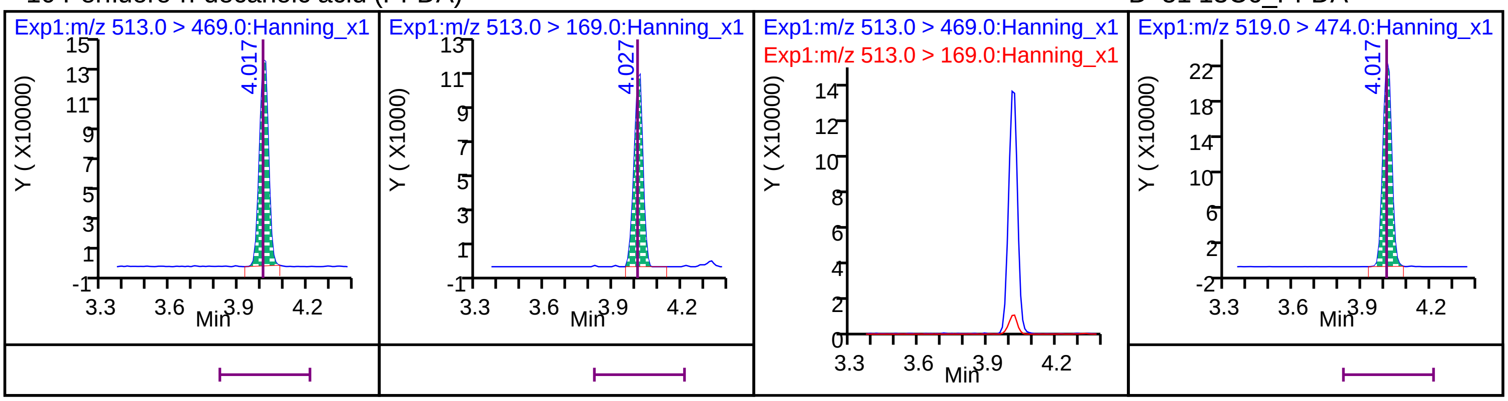
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



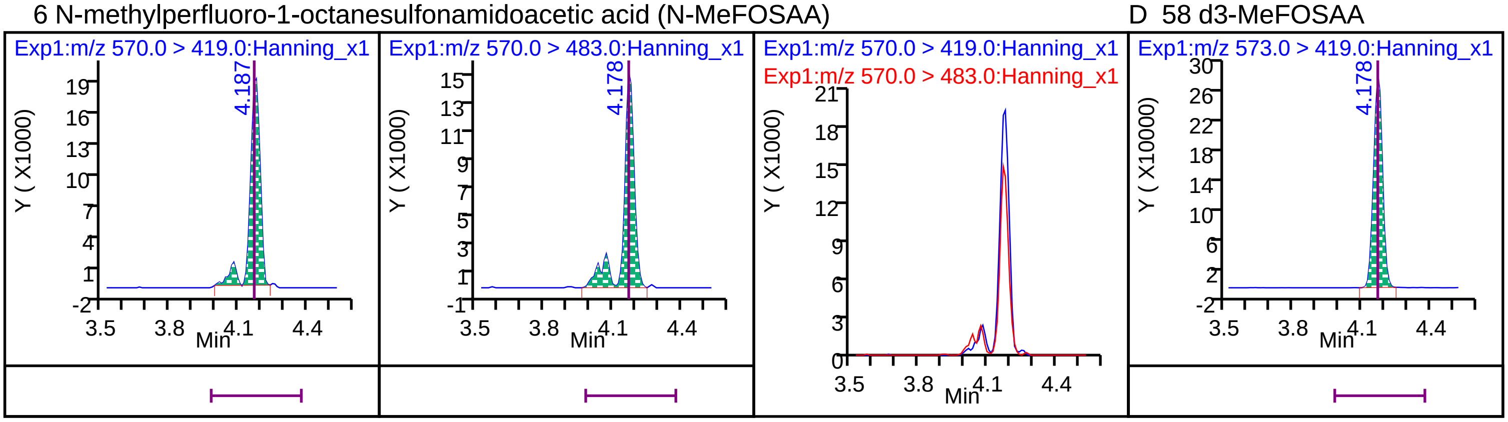
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



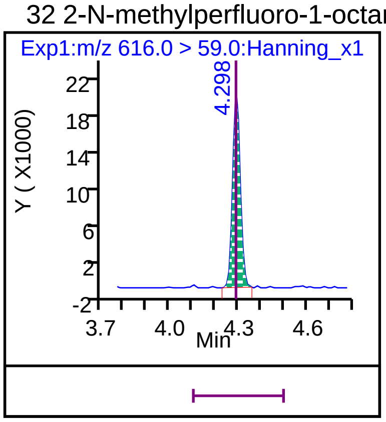
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



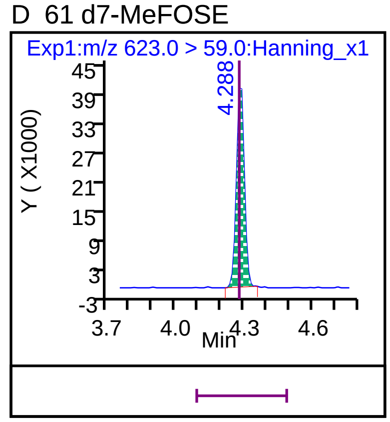
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



D 61 d7-MeFOSE



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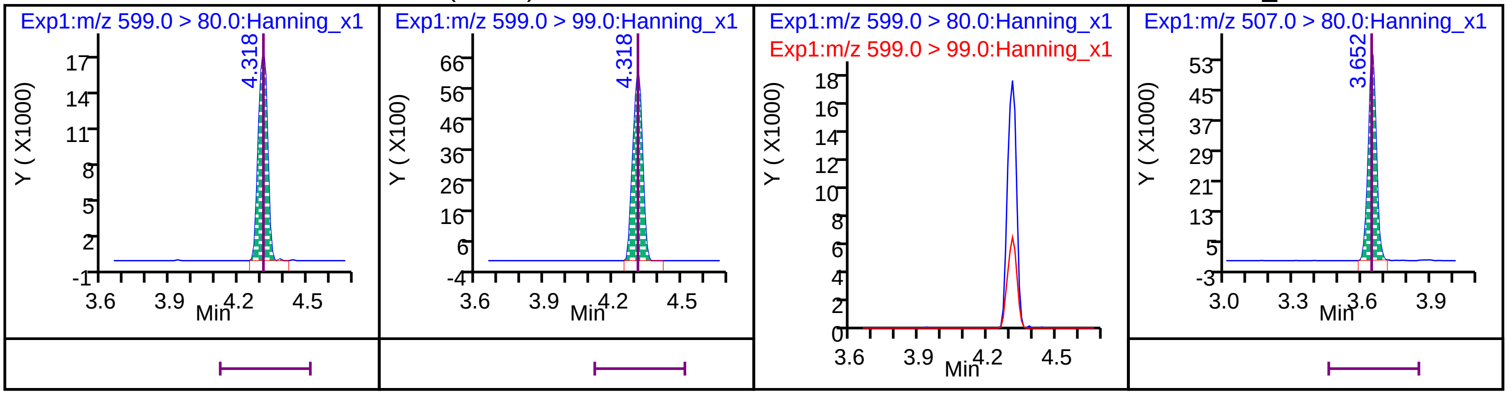
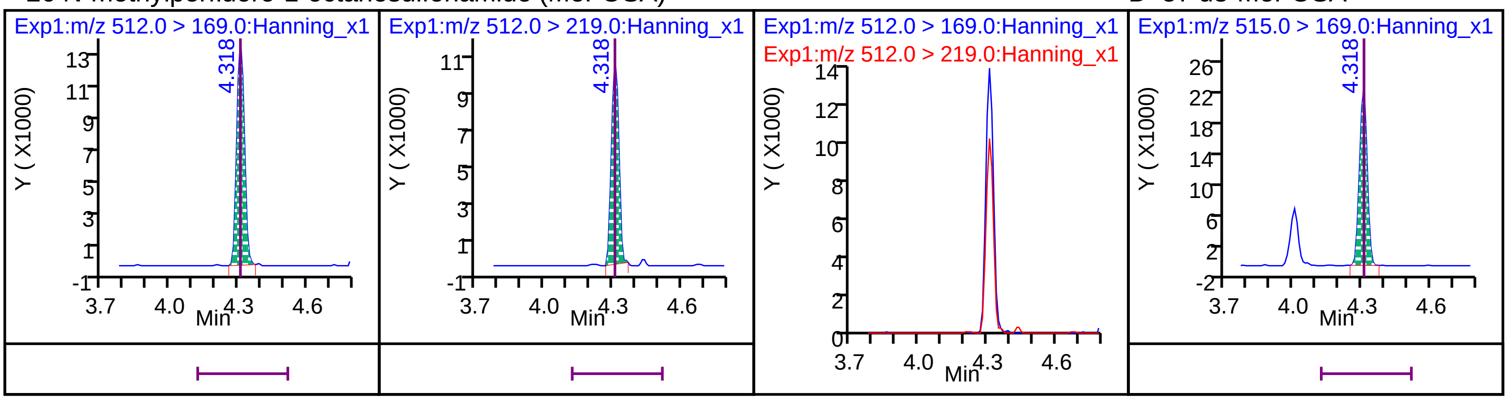
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

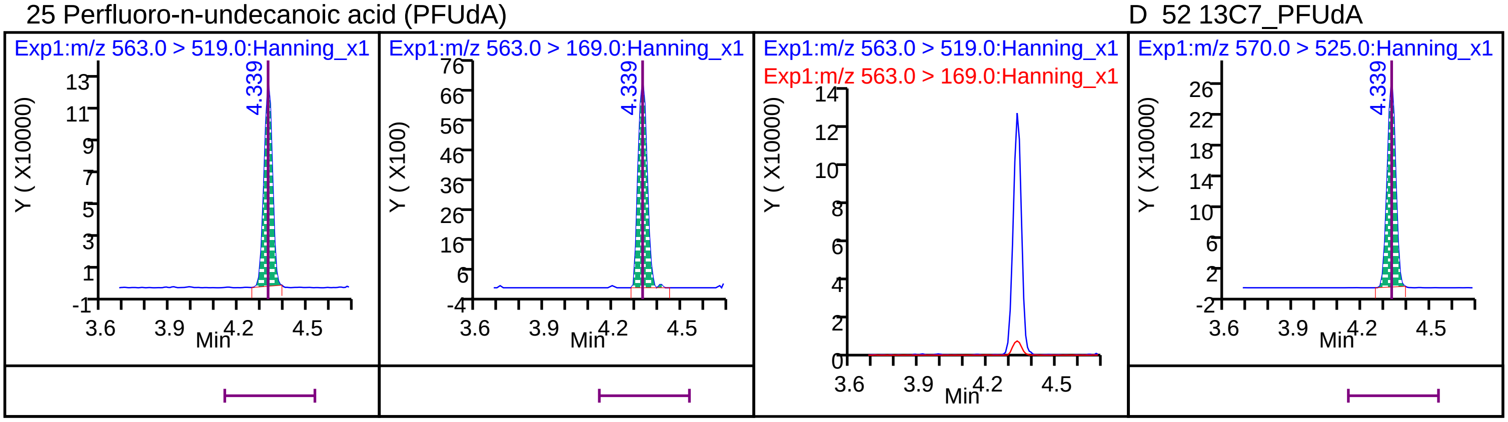
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



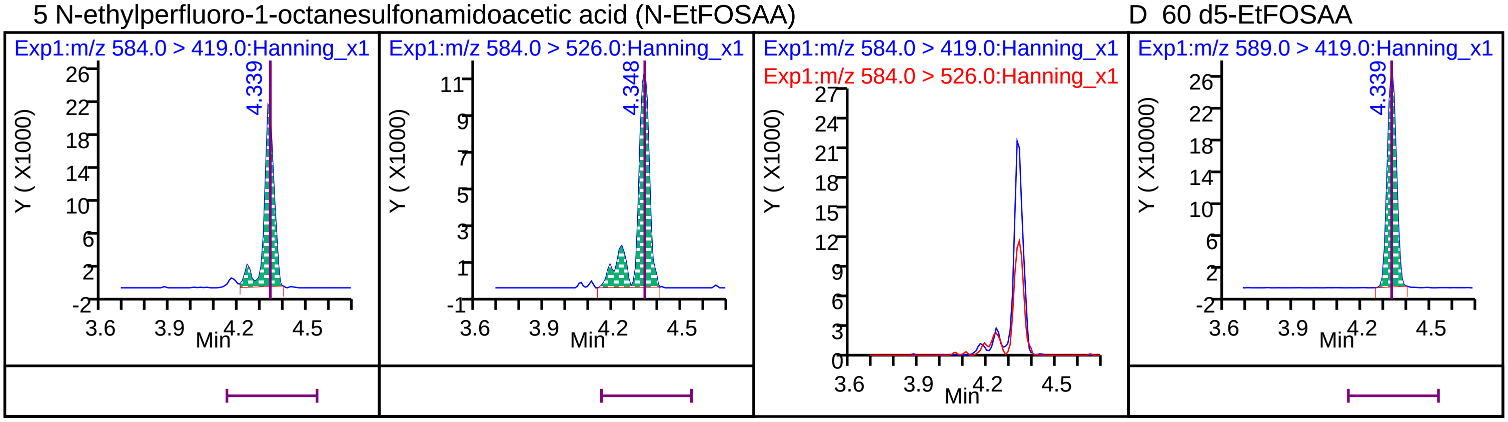
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



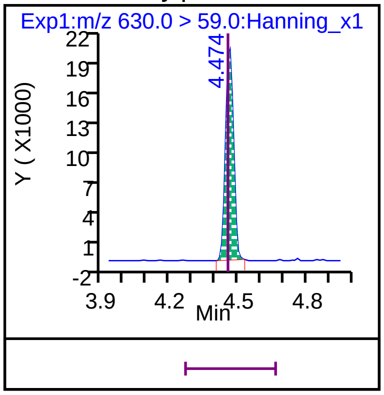
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



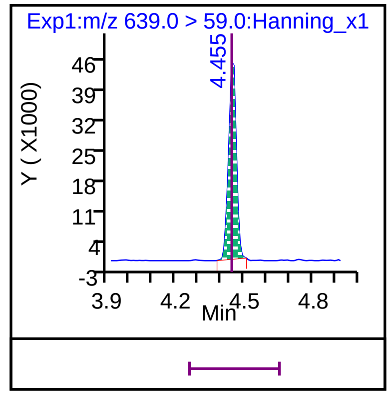
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



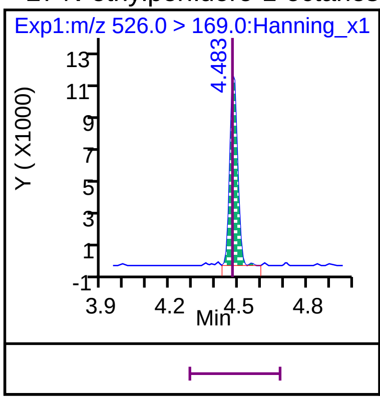
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

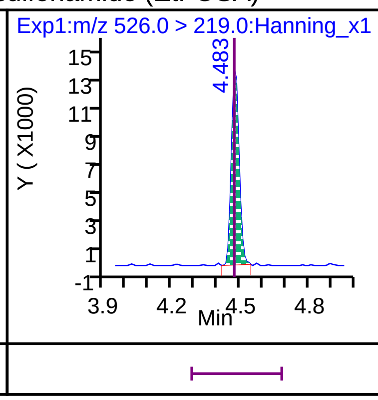


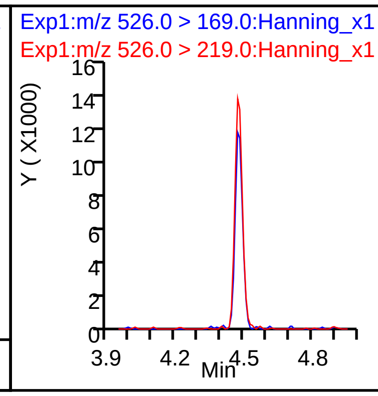
D 62 d9-EtFOSE



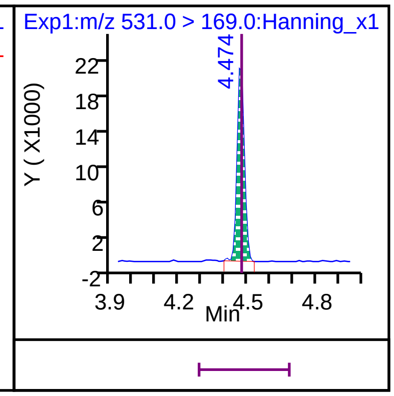
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



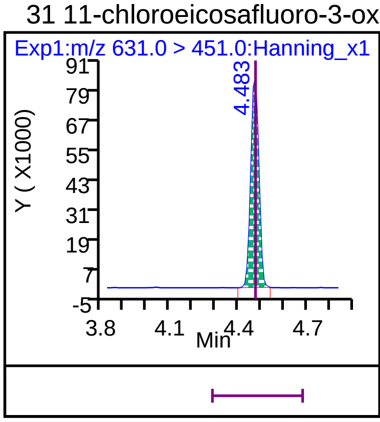




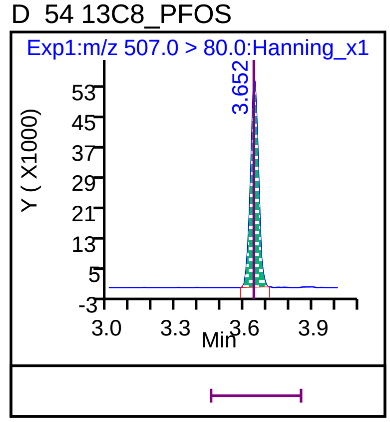
D 59 d5-EtFOSA



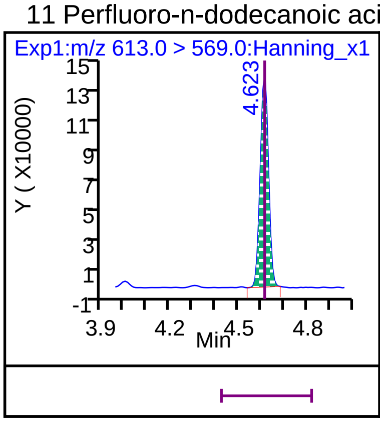
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

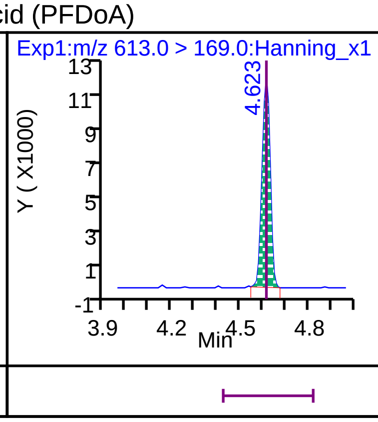


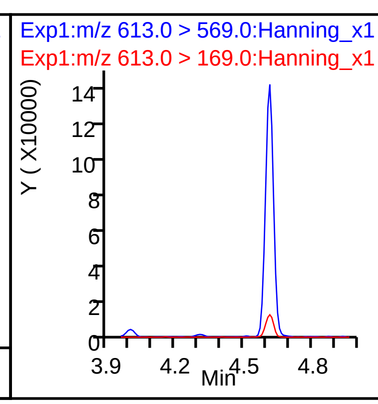
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)







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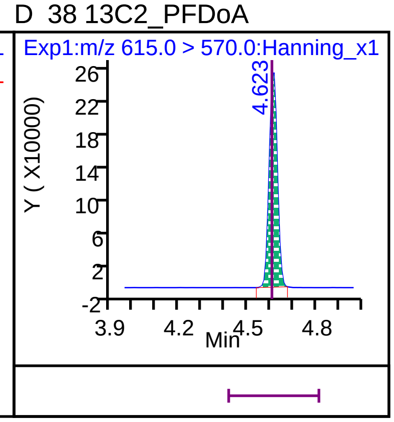
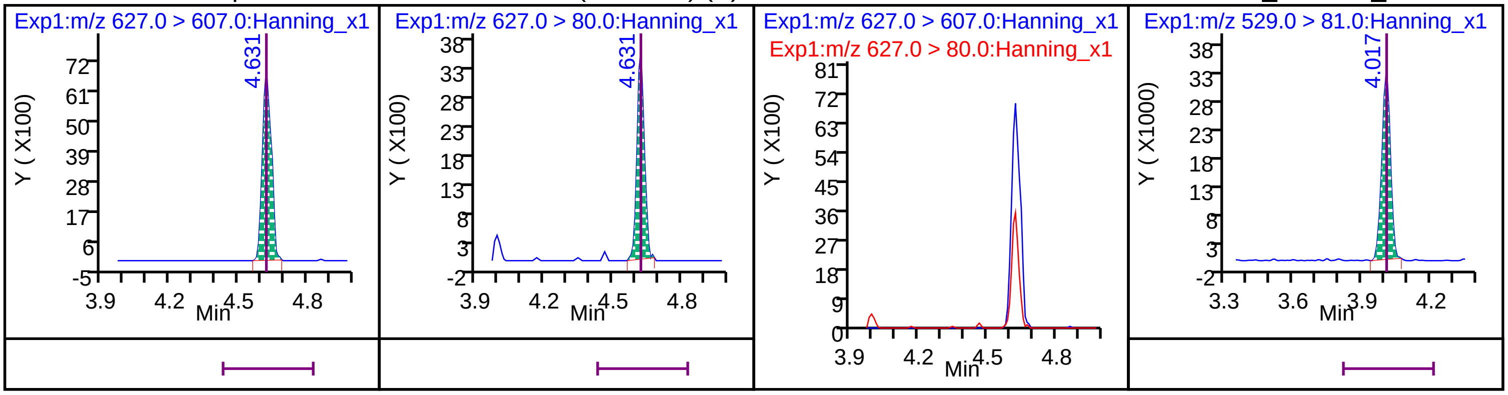
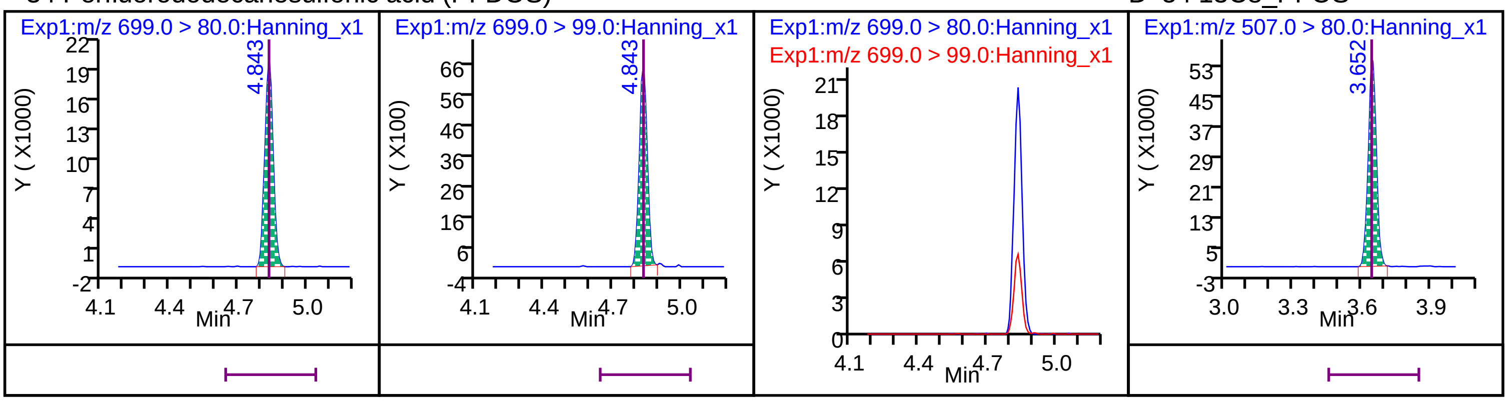


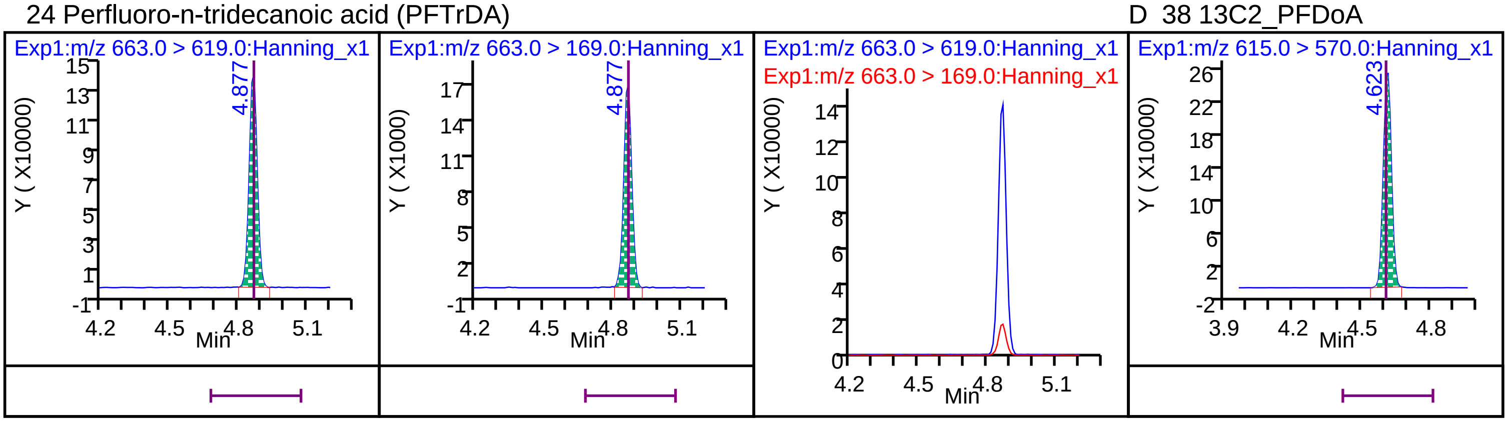
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



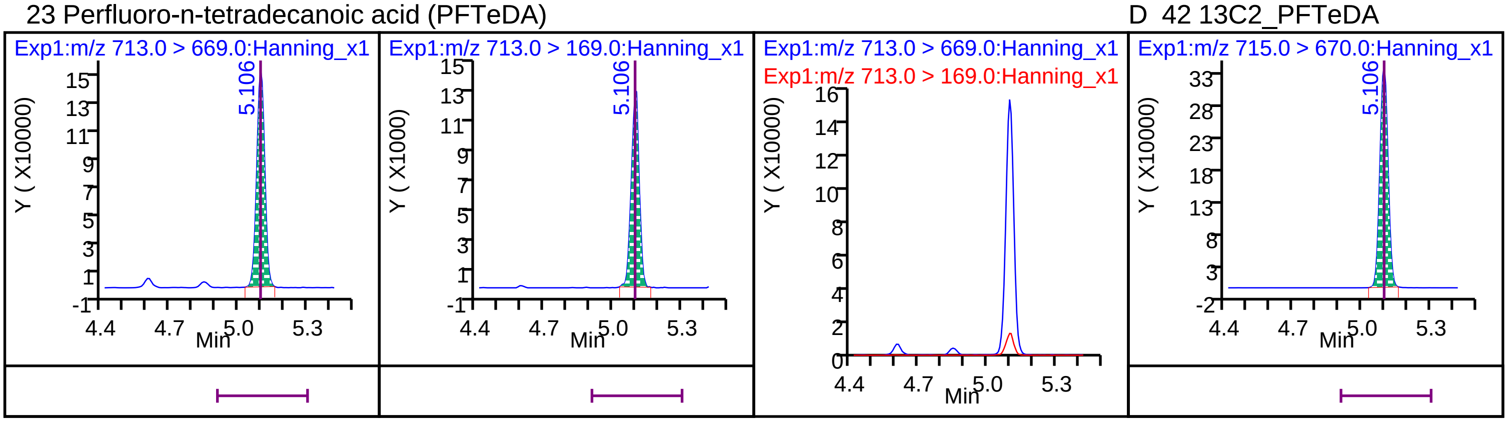
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



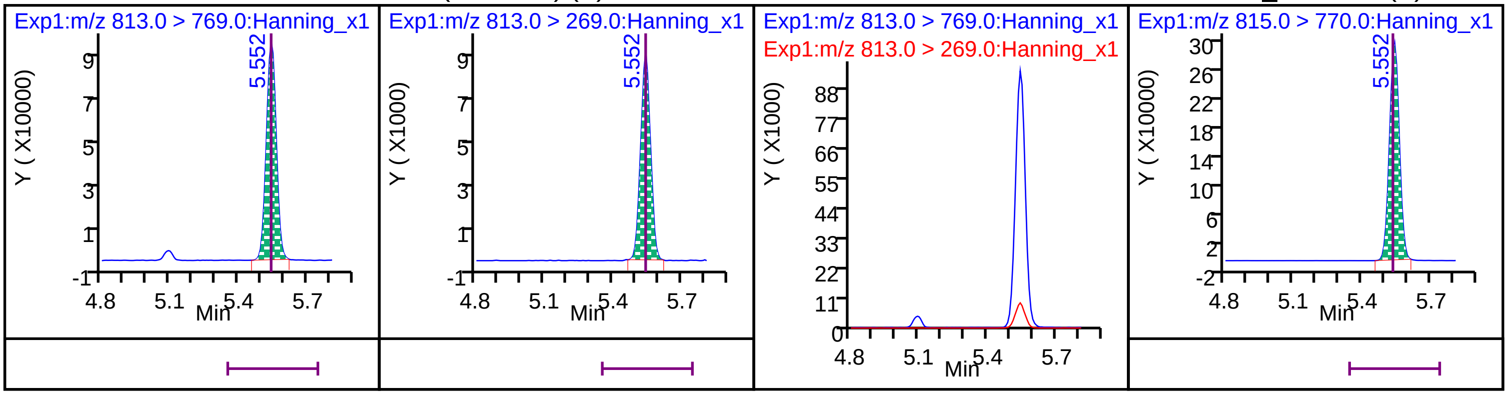
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



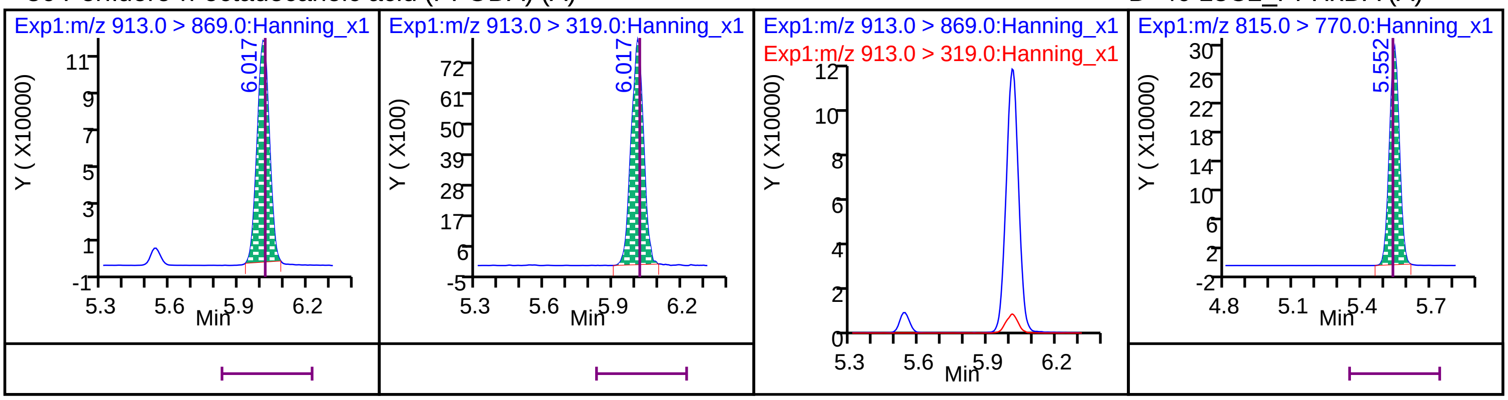
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

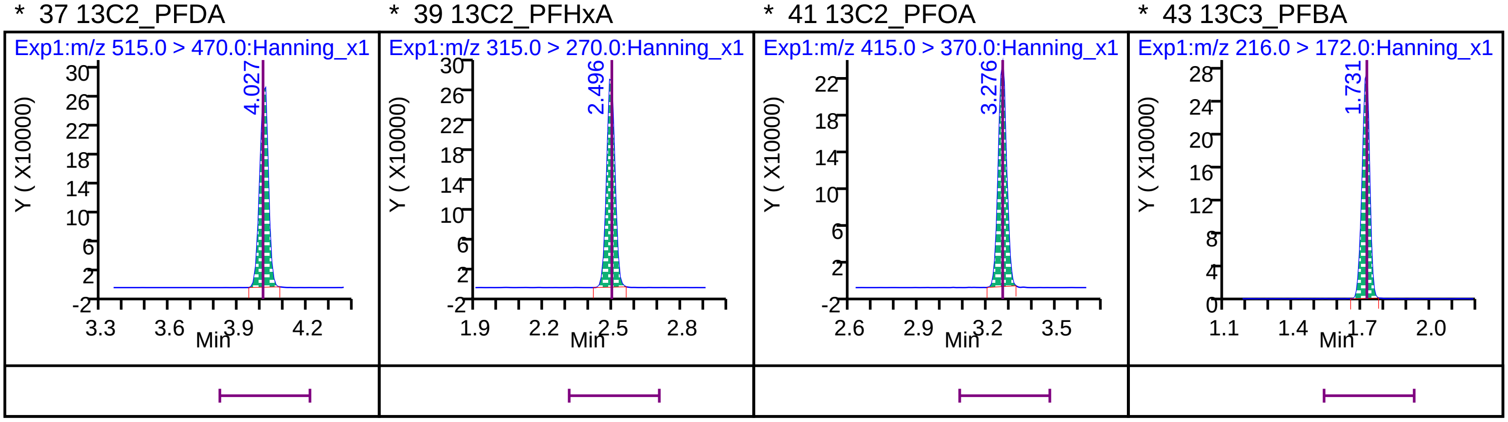
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A) D 40 13C2_PFHxDA (A)



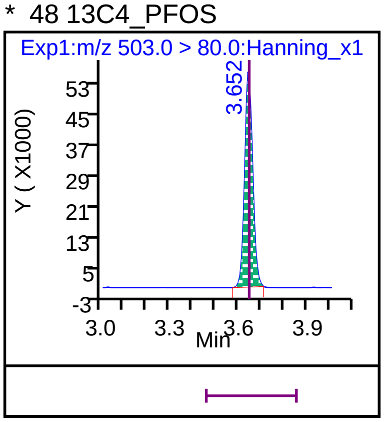
36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA (A)



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



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Pace Environmental Services, LLC

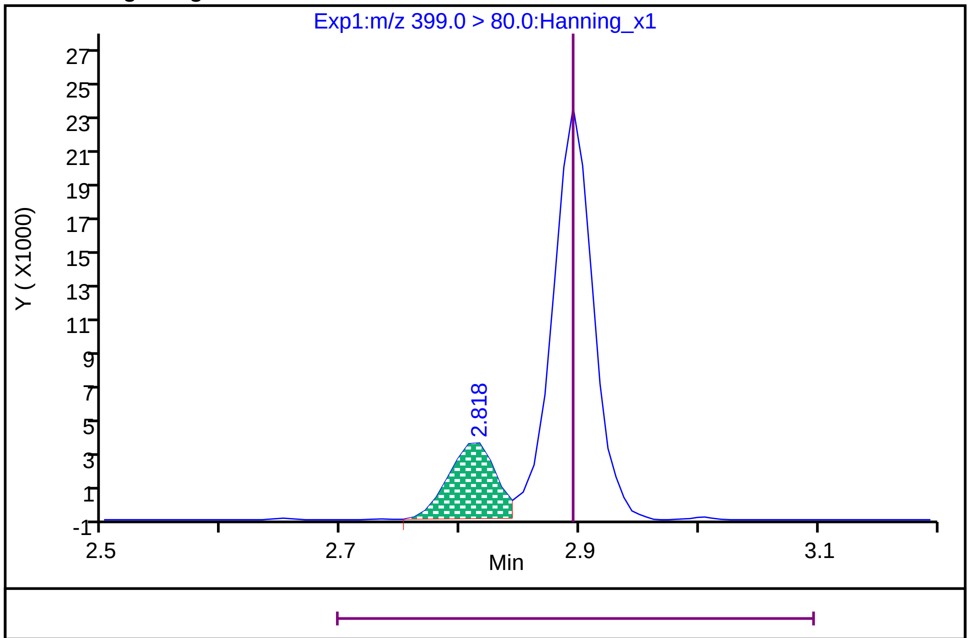
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

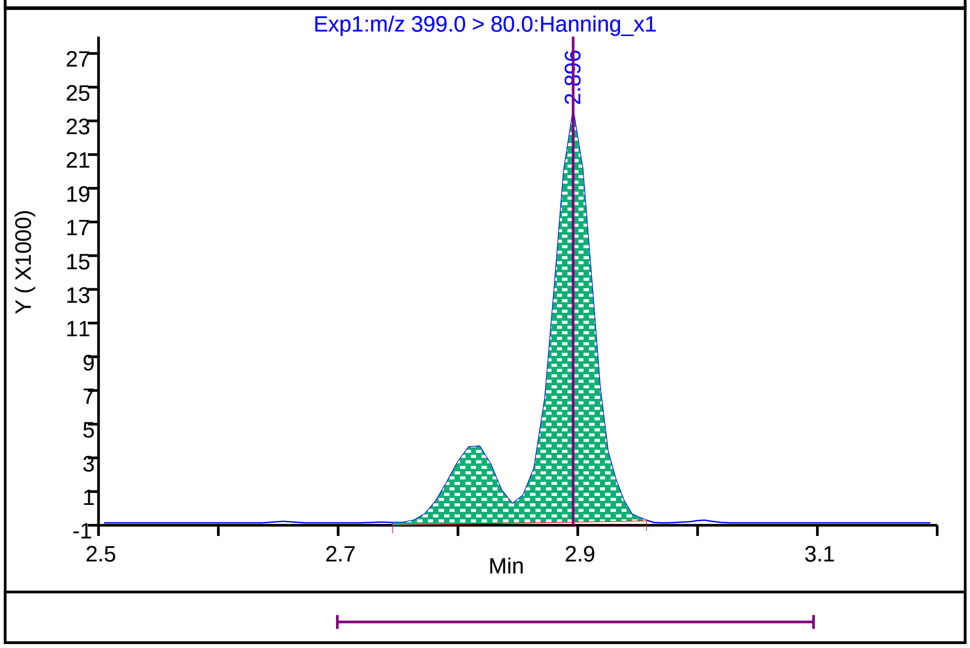
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.818
Area:	11901
Amount:	-828.52
Amount Units:	ng/L



RT:	2.896
Area:	67873
Amount:	462.77
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:51:24

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

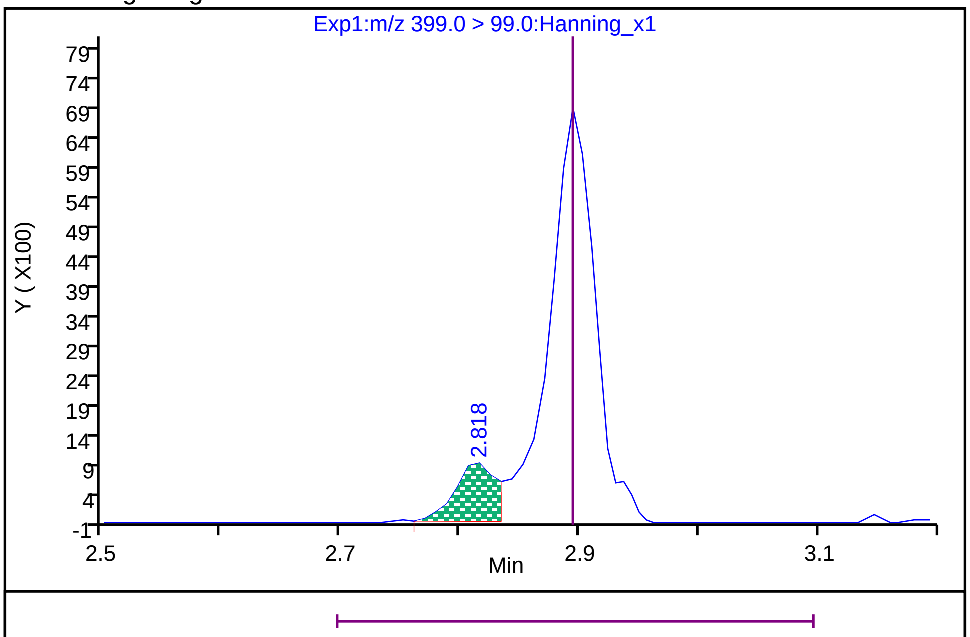
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

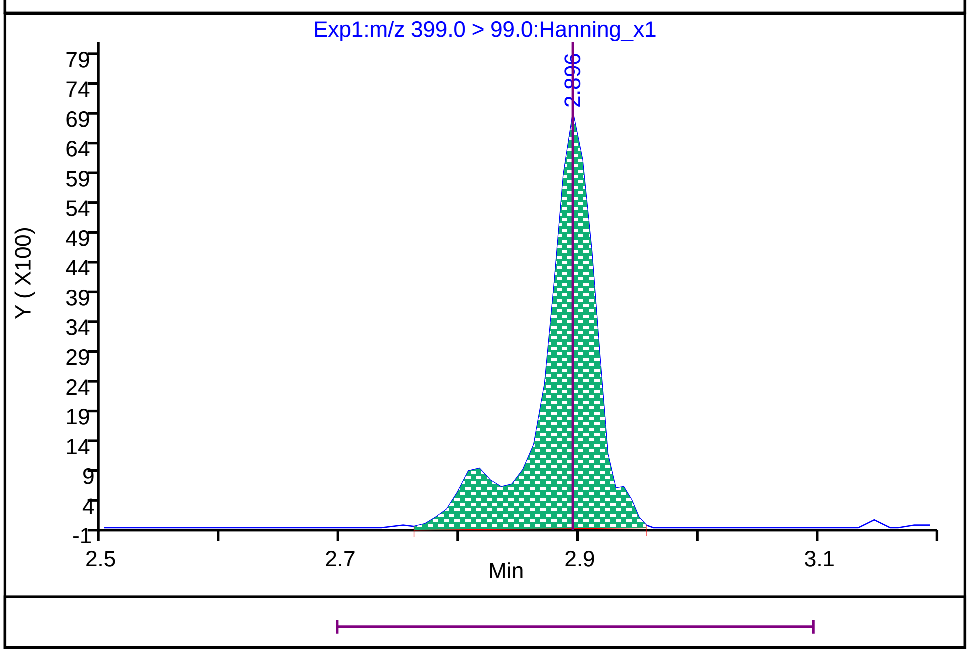
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.818
Area:	2213
Amount:	462.77
Amount Units:	ng/L



RT:	2.896
Area:	20824
Amount:	462.77
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:51:27

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

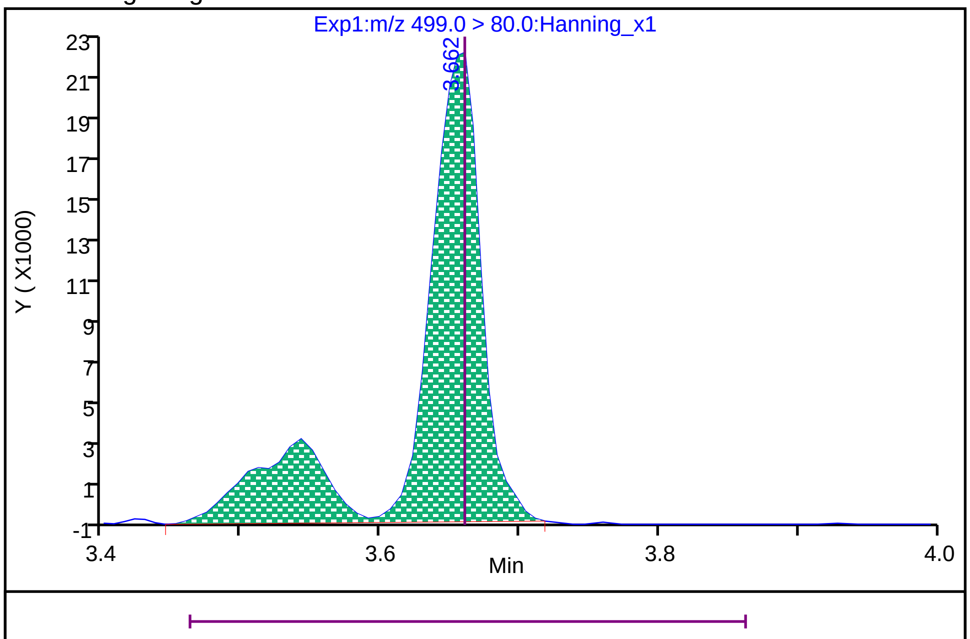
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

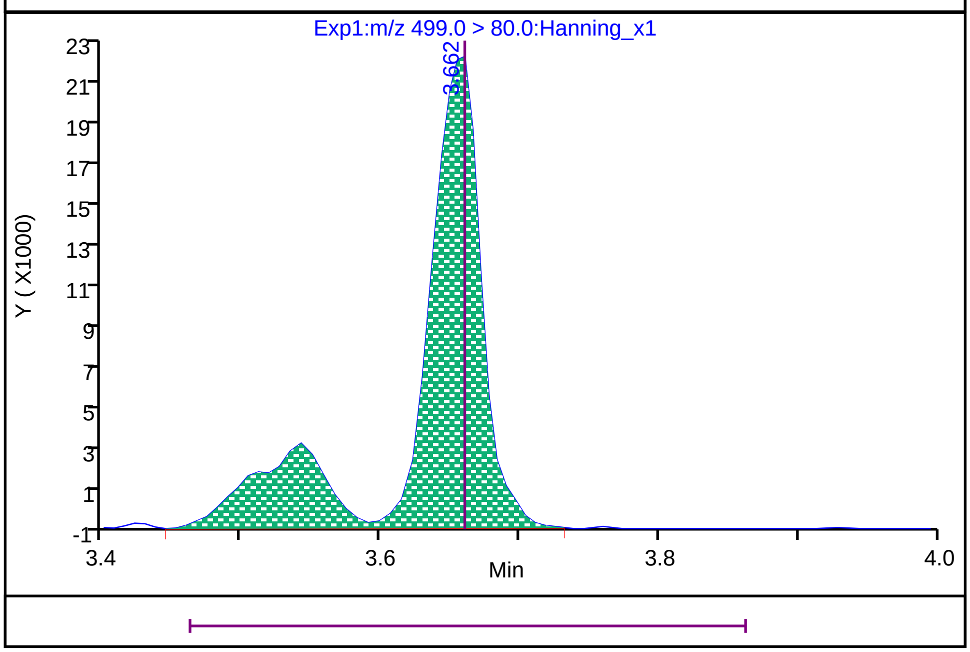
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.662
Area:	67608
Amount:	441.12
Amount Units:	ng/L



RT:	3.662
Area:	69058
Amount:	446.73
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:06

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	79
Sample Info:	ID ICAL 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	635753	19	>100:1			1000.00	1022.65	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	673213	20	>100:1			1000.00	1004.07		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	580113	15	>100:1			1000.00	1014.91	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	626696	14	>100:1			1000.00	959.84		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	178463	17	>100:1			1000.00	1031.76	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	185899	15	>100:1	Target = 3.53		884.00	835.32		
298.9 > 99	44	2.183	2.183		54712	15	>100:1	3.39 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/-1	145842	17	>100:1	Target = 3.10		938.00	881.78		
349 > 99	44	2.531	2.531		46591	16	>100:1	3.13 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	112299	18	>100:1			5000.00	4959.39	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	45981	16	>100:1	Target = 1.75		934.00	928.72		
327 > 81	63	2.460	2.460		28095	17	52:1	1.63 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	0	664948	17	>100:1			1000.00	1020.98	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	0/0	683707	16	>100:1	Target = 18.91		1000.00	988.89		
313 > 119	49	2.505	2.505		36511	21	>100:1	18.72 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	0	1204882	18	>100:1			5000.00	5198.92	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	0/0	302352	19	>100:1	Target = 0.79		2000.00	1937.36		
285 > 185	66	2.622	2.622		389193	18	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	532996	16	>100:1			1000.00	1003.88	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	577941	18	>100:1	Target = 3.80		1000.00	986.80		
363 > 169	47	2.880	2.880		158273	16	>100:1	3.65 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	129716	24	>100:1			1000.00	1032.45	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	127977	26	>100:1	Target = 2.89	4.78	910.00	897.40		M
399 > 99	45	2.896	2.896		42817	25	>100:1	2.98 (1.44-4.34)	7.51				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	0/0	956587	20	>100:1	Target = 3.23		942.00	950.90		
377 > 85	45	2.919	2.919		283572	20	>100:1	3.37 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	123066	21	>100:1	Target = 3.12		952.00	923.73		
449 > 99	45	3.282	3.276		40248	22	>100:1	3.05 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	93946	20	>100:1			5000.00	5219.23	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	38863	21	>100:1	Target = 1.75		948.00	873.75		
427 > 81	64	3.255	3.248		22878	18	42:1	1.69 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	0	547741	21	>100:1			1000.00	1043.96	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	557437	23	>100:1	Target = 2.89		1000.00	993.12		
413 > 169	53	3.276	3.276		188943	22	>100:1	2.95 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	0	131913	20	>100:1			1000.00	1065.16	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	0/0	135192	39	>100:1	Target = 3.30	3.36	928.00	860.73		M
499 > 99	54	3.657	3.662		41577	36	>100:1	3.25 (1.65-4.95)	6.84				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	0/0	434114	16	>100:1			932.00	868.98		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	0/0	96544	14	>100:1	Target = 3.08		960.00	912.24		
549 > 99	54	4.006	4.006		30621	15	>100:1	3.15 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/0	95227	15		Target = 2.72		964.00	922.50		
599 > 99	54	4.318	4.318		38891	14	>100:1	2.44 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	0/0	398089	17	>100:1			942.00	881.46		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	0/0	106090	18	>100:1	Target = 3.27		968.00	935.29		
699 > 99	54	4.842	4.842		31753	18	>100:1	3.34 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	639032	21	>100:1			1000.00	997.90	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	692229	21	>100:1	Target = 6.51		1000.00	1004.99		
463 > 169	56	3.662	3.662		99650	20	>100:1	6.94 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	0	266767	21	>100:1			1000.00	995.18	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	0/0	285564	18	>100:1	Target = 41.63		1000.00	1017.37		
498>478	55	3.896	3.896		10606	21		26.92 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	0	575846	17	>100:1			1000.00	1002.06	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	0/0	703570	16	>100:1	Target = 13.80		1000.00	1049.89		
513 > 169	51	4.016	4.016		48911	15		14.38 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	0	78835	15	>100:1			5000.00	4561.02	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/0	41928	20	>100:1	Target = 1.94		958.00	1176.85		
527 > 81	65	4.006	4.016		19107	18	63:1	2.19 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	43040	15	>100:1	Target = 3.54		964.00	1076.14		
627 > 80	65	4.631	4.631		13692	14	43:1	3.14 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	772780	18	>100:1			5000.00	5113.94	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/0	129692	30	>100:1	Target = 1.37	8.10	1000.00	1045.74		
570 > 483	58	4.178	4.178		87893	32	>100:1	1.47 (0.68-2.05)	4.77				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	0	90070	16	>100:1			1000.00	998.68	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/0	98832	14	>100:1			1000.00	1004.06		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	44997	13	97:1			1000.00	956.54	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	52838	13	>100:1	Target = 1.11		1000.00	1083.38		
512 > 219	57	4.318	4.318		43925	14	>100:1	1.20 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	0	689688	16	>100:1			5000.00	5325.23	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	0/0	141729	32	>100:1	Target = 1.51	6.54	1000.00	1053.78		
584 > 526	60	4.348	4.348		87163	30	>100:1	1.62 (0.75-2.26)	3.83				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	634567	15	>100:1			1000.00	1053.66	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	604574	15	>100:1	Target = 14.52		1000.00	983.25		
563 > 169	52	4.338	4.338		42367	17	>100:1	14.26 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	101585	19	>100:1			1000.00	957.65	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.464	0/0	105804	17	>100:1			1000.00	1069.91		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	0	42895	17	>100:1			1000.00	997.56	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	0/0	49973	15	>100:1	Target = 1.06		1000.00	971.74		
526 > 219	59	4.483	4.483		52334	15	>100:1	0.95 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	0	604291	17	>100:1			1000.00	1006.59	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	0/0	645872	16	>100:1	Target = 10.70		1000.00	1002.57		
613 > 169	38	4.622	4.622		58323	15	>100:1	11.07 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	0/0	645274	16	>100:1	Target = 8.31		1000.00	1015.92		
663 > 169	38	4.877	4.877		77419	21	>100:1	8.33 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	838224	21	>100:1			1000.00	1031.04	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	0/0	707684	22	100:1	Target = 12.17		1000.00	967.16		
713 > 169	42	5.106	5.106		58611	22	>100:1	12.07 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.544	5.544	0	877835	21	>100:1			1000.00	1011.29	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.552	5.552	0/0	534818	21	71:1	Target = 10.43		1000.00	951.28		
813 > 269	40	5.552	5.552		51196	21	>100:1	10.44 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.026	6.026	1/1	821940	44	48:1	Target = 13.67		1000.00	1028.49		
913 > 319	40	6.021	6.026		58656	40	>100:1	14.01 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	0	652287	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	0	682639	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	562836	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	589407	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	130980	23	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

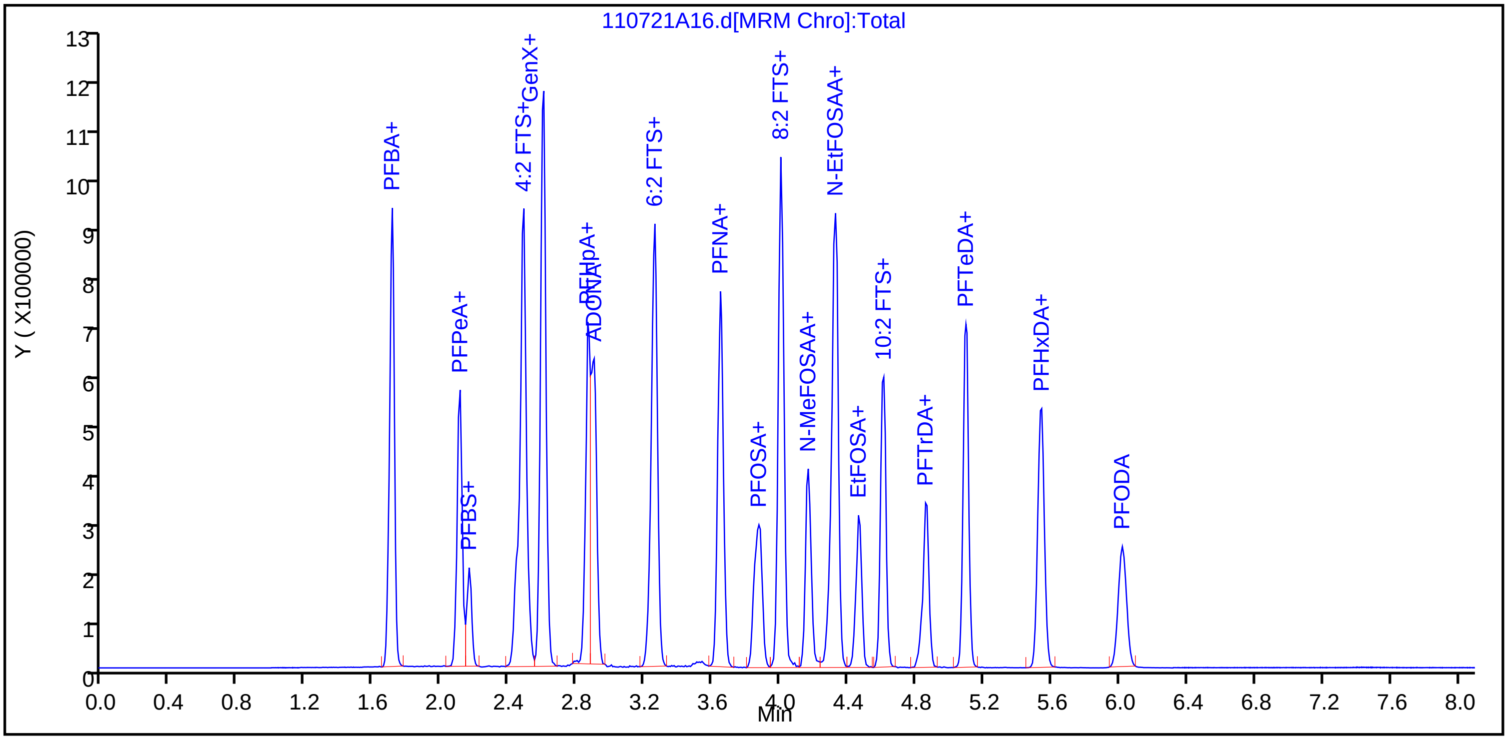
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

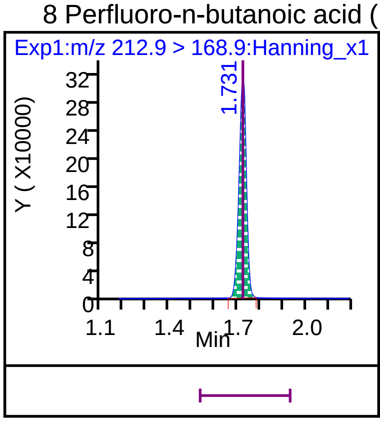
Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

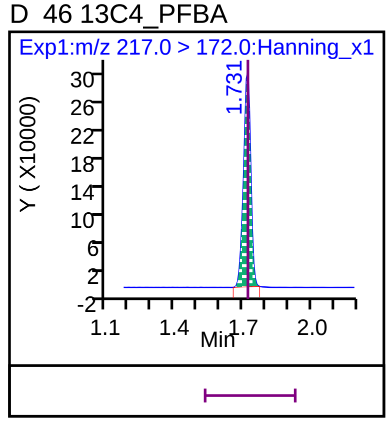
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



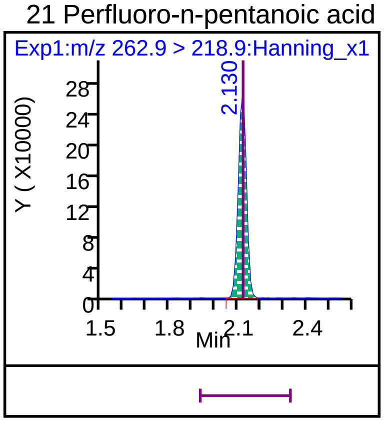
8 Perfluoro-n-butanoic acid (PFBA)



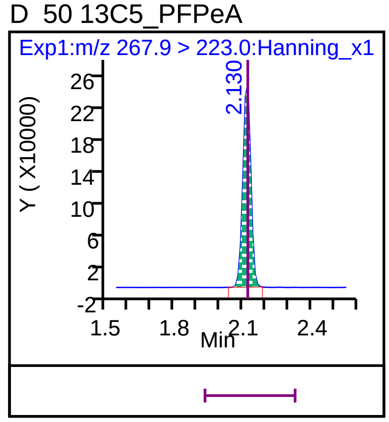
D 46 13C4_PFBA



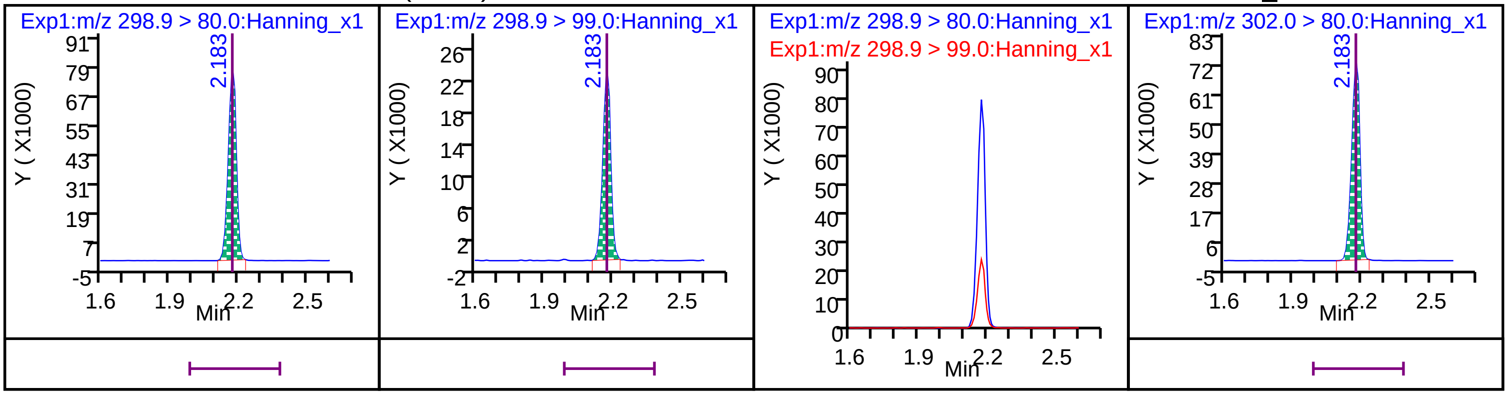
21 Perfluoro-n-pentanoic acid (PFPeA)



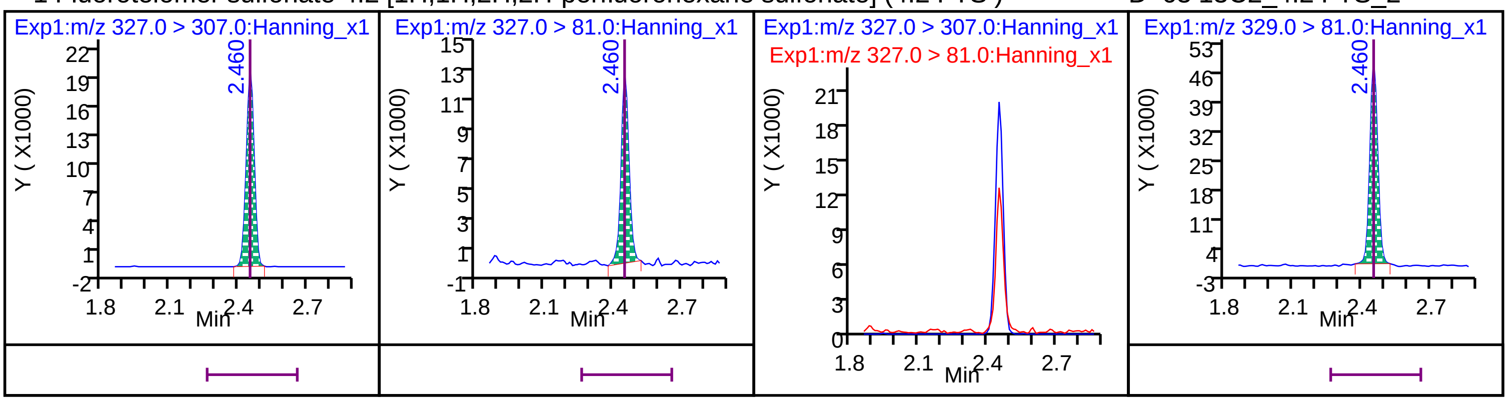
D 50 13C5_PFPeA



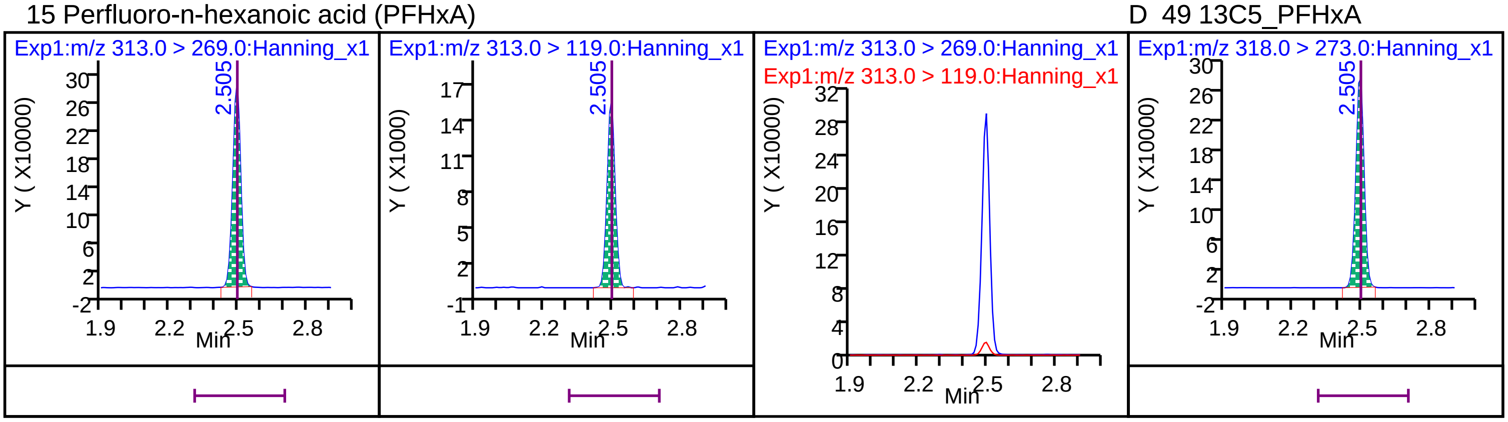
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



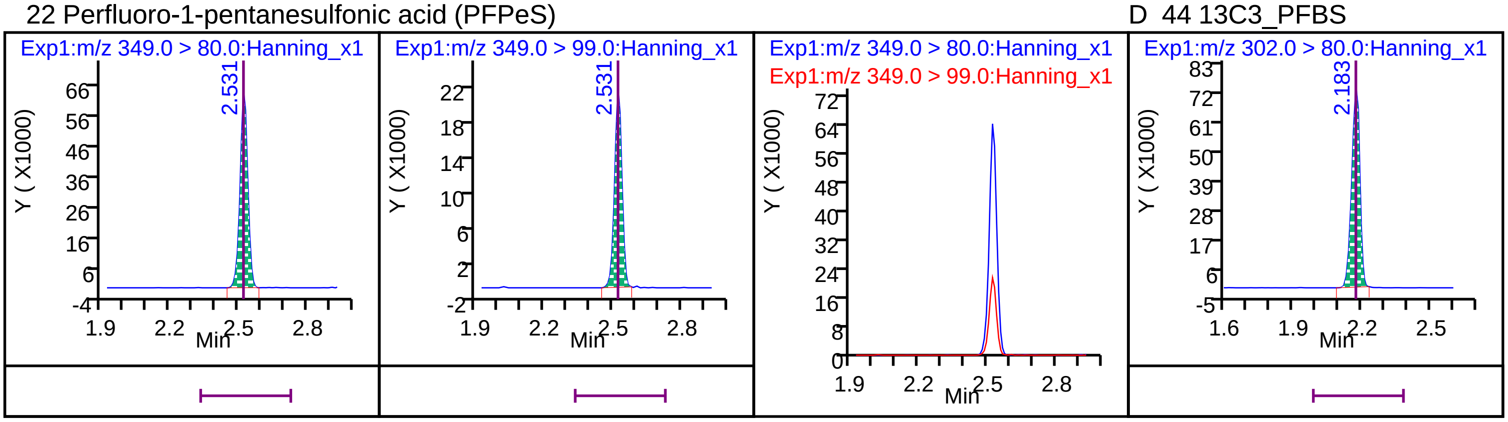
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



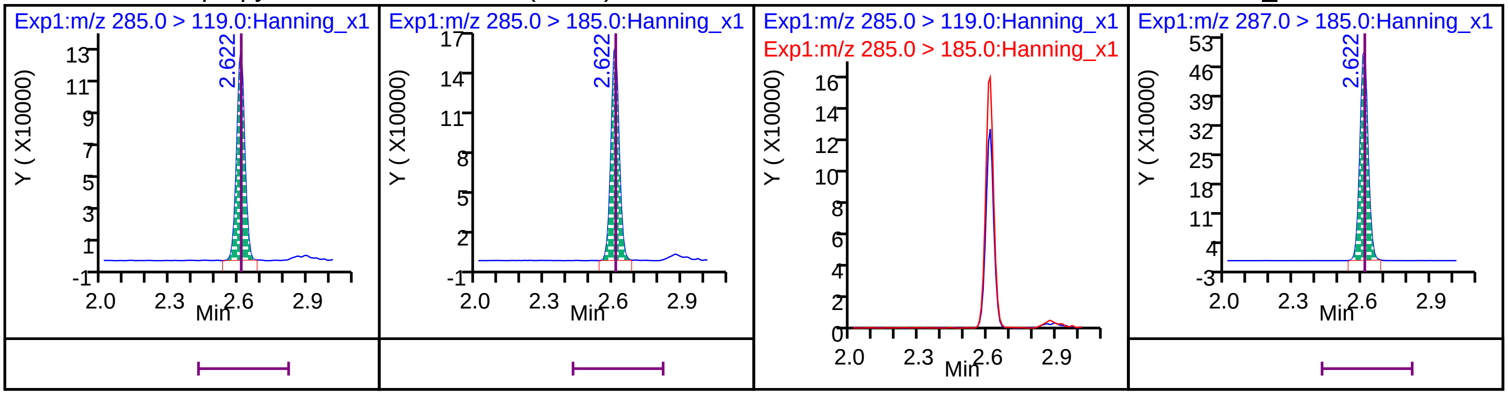
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



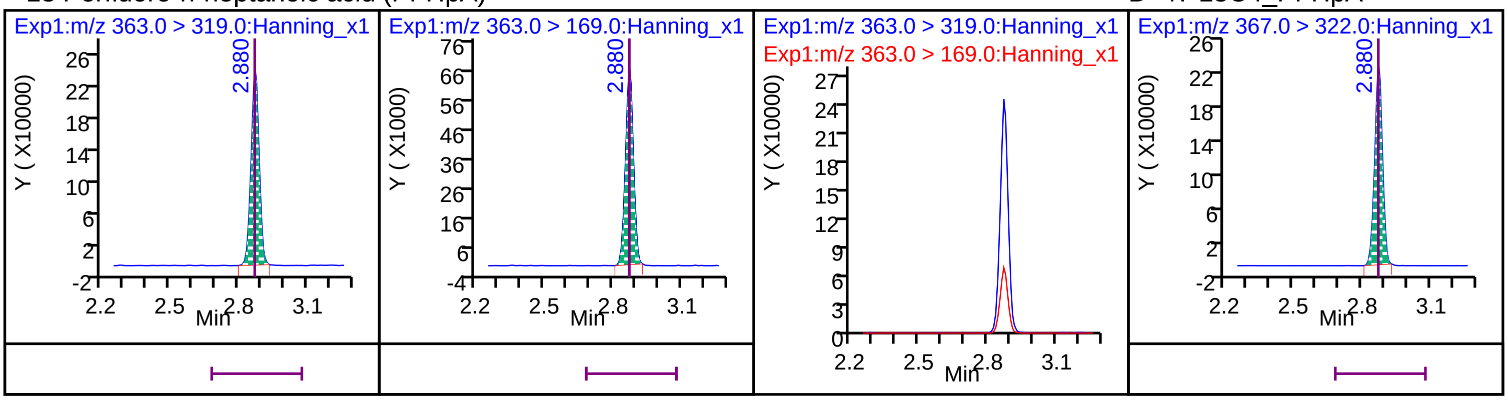
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



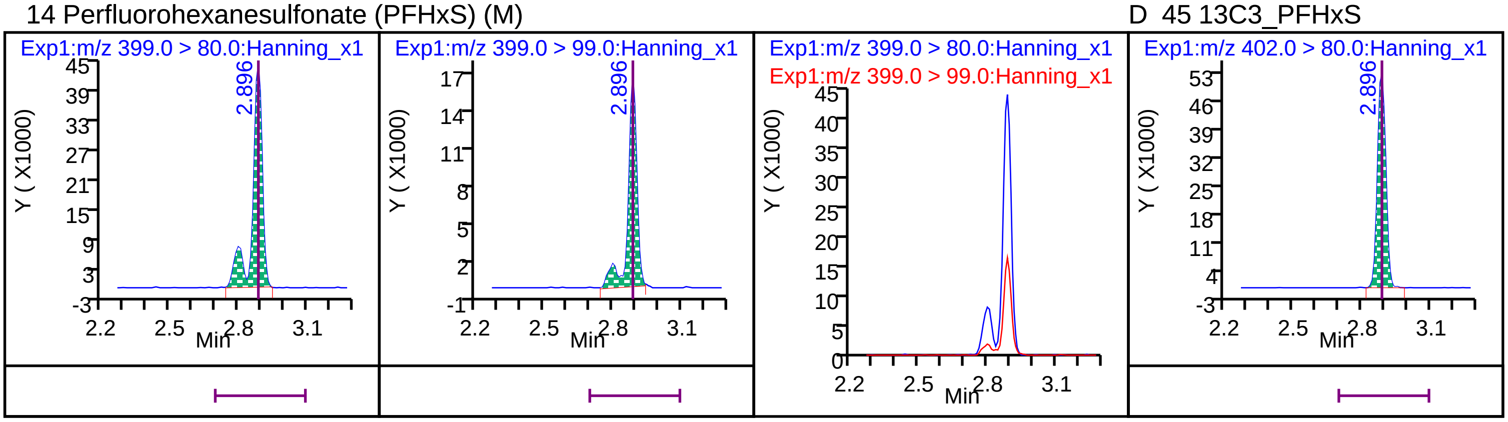
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



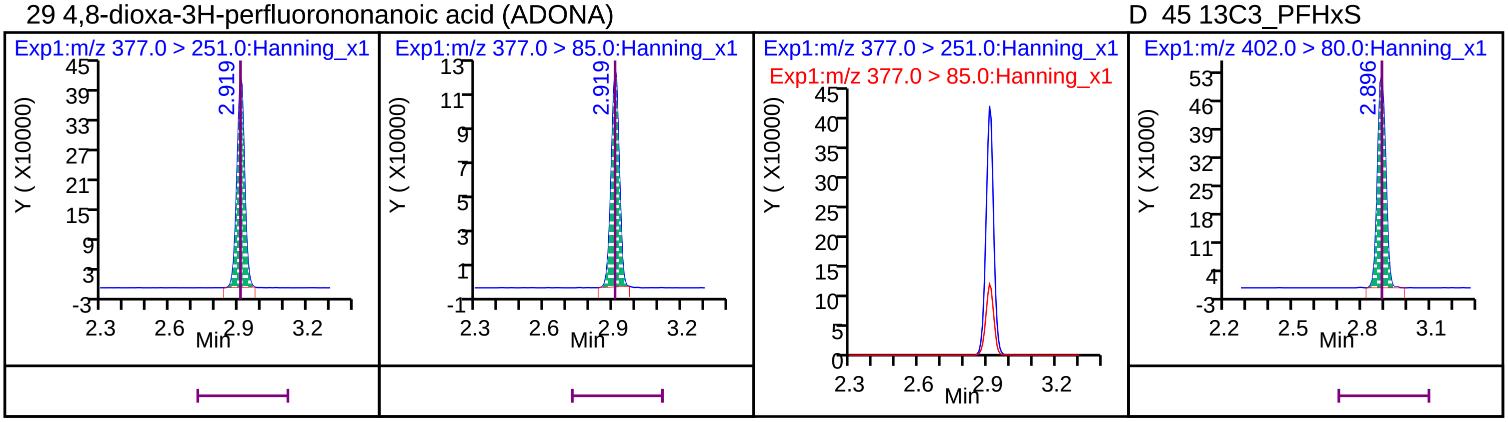
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



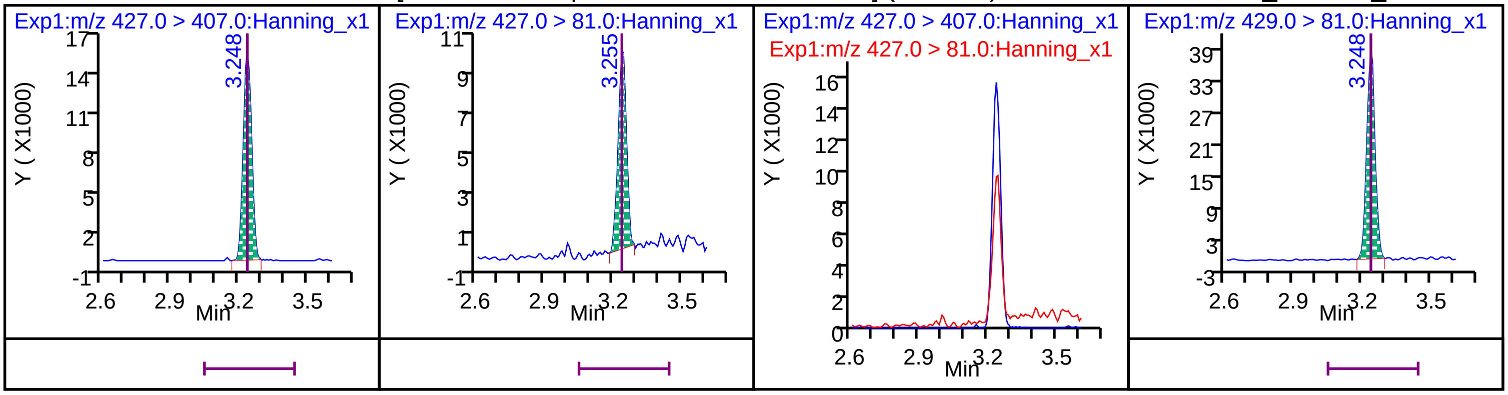
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



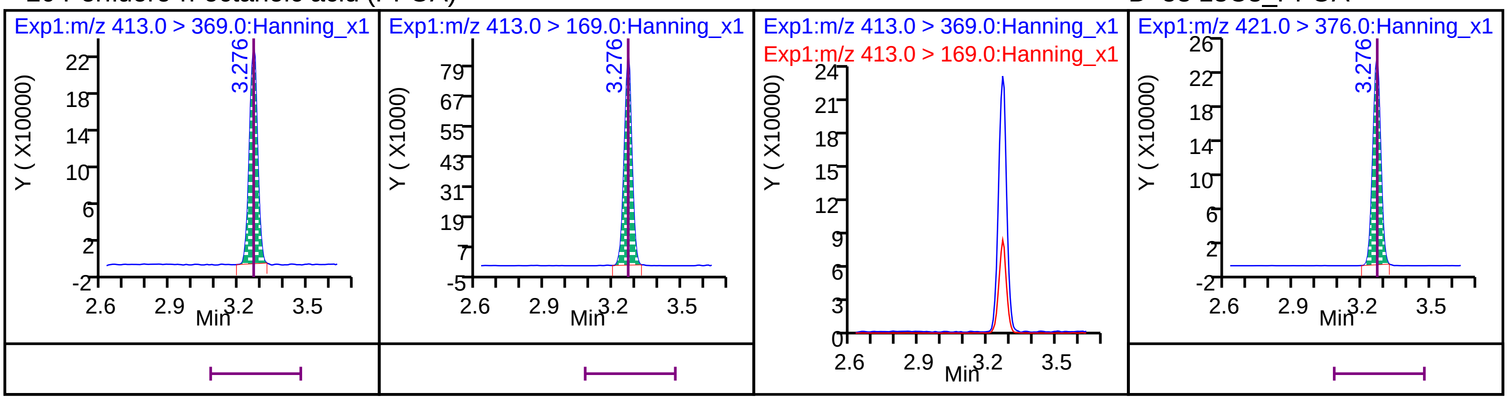
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



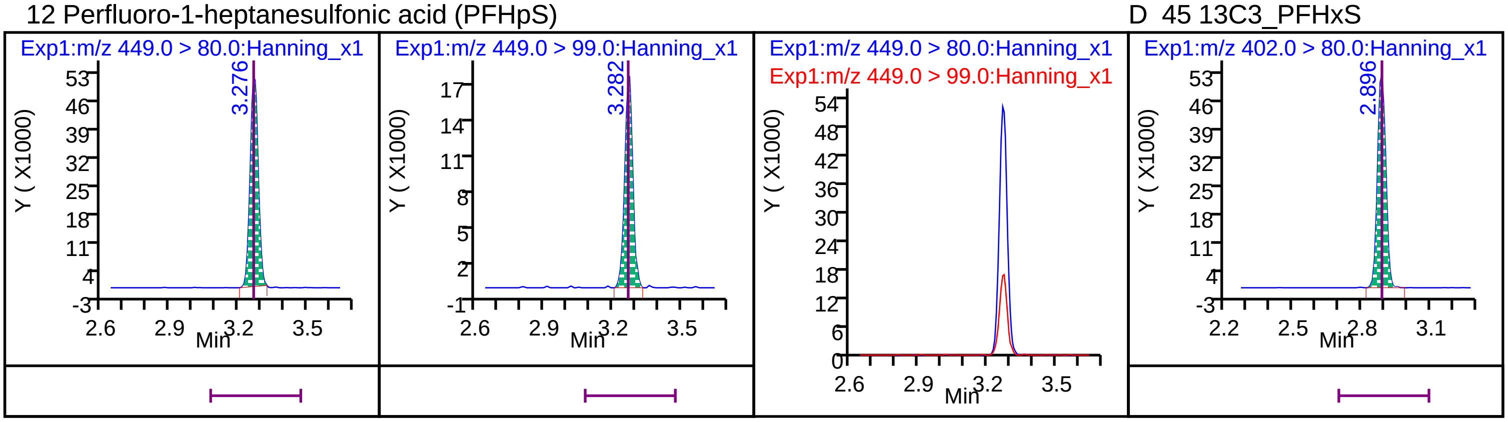
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS)
D 64 13C2_6:2 FTS_2



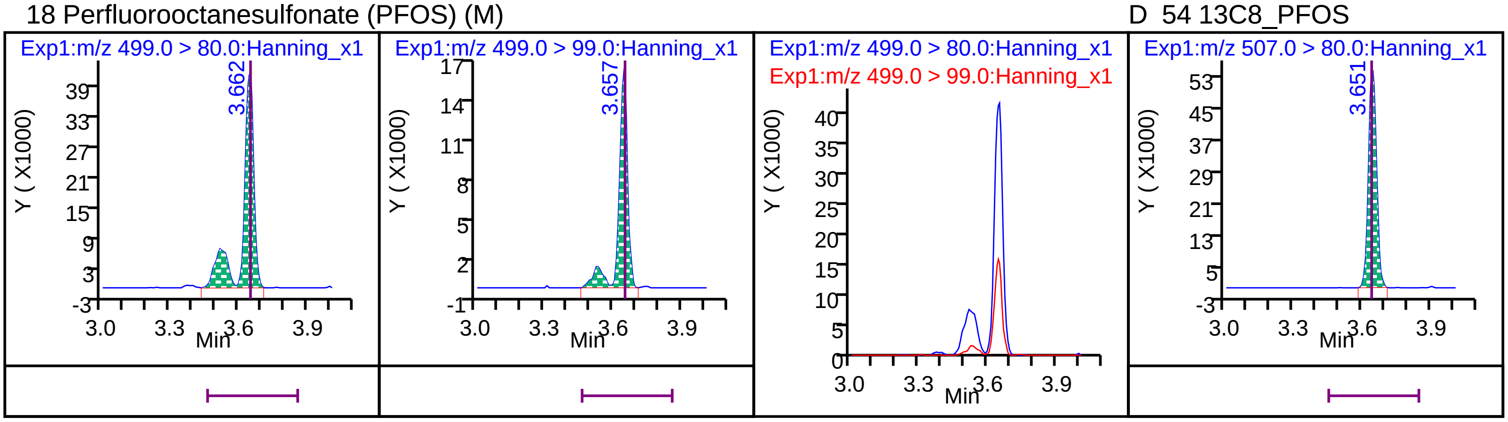
20 Perfluoro-n-octanoic acid (PFOA)
D 53 13C8_PFOA



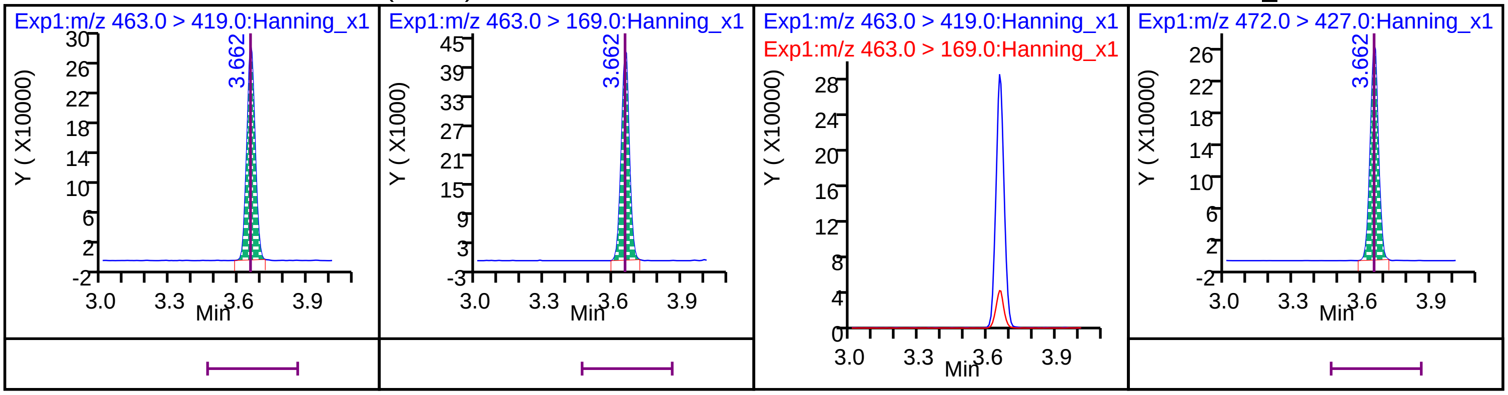
12 Perfluoro-1-heptanesulfonic acid (PFHpS)
D 45 13C3_PFHxS



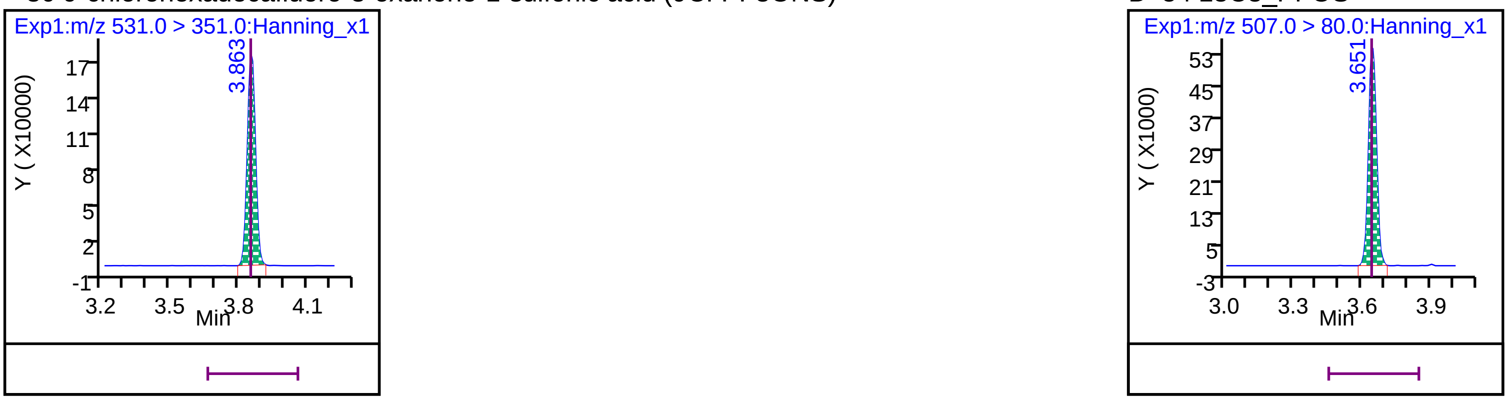
18 Perfluorooctanesulfonate (PFOS) (M)
D 54 13C8_PFOS



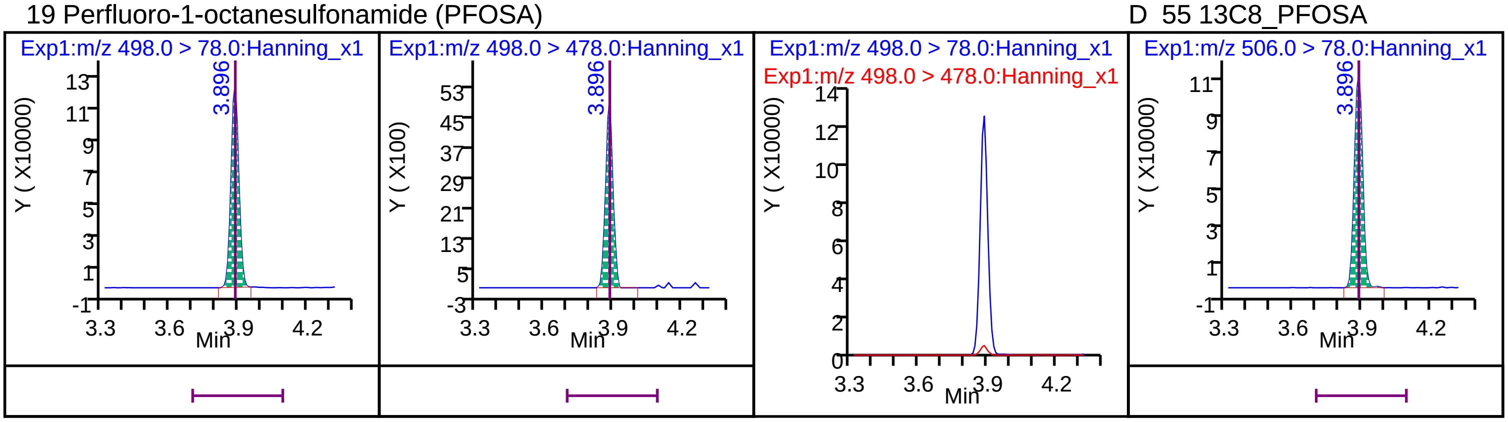
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



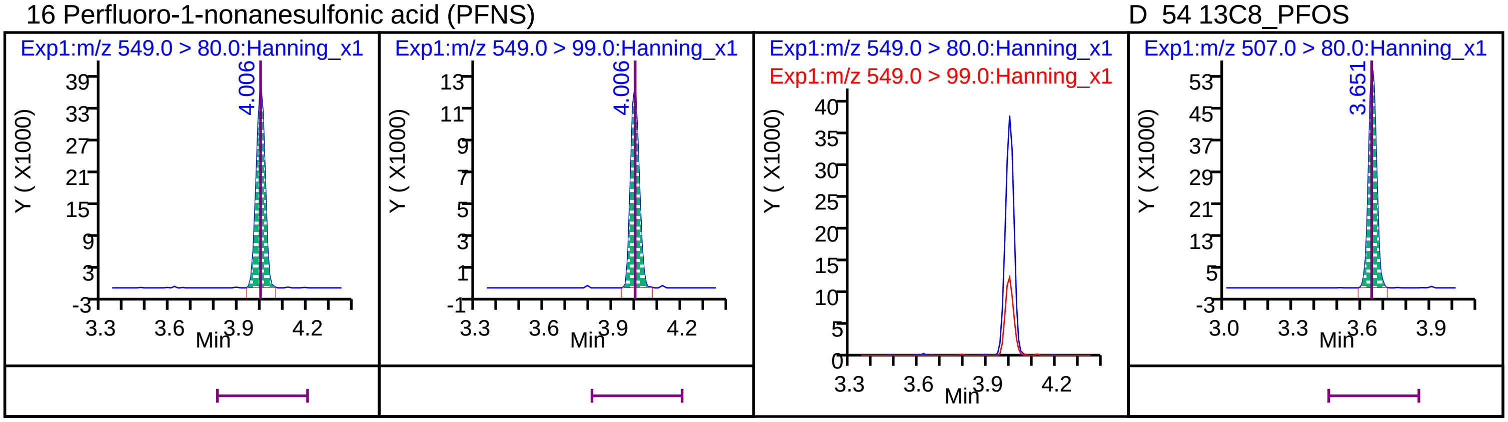
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



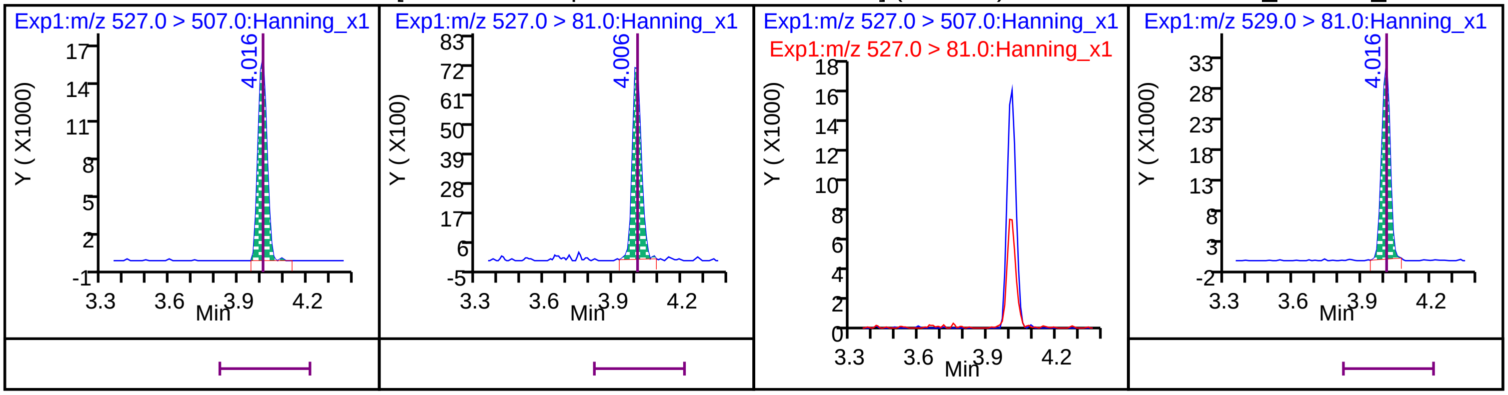
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



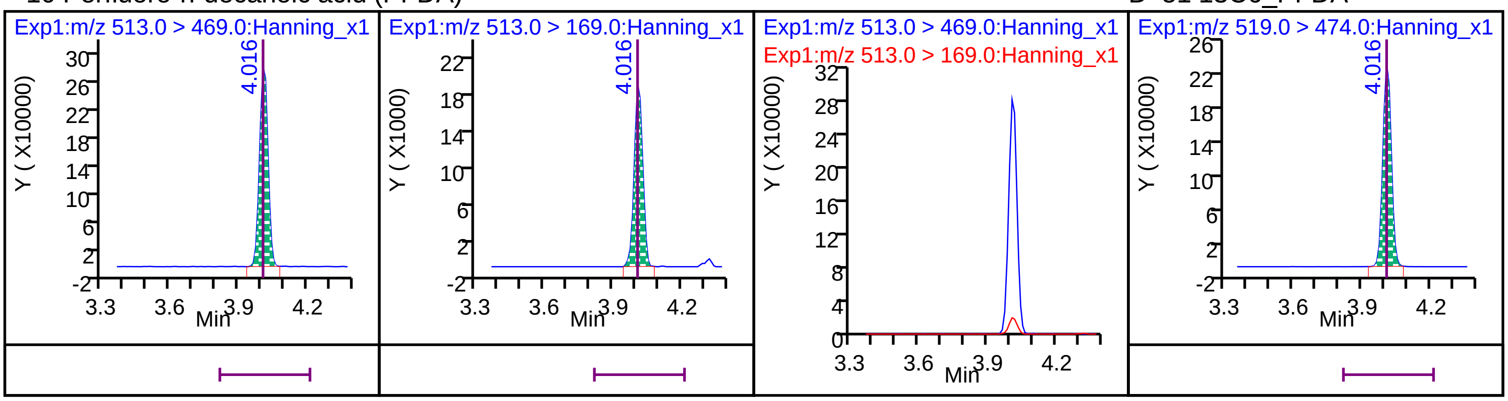
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



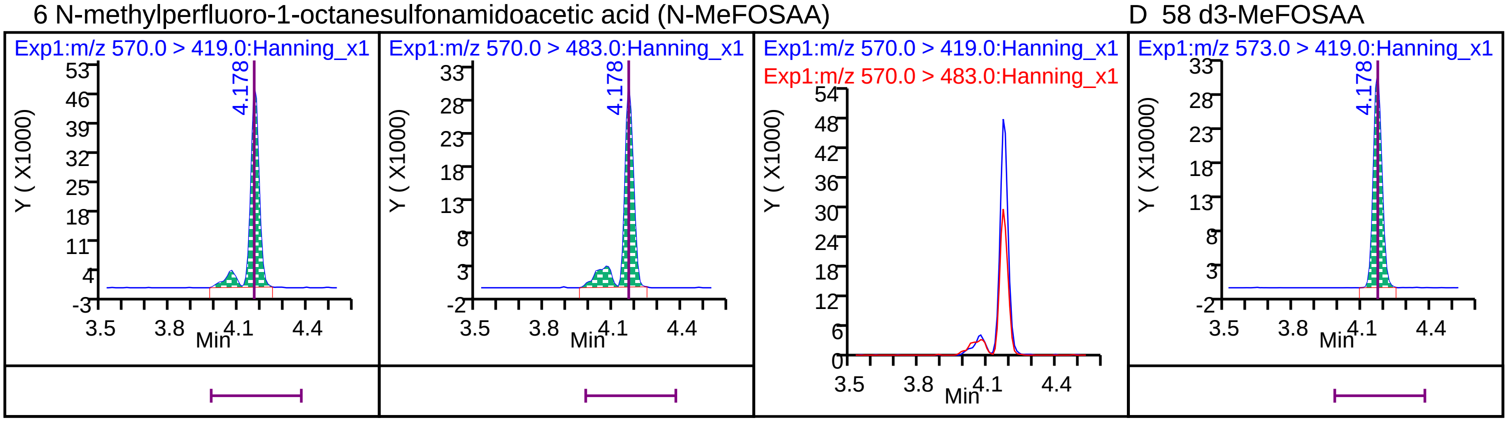
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



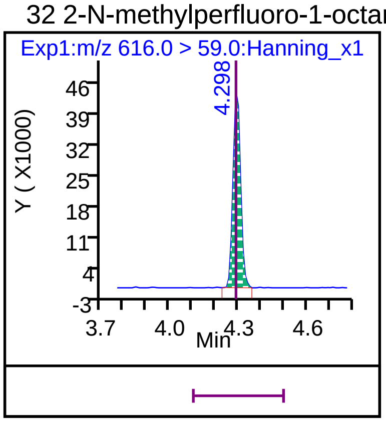
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

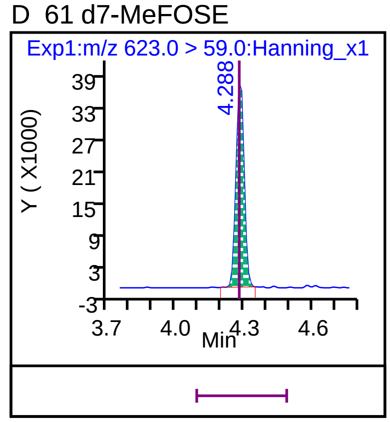


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

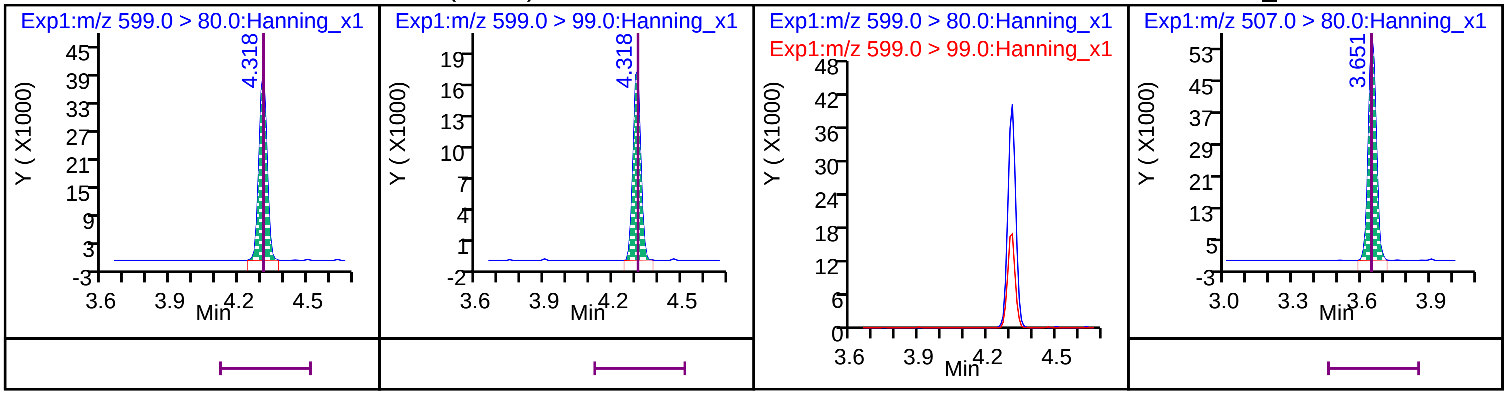


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

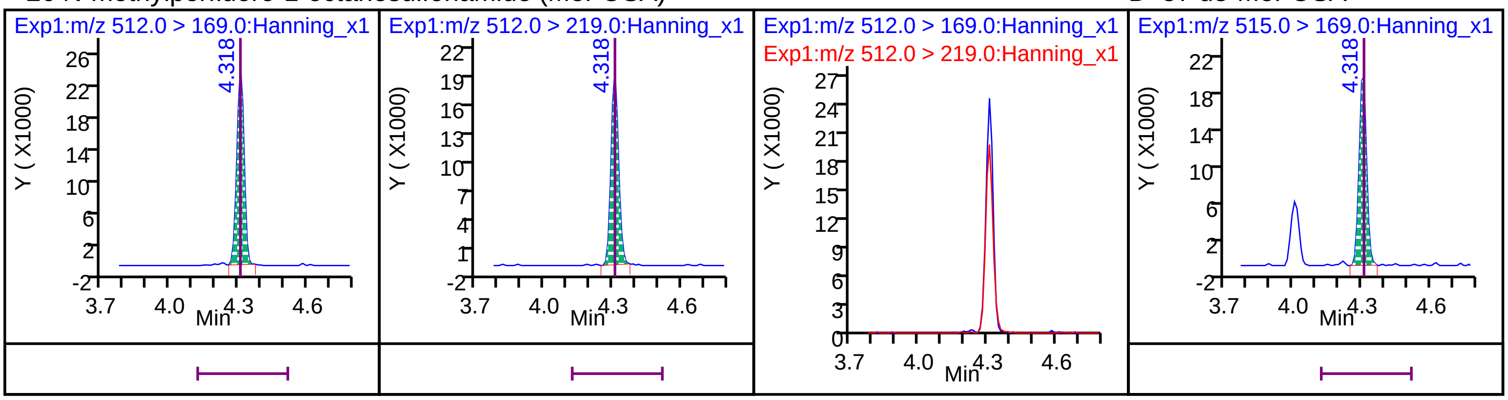




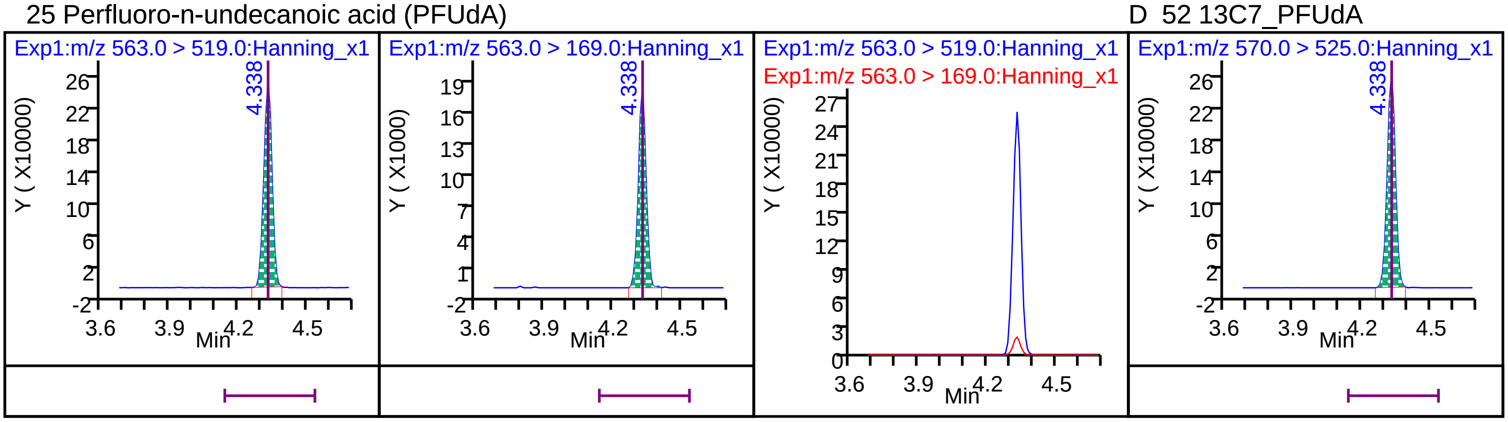
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



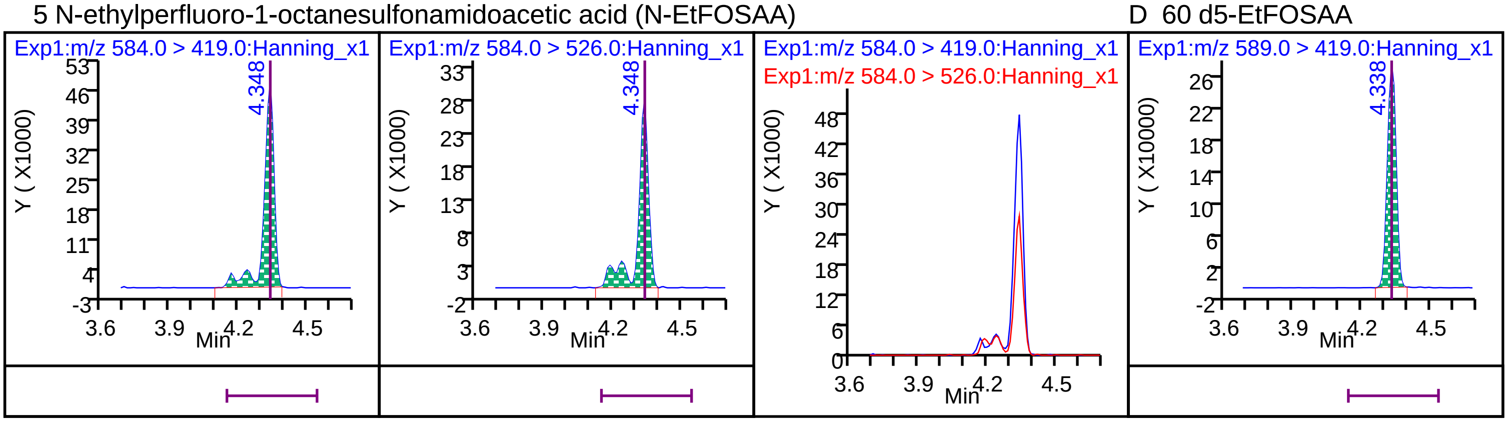
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



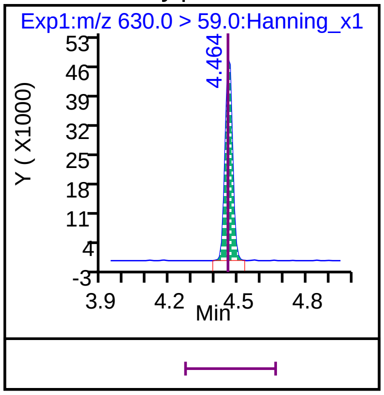
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



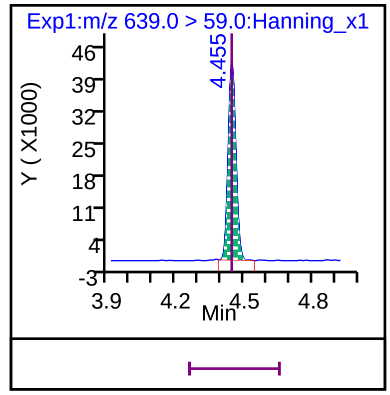
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



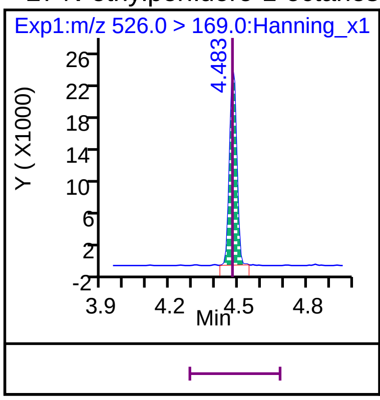
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

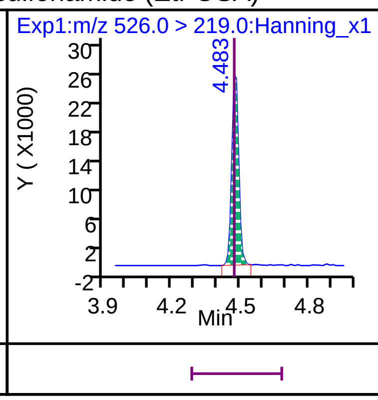


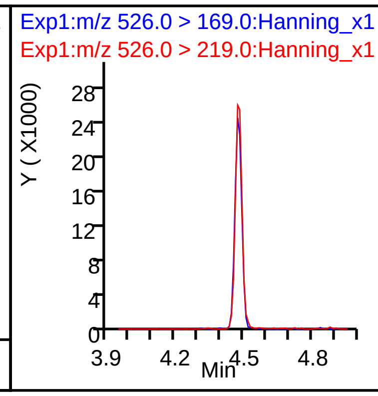
D 62 d9-EtFOSE



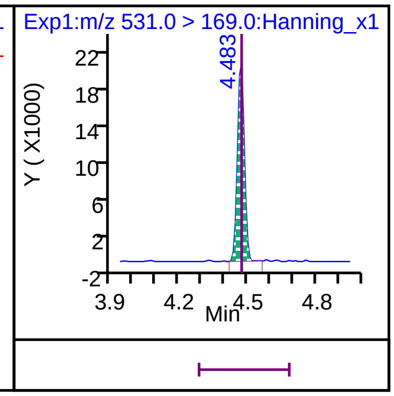
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



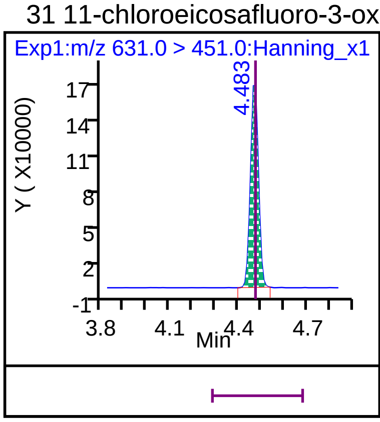




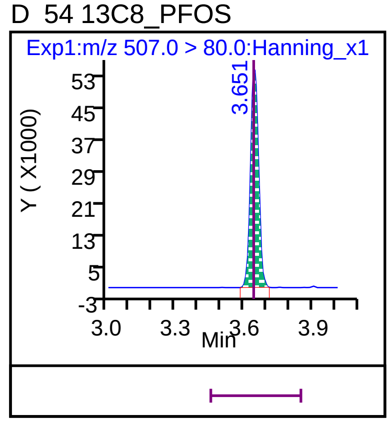
D 59 d5-EtFOSA



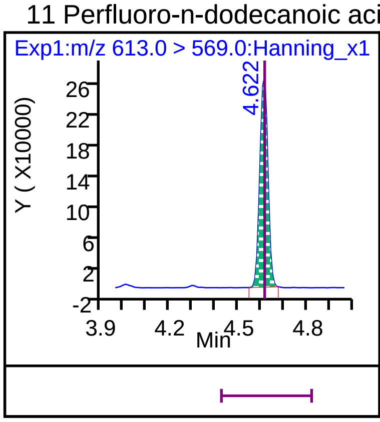
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

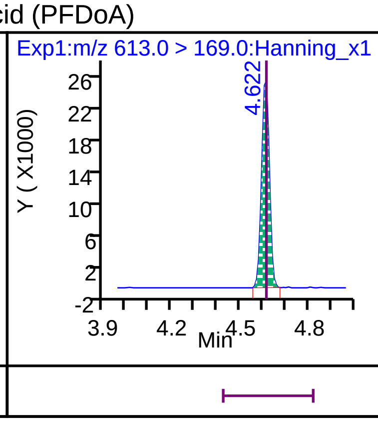


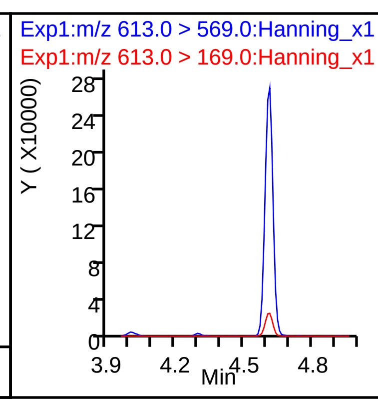
D 54 13C8_PFOS



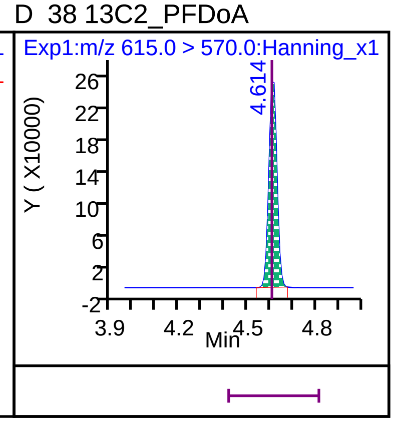
11 Perfluoro-n-dodecanoic acid (PFDoA)



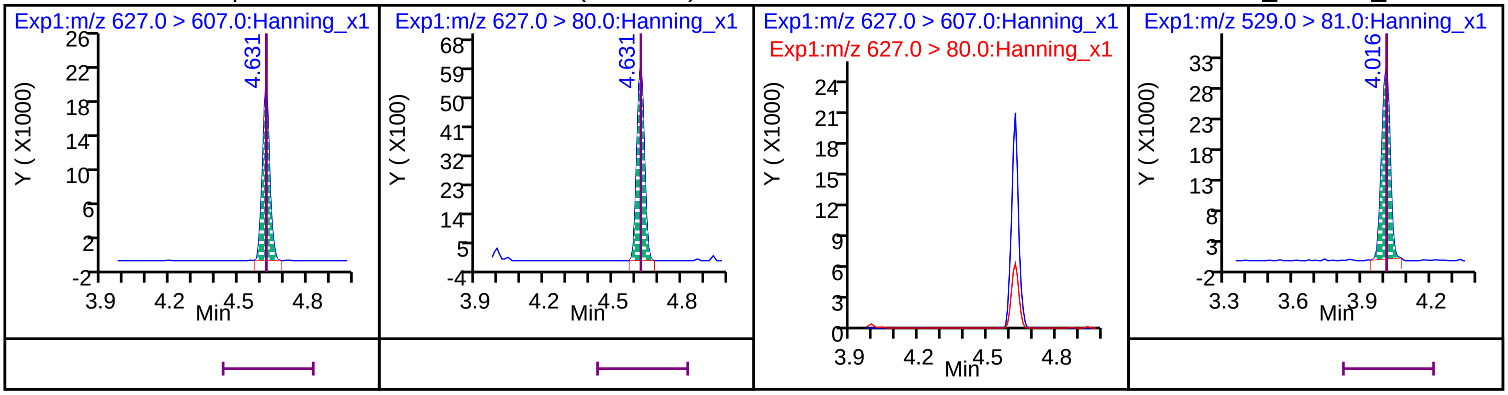




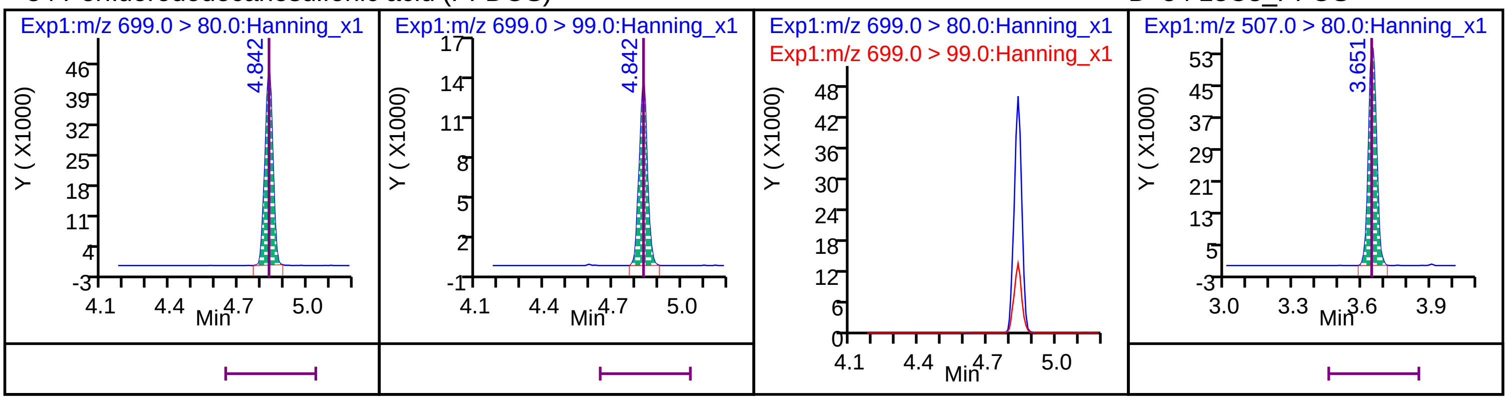
D 38 13C2_PFDoA



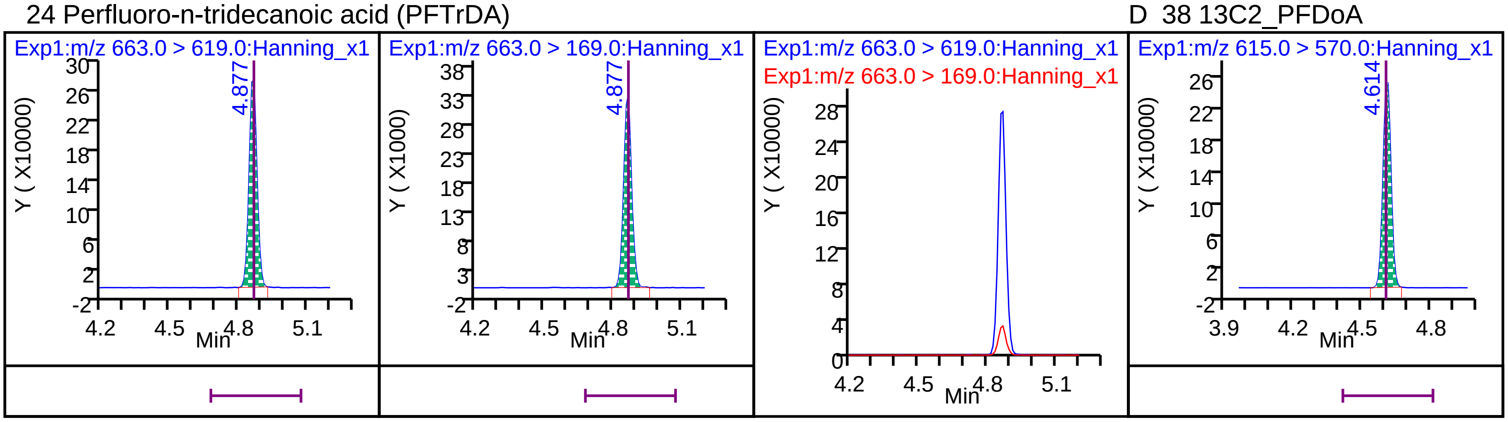
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



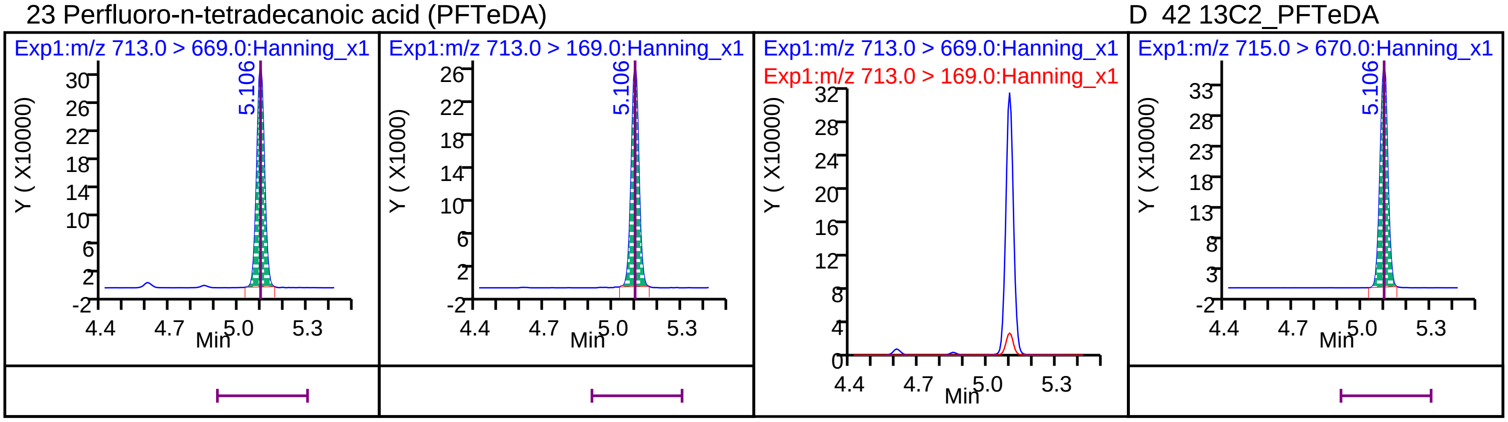
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



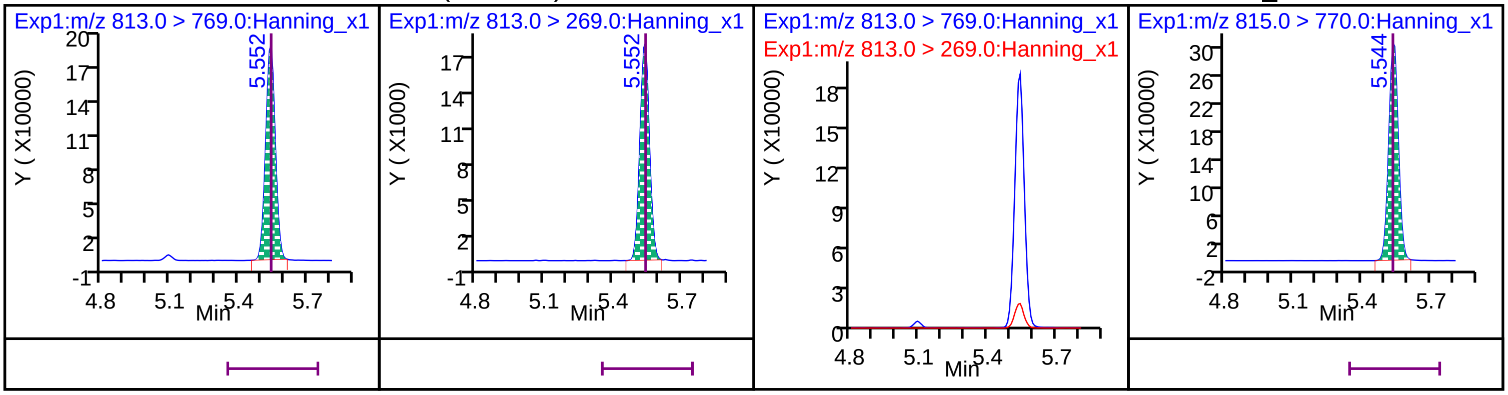
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



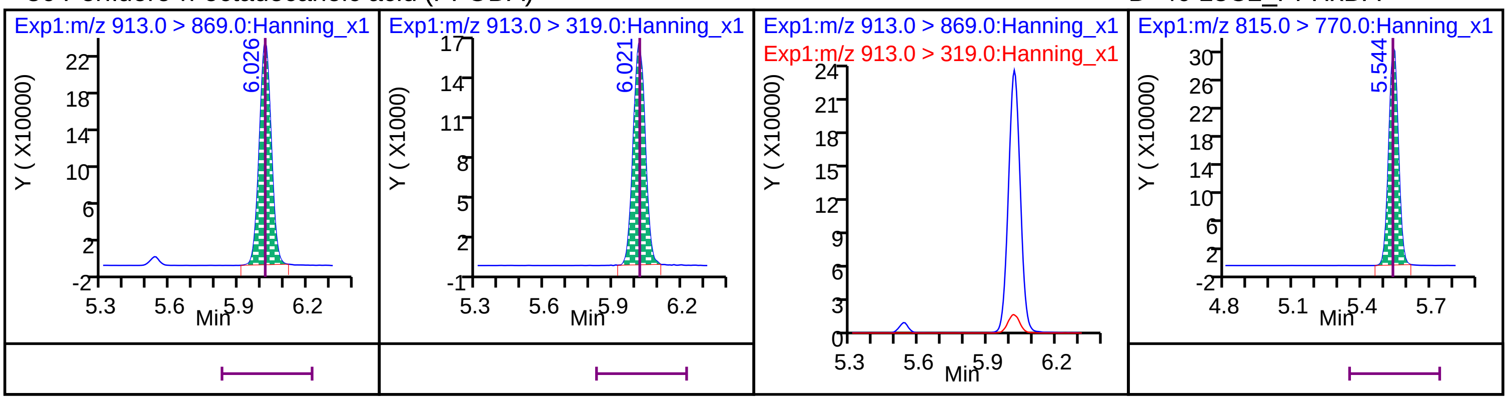
Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

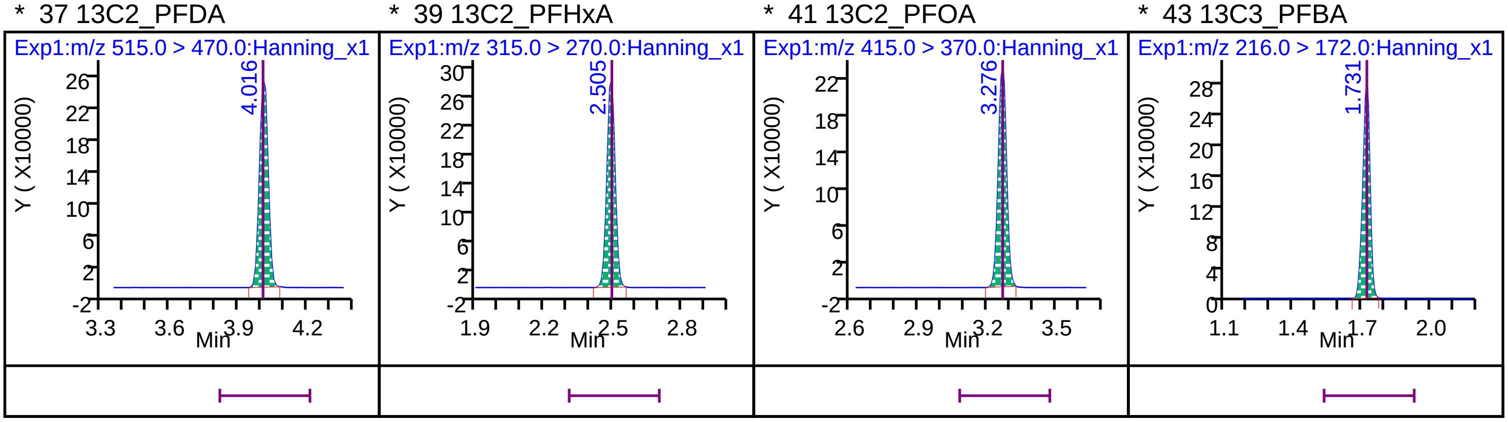
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



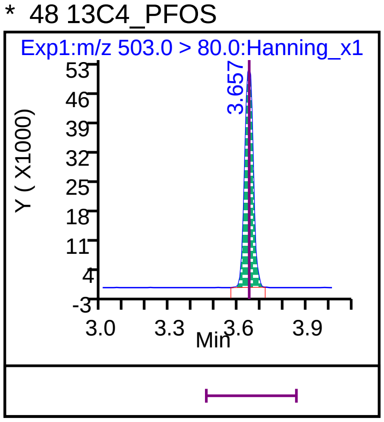
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

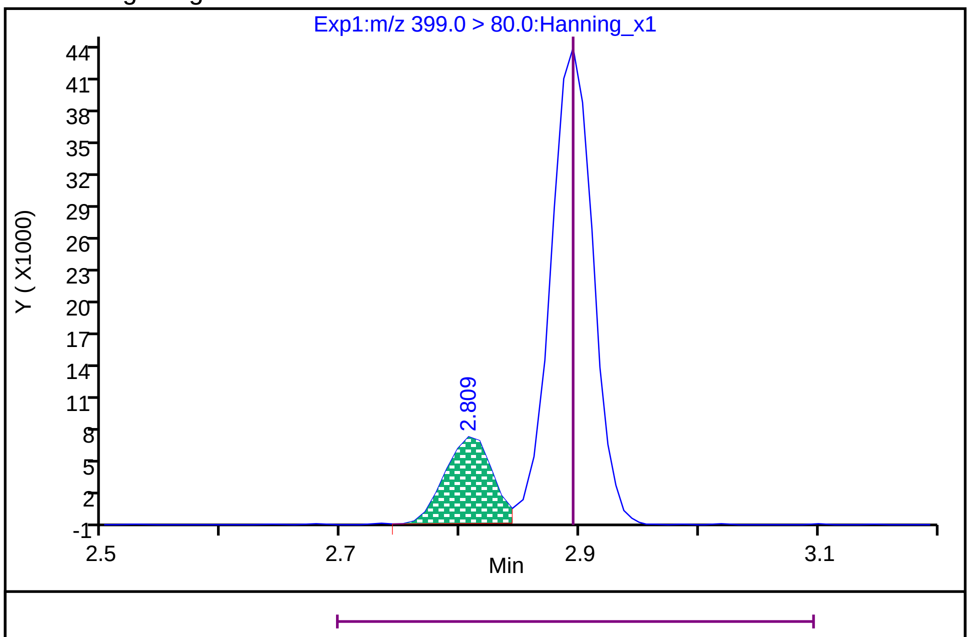
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

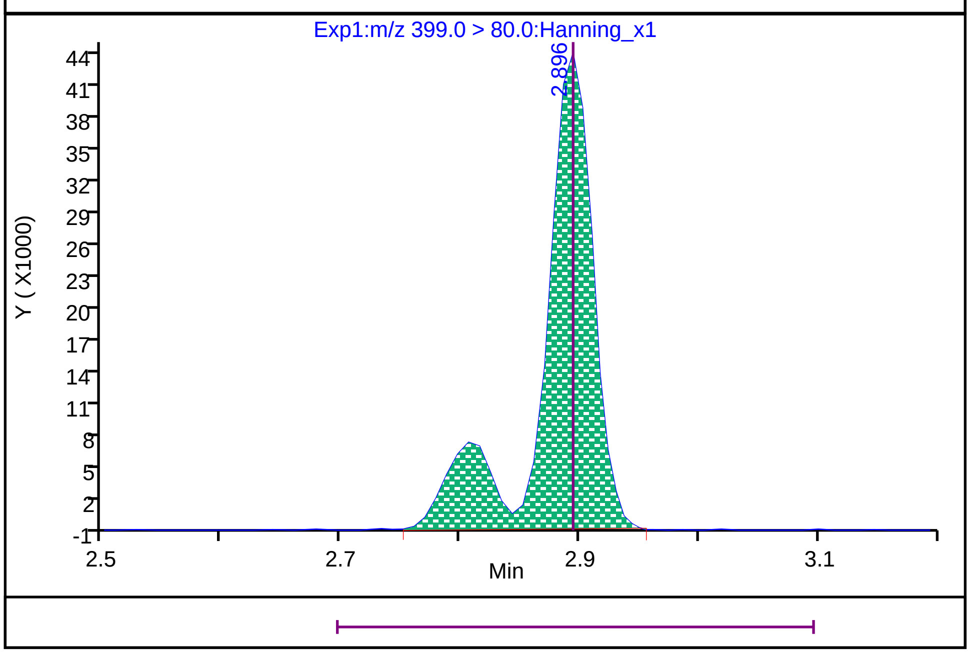
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.809
Area:	21672
Amount:	-782.67
Amount Units:	ng/L



RT:	2.896
Area:	127977
Amount:	897.40
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:52:42

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

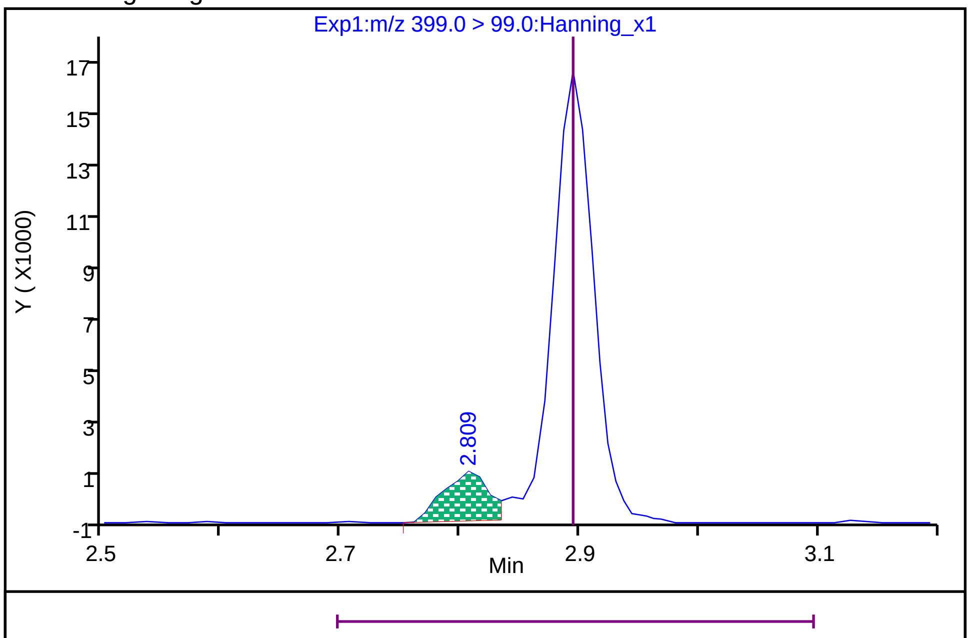
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

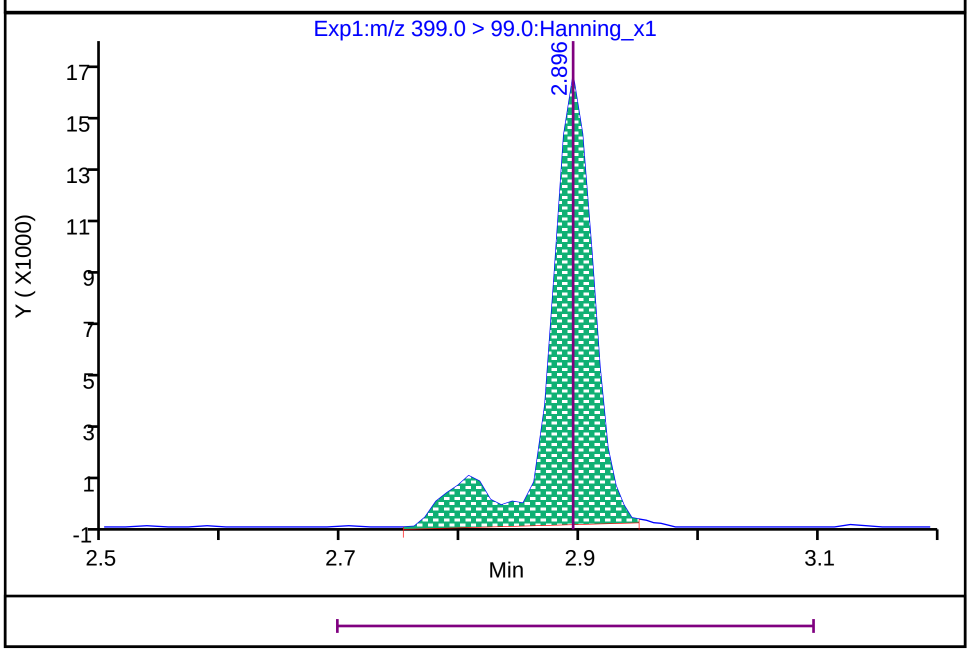
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.809
Area:	4604
Amount:	897.40
Amount Units:	ng/L



RT:	2.896
Area:	42817
Amount:	897.40
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:52:45

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

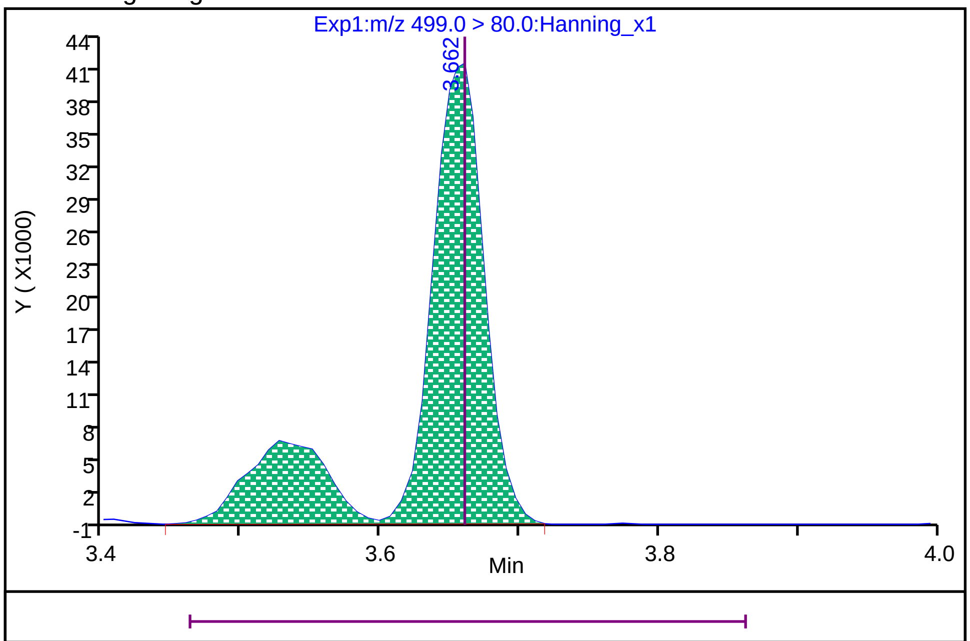
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

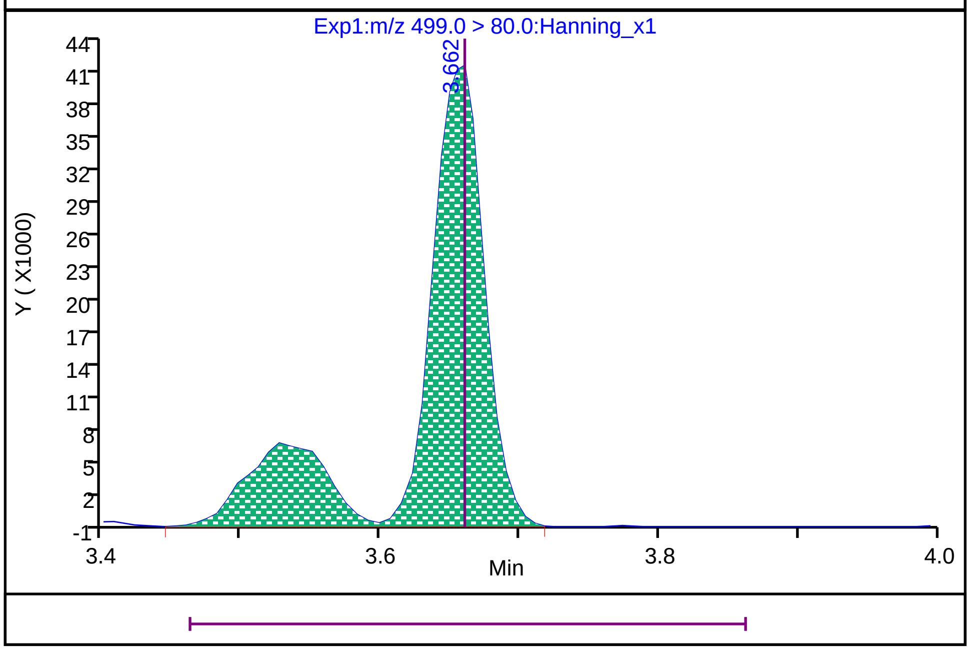
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.662
Area:	134248
Amount:	863.31
Amount Units:	ng/L



RT:	3.662
Area:	135192
Amount:	860.73
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:15

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	80
Sample Info:	ID ICAL 2000_SVLC-1745	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	1	631978	19	>100:1			1000.00	1016.57	99.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/0	1334806	20	>100:1			2000.00	2002.69		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	590743	15	>100:1			1000.00	1033.50	101.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	1286836	16	>100:1			2000.00	1935.44		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	168596	16	>100:1			1000.00	974.71	94.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	385045	16	>100:1	Target = 3.53		1768.00	1831.41		
298.9 > 99	44	2.183	2.183		105793	17	>100:1	3.63 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	293696	16	>100:1	Target = 3.10		1876.00	1879.66		
349 > 99	44	2.532	2.531		98296	17	>100:1	2.98 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	116969	17	>100:1			5000.00	5165.63	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	93564	16		Target = 1.75		1868.00	1814.35		
327 > 81	63	2.460	2.460		49805	17	>100:1	1.87 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	635316	16	>100:1			1000.00	975.48	95.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/1	1330015	17	>100:1	Target = 18.91		2000.00	2013.42		
313 > 119	49	2.505	2.505		69209	17	>100:1	19.21 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1190921	19	>100:1			5000.00	5138.68	98.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	619228	19	>100:1	Target = 0.79		4000.00	4014.30		
285 > 185	66	2.622	2.622		773921	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	554253	17	>100:1			1000.00	1043.91	104	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/0	1148679	18	>100:1	Target = 3.80		2000.00	1886.08		
363 > 169	47	2.881	2.880		296345	18	>100:1	3.87 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	128407	16	>100:1			1000.00	1022.03	99	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	1/0	245510	27	>100:1	Target = 2.89	4.60	1820.00	1739.12		
399 > 99	45	2.896	2.896		86241	26	>100:1	2.84 (1.44-4.34)	8.78				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	1879487	19	>100:1	Target = 3.23		1884.00	1887.36		
377 > 85	45	2.919	2.919		561111	19	>100:1	3.34 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	1/0	255444	22	>100:1	Target = 3.12		1904.00	1936.91		
449 > 99	45	3.276	3.276		79234	21	>100:1	3.22 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	1	92629	20	>100:1			5000.00	5146.07	98.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	1/0	81187	22	>100:1	Target = 1.75		1896.00	1851.26		
427 > 81	64	3.248	3.248		44979	22	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	533931	23	>100:1			1000.00	1017.64	97.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	1/0	1076576	21	>100:1	Target = 2.89		2000.00	1967.61		
413 > 169	53	3.276	3.276		377307	23	>100:1	2.85 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	132396	24	>100:1			1000.00	1069.06	100.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	0/-1	269584	40	>100:1	Target = 3.30	4.09	1856.00	1710.11		M
499 > 99	54	3.652	3.662		83529	39		3.22 (1.65-4.95)	7.71				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/0	930054	18	>100:1			1864.00	1854.92		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	187467	15	>100:1	Target = 3.08		1920.00	1764.90		
549 > 99	54	4.006	4.006		77754	15	>100:1	2.41 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/0	187244	15	>100:1	Target = 2.72		1928.00	1807.29		
599 > 99	54	4.318	4.318		73400	21	>100:1	2.55 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/-1	805565	17	>100:1			1884.00	1777.21		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	1/0	201625	19	>100:1	Target = 3.27		1936.00	1771.04		
699 > 99	54	4.843	4.842		62965	17		3.20 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	1	666388	21	>100:1			1000.00	1040.62	104.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	1/0	1453207	21	>100:1	Target = 6.51		2000.00	2023.17		
463 > 169	56	3.662	3.662		213087	21	>100:1	6.81 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	271381	19	>100:1			1000.00	1012.40	101.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	593408	17	>100:1	Target = 41.63		2000.00	2078.18		
498>478	55	3.888	3.896		18462	21		32.14 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	1	616544	16	>100:1			1000.00	1072.88	107.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	1/0	1420016	16	>100:1	Target = 13.80		2000.00	1979.11		
513 > 169	51	4.017	4.016		103646	14	>100:1	13.70 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	94944	16	>100:1			5000.00	5493.01	120.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	1/0	75418	16	>100:1	Target = 1.94		1916.00	1757.70		
527 > 81	65	4.006	4.016		37486	18	>100:1	2.01 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/0	87815	17		Target = 3.54		1928.00	1823.13		
627 > 80	65	4.631	4.631		23593	16	55:1	3.72 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	1	786283	16	>100:1			5000.00	5203.29	101.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/0	242311	33		Target = 1.37	7.52	2000.00	1920.26		
570 > 483	58	4.178	4.178		184100	32	>100:1	1.31 (0.68-2.05)	4.18				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	85737	13	>100:1			1000.00	950.64	95.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	207971	13	>100:1			2000.00	2219.61		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	47183	12	>100:1			1000.00	1003.01	104.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/0	103458	13	>100:1	Target = 1.11		2000.00	2023.00		
512 > 219	57	4.318	4.318		104435	13	>100:1	0.99 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	1	642300	17	>100:1			5000.00	4959.34	93.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/0	244858	30	>100:1	Target = 1.51	6.39	2000.00	1954.88		M
584 > 526	60	4.348	4.348		158435	31	>100:1	1.54 (0.75-2.26)	3.53				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	644538	15	>100:1			1000.00	1070.22	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	1/0	1230135	16	>100:1	Target = 14.52		2000.00	1969.68		
563 > 169	52	4.339	4.338		78534	14	>100:1	15.66 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.465	4.455	1	104277	15	>100:1			1000.00	983.03	102.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	214292	15	>100:1			2000.00	2111.01		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	1	42659	13	>100:1			1000.00	992.07	99.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.492	4.483	1/0	104819	20	>100:1	Target = 1.06		2000.00	2064.36		
526 > 219	59	4.483	4.483		99256	15	>100:1	1.05 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	602891	17	>100:1			1000.00	1004.25	99.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	1348282	16	>100:1	Target = 10.70		2000.00	2097.75		
613 > 169	38	4.623	4.622		123278	18	>100:1	10.93 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/-1	1314496	17	>100:1	Target = 8.31		2000.00	2074.35		
663 > 169	38	4.868	4.877		153257	22	>100:1	8.57 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	1	821412	21	>100:1			1000.00	1010.36	98	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	1/0	1432173	22	>100:1	Target = 12.17		2000.00	1997.35		
713 > 169	42	5.106	5.106		119851	20	>100:1	11.94 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.544	5.544	1	874416	21	>100:1			1000.00	1007.35	99.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.544	5.552	0/-1	1086521	21	>100:1	Target = 10.43		2000.00	1940.15		
813 > 269	40	5.544	5.552		103391	21	>100:1	10.50 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.012	6.026	0/-1	1649914	42	95:1	Target = 13.67		2000.00	2072.61		
913 > 319	40	6.012	6.026		118785	43	>100:1	13.88 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.017	4.016	1	684156	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	687359	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	543856	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	590309	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	1	132467	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Inst. ID:	LCMSMS02.i
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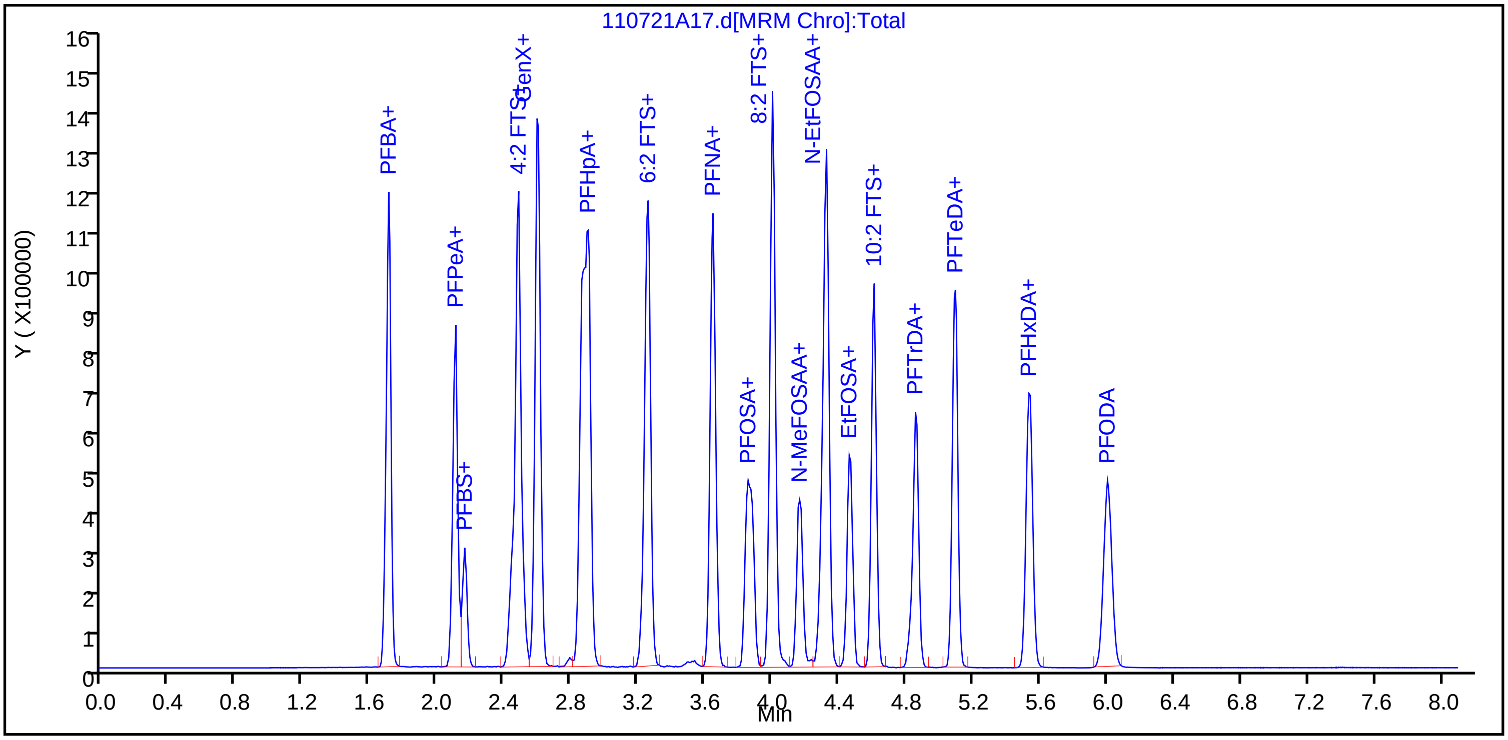
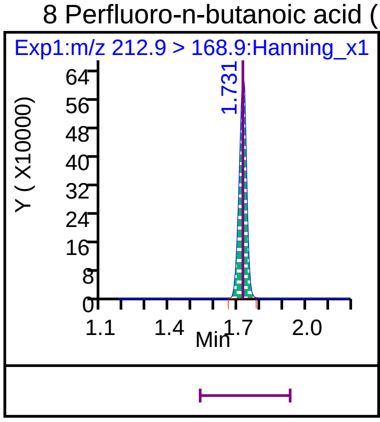
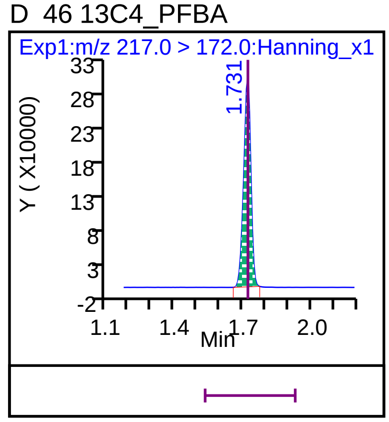
Sample Info:	ID ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin



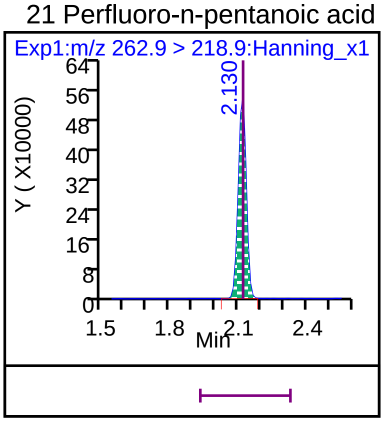
8 Perfluoro-n-butanoic acid (PFBA)



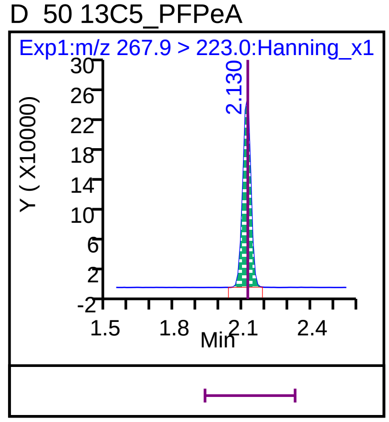
D 46 13C4_PFBA



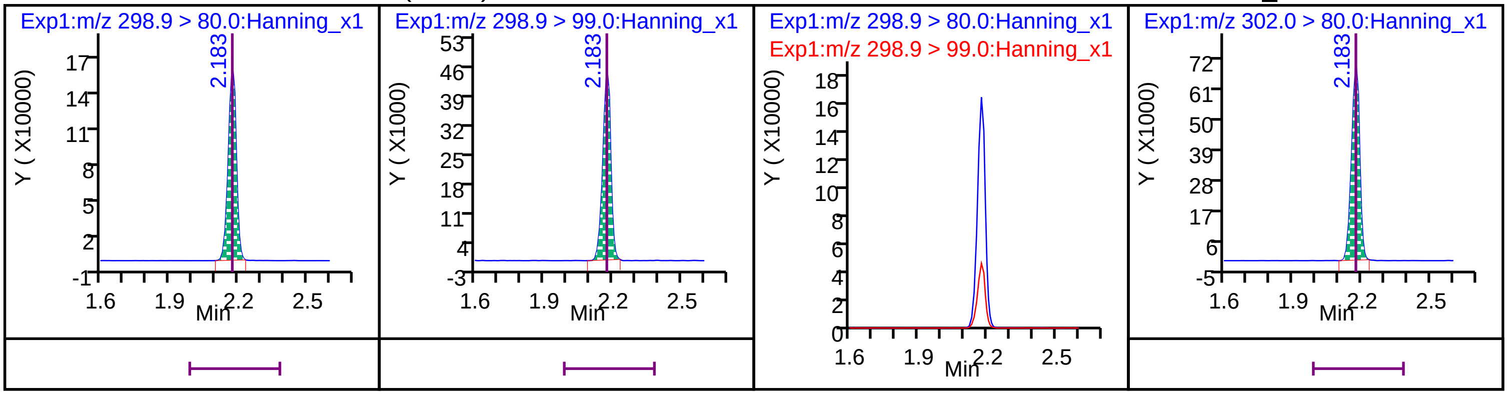
21 Perfluoro-n-pentanoic acid (PFPeA)



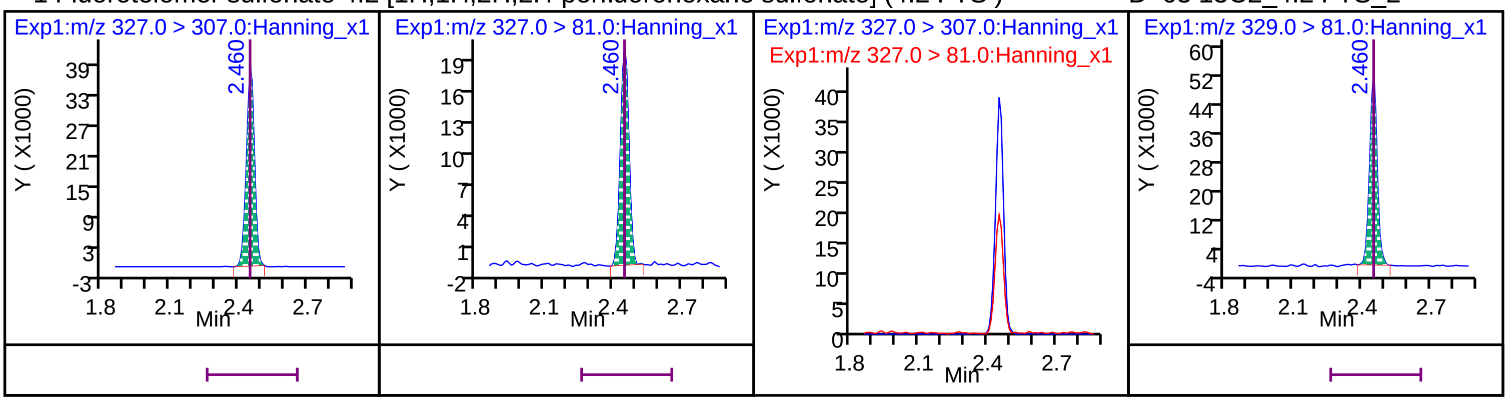
D 50 13C5_PFPeA



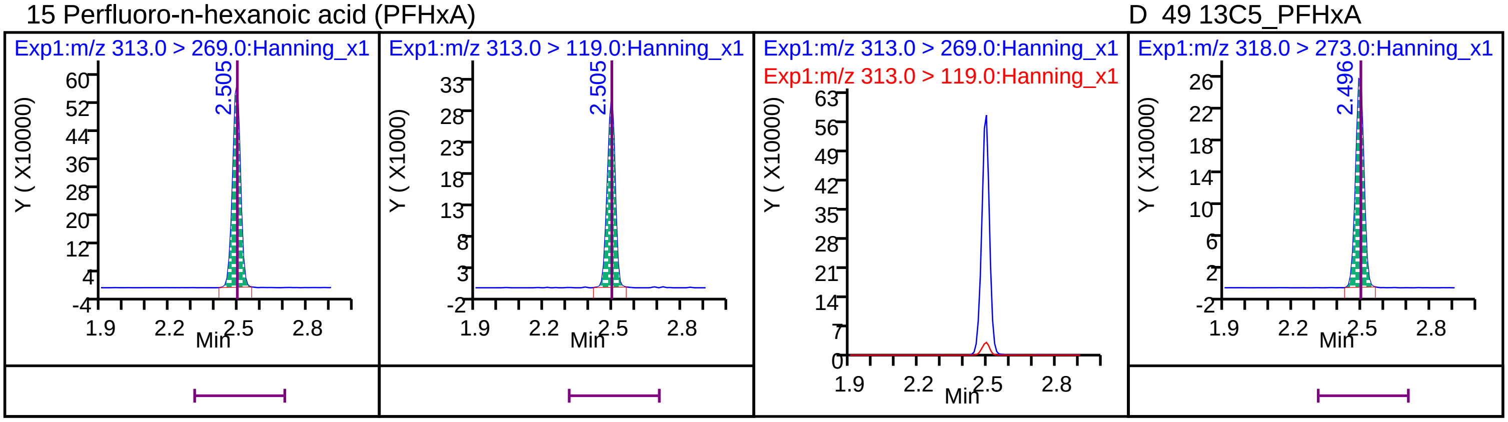
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



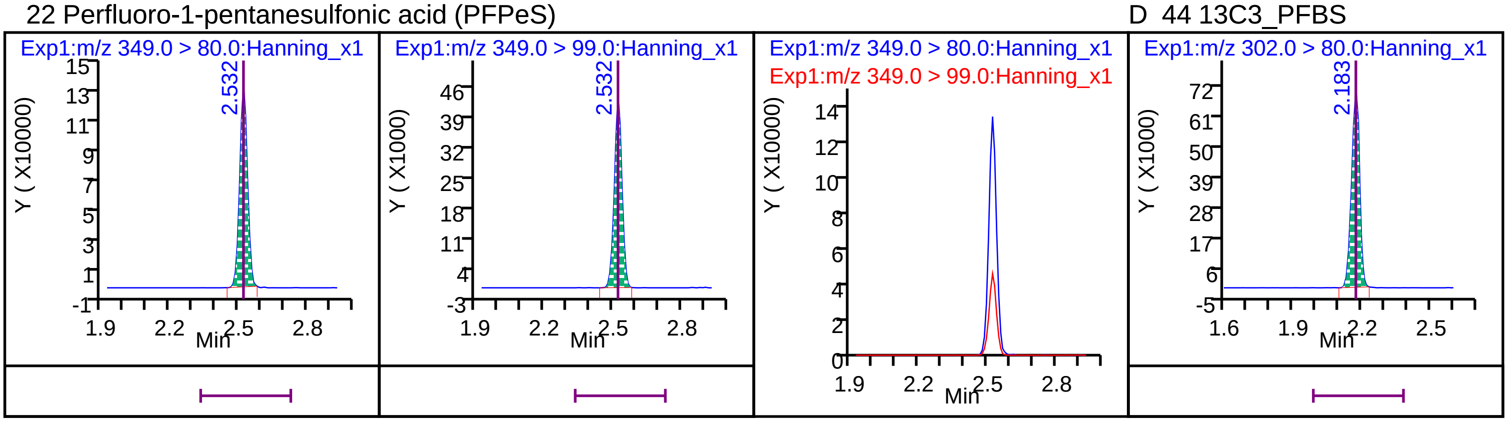
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



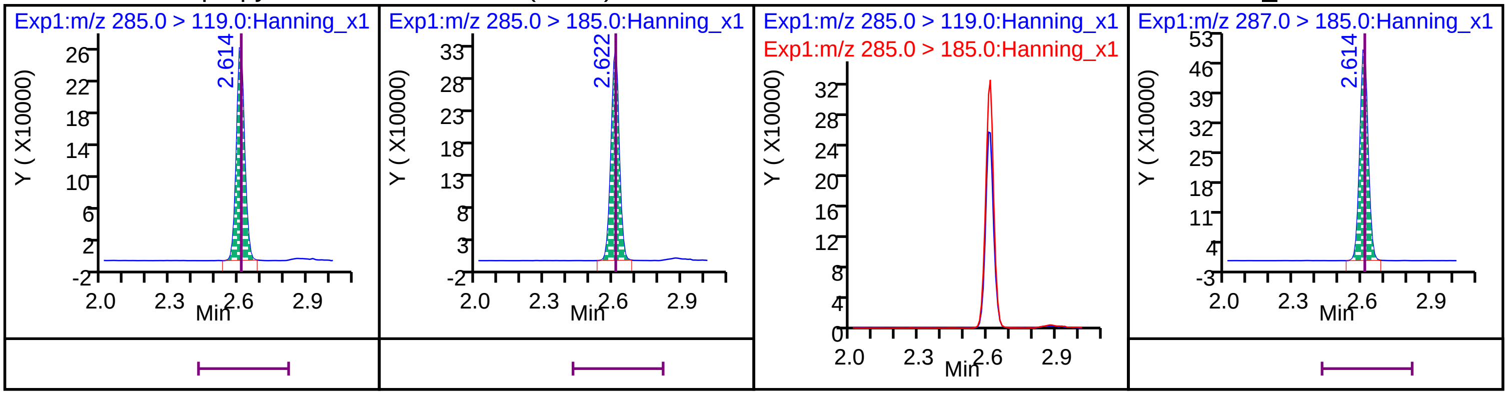
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



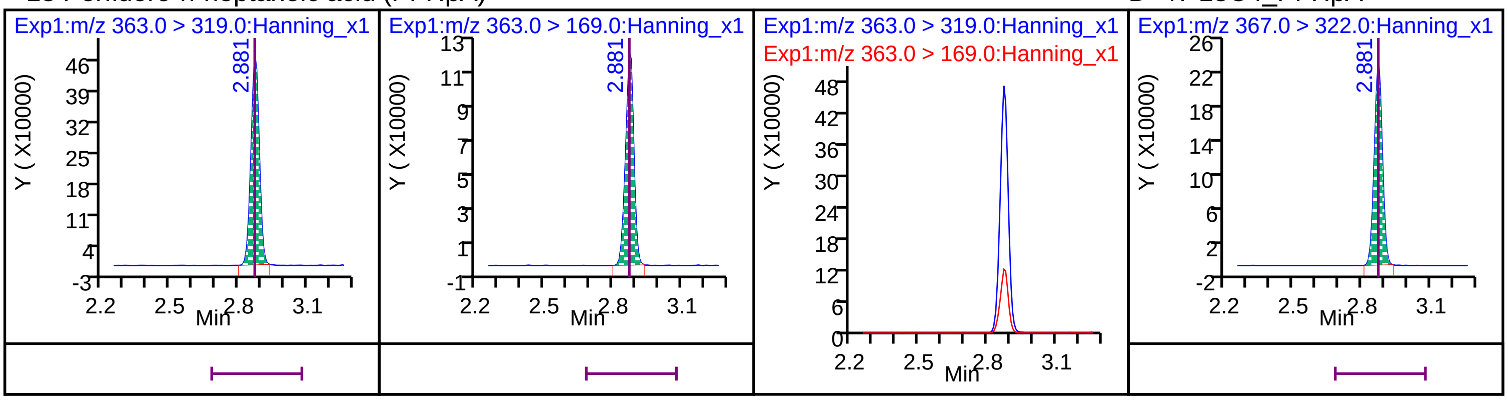
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



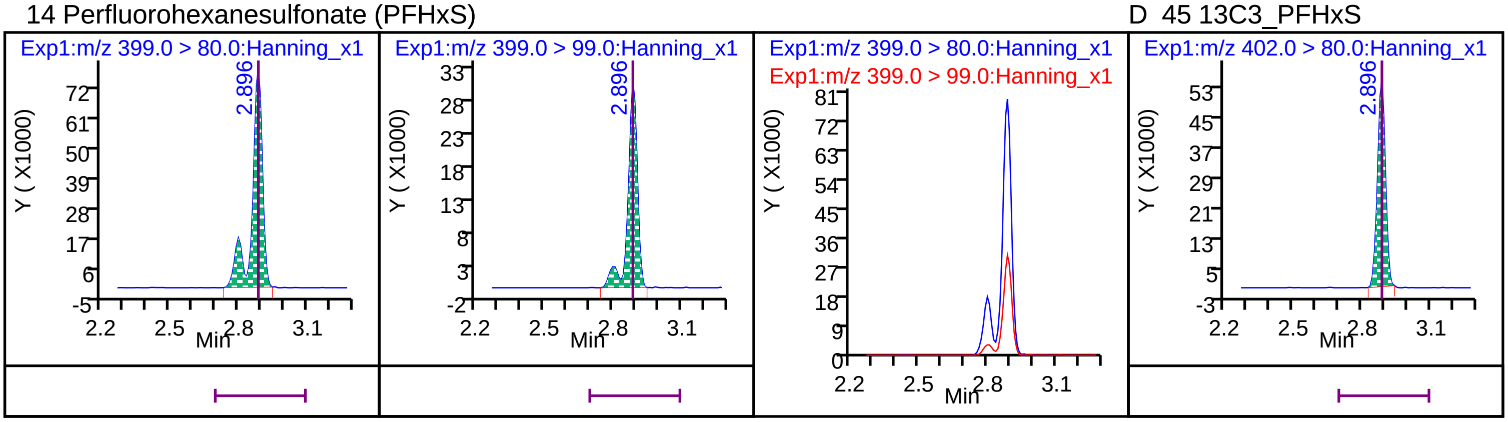
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



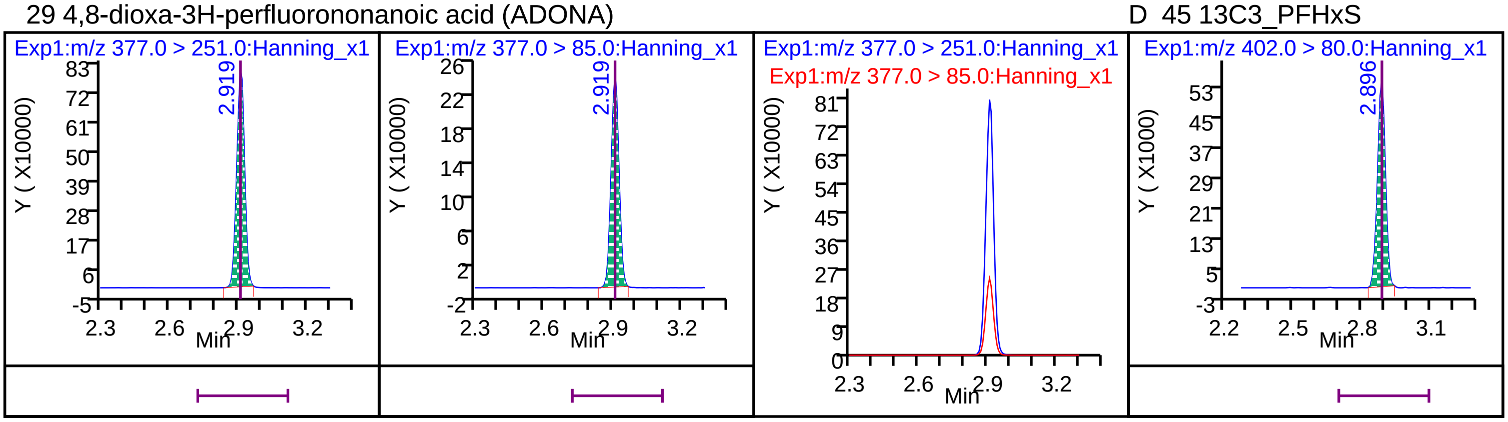
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

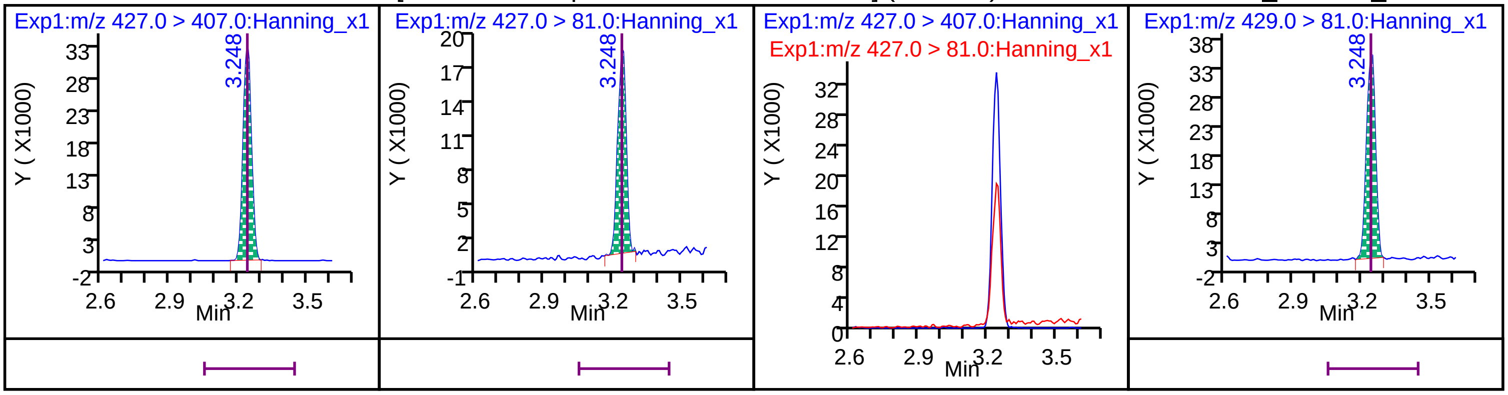


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

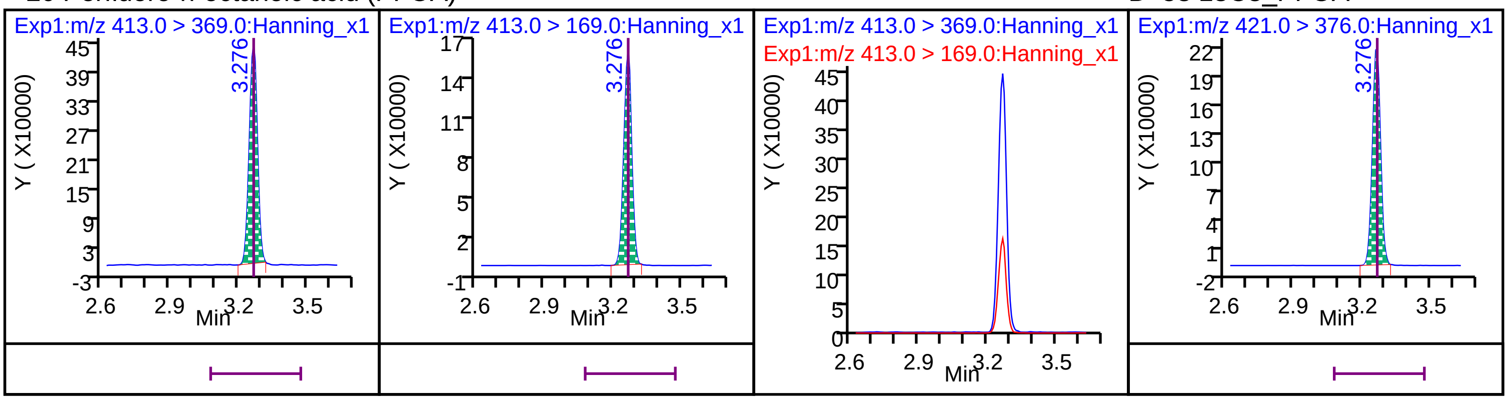


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

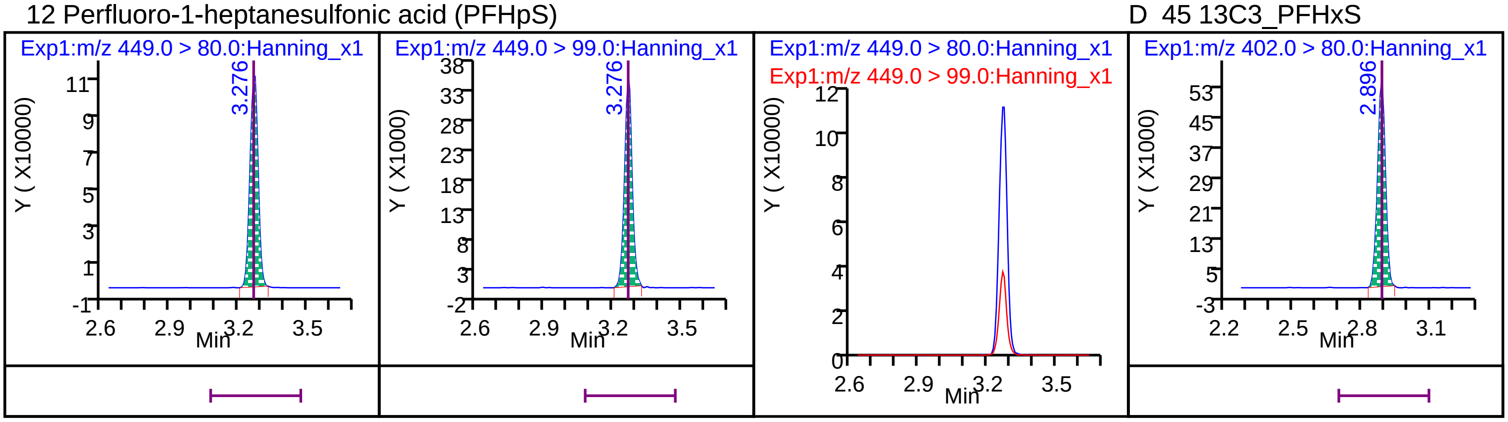
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



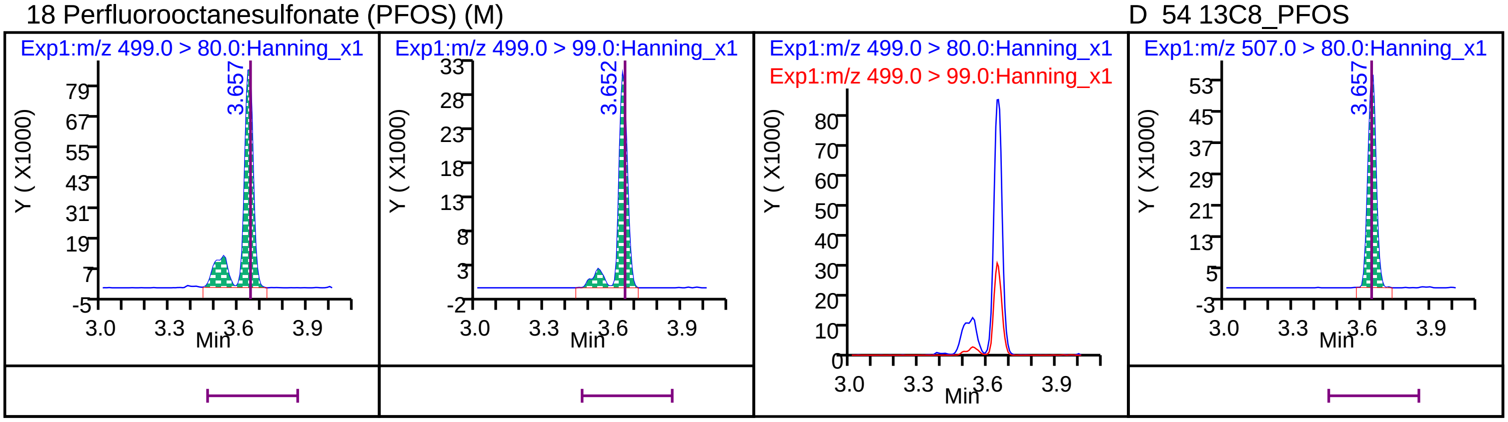
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



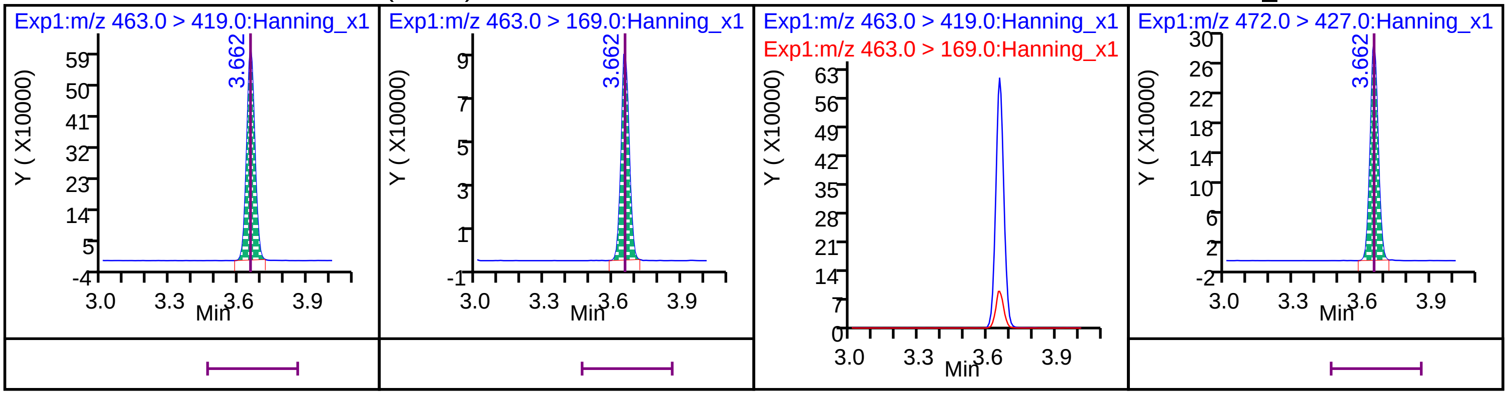
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



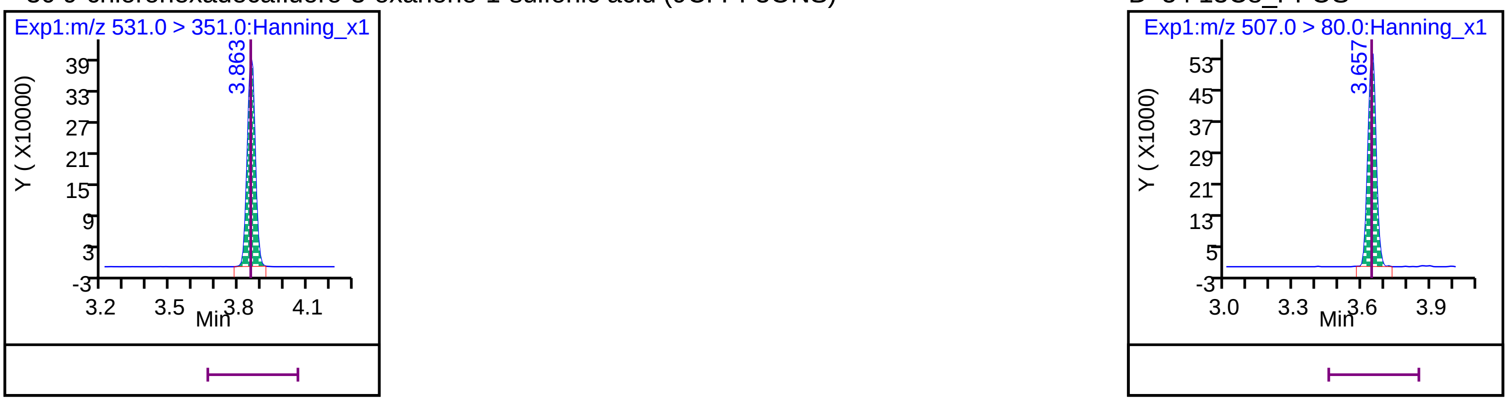
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



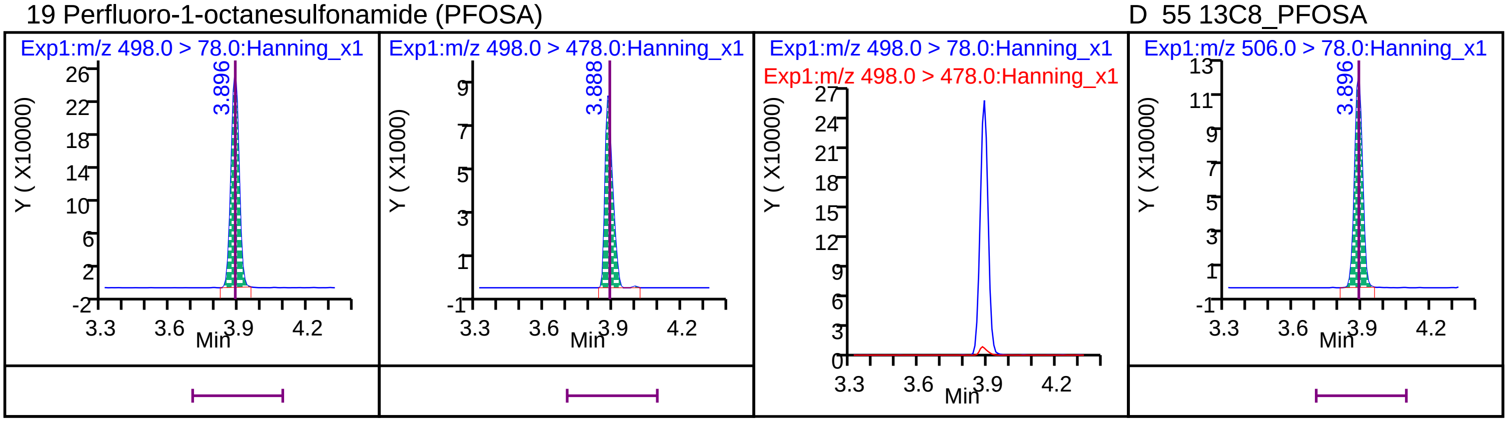
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



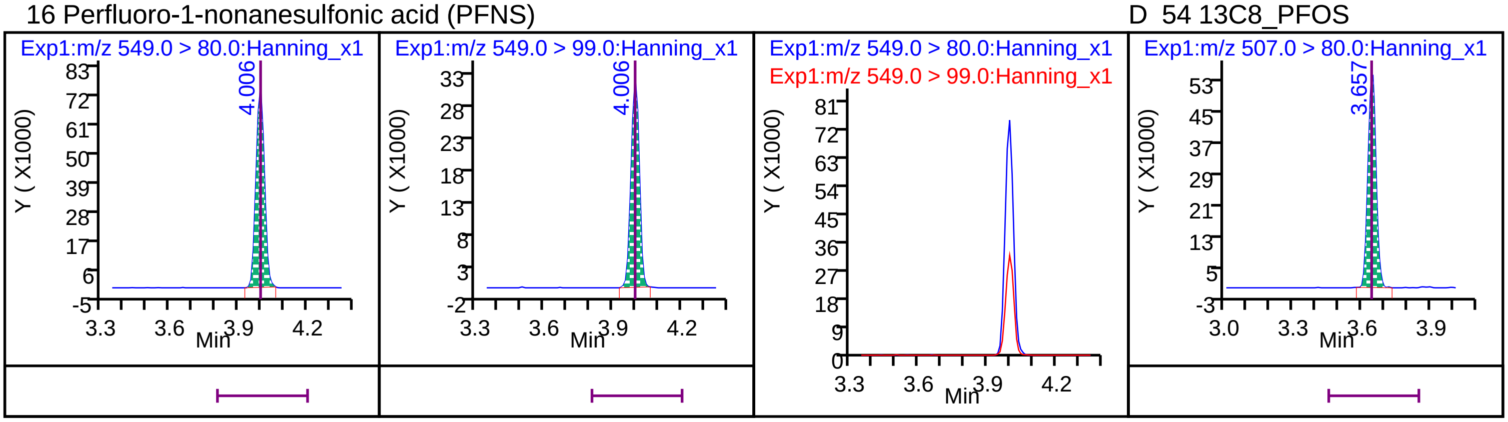
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

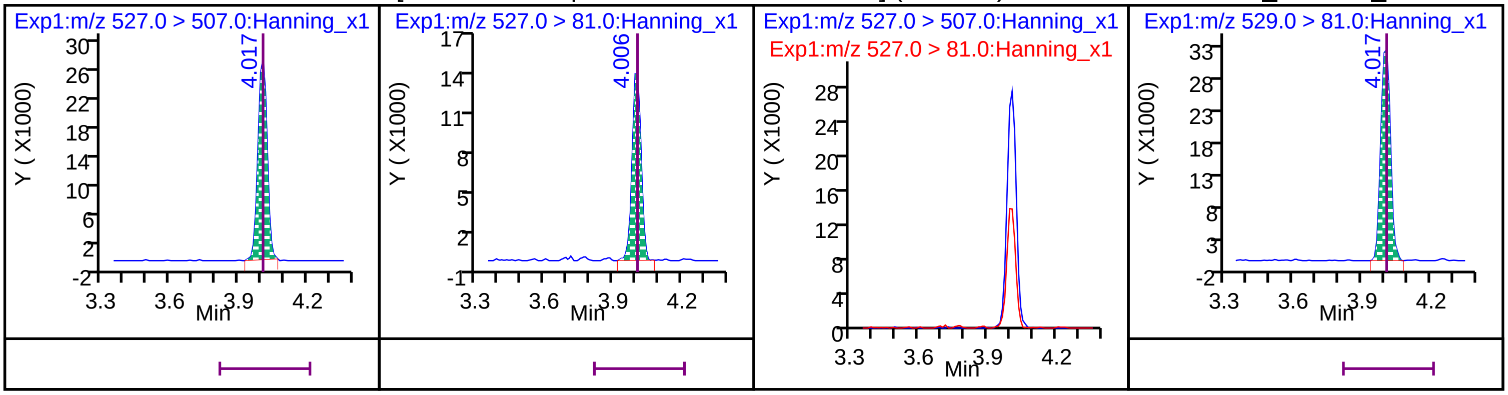


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

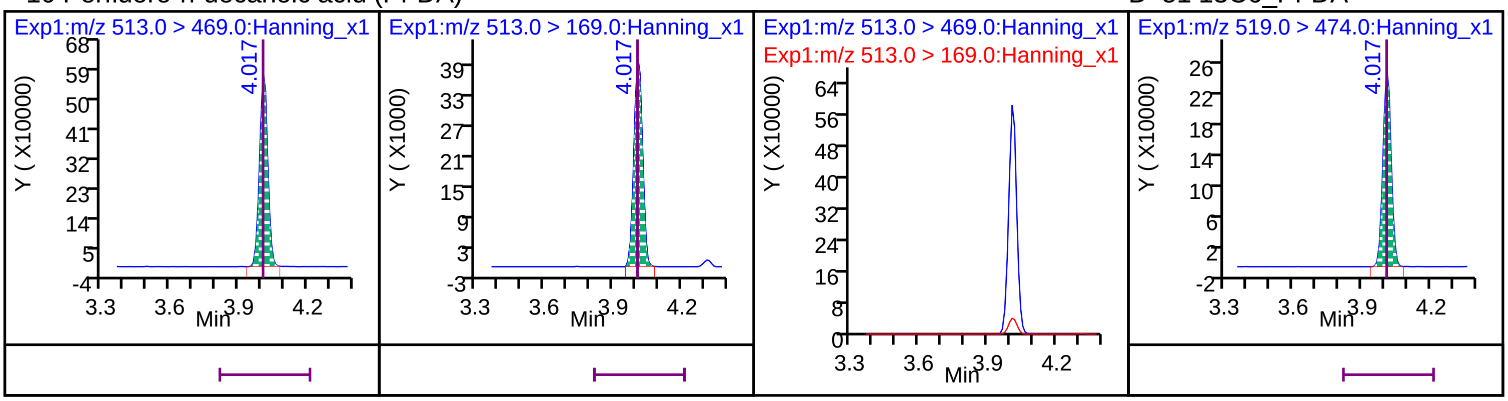


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

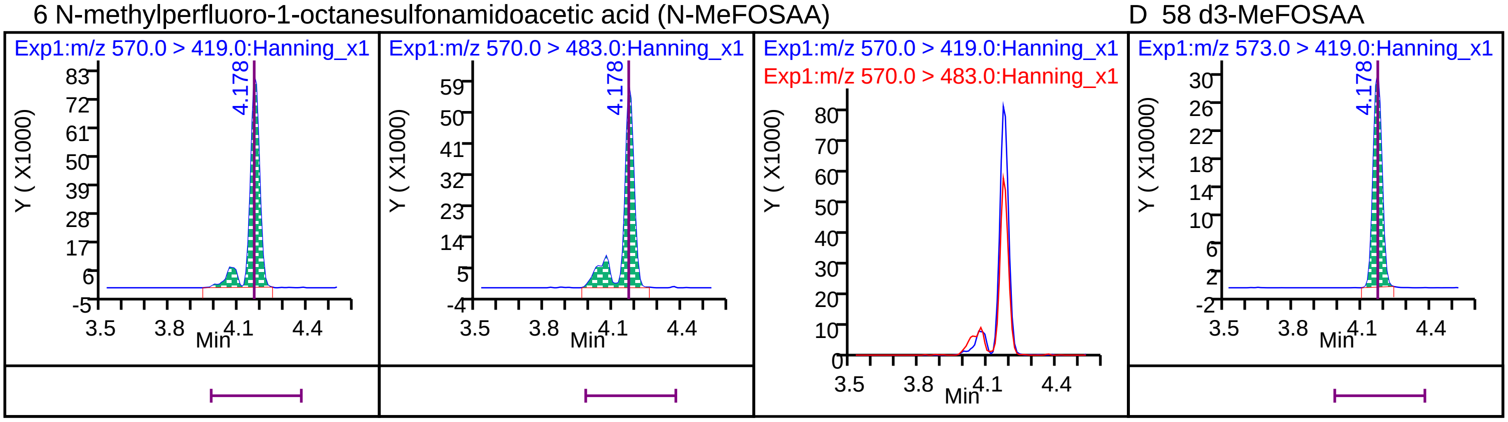
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

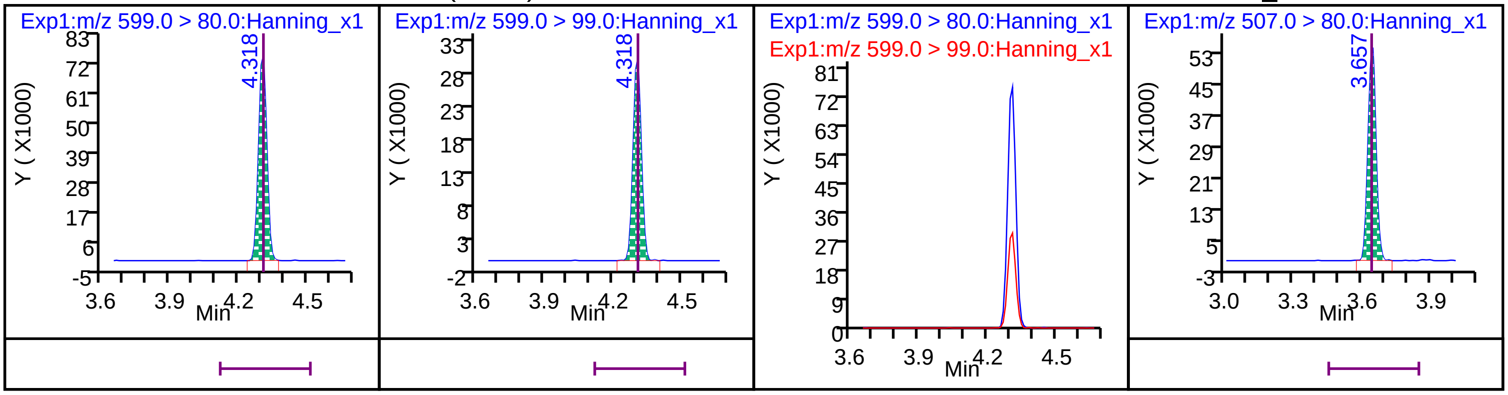


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

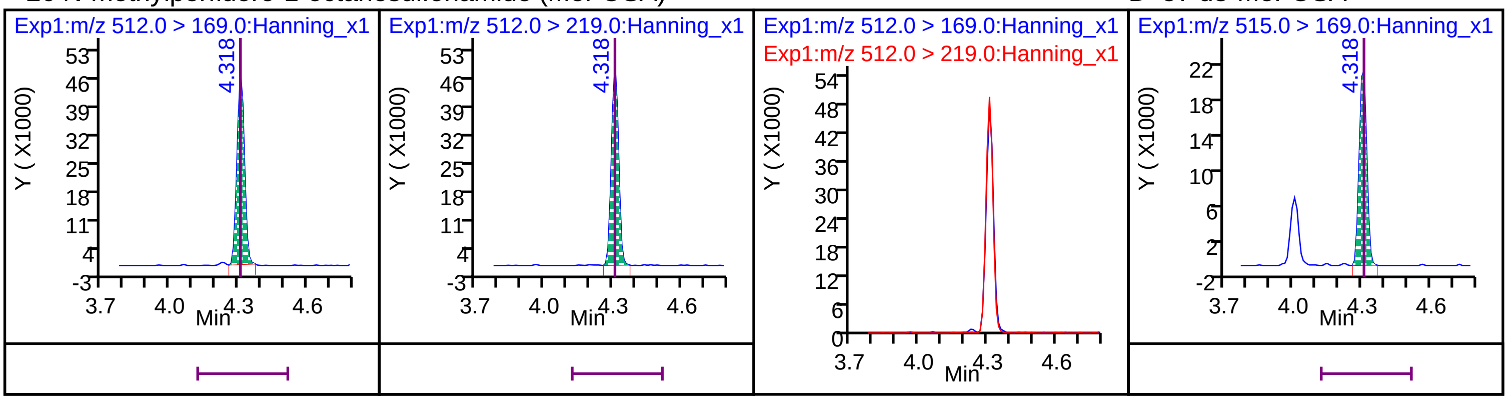


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

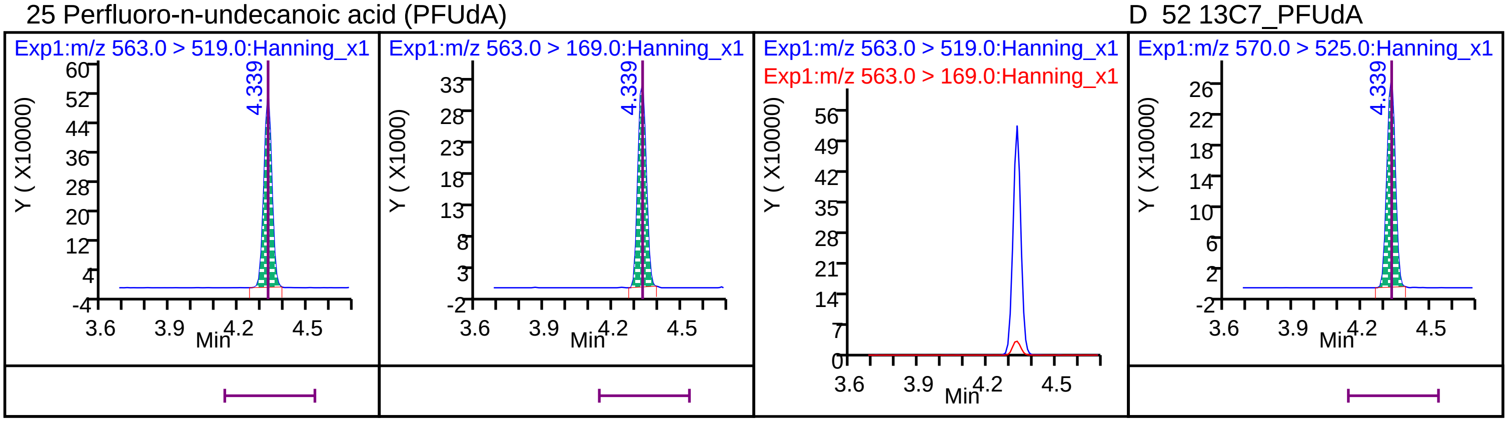
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



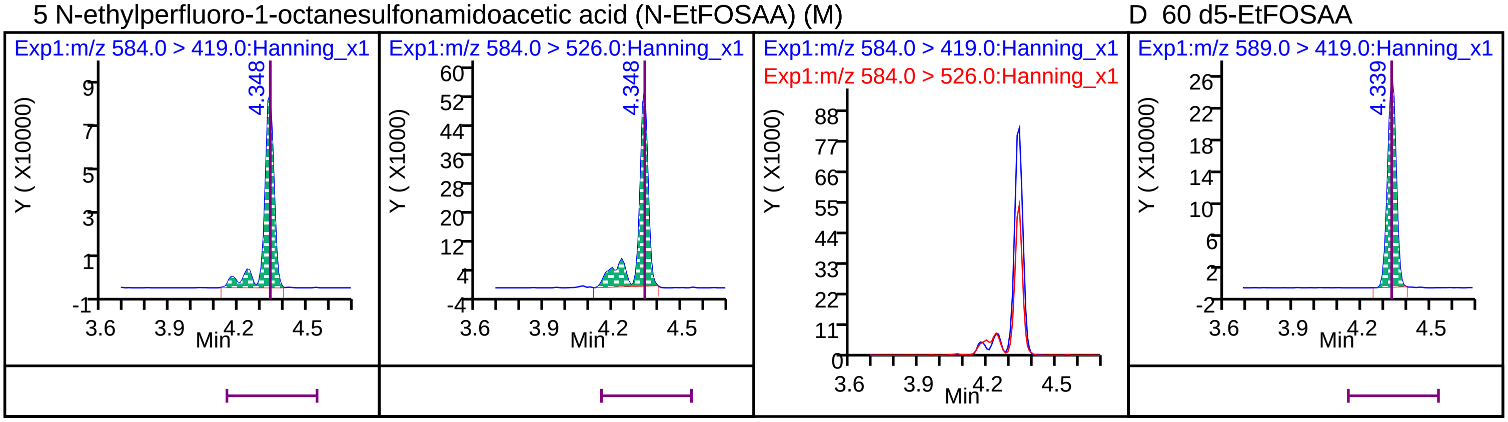
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

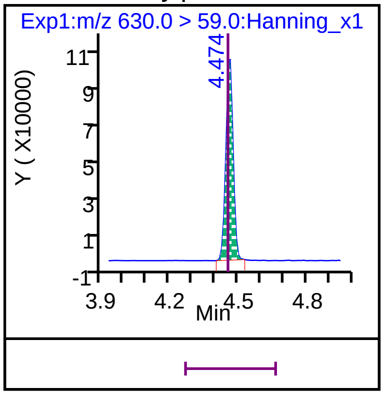


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

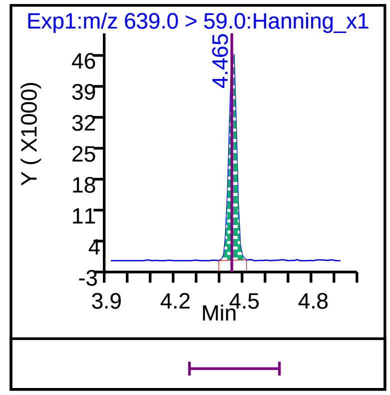


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

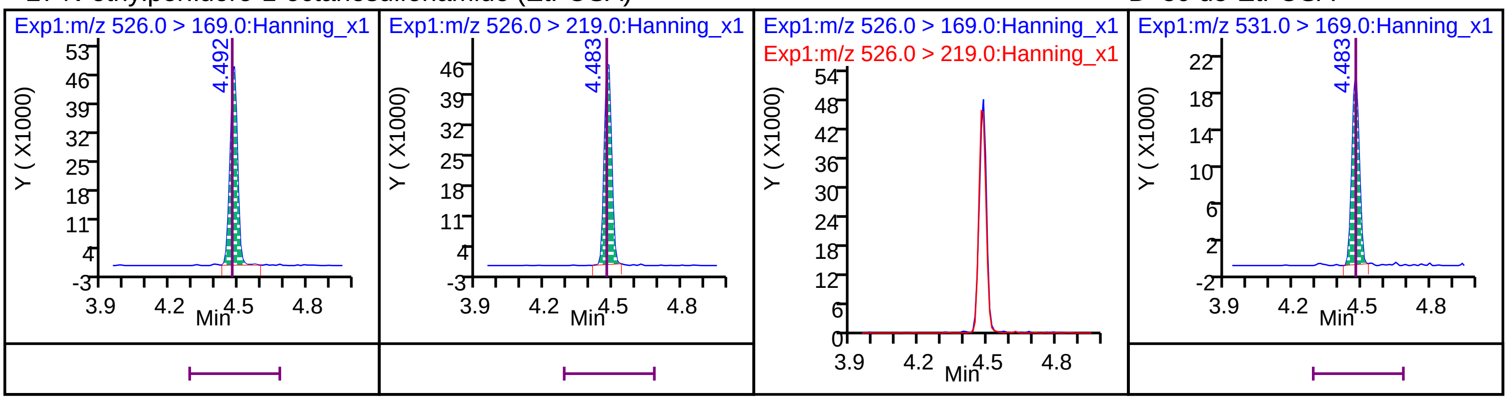


D 62 d9-EtFOSE

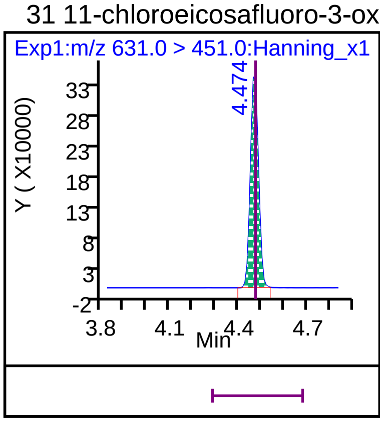


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

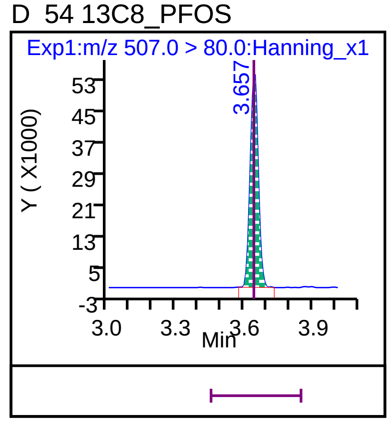
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

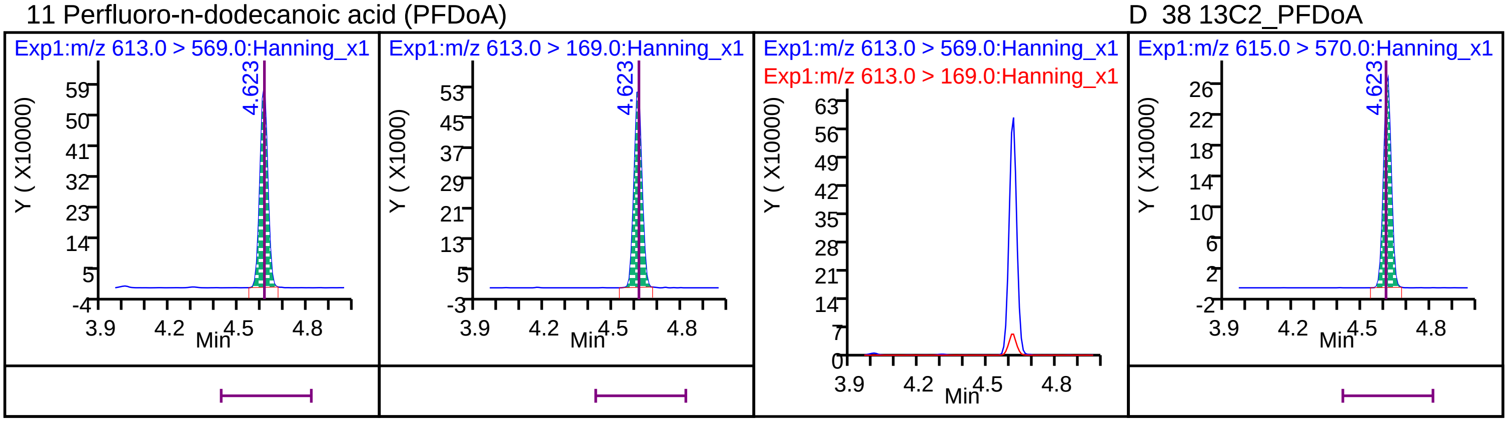


D 54 13C8_PFOS

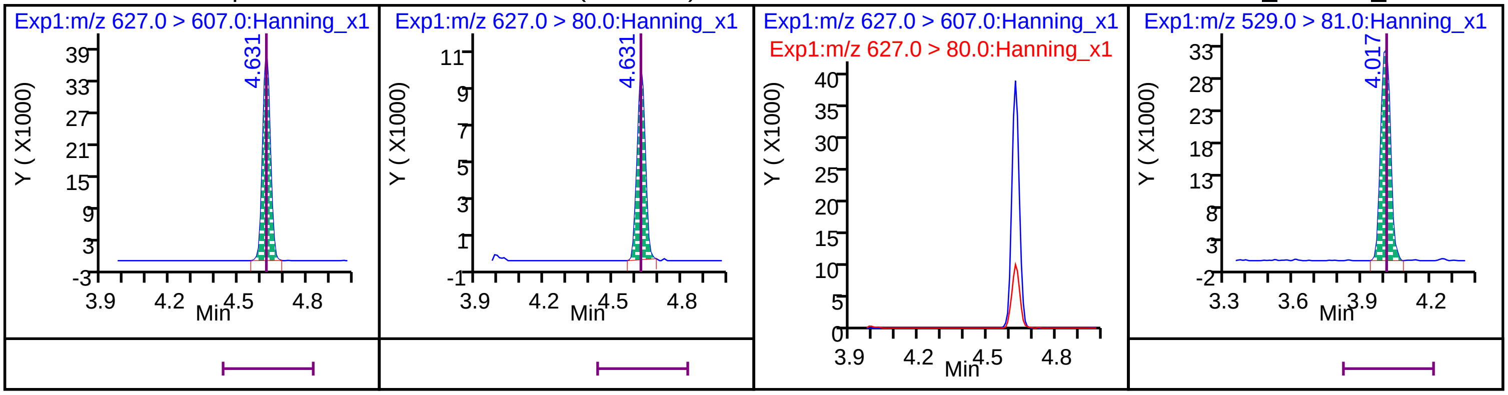


11 Perfluoro-n-dodecanoic acid (PFDoA)

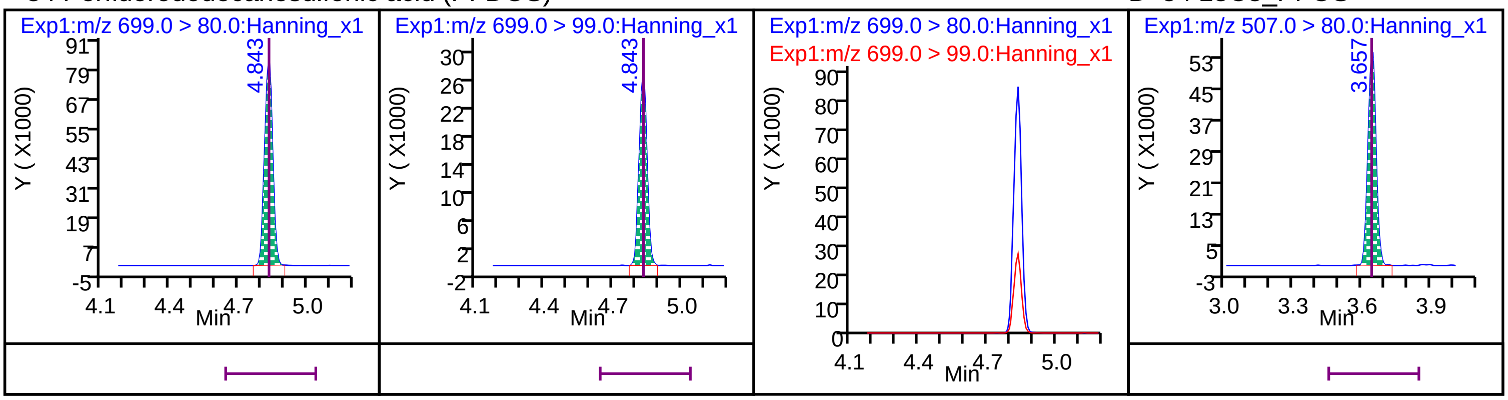
D 38 13C2_PFDoA



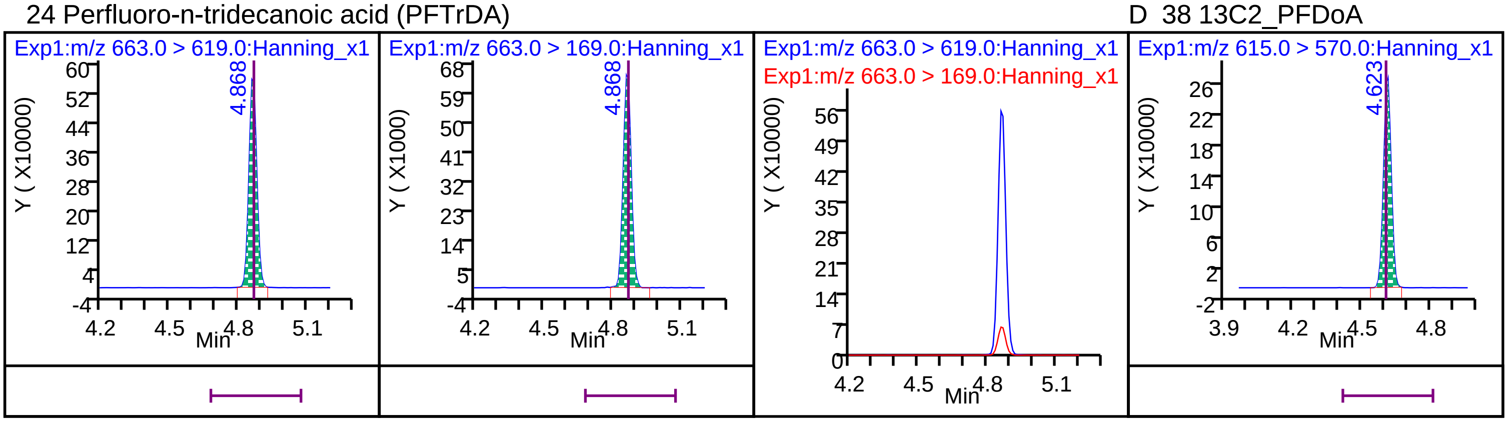
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



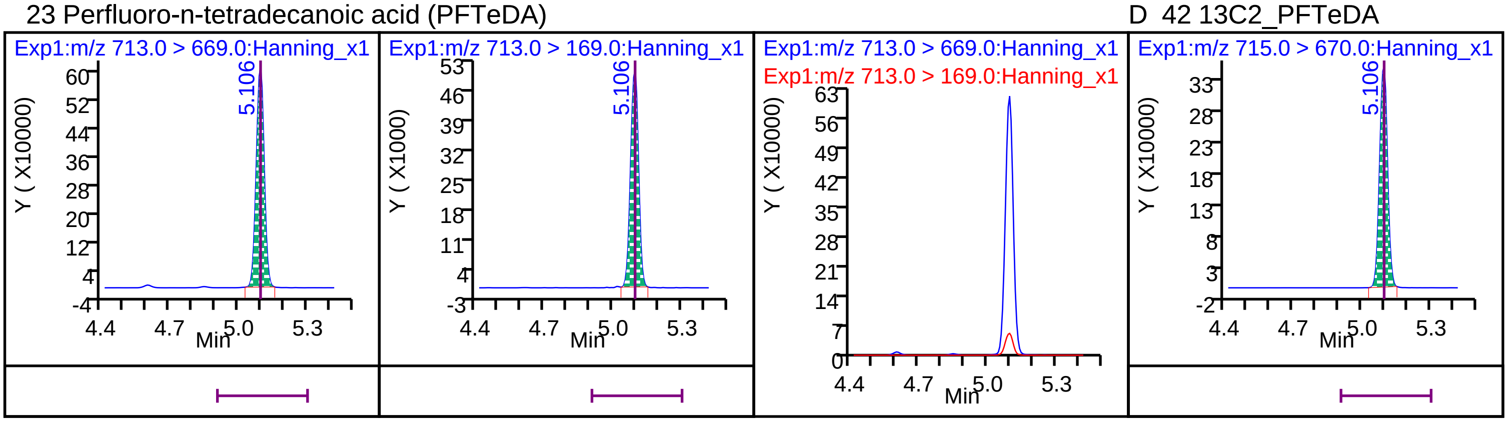
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



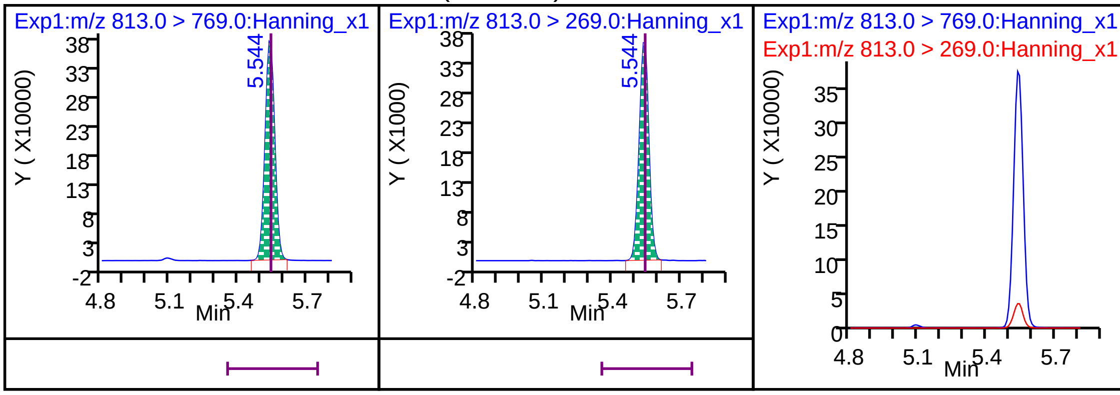
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



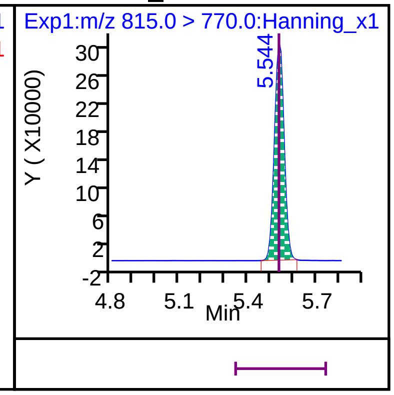
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



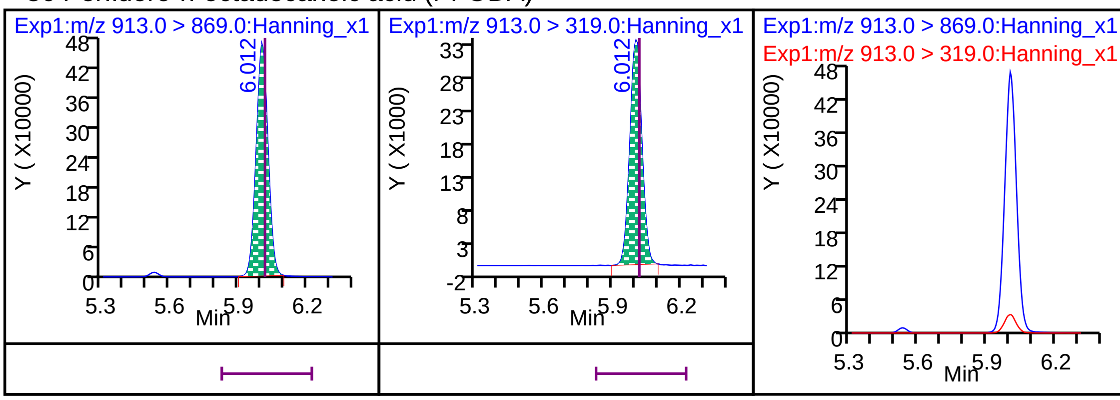
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



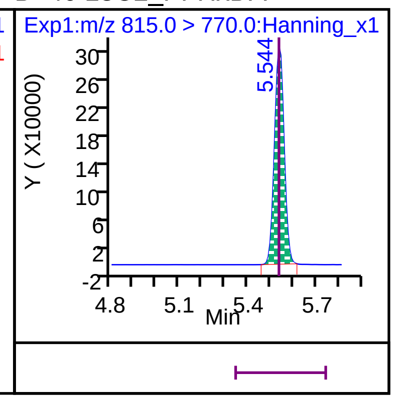
D 40 13C2_PFHxDA



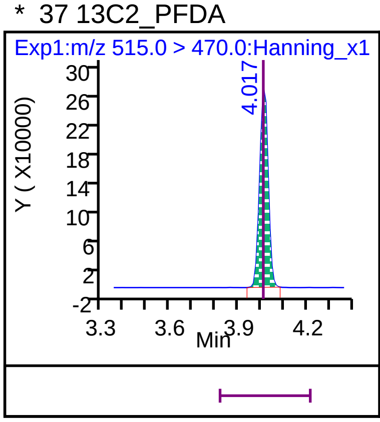
36 Perfluoro-n-octadecanoic acid (PFODA)



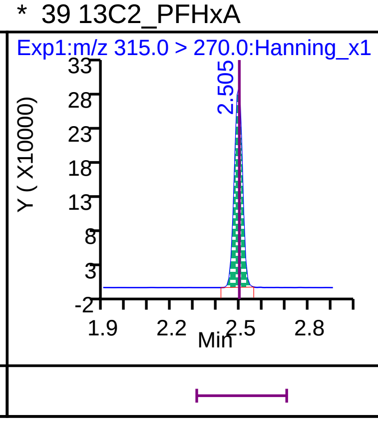
D 40 13C2_PFHxDA



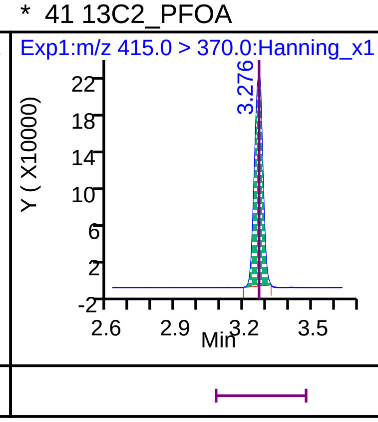
* 37 13C2_PFDA



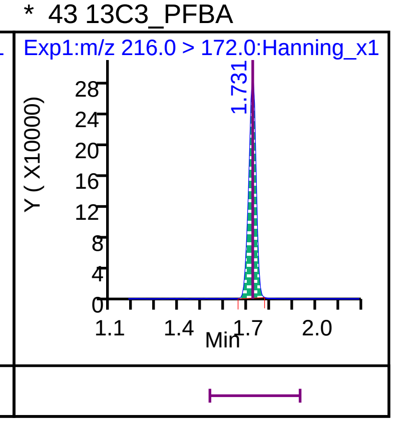
* 39 13C2_PFHxA



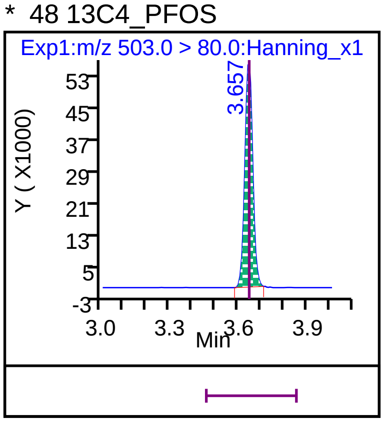
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

Injection Date: 07-Nov-2021 19:40:43 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 2000_SVLC-1745

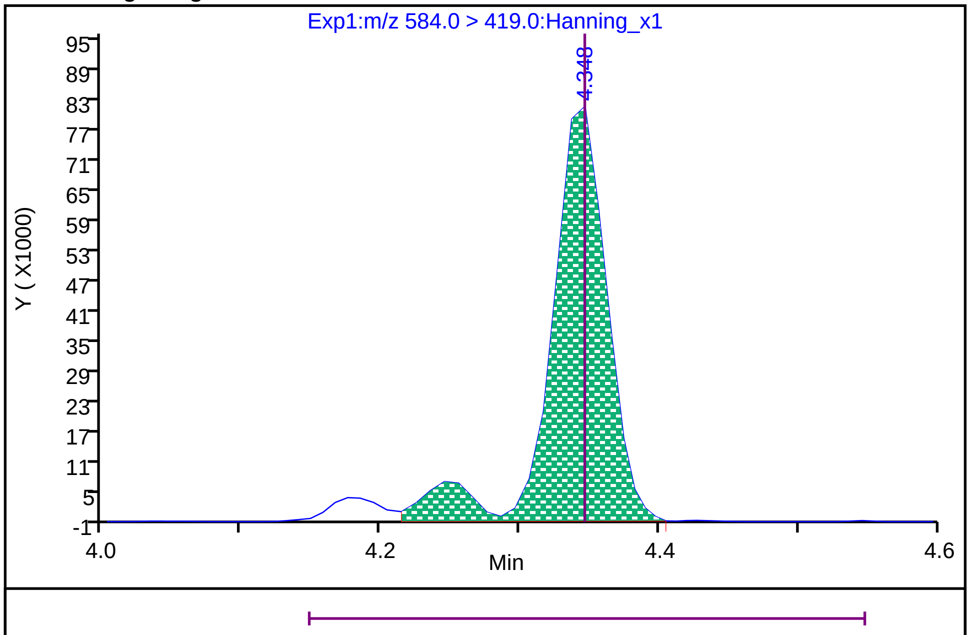
Sample Info: ID ICAL 2000_SVLC-1745

Dil. Factor: 1 Operator: Justin Gavin

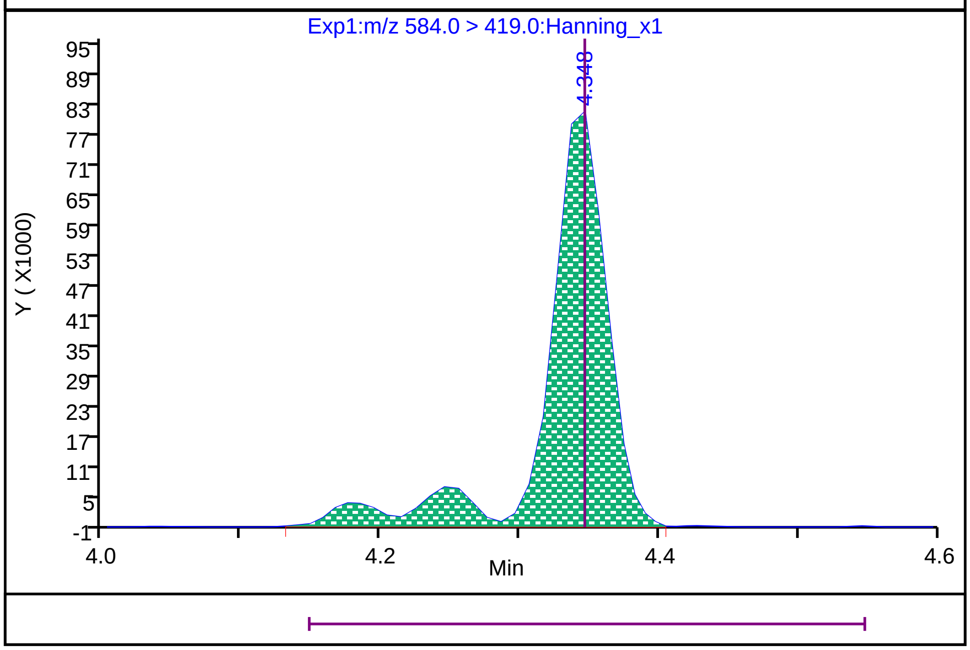
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.348
Area: 231135
Amount: 1855.48
Amount Units: ng/L



RT: 4.348
Area: 244858
Amount: 1954.88
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:56:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

Injection Date: 07-Nov-2021 19:40:43 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 2000_SVLC-1745

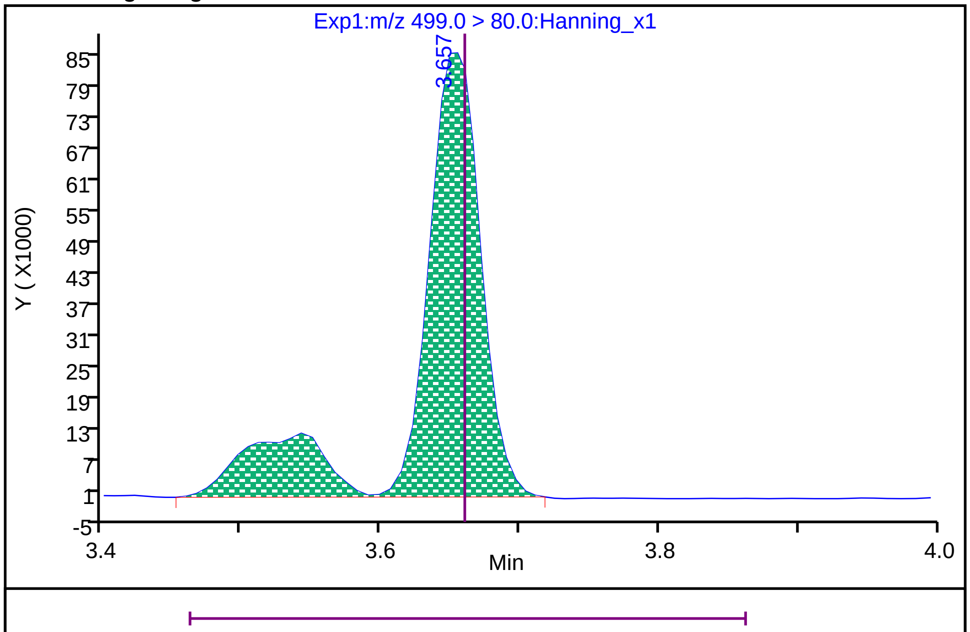
Sample Info: ID ICAL 2000_SVLC-1745

Dil. Factor: 1 Operator: Justin Gavin

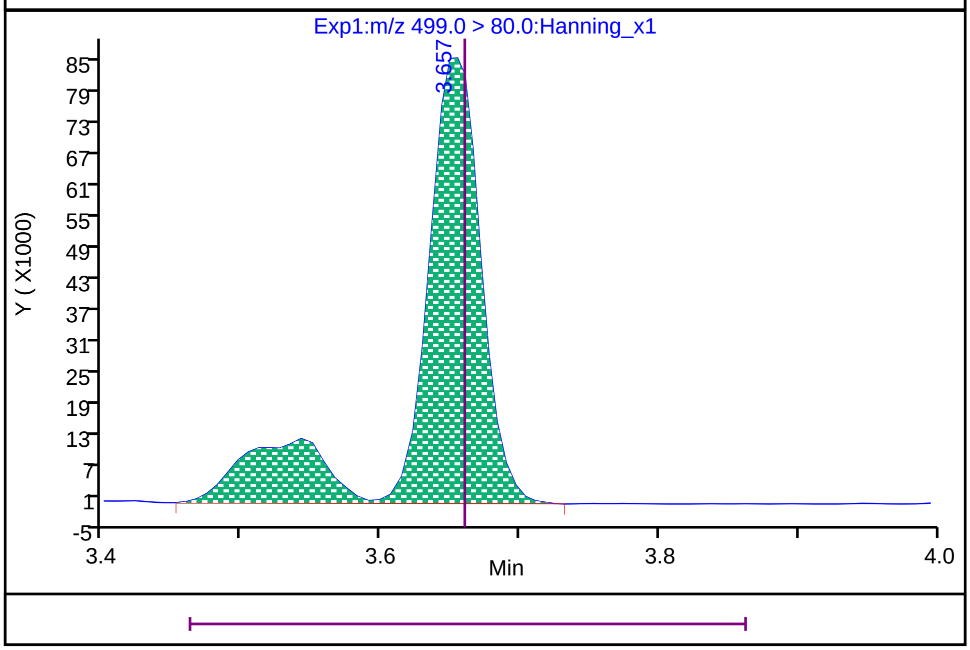
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.657
Area: 266367
Amount: 1699.43
Amount Units: ng/L



RT: 3.657
Area: 269584
Amount: 1710.11
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:20

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	81
Sample Info:	ID ICAL 5000_SVLC-1746	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	607576	20	>100:1			1000.00	977.32	95.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	3233918	20	>100:1			5000.00	5046.93		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	541862	15	>100:1			1000.00	947.99	93.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	3095773	14	>100:1			5000.00	5076.16		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	170276	17	>100:1			1000.00	984.43	95.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	920934	16	>100:1	Target = 3.53		4420.00	4337.08		
298.9 > 99	44	2.183	2.183		267102	16	>100:1	3.44 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/0	722411	16	>100:1	Target = 3.10		4690.00	4577.82		
349 > 99	44	2.531	2.531		240798	17	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	98938	16	>100:1			5000.00	4369.34	88.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	222149	16	>100:1	Target = 1.75		4670.00	5092.89		
327 > 81	63	2.460	2.460		120907	15	>100:1	1.83 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	645583	18	>100:1			1000.00	991.24	97.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	0/0	3301175	18	>100:1	Target = 18.91		5000.00	4917.95		
313 > 119	49	2.496	2.505		170114	17	>100:1	19.40 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1133799	19	>100:1			5000.00	4892.20	94.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	1437846	19	>100:1	Target = 0.79		10000	9790.81		
285 > 185	66	2.614	2.622		1880218	19	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	513054	17	>100:1			1000.00	966.32	96.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	2877261	17	>100:1	Target = 3.80		5000.00	5103.70		
363 > 169	47	2.880	2.880		731294	17	>100:1	3.93 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	122177	19				1000.00	972.44	94.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	642452	27	>100:1	Target = 2.89	5.16	4550.00	4783.00		
399 > 99	45	2.896	2.896		206768	25	>100:1	3.10 (1.44-4.34)	8.18				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	0/0	4593970	19	>100:1	Target = 3.23		4710.00	4848.45		
377 > 85	45	2.918	2.919		1425848	20	>100:1	3.22 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	583188	23	>100:1	Target = 3.12		4760.00	4647.52		
449 > 99	45	3.276	3.276		186516	21	>100:1	3.12 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	85448	26	>100:1			5000.00	4747.12	91	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	187618	21	>100:1	Target = 1.75		4740.00	4637.68		
427 > 81	64	3.248	3.248		103987	21	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	496199	22	>100:1			1000.00	945.72	90.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	2587671	22	>100:1	Target = 2.89		5000.00	5089.01		
413 > 169	53	3.276	3.276		895796	21	>100:1	2.88 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	0	120487	20	>100:1			1000.00	972.90	91.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	0/0	648437	44	>100:1	Target = 3.30	3.69	4640.00	4519.95		M
499 > 99	54	3.657	3.662		187869	37	>100:1	3.45 (1.65-4.95)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.862	3.863	0/0	2136198	17	>100:1			4660.00	4681.60		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	0/0	489347	15	>100:1	Target = 3.08		4800.00	5062.28		
549 > 99	54	4.005	4.006		171885	16		2.84 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/0	459674	15	>100:1	Target = 2.72		4820.00	4875.35		
599 > 99	54	4.318	4.318		170917	21	>100:1	2.68 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.473	4.483	0/0	1911193	17	>100:1			4710.00	4633.15		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	0/0	500904	18	>100:1	Target = 3.27		4840.00	4834.73		
699 > 99	54	4.842	4.842		167070	18		2.99 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	628859	21	>100:1			1000.00	982.01	98.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	3388713	21	>100:1	Target = 6.51		5000.00	4999.36		
463 > 169	56	3.662	3.662		510000	21	>100:1	6.64 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	0	275706	18	>100:1			1000.00	1028.53	103.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	0/0	1391997	18	>100:1	Target = 41.63		5000.00	4798.45		
498>478	55	3.895	3.896		44410	15	>100:1	31.34 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	0	563256	16	>100:1			1000.00	980.16	97.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	0/0	3437405	16	>100:1	Target = 13.80		5000.00	5244.04		
513 > 169	51	4.016	4.016		240497	15	>100:1	14.29 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.005	4.016	0	82313	17	>100:1			5000.00	4762.24	104.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/0	181139	16	>100:1	Target = 1.94		4790.00	4869.46		
527 > 81	65	4.016	4.016		90684	16	>100:1	1.99 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.630	4.631	0/0	202053	16		Target = 3.54		4820.00	4838.53		
627 > 80	65	4.630	4.631		60086	15	>100:1	3.36 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	759801	17	>100:1			5000.00	5028.05	98.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/0	579666	34	>100:1	Target = 1.37	7.05	5000.00	4753.83		
570 > 483	58	4.178	4.178		428300	31	>100:1	1.35 (0.68-2.05)	3.82				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.288	1	86571	14	>100:1			1000.00	959.89	96.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.297	4.298	0/-1	482576	14	>100:1			5000.00	5100.77		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	47311	12	>100:1			1000.00	1005.74	105.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	242613	13	>100:1	Target = 1.11		5000.00	4731.17		
512 > 219	57	4.318	4.318		213499	14	>100:1	1.13 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	0	654701	16	>100:1			5000.00	5055.09	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.347	4.348	0/0	609105	29	>100:1	Target = 1.51	6.24	5000.00	4770.81		
584 > 526	60	4.347	4.348		429723	31	>100:1	1.41 (0.75-2.26)	3.48				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	567315	16				1000.00	941.99	89.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	2841498	16	>100:1	Target = 14.52		5000.00	5169.10		
563 > 169	52	4.338	4.338		188357	15	>100:1	15.08 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	101022	14	>100:1			1000.00	952.35	99.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.464	1/1	536894	16	>100:1			5000.00	5459.41		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	0	42790	12	>100:1			1000.00	995.12	99.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	0/0	253401	13	>100:1	Target = 1.06		5000.00	4994.19		
526 > 219	59	4.482	4.483		249853	16	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.613	4.614	0	568288	16	>100:1			1000.00	946.62	94	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.613	4.622	0/0	3168869	17	>100:1	Target = 10.70		5000.00	5230.56		
613 > 169	38	4.613	4.622		287989	16	>100:1	11.00 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/0	3207682	18	>100:1	Target = 8.31		5000.00	5370.12		
663 > 169	38	4.868	4.877		361012	16	>100:1	8.88 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.099	5.106	0	789132	21	>100:1			1000.00	970.65	94.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.099	5.106	0/0	3501019	22	>100:1	Target = 12.17		5000.00	5082.34		
713 > 169	42	5.099	5.106		283044	22	>100:1	12.36 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.543	5.544	0	844444	20	>100:1			1000.00	972.82	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.543	5.552	0/0	2628973	21	>100:1	Target = 10.43		5000.00	4861.05		
813 > 269	40	5.543	5.552		250370	21	>100:1	10.50 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.001	6.026	-1/-1	3827486	42	>100:1	Target = 13.67		5000.00	4978.71		
913 > 319	40	5.997	6.026		274691	43	>100:1	13.93 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	0	646194	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	655717	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	519402	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	554269	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	122600	21	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Inst. ID:	LCMSMS02.i
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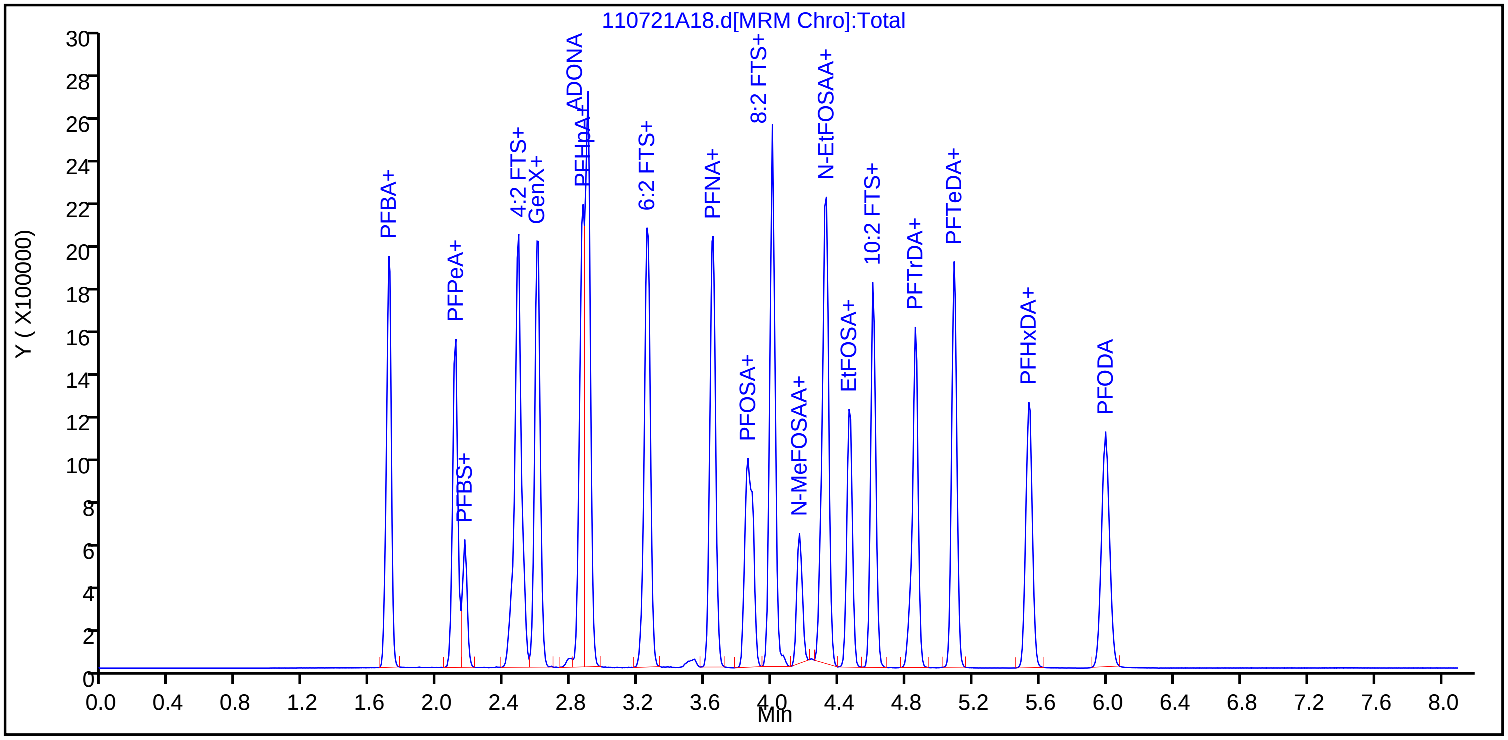
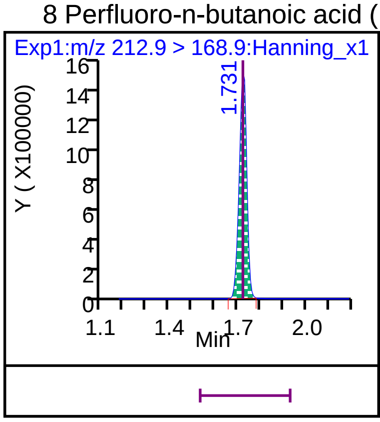
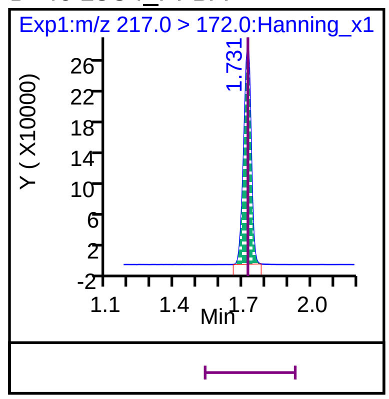
Sample Info:	ID ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin



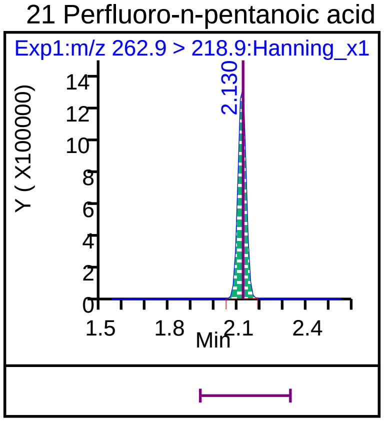
8 Perfluoro-n-butanoic acid (PFBA)



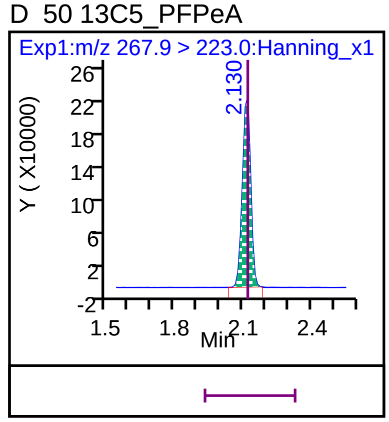
D 46 13C4_PFBA



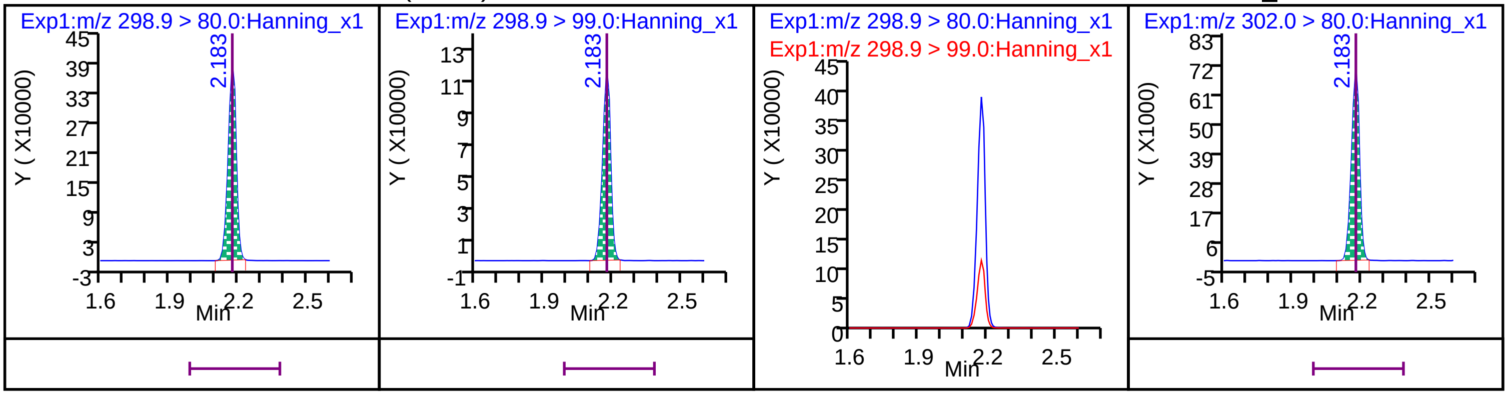
21 Perfluoro-n-pentanoic acid (PFPeA)



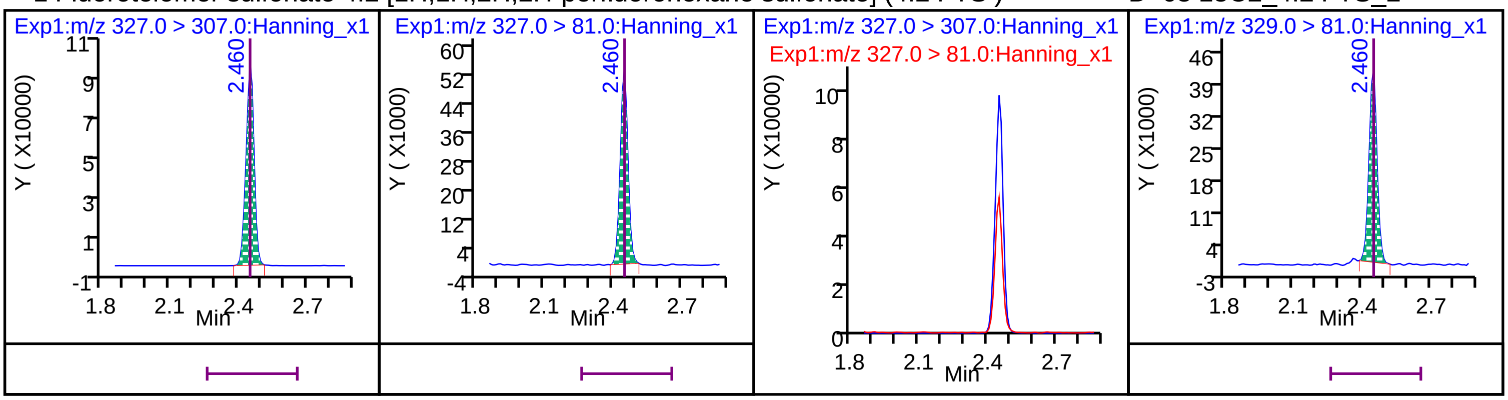
D 50 13C5_PFPeA



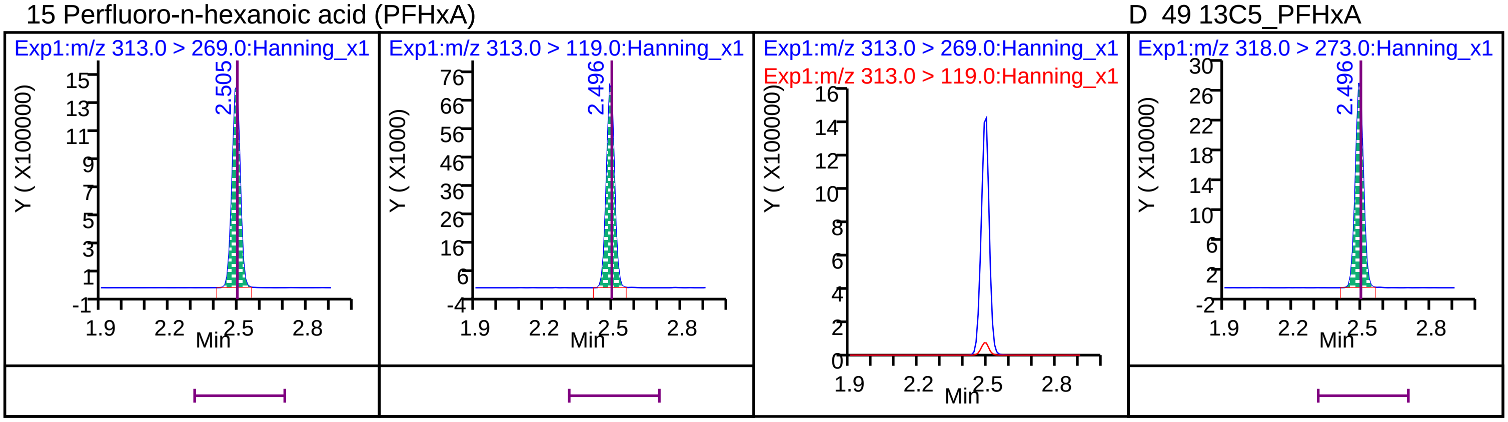
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



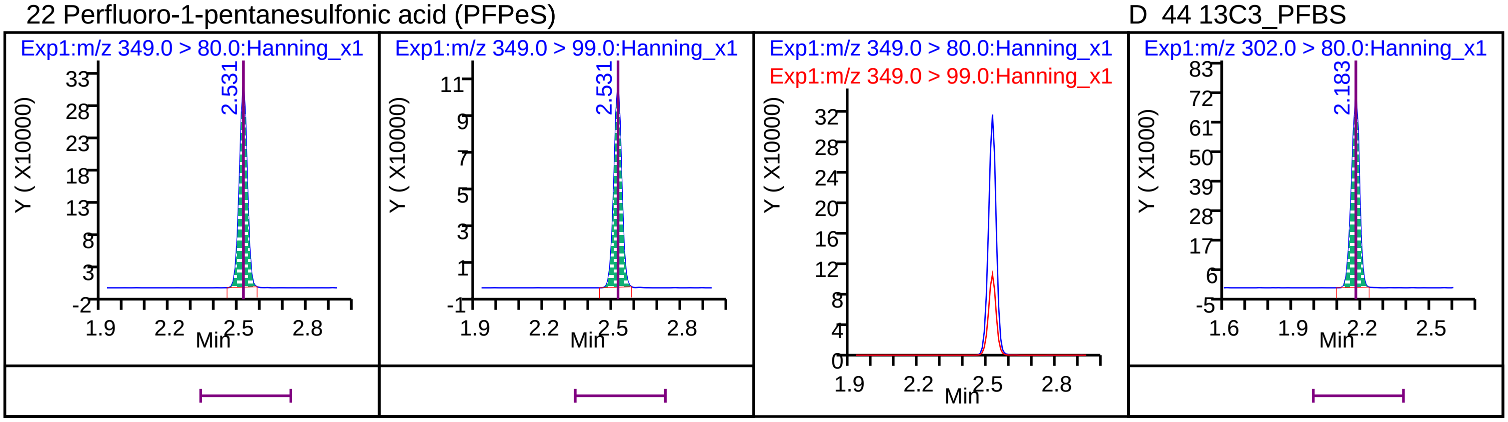
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



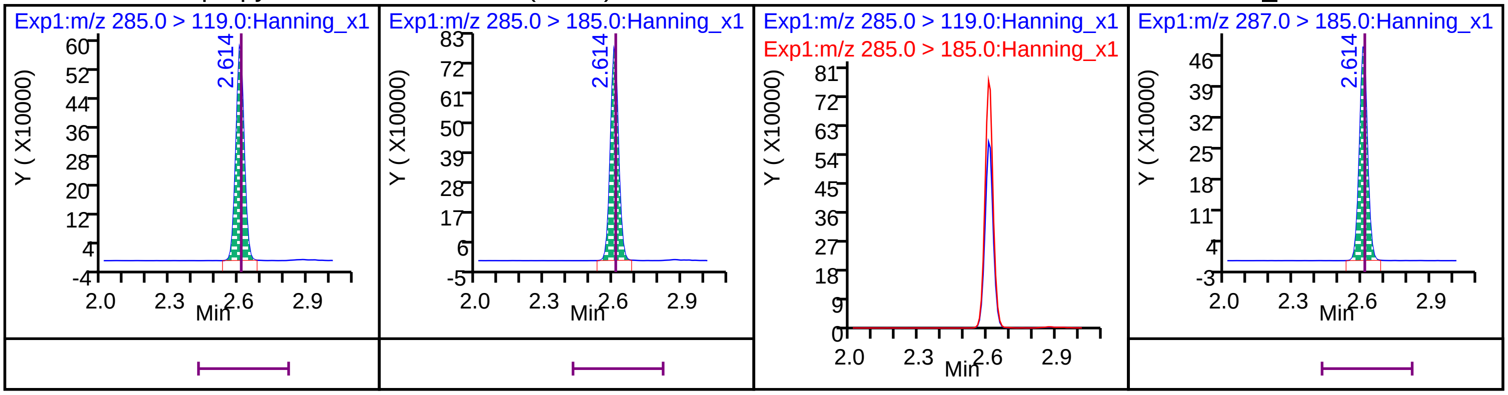
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



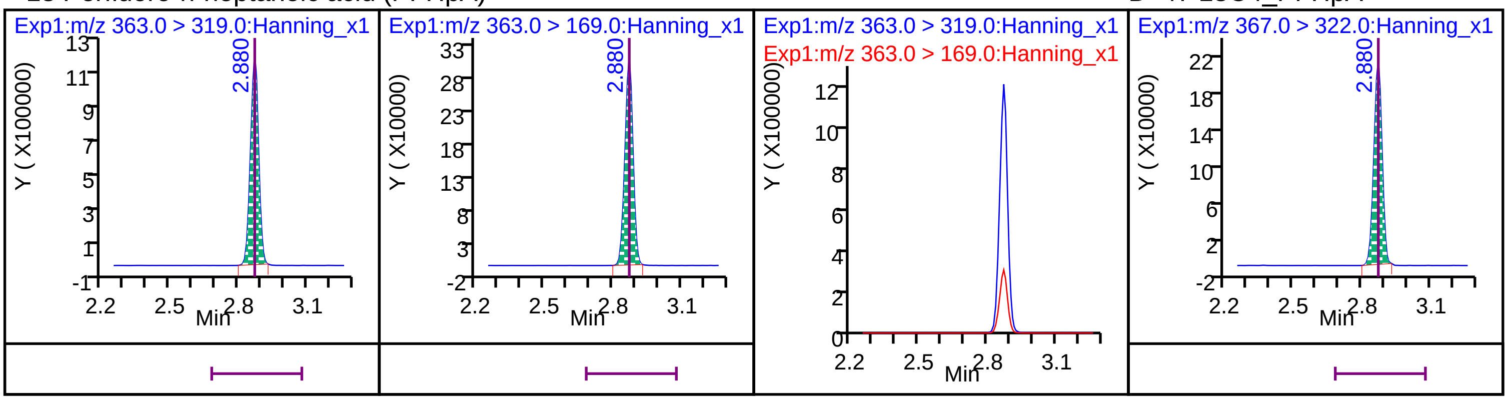
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



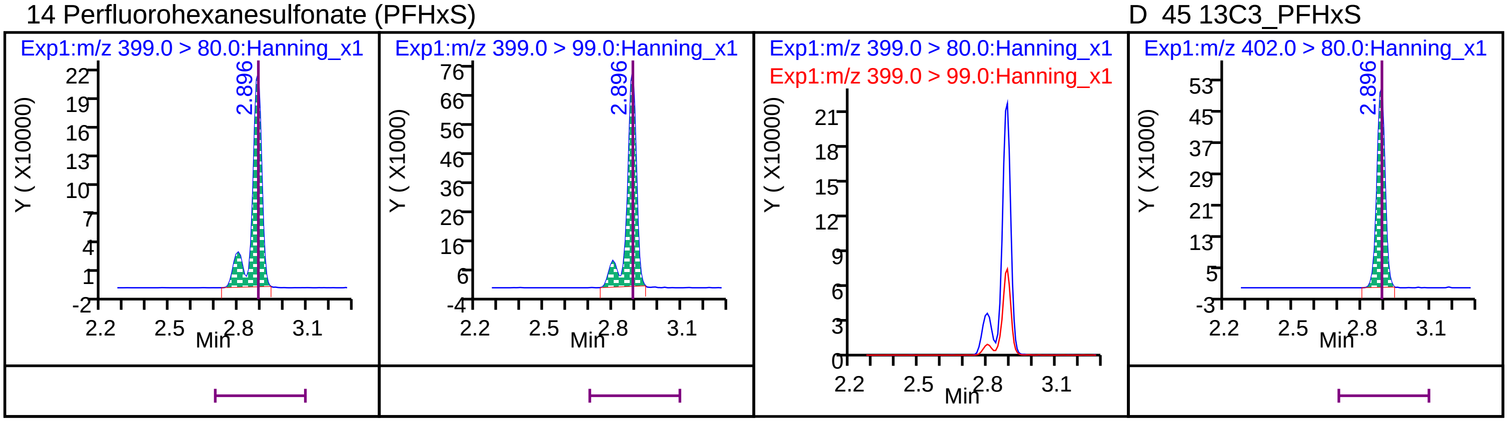
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



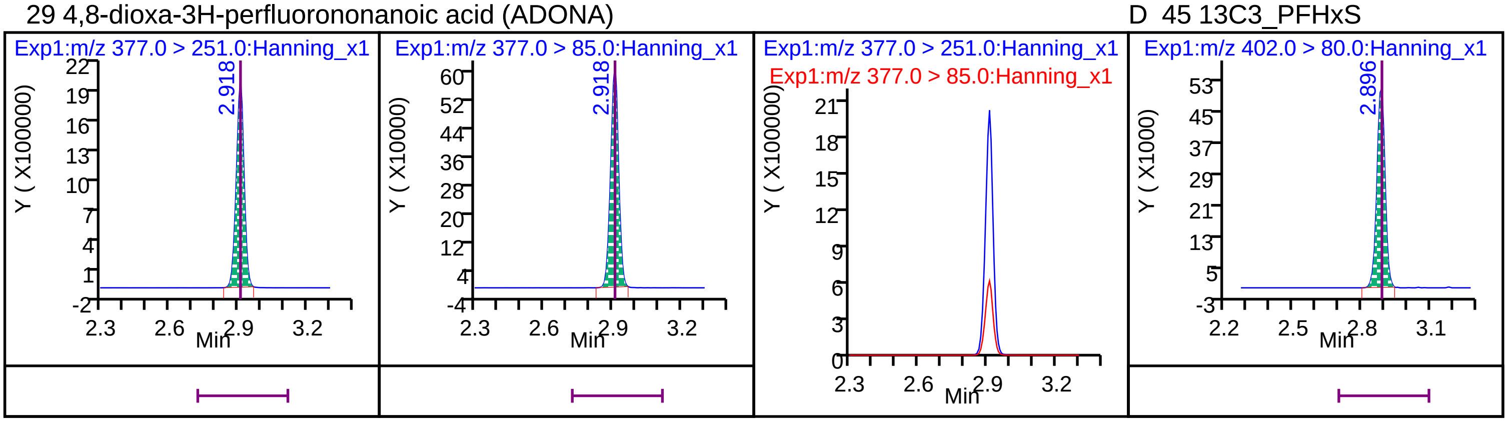
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

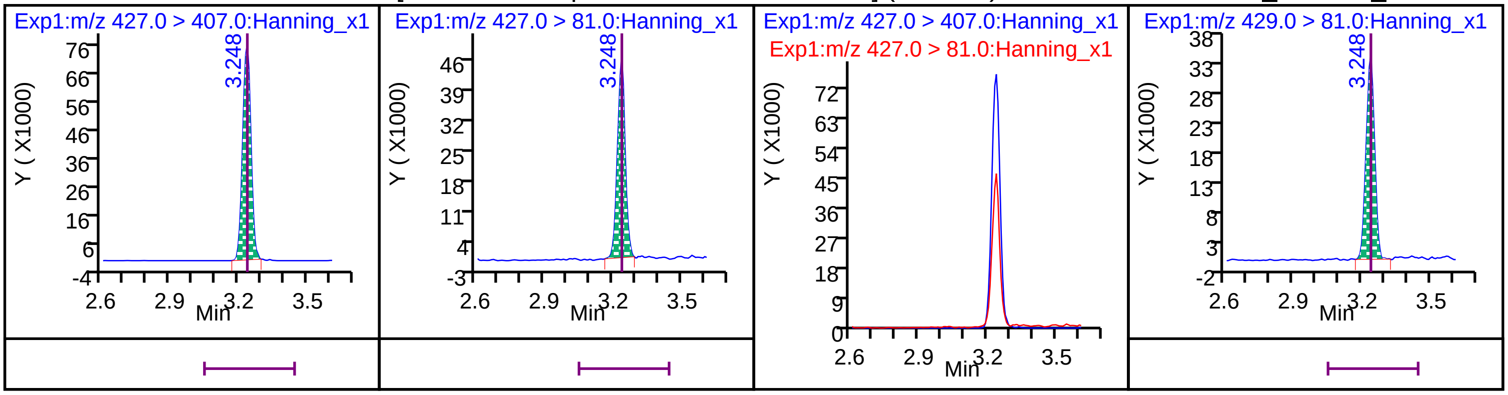


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

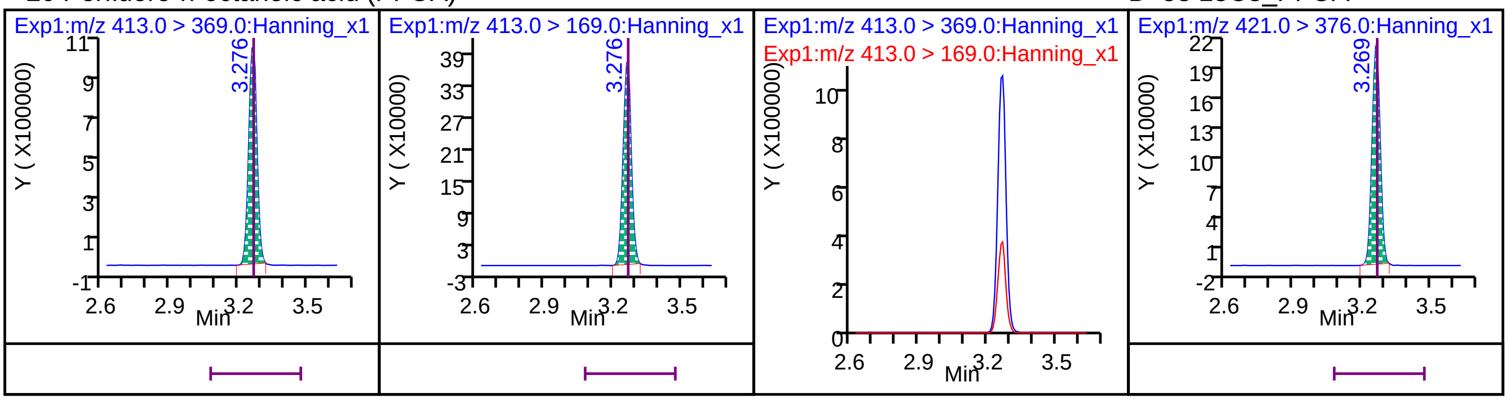


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d

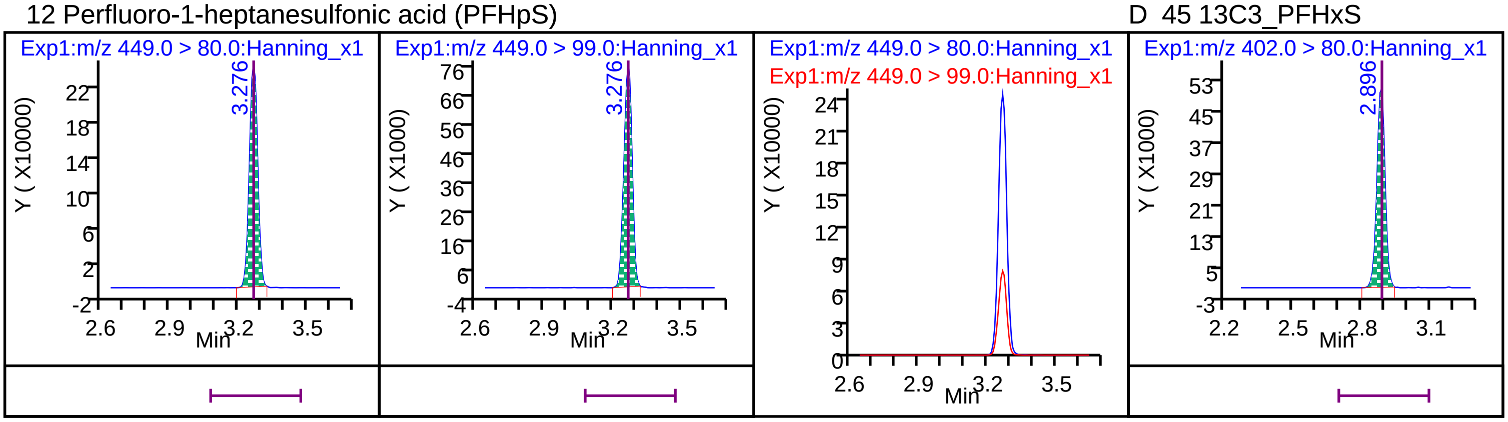
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



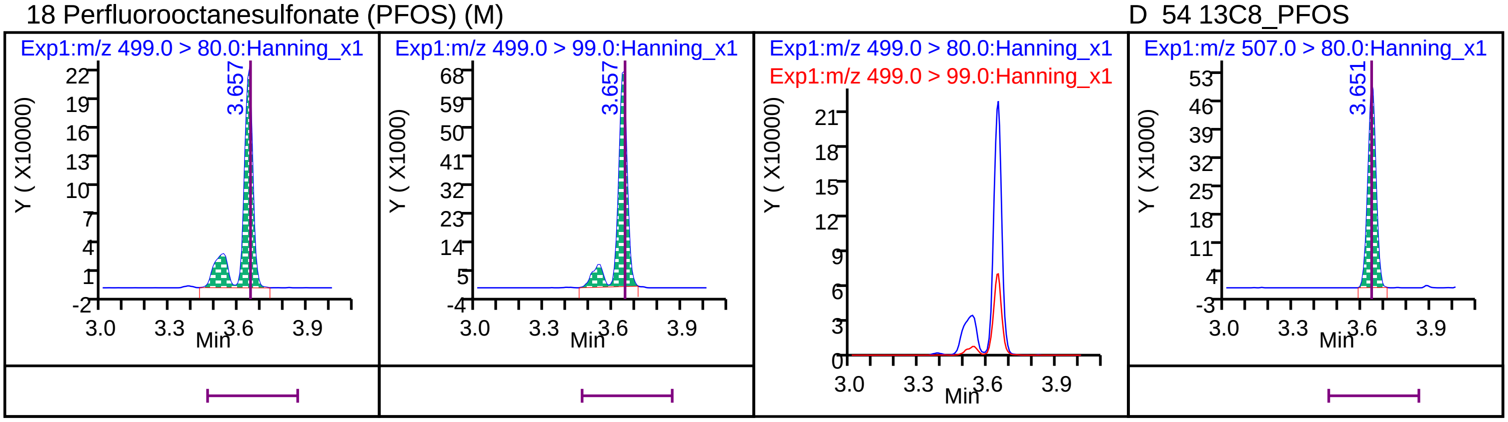
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



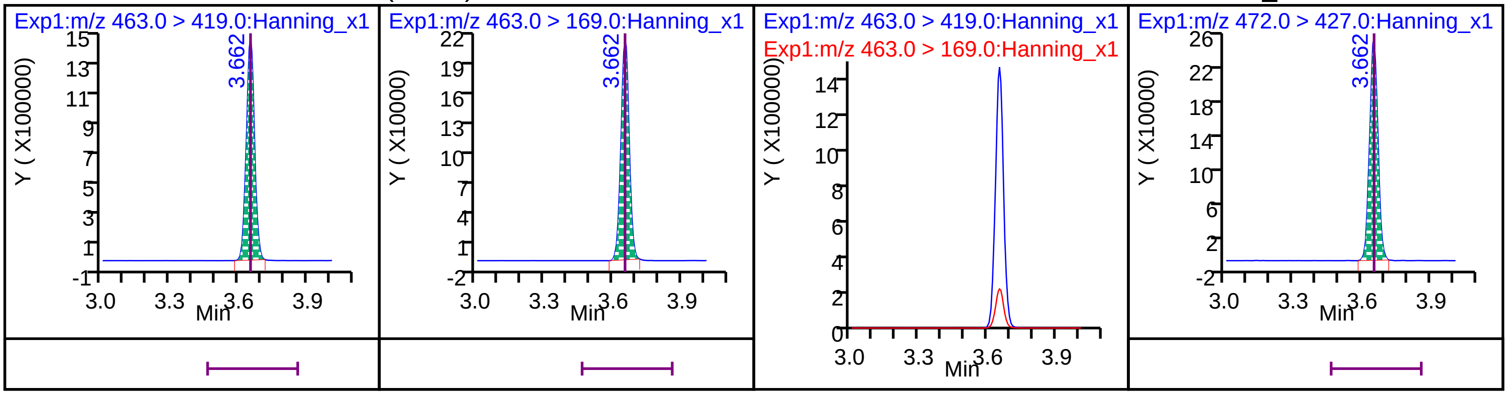
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



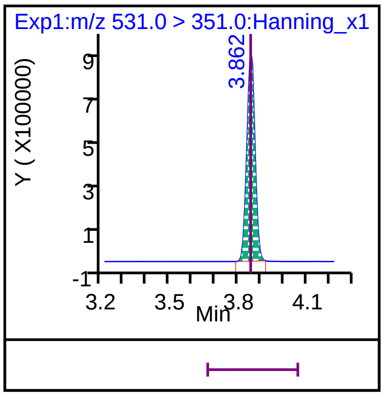
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

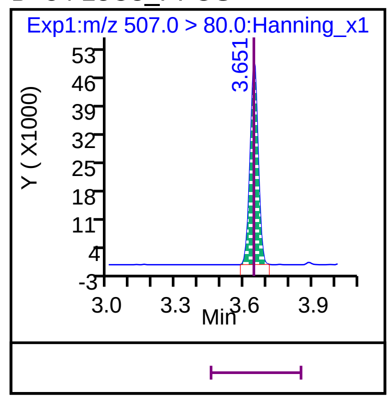


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

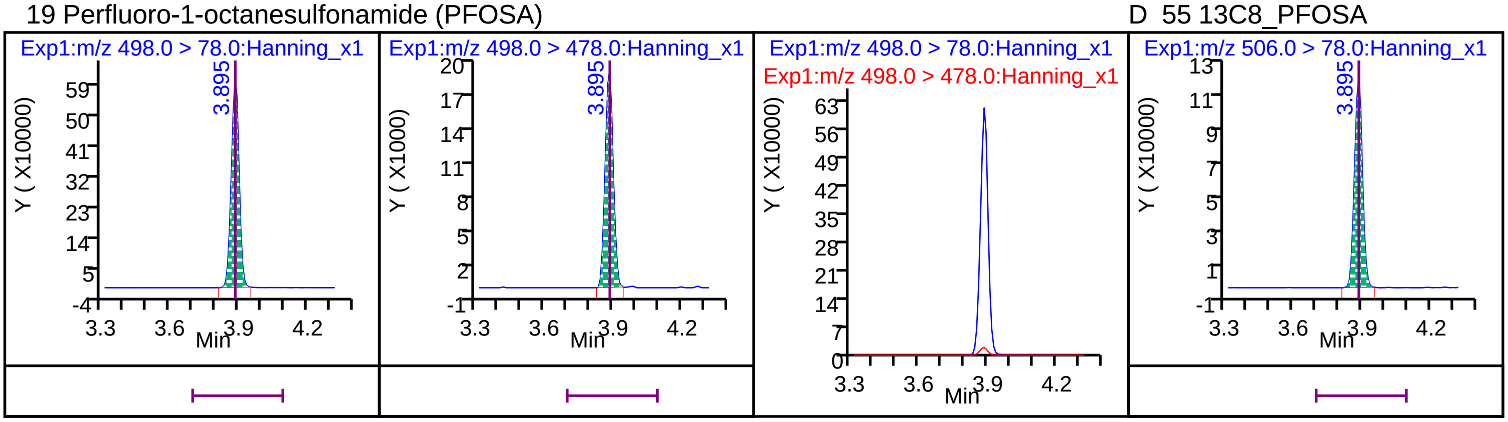


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

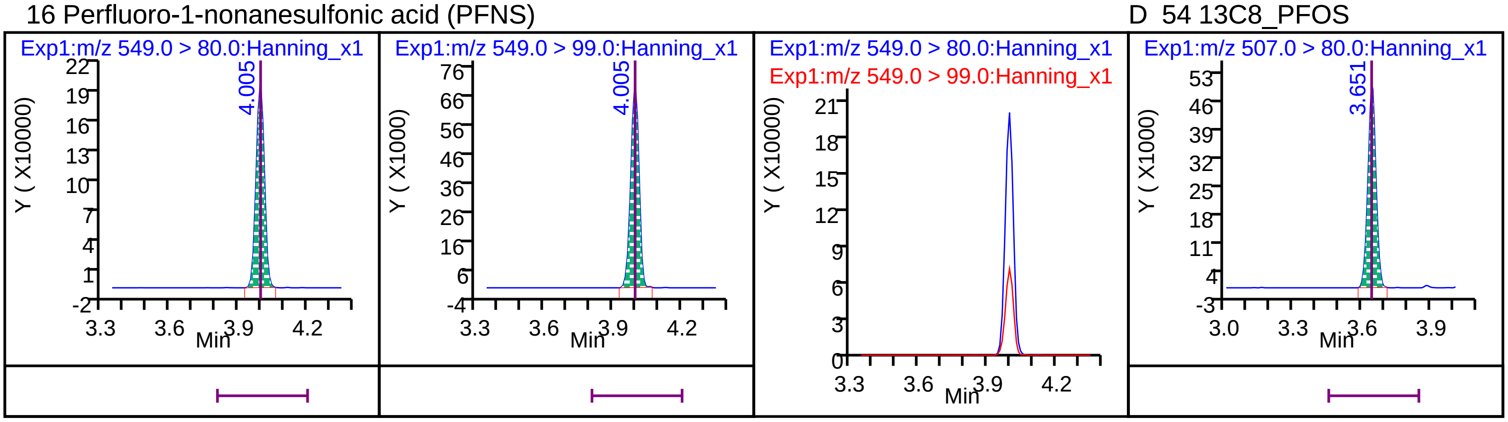




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

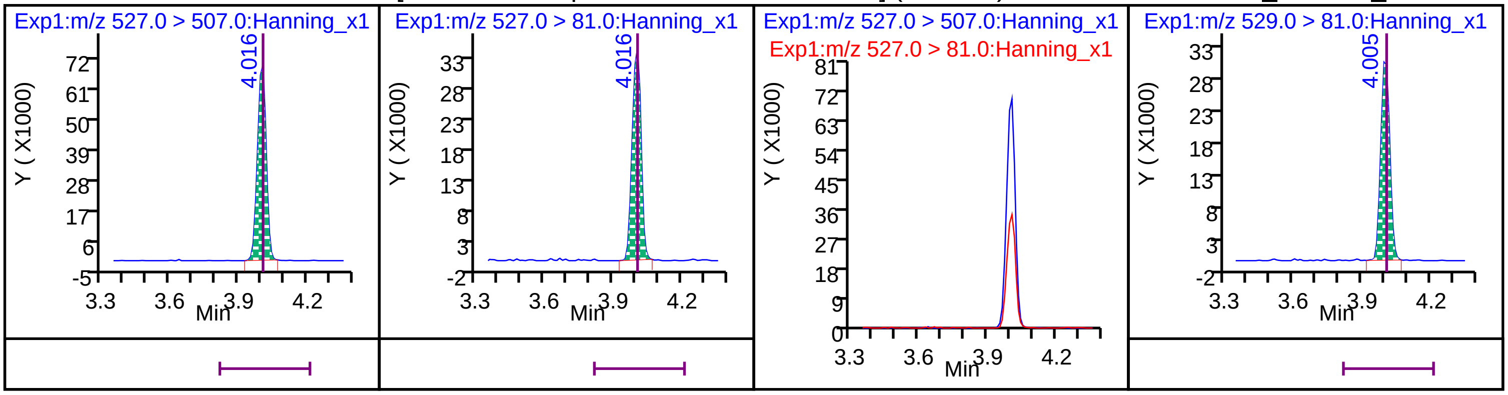


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



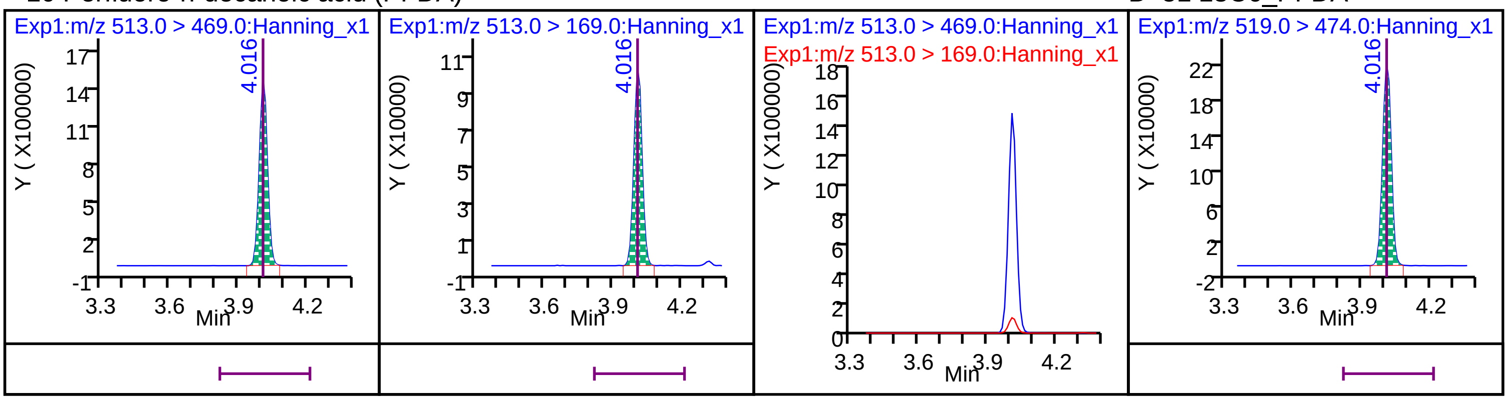
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



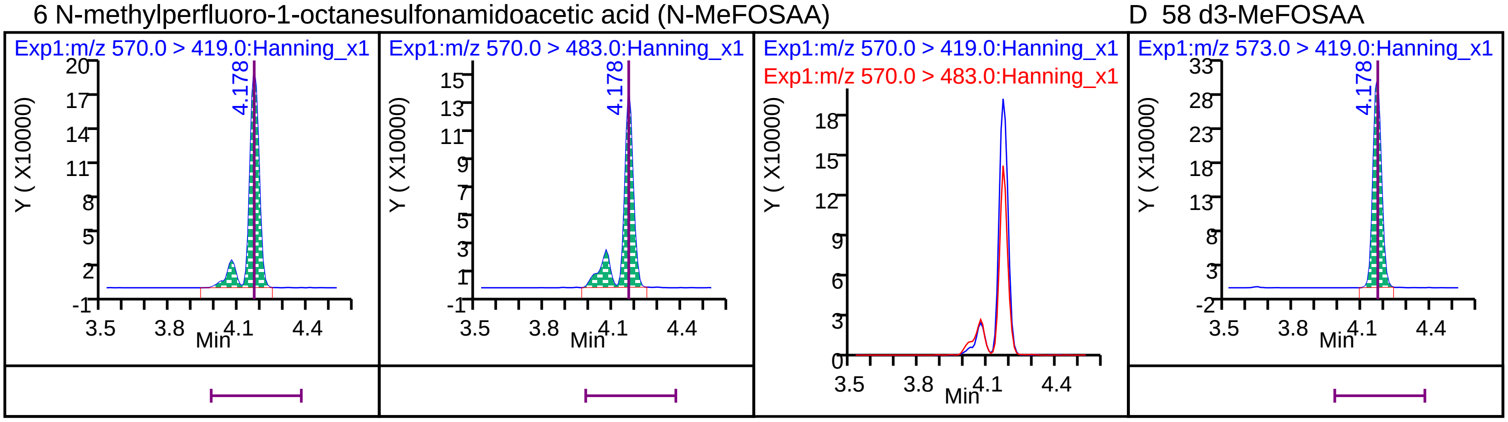
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



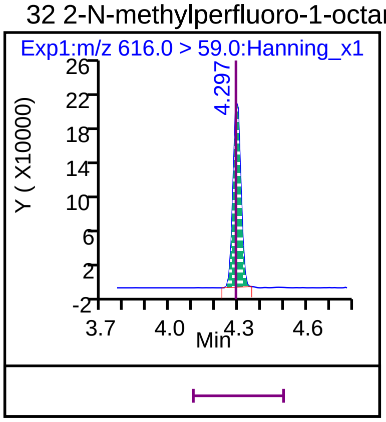
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

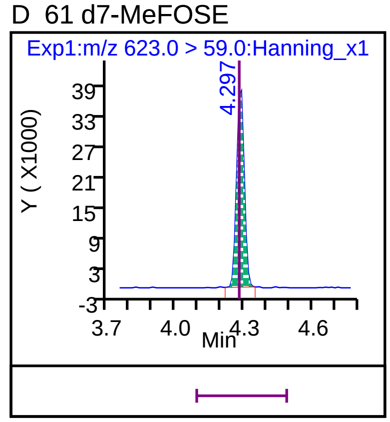
D 58 d3-MeFOSAA



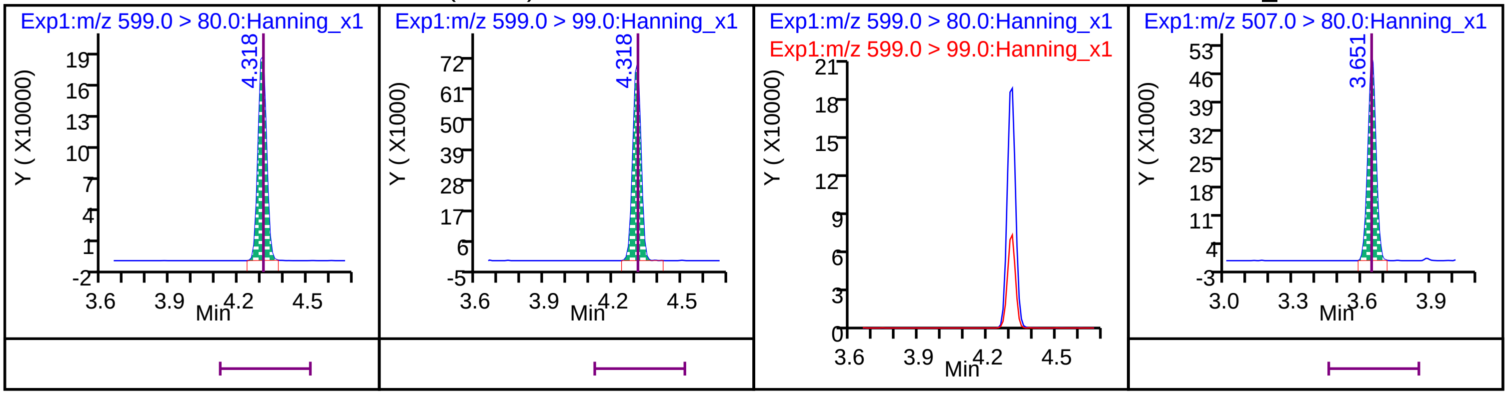
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

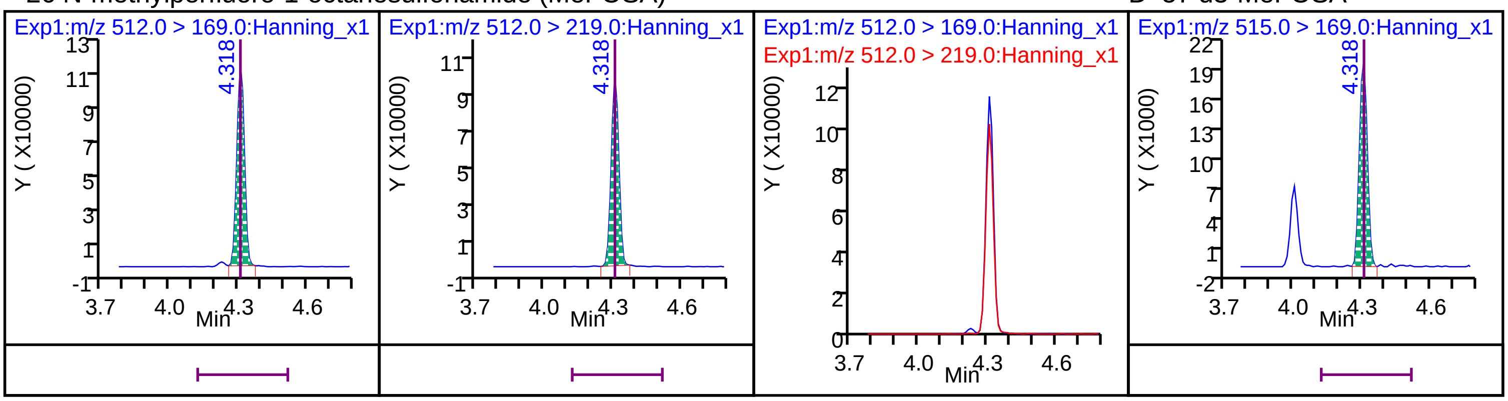




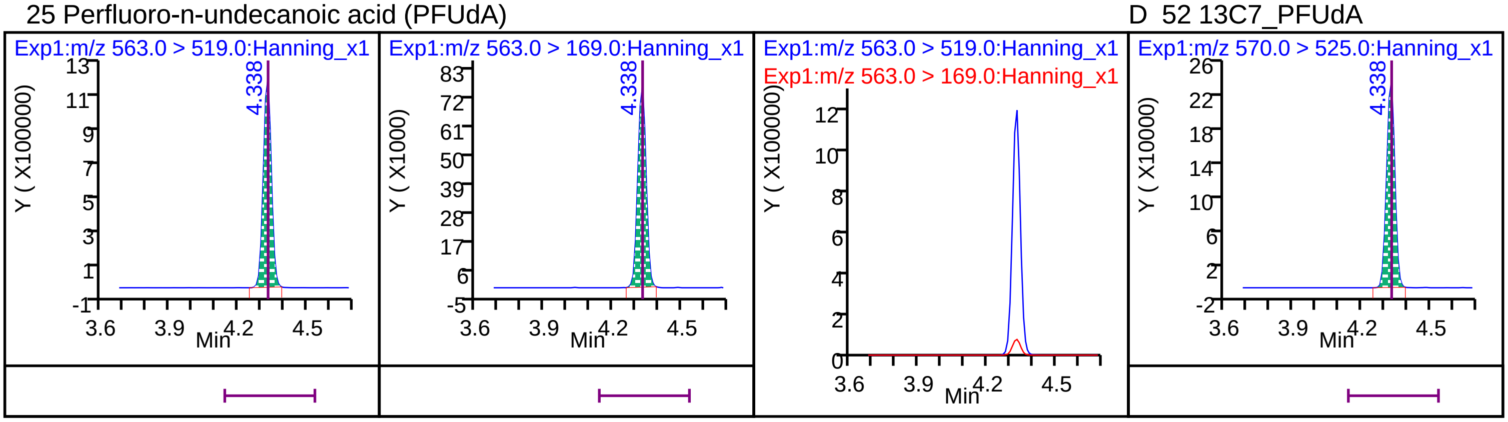
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



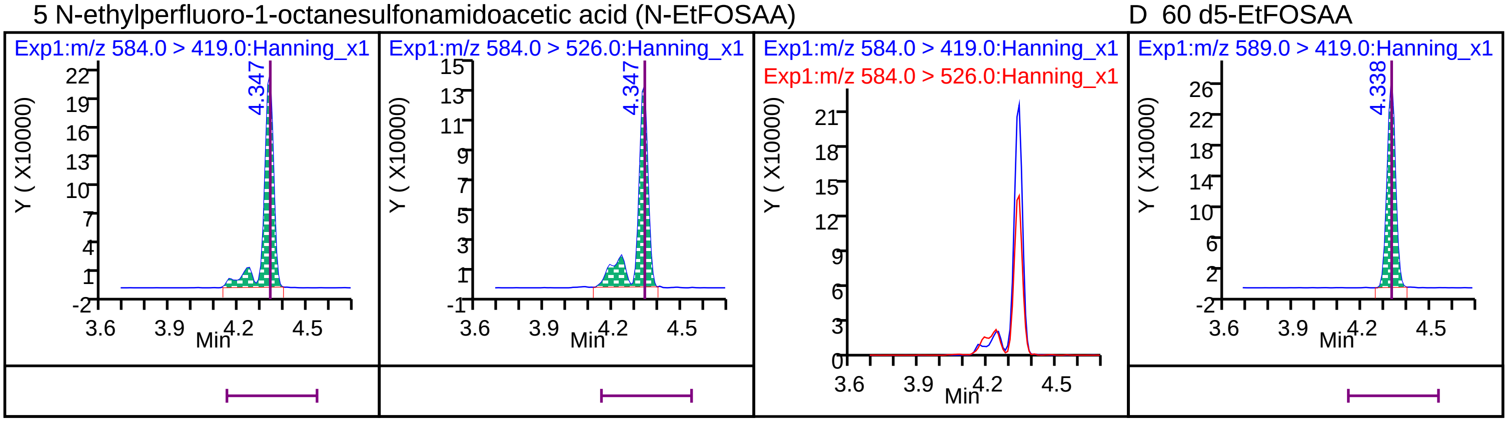
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

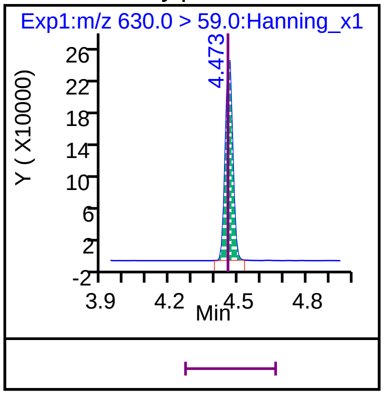


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

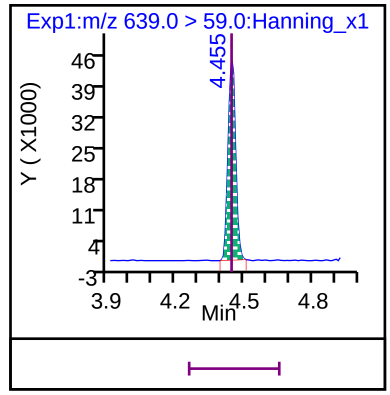


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d

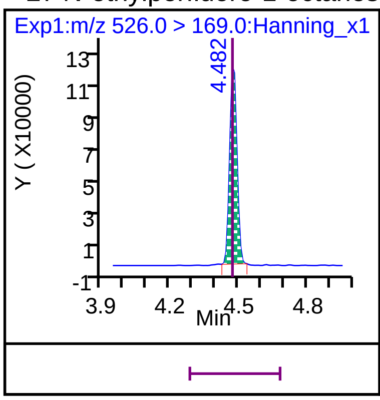
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

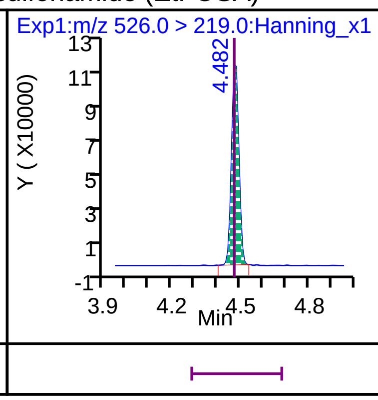


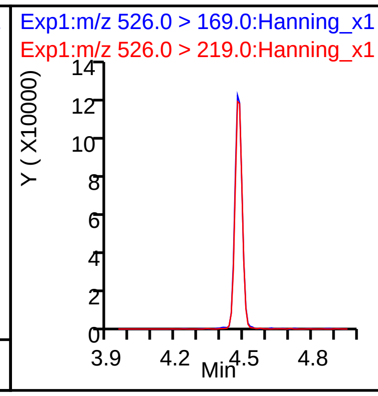
D 62 d9-EtFOSE



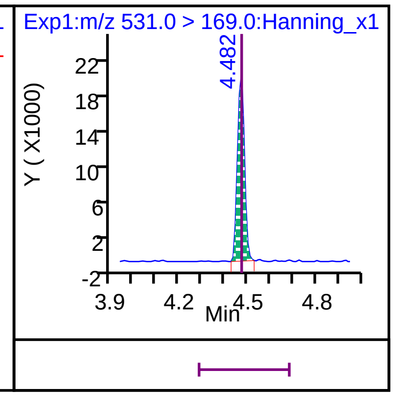
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



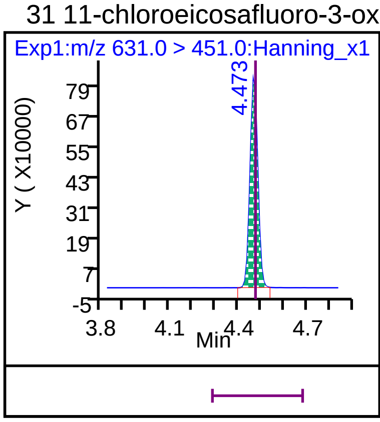




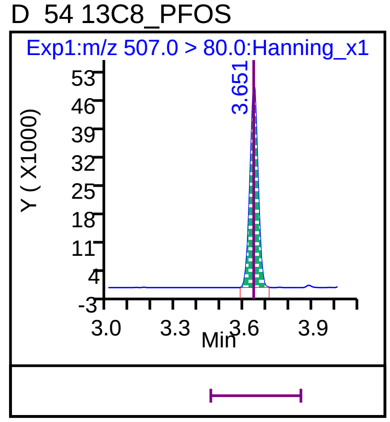
D 59 d5-EtFOSA



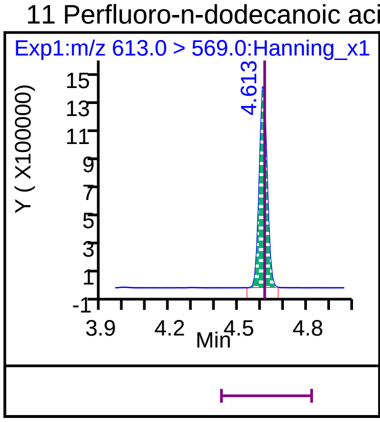
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

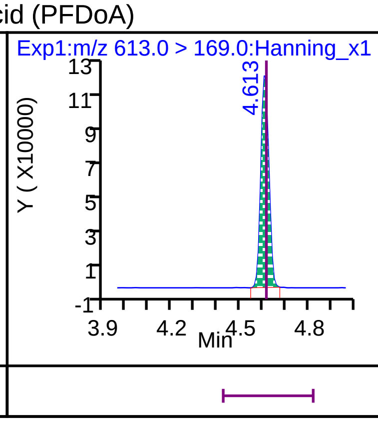


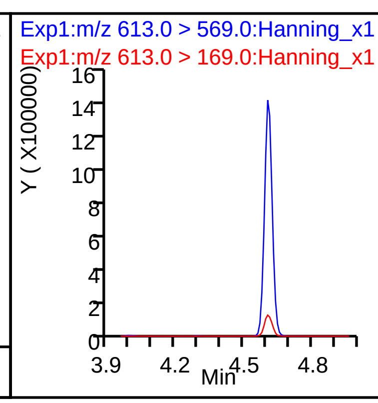
D 54 13C8_PFOS



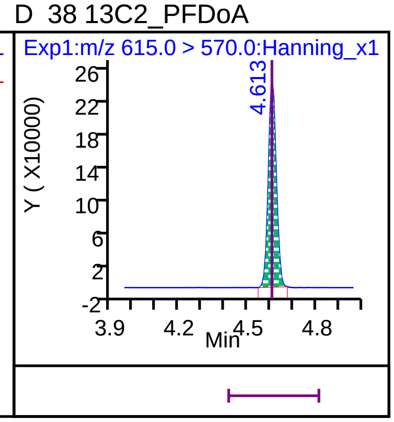
11 Perfluoro-n-dodecanoic acid (PFDoA)







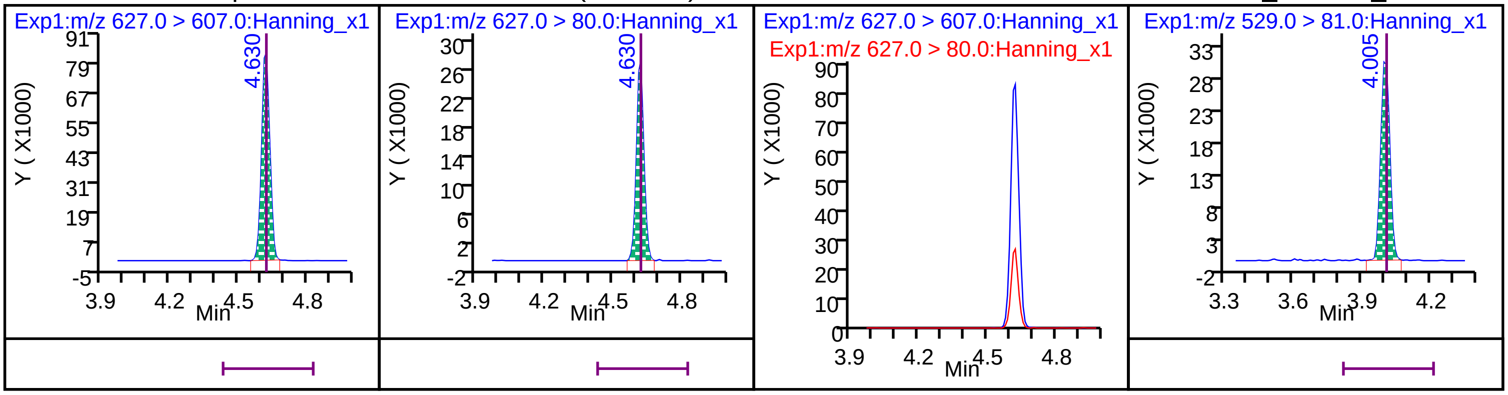
D 38 13C2_PFDoA



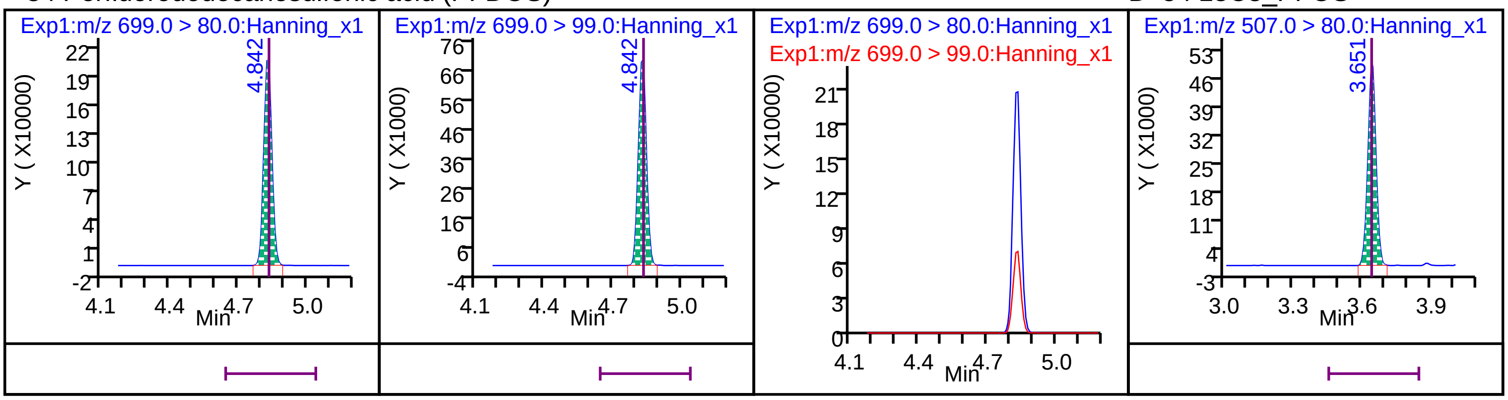
Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d

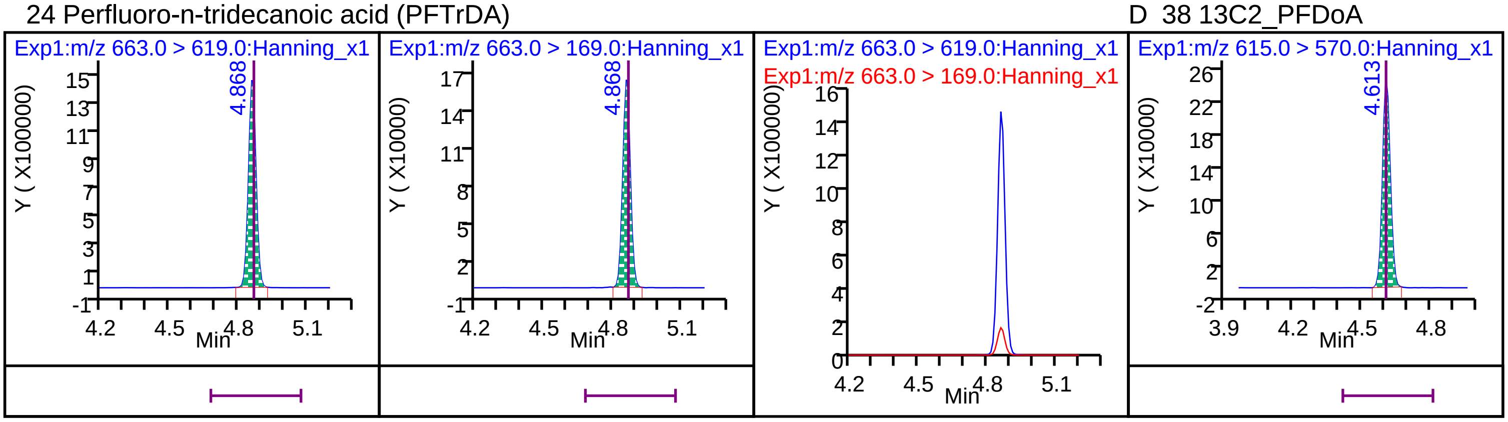
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



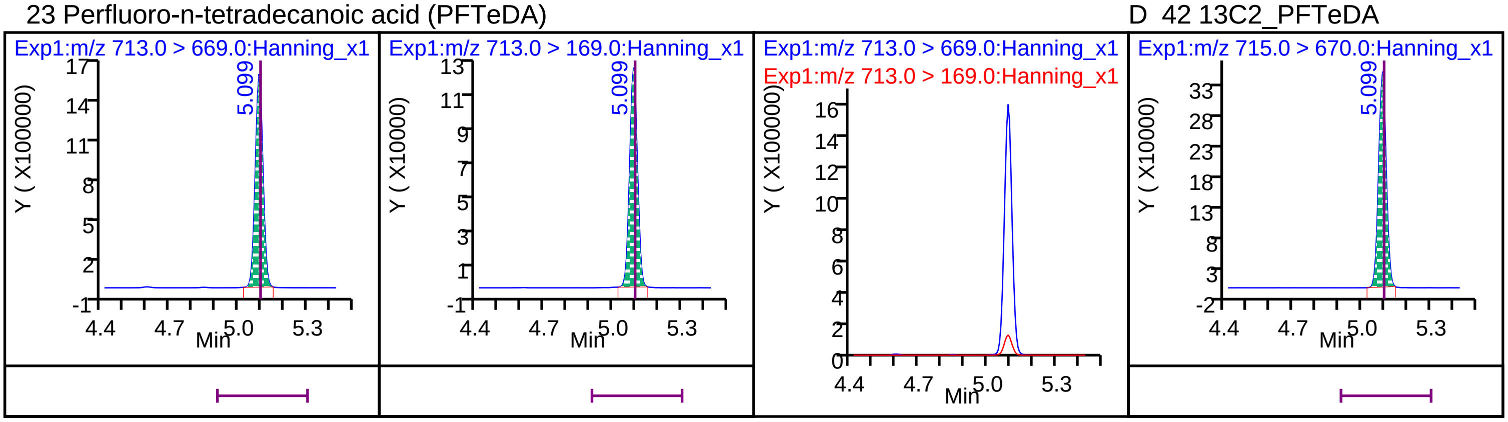
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



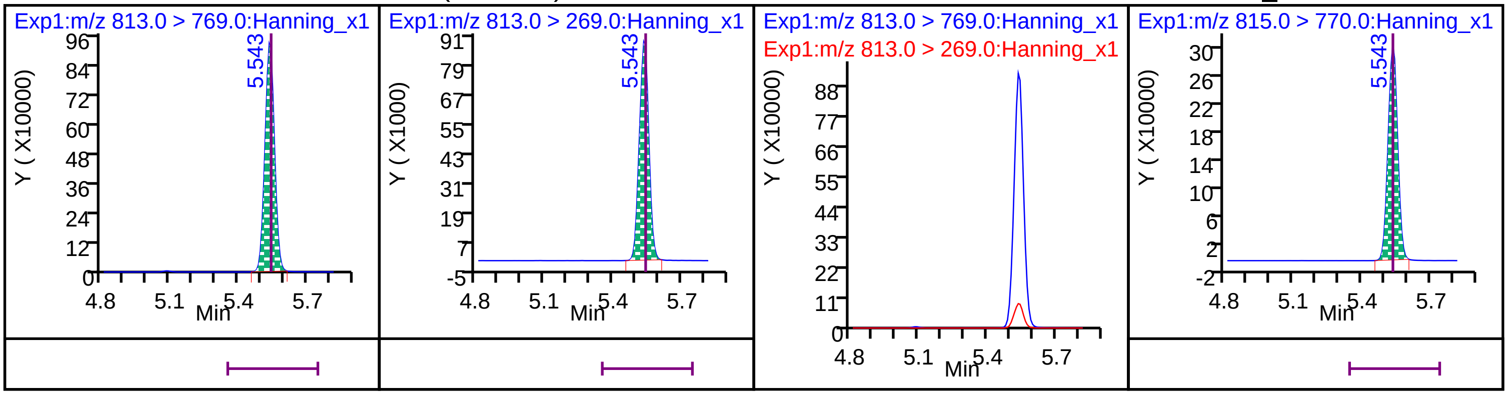
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



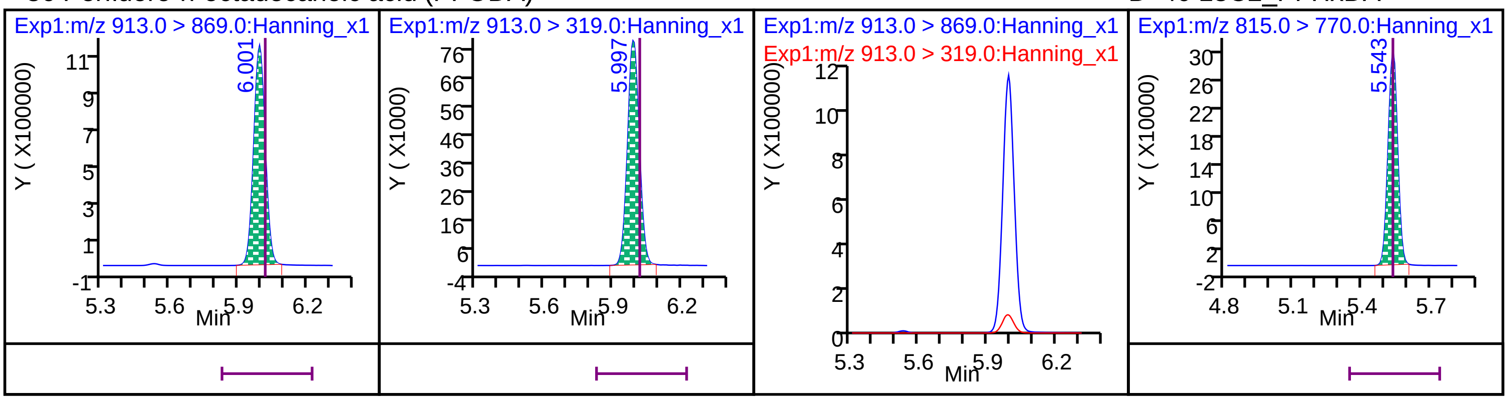
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



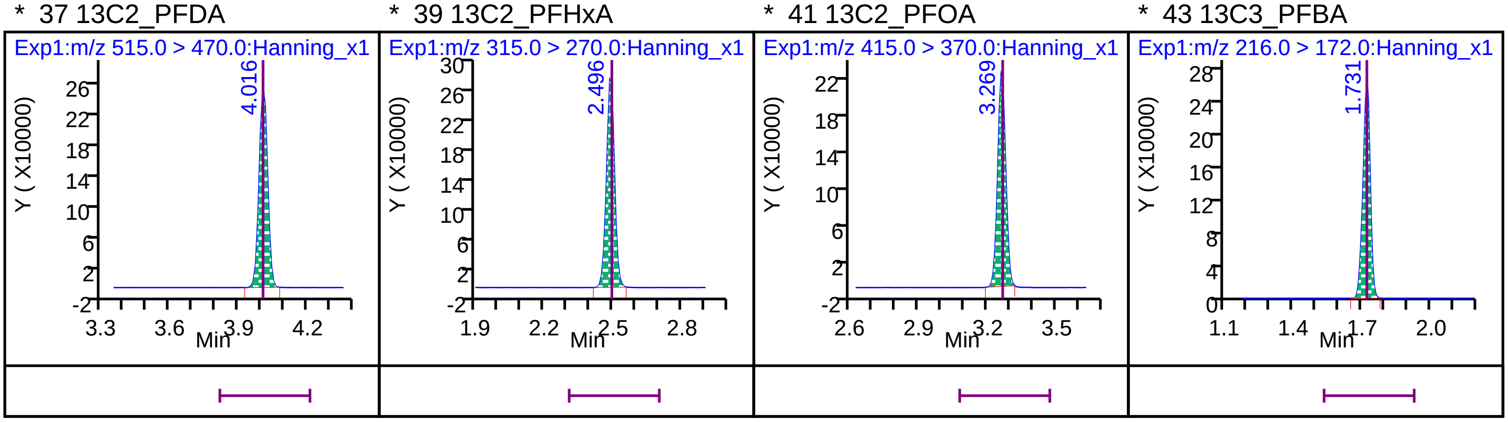
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



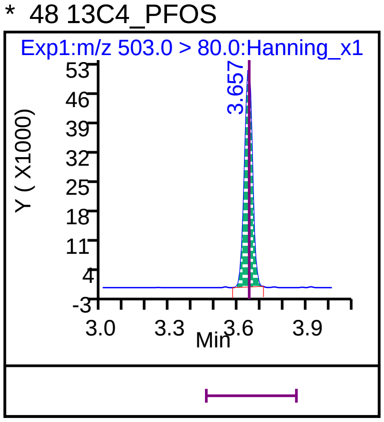
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

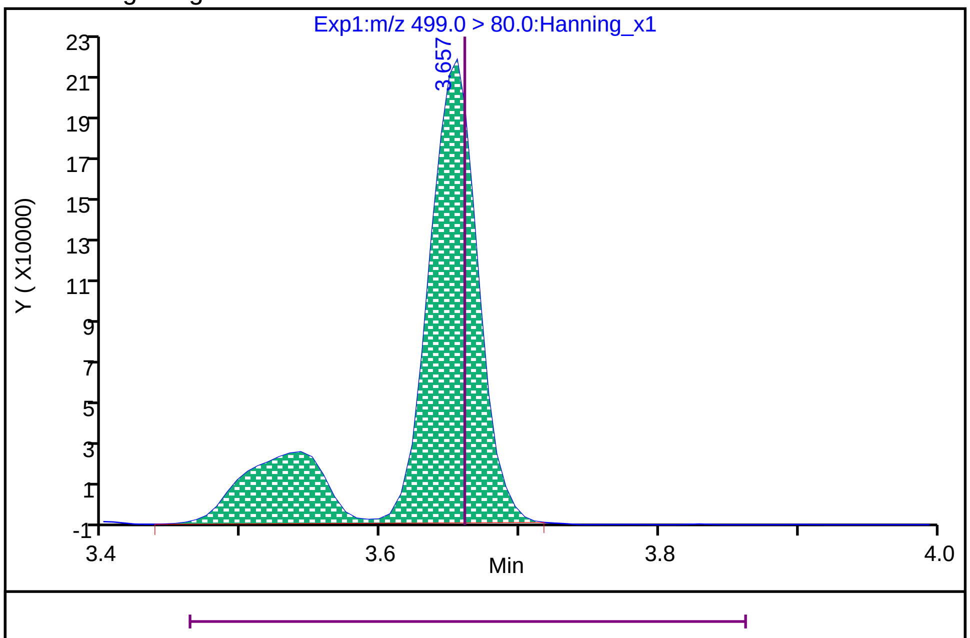
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 5000_SVLC-1746
Sample Info:	ID ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin

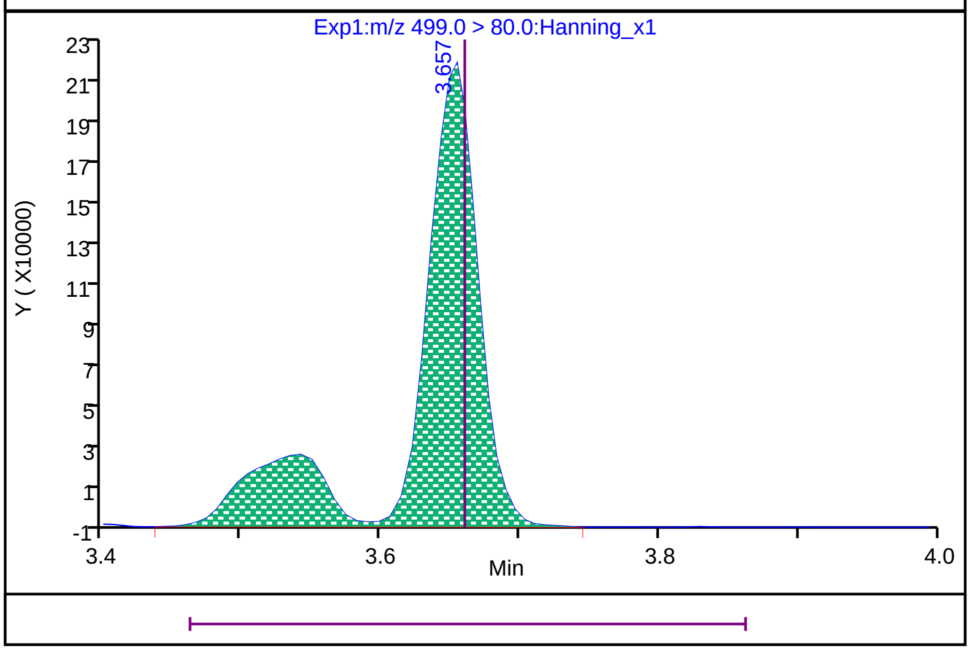
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.657
Area:	637895
Amount:	4460.48
Amount Units:	ng/L



RT:	3.657
Area:	648437
Amount:	4519.95
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:27

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	82
Sample Info:	ID ICAL 10000_SVLC-1747	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	612919	20	>100:1			1000.00	985.92	96.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	6389427	20	>100:1			10000	9884.56		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.119	2.130	0	574561	14	>100:1			1000.00	1005.19	99	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.119	2.130	0/0	6170232	15	>100:1			10000	9541.58		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	170031	16	>100:1			1000.00	983.01	95.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	1829568	16	>100:1	Target = 3.53		8840.00	8628.65		
298.9 > 99	44	2.183	2.183		519284	16	>100:1	3.52 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/0	1454385	18	>100:1	Target = 3.10		9380.00	9229.52		
349 > 99	44	2.531	2.531		484535	16	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	127713	16	>100:1			5000.00	5640.11	113.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	482122	17	>100:1	Target = 1.75		9340.00	8562.59		
327 > 81	63	2.460	2.460		236058	17	>100:1	2.04 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	645118	17	>100:1			1000.00	990.53	97	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	6492122	18	>100:1	Target = 18.91		10000	9678.66		
313 > 119	49	2.496	2.505		336946	18	>100:1	19.26 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1133936	19	>100:1			5000.00	4892.79	94.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	2964456	19	>100:1	Target = 0.79		20000	20184		
285 > 185	66	2.614	2.622		3754397	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	511577	18	>100:1			1000.00	963.53	96	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	5693105	18	>100:1	Target = 3.80		10000	10128		
363 > 169	47	2.880	2.880		1436859	18	>100:1	3.96 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	123270	17	>100:1			1000.00	981.14	95	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	1221767	27	>100:1	Target = 2.89	5.14	9100.00	9015.30		
399 > 99	45	2.896	2.896		393459	27	>100:1	3.10 (1.44-4.34)	6.96				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	0/0	8891435	19	>100:1	Target = 3.23		9420.00	9300.76		
377 > 85	45	2.918	2.919		2730031	19	>100:1	3.25 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	1164821	23	>100:1	Target = 3.12		9520.00	9200.34		
449 > 99	45	3.276	3.276		384601	23	>100:1	3.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	82709	20	>100:1			5000.00	4594.95	88	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	387289	20		Target = 1.75		9480.00	9890.33		
427 > 81	64	3.248	3.248		214804	20	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	501858	21	>100:1			1000.00	956.51	91.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	5056901	21	>100:1	Target = 2.89		10000	9832.94		
413 > 169	53	3.276	3.276		1701870	22	>100:1	2.97 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	1	120102	21	>100:1			1000.00	969.79	91	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.662	0/-1	1317144	41	>100:1	Target = 3.30	3.67	9280.00	9210.62		M
499 > 99	54	3.651	3.662		383258	37	>100:1	3.43 (1.65-4.95)	7.66				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/0	4400668	18	>100:1			9320.00	9675.23		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	926406	17	>100:1	Target = 3.08		9600.00	9614.37		
549 > 99	54	4.006	4.006		336636	15	>100:1	2.75 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/-1	875387	15	>100:1	Target = 2.72		9640.00	9314.20		
599 > 99	54	4.308	4.318		327736	15	>100:1	2.67 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/-1	3946384	16	>100:1			9420.00	9597.57		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.834	4.842	0/-1	1010453	19	>100:1	Target = 3.27		9680.00	9784.17		
699 > 99	54	4.834	4.842		334518	18		3.02 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.662	0	622464	23	>100:1			1000.00	972.03	97.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	1/1	6678173	22	>100:1	Target = 6.51		10000	9953.51		
463 > 169	56	3.662	3.662		1014269	21	>100:1	6.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	256938	18	>100:1			1000.00	958.52	96.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/1	2684423	17	>100:1	Target = 41.63		10000	9929.59		
498>478	55	3.896	3.896		81642	17		32.88 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	1	570320	15	>100:1			1000.00	992.45	99	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	1/0	6612786	15	>100:1	Target = 13.80		10000	9963.39		
513 > 169	51	4.016	4.016		465257	17	>100:1	14.21 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	4.016	0	86853	16	>100:1			5000.00	5024.91	110.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	1/1	329055	16	>100:1	Target = 1.94		9580.00	8383.41		
527 > 81	65	4.006	4.016		175195	15	>100:1	1.87 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	422944	16		Target = 3.54		9640.00	9598.75		
627 > 80	65	4.631	4.631		121604	16	>100:1	3.47 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	1	733412	16	>100:1			5000.00	4853.42	94.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/0	1180104	31	>100:1	Target = 1.37	7.91	10000	10026		
570 > 483	58	4.178	4.178		855310	30	>100:1	1.37 (0.68-2.05)	4.25				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	86191	13				1000.00	955.67	95.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	980014	14	>100:1			10000	10404		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	42391	14	>100:1			1000.00	901.15	94.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/0	475500	13	>100:1	Target = 1.11		10000	10349		
512 > 219	57	4.318	4.318		445953	14	>100:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	1	609480	15	>100:1			5000.00	4705.93	88.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/0	1172304	30	>100:1	Target = 1.51	5.65	10000	9863.33		
584 > 526	60	4.338	4.348		787771	29	>100:1	1.48 (0.75-2.26)	3.75				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	1	586665	16	>100:1			1000.00	974.12	92.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	1/0	5676476	16	>100:1	Target = 14.52		10000	9985.75		
563 > 169	52	4.338	4.338		373326	15		15.20 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	106365	14	>100:1			1000.00	1002.72	104.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	1020968	15	>100:1			10000	9860.21		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	1	40796	18	>100:1			1000.00	948.75	95.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/0	490697	15	>100:1	Target = 1.06		10000	10157		
526 > 219	59	4.483	4.483		511101	15	>100:1	0.96 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	1	598735	17	>100:1			1000.00	997.33	99.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.622	0/-1	6241011	17	>100:1	Target = 10.70		10000	9777.61		
613 > 169	38	4.614	4.622		578392	17	>100:1	10.79 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/-1	6320725	18	>100:1	Target = 8.31		10000	10044		
663 > 169	38	4.868	4.877		732527	17	>100:1	8.62 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.100	5.106	0	800702	21	>100:1			1000.00	984.89	95.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.100	5.106	0/0	6913870	22	>100:1	Target = 12.17		10000	9891.66		
713 > 169	42	5.100	5.106		554226	21	>100:1	12.47 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.536	5.544	0	880463	21	>100:1			1000.00	1014.32	100.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.536	5.552	0/0	5126962	21	>100:1	Target = 10.43		10000	9092.08		
813 > 269	40	5.536	5.552		502124	21	>100:1	10.21 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.007	6.026	-1/-1	7594218	42	>100:1	Target = 13.67		10000	9474.28		
913 > 319	40	6.002	6.026		545393	44	>100:1	13.92 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	1	625216	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	669175	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	506174	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	565087	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.651	3.657	0	116530	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

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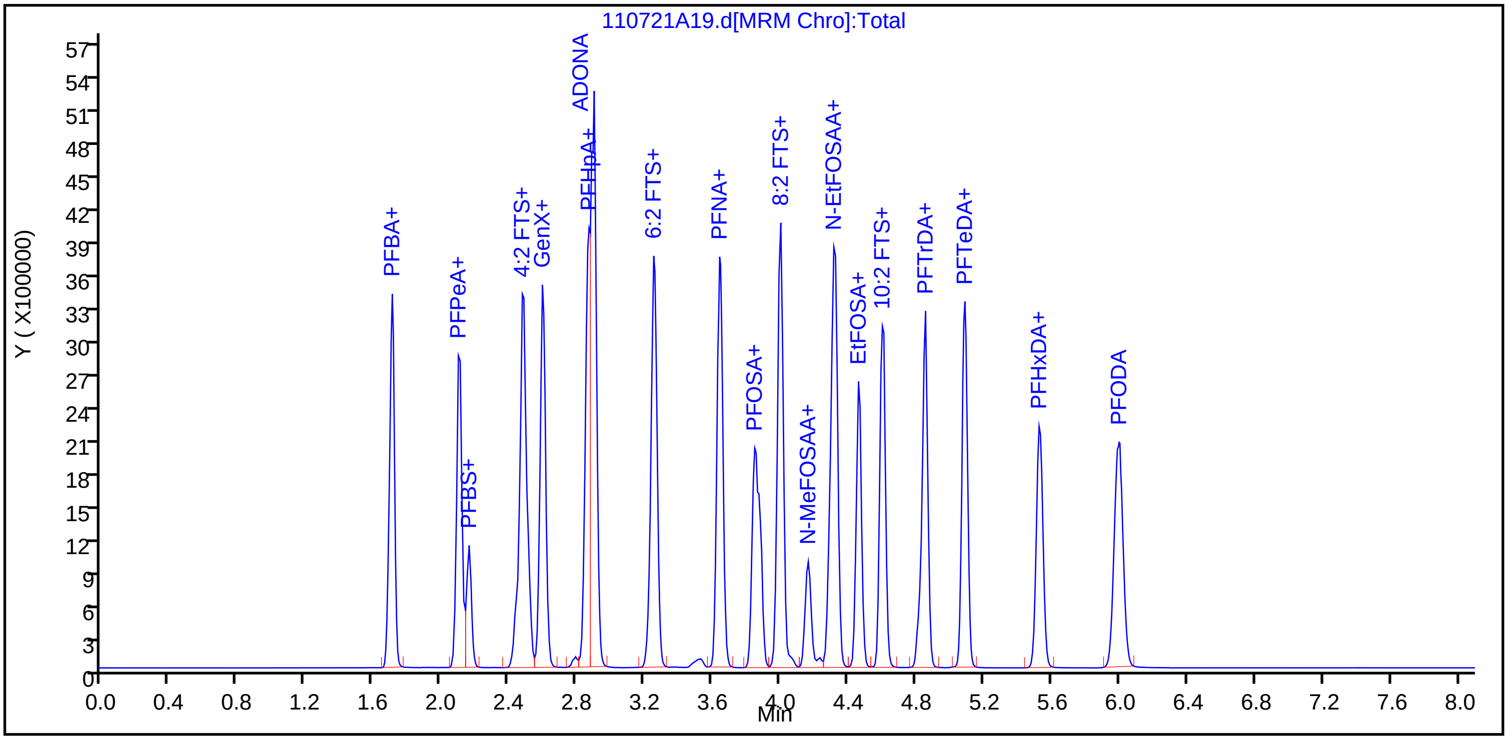
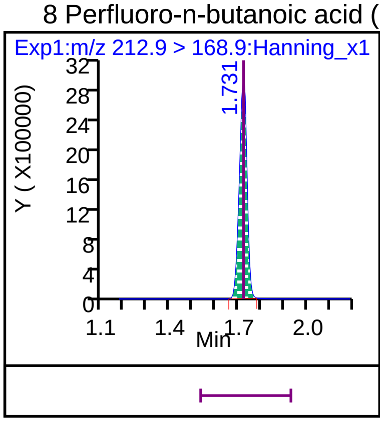
Pace Environmental Services, LLC

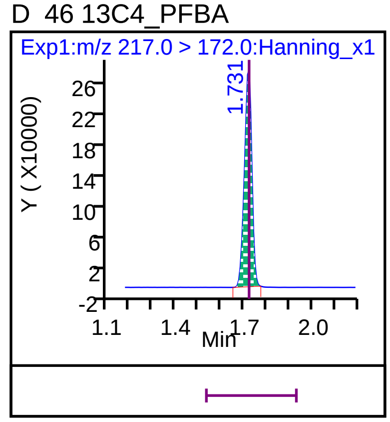
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 10000_SVLC-1747
Sample Info:	ID ICAL 10000_SVLC-1747		
Dil. Factor:	1	Operator:	Justin Gavin



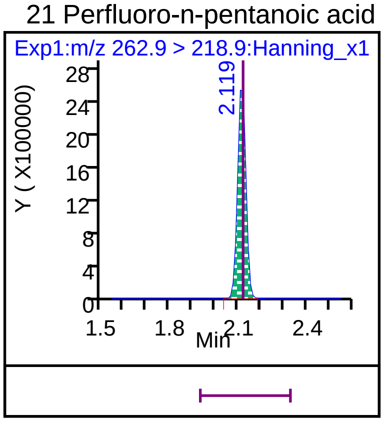
8 Perfluoro-n-butanoic acid (PFBA)



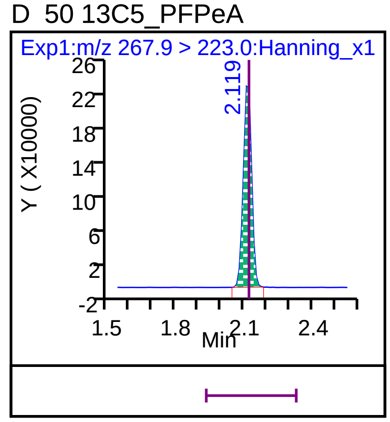
D 46 13C4_PFBA



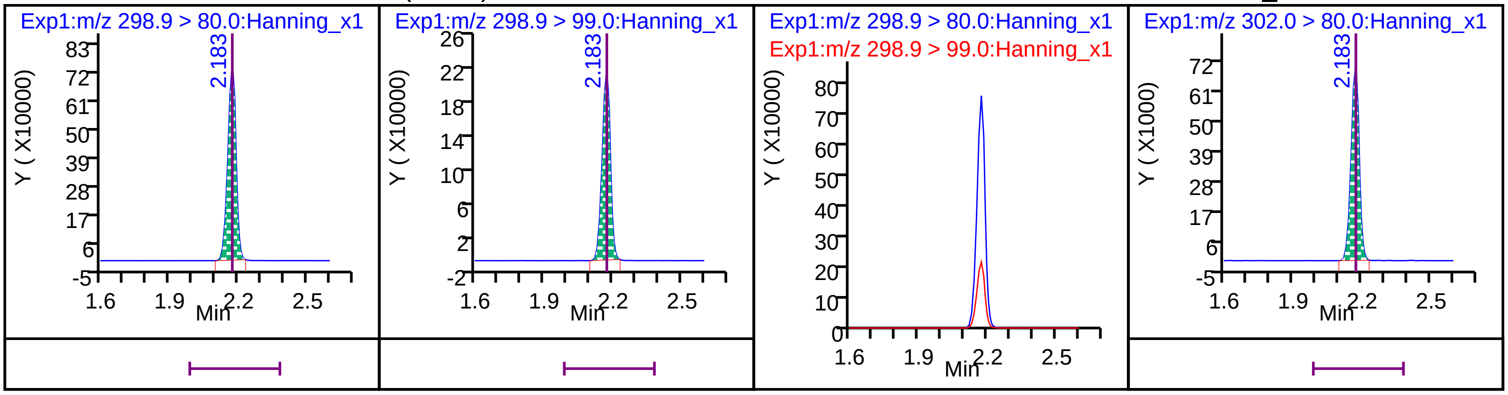
21 Perfluoro-n-pentanoic acid (PFPeA)



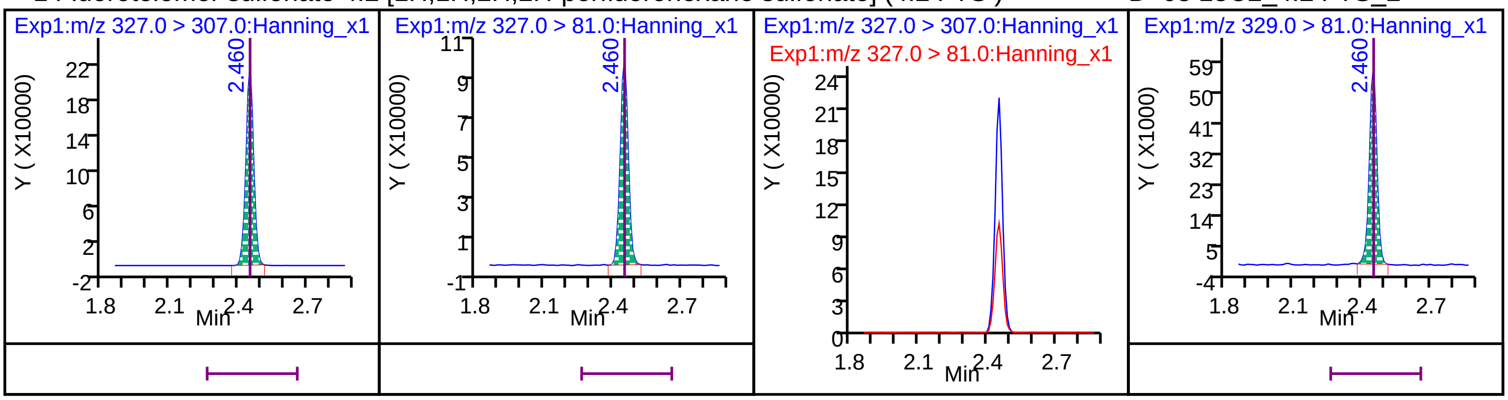
D 50 13C5_PFPeA



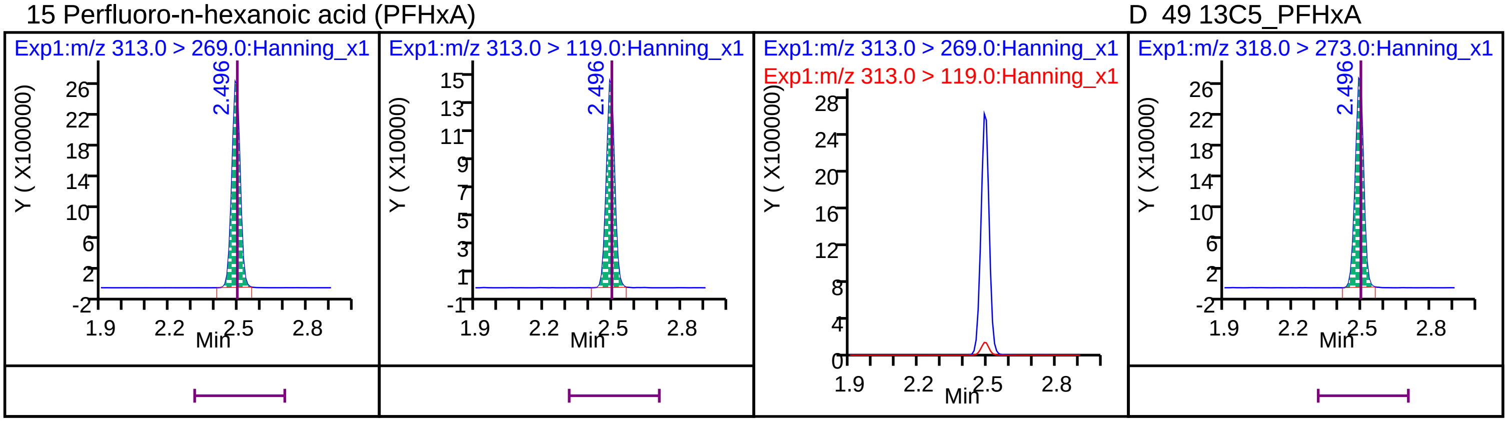
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



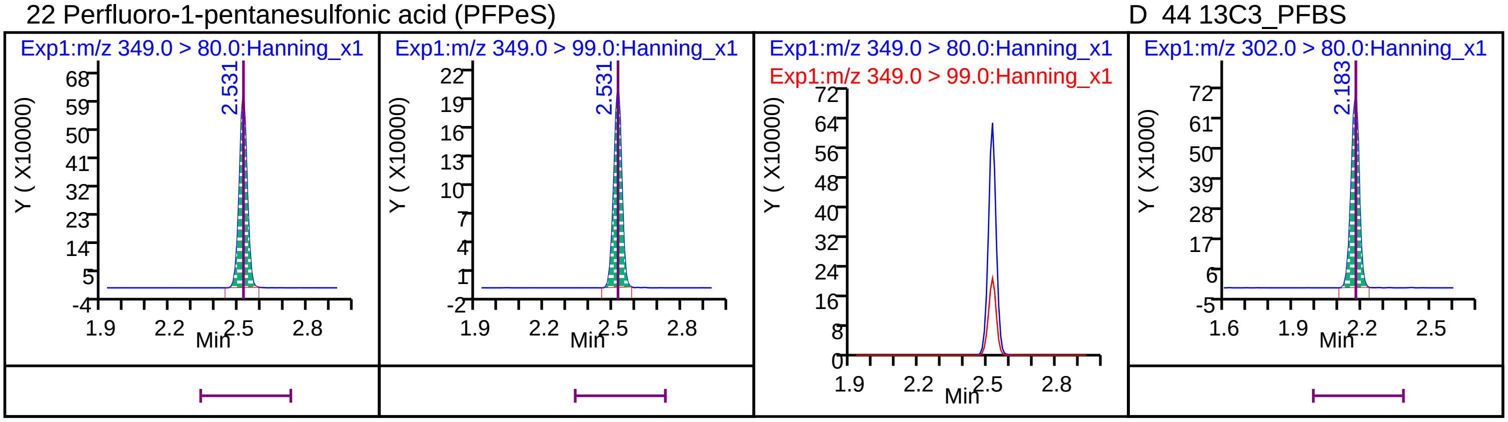
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



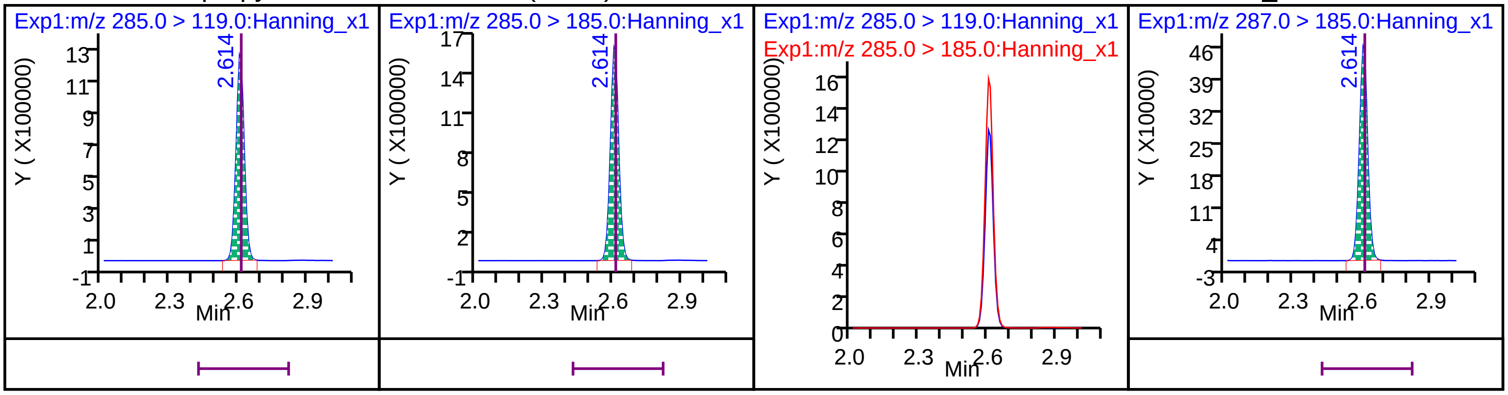
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



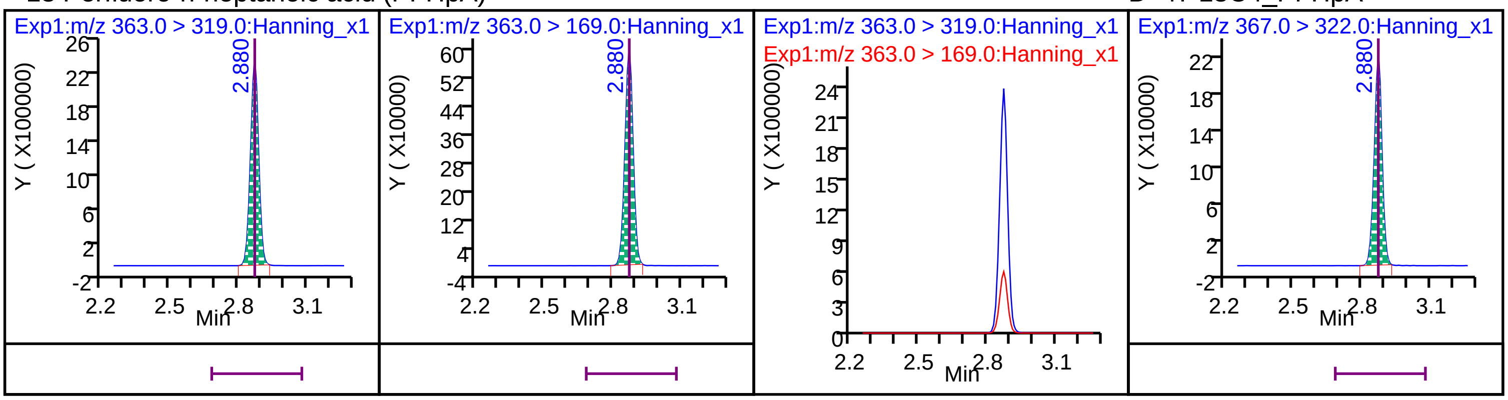
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



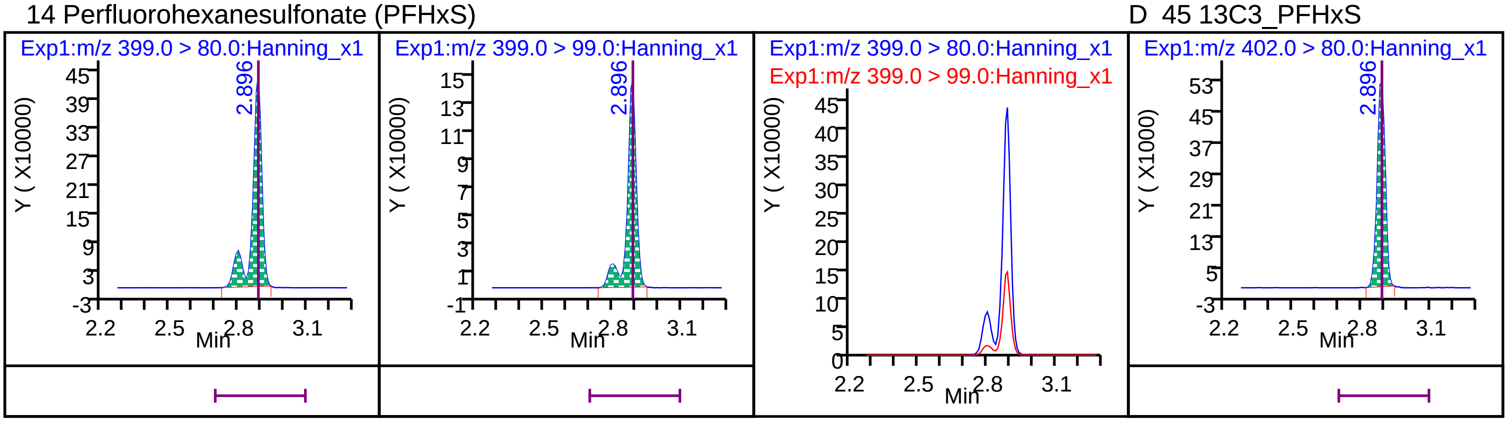
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



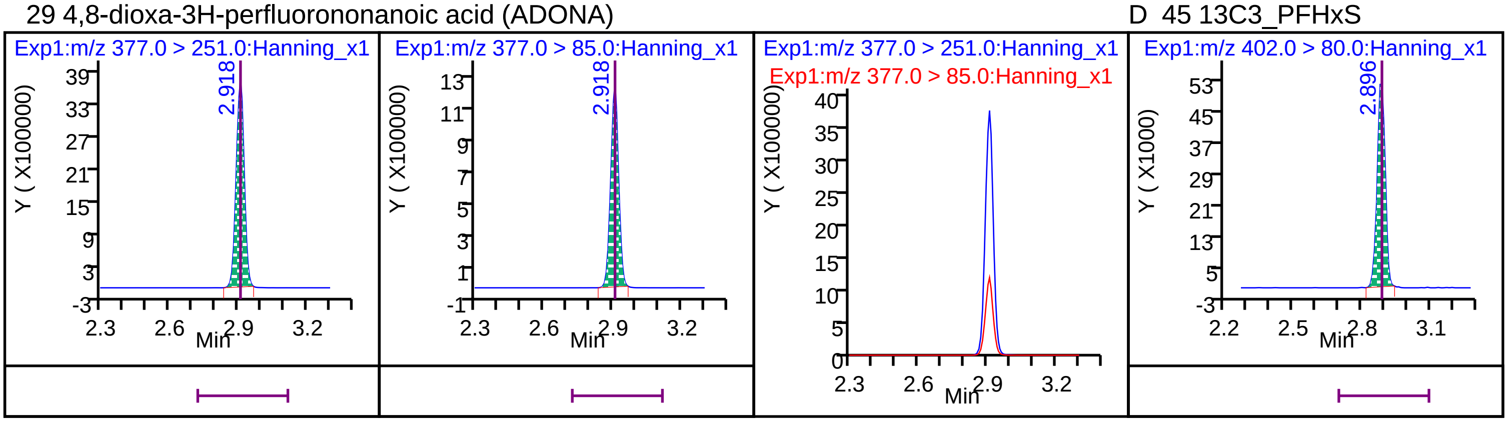
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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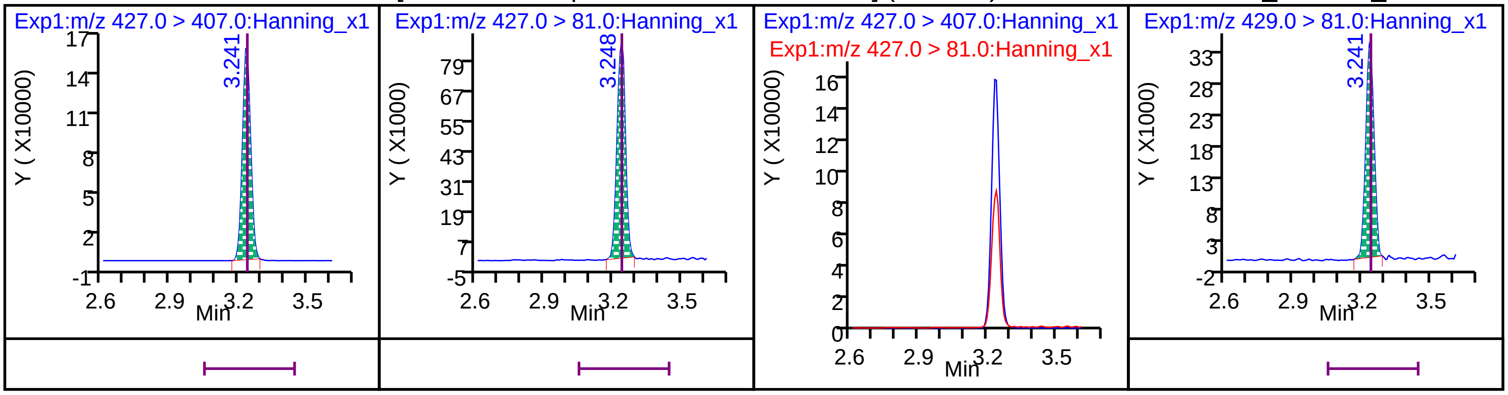
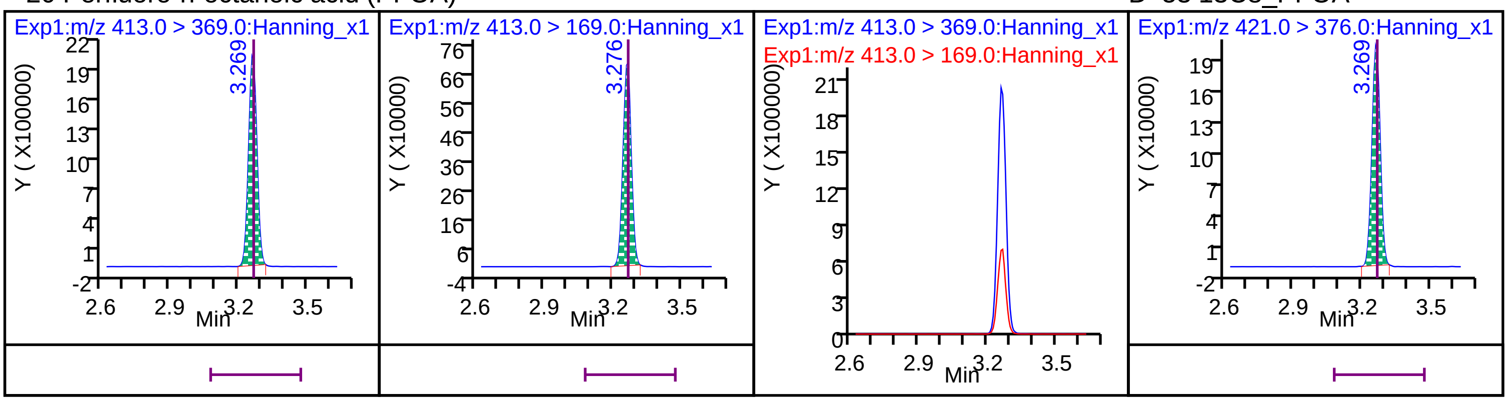
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

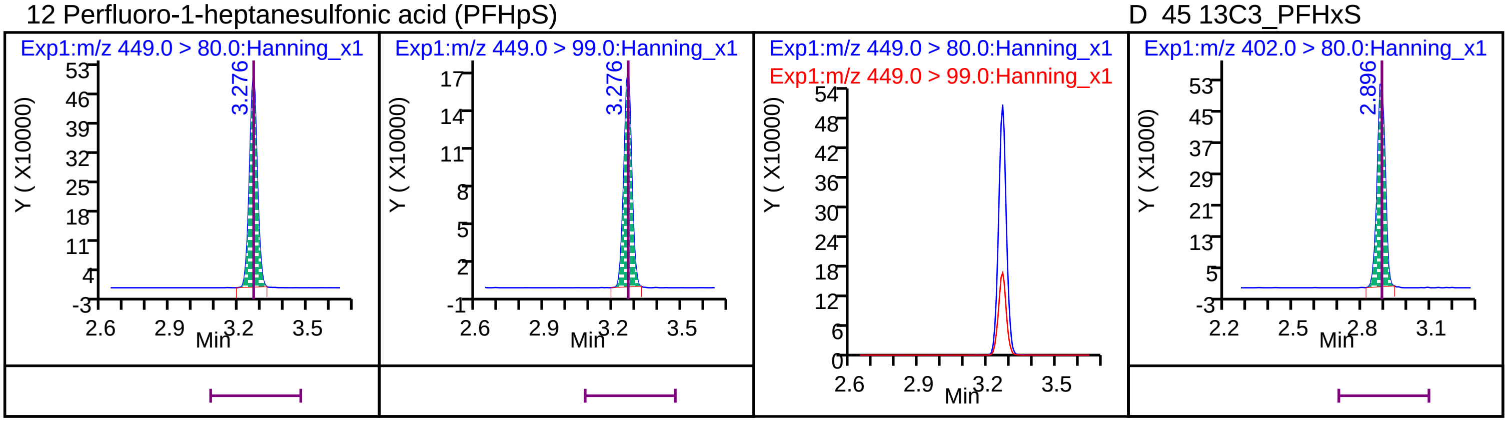
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



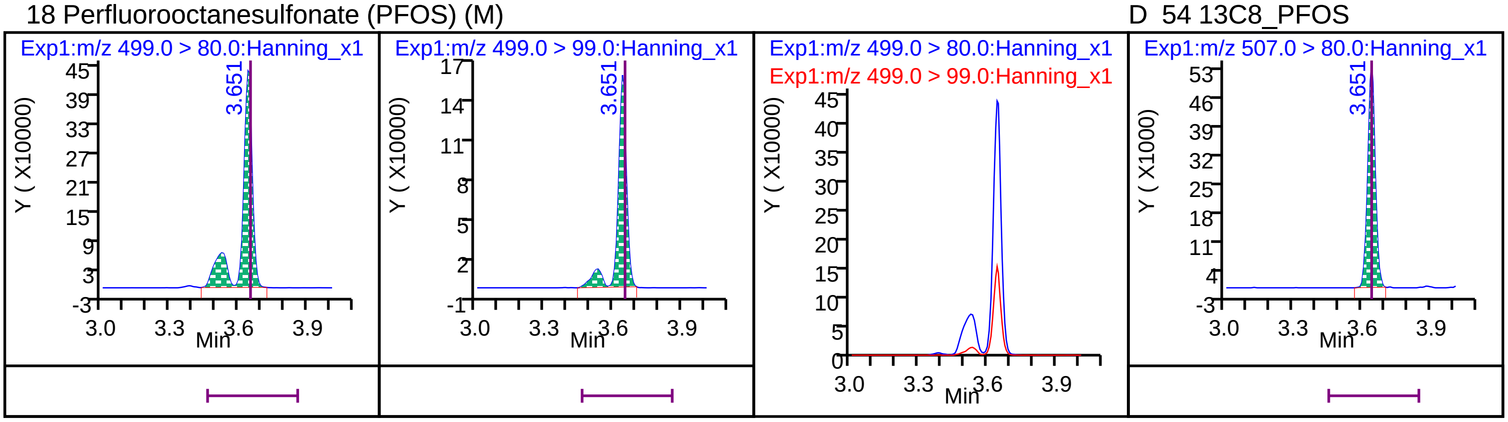
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



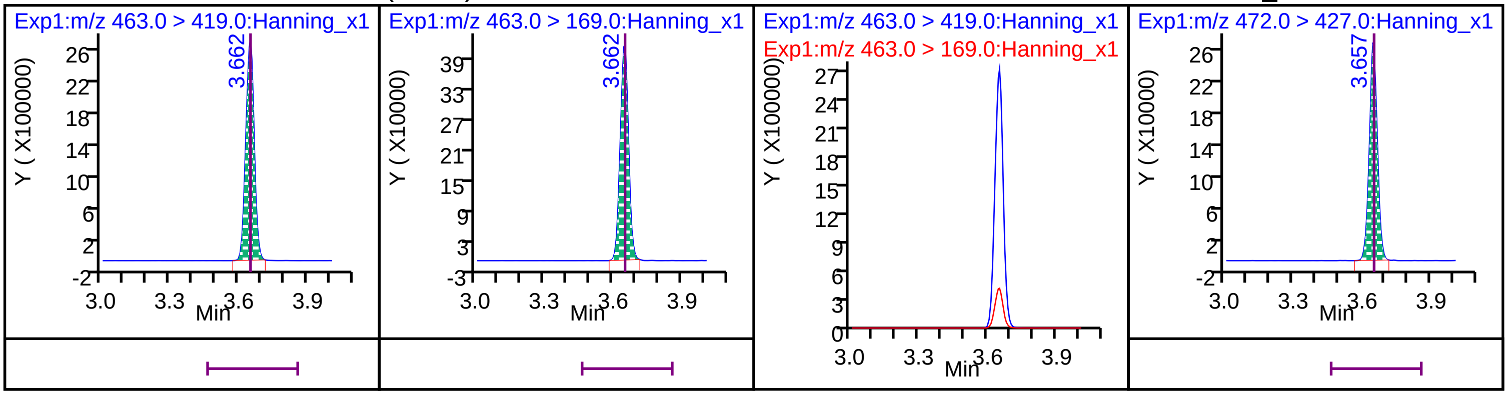
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



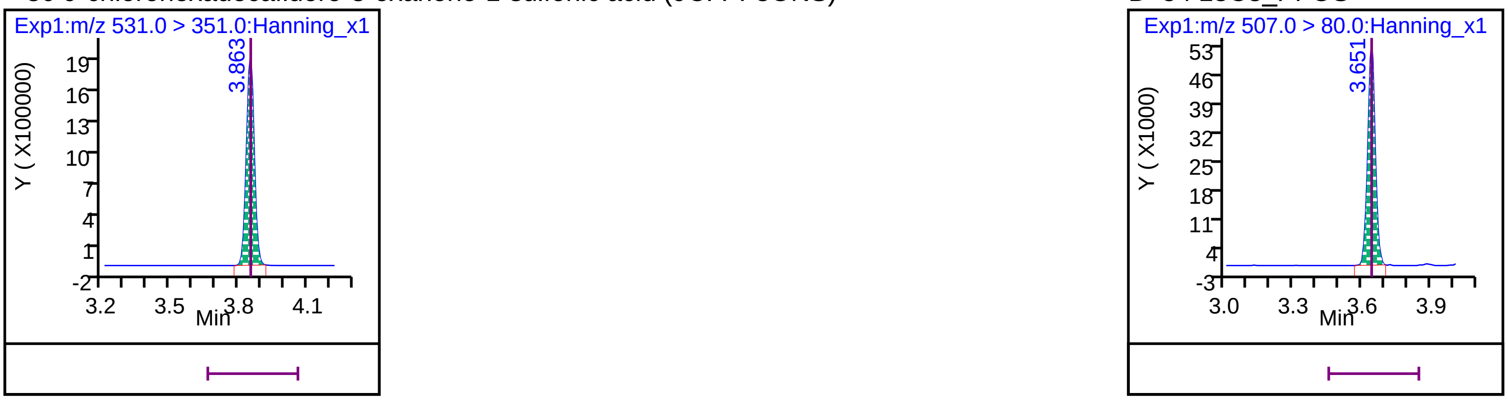
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



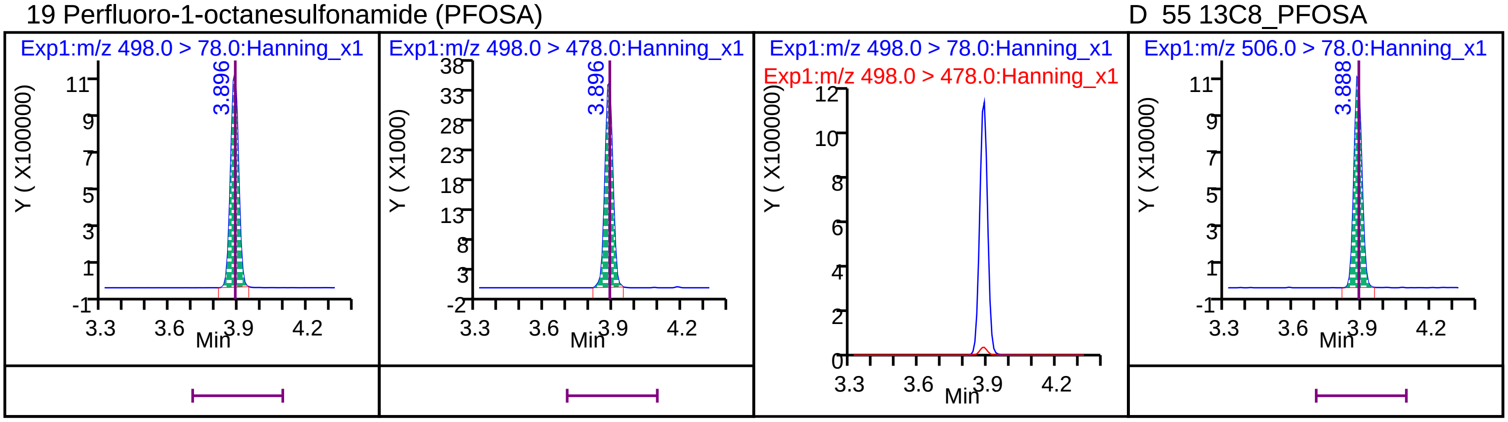
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



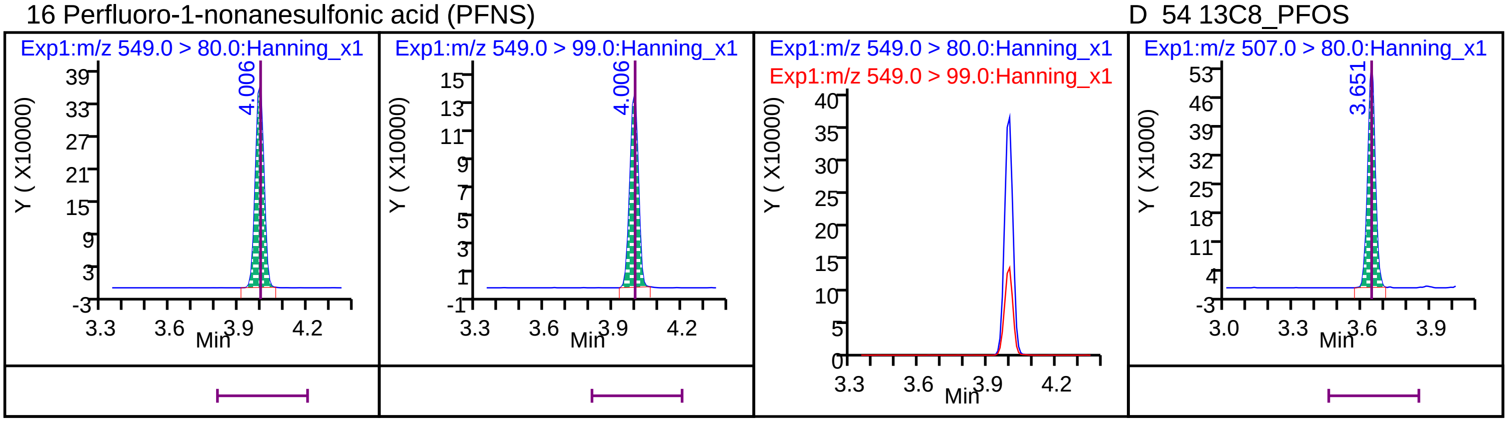
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



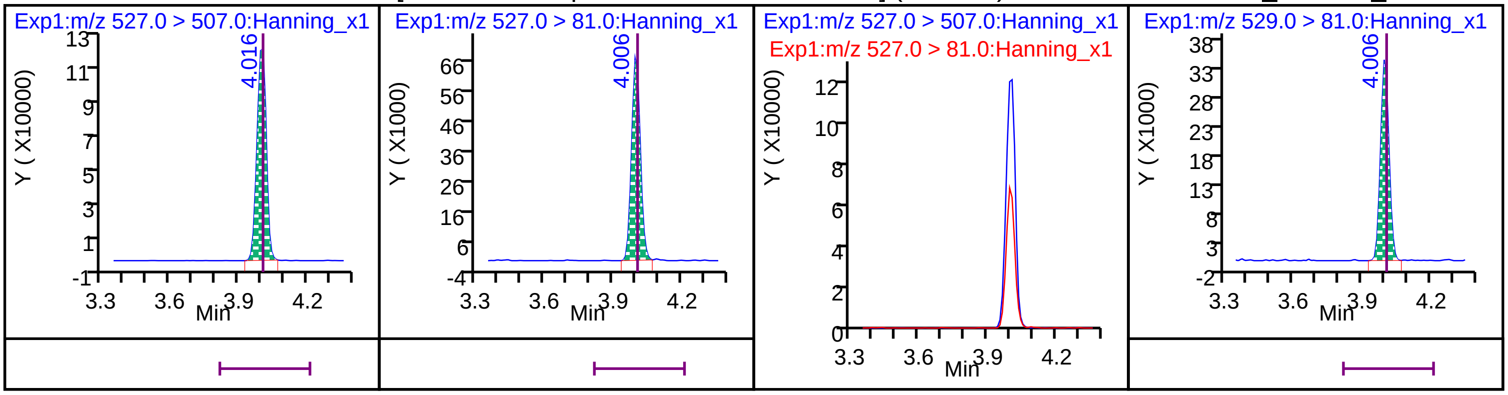
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



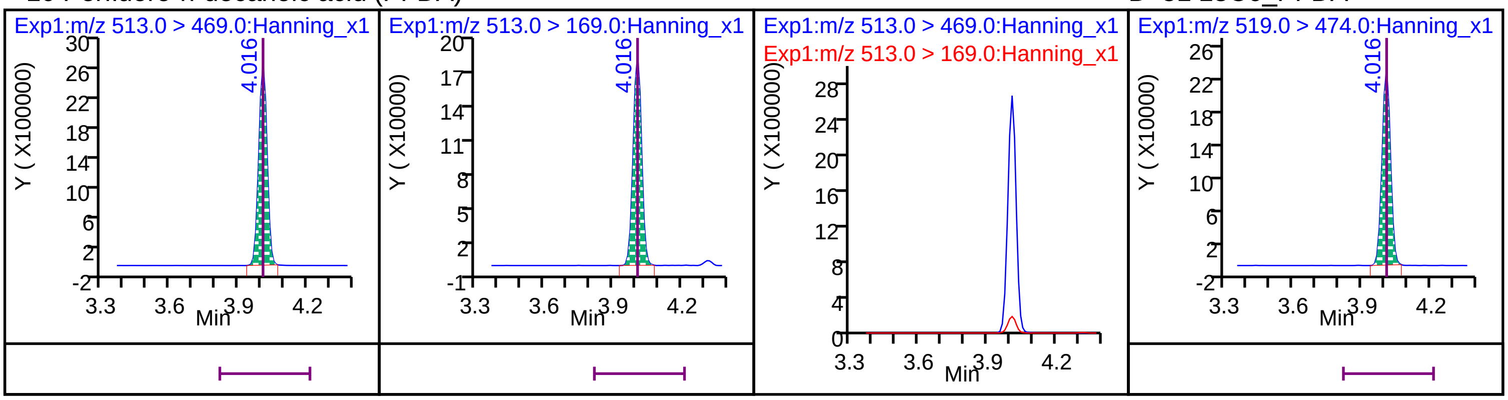
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



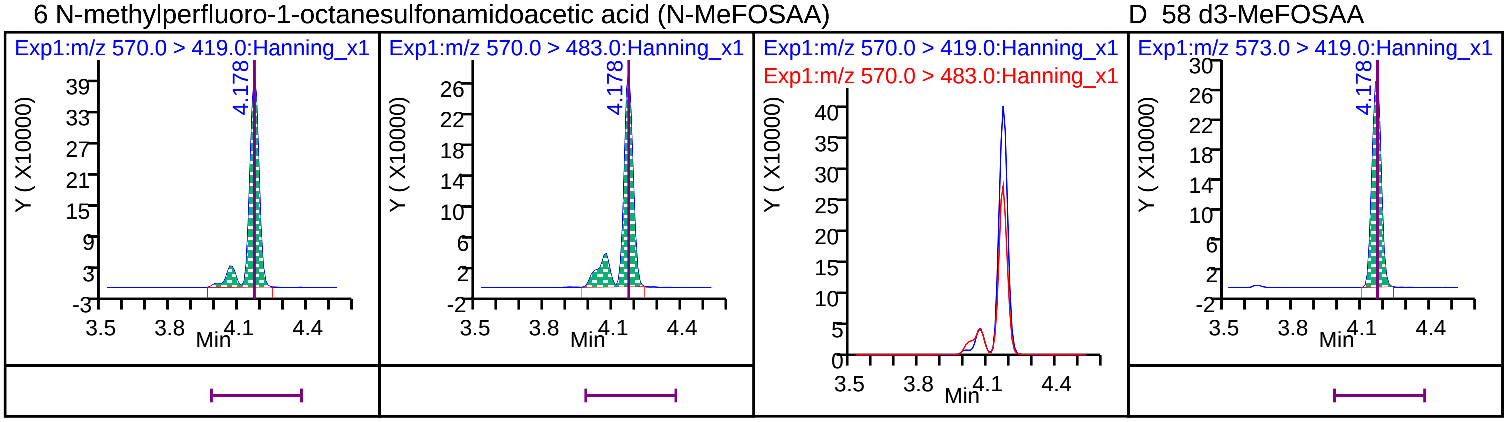
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



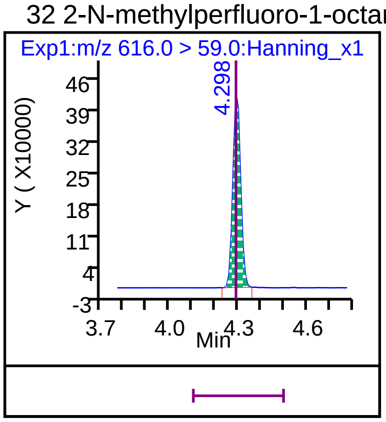
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

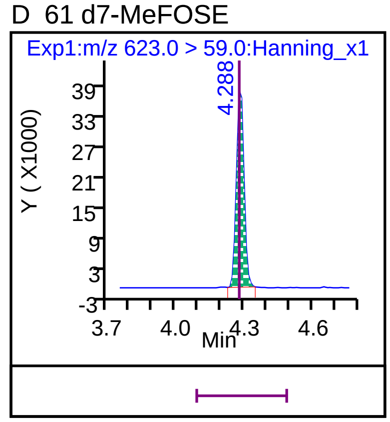


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





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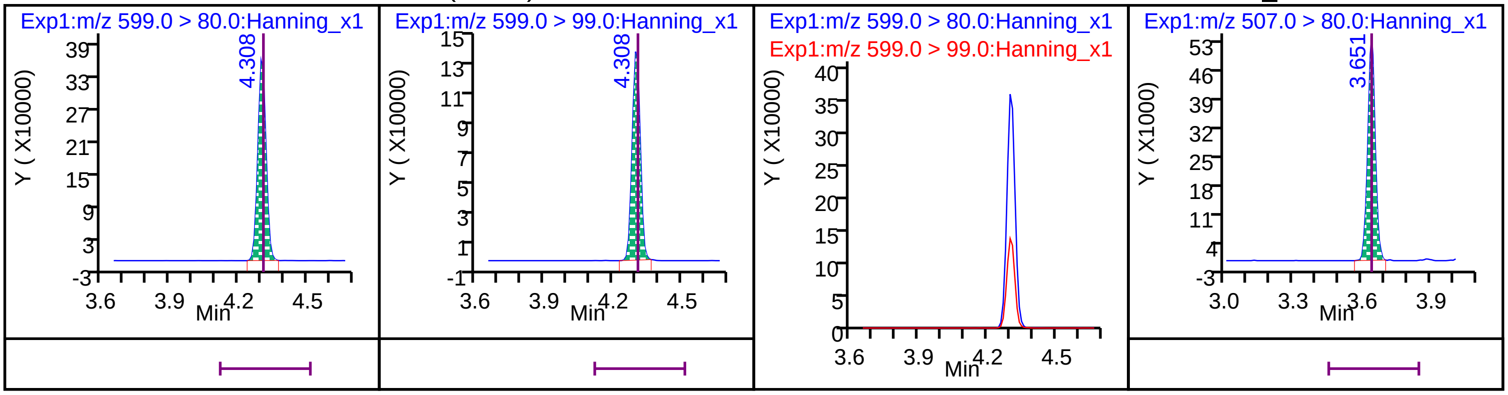
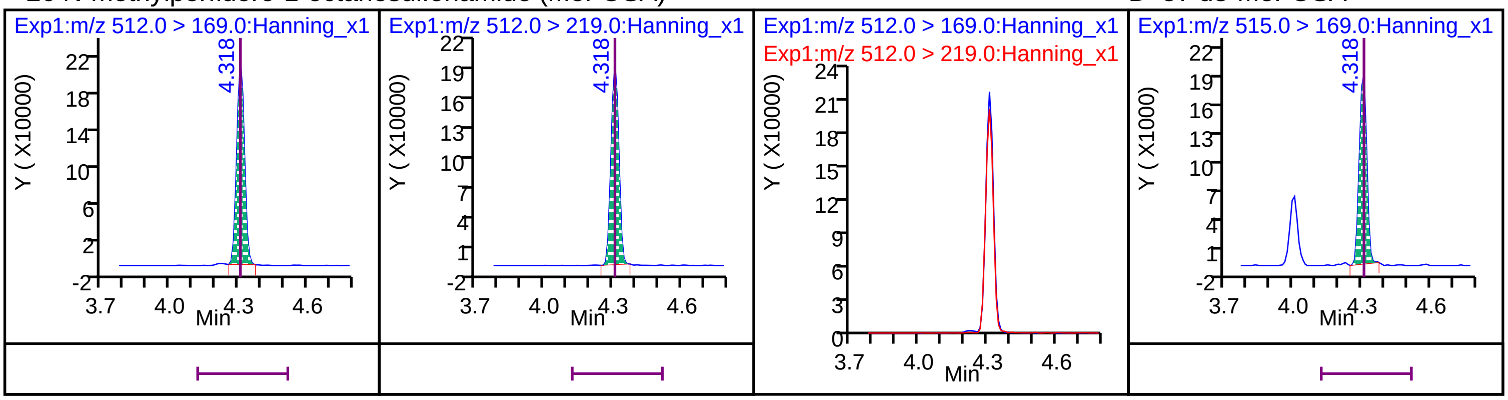
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

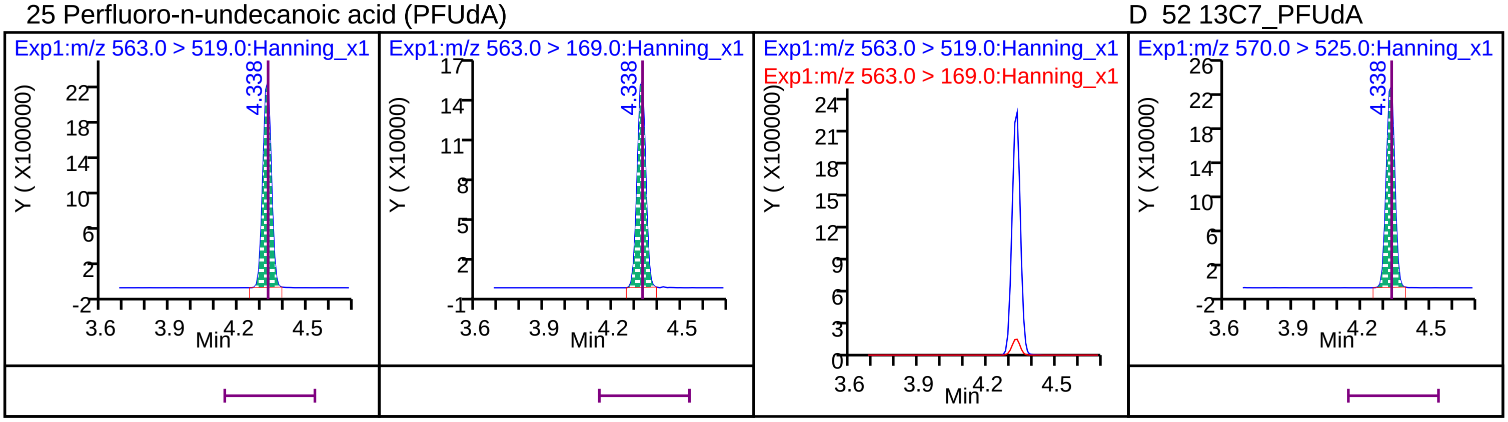
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



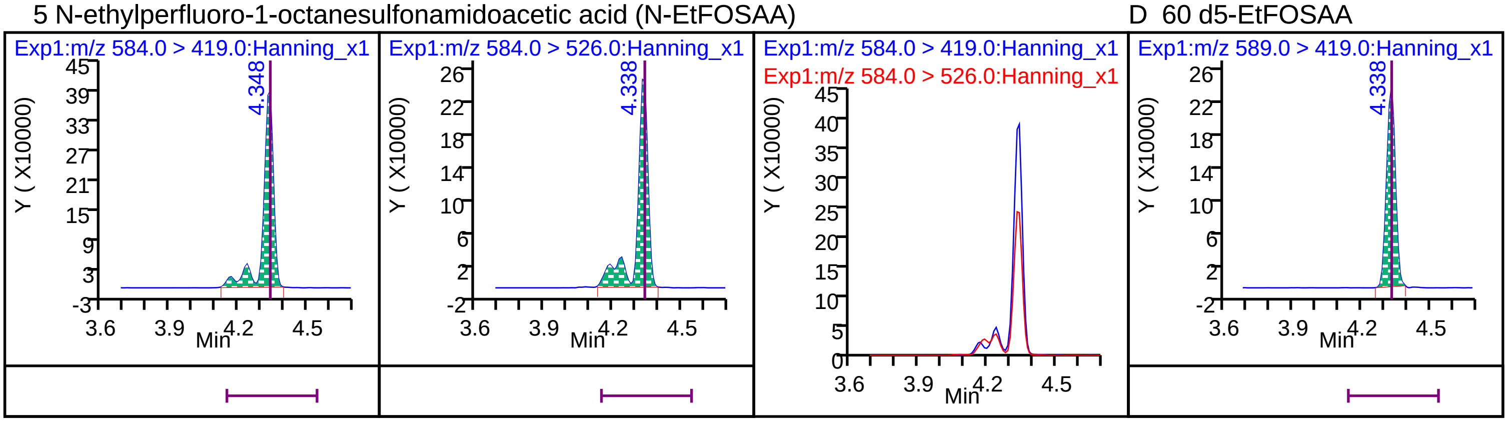
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



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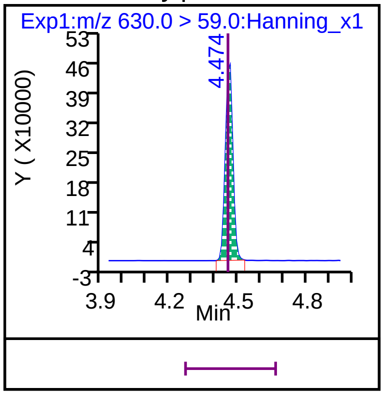
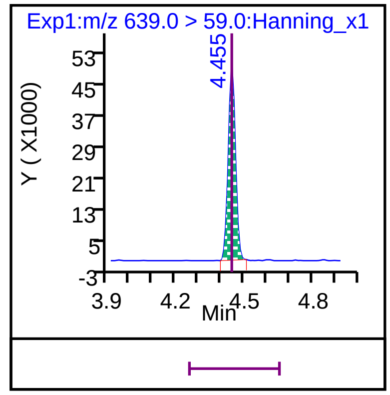
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

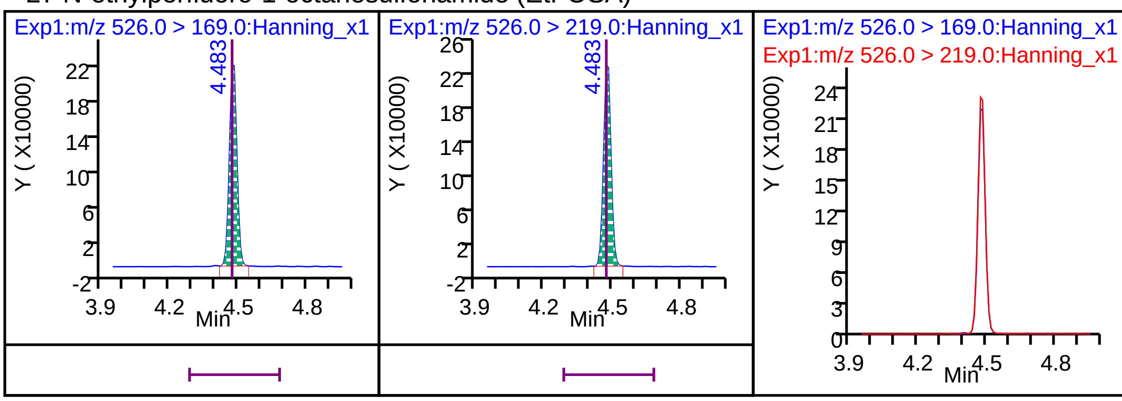
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



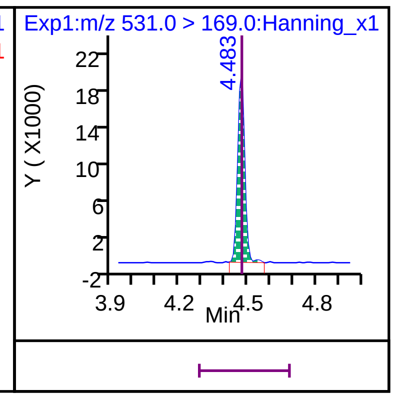
D 62 d9-EtFOSE



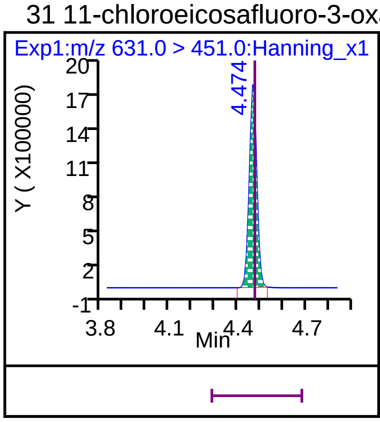
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



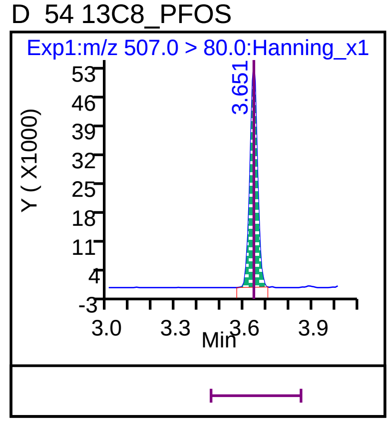
D 59 d5-EtFOSA



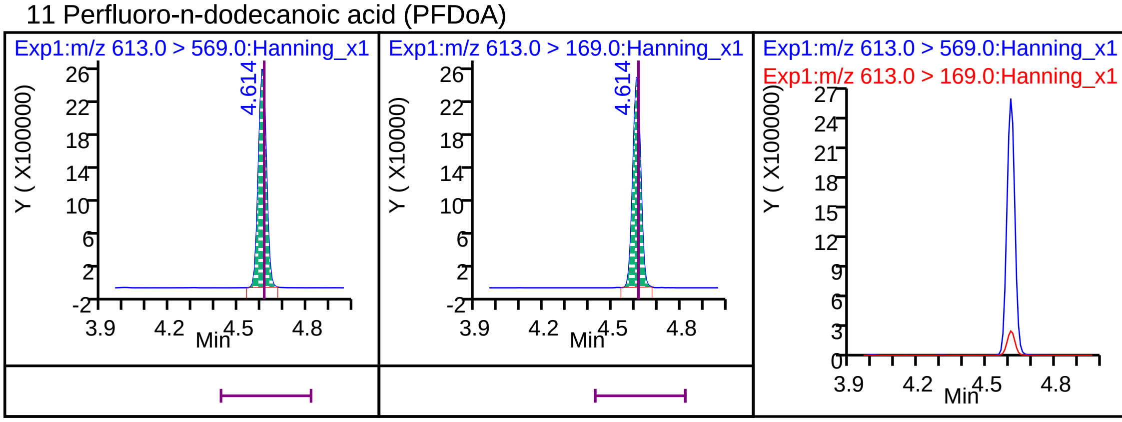
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



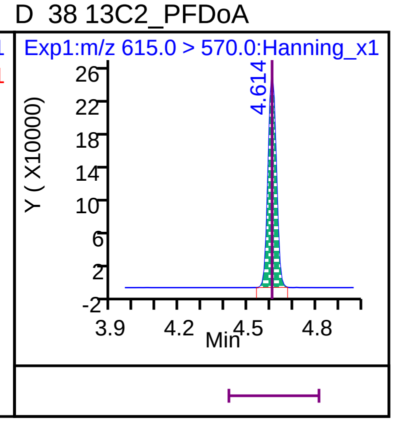
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)



D 38 13C2_PFDoA



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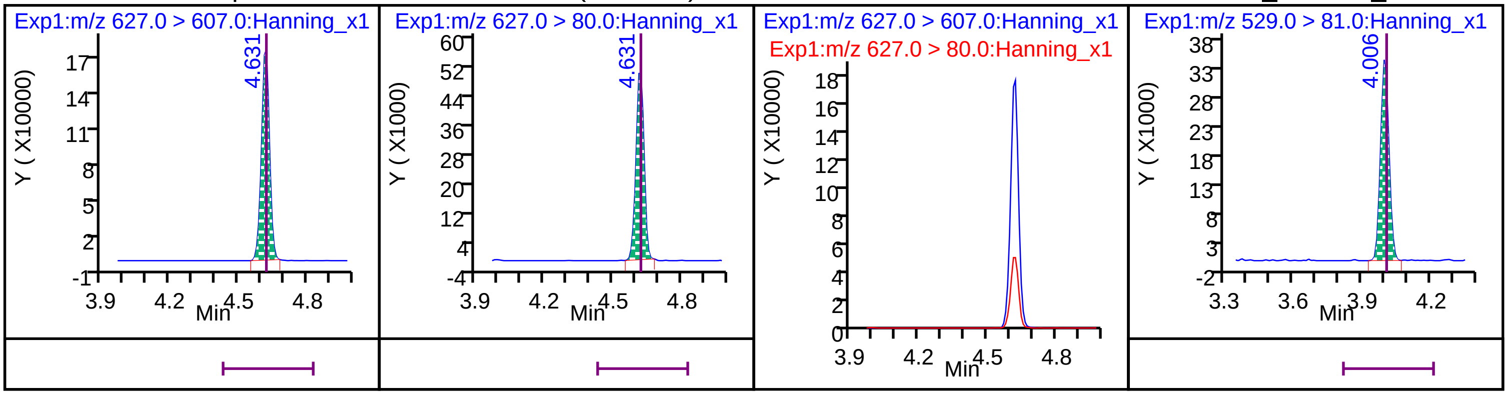
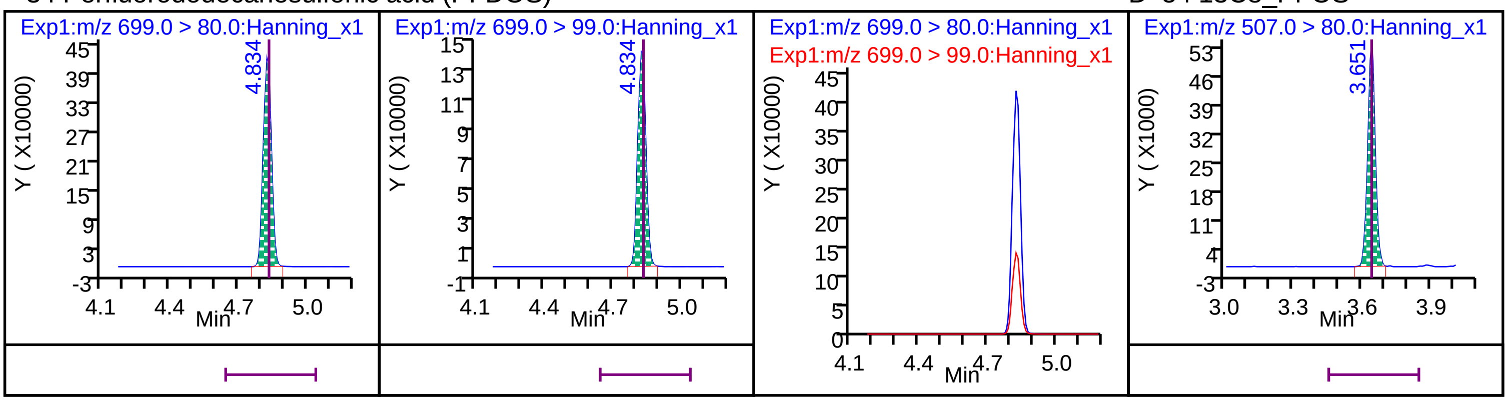
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

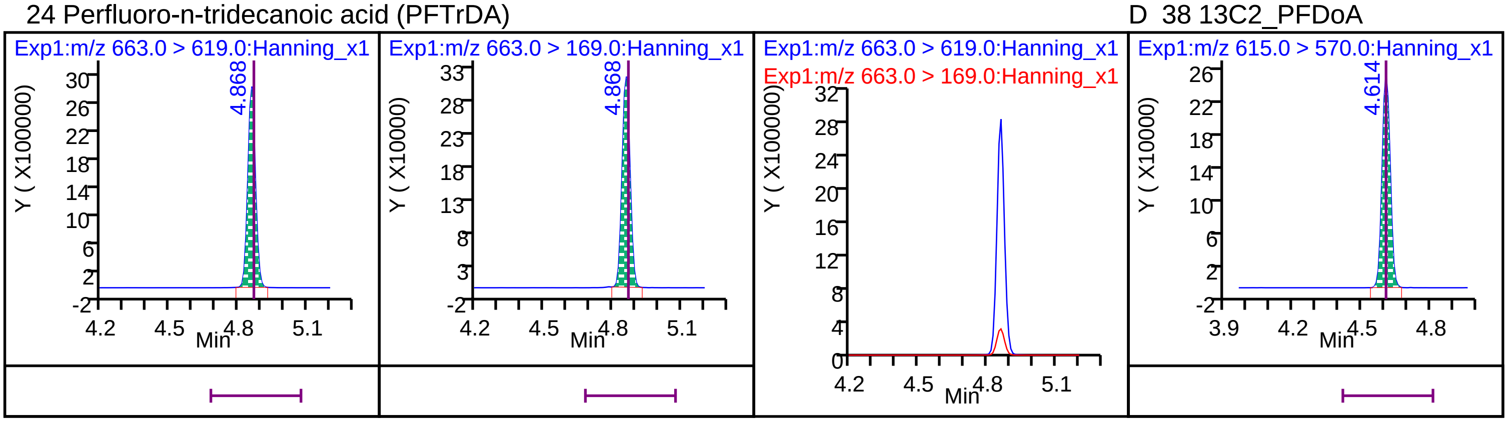
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



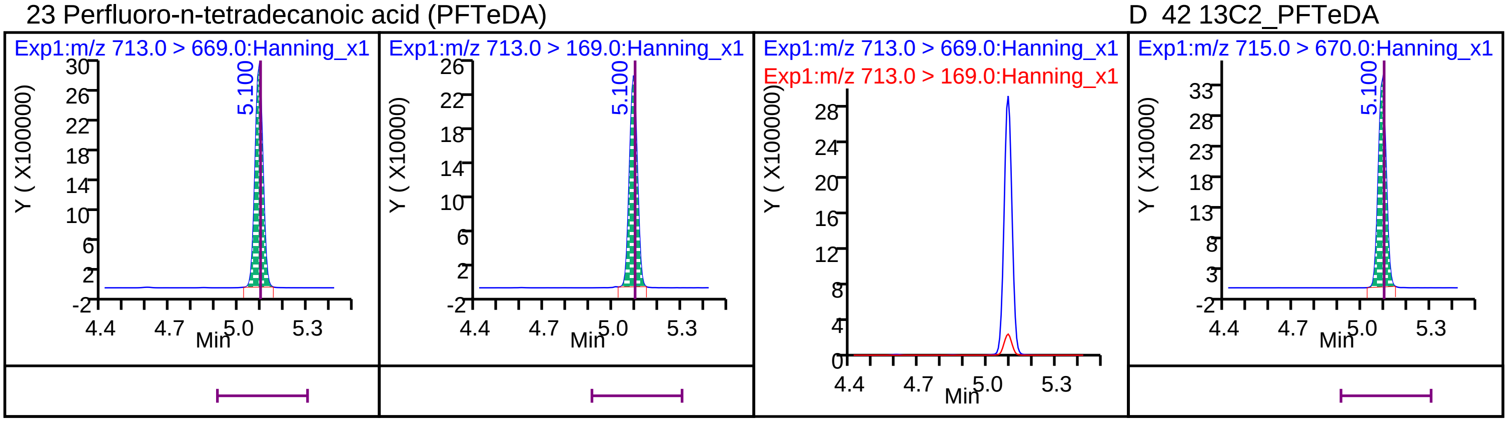
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



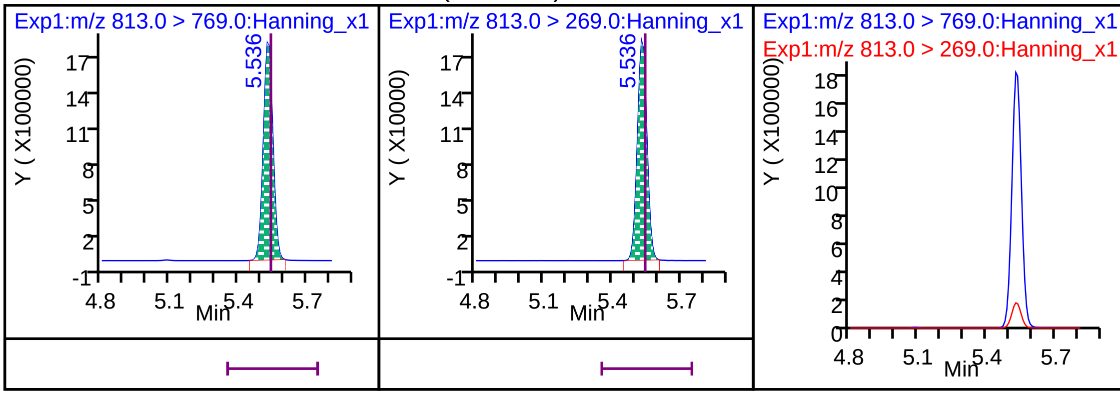
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



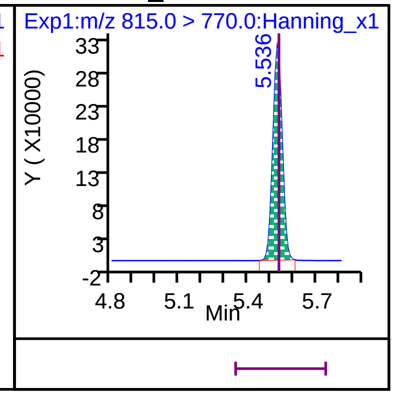
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



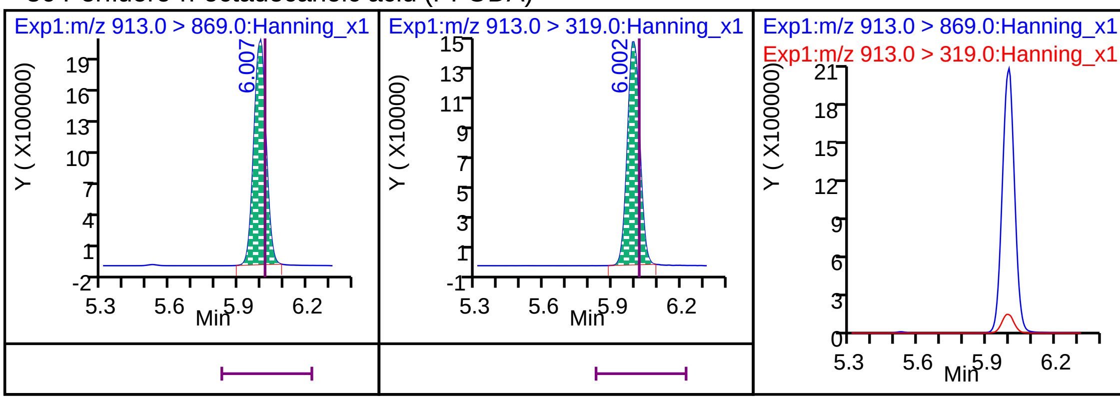
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA)



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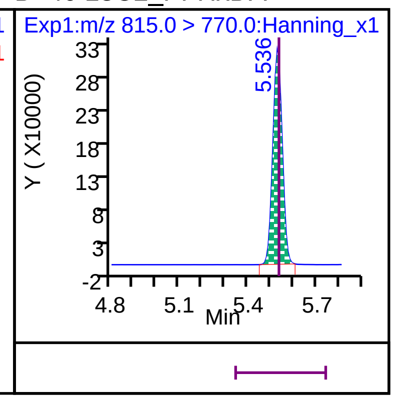
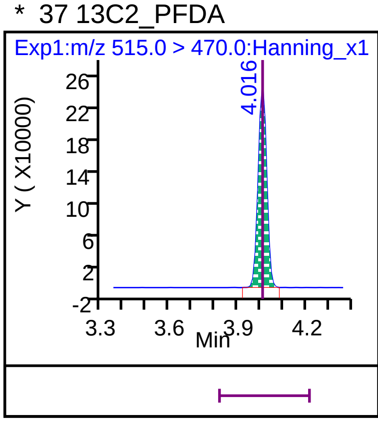
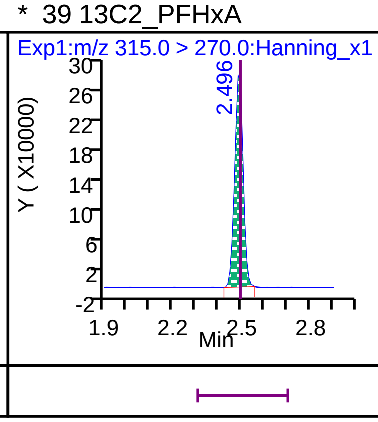


* 37 13C2_PFDA



* 39 13C2_PFHxA



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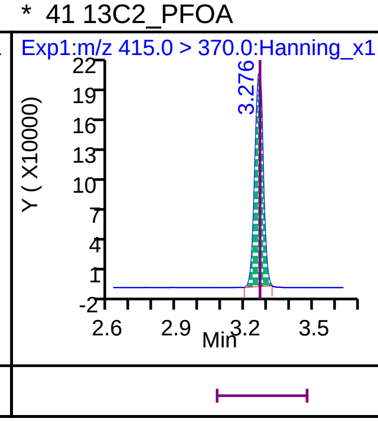
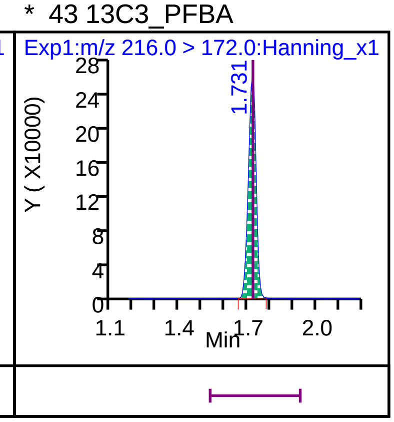
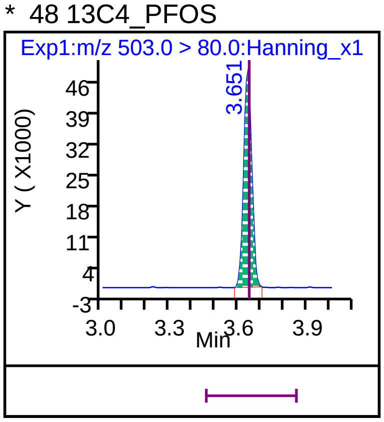


* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

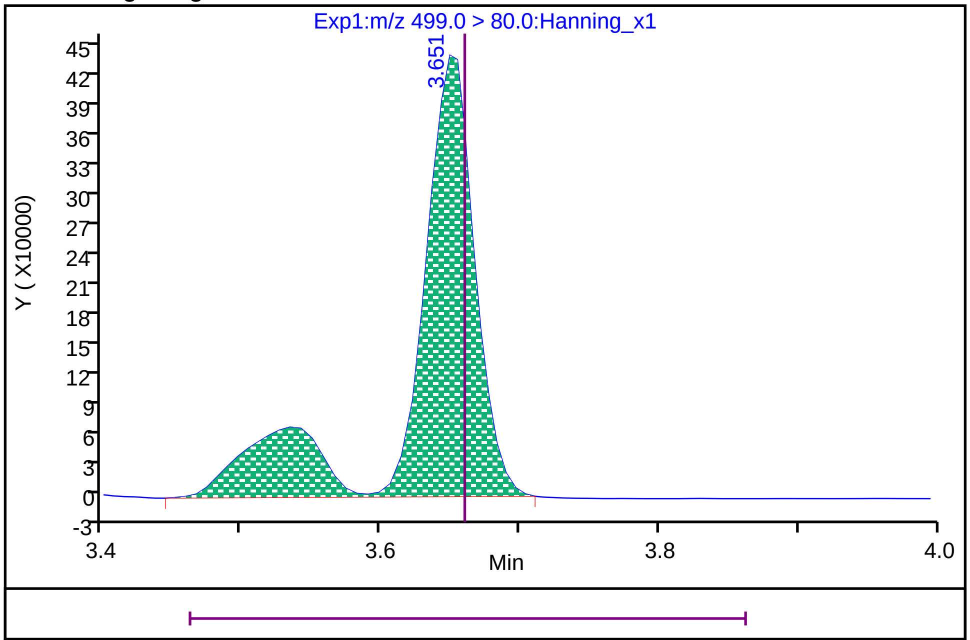
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 10000_SVLC-1747
Sample Info:	ID ICAL 10000_SVLC-1747		
Dil. Factor:	1	Operator:	Justin Gavin

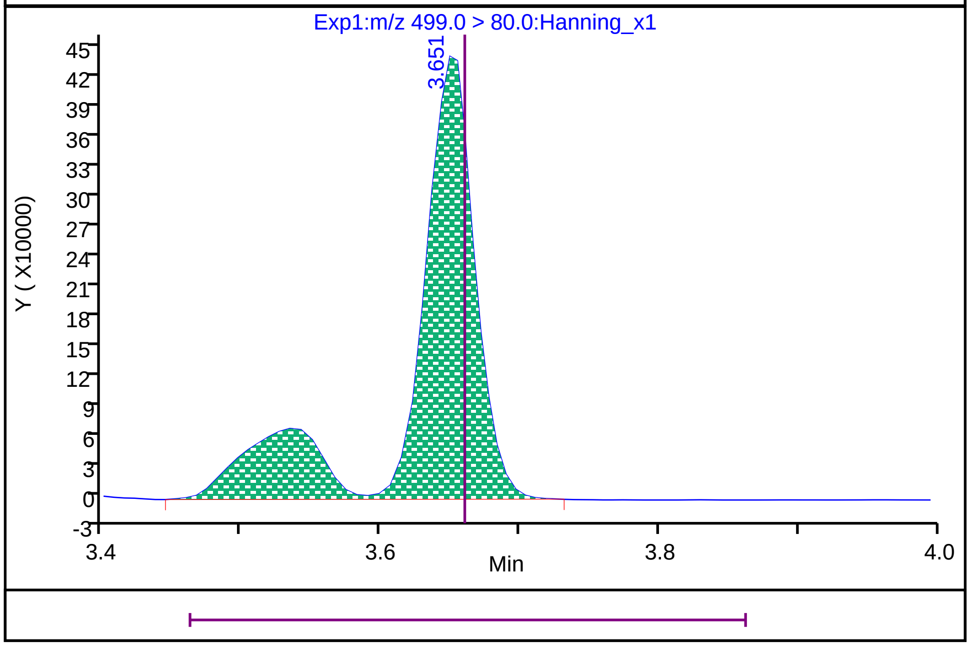
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.651
Area:	1304733
Amount:	9130.74
Amount Units:	ng/L



RT:	3.651
Area:	1317144
Amount:	9210.62
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:33

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	83
Sample Info:	ID ICAL 15000_SVLC-1748	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-9 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.731	0	589637	21	>100:1			1000.00	948.47	92.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.734	1.731	1/1	9072875	20	>100:1			15000	14590		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.125	2.130	0	542414	16	>100:1			1000.00	948.95	93.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.125	2.130	0/0	9021019	16	>100:1			15000	14777		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.183	0	170122	15	>100:1			1000.00	983.54	95.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.183	0/0	2677106	15	>100:1	Target = 3.53		13260	12619		
298.9 > 99	44	2.178	2.183		753247	16	>100:1	3.55 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.530	2.531	0/0	2166376	17	>100:1	Target = 3.10		14070	13740		
349 > 99	44	2.530	2.531		721632	17	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.460	0	100279	17	>100:1			5000.00	4428.56	89.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.459	2.460	0/0	697417	17	>100:1	Target = 1.75		14010	15775		
327 > 81	63	2.459	2.460		359357	16	>100:1	1.94 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.505	0	633613	16	>100:1			1000.00	972.86	95.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.503	2.505	0/0	9542047	18	>100:1	Target = 18.91		15000	14484		
313 > 119	49	2.503	2.505		513210	17	>100:1	18.59 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.622	0	1096372	18	>100:1			5000.00	4730.71	91	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.613	2.622	0/0	4224675	19	>100:1	Target = 0.79		30000	29749		
285 > 185	66	2.613	2.622		5395278	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.880	0	522555	18	>100:1			1000.00	984.21	98	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.880	0/0	7758440	17	>100:1	Target = 3.80		15000	13512		
363 > 169	47	2.879	2.880		2123672	19	>100:1	3.65 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.895	2.896	0	117475	18	>100:1			1000.00	935.02	90.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.895	2.896	0/0	1799881	27	>100:1	Target = 2.89	4.66	13650	13936		
399 > 99	45	2.895	2.896		579076	27	>100:1	3.10 (1.44-4.34)	6.67				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.917	2.919	0/0	12624919	19	>100:1	Target = 3.23		14130	13858		
377 > 85	45	2.917	2.919		4074240	19	>100:1	3.09 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.273	3.276	0/0	1649459	22	>100:1	Target = 3.12		14280	13671		
449 > 99	45	3.273	3.276		556981	22	>100:1	2.96 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.238	3.248	0	84101	23	>100:1			5000.00	4672.29	89.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.245	3.248	0/0	549020	20	>100:1	Target = 1.75		14220	13788		
427 > 81	64	3.245	3.248		307858	21	>100:1	1.78 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.276	0	493065	22	>100:1			1000.00	939.75	90	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.266	3.276	0/0	7287671	23	>100:1	Target = 2.89		15000	14423		
413 > 169	53	3.273	3.276		2494039	21	>100:1	2.92 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.648	3.651	0	122035	21	>100:1			1000.00	985.40	92.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.648	3.662	0/0	1912794	41	>100:1	Target = 3.30	3.62	13920	13164		M
499 > 99	54	3.654	3.662		562324	37	>100:1	3.40 (1.65-4.95)	7.07				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.858	3.863	0/0	6348515	17	>100:1			13980	13737		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.999	4.006	0/0	1321901	16	>100:1	Target = 3.08		14400	13502		
549 > 99	54	3.999	4.006		526265	16	>100:1	2.51 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.310	4.318	0/0	1297701	15	>100:1	Target = 2.72		14460	13589		
599 > 99	54	4.310	4.318		488233	15	>100:1	2.65 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.477	4.483	0/0	5461375	17	>100:1			14130	13072		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.838	4.842	0/0	1434957	18	>100:1	Target = 3.27		14520	13675		
699 > 99	54	4.838	4.842		467758	18	>100:1	3.06 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.659	3.662	0	601225	21	>100:1			1000.00	938.86	94.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.659	3.662	0/0	9619483	21	>100:1	Target = 6.51		15000	14844		
463 > 169	56	3.659	3.662		1462390	22	>100:1	6.57 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.891	3.896	0	255120	17	>100:1			1000.00	951.73	95.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.891	3.896	0/0	4080280	18	>100:1	Target = 41.63		15000	15200		
498>478	55	3.891	3.896		122582	17	>100:1	33.28 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.020	4.016	1	544823	17	>100:1			1000.00	948.08	94.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.010	4.016	0/-1	9034213	16	>100:1	Target = 13.80		15000	14249		
513 > 169	51	4.010	4.016		704248	16	>100:1	12.82 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.999	4.016	-1	76282	17	>100:1			5000.00	4413.32	96.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.010	4.016	0/1	503489	16	>100:1	Target = 1.94		14370	14605		
527 > 81	65	4.010	4.016		264894	16	>100:1	1.90 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.625	4.631	0/1	635374	17	>100:1	Target = 3.54		14460	16418		
627 > 80	65	4.625	4.631		179265	18	>100:1	3.54 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.171	4.178	0	715483	17	>100:1			5000.00	4734.77	92.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.171	4.178	0/0	1678300	31	>100:1	Target = 1.37	7.56	15000	14616		
570 > 483	58	4.171	4.178		1248017	31	>100:1	1.34 (0.68-2.05)	4.21				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.290	4.288	1	88623	14	>100:1			1000.00	982.64	98.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.300	4.298	1/0	1427696	15	>100:1			15000	14741		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.310	4.318	0	44329	19	>100:1			1000.00	942.34	98.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.320	4.318	1/1	699653	14	>100:1	Target = 1.11		15000	14562		
512 > 219	57	4.320	4.318		639310	14	>100:1	1.09 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.330	4.338	0	584720	16	>100:1			5000.00	4514.75	84.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.340	4.348	0/0	1712589	32	>100:1	Target = 1.51	5.92	15000	15019		
584 > 526	60	4.340	4.348		1090338	29	>100:1	1.57 (0.75-2.26)	3.34				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.330	4.338	0	527476	16	>100:1			1000.00	875.84	83.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.330	4.338	0/0	7956538	16	>100:1	Target = 14.52		15000	15567		
563 > 169	52	4.330	4.338		528360	17	>100:1	15.05 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.459	4.455	1	105046	16	>100:1			1000.00	990.28	103.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.468	4.464	1/0	1513895	15	>100:1			15000	14804		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.477	4.483	0	43668	13	>100:1			1000.00	1015.54	101.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.486	4.483	1/1	754628	14	>100:1	Target = 1.06		15000	14599		
526 > 219	59	4.486	4.483		734956	14	>100:1	1.02 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.608	4.614	0	640359	17	>100:1			1000.00	1066.67	106	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.617	4.622	0/0	9303305	17	>100:1	Target = 10.70		15000	13628		
613 > 169	38	4.617	4.622		862017	17	>100:1	10.79 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.864	4.877	0/0	8116160	18	>100:1	Target = 8.31		15000	12058		
663 > 169	38	4.864	4.877		967954	16	>100:1	8.38 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.097	5.106	0	787350	21	>100:1			1000.00	968.46	93.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.097	5.106	0/0	9617011	22	>100:1	Target = 12.17		15000	13992		
713 > 169	42	5.097	5.106		803215	22	>100:1	11.97 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.544	0	870178	22	>100:1			1000.00	1002.47	99.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.552	0/0	7743034	21	>100:1	Target = 10.43		15000	13894		
813 > 269	40	5.539	5.552		749842	22	>100:1	10.32 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.000	6.026	-1/-1	10647394	42	>100:1	Target = 13.67		15000	13440		
913 > 319	40	5.995	6.026		773254	41	>100:1	13.76 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.010	4.016	0	641184	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.503	2.505	0	626878	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.276	0	503361	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.728	1.731	0	532630	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.648	3.657	0	118944	21	>100:1			1000.00			

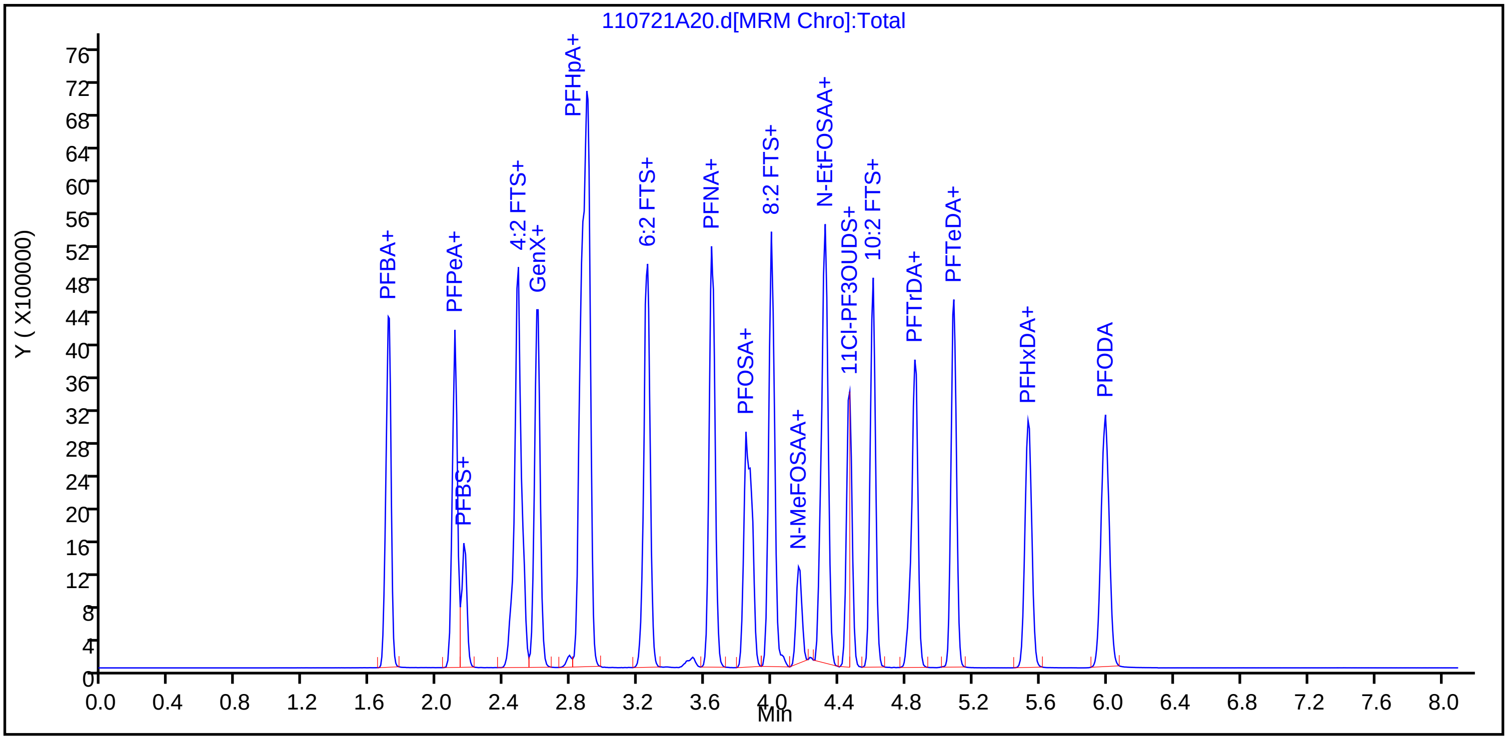
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

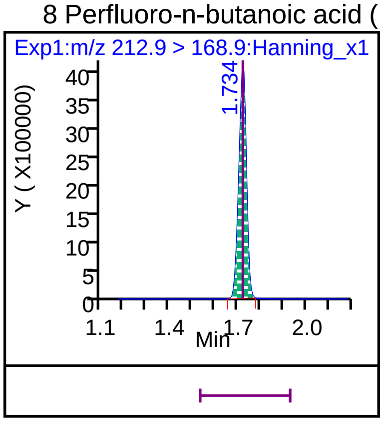
Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

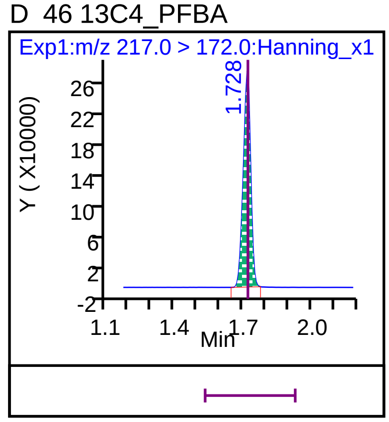
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 15000_SVLC-1748
Sample Info:	ID ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin



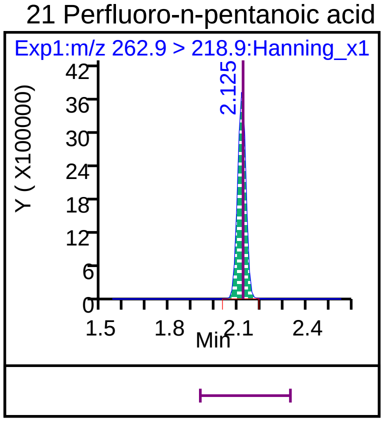
8 Perfluoro-n-butanoic acid (PFBA)



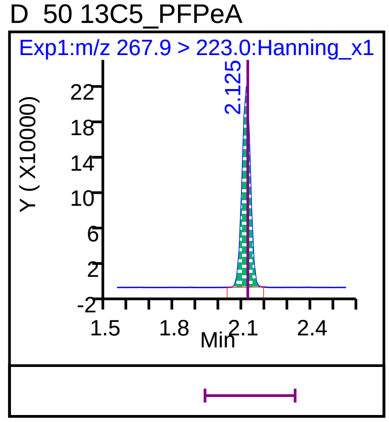
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

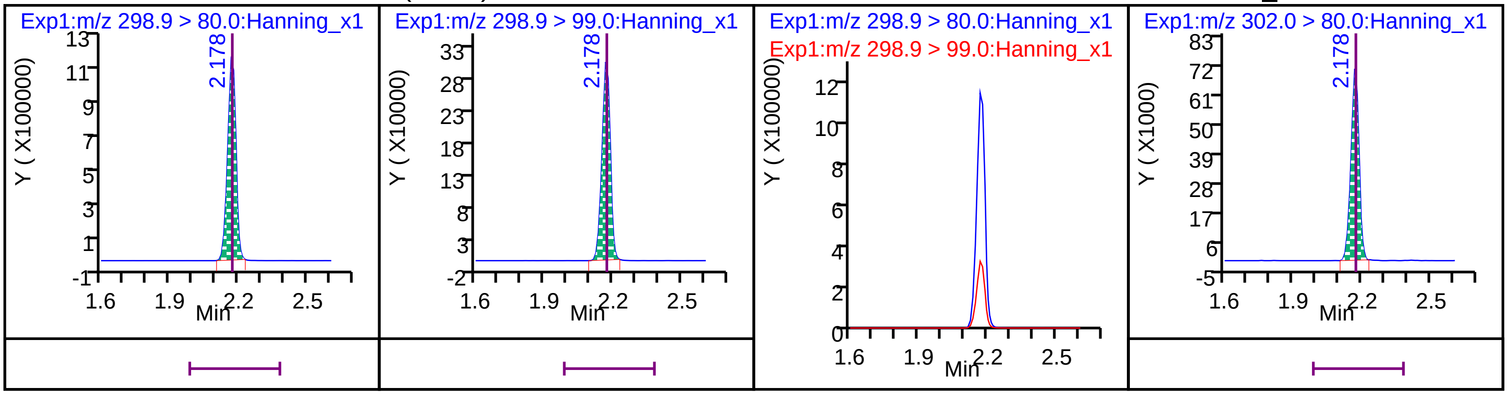


D 50 13C5_PFPeA

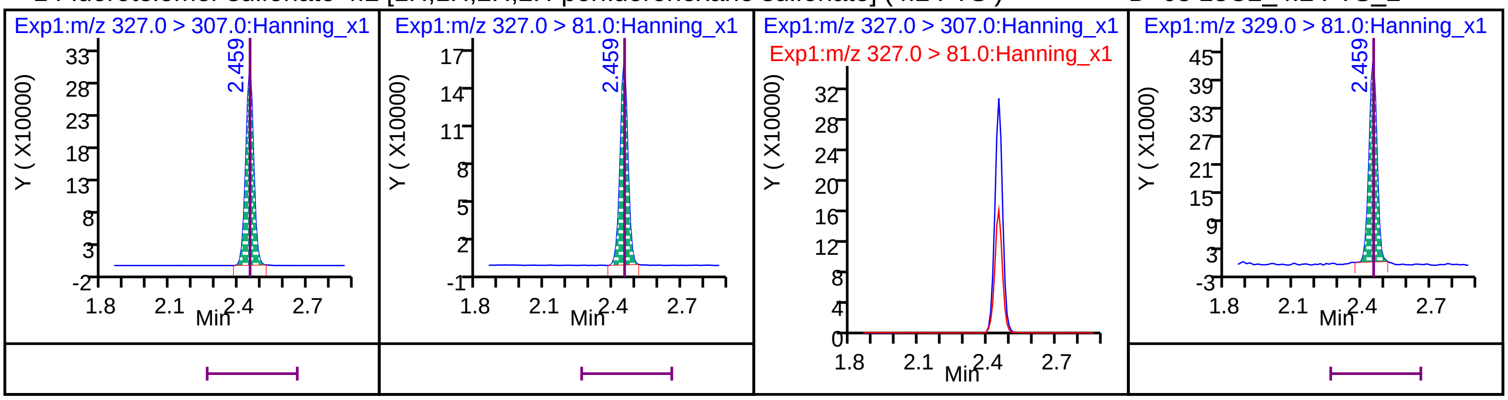


Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d

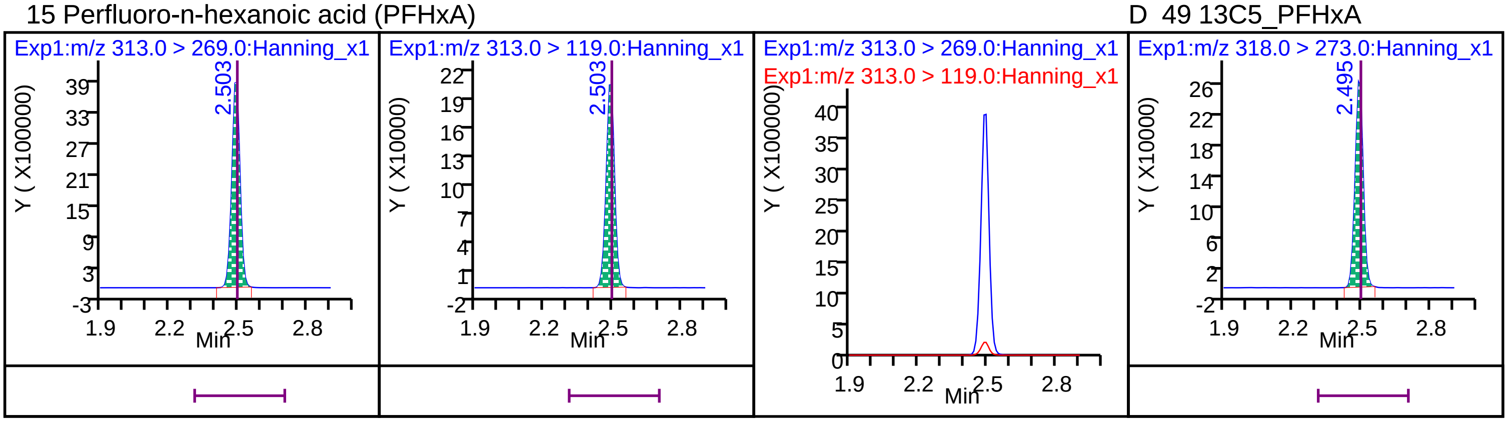
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



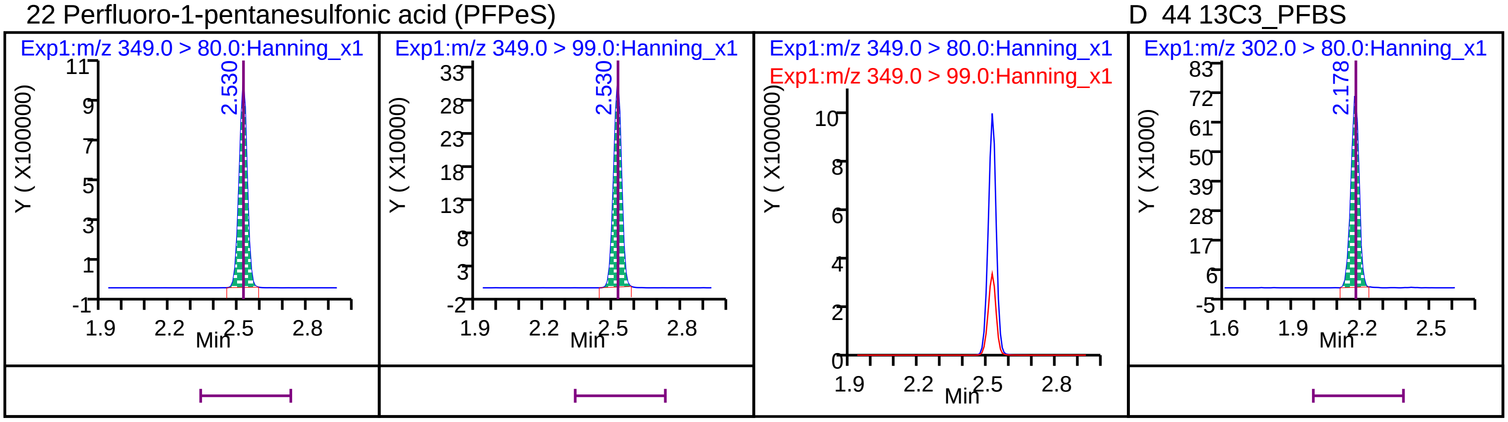
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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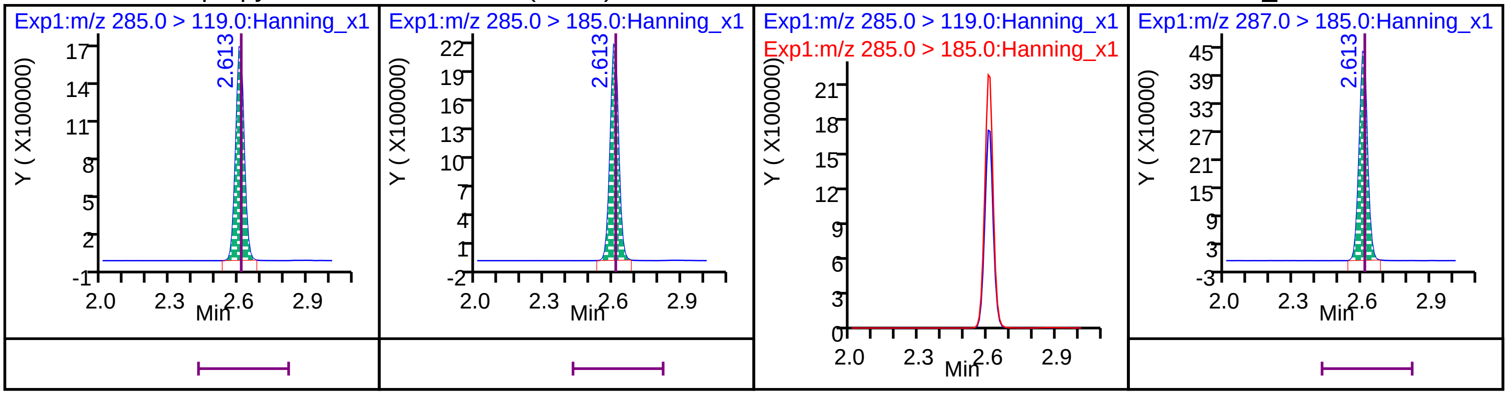
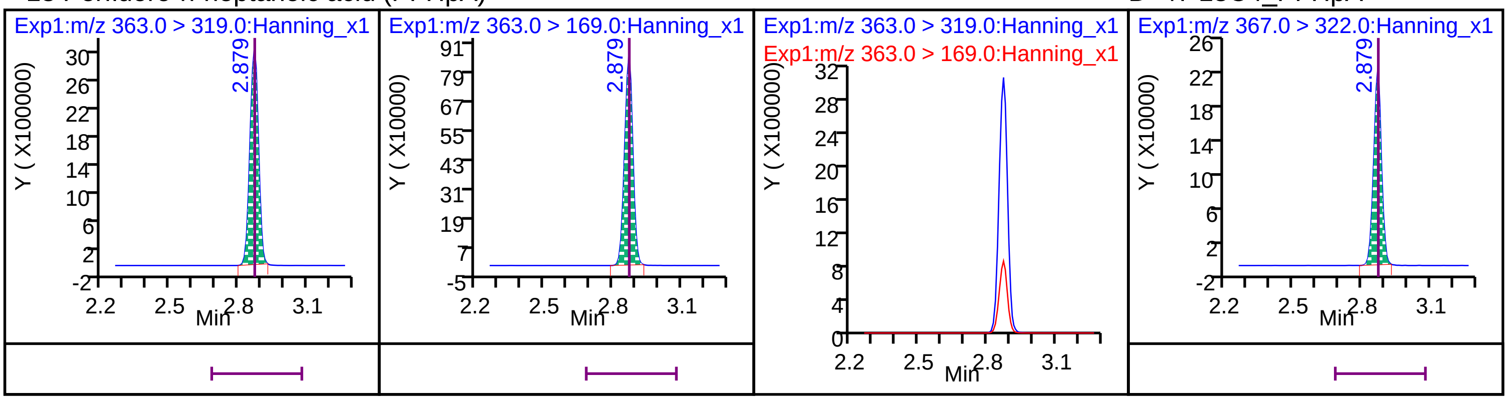
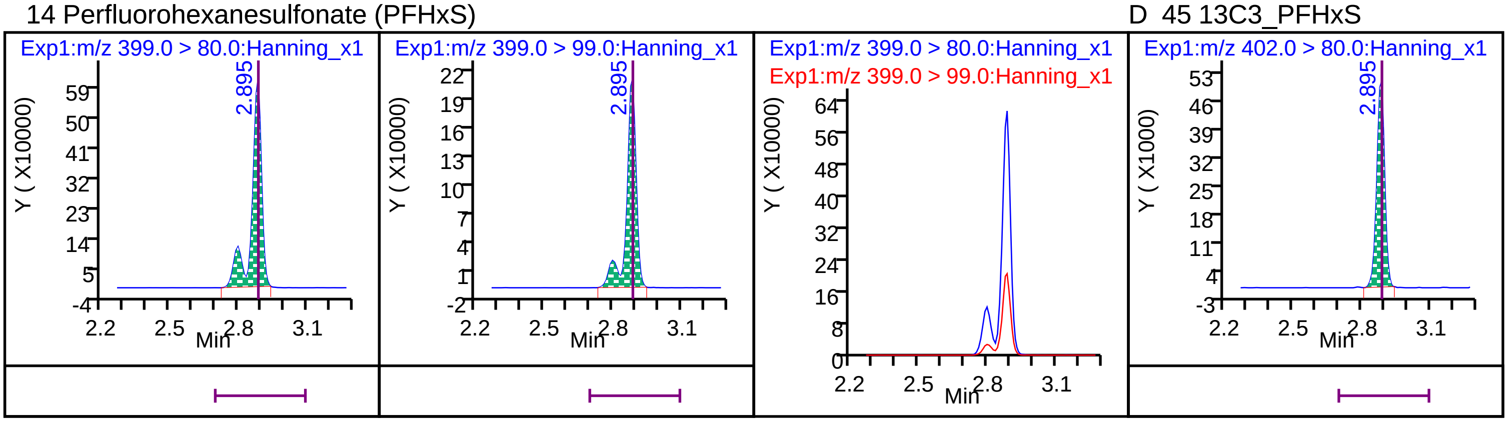
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



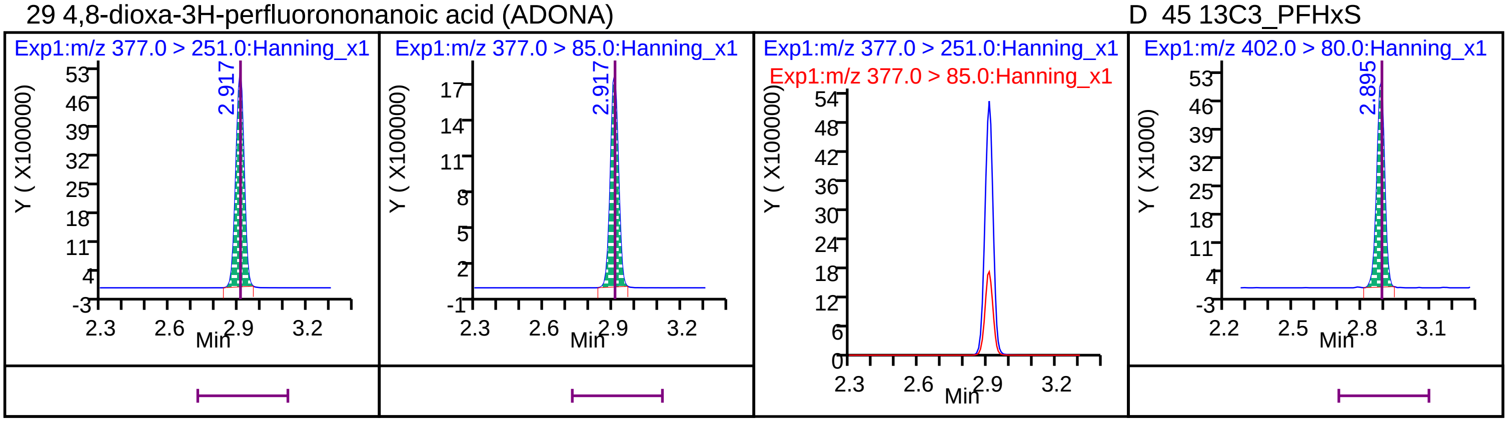
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



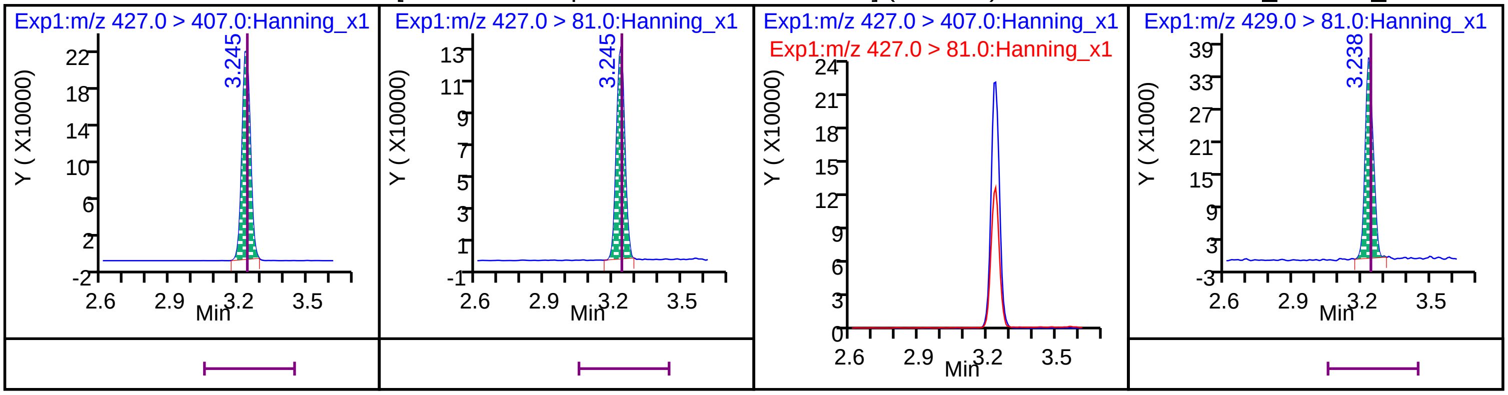
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



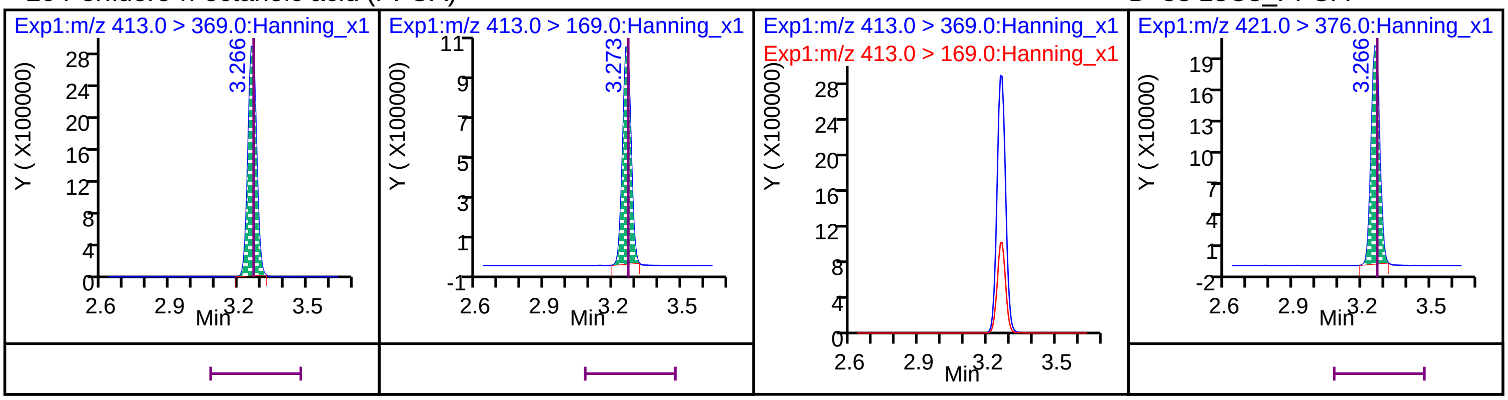
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



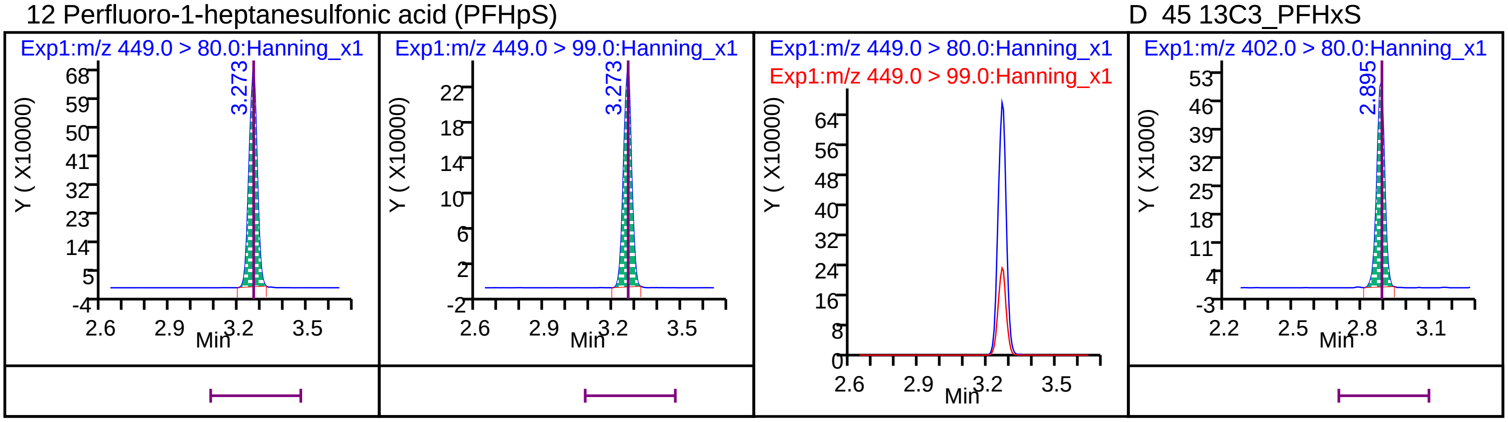
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



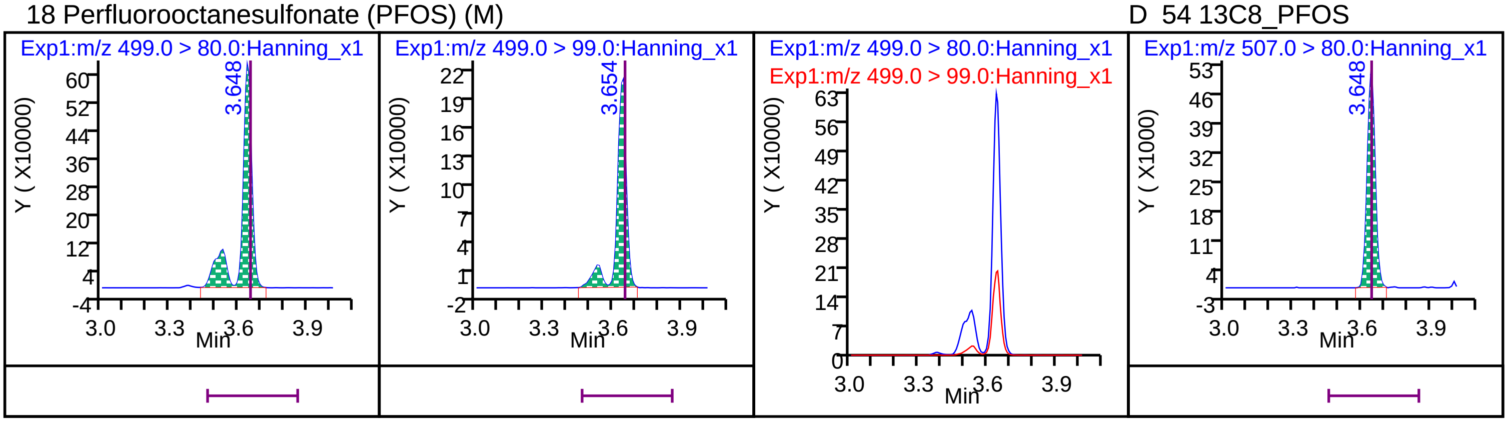
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



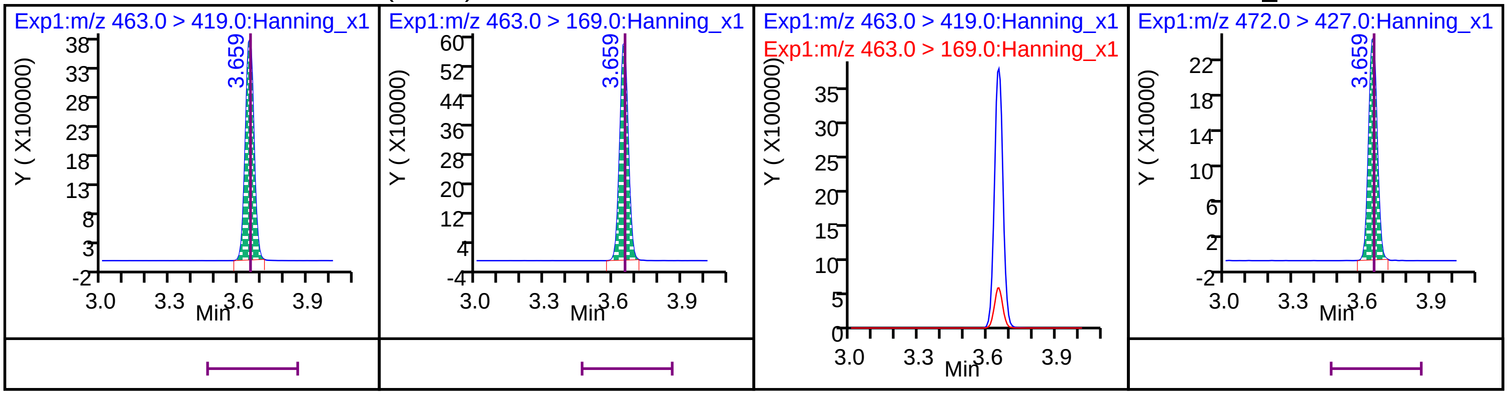
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



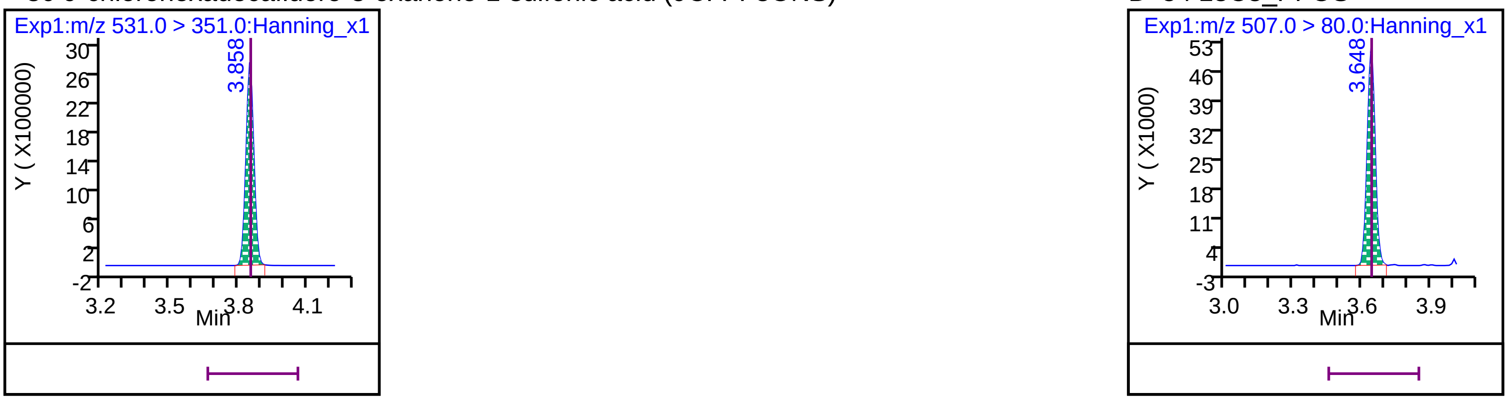
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



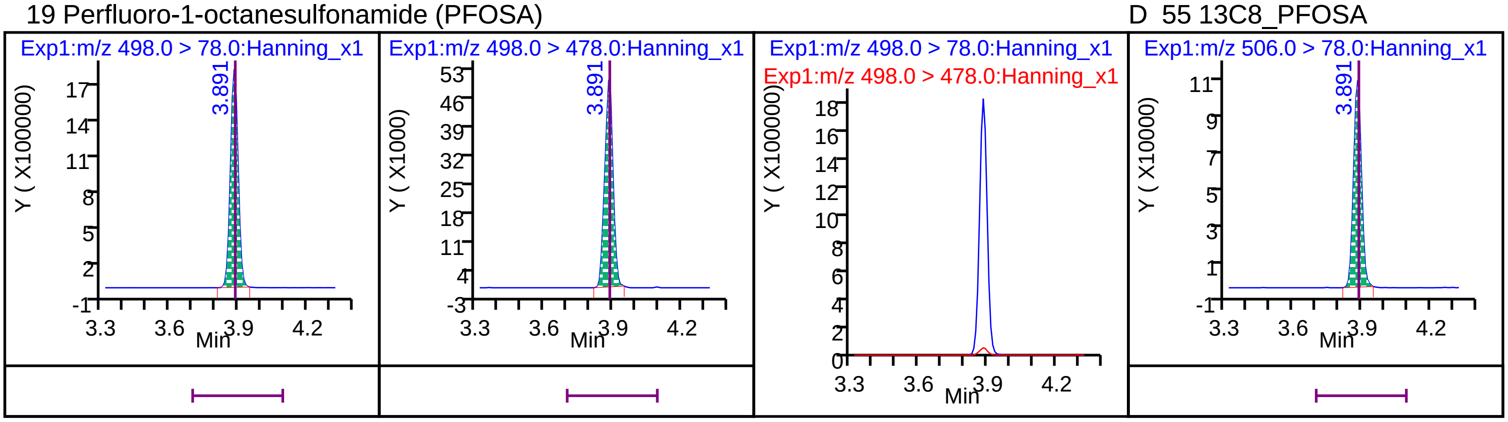
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



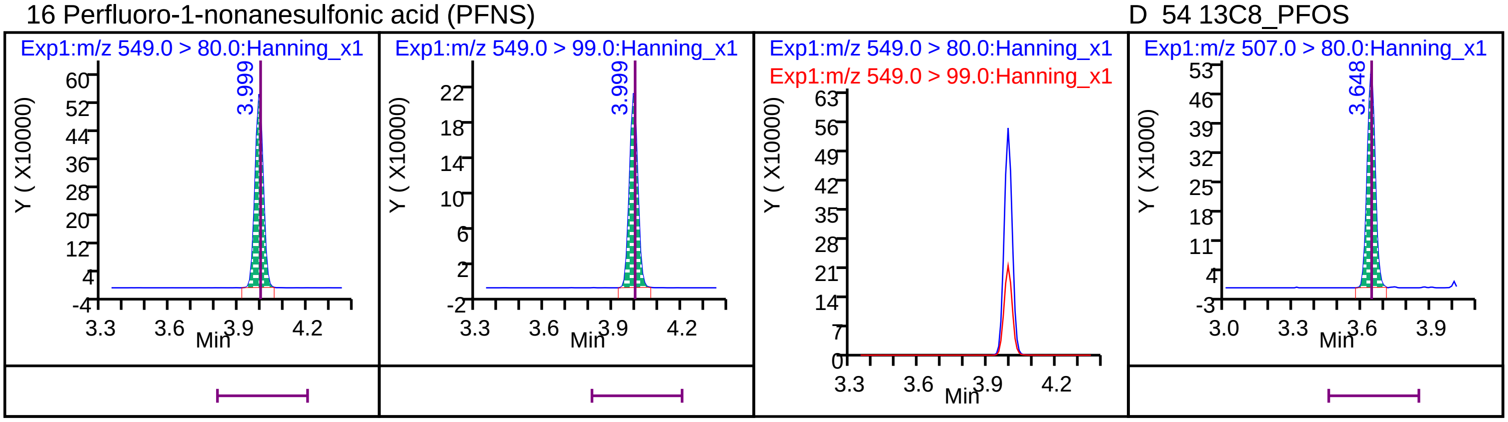
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



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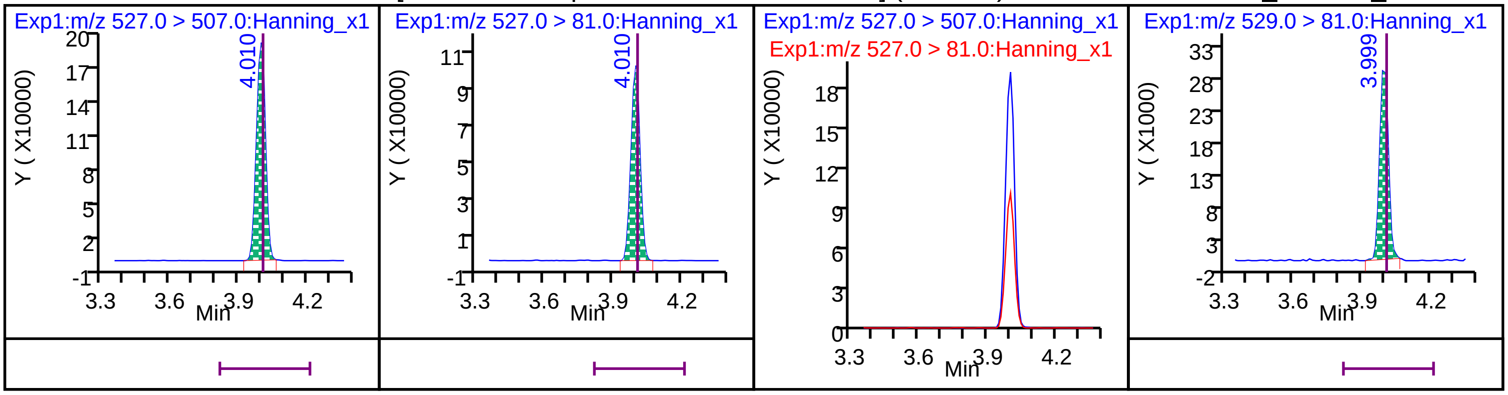
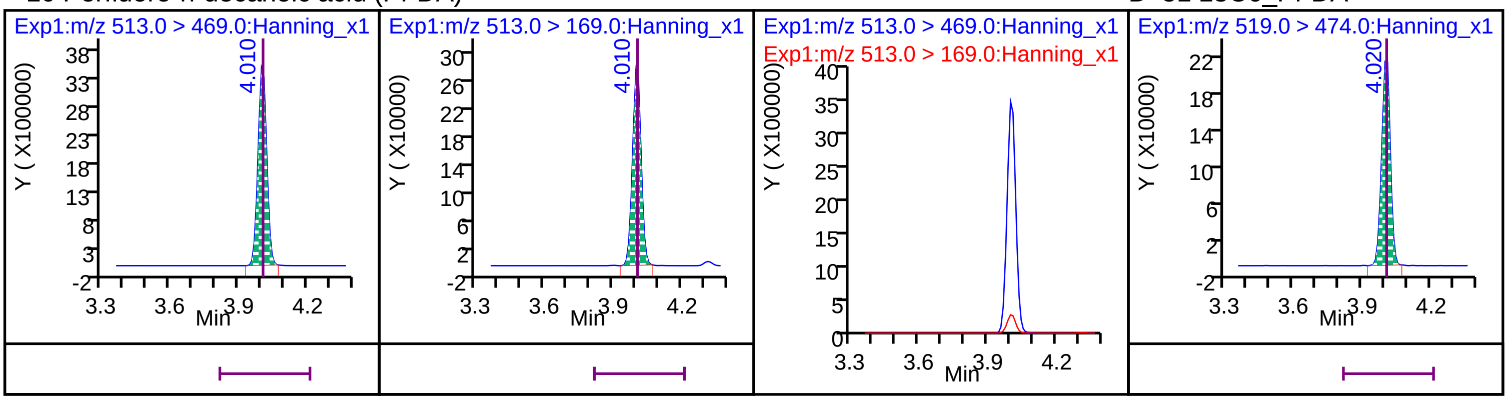
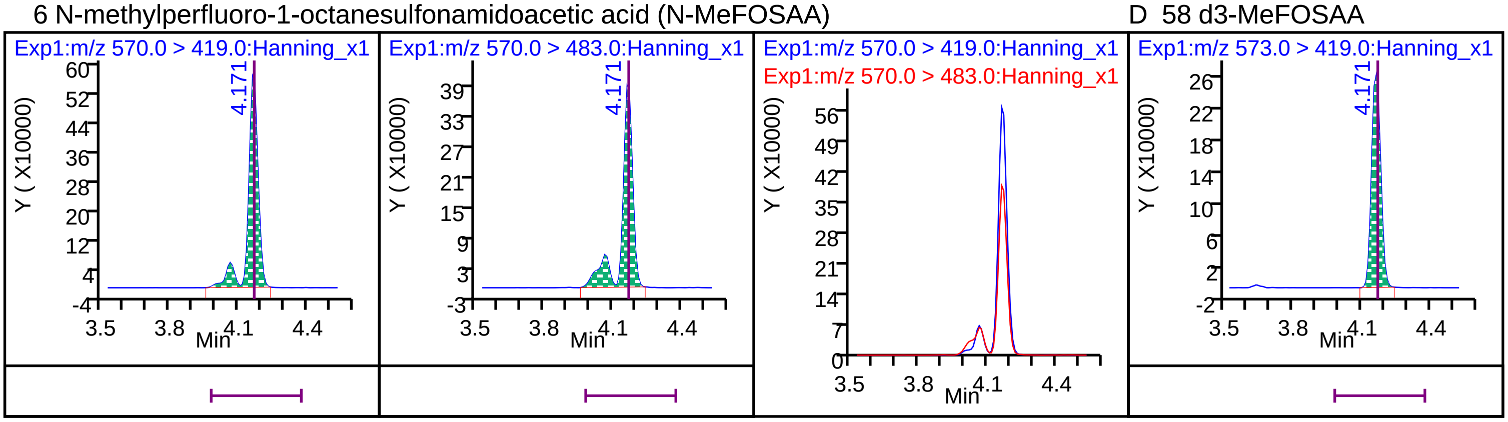
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

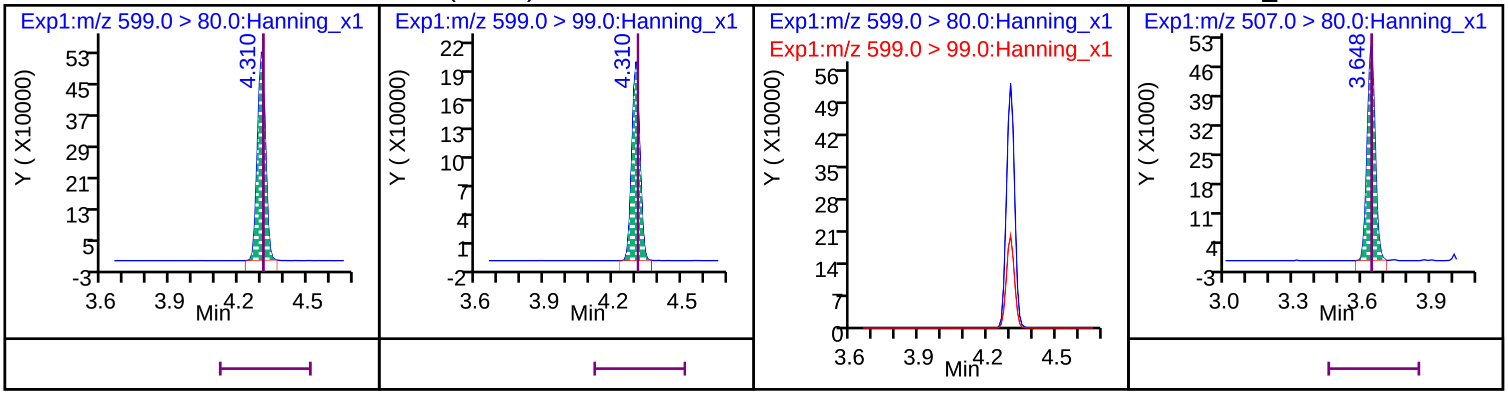


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

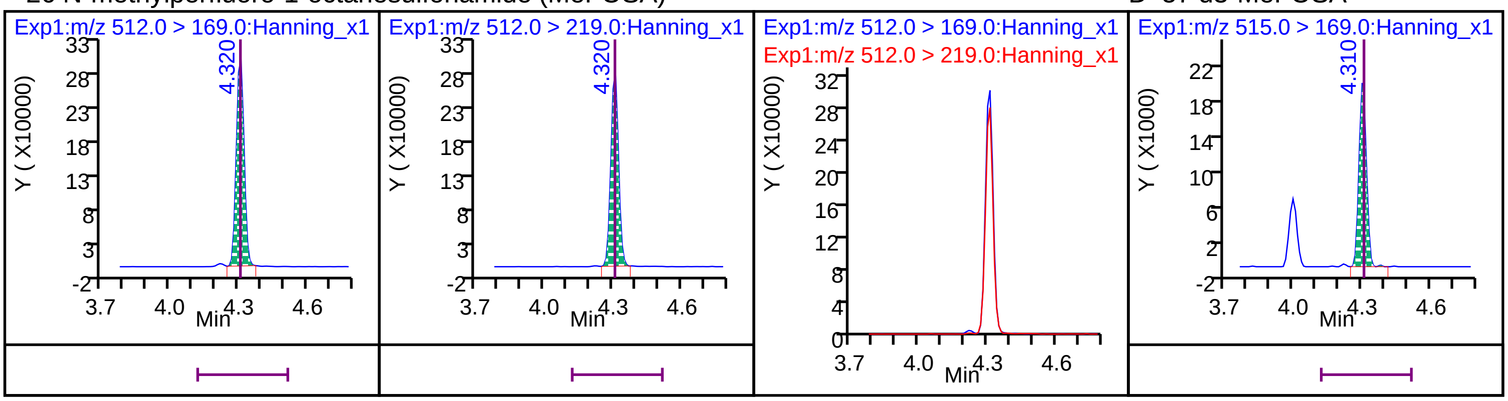


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

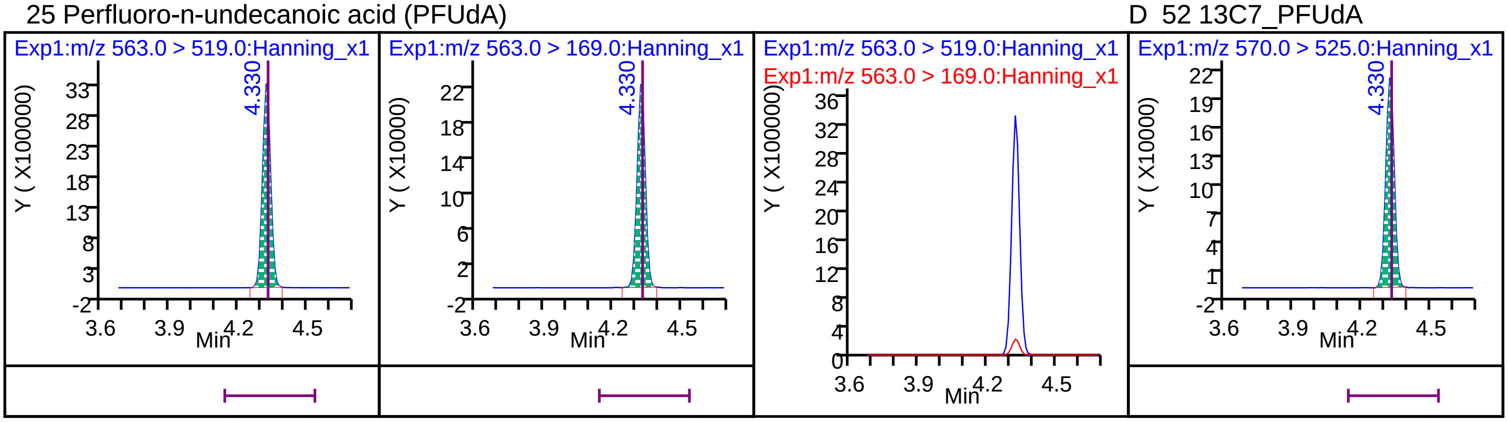
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



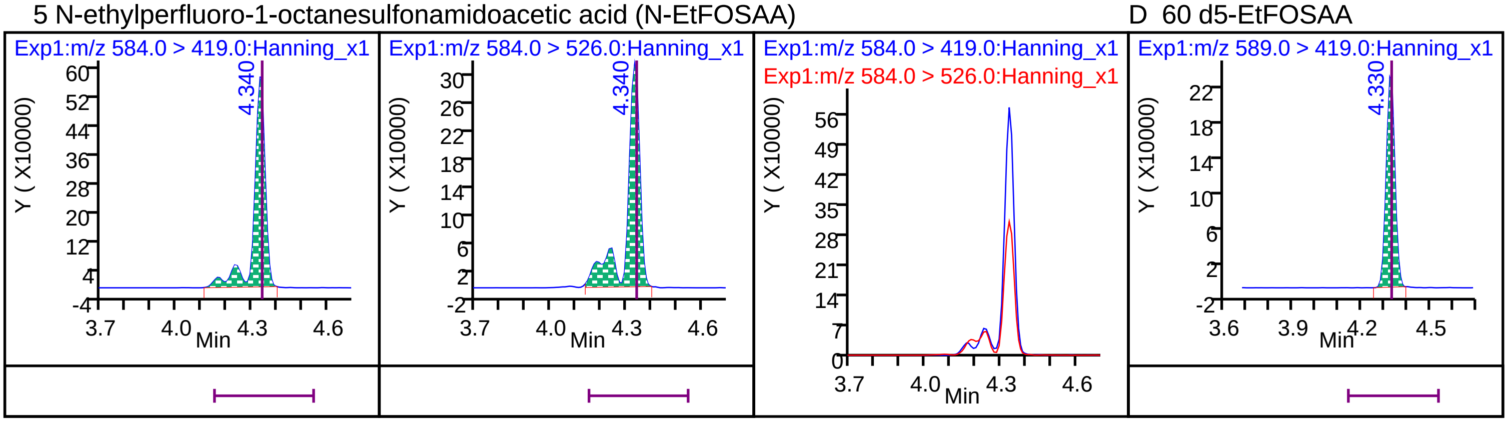
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



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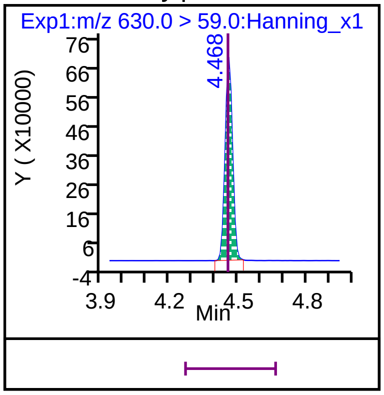
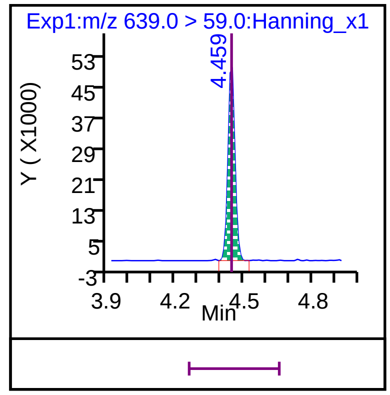
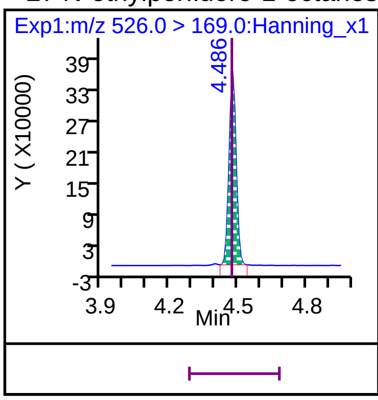
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

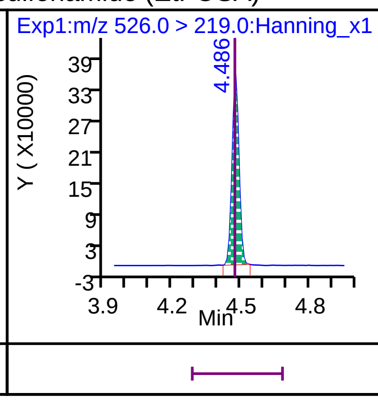


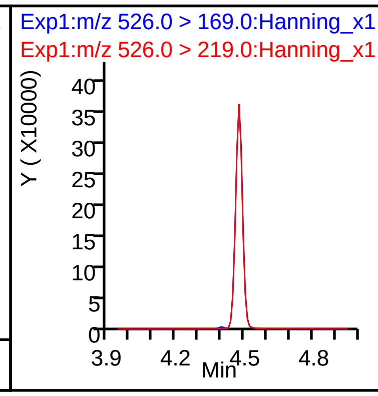
D 62 d9-EtFOSE



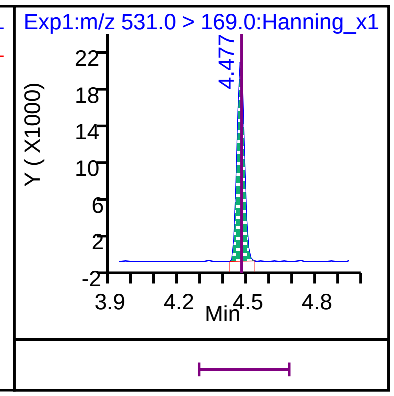
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



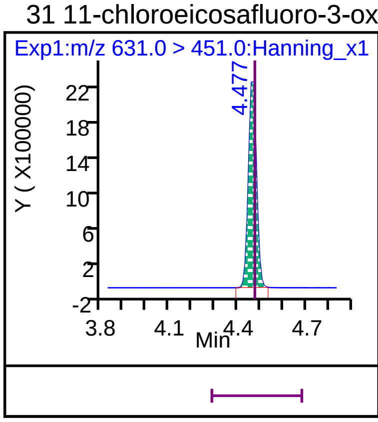




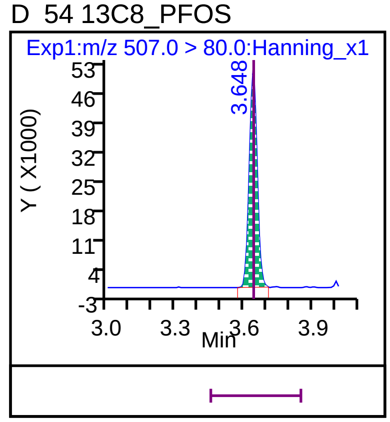
D 59 d5-EtFOSA



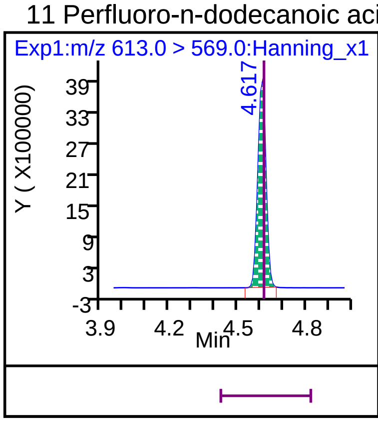
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

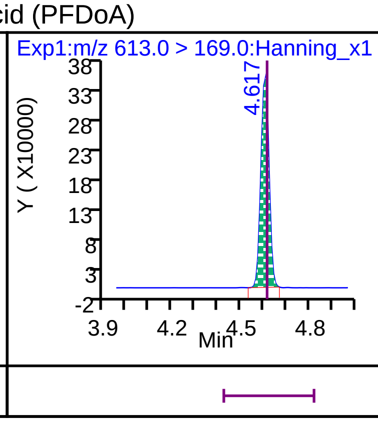


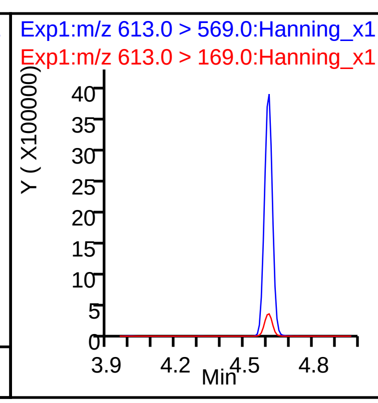
D 54 13C8_PFOS



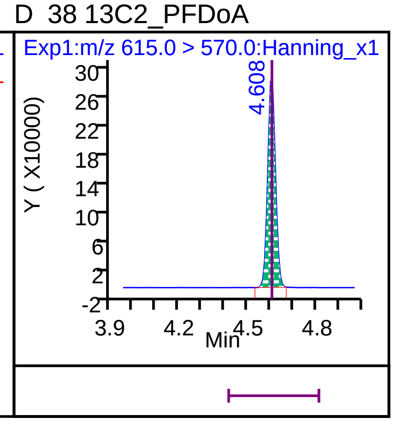
11 Perfluoro-n-dodecanoic acid (PFDoA)



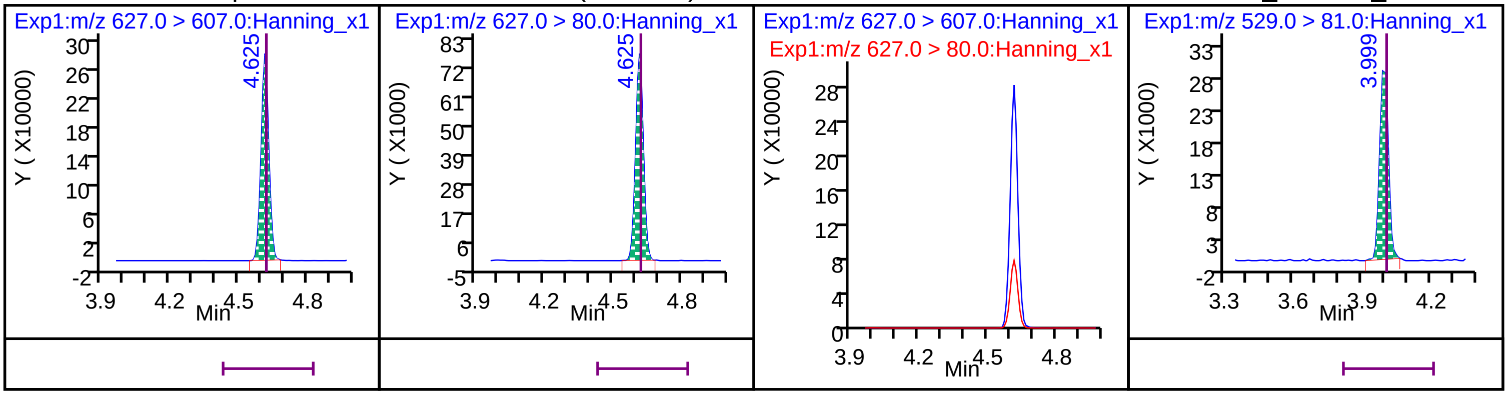




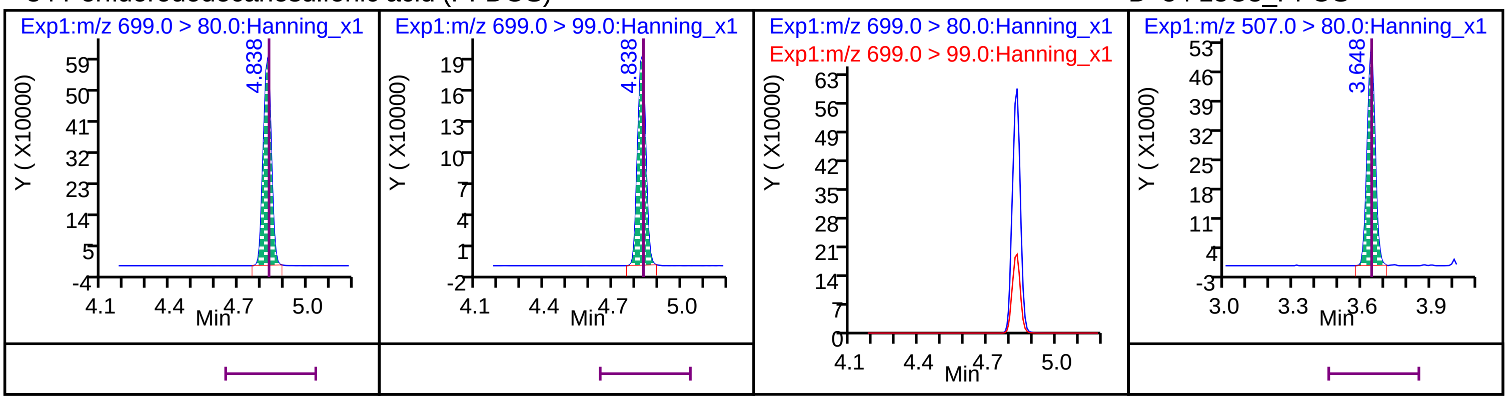
D 38 13C2_PFDoA



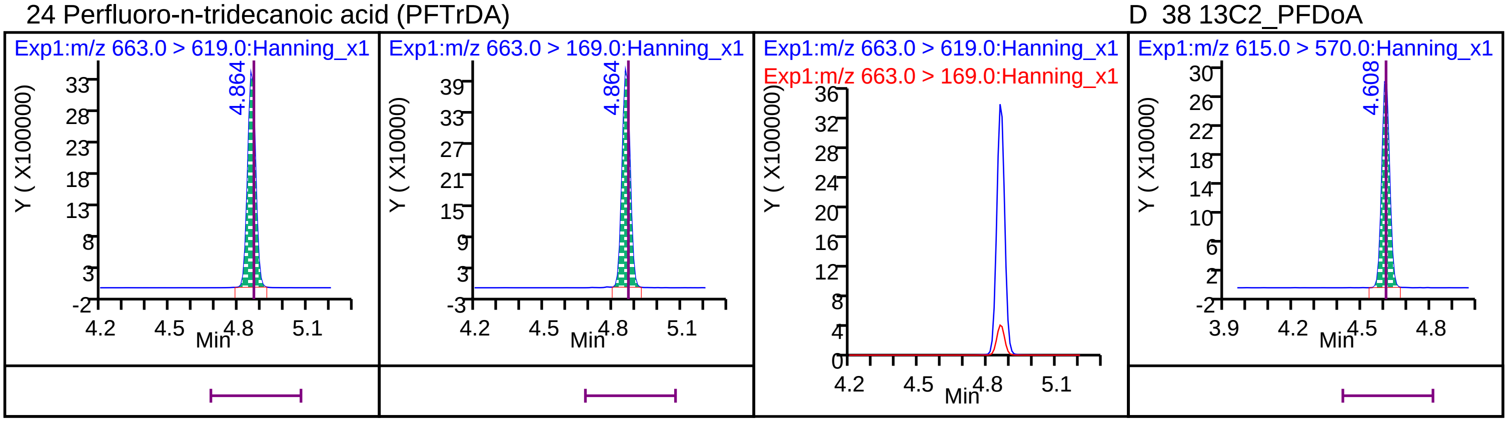
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



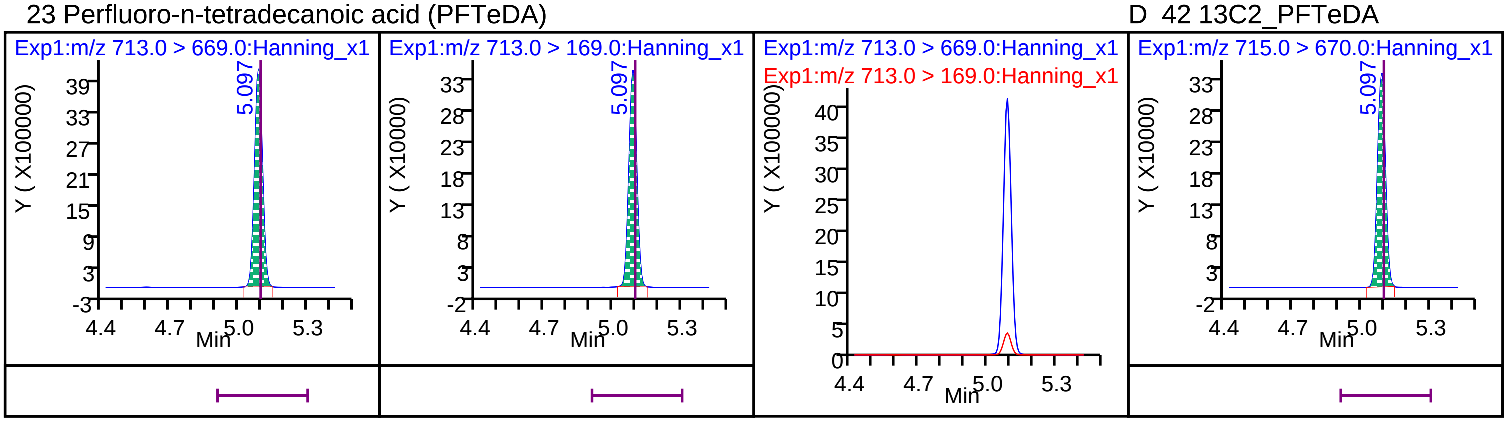
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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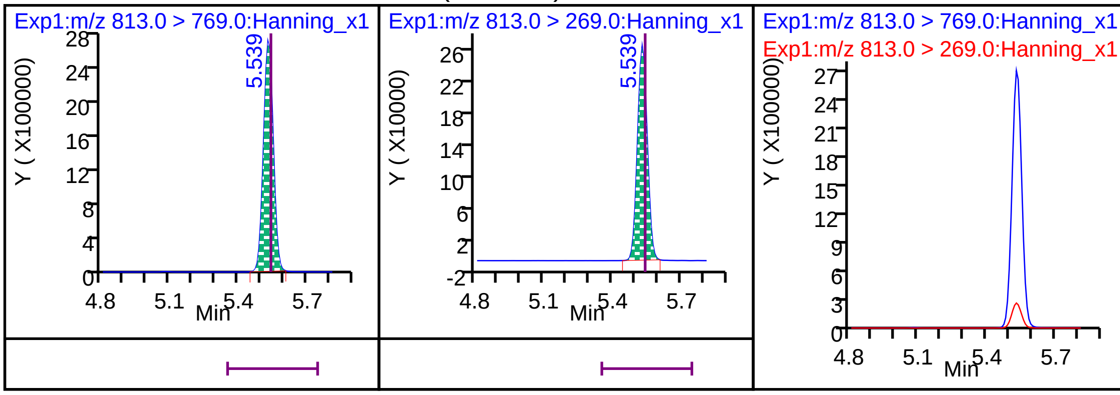
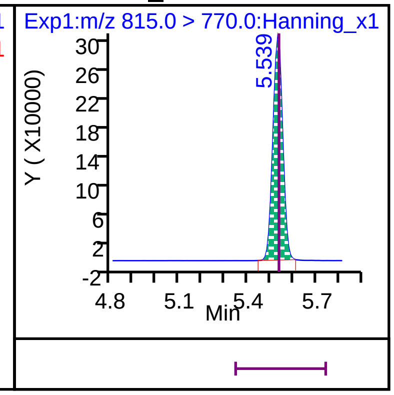
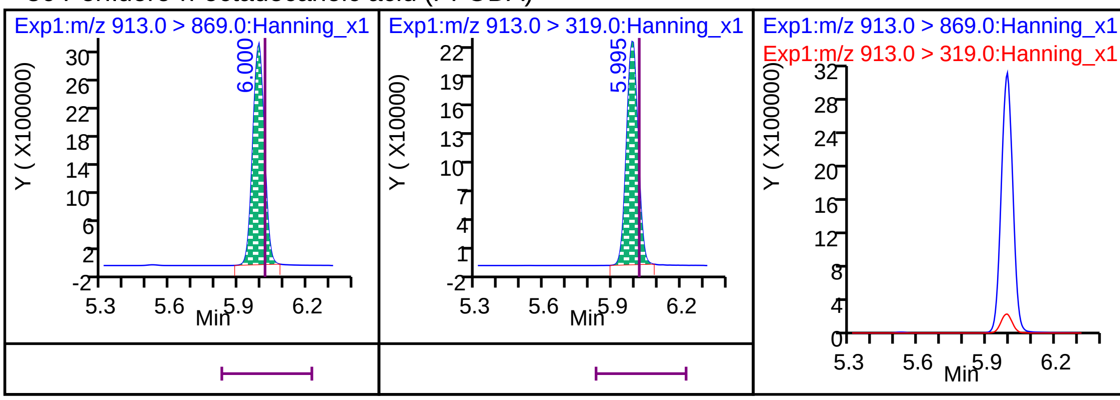
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



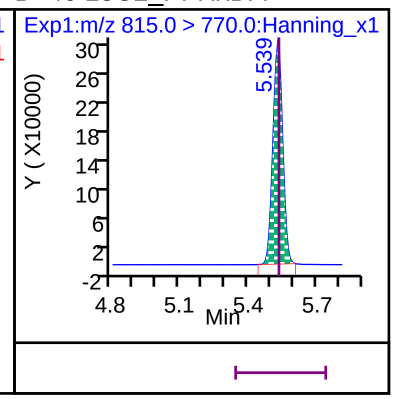
D 40 13C2_PFHxDA



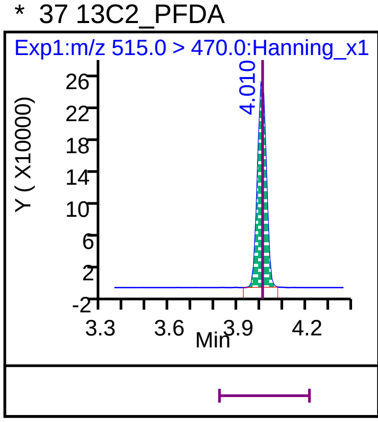
36 Perfluoro-n-octadecanoic acid (PFODA)



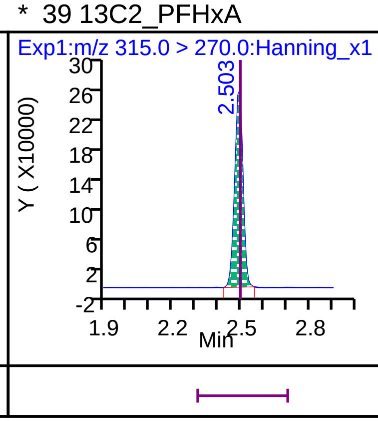
D 40 13C2_PFHxDA



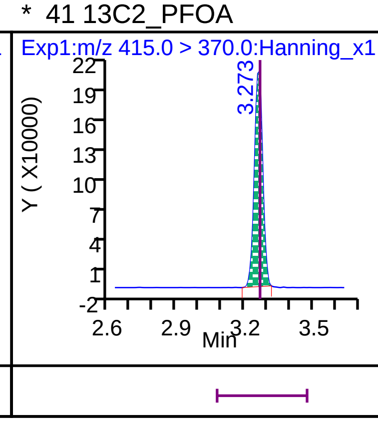
* 37 13C2_PFDA



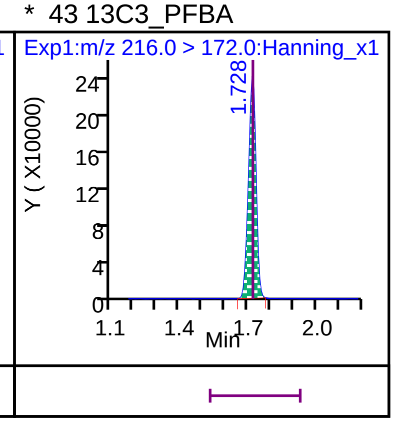
* 39 13C2_PFHxA



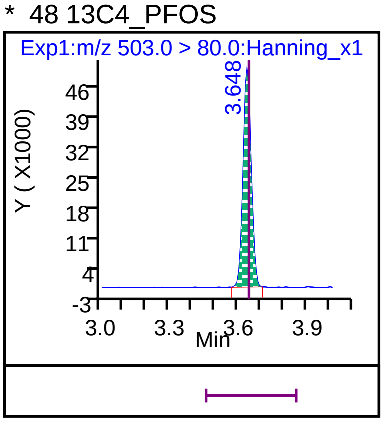
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

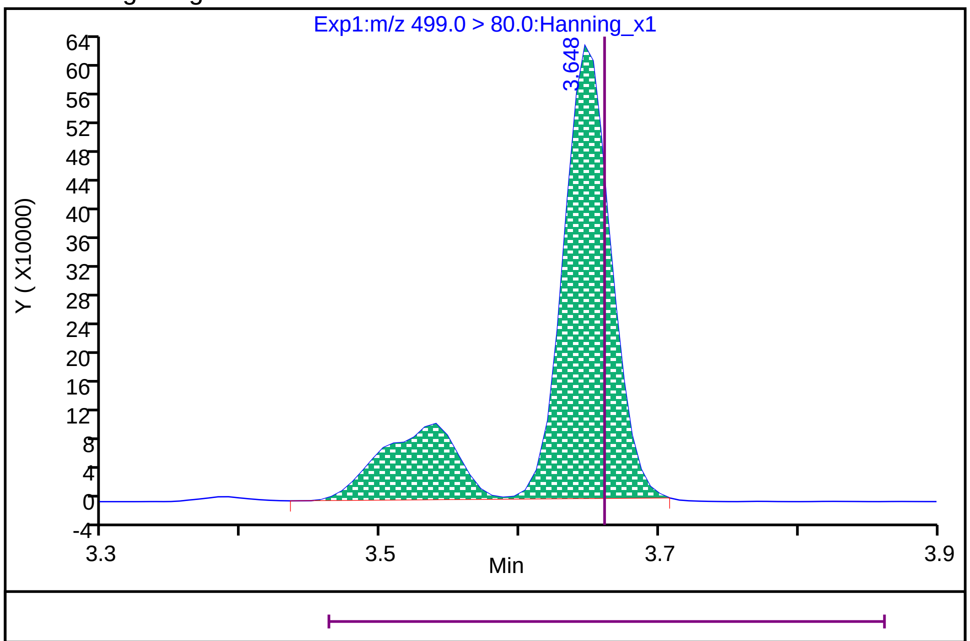
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 15000_SVLC-1748
Sample Info:	ID ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin

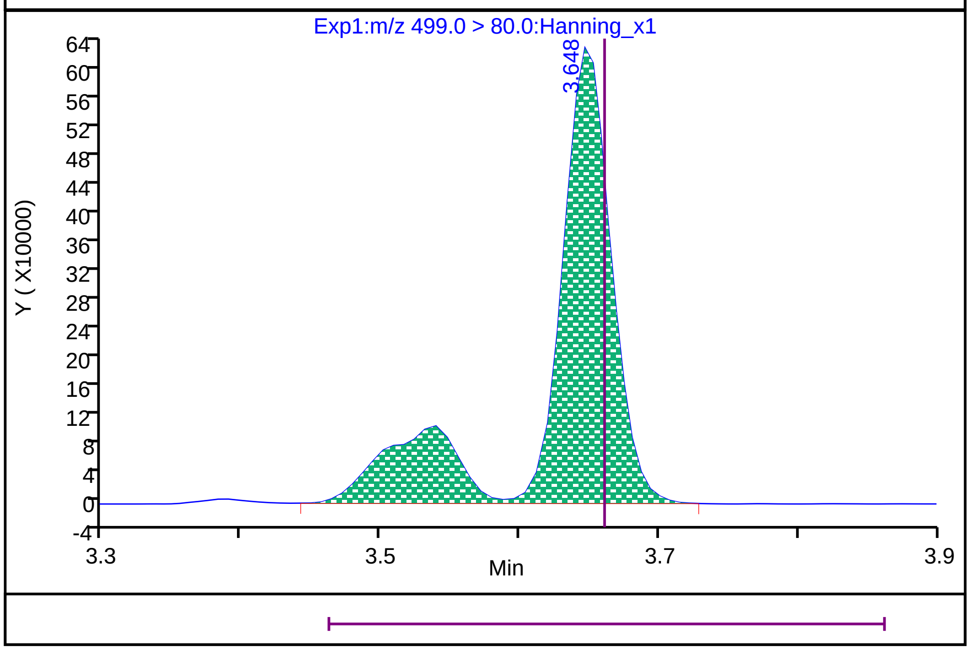
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.648
Area: 1869519
Amount: 12841
Amount Units: ng/L



RT: 3.648
Area: 1912794
Amount: 13164
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:39

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	84
Sample Info:	ID ICAL 20000_SVLC-1749	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	601428	20	>100:1			1000.00	967.43	94.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	12271777	20	>100:1			20000	19347		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.130	0	562559	16	>100:1			1000.00	984.20	97	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.130	0/0	12285003	14	>100:1			20000	19403		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	172528	16	>100:1			1000.00	997.45	96.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	3784673	16	>100:1	Target = 3.53		17680	17591		
298.9 > 99	44	2.183	2.183		1060665	16	>100:1	3.56 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	3011449	17	>100:1	Target = 3.10		18760	18834		
349 > 99	44	2.532	2.531		995968	17	>100:1	3.02 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	111342	16	>100:1			5000.00	4917.12	99.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	918635	16	>100:1	Target = 1.75		18680	18714		
327 > 81	63	2.460	2.460		478434	17	>100:1	1.92 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	630351	18	>100:1			1000.00	967.85	94.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	13063789	18	>100:1	Target = 18.91		20000	19932		
313 > 119	49	2.496	2.505		701779	17	>100:1	18.61 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1088480	19	>100:1			5000.00	4696.66	90.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	5757611	19	>100:1	Target = 0.79		40000	40838		
285 > 185	66	2.614	2.622		7184736	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	508162	19	>100:1			1000.00	957.10	95.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/1	10807866	17	>100:1	Target = 3.80		20000	19356		
363 > 169	47	2.881	2.880		2939906	17	>100:1	3.67 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	117903	19	>100:1			1000.00	938.42	90.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/-1	2431672	27	>100:1	Target = 2.89	4.58	18200	18760		
399 > 99	45	2.888	2.896		765406	27	>100:1	3.17 (1.44-4.34)	7.97				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	17168081	19	>100:1	Target = 3.23		18840	18776		
377 > 85	45	2.919	2.919		5499702	19	>100:1	3.12 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	1/0	2273794	21	>100:1	Target = 3.12		19040	18777		
449 > 99	45	3.269	3.276		738084	21	>100:1	3.08 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	91282	19	>100:1			5000.00	5071.23	97.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	732807	20		Target = 1.75		18960	16956		
427 > 81	64	3.241	3.248		396106	19	>100:1	1.85 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	501453	20	>100:1			1000.00	955.74	91.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	9815646	22	>100:1	Target = 2.89		20000	19102		
413 > 169	53	3.269	3.276		3402320	22	>100:1	2.88 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.646	3.651	0	116988	21	>100:1			1000.00	944.65	88.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.652	3.662	0/0	2656667	41	>100:1	Target = 3.30	3.43	18560	19072		M
499 > 99	54	3.652	3.662		776730	37	>100:1	3.42 (1.65-4.95)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/1	8707646	19	>100:1			18640	19654		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.006	0/0	1866192	17	>100:1	Target = 3.08		19200	19883		
549 > 99	54	3.995	4.006		704344	17	>100:1	2.64 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/0	1752012	15	>100:1	Target = 2.72		19280	19138		
599 > 99	54	4.308	4.318		640580	16		2.73 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/0	7841206	16	>100:1			18840	19577		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.825	4.842	-1/-1	2176544	19	>100:1	Target = 3.27		19360	21636		
699 > 99	54	4.825	4.842		703356	19	>100:1	3.09 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.662	0	601551	20	>100:1			1000.00	939.37	94.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.657	3.662	0/0	12848388	22	>100:1	Target = 6.51		20000	19816		
463 > 169	56	3.657	3.662		1974262	22	>100:1	6.50 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	264794	17				1000.00	987.82	99.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/1	5595676	18	>100:1	Target = 41.63		20000	20084		
498>478	55	3.896	3.896		176532	18		31.69 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	1	531731	16	>100:1			1000.00	925.30	92.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	1/0	12363983	16	>100:1	Target = 13.80		20000	19981		
513 > 169	51	4.017	4.016		876637	15	>100:1	14.10 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	4.016	0	86255	15	>100:1			5000.00	4990.31	109.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.016	0/0	699409	17	>100:1	Target = 1.94		19160	17943		
527 > 81	65	4.006	4.016		358178	16	>100:1	1.95 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.623	4.631	0/0	806269	18	>100:1	Target = 3.54		19280	18425		
627 > 80	65	4.623	4.631		249814	17	>100:1	3.22 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.178	0	763092	17	>100:1			5000.00	5049.83	98.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.178	0/0	2384735	30	>100:1	Target = 1.37	8.07	20000	19473		
570 > 483	58	4.169	4.178		1774460	31	>100:1	1.34 (0.68-2.05)	4.20				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	93265	14	>100:1			1000.00	1034.11	103.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	1865803	14	>100:1			20000	18306		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	46513	17	>100:1			1000.00	988.77	103.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/1	934909	14	>100:1	Target = 1.11		20000	18544		
512 > 219	57	4.318	4.318		861239	14	>100:1	1.08 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.338	0	536911	17	>100:1			5000.00	4145.61	77.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.348	0/0	2309508	31	>100:1	Target = 1.51	5.37	20000	22058		
584 > 526	60	4.339	4.348		1489678	31	>100:1	1.55 (0.75-2.26)	3.35				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.338	0	556328	16				1000.00	923.75	87.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.338	0/0	10184582	16	>100:1	Target = 14.52		20000	18893		
563 > 169	52	4.328	4.338		715241	15	>100:1	14.23 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	107173	16	>100:1			1000.00	1010.33	105.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.465	4.464	1/0	1995842	15	>100:1			20000	19130		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	43319	19	>100:1			1000.00	1007.42	101	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	1036110	14	>100:1	Target = 1.06		20000	20212		
526 > 219	59	4.483	4.483		1001264	15	>100:1	1.03 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.614	0	580173	17	>100:1			1000.00	966.41	96	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.606	4.622	-1/-1	12133384	17	>100:1	Target = 10.70		20000	19617		
613 > 169	38	4.606	4.622		1194541	17	>100:1	10.15 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.860	4.877	-1/-1	11146450	18	>100:1	Target = 8.31		20000	18278		
663 > 169	38	4.860	4.877		1359765	17	>100:1	8.19 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.094	5.106	0	798422	22	>100:1			1000.00	982.08	95.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.094	5.106	0/0	12878458	22	>100:1	Target = 12.17		20000	18478		
713 > 169	42	5.094	5.106		1076381	22	>100:1	11.96 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.529	5.544	0	855945	21	>100:1			1000.00	986.07	97.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.536	5.552	0/0	10035004	21	>100:1	Target = 10.43		20000	18306		
813 > 269	40	5.529	5.552		989488	21	>100:1	10.14 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.002	6.026	-1/-1	14977998	44	>100:1	Target = 13.67		20000	19221		
913 > 319	40	6.002	6.026		1101505	44	>100:1	13.59 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.017	4.016	1	627731	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	669431	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	495600	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	550746	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.657	0	118894	22	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

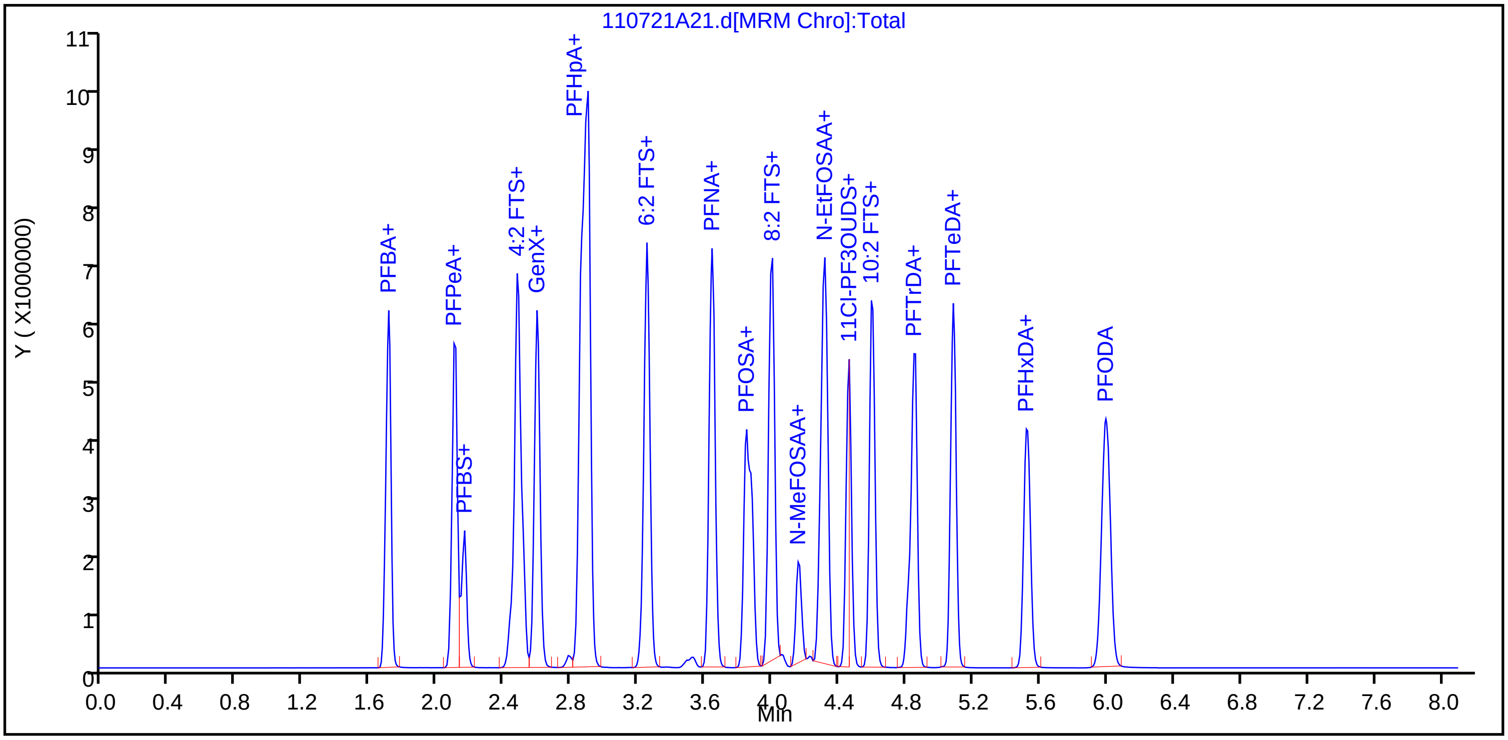
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

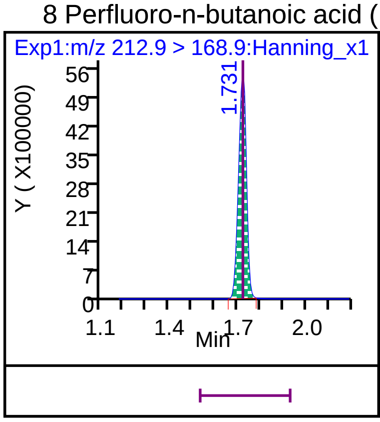
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

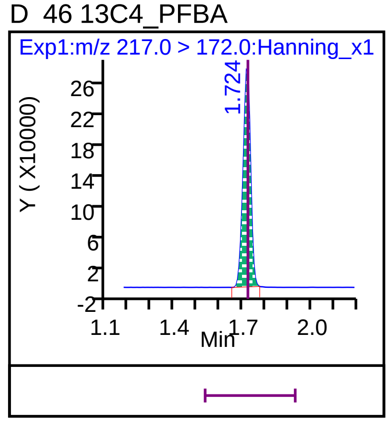
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 20000_SVLC-1749
Sample Info:	ID ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin



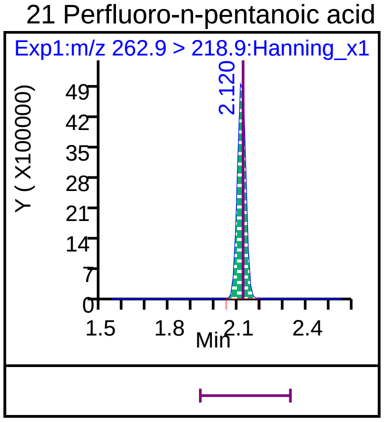
8 Perfluoro-n-butanoic acid (PFBA)



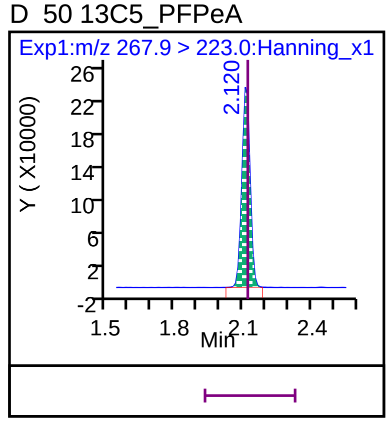
D 46 13C4_PFBA



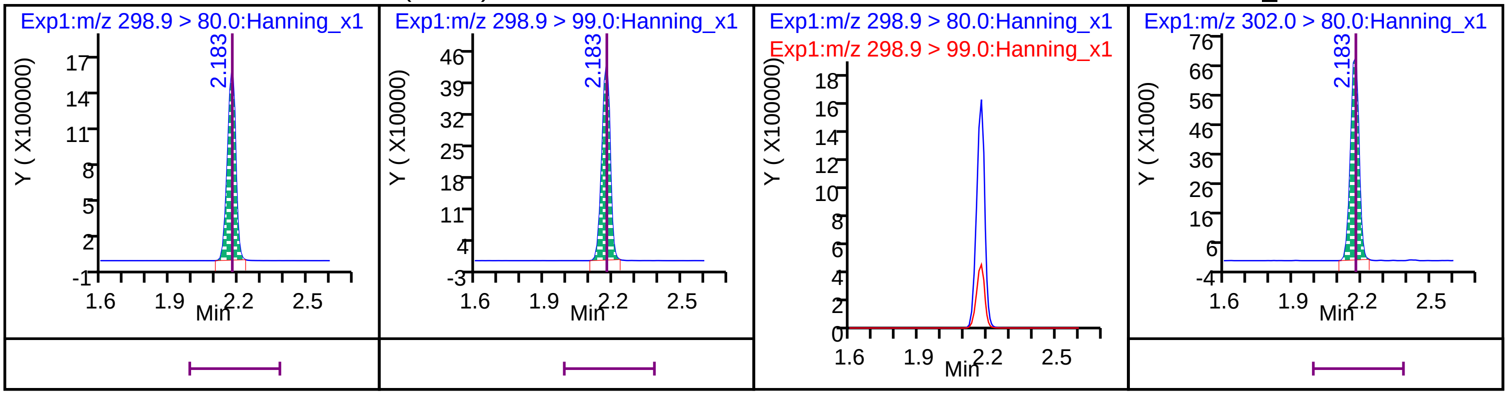
21 Perfluoro-n-pentanoic acid (PFPeA)



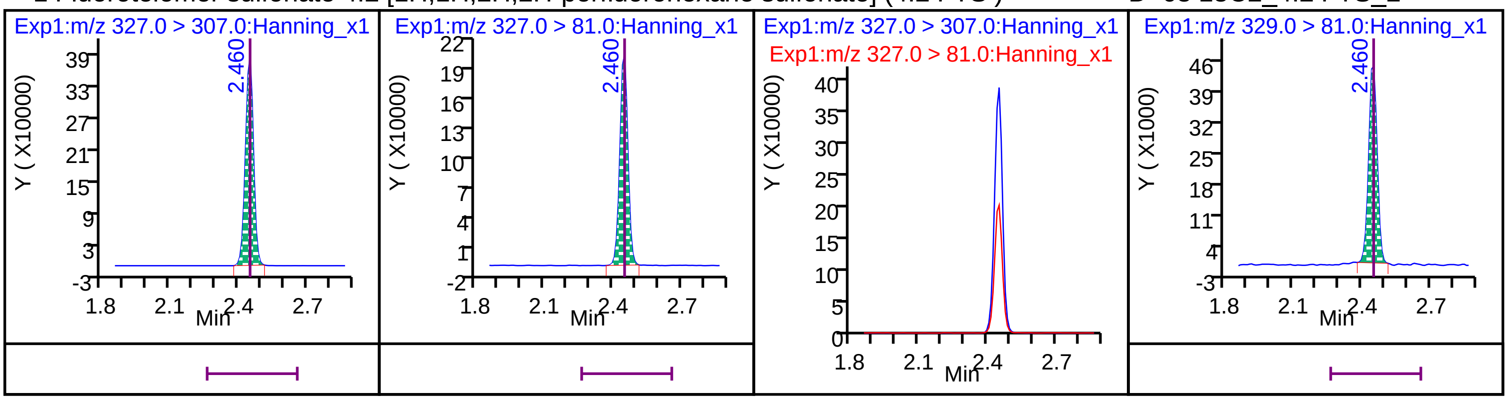
D 50 13C5_PFPeA



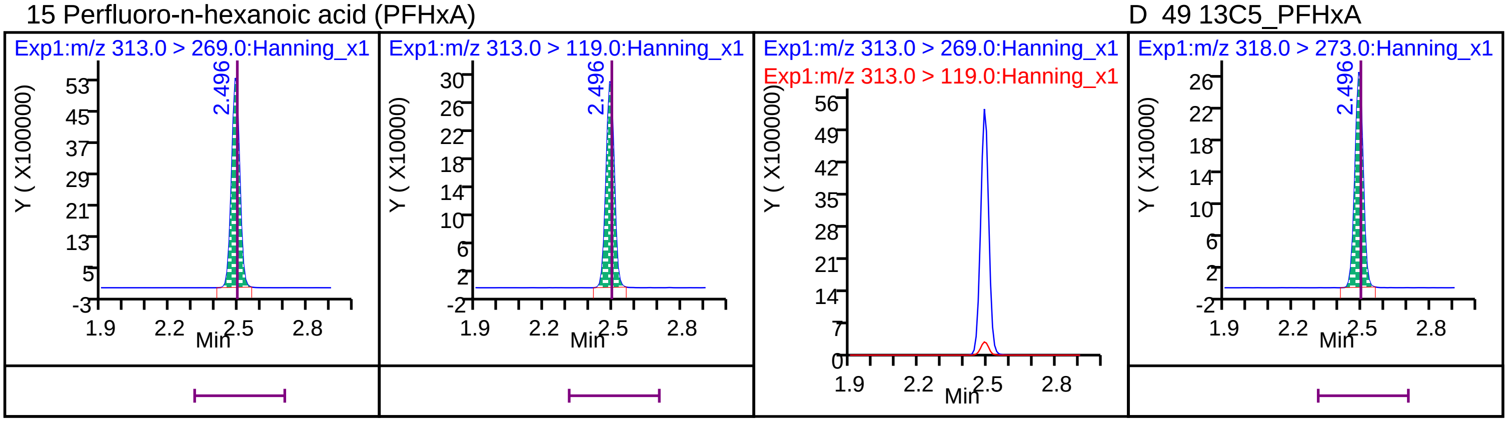
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



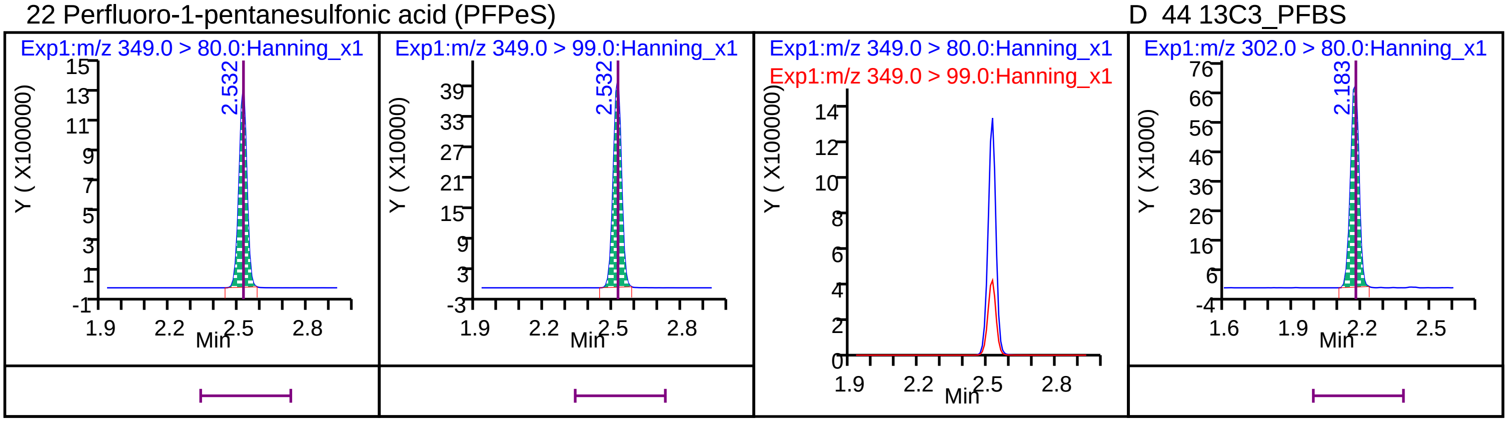
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

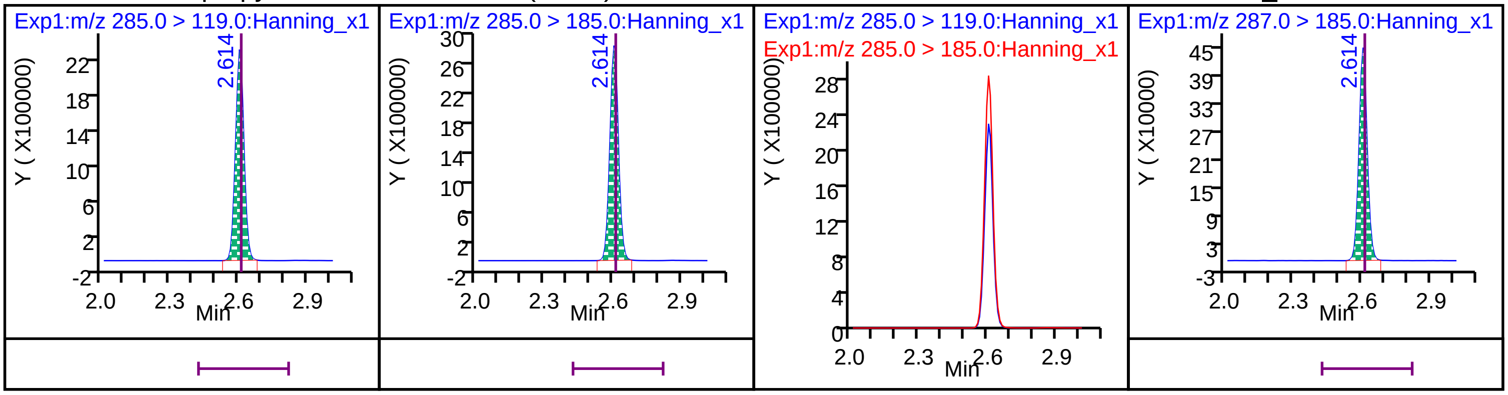


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

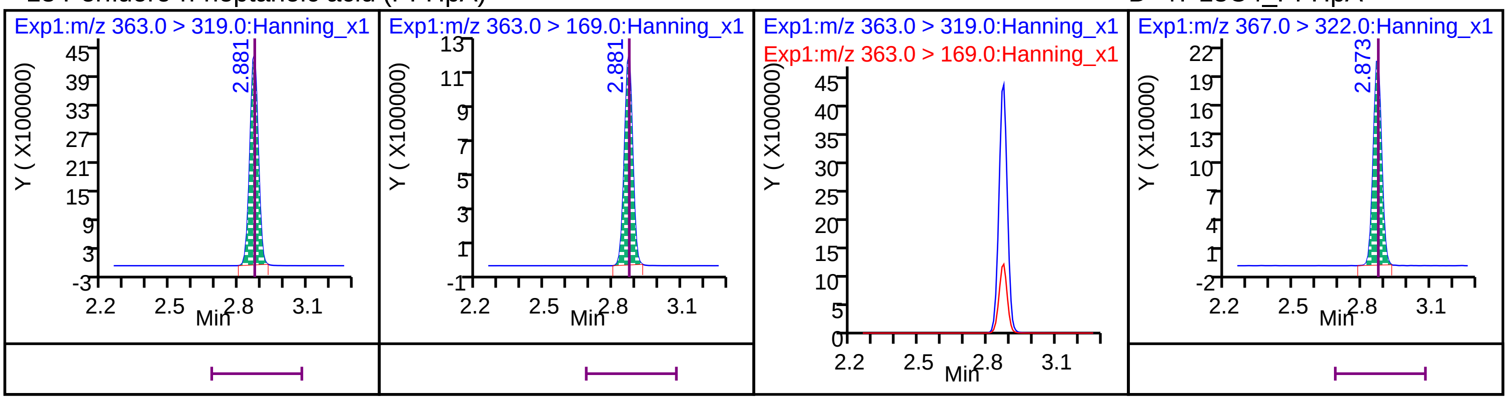


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

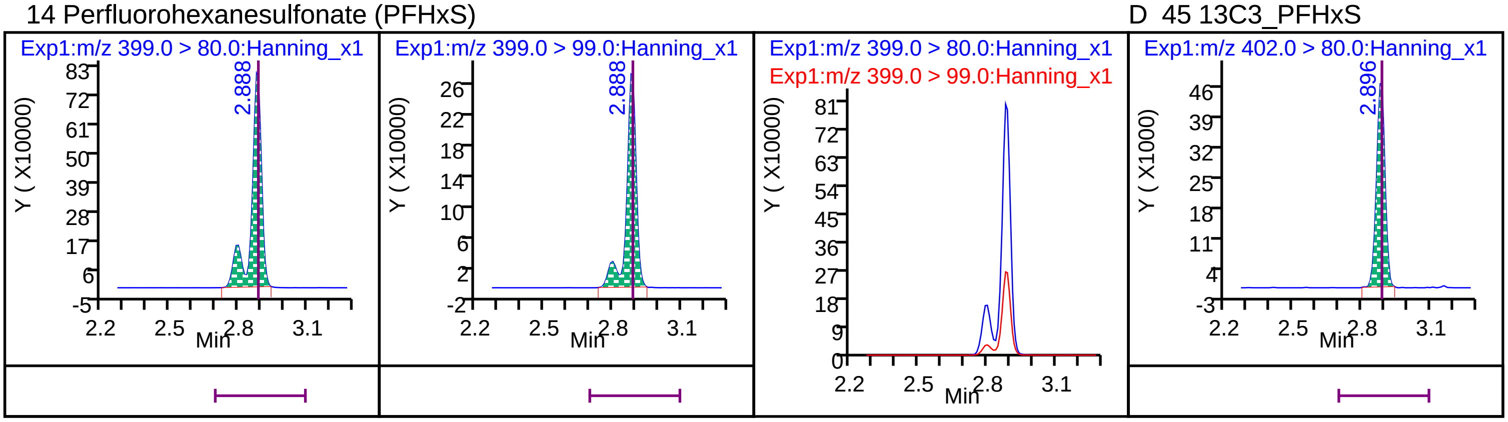
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



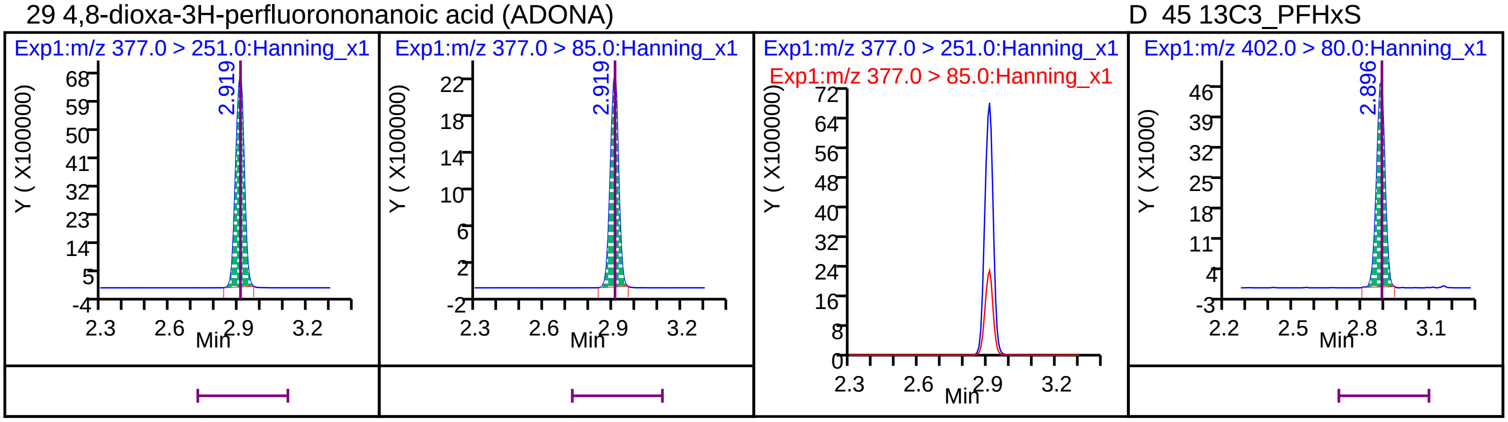
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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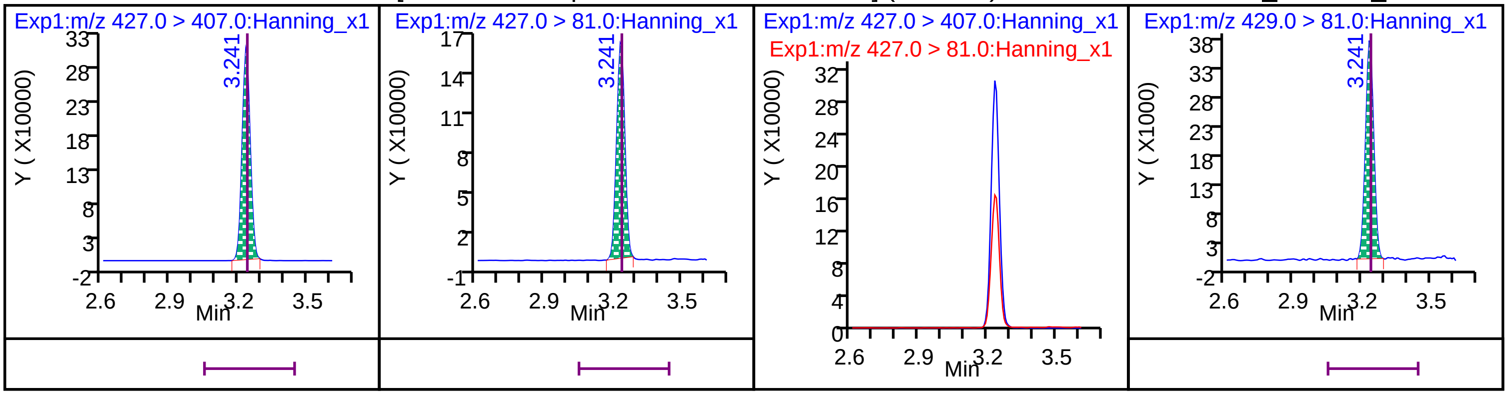
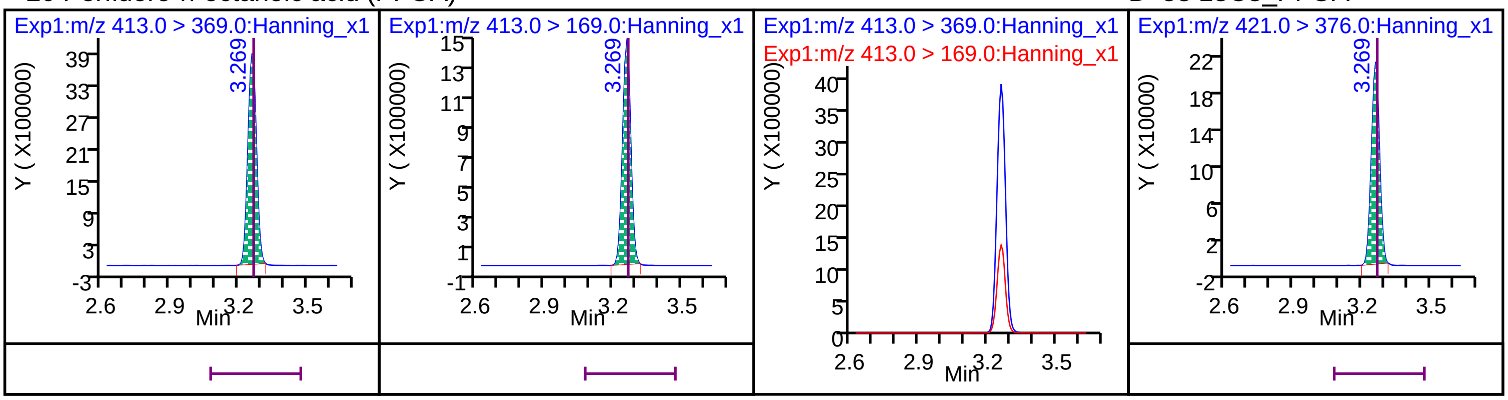
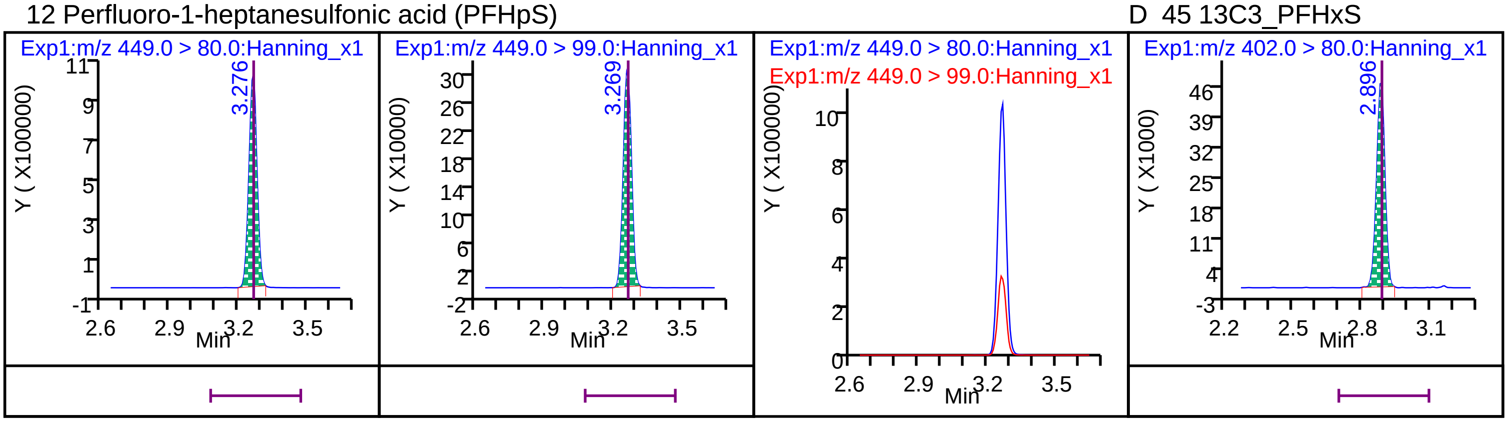
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



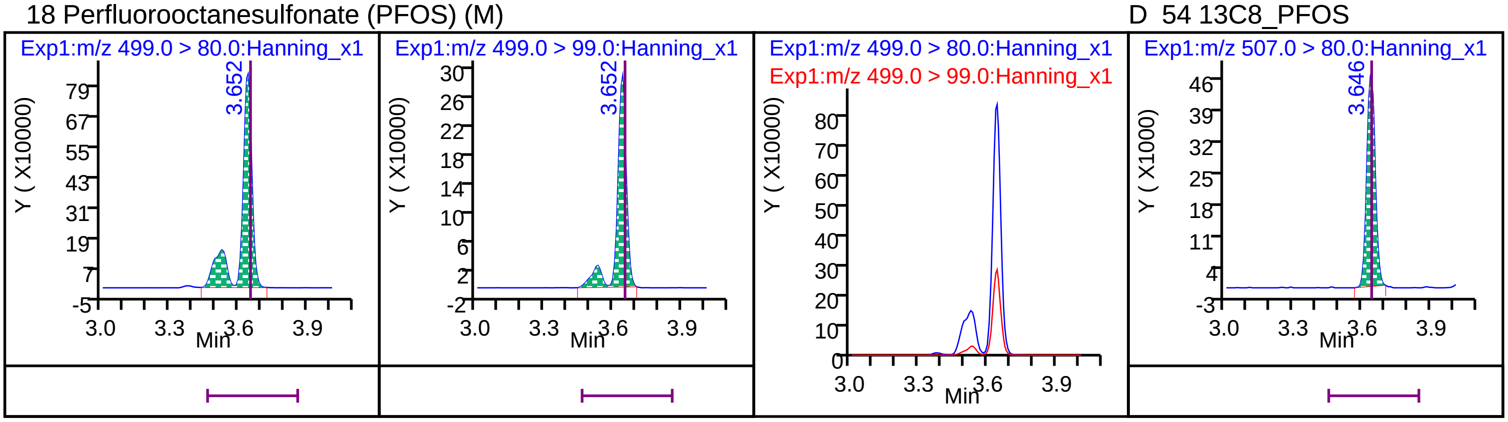
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



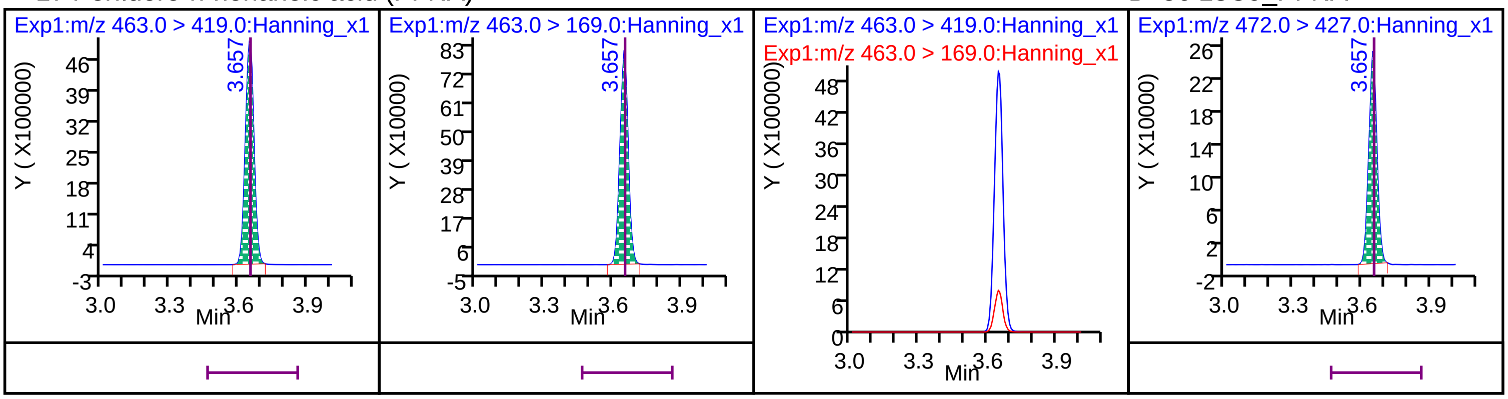
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



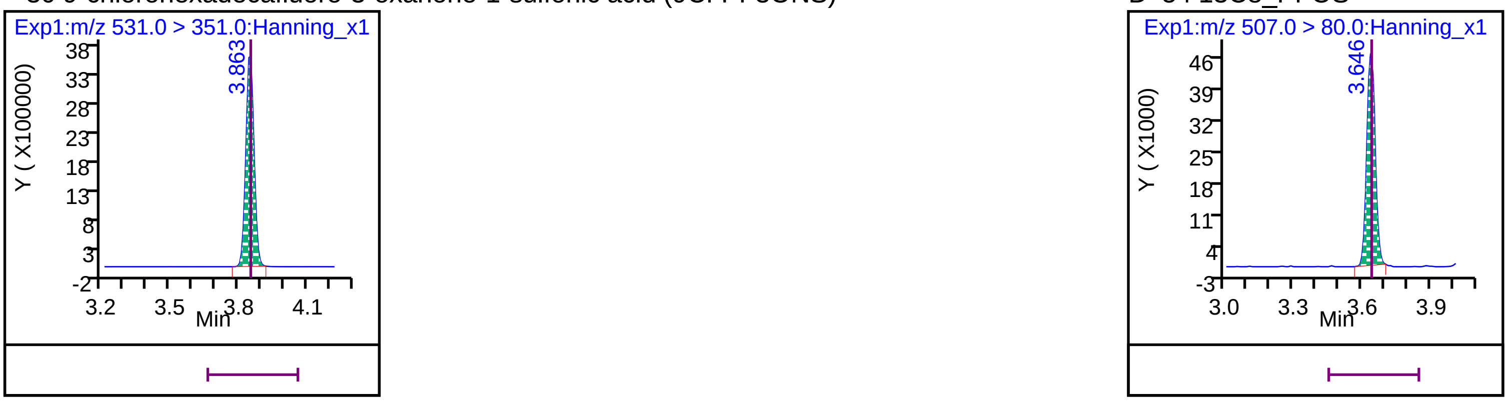
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



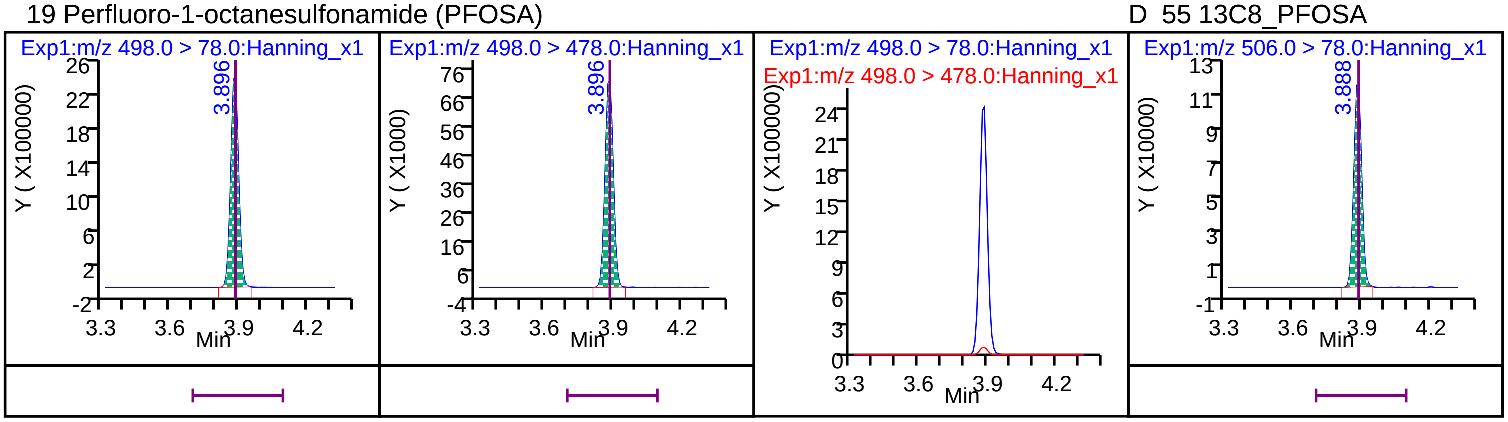
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



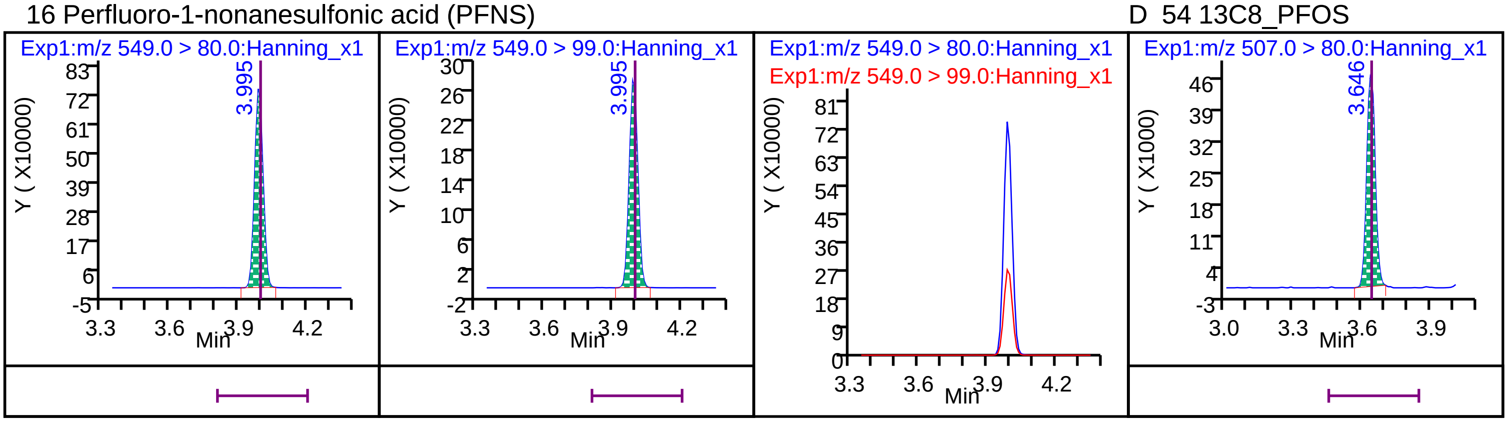
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



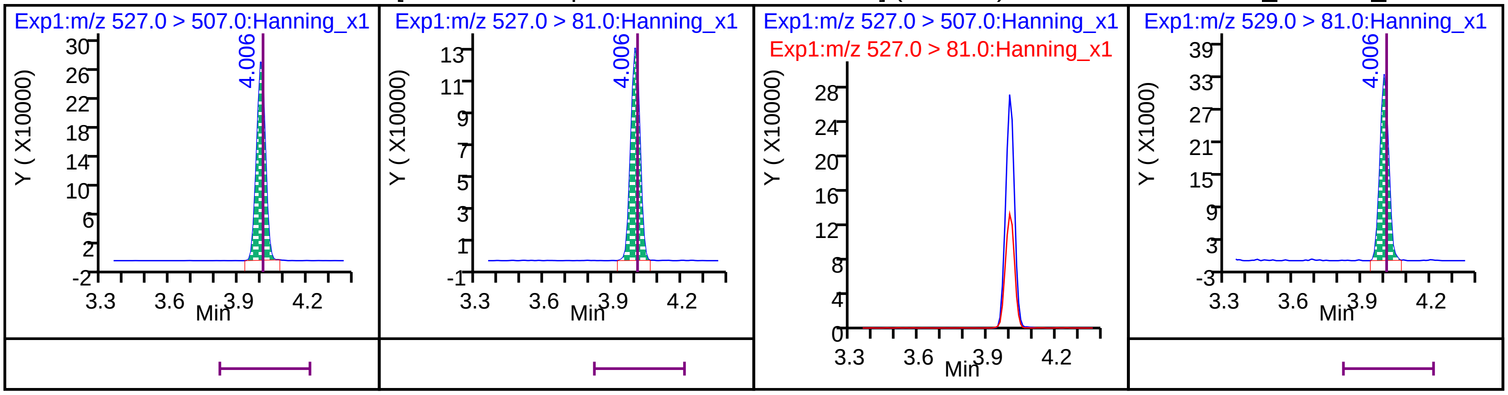
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



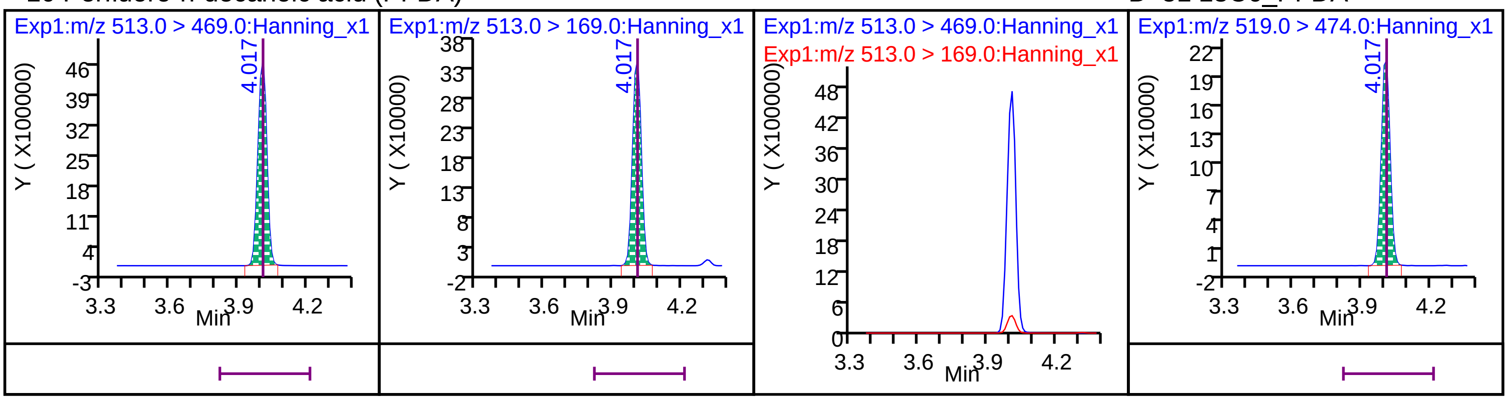
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



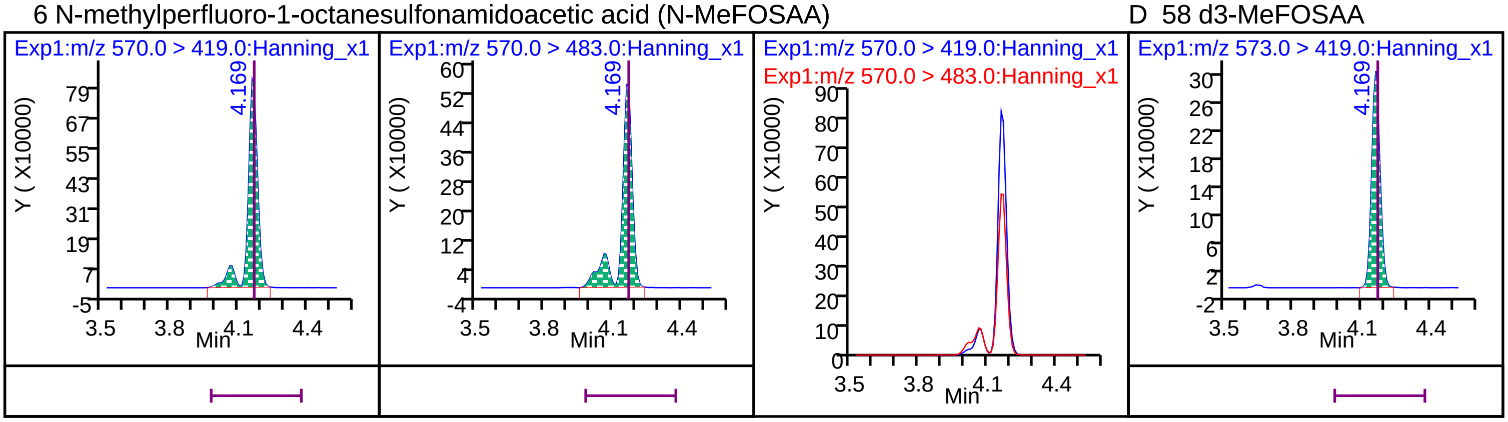
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

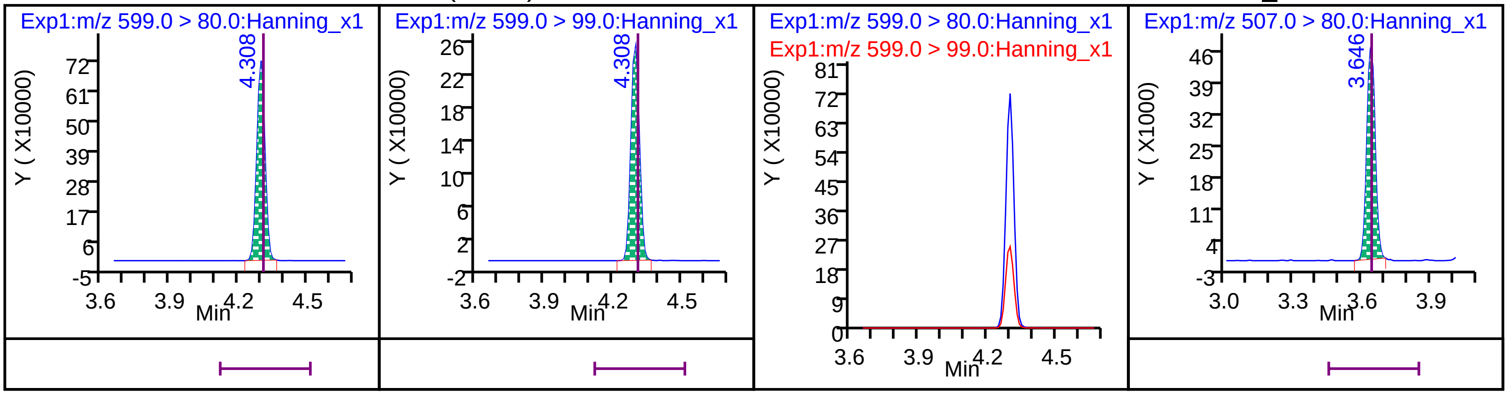


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

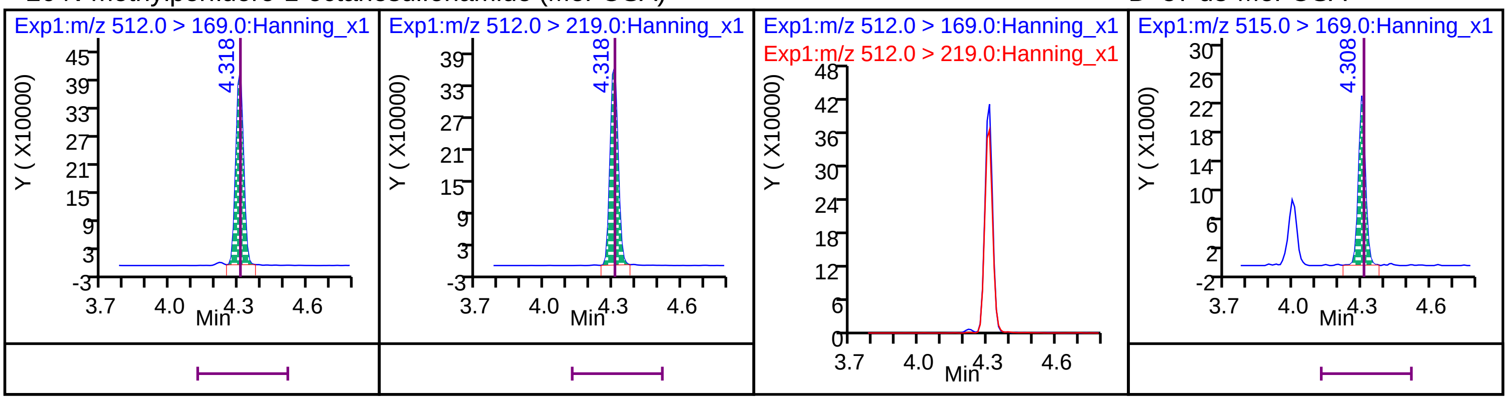


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

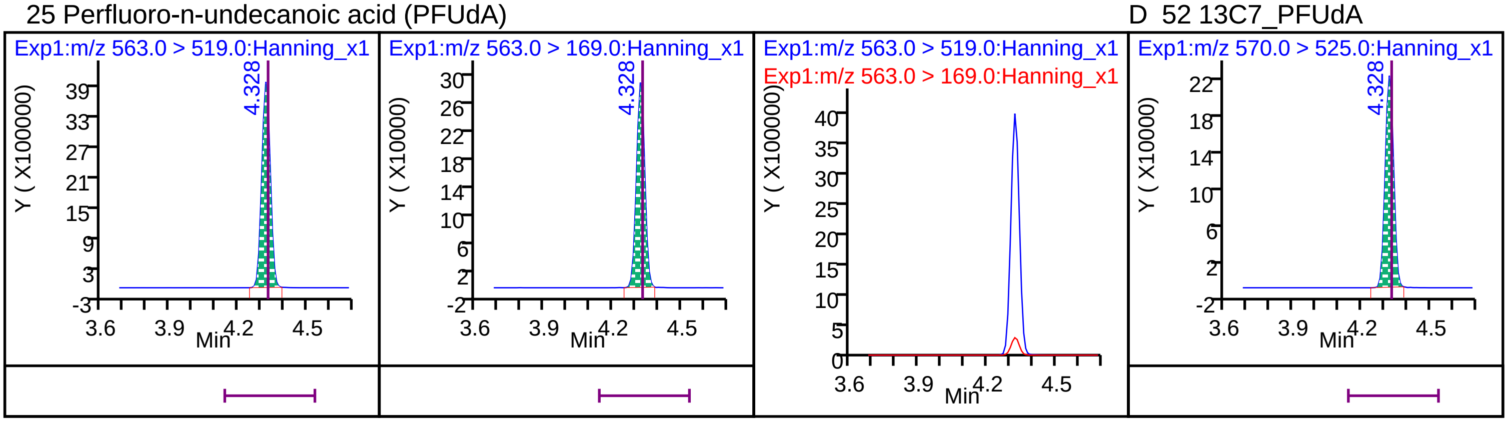
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



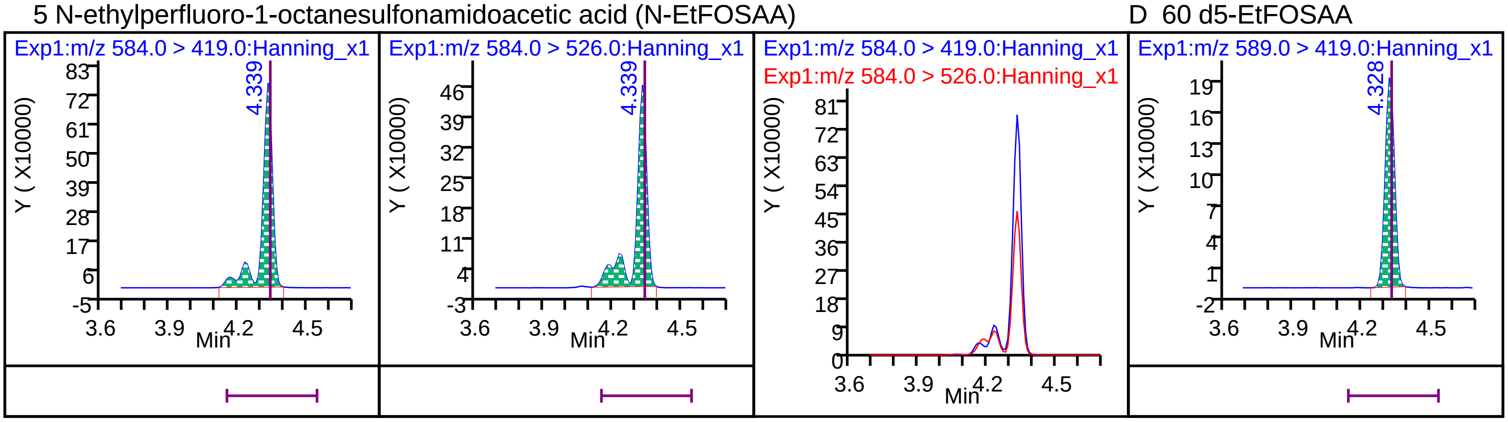
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



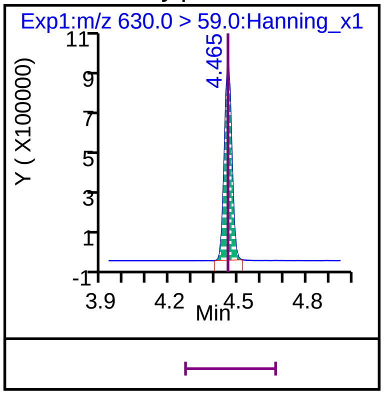
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



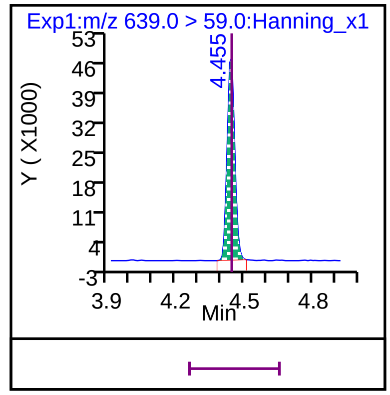
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



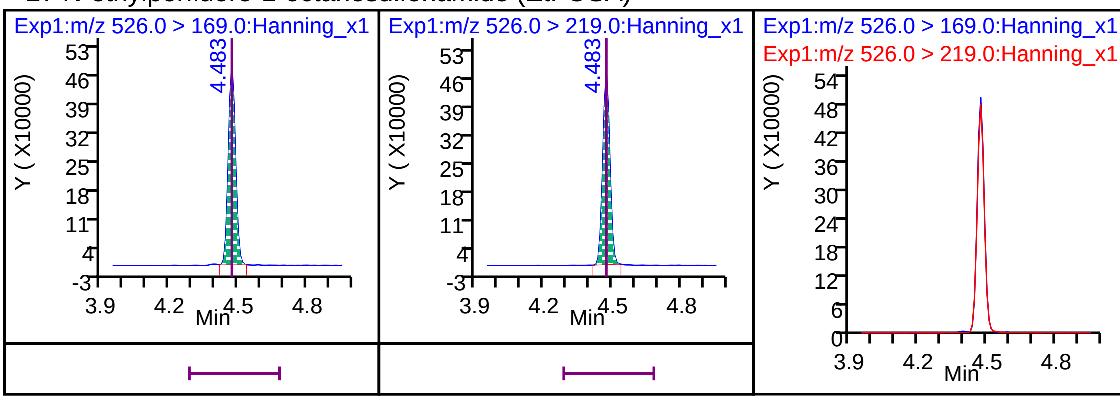
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



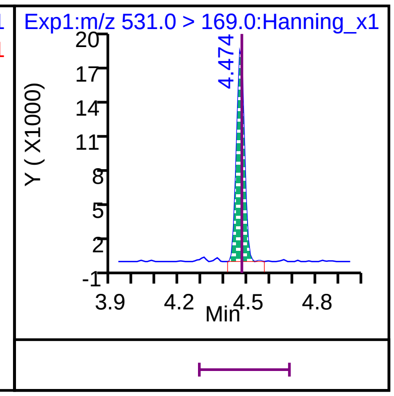
D 62 d9-EtFOSE



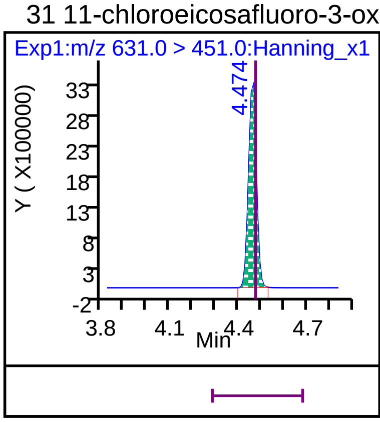
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



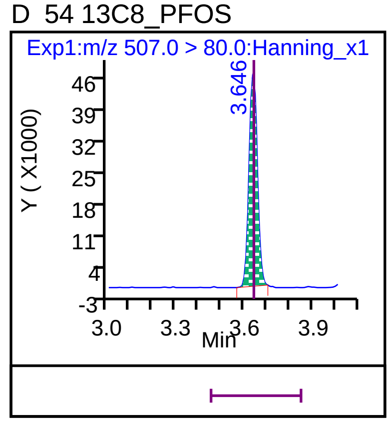
D 59 d5-EtFOSA



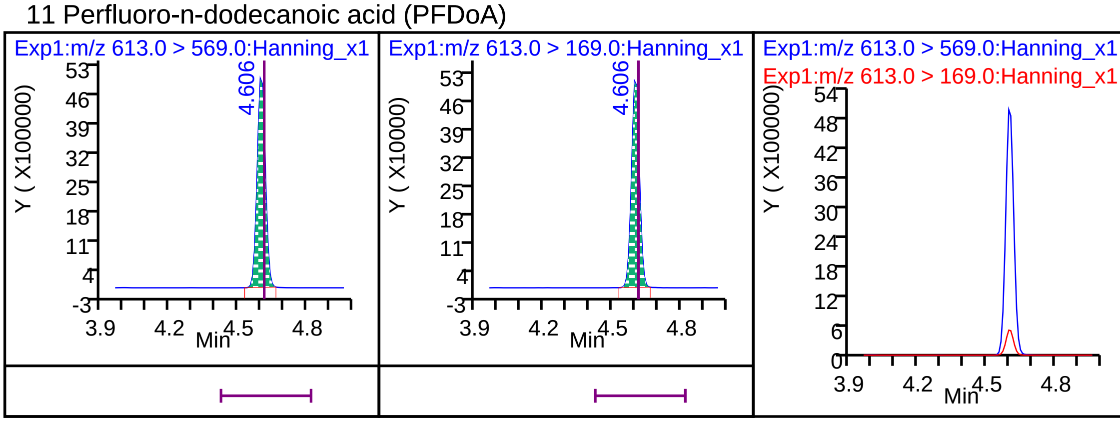
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



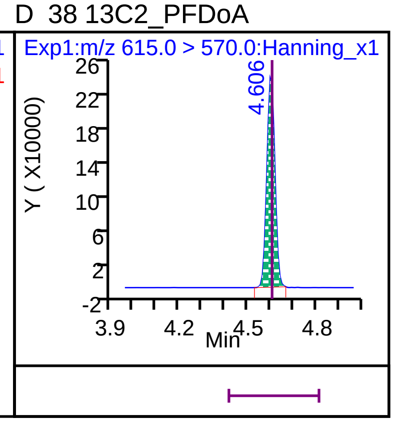
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)

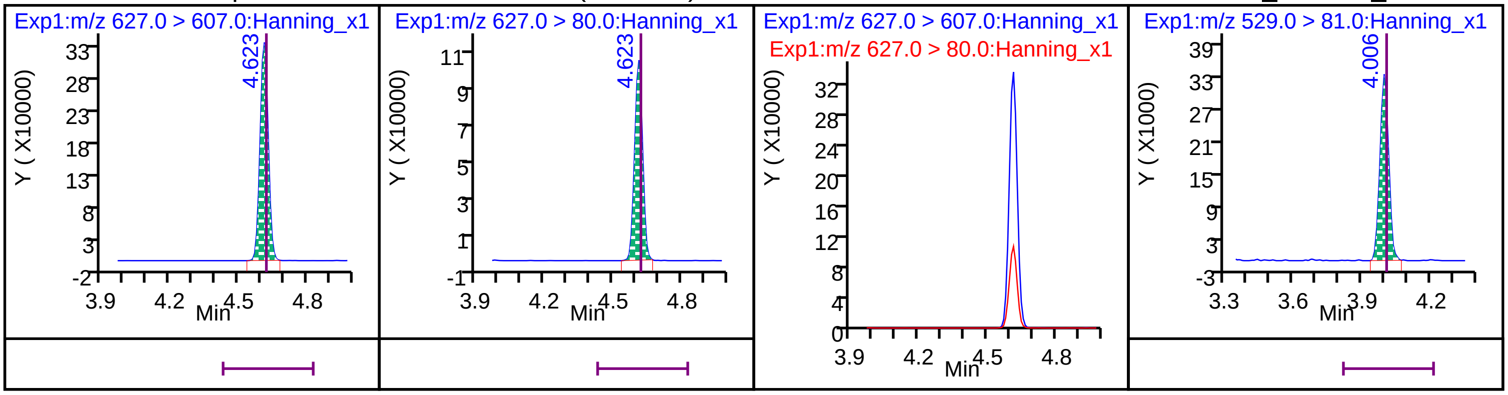


D 38 13C2_PFDoA

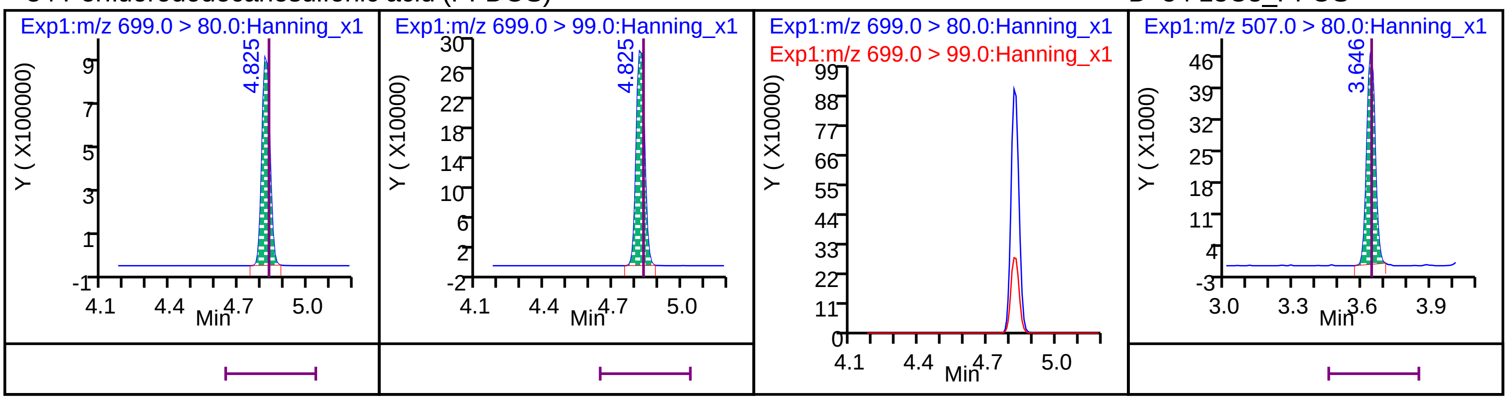


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

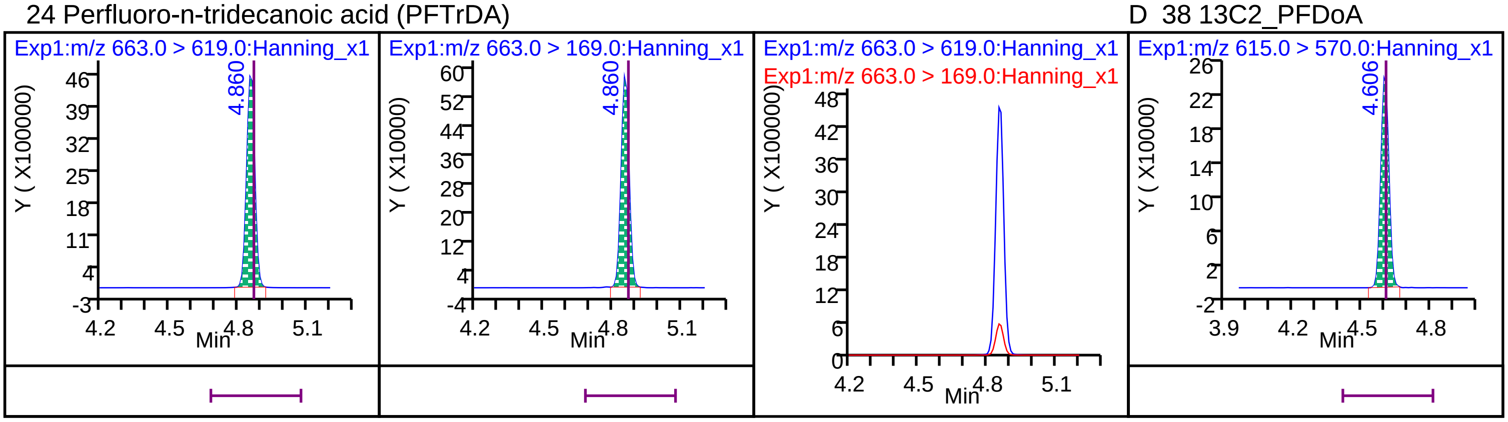
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



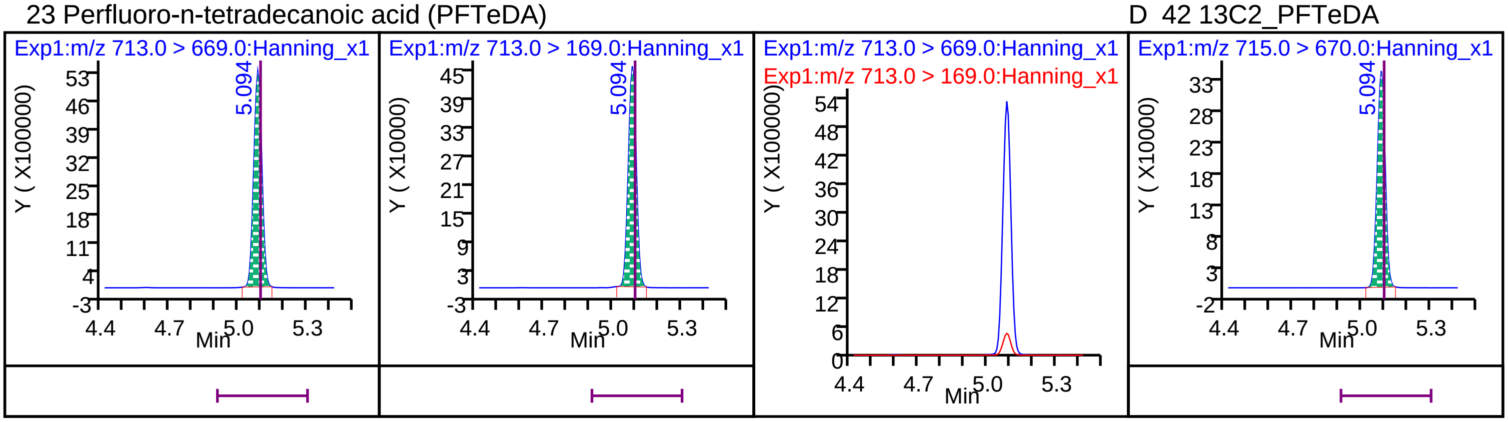
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

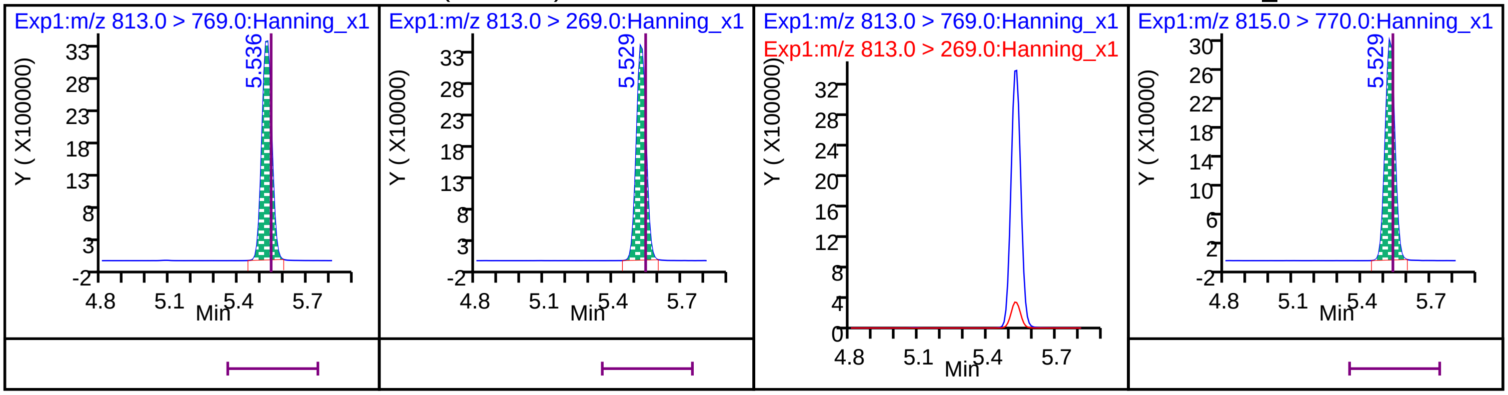


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

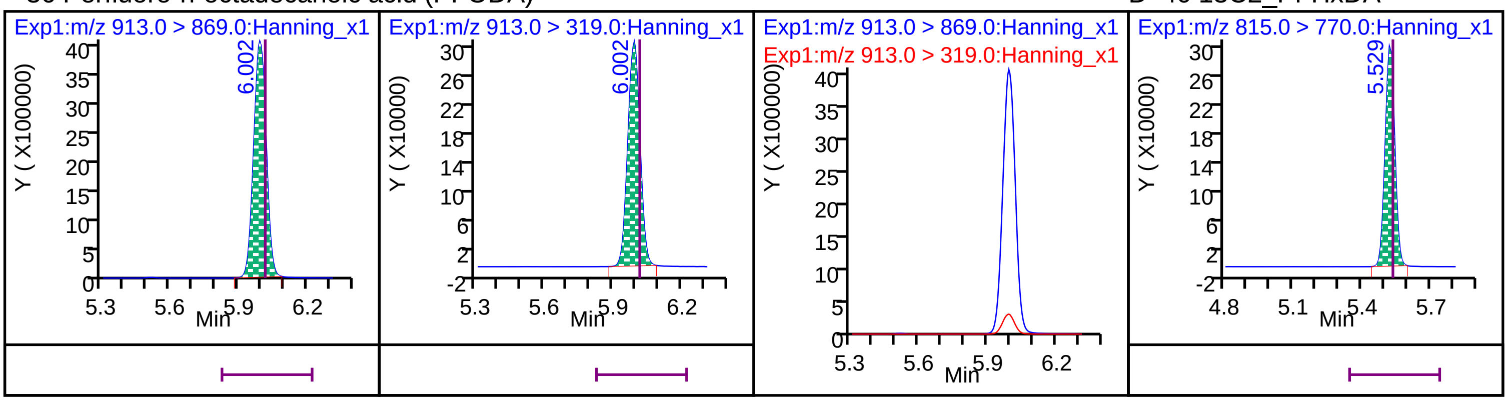


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

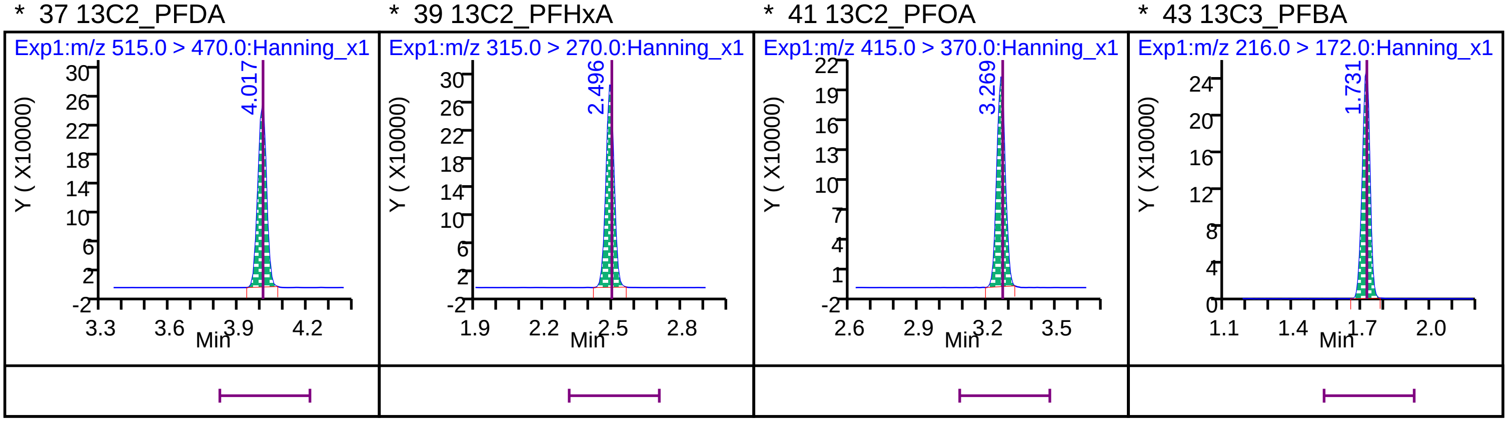
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



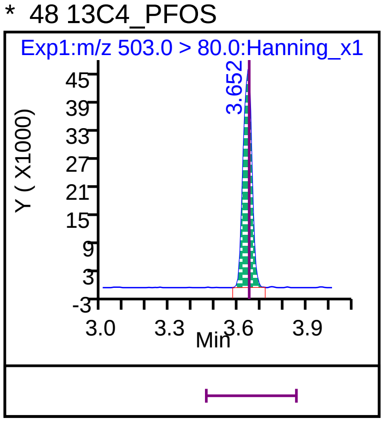
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

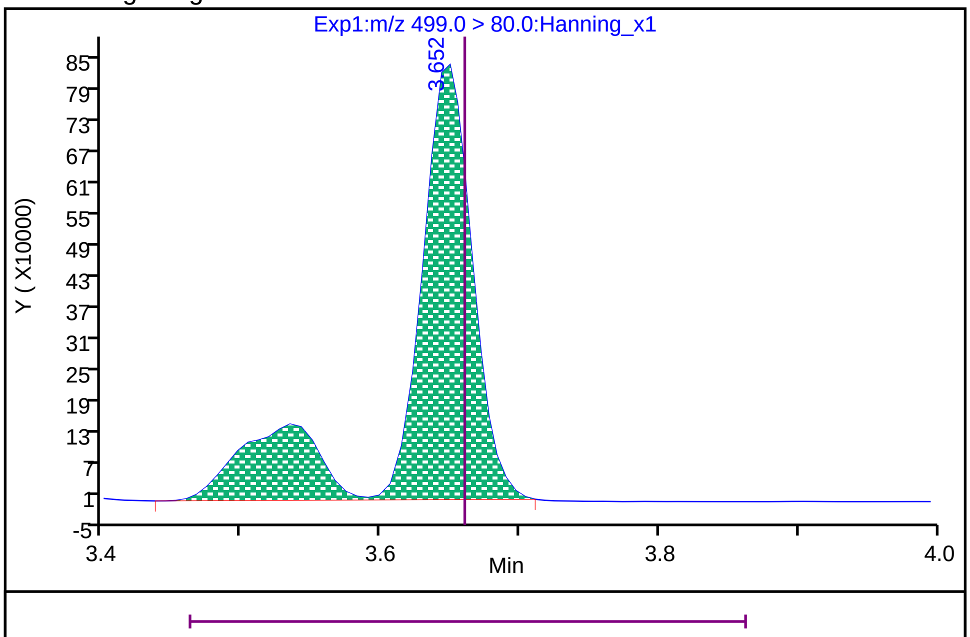
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 20000_SVLC-1749
Sample Info:	ID ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin

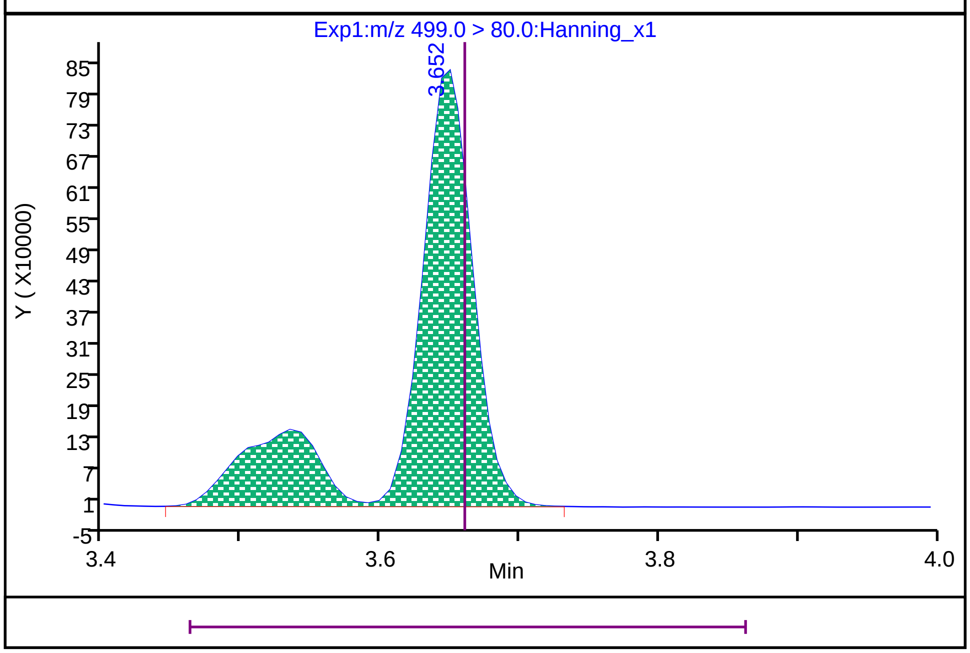
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.652
Area: 2617566
Amount: 18679
Amount Units: ng/L



RT: 3.652
Area: 2656667
Amount: 19072
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:46

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d		
Injection Date:	07-Nov-2021 20:32:59	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	85
Lab Sample ID:	ID IBLK B	Lab Prep. Batch:	
Sample Info:	ID IBLK B	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.731	0	780616	21	>100:1			1001.00	1255.67	122.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.722	1.731	0/0	3055	14	0.928:1			3.7146	3.7146		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.125	2.130	0	735038	15	>100:1			1001.00	1285.95	126.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.130		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.183	0	216130	16	>100:1			1001.00	1249.53	121.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.183	0/0	641	12	5.4:1	Target = 3.53		2.3807	2.3807		
298.9 > 99	44	2.178	2.183		240	6	3.7:1	2.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.531		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.460	0	132043	16	>100:1			5005.00	5831.33	117.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.460		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.505	0	785191	17	>100:1			1001.00	1205.60	118.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.505		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.622	0	1311060	18	>100:1			5005.00	5657.06	108.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.880	0	641002	17	>100:1			1001.00	1207.30	120.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.853	2.880	-1/-1	2609	13	2.0:1	Target = 3.80		3.7078	3.7078		
363 > 169	47	2.871	2.880		954	18	9.2:1	2.73 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	155014	17	>100:1			1001.00	1233.80	119.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.919		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.259	3.276	0/0	240	11	3.8:1	Target = 3.12		1.5090	1.5090		
449 > 99	45	3.252	3.276		178	10	2.9:1	1.34 (1.56-4.68)					J

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.238	3.248	0	107261	20	>100:1			5005.00	5958.96	114.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.276	0	650366	22	>100:1			1001.00	1239.56	118.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.643	3.651	0	139409	19	>100:1			1001.00	1125.69	105.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.636	3.662	-1/-1	676	80		Target = 3.30	1.80	4.0766	4.0766		
499 > 99	54	3.649	3.662		748	92		0.90 (1.65-4.95)	2.95				J
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.859	3.863	0/0	1227	12	5.9:1			2.3264	2.3264		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.006		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.318		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.450	4.483	-1/-1	931	17	6.3:1			1.9526	1.9526		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.848	4.842	1/1	698	17		Target = 3.27		5.8285	5.8285		
699 > 99	54	4.848	4.842		62	14		11.25 (1.63-4.90)					J
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.654	3.662	0	783085	23	>100:1			1001.00	1222.85	122.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.660	3.662	0/0	1941	12	2.5:1	Target = 6.51		2.3019	2.3019		
463 > 169	56	3.654	3.662		271	12	3.6:1	7.16 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.892	3.896	0	282066	18	>100:1			1001.00	1052.26	105.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.896		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.011	4.016	0	726359	16	>100:1			1001.00	1263.98	126.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.022	4.016	1/1	2915	11	6.1:1	Target = 13.80		3.4519	3.4519		
513 > 169	51	4.022	4.016		247	15	3.0:1	11.80 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.001	4.016	0	108576	23	>100:1			5005.00	6281.70	137.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.016		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.631		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.173	4.178	0	824461	17	>100:1			5005.00	5455.94	106.7	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.173	4.178	0/0	1980	74		Target = 1.37	1.40	14.979	14.979		
570 > 483	58	4.164	4.178		695	15		2.84 (0.68-2.05)					J
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.292	4.288	1	99477	14	>100:1			1001.00	1102.99	110.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.370	4.298	5/4	420	15	3.0:1			3.8673	3.8673		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.312	4.318	0	54230	16	>100:1			1001.00	1152.82	120.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.302	4.318	0/0	852	13	4.9:1	Target = 1.11		14.509	14.509		
512 > 219	57	4.312	4.318		734	15	7.4:1	1.16 (0.55-1.67)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.332	4.338	0	792415	17	>100:1			5005.00	6118.41	114.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.332	4.348	0/0	2622	59	4.4:1	Target = 1.51	4.87	16.985	16.985		
584 > 526	60	4.312	4.348		1883	85		1.39 (0.75-2.26)	3.57				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.332	4.338	0	770416	15	>100:1			1001.00	1279.23	121.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.342	4.338	1/1	2582	12	4.2:1	Target = 14.52		3.4622	3.4622		
563 > 169	52	4.332	4.338		144	13	1.5:1	17.93 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.450	4.455	0	122749	16	>100:1			1001.00	1157.17	120.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.450	4.464	0/0	676	14	1.6:1			5.6629	5.6629		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.483	0	53229	16	>100:1			1001.00	1237.89	124.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.478	4.483	0/0	1613	22	9.6:1	Target = 1.06		12.272	12.272		
526 > 219	59	4.478	4.483		1674	21	6.4:1	0.96 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.609	4.614	0	736032	16	>100:1			1001.00	1226.03	121.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.622		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.856	4.877	-1/-1	3478	15	10:1	Target = 8.31		4.5002	4.5002		
663 > 169	38	4.856	4.877		177	15	3.3:1	19.64 (4.15-12.47)					J
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.091	5.106	0	985961	21	>100:1			1001.00	1212.76	117.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.085	5.106	-1/-1	4054	15	16:1	Target = 12.17		4.7149	4.7149		
713 > 169	42	5.091	5.106		372	14	5.7:1	10.89 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.544	0	1010915	21	>100:1			1001.00	1164.60	115.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.552	0/0	9385	22	39:1	Target = 10.43		14.510	14.510		
813 > 269	40	5.539	5.552		1082	19	37:1	8.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		6.026		ND								
*** 37 13C2_PFDA**													
515 > 470		4.011	4.016	0	751273	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.495	2.505	0	696038	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.276	0	582163	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.728	1.731	0	634164	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.649	3.657	0	122648	22	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

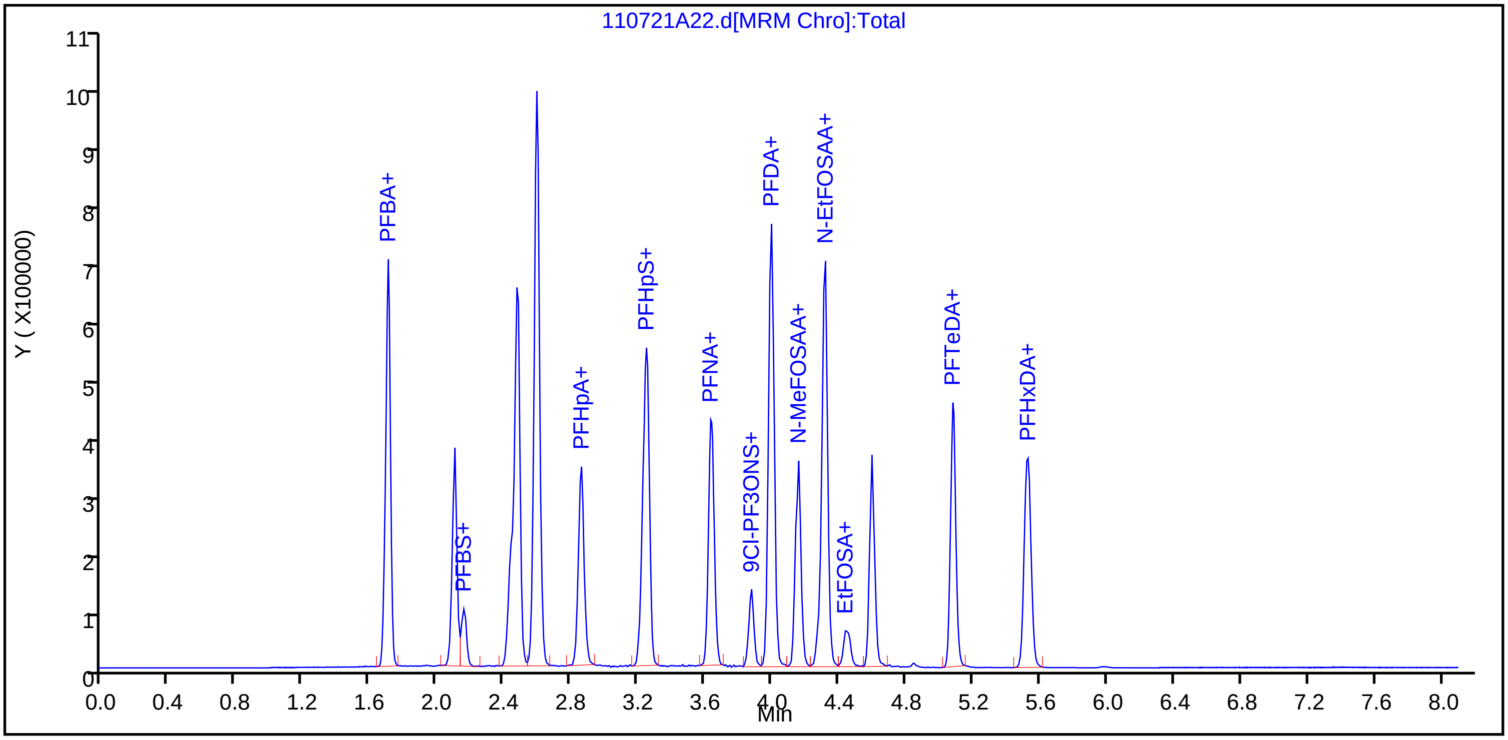
QC Flag Legend

U - Result Less Than Method Detection Limit

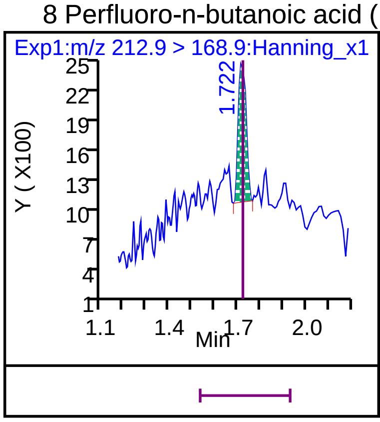
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

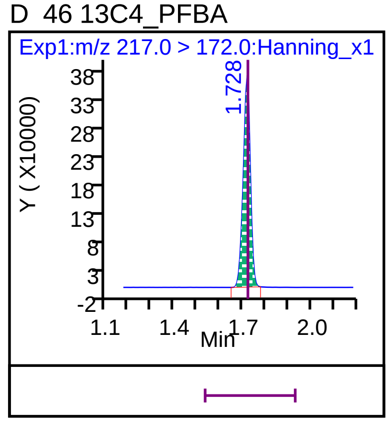
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d		
Injection Date:	07-Nov-2021 20:32:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK B
Sample Info:	ID IBLK B		
Dil. Factor:	1	Operator:	Justin Gavin



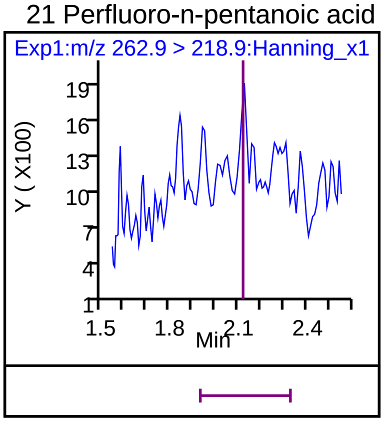
8 Perfluoro-n-butanoic acid (PFBA)



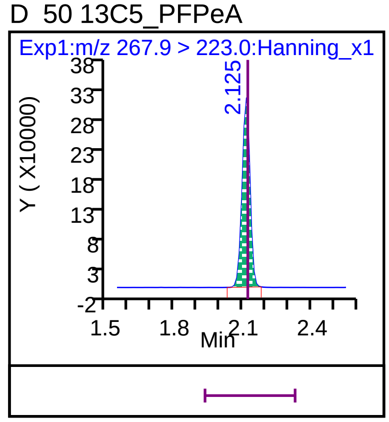
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)

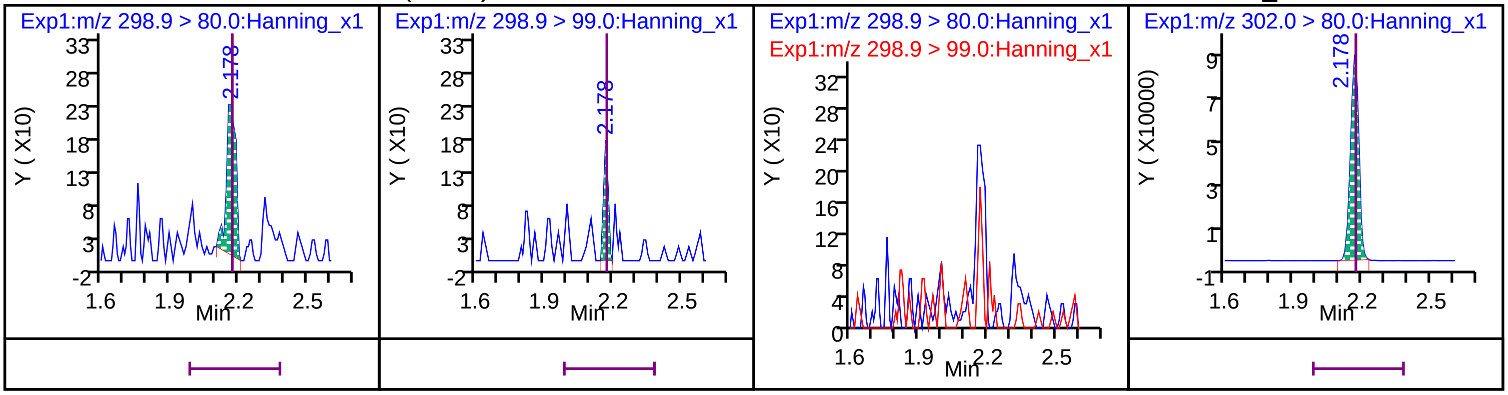


D 50 13C5_PFPeA

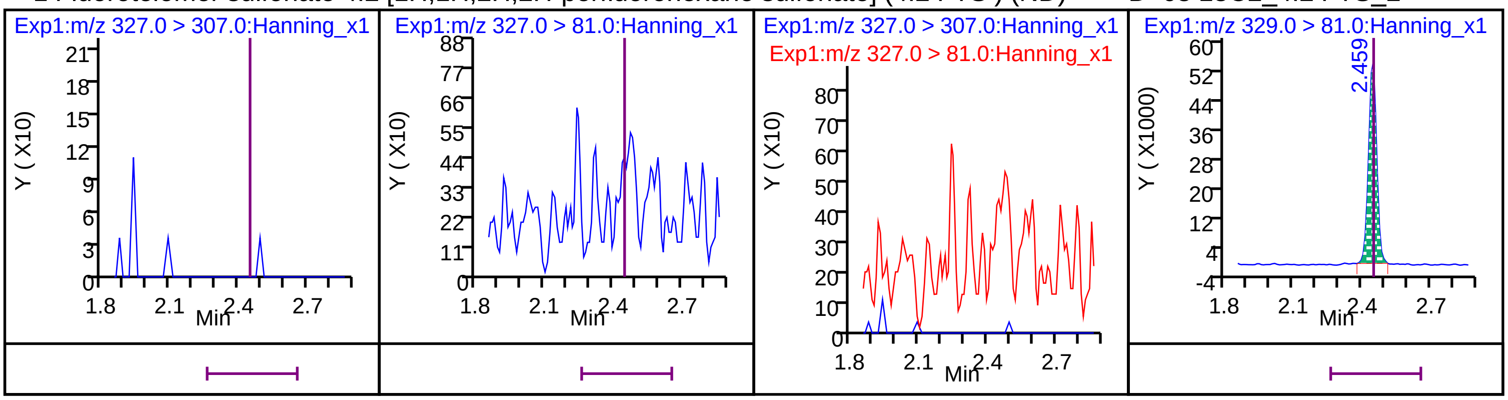


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

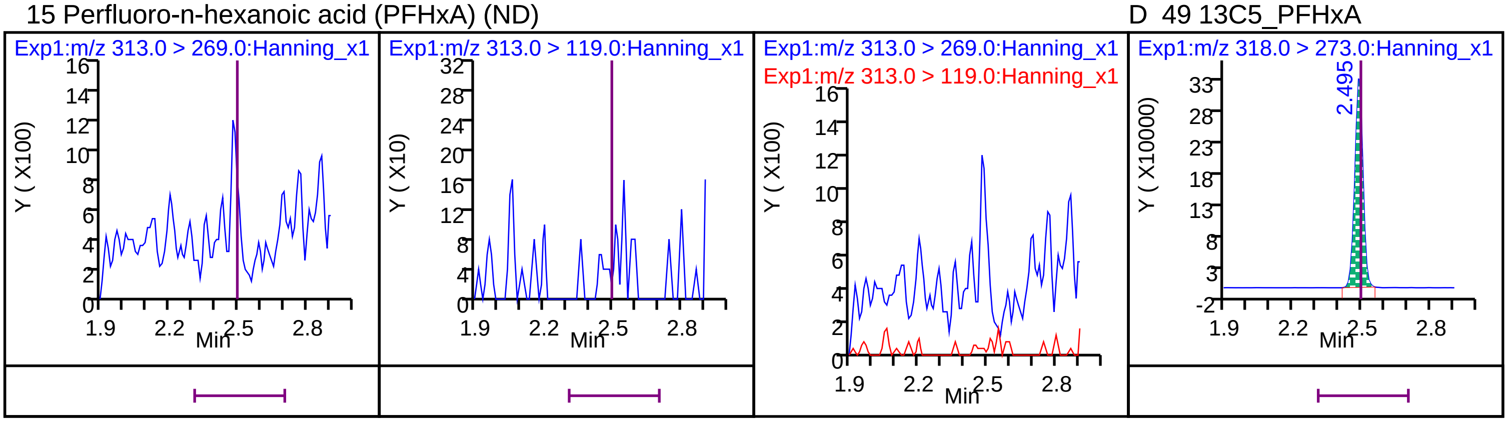
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



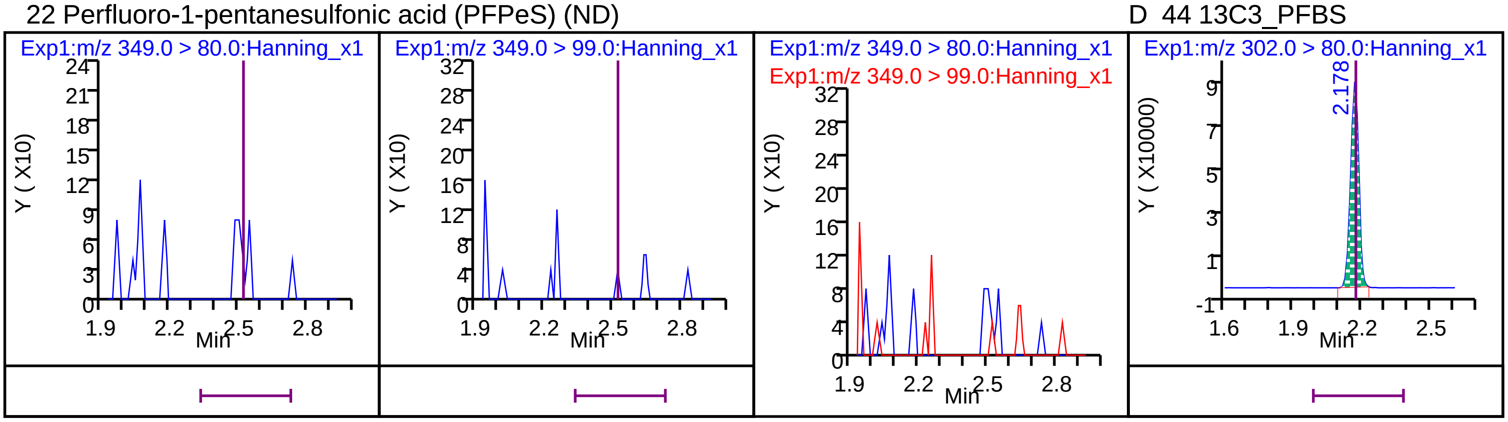
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



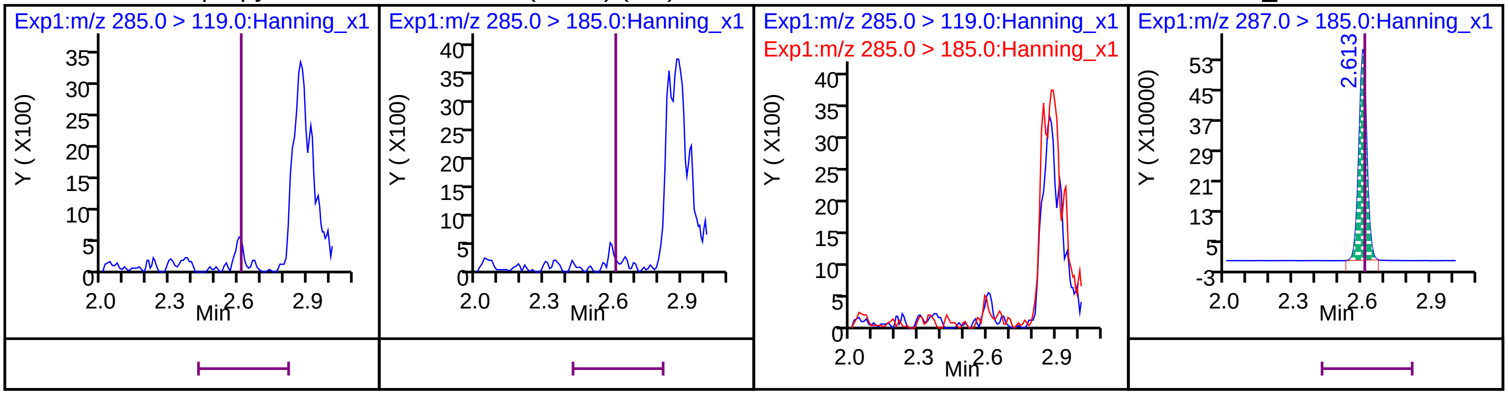
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



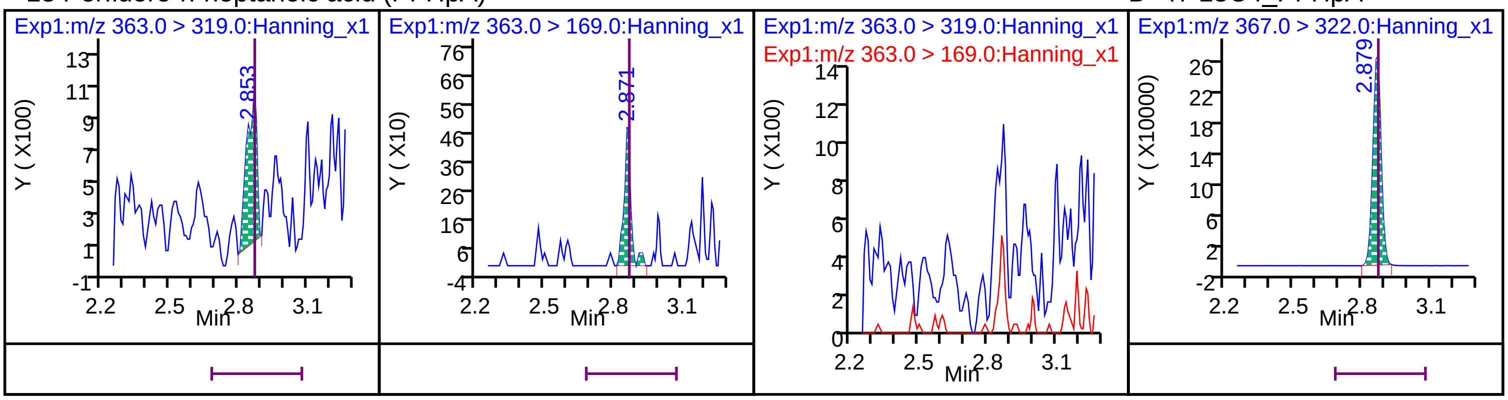
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



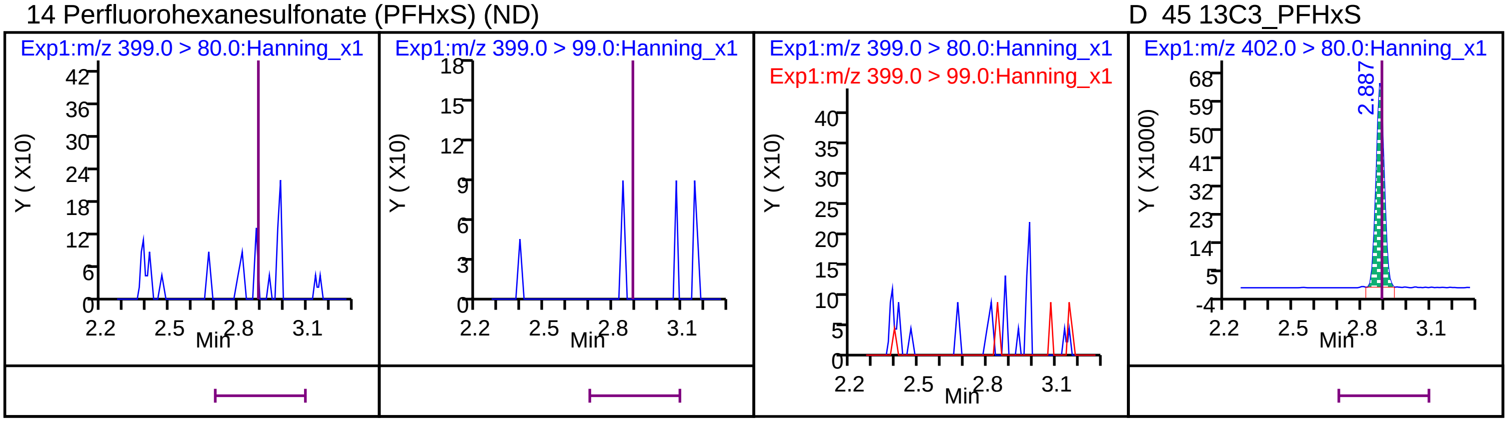
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



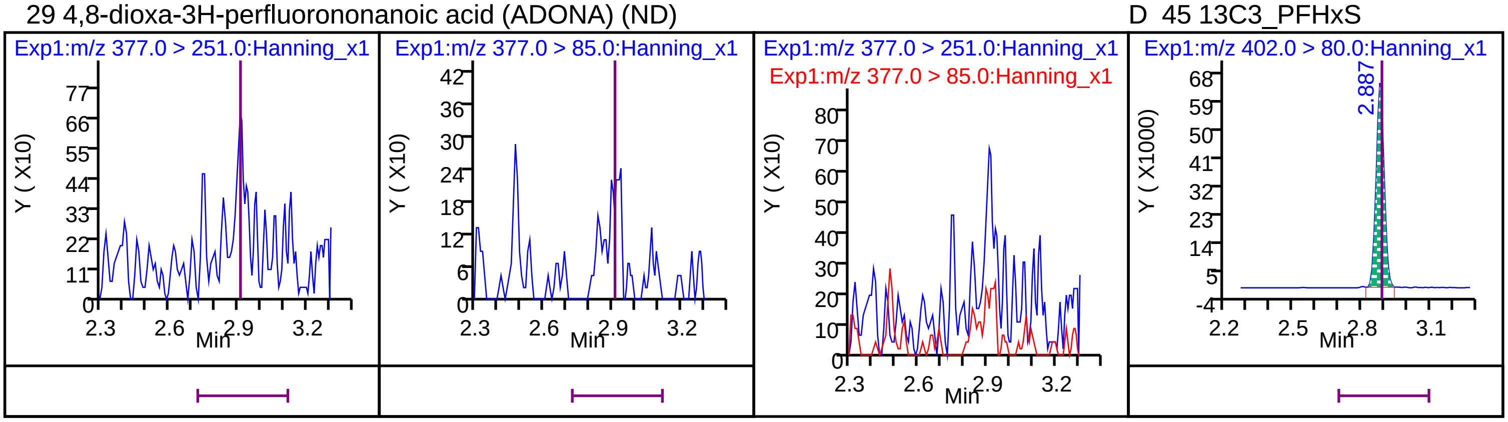
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

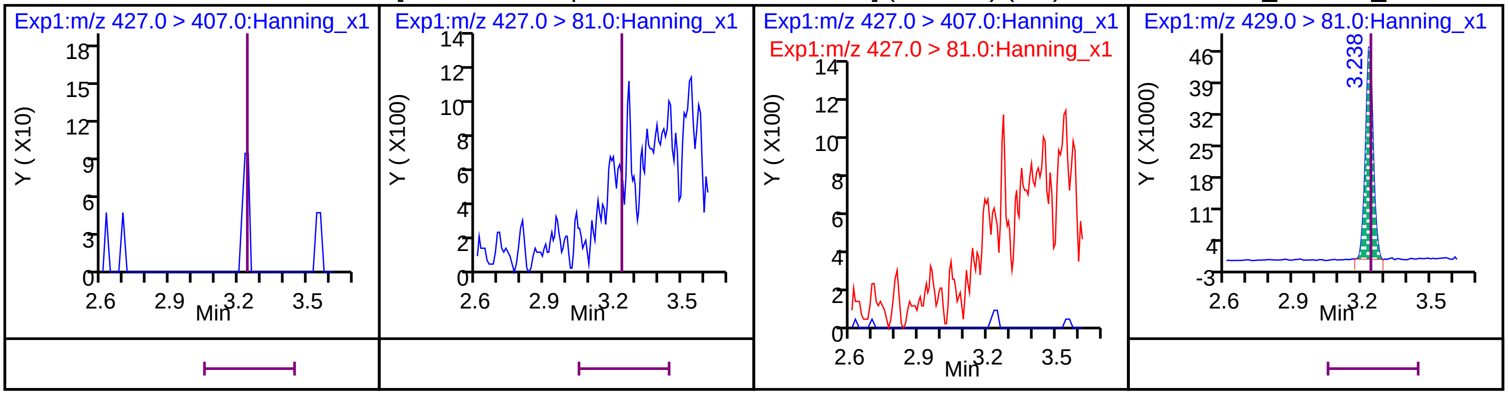


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

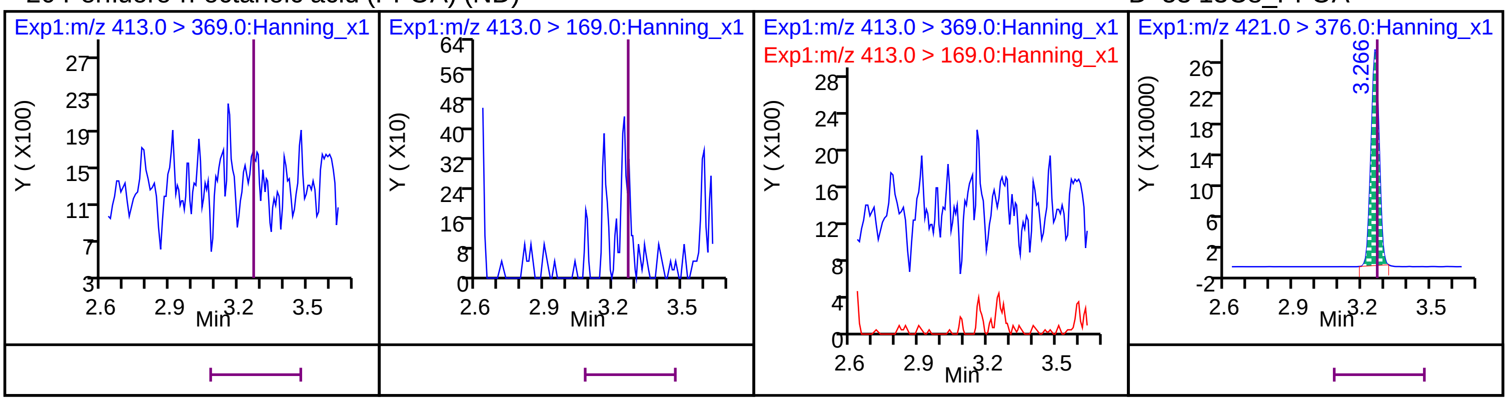


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

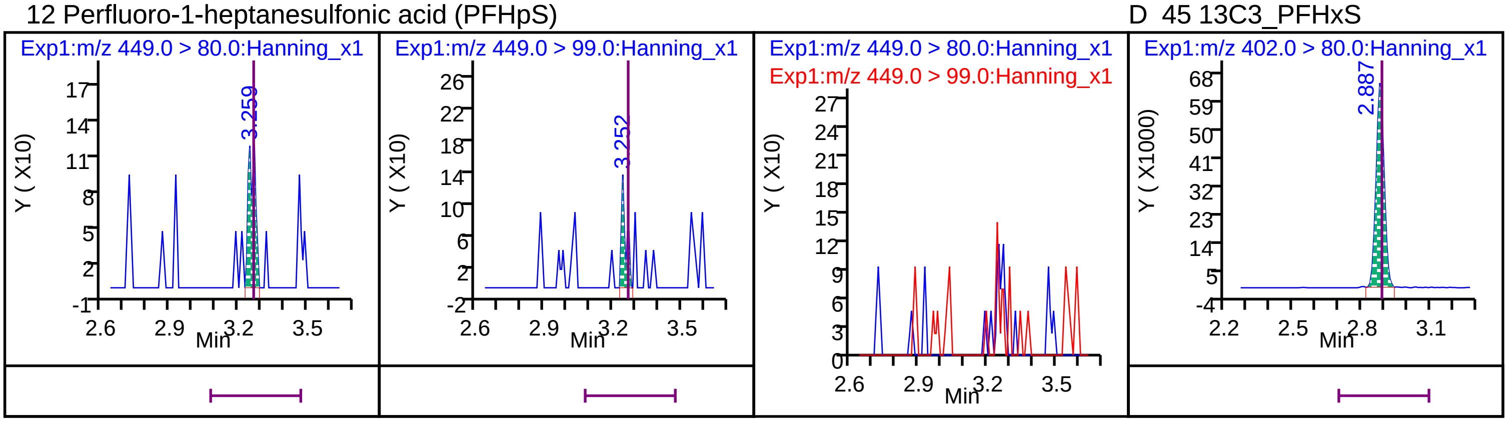
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



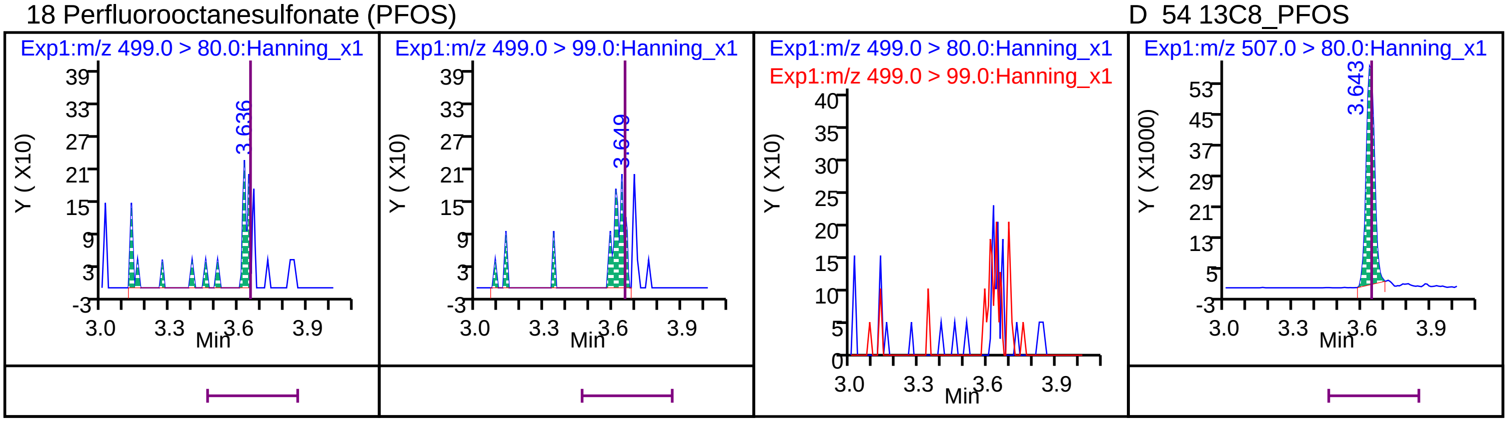
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

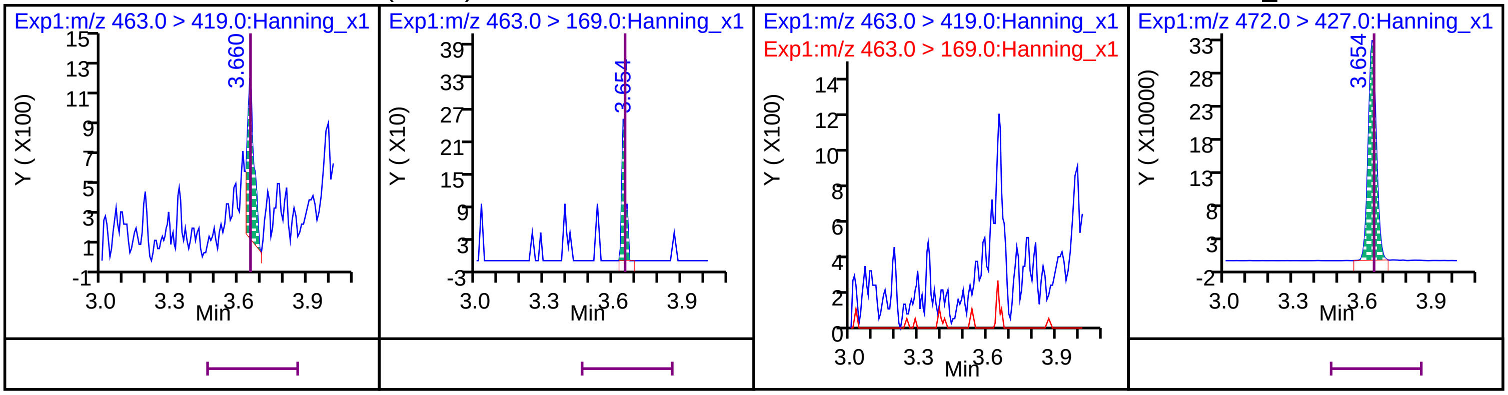


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

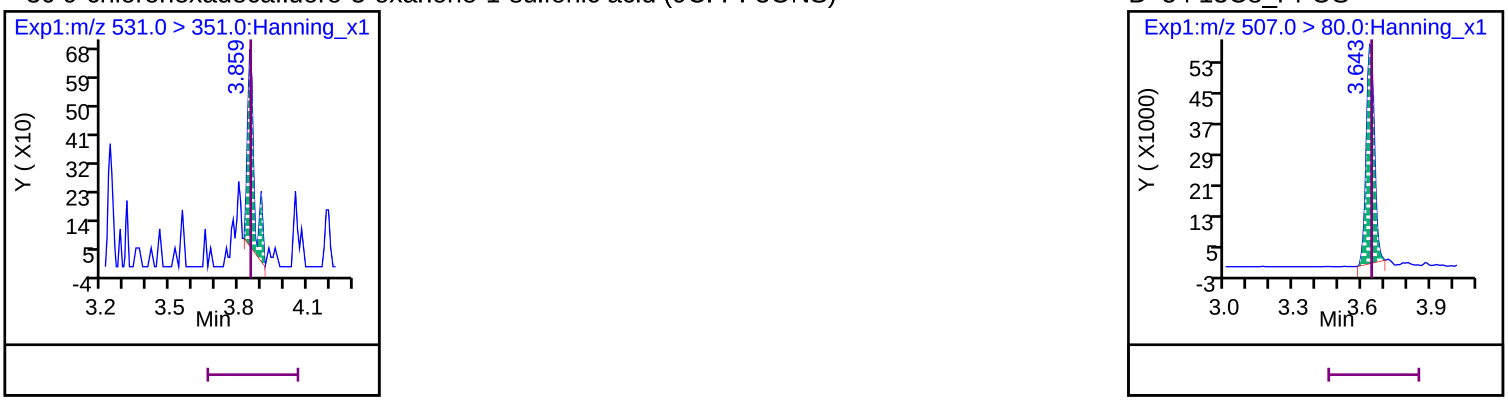


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

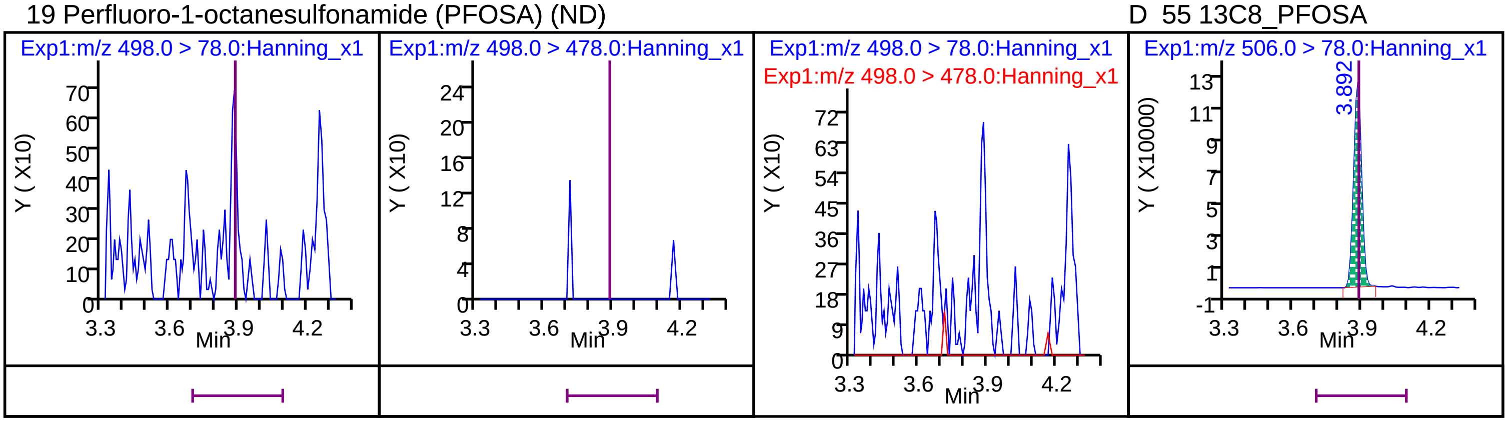
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



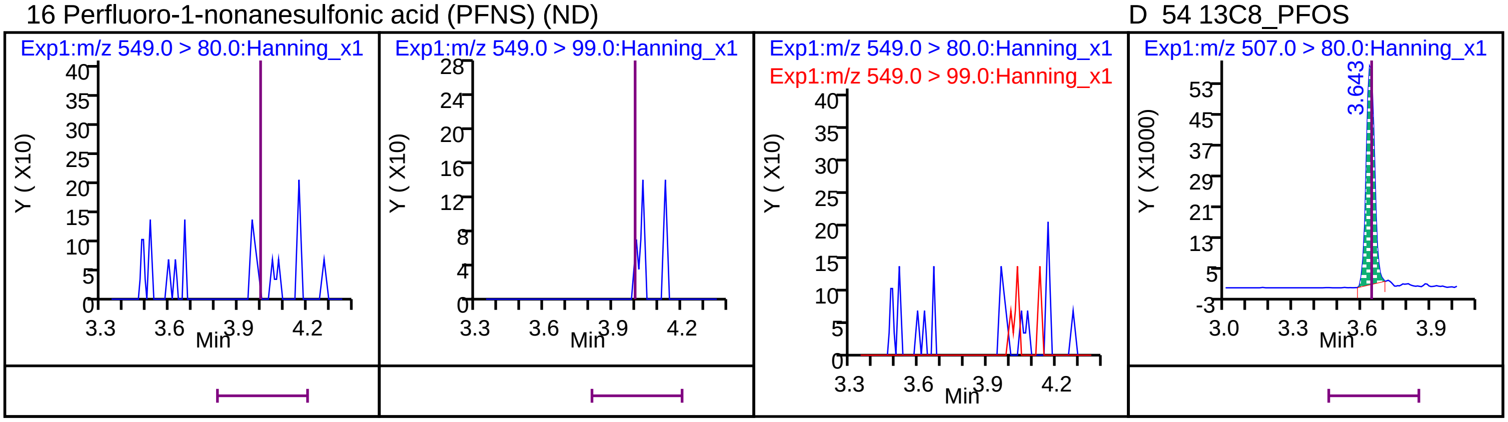
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



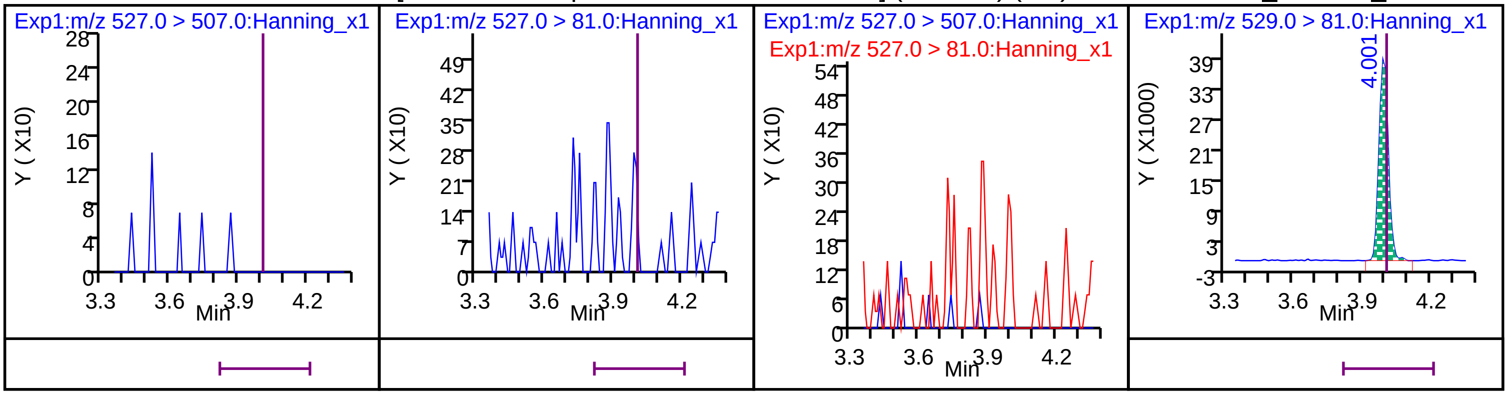
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



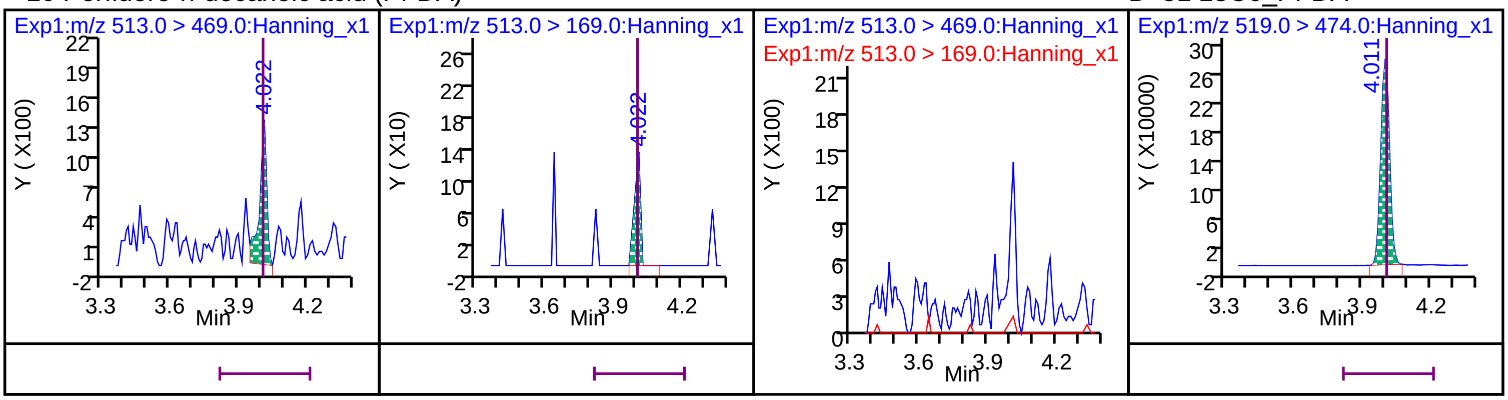
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



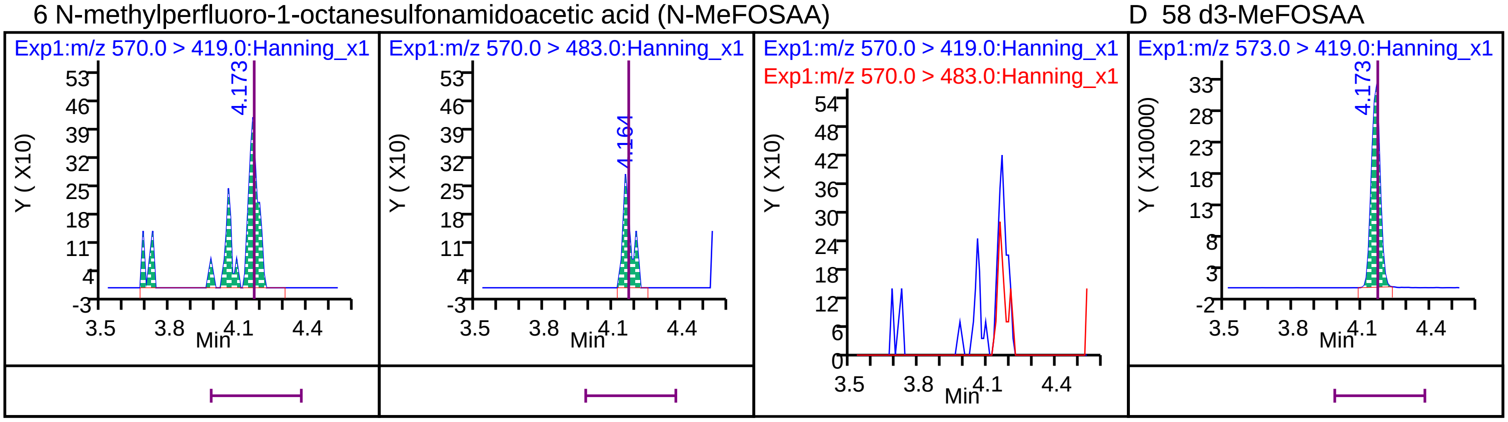
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



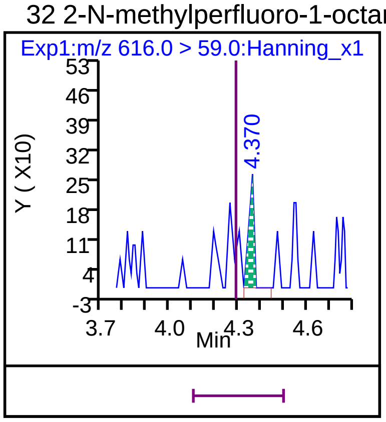
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

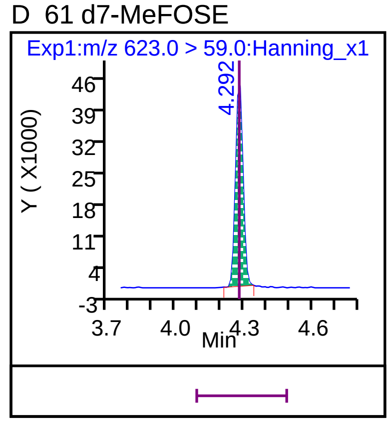


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



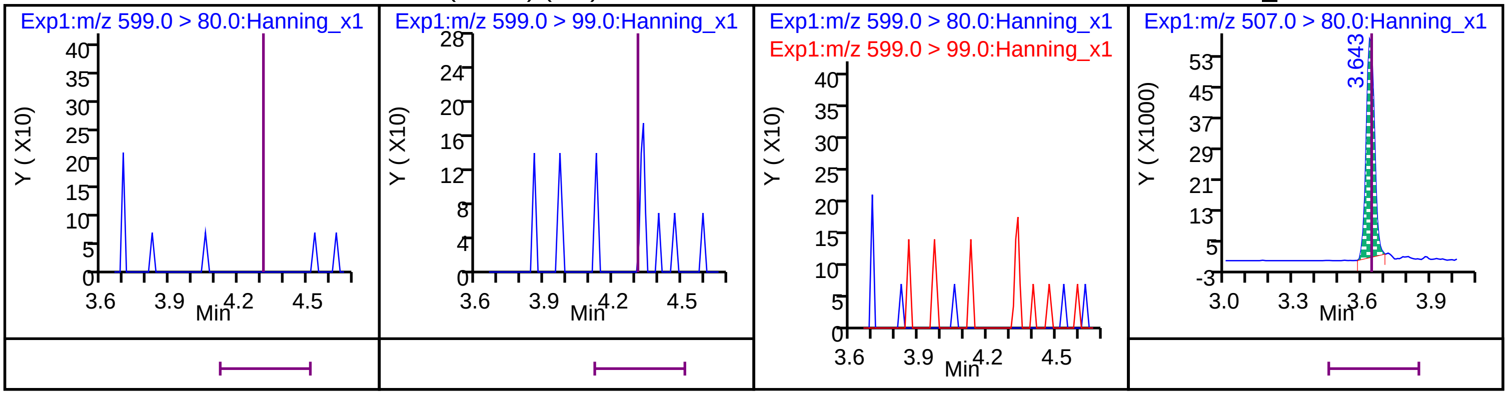
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



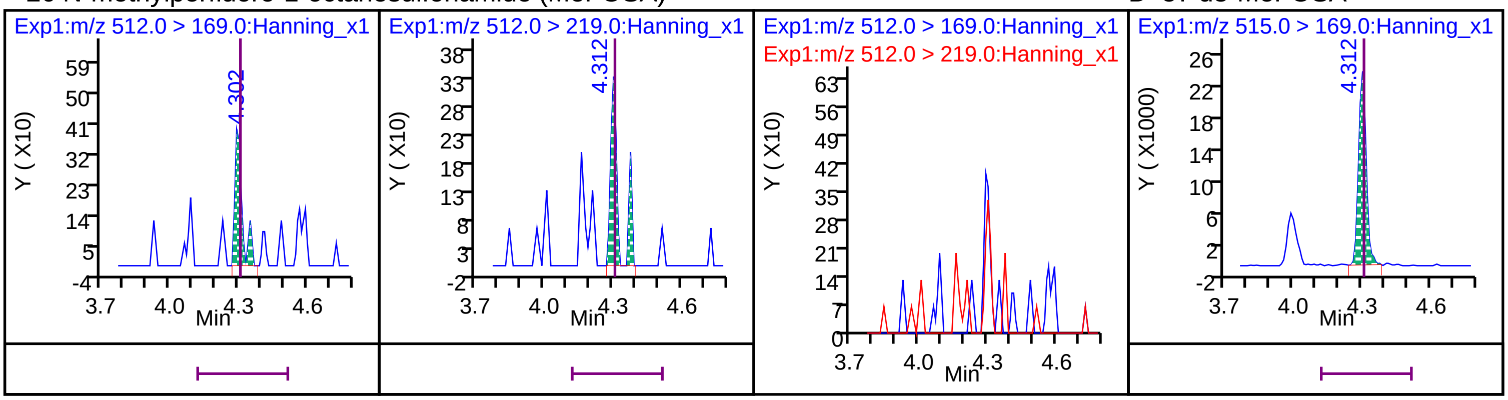


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

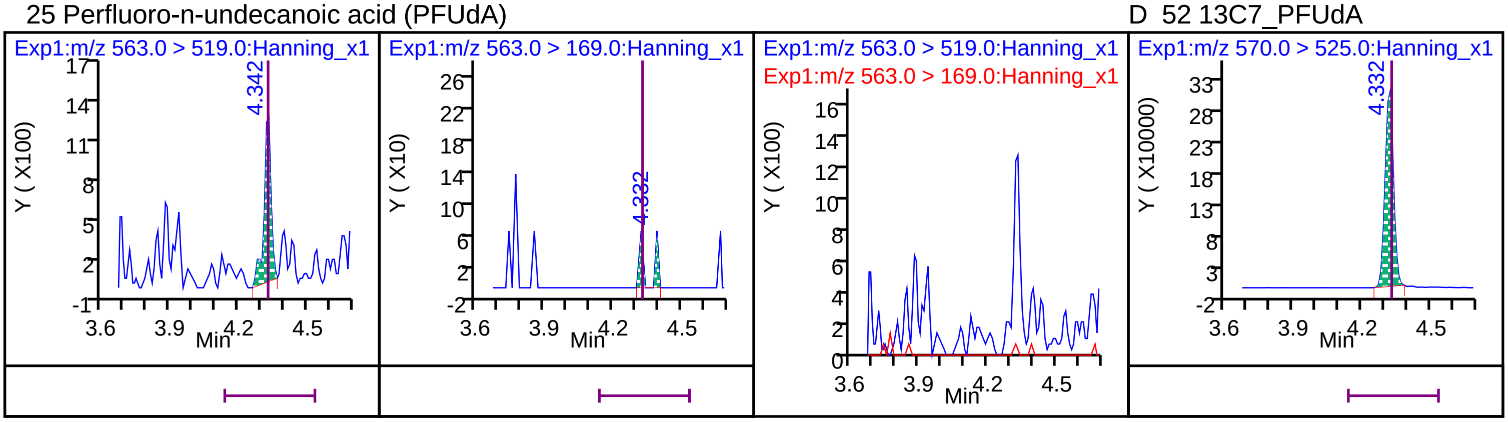
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



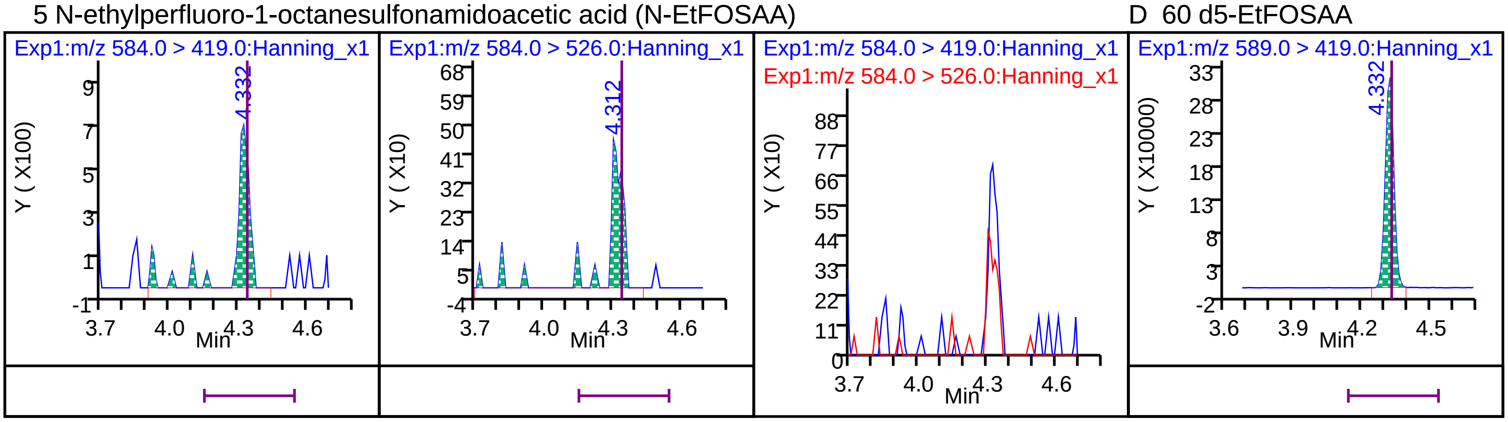
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

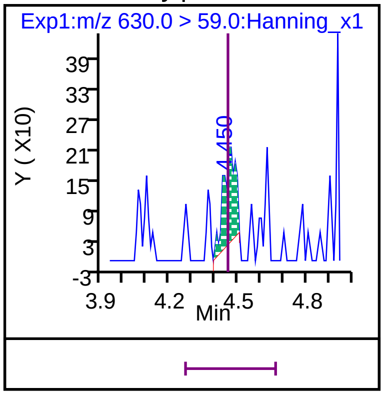


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

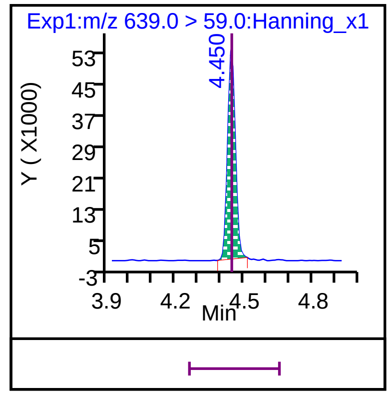


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

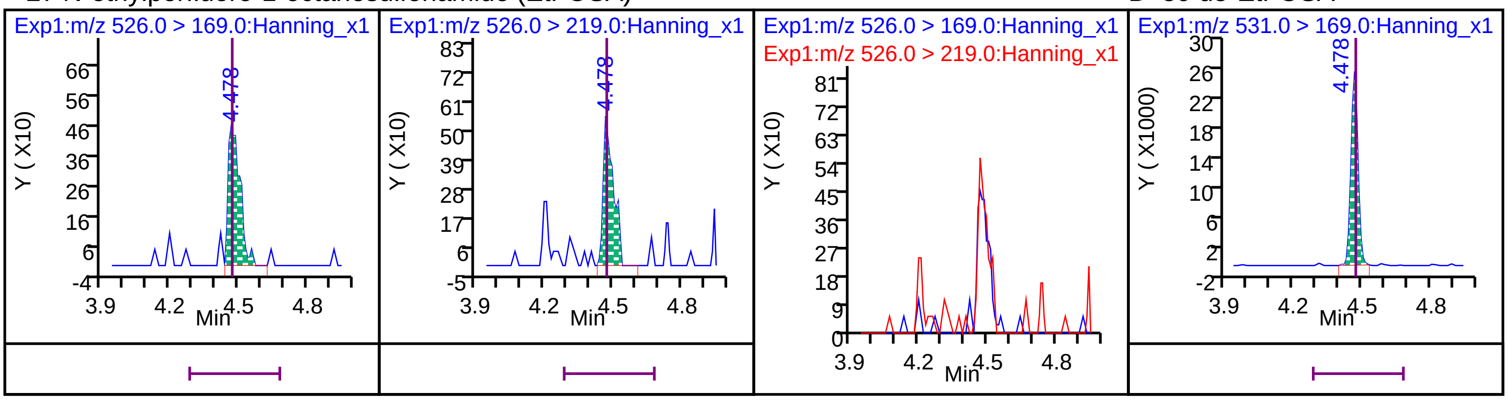


D 62 d9-EtFOSE

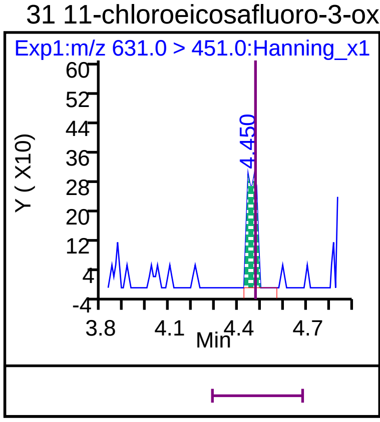


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

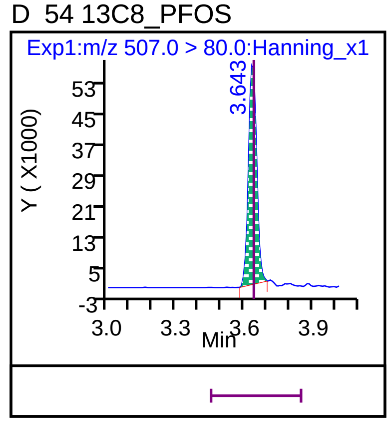
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

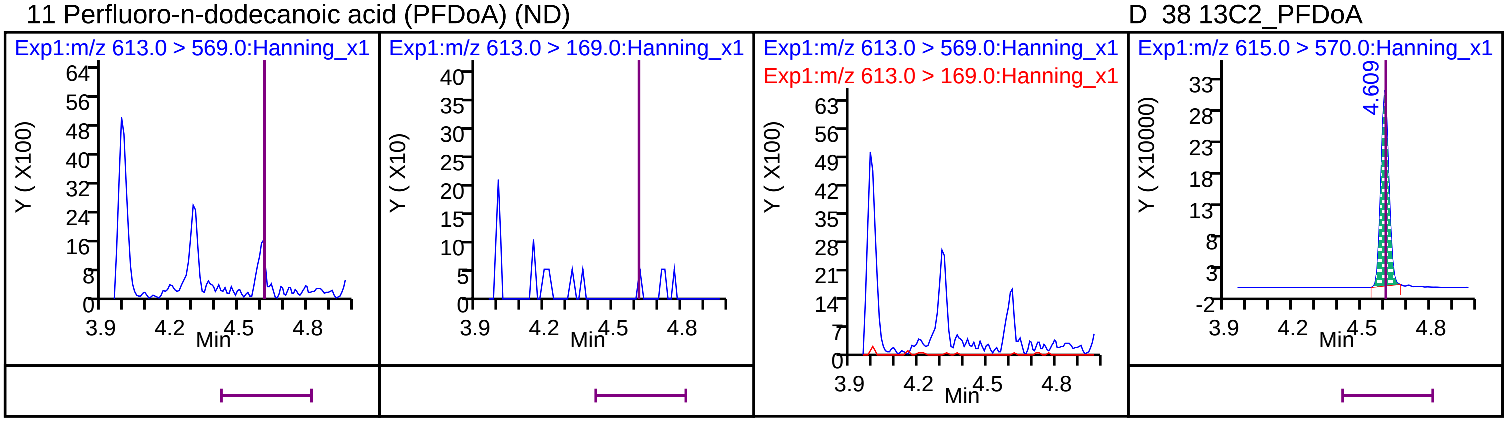


D 54 13C8_PFOS

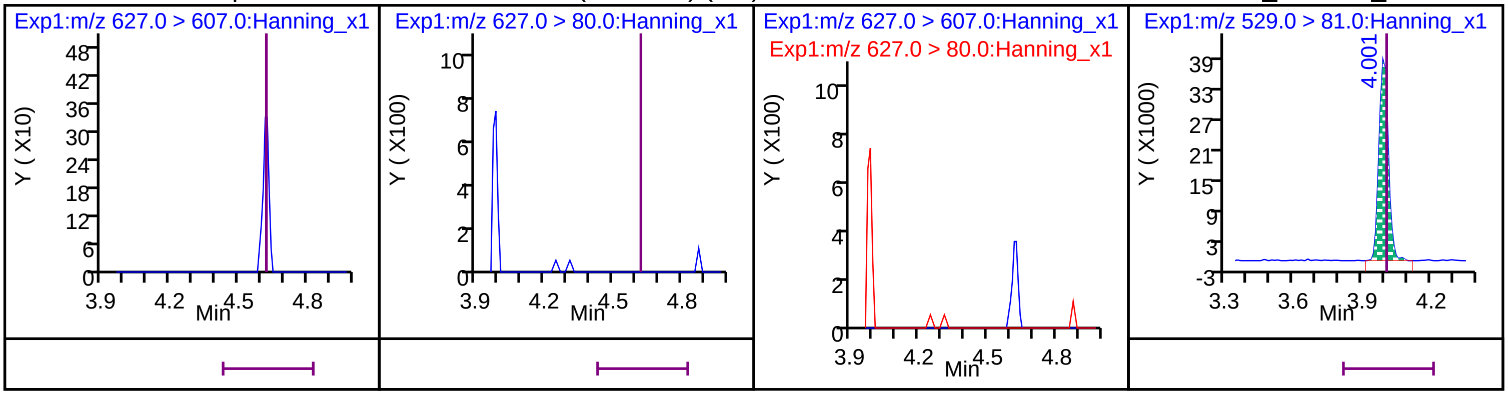


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

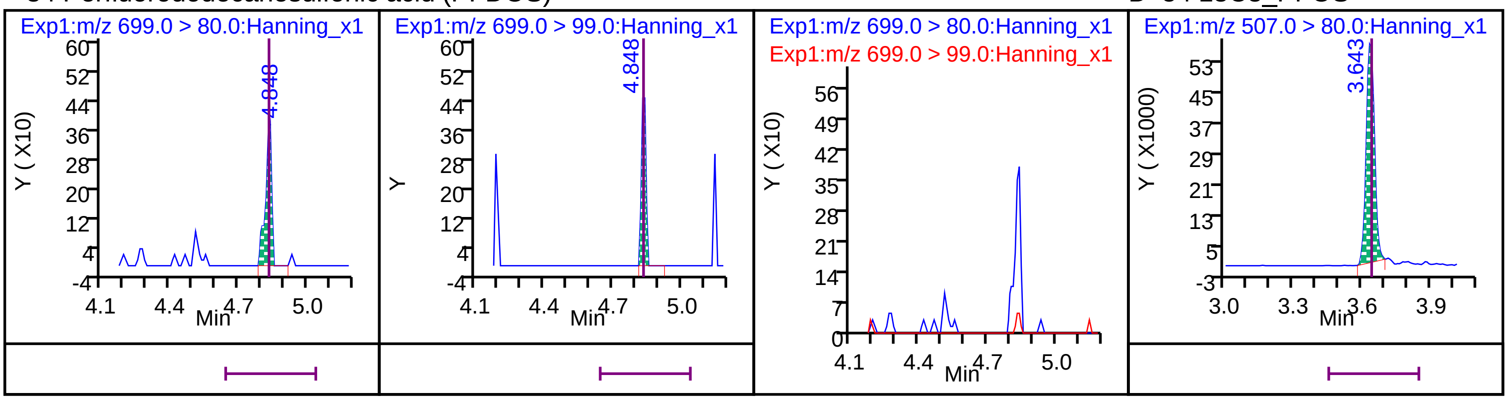
D 38 13C2_PFDoA



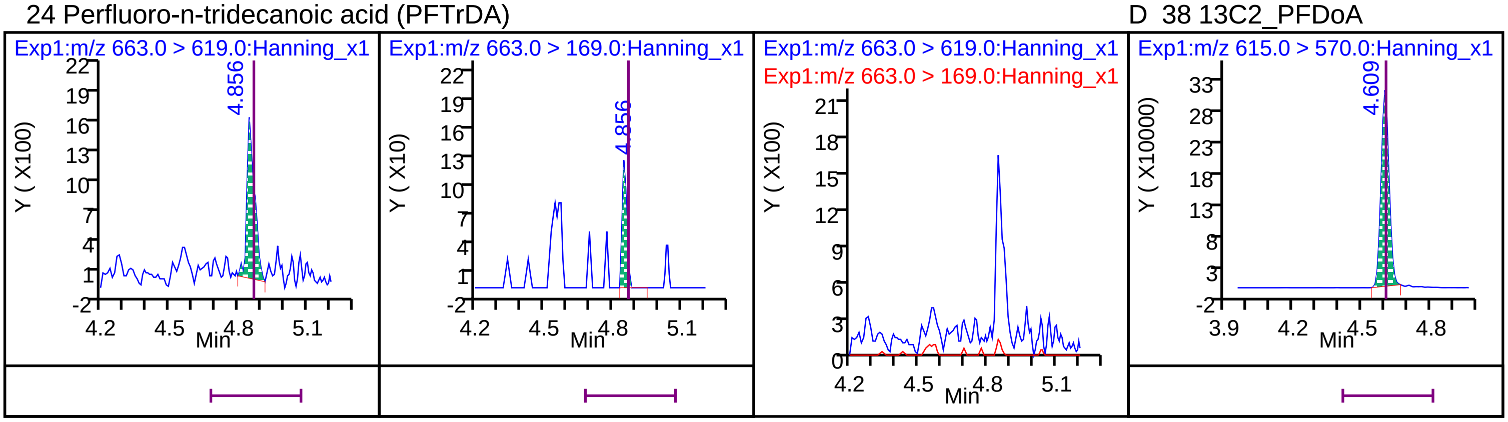
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



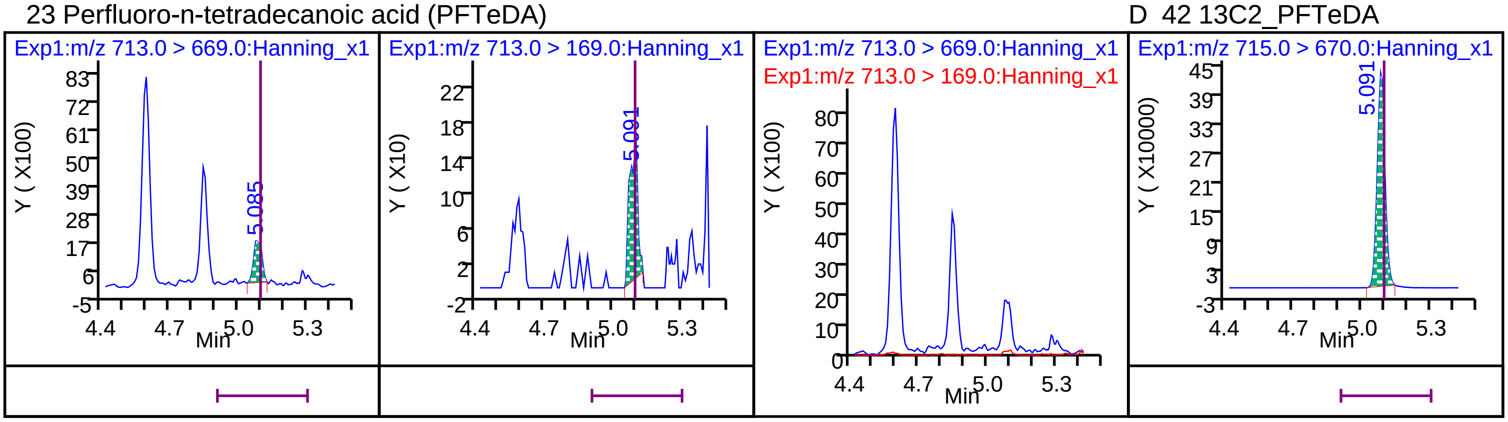
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



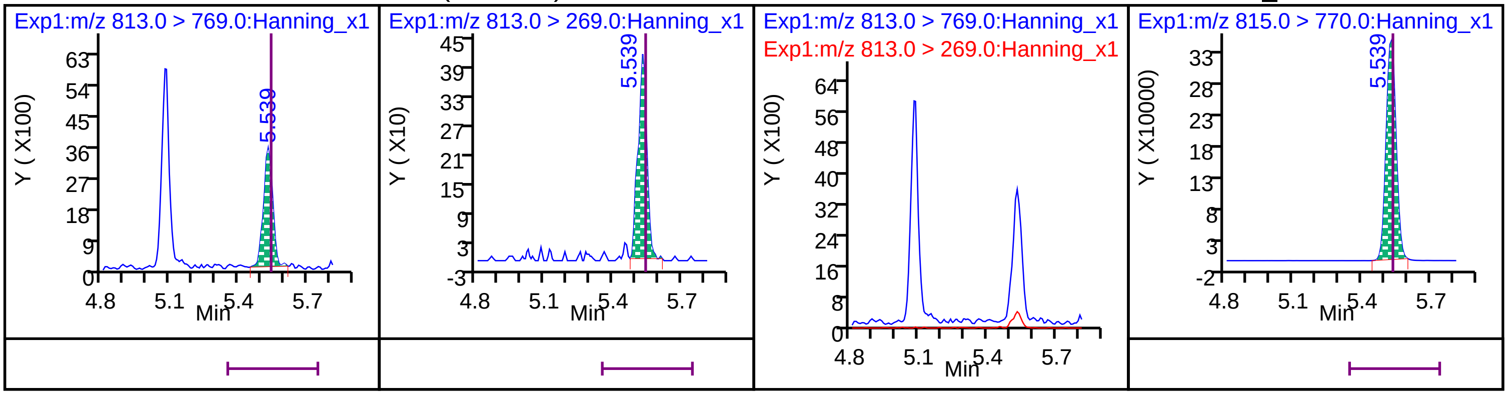
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



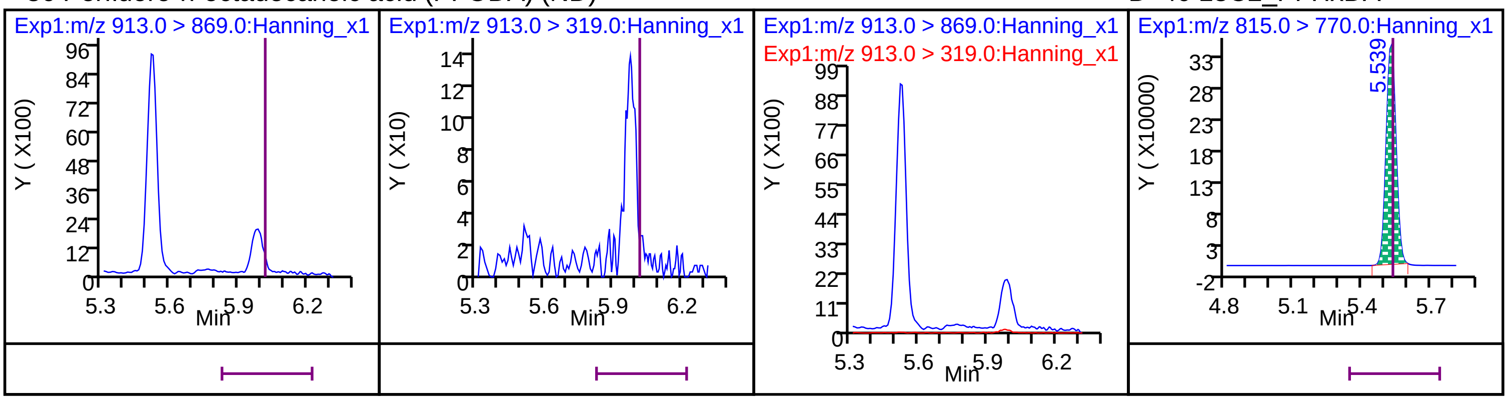
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



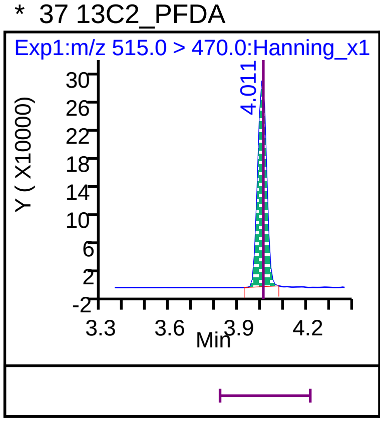
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



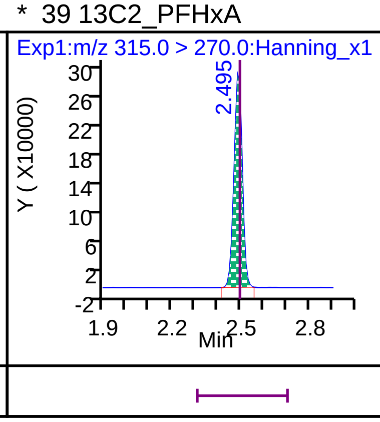
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



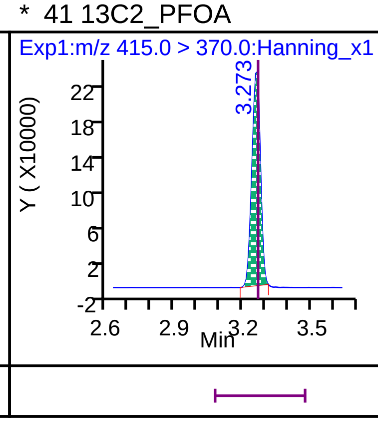
* 37 13C2_PFDA



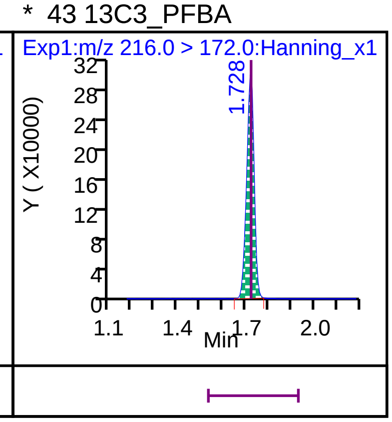
* 39 13C2_PFHxA



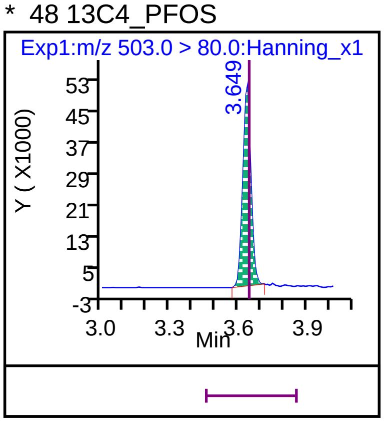
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Initial Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d
Injection Date: 07-Nov-2021 20:43:28 Injection Vol: 10.0 uL
Sample Type: ICV Auto Sampler: 86
Sample Info: F.L. ICV 500_SVLC-1734 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			500.00	449.86	90	70 - 130
D 46 13C4_PFBA	635753	729867			114.8	50 - 150
21 PFPeA			500.00	441.43	88.3	70 - 130
D 50 13C5_PFPeA	580113	696502			120.1	50 - 150
D 44 13C3_PFBS	178463	199640			111.9	50 - 150
7 PFBS			442.50	406.07	91.8	70 - 130
1 4:2 FTS			467.50	470.53	100.6	70 - 130
D 63 13C2_4:2 FTS_2	112299	123965			110.4	50 - 150
D 49 13C5_PFHxA	664948	758944			114.1	50 - 150
15 PFHxA			500.00	451.84	90.4	70 - 130
22 PFPeS			470.00	419.36	89.2	70 - 130
28 GenX			2500.00	2428.86	97.2	70 - 130
D 66 13C3_GenX	1204882	1252208			103.9	50 - 150
D 47 13C4_PFHpA	532996	637189			119.5	50 - 150
13 PFHpA			500.00	436.71	87.3	70 - 130
D 45 13C3_PFHxS	129716	143485			110.6	50 - 150
14 PFHxS			456.00	419.12	91.9	70 - 130
29 ADONA			2355.00	2144.51	91.1	70 - 130
D 64 13C2_6:2 FTS_2	93946	106963			113.9	50 - 150
2 6:2 FTS			475.00	397.01	83.6	70 - 130
20 PFOA			500.00	439.45	87.9	70 - 130
D 53 13C8_PFOA	547741	648933			118.5	50 - 150
12 PFHpS			475.00	435.51	91.7	70 - 130
D 54 13C8_PFOS	131913	153205			116.1	50 - 150
18 PFOS			462.75	401.15	86.7	70 - 130
17 PFNA			500.00	452.91	90.6	70 - 130
D 56 13C9_PFNA	639032	760846			119.1	50 - 150
30 9Cl-PF3ONS			2330.00	2029.63	87.1	70 - 130
D 55 13C8_PFOSA	266767	278831			104.5	50 - 150
19 PFOSA			500.00	482.21	96.4	70 - 130
16 PFNS			480.00	417.65	87	70 - 130
10 PFDA			500.00	428.86	85.8	70 - 130
3 8:2 FTS			480.00	415.08	86.5	70 - 130
D 51 13C6_PFDA	575846	697987			121.2	50 - 150
D 65 13C2_8:2 FTS_2	78835	103107			130.8	50 - 150
6 N-MeFOSAA			500.00	503.31	100.7	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	841627			108.9	50 - 150
D 61 d7-MeFOSE	90070	99485			110.5	50 - 150
D 57 d3-MeFOSA	44997	47320			105.2	50 - 150
9 PFDS			482.50	421.43	87.3	70 - 130
D 52 13C7_PFUdA	634567	731568			115.3	50 - 150
D 60 d5-EtFOSAA	689688	705245			102.3	50 - 150
25 PFUdA			500.00	436.06	87.2	70 - 130
5 N-EtFOSAA			500.00	568.52	113.7	70 - 130
D 62 d9-EtFOSE	101585	118584			116.7	50 - 150
D 59 d5-EtFOSA	42895	48893			114	50 - 150
31 11Cl-PF3OUDS			2355.00	1931.80	82	70 - 130
D 38 13C2_PFDoA	604291	818103			135.4	50 - 150
11 PFDoA			500.00	438.42	87.7	70 - 130
4 10:2 FTS			2410.00	2721.03	112.9	70 - 130
24 PFTrDA			500.00	406.02	81.2	70 - 130
D 42 13C2_PFTeDA	838224	982455			117.2	50 - 150
23 PFTeDA			500.00	450.55	90.1	70 - 130
D 40 13C2_PFHxDA	877835	968757			110.4	50 - 150

Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	86
Sample Info:	F.L. ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	729867	20	>100:1			1000.00	1174.03	114.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	346276	20	>100:1			500.00	449.86		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.130	0	696502	15	>100:1			1000.00	1218.53	120.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.130	0/0	346044	14	>100:1			500.00	441.43		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	199640	16	>100:1			1000.00	1154.19	111.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	101094	17	>100:1	Target = 3.53		442.50	406.07		
298.9 > 99	44	2.183	2.183		29039	17	>100:1	3.48 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	77590	16	>100:1	Target = 3.10		470.00	419.36		
349 > 99	44	2.532	2.531		25008	16	>100:1	3.10 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	123965	17	>100:1			5000.00	5474.59	110.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	25716	23	>100:1	Target = 1.75		467.50	470.53		
327 > 81	63	2.460	2.460		14152	18	29:1	1.81 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	758944	17	>100:1			1000.00	1165.30	114.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	356554	17	>100:1	Target = 18.91		500.00	451.84		
313 > 119	49	2.496	2.505		19453	18	>100:1	18.32 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1252208	18	>100:1			5000.00	5403.12	103.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	393946	19	>100:1	Target = 0.79		2500.00	2428.86		
285 > 185	66	2.614	2.622		516736	19	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	637189	18	>100:1			1000.00	1200.12	119.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/1	305771	19	>100:1	Target = 3.80		500.00	436.71		
363 > 169	47	2.881	2.880		80052	19	>100:1	3.81 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	143485	18	>100:1			1000.00	1142.04	110.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/0	66115	24	>100:1	Target = 2.89	5.51	456.00	419.12		
399 > 99	45	2.888	2.896		24799	27	>100:1	2.66 (1.44-4.34)	8.58				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.919	0/0	2386331	19	>100:1	Target = 3.23		2355.00	2144.51		
377 > 85	45	2.912	2.919		726470	20	>100:1	3.28 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.269	3.276	0/0	64181	20	>100:1	Target = 3.12		475.00	435.51		
449 > 99	45	3.269	3.276		23497	21	>100:1	2.73 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	106963	22	>100:1			5000.00	5942.40	113.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	20105	23	>100:1	Target = 1.75		475.00	397.01		
427 > 81	64	3.241	3.248		13864	19	29:1	1.45 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.262	3.276	0	648933	22	>100:1			1000.00	1236.82	118.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	292233	22	>100:1	Target = 2.89		500.00	439.45		
413 > 169	53	3.269	3.276		98289	20	>100:1	2.97 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.646	3.651	0	153205	28				1000.00	1237.09	116.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.646	3.662	0/0	73176	37	>100:1	Target = 3.30	3.97	462.75	401.15		
499 > 99	54	3.651	3.662		19553	36	>100:1	3.74 (1.65-4.95)	8.10				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.855	3.863	0/0	1177596	17	>100:1			2330.00	2029.63		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.006	0/0	51335	19	>100:1	Target = 3.08		480.00	417.65		
549 > 99	54	3.995	4.006		17864	19	>100:1	2.87 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/0	50524	15	>100:1	Target = 2.72		482.50	421.43		
599 > 99	54	4.308	4.318		18013	18	>100:1	2.80 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/0	1013267	17	>100:1			2355.00	1931.80		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.651	3.662	0	760846	22	>100:1			1000.00	1188.12	119.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.657	3.662	0/0	371431	22	>100:1	Target = 6.51		500.00	452.91		
463 > 169	56	3.657	3.662		56437	20	>100:1	6.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	278831	18	>100:1			1000.00	1040.19	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.888	3.896	0/0	141472	18	>100:1	Target = 41.63		500.00	482.21		
498>478	55	3.888	3.896		4740	21		29.84 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.006	4.016	0	697987	17	>100:1			1000.00	1214.61	121.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.006	4.016	0/0	348352	17	>100:1	Target = 13.80		500.00	428.86		
513 > 169	51	4.006	4.016		25277	15	>100:1	13.78 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.016	-1	103107	23	>100:1			5000.00	5965.29	130.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.016	0/1	19341	15	>100:1	Target = 1.94		480.00	415.08		
527 > 81	65	4.006	4.016		11860	14	49:1	1.63 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.623	4.631	0/1	142333	16		Target = 3.54		2410.00	2721.03		
627 > 80	65	4.623	4.631		39674	16	>100:1	3.58 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.178	0	841627	17	>100:1			5000.00	5569.54	108.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.178	0/0	67981	16	>100:1	Target = 1.37		500.00	503.31		
570 > 483	58	4.169	4.178		54282	22	>100:1	1.25 (0.68-2.05)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	99485	15				1000.00	1103.07	110.5	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	47320	13	>100:1			1000.00	1005.93	105.2	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.338	0	705245	16	>100:1			5000.00	5445.35	102.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.338	4.348	0/0	78189	15	>100:1	Target = 1.51		500.00	568.52		
584 > 526	60	4.328	4.348		48185	15	>100:1	1.62 (0.75-2.26)					
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.338	0	731568	16	>100:1			1000.00	1214.72	115.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.338	0/0	309106	15	>100:1	Target = 14.52		500.00	436.06		
563 > 169	52	4.328	4.338		22293	20		13.86 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	118584	15	>100:1			1000.00	1117.90	116.7	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	48893	14	>100:1			1000.00	1137.05	114	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.614	0	818103	16	>100:1			1000.00	1362.74	135.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.622	0/0	382376	17	66:1	Target = 10.70		500.00	438.42		
613 > 169	38	4.614	4.622		35063	16	>100:1	10.90 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.860	4.877	-1/-1	349140	18	>100:1	Target = 8.31		500.00	406.02		
663 > 169	38	4.860	4.877		41116	15	>100:1	8.49 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.087	5.106	-1	982455	21	>100:1			1000.00	1208.45	117.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.087	5.106	-1/0	386398	21	50:1	Target = 12.17		500.00	450.55		
713 > 169	42	5.087	5.106		30868	19	>100:1	12.51 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.528	5.544	0	968757	20	>100:1			1000.00	1116.03	110.4	
*** 37 13C2_PFDA**													
515 > 470		4.006	4.016	0	760545	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	712656	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	597895	22	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	645705	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.646	3.657	0	149411	21	>100:1			1000.00			

Compound Type Legend

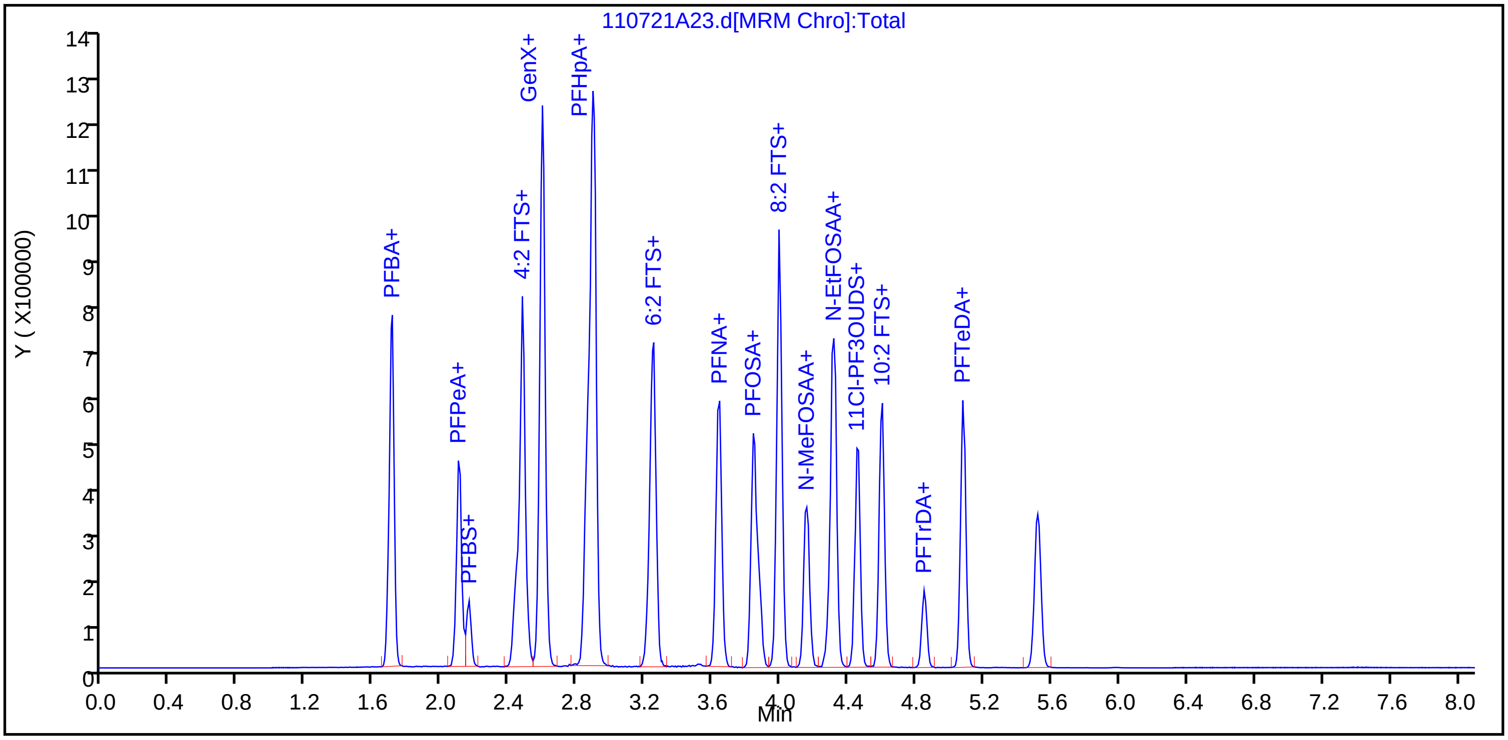
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

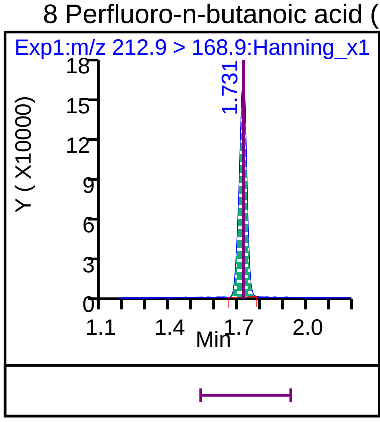
Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

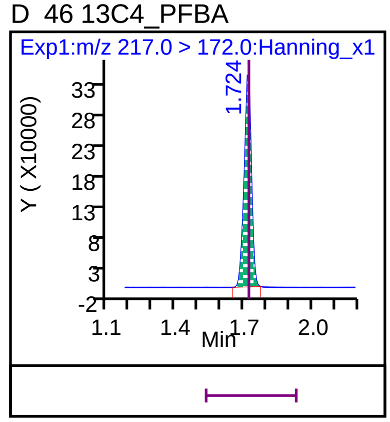
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	F.L. ICV 500_SVLC-1734
Sample Info:	F.L. ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Justin Gavin



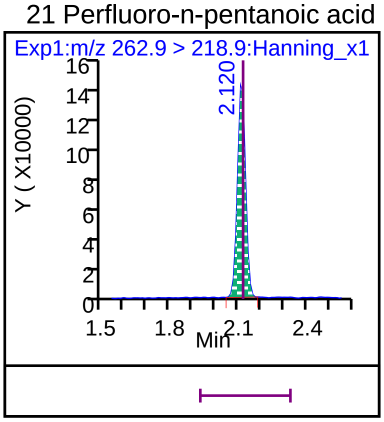
8 Perfluoro-n-butanoic acid (PFBA)



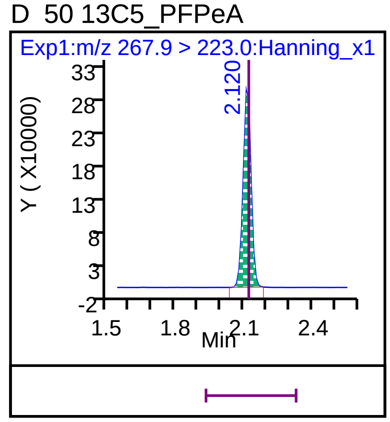
D 46 13C4_PFBA



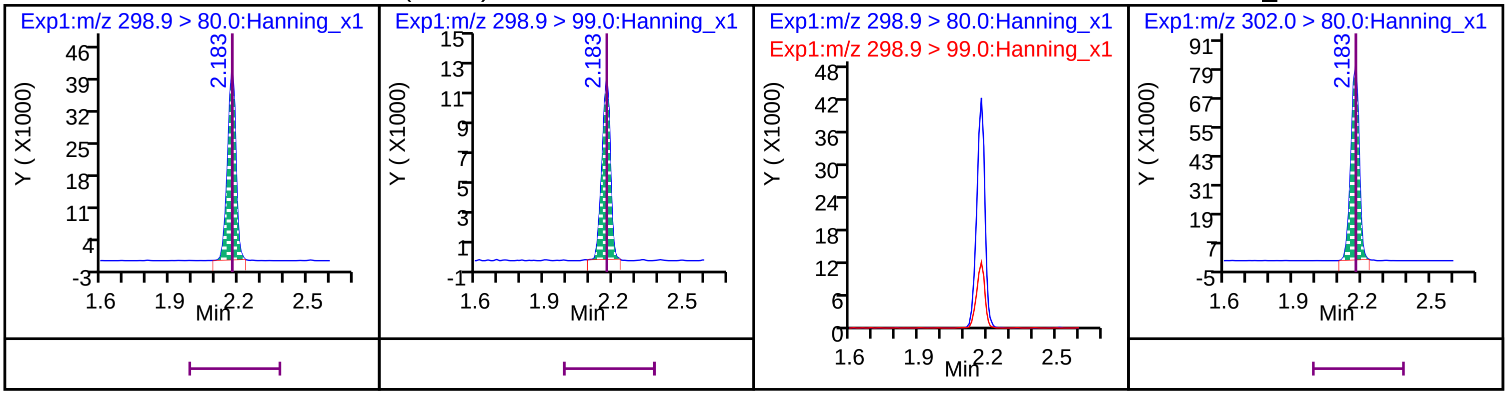
21 Perfluoro-n-pentanoic acid (PFPeA)



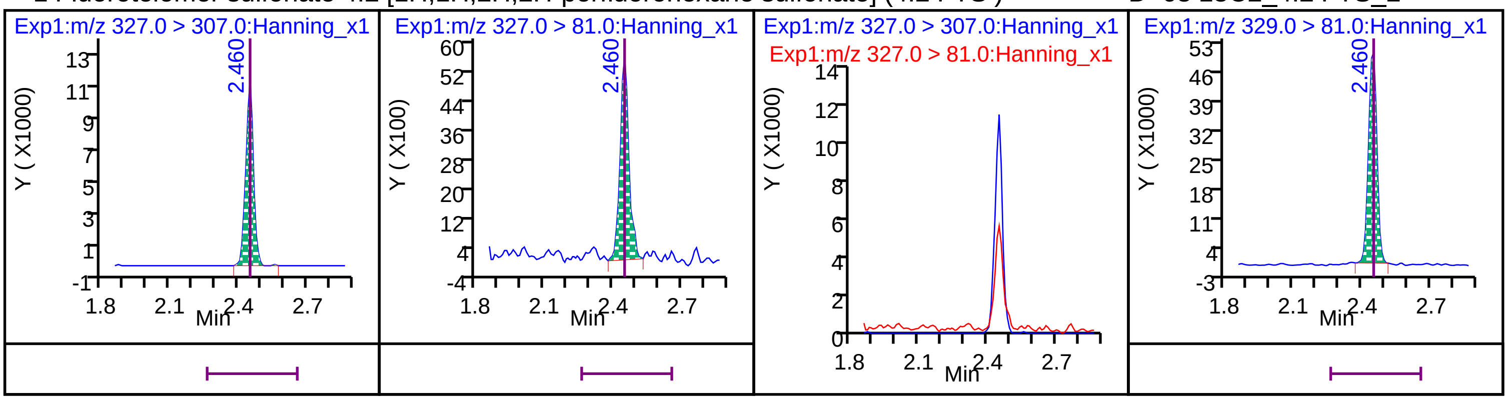
D 50 13C5_PFPeA



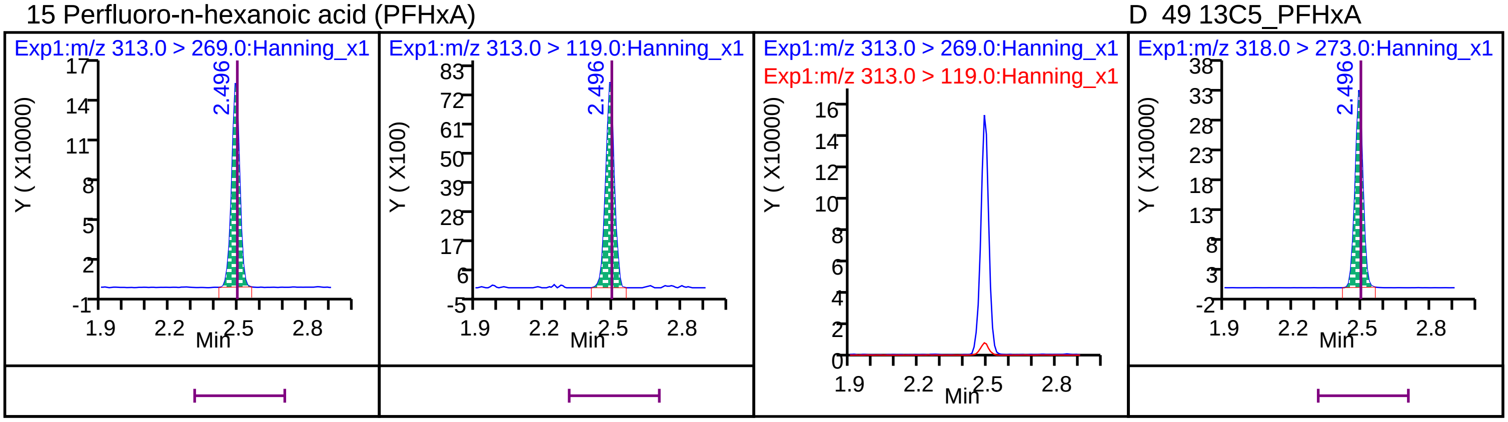
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



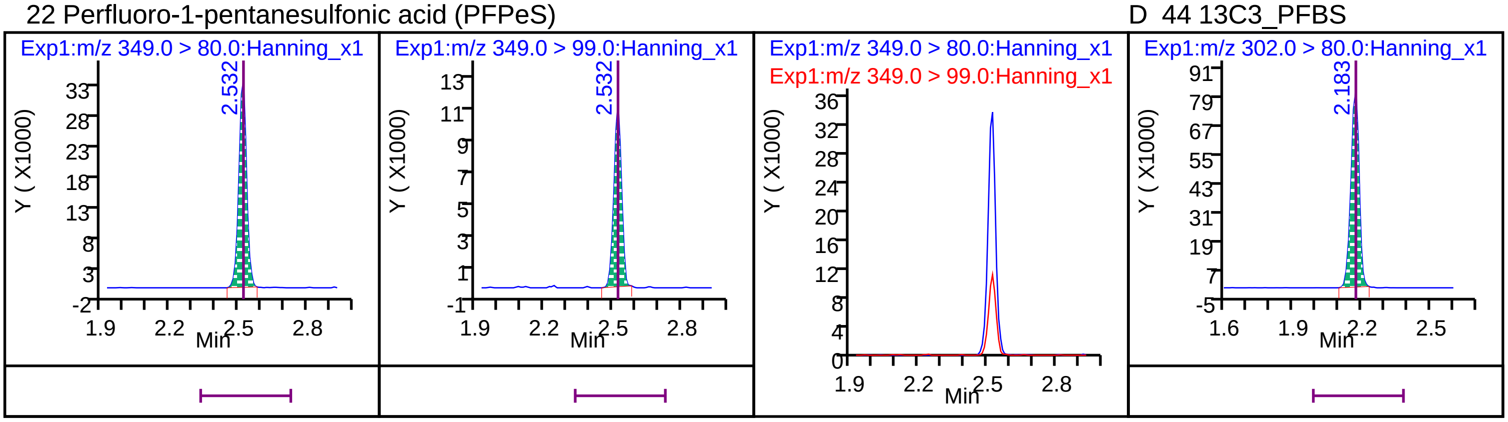
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

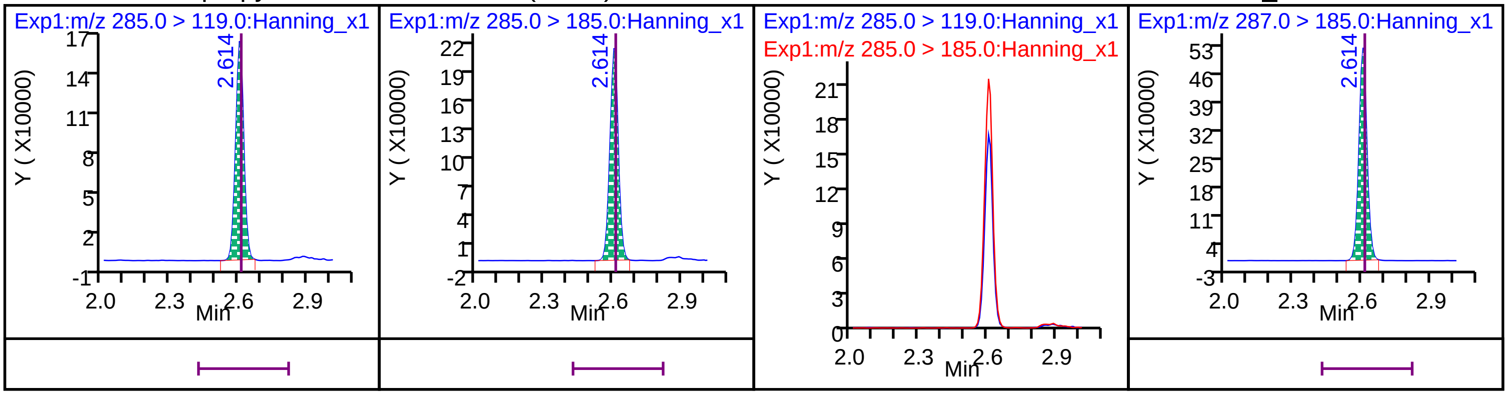


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

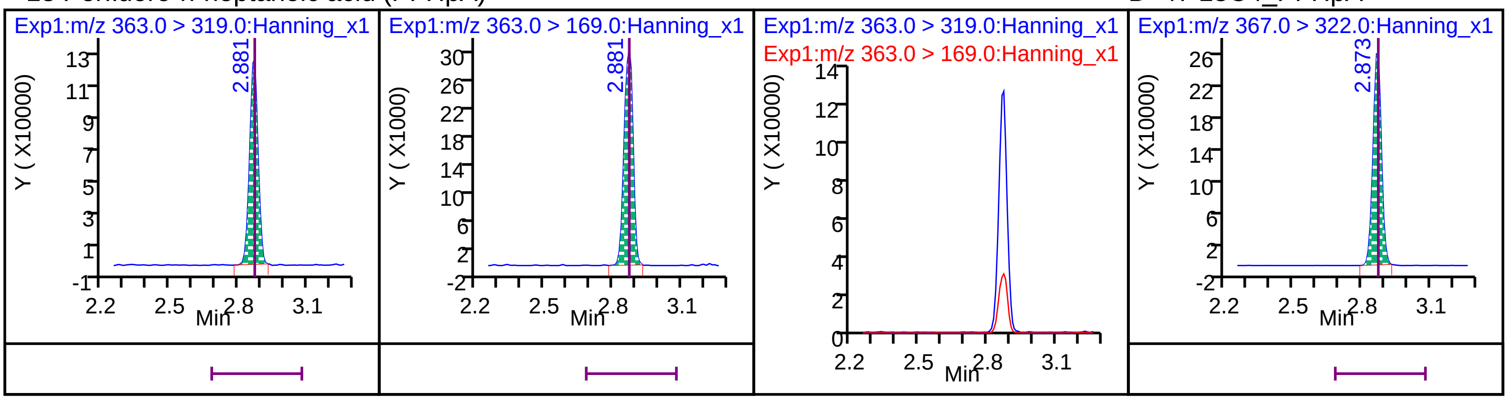


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

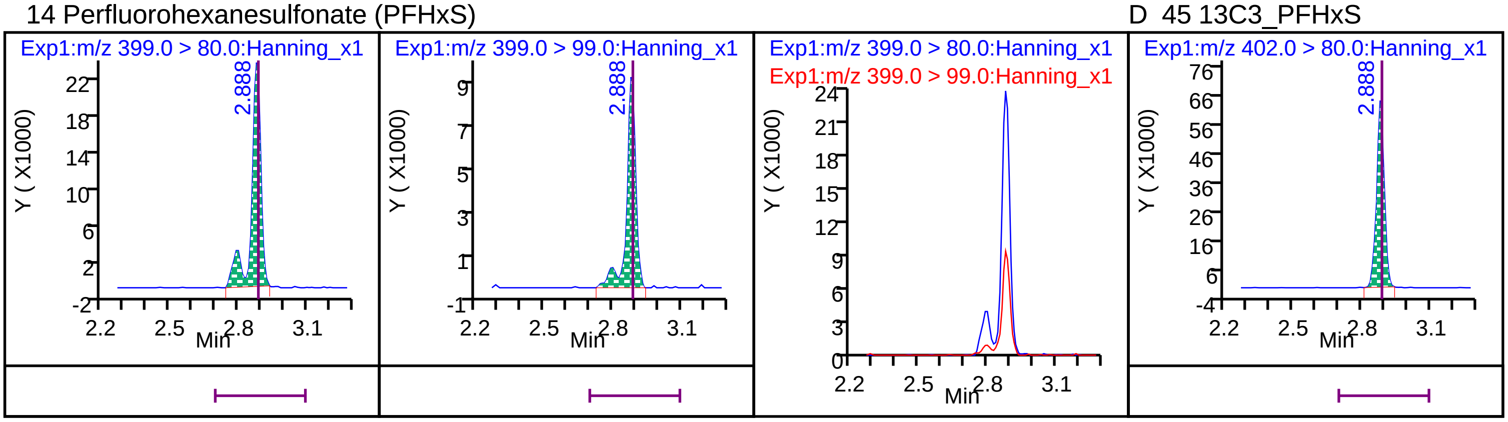
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



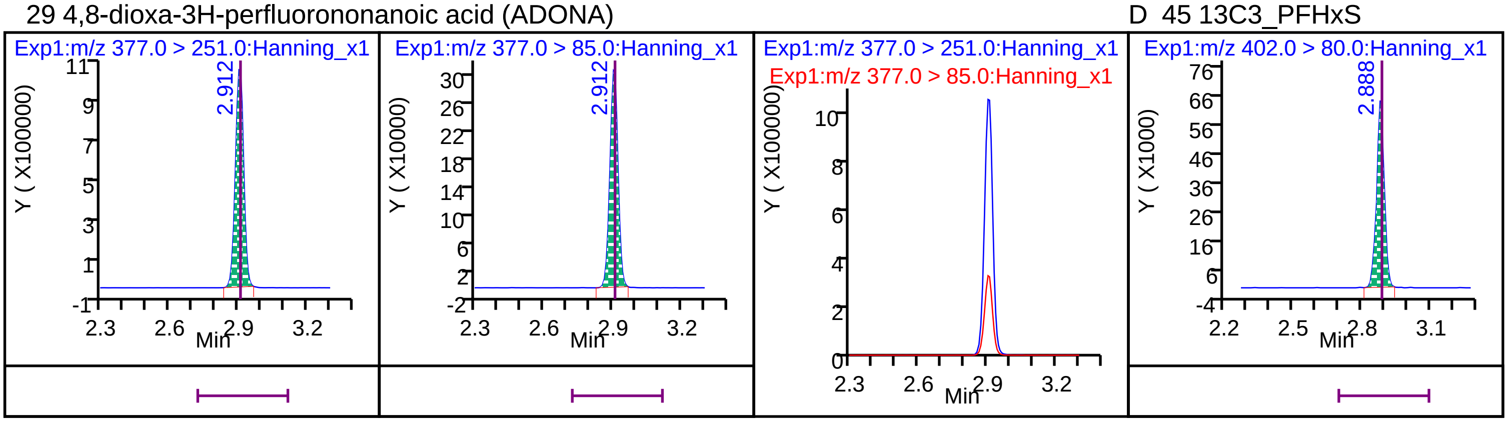
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



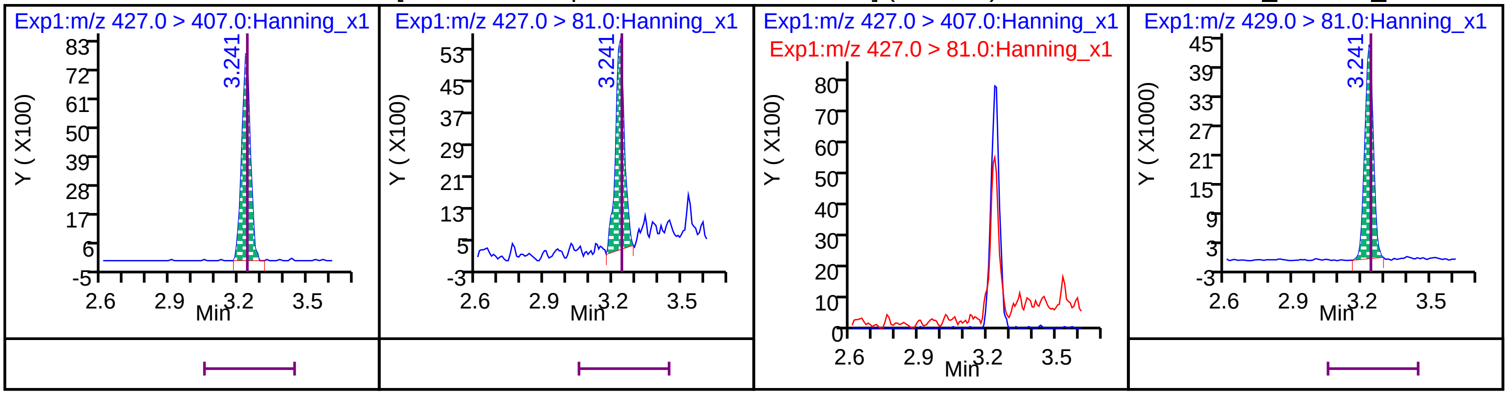
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



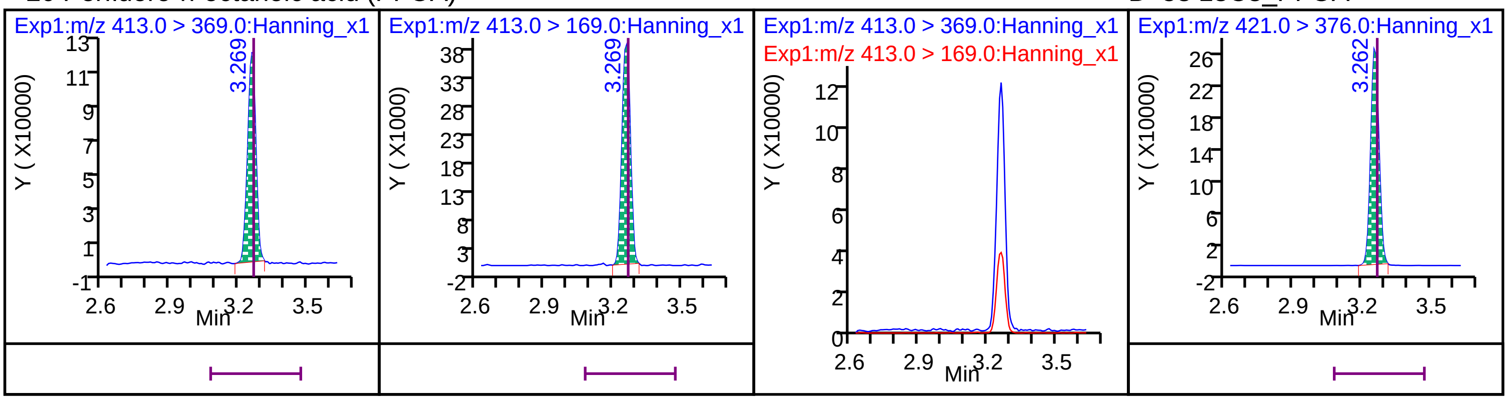
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



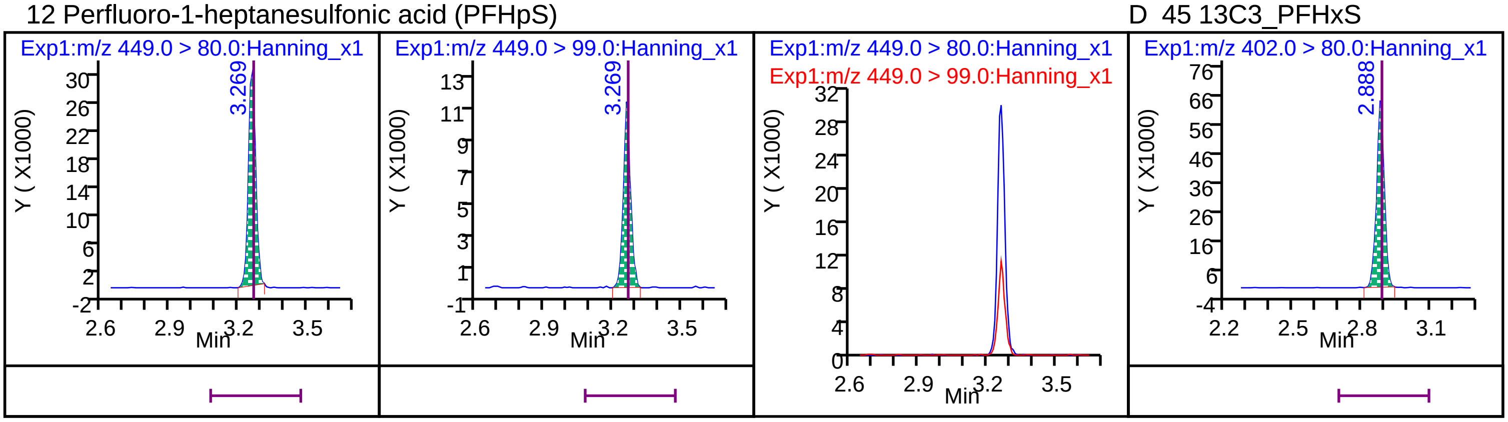
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



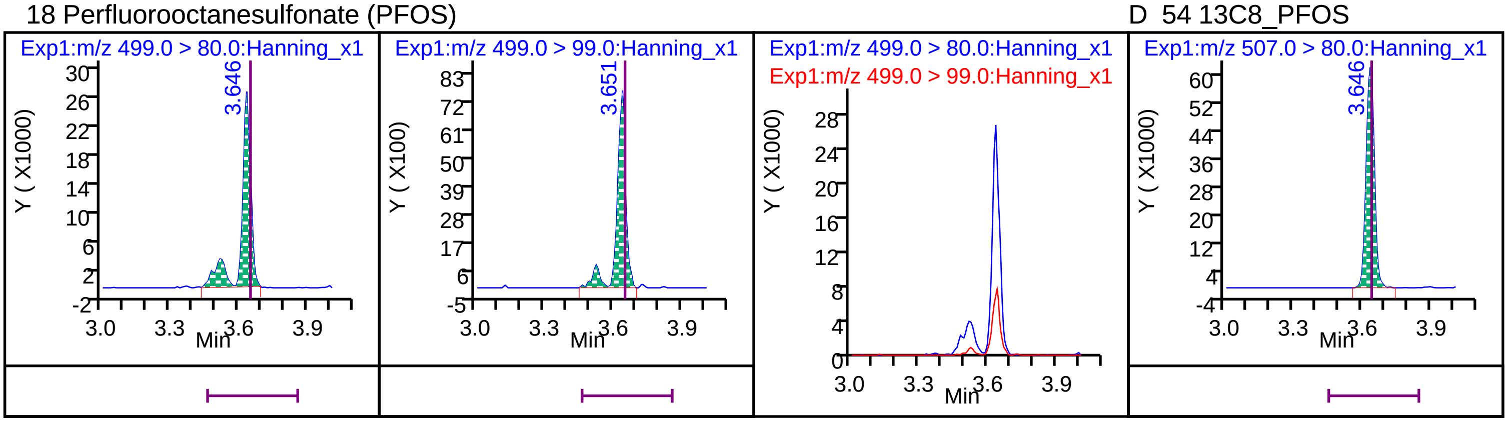
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



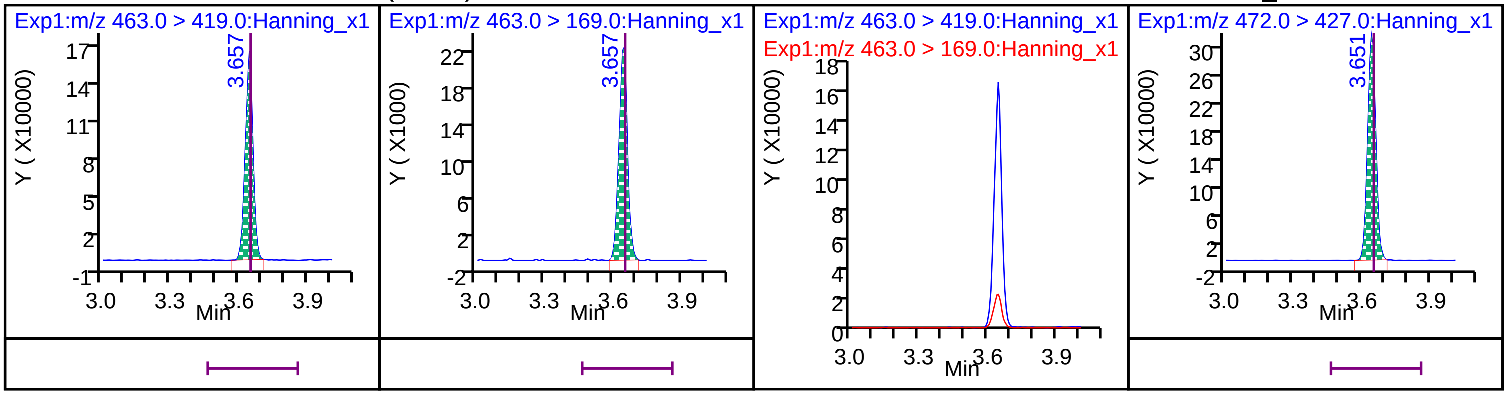
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



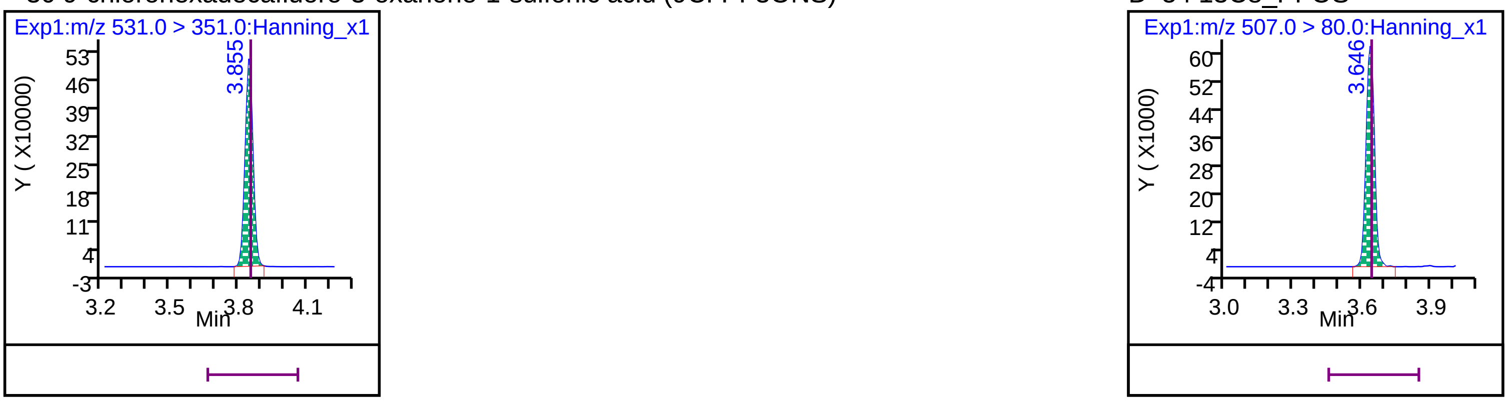
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



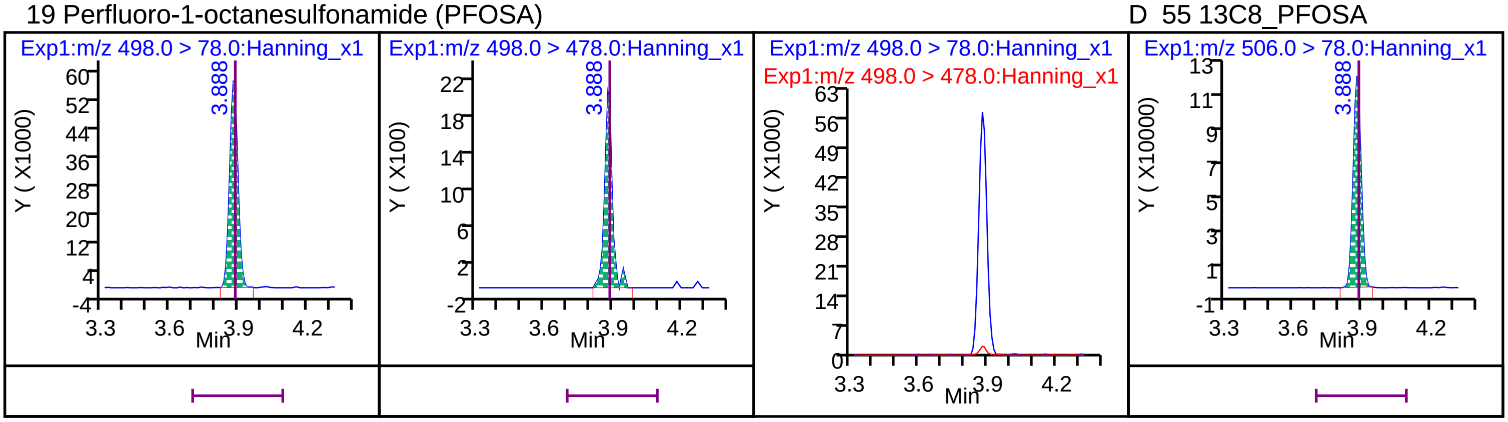
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



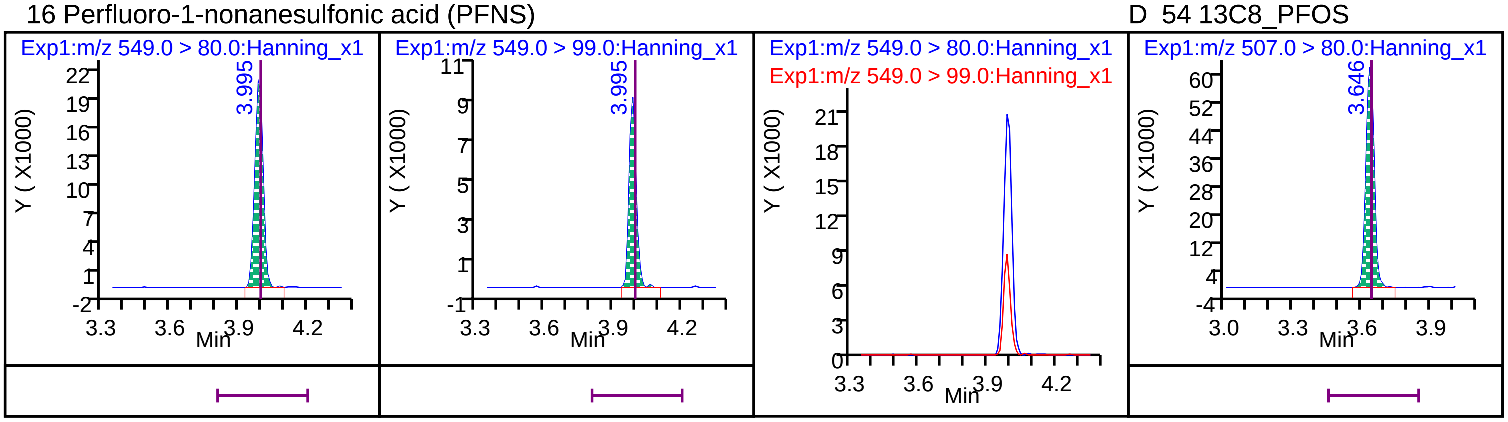
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

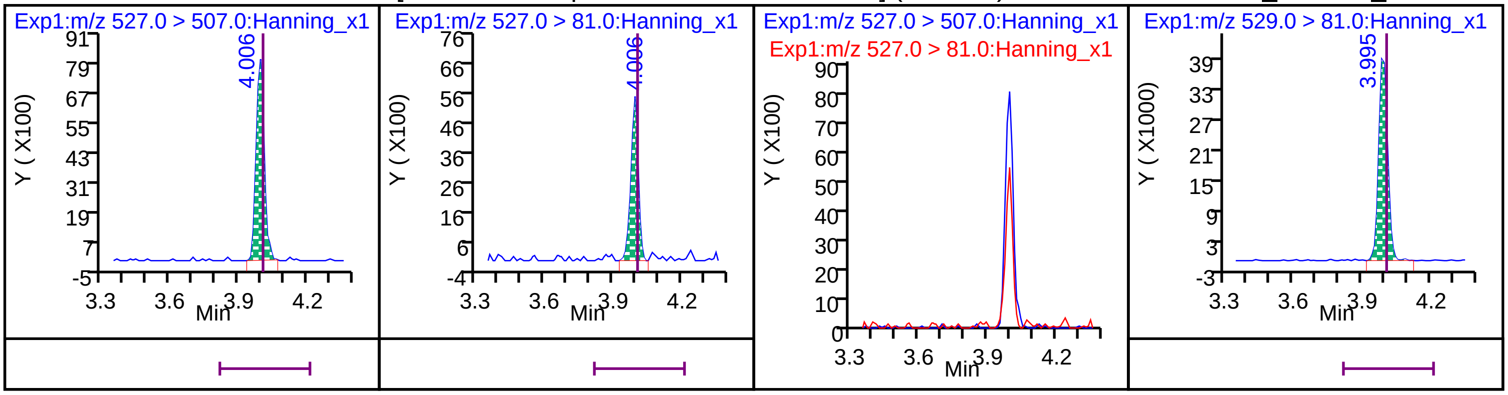


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

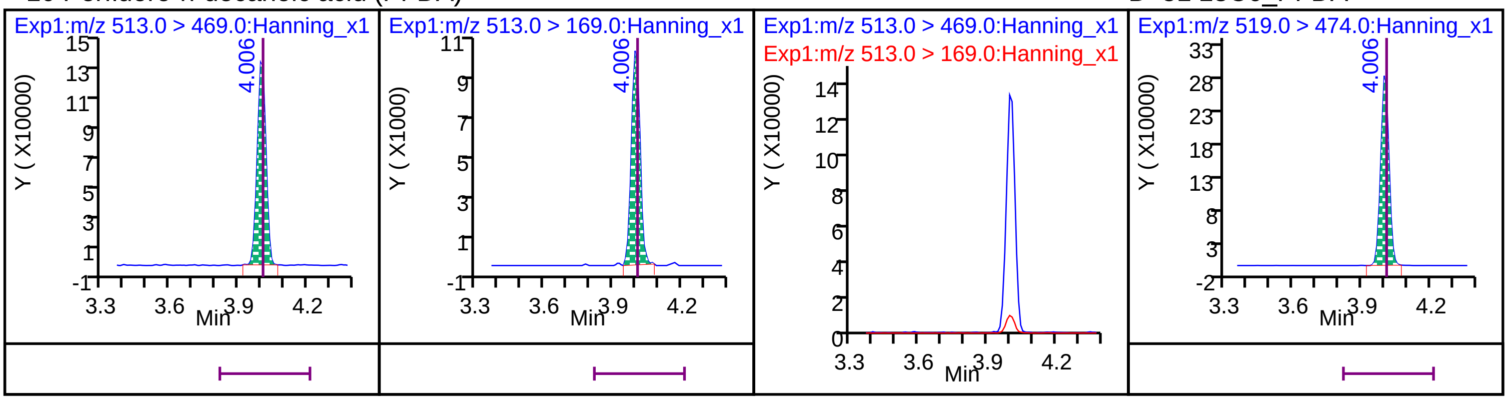


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

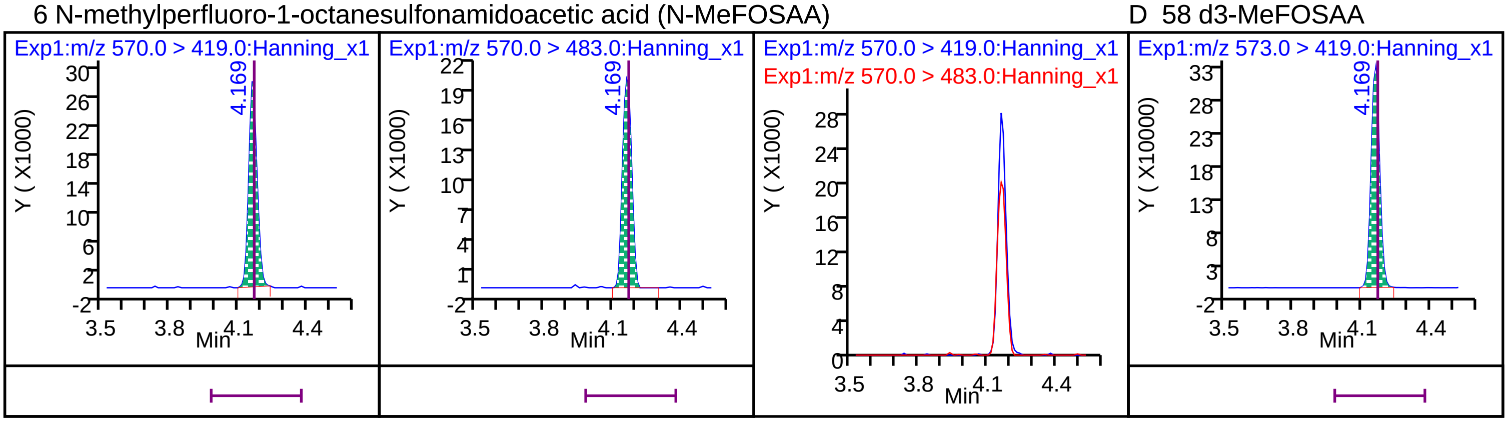
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



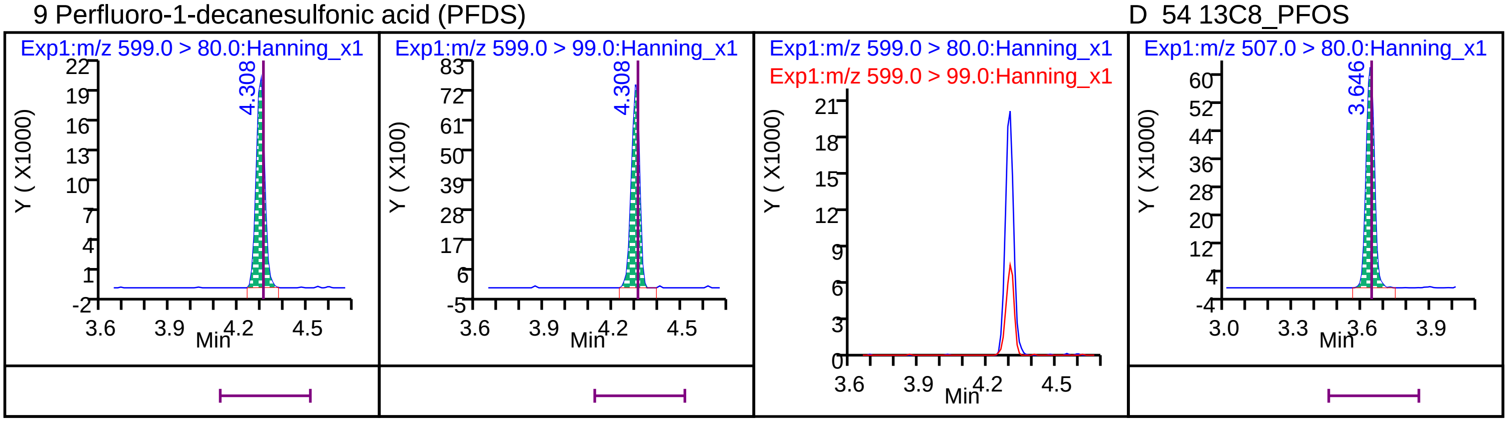
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

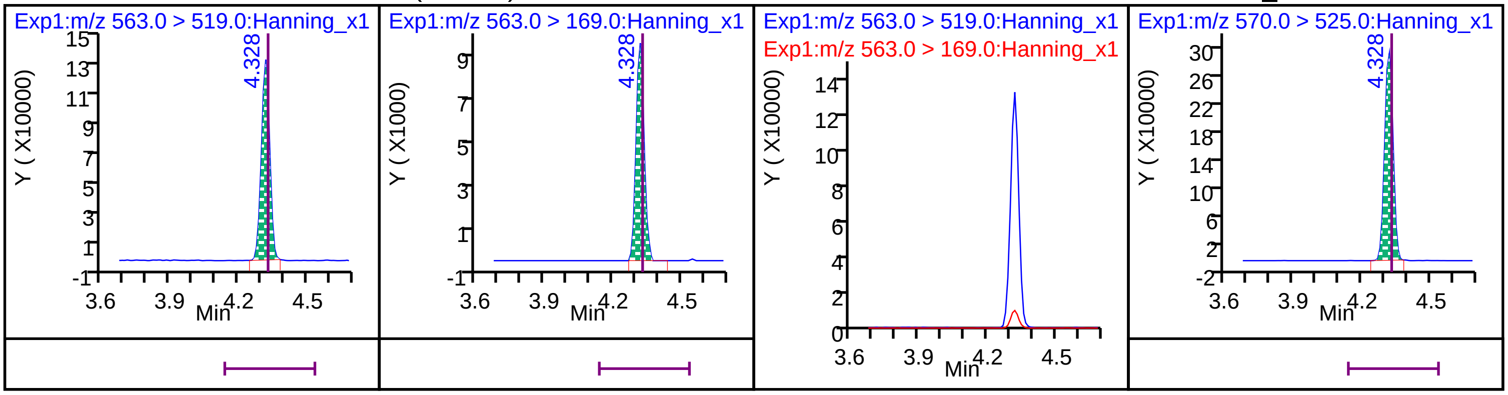


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

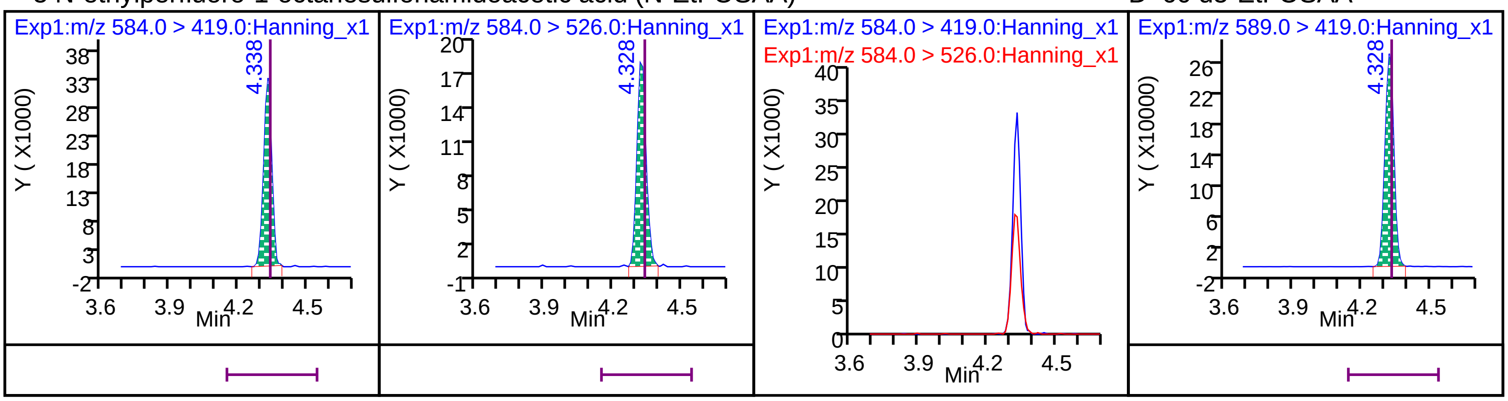


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

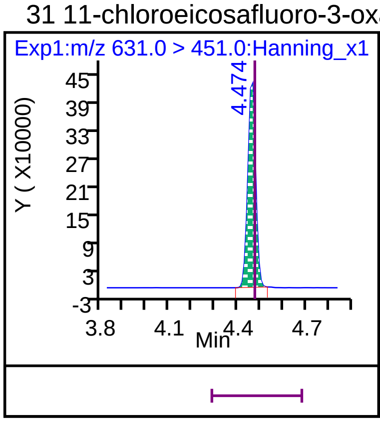
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

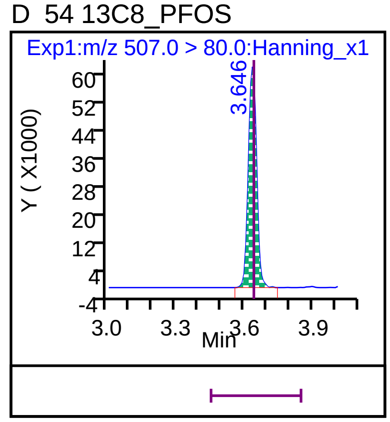


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

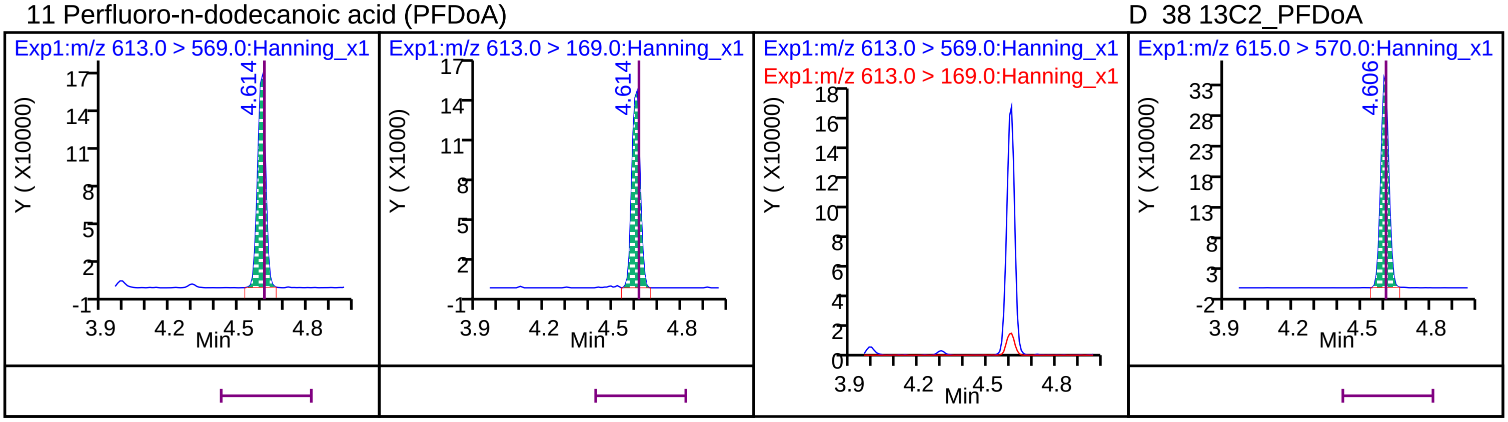


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS

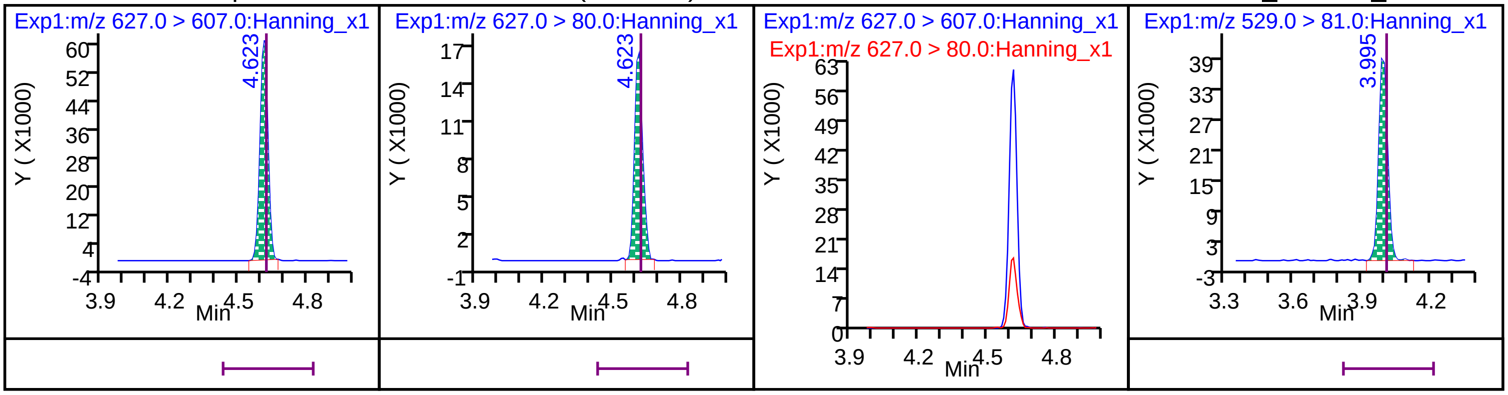




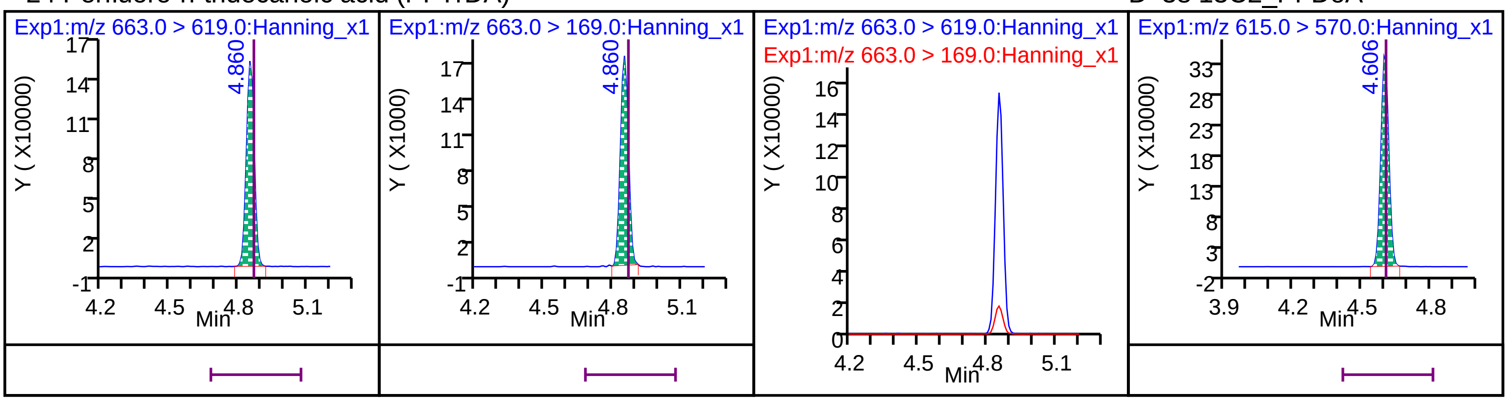
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



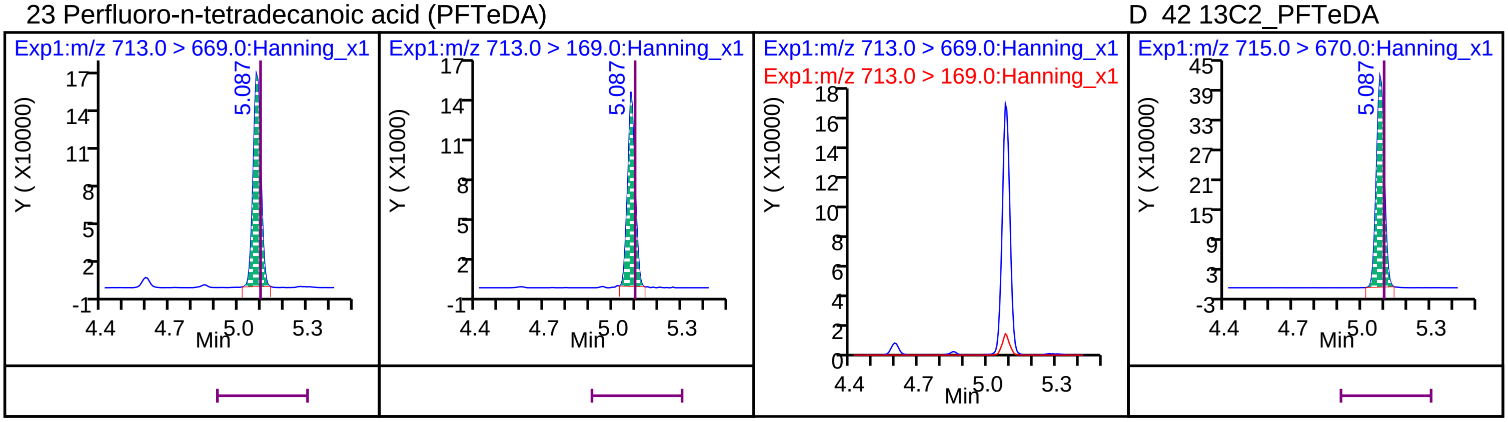
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



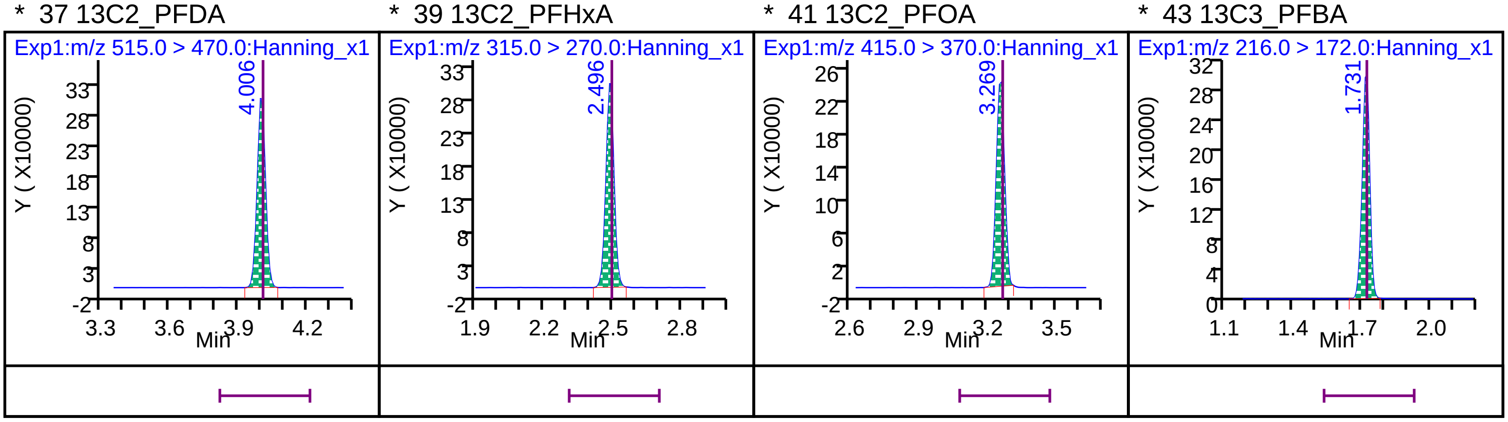
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



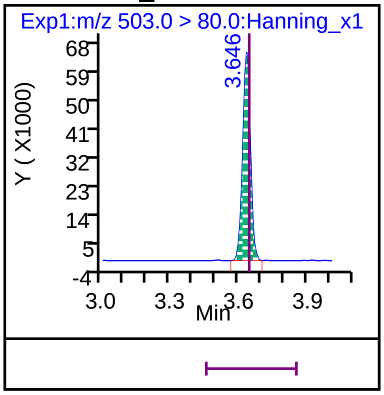
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS


Exp1:m/z 503.0 > 80.0:Hanning_x1
3.646
Y (X1000)
68
59
50
41
32
23
14
5
-4
3.0
3.3
3.6
3.9
Min

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d		
Injection Date:	07-Nov-2021 20:53:57	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	87
Sample Info:	ISOMER CHECK_SVLC-1652	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: IsomerCheck Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	832490	19	>100:1			1000.00	1339.11	130.9	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.119	2.130	0	745225	16	>100:1			1000.00	1303.77	128.5	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	219522	15	>100:1			1000.00	1269.14	123	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.460	0	146403	16	>100:1			5000.00	6465.50	130.4	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	859966	16	>100:1			1000.00	1320.41	129.3	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1464128	18	>100:1			5000.00	6317.53	121.5	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	680709	17	>100:1			1000.00	1282.09	127.7	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	164983	19	>100:1			1000.00	1313.14	127.2	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.233	3.248	0	138915	19	>100:1			5000.00	7717.52	147.9	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.261	3.276	0	659495	22	>100:1			1000.00	1256.96	120.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.261	3.276	0/0	8375944	34	>100:1	Target = 2.89	5.62	10000	12394		
413 > 169	53	3.261	3.276		2966796	35	>100:1	2.82 (1.44-4.34)	4.01				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.644	3.651	0	157645	20	>100:1			1000.00	1272.94	119.5	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.650	3.662	0	838923	22	>100:1			1000.00	1310.04	131.3	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.885	3.896	0	341851	18	>100:1			1000.00	1275.29	128.1	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.003	4.016	0	883285	16	>100:1			1000.00	1537.06	153.4*	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.003	4.016	0	178958	18	>100:1			5000.00	10354	227*	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.167	4.178	0	1046130	18	>100:1			5000.00	6922.85	135.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.167	4.178	0/0	2156658	31		Target = 1.37	7.20	10000	12846		
570 > 483	58	4.167	4.178		1644445	29	>100:1	1.31 (0.68-2.05)	3.92				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.285	4.288	0	126915	16	>100:1			1000.00	1407.21	140.9	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.316	4.318	0	67744	14	>100:1			1000.00	1440.10	150.6*	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.326	4.338	0	975094	17	>100:1			5000.00	7528.92	141.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.336	4.348	0/0	2319207	32	>100:1	Target = 1.51	7.07	10000	12197		
584 > 526	60	4.336	4.348		1456264	30	>100:1	1.59 (0.75-2.26)	4.40				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.326	4.338	0	894952	16	>100:1			1000.00	1486.01	141	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.453	4.455	0	136294	17	>100:1			1000.00	1284.86	134.2	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.471	4.483	0	62069	15	>100:1			1000.00	1443.47	144.7	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.603	4.614	0	1132705	18	>100:1			1000.00	1886.78	187.4*	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.080	5.106	-1	1243521	21	>100:1			1000.00	1529.56	148.4	
D 40 13C2_PFHxDA CAS: SESI-0103													U
815 > 770			5.544		ND								
*** 37 13C2_PFDA**													
515 > 470		4.003	4.016	0	976038	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	815151	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.261	3.276	0	646940	21	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	707478	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.644	3.657	0	147754	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

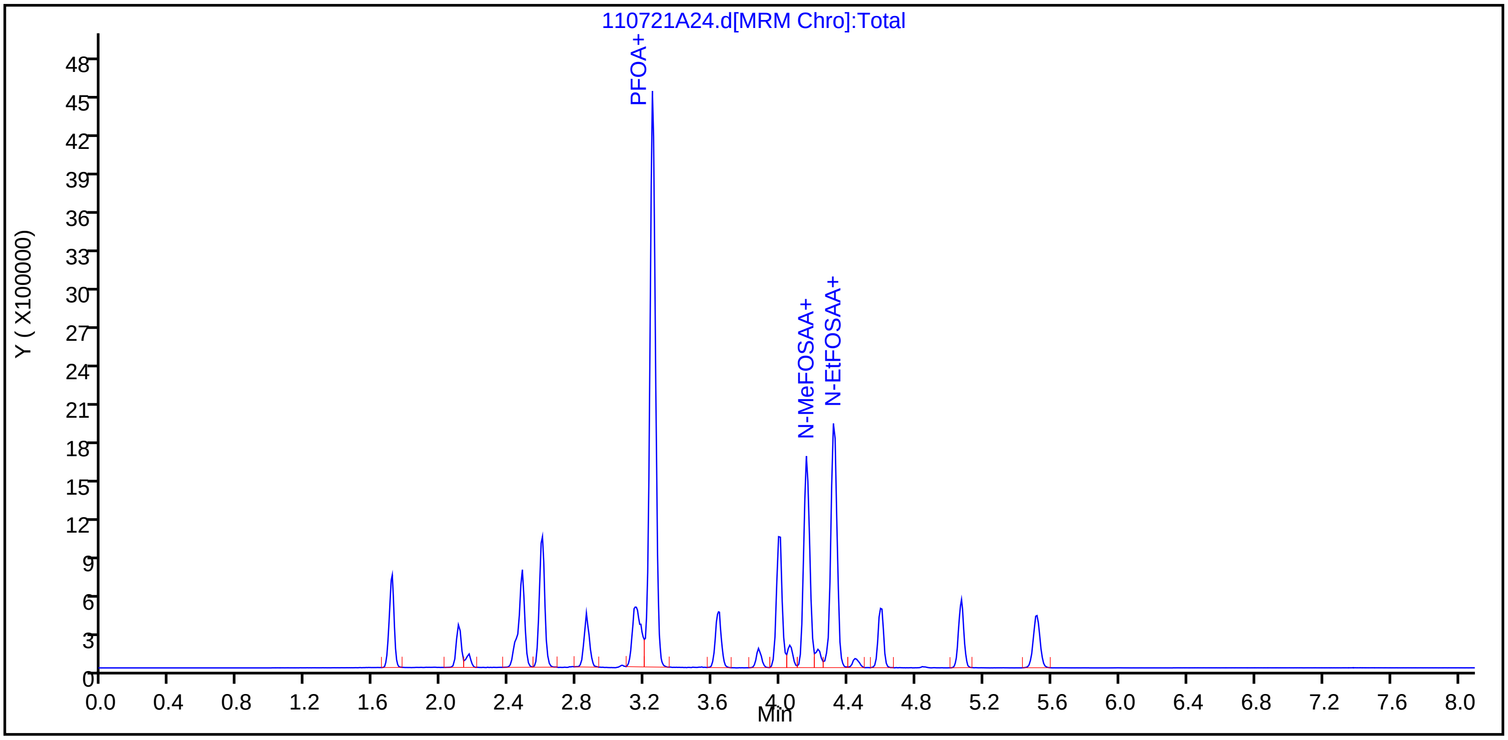
QC Flag Legend

U - Result Less Than Method Detection Limit

Report Date: 08-Nov-2021 10:00:29 AIM Revision: 2.0.2021.0812

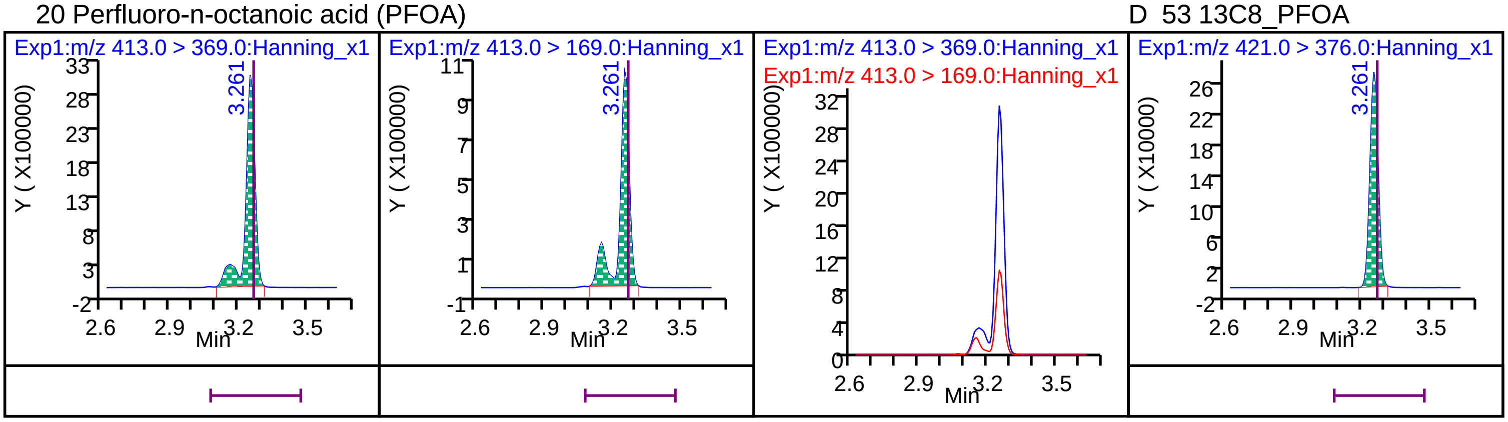
Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d		
Injection Date:	07-Nov-2021 20:53:57	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ISOMER CHECK_SVLC-1652
Sample Info:	ISOMER CHECK_SVLC-1652		
Dil. Factor:	1	Operator:	Justin Gavin



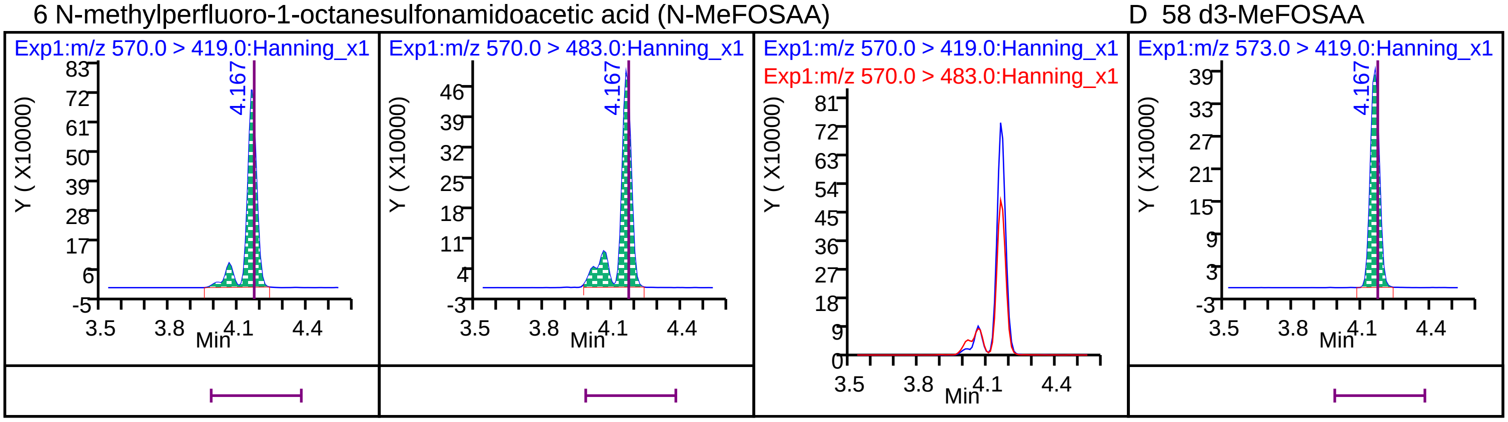
20 Perfluoro-n-octanoic acid (PFOA)

D 53 13C8_PFOA



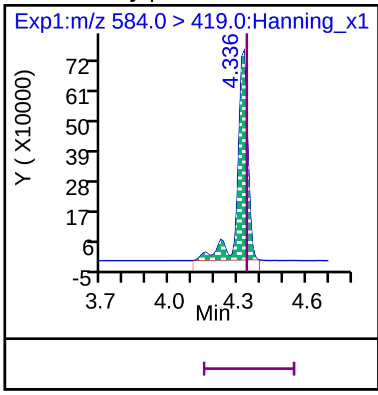
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

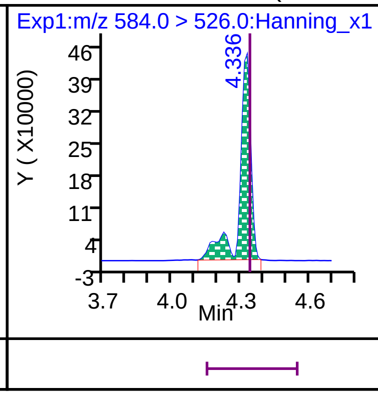
D 58 d3-MeFOSAA

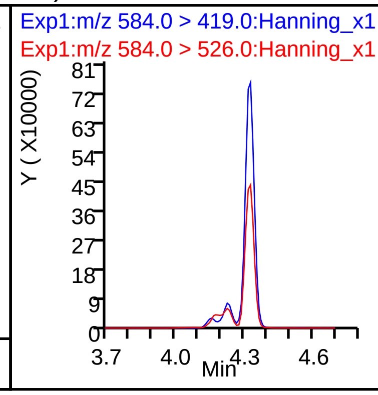


Report Date: 08-Nov-2021 10:00:29 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d

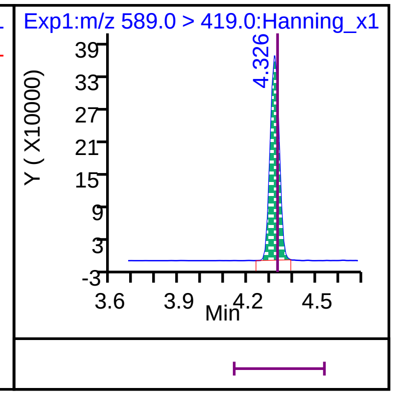
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



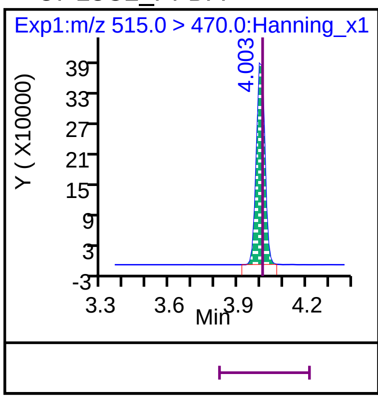




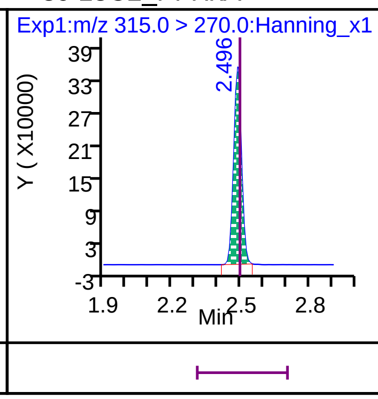
D 60 d5-EtFOSAA



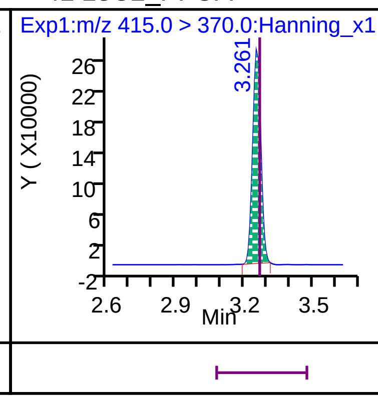
* 37 13C2_PFDA



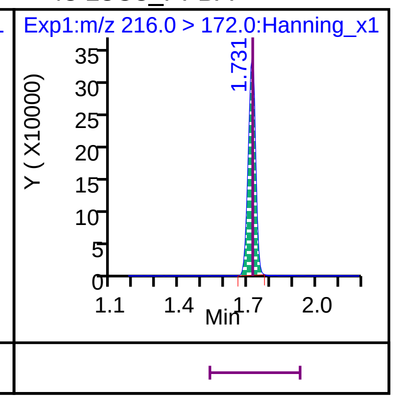
* 39 13C2_PFHxA



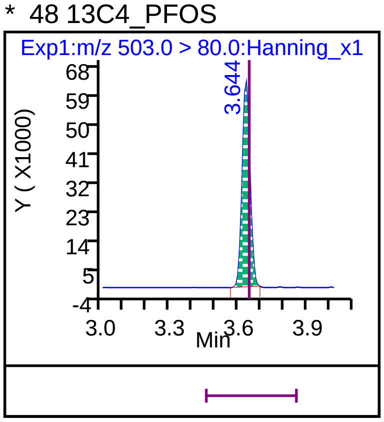
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d
Injection Date: 12-Nov-2021 12:52:59 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 3
Sample Info: ID CCV 100_SVLC-1741 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	98.910	98.9	70 - 130
D 46 13C4_PFBA	635753	606707			95.4	50 - 150
21 PFPeA			100.00	106.01	106	70 - 130
D 50 13C5_PFPeA	580113	544569			93.9	50 - 150
D 44 13C3_PFBS	178463	162919			91.3	50 - 150
7 PFBS			88.400	93.303	105.5	70 - 130
1 4:2 FTS			93.400	78.153	83.7	70 - 130
D 63 13C2_4:2 FTS_2	112299	104453			93	50 - 150
D 49 13C5_PFHxA	664948	625283			94	50 - 150
15 PFHxA			100.00	103.08	103.1	70 - 130
22 PFPeS			93.800	84.033	89.6	70 - 130
28 GenX			200.00	210.35	105.2	70 - 130
D 66 13C3_GenX	1204882	1101362			91.4	50 - 150
D 47 13C4_PFHpA	532996	527441			99	50 - 150
13 PFHpA			100.00	100.23	100.2	70 - 130
D 45 13C3_PFHxS	129716	115822			89.3	50 - 150
14 PFHxS			91.000	84.267	92.6	70 - 130
29 ADONA			94.200	105.20	111.7	70 - 130
D 64 13C2_6:2 FTS_2	93946	83315			88.7	50 - 150
2 6:2 FTS			94.800	97.375	102.7	70 - 130
20 PFOA			100.00	108.99	109	70 - 130
D 53 13C8_PFOA	547741	513896			93.8	50 - 150
12 PFHpS			95.200	87.654	92.1	70 - 130
D 54 13C8_PFOS	131913	109523			83	50 - 150
18 PFOS			92.800	91.268	98.3	70 - 130
17 PFNA			100.00	105.53	105.5	70 - 130
D 56 13C9_PFNA	639032	589389			92.2	50 - 150
30 9Cl-PF3ONS			93.200	110.40	118.5	70 - 130
D 55 13C8_PFOSA	266767	227854			85.4	50 - 150
19 PFOSA			100.00	110.08	110.1	70 - 130
16 PFNS			96.000	97.998	102.1	70 - 130
10 PFDA			100.00	106.70	106.7	70 - 130
3 8:2 FTS			95.800	101.10	105.5	70 - 130
D 51 13C6_PFDA	575846	593235			103	50 - 150
D 65 13C2_8:2 FTS_2	78835	82251			104.3	50 - 150
6 N-MeFOSAA			100.00	99.960	100	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	661512			85.6	50 - 150
D 61 d7-MeFOSE	90070	81767			90.8	50 - 150
32 MeFOSE			100.00	112.16	112.2	70 - 130
26 MeFOSA			100.00	92.133	92.1	70 - 130
D 57 d3-MeFOSA	44997	42739			95	50 - 150
9 PFDS			96.400	130.36	135.2	70 - 130
D 52 13C7_PFUdA	634567	631780			99.6	50 - 150
D 60 d5-EtFOSAA	689688	606735			88	50 - 150
25 PFUdA			100.00	107.45	107.4	70 - 130
5 N-EtFOSAA			100.00	114.67	114.7	70 - 130
D 62 d9-EtFOSE	101585	95636			94.1	50 - 150
33 EtFOSE			100.00	122.40	122.4	70 - 130
D 59 d5-EtFOSA	42895	36158			84.3	50 - 150
31 11Cl-PF3OUDS			94.200	126.14	133.9	70 - 130
27 EtFOSA			100.00	110.94	110.9	70 - 130
D 38 13C2_PFDoA	604291	608629			100.7	50 - 150
11 PFDoA			100.00	105.59	105.6	70 - 130
4 10:2 FTS			96.400	94.925	98.5	70 - 130
34 PFDOS			96.800	92.973	96	70 - 130
24 PFTrDA			100.00	103.10	103.1	70 - 130
D 42 13C2_PFTeDA	838224	786507			93.8	50 - 150
23 PFTeDA			100.00	98.796	98.8	70 - 130
D 40 13C2_PFHxDA	877835	876588			99.9	50 - 150
35 PFHxDA			100.00	108.72	108.7	70 - 130
36 PFODA			100.00	101.73	101.7	70 - 130

Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d		
Injection Date:	12-Nov-2021 12:52:59	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	3
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	606707	21	>100:1			1000.00	975.92	95.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.712	0/0	63288	21	69:1			100.00	98.910		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.099	2.099	1	544569	15	>100:1			1000.00	952.72	93.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.099	2.099	0/-1	64972	17	85:1			100.00	106.01		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	0	162919	16	>100:1			1000.00	941.89	91.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.151	0/0	18956	15	>100:1	Target = 3.53		88.400	93.303		
298.9 > 99	44	2.162	2.151		4353	13	40:1	4.35 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.505	2.505	0/0	12688	16		Target = 3.10		93.800	84.033		
349 > 99	44	2.505	2.505		4199	20	69:1	3.02 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.425	-1	104453	19	>100:1			5000.00	4612.89	93	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.433	2.433	0/1	3599	23		Target = 1.75		93.400	78.153		
327 > 81	63	2.425	2.433		3081	13	4.8:1	1.16 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.469	0	625283	17	>100:1			1000.00	960.07	94	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	0/0	67019	18	>100:1	Target = 18.91		100.00	103.08		
313 > 119	49	2.469	2.469		4717	14	29:1	14.20 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1101362	18	>100:1			5000.00	4752.24	91.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	0/0	30008	20	>100:1	Target = 0.79		200.00	210.35		
285 > 185	66	2.583	2.583		36023	22	>100:1	0.83 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	-1	527441	18	>100:1			1000.00	993.41	99	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	-1/0	58090	17	91:1	Target = 3.80		100.00	100.23		
363 > 169	47	2.845	2.845		16122	17	92:1	3.60 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	-1	115822	18				1000.00	921.86	89.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	0/1	10730	31	66:1	Target = 2.89	6.98	91.000	84.267		
399 > 99	45	2.864	2.864		4276	28	28:1	2.50 (1.44-4.34)	15.70				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.888	2.888	0/1	94494	19	>100:1	Target = 3.23		94.200	105.20		
377 > 85	45	2.888	2.888		26272	16	>100:1	3.59 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.241	3.241	-1/0	10427	28	92:1	Target = 3.12		95.200	87.654		
449 > 99	45	3.234	3.241		3789	17	31:1	2.75 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.214	0	83315	21	>100:1			5000.00	4628.62	88.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.214	3.214	0/0	3841	14	49:1	Target = 1.75		94.800	97.375		M
427 > 81	64	3.214	3.214		2453	18	3.6:1	1.56 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.241	3.241	0	513896	22	>100:1			1000.00	979.45	93.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.241	3.241	0/0	57396	19	36:1	Target = 2.89		100.00	108.99		
413 > 169	53	3.234	3.241		19342	21	>100:1	2.96 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.625	3.625	0	109523	18	>100:1			1000.00	884.37	83	M
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.625	3.625	0/0	11902	30	38:1	Target = 3.30	3.09	92.800	91.268		M
499 > 99	54	3.632	3.625		2871	33	33:1	4.14 (1.65-4.95)	6.60				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.838	3.838	0/0	45791	16	>100:1			93.200	110.40		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.974	3.974	-1/-1	8611	25		Target = 3.08		96.000	97.998		
549 > 99	54	3.984	3.974		3460	19		2.48 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.288	4.288	0/0	11173	14		Target = 2.72		96.400	130.36		
599 > 99	54	4.288	4.288		4146	19	25:1	2.69 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.446	4.446	0/0	47297	23	>100:1			94.200	126.14		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.804	4.804	0/0	8756	24		Target = 3.27		96.800	92.973		
699 > 99	54	4.798	4.804		3032	20	69:1	2.88 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.632	3.632	0	589389	22	>100:1			1000.00	920.38	92.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.632	3.632	0/0	67039	20	>100:1	Target = 6.51		100.00	105.53		
463 > 169	56	3.625	3.632		8243	25	62:1	8.13 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.904	3.904	1	227854	18	>100:1			1000.00	850.02	85.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.904	3.904	0/-1	26392	17	>100:1	Target = 41.63		100.00	110.08		
498>478	55	3.912	3.904		1056	16	12:1	24.99 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.984	3.984	0	593235	16	>100:1			1000.00	1032.32	103	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.995	3.995	0/0	73660	16	>100:1	Target = 13.80		100.00	106.70		
513 > 169	51	3.984	3.995		4907	19	20:1	15.01 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.984	3.984	0	82251	22	>100:1			5000.00	4758.66	104.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.984	3.984	0/0	3758	20	23:1	Target = 1.94		95.800	101.10		
527 > 81	65	3.984	3.984		2751	12	9.4:1	1.36 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.597	4.597	0/0	3961	15	49:1	Target = 3.54		96.400	94.925		
627 > 80	65	4.588	4.597		1027	19	3.6:1	3.85 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.142	4.142	-1	661512	18	>100:1			5000.00	4377.61	85.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.142	4.142	0/1	10612	29	61:1	Target = 1.37	7.82	100.00	99.960		
570 > 483	58	4.142	4.142		7761	27	66:1	1.36 (0.68-2.05)	5.08				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.318	1	81767	14	>100:1			1000.00	906.62	90.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.328	1/0	10022	20	30:1			100.00	112.16		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.338	1	42739	14	74:1			1000.00	908.54	95	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.338	4.338	0/-1	4268	20	41:1	Target = 1.11		100.00	92.133		
512 > 219	57	4.338	4.338		5708	18	61:1	0.74 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.308	4.308	0	606735	15	>100:1			5000.00	4684.74	88	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.308	4.308	0/0	13568	27		Target = 1.51	5.24	100.00	114.67		
584 > 526	60	4.318	4.308		8762	34	57:1	1.54 (0.75-2.26)	4.48				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.308	4.308	0	631780	16	>100:1			1000.00	1049.03	99.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.308	4.308	0/0	65776	15	96:1	Target = 14.52		100.00	107.45		
563 > 169	52	4.298	4.308		3288	20	36:1	20.00 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.482	0	95636	15	>100:1			1000.00	901.57	94.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.492	4.492	0/0	11395	14	>100:1			100.00	122.40		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.501	4.501	0	36158	15	>100:1			1000.00	840.89	84.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.510	4.510	0/0	5316	18	37:1	Target = 1.06		100.00	110.94		
526 > 219	59	4.501	4.510		4562	16	33:1	1.16 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.580	4.580	0	608629	17	>100:1			1000.00	1013.81	100.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.580	4.580	-1/-1	68509	16	13:1	Target = 10.70		100.00	105.59		
613 > 169	38	4.580	4.580		6169	23	32:1	11.10 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.825	4.825	-1/-1	65953	21	>100:1	Target = 8.31		100.00	103.10		
663 > 169	38	4.825	4.825		8081	22	>100:1	8.16 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.050	5.050	0	786507	21	>100:1			1000.00	967.43	93.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.050	5.050	-1/-1	67830	21	38:1	Target = 12.17		100.00	98.796		
713 > 169	42	5.050	5.050		5424	18	>100:1	12.50 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.466	5.466	0	876588	19	>100:1			1000.00	1009.85	99.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.466	5.466	0/0	61039	20	11:1	Target = 10.43		100.00	108.72		
813 > 269	40	5.466	5.466		4678	21	>100:1	13.04 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.877	5.877	-1/-1	81180	29	>100:1	Target = 13.67		100.00	101.73		
913 > 319	40	5.872	5.877		5062	33	>100:1	16.03 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.984	3.984	-1	643174	16				1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	0	654492	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.241	3.241	0	515920	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.705	1.705	0	550501	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.625	3.625	0	104129	20	>100:1			1000.00			

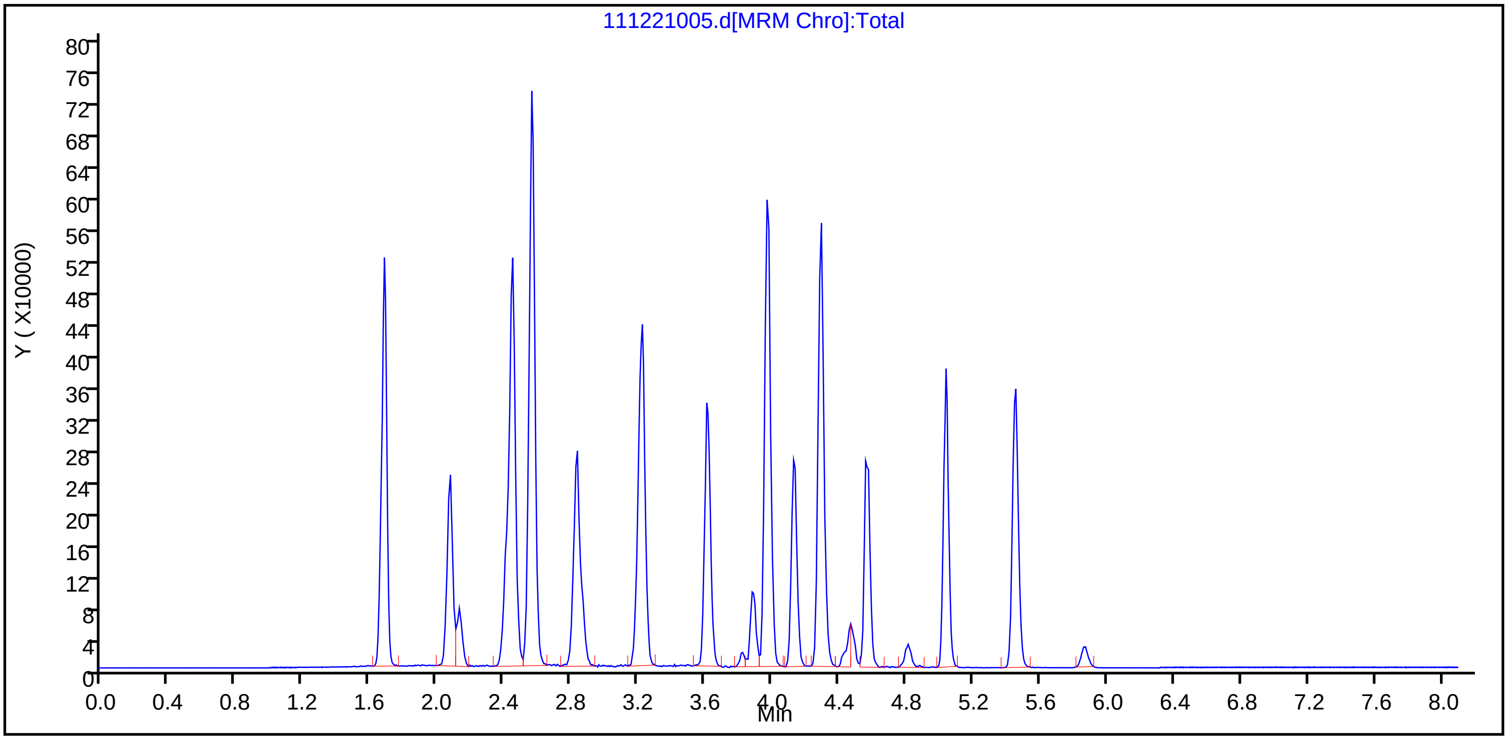
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

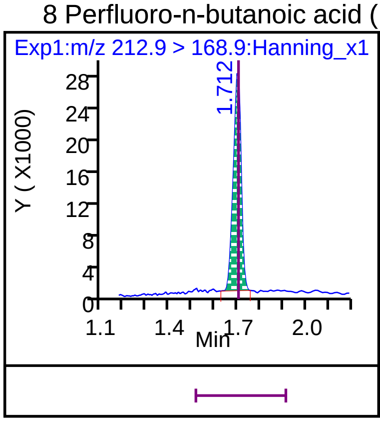
Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

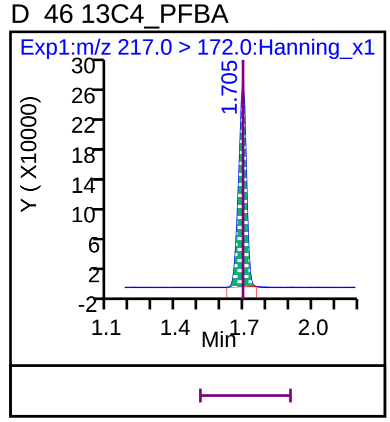
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d		
Injection Date:	12-Nov-2021 12:52:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



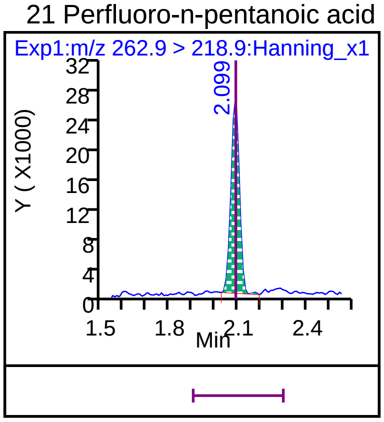
8 Perfluoro-n-butanoic acid (PFBA)



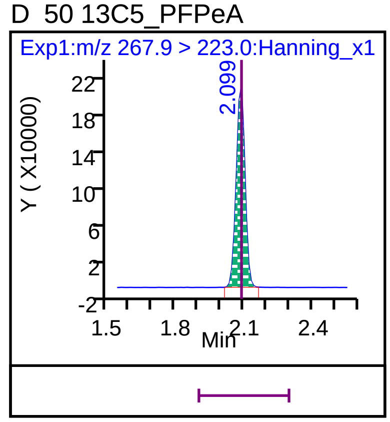
D 46 13C4_PFBA



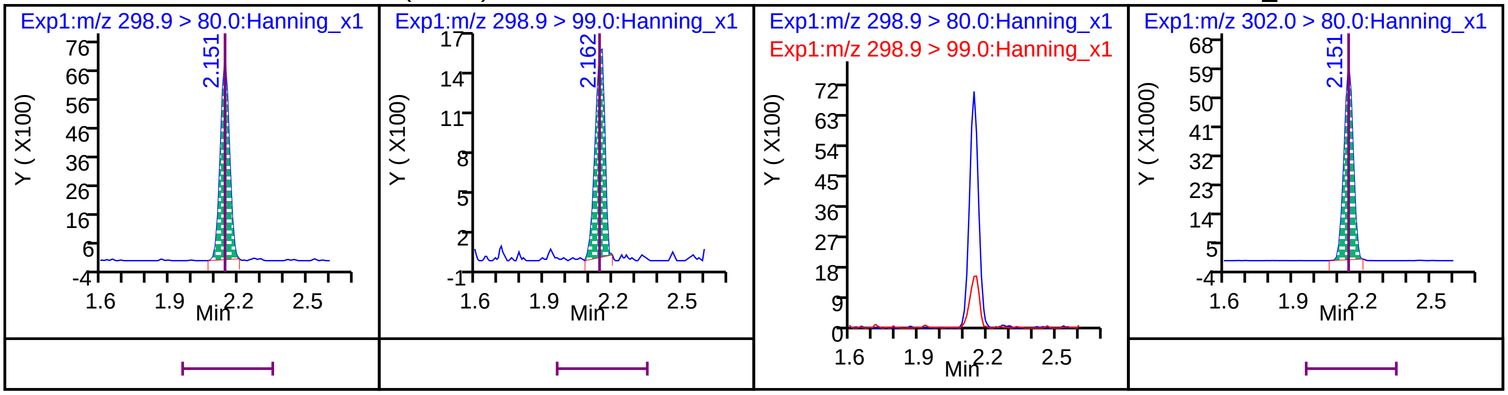
21 Perfluoro-n-pentanoic acid (PFPeA)



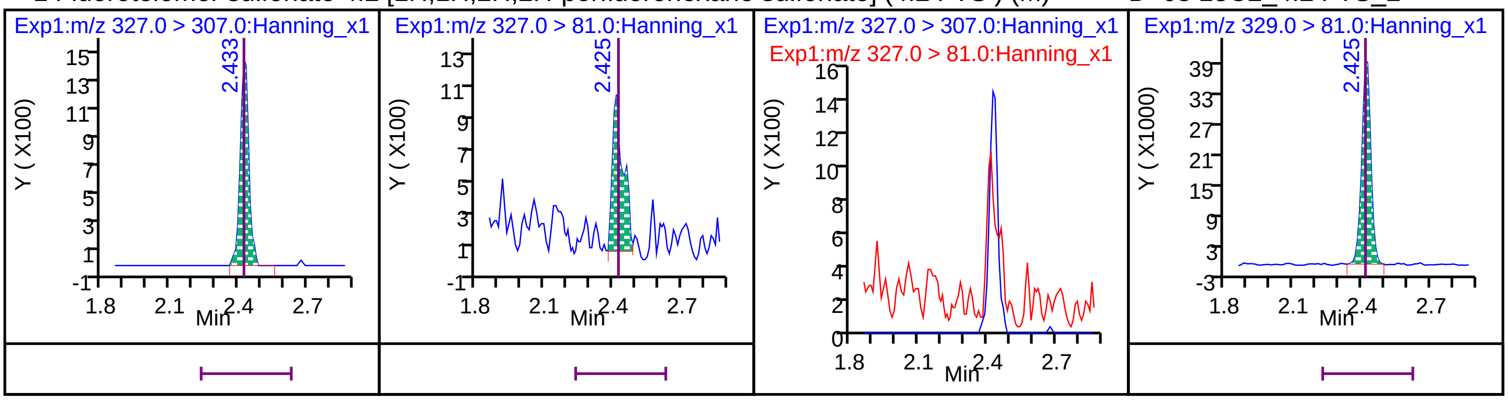
D 50 13C5_PFPeA



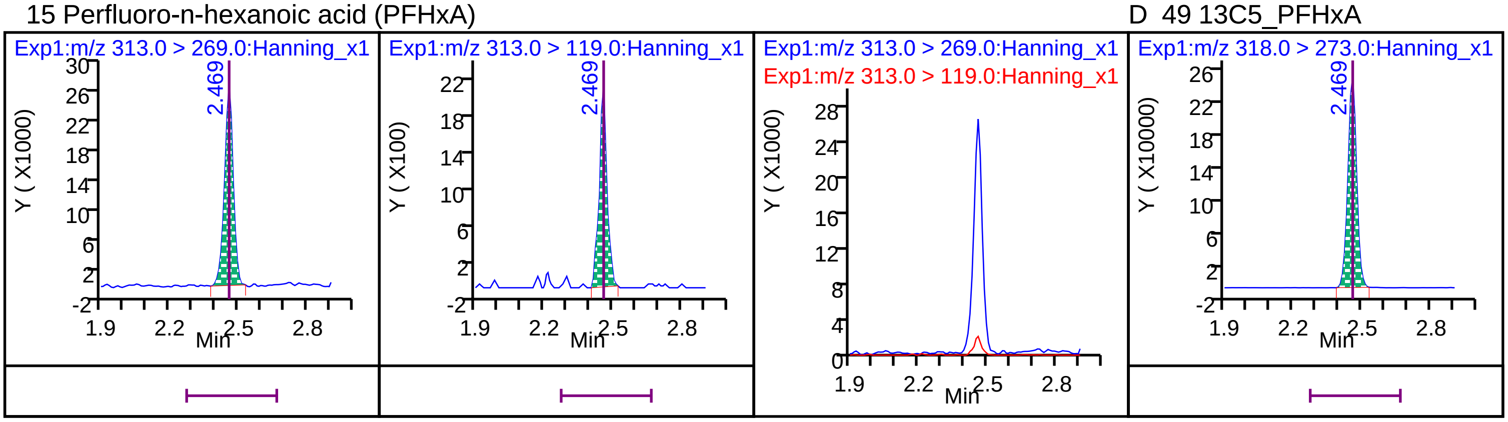
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



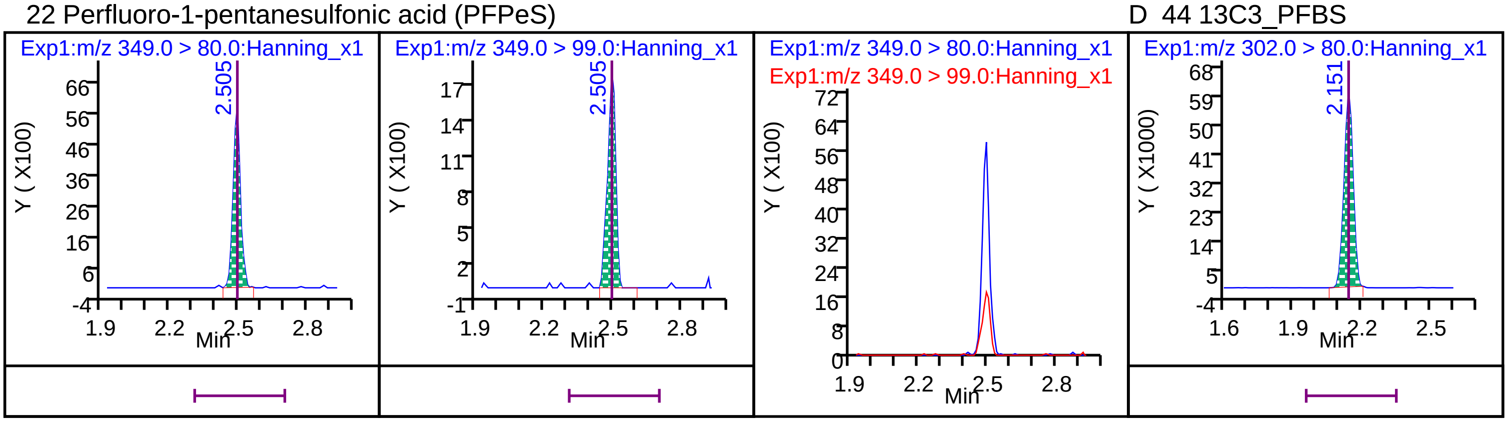
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

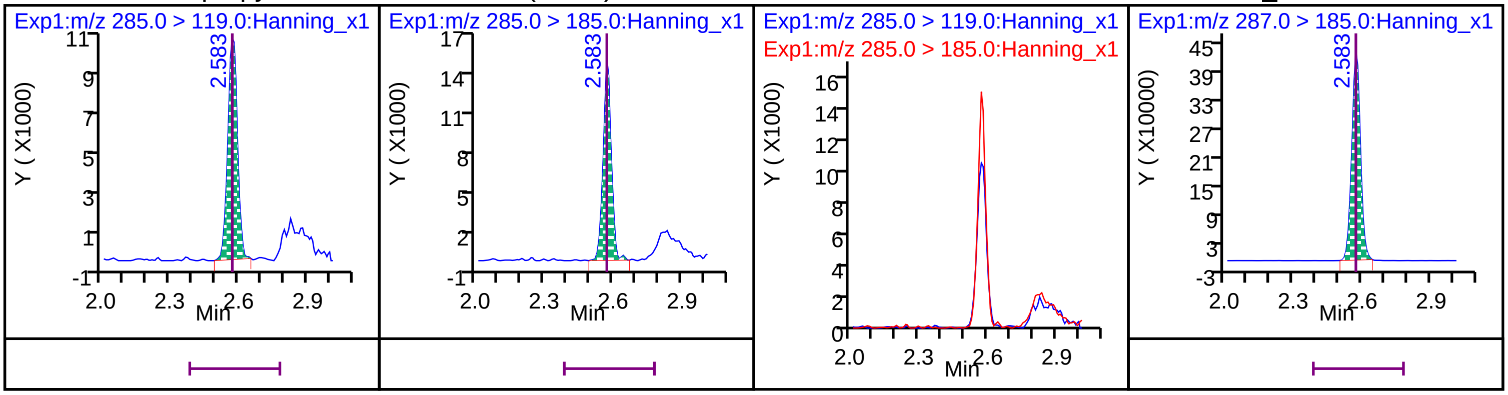


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

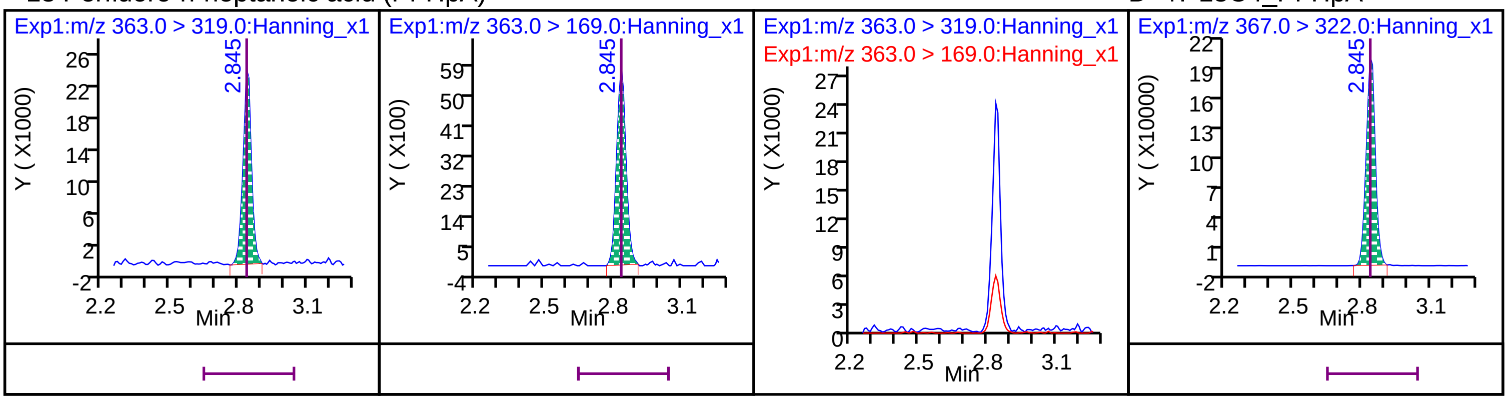


Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d

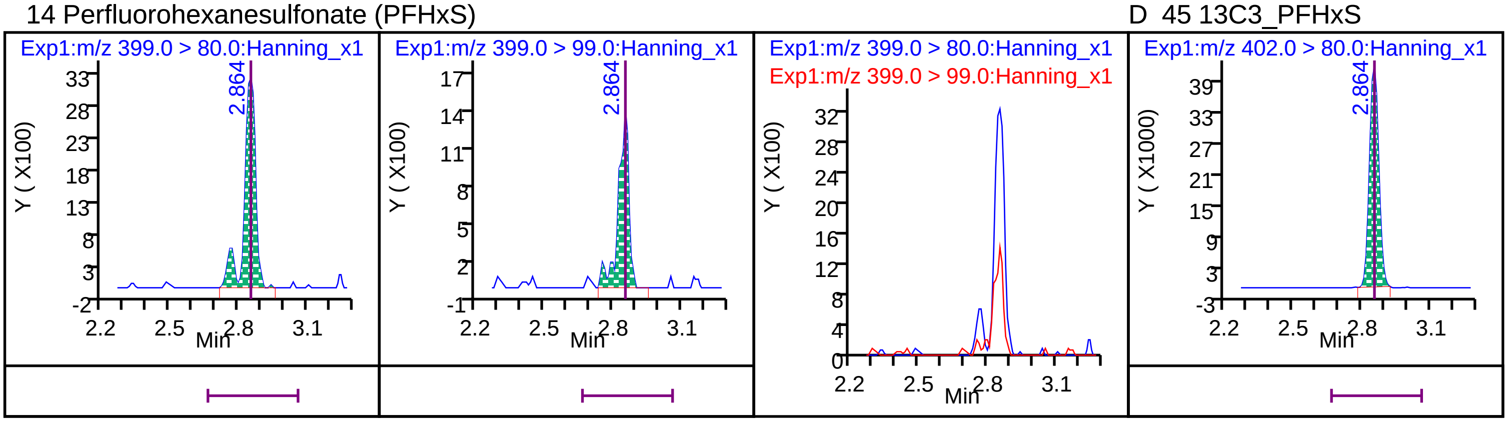
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



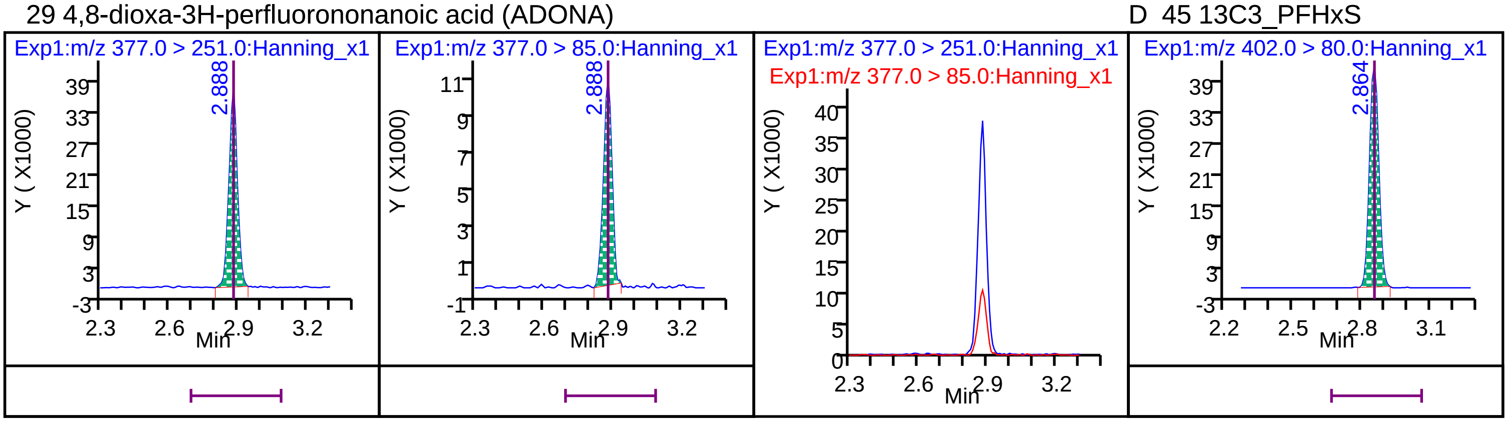
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

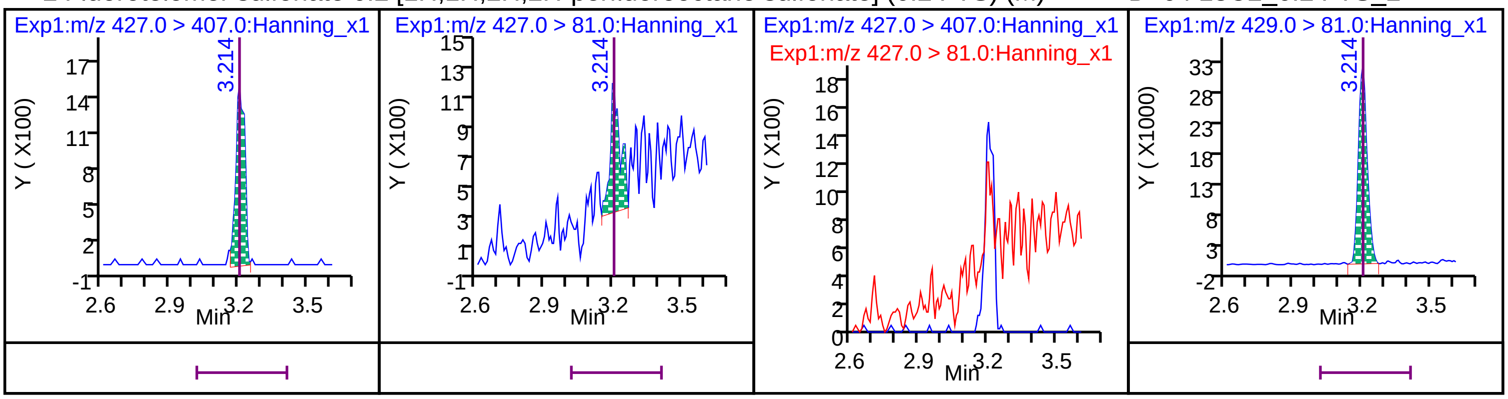


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

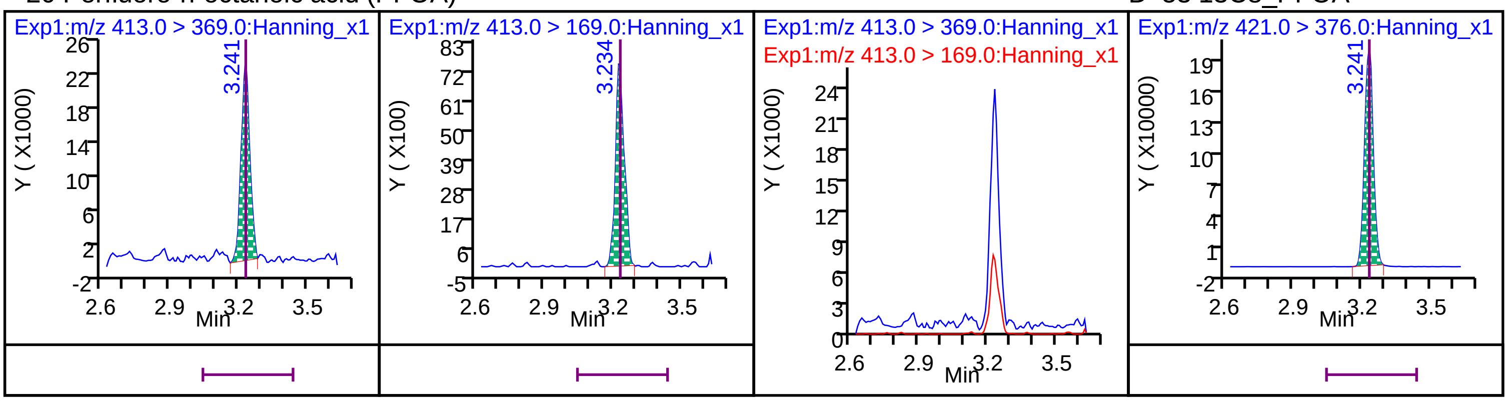


Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d

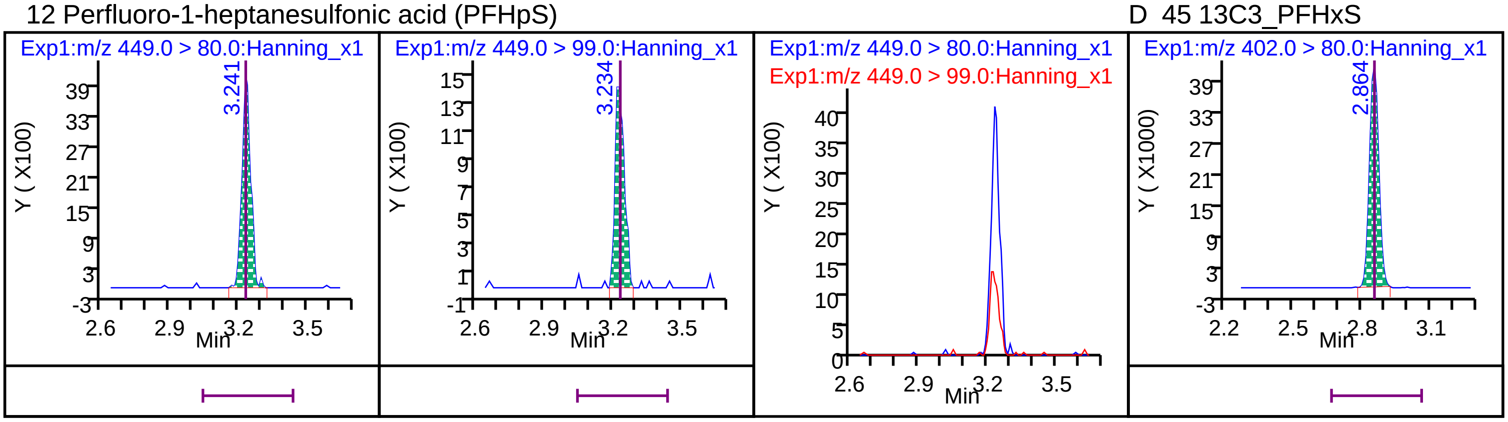
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



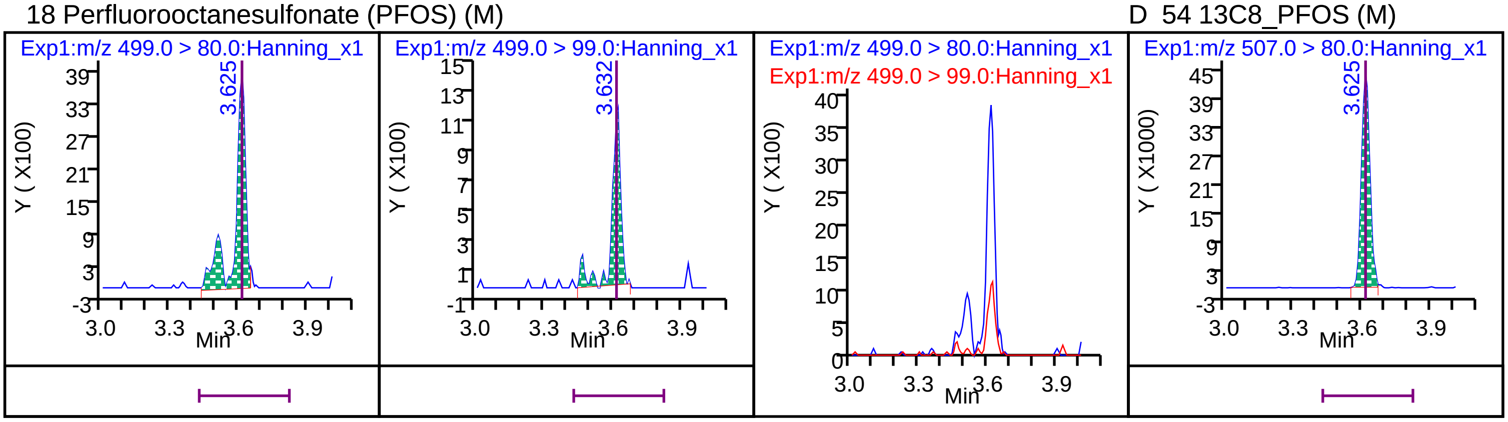
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



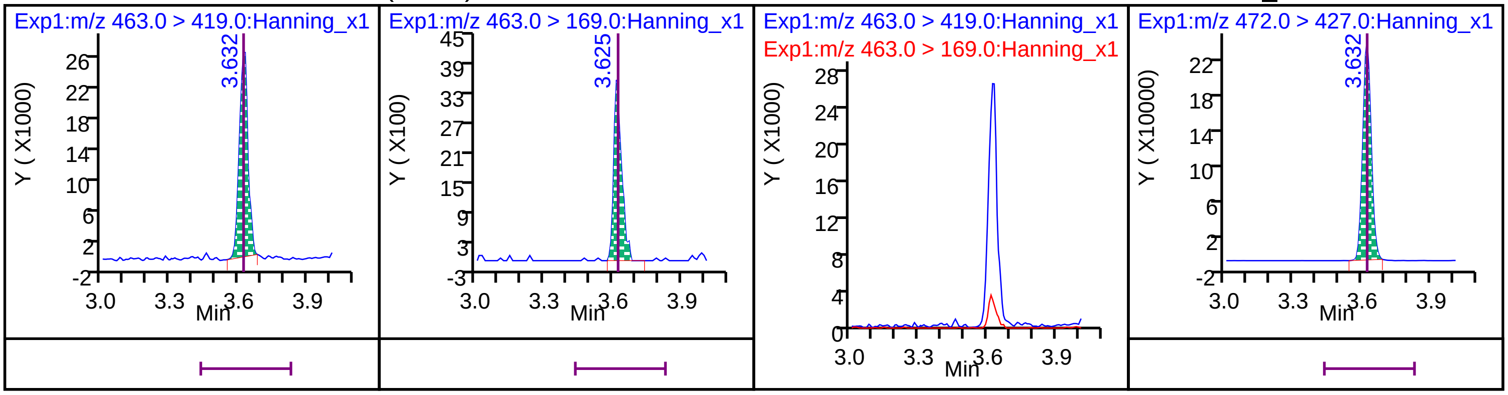
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



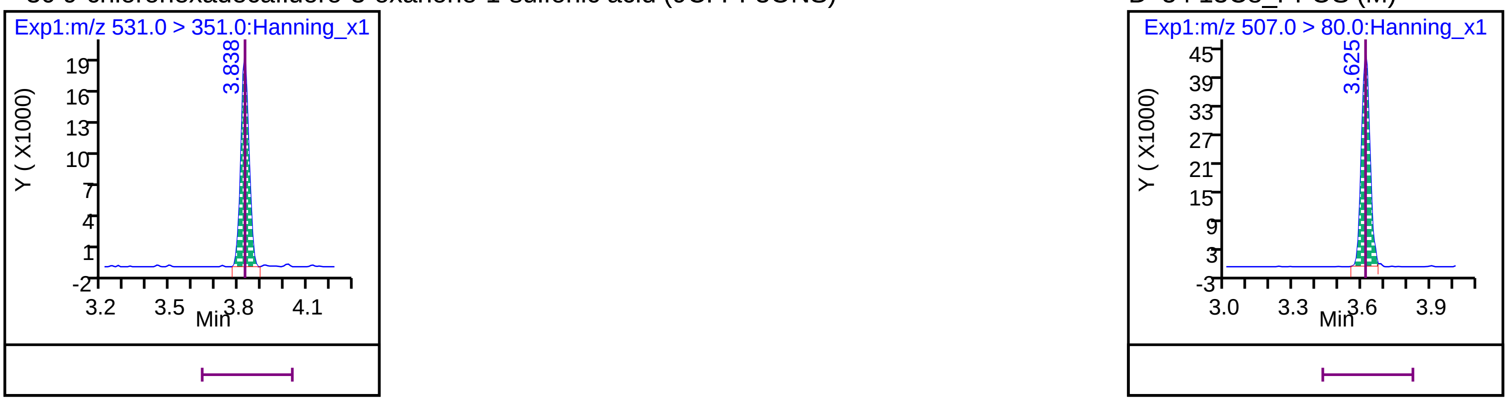
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS (M)



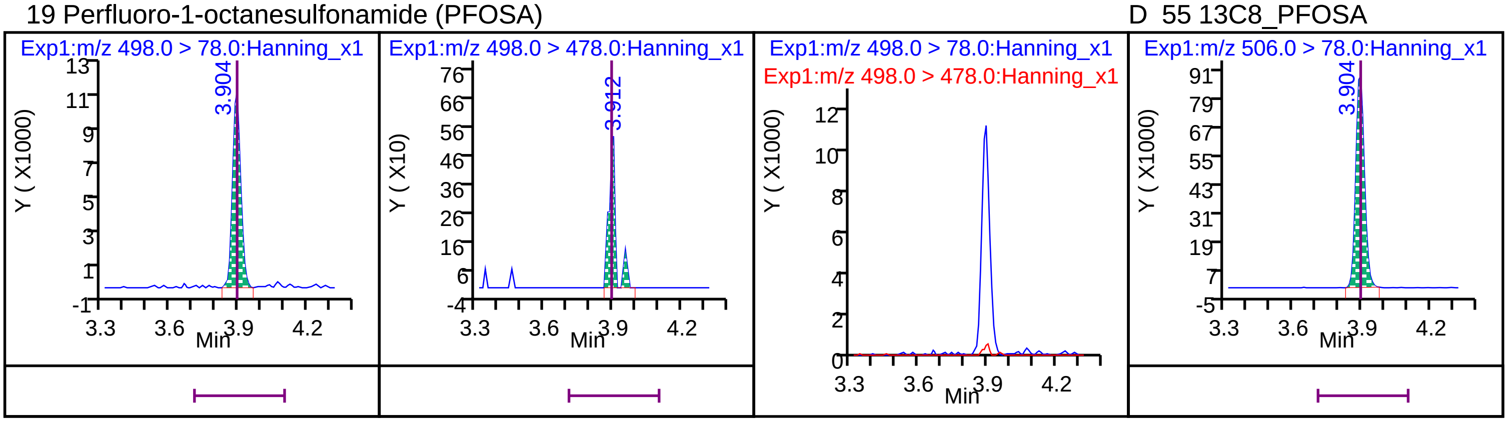
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



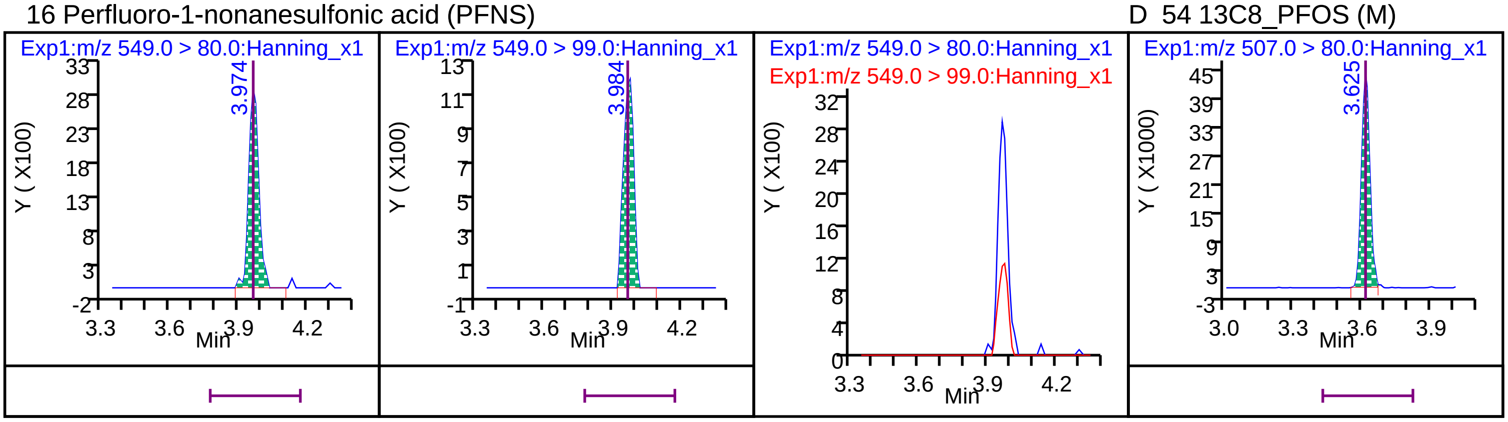
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS (M)



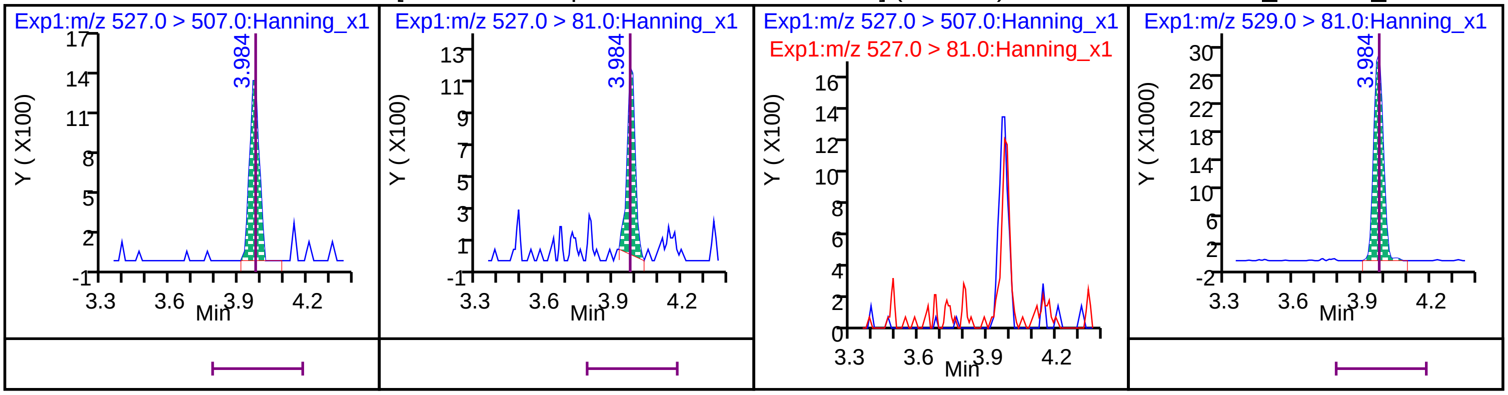
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



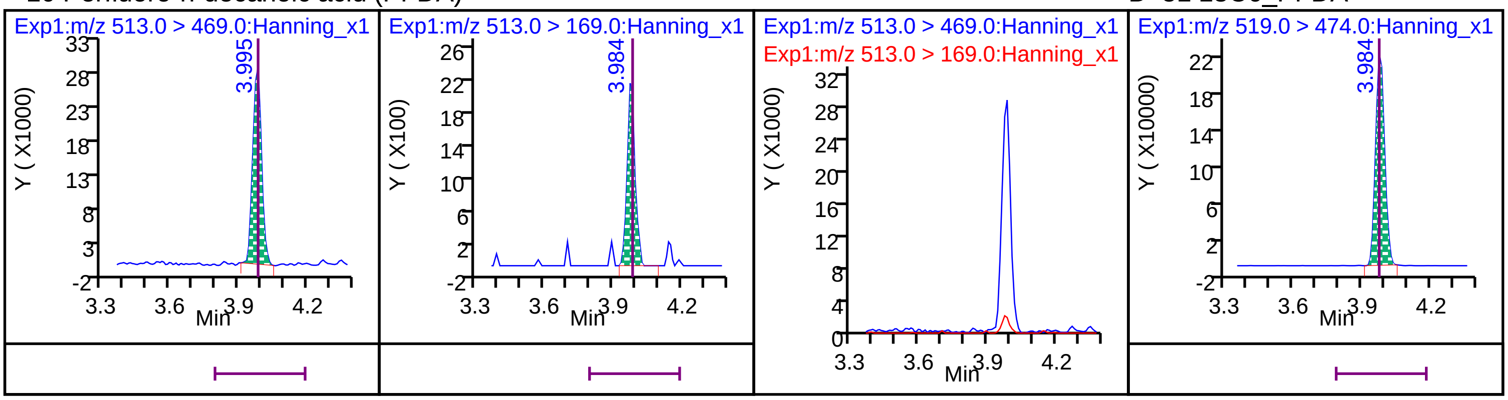
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS (M)



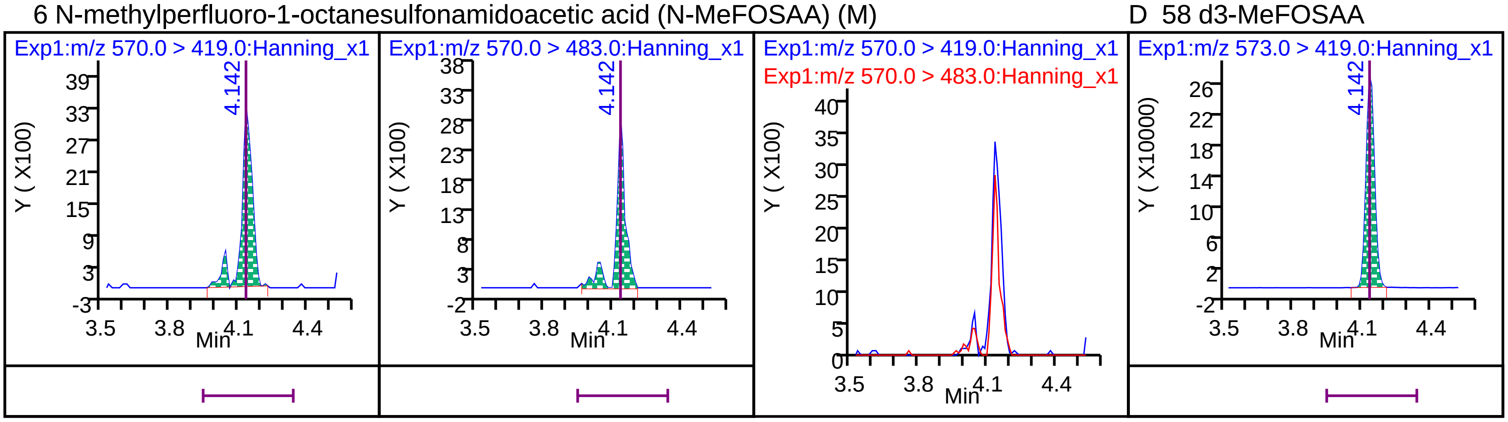
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)   D 65 13C2_8:2 FTS_2



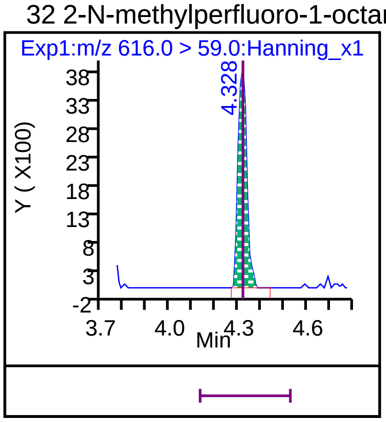
10 Perfluoro-n-decanoic acid (PFDA)   D 51 13C6_PFDA

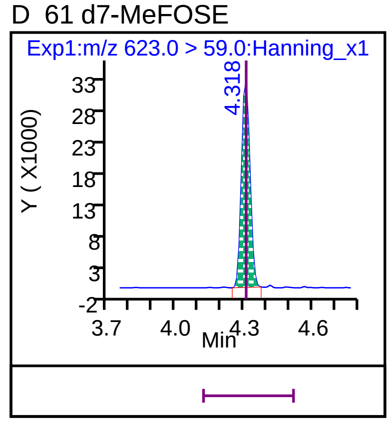


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)   D 58 d3-MeFOSAA

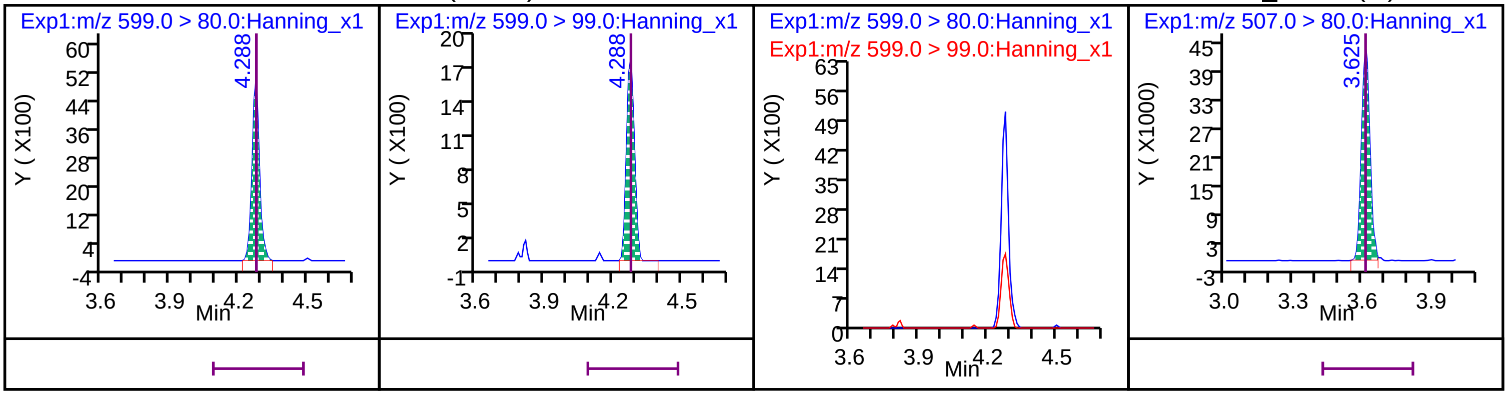


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)   D 61 d7-MeFOSE

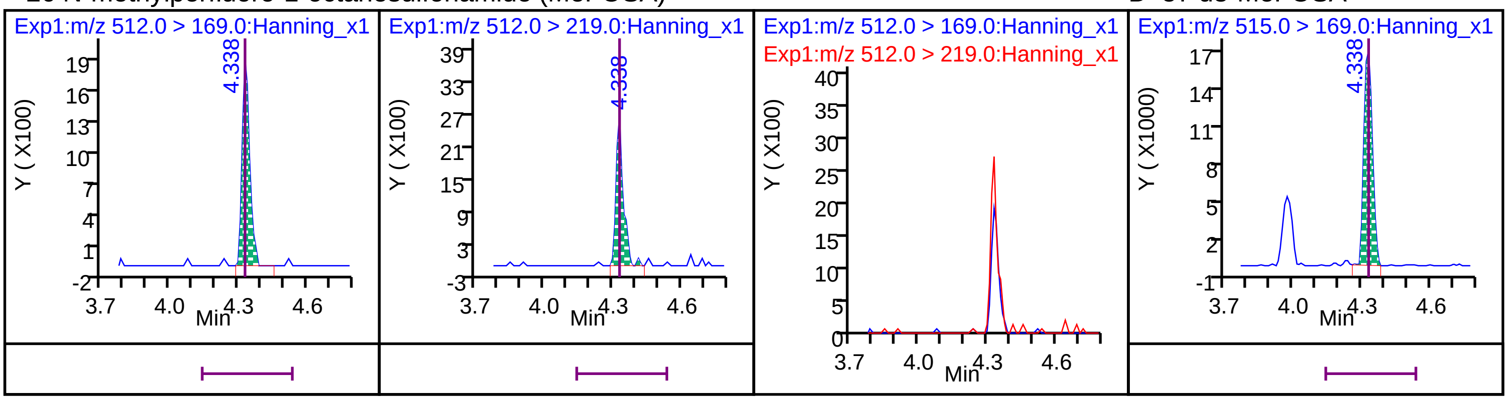




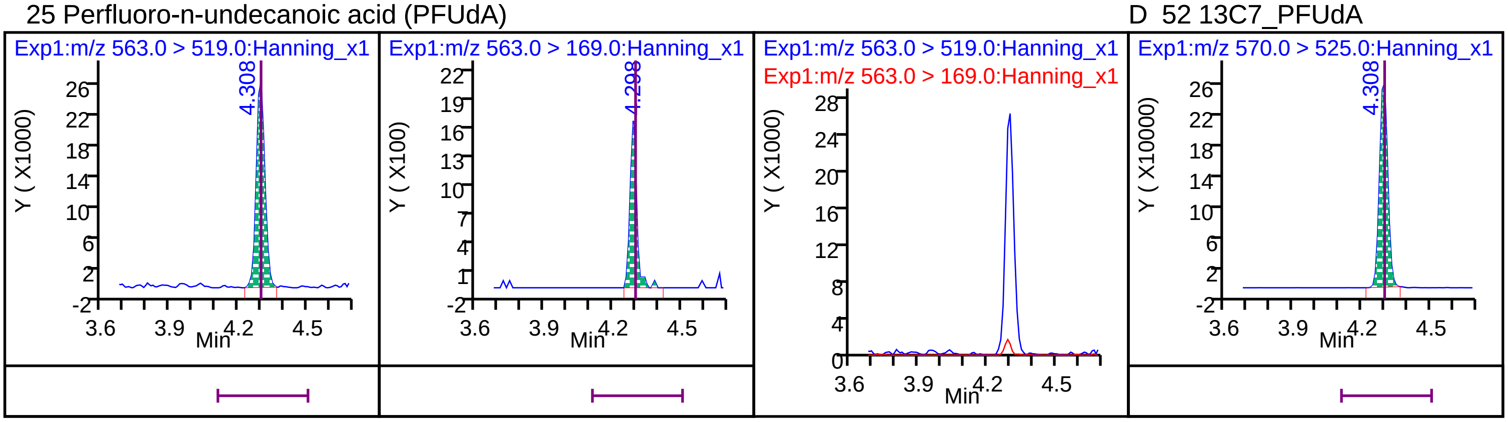
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS (M)



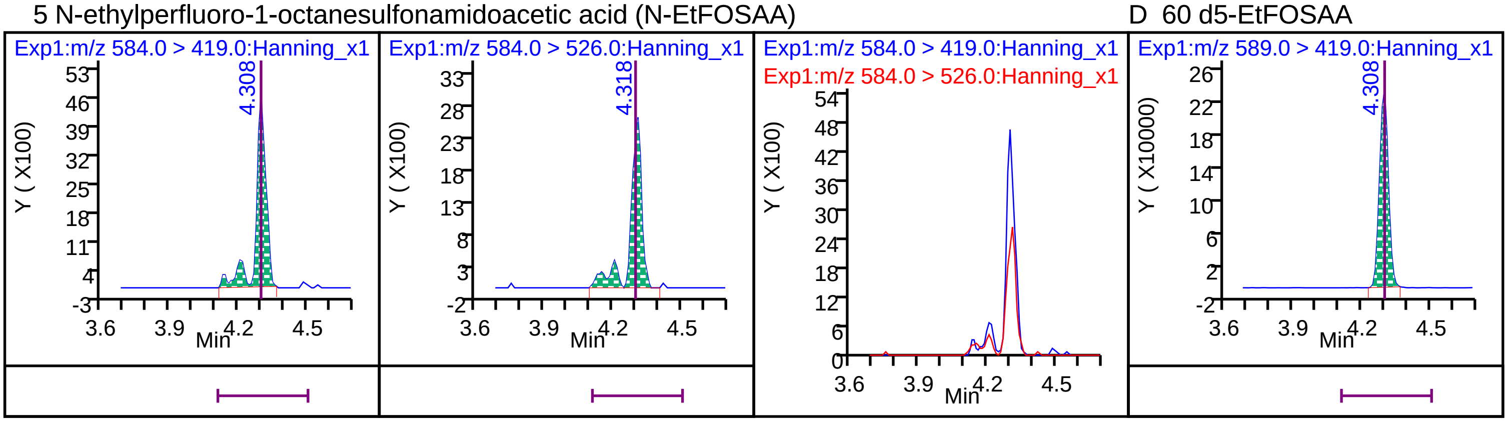
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



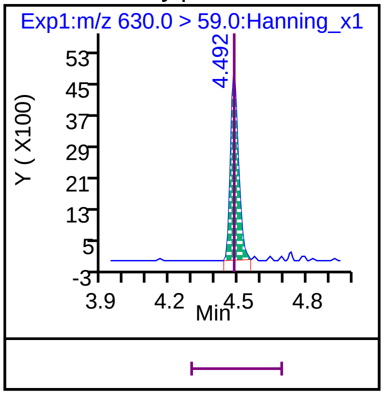
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



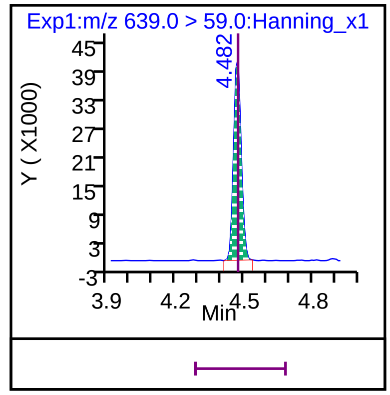
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



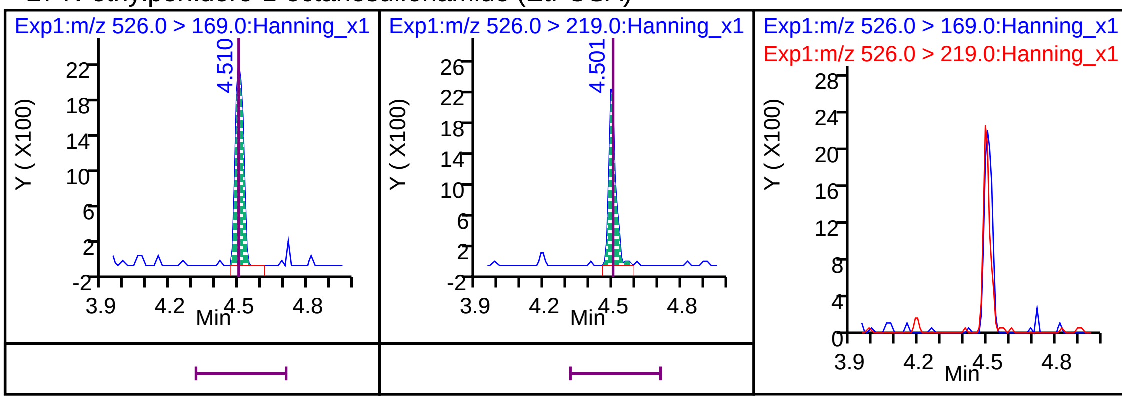
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



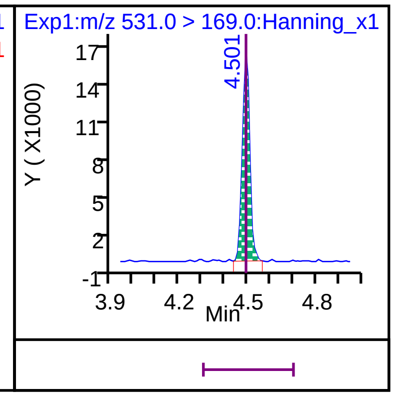
D 62 d9-EtFOSE



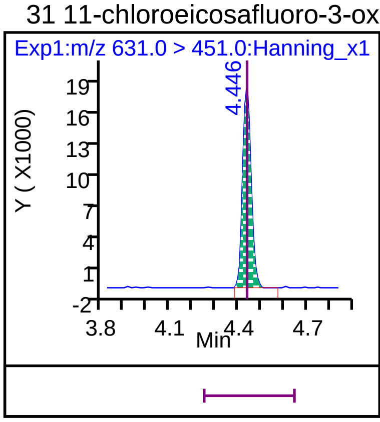
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



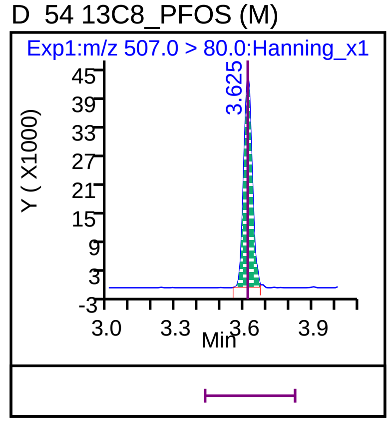
D 59 d5-EtFOSA



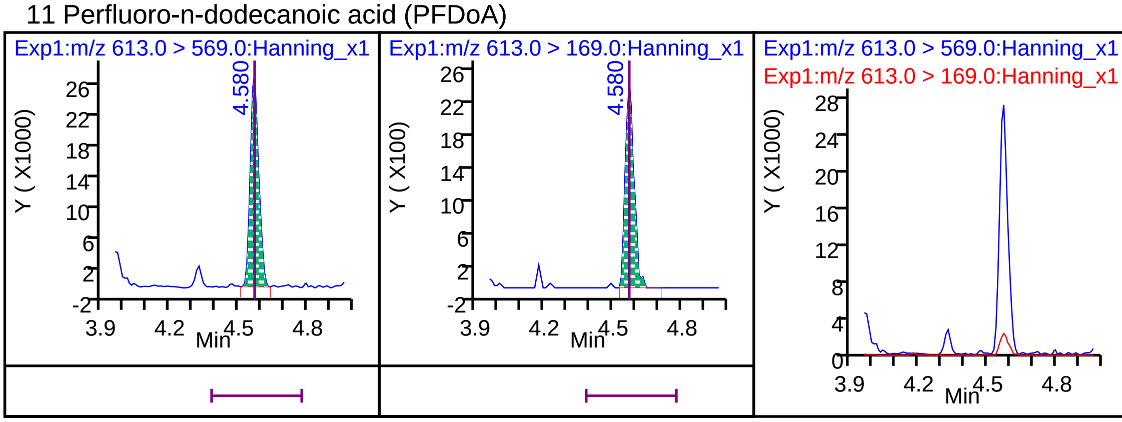
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



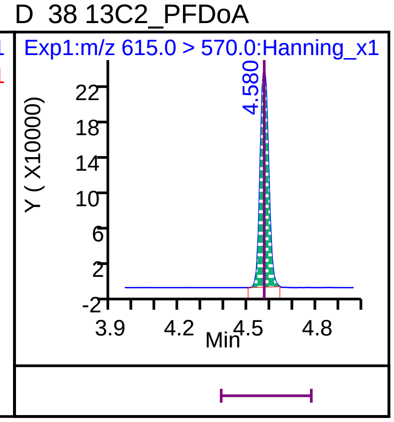
D 54 13C8_PFOS (M)



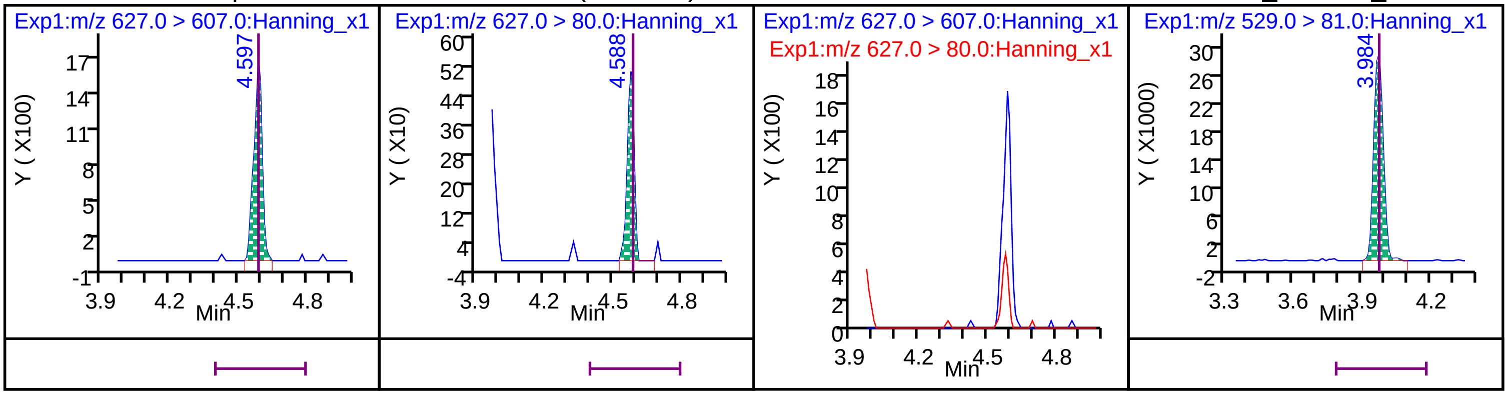
11 Perfluoro-n-dodecanoic acid (PFDoA)



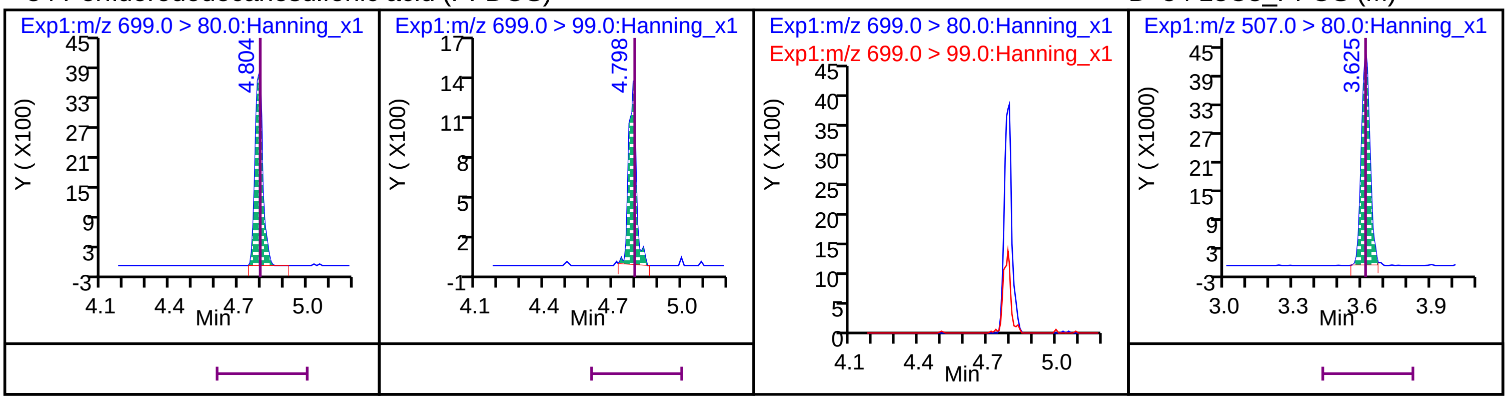
D 38 13C2_PFDoA



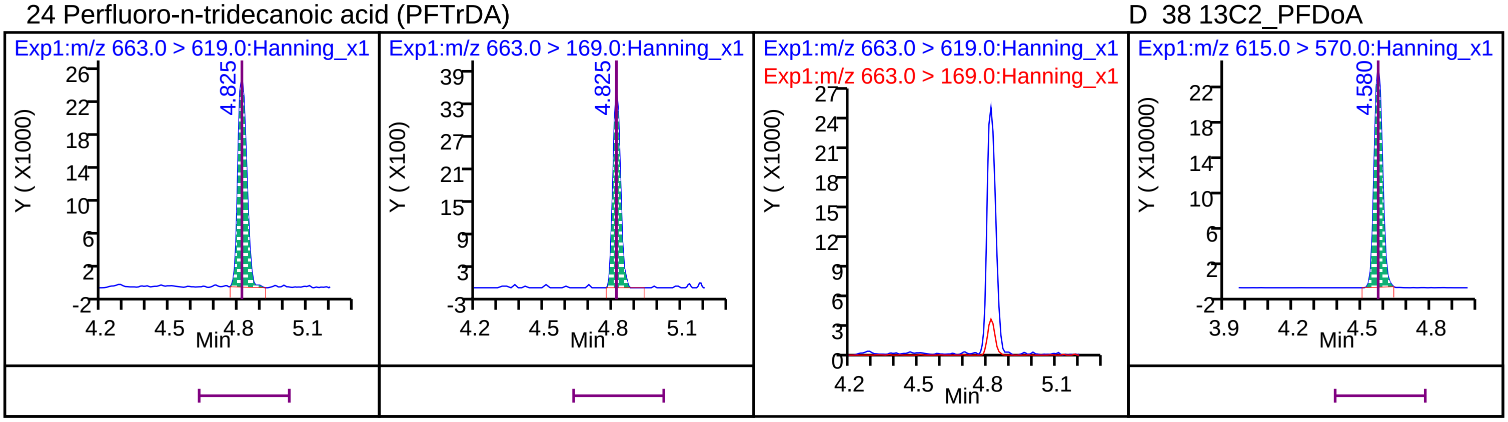
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



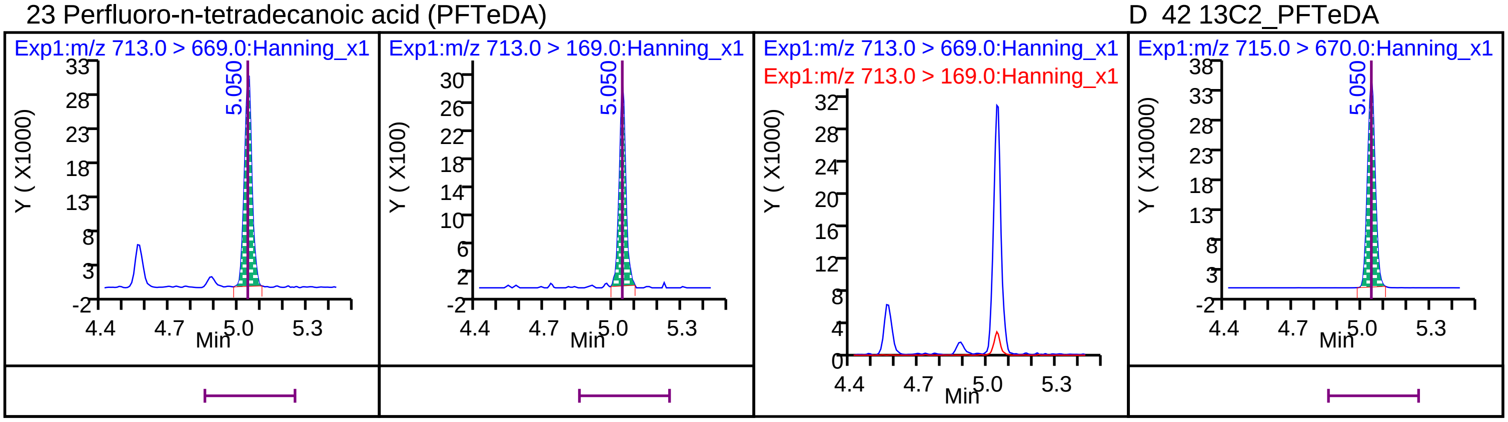
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS (M)



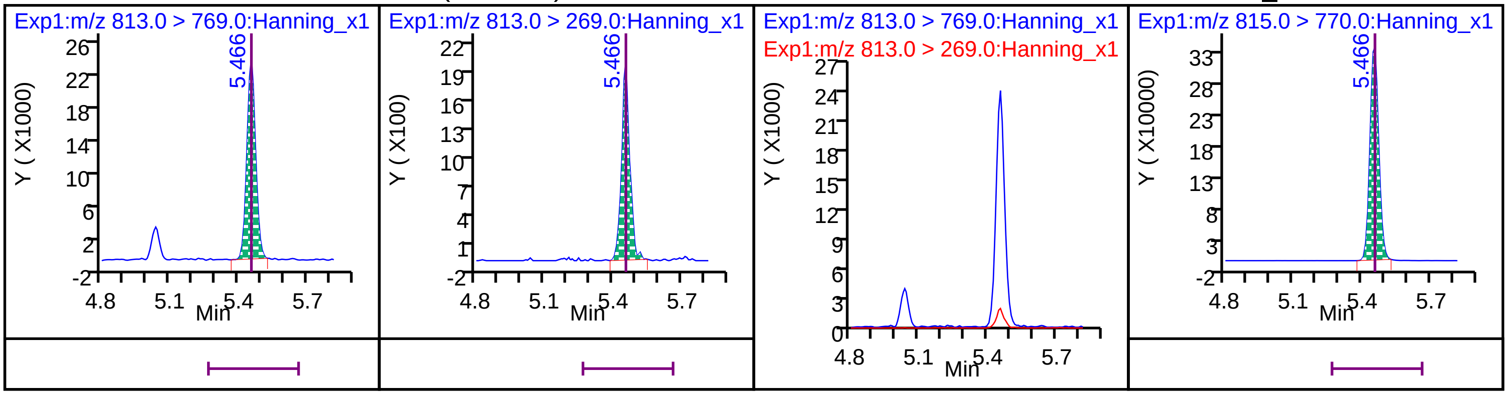
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



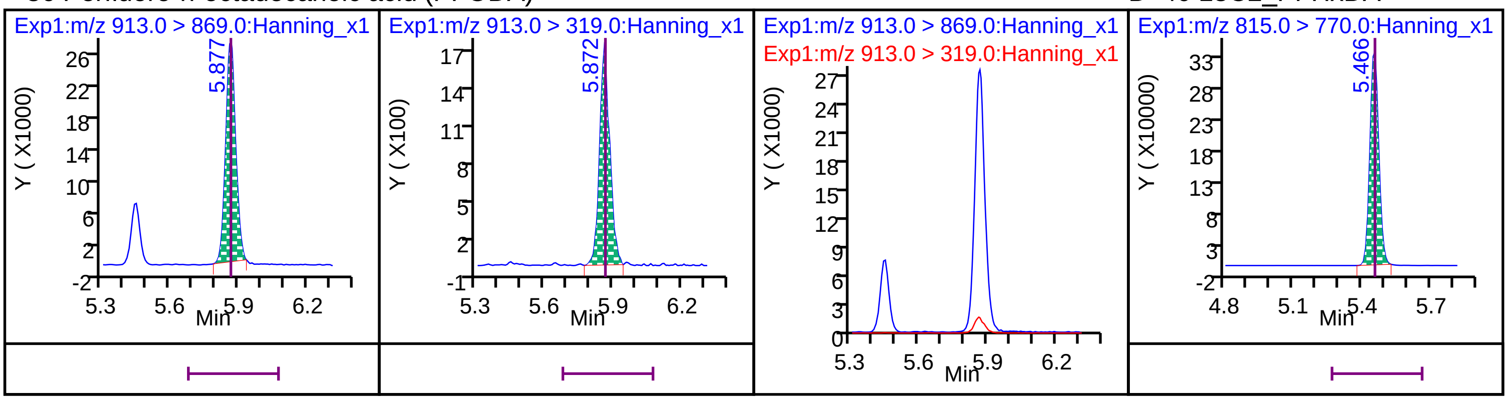
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



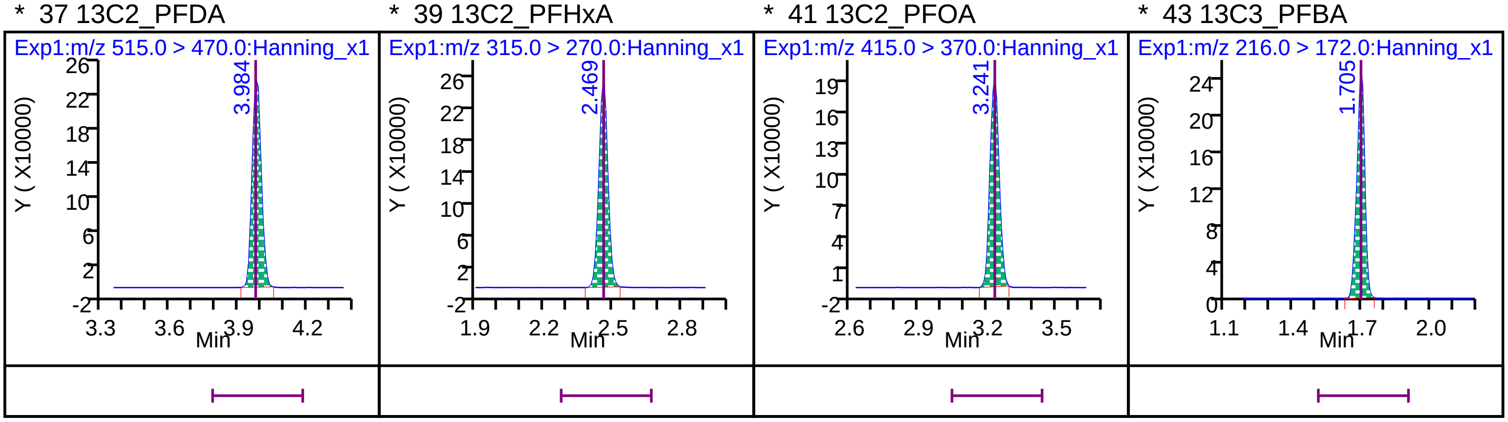
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



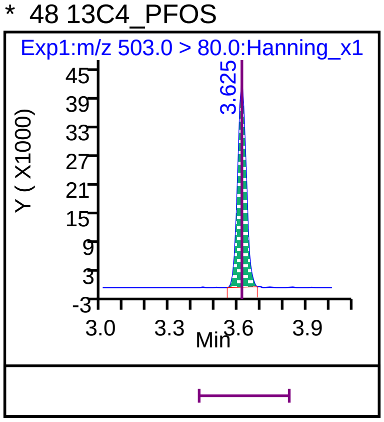
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d

Injection Date: 12-Nov-2021 12:52:59 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 100_SVLC-1741

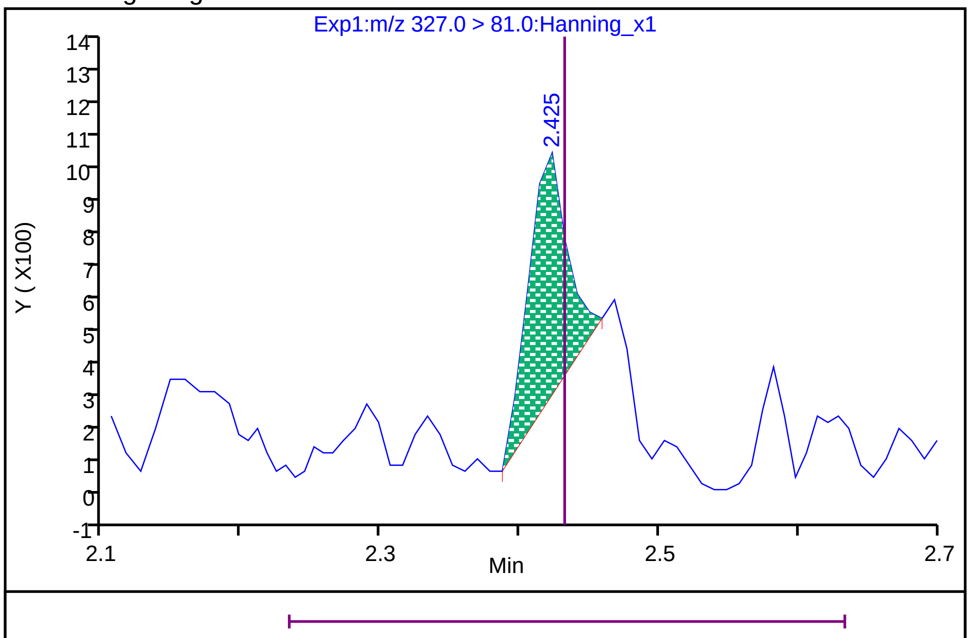
Sample Info: ID CCV 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

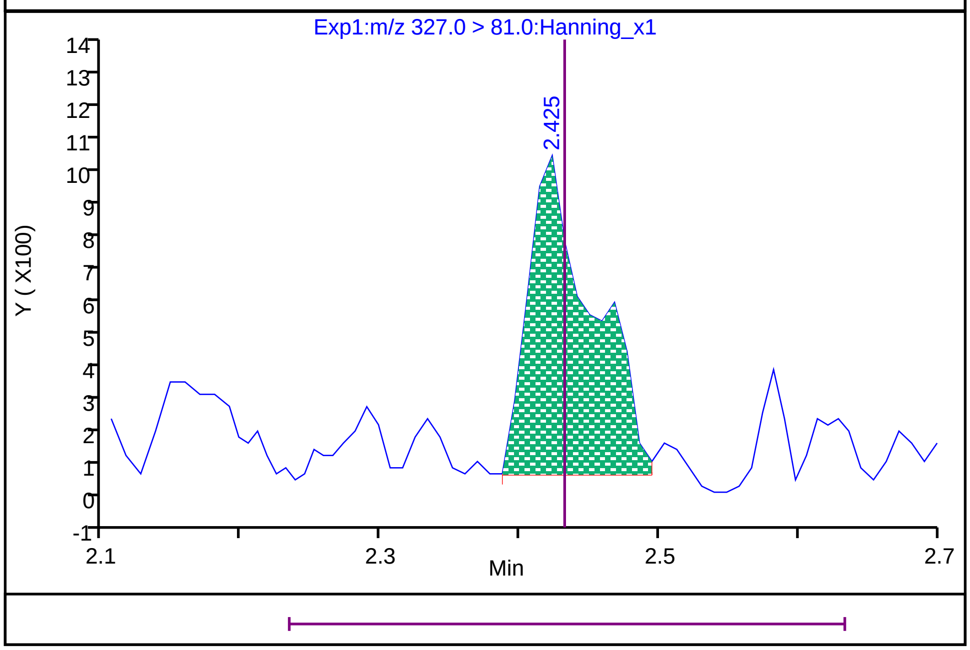
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.425
Area: 1426
Amount: 78.153
Amount Units: ng/L



RT: 2.425
Area: 3081
Amount: 78.153
Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 13:58:53

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

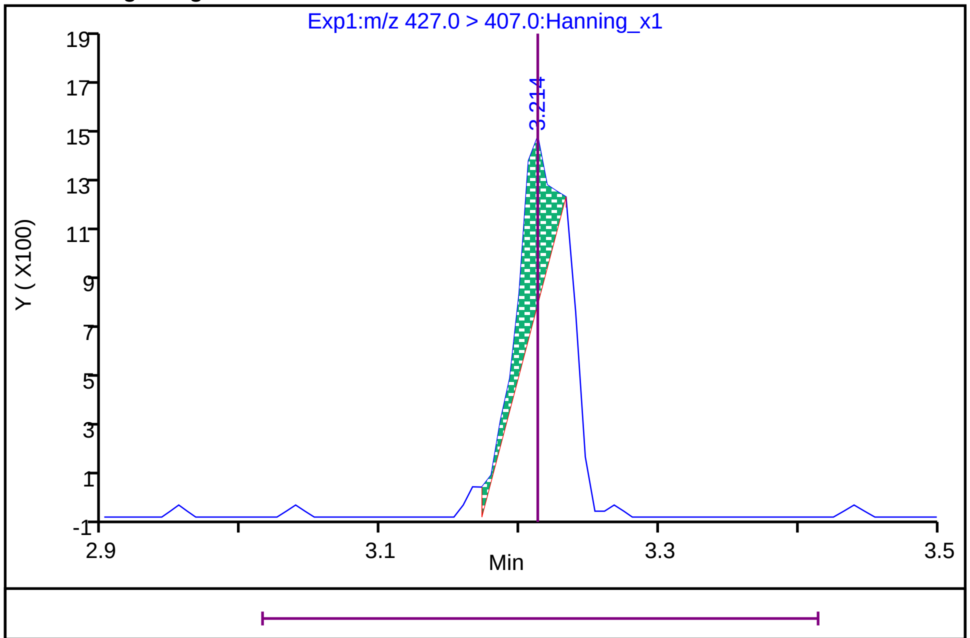
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d		
Injection Date:	12-Nov-2021 12:52:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

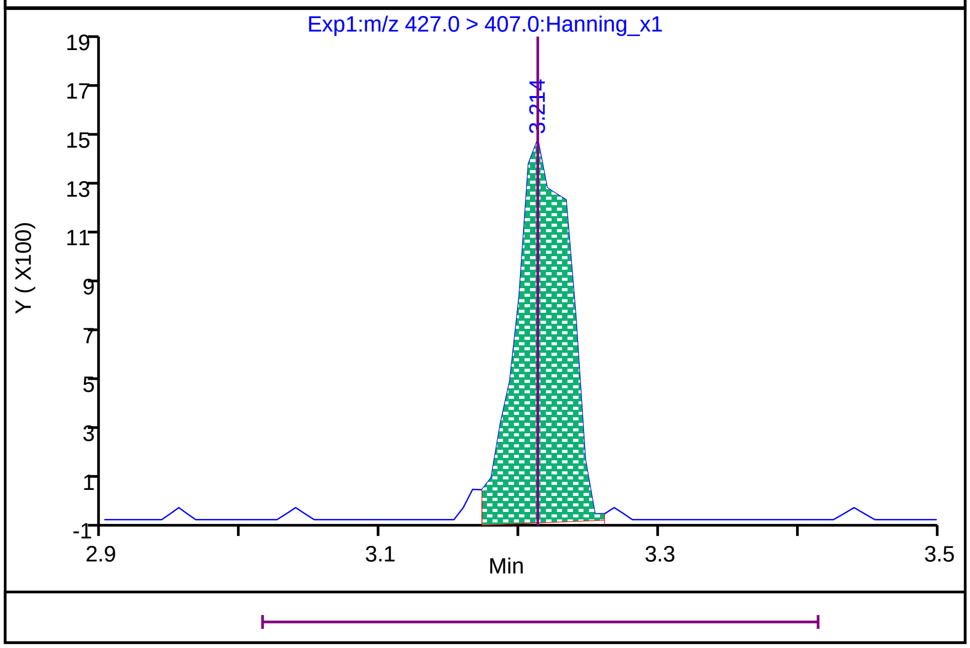
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT:	3.214
Area:	950
Amount:	97.375
Amount Units:	ng/L



RT:	3.214
Area:	3841
Amount:	97.375
Amount Units:	ng/L



Data Editor: matthew.miller, 12-Nov-2021 13:59:07

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

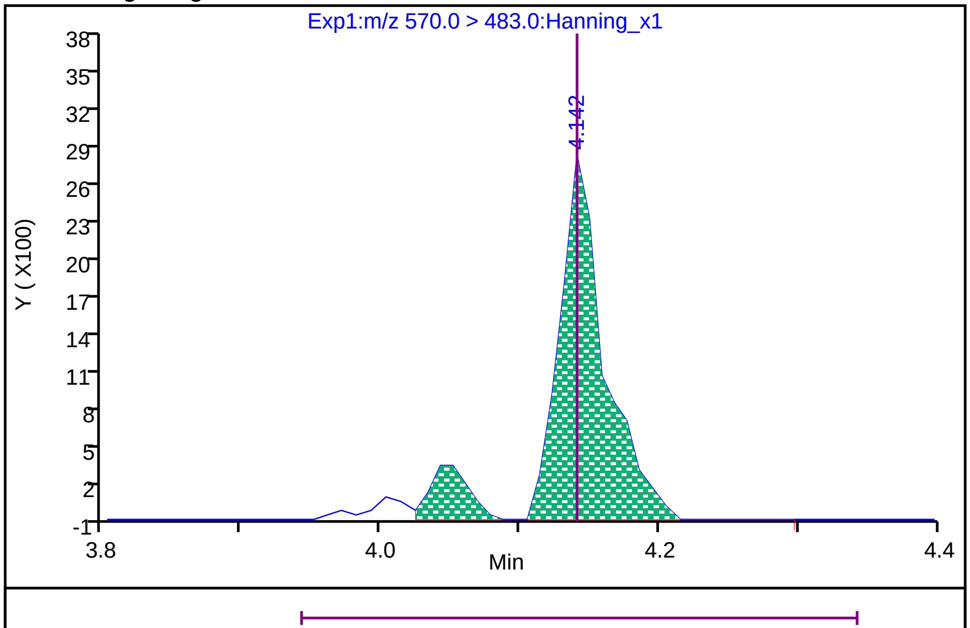
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d		
Injection Date:	12-Nov-2021 12:52:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

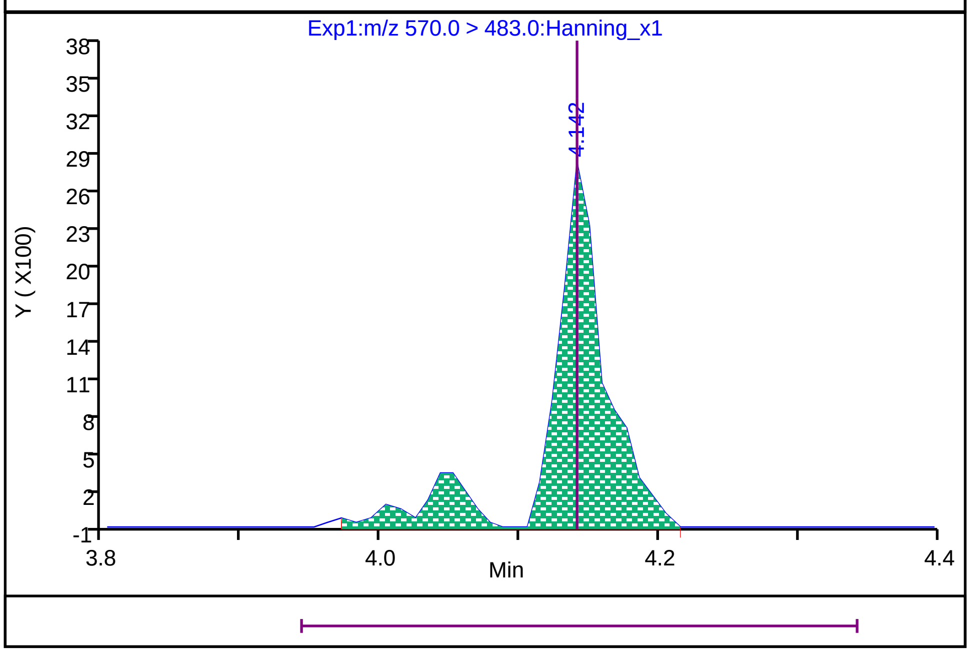
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.142
Area:	7189
Amount:	99.960
Amount Units:	ng/L



RT:	4.142
Area:	7761
Amount:	99.960
Amount Units:	ng/L



Data Editor: matthew.miller, 12-Nov-2021 13:59:29

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

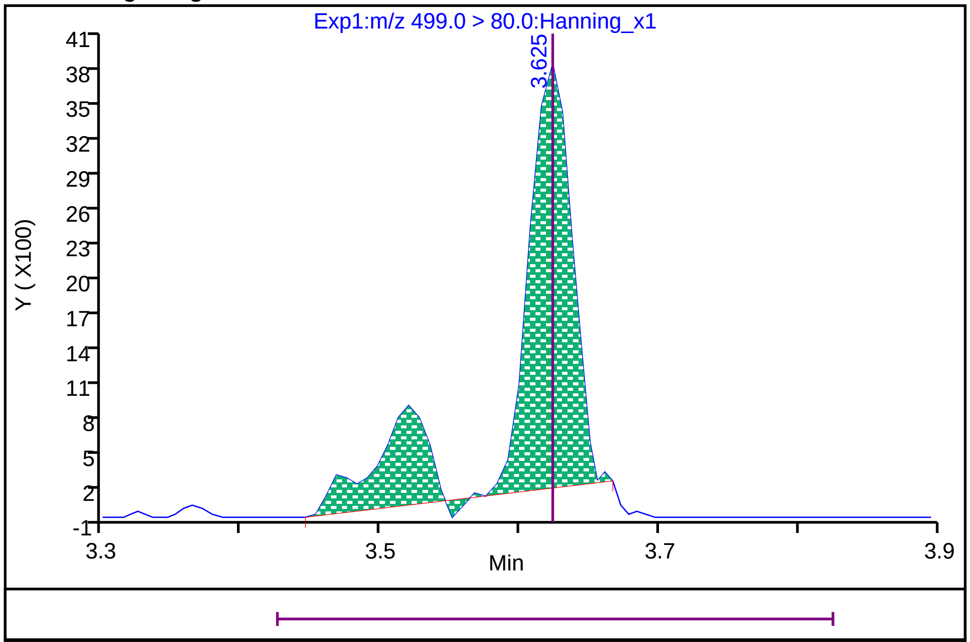
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d		
Injection Date:	12-Nov-2021 12:52:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

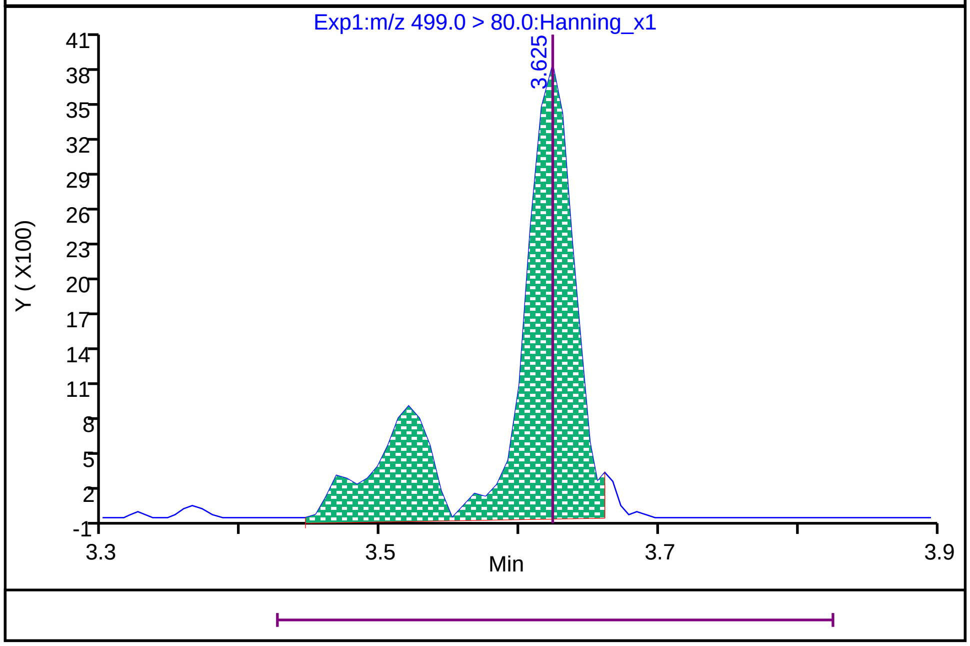
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.625
Area:	9684
Amount:	74.169
Amount Units:	ng/L



RT:	3.625
Area:	11902
Amount:	91.268
Amount Units:	ng/L



Data Editor: matthew.miller, 12-Nov-2021 13:59:19

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221005.d

Injection Date: 12-Nov-2021 12:52:59 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 100_SVLC-1741

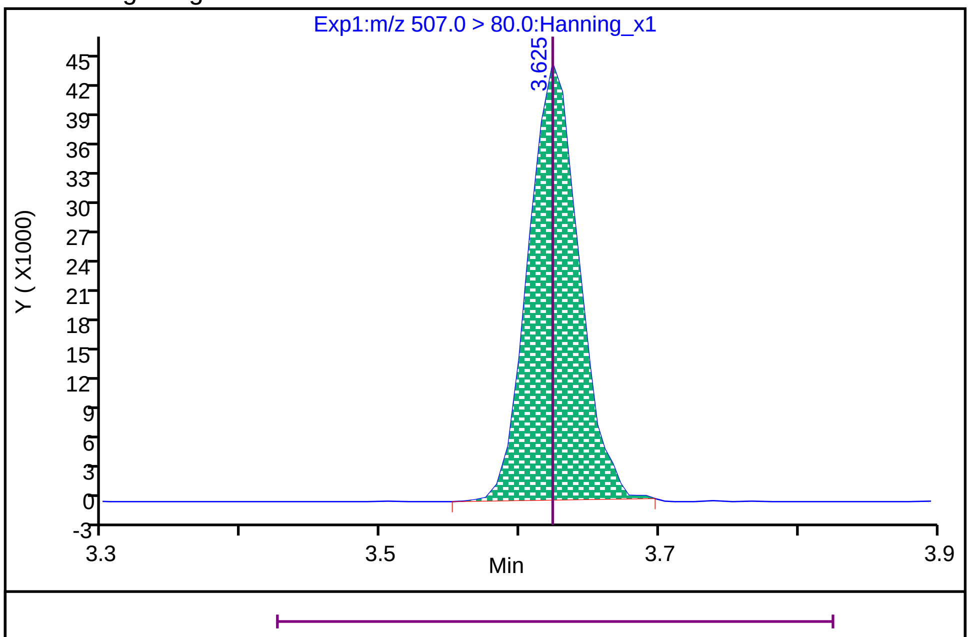
Sample Info: ID CCV 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

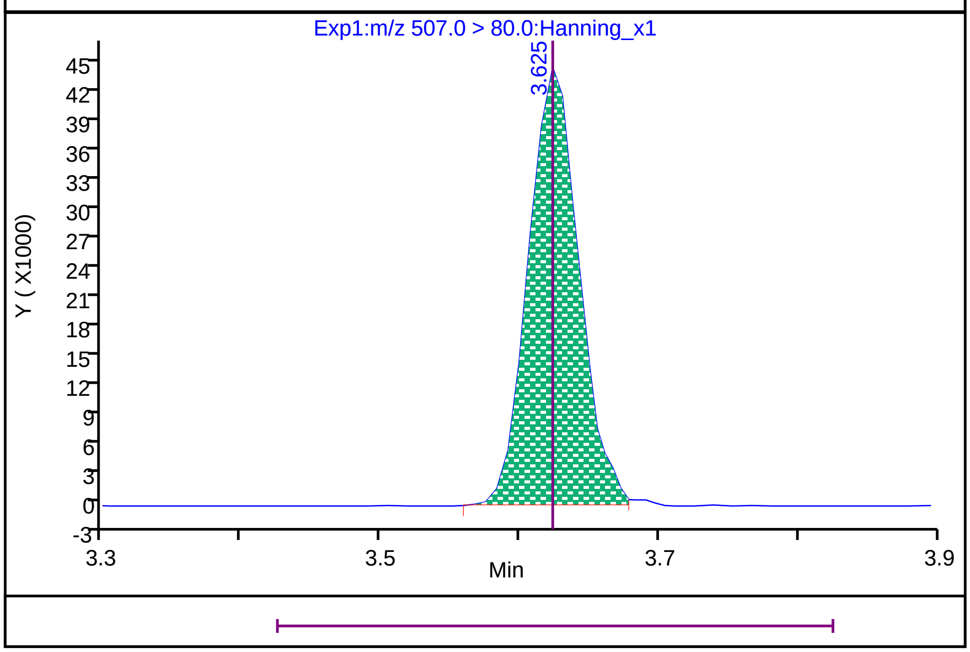
D 54 13C8_PFOS, CAS: SESI-0098

Processing Integration Results

RT: 3.625
Area: 109657
Amount: 885.45
Amount Units: ng/L



RT: 3.625
Area: 109523
Amount: 884.37
Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 14:00:51

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d		
Injection Date:	12-Nov-2021 13:03:30	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	4
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	197.98	99	70 - 130
D 46 13C4_PFBA	606707	620460			102.3	50 - 150
21 PFPeA			200.00	203.05	101.5	70 - 130
D 50 13C5_PFPeA	544569	549478			100.9	50 - 150
D 44 13C3_PFBS	162919	162750			99.9	50 - 150
7 PFBS			176.80	175.09	99	70 - 130
1 4:2 FTS			186.80	193.63	103.7	70 - 130
D 63 13C2_4:2 FTS_2	104453	103648			99.2	50 - 150
D 49 13C5_PFHxA	625283	651020			104.1	50 - 150
15 PFHxA			200.00	198.82	99.4	70 - 130
22 PFPeS			187.60	190.21	101.4	70 - 130
28 GenX			400.00	431.88	108	70 - 130
D 66 13C3_GenX	1101362	1080286			98.1	50 - 150
D 47 13C4_PFHpA	527441	529091			100.3	50 - 150
13 PFHpA			200.00	200.28	100.1	70 - 130
D 45 13C3_PFHxS	115822	123052			106.2	50 - 150
14 PFHxS			182.00	187.16	102.8	70 - 130
29 ADONA			188.40	187.73	99.6	70 - 130
D 64 13C2_6:2 FTS_2	83315	80788			97	50 - 150
2 6:2 FTS			189.60	182.28	96.1	70 - 130
20 PFOA			200.00	201.83	100.9	70 - 130
D 53 13C8_PFOA	513896	533979			103.9	50 - 150
12 PFHpS			190.40	176.80	92.9	70 - 130
D 54 13C8_PFOS	109523	117043			106.9	50 - 150
18 PFOS			185.60	165.95	89.4	70 - 130
17 PFNA			200.00	208.65	104.3	70 - 130
D 56 13C9_PFNA	589389	619264			105.1	50 - 150
30 9Cl-PF3ONS			186.40	198.78	106.6	70 - 130
D 55 13C8_PFOSA	227854	244303			107.2	50 - 150
19 PFOSA			200.00	211.13	105.6	70 - 130
16 PFNS			192.00	188.92	98.4	70 - 130
10 PFDA			200.00	195.21	97.6	70 - 130
3 8:2 FTS			191.60	237.58	124	70 - 130
D 51 13C6_PFDA	593235	619354			104.4	50 - 150
D 65 13C2_8:2 FTS_2	82251	93314			113.5	50 - 150
6 N-MeFOSAA			200.00	197.05	98.5	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	661512	666481			100.8	50 - 150
D 61 d7-MeFOSE	81767	81740			100	50 - 150
32 MeFOSE			200.00	221.79	110.9	70 - 130
26 MeFOSA			200.00	220.00	110	70 - 130
D 57 d3-MeFOSA	42739	44390			103.9	50 - 150
9 PFDS			192.80	169.97	88.2	70 - 130
D 52 13C7_PFUdA	631780	650229			102.9	50 - 150
D 60 d5-EtFOSAA	606735	593499			97.8	50 - 150
25 PFUdA			200.00	194.97	97.5	70 - 130
5 N-EtFOSAA			200.00	181.02	90.5	70 - 130
D 62 d9-EtFOSE	95636	101270			105.9	50 - 150
33 EtFOSE			200.00	207.05	103.5	70 - 130
D 59 d5-EtFOSA	36158	38818			107.4	50 - 150
31 11Cl-PF3OUDS			188.40	197.27	104.7	70 - 130
27 EtFOSA			200.00	175.01	87.5	70 - 130
D 38 13C2_PFDoA	608629	612143			100.6	50 - 150
11 PFDoA			200.00	211.58	105.8	70 - 130
4 10:2 FTS			192.80	173.95	90.2	70 - 130
34 PFDOS			193.60	184.67	95.4	70 - 130
24 PFTrDA			200.00	207.00	103.5	70 - 130
D 42 13C2_PFTeDA	786507	788617			100.3	50 - 150
23 PFTeDA			200.00	202.49	101.2	70 - 130
D 40 13C2_PFHxDA	876588	846151			96.5	50 - 150
35 PFHxDA			200.00	209.85	104.9	70 - 130
36 PFODA			200.00	213.19	106.6	70 - 130

Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d		
Injection Date:	12-Nov-2021 13:03:30	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	4
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	620460	21	>100:1			1000.00	998.05	102.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.712	0/0	129549	19	>100:1			200.00	197.98		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.099	2.099	0	549478	17	>100:1			1000.00	961.31	100.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.099	2.099	0/0	125573	16	>100:1			200.00	203.05		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	0	162750	15	>100:1			1000.00	940.92	99.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.151	0/0	35536	16	>100:1	Target = 3.53		176.80	175.09		
298.9 > 99	44	2.151	2.151		9686	14	94:1	3.66 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.505	2.505	0/0	28690	17	>100:1	Target = 3.10		187.60	190.21		
349 > 99	44	2.496	2.505		7926	23	96:1	3.61 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.425	1	103648	19	>100:1			5000.00	4577.34	99.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.425	2.433	0/-1	8848	16	>100:1	Target = 1.75		186.80	193.63		
327 > 81	63	2.425	2.433		3755	15	7.4:1	2.35 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.469	0	651020	18	>100:1			1000.00	999.59	104.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	0/0	134582	17	>100:1	Target = 18.91		200.00	198.82		
313 > 119	49	2.469	2.469		7912	21	56:1	17.00 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1080286	18	>100:1			5000.00	4661.30	98.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	0/0	60431	18	>100:1	Target = 0.79		400.00	431.88		
285 > 185	66	2.583	2.583		68976	19	>100:1	0.87 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	529091	18	>100:1			1000.00	996.52	100.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.855	2.845	1/1	116442	16	>100:1	Target = 3.80		200.00	200.28		
363 > 169	47	2.845	2.845		29851	18	>100:1	3.90 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	0	123052	18	>100:1			1000.00	979.40	106.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	0/0	25320	34	>100:1	Target = 2.89	4.71	182.00	187.16		
399 > 99	45	2.873	2.864		7307	27	67:1	3.46 (1.44-4.34)	26.90				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.888	2.888	0/0	179152	21	>100:1	Target = 3.23		188.40	187.73		
377 > 85	45	2.888	2.888		51829	25	>100:1	3.45 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.248	3.241	1/1	22345	18	>100:1	Target = 3.12		190.40	176.80		
449 > 99	45	3.241	3.241		8844	30	79:1	2.52 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.214	0	80788	21	>100:1			5000.00	4488.23	97	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.214	3.214	0/0	6972	26	>100:1	Target = 1.75		189.60	182.28		
427 > 81	64	3.208	3.214		4075	15	7.7:1	1.71 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.241	3.241	0	533979	21	>100:1			1000.00	1017.73	103.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.241	3.241	0/0	110441	21	>100:1	Target = 2.89		200.00	201.83		
413 > 169	53	3.241	3.241		33624	23	>100:1	3.28 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.625	3.625	0	117043	22	>100:1			1000.00	945.09	106.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.625	3.625	0/0	23127	43	92:1	Target = 3.30	3.69	185.60	165.95		
499 > 99	54	3.617	3.625		7956	34	35:1	2.90 (1.65-4.95)	4.25				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.838	3.838	0/0	88112	24	>100:1			186.40	198.78		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.974	3.974	0/0	17740	13	>100:1	Target = 3.08		192.00	188.92		
549 > 99	54	3.974	3.974		7214	23	59:1	2.45 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.287	4.288	0/0	15568	20	>100:1	Target = 2.72		192.80	169.97		
599 > 99	54	4.287	4.288		5838	20		2.66 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.446	4.446	0/0	79049	18	>100:1			188.40	197.27		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.805	4.804	1/1	18586	18	>100:1	Target = 3.27		193.60	184.67		
699 > 99	54	4.793	4.804		5430	23		3.42 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.632	3.632	0	619264	21	>100:1			1000.00	967.03	105.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.632	3.632	0/0	139269	21	>100:1	Target = 6.51		200.00	208.65		
463 > 169	56	3.639	3.632		21013	20	>100:1	6.62 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.904	3.904	0	244303	18				1000.00	911.38	107.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.904	3.904	0/0	54272	18	>100:1	Target = 41.63		200.00	211.13		
498>478	55	3.912	3.904		1481	11		36.64 (20.81-62.44)					M
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.984	3.984	0	619354	17	>100:1			1000.00	1077.77	104.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.984	3.995	0/0	140705	17	>100:1	Target = 13.80		200.00	195.21		
513 > 169	51	3.995	3.995		9563	20	66:1	14.71 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.984	3.984	0	93314	15	>100:1			5000.00	5398.71	113.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.974	3.984	0/0	10019	18	81:1	Target = 1.94		191.60	237.58		
527 > 81	65	3.984	3.984		5148	13	21:1	1.94 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.597	4.597	0/0	8235	20	59:1	Target = 3.54		192.80	173.95		
627 > 80	65	4.597	4.597		2309	21	4.5:1	3.56 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.151	4.142	1	666481	19	>100:1			5000.00	4410.49	100.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.151	4.142	1/0	21077	29	82:1	Target = 1.37	7.66	200.00	197.05		
570 > 483	58	4.151	4.142		16442	28	99:1	1.28 (0.68-2.05)	3.18				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.318	0	81740	13	>100:1			1000.00	906.32	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.328	0/0	19812	13	76:1			200.00	221.79		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.338	0	44390	17	>100:1			1000.00	943.64	103.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.338	4.338	0/0	10585	18		Target = 1.11		200.00	220.00		
512 > 219	57	4.348	4.338		8198	14	38:1	1.29 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.308	4.308	0	593499	17	>100:1			5000.00	4582.54	97.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.308	4.308	0/0	20951	21	45:1	Target = 1.51	6.45	200.00	181.02		
584 > 526	60	4.318	4.308		15286	36		1.37 (0.75-2.26)	2.69				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.308	4.308	0	650229	15				1000.00	1079.67	102.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.308	4.308	0/0	122842	16	>100:1	Target = 14.52		200.00	194.97		
563 > 169	52	4.308	4.308		9496	21	45:1	12.93 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.482	0	101270	14	>100:1			1000.00	954.68	105.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.491	4.492	0/0	20412	13	>100:1			200.00	207.05		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.500	4.501	0	38818	17	>100:1			1000.00	902.75	107.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.510	4.510	0/0	8648	13	58:1	Target = 1.06		200.00	175.01		
526 > 219	59	4.510	4.510		9176	20	65:1	0.94 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.580	4.580	0	612143	18	>100:1			1000.00	1019.67	100.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.580	4.580	0/0	138075	18	30:1	Target = 10.70		200.00	211.58		
613 > 169	38	4.580	4.580		12075	18	71:1	11.43 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.825	4.825	1/1	133190	20	>100:1	Target = 8.31		200.00	207.00		
663 > 169	38	4.825	4.825		14147	18	>100:1	9.41 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.050	5.050	1	788617	21	>100:1			1000.00	970.02	100.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.050	5.050	1/0	139396	21	24:1	Target = 12.17		200.00	202.49		
713 > 169	42	5.050	5.050		10010	28	99:1	13.92 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.466	5.466	1	846151	19	>100:1			1000.00	974.79	96.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.466	5.466	1/0	113722	19	22:1	Target = 10.43		200.00	209.85		
813 > 269	40	5.466	5.466		10516	19	>100:1	10.81 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.877	5.877	1/0	164226	30	11:1	Target = 13.67		200.00	213.19		
913 > 319	40	5.872	5.877		10102	33	>100:1	16.25 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.984	3.984	0	696372	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	0	672539	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.241	3.241	0	541049	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.705	1.705	0	570829	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.625	3.625	0	116729	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

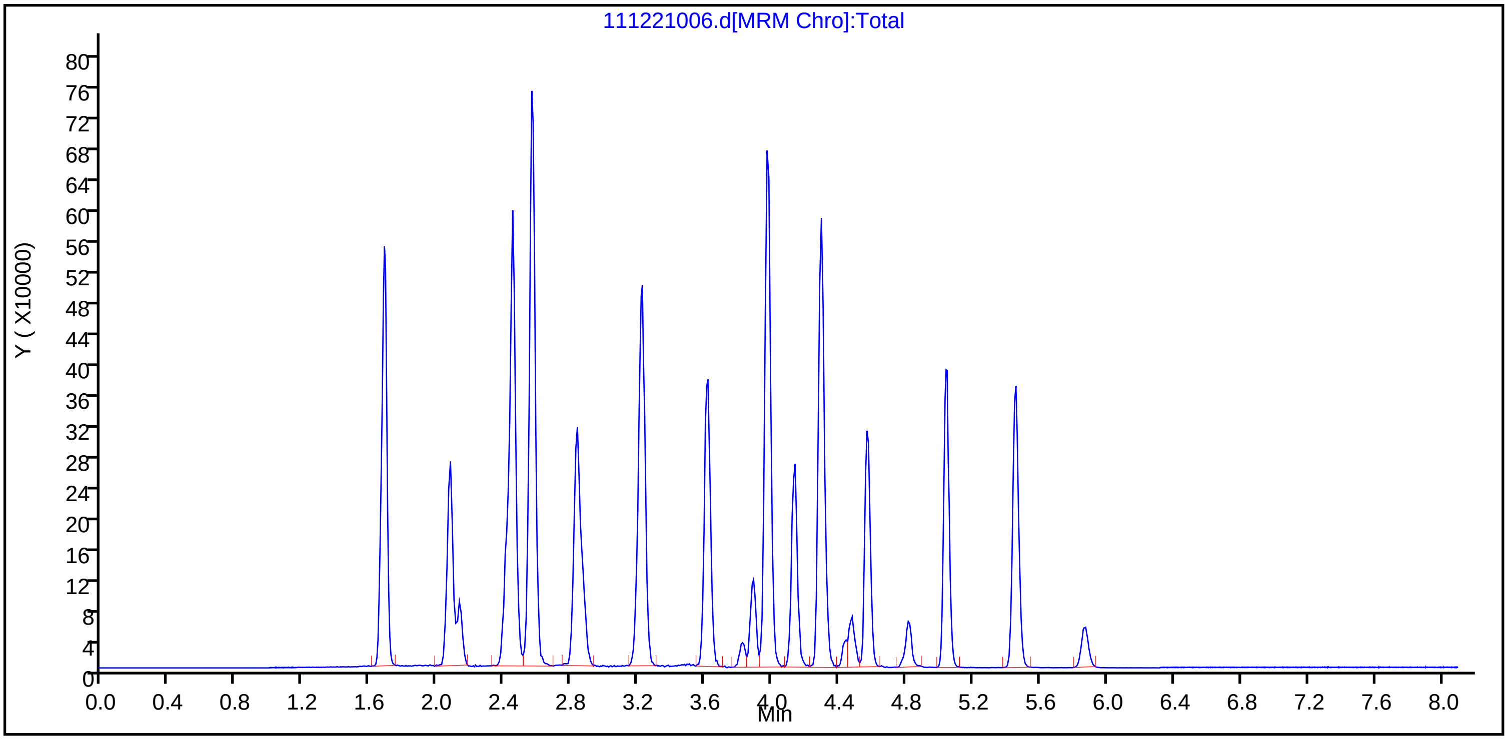
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

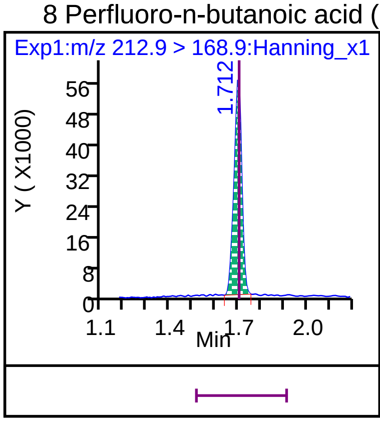
Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

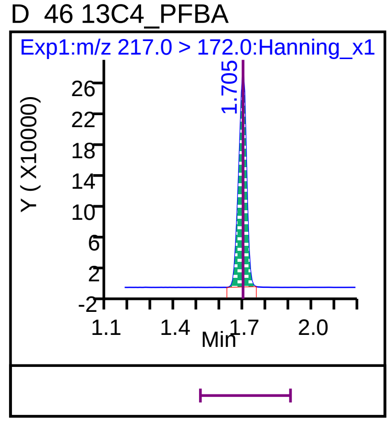
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d		
Injection Date:	12-Nov-2021 13:03:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



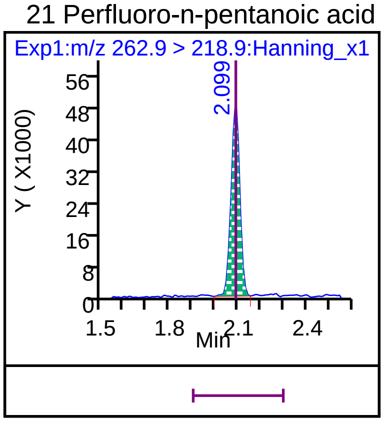
8 Perfluoro-n-butanoic acid (PFBA)



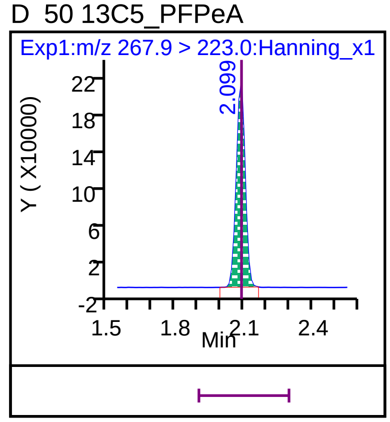
D 46 13C4_PFBA



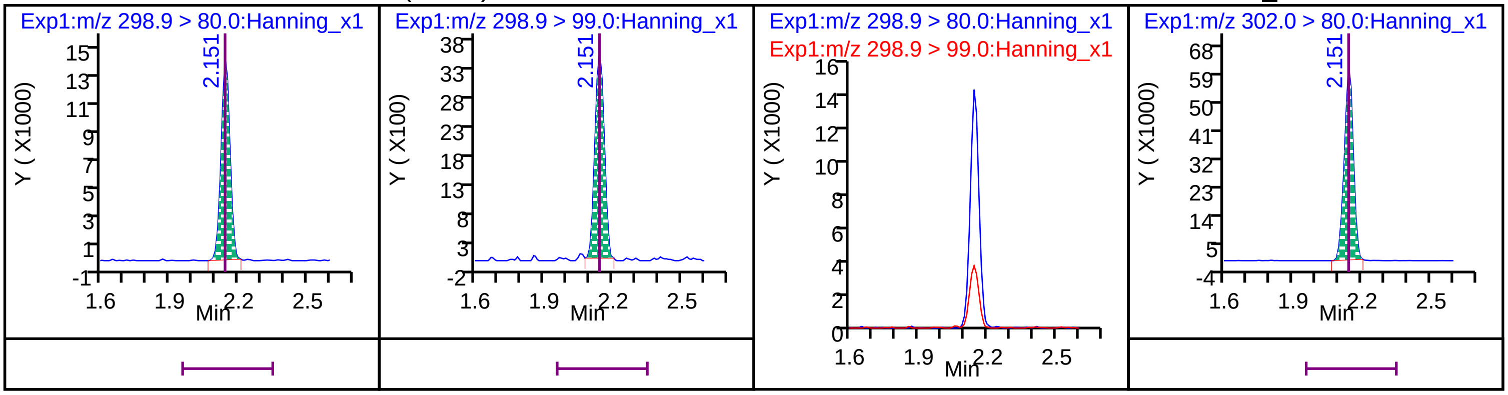
21 Perfluoro-n-pentanoic acid (PFPeA)



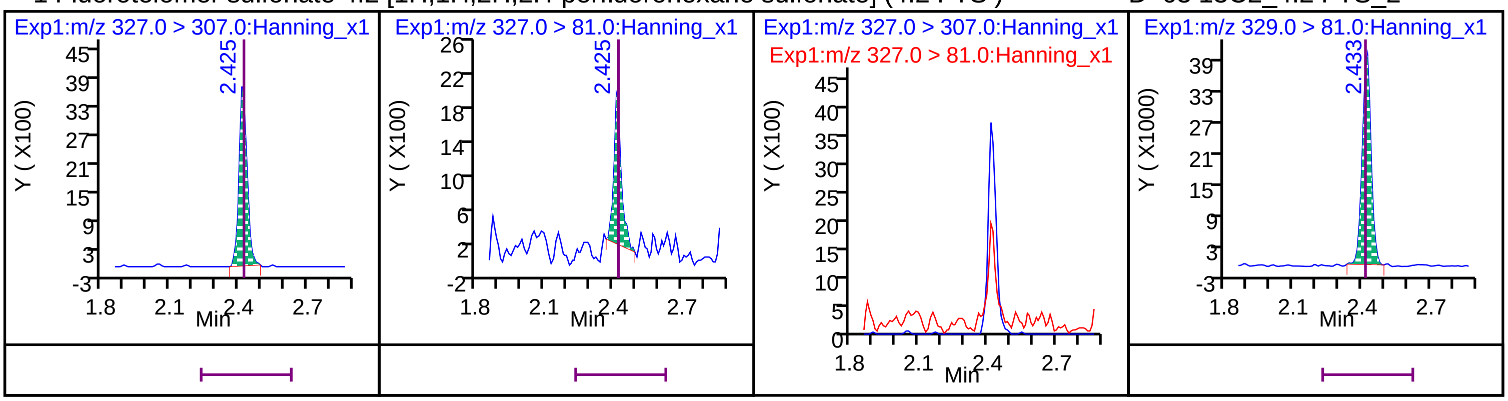
D 50 13C5_PFPeA



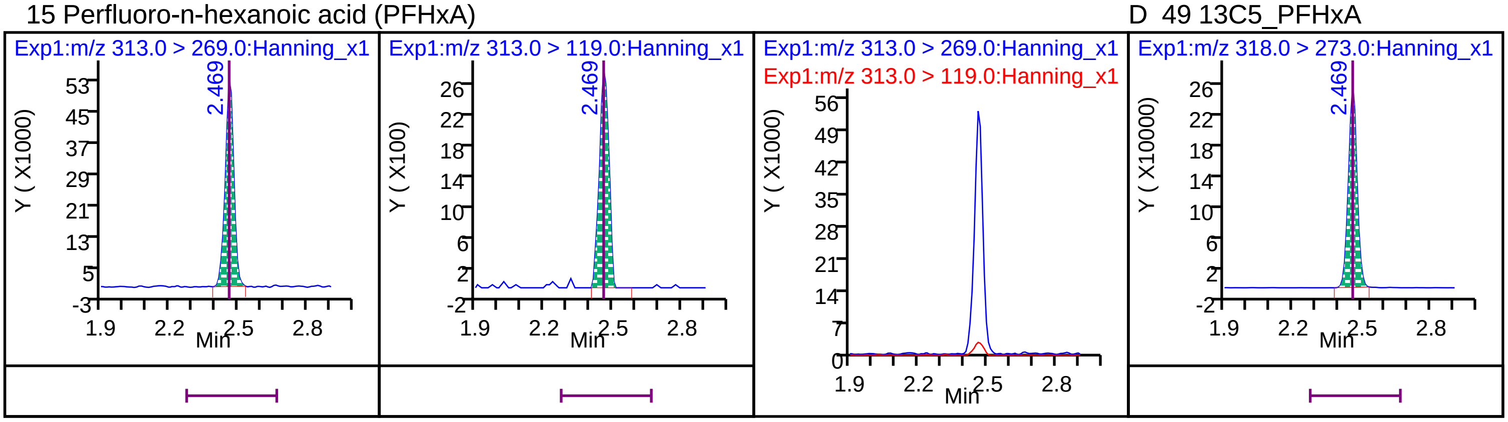
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



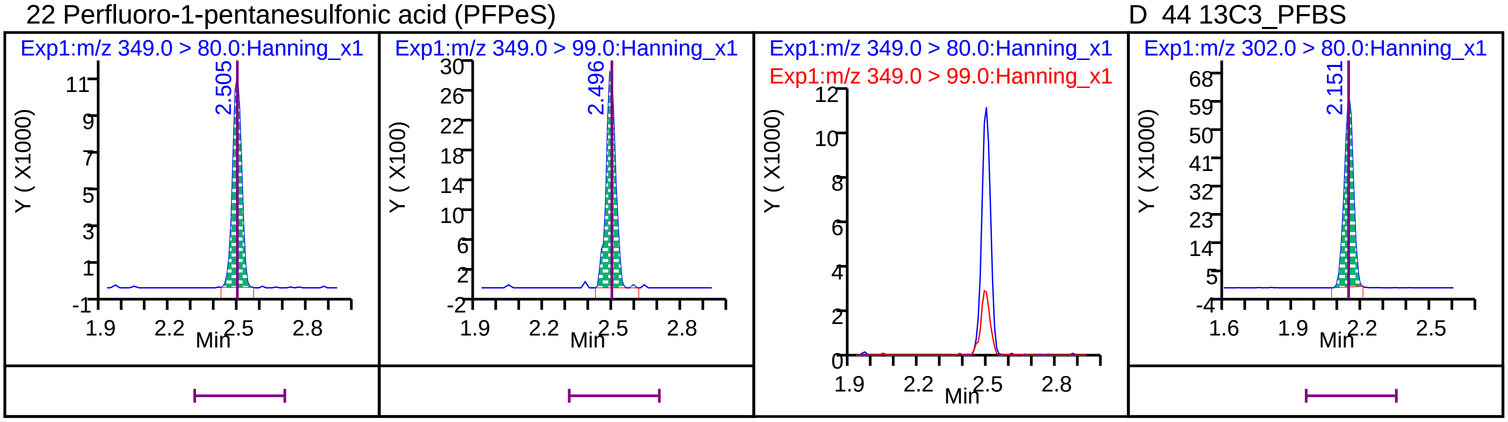
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



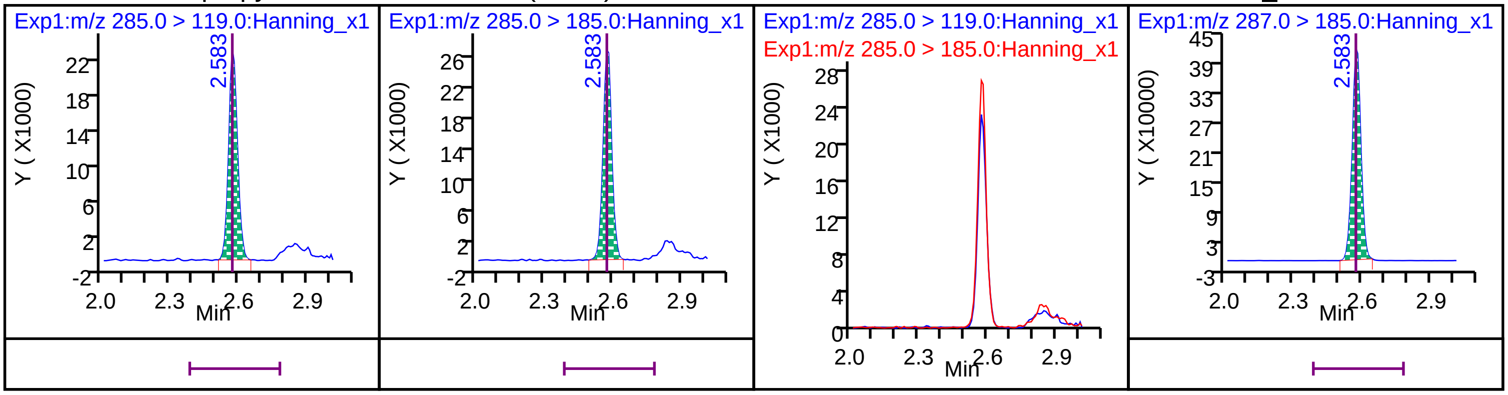
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



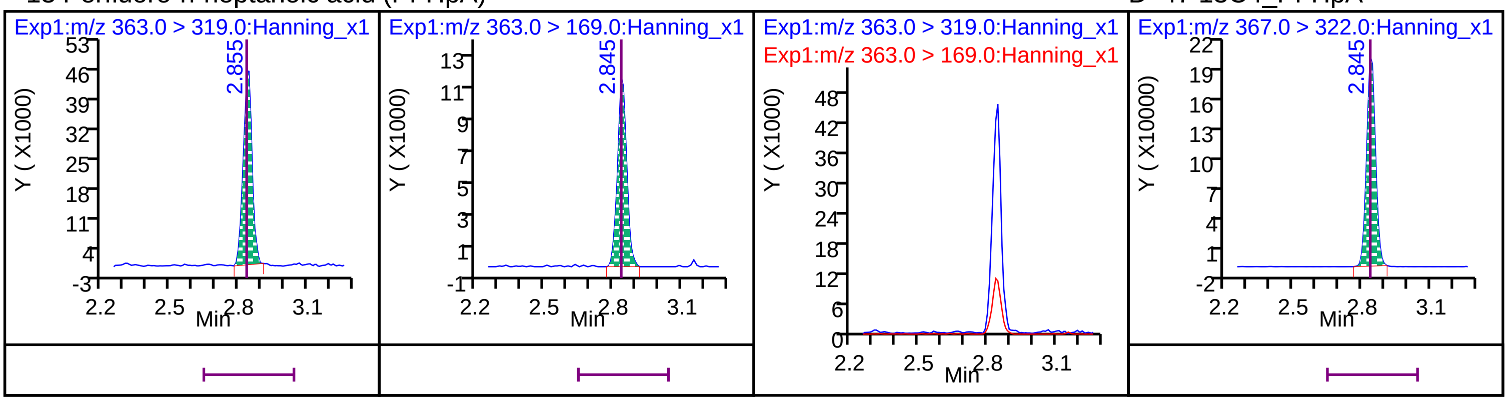
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



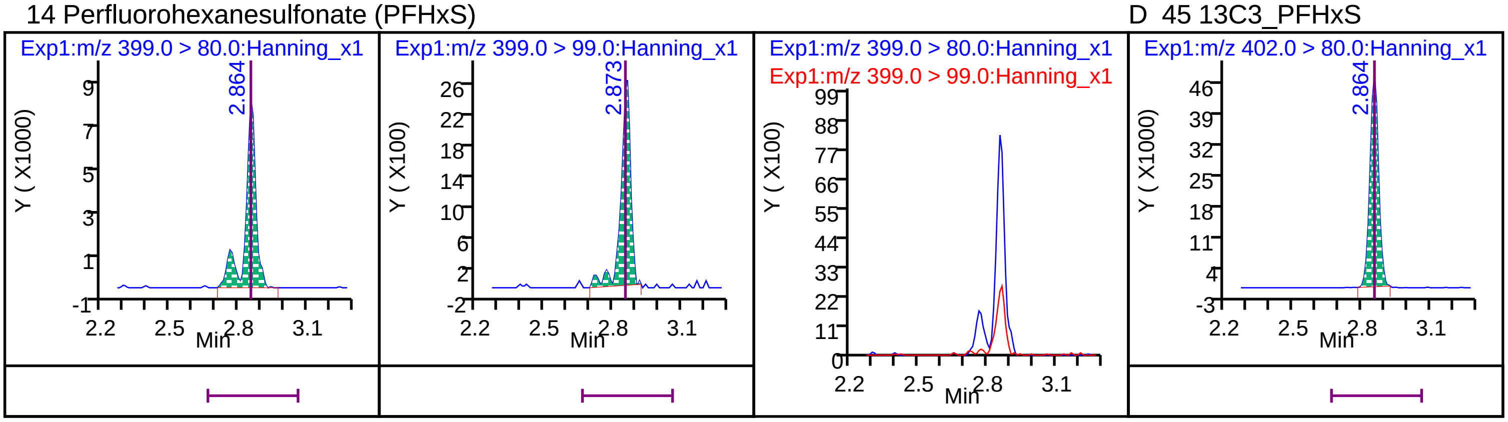
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



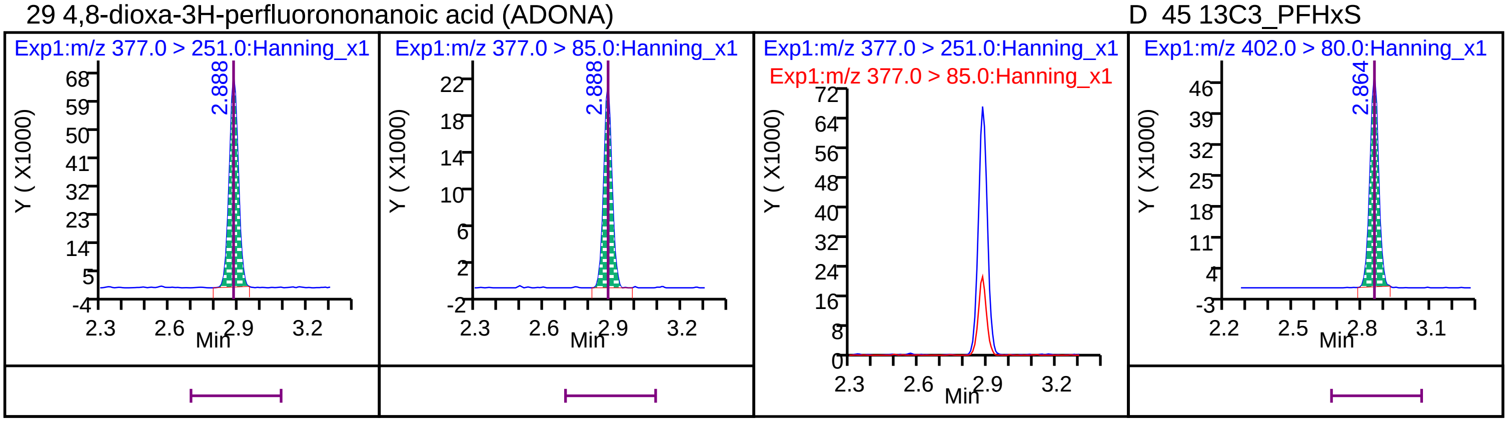
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



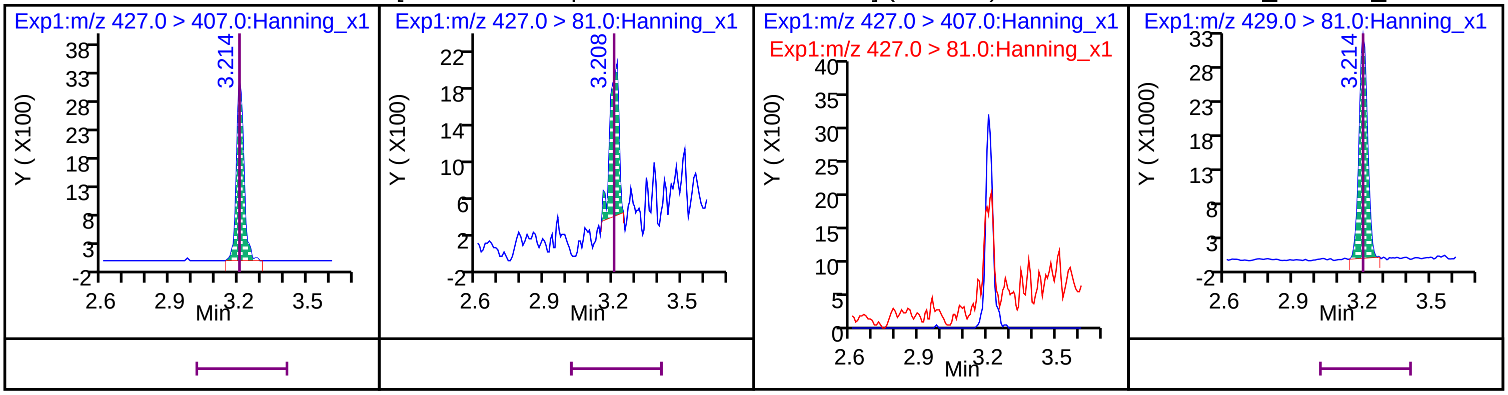
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



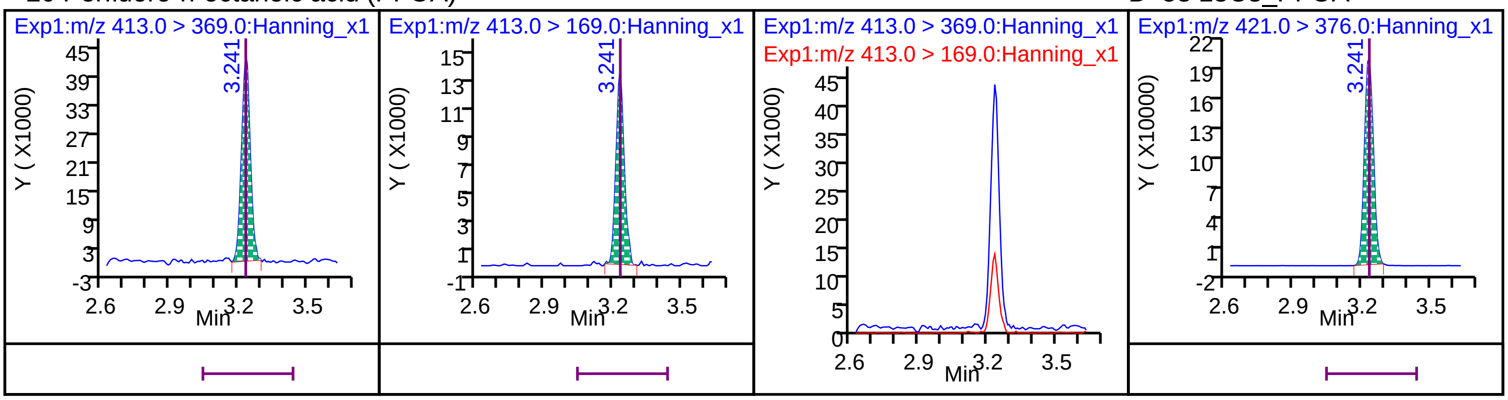
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



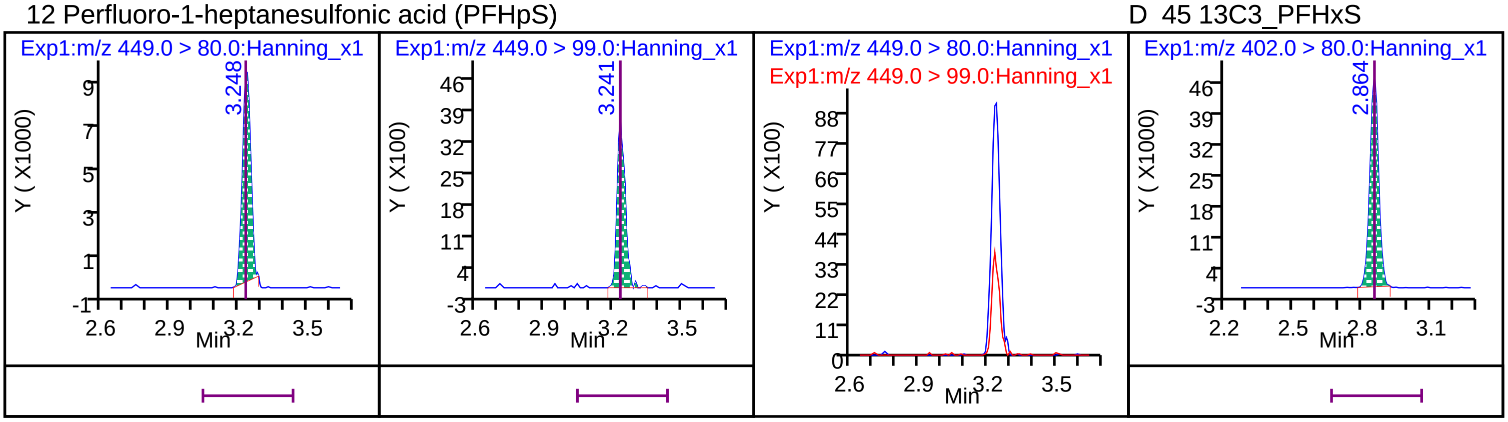
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



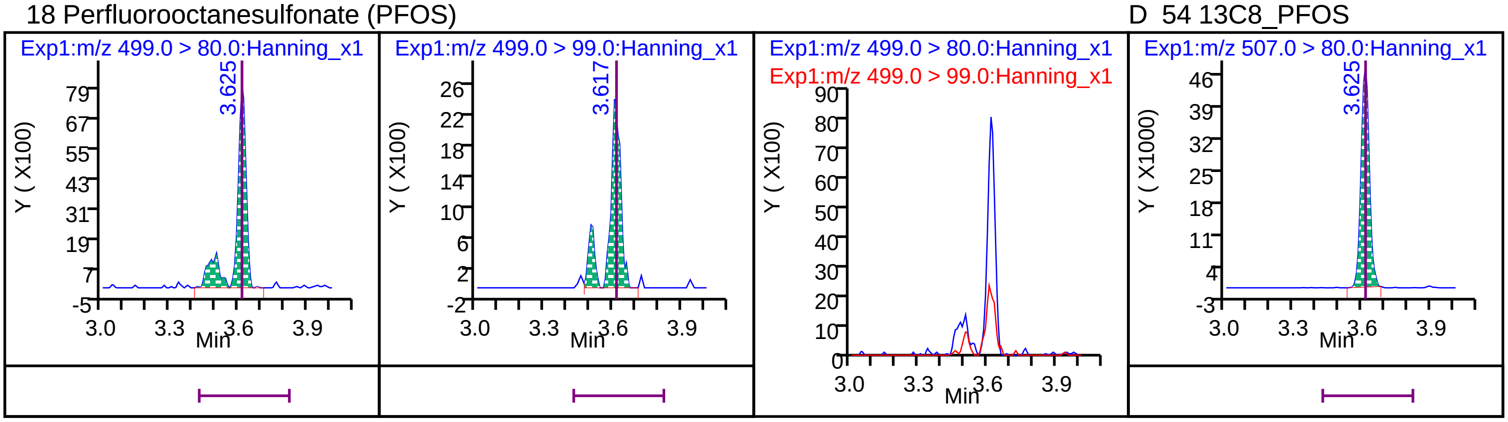
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



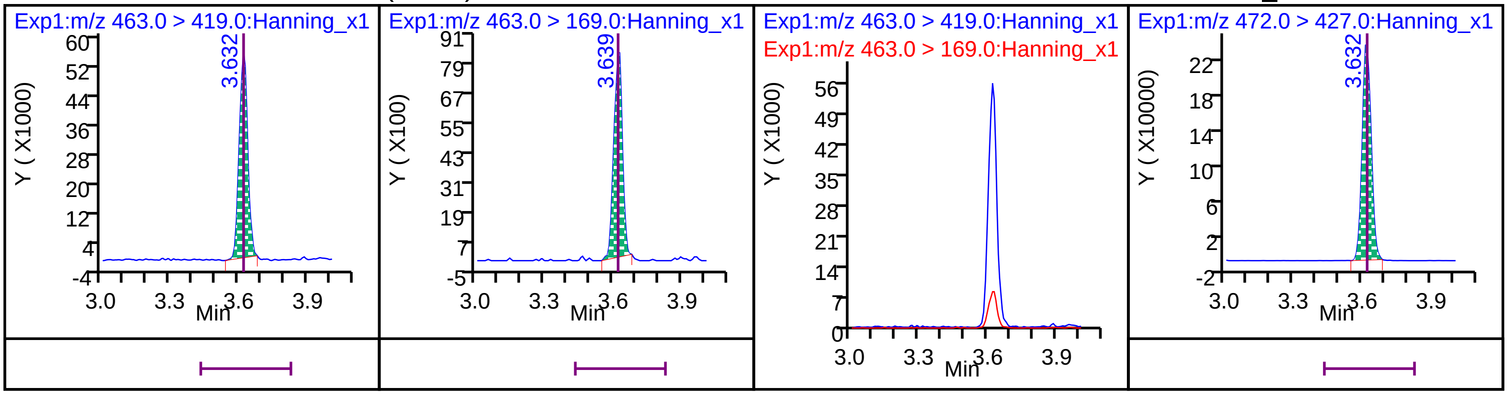
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



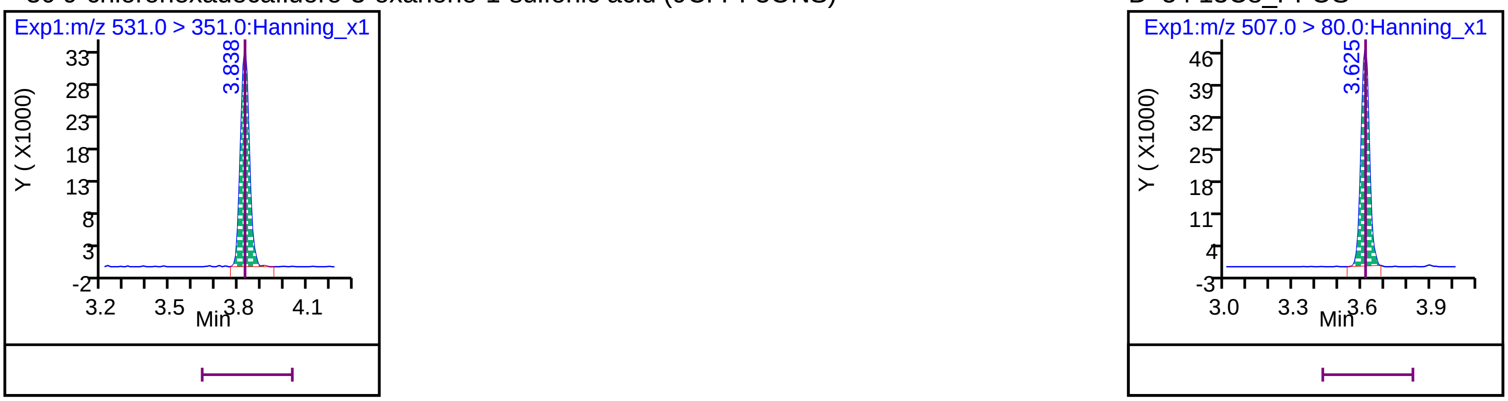
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



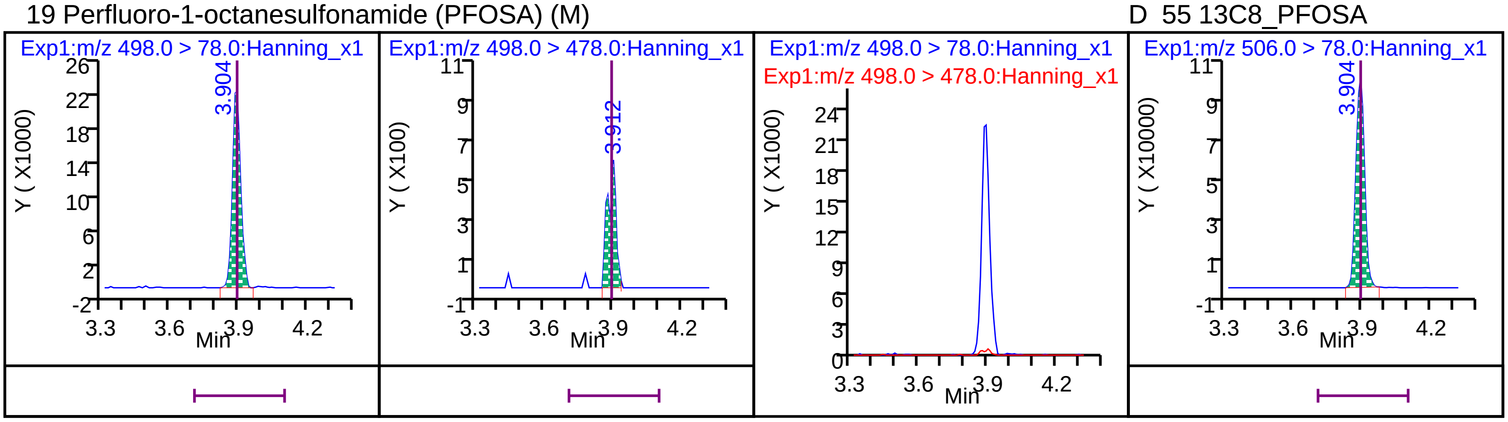
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



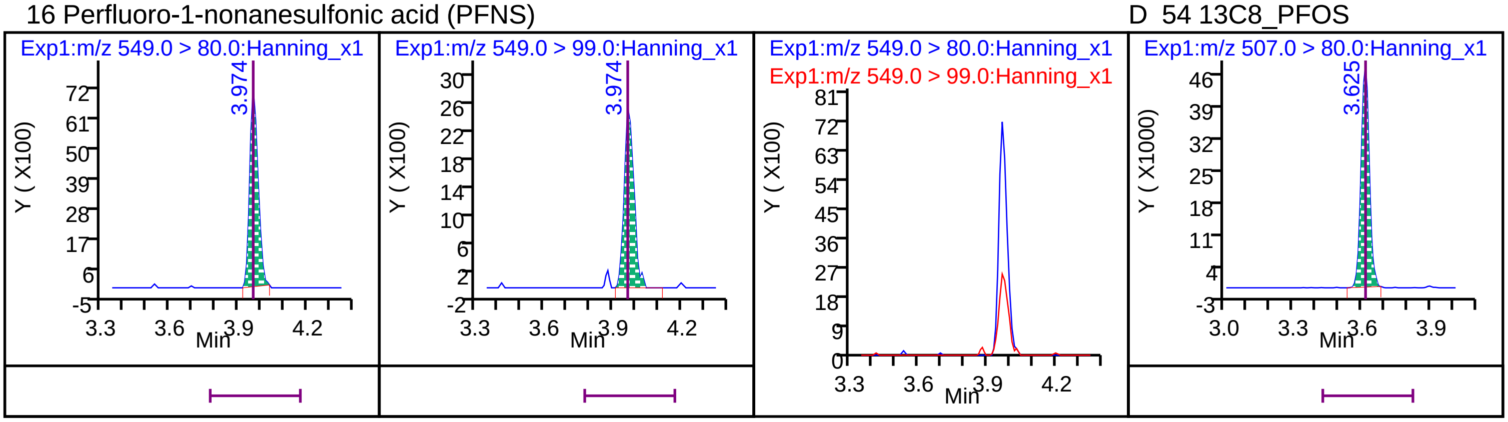
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA

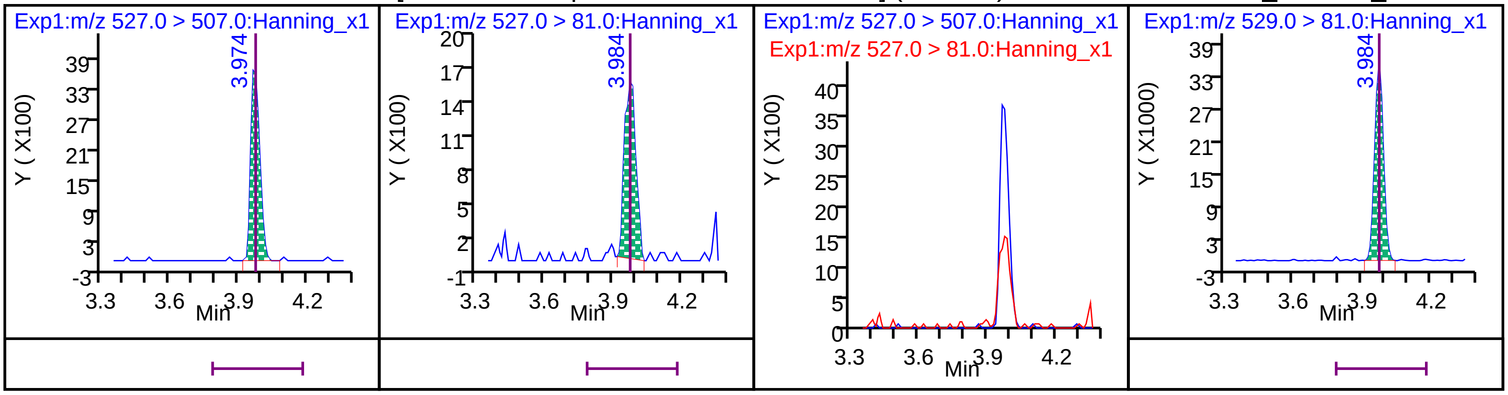


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

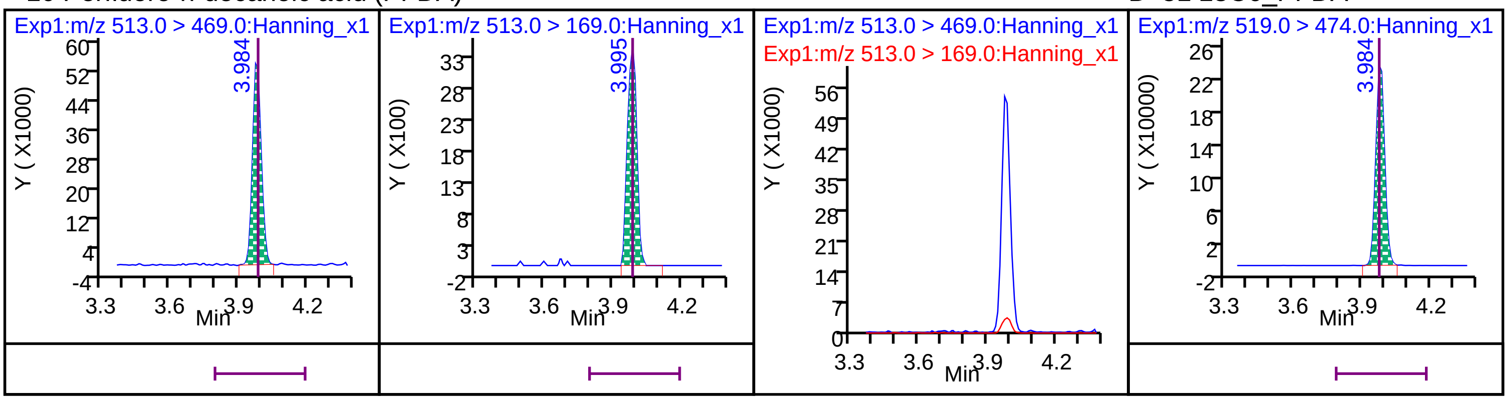


Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d

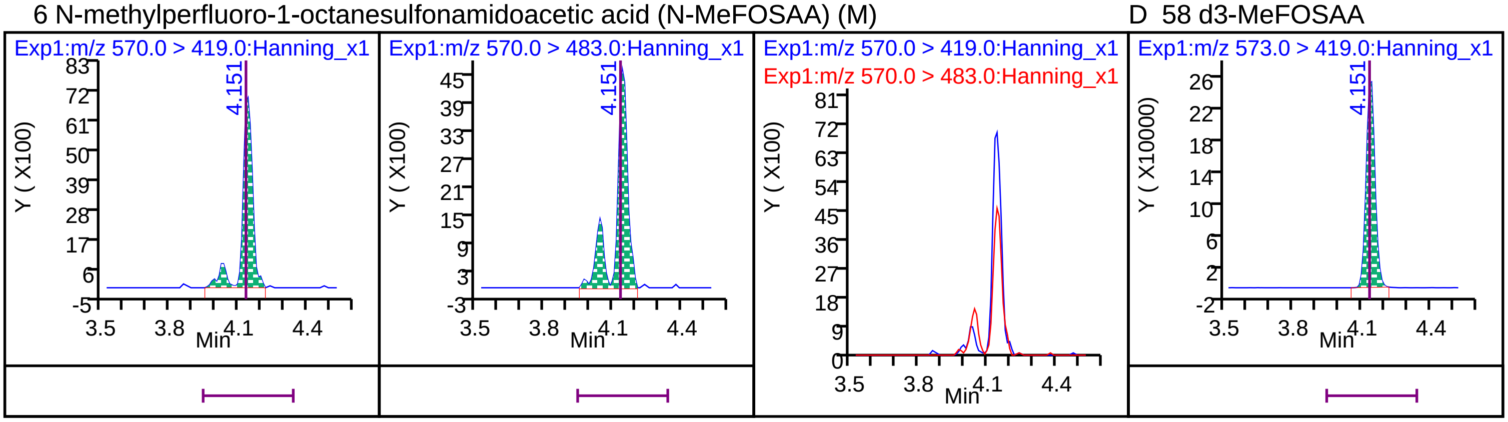
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



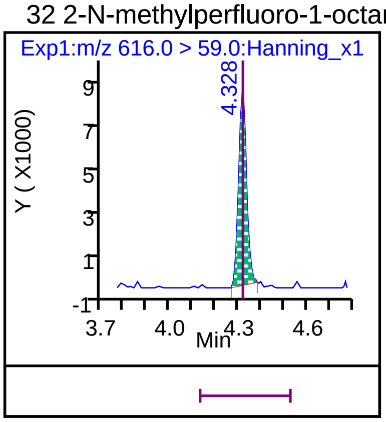
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

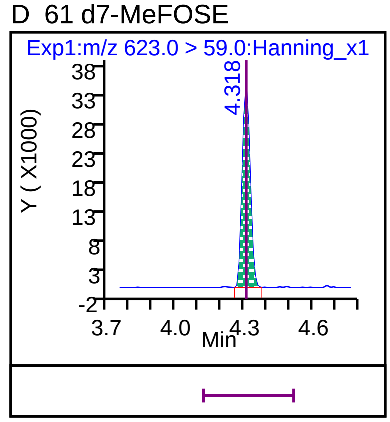


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

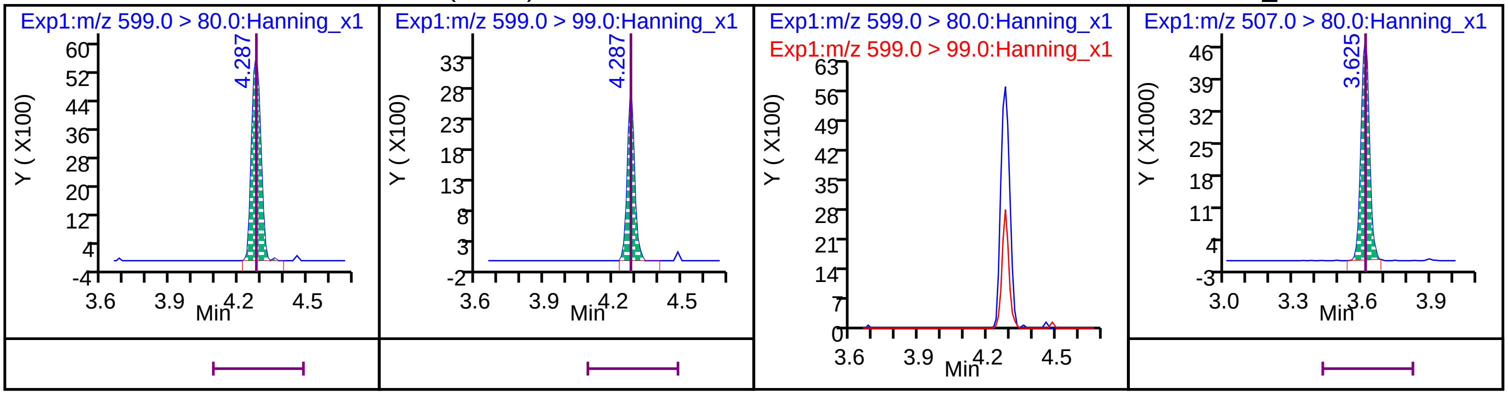


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

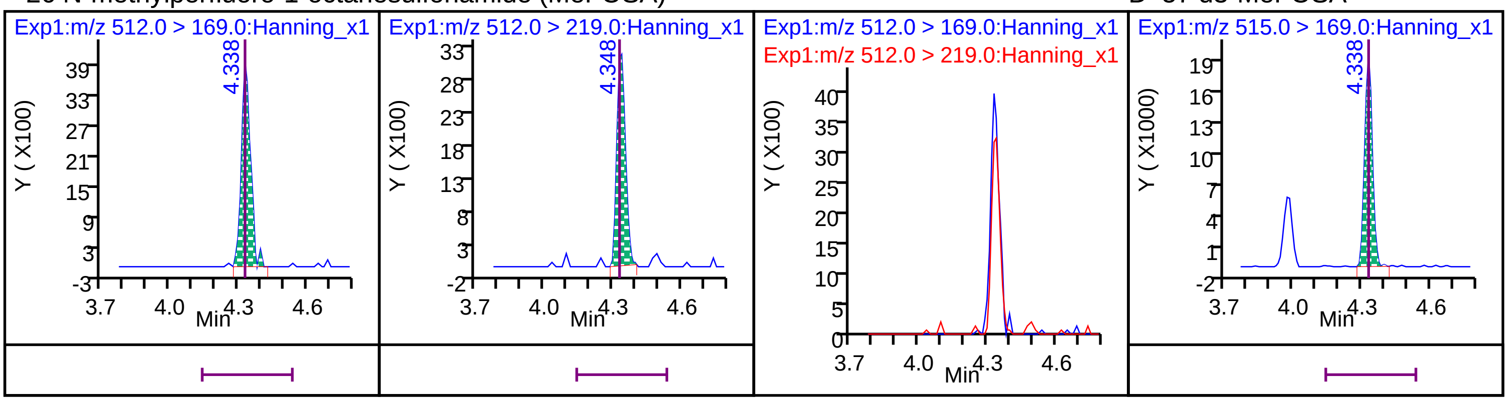




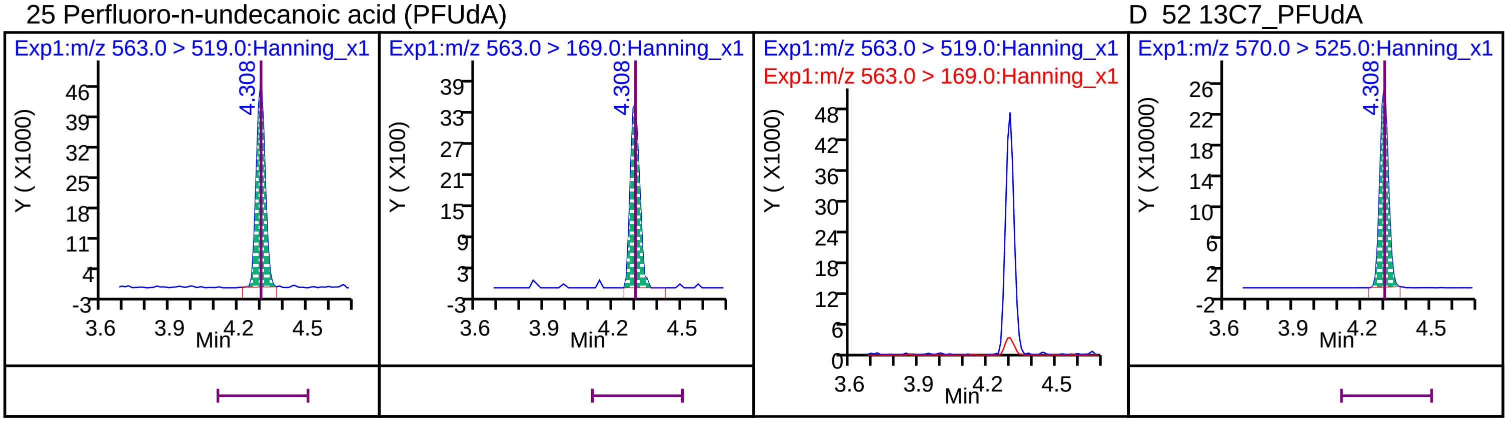
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



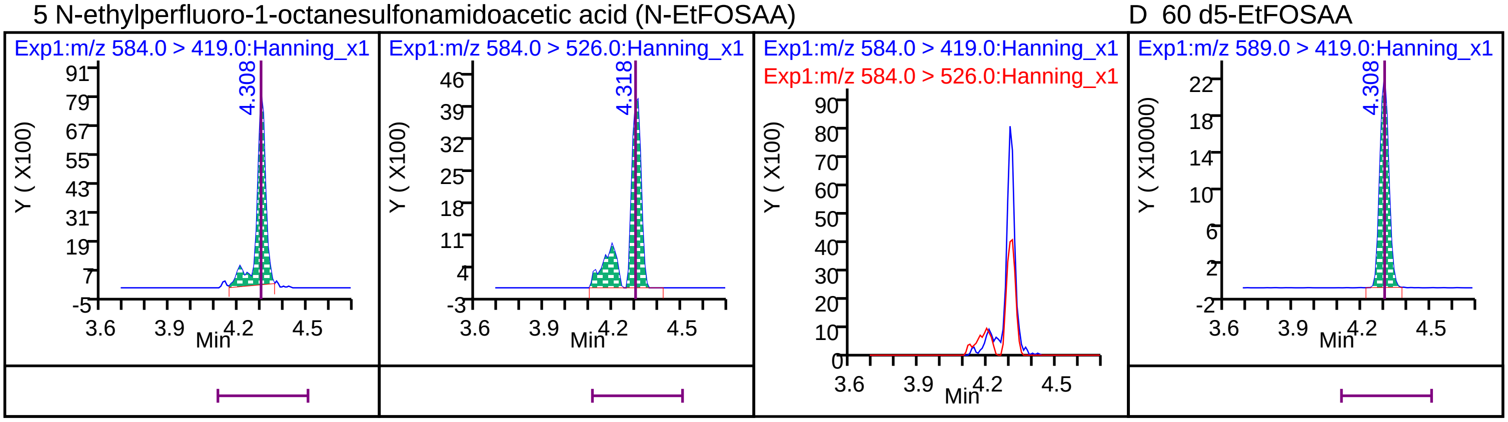
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



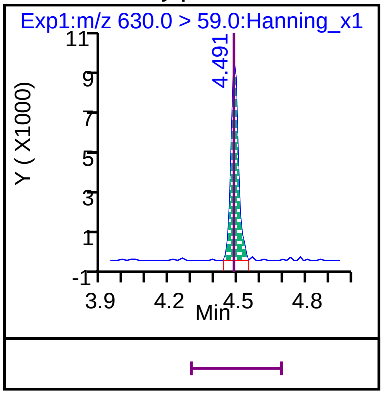
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



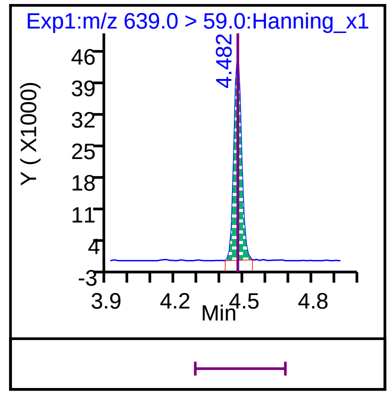
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



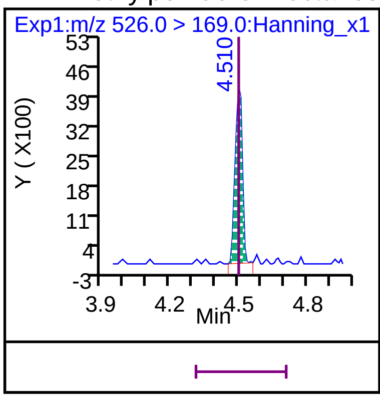
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

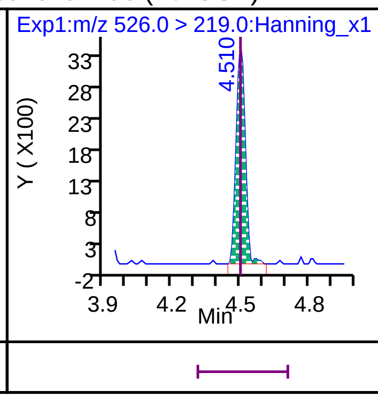


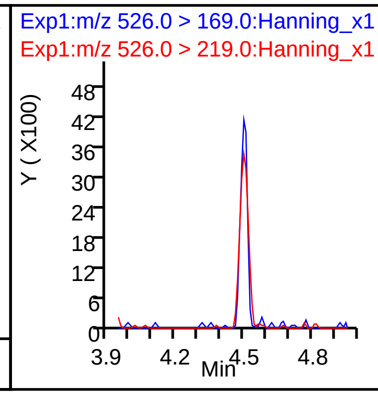
D 62 d9-EtFOSE



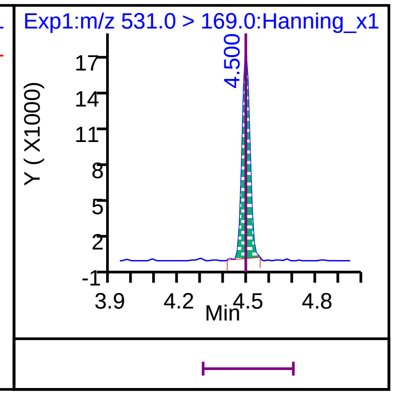
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



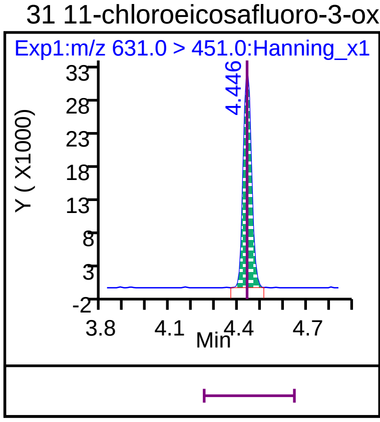




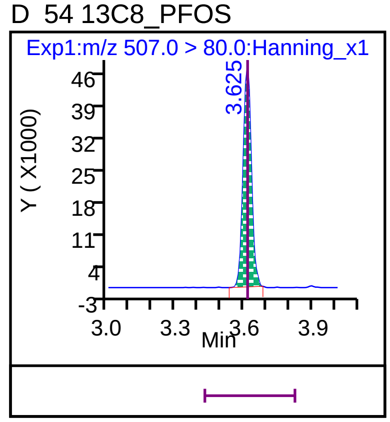
D 59 d5-EtFOSA



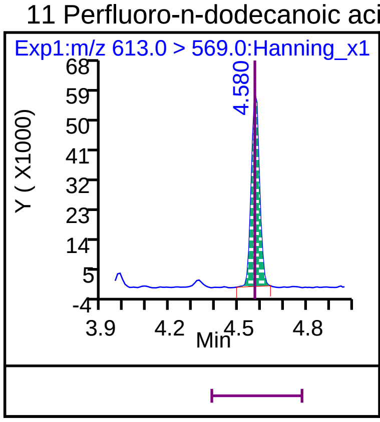
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

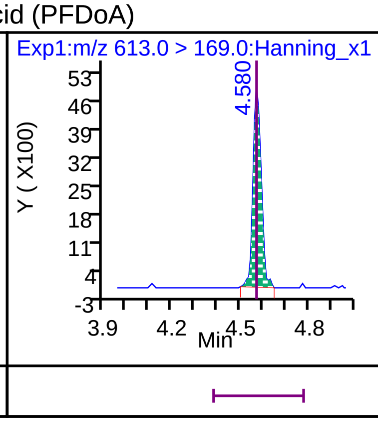


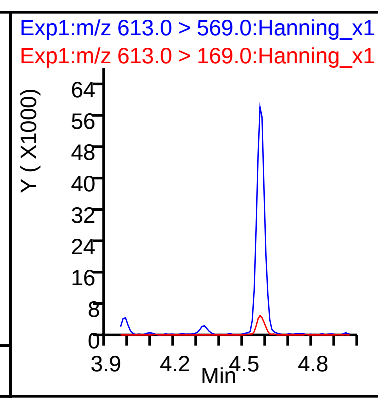
D 54 13C8_PFOS



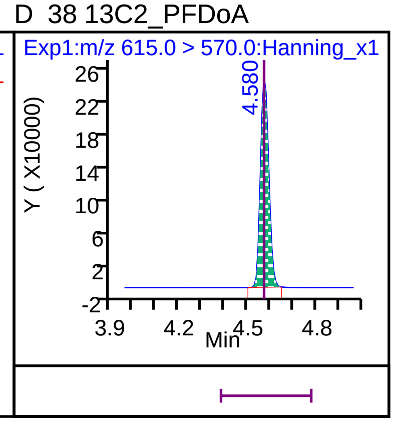
11 Perfluoro-n-dodecanoic acid (PFDoA)





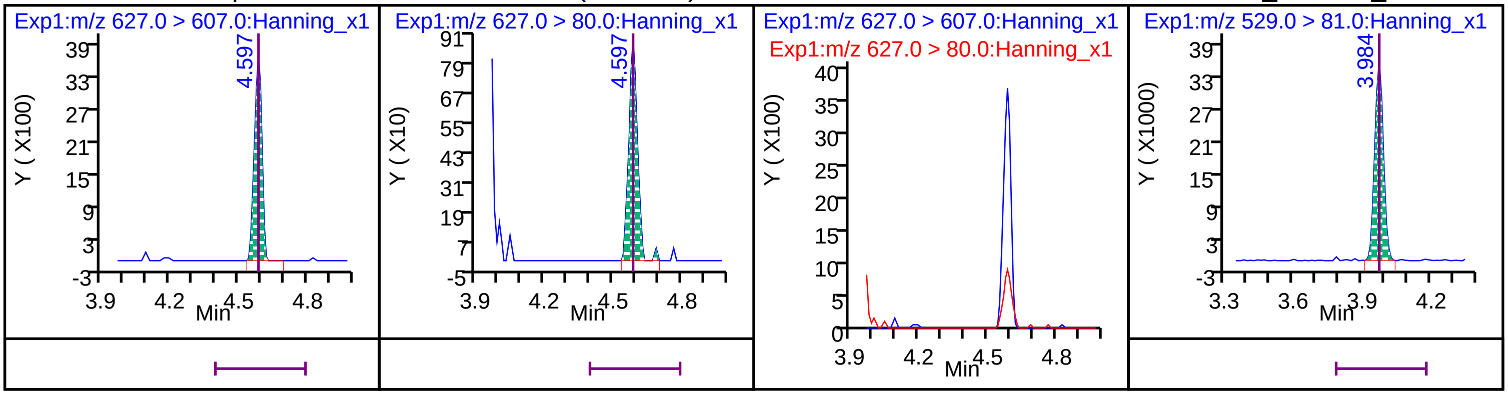


D 38 13C2_PFDoA

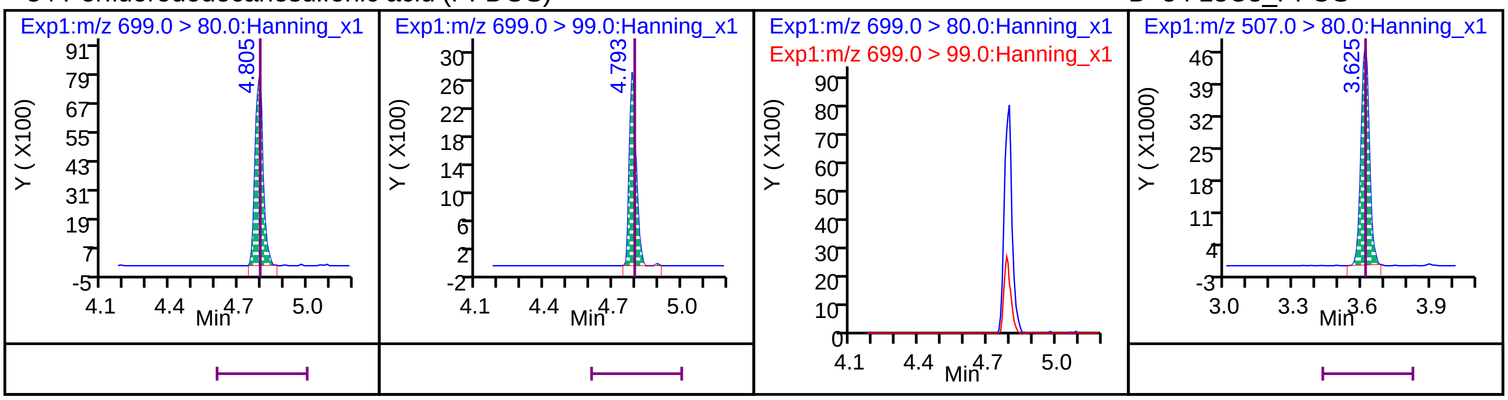


Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d

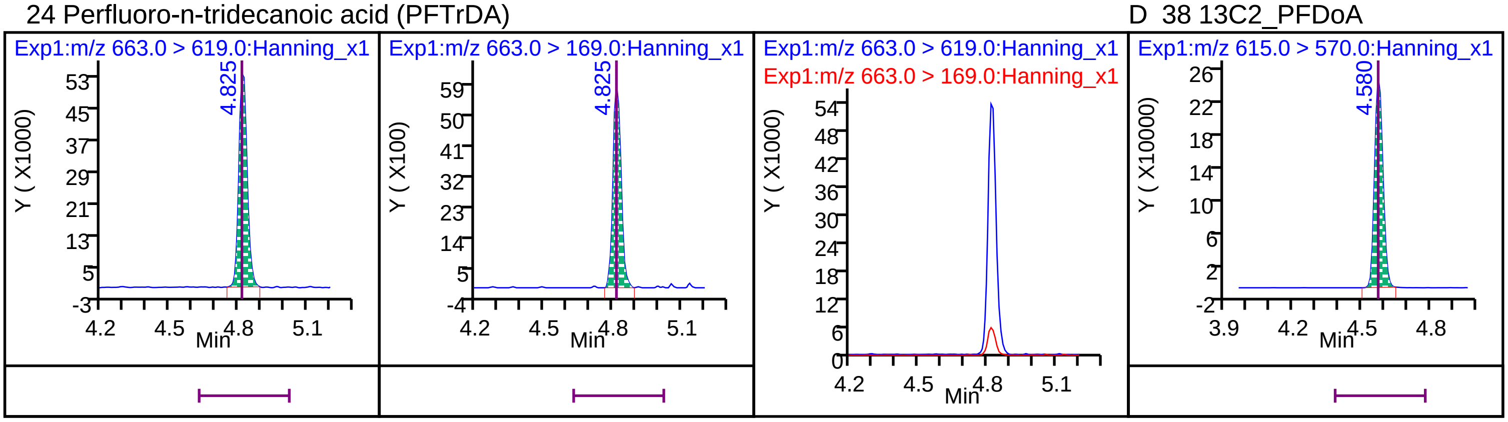
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



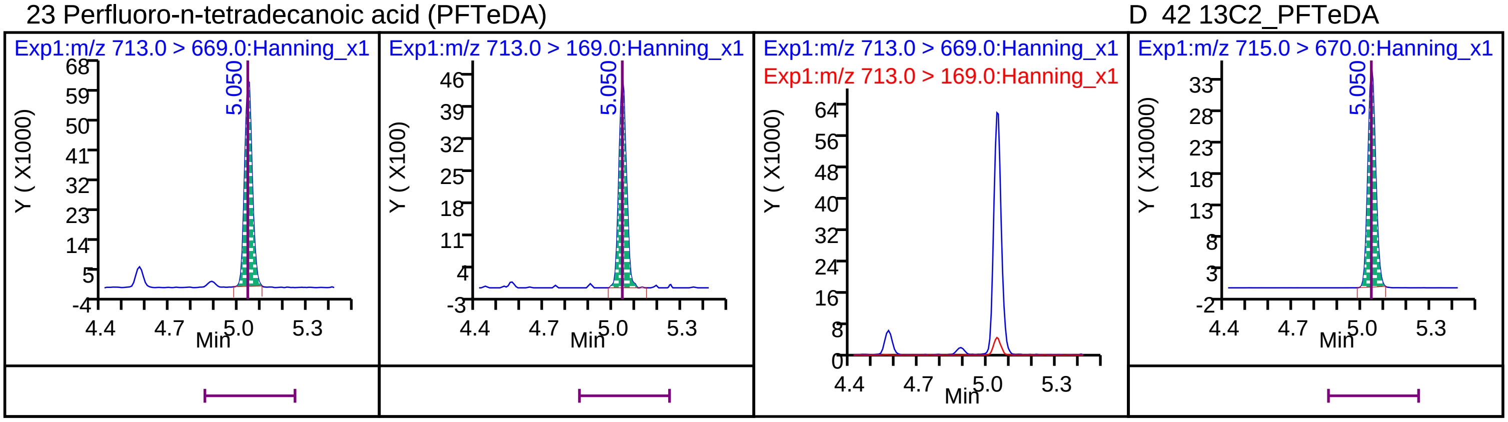
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

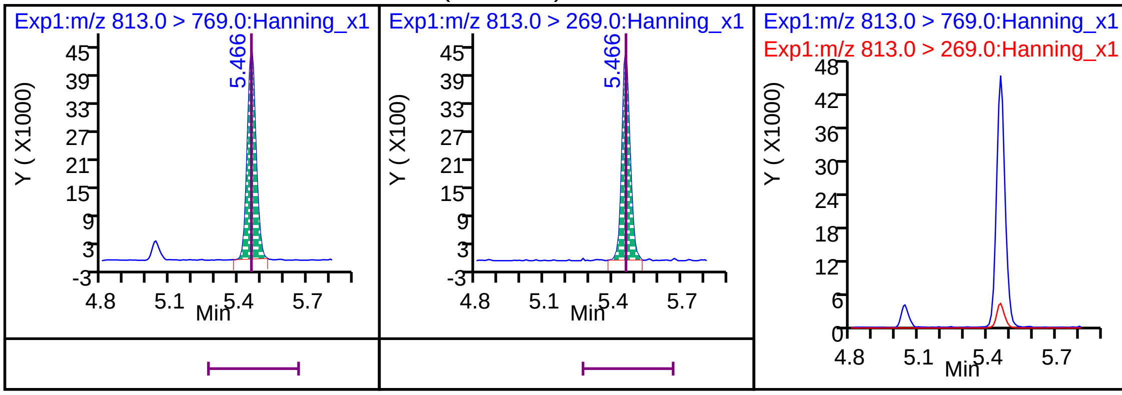


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

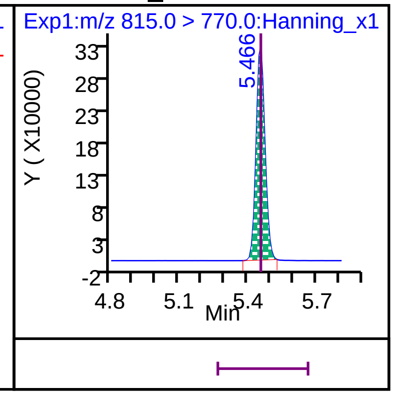


Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d

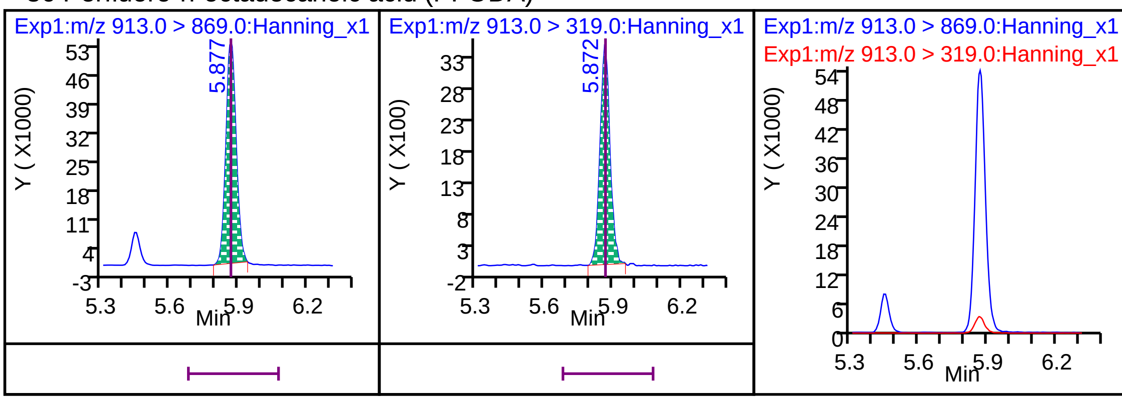
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



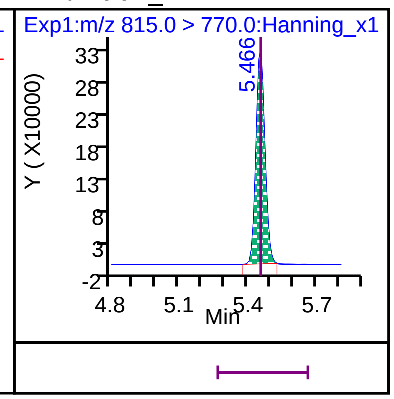
D 40 13C2_PFHxDA



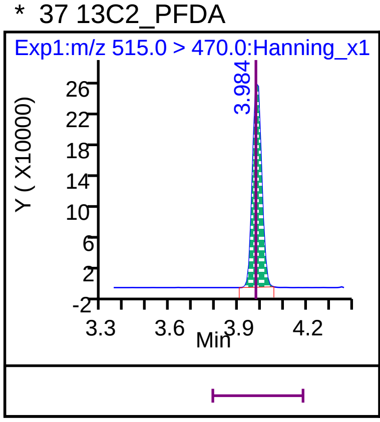
36 Perfluoro-n-octadecanoic acid (PFODA)



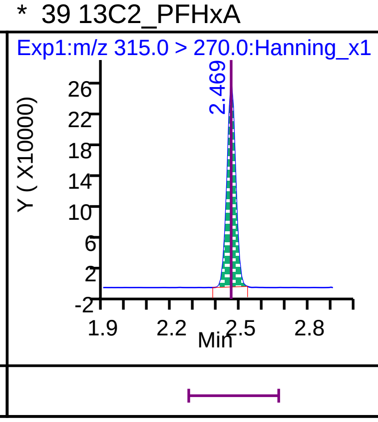
D 40 13C2_PFHxDA



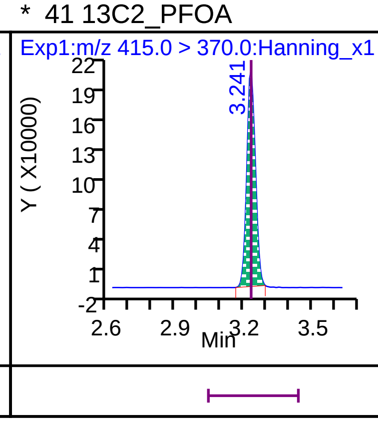
* 37 13C2_PFDA



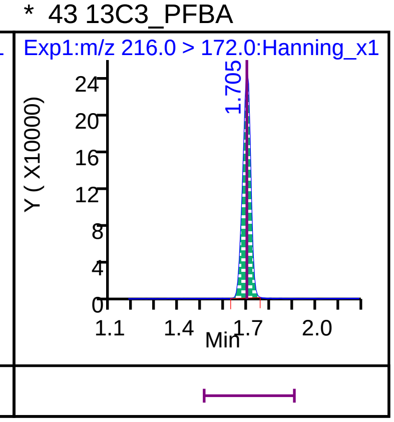
* 39 13C2_PFHxA



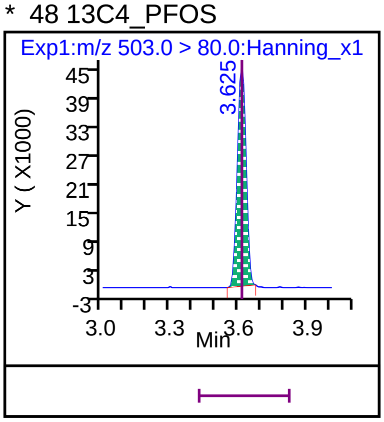
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

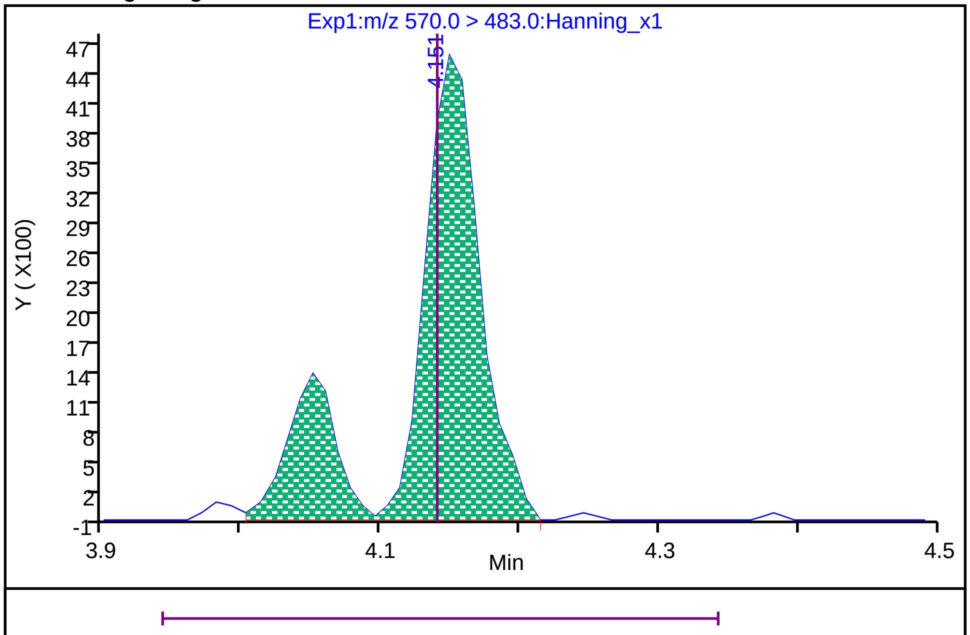
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d		
Injection Date:	12-Nov-2021 13:03:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.151
Area: 15842
Amount: 197.05
Amount Units: ng/L



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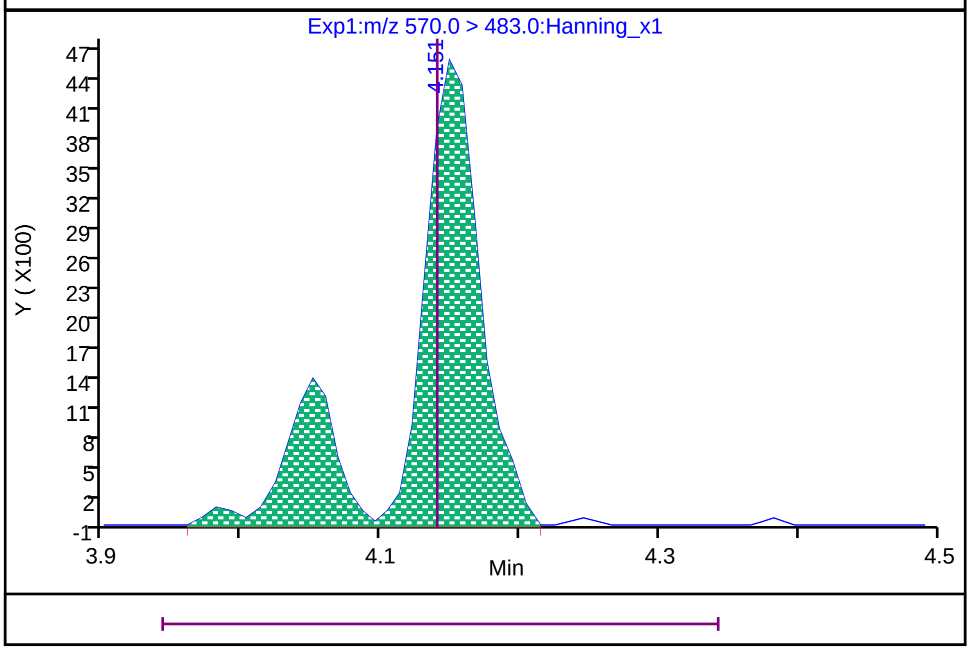


Data Editor: matthew.miller, 12-Nov-2021 14:01:42

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

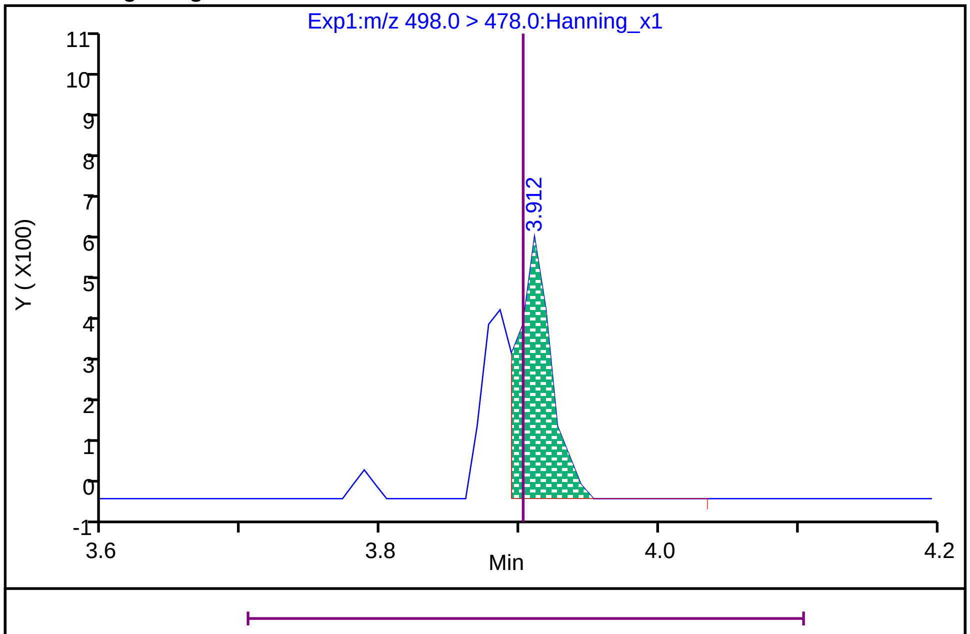
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221006.d		
Injection Date:	12-Nov-2021 13:03:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

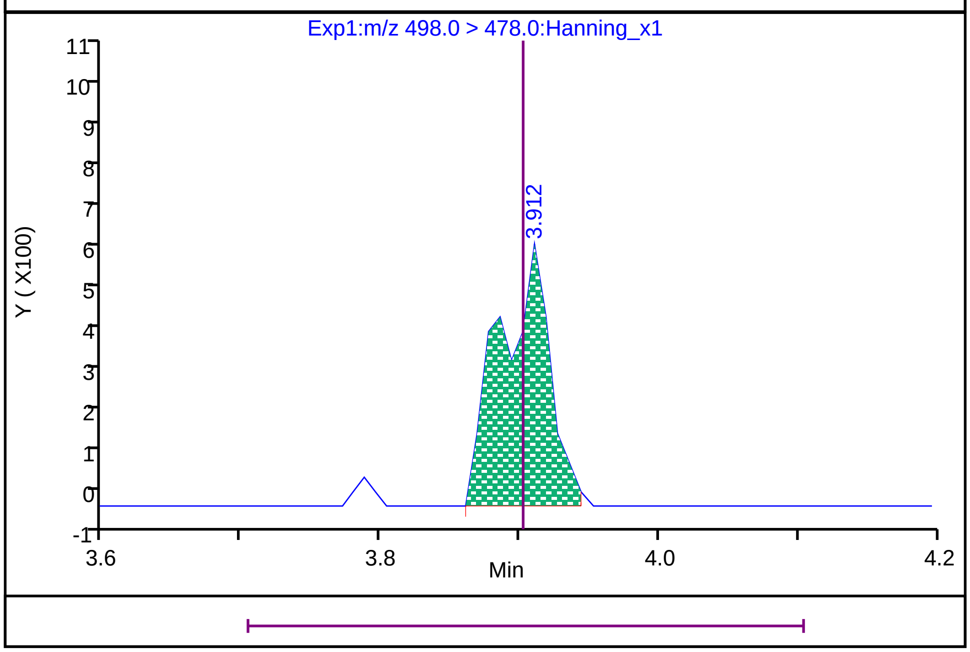
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT: 3.912
Area: 924
Amount: 211.13
Amount Units: ng/L



RT: 3.912
Area: 1481
Amount: 211.13
Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 14:01:33
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d		
Injection Date:	12-Nov-2021 14:08:14	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	6
Sample Info:	ID CCV 100_SVLC-1741,rerun	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	102.93	102.9	70 - 130
D 46 13C4_PFBA	606707	767387			126.5	50 - 150
21 PFPeA			100.00	101.18	101.2	70 - 130
D 50 13C5_PFPeA	544569	662705			121.7	50 - 150
D 44 13C3_PFBS	162919	177049			108.7	50 - 150
7 PFBS			88.400	79.946	90.4	70 - 130
1 4:2 FTS			93.400	106.64	114.2	70 - 130
D 63 13C2_4:2 FTS_2	104453	191414			183.3	50 - 150
D 49 13C5_PFHxA	625283	772948			123.6	50 - 150
15 PFHxA			100.00	99.771	99.8	70 - 130
22 PFPeS			93.800	83.128	88.6	70 - 130
28 GenX			200.00	210.03	105	70 - 130
D 66 13C3_GenX	1101362	1176917			106.9	50 - 150
D 47 13C4_PFHpA	527441	608169			115.3	50 - 150
13 PFHpA			100.00	105.90	105.9	70 - 130
D 45 13C3_PFHxS	115822	127610			110.2	50 - 150
14 PFHxS			91.000	93.619	102.9	70 - 130
29 ADONA			94.200	99.178	105.3	70 - 130
D 64 13C2_6:2 FTS_2	83315	144825			173.8	50 - 150
2 6:2 FTS			94.800	88.366	93.2	70 - 130
20 PFOA			100.00	99.901	99.9	70 - 130
D 53 13C8_PFOA	513896	618889			120.4	50 - 150
12 PFHpS			95.200	88.385	92.8	70 - 130
D 54 13C8_PFOS	109523	125410			114.5	50 - 150
18 PFOS			92.800	86.028	92.7	70 - 130
17 PFNA			100.00	103.21	103.2	70 - 130
D 56 13C9_PFNA	589389	725126			123	50 - 150
30 9Cl-PF3ONS			93.200	98.553	105.7	70 - 130
D 55 13C8_PFOSA	227854	244292			107.2	50 - 150
19 PFOSA			100.00	104.76	104.8	70 - 130
16 PFNS			96.000	86.438	90	70 - 130
10 PFDA			100.00	94.280	94.3	70 - 130
3 8:2 FTS			95.800	128.72	134.4	70 - 130
D 51 13C6_PFDA	593235	686599			115.7	50 - 150
D 65 13C2_8:2 FTS_2	82251	131169			159.5	50 - 150
6 N-MeFOSAA			100.00	114.20	114.2	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	661512	595404			90	50 - 150
D 61 d7-MeFOSE	81767	80241			98.1	50 - 150
32 MeFOSE			100.00	106.31	106.3	70 - 130
26 MeFOSA			100.00	120.52	120.5	70 - 130
D 57 d3-MeFOSA	42739	41023			96	50 - 150
9 PFDS			96.400	100.16	103.9	70 - 130
D 52 13C7_PFUdA	631780	711516			112.6	50 - 150
D 60 d5-EtFOSAA	606735	616255			101.6	50 - 150
25 PFUdA			100.00	96.942	96.9	70 - 130
5 N-EtFOSAA			100.00	63.324	63.3	70 - 130
D 62 d9-EtFOSE	95636	103018			107.7	50 - 150
33 EtFOSE			100.00	105.07	105.1	70 - 130
D 59 d5-EtFOSA	36158	42080			116.4	50 - 150
31 11Cl-PF3OUDS			94.200	87.649	93	70 - 130
27 EtFOSA			100.00	107.67	107.7	70 - 130
D 38 13C2_PFDoA	608629	773647			127.1	50 - 150
11 PFDoA			100.00	106.73	106.7	70 - 130
4 10:2 FTS			96.400	110.86	115	70 - 130
34 PFDOS			96.800	96.496	99.7	70 - 130
24 PFTrDA			100.00	93.524	93.5	70 - 130
D 42 13C2_PFTeDA	786507	935850			119	50 - 150
23 PFTeDA			100.00	101.46	101.5	70 - 130
D 40 13C2_PFHxDA	876588	874825			99.8	50 - 150
35 PFHxDA			100.00	103.51	103.5	70 - 130
36 PFODA			100.00	101.67	101.7	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d		
Injection Date:	12-Nov-2021 14:08:14	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	6
Sample Info:	ID CCV 100_SVLC-1741,rerun	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.705	2	767387	21	>100:1			1000.00	1234.39	126.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.734	1.712	2/0	83302	21	35:1			100.00	102.93		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.136	2.099	3	662705	17	>100:1			1000.00	1159.40	121.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.136	2.099	3/0	75468	14	18:1			100.00	101.18		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.189	2.151	3	177049	17	>100:1			1000.00	1023.58	108.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.199	2.151	3/0	17651	17	>100:1	Target = 3.53		88.400	79.946		
298.9 > 99	44	2.199	2.151		6723	14	25:1	2.62 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.548	2.505	3/0	13640	15	82:1	Target = 3.10		93.800	83.128		
349 > 99	44	2.539	2.505		4975	17	23:1	2.74 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.477	2.425	4	191414	16	46:1			5000.00	8453.29	183.3*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.477	2.433	3/-1	8999	18	93:1	Target = 1.75		93.400	106.64		
327 > 81	63	2.477	2.433		2509	11	0.671:1	3.58 (0.87-2.62)					J
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.513	2.469	3	772948	16	>100:1			1000.00	1186.80	123.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.513	2.469	3/0	80184	17	>100:1	Target = 18.91		100.00	99.771		
313 > 119	49	2.513	2.469		3528	18	12:1	22.72 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.636	2.583	4	1176917	18	>100:1			5000.00	5078.25	106.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.636	2.583	4/0	32017	16	>100:1	Target = 0.79		200.00	210.03		
285 > 185	66	2.636	2.583		41717	17	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.903	2.845	4	608169	19	>100:1			1000.00	1145.46	115.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.903	2.845	4/0	70772	19	>100:1	Target = 3.80		100.00	105.90		
363 > 169	47	2.903	2.845		16760	19	62:1	4.22 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.917	2.864	4	127610	22	>100:1			1000.00	1015.68	110.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.917	2.864	4/0	13134	32	29:1	Target = 2.89	5.67	91.000	93.619		
399 > 99	45	2.924	2.864		6162	26	27:1	2.13 (1.44-4.34)	2.32				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.944	2.888	4/0	98151	22	>100:1	Target = 3.23		94.200	99.178		
377 > 85	45	2.950	2.888		26991	21	>100:1	3.63 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.306	3.241	4/0	11584	23	85:1	Target = 3.12		95.200	88.385		
449 > 99	45	3.311	3.241		3777	17	26:1	3.06 (1.56-4.68)					M
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.279	3.214	4	144825	22	87:1			5000.00	8045.85	173.8*	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.279	3.214	4/0	6059	19	62:1	Target = 1.75		94.800	88.366		
427 > 81	64	3.266	3.214		4462	11	0.290:1	1.35 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.306	3.241	4	618889	24	>100:1			1000.00	1179.56	120.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.306	3.241	4/0	63358	24	25:1	Target = 2.89		100.00	99.901		
413 > 169	53	3.306	3.241		20456	22	83:1	3.09 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.689	3.625	4	125410	23	>100:1			1000.00	1012.65	114.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.689	3.625	4/0	12846	39	56:1	Target = 3.30	4.10	92.800	86.028		
499 > 99	54	3.695	3.625		3726	32	52:1	3.44 (1.65-4.95)	14.46				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.901	3.838	4/0	46807	18	>100:1			93.200	98.553		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.040	3.974	4/0	8697	15	32:1	Target = 3.08		96.000	86.438		
549 > 99	54	4.049	3.974		3887	23	35:1	2.23 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.352	4.288	4/0	9829	15	42:1	Target = 2.72		96.400	100.16		
599 > 99	54	4.361	4.288		2949	21	25:1	3.33 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.523	4.446	5/1	37633	14	>100:1			94.200	87.649		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.873	4.804	5/1	10406	15	>100:1	Target = 3.27		96.800	96.496		
699 > 99	54	4.873	4.804		3052	20	82:1	3.40 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.702	3.632	5	725126	22	>100:1			1000.00	1132.34	123	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.702	3.632	5/0	80671	22	>100:1	Target = 6.51		100.00	103.21		
463 > 169	56	3.702	3.632		14447	24	23:1	5.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.925	3.904	2	244292	17	>100:1			1000.00	911.34	107.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.925	3.904	2/0	26927	20	>100:1	Target = 41.63		100.00	104.76		
498>478	55	3.925	3.904		400	16	3.4:1	67.31 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.058	3.984	5	686599	16	>100:1			1000.00	1194.79	115.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.058	3.995	4/-1	75332	18	>100:1	Target = 13.80		100.00	94.280		
513 > 169	51	4.058	3.995		5646	19	13:1	13.34 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.049	3.984	4	131169	18	>100:1			5000.00	7588.82	159.5*	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.058	3.984	5/1	7630	16	56:1	Target = 1.94		95.800	128.72		
527 > 81	65	4.049	3.984		4917	15	9.6:1	1.55 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.668	4.597	5/1	7377	20	96:1	Target = 3.54		96.400	110.86		
627 > 80	65	4.676	4.597		2282	19	9.9:1	3.23 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.221	4.142	5	595404	18	>100:1			5000.00	3940.14	90	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.221	4.142	5/0	10912	22	44:1	Target = 1.37		100.00	114.20		
570 > 483	58	4.221	4.142		8681	25	64:1	1.25 (0.68-2.05)	6.33				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.322	4.318	1	80241	13	>100:1			1000.00	889.70	98.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.342	4.328	1/0	9322	19	27:1			100.00	106.31		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.352	4.338	1	41023	23	>100:1			1000.00	872.07	96	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.352	4.338	1/0	5359	20	48:1	Target = 1.11		100.00	120.52		
512 > 219	57	4.352	4.338		4267	20	29:1	1.25 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.378	4.308	5	616255	18	>100:1			5000.00	4758.24	101.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.378	4.308	5/0	7610	30	42:1	Target = 1.51	15.03	100.00	63.324		
584 > 526	60	4.385	4.308		6894	31	25:1	1.10 (0.75-2.26)	3.06				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.378	4.308	5	711516	17	>100:1			1000.00	1181.43	112.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.378	4.308	5/0	66835	16	>100:1	Target = 14.52		100.00	96.942		
563 > 169	52	4.385	4.308		5503	22	24:1	12.14 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.495	4.482	1	103018	18	>100:1			1000.00	971.16	107.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.504	4.492	1/0	10537	16	68:1			100.00	105.07		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.514	4.501	1	42080	17	>100:1			1000.00	978.61	116.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.514	4.510	1/0	6024	15	39:1	Target = 1.06		100.00	107.67		
526 > 219	59	4.523	4.510		3778	18	34:1	1.59 (0.53-1.59)					J
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.651	4.580	5	773647	18	>100:1			1000.00	1288.69	127.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.659	4.580	5/0	88029	15	20:1	Target = 10.70		100.00	106.73		
613 > 169	38	4.659	4.580		6921	21	42:1	12.71 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.907	4.825	5/0	76051	17	>100:1	Target = 8.31		100.00	93.524		
663 > 169	38	4.907	4.825		8552	22	88:1	8.89 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.134	5.050	6	935850	21	>100:1			1000.00	1151.12	119	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.134	5.050	6/0	82889	20	15:1	Target = 12.17		100.00	101.46		
713 > 169	42	5.134	5.050		5437	18	44:1	15.24 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.570	5.466	7	874825	20	>100:1			1000.00	1007.82	99.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.570	5.466	7/0	57995	21	10.0:1	Target = 10.43		100.00	103.51		
813 > 269	40	5.570	5.466		4968	20	>100:1	11.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.024	5.877	9/2	80971	31	>100:1	Target = 13.67		100.00	101.67		
913 > 319	40	6.019	5.877		5332	39	>100:1	15.18 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.058	3.984	5	745858	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.513	2.469	3	808676	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.306	3.241	4	616477	25	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.728	1.705	2	690600	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.689	3.625	4	123983	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

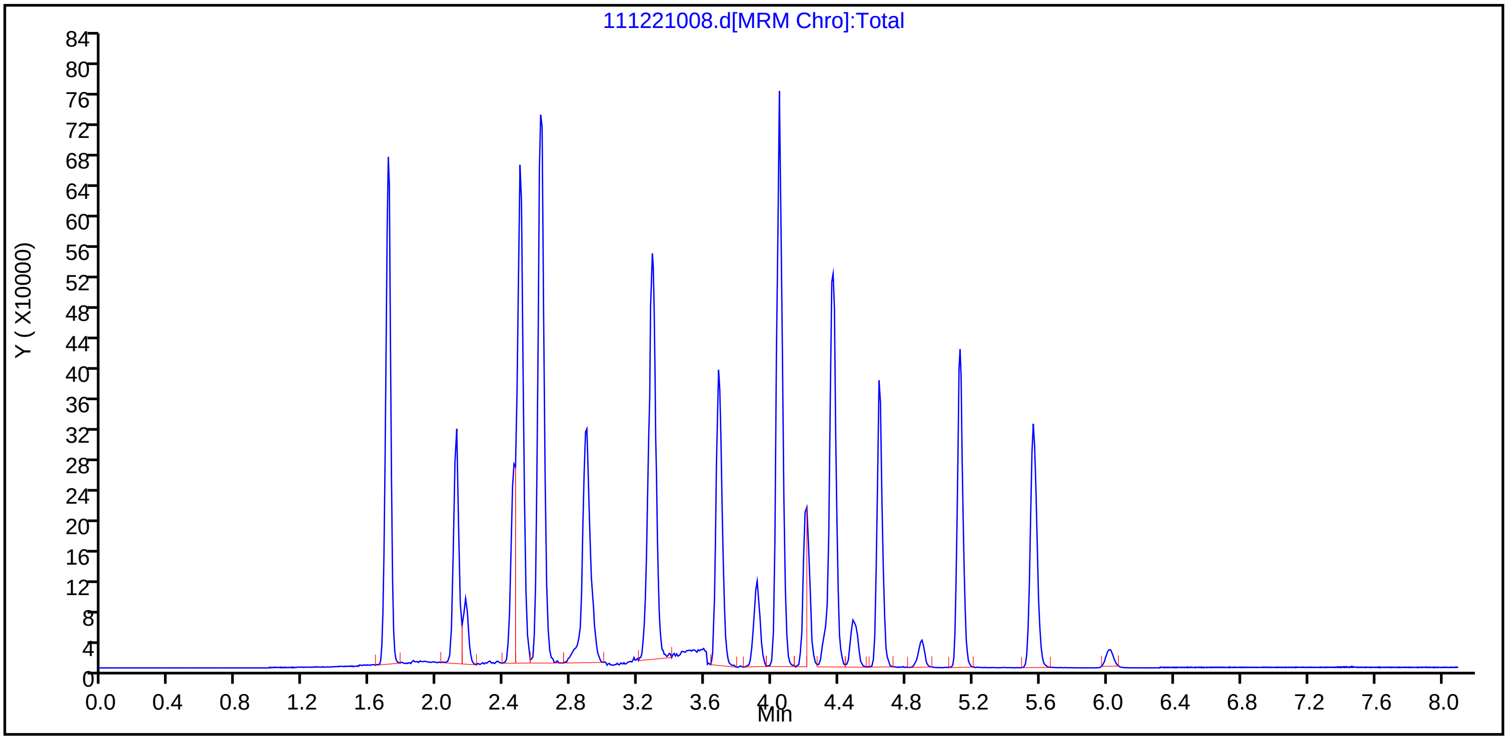
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

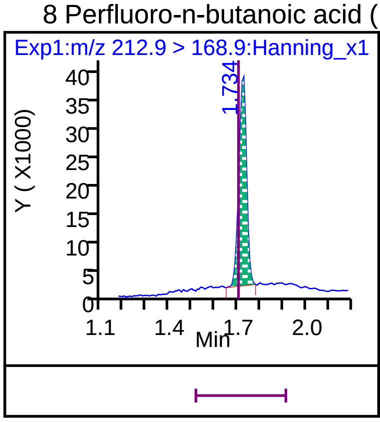
Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

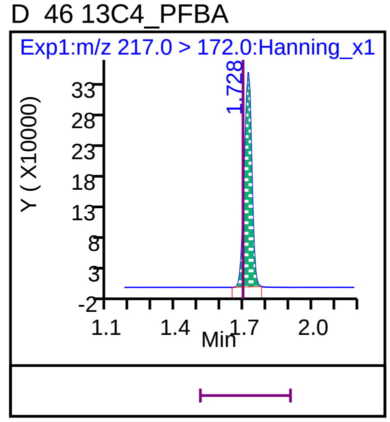
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d		
Injection Date:	12-Nov-2021 14:08:14	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741,rerun
Sample Info:	ID CCV 100_SVLC-1741,rerun		
Dil. Factor:	1	Operator:	Justin Gavin



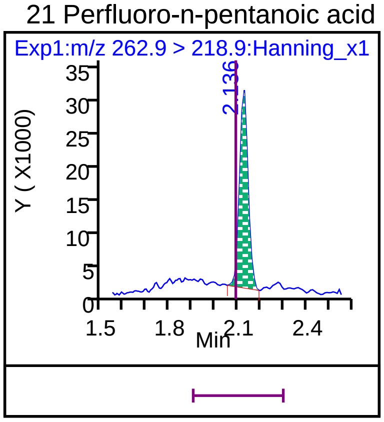
8 Perfluoro-n-butanoic acid (PFBA)



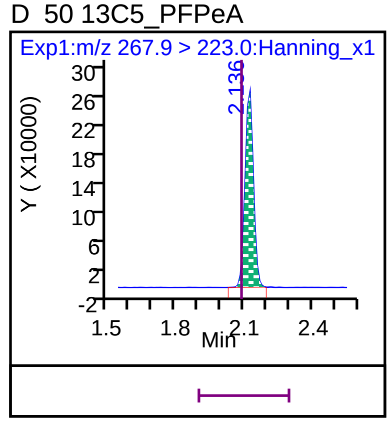
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

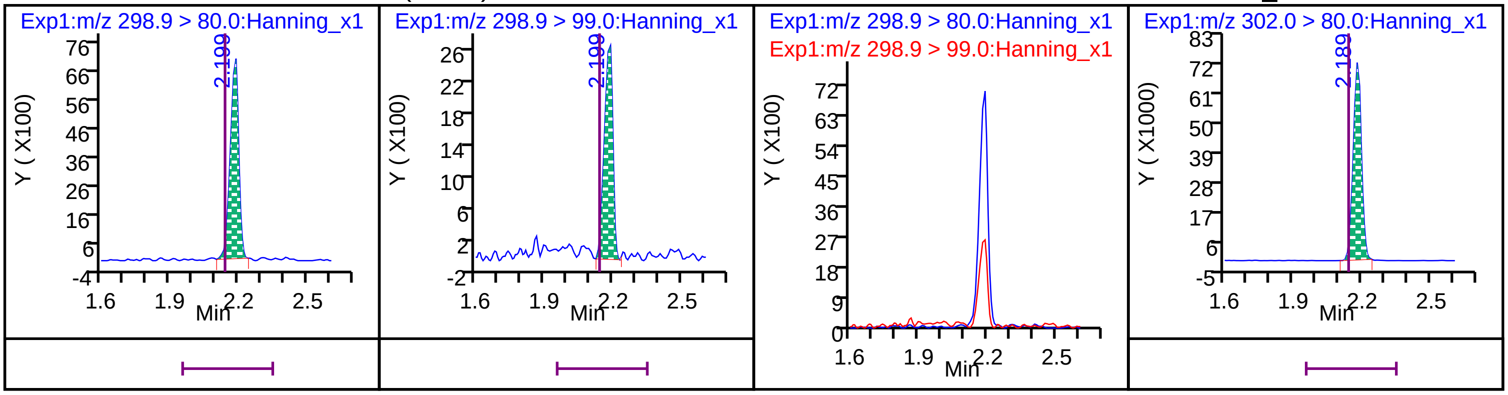


D 50 13C5_PFPeA

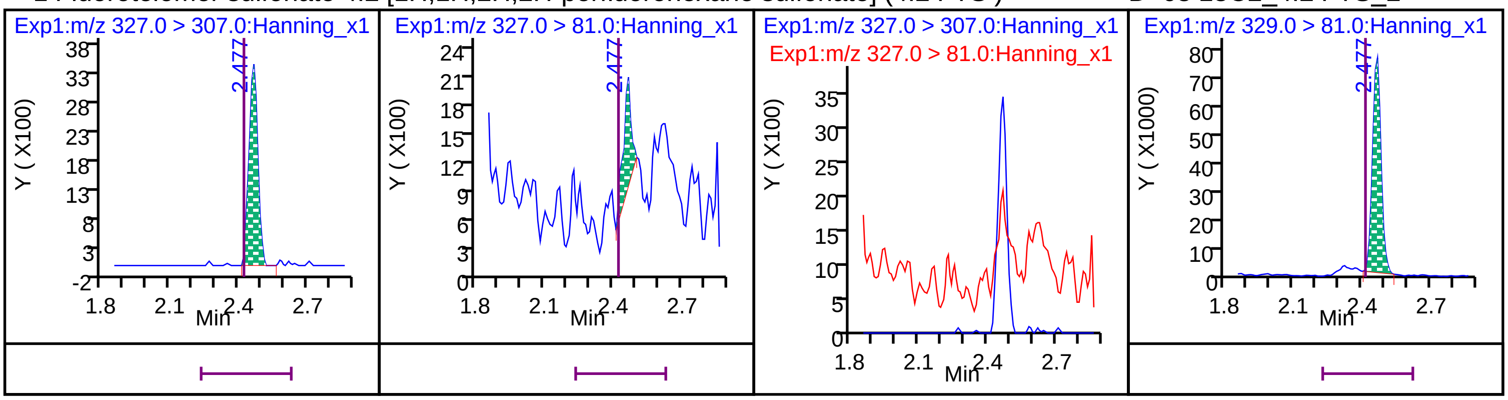


Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d

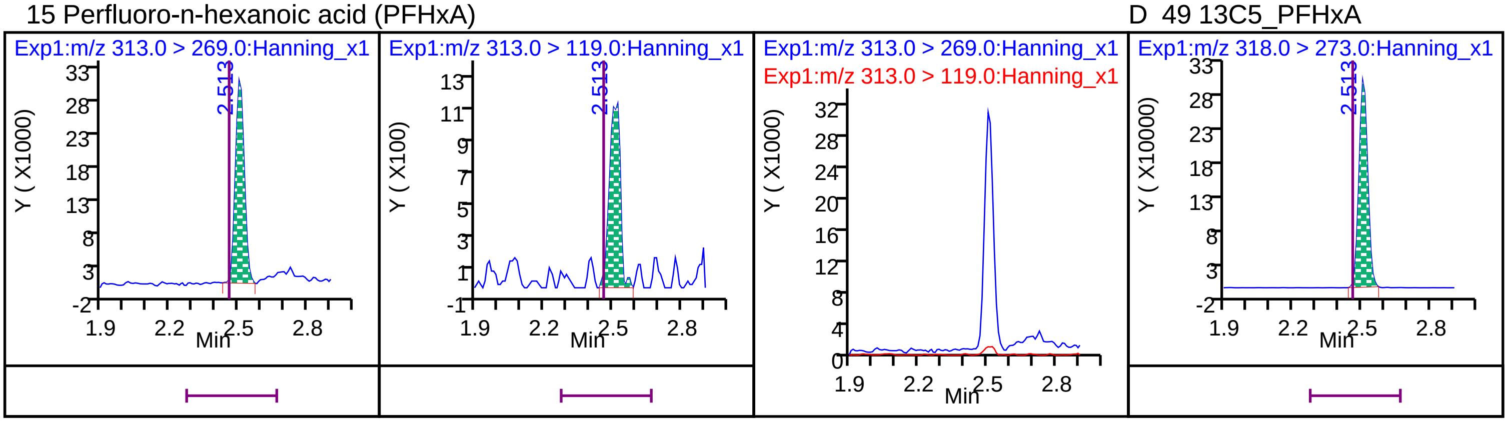
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



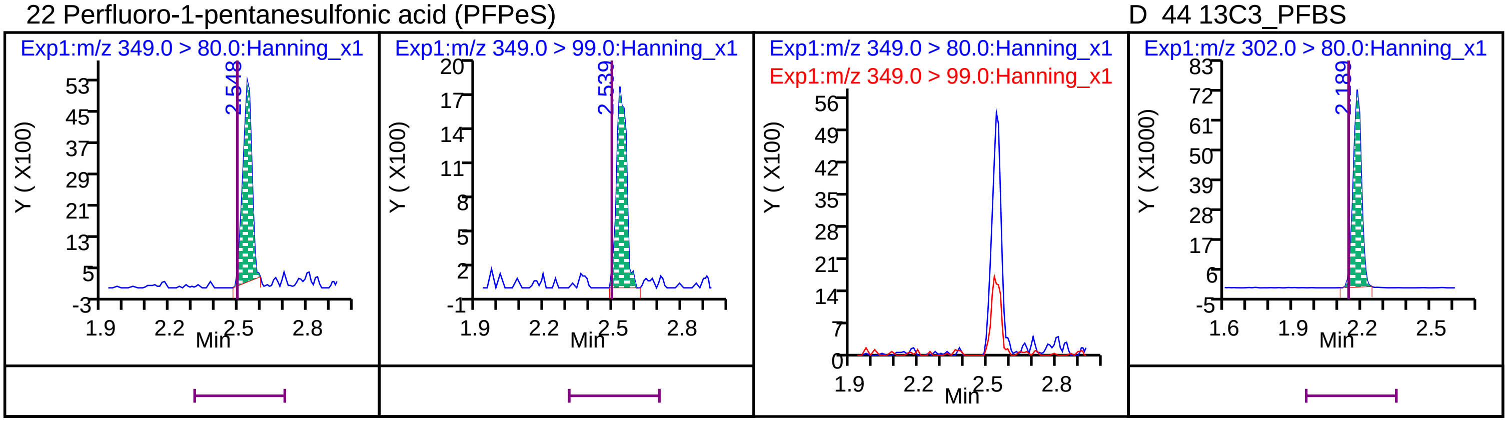
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

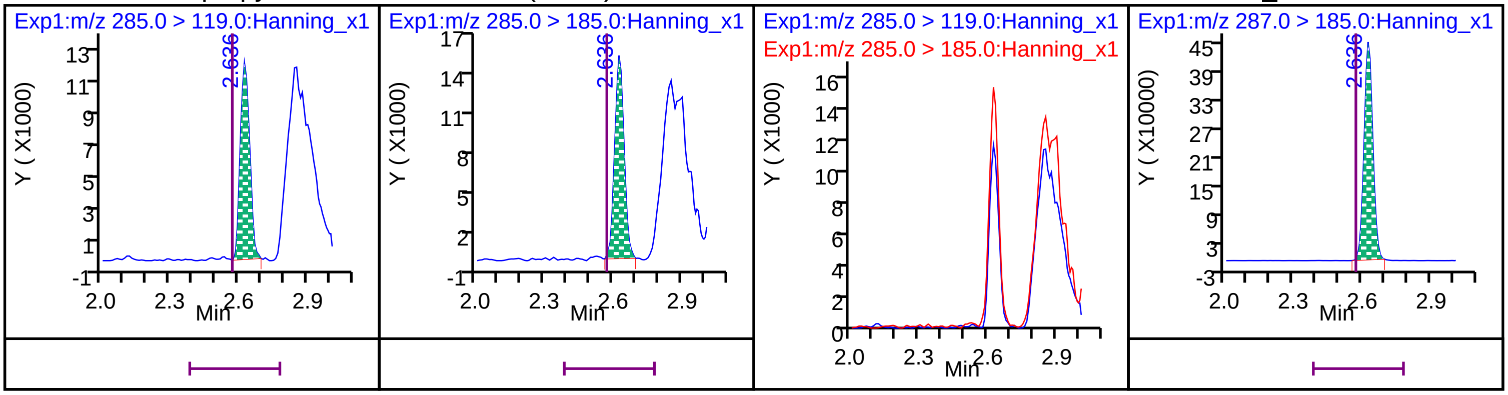


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

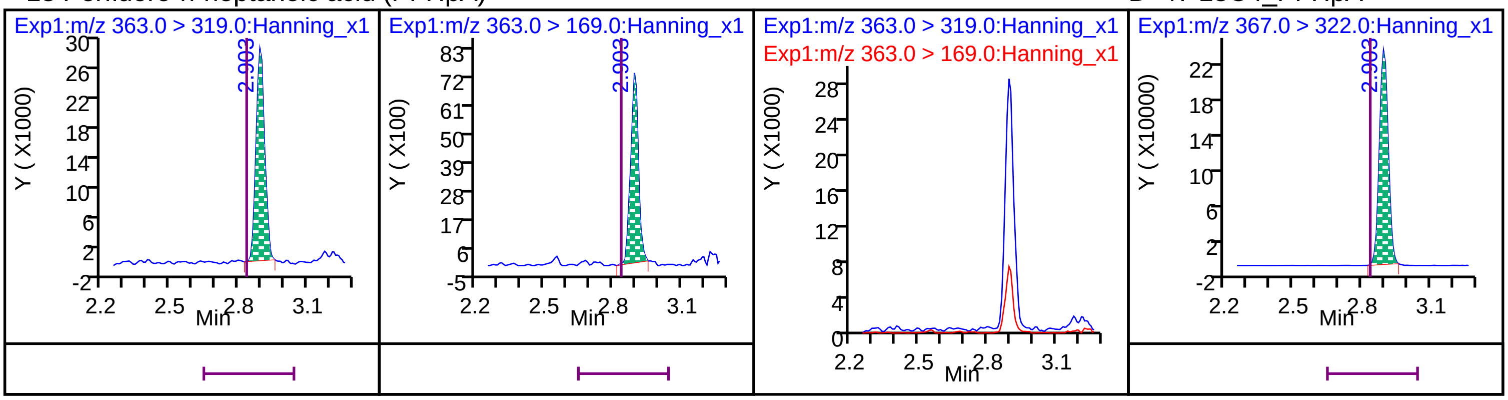


Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d

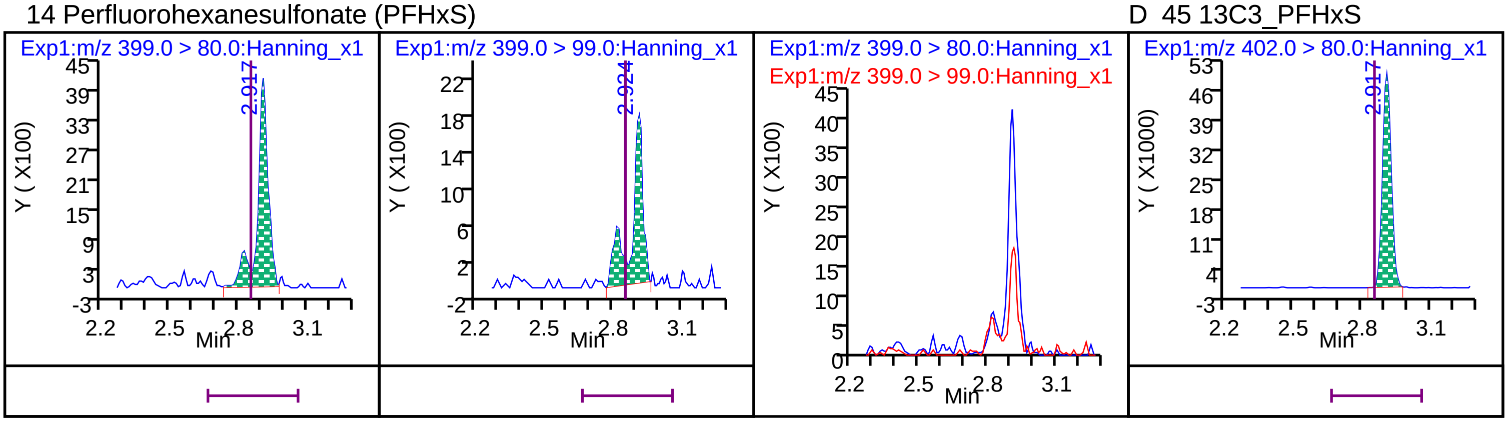
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



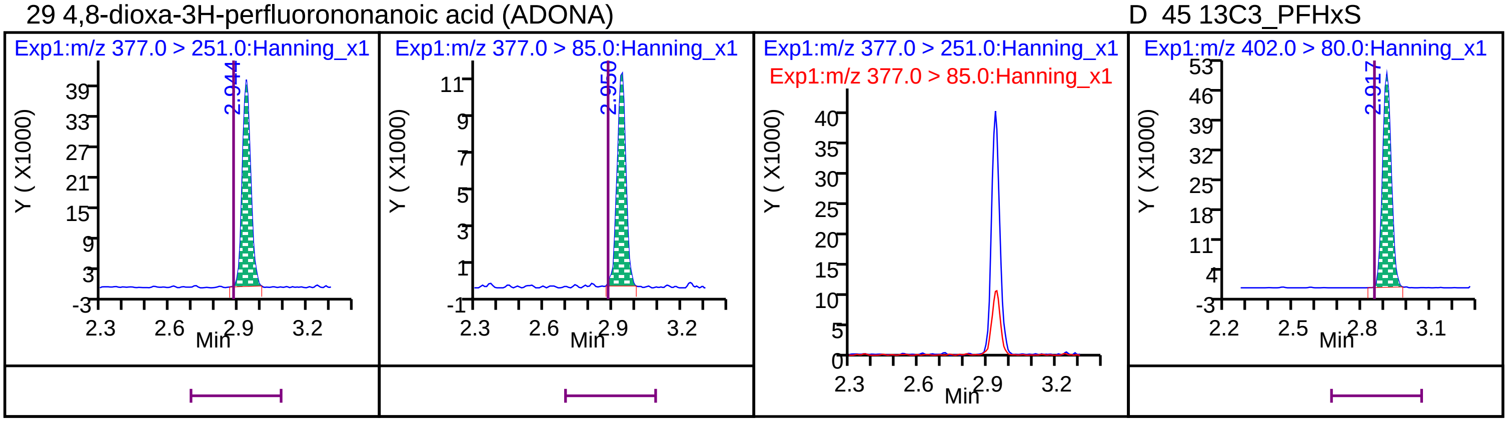
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

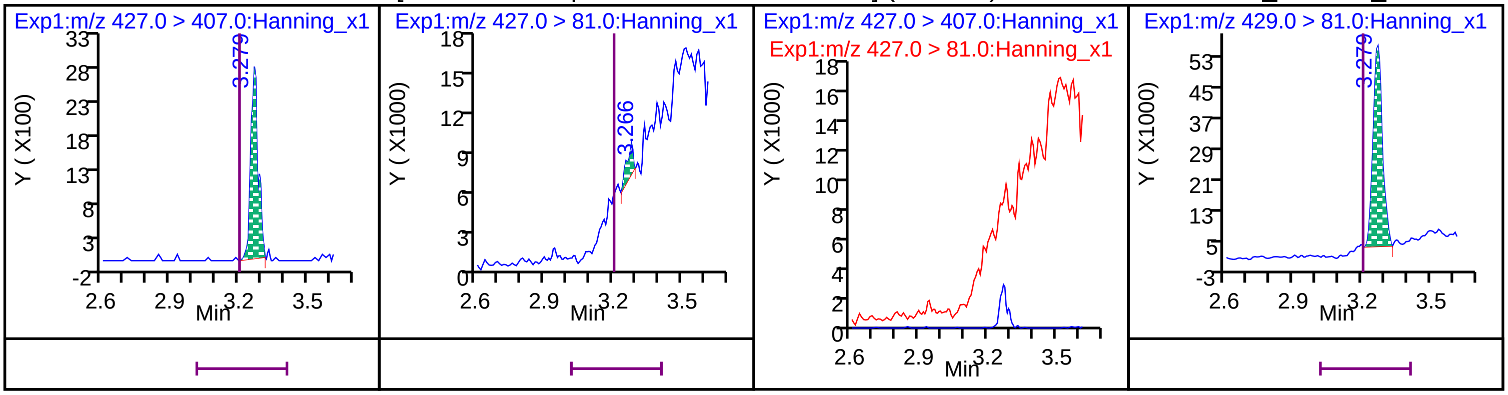


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

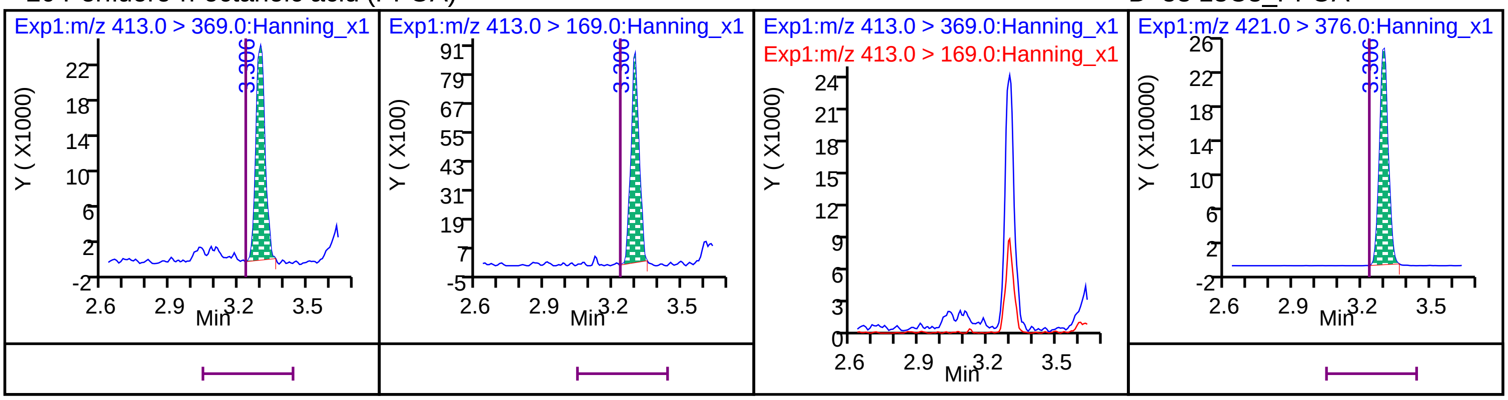


Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d

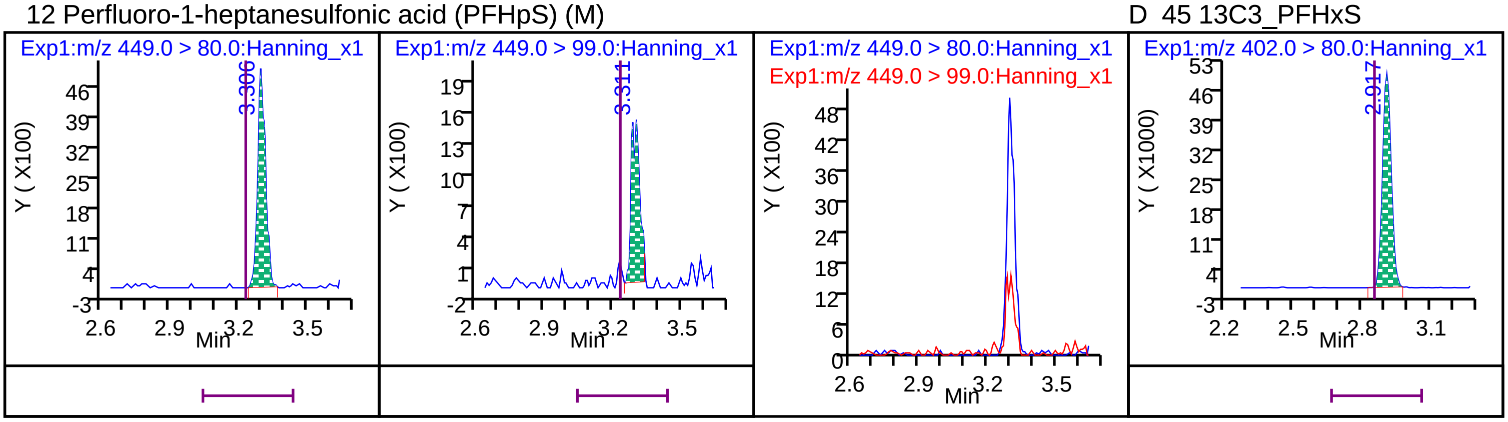
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



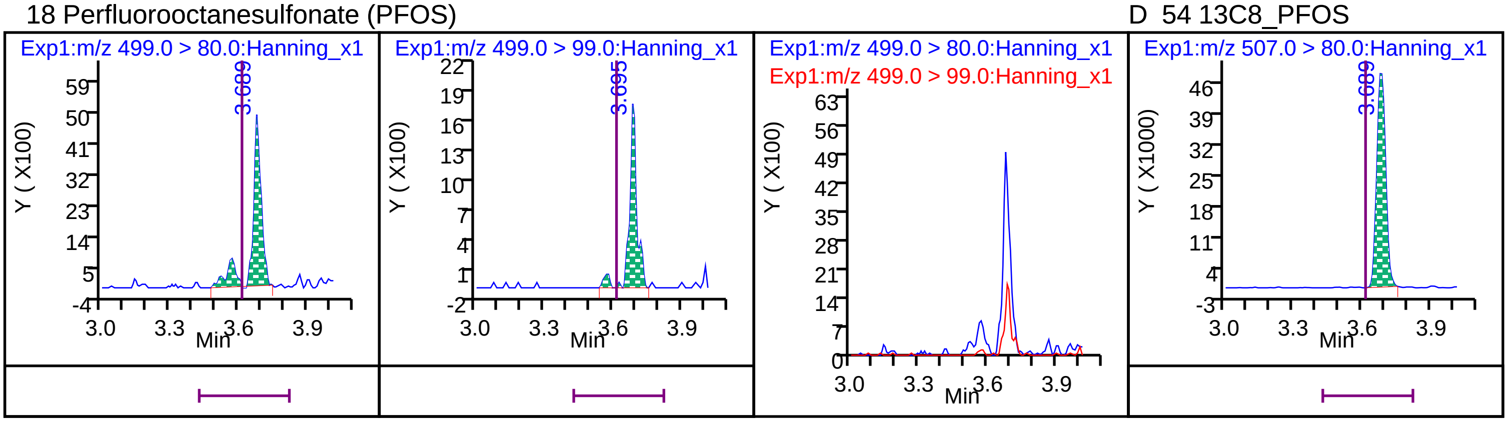
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



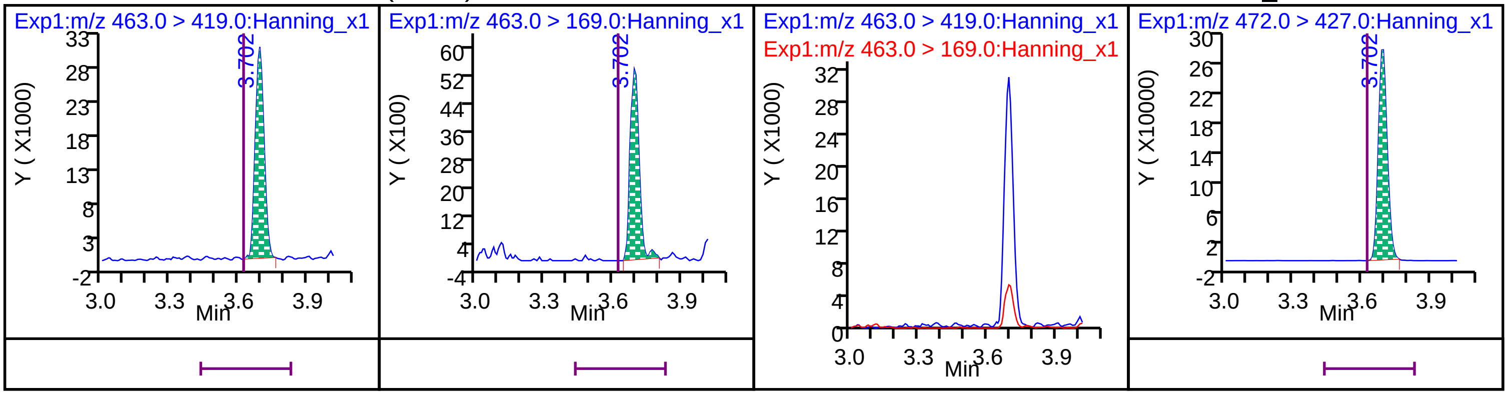
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS



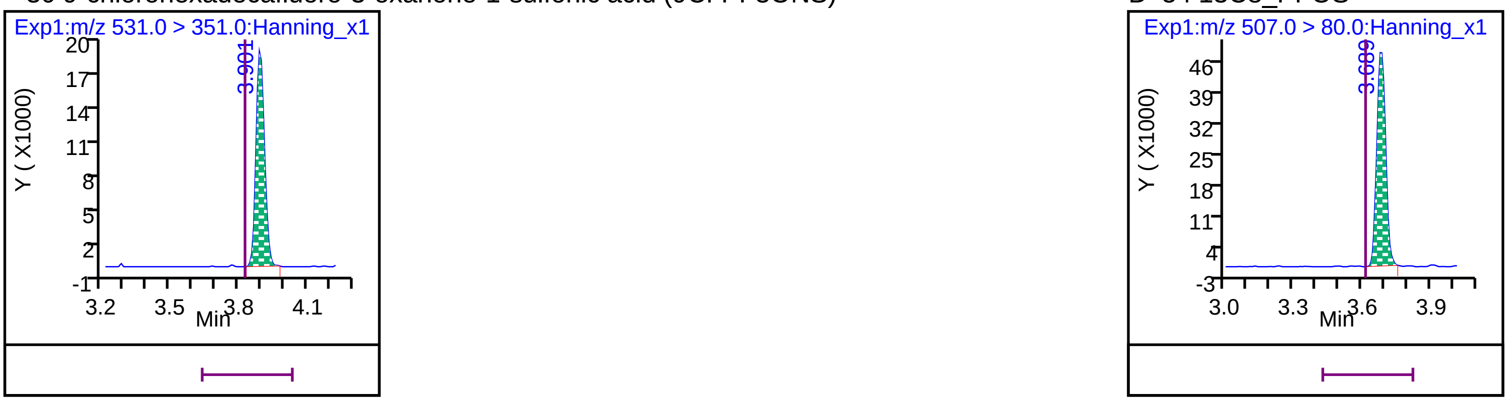
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



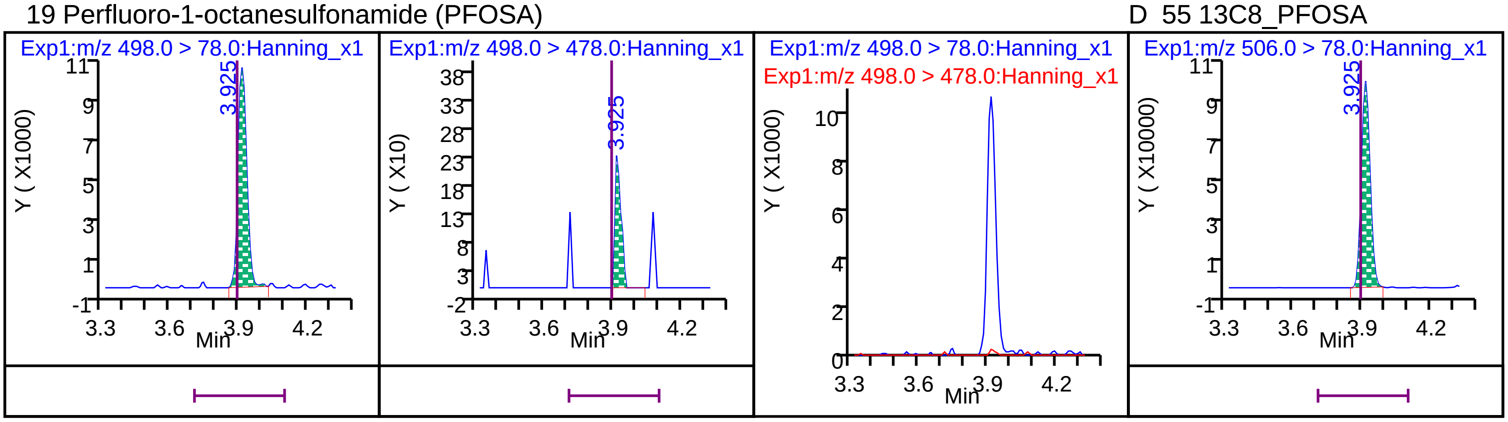
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



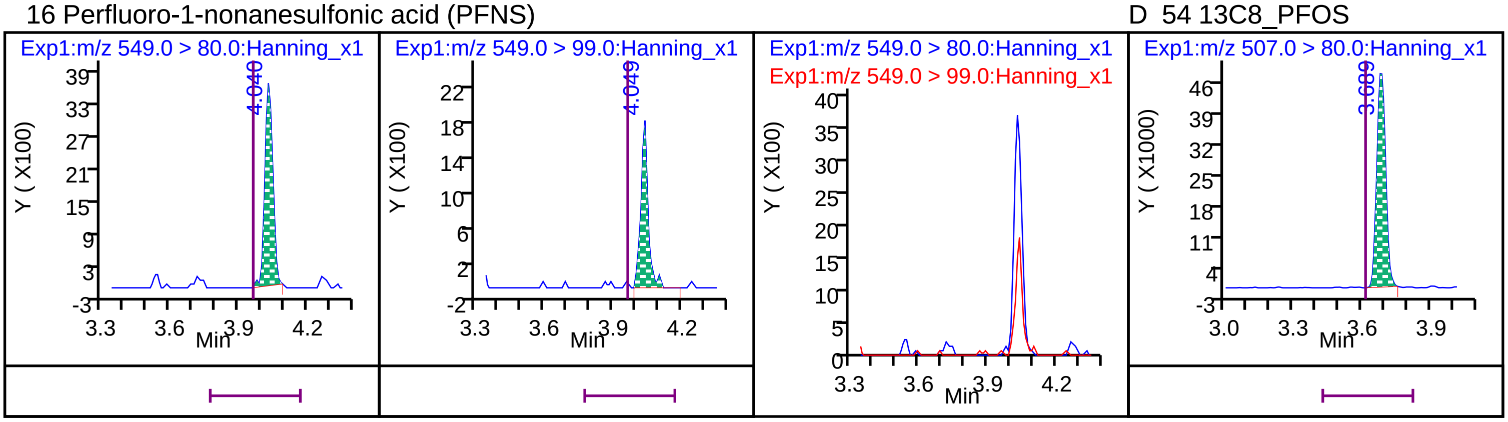
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

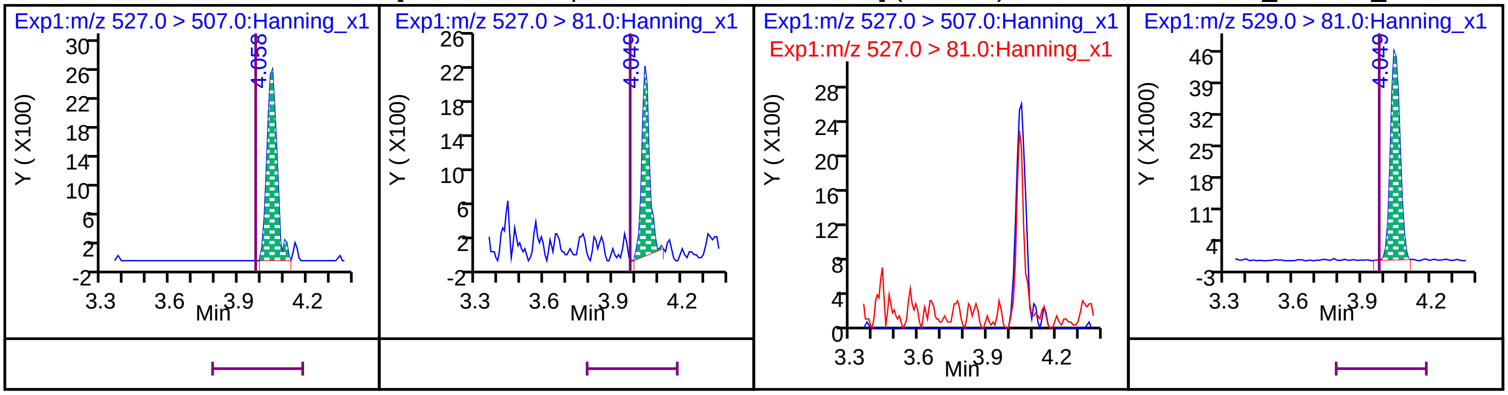


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

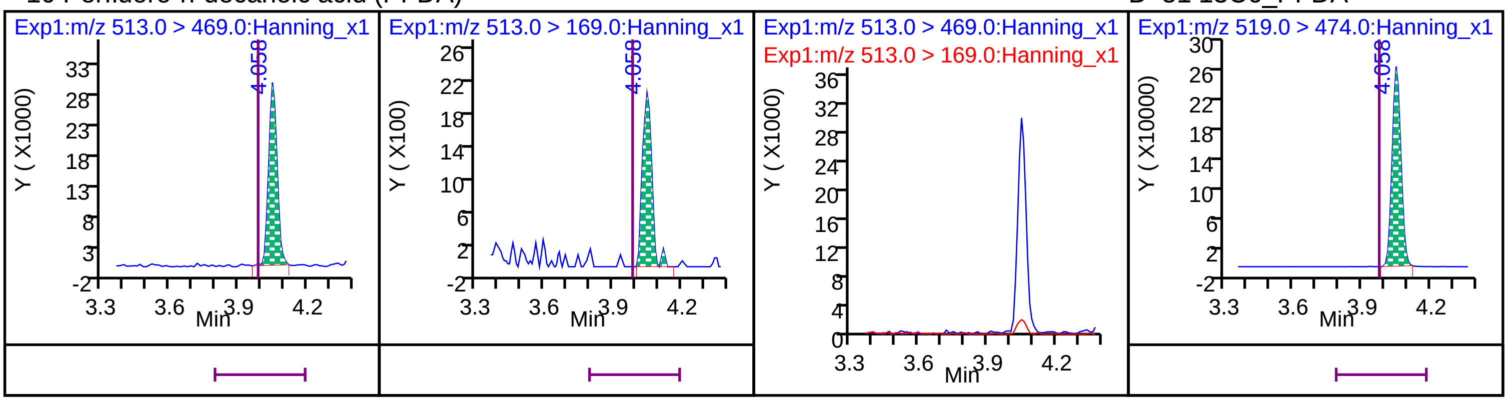


Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d

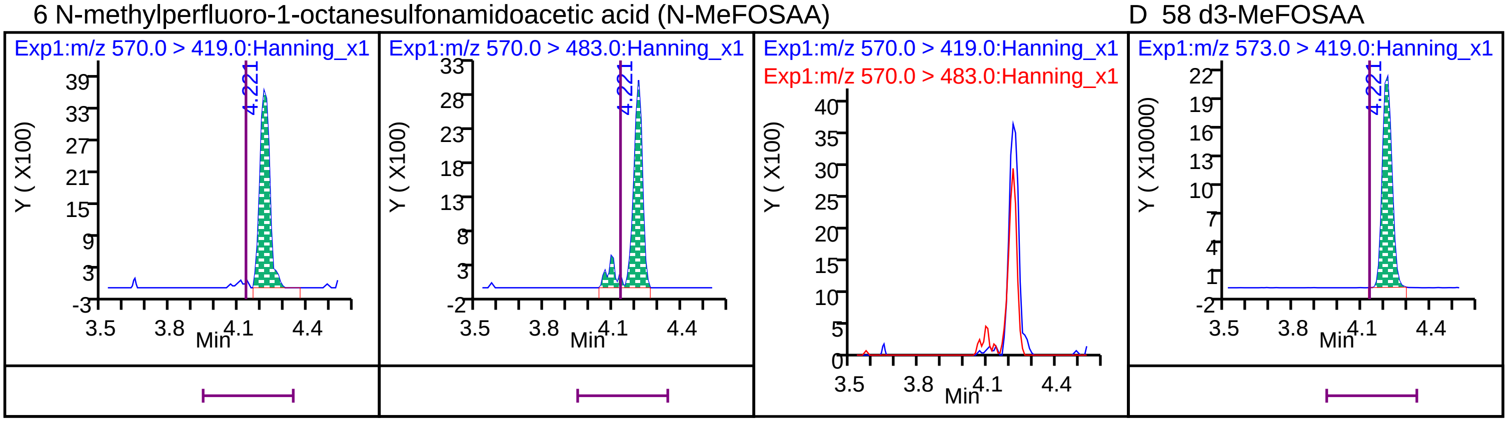
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



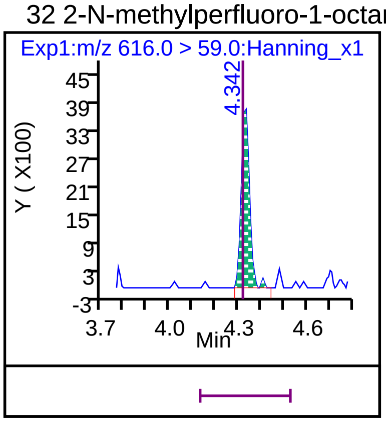
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

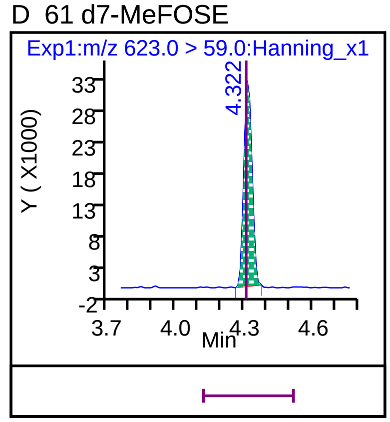


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

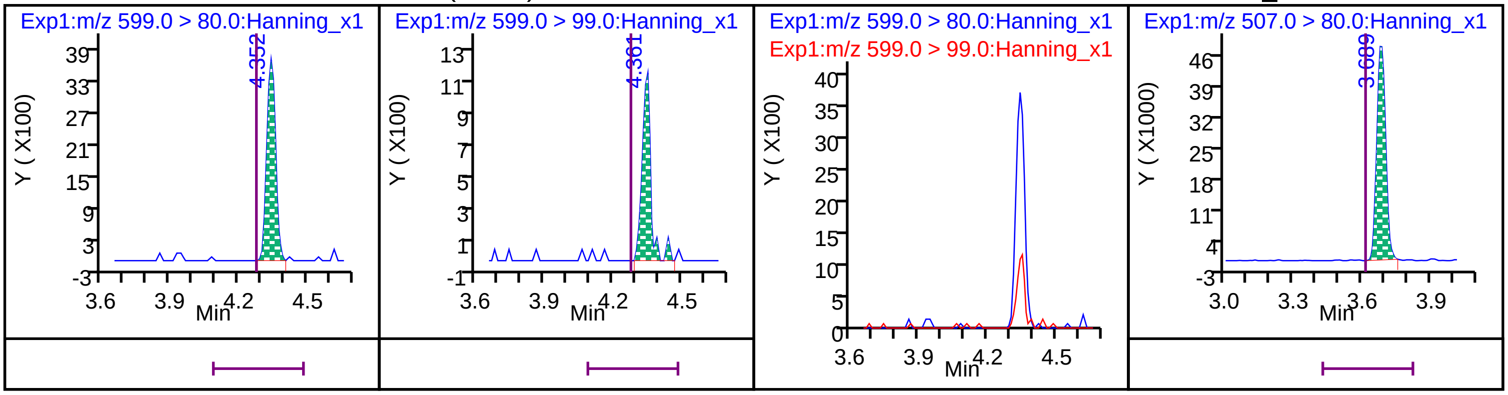


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

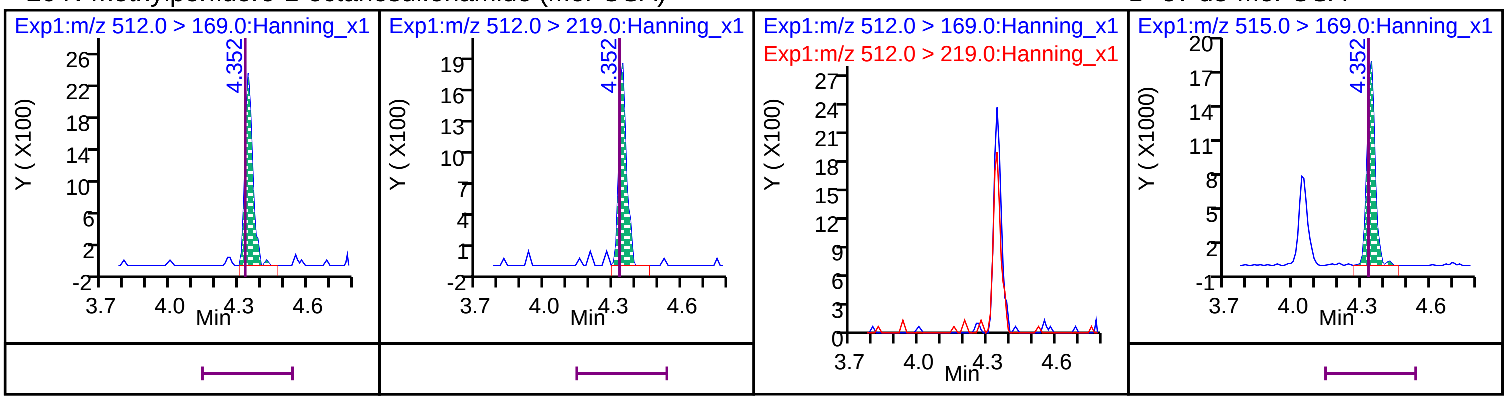




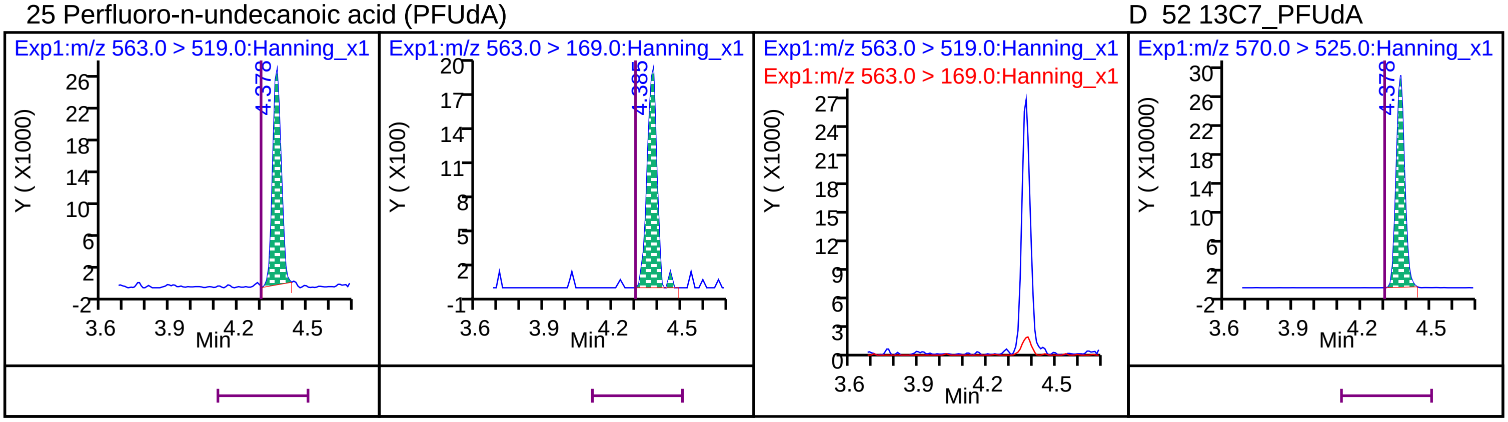
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



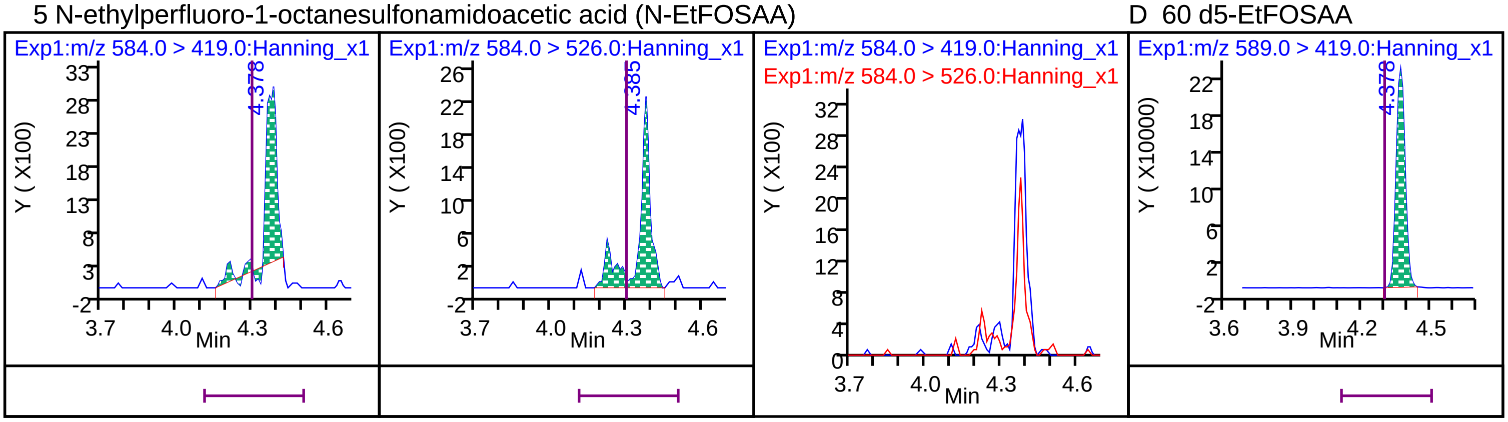
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

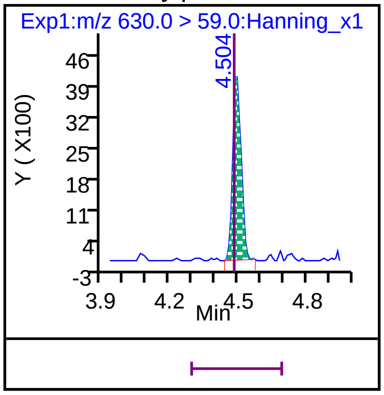


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

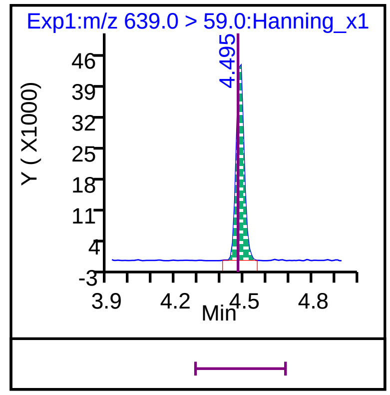


Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d

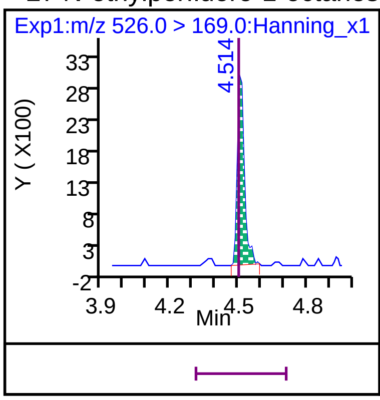
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

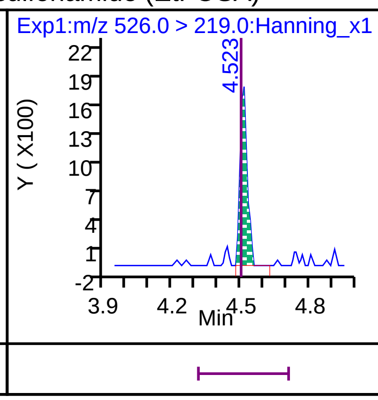


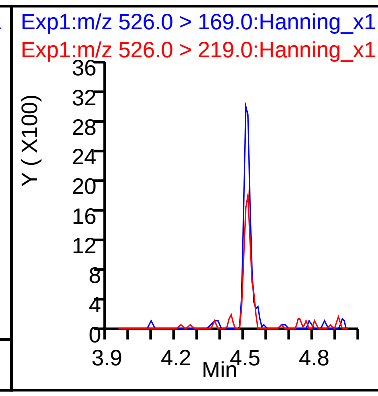
D 62 d9-EtFOSE



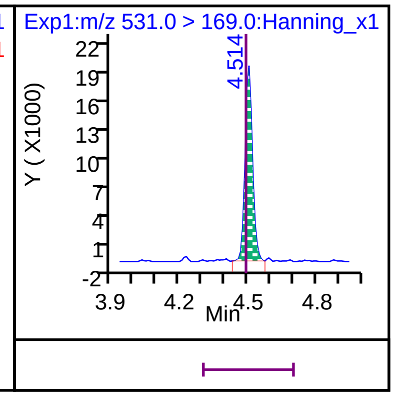
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



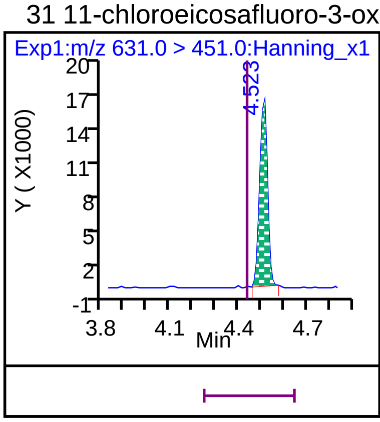




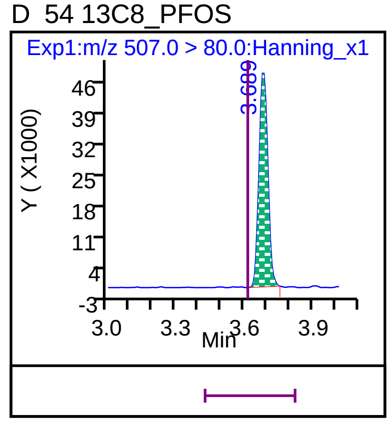
D 59 d5-EtFOSA



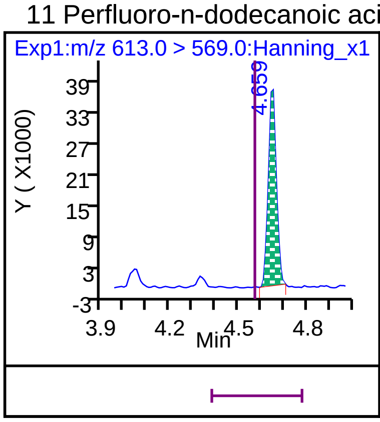
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

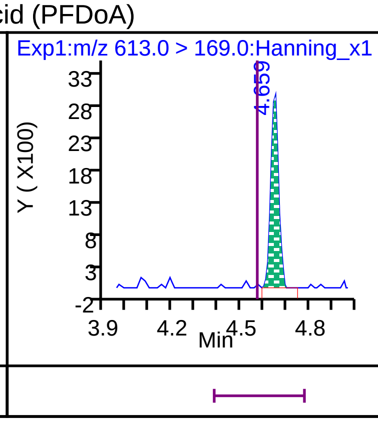


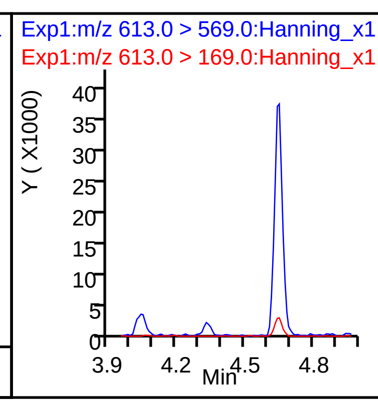
D 54 13C8_PFOS



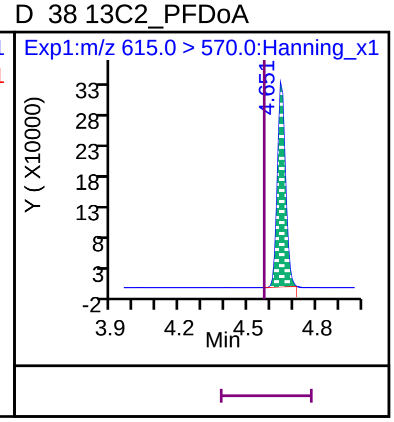
11 Perfluoro-n-dodecanoic acid (PFDoA)



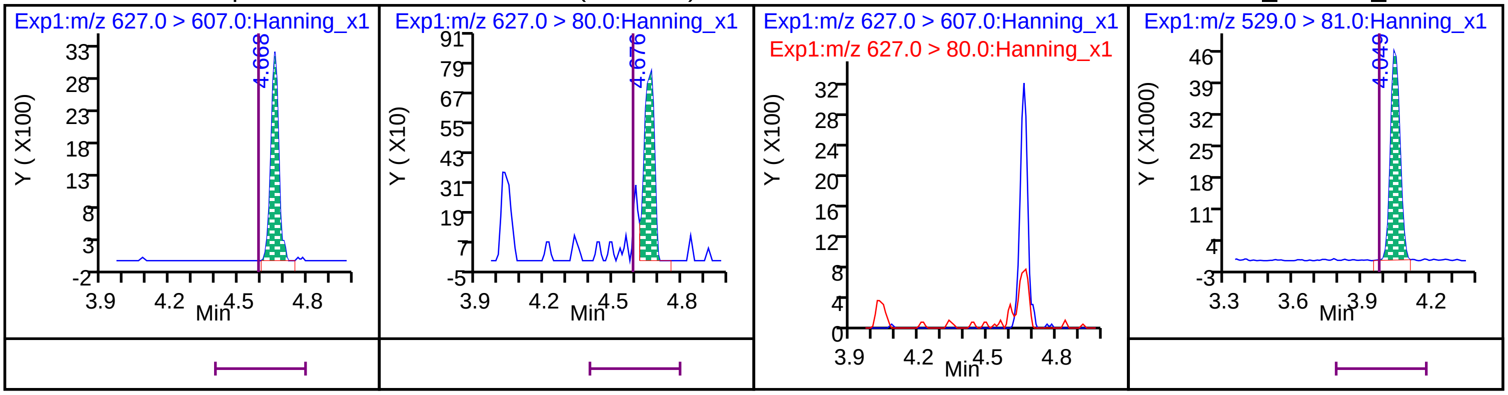




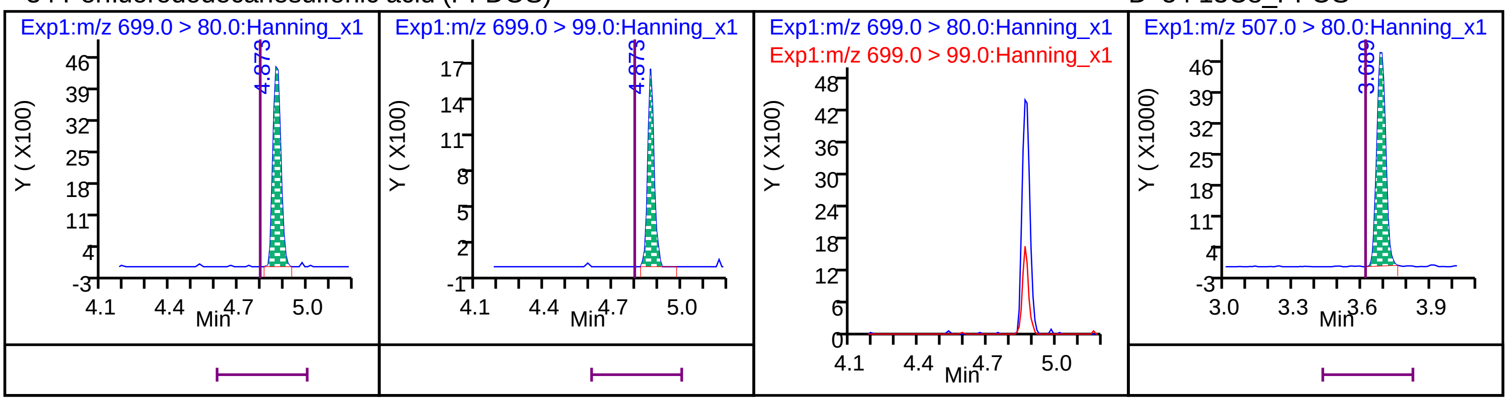
D 38 13C2_PFDoA



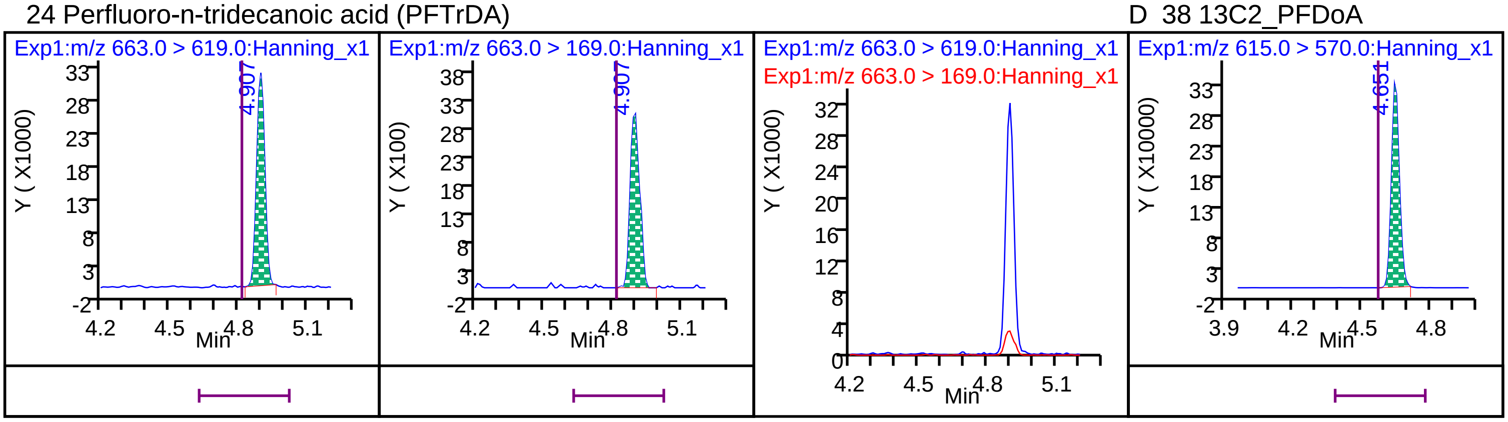
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



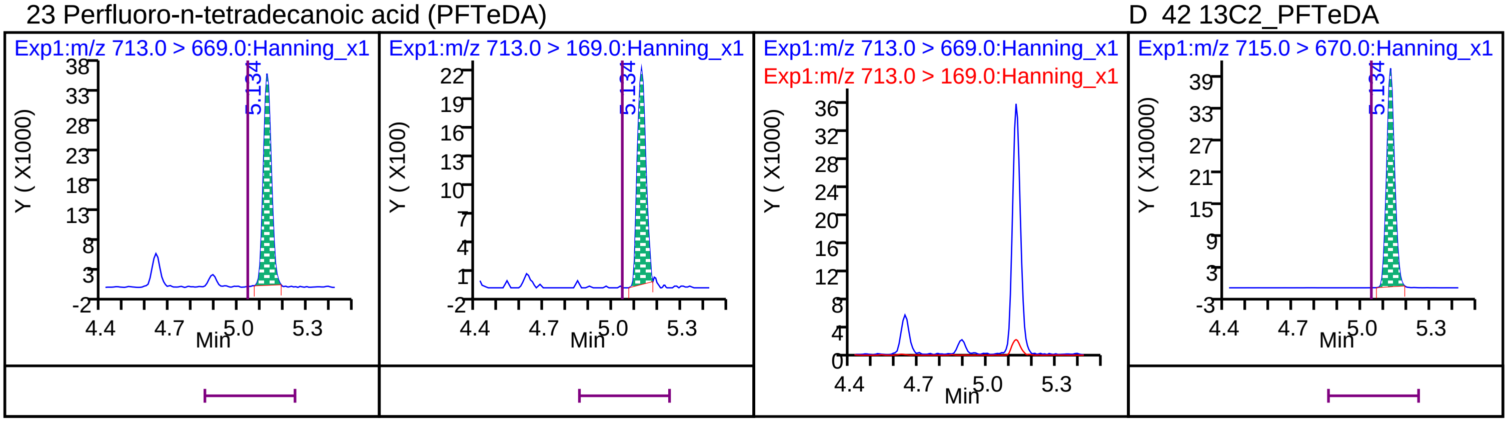
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



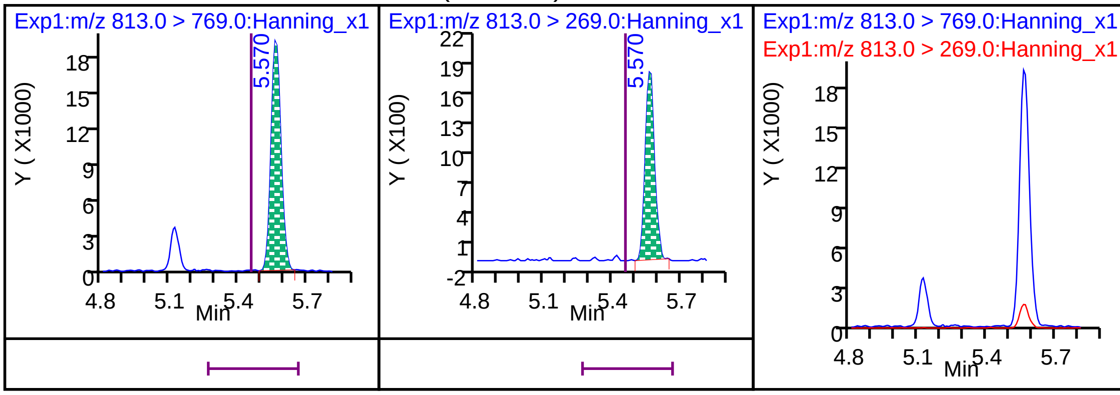
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



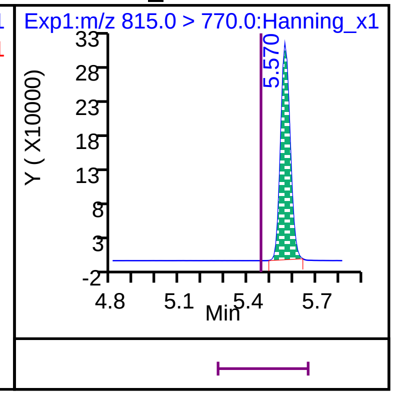
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



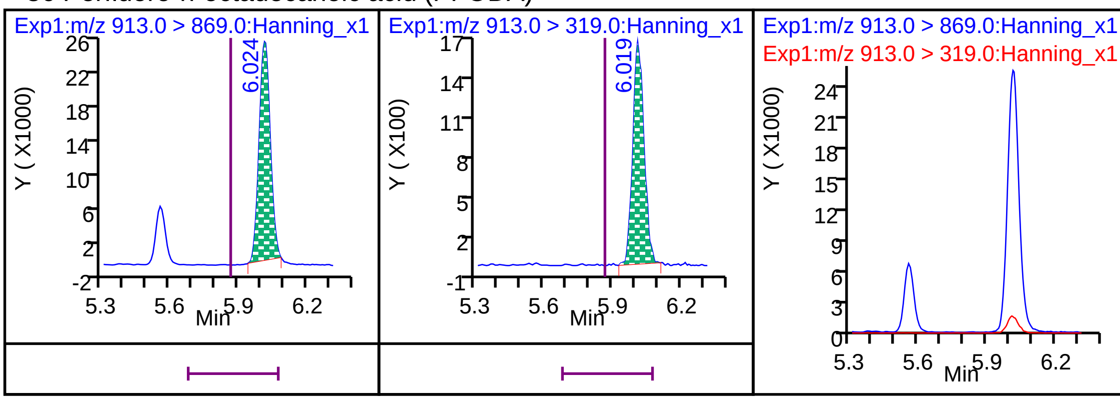
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



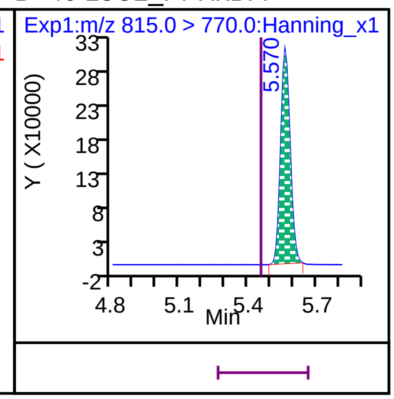
D 40 13C2_PFHxDA



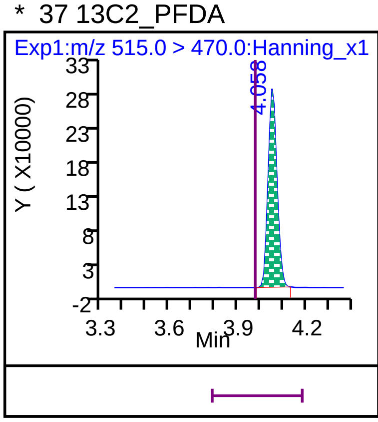
36 Perfluoro-n-octadecanoic acid (PFODA)



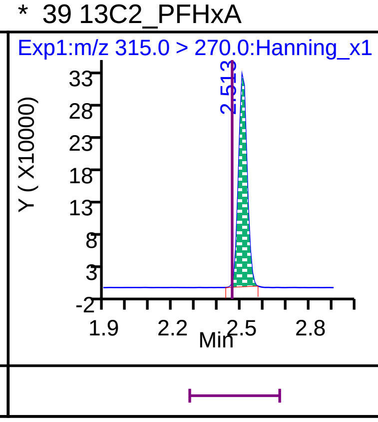
D 40 13C2_PFHxDA



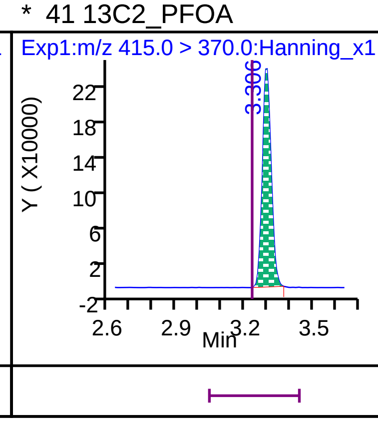
* 37 13C2_PFDA



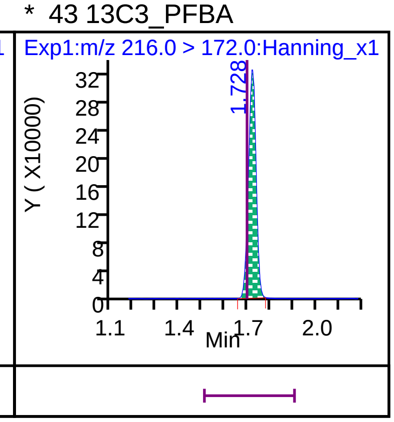
* 39 13C2_PFHxA



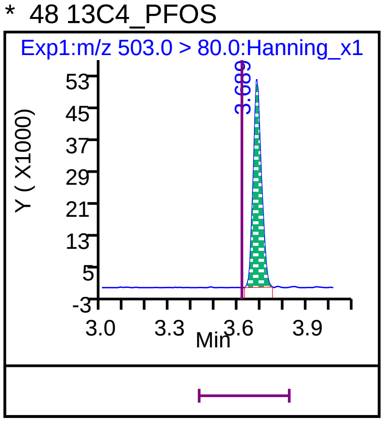
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

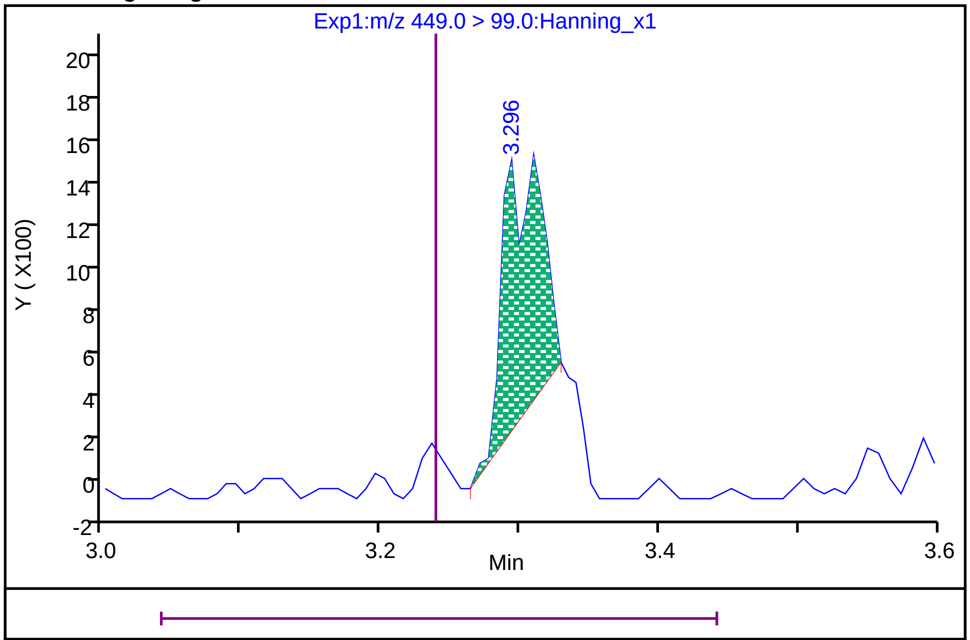
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221008.d		
Injection Date:	12-Nov-2021 14:08:14	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741,rerun
Sample Info:	ID CCV 100_SVLC-1741,rerun		
Dil. Factor:	1	Operator:	Justin Gavin

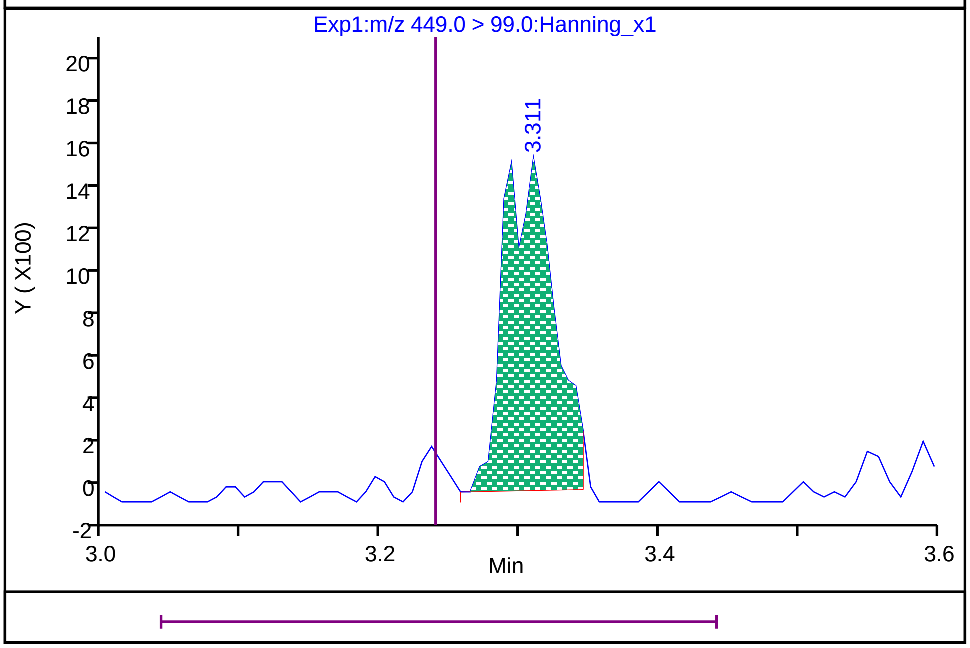
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT: 3.296
Area: 2256
Amount: 88.385
Amount Units: ng/L



RT: 3.311
Area: 3777
Amount: 88.385
Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 14:38:15

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d		
Injection Date:	12-Nov-2021 14:18:45	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	7
Sample Info:	ID CCV 100_SVLC-1741, conf	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	101.84	101.8	70 - 130
D 46 13C4_PFBA	606707	624498			102.9	50 - 150
21 PFPeA			100.00	107.48	107.5	70 - 130
D 50 13C5_PFPeA	544569	573107			105.2	50 - 150
D 44 13C3_PFBS	162919	167310			102.7	50 - 150
7 PFBS			88.400	90.366	102.2	70 - 130
1 4:2 FTS			93.400	107.29	114.9	70 - 130
D 63 13C2_4:2 FTS_2	104453	105894			101.4	50 - 150
D 49 13C5_PFHxA	625283	671002			107.3	50 - 150
15 PFHxA			100.00	99.600	99.6	70 - 130
22 PFPeS			93.800	92.927	99.1	70 - 130
28 GenX			200.00	211.19	105.6	70 - 130
D 66 13C3_GenX	1101362	1147910			104.2	50 - 150
D 47 13C4_PFHpA	527441	555104			105.2	50 - 150
13 PFHpA			100.00	101.15	101.2	70 - 130
D 45 13C3_PFHxS	115822	123089			106.3	50 - 150
14 PFHxS			91.000	98.505	108.2	70 - 130
29 ADONA			94.200	102.45	108.8	70 - 130
D 64 13C2_6:2 FTS_2	83315	89644			107.6	50 - 150
2 6:2 FTS			94.800	94.223	99.4	70 - 130
20 PFOA			100.00	98.685	98.7	70 - 130
D 53 13C8_PFOA	513896	540857			105.2	50 - 150
12 PFHpS			95.200	97.959	102.9	70 - 130
D 54 13C8_PFOS	109523	120266			109.8	50 - 150
18 PFOS			92.800	80.490	86.7	70 - 130
17 PFNA			100.00	96.317	96.3	70 - 130
D 56 13C9_PFNA	589389	666574			113.1	50 - 150
30 9Cl-PF3ONS			93.200	102.06	109.5	70 - 130
D 55 13C8_PFOSA	227854	260474			114.3	50 - 150
19 PFOSA			100.00	102.03	102	70 - 130
16 PFNS			96.000	80.642	84	70 - 130
10 PFDA			100.00	100.49	100.5	70 - 130
3 8:2 FTS			95.800	104.41	109	70 - 130
D 51 13C6_PFDA	593235	625701			105.5	50 - 150
D 65 13C2_8:2 FTS_2	82251	101961			124	50 - 150
6 N-MeFOSAA			100.00	83.242	83.2	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	661512	723626			109.4	50 - 150
D 61 d7-MeFOSE	81767	83806			102.5	50 - 150
32 MeFOSE			100.00	107.44	107.4	70 - 130
26 MeFOSA			100.00	117.85	117.8	70 - 130
D 57 d3-MeFOSA	42739	40952			95.8	50 - 150
9 PFDS			96.400	74.751	77.5	70 - 130
D 52 13C7_PFUdA	631780	629130			99.6	50 - 150
D 60 d5-EtFOSAA	606735	663720			109.4	50 - 150
25 PFUdA			100.00	109.39	109.4	70 - 130
5 N-EtFOSAA			100.00	140.75	140.7	70 - 130
D 62 d9-EtFOSE	95636	98737			103.2	50 - 150
33 EtFOSE			100.00	108.17	108.2	70 - 130
D 59 d5-EtFOSA	36158	40956			113.3	50 - 150
31 11Cl-PF3OUDS			94.200	99.515	105.6	70 - 130
27 EtFOSA			100.00	85.828	85.8	70 - 130
D 38 13C2_PFDoA	608629	662303			108.8	50 - 150
11 PFDoA			100.00	101.62	101.6	70 - 130
4 10:2 FTS			96.400	96.642	100.3	70 - 130
34 PFDOS			96.800	84.223	87	70 - 130
24 PFTrDA			100.00	101.82	101.8	70 - 130
D 42 13C2_PFTeDA	786507	822120			104.5	50 - 150
23 PFTeDA			100.00	102.24	102.2	70 - 130
D 40 13C2_PFHxDA	876588	877848			100.1	50 - 150
35 PFHxDA			100.00	102.68	102.7	70 - 130
36 PFODA			100.00	103.45	103.4	70 - 130

Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d		
Injection Date:	12-Nov-2021 14:18:45	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	7
Sample Info:	ID CCV 100_SVLC-1741, conf	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.705	1	624498	21	>100:1			1000.00	1004.54	102.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.712	1/0	67076	21	60:1			100.00	101.84		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.099	1	573107	16	>100:1			1000.00	1002.65	105.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.099	1/0	69329	16	68:1			100.00	107.48		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.151	1	167310	15	>100:1			1000.00	967.28	102.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.151	1/0	18854	15	>100:1	Target = 3.53		88.400	90.366		
298.9 > 99	44	2.172	2.151		5127	21	50:1	3.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.505	1/0	14409	22	>100:1	Target = 3.10		93.800	92.927		
349 > 99	44	2.522	2.505		6701	16	61:1	2.15 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.425	2	105894	16	>100:1			5000.00	4676.53	101.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.442	2.433	1/-1	5009	21	98:1	Target = 1.75		93.400	107.29		
327 > 81	63	2.442	2.433		2664	12	3.7:1	1.88 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.469	2	671002	18	>100:1			1000.00	1030.27	107.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.469	2/0	69489	16	>100:1	Target = 18.91		100.00	99.600		
313 > 119	49	2.487	2.469		3574	24	19:1	19.44 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.583	2	1147910	20	>100:1			5000.00	4953.09	104.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.583	2/0	31401	22	>100:1	Target = 0.79		200.00	211.19		
285 > 185	66	2.606	2.583		37847	17	>100:1	0.82 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.845	2	555104	19	>100:1			1000.00	1045.51	105.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.872	2.845	2/0	61699	23	>100:1	Target = 3.80		100.00	101.15		
363 > 169	47	2.872	2.845		17418	18	>100:1	3.54 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.880	2.864	2	123089	19	>100:1			1000.00	979.70	106.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.864	2/0	13330	24	>100:1	Target = 2.89	4.85	91.000	98.505		
399 > 99	45	2.888	2.864		4657	36		2.86 (1.44-4.34)	5.34				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.888	2/0	97796	22	>100:1	Target = 3.23		94.200	102.45		
377 > 85	45	2.918	2.888		26335	21	>100:1	3.71 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.241	3/1	12384	28	>100:1	Target = 3.12		95.200	97.959		
449 > 99	45	3.269	3.241		3684	18	19:1	3.36 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.214	2	89644	20	>100:1			5000.00	4980.23	107.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.214	3/1	3999	14	25:1	Target = 1.75		94.800	94.223		M
427 > 81	64	3.241	3.214		4053	15		0.98 (0.87-2.62)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.241	2	540857	24	>100:1			1000.00	1030.84	105.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.241	3/1	54696	20	47:1	Target = 2.89		100.00	98.685		
413 > 169	53	3.276	3.241		19247	26	>100:1	2.84 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.625	2	120266	21	>100:1			1000.00	971.12	109.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.625	2/0	11526	40	>100:1	Target = 3.30	3.52	92.800	80.490		
499 > 99	54	3.645	3.625		3406	28		3.38 (1.65-4.95)	6.24				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.838	2/0	46482	25	>100:1			93.200	102.06		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.016	3.974	3/1	7781	20	35:1	Target = 3.08		96.000	80.642		
549 > 99	54	4.005	3.974		2947	18		2.64 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.288	2/0	7035	19		Target = 2.72		96.400	74.751		
599 > 99	54	4.328	4.288		4405	20	39:1	1.59 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.446	3/1	40975	16	>100:1			94.200	99.515		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.804	3/1	8710	16	90:1	Target = 3.27		96.800	84.223		
699 > 99	54	4.842	4.804		3264	13	72:1	2.66 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.632	2	666574	23	>100:1			1000.00	1040.91	113.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.632	2/0	69202	23	>100:1	Target = 6.51		100.00	96.317		
463 > 169	56	3.662	3.632		11085	23	64:1	6.24 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.912	3.904	1	260474	20	>100:1			1000.00	971.71	114.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.912	3.904	1/0	27964	21	>100:1	Target = 41.63		100.00	102.03		
498>478	55	3.912	3.904		1036	17	11:1	26.99 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	3.984	3	625701	16	>100:1			1000.00	1088.82	105.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	3.995	2/-1	73171	17	>100:1	Target = 13.80		100.00	100.49		
513 > 169	51	4.027	3.995		4904	19	26:1	14.92 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	3.984	2	101961	18	>100:1			5000.00	5898.98	124	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.027	3.984	3/1	4811	19	30:1	Target = 1.94		95.800	104.41		
527 > 81	65	4.005	3.984		1988	13	5.9:1	2.42 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.597	3/1	4999	14	57:1	Target = 3.54		96.400	96.642		
627 > 80	65	4.639	4.597		1237	15	12:1	4.04 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.187	4.142	3	723626	18	>100:1			5000.00	4788.66	109.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.142	3/0	9667	23	33:1	Target = 1.37	13.18	100.00	83.242		
570 > 483	58	4.187	4.142		9862	29	17:1	0.98 (0.68-2.05)	3.35				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.318	0	83806	15	>100:1			1000.00	929.23	102.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.328	0/0	9840	21	65:1			100.00	107.44		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.338	0	40952	13	>100:1			1000.00	870.56	95.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.357	4.338	2/2	5231	20	9.6:1	Target = 1.11		100.00	117.85		
512 > 219	57	4.338	4.338		3375	14	27:1	1.54 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.348	4.308	3	663720	16	>100:1			5000.00	5124.73	109.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.308	3/0	18217	26	71:1	Target = 1.51	7.22	100.00	140.75		M
584 > 526	60	4.357	4.308		10318	32	61:1	1.76 (0.75-2.26)	3.19				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.348	4.308	3	629130	16	>100:1			1000.00	1044.63	99.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.348	4.308	3/0	66682	16	>100:1	Target = 14.52		100.00	109.39		
563 > 169	52	4.338	4.308		4623	21	14:1	14.42 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.482	0	98737	16	>100:1			1000.00	930.80	103.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.500	4.492	1/1	10397	14	88:1			100.00	108.17		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.500	4.501	0	40956	16	>100:1			1000.00	952.47	113.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.509	4.510	0/0	4805	12	35:1	Target = 1.06		100.00	85.828		
526 > 219	59	4.519	4.510		5076	23	27:1	0.94 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.580	3	662303	17	>100:1			1000.00	1103.22	108.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.580	3/0	71748	19	13:1	Target = 10.70		100.00	101.62		
613 > 169	38	4.614	4.580		7764	21	50:1	9.24 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.825	3/0	70881	17	>100:1	Target = 8.31		100.00	101.82		
663 > 169	38	4.877	4.825		6584	17	>100:1	10.76 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.100	5.050	3	822120	21	>100:1			1000.00	1011.23	104.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.100	5.050	3/0	73373	21	20:1	Target = 12.17		100.00	102.24		
713 > 169	42	5.100	5.050		6049	18	97:1	12.12 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.528	5.466	4	877848	21	>100:1			1000.00	1011.30	100.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.528	5.466	4/0	57730	19	10:1	Target = 10.43		100.00	102.68		
813 > 269	40	5.528	5.466		5064	20	>100:1	11.40 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.968	5.877	6/2	82673	31	>100:1	Target = 13.67		100.00	103.45		
913 > 319	40	5.968	5.877		5372	39	>100:1	15.38 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	3.984	3	692070	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.469	2	678506	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.241	2	554891	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.705	1	584150	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.625	2	120823	23	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

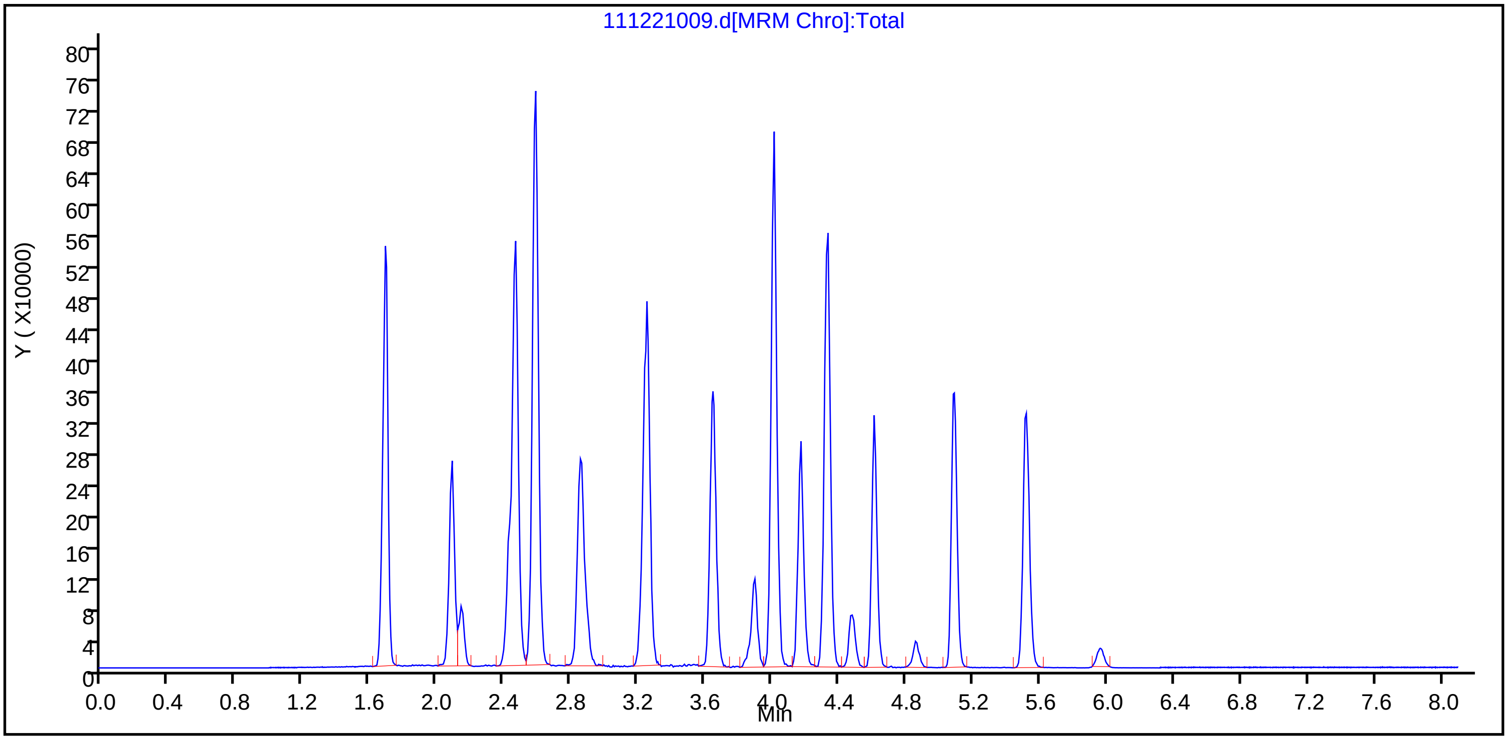
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

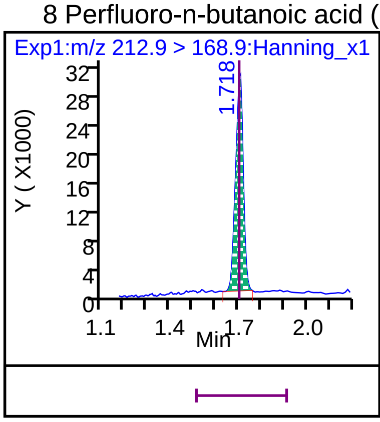
Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

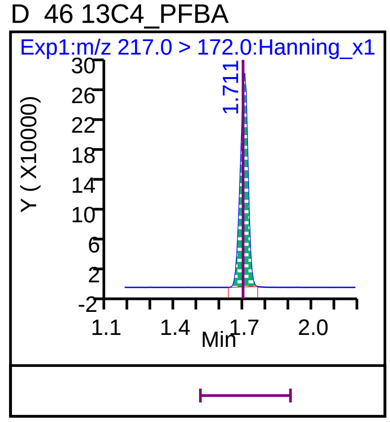
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d		
Injection Date:	12-Nov-2021 14:18:45	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741, conf
Sample Info:	ID CCV 100_SVLC-1741, conf		
Dil. Factor:	1	Operator:	Justin Gavin



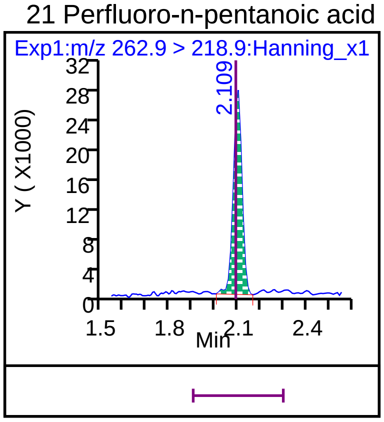
8 Perfluoro-n-butanoic acid (PFBA)



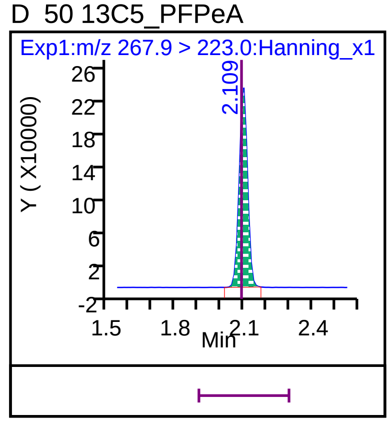
D 46 13C4_PFBA



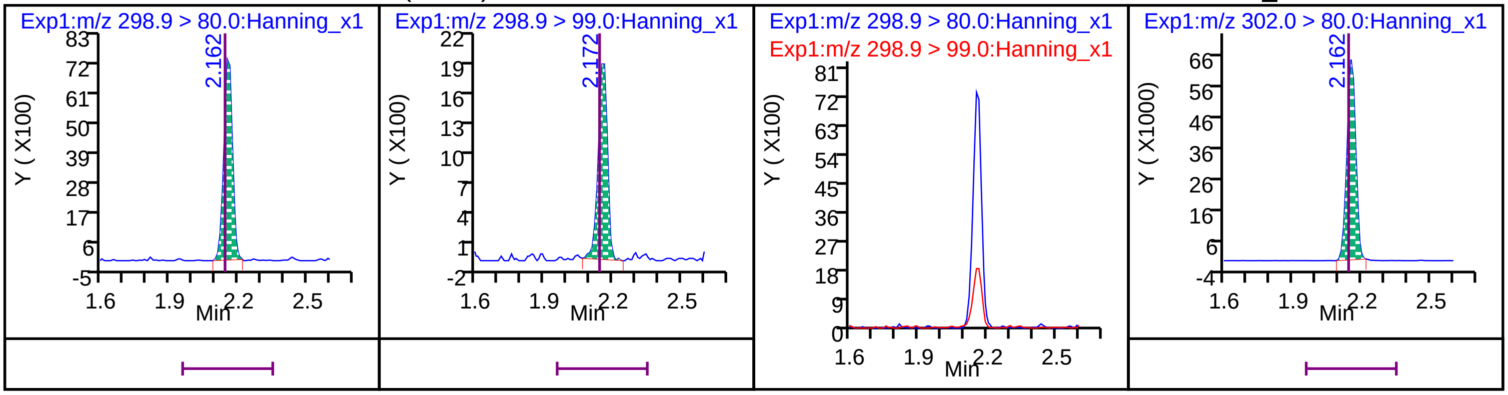
21 Perfluoro-n-pentanoic acid (PFPeA)



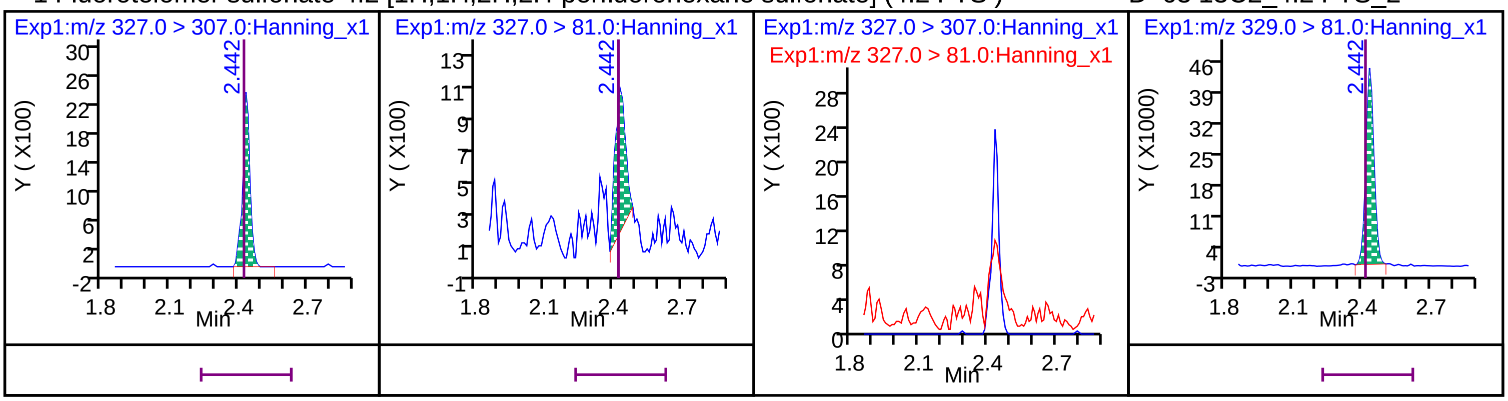
D 50 13C5_PFPeA



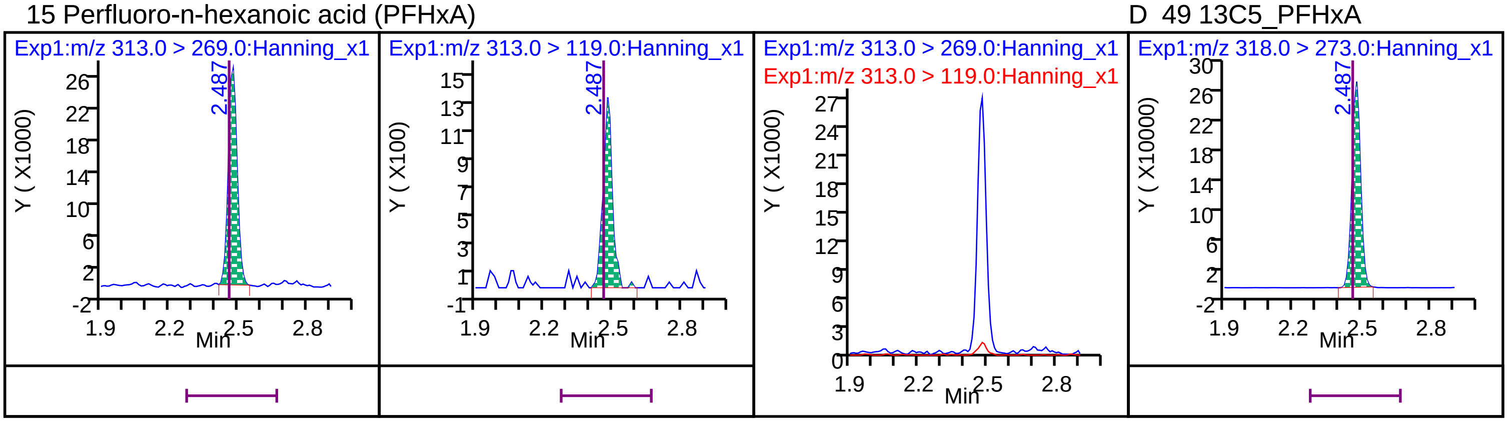
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



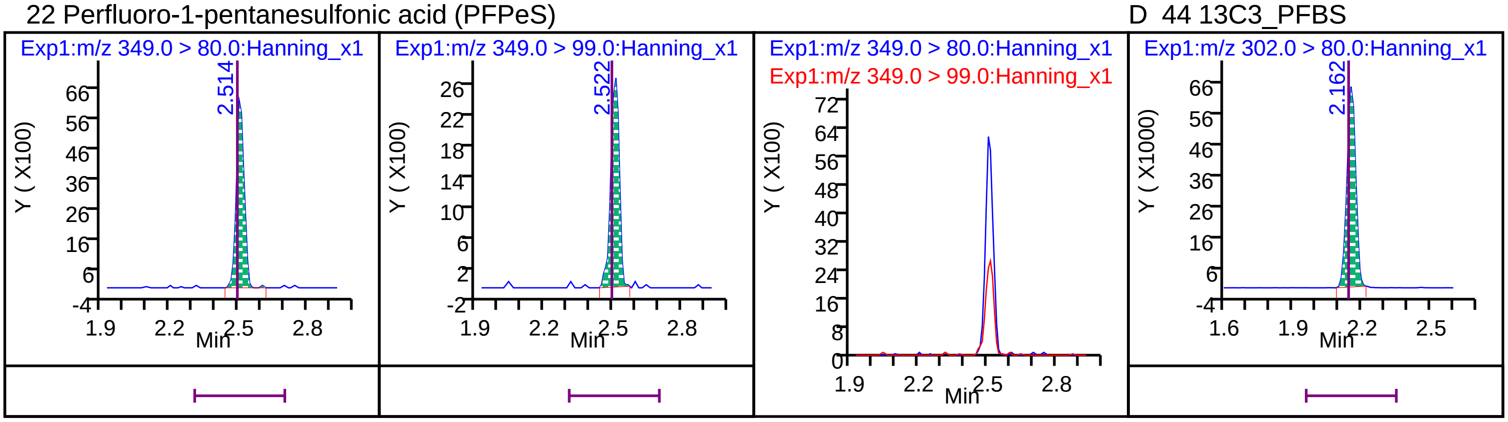
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



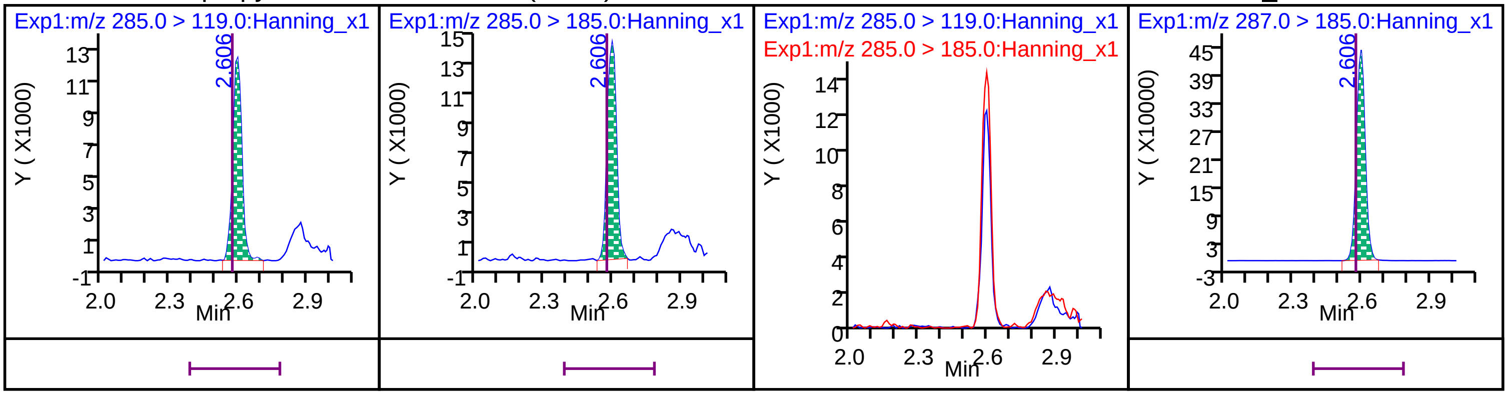
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



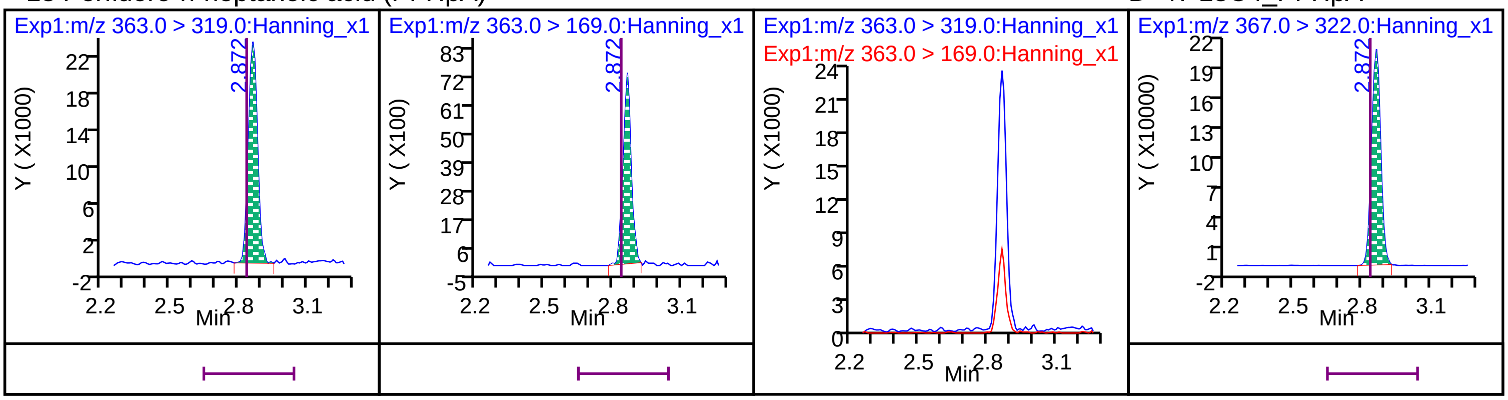
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



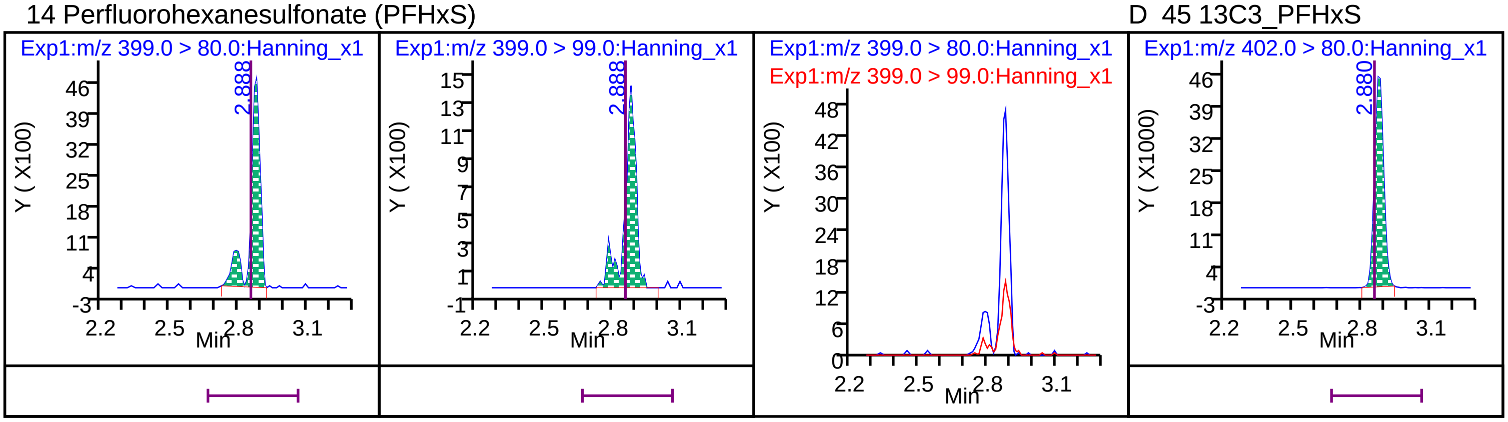
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



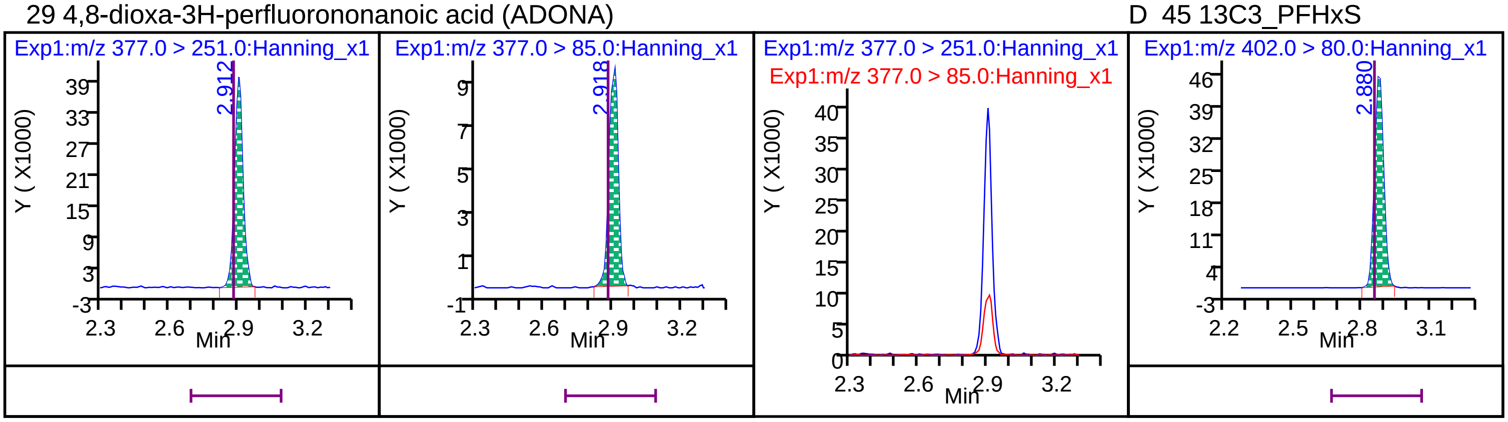
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

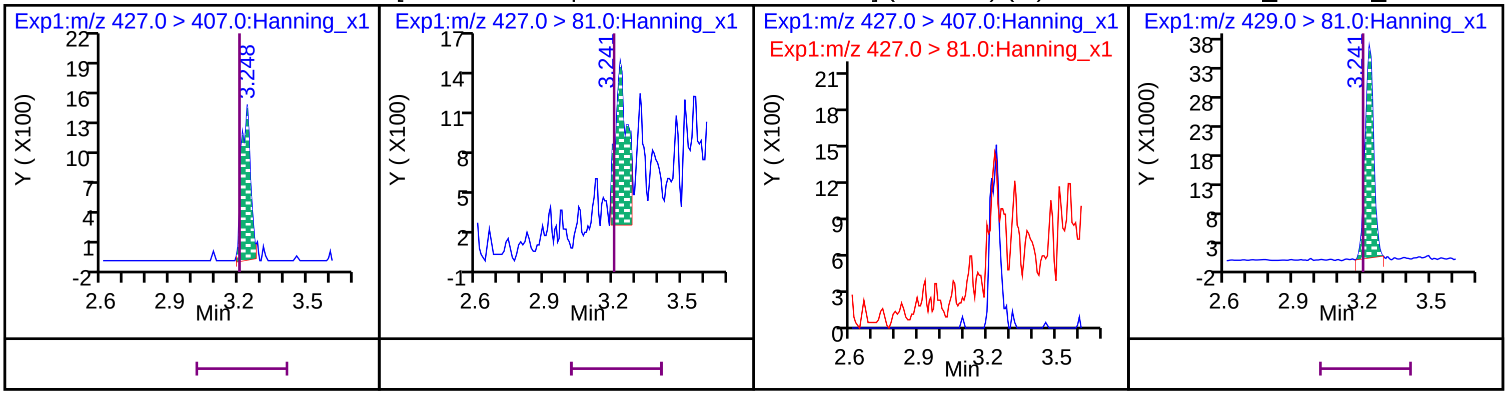


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

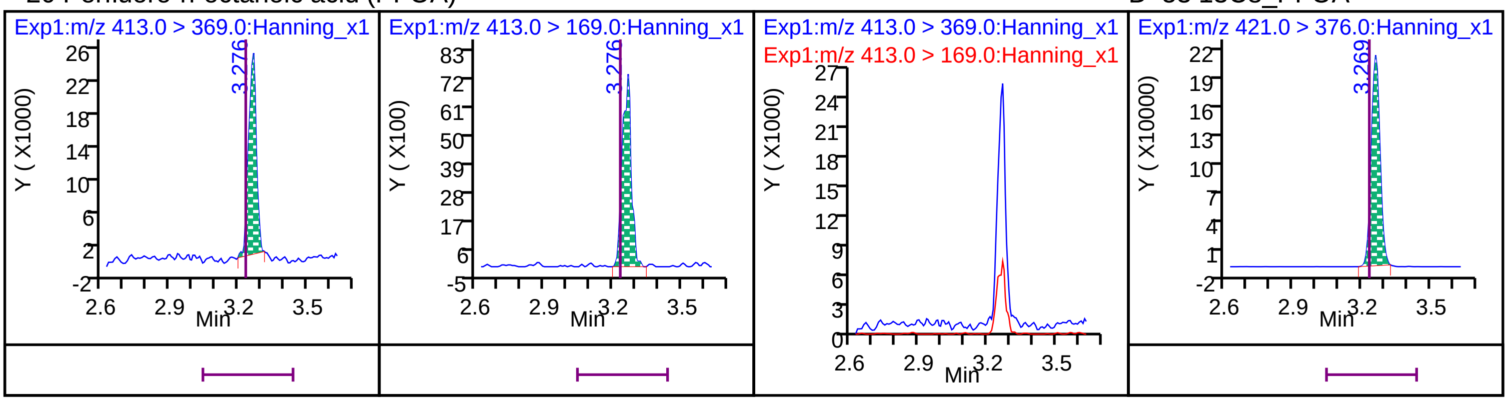


Report Date: 15-Nov-2021 10:46:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d

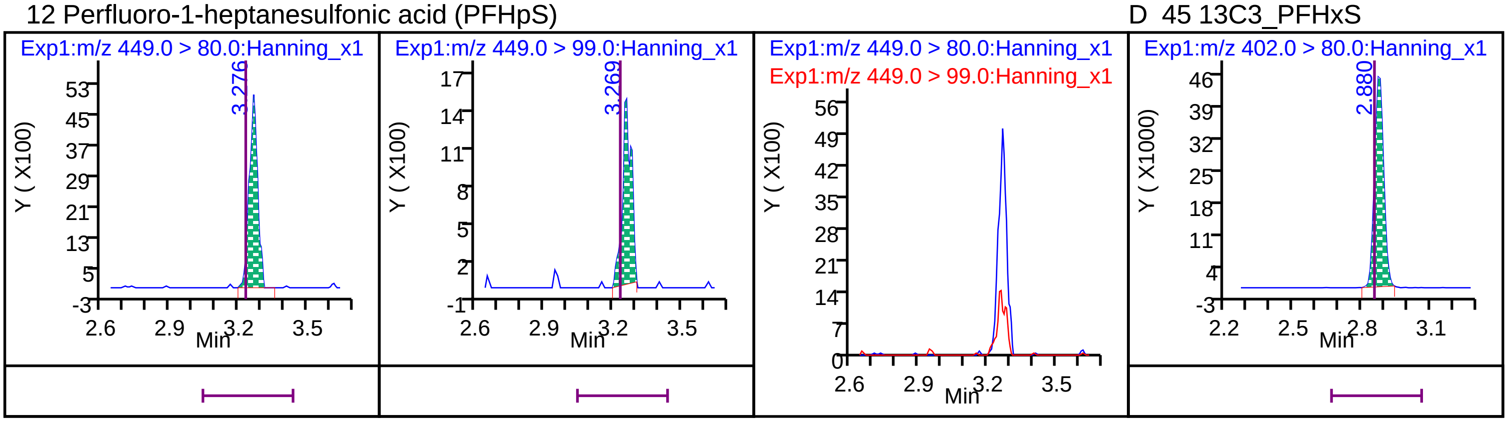
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



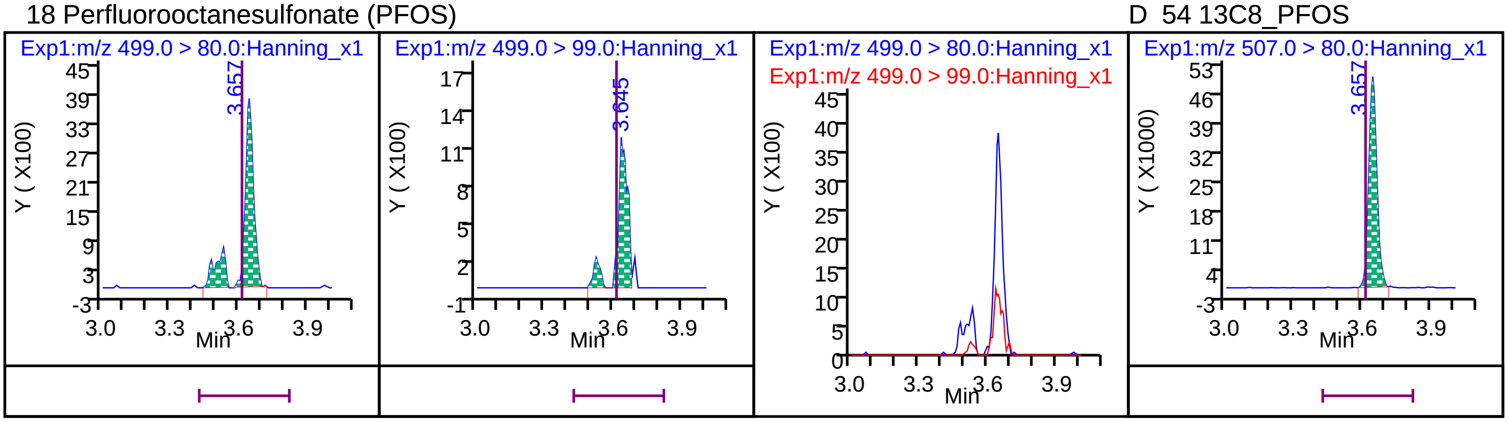
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



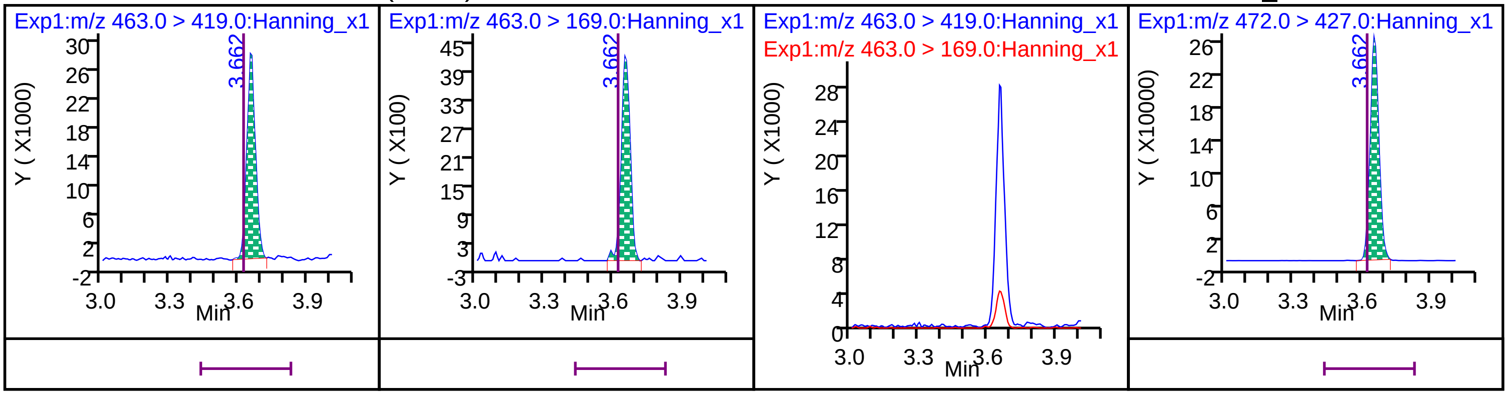
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



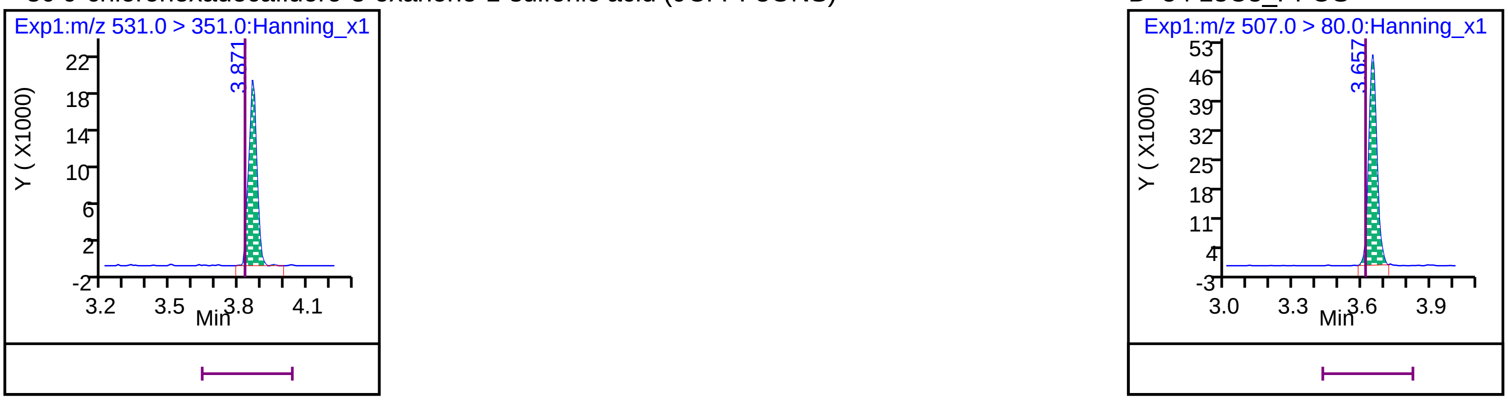
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



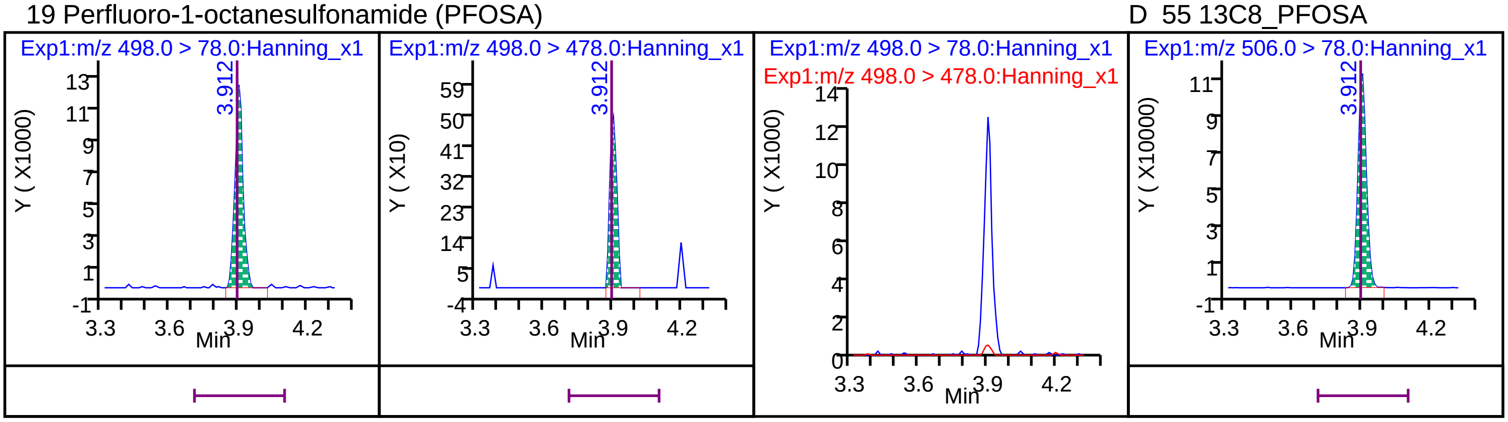
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



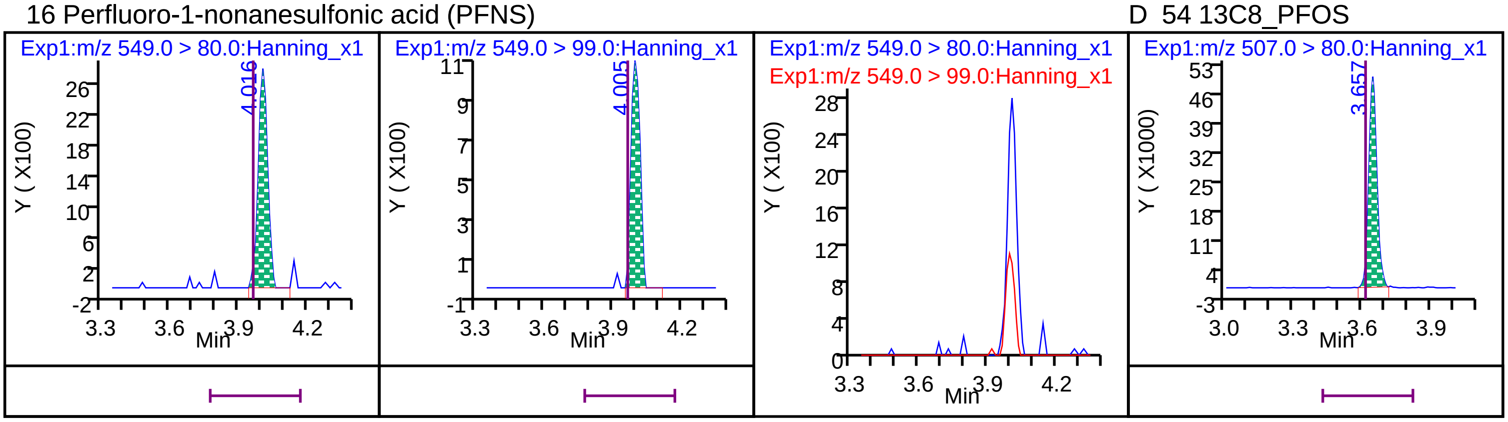
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



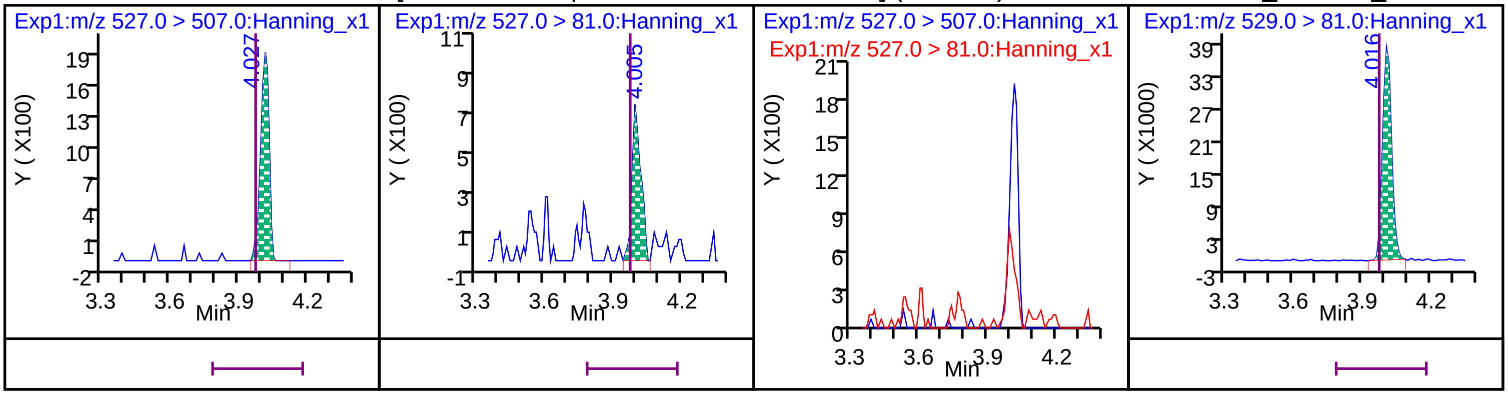
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



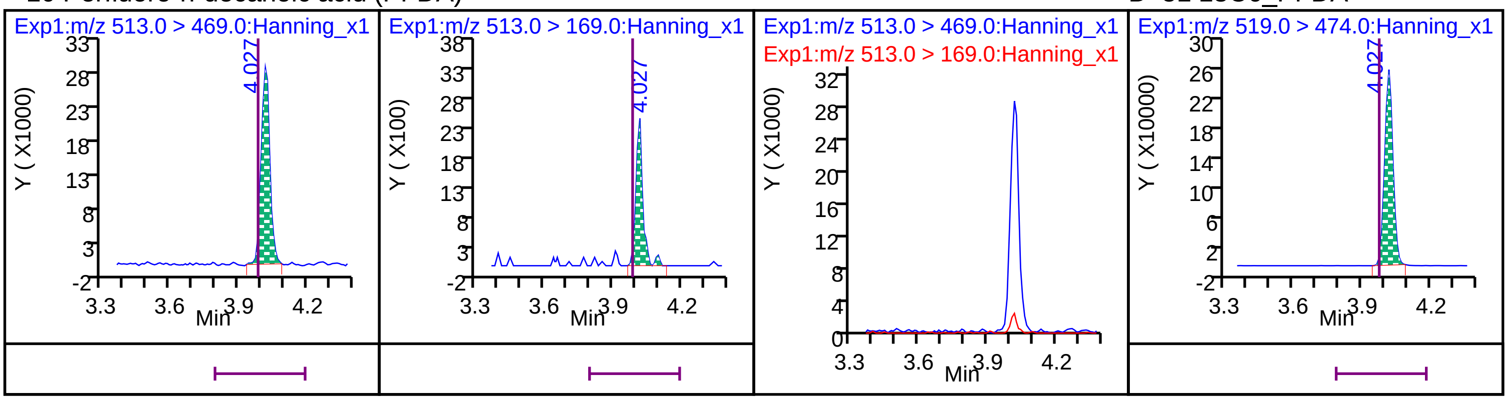
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



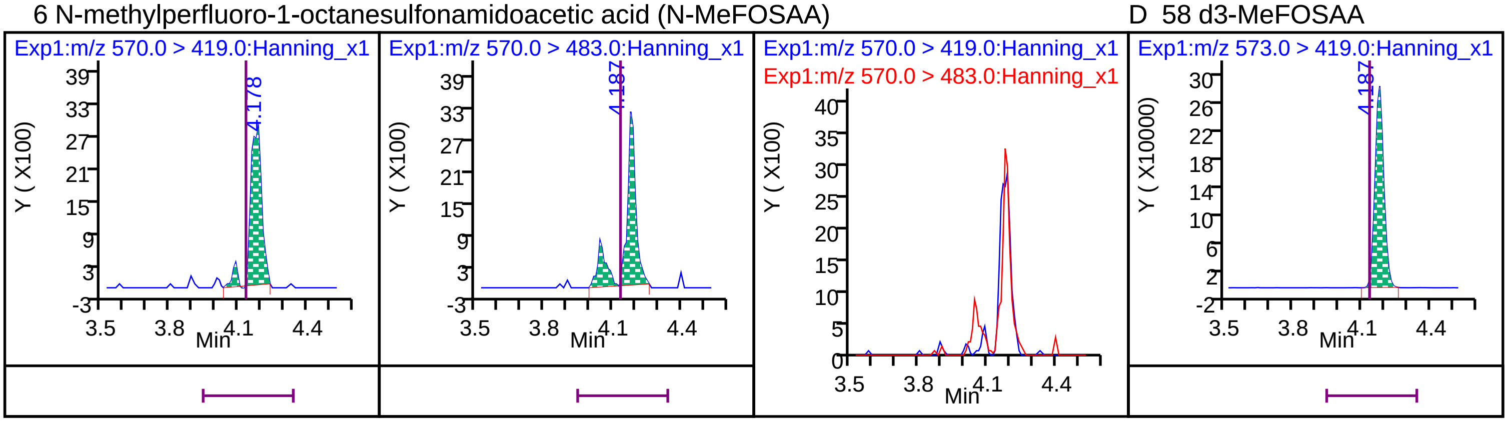
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



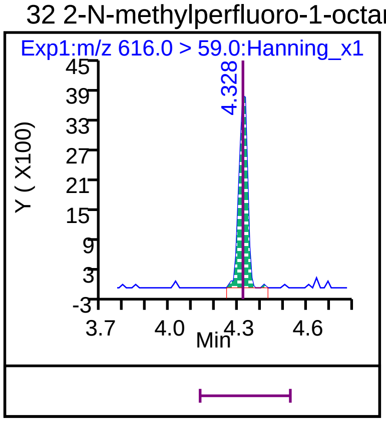
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

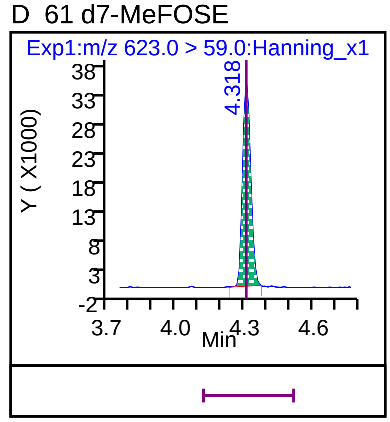


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

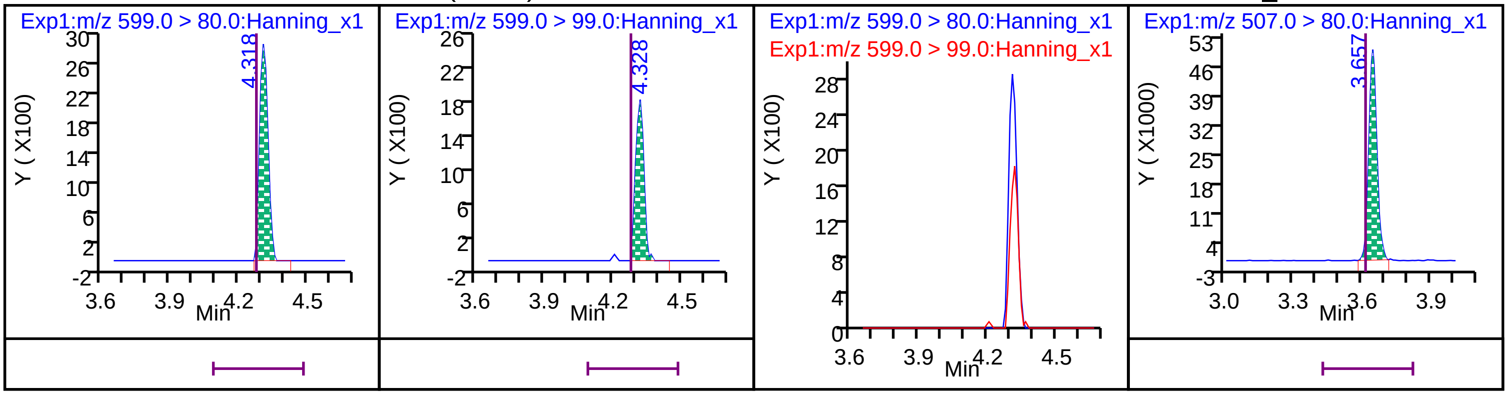


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

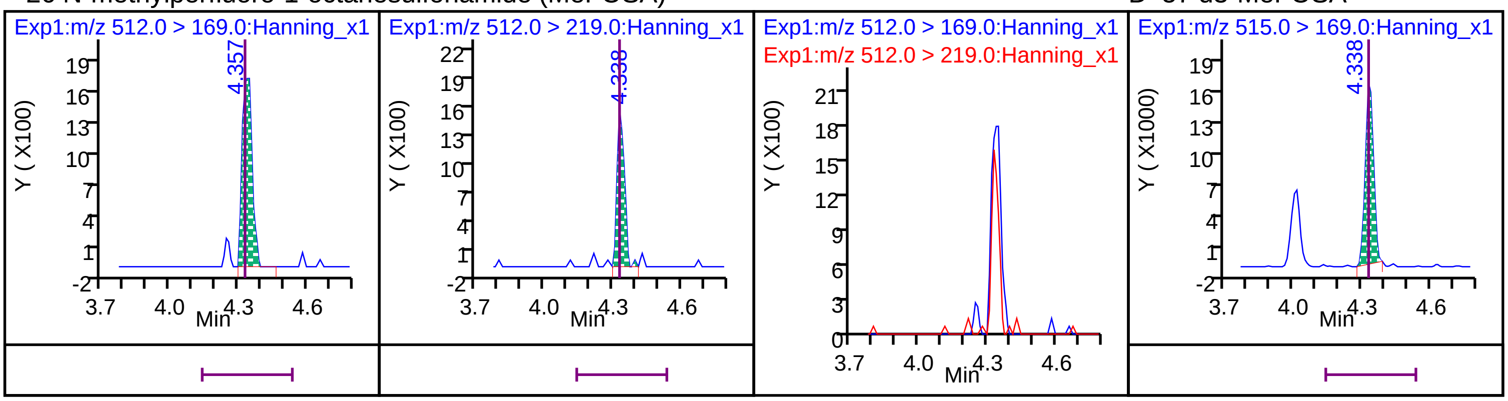




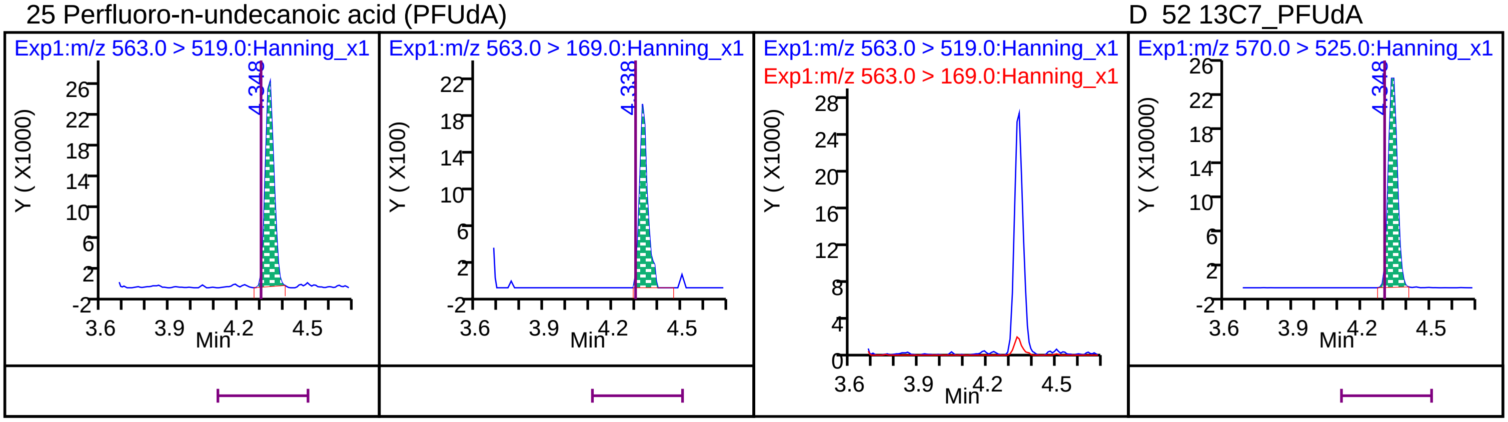
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



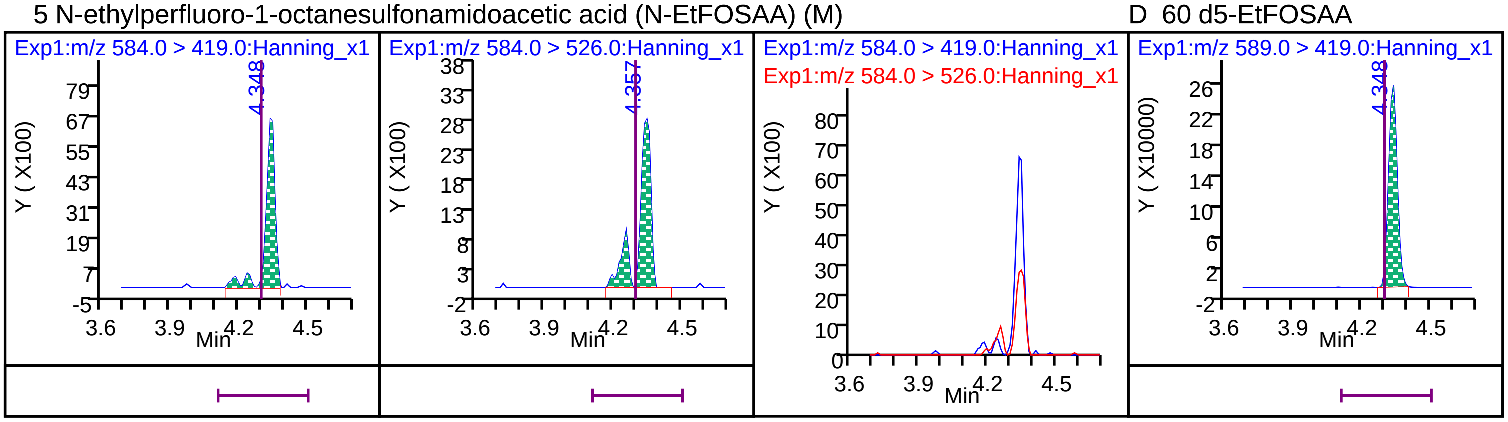
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



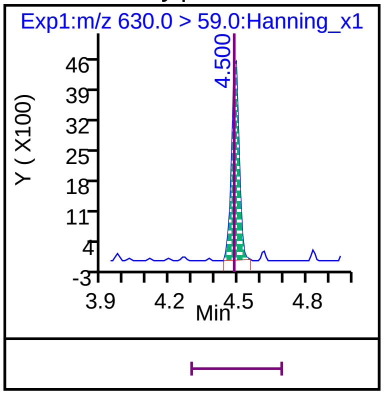
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



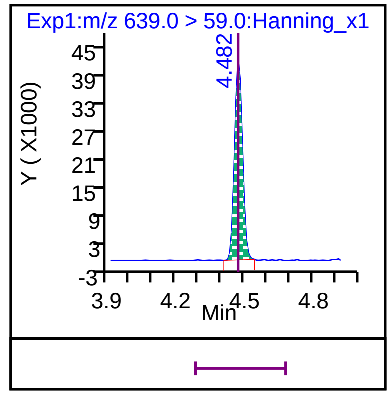
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



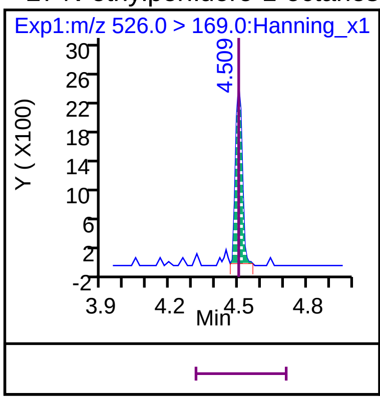
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

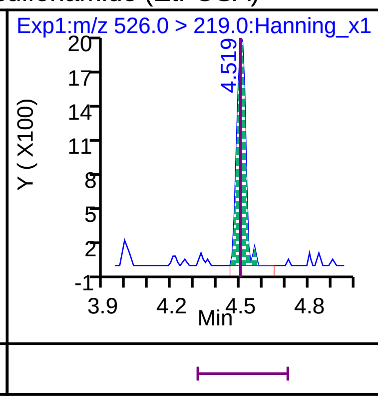


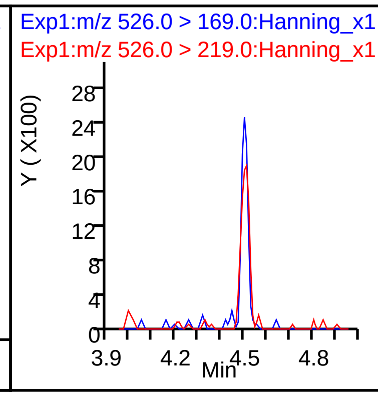
D 62 d9-EtFOSE



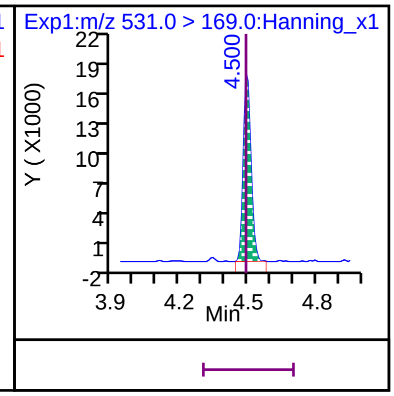
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



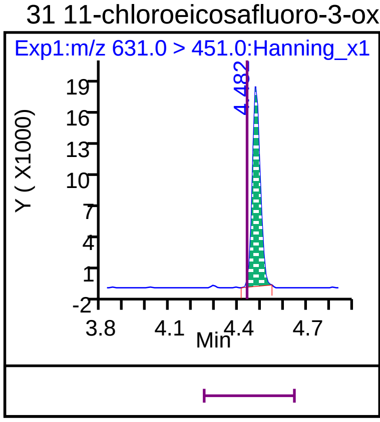




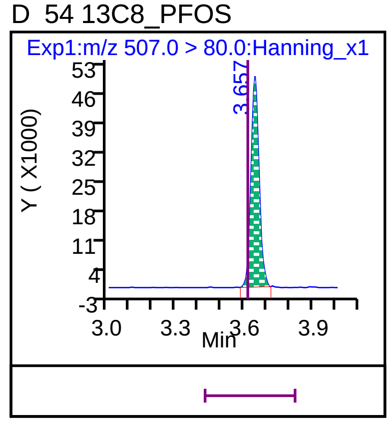
D 59 d5-EtFOSA



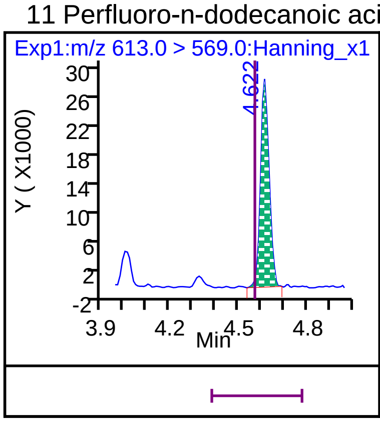
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

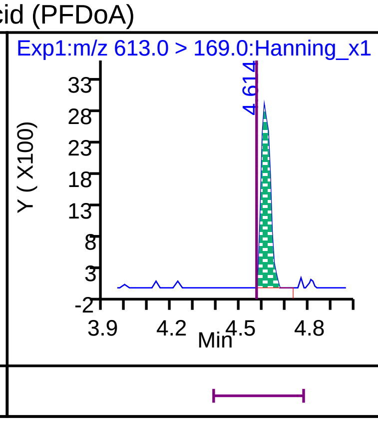


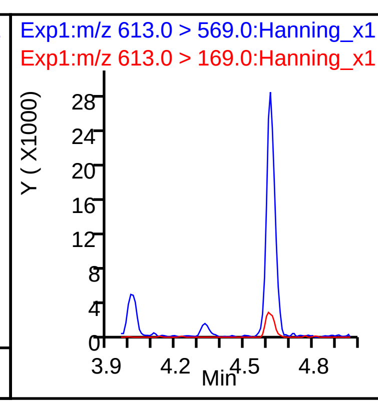
D 54 13C8_PFOS



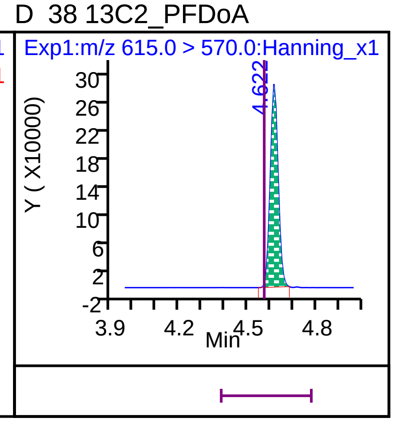
11 Perfluoro-n-dodecanoic acid (PFDoA)



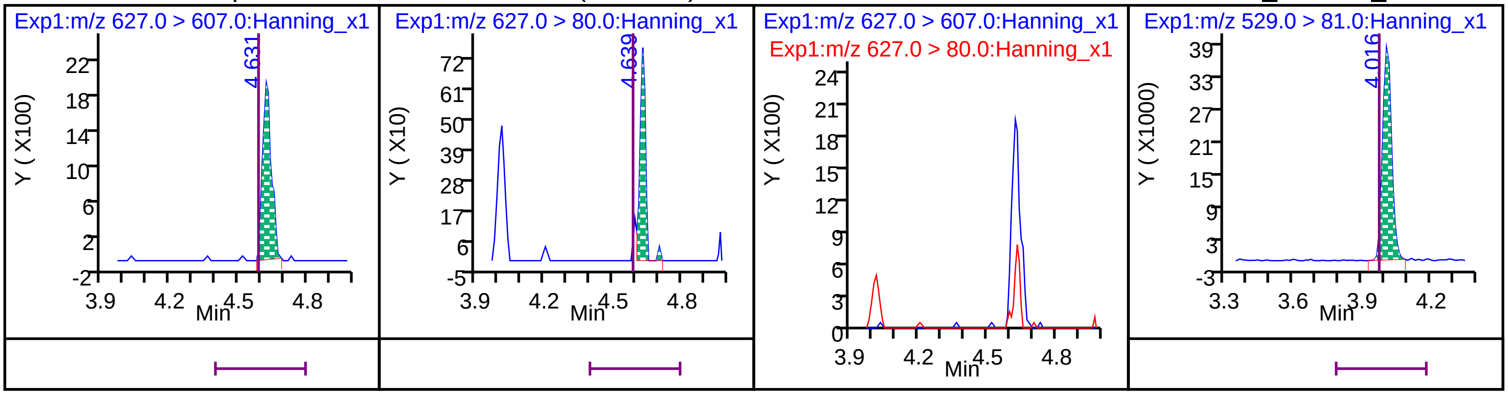




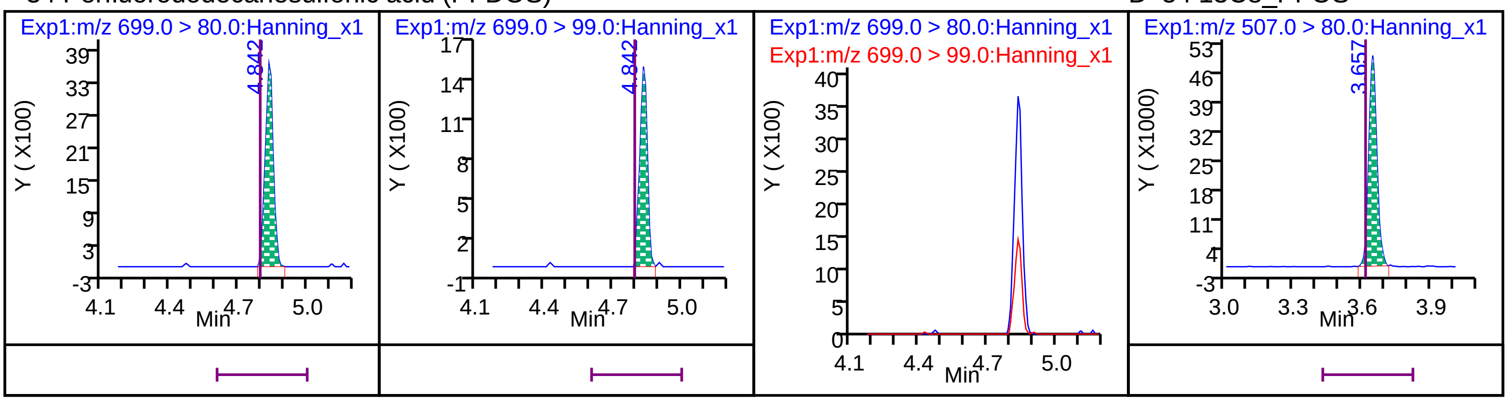
D 38 13C2_PFDoA



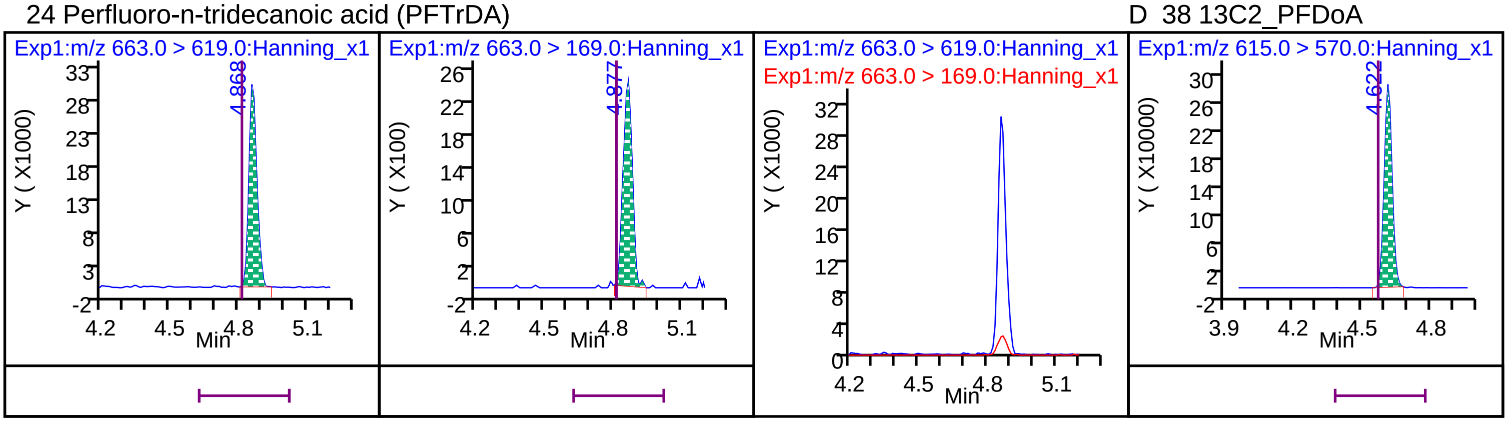
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



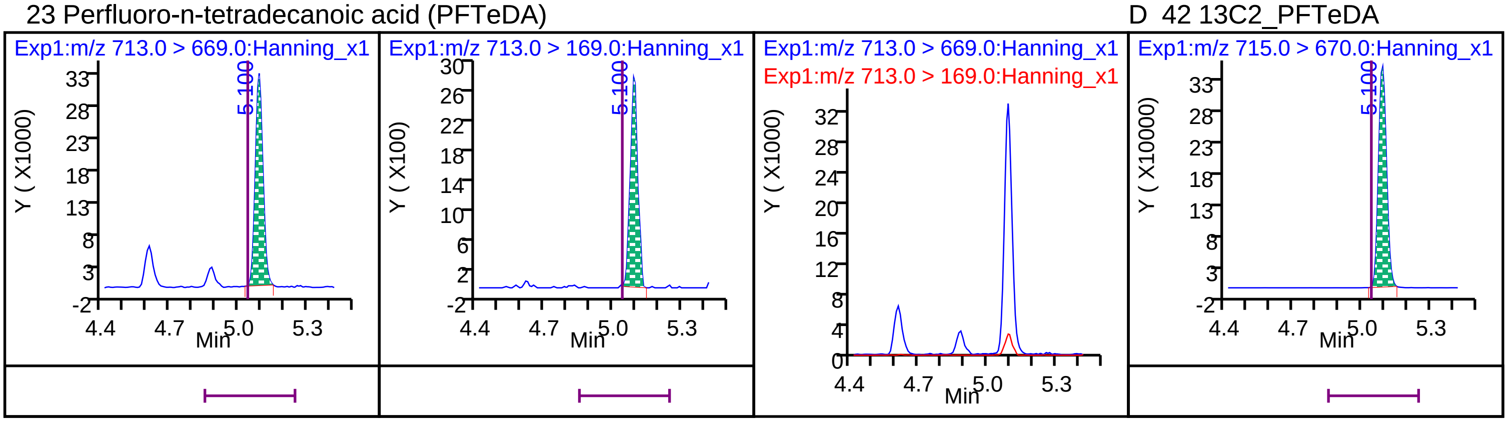
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



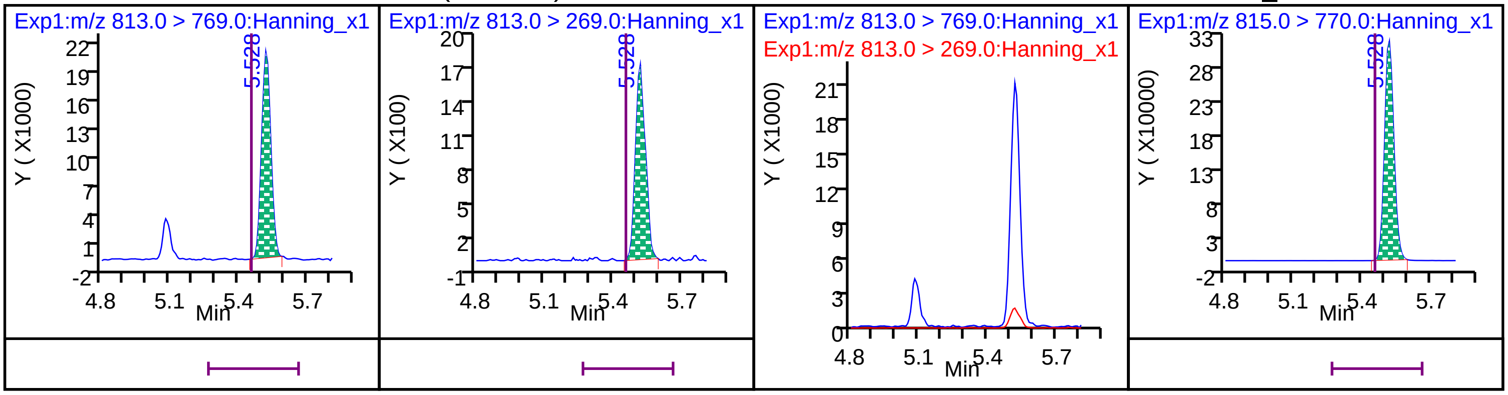
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



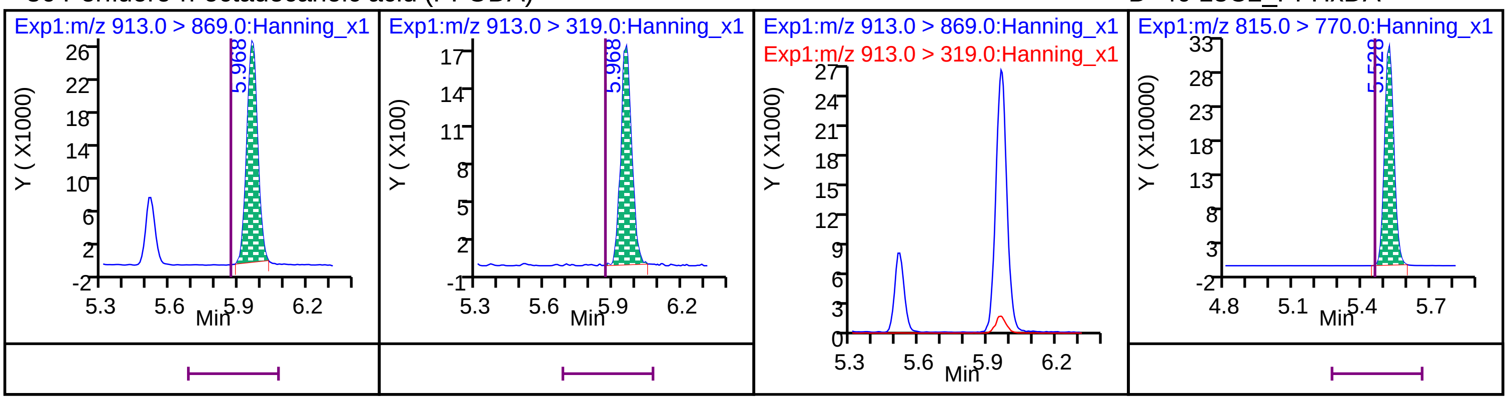
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



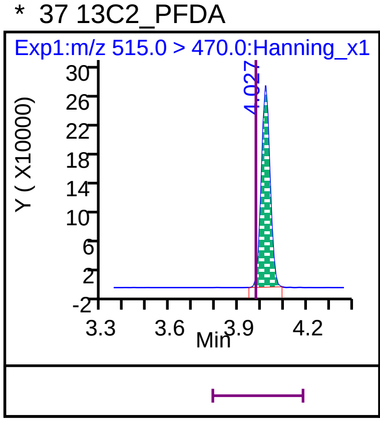
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



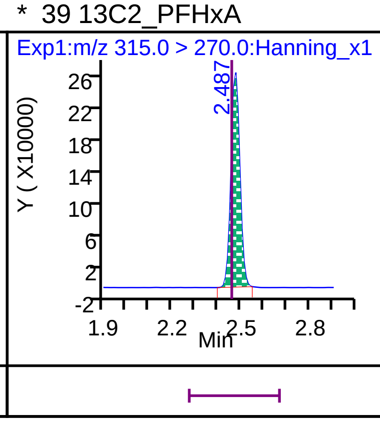
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA



* 39 13C2_PFHxA



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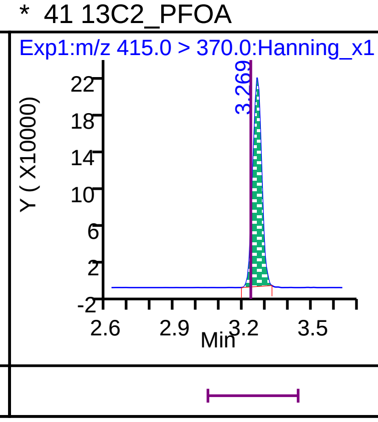

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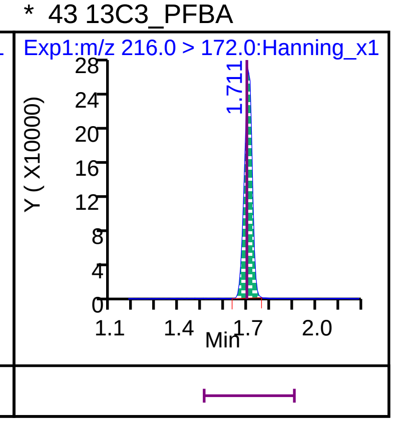
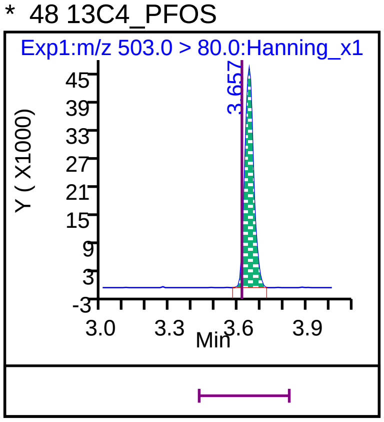


* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d		
Injection Date:	12-Nov-2021 14:18:45	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741, conf
Sample Info:	ID CCV 100_SVLC-1741, conf		
Dil. Factor:	1	Operator:	Justin Gavin

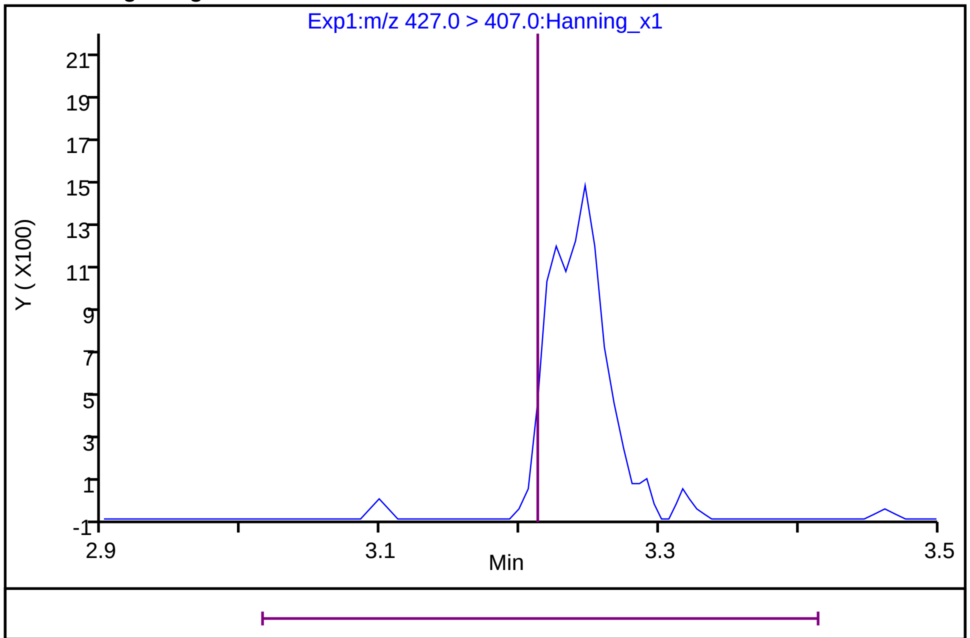
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected

Expected RT: 3.214

RT Window: 3.014-3.414

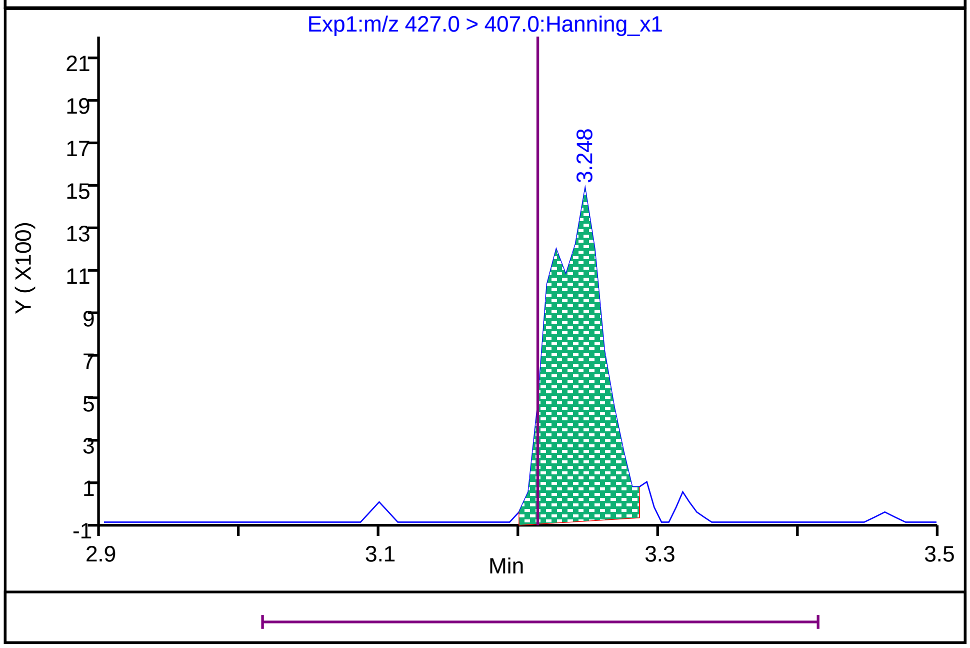


RT: 3.248

Area: 3999

Amount: 94.223

Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 14:39:06

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d		
Injection Date:	12-Nov-2021 14:18:45	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741, conf
Sample Info:	ID CCV 100_SVLC-1741, conf		
Dil. Factor:	1	Operator:	Justin Gavin

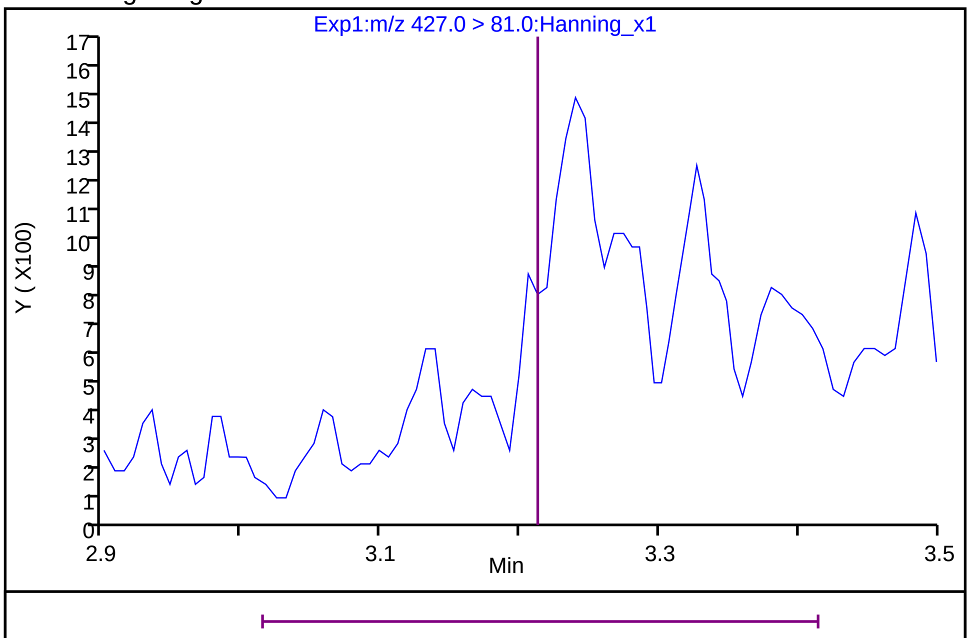
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected

Expected RT: 3.214

RT Window: 3.014-3.414

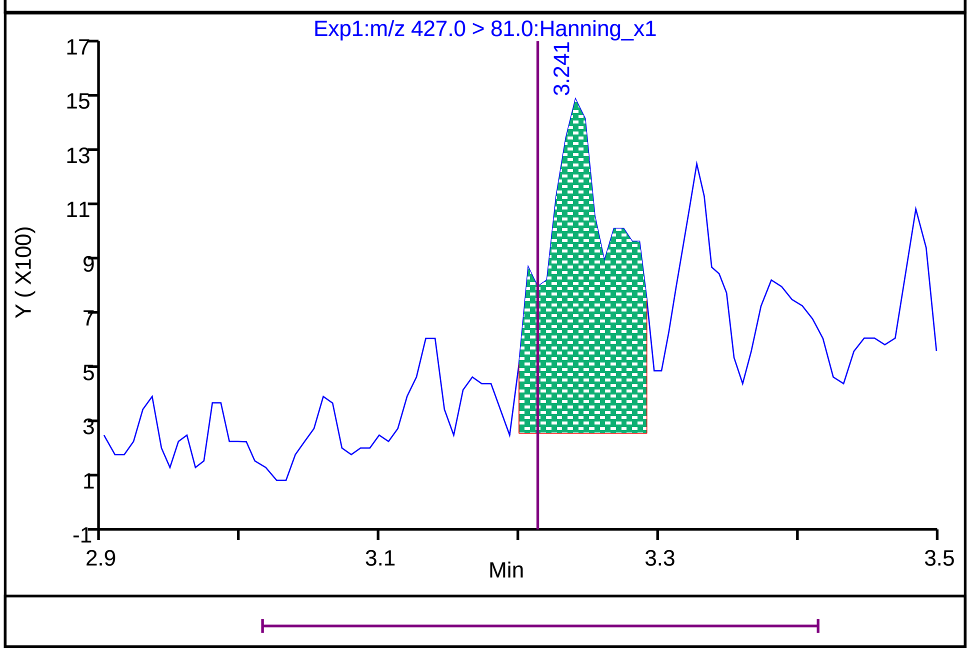


RT: 3.241

Area: 4053

Amount: 94.223

Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 14:39:10

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

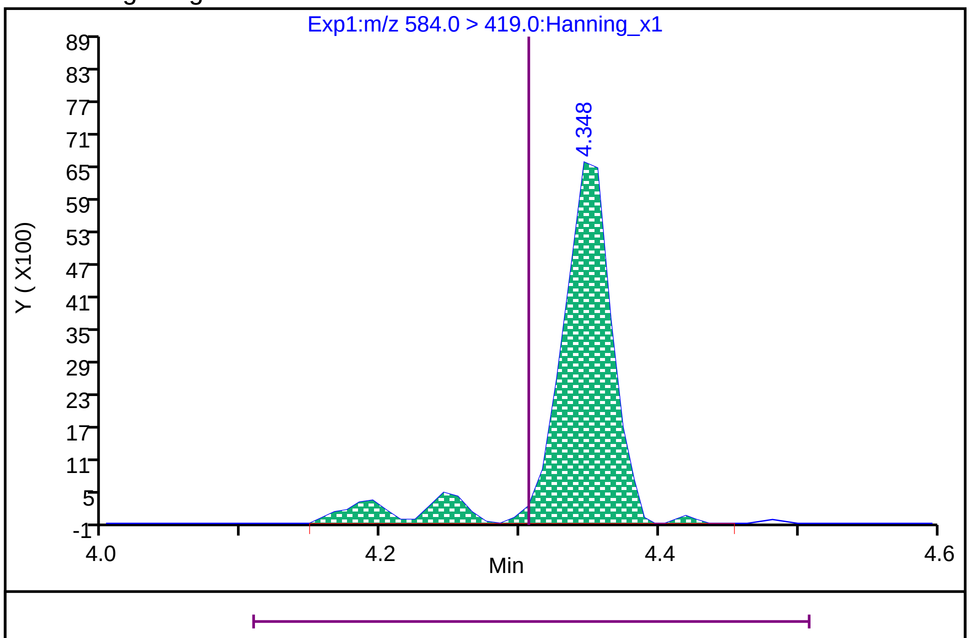
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221009.d		
Injection Date:	12-Nov-2021 14:18:45	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741, conf
Sample Info:	ID CCV 100_SVLC-1741, conf		
Dil. Factor:	1	Operator:	Justin Gavin

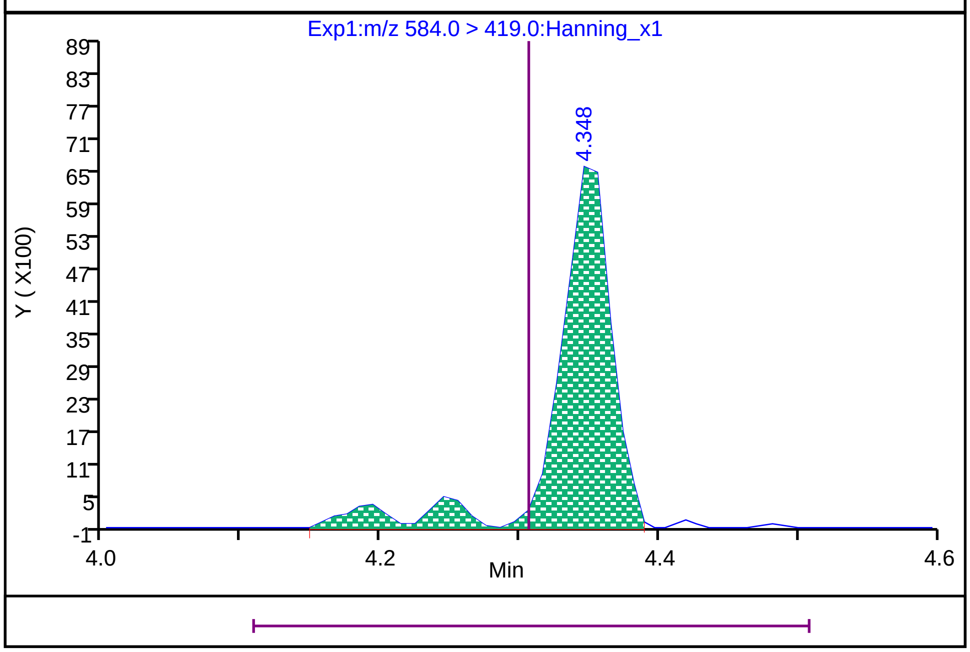
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.348
Area: 17924
Amount: 138.48
Amount Units: ng/L



RT: 4.348
Area: 18217
Amount: 140.75
Amount Units: ng/L



Data Editor: matthew.miller, 12-Nov-2021 14:40:32
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d		
Injection Date:	12-Nov-2021 17:20:00	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	21
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	980.66	98.1	70 - 130
D 46 13C4_PFBA	606707	644758			106.3	50 - 150
21 PFPeA			1000.00	986.29	98.6	70 - 130
D 50 13C5_PFPeA	544569	576278			105.8	50 - 150
D 44 13C3_PFBS	162919	173423			106.4	50 - 150
7 PFBS			884.00	850.11	96.2	70 - 130
1 4:2 FTS			934.00	918.54	98.3	70 - 130
D 63 13C2_4:2 FTS_2	104453	110070			105.4	50 - 150
D 49 13C5_PFHxA	625283	652680			104.4	50 - 150
15 PFHxA			1000.00	1035.91	103.6	70 - 130
22 PFPeS			938.00	857.06	91.4	70 - 130
28 GenX			2000.00	1968.17	98.4	70 - 130
D 66 13C3_GenX	1101362	1178574			107	50 - 150
D 47 13C4_PFHpA	527441	569010			107.9	50 - 150
13 PFHpA			1000.00	1055.71	105.6	70 - 130
D 45 13C3_PFHxS	115822	135463			117	50 - 150
14 PFHxS			910.00	893.09	98.1	70 - 130
29 ADONA			942.00	943.61	100.2	70 - 130
D 64 13C2_6:2 FTS_2	83315	90031			108.1	50 - 150
2 6:2 FTS			948.00	1015.63	107.1	70 - 130
20 PFOA			1000.00	997.80	99.8	70 - 130
D 53 13C8_PFOA	513896	566598			110.3	50 - 150
12 PFHpS			952.00	873.68	91.8	70 - 130
D 54 13C8_PFOS	109523	126322			115.3	50 - 150
18 PFOS			928.00	867.82	93.5	70 - 130
17 PFNA			1000.00	1118.56	111.9	70 - 130
D 56 13C9_PFNA	589389	635977			107.9	50 - 150
30 9Cl-PF3ONS			932.00	944.14	101.3	70 - 130
D 55 13C8_PFOSA	227854	268627			117.9	50 - 150
19 PFOSA			1000.00	1011.41	101.1	70 - 130
16 PFNS			960.00	852.22	88.8	70 - 130
10 PFDA			1000.00	969.05	96.9	70 - 130
3 8:2 FTS			958.00	1107.64	115.6	70 - 130
D 51 13C6_PFDA	593235	634046			106.9	50 - 150
D 65 13C2_8:2 FTS_2	82251	89527			108.8	50 - 150
6 N-MeFOSAA			1000.00	980.08	98	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	661512	772624			116.8	50 - 150
D 61 d7-MeFOSE	81767	94497			115.6	50 - 150
32 MeFOSE			1000.00	1052.24	105.2	70 - 130
26 MeFOSA			1000.00	965.80	96.6	70 - 130
D 57 d3-MeFOSA	42739	47353			110.8	50 - 150
9 PFDS			964.00	950.45	98.6	70 - 130
D 52 13C7_PFUdA	631780	677982			107.3	50 - 150
D 60 d5-EtFOSAA	606735	663448			109.3	50 - 150
25 PFUdA			1000.00	998.65	99.9	70 - 130
5 N-EtFOSAA			1000.00	1015.52	101.6	70 - 130
D 62 d9-EtFOSE	95636	110242			115.3	50 - 150
33 EtFOSE			1000.00	1042.23	104.2	70 - 130
D 59 d5-EtFOSA	36158	43095			119.2	50 - 150
31 11Cl-PF3OUDS			942.00	965.47	102.5	70 - 130
27 EtFOSA			1000.00	1008.44	100.8	70 - 130
D 38 13C2_PFDoA	608629	660291			108.5	50 - 150
11 PFDoA			1000.00	1007.41	100.7	70 - 130
4 10:2 FTS			964.00	955.57	99.1	70 - 130
34 PFDOS			968.00	963.33	99.5	70 - 130
24 PFTrDA			1000.00	945.34	94.5	70 - 130
D 42 13C2_PFTeDA	786507	832563			105.9	50 - 150
23 PFTeDA			1000.00	1012.20	101.2	70 - 130
D 40 13C2_PFHxDA	876588	941597			107.4	50 - 150
35 PFHxDA			1000.00	962.49	96.2	70 - 130
36 PFODA			1000.00	1024.12	102.4	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d		
Injection Date:	12-Nov-2021 17:20:00	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	21
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	644758	20	>100:1			1000.00	1037.13	106.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.711	1.712	0/0	666832	21	>100:1			1000.00	980.66		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.099	0	576278	17	>100:1			1000.00	1008.20	105.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.099	1/1	639709	15	>100:1			1000.00	986.29		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.151	1	173423	15	>100:1			1000.00	1002.62	106.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.151	1/0	183848	16	>100:1	Target = 3.53		884.00	850.11		
298.9 > 99	44	2.162	2.151		51305	15	>100:1	3.58 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.505	1/0	137750	16	>100:1	Target = 3.10		938.00	857.06		
349 > 99	44	2.514	2.505		49852	17	>100:1	2.76 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.425	1	110070	15	>100:1			5000.00	4860.95	105.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.442	2.433	1/0	44574	17		Target = 1.75		934.00	918.54		
327 > 81	63	2.442	2.433		24244	19	52:1	1.83 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.469	1	652680	17	>100:1			1000.00	1002.14	104.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.469	1/0	703001	17	>100:1	Target = 18.91		1000.00	1035.91		
313 > 119	49	2.487	2.469		38165	19	>100:1	18.42 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.599	2.583	1	1178574	20	>100:1			5000.00	5085.40	107	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.599	2.583	1/0	300453	20	>100:1	Target = 0.79		2000.00	1968.17		
285 > 185	66	2.599	2.583		383304	20	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.845	2	569010	18	>100:1			1000.00	1071.71	107.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.845	2/0	660078	19	>100:1	Target = 3.80		1000.00	1055.71		
363 > 169	47	2.864	2.845		159548	18	>100:1	4.13 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.880	2.864	2	135463	19	>100:1			1000.00	1078.19	117	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.880	2.864	2/0	133005	28	>100:1	Target = 2.89	4.73	910.00	893.09		
399 > 99	45	2.880	2.864		40118	27	>100:1	3.31 (1.44-4.34)	9.12				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.904	2.888	1/-1	991314	20	>100:1	Target = 3.23		942.00	943.61		
377 > 85	45	2.904	2.888		288387	20	>100:1	3.43 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.269	3.241	2/0	121555	23	>100:1	Target = 3.12		952.00	873.68		
449 > 99	45	3.262	3.241		37660	19	>100:1	3.22 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.234	3.214	2	90031	20	>100:1			5000.00	5001.73	108.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.234	3.214	2/0	43291	22	>100:1	Target = 1.75		948.00	1015.63		
427 > 81	64	3.241	3.214		22010	20	41:1	1.96 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.262	3.241	2	566598	24	>100:1			1000.00	1079.90	110.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.262	3.241	2/0	579347	23	>100:1	Target = 2.89		1000.00	997.80		
413 > 169	53	3.262	3.241		184435	23	>100:1	3.14 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.645	3.625	2	126322	23	>100:1			1000.00	1020.02	115.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.625	2/0	130528	45	>100:1	Target = 3.30	3.93	928.00	867.82		
499 > 99	54	3.651	3.625		39705	35	>100:1	3.28 (1.65-4.95)	8.25				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.862	3.838	2/0	451672	18	>100:1			932.00	944.14		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	3.974	2/0	86370	17	>100:1	Target = 3.08		960.00	852.22		
549 > 99	54	4.005	3.974		35136	14		2.45 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.307	4.288	2/0	93953	15	>100:1	Target = 2.72		964.00	950.45		
599 > 99	54	4.307	4.288		37991	19	>100:1	2.47 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.473	4.446	2/0	417548	16	>100:1			942.00	965.47		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.825	4.804	2/0	104640	19	>100:1	Target = 3.27		968.00	963.33		
699 > 99	54	4.825	4.804		34465	18	>100:1	3.03 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.656	3.632	2	635977	21	>100:1			1000.00	993.13	107.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.656	3.632	2/0	766772	22	>100:1	Target = 6.51		1000.00	1118.56		
463 > 169	56	3.656	3.632		105555	21	>100:1	7.26 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.912	3.904	1	268627	19				1000.00	1002.12	117.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.912	3.904	1/0	285870	17	>100:1	Target = 41.63		1000.00	1011.41		
498>478	55	3.912	3.904		9135	21	93:1	31.29 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	3.984	2	634046	18	>100:1			1000.00	1103.34	106.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	3.995	2/0	715031	15	>100:1	Target = 13.80		1000.00	969.05		
513 > 169	51	4.016	3.995		48099	14	>100:1	14.86 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.005	3.984	2	89527	15	>100:1			5000.00	5179.61	108.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.005	3.984	2/0	44814	15	>100:1	Target = 1.94		958.00	1107.64		
527 > 81	65	4.005	3.984		20591	17	65:1	2.17 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.613	4.597	1/-1	43401	17	>100:1	Target = 3.54		964.00	955.57		
627 > 80	65	4.622	4.597		11891	17	51:1	3.64 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.142	2	772624	17	>100:1			5000.00	5112.91	116.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.177	4.142	3/1	121525	33		Target = 1.37	7.37	1000.00	980.08		
570 > 483	58	4.169	4.142		86661	30	>100:1	1.40 (0.68-2.05)	3.90				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.318	0	94497	14	>100:1			1000.00	1047.77	115.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.328	0/0	108665	16	>100:1			1000.00	1052.24		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.338	0	47353	14	>100:1			1000.00	1006.63	110.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.347	4.338	1/1	49570	16	>100:1	Target = 1.11		1000.00	965.80		
512 > 219	57	4.347	4.338		48933	15	>100:1	1.01 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.308	2	663448	15	>100:1			5000.00	5122.63	109.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.338	4.308	2/0	131387	31	>100:1	Target = 1.51	6.53	1000.00	1015.52		
584 > 526	60	4.338	4.308		84148	30	>100:1	1.56 (0.75-2.26)	3.17				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.308	2	677982	16	>100:1			1000.00	1125.75	107.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.308	2/0	656052	15	>100:1	Target = 14.52		1000.00	998.65		
563 > 169	52	4.328	4.308		39492	21	>100:1	16.61 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.482	0	110242	16	>100:1			1000.00	1039.26	115.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.500	4.492	1/1	111850	15	>100:1			1000.00	1042.23		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.509	4.501	1	43095	16	>100:1			1000.00	1002.21	119.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.518	4.510	1/0	52076	16	>100:1	Target = 1.06		1000.00	1008.44		
526 > 219	59	4.509	4.510		53438	15	>100:1	0.97 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.605	4.580	2	660291	17	>100:1			1000.00	1099.87	108.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.605	4.580	2/0	709136	16	>100:1	Target = 10.70		1000.00	1007.41		
613 > 169	38	4.605	4.580		60586	15	>100:1	11.70 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.859	4.825	3/1	656089	18	>100:1	Target = 8.31		1000.00	945.34		
663 > 169	38	4.851	4.825		70928	21	>100:1	9.25 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.081	5.050	2	832563	21	>100:1			1000.00	1024.08	105.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.081	5.050	2/0	735641	21	>100:1	Target = 12.17		1000.00	1012.20		
713 > 169	42	5.081	5.050		54831	21	>100:1	13.41 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.505	5.466	3	941597	21	>100:1			1000.00	1084.74	107.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.505	5.466	3/0	580427	21	94:1	Target = 10.43		1000.00	962.49		
813 > 269	40	5.505	5.466		52275	21	>100:1	11.10 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.934	5.877	4/1	877891	42	58:1	Target = 13.67		1000.00	1024.12		
913 > 319	40	5.930	5.877		56563	40	>100:1	15.52 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	3.984	2	699878	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.469	1	687812	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.262	3.241	2	555425	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.705	1	593569	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.651	3.625	2	126557	21	>100:1			1000.00			

Compound Type Legend

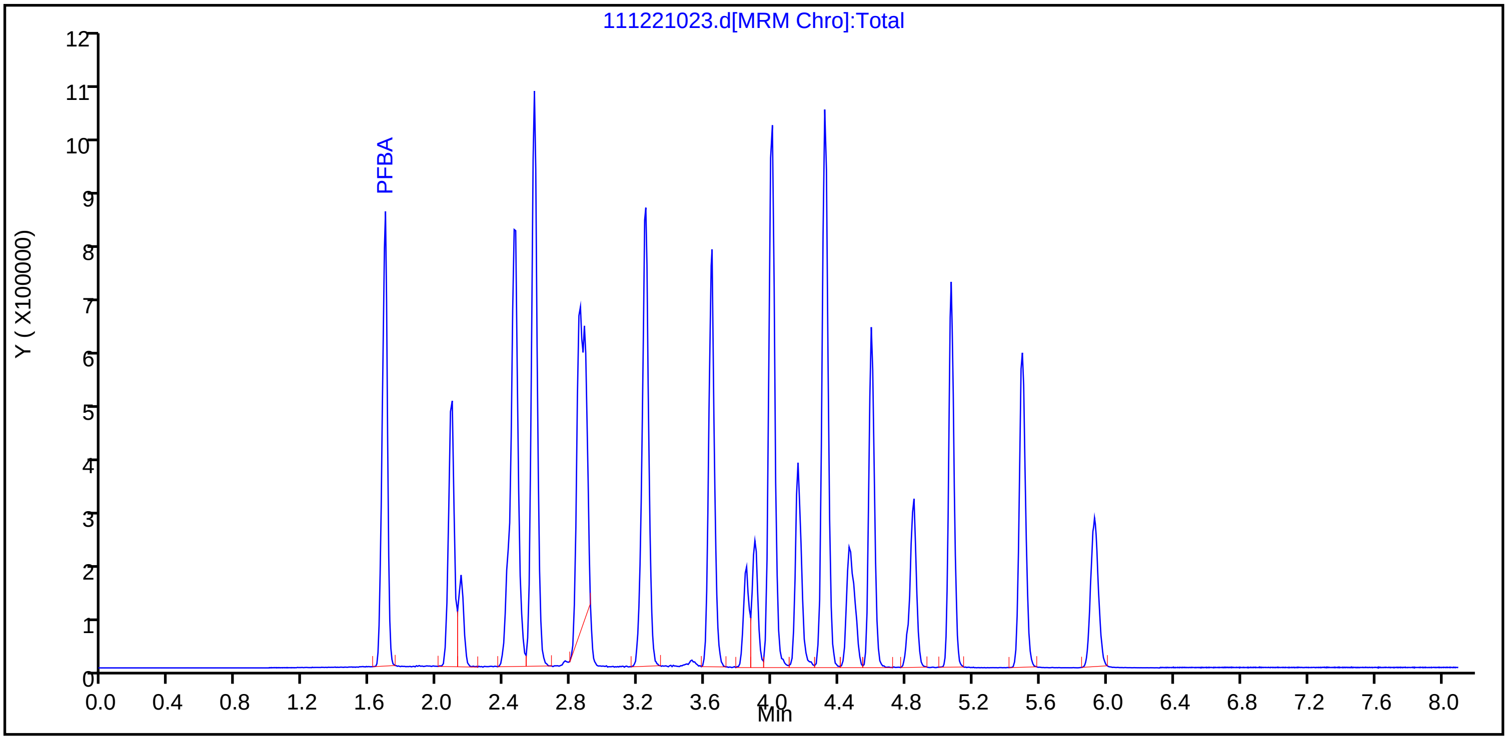
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

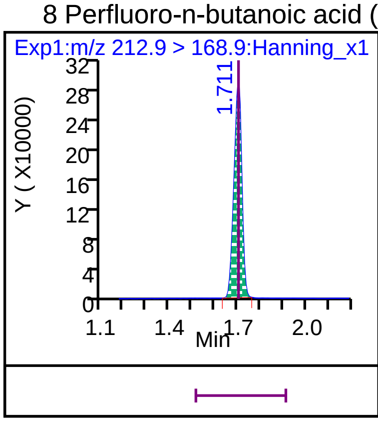
Report Date: 15-Nov-2021 10:46:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

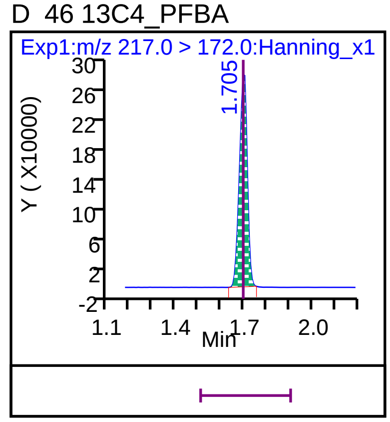
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d		
Injection Date:	12-Nov-2021 17:20:00	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



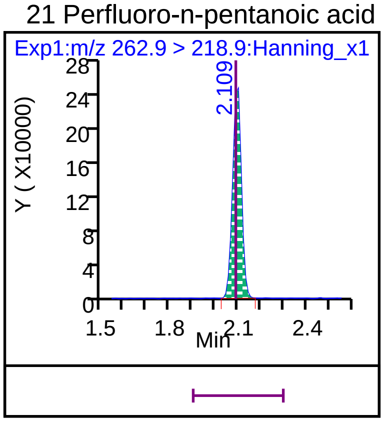
8 Perfluoro-n-butanoic acid (PFBA)



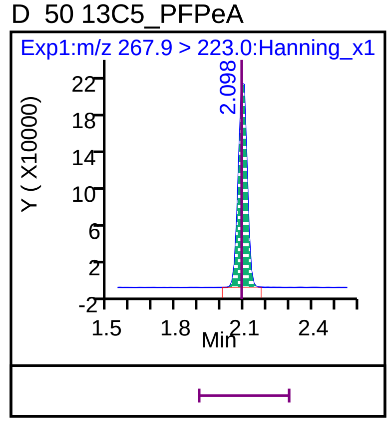
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

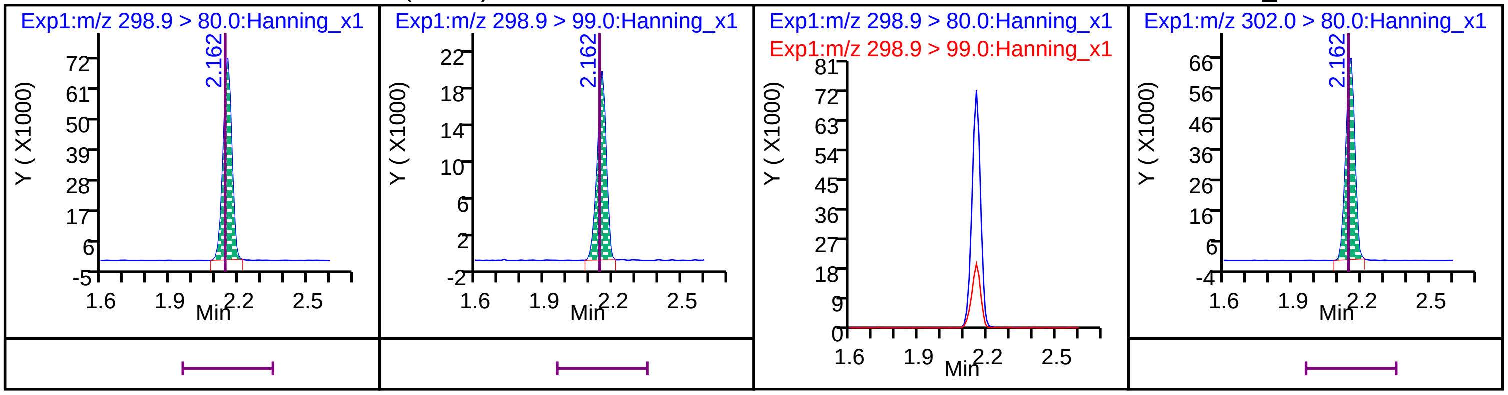


D 50 13C5_PFPeA

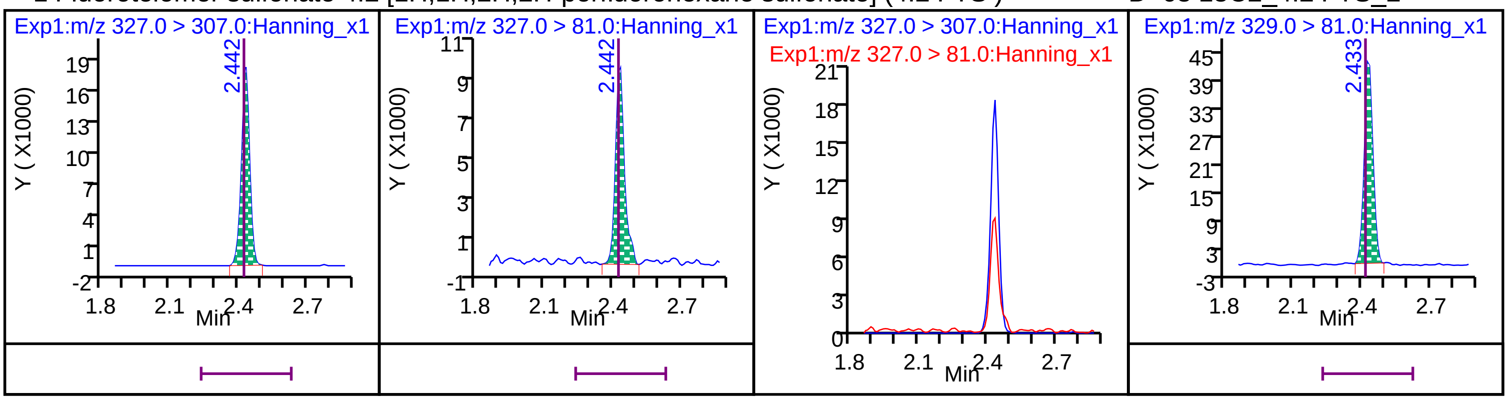


Report Date: 15-Nov-2021 10:46:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d

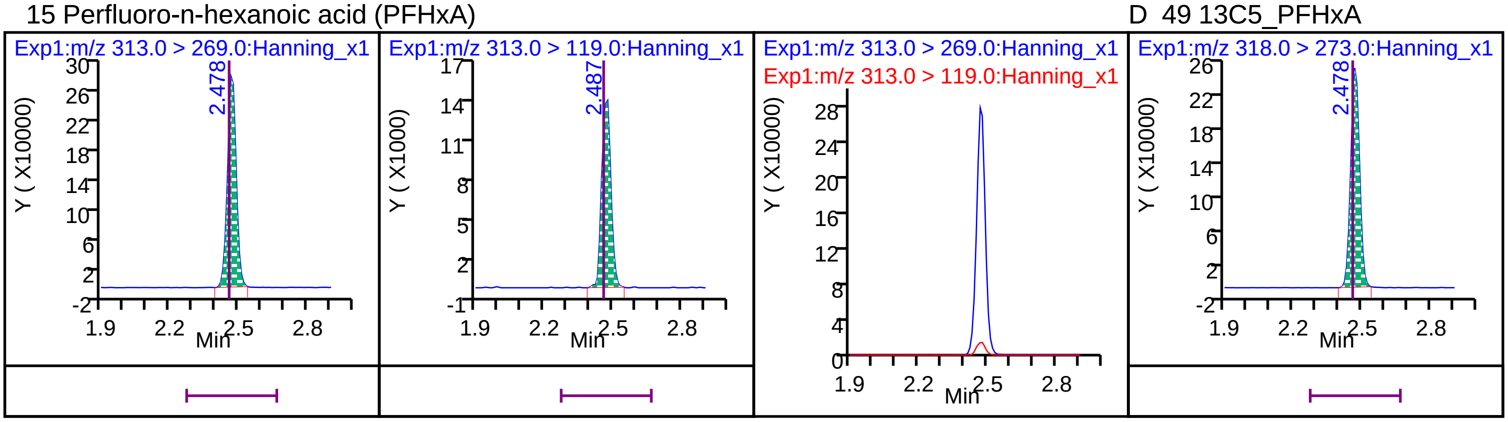
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



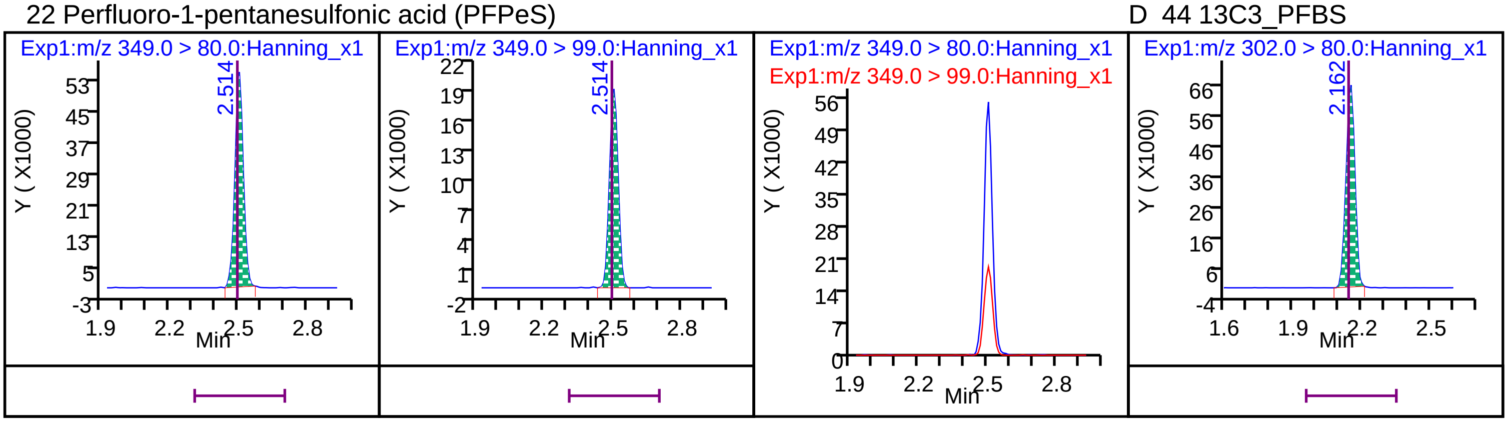
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



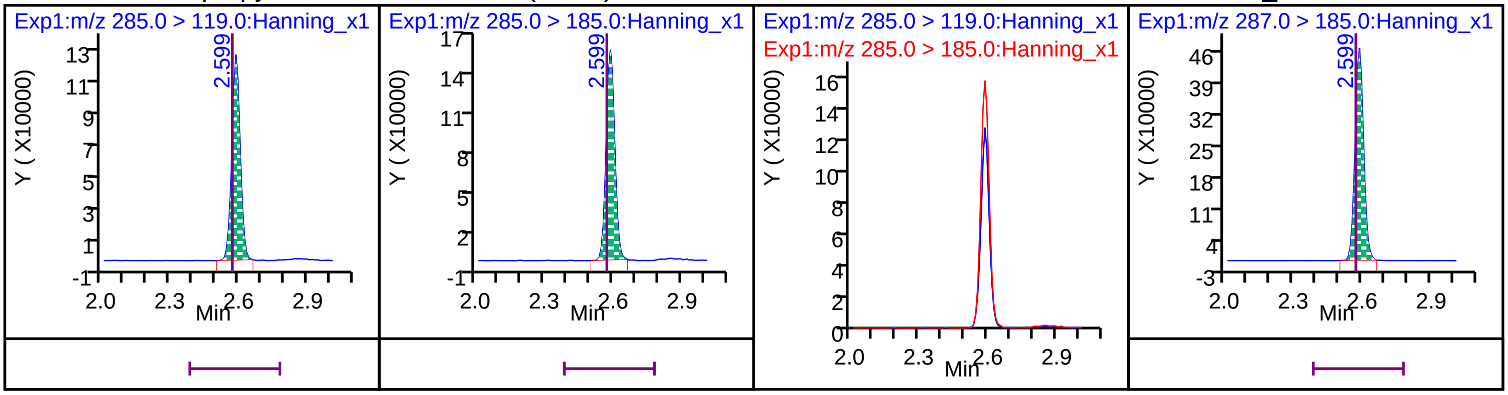
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



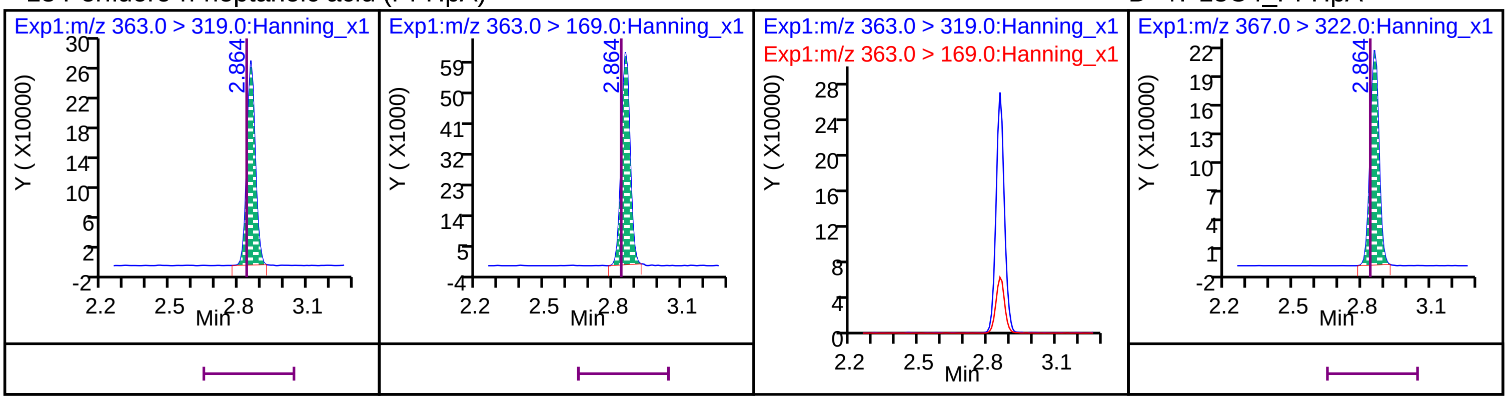
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



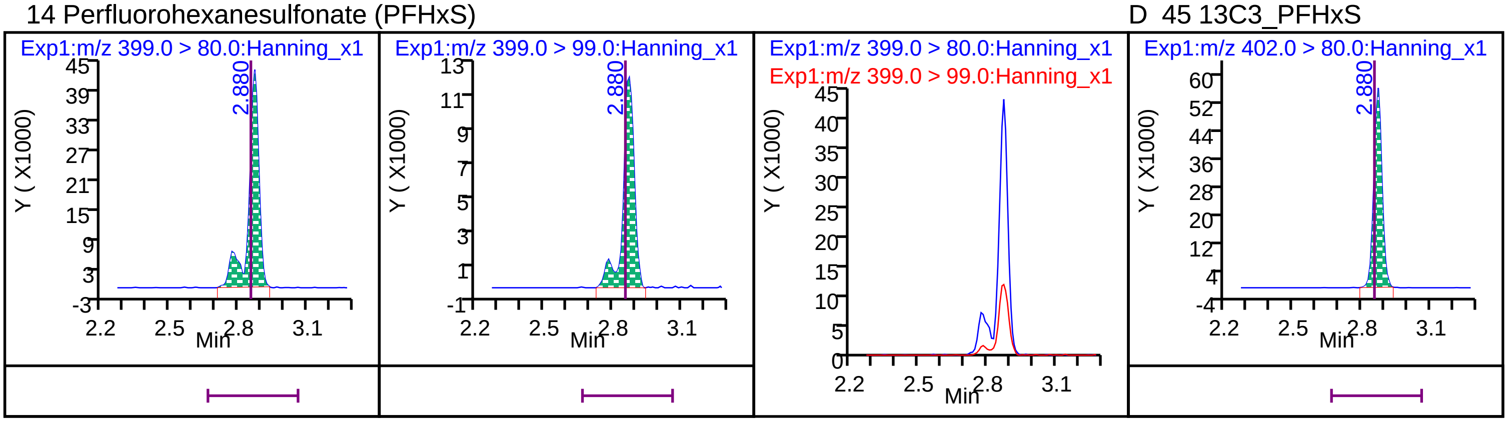
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



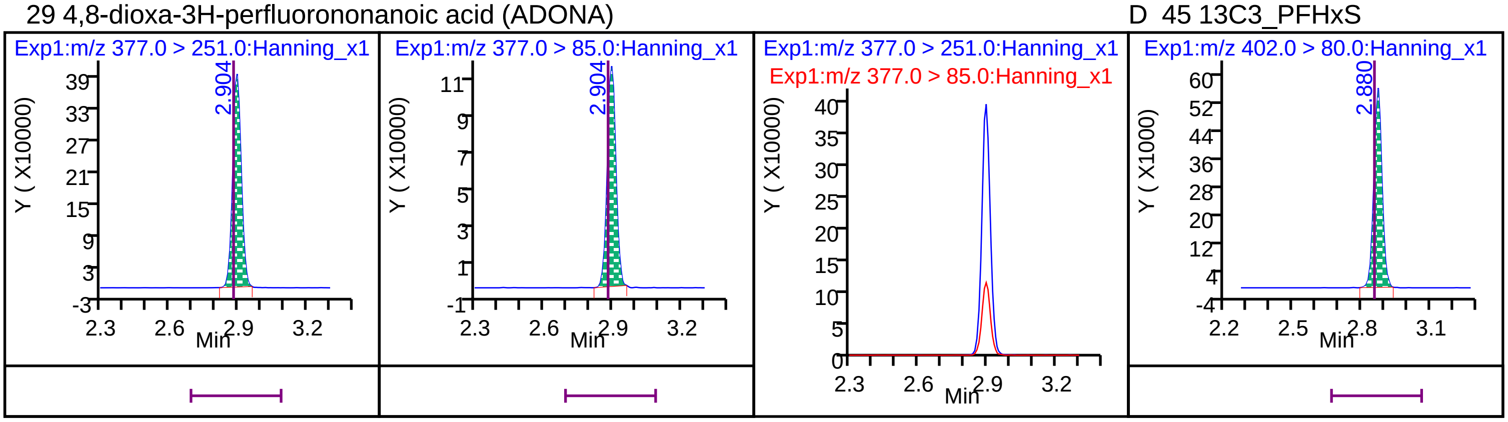
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

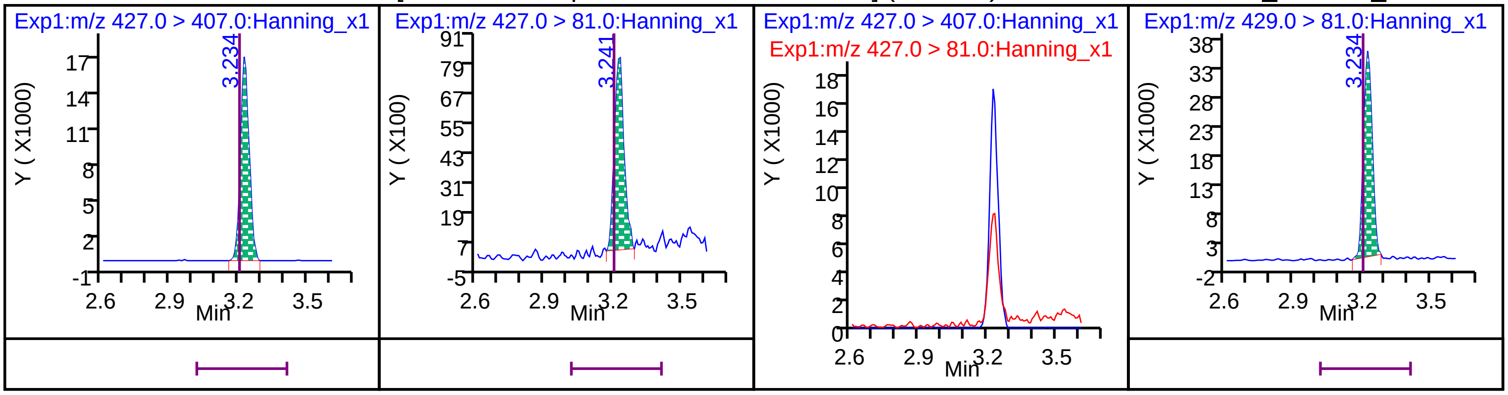


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

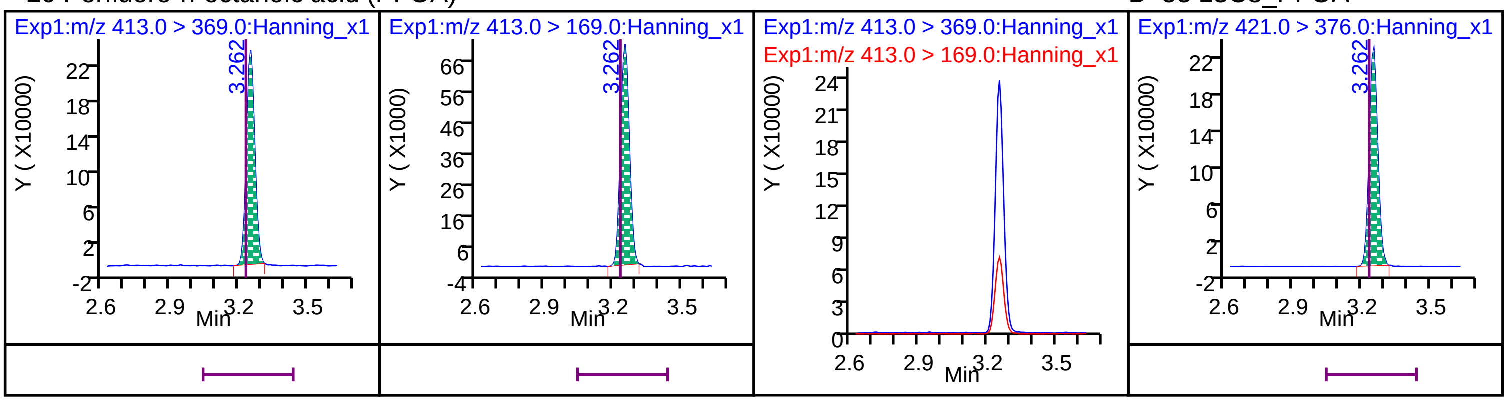


Report Date: 15-Nov-2021 10:46:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d

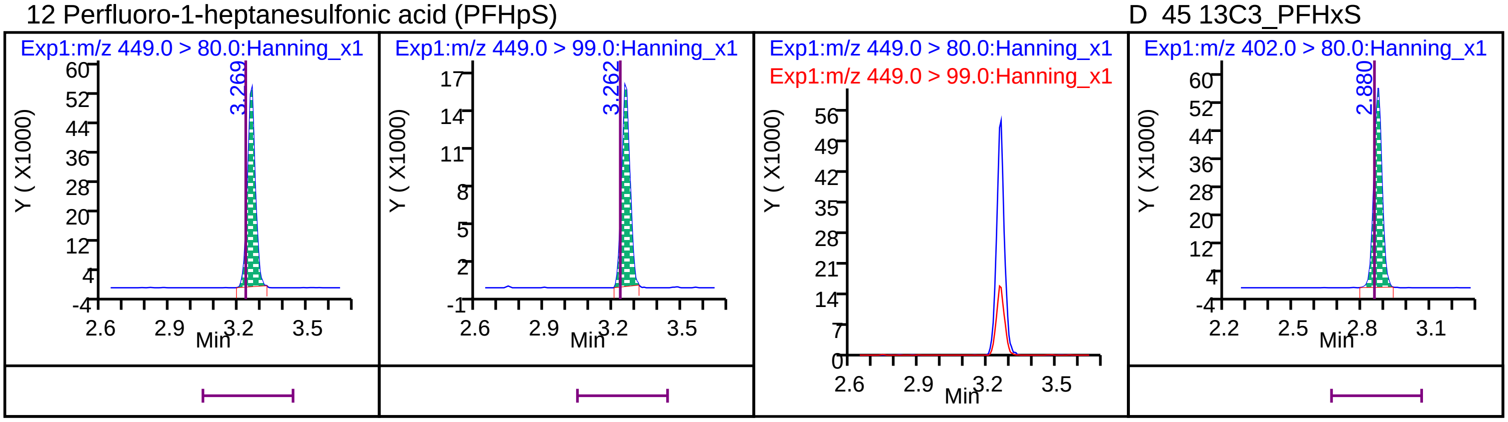
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



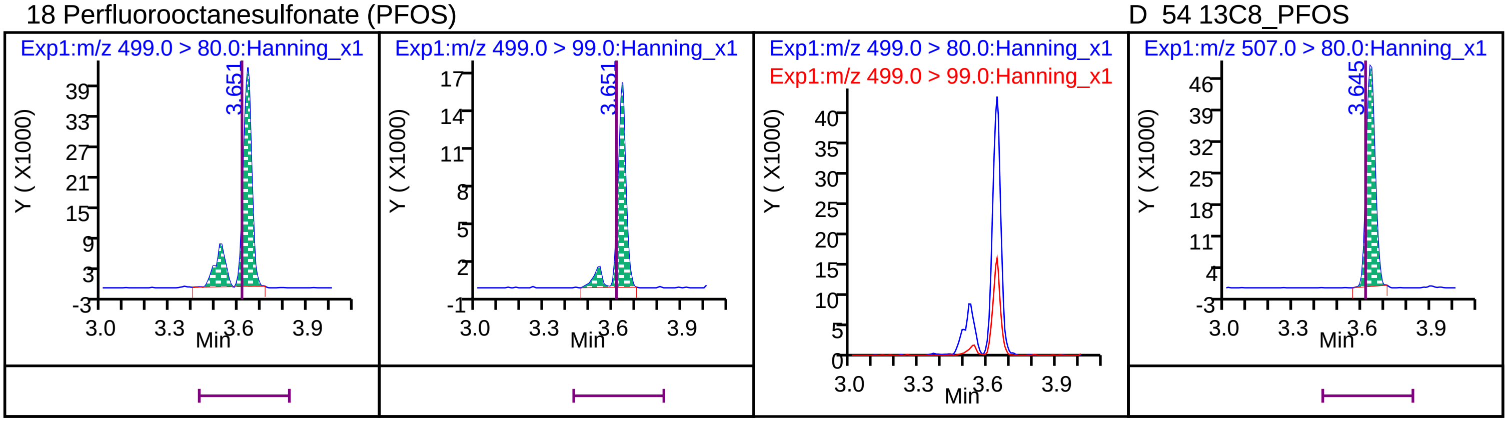
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



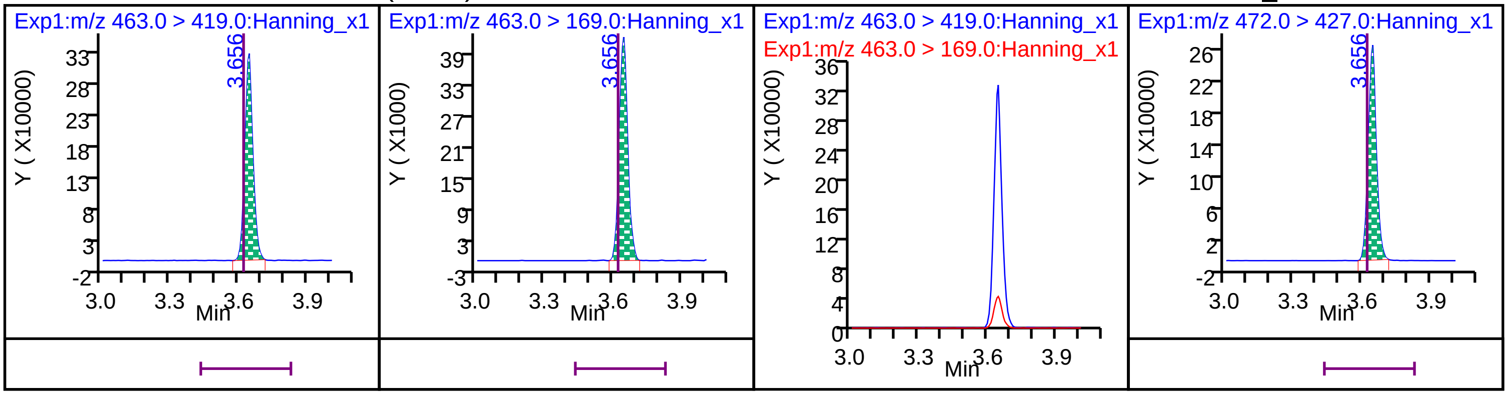
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



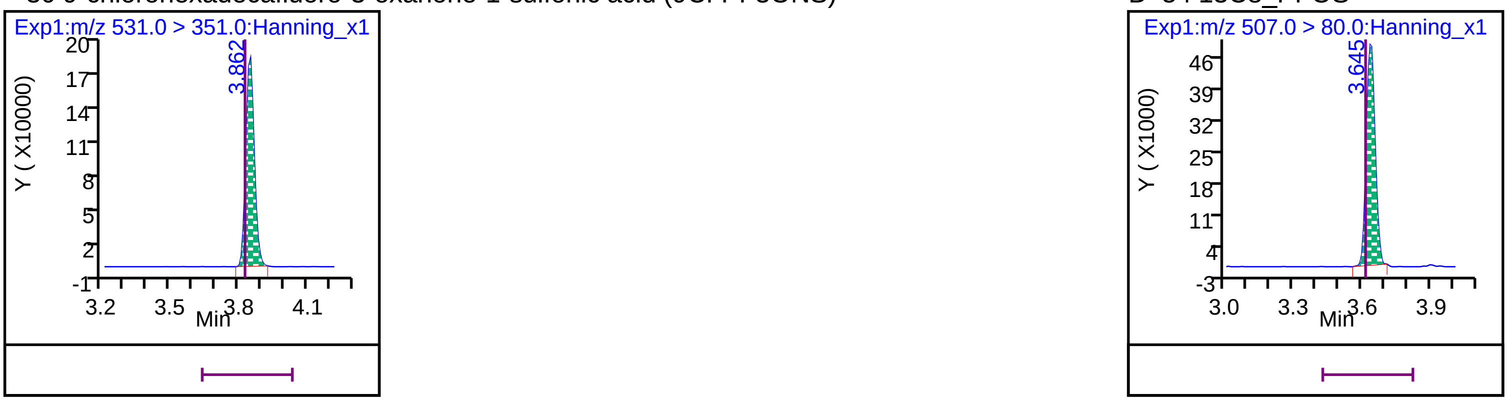
Report Date: 15-Nov-2021 10:46:22 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d

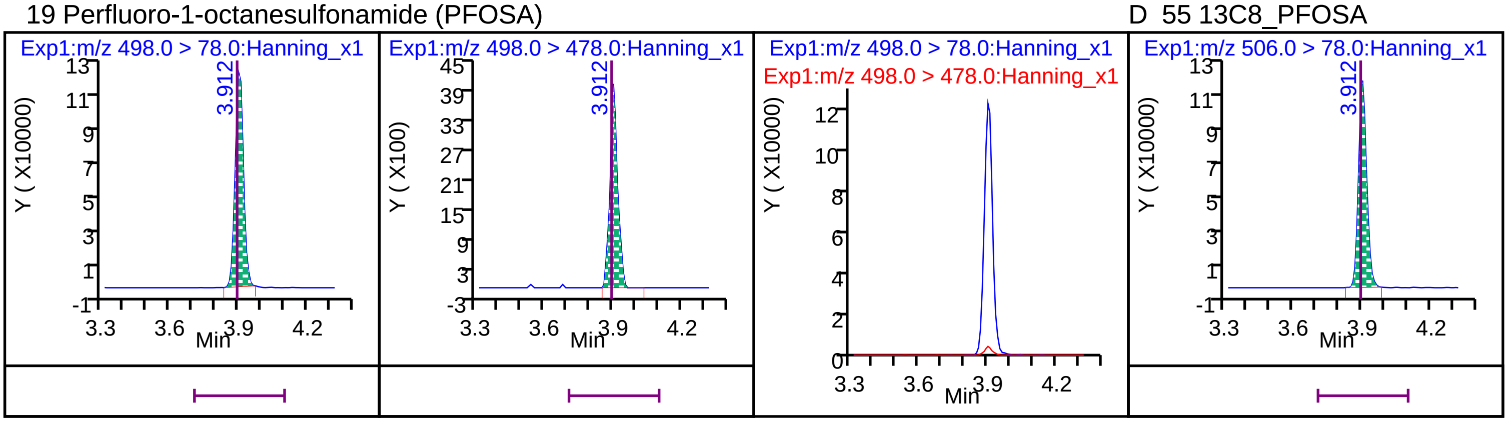
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



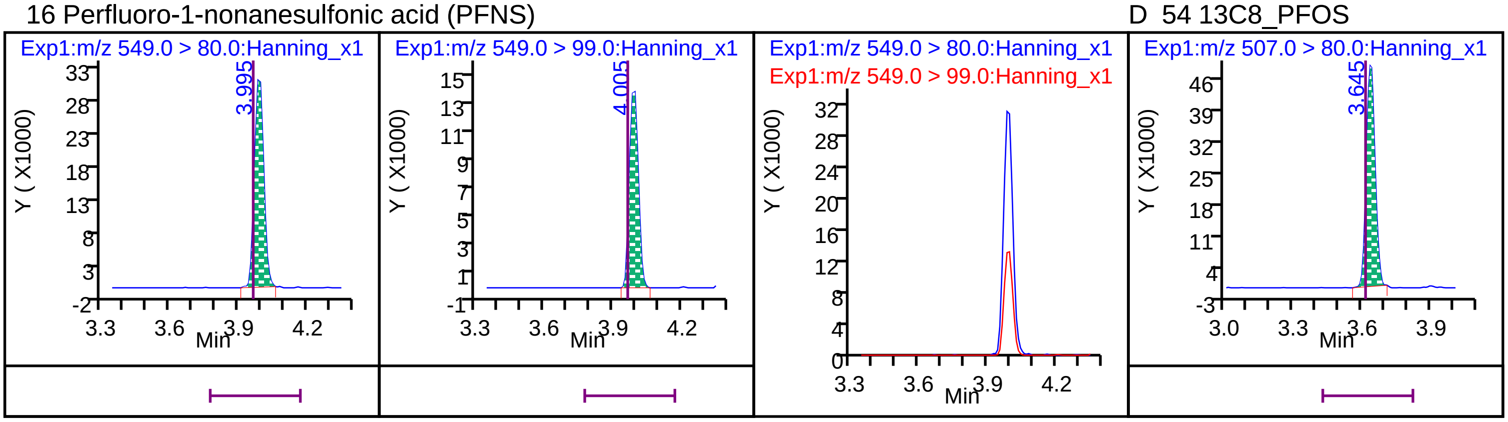
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

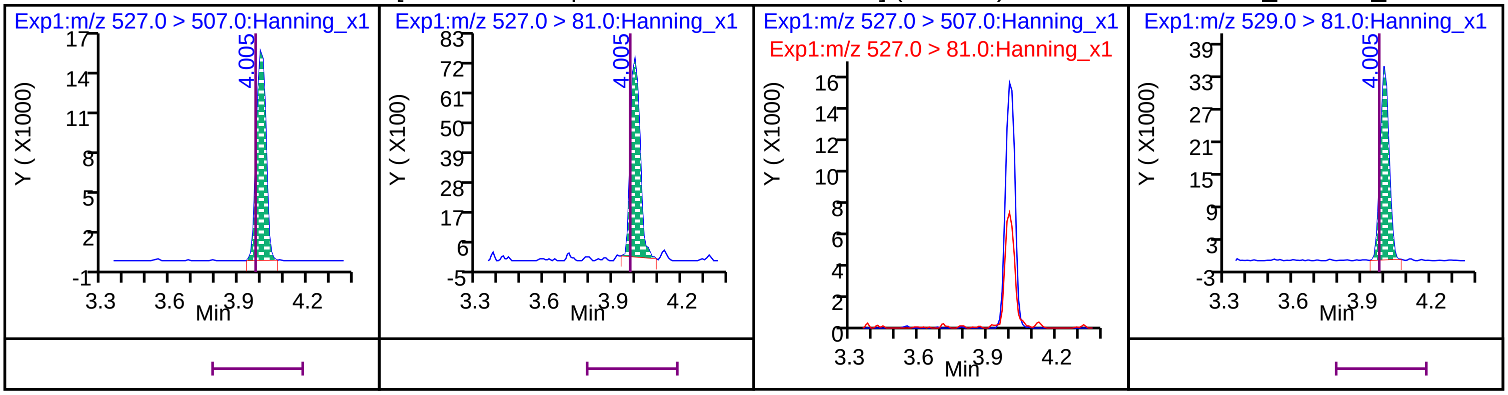


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

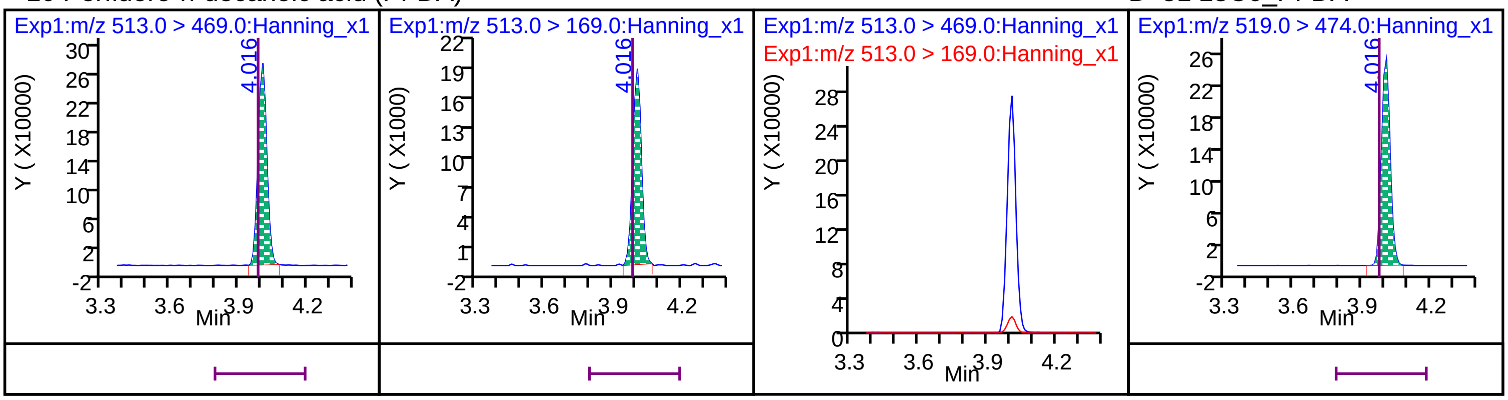


Report Date: 15-Nov-2021 10:46:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221023.d

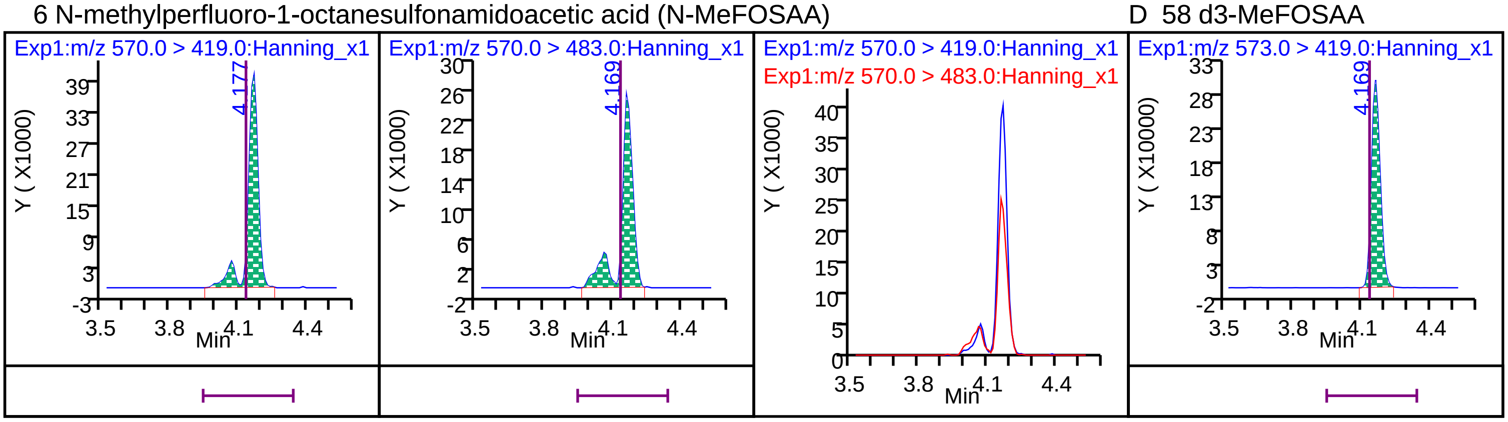
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



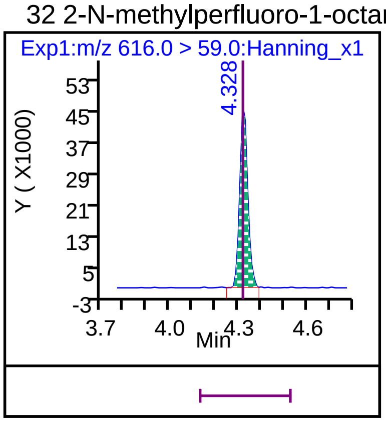
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

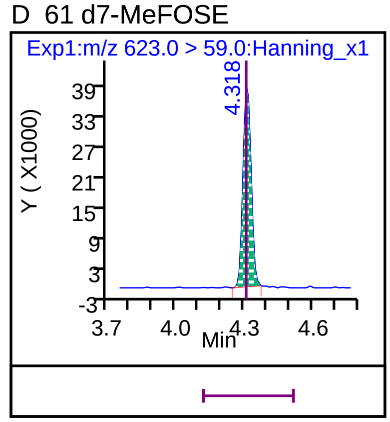


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

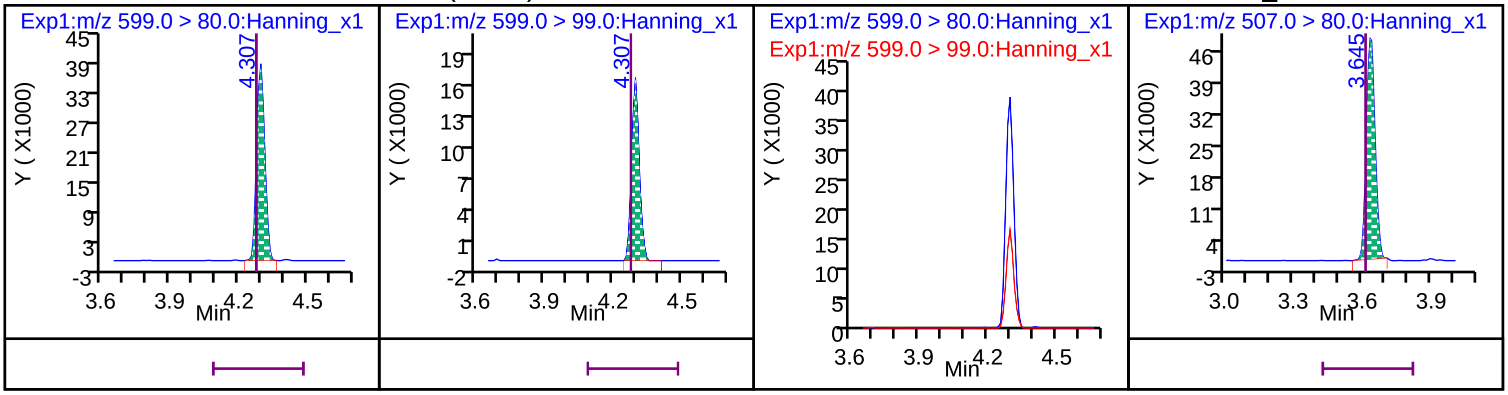


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

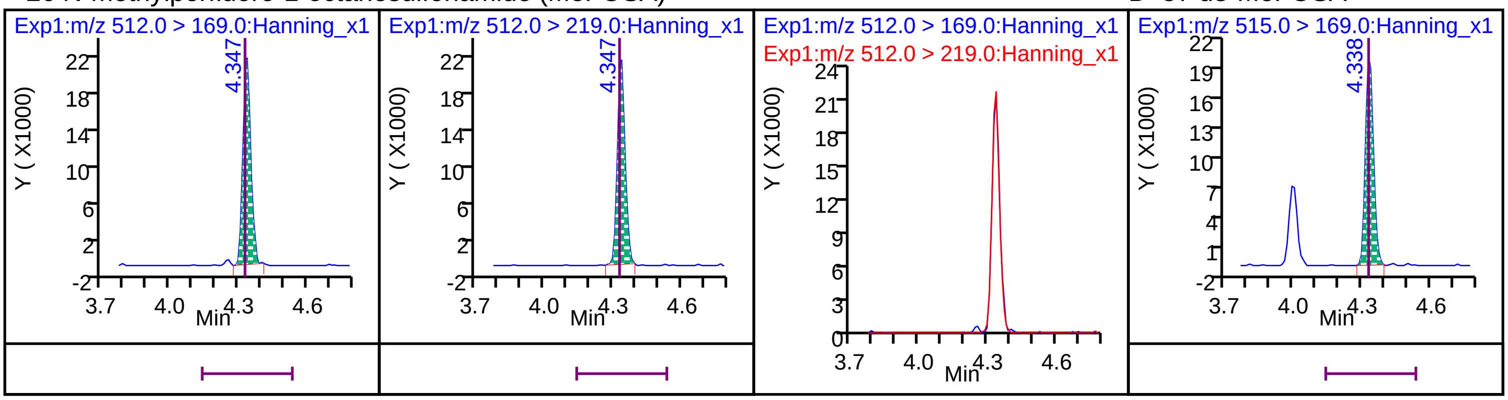




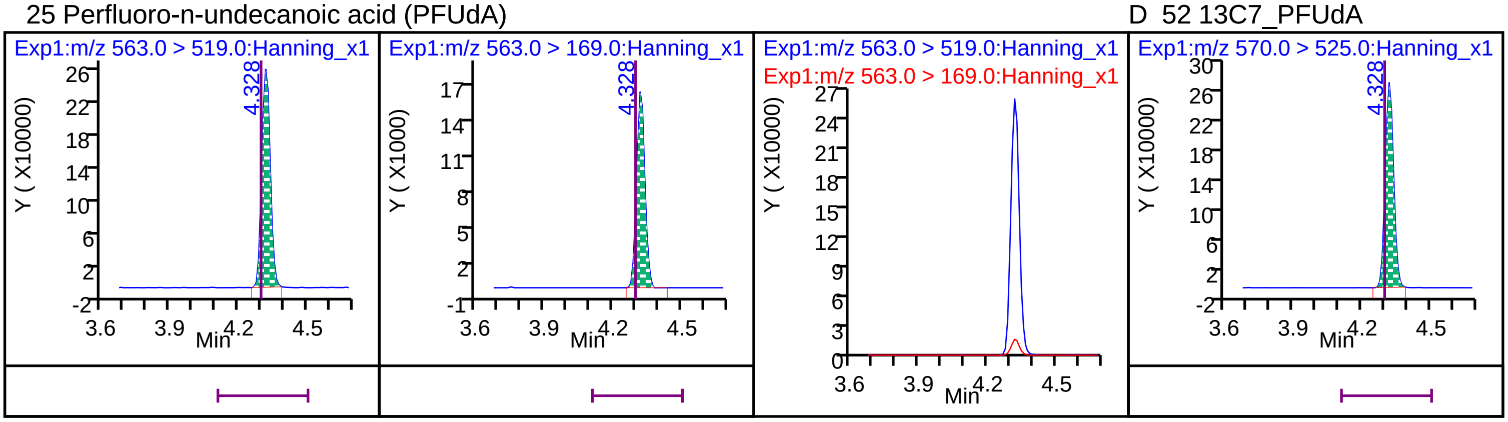
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



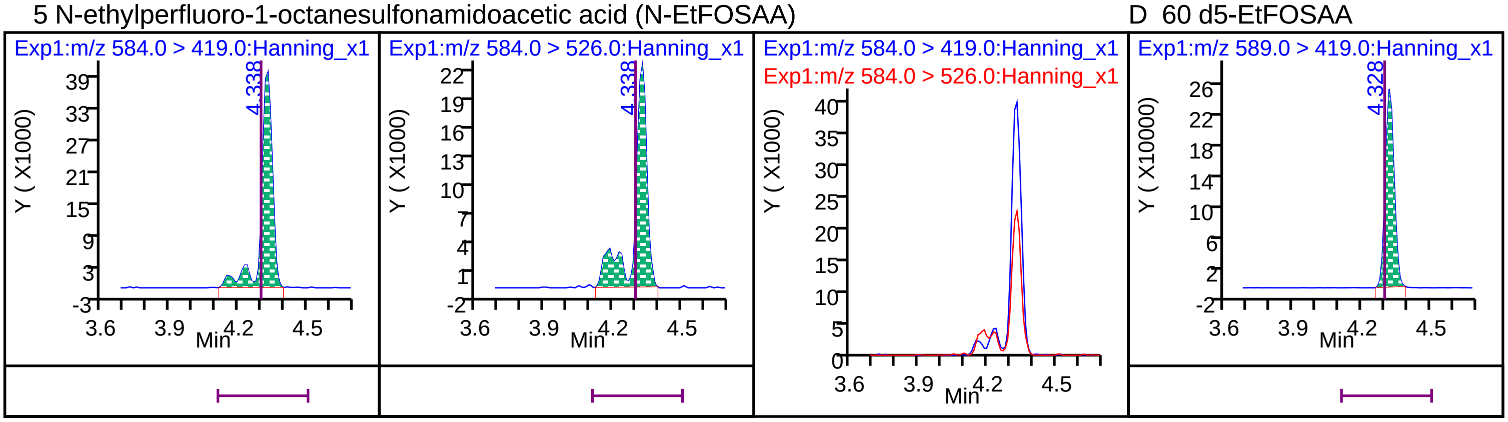
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



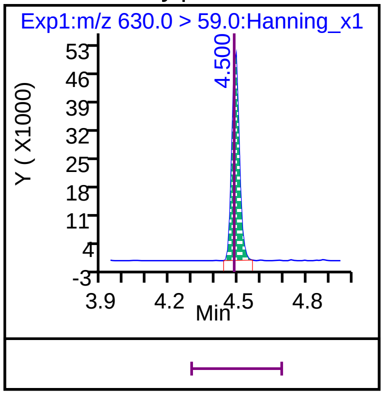
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



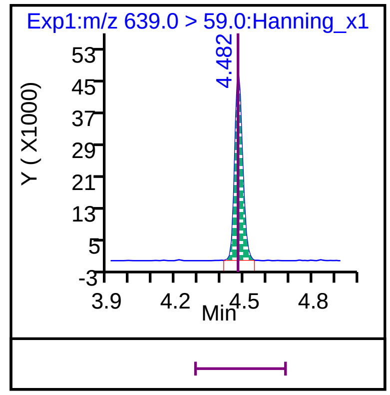
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

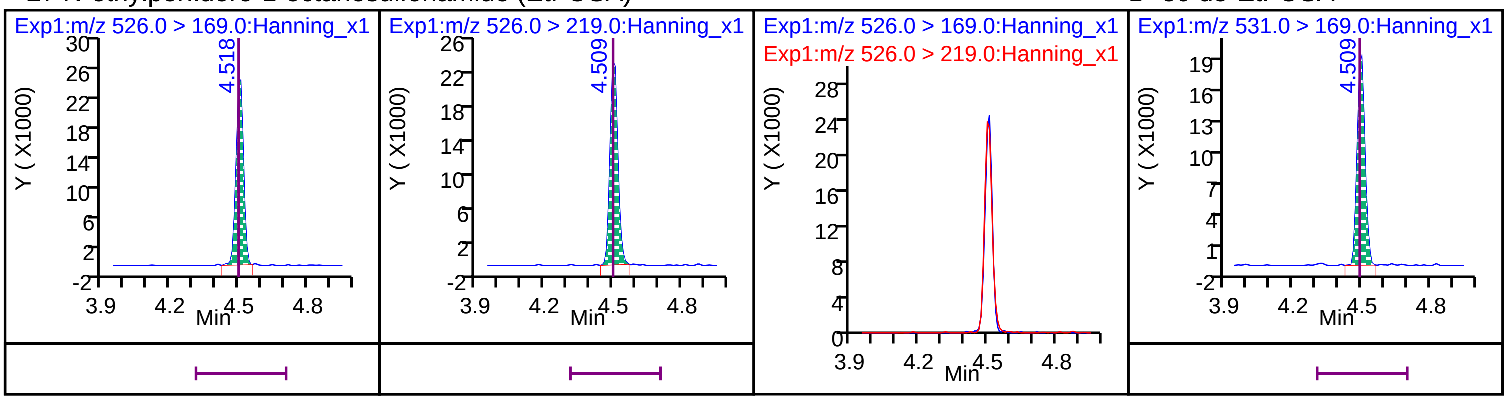


D 62 d9-EtFOSE

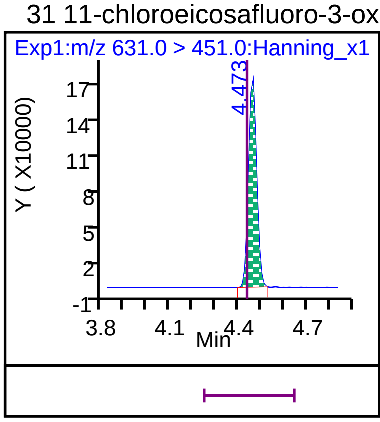


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

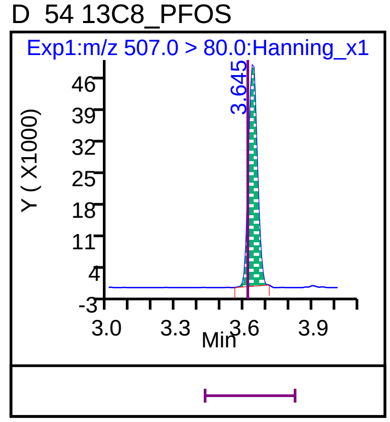
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

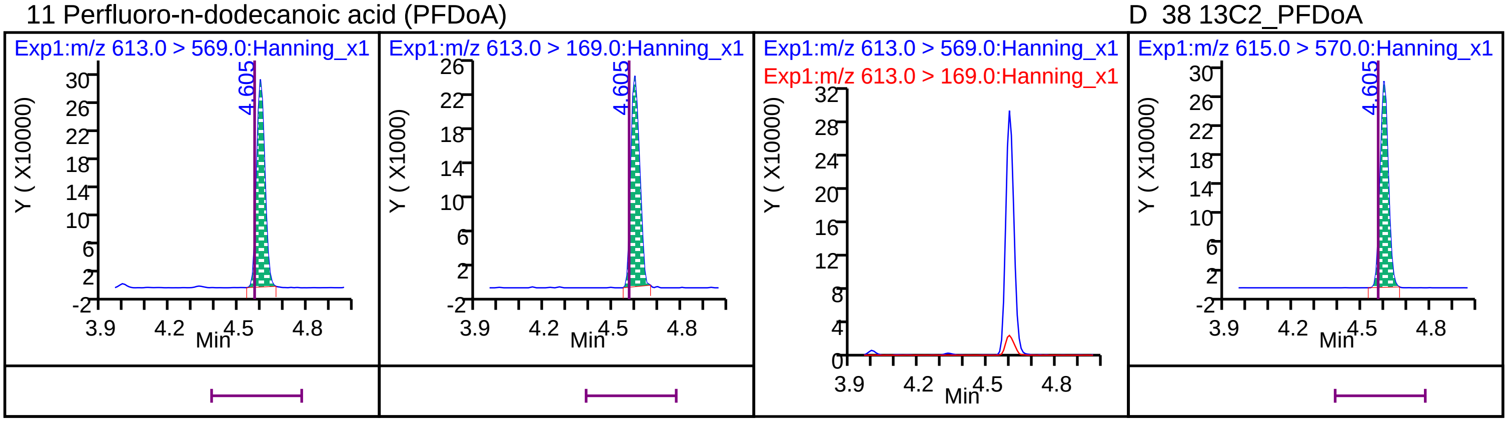


D 54 13C8_PFOS

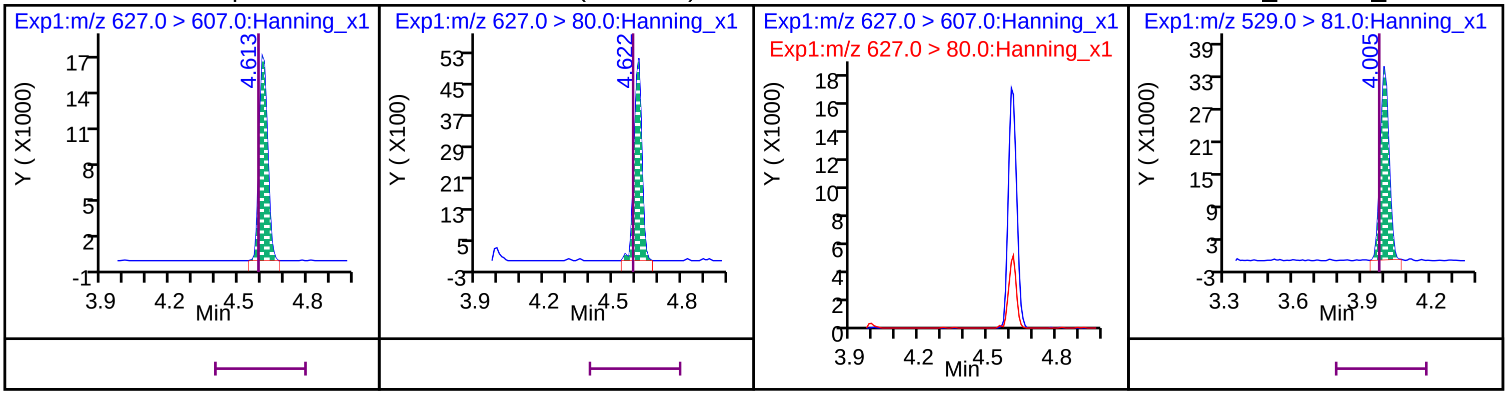


11 Perfluoro-n-dodecanoic acid (PFDoA)

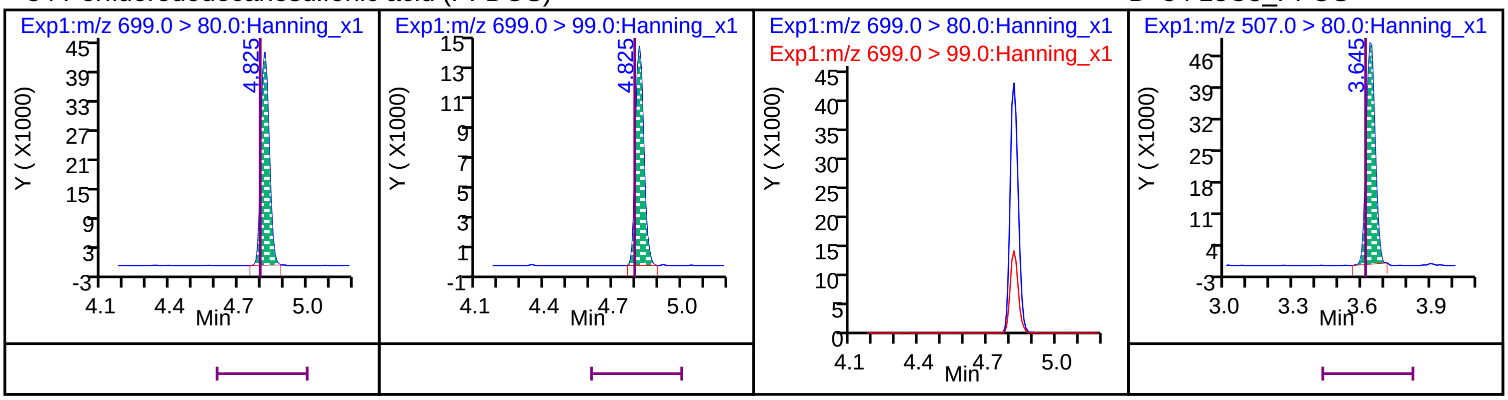
D 38 13C2_PFDoA



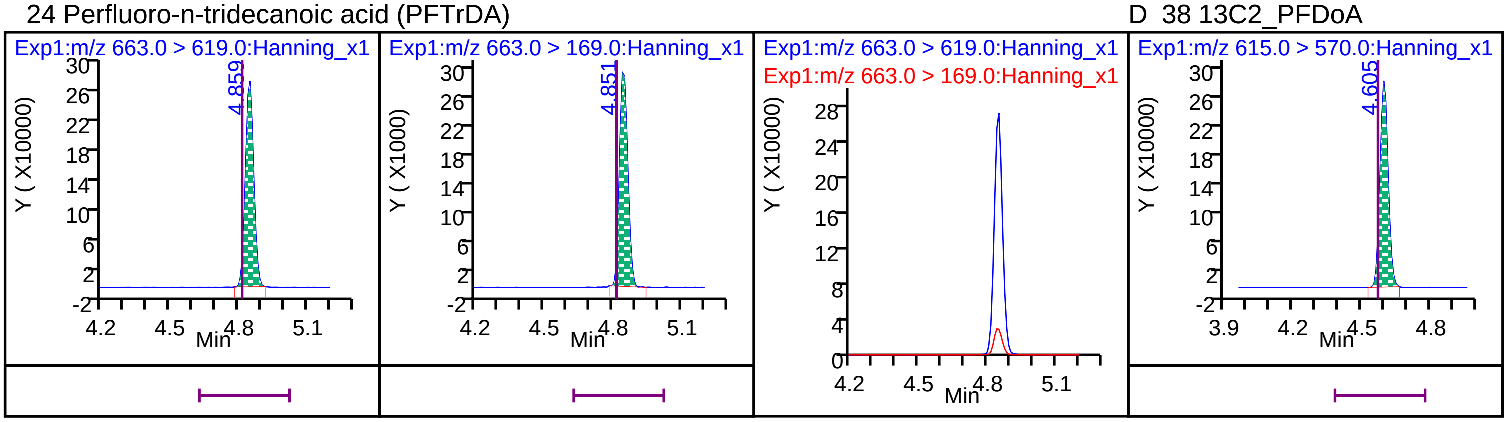
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



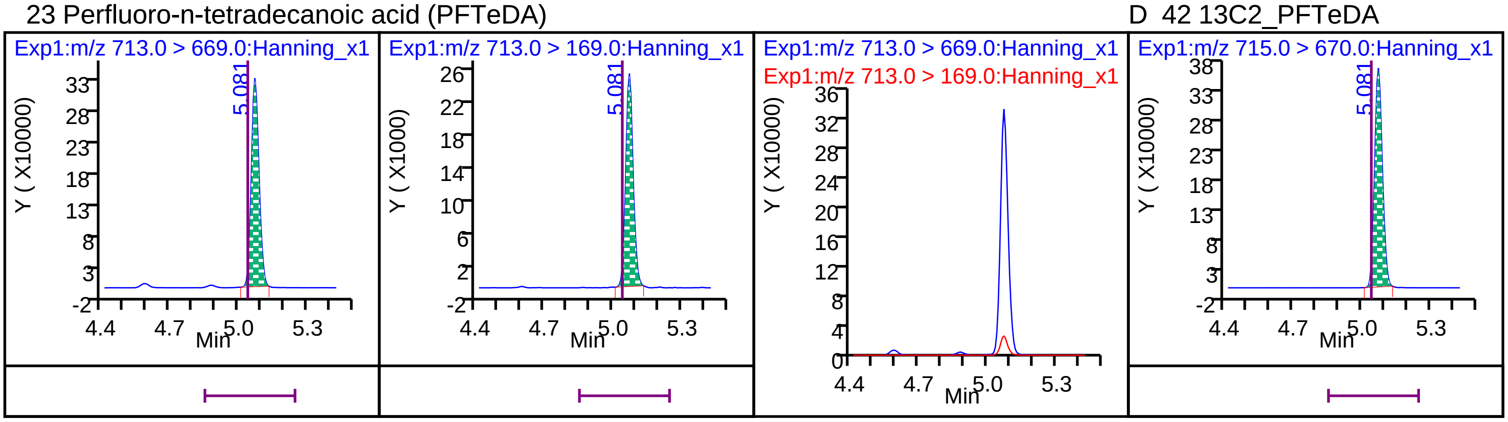
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



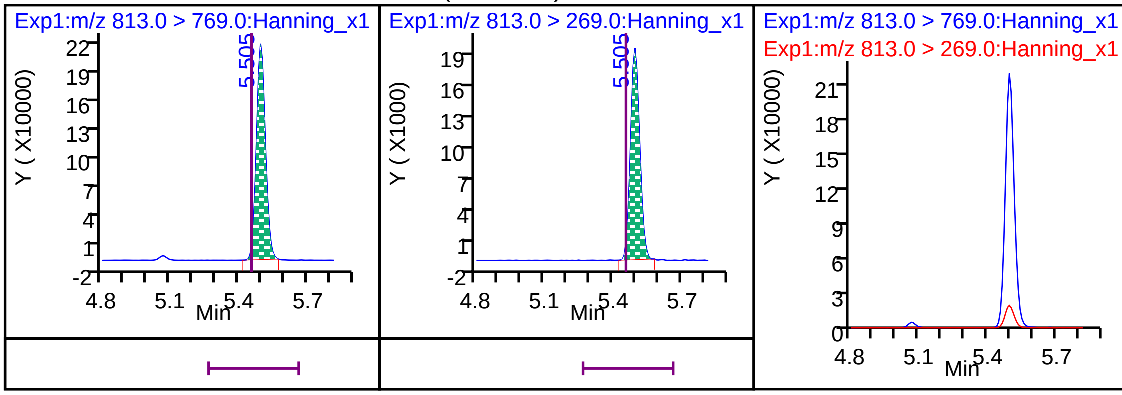
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



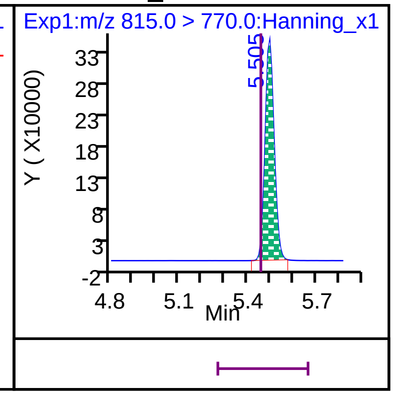
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



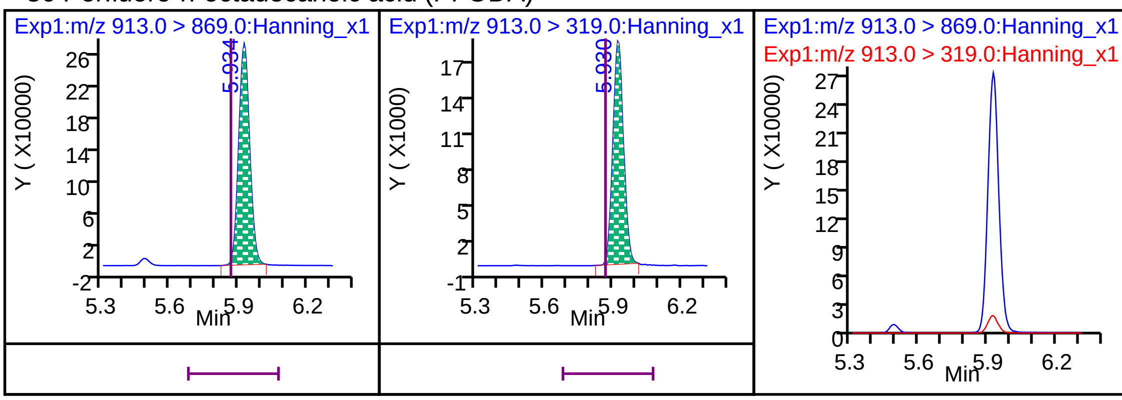
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA)



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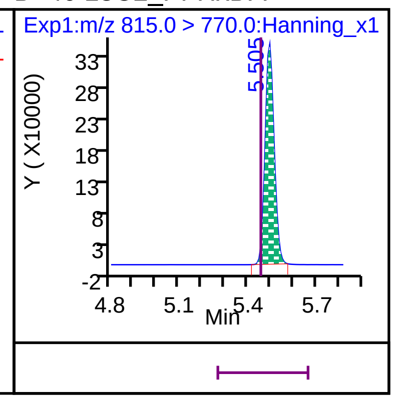
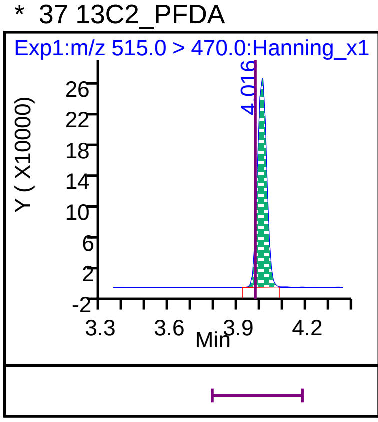
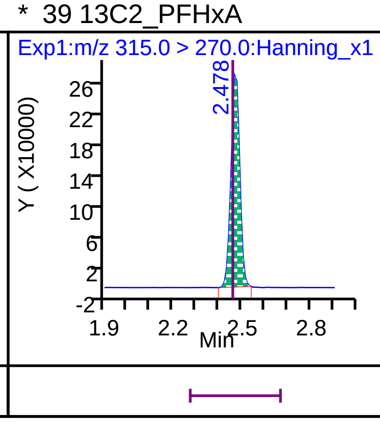


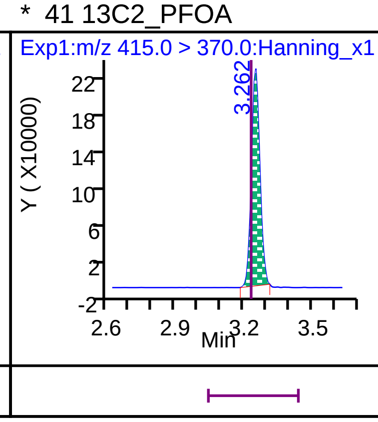
* 37 13C2_PFDA



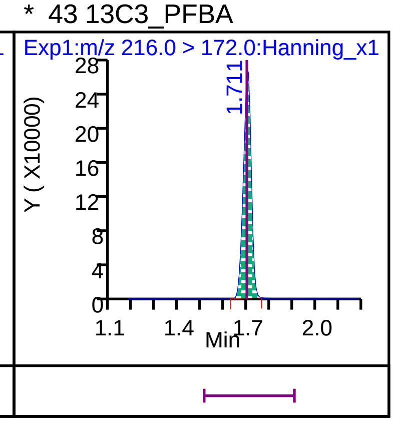
* 39 13C2_PFHxA



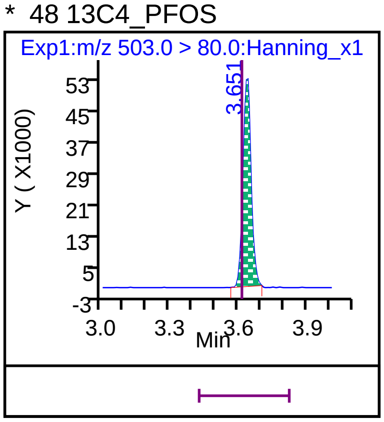
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d		
Injection Date:	12-Nov-2021 19:36:47	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	34
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	972.31	97.2	70 - 130
D 46 13C4_PFBA	606707	657139			108.3	50 - 150
21 PFPeA			1000.00	964.63	96.5	70 - 130
D 50 13C5_PFPeA	544569	601774			110.5	50 - 150
D 44 13C3_PFBS	162919	178353			109.5	50 - 150
7 PFBS			884.00	889.37	100.6	70 - 130
1 4:2 FTS			934.00	923.21	98.8	70 - 130
D 63 13C2_4:2 FTS_2	104453	121588			116.4	50 - 150
D 49 13C5_PFHxA	625283	692668			110.8	50 - 150
15 PFHxA			1000.00	1003.43	100.3	70 - 130
22 PFPeS			938.00	885.18	94.4	70 - 130
28 GenX			2000.00	1955.02	97.8	70 - 130
D 66 13C3_GenX	1101362	1240296			112.6	50 - 150
D 47 13C4_PFHpA	527441	578030			109.6	50 - 150
13 PFHpA			1000.00	987.88	98.8	70 - 130
D 45 13C3_PFHxS	115822	133021			114.8	50 - 150
14 PFHxS			910.00	955.69	105	70 - 130
29 ADONA			942.00	946.29	100.5	70 - 130
D 64 13C2_6:2 FTS_2	83315	93940			112.8	50 - 150
2 6:2 FTS			948.00	924.01	97.5	70 - 130
20 PFOA			1000.00	993.32	99.3	70 - 130
D 53 13C8_PFOA	513896	571377			111.2	50 - 150
12 PFHpS			952.00	938.34	98.6	70 - 130
D 54 13C8_PFOS	109523	128576			117.4	50 - 150
18 PFOS			928.00	911.02	98.2	70 - 130
17 PFNA			1000.00	1062.92	106.3	70 - 130
D 56 13C9_PFNA	589389	649975			110.3	50 - 150
30 9Cl-PF3ONS			932.00	1019.21	109.4	70 - 130
D 55 13C8_PFOSA	227854	274681			120.6	50 - 150
19 PFOSA			1000.00	1002.31	100.2	70 - 130
16 PFNS			960.00	992.93	103.4	70 - 130
10 PFDA			1000.00	935.03	93.5	70 - 130
3 8:2 FTS			958.00	1051.63	109.8	70 - 130
D 51 13C6_PFDA	593235	667805			112.6	50 - 150
D 65 13C2_8:2 FTS_2	82251	90764			110.4	50 - 150
6 N-MeFOSAA			1000.00	1010.50	101	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	661512	763669			115.4	50 - 150
D 61 d7-MeFOSE	81767	95507			116.8	50 - 150
32 MeFOSE			1000.00	1043.43	104.3	70 - 130
26 MeFOSA			1000.00	1003.83	100.4	70 - 130
D 57 d3-MeFOSA	42739	50412			118	50 - 150
9 PFDS			964.00	984.13	102.1	70 - 130
D 52 13C7_PFUdA	631780	671309			106.3	50 - 150
D 60 d5-EtFOSAA	606735	678128			111.8	50 - 150
25 PFUdA			1000.00	981.24	98.1	70 - 130
5 N-EtFOSAA			1000.00	1016.96	101.7	70 - 130
D 62 d9-EtFOSE	95636	112607			117.7	50 - 150
33 EtFOSE			1000.00	957.84	95.8	70 - 130
D 59 d5-EtFOSA	36158	50053			138.4	50 - 150
31 11Cl-PF3OUDS			942.00	965.93	102.5	70 - 130
27 EtFOSA			1000.00	975.42	97.5	70 - 130
D 38 13C2_PFDoA	608629	684152			112.4	50 - 150
11 PFDoA			1000.00	1019.27	101.9	70 - 130
4 10:2 FTS			964.00	1114.42	115.6	70 - 130
34 PFDOS			968.00	984.46	101.7	70 - 130
24 PFTrDA			1000.00	947.47	94.7	70 - 130
D 42 13C2_PFTeDA	786507	857216			109	50 - 150
23 PFTeDA			1000.00	985.30	98.5	70 - 130
D 40 13C2_PFHxDA	876588	955183			109	50 - 150
35 PFHxDA			1000.00	972.16	97.2	70 - 130
36 PFODA			1000.00	1049.60	105	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d		
Injection Date:	12-Nov-2021 19:36:47	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	34
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	657139	20	>100:1			1000.00	1057.05	108.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.711	1.712	0/0	673851	21	>100:1			1000.00	972.31		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.099	0	601774	16	>100:1			1000.00	1052.80	110.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.099	0/0	653340	17	>100:1			1000.00	964.63		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.151	1	178353	16	>100:1			1000.00	1031.12	109.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.151	1/0	197807	17	>100:1	Target = 3.53		884.00	889.37		
298.9 > 99	44	2.162	2.151		51686	17	>100:1	3.82 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.505	1/0	146313	18	>100:1	Target = 3.10		938.00	885.18		
349 > 99	44	2.514	2.505		51029	19	>100:1	2.86 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.425	2	121588	18	>100:1			5000.00	5369.61	116.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.442	2.433	1/-1	49489	15	>100:1	Target = 1.75		934.00	923.21		
327 > 81	63	2.433	2.433		25087	18	58:1	1.97 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.469	1	692668	17	>100:1			1000.00	1063.54	110.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.469	1/0	722675	17	>100:1	Target = 18.91		1000.00	1003.43		
313 > 119	49	2.478	2.469		39397	22	>100:1	18.34 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.591	2.583	1	1240296	19	>100:1			5000.00	5351.72	112.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.599	2.583	1/0	314076	19	>100:1	Target = 0.79		2000.00	1955.02		
285 > 185	66	2.599	2.583		385990	20	>100:1	0.81 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.845	2	578030	18	>100:1			1000.00	1088.70	109.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.845	2/0	627462	17	>100:1	Target = 3.80		1000.00	987.88		
363 > 169	47	2.864	2.845		160258	19	>100:1	3.91 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.873	2.864	1	133021	19	>100:1			1000.00	1058.75	114.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.881	2.864	2/1	139761	27	>100:1	Target = 2.89	5.46	910.00	955.69		
399 > 99	45	2.881	2.864		44911	27	>100:1	3.11 (1.44-4.34)	11.25				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.896	2.888	1/0	976202	19	>100:1	Target = 3.23		942.00	946.29		
377 > 85	45	2.904	2.888		277898	20	>100:1	3.51 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.255	3.241	1/0	128197	22	>100:1	Target = 3.12		952.00	938.34		
449 > 99	45	3.262	3.241		41548	21	>100:1	3.08 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.228	3.214	1	93940	22	>100:1			5000.00	5218.90	112.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.228	3.214	1/0	41096	18	>100:1	Target = 1.75		948.00	924.01		
427 > 81	64	3.234	3.214		22148	21	50:1	1.85 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.255	3.241	1	571377	23	>100:1			1000.00	1089.01	111.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.255	3.241	1/0	581613	21	>100:1	Target = 2.89		1000.00	993.32		
413 > 169	53	3.255	3.241		193388	20	>100:1	3.00 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.639	3.625	1	128576	21	>100:1			1000.00	1038.22	117.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.646	3.625	2/1	139470	41	>100:1	Target = 3.30	3.96	928.00	911.02		M
499 > 99	54	3.646	3.625		39612	38	>100:1	3.52 (1.65-4.95)	6.36				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.855	3.838	2/1	496286	16	>100:1			932.00	1019.21		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	3.974	2/1	102426	21	>100:1	Target = 3.08		960.00	992.93		
549 > 99	54	3.995	3.974		41478	13	>100:1	2.46 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.288	2/1	99019	15	>100:1	Target = 2.72		964.00	984.13		
599 > 99	54	4.308	4.288		37398	20		2.64 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.465	4.446	2/1	425201	16	>100:1			942.00	965.93		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.825	4.804	2/1	108843	18		Target = 3.27		968.00	984.46		
699 > 99	54	4.825	4.804		35490	18		3.06 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.646	3.632	1	649975	22	>100:1			1000.00	1014.99	110.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.646	3.632	1/0	744673	21	>100:1	Target = 6.51		1000.00	1062.92		
463 > 169	56	3.646	3.632		110756	28	>100:1	6.72 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.912	3.904	1	274681	18	>100:1			1000.00	1024.71	120.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.912	3.904	1/0	289681	17	>100:1	Target = 41.63		1000.00	1002.31		
498>478	55	3.912	3.904		9051	21		32.00 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.006	3.984	2	667805	16	>100:1			1000.00	1162.09	112.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.006	3.995	1/-1	726665	16	>100:1	Target = 13.80		1000.00	935.03		
513 > 169	51	4.006	3.995		53933	14	>100:1	13.47 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	3.984	2	90764	16	>100:1			5000.00	5251.18	110.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	3.984	2/0	43136	15	>100:1	Target = 1.94		958.00	1051.63		
527 > 81	65	3.995	3.984		22210	16	72:1	1.94 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.614	4.597	2/0	51315	17		Target = 3.54		964.00	1114.42		
627 > 80	65	4.614	4.597		12469	15	21:1	4.11 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.142	2	763669	19	>100:1			5000.00	5053.64	115.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.142	2/0	123844	32	>100:1	Target = 1.37	7.53	1000.00	1010.50		
570 > 483	58	4.169	4.142		94066	30	>100:1	1.31 (0.68-2.05)	3.14				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.328	4.318	1	95507	15	>100:1			1000.00	1058.97	116.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.339	4.328	1/0	108907	15	>100:1			1000.00	1043.43		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.348	4.338	1	50412	14	>100:1			1000.00	1071.66	118	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.348	4.338	1/0	54850	14	>100:1	Target = 1.11		1000.00	1003.83		
512 > 219	57	4.348	4.338		51210	12	>100:1	1.07 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.308	2	678128	16	>100:1			5000.00	5235.98	111.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.308	2/0	134485	31	>100:1	Target = 1.51	6.04	1000.00	1016.96		M
584 > 526	60	4.339	4.308		82660	31	>100:1	1.62 (0.75-2.26)	3.16				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.308	2	671309	15	>100:1			1000.00	1114.67	106.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.308	2/0	638270	16	>100:1	Target = 14.52		1000.00	981.24		
563 > 169	52	4.328	4.308		43737	15	>100:1	14.59 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.492	4.482	1	112607	14	>100:1			1000.00	1061.56	117.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.501	4.492	1/0	104999	15	>100:1			1000.00	957.84		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.501	1	50053	15	>100:1			1000.00	1164.03	138.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.519	4.510	1/0	58530	14	>100:1	Target = 1.06		1000.00	975.42		
526 > 219	59	4.519	4.510		49935	14	>100:1	1.17 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.580	2	684152	16	>100:1			1000.00	1139.61	112.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.606	4.580	2/0	743414	18	>100:1	Target = 10.70		1000.00	1019.27		
613 > 169	38	4.606	4.580		67191	16		11.06 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.851	4.825	2/0	681327	18	>100:1	Target = 8.31		1000.00	947.47		
663 > 169	38	4.851	4.825		74860	21	>100:1	9.10 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.075	5.050	2	857216	21	>100:1			1000.00	1054.40	109	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.081	5.050	2/0	737290	22	>100:1	Target = 12.17		1000.00	985.30		
713 > 169	42	5.075	5.050		57384	22	>100:1	12.84 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.497	5.466	2	955183	20	>100:1			1000.00	1100.40	109	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.497	5.466	2/0	594718	21	>100:1	Target = 10.43		1000.00	972.16		
813 > 269	40	5.497	5.466		52527	21	>100:1	11.32 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.920	5.877	3/1	912720	40	52:1	Target = 13.67		1000.00	1049.60		
913 > 319	40	5.916	5.877		59182	40	>100:1	15.42 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.006	3.984	2	751983	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.469	1	717022	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.255	3.241	1	586968	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.705	1	597745	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.639	3.625	1	129844	22	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

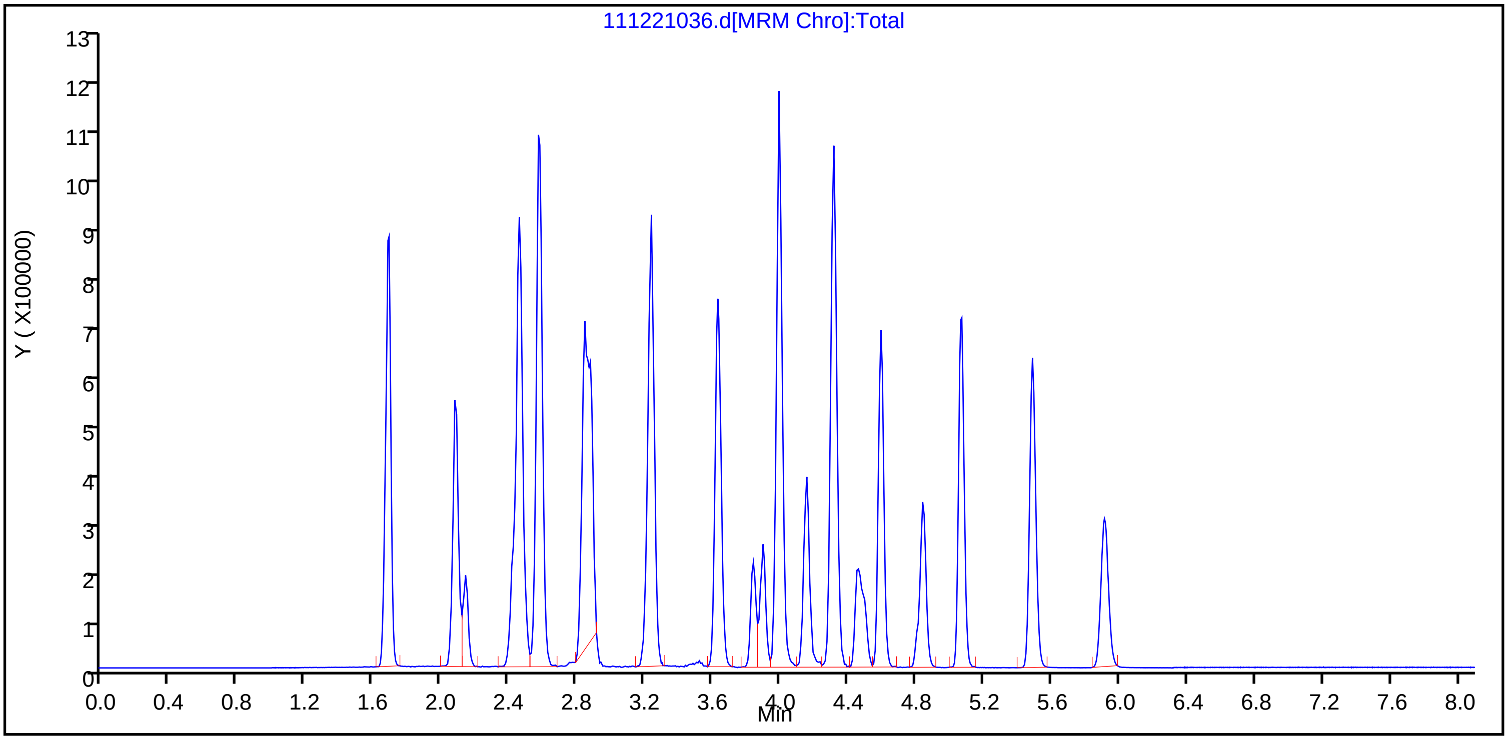
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

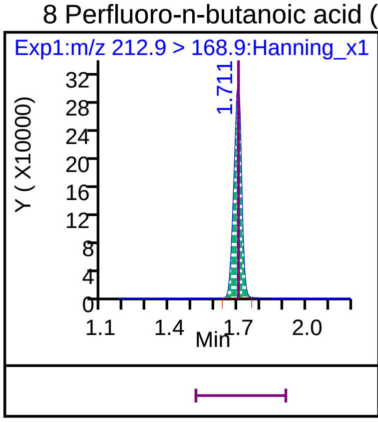
Report Date: 15-Nov-2021 10:46:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

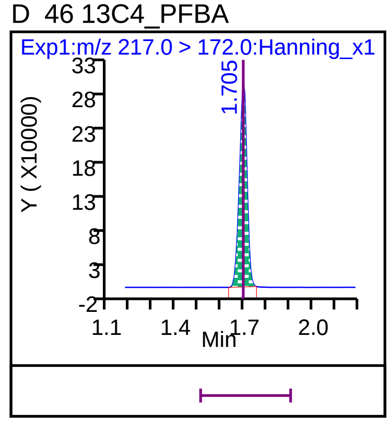
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d		
Injection Date:	12-Nov-2021 19:36:47	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



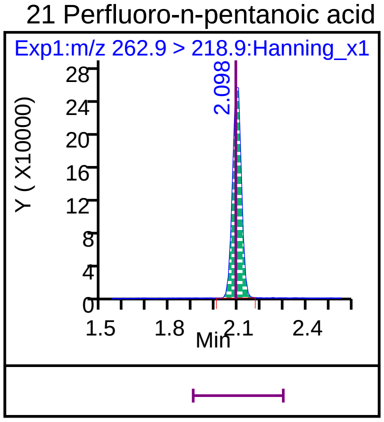
8 Perfluoro-n-butanoic acid (PFBA)



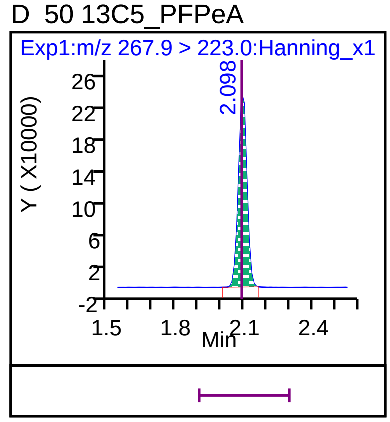
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

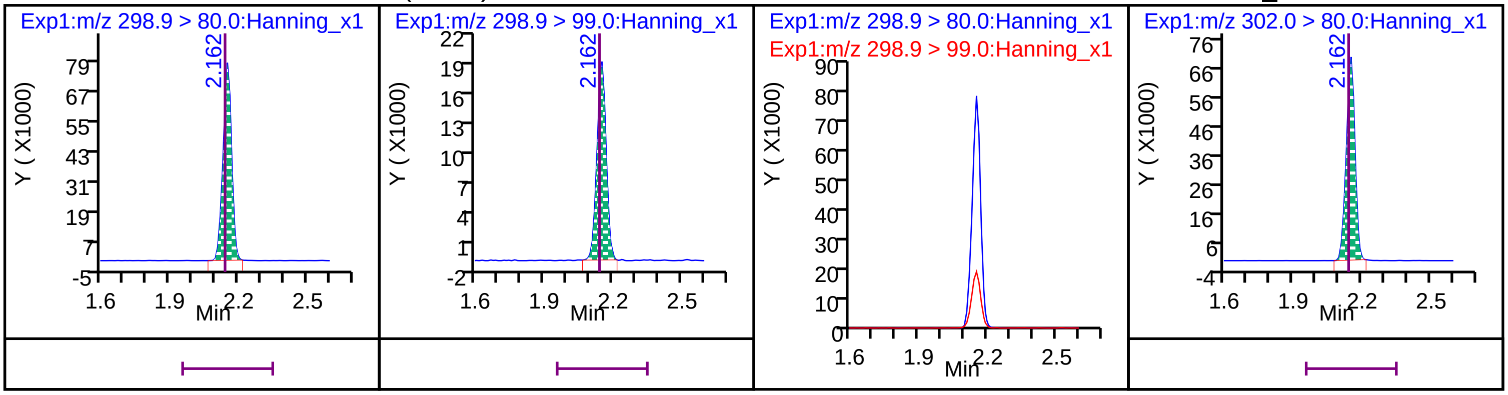


D 50 13C5_PFPeA

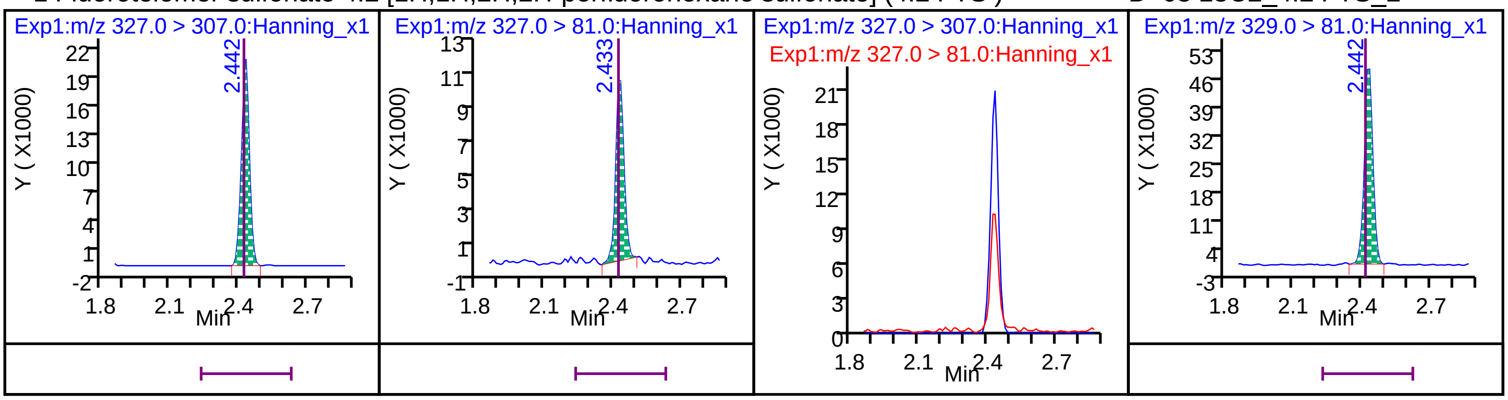


Report Date: 15-Nov-2021 10:46:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d

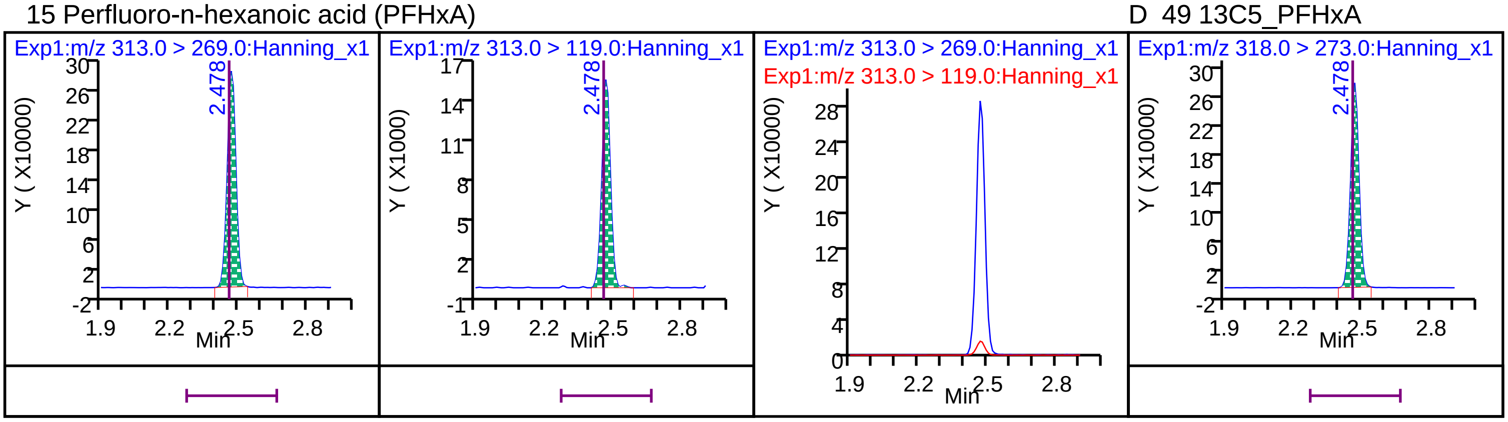
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



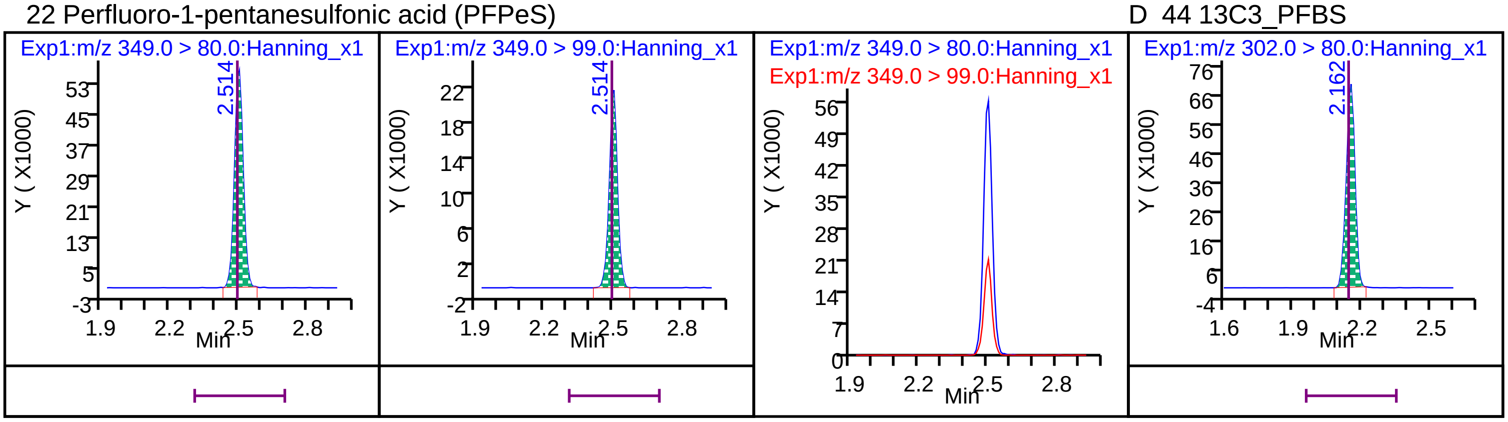
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



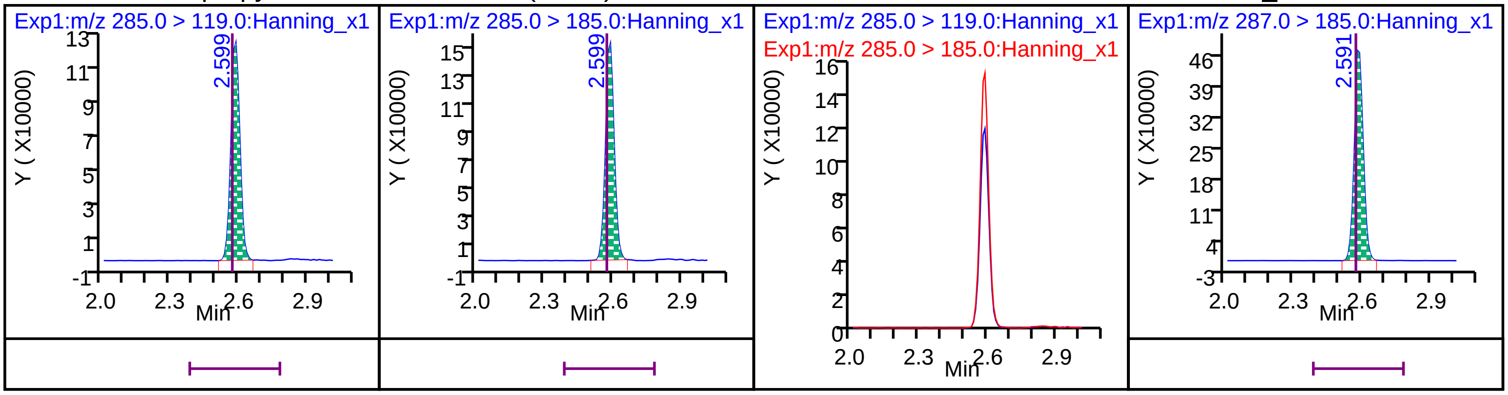
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



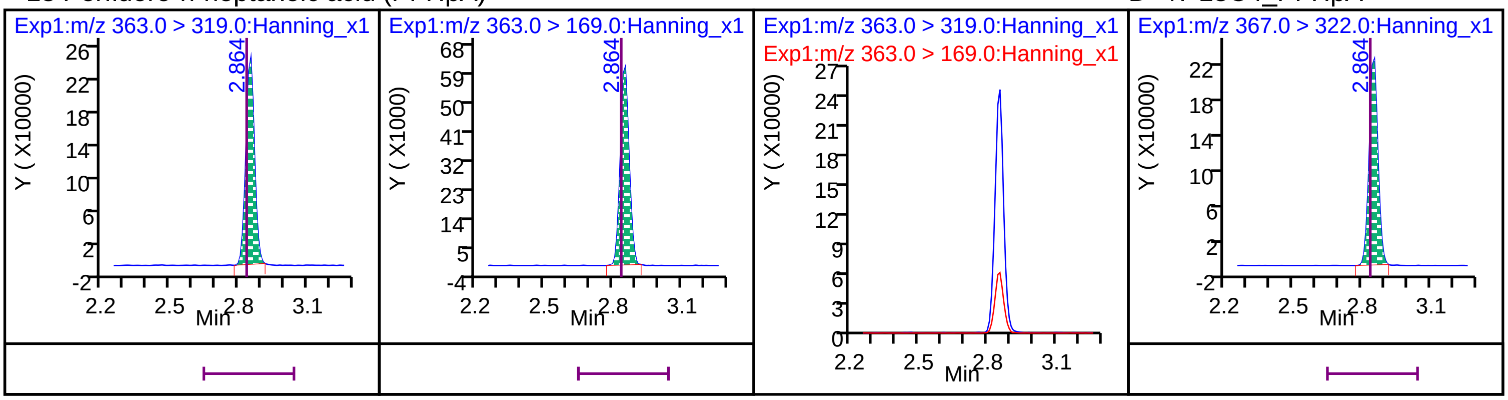
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



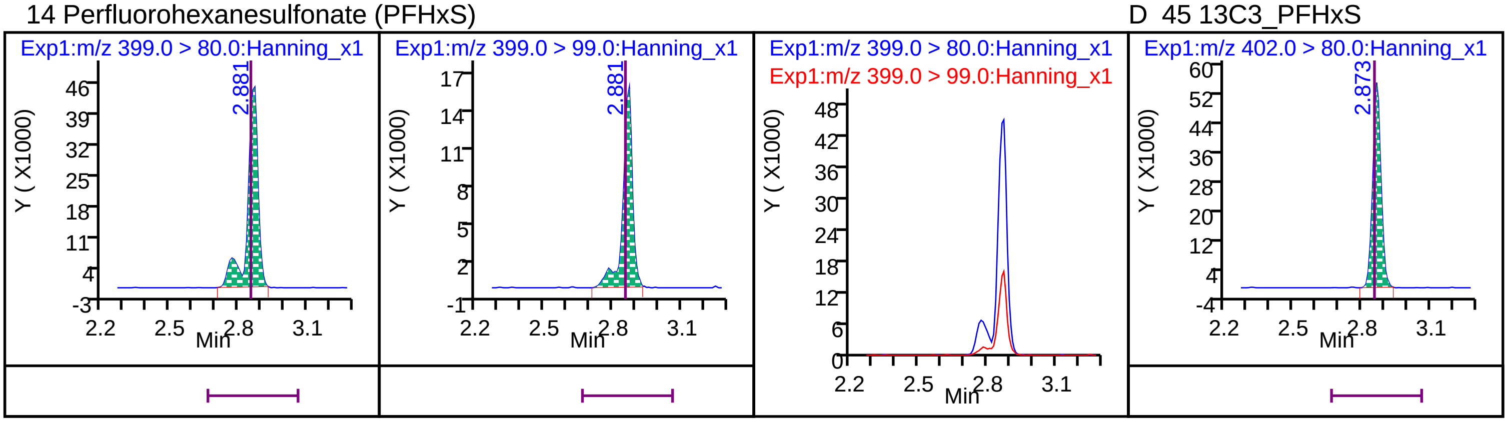
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



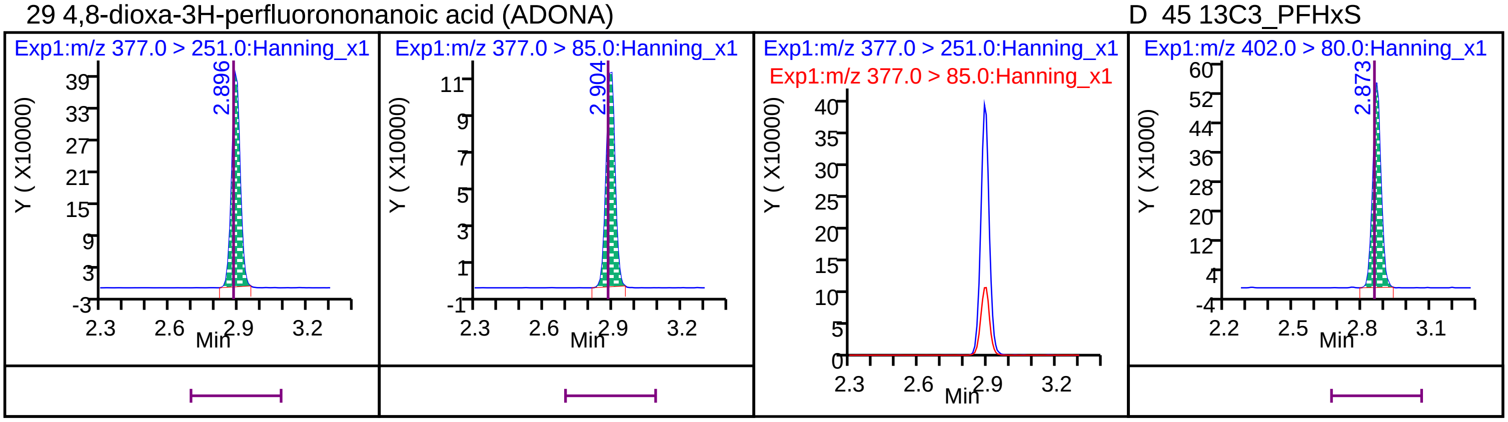
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



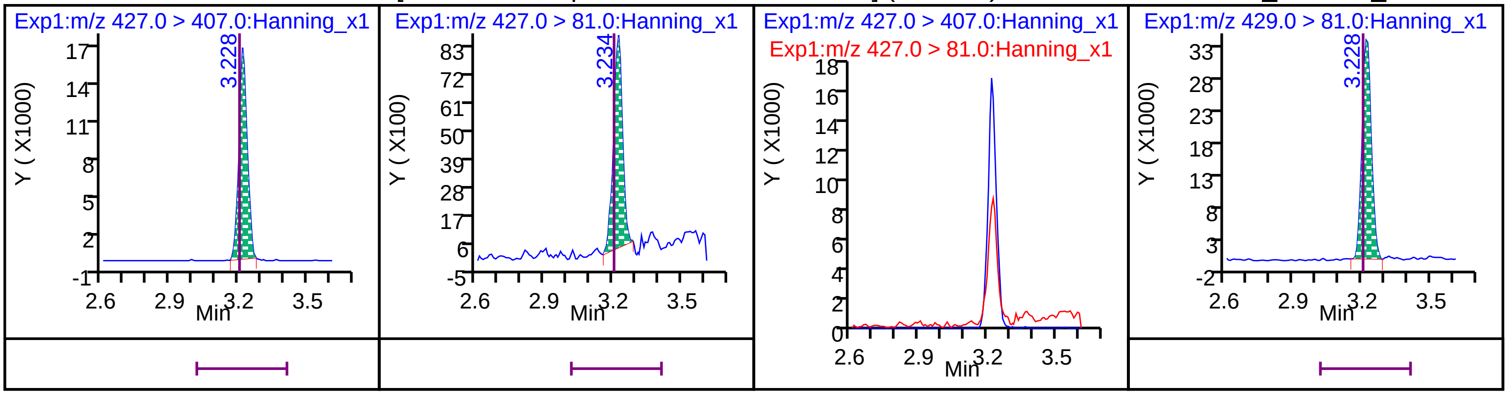
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



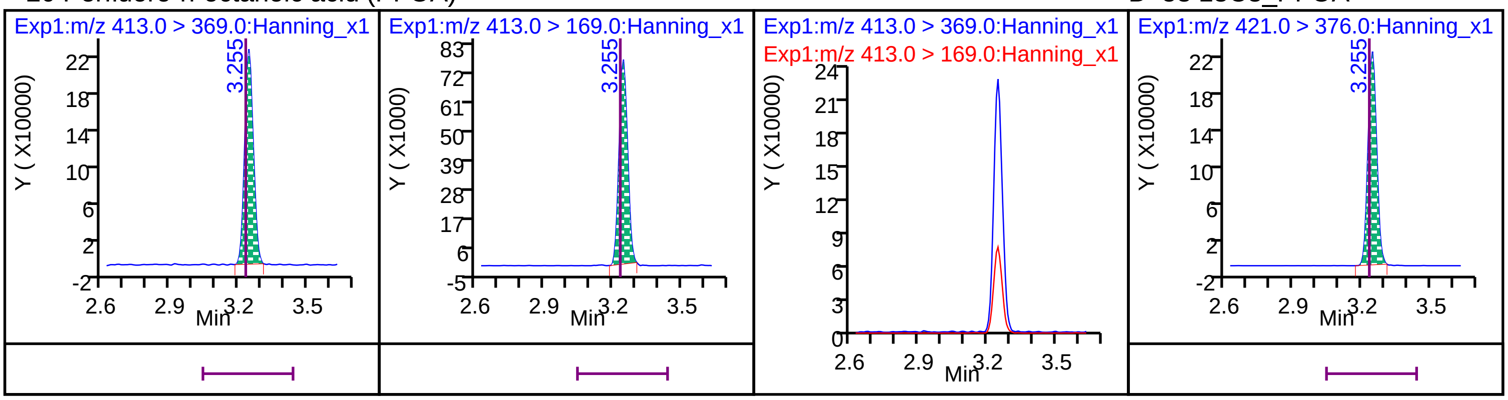
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



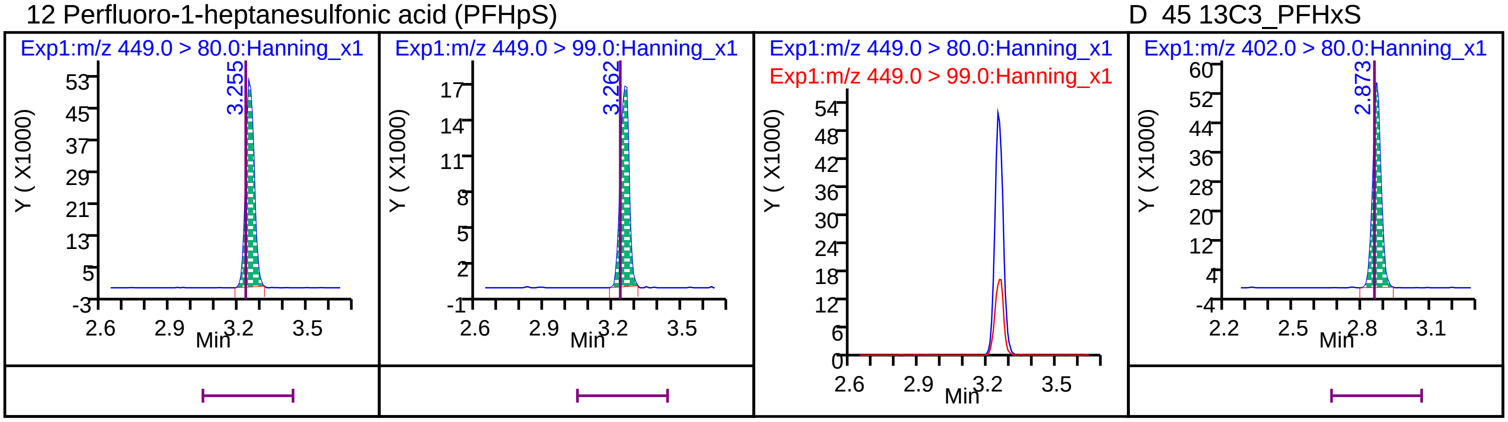
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



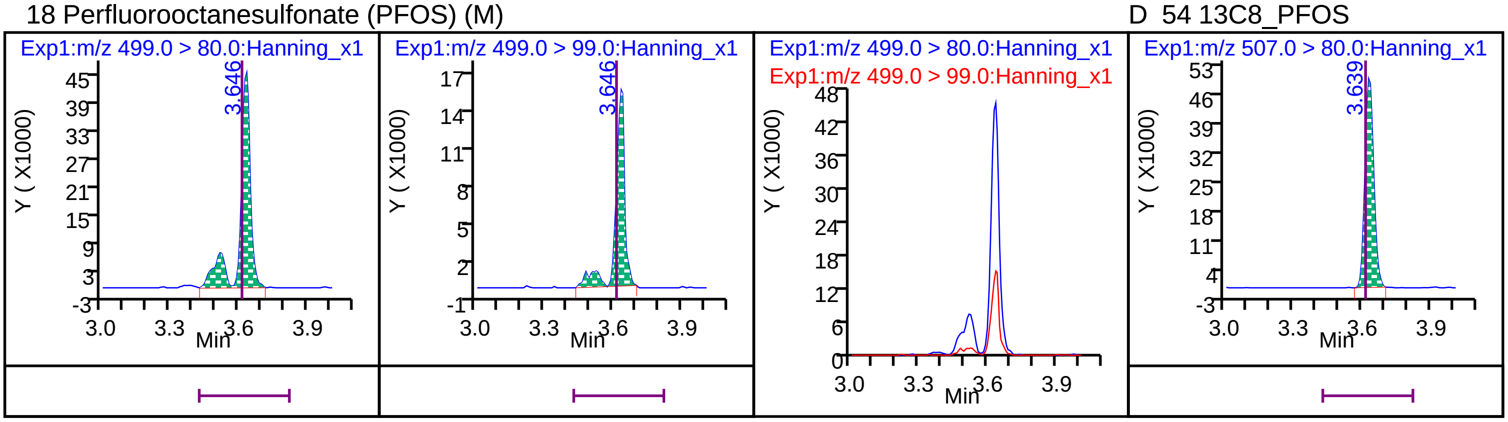
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



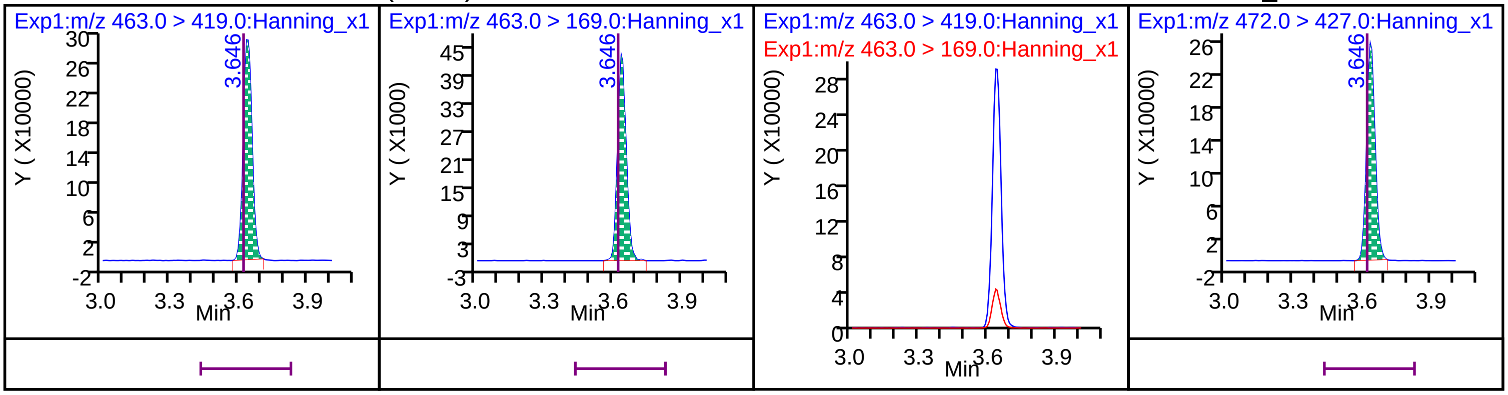
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



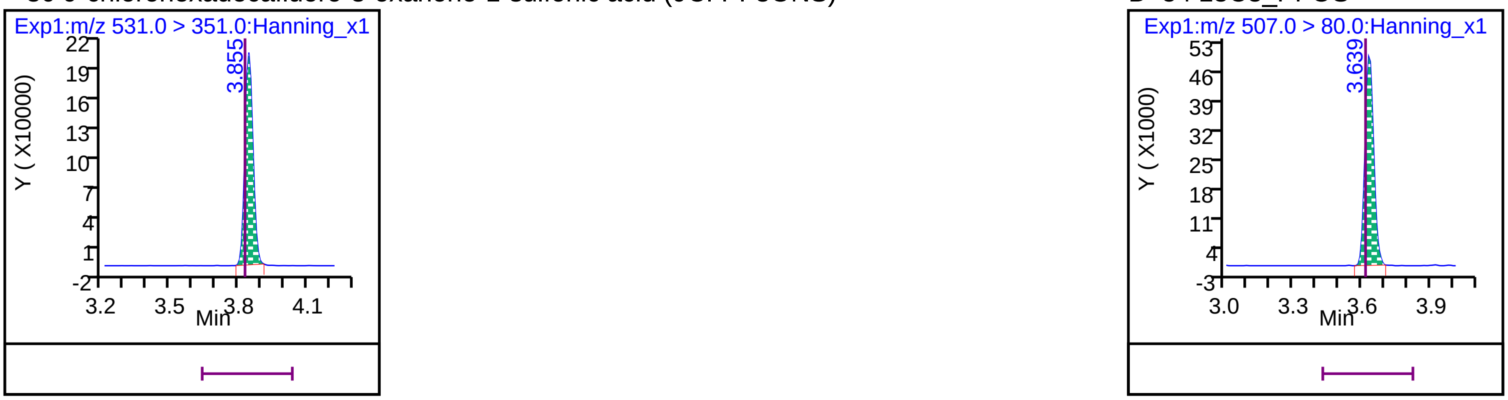
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



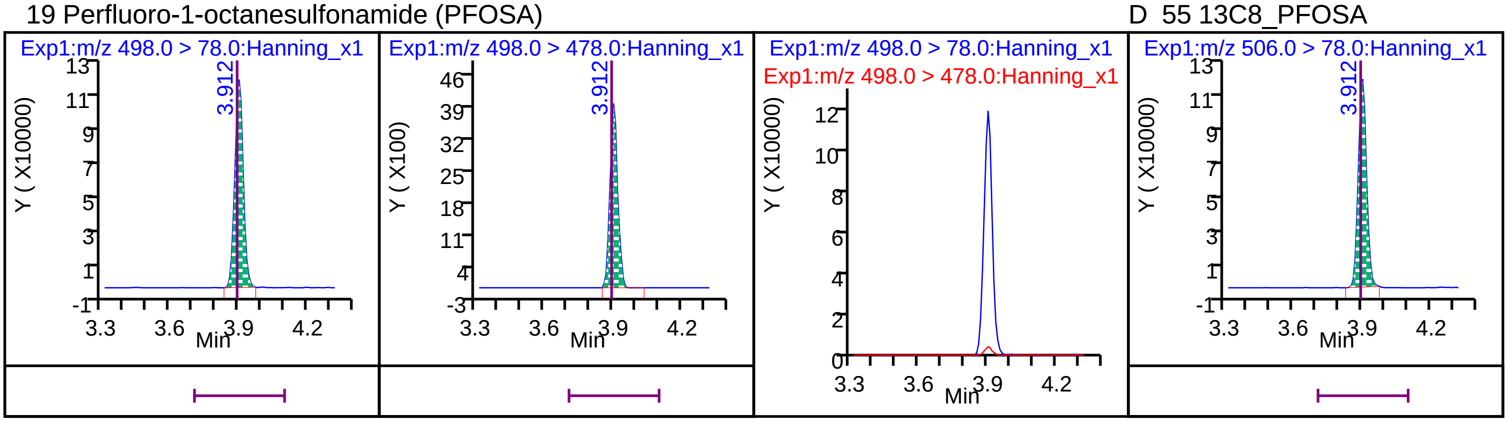
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



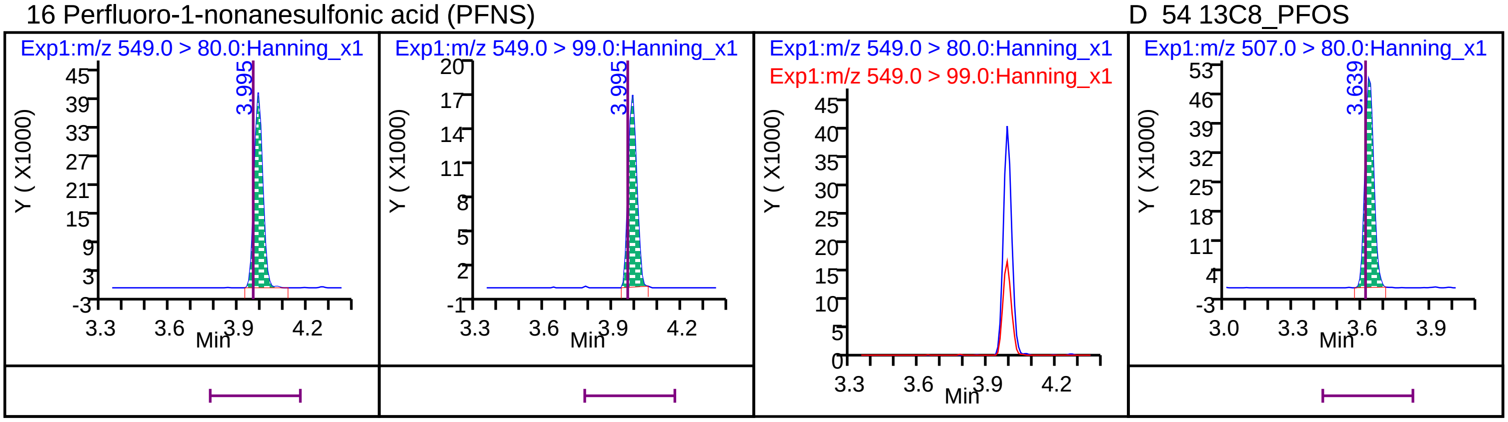
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



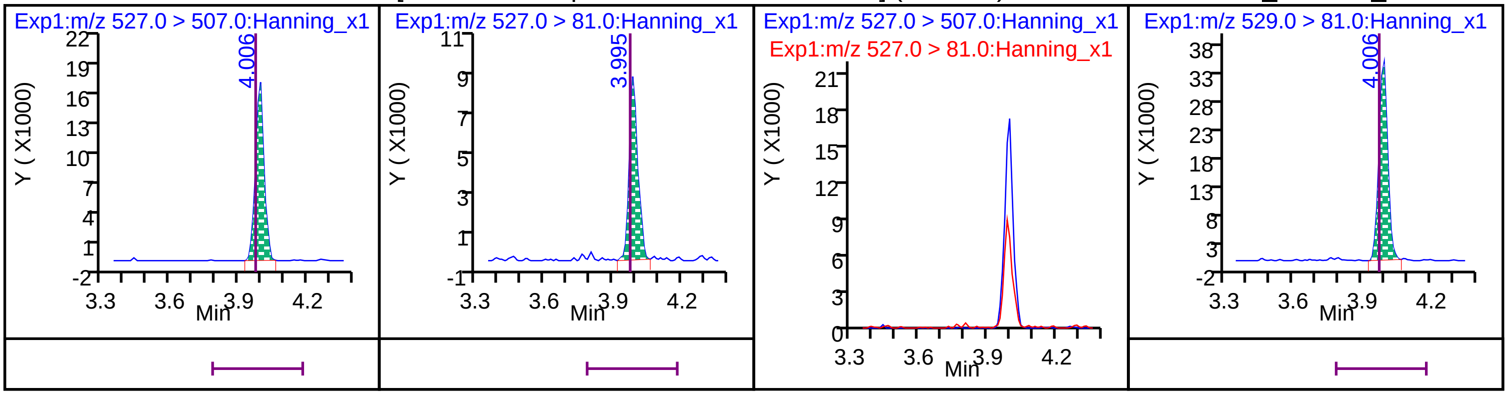
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



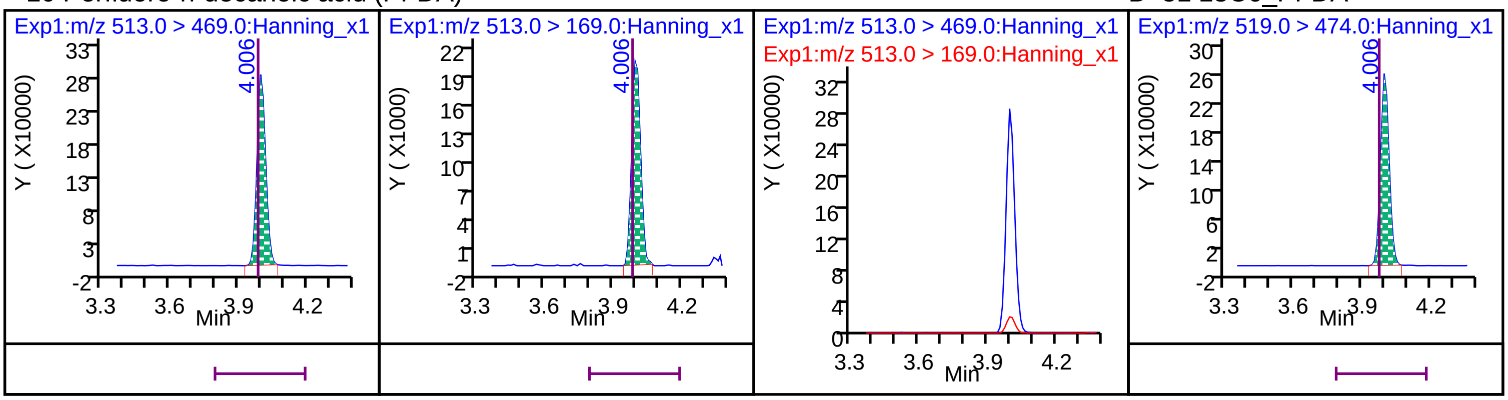
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



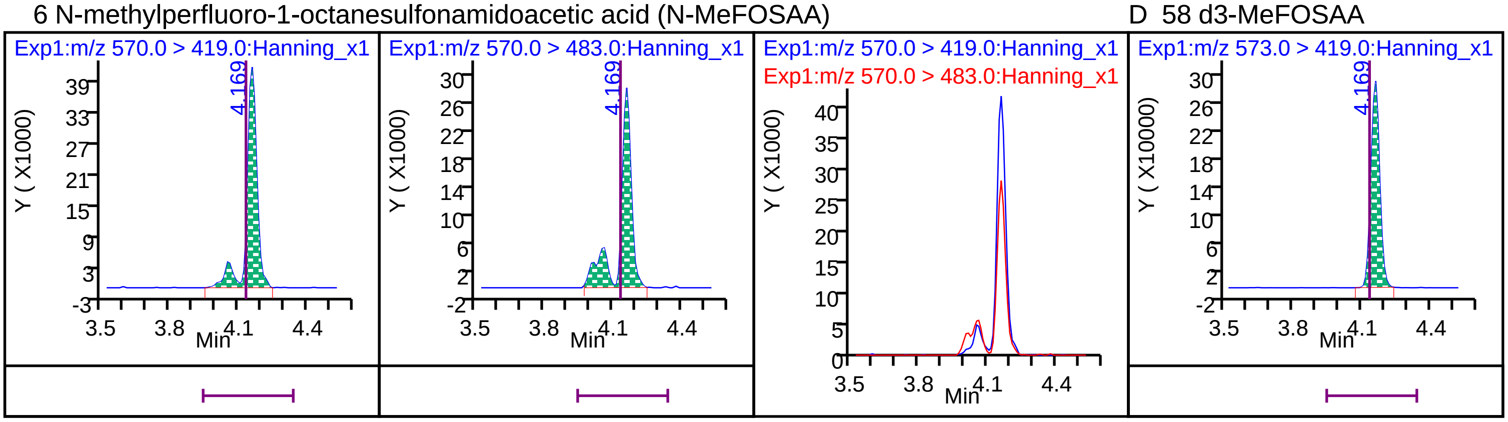
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



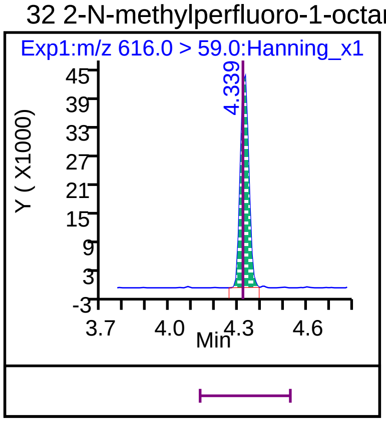
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

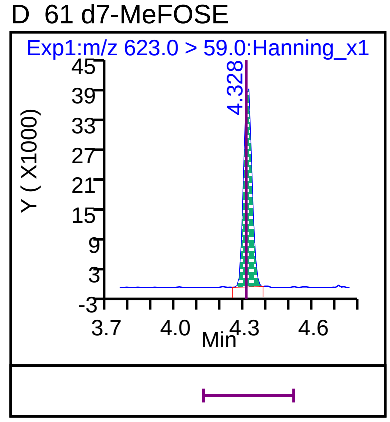


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

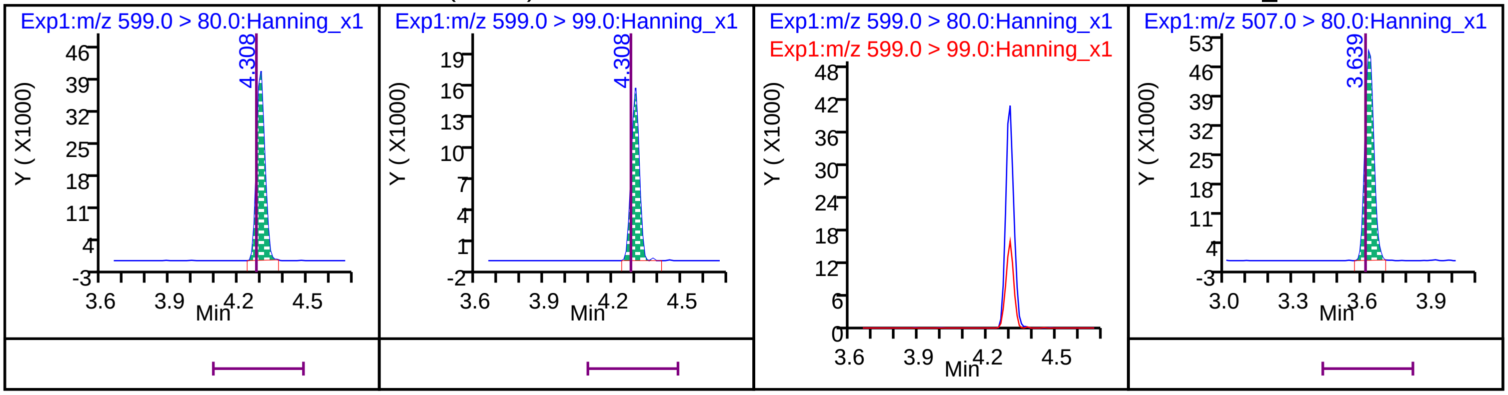


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

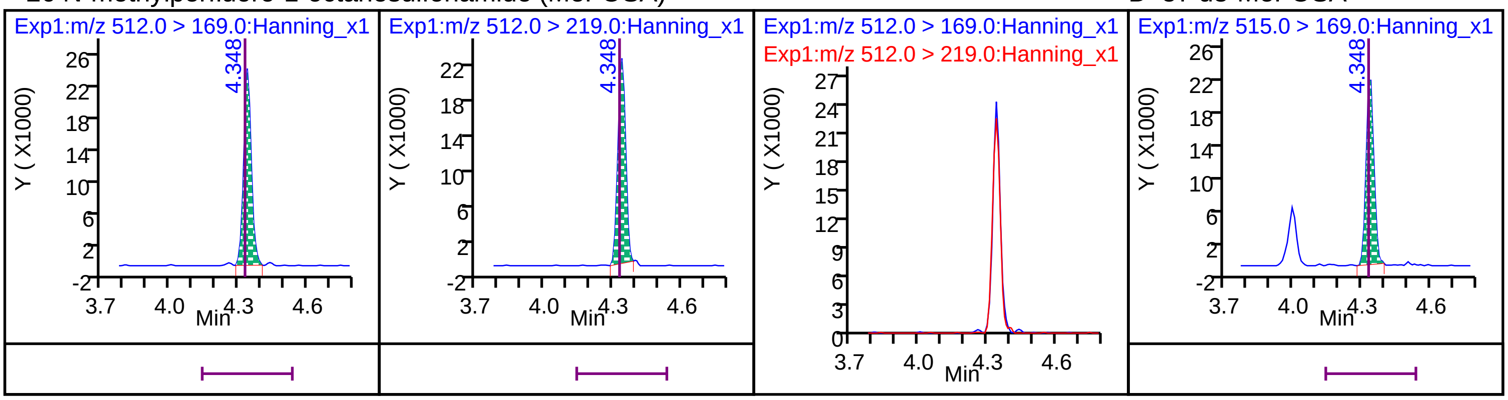




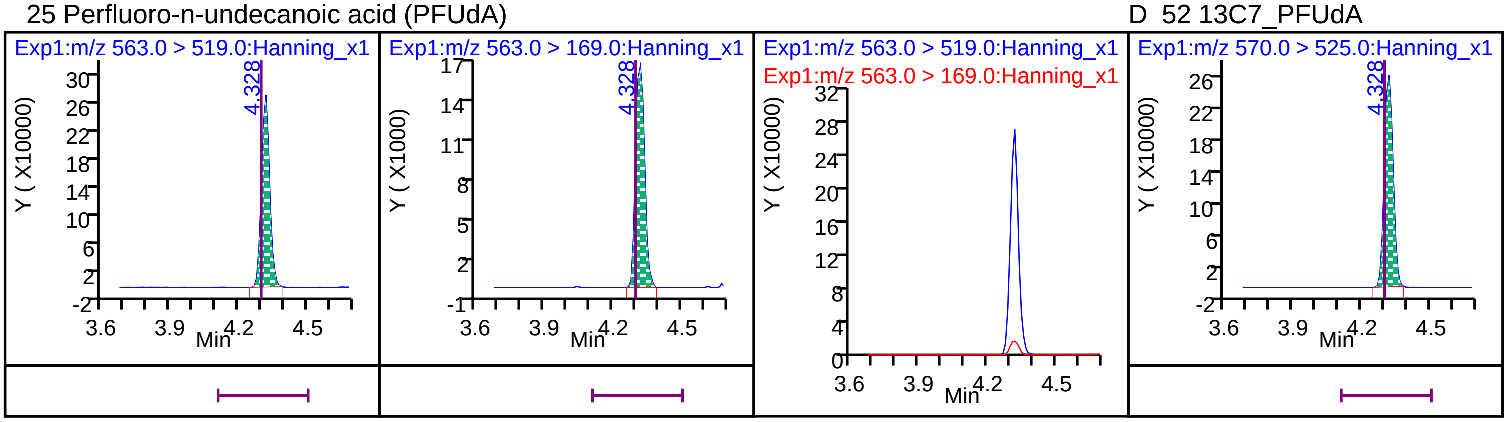
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



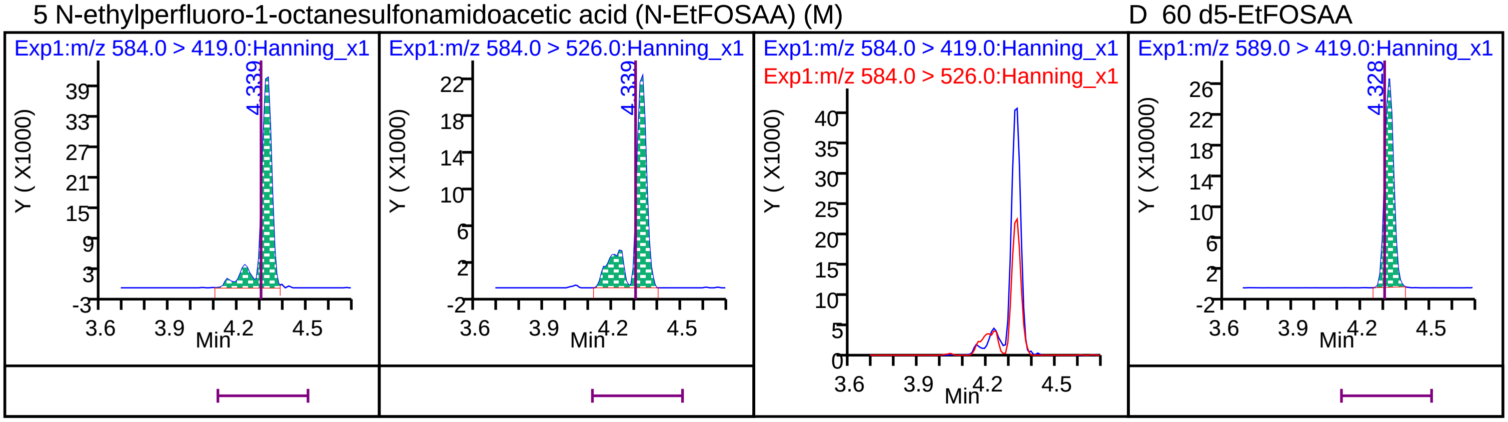
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



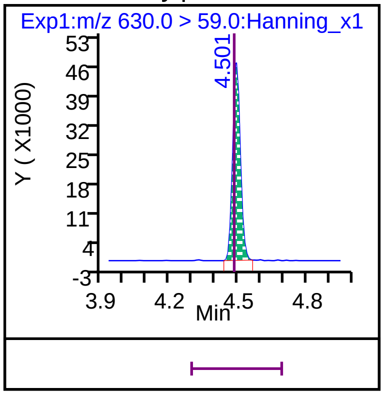
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



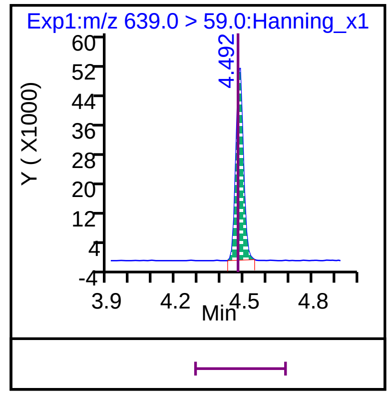
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



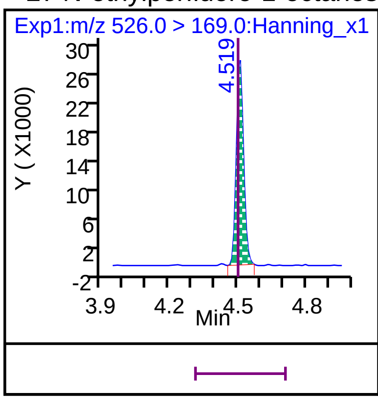
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

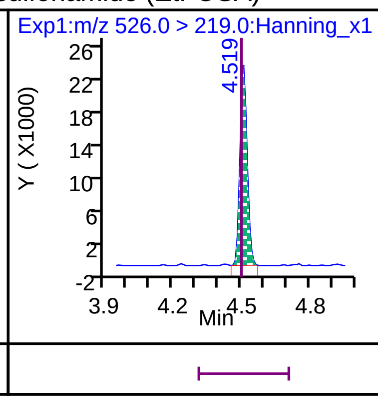


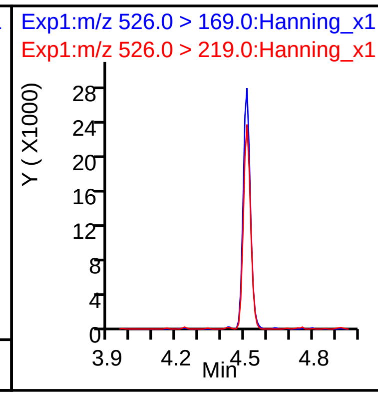
D 62 d9-EtFOSE



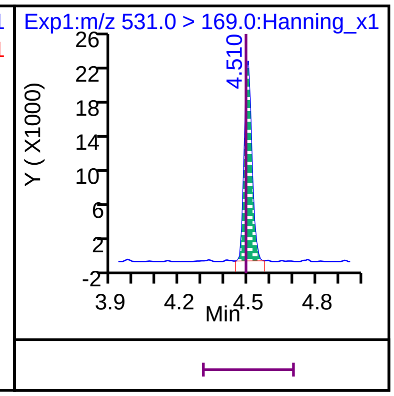
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



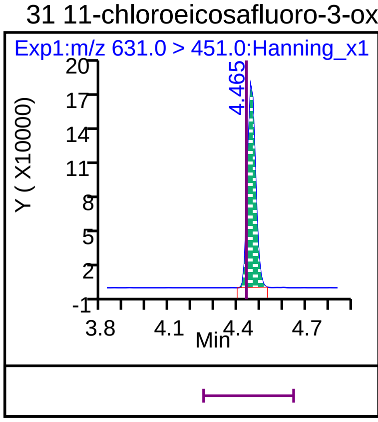




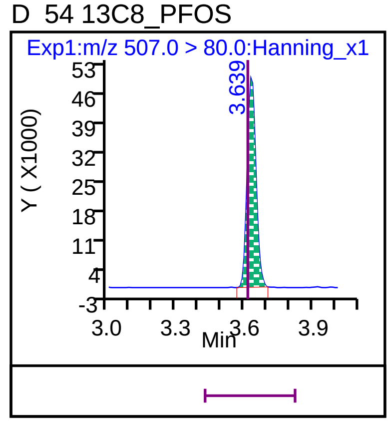
D 59 d5-EtFOSA



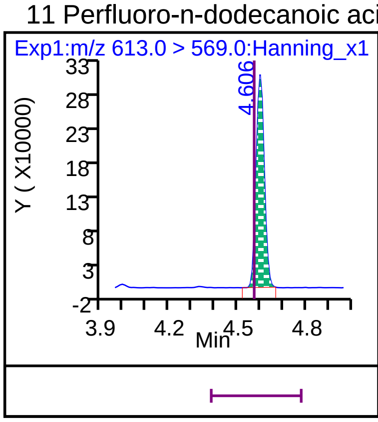
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

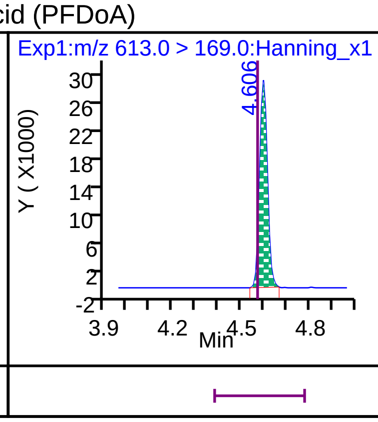


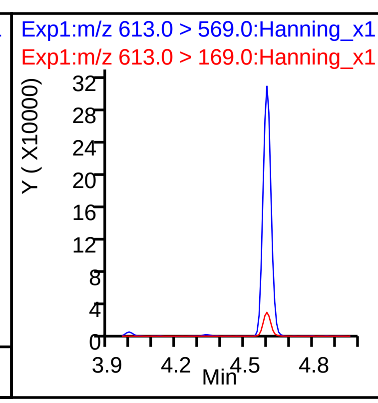
D 54 13C8_PFOS



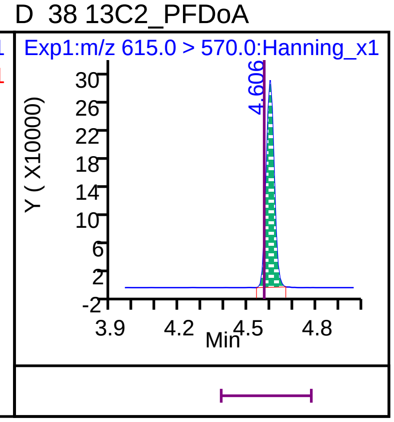
11 Perfluoro-n-dodecanoic acid (PFDoA)



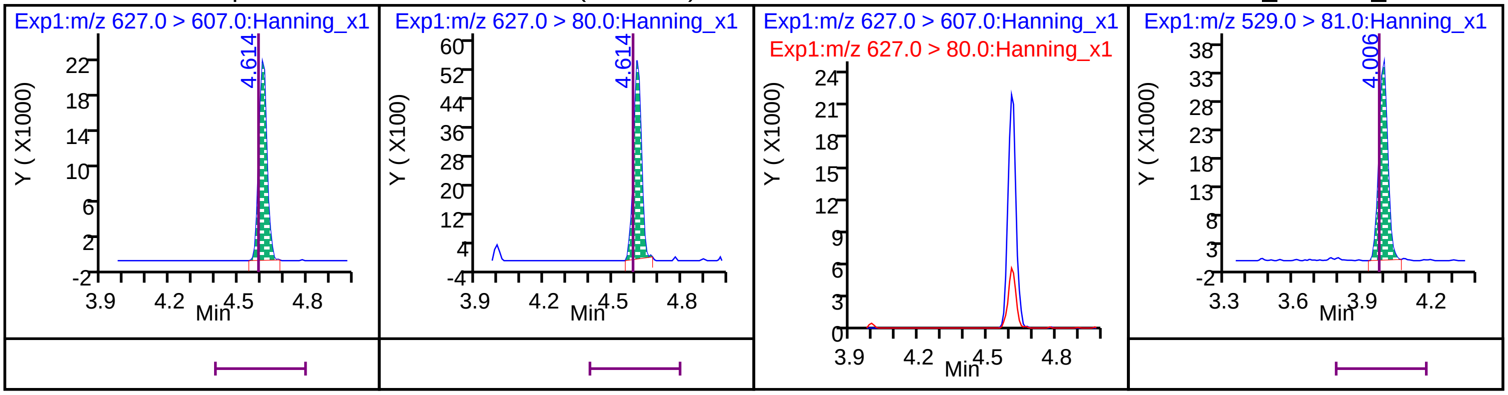




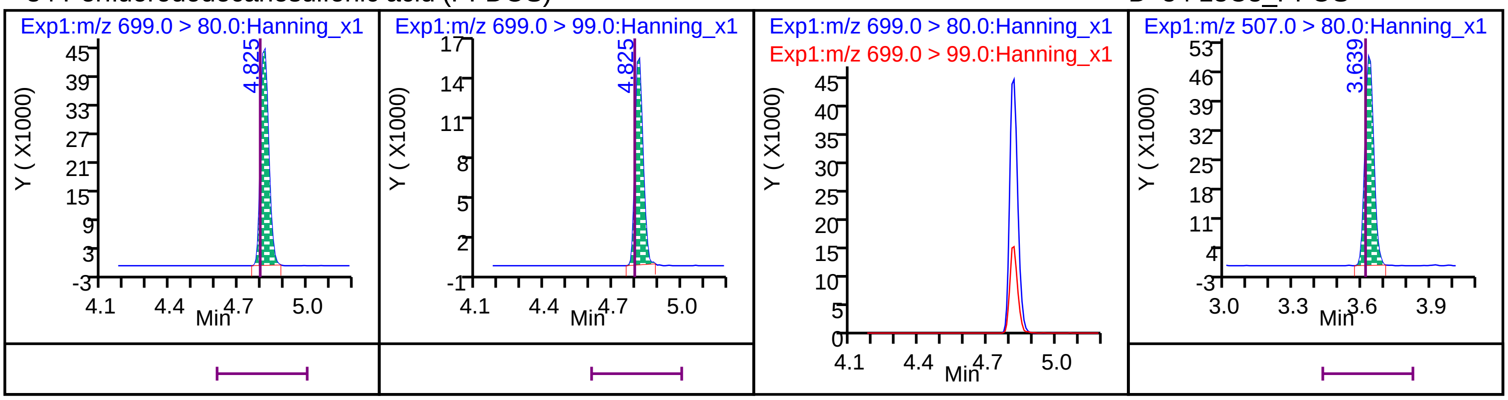
D 38 13C2_PFDoA



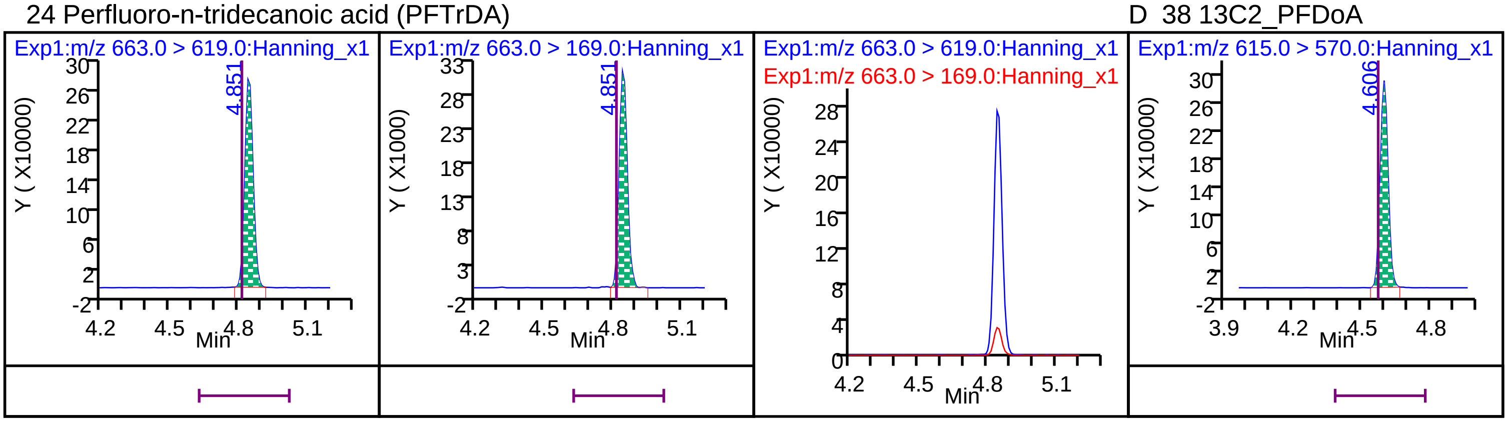
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



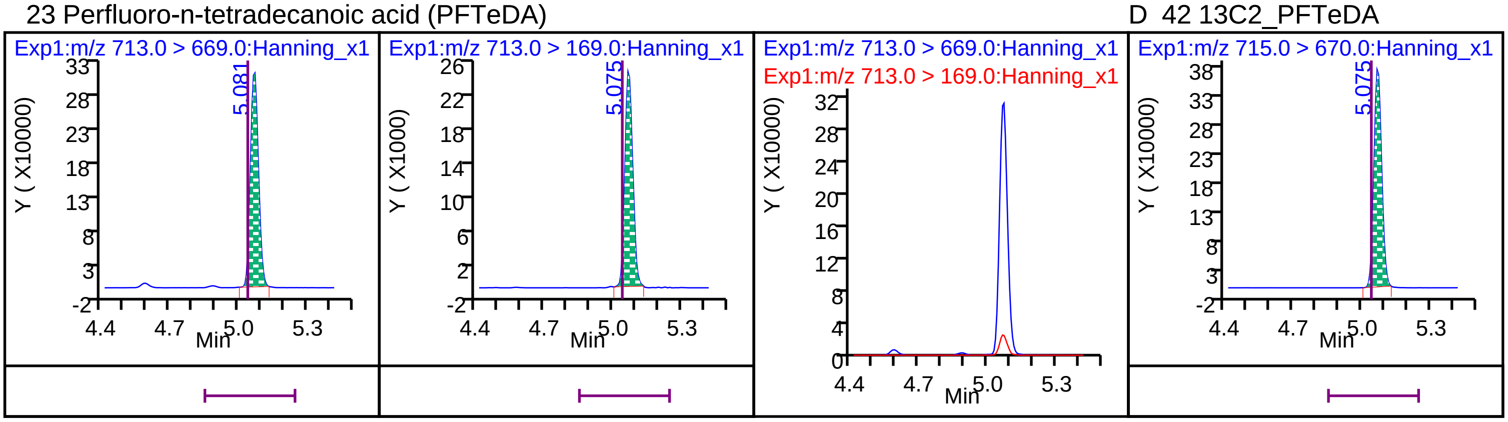
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



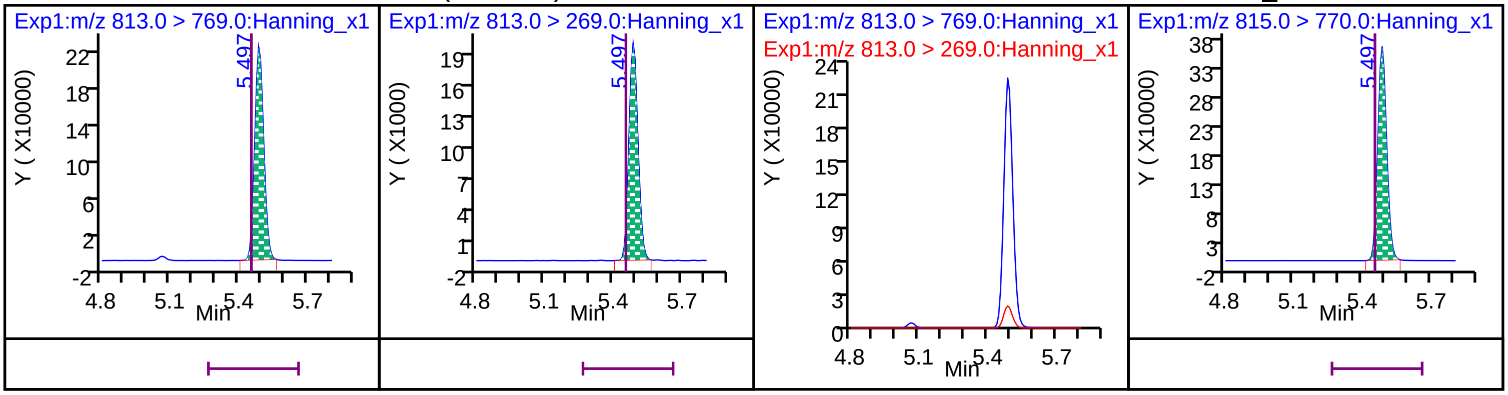
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



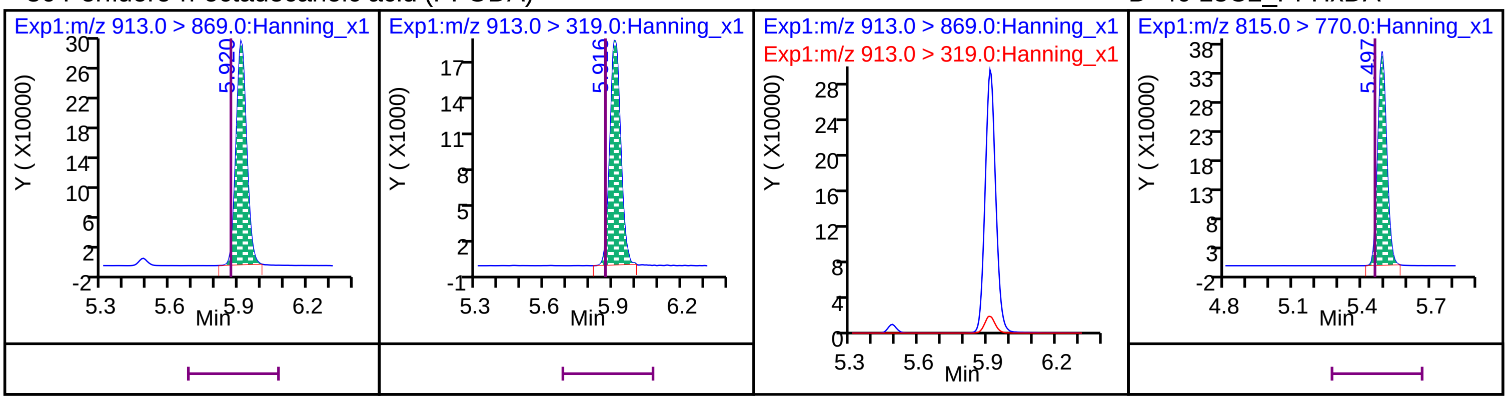
Report Date: 15-Nov-2021 10:46:28 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d

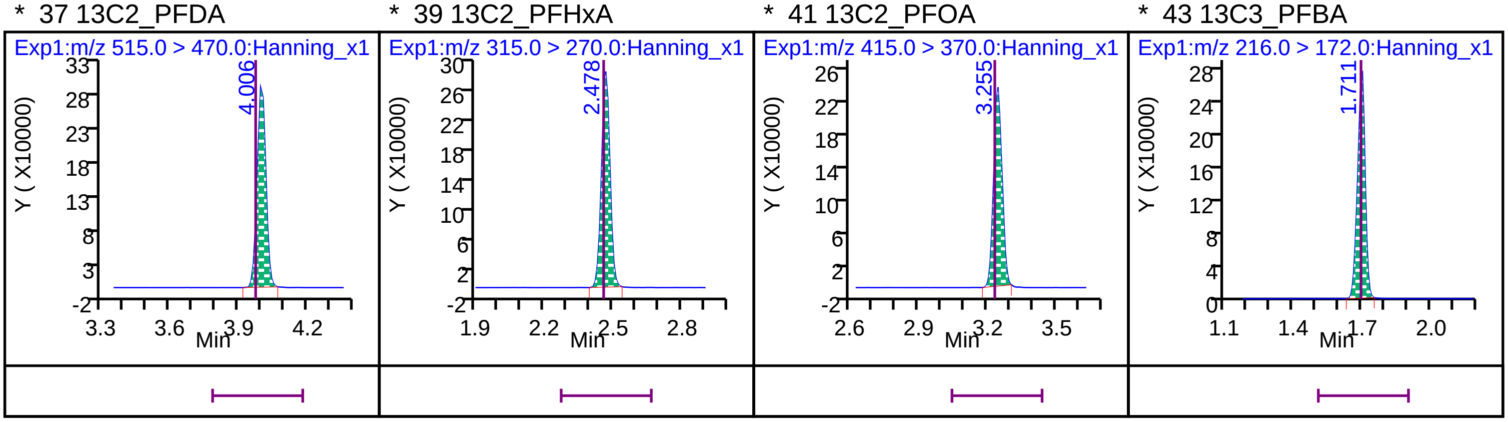
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



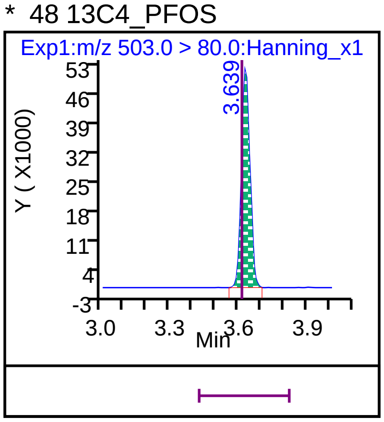
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d

Injection Date: 12-Nov-2021 19:36:47 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000_SVLC-1744

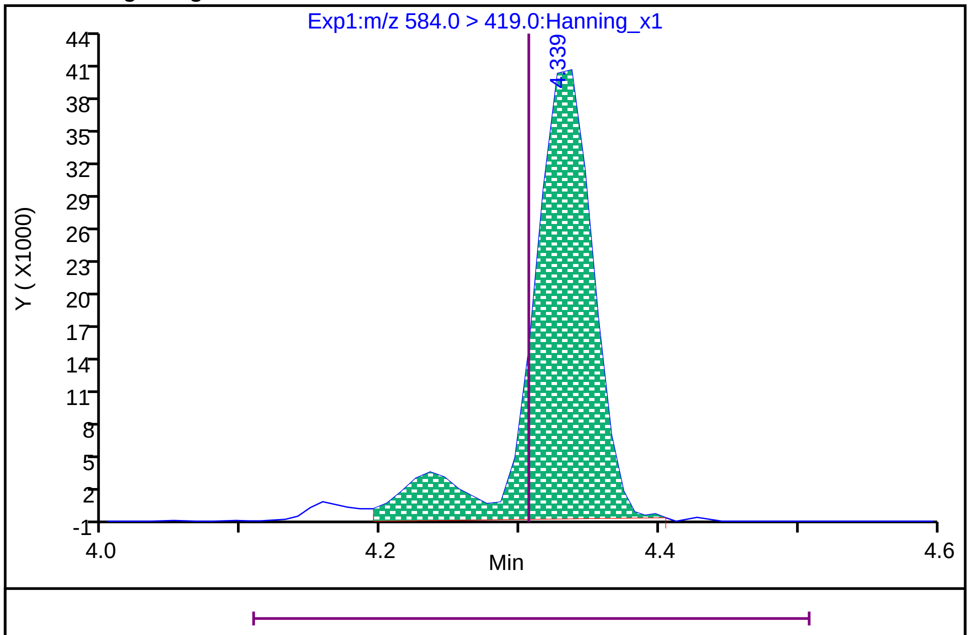
Sample Info: ID CCV 1000_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

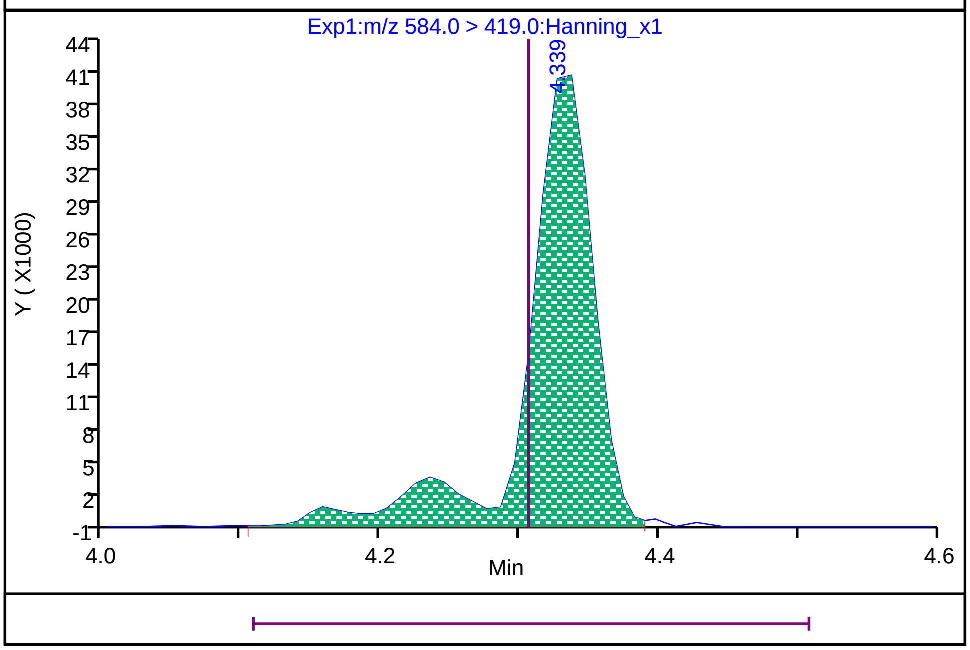
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.339
Area: 127476
Amount: 963.96
Amount Units: ng/L



RT: 4.339
Area: 134485
Amount: 1016.96
Amount Units: ng/L



Data Editor: justin.gavin, 14-Nov-2021 18:11:19

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

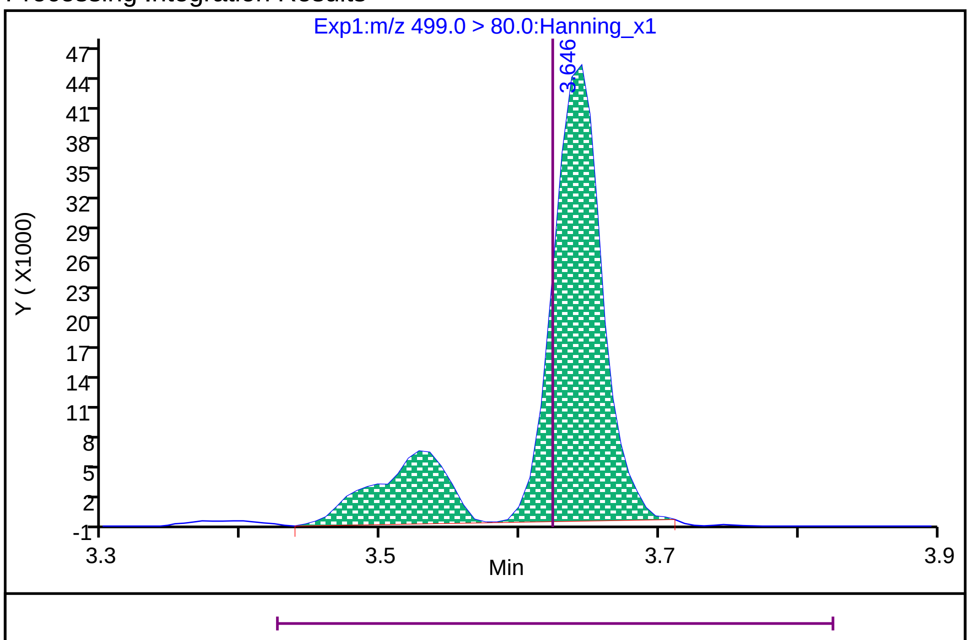
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221036.d		
Injection Date:	12-Nov-2021 19:36:47	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

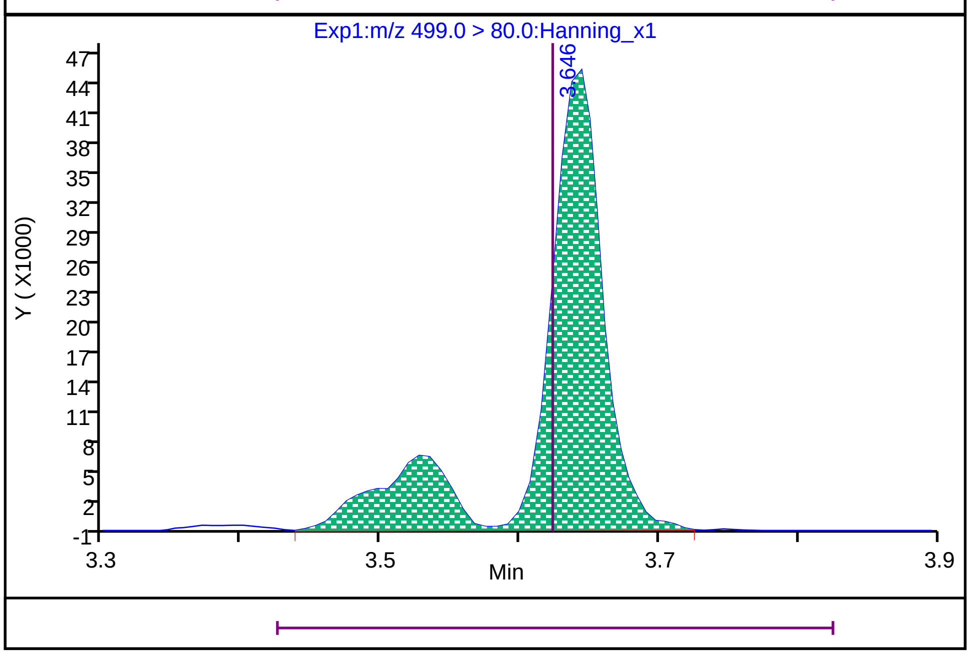
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.646
Area:	133429
Amount:	871.56
Amount Units:	ng/L



RT:	3.646
Area:	139470
Amount:	911.02
Amount Units:	ng/L



Data Editor: justin.gavin, 14-Nov-2021 18:11:07

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d		
Injection Date:	12-Nov-2021 21:32:43	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	45
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	978.71	97.9	70 - 130
D 46 13C4_PFBA	606707	719229			118.5	50 - 150
21 PFPeA			1000.00	927.99	92.8	70 - 130
D 50 13C5_PFPeA	544569	650641			119.5	50 - 150
D 44 13C3_PFBS	162919	197332			121.1	50 - 150
7 PFBS			884.00	849.15	96.1	70 - 130
1 4:2 FTS			934.00	984.80	105.4	70 - 130
D 63 13C2_4:2 FTS_2	104453	121469			116.3	50 - 150
D 49 13C5_PFHxA	625283	743091			118.8	50 - 150
15 PFHxA			1000.00	1023.56	102.4	70 - 130
22 PFPeS			938.00	858.63	91.5	70 - 130
28 GenX			2000.00	1949.11	97.5	70 - 130
D 66 13C3_GenX	1101362	1260729			114.5	50 - 150
D 47 13C4_PFHpA	527441	629043			119.3	50 - 150
13 PFHpA			1000.00	985.51	98.6	70 - 130
D 45 13C3_PFHxS	115822	133542			115.3	50 - 150
14 PFHxS			910.00	939.62	103.3	70 - 130
29 ADONA			942.00	1030.12	109.4	70 - 130
D 64 13C2_6:2 FTS_2	83315	95225			114.3	50 - 150
2 6:2 FTS			948.00	1009.14	106.4	70 - 130
20 PFOA			1000.00	1082.25	108.2	70 - 130
D 53 13C8_PFOA	513896	598339			116.4	50 - 150
12 PFHpS			952.00	939.44	98.7	70 - 130
D 54 13C8_PFOS	109523	145304			132.7	50 - 150
18 PFOS			928.00	821.84	88.6	70 - 130
17 PFNA			1000.00	1098.80	109.9	70 - 130
D 56 13C9_PFNA	589389	668173			113.4	50 - 150
30 9Cl-PF3ONS			932.00	905.75	97.2	70 - 130
D 55 13C8_PFOSA	227854	283783			124.5	50 - 150
19 PFOSA			1000.00	1003.28	100.3	70 - 130
16 PFNS			960.00	897.94	93.5	70 - 130
10 PFDA			1000.00	1027.28	102.7	70 - 130
3 8:2 FTS			958.00	921.16	96.2	70 - 130
D 51 13C6_PFDA	593235	688165			116	50 - 150
D 65 13C2_8:2 FTS_2	82251	107768			131	50 - 150
6 N-MeFOSAA			1000.00	927.00	92.7	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	661512	772050			116.7	50 - 150
D 61 d7-MeFOSE	81767	95610			116.9	50 - 150
32 MeFOSE			1000.00	1081.23	108.1	70 - 130
26 MeFOSA			1000.00	857.11	85.7	70 - 130
D 57 d3-MeFOSA	42739	51965			121.6	50 - 150
9 PFDS			964.00	881.92	91.5	70 - 130
D 52 13C7_PFUdA	631780	736920			116.6	50 - 150
D 60 d5-EtFOSAA	606735	749513			123.5	50 - 150
25 PFUdA			1000.00	1002.56	100.3	70 - 130
5 N-EtFOSAA			1000.00	939.82	94	70 - 130
D 62 d9-EtFOSE	95636	108691			113.7	50 - 150
33 EtFOSE			1000.00	1123.54	112.4	70 - 130
D 59 d5-EtFOSA	36158	48741			134.8	50 - 150
31 11Cl-PF3OUDS			942.00	918.84	97.5	70 - 130
27 EtFOSA			1000.00	969.32	96.9	70 - 130
D 38 13C2_PFDoA	608629	762532			125.3	50 - 150
11 PFDoA			1000.00	1058.57	105.9	70 - 130
4 10:2 FTS			964.00	1157.01	120	70 - 130
34 PFDOS			968.00	877.38	90.6	70 - 130
24 PFTrDA			1000.00	1025.84	102.6	70 - 130
D 42 13C2_PFTeDA	786507	1076291			136.8	50 - 150
23 PFTeDA			1000.00	934.87	93.5	70 - 130
D 40 13C2_PFHxDA	876588	1014744			115.8	50 - 150
35 PFHxDA			1000.00	956.98	95.7	70 - 130
36 PFODA			1000.00	976.16	97.6	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d		
Injection Date:	12-Nov-2021 21:32:43	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	45
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	719229	21	>100:1			1000.00	1156.92	118.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.705	1.712	0/0	742371	21	>100:1			1000.00	978.71		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.099	0	650641	16	>100:1			1000.00	1138.30	119.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.088	2.099	0/0	679563	15	>100:1			1000.00	927.99		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	0	197332	15	>100:1			1000.00	1140.85	121.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.151	0/0	208958	15	>100:1	Target = 3.53		884.00	849.15		
298.9 > 99	44	2.151	2.151		65757	14	>100:1	3.17 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/0	157027	17	>100:1	Target = 3.10		938.00	858.63		
349 > 99	44	2.496	2.505		51707	17	>100:1	3.03 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.425	0	121469	18	>100:1			5000.00	5364.36	116.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.425	2.433	0/0	52739	16	>100:1	Target = 1.75		934.00	984.80		
327 > 81	63	2.425	2.433		28789	19	64:1	1.83 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	743091	16	>100:1			1000.00	1140.96	118.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	0/0	790842	19	>100:1	Target = 18.91		1000.00	1023.56		
313 > 119	49	2.469	2.469		39412	17	>100:1	20.06 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1260729	18	>100:1			5000.00	5439.89	114.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	0/0	318284	19	>100:1	Target = 0.79		2000.00	1949.11		
285 > 185	66	2.583	2.583		409358	18	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	629043	17	>100:1			1000.00	1184.78	119.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	681196	18	>100:1	Target = 3.80		1000.00	985.51		
363 > 169	47	2.845	2.845		181174	18	>100:1	3.75 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	0	133542	18				1000.00	1062.90	115.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	0/0	137949	26	>100:1	Target = 2.89	4.71	910.00	939.62		
399 > 99	45	2.864	2.864		43421	26	>100:1	3.17 (1.44-4.34)	6.79				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.888	2.888	0/0	1066847	18	>100:1	Target = 3.23		942.00	1030.12		
377 > 85	45	2.888	2.888		307606	20	>100:1	3.46 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.241	3.241	0/0	128850	28	>100:1	Target = 3.12		952.00	939.44		
449 > 99	45	3.241	3.241		45742	17	>100:1	2.81 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.214	0	95225	21	>100:1			5000.00	5290.29	114.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.214	3.214	0/0	45496	20		Target = 1.75		948.00	1009.14		
427 > 81	64	3.214	3.214		26086	22	70:1	1.74 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.241	3.241	0	598339	22	>100:1			1000.00	1140.40	116.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.241	3.241	0/0	663580	21	>100:1	Target = 2.89		1000.00	1082.25		
413 > 169	53	3.241	3.241		210007	20	>100:1	3.15 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.625	3.625	0	145304	18	>100:1			1000.00	1173.29	132.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.625	3.625	0/0	142187	37	>100:1	Target = 3.30	3.91	928.00	821.84		M
499 > 99	54	3.617	3.625		40771	34	>100:1	3.48 (1.65-4.95)	6.97				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.838	3.838	1/1	498419	18	>100:1			932.00	905.75		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.974	3.974	1/1	104678	15	>100:1	Target = 3.08		960.00	897.94		
549 > 99	54	3.974	3.974		41579	14	>100:1	2.51 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.288	4.288	1/1	100279	15	>100:1	Target = 2.72		964.00	881.92		
599 > 99	54	4.288	4.288		34742	14	>100:1	2.88 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.446	4.446	1/1	457096	18	>100:1			942.00	918.84		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.799	4.804	0/0	109624	19	>100:1	Target = 3.27		968.00	877.38		
699 > 99	54	4.799	4.804		36297	18		3.02 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.625	3.632	0	668173	20	>100:1			1000.00	1043.40	113.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.632	3.632	0/0	791358	22	>100:1	Target = 6.51		1000.00	1098.80		
463 > 169	56	3.632	3.632		112334	20	>100:1	7.04 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.904	0	283783	18	>100:1			1000.00	1058.66	124.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.888	3.904	0/0	299572	17	>100:1	Target = 41.63		1000.00	1003.28		
498>478	55	3.896	3.904		10634	24	88:1	28.17 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.985	3.984	1	688165	16	>100:1			1000.00	1197.52	116	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.985	3.995	0/-1	822699	17	>100:1	Target = 13.80		1000.00	1027.28		
513 > 169	51	3.985	3.995		57861	14	>100:1	14.21 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.974	3.984	0	107768	17	>100:1			5000.00	6234.95	131	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.985	3.984	1/1	44863	19	>100:1	Target = 1.94		958.00	921.16		
527 > 81	65	3.985	3.984		21810	14	54:1	2.05 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.589	4.597	0/0	63257	20		Target = 3.54		964.00	1157.01		
627 > 80	65	4.589	4.597		19284	18	76:1	3.28 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.143	4.142	1	772050	18	>100:1			5000.00	5109.11	116.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.143	4.142	1/0	114857	31	>100:1	Target = 1.37	7.20	1000.00	927.00		
570 > 483	58	4.152	4.142		92911	32	>100:1	1.23 (0.68-2.05)	4.12				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.298	4.318	-1	95610	14	>100:1			1000.00	1060.11	116.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.318	4.328	0/1	112974	14	>100:1			1000.00	1081.23		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.338	-1	51965	13	>100:1			1000.00	1104.67	121.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.328	4.338	0/1	48276	14	>100:1	Target = 1.11		1000.00	857.11		
512 > 219	57	4.328	4.338		49797	13	>100:1	0.96 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.308	4.308	1	749513	15	>100:1			5000.00	5787.16	123.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.308	4.308	1/0	137366	35	>100:1	Target = 1.51	6.09	1000.00	939.82		M
584 > 526	60	4.308	4.308		83839	29	>100:1	1.63 (0.75-2.26)	3.45				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.298	4.308	0	736920	15	>100:1			1000.00	1223.61	116.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.308	4.308	1/1	715880	17	>100:1	Target = 14.52		1000.00	1002.56		
563 > 169	52	4.308	4.308		48606	21	>100:1	14.72 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.464	4.482	-1	108691	15	>100:1			1000.00	1024.64	113.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.483	4.492	0/1	118880	14	>100:1			1000.00	1123.54		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.492	4.501	0	48741	15	>100:1			1000.00	1133.51	134.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.492	4.510	-1/-1	56644	14	>100:1	Target = 1.06		1000.00	969.32		
526 > 219	59	4.492	4.510		56810	15	>100:1	0.99 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.580	4.580	1	762532	18	>100:1			1000.00	1270.17	125.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.580	4.580	1/0	860529	16	>100:1	Target = 10.70		1000.00	1058.57		
613 > 169	38	4.580	4.580		76494	16	>100:1	11.24 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.825	4.825	1/0	822202	20	>100:1	Target = 8.31		1000.00	1025.84		
663 > 169	38	4.834	4.825		90765	18	>100:1	9.05 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.050	5.050	1	1076291	22	>100:1			1000.00	1323.87	136.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.057	5.050	1/0	878341	21	>100:1	Target = 12.17		1000.00	934.87		
713 > 169	42	5.050	5.050		68215	22	>100:1	12.87 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.474	5.466	1	1014744	19	>100:1			1000.00	1169.01	115.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.474	5.466	1/0	621932	20	>100:1	Target = 10.43		1000.00	956.98		
813 > 269	40	5.474	5.466		54959	20	>100:1	11.31 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.891	5.877	1/0	901785	39	78:1	Target = 13.67		1000.00	976.16		
913 > 319	40	5.891	5.877		59247	38	>100:1	15.22 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.985	3.984	1	821493	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	0	768971	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.241	3.241	0	633640	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.705	1.705	0	661840	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.625	3.625	0	134516	20	>100:1			1000.00			

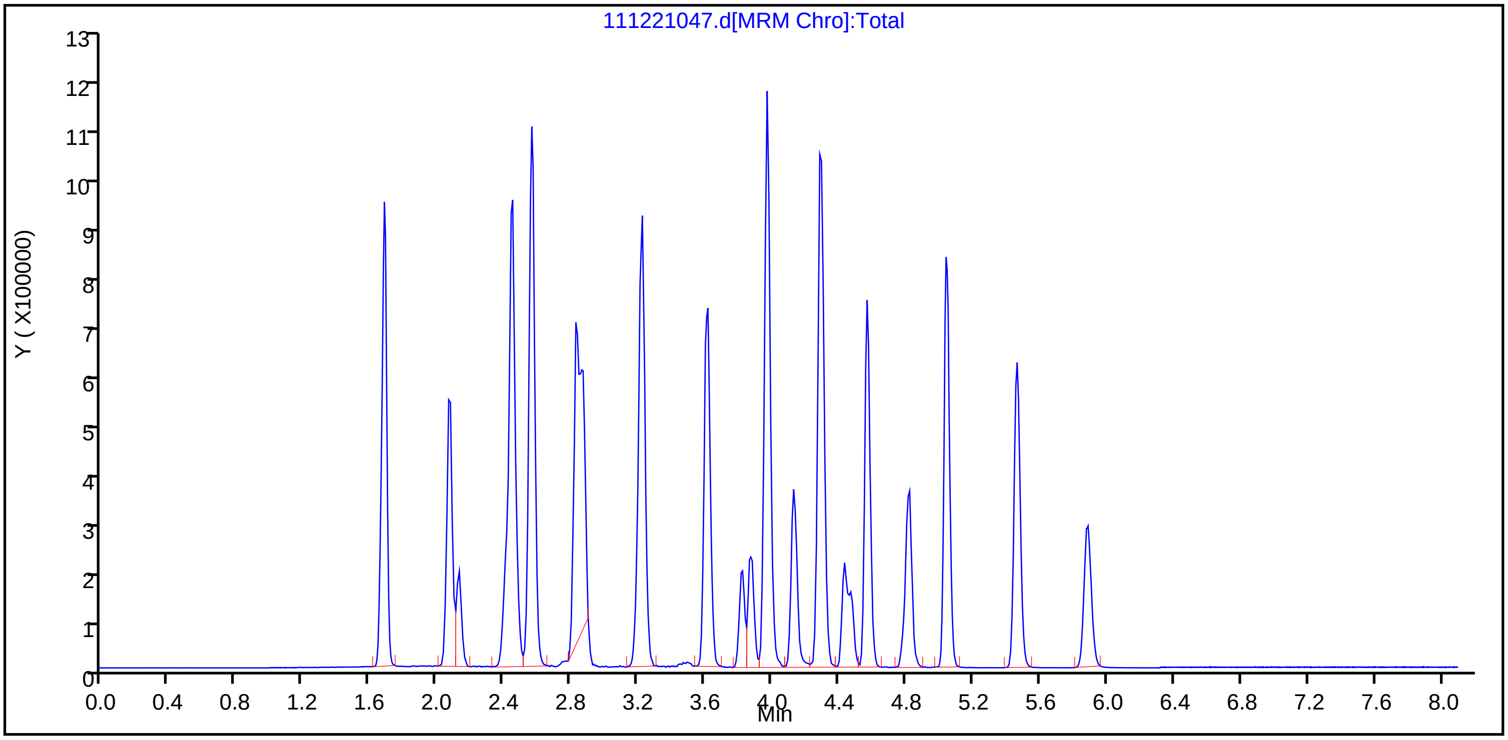
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

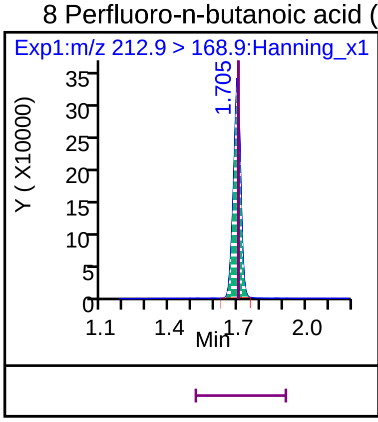
Report Date: 15-Nov-2021 10:46:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

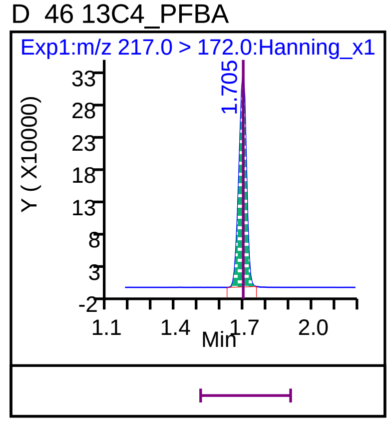
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d		
Injection Date:	12-Nov-2021 21:32:43	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



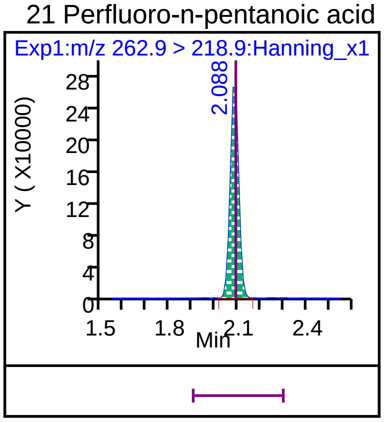
8 Perfluoro-n-butanoic acid (PFBA)



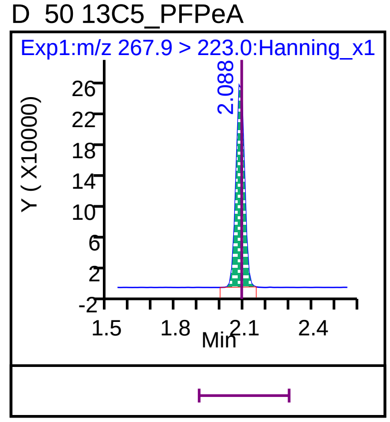
D 46 13C4_PFBA



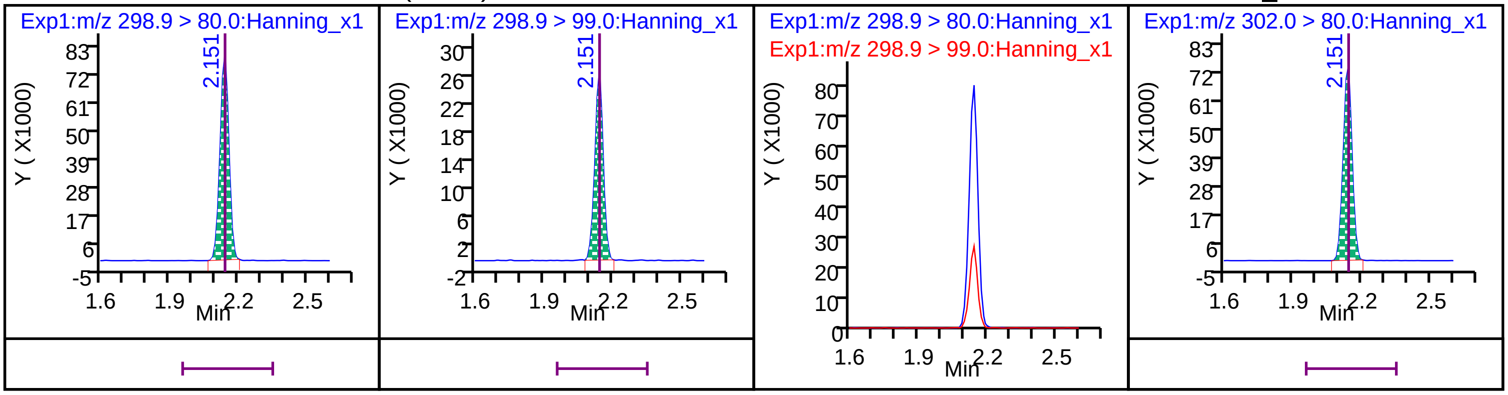
21 Perfluoro-n-pentanoic acid (PFPeA)



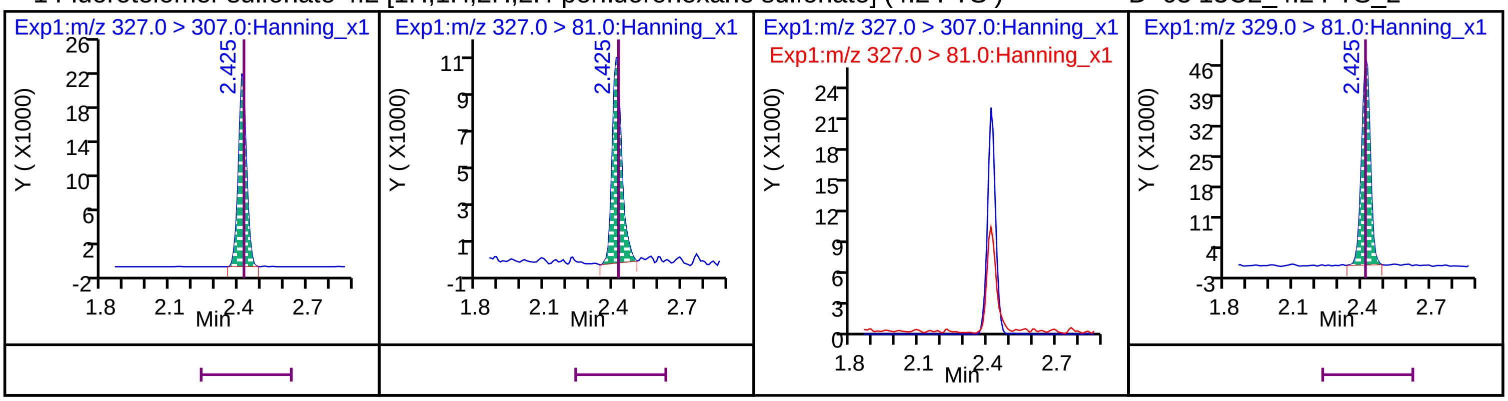
D 50 13C5_PFPeA



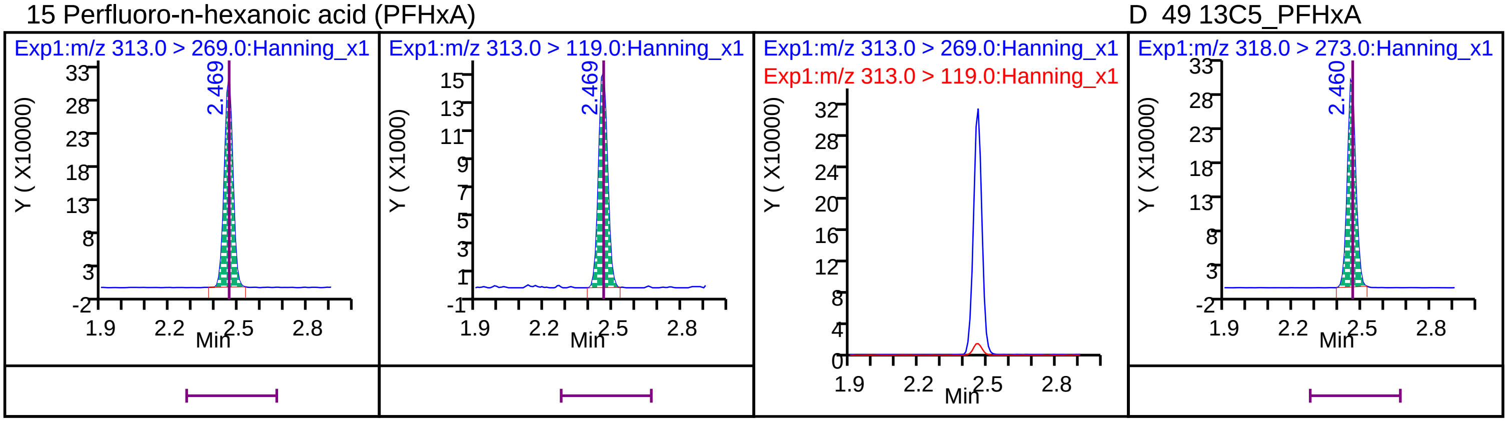
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



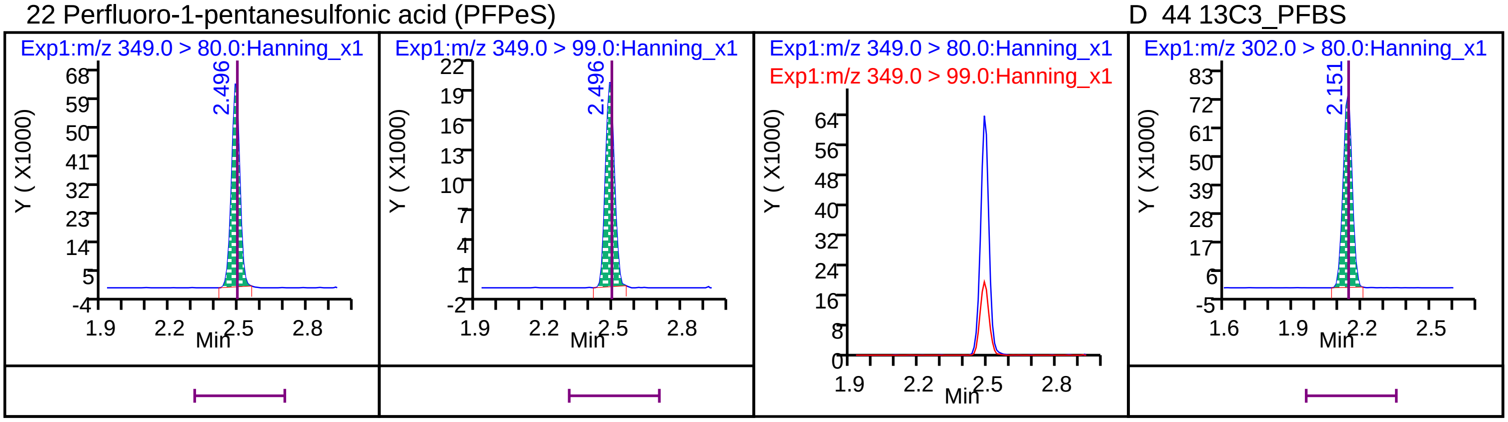
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



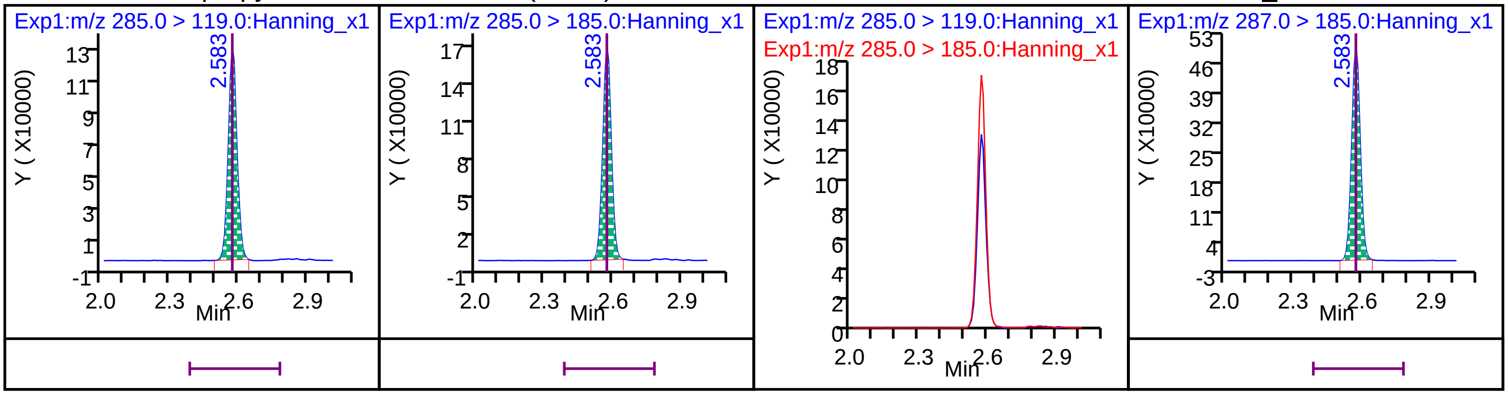
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



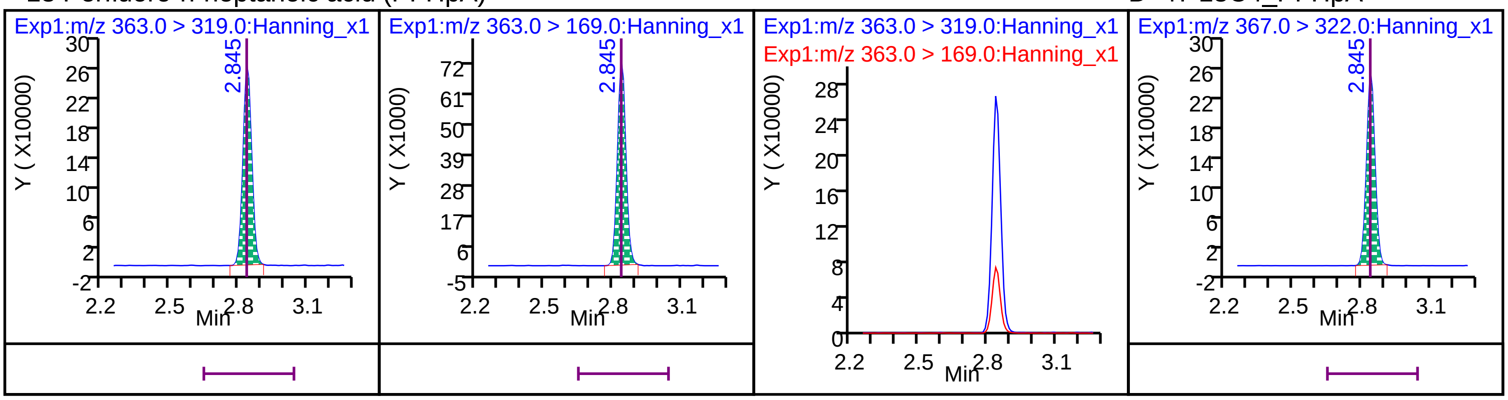
Report Date: 15-Nov-2021 10:46:30 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d

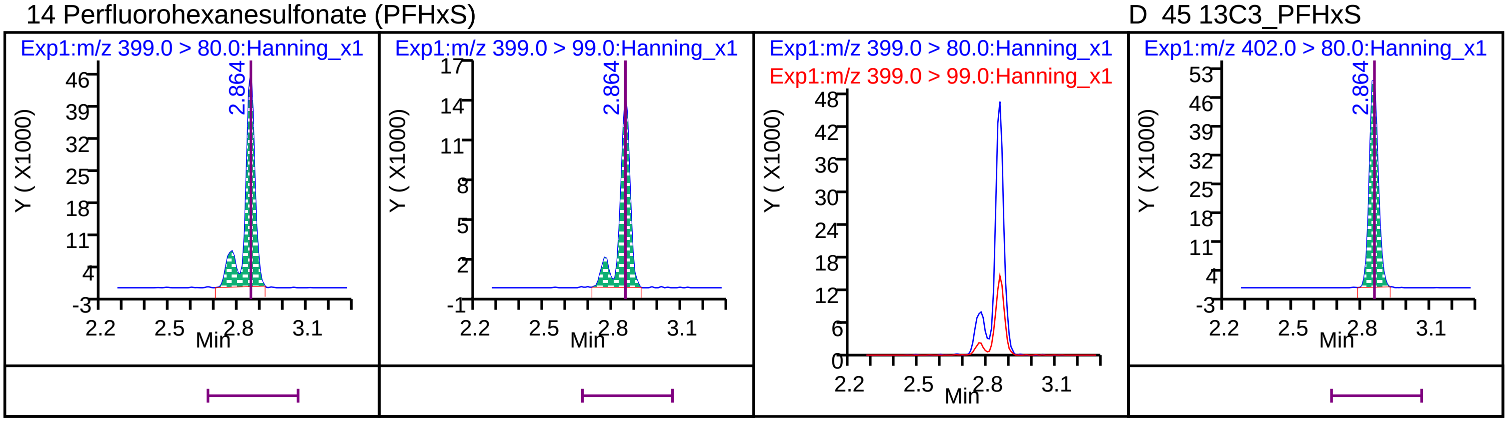
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



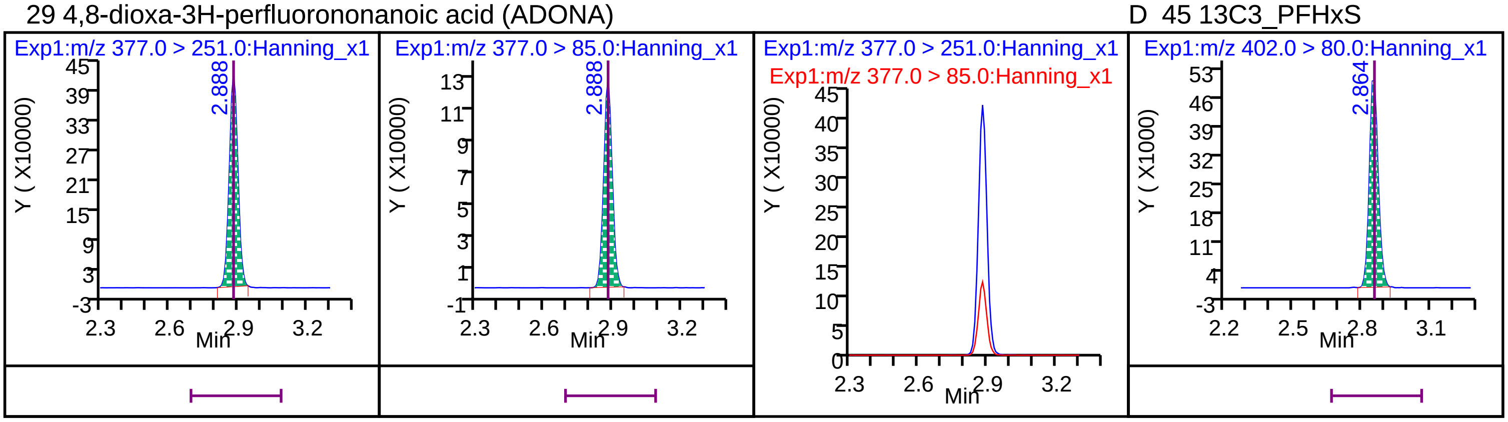
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

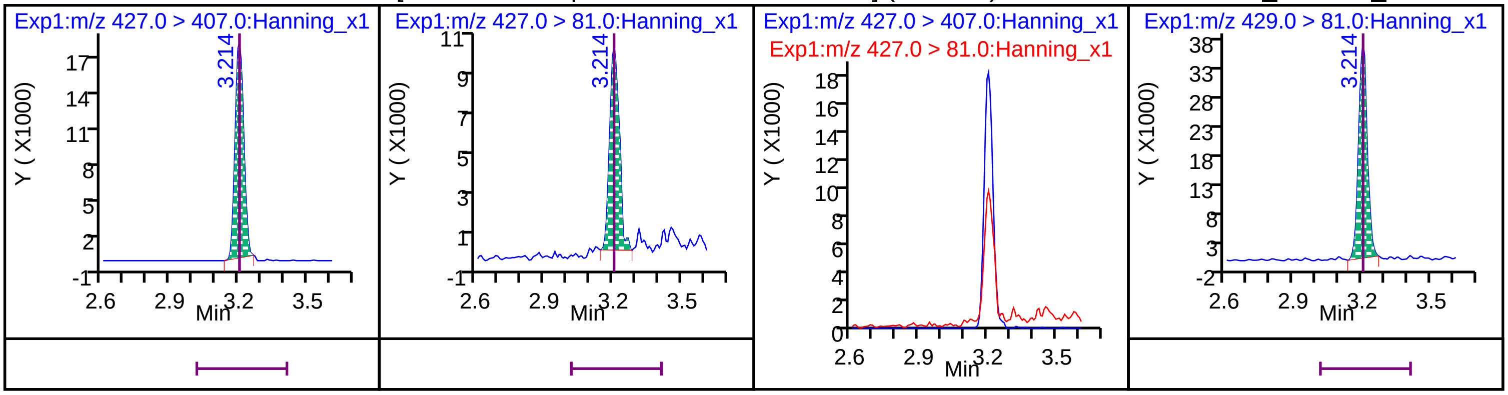


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

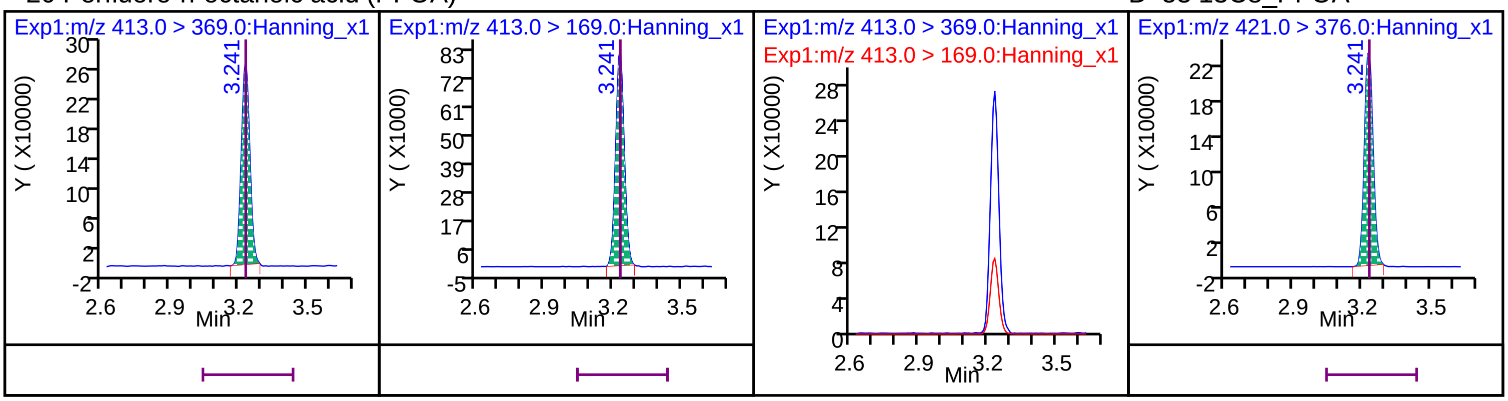


Report Date: 15-Nov-2021 10:46:30 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d

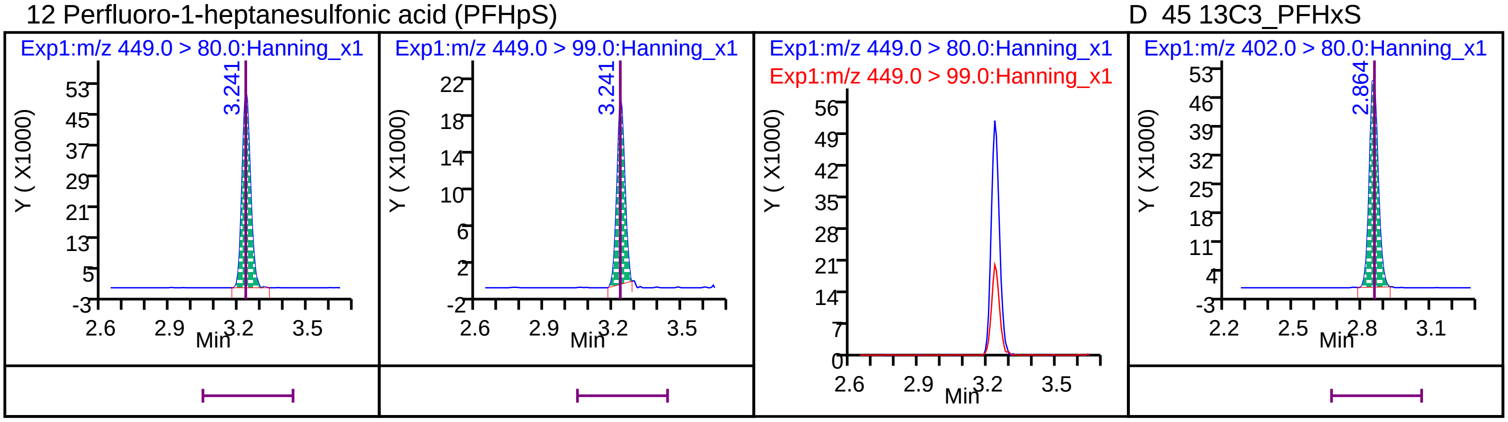
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



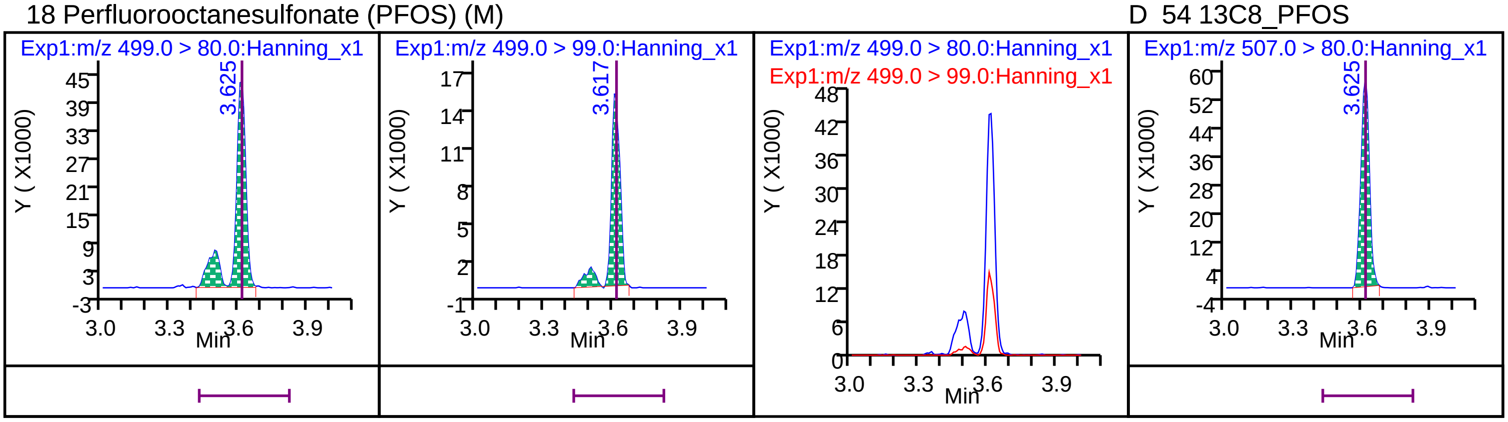
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



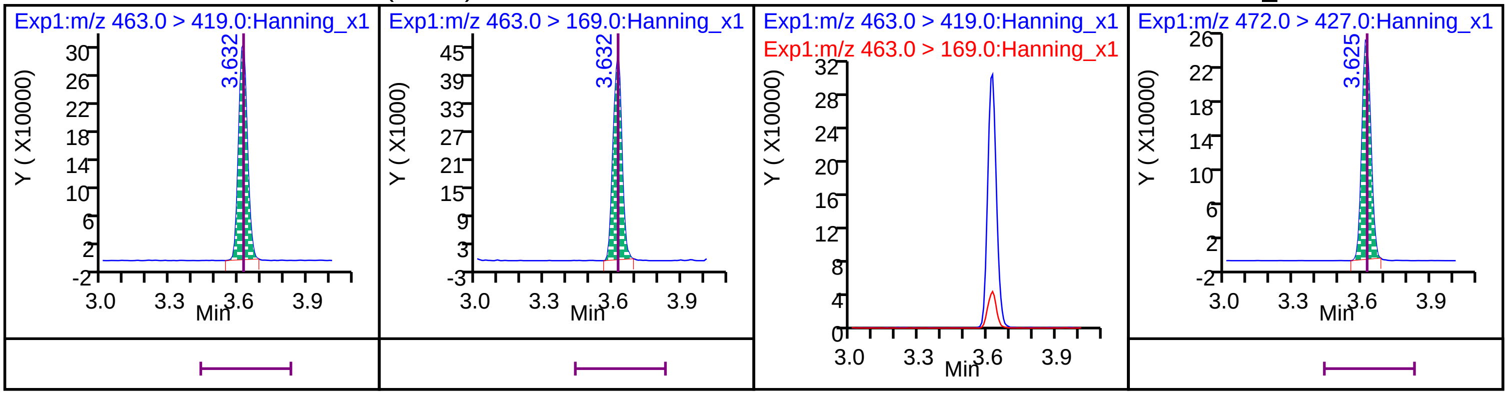
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



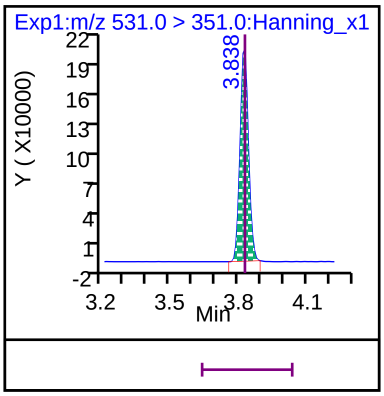
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

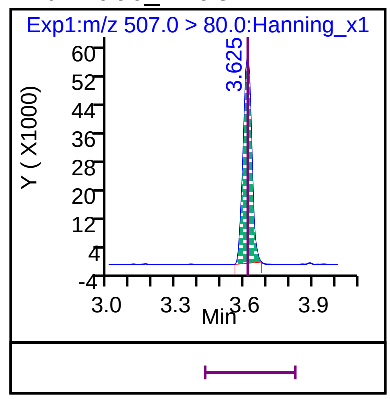


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

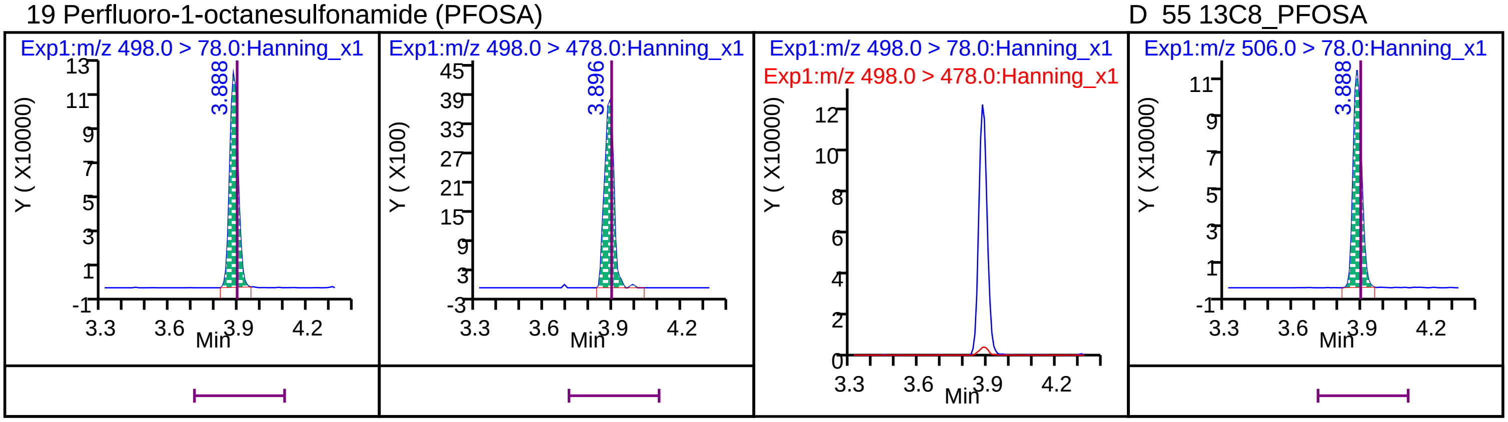


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

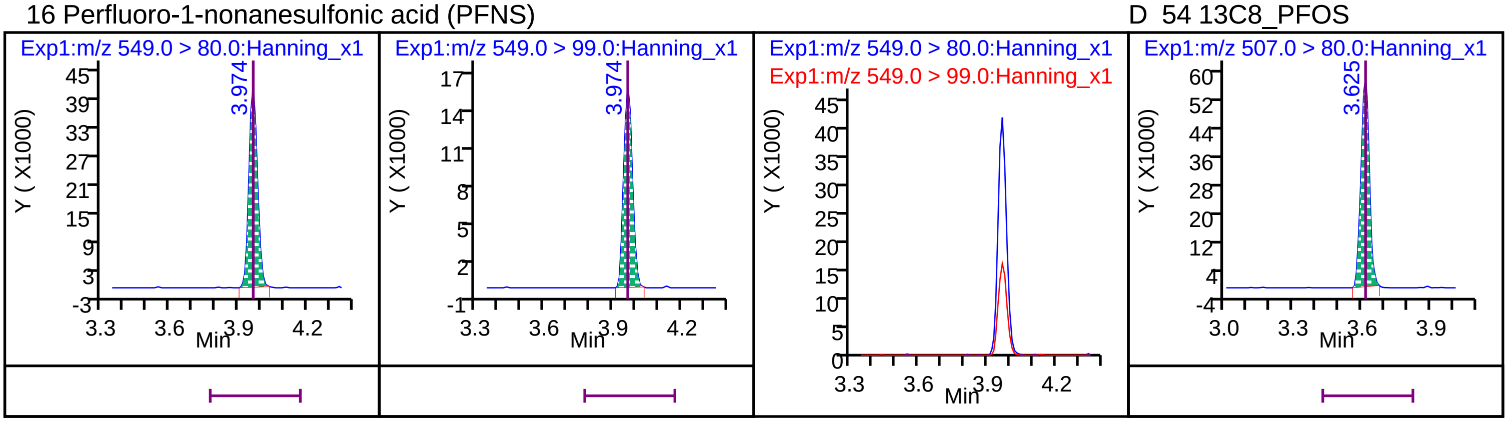




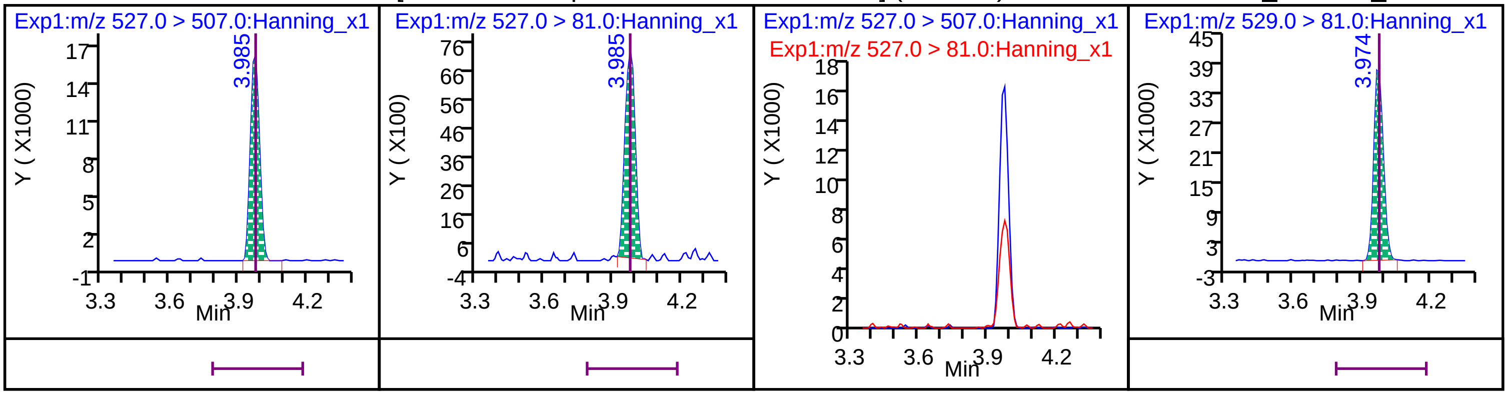
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



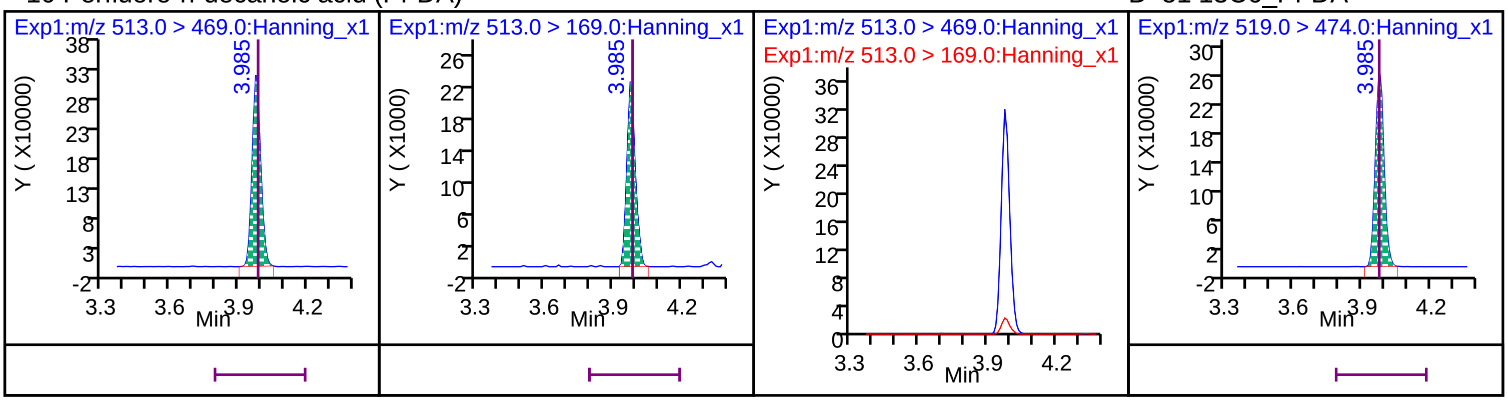
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



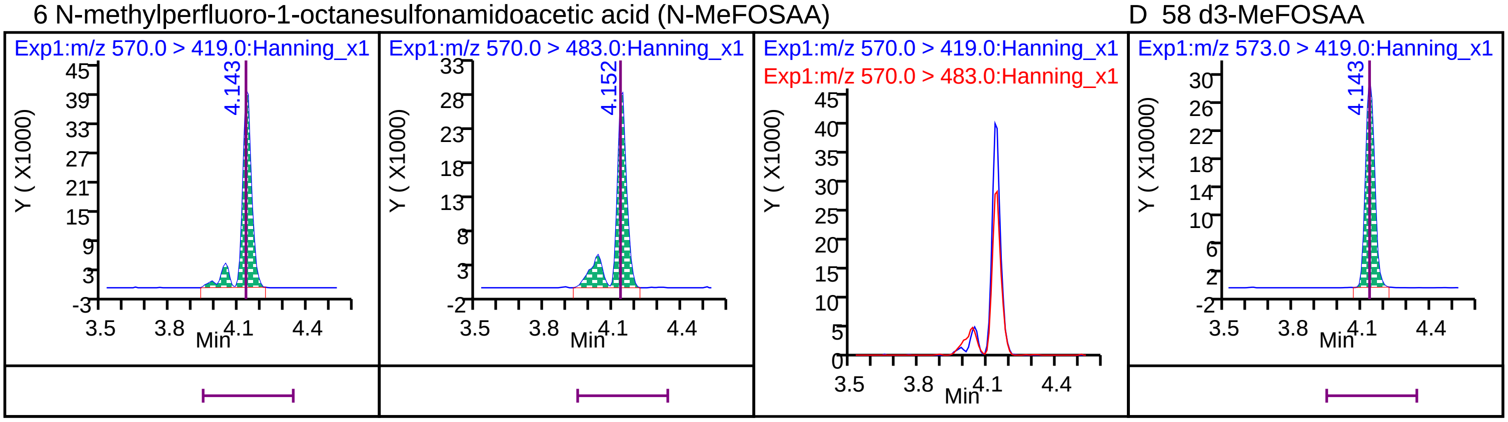
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

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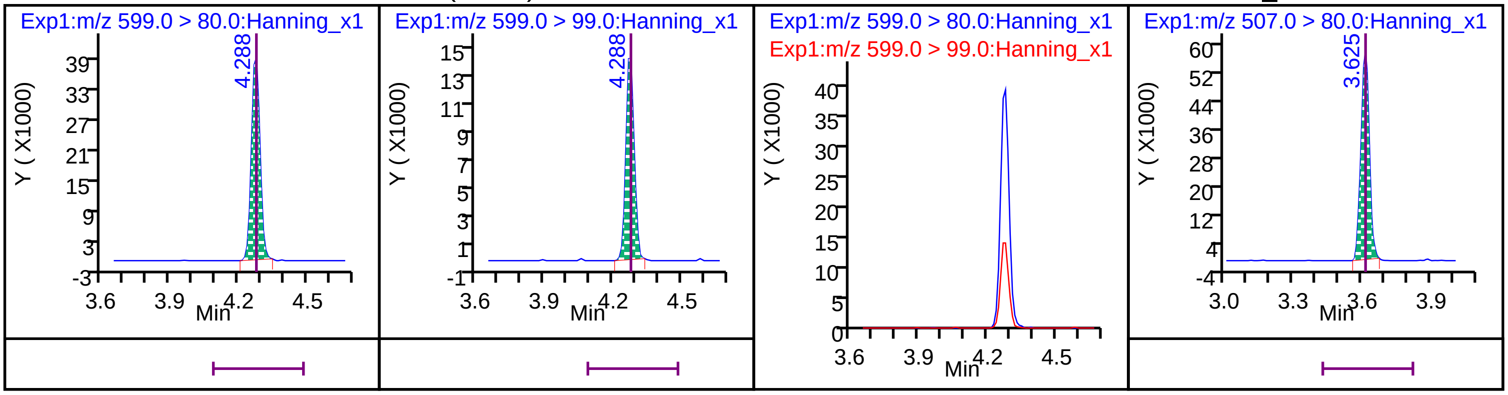
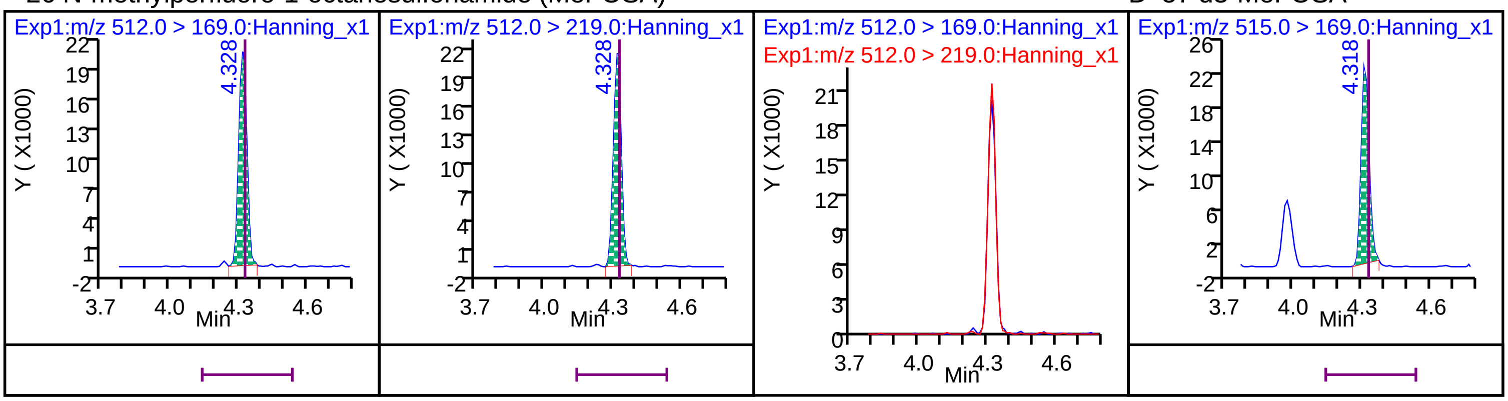
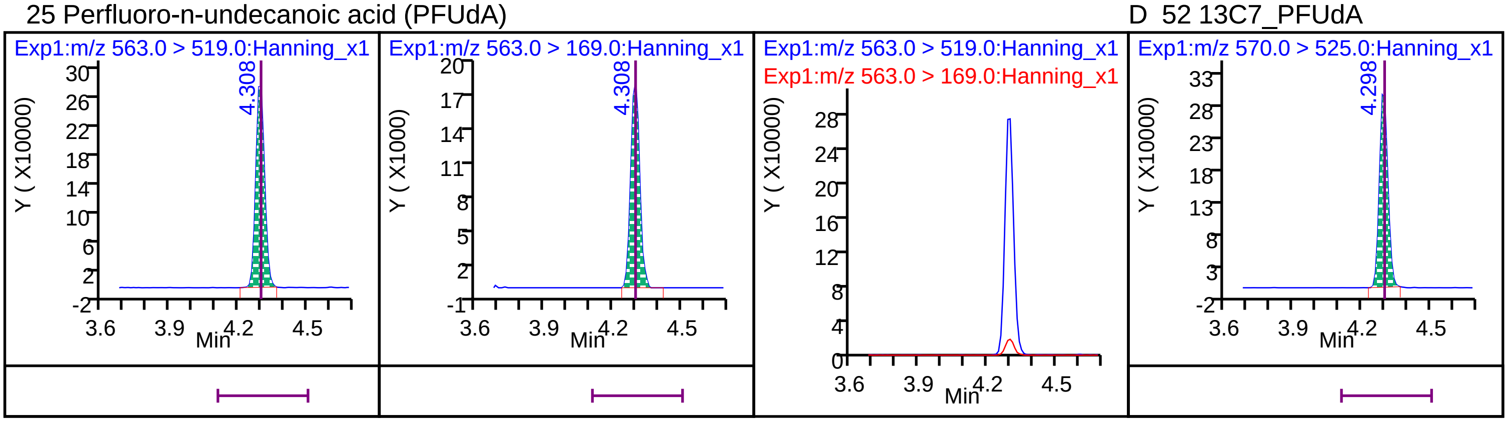
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



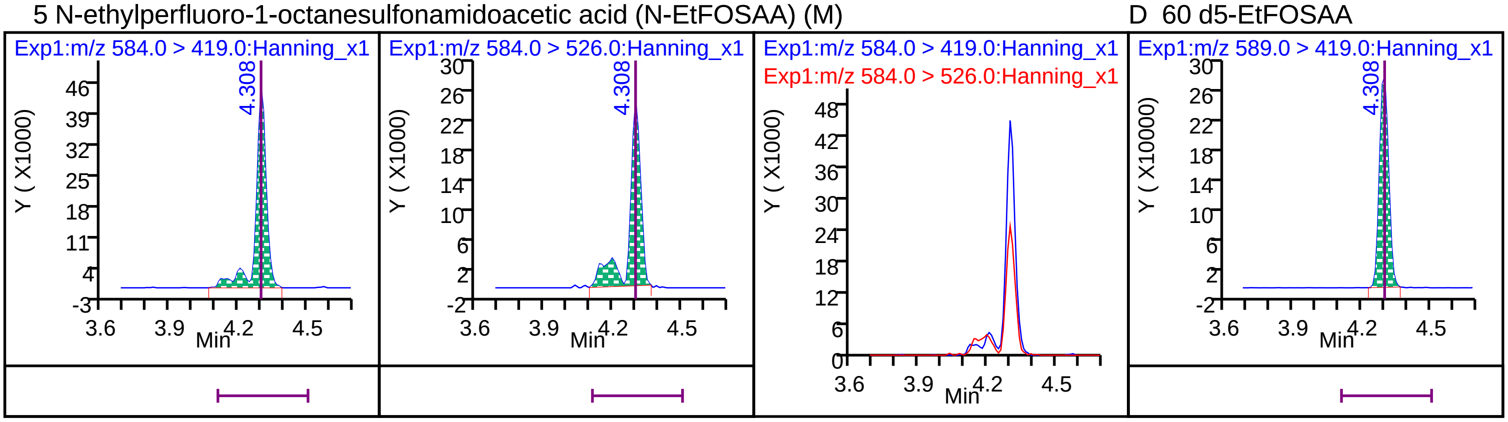
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



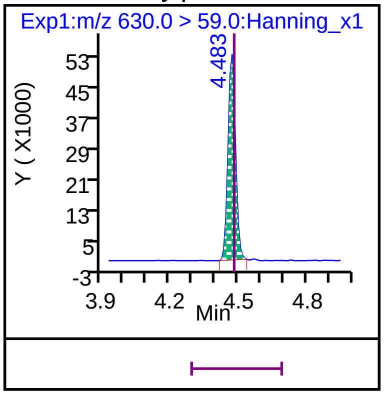
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



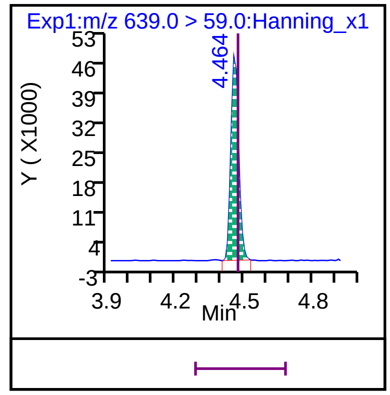
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



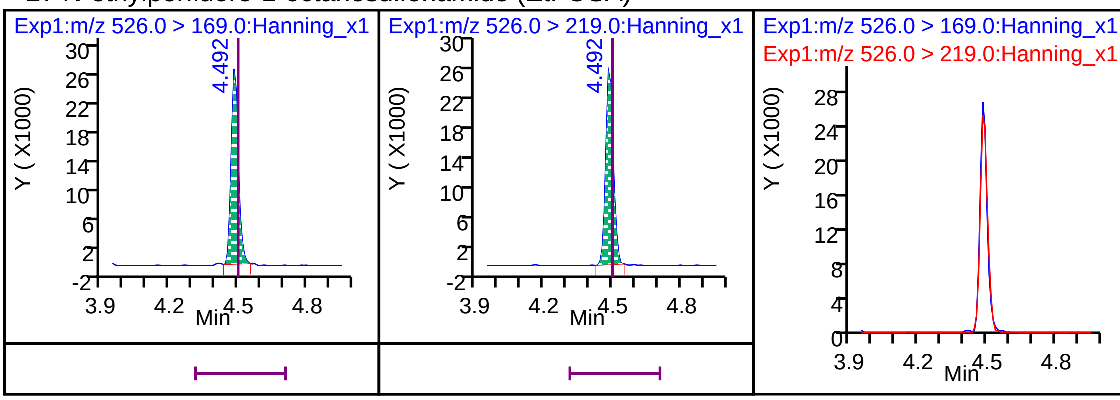
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



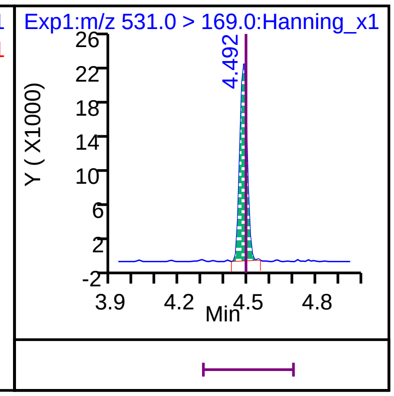
D 62 d9-EtFOSE



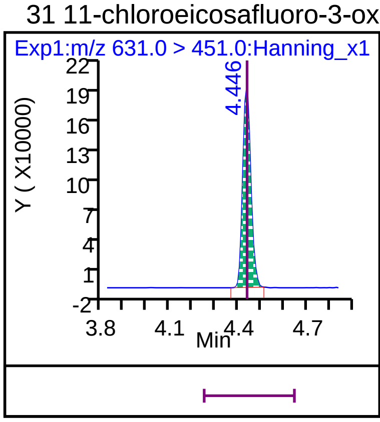
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



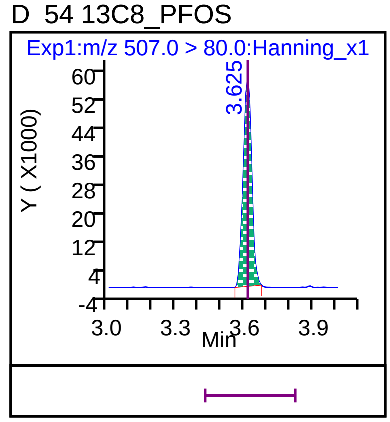
D 59 d5-EtFOSA



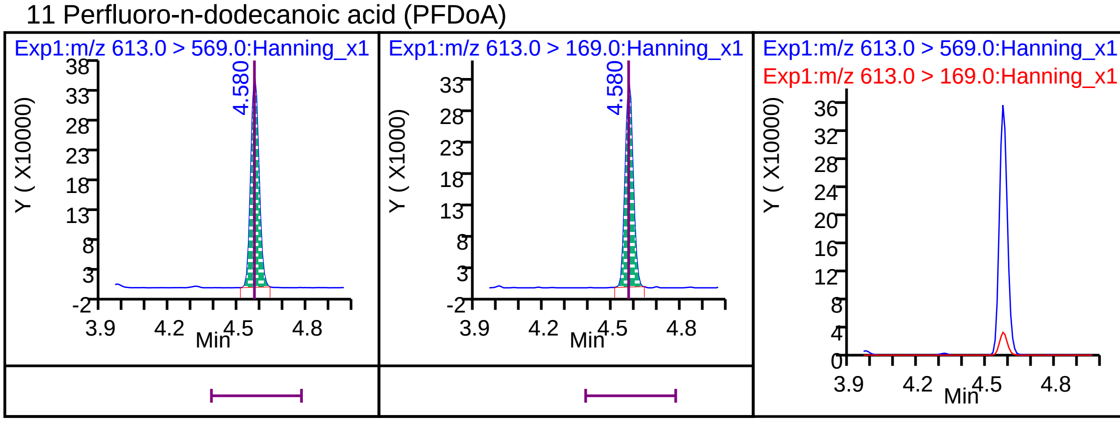
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



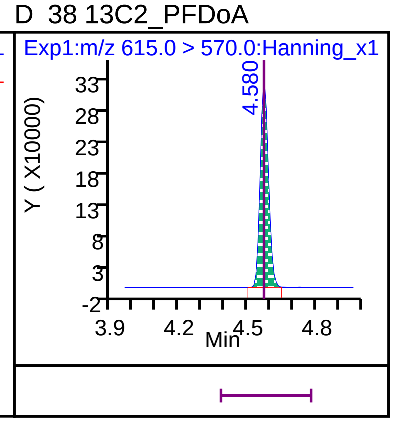
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)



D 38 13C2_PFDoA



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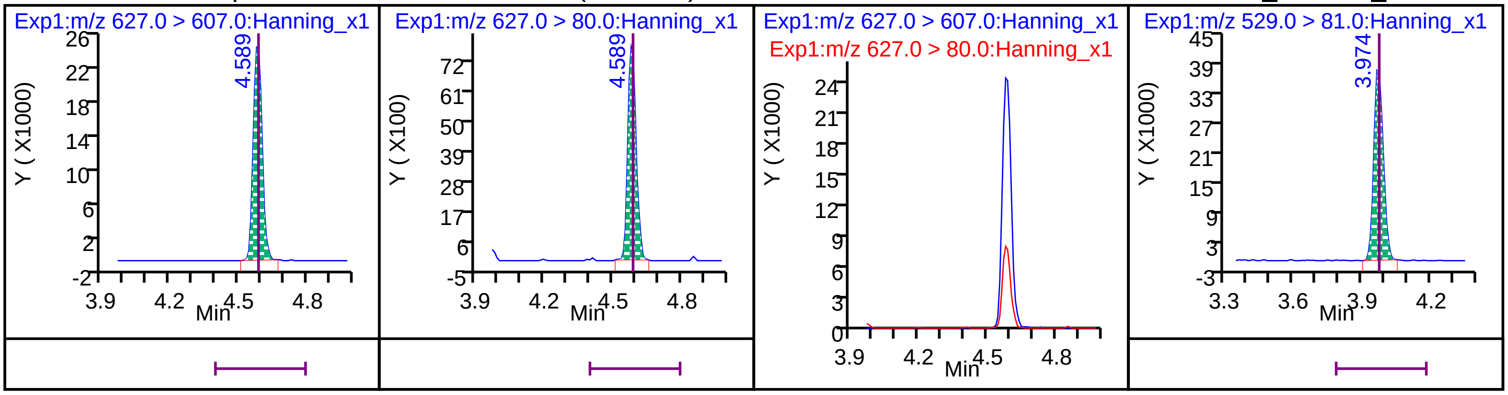
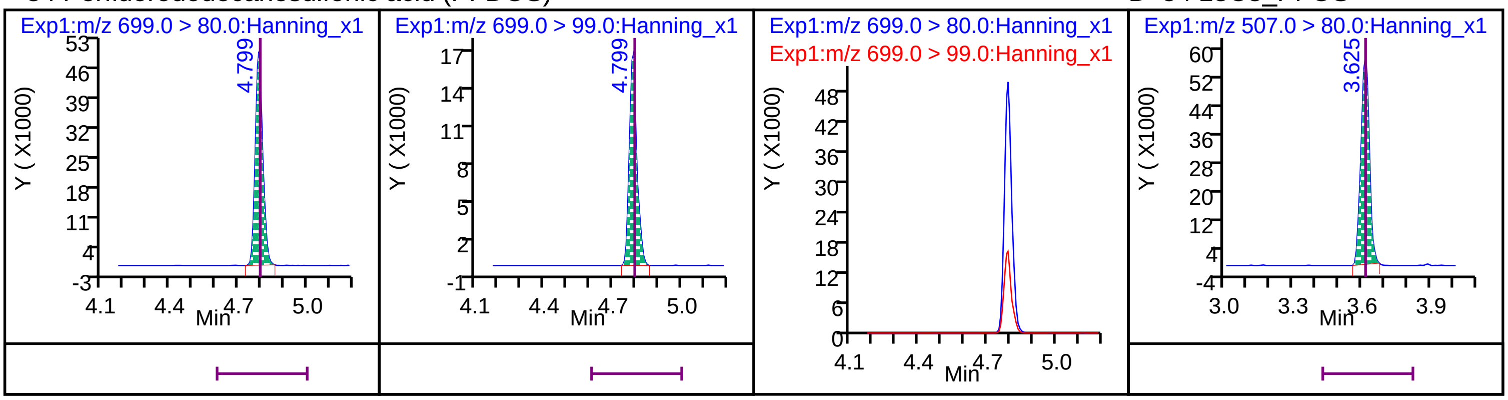
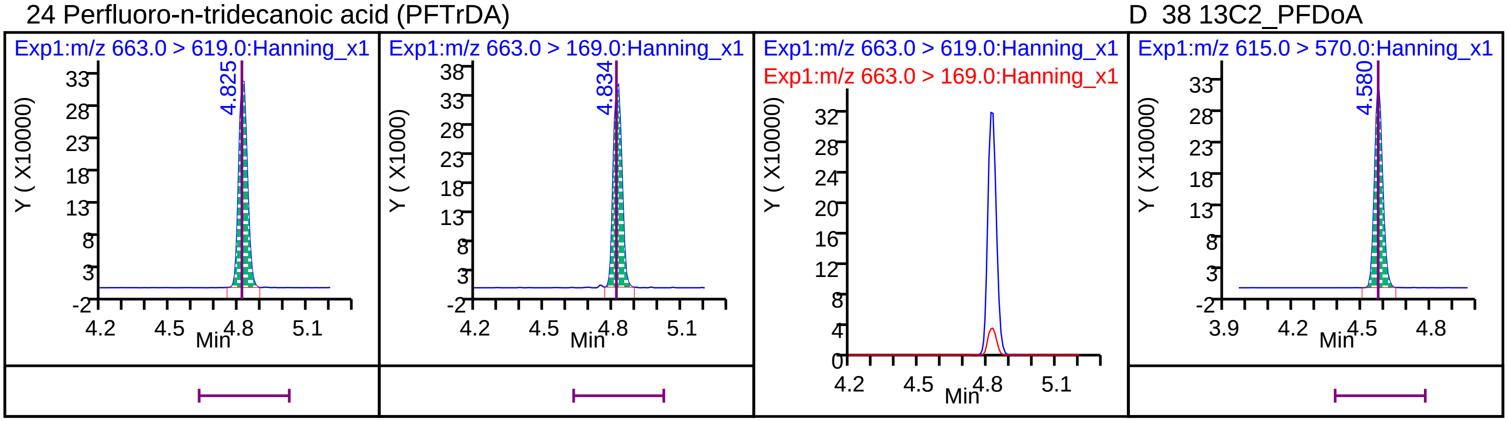
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



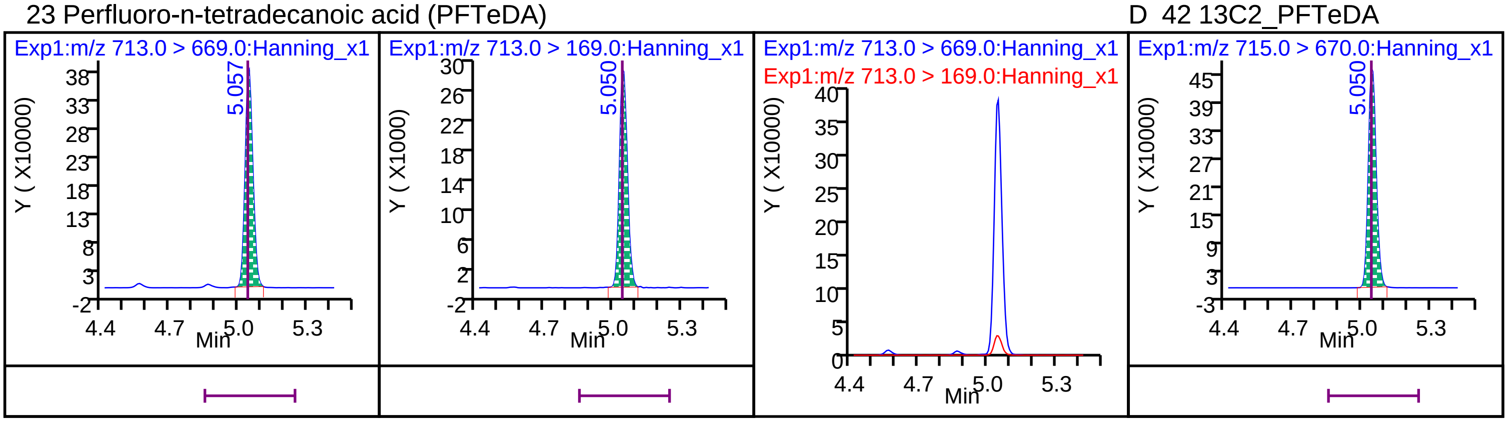
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



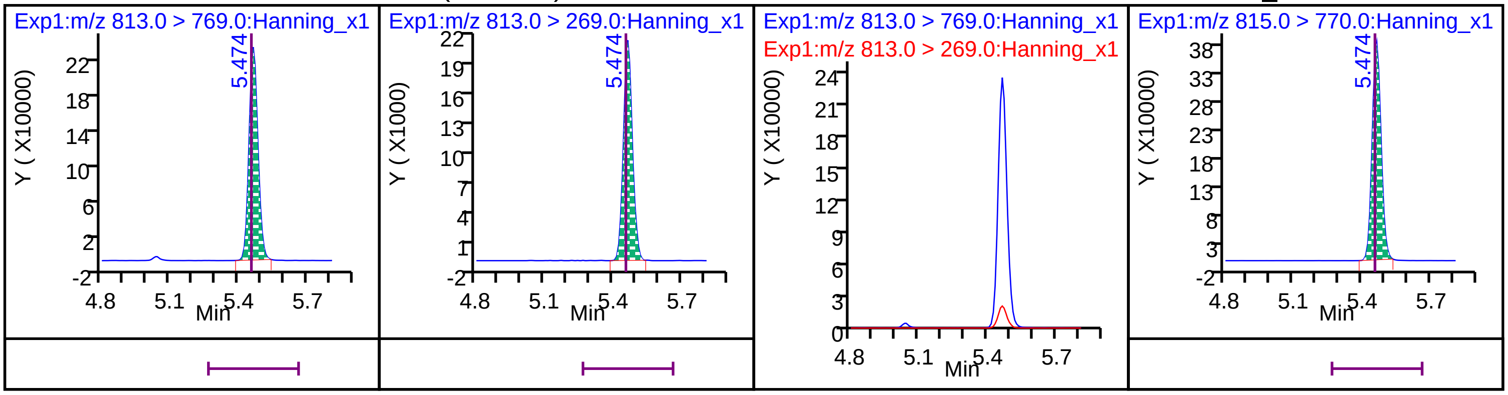
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



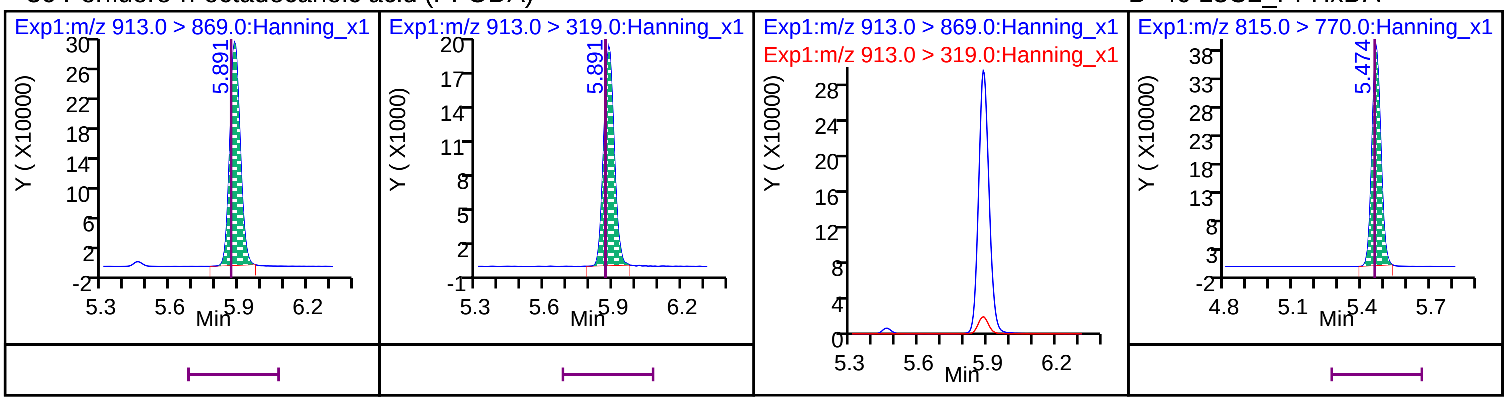
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



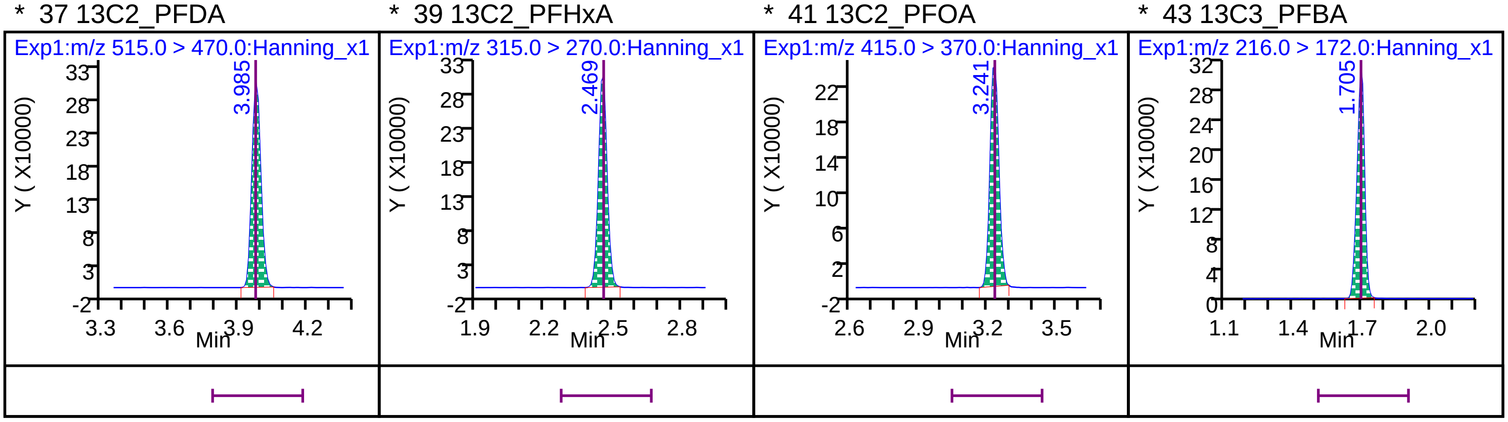
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



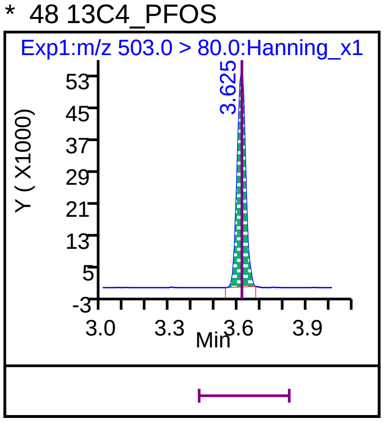
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 15-Nov-2021 10:46:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

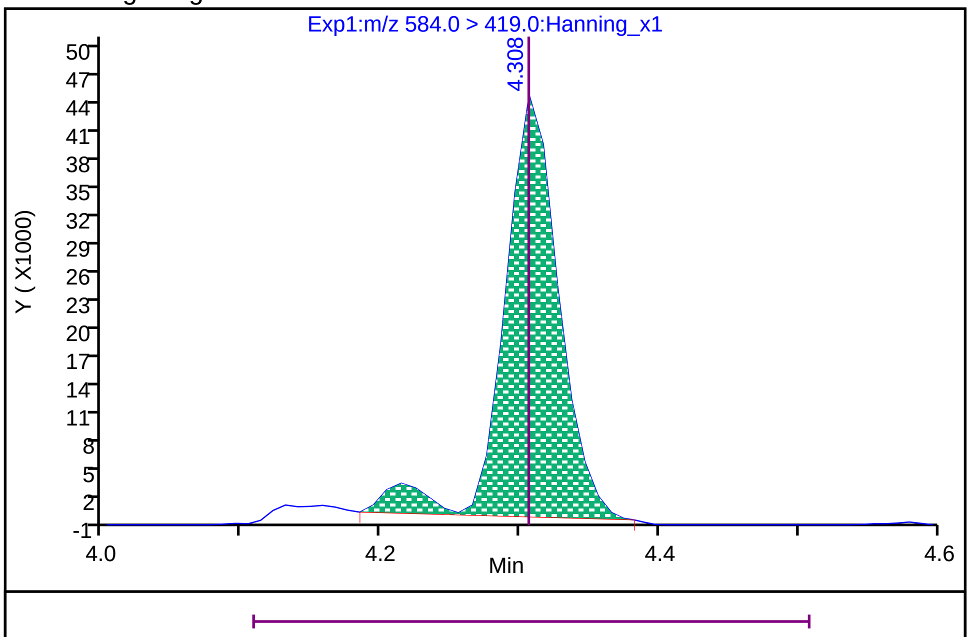
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d		
Injection Date:	12-Nov-2021 21:32:43	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

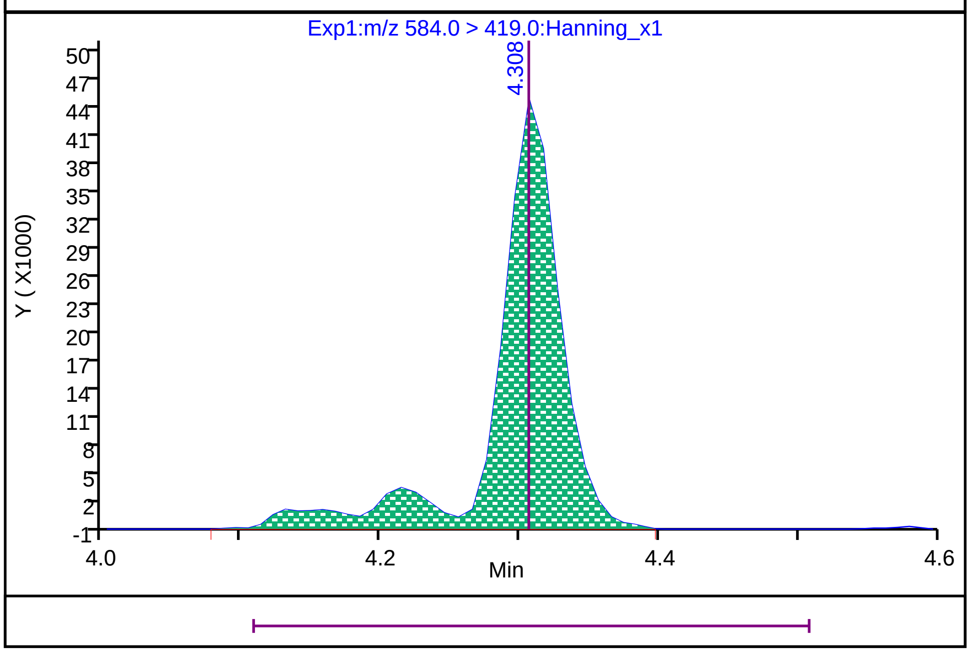
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.308
Area: 118875
Amount: 813.31
Amount Units: ng/L



RT: 4.308
Area: 137366
Amount: 939.82
Amount Units: ng/L



Data Editor: justin.gavin, 14-Nov-2021 18:15:14

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 15-Nov-2021 10:46:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221047.d

Injection Date: 12-Nov-2021 21:32:43 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000_SVLC-1744

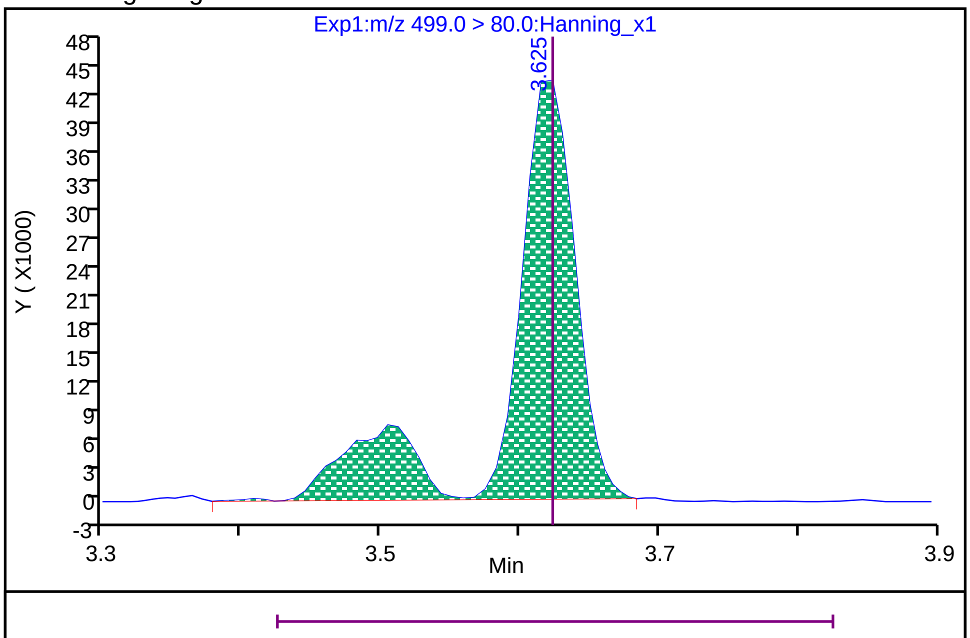
Sample Info: ID CCV 1000_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

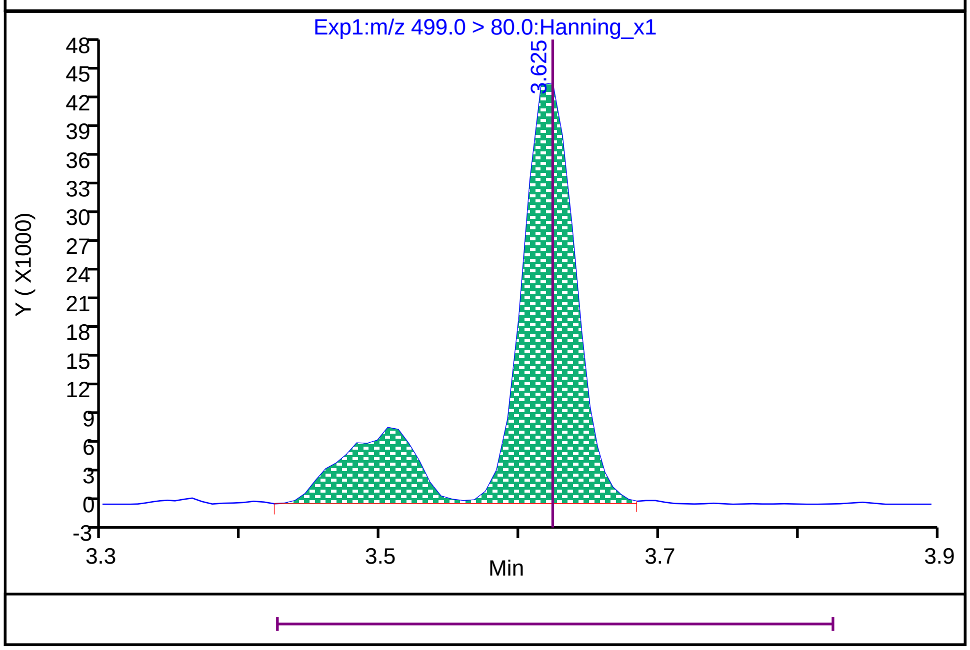
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.625
Area: 140794
Amount: 813.79
Amount Units: ng/L



RT: 3.625
Area: 142187
Amount: 821.84
Amount Units: ng/L



Data Editor: justin.gavin, 14-Nov-2021 18:15:02

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521005.d		
Injection Date:	15-Nov-2021 13:04:55	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	97.606	97.6	70 - 130
D 46 13C4_PFBA	635753	704612			110.8	50 - 150
21 PFPeA			100.00	100.41	100.4	70 - 130
D 50 13C5_PFPeA	580113	616672			106.3	50 - 150
D 44 13C3_PFBS	178463	181863			101.9	50 - 150
7 PFBS			88.400	90.362	102.2	70 - 130
1 4:2 FTS			93.400	101.32	108.5	70 - 130
D 63 13C2_4:2 FTS_2	112299	121742			108.4	50 - 150
D 49 13C5_PFHxA	664948	739401			111.2	50 - 150
15 PFHxA			100.00	99.799	99.8	70 - 130
22 PFPeS			93.800	89.762	95.7	70 - 130
28 GenX			200.00	204.35	102.2	70 - 130
D 66 13C3_GenX	1204882	1321597			109.7	50 - 150
D 47 13C4_PFHpA	532996	604203			113.4	50 - 150
13 PFHpA			100.00	104.12	104.1	70 - 130
D 45 13C3_PFHxS	129716	134021			103.3	50 - 150
14 PFHxS			91.000	86.045	94.6	70 - 130
29 ADONA			94.200	99.208	105.3	70 - 130
D 64 13C2_6:2 FTS_2	93946	102394			109	50 - 150
2 6:2 FTS			94.800	92.825	97.9	70 - 130
20 PFOA			100.00	95.451	95.5	70 - 130
D 53 13C8_PFOA	547741	630095			115	50 - 150
12 PFHpS			95.200	92.279	96.9	70 - 130
D 54 13C8_PFOS	131913	137691			104.4	50 - 150
18 PFOS			92.800	101.00	108.8	70 - 130
17 PFNA			100.00	107.89	107.9	70 - 130
D 56 13C9_PFNA	639032	741618			116.1	50 - 150
30 9Cl-PF3ONS			93.200	90.927	97.6	70 - 130
D 55 13C8_PFOSA	266767	289640			108.6	50 - 150
19 PFOSA			100.00	105.07	105.1	70 - 130
16 PFNS			96.000	94.335	98.3	70 - 130
10 PFDA			100.00	96.299	96.3	70 - 130
3 8:2 FTS			95.800	121.42	126.7	70 - 130
D 51 13C6_PFDA	575846	730609			126.9	50 - 150
D 65 13C2_8:2 FTS_2	78835	105151			133.4	50 - 150
6 N-MeFOSAA			100.00	106.31	106.3	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	852364			110.3	50 - 150
D 61 d7-MeFOSE	90070	94236			104.6	50 - 150
32 MeFOSE			100.00	111.51	111.5	70 - 130
26 MeFOSA			100.00	94.649	94.6	70 - 130
D 57 d3-MeFOSA	44997	46672			103.7	50 - 150
9 PFDS			96.400	88.586	91.9	70 - 130
D 52 13C7_PFUdA	634567	734518			115.8	50 - 150
D 60 d5-EtFOSAA	689688	771983			111.9	50 - 150
25 PFUdA			100.00	98.905	98.9	70 - 130
5 N-EtFOSAA			100.00	93.773	93.8	70 - 130
D 62 d9-EtFOSE	101585	103023			101.4	50 - 150
33 EtFOSE			100.00	122.87	122.9	70 - 130
D 59 d5-EtFOSA	42895	42973			100.2	50 - 150
31 11Cl-PF3OUDS			94.200	107.90	114.5	70 - 130
27 EtFOSA			100.00	80.857	80.9	70 - 130
D 38 13C2_PFDoA	604291	793096			131.2	50 - 150
11 PFDoA			100.00	100.31	100.3	70 - 130
4 10:2 FTS			96.400	124.36	129	70 - 130
34 PFDOS			96.800	88.970	91.9	70 - 130
24 PFTrDA			100.00	110.97	111	70 - 130
D 42 13C2_PFTeDA	838224	1045249			124.7	50 - 150
23 PFTeDA			100.00	107.42	107.4	70 - 130
D 40 13C2_PFHxDA	877835	1010565			115.1	50 - 150
35 PFHxDA			100.00	107.68	107.7	70 - 130
36 PFODA			100.00	101.66	101.7	70 - 130

Report Date: 30-Nov-2021 15:07:17 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521005.d		
Injection Date:	15-Nov-2021 13:04:55	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	-5	704612	20	>100:1			1000.00	1133.41	110.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/5	72532	24	54:1			100.00	97.606		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	0	616672	17	>100:1			1000.00	1078.87	106.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.109	2/2	69689	17	72:1			100.00	100.41		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.162	0	181863	16	>100:1			1000.00	1051.42	101.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.162	0/0	20493	24	>100:1	Target = 3.53		88.400	90.362		
298.9 > 99	44	2.172	2.162		5841	22	70:1	3.50 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.522	2.522	1/1	15129	14	>100:1	Target = 3.10		93.800	89.762		
349 > 99	44	2.522	2.522		4786	16	36:1	3.16 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	1	121742	15	>100:1			5000.00	5376.41	108.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	2/1	5438	19	97:1	Target = 1.75		93.400	101.32		
327 > 81	63	2.442	2.451		5377	17	5.7:1	1.01 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.487	9	739401	18	>100:1			1000.00	1135.29	111.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.487	1/-8	76725	16	>100:1	Target = 18.91		100.00	99.799		
313 > 119	49	2.478	2.487		3698	17	20:1	20.74 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.606	1	1321597	19	>100:1			5000.00	5702.53	109.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.606	1/0	34981	17	>100:1	Target = 0.79		200.00	204.35		
285 > 185	66	2.606	2.606		43384	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.872	-8	604203	17	>100:1			1000.00	1137.99	113.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.872	2.872	2/10	69130	18	>100:1	Target = 3.80		100.00	104.12		
363 > 169	47	2.872	2.872		18780	18	>100:1	3.68 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.888	1	134021	20	>100:1			1000.00	1066.71	103.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	2/1	12678	27	79:1	Target = 2.89	4.59	91.000	86.045		
399 > 99	45	2.896	2.896		4198	24	36:1	3.02 (1.44-4.34)	3.74				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.918	2/1	103113	21	>100:1	Target = 3.23		94.200	99.208		
377 > 85	45	2.918	2.918		30125	22	>100:1	3.42 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.286	3.286	3/2	12702	20	63:1	Target = 3.12		95.200	92.279		
449 > 99	45	3.280	3.286		4862	24	38:1	2.61 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.246	3.246	2	102394	23	>100:1			5000.00	5688.57	109	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													a
427 > 407	64	3.260	3.260	0/-2	4500	21	78:1	Target = 1.75		94.800	92.825		
427 > 81	64	3.239	3.260		3069	14	2.9:1	1.46 (0.87-2.62)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.274	3.274	2	630095	24	>100:1			1000.00	1200.92	115	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.280	3.280	2/0	61632	19	52:1	Target = 2.89		100.00	95.451		
413 > 169	53	3.267	3.280		20769	43	97:1	2.96 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.661	3.661	3	137691	22	>100:1			1000.00	1111.82	104.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.655	3.655	2/-1	16559	36	48:1	Target = 3.30	5.03	92.800	101.00		
499 > 99	54	3.661	3.655		4159	35		3.98 (1.65-4.95)	13.49				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.877	3.877	11/8	47414	24	>100:1			93.200	90.927		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.023	4.023	3/0	10421	20	>100:1	Target = 3.08		96.000	94.335		
549 > 99	54	4.032	4.023		3441	17	35:1	3.02 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.324	4.324	3/0	9545	18	79:1	Target = 2.72		96.400	88.586		
599 > 99	54	4.335	4.324		3248	21		2.93 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.497	4.497	4/1	50866	15	>100:1			94.200	107.90		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.849	4.849	3/0	10534	21		Target = 3.27		96.800	88.970		
699 > 99	54	4.849	4.849		2443	23	45:1	4.31 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.666	3.666	4	741618	22	>100:1			1000.00	1158.09	116.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.672	3.672	3/-1	86247	22	>100:1	Target = 6.51		100.00	107.89		
463 > 169	56	3.666	3.672		11798	19	>100:1	7.31 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.910	3.910	-10	289640	17				1000.00	1080.51	108.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.910	3.910	2/12	32021	27	>100:1	Target = 41.63		100.00	105.07		
498>478	55	3.918	3.910		1490	18	13:1	21.49 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.032	4.032	3	730609	16	>100:1			1000.00	1271.38	126.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.032	4.032	3/0	81878	17	>100:1	Target = 13.80		100.00	96.299		
513 > 169	51	4.032	4.032		6214	21	22:1	13.17 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.023	4.023	3	105151	17	>100:1			5000.00	6083.54	133.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.032	4.032	3/0	5770	22	19:1	Target = 1.94		95.800	121.42		
527 > 81	65	4.023	4.032		3378	17	14:1	1.70 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.644	4.644	3/0	6634	19	88:1	Target = 3.54		96.400	124.36		
627 > 80	65	4.653	4.644		1790	19	9.7:1	3.70 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.193	4.193	3	852364	18	>100:1			5000.00	5640.59	110.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.193	4.193	0/-3	14542	28	91:1	Target = 1.37	5.47	100.00	106.31		M
570 > 483	58	4.193	4.193		9307	29		1.56 (0.68-2.05)	4.16				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.314	4.314	2	94236	13	>100:1			1000.00	1044.87	104.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.335	4.335	3/1	11484	22	49:1			100.00	111.51		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.335	4.335	2	46672	14	>100:1			1000.00	992.15	103.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.344	4.344	3/1	4788	20	42:1	Target = 1.11		100.00	94.649		
512 > 219	57	4.344	4.344		5278	12	55:1	0.90 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.354	4.354	6	771983	16	>100:1			5000.00	5960.65	111.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.363	4.363	3/-3	14117	30	34:1	Target = 1.51	6.70	100.00	93.773		
584 > 526	60	4.363	4.363		9292	28	64:1	1.51 (0.75-2.26)	6.02				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.354	4.354	3	734518	16	>100:1			1000.00	1219.62	115.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.354	4.354	3/0	70393	17	>100:1	Target = 14.52		100.00	98.905		
563 > 169	52	4.344	4.354		5959	20	54:1	11.81 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.479	4.479	2	103023	15	>100:1			1000.00	971.21	101.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													a
630 > 59	62	4.488	4.488	14/12	12323	15	44:1			100.00	122.87		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.497	4.497	2	42973	15	>100:1			1000.00	999.37	100.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													a
526 > 169	59	4.506	4.506	2/0	4789	10	69:1	Target = 1.06		100.00	80.857		
526 > 219	59	4.506	4.506		6451	16	85:1	0.74 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.628	4.628	0	793096	17	>100:1			1000.00	1321.09	131.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.628	4.628	3/3	84808	19	14:1	Target = 10.70		100.00	100.31		
613 > 169	38	4.628	4.628		7021	17	58:1	12.07 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.883	4.883	3/3	92510	18	>100:1	Target = 8.31		100.00	110.97		
663 > 169	38	4.883	4.883		9345	18	>100:1	9.89 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.110	5.110	3	1045249	21	>100:1			1000.00	1285.68	124.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.110	5.110	3/0	98009	20	15:1	Target = 12.17		100.00	107.42		
713 > 169	42	5.110	5.110		7653	20	>100:1	12.80 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.547	5.547	4	1010565	21	>100:1			1000.00	1164.20	115.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.547	5.547	4/0	69690	21	9.8:1	Target = 10.43		100.00	107.68		
813 > 269	40	5.547	5.547		6400	19	>100:1	10.88 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.996	5.996	3/-1	93529	30	>100:1	Target = 13.67		100.00	101.66		
913 > 319	40	5.986	5.996		6304	49	>100:1	14.83 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.032	4.032	3	788387	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.487	1	738020	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.280	3.280	4	618254	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	-5	643206	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.666	3.666	3	135082	21	>100:1			1000.00			

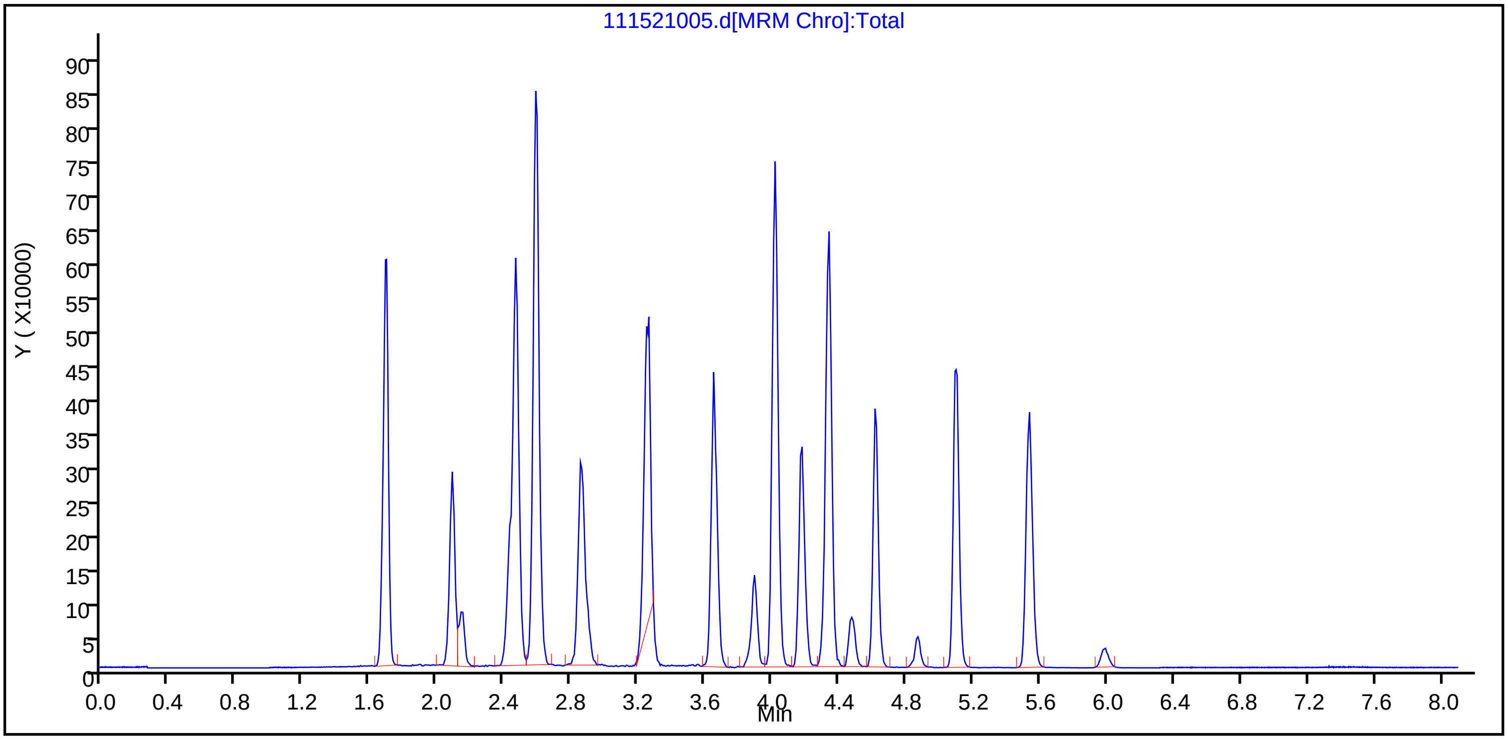
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

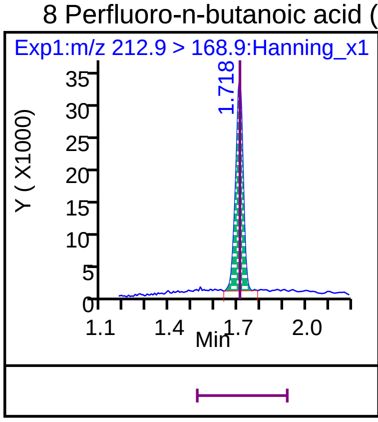
Report Date: 30-Nov-2021 15:07:17 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

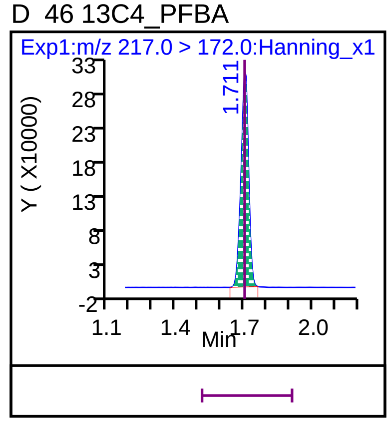
Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521005.d		
Injection Date:	15-Nov-2021 13:04:55	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



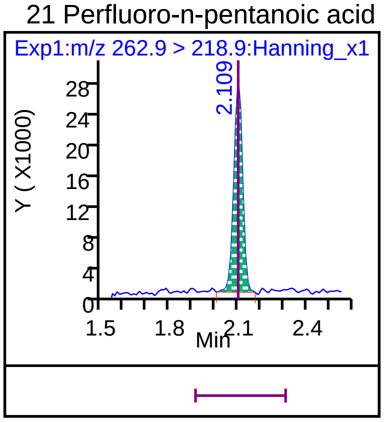
8 Perfluoro-n-butanoic acid (PFBA)



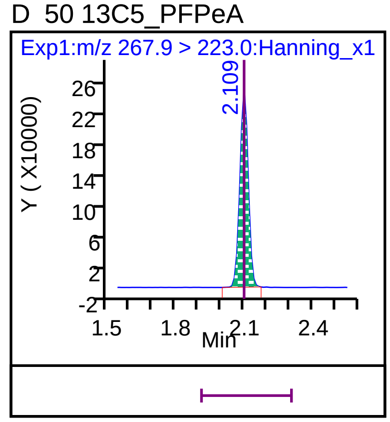
D 46 13C4_PFBA



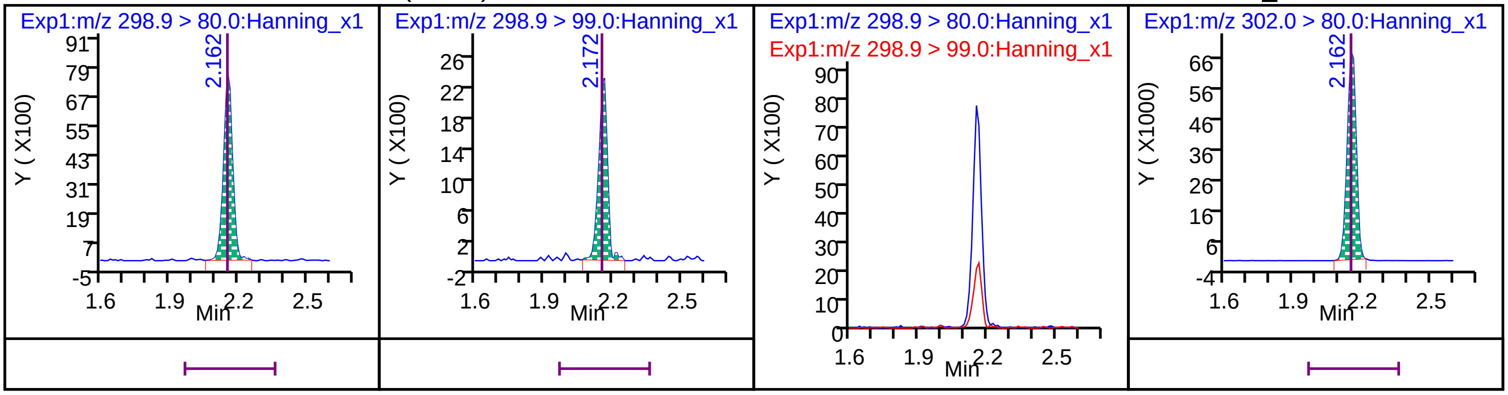
21 Perfluoro-n-pentanoic acid (PFPeA)



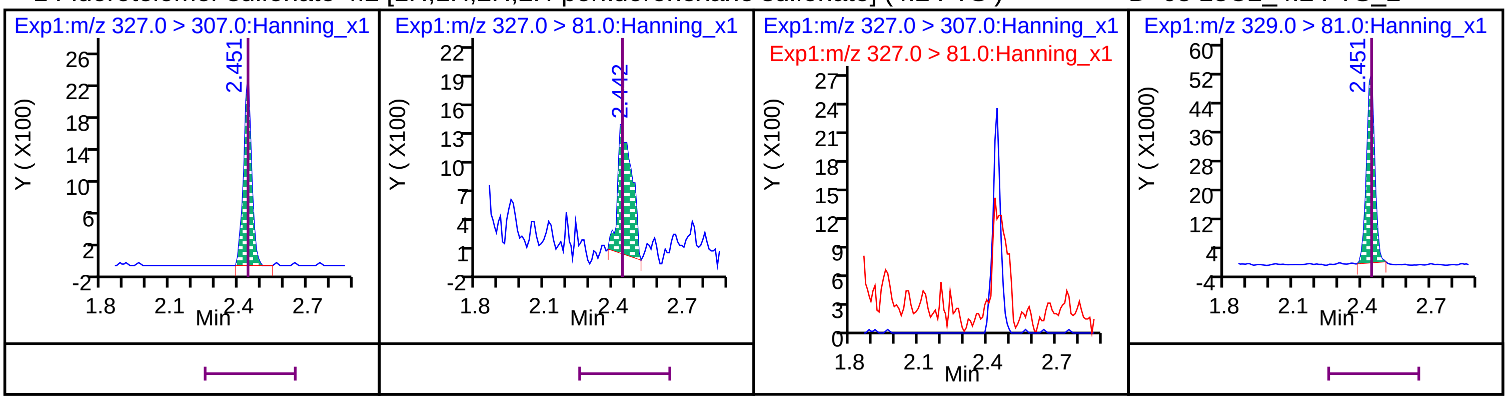
D 50 13C5_PFPeA



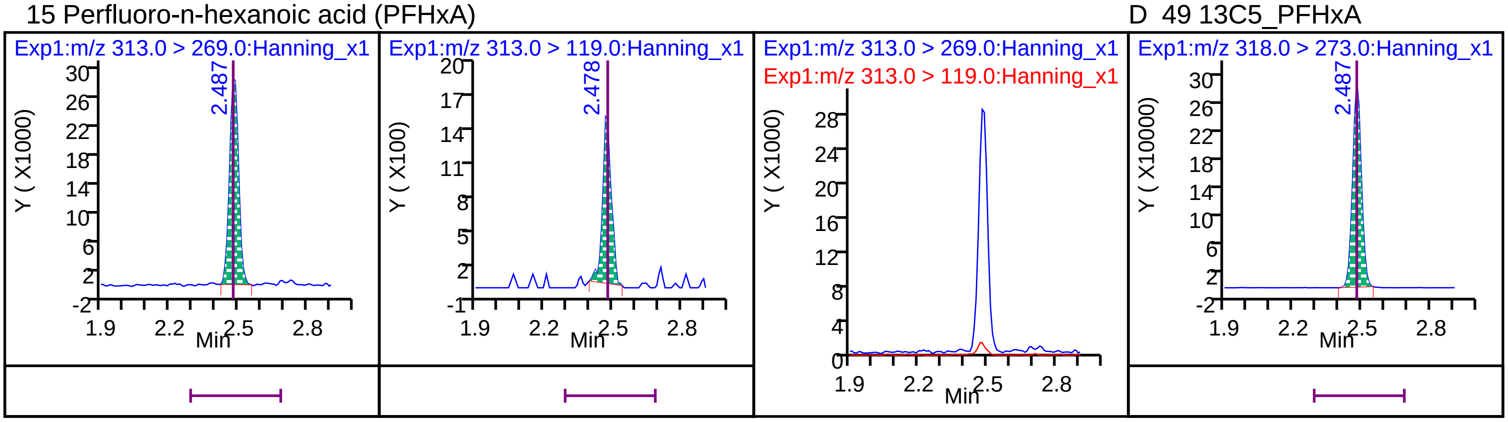
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



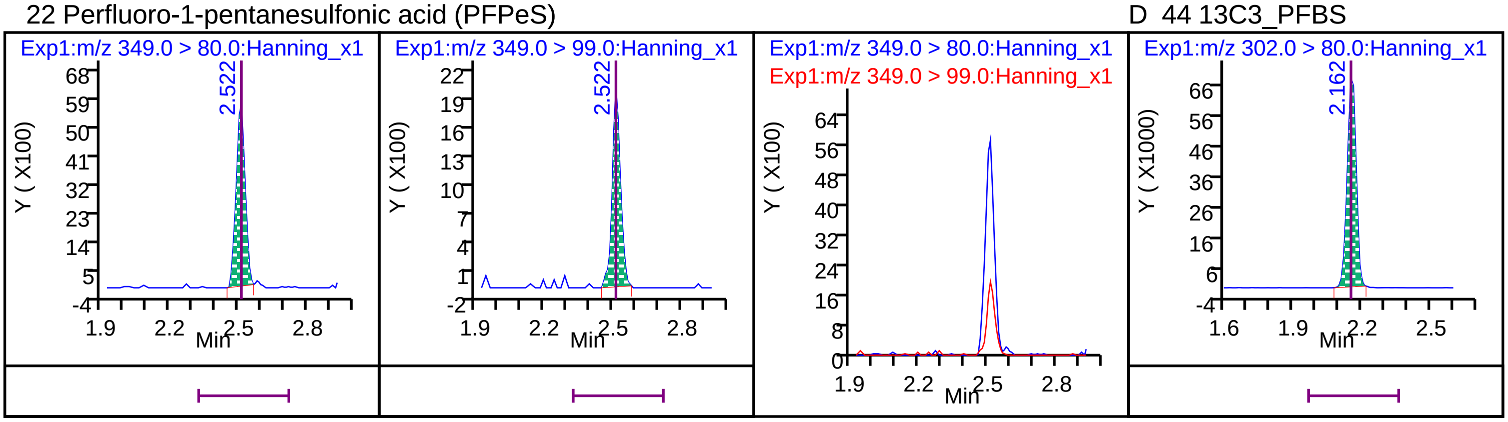
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



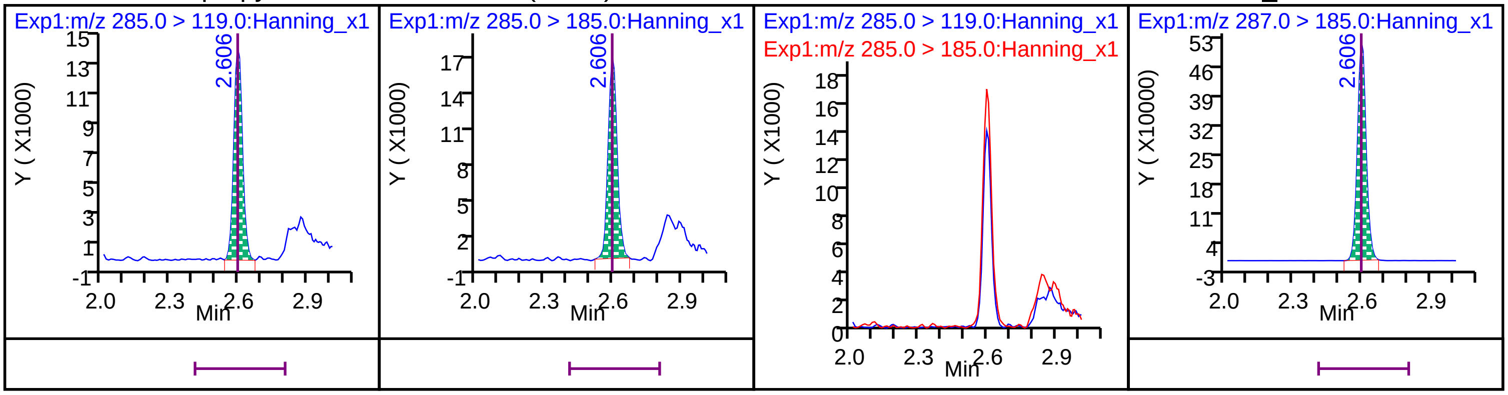
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



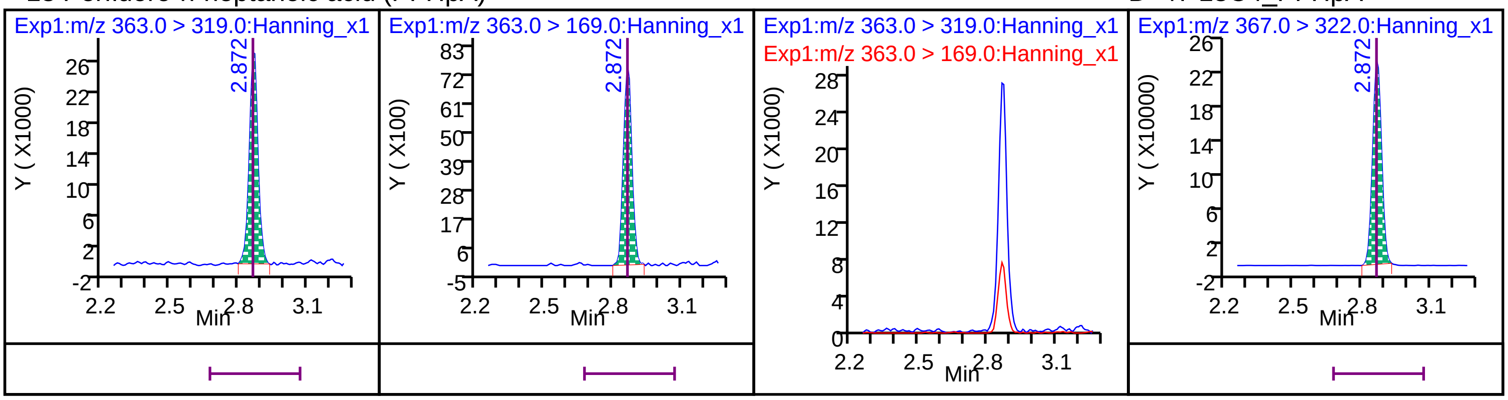
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



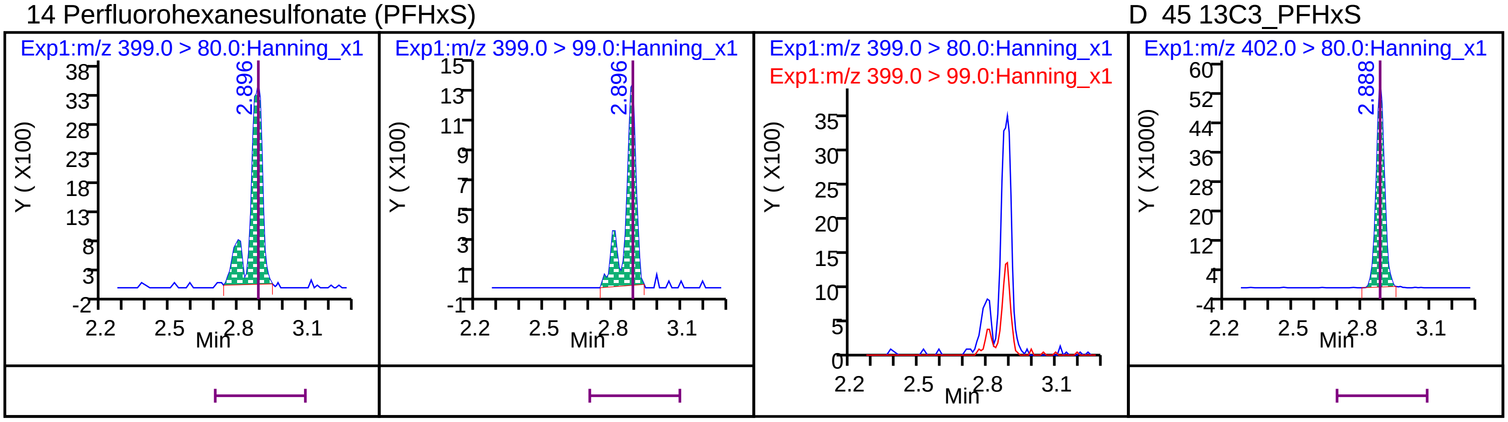
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



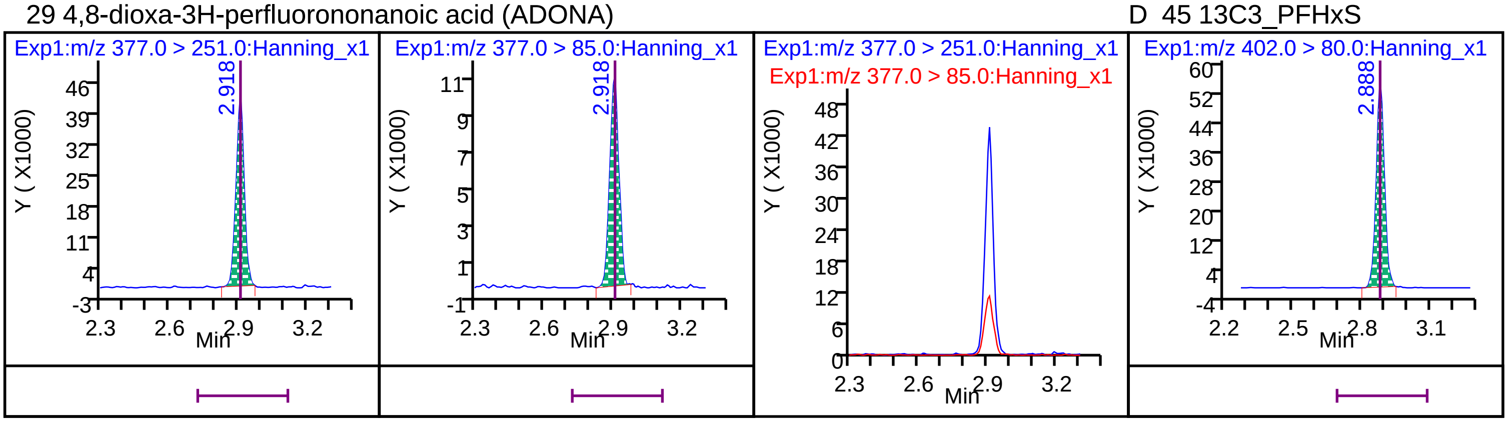
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



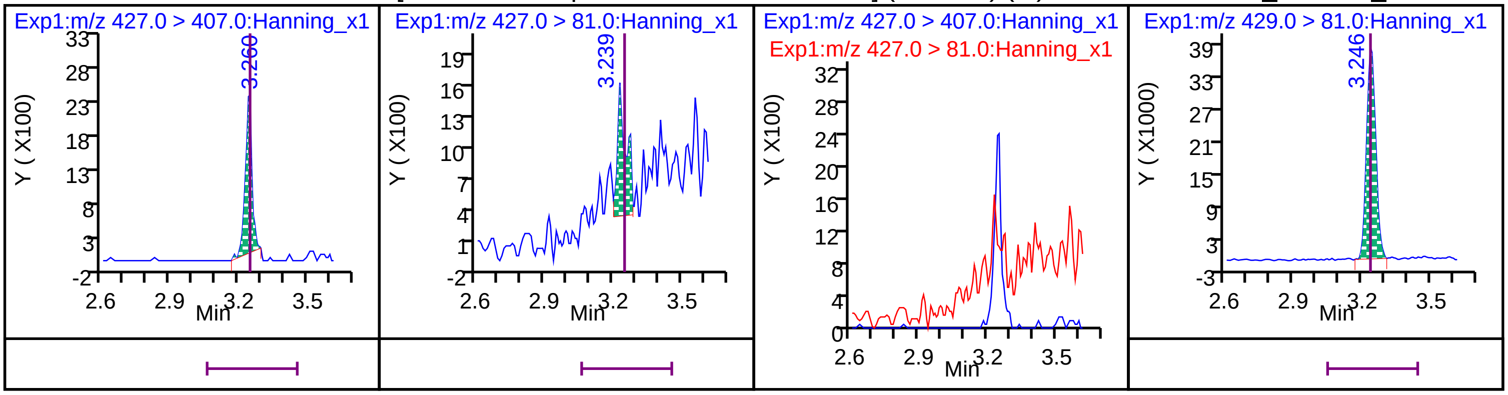
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



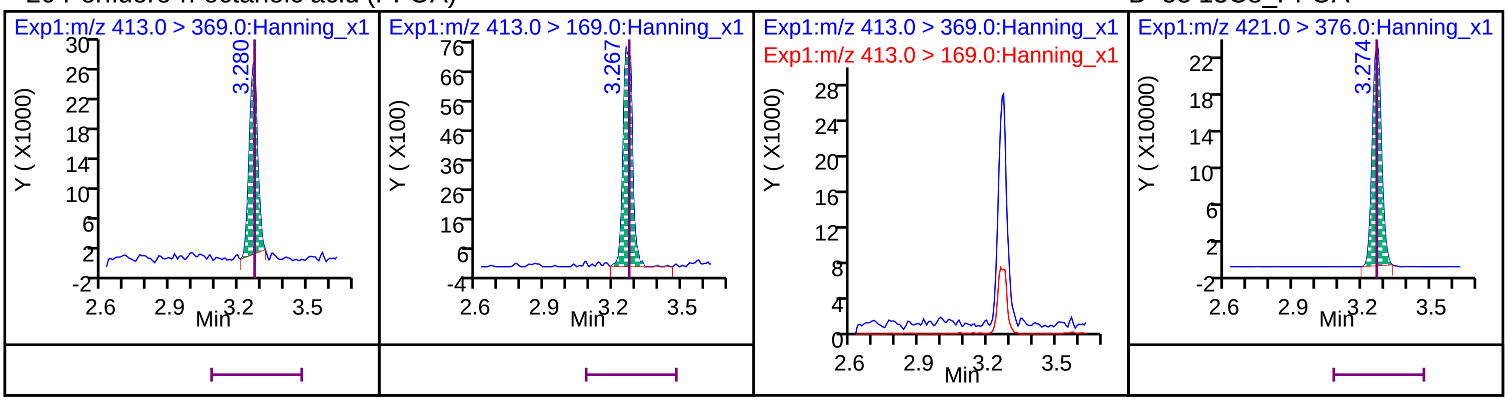
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



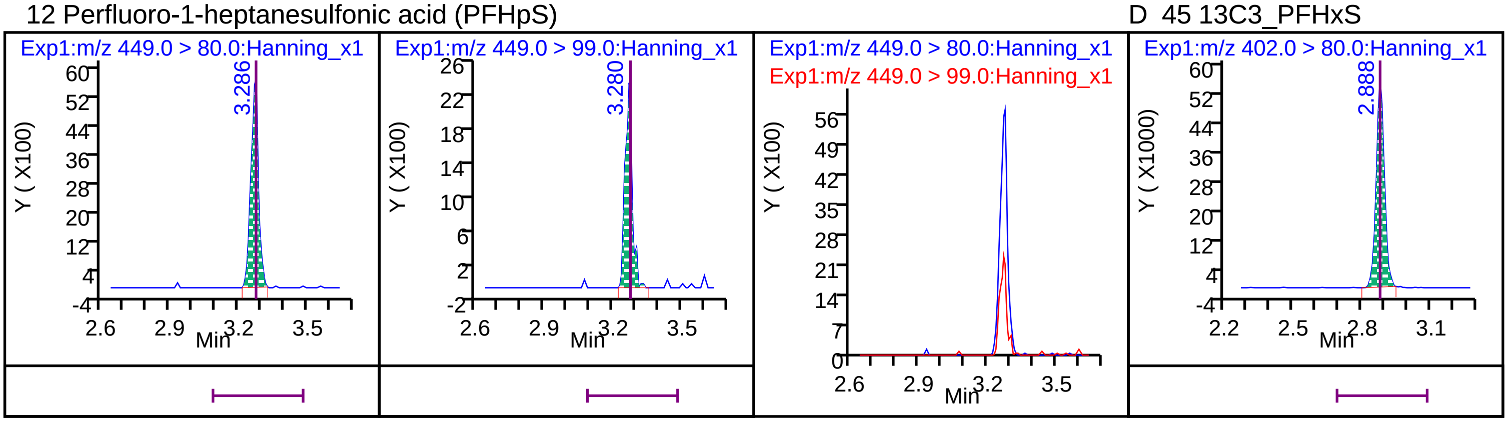
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



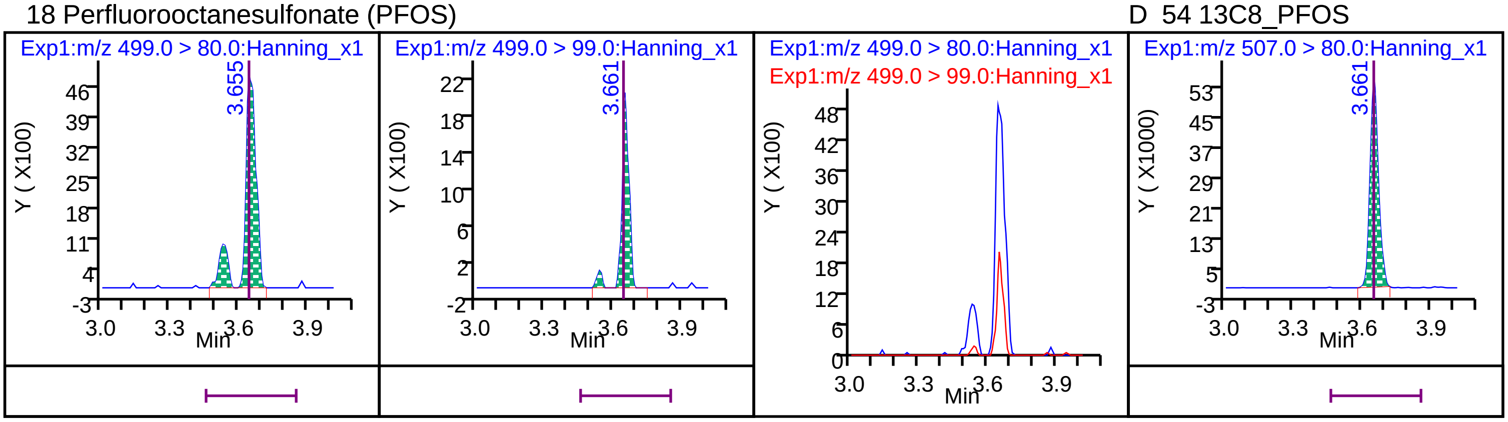
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



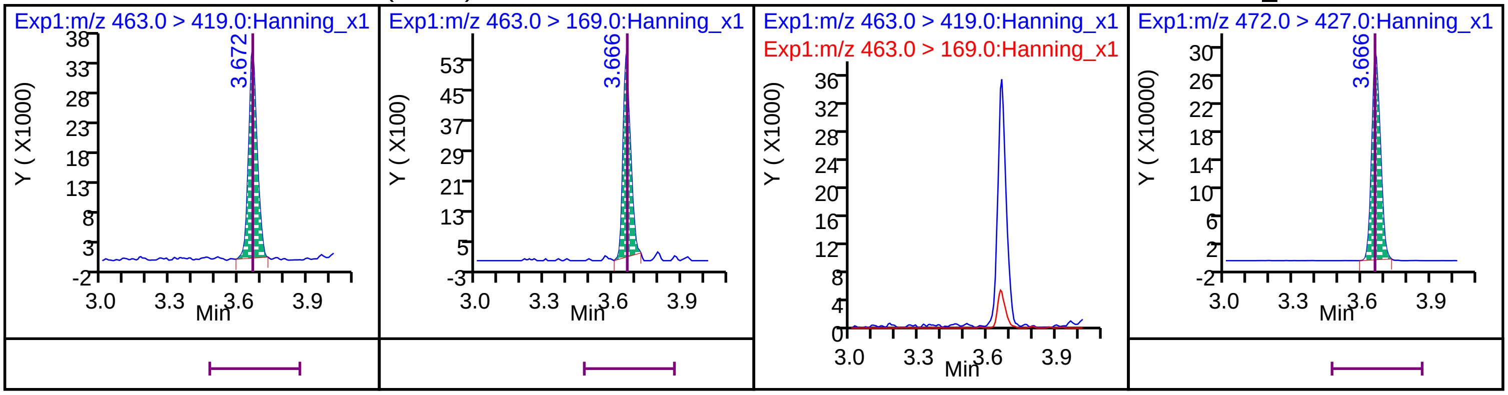
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



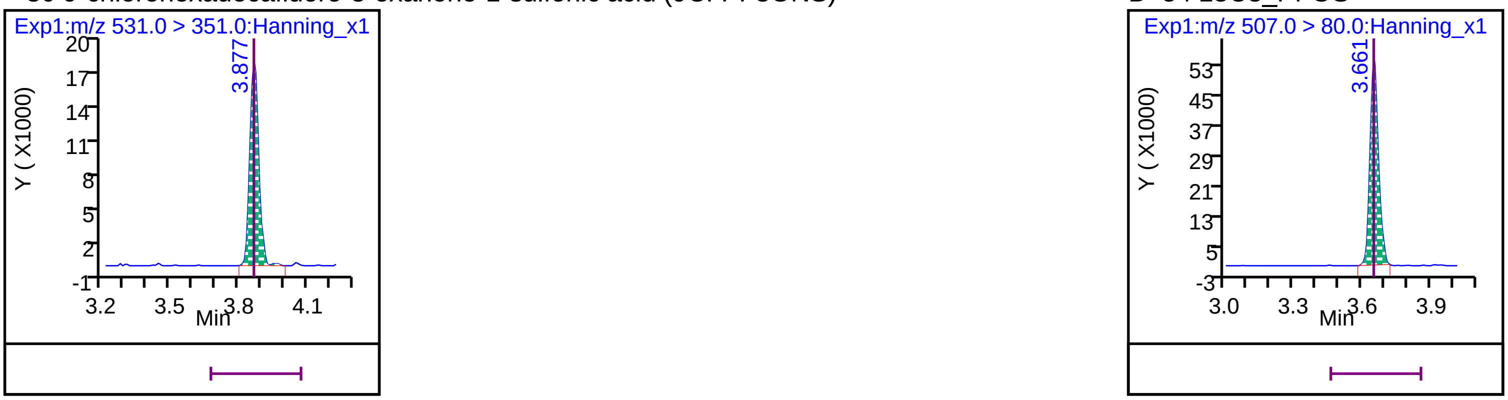
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



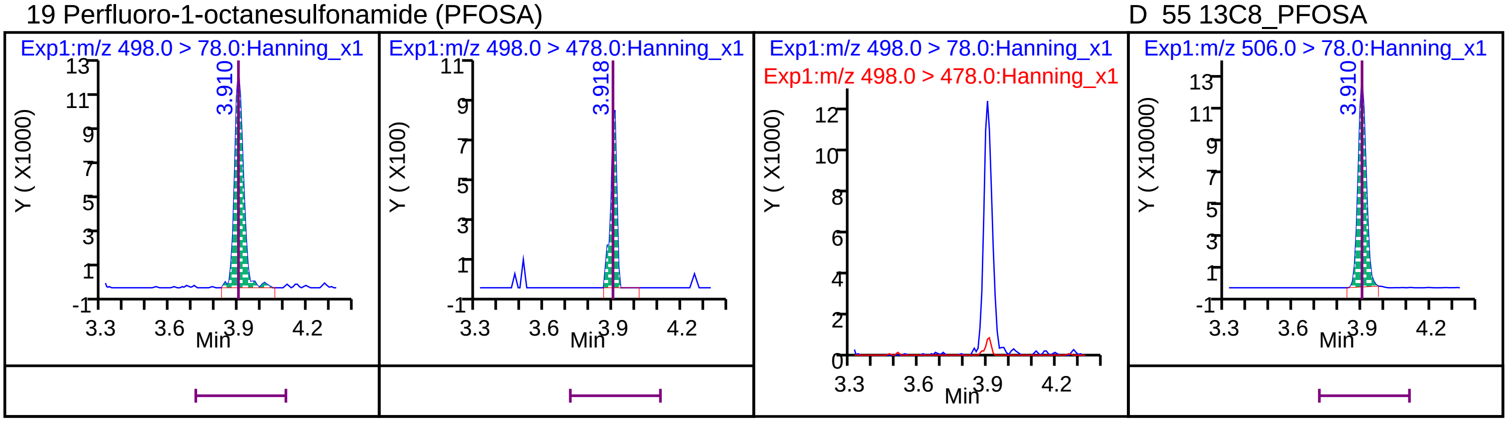
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



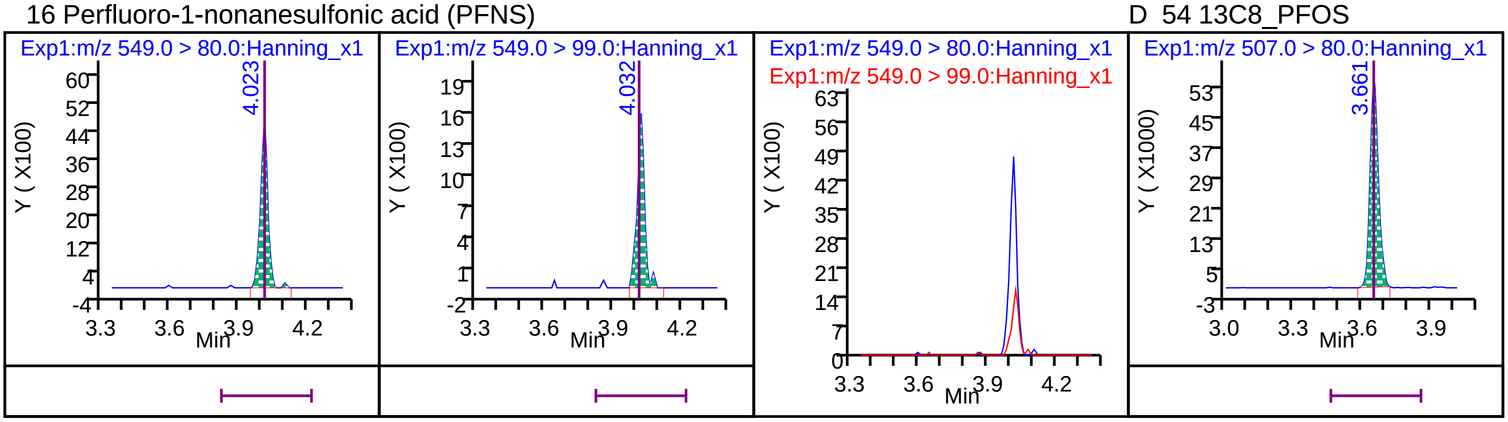
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



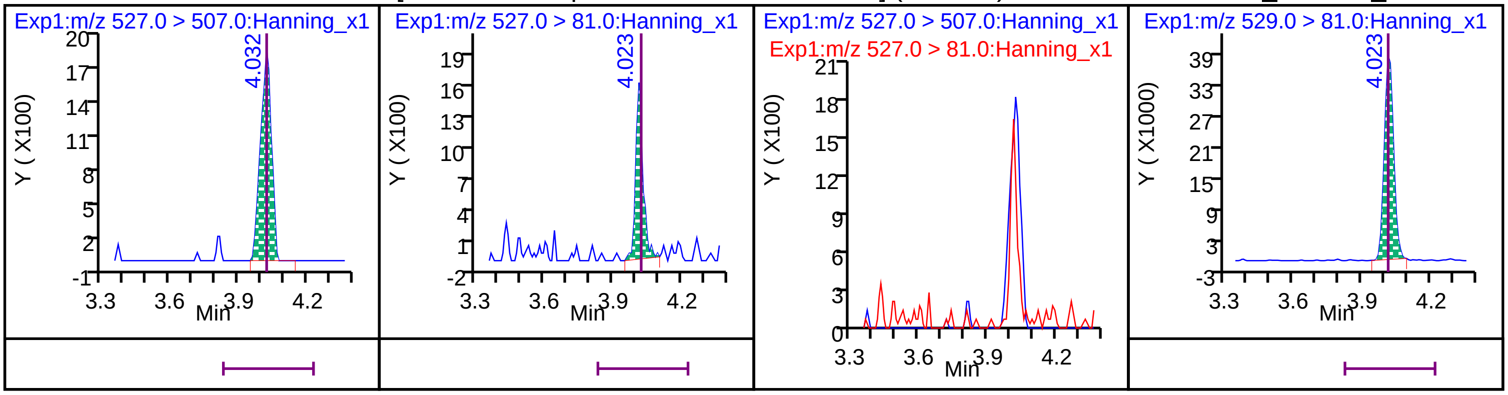
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



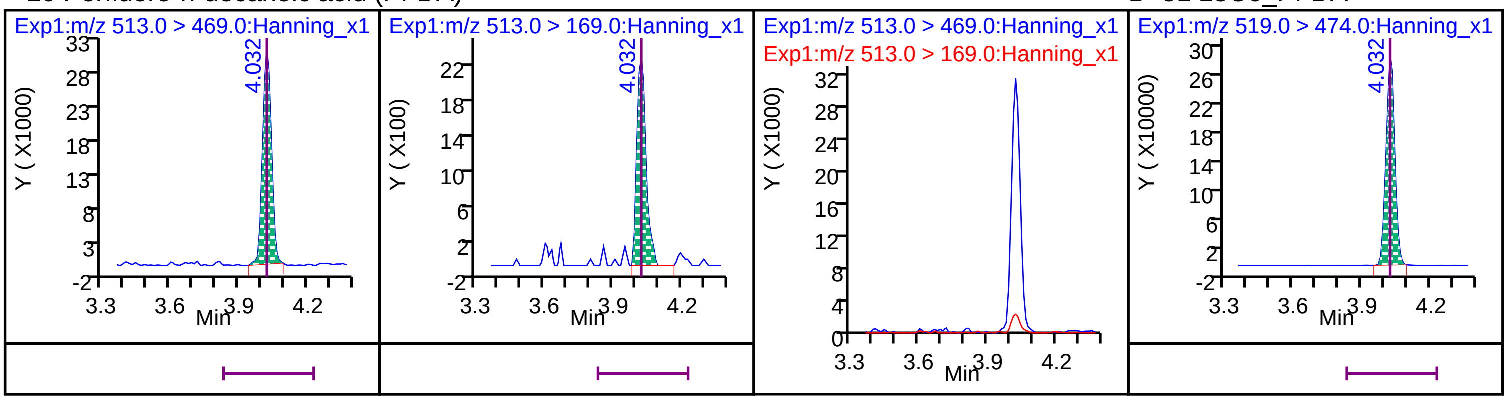
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



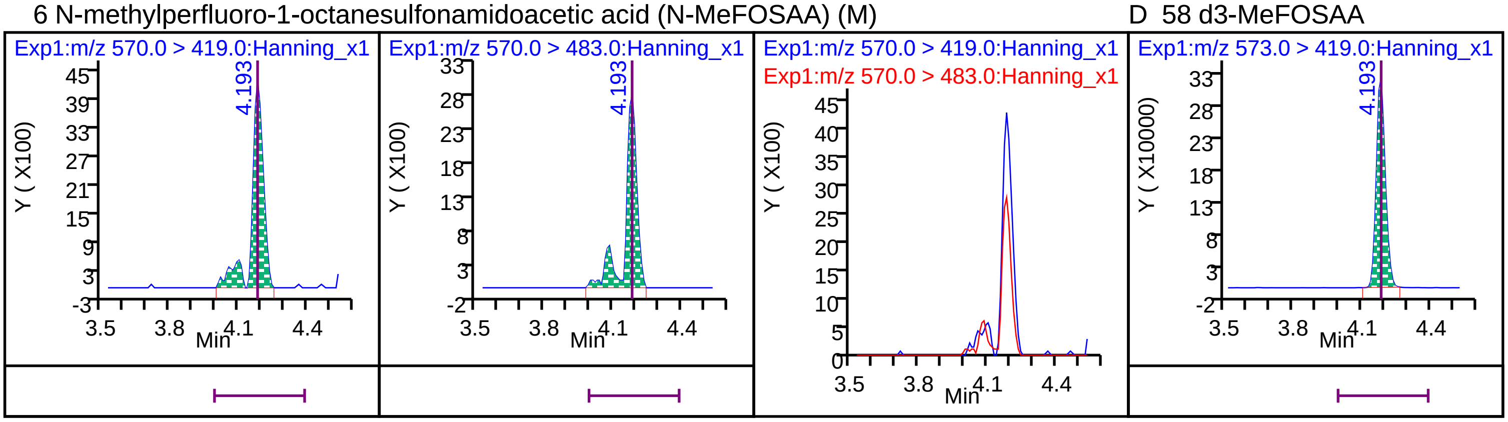
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



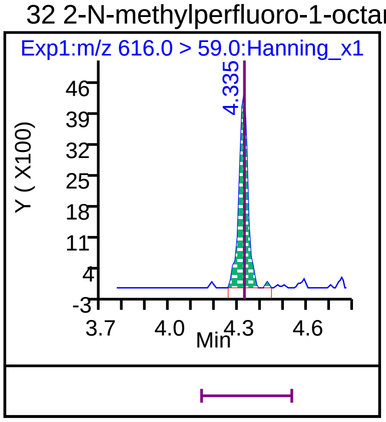
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



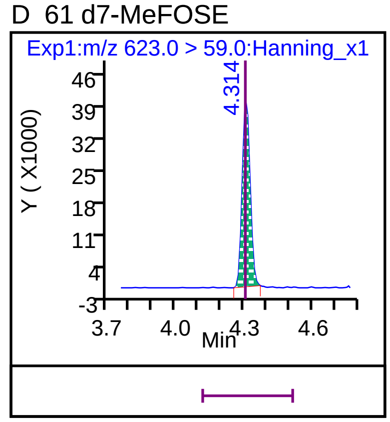
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



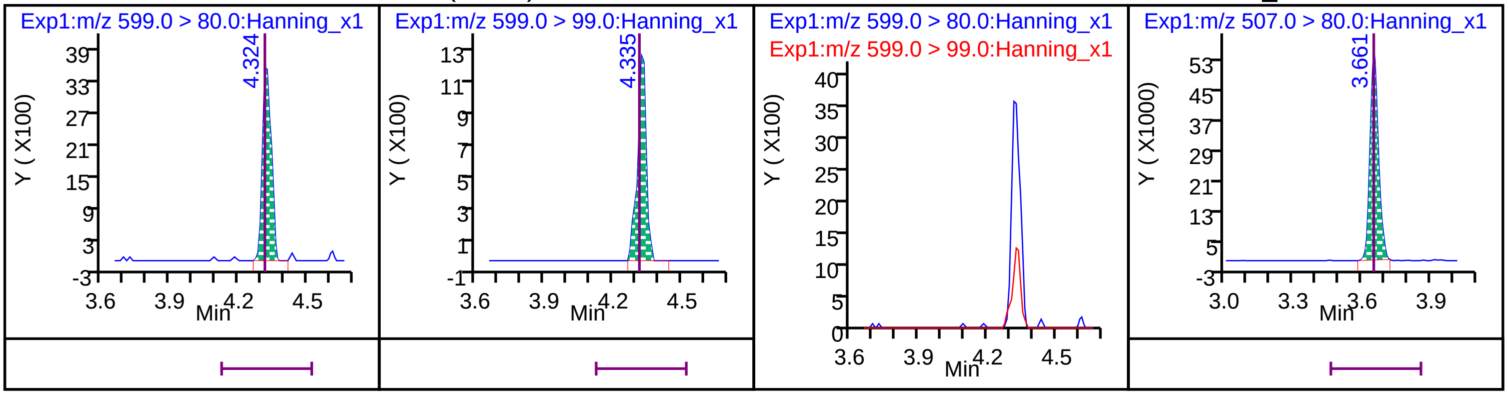
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



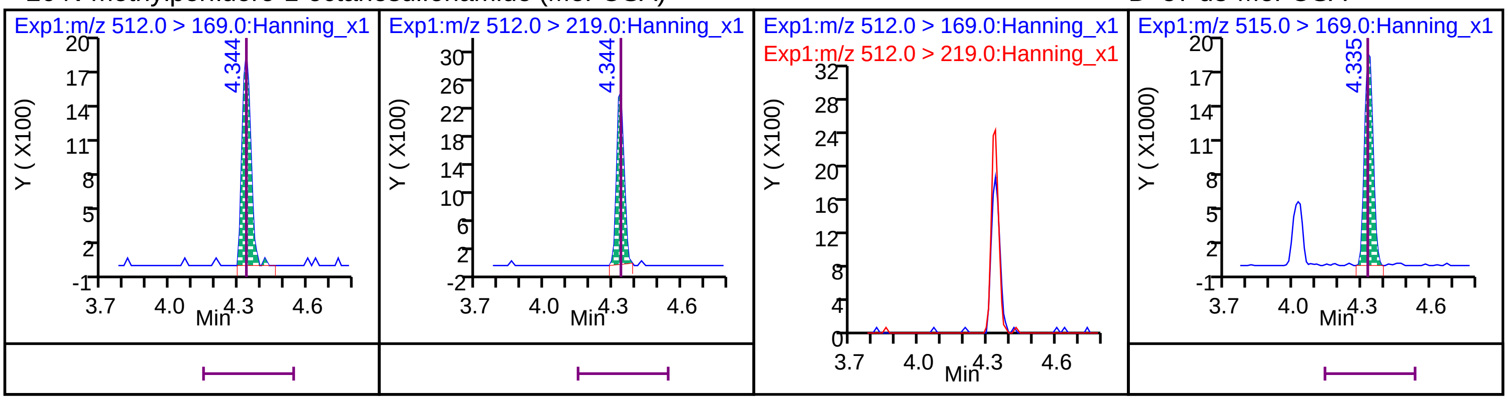
D 61 d7-MeFOSE



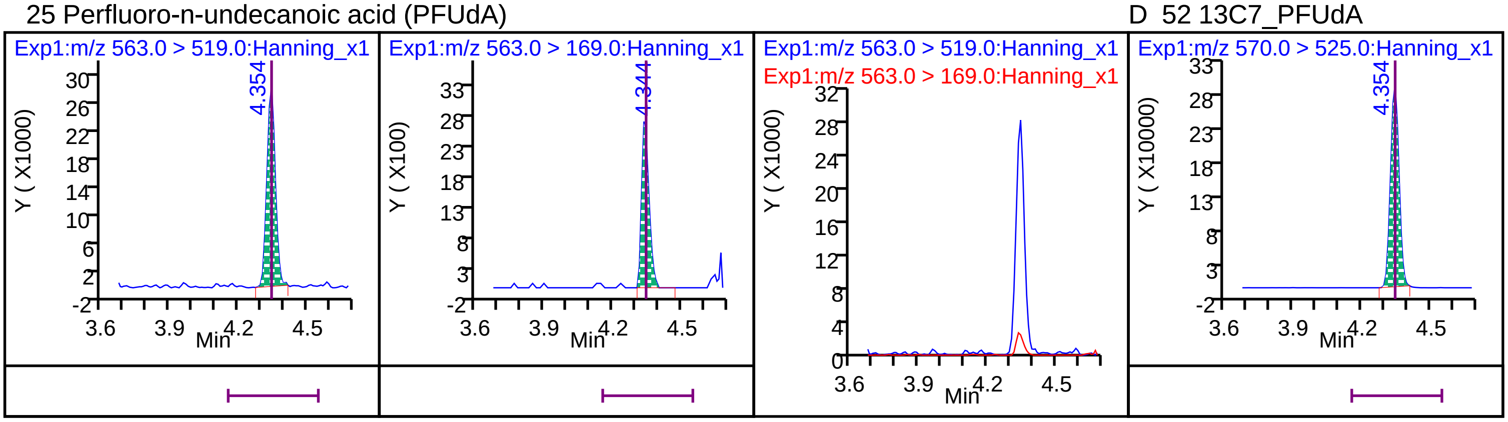
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



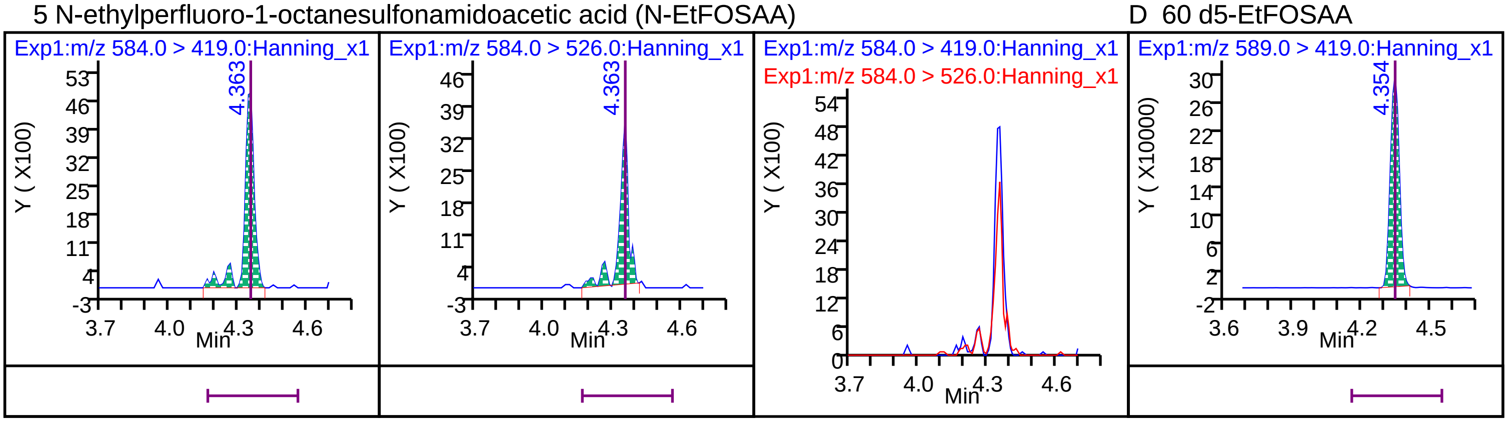
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



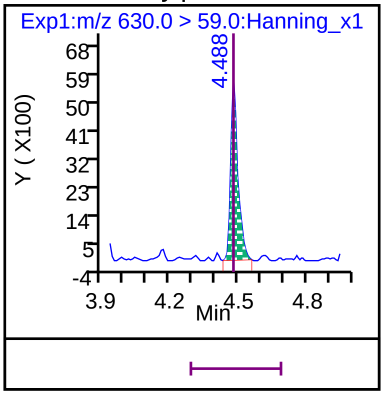
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



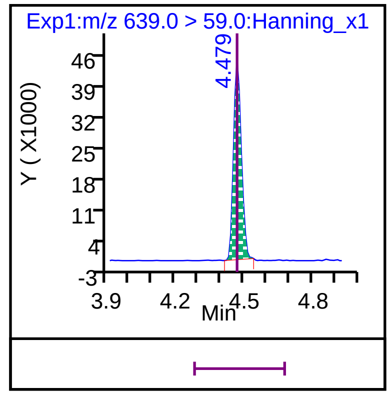
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



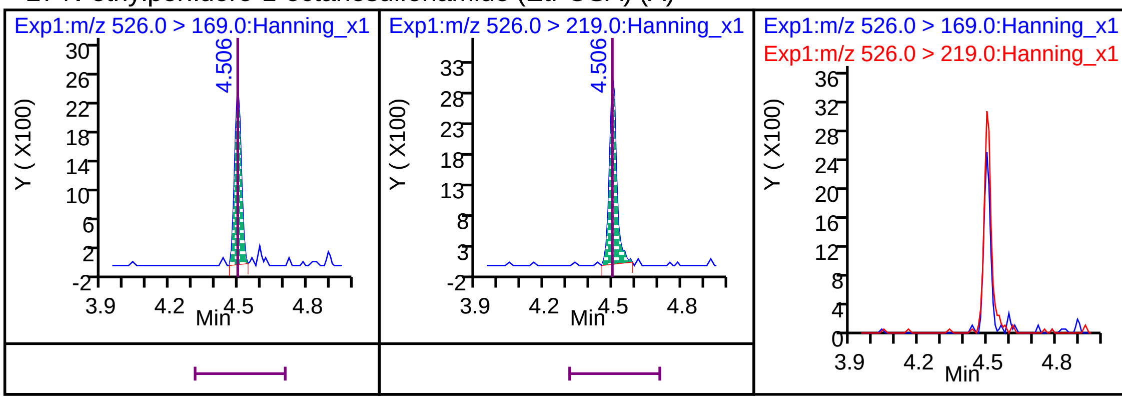
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (A)



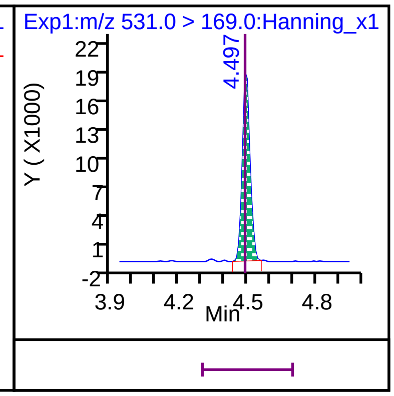
D 62 d9-EtFOSE



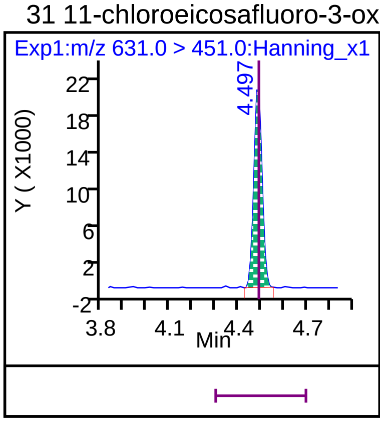
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (A)



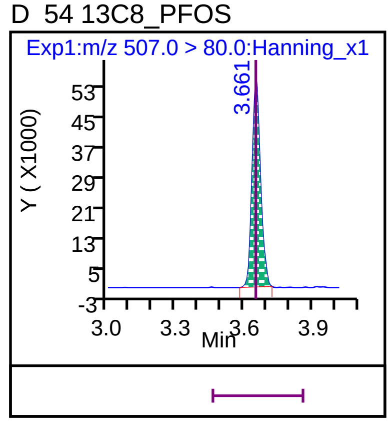
D 59 d5-EtFOSA



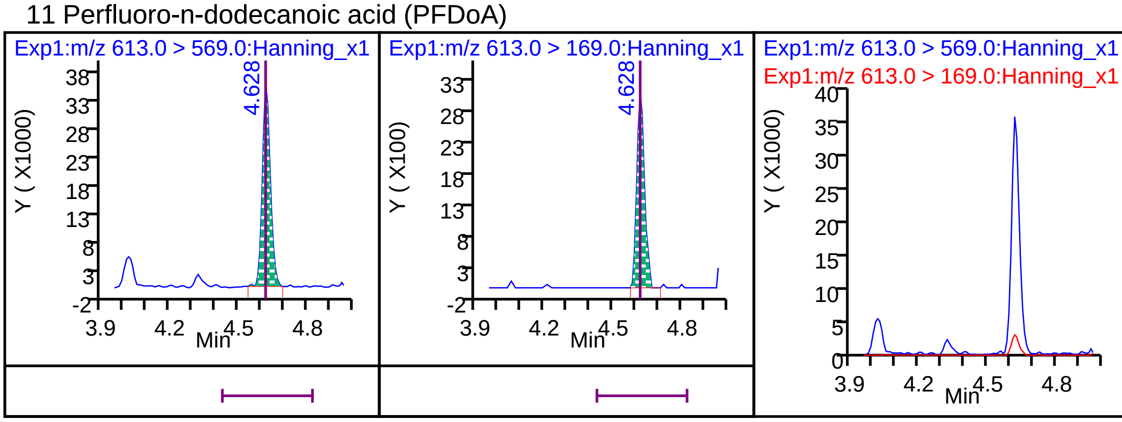
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



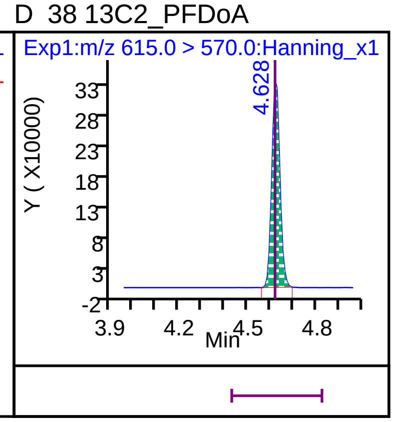
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)

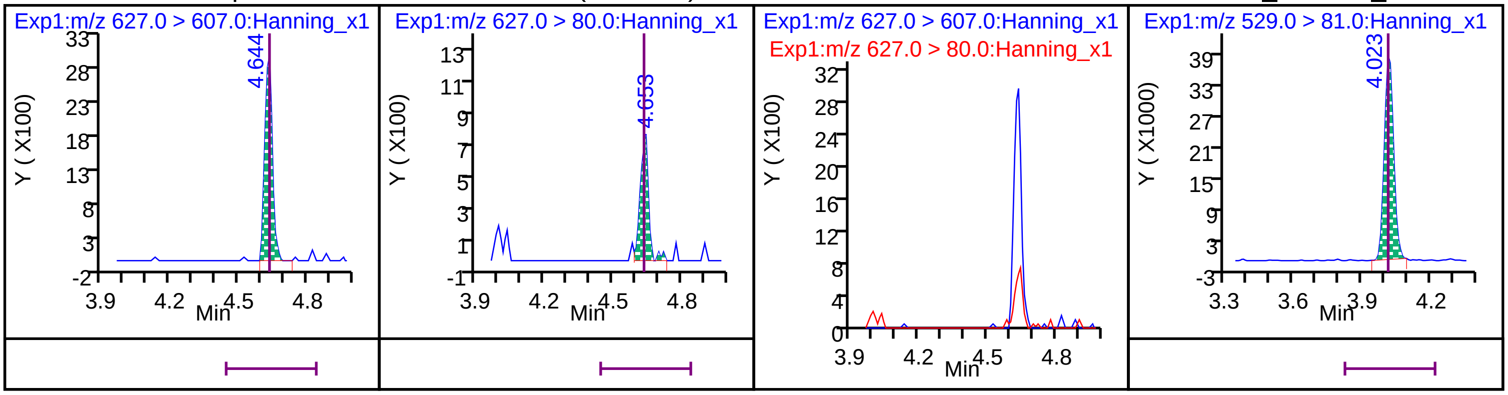


D 38 13C2_PFDoA

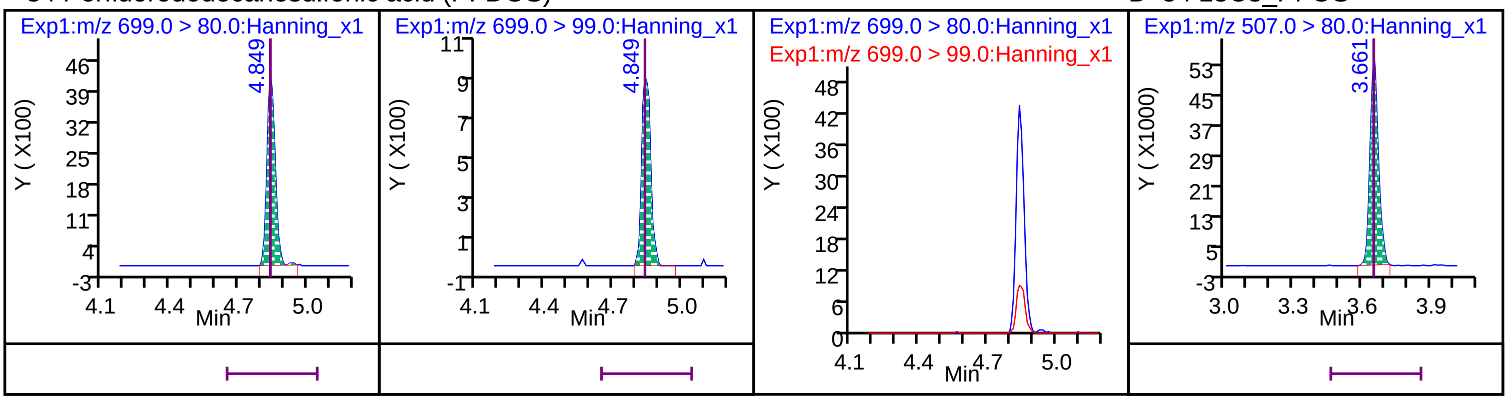


Report Date: 30-Nov-2021 15:07:17 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521005.d

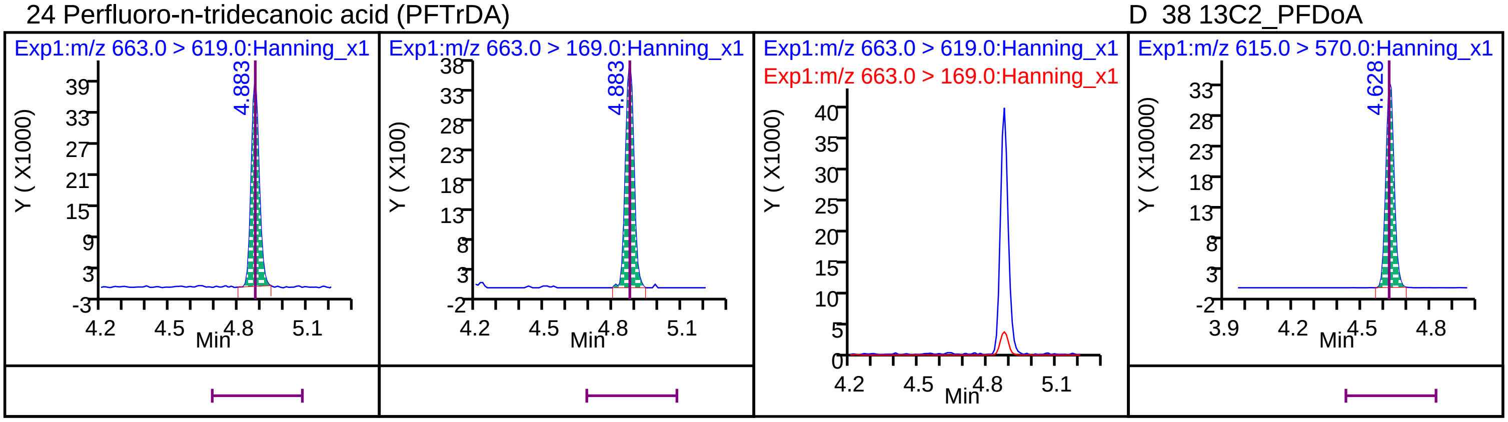
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



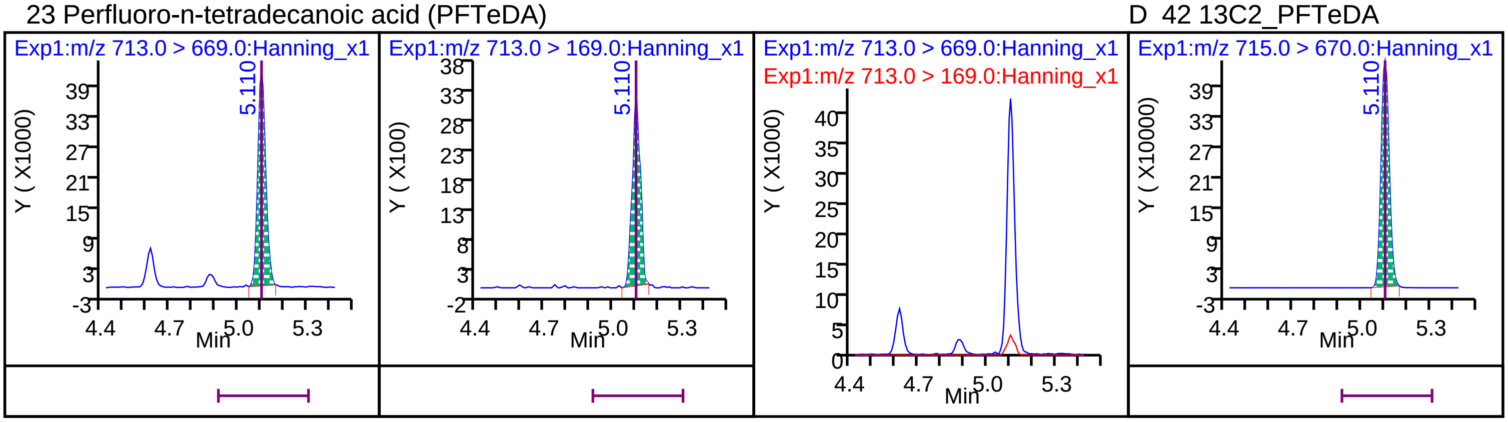
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



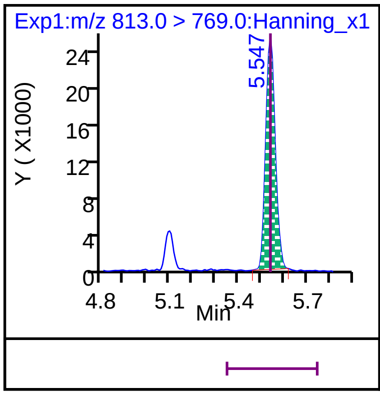
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

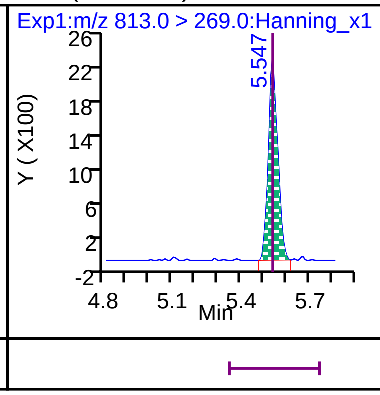


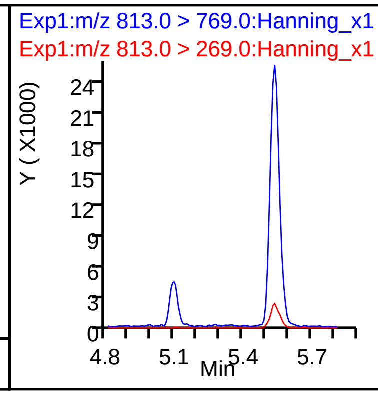
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

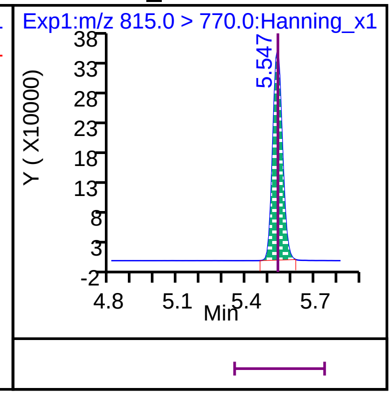


35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA

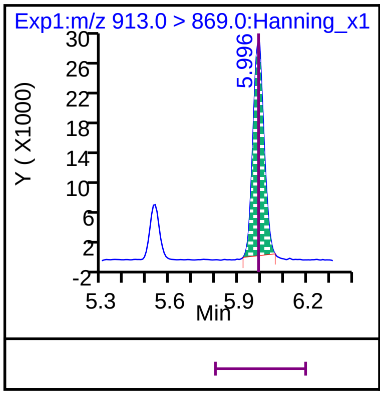


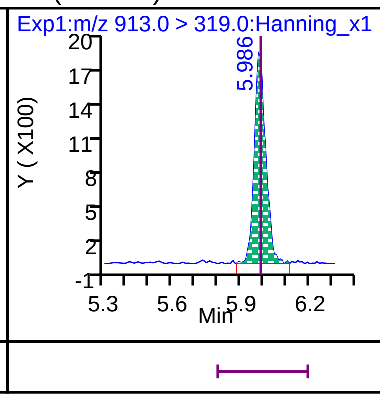


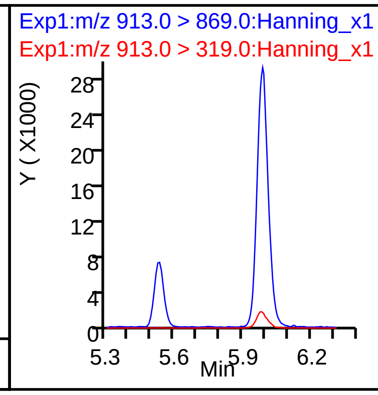


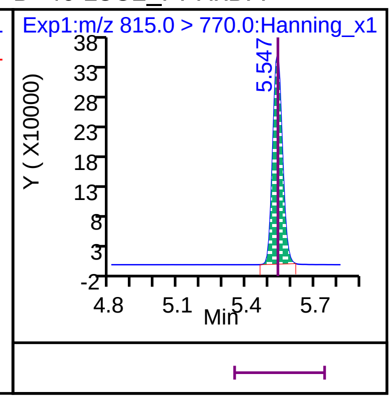


36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA

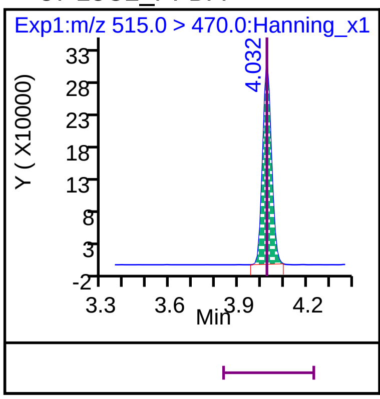


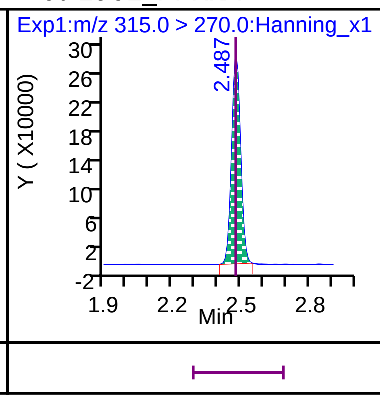


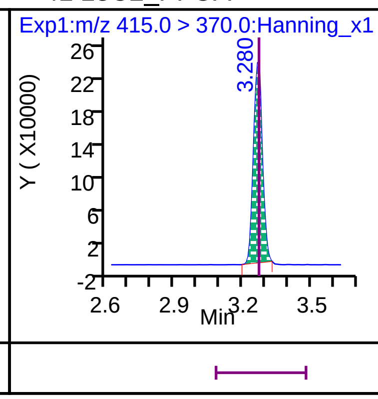


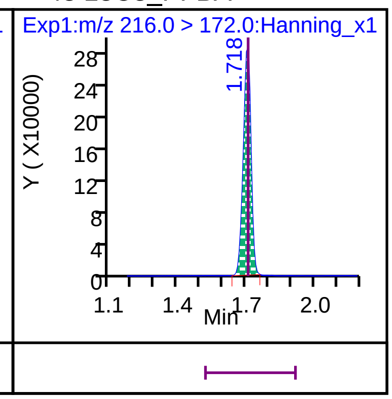


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA

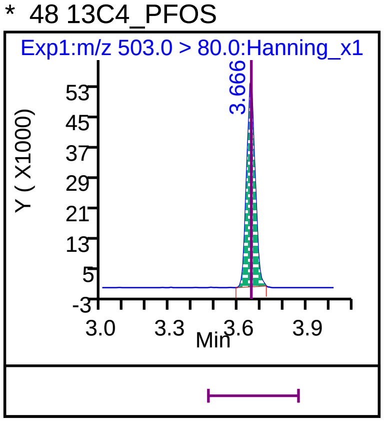








* 48 13C4_PFOS



Report Date: 30-Nov-2021 15:07:17 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521005.d

Injection Date: 15-Nov-2021 13:04:55 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 100_SVLC-1741

Sample Info: ID CCV 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

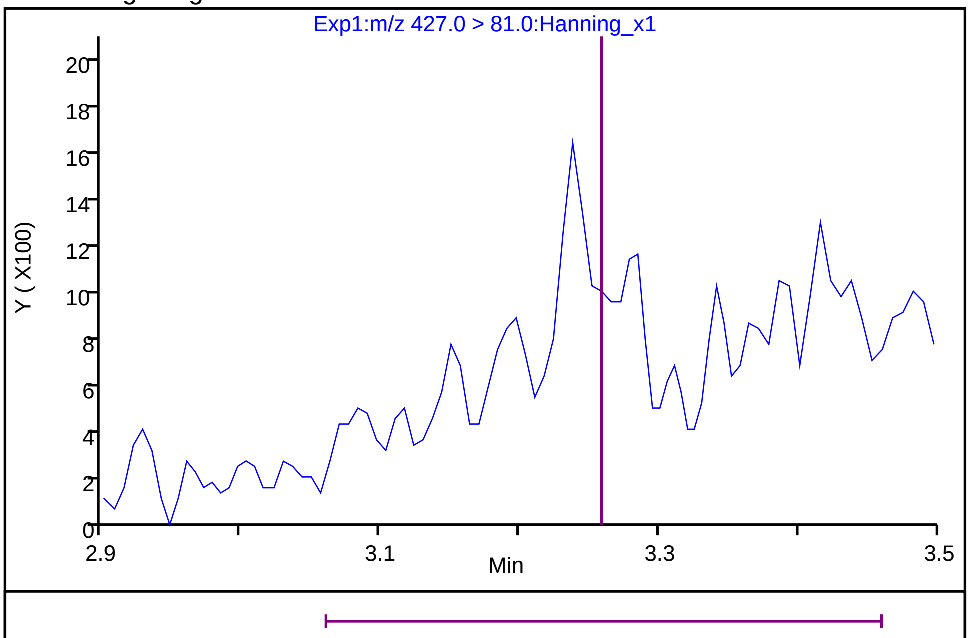
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected

Expected RT: 3.260

RT Window: 3.060-3.460

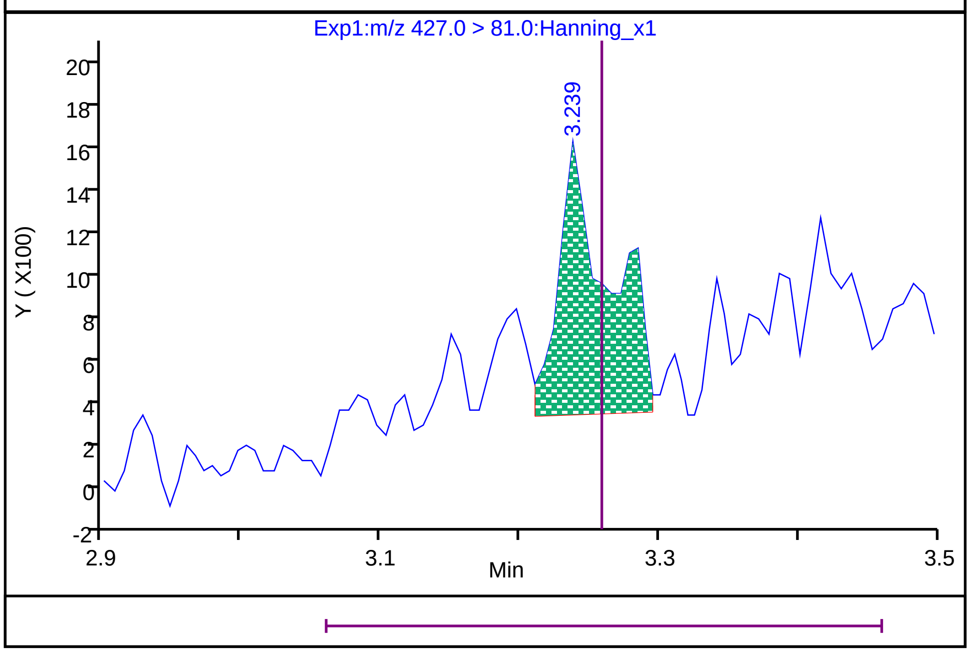


RT: 3.239

Area: 3069

Amount: 92.825

Amount Units: ng/L



Data Editor: justin.gavin, 15-Nov-2021 13:27:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Nov-2021 15:07:17 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

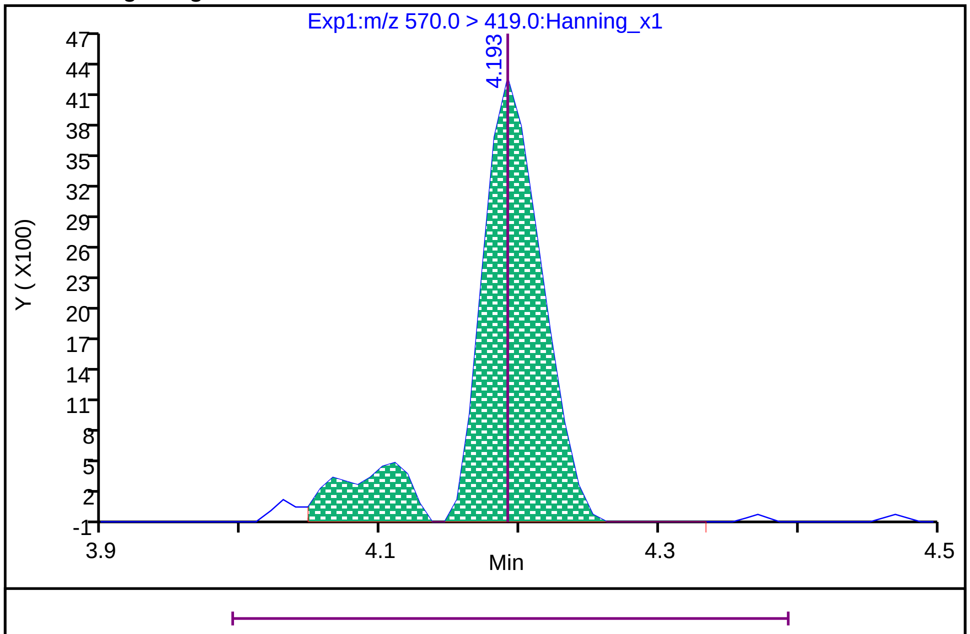
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521005.d		
Injection Date:	15-Nov-2021 13:04:55	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

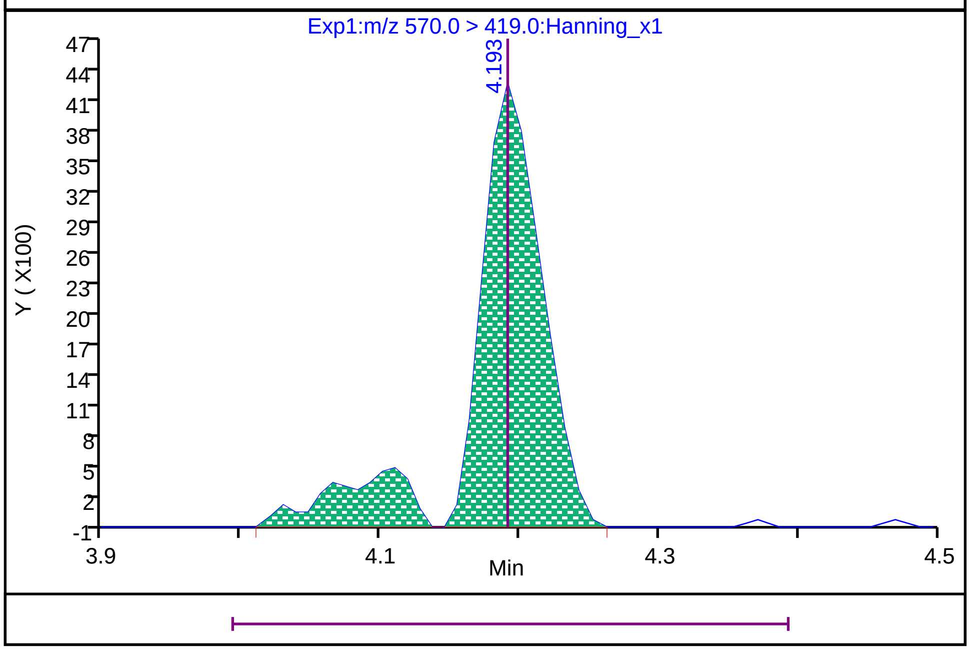
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.193
Area:	14242
Amount:	104.11
Amount Units:	ng/L



RT:	4.193
Area:	14542
Amount:	106.31
Amount Units:	ng/L



Data Editor: justin.gavin, 15-Nov-2021 13:28:55

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d		
Injection Date:	15-Nov-2021 13:15:24	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	192.79	96.4	70 - 130
D 46 13C4_PFBA	704612	706487			100.3	50 - 150
21 PFPeA			200.00	206.68	103.3	70 - 130
D 50 13C5_PFPeA	616672	629459			102.1	50 - 150
D 44 13C3_PFBS	181863	183882			101.1	50 - 150
7 PFBS			176.80	174.24	98.6	70 - 130
1 4:2 FTS			186.80	199.55	106.8	70 - 130
D 63 13C2_4:2 FTS_2	121742	119213			97.9	50 - 150
D 49 13C5_PFHxA	739401	723589			97.9	50 - 150
15 PFHxA			200.00	192.83	96.4	70 - 130
22 PFPeS			187.60	188.00	100.2	70 - 130
28 GenX			400.00	391.67	97.9	70 - 130
D 66 13C3_GenX	1321597	1260066			95.3	50 - 150
D 47 13C4_PFHpA	604203	592524			98.1	50 - 150
13 PFHpA			200.00	204.71	102.4	70 - 130
D 45 13C3_PFHxS	134021	132493			98.9	50 - 150
14 PFHxS			182.00	182.65	100.4	70 - 130
29 ADONA			188.40	211.38	112.2	70 - 130
D 64 13C2_6:2 FTS_2	102394	107094			104.6	50 - 150
2 6:2 FTS			189.60	198.39	104.6	70 - 130
20 PFOA			200.00	213.82	106.9	70 - 130
D 53 13C8_PFOA	630095	620561			98.5	50 - 150
12 PFHpS			190.40	211.72	111.2	70 - 130
D 54 13C8_PFOS	137691	136291			99	50 - 150
18 PFOS			185.60	192.85	103.9	70 - 130
17 PFNA			200.00	205.78	102.9	70 - 130
D 56 13C9_PFNA	741618	720155			97.1	50 - 150
30 9Cl-PF3ONS			186.40	189.40	101.6	70 - 130
D 55 13C8_PFOSA	289640	277313			95.7	50 - 150
19 PFOSA			200.00	194.73	97.4	70 - 130
16 PFNS			192.00	200.05	104.2	70 - 130
10 PFDA			200.00	207.35	103.7	70 - 130
3 8:2 FTS			191.60	249.98	130.5	70 - 130
D 51 13C6_PFDA	730609	681036			93.2	50 - 150
D 65 13C2_8:2 FTS_2	105151	93626			89	50 - 150
6 N-MeFOSAA			200.00	194.11	97.1	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	852364	834403			97.9	50 - 150
D 61 d7-MeFOSE	94236	90017			95.5	50 - 150
32 MeFOSE			200.00	222.08	111	70 - 130
26 MeFOSA			200.00	222.77	111.4	70 - 130
D 57 d3-MeFOSA	46672	46985			100.7	50 - 150
9 PFDS			192.80	178.26	92.5	70 - 130
D 52 13C7_PFUdA	734518	743713			101.3	50 - 150
D 60 d5-EtFOSAA	771983	757212			98.1	50 - 150
25 PFUdA			200.00	205.13	102.6	70 - 130
5 N-EtFOSAA			200.00	192.34	96.2	70 - 130
D 62 d9-EtFOSE	103023	103345			100.3	50 - 150
33 EtFOSE			200.00	215.24	107.6	70 - 130
D 59 d5-EtFOSA	42973	45473			105.8	50 - 150
31 11Cl-PF3OUDS			188.40	204.10	108.3	70 - 130
27 EtFOSA			200.00	190.32	95.2	70 - 130
D 38 13C2_PFDoA	793096	782007			98.6	50 - 150
11 PFDoA			200.00	192.34	96.2	70 - 130
4 10:2 FTS			192.80	210.30	109.1	70 - 130
34 PFDOS			193.60	159.60	82.4	70 - 130
24 PFTrDA			200.00	194.84	97.4	70 - 130
D 42 13C2_PFTeDA	1045249	909110			87	50 - 150
23 PFTeDA			200.00	216.34	108.2	70 - 130
D 40 13C2_PFHxDA	1010565	958676			94.9	50 - 150
35 PFHxDA			200.00	206.98	103.5	70 - 130
36 PFODA			200.00	222.14	111.1	70 - 130

Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d		
Injection Date:	15-Nov-2021 13:15:24	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	706487	20	>100:1			1000.00	1136.43	100.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	1/0	143642	20	>100:1			200.00	192.79		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	1	629459	17	>100:1			1000.00	1101.24	102.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.109	1/0	146427	17	>100:1			200.00	206.68		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.162	1	183882	16	>100:1			1000.00	1063.09	101.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.162	1/0	39954	15	>100:1	Target = 3.53		176.80	174.24		
298.9 > 99	44	2.162	2.162		11359	15	>100:1	3.51 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.523	2.522	1/0	32039	18	>100:1	Target = 3.10		187.60	188.00		
349 > 99	44	2.523	2.522		9851	26	>100:1	3.25 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	1	119213	19	>100:1			5000.00	5264.73	97.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	1/0	10488	15	>100:1	Target = 1.75		186.80	199.55		
327 > 81	63	2.460	2.451		5841	16	11:1	1.79 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.487	1	723589	17	>100:1			1000.00	1111.01	97.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.487	1/0	145078	18	>100:1	Target = 18.91		200.00	192.83		
313 > 119	49	2.487	2.487		8870	17	68:1	16.35 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.606	1	1260066	20	>100:1			5000.00	5437.03	95.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.606	1/0	63925	17	>100:1	Target = 0.79		400.00	391.67		
285 > 185	66	2.606	2.606		86986	20	>100:1	0.73 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.872	1	592524	18	>100:1			1000.00	1115.99	98.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.873	2.872	1/0	133285	19	>100:1	Target = 3.80		200.00	204.71		
363 > 169	47	2.873	2.872		36416	18	>100:1	3.66 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.888	1	132493	17	>100:1			1000.00	1054.55	98.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/-1	26605	31	>100:1	Target = 2.89	6.13	182.00	182.65		
399 > 99	45	2.888	2.896		9596	27	>100:1	2.77 (1.44-4.34)	12.33				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.918	1/0	217194	19	>100:1	Target = 3.23		188.40	211.38		
377 > 85	45	2.912	2.918		63334	20	>100:1	3.42 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.286	0/-1	28810	28	>100:1	Target = 3.12		190.40	211.72		
449 > 99	45	3.276	3.286		9084	27	79:1	3.17 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.246	1	107094	23	>100:1			5000.00	5949.68	104.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.260	0/-1	10059	18	>100:1	Target = 1.75		189.60	198.39		
427 > 81	64	3.235	3.260		5607	14	6.6:1	1.79 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.274	0	620561	22	>100:1			1000.00	1182.75	98.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.280	0/0	135972	23	86:1	Target = 2.89		200.00	213.82		
413 > 169	53	3.276	3.280		40334	20	>100:1	3.37 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.662	3.661	1	136291	20	>100:1			1000.00	1100.52	99	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.655	1/0	31296	40	>100:1	Target = 3.30	3.04	185.60	192.85		
499 > 99	54	3.662	3.655		9316	34	57:1	3.35 (1.65-4.95)	8.62				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.879	3.877	1/0	97758	16	>100:1			186.40	189.40		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.017	4.023	0/-1	21874	13	96:1	Target = 3.08		192.00	200.05		
549 > 99	54	4.017	4.023		9210	19	82:1	2.37 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.328	4.324	1/0	19012	17	>100:1	Target = 2.72		192.80	178.26		
599 > 99	54	4.328	4.324		8718	12	81:1	2.18 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.492	4.497	0/-1	95236	16	>100:1			188.40	204.10		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.849	0/-1	18704	18	>100:1	Target = 3.27		193.60	159.60		
699 > 99	54	4.851	4.849		7677	22		2.43 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.666	1	720155	24	>100:1			1000.00	1124.58	97.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.672	0/-1	159737	32	>100:1	Target = 6.51		200.00	205.78		
463 > 169	56	3.674	3.672		23311	20	>100:1	6.85 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.912	3.910	1	277313	17				1000.00	1034.53	95.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.912	3.910	1/0	56819	16	>100:1	Target = 41.63		200.00	194.73		
498>478	55	3.921	3.910		2276	20		24.96 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.032	0	681036	16	>100:1			1000.00	1185.11	93.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.036	4.032	1/1	164336	22	>100:1	Target = 13.80		200.00	207.35		
513 > 169	51	4.036	4.032		13305	21	82:1	12.35 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.027	4.023	1	93626	15	>100:1			5000.00	5416.76	89	M
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.027	4.032	0/-1	10577	13	62:1	Target = 1.94		191.60	249.98		
527 > 81	65	4.027	4.032		4952	13	22:1	2.13 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.644	0/-1	9989	18		Target = 3.54		192.80	210.30		
627 > 80	65	4.640	4.644		3170	19	25:1	3.15 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.187	4.193	0	834403	18	>100:1			5000.00	5521.73	97.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.197	4.193	1/1	25993	31	>100:1	Target = 1.37	7.43	200.00	194.11		
570 > 483	58	4.197	4.193		21484	36	>100:1	1.20 (0.68-2.05)	4.12				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.314	1	90017	16	>100:1			1000.00	998.10	95.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.335	0/-1	21847	19	>100:1			200.00	222.08		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.335	1	46985	13	>100:1			1000.00	998.81	100.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.338	4.344	0/-1	11345	13	86:1	Target = 1.11		200.00	222.77		
512 > 219	57	4.348	4.344		8975	22	66:1	1.26 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.348	4.354	0	757212	18	>100:1			5000.00	5846.60	98.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.357	4.363	0/0	28402	30	>100:1	Target = 1.51	6.11	200.00	192.34		
584 > 526	60	4.357	4.363		20863	28	>100:1	1.36 (0.75-2.26)	3.33				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.348	4.354	0	743713	16	>100:1			1000.00	1234.89	101.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.348	4.354	0/0	147823	16	>100:1	Target = 14.52		200.00	205.13		
563 > 169	52	4.348	4.354		11403	17		12.96 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.483	4.479	1	103345	17	>100:1			1000.00	974.25	100.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.492	4.488	1/0	21654	17	69:1			200.00	215.24		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.501	4.497	1	45473	21	>100:1			1000.00	1057.51	105.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.510	4.506	1/0	10954	13	82:1	Target = 1.06		200.00	190.32		
526 > 219	59	4.510	4.506		10774	15	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.631	4.628	1	782007	17	>100:1			1000.00	1302.61	98.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.628	0/-1	160352	16	30:1	Target = 10.70		200.00	192.34		
613 > 169	38	4.631	4.628		13802	14	>100:1	11.61 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.883	0/-1	160150	23	>100:1	Target = 8.31		200.00	194.84		
663 > 169	38	4.877	4.883		15402	20	>100:1	10.39 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.110	0	909110	21	>100:1			1000.00	1118.23	87	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.110	0/0	171682	20	25:1	Target = 12.17		200.00	216.34		
713 > 169	42	5.106	5.110		12140	20	>100:1	14.14 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.536	5.547	0	958676	21	>100:1			1000.00	1104.42	94.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.544	5.547	0/0	127082	21	18:1	Target = 10.43		200.00	206.98		
813 > 269	40	5.536	5.547		11264	21	>100:1	11.28 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.988	5.996	0/0	193880	39	12:1	Target = 13.67		200.00	222.14		M
913 > 319	40	5.992	5.996		12144	46	>100:1	15.96 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.032	0	711240	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.487	1	765587	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.280	0	638900	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	1	648000	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.662	3.666	0	135889	23	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

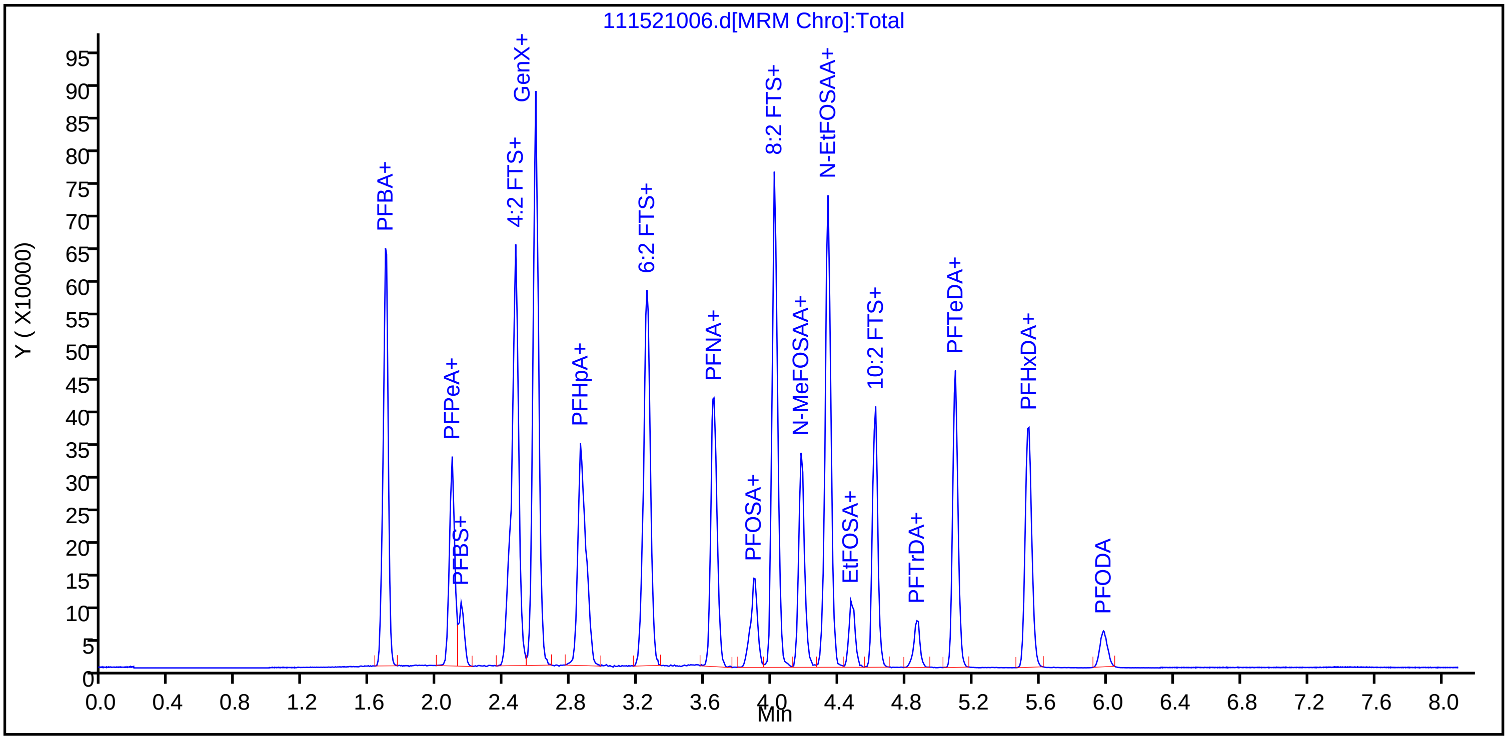
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

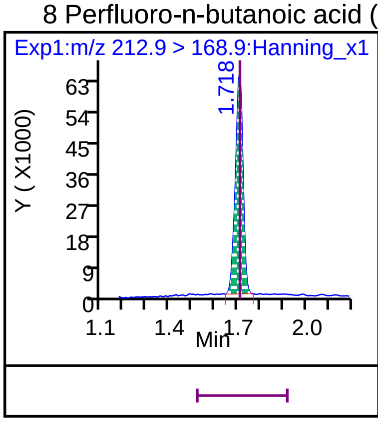
Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

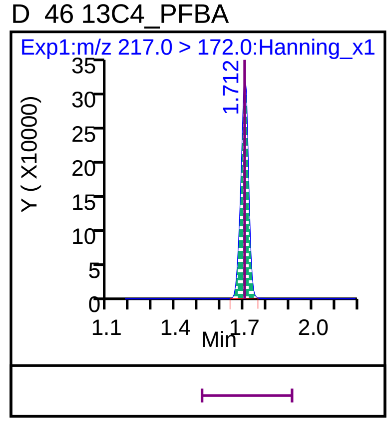
Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d		
Injection Date:	15-Nov-2021 13:15:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



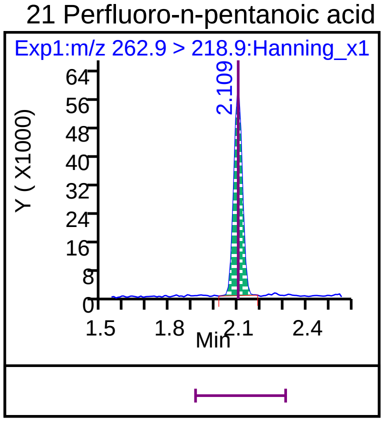
8 Perfluoro-n-butanoic acid (PFBA)



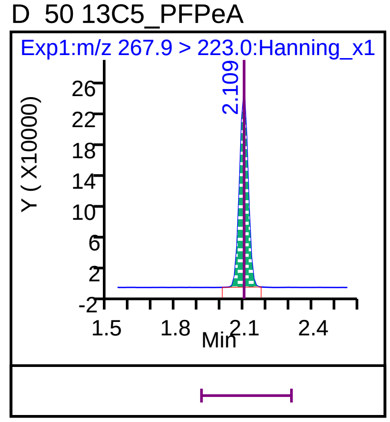
D 46 13C4_PFBA



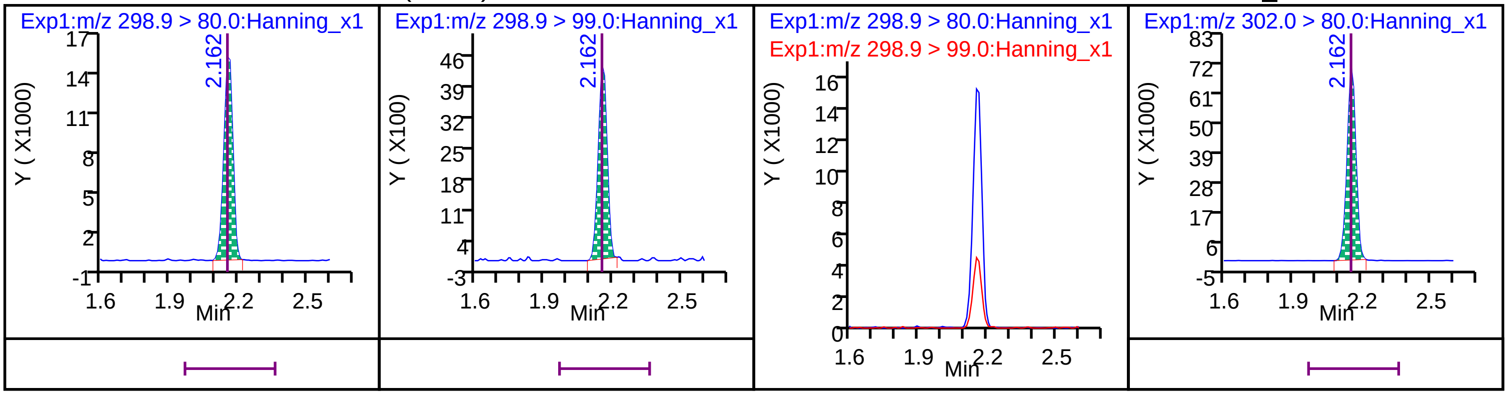
21 Perfluoro-n-pentanoic acid (PFPeA)



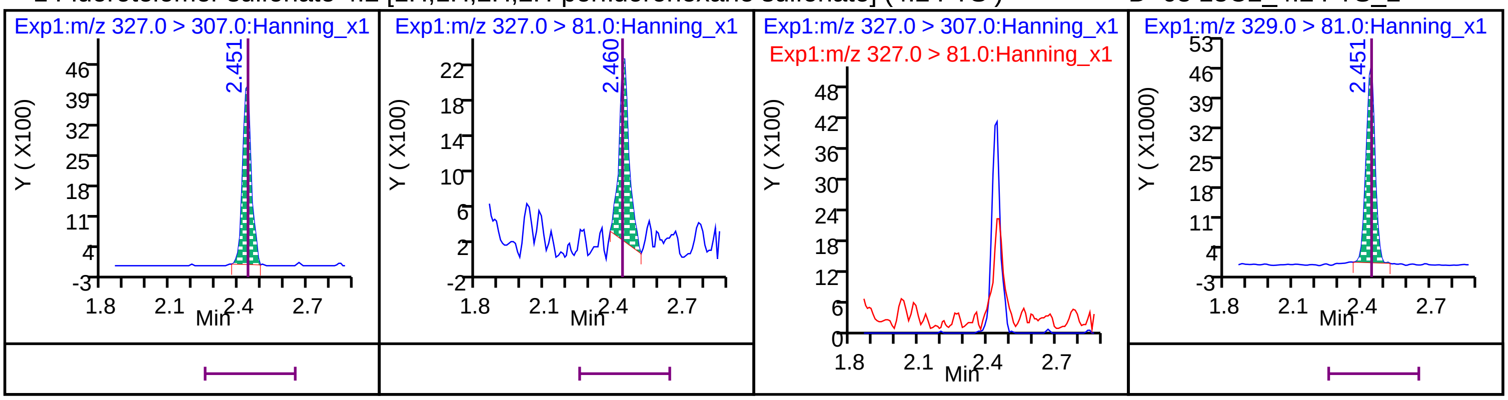
D 50 13C5_PFPeA



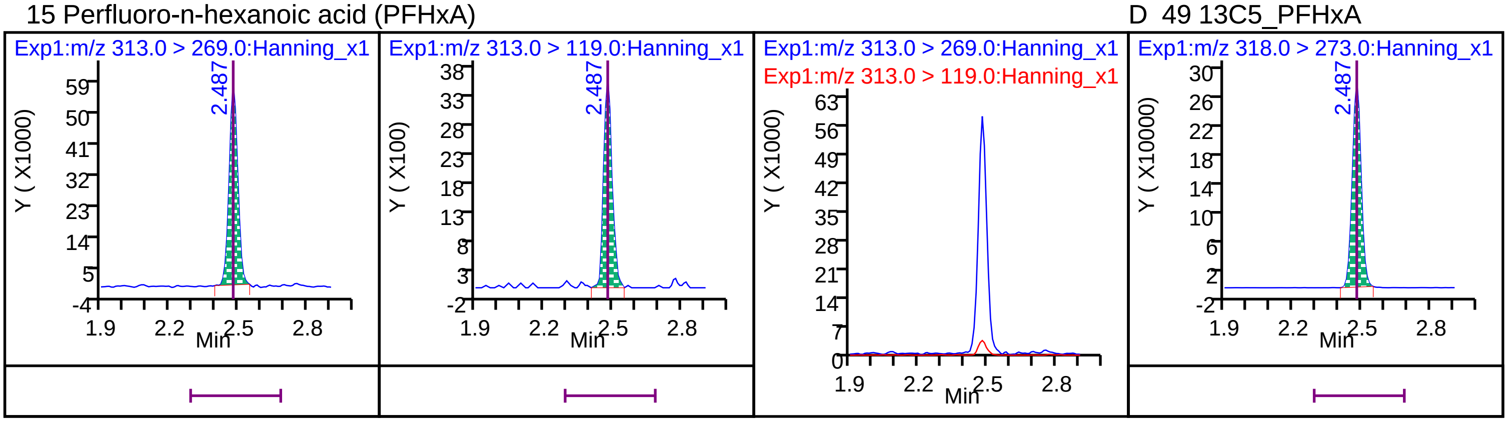
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



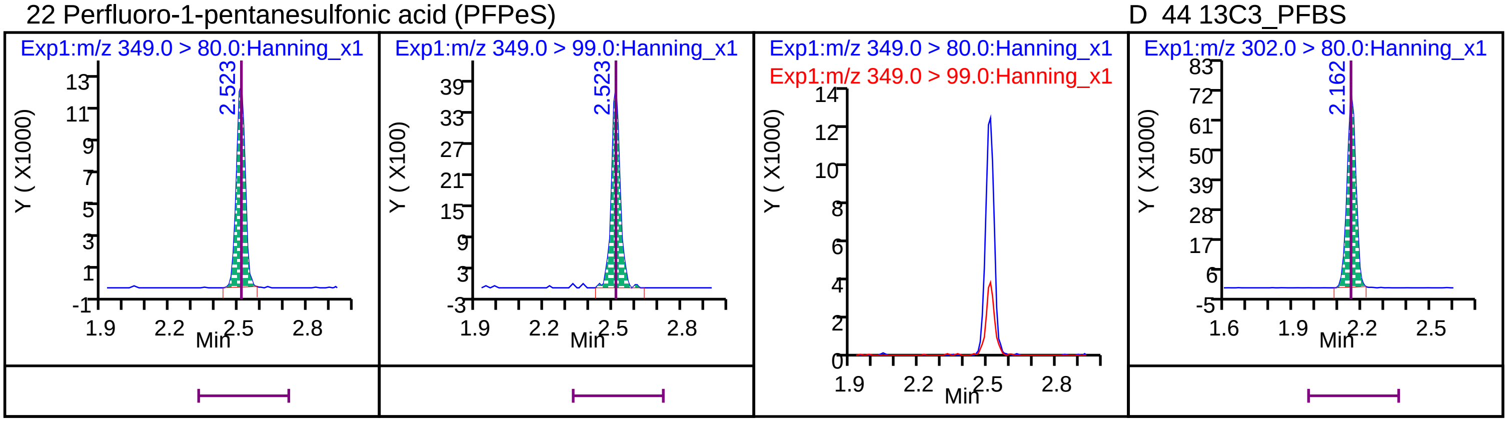
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

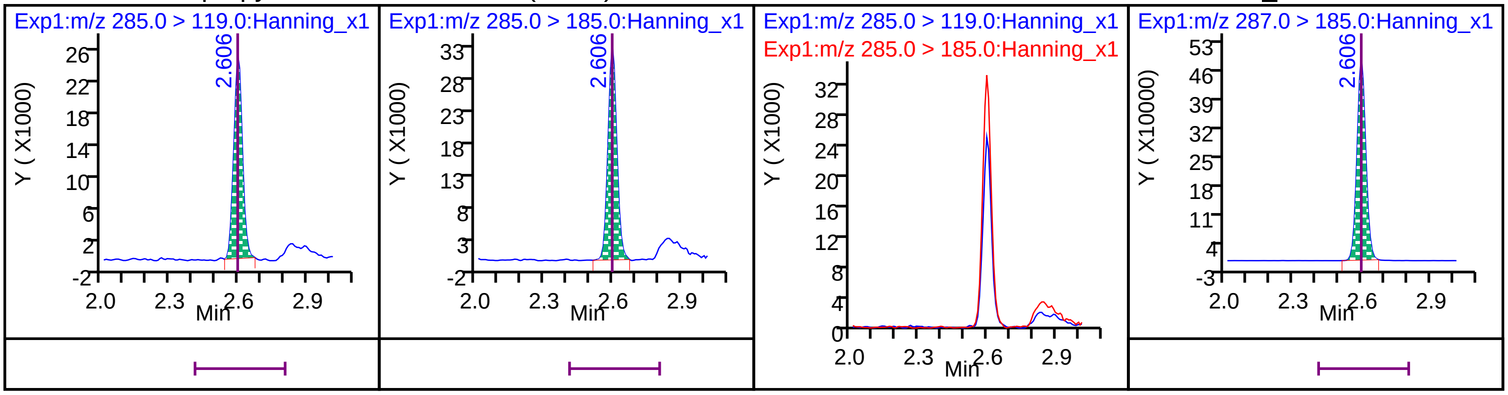


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

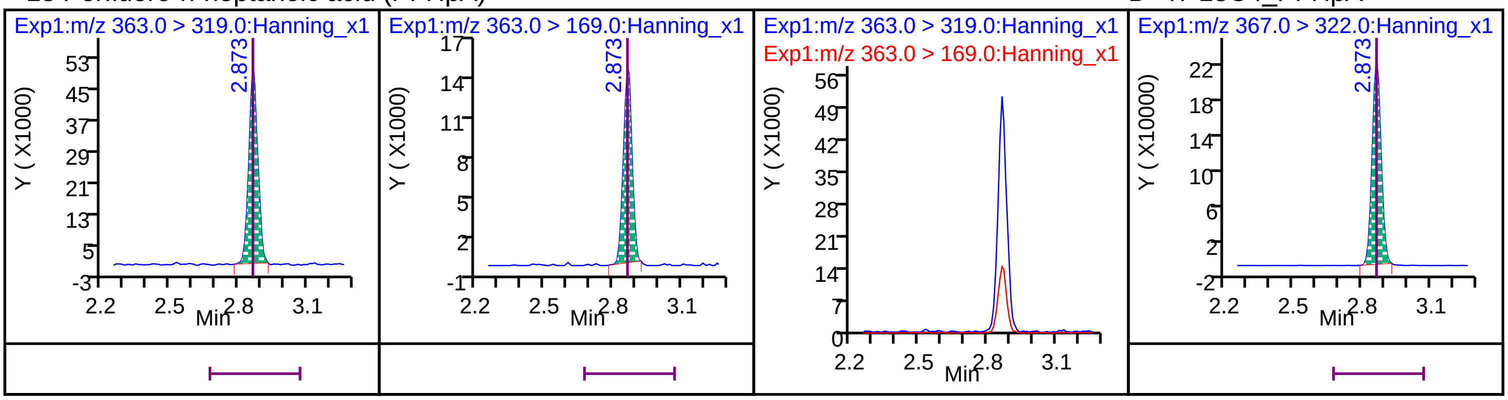


Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d

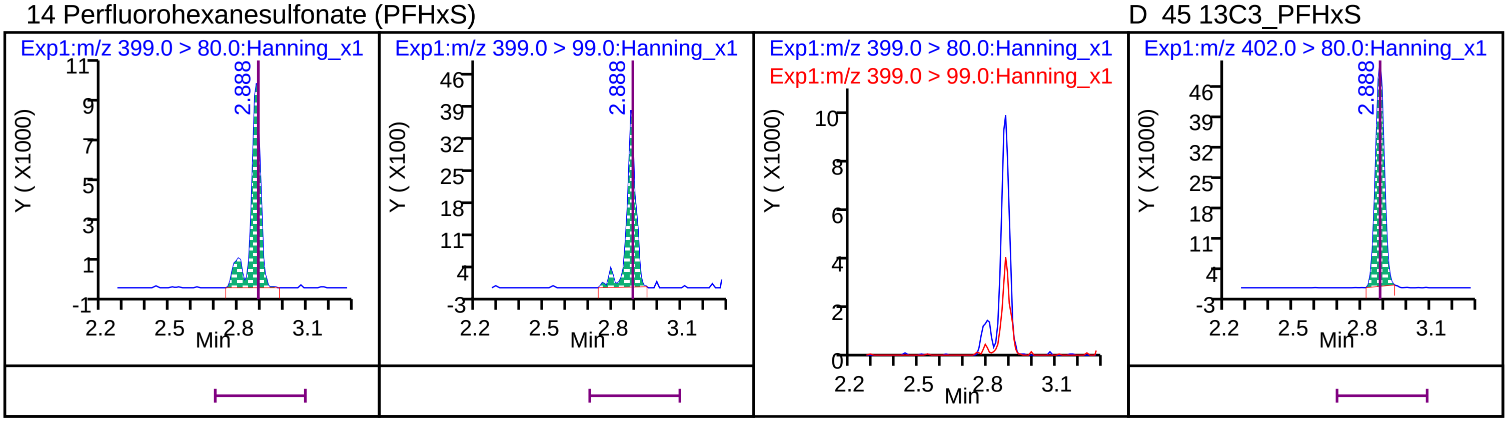
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



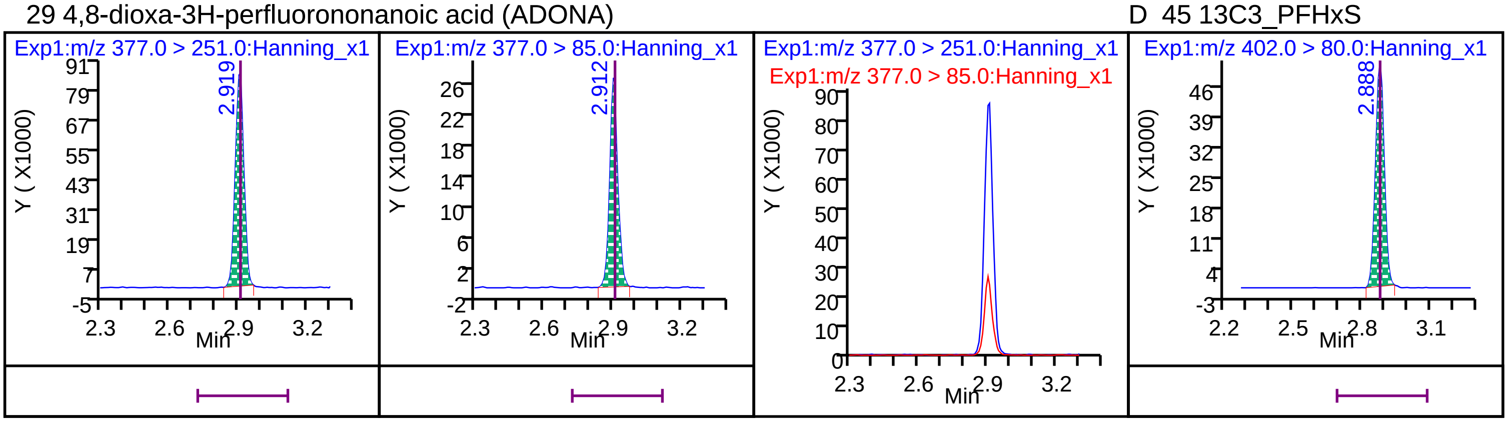
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



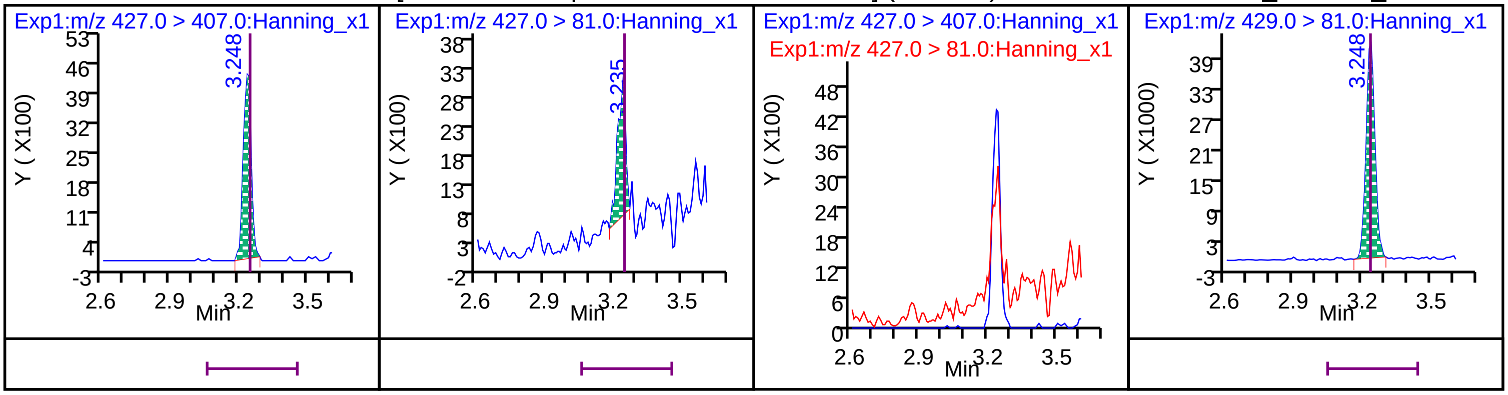
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



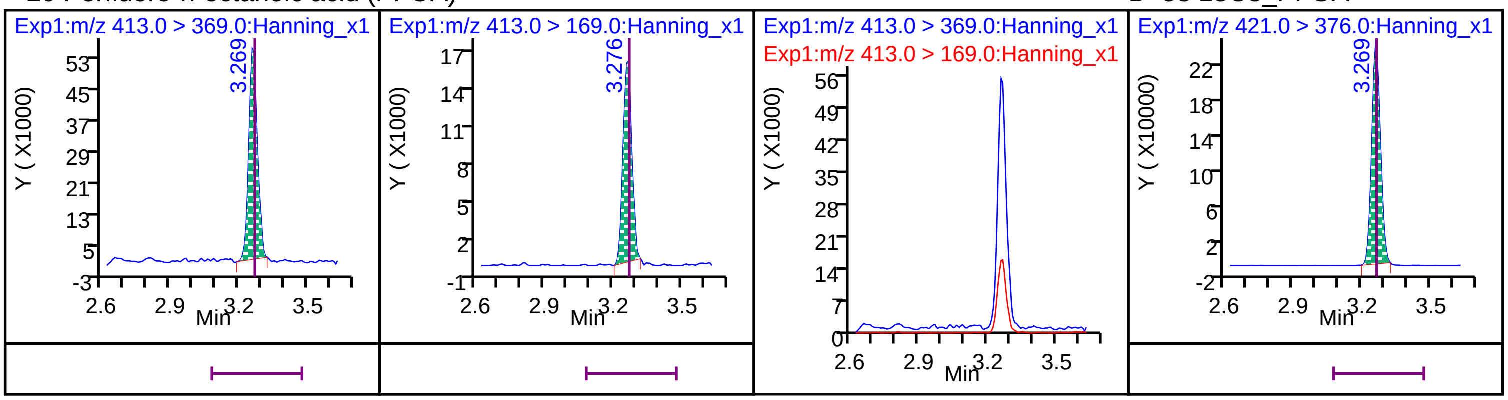
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



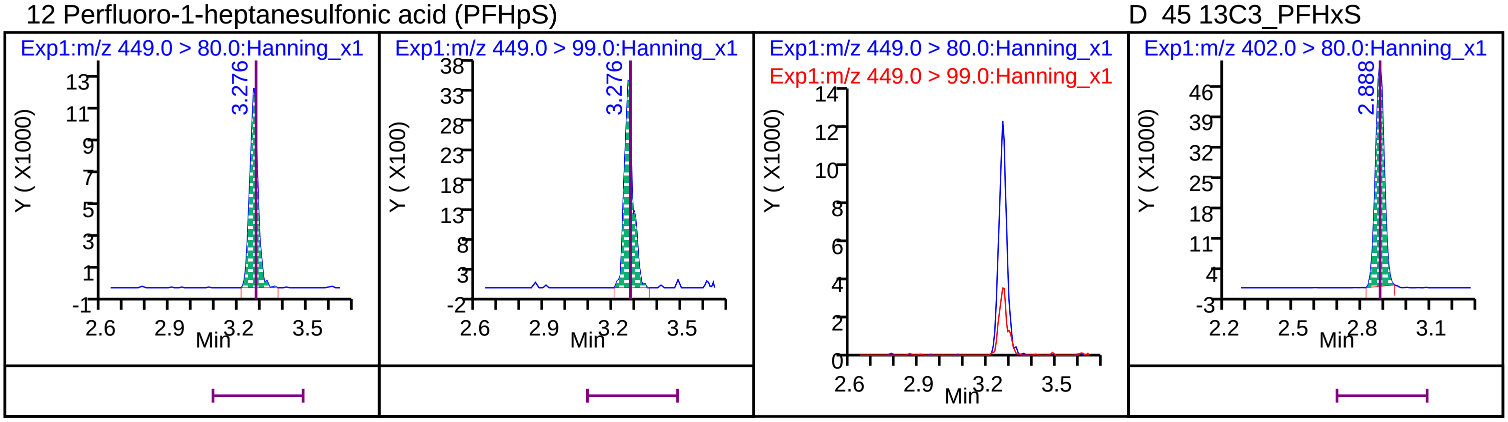
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



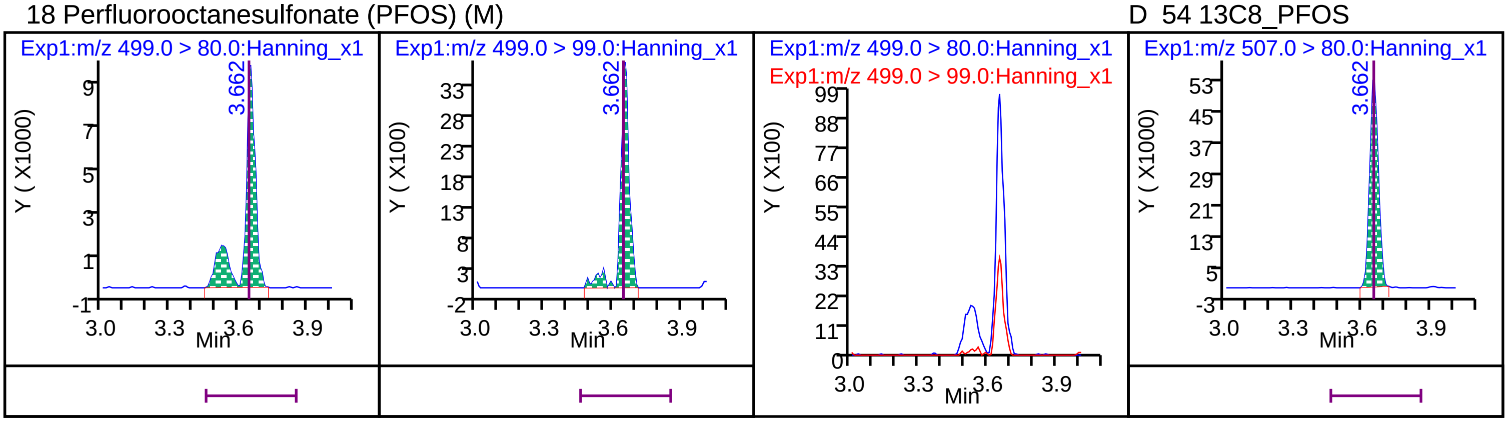
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



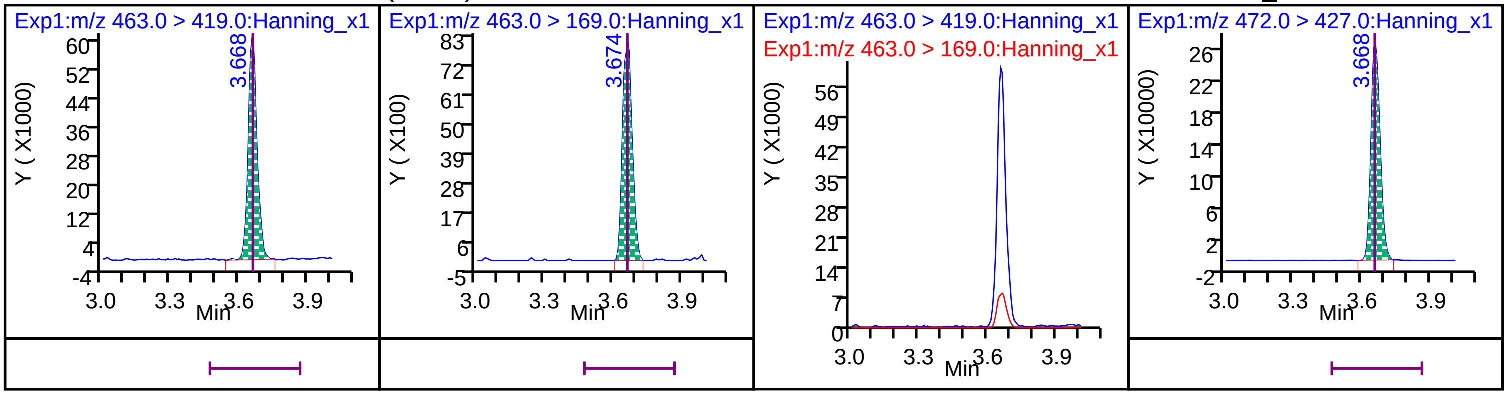
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



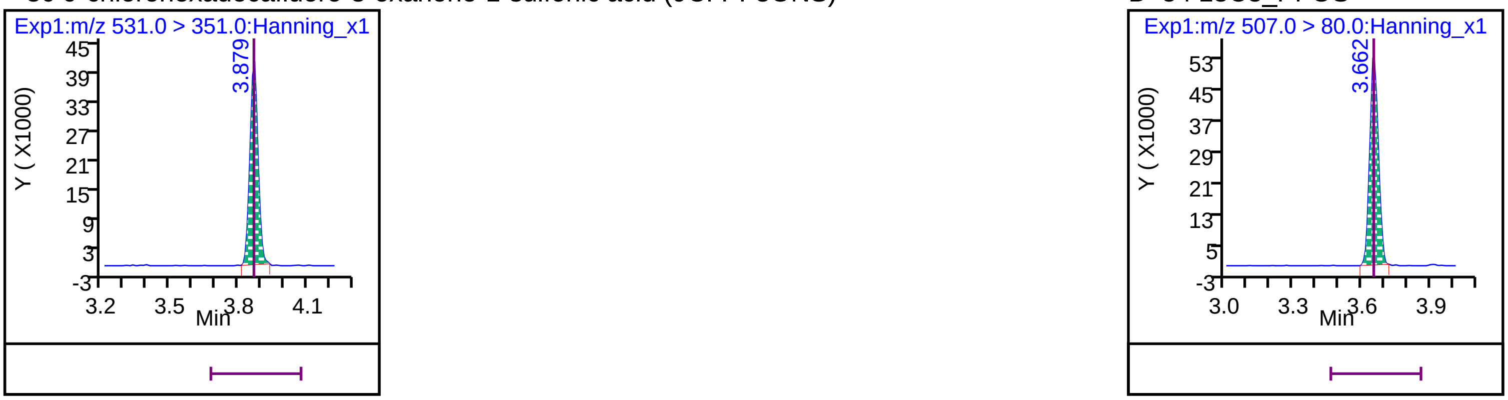
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



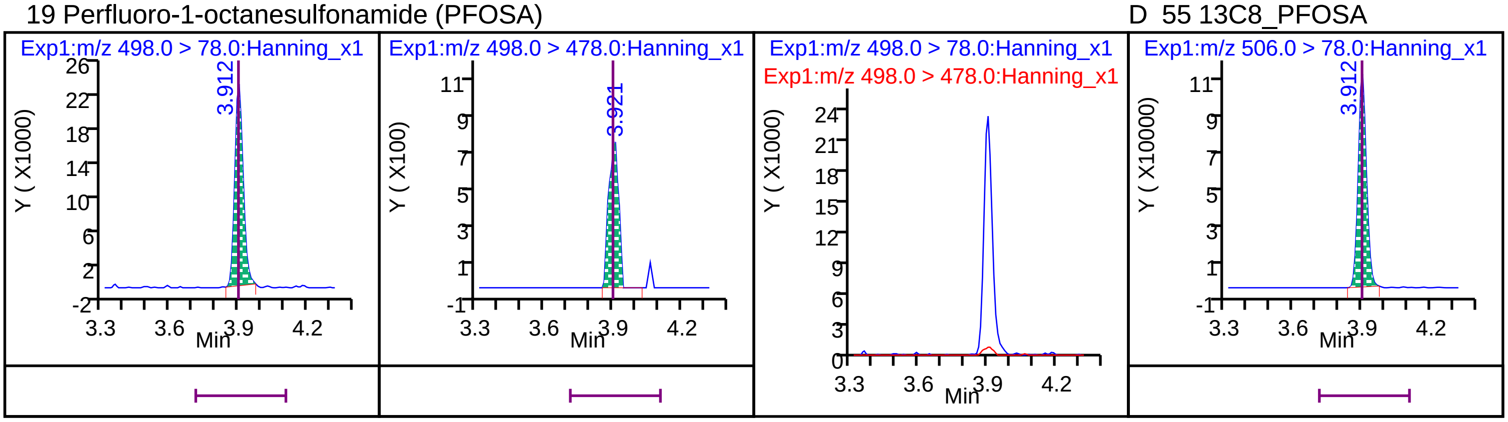
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



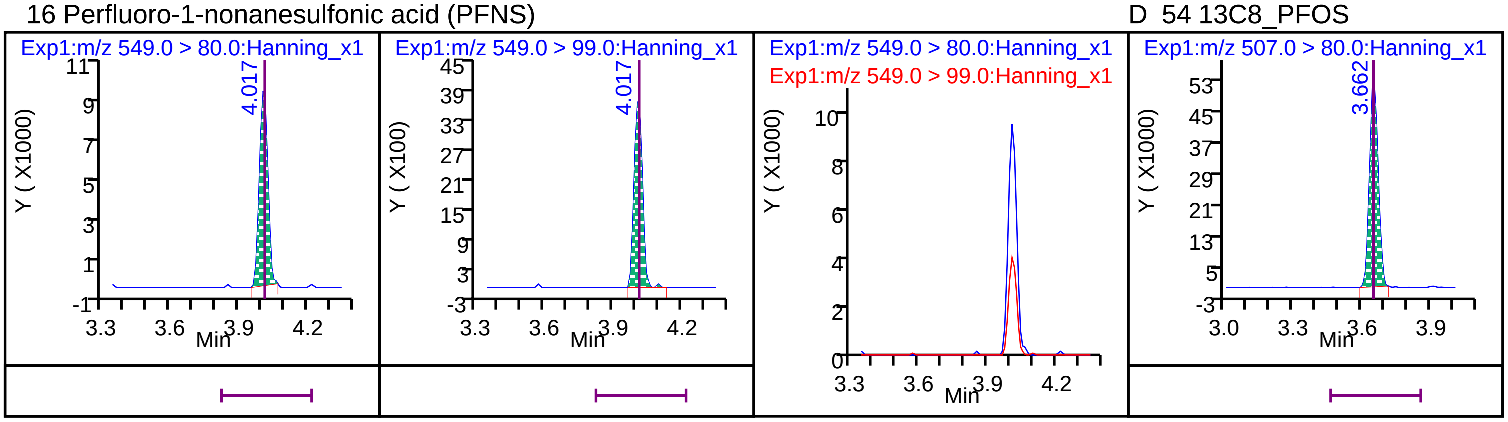
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



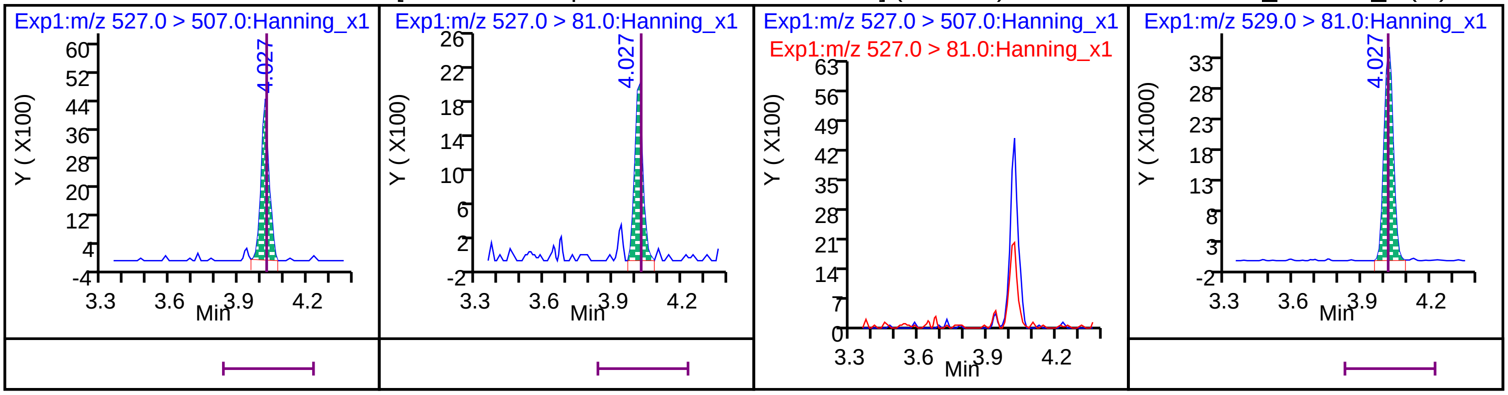
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



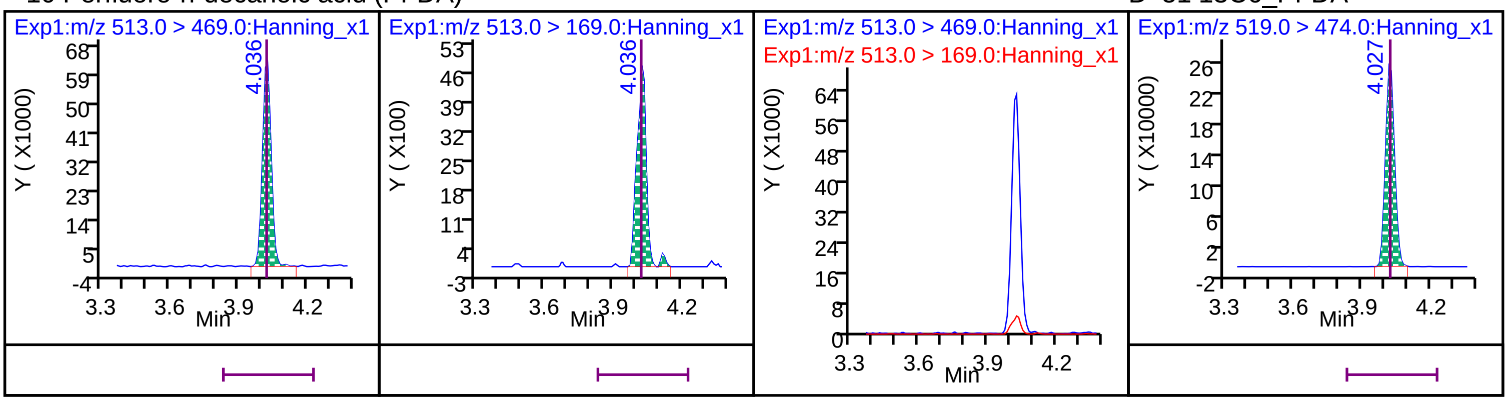
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



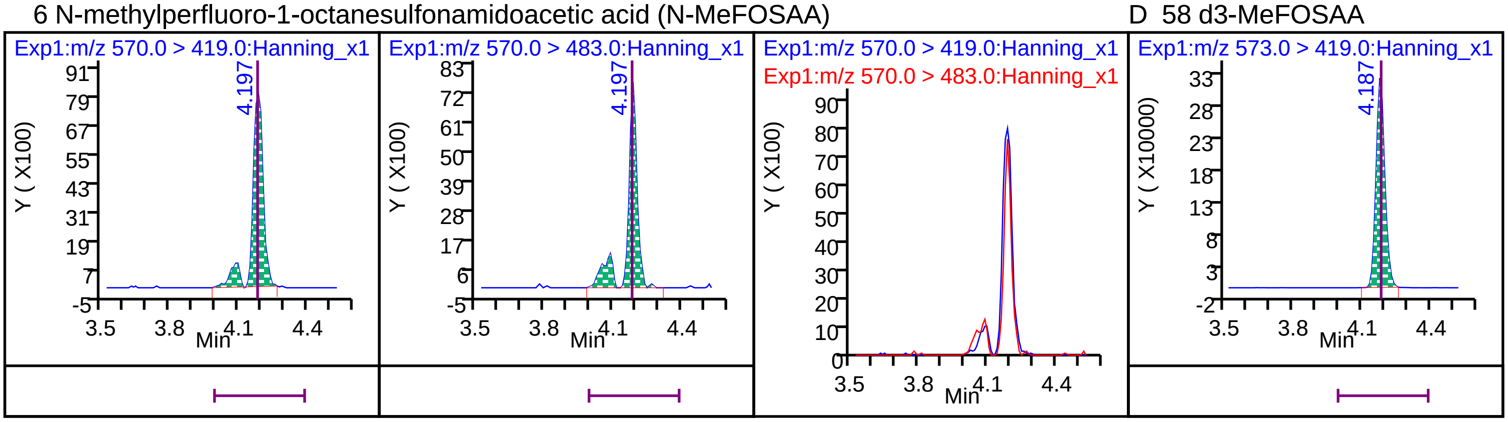
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2 (M)



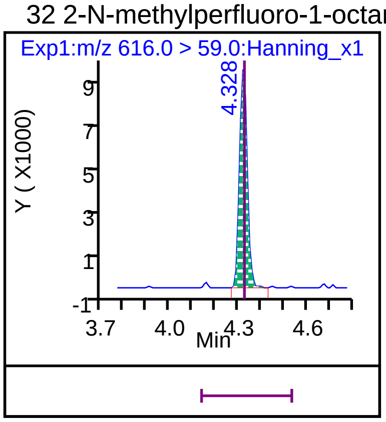
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

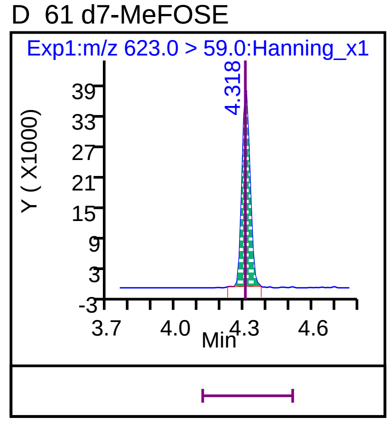


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

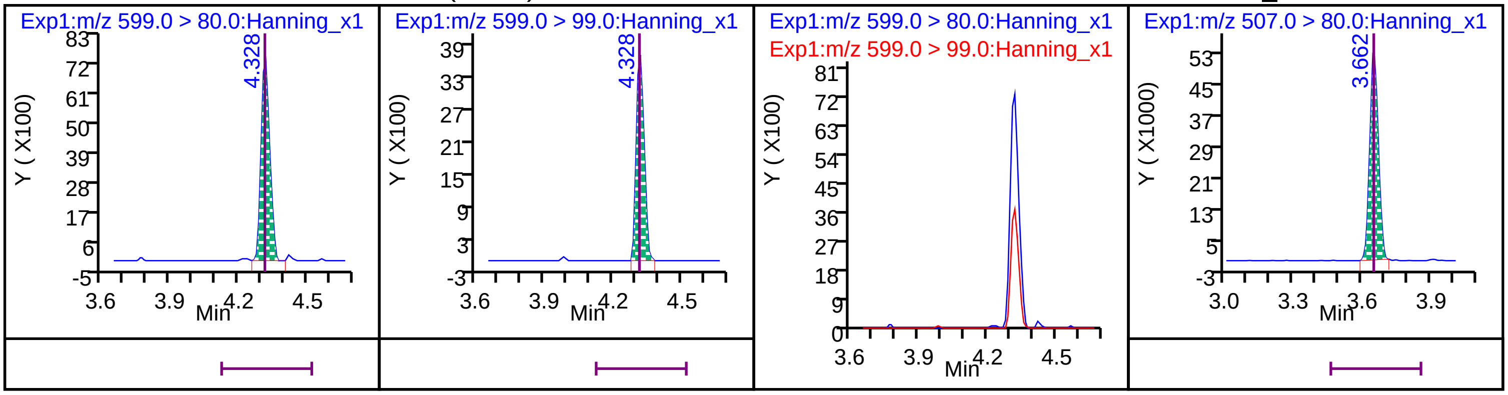


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

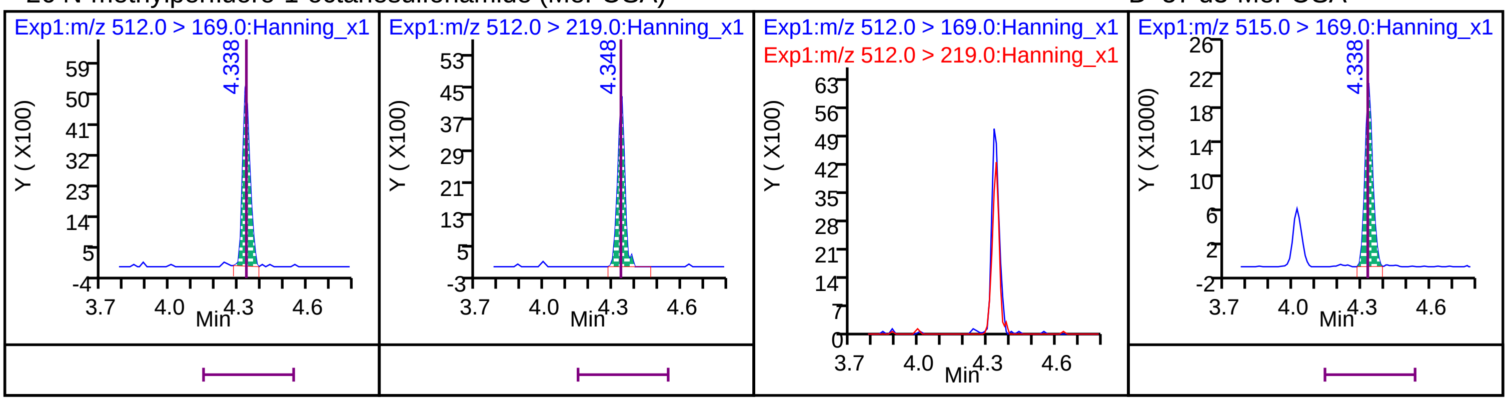




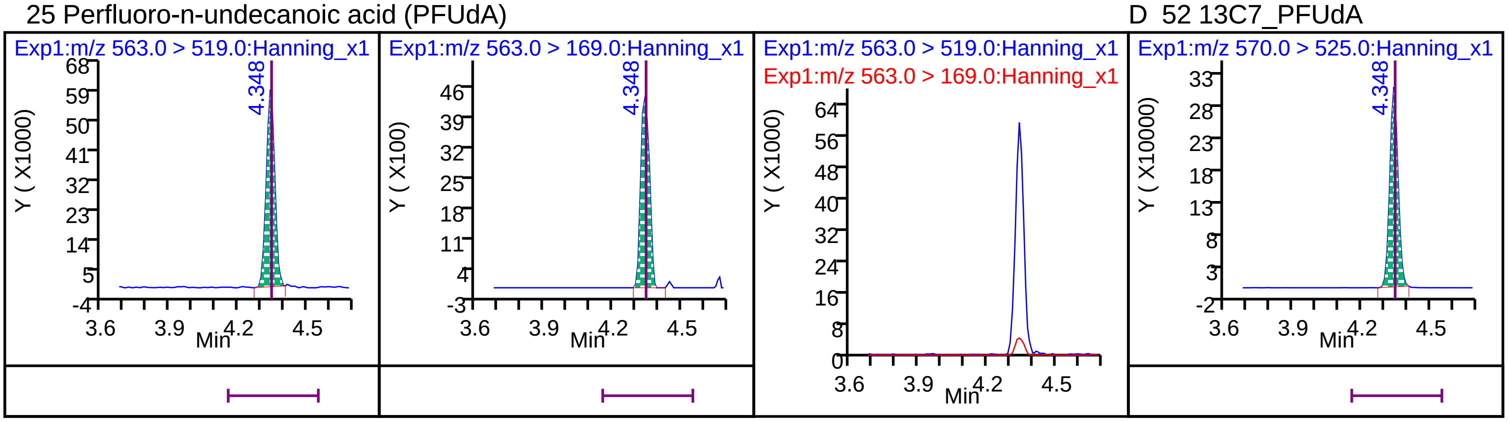
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



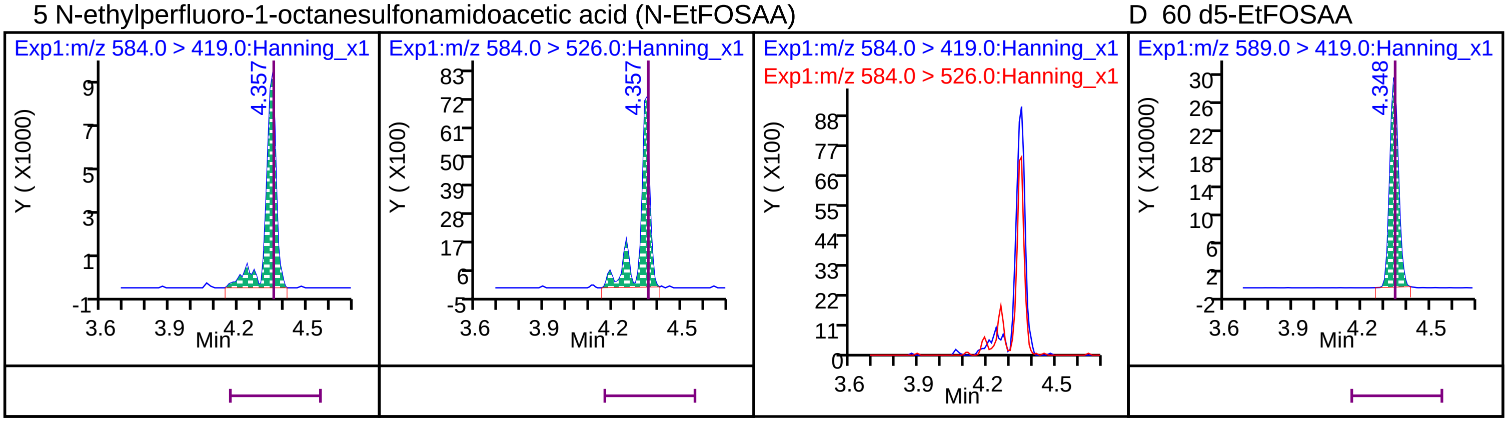
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

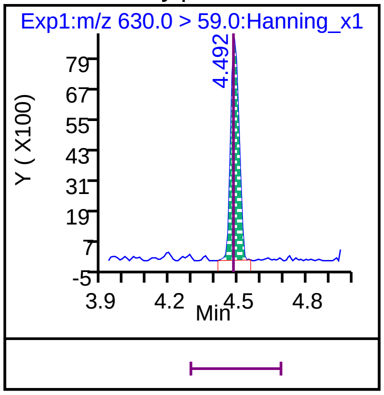


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

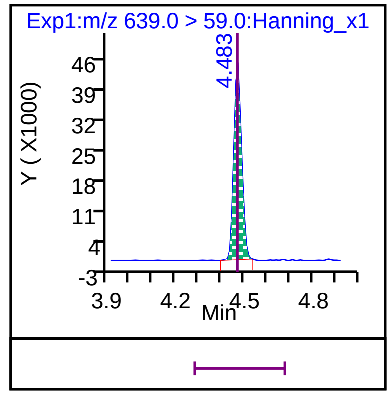


Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d

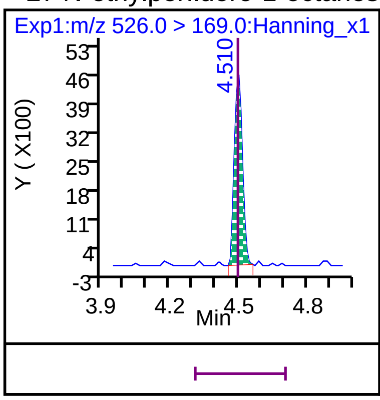
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

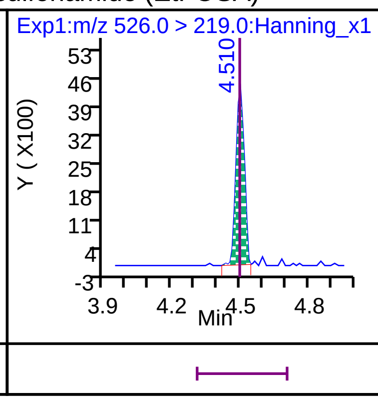


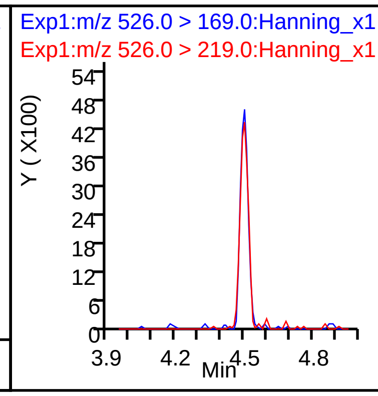
D 62 d9-EtFOSE



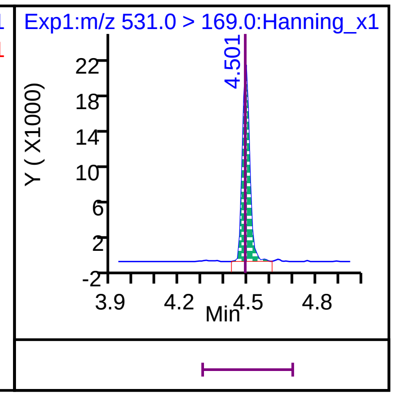
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



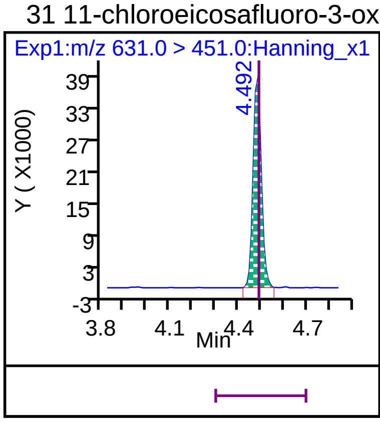




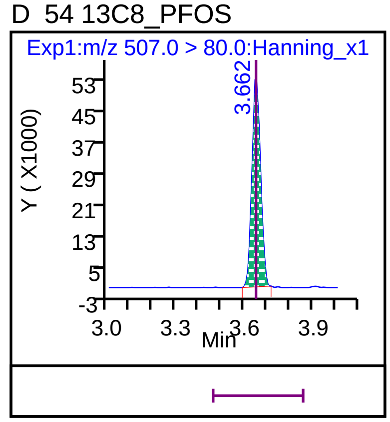
D 59 d5-EtFOSA



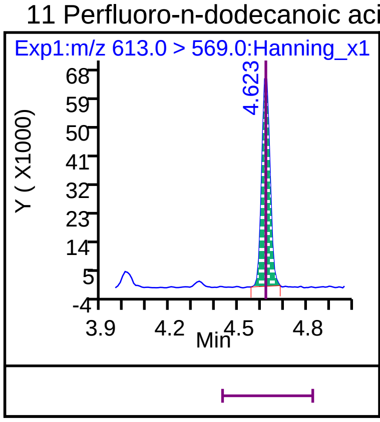
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

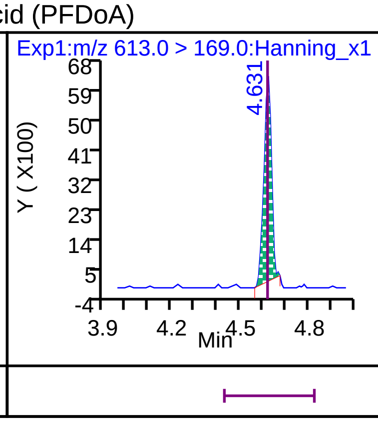


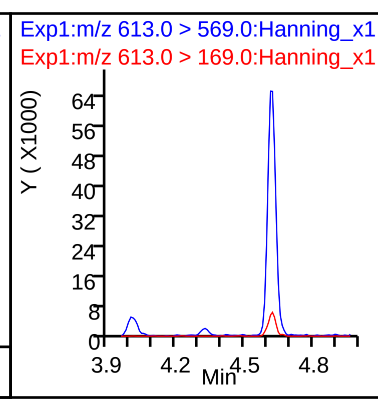
D 54 13C8_PFOS



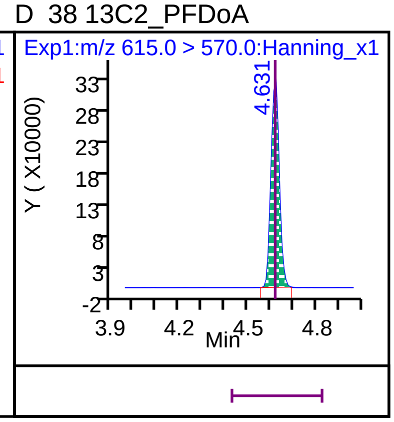
11 Perfluoro-n-dodecanoic acid (PFDoA)



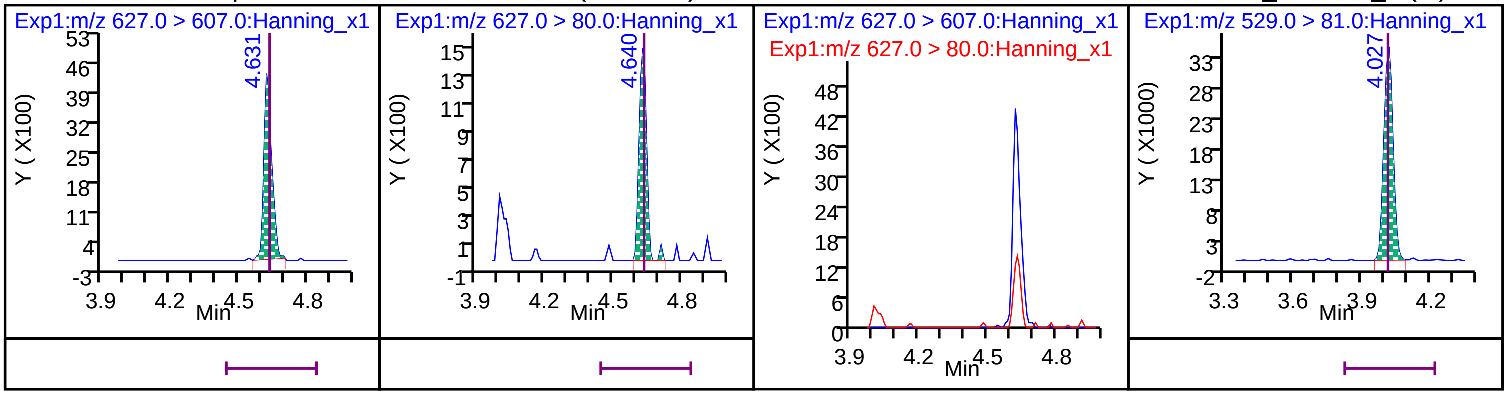




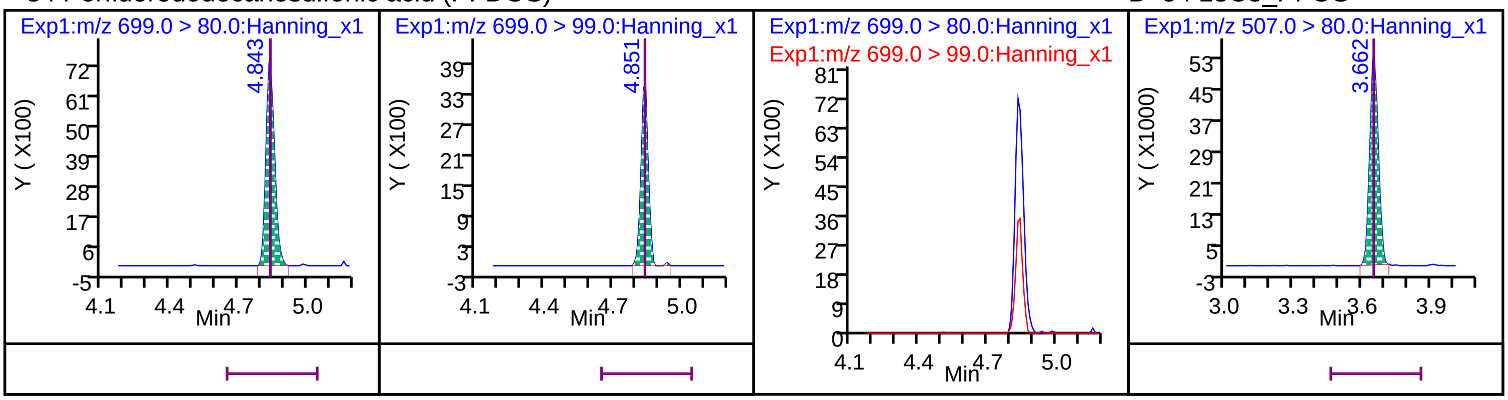
D 38 13C2_PFDoA



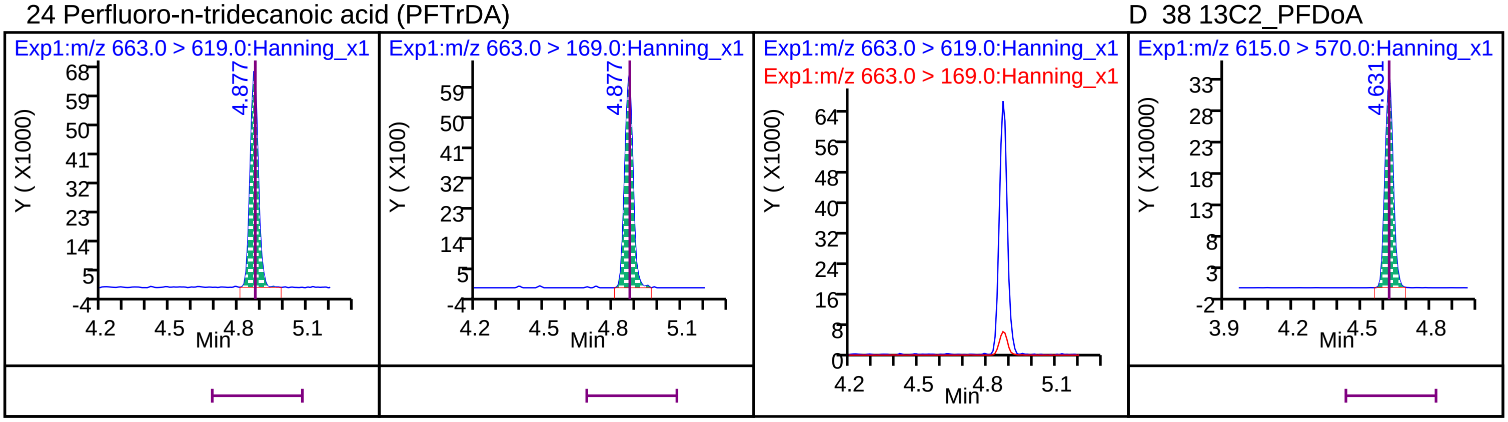
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2 (M)



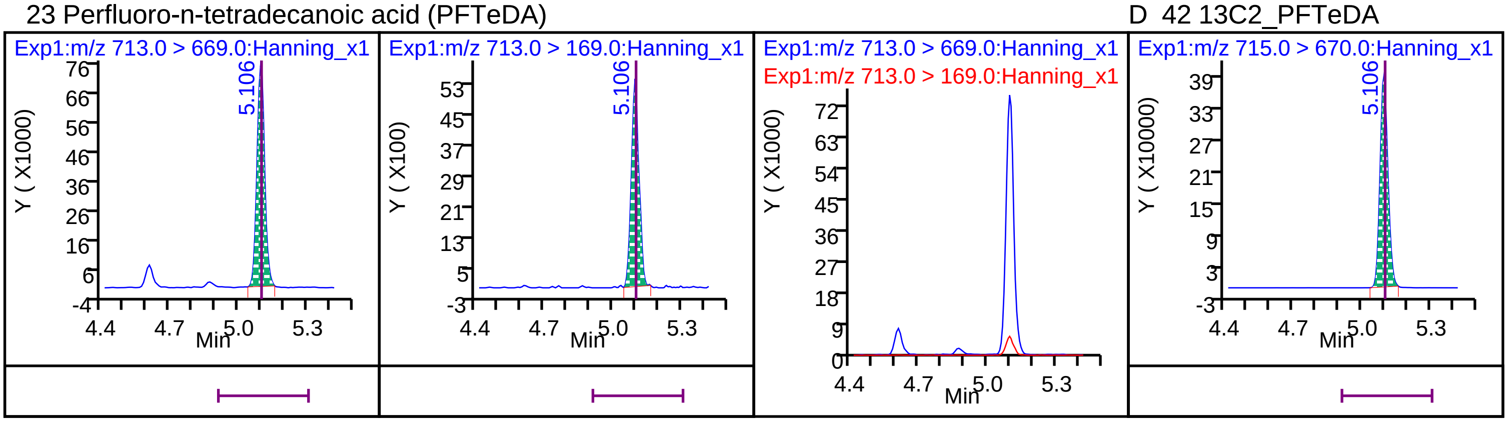
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



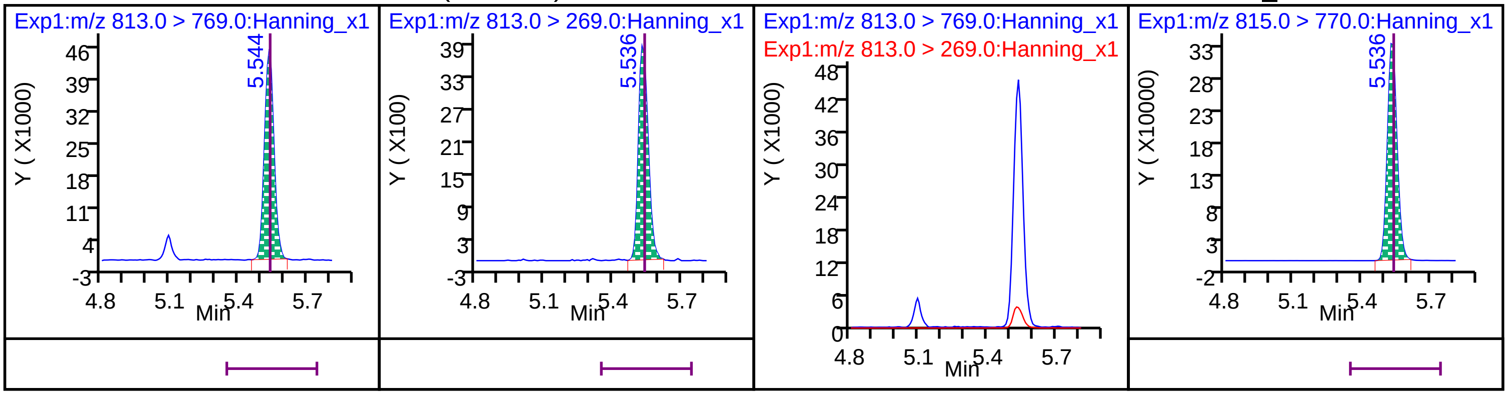
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



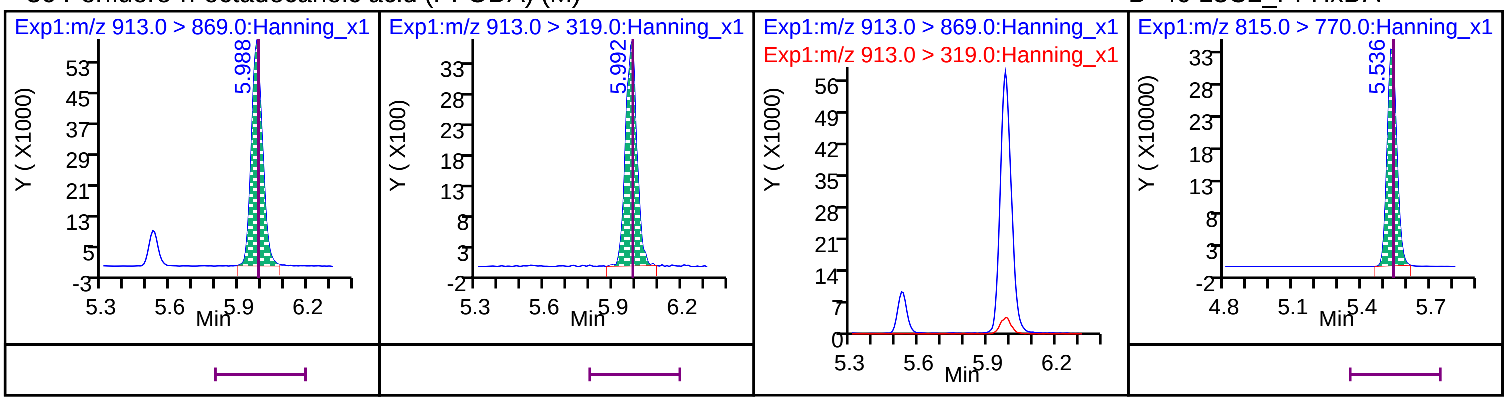
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



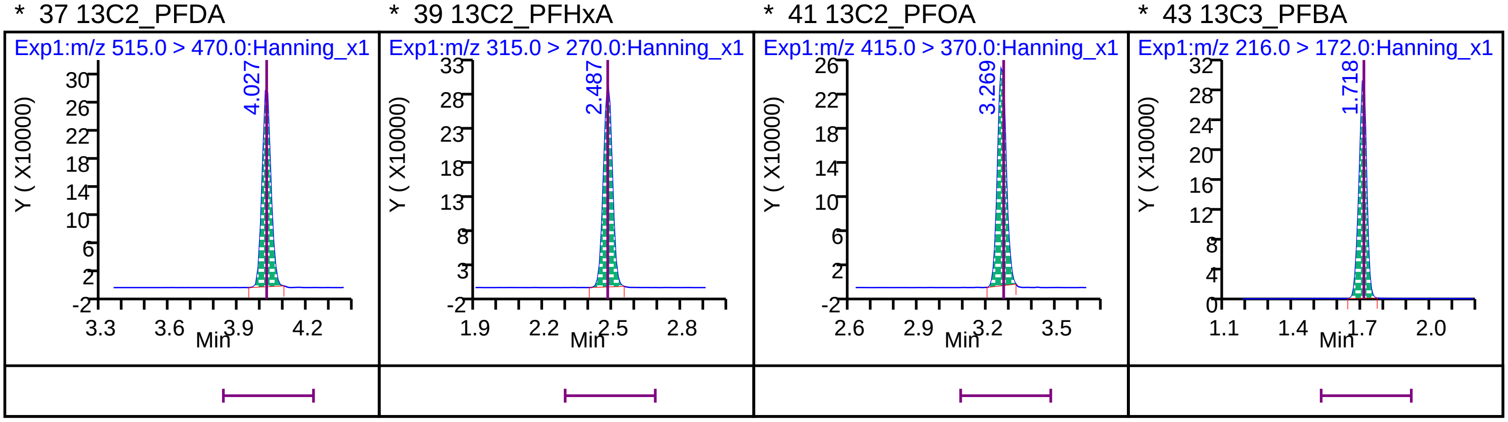
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



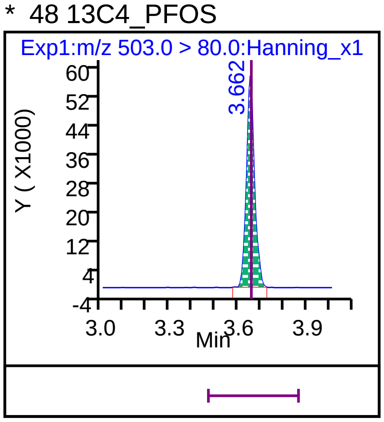
36 Perfluoro-n-octadecanoic acid (PFODA) (M) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

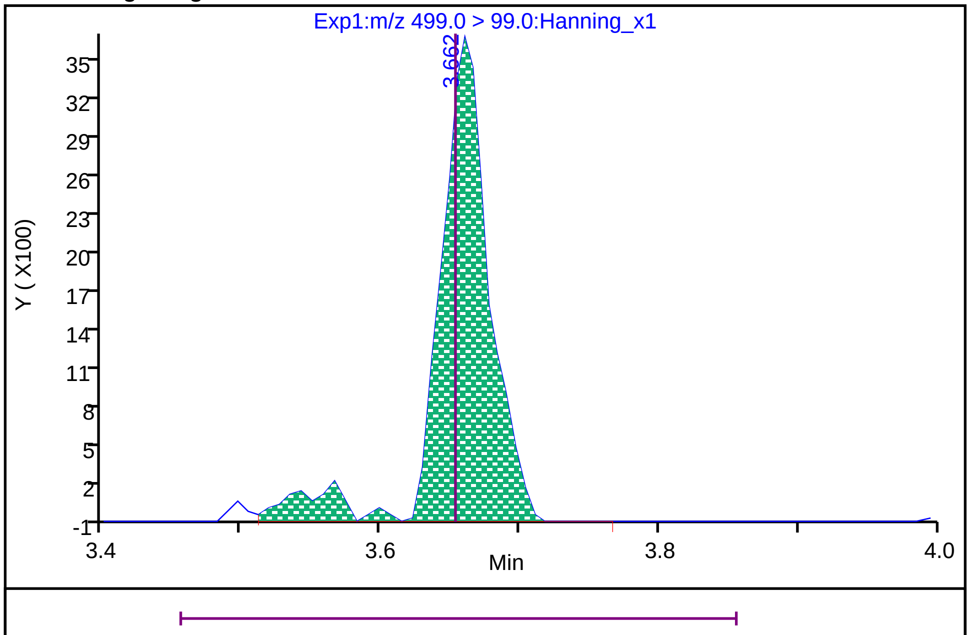
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d		
Injection Date:	15-Nov-2021 13:15:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

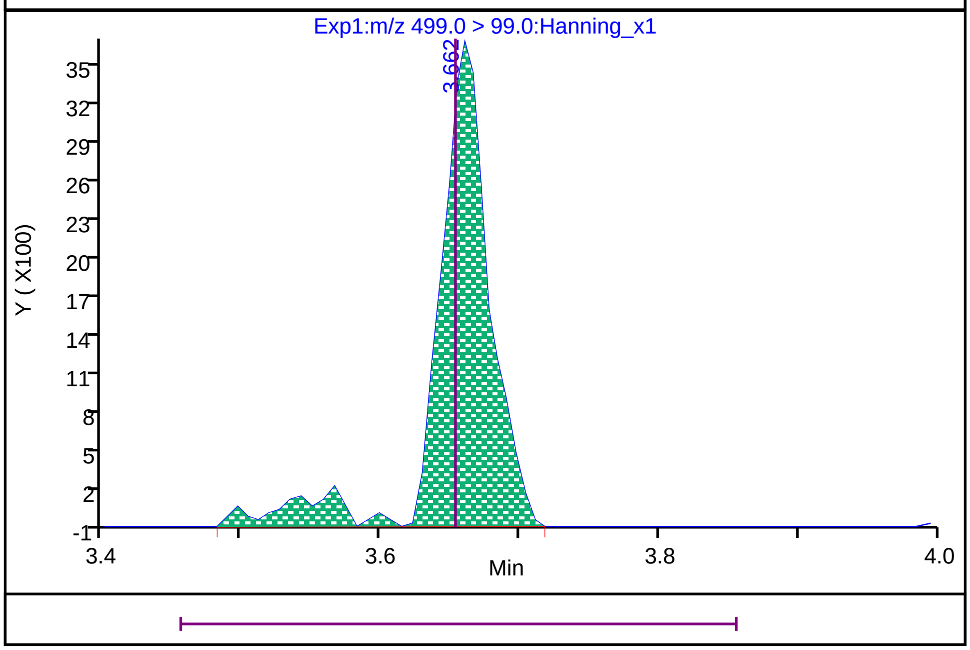
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.662
Area: 9143
Amount: 192.85
Amount Units: ng/L



RT: 3.662
Area: 9316
Amount: 192.85
Amount Units: ng/L



Data Editor: justin.gavin, 15-Nov-2021 13:30:23

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

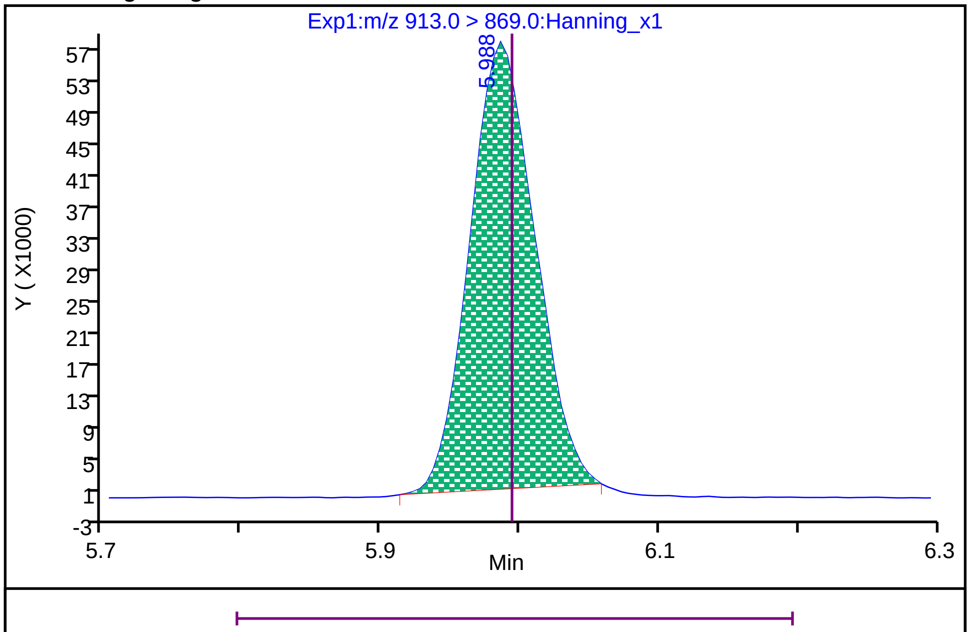
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d		
Injection Date:	15-Nov-2021 13:15:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

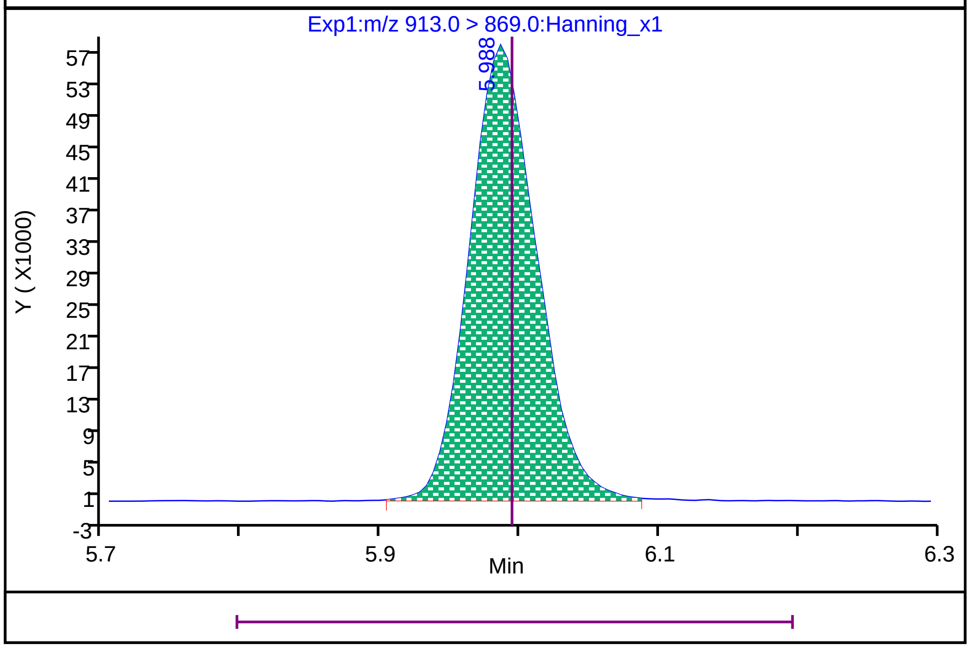
36 PFODA, CAS: 16517-11-6

Processing Integration Results

RT:	5.988
Area:	183000
Amount:	209.68
Amount Units:	ng/L



RT:	5.988
Area:	193880
Amount:	222.14
Amount Units:	ng/L



Data Editor: justin.gavin, 15-Nov-2021 13:31:31

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

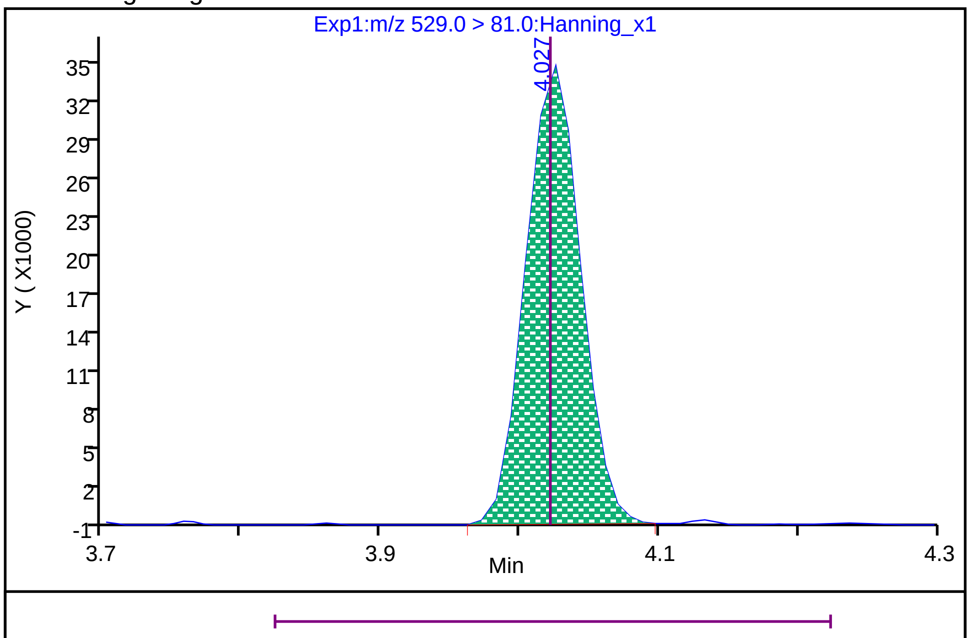
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521006.d		
Injection Date:	15-Nov-2021 13:15:24	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

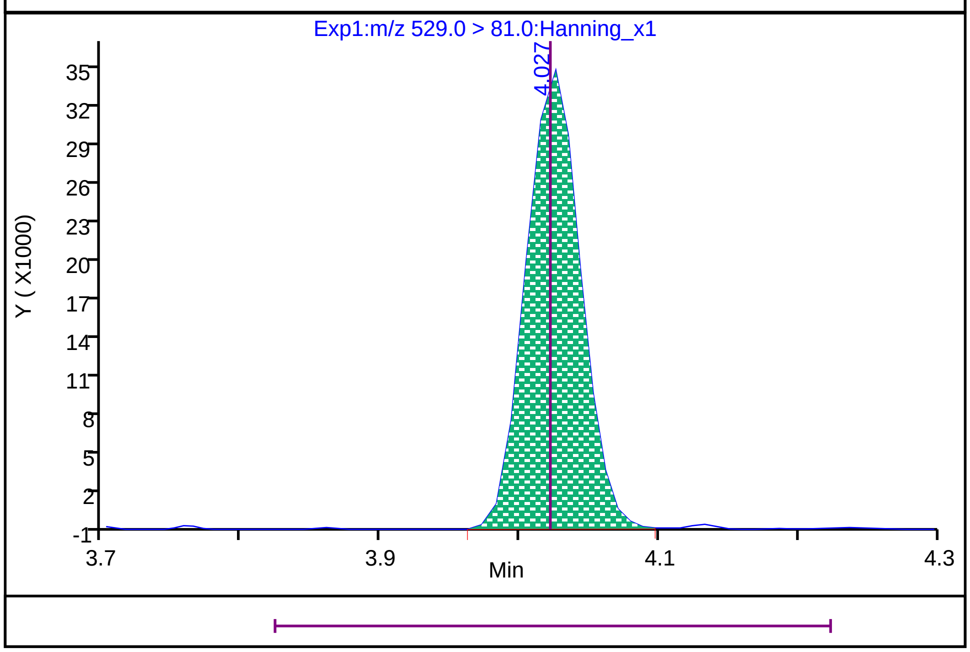
D 65 13C2_8:2 FTS_2, CAS: SESI-0106

Processing Integration Results

RT: 4.027
Area: 93316
Amount: 5398.83
Amount Units: ng/L



RT: 4.027
Area: 93626
Amount: 5416.76
Amount Units: ng/L



Data Editor: justin.gavin, 15-Nov-2021 13:31:00
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d		
Injection Date:	15-Nov-2021 15:42:39	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	12
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	973.08	97.3	70 - 130
D 46 13C4_PFBA	704612	667391			94.7	50 - 150
21 PFPeA			1000.00	948.33	94.8	70 - 130
D 50 13C5_PFPeA	616672	618812			100.3	50 - 150
D 44 13C3_PFBS	181863	181861			100	50 - 150
7 PFBS			884.00	876.23	99.1	70 - 130
1 4:2 FTS			934.00	974.64	104.4	70 - 130
D 63 13C2_4:2 FTS_2	121742	112386			92.3	50 - 150
D 49 13C5_PFHxA	739401	702338			95	50 - 150
15 PFHxA			1000.00	998.82	99.9	70 - 130
22 PFPeS			938.00	937.44	99.9	70 - 130
28 GenX			2000.00	1950.07	97.5	70 - 130
D 66 13C3_GenX	1321597	1252169			94.7	50 - 150
D 47 13C4_PFHpA	604203	564369			93.4	50 - 150
13 PFHpA			1000.00	1045.86	104.6	70 - 130
D 45 13C3_PFHxS	134021	133727			99.8	50 - 150
14 PFHxS			910.00	884.48	97.2	70 - 130
29 ADONA			942.00	958.29	101.7	70 - 130
D 64 13C2_6:2 FTS_2	102394	98510			96.2	50 - 150
2 6:2 FTS			948.00	1075.27	113.4	70 - 130
20 PFOA			1000.00	1002.61	100.3	70 - 130
D 53 13C8_PFOA	630095	606674			96.3	50 - 150
12 PFHpS			952.00	914.26	96	70 - 130
D 54 13C8_PFOS	137691	137269			99.7	50 - 150
18 PFOS			928.00	857.07	92.4	70 - 130
17 PFNA			1000.00	990.22	99	70 - 130
D 56 13C9_PFNA	741618	735577			99.2	50 - 150
30 9Cl-PF3ONS			932.00	908.69	97.5	70 - 130
D 55 13C8_PFOSA	289640	286638			99	50 - 150
19 PFOSA			1000.00	975.50	97.5	70 - 130
16 PFNS			960.00	1036.72	108	70 - 130
10 PFDA			1000.00	911.62	91.2	70 - 130
3 8:2 FTS			958.00	879.16	91.8	70 - 130
D 51 13C6_PFDA	730609	703049			96.2	50 - 150
D 65 13C2_8:2 FTS_2	105151	101366			96.4	50 - 150
6 N-MeFOSAA			1000.00	950.49	95	70 - 130

Report Date: 30-Nov-2021 15:07:20 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	852364	811407			95.2	50 - 150
D 61 d7-MeFOSE	94236	97787			103.8	50 - 150
32 MeFOSE			1000.00	960.81	96.1	70 - 130
26 MeFOSA			1000.00	924.82	92.5	70 - 130
D 57 d3-MeFOSA	46672	49590			106.3	50 - 150
9 PFDS			964.00	902.61	93.6	70 - 130
D 52 13C7_PFUdA	734518	730177			99.4	50 - 150
D 60 d5-EtFOSAA	771983	735968			95.3	50 - 150
25 PFUdA			1000.00	917.16	91.7	70 - 130
5 N-EtFOSAA			1000.00	1035.00	103.5	70 - 130
D 62 d9-EtFOSE	103023	106011			102.9	50 - 150
33 EtFOSE			1000.00	1053.71	105.4	70 - 130
D 59 d5-EtFOSA	42973	49192			114.5	50 - 150
31 11Cl-PF3OUDS			942.00	927.71	98.5	70 - 130
27 EtFOSA			1000.00	938.69	93.9	70 - 130
D 38 13C2_PFDoA	793096	735502			92.7	50 - 150
11 PFDoA			1000.00	954.24	95.4	70 - 130
4 10:2 FTS			964.00	985.47	102.2	70 - 130
34 PFDOS			968.00	929.00	96	70 - 130
24 PFTrDA			1000.00	947.87	94.8	70 - 130
D 42 13C2_PFTeDA	1045249	1000301			95.7	50 - 150
23 PFTeDA			1000.00	1020.97	102.1	70 - 130
D 40 13C2_PFHxDA	1010565	1146125			113.4	50 - 150
35 PFHxDA			1000.00	961.73	96.2	70 - 130
36 PFODA			1000.00	1054.44	105.4	70 - 130

Report Date: 30-Nov-2021 15:07:20 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d		
Injection Date:	15-Nov-2021 15:42:39	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	12
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.709	1.711	0	667391	21	>100:1			1000.00	1073.54	94.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.709	1.718	0/0	684904	21	>100:1			1000.00	973.08		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.109	0	618812	17	>100:1			1000.00	1082.61	100.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.104	2.109	0/0	660484	15	>100:1			1000.00	948.33		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.157	2.162	0	181861	15	>100:1			1000.00	1051.40	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.168	2.162	1/1	198718	16	>100:1	Target = 3.53		884.00	876.23		
298.9 > 99	44	2.157	2.162		58614	22	>100:1	3.39 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.513	2.522	0/0	158000	16		Target = 3.10		938.00	937.44		
349 > 99	44	2.513	2.522		52545	16	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.441	2.451	0	112386	19	>100:1			5000.00	4963.23	92.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.441	2.451	0/0	48292	17	>100:1	Target = 1.75		934.00	974.64		
327 > 81	63	2.441	2.451		27099	19	50:1	1.78 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.477	2.487	0	702338	19	>100:1			1000.00	1078.38	95	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.486	2.487	0/0	729402	19	>100:1	Target = 18.91		1000.00	998.82		
313 > 119	49	2.486	2.487		35928	18	>100:1	20.30 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.598	2.606	0	1252169	20	>100:1			5000.00	5402.95	94.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.605	2.606	0/0	316280	20	>100:1	Target = 0.79		2000.00	1950.07		
285 > 185	66	2.598	2.606		387067	21	>100:1	0.81 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.872	0	564369	19	>100:1			1000.00	1062.97	93.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.872	2.872	0/0	648588	18	>100:1	Target = 3.80		1000.00	1045.86		
363 > 169	47	2.863	2.872		163597	19	>100:1	3.96 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.879	2.888	0	133727	19	>100:1			1000.00	1064.37	99.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.879	2.896	0/0	130034	27	>100:1	Target = 2.89	5.41	910.00	884.48		
399 > 99	45	2.879	2.896		38123	27	>100:1	3.41 (1.44-4.34)	7.95				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.903	2.918	0/0	993830	19	>100:1	Target = 3.23		942.00	958.29		
377 > 85	45	2.903	2.918		281473	19	>100:1	3.53 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.266	3.286	-1/-1	125570	22	>100:1	Target = 3.12		952.00	914.26		
449 > 99	45	3.266	3.286		41277	21	>100:1	3.04 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.239	3.246	0	98510	20	>100:1			5000.00	5472.79	96.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.239	3.260	-1/-1	50150	21	>100:1	Target = 1.75		948.00	1075.27		
427 > 81	64	3.232	3.260		21859	17	57:1	2.29 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.259	3.274	0	606674	22	>100:1			1000.00	1156.28	96.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.259	3.280	-1/-1	623314	22	>100:1	Target = 2.89		1000.00	1002.61		
413 > 169	53	3.259	3.280		191995	23	>100:1	3.24 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.649	3.661	0	137269	21	>100:1			1000.00	1108.41	99.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.649	3.655	0/0	140082	39	>100:1	Target = 3.30	3.40	928.00	857.07		
499 > 99	54	3.655	3.655		42496	44	>100:1	3.29 (1.65-4.95)	9.00				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.860	3.877	-1/-1	472385	18	>100:1			932.00	908.69		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.001	4.023	-1/-1	114173	15	>100:1	Target = 3.08		960.00	1036.72		
549 > 99	54	4.001	4.023		41426	16	>100:1	2.75 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.313	4.324	0/0	96956	15	>100:1	Target = 2.72		964.00	902.61		
599 > 99	54	4.313	4.324		37653	16	>100:1	2.57 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.477	4.497	-1/-1	435984	15	>100:1			942.00	927.71		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.830	4.849	-1/-1	109656	20		Target = 3.27		968.00	929.00		
699 > 99	54	4.830	4.849		36783	17		2.98 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.655	3.666	0	735577	22	>100:1			1000.00	1148.66	99.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.655	3.672	-1/-1	785105	21	>100:1	Target = 6.51		1000.00	990.22		
463 > 169	56	3.655	3.672		119748	21	>100:1	6.55 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.901	3.910	0	286638	19	>100:1			1000.00	1069.31	99	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.909	3.910	0/0	294206	18	>100:1	Target = 41.63		1000.00	975.50		
498>478	55	3.901	3.910		9607	20	>100:1	30.62 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.011	4.032	-1	703049	16	>100:1			1000.00	1223.42	96.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.011	4.032	-1/0	745864	16	>100:1	Target = 13.80		1000.00	911.62		
513 > 169	51	4.011	4.032		52143	16	>100:1	14.30 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.011	4.023	0	101366	24	>100:1			5000.00	5864.56	96.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.011	4.032	-1/-1	40274	14	>100:1	Target = 1.94		958.00	879.16		
527 > 81	65	4.011	4.032		20264	20	68:1	1.98 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.617	4.644	-1/-1	50678	17	>100:1	Target = 3.54		964.00	985.47		
627 > 80	65	4.617	4.644		14669	16	71:1	3.45 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.173	4.193	-1	811407	17	>100:1			5000.00	5369.56	95.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.182	4.193	0/1	123772	29	>100:1	Target = 1.37	8.43	1000.00	950.49		
570 > 483	58	4.182	4.193		97467	32	>100:1	1.26 (0.68-2.05)	4.23				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.313	4.314	0	97787	14	>100:1			1000.00	1084.25	103.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.323	4.335	0/0	102678	15	>100:1			1000.00	960.81		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.333	4.335	0	49590	15	>100:1			1000.00	1054.18	106.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.342	4.344	0/0	49709	13	>100:1	Target = 1.11		1000.00	924.82		
512 > 219	57	4.342	4.344		46931	14	>100:1	1.05 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.333	4.354	-1	735968	16	>100:1			5000.00	5682.57	95.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.342	4.363	-1/0	148544	36	>100:1	Target = 1.51	6.73	1000.00	1035.00		
584 > 526	60	4.342	4.363		87424	30	>100:1	1.69 (0.75-2.26)	3.97				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.333	4.354	-1	730177	15	>100:1			1000.00	1212.41	99.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.333	4.354	-1/0	648902	16	>100:1	Target = 14.52		1000.00	917.16		
563 > 169	52	4.333	4.354		47687	15	>100:1	13.60 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.477	4.479	0	106011	16	>100:1			1000.00	999.38	102.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.496	4.488	1/1	108742	15	>100:1			1000.00	1053.71		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.505	4.497	1	49192	15	>100:1			1000.00	1144.00	114.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.505	4.506	0/-1	55386	22	>100:1	Target = 1.06		1000.00	938.69		
526 > 219	59	4.514	4.506		49384	15	>100:1	1.12 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.609	4.628	-1	735502	18	>100:1			1000.00	1225.15	92.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.609	4.628	-1/0	748220	17	>100:1	Target = 10.70		1000.00	954.24		
613 > 169	38	4.609	4.628		66080	17		11.32 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.865	4.883	-1/0	732779	17	>100:1	Target = 8.31		1000.00	947.87		
663 > 169	38	4.865	4.883		80694	18	>100:1	9.08 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.110	-1	1000301	21	>100:1			1000.00	1230.40	95.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.085	5.110	-1/0	891508	22	>100:1	Target = 12.17		1000.00	1020.97		
713 > 169	42	5.091	5.110		66003	21	>100:1	13.50 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.516	5.547	-1	1146125	21	>100:1			1000.00	1320.37	113.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.516	5.547	-1/0	705947	20	>100:1	Target = 10.43		1000.00	961.73		
813 > 269	40	5.516	5.547		60779	22	>100:1	11.61 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.947	5.996	-2/-1	1100225	42	>100:1	Target = 13.67		1000.00	1054.44		
913 > 319	40	5.947	5.996		69628	40	>100:1	15.80 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.011	4.032	-1	787322	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.487	0	741761	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.259	3.280	-1	615404	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.709	1.718	0	613078	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.649	3.666	-1	136588	22	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 30-Nov-2021 15:07:20 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

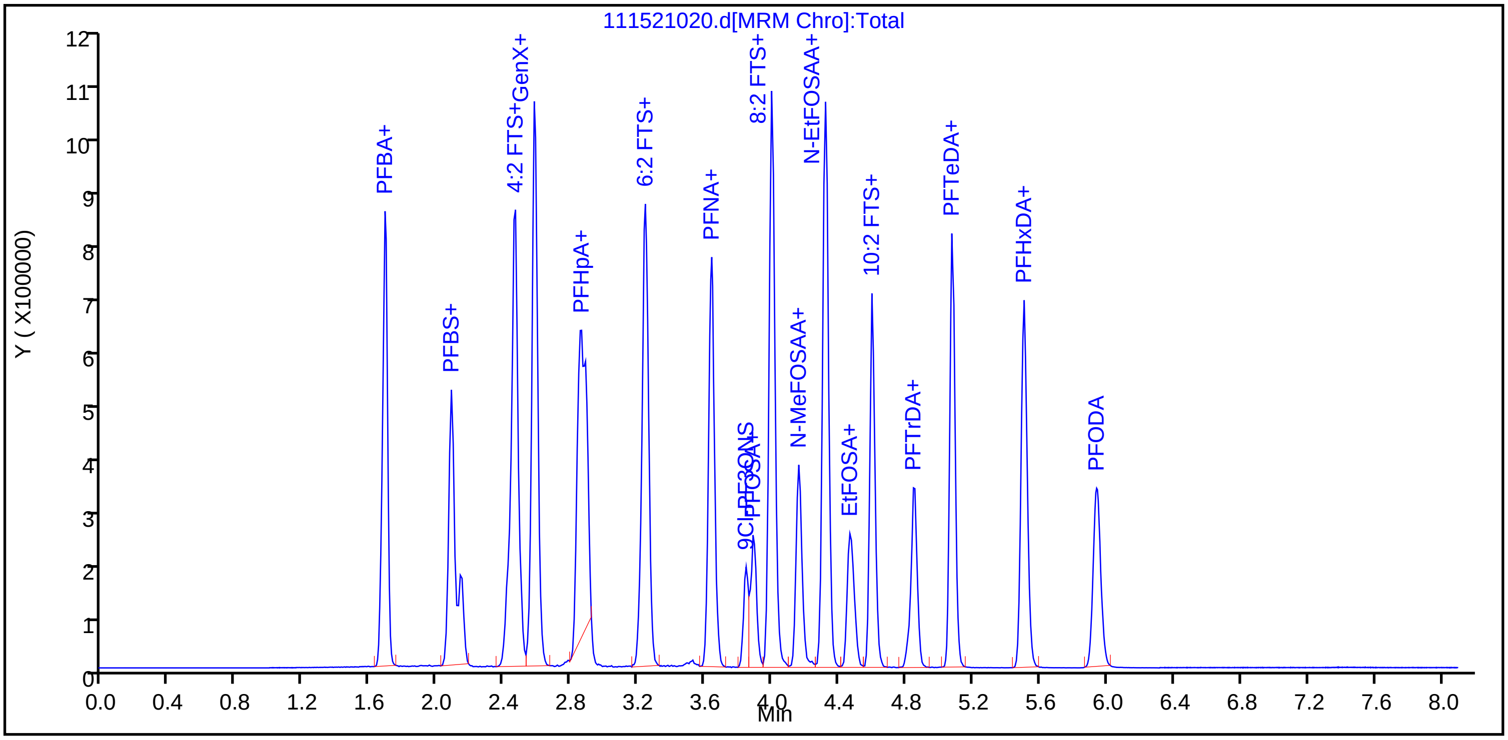
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d

Injection Date: 15-Nov-2021 15:42:39 Inst. ID: LCMSMS02.i

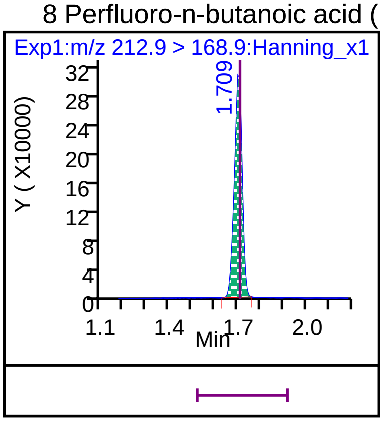
Client ID: Lab ID: ID CCV 1000_SVLC-1744

Sample Info: ID CCV 1000_SVLC-1744

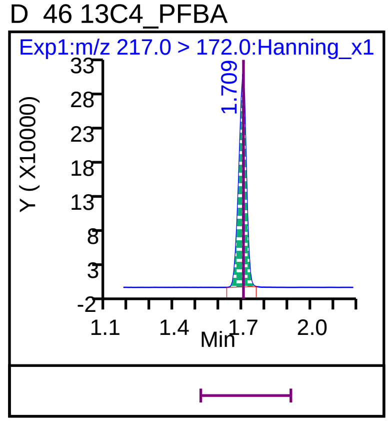
Dil. Factor: 1 Operator: Justin Gavin



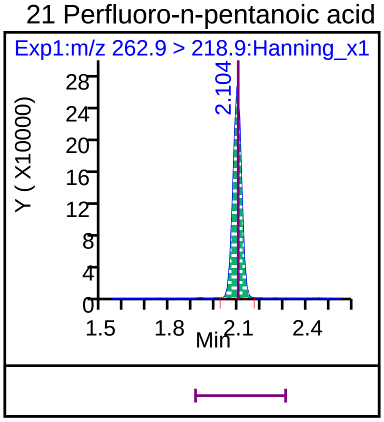
8 Perfluoro-n-butanoic acid (PFBA)



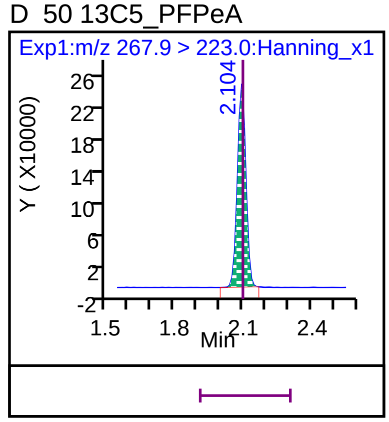
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

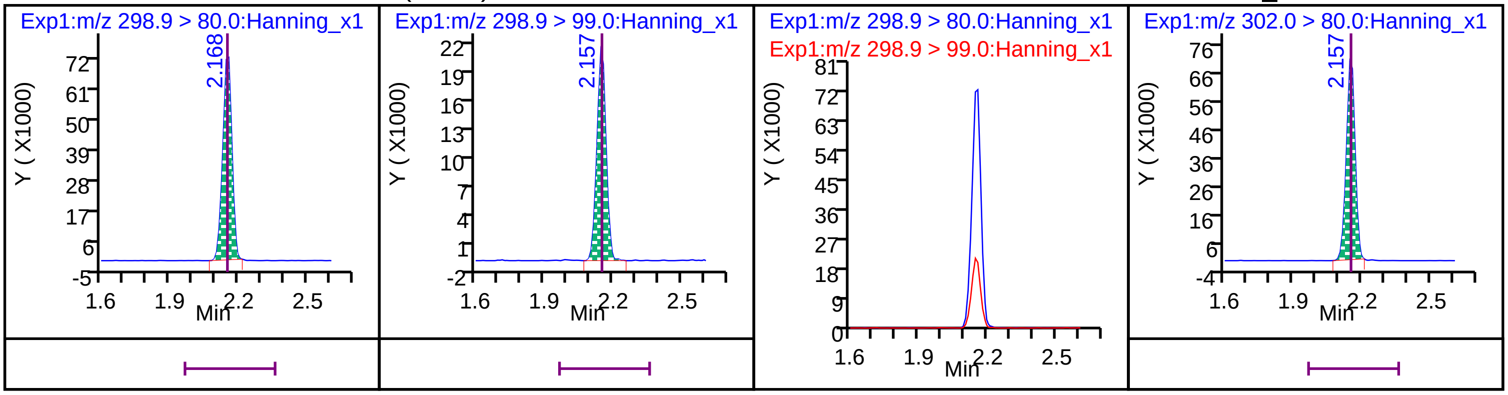


D 50 13C5_PFPeA

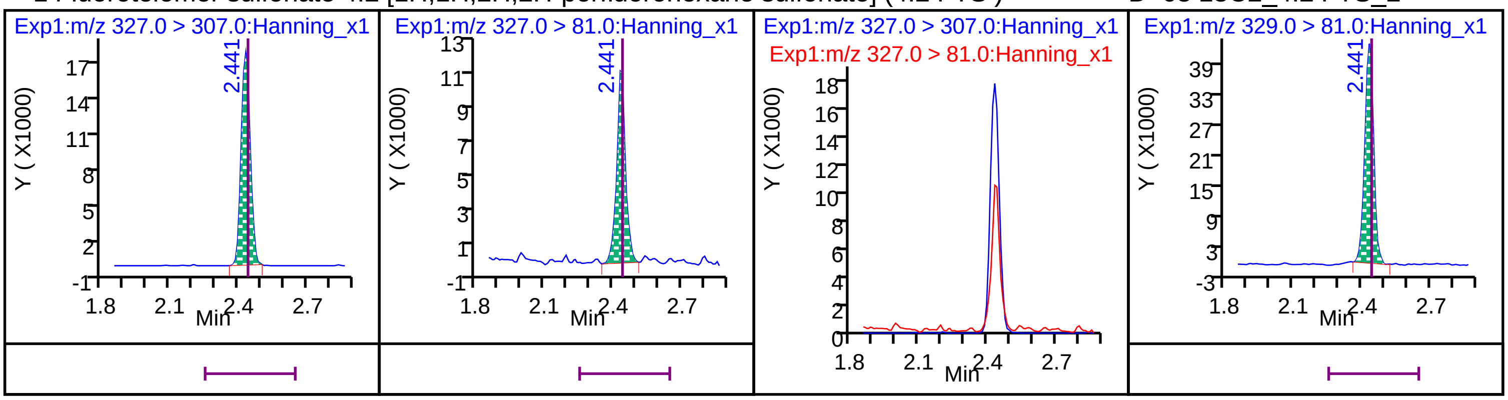


Report Date: 30-Nov-2021 15:07:20 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d

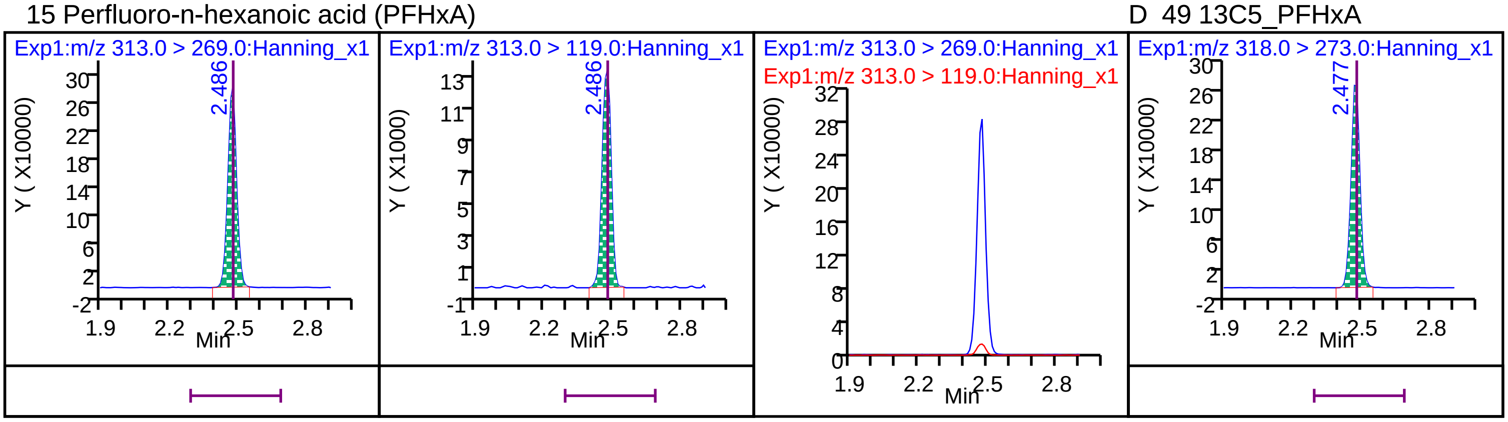
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



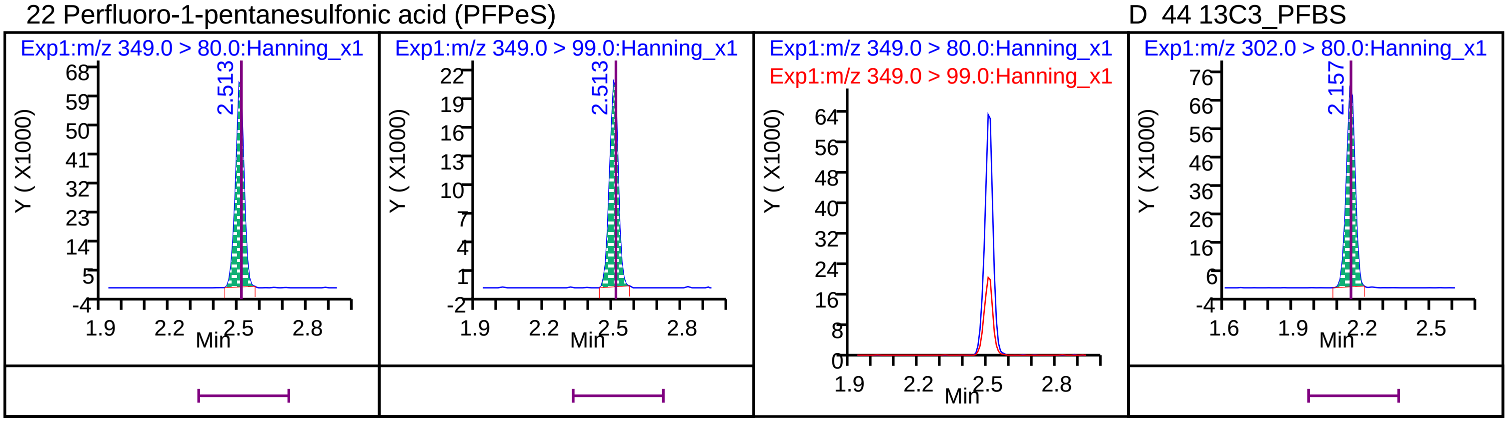
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



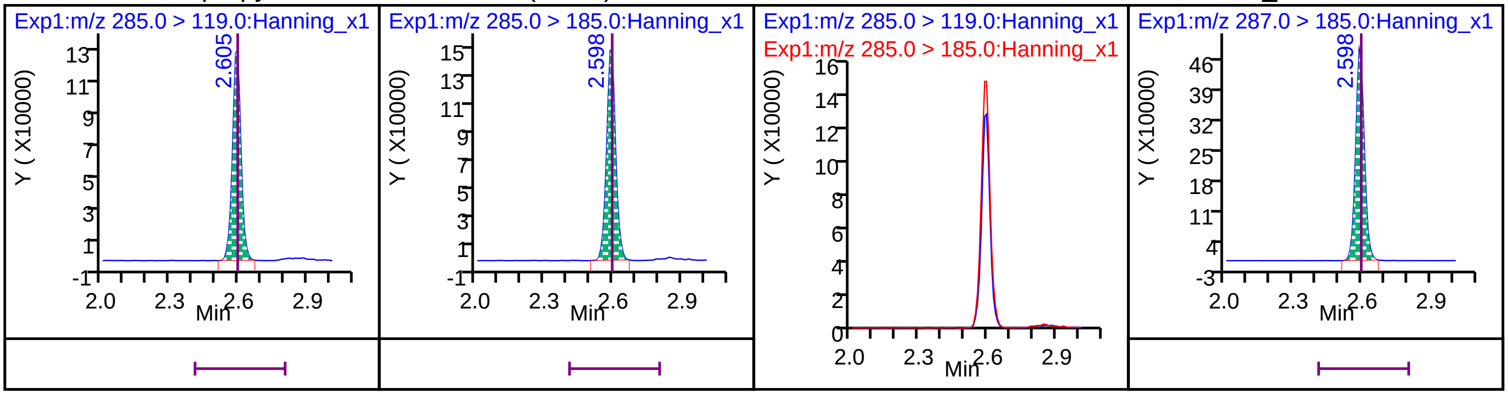
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



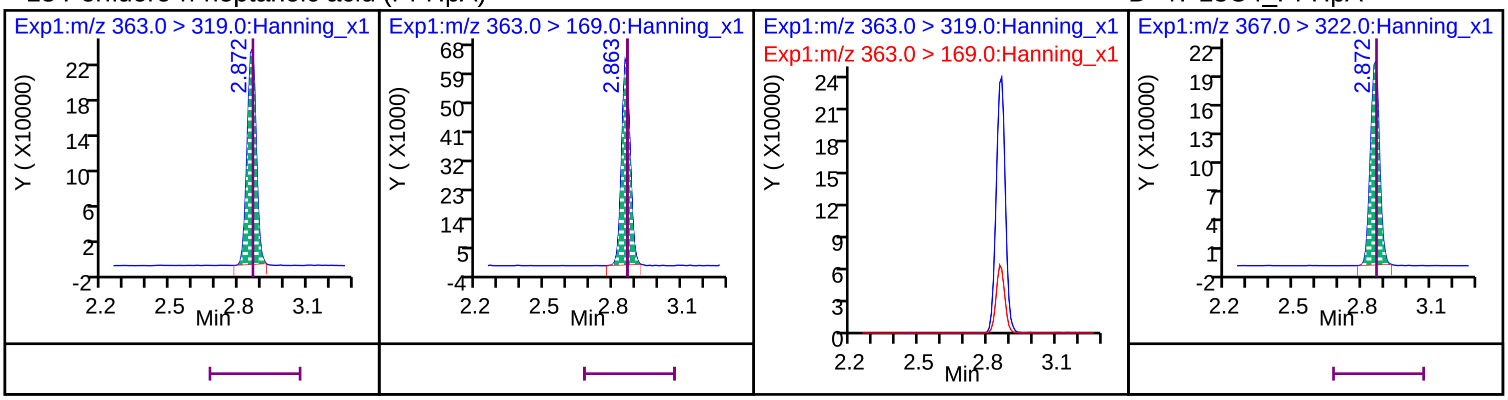
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



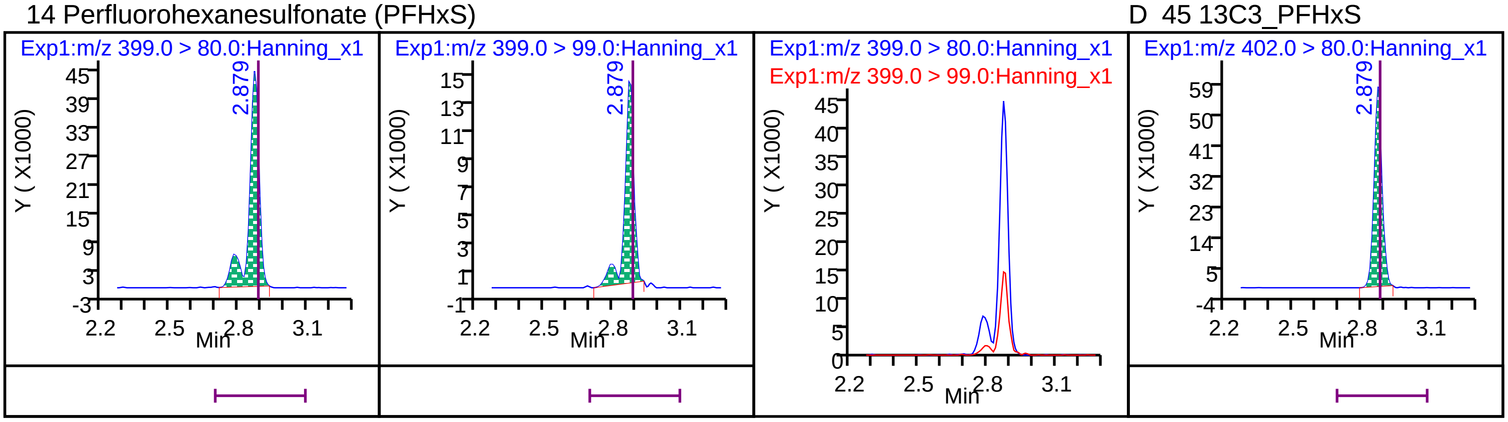
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



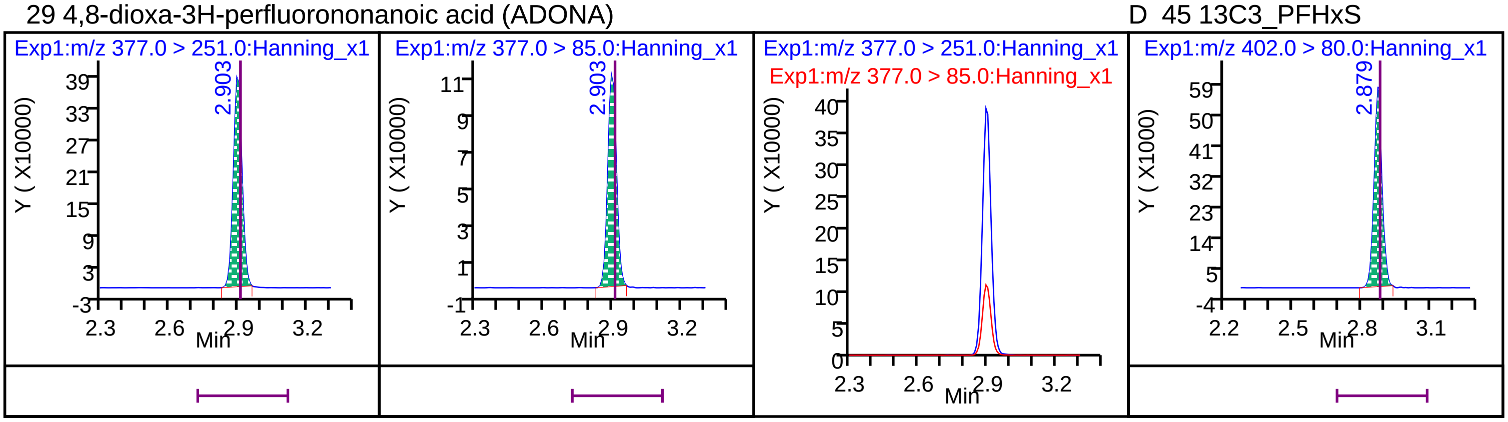
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



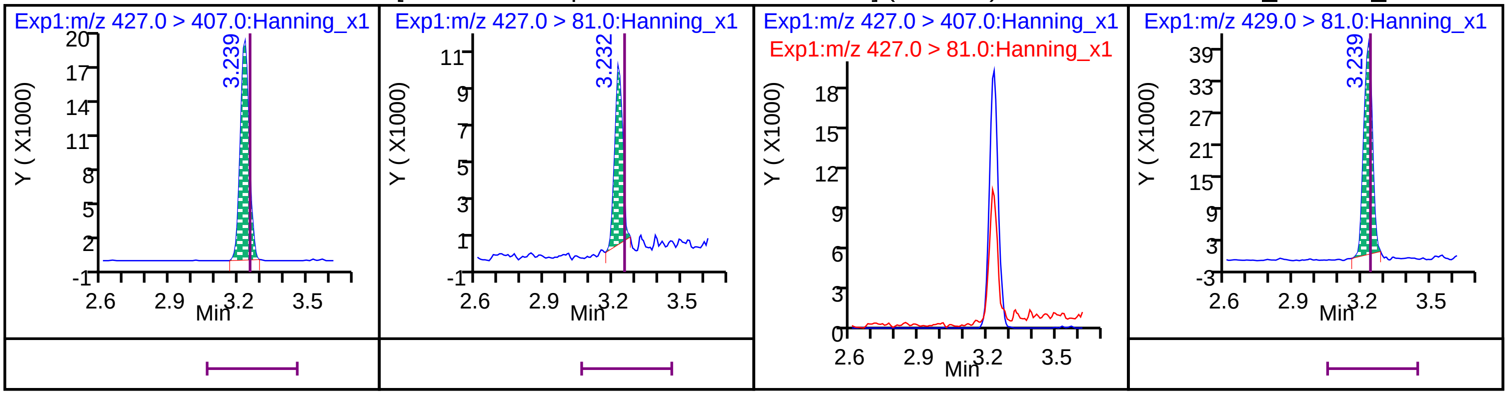
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



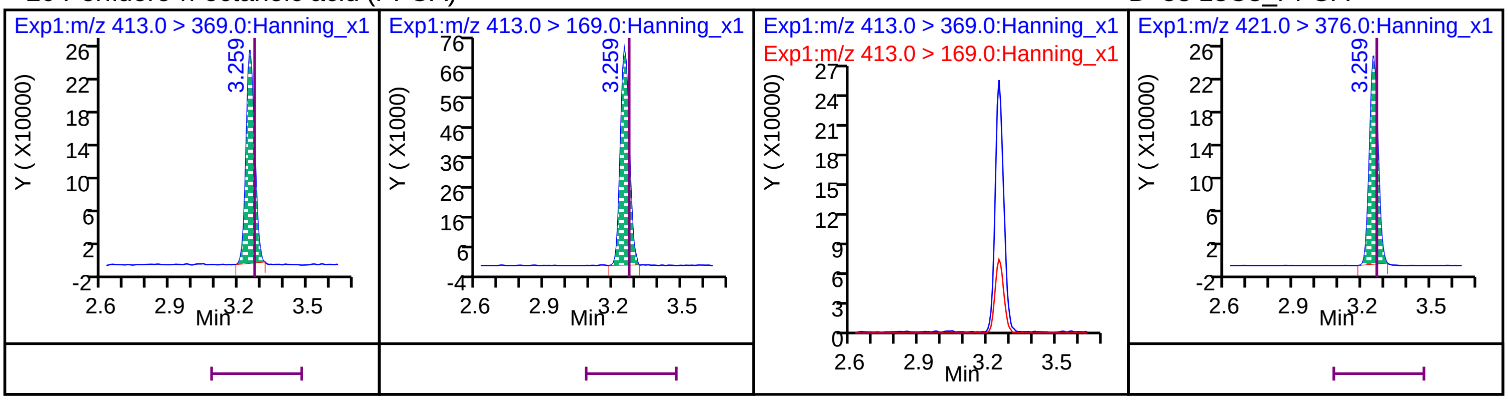
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



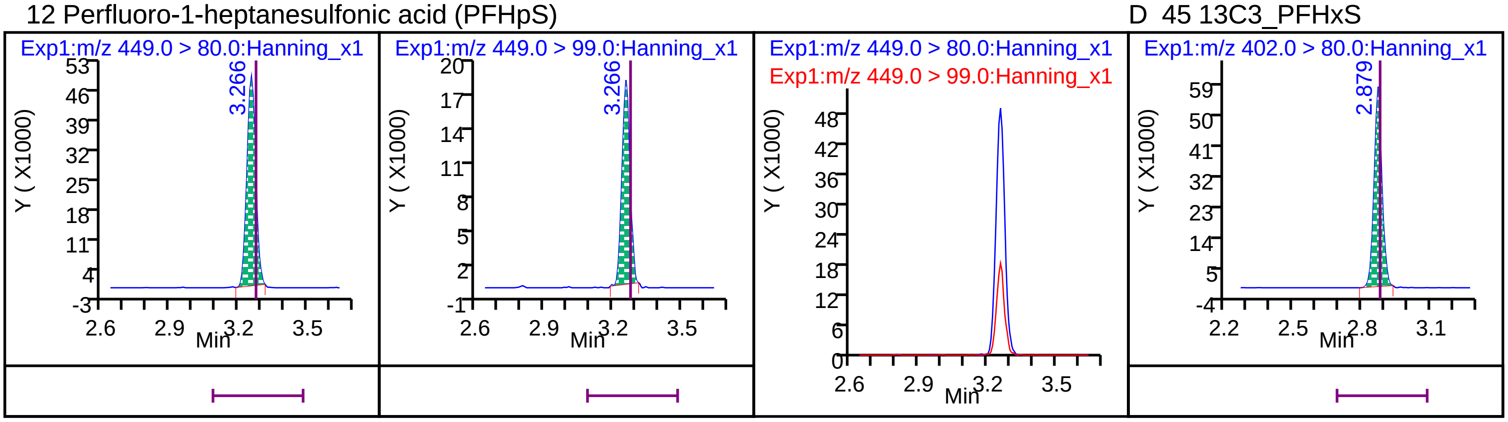
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



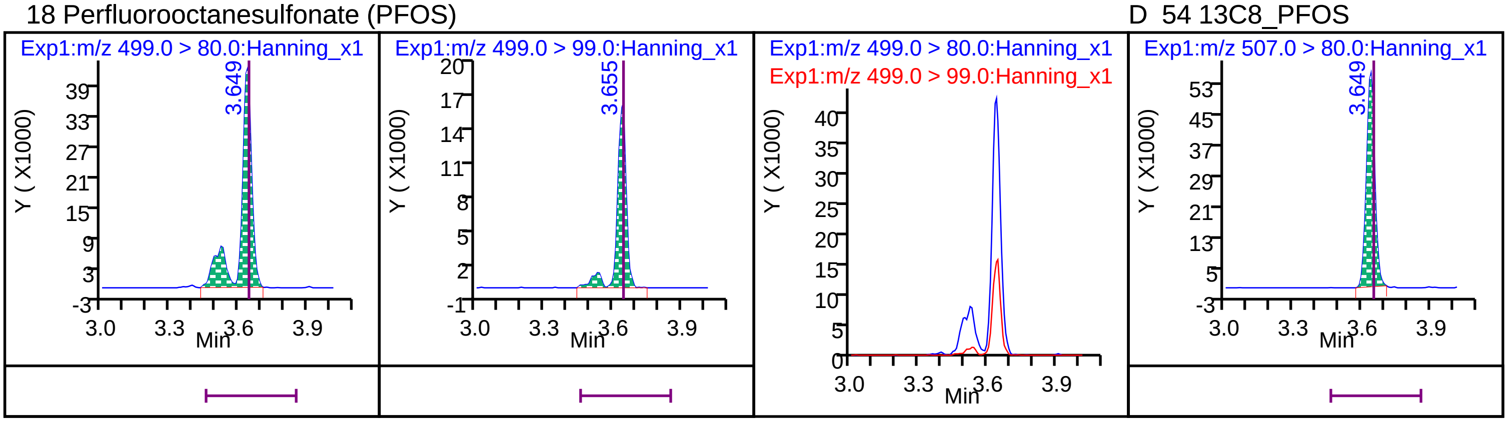
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



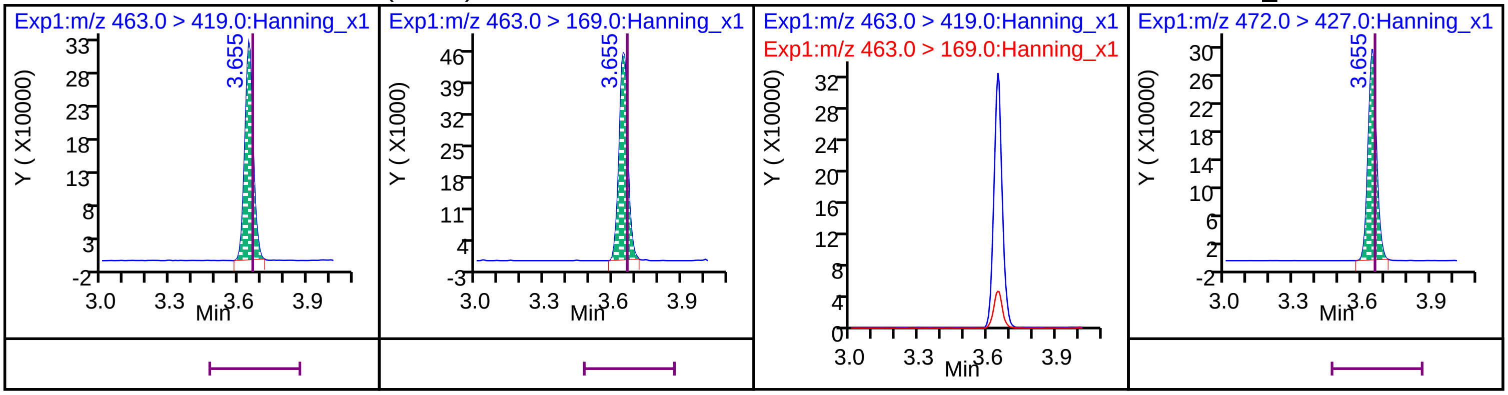
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



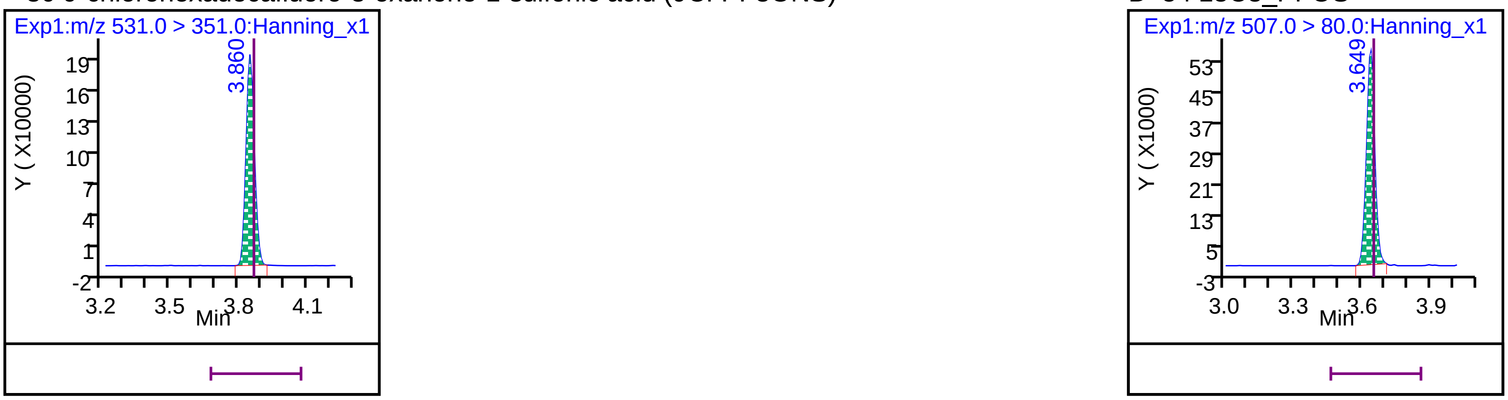
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



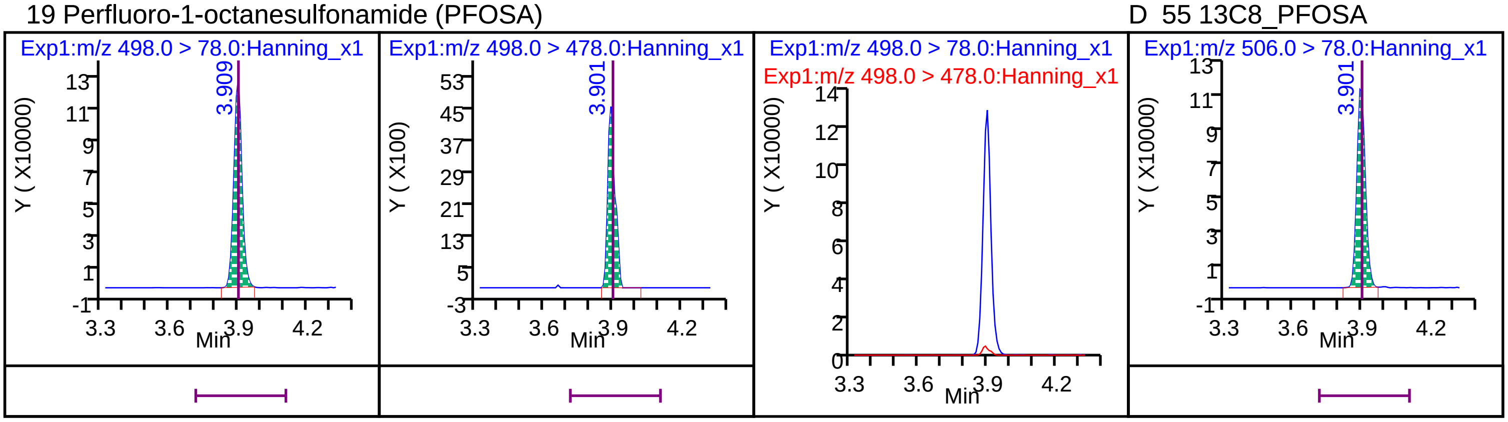
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



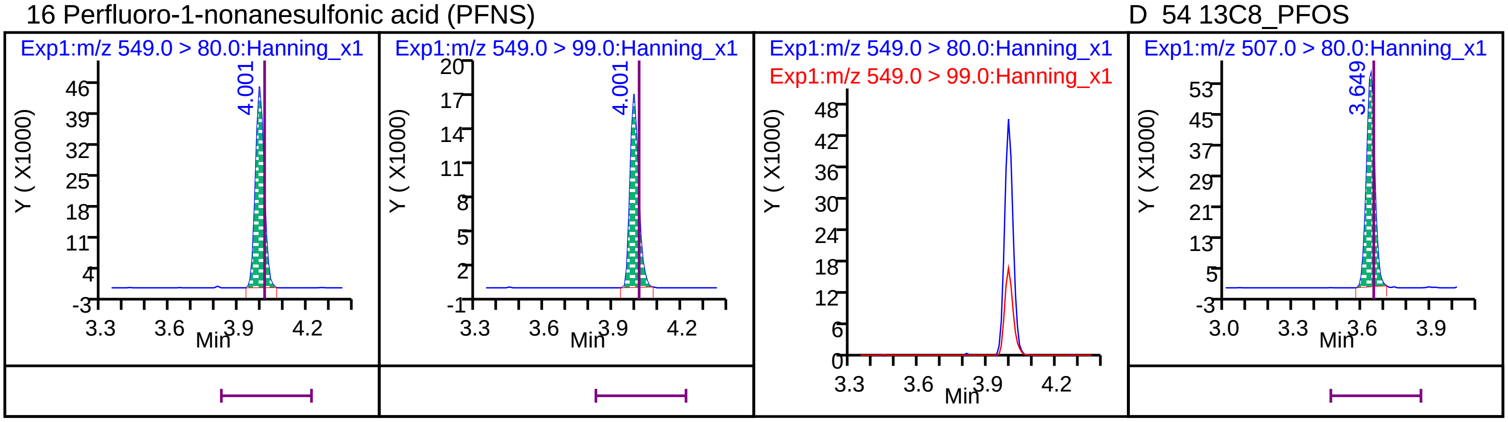
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

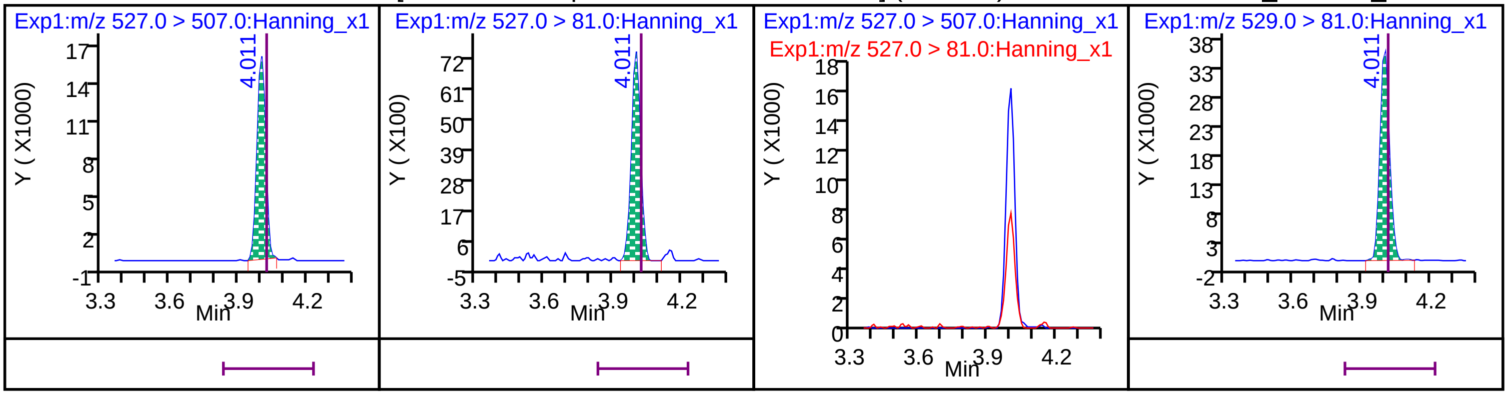


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



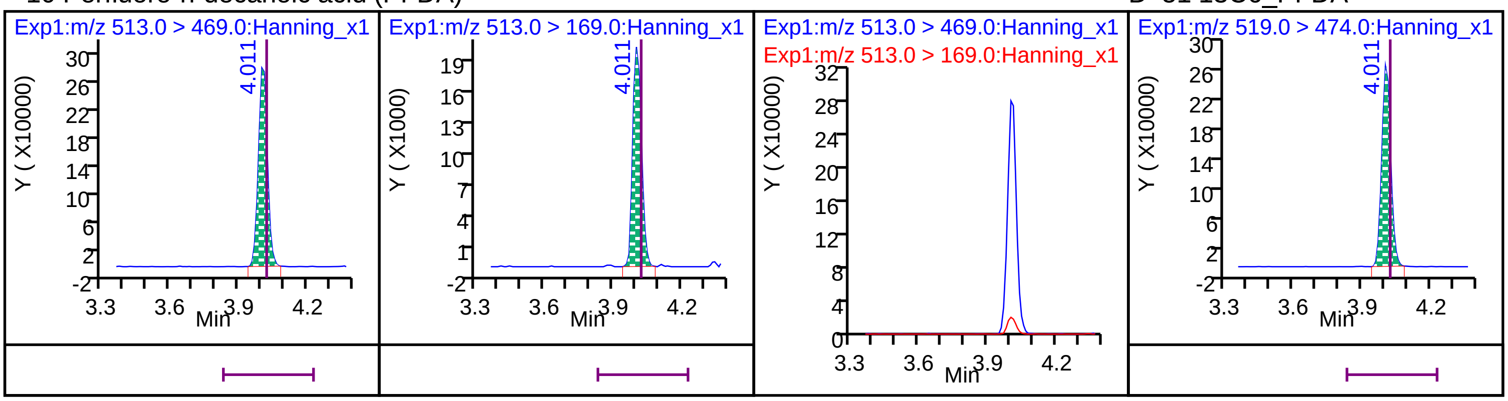
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



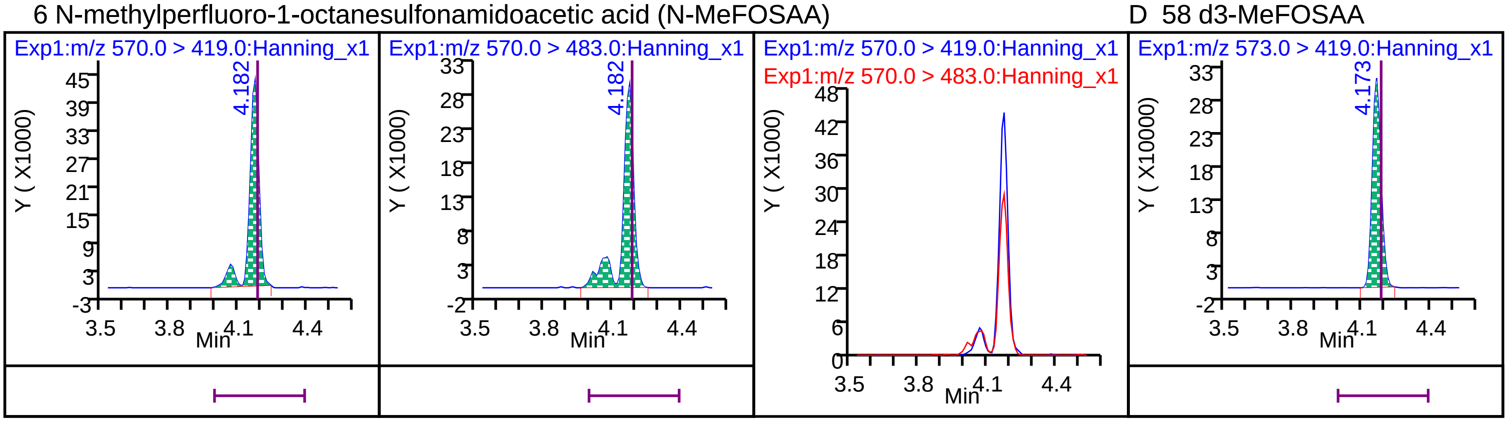
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA

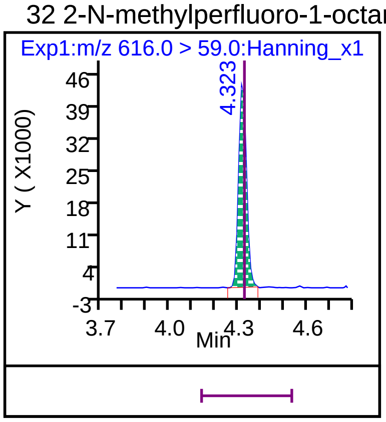


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

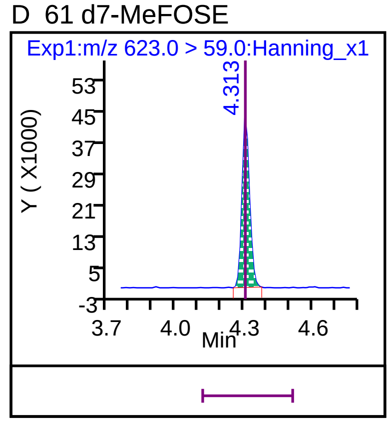
D 58 d3-MeFOSAA



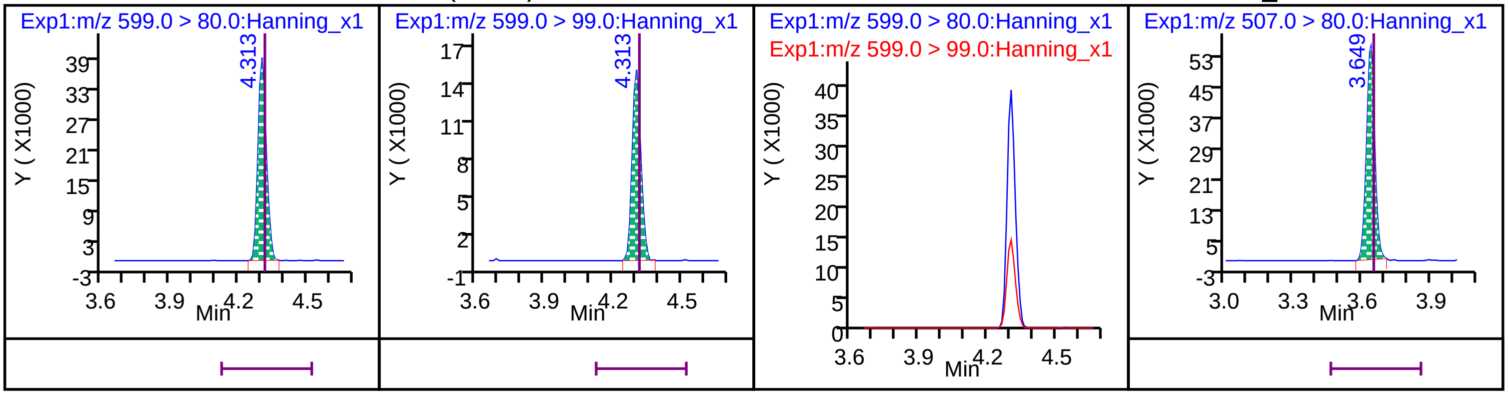
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



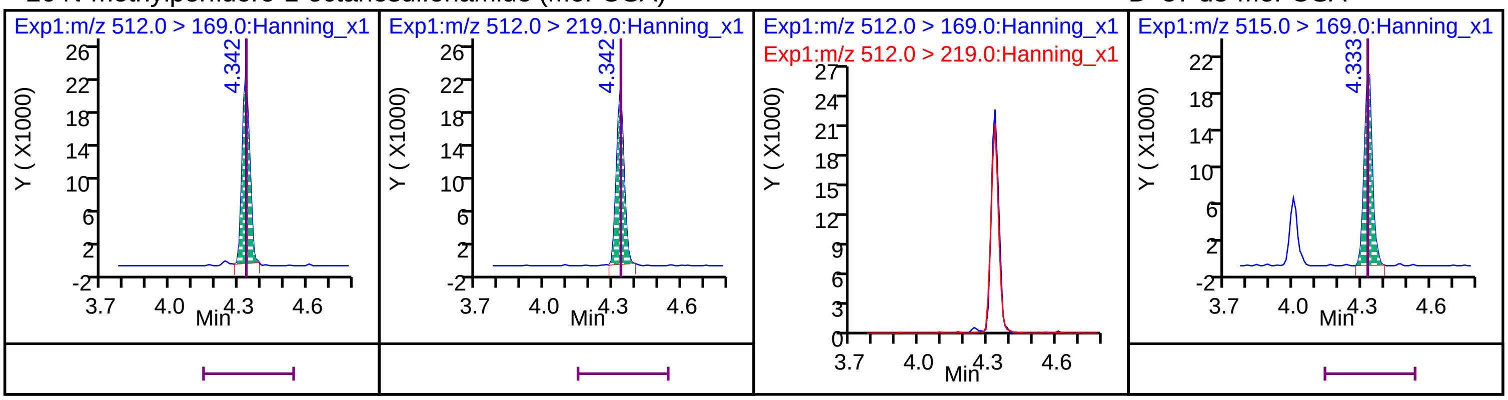
D 61 d7-MeFOSE



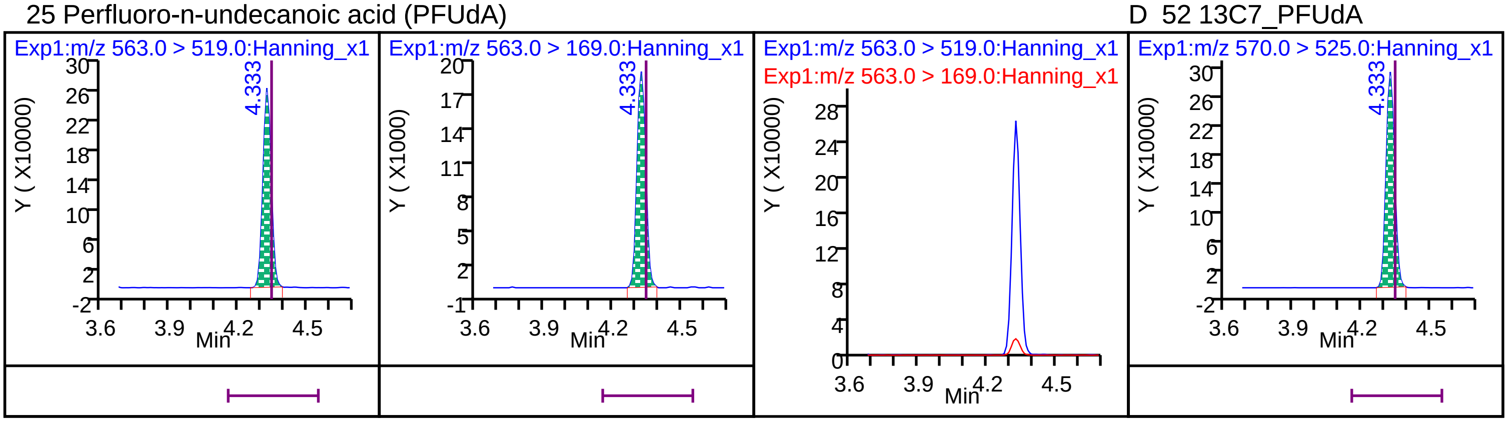
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



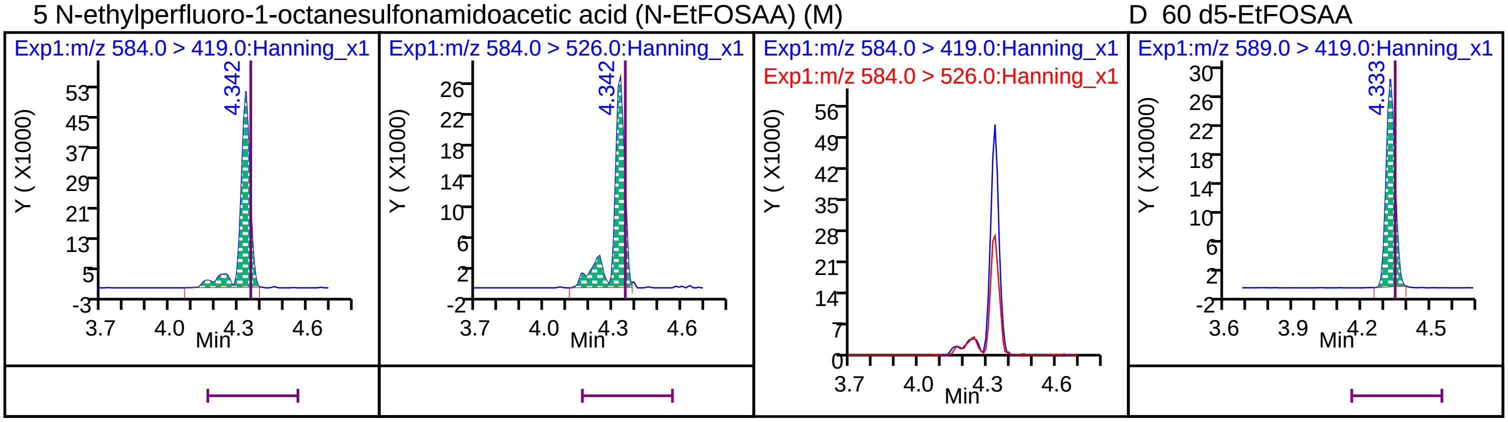
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

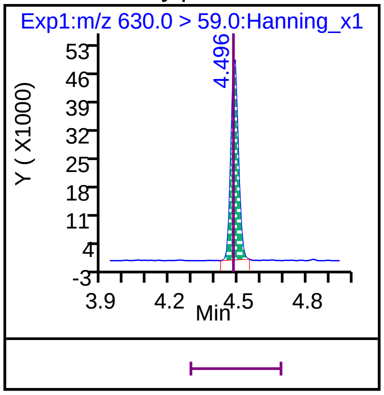


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

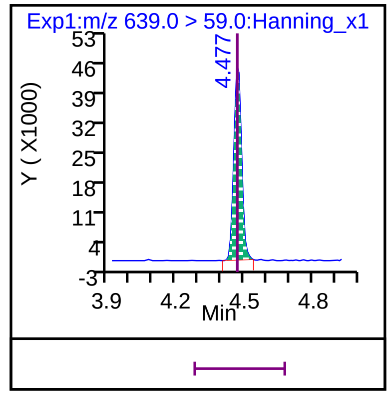


Report Date: 30-Nov-2021 15:07:20 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d

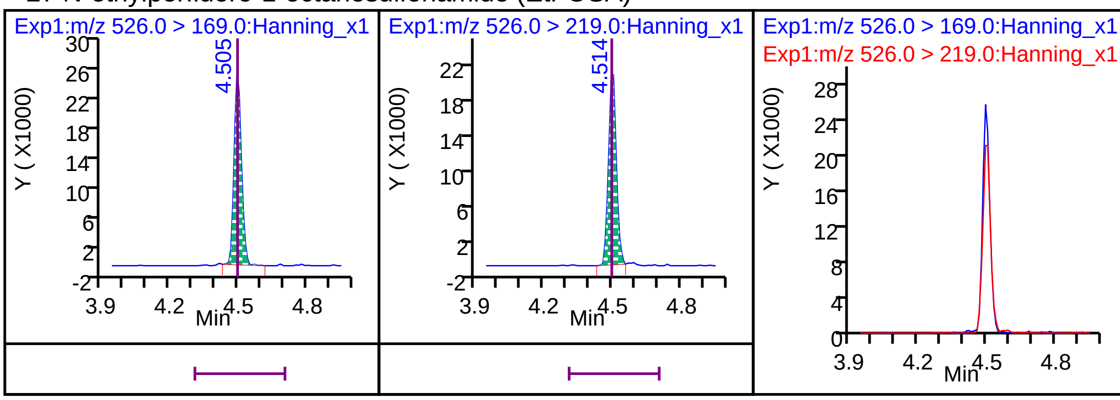
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



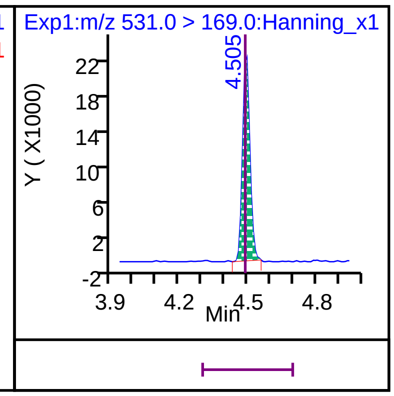
D 62 d9-EtFOSE



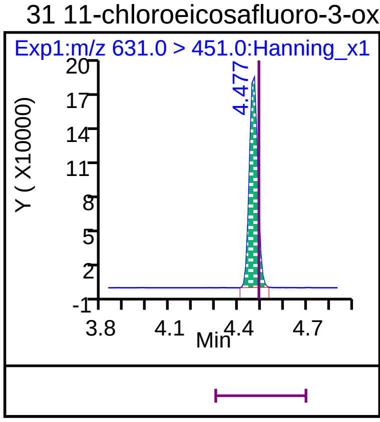
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



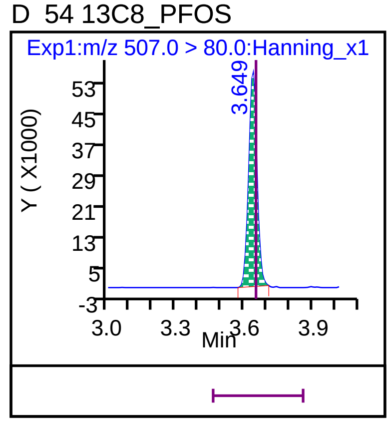
D 59 d5-EtFOSA



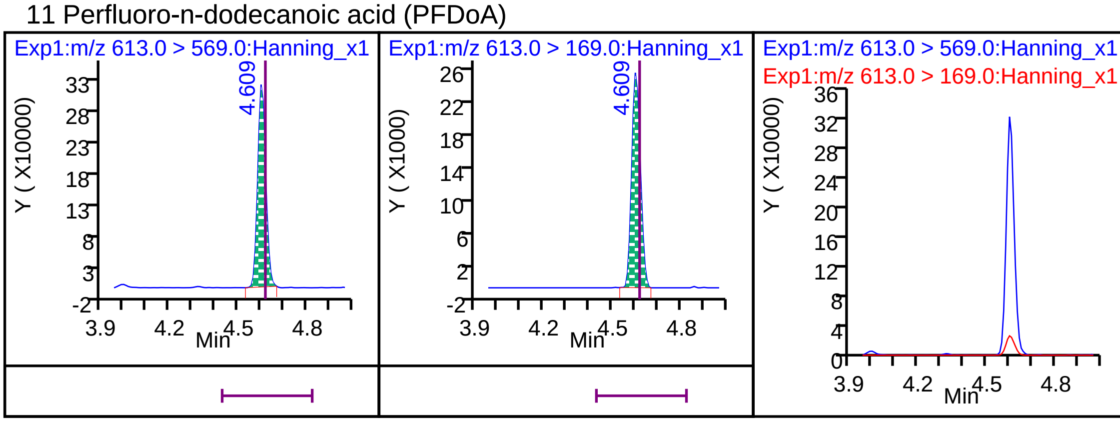
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



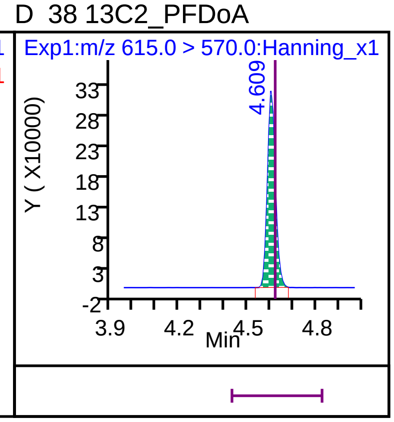
D 54 13C8_PFOS



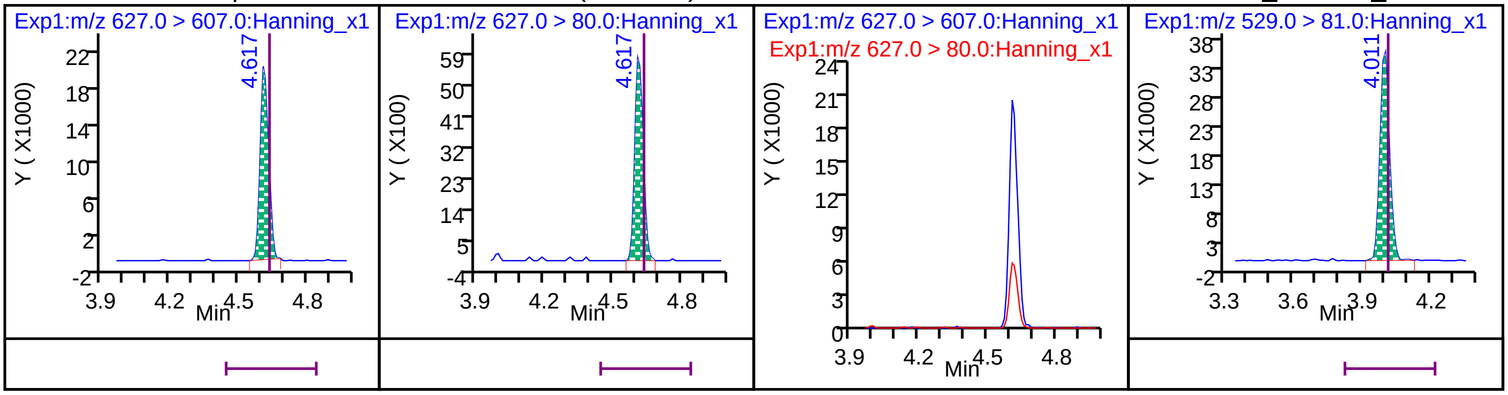
11 Perfluoro-n-dodecanoic acid (PFDoA)



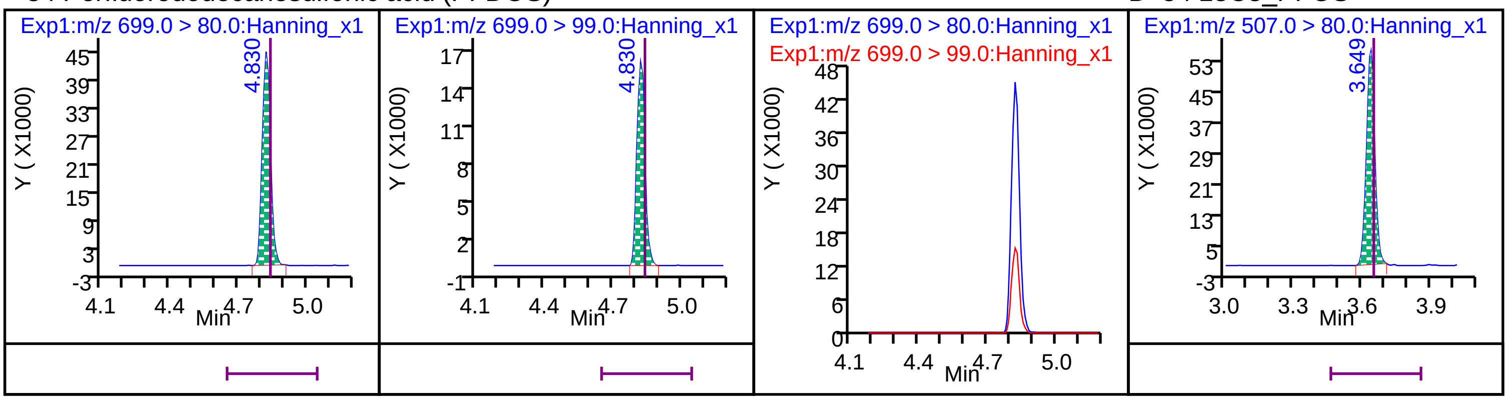
D 38 13C2_PFDoA



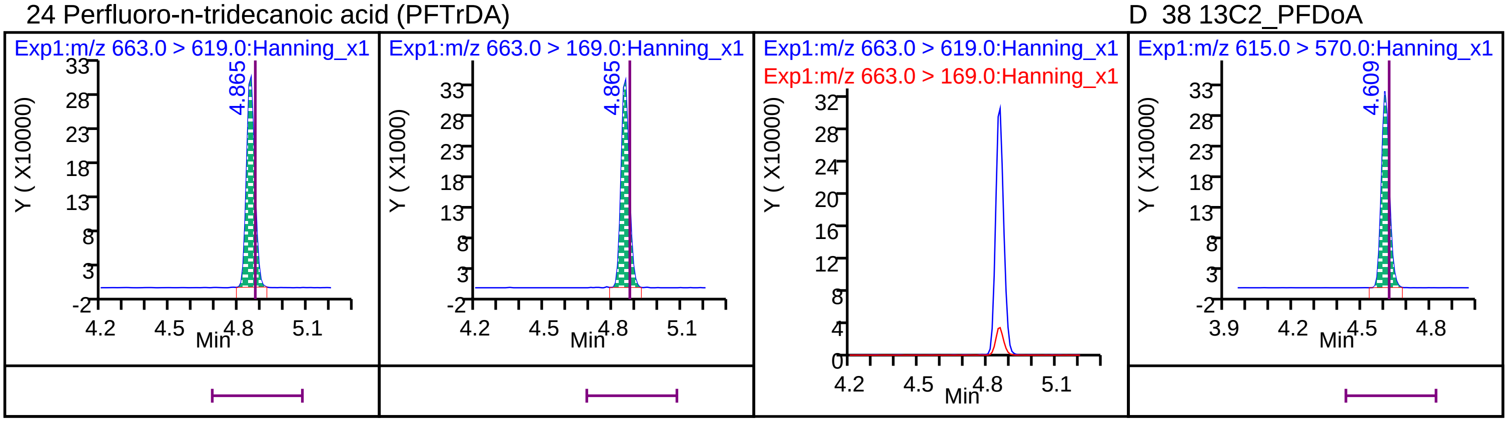
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



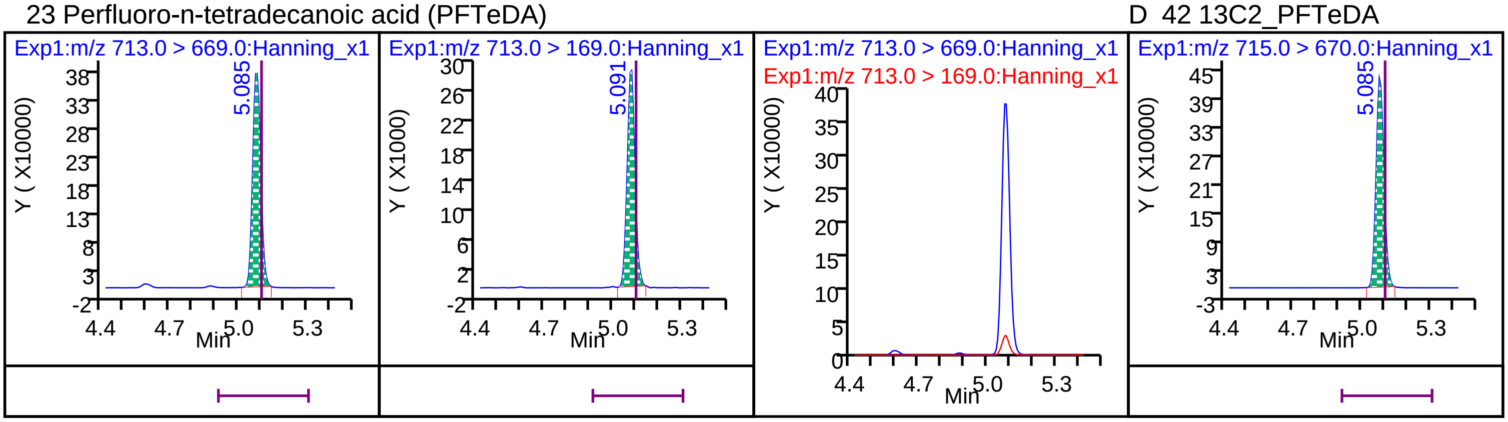
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



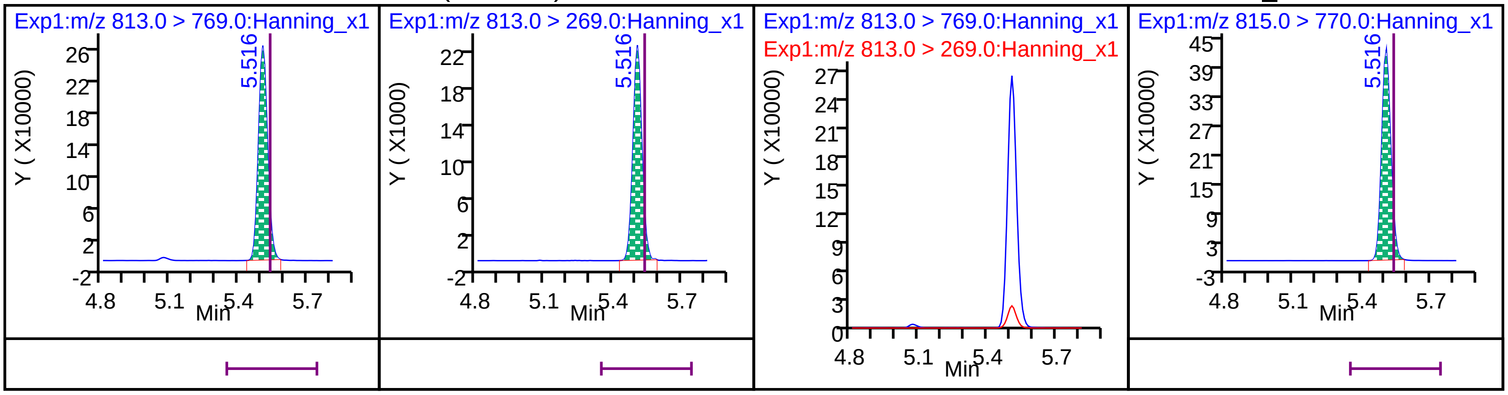
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



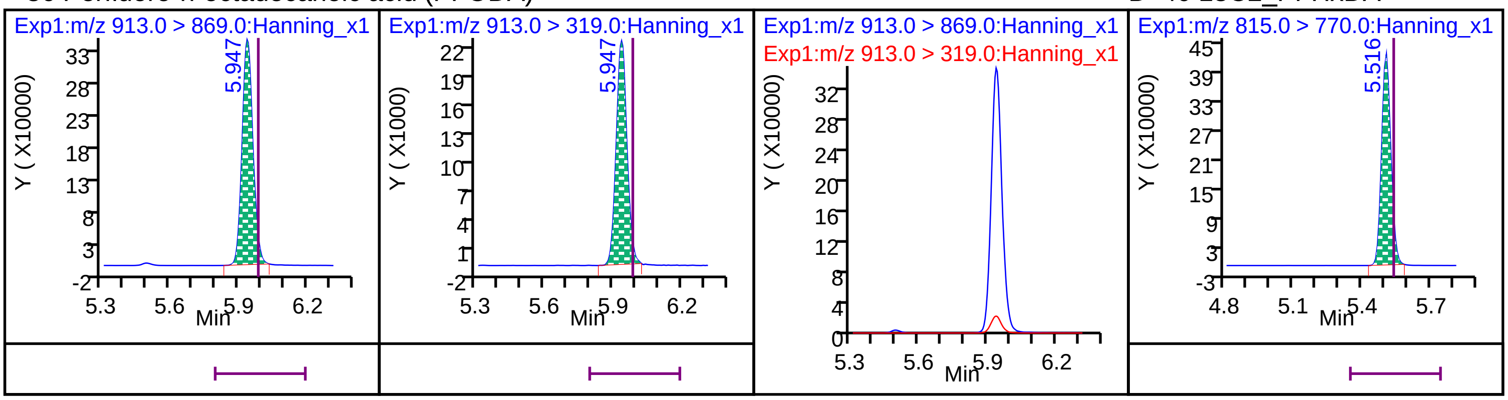
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



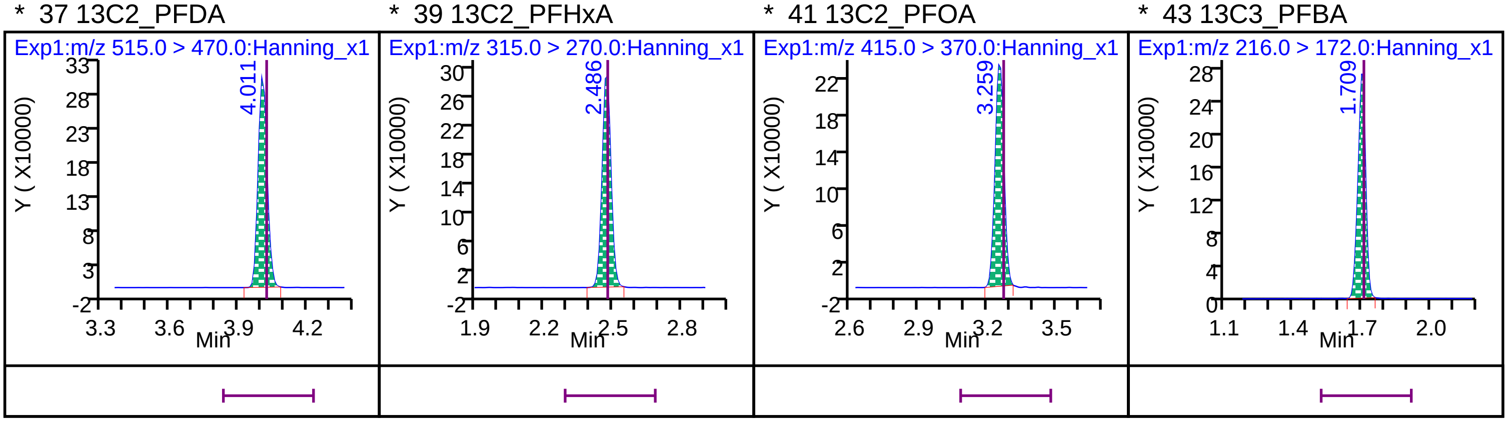
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



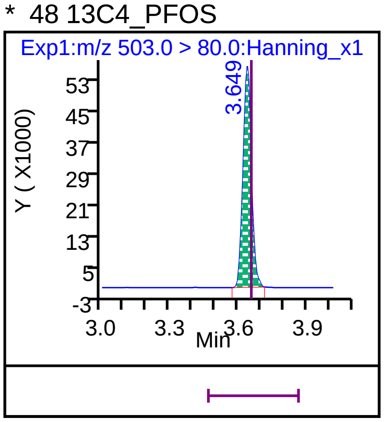
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

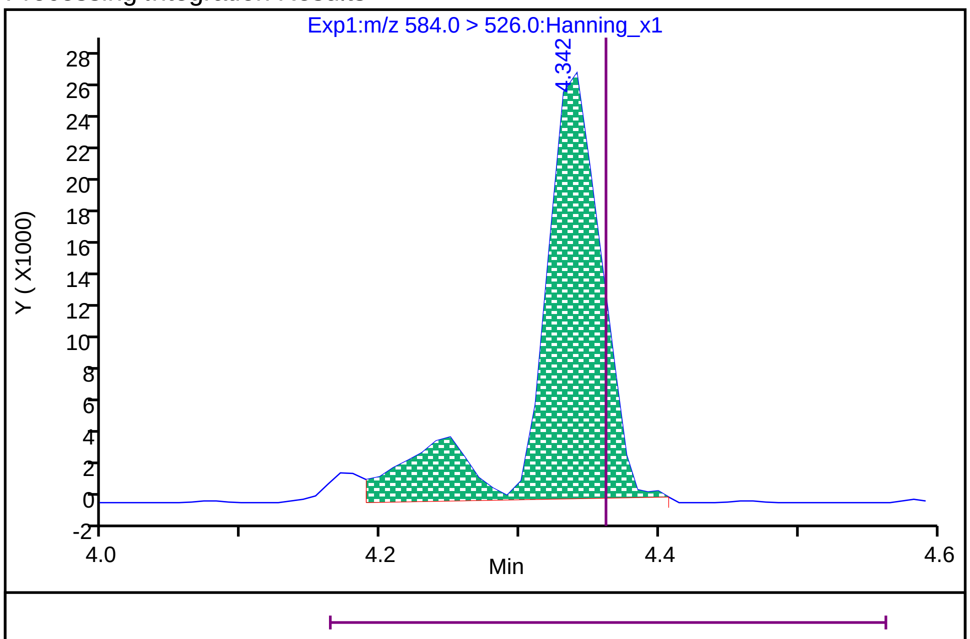
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521020.d		
Injection Date:	15-Nov-2021 15:42:39	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

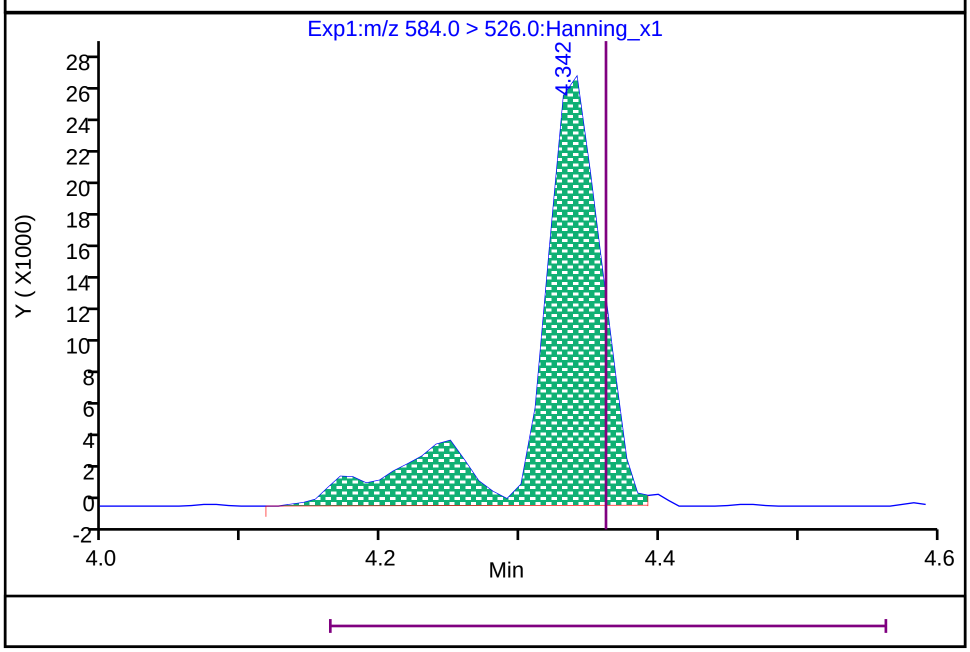
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.342
Area: 82817
Amount: 1035.00
Amount Units: ng/L



RT: 4.342
Area: 87424
Amount: 1035.00
Amount Units: ng/L



Data Editor: justin.gavin, 16-Nov-2021 12:49:48
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521033.d		
Injection Date:	15-Nov-2021 17:59:20	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	25
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	983.62	98.4	70 - 130
D 46 13C4_PFBA	704612	666715			94.6	50 - 150
21 PFPeA			1000.00	933.93	93.4	70 - 130
D 50 13C5_PFPeA	616672	622734			101	50 - 150
D 44 13C3_PFBS	181863	183496			100.9	50 - 150
7 PFBS			884.00	849.75	96.1	70 - 130
1 4:2 FTS			934.00	1036.59	111	70 - 130
D 63 13C2_4:2 FTS_2	121742	107889			88.6	50 - 150
D 49 13C5_PFHxA	739401	714475			96.6	50 - 150
15 PFHxA			1000.00	986.27	98.6	70 - 130
22 PFPeS			938.00	888.72	94.7	70 - 130
28 GenX			2000.00	1963.52	98.2	70 - 130
D 66 13C3_GenX	1321597	1268765			96	50 - 150
D 47 13C4_PFHpA	604203	568876			94.2	50 - 150
13 PFHpA			1000.00	1040.41	104	70 - 130
D 45 13C3_PFHxS	134021	135609			101.2	50 - 150
14 PFHxS			910.00	933.42	102.6	70 - 130
29 ADONA			942.00	962.28	102.2	70 - 130
D 64 13C2_6:2 FTS_2	102394	101282			98.9	50 - 150
2 6:2 FTS			948.00	999.30	105.4	70 - 130
20 PFOA			1000.00	982.35	98.2	70 - 130
D 53 13C8_PFOA	630095	591800			93.9	50 - 150
12 PFHpS			952.00	969.39	101.8	70 - 130
D 54 13C8_PFOS	137691	137505			99.9	50 - 150
18 PFOS			928.00	832.50	89.7	70 - 130
17 PFNA			1000.00	1005.11	100.5	70 - 130
D 56 13C9_PFNA	741618	687661			92.7	50 - 150
30 9Cl-PF3ONS			932.00	880.21	94.4	70 - 130
D 55 13C8_PFOSA	289640	279513			96.5	50 - 150
19 PFOSA			1000.00	995.93	99.6	70 - 130
16 PFNS			960.00	910.56	94.9	70 - 130
10 PFDA			1000.00	991.27	99.1	70 - 130
3 8:2 FTS			958.00	923.87	96.4	70 - 130
D 51 13C6_PFDA	730609	665961			91.2	50 - 150
D 65 13C2_8:2 FTS_2	105151	100434			95.5	50 - 150
6 N-MeFOSAA			1000.00	1005.94	100.6	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	852364	811820			95.2	50 - 150
D 61 d7-MeFOSE	94236	100042			106.2	50 - 150
32 MeFOSE			1000.00	942.19	94.2	70 - 130
26 MeFOSA			1000.00	1114.33	111.4	70 - 130
D 57 d3-MeFOSA	46672	43243			92.7	50 - 150
9 PFDS			964.00	903.57	93.7	70 - 130
D 52 13C7_PFUdA	734518	676529			92.1	50 - 150
D 60 d5-EtFOSAA	771983	740667			95.9	50 - 150
25 PFUdA			1000.00	989.17	98.9	70 - 130
5 N-EtFOSAA			1000.00	925.01	92.5	70 - 130
D 62 d9-EtFOSE	103023	108528			105.3	50 - 150
33 EtFOSE			1000.00	1064.76	106.5	70 - 130
D 59 d5-EtFOSA	42973	46112			107.3	50 - 150
31 11Cl-PF3OUDS			942.00	919.29	97.6	70 - 130
27 EtFOSA			1000.00	1034.08	103.4	70 - 130
D 38 13C2_PFDoA	793096	657852			82.9	50 - 150
11 PFDoA			1000.00	1038.51	103.9	70 - 130
4 10:2 FTS			964.00	954.30	99	70 - 130
34 PFDOS			968.00	888.50	91.8	70 - 130
24 PFTrDA			1000.00	1042.51	104.3	70 - 130
D 42 13C2_PFTeDA	1045249	933922			89.3	50 - 150
23 PFTeDA			1000.00	1013.10	101.3	70 - 130
D 40 13C2_PFHxDA	1010565	1162972			115.1	50 - 150
35 PFHxDA			1000.00	941.94	94.2	70 - 130
36 PFODA			1000.00	1045.51	104.6	70 - 130

Report Date: 30-Nov-2021 15:07:22 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521033.d		
Injection Date:	15-Nov-2021 17:59:20	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	25
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.718	1.711	1	666715	22	>100:1			1000.00	1072.45	94.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	1/0	691622	21	>100:1			1000.00	983.62		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.109	1	622734	16	>100:1			1000.00	1089.47	101	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.109	1/0	654581	16	>100:1			1000.00	933.93		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.172	2.162	1	183496	16	>100:1			1000.00	1060.86	100.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.172	2.162	1/0	194445	17	>100:1	Target = 3.53		884.00	849.75		
298.9 > 99	44	2.172	2.162		53847	17	>100:1	3.61 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.523	2.522	1/0	151134	18	>100:1	Target = 3.10		938.00	888.72		
349 > 99	44	2.523	2.522		46484	14	>100:1	3.25 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	1	107889	16	>100:1			5000.00	4764.63	88.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	1/0	49306	17	>100:1	Target = 1.75		934.00	1036.59		
327 > 81	63	2.451	2.451		26734	19	48:1	1.84 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.487	1	714475	16	>100:1			1000.00	1097.02	96.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.487	1/0	732678	19	>100:1	Target = 18.91		1000.00	986.27		
313 > 119	49	2.496	2.487		41228	16	>100:1	17.77 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.606	1	1268765	19	>100:1			5000.00	5474.56	96	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.606	1/0	322681	18	>100:1	Target = 0.79		2000.00	1963.52		
285 > 185	66	2.614	2.606		411261	18	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.872	1	568876	18	>100:1			1000.00	1071.45	94.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.873	2.872	1/0	650357	17	>100:1	Target = 3.80		1000.00	1040.41		
363 > 169	47	2.873	2.872		164831	17	>100:1	3.94 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.888	1	135609	19				1000.00	1079.35	101.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/-1	139160	27	>100:1	Target = 2.89	5.51	910.00	933.42		
399 > 99	45	2.888	2.896		38831	26	>100:1	3.58 (1.44-4.34)	8.55				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.918	1/0	1012012	19	>100:1	Target = 3.23		942.00	962.28		
377 > 85	45	2.919	2.918		282991	20	>100:1	3.57 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.286	0/-1	135016	24	>100:1	Target = 3.12		952.00	969.39		
449 > 99	45	3.269	3.286		41659	21	>100:1	3.24 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.246	1	101282	22	>100:1			5000.00	5626.79	98.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.260	0/-1	47918	21	>100:1	Target = 1.75		948.00	999.30		
427 > 81	64	3.241	3.260		23836	17	44:1	2.01 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.274	0	591800	21	>100:1			1000.00	1127.93	93.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.280	0/0	595744	31	>100:1	Target = 2.89		1000.00	982.35		
413 > 169	53	3.269	3.280		196205	21	>100:1	3.03 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.661	0	137505	21				1000.00	1110.32	99.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.655	1/1	136300	39	>100:1	Target = 3.30	3.76	928.00	832.50		
499 > 99	54	3.657	3.655		42581	39	>100:1	3.20 (1.65-4.95)	7.58				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.877	0/0	458365	19	>100:1			932.00	880.21		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.023	-1/-1	100452	14	>100:1	Target = 3.08		960.00	910.56		
549 > 99	54	4.016	4.023		40469	15	>100:1	2.48 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.324	0/0	97227	15	>100:1	Target = 2.72		964.00	903.57		
599 > 99	54	4.318	4.324		33263	14	>100:1	2.92 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.497	0/0	432772	17	>100:1			942.00	919.29		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.849	0/0	105055	18	>100:1	Target = 3.27		968.00	888.50		
699 > 99	54	4.834	4.849		33778	18	>100:1	3.11 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.666	0	687661	22	>100:1			1000.00	1073.84	92.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.672	0/0	744998	21	>100:1	Target = 6.51		1000.00	1005.11		
463 > 169	56	3.662	3.672		108589	20	>100:1	6.86 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.920	3.910	1	279513	19	>100:1			1000.00	1042.73	96.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.920	3.910	1/0	292901	17	>100:1	Target = 41.63		1000.00	995.93		
498>478	55	3.912	3.910		8221	22		35.62 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.032	0	665961	16	>100:1			1000.00	1158.88	91.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.032	0/0	768242	18	>100:1	Target = 13.80		1000.00	991.27		
513 > 169	51	4.027	4.032		48992	15	>100:1	15.68 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.023	0	100434	16	>100:1			5000.00	5810.64	95.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.032	0/0	41933	18	>100:1	Target = 1.94		958.00	923.87		
527 > 81	65	4.016	4.032		19292	15	72:1	2.17 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.644	0/0	48624	17		Target = 3.54		964.00	954.30		
627 > 80	65	4.631	4.644		11569	16	40:1	4.20 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.193	0	811820	16	>100:1			5000.00	5372.29	95.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.187	4.193	0/0	131059	32	>100:1	Target = 1.37	8.14	1000.00	1005.94		
570 > 483	58	4.187	4.193		94284	32	>100:1	1.39 (0.68-2.05)	4.17				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.328	4.314	1	100042	14	>100:1			1000.00	1109.25	106.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.338	4.335	1/0	103010	13	>100:1			1000.00	942.19		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.348	4.335	1	43243	14	>100:1			1000.00	919.26	92.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.348	4.344	1/0	52229	14	>100:1	Target = 1.11		1000.00	1114.33		
512 > 219	57	4.348	4.344		46793	14	>100:1	1.11 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.354	0	740667	16	>100:1			5000.00	5718.86	95.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.363	0/0	133606	33	>100:1	Target = 1.51	6.97	1000.00	925.01		
584 > 526	60	4.348	4.363		84325	30	>100:1	1.58 (0.75-2.26)	3.76				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.354	0	676529	16	>100:1			1000.00	1123.34	92.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.354	0/0	648435	18	>100:1	Target = 14.52		1000.00	989.17		
563 > 169	52	4.348	4.354		48962	24	>100:1	13.24 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.491	4.479	1	108528	19	>100:1			1000.00	1023.11	105.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.510	4.488	2/1	112492	15	>100:1			1000.00	1064.76		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.497	1	46112	15	>100:1			1000.00	1072.37	107.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.519	4.506	1/0	57120	16	>100:1	Target = 1.06		1000.00	1034.08		
526 > 219	59	4.519	4.506		51716	14	>100:1	1.10 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.628	0	657852	17	>100:1			1000.00	1095.81	82.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.628	0/0	728326	17	>100:1	Target = 10.70		1000.00	1038.51		
613 > 169	38	4.622	4.628		63249	14	>100:1	11.51 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.883	0/0	720852	16	>100:1	Target = 8.31		1000.00	1042.51		
663 > 169	38	4.868	4.883		76183	19	>100:1	9.46 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.093	5.110	0	933922	21	>100:1			1000.00	1148.75	89.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.093	5.110	0/0	825935	22	>100:1	Target = 12.17		1000.00	1013.10		
713 > 169	42	5.093	5.110		63203	19	>100:1	13.06 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.521	5.547	-1	1162972	20	>100:1			1000.00	1339.77	115.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.521	5.547	-1/0	701580	20	>100:1	Target = 10.43		1000.00	941.94		
813 > 269	40	5.521	5.547		63606	20	>100:1	11.03 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.949	5.996	-2/-1	1106940	42	>100:1	Target = 13.67		1000.00	1045.51		
913 > 319	40	5.949	5.996		71719	42	>100:1	15.43 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.032	0	747293	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.487	1	702807	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.280	0	605760	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	1	609826	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.666	0	123276	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

Report Date: 30-Nov-2021 15:07:22 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

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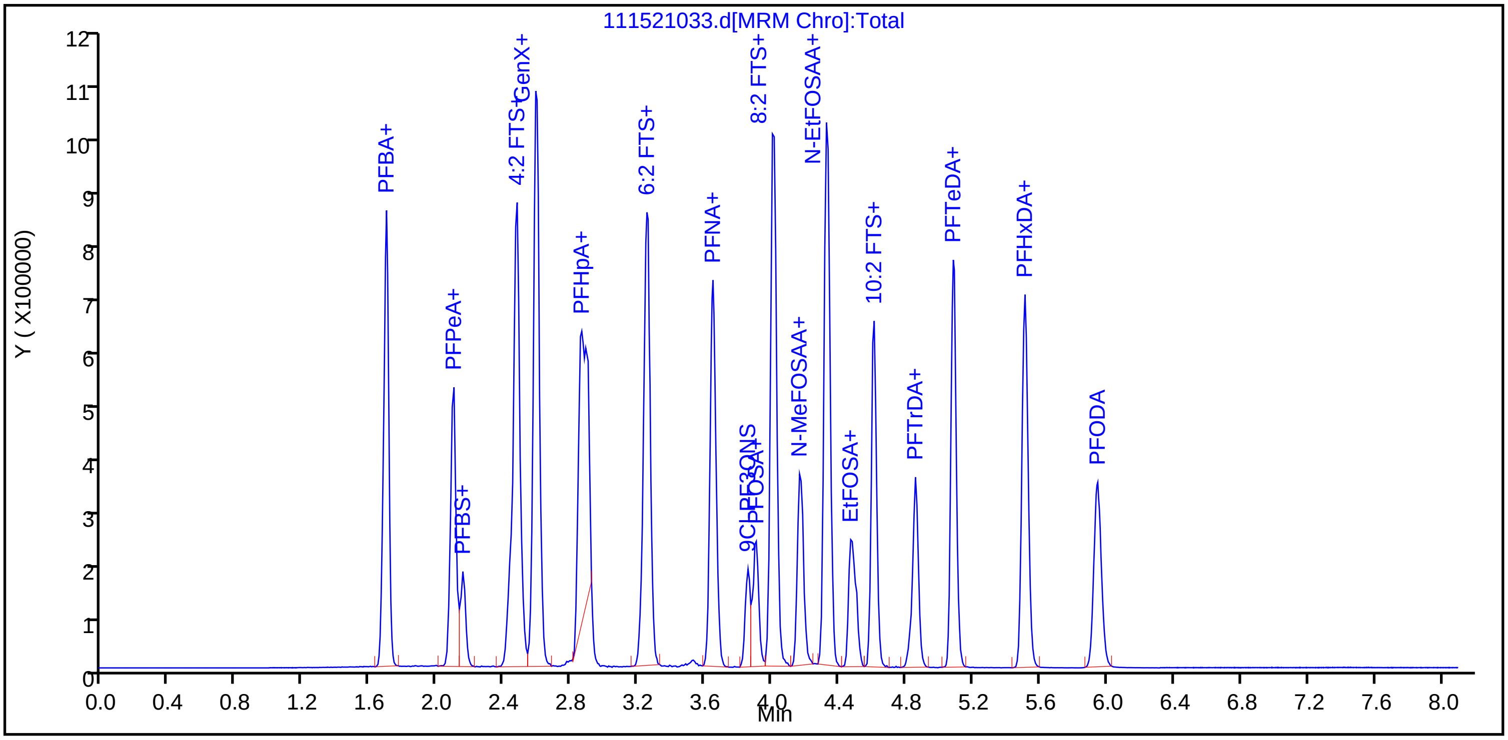
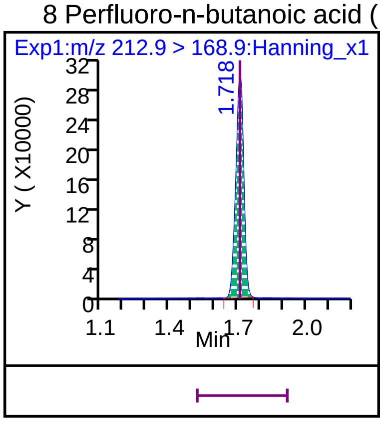
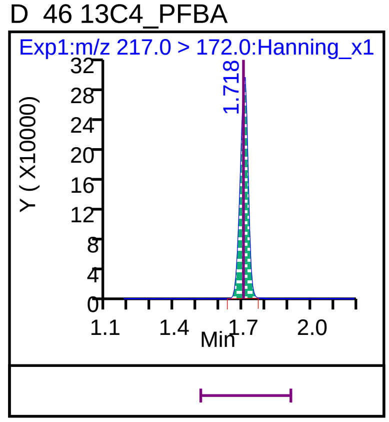
Dil. Factor:	1	Operator:	Justin Gavin



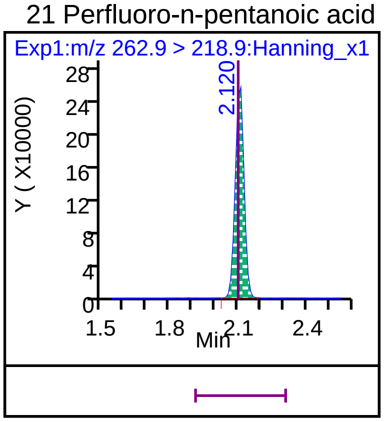
8 Perfluoro-n-butanoic acid (PFBA)



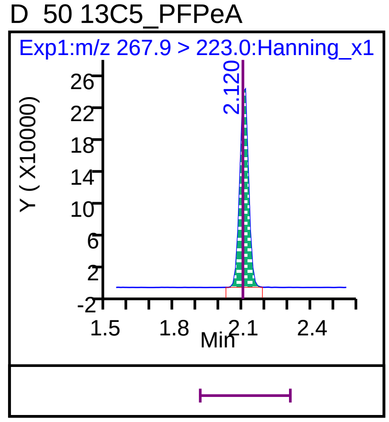
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

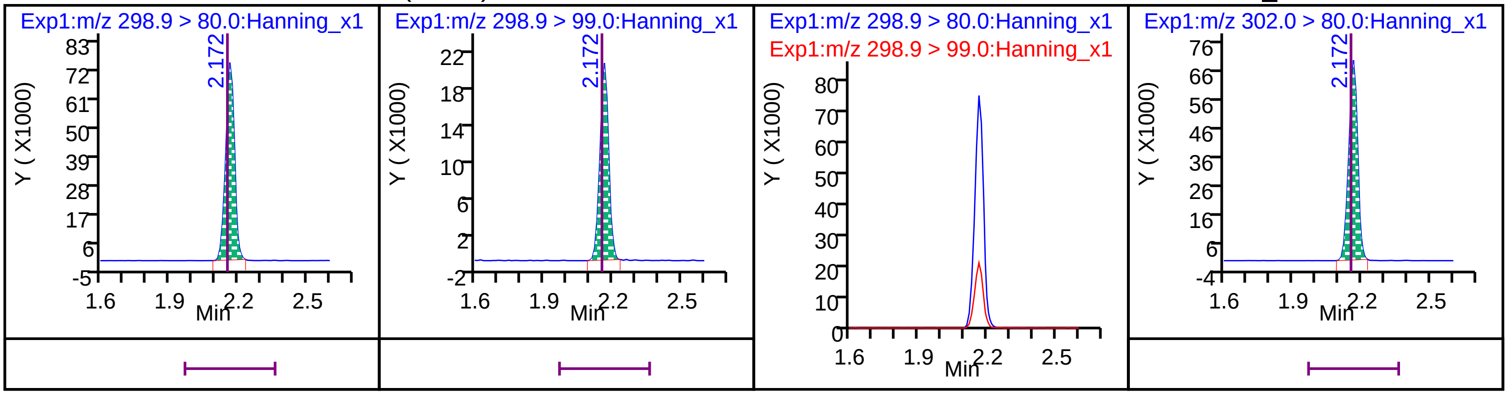


D 50 13C5_PFPeA

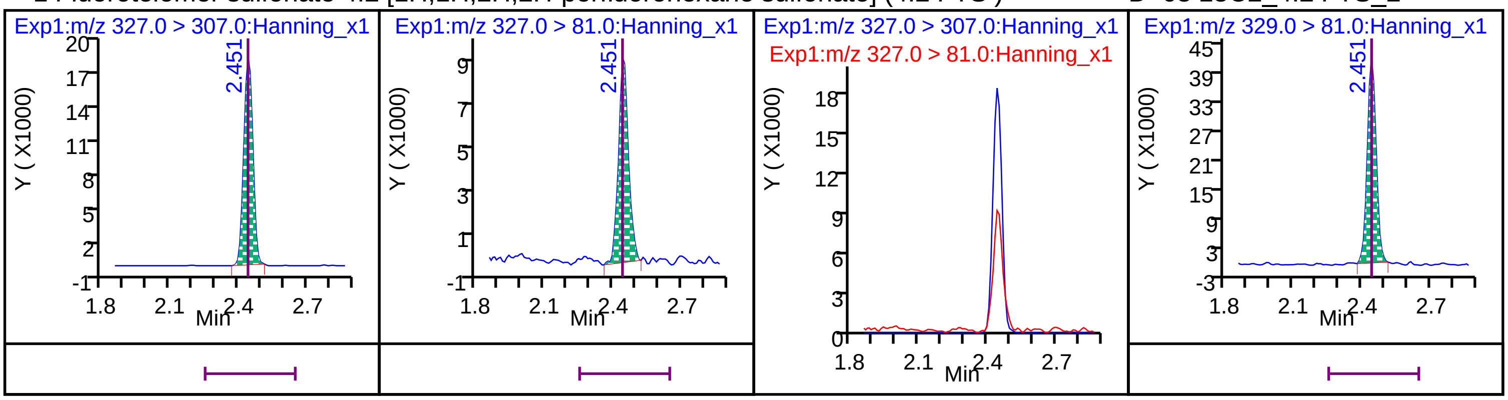


Report Date: 30-Nov-2021 15:07:22 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521033.d

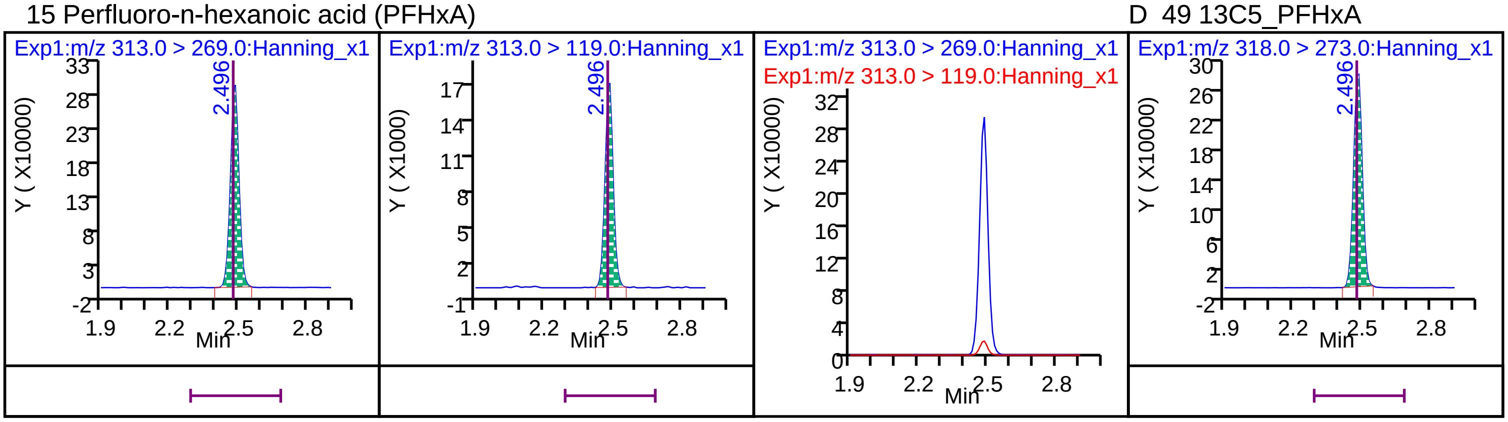
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



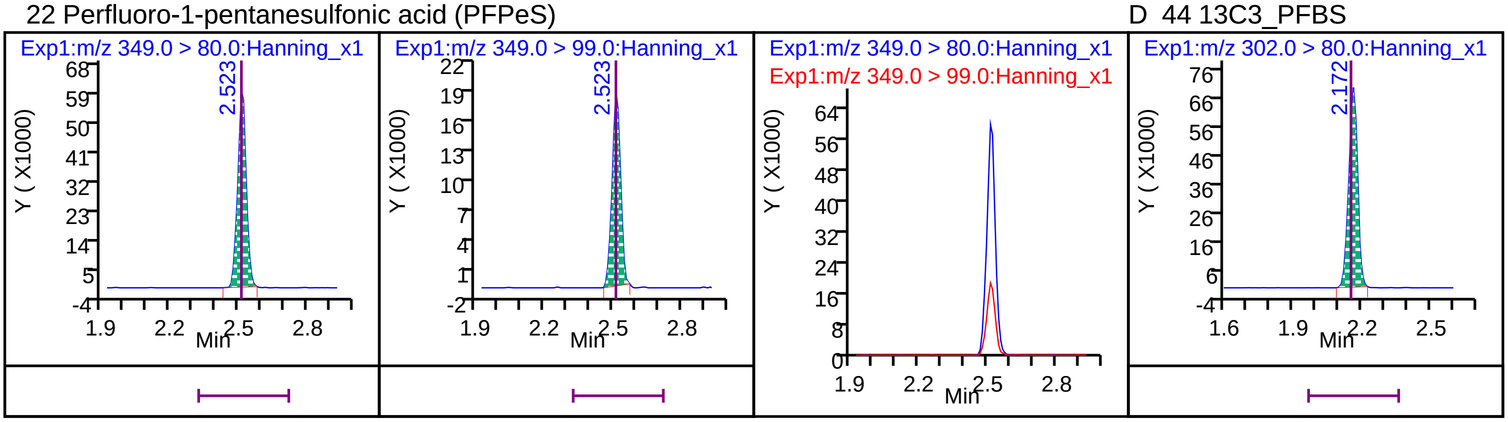
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



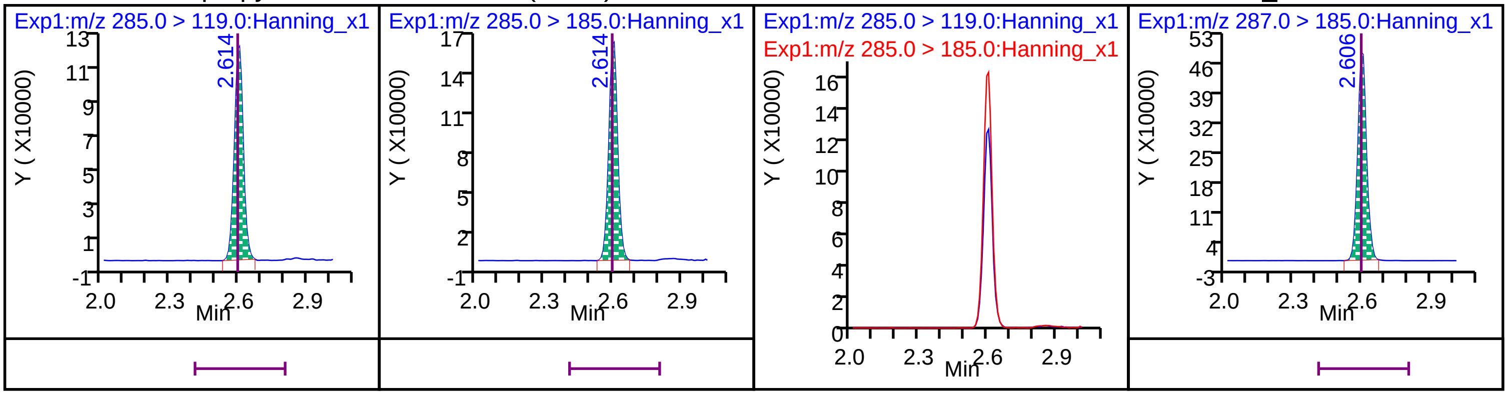
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



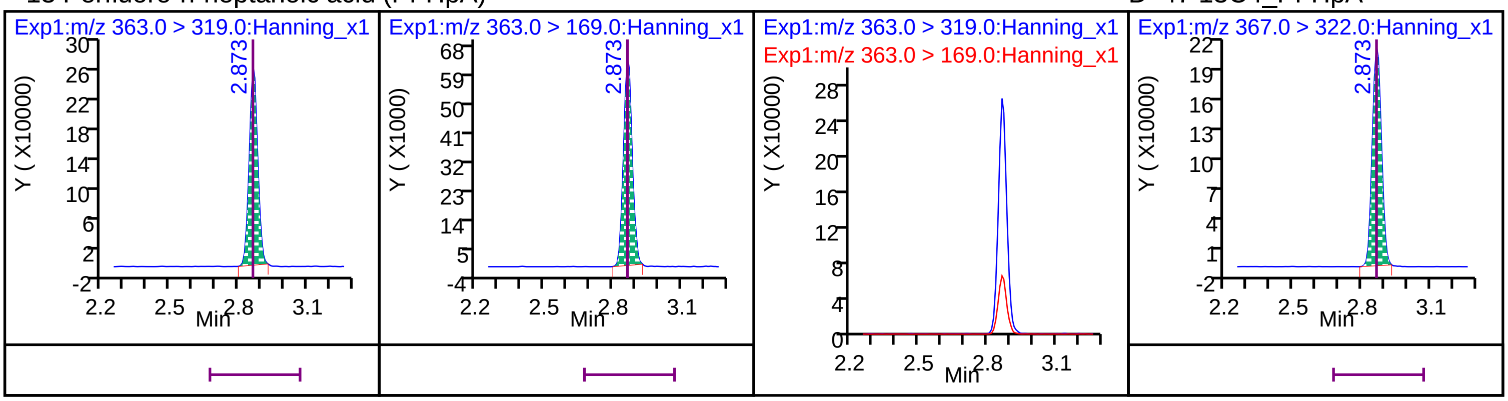
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



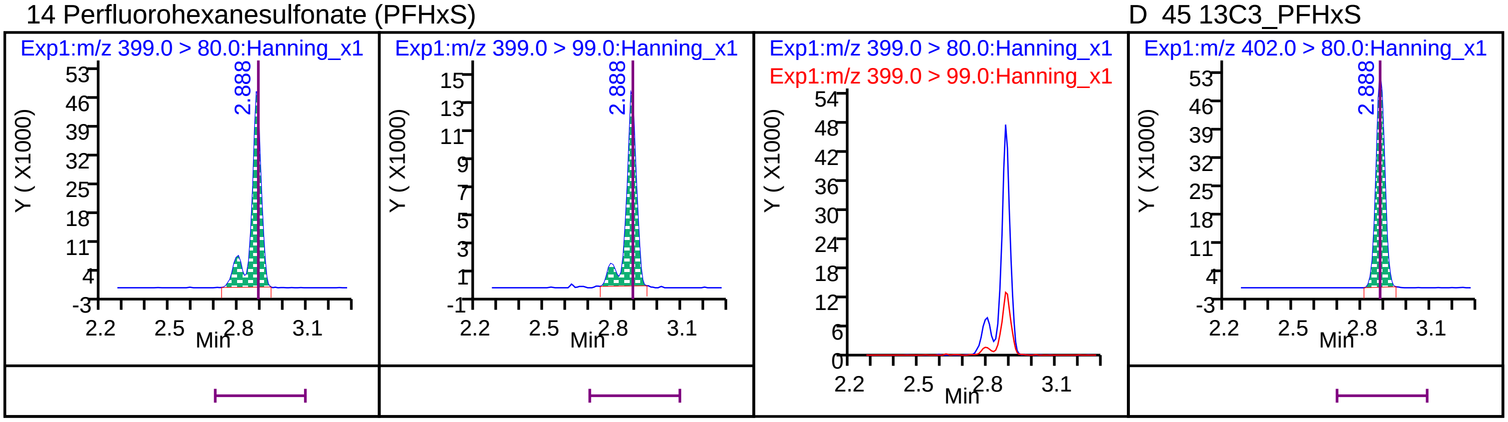
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



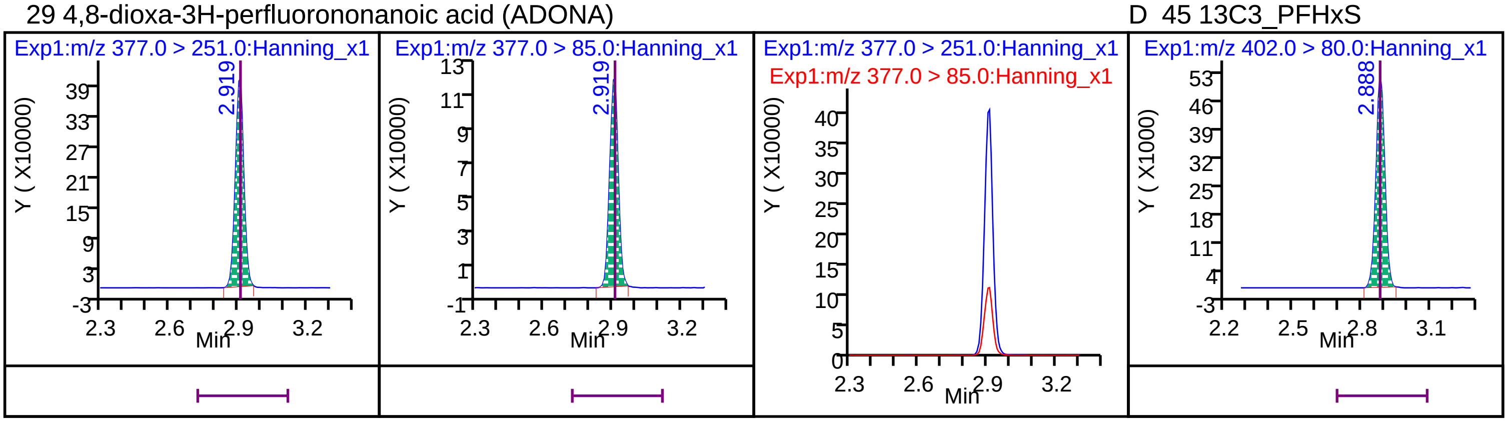
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

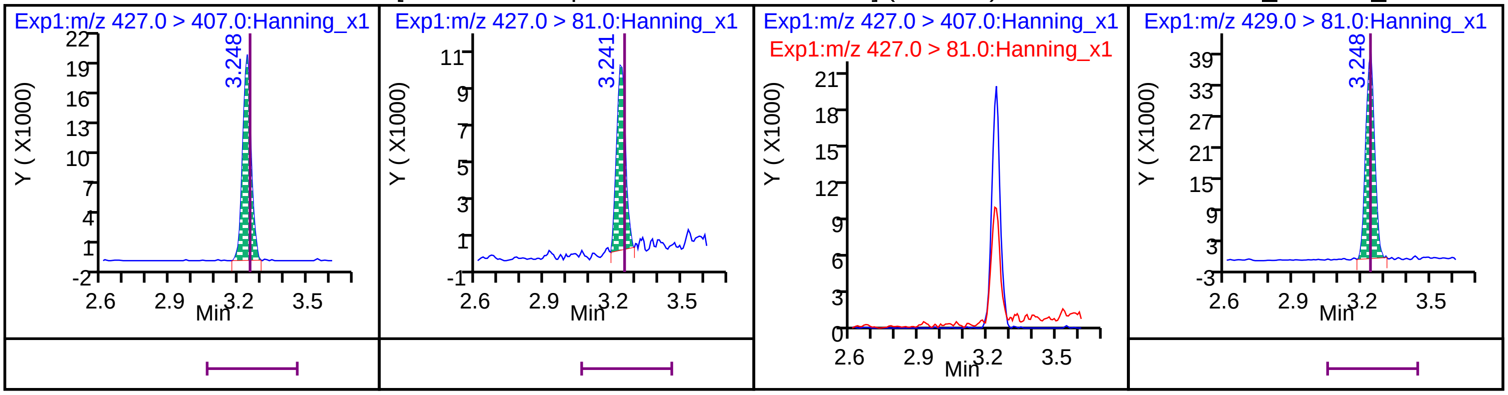


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

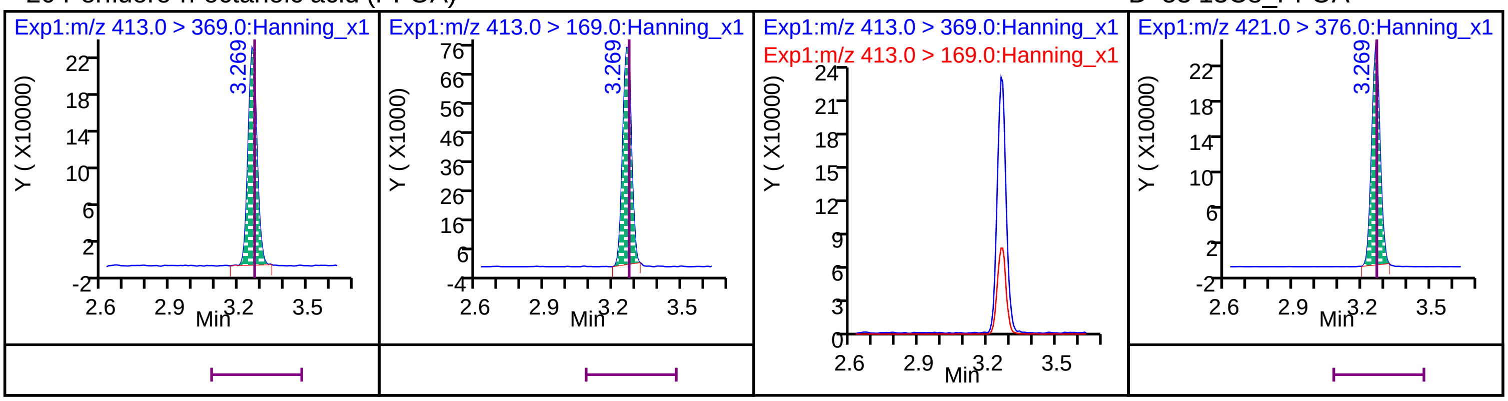


Report Date: 30-Nov-2021 15:07:22 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521033.d

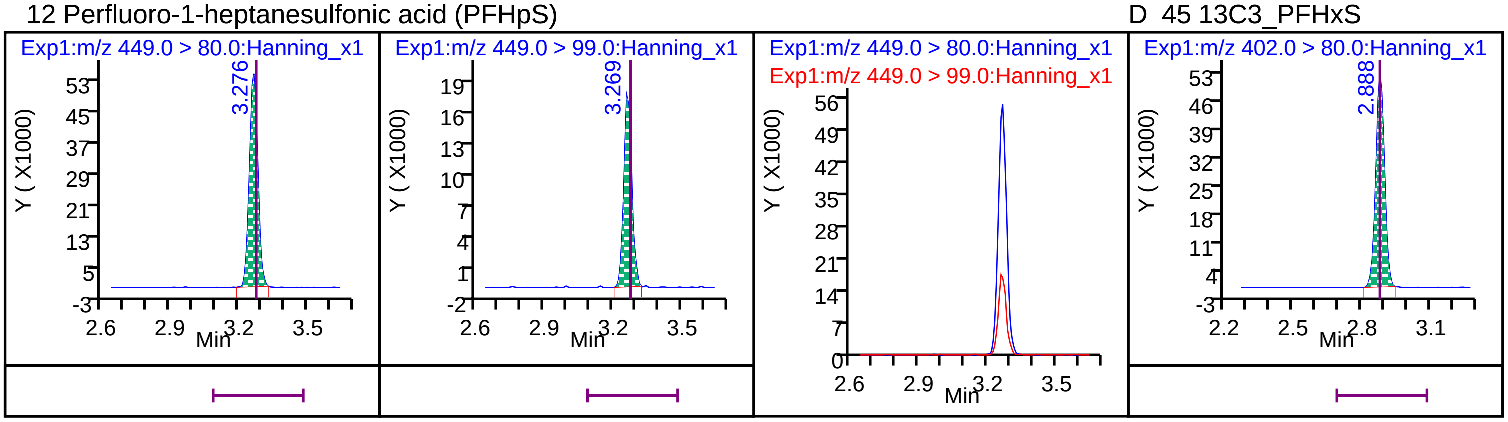
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



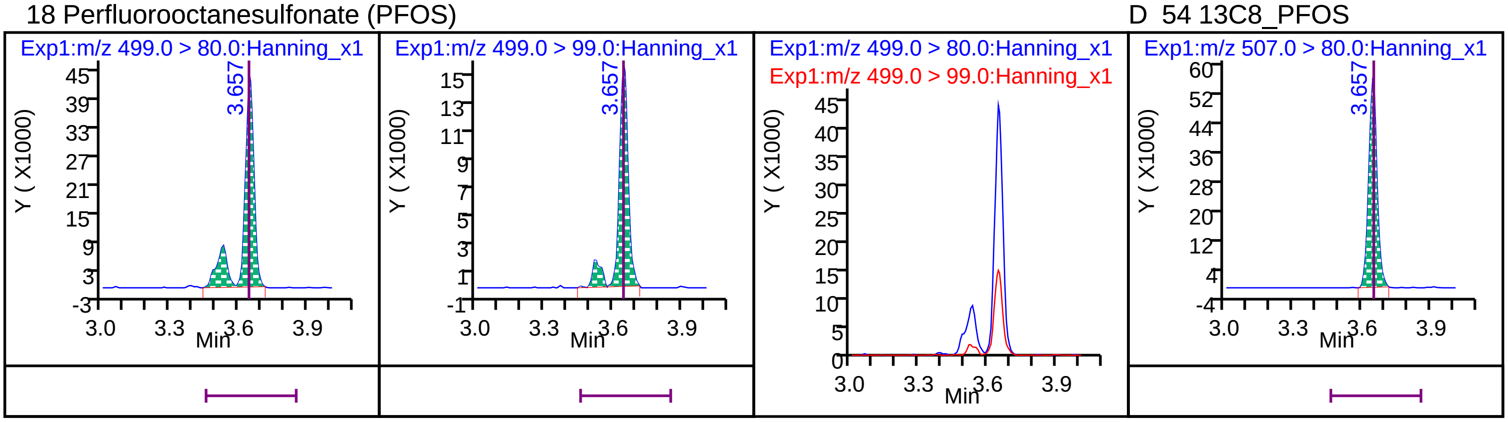
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



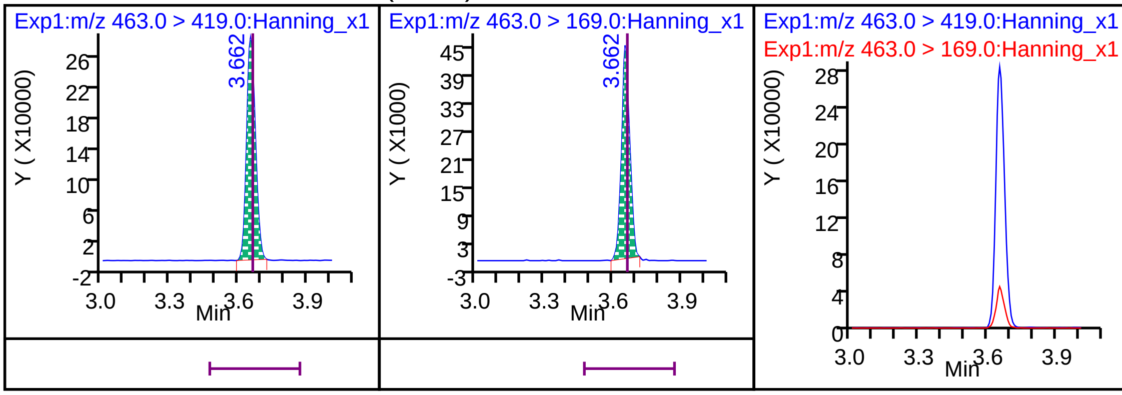
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



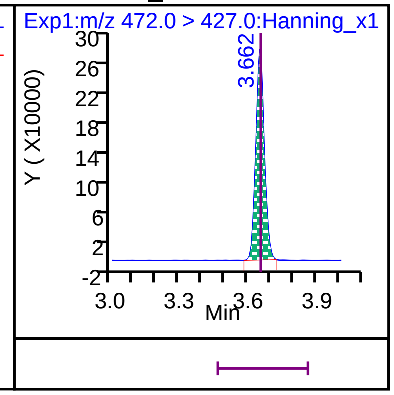
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



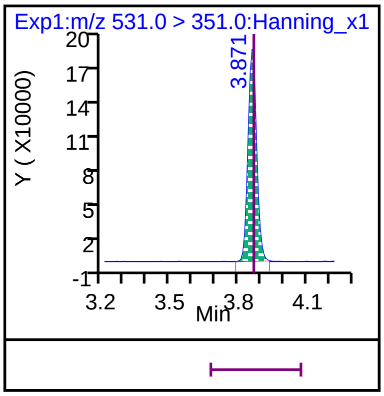
17 Perfluoro-n-nonanoic acid (PFNA)



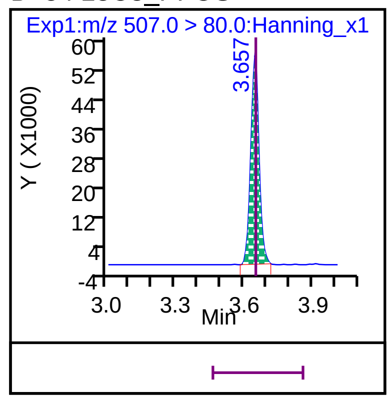
D 56 13C9_PFNA



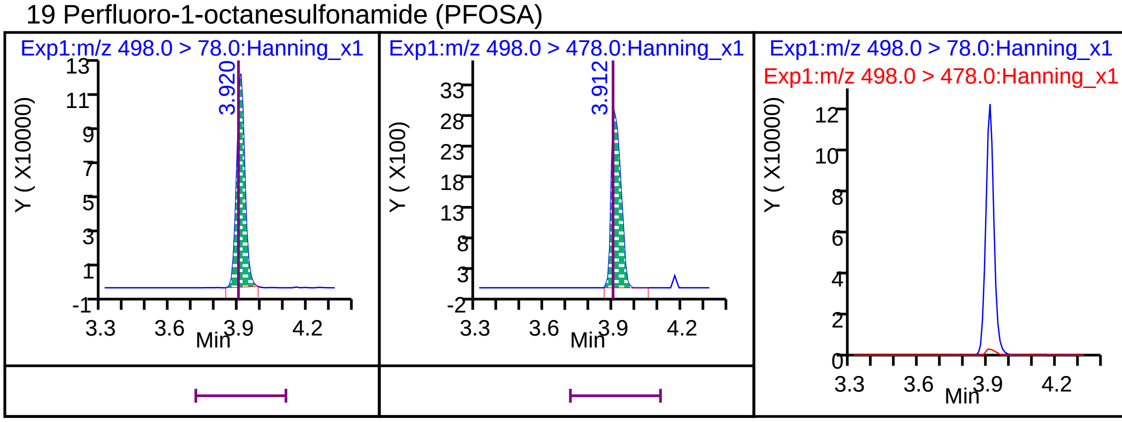
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



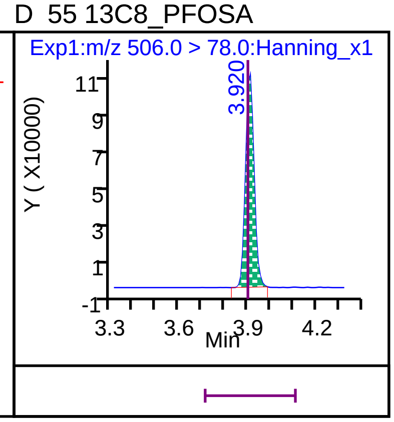
D 54 13C8_PFOS



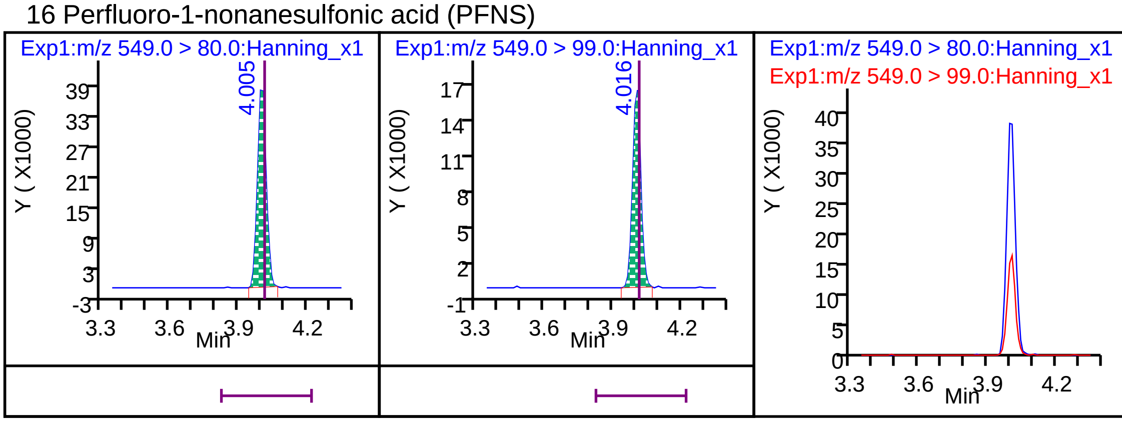
19 Perfluoro-1-octanesulfonamide (PFOSA)



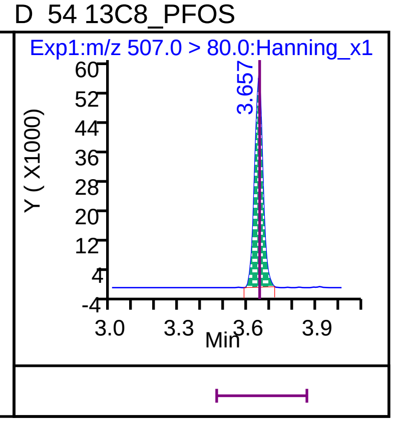
D 55 13C8_PFOSA



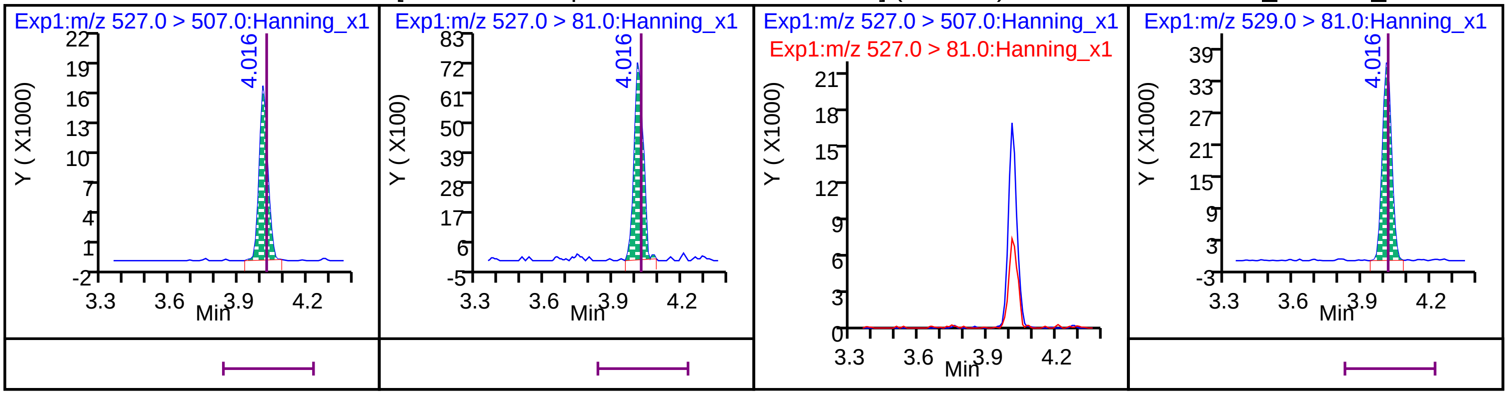
16 Perfluoro-1-nonanesulfonic acid (PFNS)



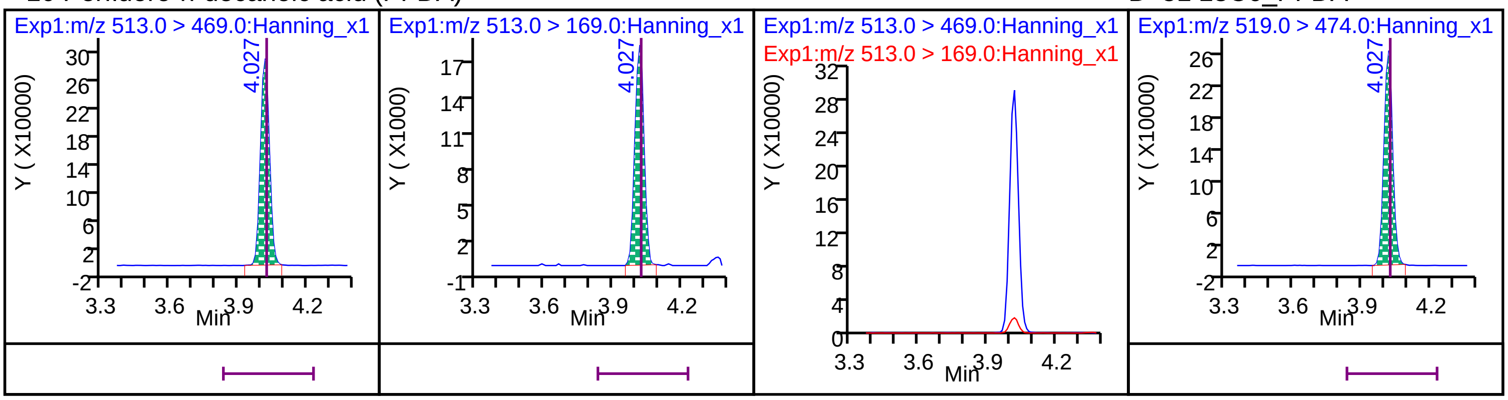
D 54 13C8_PFOS



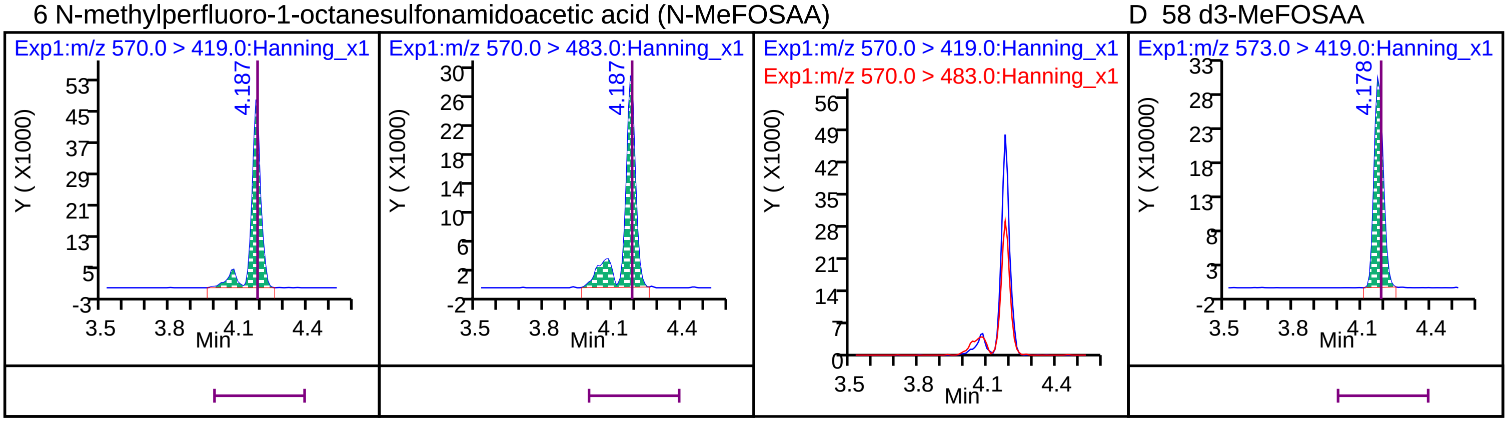
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



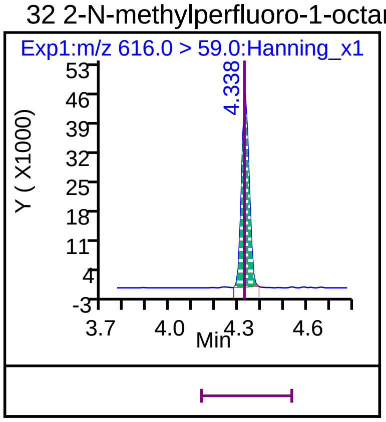
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



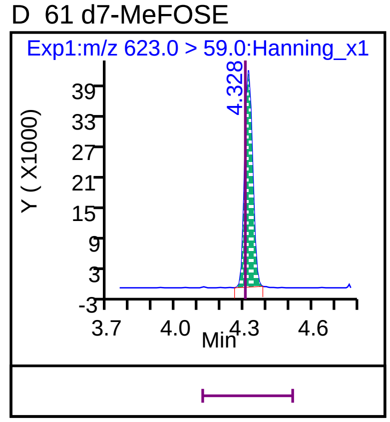
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



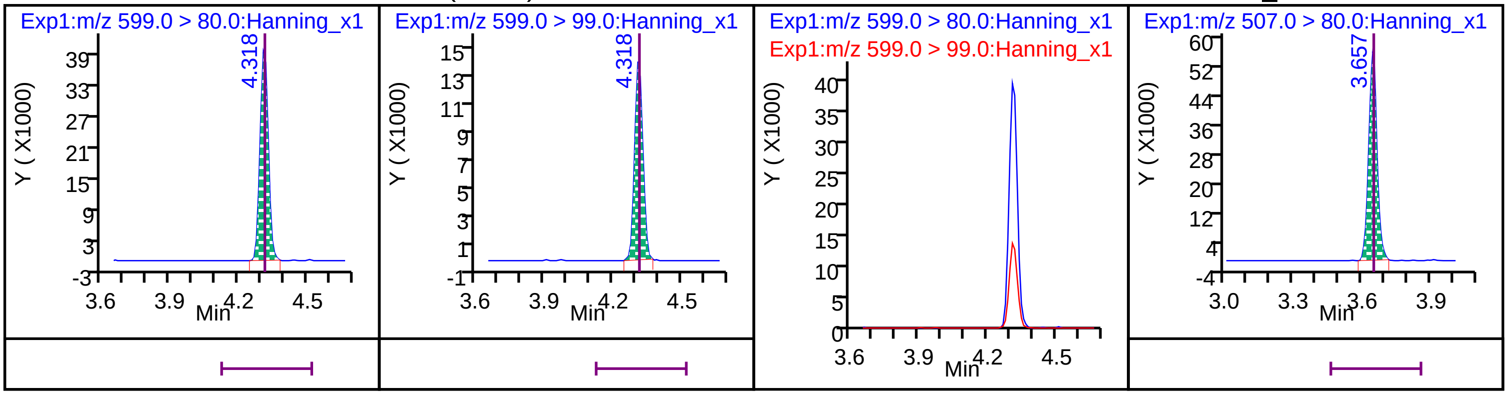
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



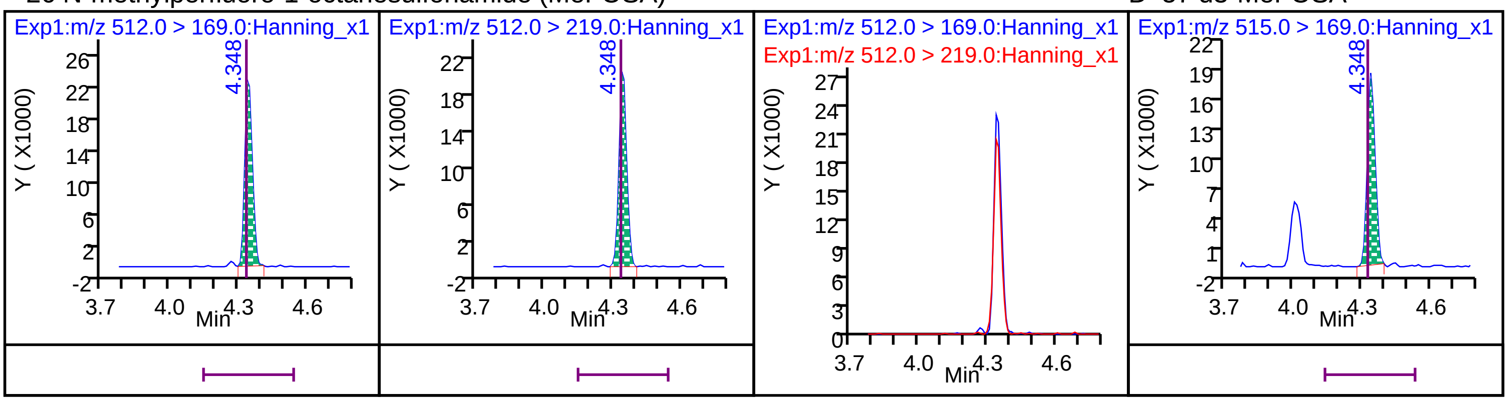
D 61 d7-MeFOSE



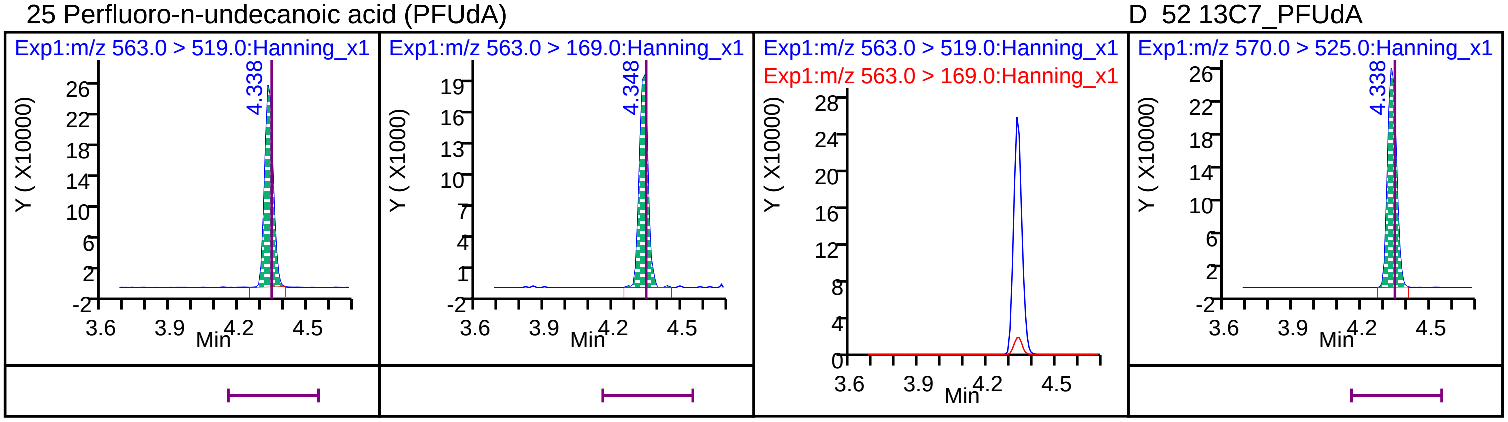
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



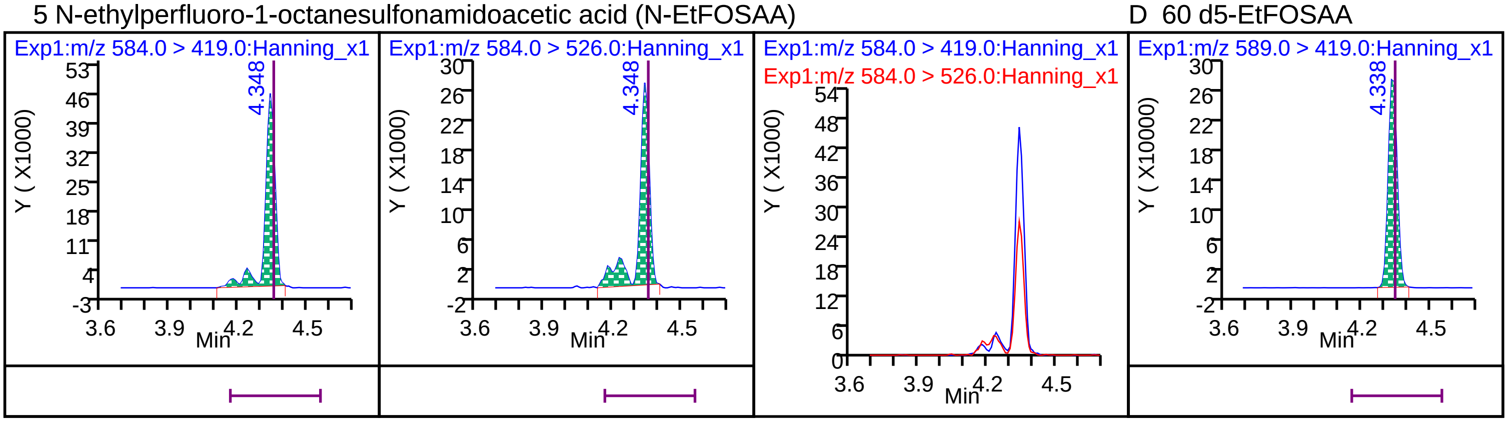
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



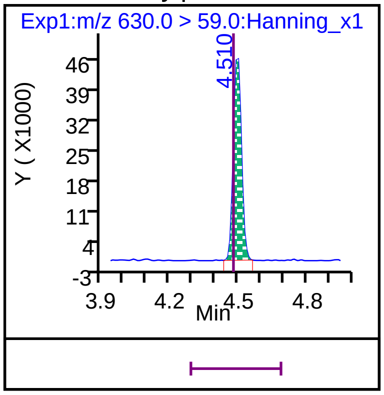
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



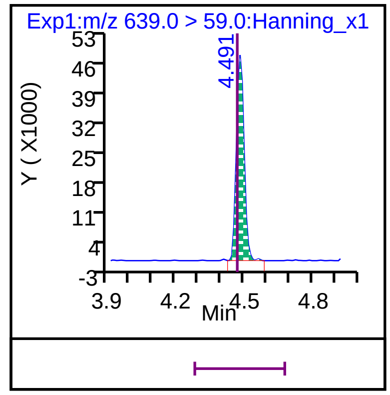
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



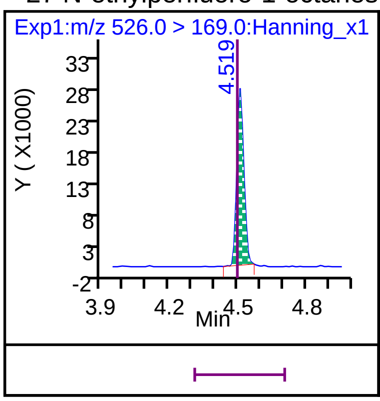
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

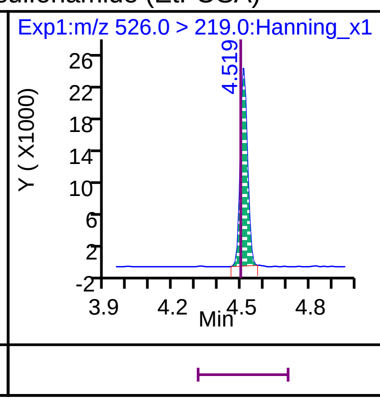


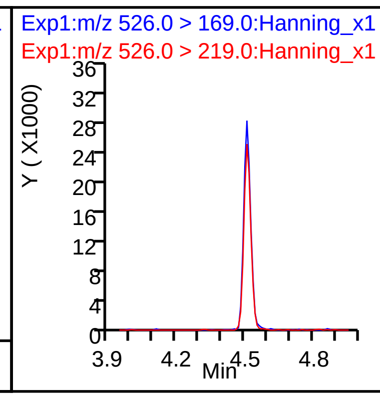
D 62 d9-EtFOSE



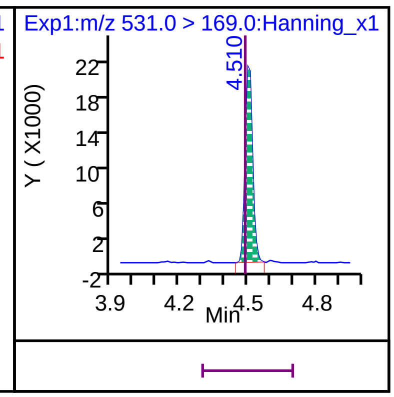
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



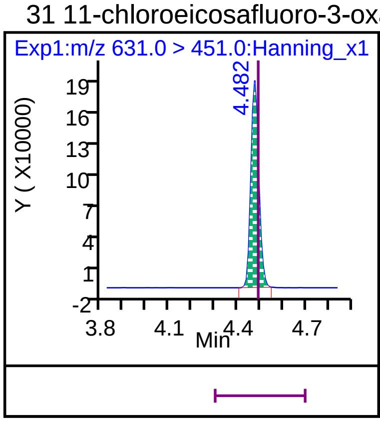




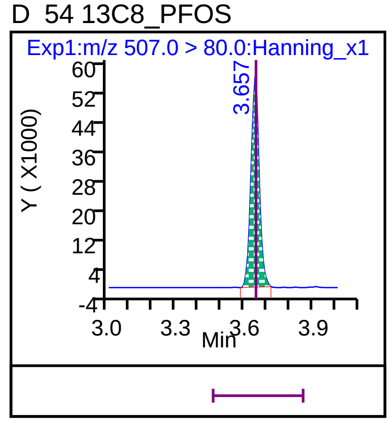
D 59 d5-EtFOSA



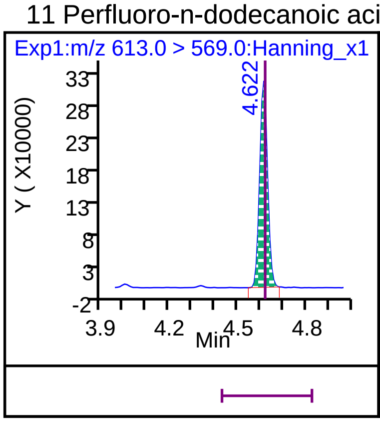
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

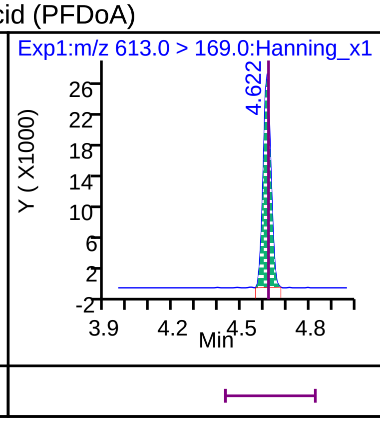


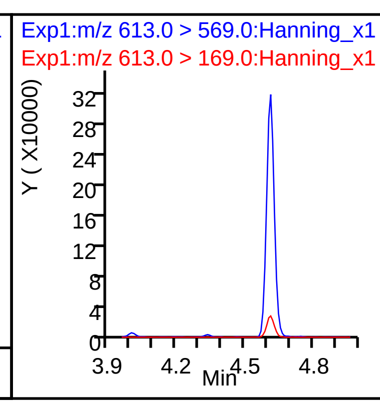
D 54 13C8_PFOS



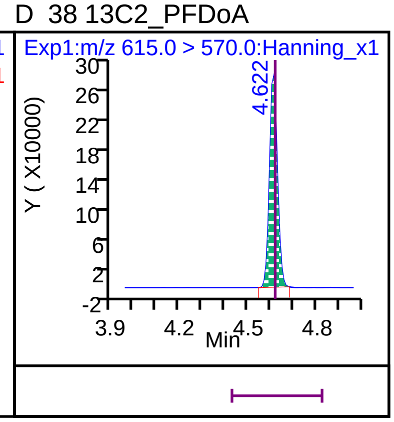
11 Perfluoro-n-dodecanoic acid (PFDoA)





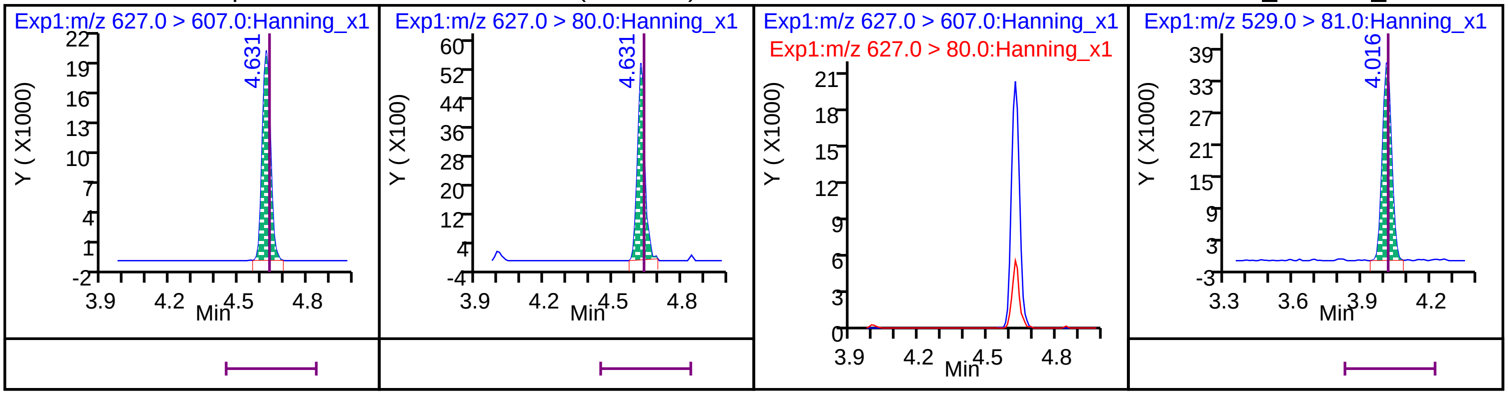


D 38 13C2_PFDoA

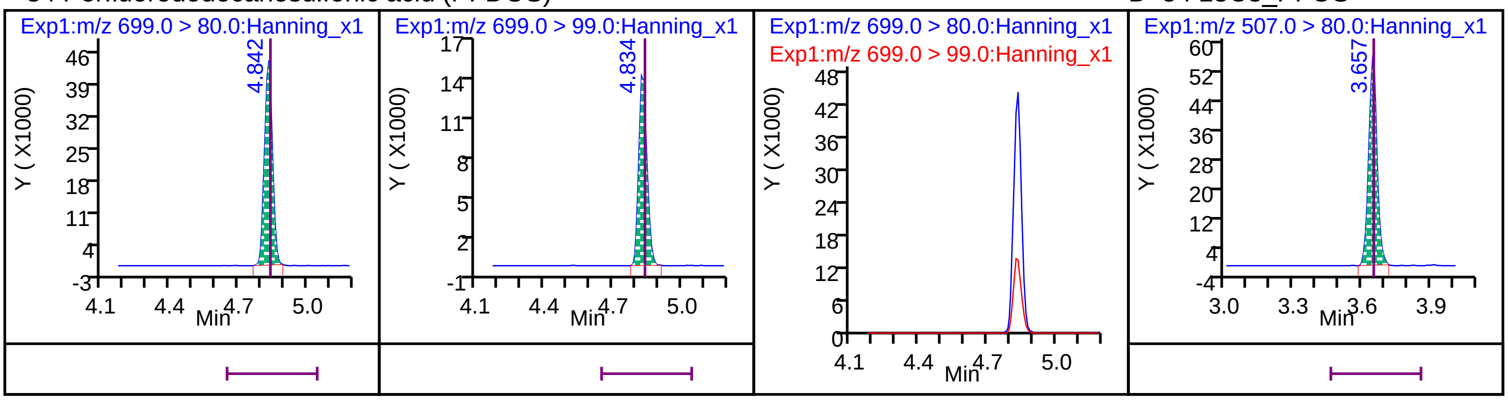


Report Date: 30-Nov-2021 15:07:22 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521033.d

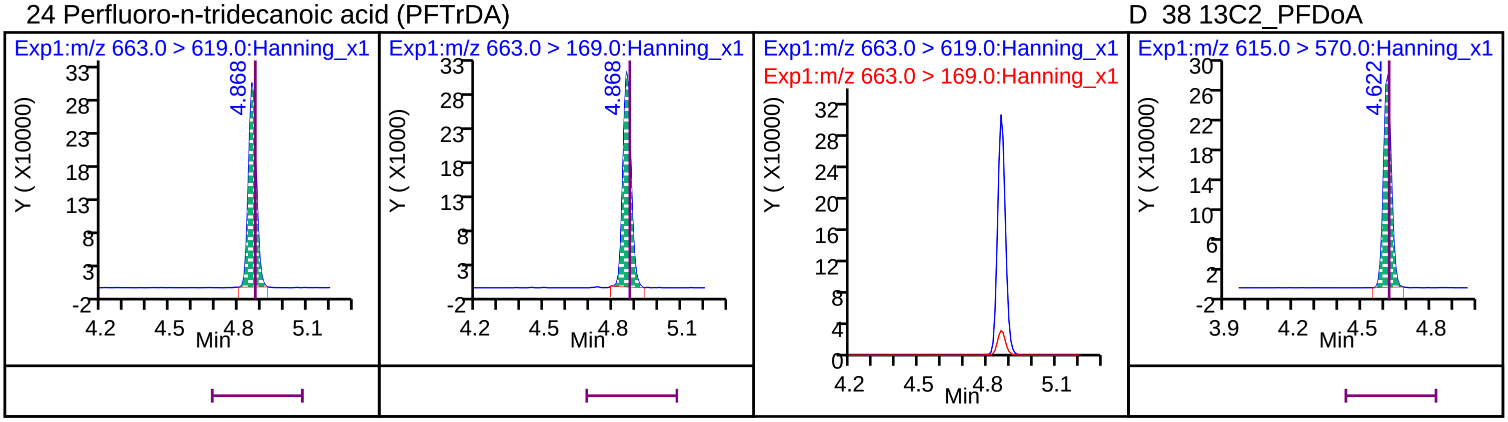
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



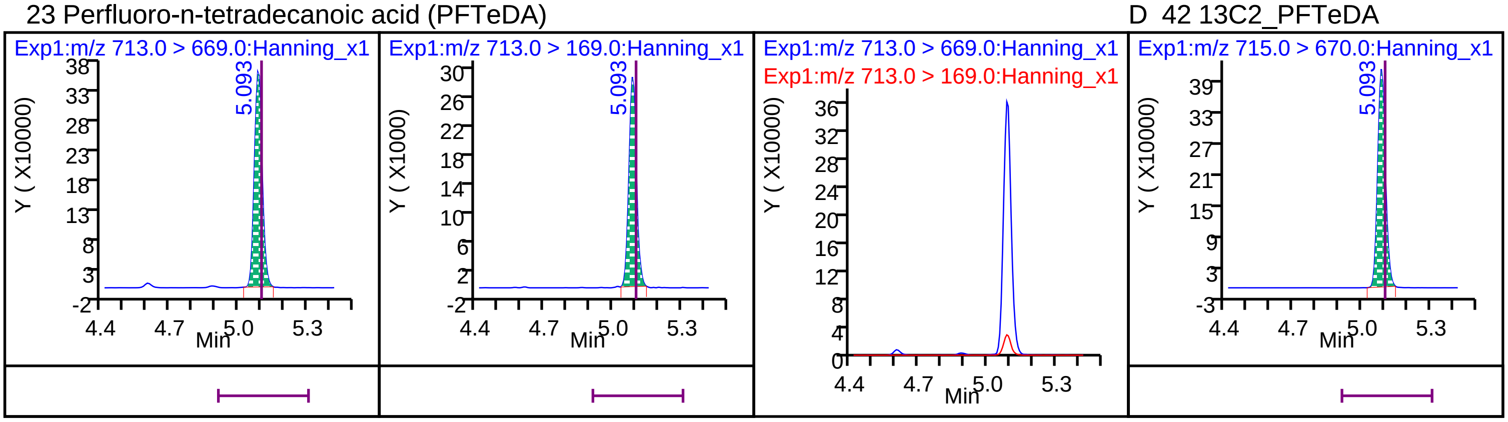
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

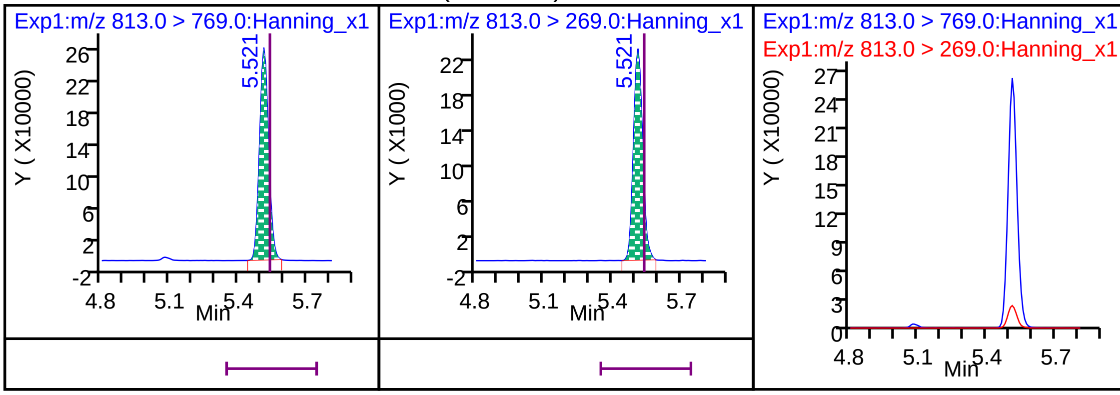


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

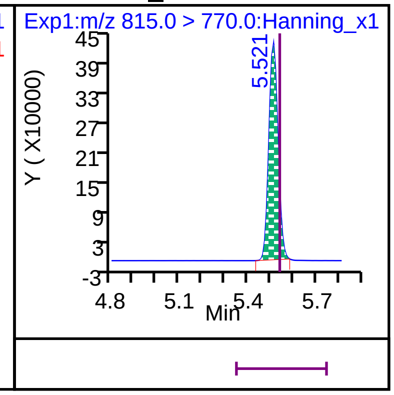


Report Date: 30-Nov-2021 15:07:22 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521033.d

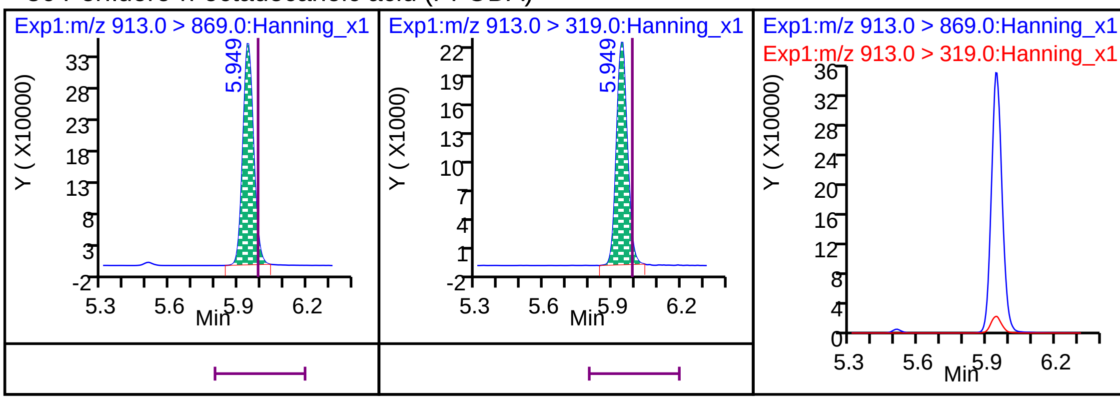
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



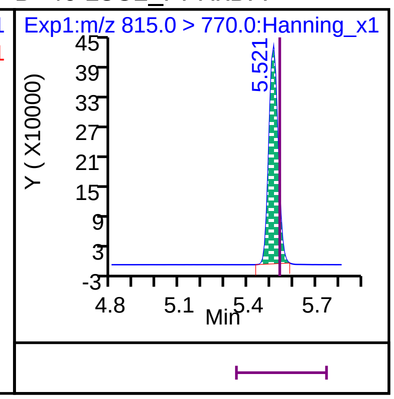
D 40 13C2_PFHxDA



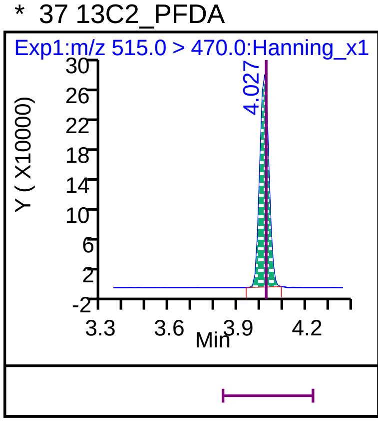
36 Perfluoro-n-octadecanoic acid (PFODA)



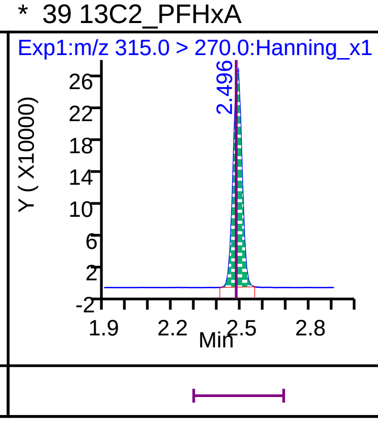
D 40 13C2_PFHxDA



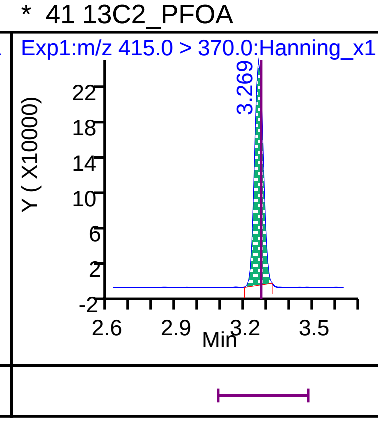
* 37 13C2_PFDA



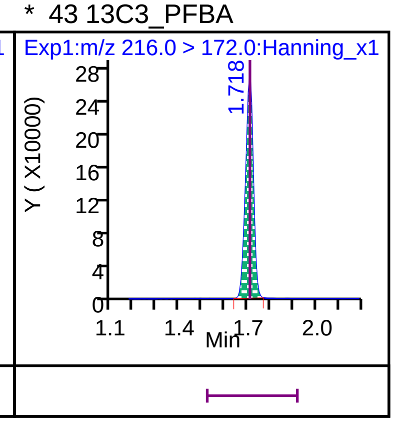
* 39 13C2_PFHxA



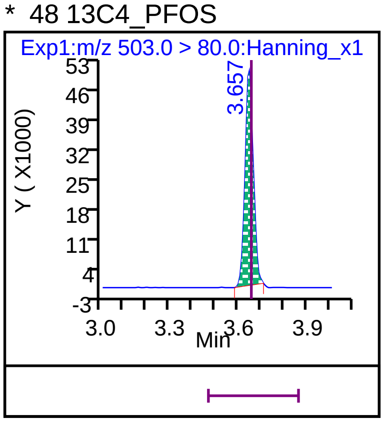
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d		
Injection Date:	15-Nov-2021 18:41:28	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	29
Sample Info:	ID CCV 1000B_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	992.78	99.3	70 - 130
D 46 13C4_PFBA	704612	652220			92.6	50 - 150
21 PFPeA			1000.00	950.44	95	70 - 130
D 50 13C5_PFPeA	616672	606011			98.3	50 - 150
D 44 13C3_PFBS	181863	183983			101.2	50 - 150
7 PFBS			884.00	814.27	92.1	70 - 130
1 4:2 FTS			934.00	942.28	100.9	70 - 130
D 63 13C2_4:2 FTS_2	121742	112599			92.5	50 - 150
D 49 13C5_PFHxA	739401	678917			91.8	50 - 150
15 PFHxA			1000.00	987.43	98.7	70 - 130
22 PFPeS			938.00	850.47	90.7	70 - 130
28 GenX			2000.00	2017.62	100.9	70 - 130
D 66 13C3_GenX	1321597	1228258			92.9	50 - 150
D 47 13C4_PFHpA	604203	562958			93.2	50 - 150
13 PFHpA			1000.00	994.27	99.4	70 - 130
D 45 13C3_PFHxS	134021	140643			104.9	50 - 150
14 PFHxS			910.00	875.82	96.2	70 - 130
29 ADONA			942.00	913.04	96.9	70 - 130
D 64 13C2_6:2 FTS_2	102394	98644			96.3	50 - 150
2 6:2 FTS			948.00	975.06	102.9	70 - 130
20 PFOA			1000.00	996.06	99.6	70 - 130
D 53 13C8_PFOA	630095	593683			94.2	50 - 150
12 PFHpS			952.00	843.84	88.6	70 - 130
D 54 13C8_PFOS	137691	138369			100.5	50 - 150
18 PFOS			928.00	848.47	91.4	70 - 130
17 PFNA			1000.00	1011.26	101.1	70 - 130
D 56 13C9_PFNA	741618	682037			92	50 - 150
30 9Cl-PF3ONS			932.00	896.14	96.2	70 - 130
D 55 13C8_PFOSA	289640	282835			97.7	50 - 150
19 PFOSA			1000.00	1003.91	100.4	70 - 130
16 PFNS			960.00	911.14	94.9	70 - 130
10 PFDA			1000.00	961.76	96.2	70 - 130
3 8:2 FTS			958.00	934.64	97.6	70 - 130
D 51 13C6_PFDA	730609	686433			94	50 - 150
D 65 13C2_8:2 FTS_2	105151	105212			100.1	50 - 150
6 N-MeFOSAA			1000.00	953.02	95.3	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	852364	832274			97.6	50 - 150
D 61 d7-MeFOSE	94236	92868			98.5	50 - 150
32 MeFOSE			1000.00	1001.78	100.2	70 - 130
26 MeFOSA			1000.00	823.70	82.4	70 - 130
D 57 d3-MeFOSA	46672	51835			111.1	50 - 150
9 PFDS			964.00	912.62	94.7	70 - 130
D 52 13C7_PFUdA	734518	681116			92.7	50 - 150
D 60 d5-EtFOSAA	771983	717411			92.9	50 - 150
25 PFUdA			1000.00	964.68	96.5	70 - 130
5 N-EtFOSAA			1000.00	956.79	95.7	70 - 130
D 62 d9-EtFOSE	103023	109854			106.6	50 - 150
33 EtFOSE			1000.00	1031.49	103.1	70 - 130
D 59 d5-EtFOSA	42973	46664			108.6	50 - 150
31 11Cl-PF3OUDS			942.00	872.84	92.7	70 - 130
27 EtFOSA			1000.00	989.29	98.9	70 - 130
D 38 13C2_PFDoA	793096	682995			86.1	50 - 150
11 PFDoA			1000.00	1009.34	100.9	70 - 130
4 10:2 FTS			964.00	857.36	88.9	70 - 130
34 PFDOS			968.00	837.85	86.6	70 - 130
24 PFTrDA			1000.00	926.05	92.6	70 - 130
D 42 13C2_PFTeDA	1045249	943232			90.2	50 - 150
23 PFTeDA			1000.00	1012.74	101.3	70 - 130
D 40 13C2_PFHxDA	1010565	1132490			112.1	50 - 150
35 PFHxDA			1000.00	947.62	94.8	70 - 130
36 PFODA			1000.00	1047.43	104.7	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d		
Injection Date:	15-Nov-2021 18:41:28	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	29
Sample Info:	ID CCV 1000B_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	652220	20	>100:1			1000.00	1049.13	92.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	1/0	682889	20	>100:1			1000.00	992.78		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	1	606011	16	>100:1			1000.00	1060.22	98.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.109	1/0	648262	16	>100:1			1000.00	950.44		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.172	2.162	1	183983	16	>100:1			1000.00	1063.67	101.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.172	2.162	1/0	186820	17	>100:1	Target = 3.53		884.00	814.27		
298.9 > 99	44	2.172	2.162		54341	16	>100:1	3.43 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.523	2.522	1/0	145014	17	>100:1	Target = 3.10		938.00	850.47		
349 > 99	44	2.523	2.522		48883	18	>100:1	2.96 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	1	112599	17	>100:1			5000.00	4972.64	92.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	1/0	46777	16	>100:1	Target = 1.75		934.00	942.28		
327 > 81	63	2.451	2.451		23756	16	46:1	1.96 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.487	1	678917	18	>100:1			1000.00	1042.42	91.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.487	1/0	697036	17	>100:1	Target = 18.91		1000.00	987.43		
313 > 119	49	2.487	2.487		37969	18	>100:1	18.35 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.606	1	1228258	20	>100:1			5000.00	5299.78	92.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.606	1/0	320986	19	>100:1	Target = 0.79		2000.00	2017.62		
285 > 185	66	2.606	2.606		401178	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.872	1	562958	19	>100:1			1000.00	1060.31	93.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.873	2.872	1/0	615054	19	>100:1	Target = 3.80		1000.00	994.27		
363 > 169	47	2.873	2.872		153000	17	>100:1	4.01 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.889	2.888	1	140643	19				1000.00	1119.42	104.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.889	2.896	0/-1	135420	27	>100:1	Target = 2.89	5.40	910.00	875.82		
399 > 99	45	2.889	2.896		40966	24	>100:1	3.30 (1.44-4.34)	7.29				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.918	0/-1	995870	21	>100:1	Target = 3.23		942.00	913.04		
377 > 85	45	2.912	2.918		282425	21	>100:1	3.52 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.275	3.286	0/-1	121892	23	>100:1	Target = 3.12		952.00	843.84		
449 > 99	45	3.268	3.286		43343	23	>100:1	2.81 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.240	3.246	0	98644	20	>100:1			5000.00	5480.23	96.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.240	3.260	-1/-1	45538	29	>100:1	Target = 1.75		948.00	975.06		
427 > 81	64	3.240	3.260		24703	21	43:1	1.84 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.268	3.274	0	593683	21	>100:1			1000.00	1131.52	94.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.275	3.280	0/0	605983	23	>100:1	Target = 2.89		1000.00	996.06		
413 > 169	53	3.268	3.280		201122	21	>100:1	3.01 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.661	3.661	1	138369	21	>100:1			1000.00	1117.29	100.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.661	3.655	1/0	139788	43	>100:1	Target = 3.30	3.67	928.00	848.47		
499 > 99	54	3.656	3.655		39474	40	>100:1	3.54 (1.65-4.95)	7.11				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.877	3.877	1/0	469594	18	>100:1			932.00	896.14		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.013	4.023	0/-1	101147	16	>100:1	Target = 3.08		960.00	911.14		
549 > 99	54	4.023	4.023		43555	22	>100:1	2.32 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.325	4.324	1/0	98817	15	>100:1	Target = 2.72		964.00	912.62		
599 > 99	54	4.325	4.324		36376	13	>100:1	2.71 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.488	4.497	0/-1	413488	16	>100:1			942.00	872.84		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.840	4.849	0/-1	99689	18	>100:1	Target = 3.27		968.00	837.85		
699 > 99	54	4.840	4.849		34332	23		2.90 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.661	3.666	0	682037	23	>100:1			1000.00	1065.05	92	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.666	3.672	0/0	743423	23	>100:1	Target = 6.51		1000.00	1011.26		
463 > 169	56	3.666	3.672		114479	23	>100:1	6.49 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.918	3.910	1	282835	19	>100:1			1000.00	1055.13	97.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.918	3.910	1/0	298759	18	>100:1	Target = 41.63		1000.00	1003.91		
498>478	55	3.918	3.910		9021	23		33.11 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.023	4.032	0	686433	16	>100:1			1000.00	1194.50	94	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.032	4.032	1/1	768287	18	>100:1	Target = 13.80		1000.00	961.76		
513 > 169	51	4.032	4.032		54007	14	>100:1	14.22 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.023	4.023	1	105212	15	>100:1			5000.00	6087.07	100.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.023	4.032	0/-1	44440	16	>100:1	Target = 1.94		958.00	934.64		
527 > 81	65	4.013	4.032		21716	15	82:1	2.04 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.628	4.644	-1/-2	45763	18		Target = 3.54		964.00	857.36		
627 > 80	65	4.636	4.644		14066	23	36:1	3.25 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.183	4.193	0	832274	17	>100:1			5000.00	5507.64	97.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.193	4.193	1/1	127293	32	>100:1	Target = 1.37	8.70	1000.00	953.02		M
570 > 483	58	4.193	4.193		98510	28	>100:1	1.29 (0.68-2.05)	4.63				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.325	4.314	1	92868	14	>100:1			1000.00	1029.71	98.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.344	4.335	1/0	101671	15	>100:1			1000.00	1001.78		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.354	4.335	2	51835	15	>100:1			1000.00	1101.91	111.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.354	4.344	1/-1	46278	12	>100:1	Target = 1.11		1000.00	823.70		
512 > 219	57	4.354	4.344		44679	16	>100:1	1.03 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.344	4.354	0	717411	15	>100:1			5000.00	5539.29	92.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.354	4.363	0/0	133857	33		Target = 1.51	5.74	1000.00	956.79		
584 > 526	60	4.354	4.363		88361	32	>100:1	1.51 (0.75-2.26)	4.15				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.344	4.354	0	681116	16	>100:1			1000.00	1130.95	92.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.344	4.354	0/0	636670	16	>100:1	Target = 14.52		1000.00	964.68		
563 > 169	52	4.344	4.354		45145	16	>100:1	14.10 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.498	4.479	2	109854	14	>100:1			1000.00	1035.61	106.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.507	4.488	2/0	110308	15	>100:1			1000.00	1031.49		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.516	4.497	2	46664	14	>100:1			1000.00	1085.21	108.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.525	4.506	2/0	55332	14	>100:1	Target = 1.06		1000.00	989.29		
526 > 219	59	4.525	4.506		57738	15	>100:1	0.95 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.619	4.628	0	682995	17	>100:1			1000.00	1137.69	86.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.619	4.628	0/0	734923	17	>100:1	Target = 10.70		1000.00	1009.34		
613 > 169	38	4.619	4.628		66519	16		11.04 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.874	4.883	0/0	664803	18	>100:1	Target = 8.31		1000.00	926.05		
663 > 169	38	4.874	4.883		77726	17	>100:1	8.55 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.097	5.110	0	943232	22	>100:1			1000.00	1160.20	90.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.097	5.110	0/0	833871	22	>100:1	Target = 12.17		1000.00	1012.74		
713 > 169	42	5.091	5.110		60959	20	>100:1	13.67 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.516	5.547	-1	1132490	21	>100:1			1000.00	1304.66	112.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.524	5.547	-1/0	687311	19	>100:1	Target = 10.43		1000.00	947.62		
813 > 269	40	5.516	5.547		61495	21	>100:1	11.17 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.952	5.996	-2/-1	1079904	42	97:1	Target = 13.67		1000.00	1047.43		
913 > 319	40	5.952	5.996		70457	42	>100:1	15.32 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.032	4.032	1	716938	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.487	1	698526	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.268	3.280	0	598877	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	1	598472	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.661	3.666	0	127209	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 30-Nov-2021 15:07:24 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d		
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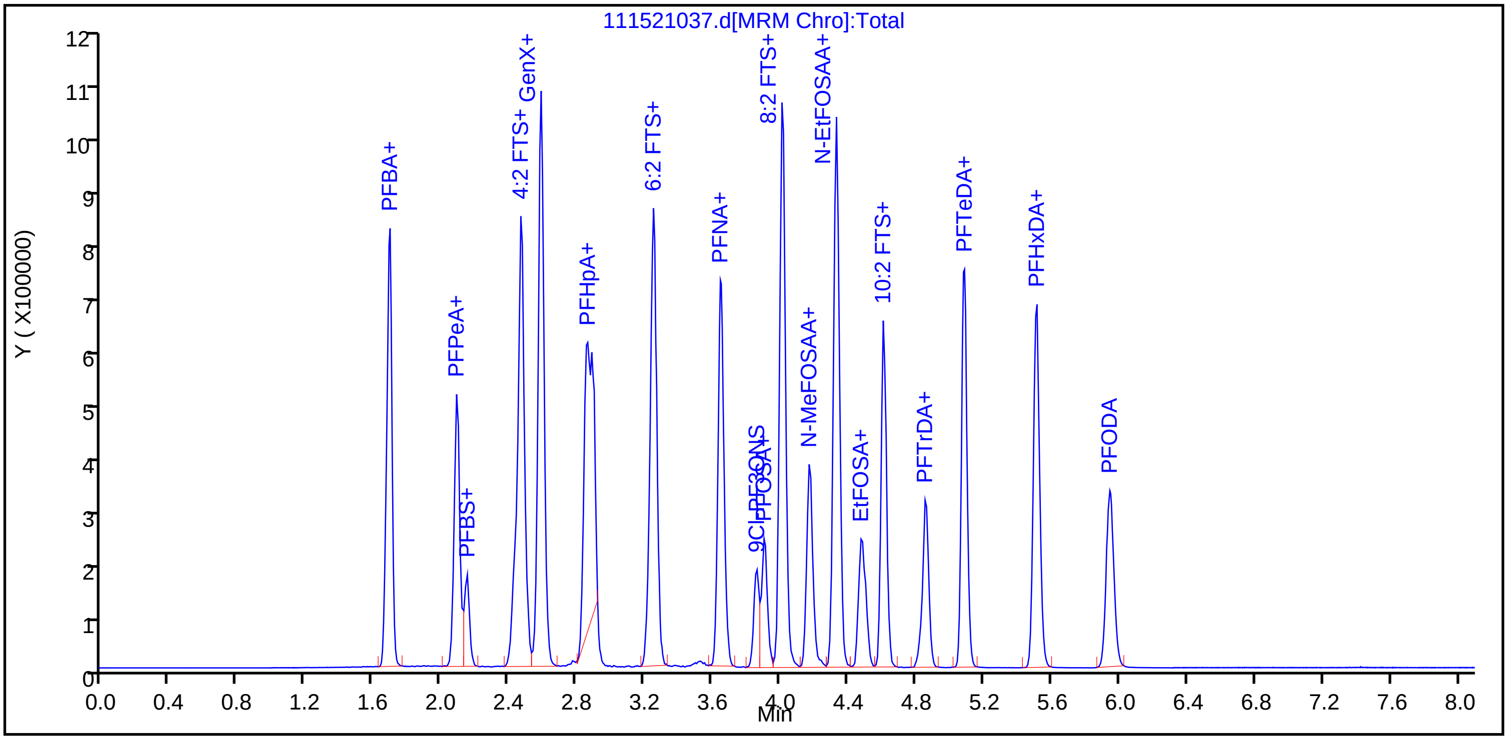
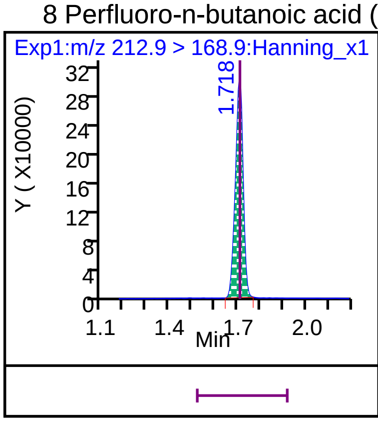
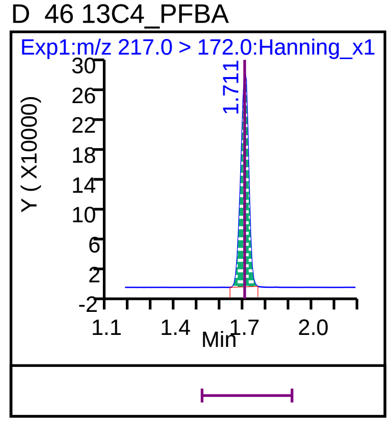
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



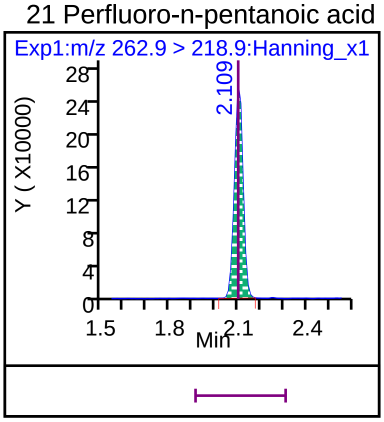
8 Perfluoro-n-butanoic acid (PFBA)



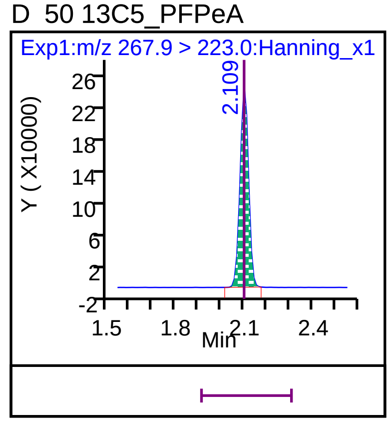
D 46 13C4_PFBA



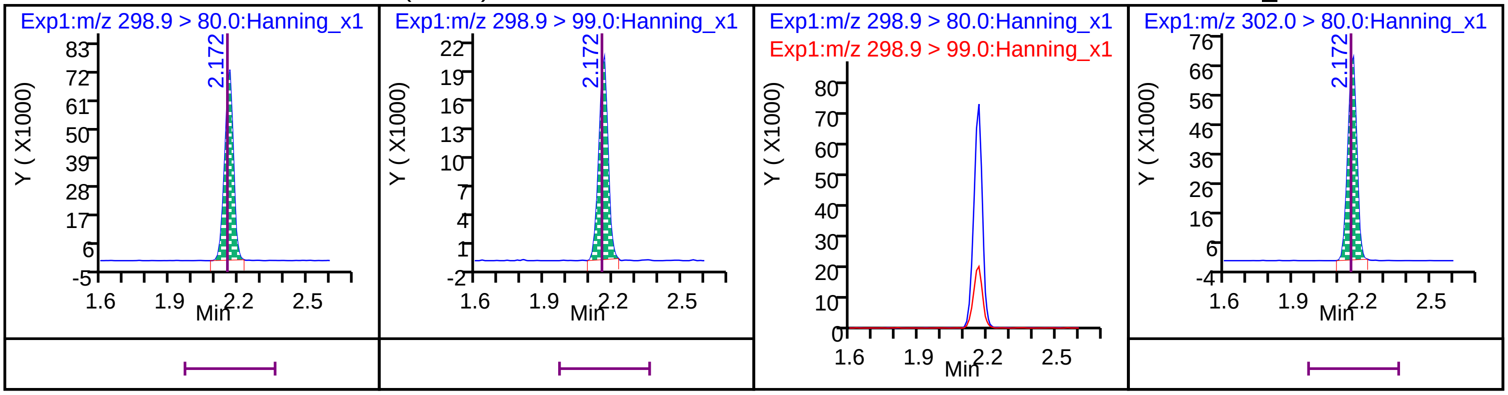
21 Perfluoro-n-pentanoic acid (PFPeA)



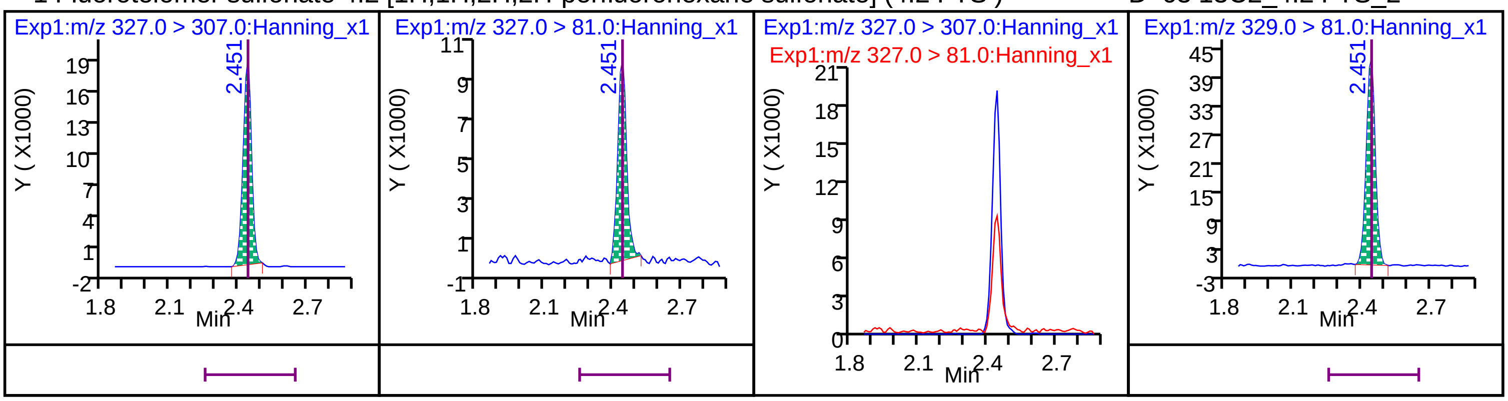
D 50 13C5_PFPeA



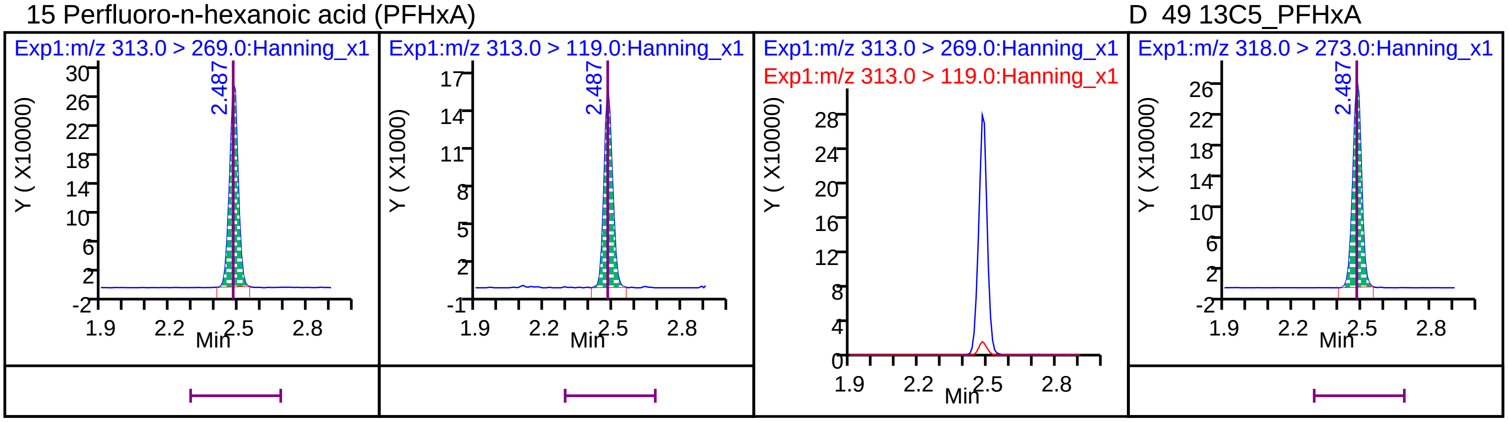
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



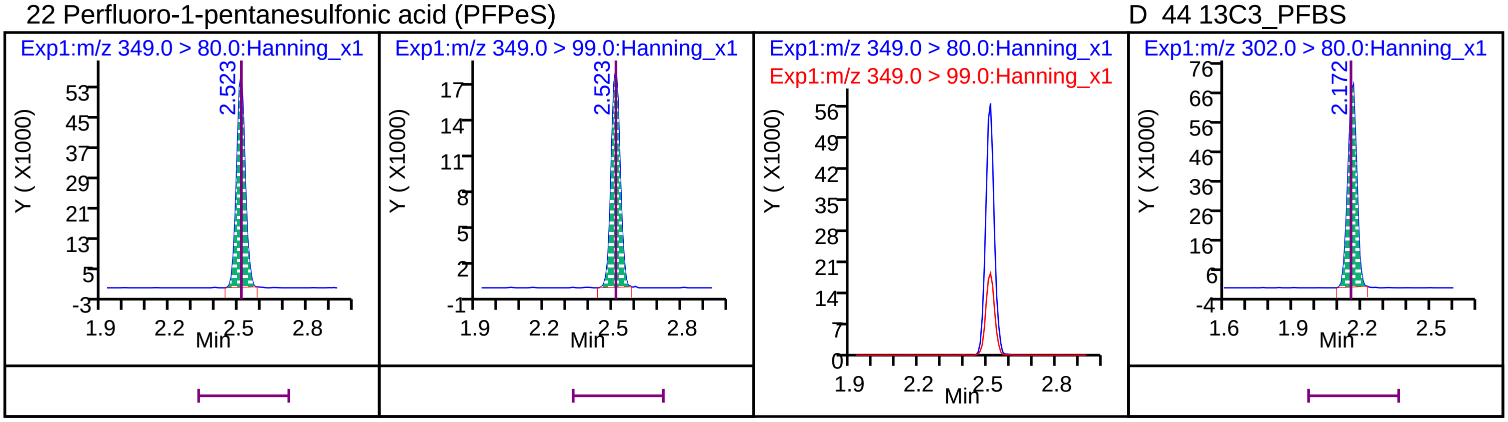
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

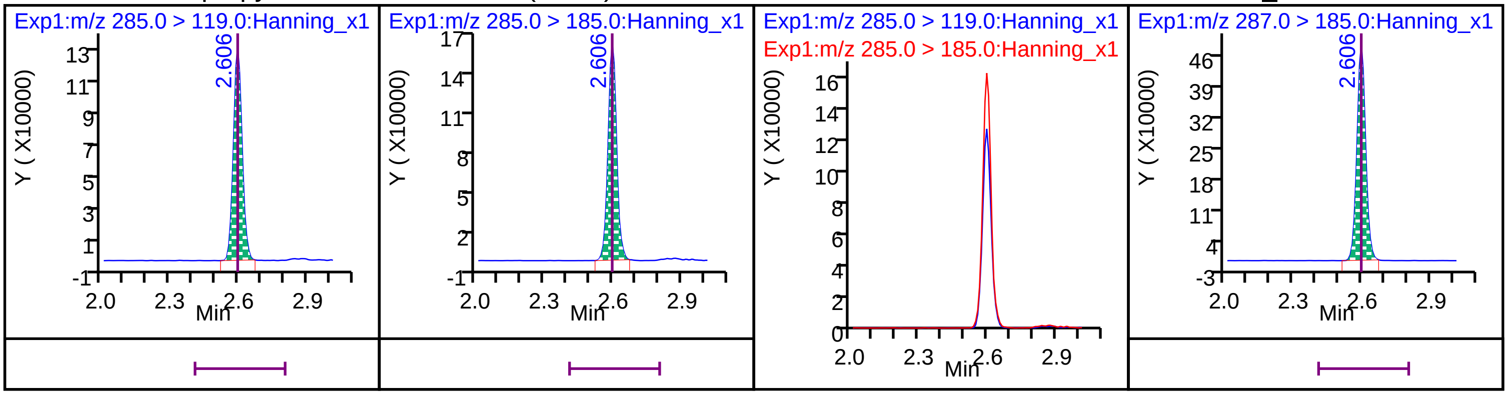


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

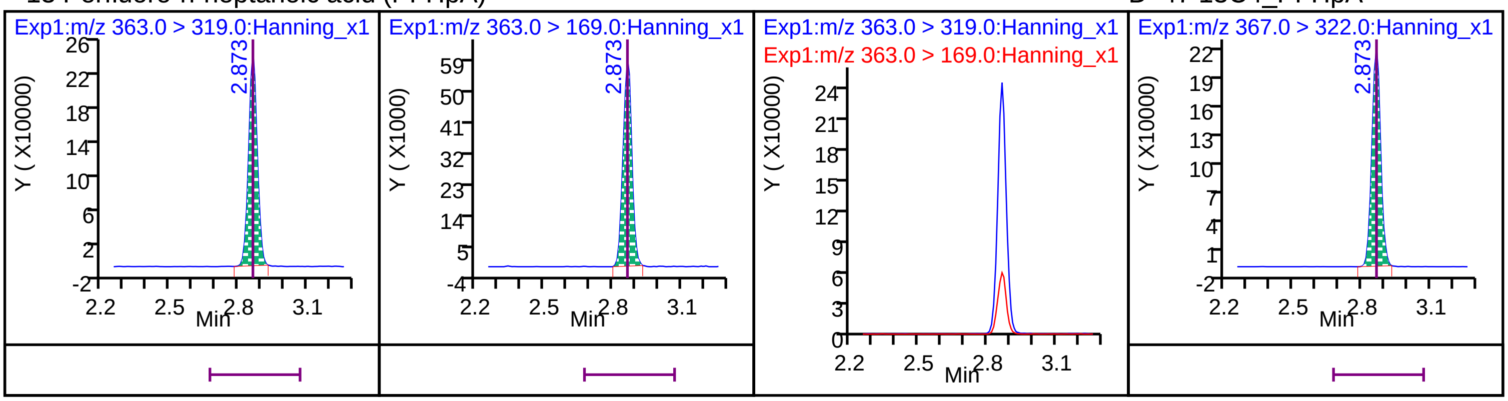


Report Date: 30-Nov-2021 15:07:24 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d

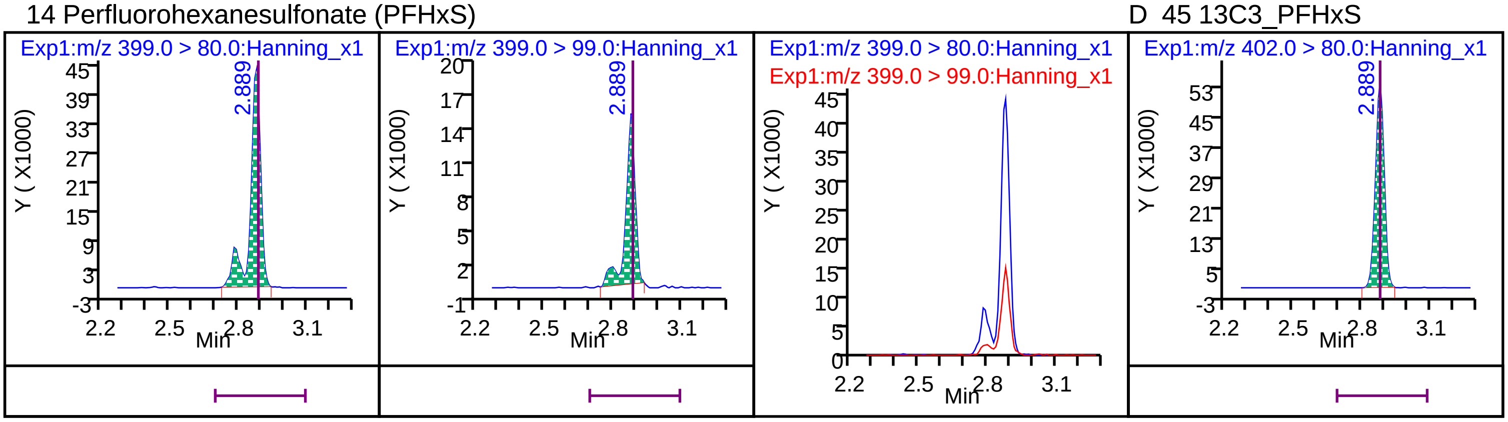
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



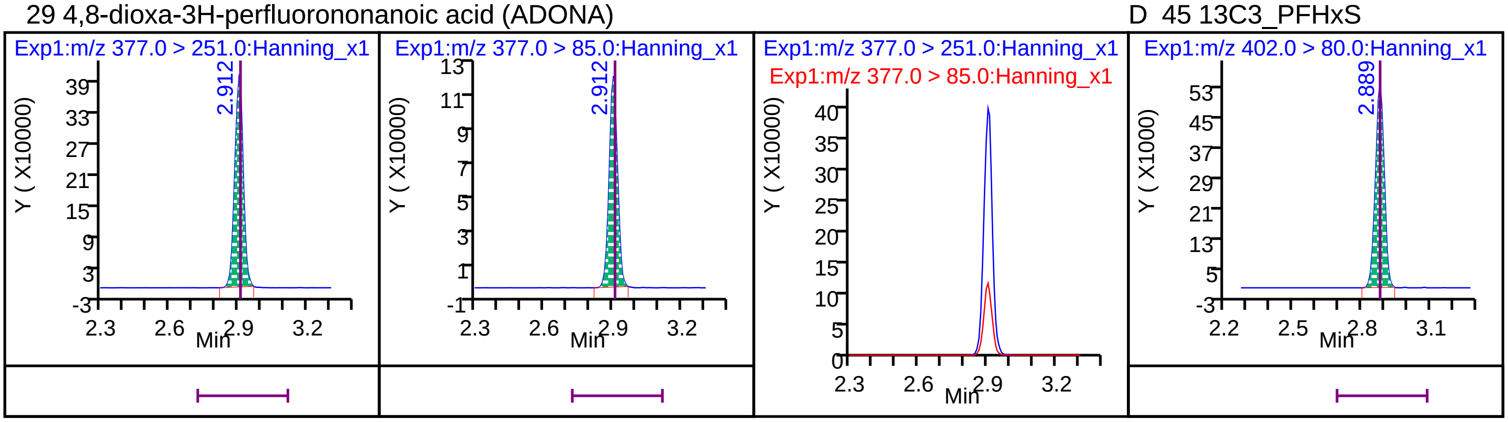
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

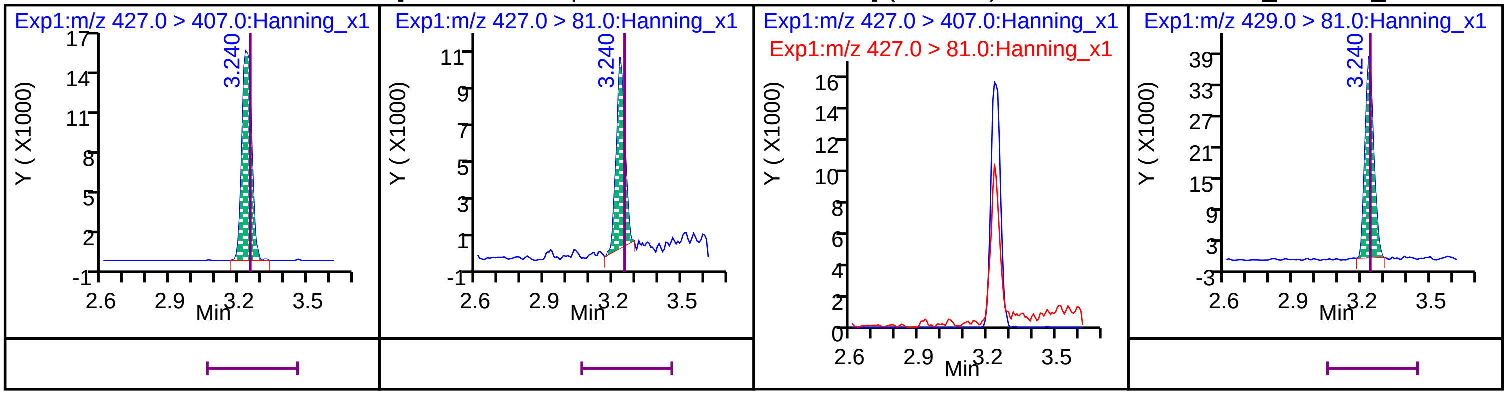


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

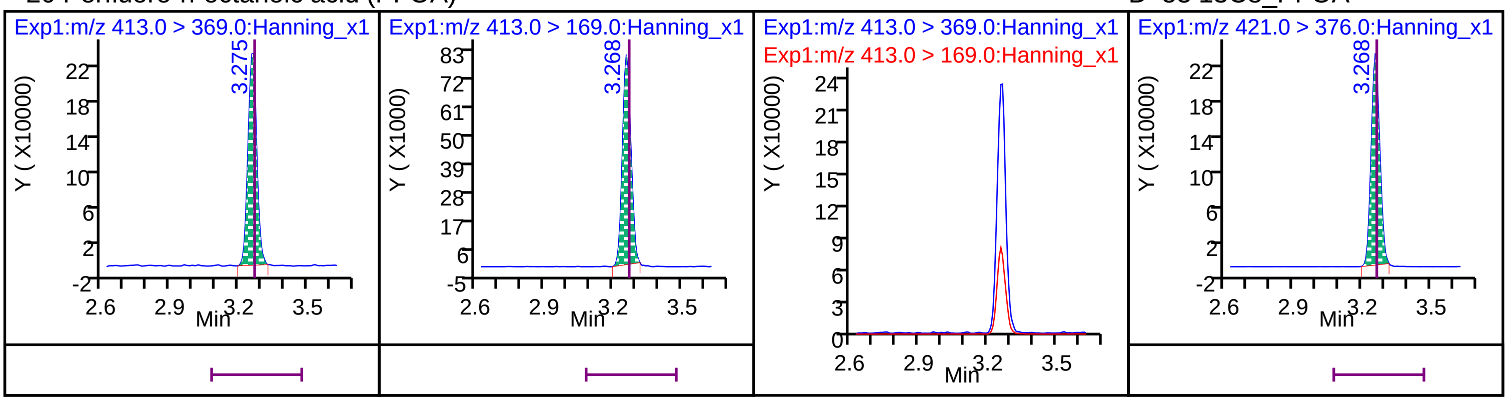


Report Date: 30-Nov-2021 15:07:24 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d

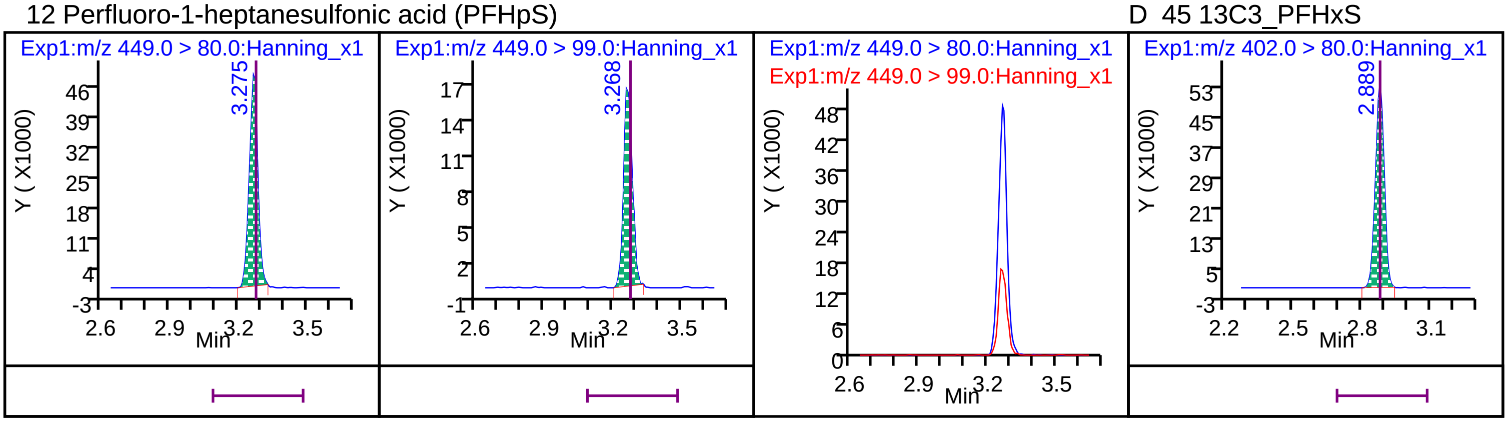
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



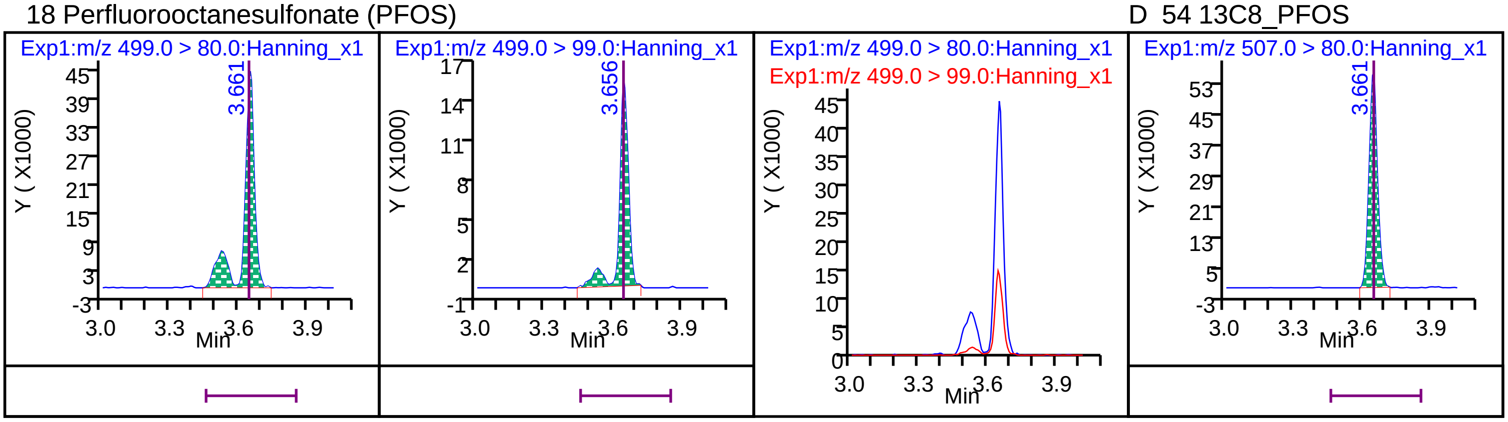
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



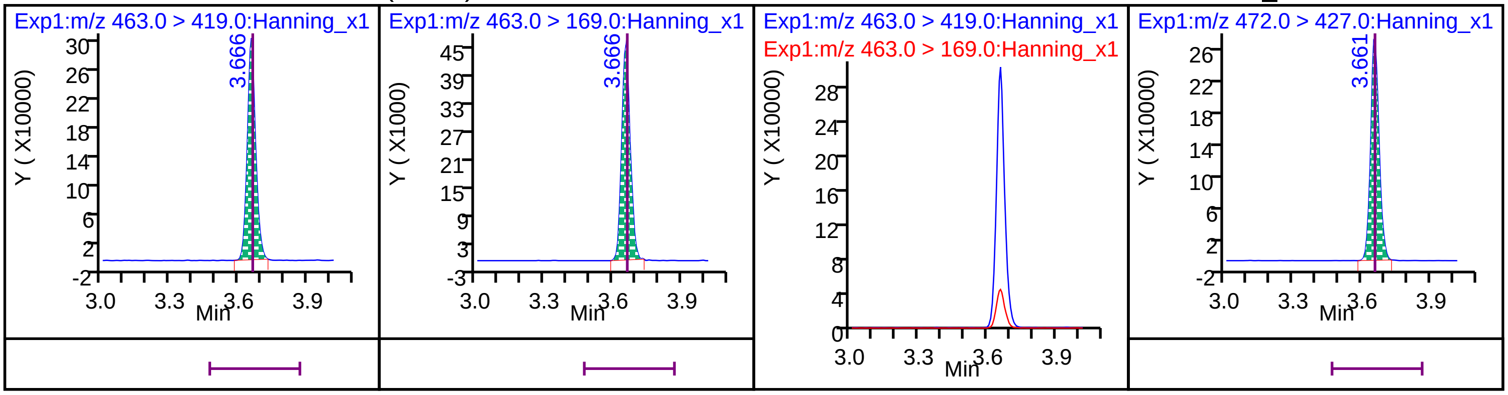
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



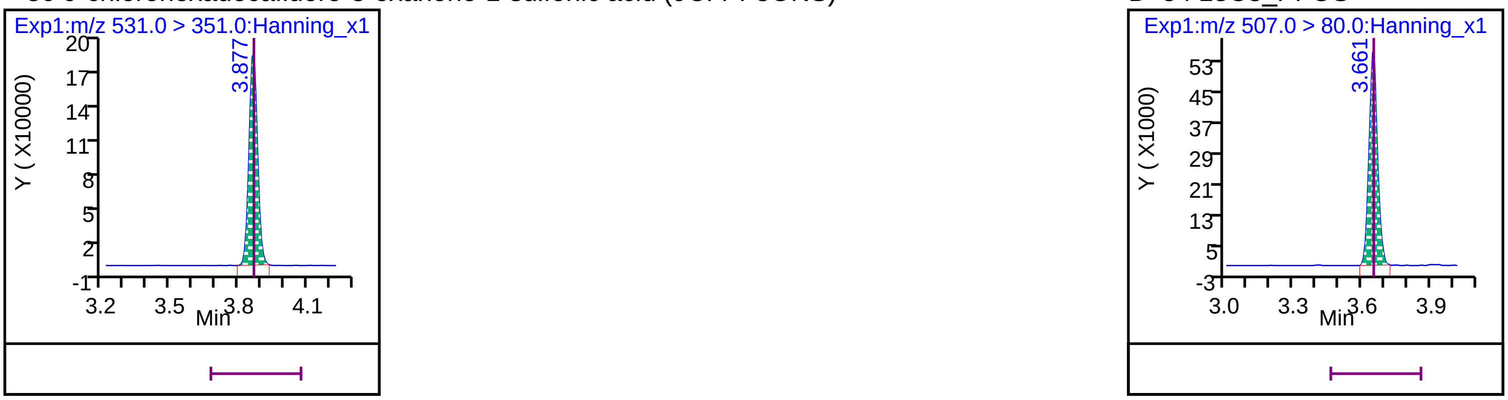
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



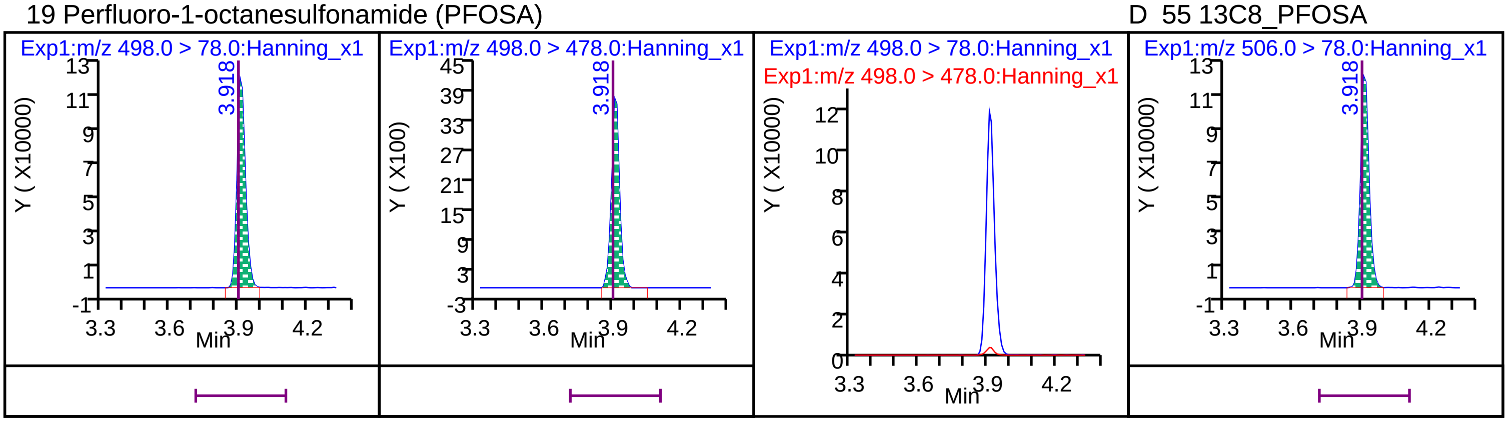
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



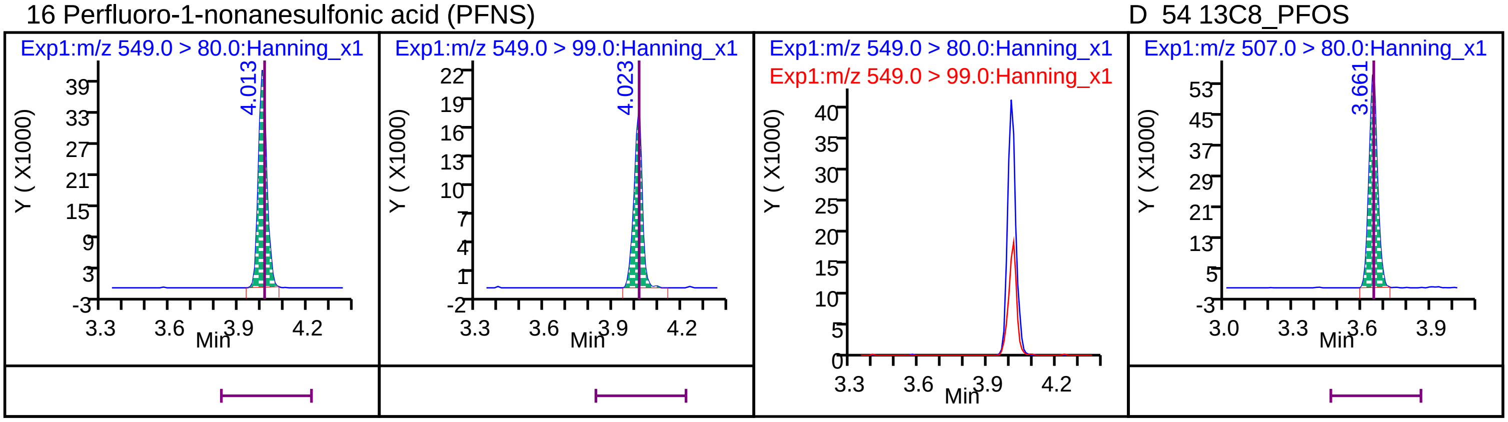
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



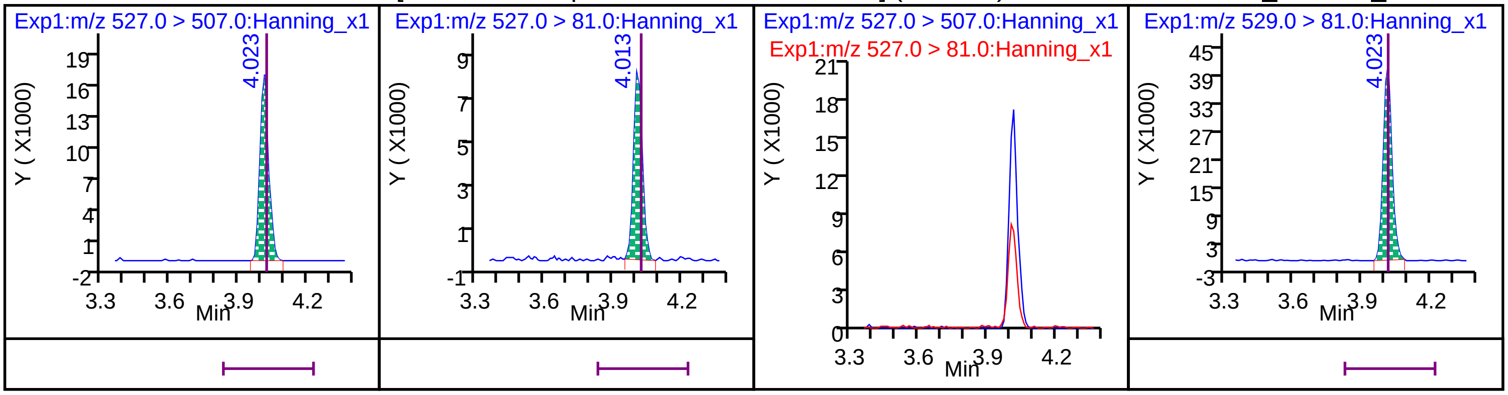
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



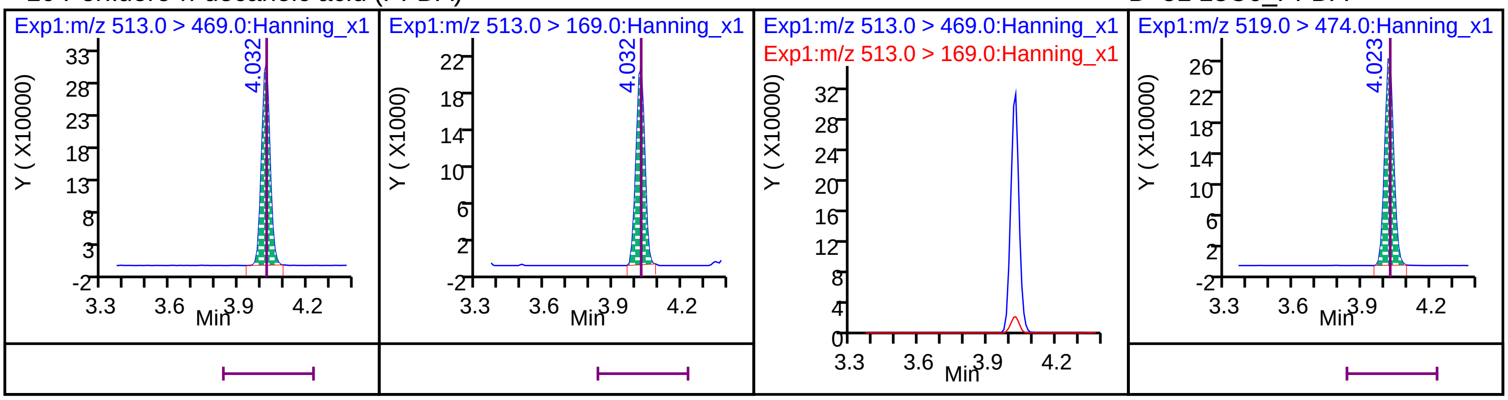
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



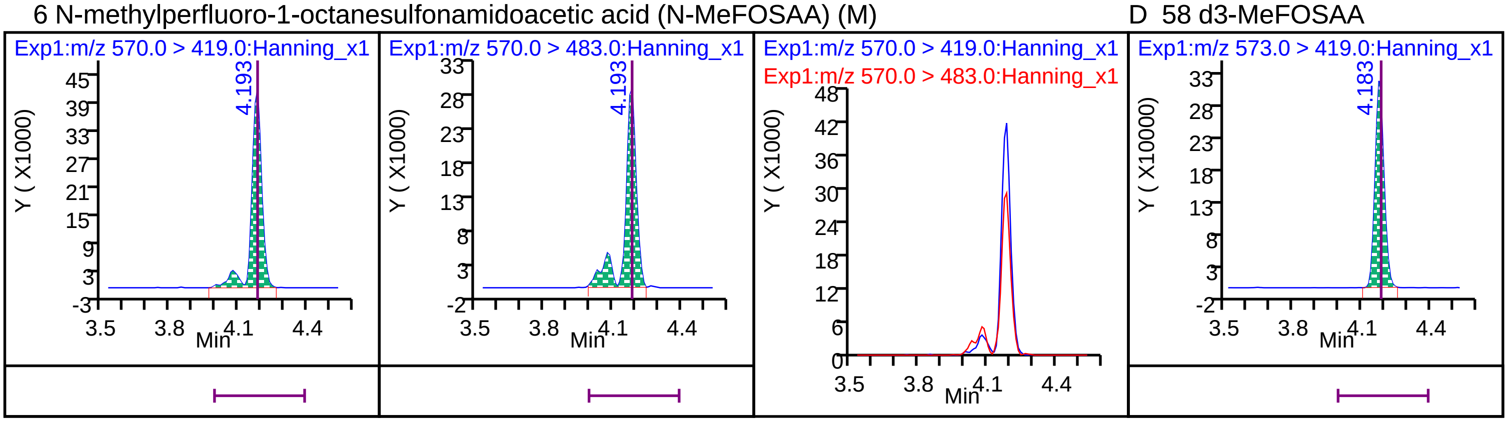
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

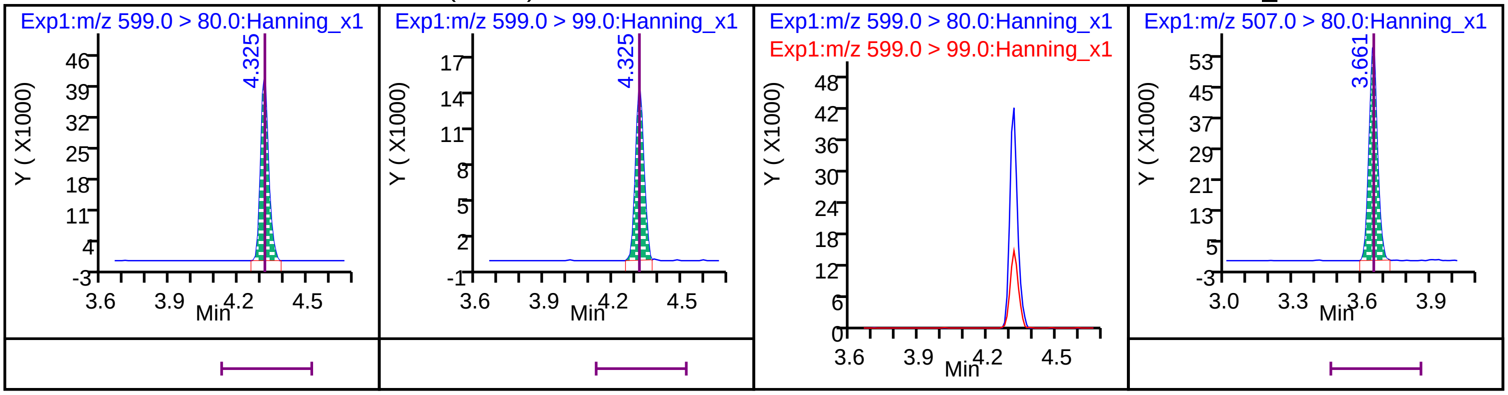


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

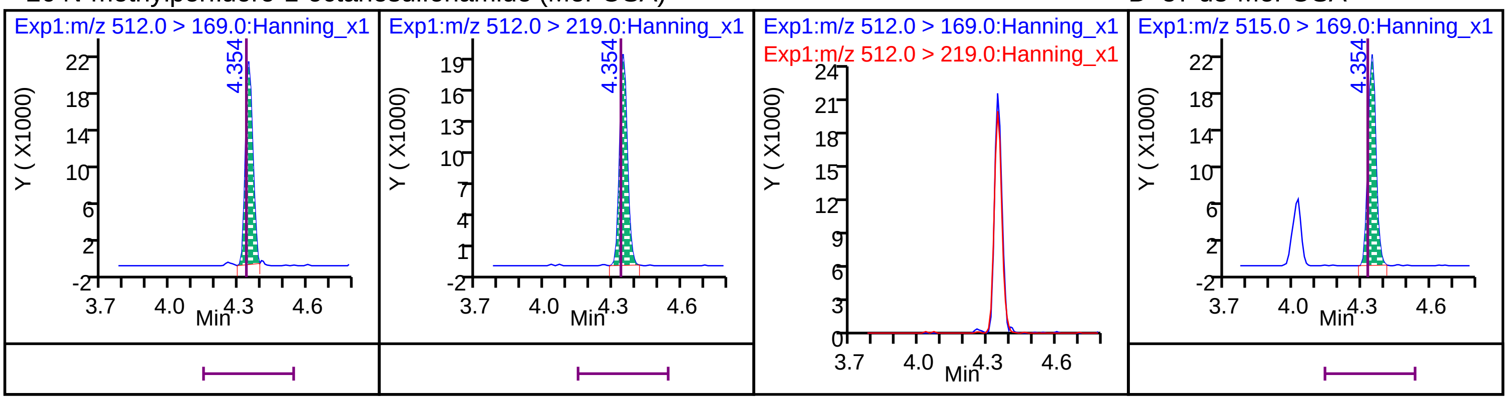


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

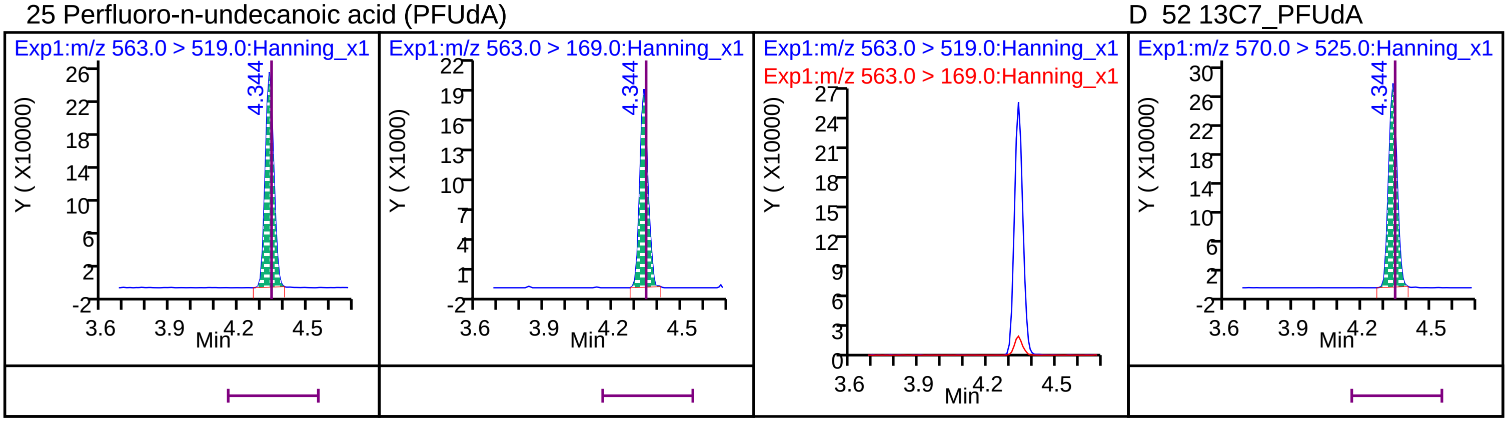
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



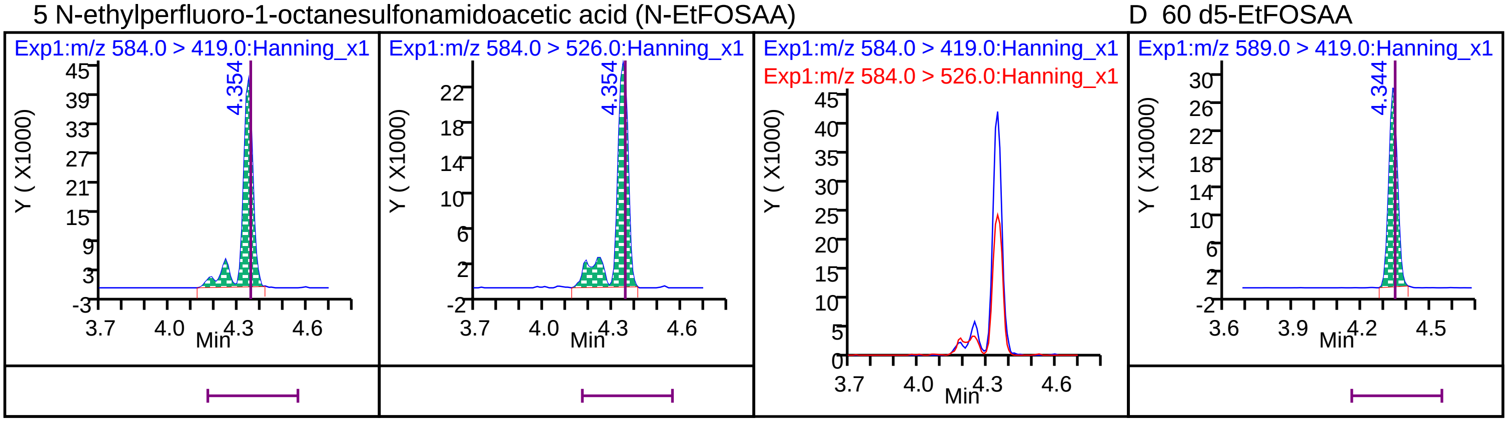
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



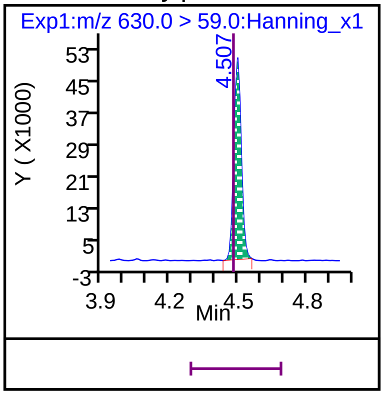
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

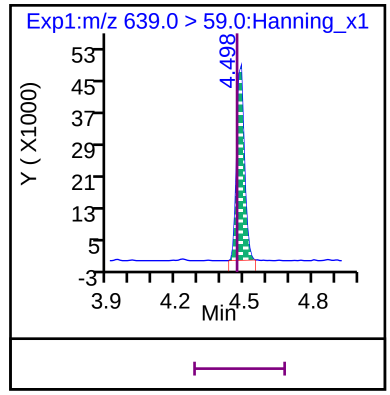


Report Date: 30-Nov-2021 15:07:24 AIM Revision: 2.0.2021.1020

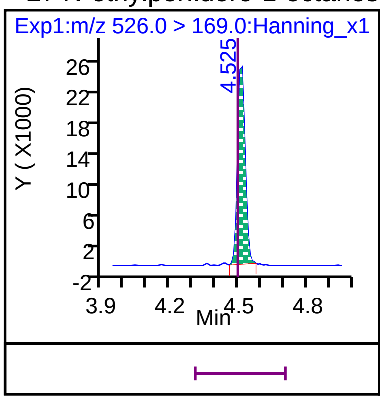
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d

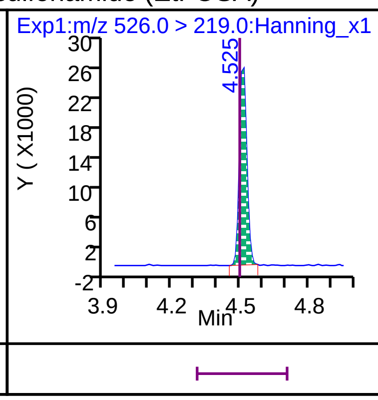
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) D 62 d9-EtFOSE

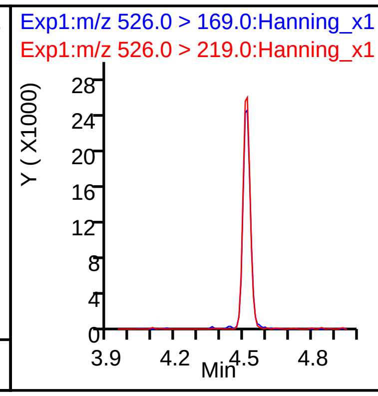


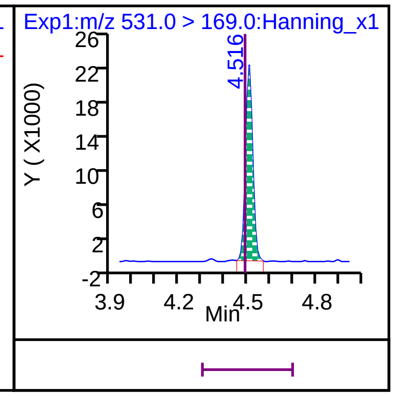


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) D 59 d5-EtFOSA

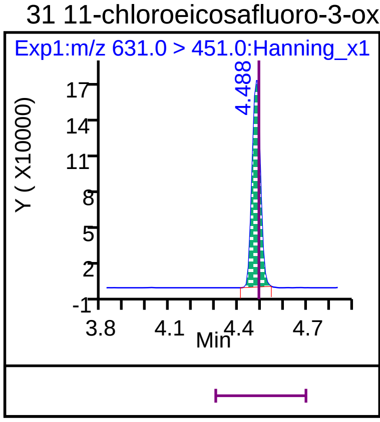


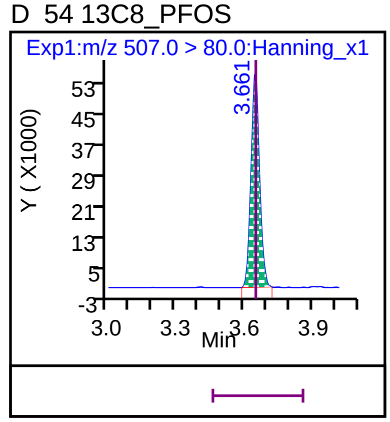




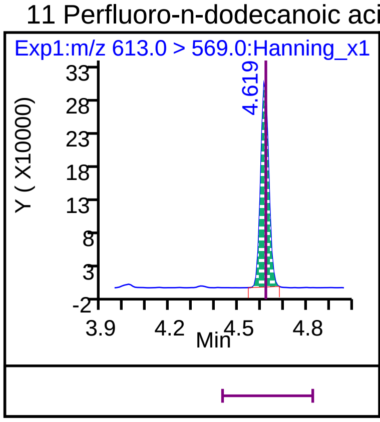


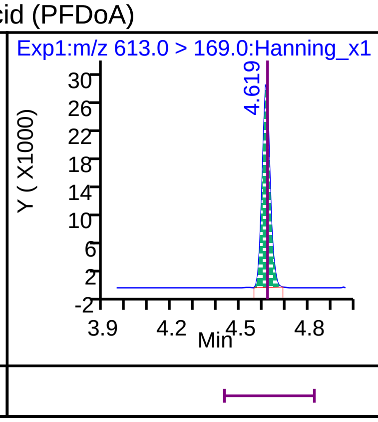
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS

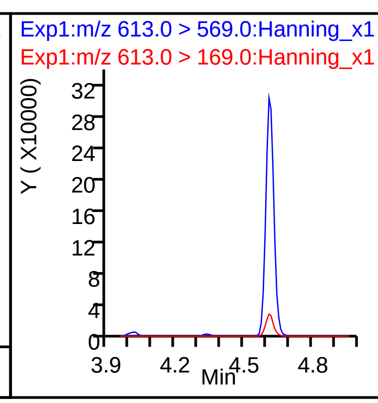


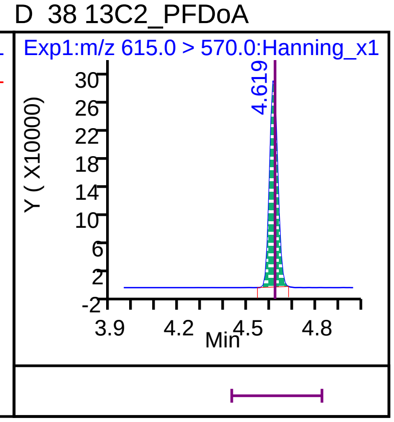


11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA





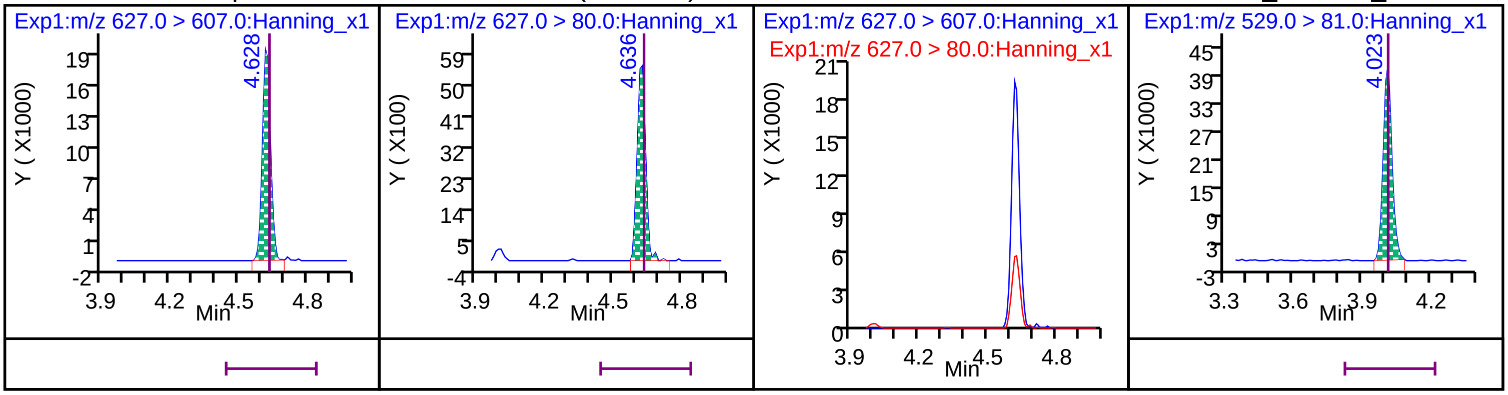




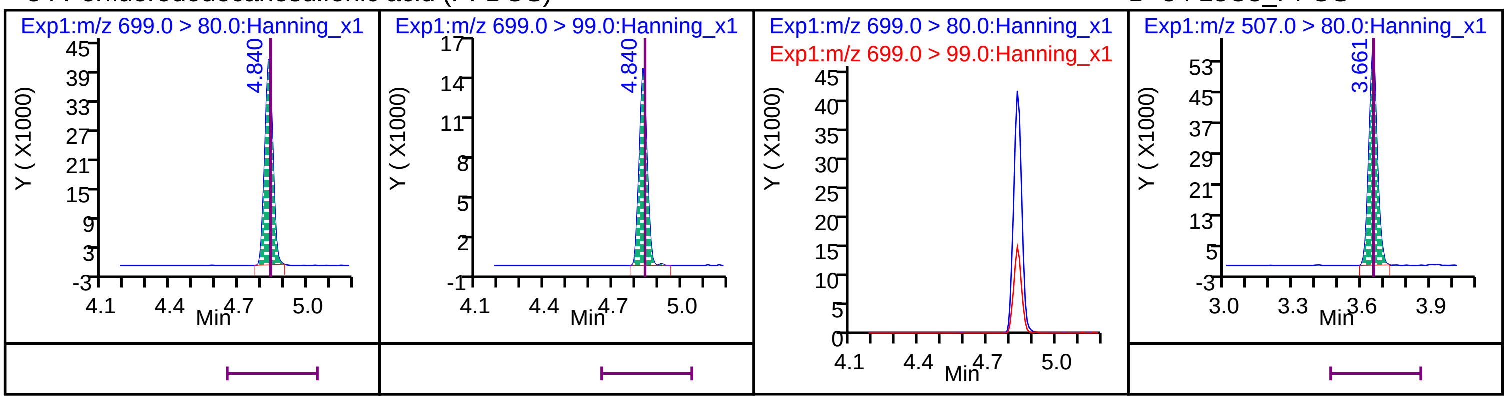
Report Date: 30-Nov-2021 15:07:24 AIM Revision: 2.0.2021.1020

Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d

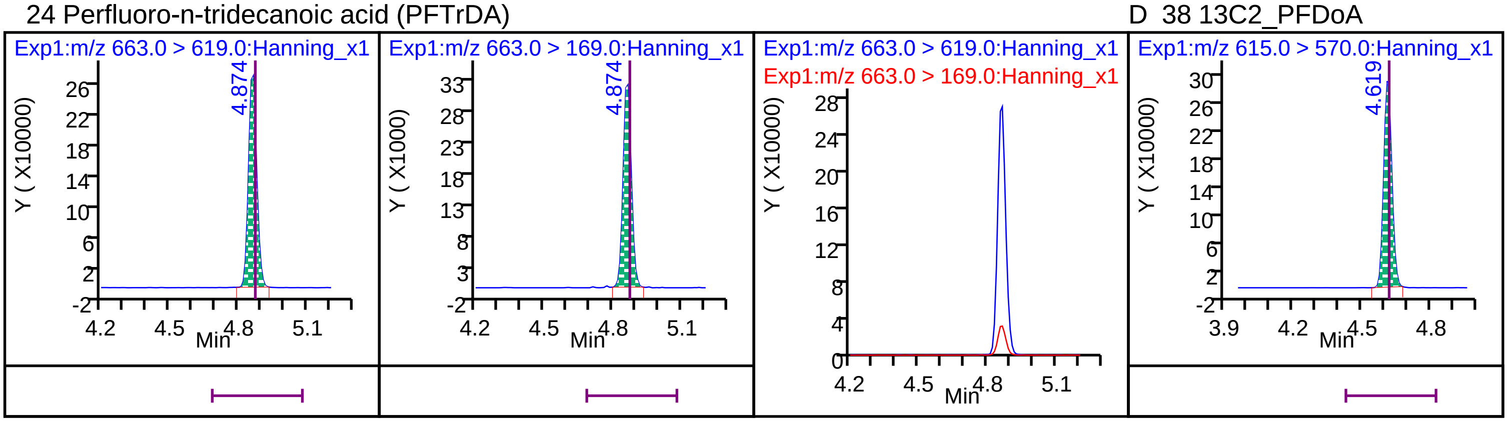
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



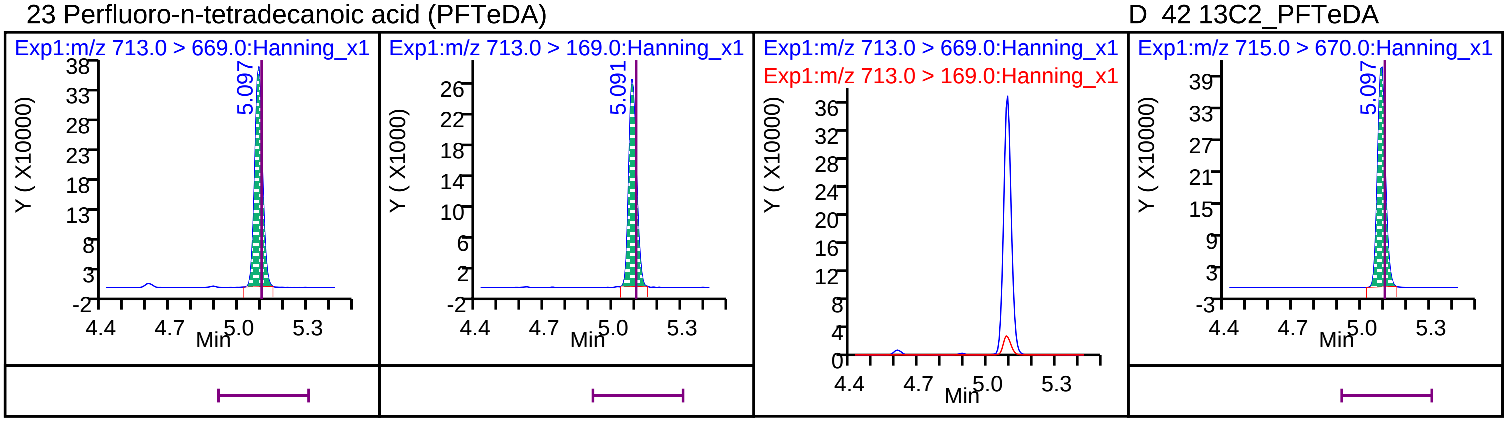
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



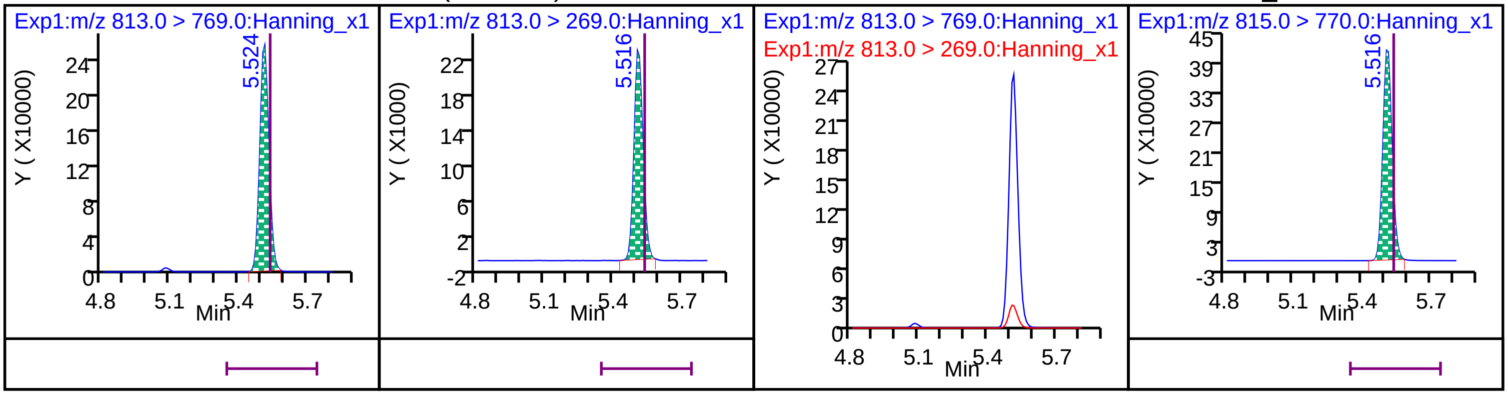
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



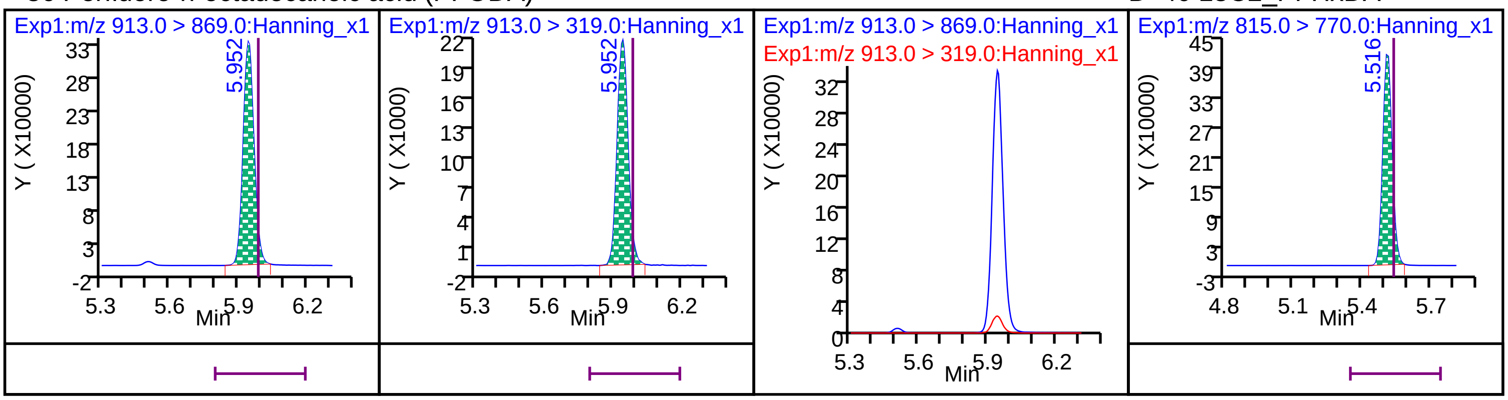
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



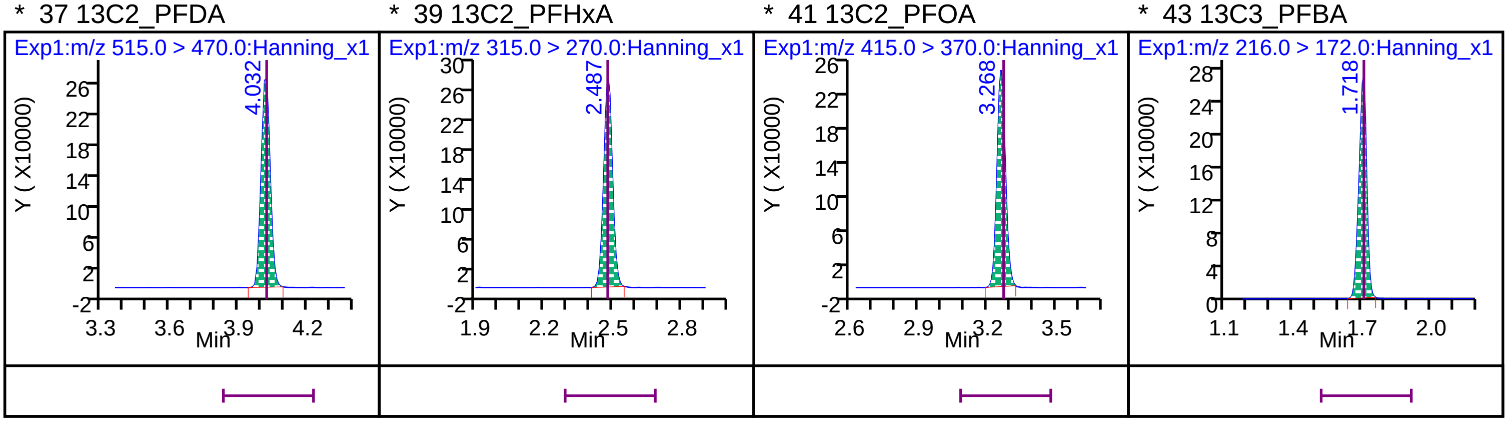
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



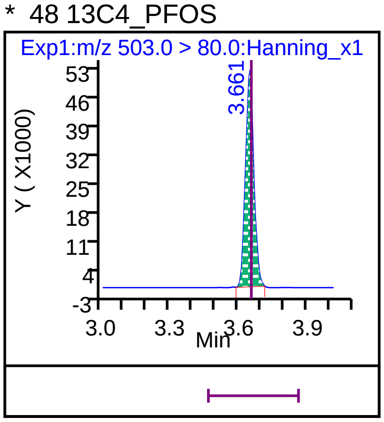
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Nov-2021 15:07:24 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

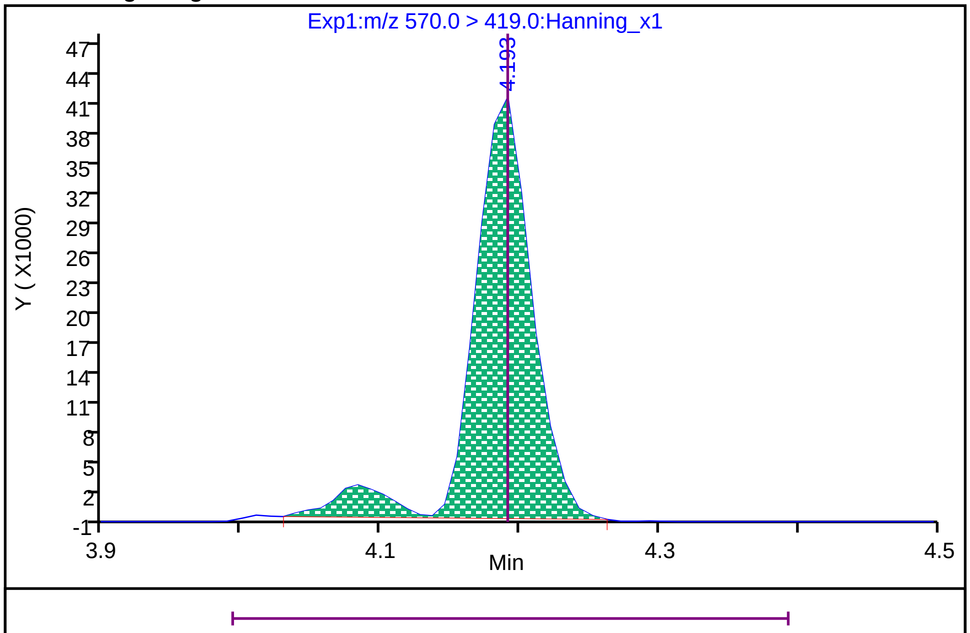
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521037.d		
Injection Date:	15-Nov-2021 18:41:28	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

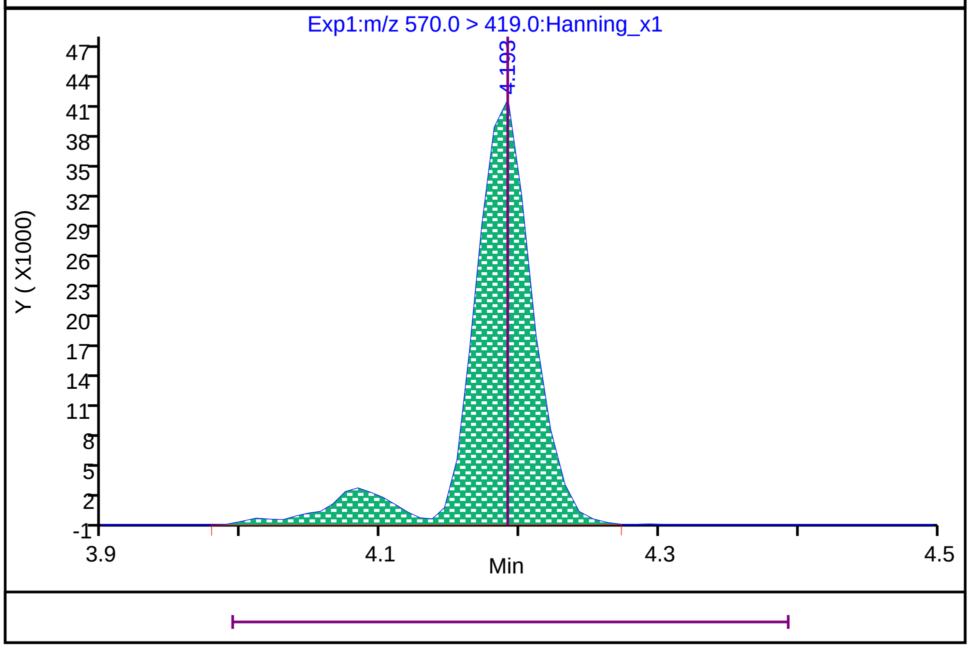
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.193
Area: 121100
Amount: 906.66
Amount Units: ng/L



RT: 4.193
Area: 127293
Amount: 953.02
Amount Units: ng/L



Data Editor: justin.gavin, 16-Nov-2021 12:55:08
Audit Action: Mint
Audit Reason: Invalid Integration

RAW QC DATA

SCIEX Triple Quad™ 4500/4500MD Systems

Planned Maintenance Procedure

GEN-IDV-08-6710-E

October 2020

EC REP

AB Sciex UK Limited
Phoenix House
Lakeside Drive, Centre Park
Warrington Cheshire
WA1 1RX, UK

AB Sciex Pte. Ltd.
Blk33, #04-06 Marsiling Industrial Estate Road 3
Woodlands Central Industrial Estate, Singapore 739256

Contents

Introduction 1

Note: For regulatory and safety information for the mass spectrometer, refer to the *System User Guide*.

The planned maintenance (PM) procedure is designed to help maintain overall system performance.

The PM is not intended to take the place of an Operational Qualification (OQ) nor is it intended to verify the instrument specifications. Separate Installation Qualification (IQ) and OQ services are available. Contact a SCIEX representative.

The procedure must be performed by a trained SCIEX Field Service Employee (FSE).

The procedure has been developed for the SCIEX Triple Quad™ 4500/4500MD System with the Turbo V™ Ion Source. It does not apply to any other products or processes.

The procedure does not address any customer-specific analytical protocol (performance qualification) or method validation.

Note: If an issue is identified and the system requires repair, then the customer is responsible for the repair at the expense of the customer, except to the extent that the system and the required repairs are covered by a SCIEX warranty or service contract. A separate repair service call must be opened and the repair hours must not be charged against this procedure.

Planned Maintenance Tasks 2

Note: Perform all procedures using the Turbo V™ Ion Source, unless otherwise specified.

Pre-Planned Maintenance

Note: Guideline values are for reference only. The pre-PM test results are not required to meet or exceed these values.

Pre-PM Tasks

Task	Complete	N/A
Ask the customer about system performance since the last visit and record comments.	✓	—
If the customer maintains a log for the system, then review it.	○	◉
Review the work to be performed with the customer.	✓	—

PC Health Check

Task	Complete	N/A
Inspect the status of the RAID 1 hard drives.		—

Vacuum System Tests

Task	Complete
Record the turbo pump operational values.	

Parameter	Results
Temperature (ºC)	see notes
Current (A)	see notes
Voltage (V)	see notes
Power (W)	see notes
Driving frequency (Hz)	see notes

Inspect the vacuum gauge filament using the Analyst® Service Diagnostics (ASD) Software and identify the filament position. If the mass spectrometer is using filament 2, then order a replacement vacuum gauge as a separate service call.	1	○	
	2	○	

Pre-PM Pressure Test

Pre-PM Pressure Test is Complete	✓

Test	Guideline	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\,0} \leq 1.1 \times 10^{-5}$ torr	0.4e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\,12} - P_{CAD\,0}) \leq 2.8 \times 10^{-5}$ torr	2.1e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Pre-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	2.5e7	0.6 to 0.8	0.87
500.380	$\geq 8.0 \times 10^6$	2.4e7	0.6 to 0.8	0.81
906.673	$\geq 2.0 \times 10^7$	3.9e7	0.6 to 0.8	0.79
1,952.427	$\geq 8.8 \times 10^5$	7.7e6	0.6 to 0.8	1.1

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	3.0e7	0.6 to 0.8	0.75
500.380	$\geq 8.0 \times 10^6$	2.7e7	0.6 to 0.8	0.81
906.673	$\geq 2.0 \times 10^7$	4.7e7	0.6 to 0.8	0.78
1,952.427	$\geq 8.8 \times 10^5$	7.8e6	0.6 to 0.8	0.85

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	2.4e7	0.6 to 0.8	0.65
1,863.306	$\geq 1.4 \times 10^6$	3.7e6	0.6 to 0.8	0.73

Q3 Negative MS Test is Complete	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^{7}$	3.1e7	0.6 to 0.8	0.79
1,863.306	$\geq 2.0 \times 10^{6}$	6.2e6	0.6 to 0.8	0.76

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Guideline	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	6.6%

Planned Maintenance

Mass Spectrometer Maintenance

Task	Complete	N/A
Shut down the system and then disconnect the mains supply power cable.	✓	—
If required, replace the roughing pump oil. The recommended interval is every 3 years. **Note:** If an oil change is not required, then inspect the oil level and top up, if necessary. **CAUTION: Potential System Damage. Do not mix different types of oil. Mixing mineral oil with synthetic oil can cause pump failure.**	✓	—
If required, replace the roughing pump oil exhaust filter. The recommended interval is every 3 years.	◉	○
Confirm that there is no excessive roughing pump oil leakage. Clean up any oil.		—
Make sure that the roughing pump exhaust is properly routed to the ventilation system.	✓	—

Task	**Complete**	**N/A**
Inspect the exhaust system: • Make sure that all of the gas fittings at the rear bulkhead are tight. • Make sure that all of the exhaust hoses are free of kinks. • Make sure that all of the hoses at the waste bottle are secure, and there are no signs of leaks. • Make sure that the waste bottle is in an upright position. • Make sure that the exhaust hose is secured to the lab ventilation system. • Confirm that no liquid is trapped in the exhaust lines.	✓	—
Clean or replace the four air filters in the base of the mass spectrometer chassis.	✓	—
(If applicable) Clean the turbo pump filter screen.	○	◉
(If applicable) Verify the operation of the SCIEX-supplied bench cooling fans.	◉	○
Clean the curtain plate.	✓	—
Clean the orifice plate.	✓	—
Clean the QJet® Ion Guide and IQ0 lens.	✓	—
(If contamination is detected) Clean the Q0 region and the IQ1 lens.	◉	○
Inspect the cable connections: • Make sure that the power cables for the mass spectrometer, LC system, roughing pump, syringe pump, gas generator, and UPS are securely connected. • Make sure that the communications cables for the GPIB/Ethernet ports, LC connections, and roughing pump are securely connected.	✓	—

Task	Complete	N/A
Verify system support functions — gas: • Confirm the input gas pressures at the regulators are within specifications. • Confirm that there is no liquid present in the gas lines.	✓	—
Verify the expiry date on the battery system for the UPS (sold by SCIEX), and then recommend replacement of the battery tray, if required.	○	◉
Start up the system.	✓	—

Turbo V™ Ion Source Maintenance

Task	Complete	N/A
If necessary, replace the electrode in the TurboIonSpray® and APCI Probes.	◉	○
With the TurboIonSpray® probe installed, verify that the temperature (TEM) reaches the recommended set point of 500 °C.	✓	—
(If applicable) With the APCI probe installed, verify that the temperature (TEM) reaches the recommended set point of 400 °C.	○	◉
Inspect the ion source and, if visible signs of contamination are present, clean the inner surfaces using lint-free wipes and a 50:50 methanol:water solution. **Note:** Remove the corona discharge needle before cleaning.	◉	○

Software Maintenance

Note: This task is not applicable to MD systems.

Task	Complete	N/A
(Obtain customer approval first) Install any applicable Analyst® Software HotFixes. **Note:** Make sure that the compatible instrument firmware is installed.	○	◉

Post-Planned Maintenance

Voltage Tests

Task	Complete
Inspect the RF tuning voltages at the QPS amplifier module and then, if required, tune the coil boxes.	✓
Inspect the detector voltage. Optimize, if required. Detector voltage: 2100	✓

Post-PM Pressure Test

Post-PM Pressure Test is Complete	✓

Test	Specification	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.8e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.5e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Post-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	2.1e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^6$	2.8e7	0.6 to 0.8	0.70
906.673	$\geq 2.0 \times 10^7$	3.8e7	0.6 to 0.8	0.73
1,952.427	$\geq 8.8 \times 10^5$	6.0e6	0.6 to 0.8	0.69

Q1 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	2.8e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^6$	3.1e7	0.6 to 0.8	0.70
906.673	$\geq 2.0 \times 10^7$	4.6e7	0.6 to 0.8	0.69
1,952.427	$\geq 8.8 \times 10^5$	5.5e6	0.6 to 0.8	0.69

Q3 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	≥ 1.8×10^7	2.6e7	0.6 to 0.8	0.70
1,863.306	≥ 1.4×10^6	4.3e6	0.6 to 0.8	0.71

Q1 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	3.4e7	0.6 to 0.8	0.77
1,863.306	$\geq 2.0 \times 10^6$	5.6e6	0.6 to 0.8	0.72

Q3 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Specification	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	11%

Post-PM Tasks

Task	Complete	N/A
Delete any unnecessary files.	✓	—
Back up the Analyst Data folder.	✓	—
(If applicable) Defragment the hard drive.	○	◉
(Not applicable for MD instrument families) If the customer has a Software Support Plan, then perform the Software Health Check: • (Obtain customer approval first) Install any compatible HotFixes and updates for SCIEX add-on software.	○	◉

StatusScope® Remote Monitoring Service Tasks

The StatusScope® Remote Monitoring Service is not applicable for MD systems.

Task	Complete	N/A
Note: Installation of the StatusScope® Remote Monitoring Service is available only to warranty and eligible contract customers. Refer to sciex.com/instrument-service-and-support/statusscope-remote-monitoring for a list of eligible contracts. If the StatusScope® Remote Monitoring Service is not installed, then perform these tasks: • If the customer does not want the StatusScope® Remote Monitoring Service installed, then skip the remaining steps in this section. • If the customer wants the StatusScope® Remote Monitoring Service installed, then complete the steps in this section.	○	●
Verify the connection to the server for the StatusScope® Remote Monitoring Service. **Note:** Use the **StatusScopePortCheck.exe**. The utility is included with the StatusScope® installer.	○	●
Install the agent for the StatusScope® Remote Monitoring Service.	○	●
Ask the customer to log on to SCIEX Now™ to verify that the instrument is connected to the server for the StatusScope® Remote Monitoring Service. **Note:** The instrument is shown under the account of the Primary Contact.	○	●

Wrap-up

Task	Complete	N/A
Review the work performed with the customer.	✓	—
Record the test results in this document and then attach all of the test data.	✓	—
Review the routine maintenance schedule and the procedures with the customer.	✓	—
Complete this document: • Review the test results with the customer. • Provide the customer with the completed document and the test data. • If an electronic copy of the document is supplied to the customer, then save a copy on the Service drive.	✓	—

Signoff 3

Organization	Pace South Carolina		
Mass spectrometer serial number	EB250231807	Service request number	5030888
FSE name	Lynne Russell	Date (yyyy-mm-dd)	2021-03-25
FSE signature			

Comments and Exceptions

Unable to check RAID and perform vacuum system test because I did not have admin privileges on the customer computer. LER 25MAR2021

Inspect for Contamination A

Perform a Q1 and Q3 charging test to determine whether front end contamination is present.

1. Run the **Pos PPG** method for 10 minutes, monitoring the Total Ion Count (TIC) for degradation of the signal or a decrease in sensitivity.
2. Change the polarity to Negative, and then scan for one minute.
3. Change the polarity to Positive, and then make sure that the **IS** parameter returns to the original value.
4. Run the method.

   If the signal sensitivity is restored temporarily but the Total Ion Count (TIC) again degrades by more than 5% over a 10 minute run, then a possible front-end contamination is indicated.
5. Repeat the test in Negative polarity using the Q1 Neg PPG method.

Guidelines for Cleaning the Front End

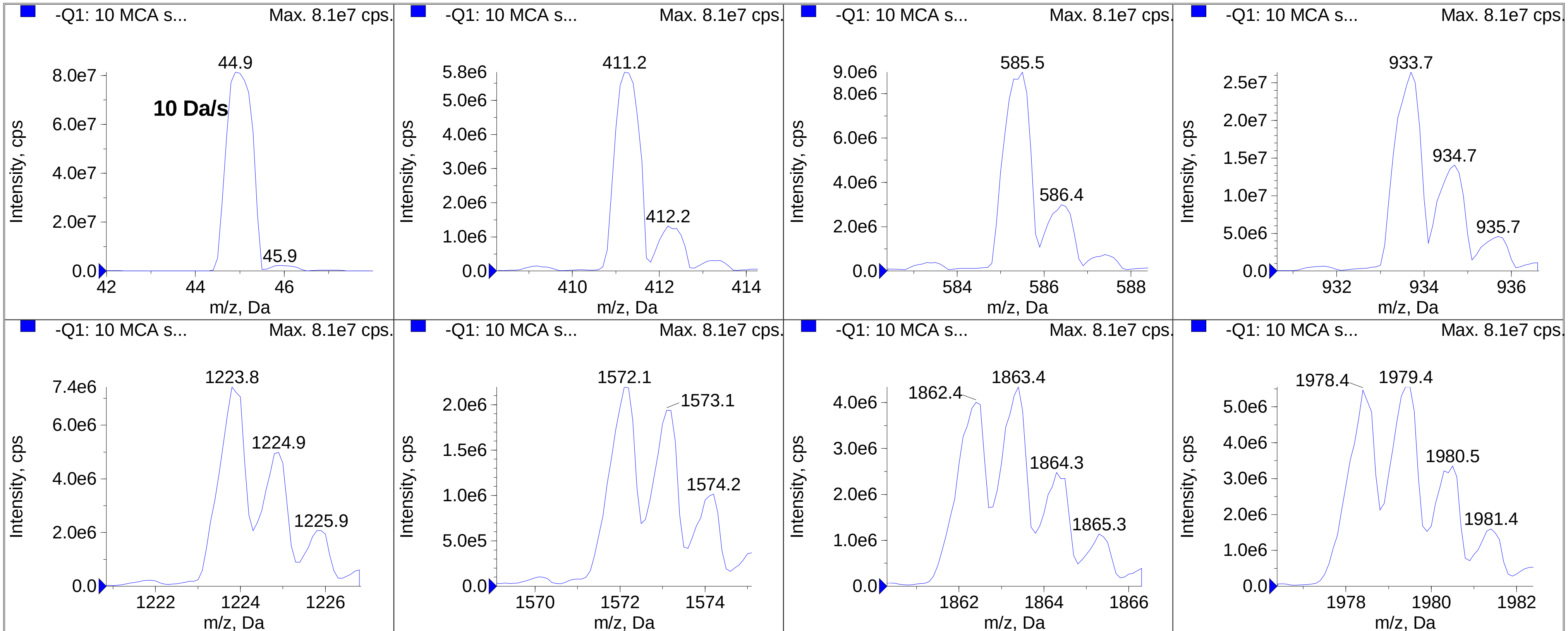
If charging tests indicate that cleaning is necessary, then clean the front-end components, including the QJet® Ion Guide, IQ0 lens, Q0 quadrupole, and IQ1 lens.

Removing the ion optics is considered a repair activity. FSEs must open a separate service repair call.

Note: This procedure does not provide troubleshooting for all technical root causes of signal degradation or charging effect. Signal degradation might also result from a contaminated TurboIonSpray® Probe or electrode, method parameters that are not optimized, or other factors.

Acq. Time: 15:30
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



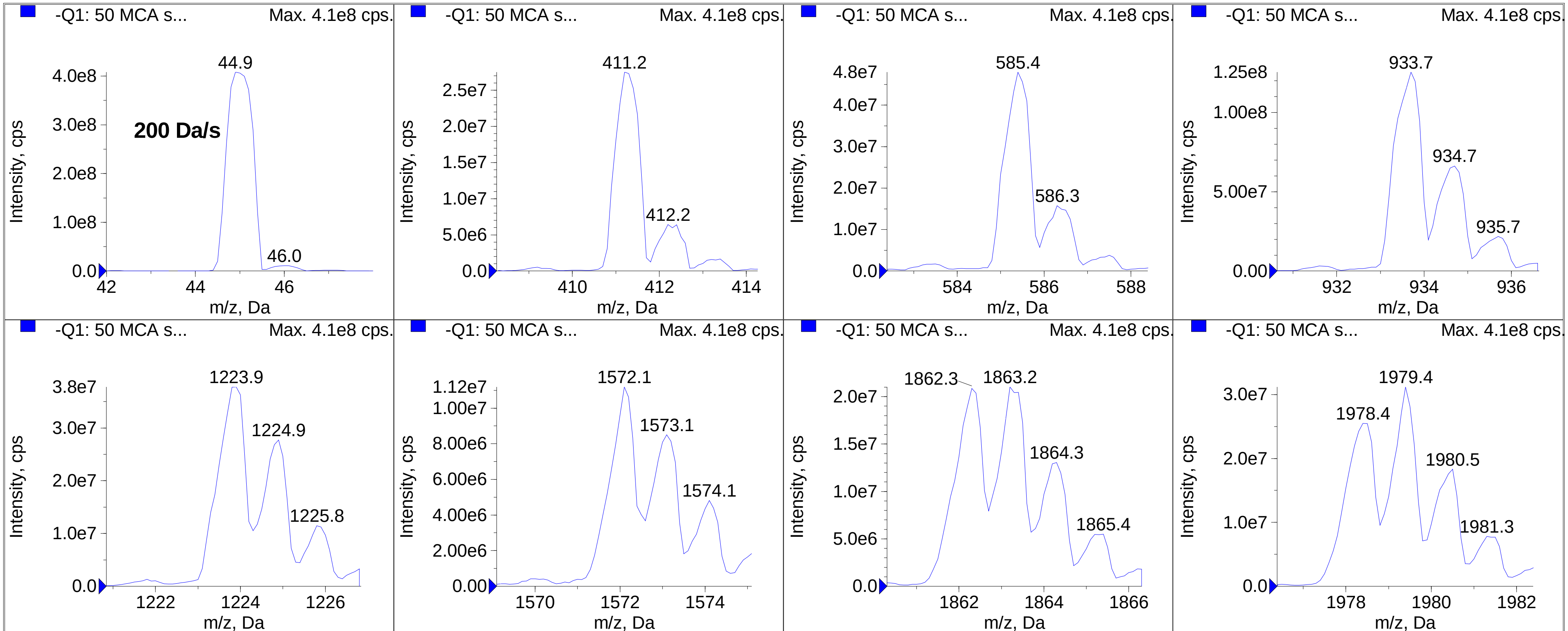
Peak List for " -Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325153056.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9982	8.1378e7	0.6996	-1.8169e-4
2	411.2590	411.2637	5.8256e6	0.6783	-4.6770e-3
3	585.3850	585.3916	8.9716e6	0.7217	-6.5574e-3
4	933.6360	933.6386	2.6418e7	0.7048	-2.5651e-3
5	1223.8450	1223.8346	7.4223e6	0.6965	0.0104
6	1572.0970	1572.0866	2.1958e6	0.7080	0.0104
7	1863.3060	1863.3085	4.3403e6	0.7132	-2.4789e-3
8	1979.3890	1979.3775	5.5539e6	0.7610	0.0115

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:40
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



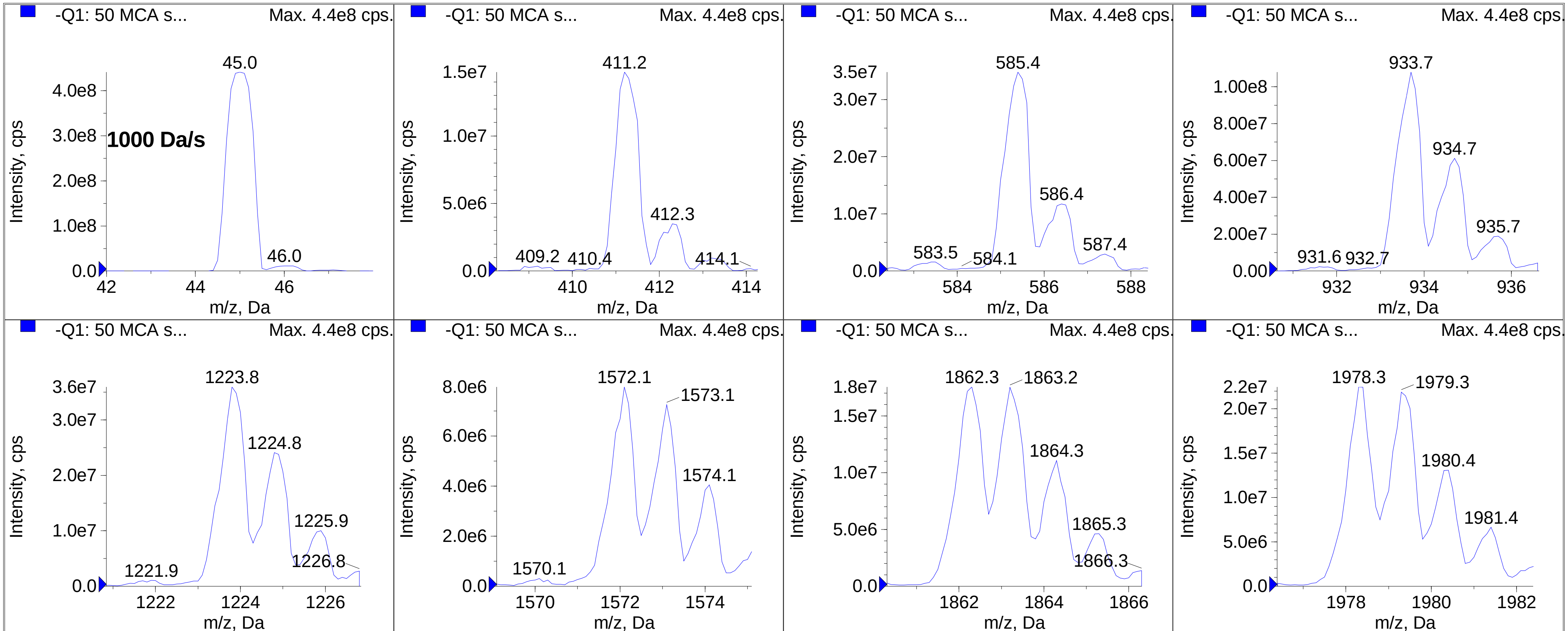
Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325154041.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0052	4.0797e8	0.6918	-7.1801e-3
2	411.2590	411.2692	2.7506e7	0.6518	-0.0102
3	585.3850	585.3988	4.7952e7	0.6984	-0.0138
4	933.6360	933.6373	1.2546e8	0.7143	-1.2816e-3
5	1223.8450	1223.8305	3.7770e7	0.7208	0.0145
6	1572.0970	1572.0944	1.1188e7	0.6425	2.5631e-3
7	1863.3060	1863.2675	2.1018e7	0.7283	0.0385
8	1979.3890	1979.3876	3.1194e7	0.6386	1.4045e-3

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:43
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325154310.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0055	4.4107e8	0.6916	-7.5381e-3
2	411.2590	411.2622	1.4730e7	0.6031	-3.2201e-3
3	585.3850	585.3923	3.4800e7	0.6373	-7.3251e-3
4	933.6360	933.6730	1.0796e8	0.6246	-0.0370
5	1223.8450	1223.8482	3.5950e7	0.6244	-3.2403e-3
6	1572.0970	1572.0829	7.9600e6	0.6014	0.0141
7	1863.3060	1863.2333	1.7520e7	0.7148	0.0727
8	1979.3890	1979.3550	2.1880e7	0.6567	0.0340

*Post-PM
*FSE: Lynne Russell

```
Acq. Time: 15:45                                          Analyst Version: 1.7.0
Acq. Date: Thursday, March 25, 2021                      *SN: EB250231807
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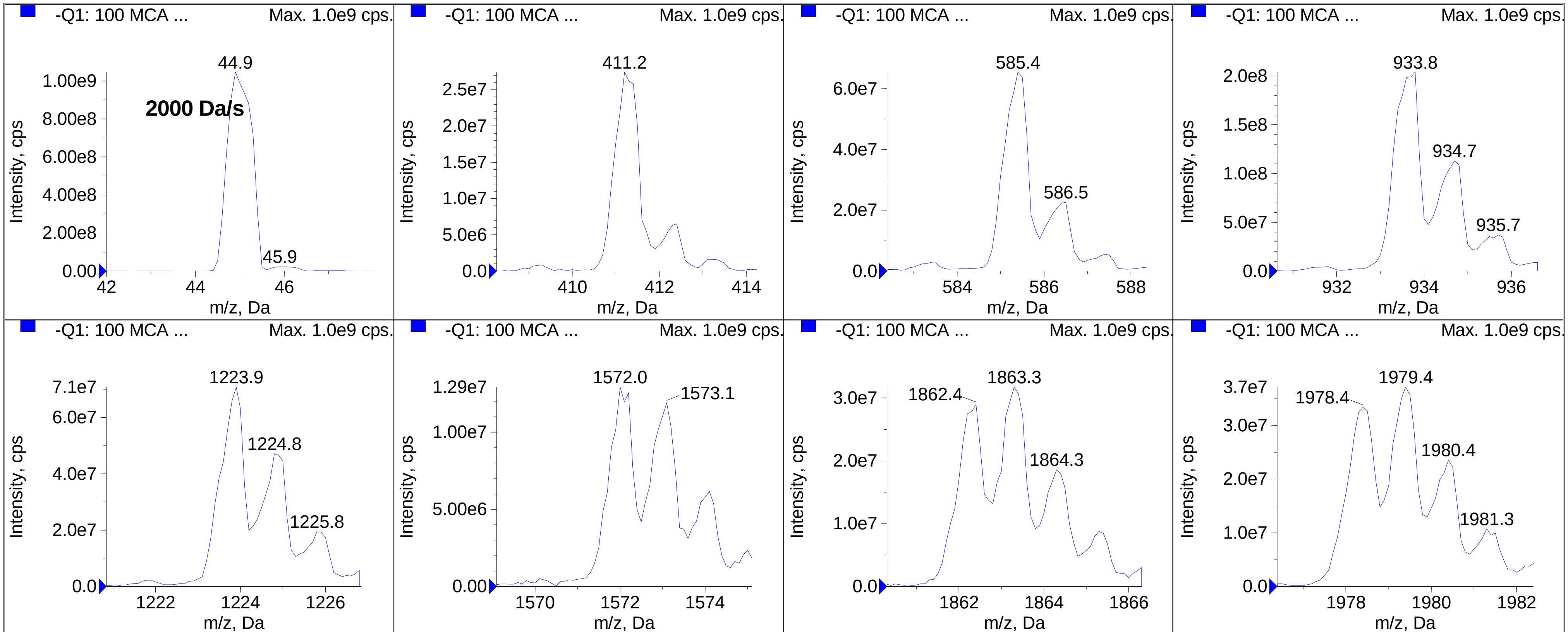


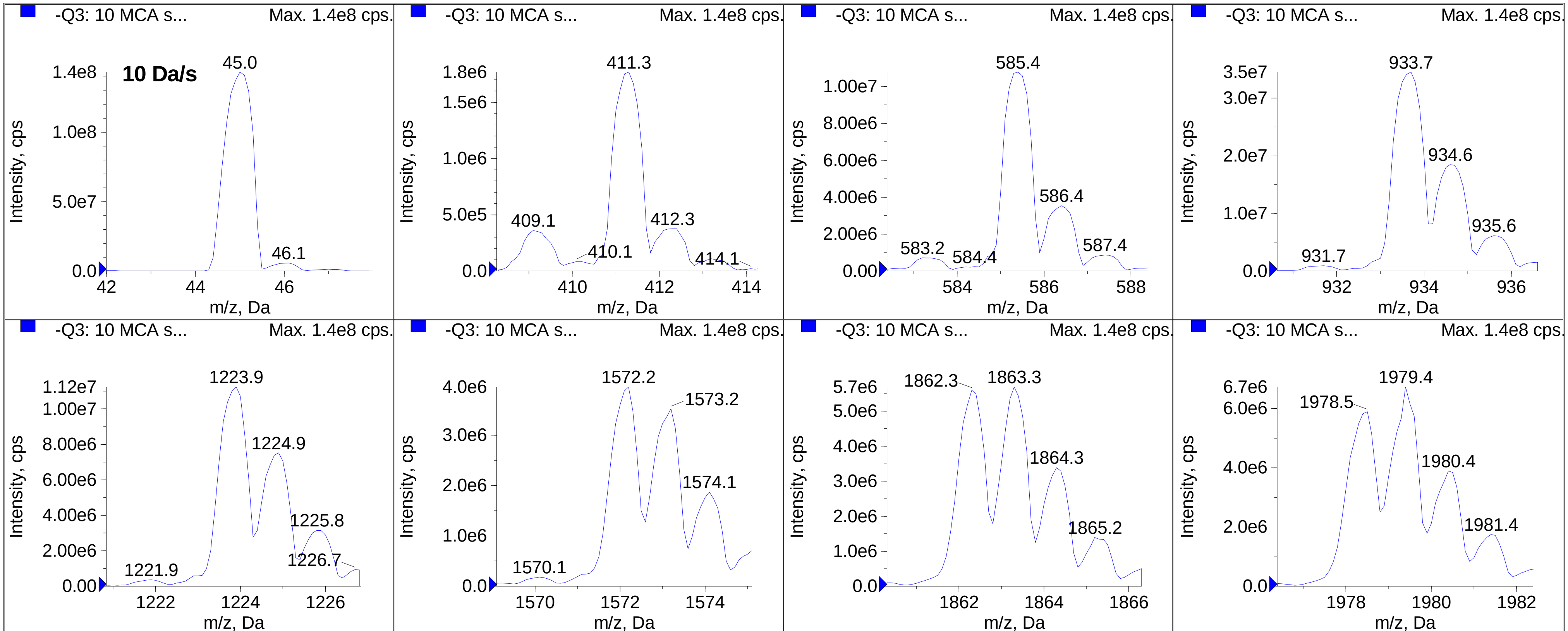
Peak List for " -Q1: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210325154503.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0053	1.0460e9	0.6770	-7.2773e-3
2	411.2590	411.2682	2.7420e7	0.6195	-9.2040e-3
3	585.3850	585.3714	6.5440e7	0.6325	0.0136
4	933.6360	933.6142	2.0390e8	0.6583	0.0218
5	1223.8450	1223.8436	7.0800e7	0.6346	1.3792e-3
6	1572.0970	1572.0493	1.2920e7	0.6333	0.0477
7	1863.3060	1863.2900	3.1740e7	0.7335	0.0160
8	1979.3890	1979.3666	3.7140e7	0.7032	0.0224

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:51
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



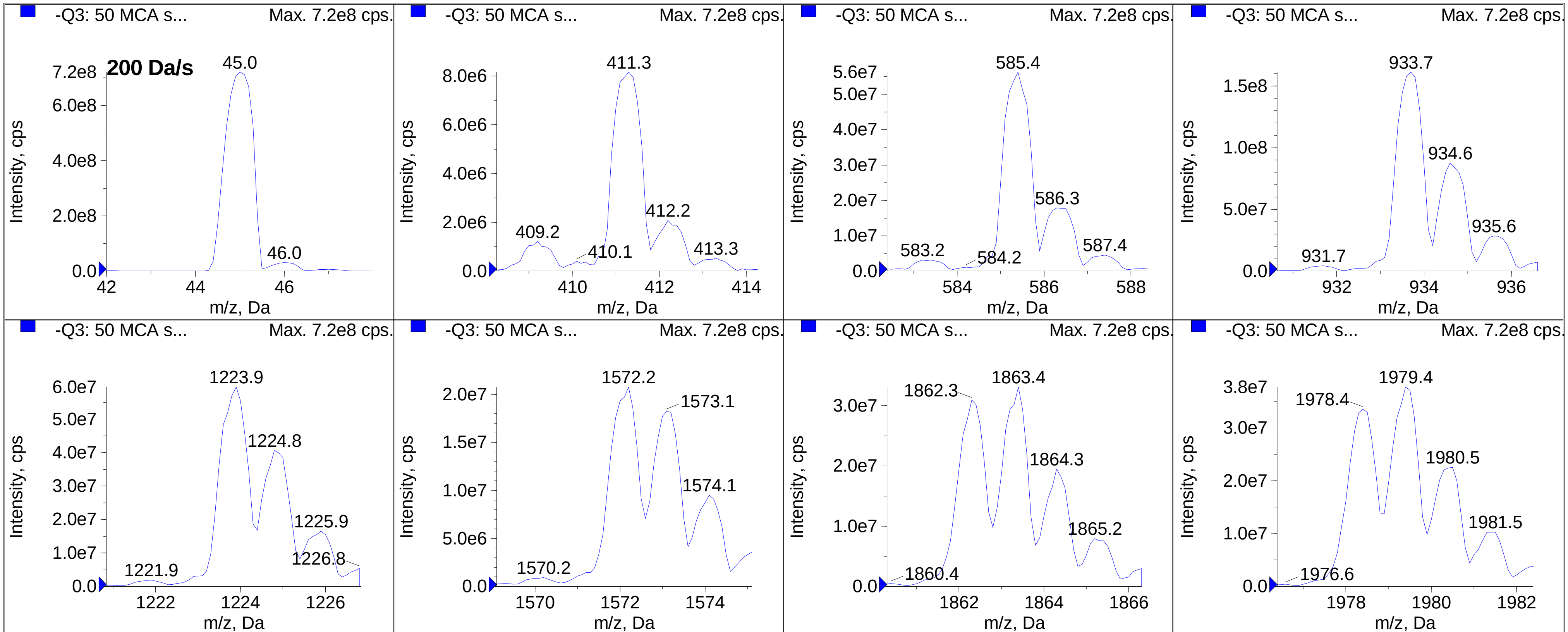
Peak List for " -Q3: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325155103.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9928	1.4333e8	0.7518	5.2161e-3
2	411.2590	411.2614	1.7681e6	0.7448	-2.4303e-3
3	585.3850	585.3870	1.0776e7	0.7128	-2.0136e-3
4	933.6360	933.6360	3.4515e7	0.7726	-4.7548e-5
5	1223.8450	1223.8332	1.1233e7	0.7640	0.0118
6	1572.0970	1572.1103	3.9565e6	0.7359	-0.0133
7	1863.3060	1863.3122	5.6912e6	0.7229	-6.2488e-3
8	1979.3890	1979.3896	6.7287e6	0.7704	-5.7240e-4

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:56
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



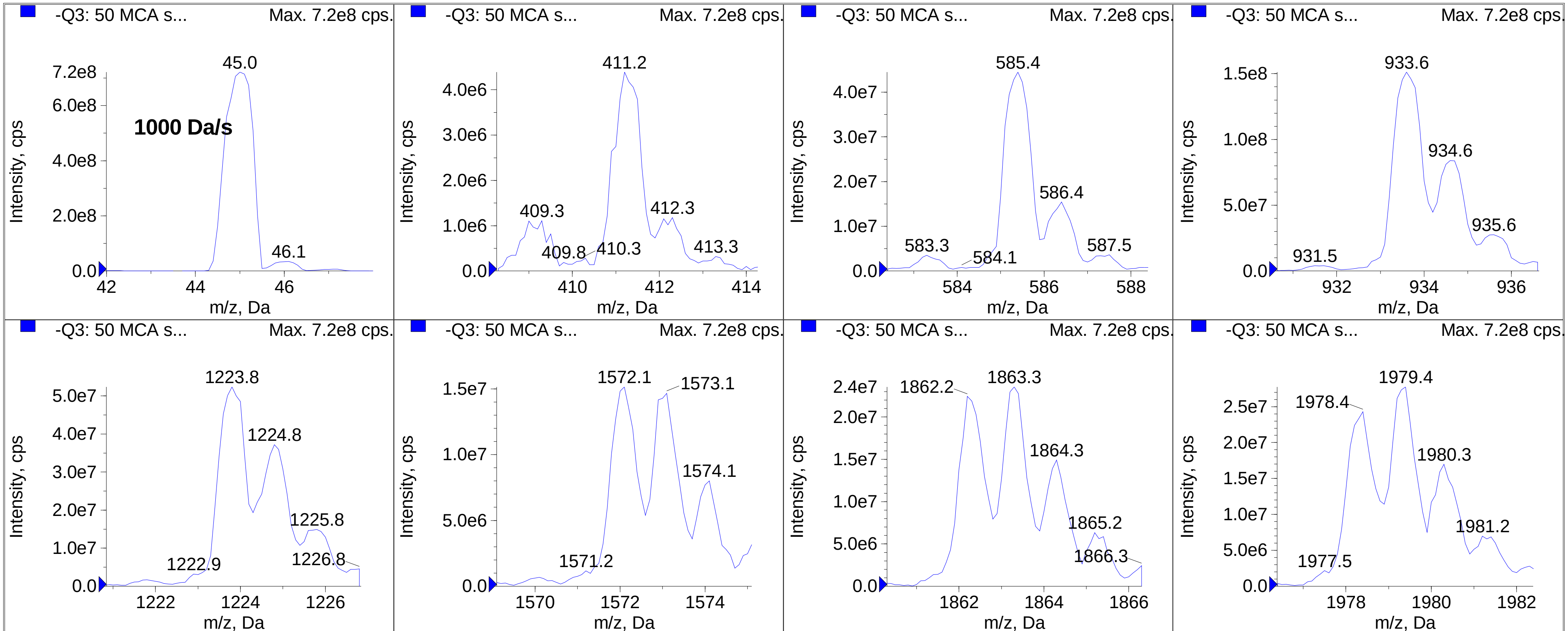
Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325155632.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0036	7.2093e8	0.7442	-5.6313e-3
2	411.2590	411.2597	8.1560e6	0.7536	-6.7665e-4
3	585.3850	585.3754	5.6260e7	0.7135	9.6286e-3
4	933.6360	933.6677	1.6115e8	0.6857	-0.0317
5	1223.8450	1223.8456	5.9576e7	0.7722	-6.3307e-4
6	1572.0970	1572.1074	2.0762e7	0.7675	-0.0104
7	1863.3060	1863.3270	3.3080e7	0.6901	-0.0210
8	1979.3890	1979.3887	3.7714e7	0.7590	3.3123e-4

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:59
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



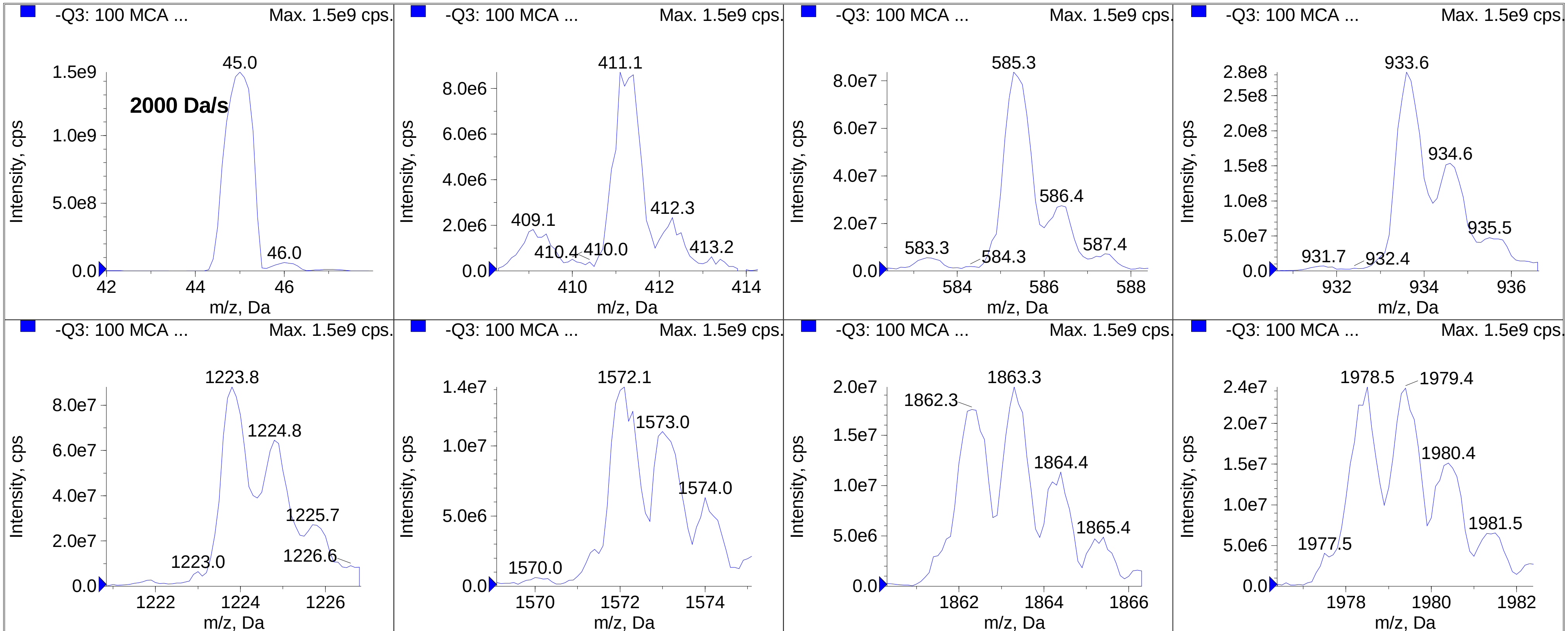
Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325155913.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9973	7.2143e8	0.7496	7.4490e-4
2	411.2590	411.2659	4.3900e6	0.7407	-6.8936e-3
3	585.3850	585.3767	4.4490e7	0.6952	8.2998e-3
4	933.6360	933.6150	1.5117e8	0.7331	0.0210
5	1223.8450	1223.8054	5.2360e7	0.7233	0.0396
6	1572.0970	1572.0802	1.5140e7	0.7208	0.0168
7	1863.3060	1863.2985	2.3550e7	0.6589	7.4811e-3
8	1979.3890	1979.3342	2.7740e7	0.7048	0.0548

*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:06
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



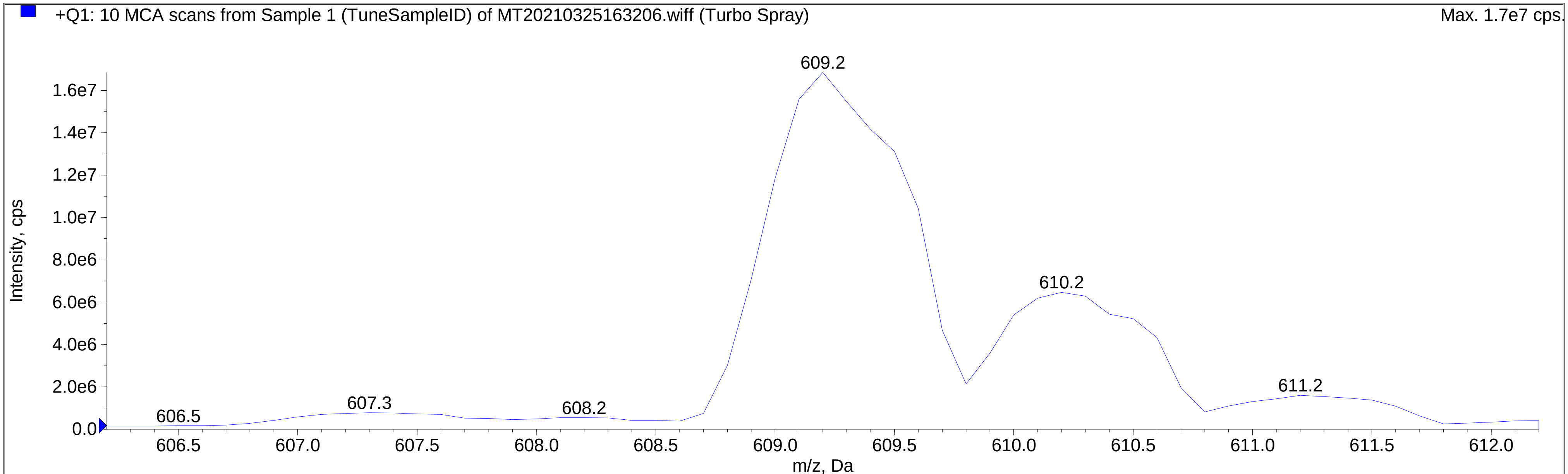
Peak List for " -Q3: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210325160625.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9931	1.4679e9	0.7570	4.8703e-3
2	411.2590	411.2696	8.7200e6	0.7171	-0.0106
3	585.3850	585.3799	8.3660e7	0.6993	5.0522e-3
4	933.6360	933.6423	2.8370e8	0.6606	-6.3190e-3
5	1223.8450	1223.8362	8.8060e7	0.6786	8.7632e-3
6	1572.0970	1572.0860	1.4200e7	0.7660	0.0110
7	1863.3060	1863.3234	1.9800e7	0.7225	-0.0174
8	1979.3890	1979.4044	2.4340e7	0.7994	-0.0154

*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:32
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " +Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163206.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	174.1000	n/a	n/a	n/a	n/a
2	195.1000	n/a	n/a	n/a	n/a
3	397.2000	n/a	n/a	n/a	n/a
4	448.1000	n/a	n/a	n/a	n/a
5	609.2810	609.2691	1.6853e7	0.7063	0.0119

*Post-PM
*FSE: Lynne Russell

Acq. Time: N/A
Acq. Date: N/A

Analyst Version: 1.7.0
*SN: EB250231807

State Parameter Editor

Ion Source: Turbo Spray
Ion Source Temperature Reached
Curtain Gas (CUR): 30.0
IonSpray Voltage (IS): 3800.0
Temperature (TEM): 0.0
Ion Source Gas 1 (GS1): 25.0
Ion Source Gas 2 (GS2): 0.0

Entrance Potential (EP): 10.0

Q1 Resolution: Unit
Ion Energy 1 (IE1): 1.0

Deflector (DF): -200.0
CEM (CEM): 2100.0

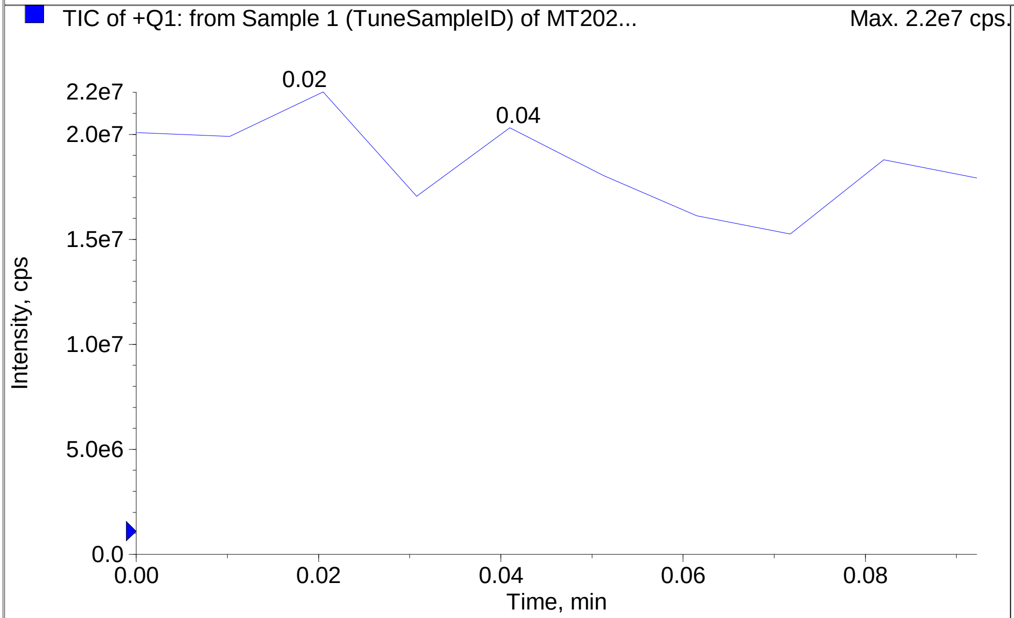
Mass Spectrometer Method Properties

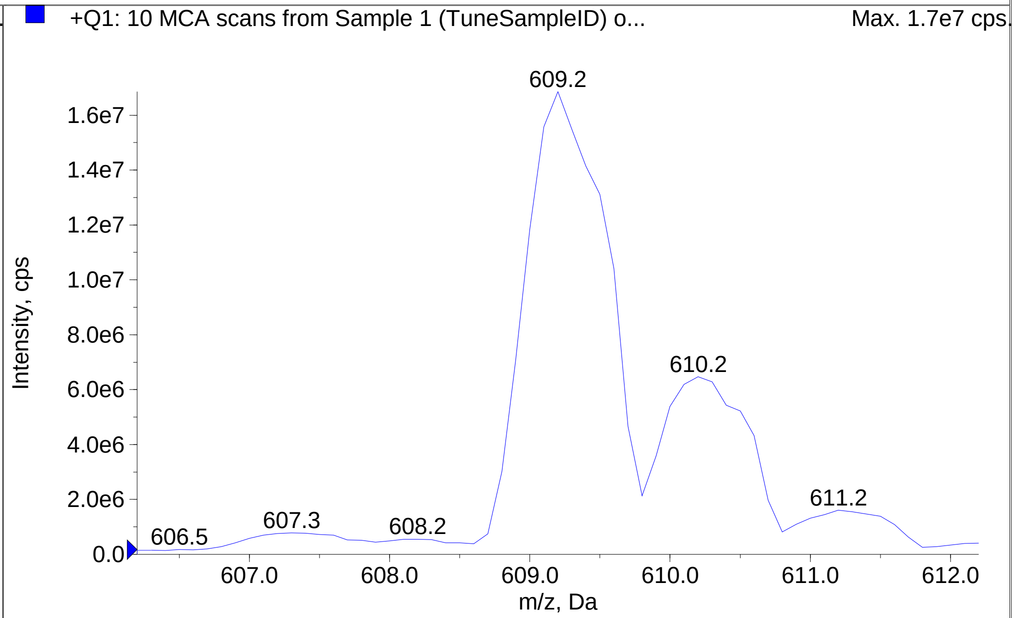
Period 1:

Scans in Period: 10
Relative Start Time: 0.00 msec
Scheduled Ionization: Off
Experiments in Period: 1

Period 1 Experiment 1:

Scan Type: Q1 MS (Q1)
Polarity: Positive
Scan Mode: Profile
Ion Source: Turbo Spray
Scans to Sum: 1





*Post-PM
*FSE: Lynne Russell

Acq. Time: N/A
Acq. Date: N/A

Analyst Version: 1.7.0
*SN: EB250231807

State Parameter Editor

Ion Source: Turbo Spray
Ion Source Temperature Reached
Curtain Gas (CUR): 30.0
Collision Gas (CAD): 8
IonSpray Voltage (IS): 3800.0
Temperature (TEM): 0.0
Ion Source Gas 1 (GS1): 25.0
Ion Source Gas 2 (GS2): 0.0

Entrance Potential (EP): 10.0
Collision Energy (CE): 44.0
Collision Cell Exit Potential (CXP): 7.0

Q1 Resolution: Unit Q3 Resolution: Unit
Ion Energy 1 (IE1): 1.0

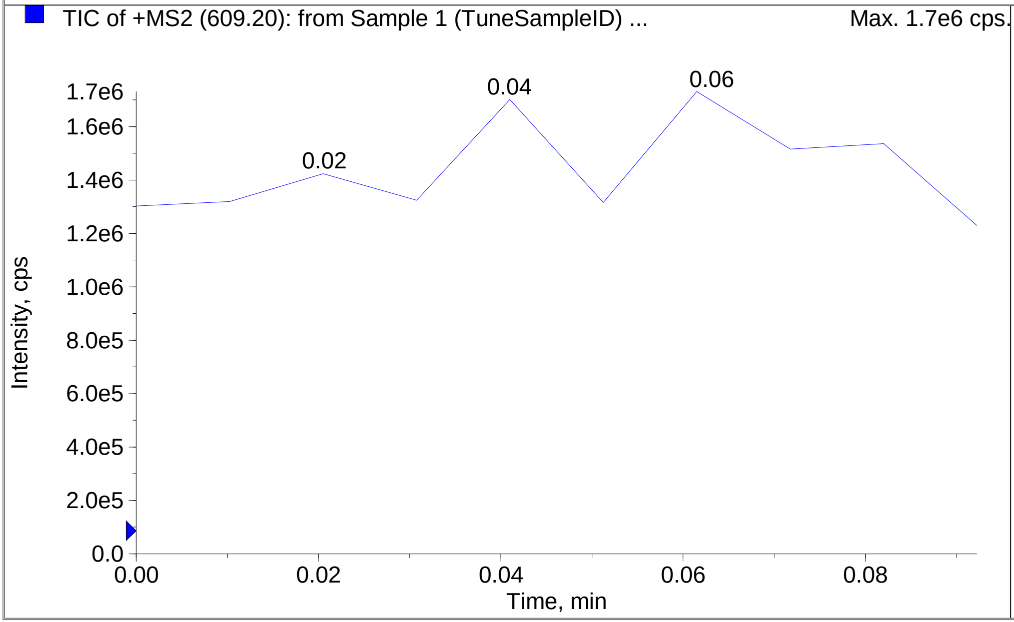
Mass Spectrometer Method Properties

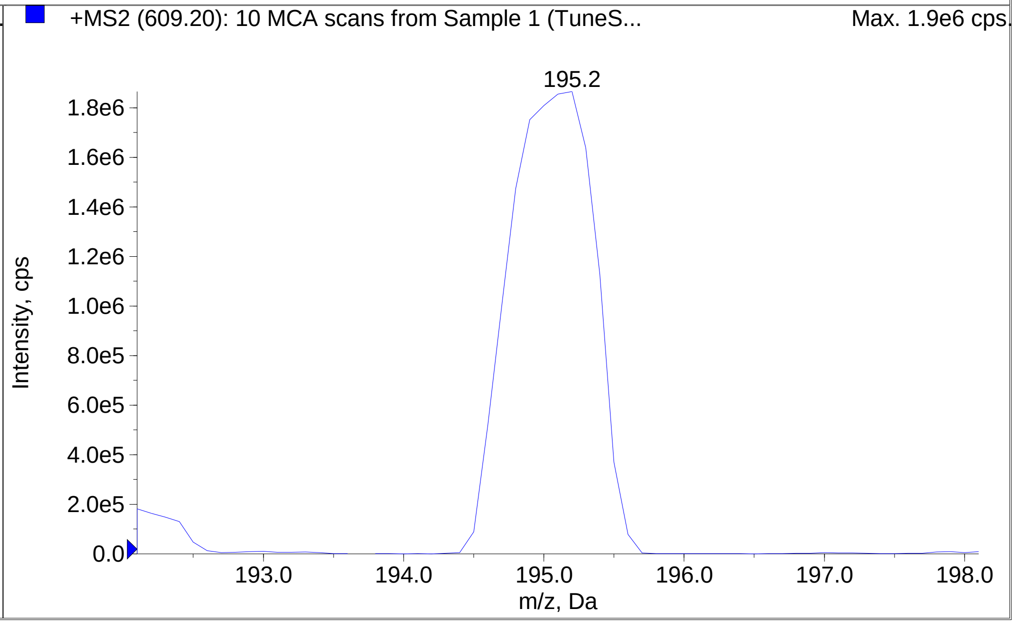
Period 1:

Scans in Period: 10
Relative Start Time: 0.00 msec
Scheduled Ionization: Off
Experiments in Period: 1

Period 1 Experiment 1:

Scan Type: Product Ion (MS2)
Polarity: Positive
Scan Mode: Profile
Ion Source: Turbo Spray
Scans to Sum: 1

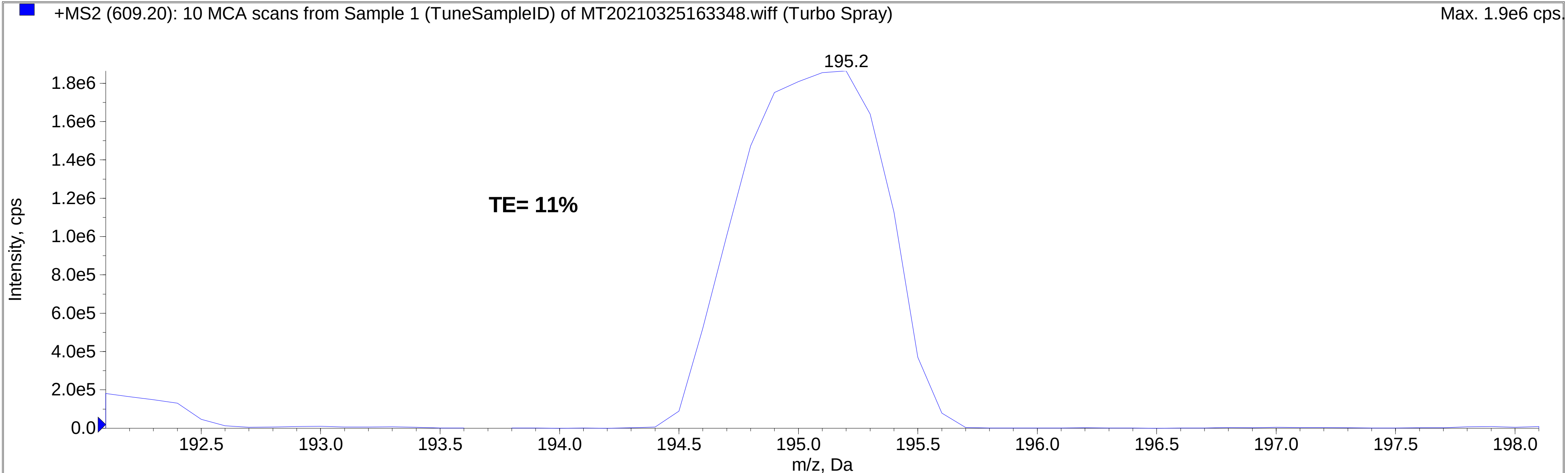




*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:33
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " +MS2 (609.20): 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163348.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	174.1000	n/a	n/a	n/a	n/a
2	195.1000	195.0703	1.8646e6	0.7410	0.0297
3	397.2000	n/a	n/a	n/a	n/a
4	448.1000	n/a	n/a	n/a	n/a
5	609.2810	n/a	n/a	n/a	n/a

*Post-PM
*FSE: Lynne Russell

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d		
Injection Date:	12-Nov-2021 13:14:00	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	5
Lab Sample ID:	ID BLK 1	Lab Prep. Batch:	
Sample Info:	ID BLK 1	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.705	0	616379	20	>100:1			1001.00	991.48	101.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.699	1.712	0/0	1509	16	-0.743:1			2.3237	2.3237		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.099	0	564273	16	>100:1			1001.00	987.20	103.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.099		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	0	161998	16	>100:1			1001.00	936.57	99.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.151	1/1	730	19	8.5:1	Target = 3.53		3.6172	3.6172		
298.9 > 99	44	2.151	2.151		319	16	4.7:1	2.28 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.425	1	97032	17	>100:1			5005.00	4285.16	92.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.433		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.469	0	632667	17	>100:1			1001.00	971.41	101.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.469		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.591	2.583	1	1083772	20	>100:1			5005.00	4676.34	98.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	518365	18	>100:1			1001.00	976.32	98.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.845		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.864	0	120931	19	>100:1			1001.00	962.52	104.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.845	2.864	-1/-1	373	57		Target = 2.89	3.05	2.8084	2.8084		
399 > 99	45	2.836	2.864		276	26	1.9:1	1.35 (1.44-4.34)	1.93				J
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.241		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.214	0	76847	20	>100:1			5005.00	4269.29	92.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.214		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.241	3.241	0	523753	21	>100:1			1001.00	998.24	101.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.241		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.625	3.625	0	106238	20	>100:1			1001.00	857.84	97	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.477	3.625	-8/-8	224	16	1.7:1	Target = 3.30		1.7726	1.7726		
499 > 99	54	3.485	3.625		89	10		2.51 (1.65-4.95)					
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.838		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.974		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.288		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.428	4.446	-1/-1	126	11				0.34677	0.34677		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.759	4.804	-2/-2	204	15		Target = 3.27		2.2353	2.2353		
699 > 99	54	4.752	4.804		24	10	2.0:1	8.50 (1.63-4.90)					J
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.632	3.632	0	600198	21	>100:1			1001.00	937.26	101.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.632		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.904	3.904	0	244066	17	>100:1			1001.00	910.50	107.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.904		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.995	3.984	1	583617	16	>100:1			1001.00	1015.59	98.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.973	3.995	-1/-2	1781	13	2.6:1	Target = 13.80		2.6249	2.6249		
513 > 169	51	3.984	3.995		261	10	4.5:1	6.82 (6.90-20.70)					J
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.984	3.984	0	86528	16	>100:1			5005.00	5006.10	105.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.984		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.597		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.151	4.142	1	656109	18	>100:1			5005.00	4341.86	99.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.142		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.318	0	88695	14	>100:1			1001.00	983.44	108.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.186	4.328	-8/-8	700	14	2.7:1			7.2290	7.2290		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.338	0	39895	15	>100:1			1001.00	848.09	93.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.338		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.308	4.308	0	615799	16	>100:1			5005.00	4754.72	101.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.308		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.308	4.308	0	617811	16	>100:1			1001.00	1025.84	97.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.308		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.482	0	98374	15	>100:1			1001.00	927.38	102.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.455	4.492	-2/-2	235	16	0.965:1			2.4564	2.4564		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.500	4.501	0	37543	14	>100:1			1001.00	873.10	103.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.510		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.588	4.580	1	629630	16	>100:1			1001.00	1048.79	103.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.580		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.825		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.056	5.050	1	791240	22	>100:1			1001.00	973.25	100.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.050		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.466	5.466	1	859840	20	>100:1			1001.00	990.56	98.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.466	5.466	1/0	5686	17	35:1	Target = 10.43		10.336	10.336		
813 > 269	40	5.458	5.466		637	22	26:1	8.92 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.877		ND								
*** 37 13C2_PFDA**													
515 > 470		3.995	3.984	1	814535	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	0	805262	19	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.241	3.241	0	632510	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.705	1.705	0	689271	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.625	3.625	0	126211	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

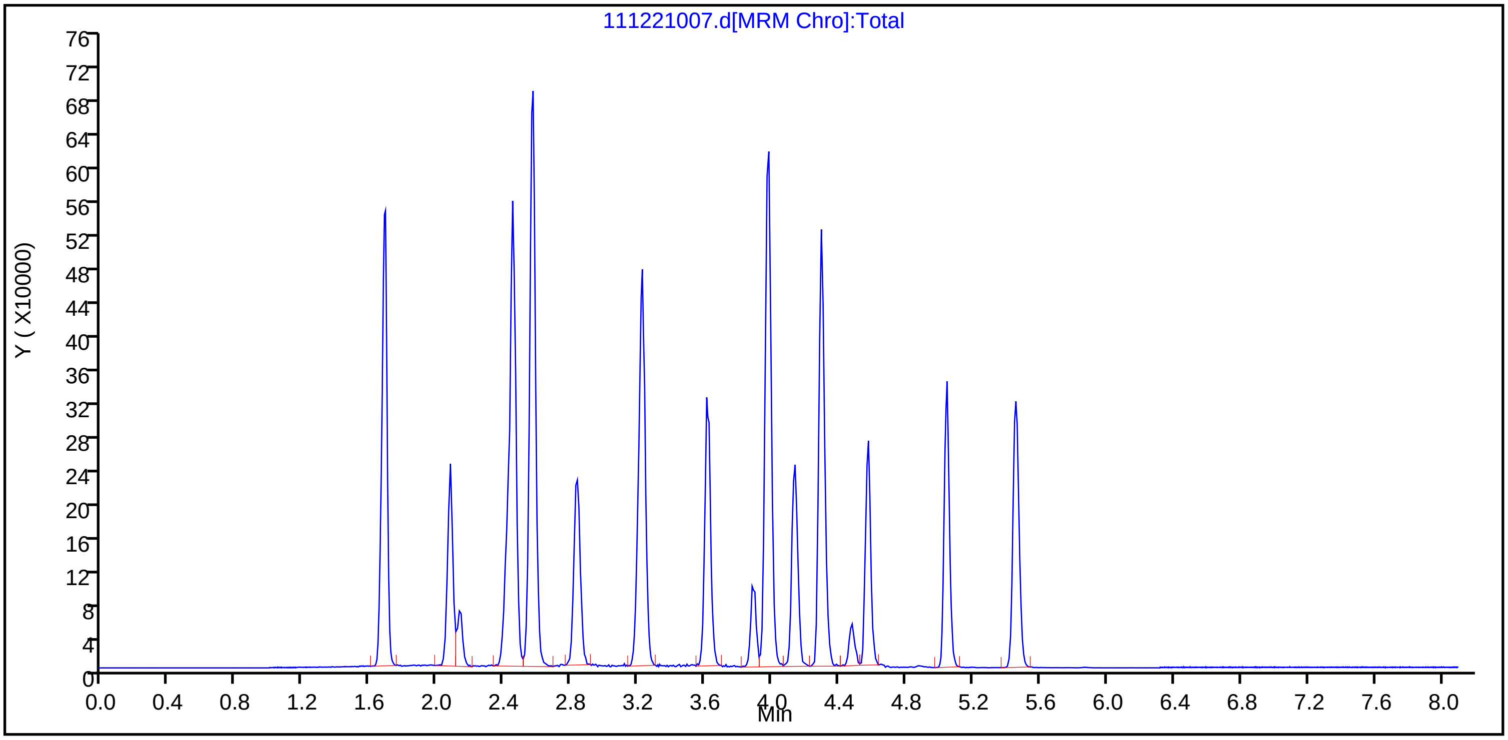
QC Flag Legend

U - Result Less Than Method Detection Limit

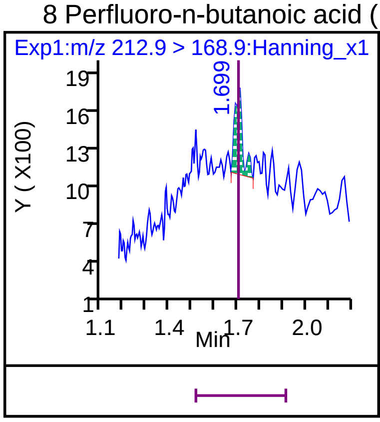
Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

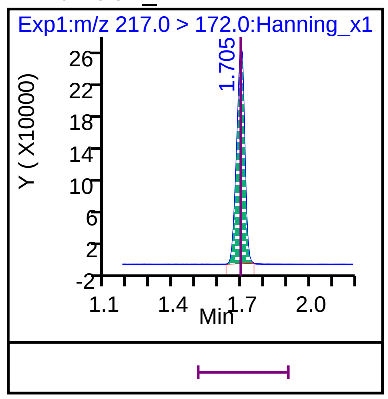
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d		
Injection Date:	12-Nov-2021 13:14:00	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID BLK 1
Sample Info:	ID BLK 1		
Dil. Factor:	1	Operator:	Justin Gavin



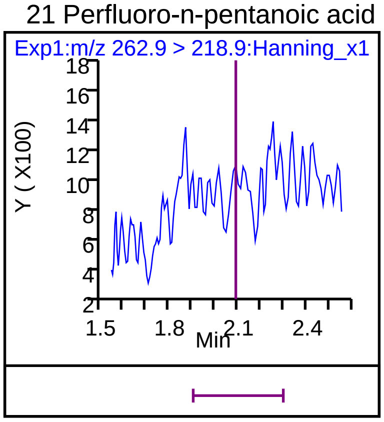
8 Perfluoro-n-butanoic acid (PFBA)



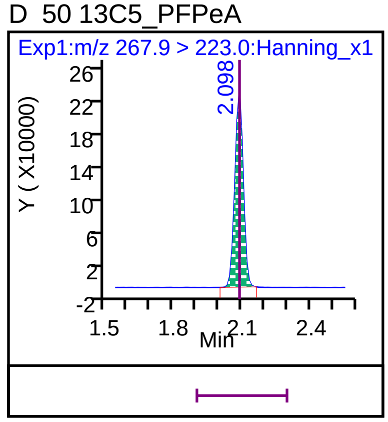
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



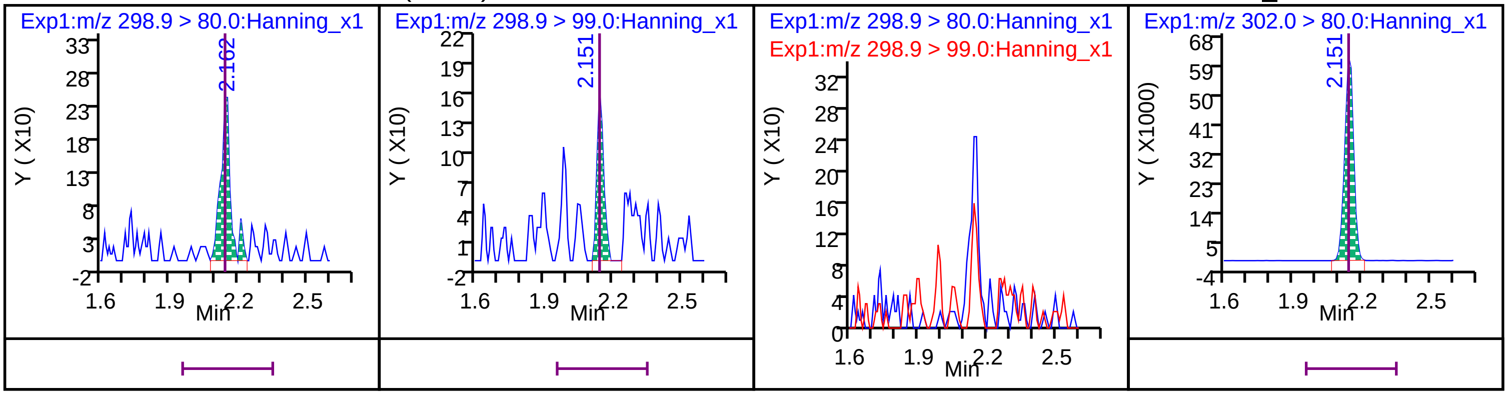
D 50 13C5_PFPeA



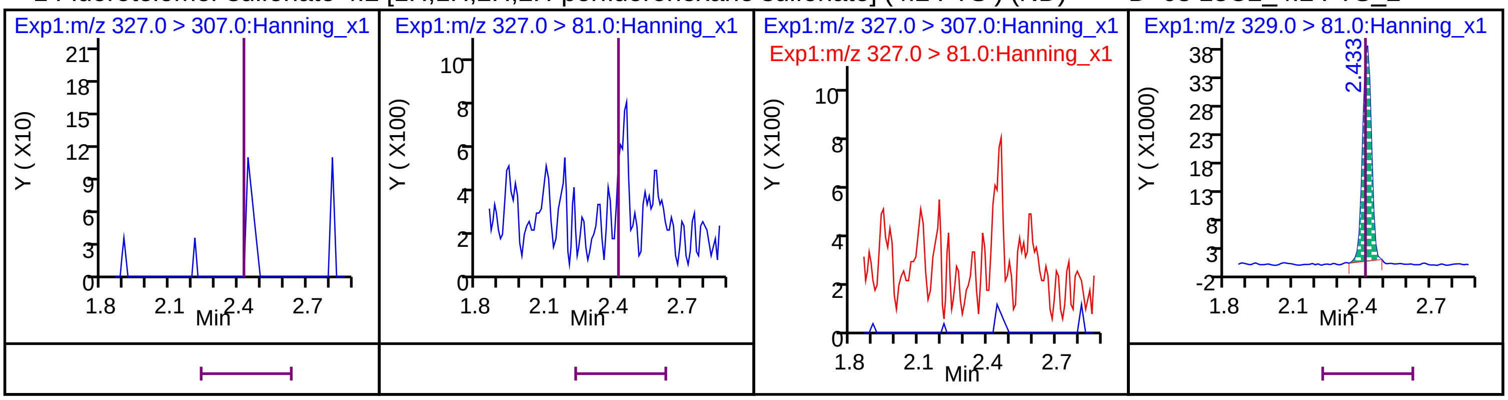
Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d

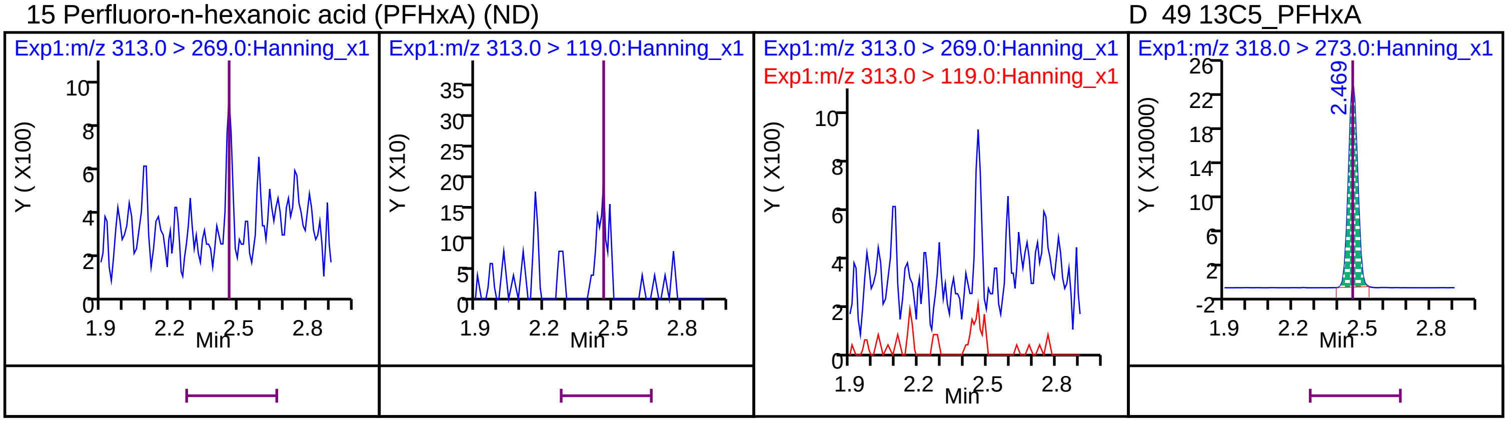
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



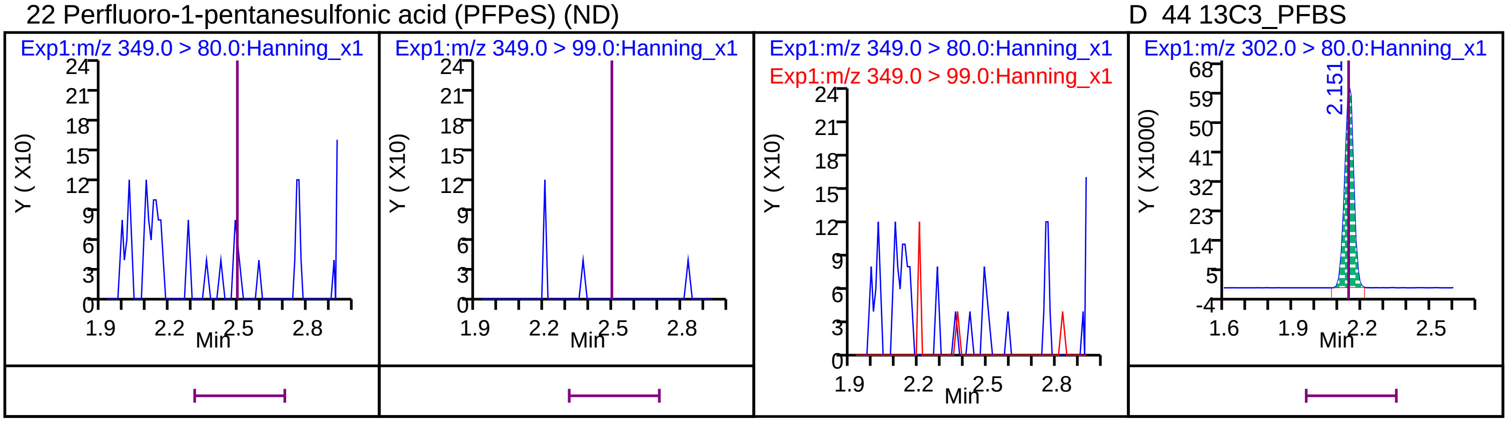
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA

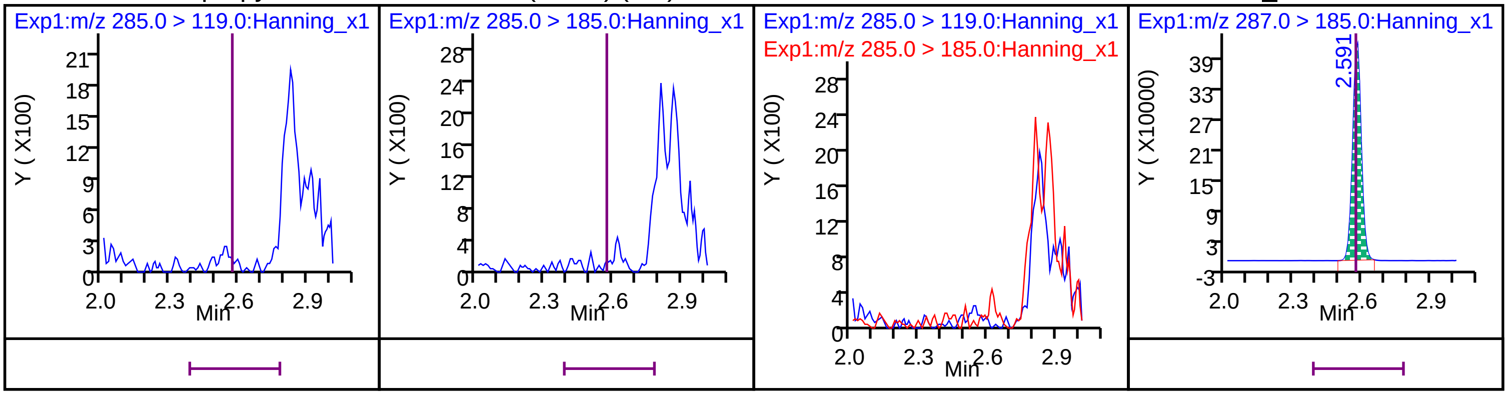


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

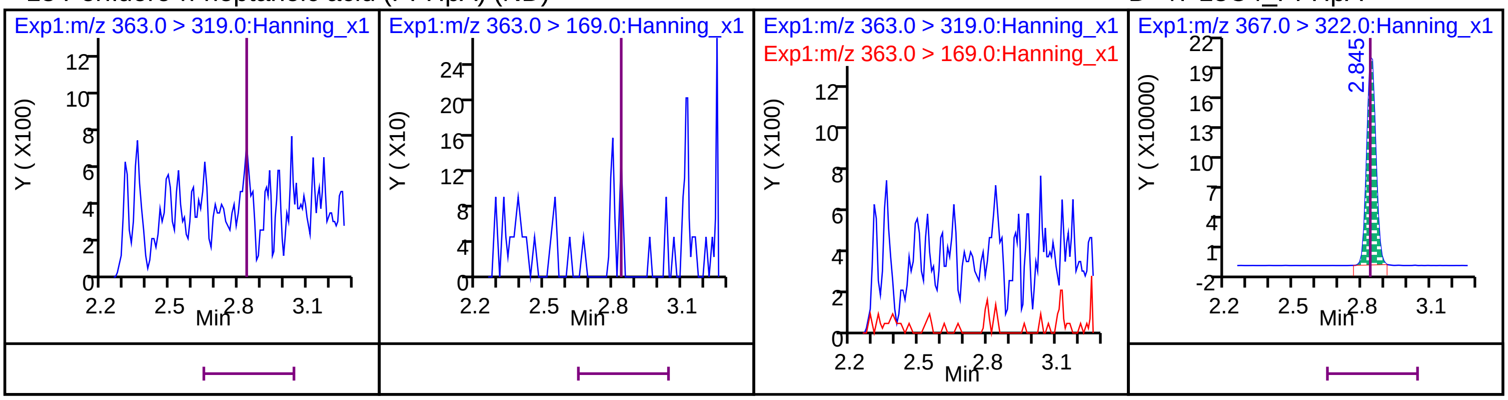


Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d

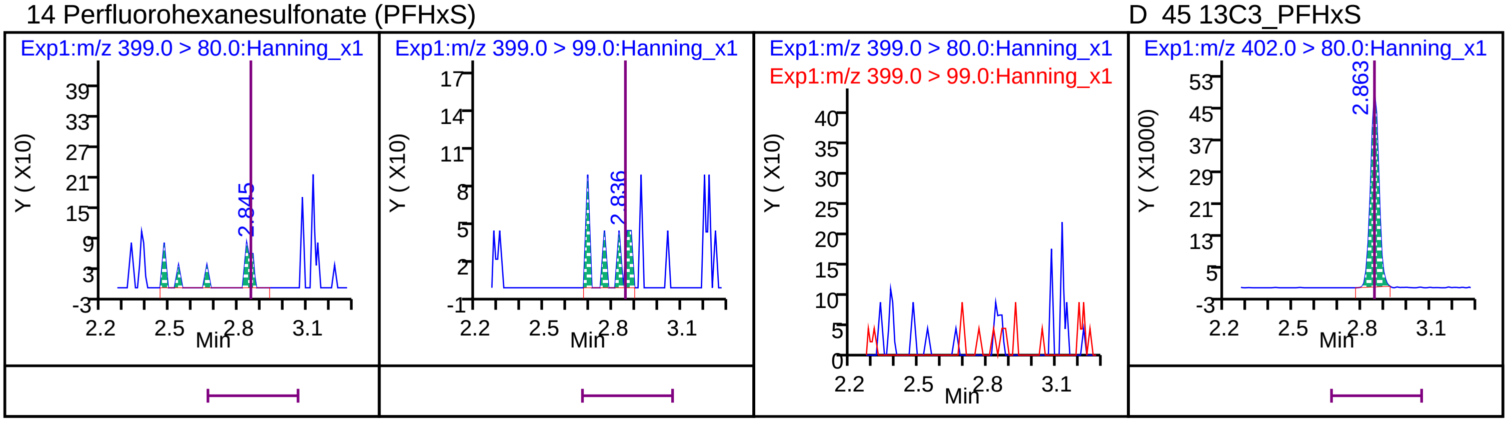
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



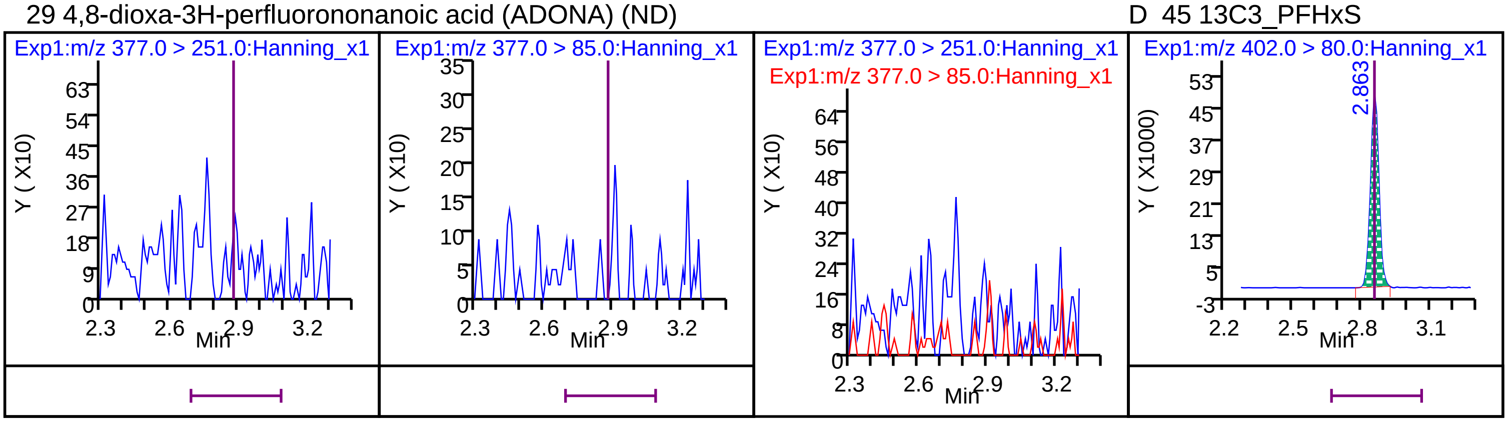
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



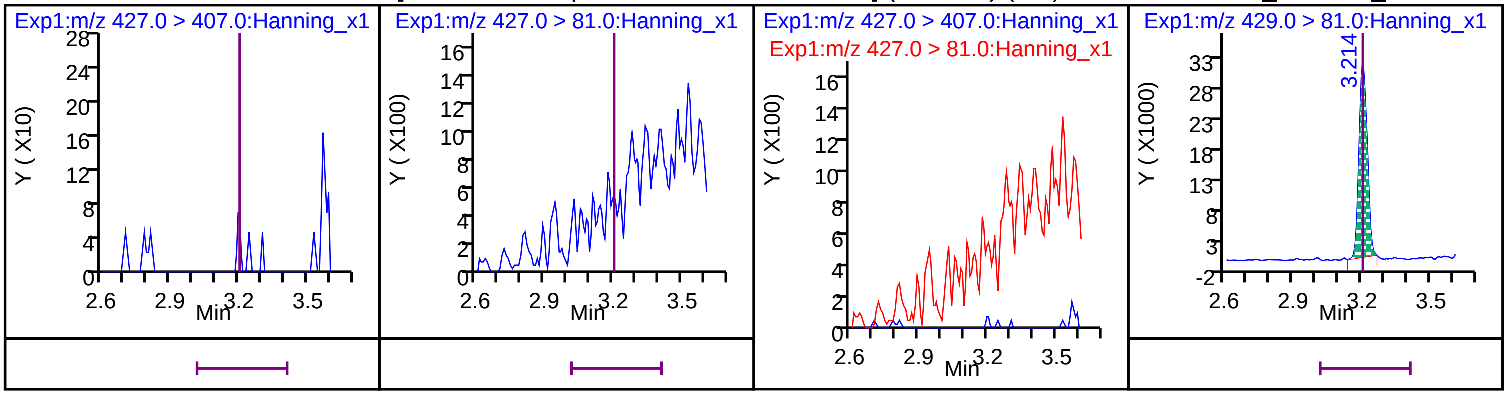
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



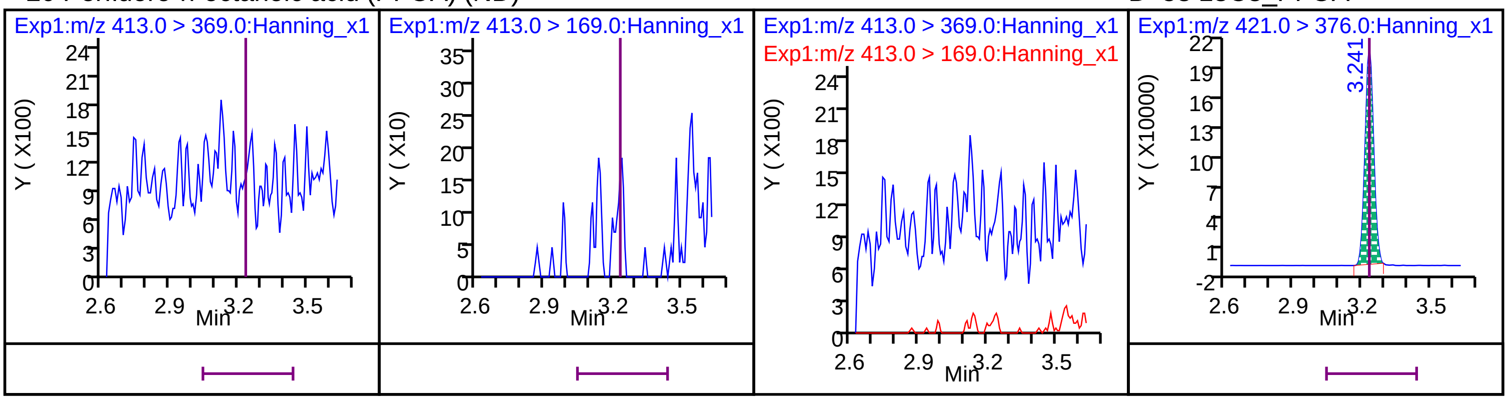
Report Date: 15-Nov-2021 10:46:16 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d

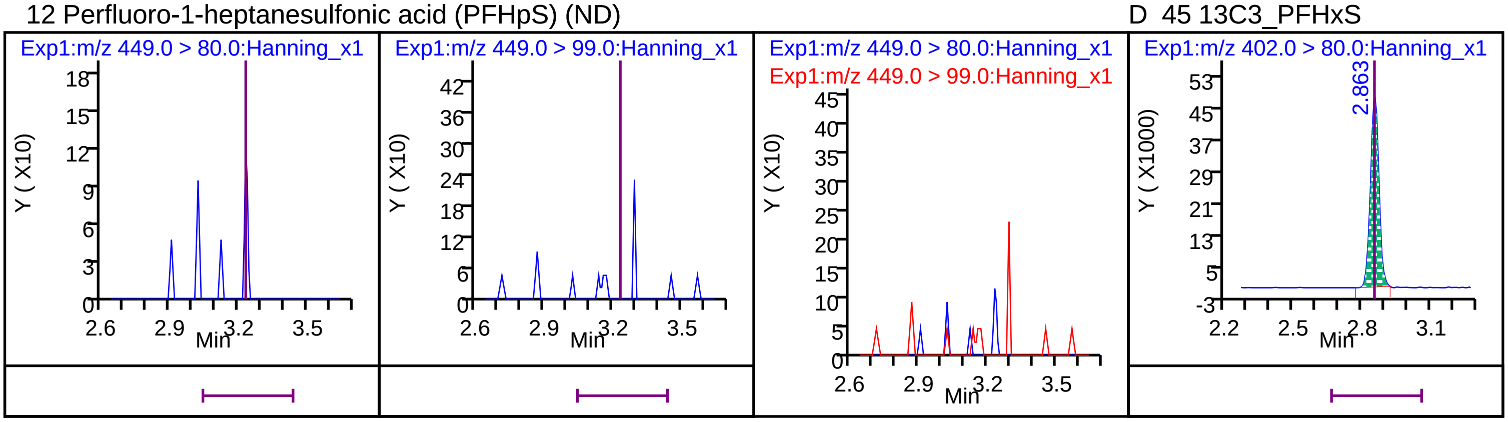
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



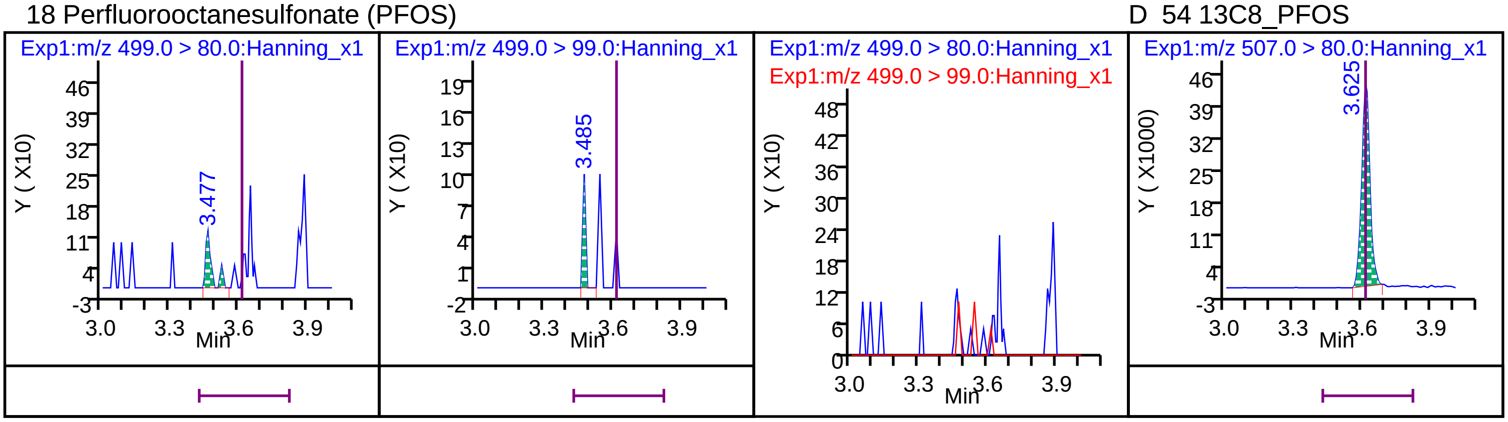
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



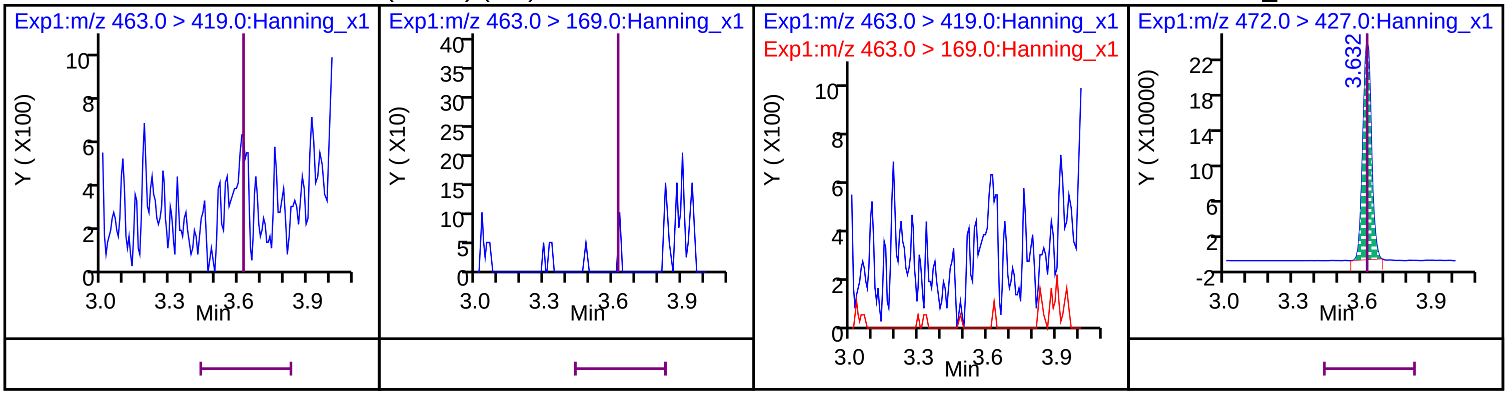
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



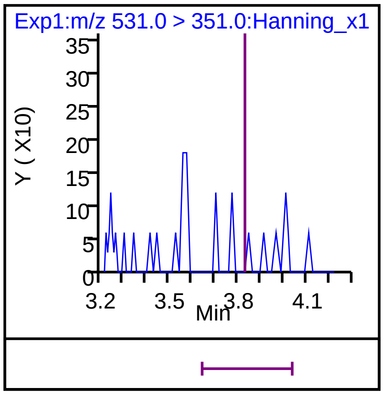
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

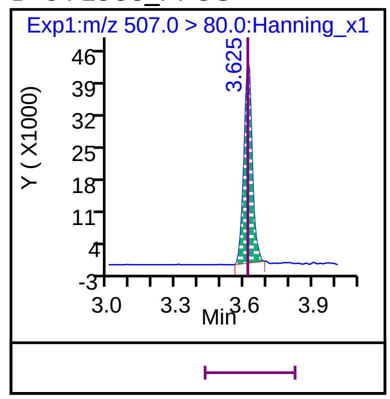


17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA

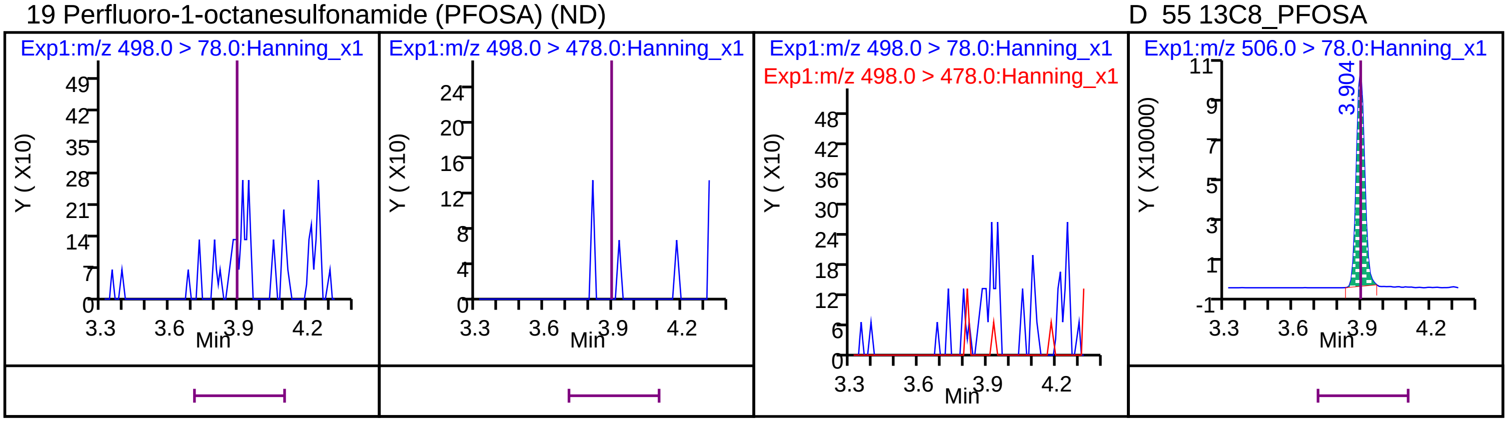


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS

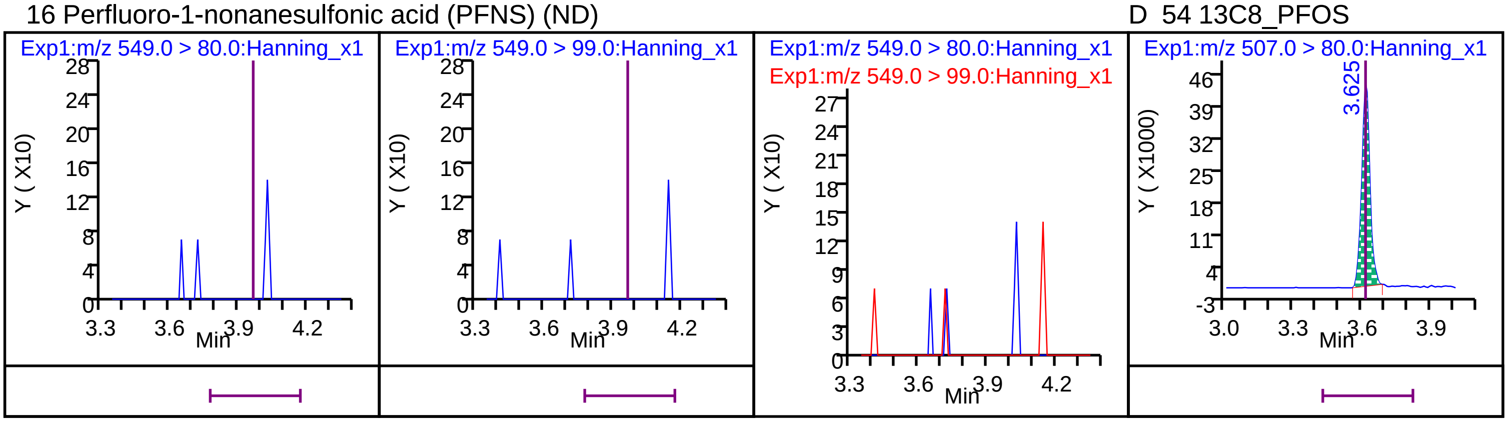




19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



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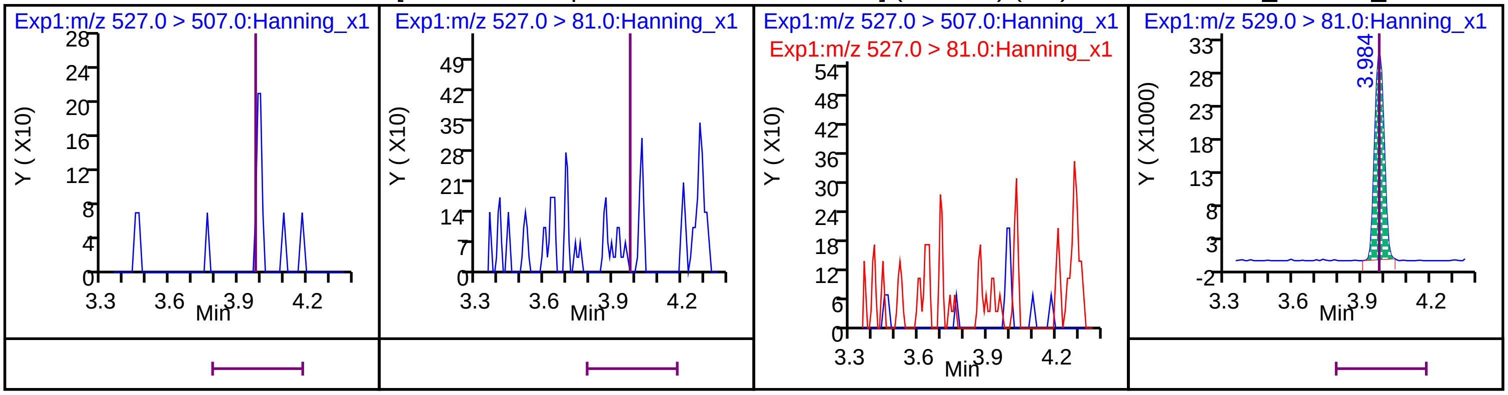
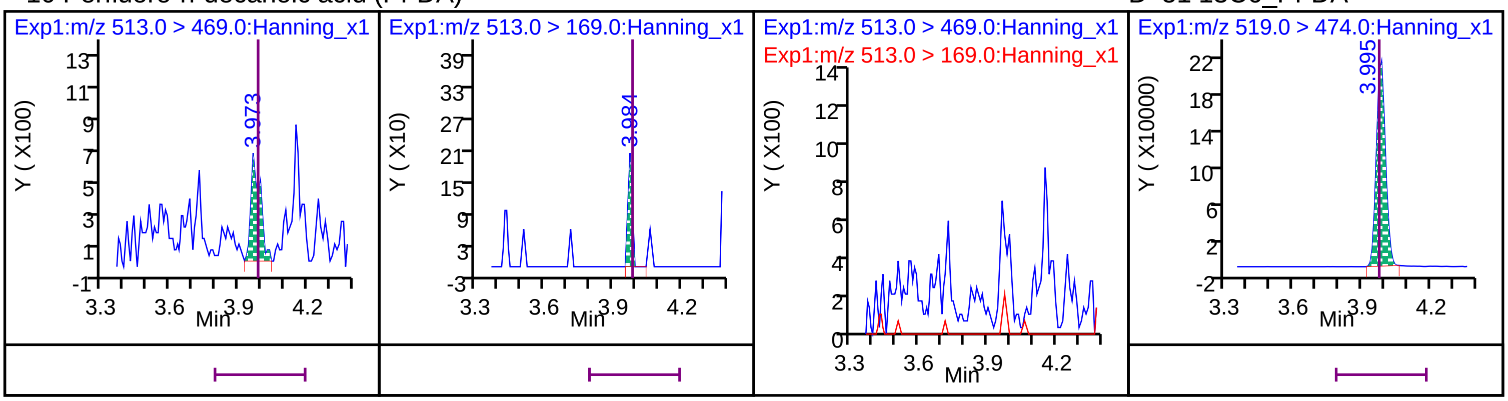
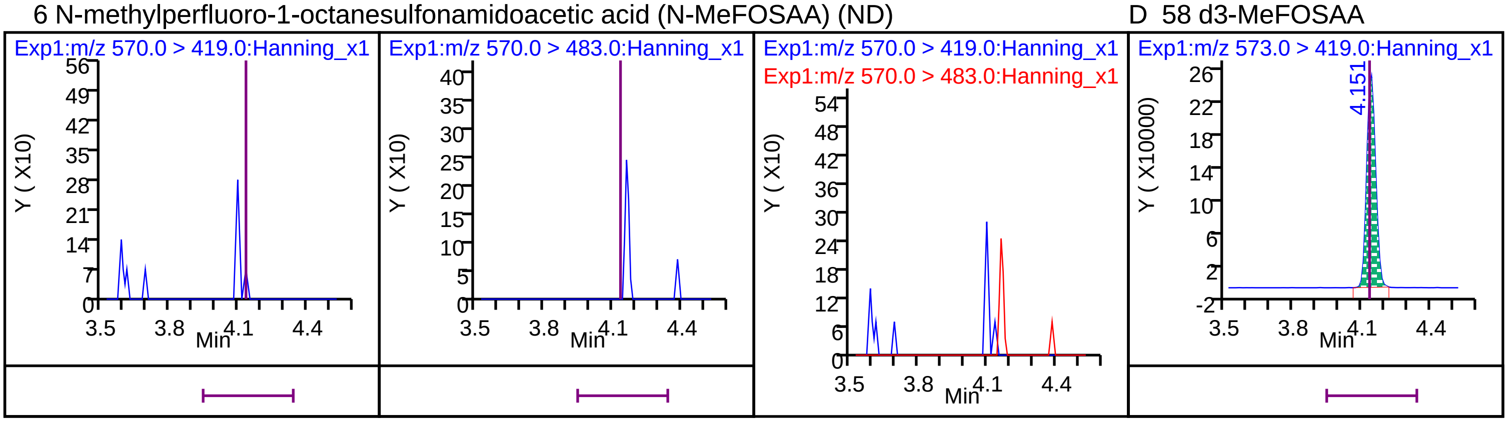
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

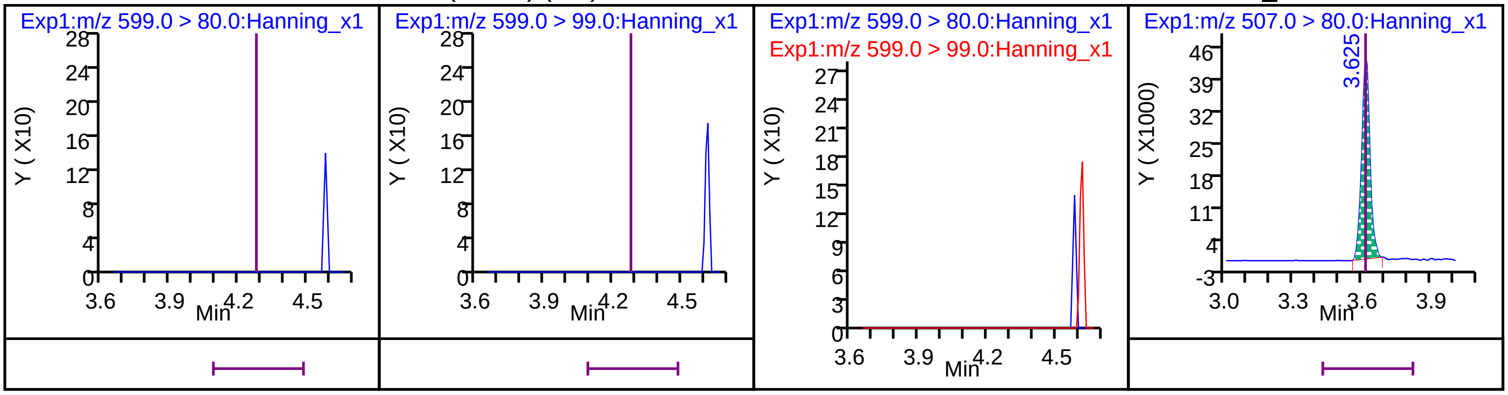


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA

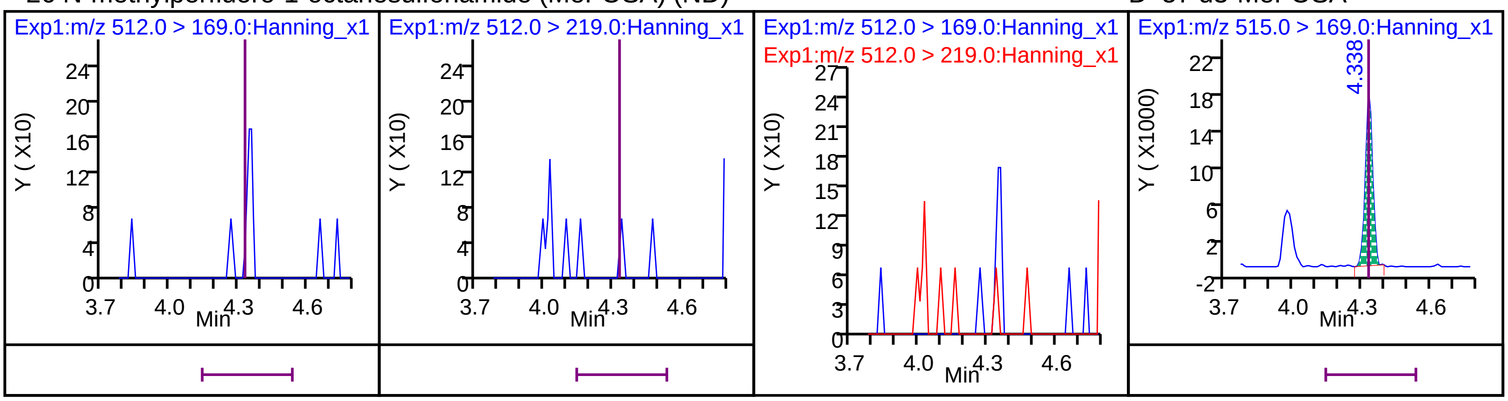


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

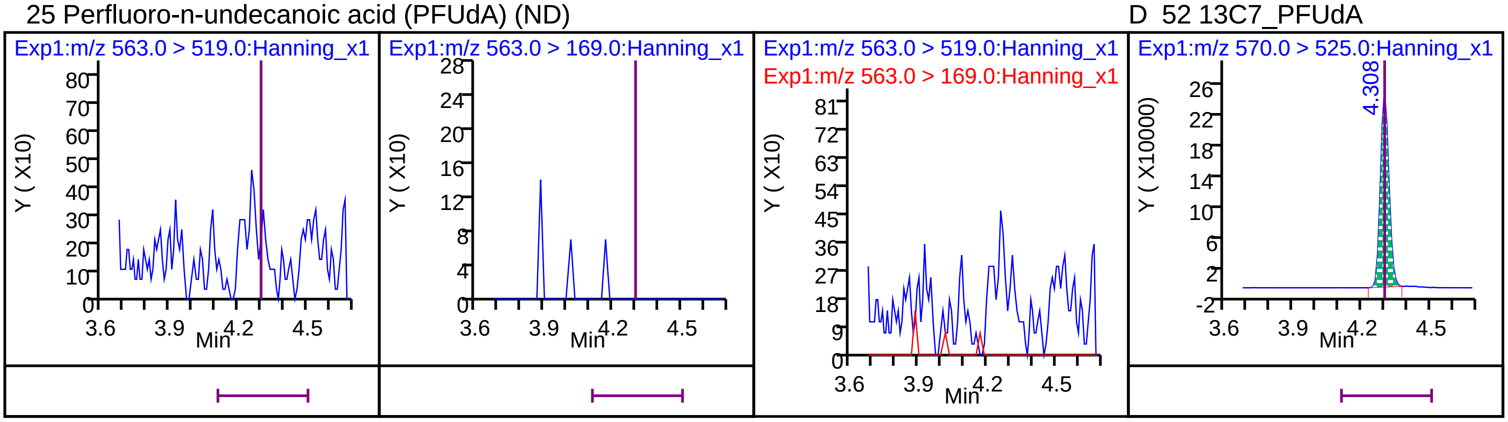
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



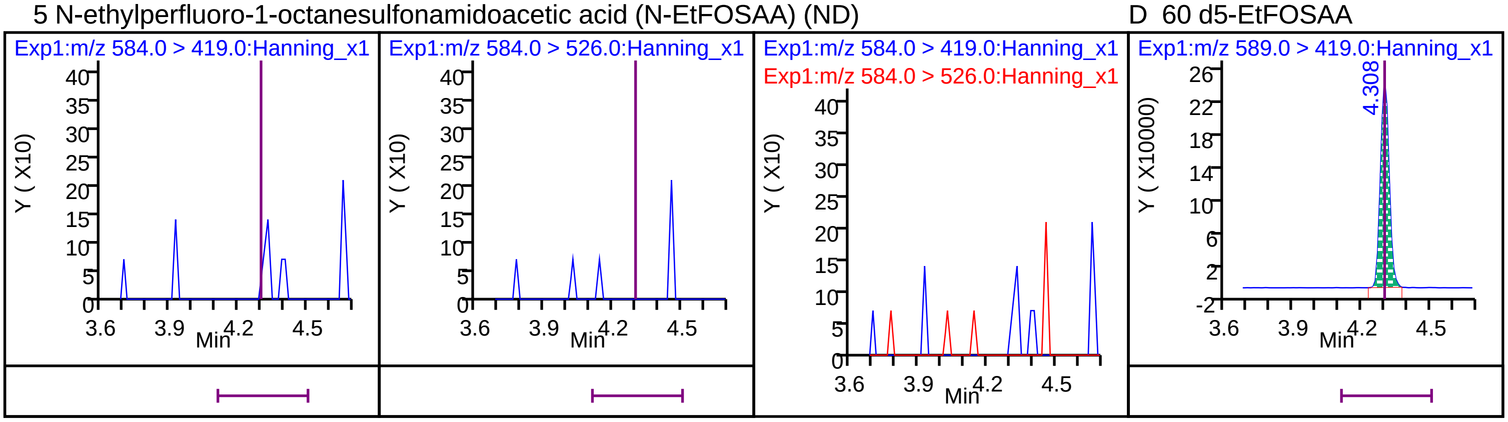
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



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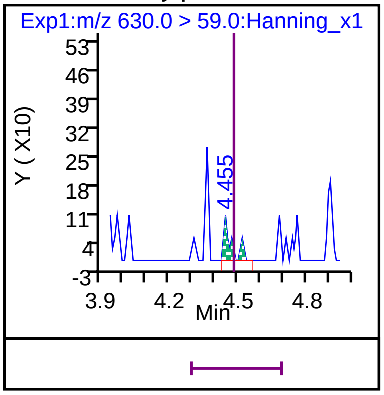
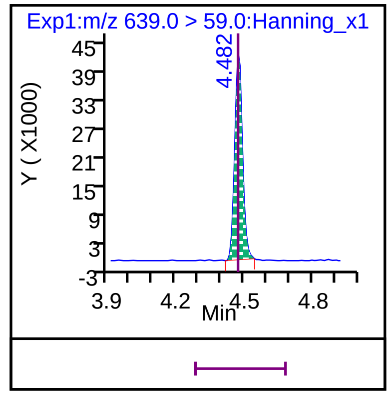
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d

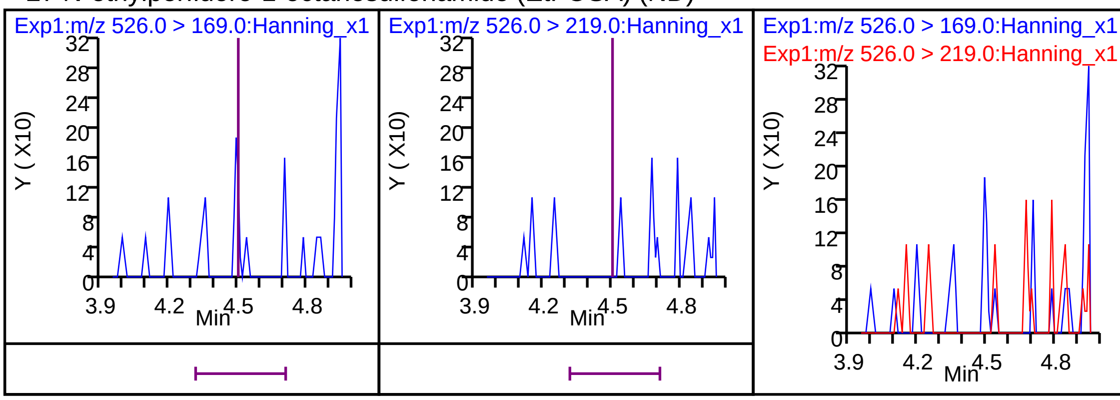
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



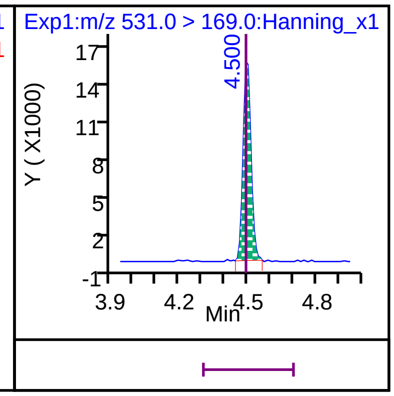
D 62 d9-EtFOSE



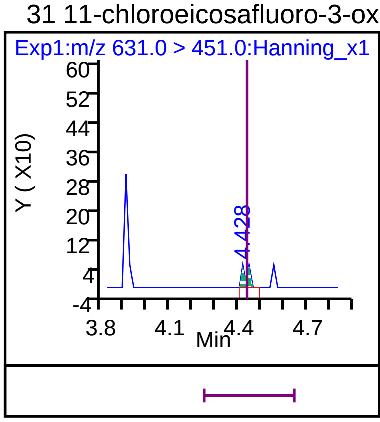
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



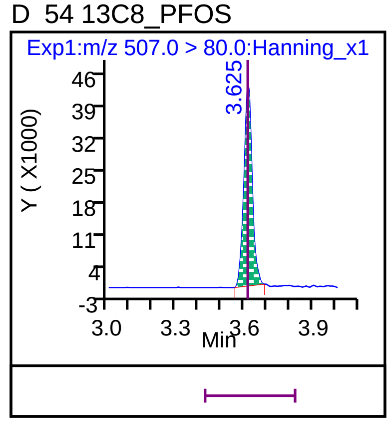
D 59 d5-EtFOSA



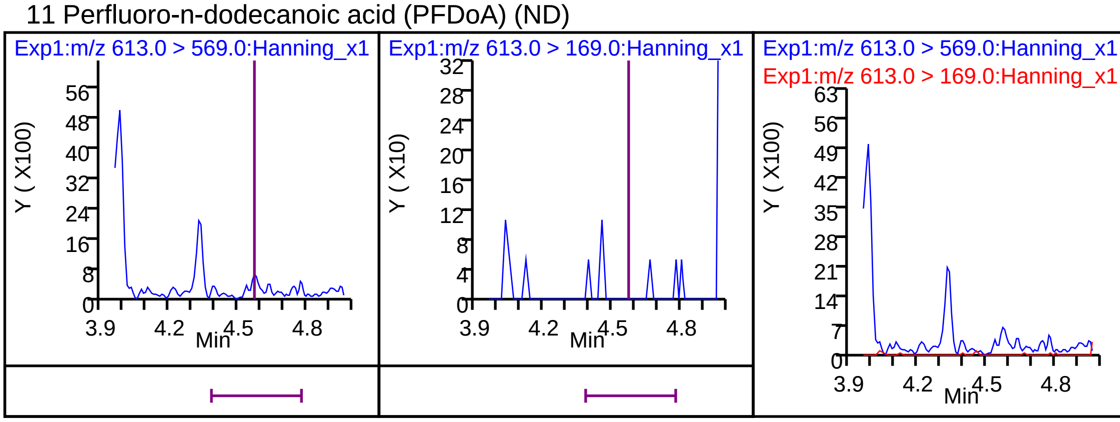
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



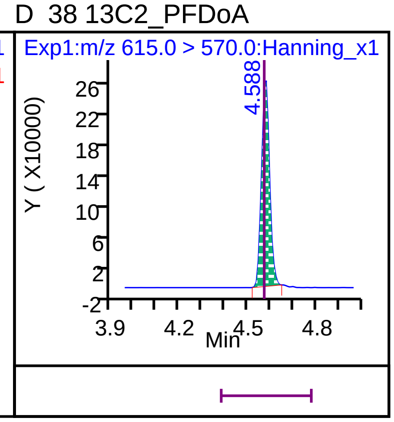
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



D 38 13C2_PFDoA



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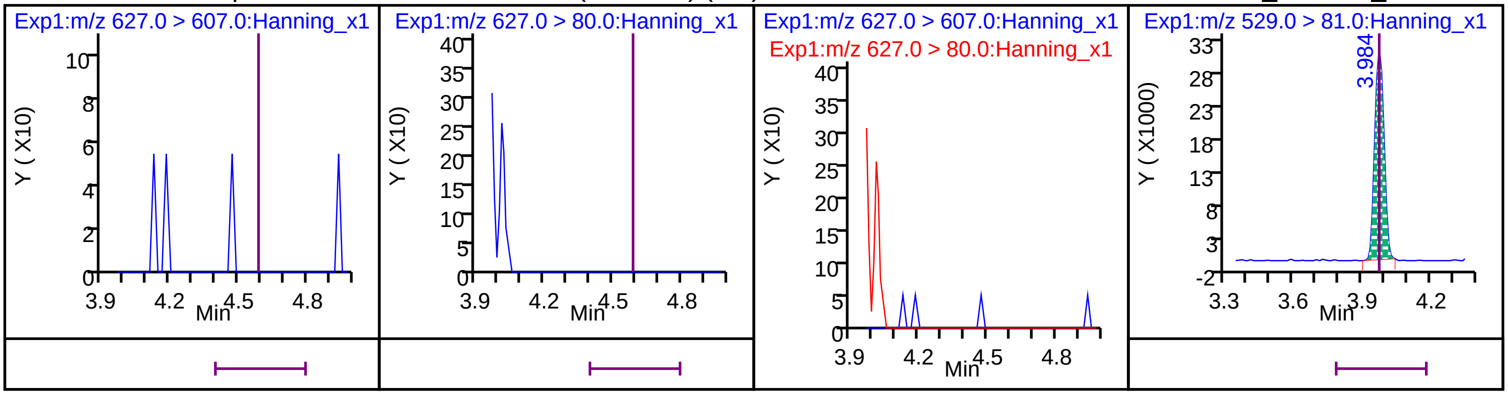
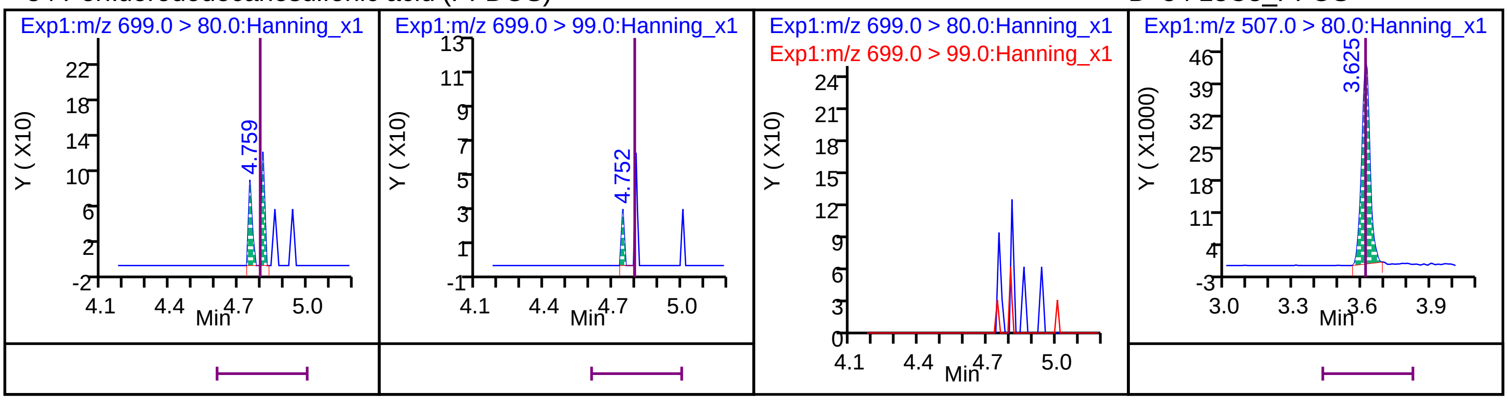
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221007.d

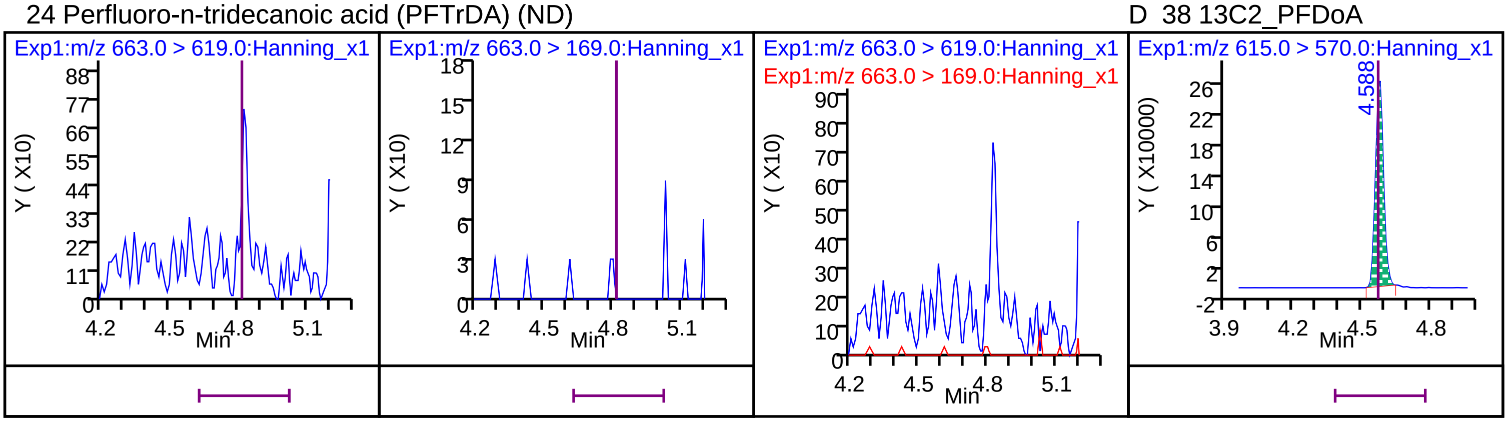
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



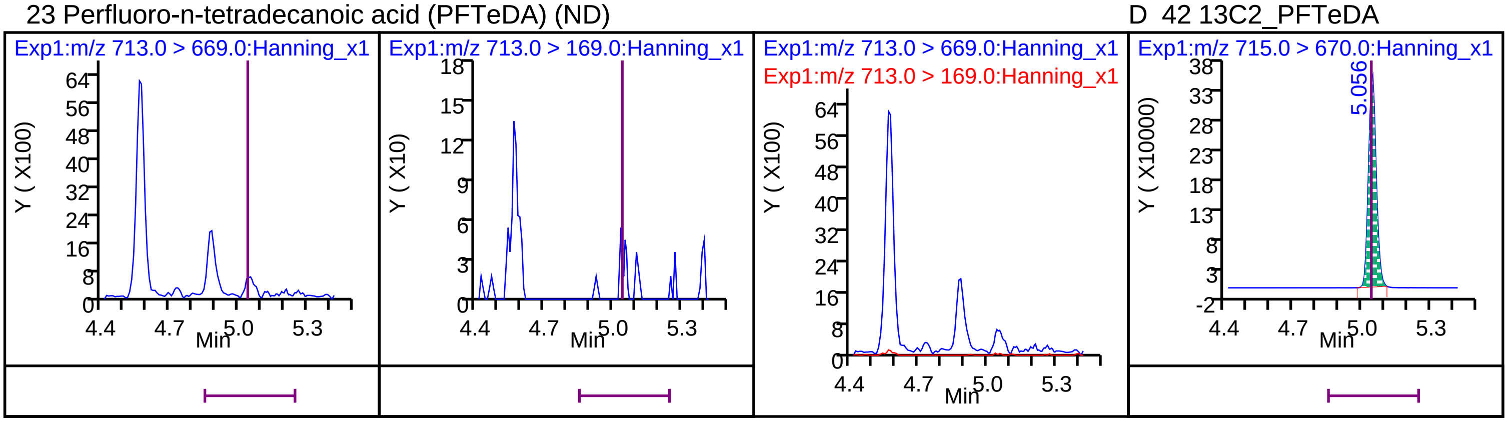
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



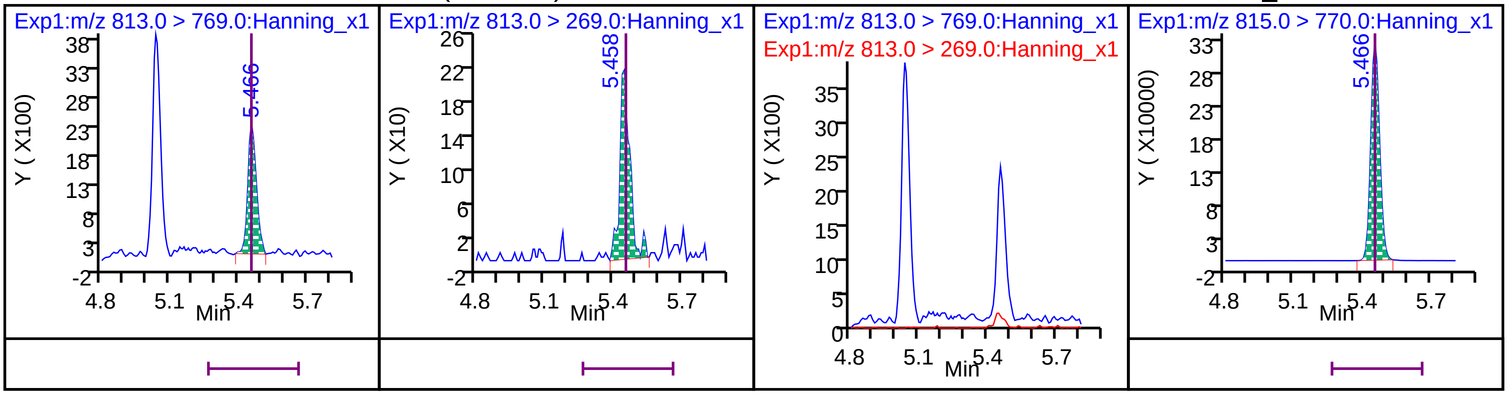
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



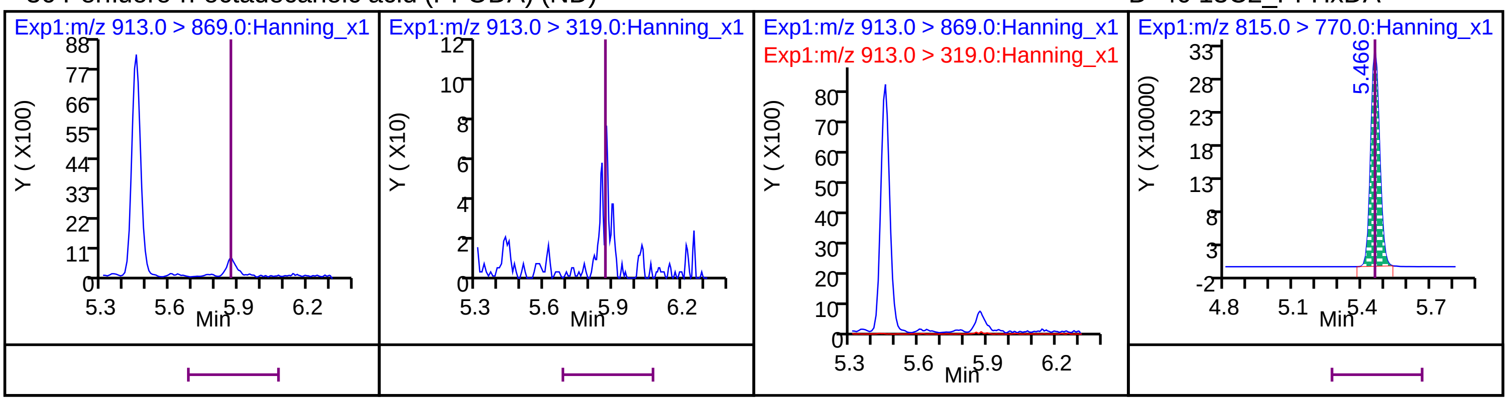
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



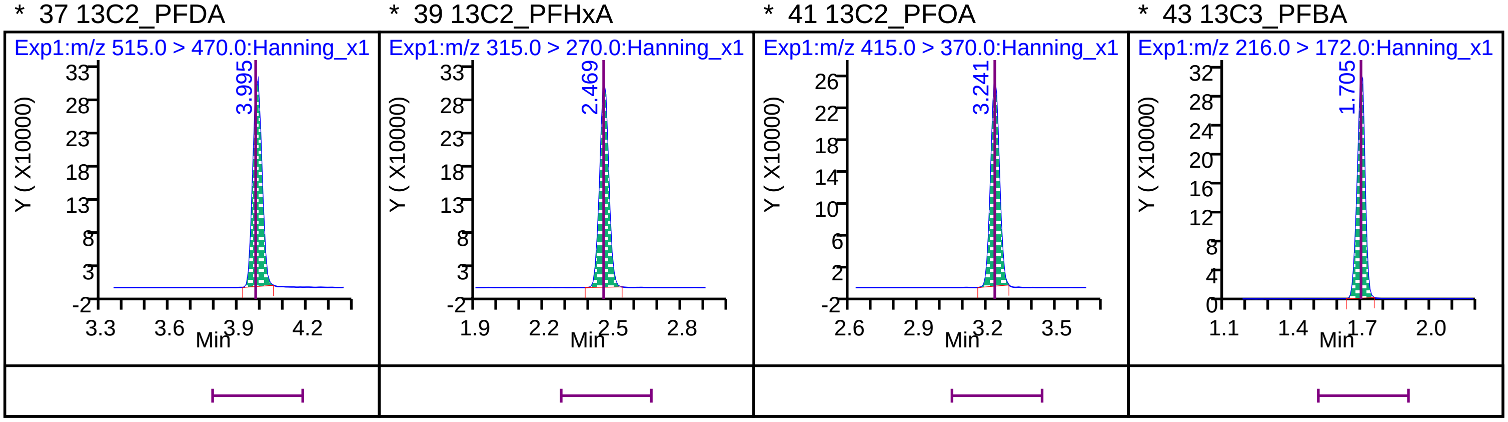
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



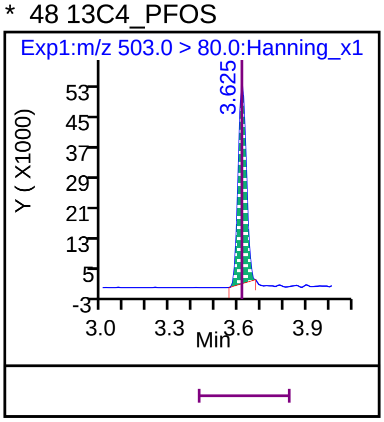
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521007.d		
Injection Date:	15-Nov-2021 13:25:53	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	744205	21	>100:1			1001.00	1197.10	105.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	1	674582	16	>100:1			1001.00	1180.18	109.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.109		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.162	1	186200	16	>100:1			1001.00	1076.49	102.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.522		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.451	0	135344	18	>100:1			5005.00	5977.11	111.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.487	1	783982	18	>100:1			1001.00	1203.74	106	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.487		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.606	1	1309792	20	>100:1			5005.00	5651.59	99.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.606		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.872	1	643384	19	>100:1			1001.00	1211.79	106.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.872		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.889	2.888	1	146567	18	>100:1			1001.00	1166.57	109.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.918		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.286		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.247	3.246	1	103260	20	>100:1			5005.00	5736.68	100.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.260		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.275	3.274	1	639896	23	>100:1			1001.00	1219.60	101.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.280		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.661	3.661	1	135178	22	>100:1			1001.00	1091.53	98.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.655		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.877		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.023		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.324		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.497		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.849		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.666	3.666	1	767301	23	>100:1			1001.00	1198.20	103.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.672		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.910	3.910	1	298868	18	>100:1			1001.00	1114.94	103.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.910		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.025	4.032	0	725815	16	>100:1			1001.00	1263.03	99.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.032		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.025	4.023	1	113360	15	>100:1			5005.00	6558.48	107.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.032		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.644		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.185	4.193	0	903546	17	>100:1			5005.00	5979.29	106	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.193		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.316	4.314	1	101568	15	>100:1			1001.00	1126.17	107.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.335		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.336	4.335	1	51964	13	>100:1			1001.00	1104.65	111.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.344		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.346	4.354	0	824236	17	>100:1			5005.00	6364.11	106.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.363		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.346	4.354	0	748791	15	>100:1			1001.00	1243.32	101.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.354		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.480	4.479	1	118131	24	>100:1			1001.00	1113.63	114.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.488		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.499	4.497	1	50230	16	>100:1			1001.00	1168.14	116.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.506		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.620	4.628	0	813020	17	>100:1			1001.00	1354.27	102.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.628		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.883		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.104	5.110	0	989264	21	>100:1			1001.00	1216.82	94.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.110		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.547	0	1059842	21	>100:1			1001.00	1220.97	104.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.547	0/0	6604	18	28:1	Target = 10.43		9.7390	9.7390		
813 > 269	40	5.539	5.547		742	29	32:1	8.90 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.996		ND								
*** 37 13C2_PFDA**													
515 > 470		4.034	4.032	1	816168	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.487	1	815673	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.275	3.280	0	671845	23	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.718	0	672426	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.661	3.666	0	128666	21	>100:1			200.00			

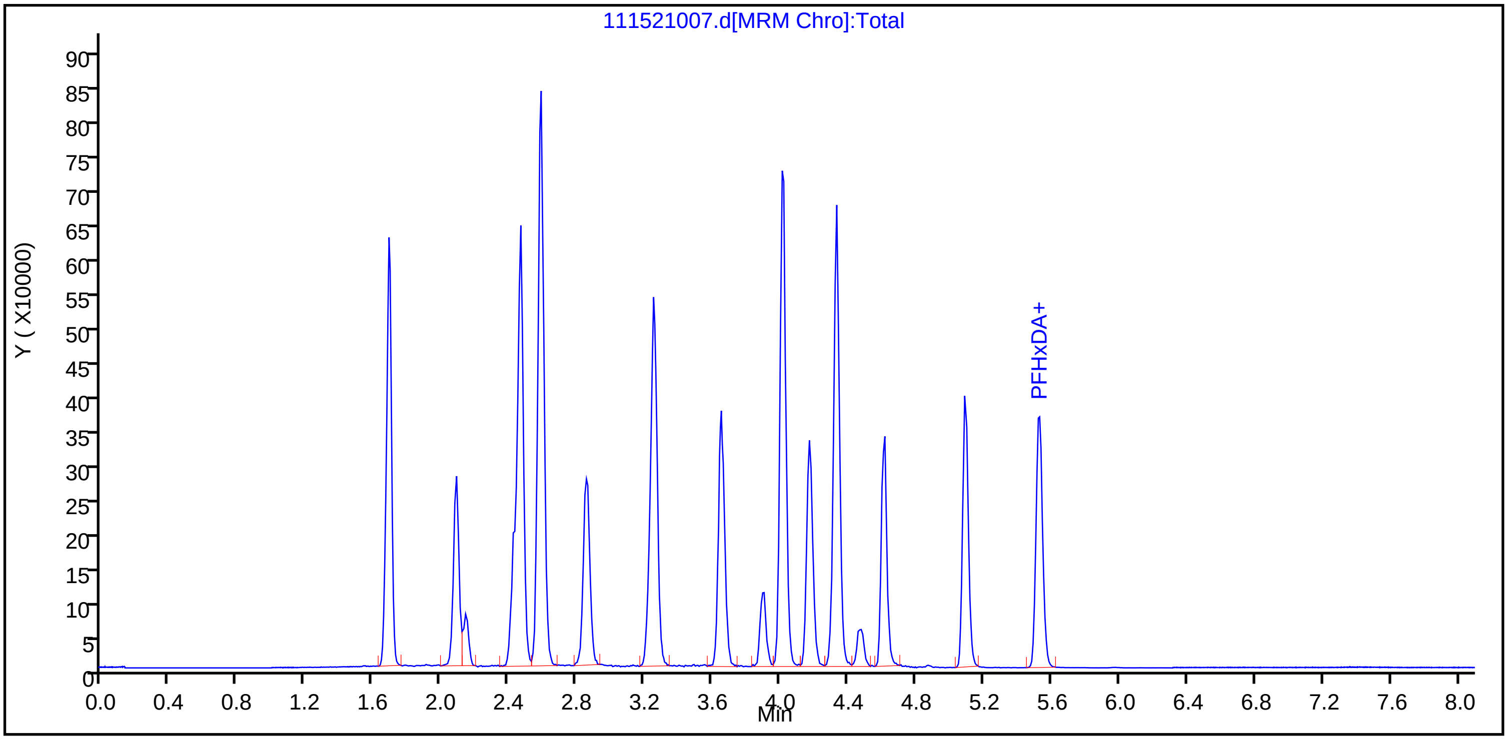
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

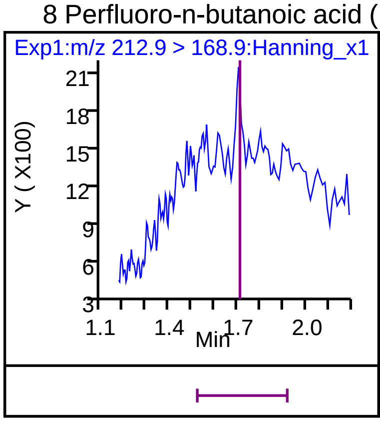
Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

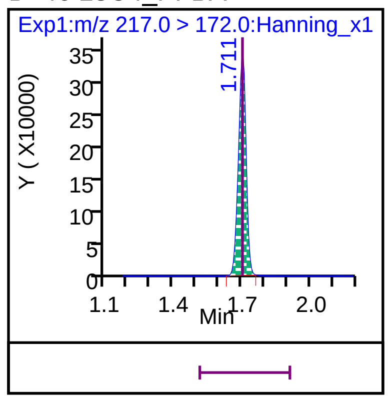
Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521007.d		
Injection Date:	15-Nov-2021 13:25:53	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Justin Gavin



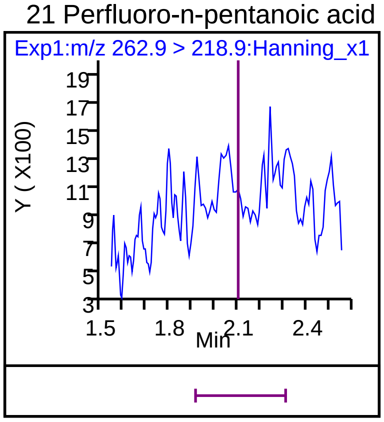
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



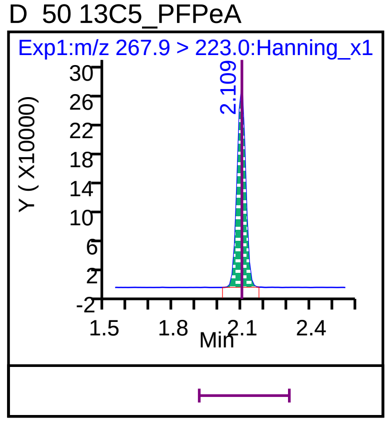
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)

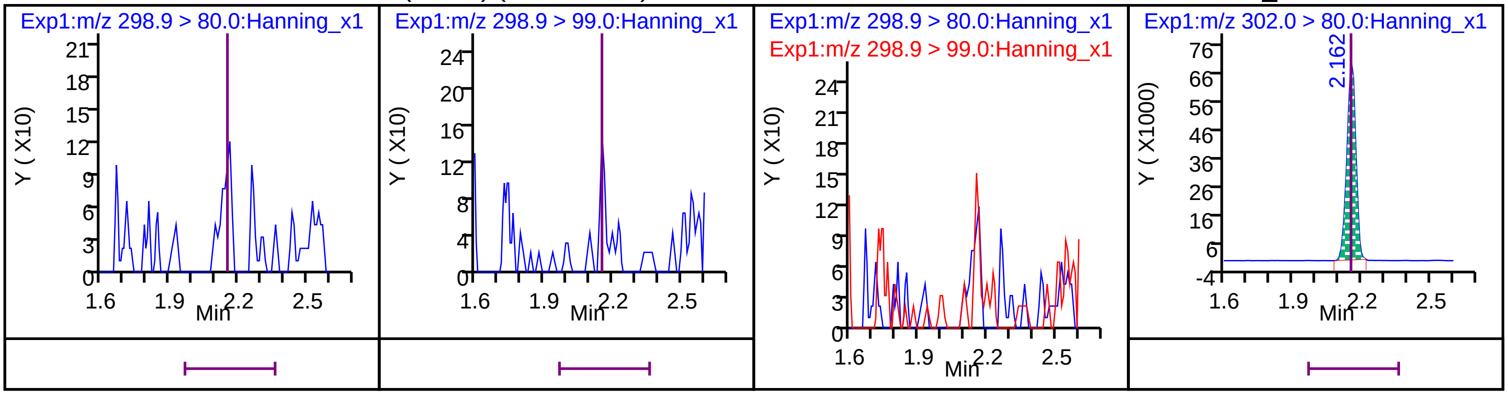


D 50 13C5_PFPeA

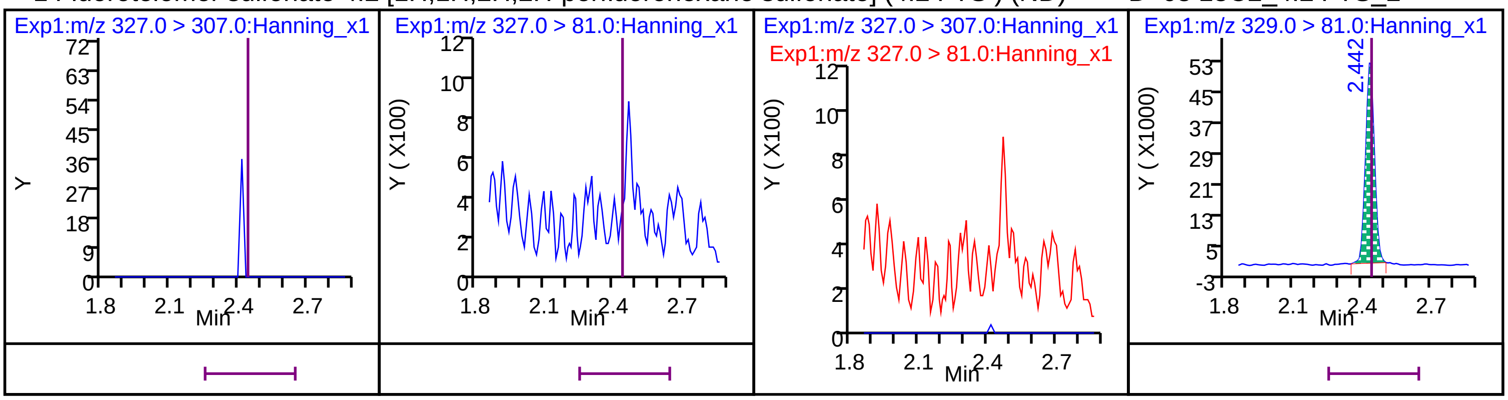


Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521007.d

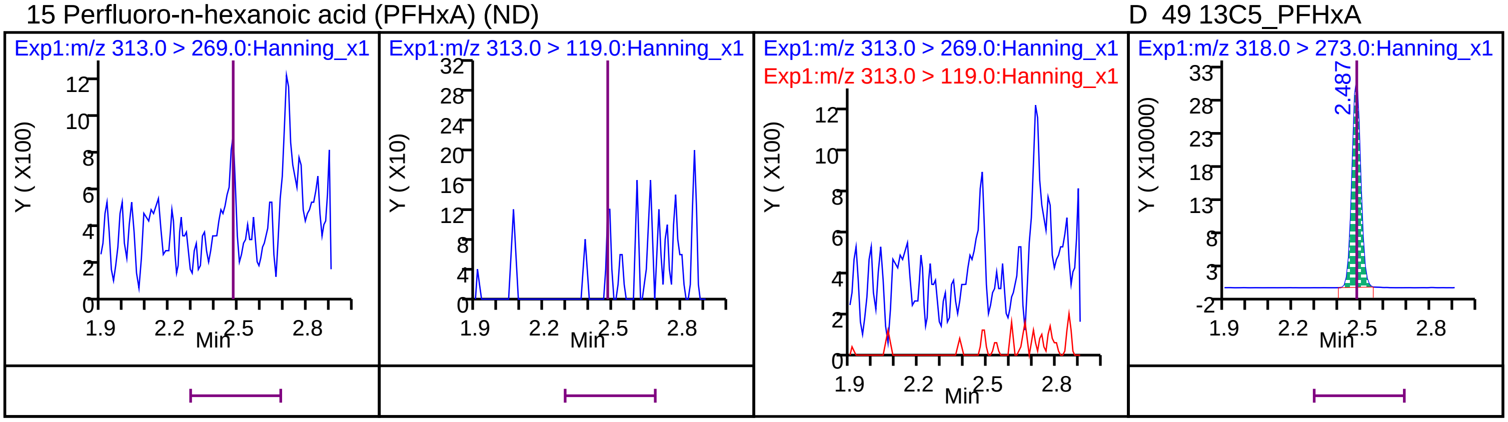
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



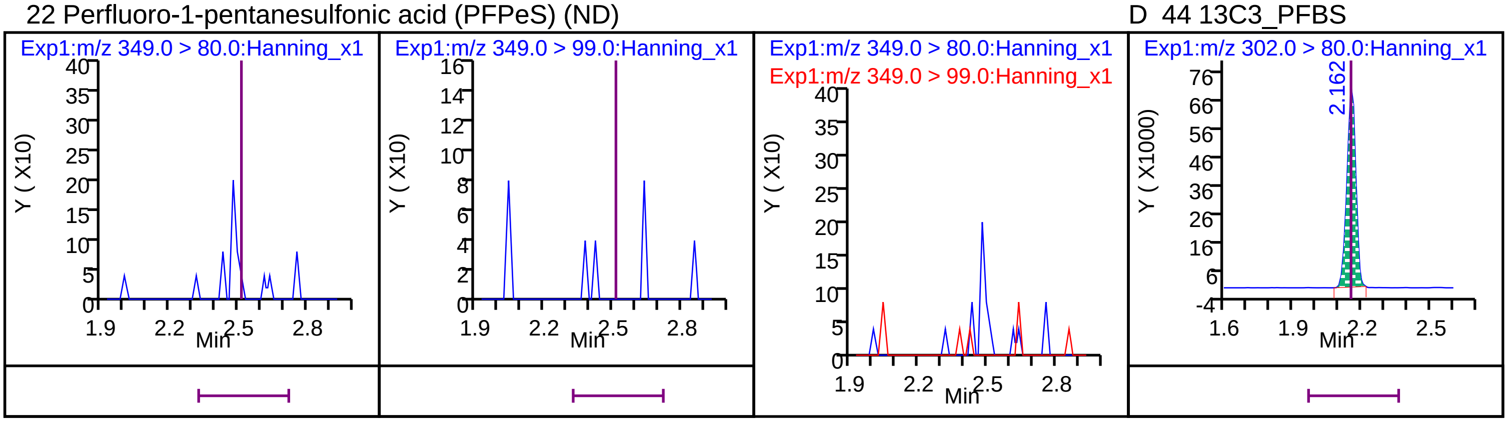
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



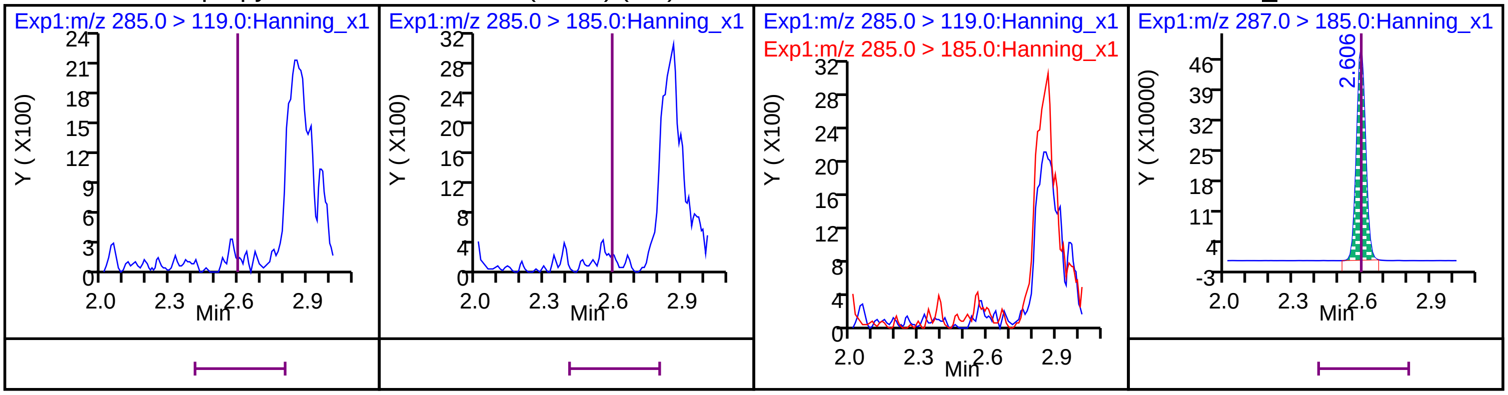
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



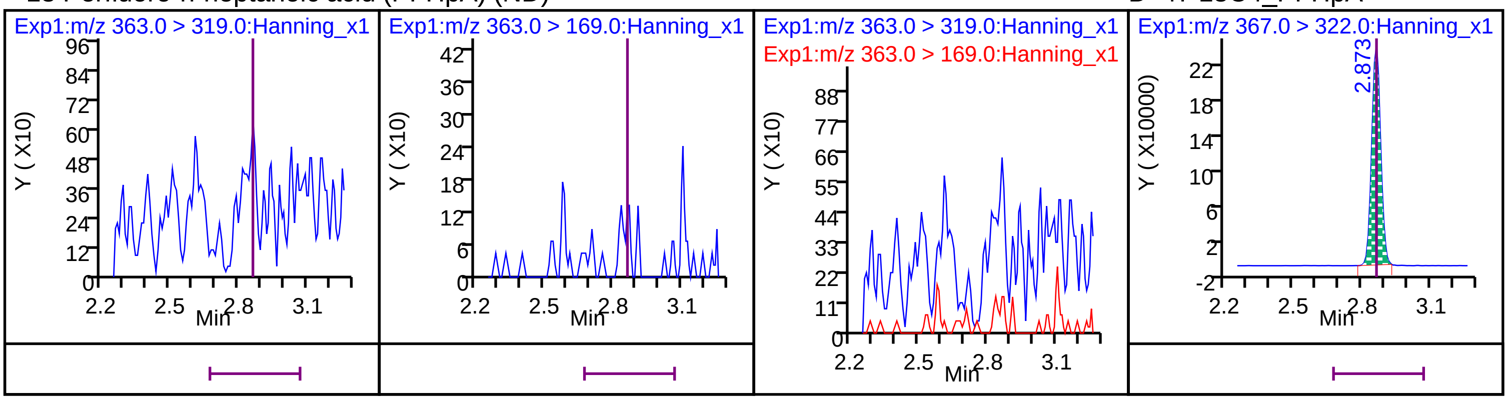
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



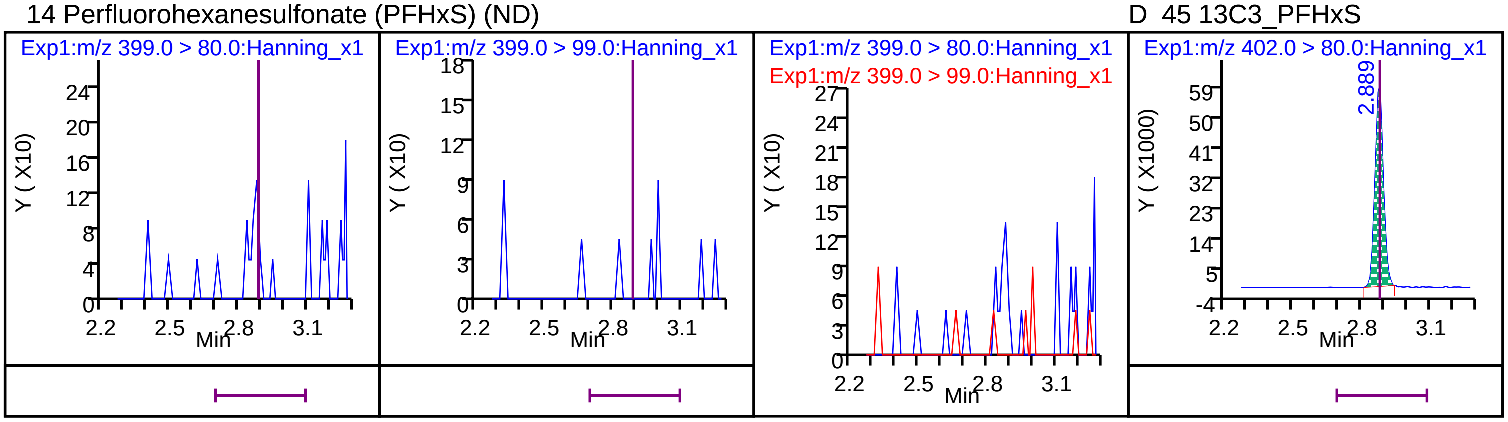
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



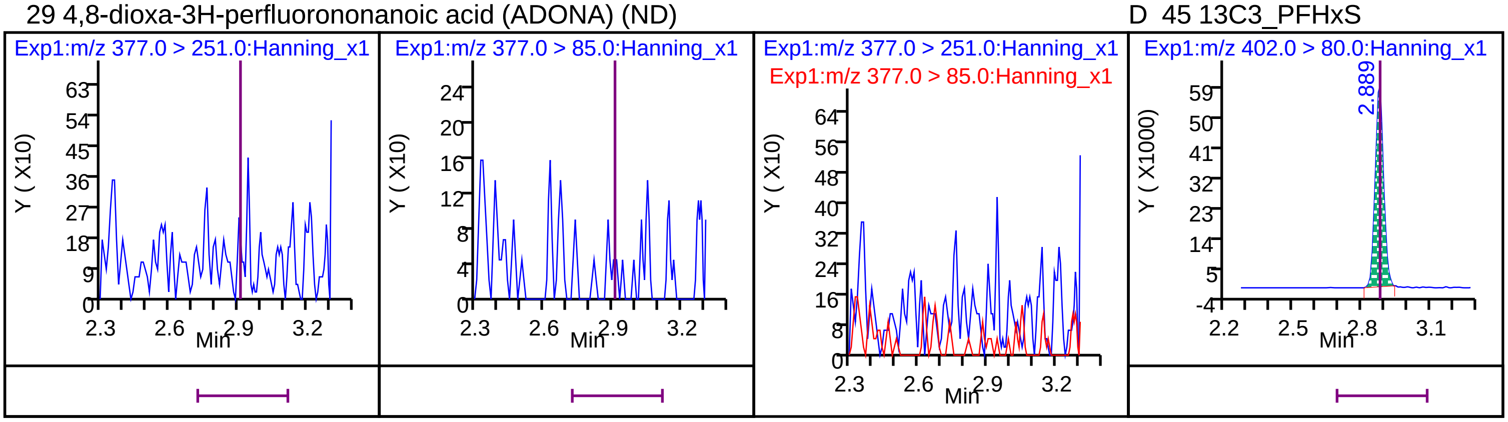
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



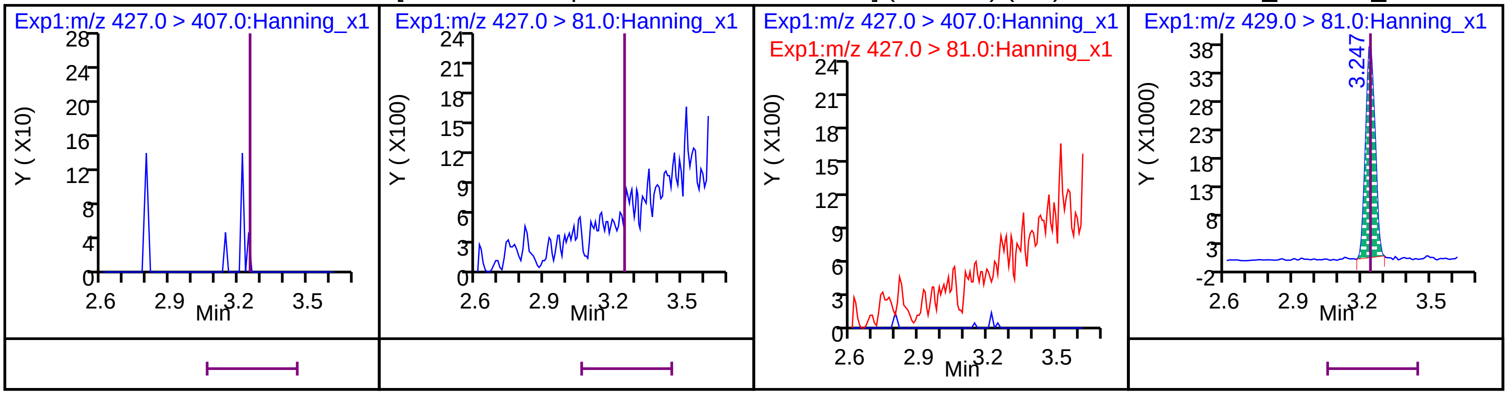
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



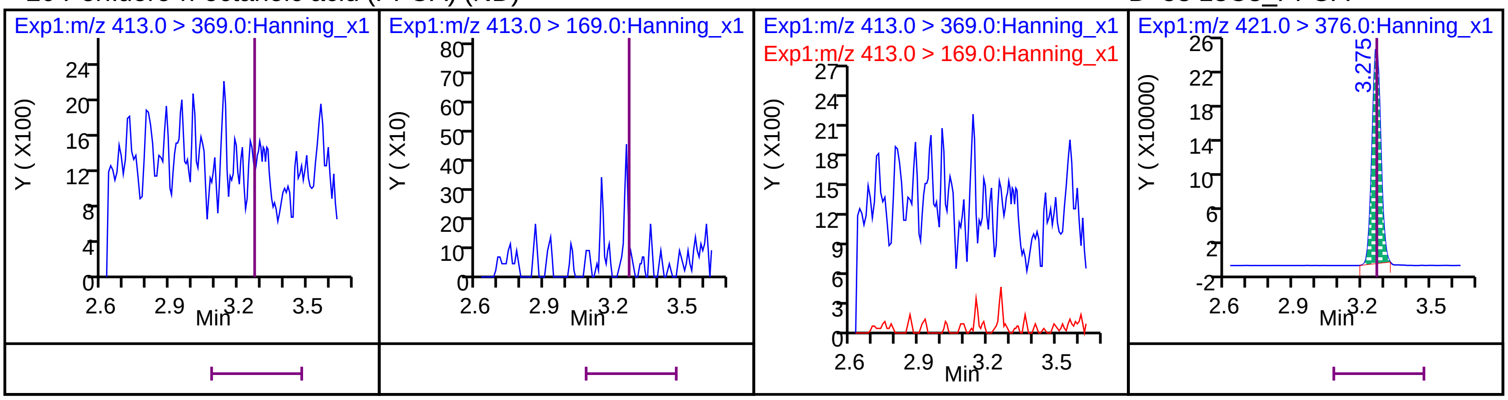
Report Date: 30-Nov-2021 15:07:18 AIM Revision: 2.0.2021.1020

Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521007.d

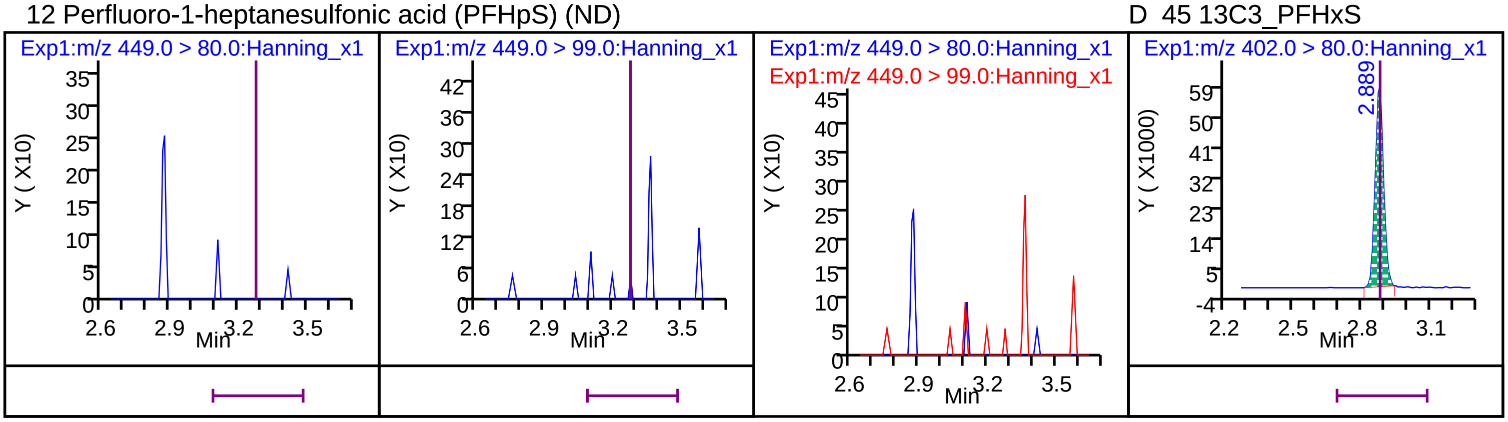
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



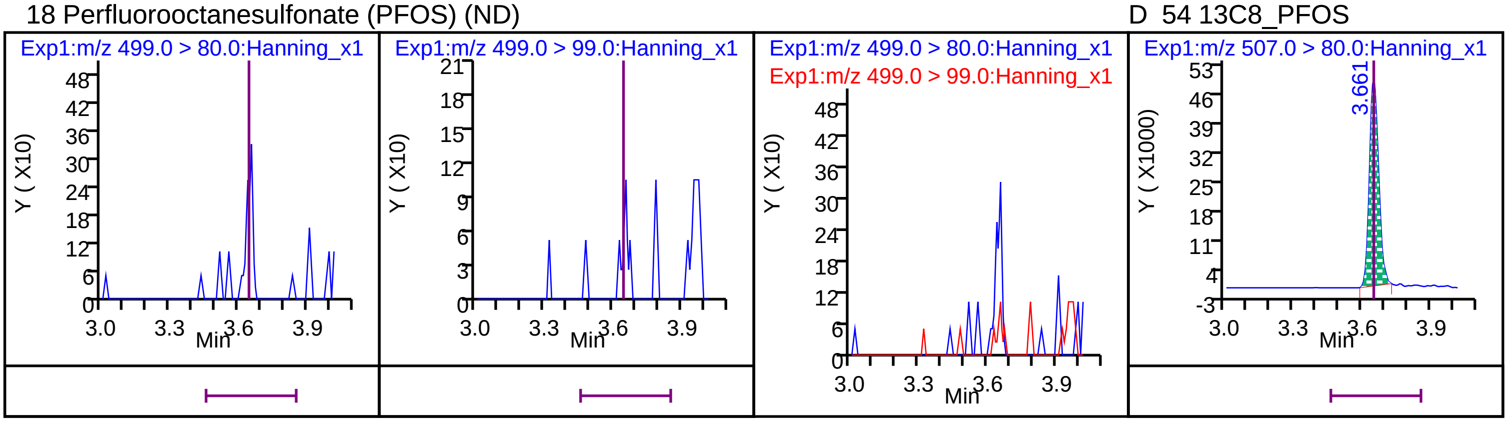
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



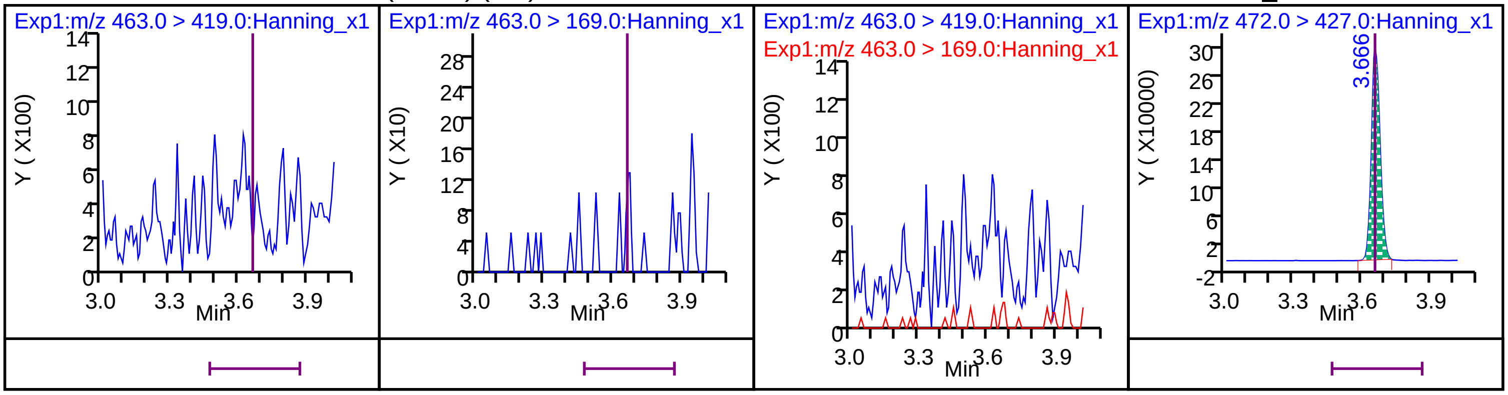
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



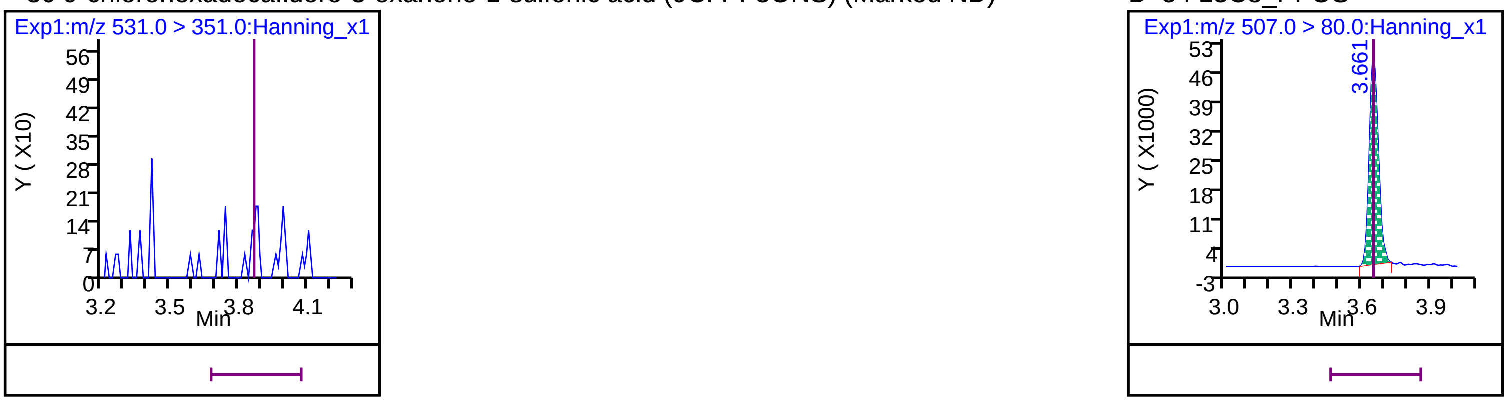
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



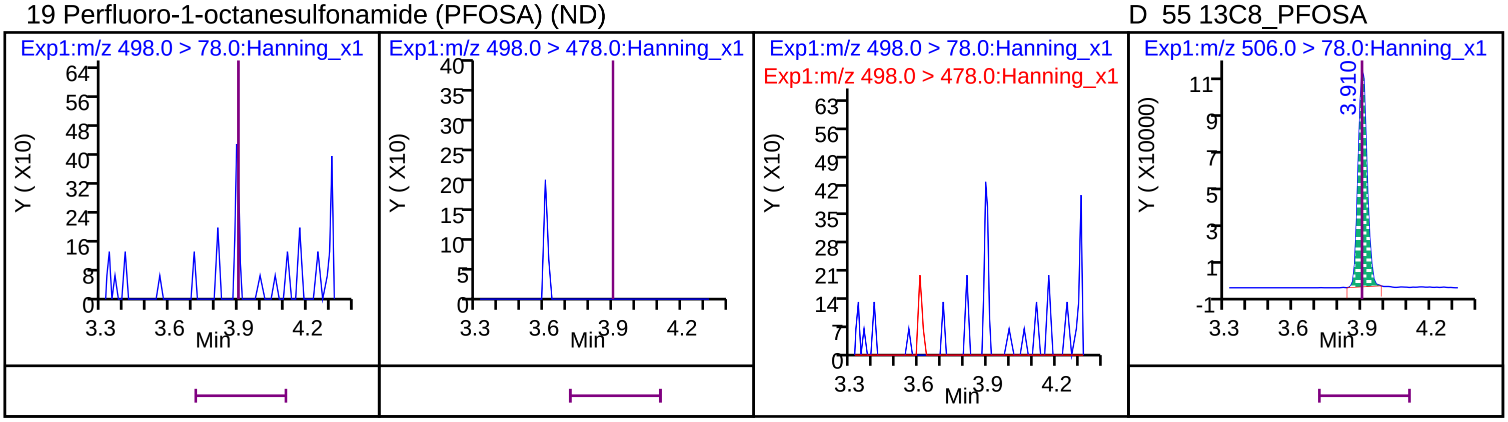
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



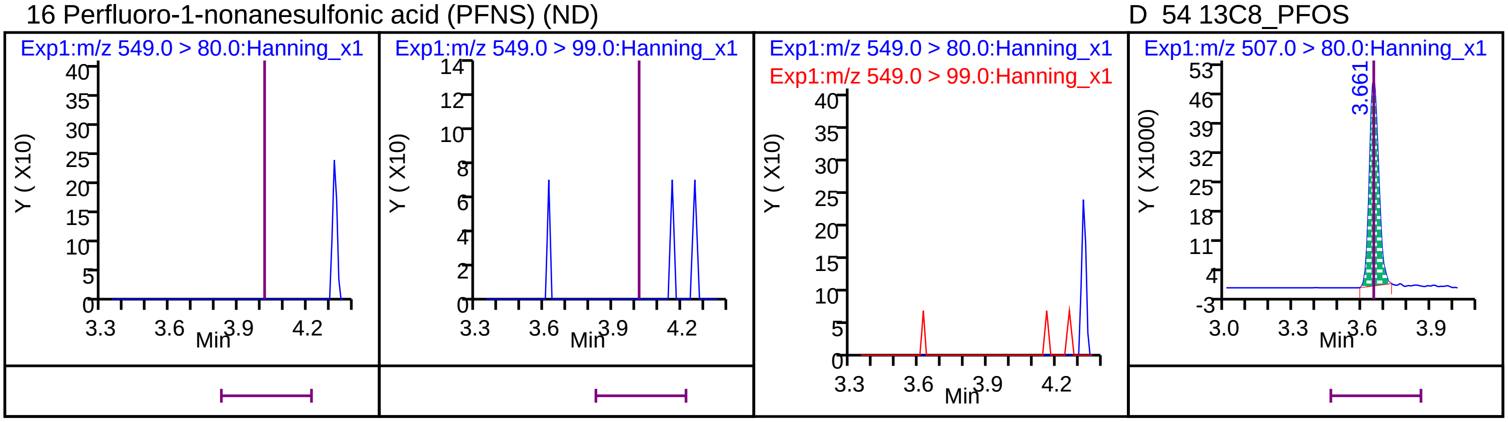
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



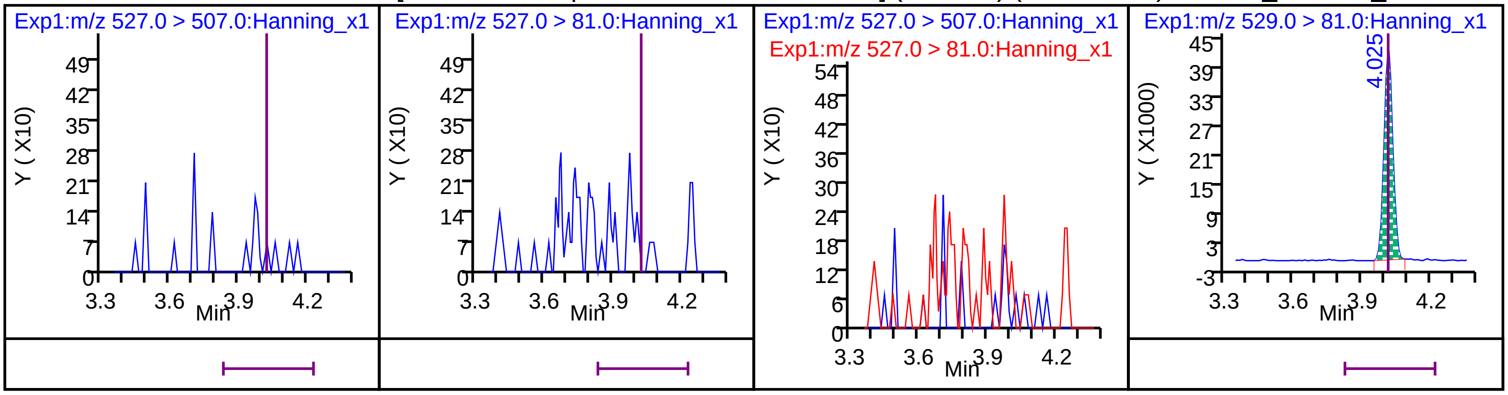
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



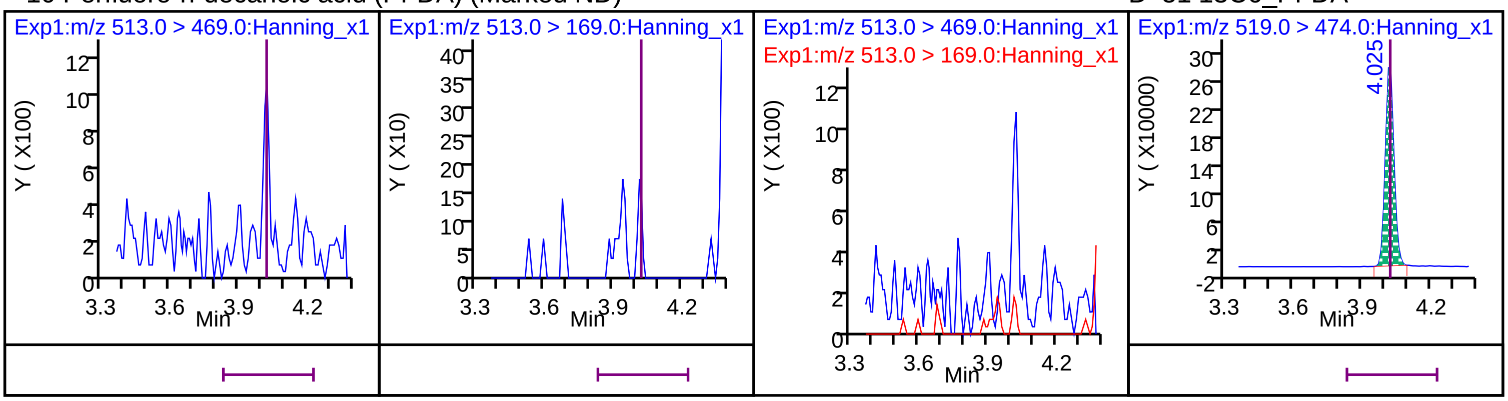
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



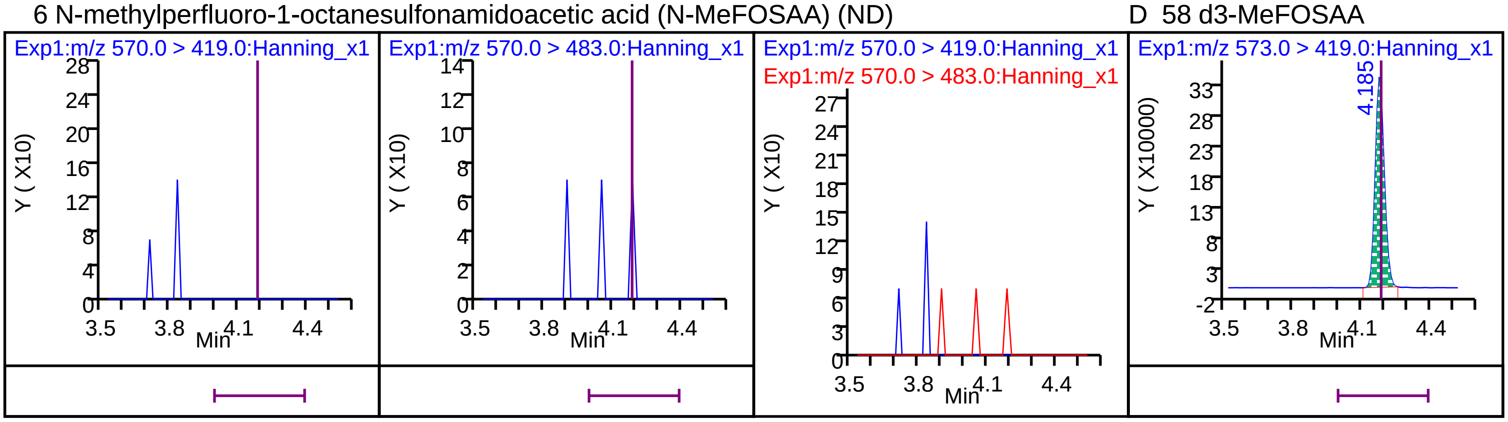
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (Marked ND) D 65 13C2_8:2 FTS_2



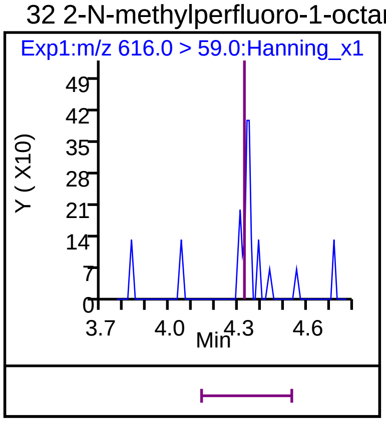
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA

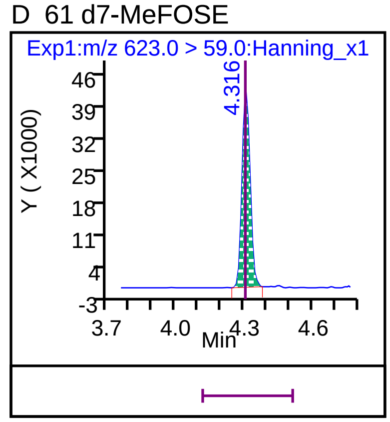


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA

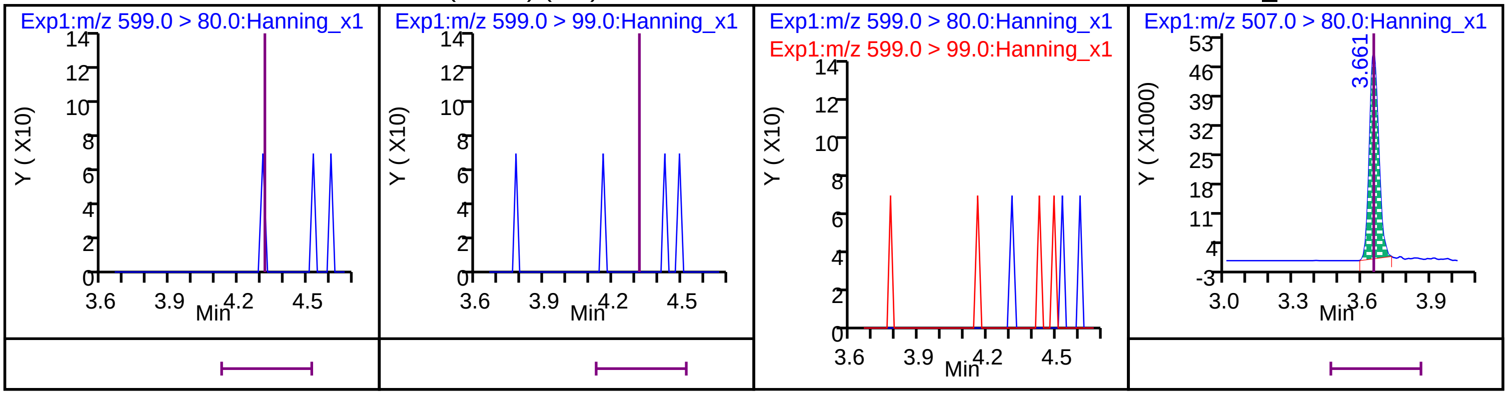


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (ND) D 61 d7-MeFOSE

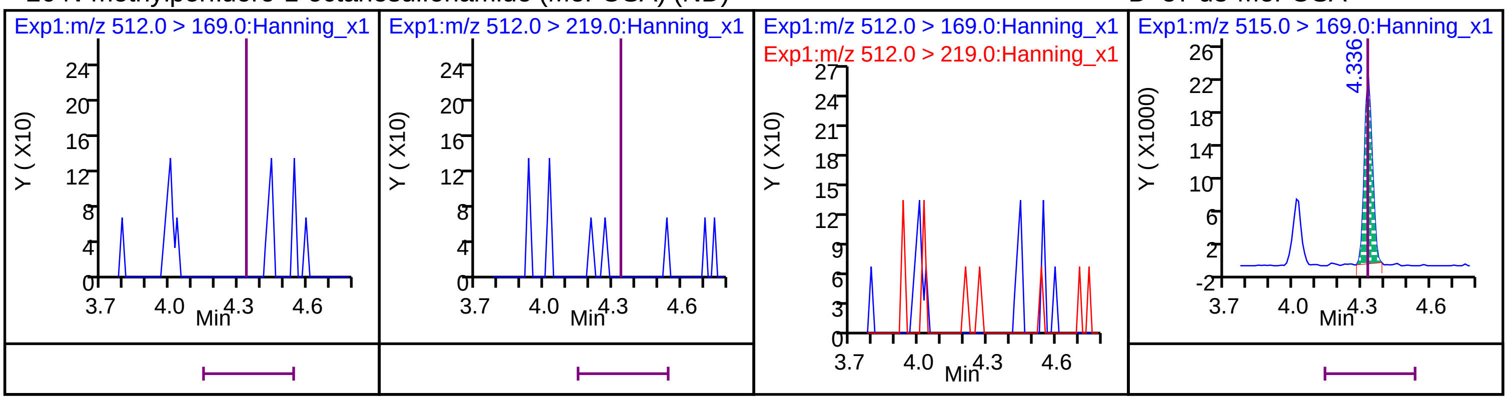




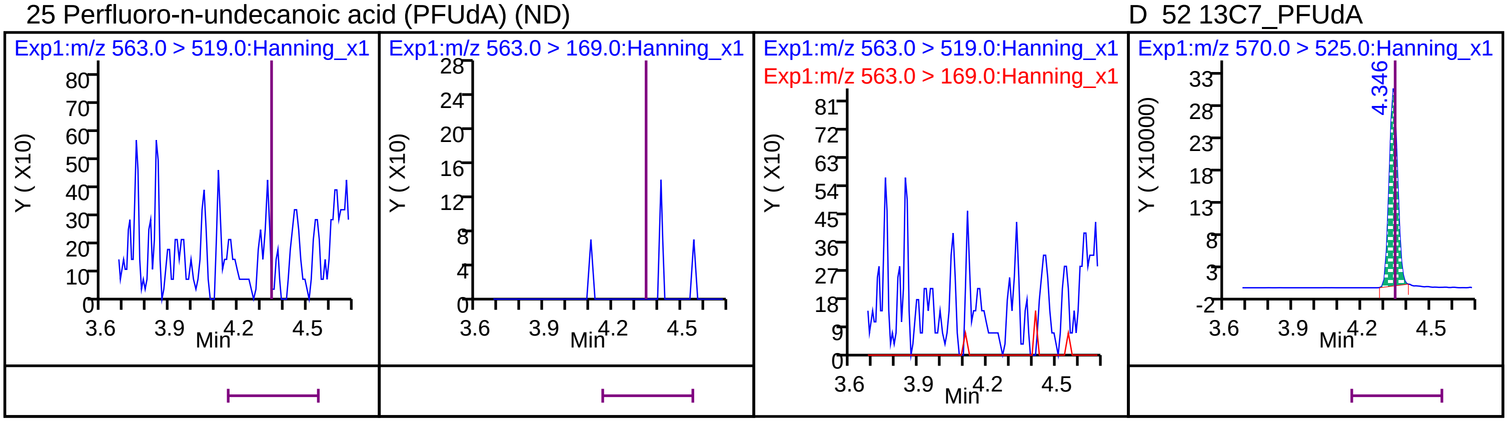
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



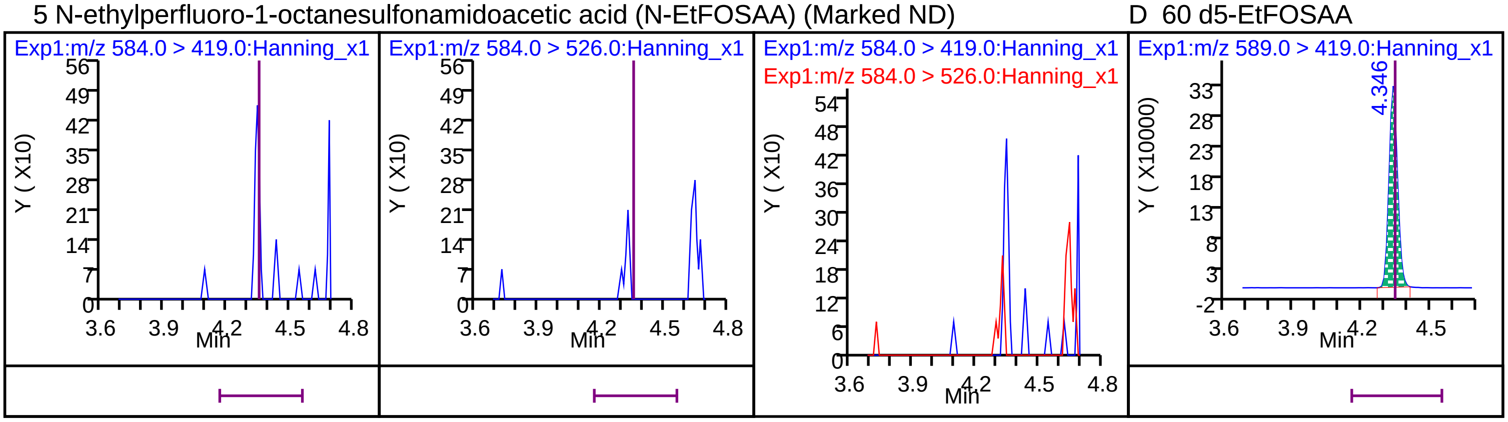
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



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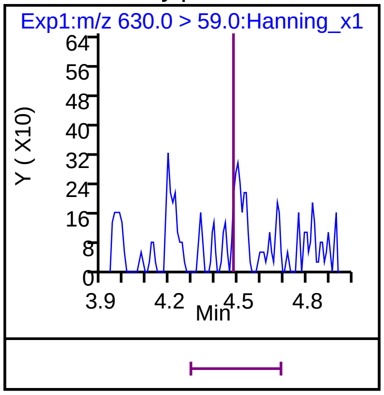
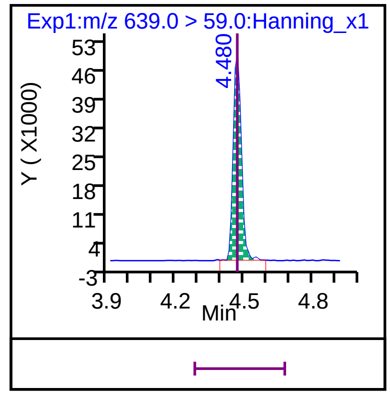
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521007.d

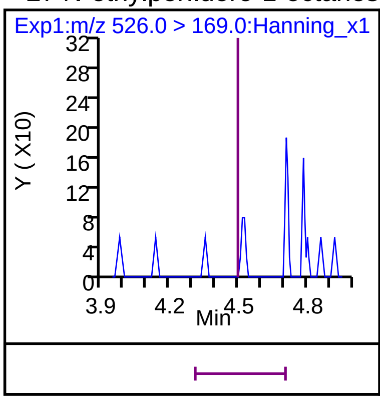
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)

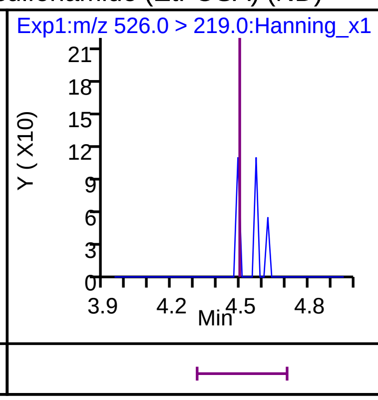


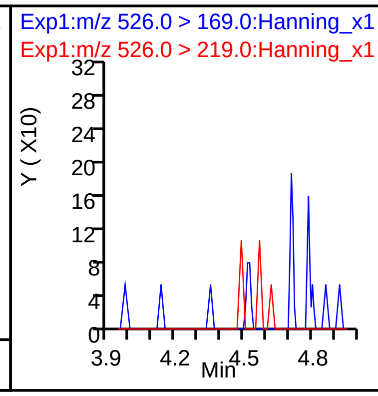
D 62 d9-EtFOSE



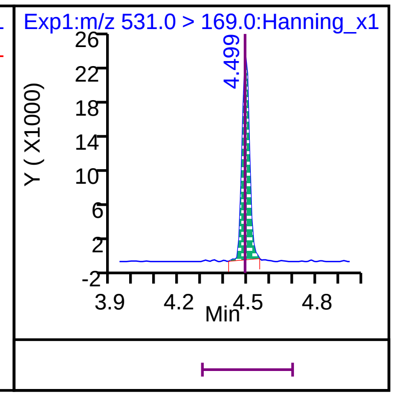
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



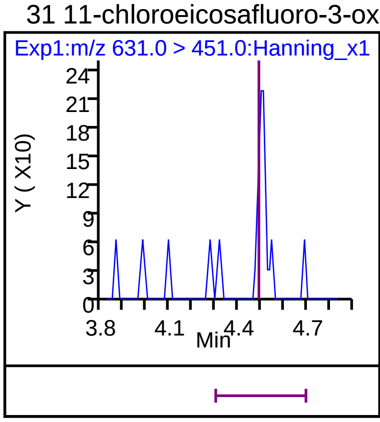




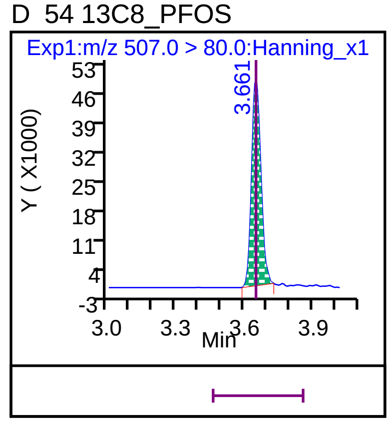
D 59 d5-EtFOSA



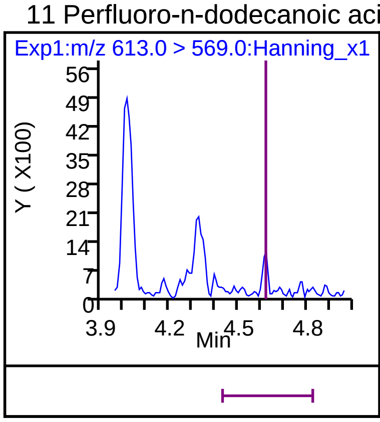
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

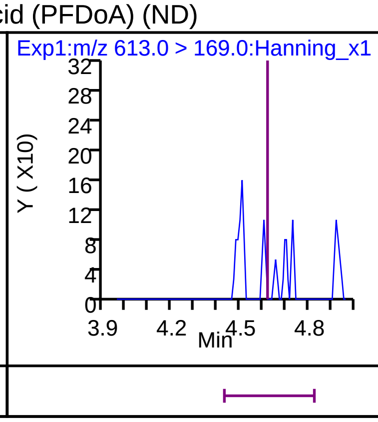


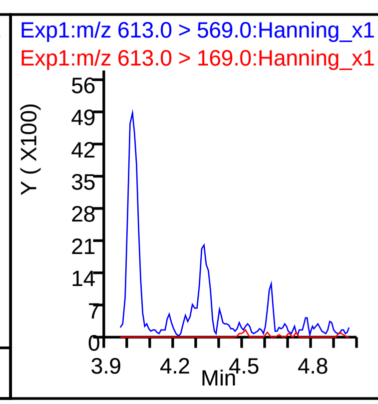
D 54 13C8_PFOS



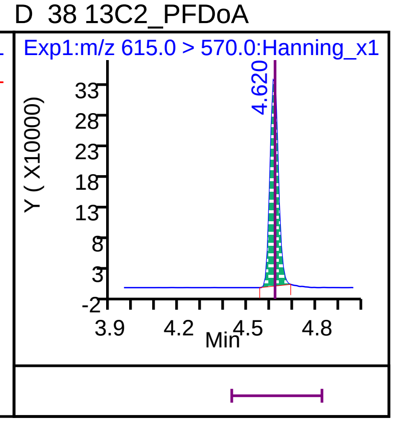
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)







D 38 13C2_PFDoA



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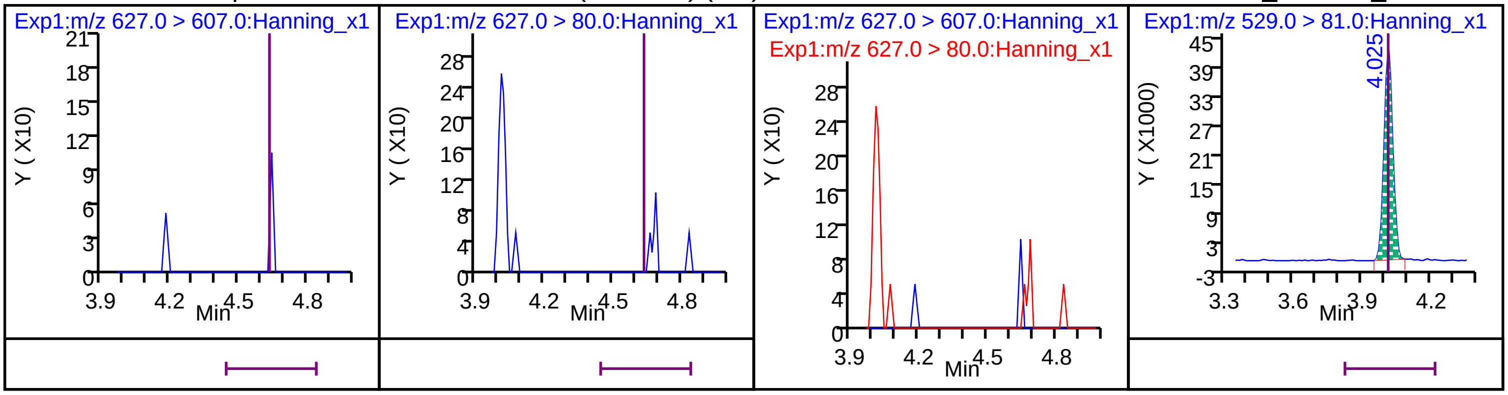
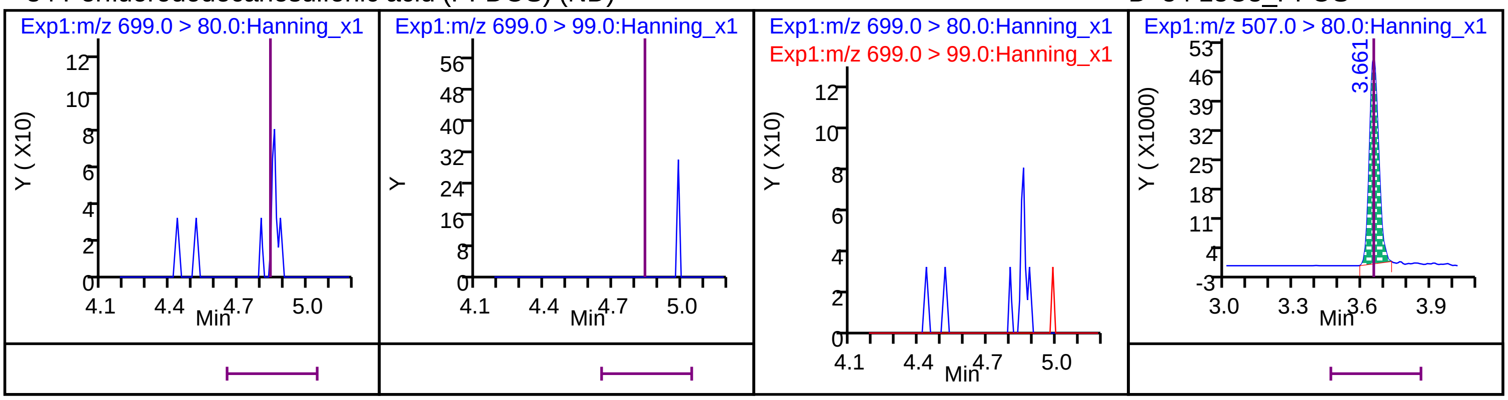
Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521007.d

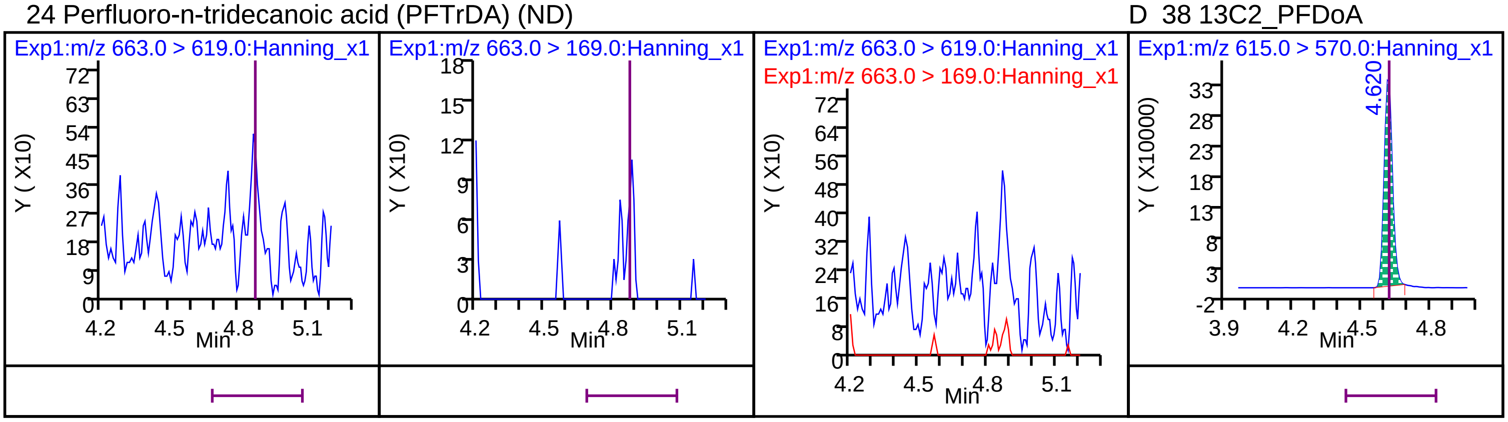
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



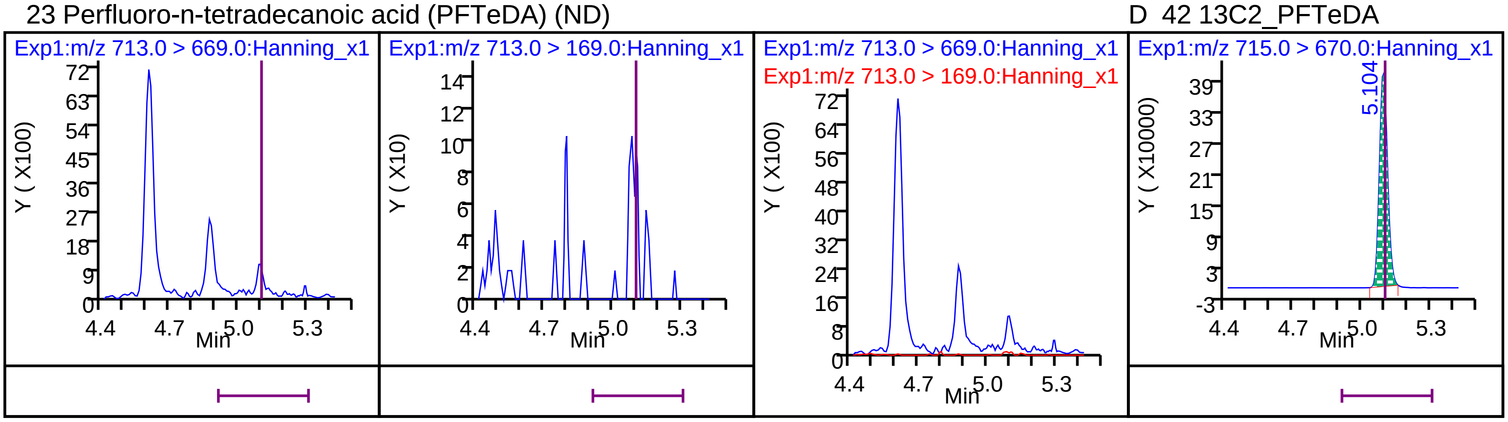
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



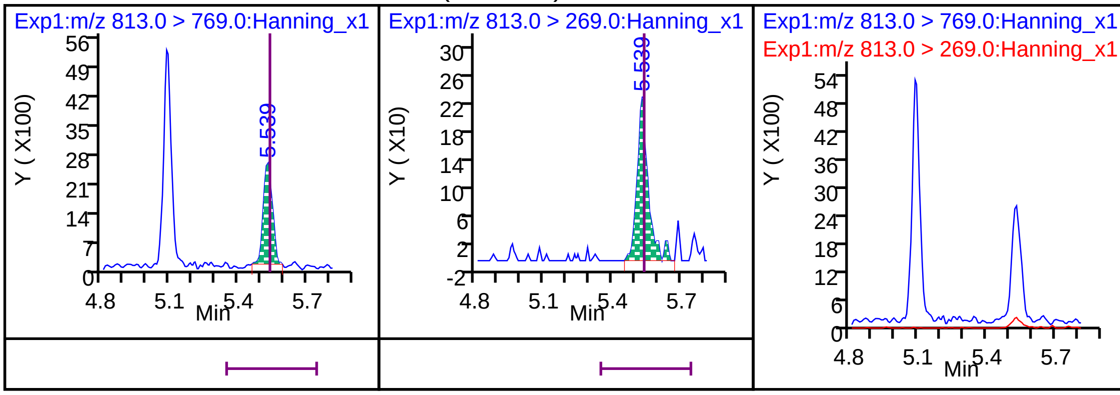
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



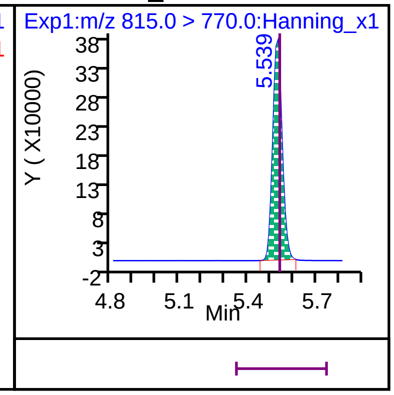
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



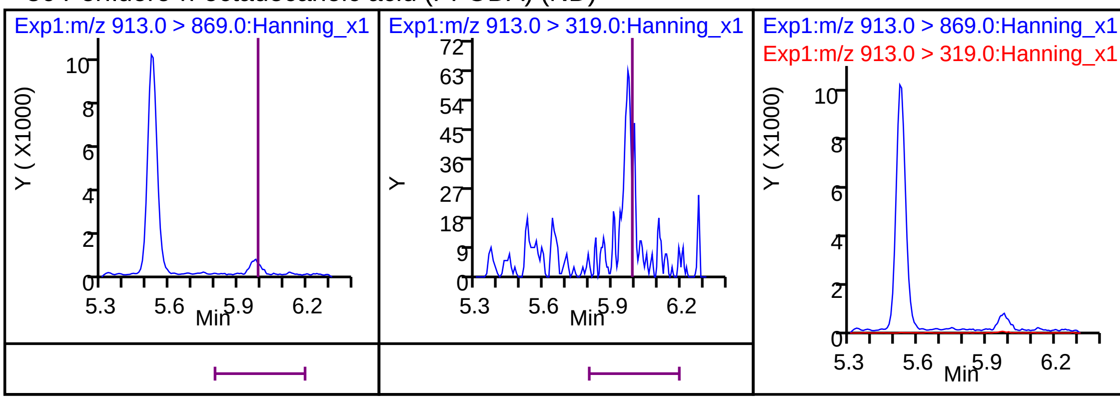
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA) (ND)



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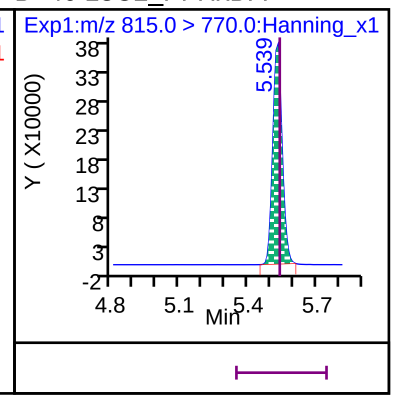
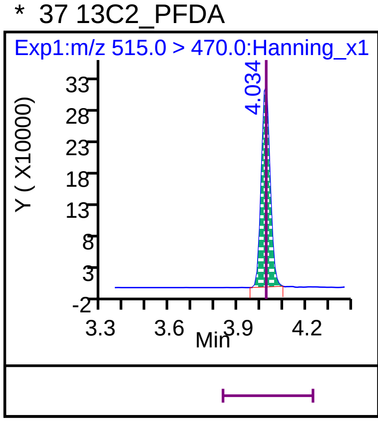
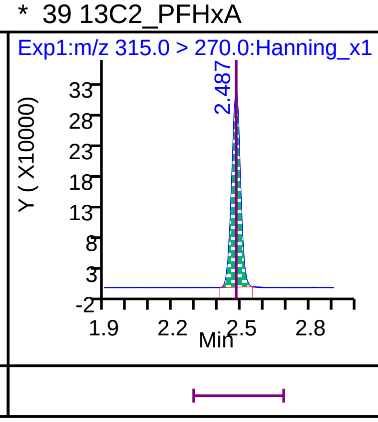


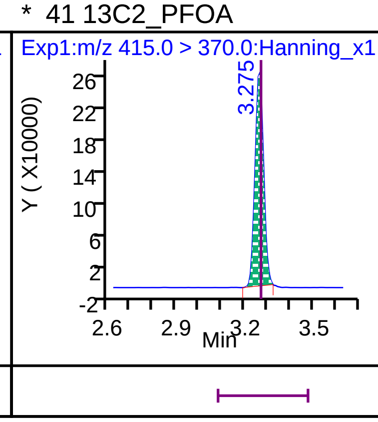
* 37 13C2_PFDA



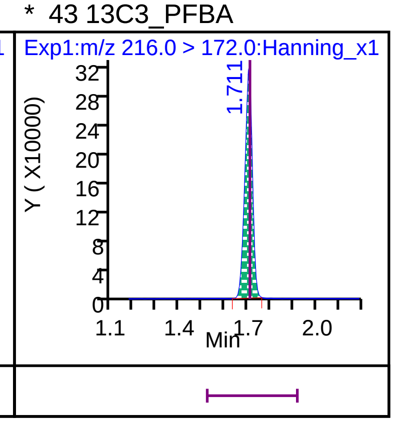
* 39 13C2_PFHxA



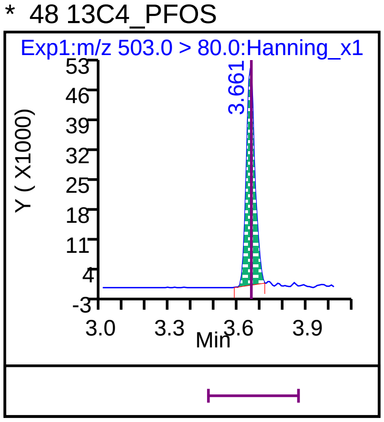
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - MB

Sample ID:	WQ22105-001	Matrix:	Aqueous
Batch:	22105	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/11/2021 1232

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/15/2021 1346
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/15/2021 1346

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		114	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		108	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ22105-001
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		104	50-150
13C8_PFOS		99	50-150
13C9_PFNA		104	50-150
d-EtFOSA		100	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521009.d		
Injection Date:	15-Nov-2021 13:46:56	Injection Vol:	10.0 uL
Sample Type:	MBlk	Auto Sampler:	1
Lab Sample ID:	WQ22105-001	Lab Prep. Batch:	22105
Sample Info:	WQ22105-001 (22109-001)	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	0	745429	20	>100:1			1001.00	1199.07	105.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	0	664571	17	>100:1			1001.00	1162.67	107.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.109		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.162	1	196330	16	>100:1			1001.00	1135.05	108	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.522		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.451	0	125041	17	>100:1			5005.00	5522.11	102.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.487	1	775058	17	>100:1			1001.00	1190.04	104.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.487		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.606	1	1333893	19	>100:1			5005.00	5755.58	100.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.606		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.872	1	645420	17	>100:1			1001.00	1215.62	106.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.872		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.888	1	152382	17	>100:1			1001.00	1212.85	113.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.918		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.286		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.246	0	112195	21	>100:1			5005.00	6233.07	109.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.260		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.274	0	652935	21	>100:1			1001.00	1244.45	103.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.280		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.661	0	136153	24	>100:1			1001.00	1099.40	98.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.655		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.877		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.023		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.324		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.497		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.666	0	771253	22	>100:1			1001.00	1204.37	104	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.672		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.912	3.910	1	303250	17	>100:1			1001.00	1131.29	104.7	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.032	0	719389	16	>100:1			1001.00	1251.85	98.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.032		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.023	0	104942	17	>100:1			5005.00	6071.45	99.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.032		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.193	0	898492	16	>100:1			5005.00	5945.85	105.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.193		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.314	1	94664	15	>100:1			1001.00	1049.62	100.5	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.335	1	41248	13	89:1			1001.00	876.85	88.4	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.354	0	813900	17	>100:1			5005.00	6284.30	105.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.363		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.354	0	750009	17	>100:1			1001.00	1245.34	102.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.354		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.479	1	120020	15	>100:1			1001.00	1131.44	116.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.500	4.497	1	42895	15	>100:1			1001.00	997.56	99.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.506		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.628	0	727560	16	>100:1			1001.00	1211.92	91.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.628		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.883		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.099	5.110	0	951218	21	>100:1			1001.00	1170.02	91	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.110		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.528	5.547	-1	949993	20	>100:1			1001.00	1094.42	94	
*** 37 13C2_PFDA**													
515 > 470		4.027	4.032	0	753751	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.487	1	790132	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.280	0	630667	23	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.718	0	640719	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.666	0	136766	22				200.00			

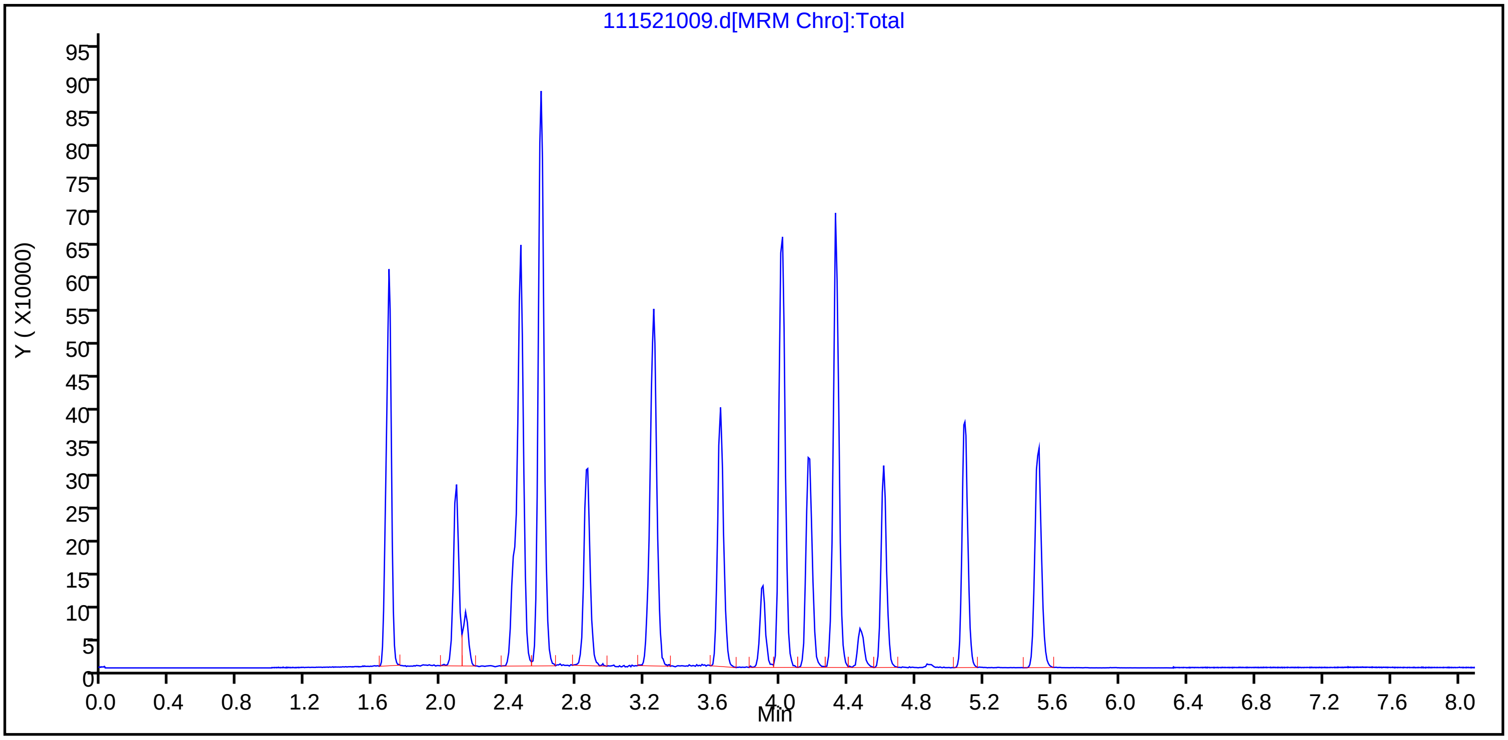
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

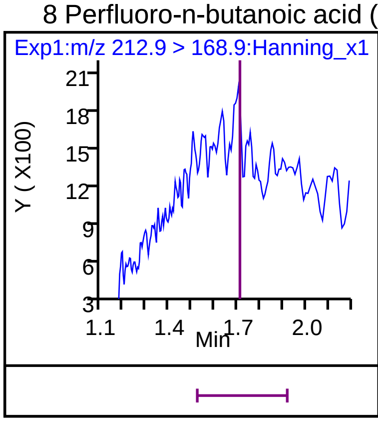
Report Date: 30-Nov-2021 15:07:19 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

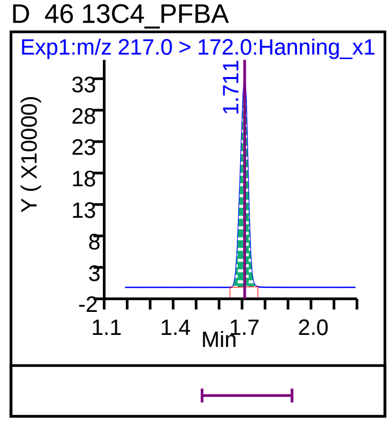
Data File:	\\Organics\LL\LCMSMS02.i\111521-DOD.b\111521009.d		
Injection Date:	15-Nov-2021 13:46:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ22105-001
Sample Info:	WQ22105-001 (22109-001)		
Dil. Factor:	1	Operator:	Justin Gavin



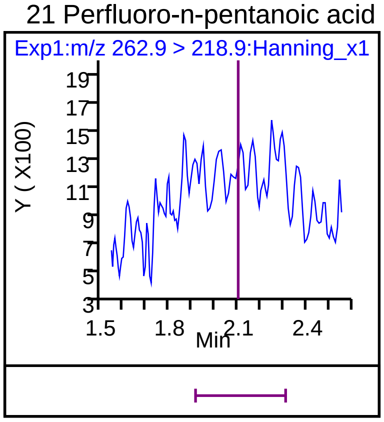
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



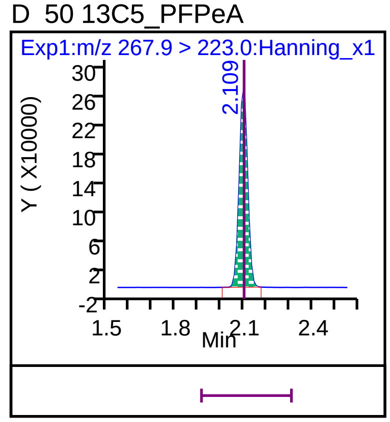
D 46 13C4_PFBA



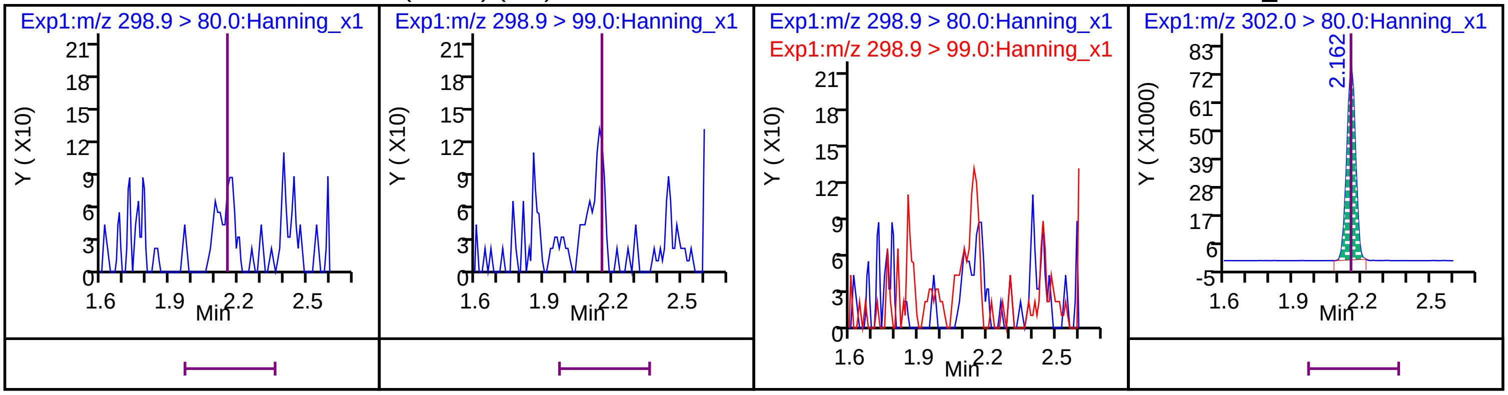
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



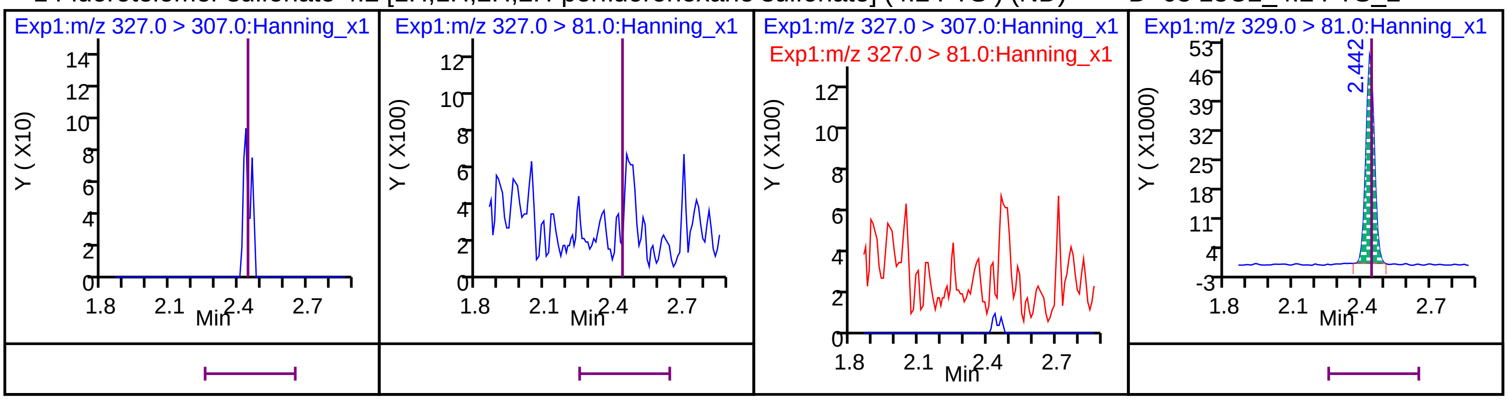
D 50 13C5_PFPeA



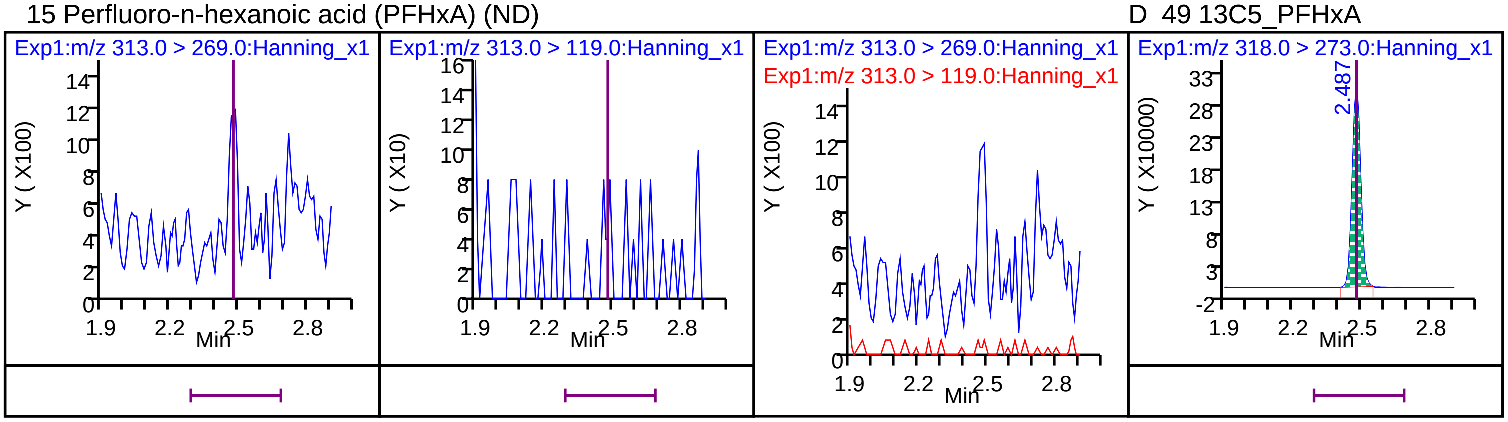
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



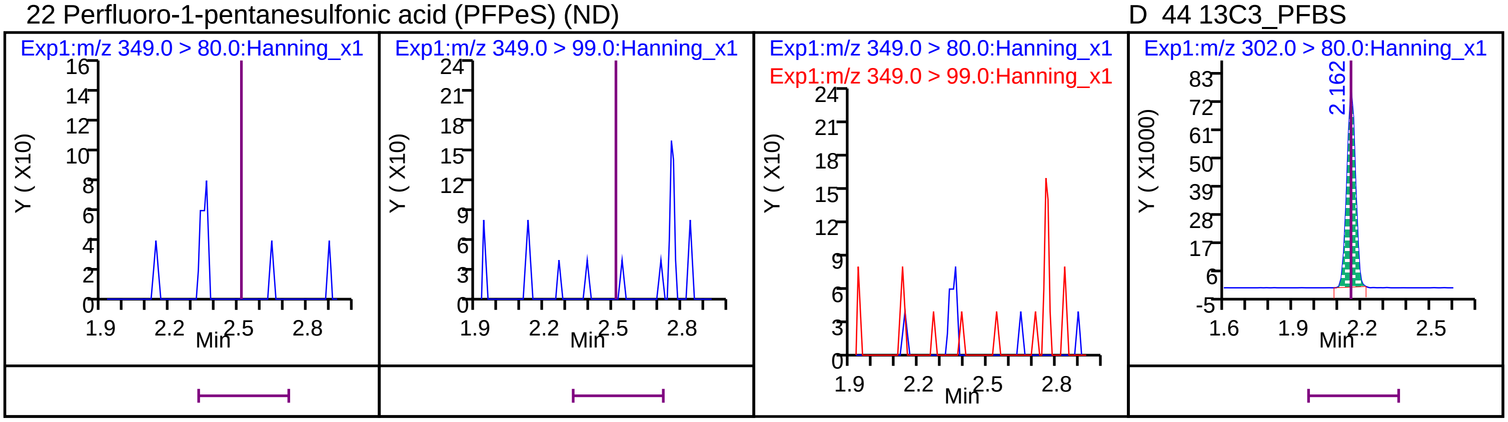
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



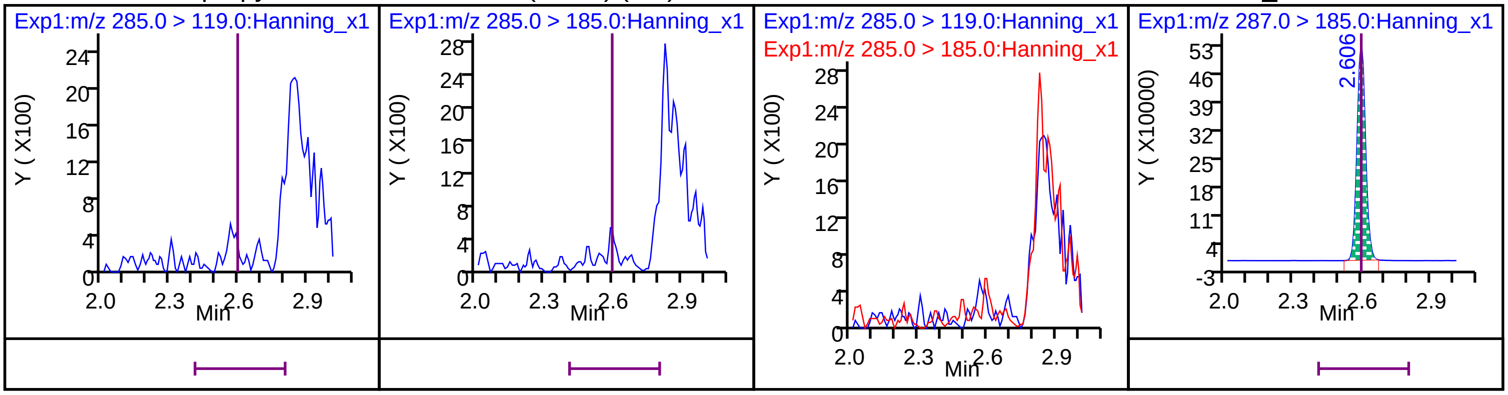
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



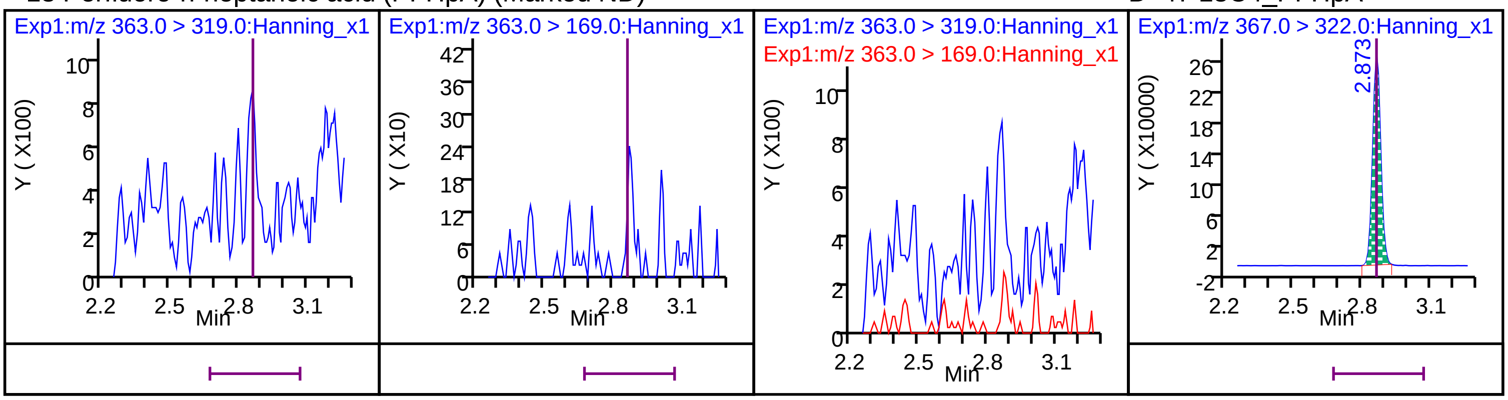
Report Date: 30-Nov-2021 15:07:19 AIM Revision: 2.0.2021.1020

Data File: \\Organics\LL\LCMSMS02.i\111521-DOD.b\111521009.d

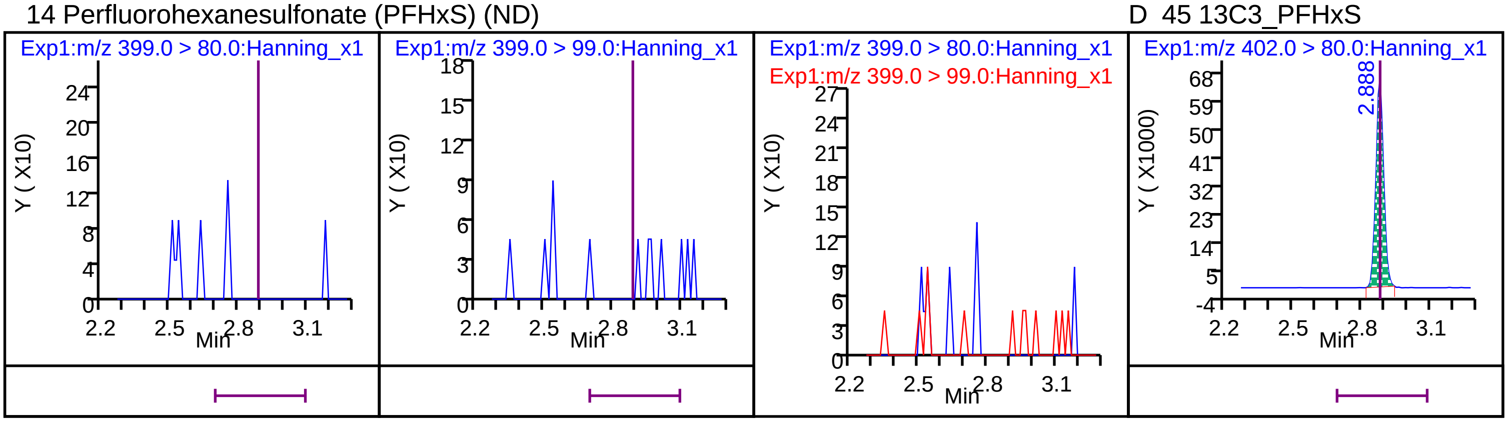
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



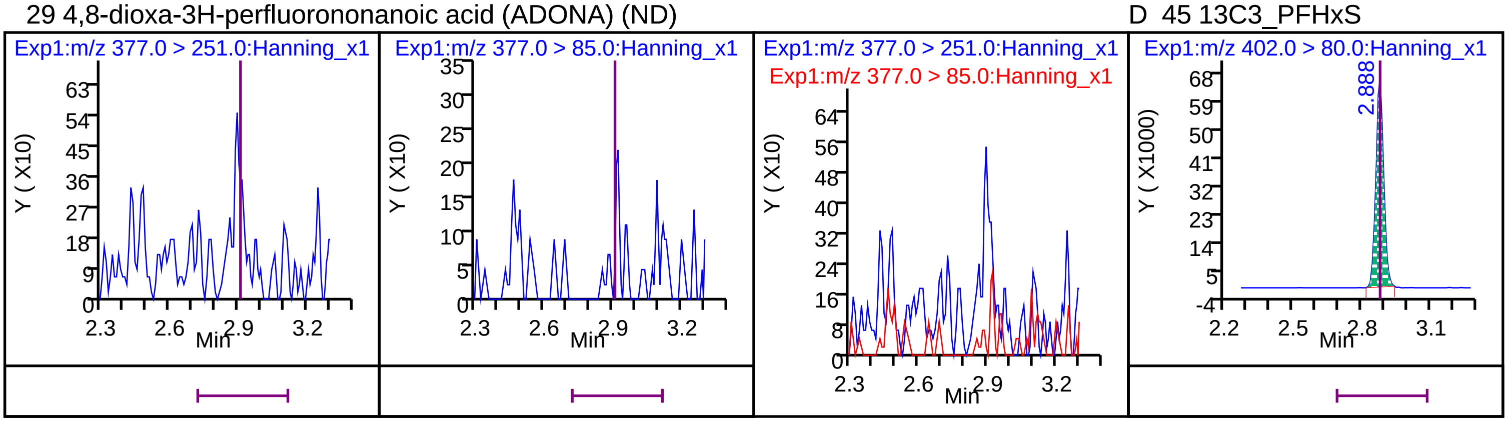
13 Perfluoro-n-heptanoic acid (PFHpA) (Marked ND) D 47 13C4_PFHpA



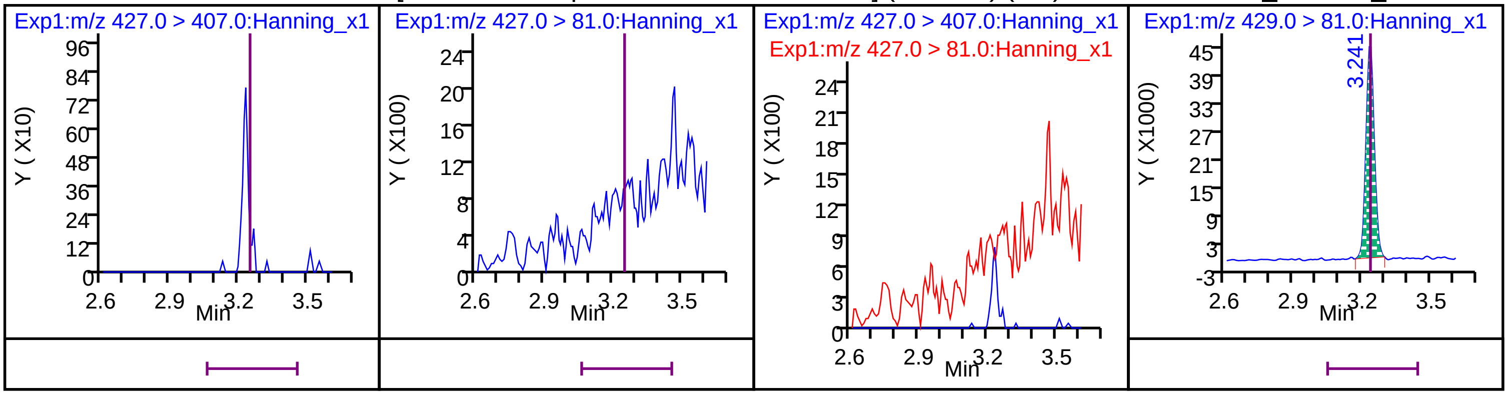
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



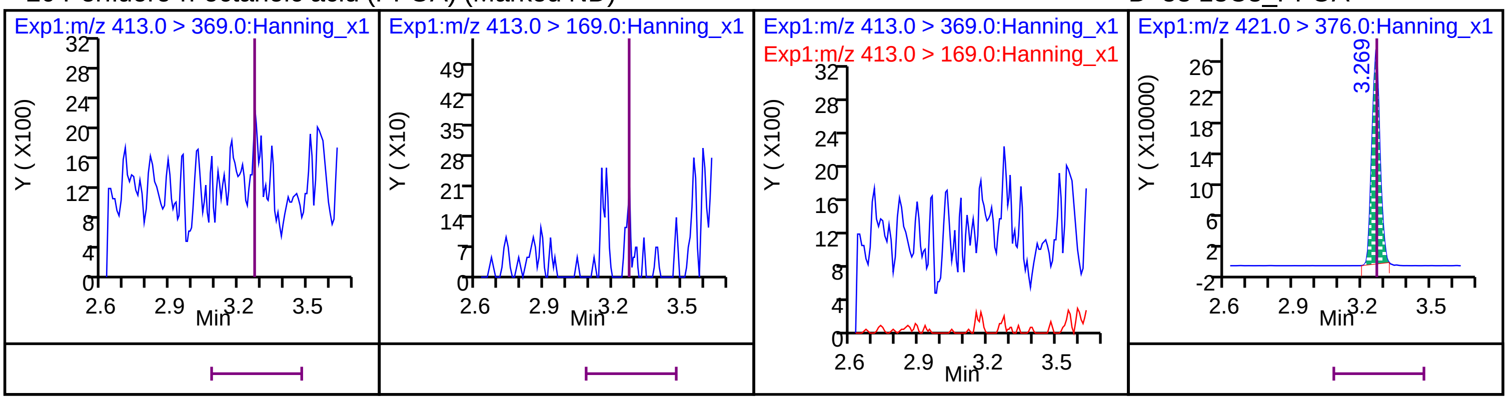
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



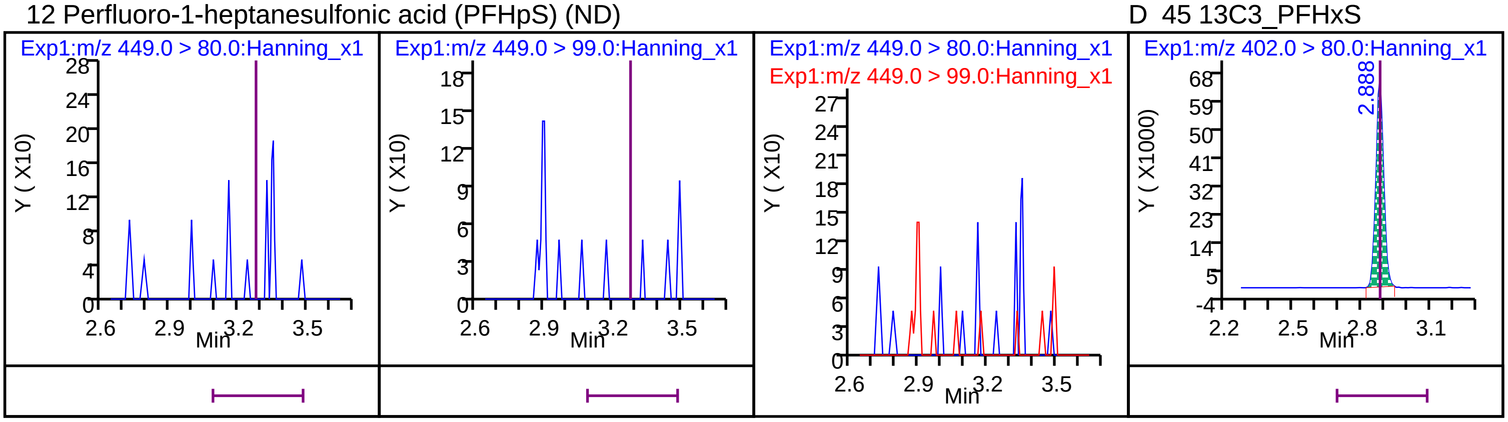
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



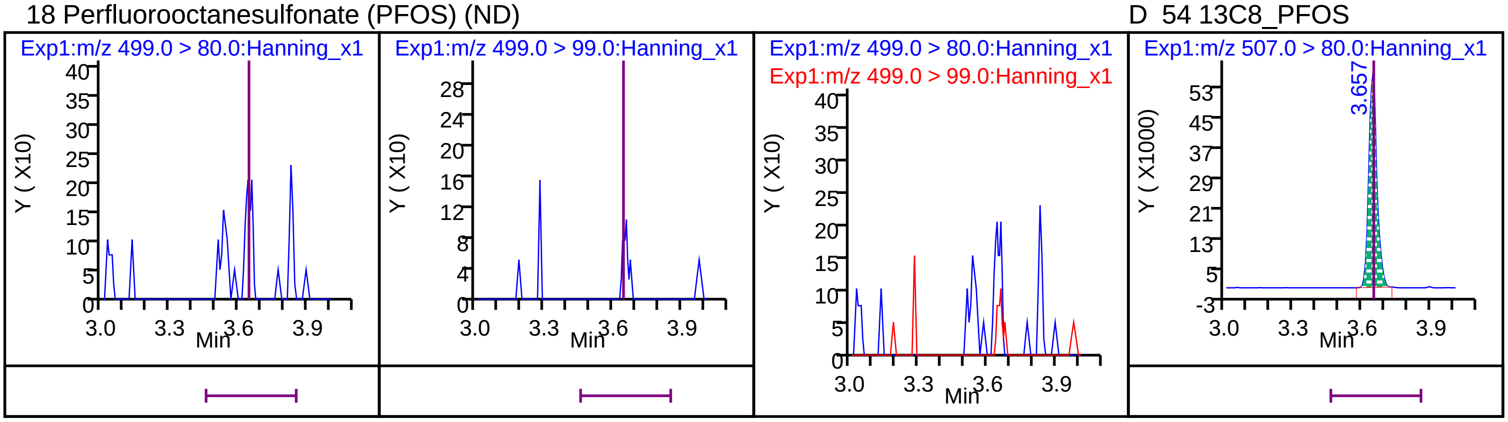
20 Perfluoro-n-octanoic acid (PFOA) (Marked ND) D 53 13C8_PFOA



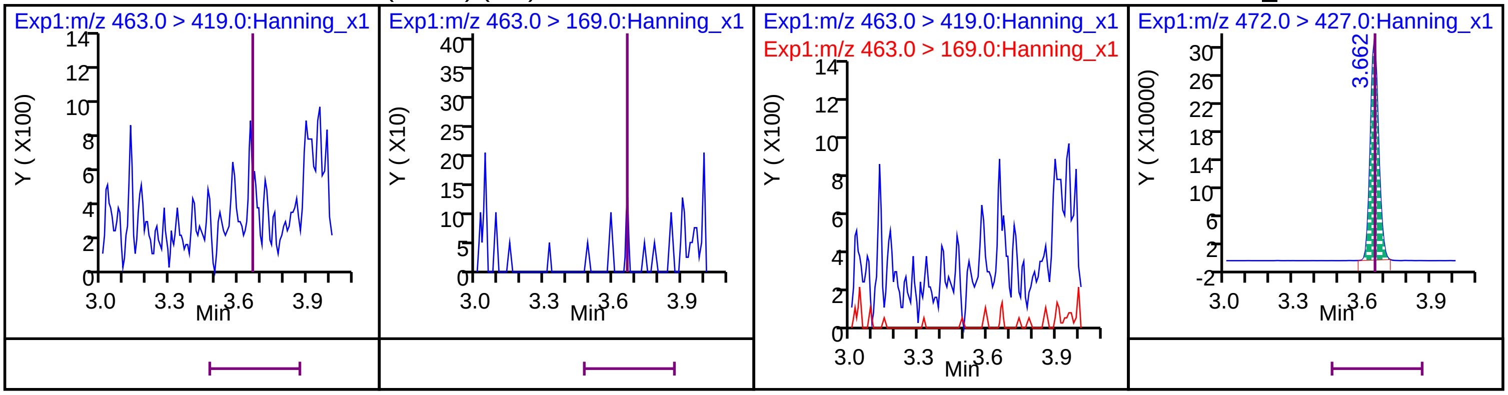
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



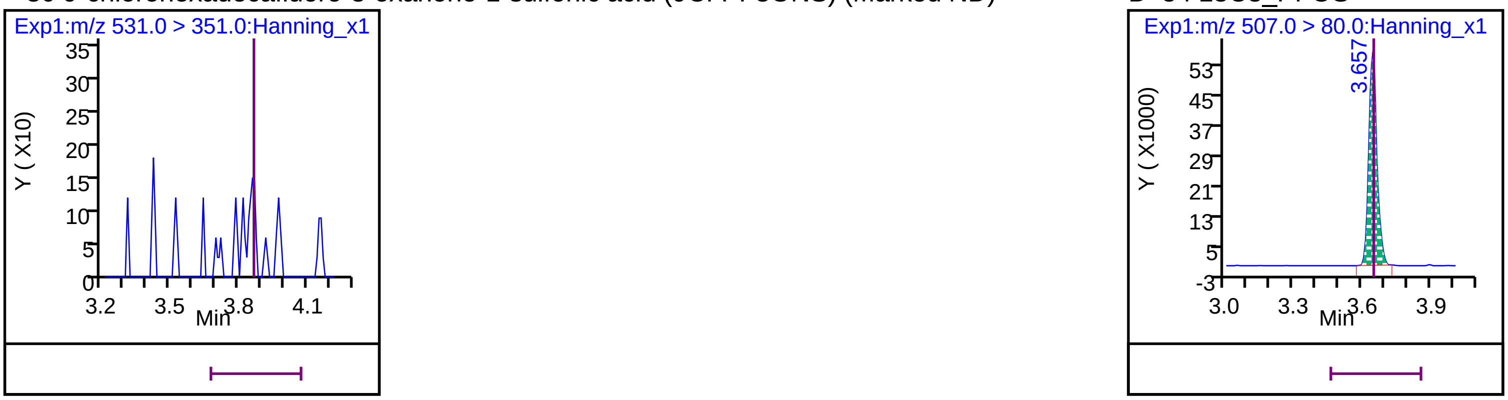
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



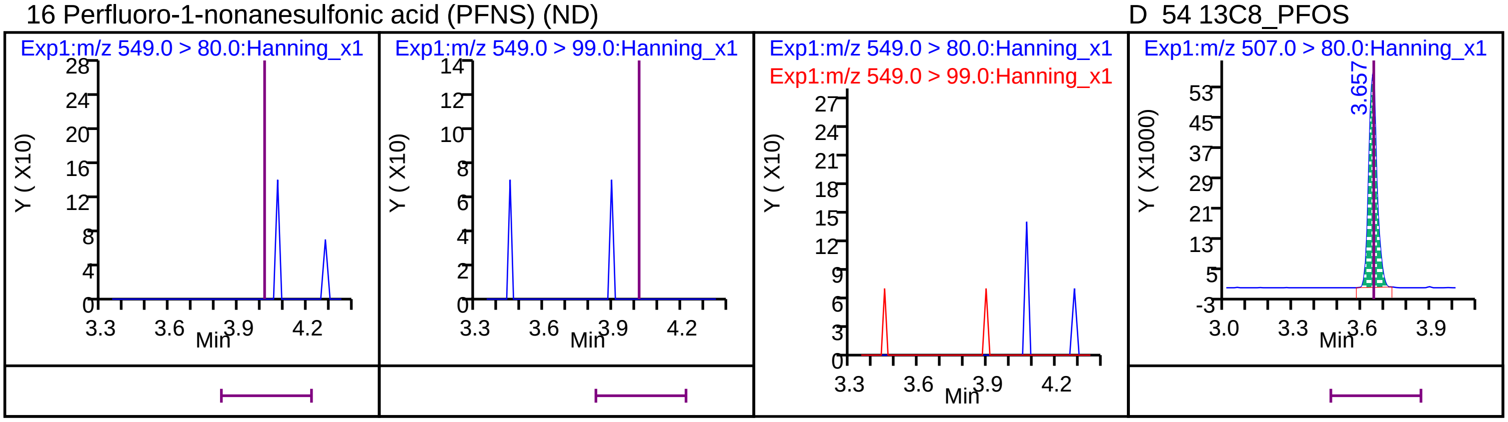
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



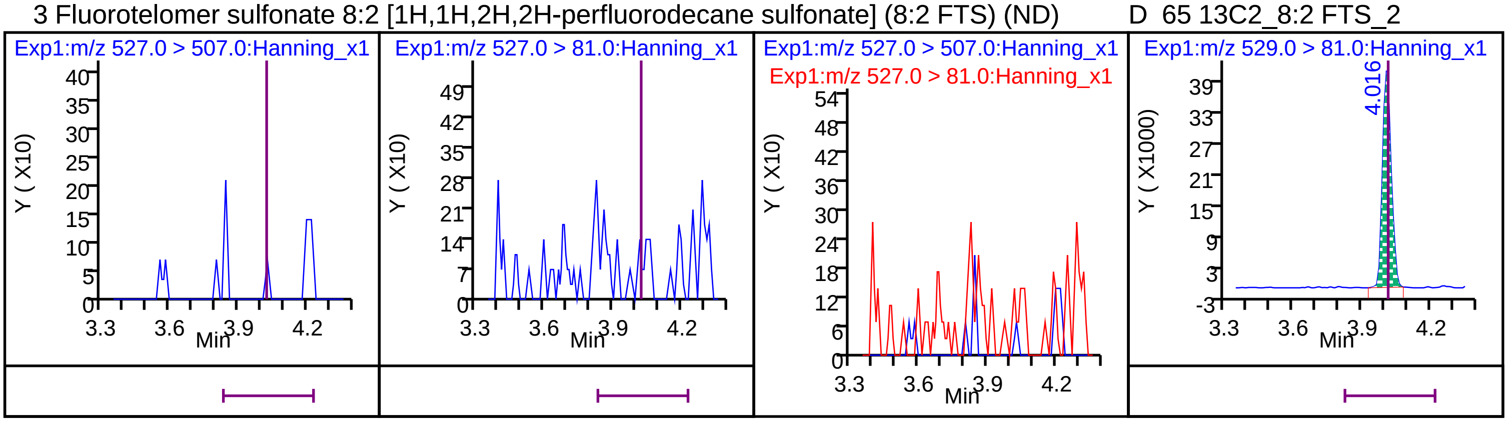
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



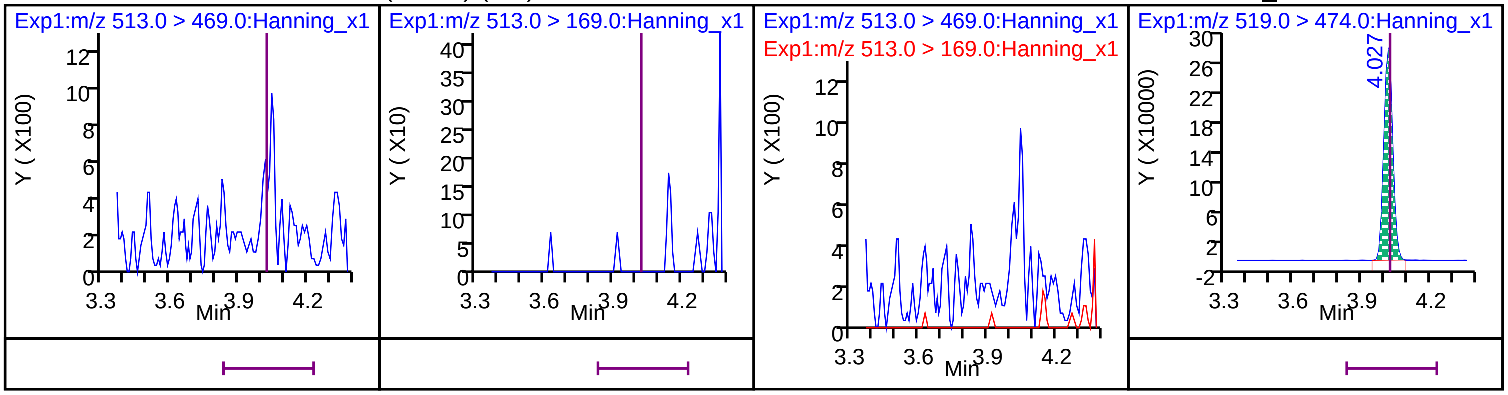
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



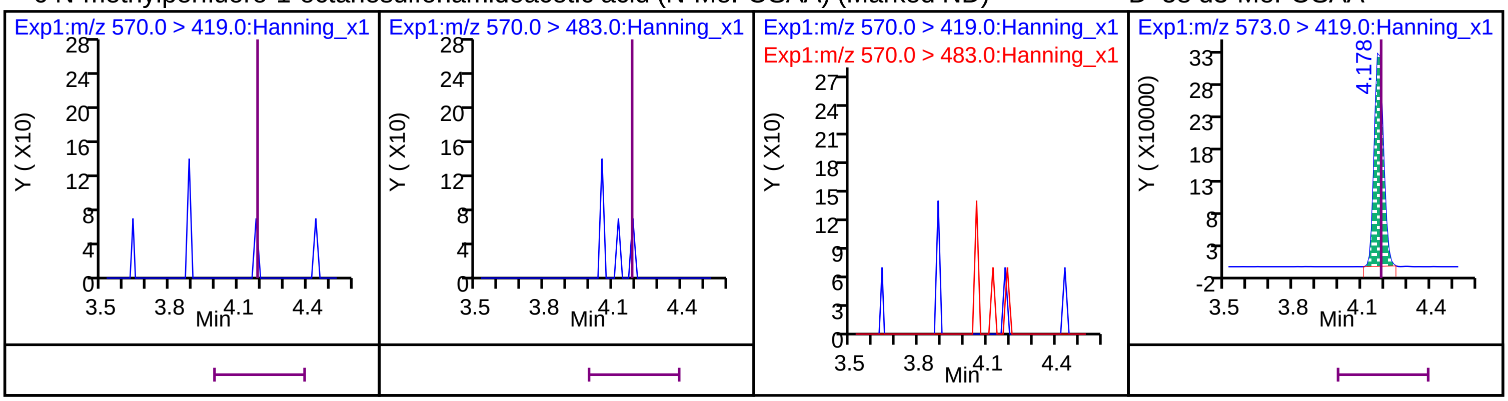
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



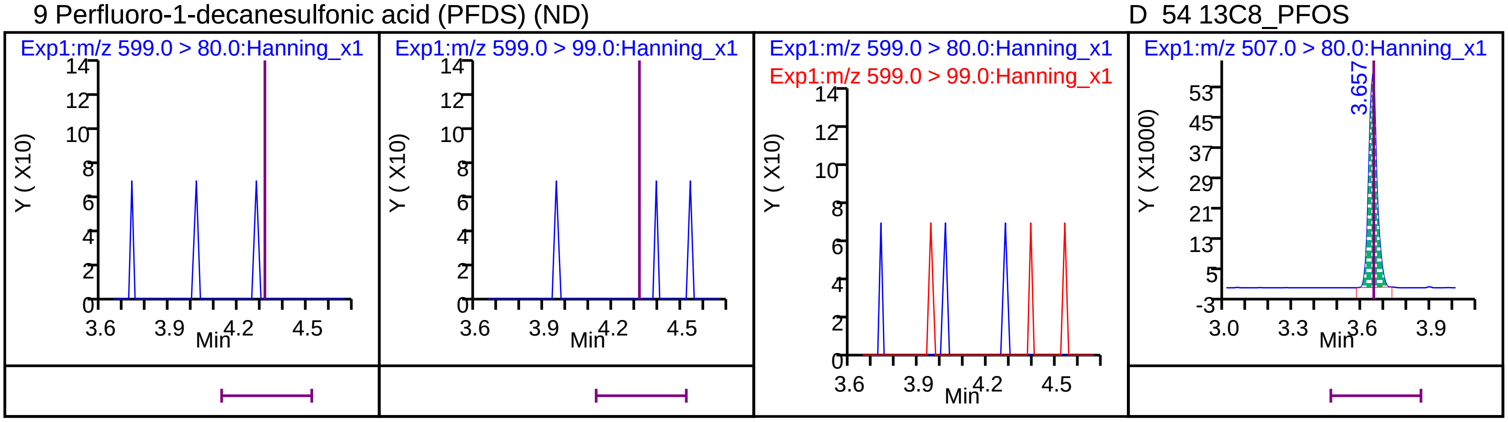
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



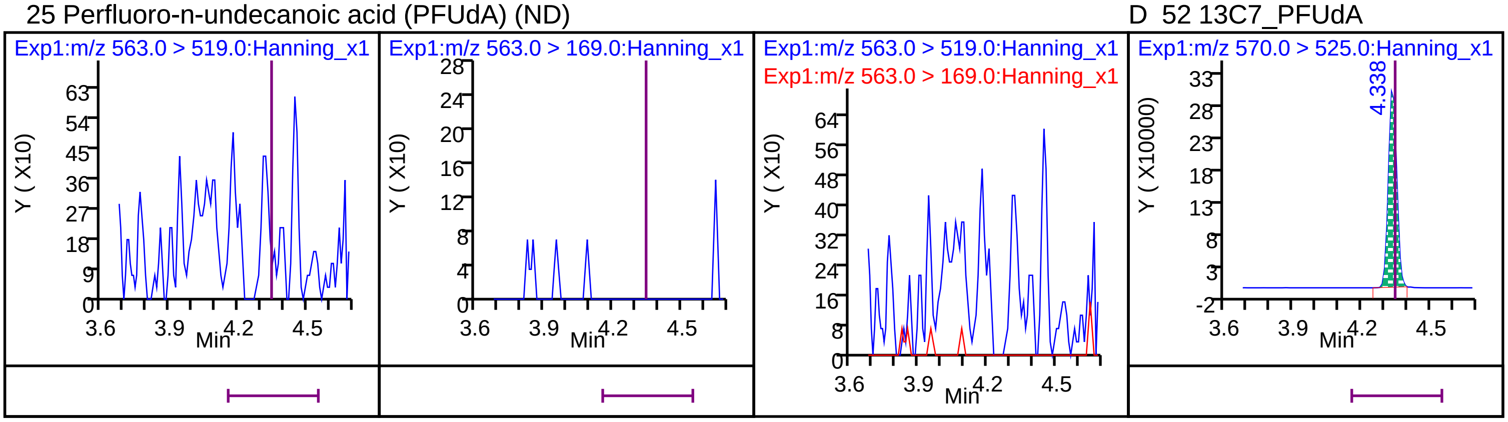
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

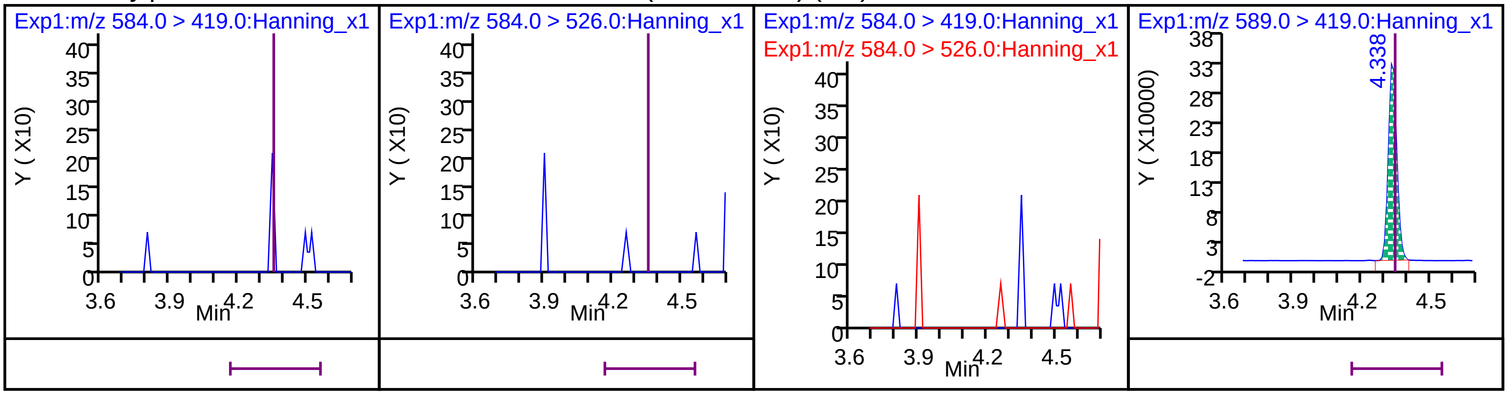


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



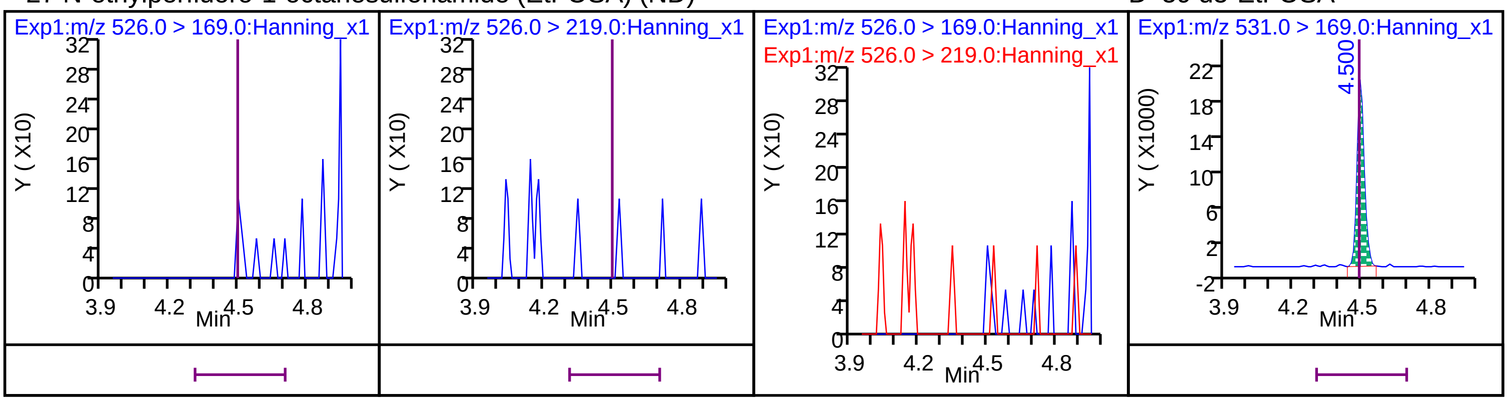
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)

D 60 d5-EtFOSAA



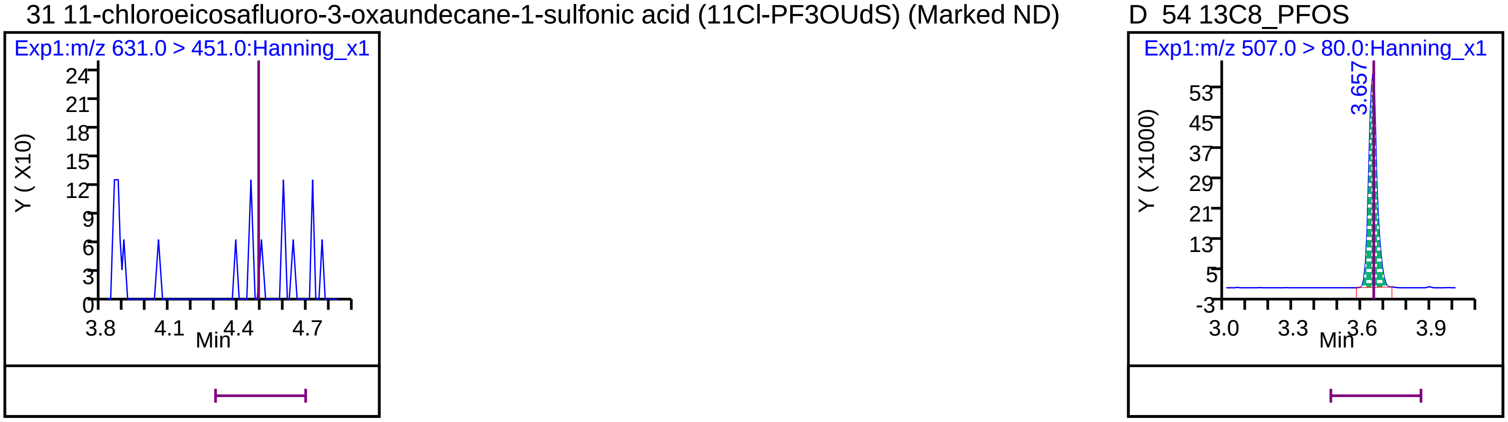
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

D 59 d5-EtFOSA



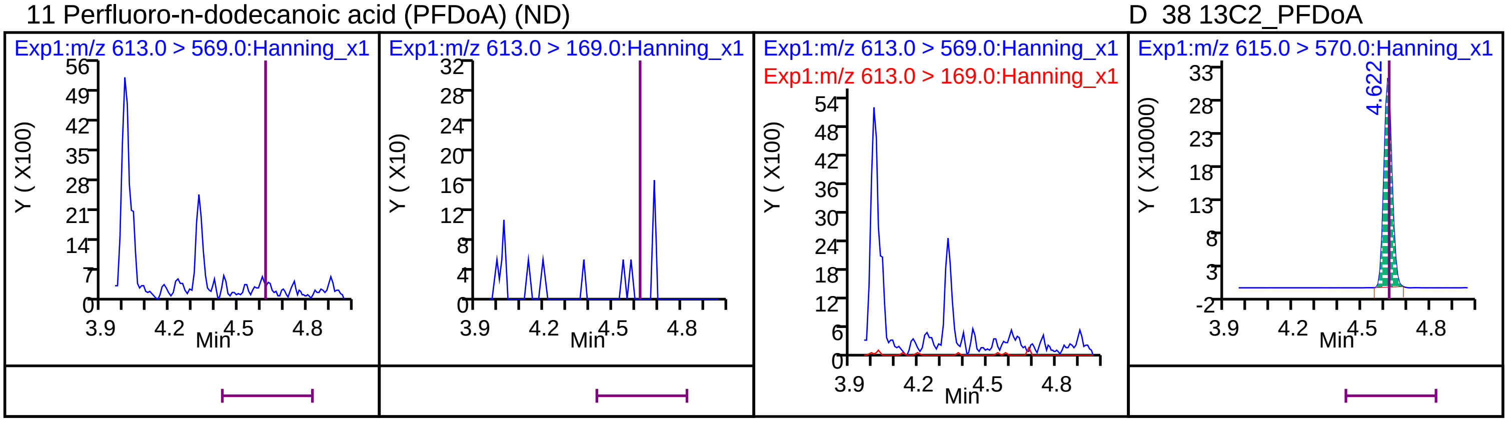
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

D 54 13C8_PFOS

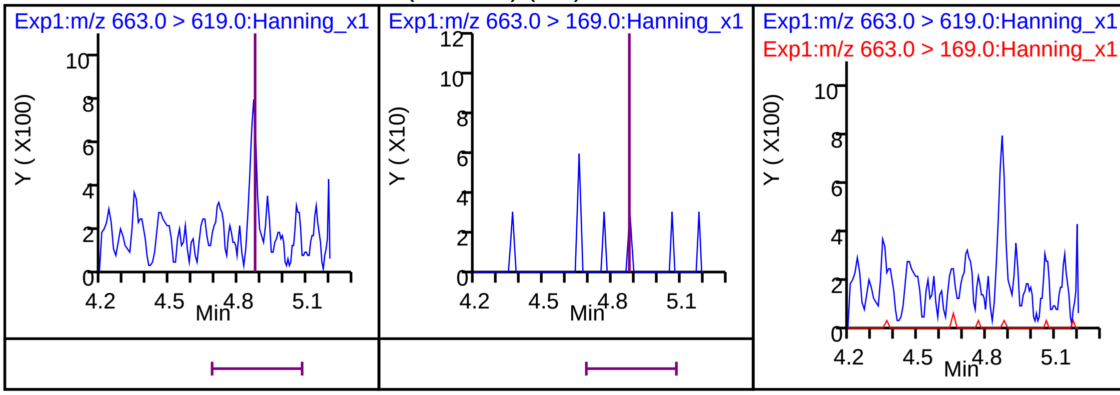


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

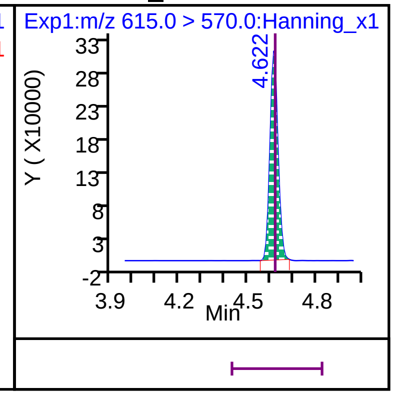
D 38 13C2_PFDoA



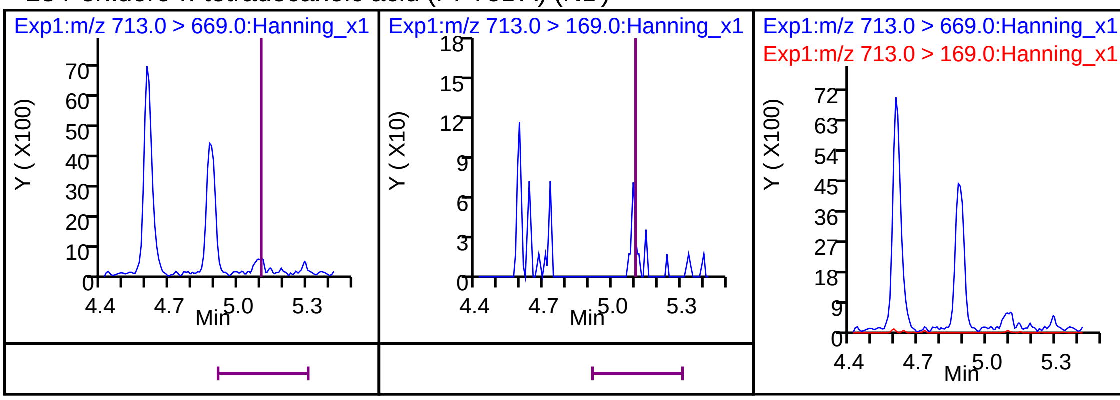
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



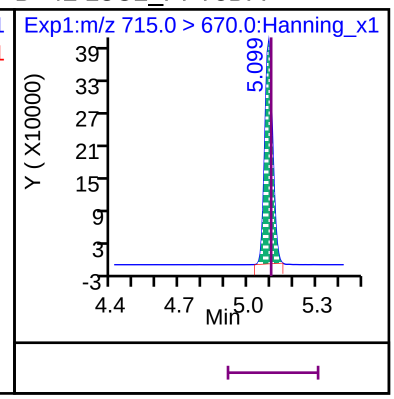
D 38 13C2_PFDoA



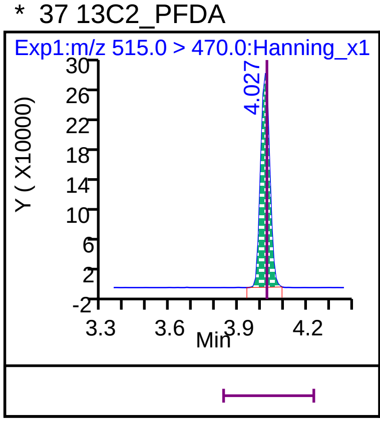
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



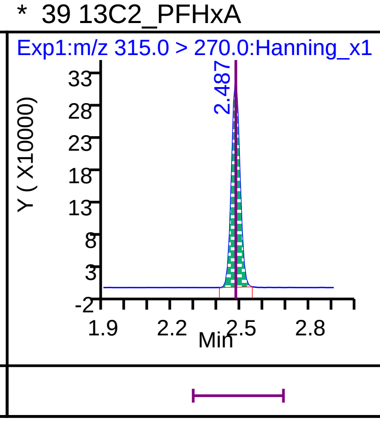
D 42 13C2_PFTeDA



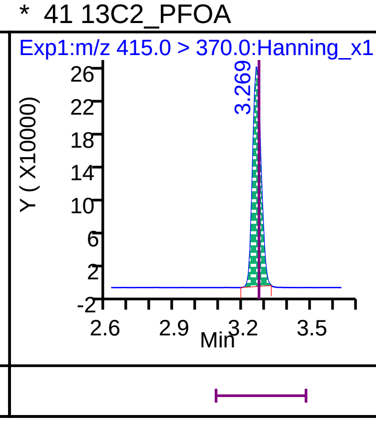
* 37 13C2_PFDA



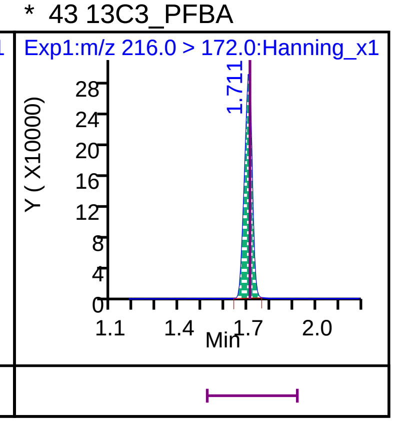
* 39 13C2_PFHxA



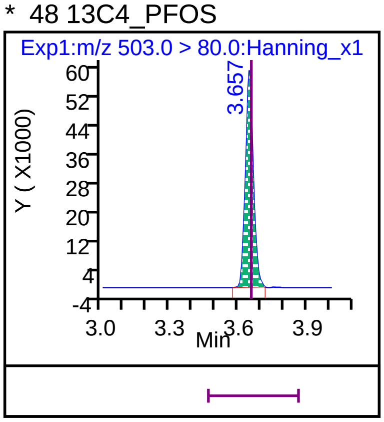
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - LCS

Sample ID:	WQ22105-002	Matrix:	Aqueous
Batch:	22105	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/11/2021 1232

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	109	70-150	11/12/2021 1524
11Cl-PF3OUdS	15	17		1	110	70-150	11/12/2021 1524
8:2 FTS	15	17		1	111	67-138	11/12/2021 1524
6:2 FTS	15	16		1	107	64-140	11/12/2021 1524
4:2 FTS	15	17		1	114	63-143	11/12/2021 1524
GenX	32	37		1	115	70-150	11/12/2021 1524
ADONA	15	17		1	114	70-150	11/12/2021 1524
EtFOSA	16	18		1	112	70-150	11/12/2021 1524
EtFOSAA	16	16		1	99	61-135	11/12/2021 1524
MeFOSAA	16	15		1	96	65-136	11/12/2021 1524
PFBS	14	15		1	103	72-130	11/12/2021 1524
PFDS	15	18		1	114	53-142	11/12/2021 1524
PFHpS	15	16		1	105	69-134	11/12/2021 1524
PFNS	15	15		1	97	69-127	11/12/2021 1524
PFPeS	15	16		1	105	71-127	11/12/2021 1524
PFHxS	15	15		1	104	68-131	11/12/2021 1524
PFBA	16	17		1	107	73-129	11/12/2021 1524
PFDA	16	18		1	110	71-129	11/12/2021 1524
PFDoA	16	18		1	110	72-134	11/12/2021 1524
PFHpA	16	17		1	108	72-130	11/12/2021 1524
PFHxA	16	17		1	107	72-129	11/12/2021 1524
PFNA	16	17		1	106	69-130	11/12/2021 1524
PFOA	16	17		1	106	71-133	11/12/2021 1524
PFPeA	16	17		1	109	72-129	11/12/2021 1524
PFTeDA	16	17		1	108	71-132	11/12/2021 1524
PFTrDA	16	17		1	105	65-144	11/12/2021 1524
PFUdA	16	18		1	113	69-133	11/12/2021 1524
PFOS	15	15		1	102	65-140	11/12/2021 1524

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		104	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		109	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		111	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		117	50-150
13C4_PFBA		111	50-150
13C4_PFHpA		112	50-150
13C5_PFHxA		113	50-150
13C5_PFPeA		107	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ22105-002
Batch: 22105
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/11/2021 1232

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		109	50-150
13C8_PFOA		111	50-150
13C8_PFOS		115	50-150
13C9_PFNA		117	50-150
d-EtFOSA		101	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		116	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221012.d		
Injection Date:	12-Nov-2021 15:24:12	Injection Vol:	10.0 uL
Sample Type:	LCS	Auto Sampler:	10
Lab Sample ID:	WQ22105-002	Lab Prep. Batch:	22105
Sample Info:	WQ22109-002 (WQ22105-002)	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml
Analytes	100x PDS	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.705	1	674445	21	>100:1			1001.00	1084.88	111.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.721	1.712	1/0	277378	22	>100:1			390.35	17.158		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.114	2.099	1	582422	15	>100:1			1001.00	1018.95	107	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.114	2.099	1/0	258745	15	>100:1			395.11	17.368		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.151	2	181529	17	>100:1			1001.00	1049.48	111.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.151	2/0	75005	16	>100:1	Target = 3.53		331.67	14.579		
298.9 > 99	44	2.178	2.151		23832	18	>100:1	3.14 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.530	2.505	2/0	60312	17	>100:1	Target = 3.10		358.86	15.774		
349 > 99	44	2.521	2.505		20376	16	>100:1	2.95 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.425	3	108457	19	>100:1			5005.00	4789.72	103.8	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.459	2.433	2/-1	18472	17	>100:1	Target = 1.75		386.70	16.998		
327 > 81	63	2.450	2.433		11875	18	23:1	1.55 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.469	2	707502	18	>100:1			1001.00	1086.31	113.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.495	2.469	2/0	285731	18	>100:1	Target = 18.91		388.80	17.090		
313 > 119	49	2.495	2.469		13204	16	>100:1	21.63 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.583	2	1293264	20	>100:1			5005.00	5580.27	117.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.613	2.583	2/0	139840	20	>100:1	Target = 0.79		835.64	36.732		
285 > 185	66	2.613	2.583		176028	20	>100:1	0.79 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.845	3	592346	18	>100:1			1001.00	1115.66	112.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.845	3/0	254867	20	>100:1	Target = 3.80		391.96	17.229		
363 > 169	47	2.887	2.845		63894	19	>100:1	3.98 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.895	2.864	2	129760	19	>100:1			1001.00	1032.80	112	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.895	2.864	2/0	49316	28	>100:1	Target = 2.89	5.52	346.04	15.211		
399 > 99	45	2.895	2.864		15257	28	86:1	3.23 (1.44-4.34)	6.52				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.917	2.888	2/0	392910	22	>100:1	Target = 3.23		390.83	17.179		
377 > 85	45	2.924	2.888		115068	22	>100:1	3.41 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.279	3.241	3/1	48560	44	>100:1	Target = 3.12		364.73	16.032		
449 > 99	45	3.285	3.241		15537	29	>100:1	3.12 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.252	3.214	3	98963	22	>100:1			5005.00	5497.96	118.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.252	3.214	3/0	17266	19	>100:1	Target = 1.75		368.88	16.214		
427 > 81	64	3.245	3.214		9040	16	20:1	1.90 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.279	3.241	3	572158	22	>100:1			1001.00	1090.50	111.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.285	3.241	3/0	226911	23	>100:1	Target = 2.89		387.39	17.028		
413 > 169	53	3.273	3.241		75235	21	>100:1	3.01 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.664	3.625	3	125493	38	>100:1			1001.00	1013.32	114.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.664	3.625	3/0	51621	40	>100:1	Target = 3.30	3.91	345.82	15.201		
499 > 99	54	3.670	3.625		16045	35	>100:1	3.21 (1.65-4.95)	5.80				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.875	3.838	3/0	175183	17	>100:1			368.98	16.219		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.020	3.974	3/0	34063	15	>100:1	Target = 3.08		338.66	14.886		
549 > 99	54	4.020	3.974		15456	22	>100:1	2.20 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.331	4.288	3/0	39327	15	>100:1	Target = 2.72		400.87	17.621		
599 > 99	54	4.331	4.288		12031	14	>100:1	3.26 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.495	4.446	3/0	162399	16	>100:1			378.36	16.631		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.855	4.804	4/1	28495	22	>100:1	Target = 3.27		264.33	11.619		
699 > 99	54	4.855	4.804		10090	16		2.82 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.670	3.632	3	686785	22	>100:1			1001.00	1072.47	116.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.670	3.632	3/0	284418	22	>100:1	Target = 6.51		384.59	16.905		
463 > 169	56	3.670	3.632		40936	26	>100:1	6.94 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.916	3.904	1	274518	16	>100:1			1001.00	1024.10	120.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.916	3.904	1/0	109148	19	>100:1	Target = 41.63		378.26	16.627		
498>478	55	3.916	3.904		3723	21		29.31 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.038	3.984	4	626133	16	>100:1			1001.00	1089.57	105.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.038	3.995	3/-1	290812	16	>100:1	Target = 13.80		399.50	17.561		
513 > 169	51	4.038	3.995		19258	20	>100:1	15.10 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.029	3.984	3	96096	18	>100:1			5005.00	5559.66	116.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.029	3.984	3/0	16809	16	79:1	Target = 1.94		387.44	17.030		
527 > 81	65	4.020	3.984		6895	15	28:1	2.43 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.642	4.597	3/0	13407	16	96:1	Target = 3.54		275.28	12.100		
627 > 80	65	4.634	4.597		3950	23	22:1	3.39 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.189	4.142	3	767939	16	>100:1			5005.00	5081.90	116.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.199	4.142	4/1	43051	29	>100:1	Target = 1.37	9.66	349.67	15.370		
570 > 483	58	4.199	4.142		34035	30	>100:1	1.26 (0.68-2.05)	5.26				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.321	4.318	1	89071	17	>100:1			1001.00	987.61	108.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.331	4.328	1/0	32668	14	>100:1			335.94	14.767		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.340	4.338	1	39951	17	>100:1			1001.00	849.28	93.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.350	4.338	1/0	18329	16	>100:1	Target = 1.11		423.70	18.624		
512 > 219	57	4.350	4.338		18873	16	>100:1	0.97 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.350	4.308	3	680256	17	>100:1			5005.00	5252.41	112.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.359	4.308	4/1	47529	32	>100:1	Target = 1.51	7.07	358.64	15.765		
584 > 526	60	4.359	4.308		33870	29	>100:1	1.40 (0.75-2.26)	3.99				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.350	4.308	3	686985	16	>100:1			1001.00	1140.70	108.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.350	4.308	3/0	274649	17	>100:1	Target = 14.52		413.01	18.154		
563 > 169	52	4.350	4.308		17332	14	88:1	15.84 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.486	4.482	1	106788	22	>100:1			1001.00	1006.70	111.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.504	4.492	1/0	51307	23	>100:1			494.04	21.716		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.504	4.501	1	36511	21	>100:1			1001.00	849.09	101	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.513	4.510	1/0	18203	20	>100:1	Target = 1.06		408.62	17.962		
526 > 219	59	4.513	4.510		15909	18	>100:1	1.14 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.634	4.580	4	664829	16	>100:1			1001.00	1107.43	109.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.634	4.580	4/0	284650	18	54:1	Target = 10.70		402.02	17.671		
613 > 169	38	4.634	4.580		21641	22	>100:1	13.15 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.890	4.825	4/0	265696	18	>100:1	Target = 8.31		380.60	16.730		
663 > 169	38	4.881	4.825		29445	18	>100:1	9.02 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.115	5.050	4	808816	22	>100:1			1001.00	994.87	102.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.115	5.050	4/0	278545	21	39:1	Target = 12.17		394.91	17.359		
713 > 169	42	5.115	5.050		21067	21	>100:1	13.22 (6.08-18.25)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.547	5.466	5	797385	20	>100:1			1001.00	918.61	91	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.547	5.466	5/0	193439	21	30:1	Target = 10.43		379.16	16.666		
813 > 269	40	5.547	5.466		17596	22	>100:1	10.99 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.995	5.877	8/3	232877	31	17:1	Target = 13.67		321.12	14.115		
913 > 319	40	5.990	5.877		15421	39	>100:1	15.10 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.038	3.984	4	776118	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.495	2.469	2	746219	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.279	3.241	3	614171	25	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.705	1	642170	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.664	3.625	3	129394	22	>100:1			200.00			

Compound Type Legend

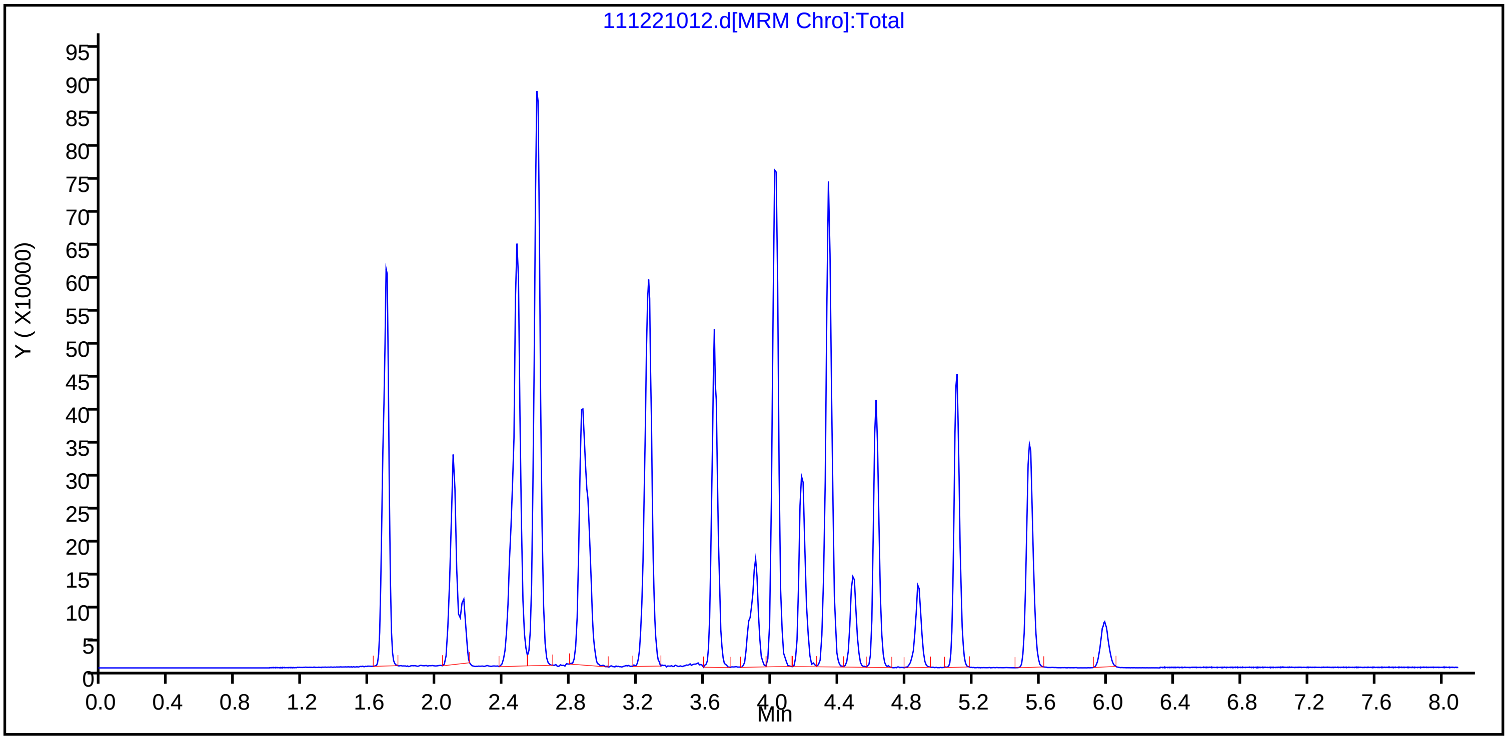
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

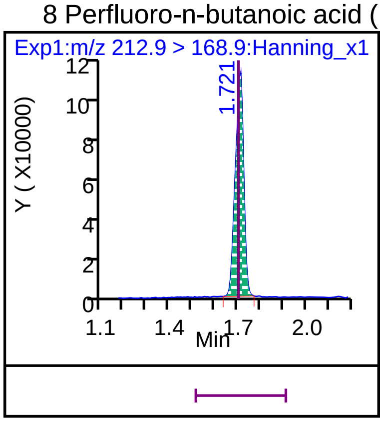
Report Date: 15-Nov-2021 10:46:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

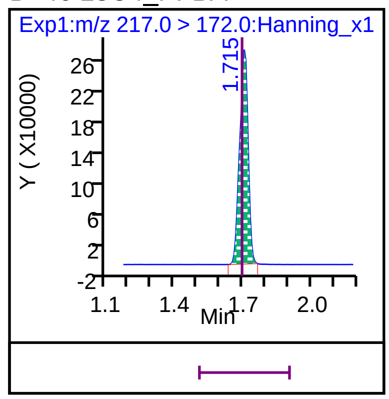
Data File:	\\Organics\LL\LCMSMS02.i\111221- DoD.b\111221012.d		
Injection Date:	12-Nov-2021 15:24:12	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ22105-002
Sample Info:	WQ22109-002 (WQ22105-002)		
Dil. Factor:	1	Operator:	Justin Gavin



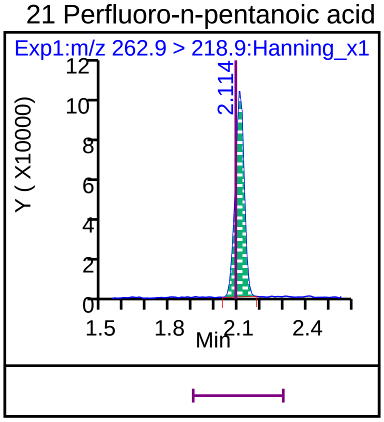
8 Perfluoro-n-butanoic acid (PFBA)



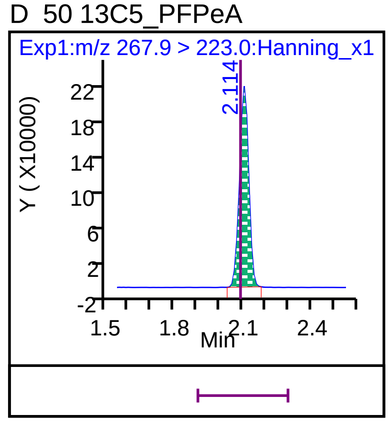
D 46 13C4_PFBA



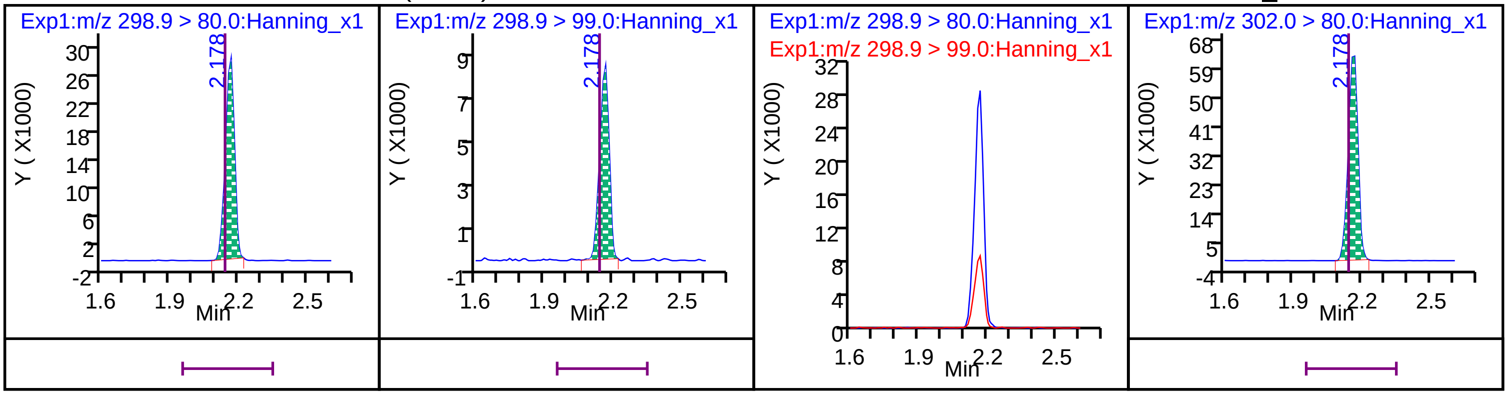
21 Perfluoro-n-pentanoic acid (PFPeA)



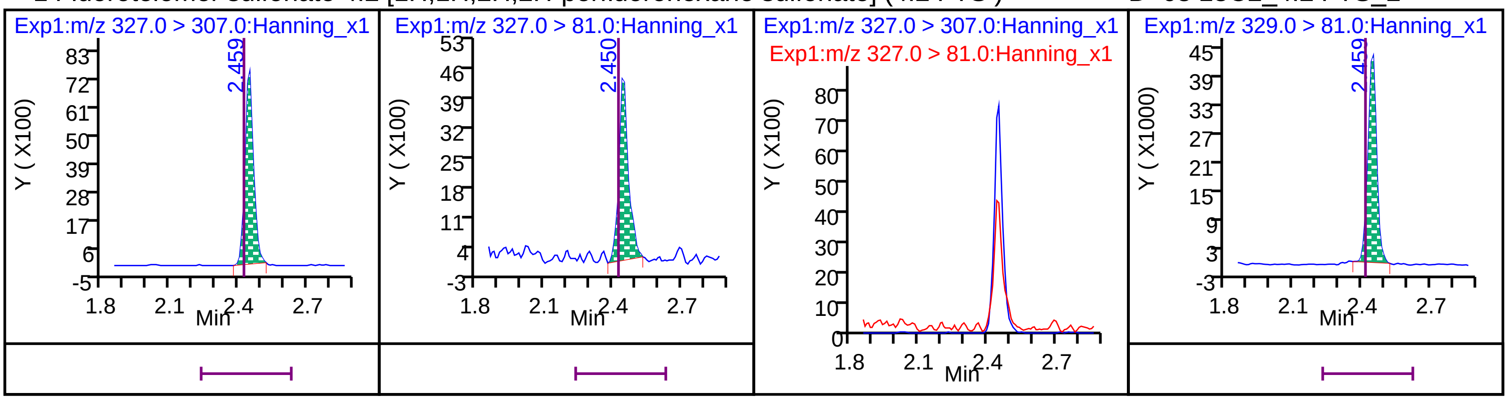
D 50 13C5_PFPeA



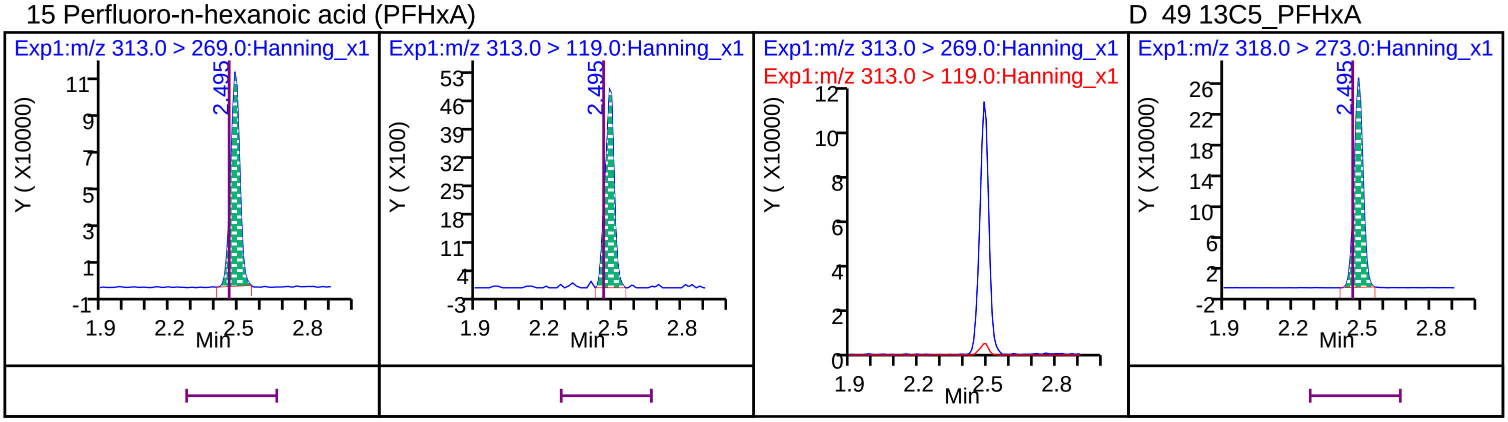
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



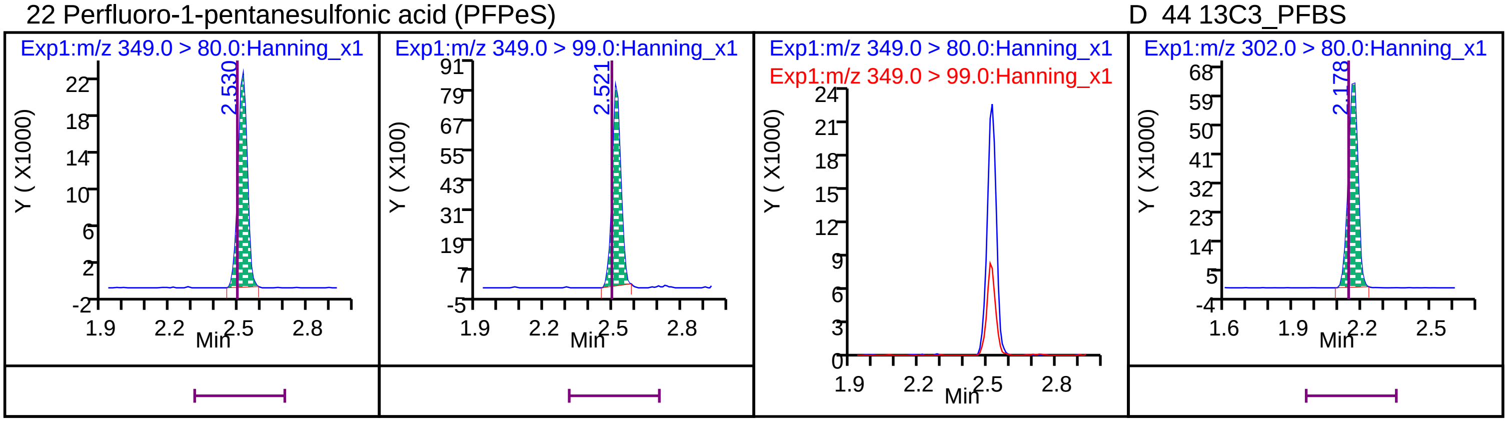
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



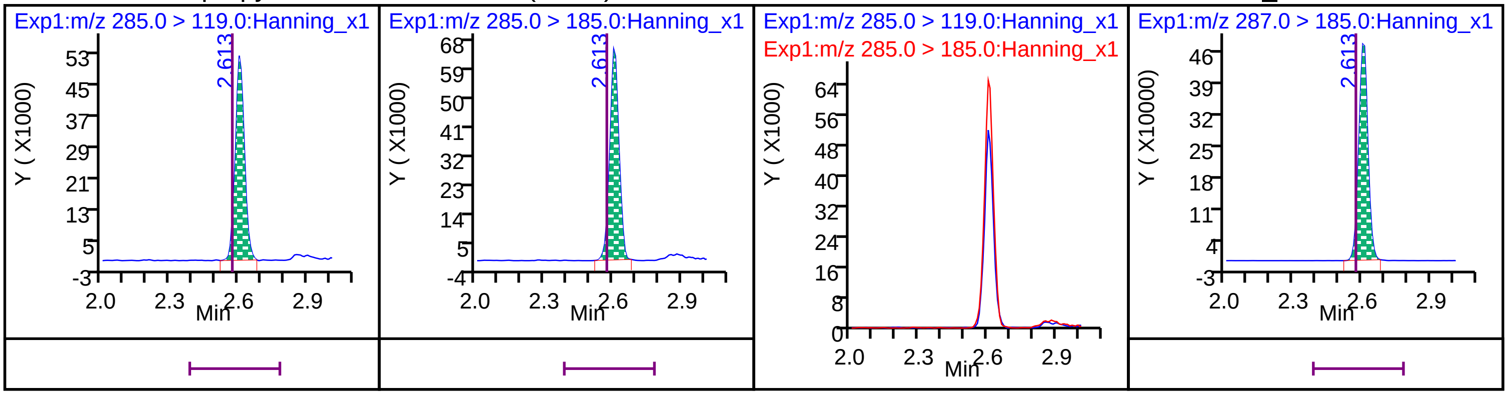
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



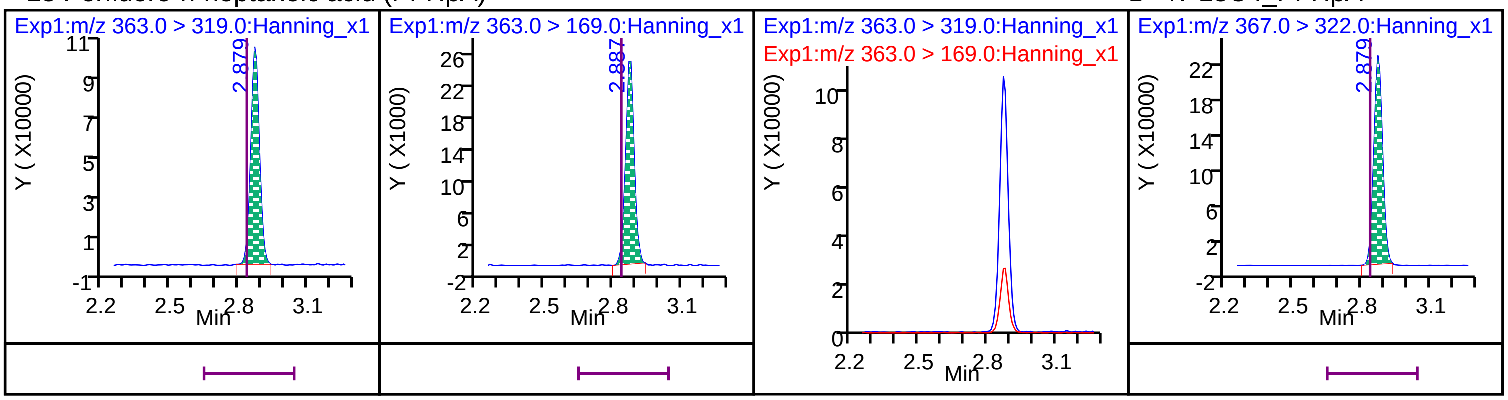
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



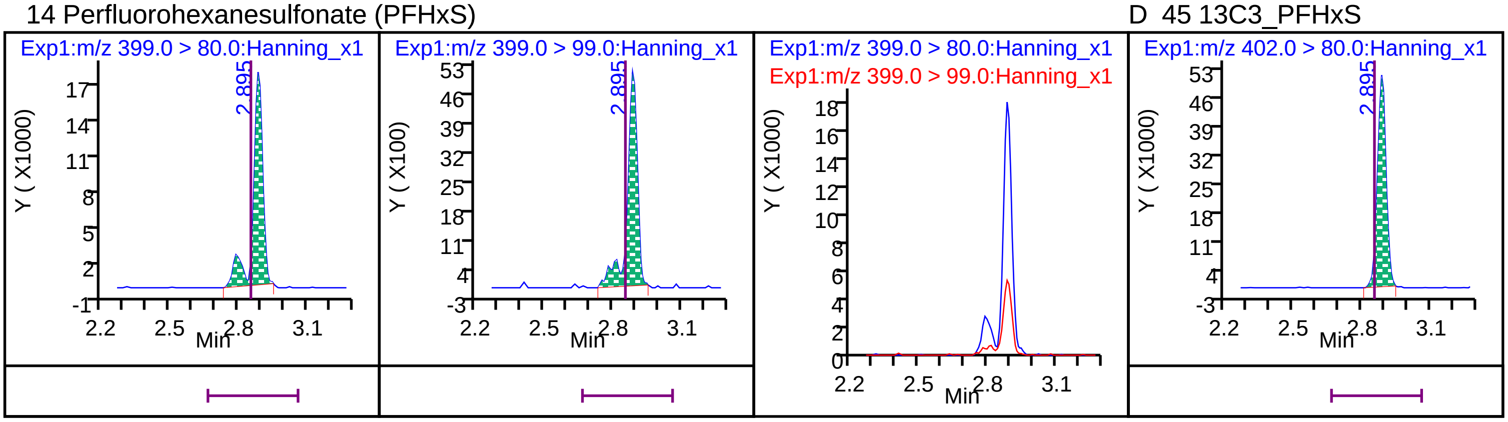
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



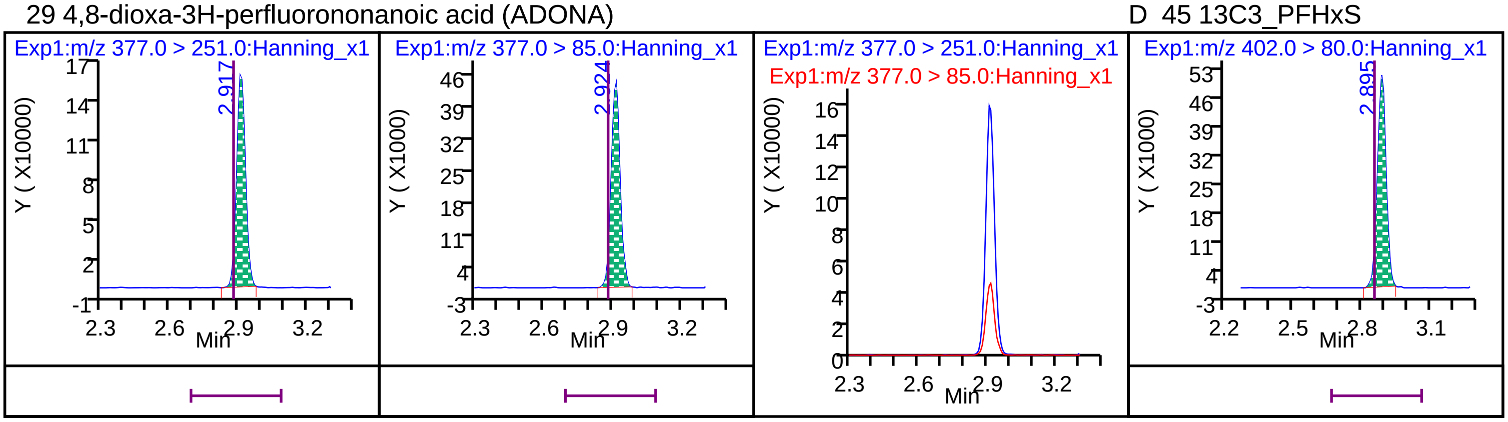
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



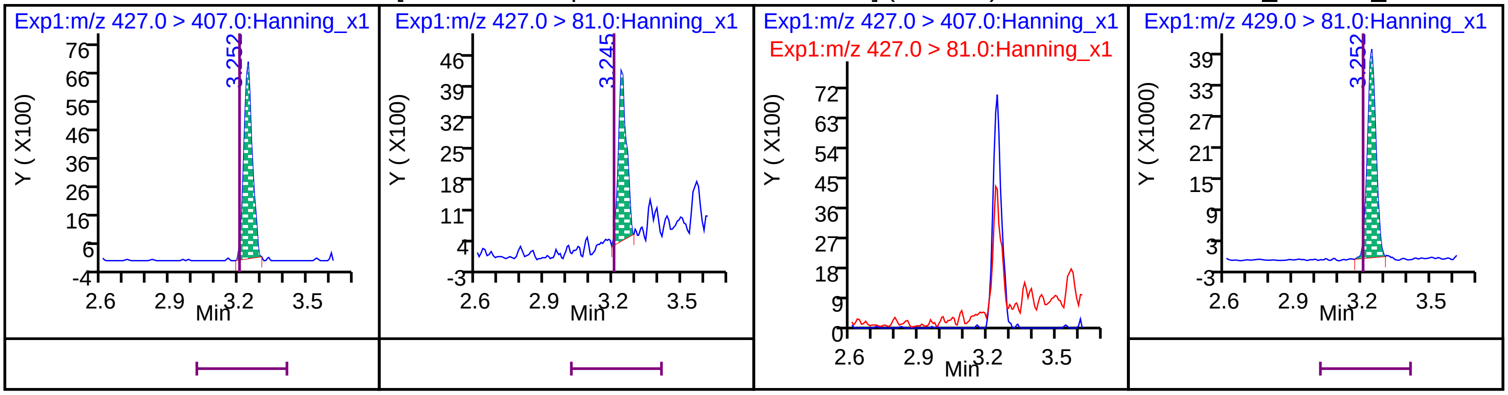
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



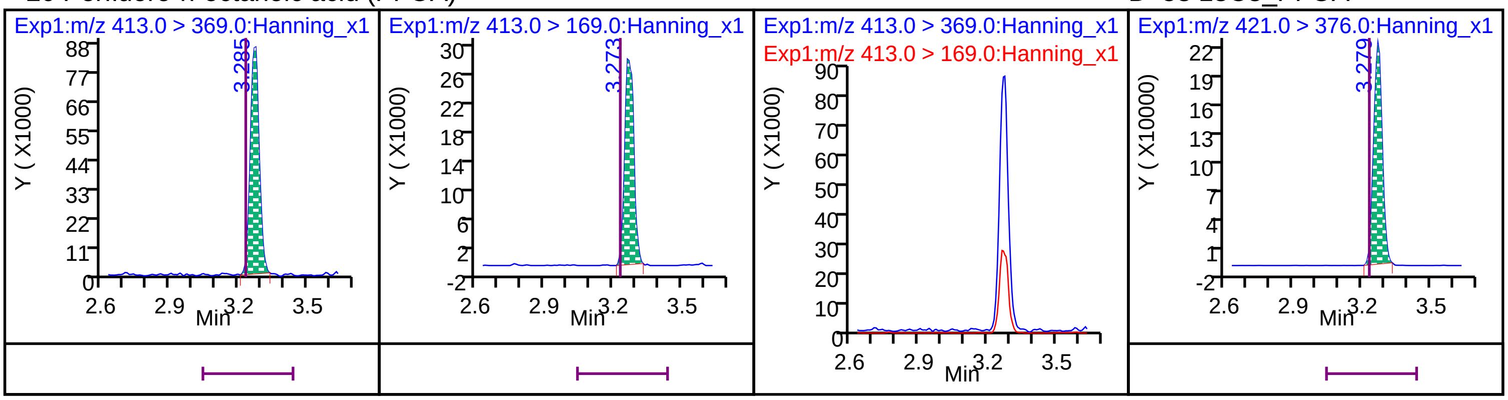
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



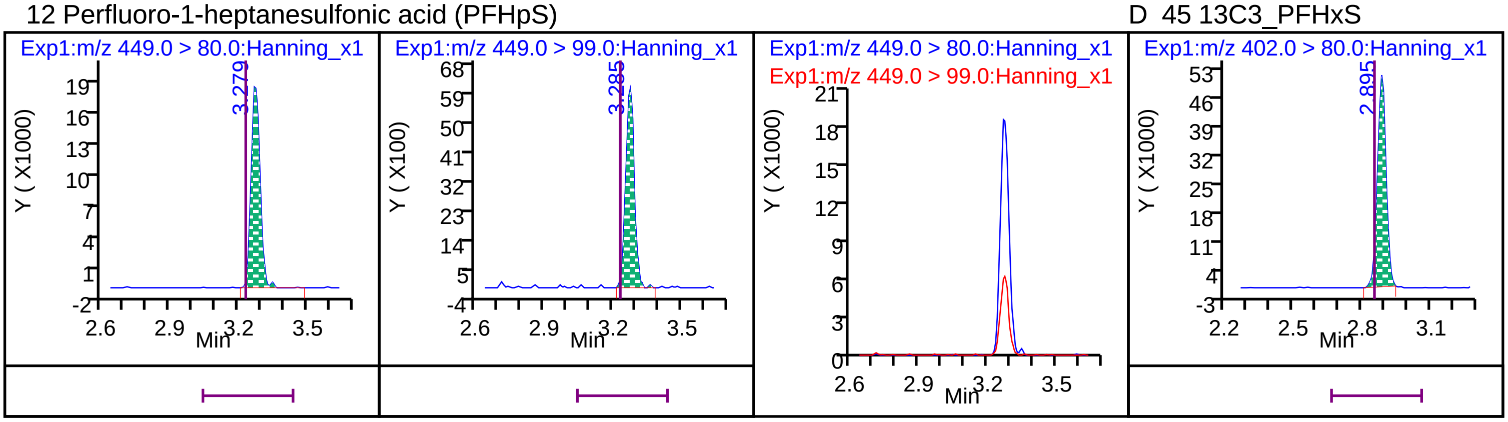
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



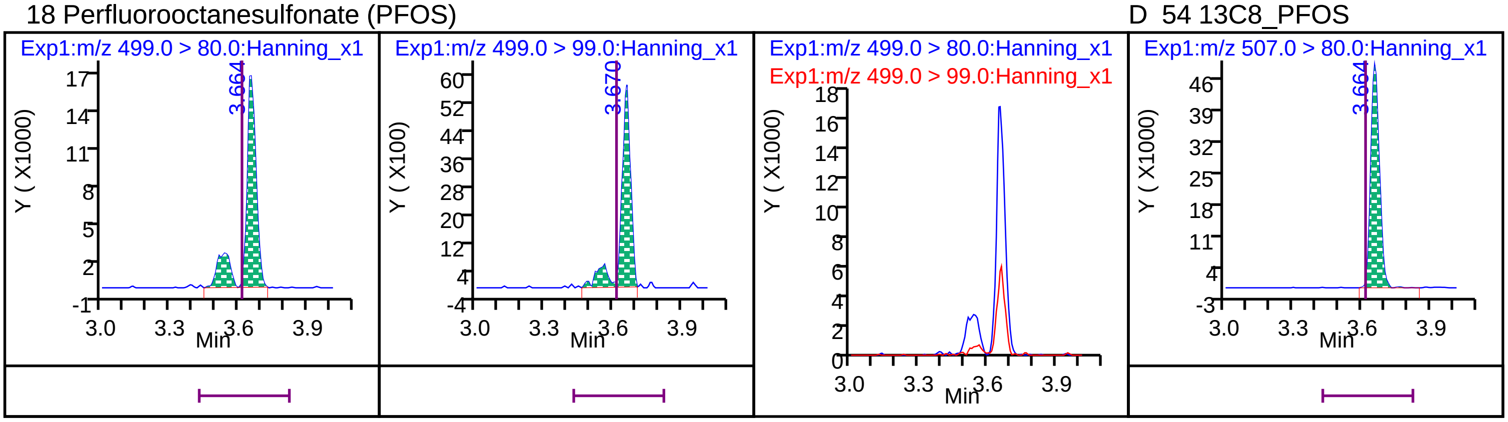
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



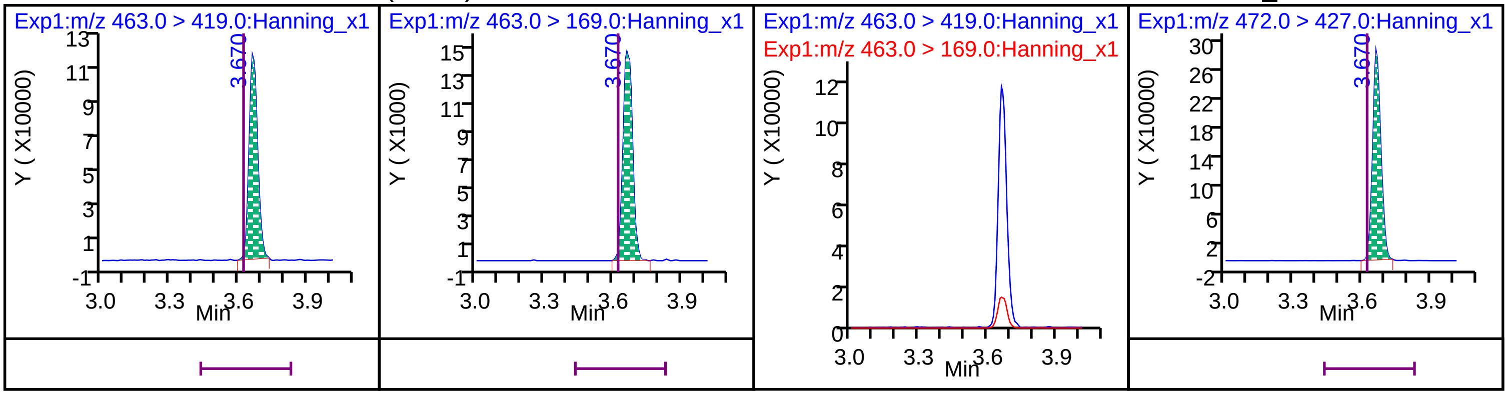
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



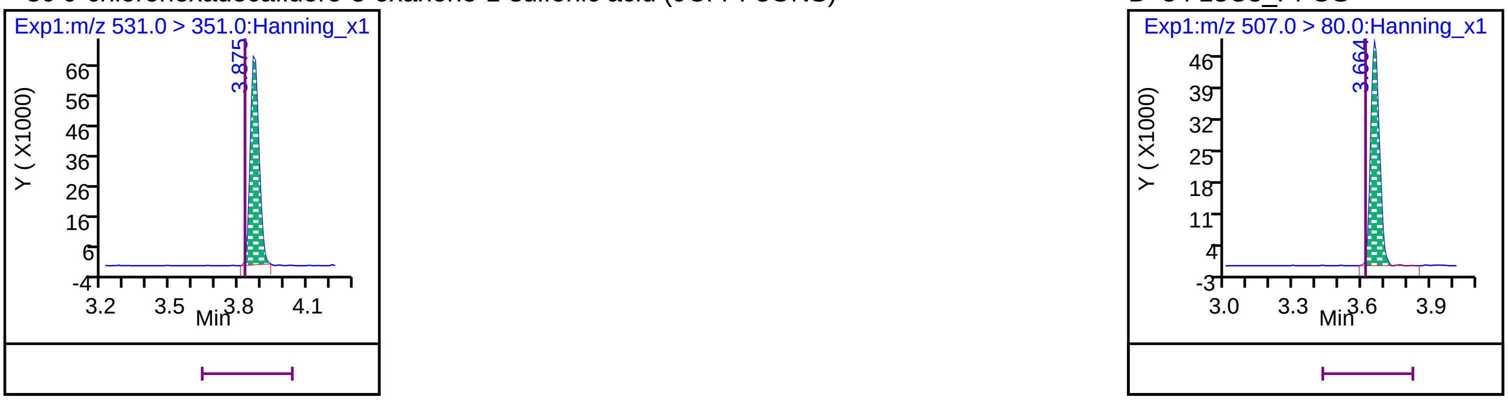
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



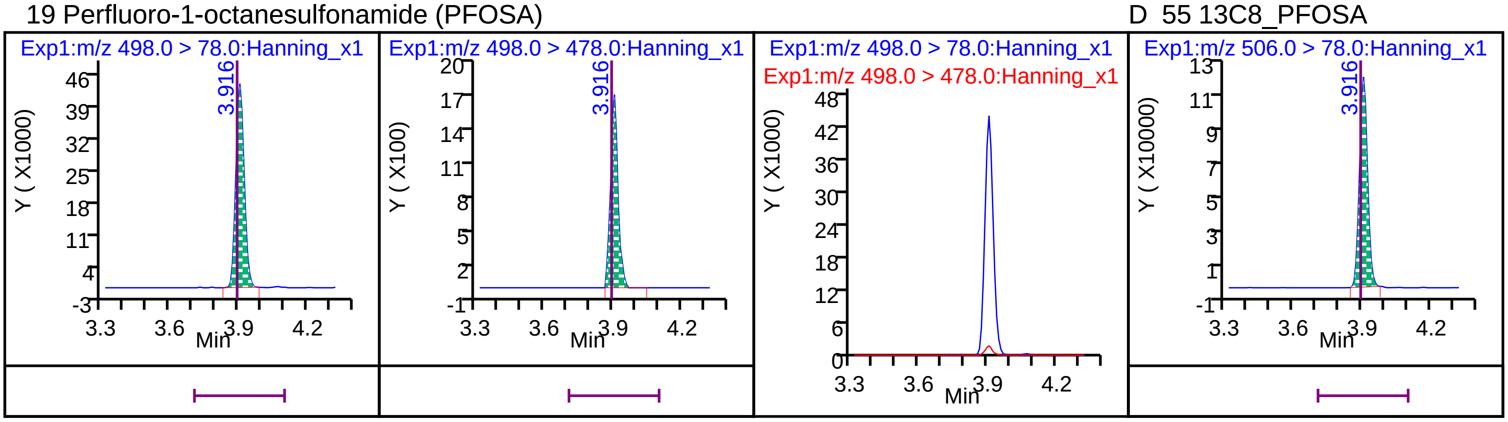
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



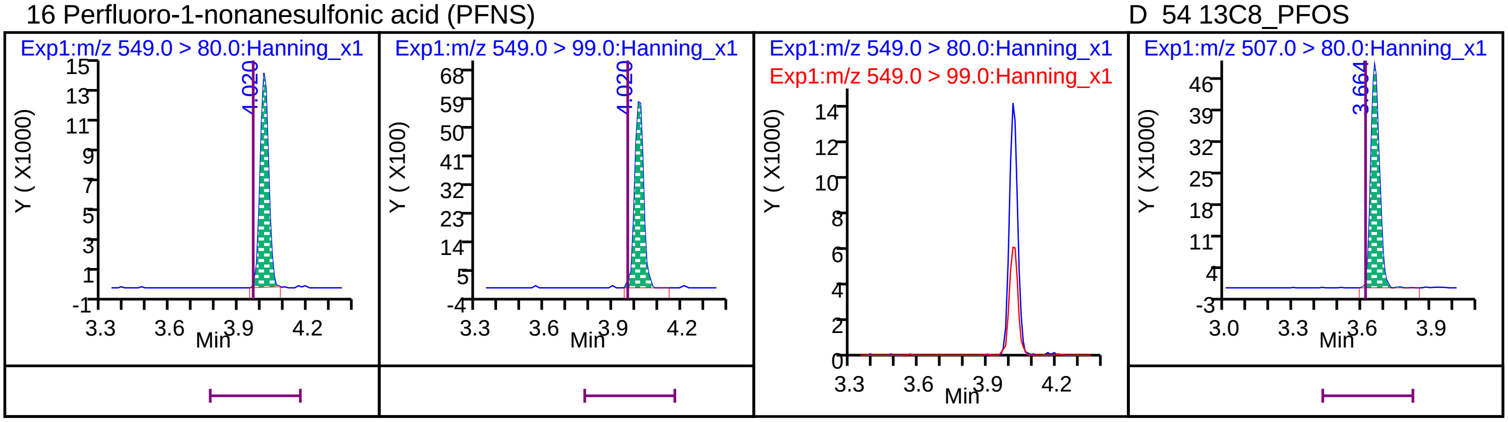
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



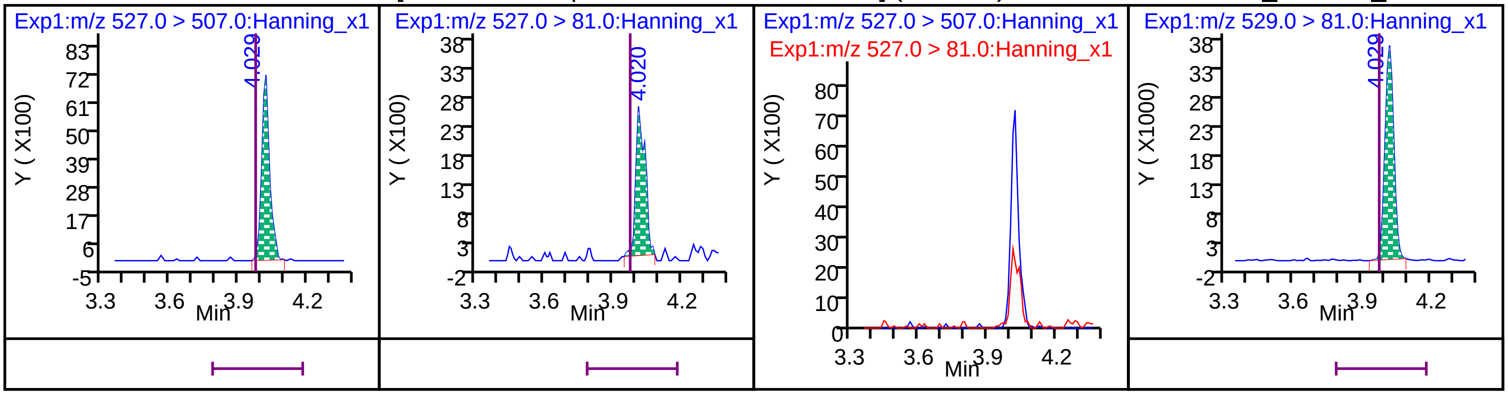
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



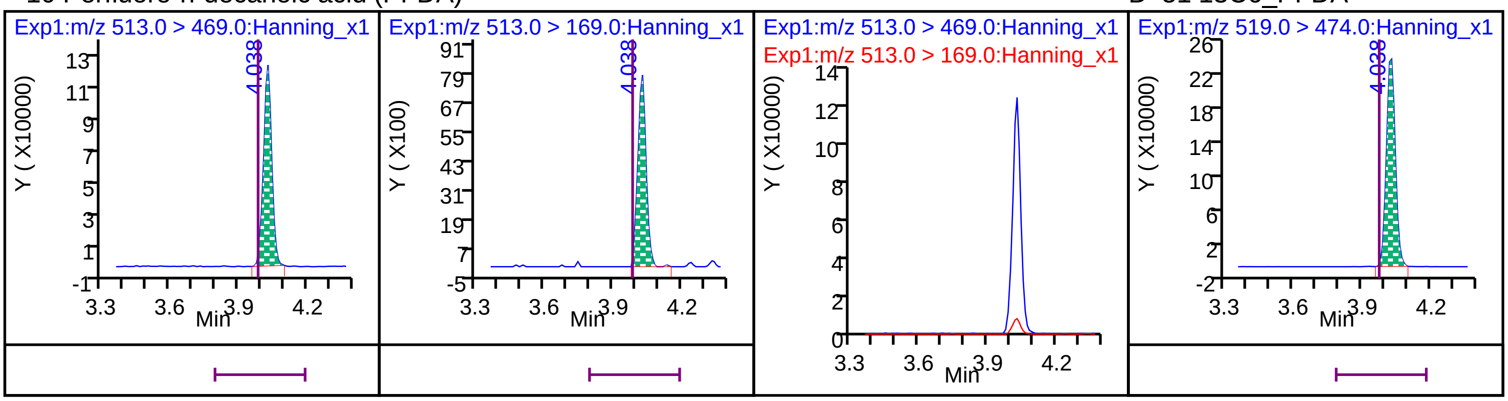
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



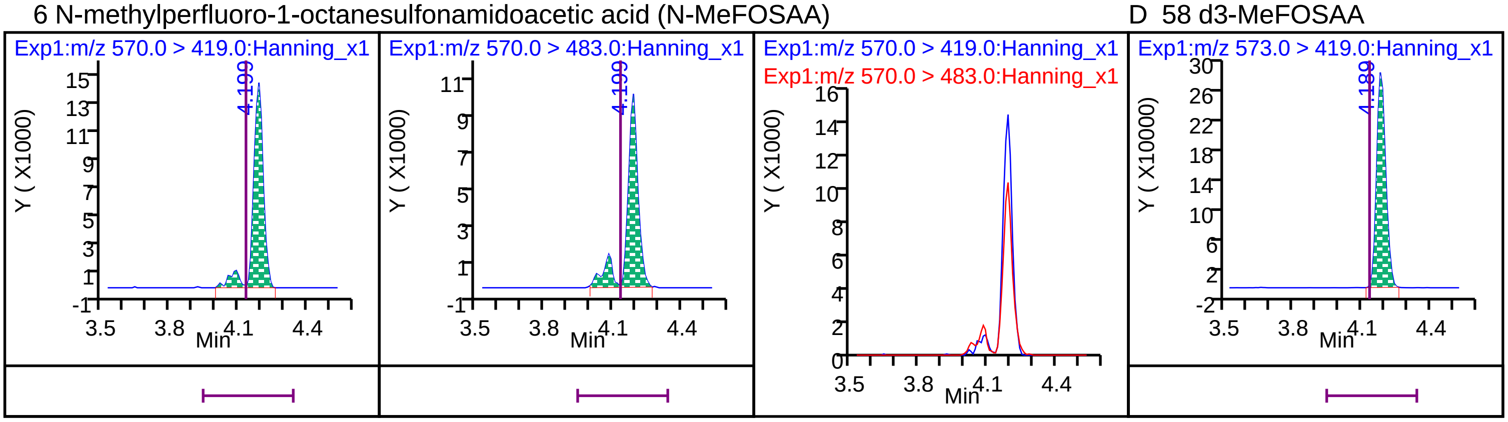
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

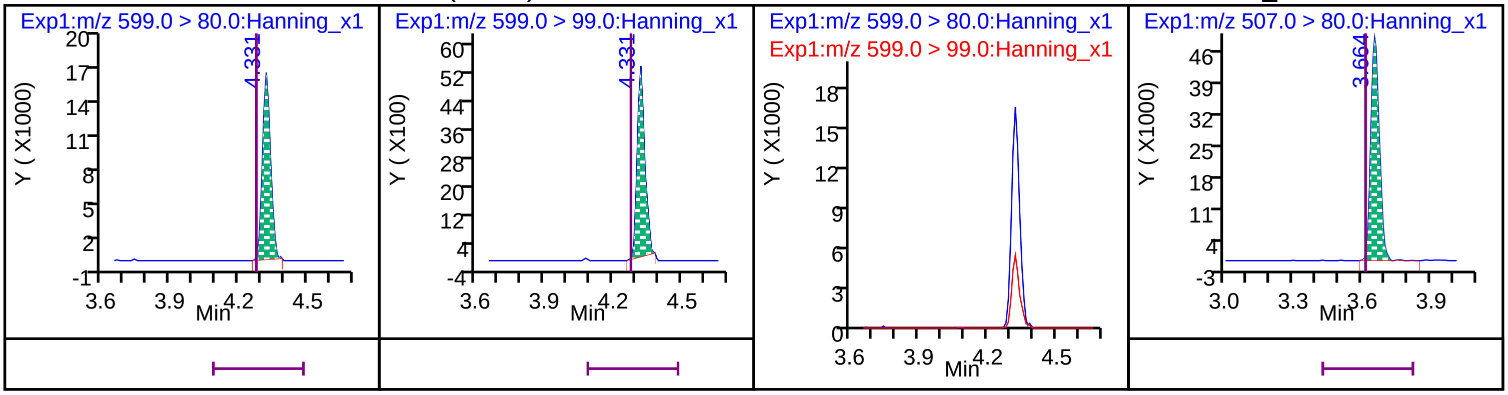


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

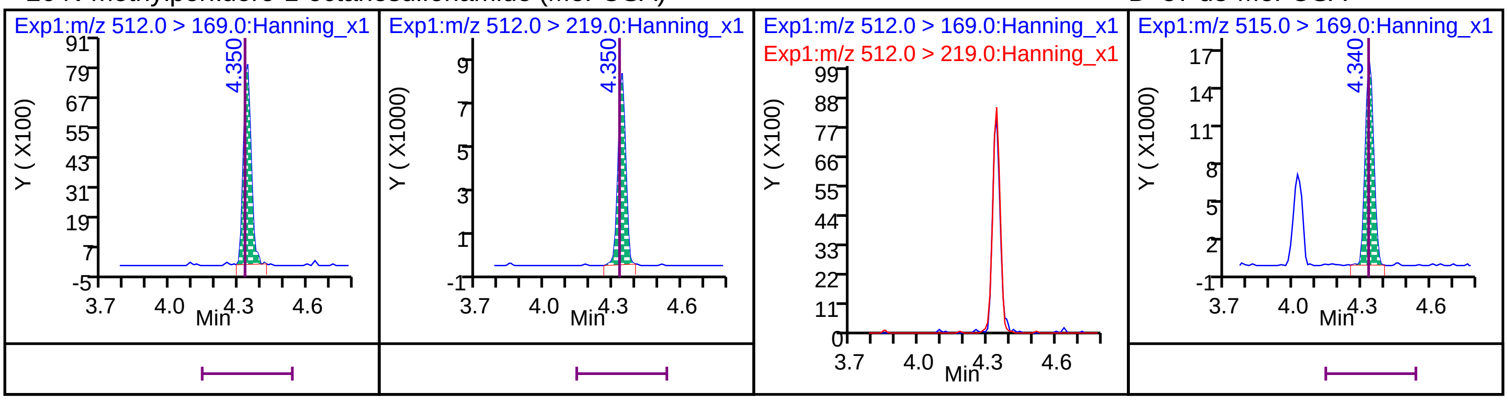


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

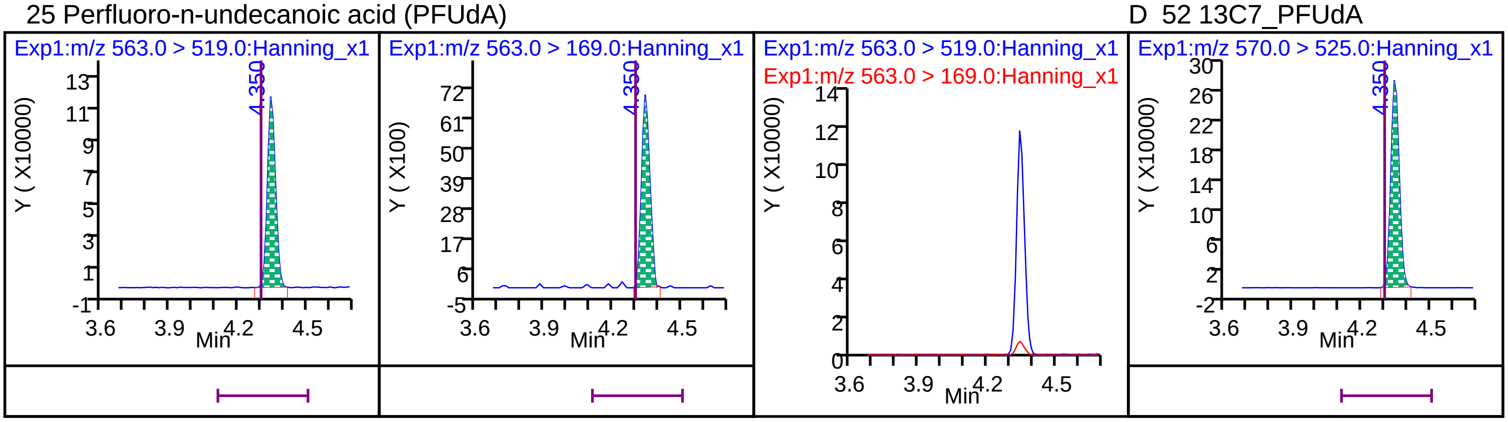
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



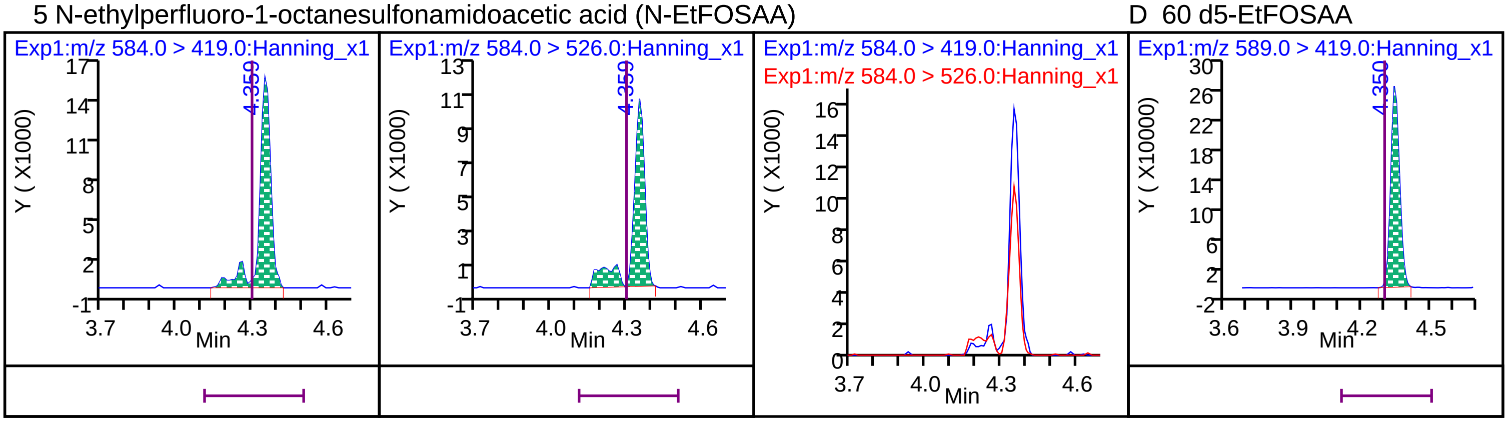
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



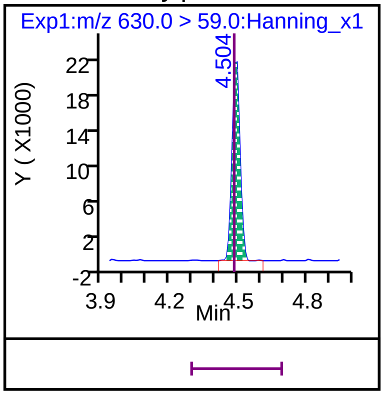
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



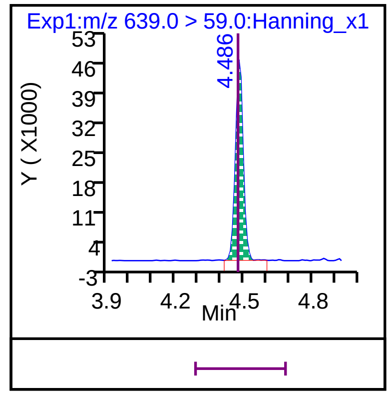
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



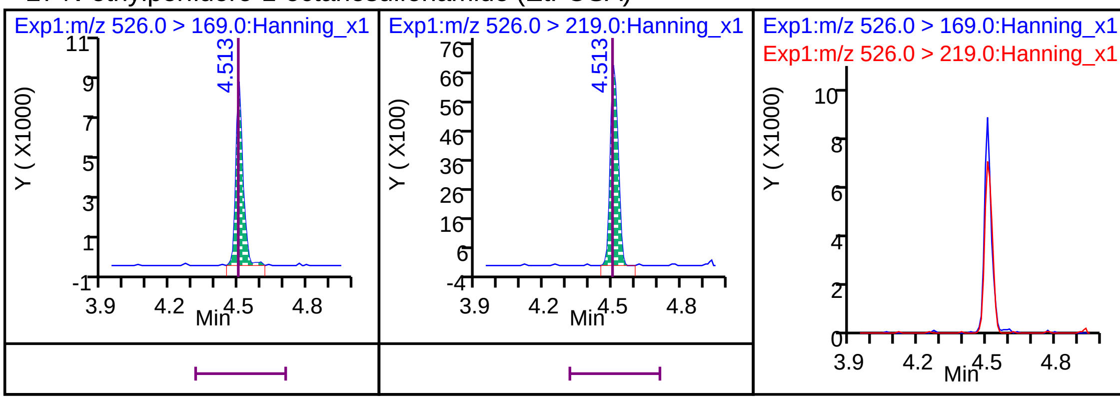
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



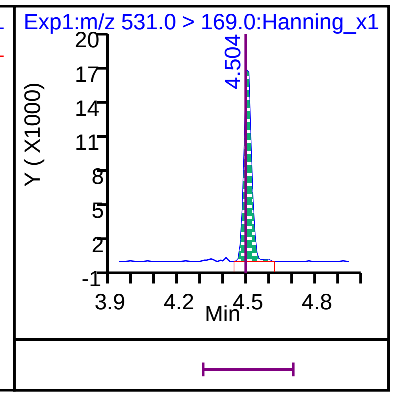
D 62 d9-EtFOSE



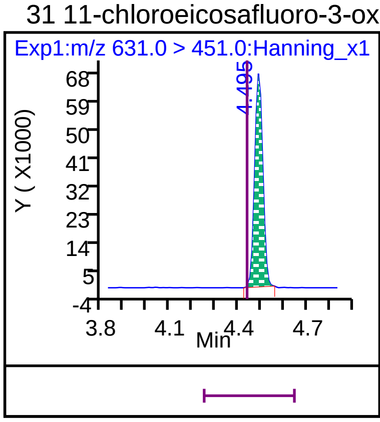
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



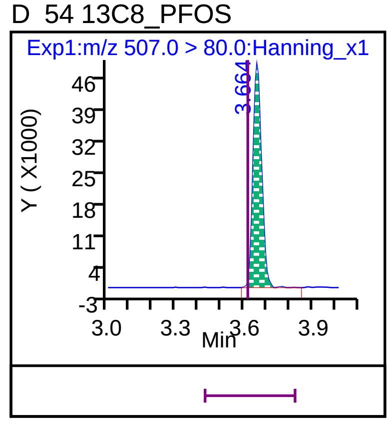
D 59 d5-EtFOSA



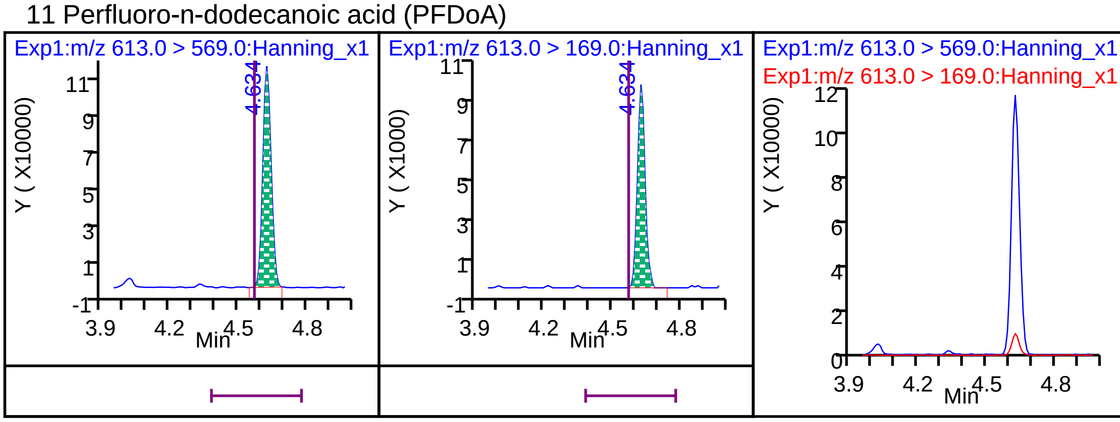
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



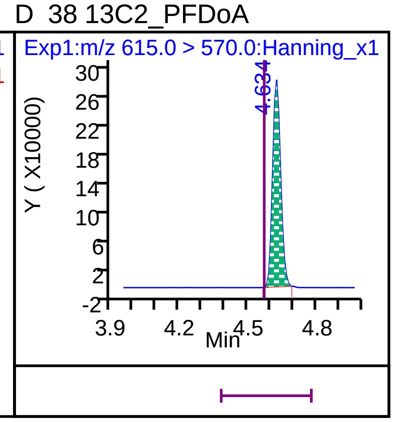
D 54 13C8_PFOS



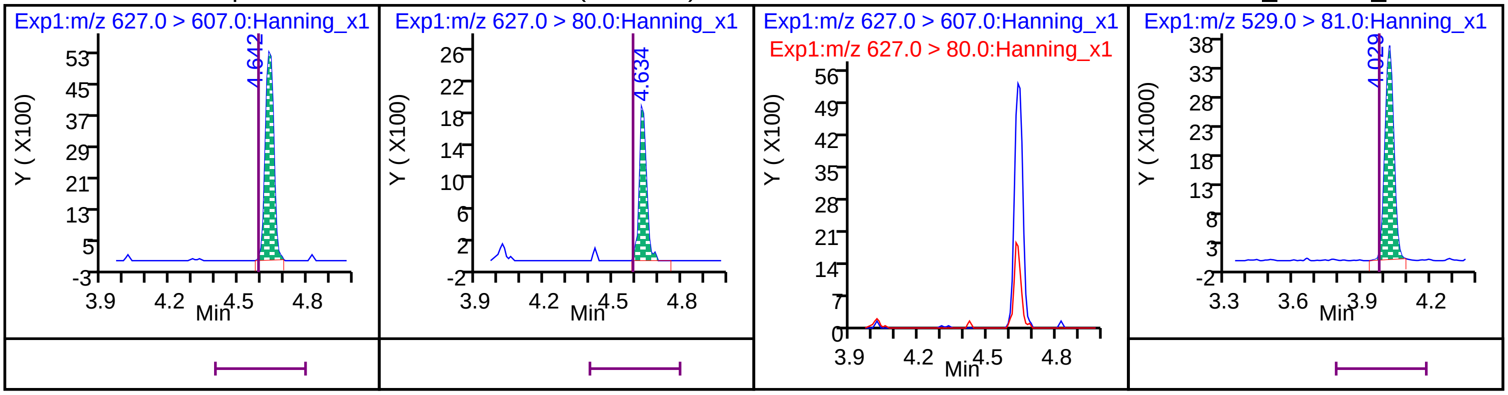
11 Perfluoro-n-dodecanoic acid (PFDoA)



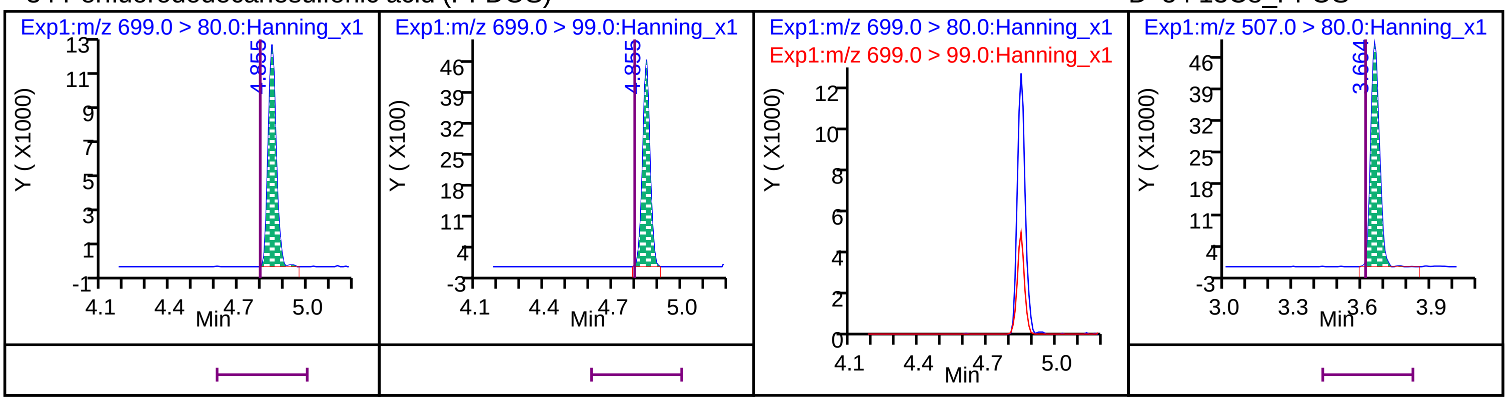
D 38 13C2_PFDoA



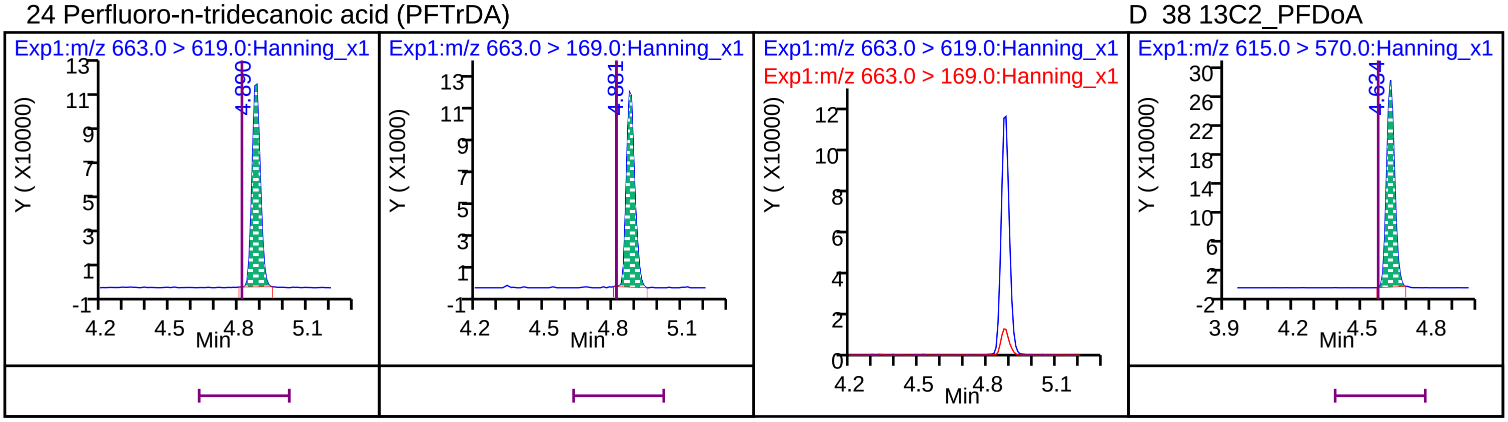
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



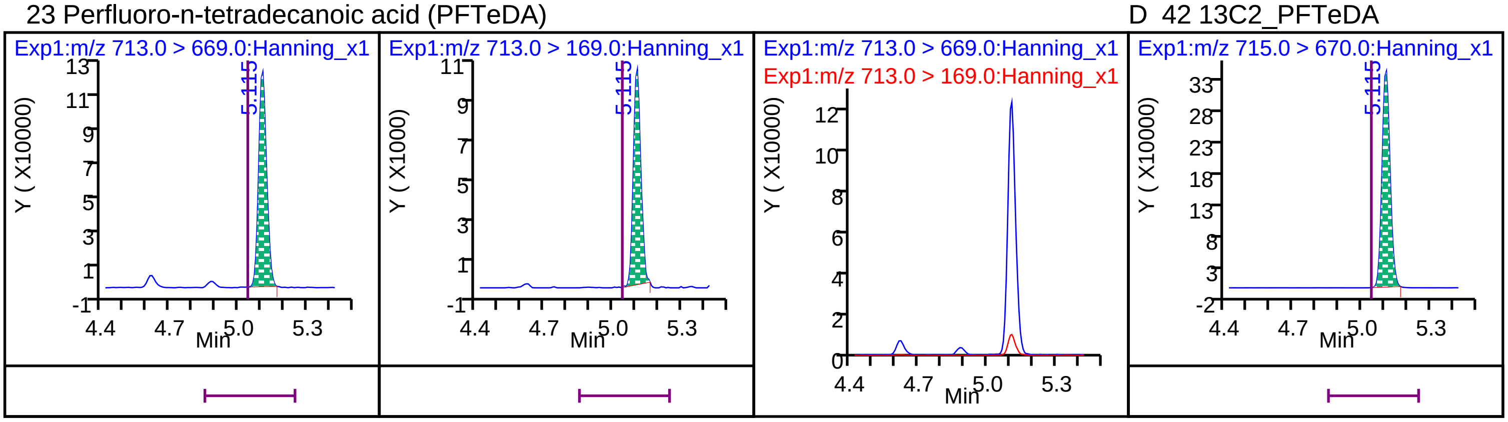
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

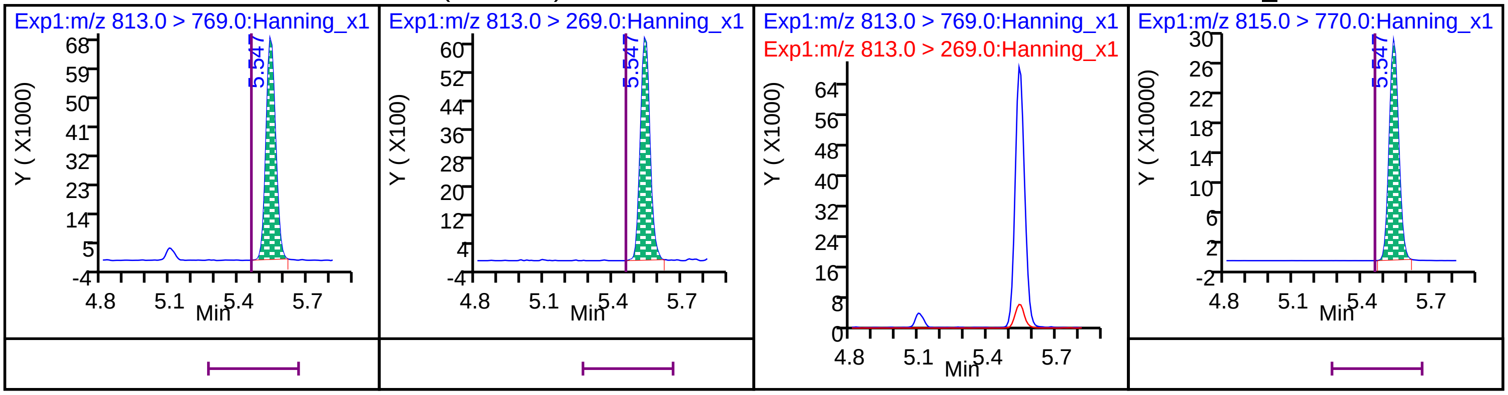


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

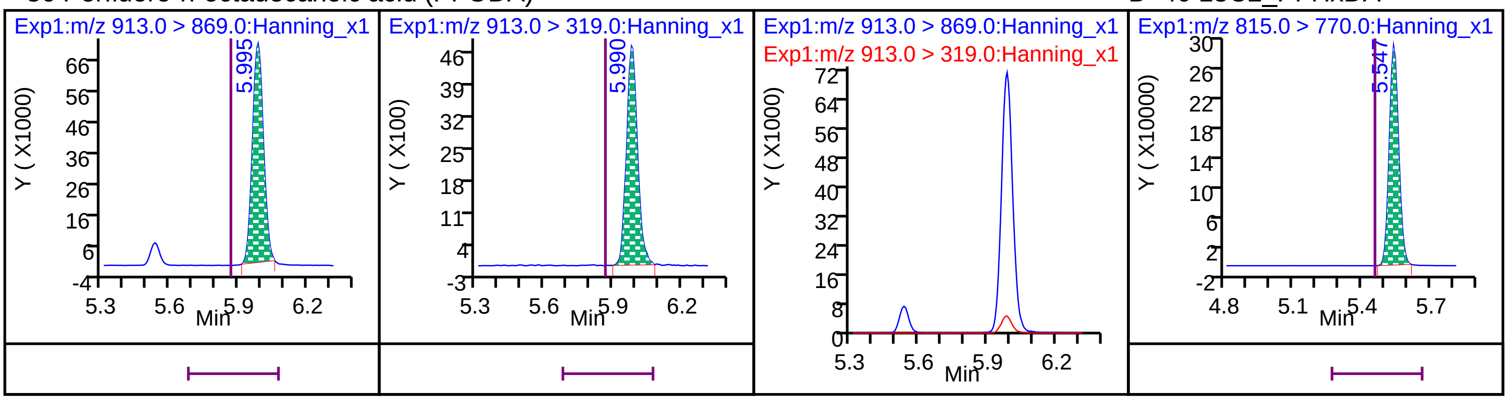


Report Date: 15-Nov-2021 10:46:18 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111221- DoD.b\111221012.d

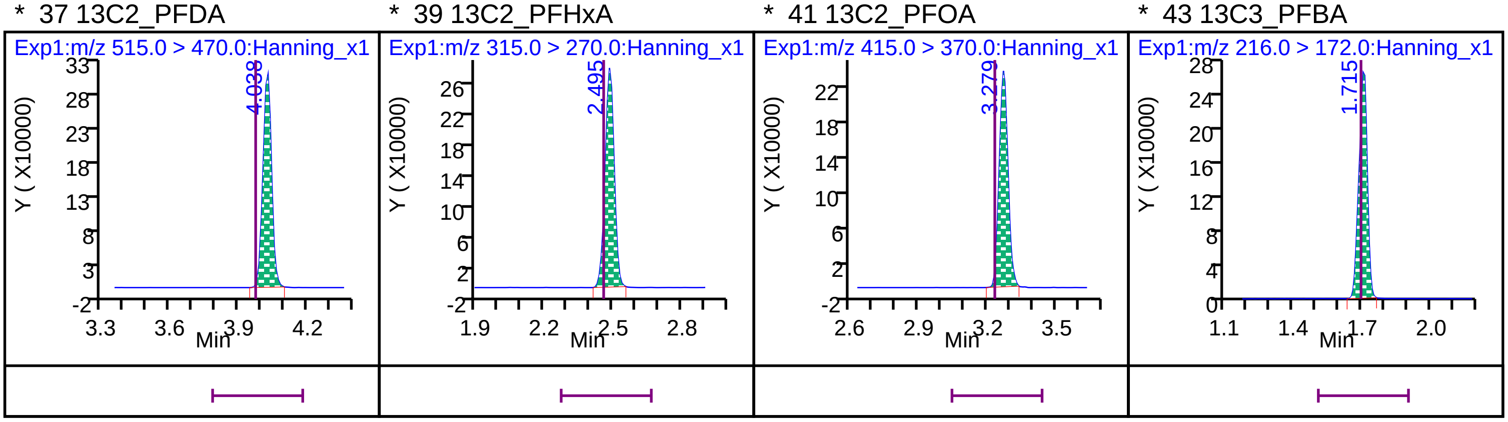
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



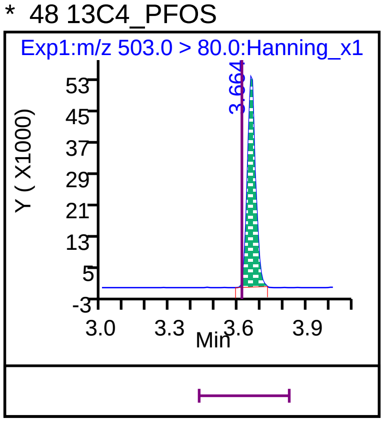
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



MISC. DATA

Extract Dilution Preparations

537	**1X**	**5X**	**10X**	**20X**	**50X**	**100X**	**200X**	**500X**	**1000X**	**2000X**
EXTRACT (uL)	950	200	100	50	20	10	20	8	4	2
IS (uL)	50	40	45	47.5	49	49.5	199	199.6	199.8	199.9
96% MeOH (uL)	-	760	855	902.5	931	940.5	3781	3792.4	3796.2	3798.1
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/Vol	1/(Vol*0.2)	1/(Vol*0.1)	1/(Vol*0.05)	1/(Vol*0.02)	1/(Vol*0.01)	1/(Vol*0.005)	1/(Vol*0.002)	1/(Vol*0.001)	1/(Vol*0.0005)

ID Aq	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	(1/0.91)* (FV/V_o)	5* (FV/V_o)	10* (FV/V_o)	20* (FV/V_o)	50* (FV/V_o)	100* (FV/V_o)	200* (FV/V_o)	500* (FV/V_o)	1000* (FV/V_o)	2000* (FV/V_o)

DAI	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
SAMPLE (uL)	700	140	70	35	14	7	14	5.6	2.8	1.4
SUR (uL)	25	25	25	25	25	25	100	100	100	100
MeOH (uL)	275	275	275	275	275	275	1100	1100	1100	1100
Water (uL)	0	560	630	665	686	693	2786	2794.4	2797.2	2798.6
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/.7	1/.14	1/.07	1/.035	1/.014	1/.007	4/.014	4/.0056	4/.0028	4/.0014

ID Solid	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	$((V_E/(M*S))/0.91)/1000$	$((V_E/(M*S))/0.2)/1000$	$((V_E/(M*S))/0.1)/1000$	$((V_E/(M*S))/0.05)/1000$	$((V_E/(M*S))/0.02)/1000$	$((V_E/(M*S))/0.01)/1000$	$((V_E/(M*S))/0.005)/1000$	$((V_E/(M*S))/0.002)/1000$	$((V_E/(M*S))/0.001)/1000$	$((V_E/(M*S))/0.0005)/1000$

NOTE: Dilutions of 100x or below will be prepped in 1-mL FV; dilutions higher than 100x and will be prepped in 4-mL FV.

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
75	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44	110721A12.d	ICal					Analytes	L-1	1.00		
76	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19	110721A13.d	ICal					Analytes	L-2	1.00		
77	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54	110721A14.d	ICal					Analytes	L-3	1.00		
78	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30	110721A15.d	ICal					Analytes	L-4	1.00		
79	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06	110721A16.d	ICal					Analytes	L-5	1.00		
80	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43	110721A17.d	ICal					Analytes	L-6	1.00		
81	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18	110721A18.d	ICal					Analytes	L-7	1.00		
82	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42	110721A19.d	ICal					Analytes	L-8	1.00		
83	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06	110721A20.d	ICal					Analytes	L-9	1.00		
84	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32	110721A21.d	ICal					Analytes	L-10	1.00		
85	ID IBLK B	07-Nov-2021 20:32:59	110721A22.d	InstBlk					Surrogates	Smp	0.1100		
86	F.L. ICV 500_SVLC-1734	07-Nov-2021 20:43:28	110721A23.d	ICV					Analytes	ICV	1.00		
87	ISOMER CHECK_SVLC-1652	07-Nov-2021 20:53:57	110721A24.d	CheckStd					IsomerCheck	Smp	1.00		
88	ID IBLK C	07-Nov-2021 21:04:26	110721A25.d	InstBlk					Surrogates	Smp	0.1100		SUR:8:2,EFOSAA,DoA(high)
15	ID CCV 1000_SVLC-1717	07-Nov-2021 23:42:08	110721A40.d	CCV					Analytes	L-5	1.00		
16	CCB 1	07-Nov-2021 23:52:38	110721A41.d	InstBlk					Surrogates	Smp	0.1100		
17	WQ21364-001	08-Nov-2021 00:03:10	110721A42.d	MBlk		Aqueous	1	21367	Surrogates	Smp	0.1100		
18	WQ21367-002	08-Nov-2021 00:13:41	110721A43.d	LCS		Aqueous	1	21367	Analytes	100x PDS	0.2000		
21	WJ28013-001	08-Nov-2021 00:45:23	110721A46.d	Client	EFF-5	Aqueous	1	21364	Surrogates	Smp	0.1100		
22	WJ28013-002	08-Nov-2021 00:55:51	110721A47.d	Client	EFF-5D	Aqueous	1	21364	Surrogates	Smp	0.1100		
23	WJ28013-003	08-Nov-2021 01:06:20	110721A48.d	Client	Field Blank 5	Aqueous	1	21364	Surrogates	Smp	0.1100		
24	WJ28014-001	08-Nov-2021 01:16:51	110721A49.d	Client	EFF-6	Aqueous	1	21364	Surrogates	Smp	0.1100		
25	WJ28014-002	08-Nov-2021 01:27:22	110721A50.d	Client	EFF-6D	Aqueous	1	21364	Surrogates	Smp	0.1100		
26	WJ28014-003	08-Nov-2021 01:37:53	110721A51.d	Client	Field Blank 6	Aqueous	1	21364	Surrogates	Smp	0.1100		
27	WJ28018-001	08-Nov-2021 01:48:24	110721A52.d	Client	EFF-7	Aqueous	1	21364	Surrogates	Smp	0.1100		
28	WJ28018-002	08-Nov-2021 01:58:57	110721A53.d	Client	EFF-7D	Aqueous	1	21364	Surrogates	Smp	0.1100		
29	ID CCV 1000A_SVLC-1744	08-Nov-2021 02:09:30	110721A54.d	CCV					Analytes	L-5	1.00		
30	CCB 2	08-Nov-2021 02:20:02	110721A55.d	InstBlk					Surrogates	Smp	0.1100		
33	WJ28018-003	08-Nov-2021 02:51:36	110721A58.d	Client	Field Blank 7	Aqueous	1	21364	Surrogates	Smp	0.1100		RR-1X
38	WK03079-001	08-Nov-2021 03:44:21	110721A63.d	Client	STEW-EFF2-110221	Aqueous	1	21297	Surrogates	Smp	0.1100		RR-1X
45	ID CCV 1000B_SVLC-1744	08-Nov-2021 04:58:07	110721A70.d	CCV					Analytes	L-5	1.00		POOR INJECTION, RR PREVIOUS/NEXT WINDOW

Report Date: 15-Nov-2021 10:46:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\111221- DoD.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
3	ID CCV 100_SVLC-1741	12-Nov-2021 12:52:59	111221005.d	CCV					Analytes	L-2	1.00		PFDS failed
4	ID CCV 200_SVLC-1742	12-Nov-2021 13:03:30	111221006.d	CCV					Analytes	L-3	1.00		
5	ID BLK 1	12-Nov-2021 13:14:00	111221007.d	InstBlk					Surrogates	Smp	0.1100		
6	ID CCV 100_SVLC-1741,rerun	12-Nov-2021 14:08:14	111221008.d	CCV					Analytes	L-2	1.00		
7	ID CCV 100_SVLC-1741, conf	12-Nov-2021 14:18:45	111221009.d	CCV					Analytes	L-2	1.00		
8	ID BLK 2	12-Nov-2021 14:29:18	111221010.d	InstBlk					Surrogates	Smp	0.1100		
9	WQ22105-001	12-Nov-2021 15:13:37	111221011.d	MBlk		Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2,6:2,8:2(ALL HIGH), RR TO CONFIRM
10	WQ22105-002	12-Nov-2021 15:24:12	111221012.d	LCS		Aqueous	1	22105	Analytes	100x PDS	0.2000		
15	WK01012-001	12-Nov-2021 16:16:46	111221017.d	Client	POL-DPT0136-012.0-202110	Aqueous	1	22105	Surrogates	Smp	0.1100		
16	WK01012-002	12-Nov-2021 16:27:16	111221018.d	Client	POL-DPT0136-022.0-202110	Aqueous	1	22105	Surrogates	Smp	0.1100		
17	WK01012-003	12-Nov-2021 16:37:47	111221019.d	Client	POL-DPT0136-032.0-202110	Aqueous	1	22105	Surrogates	Smp	0.1100		sur:4:2(nd),6:2(det),NCM/RR TO CONFIRM
18	WK01012-004	12-Nov-2021 16:48:18	111221020.d	Client	POL-DPT0136-042.0-202110	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
19	WK02089-001	12-Nov-2021 16:58:51	111221021.d	Client	CHP-MW0028-042.5-2021102	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
20	WK02089-001DU	12-Nov-2021 17:09:26	111221022.d	Client		Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
21	ID CCV 1000_SVLC-1744	12-Nov-2021 17:20:00	111221023.d	CCV					Analytes	L-5	1.00		
22	ID BLK 3	12-Nov-2021 17:30:29	111221024.d	InstBlk					Surrogates	Smp	0.1100		
23	WK02089-002	12-Nov-2021 17:40:59	111221025.d	Client	CHP-MW0012-007.5-2021102	Aqueous	1	22105	Surrogates	Smp	0.1100		
24	WK02089-002MS	12-Nov-2021 17:51:30	111221026.d	MS		Aqueous	1	22105	Analytes	100x PDS	0.2000		
25	WK02089-003	12-Nov-2021 18:02:00	111221027.d	Client	CHP-MW0029-042.5-2021102	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
26	WK02089-004	12-Nov-2021 18:12:32	111221028.d	Client	CHP-MW0063-045.0-2021102	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
27	WK02089-005	12-Nov-2021 18:23:04	111221029.d	Client	CHP-EB-20211029-01	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:6:2(ND),NCM
28	WJ30013-001	12-Nov-2021 18:33:36	111221030.d	Client	FTLEE-EB-1_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		
29	WJ30013-002	12-Nov-2021 18:44:09	111221031.d	Client	FTLEE-EB-2_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:6:2(ND),NCM
30	WJ30013-003	12-Nov-2021 18:54:42	111221032.d	Client	FTLEE-EB-3_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:6:2(ND),NCM
31	WJ30013-004	12-Nov-2021 19:05:17	111221033.d	Client	FTLEE-EB-4_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:6:2(ND),NCM
32	WJ30013-005	12-Nov-2021 19:15:47	111221034.d	Client	FTLEE-EB-5_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		
33	WJ30013-006	12-Nov-2021 19:26:16	111221035.d	Client	FTLEE-SB-1_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		
34	ID CCV 1000_SVLC-1744	12-Nov-2021 19:36:47	111221036.d	CCV					Analytes	L-5	1.00		
35	ID BLK 3	12-Nov-2021 19:47:19	111221037.d	InstBlk					Surrogates	Smp	0.1100		
36	WJ30013-008	12-Nov-2021 19:57:50	111221038.d	Client	FTLEE-FFTAFP-GW-3_102521	Aqueous	1	22105	Surrogates	Smp	0.1100		
37	WK10059-011	12-Nov-2021 20:08:23	111221039.d	Client	AFRC-SB07-08	Soil	1	22096	Surrogates	Smp	0.1100		
38	WK10059-012	12-Nov-2021 20:18:56	111221040.d	Client	AFRC-SB06-21	Soil	1	22096	Surrogates	Smp	0.1100		
45	ID CCV 1000_SVLC-1744	12-Nov-2021 21:32:43	111221047.d	CCV					Analytes	L-5	1.00		
61	ID SVLC 1752 TEST	12-Nov-2021 21:53:50	111221063.d	Client		Aqueous	1		Surrogates	Smp	0.1100		

Report Date: 30-Nov-2021 15:07:25 AIM Revision: 2.0.2021.1020

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\111521-DOD.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	ID CCV 100_SVLC-1741	15-Nov-2021 13:04:55	111521005.d	CCV					Analytes	L-2	1.00		
96	ID CCV 200_SVLC-1742	15-Nov-2021 13:15:24	111521006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	15-Nov-2021 13:25:53	111521007.d	InstBlk					Surrogates	Smp	0.1100		
1	WQ22105-001	15-Nov-2021 13:46:56	111521009.d	MBlk		Aqueous	1	22105	Surrogates	Smp	0.1100		
9	WK01012-003	15-Nov-2021 15:11:00	111521017.d	Client	POL-DPT0136-032.0-202110	Aqueous	1	22105	Surrogates	Smp	0.1100		SUR:4:2(ND), Report EFOSA and TeDA from run 1
12	ID CCV 1000_SVLC-1744	15-Nov-2021 15:42:39	111521020.d	CCV					Analytes	L-5	1.00		
13	CCB 1	15-Nov-2021 15:53:08	111521021.d	InstBlk					Surrogates	Smp	0.1100		
14	WK12048-004	15-Nov-2021 16:03:37	111521022.d	Client	FT007P-DPT2-06D-GW-11122	Aqueous	1	22405	Surrogates	Smp	0.1100		sur:4:2(ND),6:2(DET),8:2(DET),RX
17	ID IBLK B	15-Nov-2021 16:35:09	111521025.d	InstBlk					Surrogates	Smp	0.1100		
18	WK09036-002	15-Nov-2021 16:45:40	111521026.d	Client	HWAD-IDW-1-SW-110421	Aqueous	1	22317	Surrogates	Smp	0.1100		
25	ID CCV 1000A_SVLC-1744	15-Nov-2021 17:59:20	111521033.d	CCV					Analytes	L-5	1.00		
26	CCB 2	15-Nov-2021 18:09:51	111521034.d	InstBlk					Surrogates	Smp	0.1100		
27	WK10059-005	15-Nov-2021 18:20:22	111521035.d	Client	AFRC-SB03-0.5	Soil	5	22096	Surrogates	Smp	0.1100		
29	ID CCV 1000B_SVLC-1744	15-Nov-2021 18:41:28	111521037.d	CCV					Analytes	L-5	1.00		

Analyst: ARC2 **Level 2 Analyst:** N/A

Status: Level 1 review released

Matrix: Aqueous

Prep Batch: 22105

PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/11/2021 1232
End Date: 11/11/2021 1736

Conc Analyst: ARC2
Conc Start Date: 11/11/2021 1736
Conc End Date: 11/11/2021 1736

Ext Solvent: MEOH>96%MEOH/4%H2O

Surrogate: SVLG-1736
Surrogate Vol. (mL): 0.110

Reagents Vol. (mL): 10

Chem ID: 21-2252>21-2252/21-2505

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WQ22105-001	MB		1	PFAS by ID SOP QSM B-15	280	30	250		0.000	10.0	MB init:282.64g,fin:30.61g;LCS init:286.48g,fin:31.56g
WQ22105-002	LCS		1	PFAS by ID SOP QSM B-15	280	30	250	SVLG-1731	0.200	10.0	Sorbent dry start/end:1st: 1400/1405 ,2nd: 1659/1703; Buffer:SV21-795; Amm-MeOH:SV21-791(4mL); QC Water: PFAS-21-010;
WK01012-001	Sample	FCL-DPT0136-012.0-20211028	1	PFAS by ID SOP QSM B-15	25	0	25		0.000	10.0	init:271.59g,fin:30.69g
WK01012-002	Sample	FCL-DPT0136-022.0-20211028	1	PFAS by ID SOP QSM B-15	313.3	76.02	237		0.000	10.0	Bottletop#329; Pipettes:21-1600,21-1707; QC Bottles: M-1-259-02BB; GCB/WAX 500/50:21-2327;
WK01012-003	Sample	FCL-DPT0136-032.0-20211028	1	PFAS by ID SOP QSM B-15	321.52	53.21	268		0.000	10.0	Reservoirs:21-1930; Elution tubes:21-1415; Falcon tubes:21-1651; Centrifuge tubes:21-2028; Storage bottles:21-2556;
WK01012-004	Sample	FCL-DPT0136-042.0-20211028	1	PFAS by ID SOP QSM B-15	330.18	50.15	280		0.000	10.0	MeOH Ext:4mL, Filt:2mL; IS: SVLG-1727(0.010mL); ASV/Caps: 21-1476/21-1813;
WK02089-001	Sample	CHP-MW0028-042.5-20211029	1	PFAS by ID SOP QSM B-15	310.65	33.5	277		0.000	10.0	NCM#63331,63332
WK02089-001DU	Duplicate		1	PFAS by ID SOP QSM B-15	309.67	34.15	276		0.000	10.0	
WK02089-002	Sample	CHP-MW0012-007.5-20211029	1	PFAS by ID SOP QSM B-15	298.57	33.2	265		0.000	10.0	
WK02089-002MS	MS		1	PFAS by ID SOP QSM B-15	304.73	33.39	271	SVLG-1731	0.200	10.0	
WK02089-003	Sample	CHP-MW0029-042.5-20211029	1	PFAS by ID SOP QSM B-15	290.2	34.14	256		0.000	10.0	
WK02089-004	Sample	CHP-MW0063-045.0-20211029	1	PFAS by ID SOP QSM B-15	299.88	33.68	266		0.000	10.0	
WK02089-005	Sample	CHP-EB-20211029-01	1	PFAS by ID SOP QSM B-15	320.08	31.86	288		0.000	10.0	
WJ30013-001	Sample	FTLEE-EB-1_102521	1	PFAS by ID SOP QSM B-15	300.34	32.56	268		0.000	10.0	

Analyst: ARC2 **Level 2 Analyst:** N/A
Status: Level 1 review released
Matrix: Aqueous

Printed: 12/02/21 1118

Prep Batch: 22105
PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/11/2021 1232
End Date: 11/11/2021 1736

Conc Analyst: ARC2
Conc Start Date: 11/11/2021 1736
Conc End Date: 11/11/2021 1736

Surrogate: SVLG-1736
Surrogate Vol. (mL): 0.110

Ext Solvent: MEOH>96%MEOH/4%H2O
Reagents Vol. (mL): 10
Chem ID: 21-2252>21-2252/21-2505

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WJ30013-002	Sample	FTLEE-EB-2_102521	1	PFAS by ID SOP QSM B-15	287.74	33.15	255		0.000	10.0	
WJ30013-003	Sample	FTLEE-EB-3_102521	1	PFAS by ID SOP QSM B-15	276.38	32.6	244		0.000	10.0	
WJ30013-004	Sample	FTLEE-EB-4_102521	1	PFAS by ID SOP QSM B-15	280.17	31.85	248		0.000	10.0	
WJ30013-005	Sample	FTLEE-EB-5_102521	1	PFAS by ID SOP QSM B-15	286.27	33.33	253		0.000	10.0	
WJ30013-006	Sample	FTLEE-SB-1_102521	1	PFAS by ID SOP QSM B-15	295.42	34.81	261		0.000	10.0	
WJ30013-008	Sample	FTLEE-FFTAFP-GW-3_102521_102521	1	PFAS by ID SOP QSM B-15	304.67	34.58	270		0.000	10.0	prepped with 22109

(end of report) **Total Samples: 16**

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 9/15/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1652
Mix Name: ISOMER CHECK STD
Solvent ID #: SV21-702
Solvent Name: Methanol/Water

Level 2 Reviewed by: ARC2
Date: 9/15/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Isomer Check 50X Mix	SVLC-0588	1,000	20	2	10	1	-	3/11/2019	2/7/2020
ID IS 20ppb	SVLC-1648	20	100		1	1	-	9/13/2021	4/14/2022
ID SUR 20ppb	SVLC-1633	20	100		1	1	-	9/2/2021	6/15/2022
96% Methanol	SV21-702	pure	1,780		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	MMM	Mix ID #:	SVLC- 1717	Level 2 Reviewed by:	ALM
Prep. Date:	10/19/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	10/23/2021
Exp. Date:	6/15/2022	Solvent ID #:	21-758		
Pipet ID:	20-2533,20-1360	Solvent Name:	96% Methanol		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1710	20,000	750	15	1000	1,2	-	10/12/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	750		1000	1	-	10/16/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	750		1000	1	-	10/13/2021	10/13/2022
96% Methanol	21-758	pure	12,750		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: arc2
Prep. Date: 11/01/21
Exp. Date: 11/19/21
Pipet ID: 21-1600

Mix ID #: SVLC- 1731
Mix Name: Full List 100X PDS
Solvent ID #: 21-771
Solvent Name: 96% Methanol

Level 2 Reviewed by: NK1
Date: 11/11/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Full List Stock PDS (10X)	SVLC-1693	200.0	1,500	15	20	1,2	-	10/4/2021	11/19/2021
96% Methanol	21-771	pure	13,500		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water. 2. GenX is present at twice (2x) the concentration listed - 40ng/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 11/3/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1734
Mix Name: PFAS Full List ICV, 500ppt
Solvent ID #: 21-2252/21-2249
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/4/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/mL	uL	mL	pg/mL				
PFAS ICV 100X Mix	SVLC-1025	20,000.0	50	2	500	1,2	-	6/8/2020	9/20/2022
ID SUR 20ppb	SVLC-1713	20,000.0	100		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1727	20,000.0	100		1000	1	-	10/28/2021	4/14/2022
Methanol	21-2252	pure	1,680		#VALUE!	1	7/31/2026	10/14/2021	7/31/2026
Water	21-2249	pure	70		#VALUE!	1	8/31/2026	10/13/2021	8/31/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at a final concentration of 2500 pg/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	arc2	Mix ID #:	SVLC- 1736	Level 2 Reviewed by:	glt
Prep. Date:	11/04/21	Mix Name:	PFAS ID SUR 100ppb	Date:	11/13/2021
Exp. Date:	06/15/22	Solvent ID #:	21-2252/21-2249		
Pipet ID:	20-1360, 20-2534	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
MPFAC-C-ES	21-2535	2,000	2,200	44	100	1	1/13/2026	11/4/2021	11/4/2022
ID 50X SUR Mix	SVLC-1735	1,000	4,400		100	1,2	-	11/4/2021	6/15/2022
Methanol	21-2252	pure	35,816		#VALUE!	1	6/30/2026	7/27/2021	6/30/2026
Water	21-2249	pure	1,584		#VALUE!	1	4/30/2026	7/15/2021	4/30/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. 13C3-GenX, 13C2-4:2FTS, 13C2-6:2FTS, 13C2-8:2FTS, d5-EtFOSAA,

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1741	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	500	10	100	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1740	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	125	5	50	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1742	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	200 ppt PFAS FL ICAL (L3)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	1,000	10	200	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1743	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	500 ppt PFAS FL ICAL (L4)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	125	5	500	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1744	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	750	15	1000	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	750		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	750		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	12,750		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1745	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	2000 ppt PFAS FL ICAL (L6)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	500	5	2000	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1746	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	5000 ppt PFAS FL ICAL (L7)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	125	5	5000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1747	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	10000 ppt PFAS FL ICAL (L8)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	500	10	10000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1748	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	15000 ppt PFAS FL ICAL (L9)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	750	10	15000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,250		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1749	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	20000 ppt PFAS FL ICAL (L10)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	1,500	15	20000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	750		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	750		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	12,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-POL

Project Number: 112G09581

Lot Number:**WK03035**

Date Completed:11/15/2021

Kathy Smith

11/16/2021 2:46 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc*.)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001	NELAC No: E87653	NC DENR No: 329	NC Field Parameters No: 5639

Case Narrative
Tetra Tech
Lot Number: WK03035

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation:

Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Containers for sampleSW3-DPT-0144-012.0-20211102 were not received at the laboratory.

Samples WK03035-001, WK03035-002, WK03035-003, WK03035-004, WK03035-006, WK03035-007, WK03035-008, WK03035-009 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: WK03035-001, WK03035-003, WK03035-004, WK03035-006, WK03035-008, WK03035-009, WK03035-010. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The method blank for prep batch 21582 contained analyte: 6:2-FTS greater than the acceptance criteria. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "V".

The LCS associated with batch 21177 had 6:2 FTS recovered above the acceptance limits.All other compounds recovered within control limits.

The MS/MSD associated with sample WK03035-001 had multiple compounds recovered outside of the acceptance limits.

Sample Summary
Tetra Tech
Lot Number: WK03035

Project Name: KSC-POL

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	SW3-DPT-0143-012.0-20211102	Aqueous	11/02/2021 0745	11/03/2021
002	SW3-DPT-0143-022.0-20211102	Aqueous	11/02/2021 0815	11/03/2021
003	SW3-DPT-0143-032.0-20211102	Aqueous	11/02/2021 0850	11/03/2021
004	SW3-DPT-0143-042.0-20211102	Aqueous	11/02/2021 0945	11/03/2021
005	SW3-DPT-0144-012.0-20211102	Aqueous	11/02/2021 1200	
006	SW3-DPT-0144-022.0-20211102	Aqueous	11/02/2021 1235	11/03/2021
007	SW3-DPT-0144-032.0-20211102	Aqueous	11/02/2021 1310	11/03/2021
008	SW3-DPT-0144-042.0-20211102	Aqueous	11/02/2021 1355	11/03/2021
009	SW3-DPT-0144-012.0-20211102	Aqueous	11/02/2021 1210	11/03/2021
010	SW3-EB-20211102-01	Aqueous	11/02/2021 0740	11/03/2021

(10 samples)

Detection Summary

Tetra Tech

Lot Number: WK03035

Project Name: KSC-POL

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	SW3-DPT-0143-012.0-20211102	Aqueous	8:2 FTS	PFAS by ID	10		ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	6:2 FTS	PFAS by ID	23000	LD	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	4:2 FTS	PFAS by ID	150	QS	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFBS	PFAS by ID	5.0		ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFHpS	PFAS by ID	26		ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFPeS	PFAS by ID	6.6		ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFHxS	PFAS by ID	240	S	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFBA	PFAS by ID	6800	D	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFDA	PFAS by ID	7.2		ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFHpA	PFAS by ID	12000	D	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFHxA	PFAS by ID	16000	D	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFNA	PFAS by ID	830	D	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFPeA	PFAS by ID	26000	D	ng/L	10
001	SW3-DPT-0143-012.0-20211102	Aqueous	PFOS	PFAS by ID	1500	D	ng/L	10
002	SW3-DPT-0143-022.0-20211102	Aqueous	6:2 FTS	PFAS by ID	6500	LD	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFHxS	PFAS by ID	140	ID	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFBA	PFAS by ID	5800	D	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFHpA	PFAS by ID	11000	D	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFHxA	PFAS by ID	13000	D	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFNA	PFAS by ID	800	D	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFOA	PFAS by ID	10000	D	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFPeA	PFAS by ID	20000	D	ng/L	12
002	SW3-DPT-0143-022.0-20211102	Aqueous	PFOS	PFAS by ID	350	D	ng/L	12
003	SW3-DPT-0143-032.0-20211102	Aqueous	8:2 FTS	PFAS by ID	5.1	I	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	6:2 FTS	PFAS by ID	60	V	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	4:2 FTS	PFAS by ID	5.5	IQ	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFBS	PFAS by ID	1.4	I	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFPeS	PFAS by ID	1.3	I	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFHxS	PFAS by ID	7.7		ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFBA	PFAS by ID	59	Q	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFHpA	PFAS by ID	40		ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFHxA	PFAS by ID	74		ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFNA	PFAS by ID	3.4	I	ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFOA	PFAS by ID	28		ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFPeA	PFAS by ID	120		ng/L	14
003	SW3-DPT-0143-032.0-20211102	Aqueous	PFOS	PFAS by ID	12		ng/L	14
004	SW3-DPT-0143-042.0-20211102	Aqueous	6:2 FTS	PFAS by ID	6.9	V	ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFBS	PFAS by ID	1.3	I	ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFPeS	PFAS by ID	0.98	I	ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFHxS	PFAS by ID	6.6		ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFBA	PFAS by ID	2.5	I	ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFHpA	PFAS by ID	2.8	I	ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFHxA	PFAS by ID	4.6		ng/L	16

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFOA	PFAS by ID	3.7		ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFPeA	PFAS by ID	6.2		ng/L	16
004	SW3-DPT-0143-042.0-20211102	Aqueous	PFOS	PFAS by ID	2.2	I	ng/L	16
006	SW3-DPT-0144-022.0-20211102	Aqueous	8:2 FTS	PFAS by ID	5.6	I	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	6:2 FTS	PFAS by ID	730000	VD	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	4:2 FTS	PFAS by ID	7700	D	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFBS	PFAS by ID	20		ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFHpS	PFAS by ID	21		ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFPeS	PFAS by ID	29		ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFHxS	PFAS by ID	440		ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFBA	PFAS by ID	15000	D	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFHpA	PFAS by ID	20000	D	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFHxA	PFAS by ID	38000	D	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFNA	PFAS by ID	99		ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFOA	PFAS by ID	19000	D	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFPeA	PFAS by ID	62000	D	ng/L	18
006	SW3-DPT-0144-022.0-20211102	Aqueous	PFOS	PFAS by ID	580		ng/L	18
007	SW3-DPT-0144-032.0-20211102	Aqueous	6:2 FTS	PFAS by ID	11000	VD	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	4:2 FTS	PFAS by ID	500	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFHxS	PFAS by ID	81	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFBA	PFAS by ID	520	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFHpA	PFAS by ID	390	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFHxA	PFAS by ID	1300	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFOA	PFAS by ID	140	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFPeA	PFAS by ID	1400	D	ng/L	20
007	SW3-DPT-0144-032.0-20211102	Aqueous	PFOS	PFAS by ID	290	D	ng/L	20
008	SW3-DPT-0144-042.0-20211102	Aqueous	8:2 FTS	PFAS by ID	2.5	I	ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	6:2 FTS	PFAS by ID	240	V	ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	4:2 FTS	PFAS by ID	4.0	IQ	ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFBS	PFAS by ID	15		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFHpS	PFAS by ID	6.9		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFPeS	PFAS by ID	13		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFHxS	PFAS by ID	110		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFBA	PFAS by ID	16	Q	ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFHpA	PFAS by ID	24		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFHxA	PFAS by ID	55		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFNA	PFAS by ID	5.1		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFOA	PFAS by ID	60		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFPeA	PFAS by ID	46		ng/L	22
008	SW3-DPT-0144-042.0-20211102	Aqueous	PFOS	PFAS by ID	260		ng/L	22
009	SW3-DPT-0144-012.0-20211102	Aqueous	6:2 FTS	PFAS by ID	410	VD	ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	4:2 FTS	PFAS by ID	2.6	IQ	ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFBS	PFAS by ID	1.5	I	ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFHpS	PFAS by ID	10		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFPeS	PFAS by ID	2.8	I	ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFHxS	PFAS by ID	71		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFBA	PFAS by ID	210	Q	ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFDA	PFAS by ID	1.3	I	ng/L	24

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFHpA	PFAS by ID	330		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFHxA	PFAS by ID	500		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFNA	PFAS by ID	57		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFOA	PFAS by ID	230		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFPeA	PFAS by ID	770		ng/L	24
009	SW3-DPT-0144-012.0-20211102	Aqueous	PFOS	PFAS by ID	900	D	ng/L	24
010	SW3-EB-20211102-01	Aqueous	PFOS	PFAS by ID	2.0	I	ng/L	26

(98 detections)

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-001	
Description: SW3-DPT-0143-012.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0745	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0149	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	50	11/05/2021 1441	MMM	11/03/2021 1629	21177

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	10		7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	23000	LD	370	190	93	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	150	QS	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.0		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	26		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.6		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	240	S	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6800	D	190	95	47	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	7.2		3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	12000	D	190	95	47	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	16000	D	190	95	47	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	830	D	190	95	47	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	UQS	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	26000	D	190	95	47	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1500	D	190	95	47	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	171	50-150		112	50-150
13C2_6:2FTS		91	50-150		130	50-150
13C2_8:2FTS		115	50-150		110	50-150
13C2_PFDoA		74	50-150		117	50-150
13C2_PFTeDA		54	50-150		96	50-150
13C3_PFBS		63	50-150		117	50-150
13C3_PFHxS		57	50-150		110	50-150
13C3-HFPO-DA		69	50-150		100	50-150
13C4_PFBA	N	22	50-150		107	50-150
13C4_PFHpA	N	45	50-150		111	50-150
13C5_PFHxA	N	34	50-150		113	50-150
13C5_PFPeA	N	24	50-150		102	50-150
13C6_PFDA		105	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-001
Description: SW3-DPT-0143-012.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 0745	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		83	50-150		111	50-150
13C8_PFOA	N	43	50-150		110	50-150
13C8_PFOS		85	50-150		105	50-150
13C9_PFNA		71	50-150		105	50-150
d-EtFOSA		60	50-150		99	50-150
d5-EtFOSAA		90	50-150		114	50-150
d3-MeFOSAA		99	50-150		124	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-002	
Description: SW3-DPT-0143-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0815	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	50	11/06/2021 2111	MMM	11/03/2021 1629	21177

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	180	U	360	180	90	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	180	U	360	180	90	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	6500	LD	360	180	90	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	180	U	360	180	90	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	180	U	360	180	90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	140	ID	180	90	45	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5800	D	180	90	45	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11000	D	180	90	45	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13000	D	180	90	45	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	800	D	180	90	45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10000	D	180	90	45	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20000	D	180	90	45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	350	D	180	90	45	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		105	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		111	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-002	
Description: SW3-DPT-0143-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0815	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		88	50-150
13C9_PFNA		93	50-150
d-EtFOSA		109	50-150
d5-EtFOSAA		120	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-003	
Description: SW3-DPT-0143-032.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0850	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/06/2021 2153	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2223	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.1	I	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	60	V	7.1	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	5.5	IQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.4	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.3	I	3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	7.7		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	59	Q	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	40		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	74		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.4	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	28		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	120		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	237	50-150	N	214	50-150
13C2_6:2FTS		145	50-150		145	50-150
13C2_8:2FTS		117	50-150		131	50-150
13C2_PFDoA		96	50-150		100	50-150
13C2_PFTeDA		70	50-150		64	50-150
13C3_PFBS		84	50-150		94	50-150
13C3_PFHxS		102	50-150		112	50-150
13C3-HFPO-DA		90	50-150		92	50-150
13C4_PFBA	N	49	50-150		56	50-150
13C4_PFHpA		96	50-150		111	50-150
13C5_PFHxA		91	50-150		102	50-150
13C5_PFPeA		79	50-150		87	50-150
13C6_PFDA		94	50-150		111	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-003
Description: SW3-DPT-0143-032.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 0850	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		107	50-150		97	50-150
13C8_PFOA		100	50-150		105	50-150
13C8_PFOS		97	50-150		108	50-150
13C9_PFNA		105	50-150		109	50-150
d-EtFOSA		68	50-150		63	50-150
d5-EtFOSAA		114	50-150		96	50-150
d3-MeFOSAA		110	50-150		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-004	
Description: SW3-DPT-0143-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0945	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0242	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2233	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	6.9	V	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.3	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.98	I	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.5	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.2		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.2	I	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	207	50-150	N	221	50-150
13C2_6:2FTS	N	157	50-150		145	50-150
13C2_8:2FTS		116	50-150		123	50-150
13C2_PFDoA		78	50-150		93	50-150
13C2_PFTeDA		65	50-150		70	50-150
13C3_PFBS		77	50-150		95	50-150
13C3_PFHxS		90	50-150		117	50-150
13C3-HFPO-DA		82	50-150		95	50-150
13C4_PFBA		51	50-150		62	50-150
13C4_PFHpA		88	50-150		111	50-150
13C5_PFHxA		89	50-150		102	50-150
13C5_PFPeA		80	50-150		93	50-150
13C6_PFDA		90	50-150		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-004	
Description: SW3-DPT-0143-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0945	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		84	50-150		93	50-150
13C8_PFOA		93	50-150		103	50-150
13C8_PFOS		87	50-150		108	50-150
13C9_PFNA		78	50-150		103	50-150
d-EtFOSA		68	50-150		67	50-150
d5-EtFOSAA		102	50-150		92	50-150
d3-MeFOSAA		104	50-150		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-006	
Description: SW3-DPT-0144-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1235	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0253	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	500	11/06/2021 2204	MMM	11/03/2021 1629	21177
4	SOP SPE	PFAS by ID SOP QSM B-15	5000	11/10/2021 1555	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.6	I	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	730000	VD	35000	18000	8700	ng/L	4
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	7700	D	3500	1800	870	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	21		3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	29		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	440		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	15000	D	1700	850	430	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20000	D	1700	850	430	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	38000	D	1700	850	430	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	99		3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	19000	D	1700	850	430	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	62000	D	1700	850	430	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	580		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 4 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150		101	50-150		114	50-150
13C2_6:2FTS	N	255	50-150		98	50-150		114	50-150
13C2_8:2FTS		123	50-150		95	50-150		108	50-150
13C2_PFDoA		79	50-150		97	50-150		98	50-150
13C2_PFTeDA		60	50-150		98	50-150		110	50-150
13C3_PFBS		66	50-150		96	50-150		118	50-150
13C3_PFHxS		56	50-150		99	50-150		119	50-150
13C3-HFPO-DA		67	50-150		116	50-150		110	50-150
13C4_PFBA	N	16	50-150		101	50-150		112	50-150
13C4_PFHpA	N	39	50-150		96	50-150		113	50-150
13C5_PFHxA	N	27	50-150		98	50-150		116	50-150
13C5_PFPeA	N	16	50-150		96	50-150		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-006	
Description: SW3-DPT-0144-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1235	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 4 % Recovery	Acceptance Limits
13C6_PFDA		95	50-150		93	50-150		99	50-150
13C7_PFUdA		82	50-150		95	50-150		110	50-150
13C8_PFOA	N	20	50-150		105	50-150		113	50-150
13C8_PFOS		91	50-150		97	50-150		99	50-150
13C9_PFNA		80	50-150		95	50-150		106	50-150
d-EtFOSA		71	50-150		95	50-150		124	50-150
d5-EtFOSAA		95	50-150		110	50-150		110	50-150
d3-MeFOSAA		98	50-150		112	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-007	
Description: SW3-DPT-0144-032.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1310	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	20	11/06/2021 2215	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	20	11/10/2021 0040	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	70	U	140	70	35	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	70	U	140	70	35	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	70	U	140	70	35	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11000	VD	130	65	34	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	500	D	140	70	35	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	70	U	140	70	35	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	70	U	140	70	35	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	81	D	70	35	17	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	520	D	70	35	17	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	390	D	70	35	17	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1300	D	70	35	17	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	140	D	70	35	17	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1400	D	70	35	17	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	290	D	70	35	17	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		117	50-150		116	50-150
13C2_6:2FTS		114	50-150		113	50-150
13C2_8:2FTS		109	50-150		112	50-150
13C2_PFDoA		128	50-150		104	50-150
13C2_PFTeDA		120	50-150		98	50-150
13C3_PFBS		122	50-150		102	50-150
13C3_PFHxS		125	50-150		113	50-150
13C3-HFPO-DA		127	50-150		100	50-150
13C4_PFBA		120	50-150		106	50-150
13C4_PFHpA		118	50-150		105	50-150
13C5_PFHxA		116	50-150		102	50-150
13C5_PFPeA		120	50-150		105	50-150
13C6_PFDA		109	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-007	
Description: SW3-DPT-0144-032.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1310	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		119	50-150		107	50-150
13C8_PFOA		126	50-150		106	50-150
13C8_PFOS		120	50-150		104	50-150
13C9_PFNA		115	50-150		101	50-150
d-EtFOSA		116	50-150		89	50-150
d5-EtFOSAA		123	50-150		101	50-150
d3-MeFOSAA		134	50-150		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-008	
Description: SW3-DPT-0144-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1355	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 1545	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2244	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.5	I	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	240	V	7.0	3.5	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	IQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	15		3.4	1.7	0.85	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	6.9		3.4	1.7	0.85	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13		3.4	1.7	0.85	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	110		3.4	1.7	0.85	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	16	Q	3.4	1.7	0.85	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	24		3.4	1.7	0.85	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	55		3.4	1.7	0.85	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.1		3.4	1.7	0.85	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	60		3.4	1.7	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	46		3.4	1.7	0.85	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	260		3.4	1.7	0.85	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	217	50-150	N	229	50-150
13C2_6:2FTS		149	50-150		122	50-150
13C2_8:2FTS		109	50-150		117	50-150
13C2_PFDoA		92	50-150		86	50-150
13C2_PFTeDA		68	50-150		67	50-150
13C3_PFBS		94	50-150		94	50-150
13C3_PFHxS		102	50-150		113	50-150
13C3-HFPO-DA		78	50-150		91	50-150
13C4_PFBA	N	45	50-150		56	50-150
13C4_PFHpA		102	50-150		108	50-150
13C5_PFHxA		89	50-150		101	50-150
13C5_PFPeA		79	50-150		84	50-150
13C6_PFDA		97	50-150		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	WK03035-008
Description:	SW3-DPT-0144-042.0-20211102	Matrix:	Aqueous
Date Sampled:	11/02/2021 1355	Project Name:	KSC-POL
Date Received:	11/03/2021	Project Number:	112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		102	50-150		97	50-150
13C8_PFOA		96	50-150		102	50-150
13C8_PFOS		100	50-150		110	50-150
13C9_PFNA		97	50-150		103	50-150
d-EtFOSA		71	50-150		60	50-150
d5-EtFOSAA		95	50-150		86	50-150
d3-MeFOSAA		107	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-009
Description: SW3-DPT-0144-012.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 1210	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0418	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	5	11/05/2021 1556	MMM	11/03/2021 1629	21177
3	SOP SPE	PFAS by ID SOP QSM B-15	5	11/10/2021 0051	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	410	VD	35	18	8.7	ng/L	3
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.6	IQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.5	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.8	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	71		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	210	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	330		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	500		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	57		3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	230		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	770		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	900	D	18	9.0	4.4	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C2_4:2FTS	N	190	50-150		144	50-150		138	50-150
13C2_6:2FTS		126	50-150		140	50-150		113	50-150
13C2_8:2FTS		103	50-150		108	50-150		117	50-150
13C2_PFDoA		77	50-150		108	50-150		111	50-150
13C2_PFTeDA		58	50-150		88	50-150		93	50-150
13C3_PFBS		77	50-150		116	50-150		112	50-150
13C3_PFHxS		94	50-150		106	50-150		119	50-150
13C3-HFPO-DA		87	50-150		97	50-150		105	50-150
13C4_PFBA	N	35	50-150		84	50-150		90	50-150
13C4_PFHpA		89	50-150		108	50-150		114	50-150
13C5_PFHxA		83	50-150		104	50-150		110	50-150
13C5_PFPeA		65	50-150		109	50-150		109	50-150

LOQ = Limit of Quantitation; U = Not detected at or above the LOQ; Q = Out of holding time
V = Detected in the method blank; N = Recovery is out of criteria; W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range; P = The RPD between two GC columns exceeds 40%; LOD = Limit of Detection
DL = Detection Limit; I = Estimated result < LOQ and ≥ DL; D = Dilution > 1
Q = Surrogate failure; L = LCS/LCSD failure; S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-009	
Description: SW3-DPT-0144-012.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1210	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C6_PFDA		85	50-150		109	50-150		115	50-150
13C7_PFUdA		85	50-150		107	50-150		111	50-150
13C8_PFOA		86	50-150		111	50-150		113	50-150
13C8_PFOS		80	50-150		114	50-150		116	50-150
13C9_PFNA		80	50-150		111	50-150		104	50-150
d-EtFOSA		56	50-150		92	50-150		103	50-150
d5-EtFOSAA		92	50-150		104	50-150		100	50-150
d3-MeFOSAA		95	50-150		112	50-150		113	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-010	
Description: SW3-EB-20211102-01		Matrix: Aqueous	
Date Sampled: 11/02/2021 0740	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0428	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2255	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	I	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		120	50-150		137	50-150
13C2_6:2FTS		131	50-150	N	159	50-150
13C2_8:2FTS		130	50-150		138	50-150
13C2_PFDoA		130	50-150		115	50-150
13C2_PFTeDA		108	50-150		101	50-150
13C3_PFBS		107	50-150		117	50-150
13C3_PFHxS		126	50-150		129	50-150
13C3-HFPO-DA		119	50-150		113	50-150
13C4_PFBA		111	50-150		118	50-150
13C4_PFHpA		116	50-150		120	50-150
13C5_PFHxA		106	50-150		118	50-150
13C5_PFPeA		107	50-150		119	50-150
13C6_PFDA		108	50-150		122	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-010	
Description: SW3-EB-20211102-01		Matrix: Aqueous	
Date Sampled: 11/02/2021 0740	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		111	50-150		115	50-150
13C8_PFOA		110	50-150		122	50-150
13C8_PFOS		119	50-150		123	50-150
13C9_PFNA		105	50-150		117	50-150
d-EtFOSA		86	50-150		84	50-150
d5-EtFOSAA		122	50-150		109	50-150
d3-MeFOSAA		128	50-150		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ21177-001
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		108	50-150
13C2_PFDoA		90	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		84	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		97	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ21177-001
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		97	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		99	50-150
13C8_PFOS		90	50-150
13C9_PFNA		80	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21177-002
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	70-150	11/05/2021 0138
11Cl-PF3OUdS	15	13		1	85	70-150	11/05/2021 0138
8:2 FTS	15	15		1	97	67-138	11/05/2021 0138
6:2 FTS	15	22	N	1	143	64-140	11/05/2021 0138
4:2 FTS	15	16		1	107	63-143	11/05/2021 0138
GenX	32	28		1	88	70-150	11/05/2021 0138
ADONA	15	15		1	102	70-150	11/05/2021 0138
EtFOSA	16	17		1	103	70-150	11/05/2021 0138
EtFOSAA	16	14		1	85	61-135	11/05/2021 0138
MeFOSAA	16	17		1	103	65-136	11/05/2021 0138
PFBS	14	13		1	91	72-130	11/05/2021 0138
PFDS	15	14		1	93	53-142	11/05/2021 0138
PFHpS	15	15		1	101	69-134	11/05/2021 0138
PFNS	15	15		1	99	69-127	11/05/2021 0138
PFPeS	15	15		1	102	71-127	11/05/2021 0138
PFHxS	15	14		1	98	68-131	11/05/2021 0138
PFBA	16	16		1	97	73-129	11/05/2021 0138
PFDA	16	15		1	92	71-129	11/05/2021 0138
PFDoA	16	17		1	105	72-134	11/05/2021 0138
PFHpA	16	16		1	97	72-130	11/05/2021 0138
PFHxA	16	15		1	95	72-129	11/05/2021 0138
PFNA	16	15		1	95	69-130	11/05/2021 0138
PFOA	16	16		1	100	71-133	11/05/2021 0138
PFPeA	16	16		1	98	72-129	11/05/2021 0138
PFTeDA	16	16		1	98	71-132	11/05/2021 0138
PFTrDA	16	15		1	97	65-144	11/05/2021 0138
PFUdA	16	18		1	113	69-133	11/05/2021 0138
PFOS	15	14		1	94	65-140	11/05/2021 0138

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		88	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		92	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21177-002
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		92	50-150
13C8_PFOA		91	50-150
13C8_PFOS		89	50-150
13C9_PFNA		78	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: WK03035-001MS
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	15		1	105	70-150	11/05/2021 0200
11Cl-PF3OUdS	ND	14	13		1	91	70-150	11/05/2021 0200
8:2 FTS	10	14	22		1	80	67-138	11/05/2021 0200
6:2 FTS	15000	14	15000	N	1	-426	64-140	11/05/2021 0200
4:2 FTS	150	14	150	N	1	23	63-143	11/05/2021 0200
GenX	ND	30	35		1	117	70-150	11/05/2021 0200
ADONA	ND	14	19		1	135	70-150	11/05/2021 0200
EtFOSA	ND	15	15		1	104	70-150	11/05/2021 0200
EtFOSAA	ND	15	12		1	80	61-135	11/05/2021 0200
MeFOSAA	ND	15	15		1	99	65-136	11/05/2021 0200
PFBS	5.0	13	16		1	82	72-130	11/05/2021 0200
PFDS	ND	14	14		1	99	53-142	11/05/2021 0200
PFHpS	26	14	41		1	106	69-134	11/05/2021 0200
PFNS	ND	14	15		1	104	69-127	11/05/2021 0200
PFPeS	6.6	14	22		1	112	71-127	11/05/2021 0200
PFHxS	240	13	260	N	1	140	68-131	11/05/2021 0200
PFBA	4300	15	4400	N	1	858	73-129	11/05/2021 0200
PFDA	7.2	15	23		1	107	71-129	11/05/2021 0200
PFDoA	ND	15	15		1	101	72-134	11/05/2021 0200
PFHpA	5200	15	5400	N	1	1360	72-130	11/05/2021 0200
PFHxA	6300	15	6000	N	1	-1630	72-129	11/05/2021 0200
PFNA	870	15	870	N	1	7.1	69-130	11/05/2021 0200
PFOA	ND	15	5100	N	1	34500	71-133	11/05/2021 0200
PFPeA	7400	15	7000	N	1	-2830	72-129	11/05/2021 0200
PFTeDA	ND	15	15		1	102	71-132	11/05/2021 0200
PFTrDA	ND	15	13		1	88	65-144	11/05/2021 0200
PFUdA	ND	15	15		1	101	69-133	11/05/2021 0200
PFOS	1600	14	1700	N	1	545	65-140	11/05/2021 0200

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	192	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		126	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		55	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		57	50-150
13C3-HFPO-DA		64	50-150
13C4_PFBA	N	21	50-150
13C4_PFHpA	N	44	50-150
13C5_PFHxA	N	35	50-150
13C5_PFPeA	N	25	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	WK03035-001MS	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		89	50-150
13C8_PFOA	N	44	50-150
13C8_PFOS		82	50-150
13C9_PFNA		73	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WK03035-002DU	Matrix: Aqueous
Batch: 21177	Prep Method: SOP SPE
Analytical Method: PFAS by ID SOP QSM B-15	Prep Date: 11/03/2021 1629

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND		U	1	0.00	20	11/06/2021 2121
11Cl-PF3OUdS	ND		U	1	0.00	20	11/06/2021 2121
8:2 FTS	ND		U	1	0.00	20	11/06/2021 2121
6:2 FTS	6500	6100		1	5.5	20	11/06/2021 2121
4:2 FTS	ND		U	1	0.00	20	11/06/2021 2121
GenX	ND		U	1	0.00	20	11/06/2021 2121
ADONA	ND		U	1	0.00	20	11/06/2021 2121
EtFOSA	ND		U	1	0.00	20	11/06/2021 2121
EtFOSAA	ND		U	1	0.00	20	11/06/2021 2121
MeFOSAA	ND		U	1	0.00	20	11/06/2021 2121
PFBS	ND		U	1	0.00	20	11/06/2021 2121
PFDS	ND		U	1	0.00	20	11/06/2021 2121
PFHpS	ND		U	1	0.00	20	11/06/2021 2121
PFNS	ND		U	1	0.00	20	11/06/2021 2121
PFPeS	ND		U	1	0.00	20	11/06/2021 2121
PFHxS	140	160	I	1	15	20	11/06/2021 2121
PFBA	5800	5500		1	5.5	20	11/06/2021 2121
PFDA	ND		U	1	0.00	20	11/06/2021 2121
PFDoA	ND		U	1	0.00	20	11/06/2021 2121
PFHpA	11000	12000		1	1.7	20	11/06/2021 2121
PFHxA	13000	14000		1	8.6	20	11/06/2021 2121
PFNA	800	770		1	4.2	20	11/06/2021 2121
PFOA	10000	11000		1	7.0	20	11/06/2021 2121
PFPeA	20000	20000		1	0.38	20	11/06/2021 2121
PFTeDA	ND		U	1	0.00	20	11/06/2021 2121
PFTrDA	ND		U	1	0.00	20	11/06/2021 2121
PFUdA	ND		U	1	0.00	20	11/06/2021 2121
PFOS	350	280	+	1	22	20	11/06/2021 2121

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		94	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150

LOQ = Limit of Quantitation	U = Not detected at or above the LOQ	N = Recovery is out of criteria
DL = Detection Limit	I = Estimated result < LOQ and $\geq$ DL	P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection	* = RSD is out of criteria	+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WK03035-002DU
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		98	50-150
13C8_PFOS		95	50-150
13C9_PFNA		97	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		110	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ21582-001	Matrix:	Aqueous
Batch:	21582	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/07/2021 1308

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	8.0		1	8.0	4.0	2.0	ng/L	11/09/2021 2109

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		100	50-150
13C8_PFOS		104	50-150
13C9_PFNA		102	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ21582-002	Matrix:	Aqueous
Batch:	21582	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/07/2021 1308

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16		1	104	64-140	11/09/2021 2120

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		103	50-150
13C8_PFOS		106	50-150
13C9_PFNA		99	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation　　U = Not detected at or above the LOQ　　N = Recovery is out of criteria

DL = Detection Limit　　I = Estimated result < LOQ and $\geq$ DL　　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　　* = RSD is out of criteria　　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: WQ21582-003
Batch: 21582
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/07/2021 1308

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
6:2 FTS	15	18		1	122	16	64-140	30	11/09/2021 2130

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		116	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		85	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		117	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		105	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		109	50-150
13C8_PFOS		104	50-150
13C9_PFNA		103	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY NUMBER No. 3239 PAGE 1 OF 1

PROJECT NO: 112G09020	FACILITY: KSC-POL
PROJECT MANAGER: Mark Jonnet	PHONE NUMBER: (412) 921-7090
FIELD OPERATIONS LEADER: Rob Siegel	PHONE NUMBER: (954) 649-3637
CARRIER/WAYBILL NUMBER:	
LABORATORY NAME AND CONTACT: PACE Analytical - Kathy Smith	ADDRESS: 106 Vantage Point Dr
CITY, STATE: West Columbia, SC	

SAMPLERS (SIGNATURE): Kyle Kercher, Robert Siegel

STANDARD TAT ☐ RUSH TAT ☒
☐ 24 hr. ☐ 48 hr. ☒ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: Ice 4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

WK03035

DATE YEAR 2021	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
11/2	0745	SW3-DPT0143-012.0-20211102		10	14	GW	G	2	X	
	0815	SW3-DPT0143-022.0-20211102		20	24					
	0850	SW3-DPT0143-032.0-20211102		30	34					
	0945	SW3-DPT0143-042.0-20211102		40	44					
	1200	SW3-DPT0144-012.0-20211102		10	14					
	1235	SW3-DPT0144-022.0-20211102		20	24					
	1310	SW3-DPT0144-032.0-20211102		30	34					
11/2	1355	SW3-DPT0144-042.0-20211102		40	44	GW	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Kyle Kercher	11/2/2021		1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY: FedEx	11/3/21	1010	3. RECEIVED BY: [illegible]	11/3/21	1010

COMMENTS

T=1.4°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

PACE ANALYTICAL SERVICES, LLC

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech Cooler Inspected by/date: JRG2 / 11/03/2021 Lot #: WK03035

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ____

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-1928

1.8 / 1.8 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 6 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ____
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA ____ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA ____.
Time of preservation NA ____. If more than one preservative is needed, please note in the comments below.

Sample(s) NA ____ were received with bubbles >6 mm in diameter.

Samples(s) NA ____ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA ____.

SR barcode labels applied by: JRG2 Date: 11/03/2021

Comments: Missing WK03035-005
Excess: SW3-DPT-0144-017.020211102 11/2 @ 1210
SW3-EQBLK-20211102-11/2 @ 0740

PFAS

QC SUMMARY

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-001	
Description: SW3-DPT-0143-012.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0745	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0149	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	50	11/05/2021 1441	MMM	11/03/2021 1629	21177

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	10		7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	23000	LD	370	190	93	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	150	QS	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.0		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	26		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.6		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	240	S	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6800	D	190	95	47	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	7.2		3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	12000	D	190	95	47	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	16000	D	190	95	47	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	830	D	190	95	47	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	UQS	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	26000	D	190	95	47	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1500	D	190	95	47	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	171	50-150		112	50-150
13C2_6:2FTS		91	50-150		130	50-150
13C2_8:2FTS		115	50-150		110	50-150
13C2_PFDoA		74	50-150		117	50-150
13C2_PFTeDA		54	50-150		96	50-150
13C3_PFBS		63	50-150		117	50-150
13C3_PFHxS		57	50-150		110	50-150
13C3-HFPO-DA		69	50-150		100	50-150
13C4_PFBA	N	22	50-150		107	50-150
13C4_PFHpA	N	45	50-150		111	50-150
13C5_PFHxA	N	34	50-150		113	50-150
13C5_PFPeA	N	24	50-150		102	50-150
13C6_PFDA		105	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-001
Description: SW3-DPT-0143-012.0-20211102		Matrix: Aqueous
Date Sampled: 11/02/2021 0745	Project Name: KSC-POL	
Date Received: 11/03/2021	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		83	50-150		111	50-150
13C8_PFOA	N	43	50-150		110	50-150
13C8_PFOS		85	50-150		105	50-150
13C9_PFNA		71	50-150		105	50-150
d-EtFOSA		60	50-150		99	50-150
d5-EtFOSAA		90	50-150		114	50-150
d3-MeFOSAA		99	50-150		124	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-002	
Description: SW3-DPT-0143-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0815	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	50	11/06/2021 2111	MMM	11/03/2021 1629	21177

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	180	U	360	180	90	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	180	U	360	180	90	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	6500	LD	360	180	90	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	180	U	360	180	90	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	180	U	360	180	90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	140	ID	180	90	45	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5800	D	180	90	45	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11000	D	180	90	45	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13000	D	180	90	45	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	800	D	180	90	45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10000	D	180	90	45	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20000	D	180	90	45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	350	D	180	90	45	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		105	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		111	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-002	
Description: SW3-DPT-0143-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0815	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		88	50-150
13C9_PFNA		93	50-150
d-EtFOSA		109	50-150
d5-EtFOSAA		120	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-003
Description: SW3-DPT-0143-032.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 0850	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/06/2021 2153	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2223	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.1	I	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	60	V	7.1	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	5.5	IQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.4	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.3	I	3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	7.7		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	59	Q	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	40		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	74		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.4	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	28		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	120		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	237	50-150	N	214	50-150
13C2_6:2FTS		145	50-150		145	50-150
13C2_8:2FTS		117	50-150		131	50-150
13C2_PFDoA		96	50-150		100	50-150
13C2_PFTeDA		70	50-150		64	50-150
13C3_PFBS		84	50-150		94	50-150
13C3_PFHxS		102	50-150		112	50-150
13C3-HFPO-DA		90	50-150		92	50-150
13C4_PFBA	N	49	50-150		56	50-150
13C4_PFHpA		96	50-150		111	50-150
13C5_PFHxA		91	50-150		102	50-150
13C5_PFPeA		79	50-150		87	50-150
13C6_PFDA		94	50-150		111	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-003	
Description: SW3-DPT-0143-032.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0850	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		107	50-150		97	50-150
13C8_PFOA		100	50-150		105	50-150
13C8_PFOS		97	50-150		108	50-150
13C9_PFNA		105	50-150		109	50-150
d-EtFOSA		68	50-150		63	50-150
d5-EtFOSAA		114	50-150		96	50-150
d3-MeFOSAA		110	50-150		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-004	
Description: SW3-DPT-0143-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0945	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0242	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2233	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	6.9	V	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.3	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.98	I	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.5	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.2		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.2	I	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	207	50-150	N	221	50-150
13C2_6:2FTS	N	157	50-150		145	50-150
13C2_8:2FTS		116	50-150		123	50-150
13C2_PFDoA		78	50-150		93	50-150
13C2_PFTeDA		65	50-150		70	50-150
13C3_PFBS		77	50-150		95	50-150
13C3_PFHxS		90	50-150		117	50-150
13C3-HFPO-DA		82	50-150		95	50-150
13C4_PFBA		51	50-150		62	50-150
13C4_PFHpA		88	50-150		111	50-150
13C5_PFHxA		89	50-150		102	50-150
13C5_PFPeA		80	50-150		93	50-150
13C6_PFDA		90	50-150		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-004
Description: SW3-DPT-0143-042.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 0945	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		84	50-150		93	50-150
13C8_PFOA		93	50-150		103	50-150
13C8_PFOS		87	50-150		108	50-150
13C9_PFNA		78	50-150		103	50-150
d-EtFOSA		68	50-150		67	50-150
d5-EtFOSAA		102	50-150		92	50-150
d3-MeFOSAA		104	50-150		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-006
Description: SW3-DPT-0144-022.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 1235	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0253	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	500	11/06/2021 2204	MMM	11/03/2021 1629	21177
4	SOP SPE	PFAS by ID SOP QSM B-15	5000	11/10/2021 1555	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.6	I	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	730000	VD	35000	18000	8700	ng/L	4
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	7700	D	3500	1800	870	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	21		3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	29		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	440		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	15000	D	1700	850	430	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20000	D	1700	850	430	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	38000	D	1700	850	430	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	99		3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	19000	D	1700	850	430	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	62000	D	1700	850	430	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	580		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 4 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150		101	50-150		114	50-150
13C2_6:2FTS	N	255	50-150		98	50-150		114	50-150
13C2_8:2FTS		123	50-150		95	50-150		108	50-150
13C2_PFDoA		79	50-150		97	50-150		98	50-150
13C2_PFTeDA		60	50-150		98	50-150		110	50-150
13C3_PFBS		66	50-150		96	50-150		118	50-150
13C3_PFHxS		56	50-150		99	50-150		119	50-150
13C3-HFPO-DA		67	50-150		116	50-150		110	50-150
13C4_PFBA	N	16	50-150		101	50-150		112	50-150
13C4_PFHpA	N	39	50-150		96	50-150		113	50-150
13C5_PFHxA	N	27	50-150		98	50-150		116	50-150
13C5_PFPeA	N	16	50-150		96	50-150		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-006	
Description: SW3-DPT-0144-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1235	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 4 % Recovery	Acceptance Limits
13C6_PFDA		95	50-150		93	50-150		99	50-150
13C7_PFUdA		82	50-150		95	50-150		110	50-150
13C8_PFOA	N	20	50-150		105	50-150		113	50-150
13C8_PFOS		91	50-150		97	50-150		99	50-150
13C9_PFNA		80	50-150		95	50-150		106	50-150
d-EtFOSA		71	50-150		95	50-150		124	50-150
d5-EtFOSAA		95	50-150		110	50-150		110	50-150
d3-MeFOSAA		98	50-150		112	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-007
Description: SW3-DPT-0144-032.0-20211102	Matrix: Aqueous
Date Sampled: 11/02/2021 1310	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	20	11/06/2021 2215	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	20	11/10/2021 0040	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	70	U	140	70	35	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	70	U	140	70	35	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	70	U	140	70	35	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11000	VD	130	65	34	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	500	D	140	70	35	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	70	U	140	70	35	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	70	U	140	70	35	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	81	D	70	35	17	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	520	D	70	35	17	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	390	D	70	35	17	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1300	D	70	35	17	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	140	D	70	35	17	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1400	D	70	35	17	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	290	D	70	35	17	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		117	50-150		116	50-150
13C2_6:2FTS		114	50-150		113	50-150
13C2_8:2FTS		109	50-150		112	50-150
13C2_PFDoA		128	50-150		104	50-150
13C2_PFTeDA		120	50-150		98	50-150
13C3_PFBS		122	50-150		102	50-150
13C3_PFHxS		125	50-150		113	50-150
13C3-HFPO-DA		127	50-150		100	50-150
13C4_PFBA		120	50-150		106	50-150
13C4_PFHpA		118	50-150		105	50-150
13C5_PFHxA		116	50-150		102	50-150
13C5_PFPeA		120	50-150		105	50-150
13C6_PFDA		109	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-007	
Description: SW3-DPT-0144-032.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1310	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		119	50-150		107	50-150
13C8_PFOA		126	50-150		106	50-150
13C8_PFOS		120	50-150		104	50-150
13C9_PFNA		115	50-150		101	50-150
d-EtFOSA		116	50-150		89	50-150
d5-EtFOSAA		123	50-150		101	50-150
d3-MeFOSAA		134	50-150		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-008
Description: SW3-DPT-0144-042.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 1355	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 1545	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2244	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.5	I	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	240	V	7.0	3.5	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	IQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	15		3.4	1.7	0.85	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	6.9		3.4	1.7	0.85	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13		3.4	1.7	0.85	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	110		3.4	1.7	0.85	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	16	Q	3.4	1.7	0.85	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	24		3.4	1.7	0.85	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	55		3.4	1.7	0.85	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.1		3.4	1.7	0.85	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	60		3.4	1.7	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	46		3.4	1.7	0.85	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	260		3.4	1.7	0.85	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	217	50-150	N	229	50-150
13C2_6:2FTS		149	50-150		122	50-150
13C2_8:2FTS		109	50-150		117	50-150
13C2_PFDoA		92	50-150		86	50-150
13C2_PFTeDA		68	50-150		67	50-150
13C3_PFBS		94	50-150		94	50-150
13C3_PFHxS		102	50-150		113	50-150
13C3-HFPO-DA		78	50-150		91	50-150
13C4_PFBA	N	45	50-150		56	50-150
13C4_PFHpA		102	50-150		108	50-150
13C5_PFHxA		89	50-150		101	50-150
13C5_PFPeA		79	50-150		84	50-150
13C6_PFDA		97	50-150		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-008
Description: SW3-DPT-0144-042.0-20211102		Matrix: Aqueous
Date Sampled: 11/02/2021 1355	Project Name: KSC-POL	
Date Received: 11/03/2021	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		102	50-150		97	50-150
13C8_PFOA		96	50-150		102	50-150
13C8_PFOS		100	50-150		110	50-150
13C9_PFNA		97	50-150		103	50-150
d-EtFOSA		71	50-150		60	50-150
d5-EtFOSAA		95	50-150		86	50-150
d3-MeFOSAA		107	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-009
Description: SW3-DPT-0144-012.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 1210	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0418	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	5	11/05/2021 1556	MMM	11/03/2021 1629	21177
3	SOP SPE	PFAS by ID SOP QSM B-15	5	11/10/2021 0051	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	410	VD	35	18	8.7	ng/L	3
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.6	IQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.5	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.8	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	71		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	210	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	330		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	500		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	57		3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	230		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	770		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	900	D	18	9.0	4.4	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C2_4:2FTS	N	190	50-150		144	50-150		138	50-150
13C2_6:2FTS		126	50-150		140	50-150		113	50-150
13C2_8:2FTS		103	50-150		108	50-150		117	50-150
13C2_PFDoA		77	50-150		108	50-150		111	50-150
13C2_PFTeDA		58	50-150		88	50-150		93	50-150
13C3_PFBS		77	50-150		116	50-150		112	50-150
13C3_PFHxS		94	50-150		106	50-150		119	50-150
13C3-HFPO-DA		87	50-150		97	50-150		105	50-150
13C4_PFBA	N	35	50-150		84	50-150		90	50-150
13C4_PFHpA		89	50-150		108	50-150		114	50-150
13C5_PFHxA		83	50-150		104	50-150		110	50-150
13C5_PFPeA		65	50-150		109	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-009
Description: SW3-DPT-0144-012.0-20211102	Matrix: Aqueous
Date Sampled: 11/02/2021 1210	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C6_PFDA		85	50-150		109	50-150		115	50-150
13C7_PFUdA		85	50-150		107	50-150		111	50-150
13C8_PFOA		86	50-150		111	50-150		113	50-150
13C8_PFOS		80	50-150		114	50-150		116	50-150
13C9_PFNA		80	50-150		111	50-150		104	50-150
d-EtFOSA		56	50-150		92	50-150		103	50-150
d5-EtFOSAA		92	50-150		104	50-150		100	50-150
d3-MeFOSAA		95	50-150		112	50-150		113	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-010
Description: SW3-EB-20211102-01	Matrix: Aqueous
Date Sampled: 11/02/2021 0740	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0428	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2255	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	I	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		120	50-150		137	50-150
13C2_6:2FTS		131	50-150	N	159	50-150
13C2_8:2FTS		130	50-150		138	50-150
13C2_PFDoA		130	50-150		115	50-150
13C2_PFTeDA		108	50-150		101	50-150
13C3_PFBS		107	50-150		117	50-150
13C3_PFHxS		126	50-150		129	50-150
13C3-HFPO-DA		119	50-150		113	50-150
13C4_PFBA		111	50-150		118	50-150
13C4_PFHpA		116	50-150		120	50-150
13C5_PFHxA		106	50-150		118	50-150
13C5_PFPeA		107	50-150		119	50-150
13C6_PFDA		108	50-150		122	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-010
Description: SW3-EB-20211102-01			Matrix: Aqueous
Date Sampled: 11/02/2021 0740	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		111	50-150		115	50-150
13C8_PFOA		110	50-150		122	50-150
13C8_PFOS		119	50-150		123	50-150
13C9_PFNA		105	50-150		117	50-150
d-EtFOSA		86	50-150		84	50-150
d5-EtFOSAA		122	50-150		109	50-150
d3-MeFOSAA		128	50-150		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS - MB

Sample ID: WQ21177-001
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		108	50-150
13C2_PFDoA		90	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		84	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		97	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ21177-001
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		97	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		99	50-150
13C8_PFOS		90	50-150
13C9_PFNA		80	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ21582-001	Matrix:	Aqueous
Batch:	21582	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/07/2021 1308

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	8.0		1	8.0	4.0	2.0	ng/L	11/09/2021 2109

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		100	50-150
13C8_PFOS		104	50-150
13C9_PFNA		102	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21177-002
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	70-150	11/05/2021 0138
11Cl-PF3OUdS	15	13		1	85	70-150	11/05/2021 0138
8:2 FTS	15	15		1	97	67-138	11/05/2021 0138
6:2 FTS	15	22	N	1	143	64-140	11/05/2021 0138
4:2 FTS	15	16		1	107	63-143	11/05/2021 0138
GenX	32	28		1	88	70-150	11/05/2021 0138
ADONA	15	15		1	102	70-150	11/05/2021 0138
EtFOSA	16	17		1	103	70-150	11/05/2021 0138
EtFOSAA	16	14		1	85	61-135	11/05/2021 0138
MeFOSAA	16	17		1	103	65-136	11/05/2021 0138
PFBS	14	13		1	91	72-130	11/05/2021 0138
PFDS	15	14		1	93	53-142	11/05/2021 0138
PFHpS	15	15		1	101	69-134	11/05/2021 0138
PFNS	15	15		1	99	69-127	11/05/2021 0138
PFPeS	15	15		1	102	71-127	11/05/2021 0138
PFHxS	15	14		1	98	68-131	11/05/2021 0138
PFBA	16	16		1	97	73-129	11/05/2021 0138
PFDA	16	15		1	92	71-129	11/05/2021 0138
PFDoA	16	17		1	105	72-134	11/05/2021 0138
PFHpA	16	16		1	97	72-130	11/05/2021 0138
PFHxA	16	15		1	95	72-129	11/05/2021 0138
PFNA	16	15		1	95	69-130	11/05/2021 0138
PFOA	16	16		1	100	71-133	11/05/2021 0138
PFPeA	16	16		1	98	72-129	11/05/2021 0138
PFTeDA	16	16		1	98	71-132	11/05/2021 0138
PFTrDA	16	15		1	97	65-144	11/05/2021 0138
PFUdA	16	18		1	113	69-133	11/05/2021 0138
PFOS	15	14		1	94	65-140	11/05/2021 0138

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		88	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		92	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21177-002
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		92	50-150
13C8_PFOA		91	50-150
13C8_PFOS		89	50-150
13C9_PFNA		78	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ21582-002	Matrix:	Aqueous
Batch:	21582	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/07/2021 1308

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16		1	104	64-140	11/09/2021 2120

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		103	50-150
13C8_PFOS		106	50-150
13C9_PFNA		99	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: WQ21582-003
Batch: 21582
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/07/2021 1308

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
6:2 FTS	15	18		1	122	16	64-140	30	11/09/2021 2130

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		116	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		85	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		117	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		105	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		109	50-150
13C8_PFOS		104	50-150
13C9_PFNA		103	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	WK03035-001MS	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	15		1	105	70-150	11/05/2021 0200
11Cl-PF3OUdS	ND	14	13		1	91	70-150	11/05/2021 0200
8:2 FTS	10	14	22		1	80	67-138	11/05/2021 0200
6:2 FTS	15000	14	15000	N	1	-426	64-140	11/05/2021 0200
4:2 FTS	150	14	150	N	1	23	63-143	11/05/2021 0200
GenX	ND	30	35		1	117	70-150	11/05/2021 0200
ADONA	ND	14	19		1	135	70-150	11/05/2021 0200
EtFOSA	ND	15	15		1	104	70-150	11/05/2021 0200
EtFOSAA	ND	15	12		1	80	61-135	11/05/2021 0200
MeFOSAA	ND	15	15		1	99	65-136	11/05/2021 0200
PFBS	5.0	13	16		1	82	72-130	11/05/2021 0200
PFDS	ND	14	14		1	99	53-142	11/05/2021 0200
PFHpS	26	14	41		1	106	69-134	11/05/2021 0200
PFNS	ND	14	15		1	104	69-127	11/05/2021 0200
PFPeS	6.6	14	22		1	112	71-127	11/05/2021 0200
PFHxS	240	13	260	N	1	140	68-131	11/05/2021 0200
PFBA	4300	15	4400	N	1	858	73-129	11/05/2021 0200
PFDA	7.2	15	23		1	107	71-129	11/05/2021 0200
PFDoA	ND	15	15		1	101	72-134	11/05/2021 0200
PFHpA	5200	15	5400	N	1	1360	72-130	11/05/2021 0200
PFHxA	6300	15	6000	N	1	-1630	72-129	11/05/2021 0200
PFNA	870	15	870	N	1	7.1	69-130	11/05/2021 0200
PFOA	ND	15	5100	N	1	34500	71-133	11/05/2021 0200
PFPeA	7400	15	7000	N	1	-2830	72-129	11/05/2021 0200
PFTeDA	ND	15	15		1	102	71-132	11/05/2021 0200
PFTrDA	ND	15	13		1	88	65-144	11/05/2021 0200
PFUdA	ND	15	15		1	101	69-133	11/05/2021 0200
PFOS	1600	14	1700	N	1	545	65-140	11/05/2021 0200

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	192	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		126	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		55	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		57	50-150
13C3-HFPO-DA		64	50-150
13C4_PFBA	N	21	50-150
13C4_PFHpA	N	44	50-150
13C5_PFHxA	N	35	50-150
13C5_PFPeA	N	25	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	WK03035-001MS	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		89	50-150
13C8_PFOA	N	44	50-150
13C8_PFOS		82	50-150
13C9_PFNA		73	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WK03035-002DU
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND		U	1	0.00	20	11/06/2021 2121
11Cl-PF3OUdS	ND		U	1	0.00	20	11/06/2021 2121
8:2 FTS	ND		U	1	0.00	20	11/06/2021 2121
6:2 FTS	6500	6100		1	5.5	20	11/06/2021 2121
4:2 FTS	ND		U	1	0.00	20	11/06/2021 2121
GenX	ND		U	1	0.00	20	11/06/2021 2121
ADONA	ND		U	1	0.00	20	11/06/2021 2121
EtFOSA	ND		U	1	0.00	20	11/06/2021 2121
EtFOSAA	ND		U	1	0.00	20	11/06/2021 2121
MeFOSAA	ND		U	1	0.00	20	11/06/2021 2121
PFBS	ND		U	1	0.00	20	11/06/2021 2121
PFDS	ND		U	1	0.00	20	11/06/2021 2121
PFHpS	ND		U	1	0.00	20	11/06/2021 2121
PFNS	ND		U	1	0.00	20	11/06/2021 2121
PFPeS	ND		U	1	0.00	20	11/06/2021 2121
PFHxS	140	160	I	1	15	20	11/06/2021 2121
PFBA	5800	5500		1	5.5	20	11/06/2021 2121
PFDA	ND		U	1	0.00	20	11/06/2021 2121
PFDoA	ND		U	1	0.00	20	11/06/2021 2121
PFHpA	11000	12000		1	1.7	20	11/06/2021 2121
PFHxA	13000	14000		1	8.6	20	11/06/2021 2121
PFNA	800	770		1	4.2	20	11/06/2021 2121
PFOA	10000	11000		1	7.0	20	11/06/2021 2121
PFPeA	20000	20000		1	0.38	20	11/06/2021 2121
PFTeDA	ND		U	1	0.00	20	11/06/2021 2121
PFTrDA	ND		U	1	0.00	20	11/06/2021 2121
PFUdA	ND		U	1	0.00	20	11/06/2021 2121
PFOS	350	280	+	1	22	20	11/06/2021 2121

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		94	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WK03035-002DU
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		98	50-150
13C8_PFOS		95	50-150
13C9_PFNA		97	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		110	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC Lot No.: WK03035

Project No.: 112G09581

AnalyticalMethod: PFAS by ID SOP QSM B-15 Matrix: Water

CLIENT SAMPLE ID	IDS1	IDS2	IDS3	IDS4	IDS5	IDS6	IDS7	IDS8	IDS9
SW3-DPT-0143-012.0-20211102	171 *	91	115	74	54	63	57	69	22 *
SW3-DPT-0143-012.0-20211102	112	130	110	117	96	117	110	100	107
SW3-DPT-0143-022.0-20211102	99	90	105	99	105	103	100	111	100
SW3-DPT-0143-032.0-20211102	237 *	145	117	96	70	84	102	90	49 *
SW3-DPT-0143-032.0-20211102	214 *	145	131	100	64	94	112	92	56
SW3-DPT-0143-042.0-20211102	207 *	157 *	116	78	65	77	90	82	51
SW3-DPT-0143-042.0-20211102	221 *	145	123	93	70	95	117	95	62
SW3-DPT-0144-022.0-20211102	110	255 *	123	79	60	66	56	67	16 *
SW3-DPT-0144-022.0-20211102	101	98	95	97	98	96	99	116	101
SW3-DPT-0144-022.0-20211102	114	114	108	98	110	118	119	110	112
SW3-DPT-0144-032.0-20211102	117	114	109	128	120	122	125	127	120
SW3-DPT-0144-032.0-20211102	116	113	112	104	98	102	113	100	106
SW3-DPT-0144-042.0-20211102	217 *	149	109	92	68	94	102	78	45 *
SW3-DPT-0144-042.0-20211102	229 *	122	117	86	67	94	113	91	56
SW3-DPT-0144-012.0-20211102	190 *	126	103	77	58	77	94	87	35 *
SW3-DPT-0144-012.0-20211102	144	140	108	108	88	116	106	97	84
SW3-DPT-0144-012.0-20211102	138	113	117	111	93	112	119	105	90
SW3-EB-20211102-01	120	131	130	130	108	107	126	119	111
SW3-EB-20211102-01	137	159 *	138	115	101	117	129	113	118
WQ21177-001	102	113	108	90	80	87	84	100	94
WQ21177-002	94	99	103	85	78	86	85	92	88
SW3-DPT-0143-012.0-20211102MS	192 *	93	126	82	55	67	57	64	21 *
SW3-DPT-0143-022.0-20211102DUP	101	94	93	99	95	97	94	110	98
WQ21582-001	106	101	106	99	86	98	111	99	102
WQ21582-002	113	105	105	92	75	96	113	96	102
WQ21582-003	107	96	116	100	85	98	117	99	106

	QC LIMITS
IDS1 = 13C2_4:2FTS	50-150
IDS2 = 13C2_6:2FTS	50-150
IDS3 = 13C2_8:2FTS	50-150
IDS4 = 13C2_PFDoA	50-150
IDS5 = 13C2_PFTeDA	50-150
IDS6 = 13C3_PFBS	50-150
IDS7 = 13C3_PFHxS	50-150
IDS8 = 13C3-HFPO-DA	50-150
IDS9 = 13C4_PFBA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC

Lot No.: WK03035

Project No.: 112G09581

AnalyticalMethod: PFAS by ID SOP QSM B-15

Matrix: Water

CLIENT SAMPLE ID	IDS10	IDS11	IDS12	IDS13	IDS14	IDS15	IDS16	IDS17	
SW3-DPT-0143-012.0-20211102	45 *	34 *	24 *	105	83	43 *	85	71	
SW3-DPT-0143-012.0-20211102	111	113	102	108	111	110	105	105	
SW3-DPT-0143-022.0-20211102	98	104	98	95	100	102	88	93	
SW3-DPT-0143-032.0-20211102	96	91	79	94	107	100	97	105	
SW3-DPT-0143-032.0-20211102	111	102	87	111	97	105	108	109	
SW3-DPT-0143-042.0-20211102	88	89	80	90	84	93	87	78	
SW3-DPT-0143-042.0-20211102	111	102	93	102	93	103	108	103	
SW3-DPT-0144-022.0-20211102	39 *	27 *	16 *	95	82	20 *	91	80	
SW3-DPT-0144-022.0-20211102	96	98	96	93	95	105	97	95	
SW3-DPT-0144-022.0-20211102	113	116	116	99	110	113	99	106	
SW3-DPT-0144-032.0-20211102	118	116	120	109	119	126	120	115	
SW3-DPT-0144-032.0-20211102	105	102	105	109	107	106	104	101	
SW3-DPT-0144-042.0-20211102	102	89	79	97	102	96	100	97	
SW3-DPT-0144-042.0-20211102	108	101	84	104	97	102	110	103	
SW3-DPT-0144-012.0-20211102	89	83	65	85	85	86	80	80	
SW3-DPT-0144-012.0-20211102	108	104	109	109	107	111	114	111	
SW3-DPT-0144-012.0-20211102	114	110	109	115	111	113	116	104	
SW3-EB-20211102-01	116	106	107	108	111	110	119	105	
SW3-EB-20211102-01	120	118	119	122	115	122	123	117	
WQ21177-001	86	89	97	97	95	99	90	80	
WQ21177-002	88	88	92	92	92	91	89	78	
SW3-DPT-0143-012.0-20211102MS	44 *	35 *	25 *	95	89	44 *	82	73	
SW3-DPT-0143-022.0-20211102DUP	95	95	96	93	97	98	95	97	
WQ21582-001	106	99	107	103	101	100	104	102	
WQ21582-002	109	101	104	103	96	103	106	99	
WQ21582-003	108	101	103	105	96	109	104	103	

	QC LIMITS
IDS10 = 13C4_PFHpA	50-150
IDS11 = 13C5_PFHxA	50-150
IDS12 = 13C5_PFPeA	50-150
IDS13 = 13C6_PFDA	50-150
IDS14 = 13C7_PFUdA	50-150
IDS15 = 13C8_PFOA	50-150
IDS16 = 13C8_PFOS	50-150
IDS17 = 13C9_PFNA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 2
ISOTOPE DILUTION STANDARD RECOVERY

Lab Name: Pace Analytical Services, LLC Lot No.: WK03035

Project No.: 112G09581

AnalyticalMethod: PFAS by ID SOP QSM B-15 Matrix: Water

CLIENT SAMPLE ID	IDS18	IDS19	IDS20						TOT OUT
SW3-DPT-0143-012.0-20211102	60	90	99						6
SW3-DPT-0143-012.0-20211102	99	114	124						0
SW3-DPT-0143-022.0-20211102	109	120	115						0
SW3-DPT-0143-032.0-20211102	68	114	110						2
SW3-DPT-0143-032.0-20211102	63	96	105						1
SW3-DPT-0143-042.0-20211102	68	102	104						2
SW3-DPT-0143-042.0-20211102	67	92	103						1
SW3-DPT-0144-022.0-20211102	71	95	98						6
SW3-DPT-0144-022.0-20211102	93	110	112						0
SW3-DPT-0144-022.0-20211102	124	110	108						0
SW3-DPT-0144-032.0-20211102	116	123	134						0
SW3-DPT-0144-032.0-20211102	89	101	98						0
SW3-DPT-0144-042.0-20211102	71	95	107						2
SW3-DPT-0144-042.0-20211102	60	86	97						1
SW3-DPT-0144-012.0-20211102	56	92	95						2
SW3-DPT-0144-012.0-20211102	92	104	112						0
SW3-DPT-0144-012.0-20211102	103	100	113						0
SW3-EB-20211102-01	86	122	128						0
SW3-EB-20211102-01	84	109	116						1
WQ21177-001	84	104	103						0
WQ21177-002	71	99	98						0
SW3-DPT-0143-012.0-20211102MS	60	100	93						6
SW3-DPT-0143-022.0-20211102DUP	94	110	109						0
WQ21582-001	81	98	104						0
WQ21582-002	72	96	104						0
WQ21582-003	77	93	109						0

	QC LIMITS
IDS18 = d-EtFOSA	50-150
IDS19 = d5-EtFOSAA	50-150
IDS20 = d3-MeFOSAA	50-150

* Recoveries outside QC limits
D IDS Diluted Out

FORM 3

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK03035

Project No.: 112G09581

Analytical Method: PFAS by ID SOP QSM B-15   Matrix: Water

Client Sample ID (Matrix Spike/Matrix Spike Duplicate): SW3-DPT-0143-012.0-20211102

Instrument ID: _Sciex 4500_LCMSMS1   Lab Sample ID: WK03035-001MS

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS %REC	#	QC LIMITS REC.
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	14		15	105		70-150
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	14		13	91		70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	14	10	22	80		67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	14	23000	15000	-426	*	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	14	150	150	23	*	63-143
Hexafluoropropylene oxide dimer acid (GenX)	30		35	117		70-150
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	14		19	135		70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	15		15	104		70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	15		12	80		61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	15		15	99		65-136
Perfluoro-1-butanesulfonic acid (PFBS)	13	5	16	82		72-130
Perfluoro-1-decanesulfonic acid (PFDS)	14		14	99		53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	14	26	41	106		69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	14		15	104		69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	14	6.6	22	112		71-127
Perfluorohexanesulfonic acid (PFHxS)	13	240	260	140	*	68-131
Perfluoro-n-butanoic acid (PFBA)	15	6800	4400	858	*	73-129
Perfluoro-n-decanoic acid (PFDA)	15	7.2	23	107		71-129
Perfluoro-n-dodecanoic acid (PFDoA)	15		15	101		72-134
Perfluoro-n-heptanoic acid (PFHpA)	15	12000	5400	1360	*	72-130
Perfluoro-n-hexanoic acid (PFHxA)	15	16000	6000	-1630	*	72-129
Perfluoro-n-nonanoic acid (PFNA)	15	830	870	7.1	*	69-130
Perfluoro-n-octanoic acid (PFOA)	15		5100	34500	*	71-133
Perfluoro-n-pentanoic acid (PFPeA)	15	26000	7000	-2830	*	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	15		15	102		71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	15		13	88		65-144
Perfluoro-n-undecanoic acid (PFUdA)	15		15	101		69-133
Perfluorooctanesulfonic acid (PFOS)	14	1500	1700	545	*	65-140

* Values outside of QC Limits

FORM 3

LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC

Lot No.: WK03035

Project No.: 112G09581

Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Water

Client Sample ID: WQ21177-002

Lab Sample ID: WQ21177-002

Instrument ID: _Sciex 4500_LCMSMS1

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCS CONCENTRATION	LCS %REC #	QC LIMITS REC.
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	13	85	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	15	97	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	22	143 *	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	16	107	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	15	102	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	14	95	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	28	88	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	17	103	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	14	85	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	17	103	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	13	91	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	14	93	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	15	101	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	15	99	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	15	102	71-127
Perfluoro-n-butanoic acid (PFBA)	16	16	97	73-129
Perfluoro-n-decanoic acid (PFDA)	16	15	92	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	17	105	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	16	97	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	15	95	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	15	95	69-130
Perfluoro-n-octanoic acid (PFOA)	16	16	100	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	16	98	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	16	98	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	15	97	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	18	113	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	14	98	68-131
Perfluorooctanesulfonic acid (PFOS)	15	14	94	65-140

* Values outside of QC Limits

FORM 3

LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK03035

Project No.: 112G09581

Analytical Method: PFAS by ID SOP QSM B-15   Matrix: Water

Client Sample ID: WQ21582-002   Lab Sample ID: WQ21582-002

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCS CONCENTRATION	LCS %REC #	QC LIMITS REC.
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	17	111	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	16	104	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	16	104	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	15	102	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	17	115	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	17	112	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	36	113	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	19	120	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	17	106	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	16	101	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	16	113	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	17	108	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	15	101	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	17	108	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	18	119	71-127
Perfluoro-n-butanoic acid (PFBA)	16	16	103	73-129
Perfluoro-n-decanoic acid (PFDA)	16	17	105	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	18	113	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	16	100	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	18	111	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	18	110	69-130
Perfluoro-n-octanoic acid (PFOA)	16	17	107	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	16	101	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	17	106	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	16	102	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	17	108	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	16	107	68-131
Perfluorooctanesulfonic acid (PFOS)	15	13	91	65-140

* Values outside of QC Limits

FORM 3

LABORATORY CONTROL/LABORATORY CONTROL DUPLICATE SAMPLE RECOVERY

Lab Name: Pace Analytical Services, LLC   Lot No.: WK03035

Project No.: 112G09581

Analytical Method: PFAS by ID SOP QSM B-15   Matrix: Water

Client Sample ID: WQ21582-002   Lab Sample ID: WQ21582-002

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Concentration Units (ug/L, mg/L, ug/kg): ng/L

ANALYTE	SPIKE ADDED	LCSD CONCENTRATION	LCSD %R #	RPD #	QC LIMITS	
					RPD	%R
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	15	16	106	4.3	0-30	70-150
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	15	13	84	22	0-30	67-138
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	15	18	122	16	0-30	64-140
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	15	18	123	18	0-30	63-143
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	15	15	100	14	0-30	70-150
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	15	15	103	8.6	0-30	70-150
Hexafluoropropylene oxide dimer acid (GenX)	32	34	107	5.1	0-30	70-150
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	16	21	129	7.3	0-30	70-150
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	16	16	98	7.0	0-30	61-135
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	16	15	95	5.7	0-30	65-136
Perfluoro-1-butanesulfonic acid (PFBS)	14	14	102	10	0-30	72-130
Perfluoro-1-decanesulfonic acid (PFDS)	15	17	107	0.78	0-30	53-142
Perfluoro-1-heptanesulfonic acid (PFHpS)	15	14	92	9.1	0-30	69-134
Perfluoro-1-nonanesulfonic acid (PFNS)	15	17	108	0.10	0-30	69-127
Perfluoro-1-pentanesulfonic acid (PFPeS)	15	15	99	18	0-30	71-127
Perfluoro-n-butanoic acid (PFBA)	16	16	97	5.2	0-30	73-129
Perfluoro-n-decanoic acid (PFDA)	16	16	97	8.3	0-30	71-129
Perfluoro-n-dodecanoic acid (PFDoA)	16	15	94	18	0-30	72-134
Perfluoro-n-heptanoic acid (PFHpA)	16	16	99	0.85	0-30	72-130
Perfluoro-n-hexanoic acid (PFHxA)	16	17	106	4.2	0-30	72-129
Perfluoro-n-nonanoic acid (PFNA)	16	16	98	12	0-30	69-130
Perfluoro-n-octanoic acid (PFOA)	16	15	91	16	0-30	71-133
Perfluoro-n-pentanoic acid (PFPeA)	16	16	99	2.1	0-30	72-129
Perfluoro-n-tetradecanoic acid (PFTeDA)	16	16	99	7.1	0-30	71-132
Perfluoro-n-tridecanoic acid (PFTrDA)	16	15	96	6.6	0-30	65-144
Perfluoro-n-undecanoic acid (PFUdA)	16	17	105	2.9	0-30	69-133
Perfluorohexanesulfonic acid (PFHxS)	15	15	101	6.0	0-30	68-131
Perfluorooctanesulfonic acid (PFOS)	15	14	97	6.7	0-30	65-140

* Values outside of QC Limits

CLIENT SAMPLE ID

WQ21177-001

FORM 4
METHOD BLANK SUMMARY

Lab Name: Pace Analytical Services, LLC
Lot No.: WK03035
Project No.: 112G09581
Lab Sample ID: WQ21177-001
Analytical Method: PFAS by ID SOP QSM B-15
Matrix: Water
Instrument ID: Sciex 4500_LCMSMS1
Lab File ID: WQ21177-001.txt
Extraction Type: SOP SPE
Date Extracted: 11/03/2021
LC Column: Gemini C18 ID: 2.00 (mm)
Date Analyzed: 11/05/2021
Time Analyzed: 01:28

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED
SW3-DPT-0143-012.0-20211102	WK03035-001	WK03035-001.txt	01:49
SW3-DPT-0143-012.0-20211102	WK03035-001	WK03035-001.txt	14:41
SW3-DPT-0143-022.0-20211102	WK03035-002	WK03035-002.txt	21:11
SW3-DPT-0143-032.0-20211102	WK03035-003	WK03035-003.txt	21:53
SW3-DPT-0143-042.0-20211102	WK03035-004	WK03035-004.txt	02:42
SW3-DPT-0144-022.0-20211102	WK03035-006	WK03035-006.txt	02:53
SW3-DPT-0144-022.0-20211102	WK03035-006	WK03035-006.txt	22:04
SW3-DPT-0144-032.0-20211102	WK03035-007	WK03035-007.txt	22:15
SW3-DPT-0144-042.0-20211102	WK03035-008	WK03035-008.txt	15:45
SW3-DPT-0144-012.0-20211102	WK03035-009	WK03035-009.txt	04:18
SW3-DPT-0144-012.0-20211102	WK03035-009	WK03035-009.txt	15:56
SW3-EB-20211102-01	WK03035-010	WK03035-010.txt	04:28
WQ21177-002	WQ21177-002	WQ21177-002.txt	01:38
SW3-DPT-0143-012.0-20211102MS	WK03035-001MS	WK03035-001MS.txt	02:00
SW3-DPT-0143-022.0-20211102DUP	WK03035-002DUP	WK03035-002DU.txt	21:21

CLIENT SAMPLE ID

WQ21582-001

FORM 4
METHOD BLANK SUMMARY

Lab Name: Pace Analytical Services, LLC

Lot No.: WK03035

Project No.: 112G09581

Lab Sample ID: WQ21582-001

Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Water

Instrument ID: Sciex_5060884 (QTRAP 4500)_LCMSMS2

Lab File ID: WQ21582-001.txt

Extraction Type: SOP SPE

Date Extracted: 11/07/2021

LC Column: Gemini C18 ID: 2.00 (mm)

Date Analyzed: 11/09/2021

Time Analyzed: 21:09

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE/TIME ANALYZED
SW3-DPT-0143-032.0-20211102	WK03035-003	WK03035-003.txt	22:23
SW3-DPT-0143-042.0-20211102	WK03035-004	WK03035-004.txt	22:33
SW3-DPT-0144-022.0-20211102	WK03035-006	WK03035-006.txt	15:55
SW3-DPT-0144-032.0-20211102	WK03035-007	WK03035-007.txt	00:40
SW3-DPT-0144-042.0-20211102	WK03035-008	WK03035-008.txt	22:44
SW3-DPT-0144-012.0-20211102	WK03035-009	WK03035-009.txt	00:51
SW3-EB-20211102-01	WK03035-010	WK03035-010.txt	22:55
WQ21582-002	WQ21582-002	WQ21582-002.txt	21:20
WQ21582-003	WQ21582-003	WQ21582-003.txt	21:30

RAW SAMPLE DATA

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-001	
Description: SW3-DPT-0143-012.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0745	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0149	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	50	11/05/2021 1441	MMM	11/03/2021 1629	21177

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	10		7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	23000	LD	370	190	93	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	150	QS	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.0		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	26		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	6.6		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	240	S	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6800	D	190	95	47	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	7.2		3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	12000	D	190	95	47	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	16000	D	190	95	47	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	830	D	190	95	47	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	UQS	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	26000	D	190	95	47	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1500	D	190	95	47	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	171	50-150		112	50-150
13C2_6:2FTS		91	50-150		130	50-150
13C2_8:2FTS		115	50-150		110	50-150
13C2_PFDoA		74	50-150		117	50-150
13C2_PFTeDA		54	50-150		96	50-150
13C3_PFBS		63	50-150		117	50-150
13C3_PFHxS		57	50-150		110	50-150
13C3-HFPO-DA		69	50-150		100	50-150
13C4_PFBA	N	22	50-150		107	50-150
13C4_PFHpA	N	45	50-150		111	50-150
13C5_PFHxA	N	34	50-150		113	50-150
13C5_PFPeA	N	24	50-150		102	50-150
13C6_PFDA		105	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-001	
Description: SW3-DPT-0143-012.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0745	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		83	50-150		111	50-150
13C8_PFOA	N	43	50-150		110	50-150
13C8_PFOS		85	50-150		105	50-150
13C9_PFNA		71	50-150		105	50-150
d-EtFOSA		60	50-150		99	50-150
d5-EtFOSAA		90	50-150		114	50-150
d3-MeFOSAA		99	50-150		124	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 05-Nov-2021 13:58:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d		
Injection Date:	05-Nov-2021 01:49:30	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	53
Lab Sample ID:	WK03035-001	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0143-012.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-001	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0410038

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	268	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:		Conc. Level:		Vol. Added:	
Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	263136	16	>100:1			1001.00	244.38	22.1*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/0	30256212	17	>100:1			104652	4291.14		E
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	257182	16	>100:1			1001.00	256.44	23.6*	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	0/-1	49764201	20	>100:1			180777	7412.53		ME
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	230028	13	>100:1			1001.00	708.28	63.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	40303	13	14:1	Target = 3.80		122.76	5.0338		
298.9 > 99	44	2.141	2.141		11567	19	5.4:1	3.48 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.502	2.493	1/0	37147	12	36:1	Target = 3.42		160.66	6.5875		
349 > 99	44	2.502	2.493		12525	12	23:1	2.96 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	370412	15	>100:1			5005.00	8917.65	170.7*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/0	520958	17	>100:1	Target = 1.54		3606.71	147.89		
327 > 81	63	2.424	2.415		336624	14	>100:1	1.54 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.467	2.459	1	347365	15	>100:1			1001.00	388.89	33.8*	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.485	2.467	2/1	54744211	23	>100:1	Target = 17.93		152675	6260.24		ME
313 > 119	49	2.467	2.467		9629424	16	>100:1	5.68 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	606150	17	>100:1			5005.00	3700.11	69	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.587		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.855	2.846	1	441449	18	>100:1			1001.00	503.83	44.8*	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.846	2/1	53698685	19	>100:1	Target = 3.26		126487	5186.43		E
363 > 169	47	2.855	2.846		33905750	17	>100:1	1.58 (1.63-4.89)					J
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.872	2.863	1	168737	15	>100:1			1001.00	643.35	56.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.872	2.863	1/0	1176049	24	>100:1	Target = 3.48	10.81	5901.68	241.99		
399 > 99	45	2.872	2.863		315198	24	>100:1	3.73 (1.74-5.22)	15.16				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.239	3.229	1/0	109784	21	>100:1	Target = 3.56		633.20	25.964		
449 > 99	45	3.233	3.229		31684	19	7.2:1	3.46 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.204	0	177045	20	>100:1			5005.00	4694.77	91	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.201	3.204	0/0	22715216	21	>100:1	Target = 1.34		369312	15143		E
427 > 81	64	3.201	3.204		17111447	21	>100:1	1.32 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.223	1	398804	22	>100:1			1001.00	482.23	43.2*	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.229		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.591	3.595	0	209611	18	>100:1			1001.00	933.76	85.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.599	3.595	1/1	9567125	38	>100:1	Target = 4.01	0.89	38756	1589.15		ME
499 > 99	54	3.599	3.595		1946321	37	>100:1	4.91 (2.00-6.02)	2.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.799		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.926		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.226		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.386		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	708065	19	>100:1			1001.00	886.17	70.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/0	13706368	19	>100:1	Target = 4.69		21279	872.52		E
463 > 169	56	3.599	3.595		3116102	19	>100:1	4.39 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	176772	17	>100:1			5005.00	5632.29	115.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.932	3.934	0/0	15704	16	43:1	Target = 1.58		250.27	10.262		
527 > 81	65	3.940	3.934		9171	14	9.2:1	1.71 (0.79-2.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	0	820406	18	>100:1			1001.00	1136.61	104.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.940	3.942	0/0	147419	17	>100:1	Target = 9.77		175.29	7.1877		
513 > 169	51	3.940	3.942		15697	16	59:1	9.39 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	892792	17	>100:1			5005.00	5035.12	98.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.098		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.250	4.253	0	606083	16	>100:1			1001.00	886.83	82.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.253		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.253	0	699013	17	>100:1			5005.00	4674.71	89.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.253		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.463	0	39240	17	>100:1			1001.00	609.27	59.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.470		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	555924	19	>100:1			1001.00	808.45	74.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.521		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.760		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	481560	26	>100:1			1001.00	616.00	53.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.978		ND								
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	0	551918	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.467	2.467	1	365866	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.233	3.223	1	399684	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	183824	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.591	3.595	0	163186	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

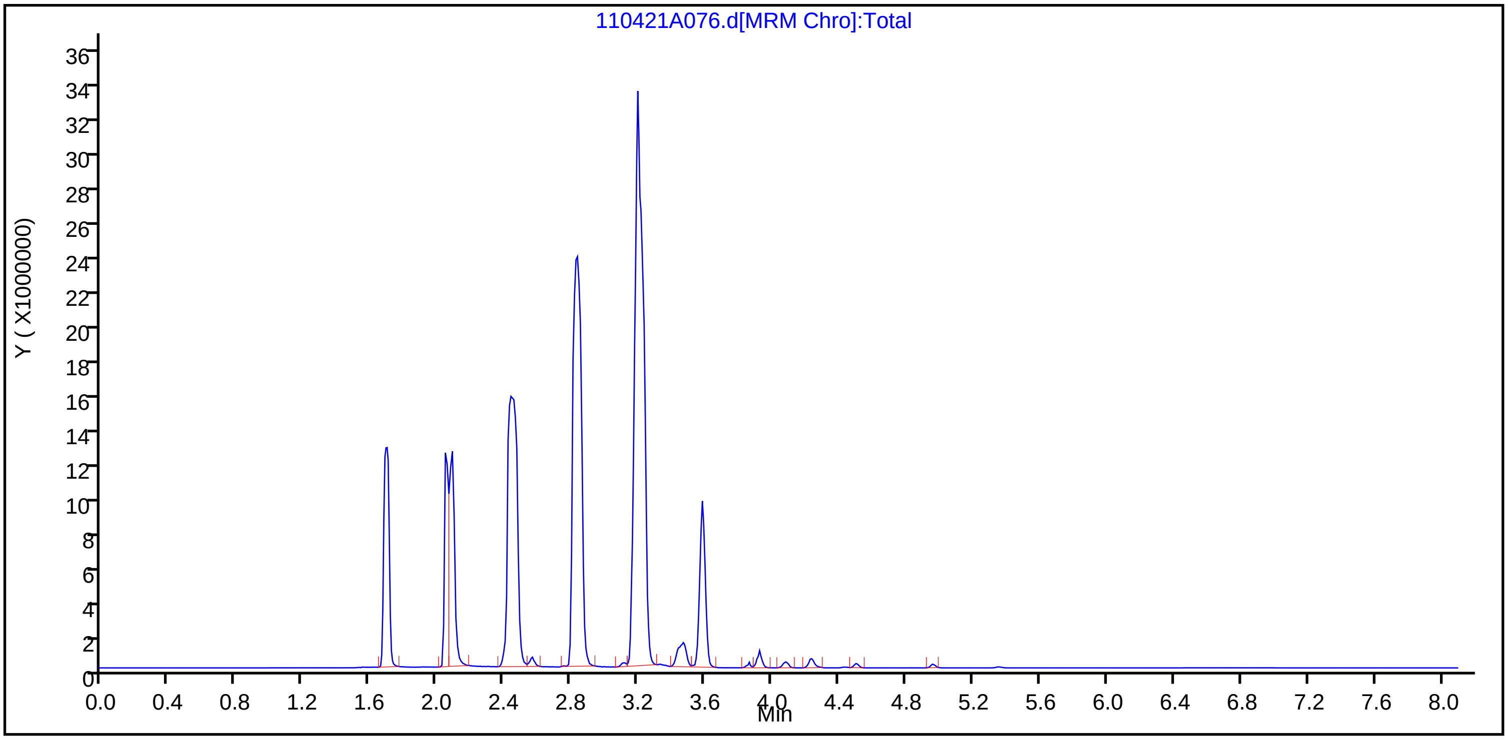
QC Flag Legend

U - Result Less Than Method Detection Limit
E - Compound Concentration Exceeds Max. Calibration Range
M - Compound Hit/Peak Manually Integrated

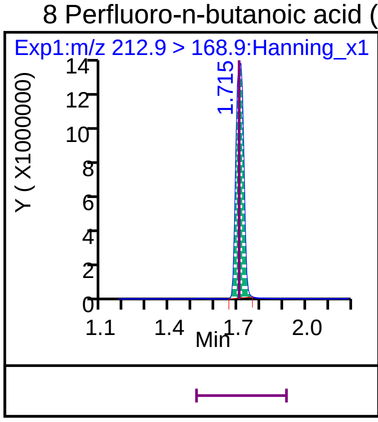
Report Date: 05-Nov-2021 13:58:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

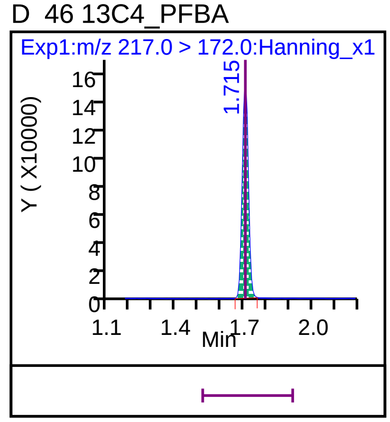
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d
Injection Date:	05-Nov-2021 01:49:30
Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-012.0-20211102
Lab ID:	WK03035-001
Sample Info:	WK03035-001
Dil. Factor:	1
Operator:	Matthew M. Miller



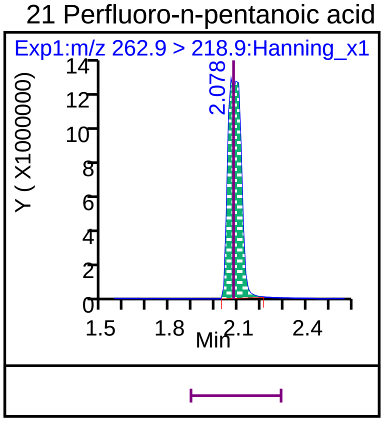
8 Perfluoro-n-butanoic acid (PFBA)



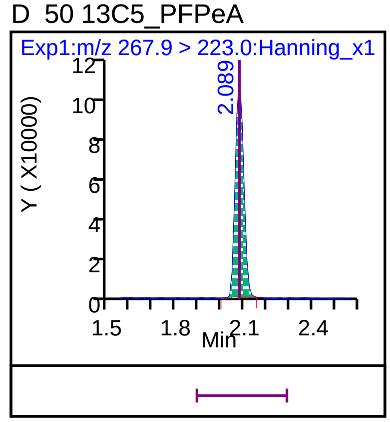
D 46 13C4_PFBA



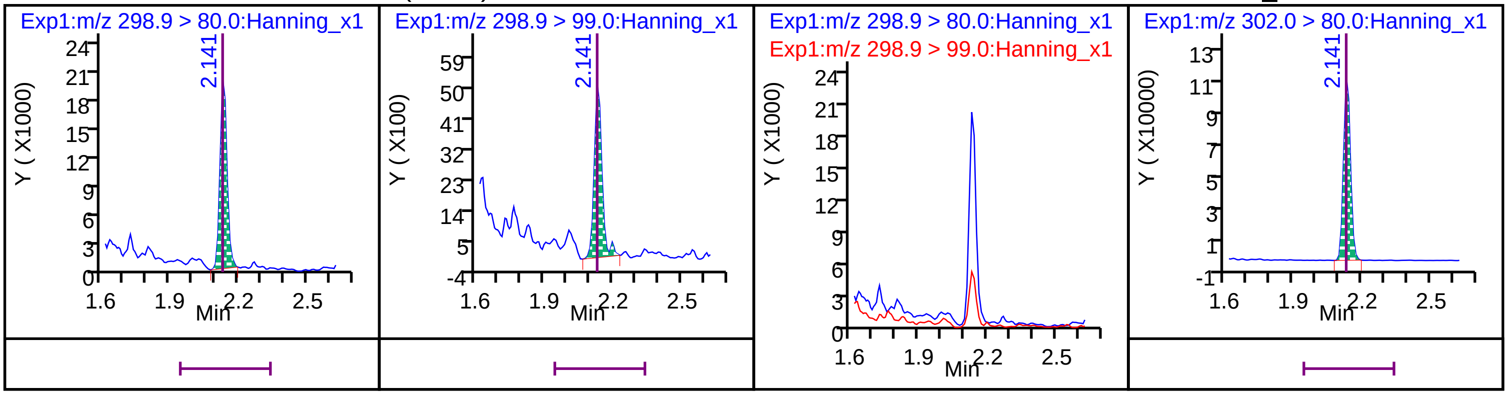
21 Perfluoro-n-pentanoic acid (PFPeA) (M)



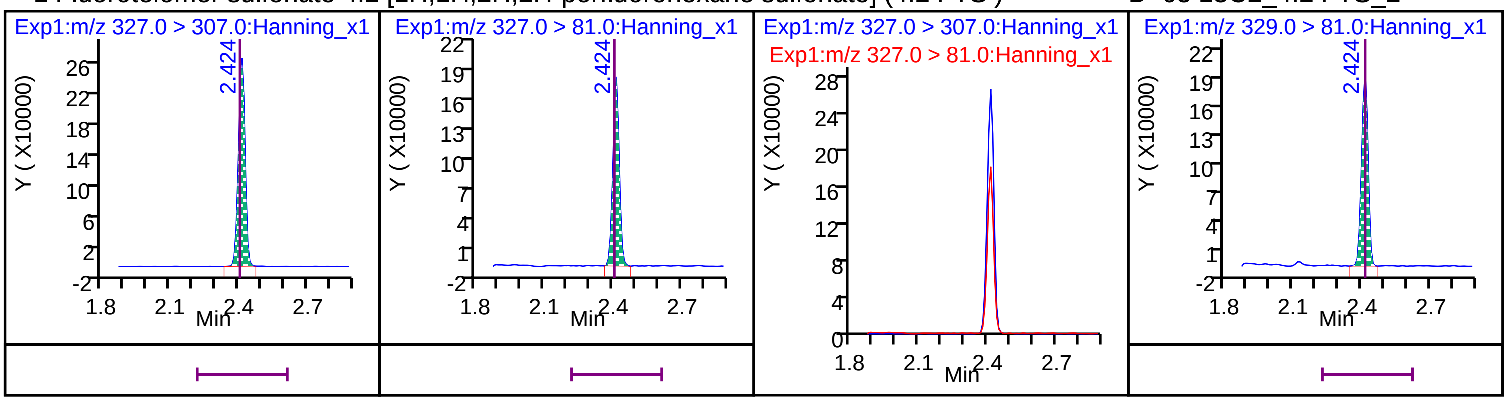
D 50 13C5_PFPeA



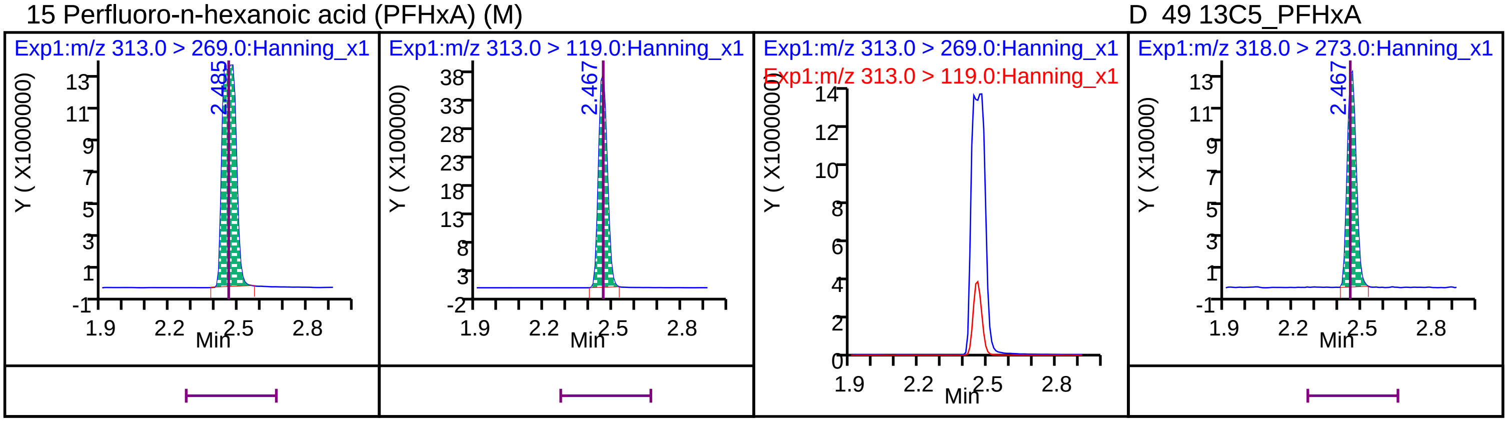
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



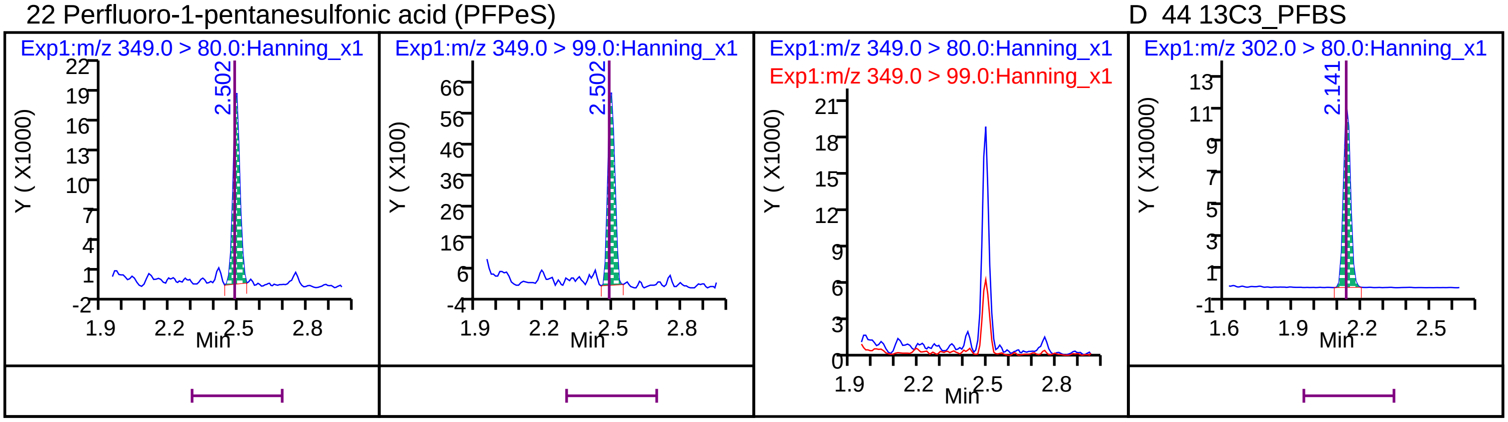
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



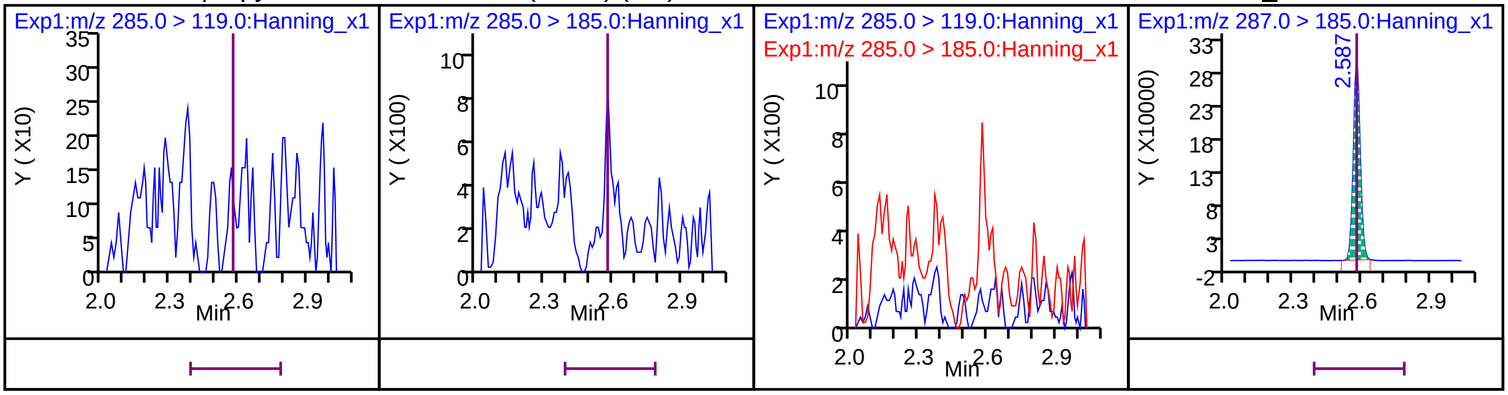
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



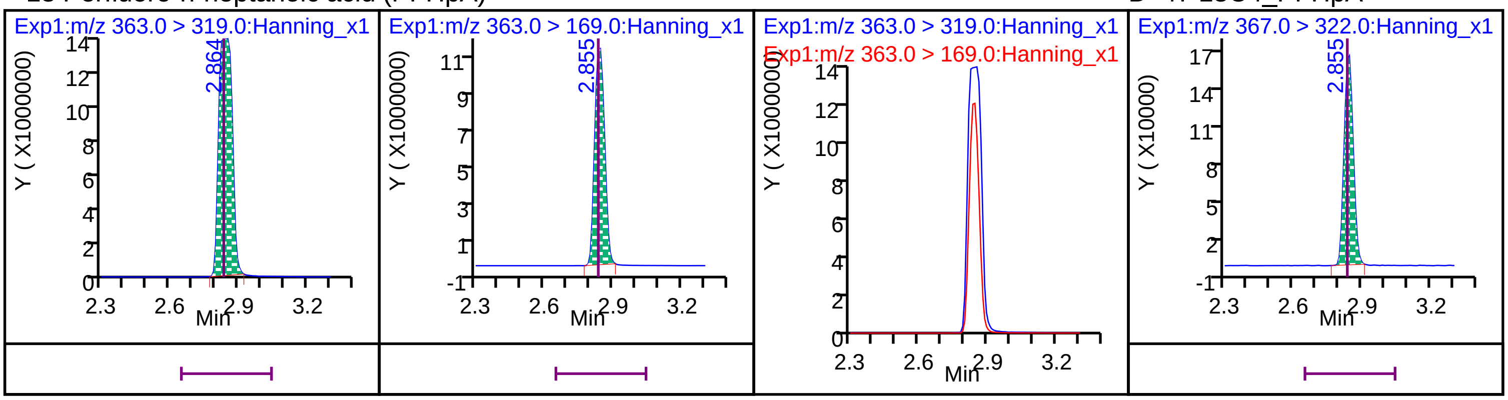
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



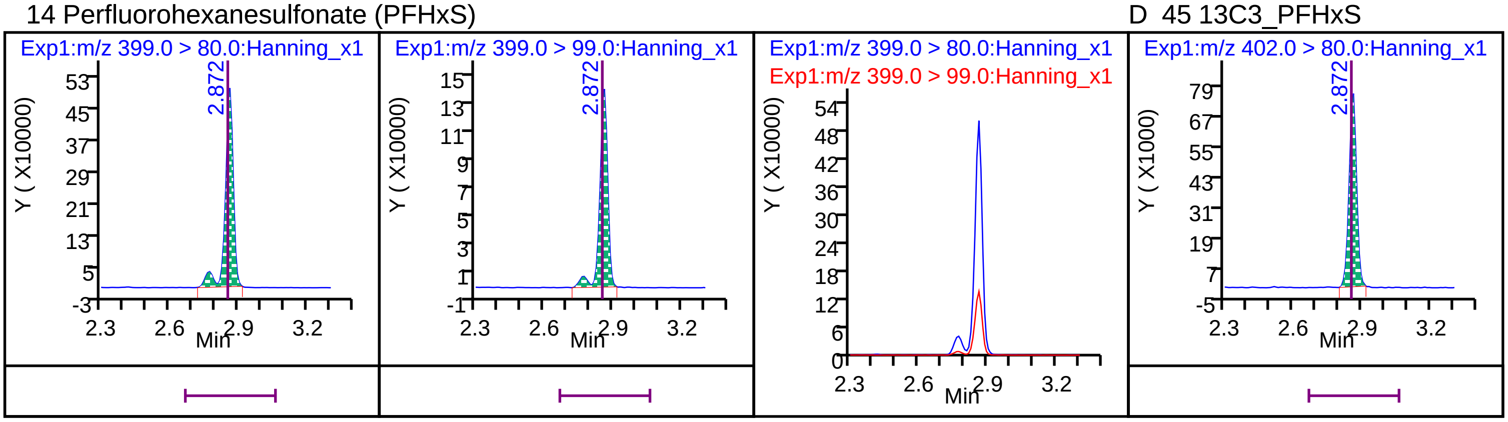
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



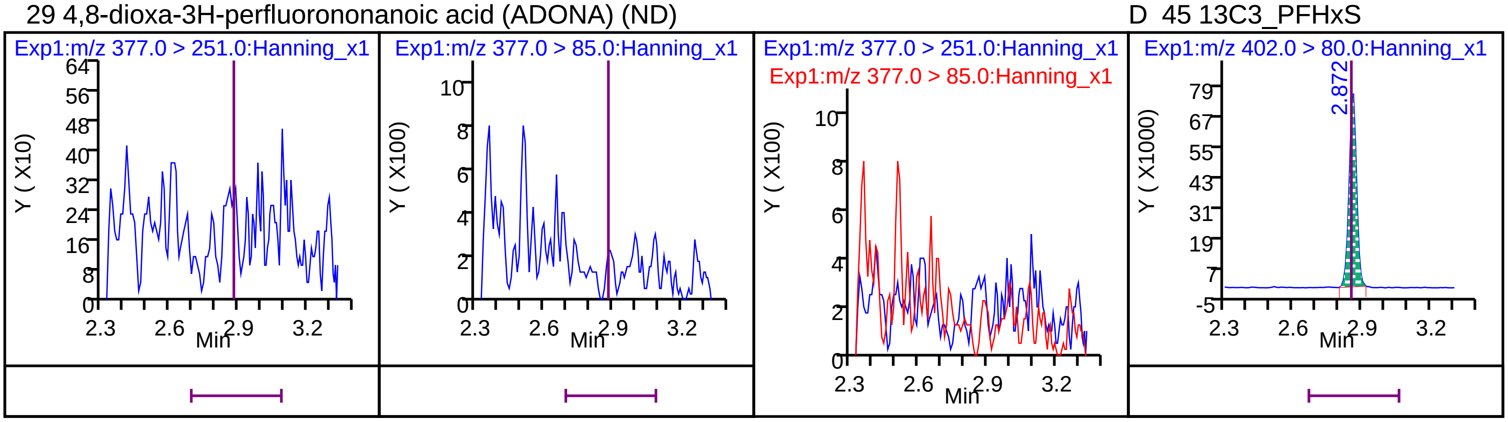
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



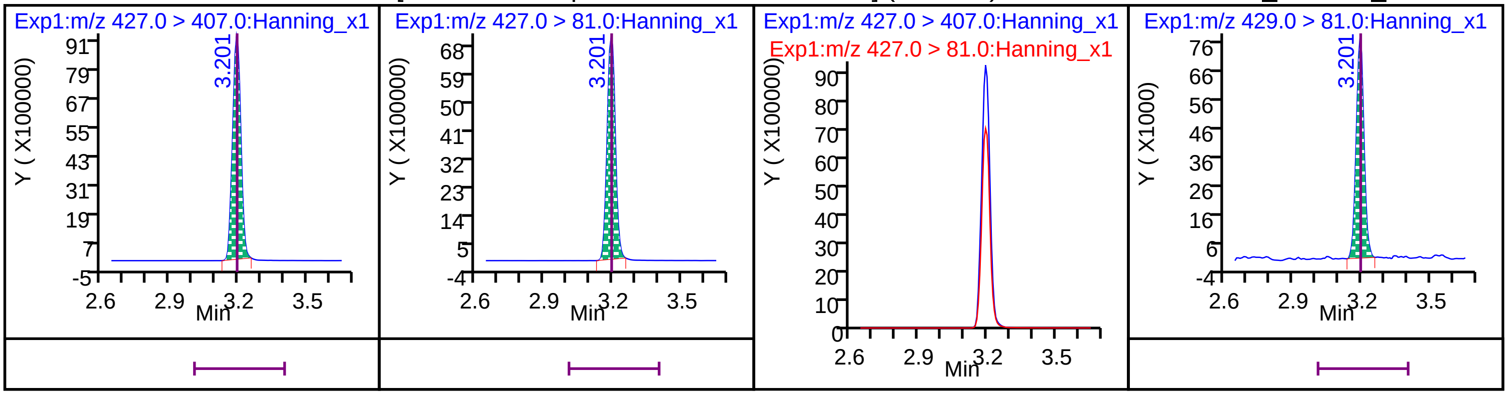
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



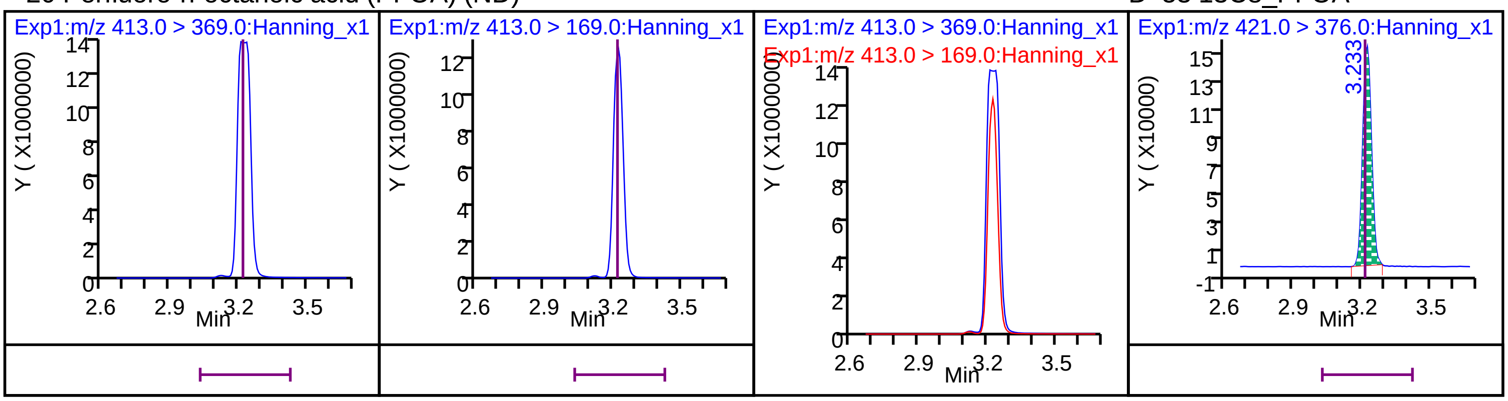
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



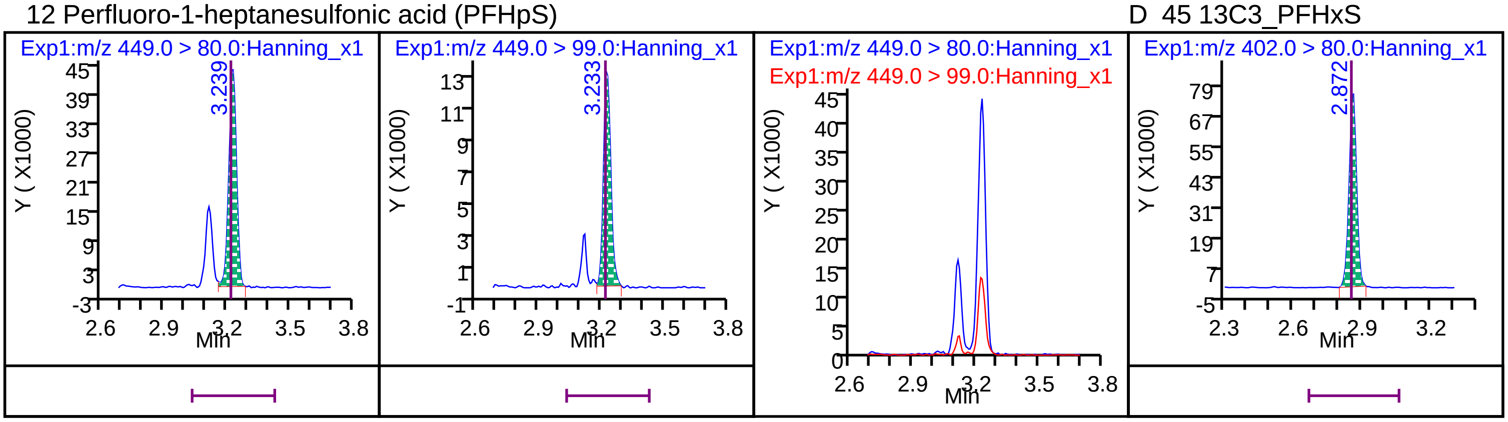
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



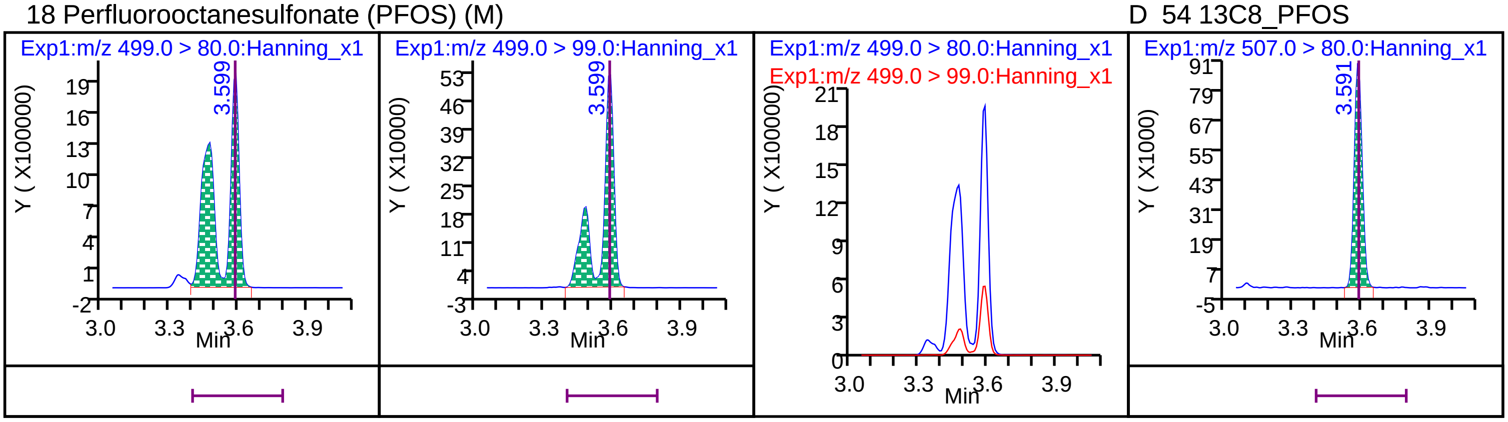
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



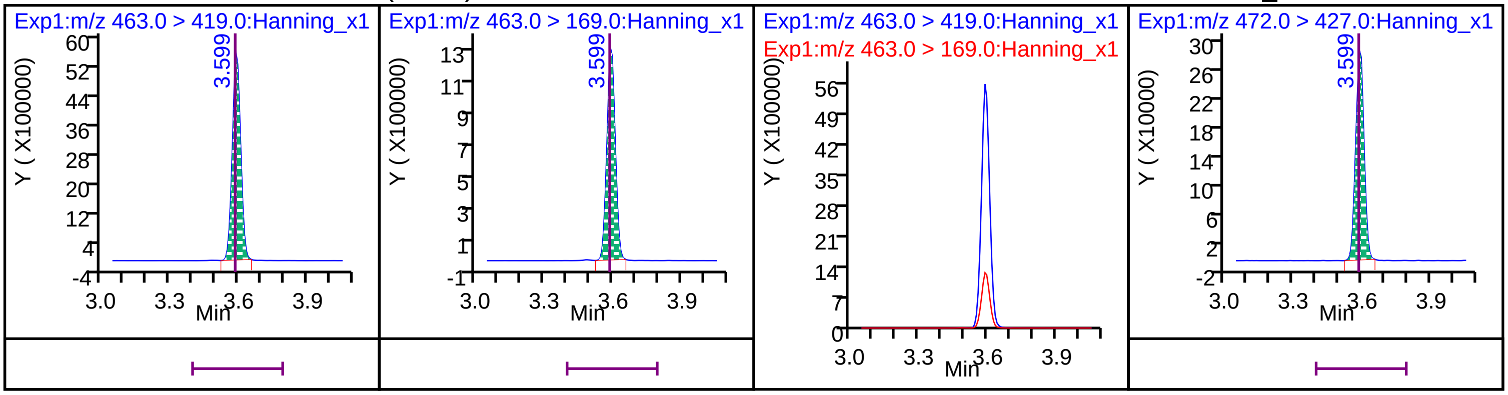
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



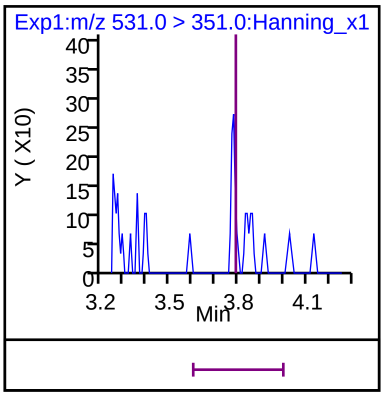
Report Date: 05-Nov-2021 13:58:38 AIM Revision: 2.0.2021.0812

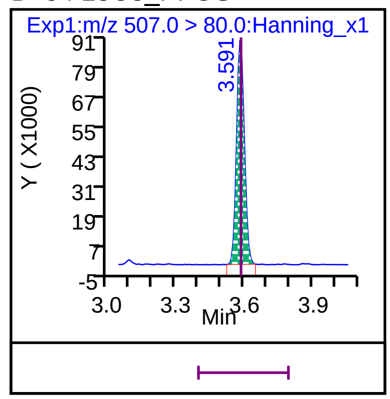
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

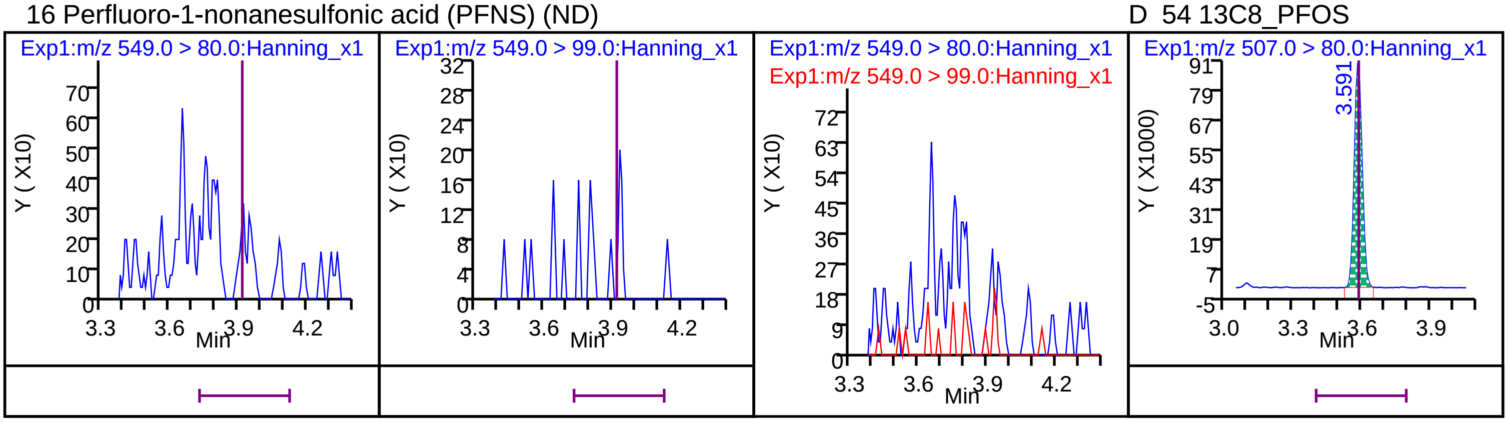


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS

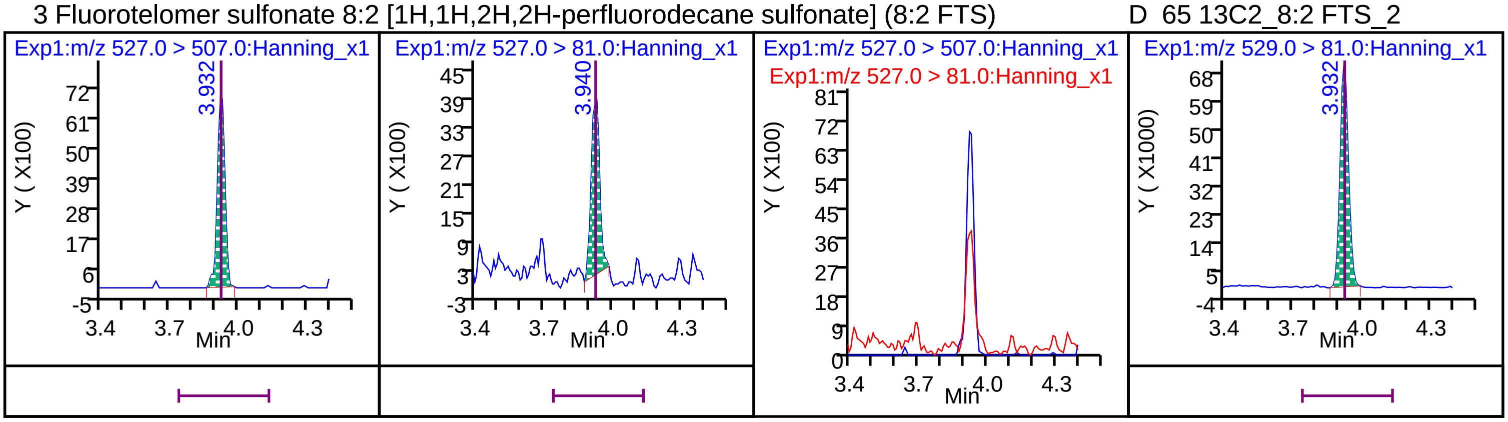




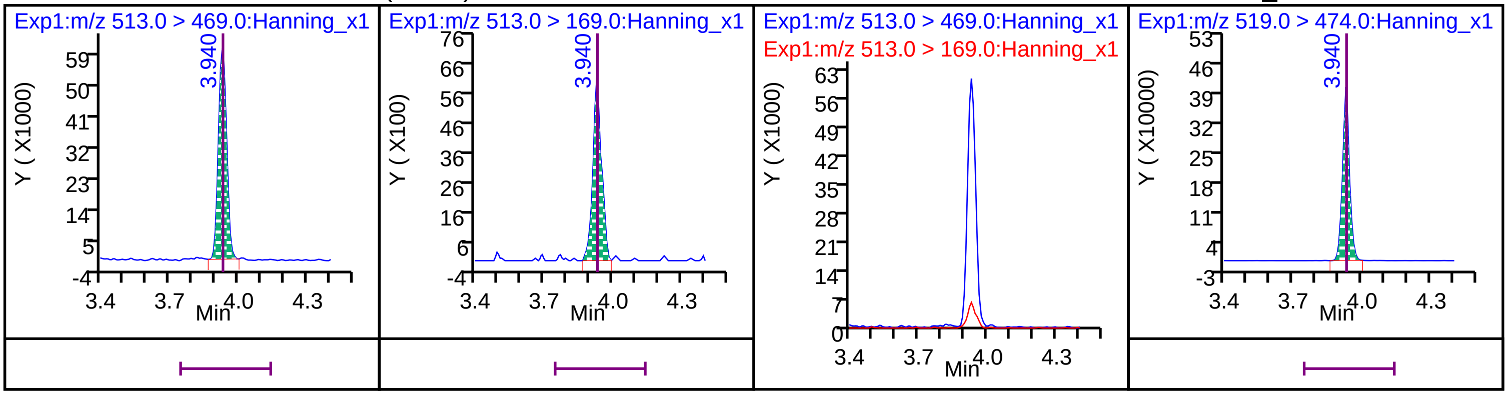
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



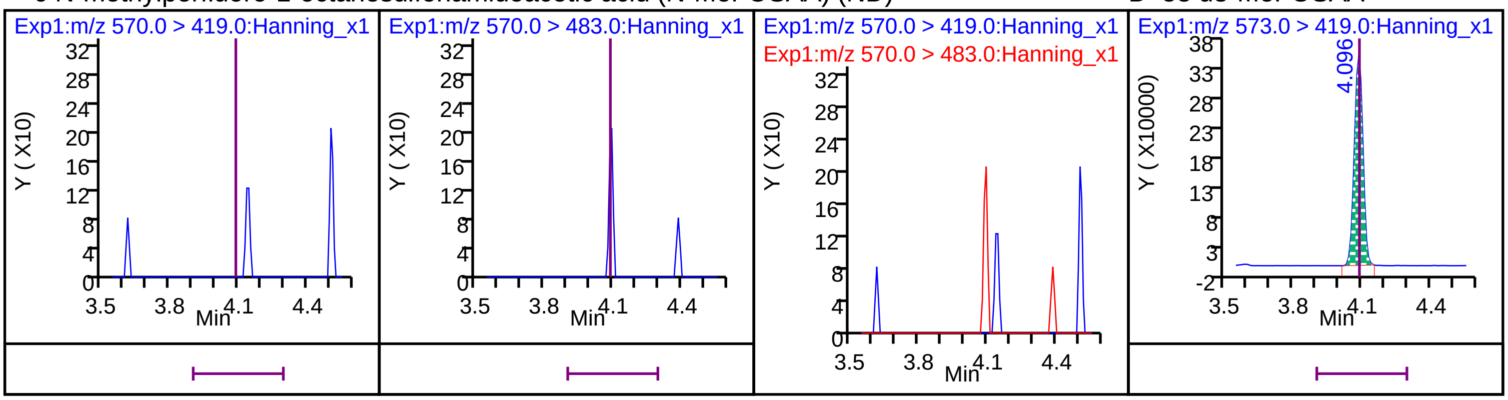
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



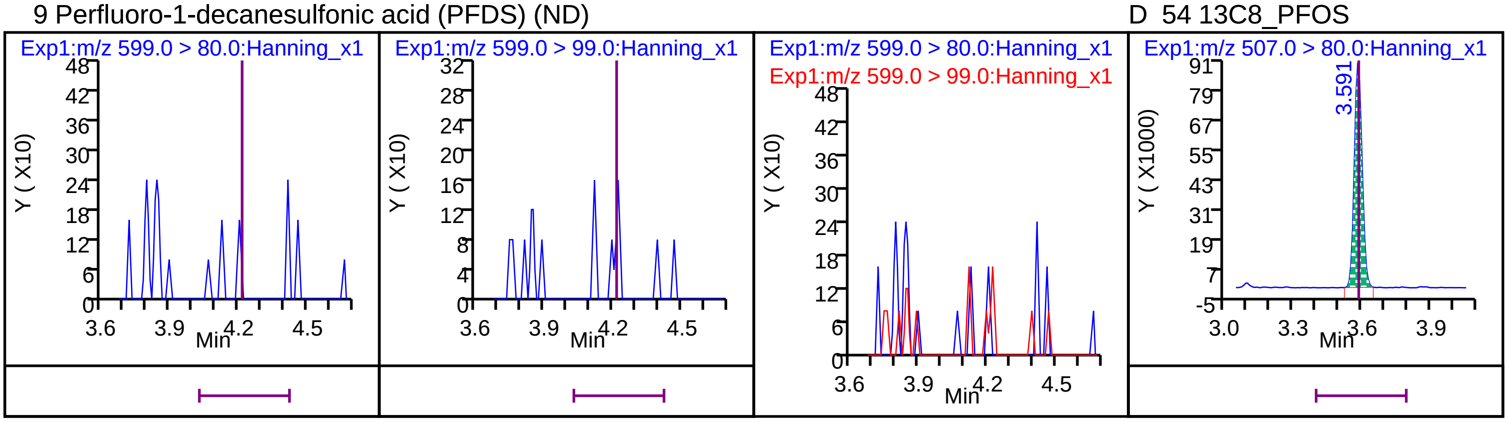
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



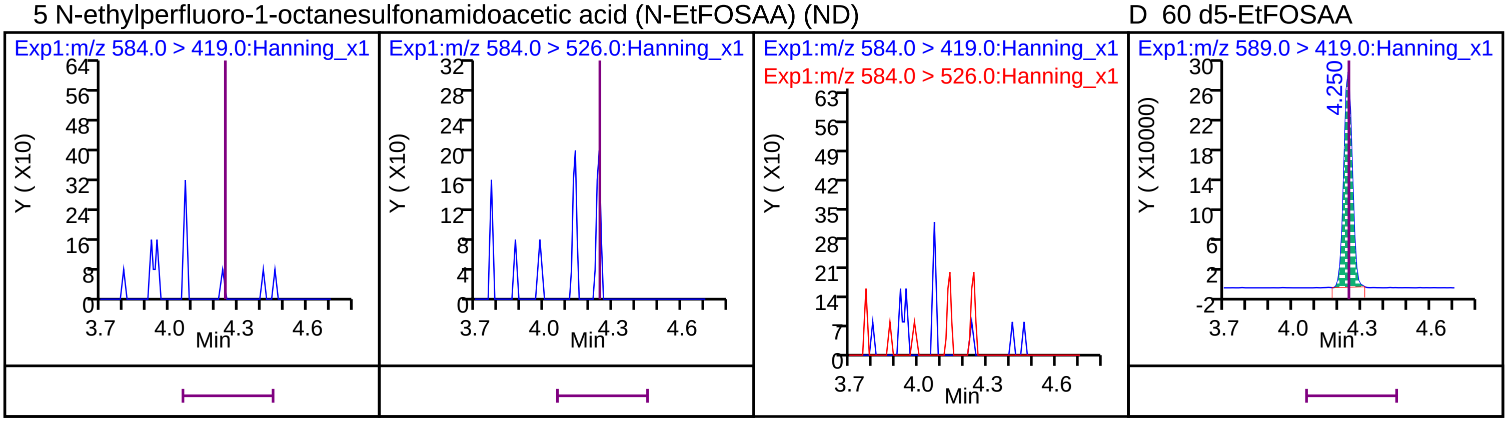
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

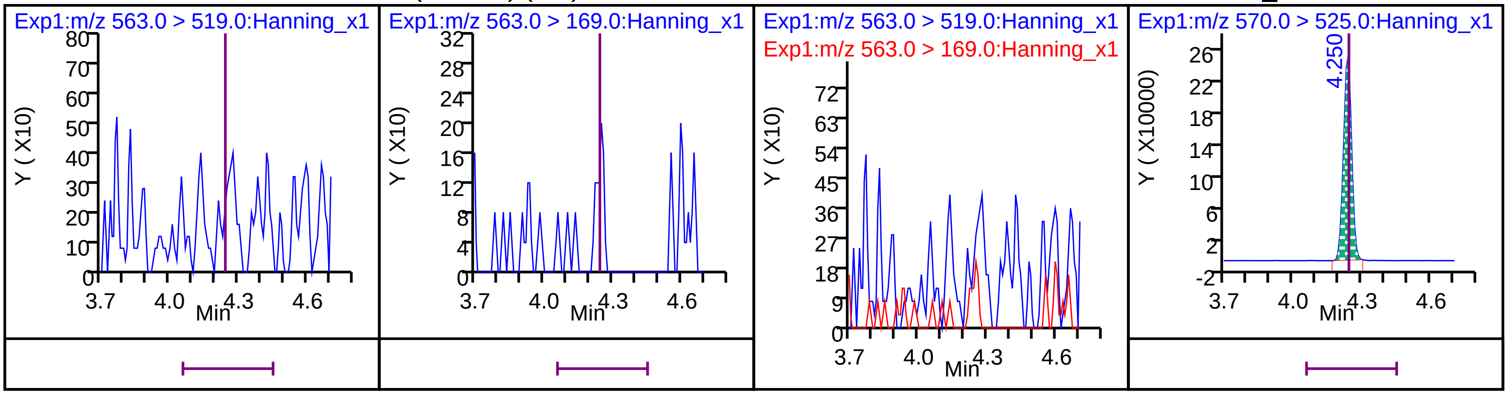


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

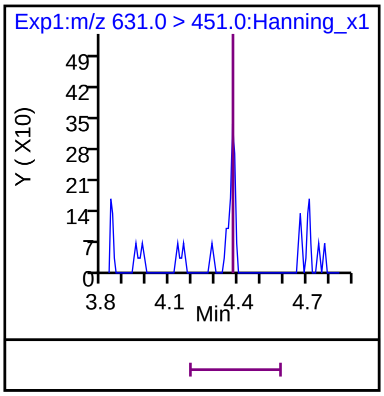


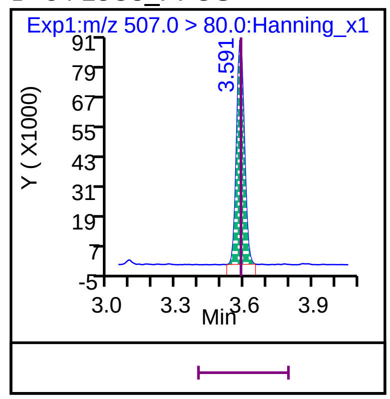
Report Date: 05-Nov-2021 13:58:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d

25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

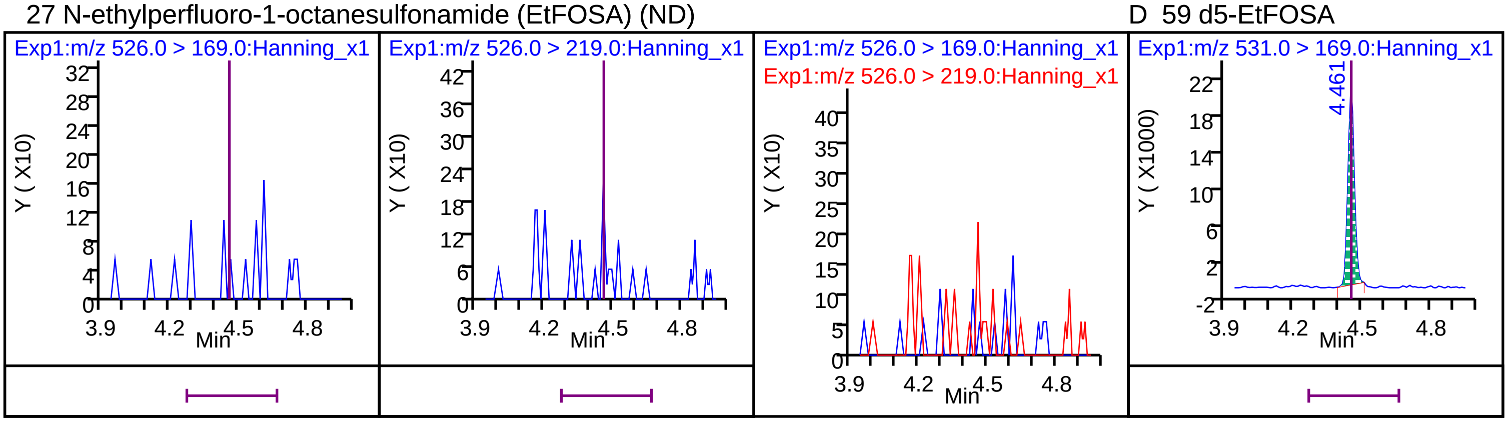


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

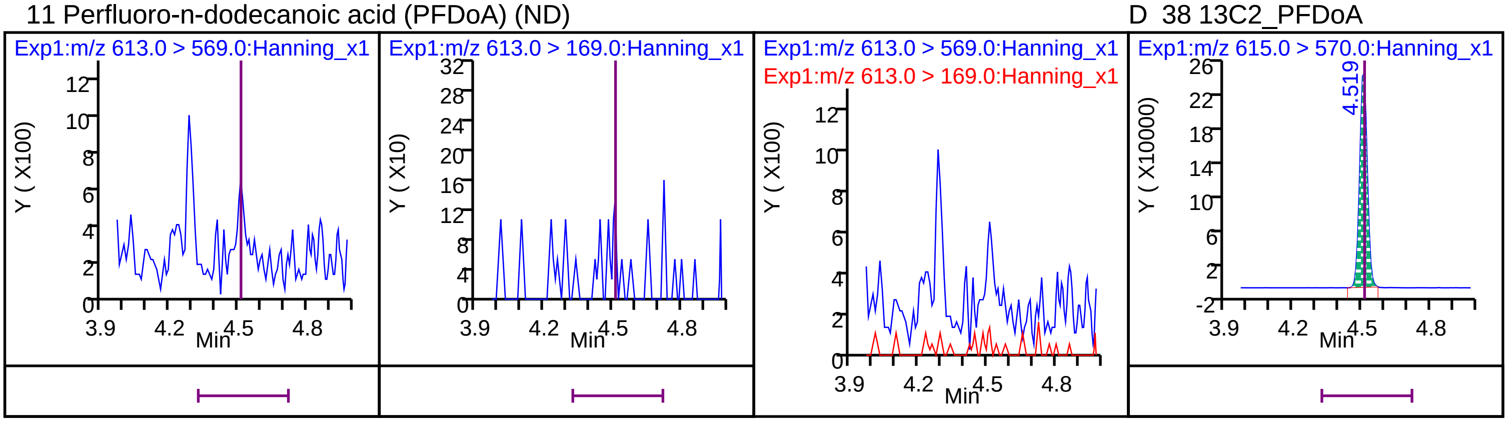




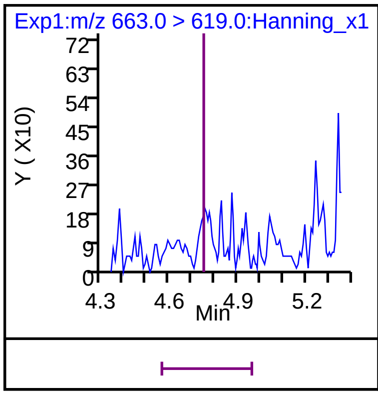
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA

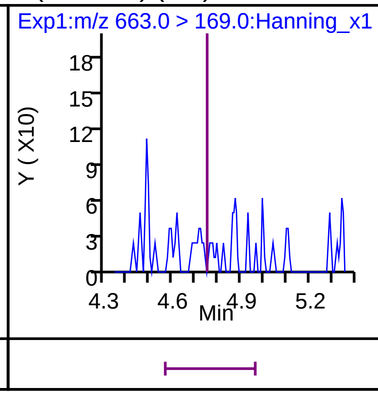


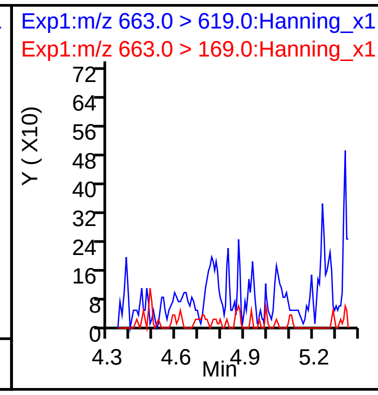
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



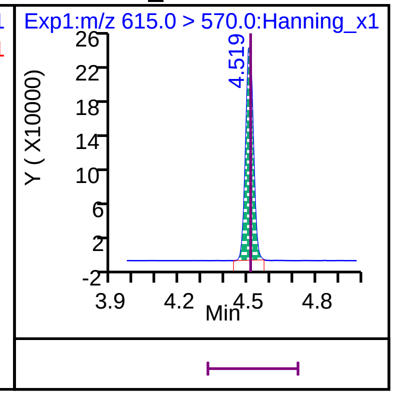
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



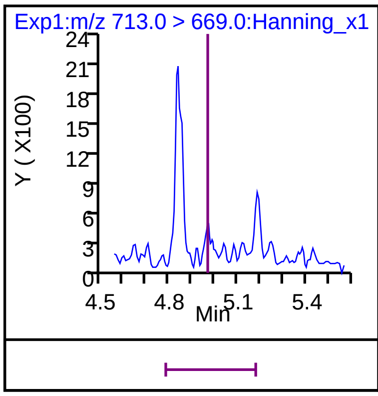


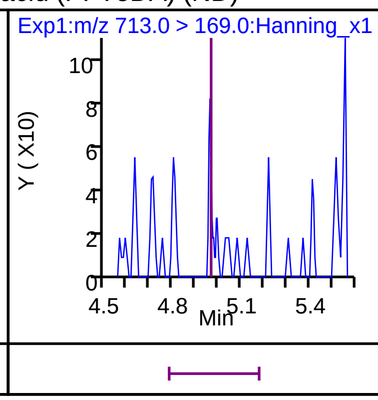


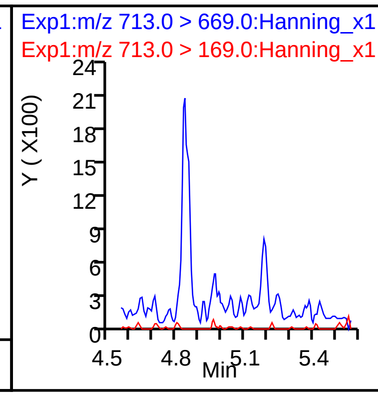
D 38 13C2_PFDoA



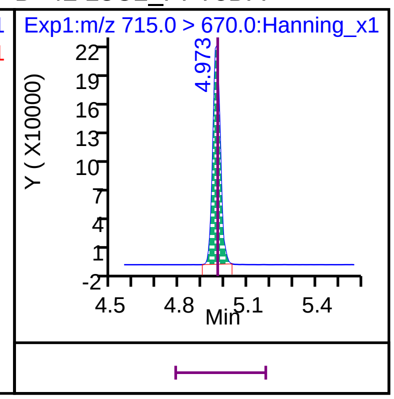
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



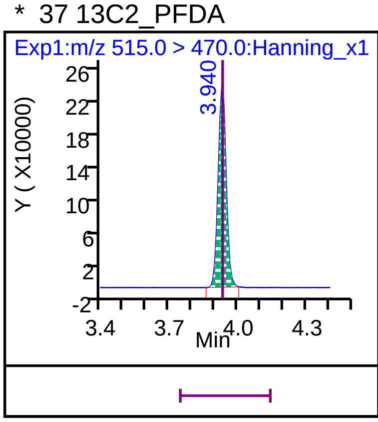




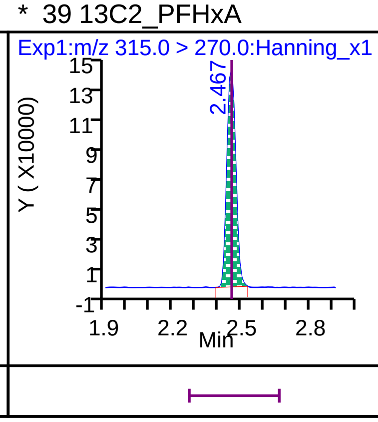
D 42 13C2_PFTeDA



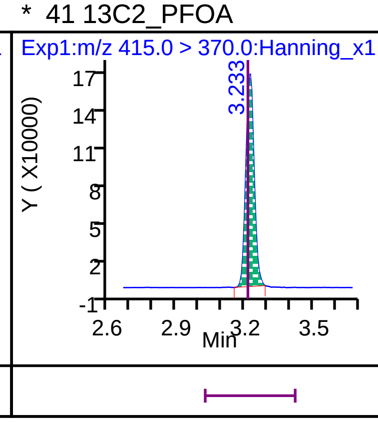
* 37 13C2_PFDA



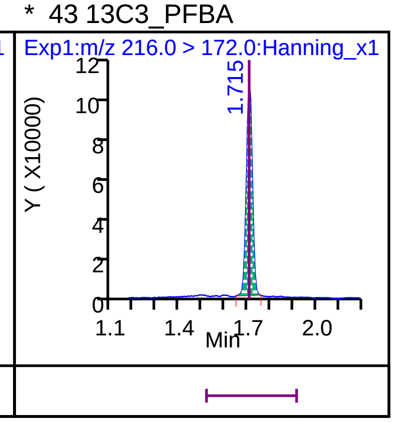
* 39 13C2_PFHxA



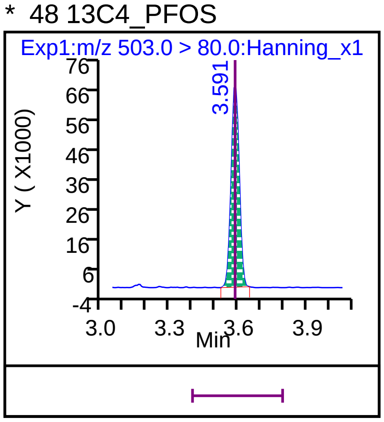
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

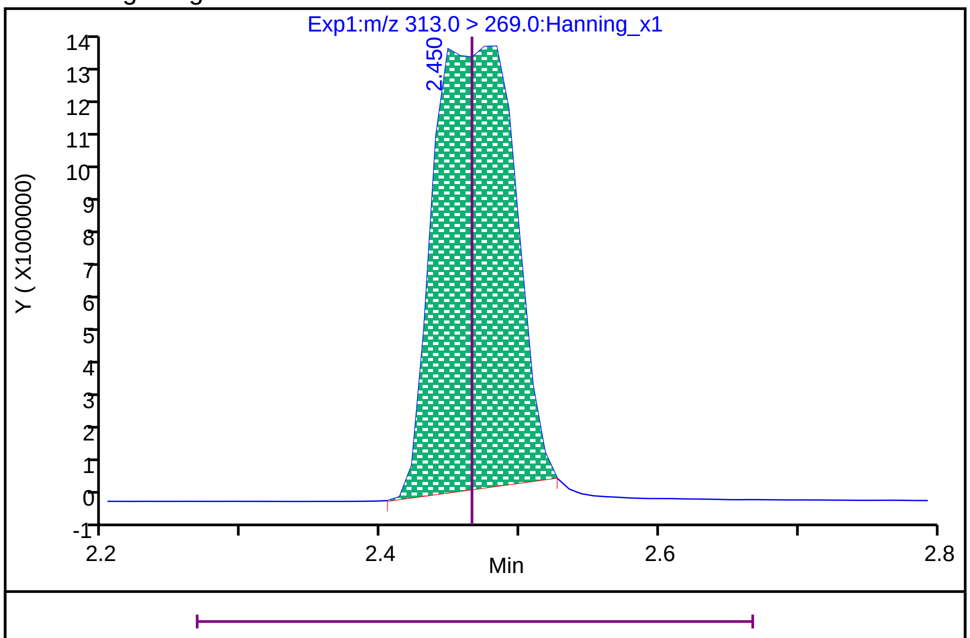
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d		
Injection Date:	05-Nov-2021 01:49:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-012.0-20211102	Lab ID:	WK03035-001
Sample Info:	WK03035-001		
Dil. Factor:	1	Operator:	Matthew M. Miller

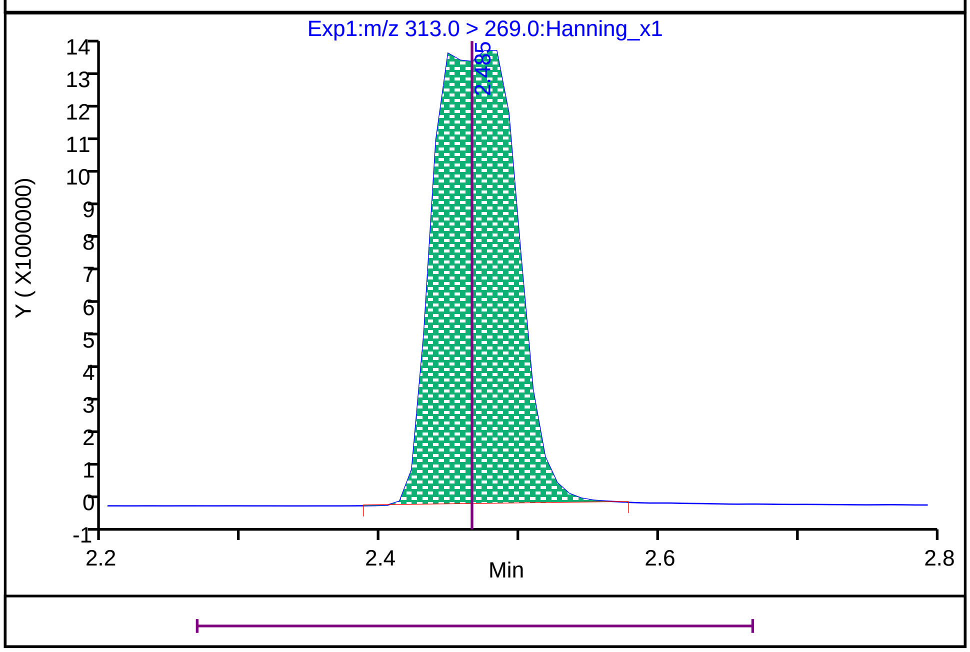
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.450
Area:	52459541
Conc:	5998.98
Conc Units:	ng/L



RT:	2.485
Area:	54744211
Conc:	6260.24
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:49:46

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

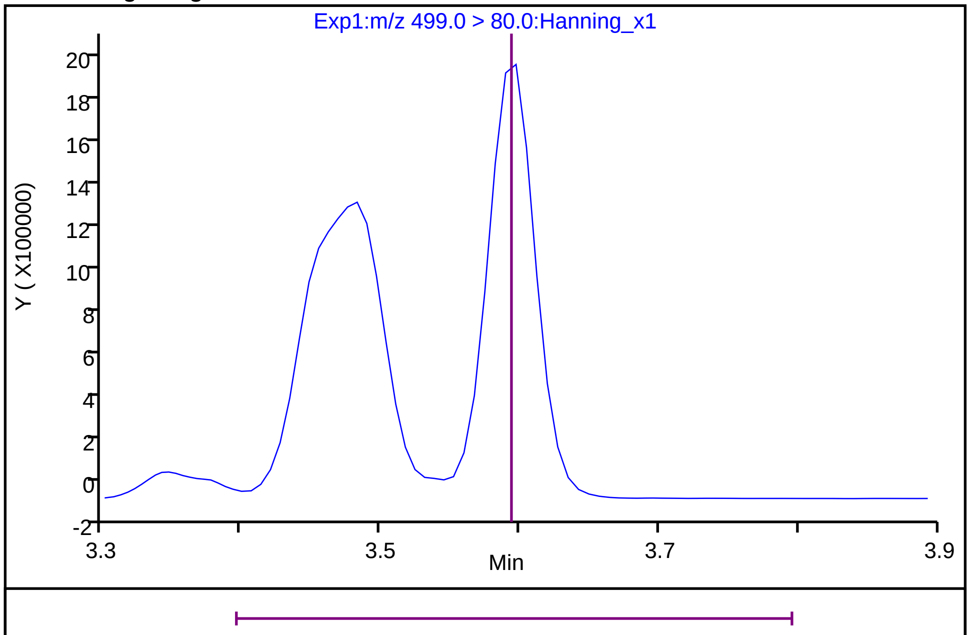
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d		
Injection Date:	05-Nov-2021 01:49:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-012.0-20211102	Lab ID:	WK03035-001
Sample Info:	WK03035-001		
Dil. Factor:	1	Operator:	Matthew M. Miller

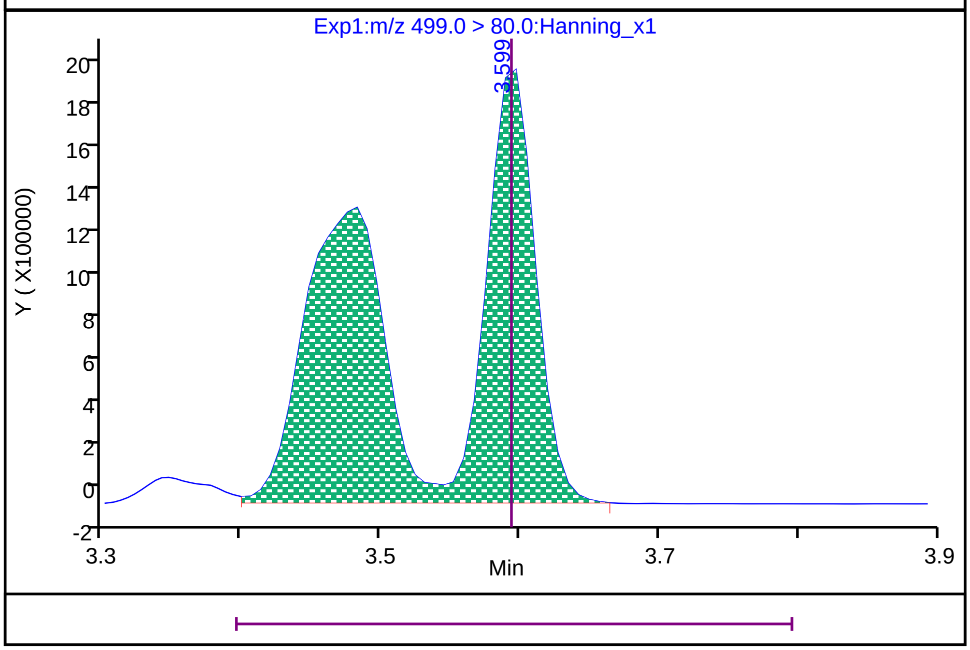
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.599
Area:	9907834
Conc:	1645.75
Conc Units:	ng/L



RT:	3.599
Area:	9567125
Conc:	1589.15
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:46:37

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

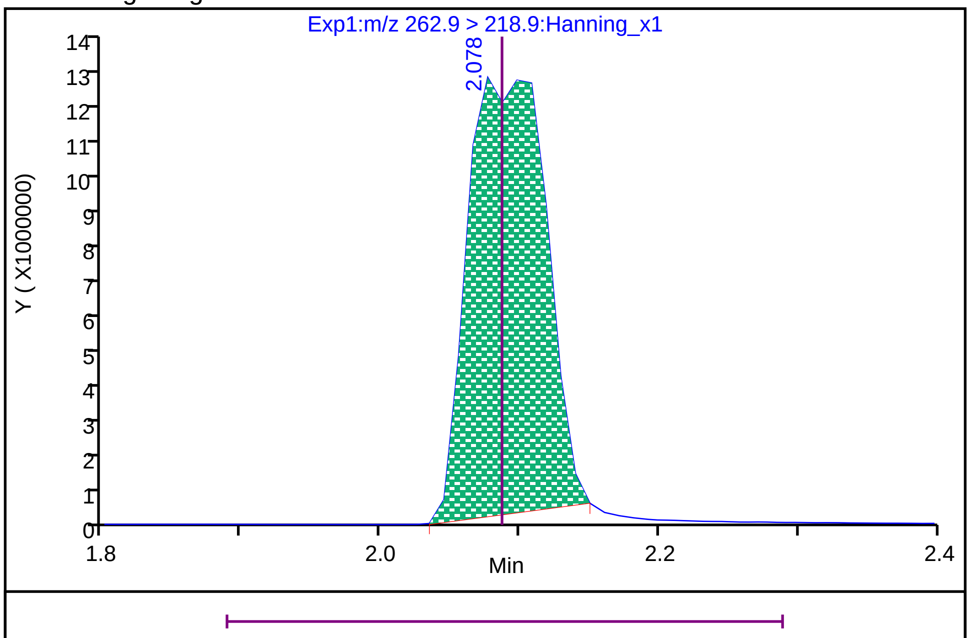
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A076.d		
Injection Date:	05-Nov-2021 01:49:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-012.0-20211102	Lab ID:	WK03035-001
Sample Info:	WK03035-001		
Dil. Factor:	1	Operator:	Matthew M. Miller

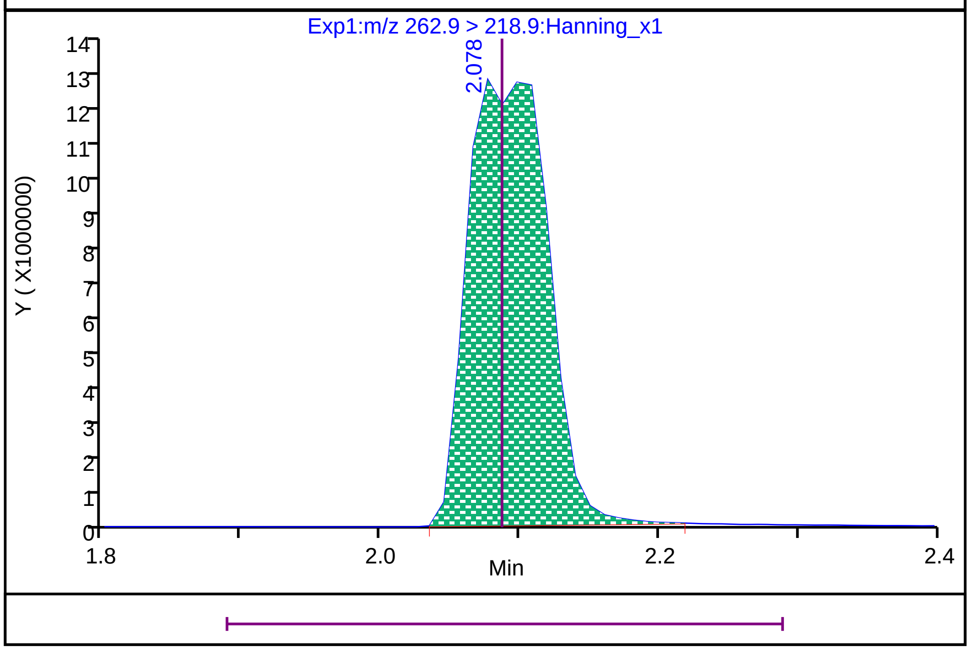
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT:	2.078
Area:	47299473
Conc:	7045.40
Conc Units:	ng/L



RT:	2.078
Area:	49764201
Conc:	7412.53
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:49:40

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d		
Injection Date:	05-Nov-2021 14:41:59	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	9
Lab Sample ID:	WK03035-001	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0143-012.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-001,50	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0373134

Name	Value	Units	Description
DF	50		Dilution Factor
VF	10000	ul	Final Volume
VI	268	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	1254080	21	>100:1			1100.00	1164.71	106.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	0/0	4563196	19	>100:1			3639.29	6789.73		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	0	1094427	17	>100:1			1100.00	1091.25	101.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	0/0	15068378	15	>100:1			14135	26372		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.130	2.141	0	395084	17	>100:1			1100.00	1216.50	116.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.502		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	254167	18	>100:1			5500.00	6119.06	112.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.415	2.424	0/0	8930	16	>100:1	Target = 1.54		99.011	184.72		
327 > 81	63	2.415	2.424		4603	8	6.3:1	1.94 (0.77-2.32)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.468	0	1136679	17	>100:1			1100.00	1272.55	112.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.468	0/0	9386341	19	>100:1	Target = 17.93		8790.88	16401		
313 > 119	49	2.459	2.468		538436	17	>100:1	17.43 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	922552	19	>100:1			5500.00	5631.52	99.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.594		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	0	1083523	17	>100:1			1100.00	1236.63	110.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	0/0	6230170	19	>100:1	Target = 3.26		6570.25	12258		
363 > 169	47	2.846	2.855		1926075	19	>100:1	3.23 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	0	328563	17	>100:1			1100.00	1252.72	110.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	-1/-1	44507	26	>100:1	Target = 3.48	18.65	126.05	235.16		
399 > 99	45	2.855	2.872		10797	26	>100:1	4.12 (1.74-5.22)	30.86				M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.898		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.239		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.214	1	272036	21	>100:1			5500.00	7213.69	130.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.198	3.208	1/0	1053037	21	>100:1	Target = 1.34		12244	22844		
427 > 81	64	3.198	3.208		778391	22	>100:1	1.35 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.239	1	1001707	23	>100:1			1100.00	1211.26	109.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.223	3.239	1/0	5010679	22	>100:1	Target = 2.50		5347.71	9977.08		
413 > 169	53	3.217	3.239		1928457	22	>100:1	2.59 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.606	1	255726	20	>100:1			1100.00	1139.19	105	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.588	3.614	-1/-2	220788	39	>100:1	Target = 4.01	1.03	805.63	1503.03		M
499 > 99	54	3.581	3.614		42412	34	88:1	5.20 (2.00-6.02)	2.33				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.811		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.948		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.250		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.402		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	911488	19	>100:1			1100.00	1140.77	105.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.595	3.614	1/1	334718	18	>100:1	Target = 4.69		443.60	827.61		
463 > 169	56	3.588	3.614		77467	23	>100:1	4.32 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.926	3.948	1	187412	20	>100:1			5500.00	5971.30	109.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.948		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.934	3.956	1	858020	19	>100:1			1100.00	1188.72	107.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.964		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	1093384	17	>100:1			5500.00	6166.41	124.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.112		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	834058	17	>100:1			1100.00	1220.41	110.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.268		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.244	4.268	1	916793	18	>100:1			5500.00	6131.13	113.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.277		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.454	1	69258	15	>100:1			1100.00	1075.35	98.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.461		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.541	0	814395	18	>100:1			1100.00	1184.33	117.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.541		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.784		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.969	5.000	1	892146	27	>100:1			1100.00	1141.21	96.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.003		ND								
*** 37 13C2_PFDA**													
515 > 470		3.934	3.956	1	761782	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	0	932656	19	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.239	0	894988	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	0	1059645	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	232796	19	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

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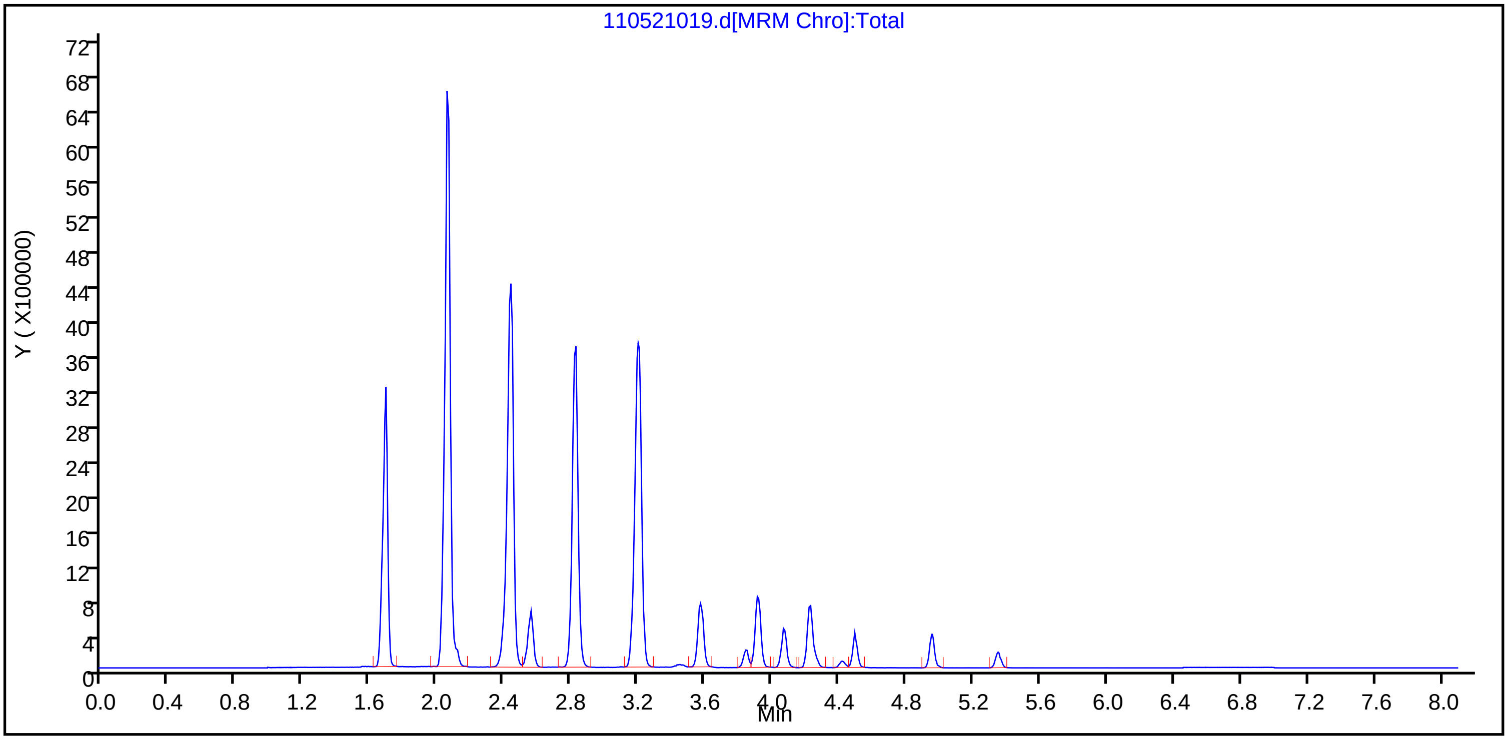
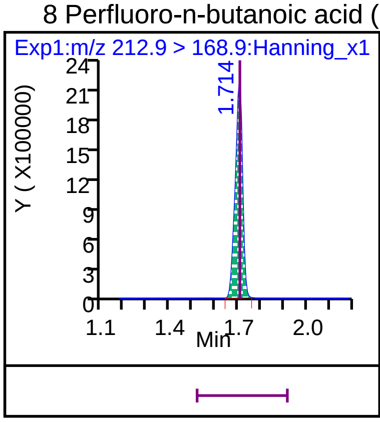
Pace Environmental Services, LLC

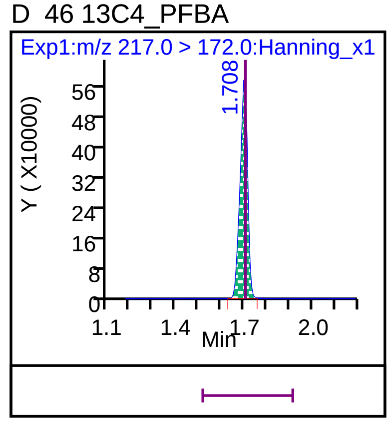
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d		
Injection Date:	05-Nov-2021 14:41:59	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-012.0-20211102	Lab ID:	WK03035-001
Sample Info:	WK03035-001,50		
Dil. Factor:	50	Operator:	Matthew M. Miller



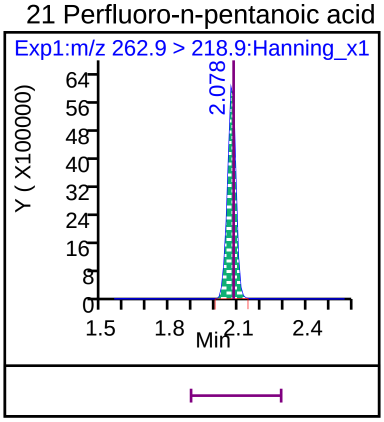
8 Perfluoro-n-butanoic acid (PFBA)



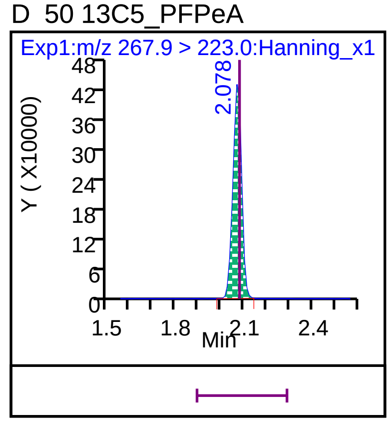
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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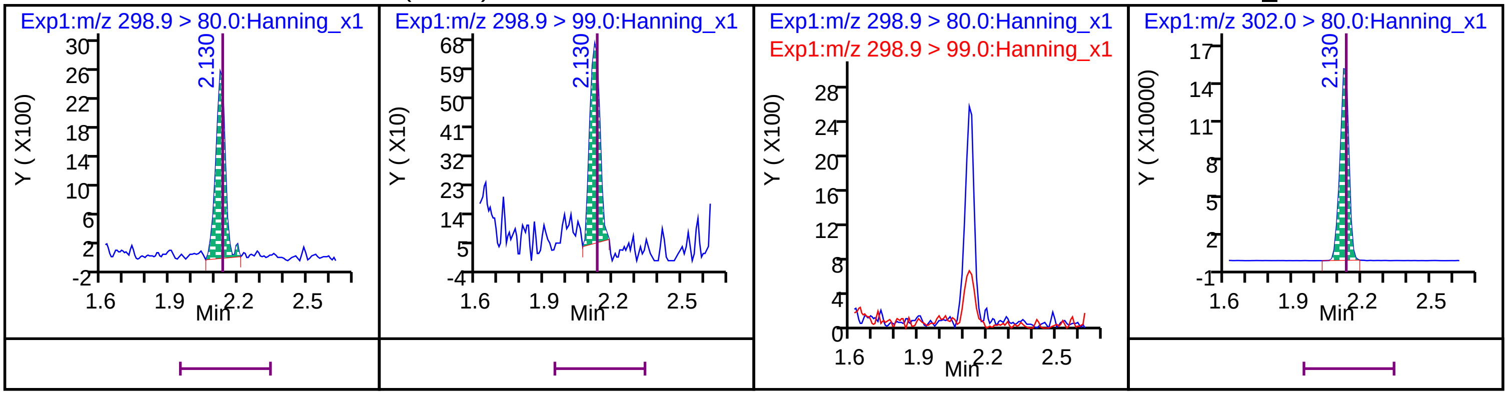
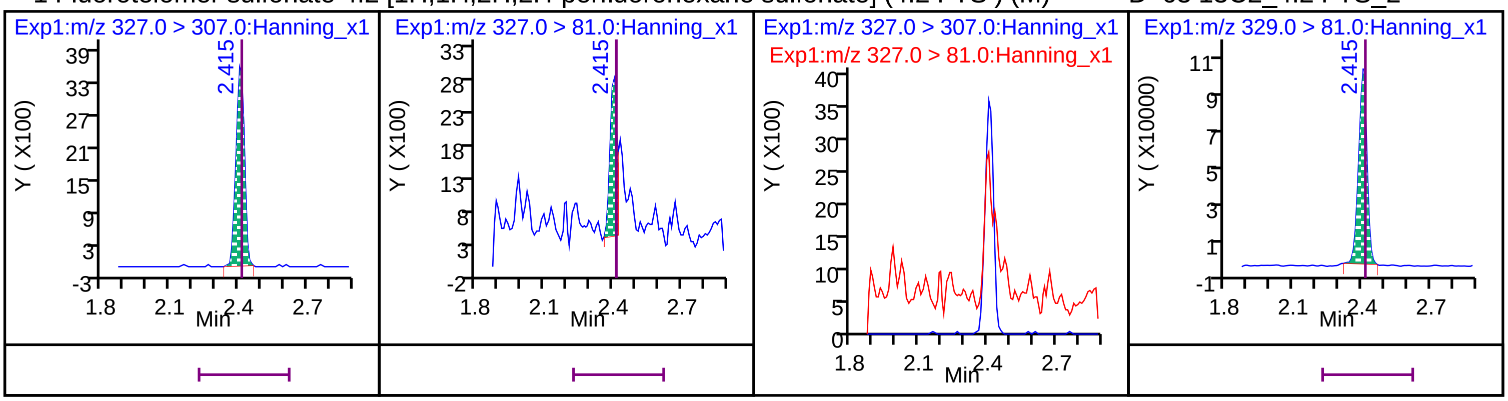
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d

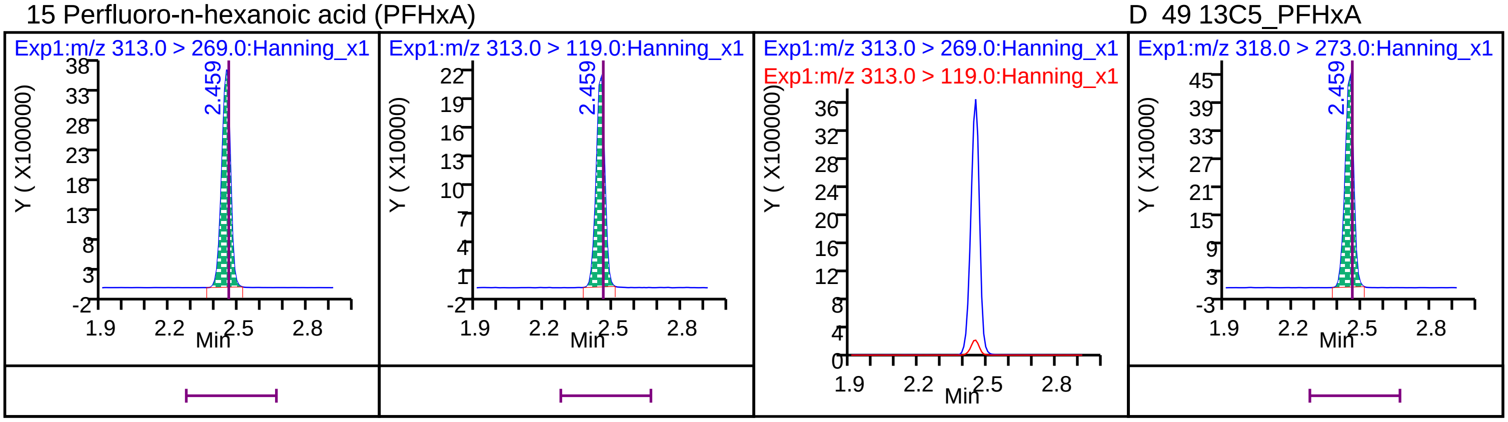
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



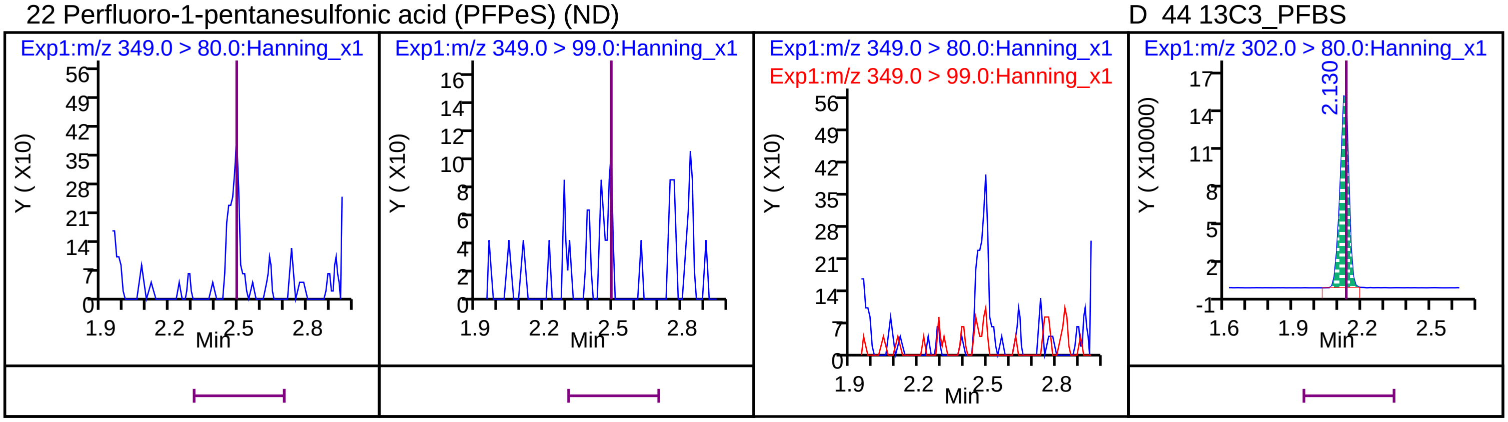
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



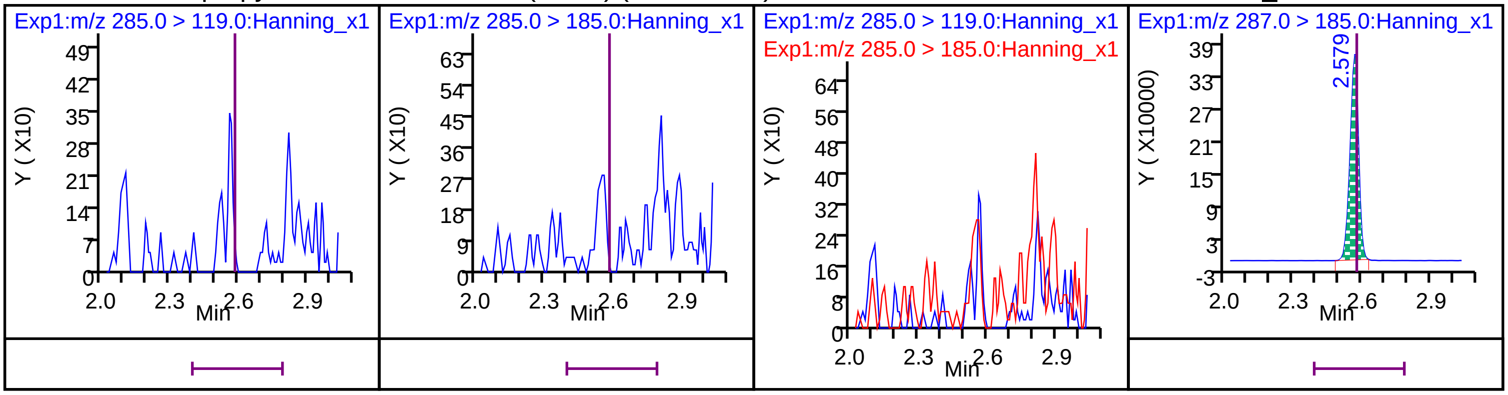
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



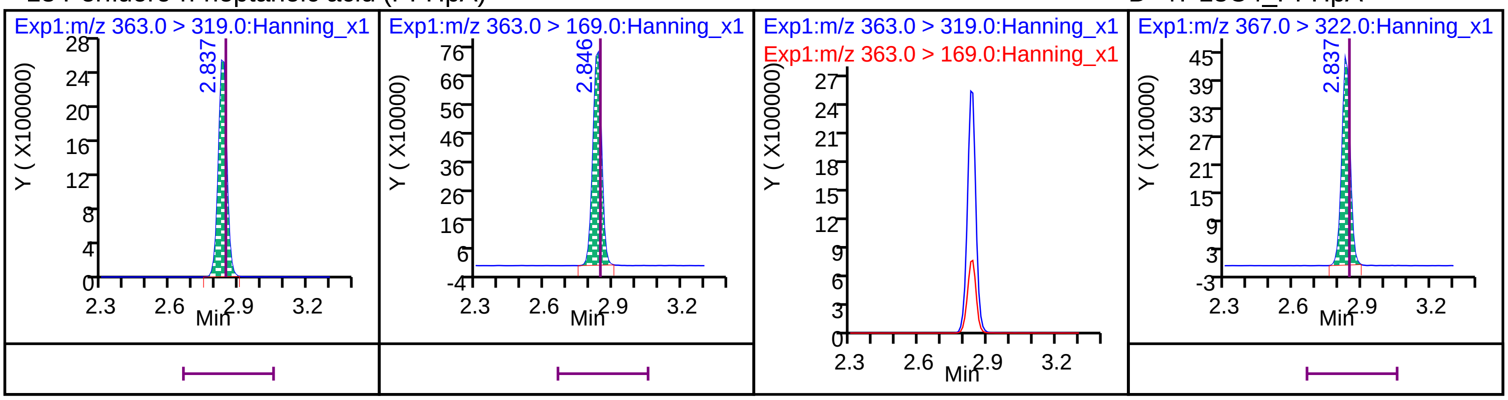
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



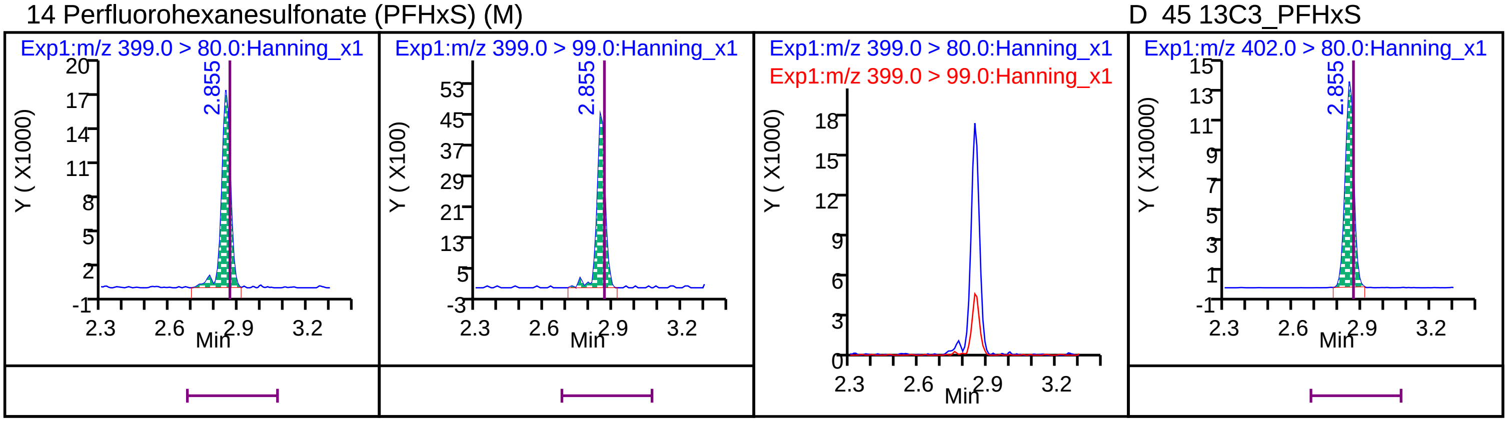
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



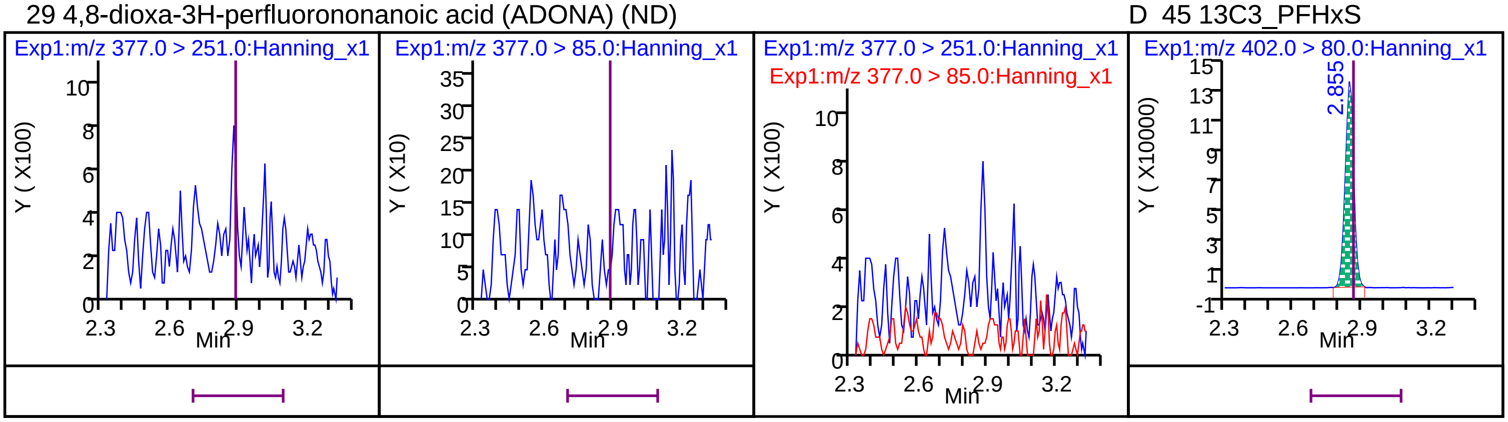
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



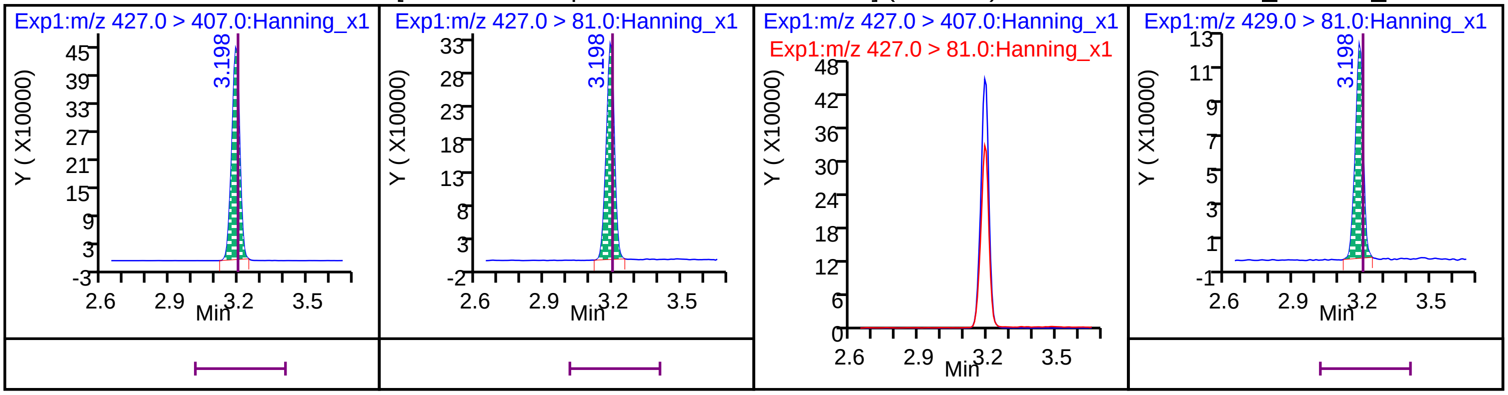
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



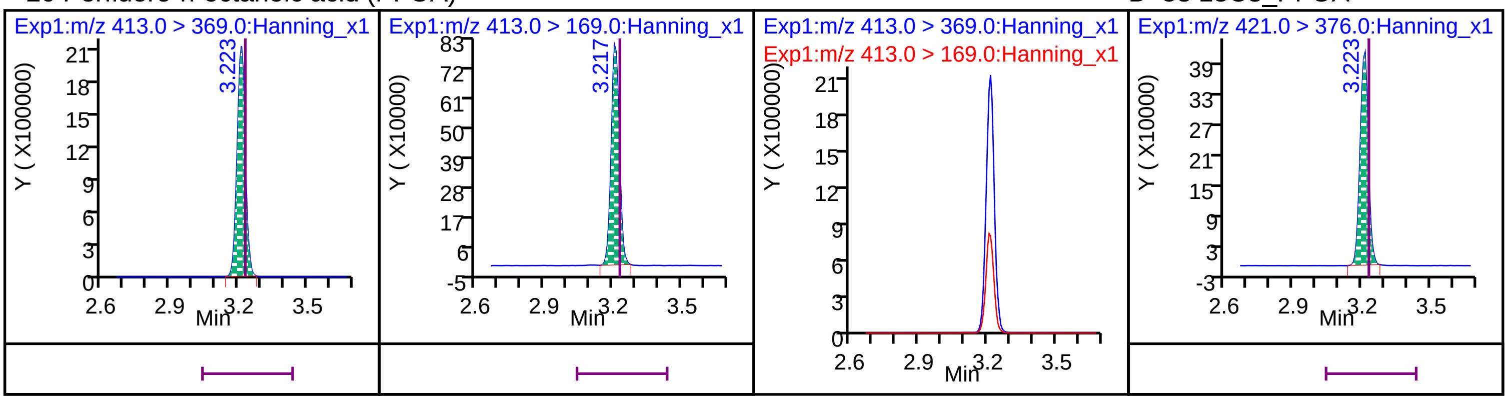
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



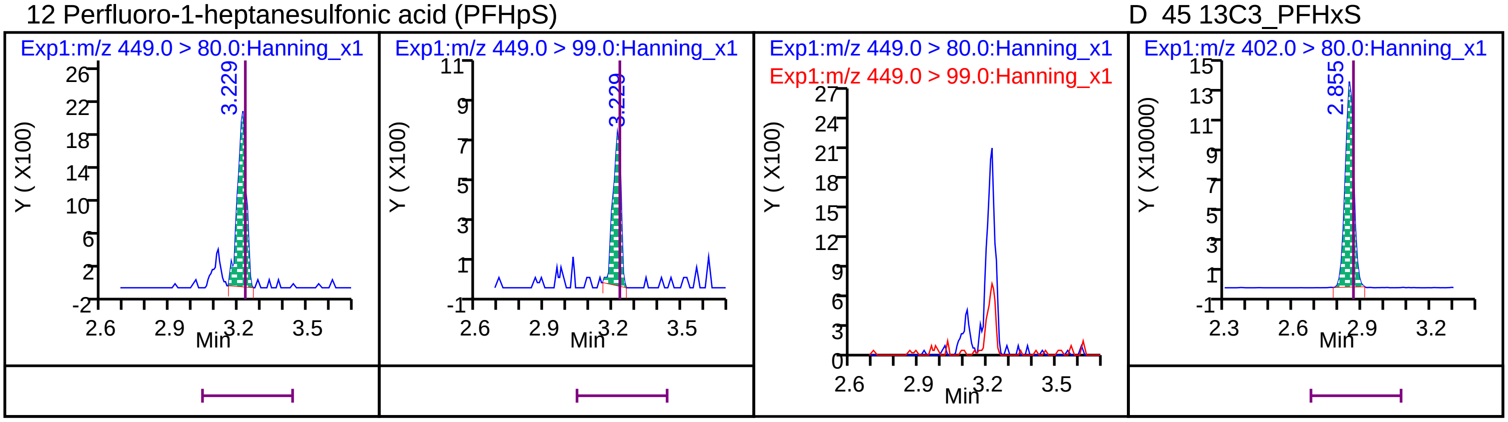
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



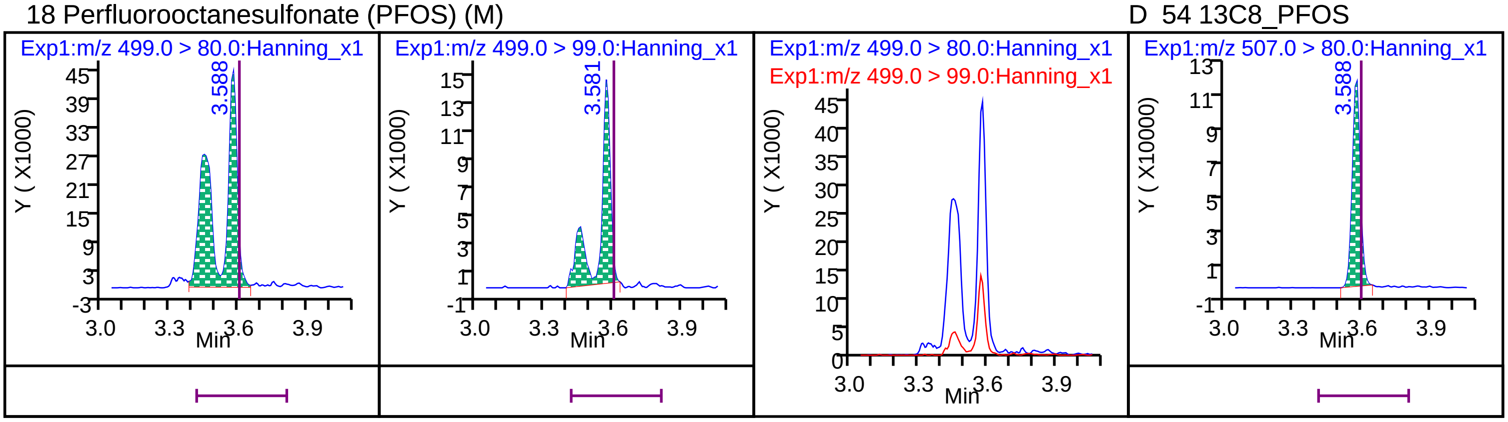
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



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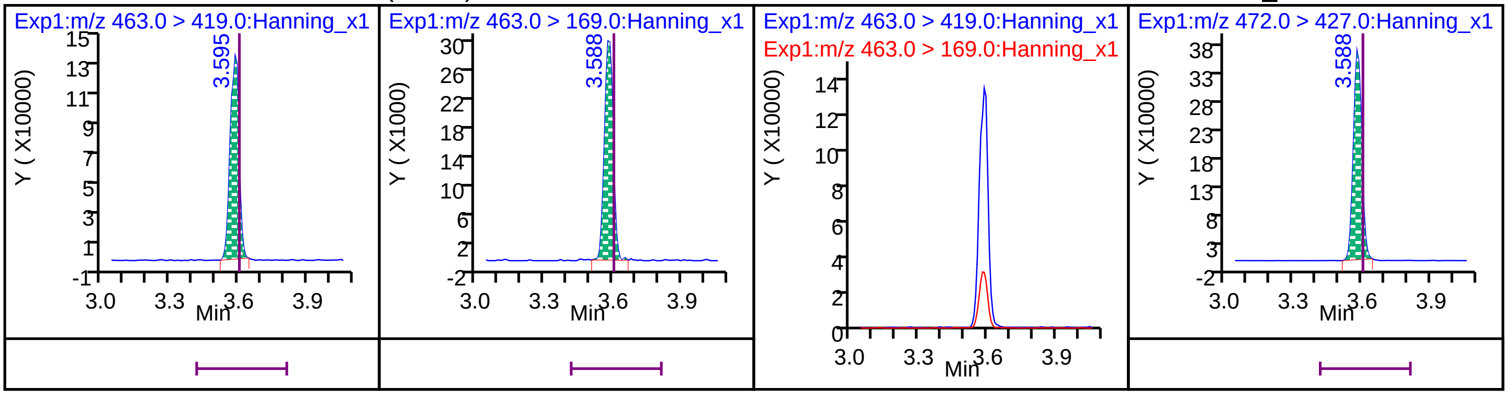
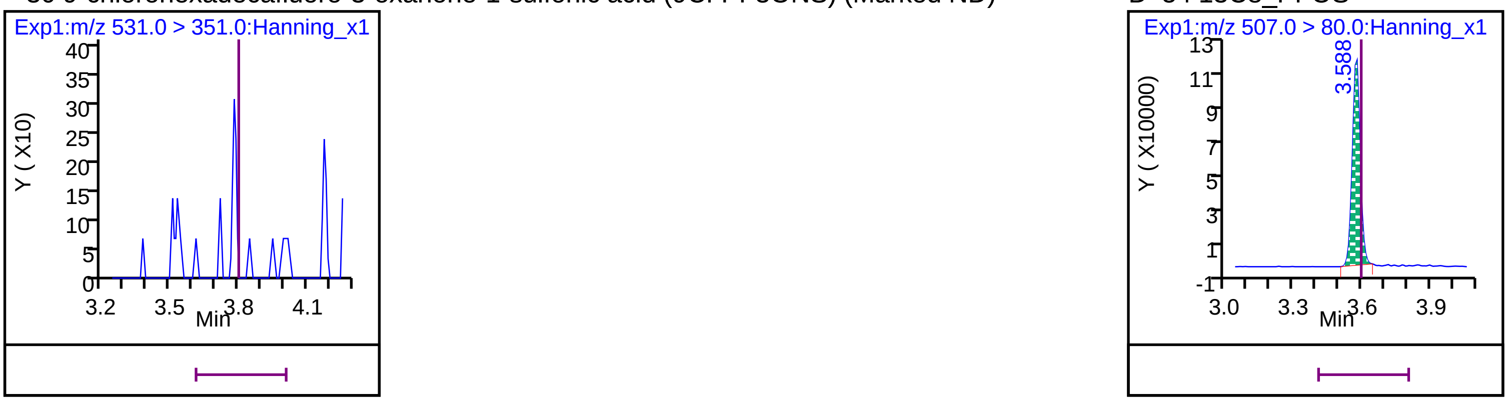
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d

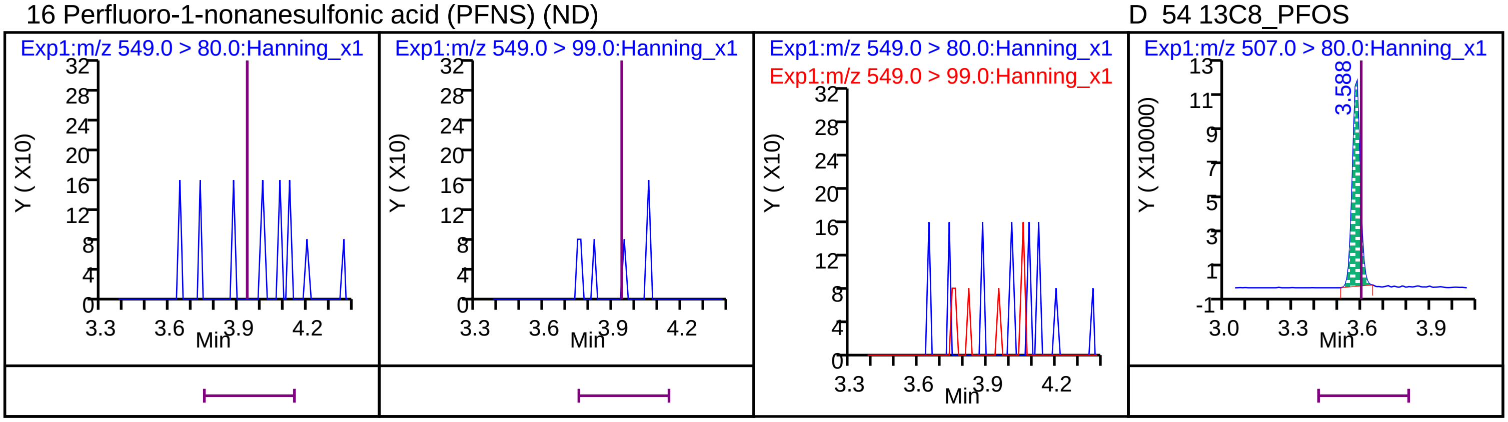
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



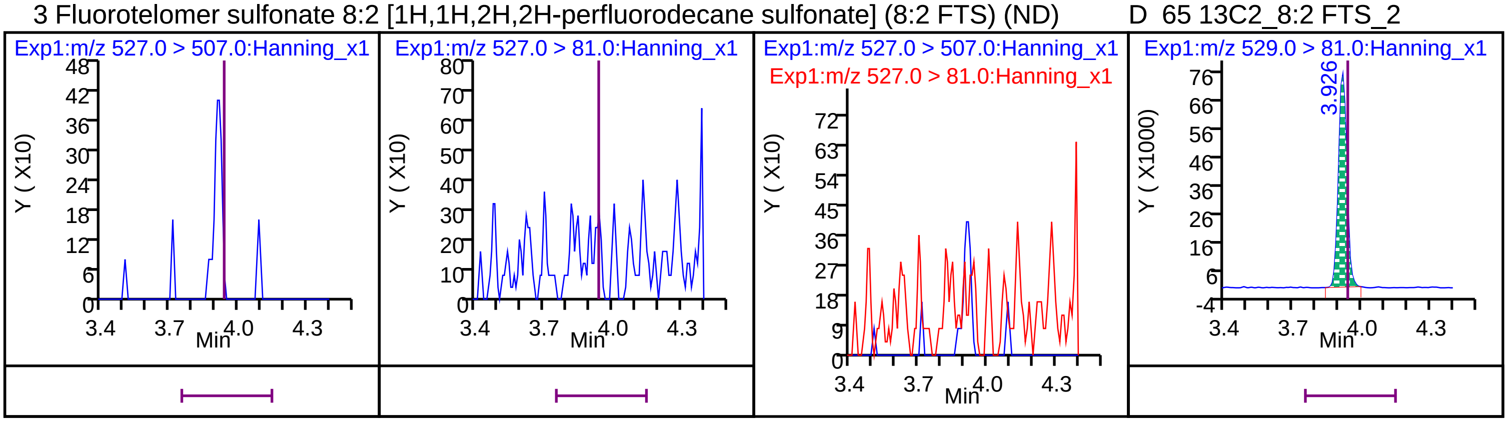
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

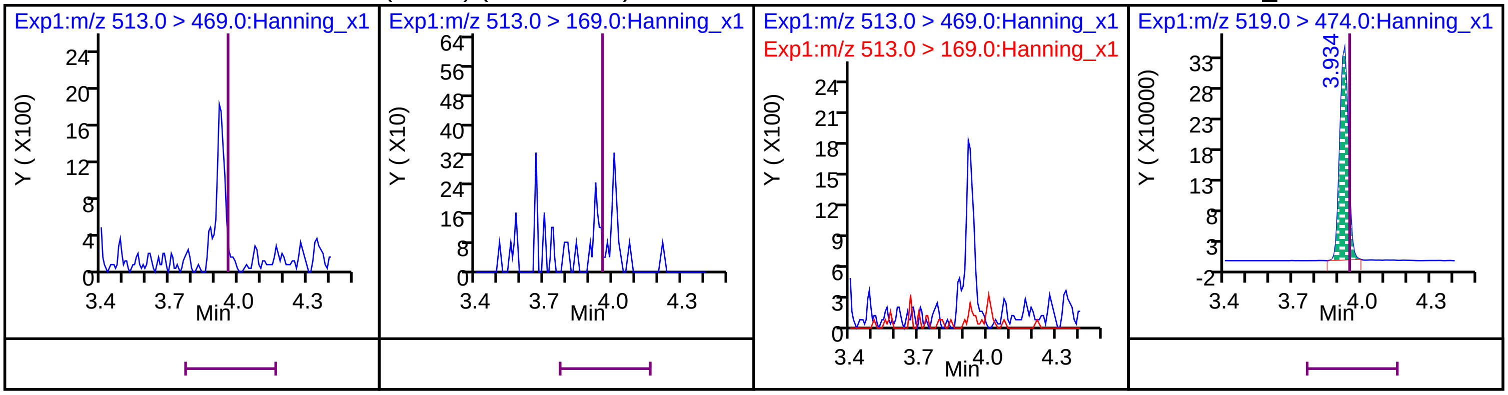


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2

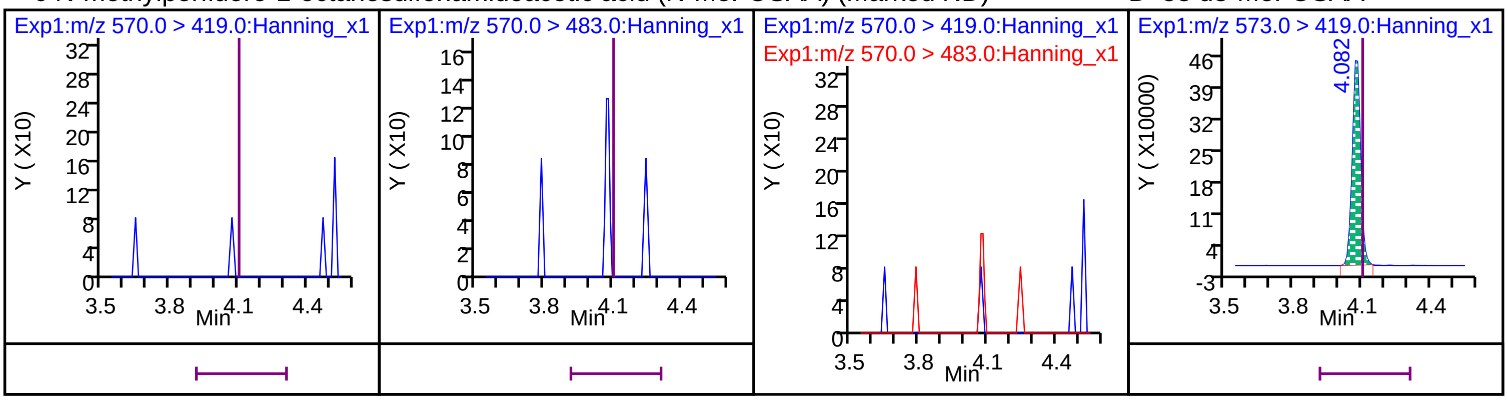


Report Date: 09-Nov-2021 21:16:56 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d

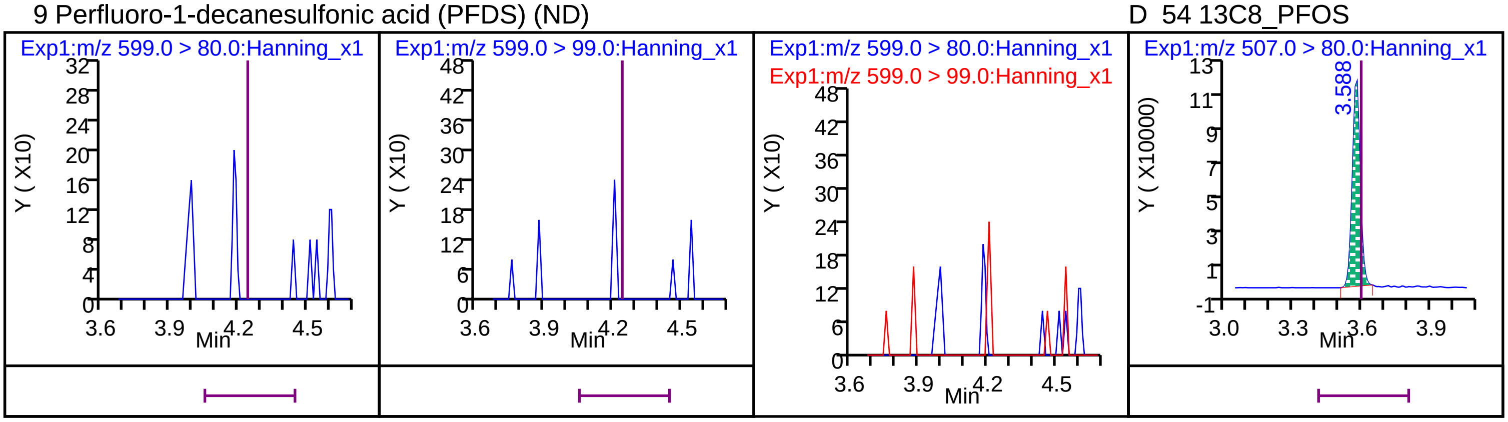
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



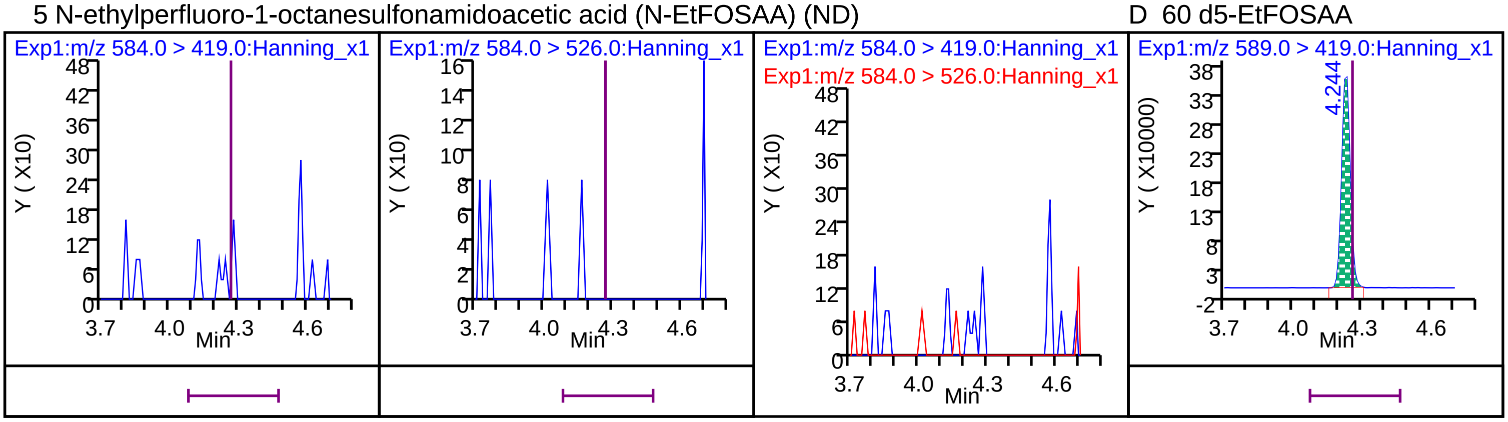
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



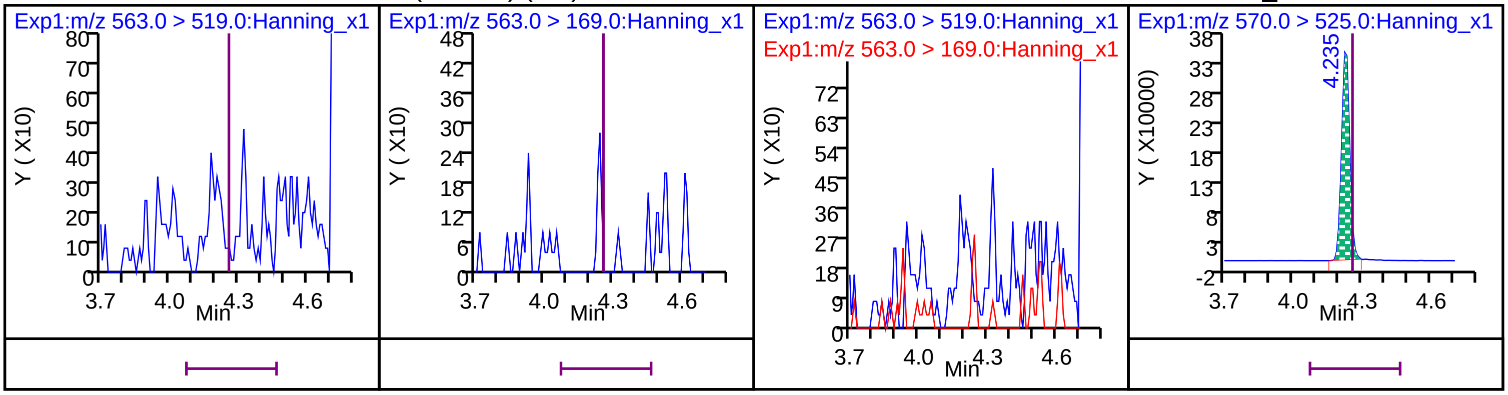
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



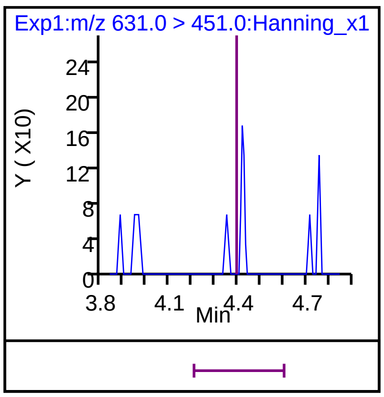
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

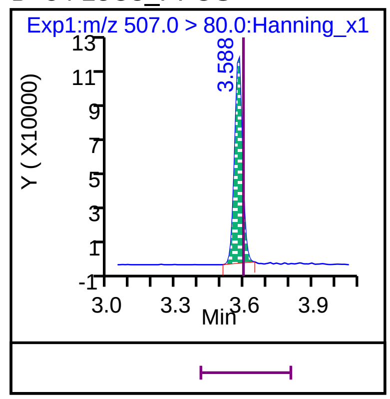


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

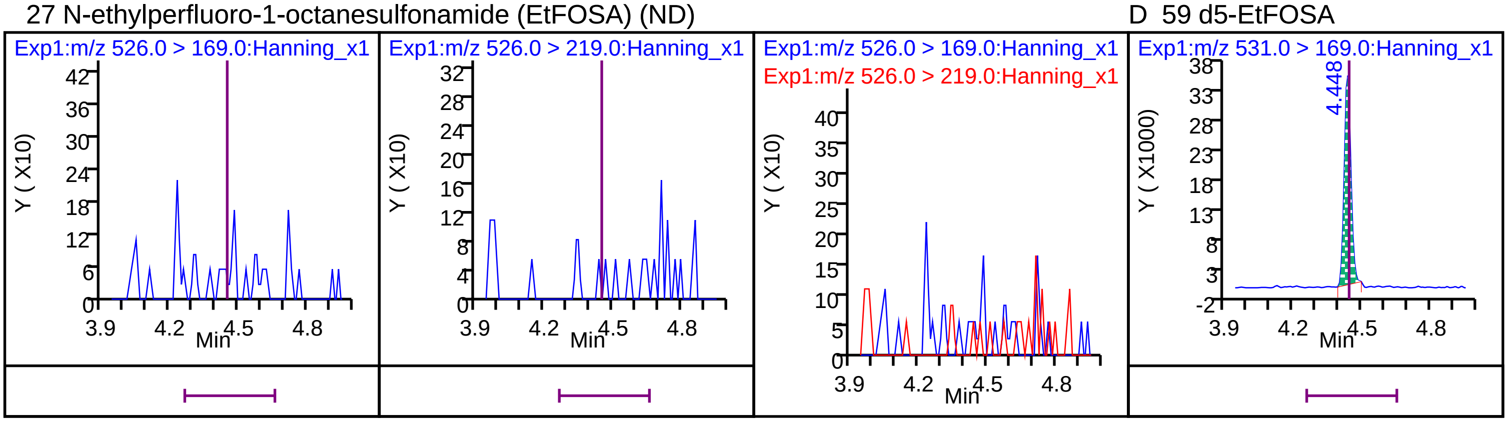


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

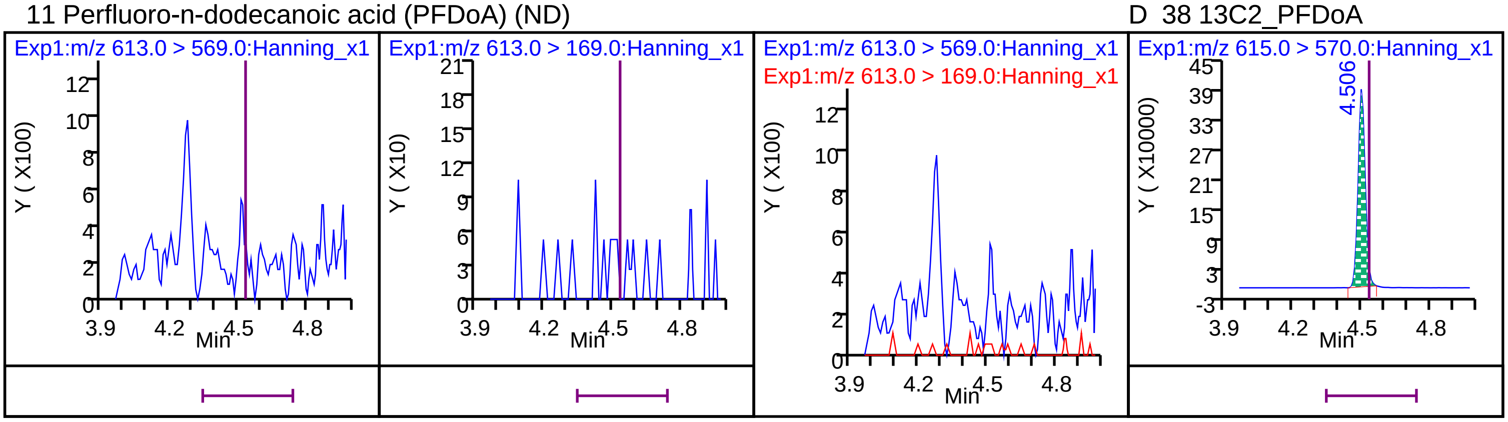




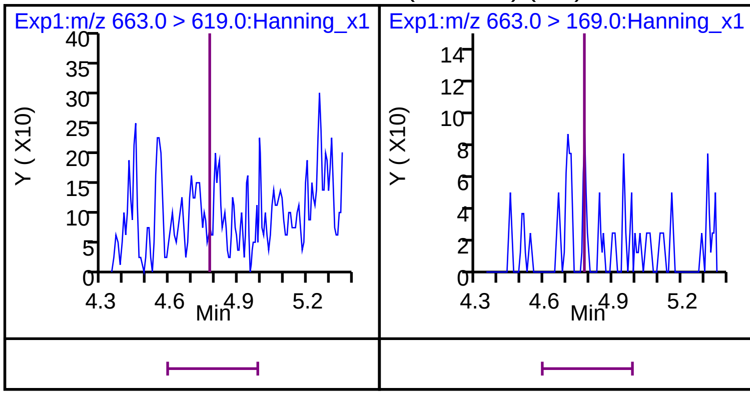
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



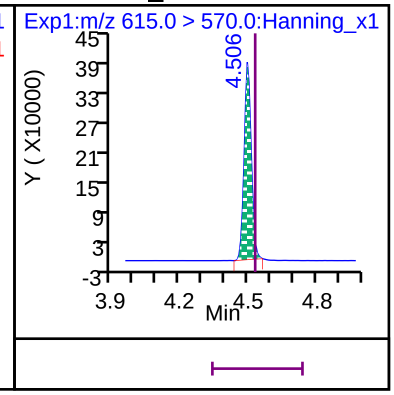
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



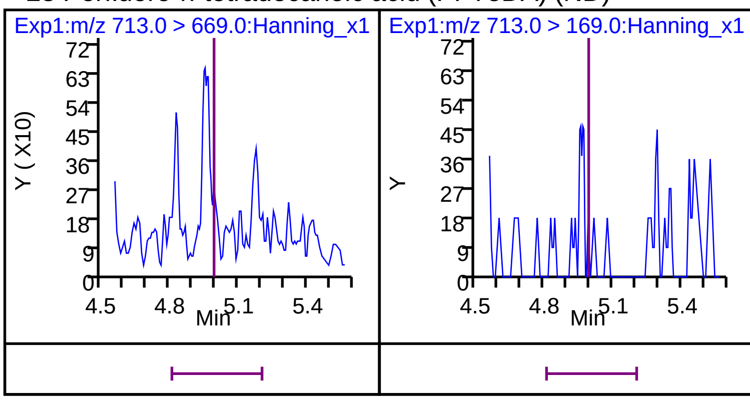
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



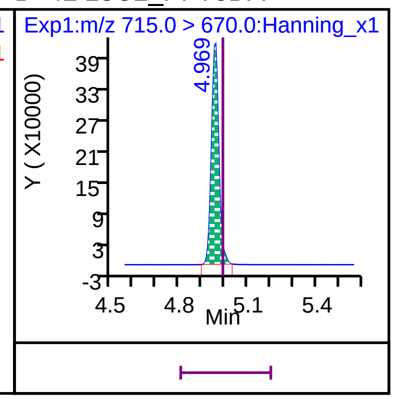
D 38 13C2_PFDoA



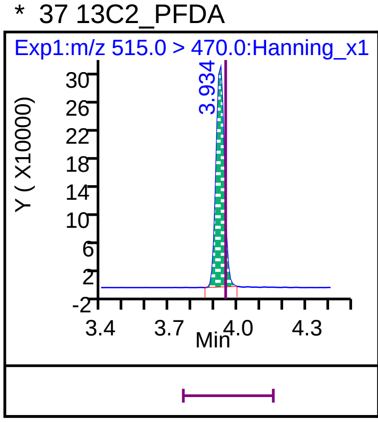
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



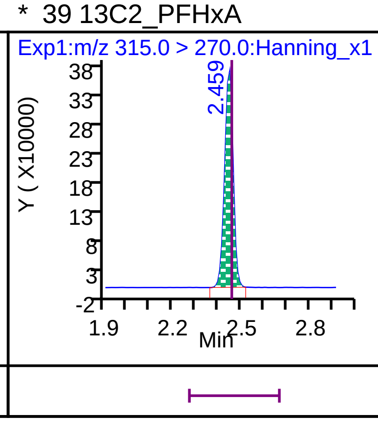
D 42 13C2_PFTeDA



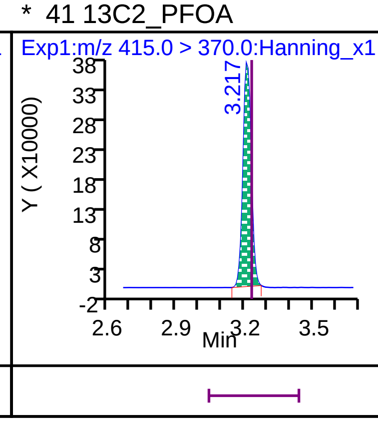
* 37 13C2_PFDA



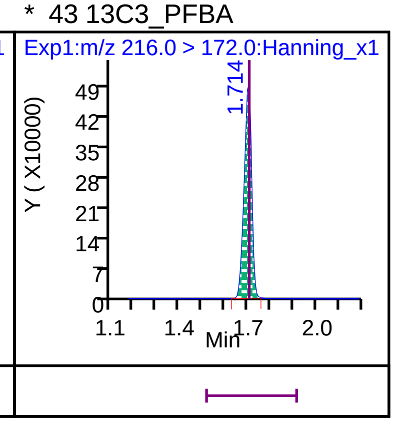
* 39 13C2_PFHxA



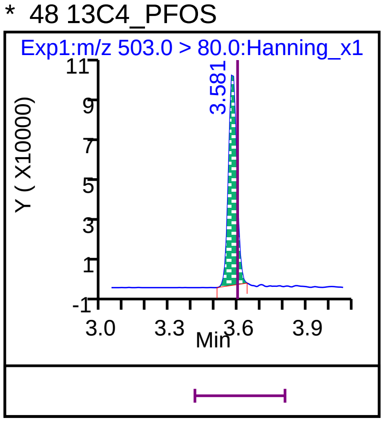
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:16:56 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d

Injection Date: 05-Nov-2021 14:41:59 Inst. ID: LCMSMS01.i

Client ID: SW3-DPT-0143-012.0-20211102 Lab ID: WK03035-001

Sample Info: WK03035-001,50

Dil. Factor: 50 Operator: Matthew M. Miller

1 4:2 FTS, CAS: 757124-72-4

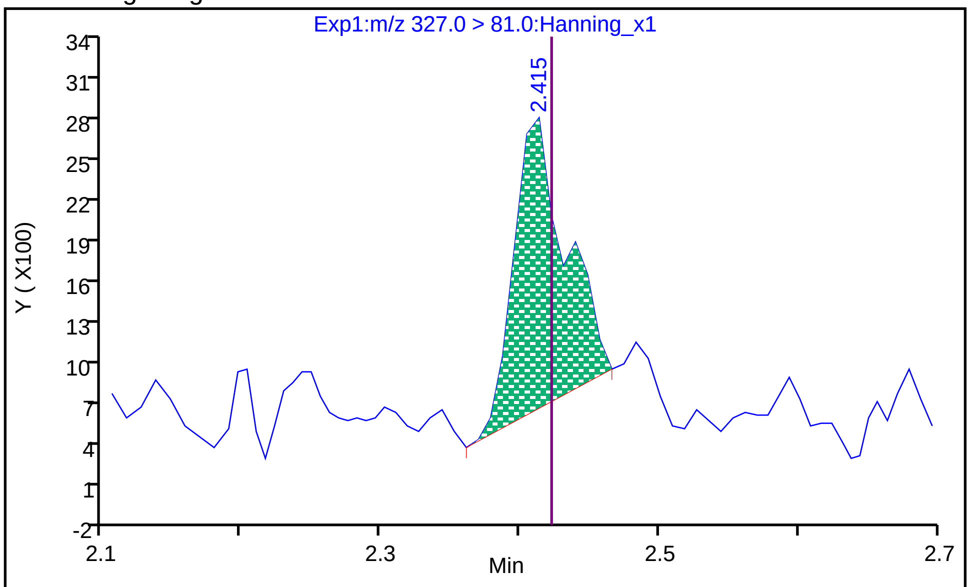
Processing Integration Results

RT: 2.415

Area: 5350

Conc: 184.72

Conc Units: ng/L

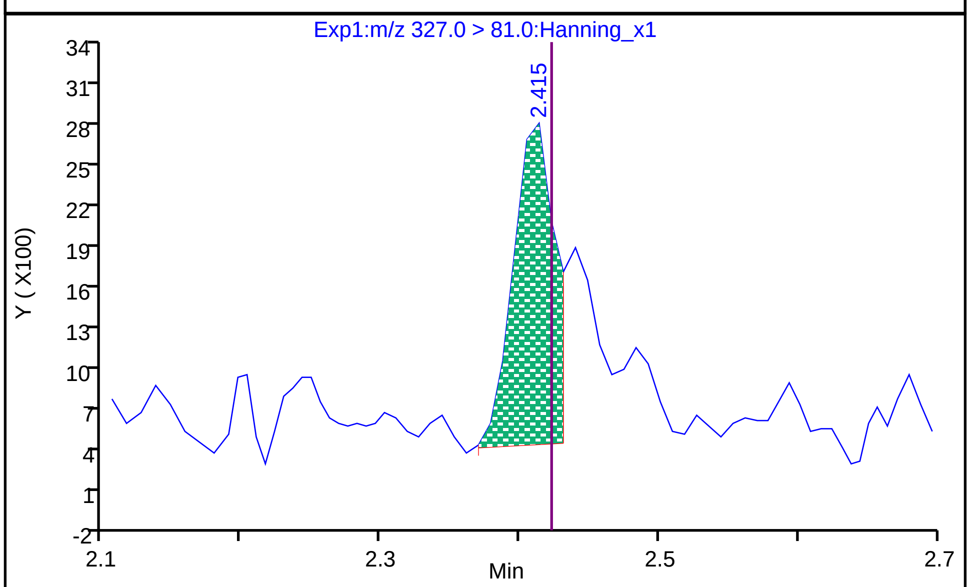


RT: 2.415

Area: 4603

Conc: 184.72

Conc Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:32:11

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:56 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d

Injection Date: 05-Nov-2021 14:41:59 Inst. ID: LCMSMS01.i

Client ID: SW3-DPT-0143-012.0-20211102 Lab ID: WK03035-001

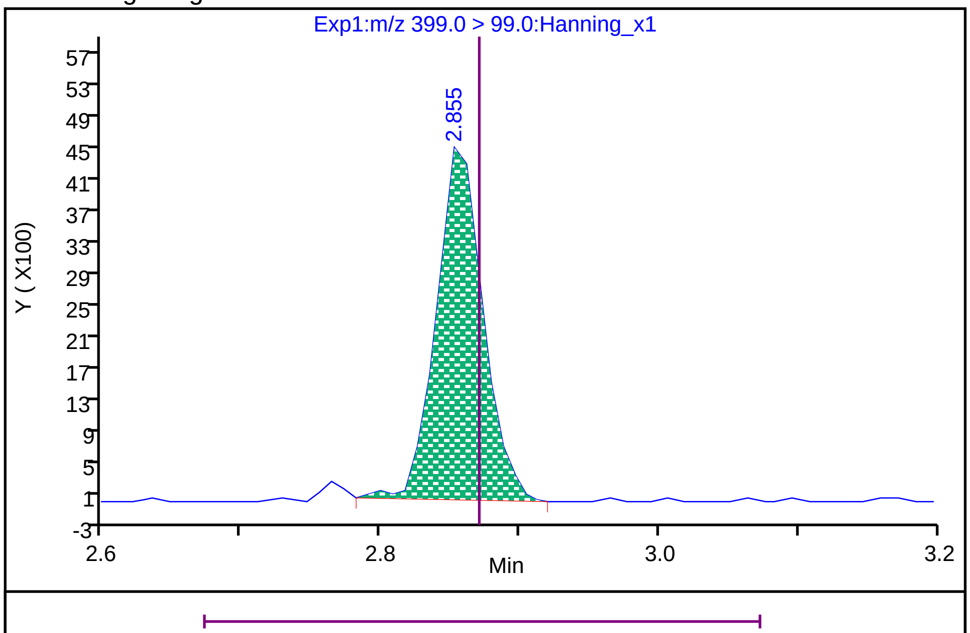
Sample Info: WK03035-001,50

Dil. Factor: 50 Operator: Matthew M. Miller

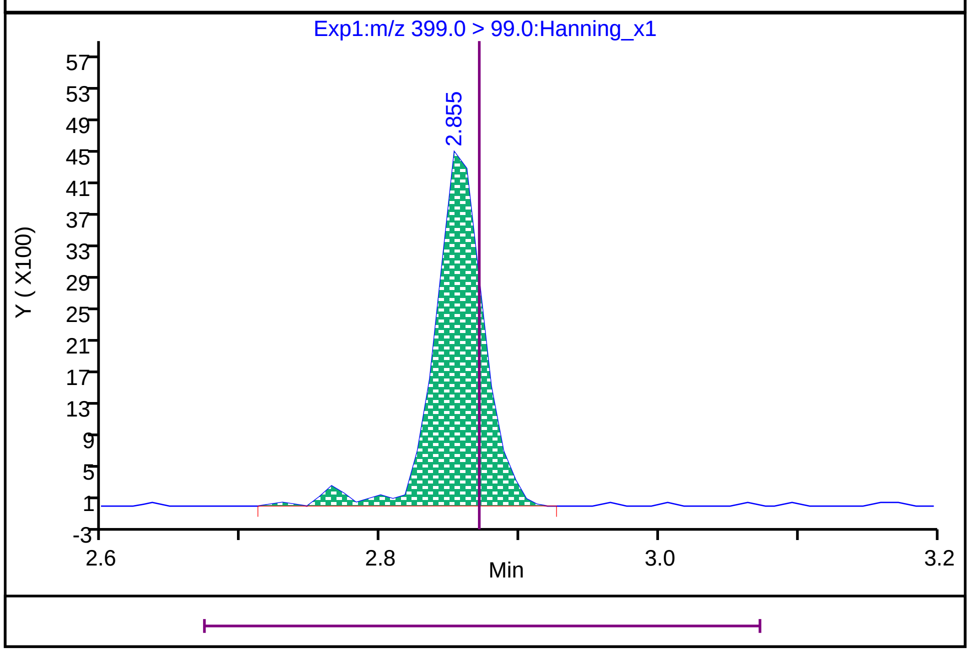
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.855
Area: 10282
Conc: 235.16
Conc Units: ng/L



RT: 2.855
Area: 10797
Conc: 235.16
Conc Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:32:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:56 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

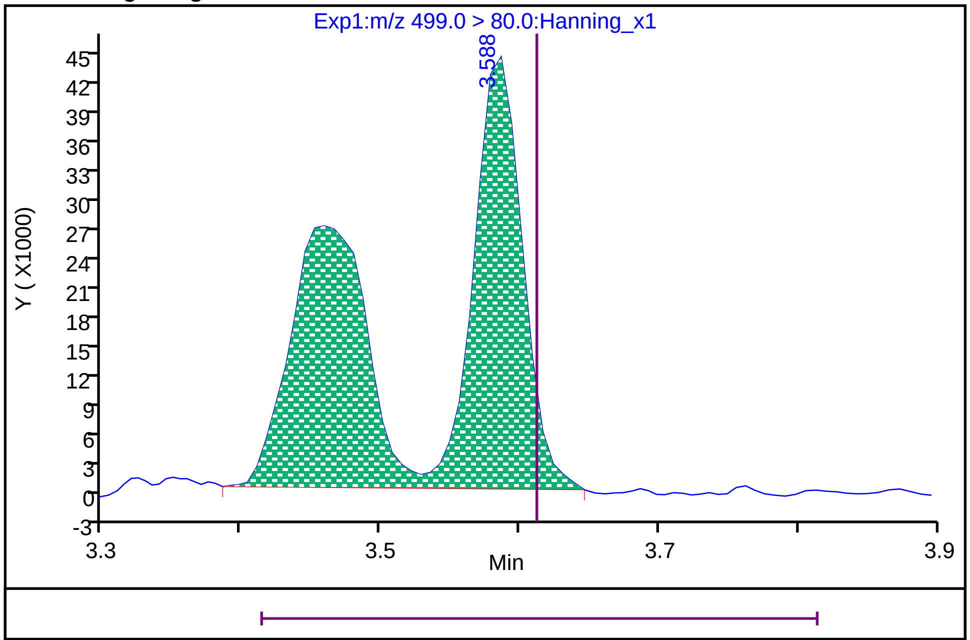
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521019.d
Injection Date:	05-Nov-2021 14:41:59
Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-012.0-20211102
Lab ID:	WK03035-001
Sample Info:	WK03035-001,50
Dil. Factor:	50
Operator:	Matthew M. Miller

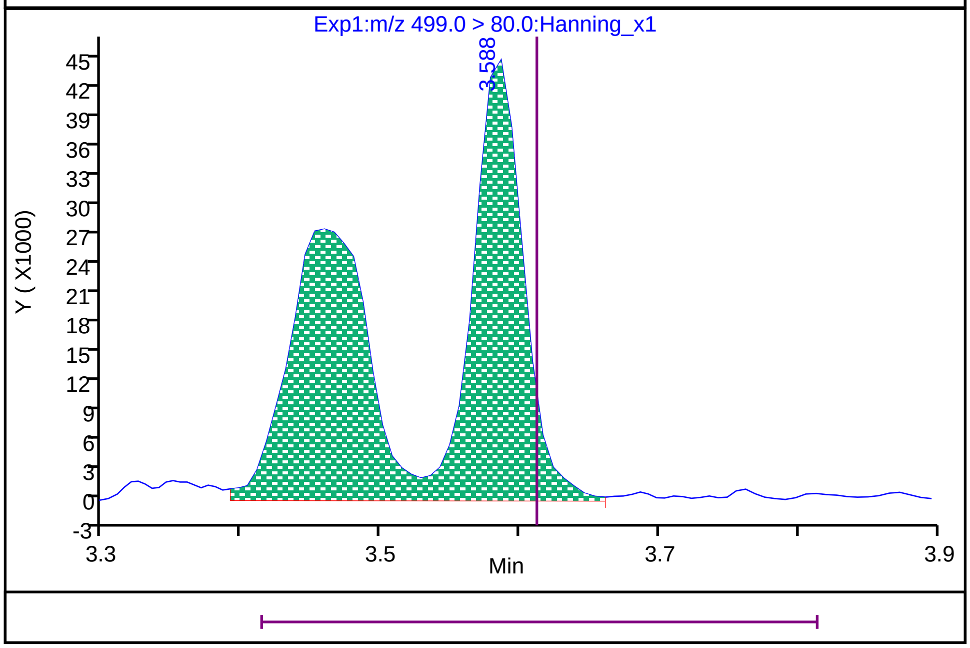
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.588
Area: 206230
Conc: 1403.93
Conc Units: ng/L



RT: 3.588
Area: 220788
Conc: 1503.03
Conc Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:28:48

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-002	
Description: SW3-DPT-0143-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0815	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	50	11/06/2021 2111	MMM	11/03/2021 1629	21177

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	180	U	360	180	90	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	180	U	360	180	90	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	6500	LD	360	180	90	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	180	U	360	180	90	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	180	U	360	180	90	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	180	U	360	180	90	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	140	ID	180	90	45	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5800	D	180	90	45	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11000	D	180	90	45	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13000	D	180	90	45	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	800	D	180	90	45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10000	D	180	90	45	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20000	D	180	90	45	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	90	U	180	90	45	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	350	D	180	90	45	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		105	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		111	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-002	
Description: SW3-DPT-0143-022.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0815	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		88	50-150
13C9_PFNA		93	50-150
d-EtFOSA		109	50-150
d5-EtFOSAA		120	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d		
Injection Date:	06-Nov-2021 21:11:19	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	36
Lab Sample ID:	WK03035-002	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0143-022.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-002,50	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0358423

Name	Value	Units	Description
DF	50		Dilution Factor
VF	10000	ul	Final Volume
VI	279	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.720	1.725	0	1105600	21	>100:1			1100.00	1008.60	100.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.720	1.732	0/0	3495312	18	>100:1			3263.25	5848.12		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.087	2.105	-1	1008955	17	>100:1			1100.00	989.08	97.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.105	0/1	10857335	15	>100:1			11028	19763		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.169	-1	352325	16	>100:1			1100.00	1044.12	103.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.169		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.529		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.449	-1	228655	18	>100:1			5500.00	4896.59	98.8	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.449		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.470	2.493	-1	947395	17	>100:1			1100.00	1038.81	103.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.470	2.493	-1/0	6122063	18	>100:1	Target = 17.15		6993.71	12534		
313 > 119	49	2.470	2.493		364219	19	>100:1	16.80 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.594	2.614	-1	762943	18	>100:1			5500.00	5183.25	111.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.863	2.878	0	889050	19	>100:1			1100.00	1004.73	98.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.863	2.878	0/0	4916890	19	>100:1	Target = 3.21		6367.89	11412		
363 > 169	47	2.863	2.878		1488322	18	>100:1	3.30 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.881	2.896	0	275542	17	>100:1			1100.00	996.24	99.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													J
399 > 80	45	2.881	2.896	0/0	22631	25	>100:1	Target = 3.35	7.66	78.375	140.46		
399 > 99	45	2.872	2.896		6888	22	41:1	3.28 (1.67-5.04)	23.33				M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.221	3.201	2	196001	20	>100:1			5500.00	4755.52	90.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.227	3.201	2/0	214414	22	>100:1	Target = 1.26		3622.28	6491.54		
427 > 81	64	3.227	3.201		151610	21	>100:1	1.41 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.246	3.220	2	861107	21	>100:1			1100.00	1022.18	102	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.253	3.226	2/0	4446348	21	>100:1	Target = 2.46		5679.78	10179		
413 > 169	53	3.253	3.226		1702298	21	>100:1	2.61 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.616	3.558	4	208680	18	>100:1			1100.00	880.78	87.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.623	3.558	4/0	42589	39	46:1	Target = 3.98	0.80	192.96	345.81		M
499 > 99	54	3.616	3.558		9747	35	54:1	4.36 (1.99-5.97)	2.56				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.755		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.623	3.565	4	788762	19	>100:1			1100.00	972.17	93	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.623	3.565	4/0	287021	20	>100:1	Target = 4.45		448.79	804.28		
463 > 169	56	3.616	3.565		59176	19	>100:1	4.85 (2.22-6.68)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.956	3.894	4	187480	17	>100:1			5500.00	5383.92	104.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.894		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.963	3.901	4	730485	19	>100:1			1100.00	1021.03	94.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.111	4.053	4	907469	16	>100:1			5500.00	5612.45	114.7	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.268	4.207	4	898092	16	>100:1			5500.00	6211.24	119.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.268	4.207	4	720271	15	>100:1			1100.00	1025.69	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.533	4.486	3	683328	16	>100:1			1100.00	981.69	99.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.518	4.486	2	70450	15	>100:1			1100.00	1167.81	109.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.942	2	789012	15	>100:1			1100.00	1057.48	104.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
*** 37 13C2_PFDA**													
515 > 470		3.963	3.901	4	753474	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.470	2.493	-1	954739	19	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.253	3.226	2	908229	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.720	1.732	0	1038720	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.616	3.558	4	237304	18	>100:1			200.00			

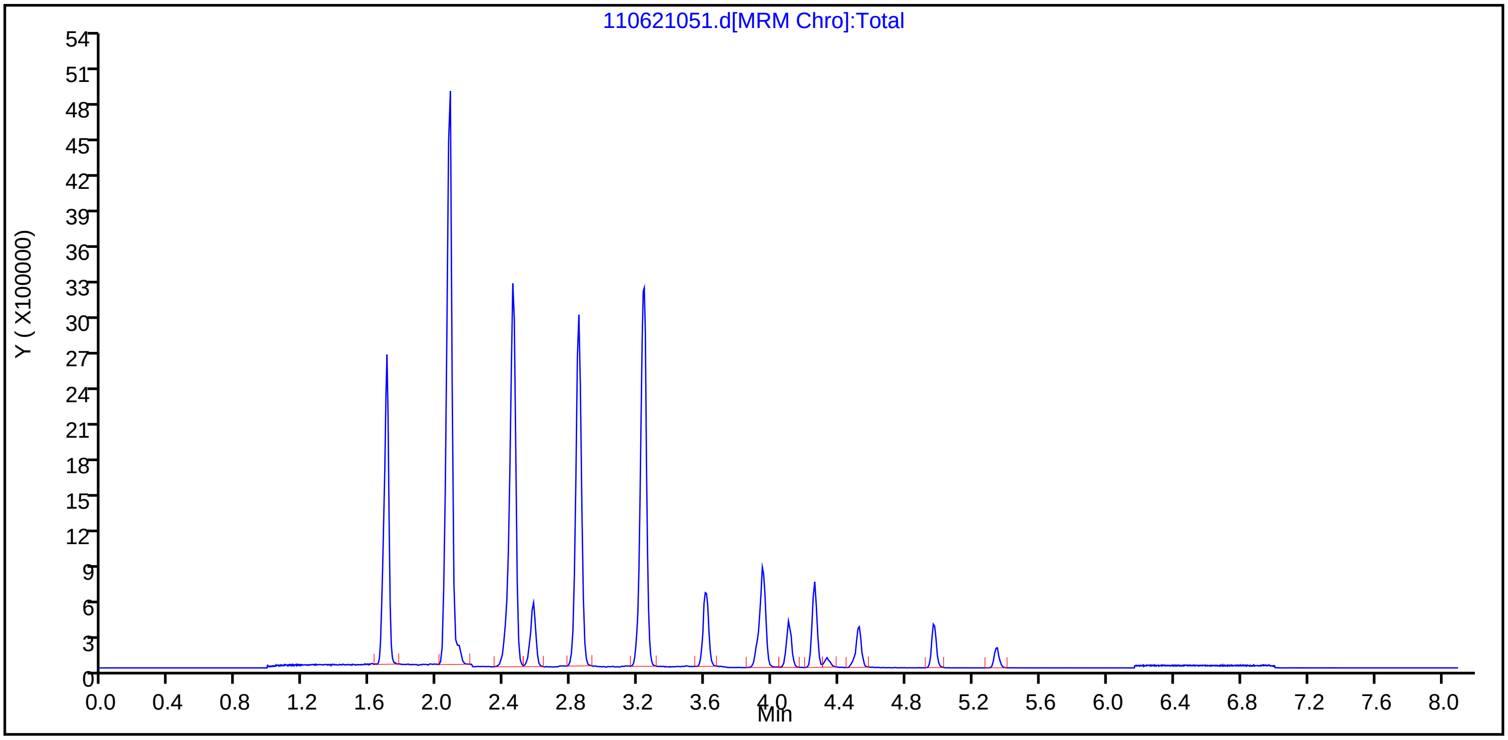
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

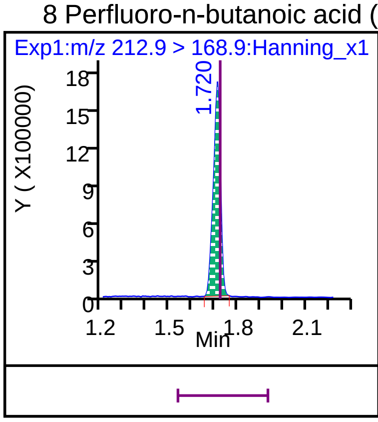
Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

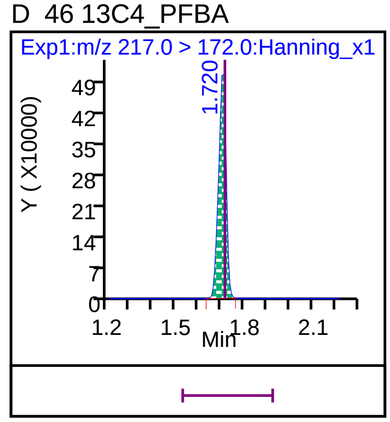
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d		
Injection Date:	06-Nov-2021 21:11:19	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-022.0-20211102	Lab ID:	WK03035-002
Sample Info:	WK03035-002,50		
Dil. Factor:	50	Operator:	Matthew M. Miller



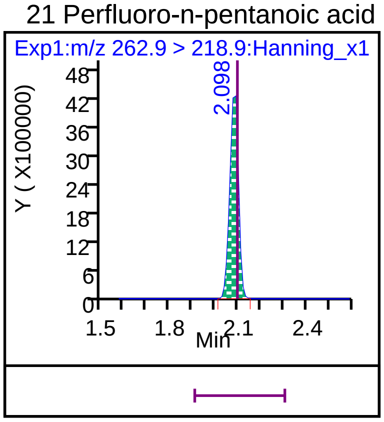
8 Perfluoro-n-butanoic acid (PFBA)



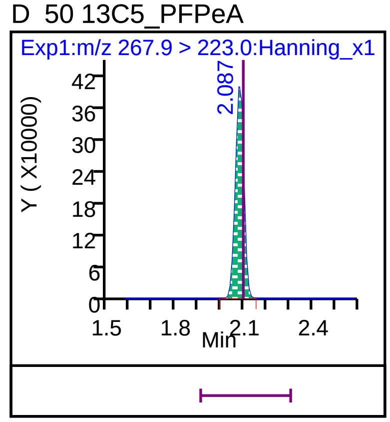
D 46 13C4_PFBA



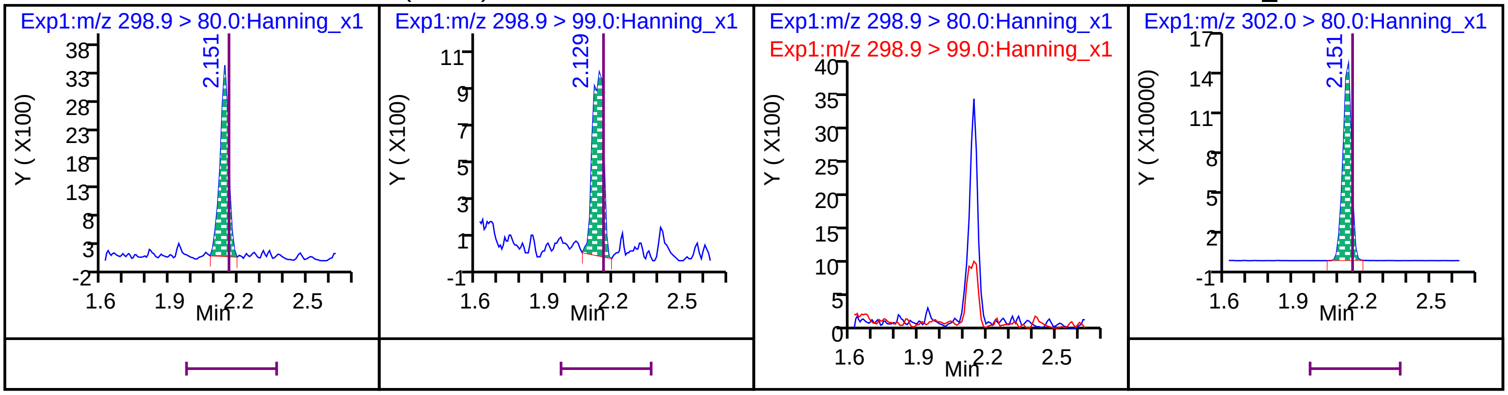
21 Perfluoro-n-pentanoic acid (PFPeA)



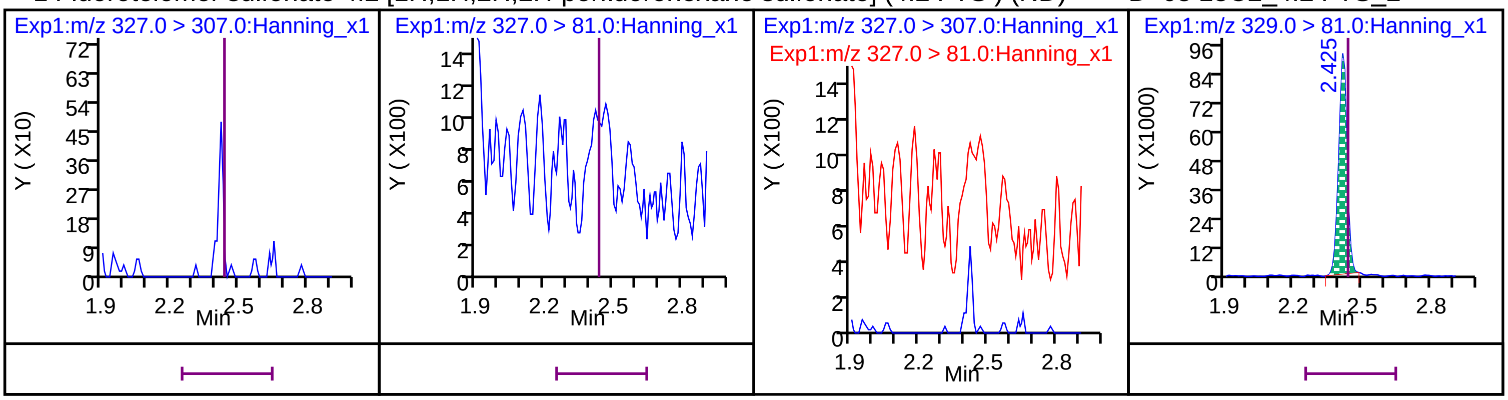
D 50 13C5_PFPeA



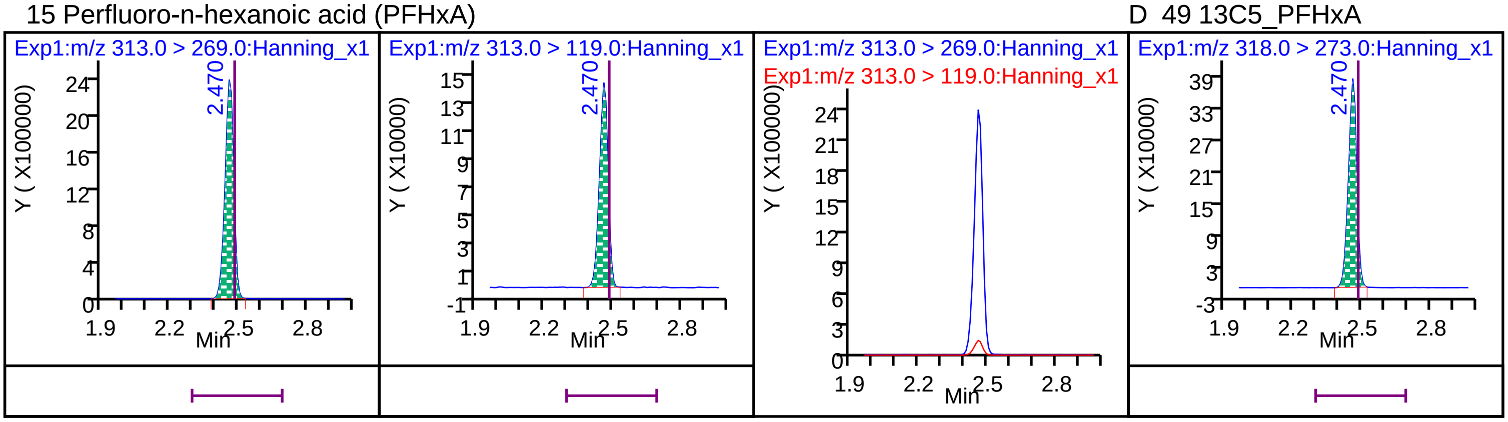
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



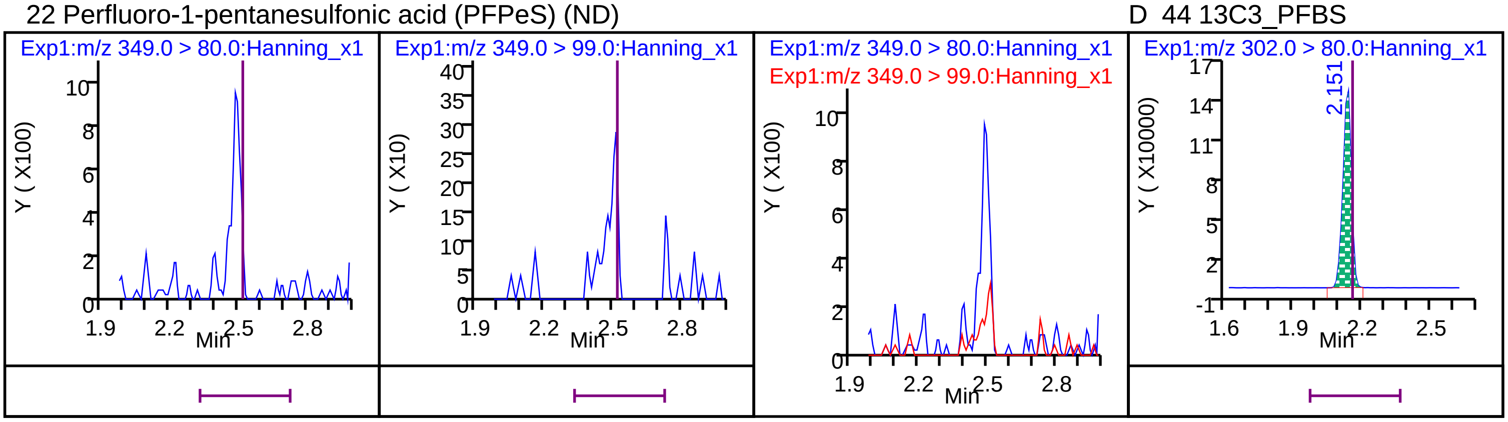
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

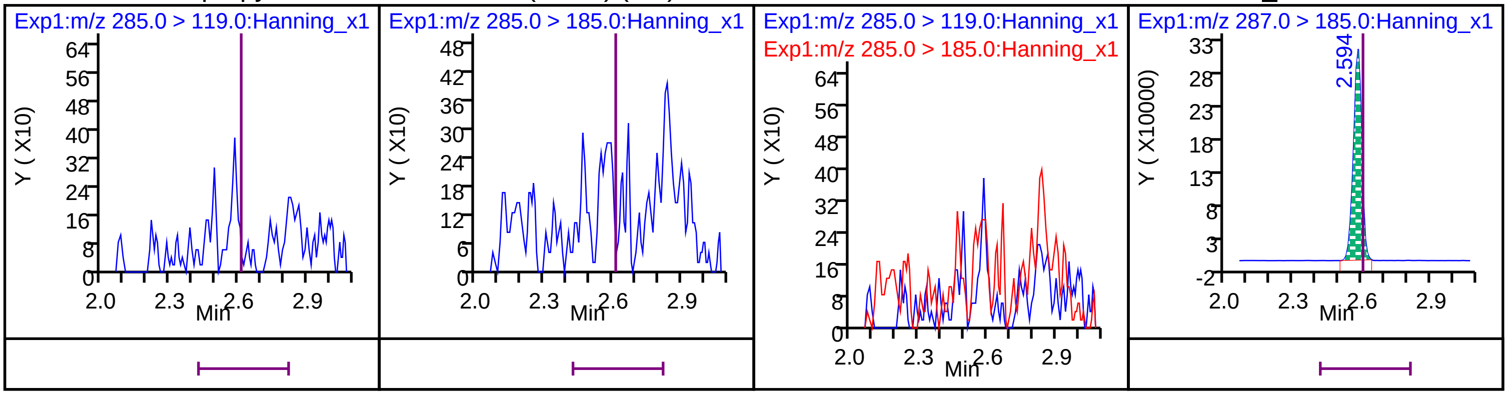


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

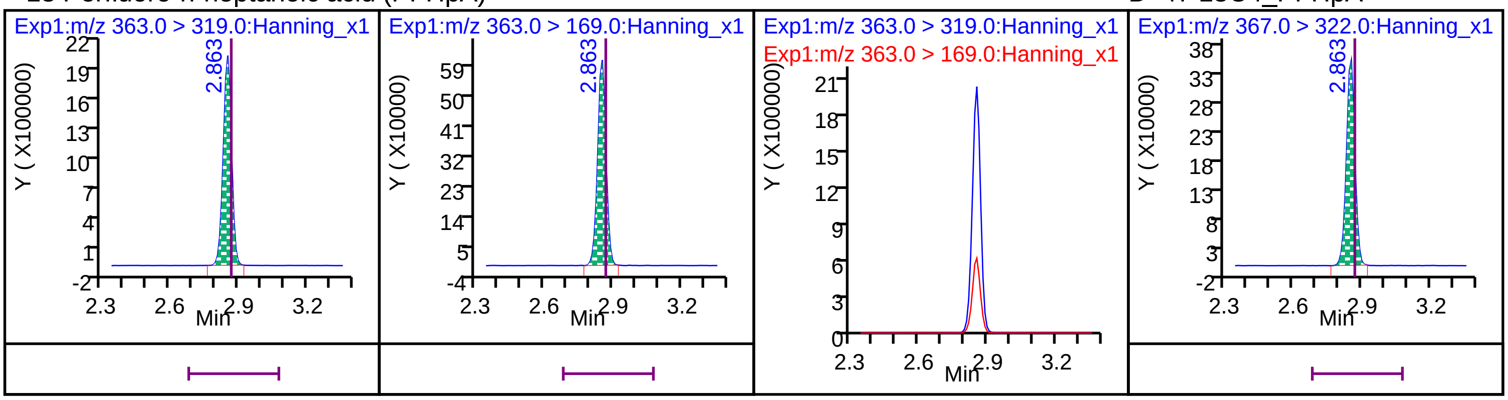


Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d

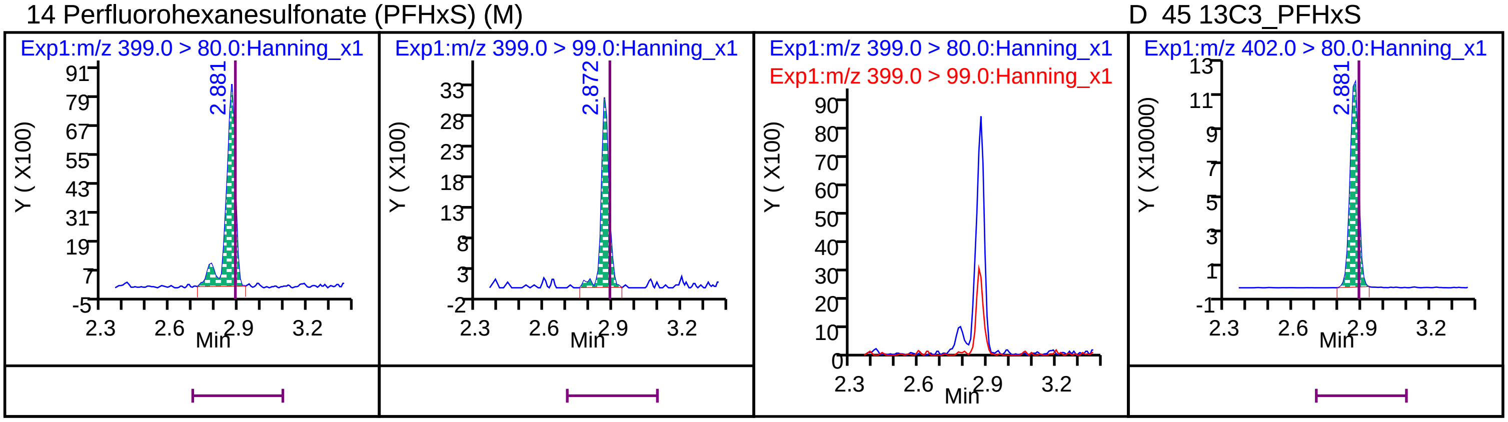
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



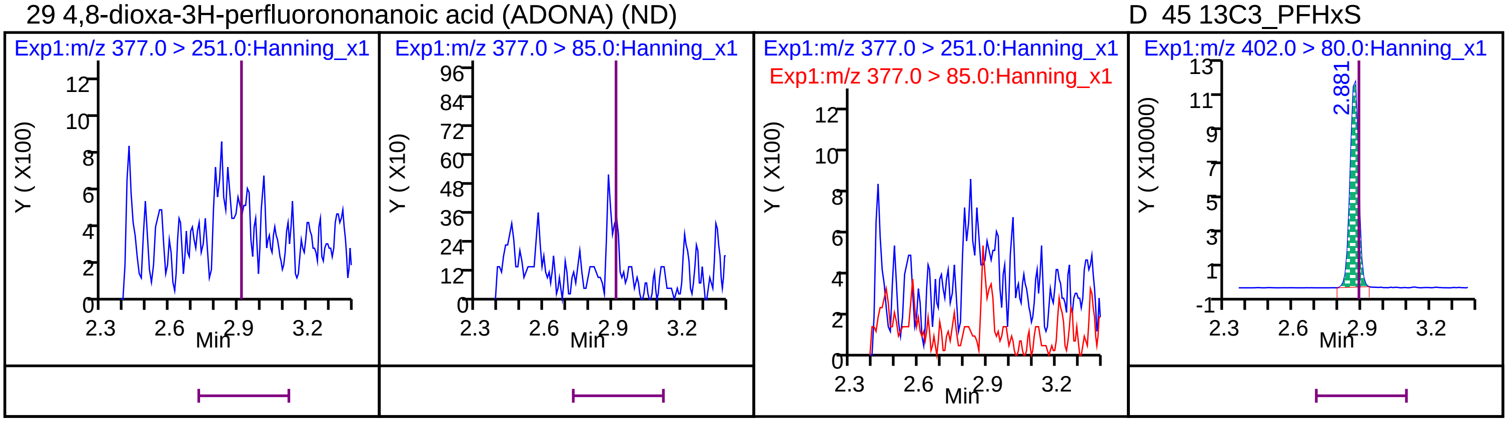
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



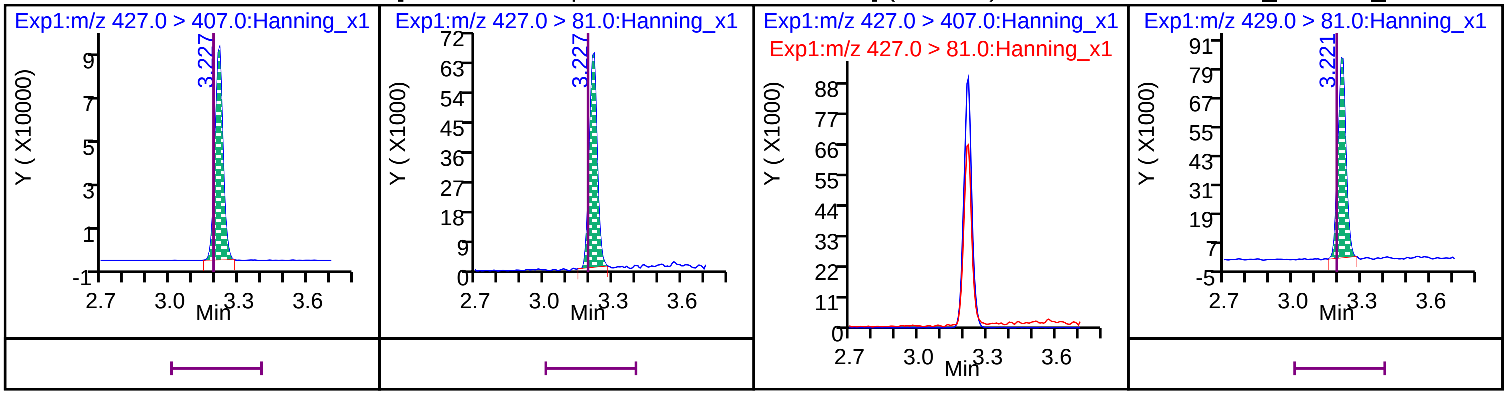
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



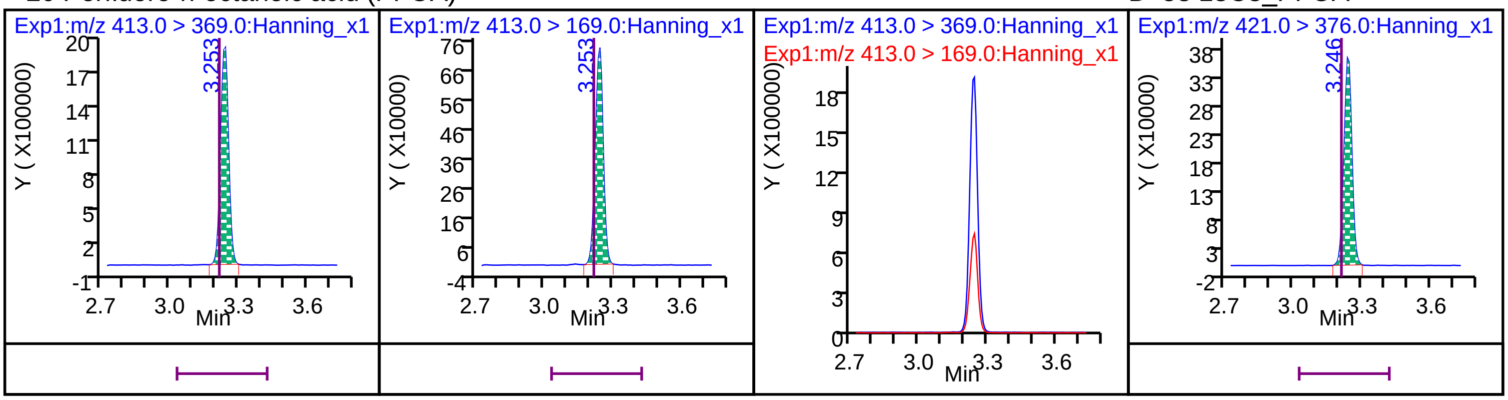
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



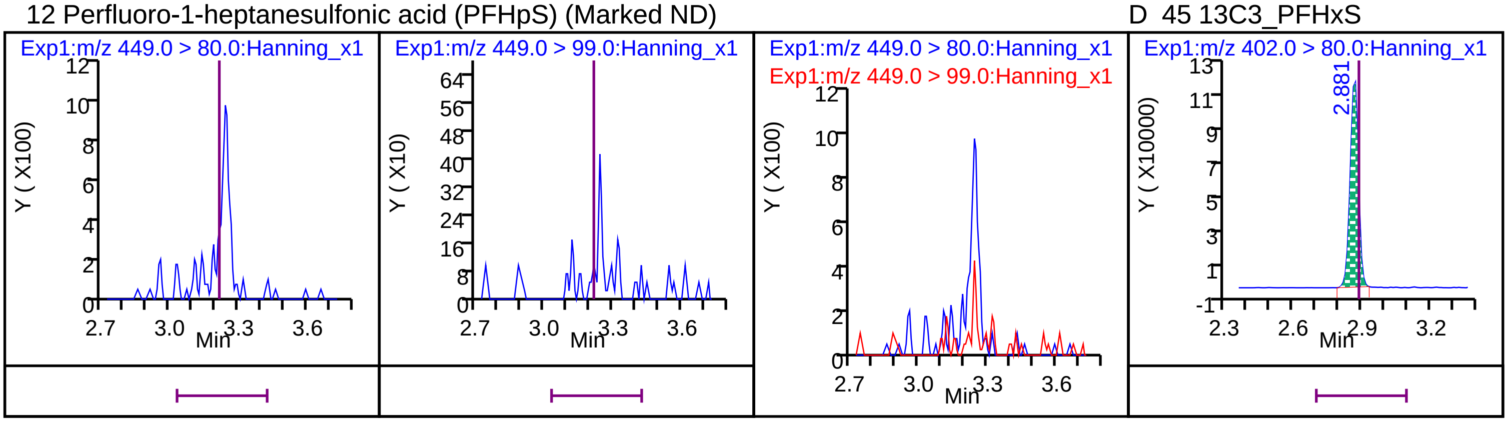
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



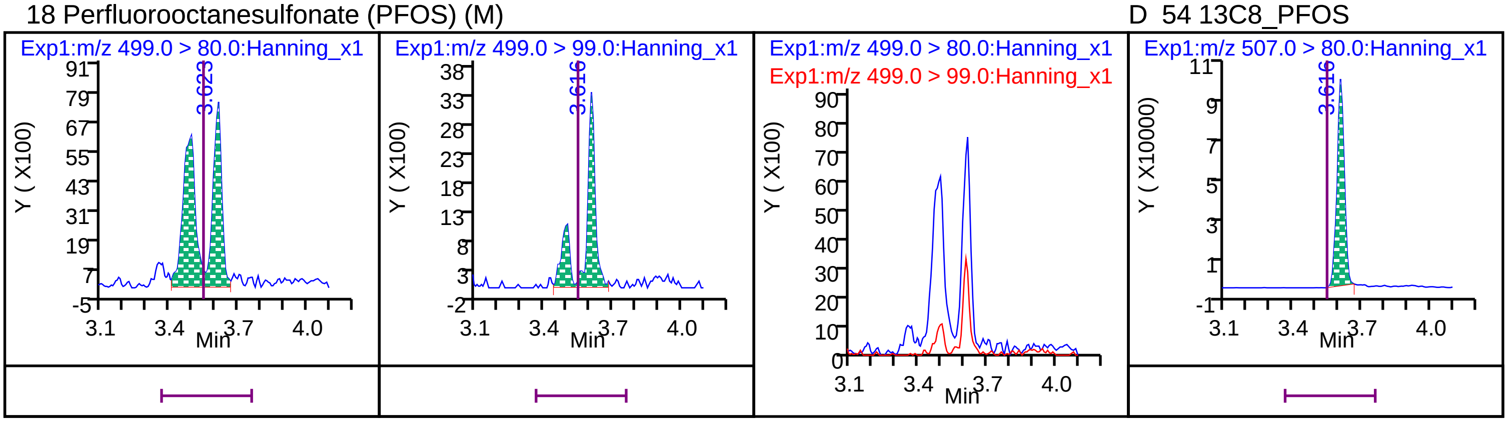
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



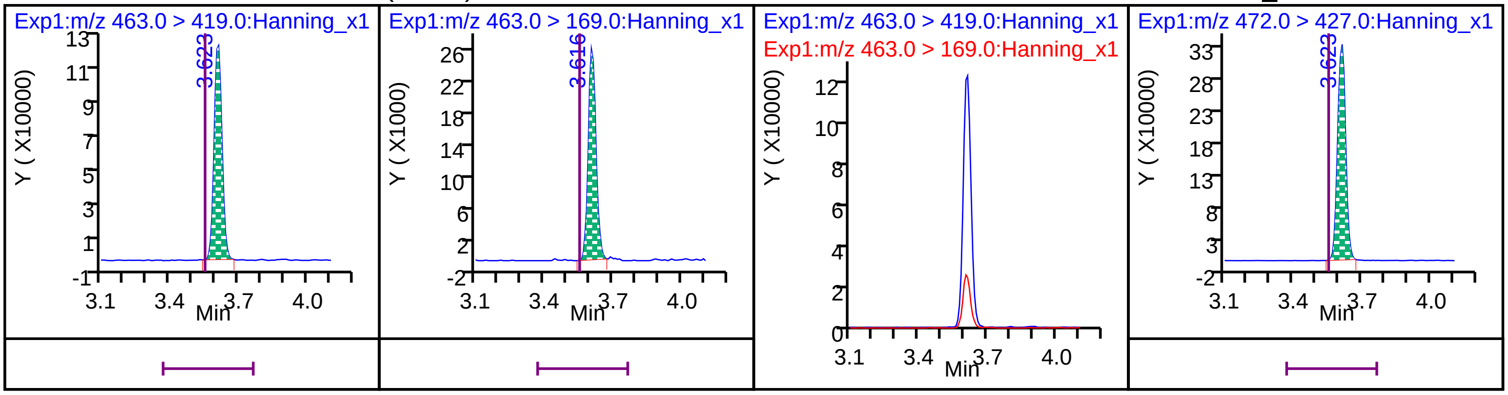
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (Marked ND) D 45 13C3_PFHxS



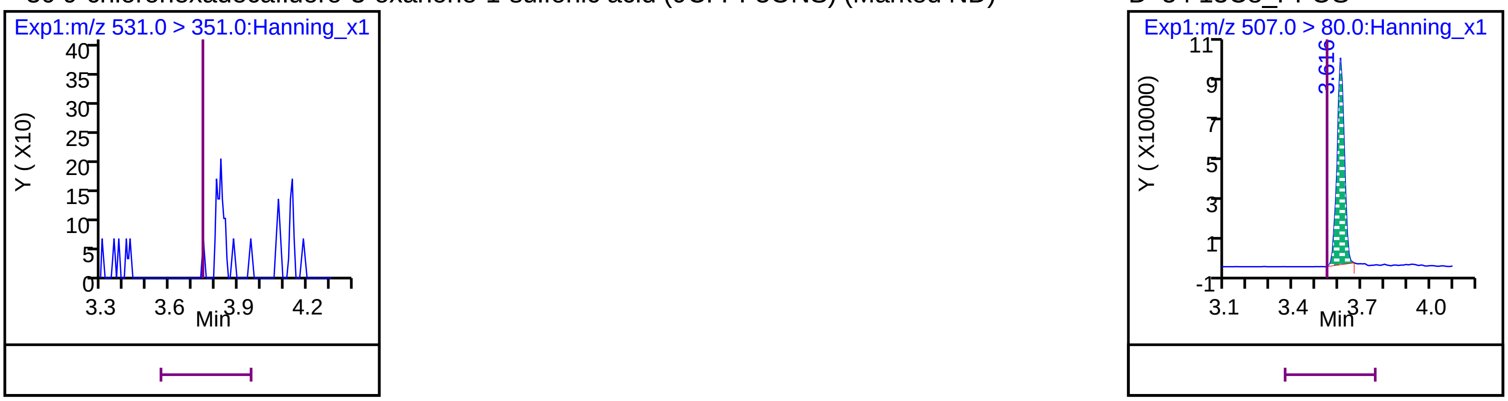
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



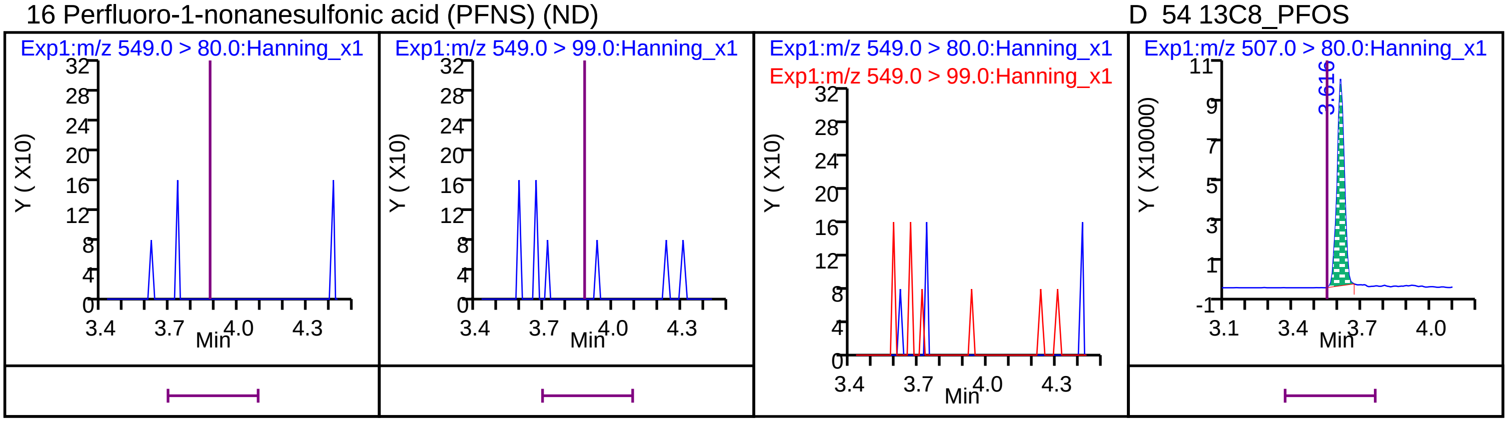
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



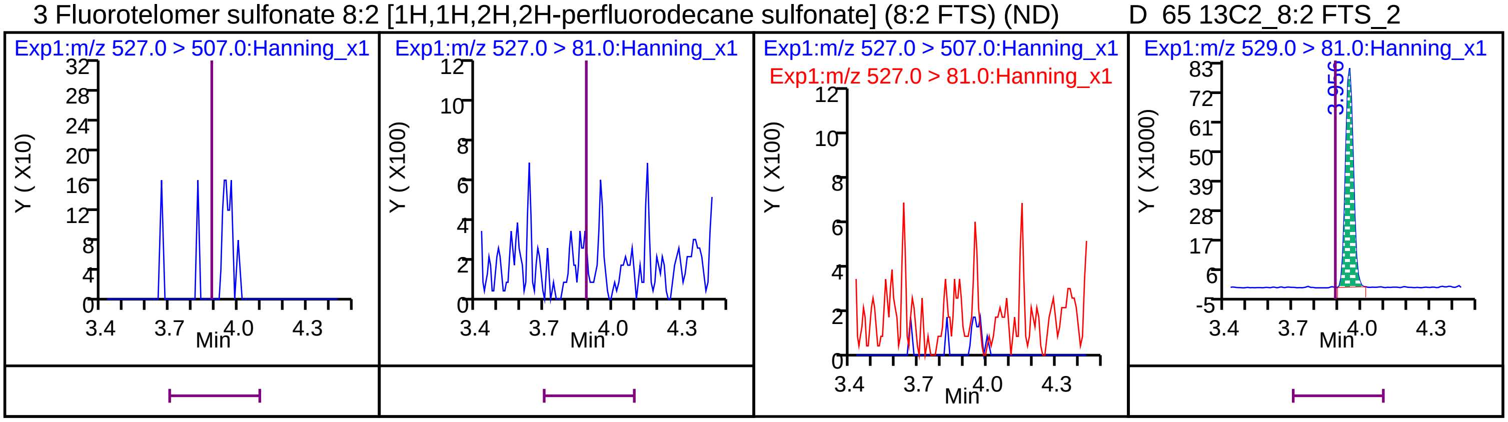
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

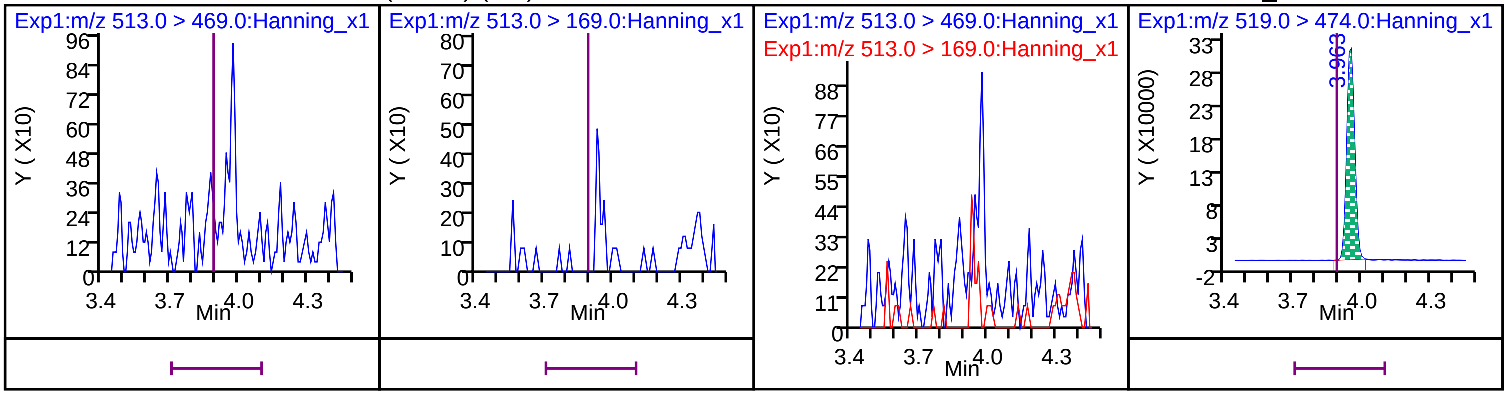


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2

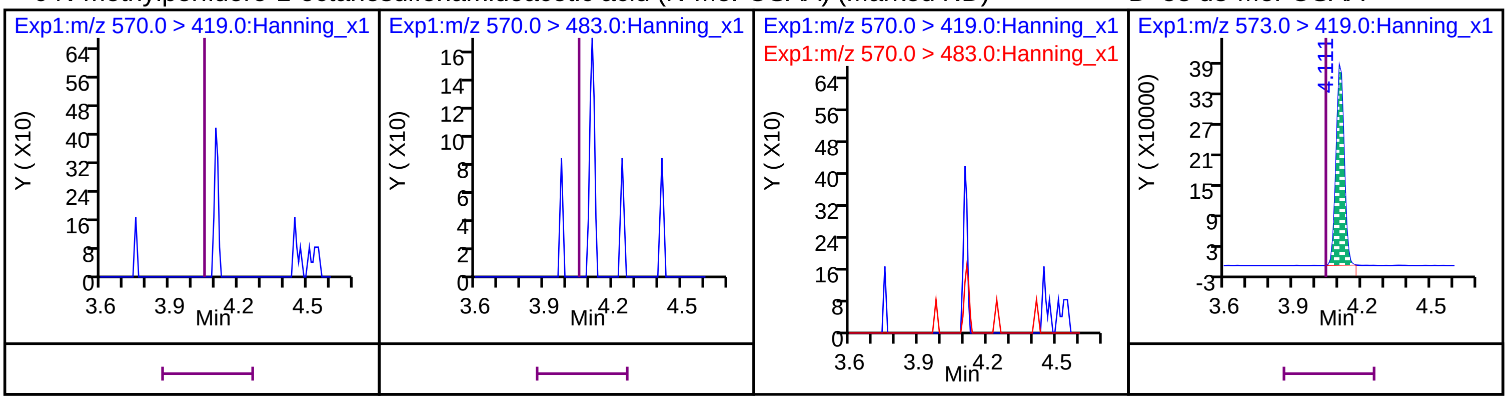


Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d

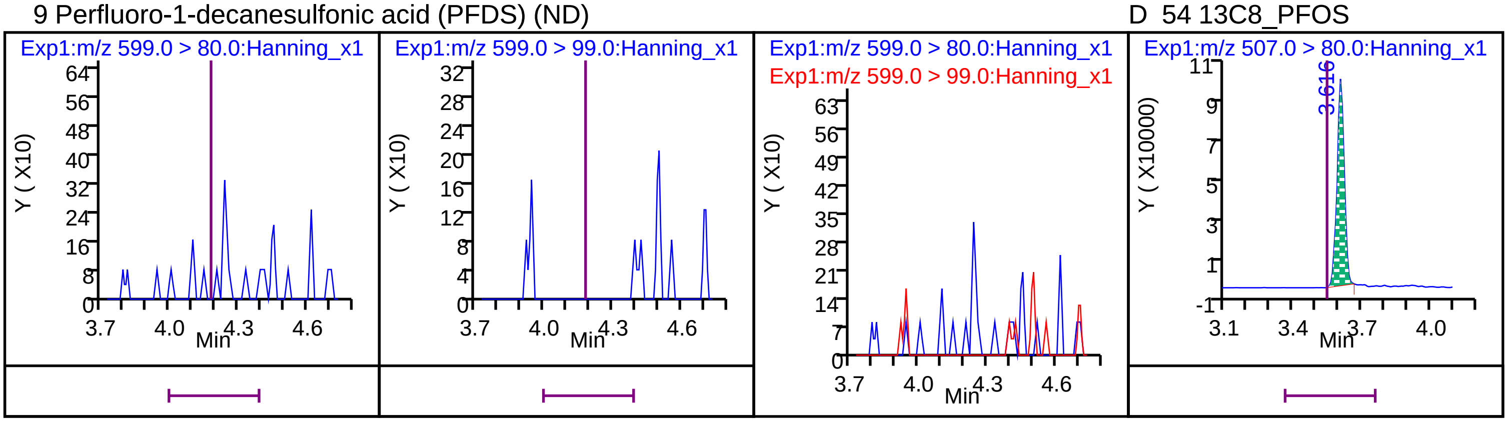
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



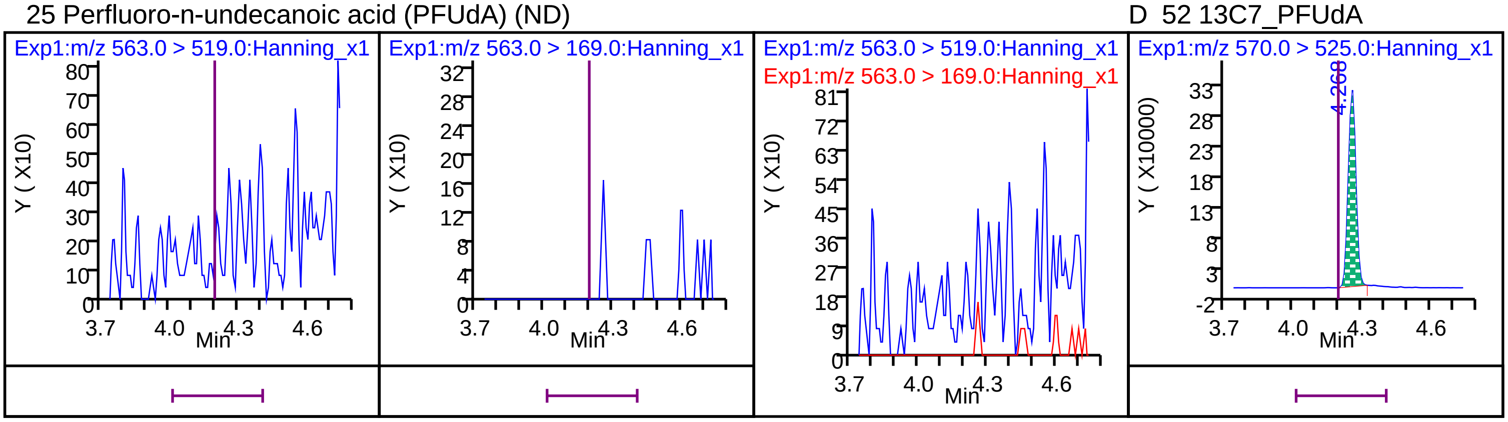
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



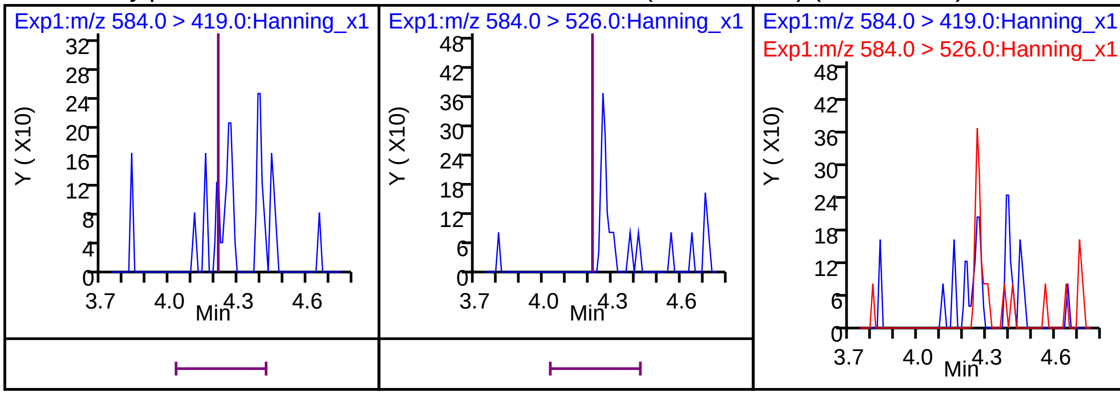
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



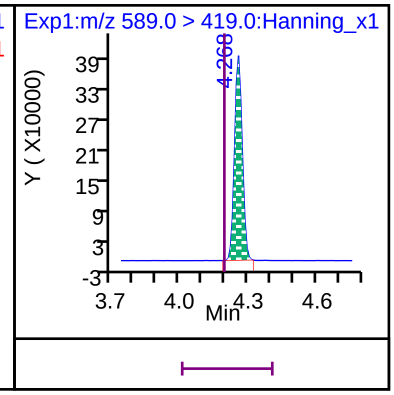
Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d

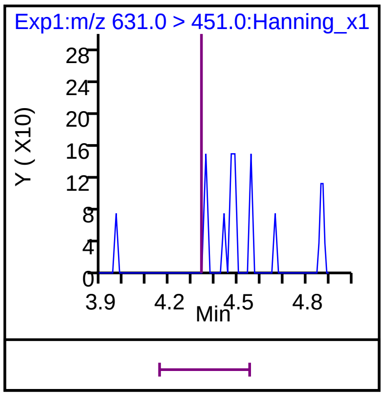
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND)



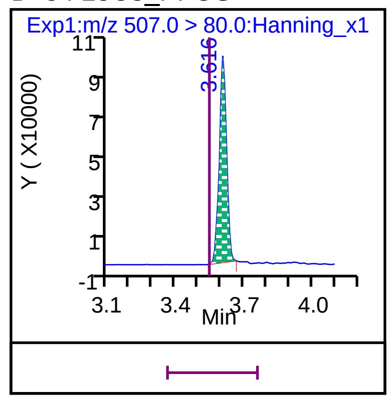
D 60 d5-EtFOSAA



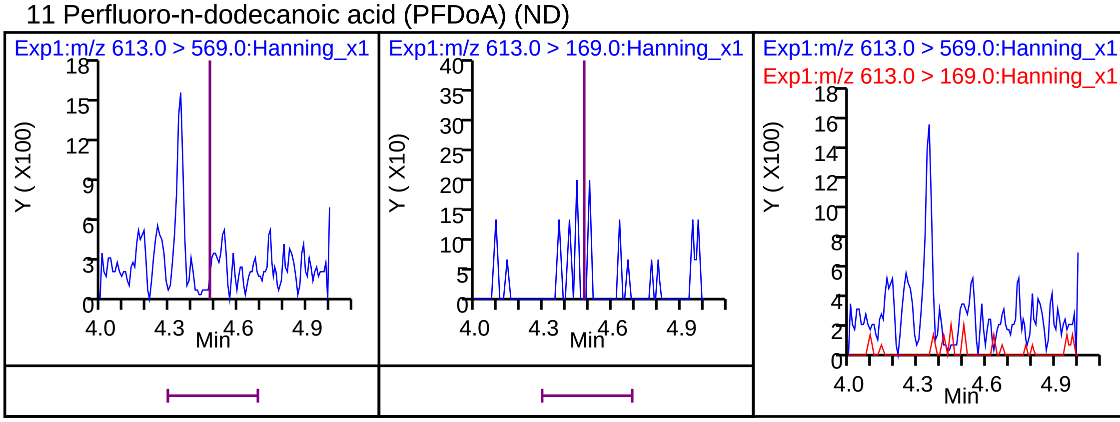
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



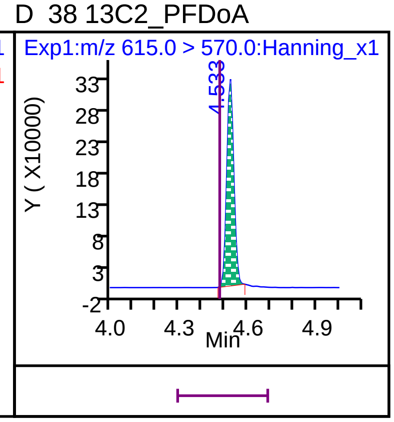
D 54 13C8_PFOS



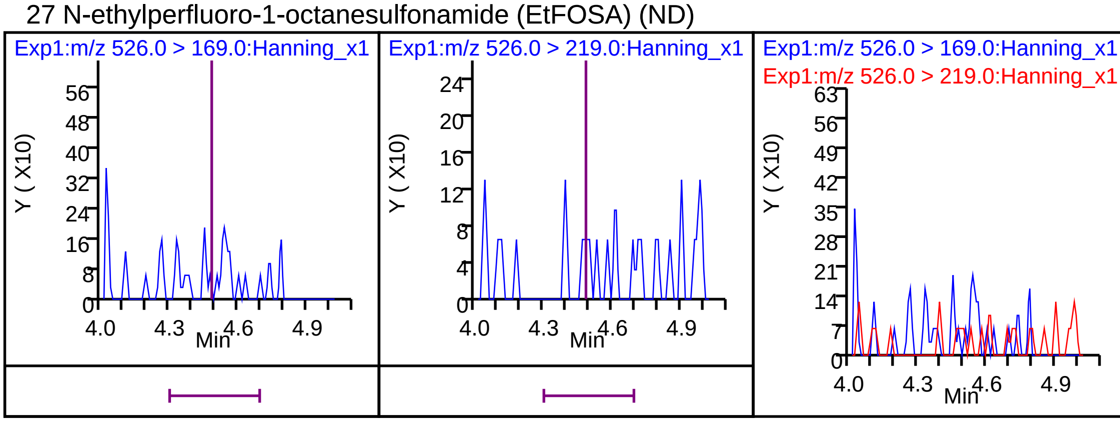
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



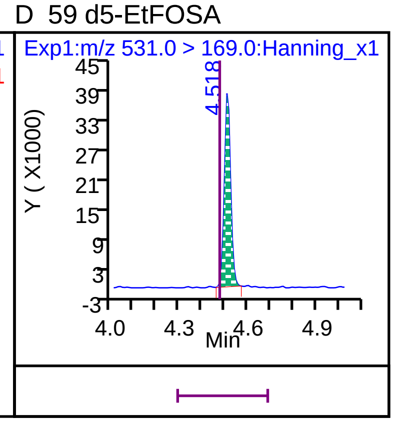
D 38 13C2_PFDoA



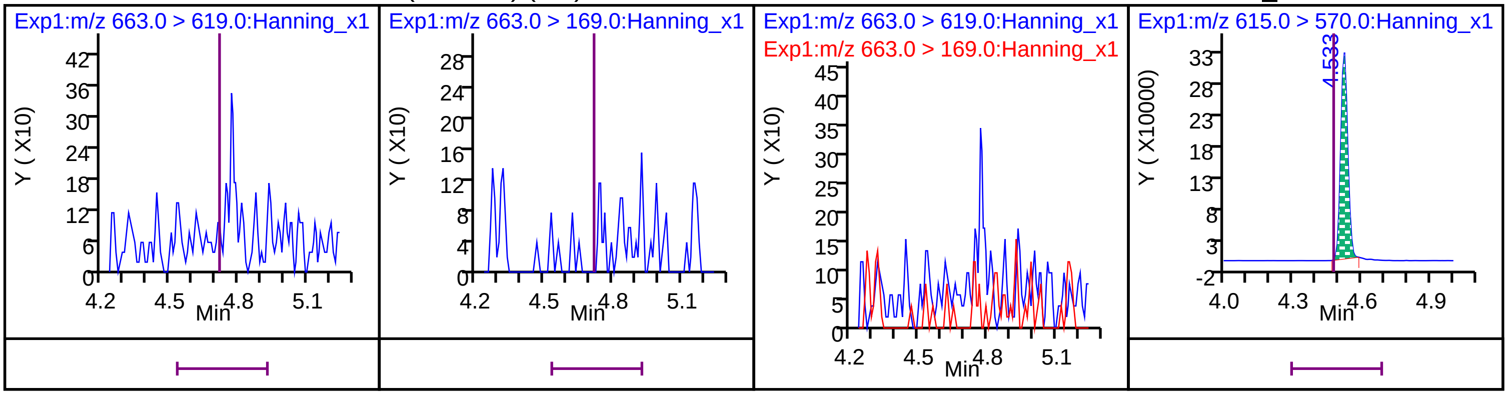
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



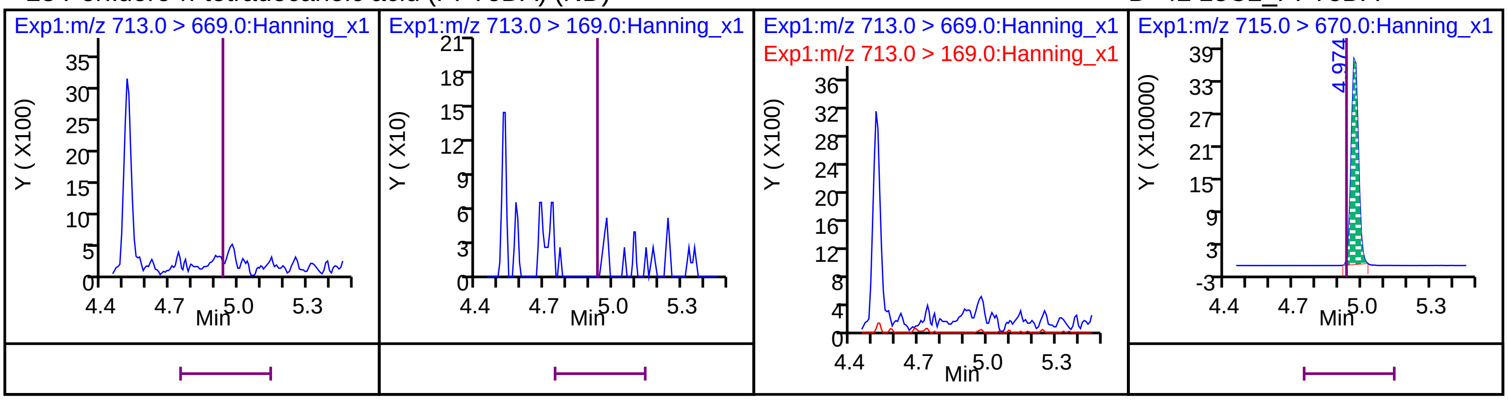
D 59 d5-EtFOSA



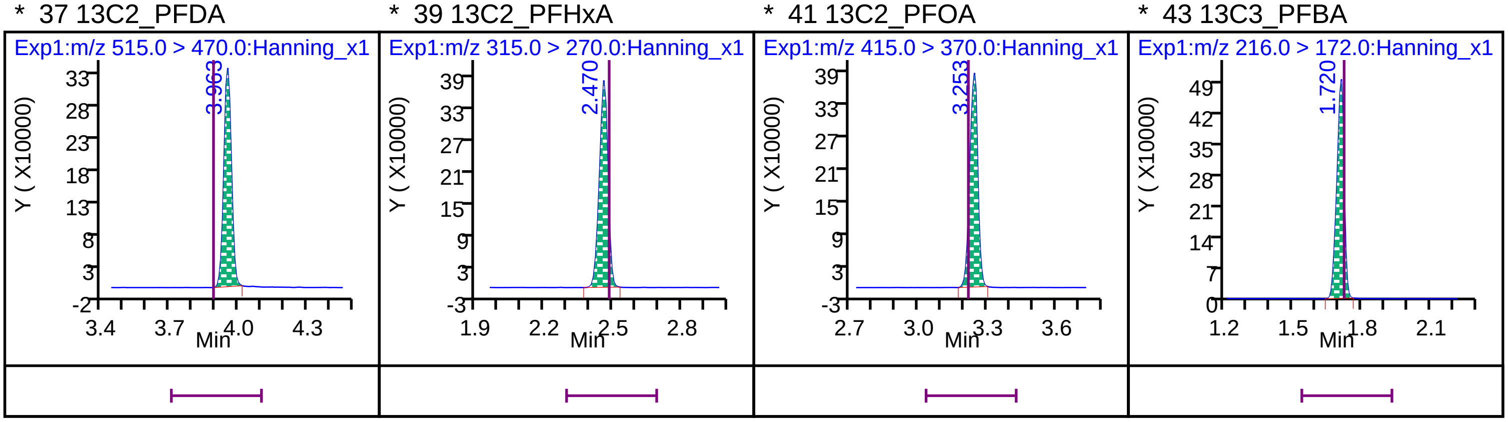
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



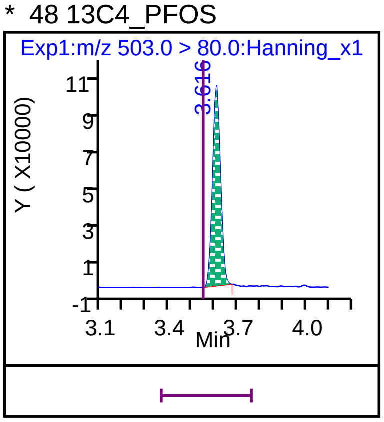
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

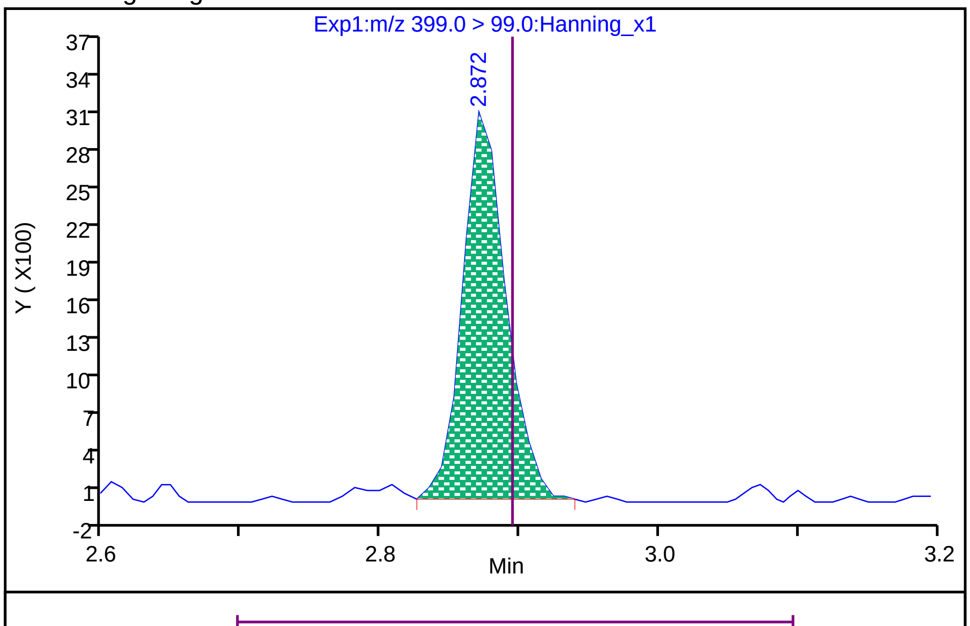
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d		
Injection Date:	06-Nov-2021 21:11:19	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-022.0-20211102	Lab ID:	WK03035-002
Sample Info:	WK03035-002,50		
Dil. Factor:	50	Operator:	Matthew M. Miller

14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.872
Area: 6494
Conc: 140.46
Conc Units: ng/L



RT: 2.872
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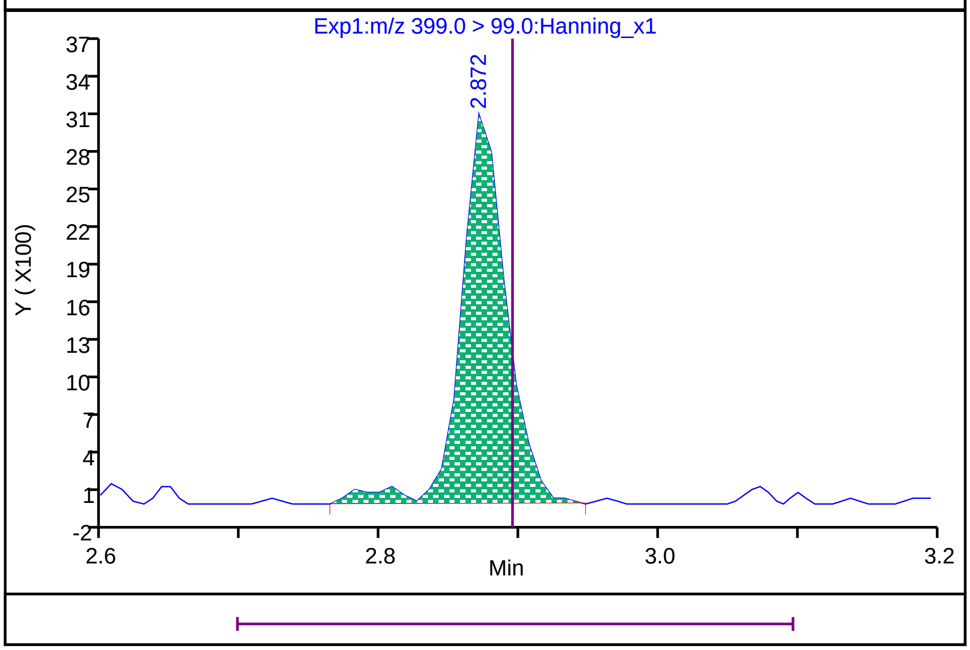
Conc: 140.46
Conc Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:12:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

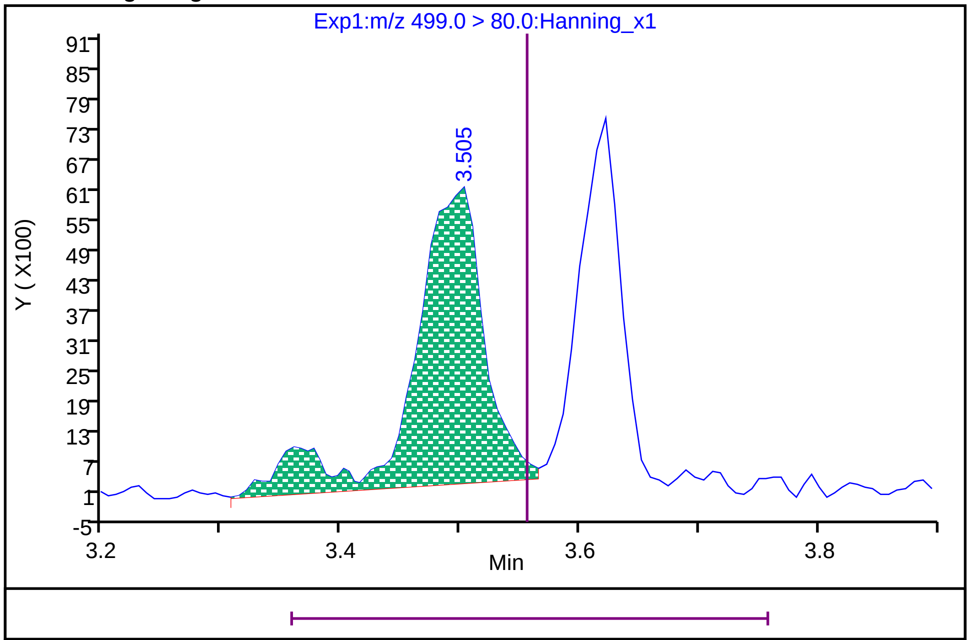
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d		
Injection Date:	06-Nov-2021 21:11:19	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-022.0-20211102	Lab ID:	WK03035-002
Sample Info:	WK03035-002,50		
Dil. Factor:	50	Operator:	Matthew M. Miller

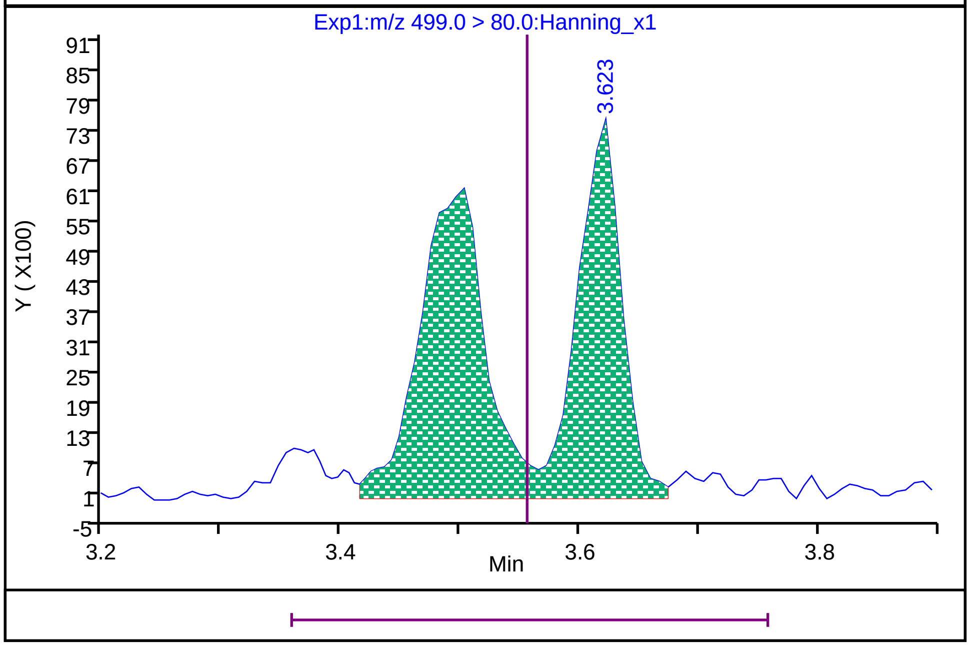
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.505
Area: 24360
Conc: 197.79
Conc Units: ng/L



RT: 3.623
Area: 42589
Conc: 345.81
Conc Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:02:00
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:08 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

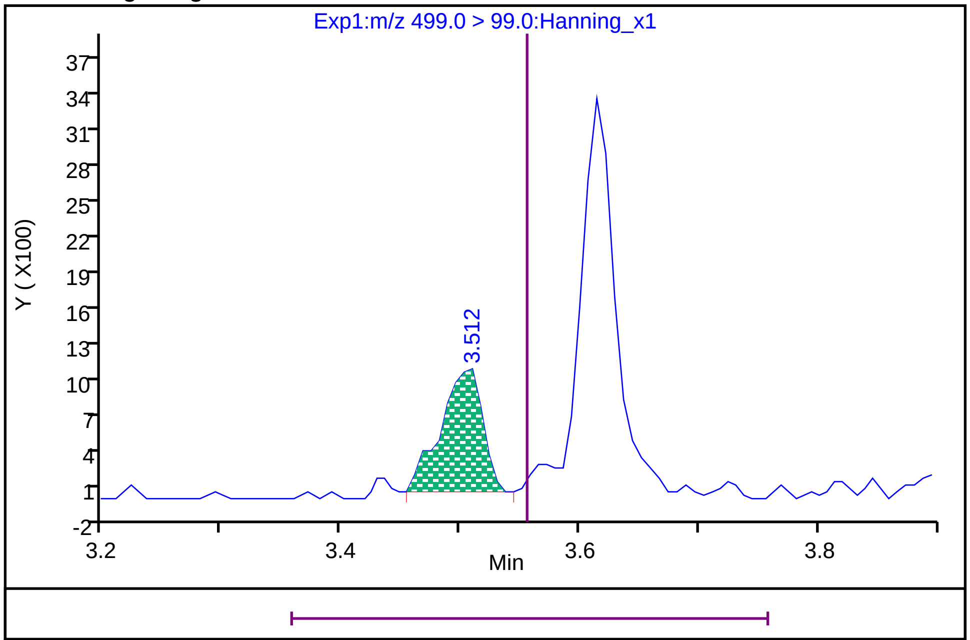
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621051.d		
Injection Date:	06-Nov-2021 21:11:19	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-022.0-20211102	Lab ID:	WK03035-002
Sample Info:	WK03035-002,50		
Dil. Factor:	50	Operator:	Matthew M. Miller

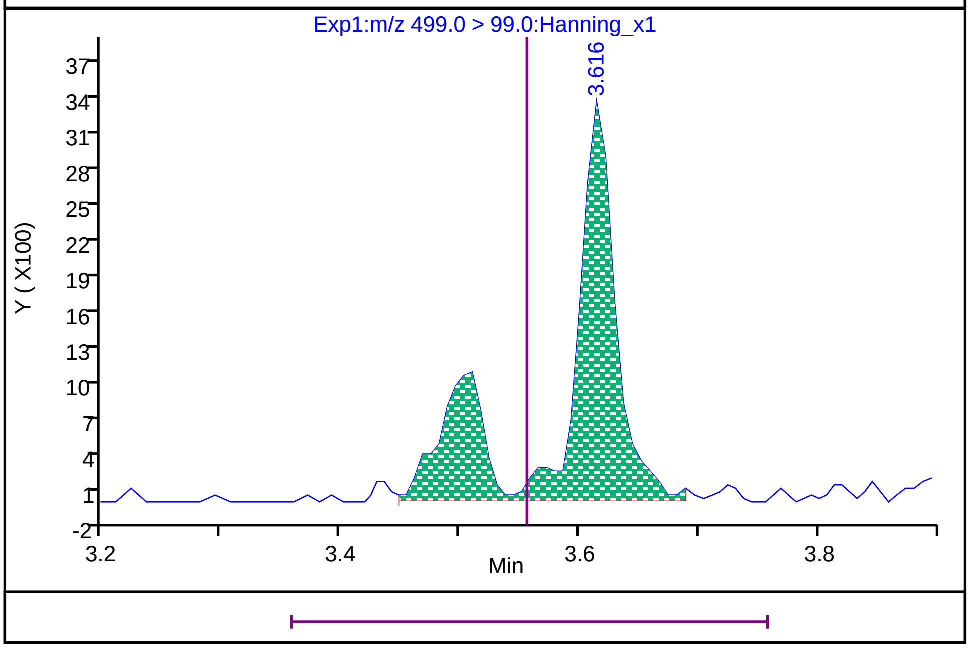
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.512
Area:	2459
Conc:	345.81
Conc Units:	ng/L



RT:	3.616
Area:	9747
Conc:	345.81
Conc Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:02:05

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-003
Description: SW3-DPT-0143-032.0-20211102	Matrix: Aqueous
Date Sampled: 11/02/2021 0850	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/06/2021 2153	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2223	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.1	I	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	60	V	7.1	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	5.5	IQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.4	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.3	I	3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	7.7		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	59	Q	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	40		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	74		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.4	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	28		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	120		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	12		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	237	50-150	N	214	50-150
13C2_6:2FTS		145	50-150		145	50-150
13C2_8:2FTS		117	50-150		131	50-150
13C2_PFDoA		96	50-150		100	50-150
13C2_PFTeDA		70	50-150		64	50-150
13C3_PFBS		84	50-150		94	50-150
13C3_PFHxS		102	50-150		112	50-150
13C3-HFPO-DA		90	50-150		92	50-150
13C4_PFBA	N	49	50-150		56	50-150
13C4_PFHpA		96	50-150		111	50-150
13C5_PFHxA		91	50-150		102	50-150
13C5_PFPeA		79	50-150		87	50-150
13C6_PFDA		94	50-150		111	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-003
Description: SW3-DPT-0143-032.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 0850	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		107	50-150		97	50-150
13C8_PFOA		100	50-150		105	50-150
13C8_PFOS		97	50-150		108	50-150
13C9_PFNA		105	50-150		109	50-150
d-EtFOSA		68	50-150		63	50-150
d5-EtFOSAA		114	50-150		96	50-150
d3-MeFOSAA		110	50-150		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d		
Injection Date:	06-Nov-2021 21:53:49	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	39
Lab Sample ID:	WK03035-003	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0143-032.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-003	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0382892

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	287	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.732	1.725	1	545084	16	>100:1			1001.00	497.26	49.4*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.738	1.732	1/0	893587	17	55:1			1539.85	58.960		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	816494	15	>100:1			1001.00	800.41	79.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.116	2.105	1/1	2821816	12	>100:1			3222.95	123.40		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.169	0	286579	12	>100:1			1001.00	849.28	84.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													J
298.9 > 80	44	2.168	2.169	0/0	15217	18	55:1	Target = 3.83		37.548	1.4377		
298.9 > 99	44	2.168	2.169		3749	13	3.3:1	4.05 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													Ja
349 > 80	44	2.528	2.529	0/0	9603	10	16:1	Target = 3.47		33.512	1.2831		
349 > 99	44	2.537	2.529		3533	14	14:1	2.71 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	547689	14	>100:1			5005.00	11729	236.6*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.449	2.449	0/0	29189	13	>100:1	Target = 1.39		143.46	5.4930		
327 > 81	63	2.449	2.449		15057	14	13:1	1.93 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	832724	15	>100:1			1001.00	913.08	91.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	0/0	1643652	14	>100:1	Target = 17.15		1943.98	74.433		
313 > 119	49	2.493	2.493		96362	13	>100:1	17.05 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	0	617143	15	>100:1			5005.00	4192.72	90	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	868160	15	>100:1			1001.00	981.12	95.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	857217	15	>100:1	Target = 3.21		1034.58	39.613		
363 > 169	47	2.878	2.878		266398	15	>100:1	3.21 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	282232	15	>100:1			1001.00	1020.43	102.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	65381	24	72:1	Target = 3.35	6.35	201.16	7.7024		
399 > 99	45	2.896	2.896		19582	25	72:1	3.33 (1.67-5.04)	6.96				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.233	3.201	2	315373	19	>100:1			5005.00	7651.82	145.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.233	3.201	2/0	150572	18	>100:1	Target = 1.26		1438.63	55.084		
427 > 81	64	3.233	3.201		122533	21	89:1	1.22 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	840118	19	>100:1			1001.00	997.27	99.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.258	3.226	2/0	606111	18	>100:1	Target = 2.46		722.17	27.651		
413 > 169	53	3.258	3.226		244009	16	>100:1	2.48 (1.23-3.70)					M
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.613	3.558	4	230557	18	>100:1			1001.00	973.12	96.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.613	3.558	4/0	84700	39	>100:1	Target = 3.98	1.03	316.08	12.102		M
499 > 99	54	3.621	3.558		18697	36	52:1	4.53 (1.99-5.97)	2.17				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.755		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.613	3.565	3	890556	19	>100:1			1001.00	1097.64	105	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													J
463 > 419	56	3.621	3.565	4/1	70209	16	98:1	Target = 4.45		88.480	3.3878		
463 > 169	56	3.613	3.565		14582	23	64:1	4.81 (2.22-6.68)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.946	3.894	4	209322	18	>100:1			5005.00	6011.17	117.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.946	3.894	4/0	9130	22	76:1	Target = 1.41		132.30	5.0657		
527 > 81	65	3.946	3.894		6975	15	6.9:1	1.30 (0.70-2.12)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.954	3.901	4	723787	18	>100:1			1001.00	1011.67	93.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.109	4.053	4	868717	16	>100:1			5005.00	5372.78	109.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.257	4.207	4	857343	16	>100:1			5005.00	5929.42	114.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.257	4.207	4	771779	15	>100:1			1001.00	1099.04	107.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.526	4.486	3	657866	17	>100:1			1001.00	945.11	95.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.486	2	43908	21	>100:1			1001.00	727.84	68.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.975	4.942	2	522714	17	>100:1			1001.00	700.57	69.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
*** 37 13C2_PFDA**													
515 > 470		3.954	3.901	4	472149	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	613817	14	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.258	3.226	2	600654	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	367703	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.613	3.558	4	181666	19	>100:1			200.00			

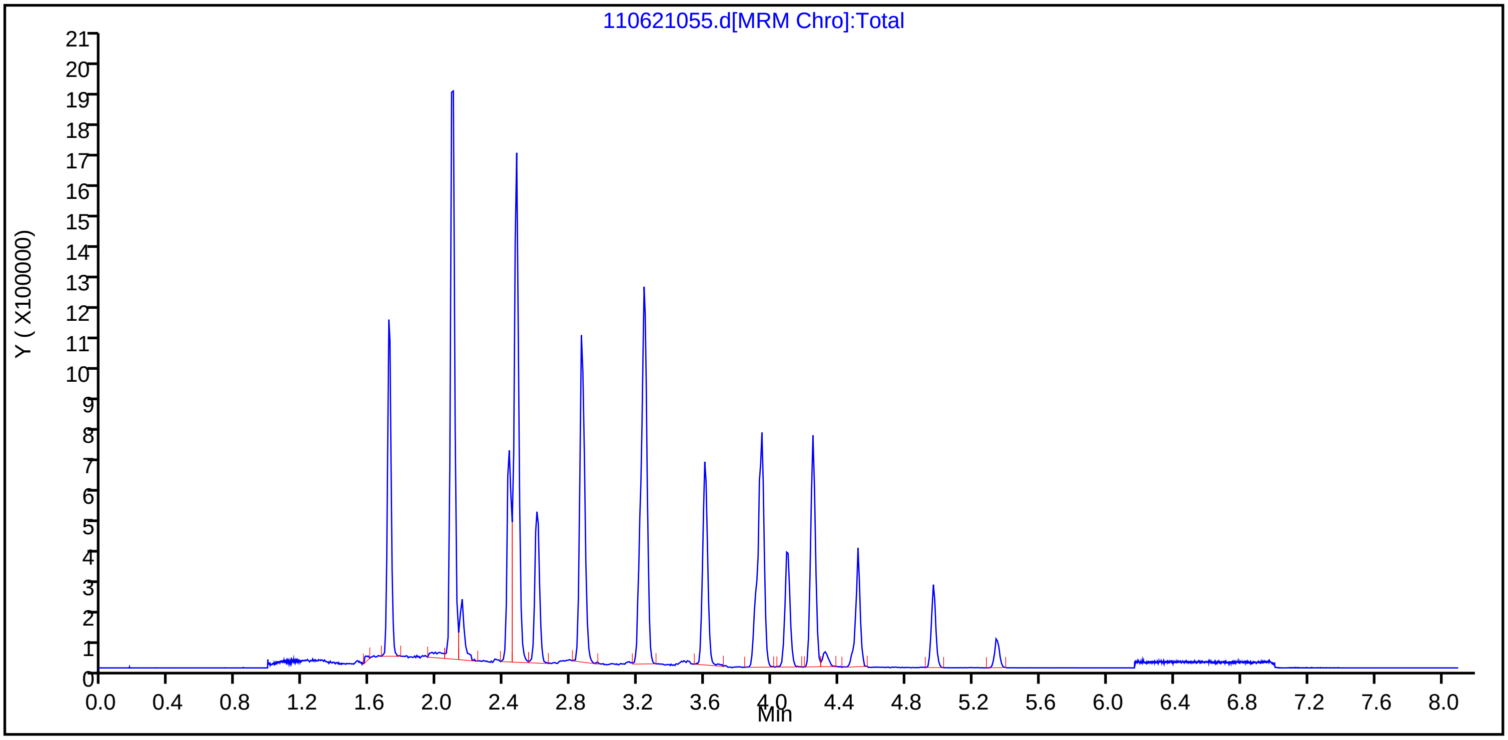
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

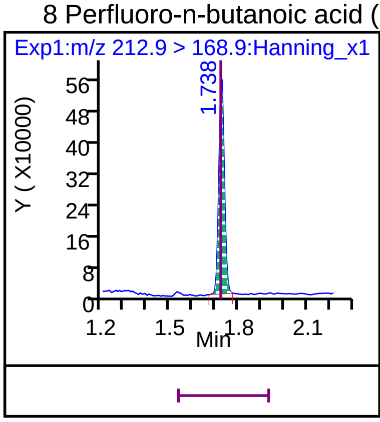
Report Date: 09-Nov-2021 13:31:13 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

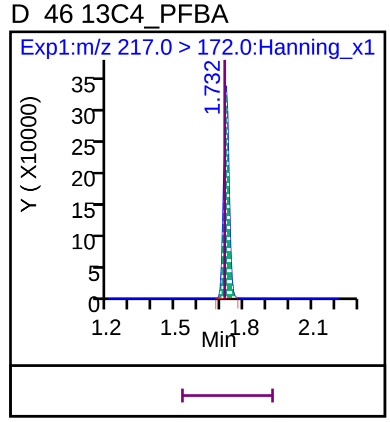
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d		
Injection Date:	06-Nov-2021 21:53:49	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-032.0-20211102	Lab ID:	WK03035-003
Sample Info:	WK03035-003		
Dil. Factor:	1	Operator:	Matthew M. Miller



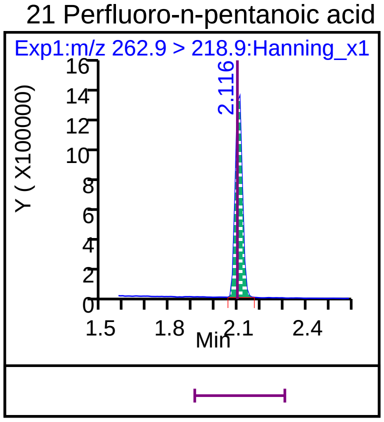
8 Perfluoro-n-butanoic acid (PFBA)



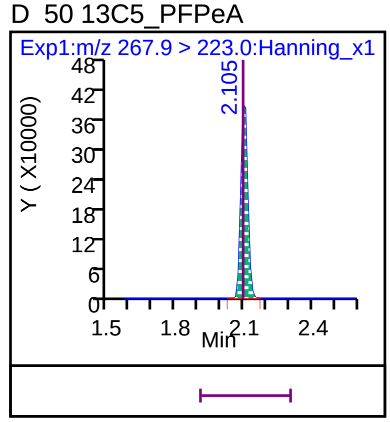
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

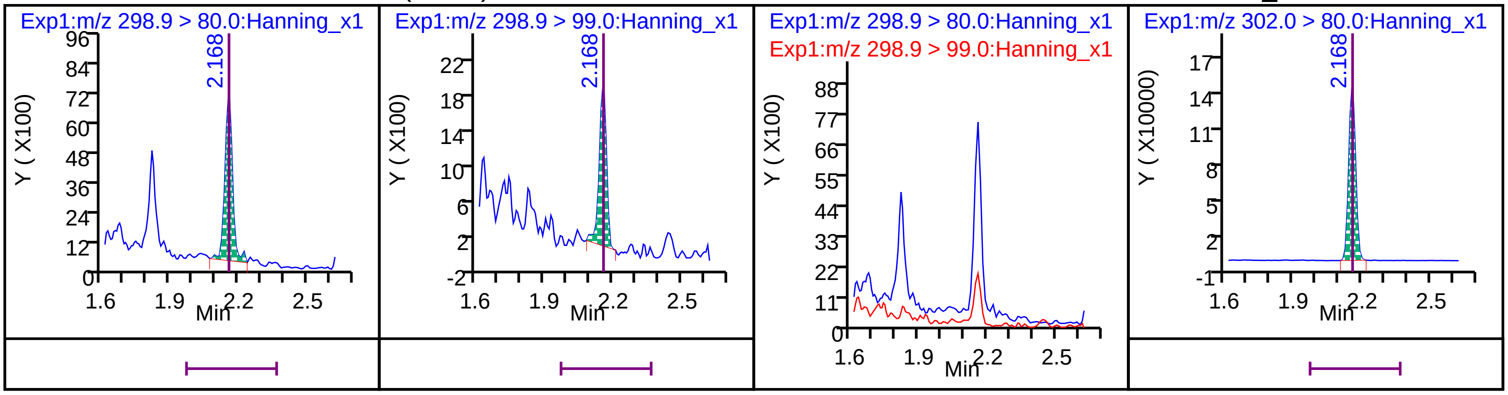


D 50 13C5_PFPeA

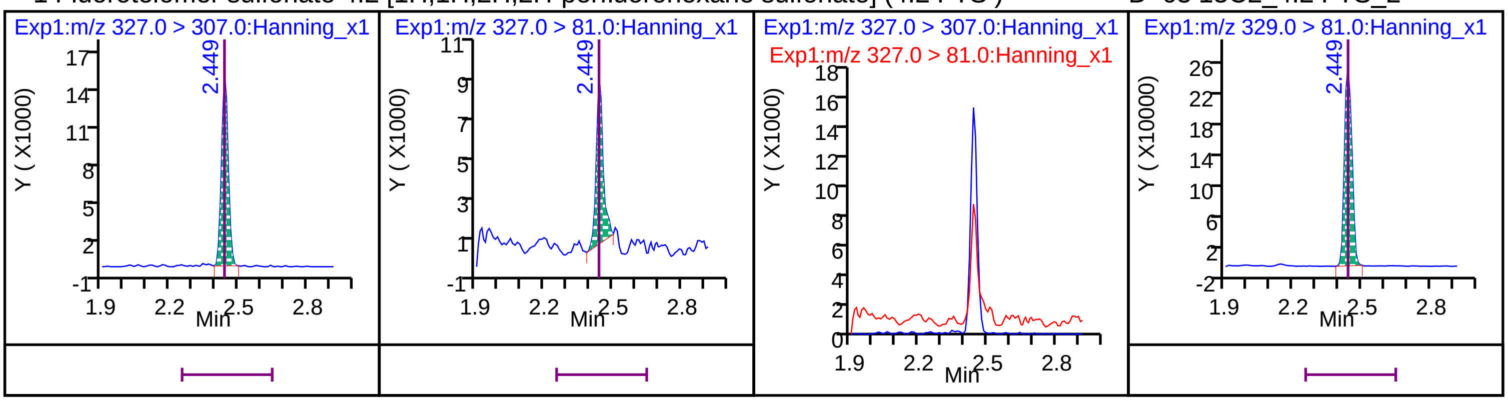


Report Date: 09-Nov-2021 13:31:13 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d

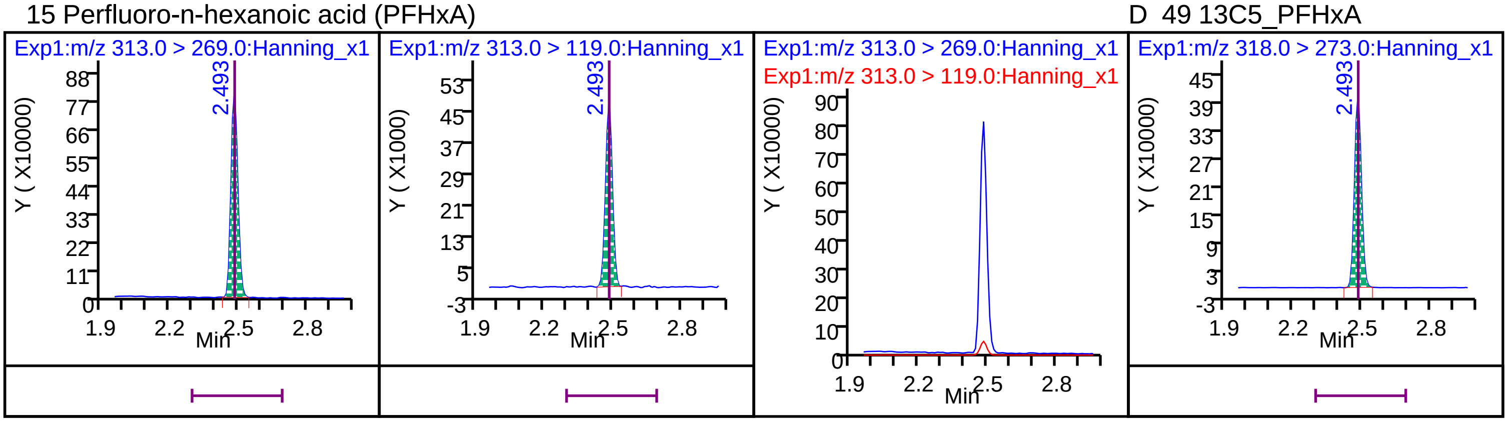
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



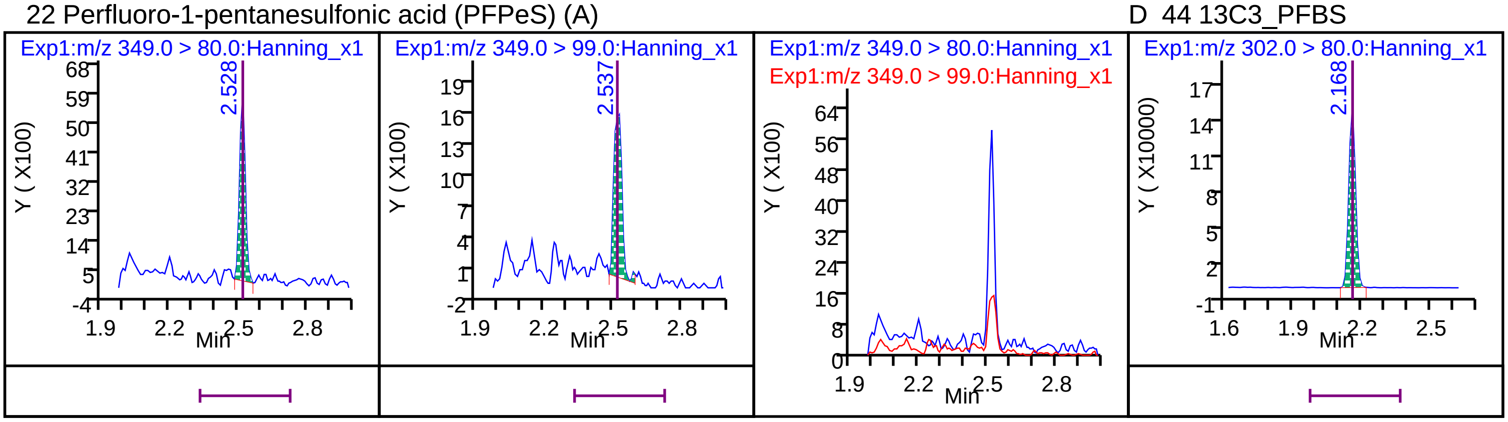
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

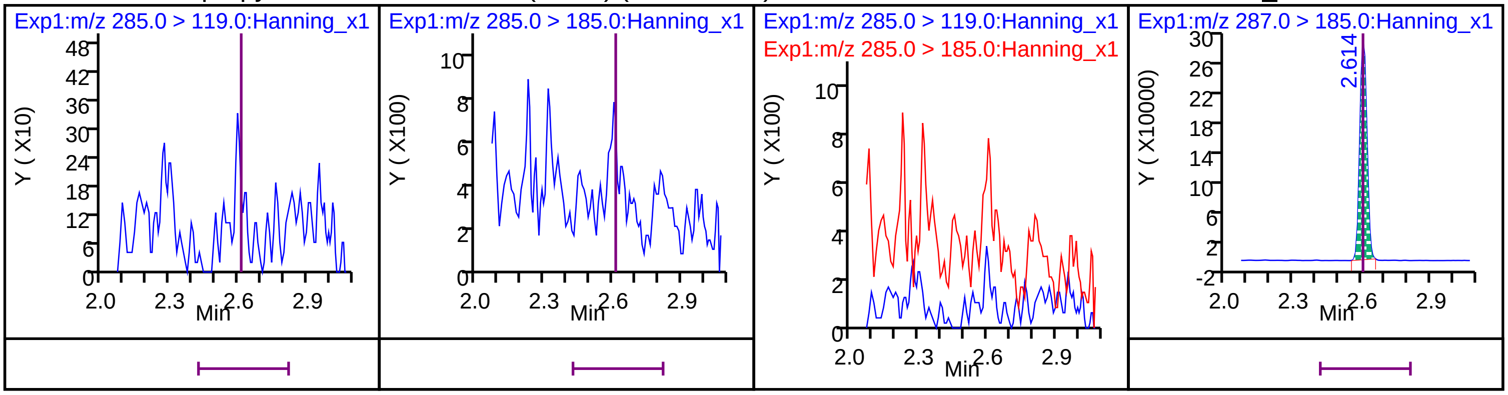


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (A) D 44 13C3_PFBS

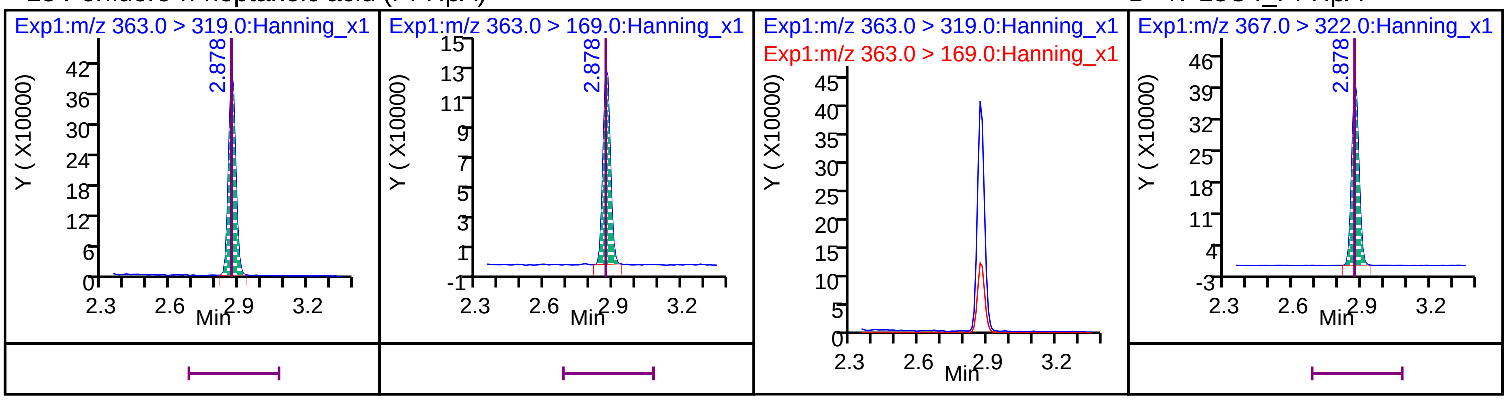


Report Date: 09-Nov-2021 13:31:13 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d

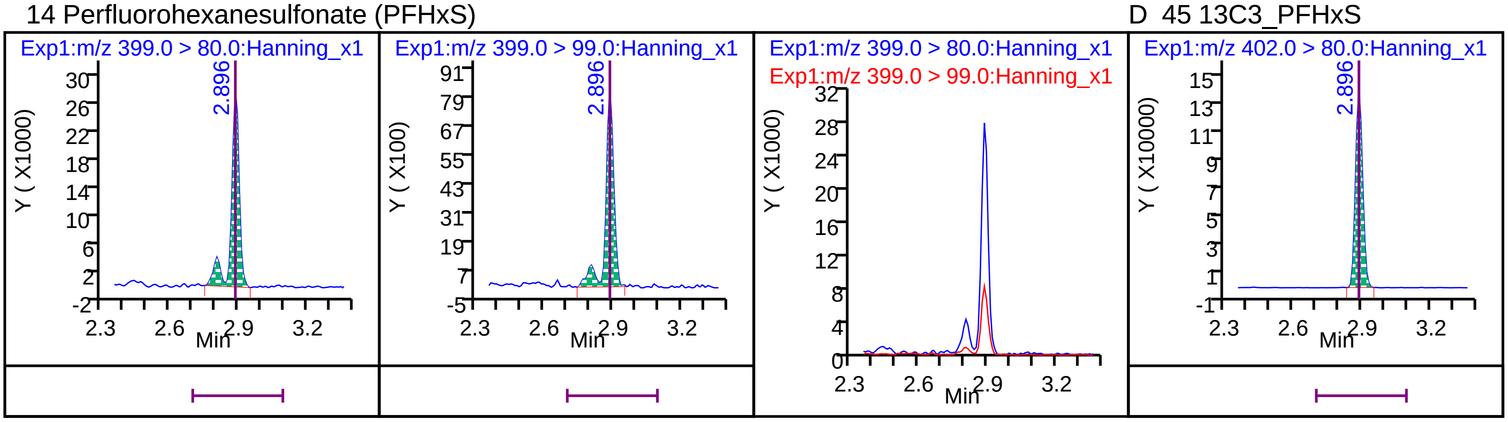
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



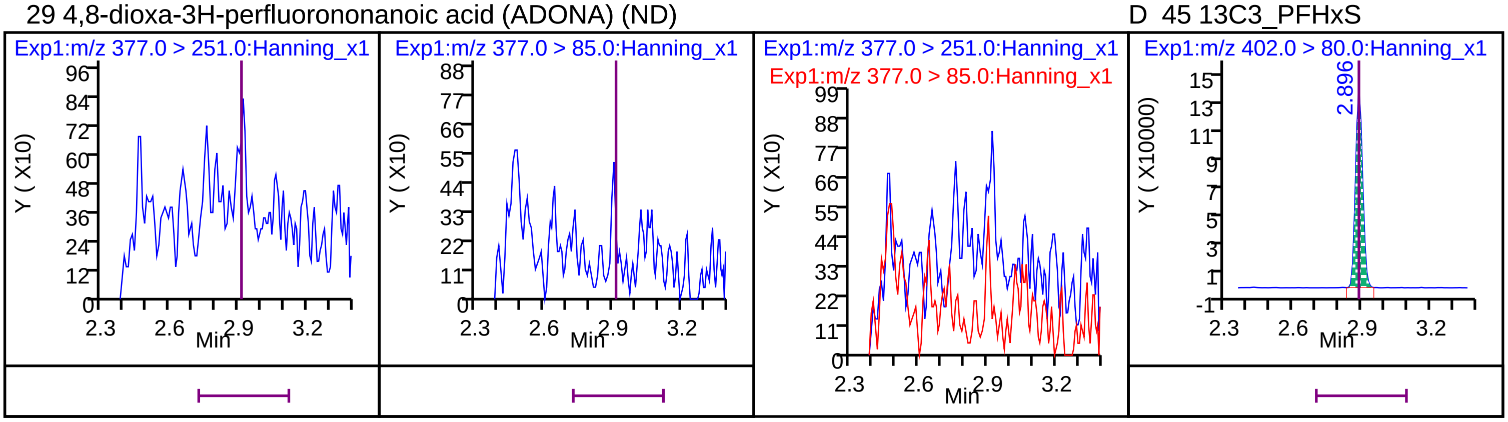
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

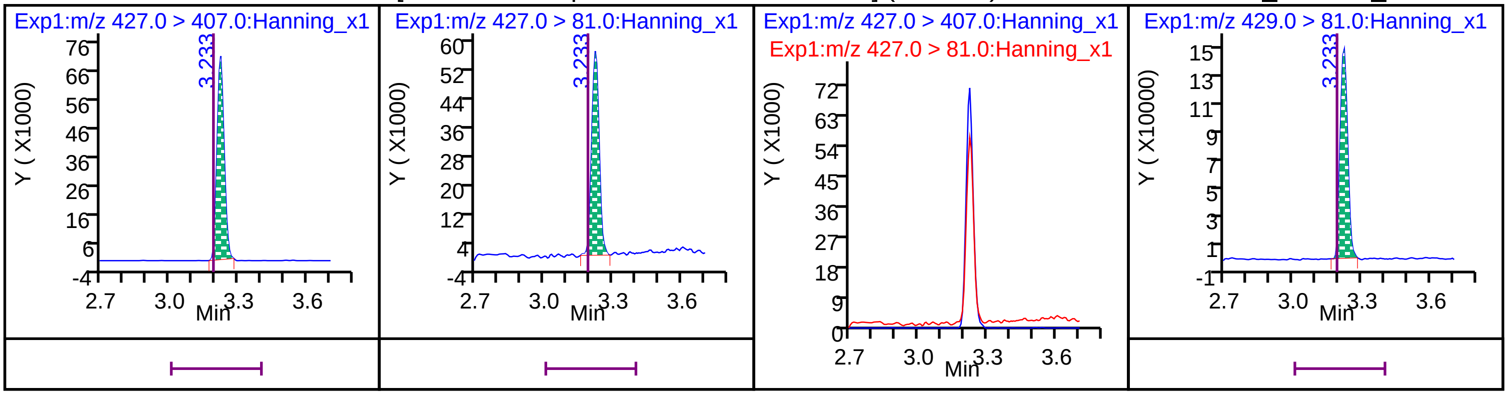


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

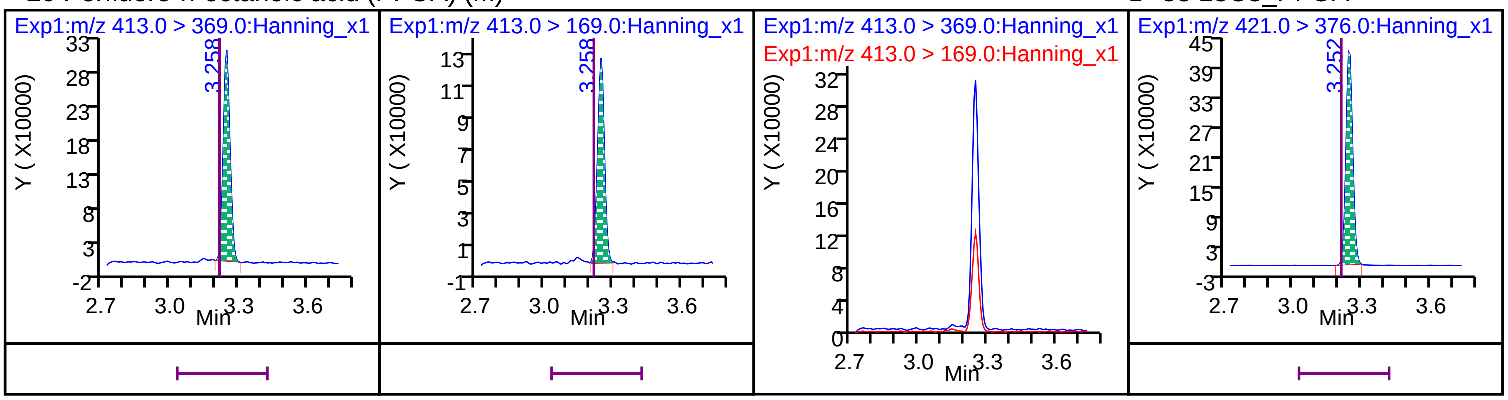


Report Date: 09-Nov-2021 13:31:13 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d

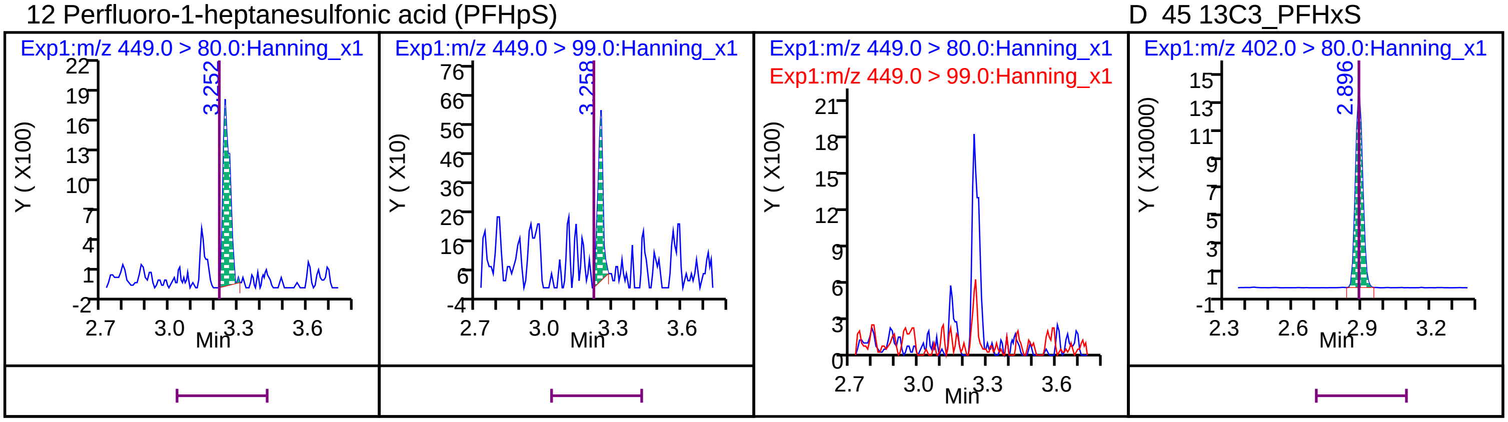
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



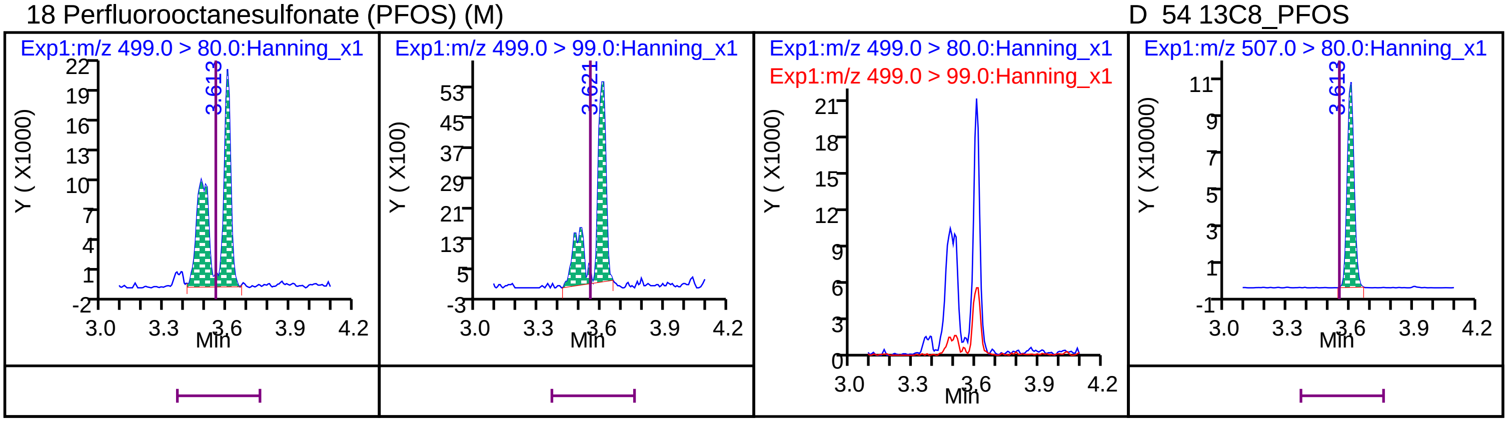
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



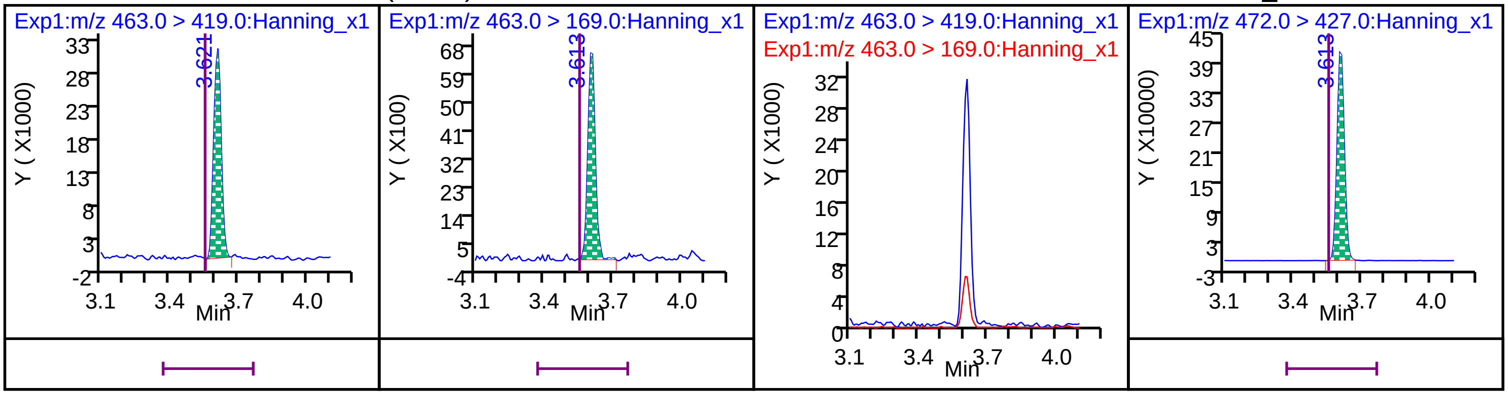
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



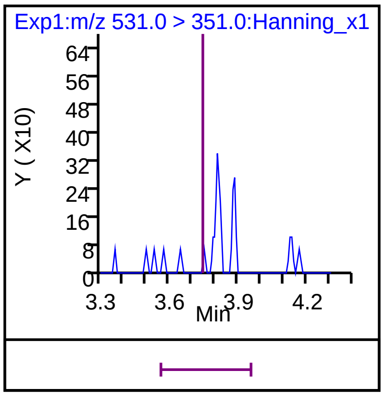
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

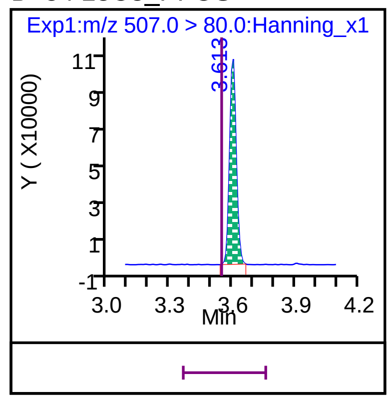


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

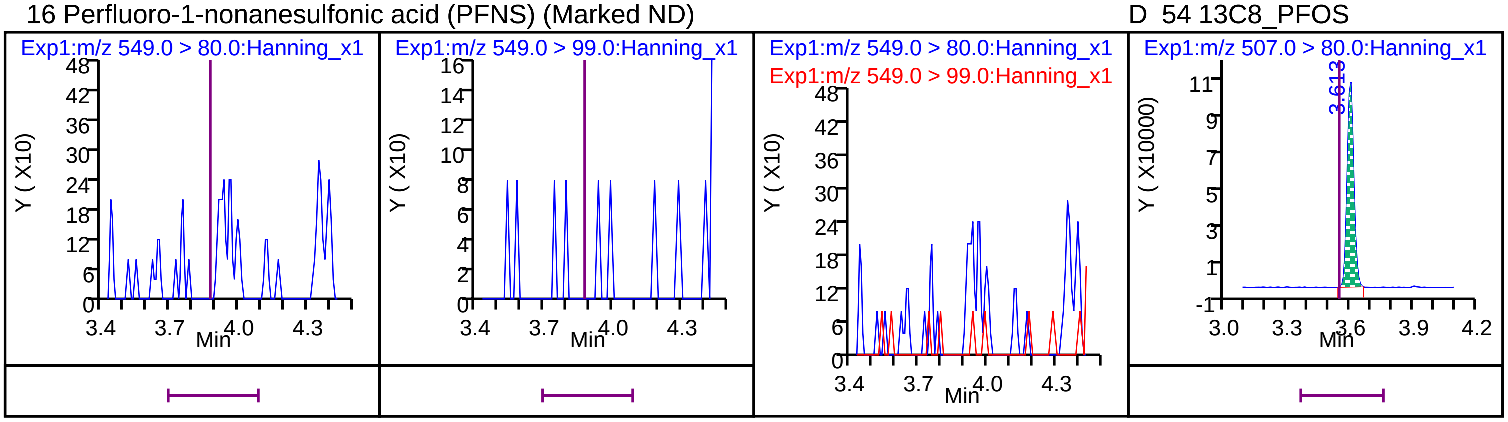


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

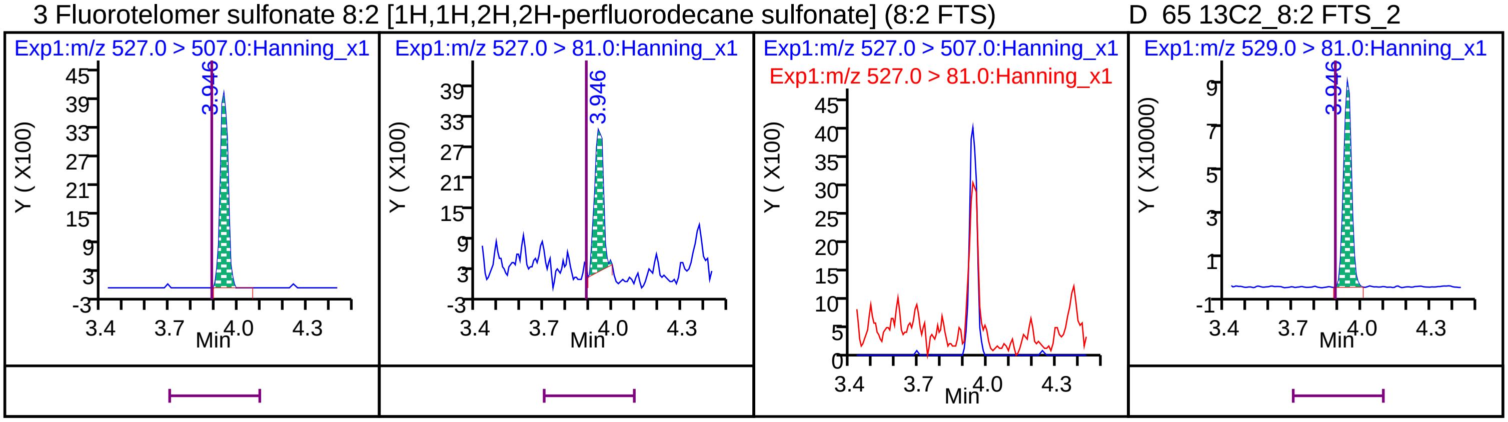




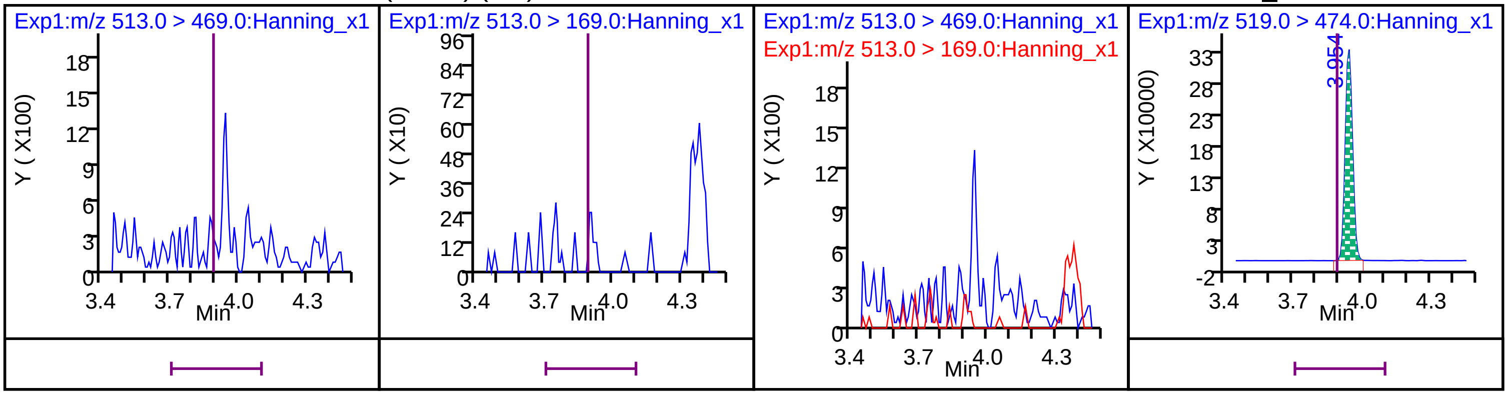
16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS



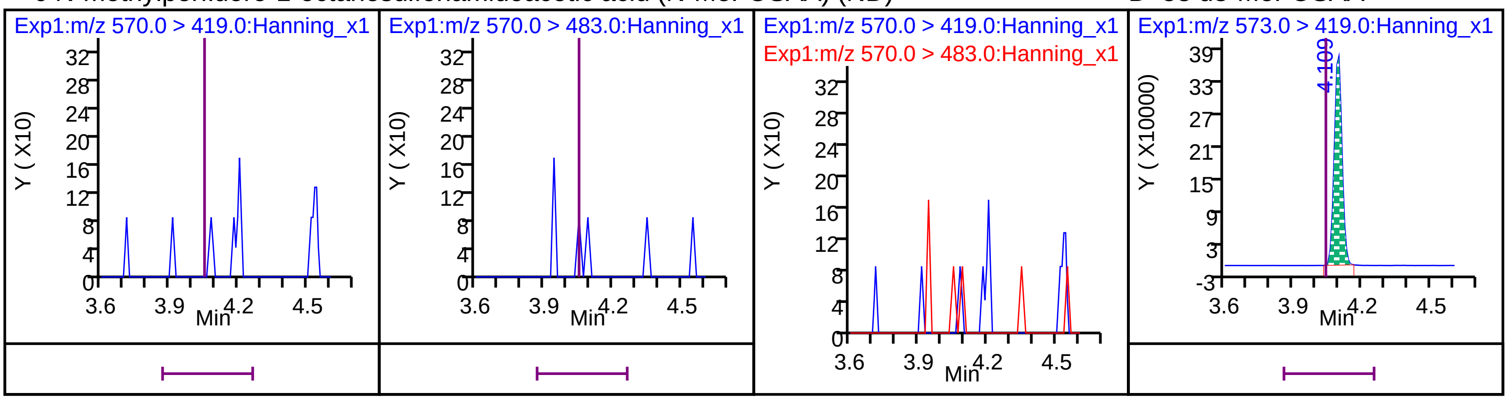
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



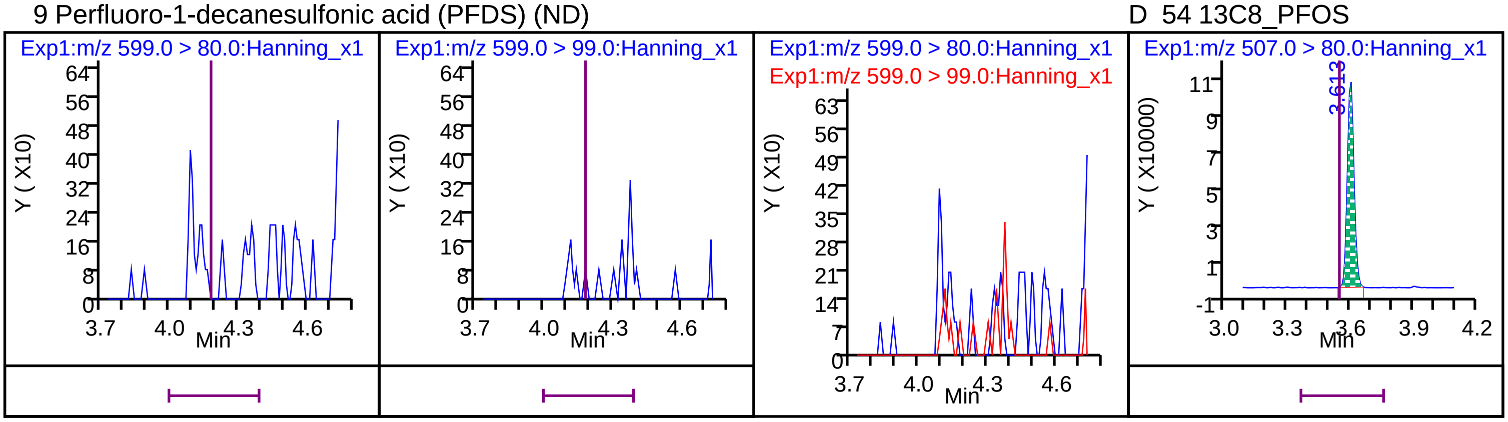
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



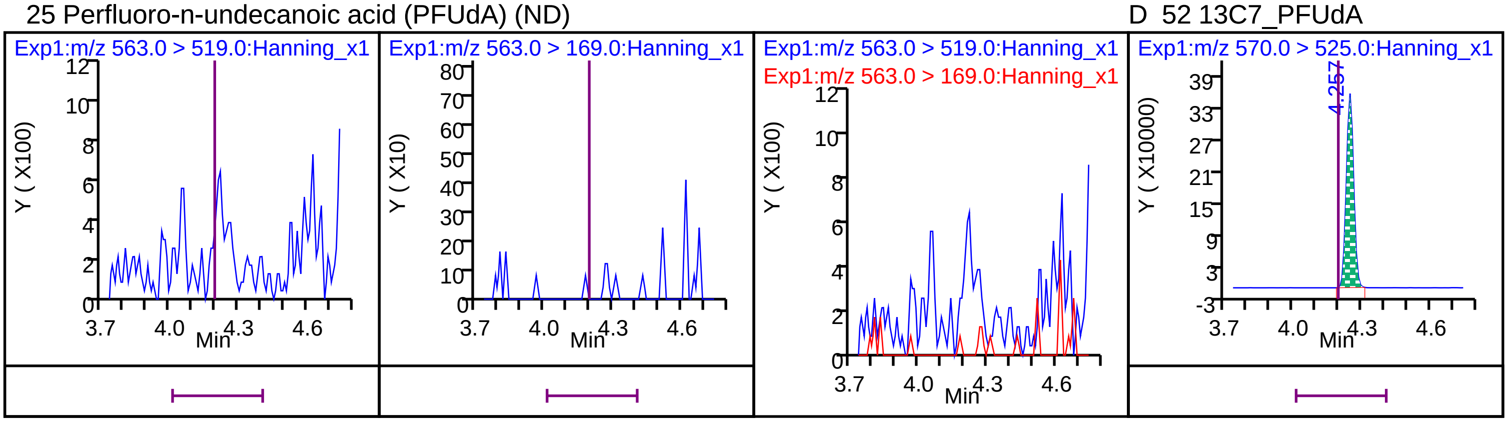
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

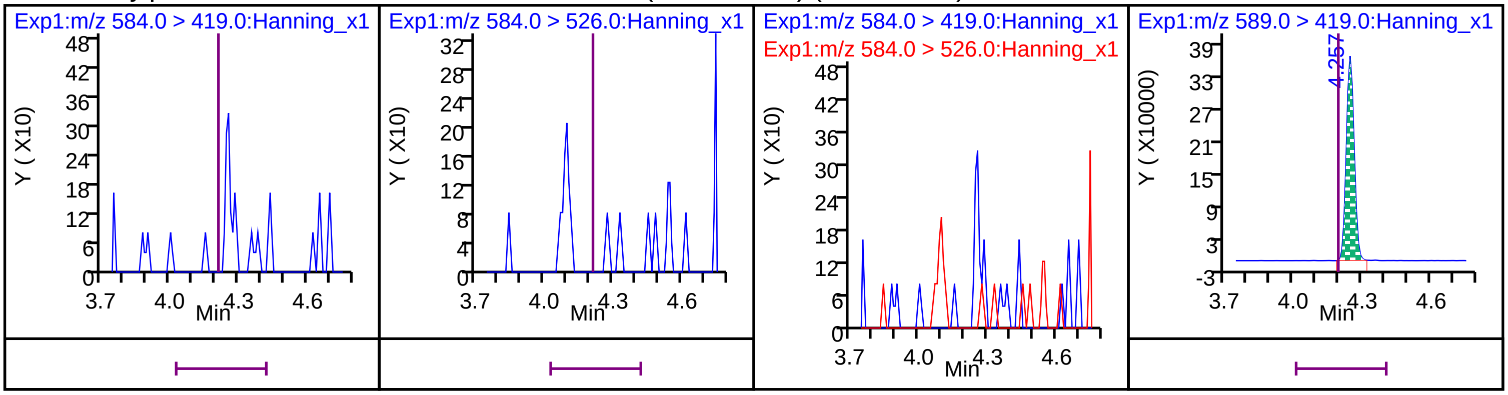


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

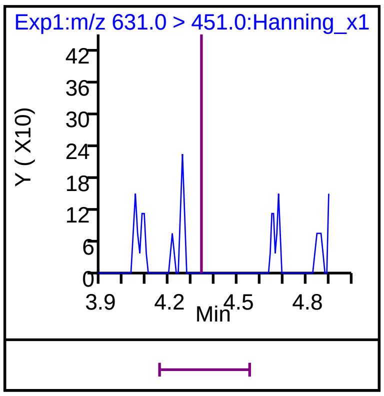


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND)

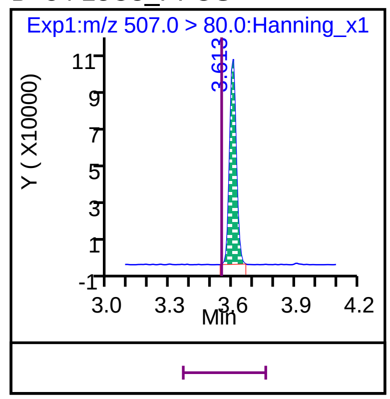
D 60 d5-EtFOSAA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

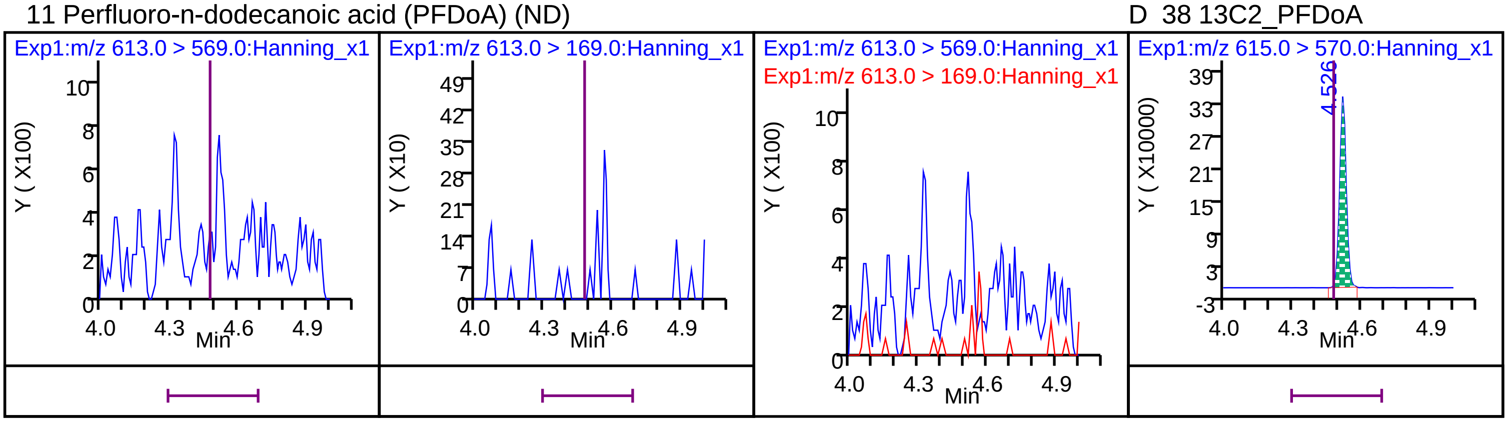


D 54 13C8_PFOS



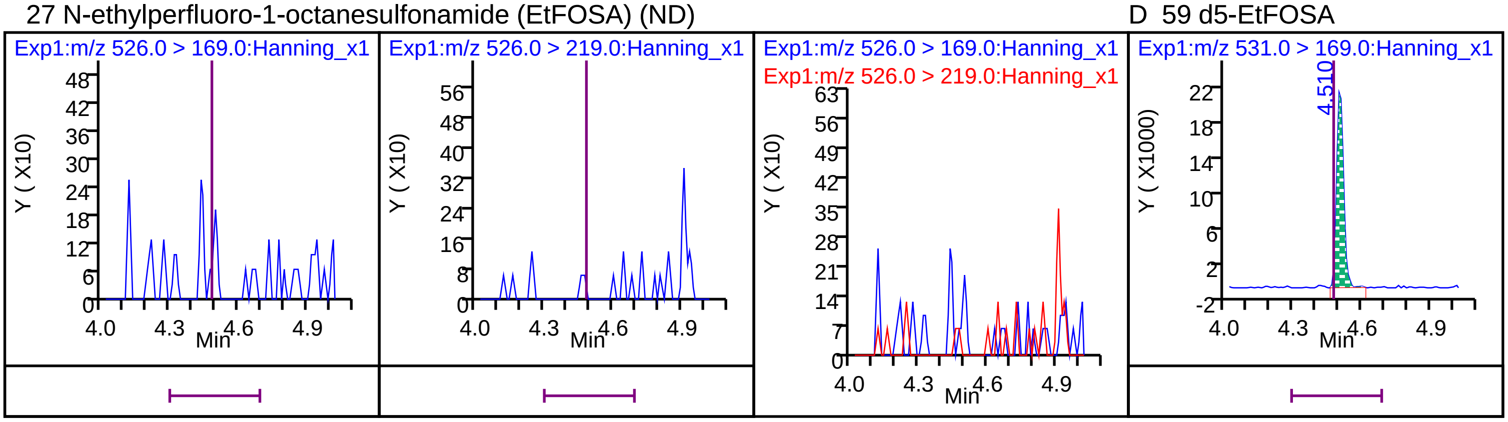
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

D 38 13C2_PFDoA



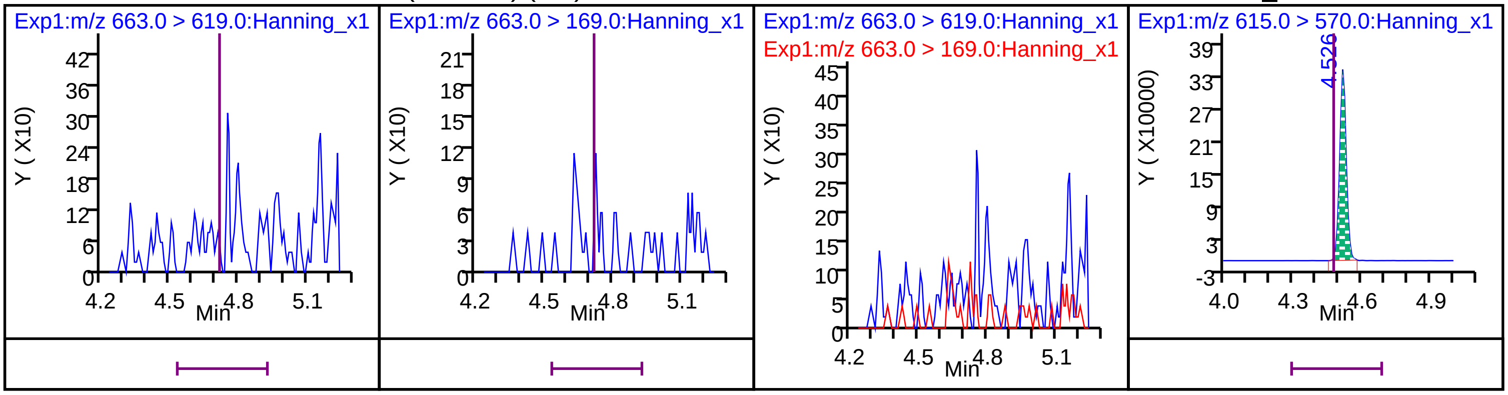
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

D 59 d5-EtFOSA

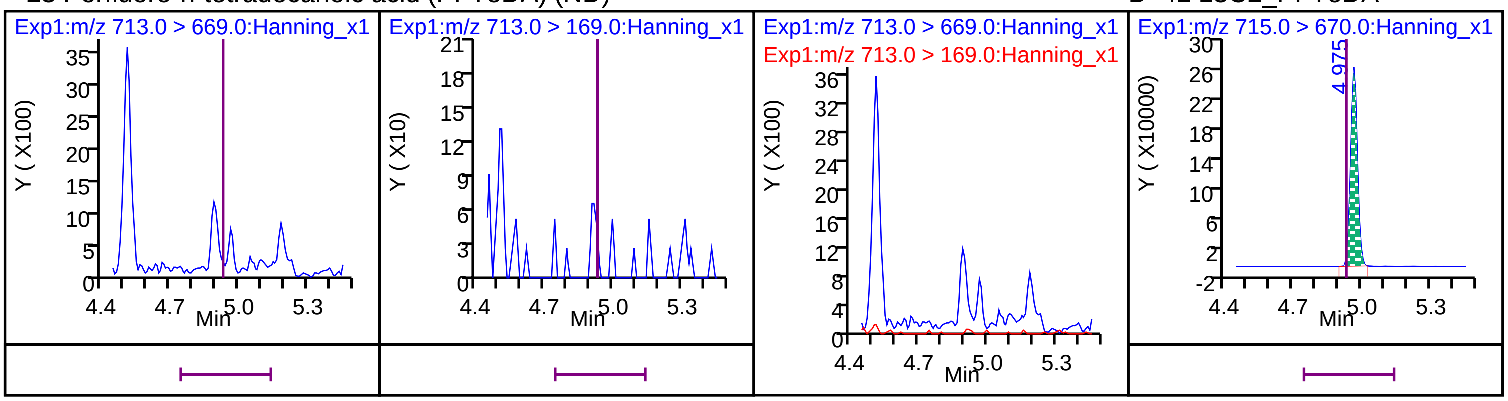


Report Date: 09-Nov-2021 13:31:13 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d

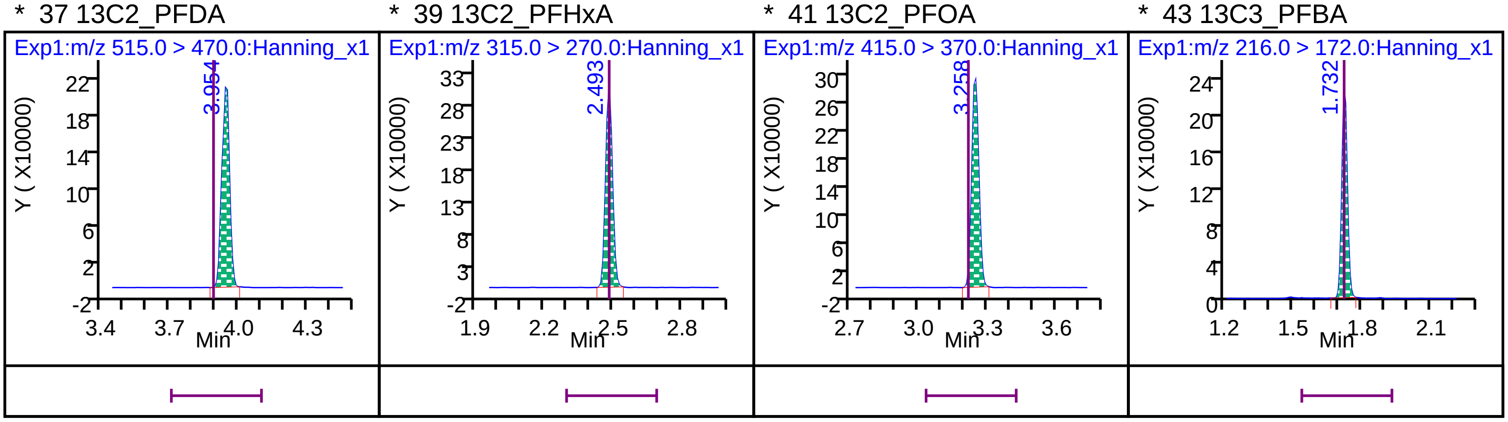
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



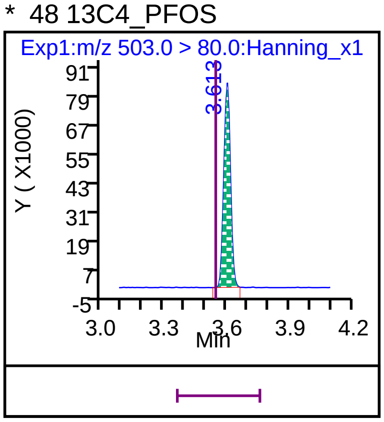
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:13 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

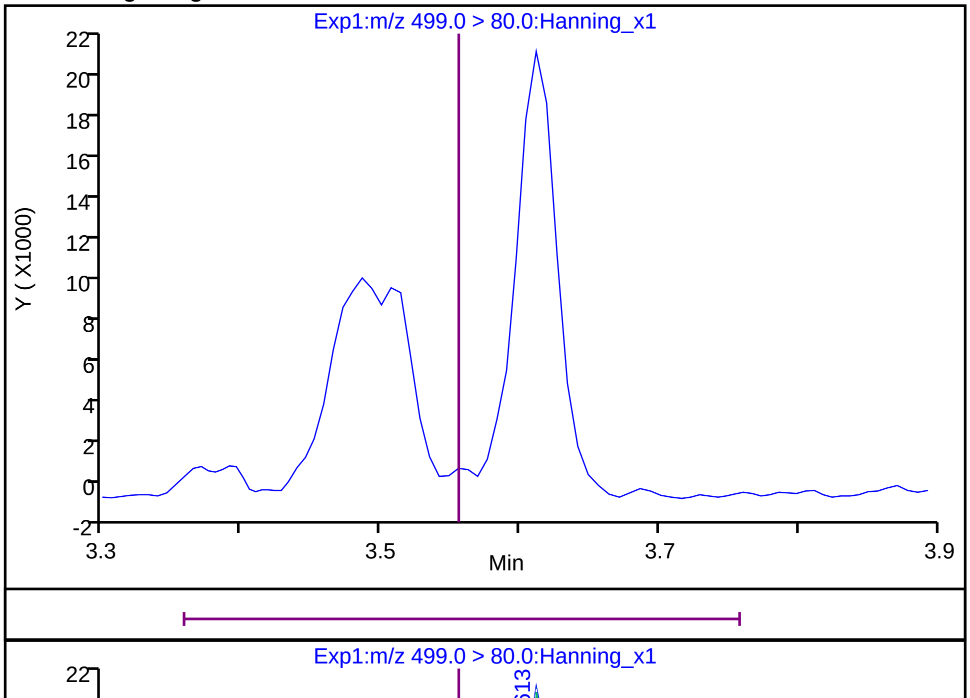
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d		
Injection Date:	06-Nov-2021 21:53:49	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-032.0-20211102	Lab ID:	WK03035-003
Sample Info:	WK03035-003		
Dil. Factor:	1	Operator:	Matthew M. Miller

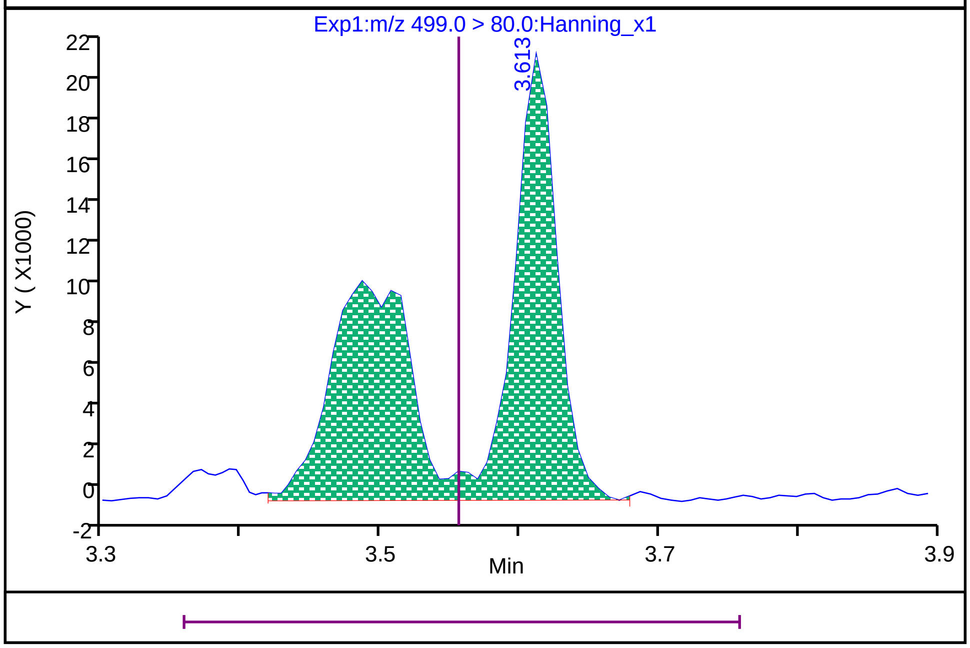
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.613
Area:	89337
Conc:	12.765
Conc Units:	ng/L



RT:	3.613
Area:	84700
Conc:	12.102
Conc Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:02:26

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

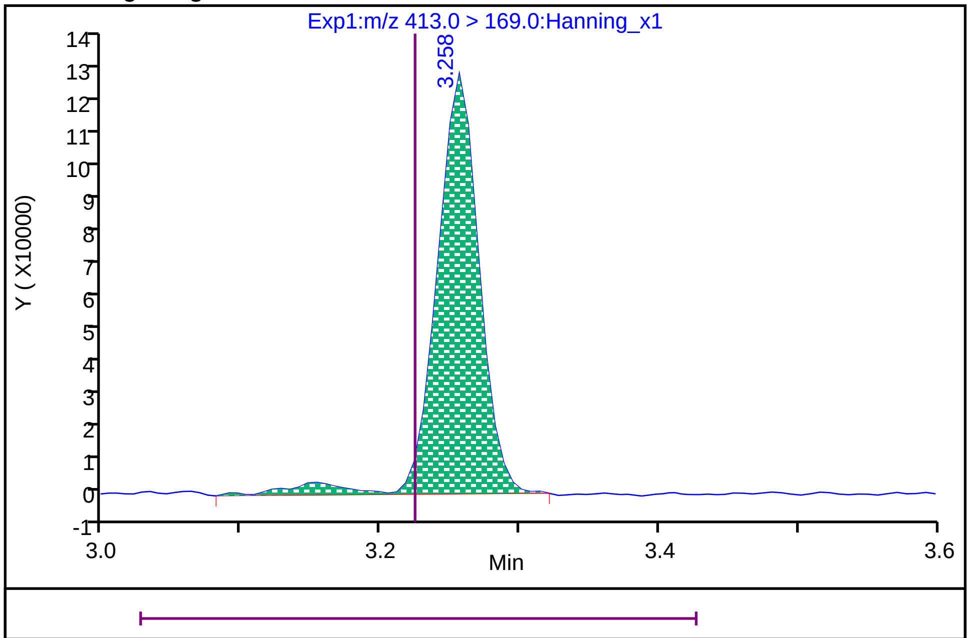
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621055.d		
Injection Date:	06-Nov-2021 21:53:49	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-032.0-20211102	Lab ID:	WK03035-003
Sample Info:	WK03035-003		
Dil. Factor:	1	Operator:	Matthew M. Miller

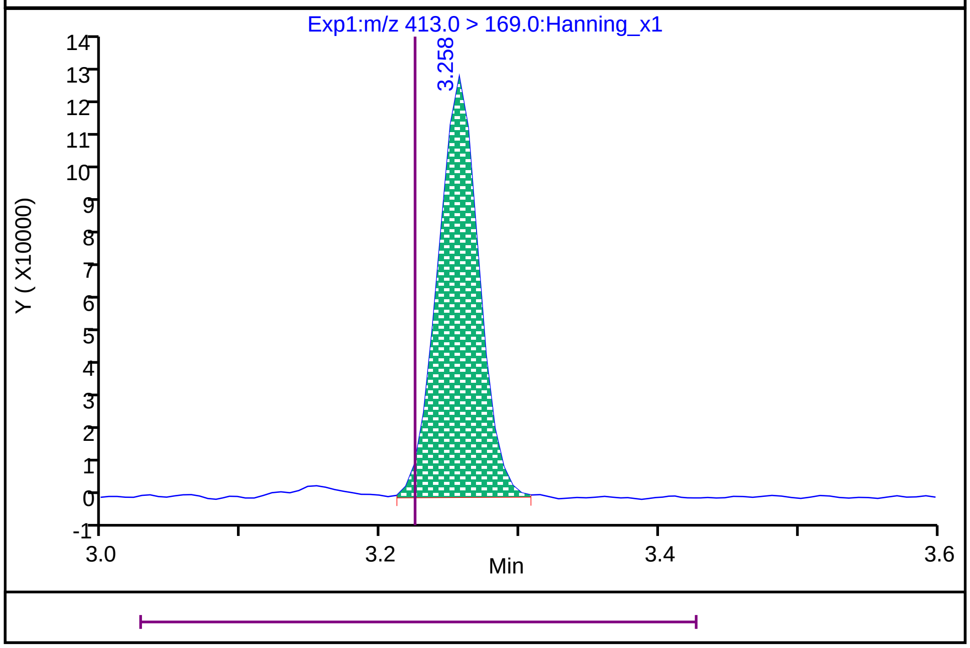
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.258
Area:	255841
Conc:	27.651
Conc Units:	ng/L



RT:	3.258
Area:	244009
Conc:	27.651
Conc Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:14:57

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921041.d		
Injection Date:	09-Nov-2021 22:23:19	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	34
Lab Sample ID:	WK03035-003	Lab Prep. Batch:	21582
Client ID:	SW3-DPT-0143-032.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-003	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0389681

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	282	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	361670	17	>100:1			1001.00	581.77	56	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.718	0/-1	598267	17	>100:1			1570.06	61.182		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.098	1	500598	15	>100:1			1001.00	875.80	87.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.098	1/0	1906868	14	>100:1			3387.82	132.02		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	162868	14	>100:1			1001.00	941.60	94.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													J
298.9 > 80	44	2.151	2.162	0/-1	9138	13	31:1	Target = 3.53		45.037	1.7550		M
298.9 > 99	44	2.151	2.162		2700	16	3.6:1	3.38 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													J
349 > 80	44	2.496	2.505	0/-1	4183	12	9.7:1	Target = 3.10		27.740	1.0810		M
349 > 99	44	2.496	2.505		2165	10	7.3:1	1.93 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	220589	15	>100:1			5005.00	9741.73	213.5*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.424	2.424	1/0	17215	14	76:1	Target = 1.75		177.19	6.9048		
327 > 81	63	2.424	2.424		10488	21	9.6:1	1.64 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	687926	15	>100:1			1001.00	1056.26	102.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	1/1	1503631	17	>100:1	Target = 18.91		2104.27	81.999		
313 > 119	49	2.460	2.469		76785	14	>100:1	19.58 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1089087	16	>100:1			5005.00	4699.28	92.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	595415	16	>100:1			1001.00	1121.44	110.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	654609	17	>100:1	Target = 3.80		1001.53	39.028		
363 > 169	47	2.845	2.845		167354	16	>100:1	3.91 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	0	127598	16	>100:1			1001.00	1015.59	112	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	0/0	34933	26	>100:1	Target = 2.89	5.00	249.27	9.7137		
399 > 99	45	2.864	2.864		9395	22	39:1	3.71 (1.44-4.34)	8.50				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.247		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	150912	20	>100:1			5005.00	8384.02	145.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.213	0/0	110478	21	>100:1	Target = 1.75		1547.80	60.315		
427 > 81	64	3.208	3.213		59505	19	>100:1	1.85 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.234	3.240	0	577067	19	>100:1			1001.00	1099.85	105.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.240	0/0	424121	17	>100:1	Target = 2.89		717.92	27.976		
413 > 169	53	3.234	3.240		147333	20	>100:1	2.87 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.617	3.623	0	122039	18	>100:1			1001.00	985.43	108.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.617	3.623	0/0	33482	37	>100:1	Target = 3.30	1.22	230.65	8.9880		
499 > 99	54	3.617	3.623		9568	35	38:1	3.49 (1.65-4.95)	2.05				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	709097	19	>100:1			1001.00	1107.31	109.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													J
463 > 419	56	3.625	3.623	1/1	68080	17	>100:1	Target = 6.51		89.162	3.4745		
463 > 169	56	3.625	3.623		10941	20	59:1	6.22 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	700507	15	>100:1			1001.00	1218.99	111	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	121147	20	>100:1			5005.00	7009.00	131	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.964	3.981	-1/0	8335	21	53:1	Target = 1.94		152.39	5.9385		
527 > 81	65	3.964	3.981		5065	13	9.2:1	1.64 (0.97-2.91)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.134	4.139	0	748767	18	>100:1			5005.00	4955.03	105.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.288	4.294	0	653711	15	>100:1			5005.00	5047.45	95.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.288	4.294	0	671370	16	>100:1			1001.00	1114.77	96.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.488	0	26686	13	>100:1			1001.00	620.61	62.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	703834	16	>100:1			1001.00	1172.40	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.038	5.042	0	602936	19	>100:1			1001.00	741.63	63.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	992198	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	840123	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.234	3.240	0	726970	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.711	1	407908	17	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.609	3.623	0	155070	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

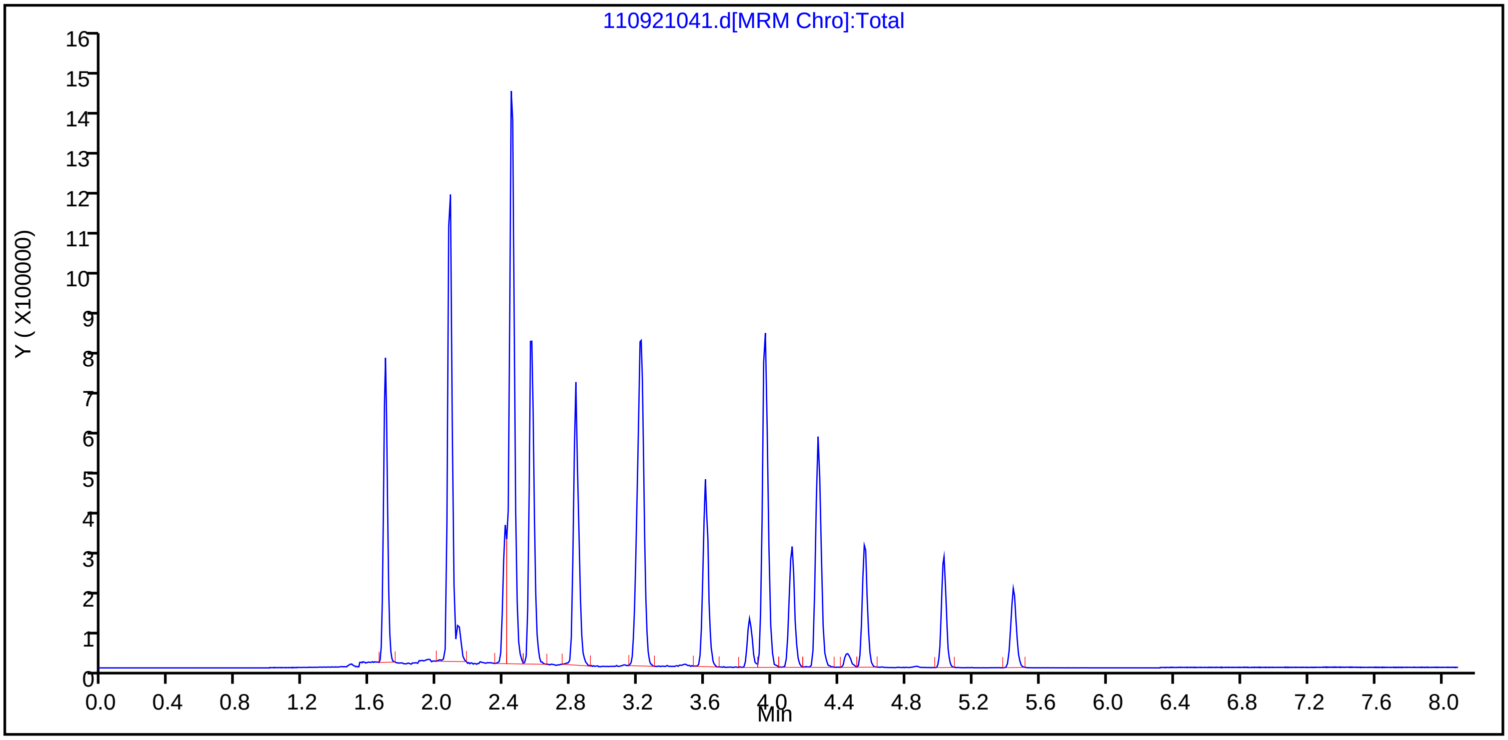
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

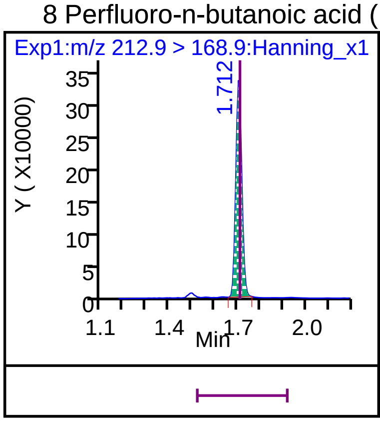
Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

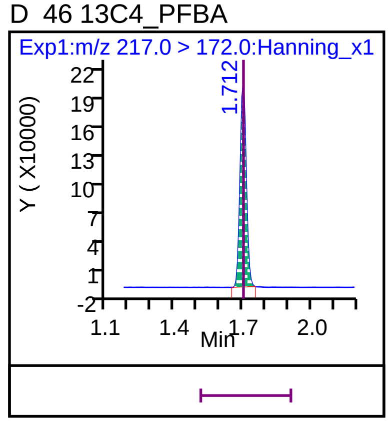
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921041.d		
Injection Date:	09-Nov-2021 22:23:19	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0143-032.0-20211102	Lab ID:	WK03035-003
Sample Info:	WK03035-003		
Dil. Factor:	1	Operator:	Justin Gavin



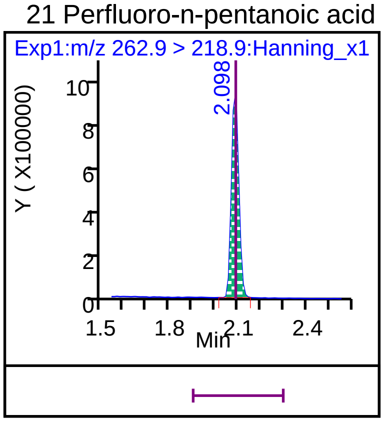
8 Perfluoro-n-butanoic acid (PFBA)



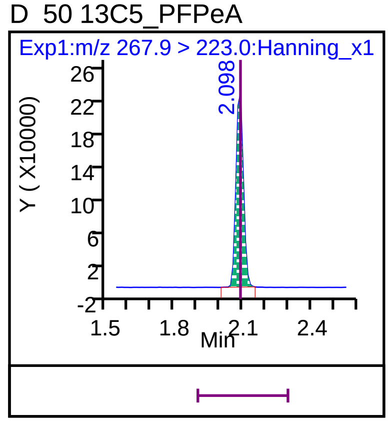
D 46 13C4_PFBA



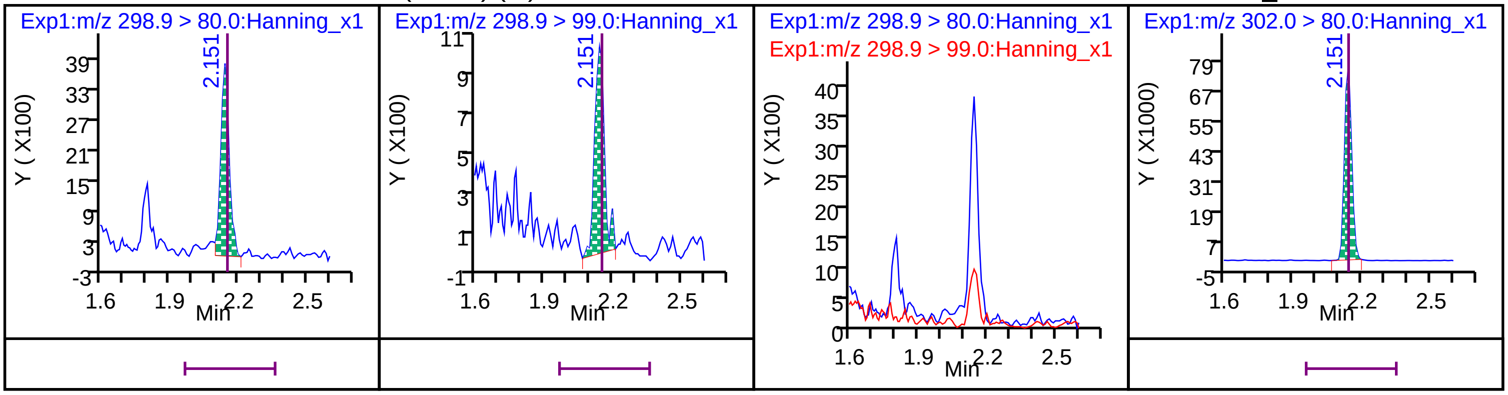
21 Perfluoro-n-pentanoic acid (PFPeA)



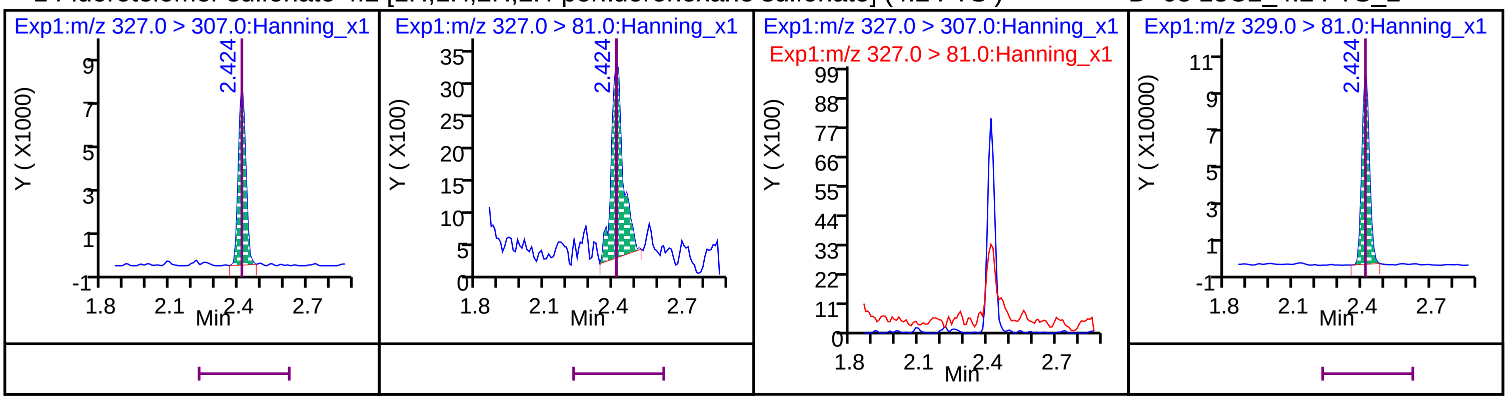
D 50 13C5_PFPeA



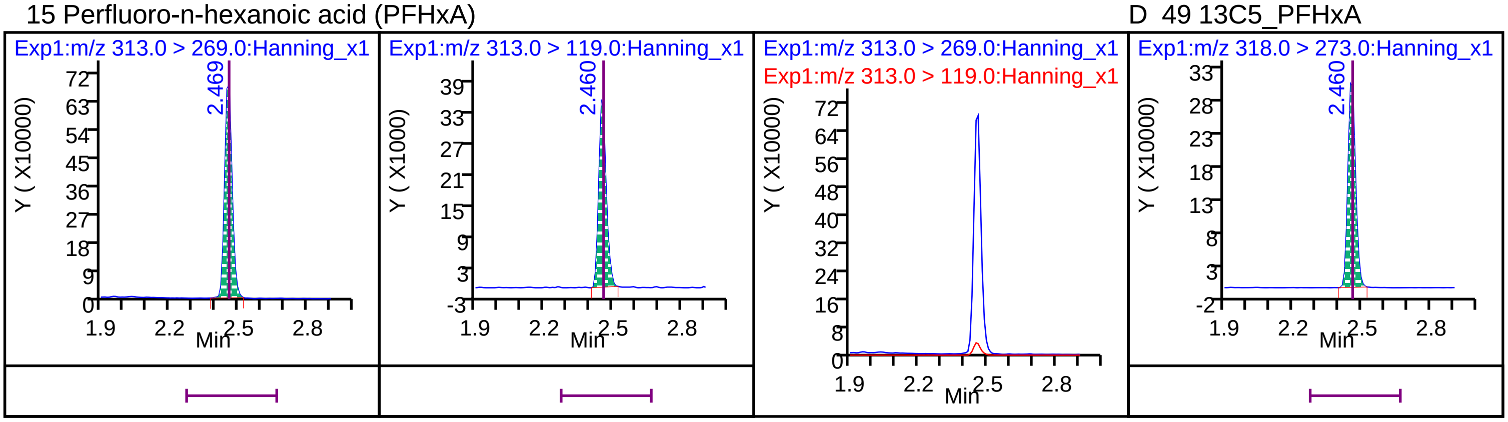
7 Perfluoro-1-butanesulfonate (PFBS) (M) D 44 13C3_PFBS



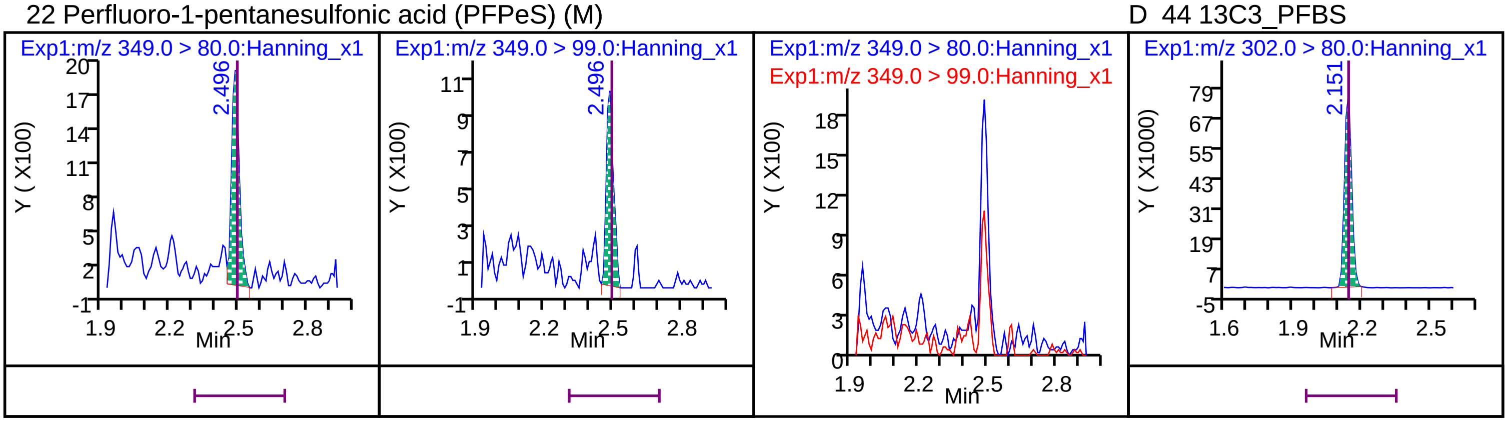
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

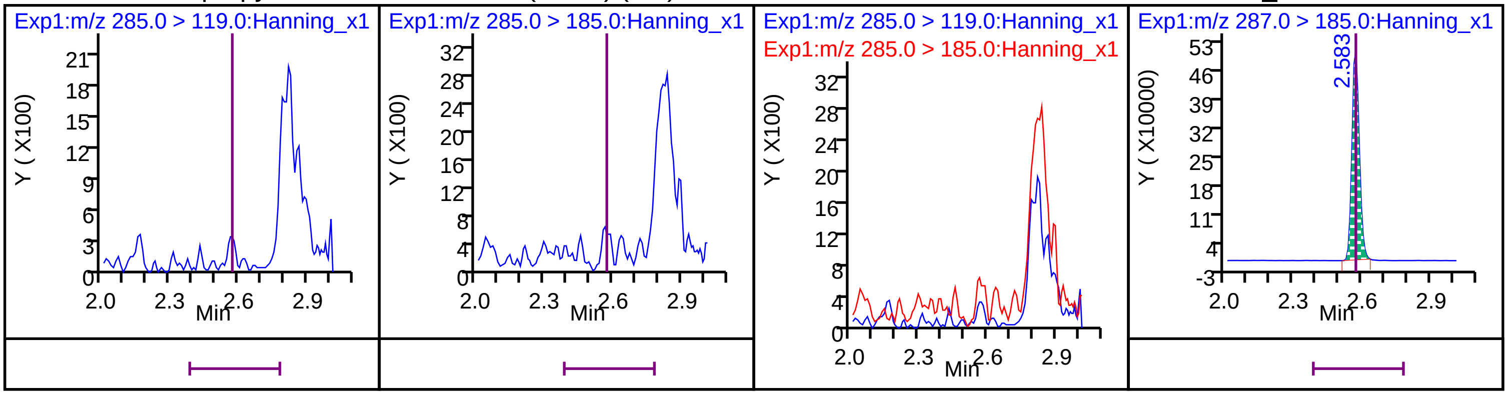


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (M) D 44 13C3_PFBS

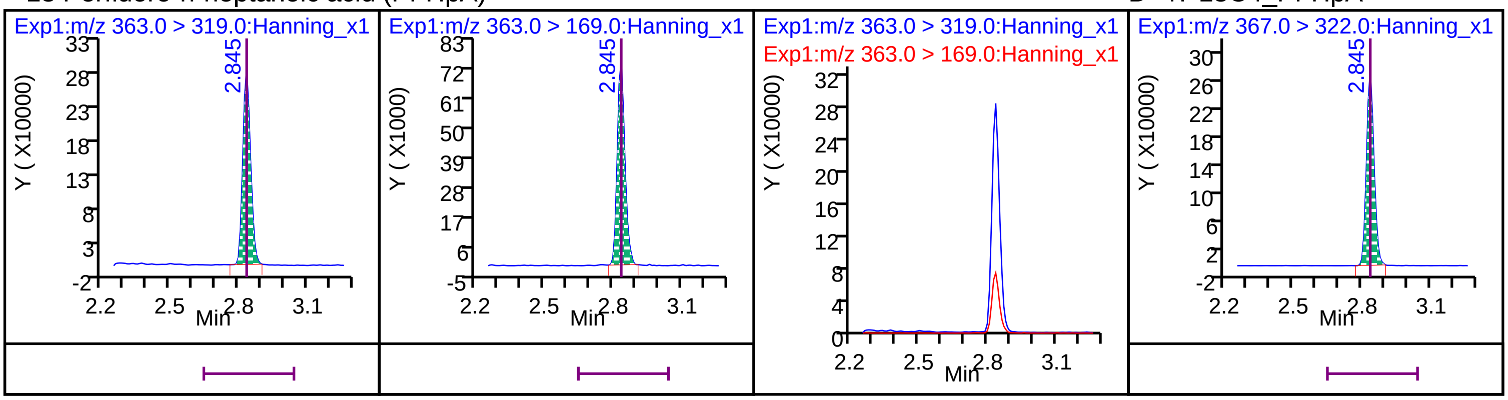


Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921041.d

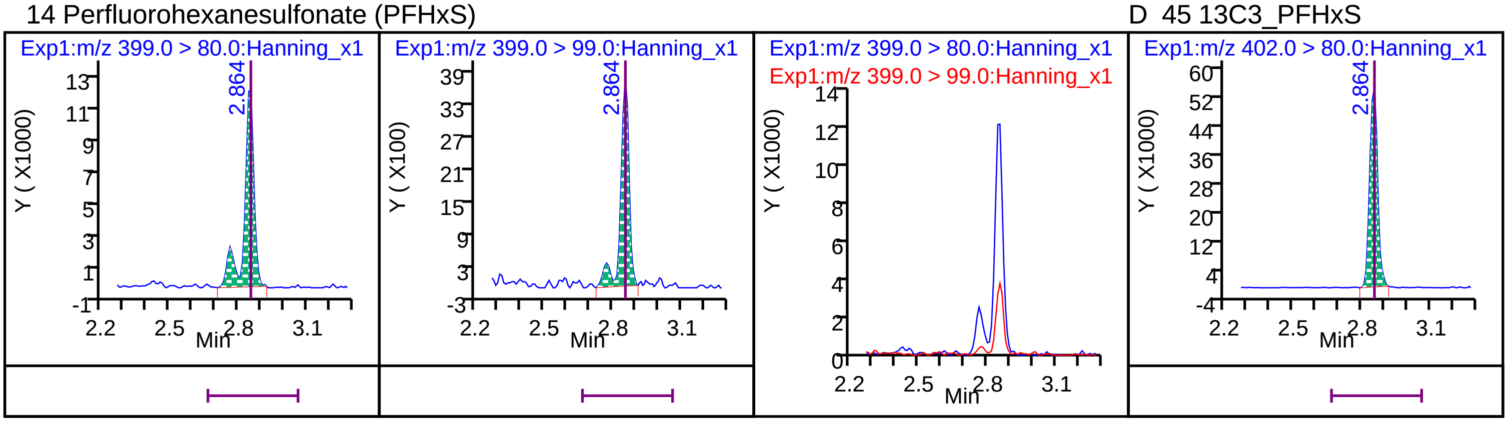
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



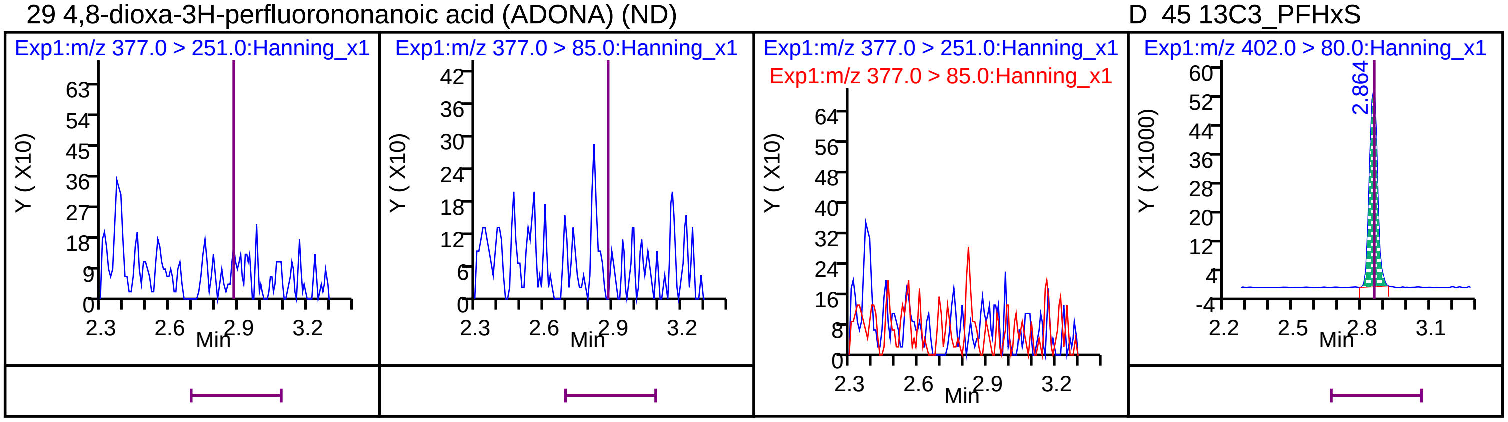
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



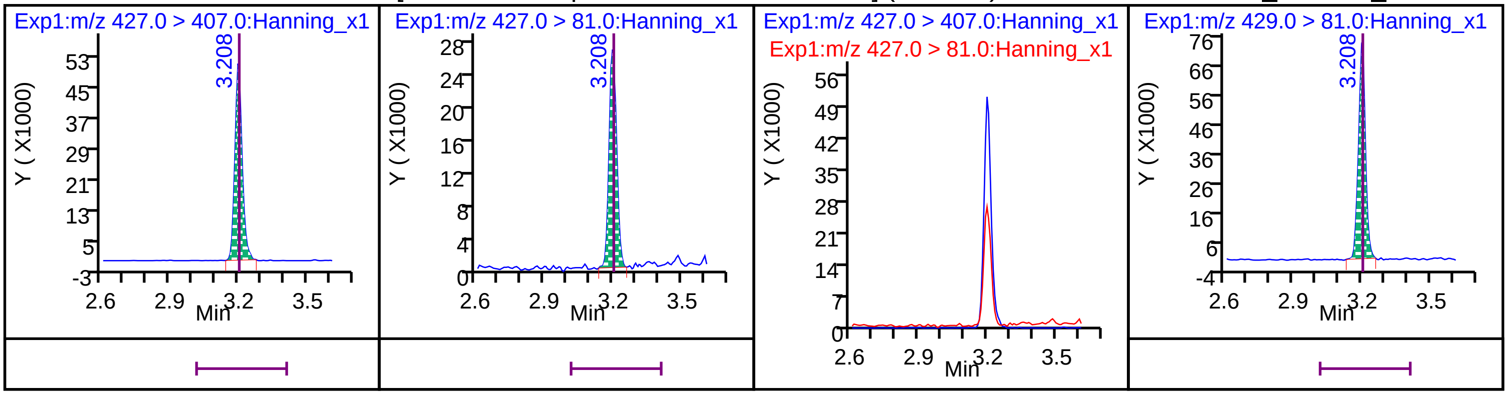
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



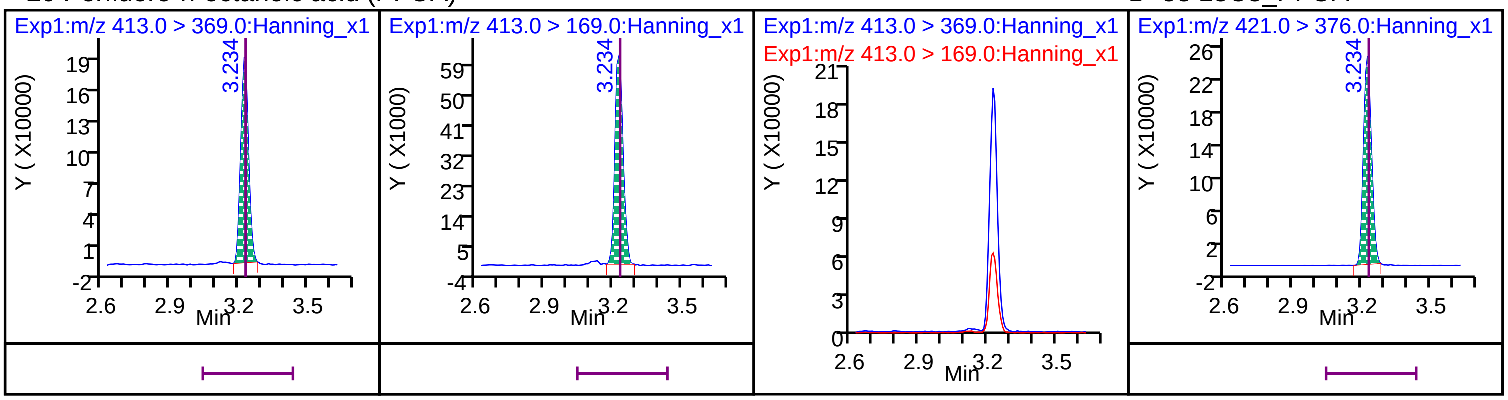
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



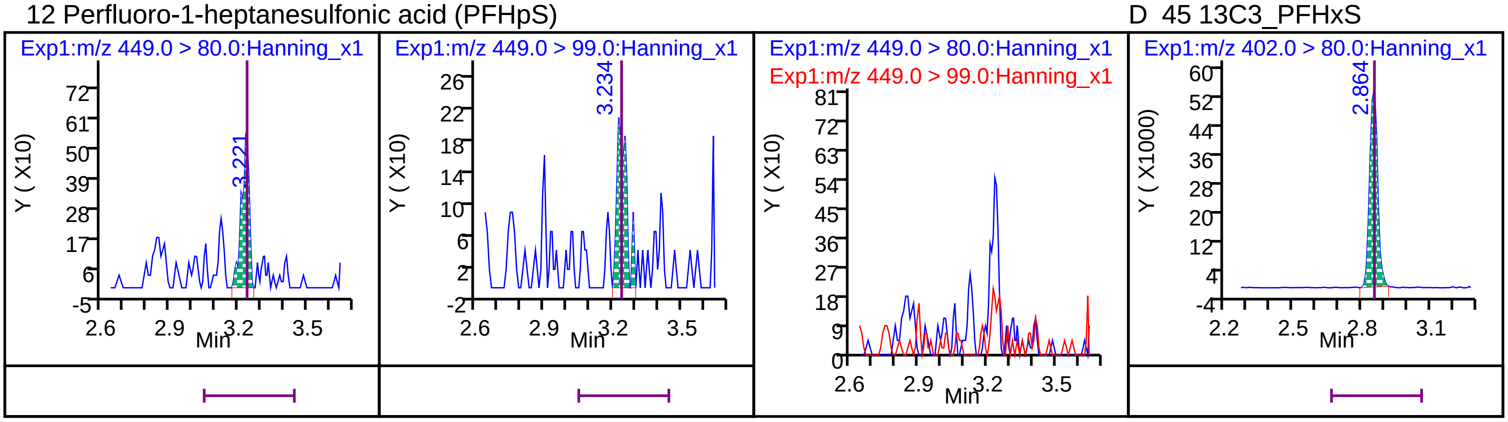
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



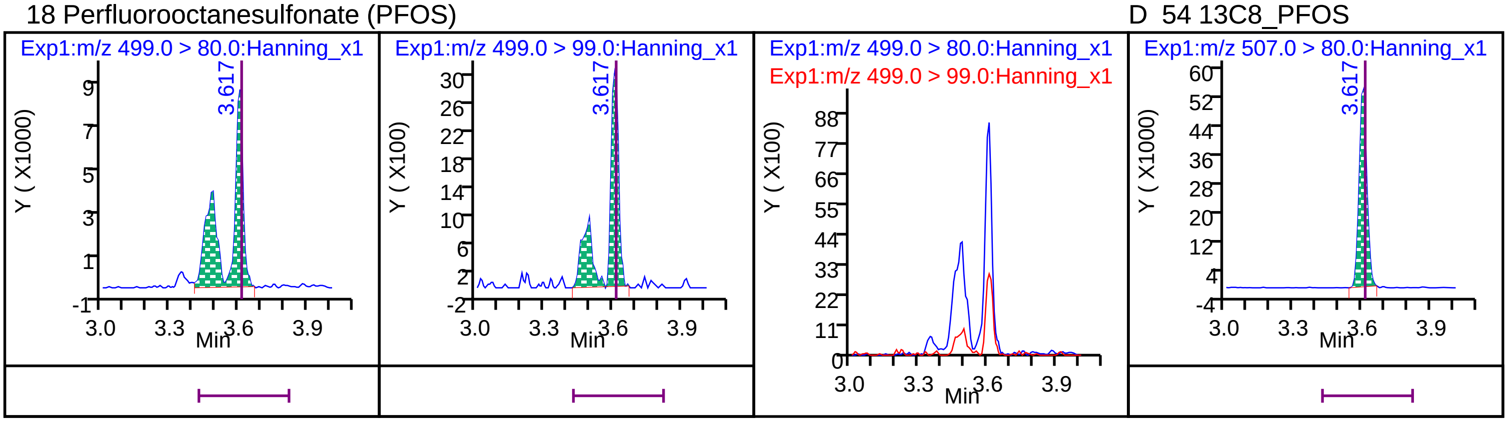
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



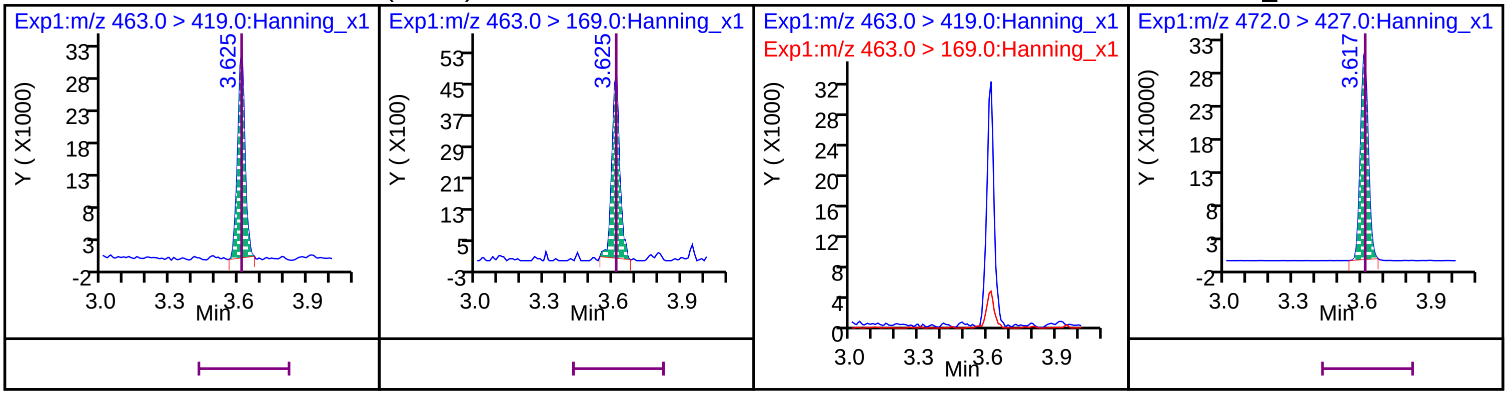
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



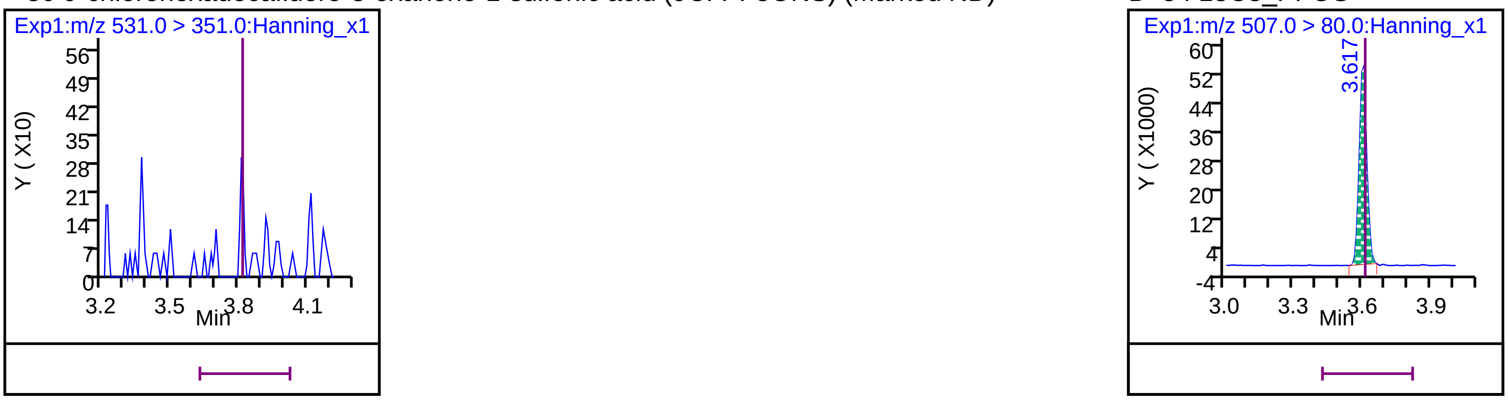
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



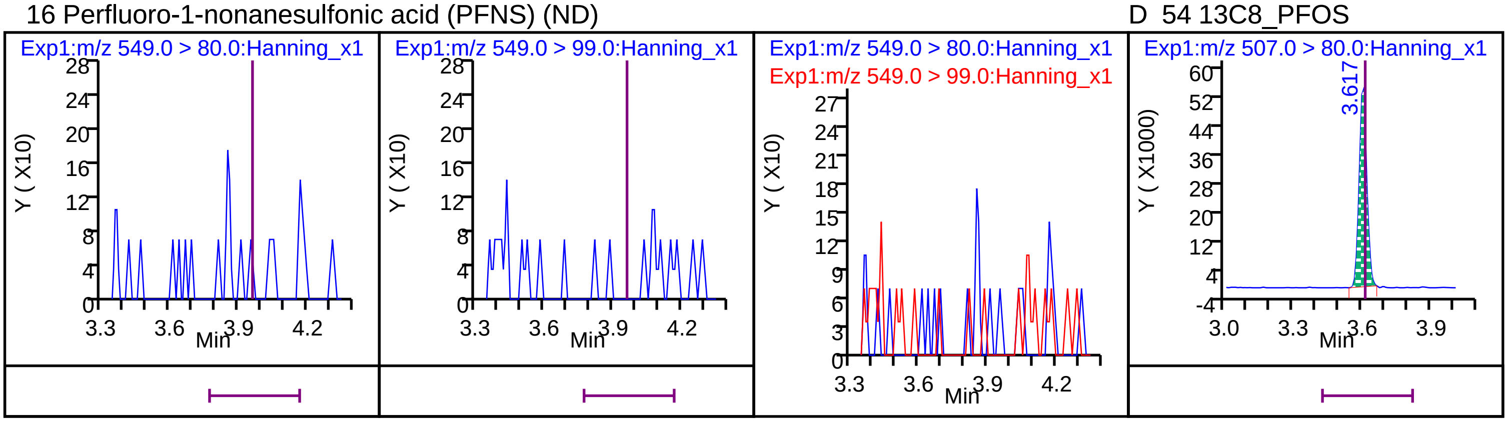
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



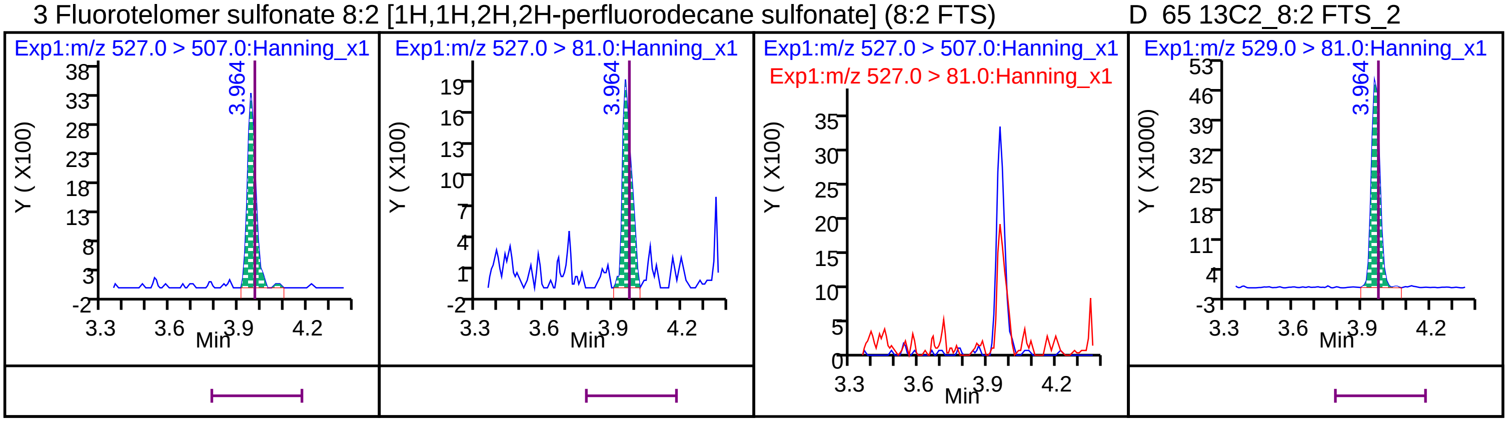
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



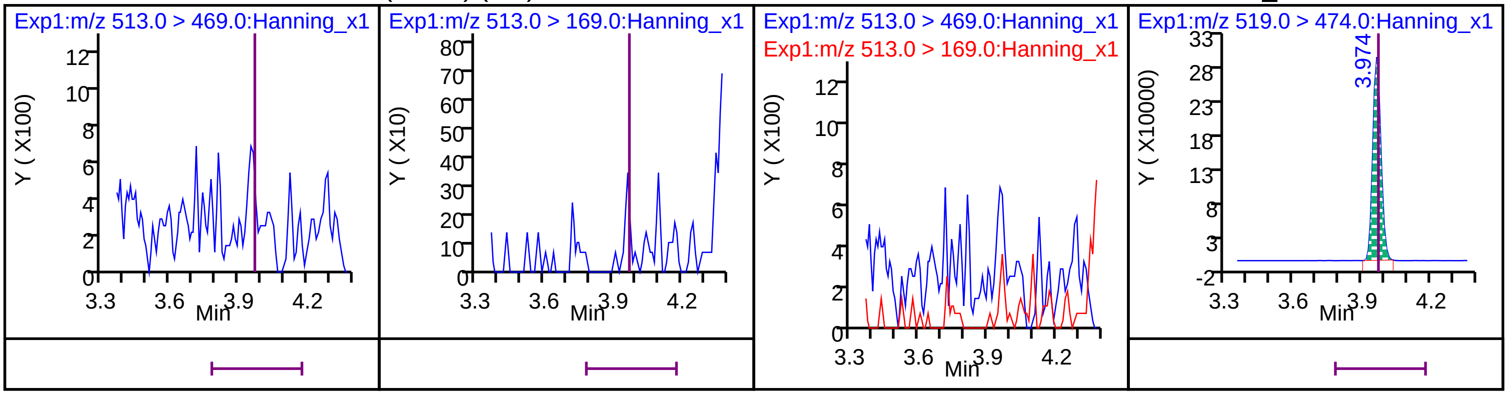
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



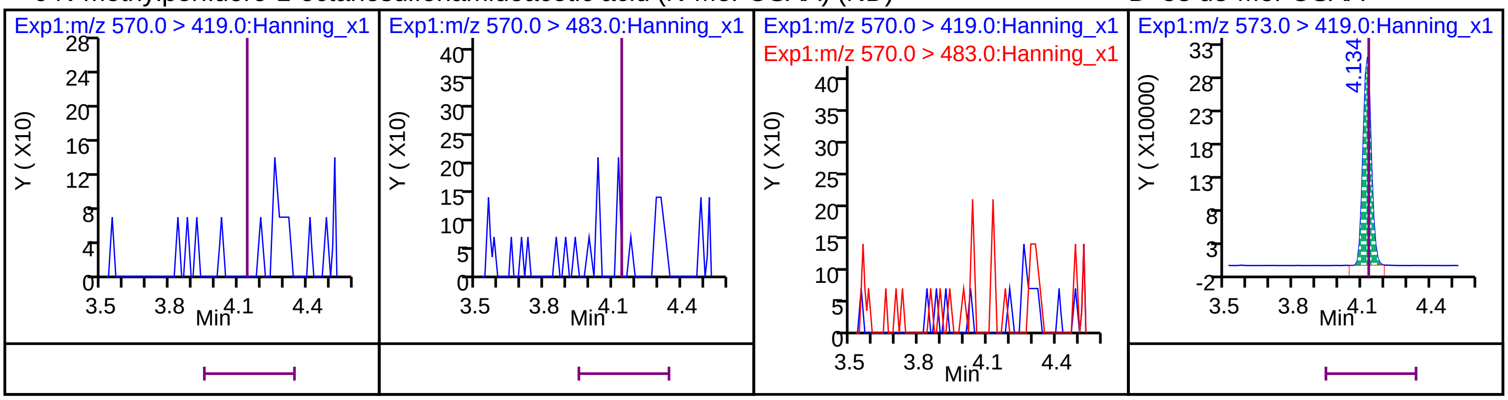
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



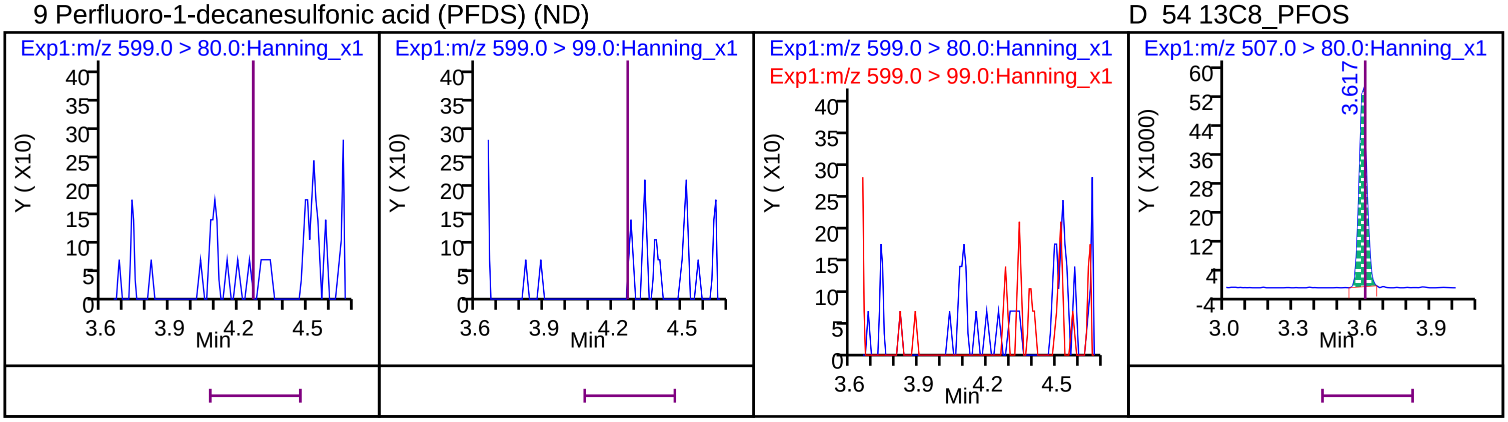
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



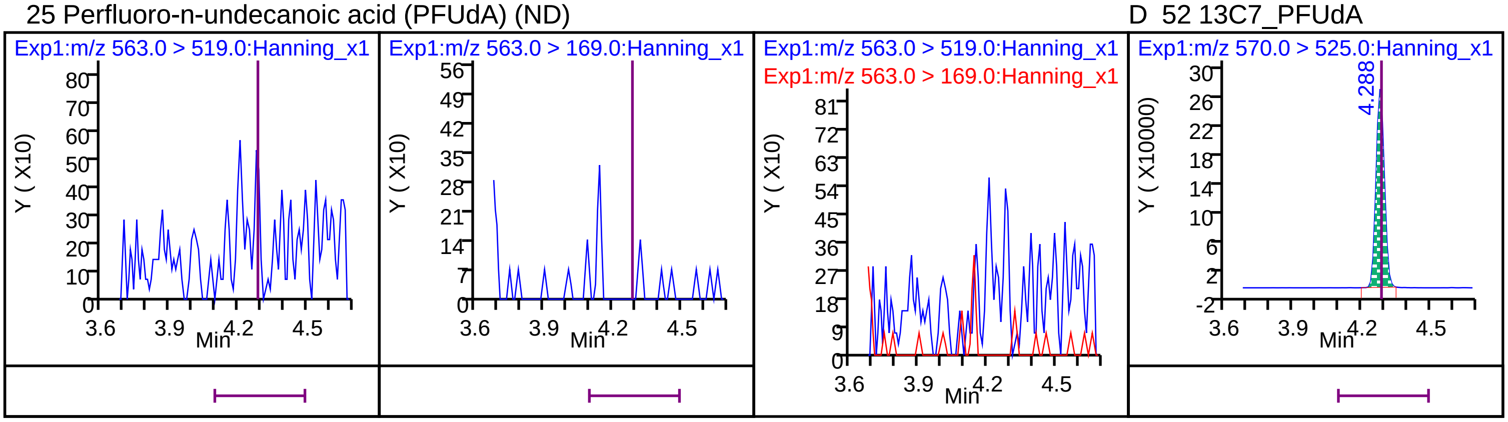
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



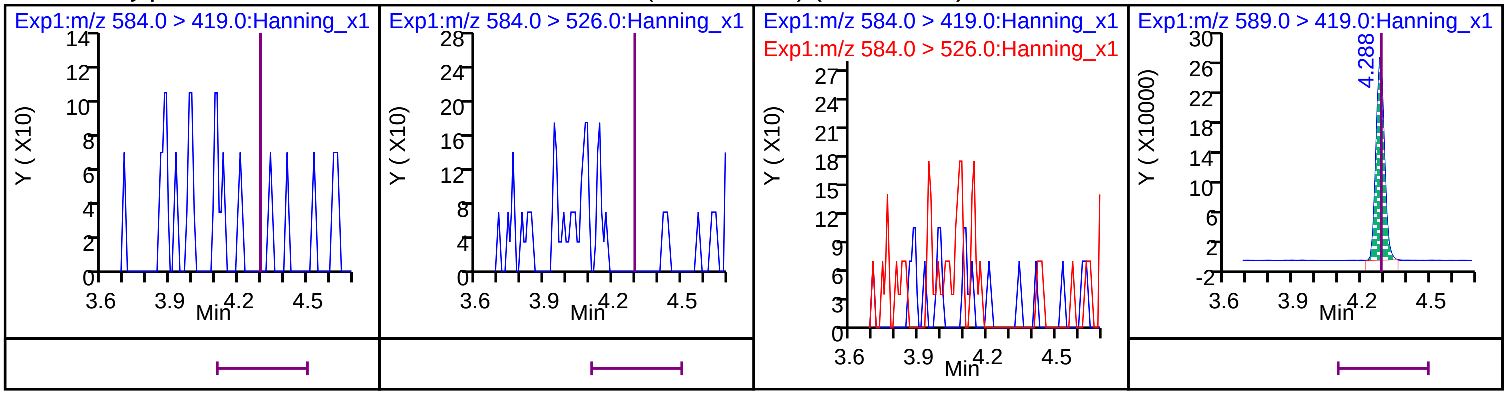
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



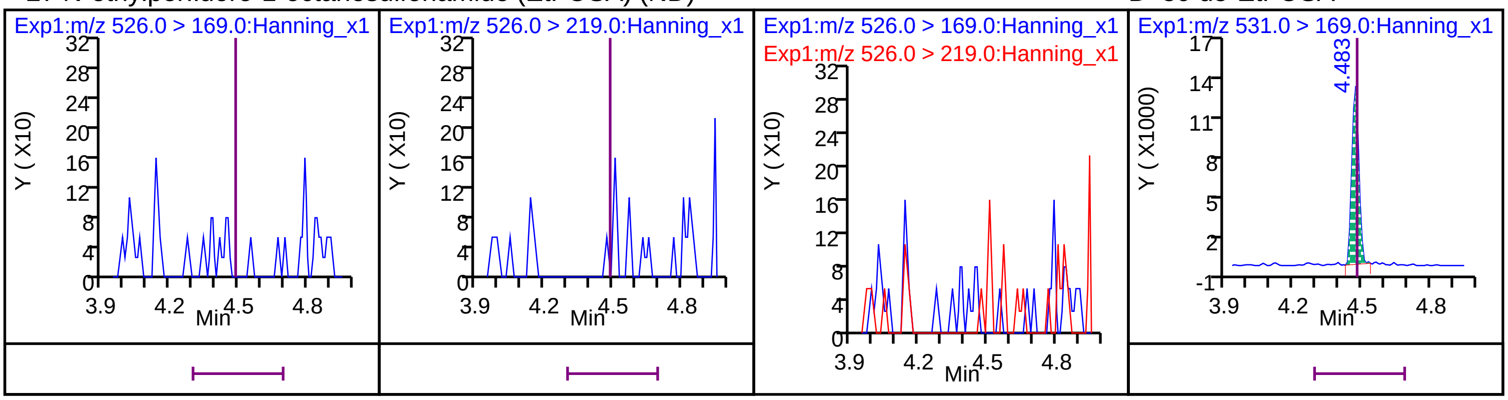
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



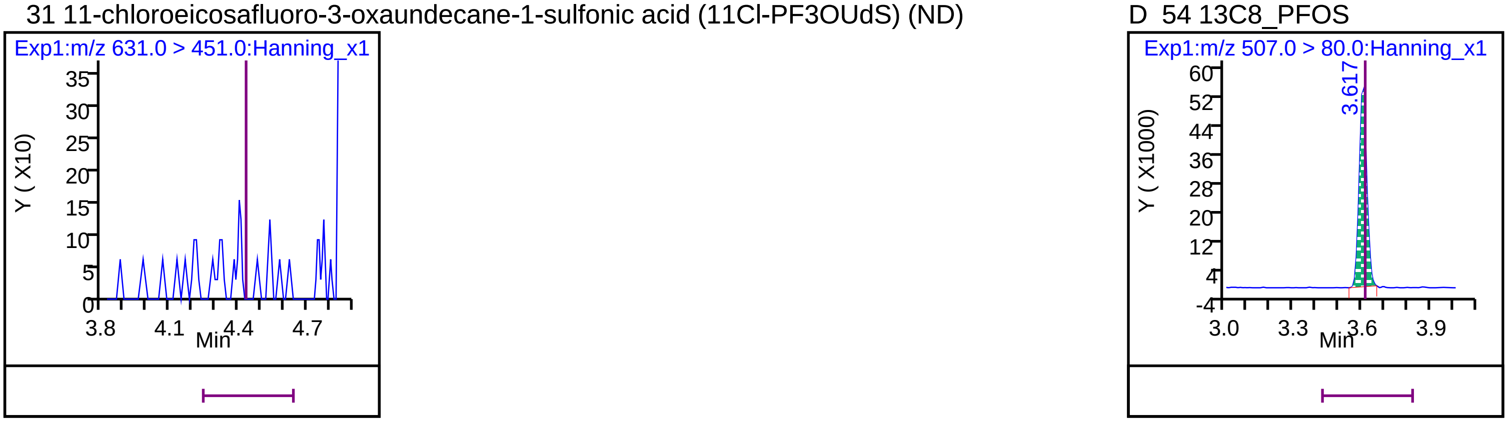
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



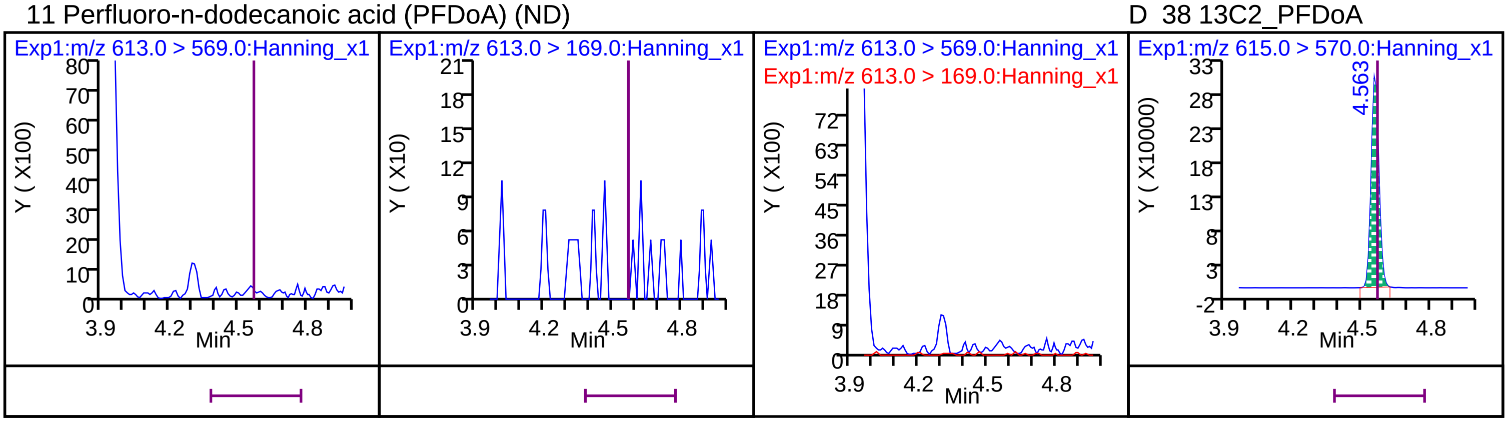
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



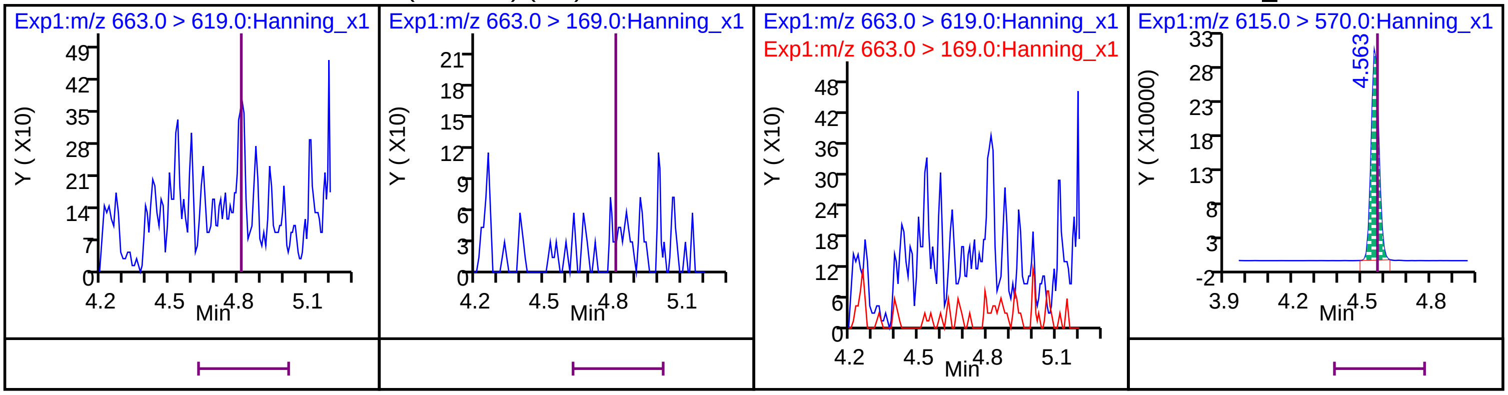
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ND) D 54 13C8_PFOS



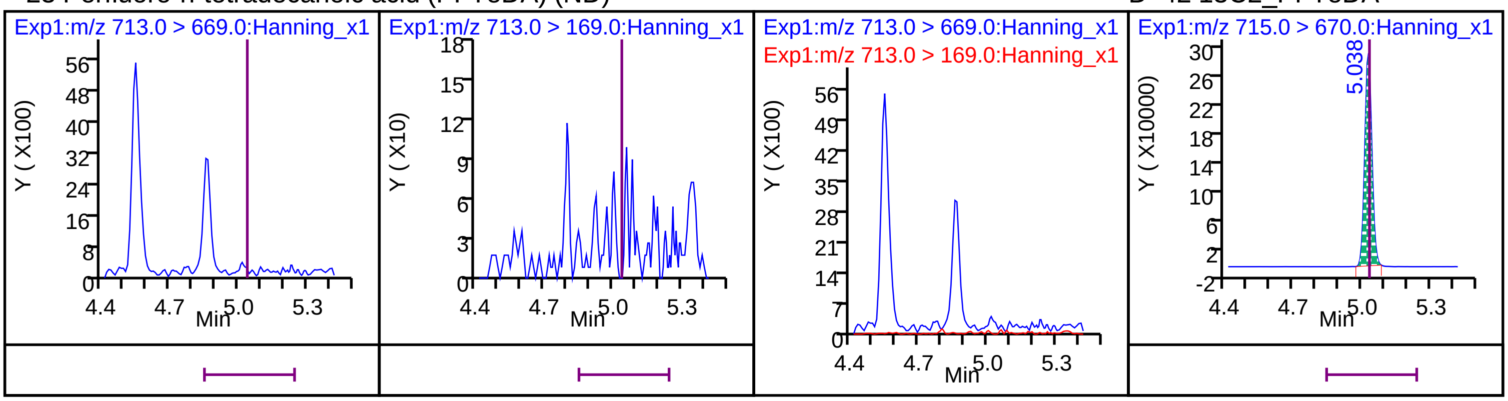
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



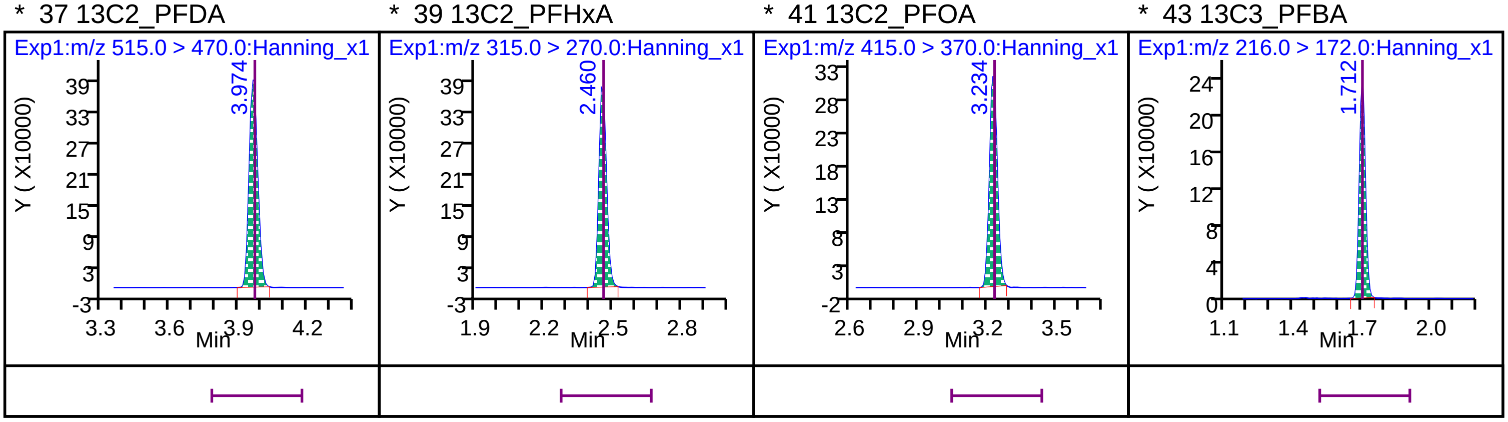
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



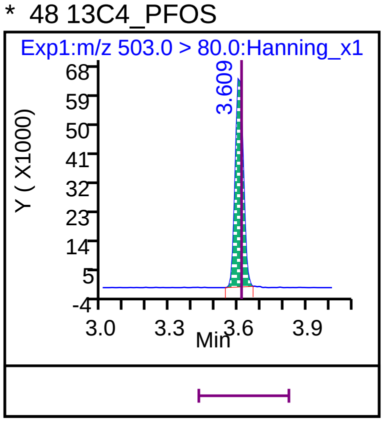
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

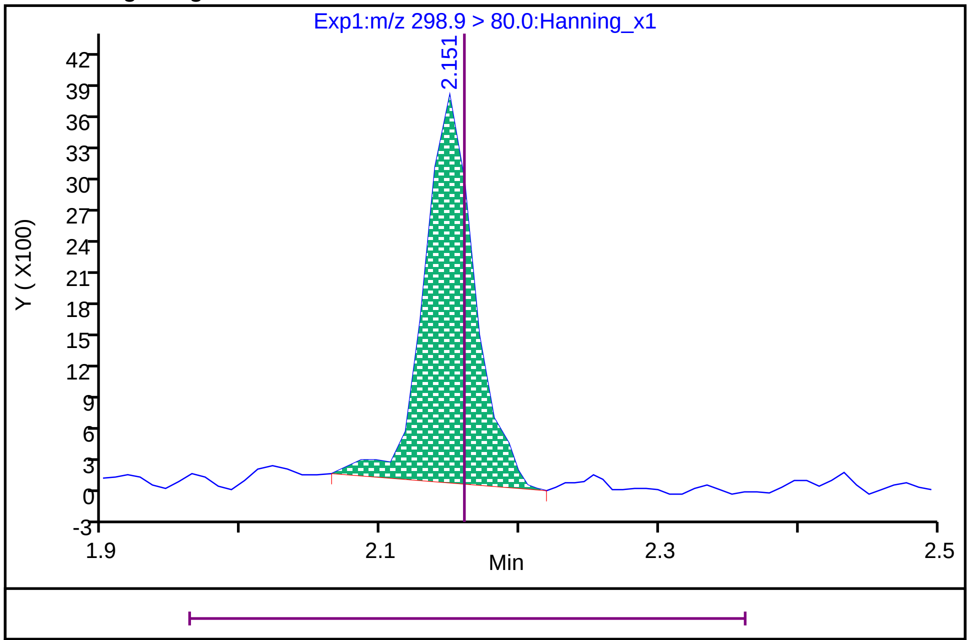
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921041.d		
Injection Date:	09-Nov-2021 22:23:19	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0143-032.0-20211102	Lab ID:	WK03035-003
Sample Info:	WK03035-003		
Dil. Factor:	1	Operator:	Justin Gavin

7 PFBS, CAS: 375-73-5

Processing Integration Results

RT:	2.151
Area:	9115
Conc:	1.7506
Conc Units:	ng/L



RT:	2.151
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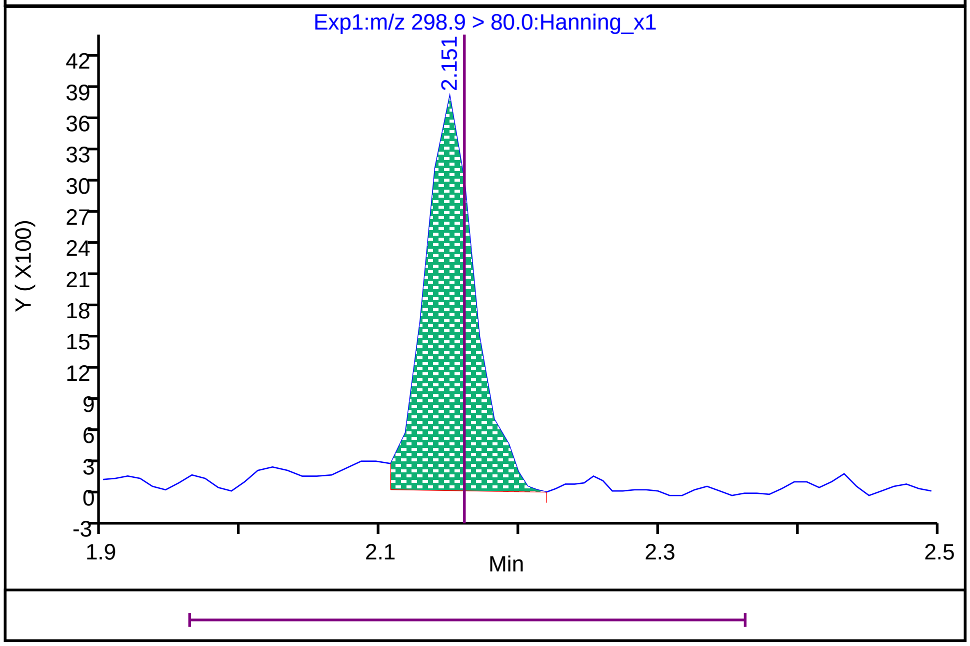
Conc:	1.7550
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 17:54:08

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

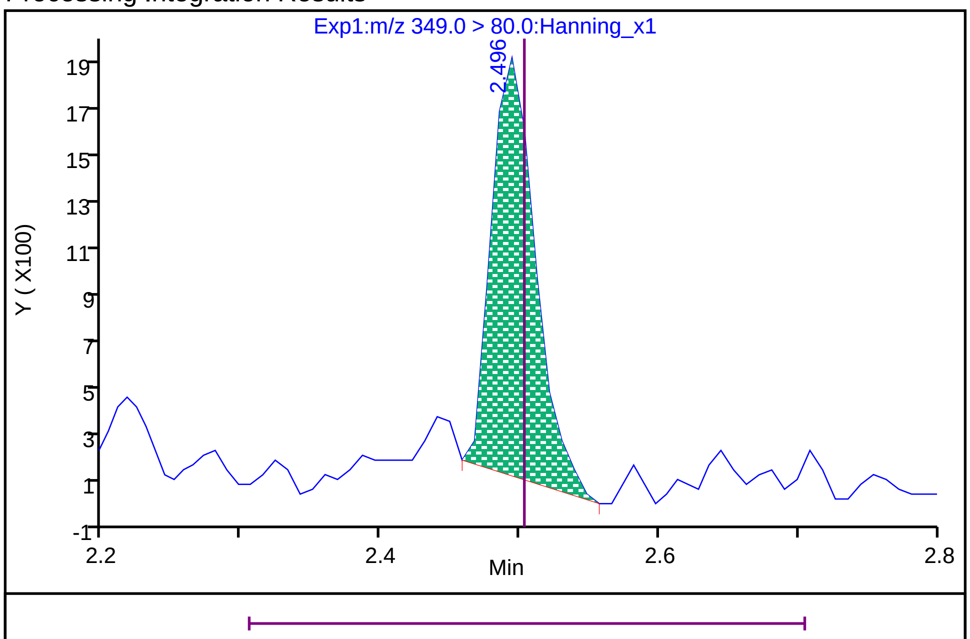
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921041.d

Injection Date:	09-Nov-2021 22:23:19	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0143-032.0-20211102	Lab ID:	WK03035-003
Sample Info:	WK03035-003		
Dil. Factor:	1	Operator:	Justin Gavin

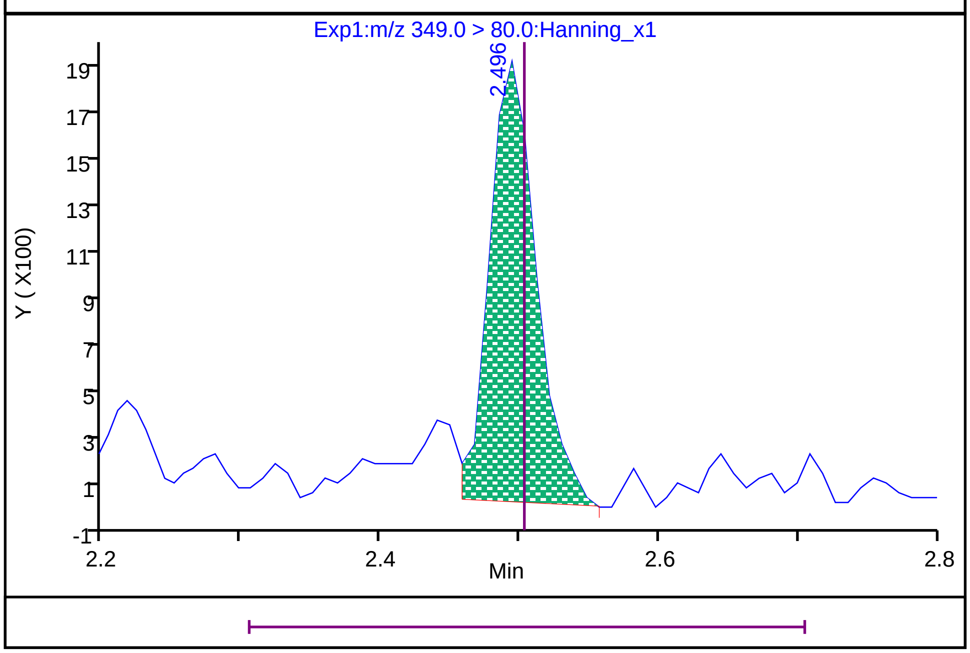
22 PFPeS, CAS: 2706-91-4

Processing Integration Results

RT: 2.496
Area: 3765
Conc: 0.97297
Conc Units: ng/L



RT: 2.496
Area: 4183
Conc: 1.0810
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 17:54:18
Audit Action: Mint
Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-004
Description: SW3-DPT-0143-042.0-20211102	Matrix: Aqueous
Date Sampled: 11/02/2021 0945	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0242	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2233	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	6.9	V	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.3	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.98	I	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.5	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.2		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.2	I	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	207	50-150	N	221	50-150
13C2_6:2FTS	N	157	50-150		145	50-150
13C2_8:2FTS		116	50-150		123	50-150
13C2_PFDoA		78	50-150		93	50-150
13C2_PFTeDA		65	50-150		70	50-150
13C3_PFBS		77	50-150		95	50-150
13C3_PFHxS		90	50-150		117	50-150
13C3-HFPO-DA		82	50-150		95	50-150
13C4_PFBA		51	50-150		62	50-150
13C4_PFHpA		88	50-150		111	50-150
13C5_PFHxA		89	50-150		102	50-150
13C5_PFPeA		80	50-150		93	50-150
13C6_PFDA		90	50-150		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
Q = Out of holding time
V = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
D = Dilution > 1
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-004	
Description: SW3-DPT-0143-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 0945	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		84	50-150		93	50-150
13C8_PFOA		93	50-150		103	50-150
13C8_PFOS		87	50-150		108	50-150
13C9_PFNA		78	50-150		103	50-150
d-EtFOSA		68	50-150		67	50-150
d5-EtFOSAA		102	50-150		92	50-150
d3-MeFOSAA		104	50-150		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d		
Injection Date:	05-Nov-2021 02:42:34	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	58
Lab Sample ID:	WK03035-004	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0143-042.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-004	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0396715

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	277	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.714	0	600244	17	>100:1			1001.00	557.47	50.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													J
212.9 > 168.9	46	1.715	1.714	1/1	41792	13	11:1			63.369	2.5140		M
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	0	869537	15	>100:1			1001.00	867.01	79.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	0/0	145387	11	5.1:1			156.21	6.1970		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	278526	15	>100:1			1001.00	857.61	76.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													J
298.9 > 80	44	2.141	2.141	1/0	13297	12	4.3:1	Target = 3.80		33.451	1.3270		
298.9 > 99	44	2.141	2.141		4732	13	3.7:1	2.81 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													J
349 > 80	44	2.493	2.493	1/0	6941	12	10:1	Target = 3.42		24.792	0.98353		
349 > 99	44	2.485	2.493		1908	12	3.7:1	3.63 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	448526	17	67:1			5005.00	10798	206.8*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.415		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	911322	15	>100:1			1001.00	1020.25	88.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	108101	13	12:1	Target = 17.93		114.91	4.5588		
313 > 119	49	2.459	2.467		7655	17	16:1	14.12 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	718250	16	>100:1			5005.00	4384.40	81.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.587		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	870244	17	>100:1			1001.00	993.21	88.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													J
363 > 319	47	2.846	2.846	1/0	60095	14	9.4:1	Target = 3.26		71.806	2.8486		
363 > 169	47	2.846	2.846		16961	15	18:1	3.54 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.863	0	266386	15	>100:1			1001.00	1015.66	89.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/1	52105	25	73:1	Target = 3.48	6.99	165.63	6.5706		
399 > 99	45	2.855	2.863		13341	21	54:1	3.90 (1.74-5.22)	8.54				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.229		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	0	305209	20	>100:1			5005.00	8093.35	156.9*	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													J
427 > 407	64	3.197	3.204	0/0	17259	28	>100:1	Target = 1.34		162.77	6.4574		
427 > 81	64	3.204	3.204		12749	20	11:1	1.35 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	0	856066	20	>100:1			1001.00	1035.15	92.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.223	3.229	0/0	82975	30	39:1	Target = 2.50	8.47	94.296	3.7409		
413 > 169	53	3.223	3.229		37906	43	32:1	2.18 (1.25-3.75)	4.03				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.595	0	214671	19	>100:1			1001.00	956.30	87.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													J
499 > 80	54	3.482	3.595	-6/-6	14277	32	27:1	Target = 4.01		56.473	2.2404		M
499 > 99	54	3.588	3.595		4211	40	17:1	3.39 (2.00-6.02)	0.96				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.799		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.926		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.226		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.386		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.595	3.595	0	781425	19	>100:1			1001.00	977.99	78.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.595		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	0	177451	19	>100:1			5005.00	5653.92	115.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.934		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.942	0	703128	18	>100:1			1001.00	974.13	89.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.942		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.098	4.098	0	938359	17	>100:1			5005.00	5292.11	104	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.098		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.253	0	615853	18	>100:1			1001.00	901.13	84.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.253		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	0	791725	18	>100:1			5005.00	5294.73	101.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.253		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	0	44265	17	>100:1			1001.00	687.29	67.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.470		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.521	0	582110	19	>100:1			1001.00	846.53	77.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.521		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.760		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.978	0	581737	26	>100:1			1001.00	744.14	64.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.978		ND								
*** 37 13C2_PFDA**													
515 > 470		3.942	3.942	0	582717	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	677720	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.223	0	675221	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	456081	16	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.588	3.595	0	187322	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

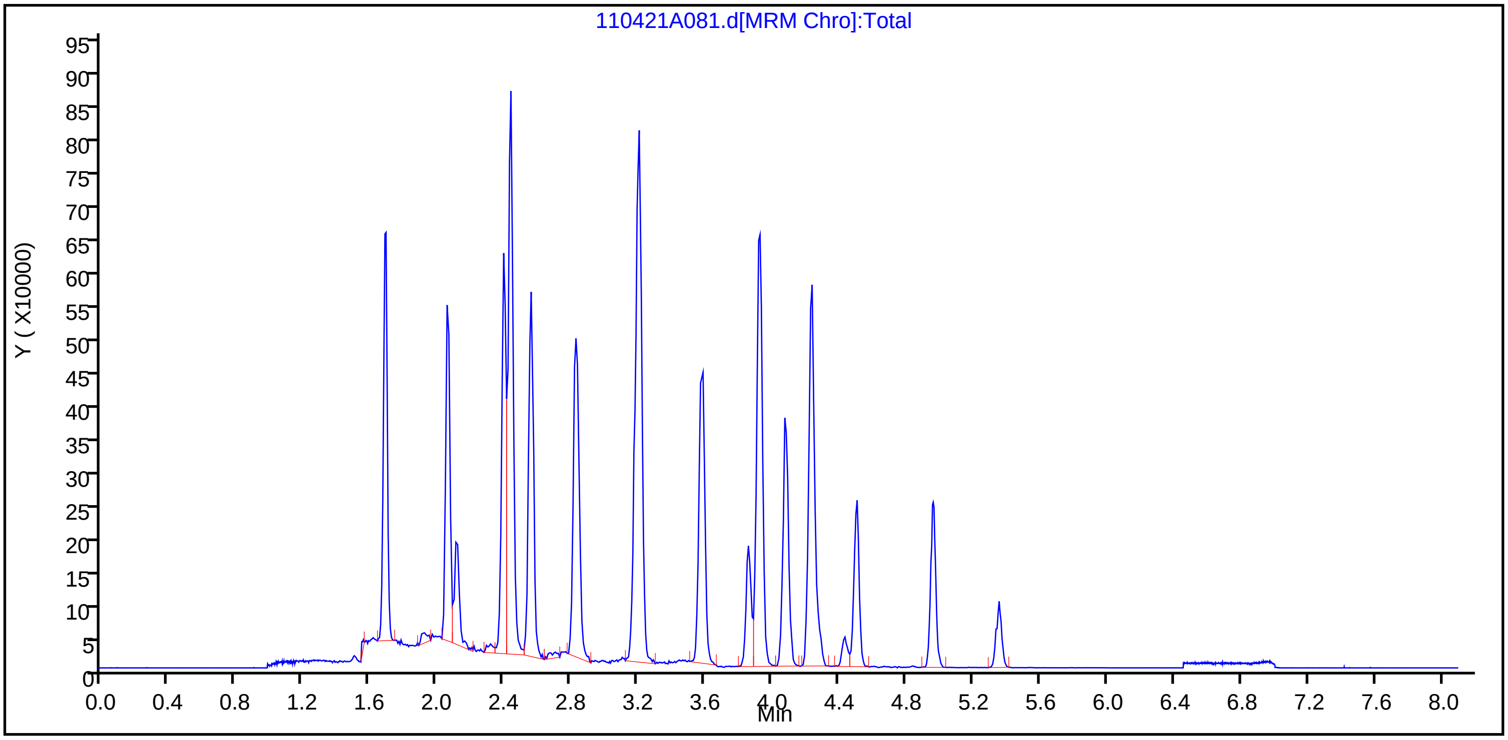
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

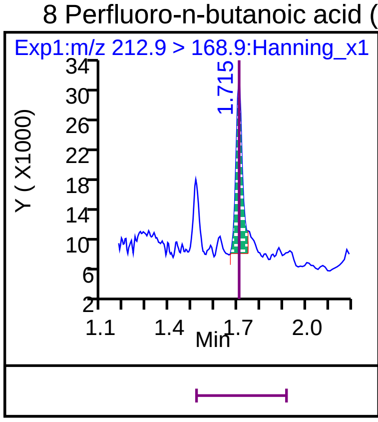
Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

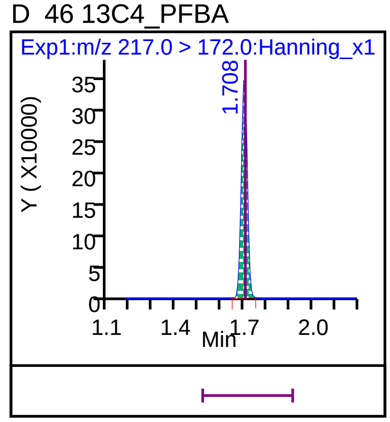
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d		
Injection Date:	05-Nov-2021 02:42:34	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-042.0-20211102	Lab ID:	WK03035-004
Sample Info:	WK03035-004		
Dil. Factor:	1	Operator:	Matthew M. Miller



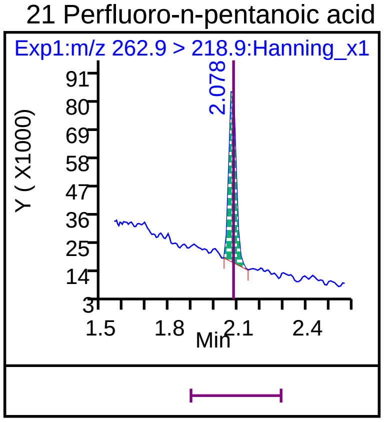
8 Perfluoro-n-butanoic acid (PFBA) (M)



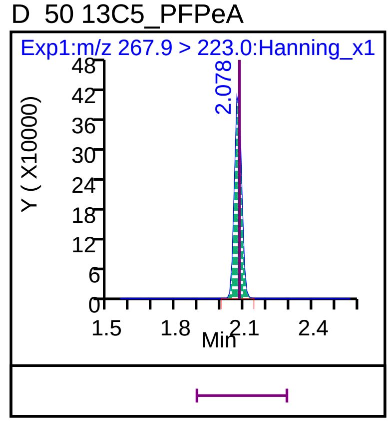
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

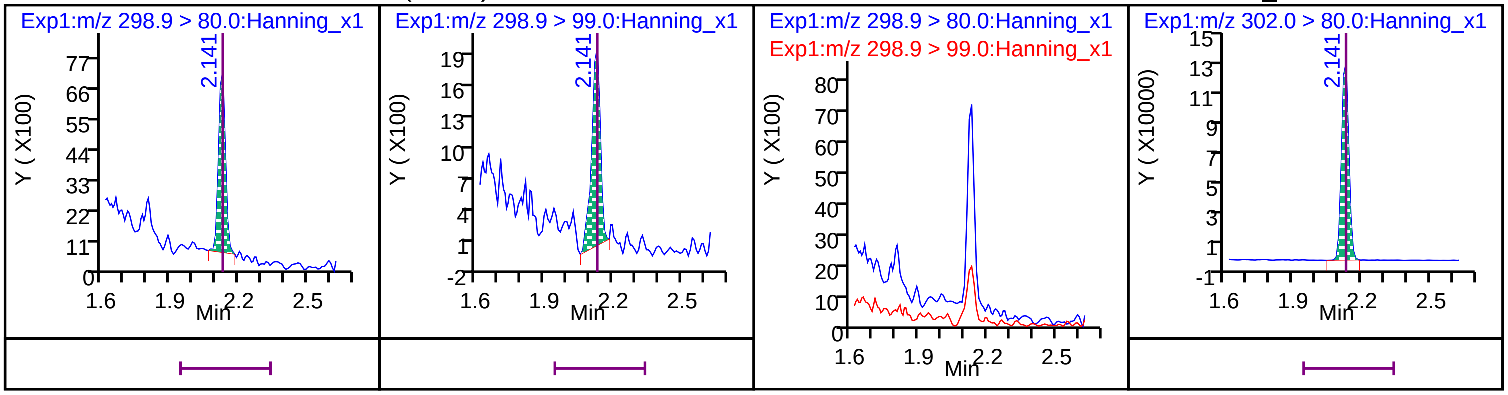


D 50 13C5_PFPeA

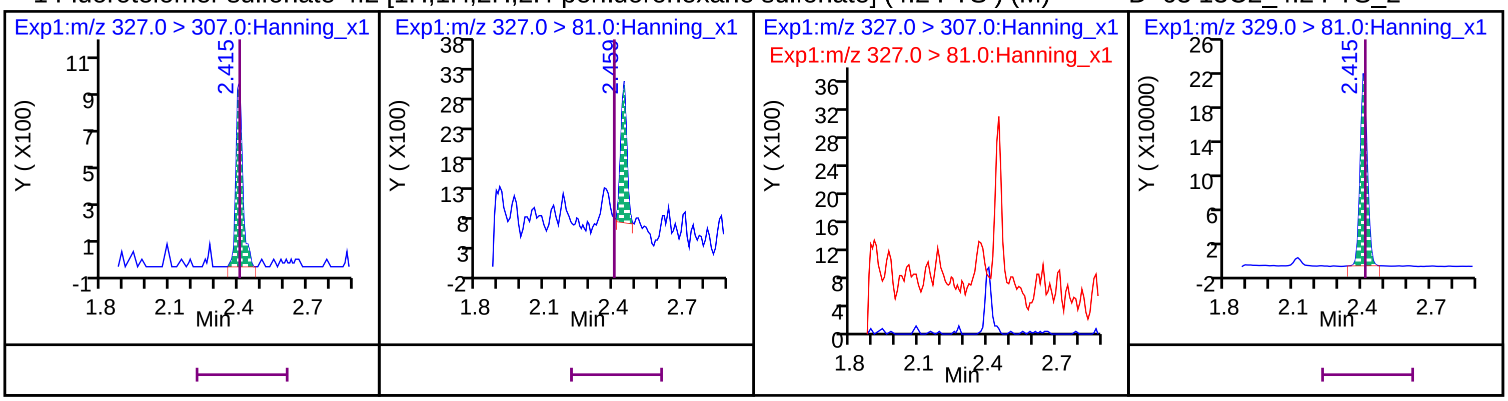


Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

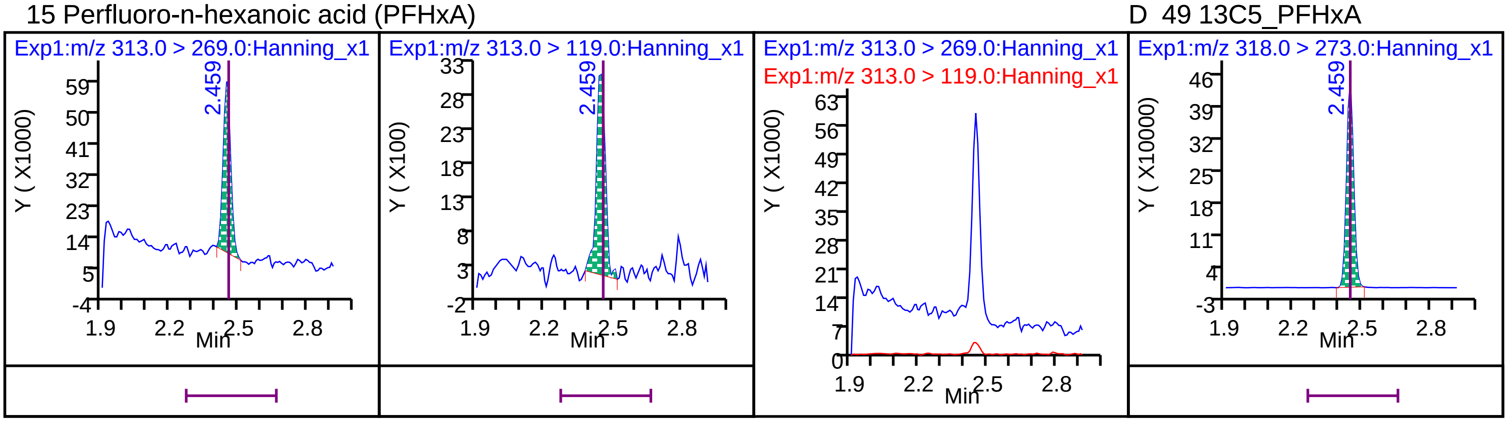
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



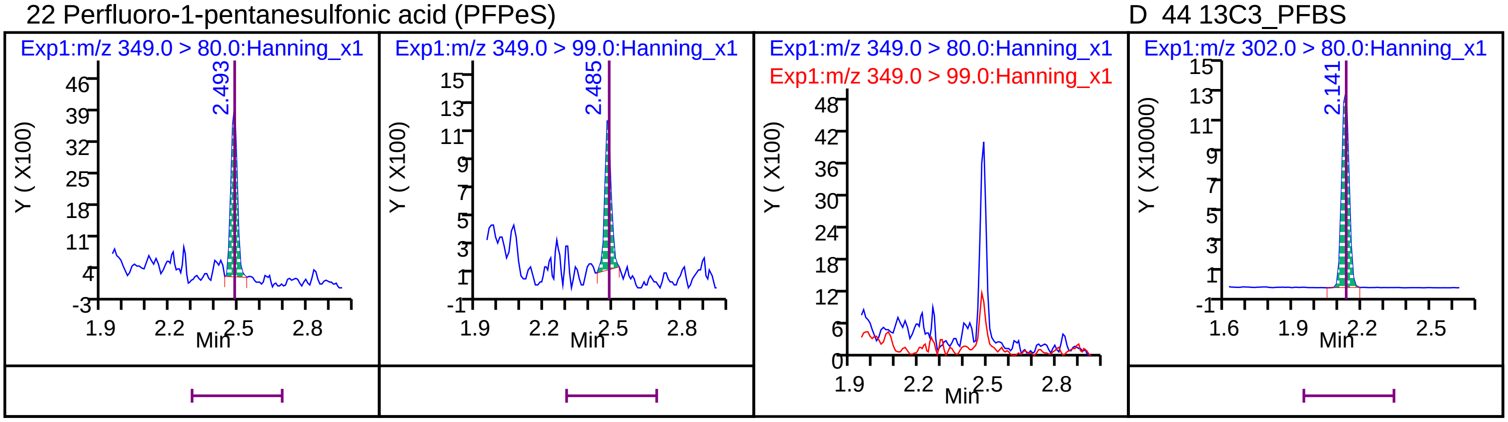
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

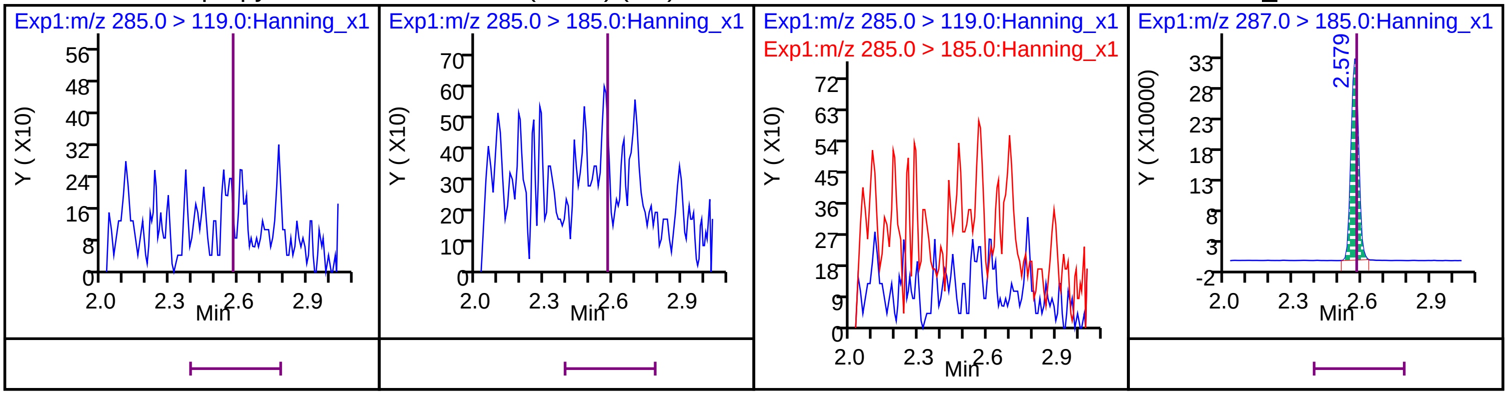


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

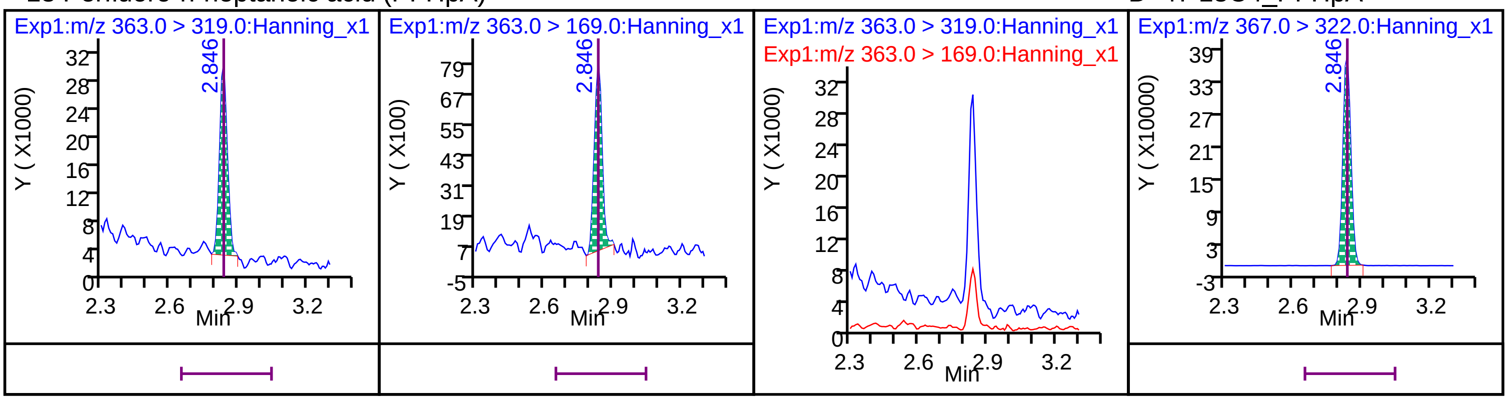


Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

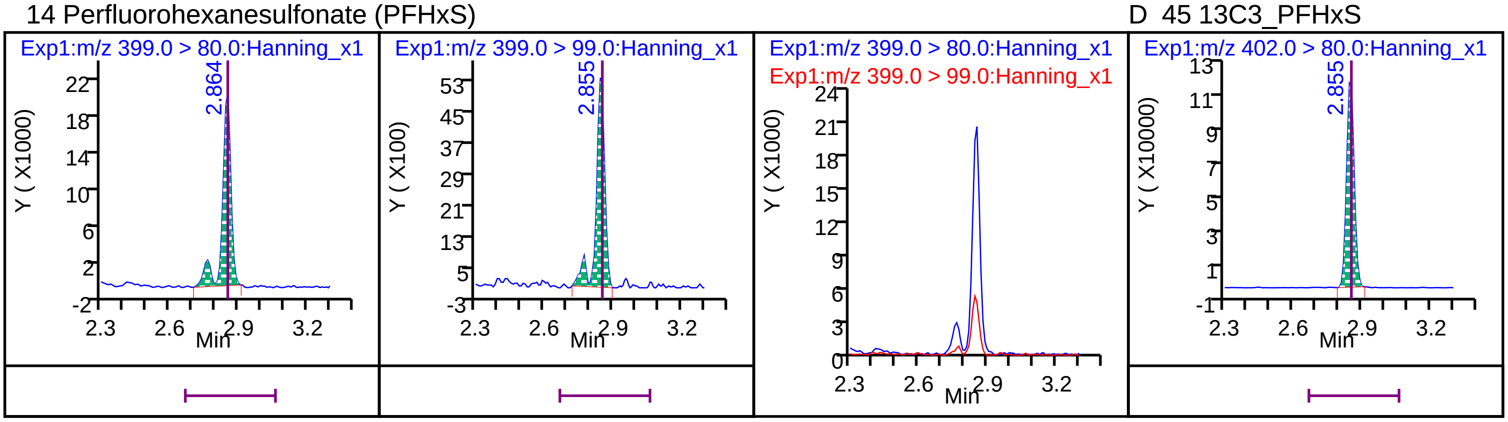
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



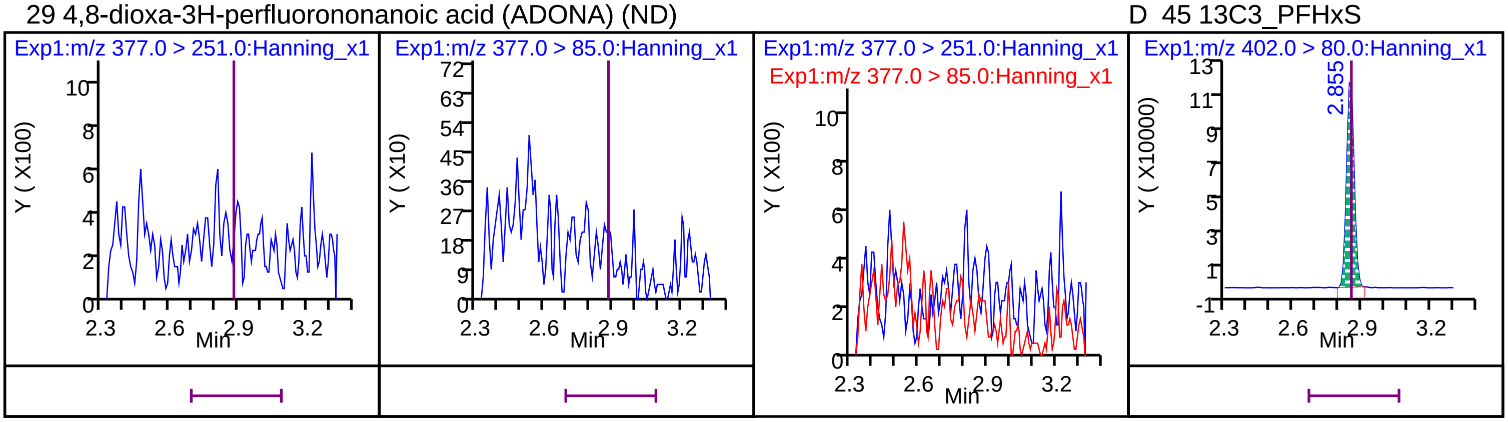
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

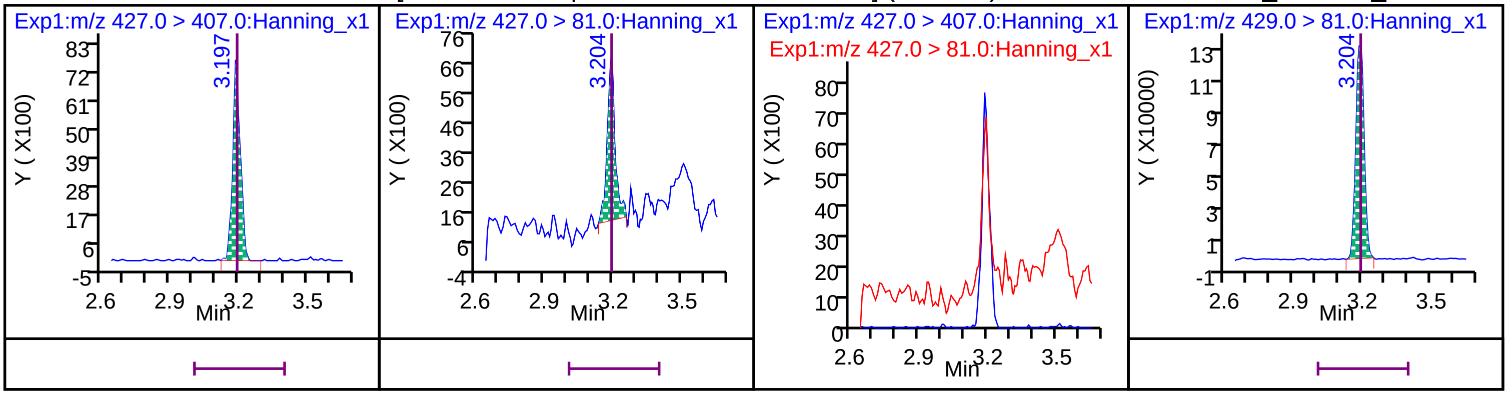


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

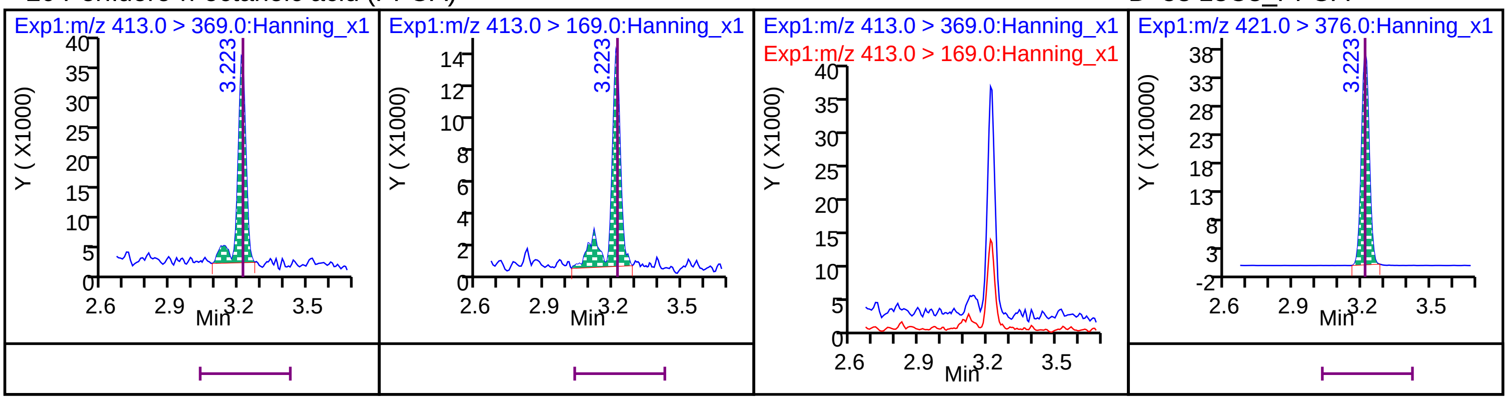


Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

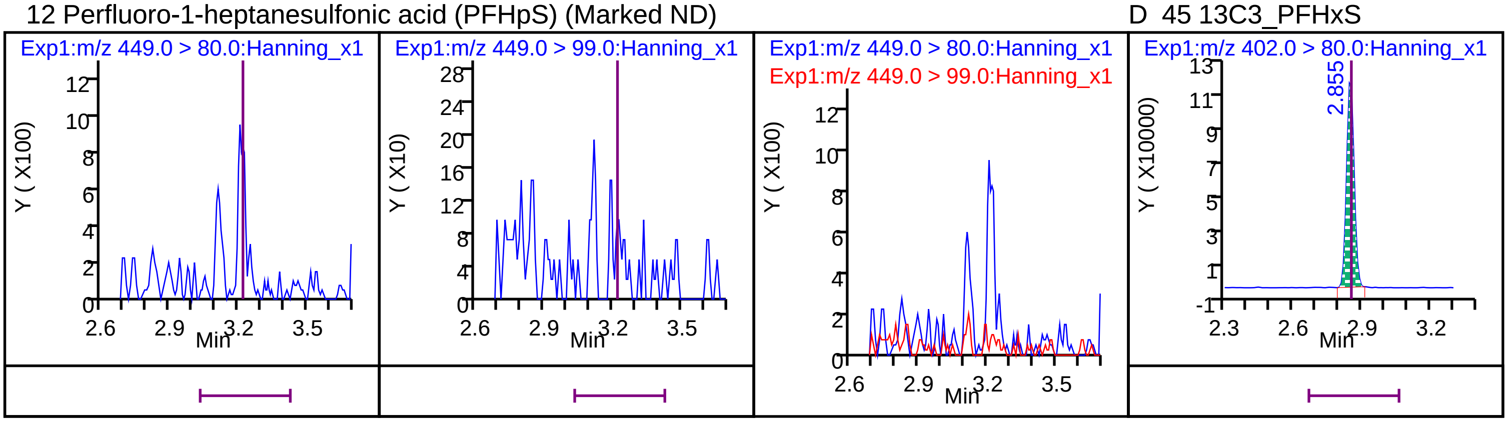
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



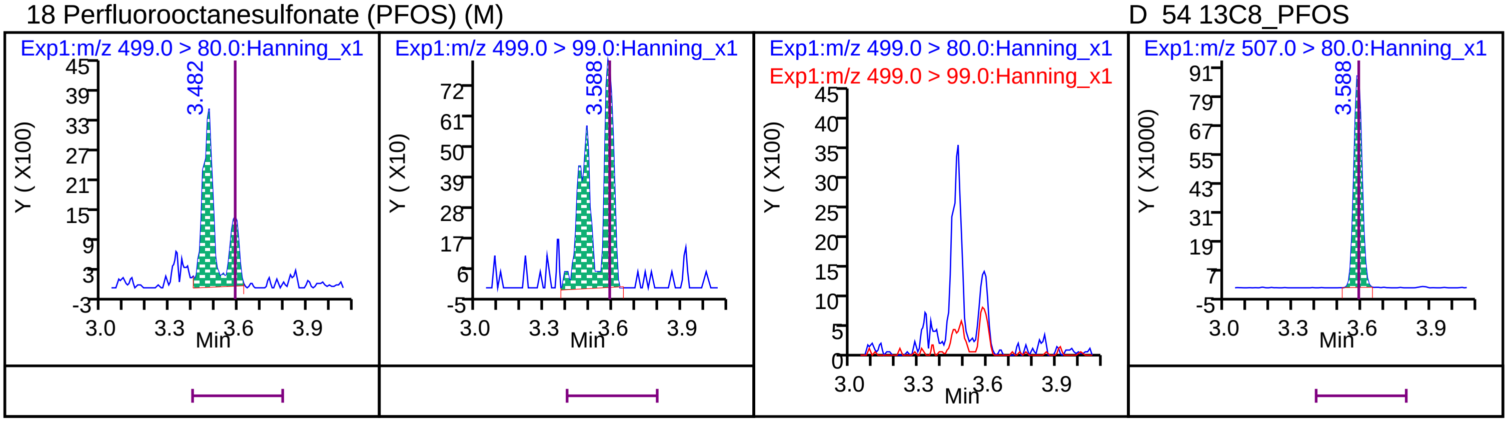
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (Marked ND) D 45 13C3_PFHxS

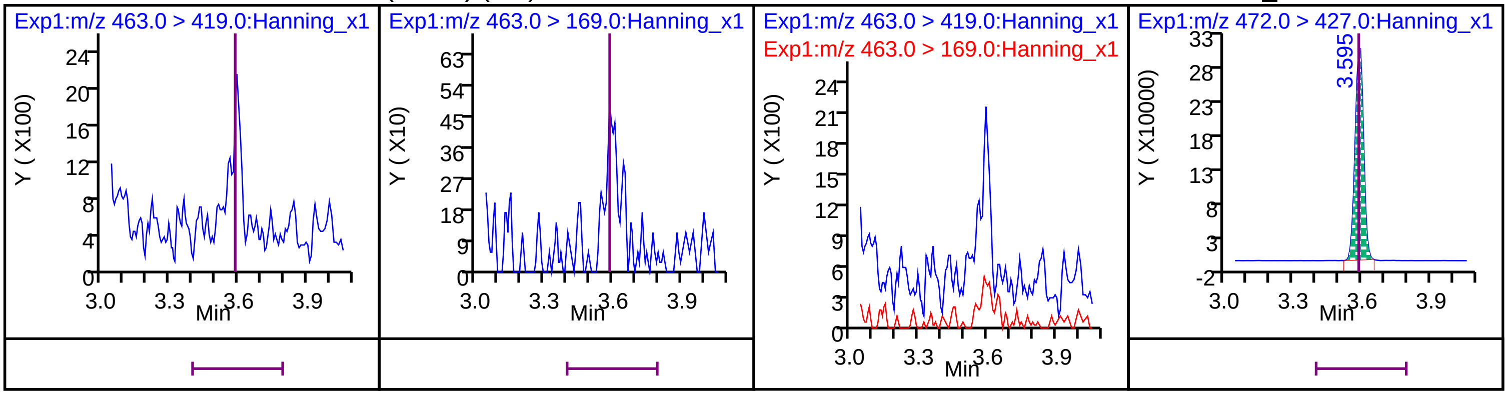


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

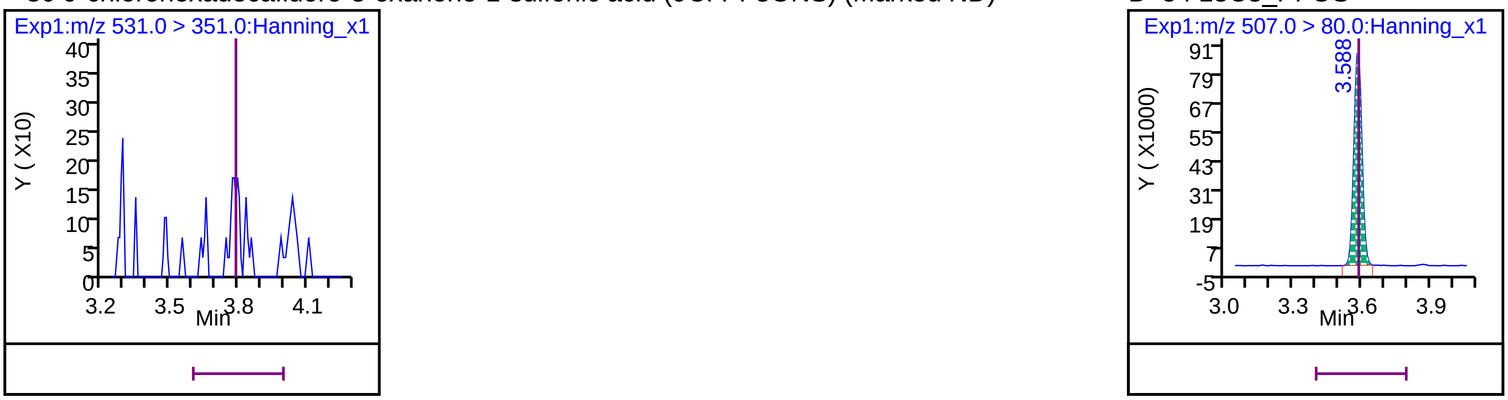


Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

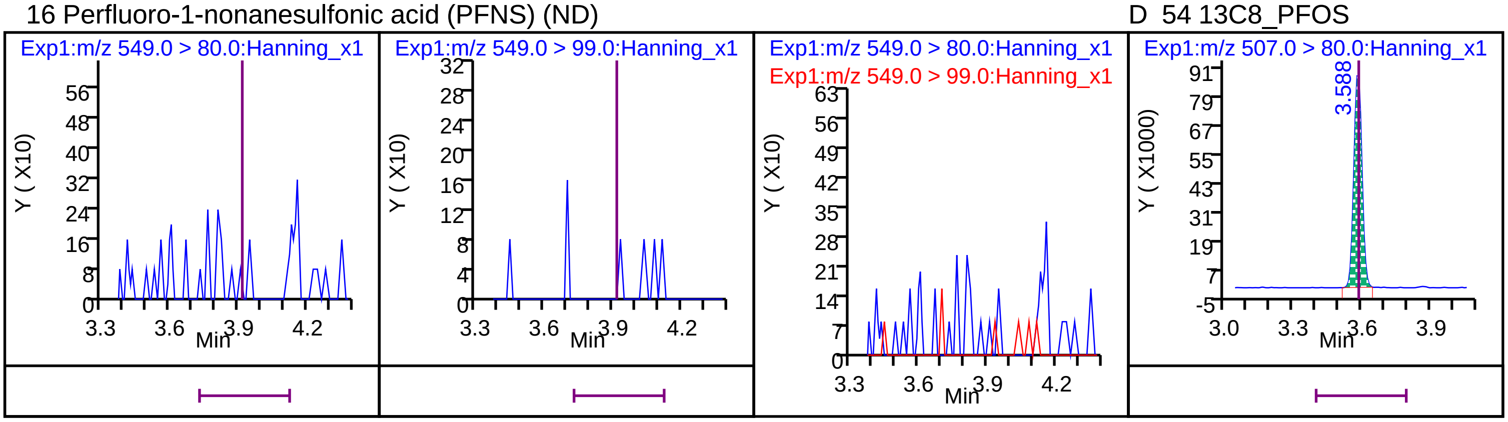
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



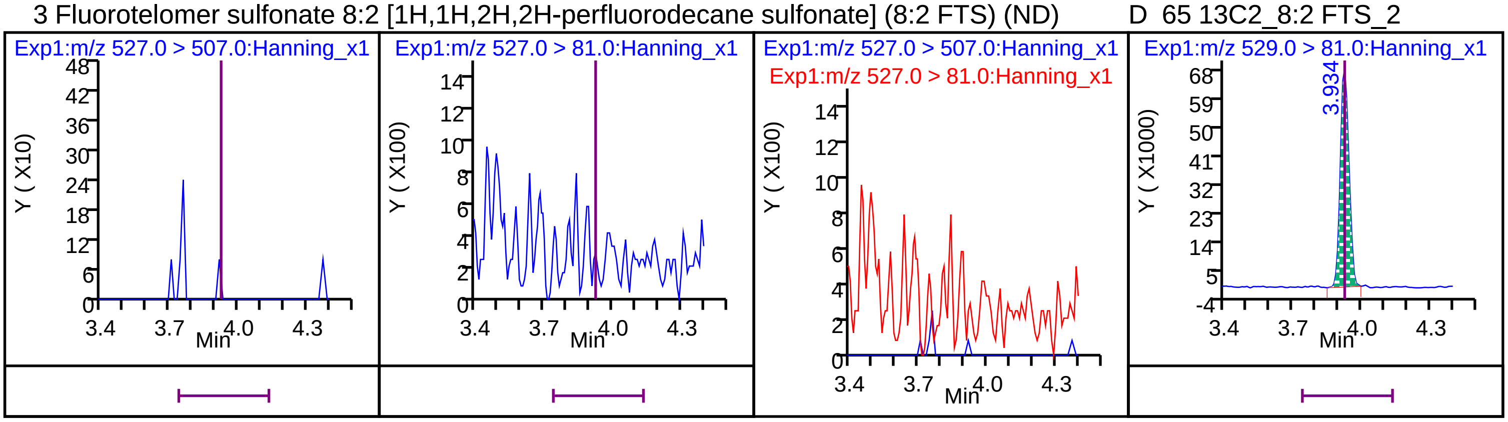
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



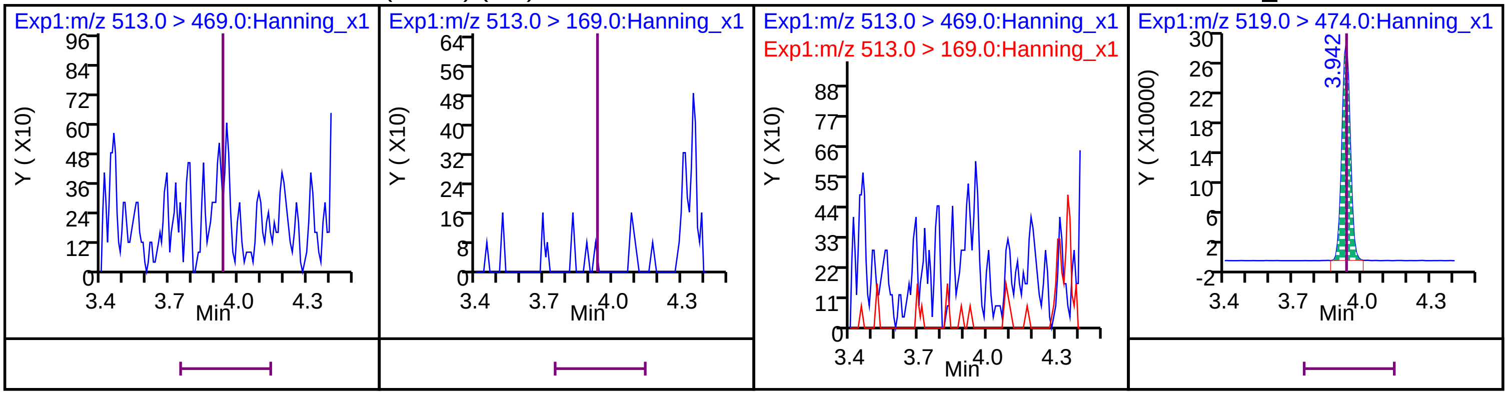
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



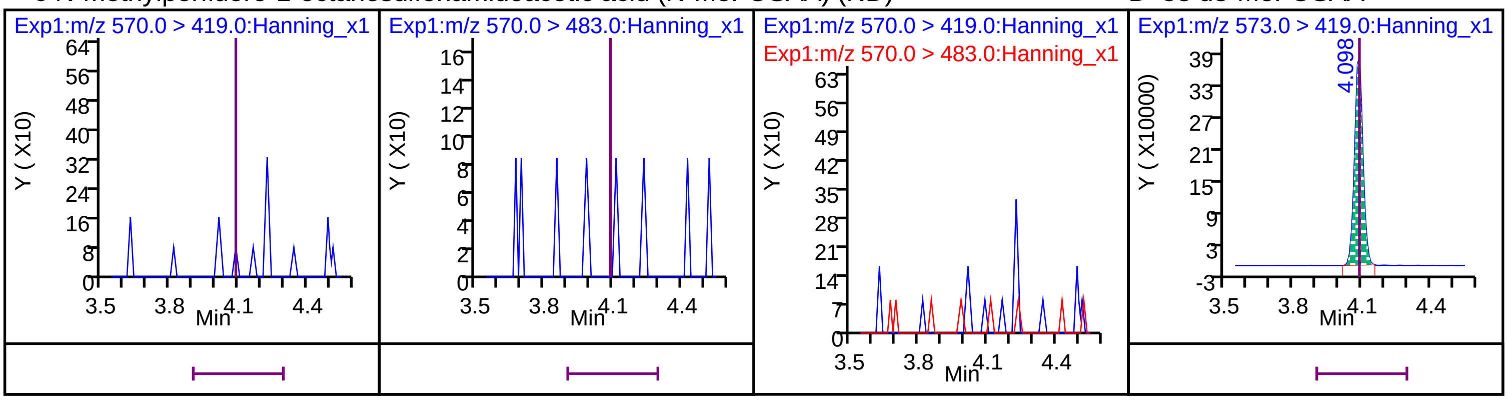
Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

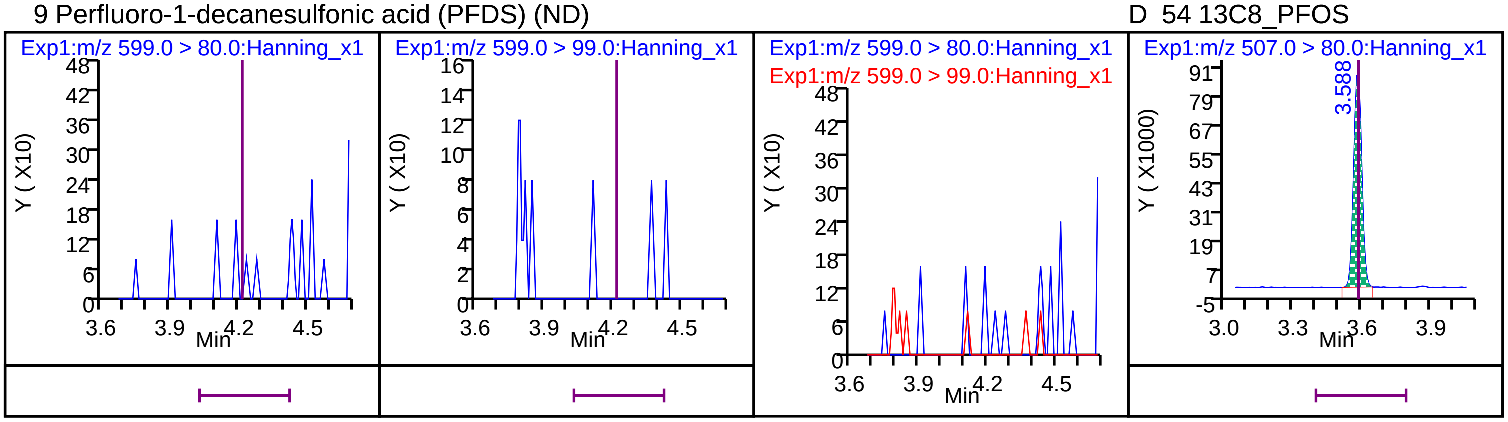
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



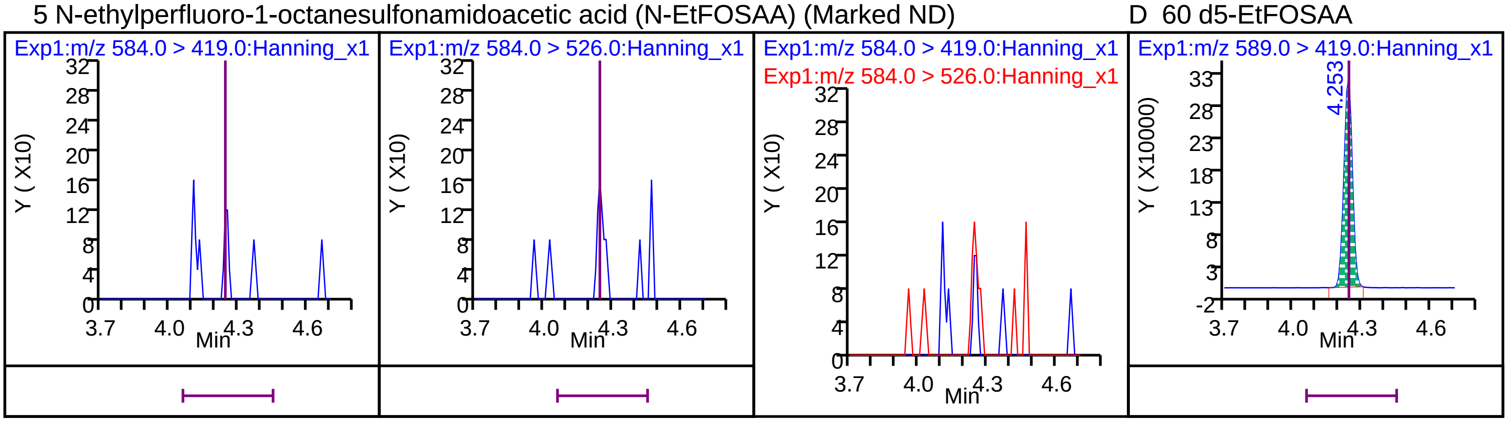
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



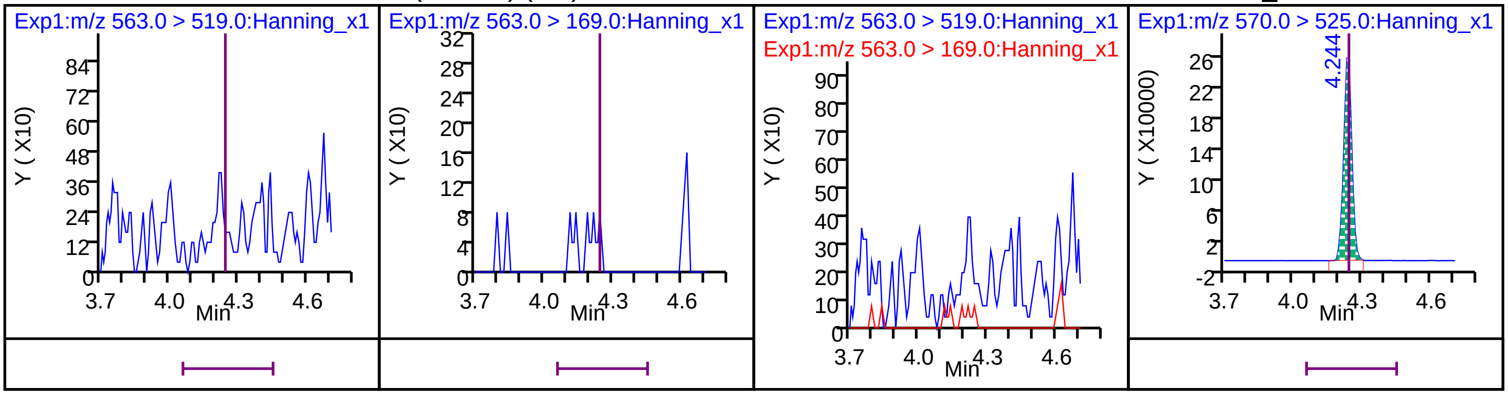
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



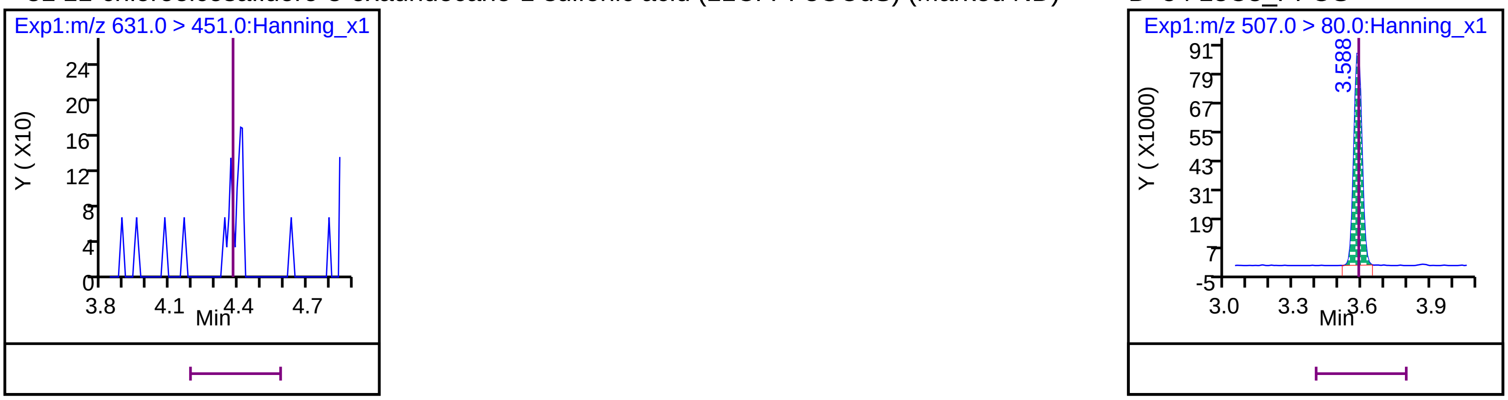
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



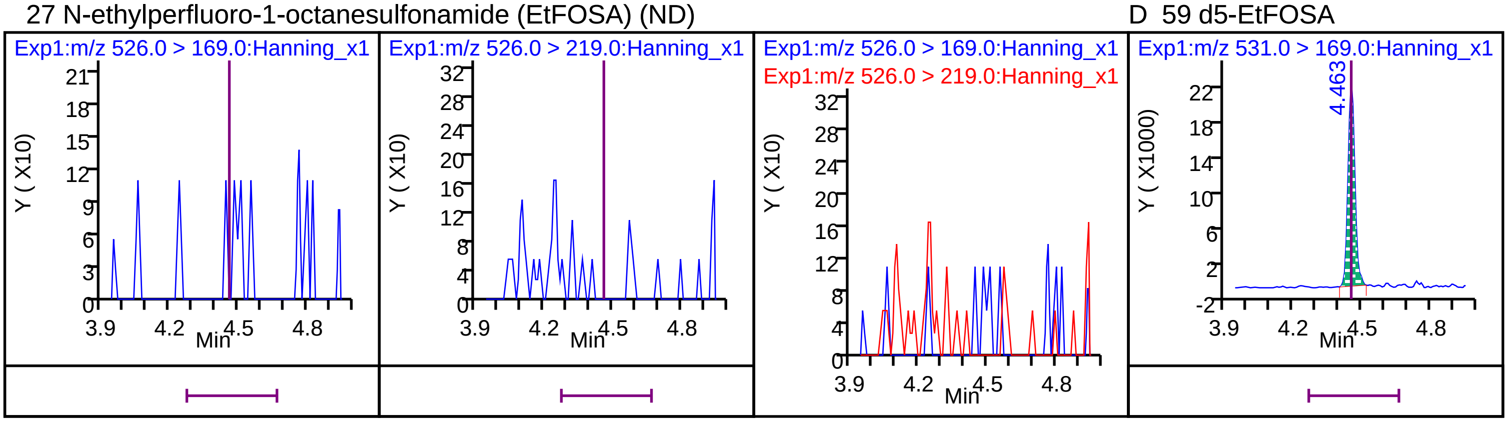
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



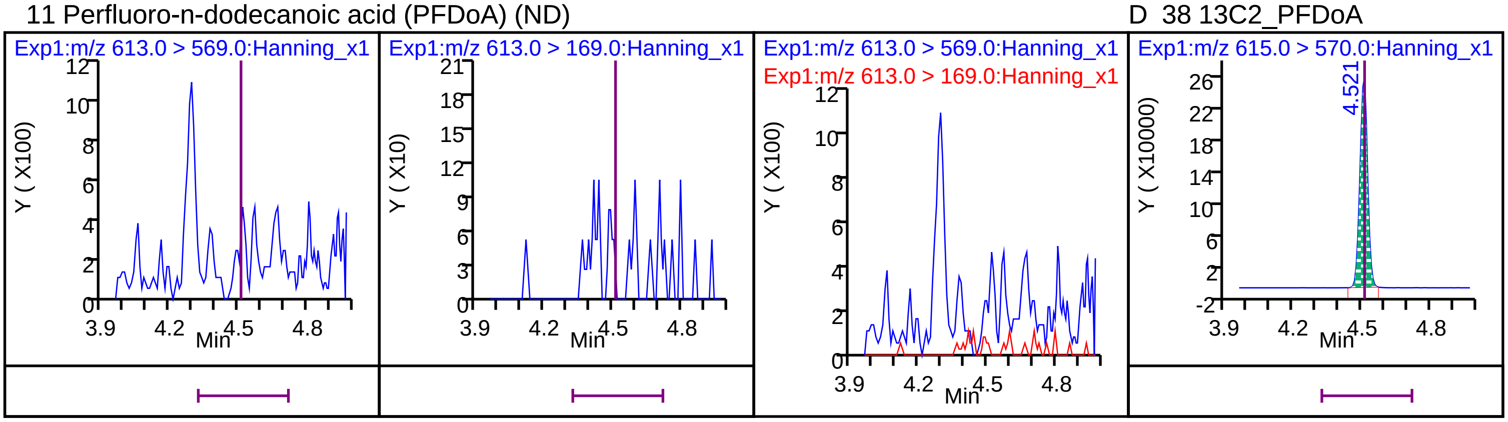
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



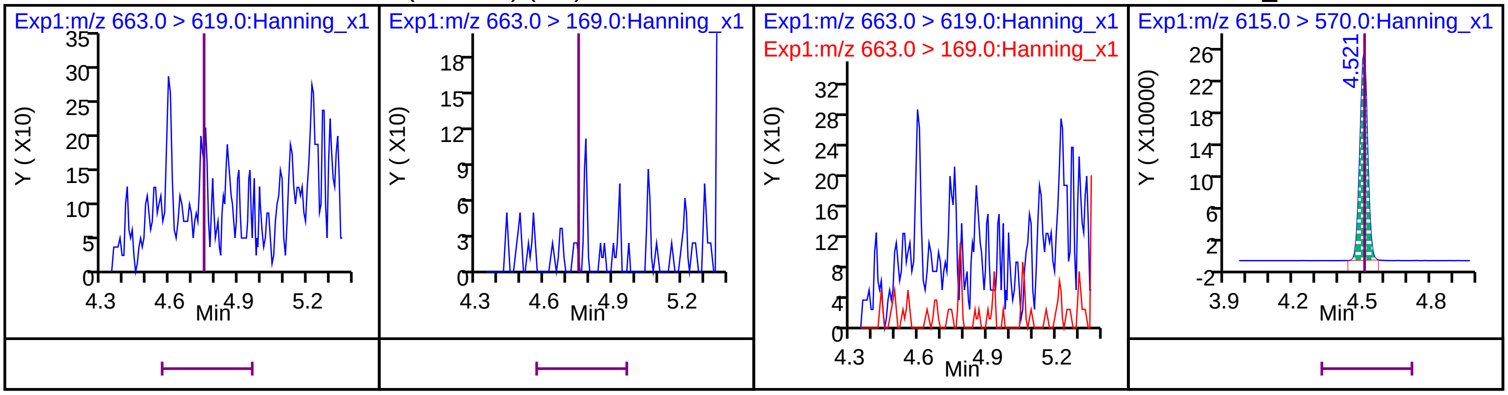
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



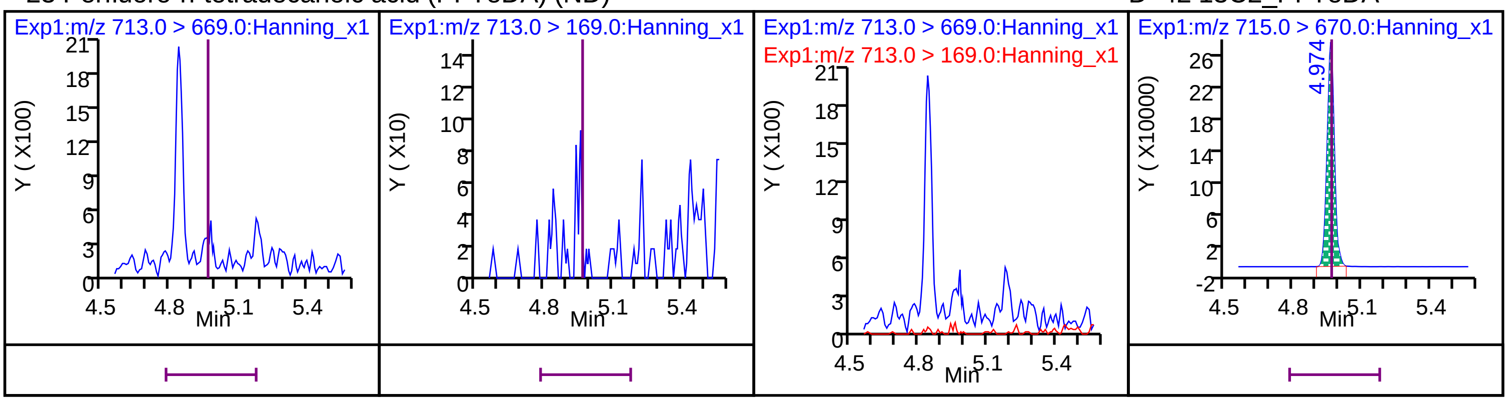
Report Date: 05-Nov-2021 13:58:44   AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

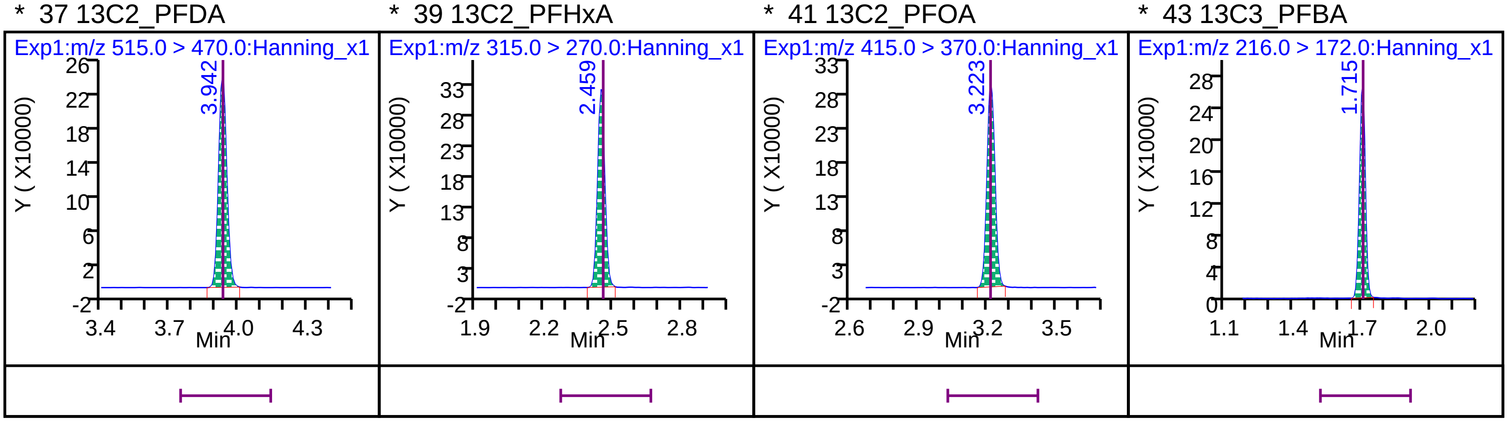
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)   D 38 13C2_PFDoA



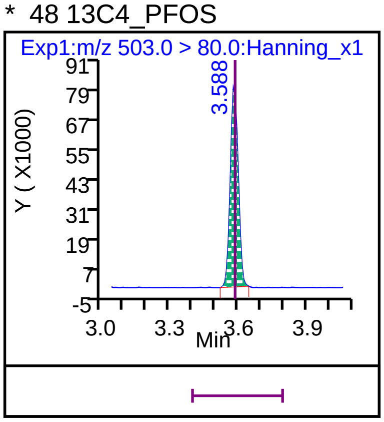
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)   D 42 13C2_PFTeDA



* 37 13C2_PFDA   * 39 13C2_PFHxA   * 41 13C2_PFOA   * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d

Injection Date: 05-Nov-2021 02:42:34 Inst. ID: LCMSMS01.i

Client ID: SW3-DPT-0143-042.0-20211102 Lab ID: WK03035-004

Sample Info: WK03035-004

Dil. Factor: 1 Operator: Matthew M. Miller

8 PFBA, CAS: 375-22-4

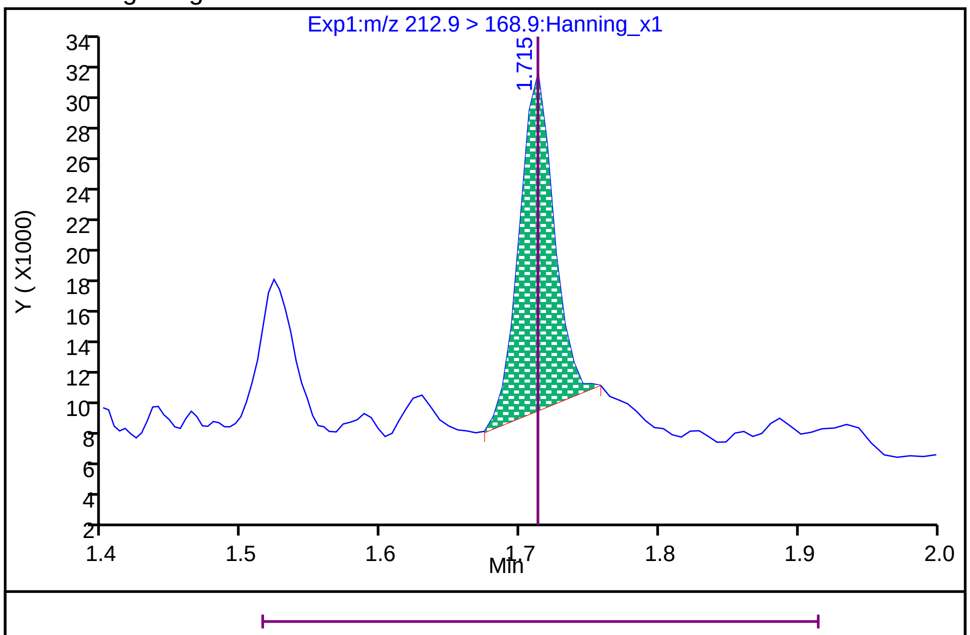
Processing Integration Results

RT: 1.715

Area: 36372

Conc: 2.1879

Conc Units: ng/L

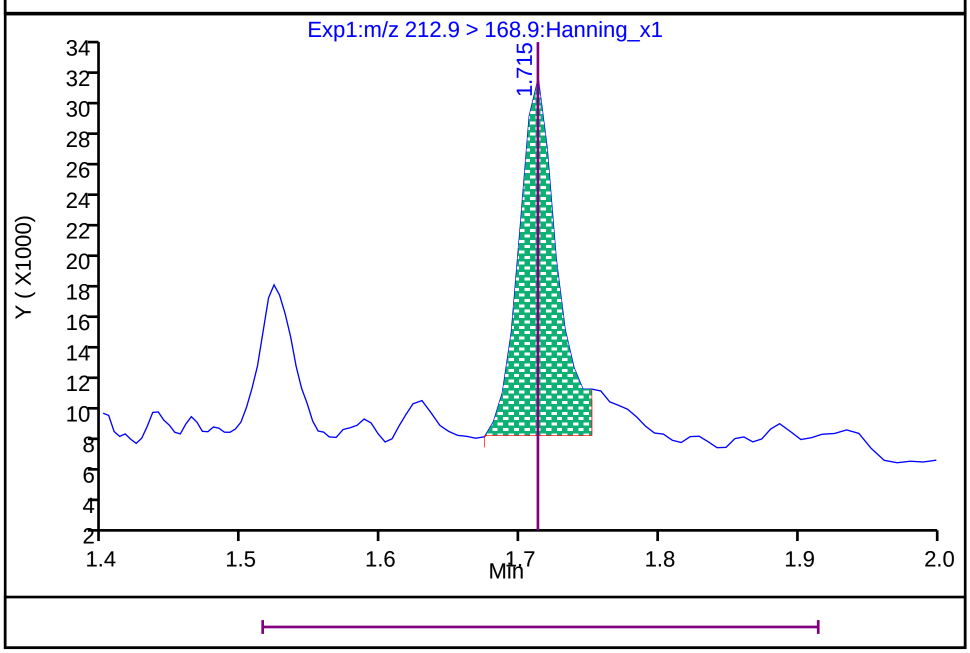


RT: 1.715

Area: 41792

Conc: 2.5140

Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:52:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

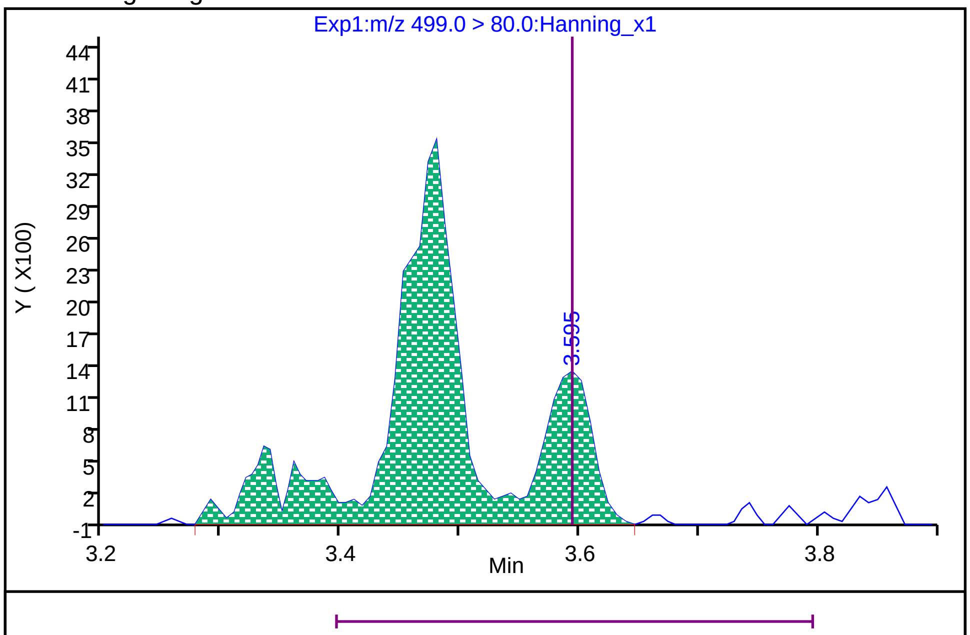
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d		
Injection Date:	05-Nov-2021 02:42:34	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-042.0-20211102	Lab ID:	WK03035-004
Sample Info:	WK03035-004		
Dil. Factor:	1	Operator:	Matthew M. Miller

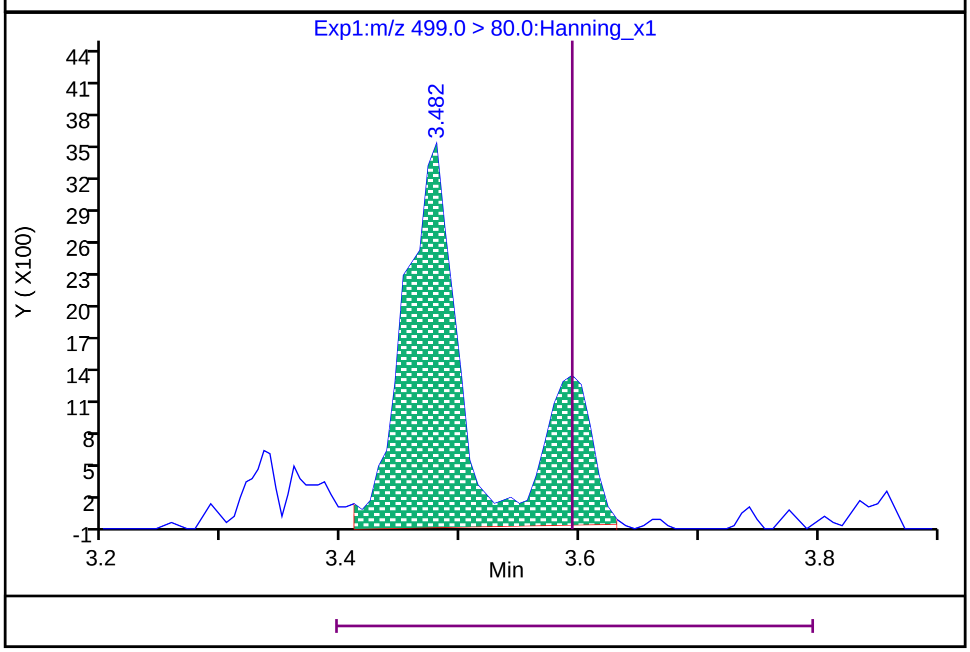
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.595
Area:	17090
Conc:	2.6818
Conc Units:	ng/L



RT:	3.482
Area:	14277
Conc:	2.2404
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:47:15

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

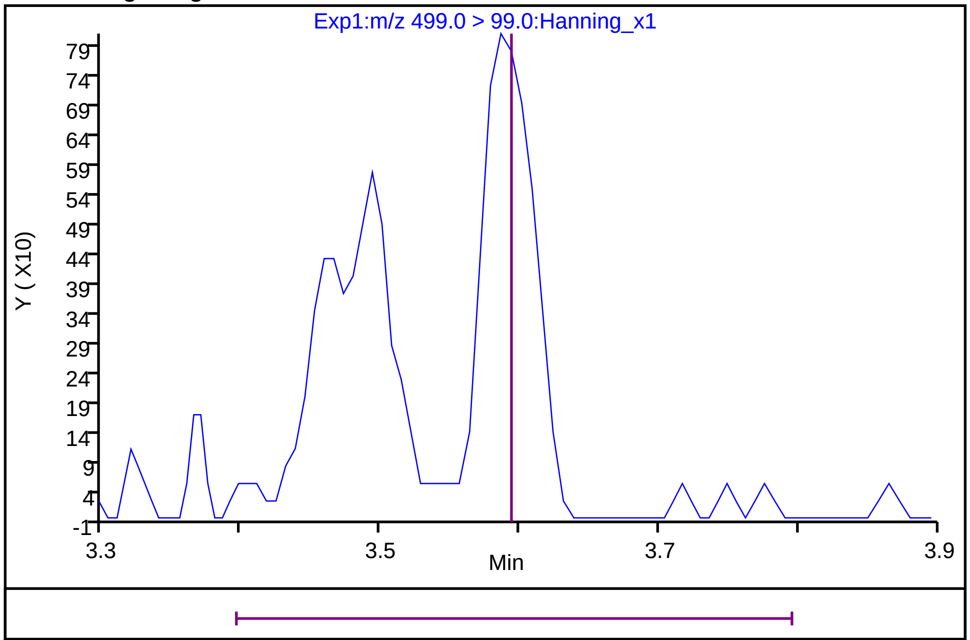
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A081.d		
Injection Date:	05-Nov-2021 02:42:34	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0143-042.0-20211102	Lab ID:	WK03035-004
Sample Info:	WK03035-004		
Dil. Factor:	1	Operator:	Matthew M. Miller

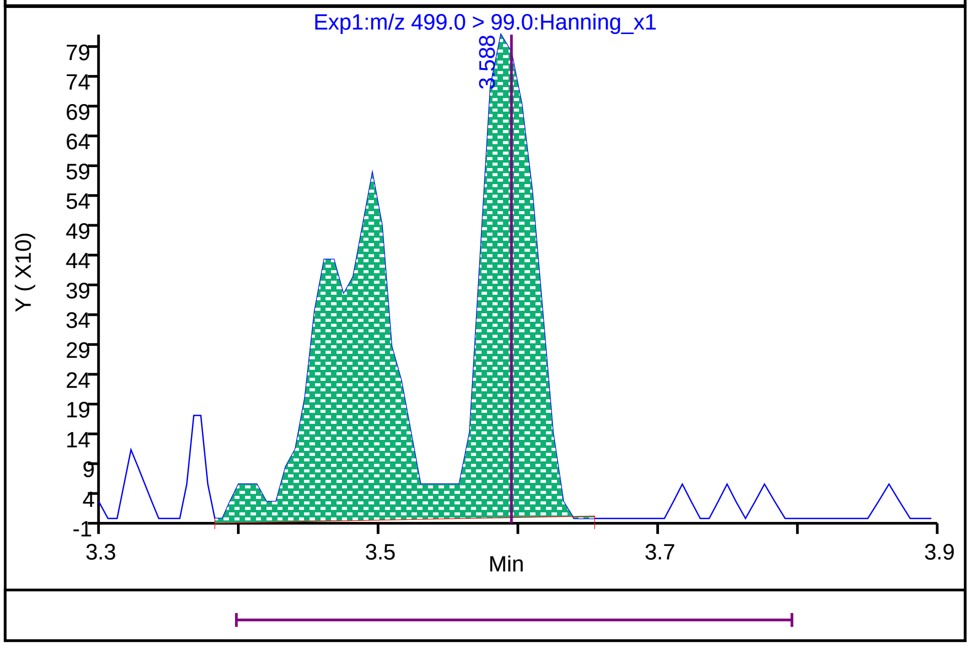
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.588
Area:	4549
Conc:	2.2404
Conc Units:	ng/L



RT:	3.588
Area:	4211
Conc:	2.2404
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:47:18

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921042.d		
Injection Date:	09-Nov-2021 22:33:52	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	35
Lab Sample ID:	WK03035-004	Lab Prep. Batch:	21582
Client ID:	SW3-DPT-0143-042.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-004	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0378931

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	290	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	397860	16	>100:1			1001.00	639.98	61.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													J
212.9 > 168.9	46	1.718	1.718	1/0	33025	21	20:1			78.785	2.9854		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.099	2.098	1	533279	12	>100:1			1001.00	932.97	93.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.099	2.098	1/0	92135	11	7.7:1			153.66	5.8226		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	163361	13	>100:1			1001.00	944.45	94.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													J
298.9 > 80	44	2.151	2.162	0/-1	7230	12	9.6:1	Target = 3.53		35.526	1.3462		
298.9 > 99	44	2.151	2.162		1868	11	4.6:1	3.87 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													J
349 > 80	44	2.496	2.505	0/-1	4137	12	9.9:1	Target = 3.10		27.353	1.0365		
349 > 99	44	2.496	2.505		1519	11	4.9:1	2.72 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	228287	14	>100:1			5005.00	10082	221*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	682975	14	>100:1			1001.00	1048.65	101.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	1/1	104225	13	14:1	Target = 18.91		146.92	5.5671		
313 > 119	49	2.460	2.469		5560	14	16:1	18.74 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	1	1116932	15	>100:1			5005.00	4819.42	94.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.845	1	595712	16	>100:1			1001.00	1122.00	111	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													J
363 > 319	47	2.846	2.845	1/0	46139	15	15:1	Target = 3.80		70.556	2.6736		
363 > 169	47	2.846	2.845		11584	16	55:1	3.98 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	1	133095	17	>100:1			1001.00	1059.34	116.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	1/0	24612	27	51:1	Target = 2.89	5.96	168.37	6.3801		
399 > 99	45	2.864	2.864		7992	31	32:1	3.07 (1.44-4.34)	8.37				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.247		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	150273	19	>100:1			5005.00	8348.52	144.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													J
427 > 407	64	3.208	3.213	0/0	12857	18	>100:1	Target = 1.75		180.89	6.8546		
427 > 81	64	3.208	3.213		9841	18	14:1	1.30 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.235	3.240	0	567587	18	>100:1			1001.00	1081.78	103.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.235	3.240	0/0	60620	31	62:1	Target = 2.89	5.79	104.33	3.9533		
413 > 169	53	3.235	3.240		21404	32	77:1	2.83 (1.44-4.34)	6.77				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.609	3.623	0	122285	18	>100:1			1001.00	987.42	108.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													J
499 > 80	54	3.492	3.623	-7/-7	10542	29	33:1	Target = 3.30		72.475	2.7463		M
499 > 99	54	3.617	3.623		2819	32	18:1	3.73 (1.65-4.95)	0.78				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	666927	19	>100:1			1001.00	1041.46	102.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.623		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	646582	16	>100:1			1001.00	1125.16	102.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	113939	17	>100:1			5005.00	6591.98	123.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.981		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.133	4.139	0	732156	16	>100:1			5005.00	4845.10	103.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.288	4.294	0	629358	15	>100:1			5005.00	4859.41	92	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.288	4.294	0	644111	14	>100:1			1001.00	1069.51	92.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.488	0	28301	13	>100:1			1001.00	658.16	66.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	651057	15	>100:1			1001.00	1084.49	92.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.038	5.042	0	663016	21	>100:1			1001.00	815.53	70	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	754407	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	700718	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.235	3.240	0	607489	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.711	1	391209	16	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.617	3.623	0	123823	17	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

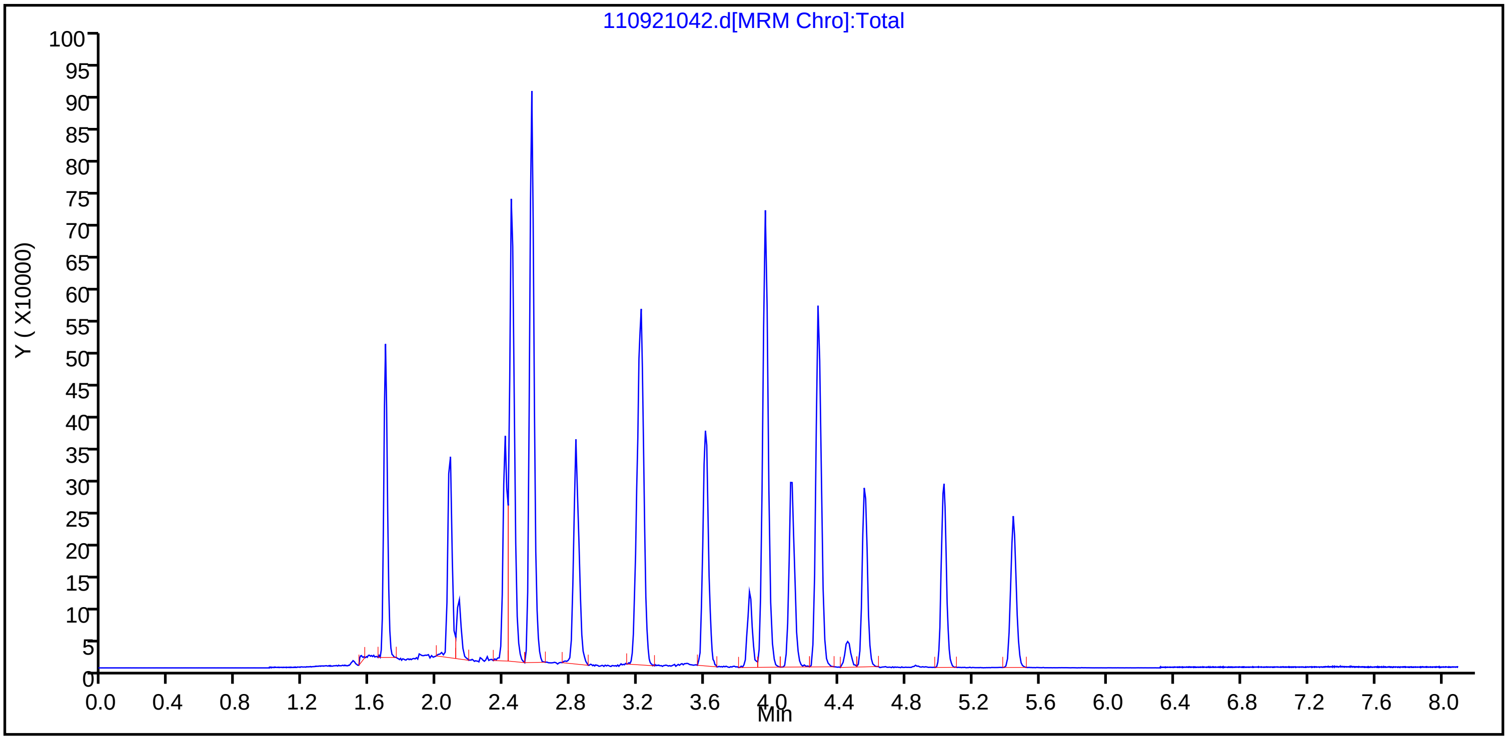
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

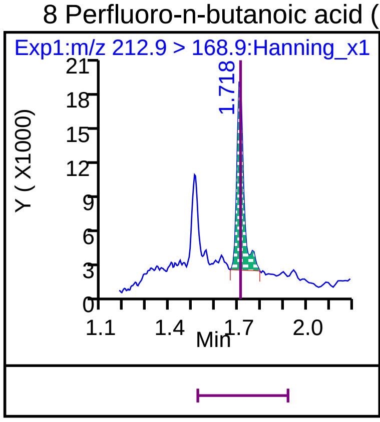
Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

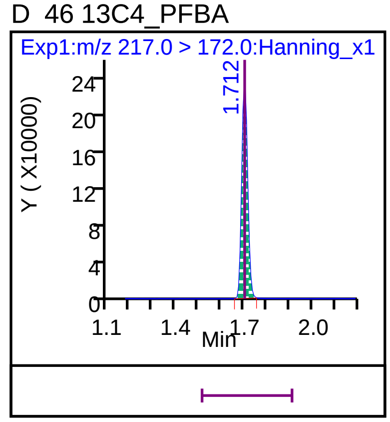
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921042.d		
Injection Date:	09-Nov-2021 22:33:52	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0143-042.0-20211102	Lab ID:	WK03035-004
Sample Info:	WK03035-004		
Dil. Factor:	1	Operator:	Justin Gavin



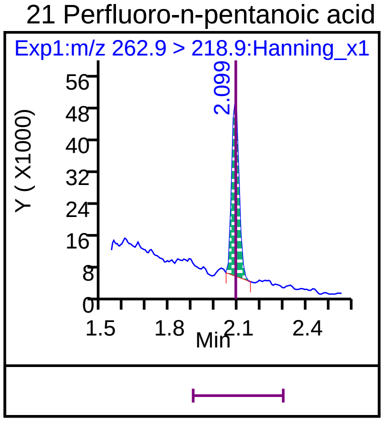
8 Perfluoro-n-butanoic acid (PFBA)



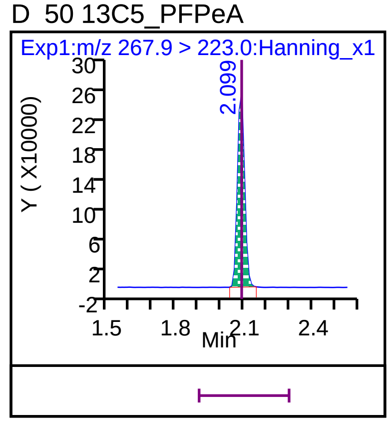
D 46 13C4_PFBA



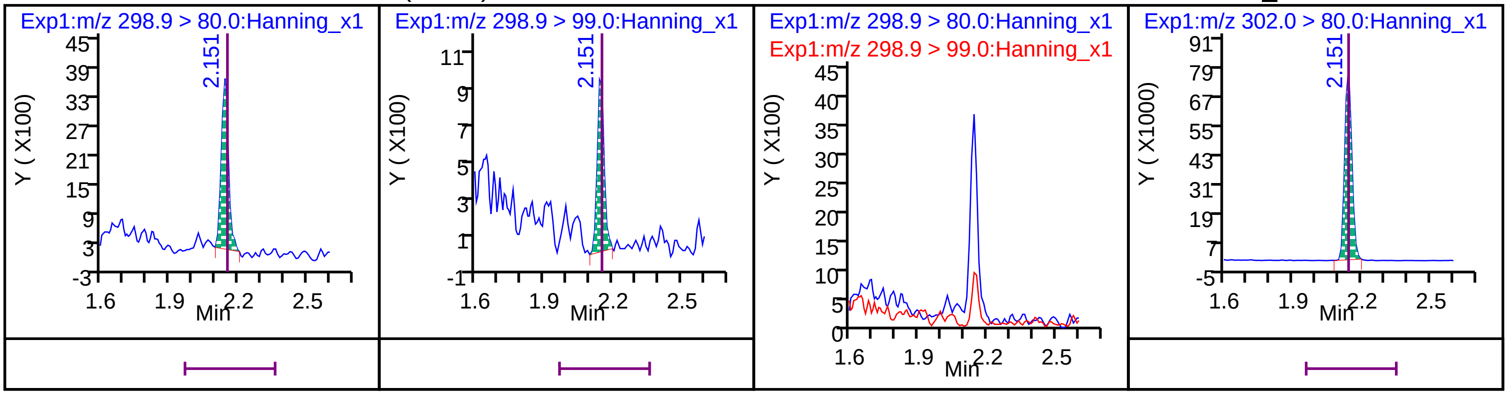
21 Perfluoro-n-pentanoic acid (PFPeA)



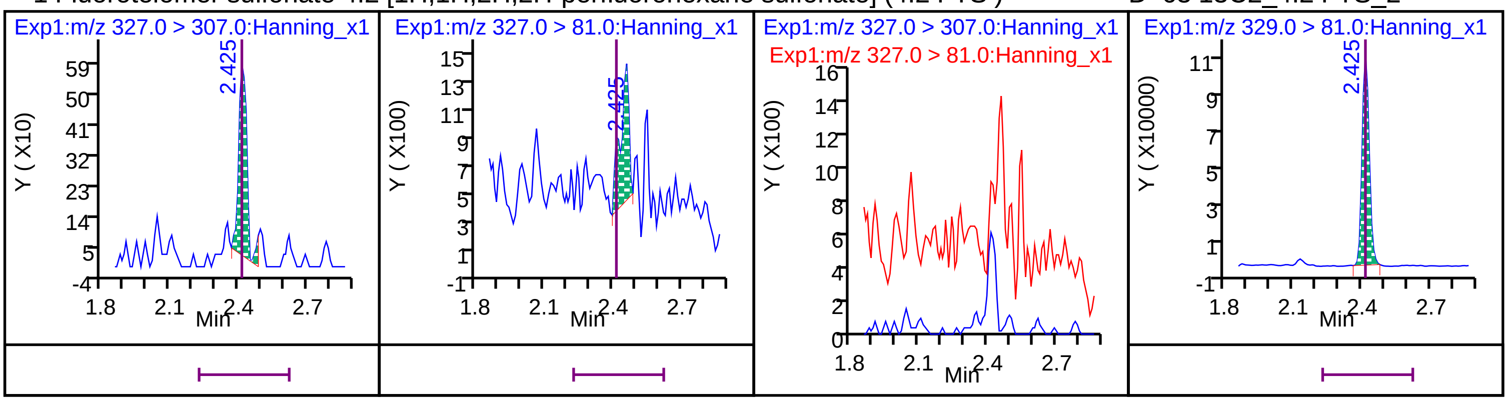
D 50 13C5_PFPeA



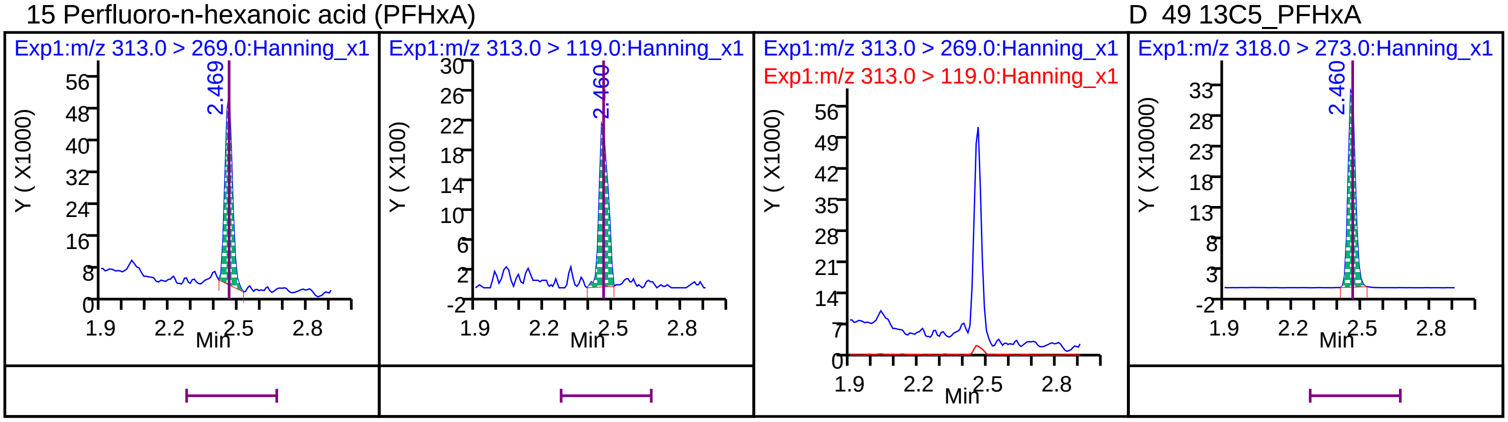
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



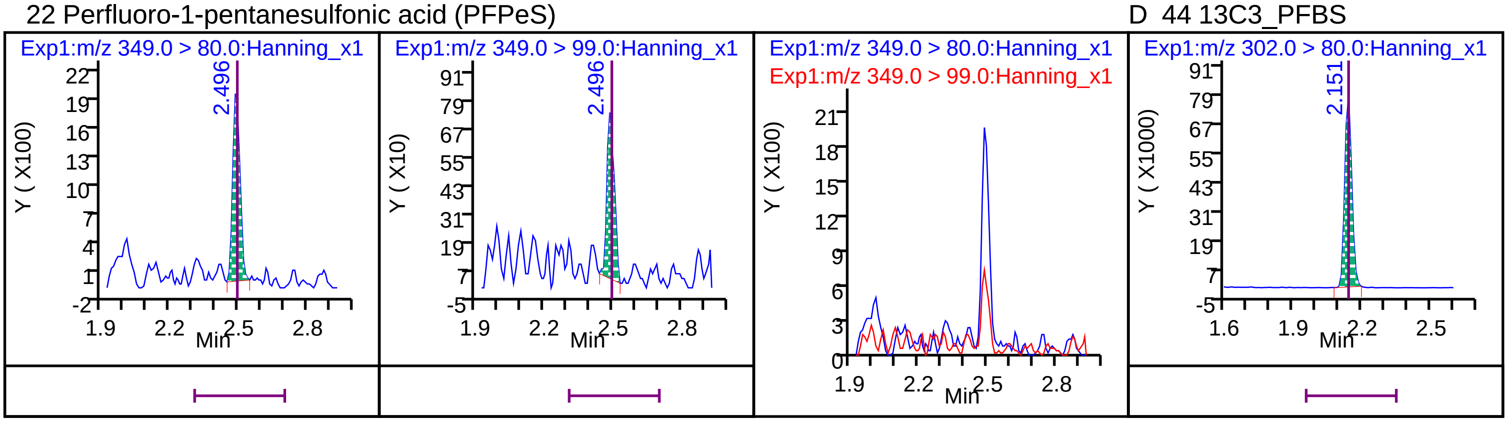
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



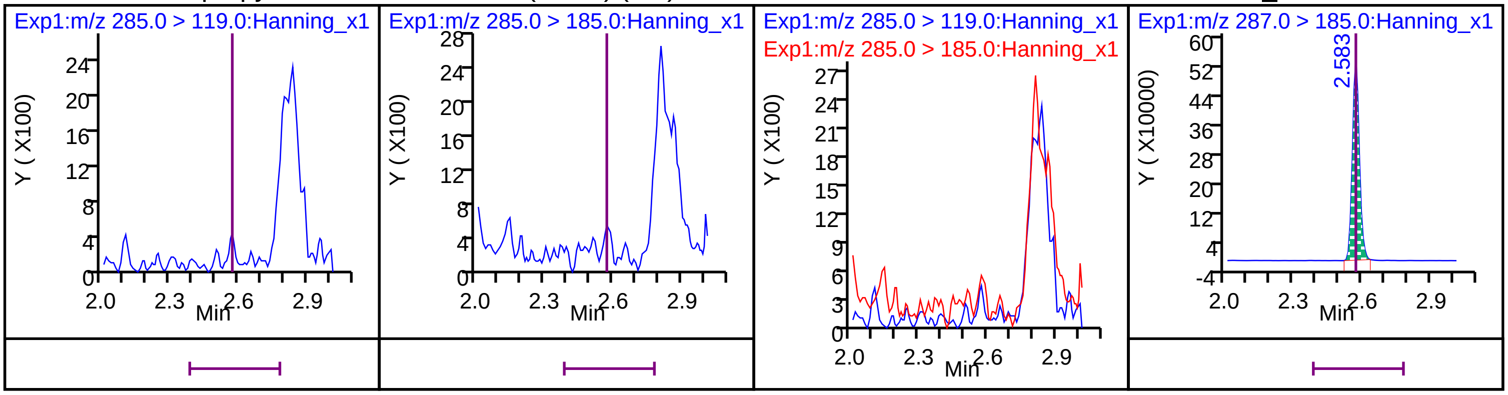
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



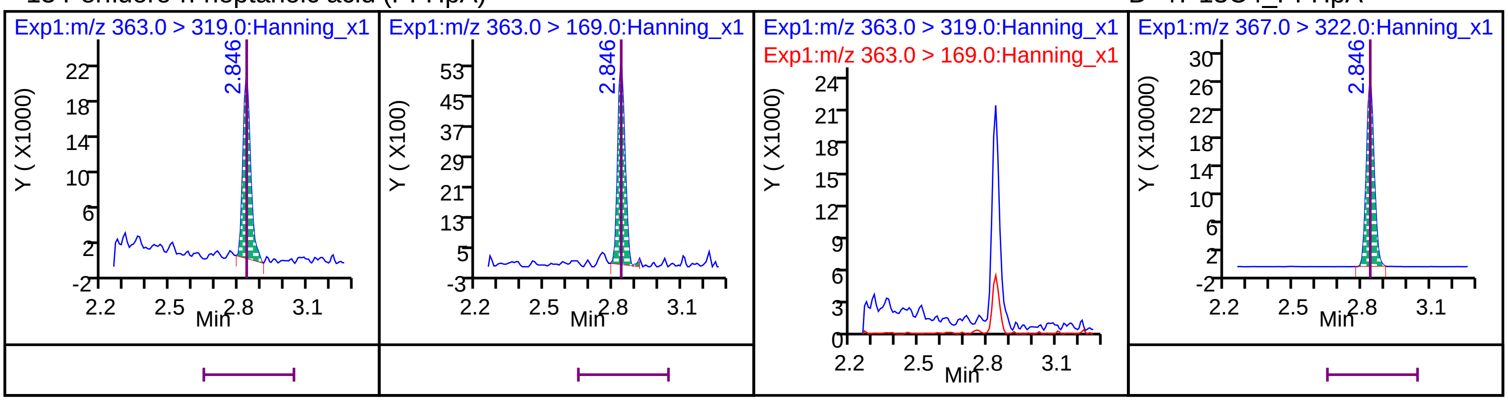
Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921042.d

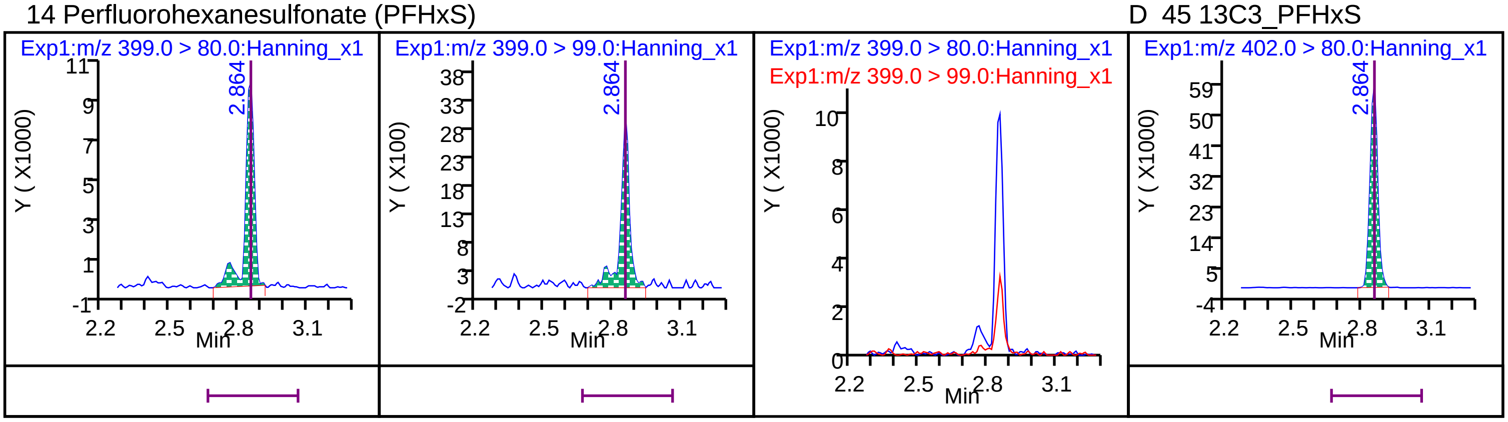
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



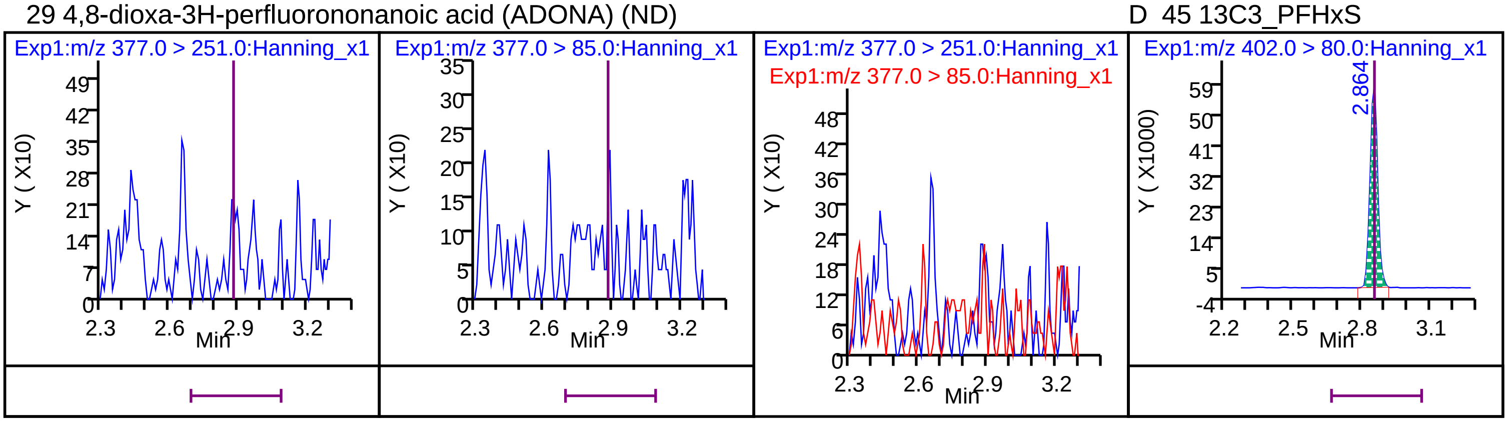
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



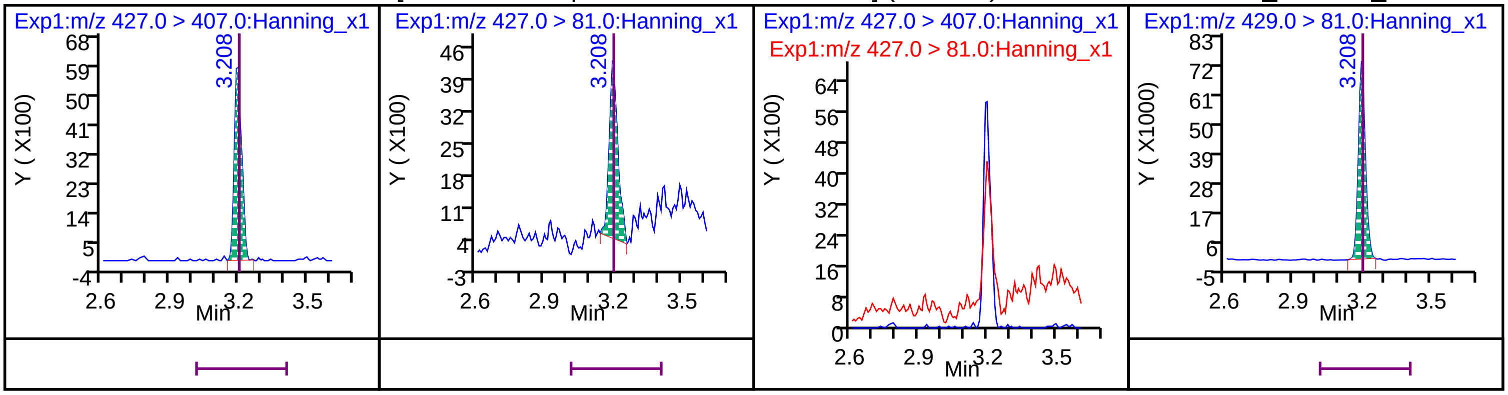
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



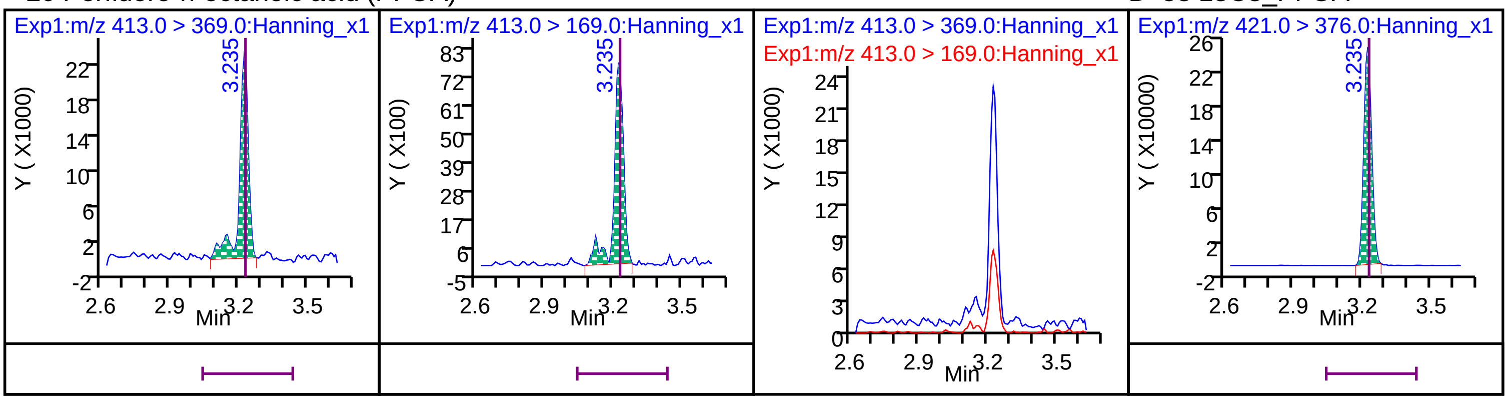
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



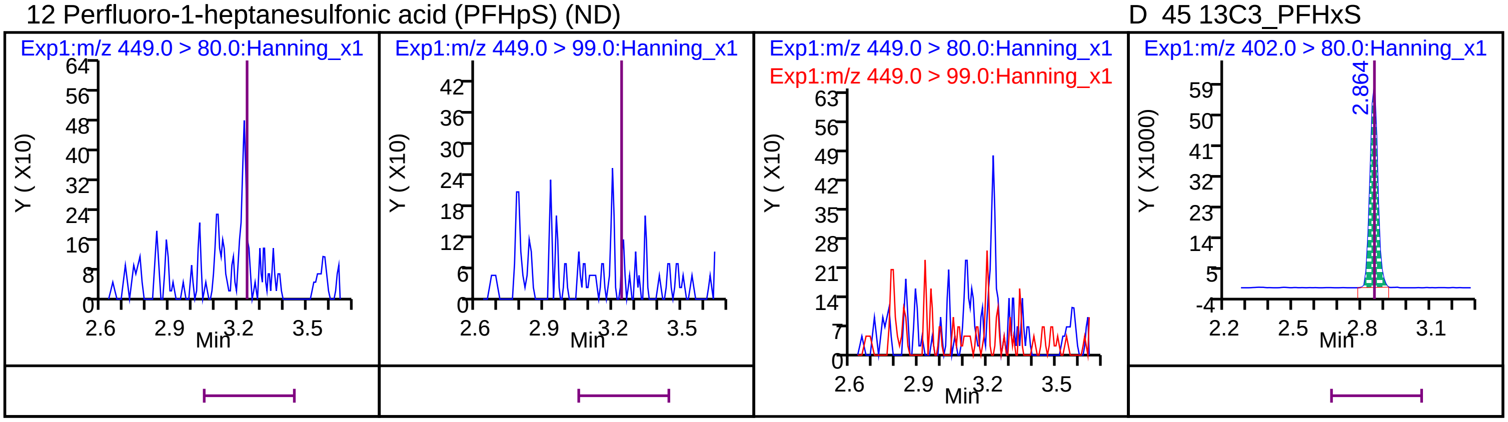
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



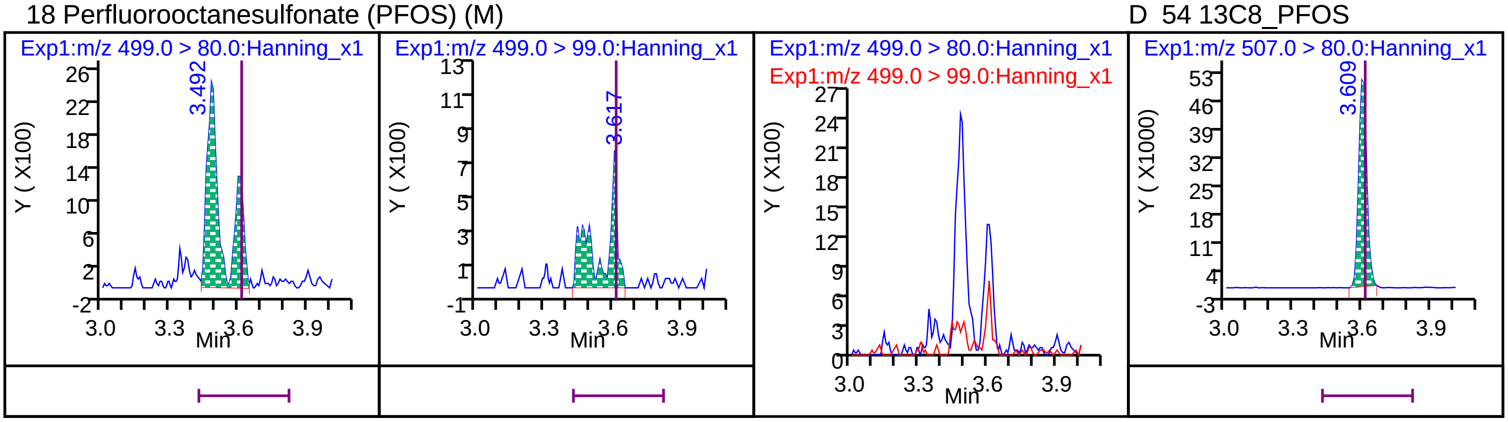
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



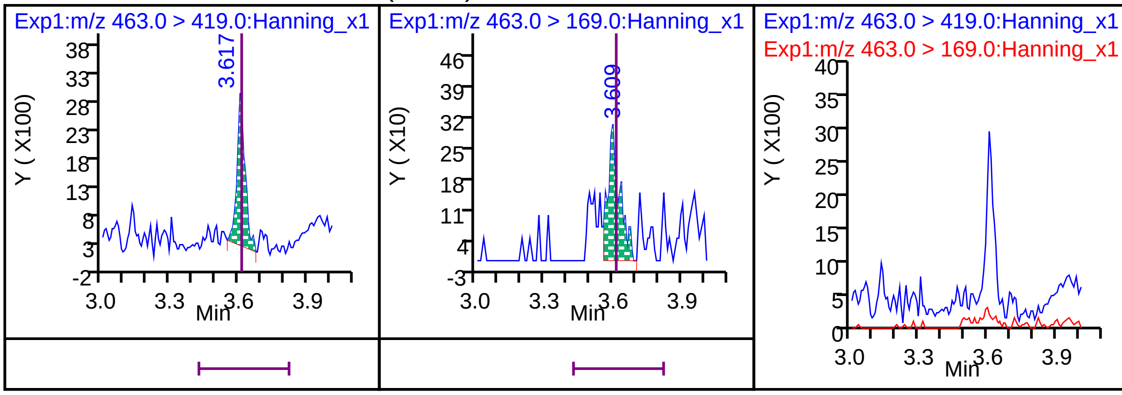
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



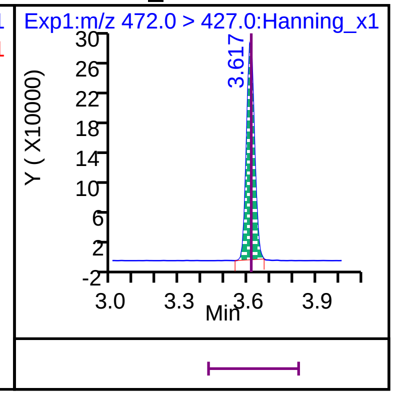
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



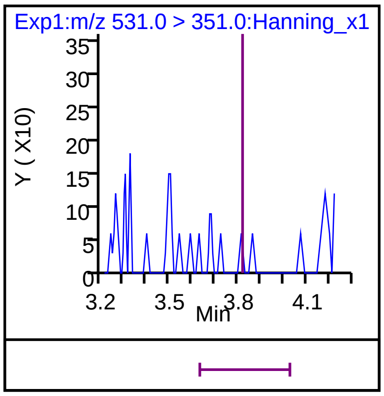
17 Perfluoro-n-nonanoic acid (PFNA)



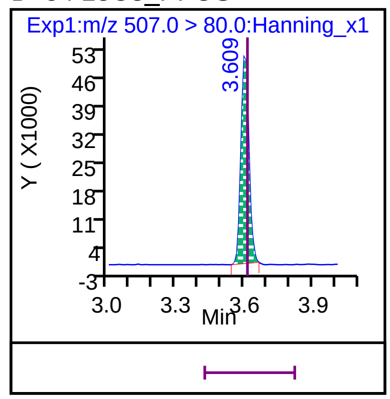
D 56 13C9_PFNA



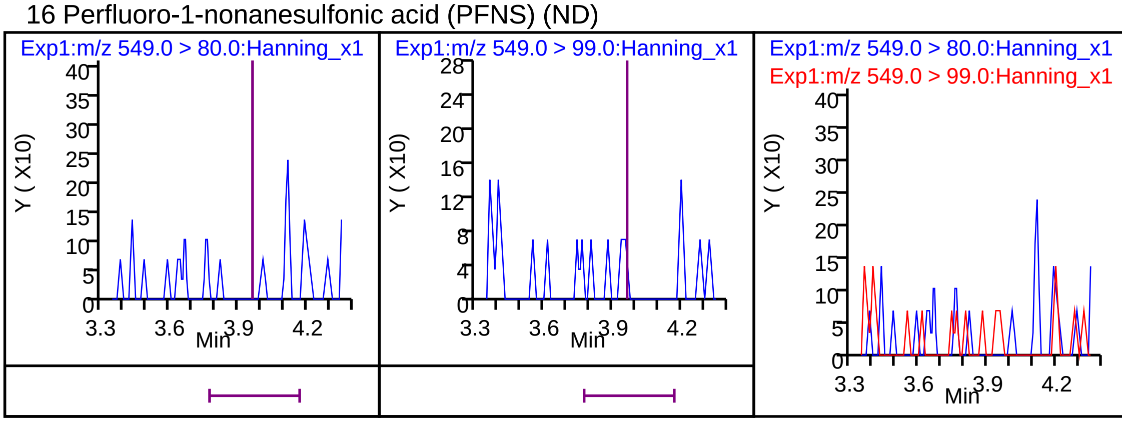
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND)



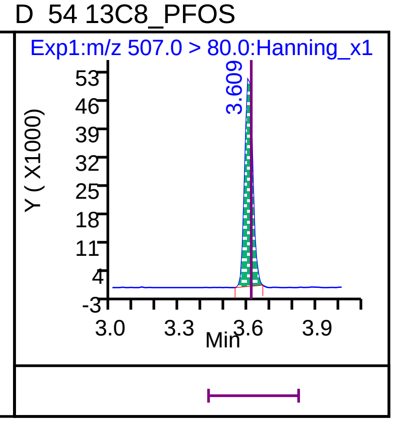
D 54 13C8_PFOS



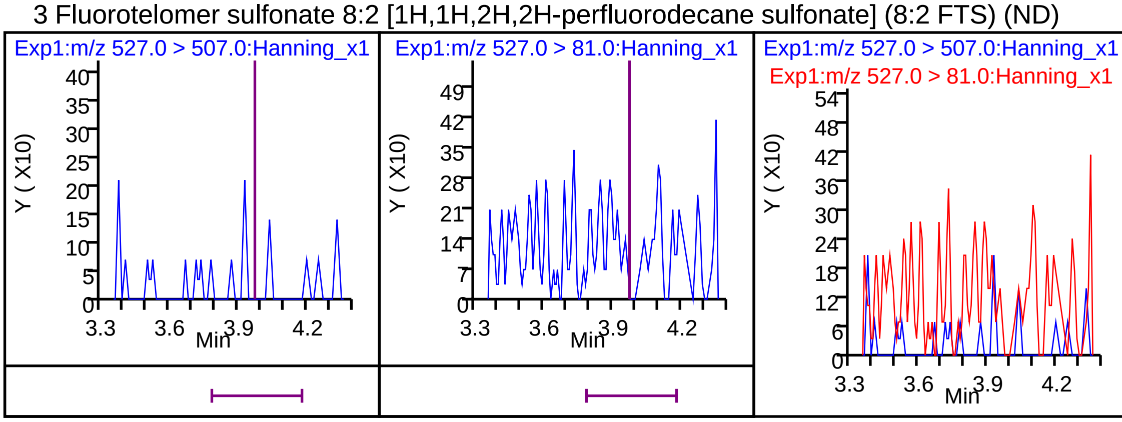
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND)



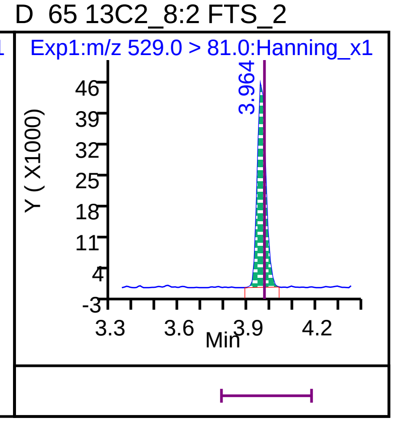
D 54 13C8_PFOS



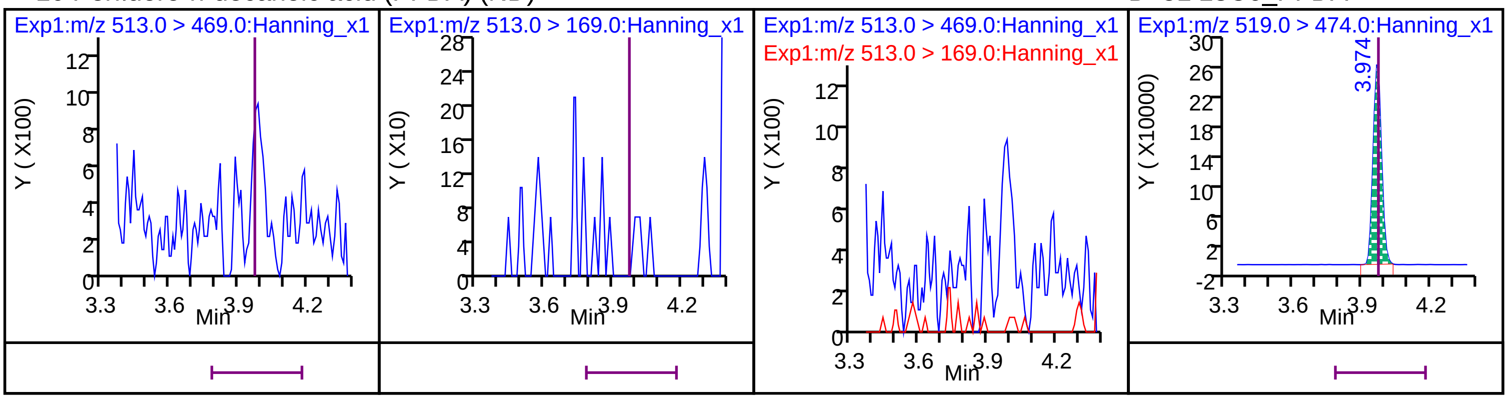
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND)



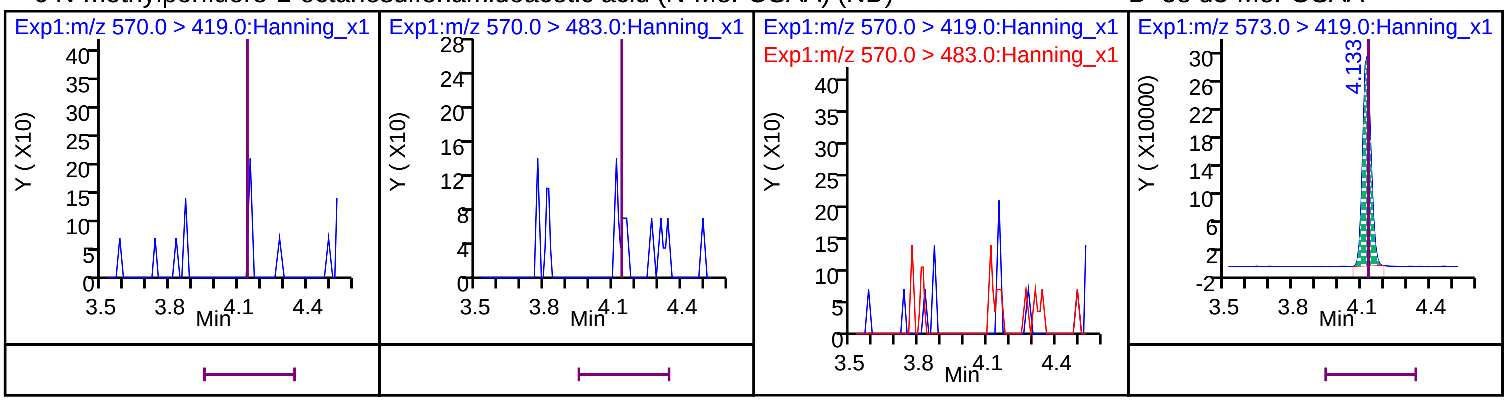
D 65 13C2_8:2 FTS_2



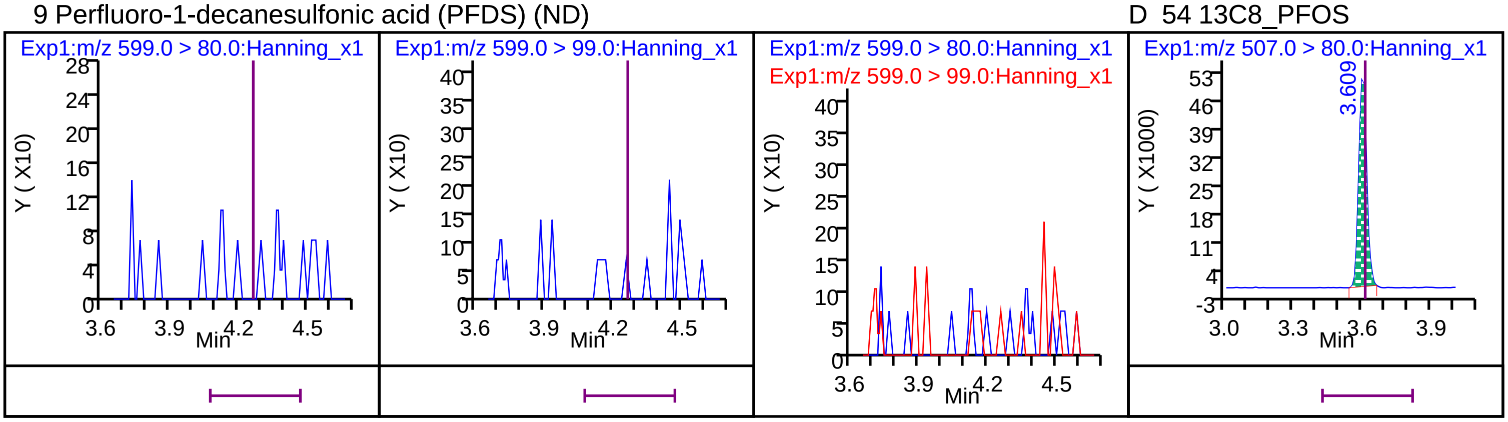
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



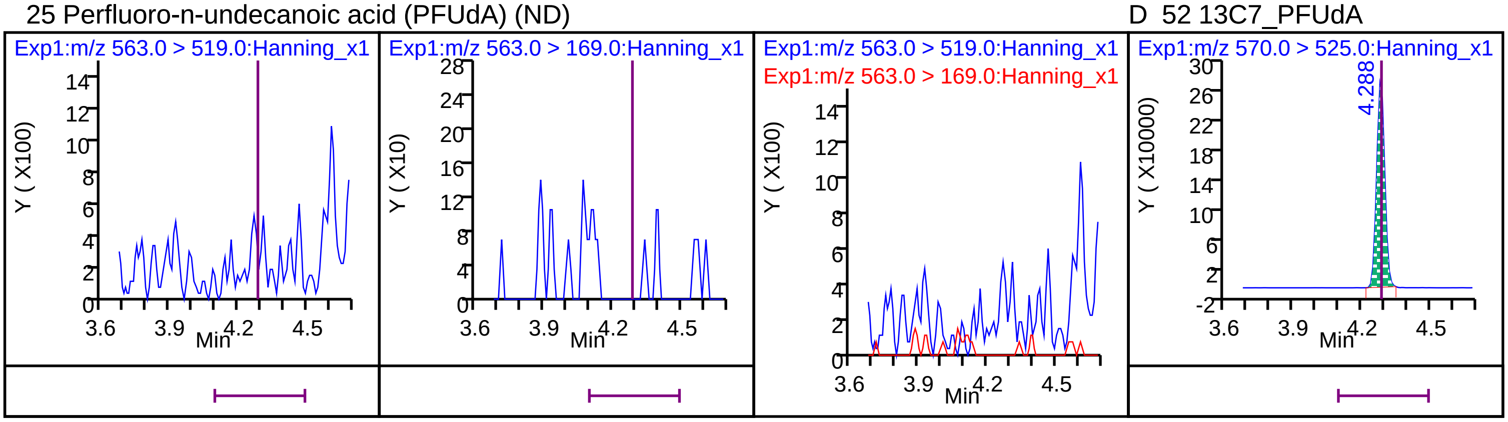
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



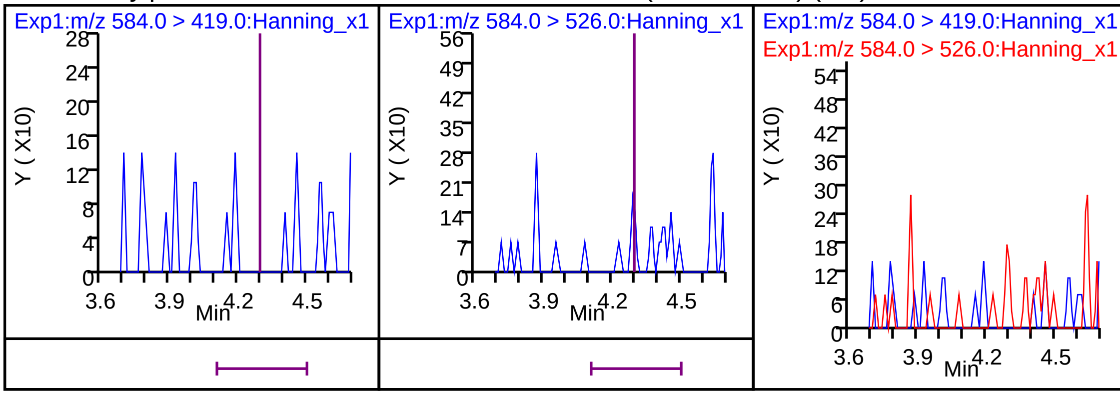
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



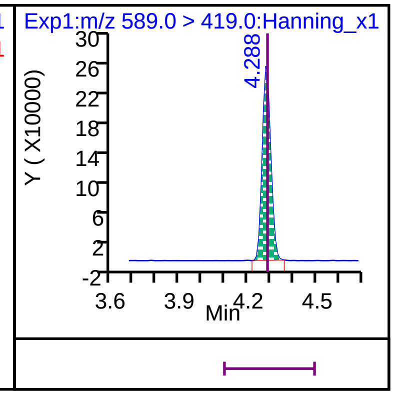
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



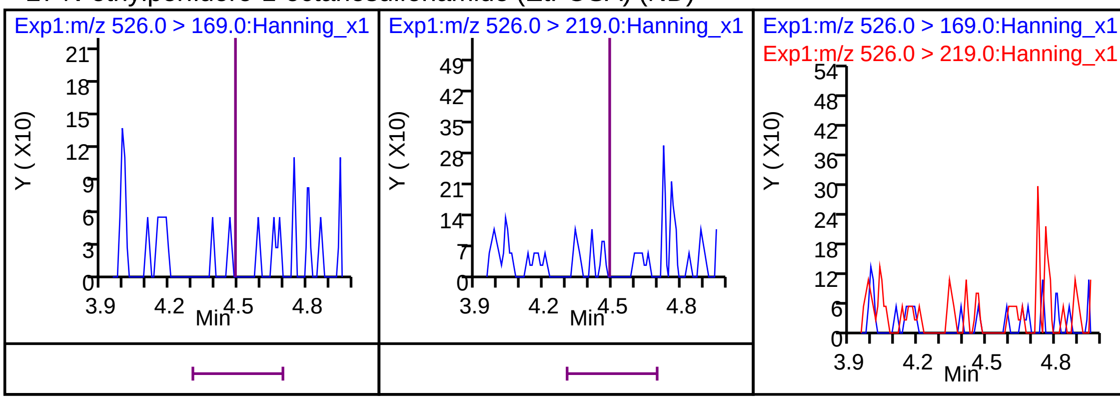
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)



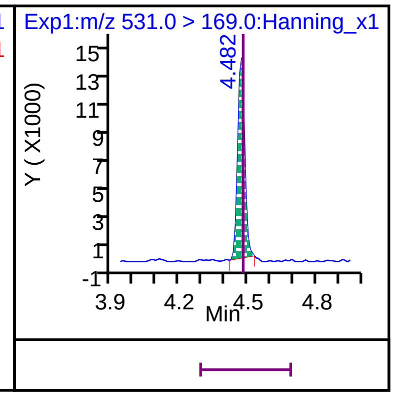
D 60 d5-EtFOSAA



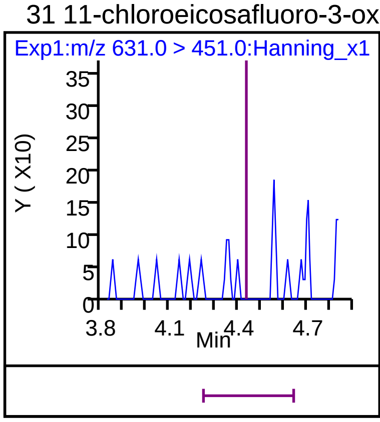
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



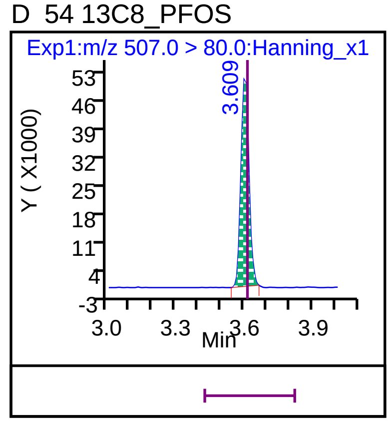
D 59 d5-EtFOSA



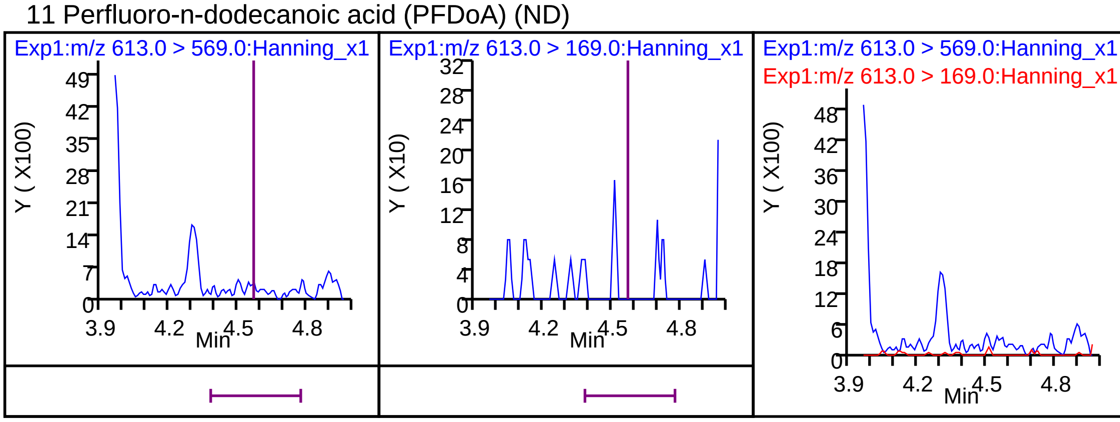
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



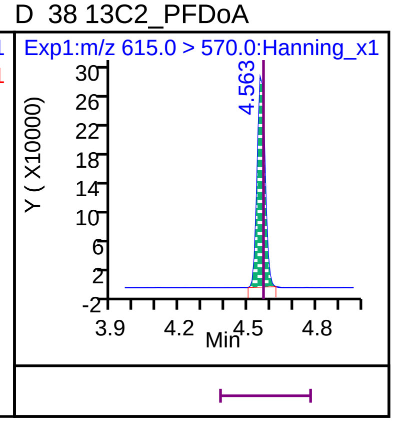
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

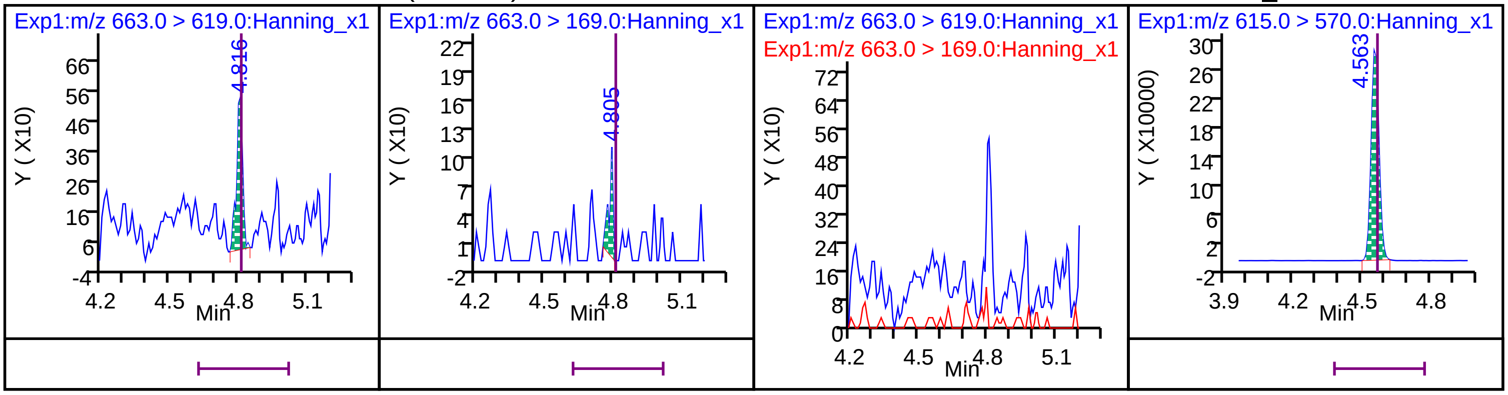


D 38 13C2_PFDoA

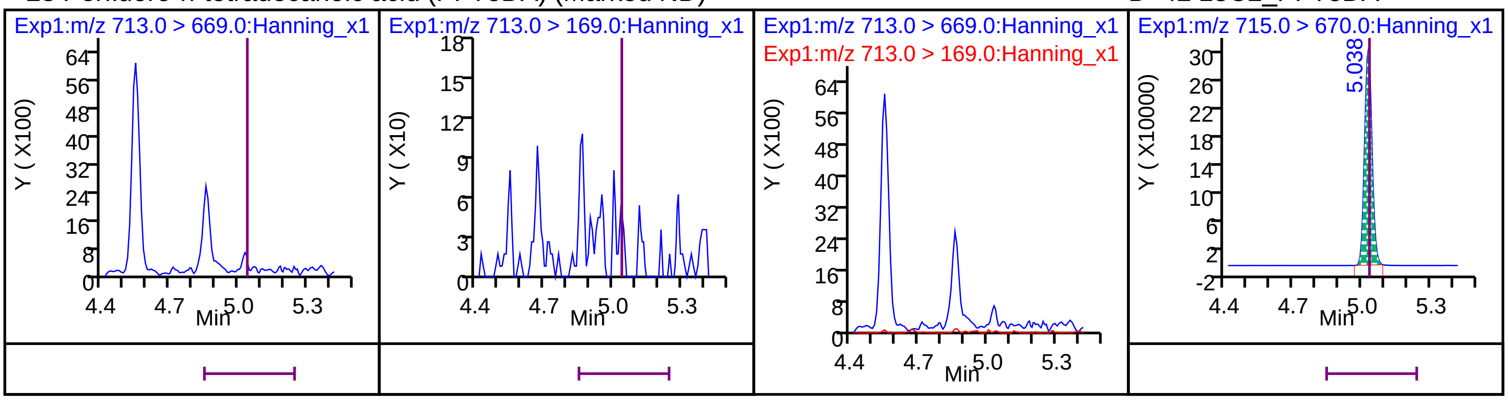


Report Date: 11-Nov-2021 18:39:35 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921042.d

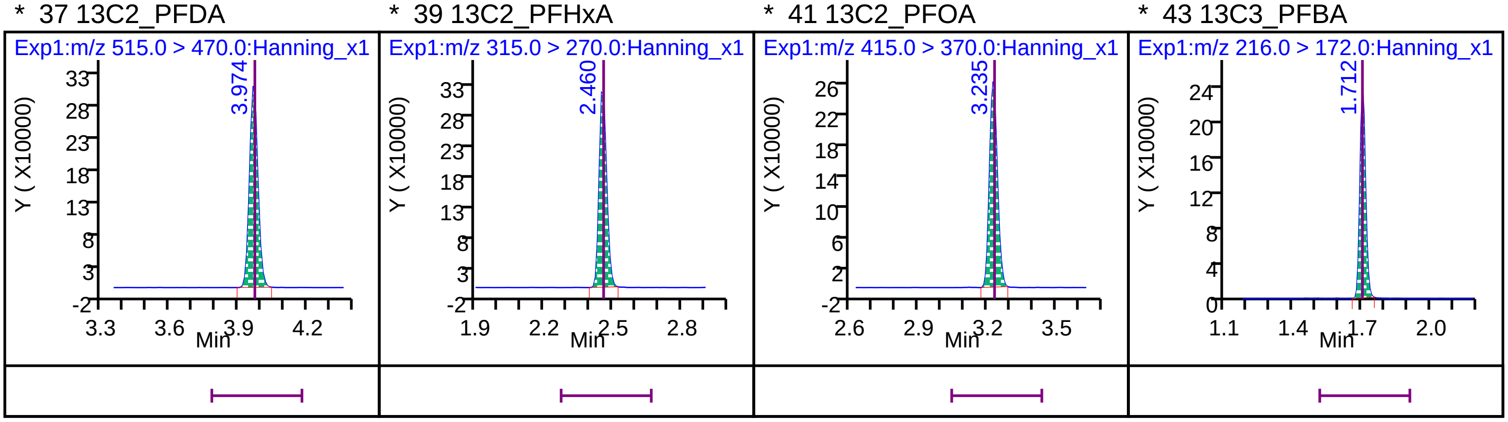
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



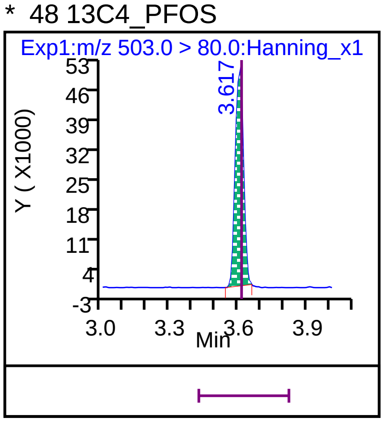
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

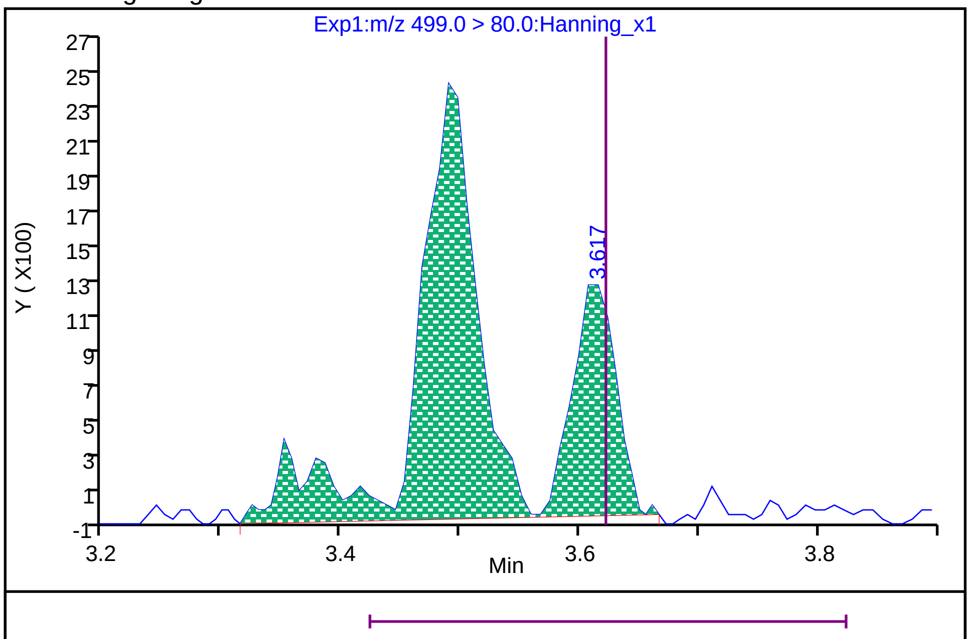
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921042.d		
Injection Date:	09-Nov-2021 22:33:52	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0143-042.0-20211102	Lab ID:	WK03035-004
Sample Info:	WK03035-004		
Dil. Factor:	1	Operator:	Justin Gavin

18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.617
Area:	11505
Conc:	2.9972
Conc Units:	ng/L



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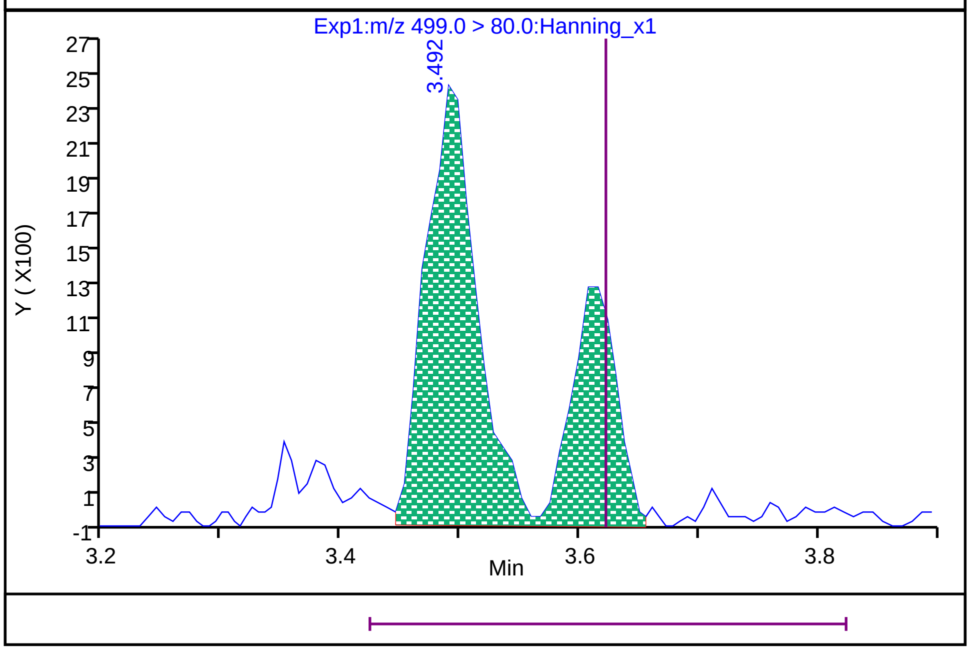


Data Editor: justin.gavin, 11-Nov-2021 17:55:34

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

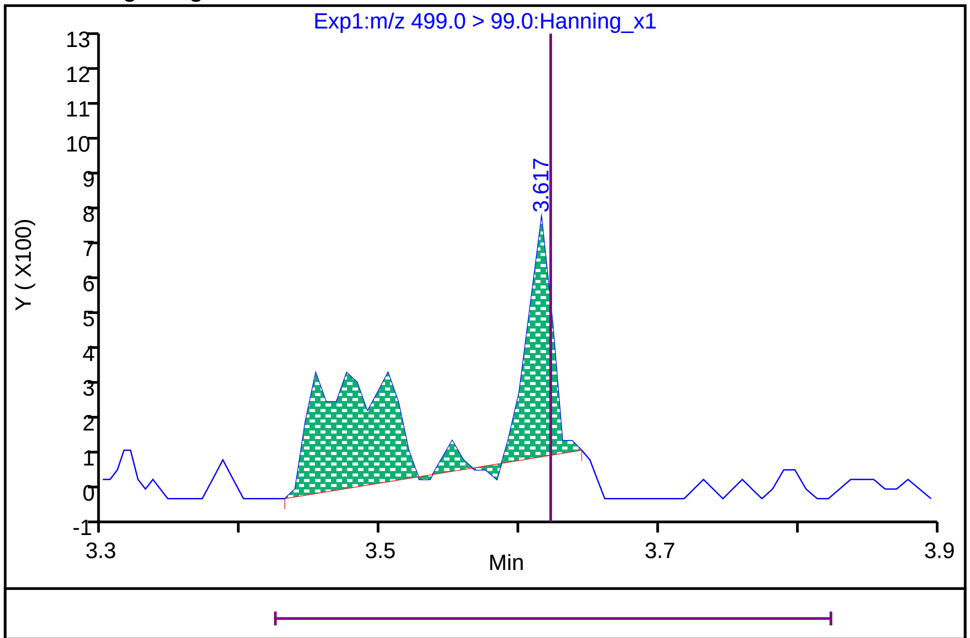
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921042.d		
Injection Date:	09-Nov-2021 22:33:52	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0143-042.0-20211102	Lab ID:	WK03035-004
Sample Info:	WK03035-004		
Dil. Factor:	1	Operator:	Justin Gavin

18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.617
Area:	1944
Conc:	2.7463
Conc Units:	ng/L



RT:	3.617
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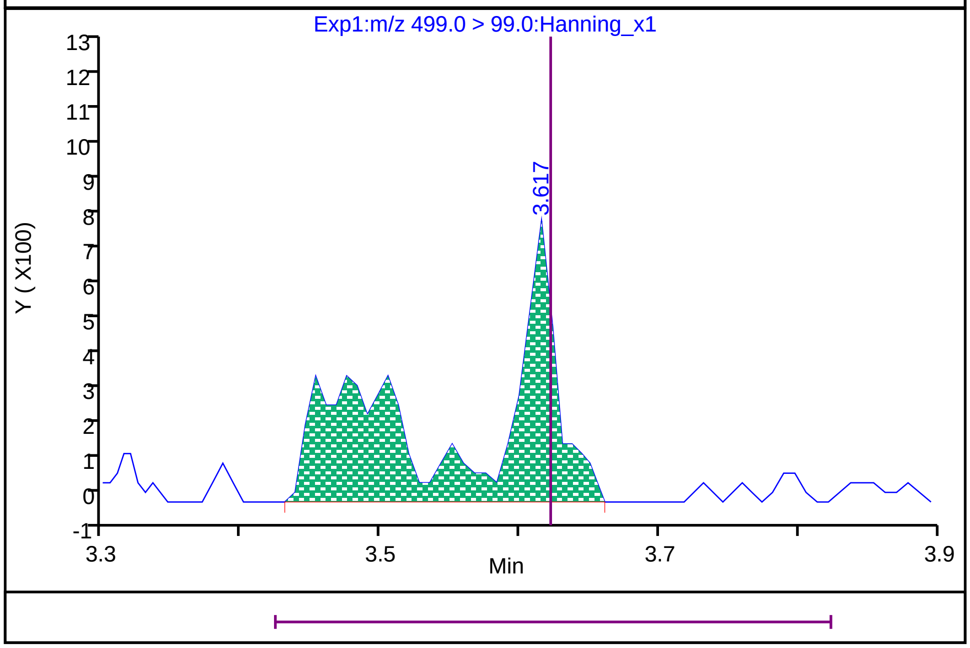
Conc:	2.7463
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 17:55:39

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-006
Description: SW3-DPT-0144-022.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 1235	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0253	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	500	11/06/2021 2204	MMM	11/03/2021 1629	21177
4	SOP SPE	PFAS by ID SOP QSM B-15	5000	11/10/2021 1555	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.6	I	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	730000	VD	35000	18000	8700	ng/L	4
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	7700	D	3500	1800	870	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	21		3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	29		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	440		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	15000	D	1700	850	430	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20000	D	1700	850	430	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	38000	D	1700	850	430	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	99		3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	19000	D	1700	850	430	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	62000	D	1700	850	430	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	580		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 4 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150		101	50-150		114	50-150
13C2_6:2FTS	N	255	50-150		98	50-150		114	50-150
13C2_8:2FTS		123	50-150		95	50-150		108	50-150
13C2_PFDoA		79	50-150		97	50-150		98	50-150
13C2_PFTeDA		60	50-150		98	50-150		110	50-150
13C3_PFBS		66	50-150		96	50-150		118	50-150
13C3_PFHxS		56	50-150		99	50-150		119	50-150
13C3-HFPO-DA		67	50-150		116	50-150		110	50-150
13C4_PFBA	N	16	50-150		101	50-150		112	50-150
13C4_PFHpA	N	39	50-150		96	50-150		113	50-150
13C5_PFHxA	N	27	50-150		98	50-150		116	50-150
13C5_PFPeA	N	16	50-150		96	50-150		116	50-150

LOQ = Limit of Quantitation | V = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure
U = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | I = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure
Q = Out of holding time | W = Reported on wet weight basis | LOD = Limit of Detection | D = Dilution > 1 | S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WK03035-006
Description: SW3-DPT-0144-022.0-20211102			Matrix: Aqueous
Date Sampled: 11/02/2021 1235	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 4 % Recovery	Acceptance Limits
13C6_PFDA		95	50-150		93	50-150		99	50-150
13C7_PFUdA		82	50-150		95	50-150		110	50-150
13C8_PFOA	N	20	50-150		105	50-150		113	50-150
13C8_PFOS		91	50-150		97	50-150		99	50-150
13C9_PFNA		80	50-150		95	50-150		106	50-150
d-EtFOSA		71	50-150		95	50-150		124	50-150
d5-EtFOSAA		95	50-150		110	50-150		110	50-150
d3-MeFOSAA		98	50-150		112	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	59
Lab Sample ID:	WK03035-006	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-022.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-006	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0381563

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	288	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.714	0	190717	18	>100:1			1001.00	177.13	16*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/1	34193182	18	>100:1			163179	6226.31		E
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.079	2.089	0	173788	14	>100:1			1001.00	173.28	15.9*	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.110	2.089	2/2	52999558	25	>100:1			284917	10871		ME
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	239301	14	>100:1			1001.00	736.83	65.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	178120	12	15:1	Target = 3.80		521.53	19.900		M
298.9 > 99	44	2.141	2.141		45382	19	34:1	3.92 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.494	2.493	1/0	182090	13	53:1	Target = 3.42		757.00	28.884		
349 > 99	44	2.494	2.493		57581	18	85:1	3.16 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.416	2.424	0	238474	16	40:1			5005.00	5741.25	109.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.416	2.415	1/1	16149583	15	>100:1	Target = 1.54		173666	6626.44		E
327 > 81	63	2.416	2.415		9906312	15	>100:1	1.63 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	274779	18	>100:1			1001.00	307.62	26.7*	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.485	2.467	2/1	58623059	24	>100:1	Target = 17.93		206681	7886.17		ME
313 > 119	49	2.459	2.467		13114763	17	>100:1	4.47 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	586728	16	>100:1			5005.00	3581.56	66.8	

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.587		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	384149	17	>100:1			1001.00	438.43	39*	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.846	0/-1	57188320	20	>100:1	Target = 3.26		154799	5906.57		E
363 > 169	47	2.846	2.846		40375947	17	>100:1	1.41 (1.63-4.89)					J
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	164909	15	>100:1			1001.00	628.75	55.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/0	2223215	26	>100:1	Target = 3.48	4.85	11416	435.58		
399 > 99	45	2.864	2.863		582574	25	>100:1	3.81 (1.74-5.22)	7.53				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.240	3.229	1/0	91169	17	>100:1	Target = 3.56		538.04	20.530		
449 > 99	45	3.240	3.229		26668	20	>100:1	3.41 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.195	3.204	0	496591	23	>100:1			5005.00	13168	255.2*	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.214	3.204	1/1	67047111	32	>100:1	Target = 1.34		388635	14829		ME
427 > 81	64	3.189	3.204		64458796	27	>100:1	1.04 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.223	1	184894	21	>100:1			1001.00	223.57	20*	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.246	3.229	1/0	51328836	52	>100:1	Target = 2.50	60.71	270080	10305		ME
413 > 169	53	3.233	3.229		32070339	42	>100:1	1.60 (1.25-3.75)	61.47				M
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.591	3.595	0	222844	19	27:1			1001.00	992.71	90.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.591	3.595	0/0	3977024	40	>100:1	Target = 4.01	0.81	15154	578.23		M
499 > 99	54	3.591	3.595		895531	42	>100:1	4.44 (2.00-6.02)	2.19				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.799		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.926		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.226		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.386		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	799360	19	>100:1			1001.00	1000.43	80	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/0	1891731	20	>100:1	Target = 4.69		2601.47	99.263		
463 > 169	56	3.599	3.595		410472	19	>100:1	4.60 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	189041	19	>100:1			5005.00	6023.20	123.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.932	3.934	0/0	9767	25	44:1	Target = 1.58		145.55	5.5537		
527 > 81	65	3.940	3.934		4675	15	2.8:1	2.08 (0.79-2.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	0	747567	17	>100:1			1001.00	1035.70	95.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.942		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	884706	17	>100:1			5005.00	4989.52	98	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.098		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.241	4.253	0	600866	17	>100:1			1001.00	879.20	82	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.253		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.253	0	737339	18	>100:1			5005.00	4931.02	94.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.253		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.463	0	46656	19	>100:1			1001.00	724.41	71.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.470		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	588985	19	>100:1			1001.00	856.53	78.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.521		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.760		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	543973	26	>100:1			1001.00	695.84	60.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.978		ND								
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	0	666378	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	379427	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.240	3.223	1	257877	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.714	0	158598	17	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.591	3.595	0	209807	19	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

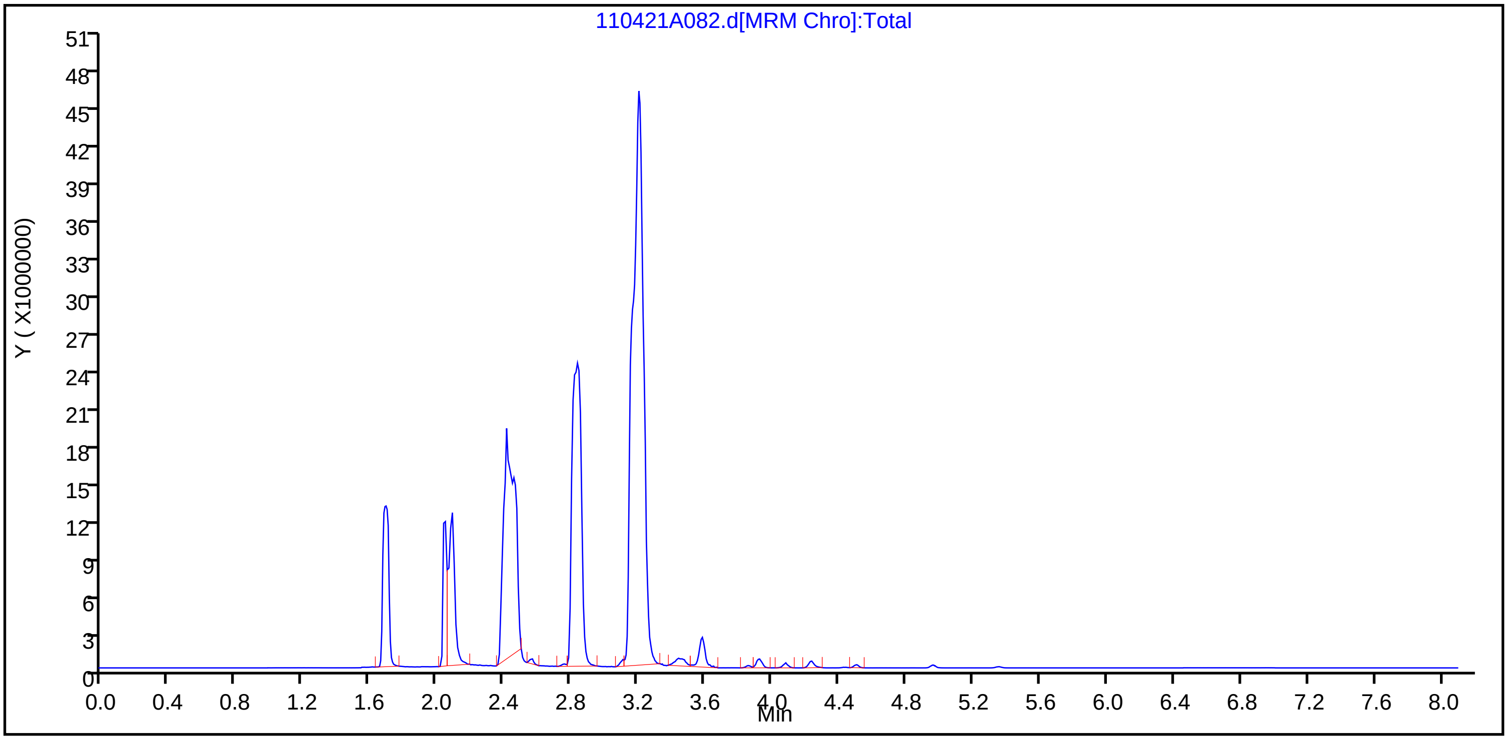
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
E - Compound Concentration Exceeds Max. Calibration Range
M - Compound Hit/Peak Manually Integrated

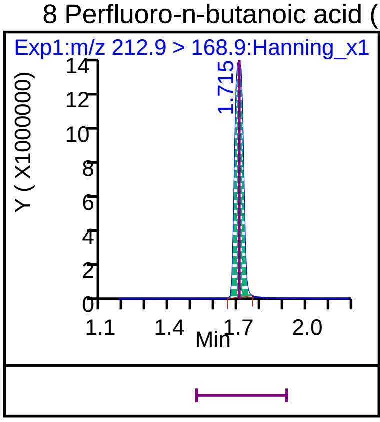
Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

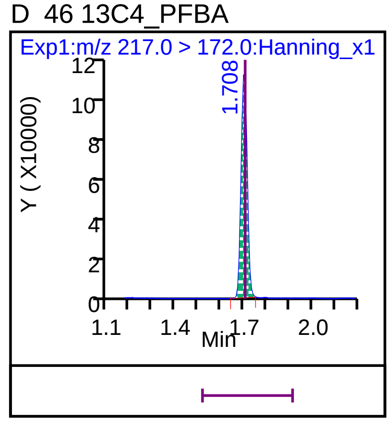
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller



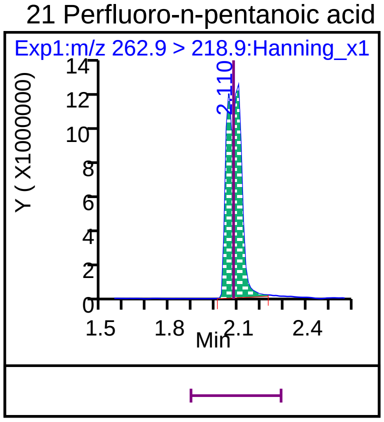
8 Perfluoro-n-butanoic acid (PFBA)



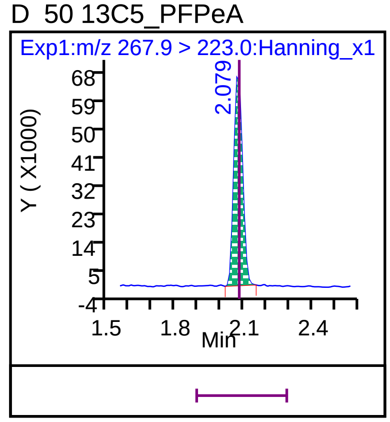
D 46 13C4_PFBA



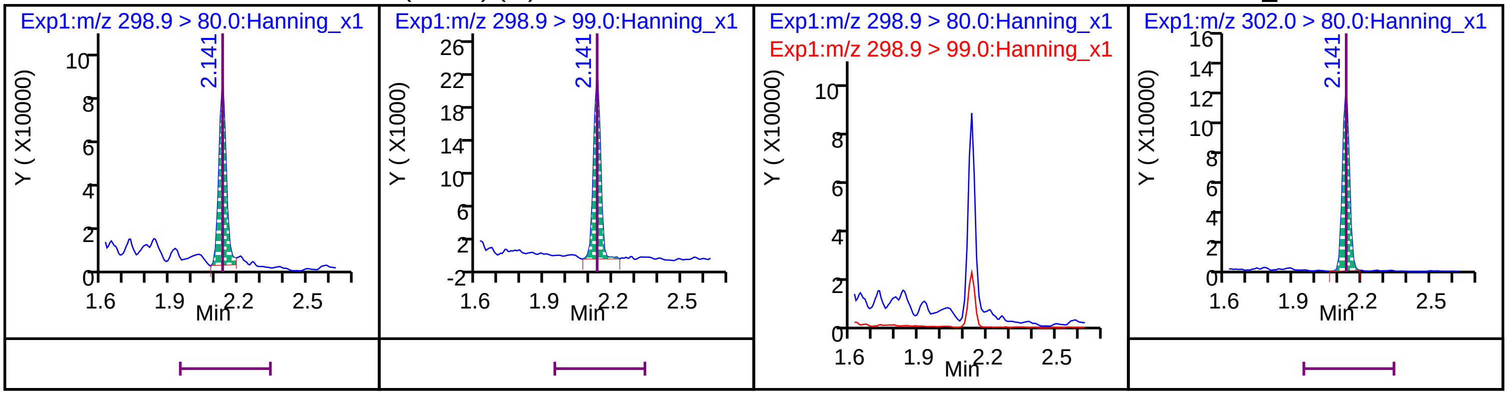
21 Perfluoro-n-pentanoic acid (PFPeA) (M)



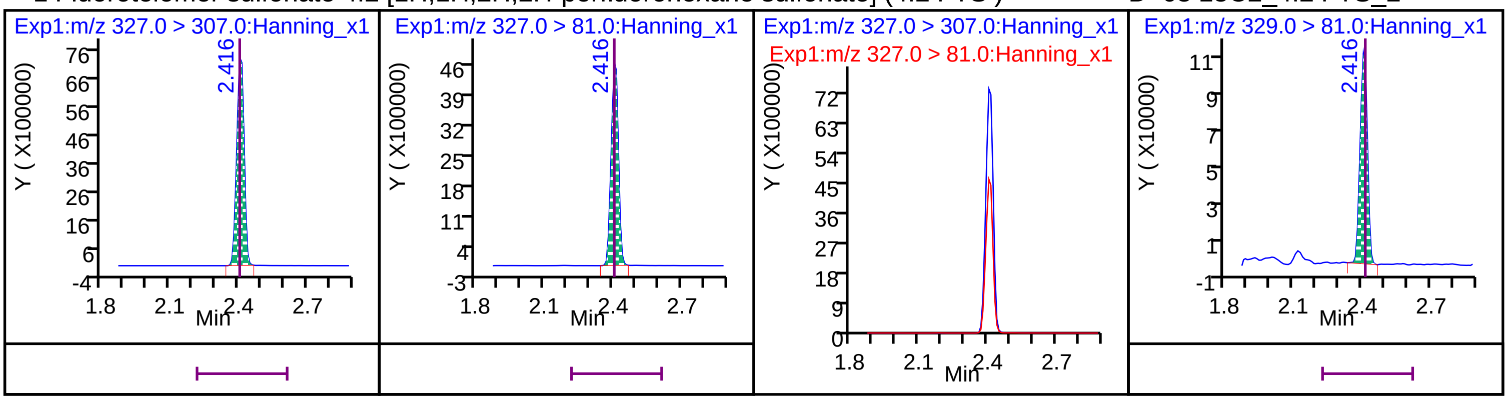
D 50 13C5_PFPeA



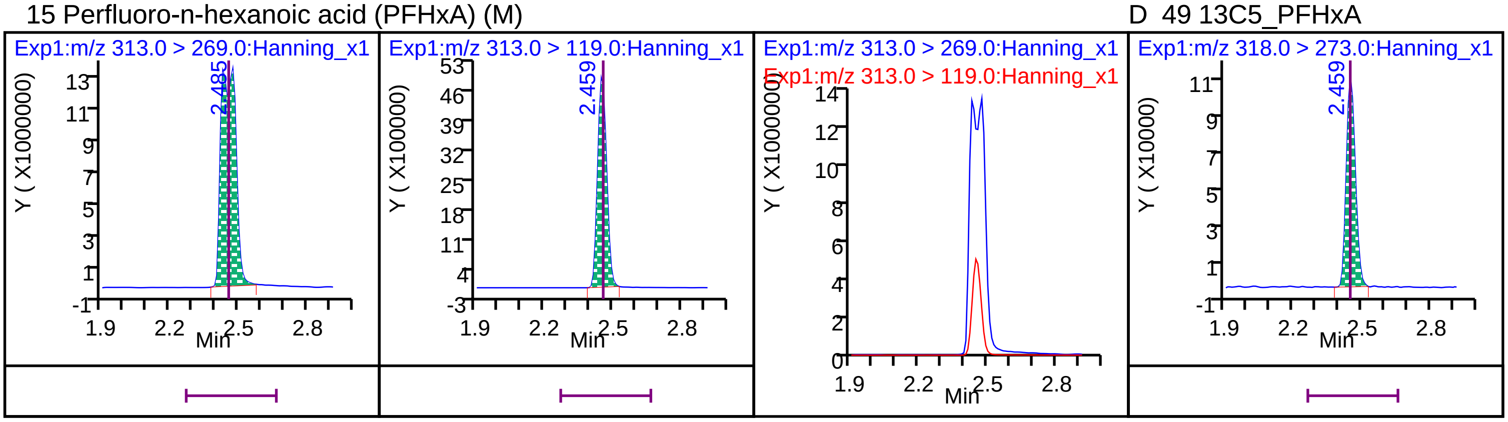
7 Perfluoro-1-butanesulfonate (PFBS) (M) D 44 13C3_PFBS



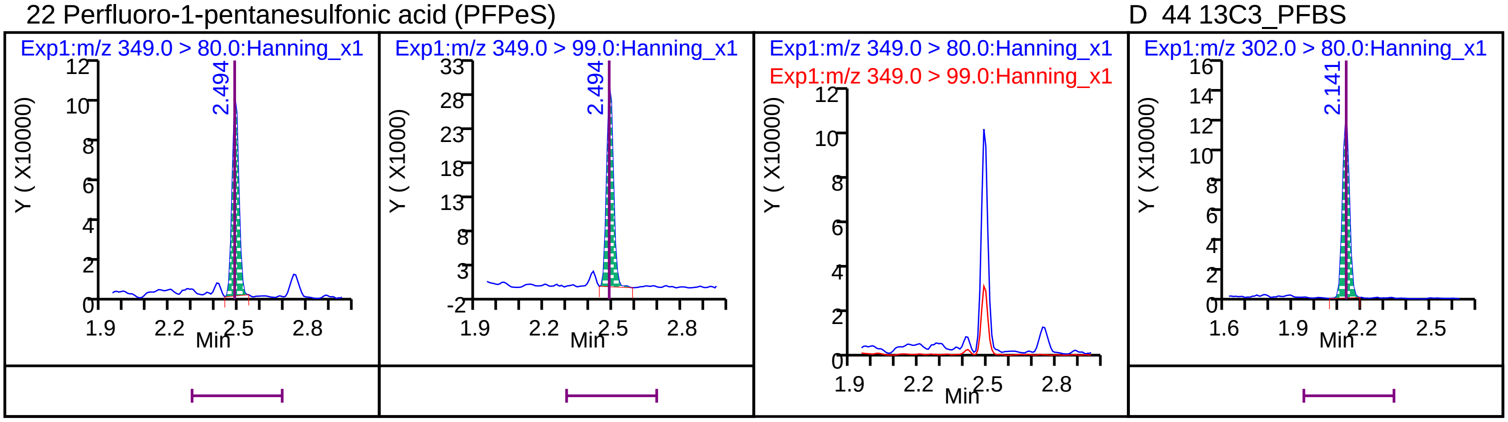
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



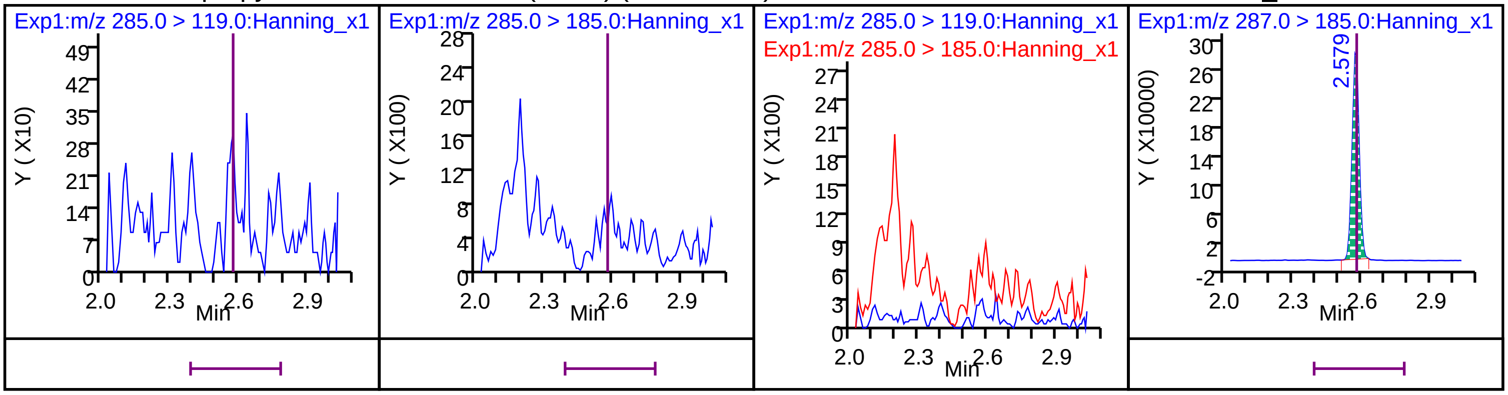
15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA



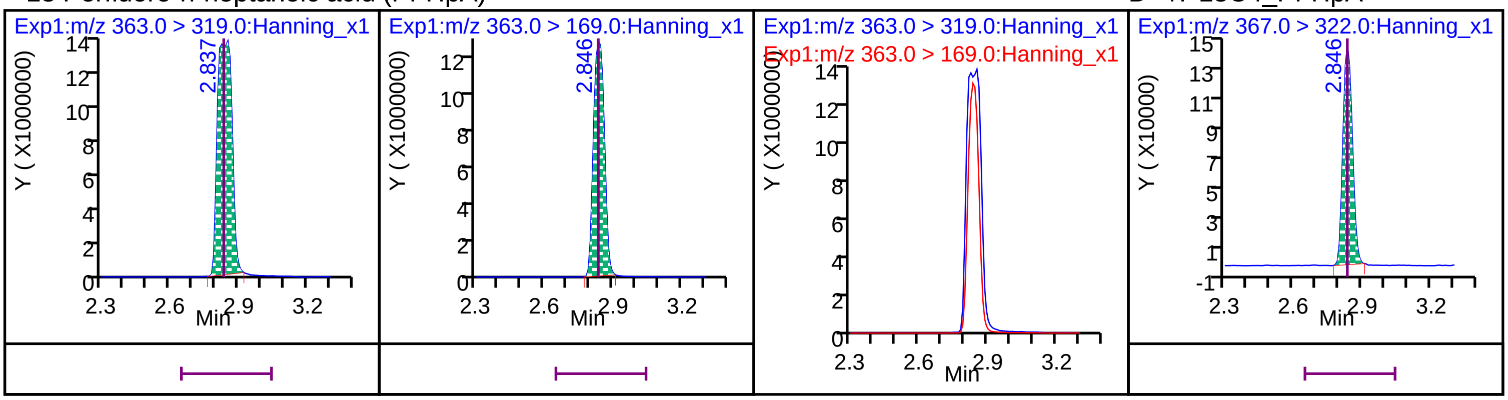
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



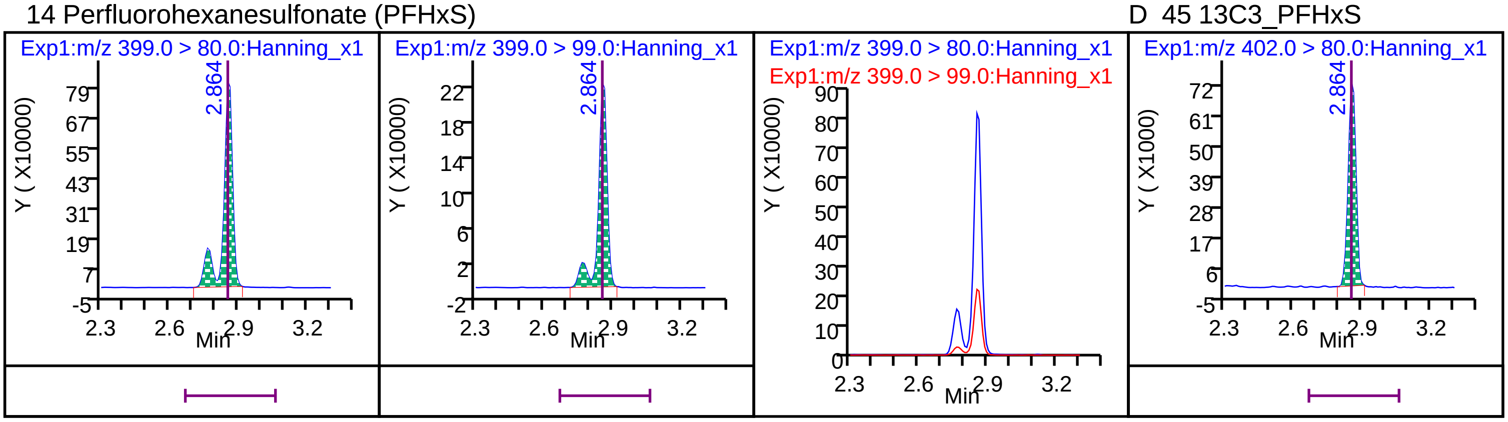
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



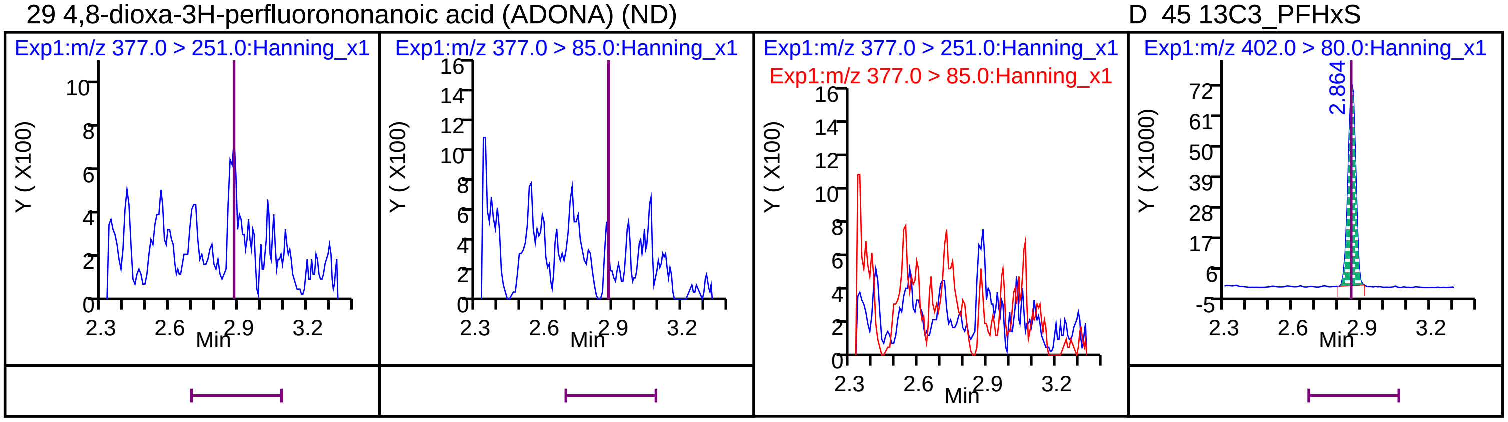
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



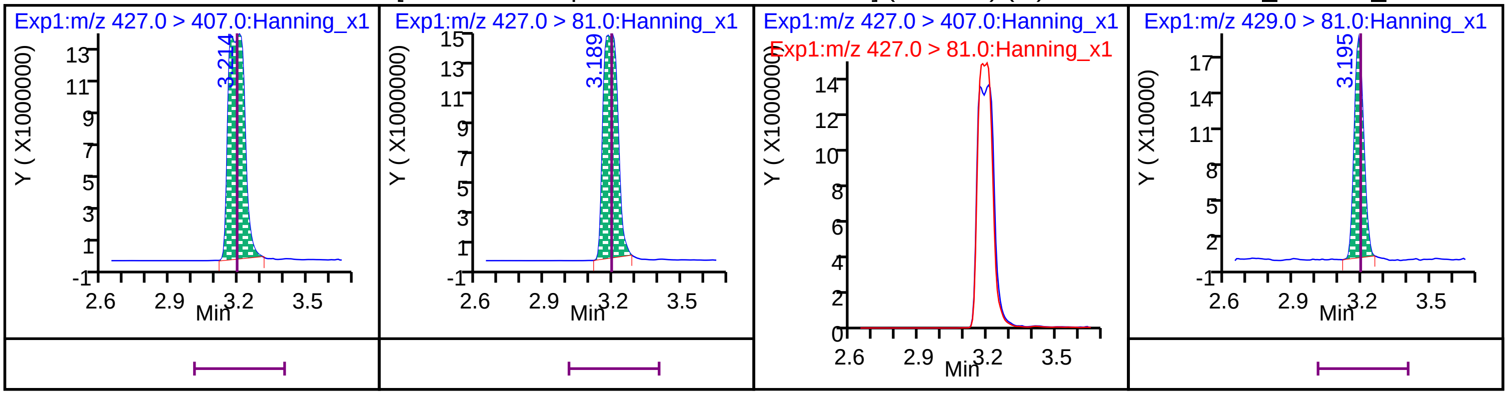
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



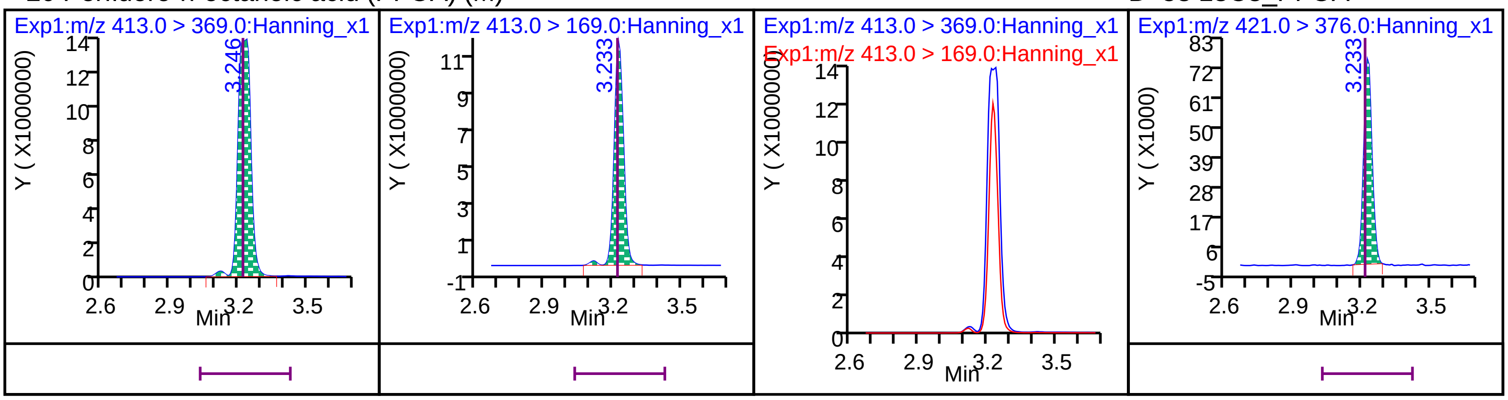
Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d

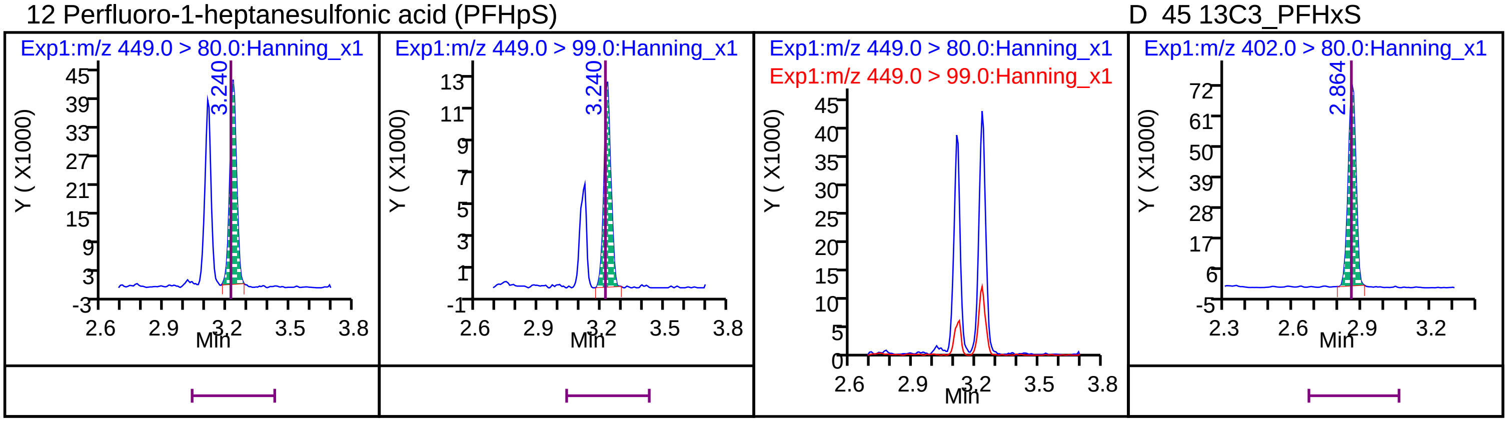
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



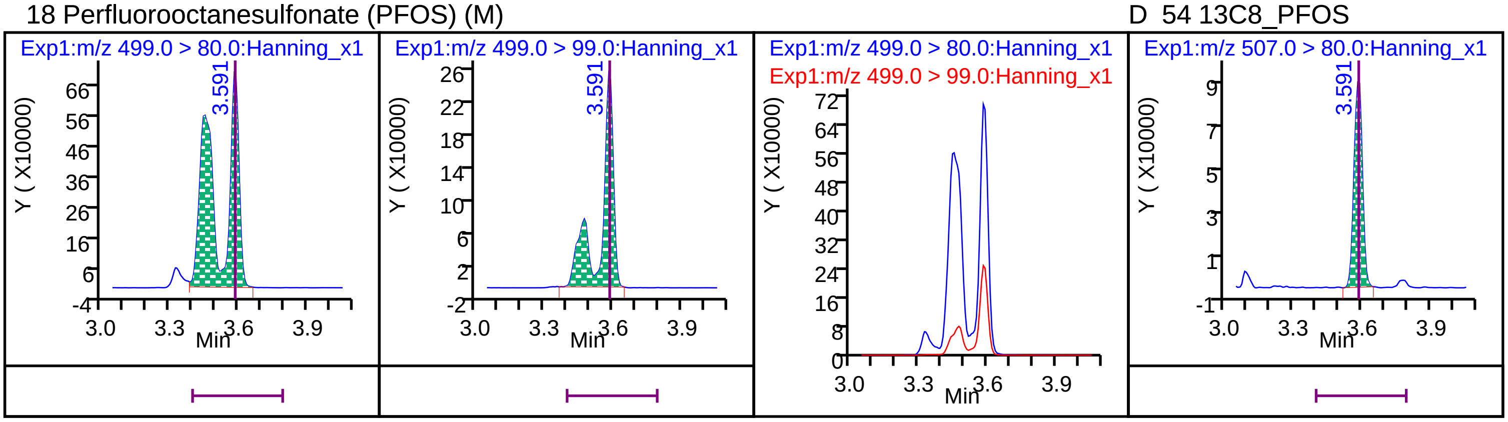
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



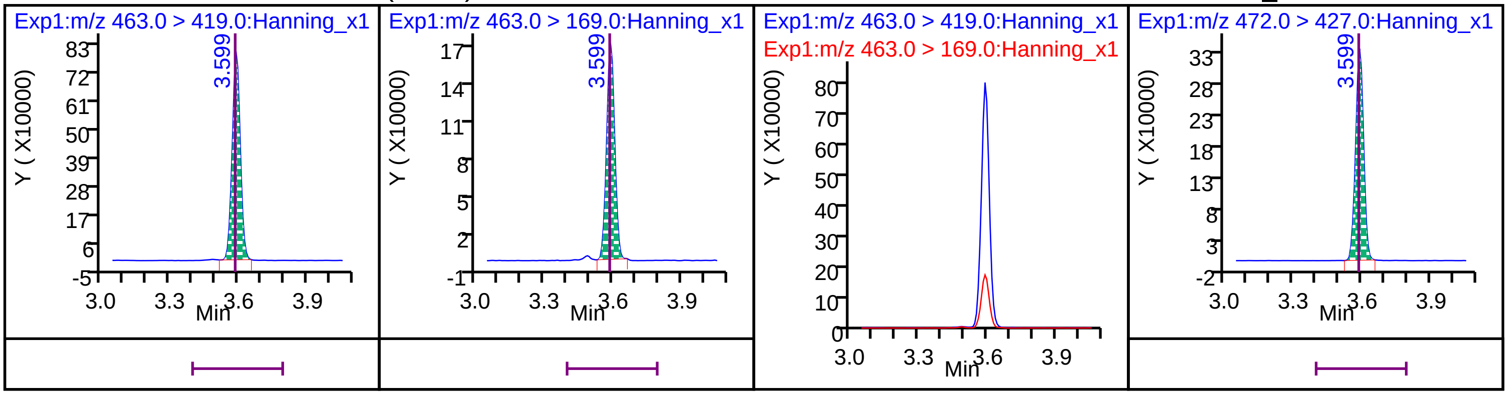
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



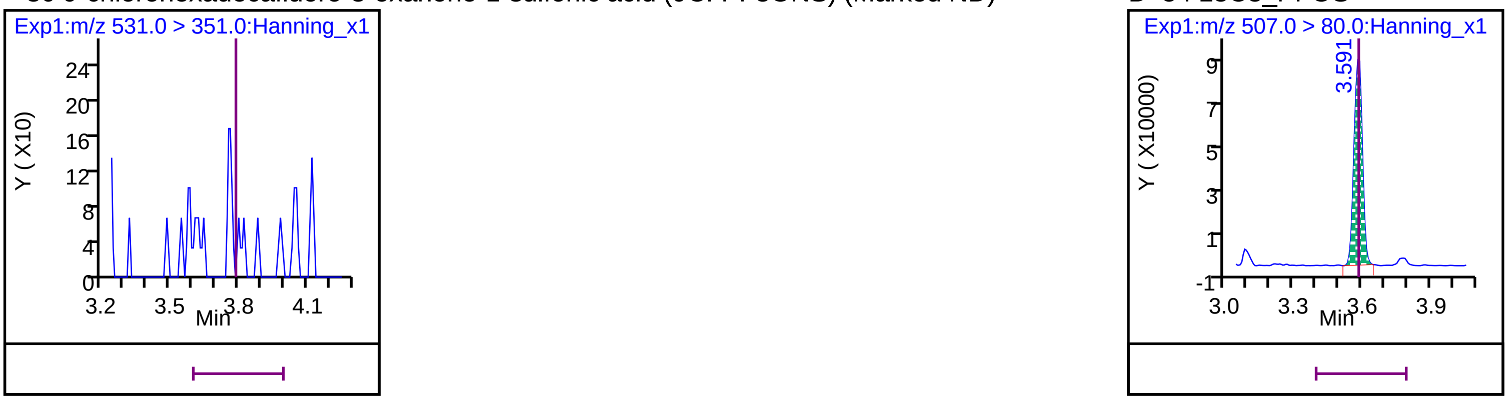
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



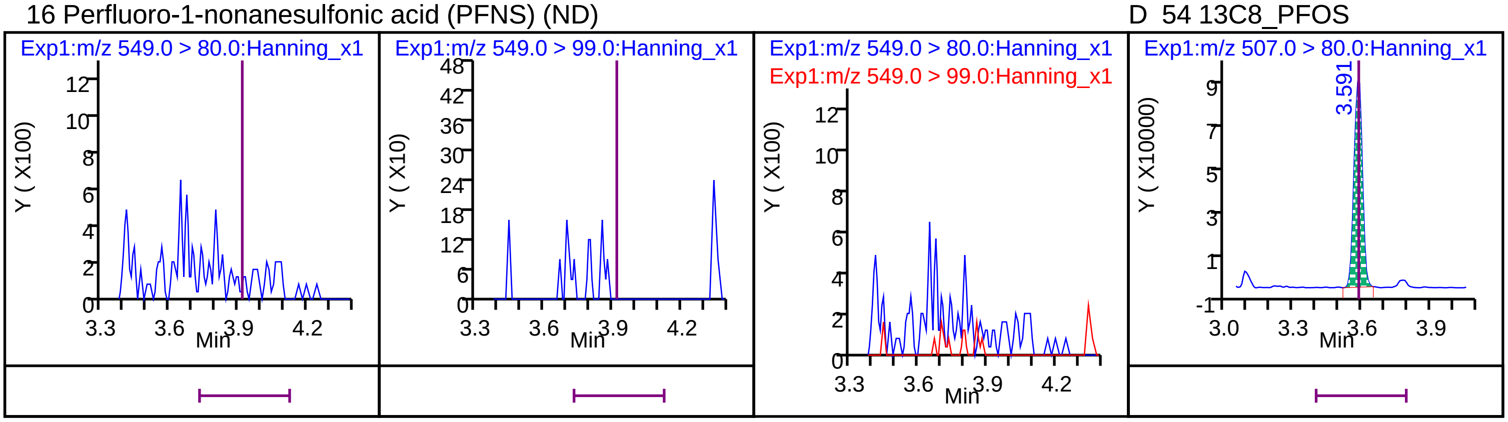
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



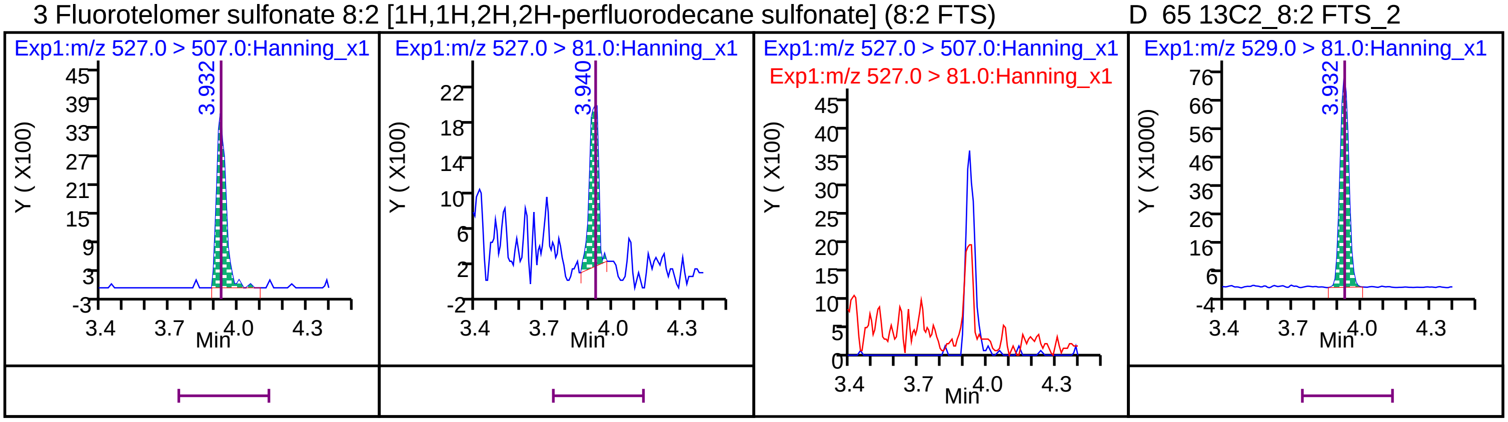
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

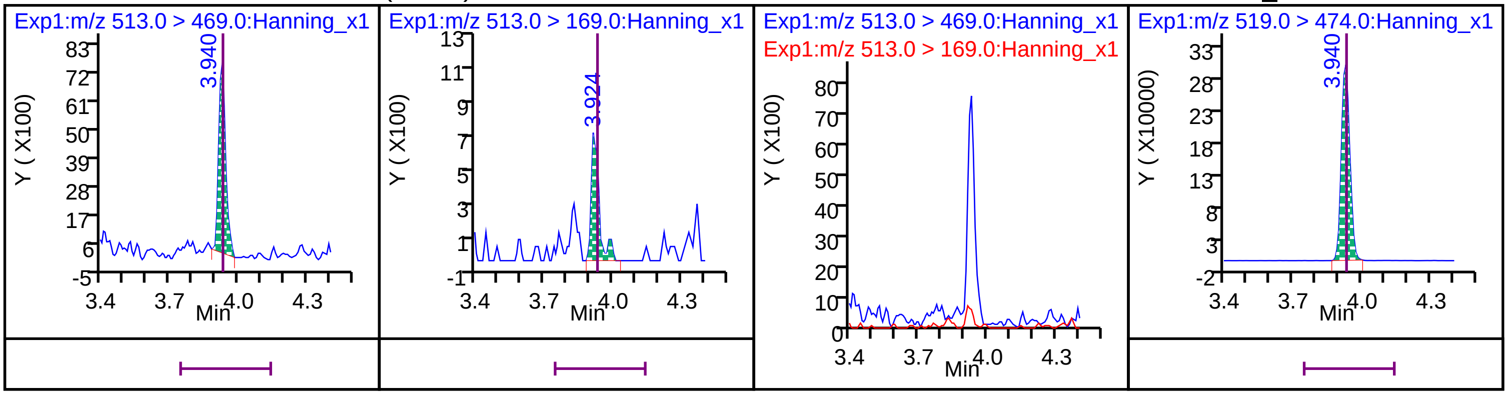


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

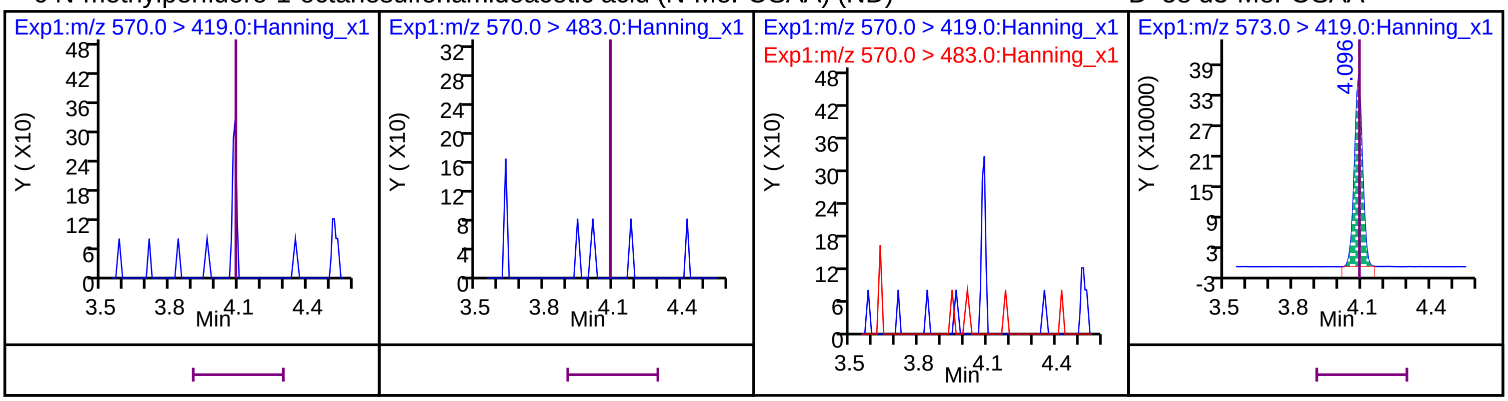


Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d

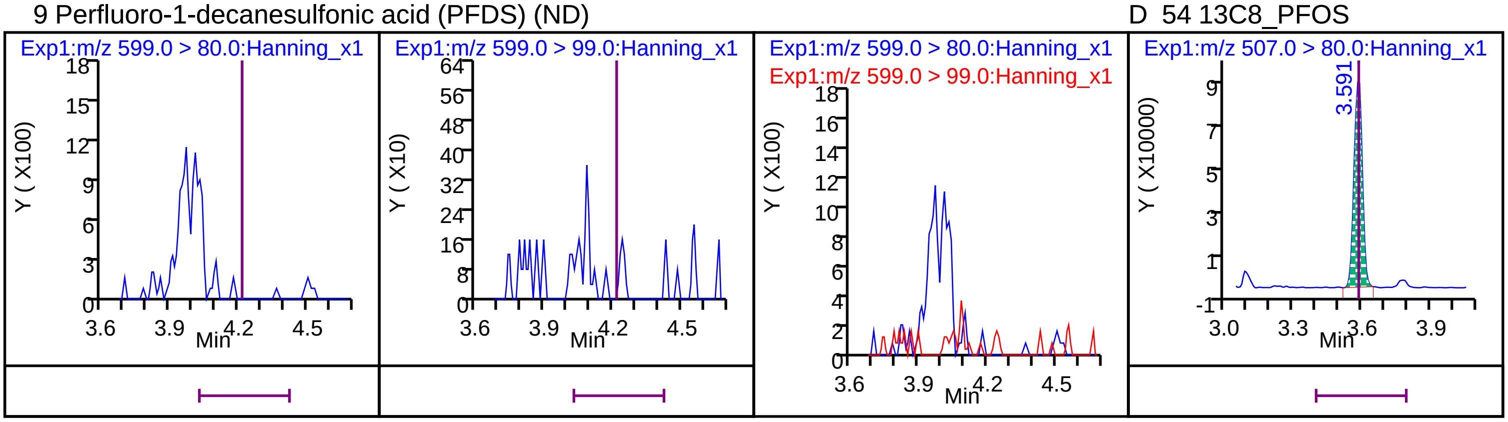
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



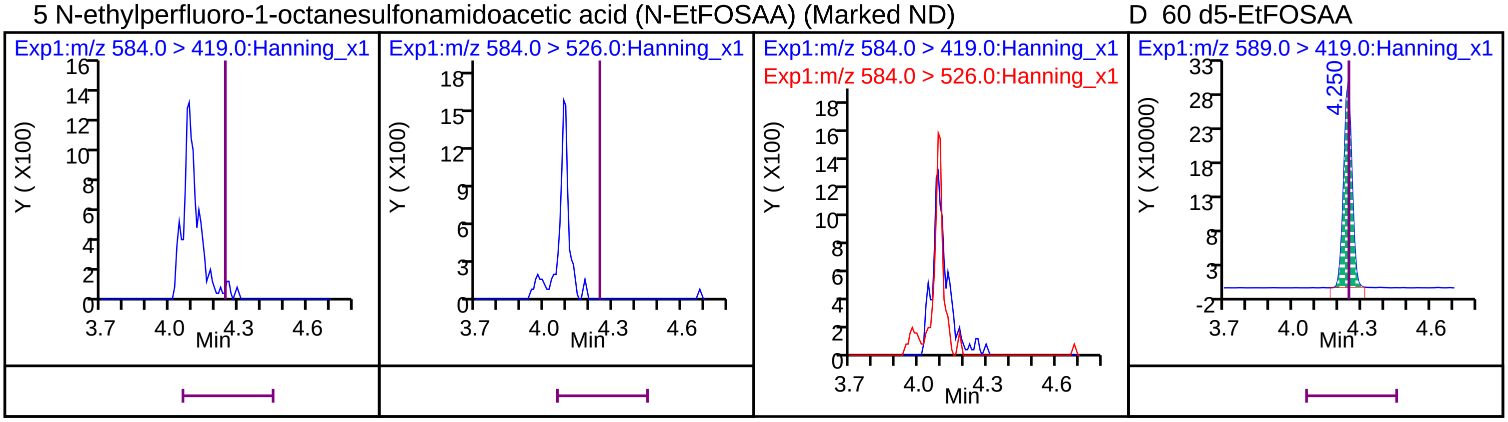
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

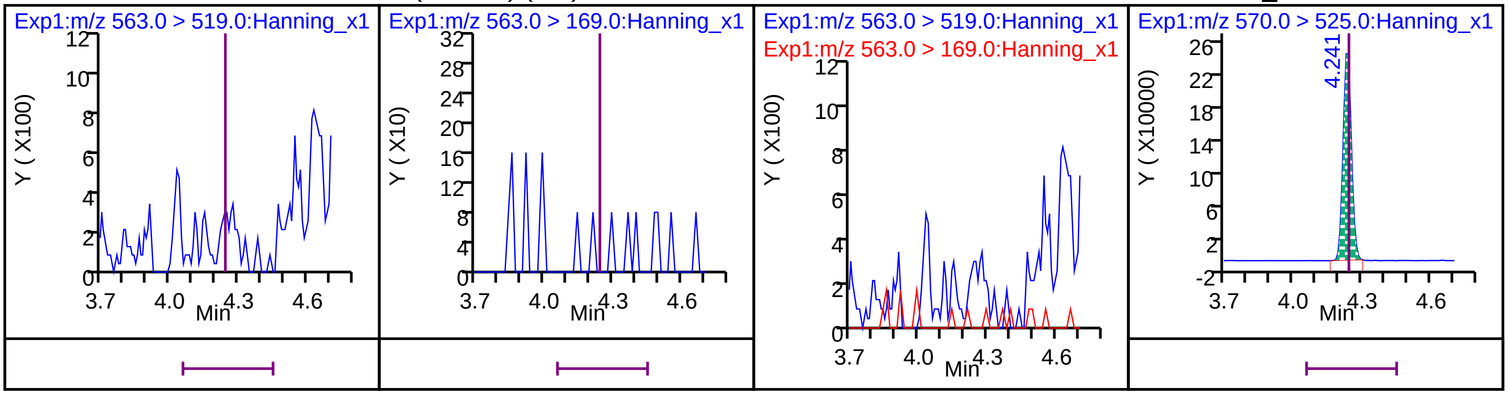


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA

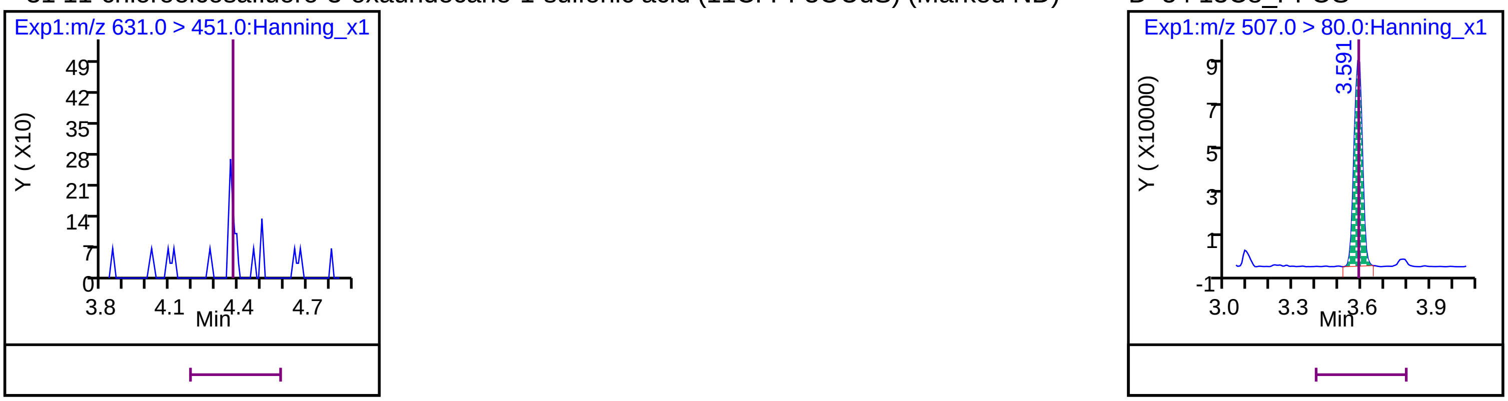


Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d

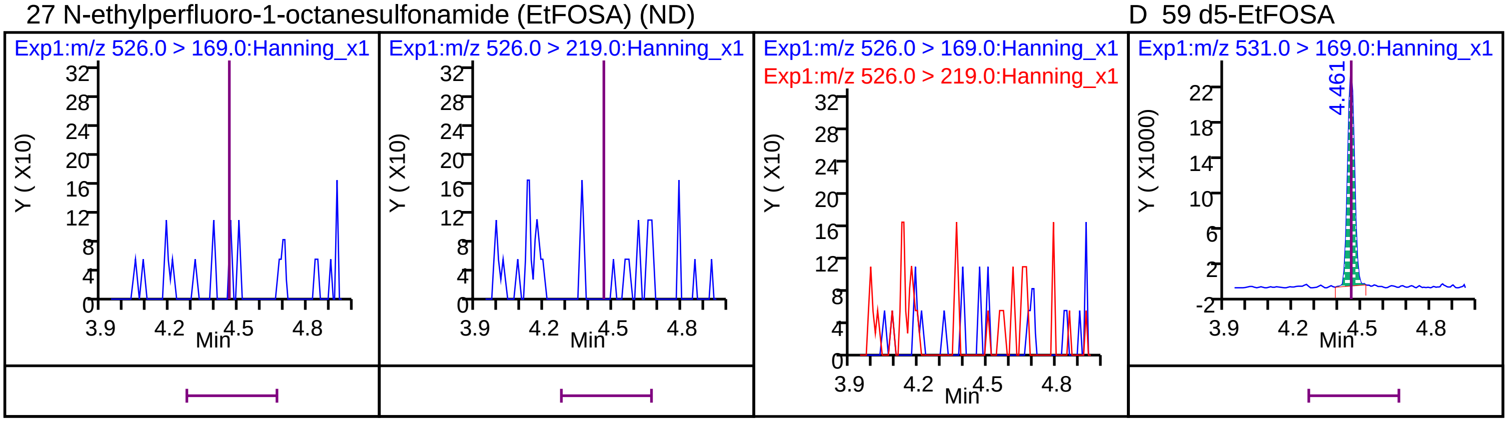
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



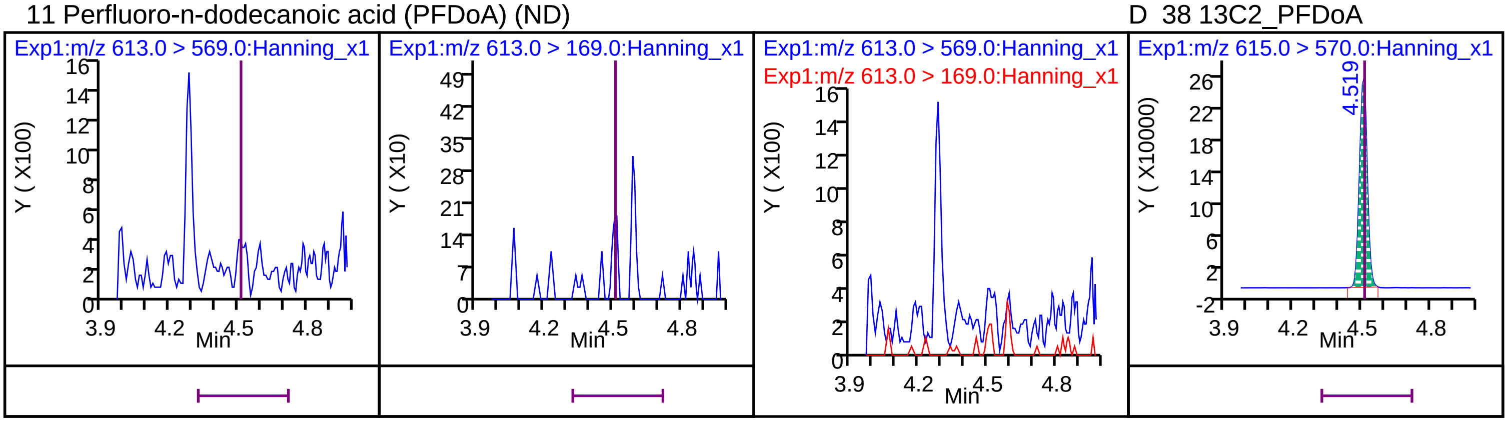
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



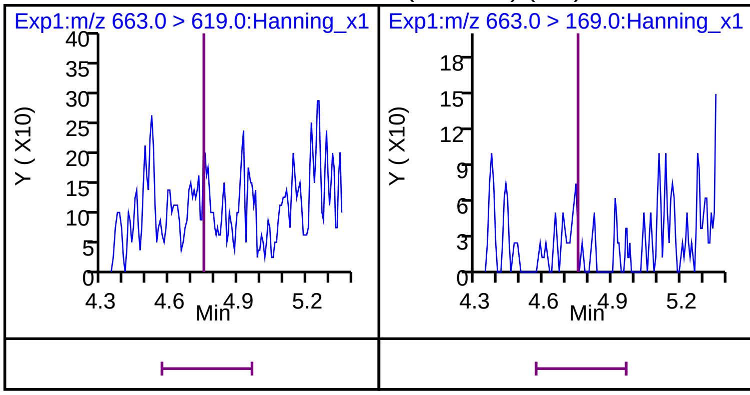
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



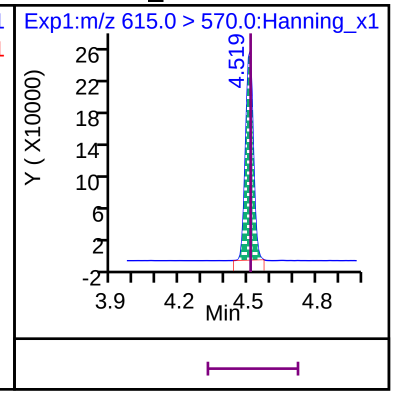
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



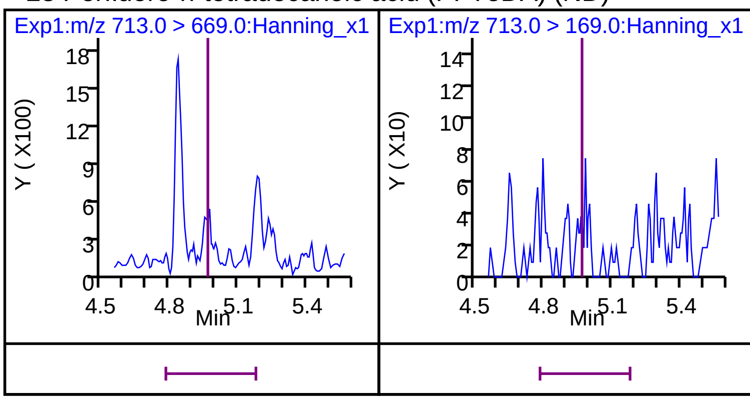
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



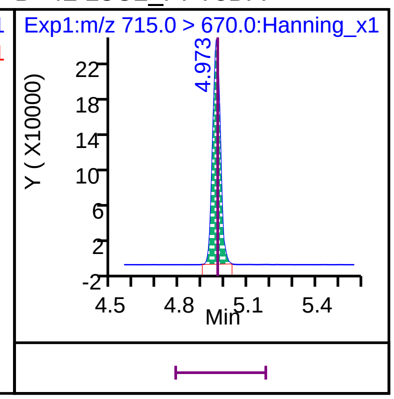
D 38 13C2_PFDoA



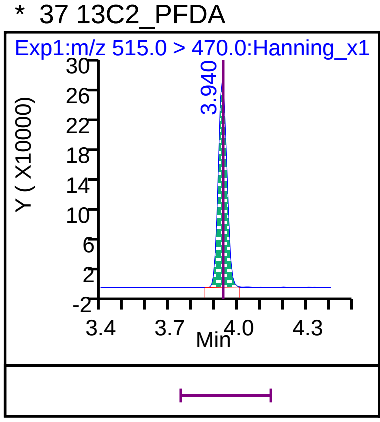
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



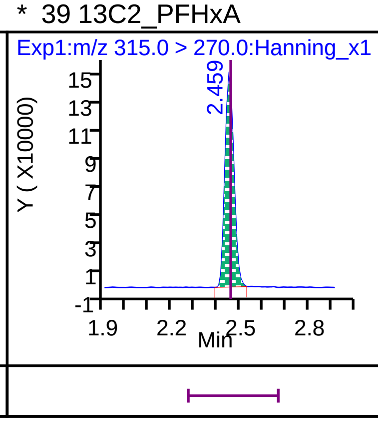
D 42 13C2_PFTeDA



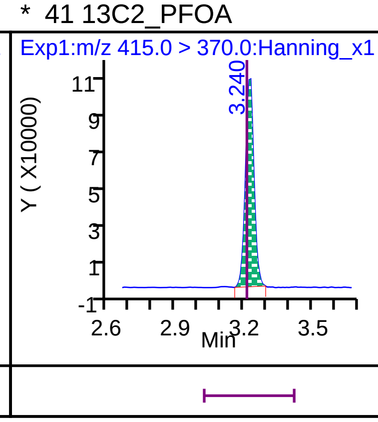
* 37 13C2_PFDA



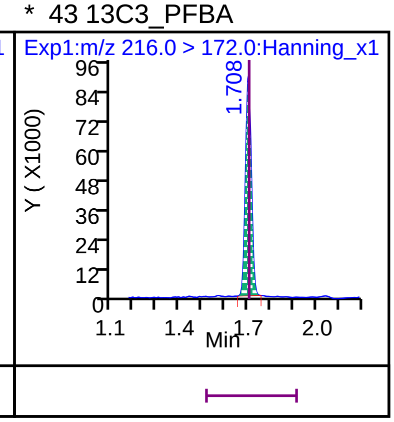
* 39 13C2_PFHxA



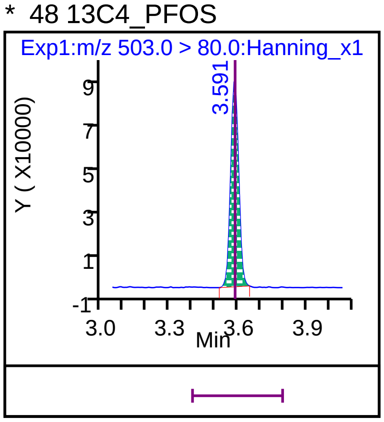
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

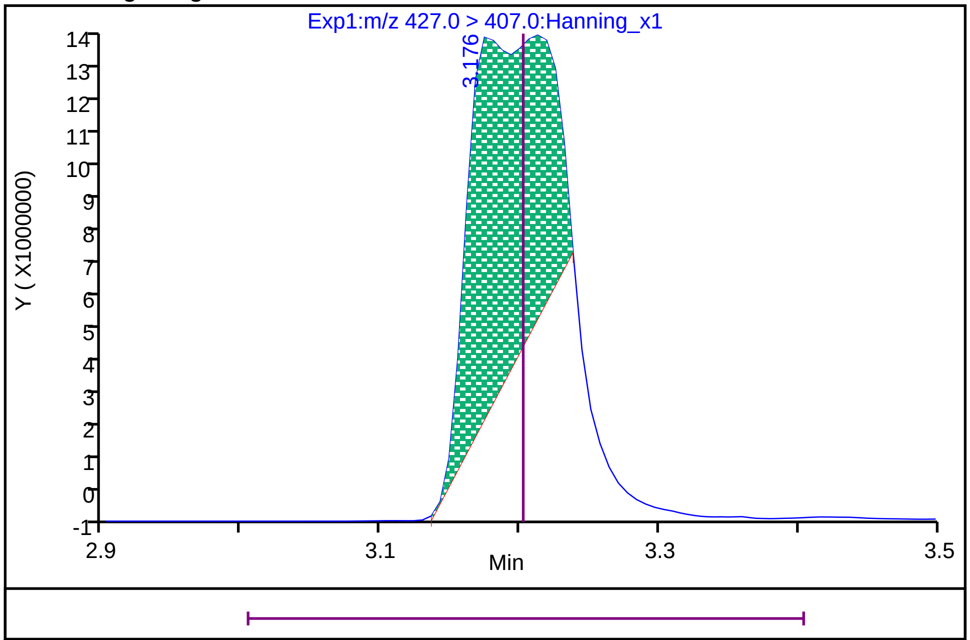
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

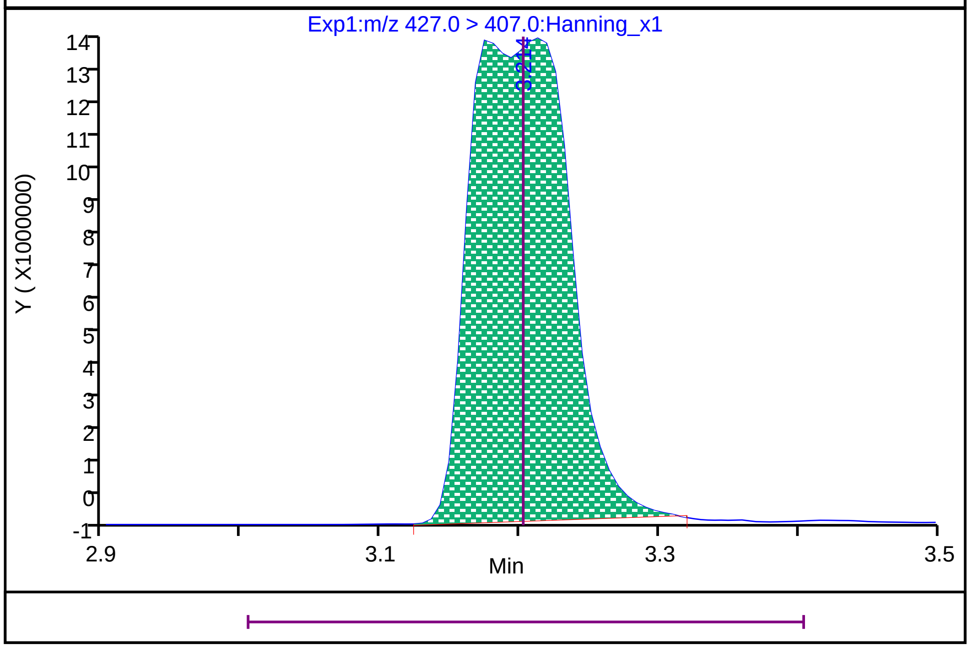
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT:	3.176
Area:	38252891
Conc:	8460.42
Conc Units:	ng/L



RT:	3.214
Area:	67047111
Conc:	14829
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:54:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

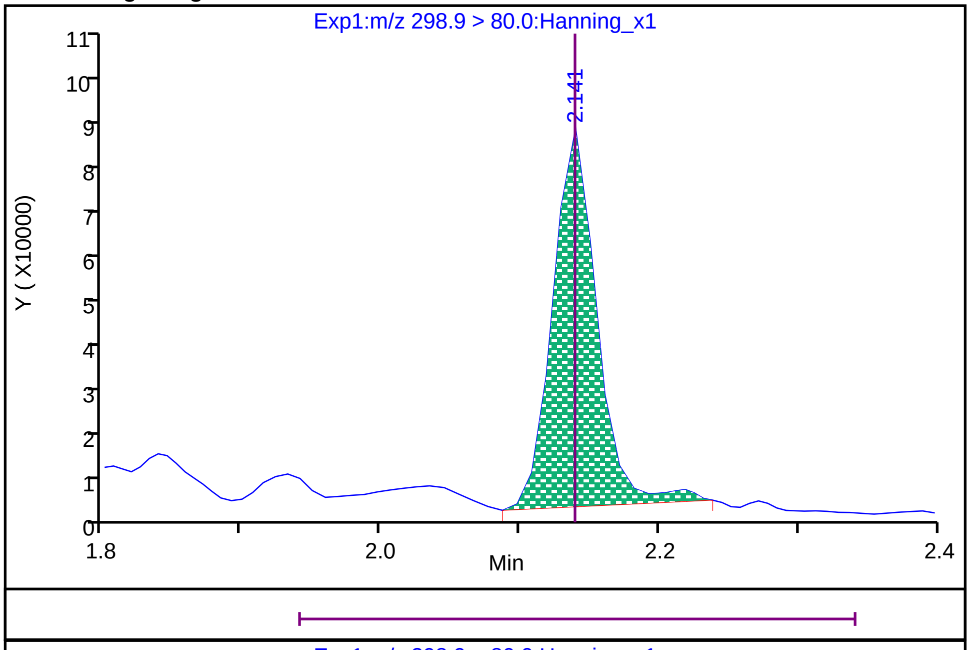
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

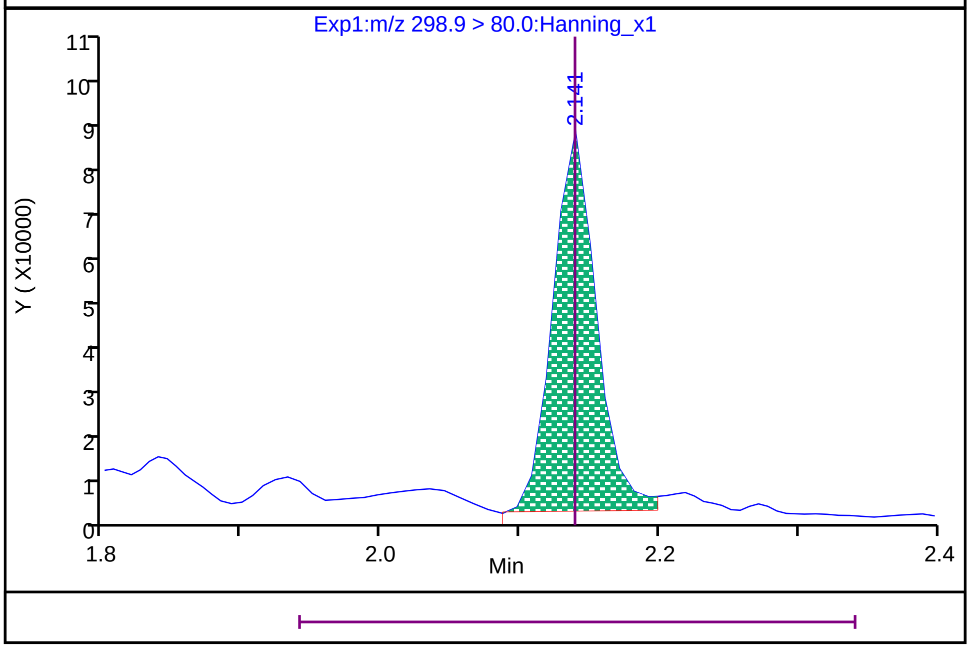
7 PFBS, CAS: 375-73-5

Processing Integration Results

RT:	2.141
Area:	180031
Conc:	20.113
Conc Units:	ng/L



RT:	2.141
Area:	178120
Conc:	19.900
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:54:09

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

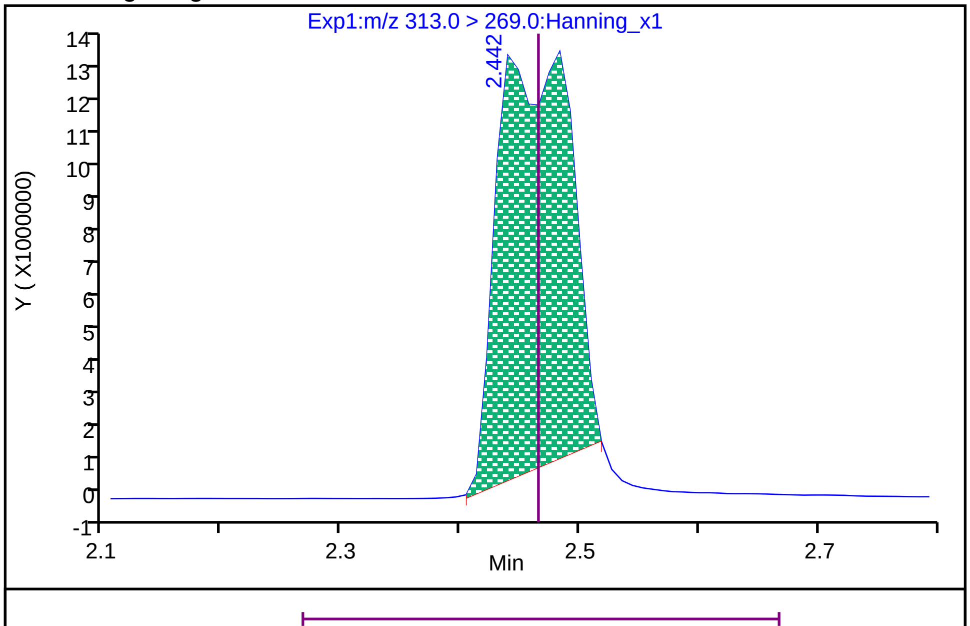
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

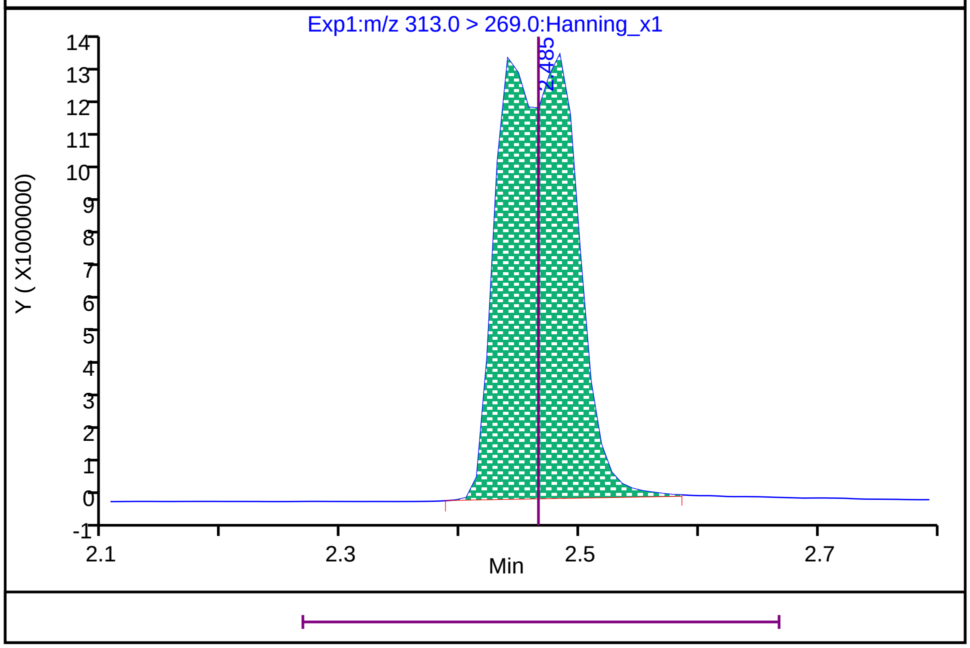
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT:	2.442
Area:	52092766
Conc:	7007.69
Conc Units:	ng/L



RT:	2.485
Area:	58623059
Conc:	7886.17
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:54:15

Audit Action: MInt

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

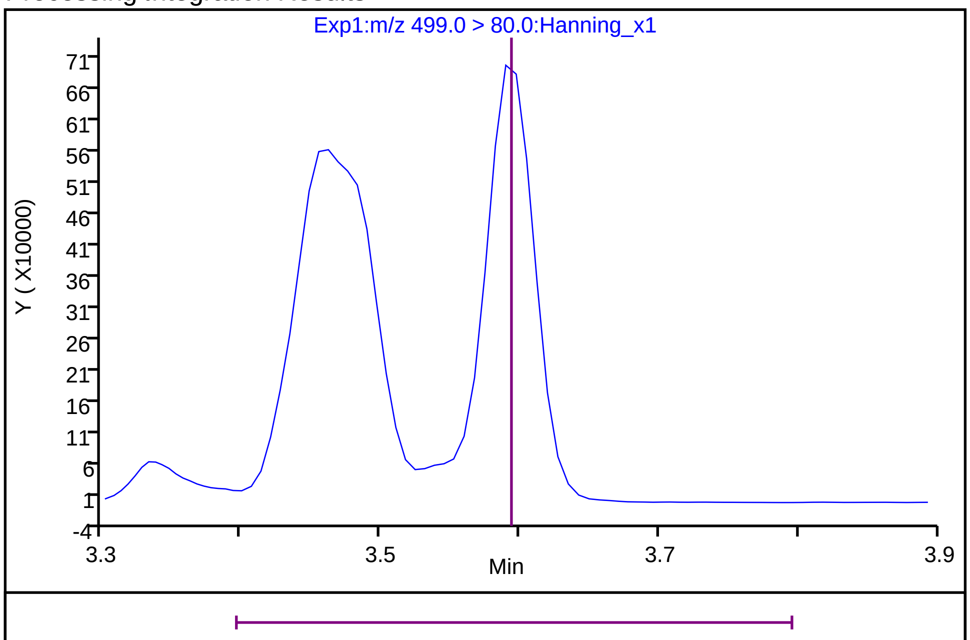
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d

Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

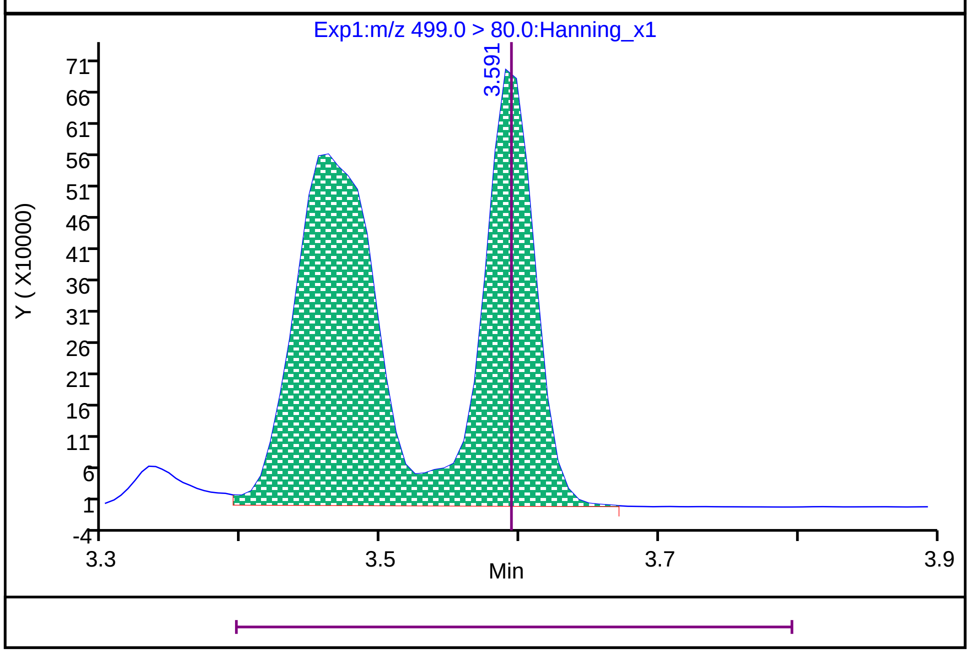
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.591
Area: 4149617
Conc: 603.32
Conc Units: ng/L



RT: 3.591
Area: 3977024
Conc: 578.23
Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:47:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

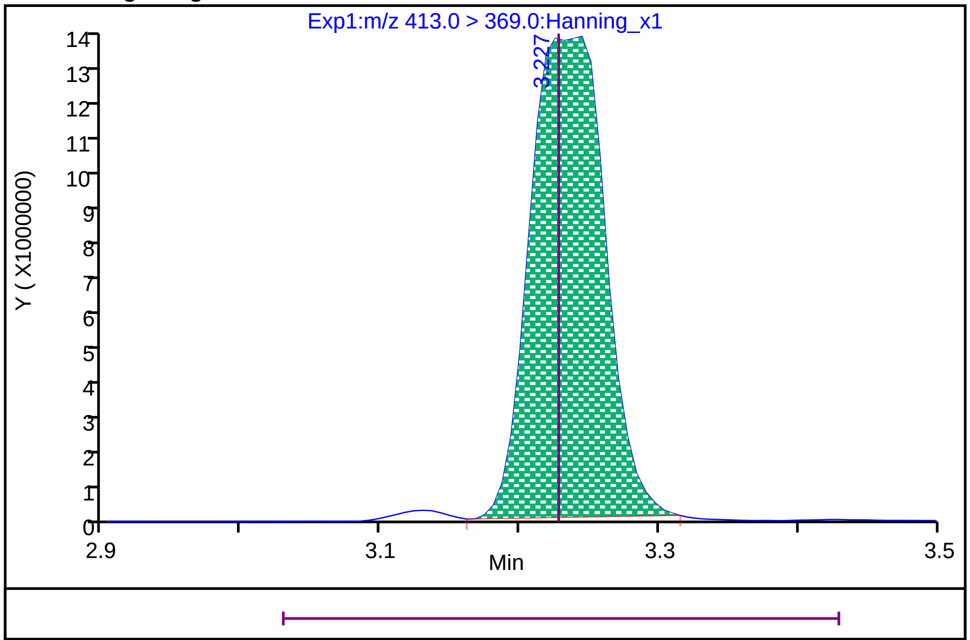
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

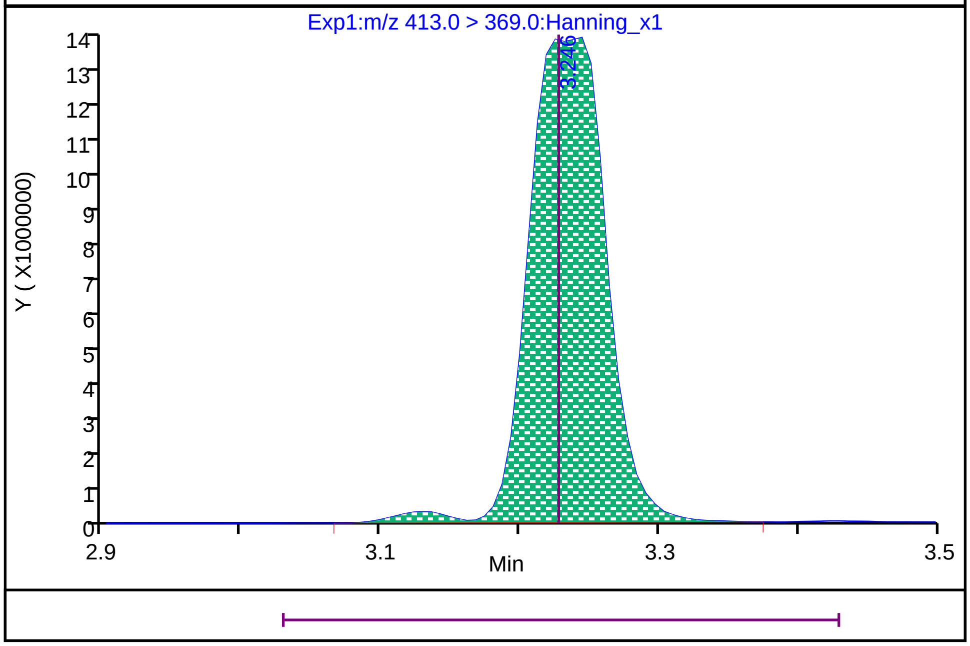
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.227
Area:	49380075
Conc:	9913.99
Conc Units:	ng/L



RT:	3.246
Area:	51328836
Conc:	10305
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 11:07:04

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

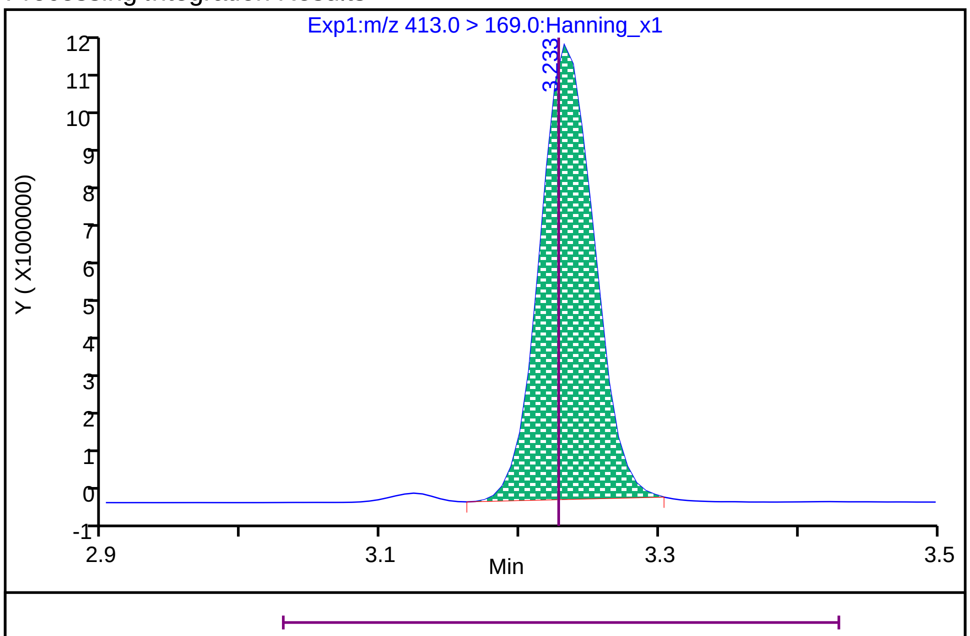
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

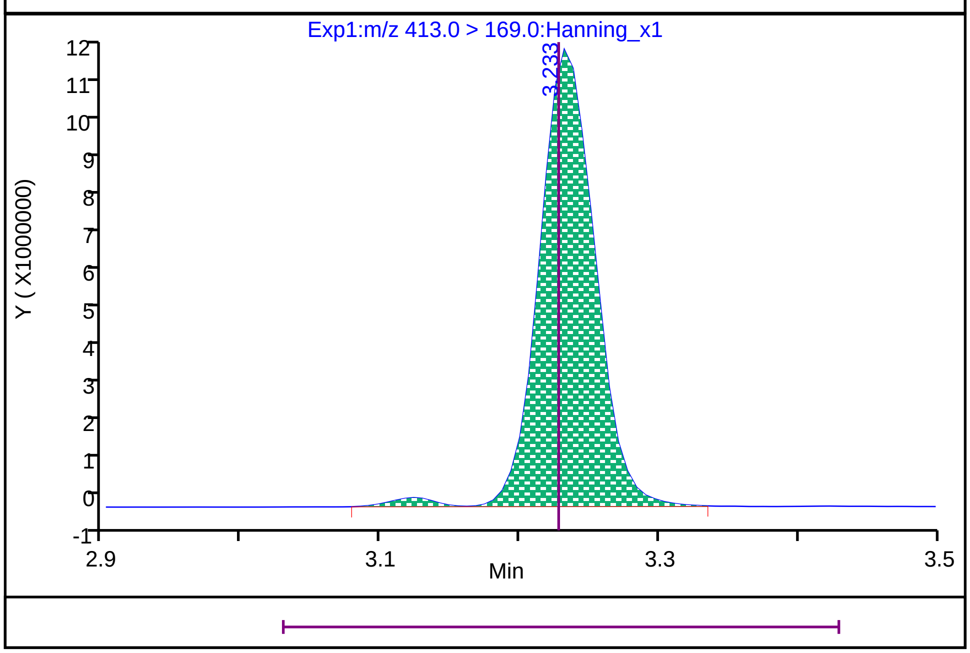
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.233
Area:	30879672
Conc:	10305
Conc Units:	ng/L



RT:	3.233
Area:	32070339
Conc:	10305
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:54:31

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

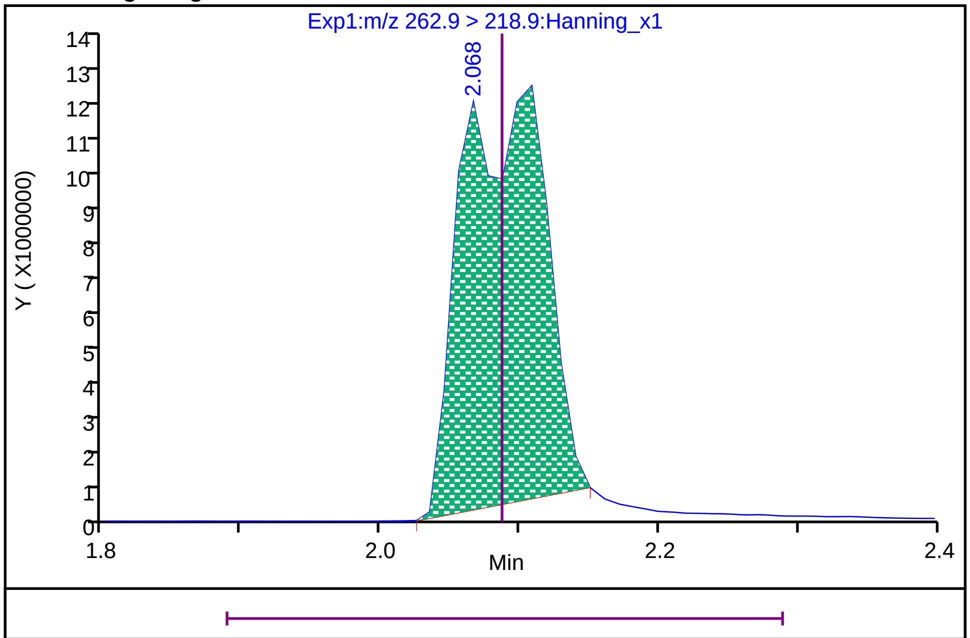
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A082.d		
Injection Date:	05-Nov-2021 02:53:10	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006		
Dil. Factor:	1	Operator:	Matthew M. Miller

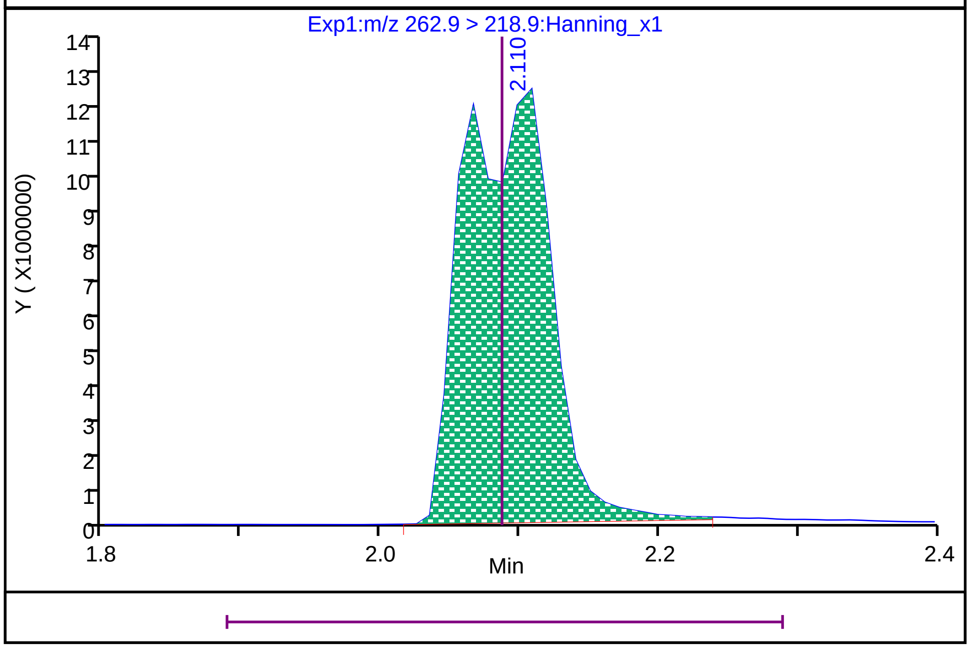
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT:	2.068
Area:	48431817
Conc:	9934.44
Conc Units:	ng/L



RT:	2.110
Area:	52999558
Conc:	10871
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:53:24

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d		
Injection Date:	06-Nov-2021 22:04:30	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	40
Lab Sample ID:	WK03035-006	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-022.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-006,500	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0347222

Name	Value	Units	Description
DF	500		Dilution Factor
VF	10000	ul	Final Volume
VI	288	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1116543	19	>100:1			1100.00	1018.58	101.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	945836	18	>100:1			874.39	15180		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	992293	15	>100:1			1100.00	972.75	96.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	3465795	15	>100:1			3579.31	62141		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	326042	15	>100:1			1100.00	966.23	95.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.169		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.529		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.440	2.449	0	233695	17	>100:1			5500.00	5004.52	101	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.440	2.449	0/0	35259	24	>100:1	Target = 1.39		446.30	7748.24		
327 > 81	63	2.449	2.449		21684	15	21:1	1.62 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.484	2.493	0	891912	17	>100:1			1100.00	977.98	97.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.484	2.493	0/0	1786841	17	>100:1	Target = 17.15		2168.23	37643		
313 > 119	49	2.484	2.493		101832	17	>100:1	17.54 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.614	0	796118	18	>100:1			5500.00	5408.64	116	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.869	2.878	0	865340	17	>100:1			1100.00	977.93	95.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	854134	18	>100:1	Target = 3.21		1136.50	19731		
363 > 169	47	2.878	2.878		265157	18	>100:1	3.22 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	271995	18	>100:1			1100.00	983.42	98.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													J
399 > 80	45	2.887	2.896	0/0	8257	18	57:1	Target = 3.35		28.968	502.92		M
399 > 99	45	2.896	2.896		2786	12	24:1	2.96 (1.67-5.04)					M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.226	3.201	2	211999	20	>100:1			5500.00	5143.68	97.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.226	3.201	2/0	2120434	22	>100:1	Target = 1.26		33119	574984		E
427 > 81	64	3.226	3.201		1575491	22	>100:1	1.34 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	882702	21	>100:1			1100.00	1047.81	104.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	890770	20	>100:1	Target = 2.46		1110.04	19271		
413 > 169	53	3.252	3.226		364703	20	>100:1	2.44 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.606	3.558	3	231528	18	>100:1			1100.00	977.21	97.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.496	3.558	-3/-6	24547	41	18:1	Target = 3.98		100.24	1740.30		M
499 > 99	54	3.621	3.558		5059	42	21:1	4.85 (1.99-5.97)	3.67				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.755		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.613	3.565	3	806976	19	>100:1			1100.00	994.62	95.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.565		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.946	3.894	4	169987	19	>100:1			5500.00	4881.57	95.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.894		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.954	3.901	4	719771	17	>100:1			1100.00	1006.06	93.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.101	4.053	3	881914	16	>100:1			5500.00	5454.40	111.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.257	4.207	4	821248	16	>100:1			5500.00	5679.78	109.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.257	4.207	4	685783	16	>100:1			1100.00	976.58	95.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.525	4.486	3	670305	16	>100:1			1100.00	962.98	97.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.517	4.486	2	61160	15	>100:1			1100.00	1013.81	95	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.942	2	734712	15	>100:1			1100.00	984.71	97.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
*** 37 13C2_PFDA**													
515 > 470		3.954	3.901	4	761443	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.484	2.493	0	876969	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.226	2	918503	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1065455	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.613	3.558	4	241495	18	>100:1			200.00			

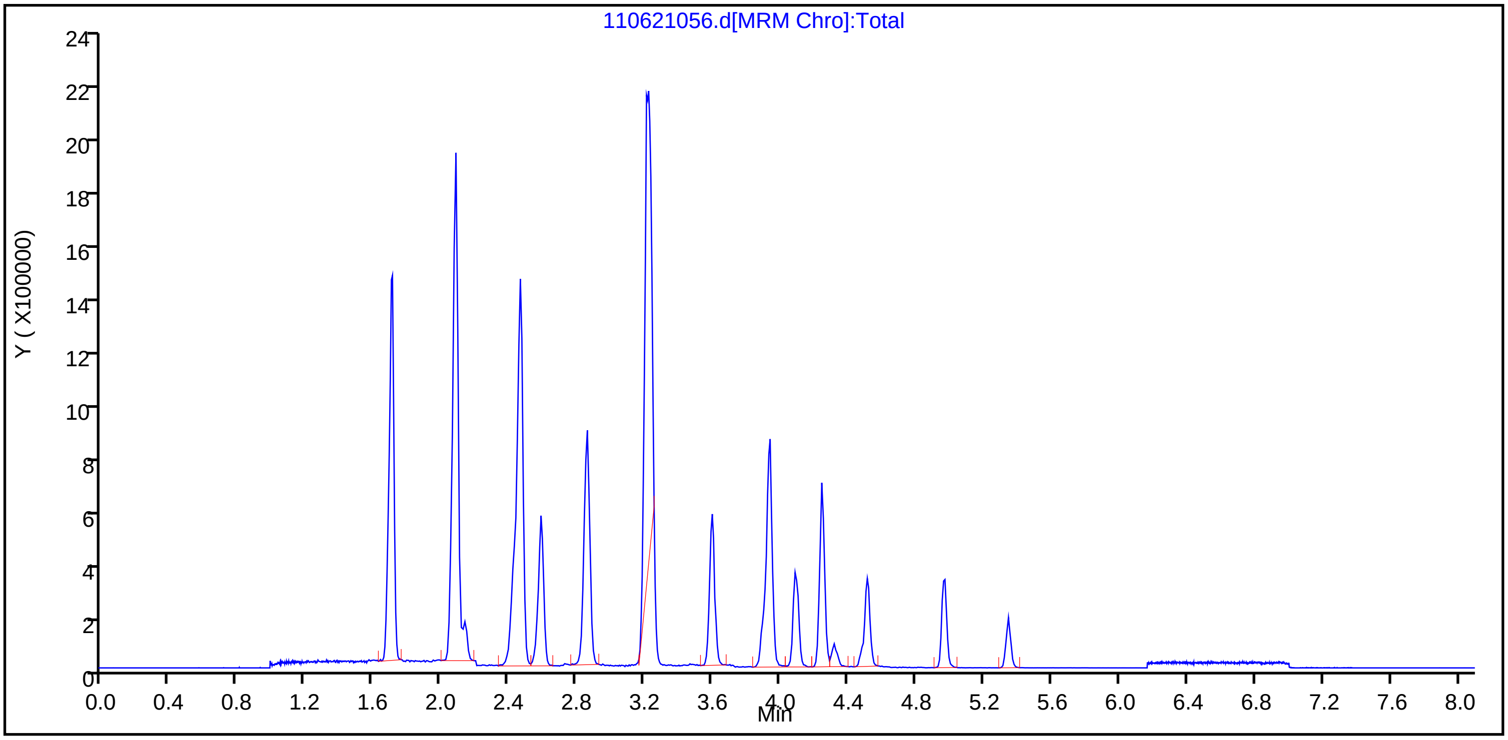
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
E - Compound Concentration Exceeds Max. Calibration Range
M - Compound Hit/Peak Manually Integrated

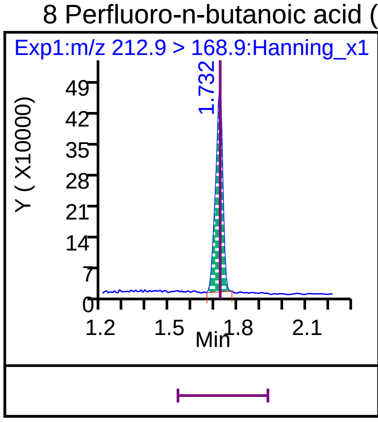
Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

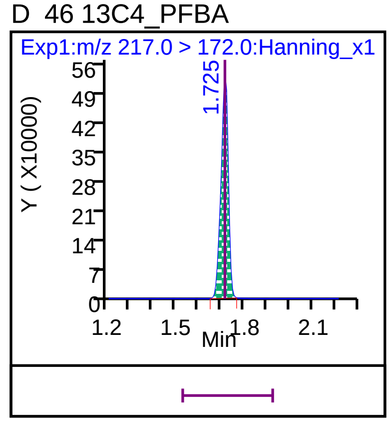
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d		
Injection Date:	06-Nov-2021 22:04:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006,500		
Dil. Factor:	500	Operator:	Matthew M. Miller



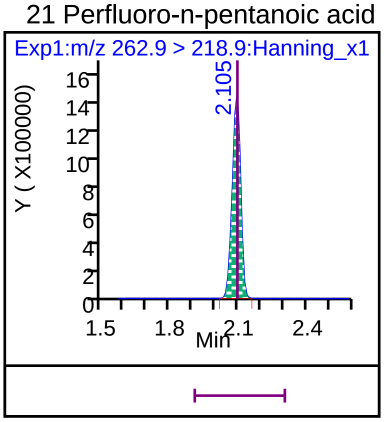
8 Perfluoro-n-butanoic acid (PFBA)



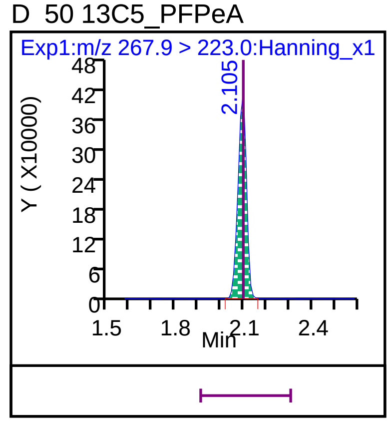
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

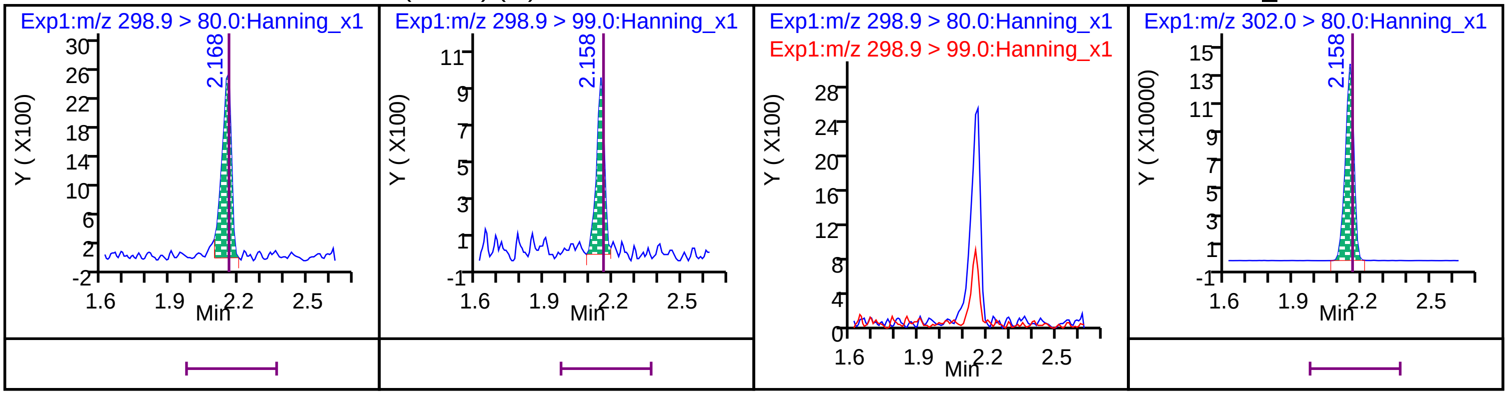


D 50 13C5_PFPeA

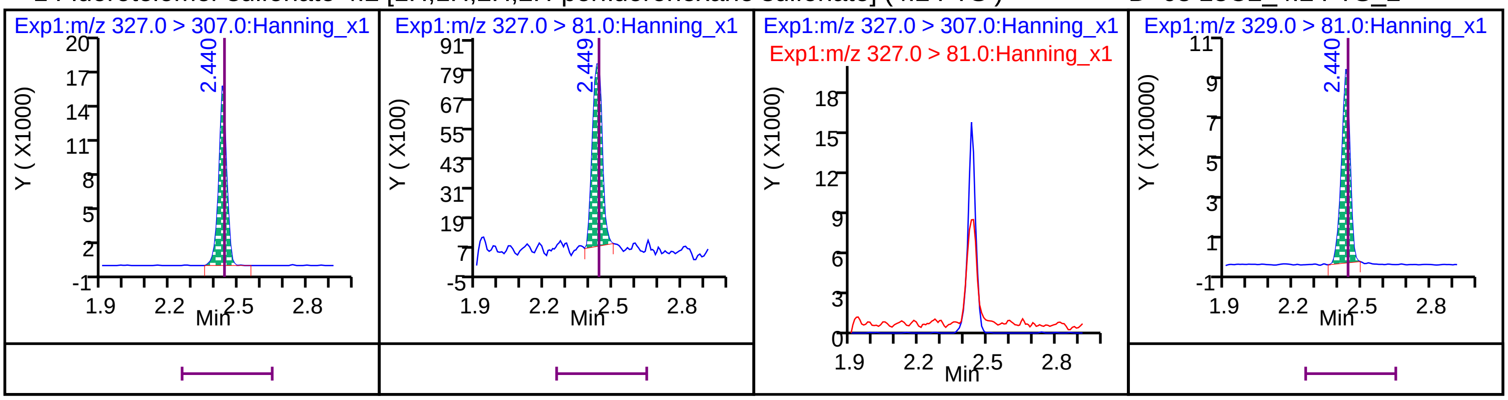


Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d

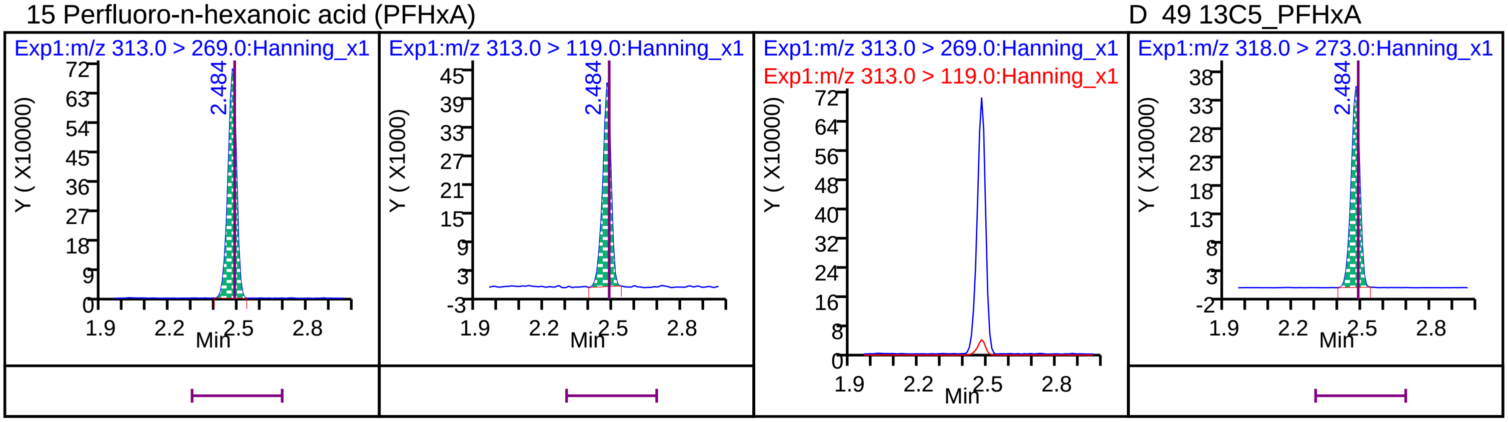
7 Perfluoro-1-butanesulfonate (PFBS) (M) D 44 13C3_PFBS



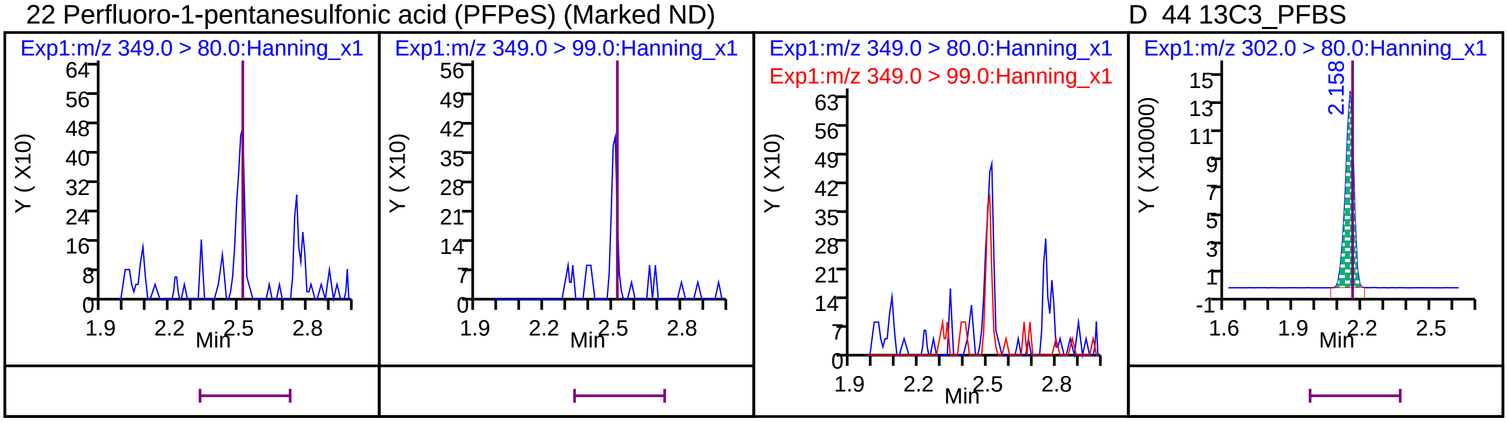
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



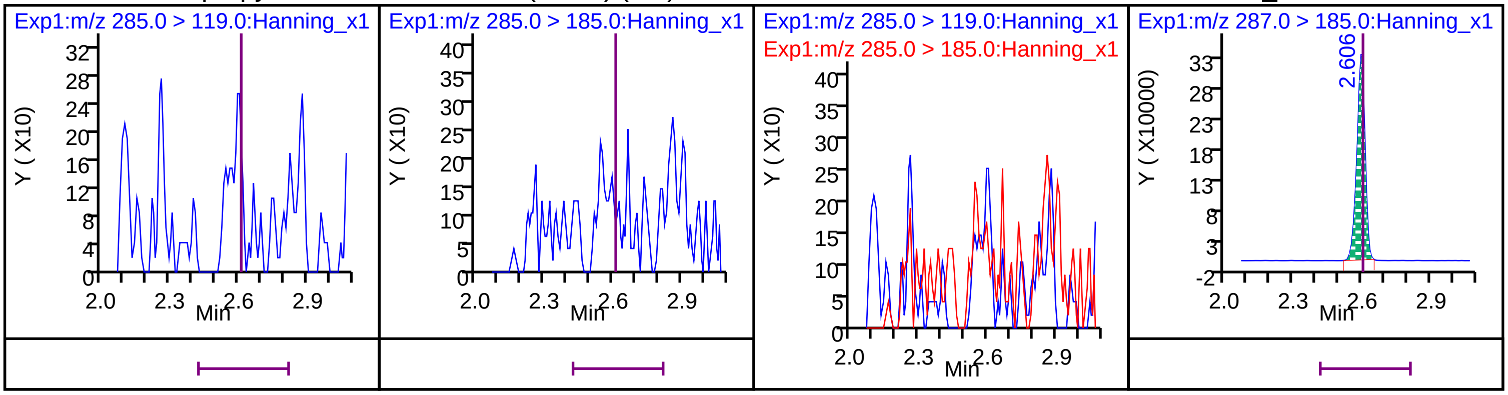
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



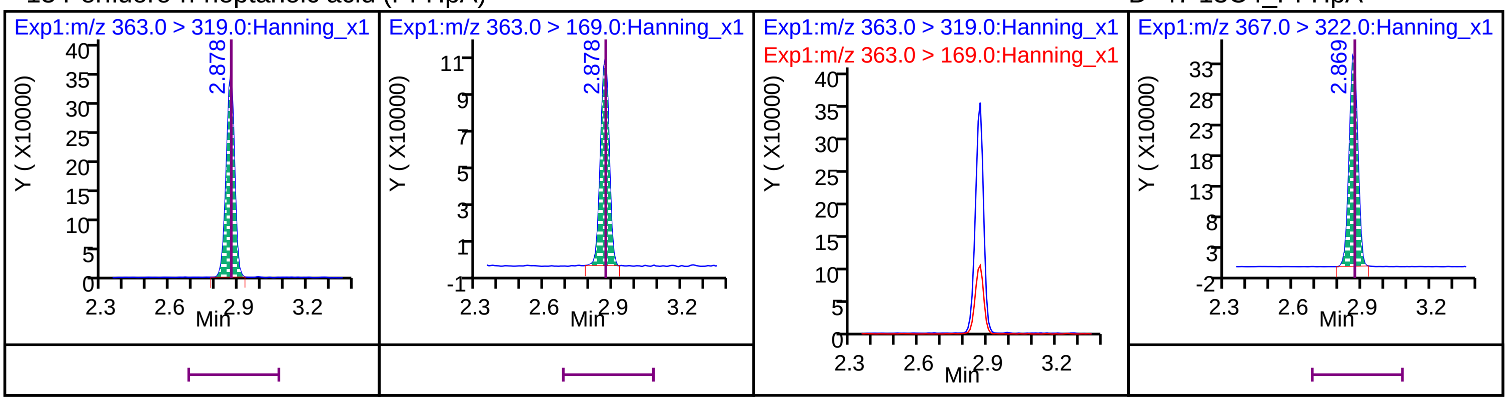
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



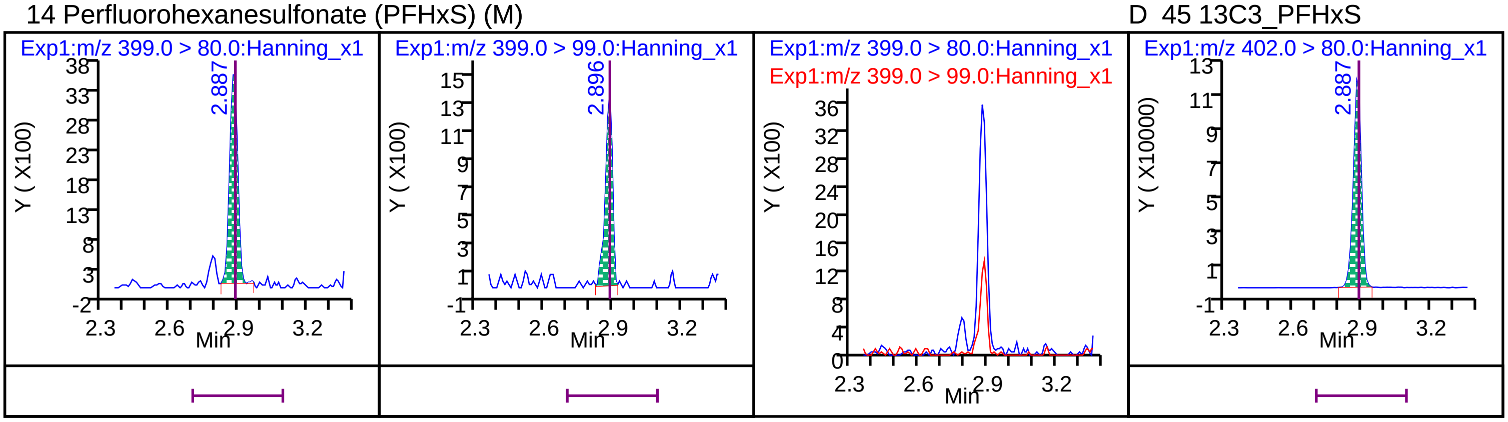
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



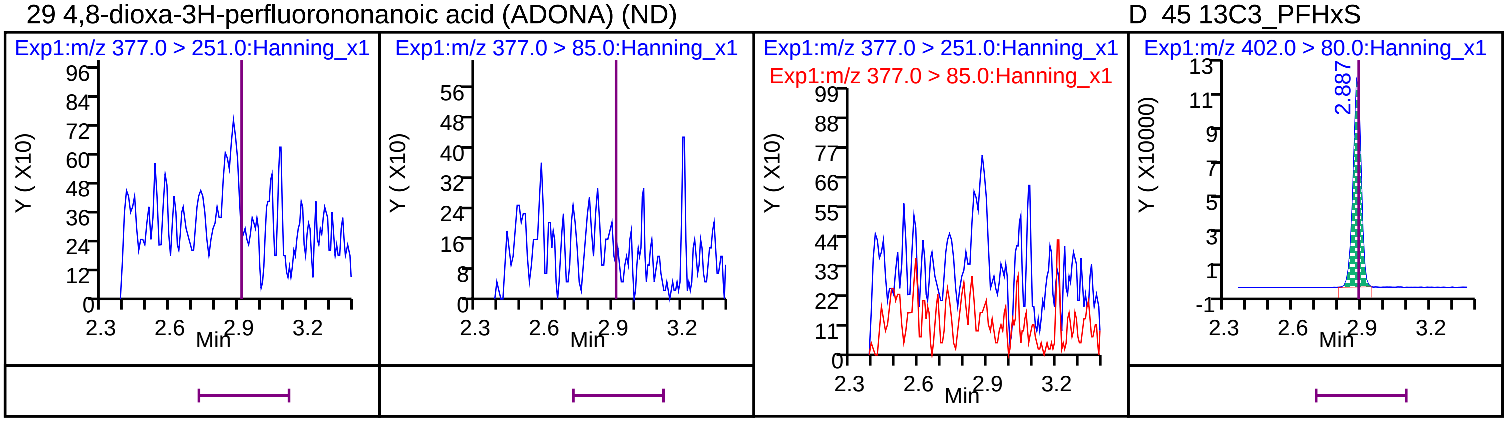
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS

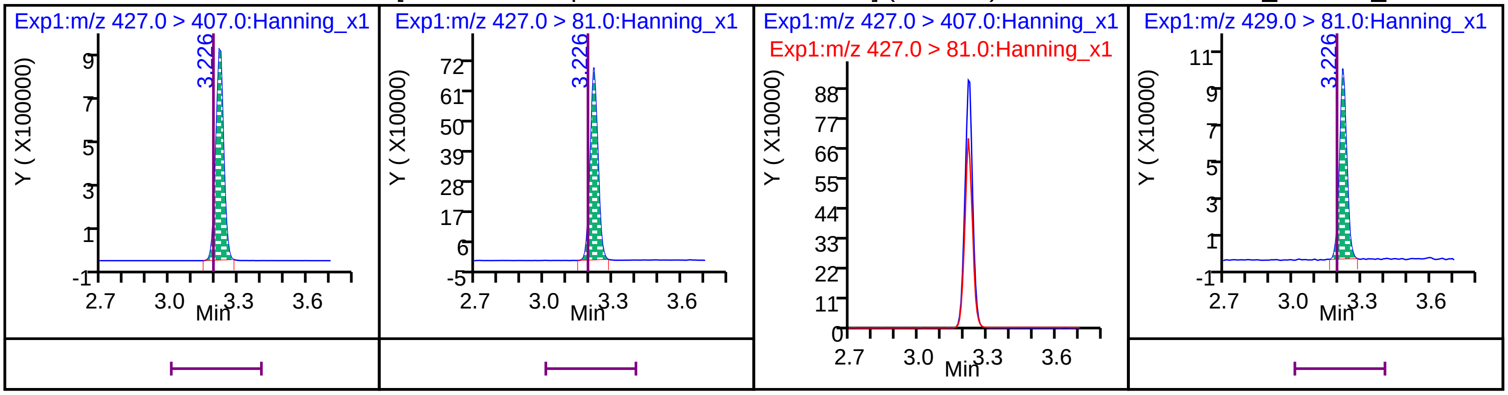


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

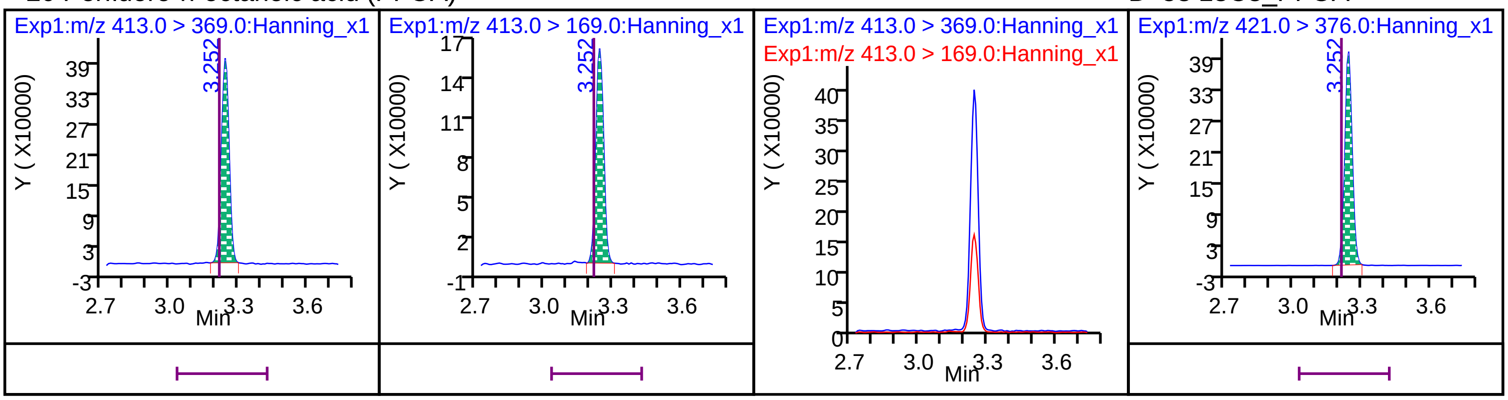


Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d

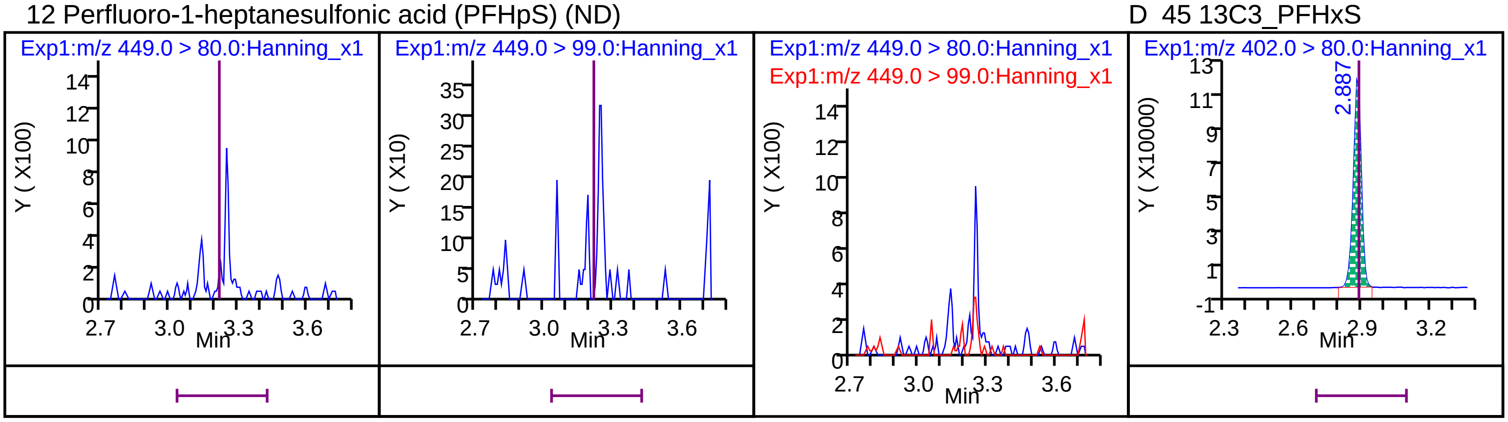
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



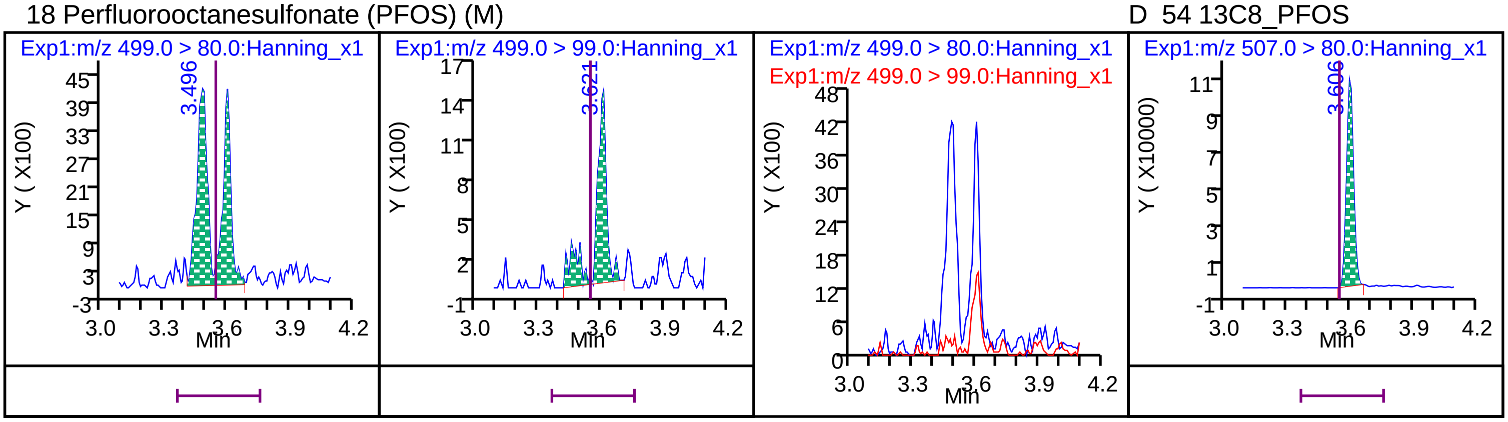
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



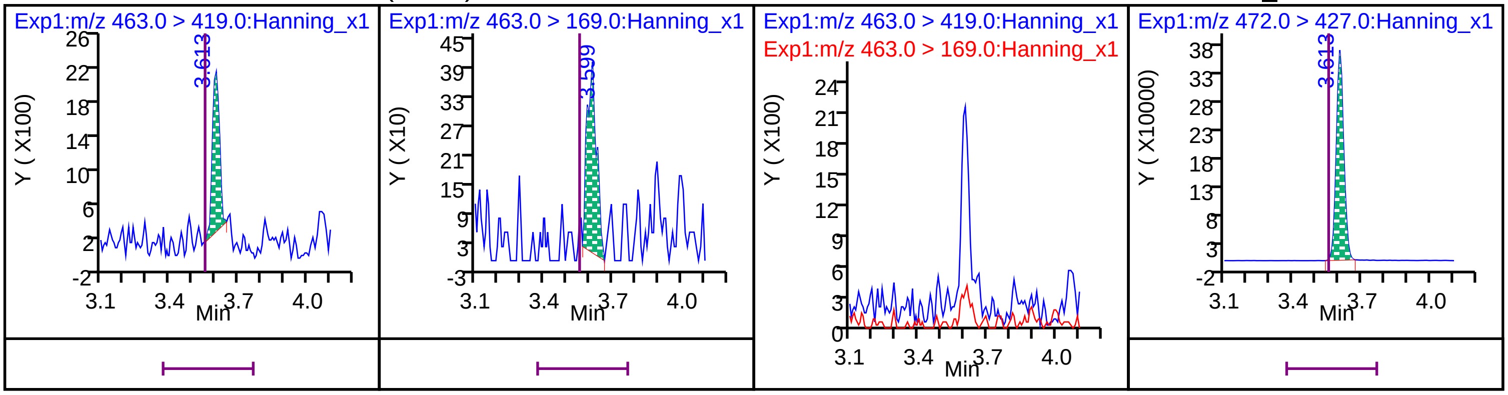
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



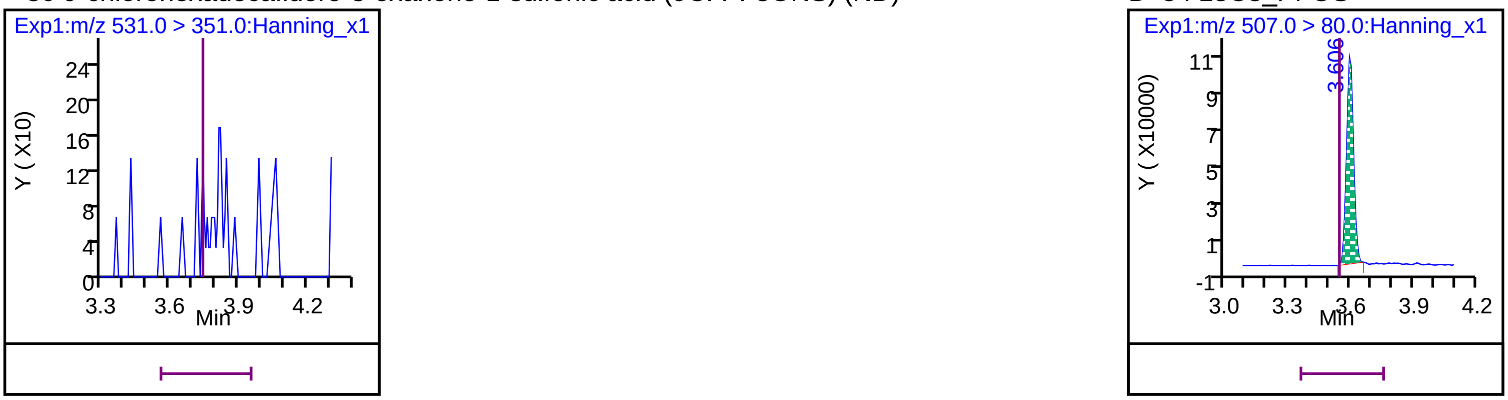
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



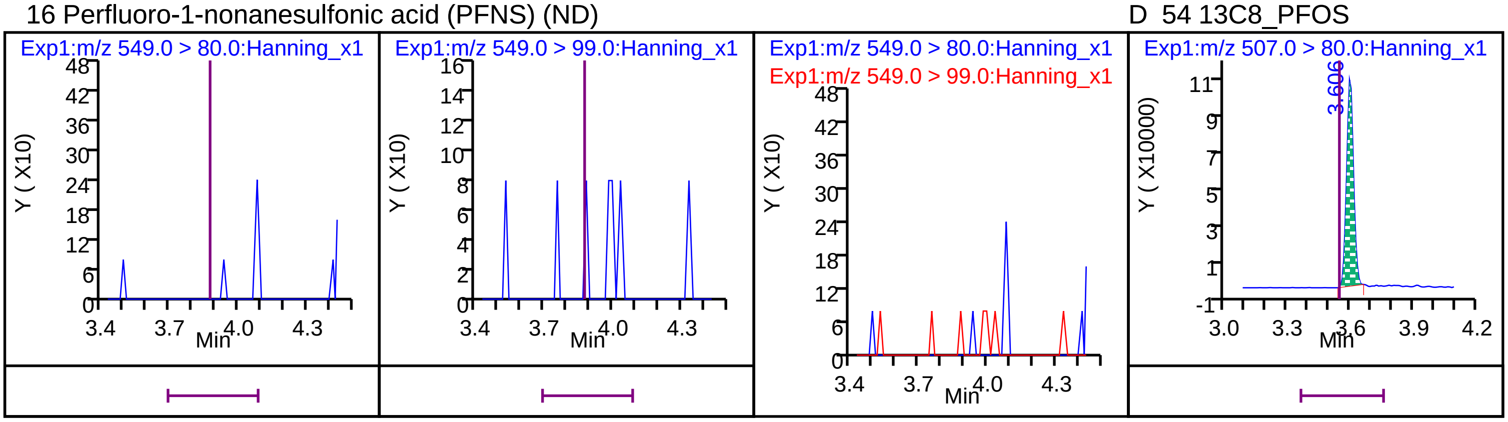
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



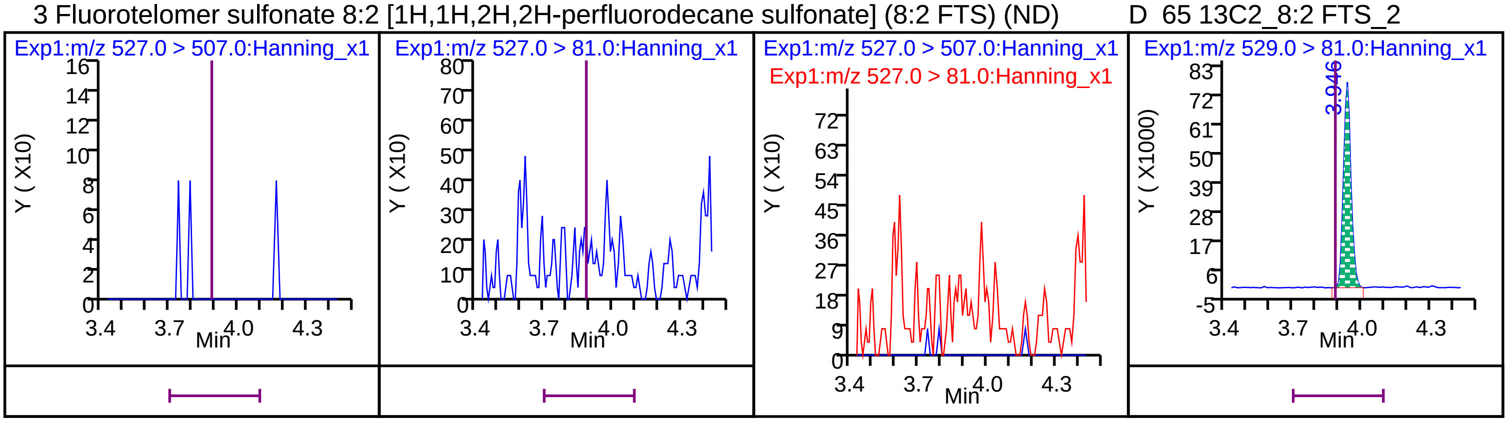
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



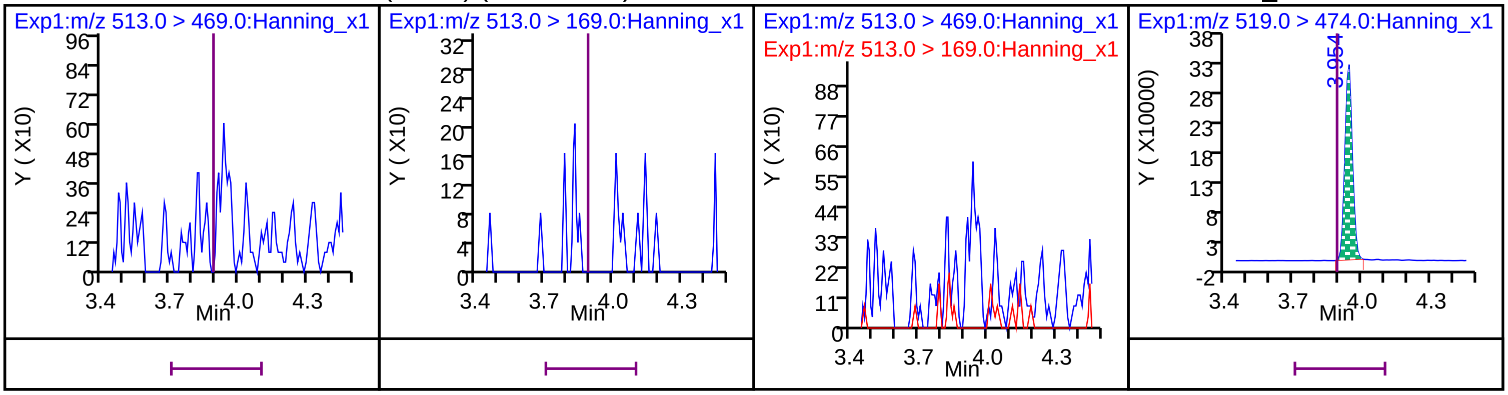
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



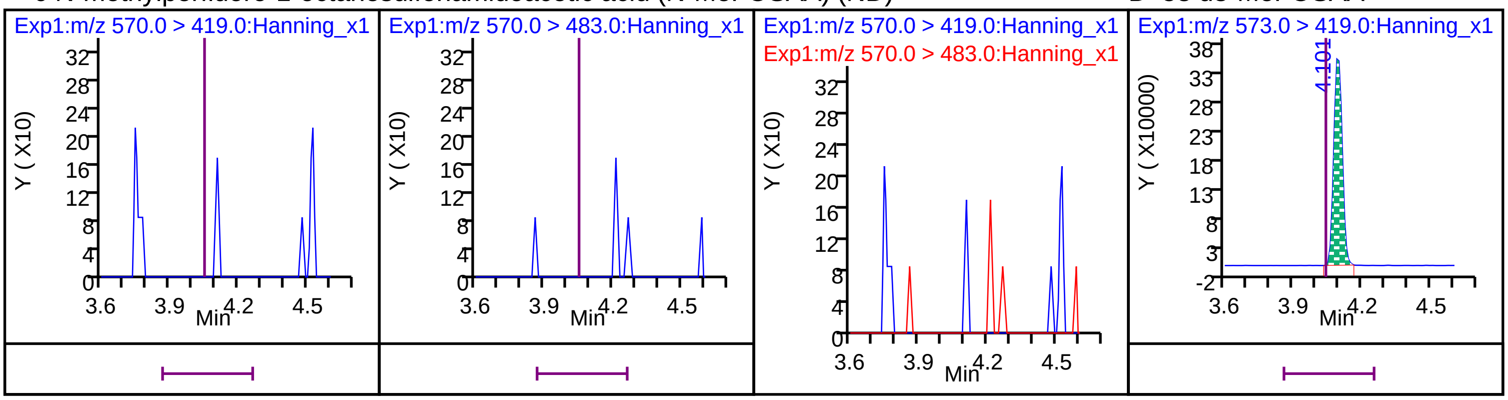
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



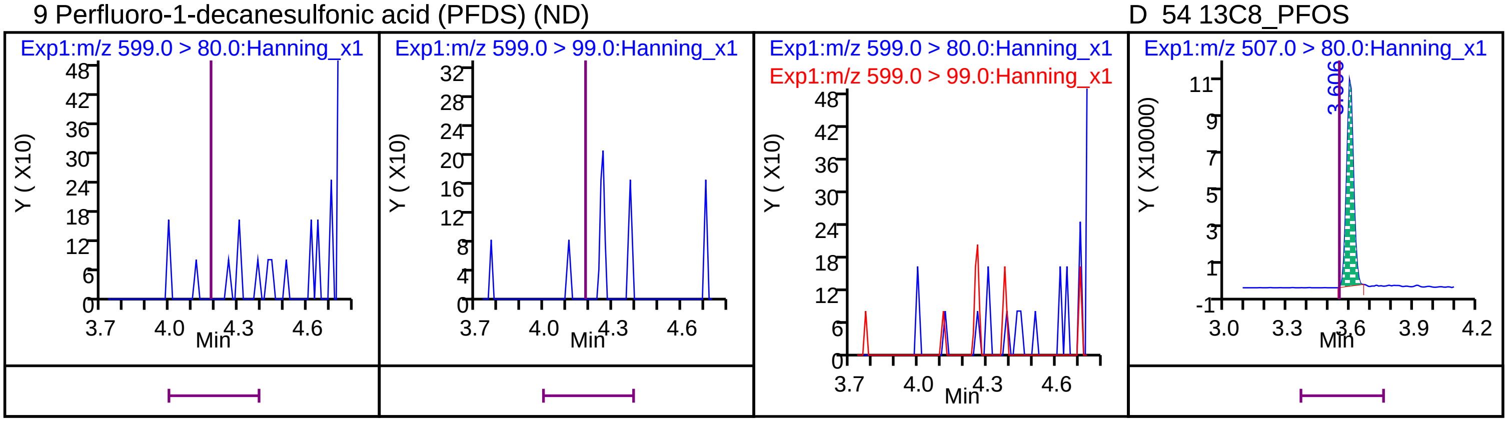
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



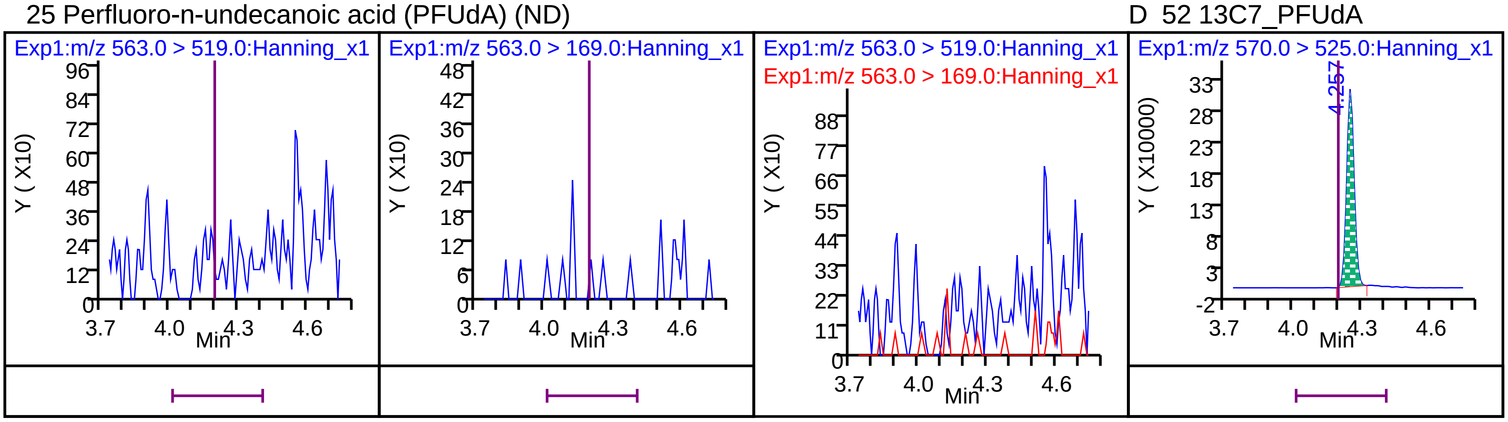
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



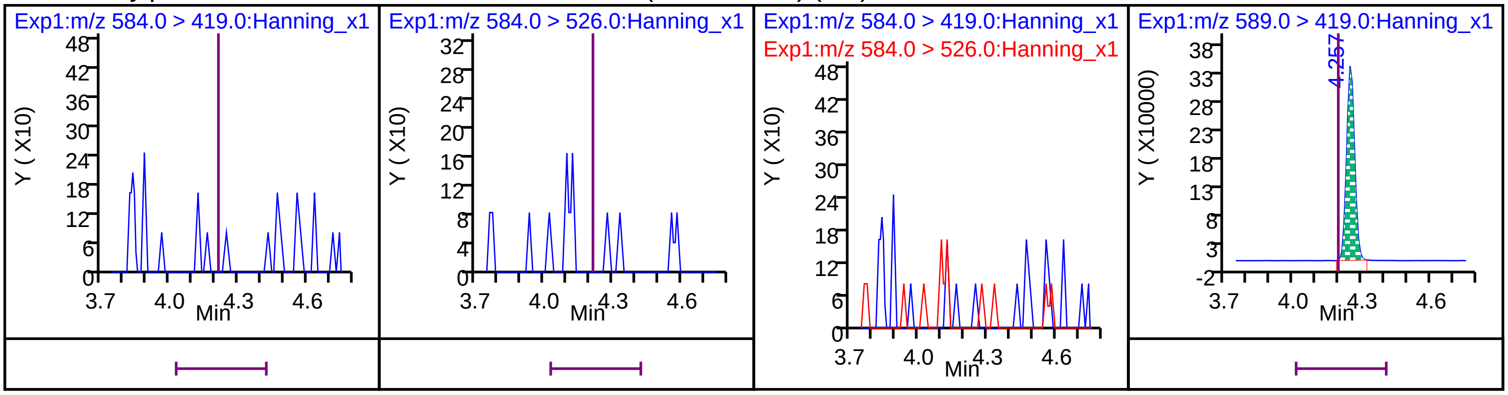
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



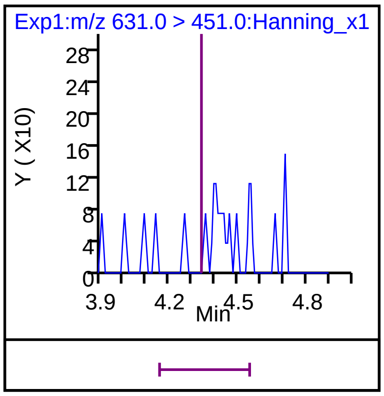
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

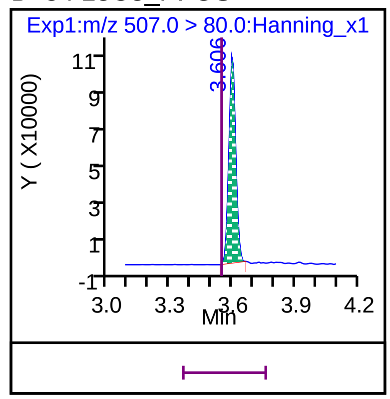


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

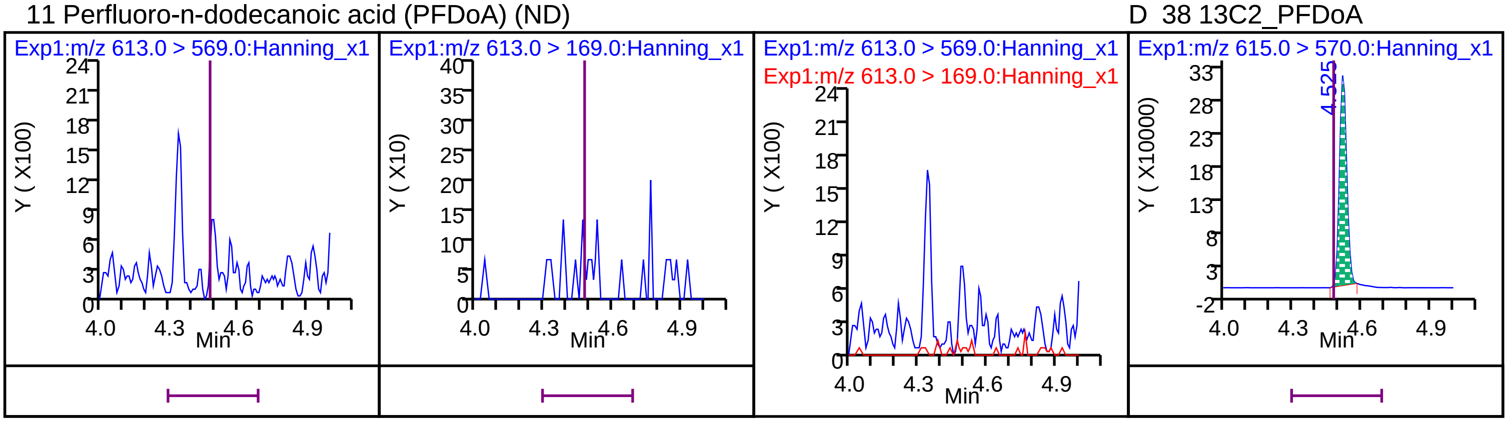


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS

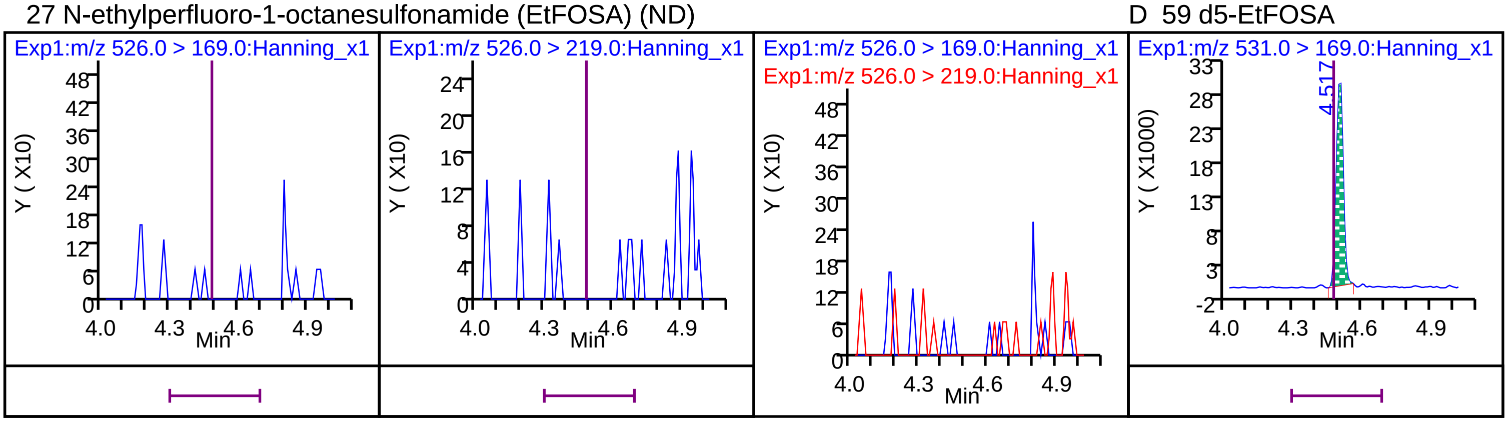




11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



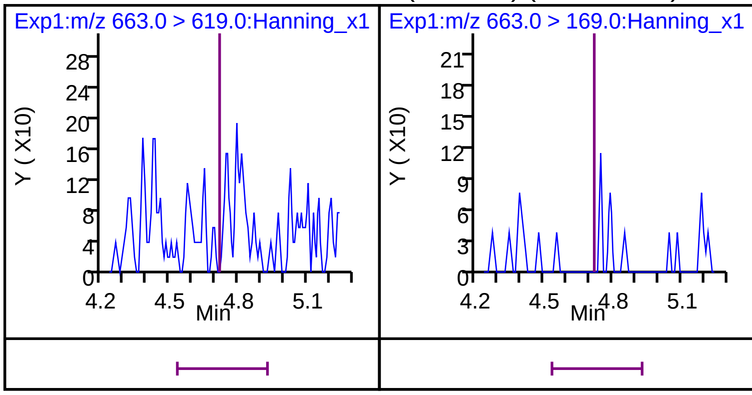
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



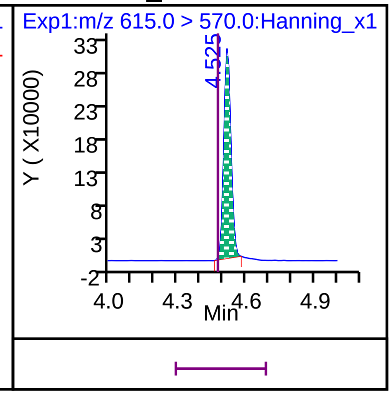
Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d

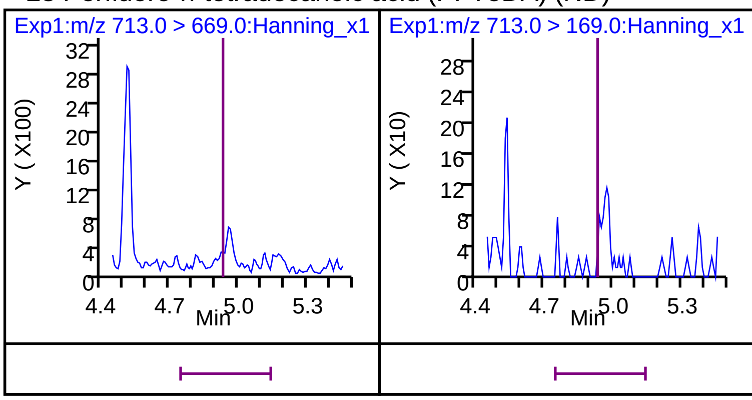
24 Perfluoro-n-tridecanoic acid (PFTrDA) (Marked ND)



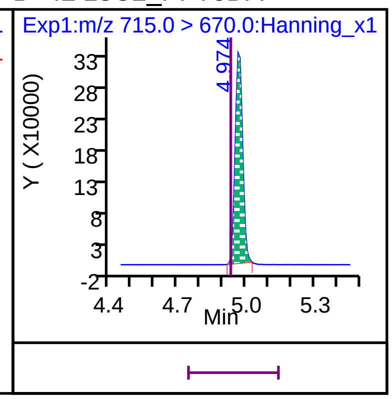
D 38 13C2_PFDoA



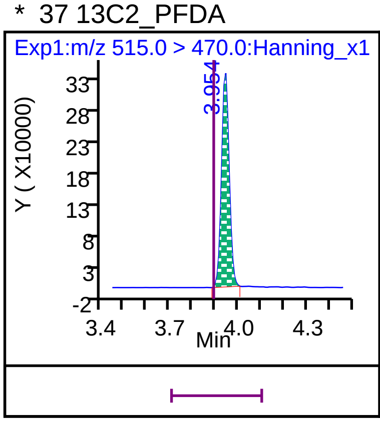
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



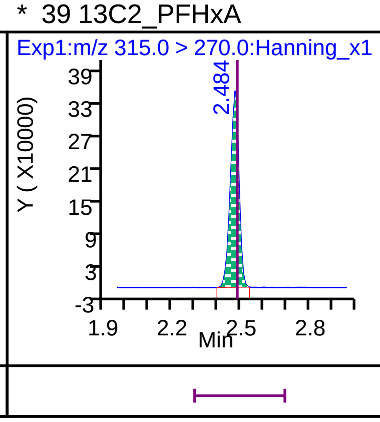
D 42 13C2_PFTeDA



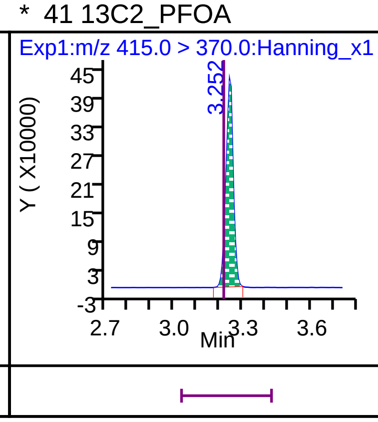
* 37 13C2_PFDA



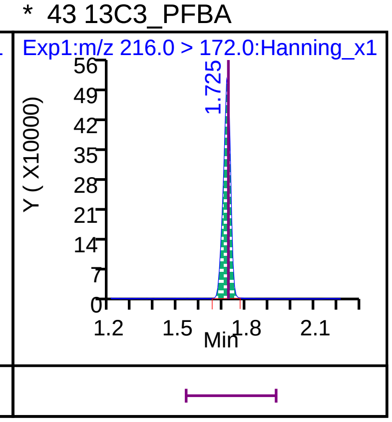
* 39 13C2_PFHxA



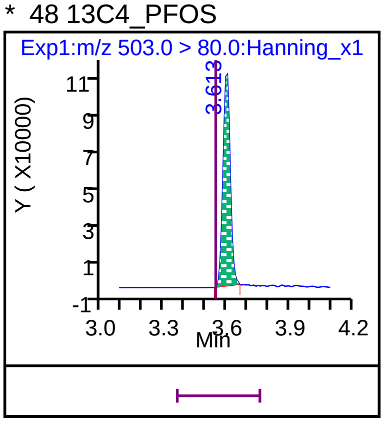
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

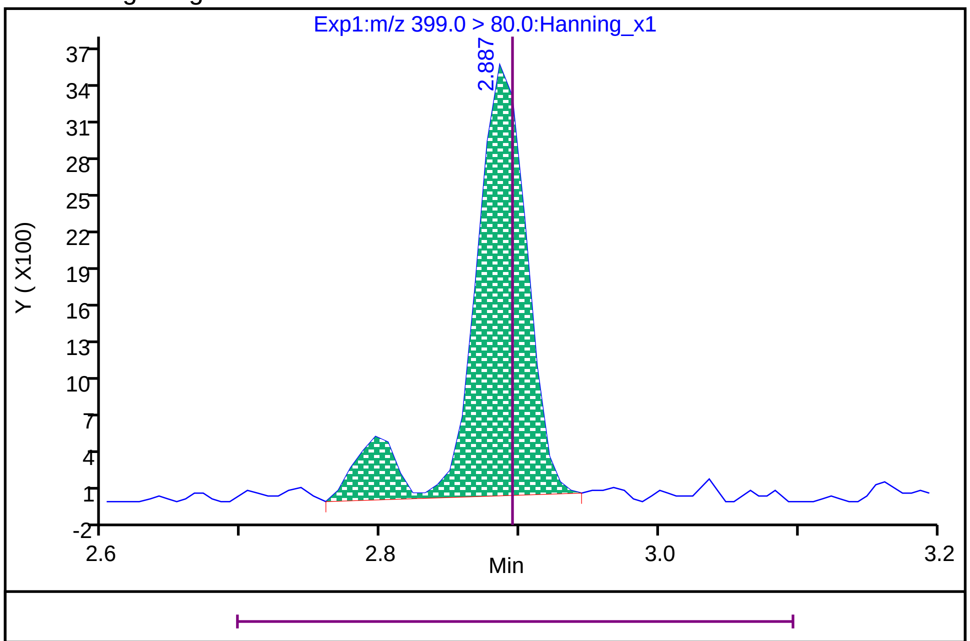
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d		
Injection Date:	06-Nov-2021 22:04:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006,500		
Dil. Factor:	500	Operator:	Matthew M. Miller

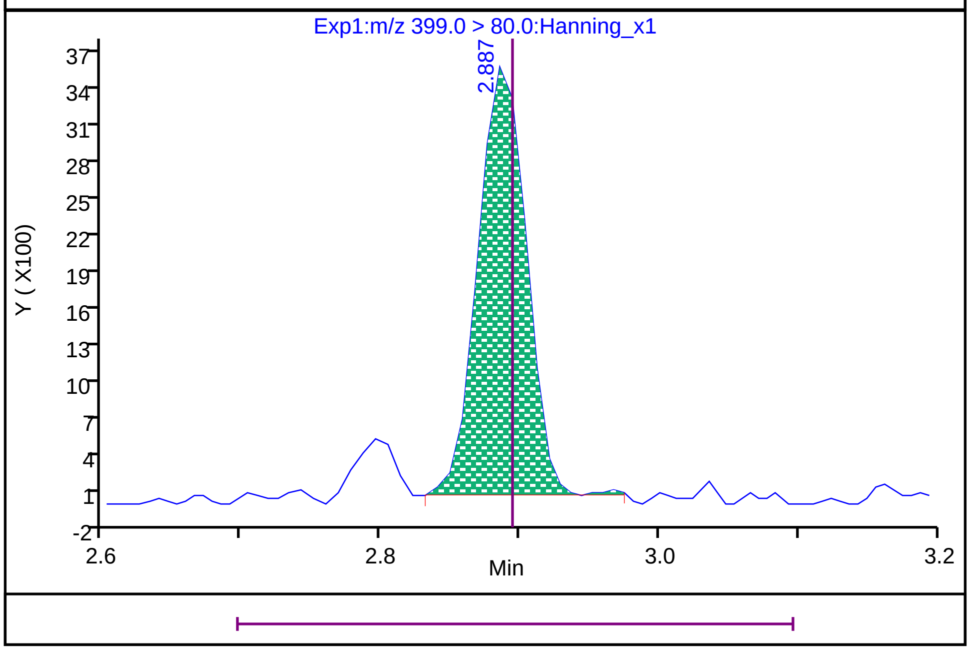
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.887
Area: 9443
Conc: 575.16
Conc Units: ng/L



RT: 2.887
Area: 8257
Conc: 502.92
Conc Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:15:41

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

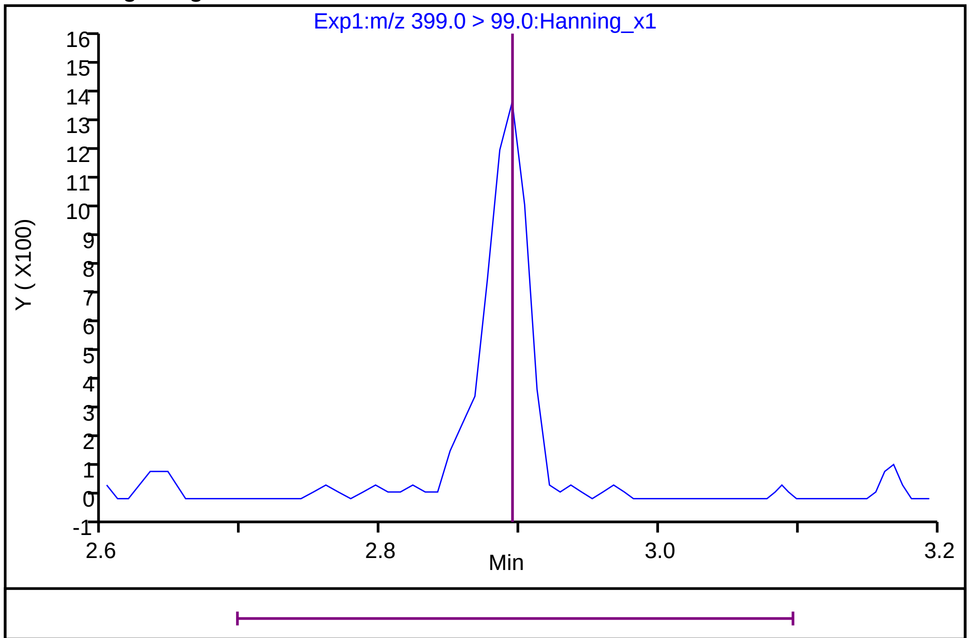
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d		
Injection Date:	06-Nov-2021 22:04:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006,500		
Dil. Factor:	500	Operator:	Matthew M. Miller

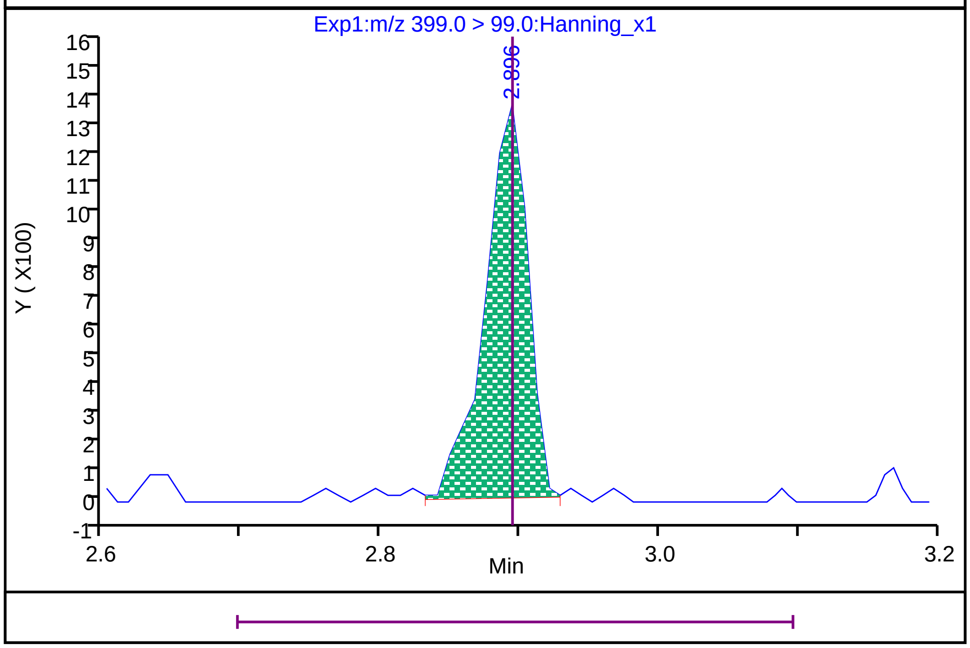
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.896
Area:	3157
Conc:	502.92
Conc Units:	ng/L



RT:	2.896
Area:	2786
Conc:	502.92
Conc Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:15:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:14 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

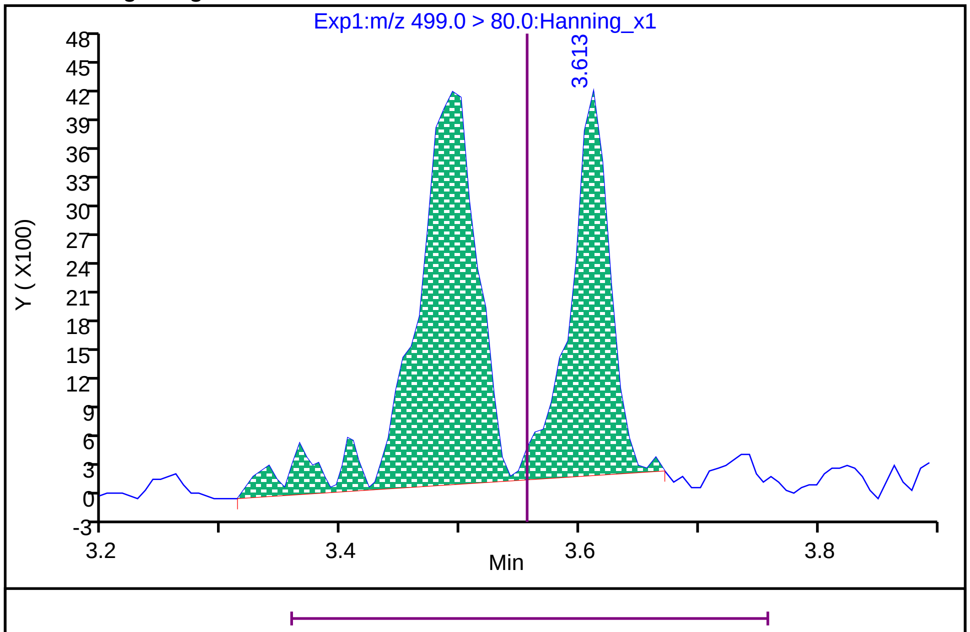
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621056.d		
Injection Date:	06-Nov-2021 22:04:30	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006,500		
Dil. Factor:	500	Operator:	Matthew M. Miller

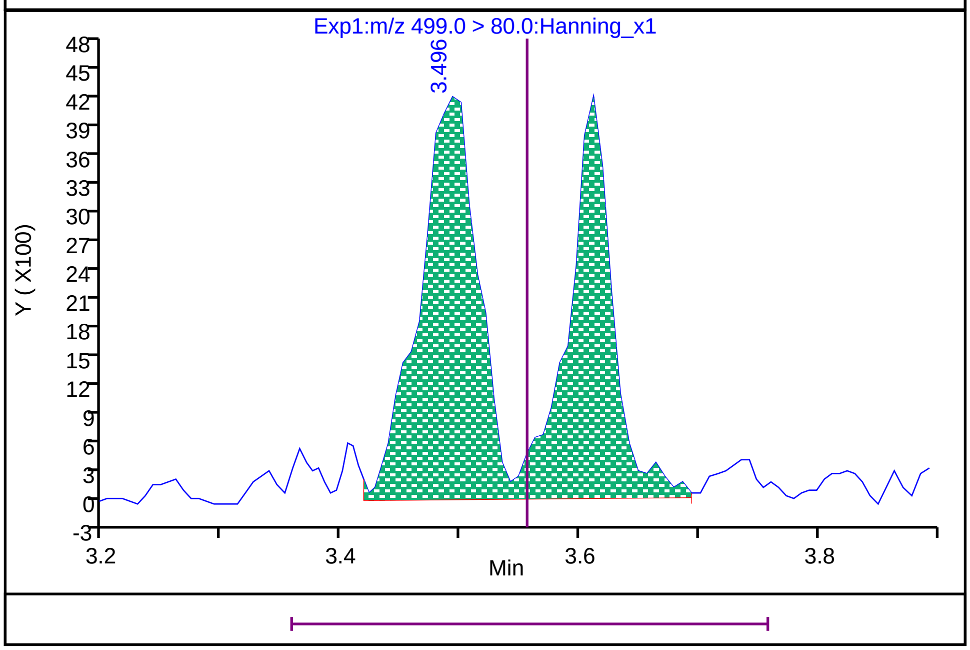
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.613
Area:	23956
Conc:	1698.40
Conc Units:	ng/L



RT:	3.496
Area:	24547
Conc:	1740.30
Conc Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:02:33

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021017.d		
Injection Date:	10-Nov-2021 15:55:38	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	10
Lab Sample ID:	WK03035-006	Lab Prep. Batch:	21582
Client ID:	SW3-DPT-0144-022.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-006,5000	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0349650

Name	Value	Units	Description
DF	5000		Dilution Factor
VF	10000	ul	Final Volume
VI	286	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.718	0	740736	21	>100:1			1100.00	1191.52	112.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.722	1.718	1/1	73926	21	67:1			104.09	18198		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.109	0	674247	15	>100:1			1100.00	1179.59	115.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.115	2.120	0/0	283571	17	>100:1			411.05	71861		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.173	0	194292	16	>100:1			1100.00	1123.27	118.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.173		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.532		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.451	0	128627	18	>100:1			5500.00	5680.47	113.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.486	2.496	0	772821	17	>100:1			1100.00	1186.61	115.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.486	2.496	0/0	188079	18	>100:1	Target = 18.91		257.47	45012		
313 > 119	49	2.477	2.496		10033	17	84:1	18.74 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.598	2.607	0	1333223	20	>100:1			5500.00	5752.69	109.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.863	2.873	0	615461	18	>100:1			1100.00	1159.19	112.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.863	2.873	0/0	85616	18	>100:1	Target = 3.80		139.26	24346		
363 > 169	47	2.863	2.873		20596	18	>100:1	4.15 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.880	2.889	0	147051	20	>100:1			1100.00	1170.42	118.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.889		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.276		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.232	3.242	0	111877	20	>100:1			5500.00	6215.40	114.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.232	3.248	0/0	201423	20		Target = 1.75		4183.01	731296		
427 > 81	64	3.232	3.248		110194	18	>100:1	1.82 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.253	3.269	0	647629	22	>100:1			1100.00	1234.34	112.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.260	3.276	0/0	82205	22	54:1	Target = 2.89		136.25	23820		
413 > 169	53	3.260	3.276		26526	21	>100:1	3.09 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.643	3.657	0	124939	22	>100:1			1100.00	1008.85	99.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.652		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.872		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.483		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.649	3.662	0	730236	21	>100:1			1100.00	1140.32	105.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.662		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.001	4.027	-1	634031	15	>100:1			1100.00	1103.31	99.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.001	4.017	0	106006	19	>100:1			5500.00	6133.01	108.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.164	4.178	0	791474	16	>100:1			5500.00	5237.65	107.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.323	4.339	0	722221	16	>100:1			5500.00	5576.43	110.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.323	4.339	0	726053	15	>100:1			1100.00	1205.57	110.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.514	4.519	0	48078	15	>100:1			1100.00	1118.10	124.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.600	4.614	0	726348	16	>100:1			1100.00	1209.90	98.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.072	5.087	0	965021	21	>100:1			1100.00	1187.00	109.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
*** 37 13C2_PFDA**													
515 > 470		4.001	4.027	-1	915420	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.496	0	936940	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.260	3.269	0	773577	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	821022	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.643	3.657	0	157368	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

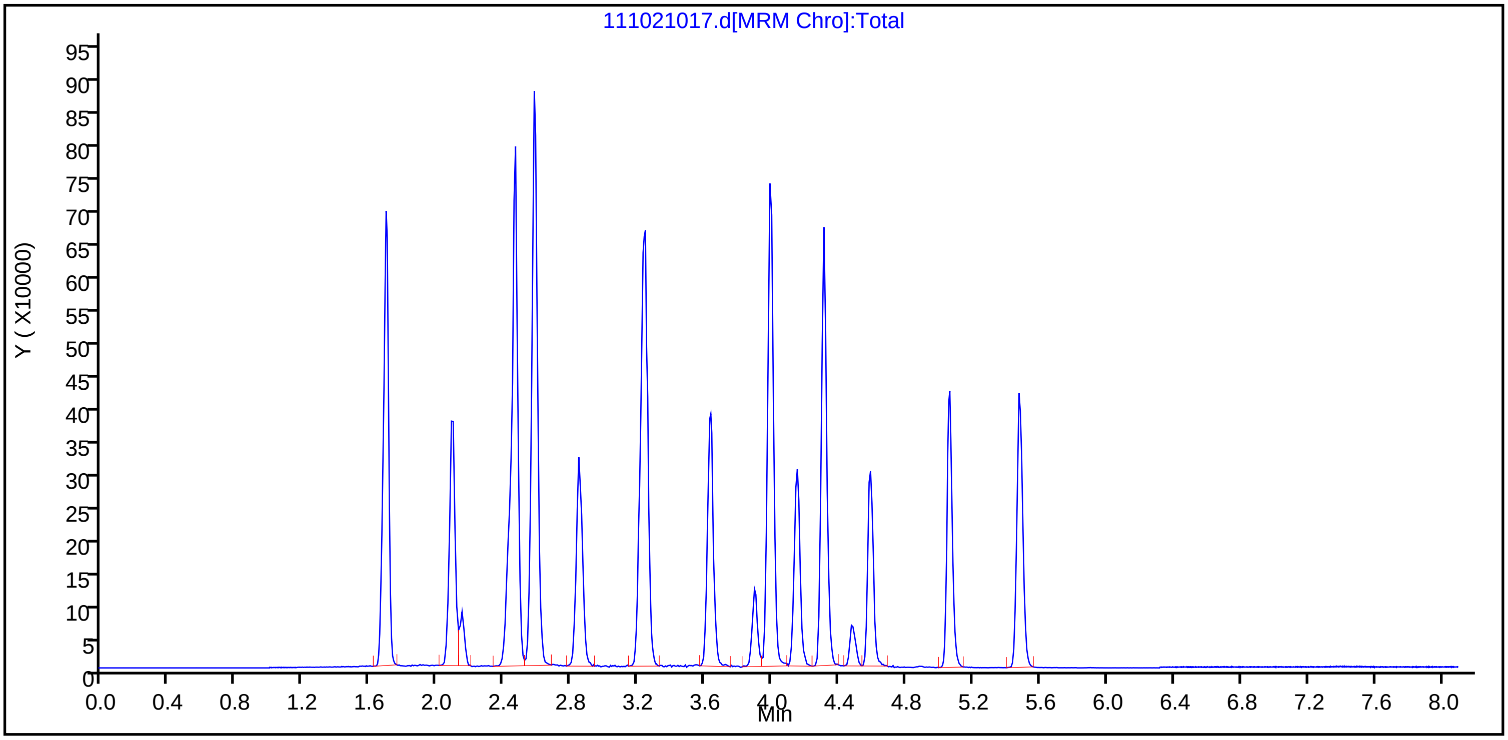
QC Flag Legend

U - Result Less Than Method Detection Limit

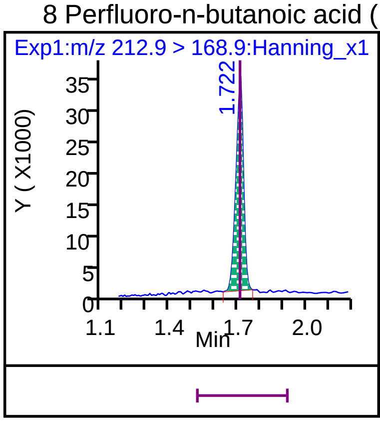
Report Date: 11-Nov-2021 20:41:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

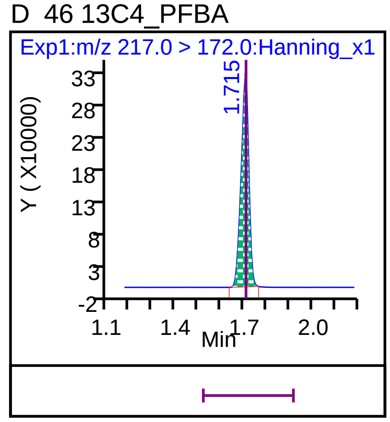
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021017.d		
Injection Date:	10-Nov-2021 15:55:38	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-022.0-20211102	Lab ID:	WK03035-006
Sample Info:	WK03035-006,5000		
Dil. Factor:	5000	Operator:	Justin Gavin



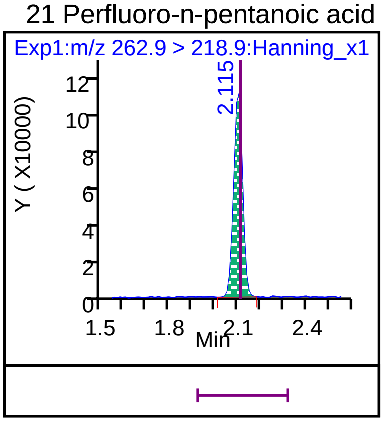
8 Perfluoro-n-butanoic acid (PFBA)



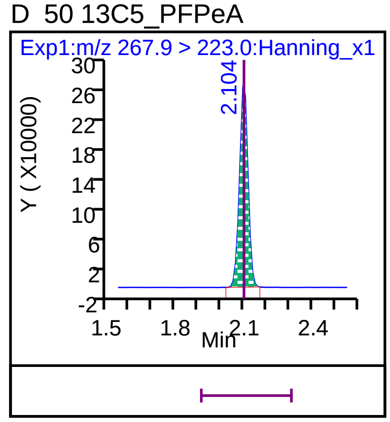
D 46 13C4_PFBA



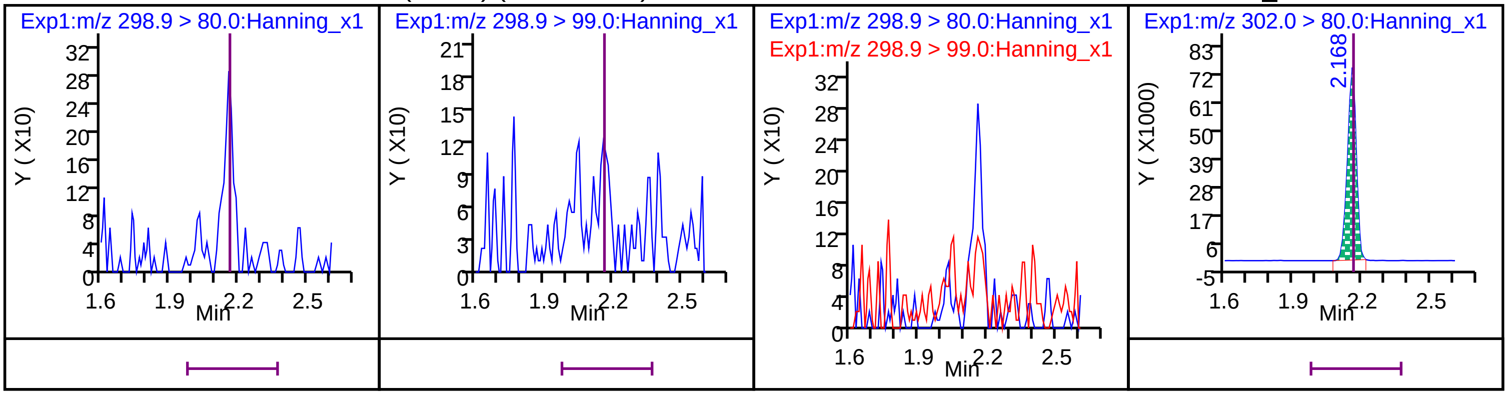
21 Perfluoro-n-pentanoic acid (PFPeA)



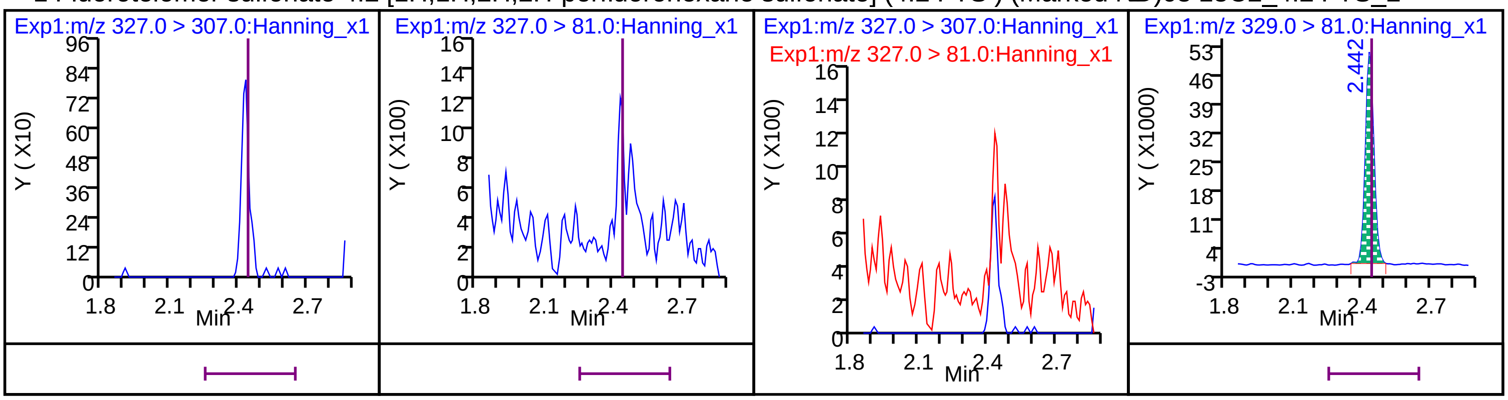
D 50 13C5_PFPeA



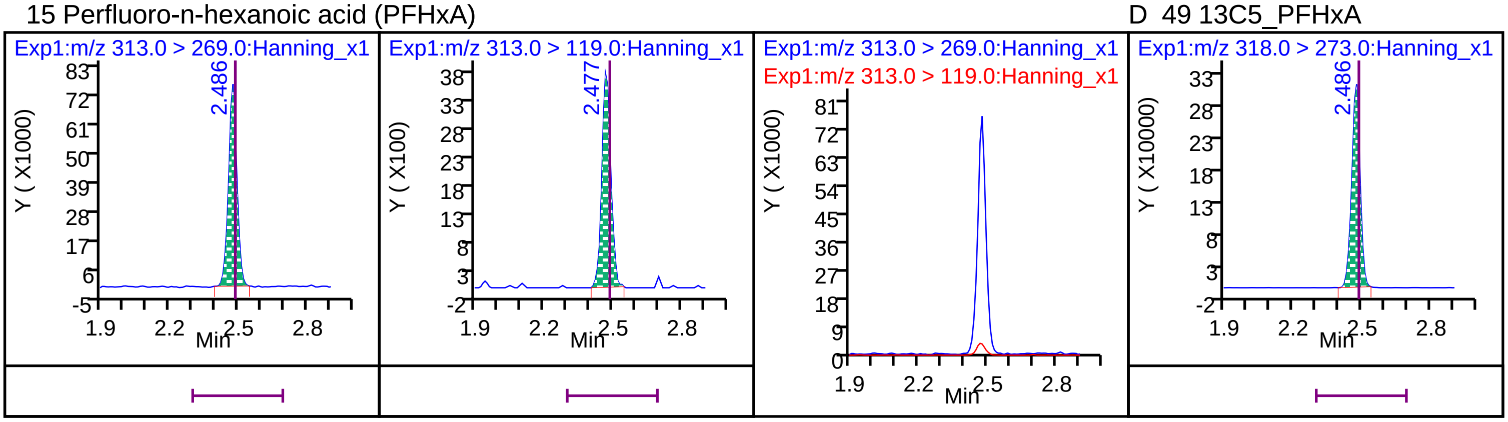
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



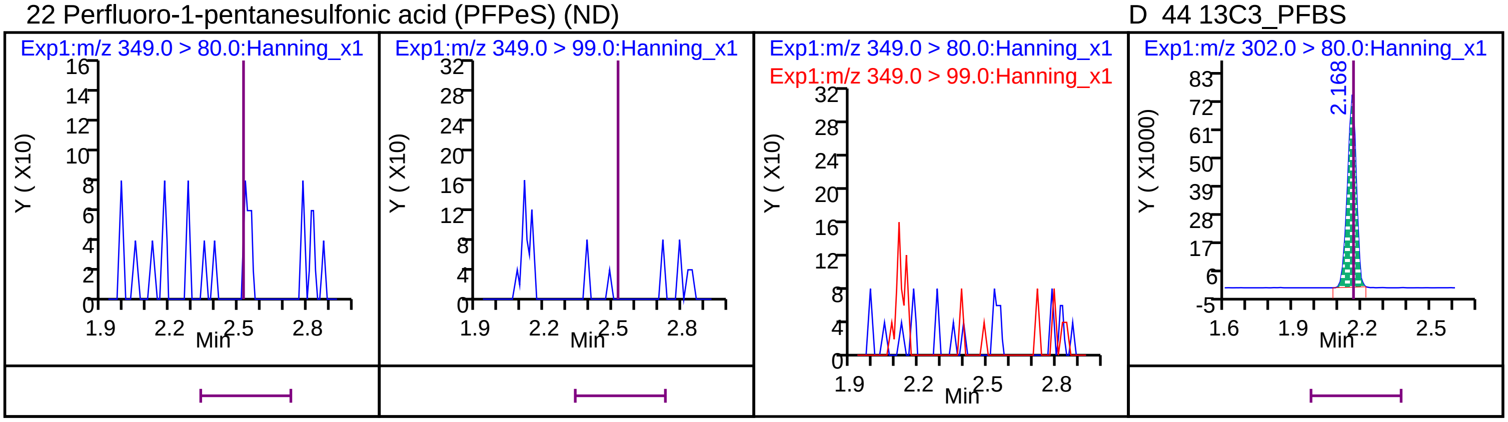
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (Marked ND) D 63 13C2_4:2 FTS_2



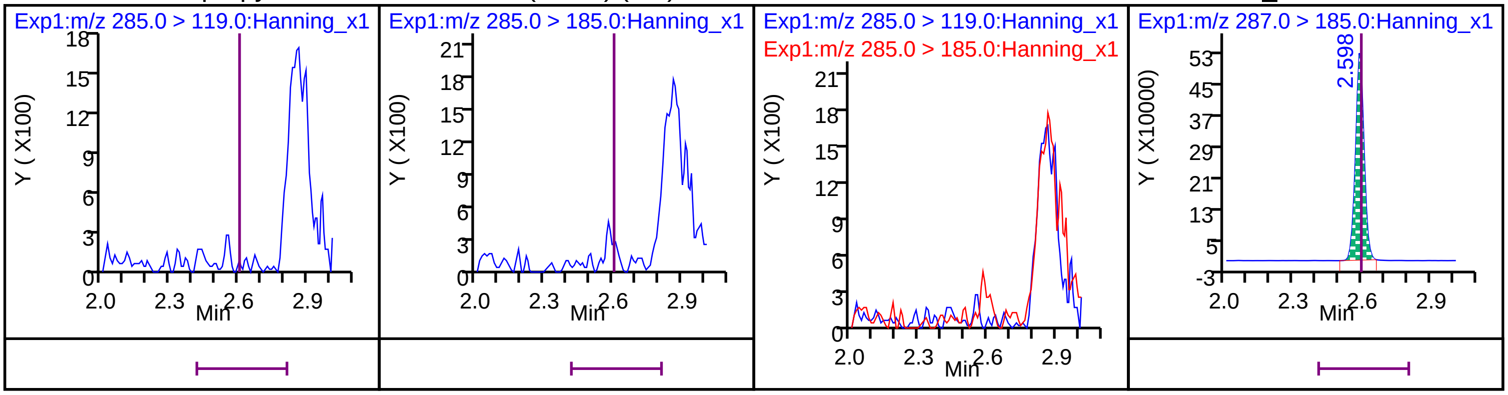
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



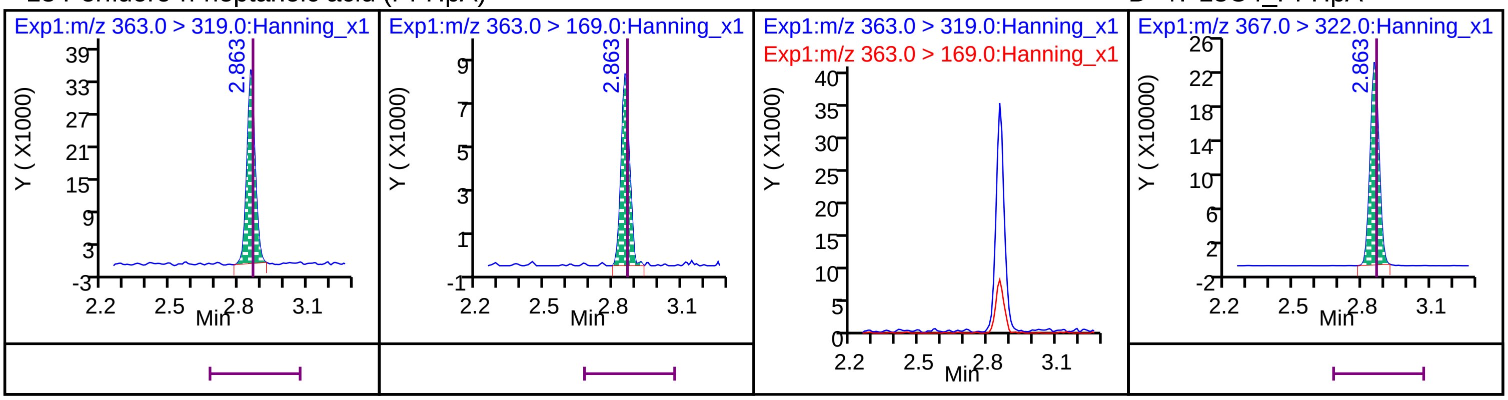
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



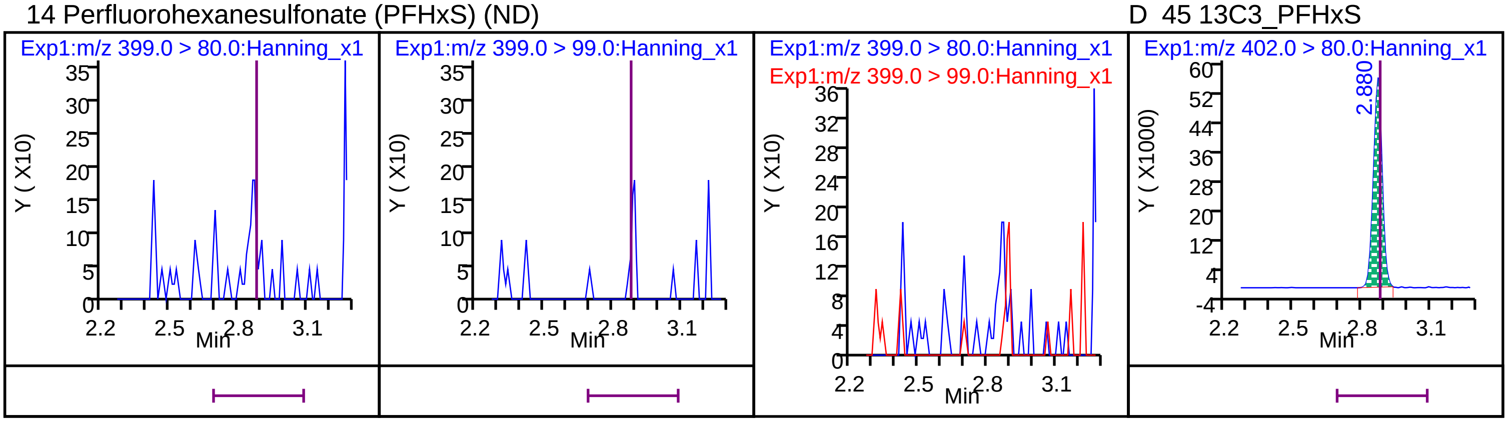
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



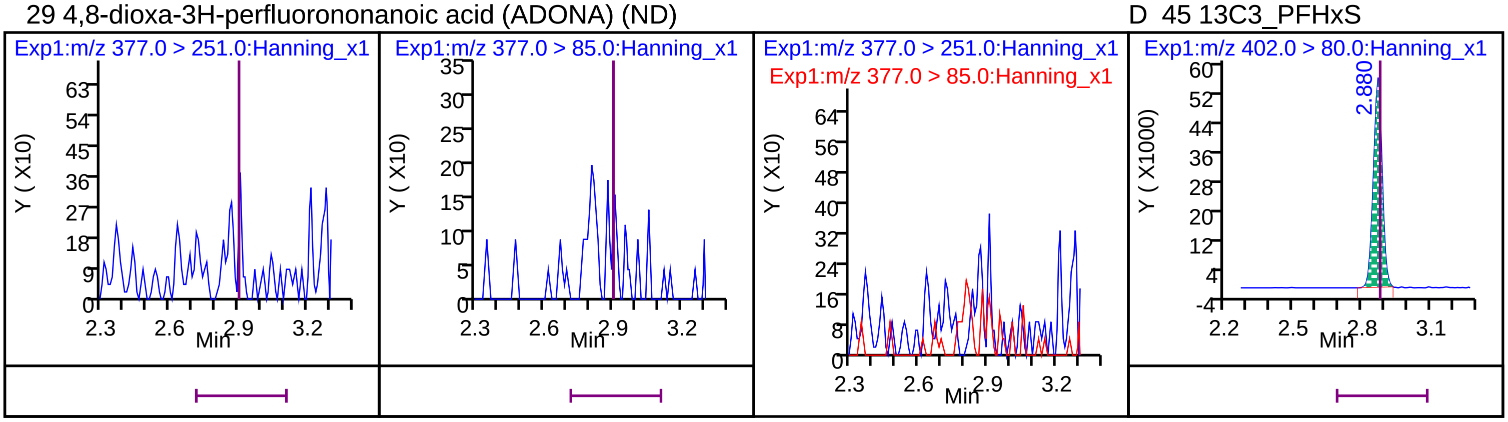
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

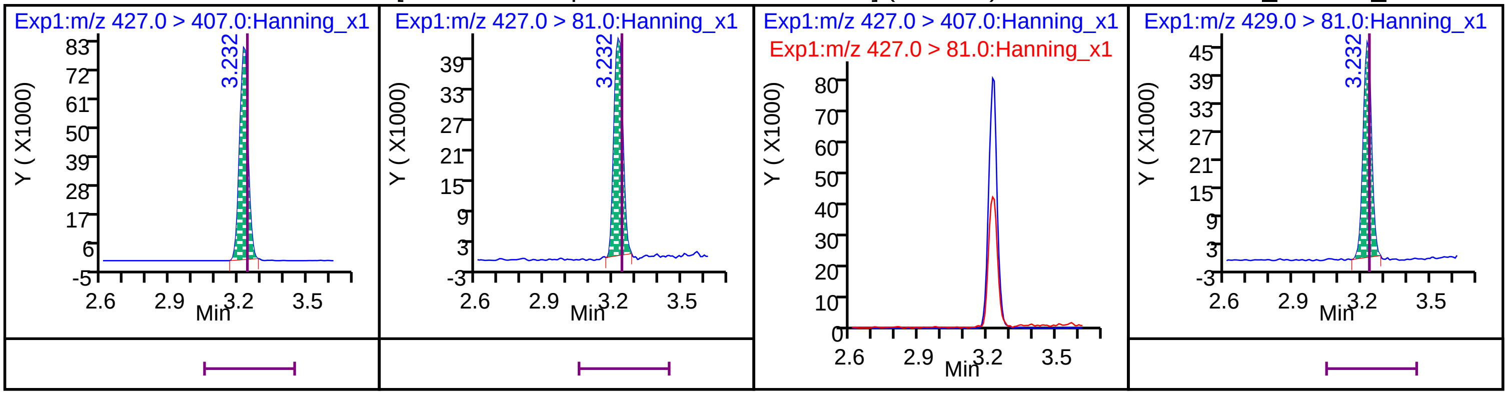


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

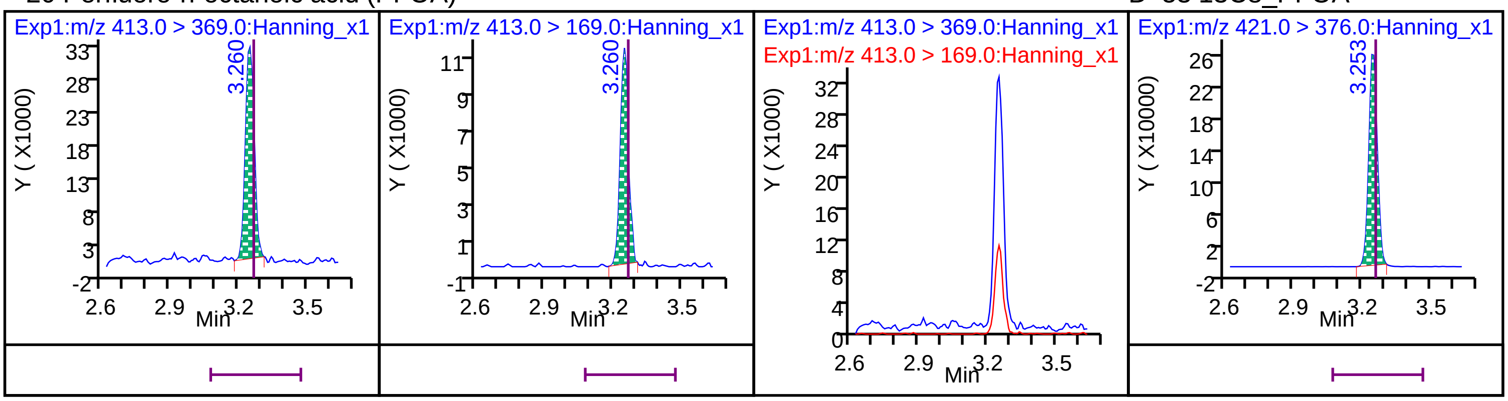


Report Date: 11-Nov-2021 20:41:44 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021017.d

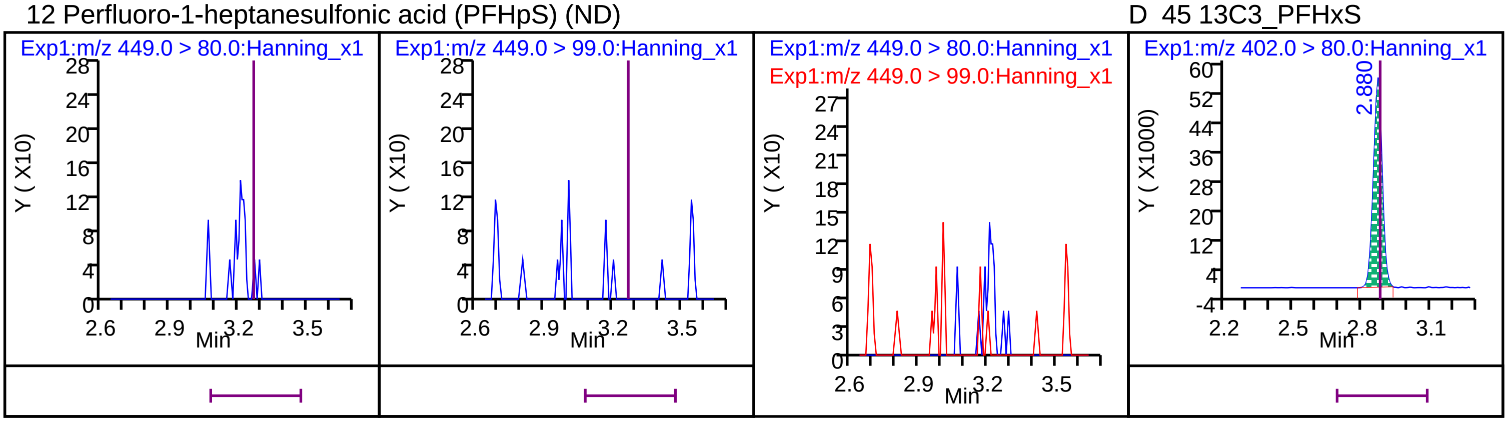
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



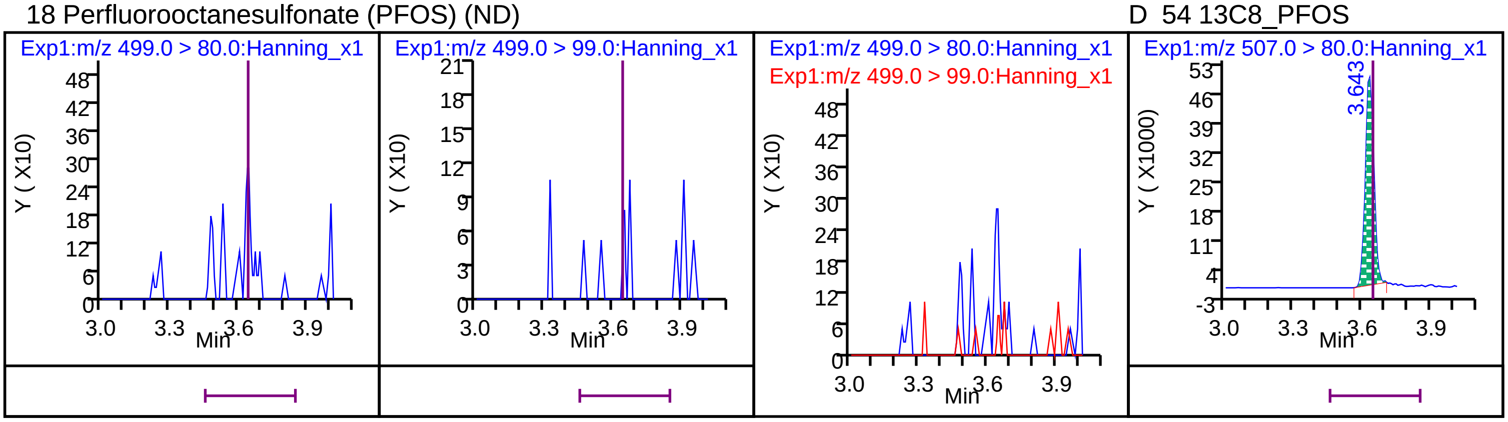
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



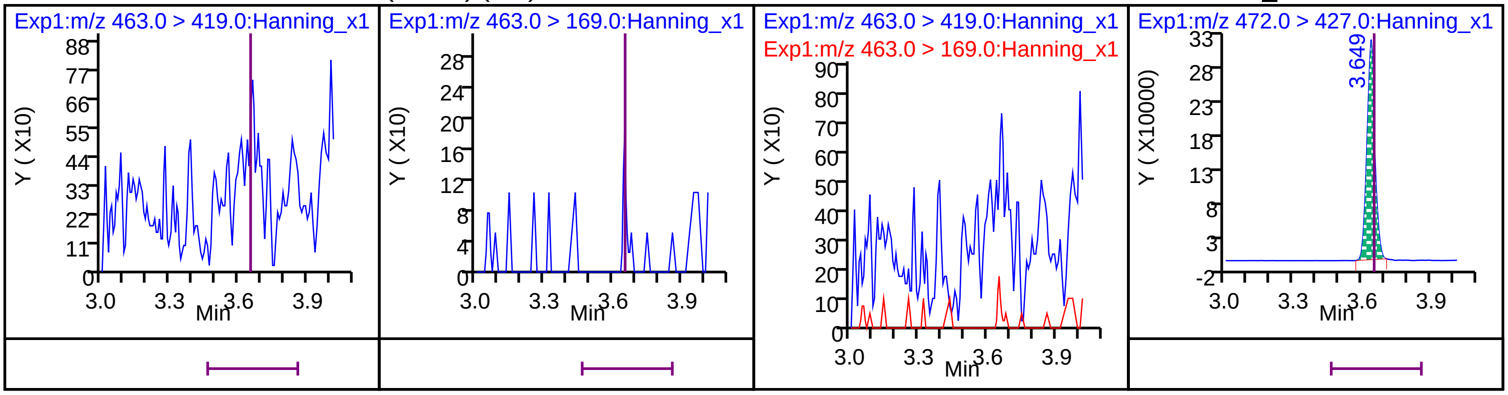
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



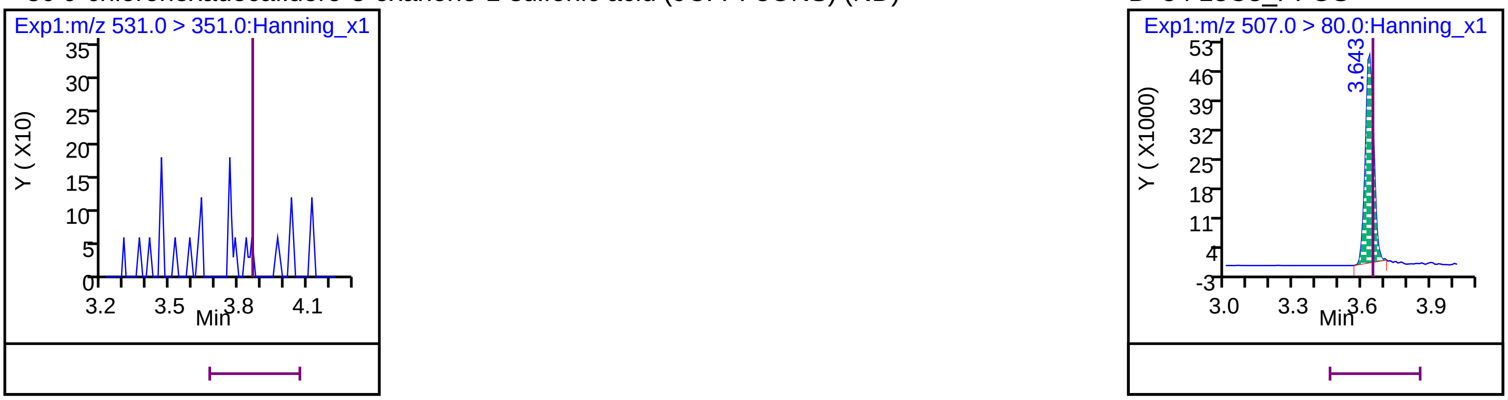
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



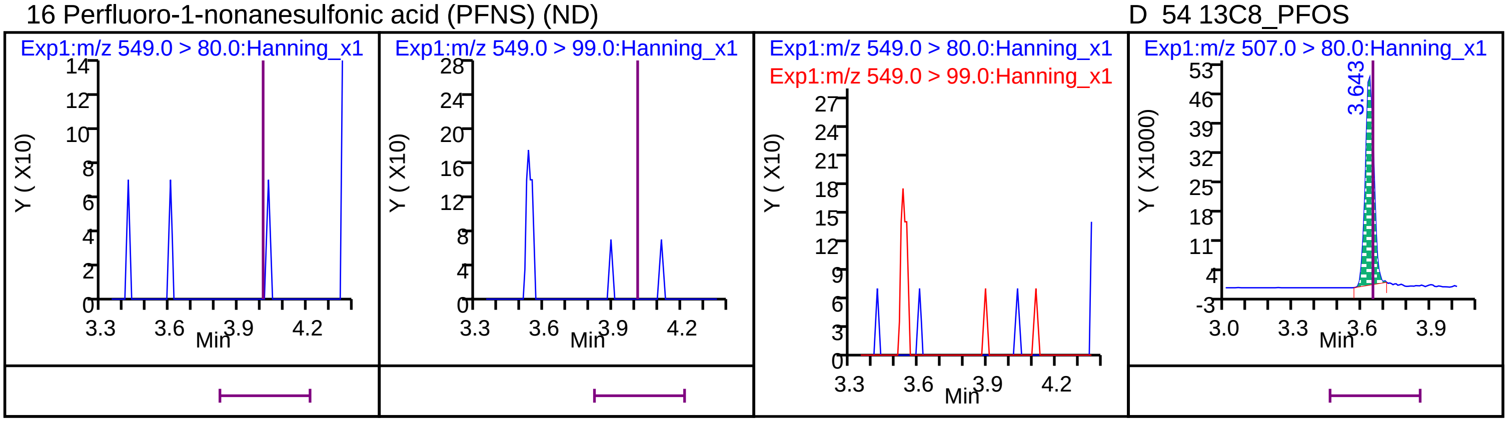
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



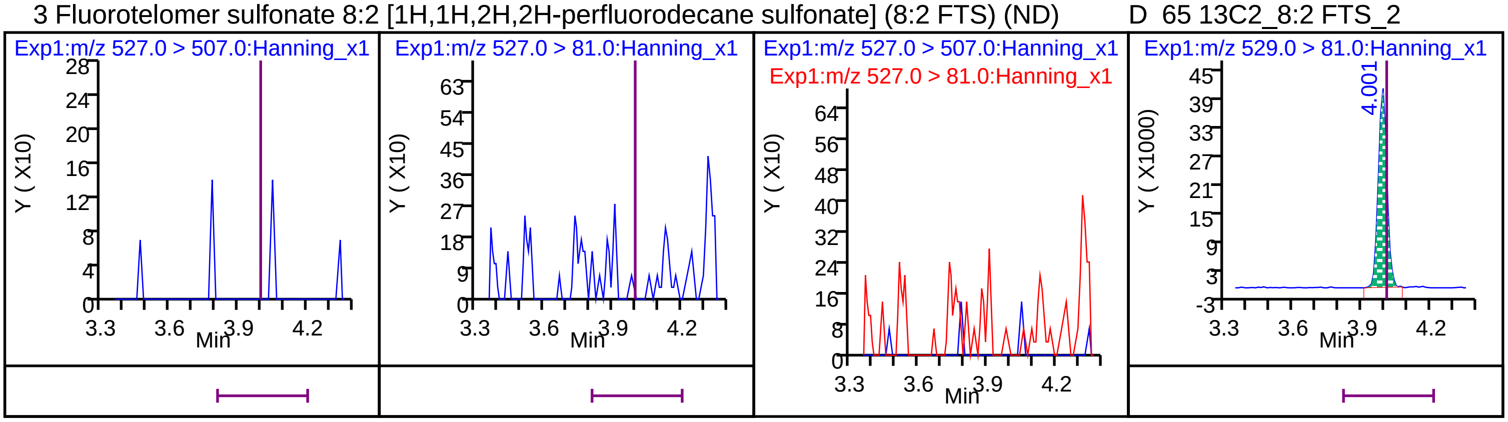
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



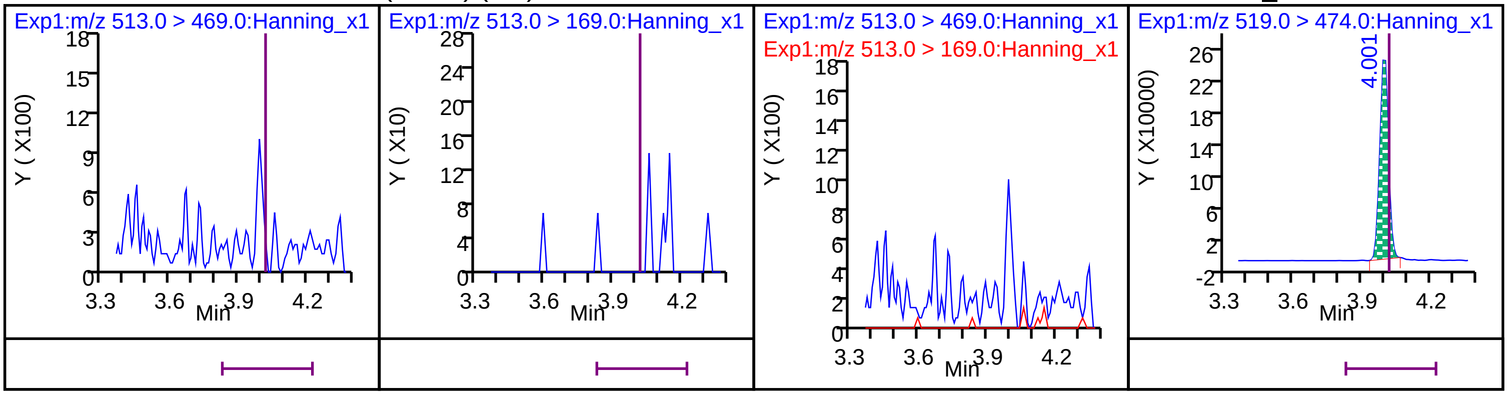
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



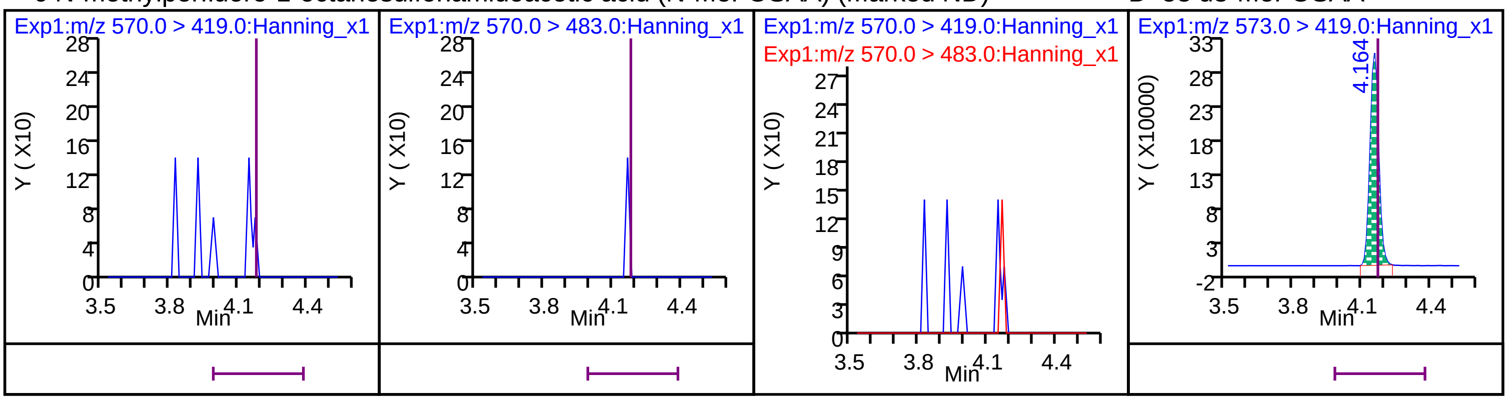
Report Date: 11-Nov-2021 20:41:44 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021017.d

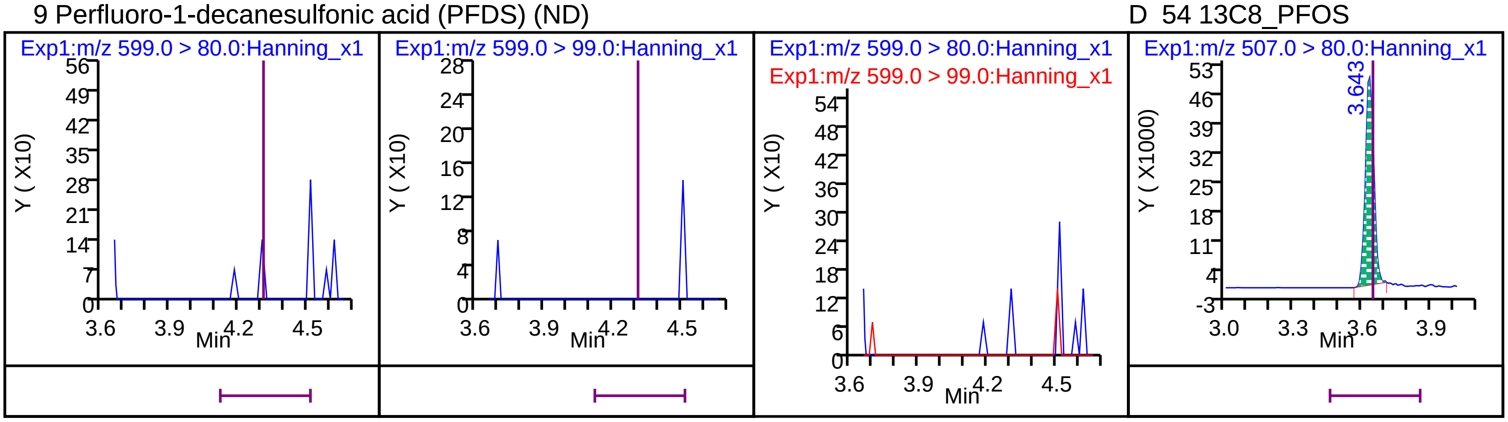
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



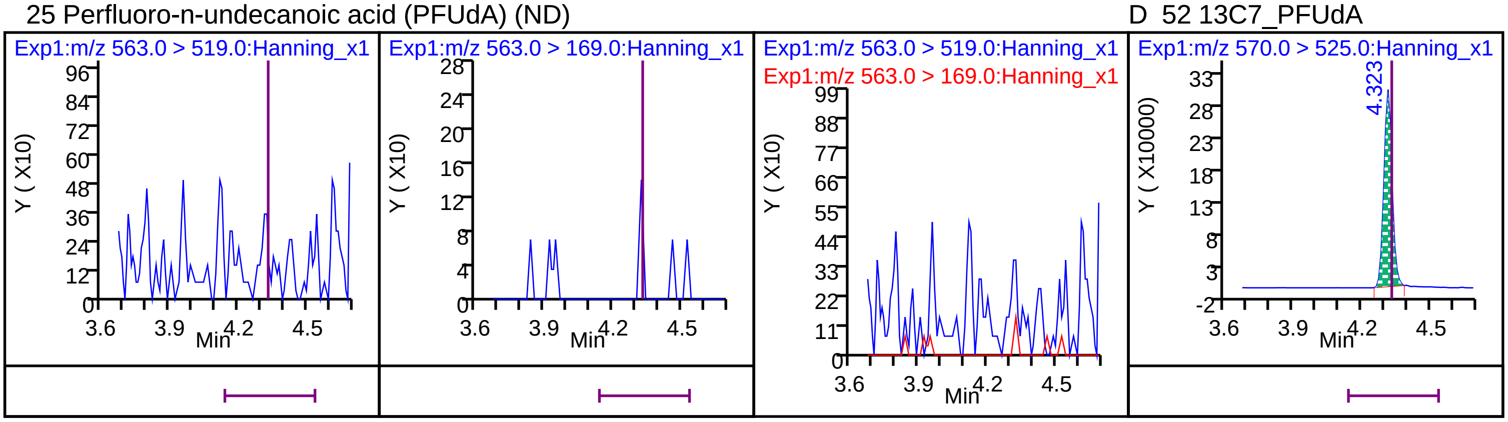
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



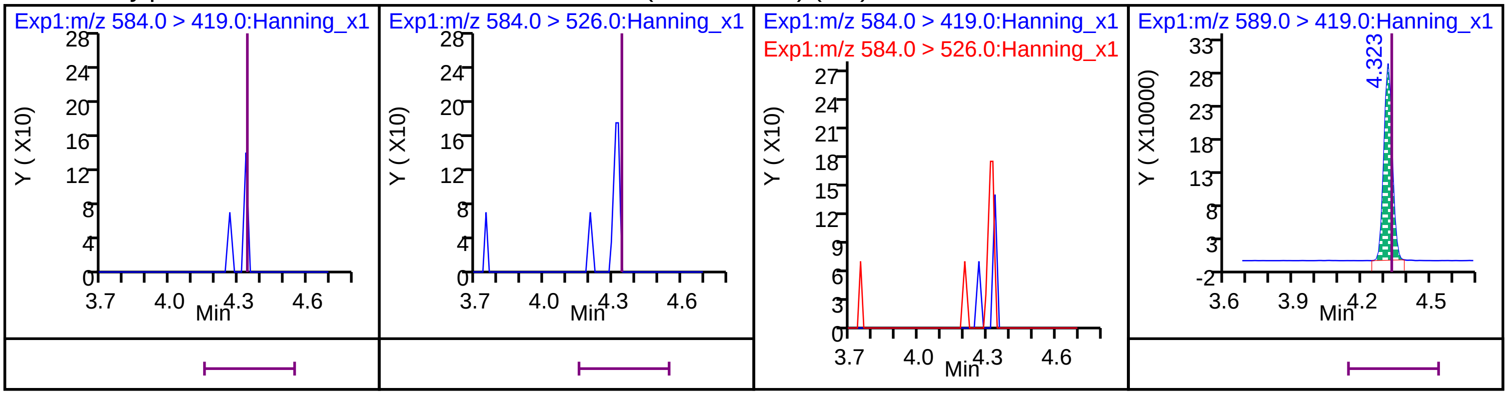
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



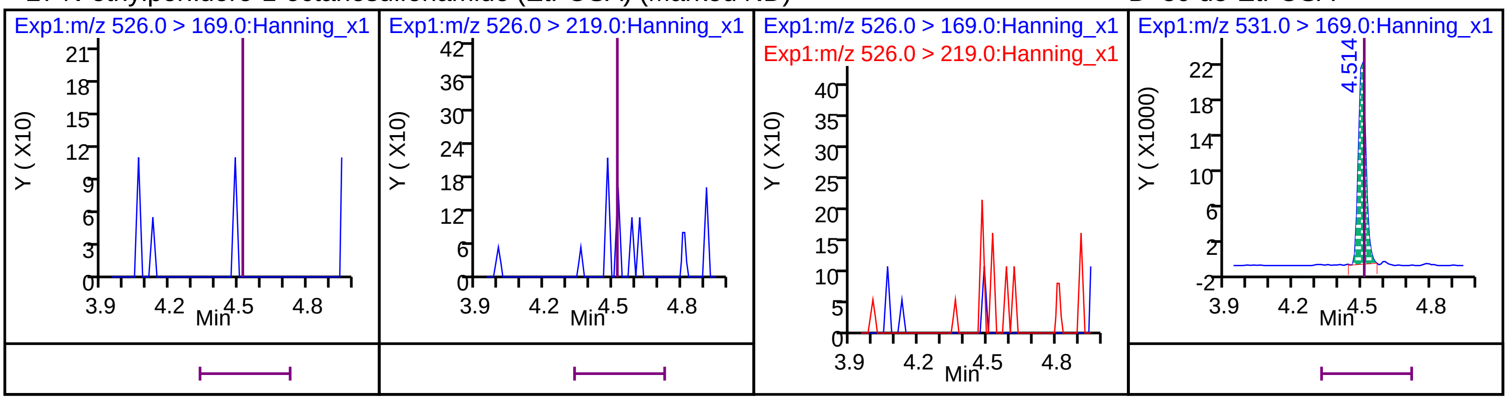
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



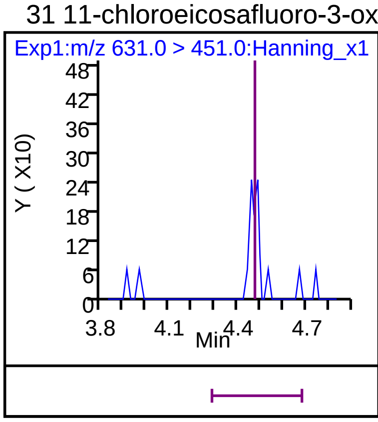
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

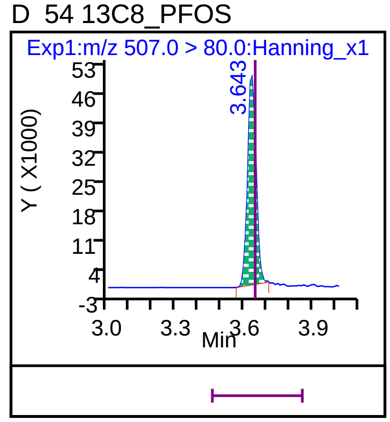


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND) D 59 d5-EtFOSA

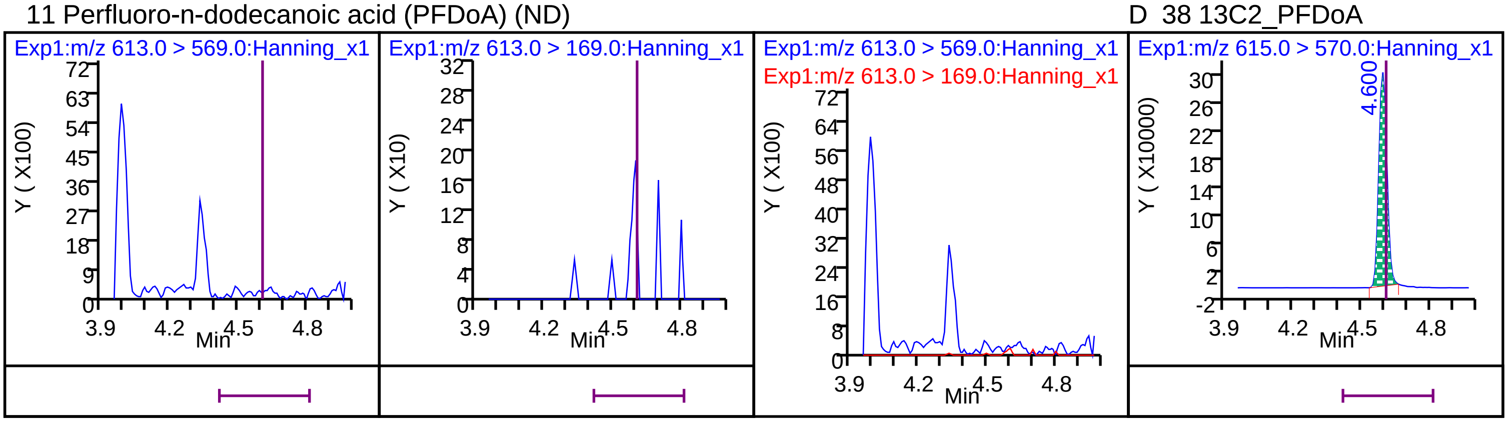


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



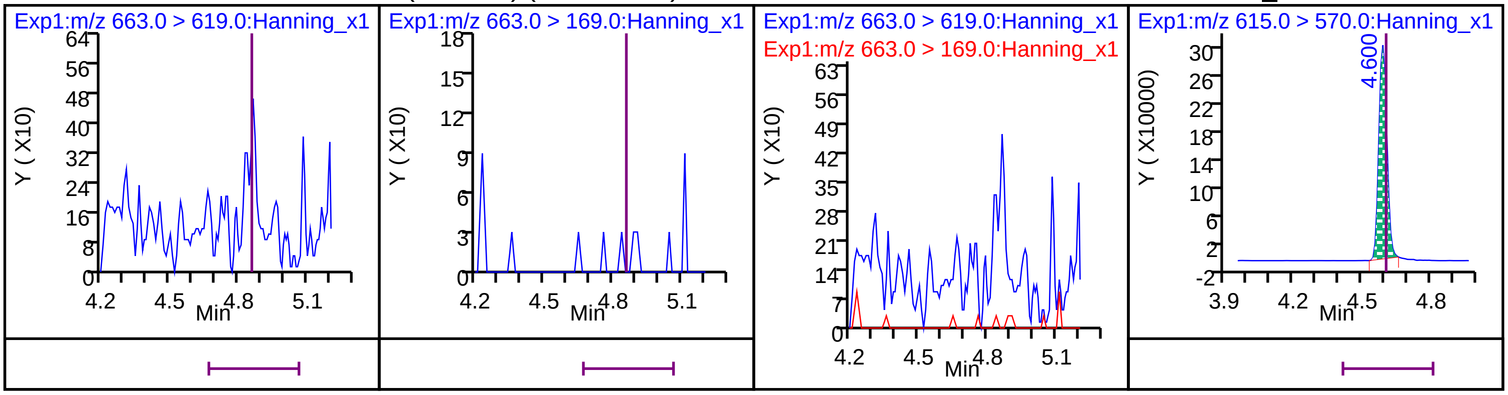


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



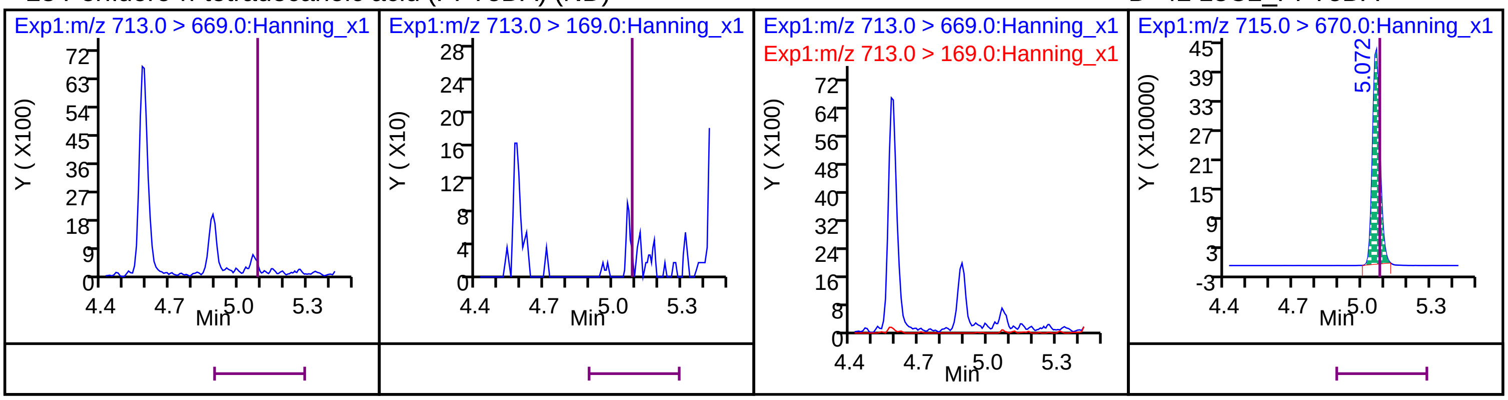
24 Perfluoro-n-tridecanoic acid (PFTrDA) (Marked ND)

D 38 13C2_PFDoA

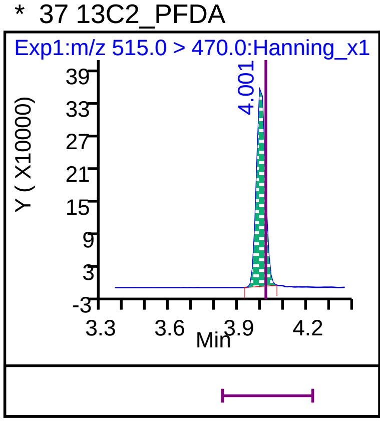


23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)

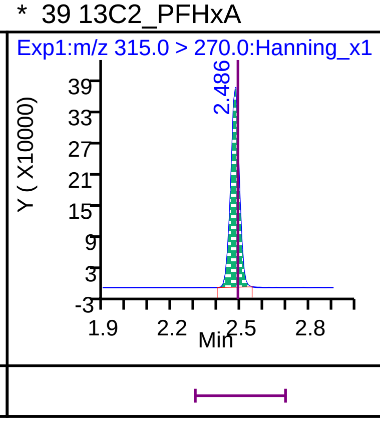
D 42 13C2_PFTeDA



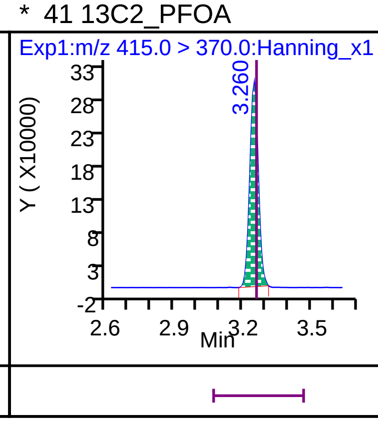
* 37 13C2_PFDA



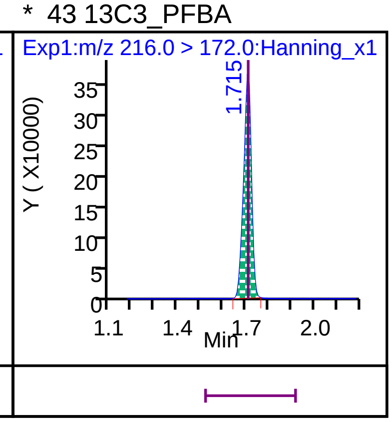
* 39 13C2_PFHxA



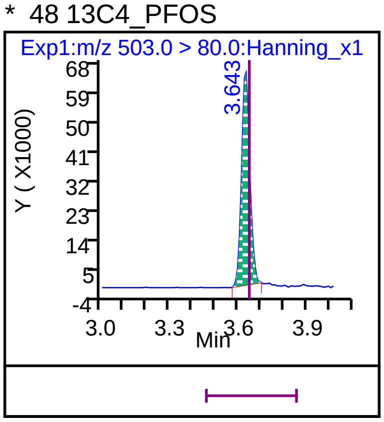
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-007	
Description: SW3-DPT-0144-032.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1310	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	20	11/06/2021 2215	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	20	11/10/2021 0040	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	70	U	140	70	35	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	70	U	140	70	35	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	70	U	140	70	35	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11000	VD	130	65	34	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	500	D	140	70	35	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	70	U	140	70	35	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	70	U	140	70	35	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	70	U	140	70	35	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	81	D	70	35	17	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	520	D	70	35	17	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	390	D	70	35	17	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1300	D	70	35	17	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	140	D	70	35	17	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1400	D	70	35	17	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	35	U	70	35	17	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	290	D	70	35	17	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		117	50-150		116	50-150
13C2_6:2FTS		114	50-150		113	50-150
13C2_8:2FTS		109	50-150		112	50-150
13C2_PFDoA		128	50-150		104	50-150
13C2_PFTeDA		120	50-150		98	50-150
13C3_PFBS		122	50-150		102	50-150
13C3_PFHxS		125	50-150		113	50-150
13C3-HFPO-DA		127	50-150		100	50-150
13C4_PFBA		120	50-150		106	50-150
13C4_PFHpA		118	50-150		105	50-150
13C5_PFHxA		116	50-150		102	50-150
13C5_PFPeA		120	50-150		105	50-150
13C6_PFDA		109	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-007
Description: SW3-DPT-0144-032.0-20211102	Matrix: Aqueous
Date Sampled: 11/02/2021 1310	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		119	50-150		107	50-150
13C8_PFOA		126	50-150		106	50-150
13C8_PFOS		120	50-150		104	50-150
13C9_PFNA		115	50-150		101	50-150
d-EtFOSA		116	50-150		89	50-150
d5-EtFOSAA		123	50-150		101	50-150
d3-MeFOSAA		134	50-150		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Report Date: 09-Nov-2021 13:31:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621057.d		
Injection Date:	06-Nov-2021 22:15:11	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	41
Lab Sample ID:	WK03035-007	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-032.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-007,20	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0348432

Name	Value	Units	Description
DF	20		Dilution Factor
VF	10000	ul	Final Volume
VI	287	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1317541	20	>100:1			1100.00	1201.94	119.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.725	1.732	0/0	954749	18	>100:1			747.98	521.24		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1242056	17	>100:1			1100.00	1217.59	120.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	2438353	15	>100:1			2011.83	1401.97		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	415902	16	>100:1			1100.00	1232.53	122.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.169		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.529		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.440	2.449	0	271021	16	>100:1			5500.00	5803.84	117.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.440	2.449	0/0	65088	17	>100:1	Target = 1.39		710.40	495.05		
327 > 81	63	2.440	2.449		42821	19	36:1	1.52 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.484	2.493	0	1056024	17	>100:1			1100.00	1157.92	115.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.484	2.493	0/0	1755707	18	>100:1	Target = 17.15		1799.36	1253.91		
313 > 119	49	2.484	2.493		100147	17	>100:1	17.53 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.614	0	869540	19	>100:1			5500.00	5907.45	126.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.869	2.878	0	1064124	17	>100:1			1100.00	1202.58	117.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	515404	18	>100:1	Target = 3.21		557.68	388.63		
363 > 169	47	2.869	2.878		162226	17	>100:1	3.17 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	345339	18	>100:1			1100.00	1248.60	125.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.887	2.896	0/0	42300	26	>100:1	Target = 3.35	6.54	116.88	81.453		
399 > 99	45	2.887	2.896		9384	25	86:1	4.50 (1.67-5.04)	6.49				M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.233	3.201	2	246227	21	>100:1			5500.00	5974.14	113.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.226	3.201	2/0	1090924	21	>100:1	Target = 1.26		14671	10223		
427 > 81	64	3.226	3.201		842464	21	>100:1	1.29 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	1062758	20	>100:1			1100.00	1261.55	125.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	200007	32	93:1	Target = 2.46	12.99	207.01	144.26		
413 > 169	53	3.258	3.226		75135	35	62:1	2.66 (1.23-3.70)	10.40				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.613	3.558	4	284750	19	>100:1			1100.00	1201.85	119.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.613	3.558	4/0	124108	40	>100:1	Target = 3.98	2.34	412.09	287.17		
499 > 99	54	3.606	3.558		31206	36	85:1	3.97 (1.99-5.97)	3.80				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.755		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.613	3.565	3	974786	17	>100:1			1100.00	1201.45	115	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.565		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.945	3.894	4	194693	23	>100:1			5500.00	5591.06	108.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.894		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.953	3.901	4	836364	18	>100:1			1100.00	1169.02	108.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.109	4.053	4	1059664	16	>100:1			5500.00	6553.74	133.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.267	4.207	4	921209	16	>100:1			5500.00	6371.12	122.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.258	4.207	4	854135	16	>100:1			1100.00	1216.32	118.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.533	4.486	3	879766	15	>100:1			1100.00	1263.90	127.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.517	4.486	2	74366	20	>100:1			1100.00	1232.72	115.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.942	2	903986	16	>100:1			1100.00	1211.58	120.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
*** 37 13C2_PFDA**													
515 > 470		3.953	3.901	4	776757	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.484	2.493	0	981141	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.226	2	992113	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1185311	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.613	3.558	4	295526	20	>100:1			200.00			

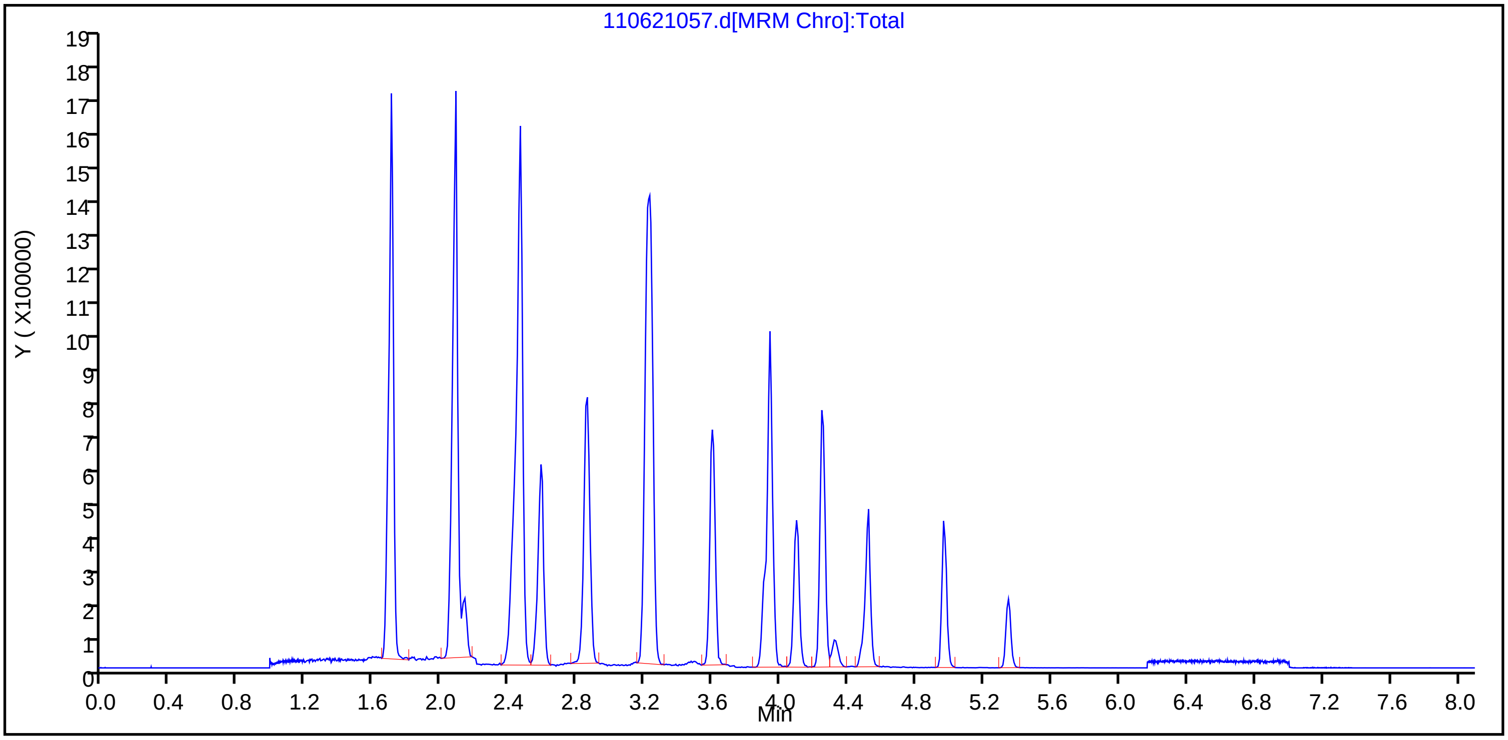
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated

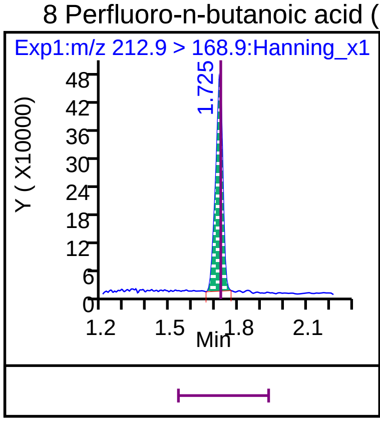
Report Date: 09-Nov-2021 13:31:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

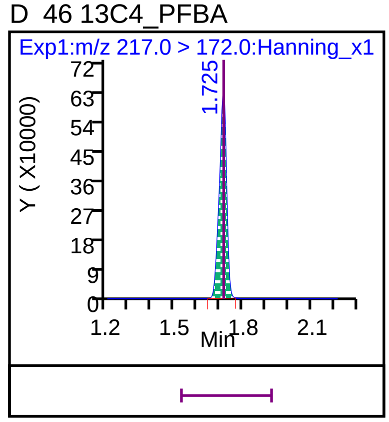
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621057.d		
Injection Date:	06-Nov-2021 22:15:11	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-032.0-20211102	Lab ID:	WK03035-007
Sample Info:	WK03035-007,20		
Dil. Factor:	20	Operator:	Matthew M. Miller



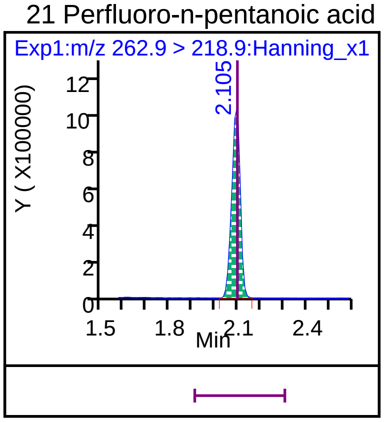
8 Perfluoro-n-butanoic acid (PFBA)



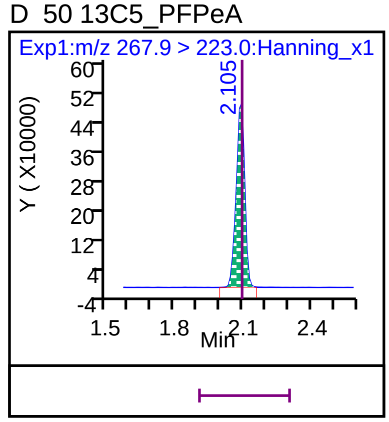
D 46 13C4_PFBA



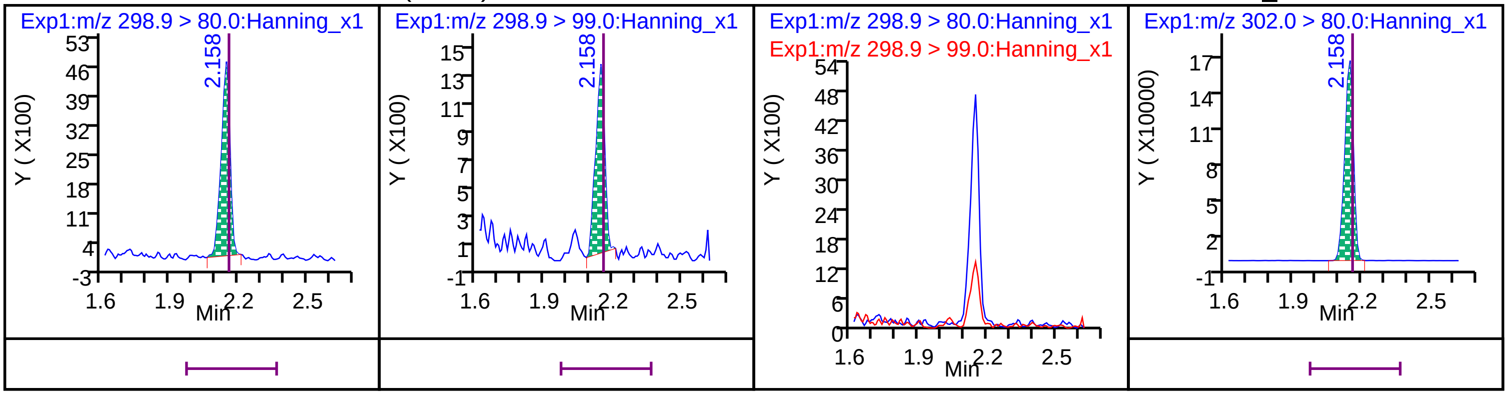
21 Perfluoro-n-pentanoic acid (PFPeA)



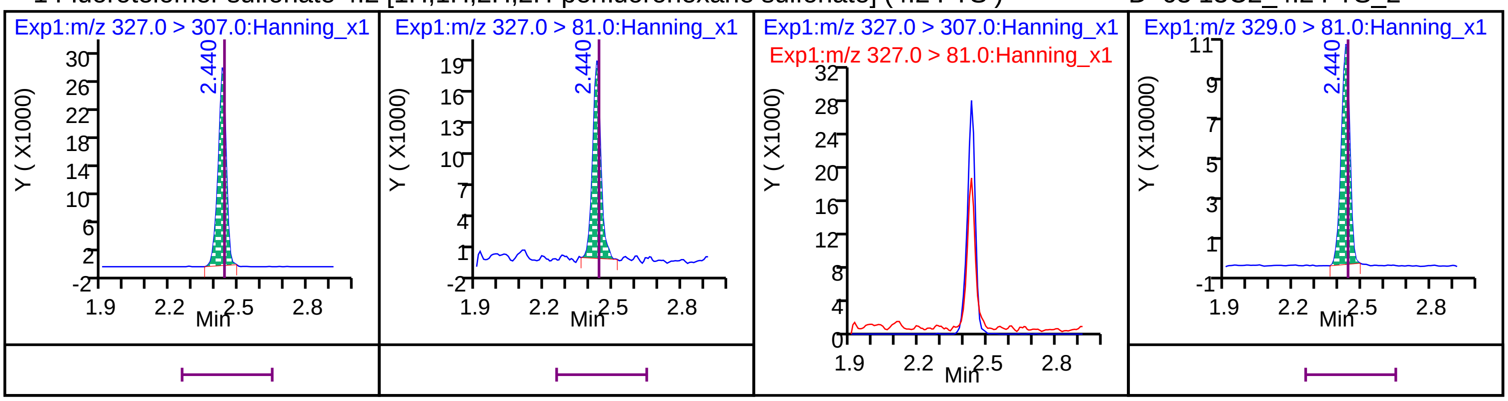
D 50 13C5_PFPeA



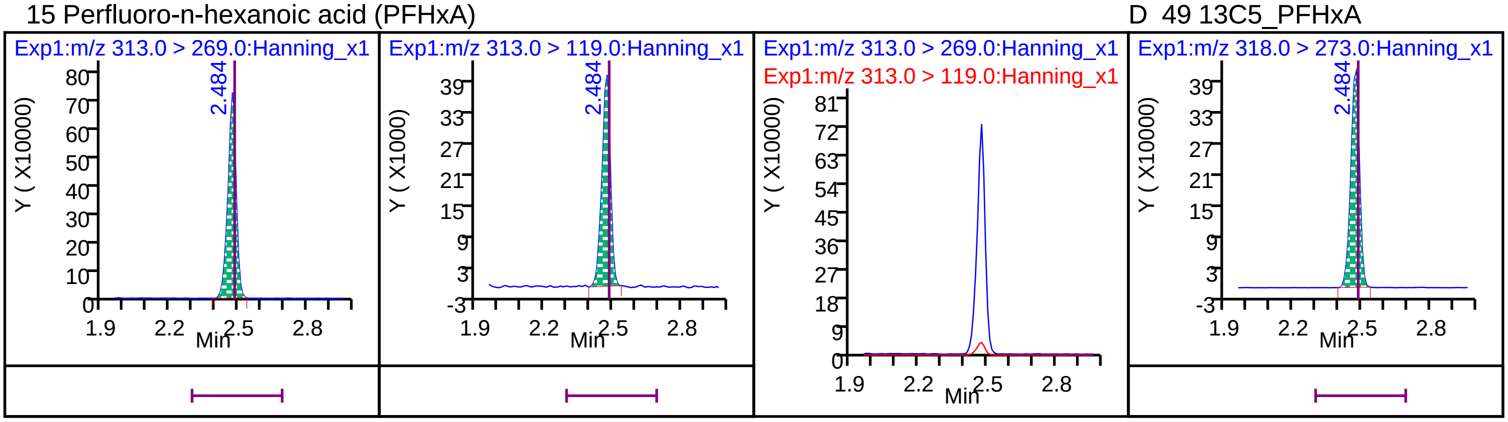
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



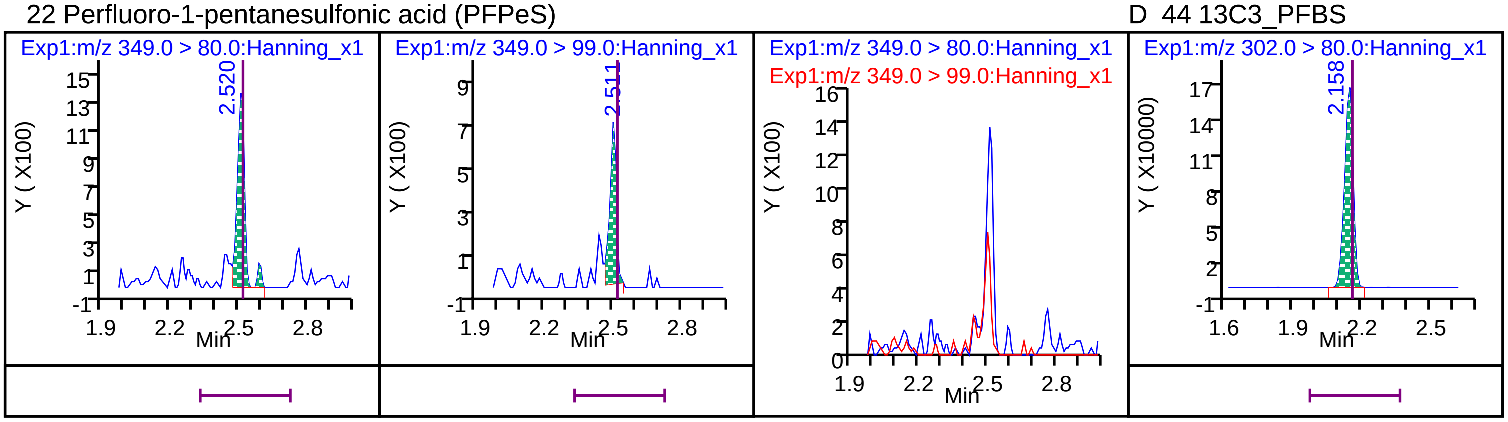
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



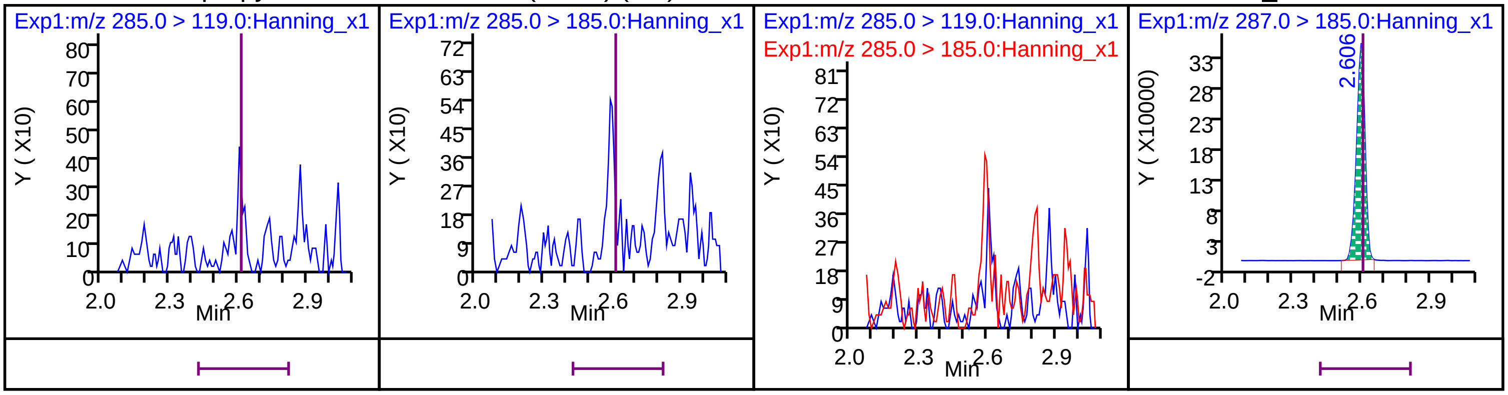
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



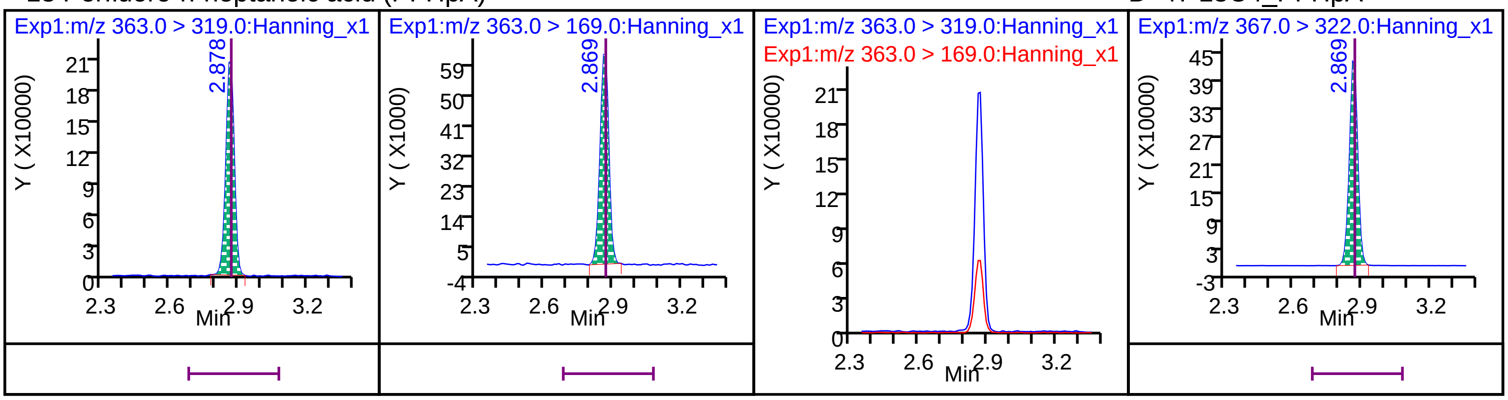
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



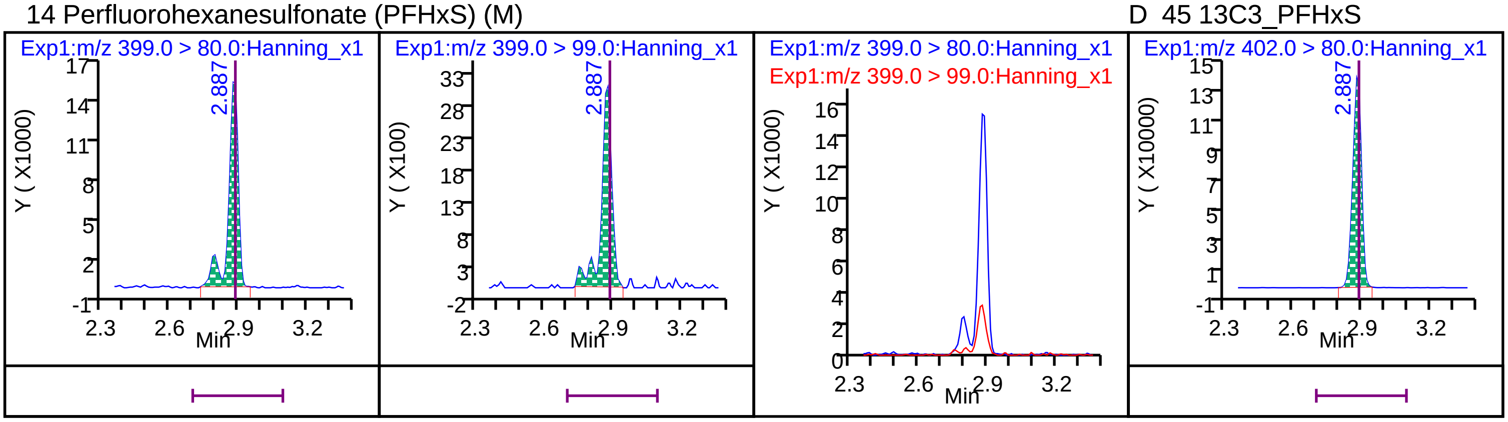
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



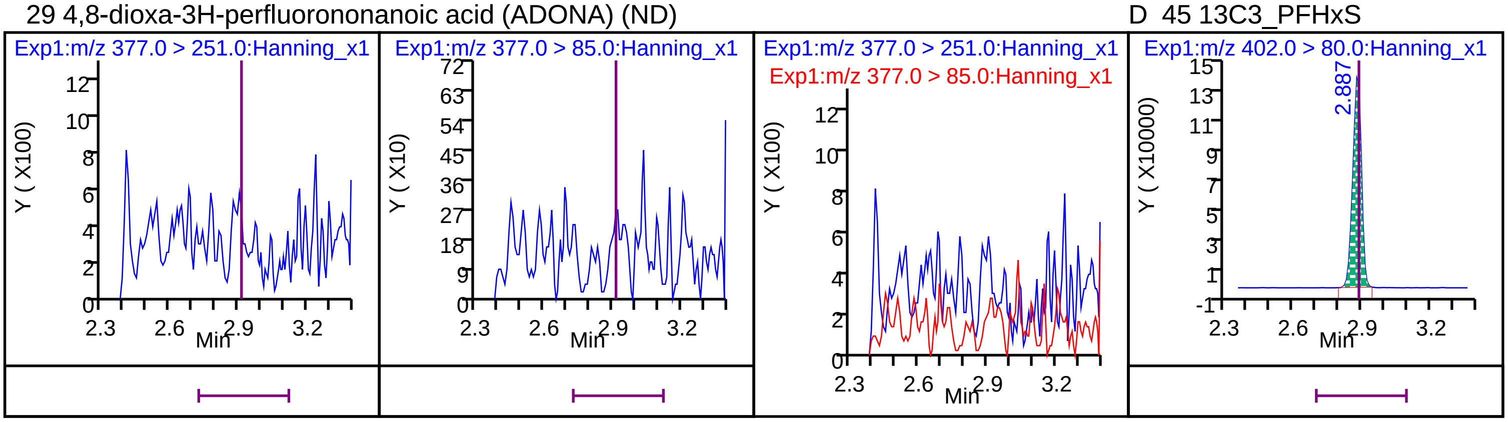
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



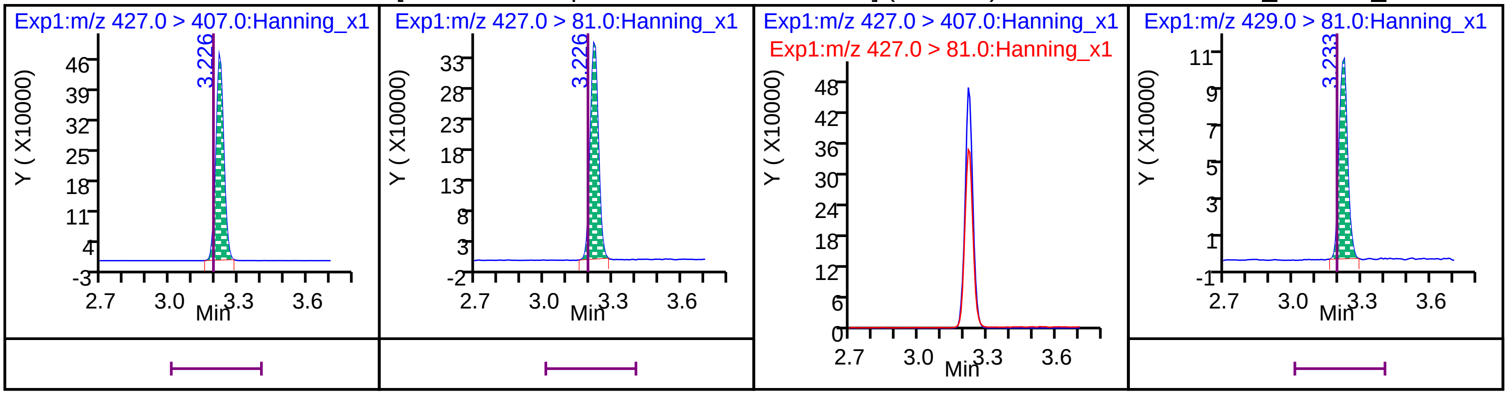
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



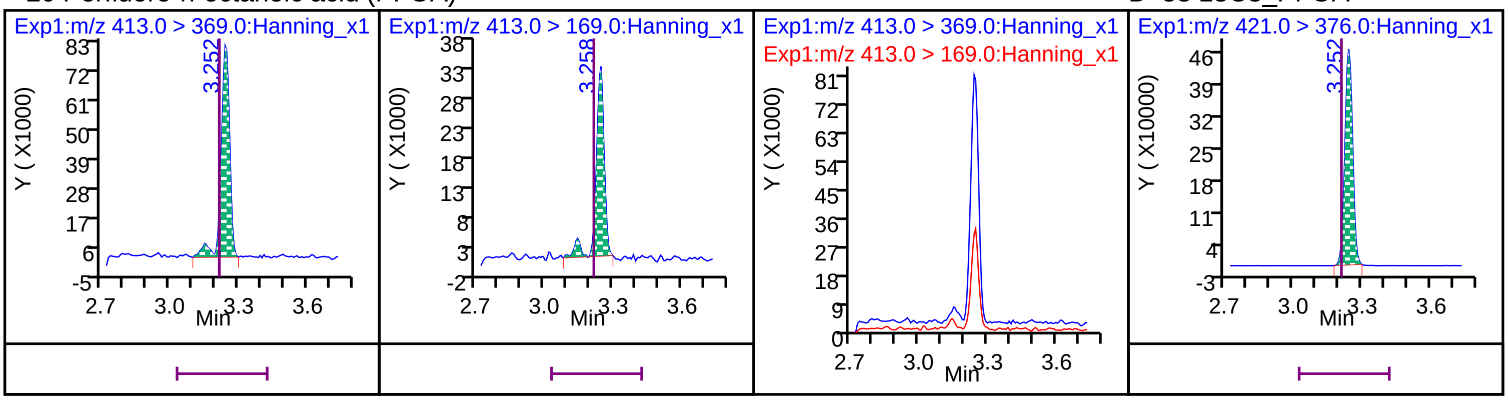
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



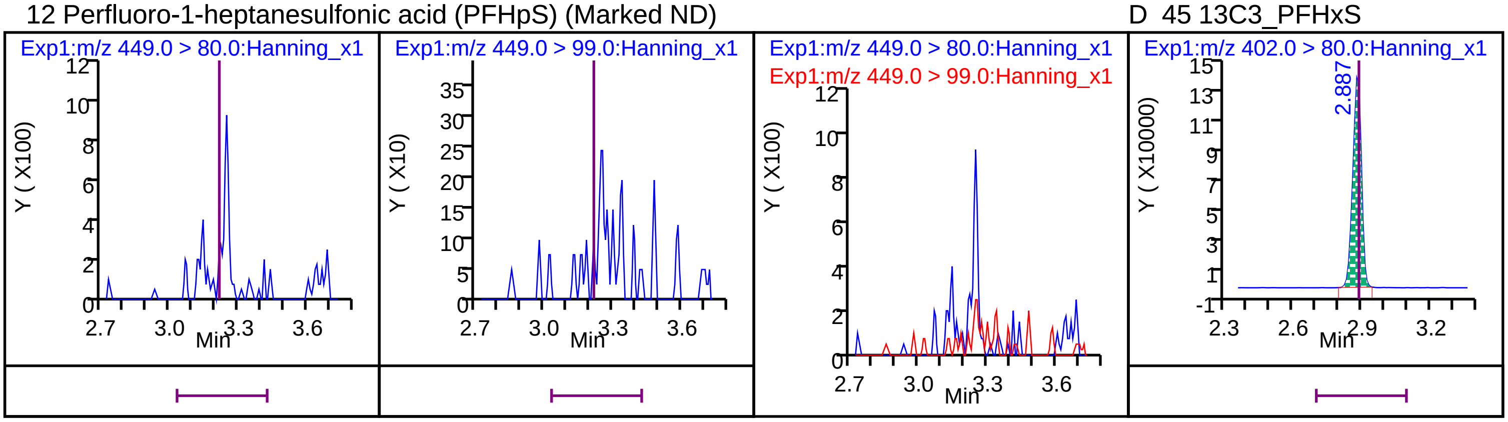
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



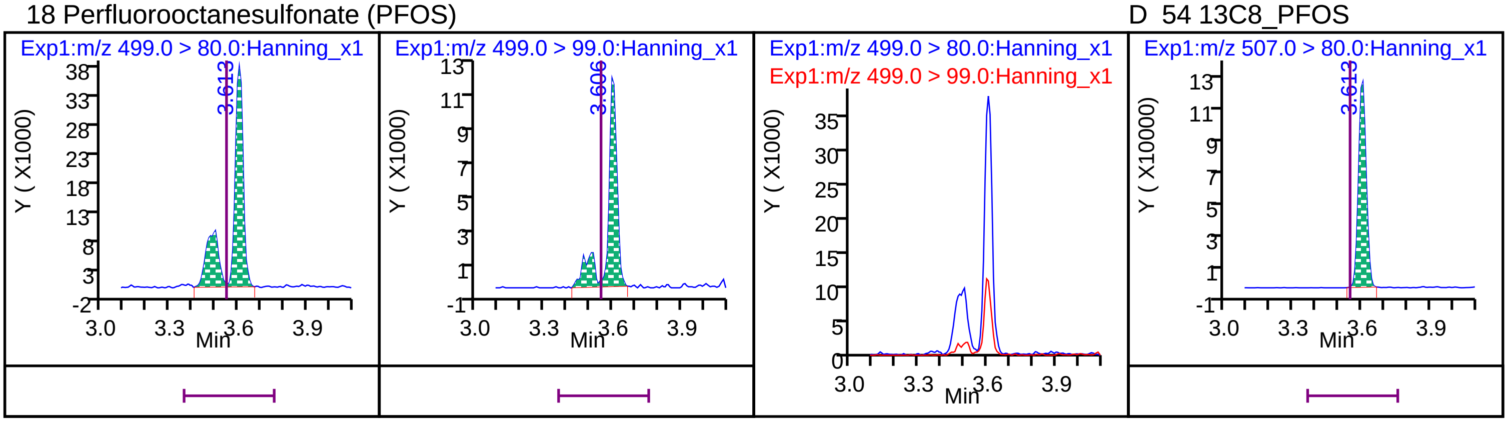
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



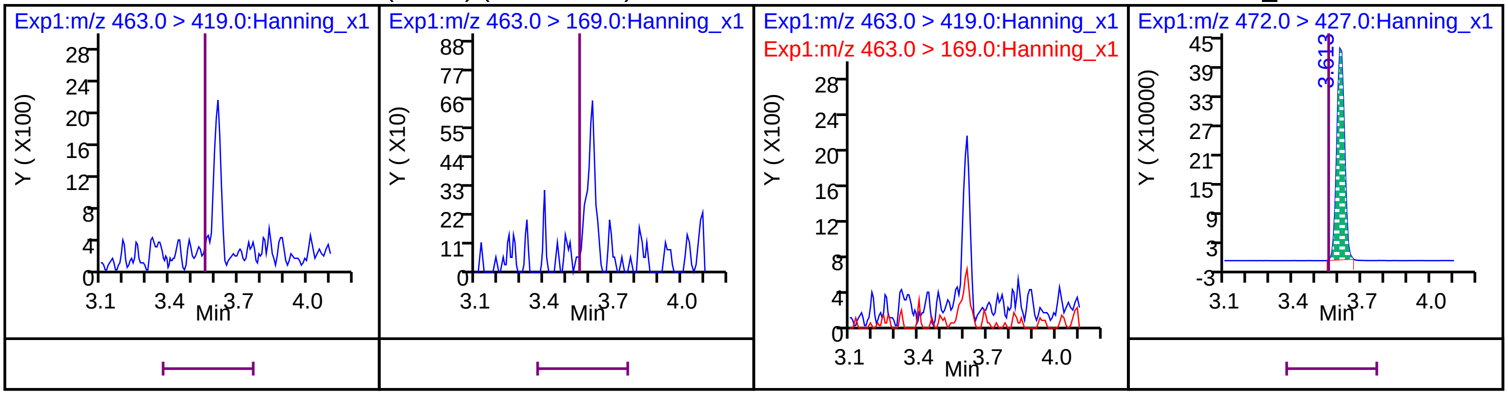
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (Marked ND) D 45 13C3_PFHxS



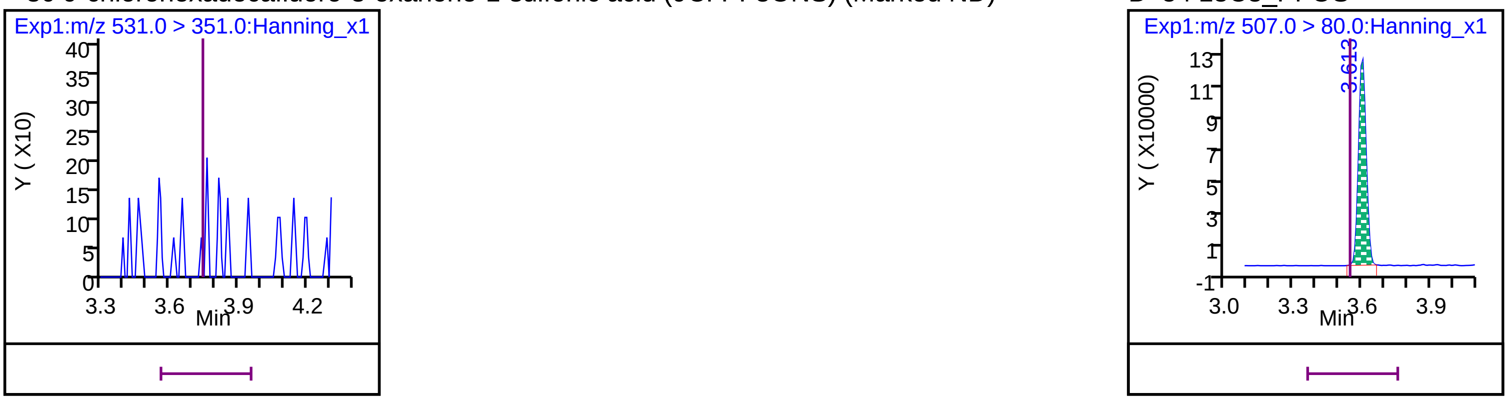
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



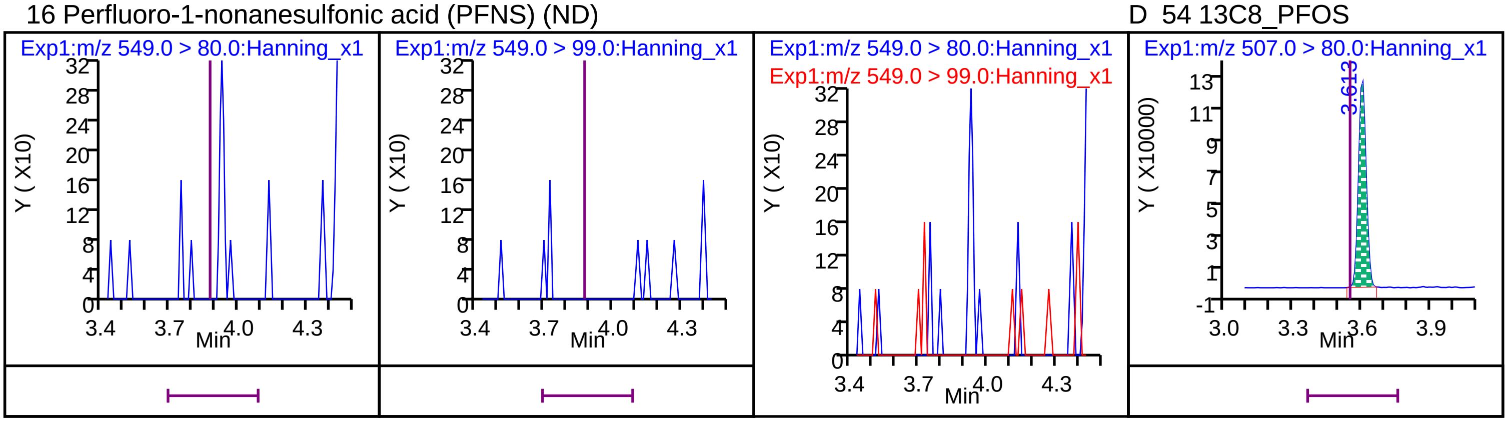
17 Perfluoro-n-nonanoic acid (PFNA) (Marked ND) D 56 13C9_PFNA



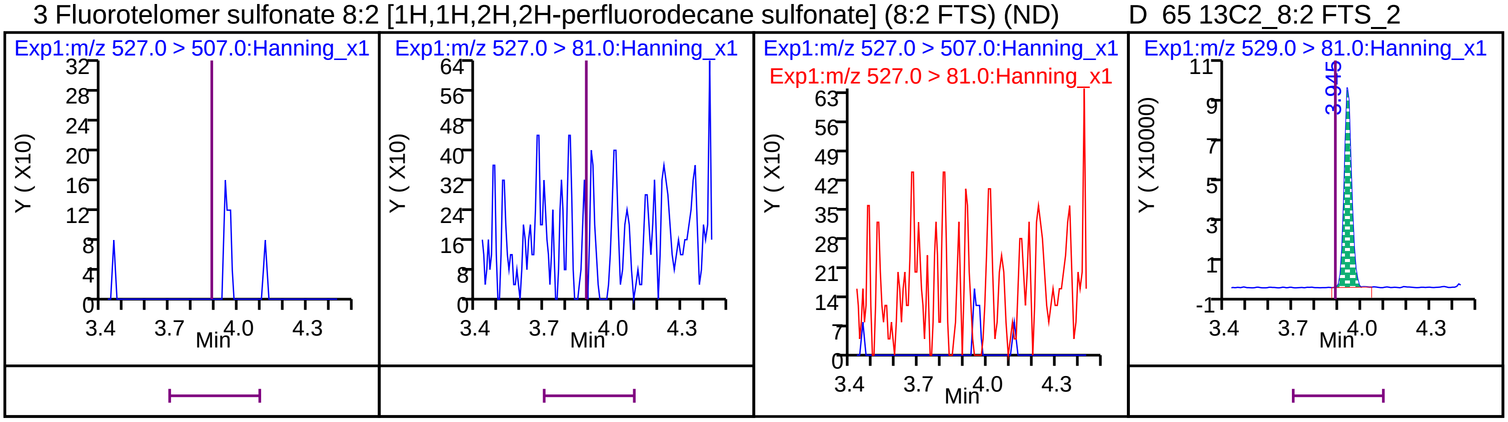
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

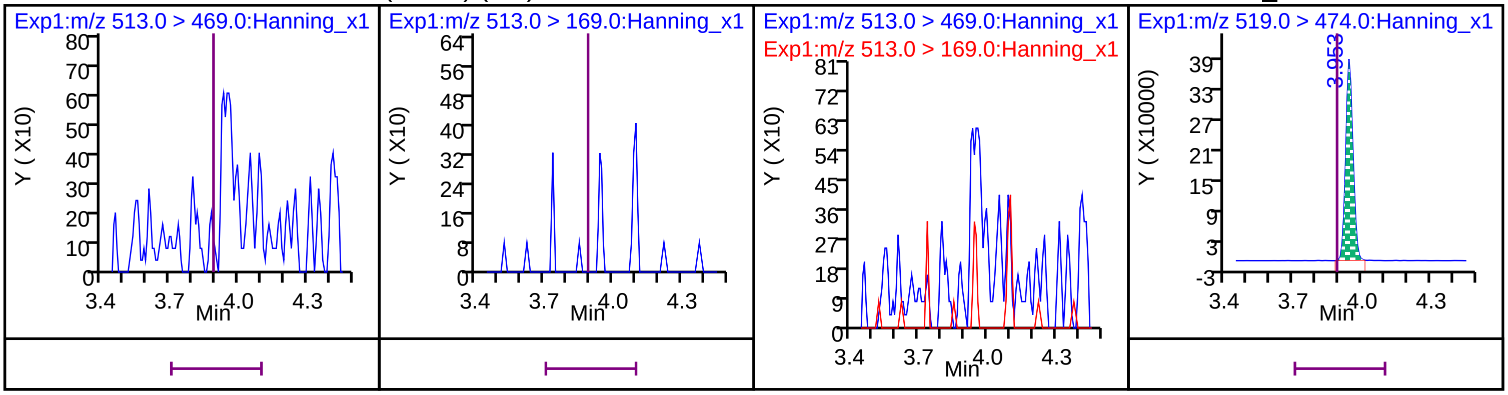


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2

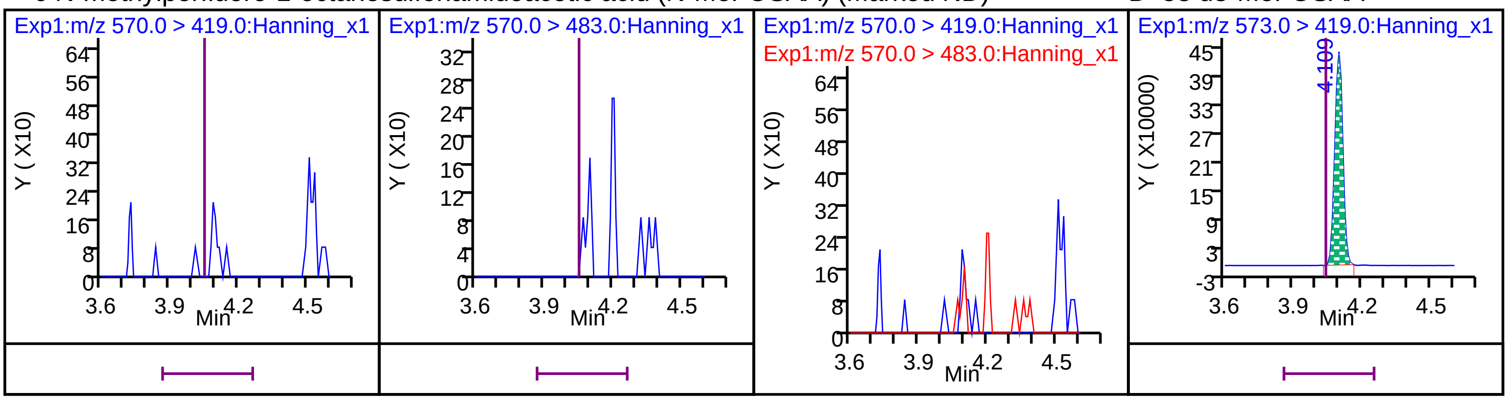


Report Date: 09-Nov-2021 13:31:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621057.d

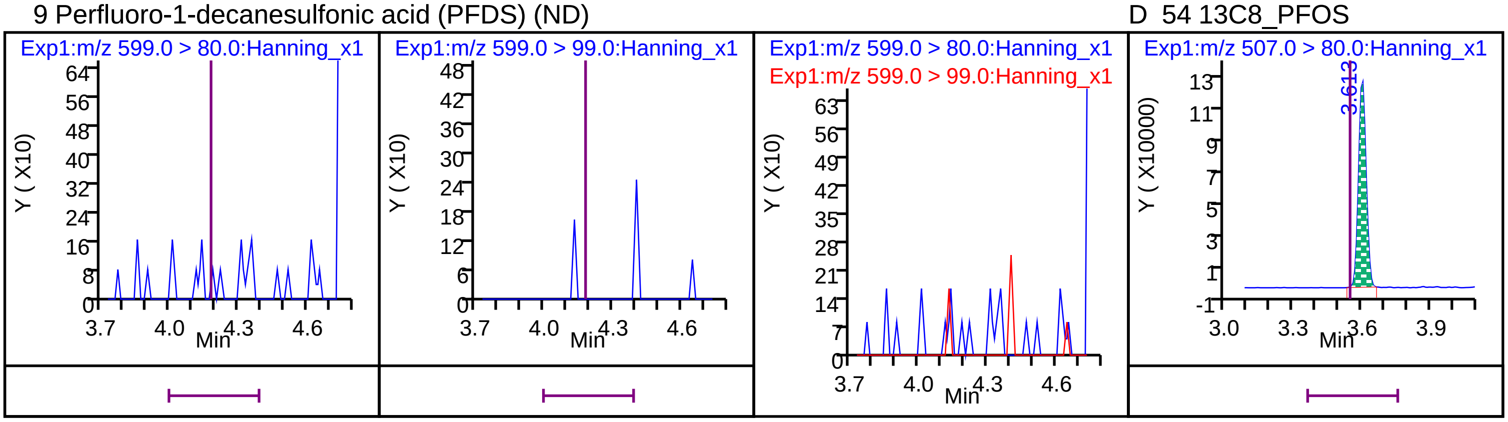
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



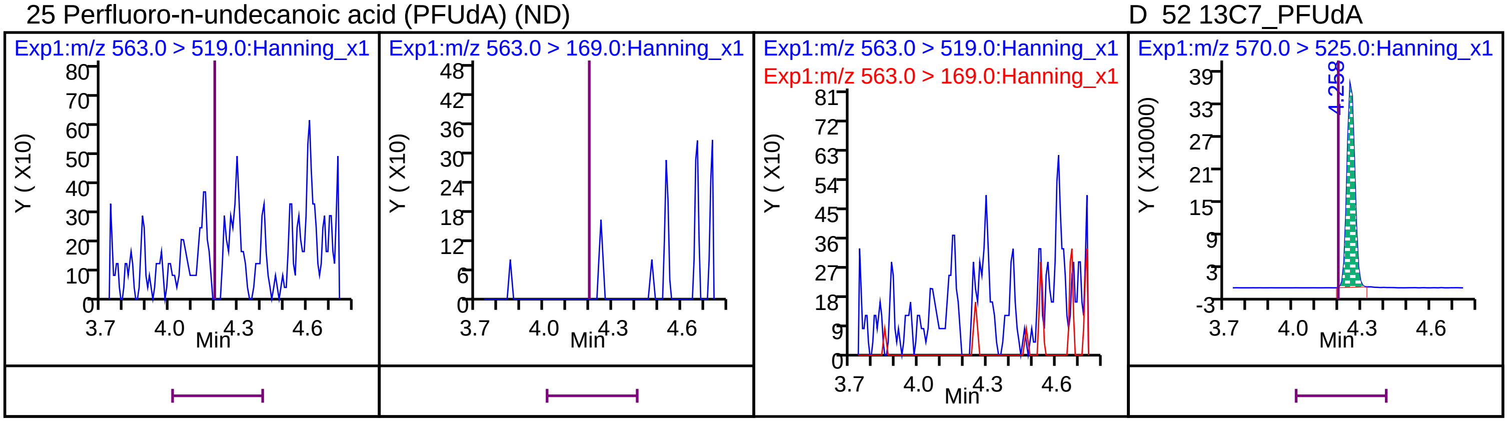
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



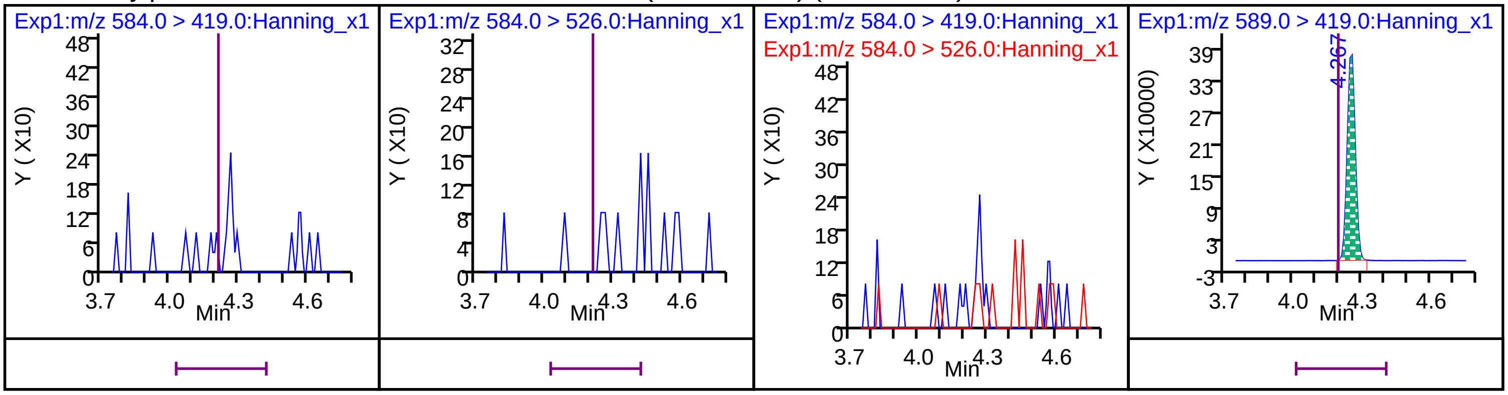
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



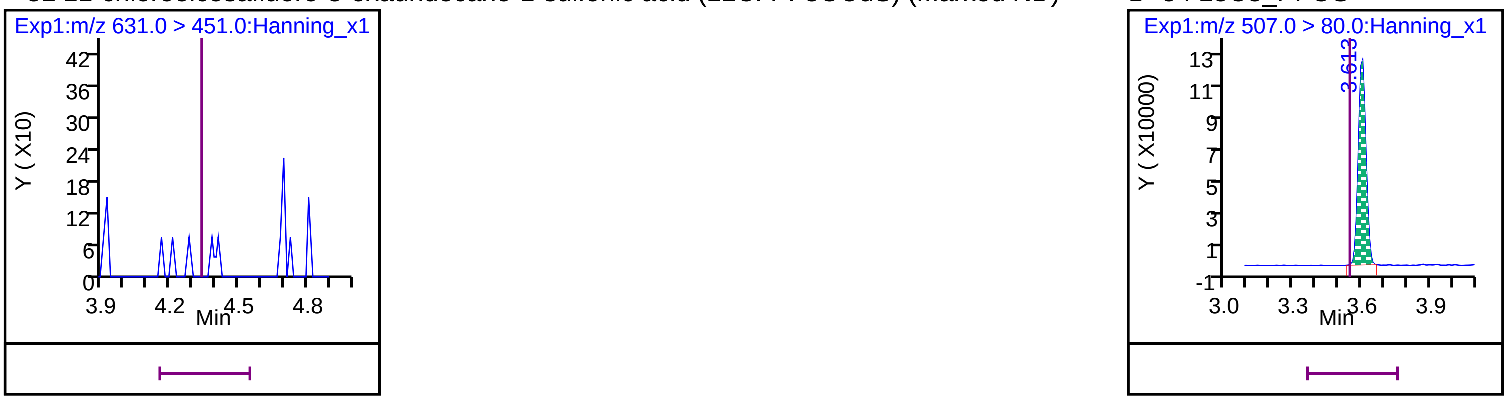
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



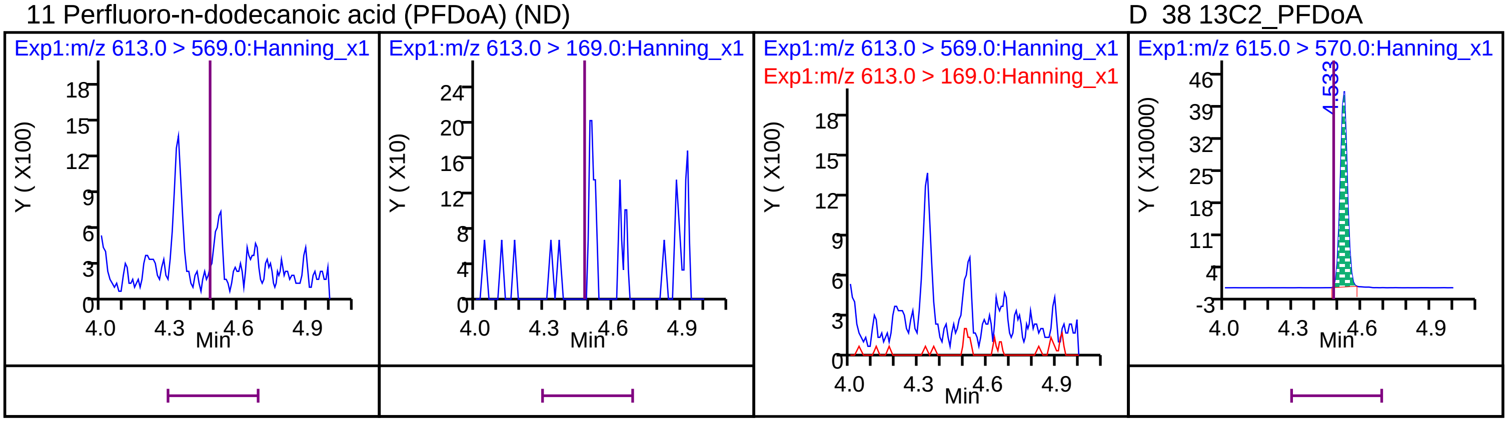
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



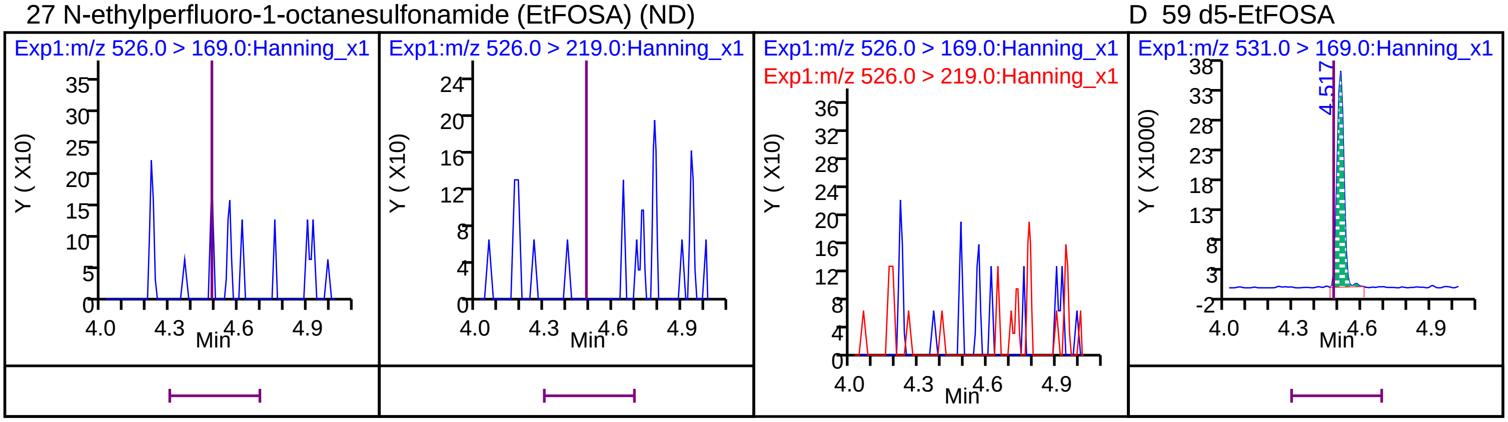
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



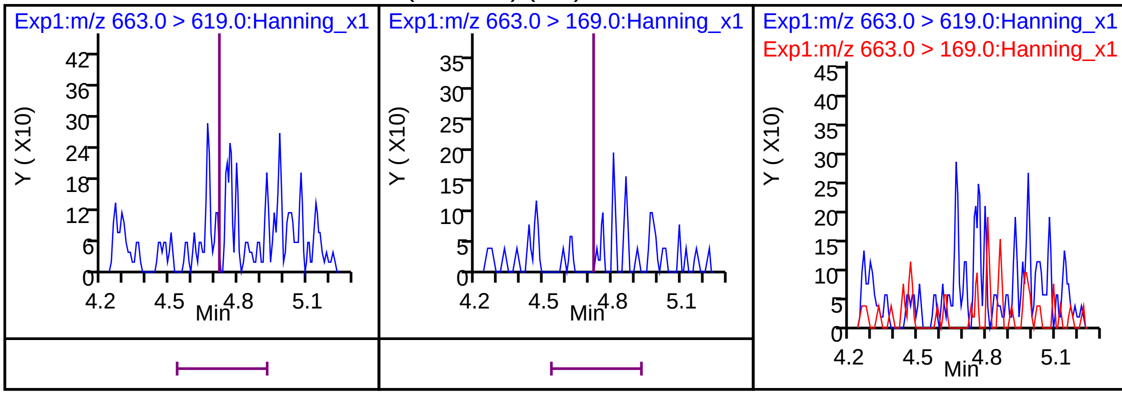
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



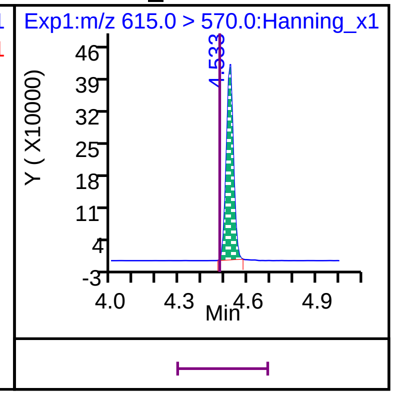
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



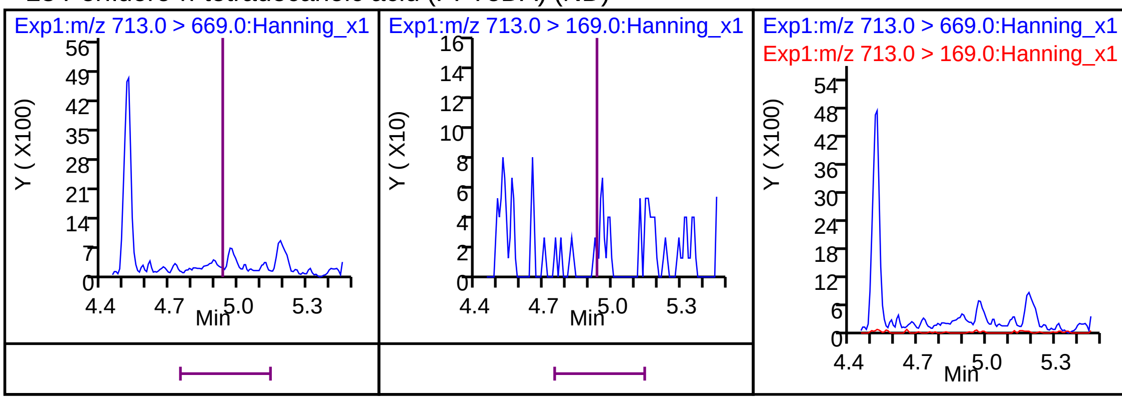
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



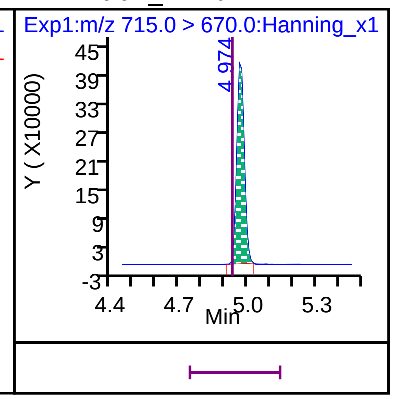
D 38 13C2_PFDoA



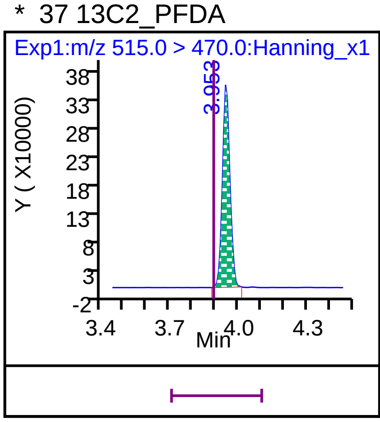
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



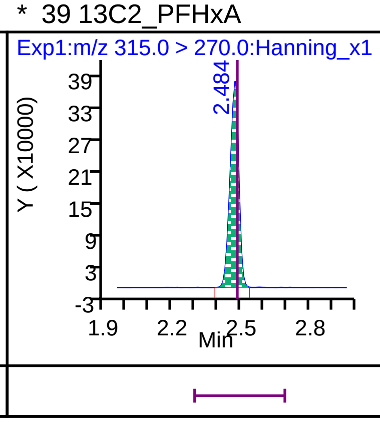
D 42 13C2_PFTeDA



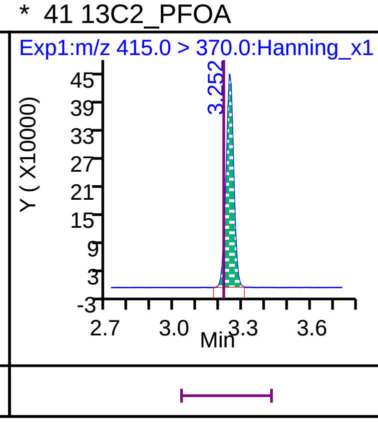
* 37 13C2_PFDA



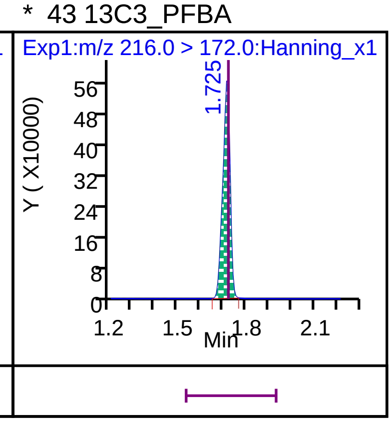
* 39 13C2_PFHxA



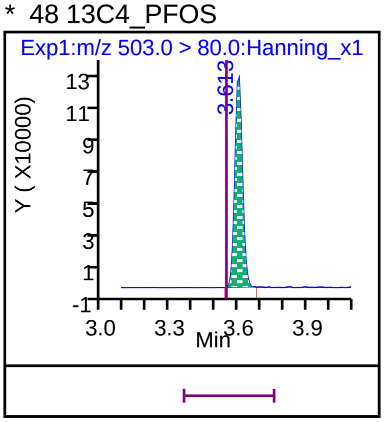
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

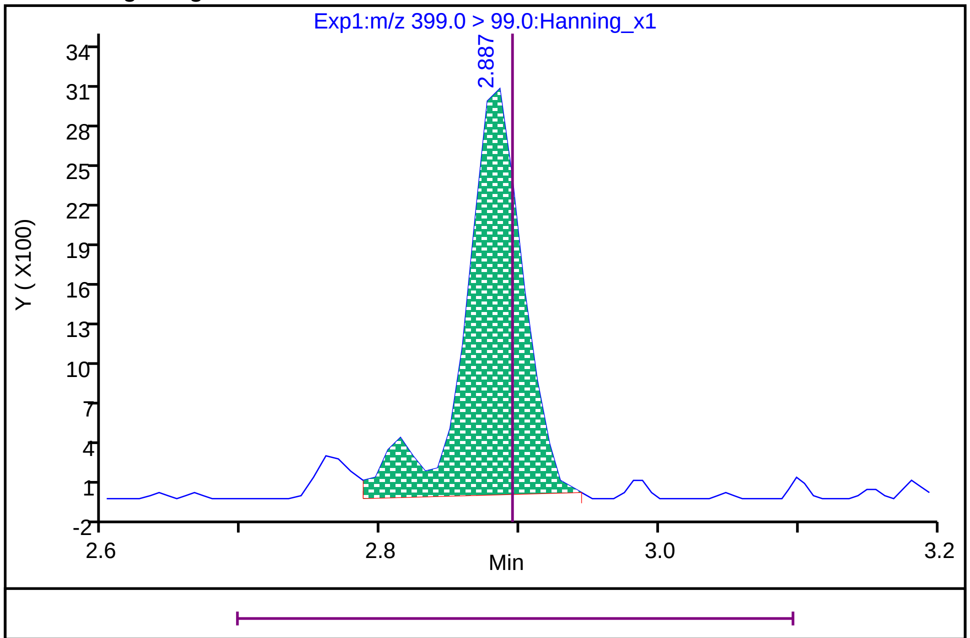
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621057.d		
Injection Date:	06-Nov-2021 22:15:11	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-032.0-20211102	Lab ID:	WK03035-007
Sample Info:	WK03035-007,20		
Dil. Factor:	20	Operator:	Matthew M. Miller

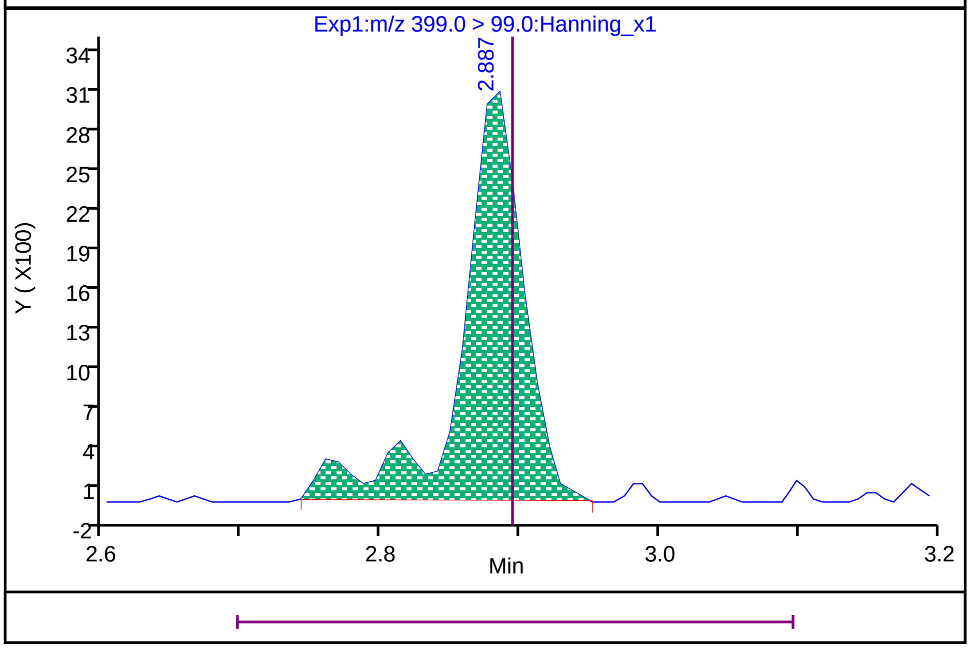
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.887
Area: 8778
Conc: 81.453
Conc Units: ng/L



RT: 2.887
Area: 9384
Conc: 81.453
Conc Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:16:12
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:42 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921054.d		
Injection Date:	10-Nov-2021 00:40:34	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	47
Lab Sample ID:	WK03035-007	Lab Prep. Batch:	21582
Client ID:	SW3-DPT-0144-032.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-007,20	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0336700

Name	Value	Units	Description
DF	20		Dilution Factor
VF	10000	ul	Final Volume
VI	297	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	685767	20	>100:1			1100.00	1103.10	106.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.711	1.718	0/-1	585050	20	>100:1			889.83	599.21		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	598905	17	>100:1			1100.00	1047.78	104.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.088	2.098	0/0	1501276	16	>100:1			2449.91	1649.77		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.151	0	176325	15	>100:1			1100.00	1019.40	102.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	120050	18	>100:1			5500.00	5301.69	116.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	1/0	41496	19	>100:1	Target = 1.75		862.42	580.76		
327 > 81	63	2.424	2.424		18903	16	40:1	2.19 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	685075	17	>100:1			1100.00	1051.88	101.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	1430130	18	>100:1	Target = 18.91		2208.50	1487.21		
313 > 119	49	2.460	2.469		73749	17	>100:1	19.39 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.575	2.583	0	1173120	18	>100:1			5500.00	5061.87	99.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	565370	19	>100:1			1100.00	1064.85	105.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	393427	18	>100:1	Target = 3.80		696.61	469.10		
363 > 169	47	2.845	2.845		94394	17	>100:1	4.16 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.854	2.864	0	128404	18	>100:1			1100.00	1022.00	112.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.854	2.864	0/0	15232	26	66:1	Target = 2.89	6.84	118.69	79.927		
399 > 99	45	2.864	2.864		6183	21	48:1	2.46 (1.44-4.34)	8.33				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.247		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	116826	21	>100:1			5500.00	6490.35	112.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.213	0/0	834153	22	>100:1	Target = 1.75		16589	11171		
427 > 81	64	3.208	3.213		455238	21	>100:1	1.83 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.234	3.240	0	583270	21	>100:1			1100.00	1111.68	106.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.240	0/0	116722	32	>100:1	Target = 2.89	14.43	214.81	144.65		M
413 > 169	53	3.234	3.240		38142	36	>100:1	3.06 (1.44-4.34)	22.95				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.617	3.623	0	117681	18	>100:1			1100.00	950.24	104.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.617	3.623	0/0	51750	35	>100:1	Target = 3.30	2.66	406.26	273.57		M
499 > 99	54	3.609	3.623		15283	35	>100:1	3.38 (1.65-4.95)	7.26				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	658149	20	>100:1			1100.00	1027.75	101.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.623		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	685378	16	>100:1			1100.00	1192.67	108.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.963	3.981	-1	103423	21	>100:1			5500.00	5983.57	111.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.981		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.133	4.139	0	697001	17	>100:1			5500.00	4612.46	98.1	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.287	4.294	0	690448	16	>100:1			5500.00	5331.10	100.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.287	4.294	0	741505	15	>100:1			1100.00	1231.22	106.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.473	4.488	0	37811	14	>100:1			1100.00	879.33	88.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	729797	16	>100:1			1100.00	1215.65	103.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.038	5.042	0	925416	20	>100:1			1100.00	1138.29	97.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	803791	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	770161	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.234	3.240	0	635952	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	1	696253	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.609	3.623	0	123615	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

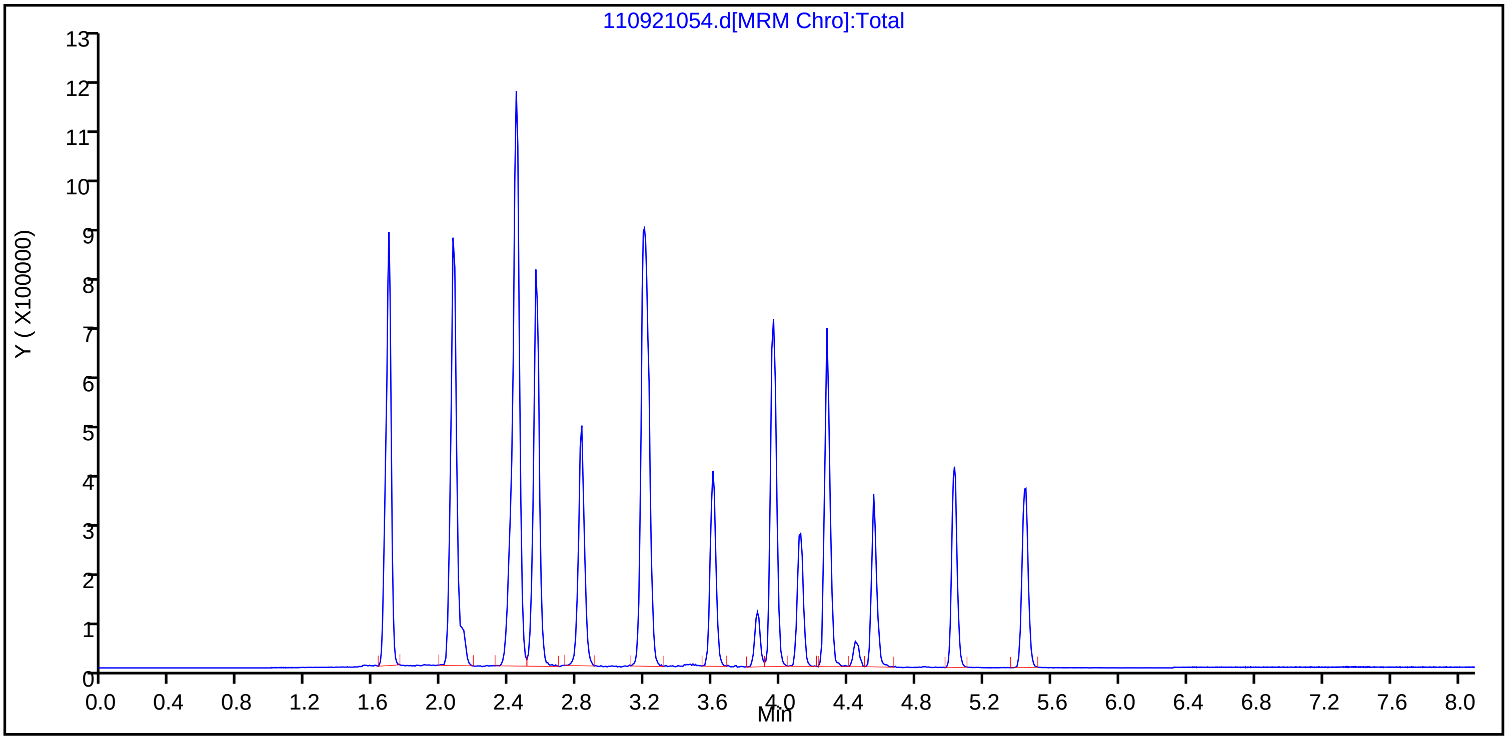
QC Flag Legend

U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated

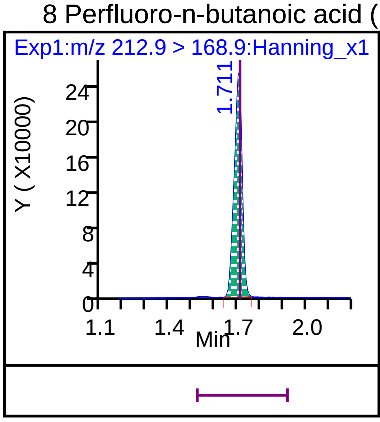
Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

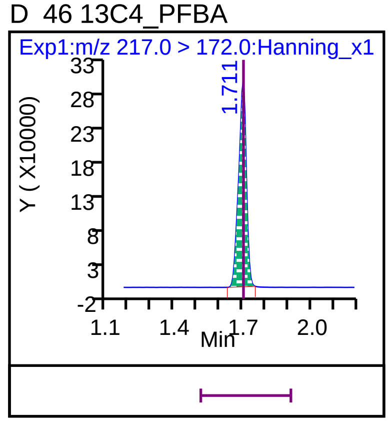
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921054.d		
Injection Date:	10-Nov-2021 00:40:34	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-032.0-20211102	Lab ID:	WK03035-007
Sample Info:	WK03035-007,20		
Dil. Factor:	20	Operator:	Justin Gavin



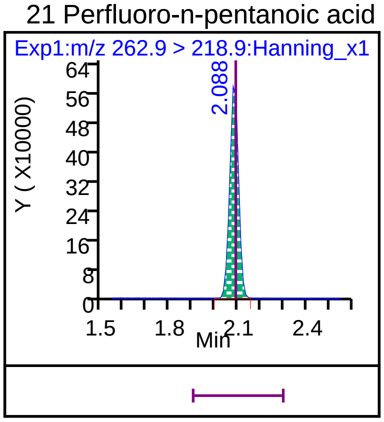
8 Perfluoro-n-butanoic acid (PFBA)



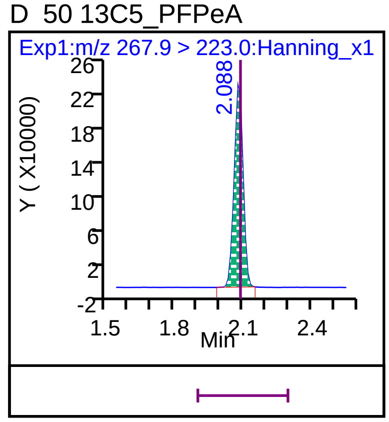
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

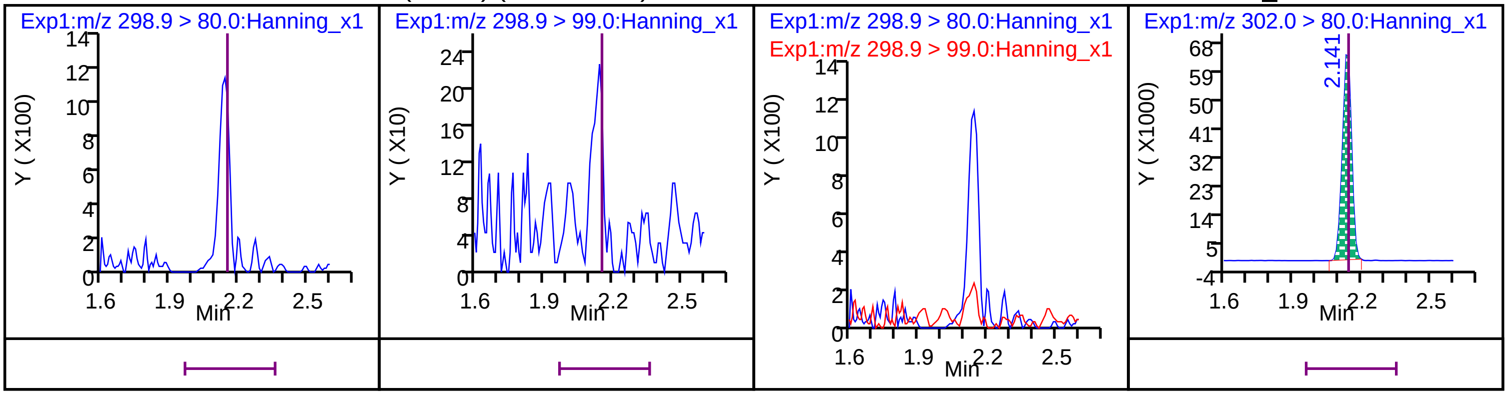


D 50 13C5_PFPeA

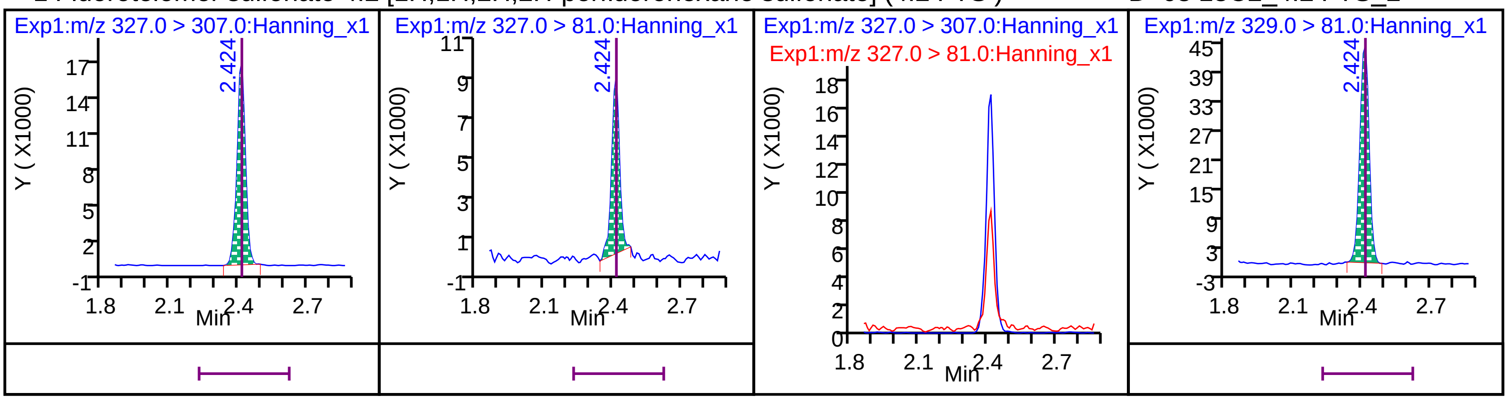


Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921054.d

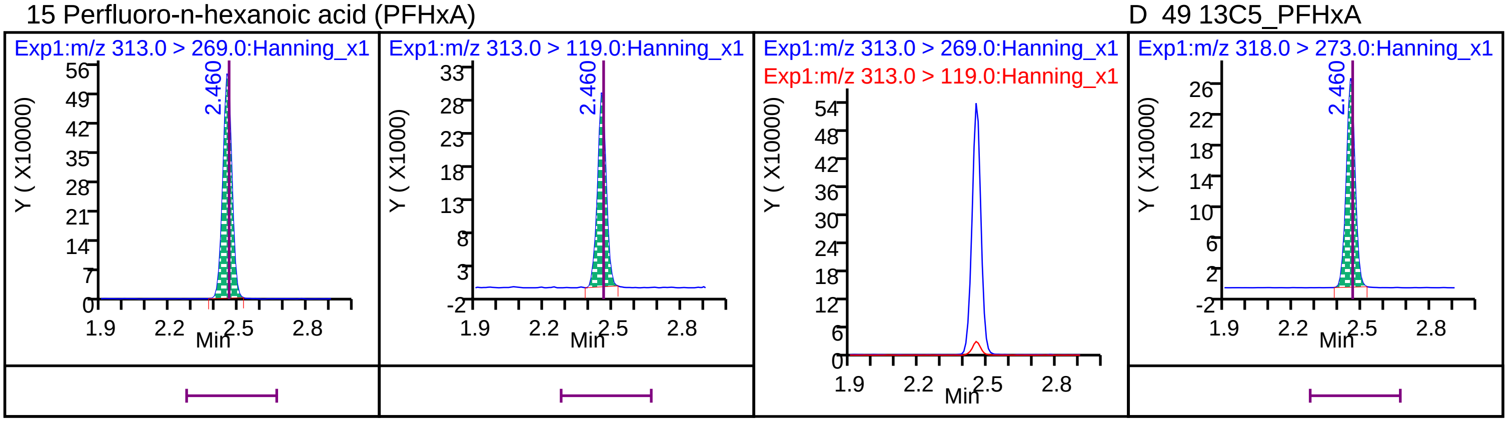
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



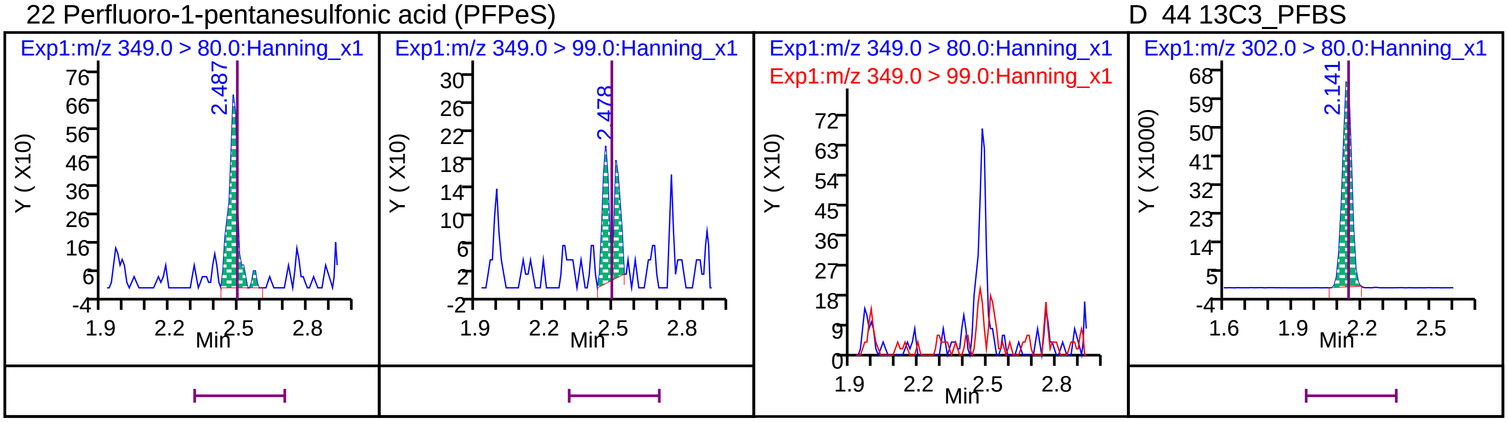
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



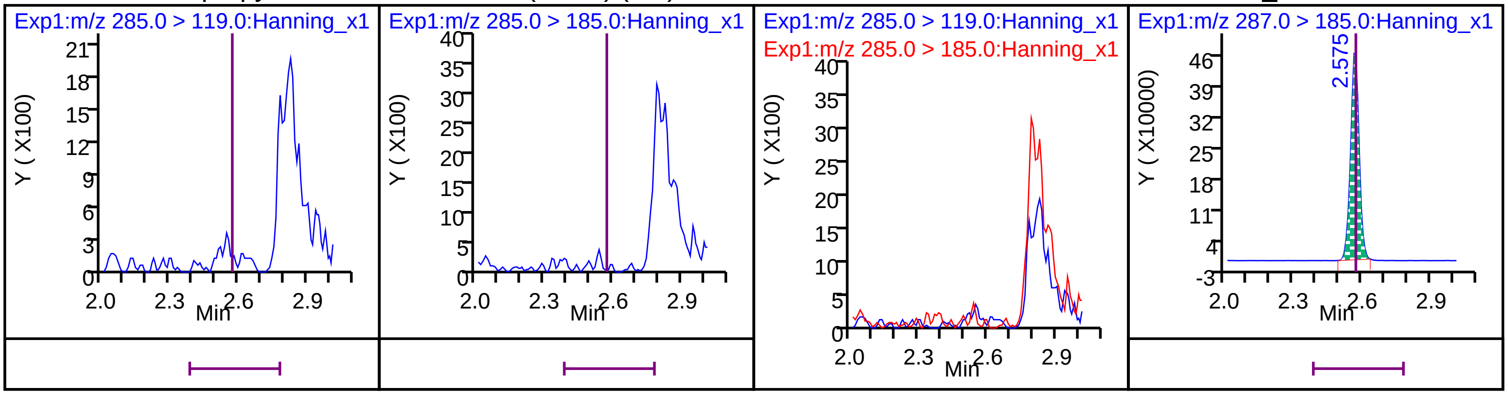
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



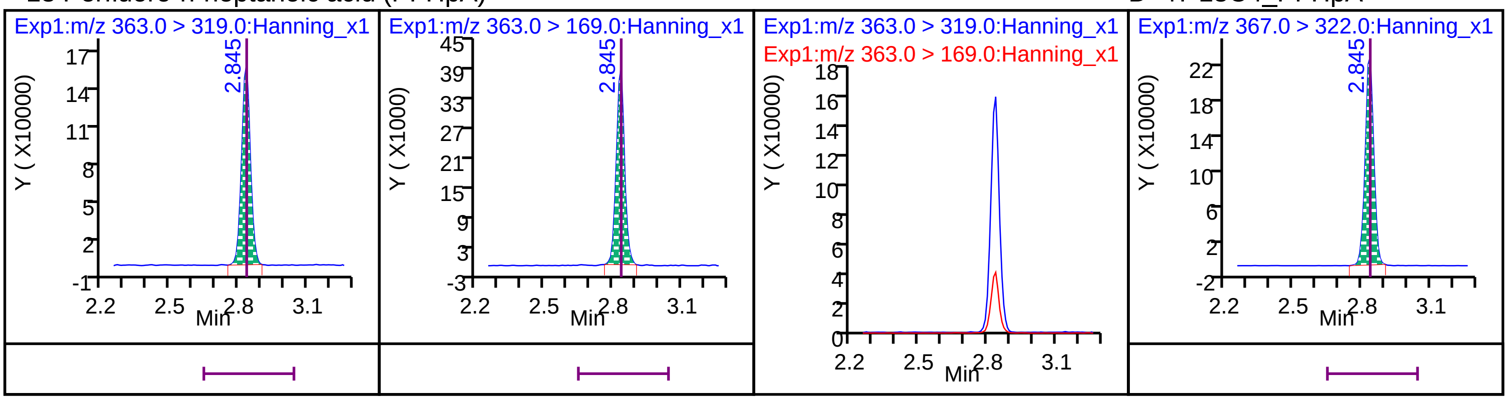
Report Date: 11-Nov-2021 18:39:43   AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921054.d

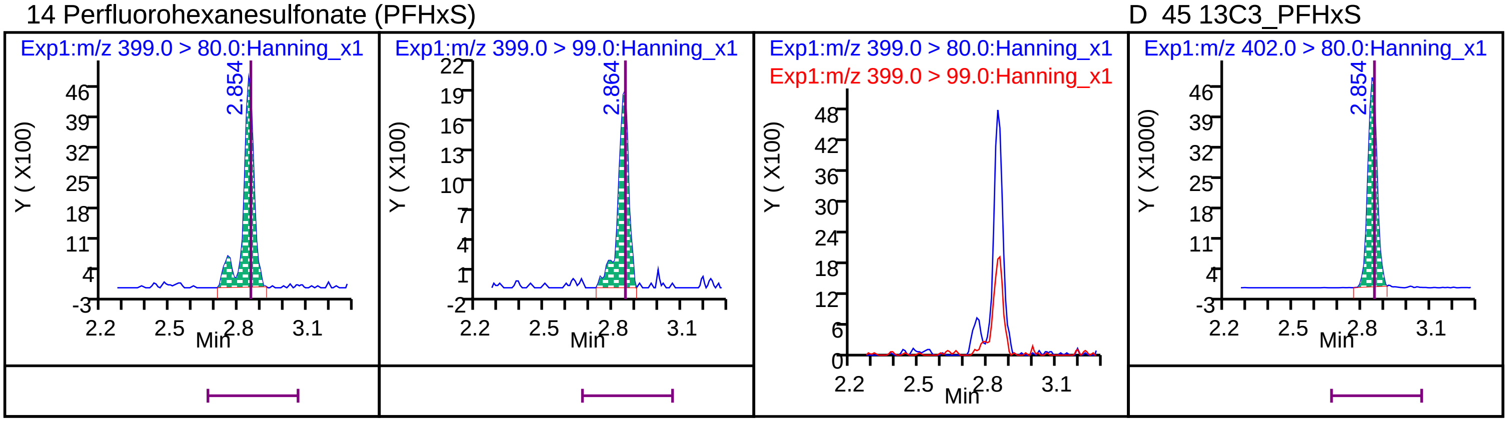
28 Hexafluoropropylene oxide dimer acid (GenX) (ND)   D 66 13C3_GenX



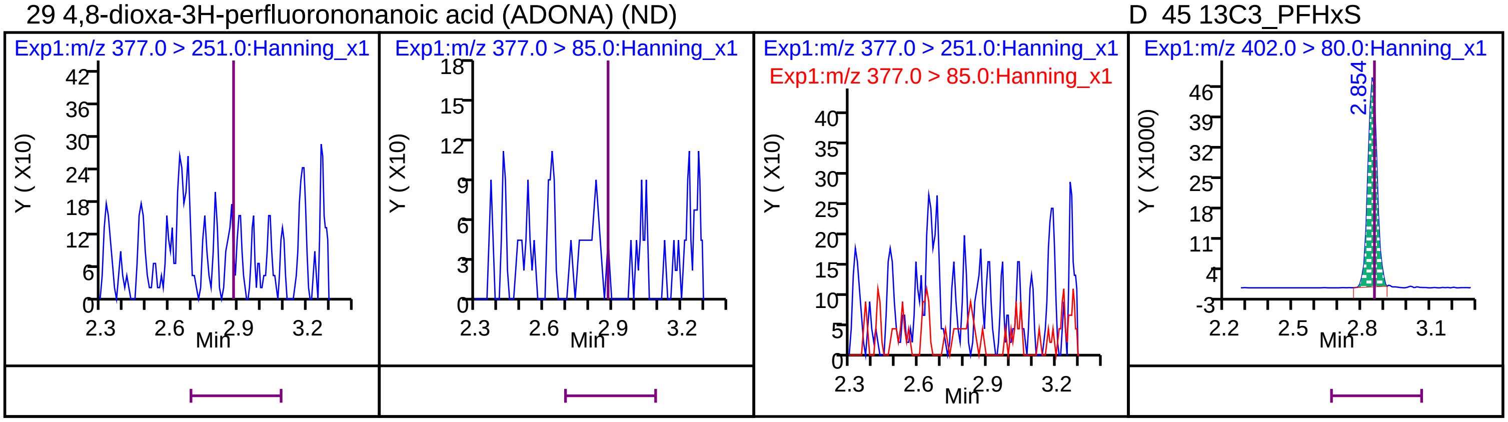
13 Perfluoro-n-heptanoic acid (PFHpA)   D 47 13C4_PFHpA



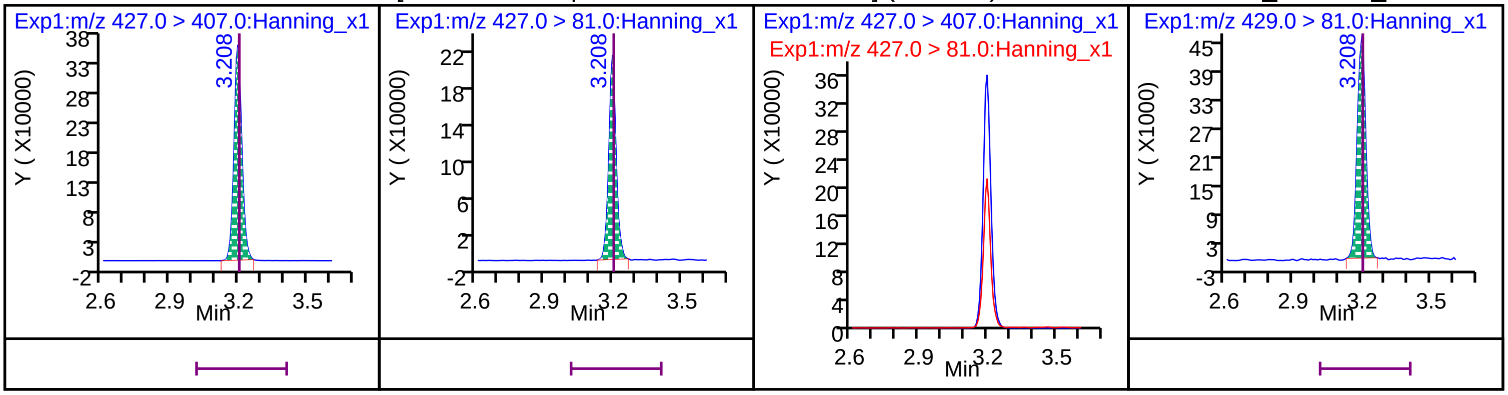
14 Perfluorohexanesulfonate (PFHxS)   D 45 13C3_PFHxS



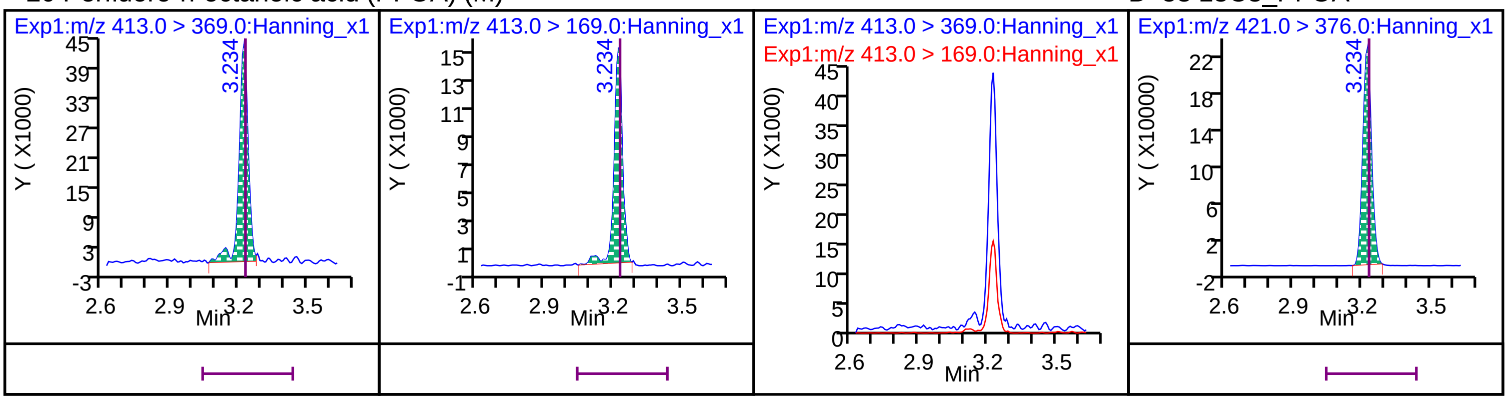
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND)   D 45 13C3_PFHxS



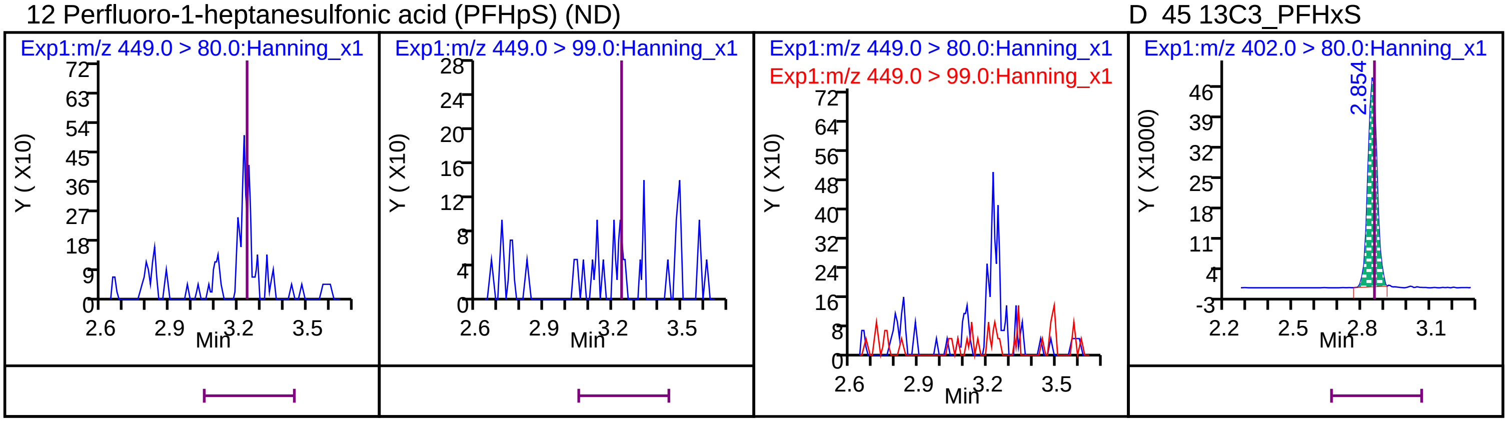
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



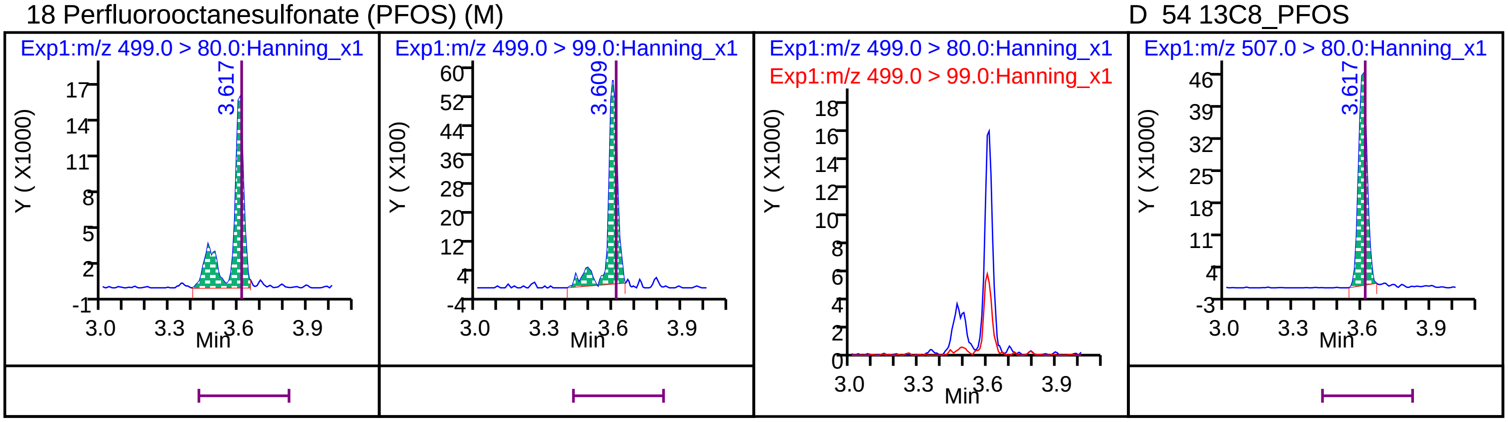
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



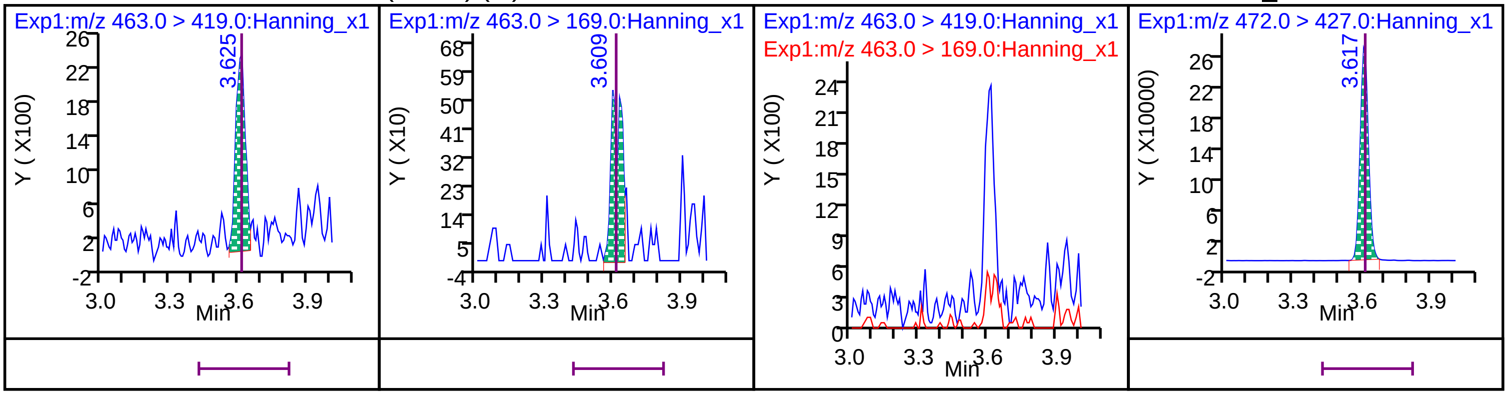
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



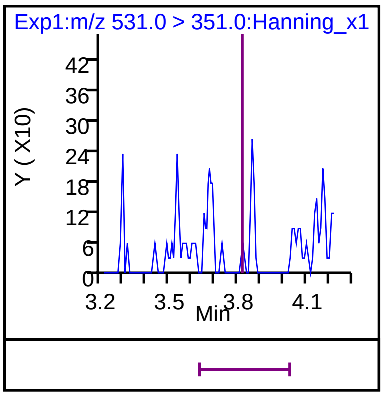
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

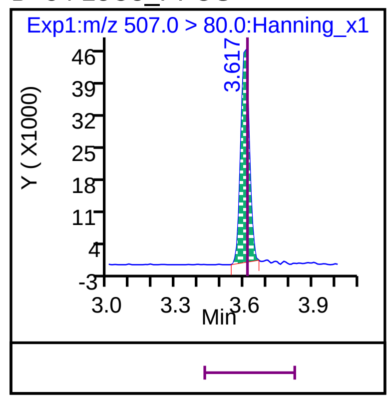


17 Perfluoro-n-nonanoic acid (PFNA) (M) D 56 13C9_PFNA

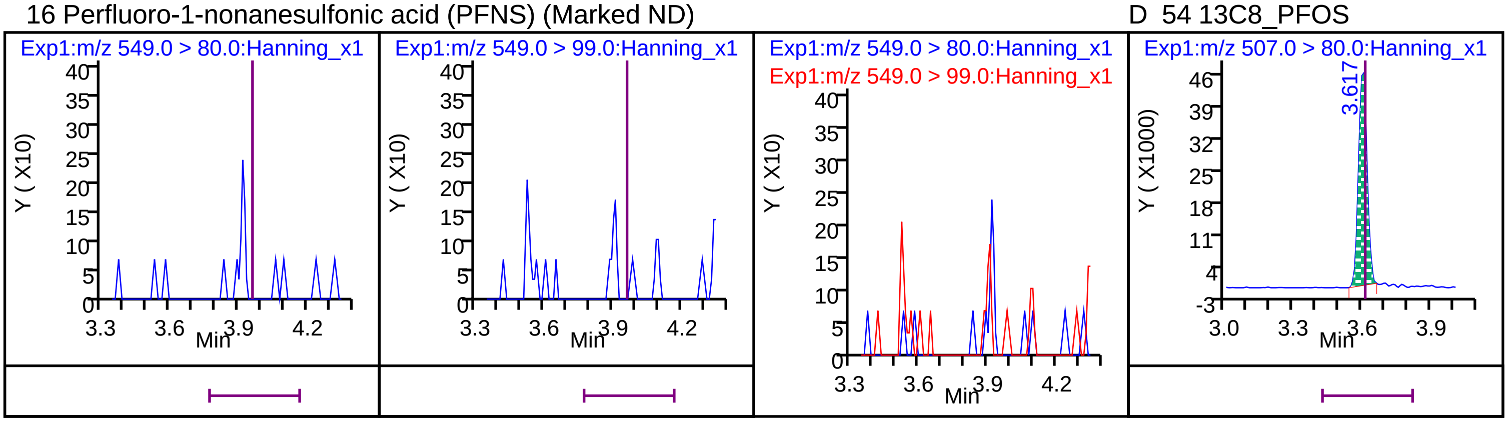


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

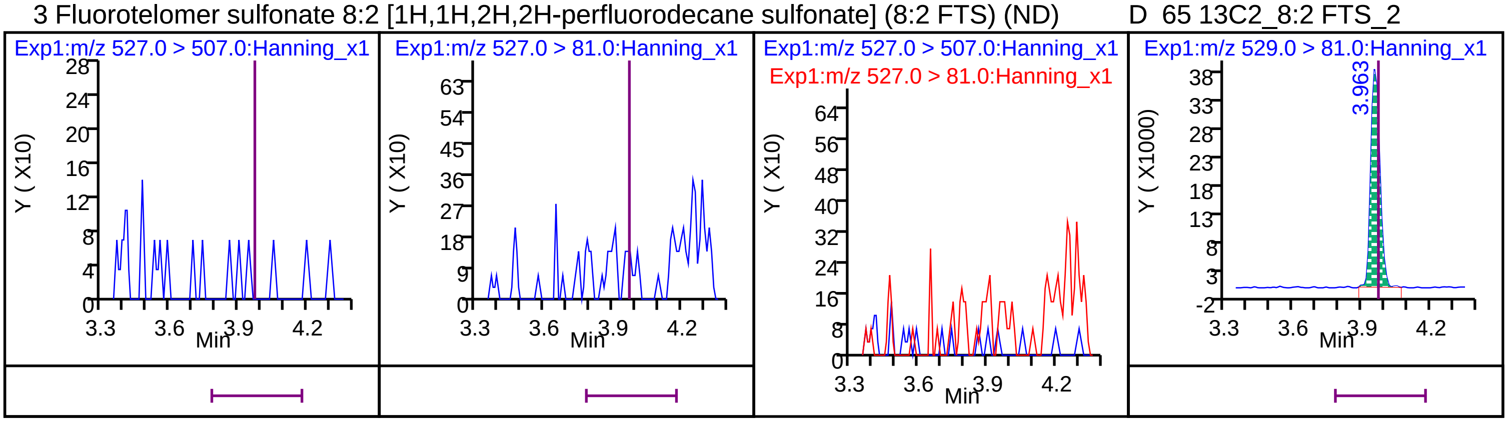




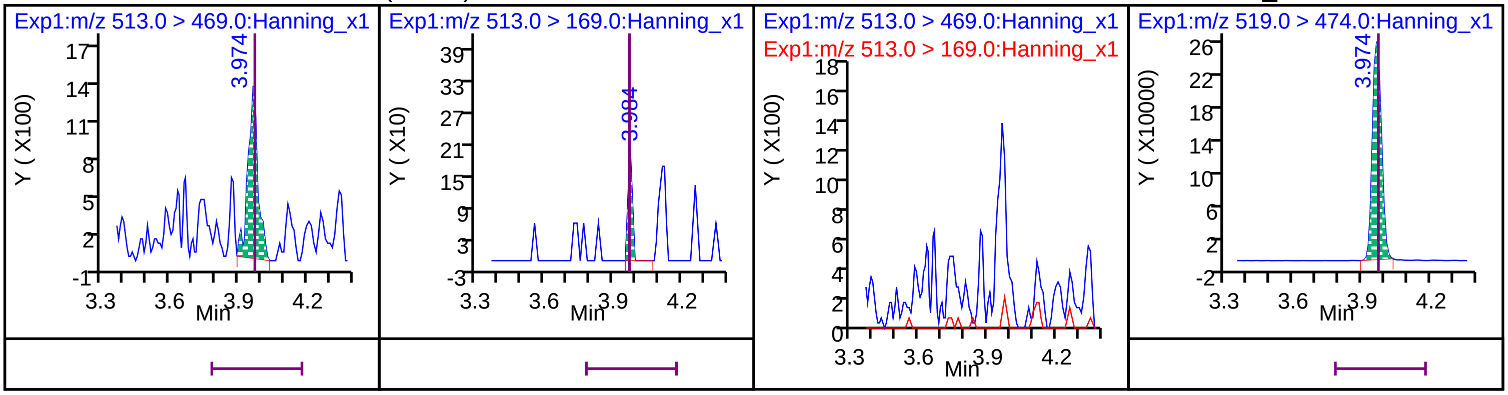
16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS



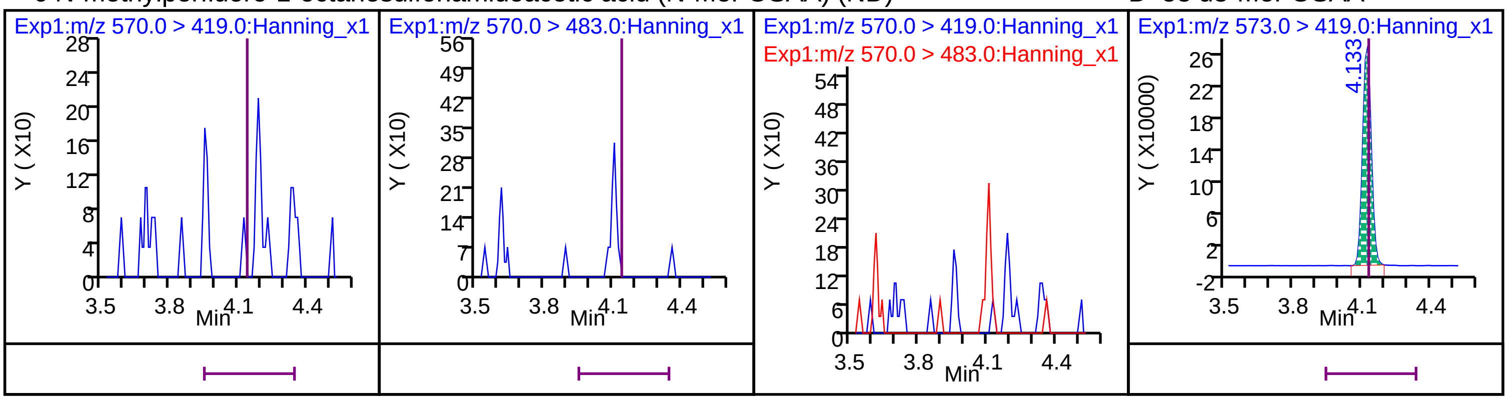
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



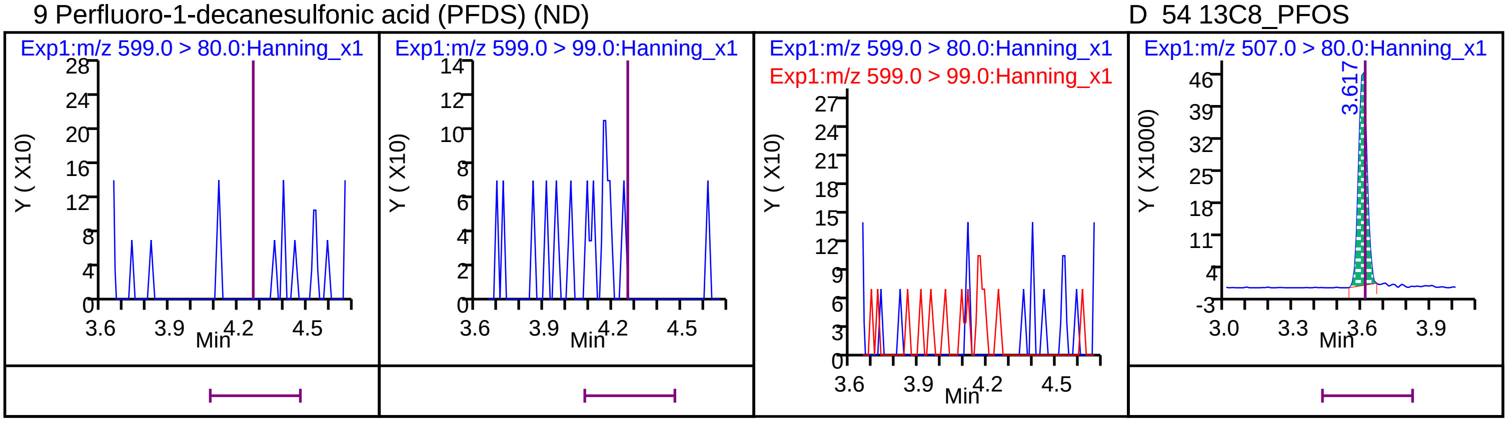
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



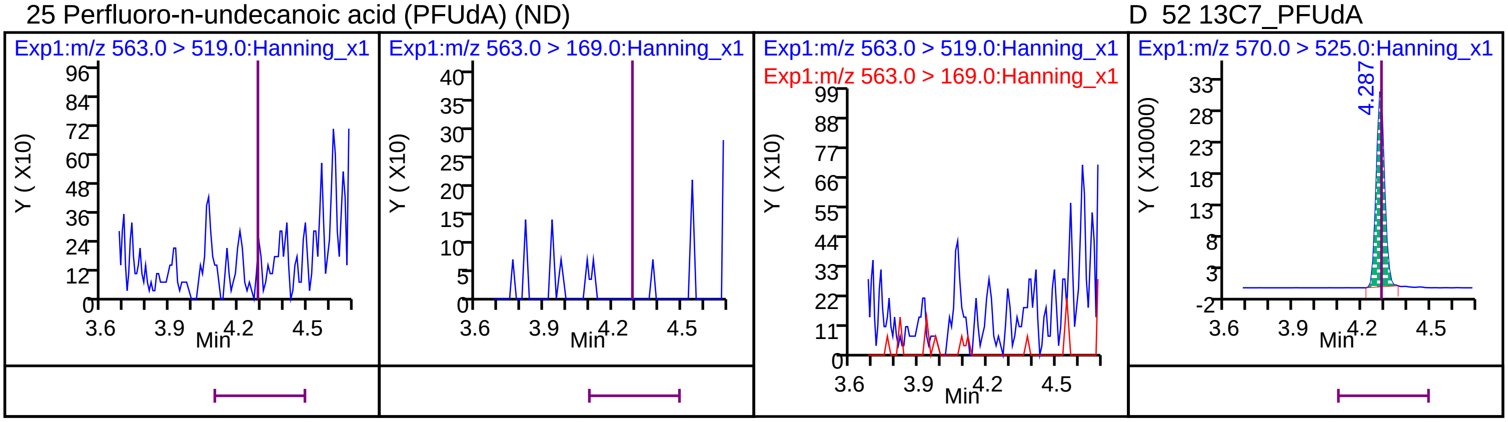
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



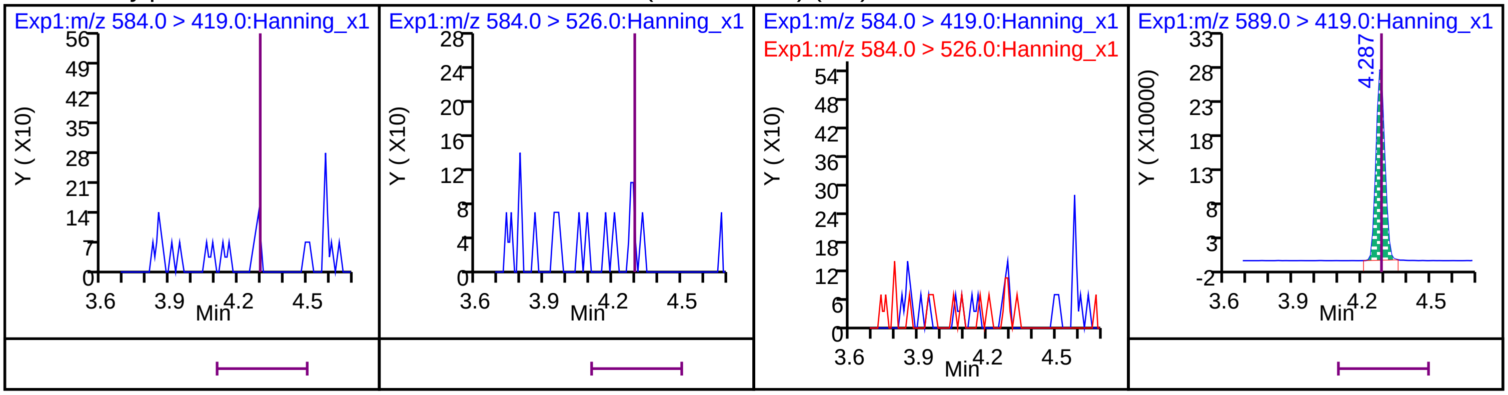
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



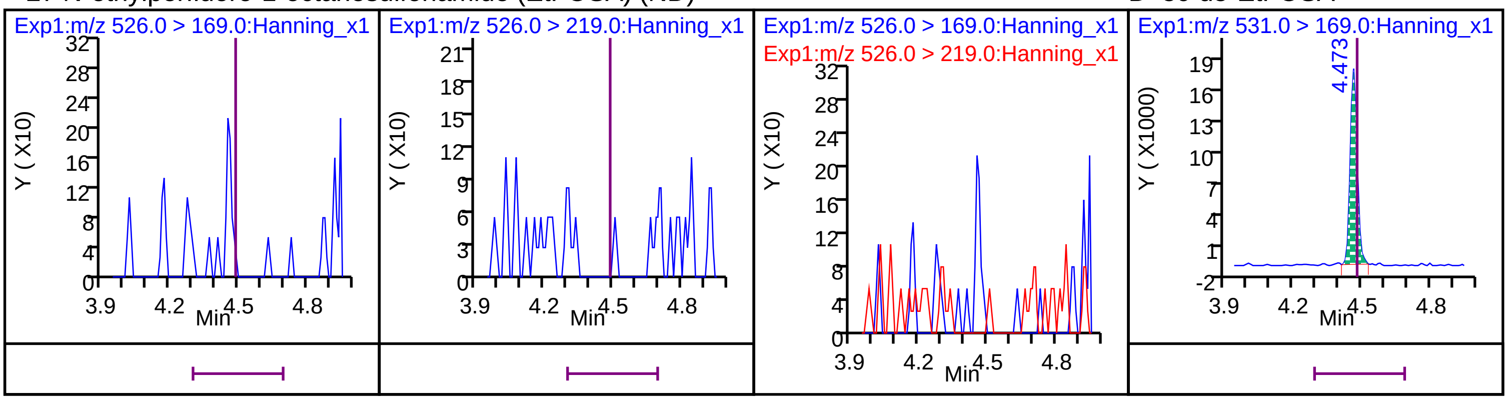
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



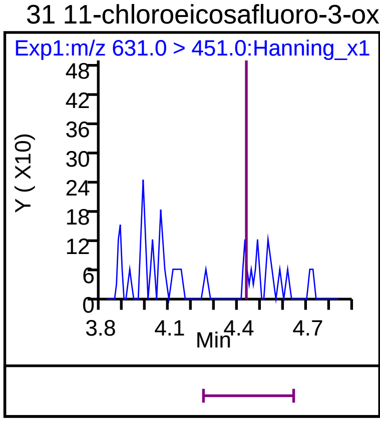
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



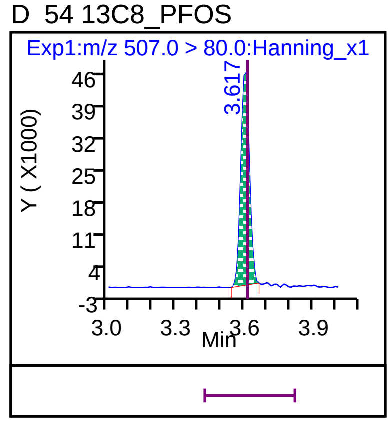
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



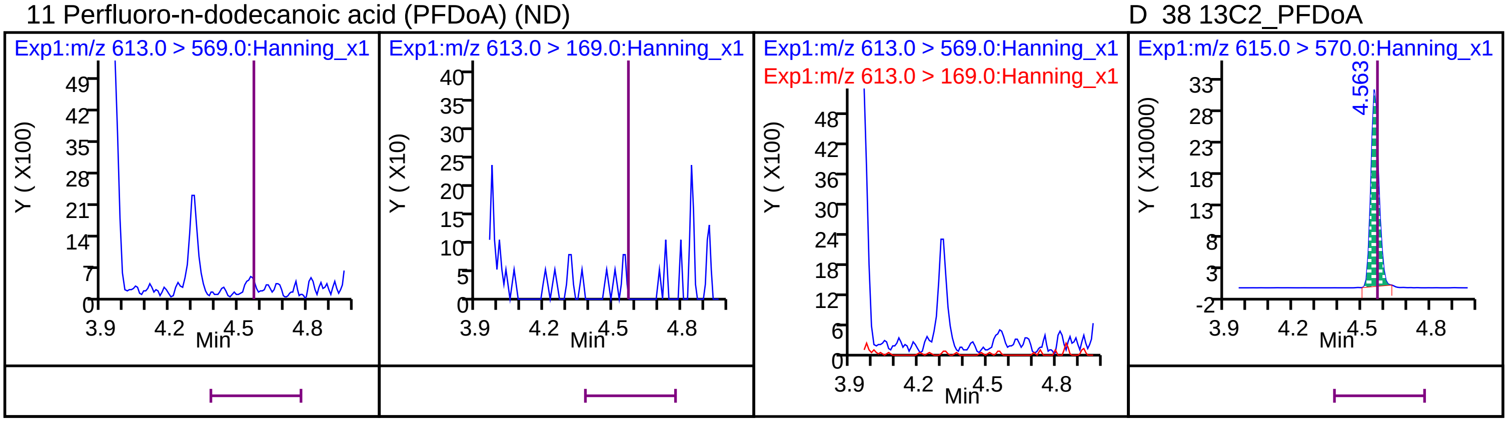
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



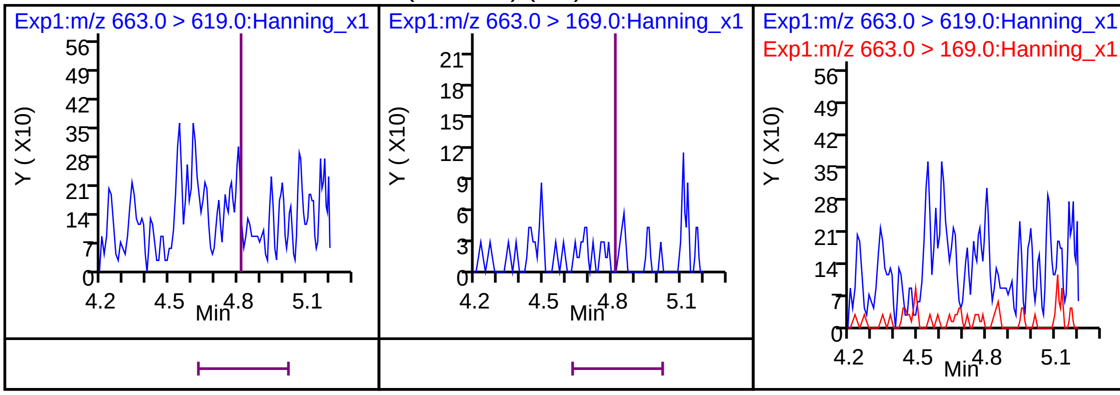
D 54 13C8_PFOS



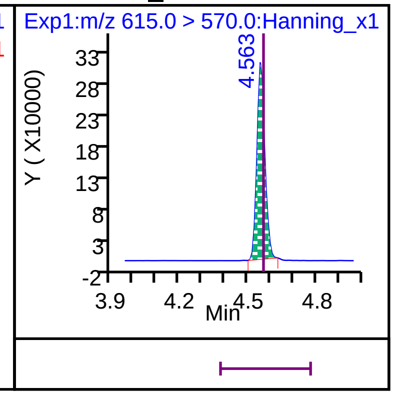
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



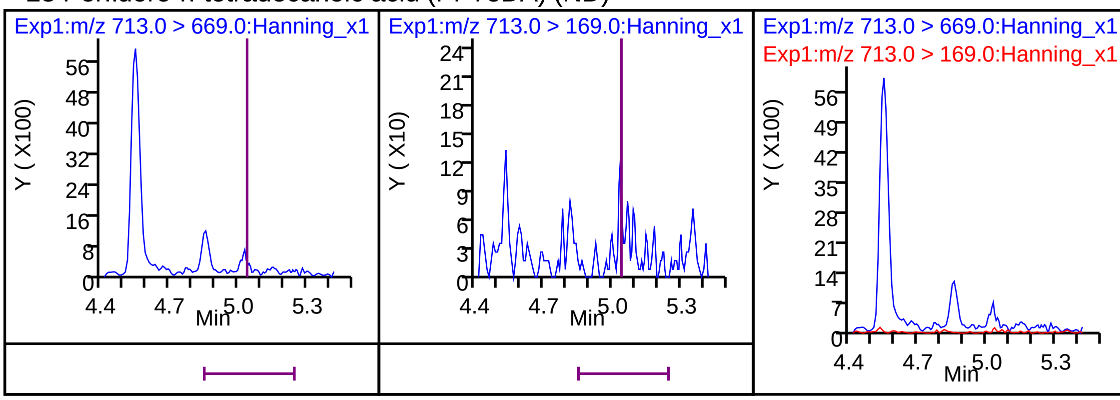
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



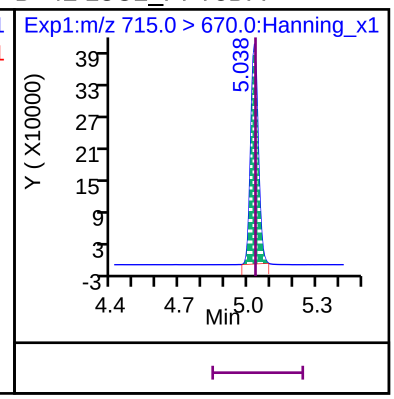
D 38 13C2_PFDoA



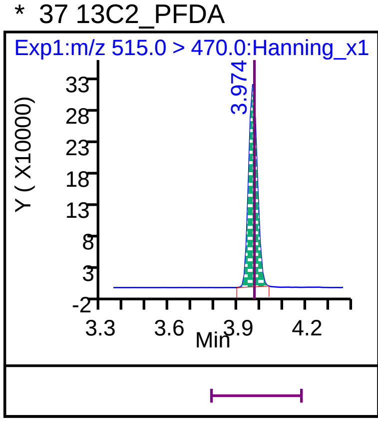
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



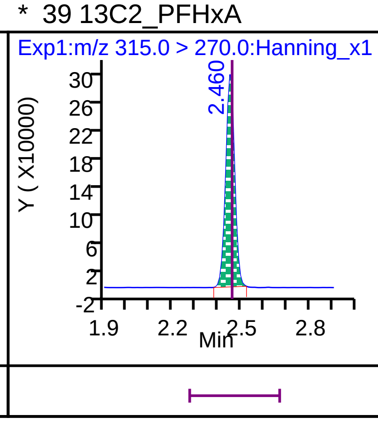
D 42 13C2_PFTeDA



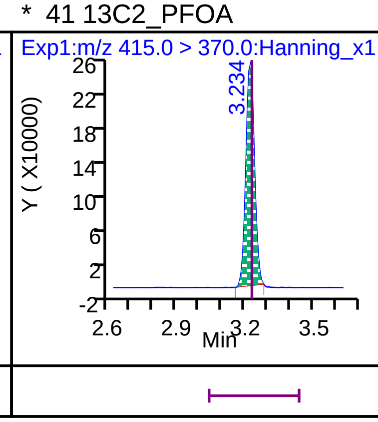
* 37 13C2_PFDA



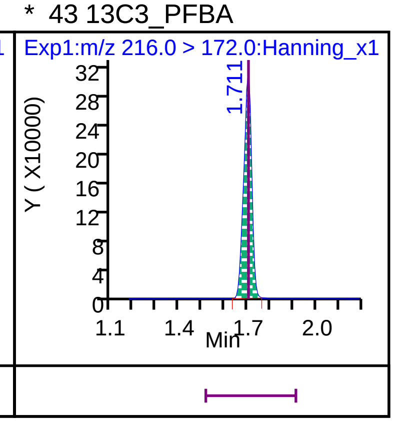
* 39 13C2_PFHxA



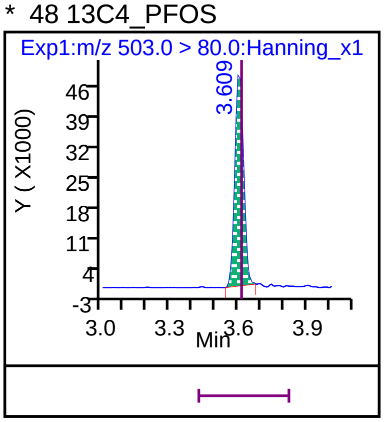
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

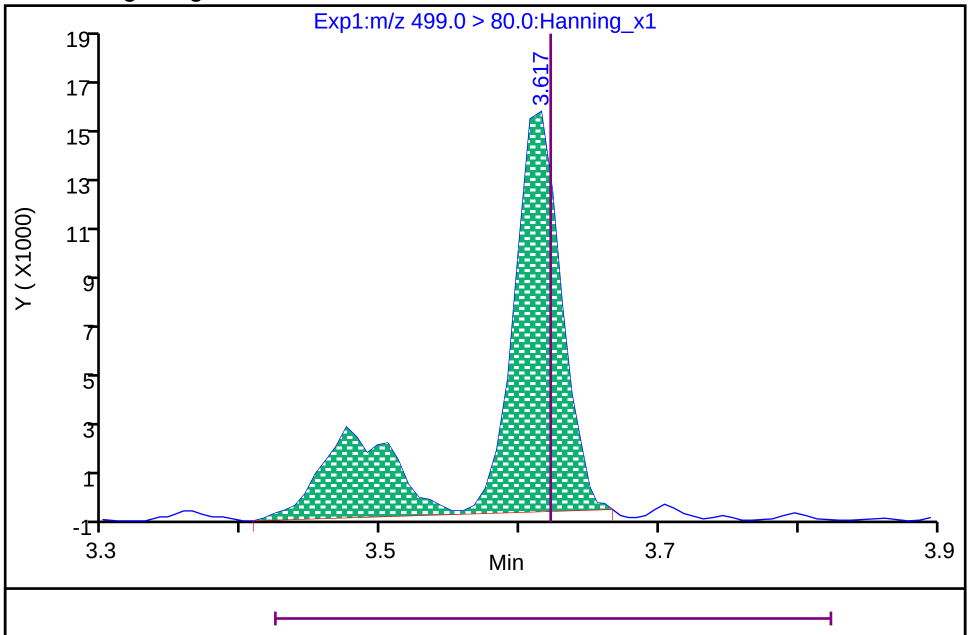
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921054.d		
Injection Date:	10-Nov-2021 00:40:34	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-032.0-20211102	Lab ID:	WK03035-007
Sample Info:	WK03035-007,20		
Dil. Factor:	20	Operator:	Justin Gavin

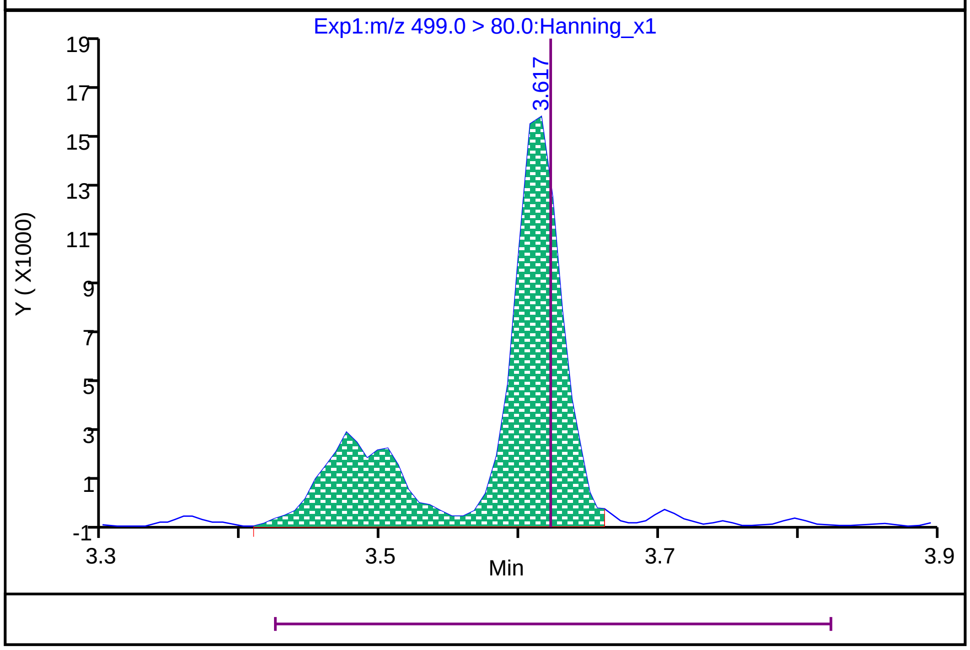
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.617
Area: 48152
Conc: 254.55
Conc Units: ng/L



RT: 3.617
Area: 51750
Conc: 273.57
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 18:02:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

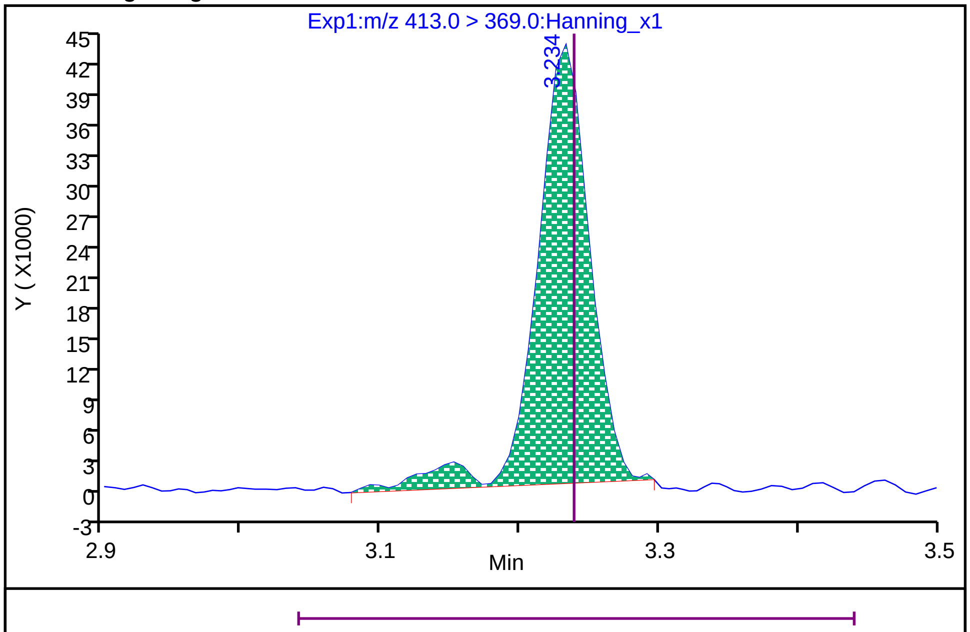
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921054.d		
Injection Date:	10-Nov-2021 00:40:34	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-032.0-20211102	Lab ID:	WK03035-007
Sample Info:	WK03035-007,20		
Dil. Factor:	20	Operator:	Justin Gavin

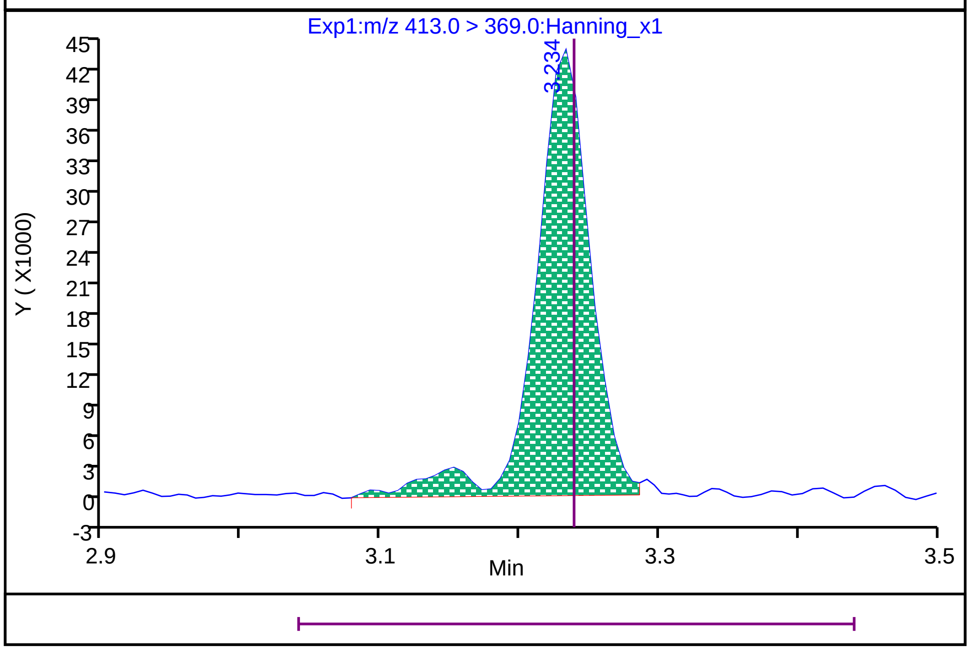
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.234
Area:	111777
Conc:	138.53
Conc Units:	ng/L



RT:	3.234
Area:	116722
Conc:	144.65
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 18:01:58

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-008	
Description: SW3-DPT-0144-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1355	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 1545	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2244	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.5	I	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	240	V	7.0	3.5	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	IQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	15		3.4	1.7	0.85	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	6.9		3.4	1.7	0.85	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13		3.4	1.7	0.85	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	110		3.4	1.7	0.85	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	16	Q	3.4	1.7	0.85	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	24		3.4	1.7	0.85	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	55		3.4	1.7	0.85	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.1		3.4	1.7	0.85	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	60		3.4	1.7	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	46		3.4	1.7	0.85	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	260		3.4	1.7	0.85	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	217	50-150	N	229	50-150
13C2_6:2FTS		149	50-150		122	50-150
13C2_8:2FTS		109	50-150		117	50-150
13C2_PFDoA		92	50-150		86	50-150
13C2_PFTeDA		68	50-150		67	50-150
13C3_PFBS		94	50-150		94	50-150
13C3_PFHxS		102	50-150		113	50-150
13C3-HFPO-DA		78	50-150		91	50-150
13C4_PFBA	N	45	50-150		56	50-150
13C4_PFHpA		102	50-150		108	50-150
13C5_PFHxA		89	50-150		101	50-150
13C5_PFPeA		79	50-150		84	50-150
13C6_PFDA		97	50-150		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-008	
Description: SW3-DPT-0144-042.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1355	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		102	50-150		97	50-150
13C8_PFOA		96	50-150		102	50-150
13C8_PFOS		100	50-150		110	50-150
13C9_PFNA		97	50-150		103	50-150
d-EtFOSA		71	50-150		60	50-150
d5-EtFOSAA		95	50-150		86	50-150
d3-MeFOSAA		107	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d		
Injection Date:	05-Nov-2021 15:45:31	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	15
Lab Sample ID:	WK03035-008	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-042.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-008	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0373776

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	294	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent: Istds	Conc. Level: Smp	Vol. Added:	0.0100 ml
Reagent: Surrogates	Conc. Level: Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	531464	16	>100:1			1001.00	493.59	45.1*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	1/1	248770	17	89:1			426.03	15.924		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	1	852974	15	>100:1			1001.00	850.50	79.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	1/0	1126957	12	92:1			1234.35	46.137		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	316688	12	>100:1			1001.00	975.12	93.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	179106	13	98:1	Target = 3.80		396.27	14.812		
298.9 > 99	44	2.131	2.141		50870	14	73:1	3.52 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.485	2.502	0/-1	108882	12	>100:1	Target = 3.42		342.04	12.785		
349 > 99	44	2.485	2.502		31505	13	48:1	3.45 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	1	490110	14	>100:1			5005.00	11799	216.6*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.415	2.424	1/0	20216	15	>100:1	Target = 1.54		105.78	3.9537		
327 > 81	63	2.415	2.424		19439	19	12:1	1.03 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.468	1	900149	15	>100:1			1001.00	1007.74	89.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.468	1/0	1372816	16	>100:1	Target = 17.93		1477.45	55.224		
313 > 119	49	2.459	2.468		76069	14	>100:1	18.04 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.587	0	720361	16	>100:1			5005.00	4397.29	77.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.594		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.855	1	996340	16	>100:1			1001.00	1137.12	102	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.855	1/0	614673	14	>100:1	Target = 3.26		641.50	23.978		
363 > 169	47	2.846	2.855		206760	14	>100:1	2.97 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	1	304779	16	>100:1			1001.00	1162.04	102.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	1/0	1071063	25	>100:1	Target = 3.48	6.88	2975.71	111.22		
399 > 99	45	2.855	2.872		280217	25	>100:1	3.82 (1.74-5.22)	9.26				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.898		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.223	3.239	1/0	57918	21	>100:1	Target = 3.56		184.94	6.9128		
449 > 99	45	3.223	3.239		16720	20	>100:1	3.46 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.214	1	311768	19	>100:1			5005.00	8267.28	149.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.198	3.208	1/0	604719	21	>100:1	Target = 1.34		5583.19	208.69		
427 > 81	64	3.198	3.208		439317	20	>100:1	1.37 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.217	3.239	0	880182	20	>100:1			1001.00	1064.31	96.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.223	3.239	1/1	1451185	33	>100:1	Target = 2.50	10.47	1604.00	59.954		
413 > 169	53	3.223	3.239		591152	33	>100:1	2.45 (1.25-3.75)	8.79				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.606	0	242135	17	>100:1			1001.00	1078.65	99.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.581	3.614	-1/-1	1984549	40	>100:1	Target = 4.01	0.84	6959.51	260.13		M
499 > 99	54	3.581	3.614		454216	37	>100:1	4.36 (2.00-6.02)	2.10				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.811		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.948		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.250		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.402		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	841062	20	>100:1			1001.00	1052.62	97.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.614	0/0	103952	19	>100:1	Target = 4.69		135.86	5.0783		
463 > 169	56	3.588	3.614		22741	16	45:1	4.57 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.926	3.948	1	186166	17	>100:1			5005.00	5931.60	109	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.919	3.948	0/-1	4470	12	45:1	Target = 1.58		67.642	2.5283		
527 > 81	65	3.926	3.948		3463	14	4.4:1	1.29 (0.79-2.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.956	0	769534	18	>100:1			1001.00	1066.13	96.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.964		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	938113	16	>100:1			5005.00	5290.72	106.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.112		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	766827	16	>100:1			1001.00	1122.04	102	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.268		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.268	0	765216	16	>100:1			5005.00	5117.45	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.277		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.441	4.454	0	49470	25	>100:1			1001.00	768.11	70.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.461		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.541	0	638281	18	>100:1			1001.00	928.22	92	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.541		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.784		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.960	5.000	0	625601	23	>100:1			1001.00	800.25	67.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.003		ND								
*** 37 13C2_PFDA**													
515 > 470		3.926	3.956	0	539023	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	1	607282	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.239	1	609822	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	1	347492	16	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	192103	18	>100:1			200.00			

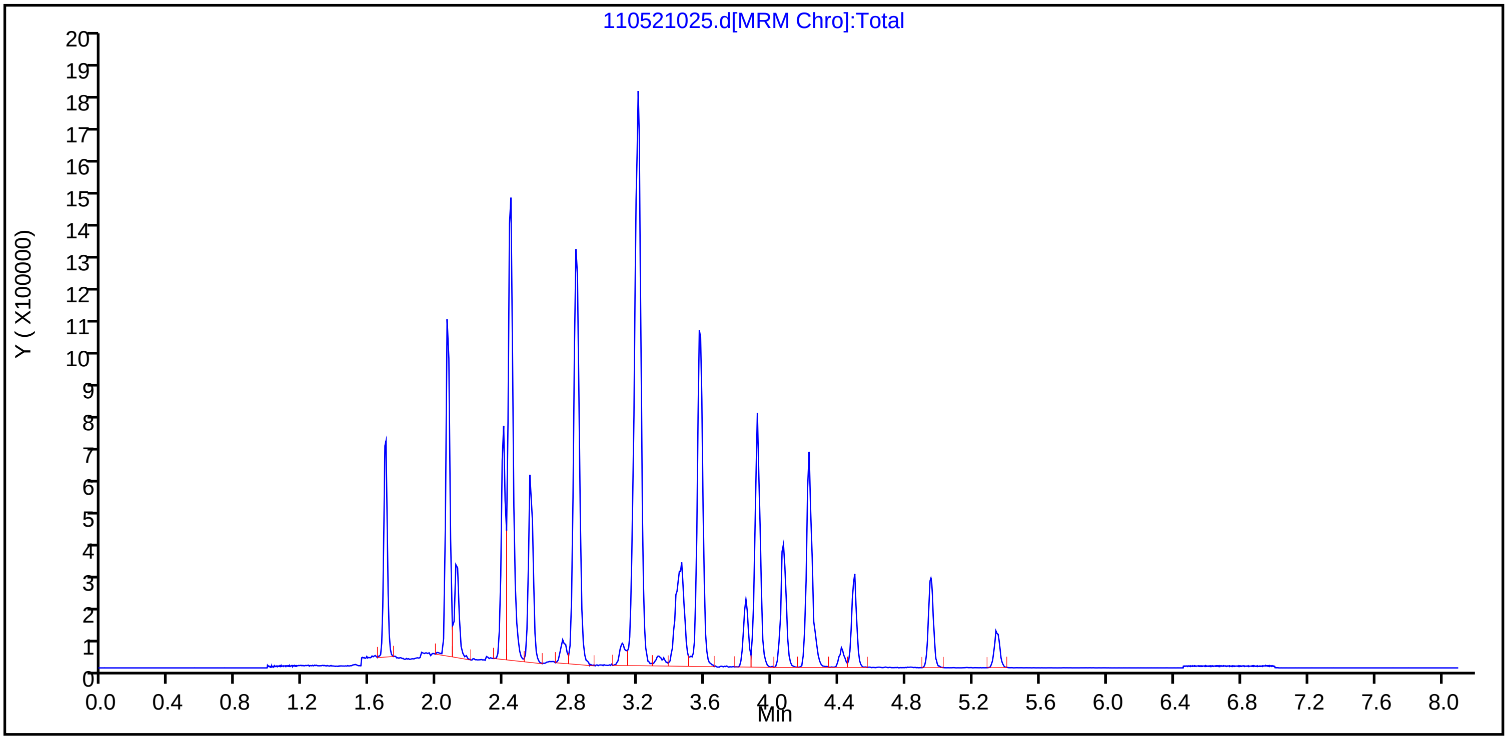
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

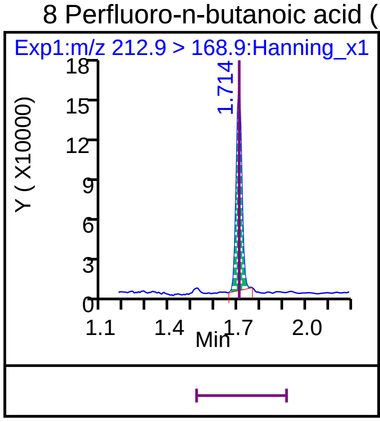
Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

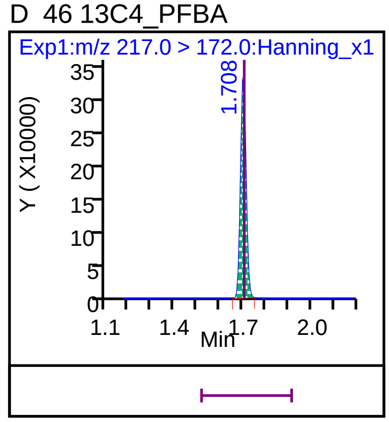
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d		
Injection Date:	05-Nov-2021 15:45:31	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-042.0-20211102	Lab ID:	WK03035-008
Sample Info:	WK03035-008		
Dil. Factor:	1	Operator:	Matthew M. Miller



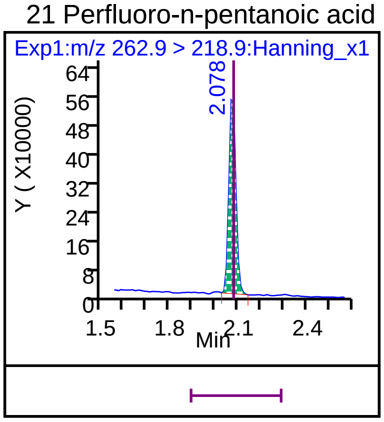
8 Perfluoro-n-butanoic acid (PFBA)



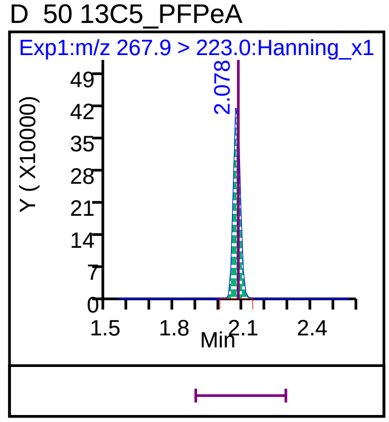
D 46 13C4_PFBA



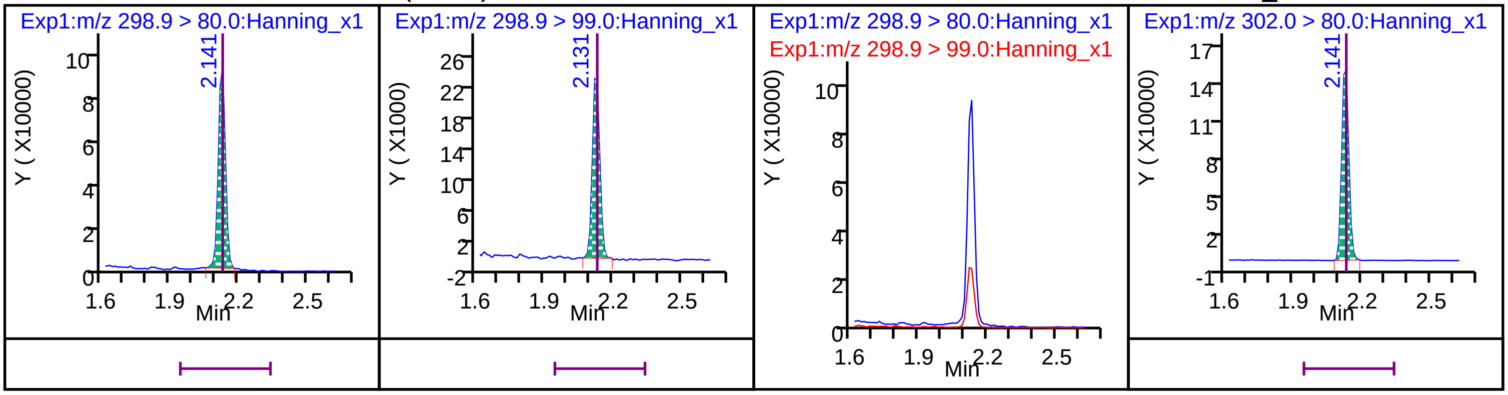
21 Perfluoro-n-pentanoic acid (PFPeA)



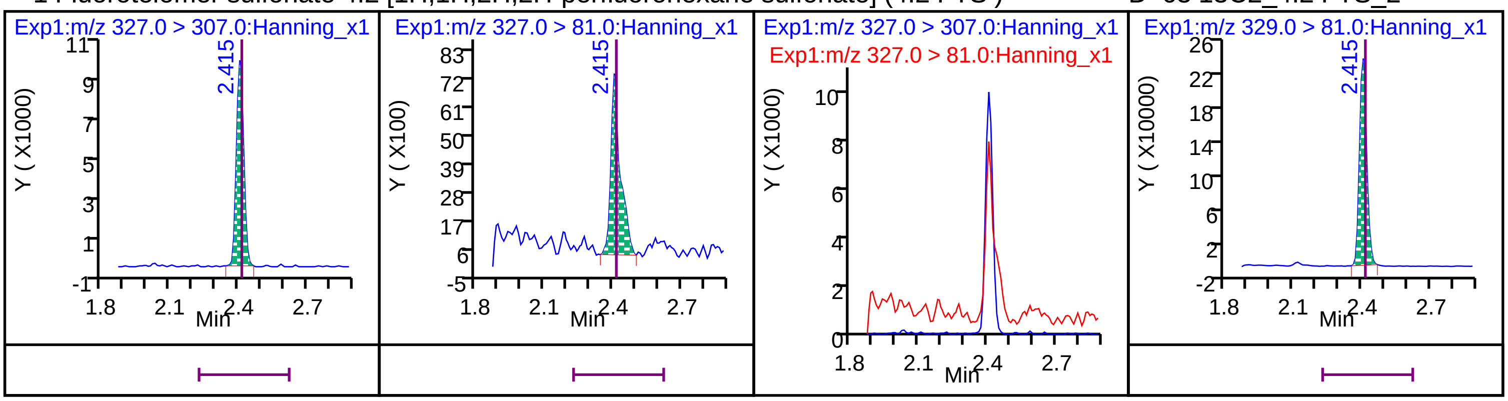
D 50 13C5_PFPeA



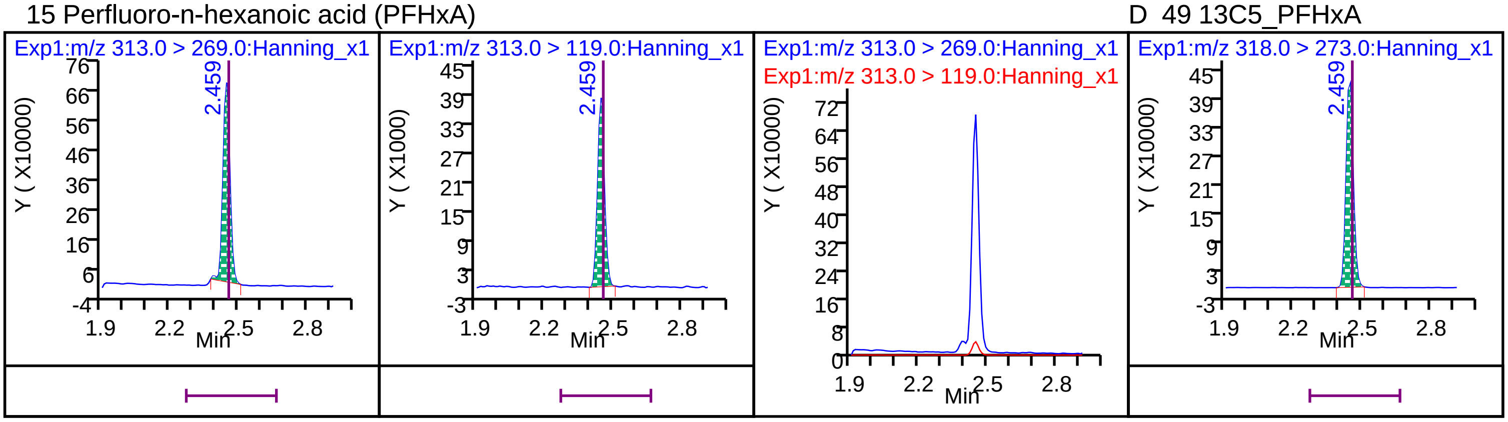
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



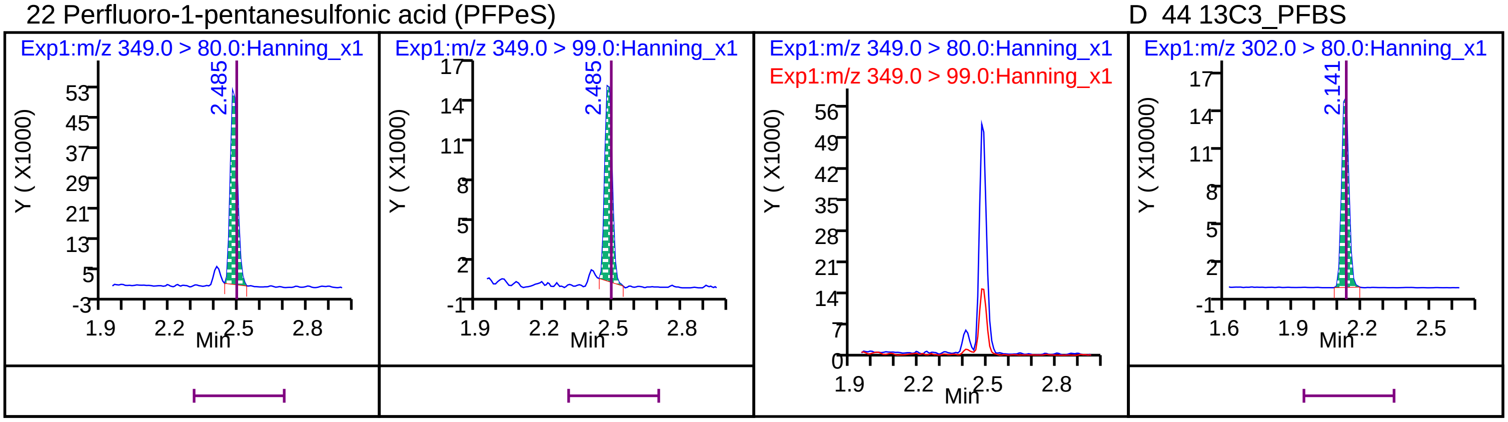
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



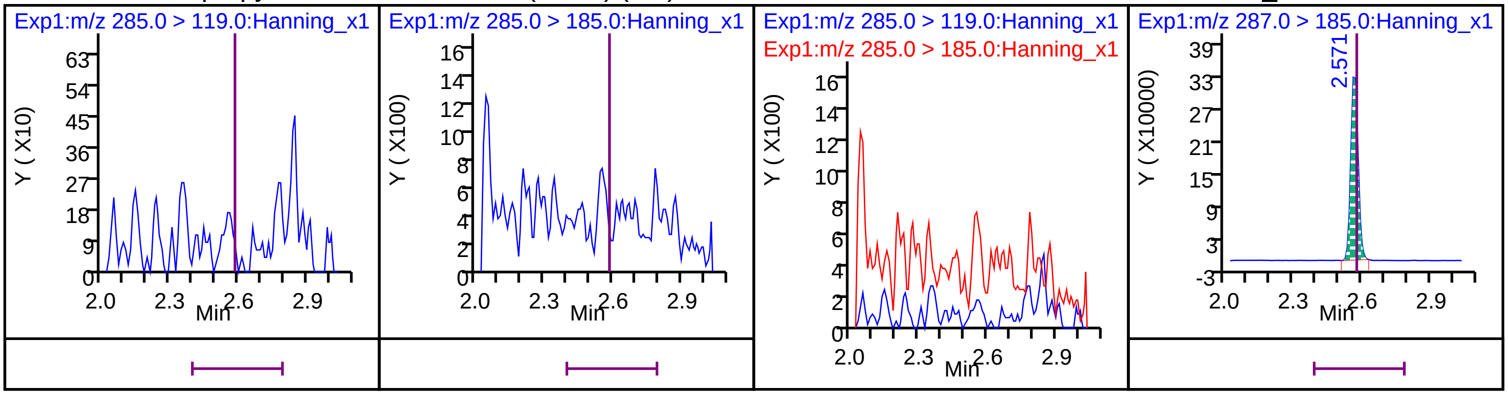
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



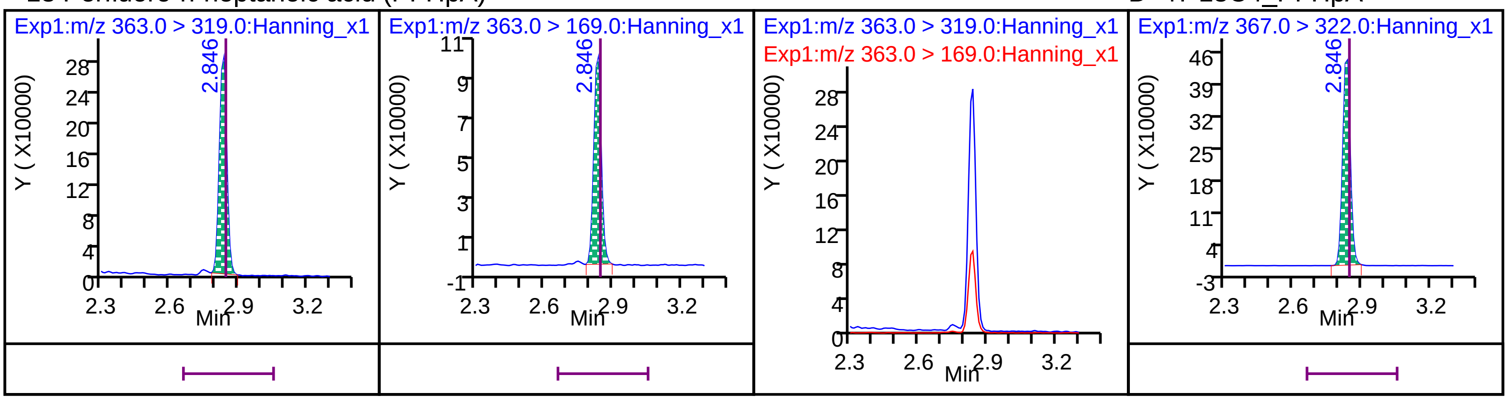
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



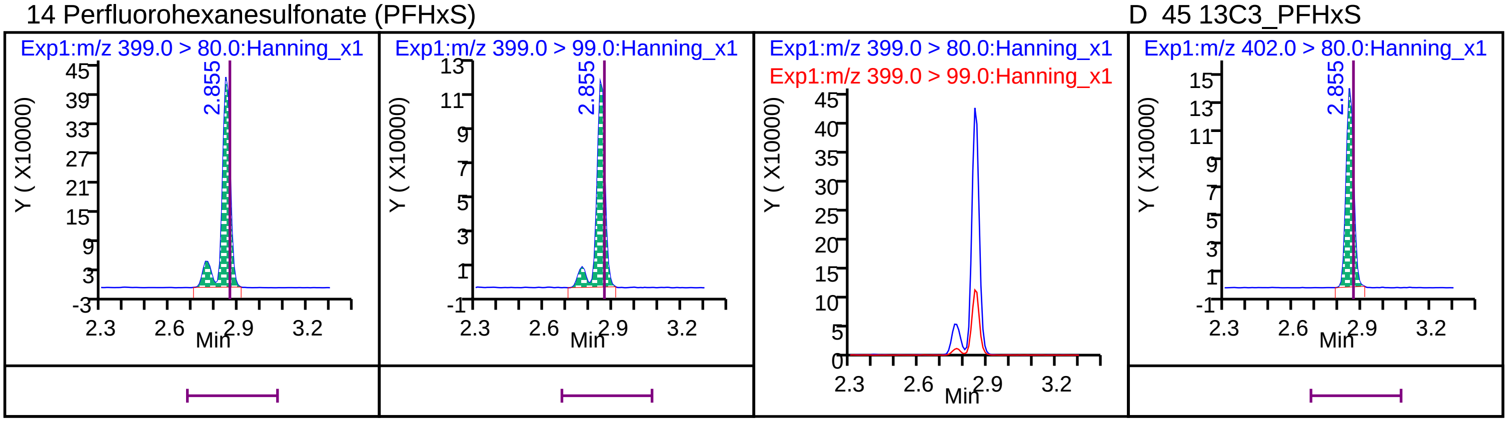
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



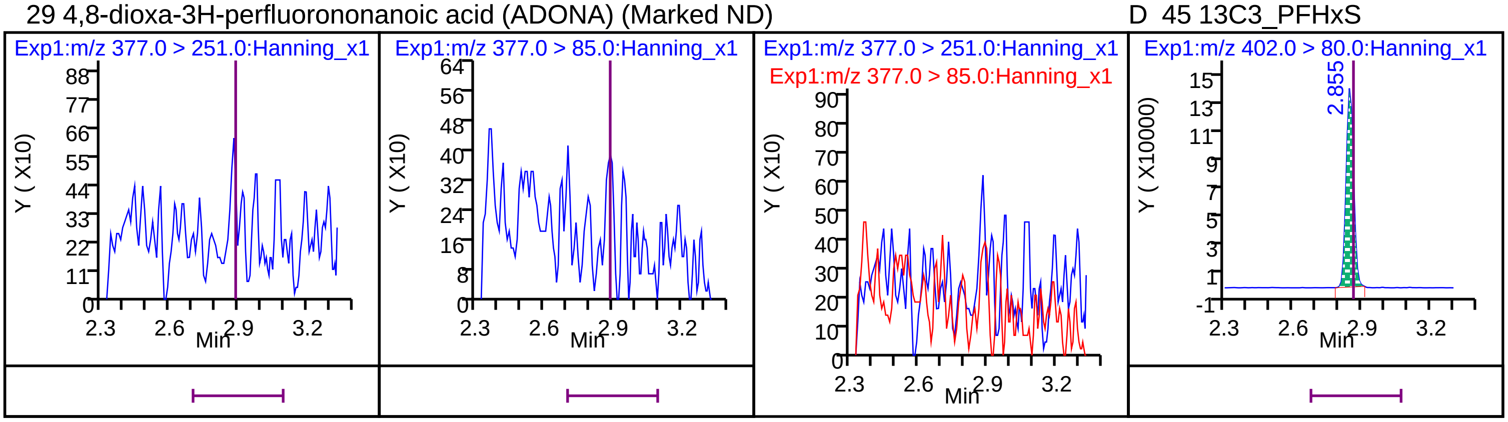
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



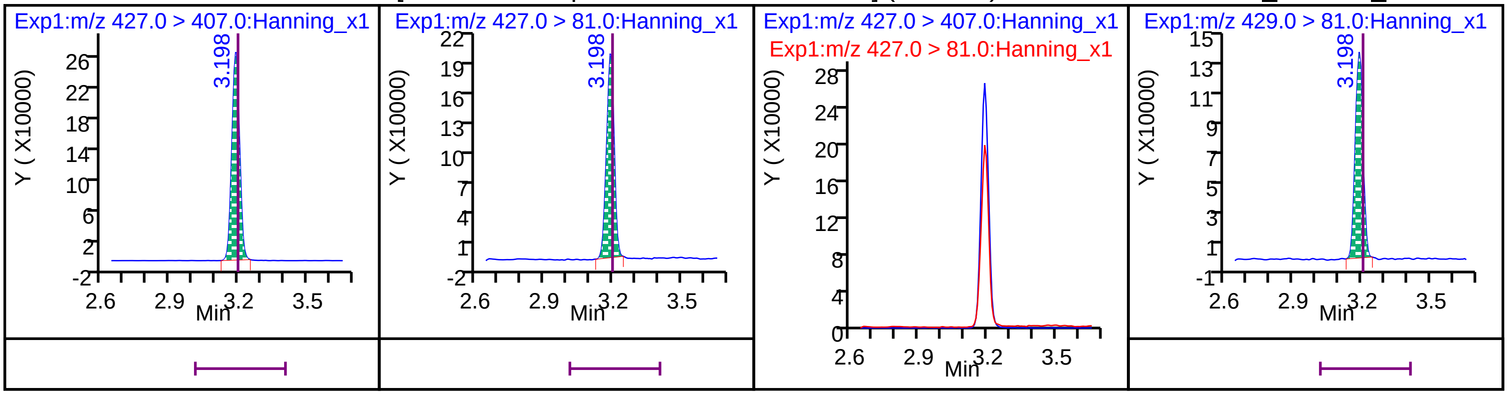
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



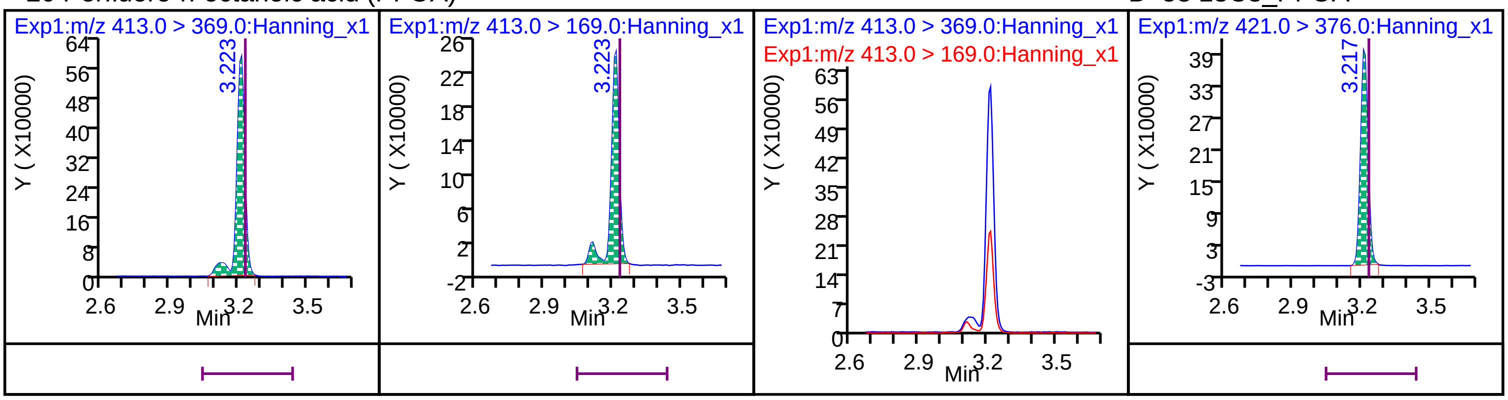
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (Marked ND) D 45 13C3_PFHxS



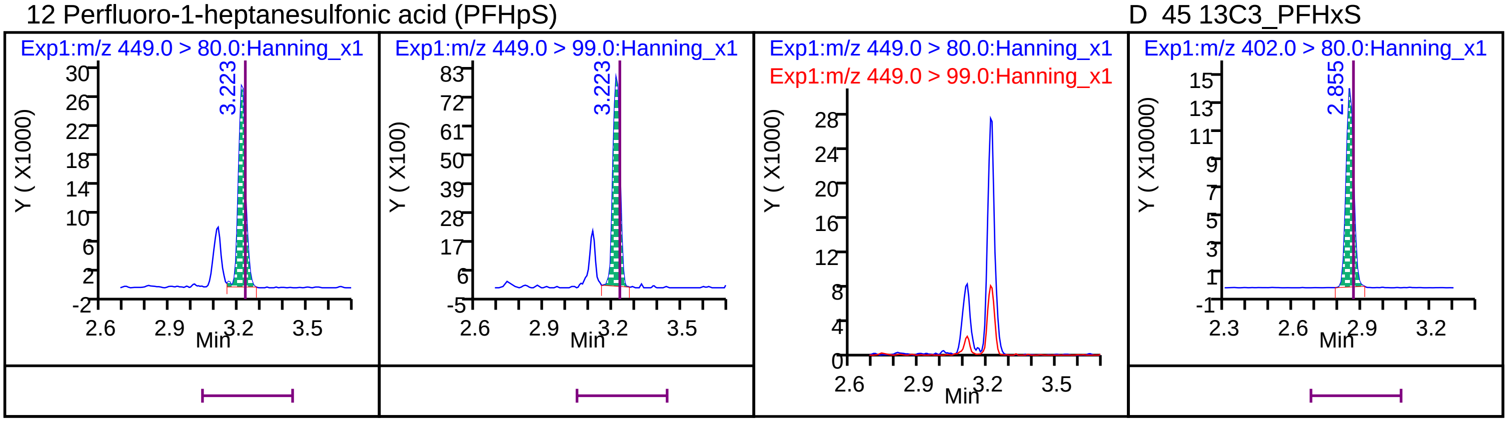
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



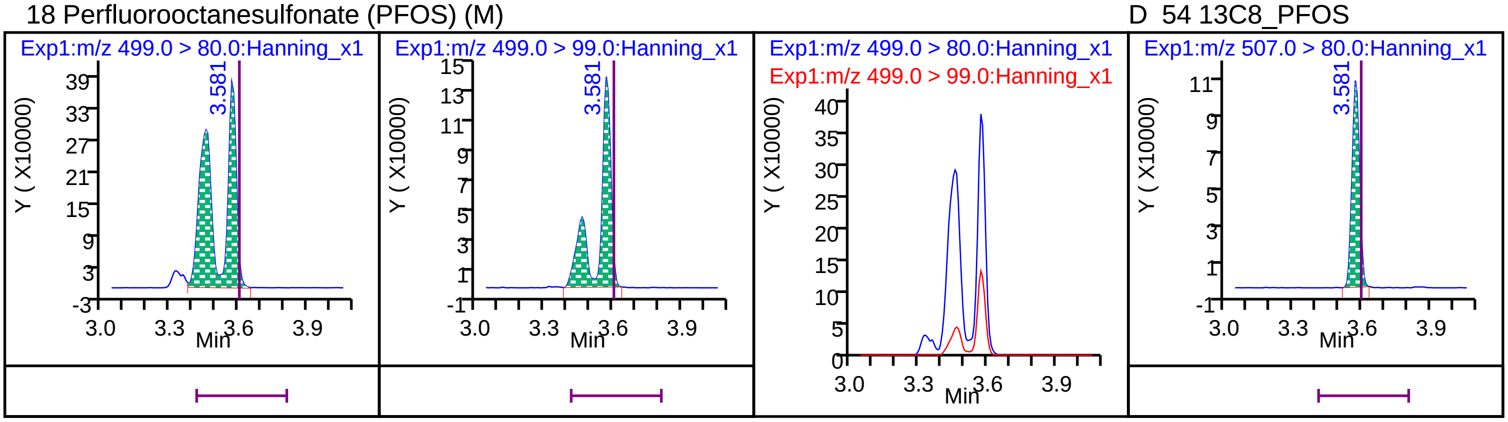
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



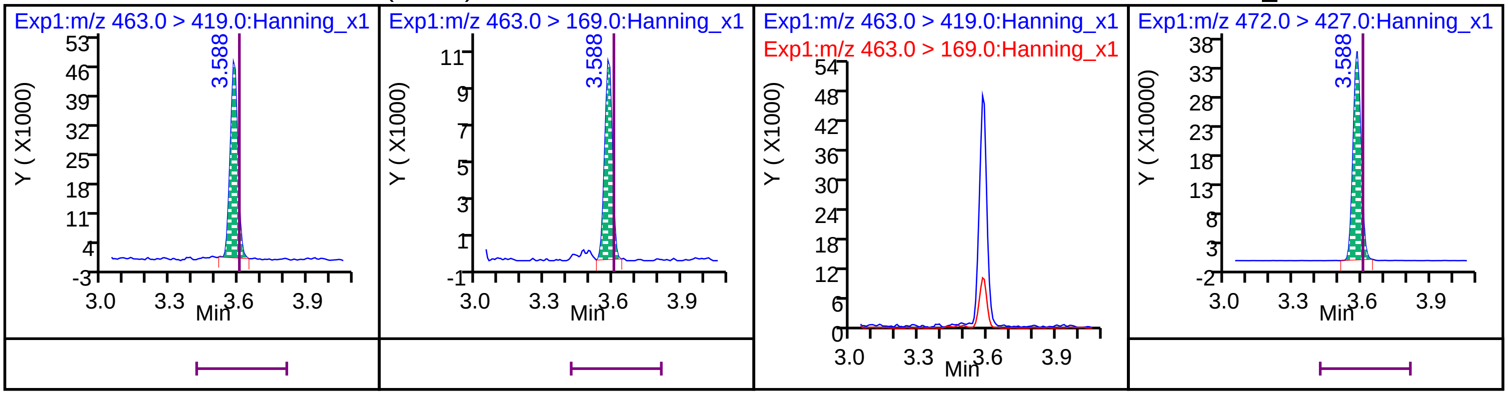
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



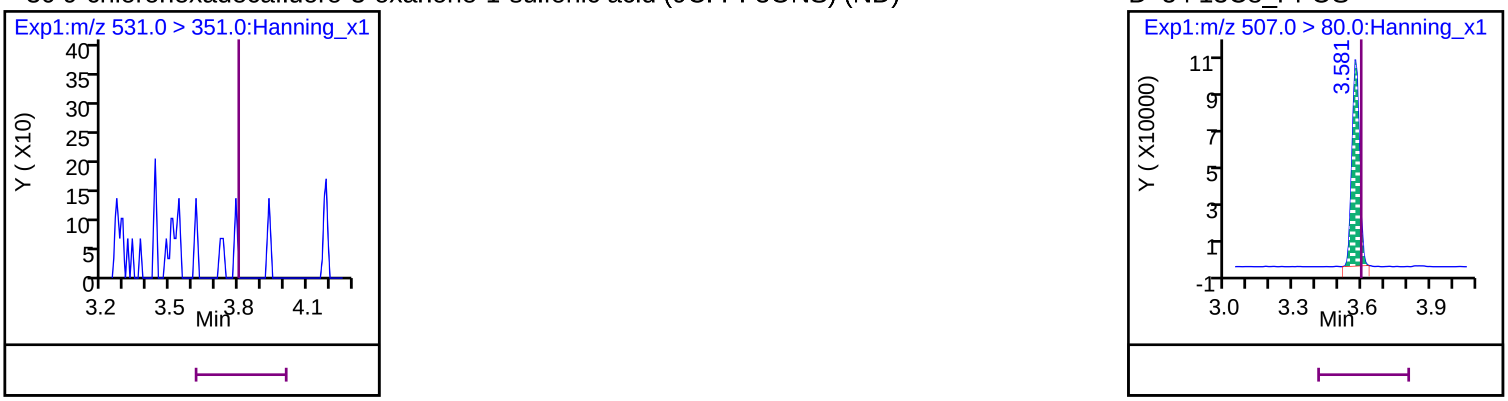
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



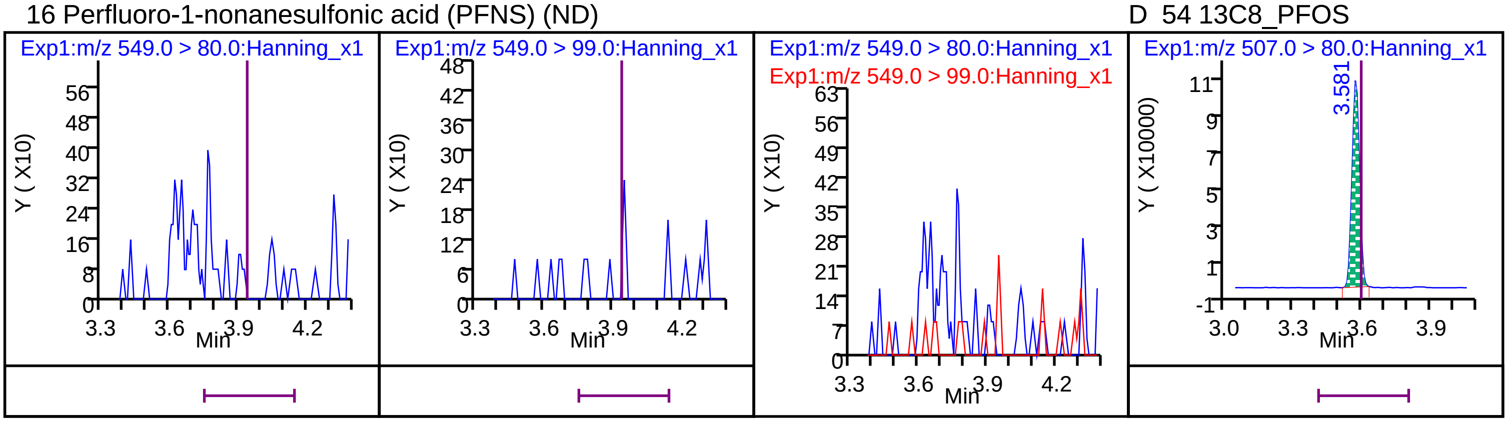
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



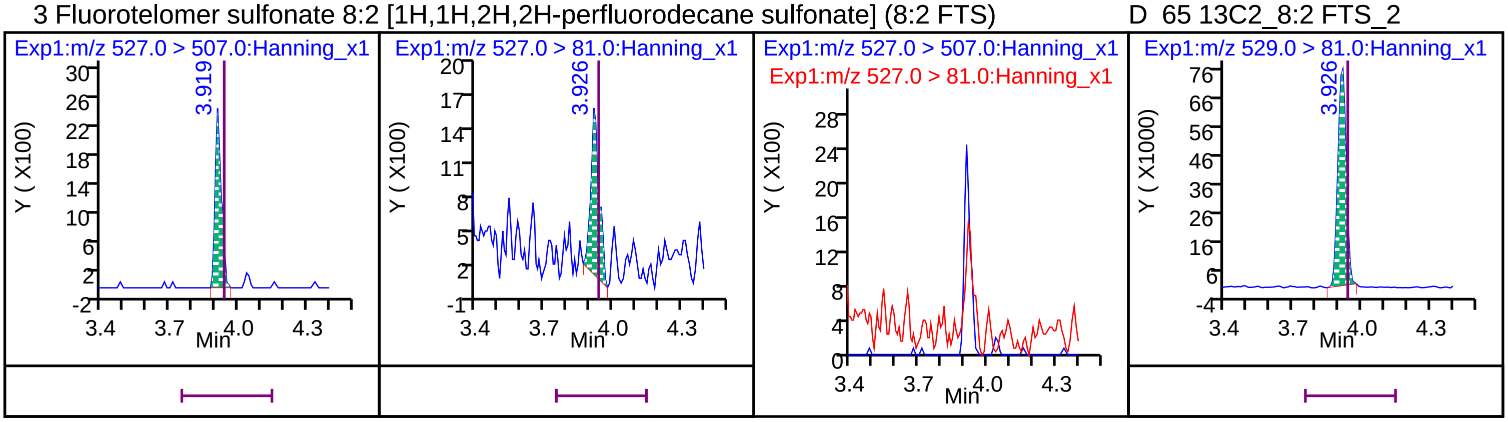
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

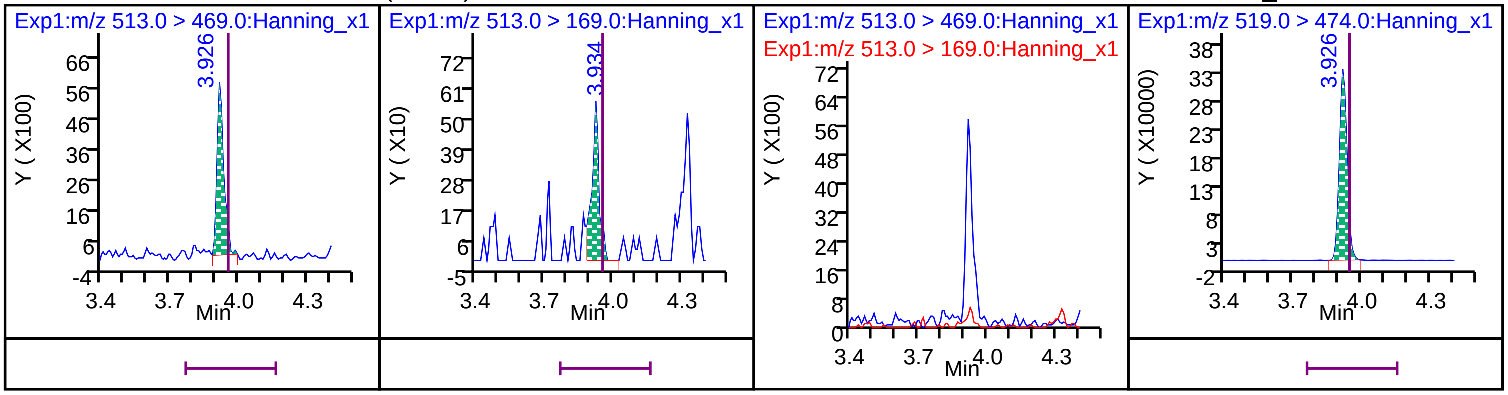


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2

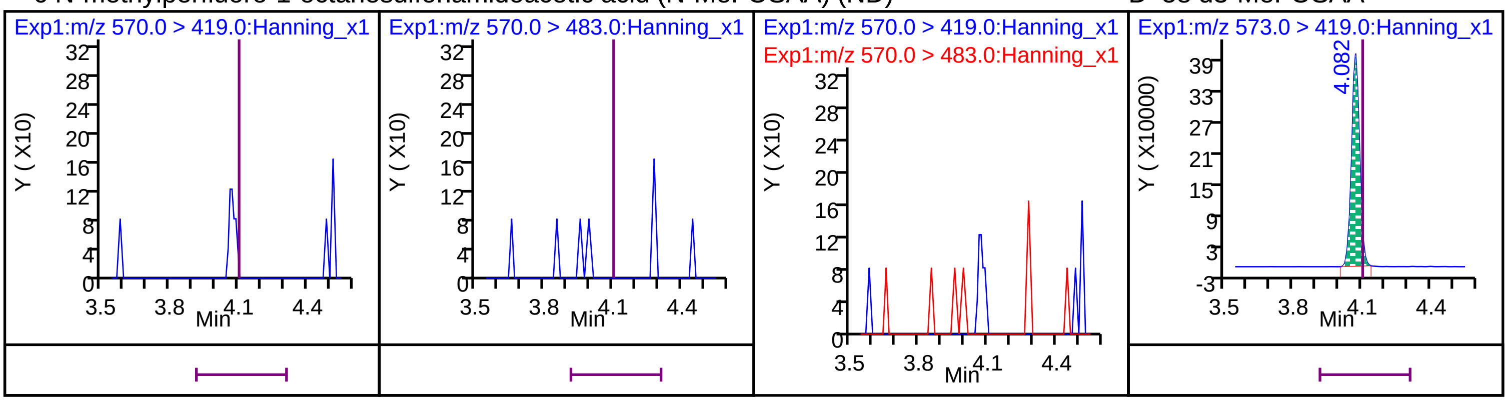


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d

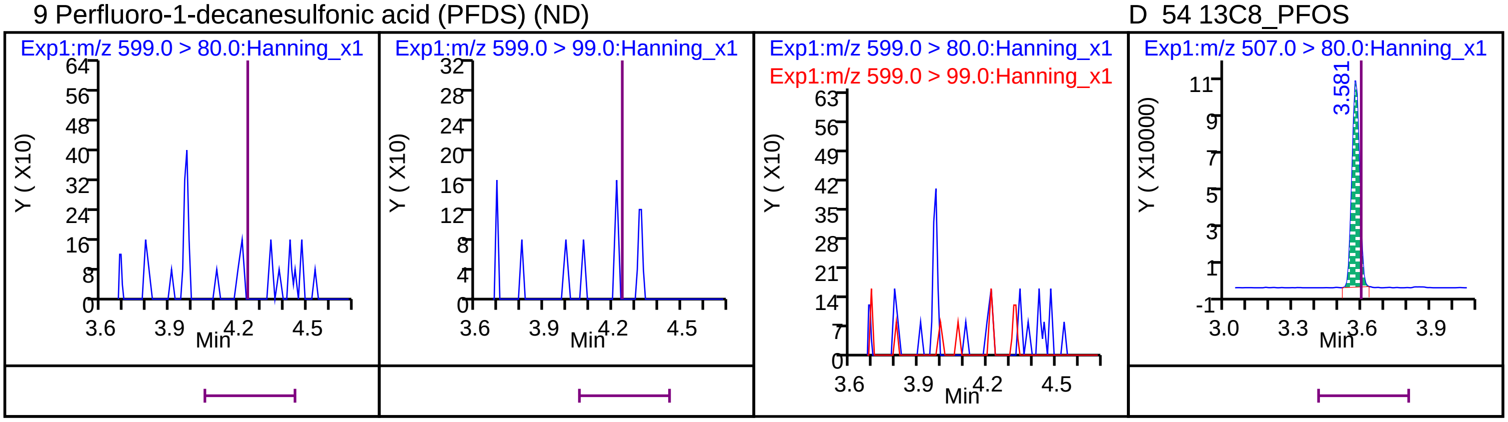
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



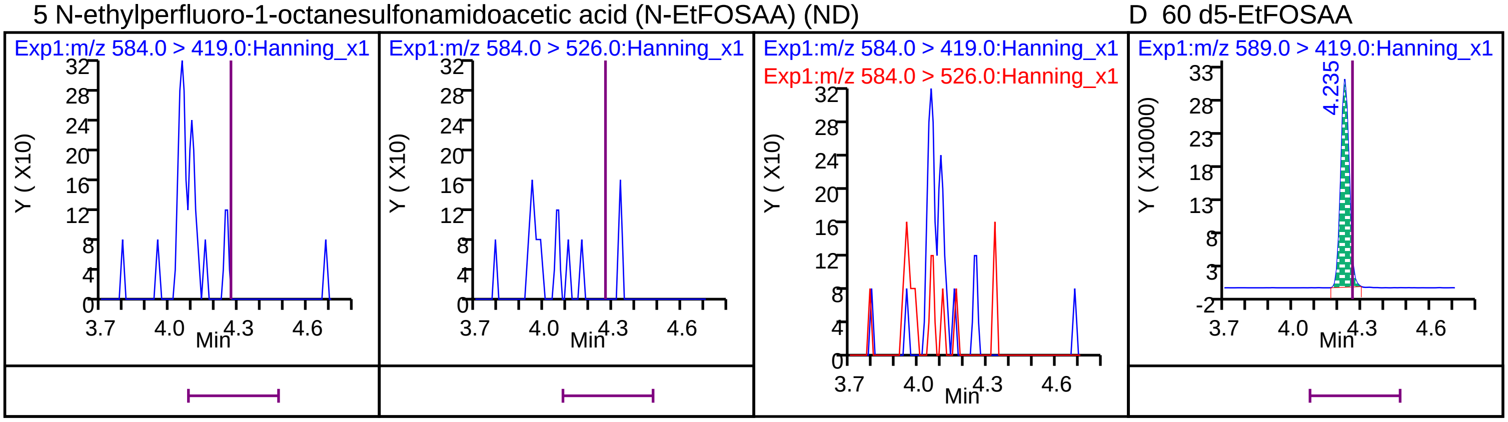
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



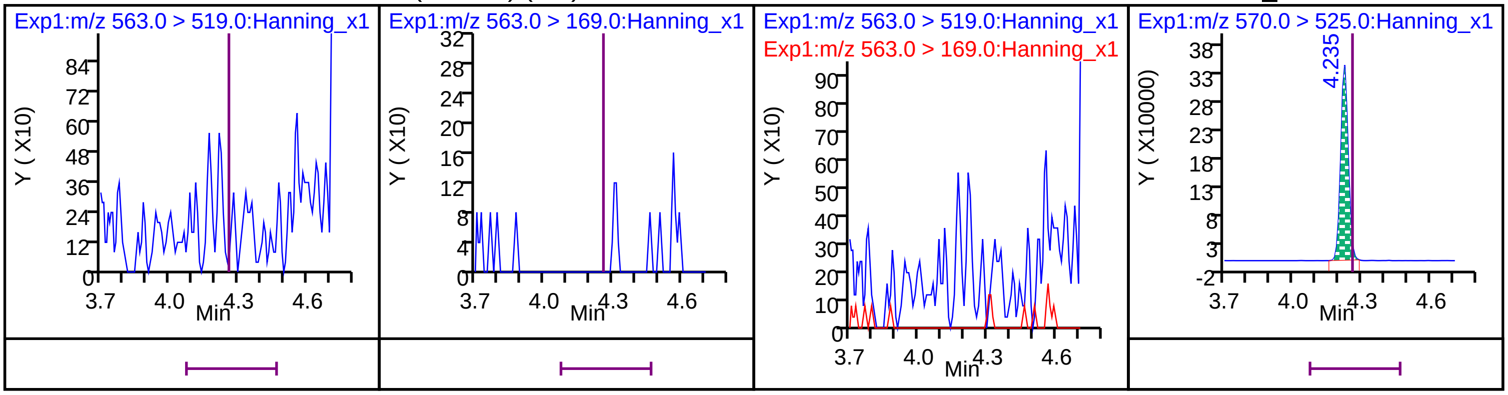
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



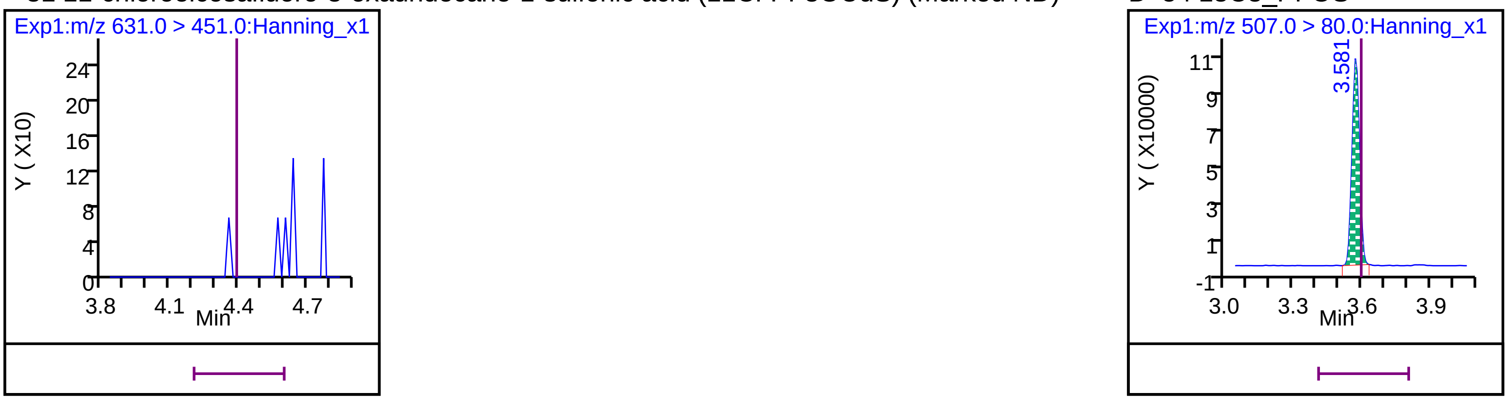
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



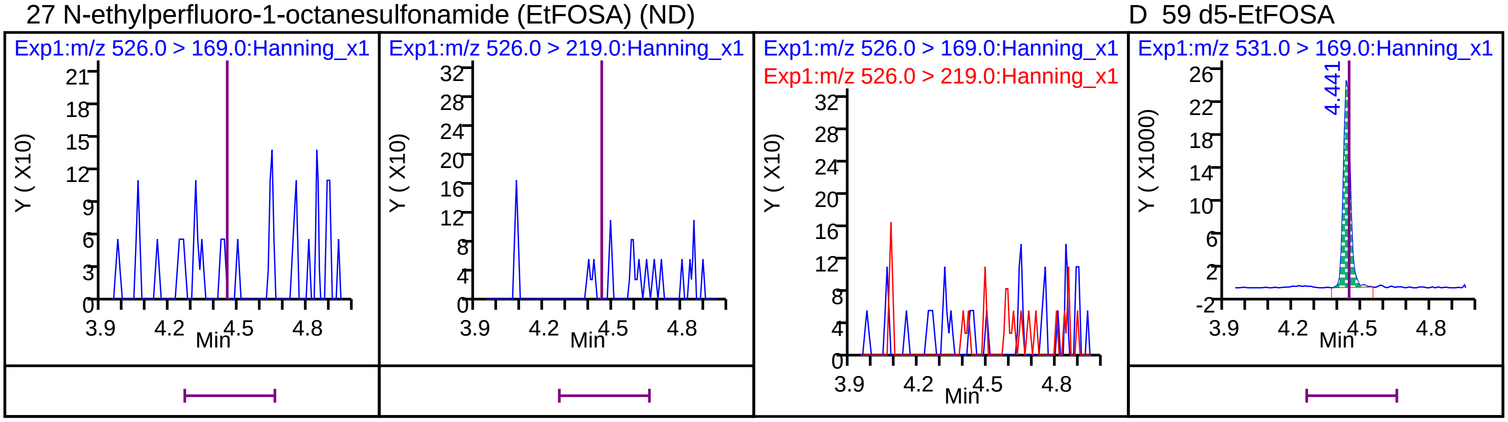
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



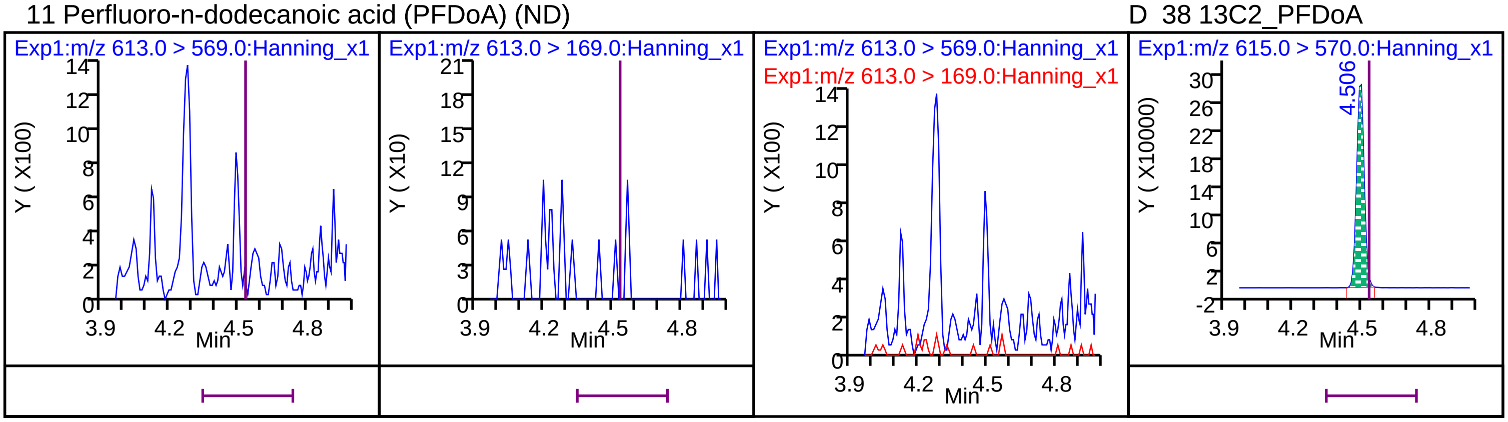
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



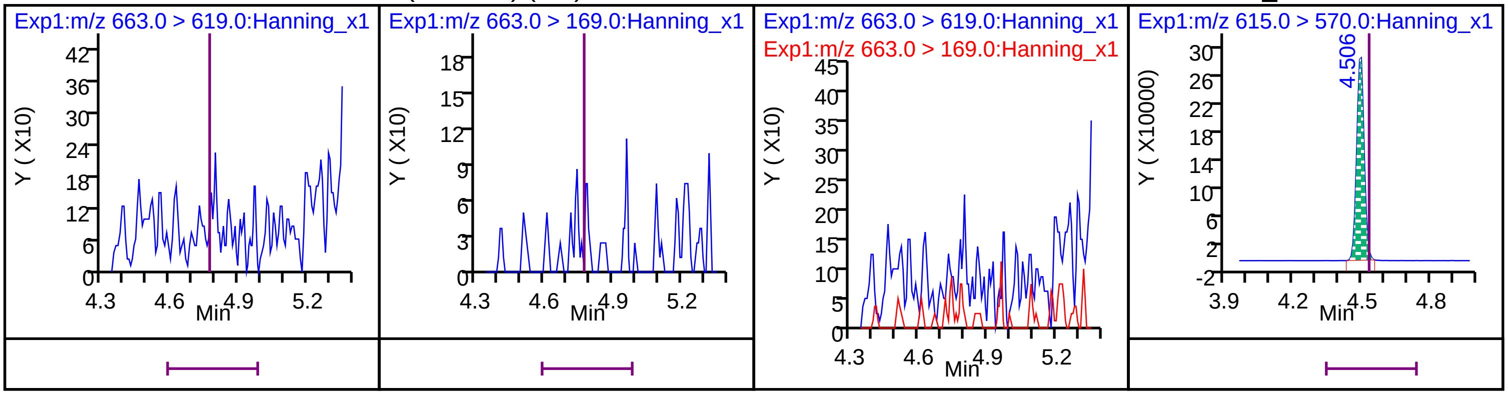
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



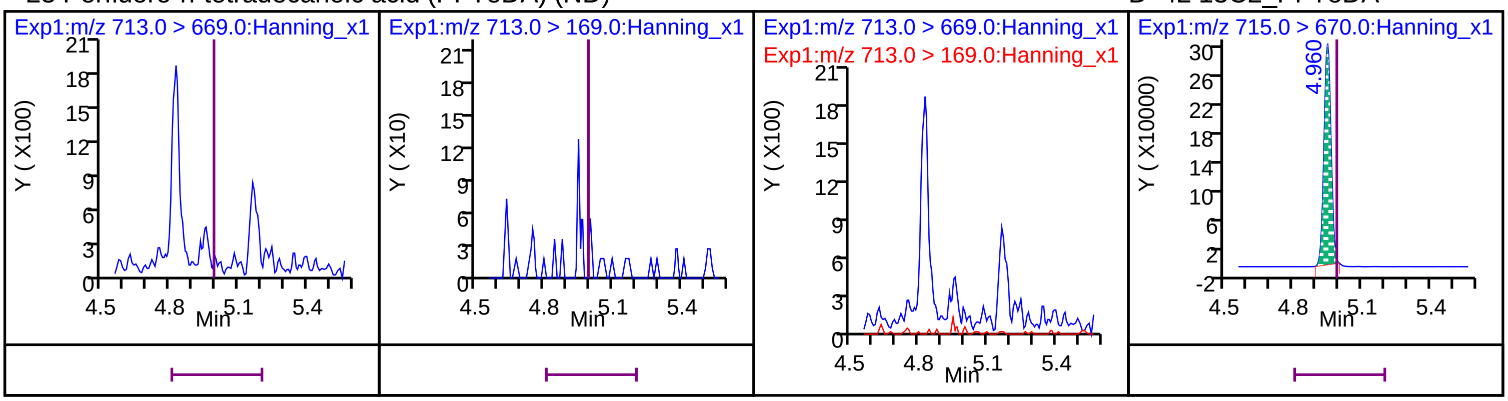
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



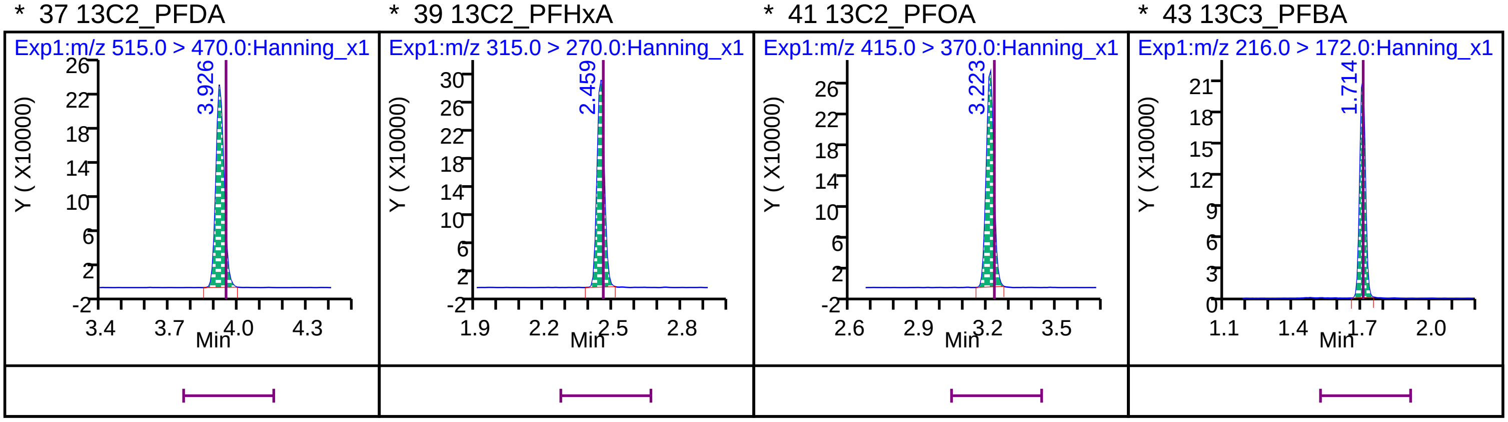
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)   D 38 13C2_PFDoA



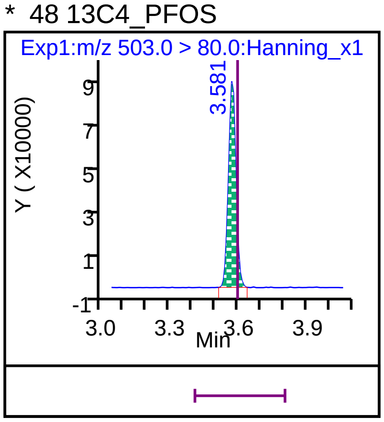
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)   D 42 13C2_PFTeDA



* 37 13C2_PFDA   * 39 13C2_PFHxA   * 41 13C2_PFOA   * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

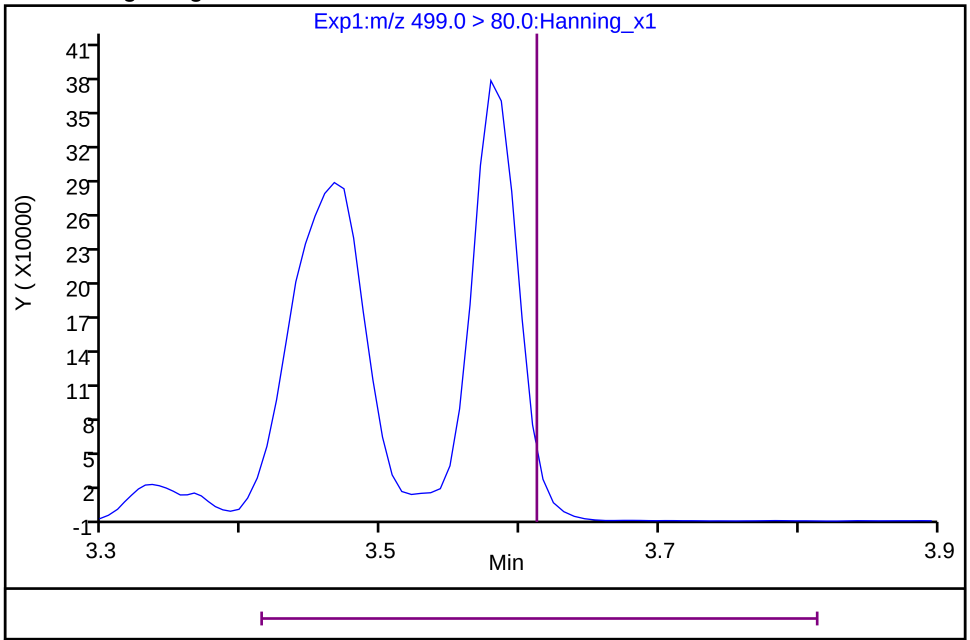
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d		
Injection Date:	05-Nov-2021 15:45:31	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-042.0-20211102	Lab ID:	WK03035-008
Sample Info:	WK03035-008		
Dil. Factor:	1	Operator:	Matthew M. Miller

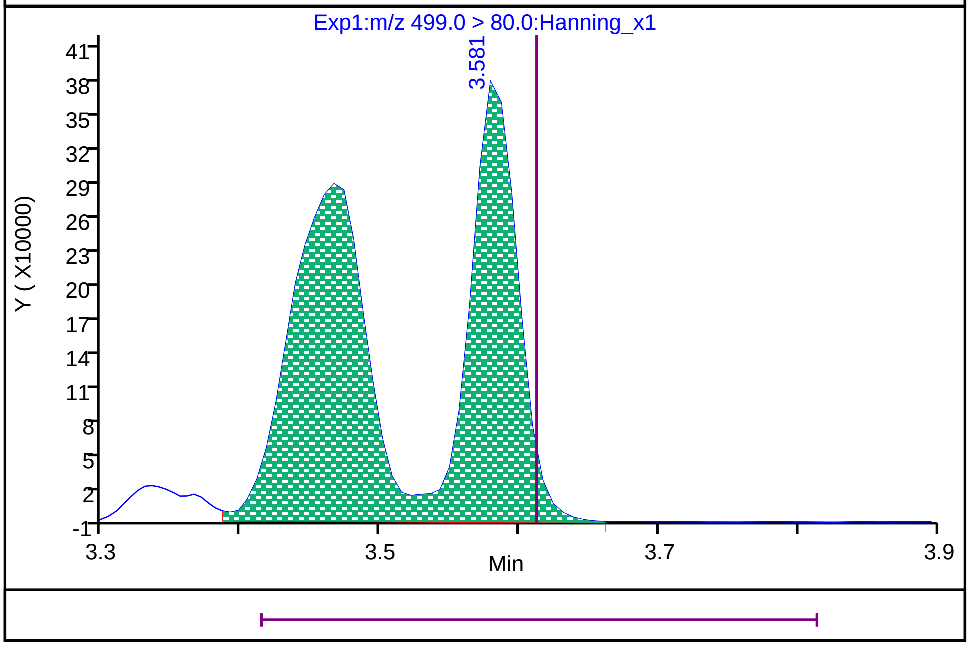
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.581
Area:	2046443
Conc:	268.24
Conc Units:	ng/L



RT:	3.581
Area:	1984549
Conc:	260.13
Conc Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:29:15

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:36　　　　AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d		
Injection Date:	09-Nov-2021 22:44:25	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	36
Lab Sample ID:	WK03035-008	Lab Prep. Batch:	21582
Client ID:	SW3-DPT-0144-042.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-008	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0385579

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	285	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.710	1.711	0	362874	17	>100:1			1001.00	583.70	56.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.710	1.718	0/0	171633	18	54:1			448.93	17.310		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.097	2.098	0	482268	12	>100:1			1001.00	843.73	84.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.097	2.098	0/0	743133	15	>100:1			1370.46	52.842		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.150	2.151	0	162438	14	>100:1			1001.00	939.11	94.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.150	2.162	0/0	93001	16	>100:1	Target = 3.53		459.57	17.720		
298.9 > 99	44	2.150	2.162		25880	14	60:1	3.59 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.495	2.505	0/0	49169	13	>100:1	Target = 3.10		326.94	12.606		
349 > 99	44	2.495	2.505		18695	13	59:1	2.63 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.423	2.424	0	236208	14	>100:1			5005.00	10432	228.7*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.423	2.424	0/0	12762	23	>100:1	Target = 1.75		122.67	4.7299		
327 > 81	63	2.423	2.424		11002	18	14:1	1.15 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.469	0	680249	15	>100:1			1001.00	1044.47	101.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.468	2.469	0/0	1152517	13	>100:1	Target = 18.91		1631.10	62.892		M
313 > 119	49	2.459	2.469		57276	17	>100:1	20.12 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.582	2.583	0	1068646	15	>100:1			5005.00	4611.08	90.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.844	2.845	0	577621	15	>100:1			1001.00	1087.92	107.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.844	2.845	0/0	441391	14	>100:1	Target = 3.80		696.12	26.841		
363 > 169	47	2.844	2.845		115088	15	>100:1	3.83 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.864	0	128537	14	>100:1			1001.00	1023.06	112.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.864	0/0	454132	25	>100:1	Target = 2.89	7.08	3216.90	124.04		
399 > 99	45	2.853	2.864		137101	29	>100:1	3.31 (1.44-4.34)	7.75				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.245	3.247	0/0	25181	16	>100:1	Target = 3.12		190.93	7.3620		M
449 > 99	45	3.239	3.247		8505	16	52:1	2.96 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.211	3.213	0	126417	20	>100:1			5005.00	7023.18	121.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.205	3.213	0/0	370019	19	>100:1	Target = 1.75		6188.44	238.61		
427 > 81	64	3.205	3.213		191008	18	>100:1	1.93 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.232	3.240	0	557458	18	>100:1			1001.00	1062.48	101.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.239	3.240	0/0	953651	38	>100:1	Target = 2.89	9.85	1671.06	64.432		
413 > 169	53	3.232	3.240		316986	42	>100:1	3.00 (1.44-4.34)	7.75				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.614	3.623	0	123871	19	>100:1			1001.00	1000.23	109.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.614	3.623	0/0	986027	36	>100:1	Target = 3.30	0.86	6692.05	258.03		M
499 > 99	54	3.614	3.623		279065	40	>100:1	3.53 (1.65-4.95)	2.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.622	3.623	0	668632	20	>100:1			1001.00	1044.12	103	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.622	3.623	0/0	104573	19	>100:1	Target = 6.51		145.24	5.6003		
463 > 169	56	3.614	3.623		15476	22	62:1	6.75 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.980	3.981	0	657699	16	>100:1			1001.00	1144.50	104.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.969	3.981	0	108260	15	>100:1			5005.00	6263.42	117.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.969	3.981	0/0	3847	13	33:1	Target = 1.94		78.709	3.0349		
527 > 81	65	3.969	3.981		1982	19	4.6:1	1.94 (0.97-2.91)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.129	4.139	0	687366	18	>100:1			5005.00	4548.70	96.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.292	4.294	0	586541	17	>100:1			5005.00	4528.81	85.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.292	4.294	0	670362	15	>100:1			1001.00	1113.10	96.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.477	4.488	0	25494	15	>100:1			1001.00	592.89	59.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.566	4.577	0	607014	18	>100:1			1001.00	1011.12	86.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.035	5.042	0	633435	21	>100:1			1001.00	779.14	66.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.980	3.981	0	939693	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.469	0	835251	15	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.232	3.240	0	692088	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.710	1.711	0	411374	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.614	3.623	0	159600	17	>100:1			200.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

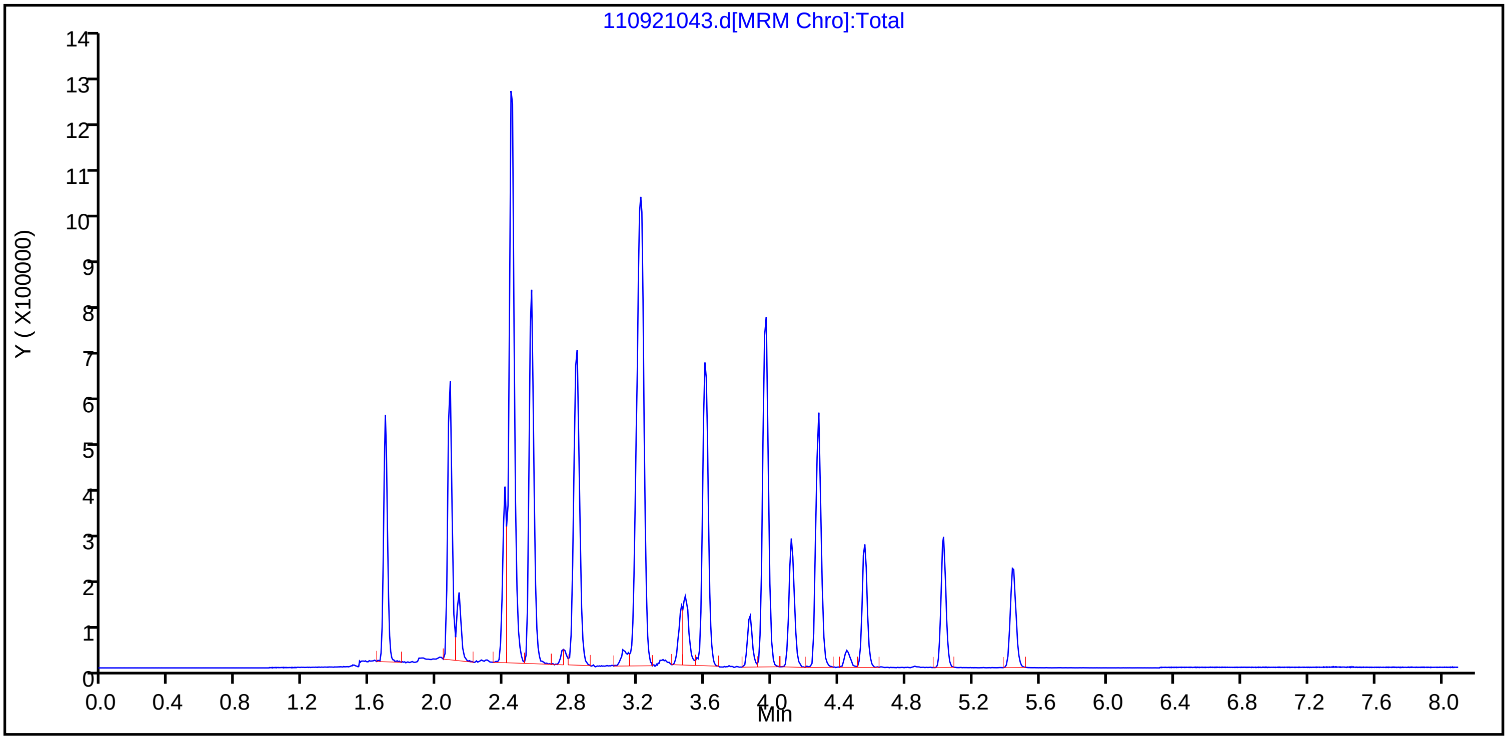
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d

Injection Date: 09-Nov-2021 22:44:25 Inst. ID: LCMSMS02.i

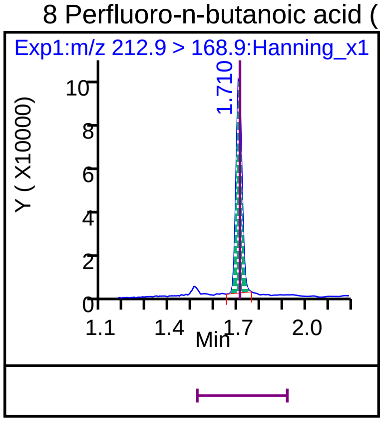
Client ID: SW3-DPT-0144-042.0-20211102 Lab ID: WK03035-008

Sample Info: WK03035-008

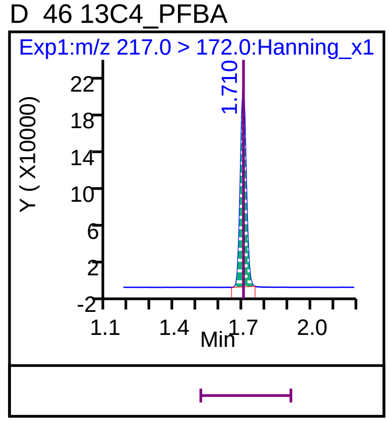
Dil. Factor: 1 Operator: Justin Gavin



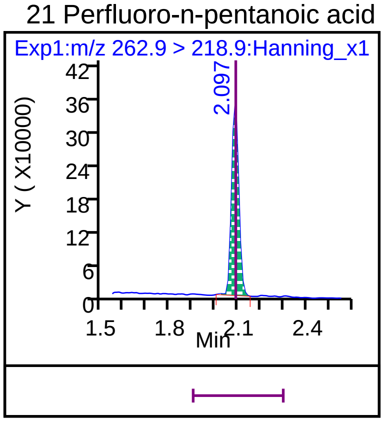
8 Perfluoro-n-butanoic acid (PFBA)



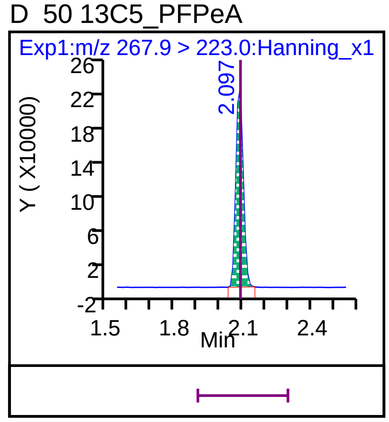
D 46 13C4_PFBA



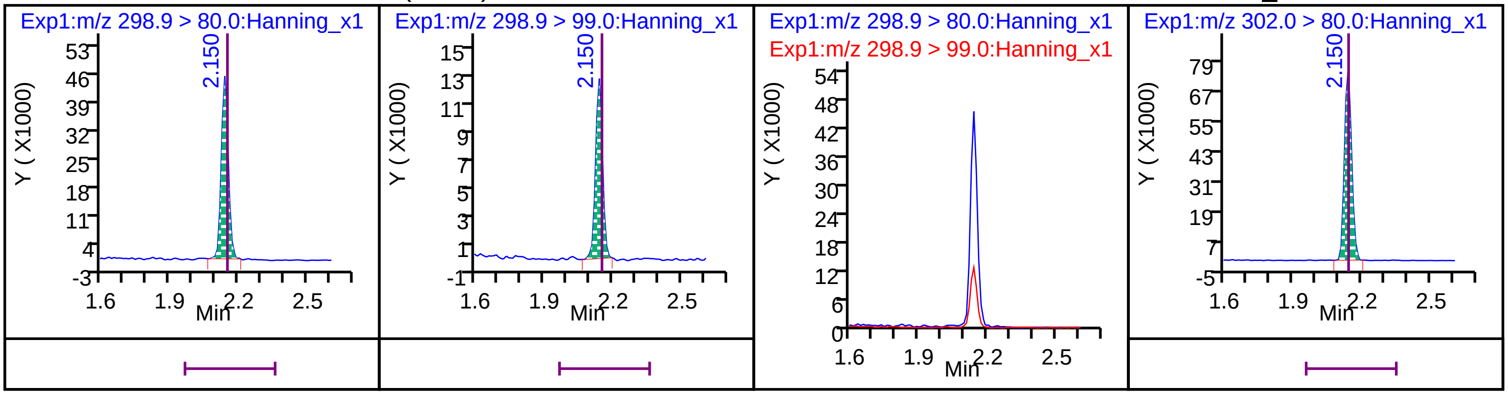
21 Perfluoro-n-pentanoic acid (PFPeA)



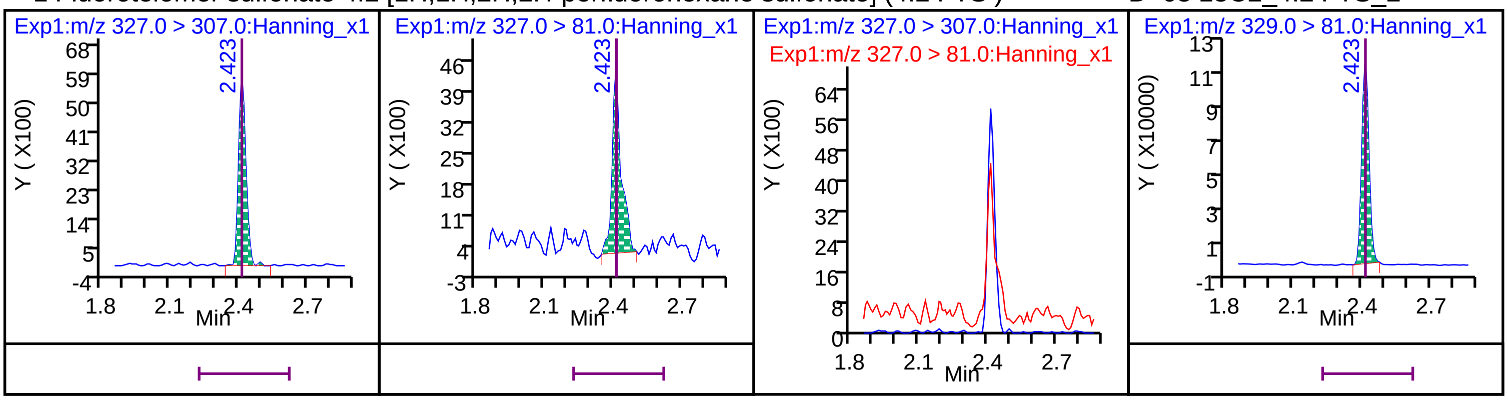
D 50 13C5_PFPeA



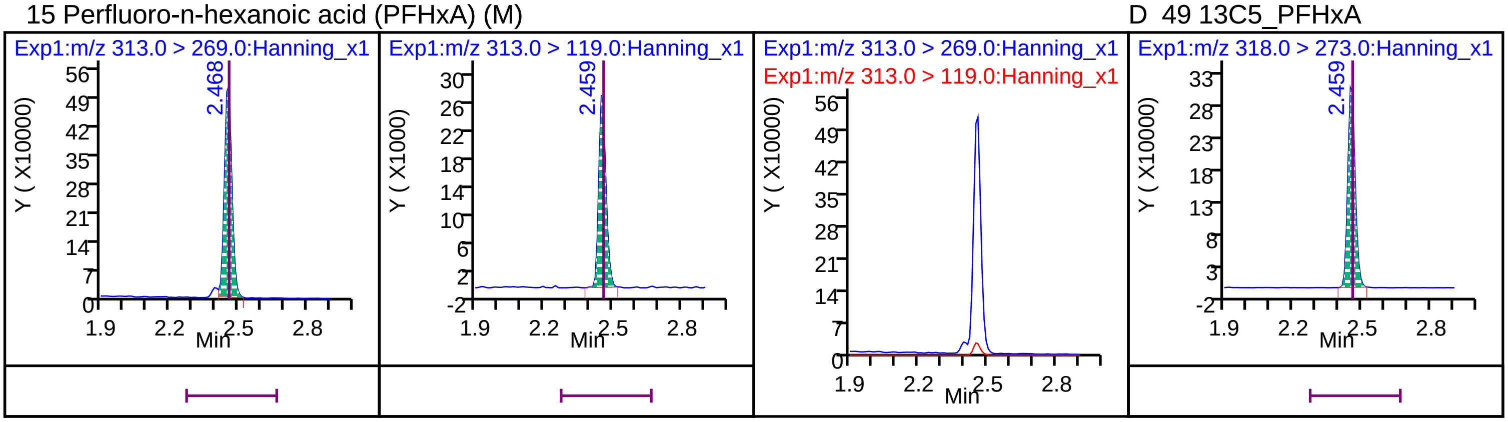
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



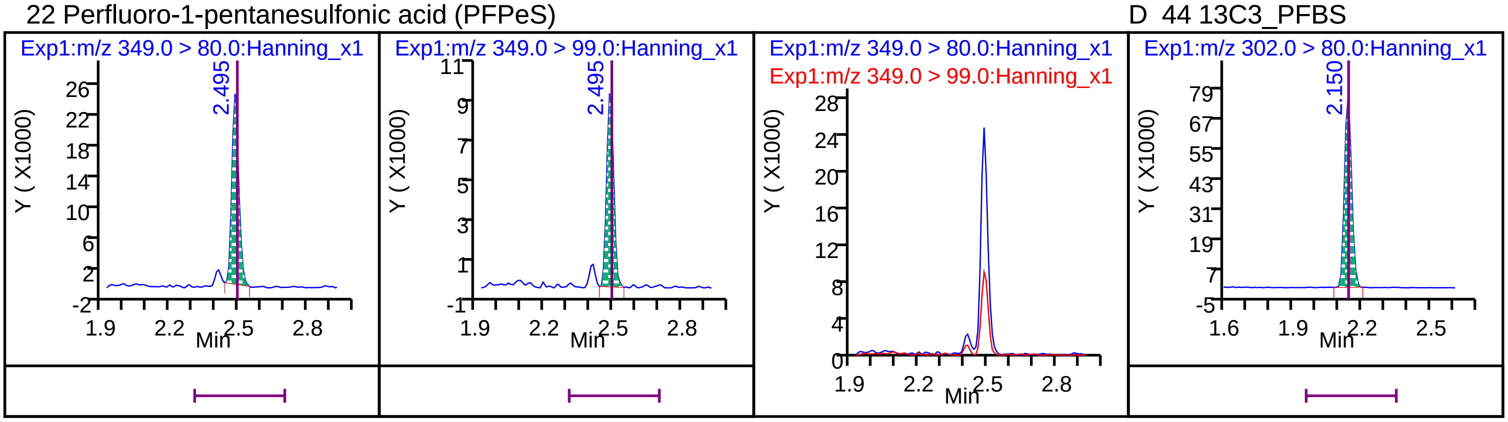
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (M) D 49 13C5_PFHxA

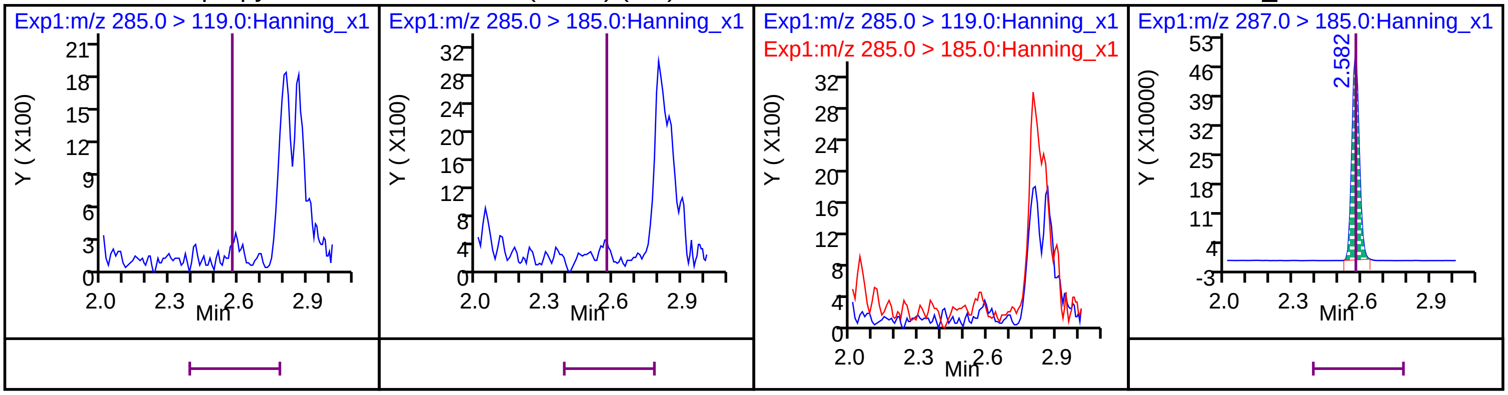


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

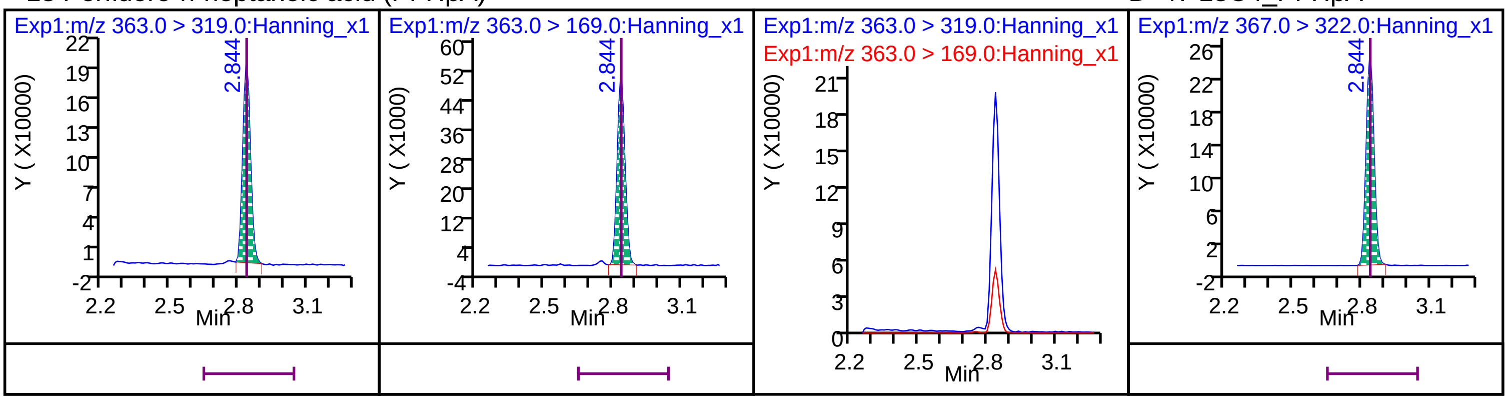


Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d

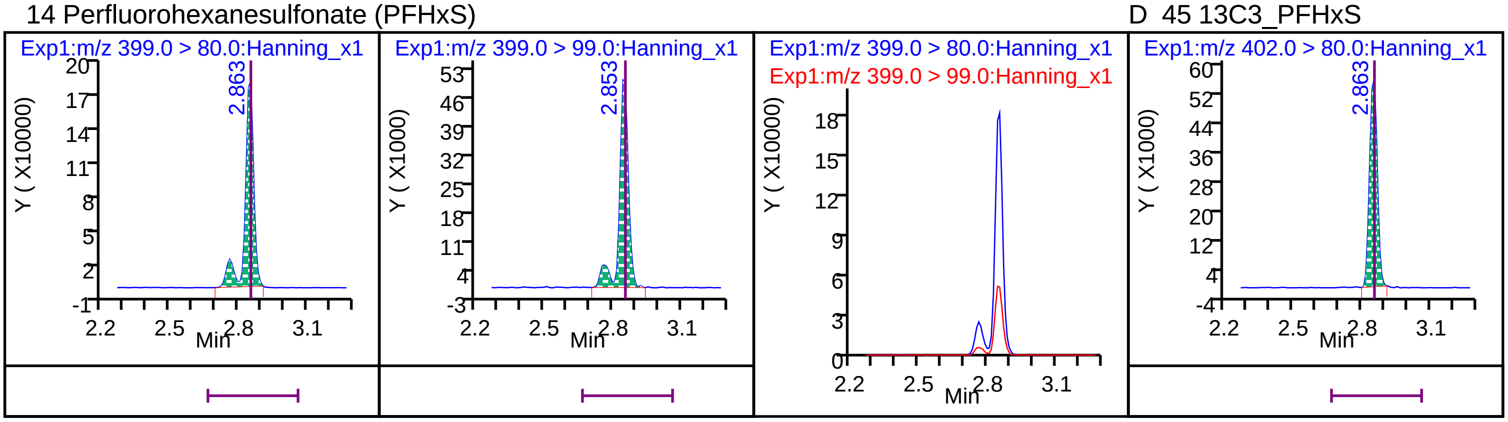
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



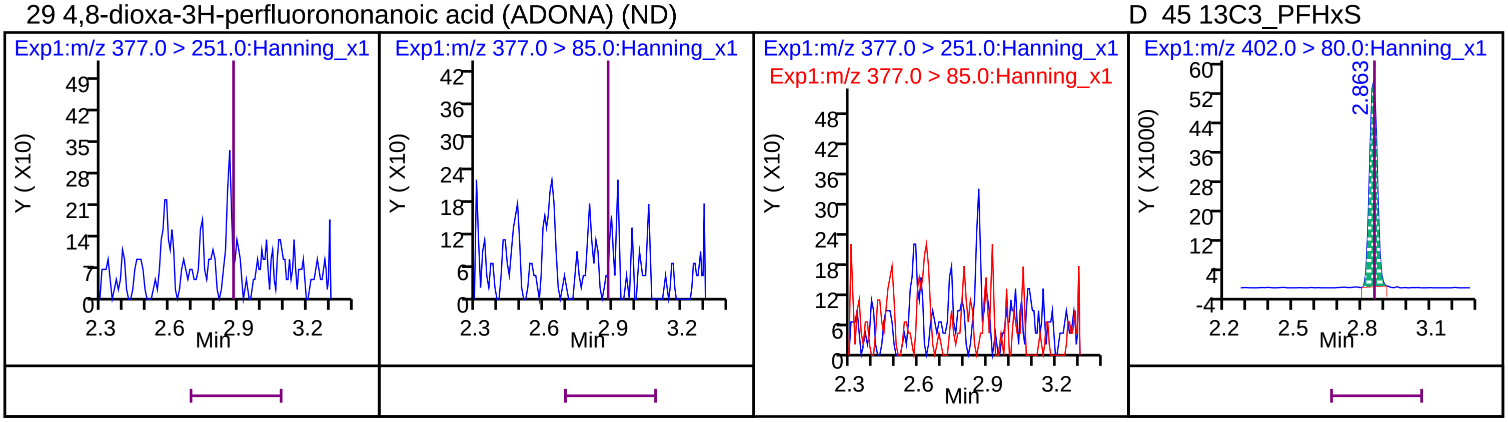
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

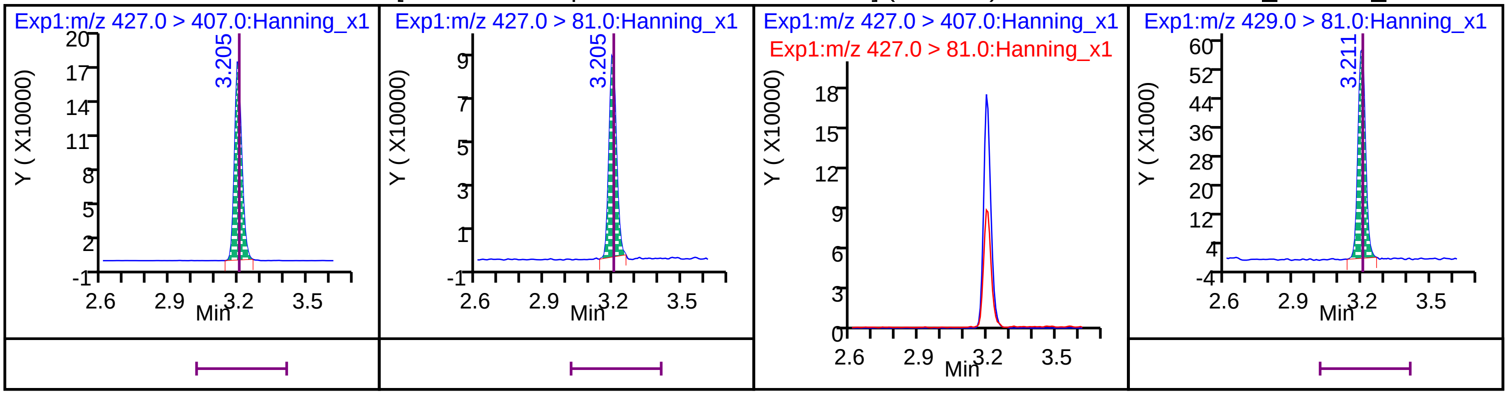


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

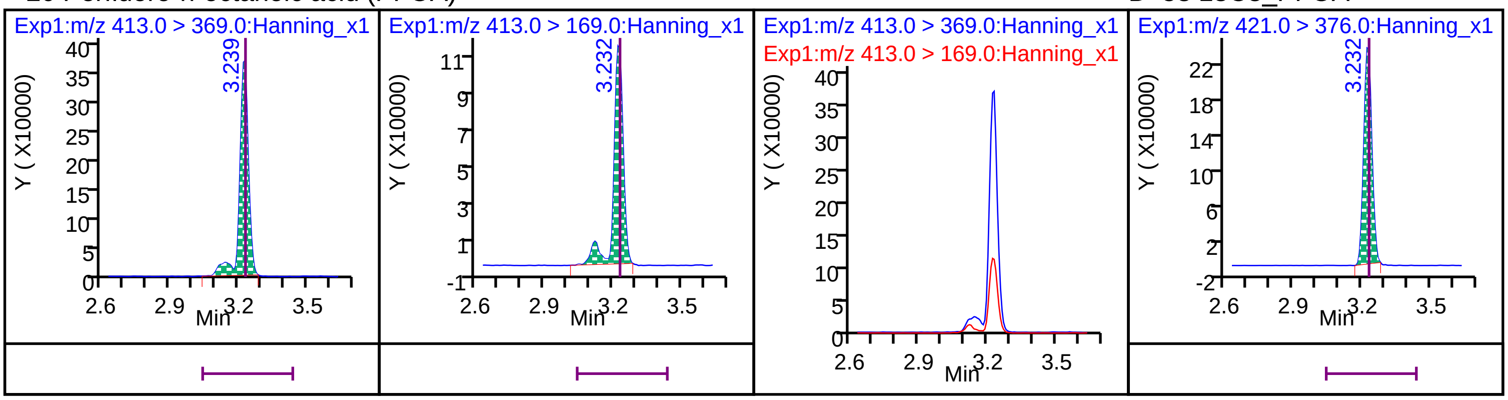


Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d

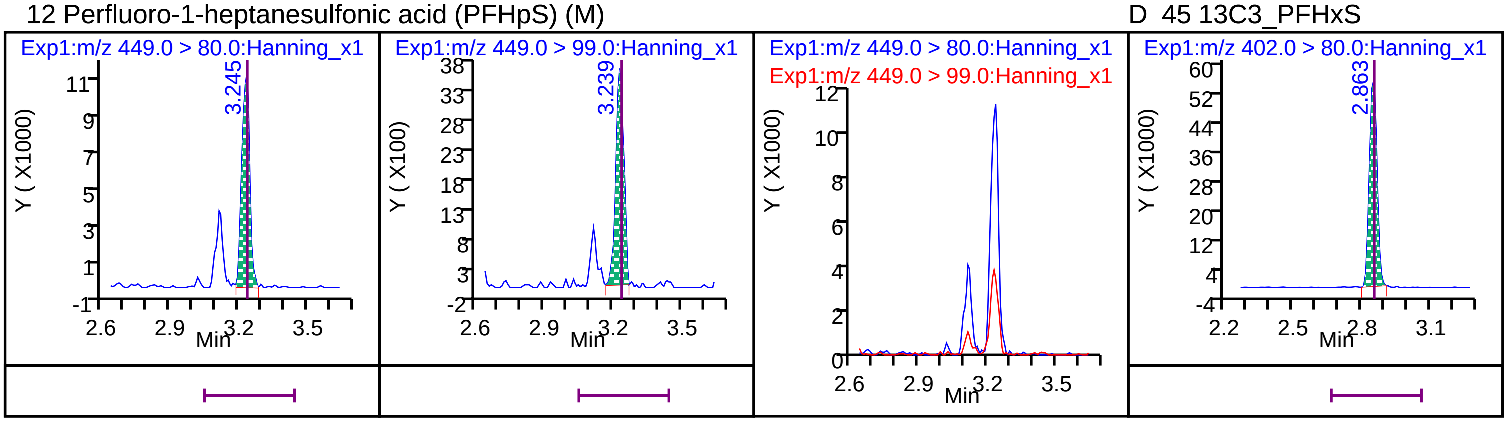
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



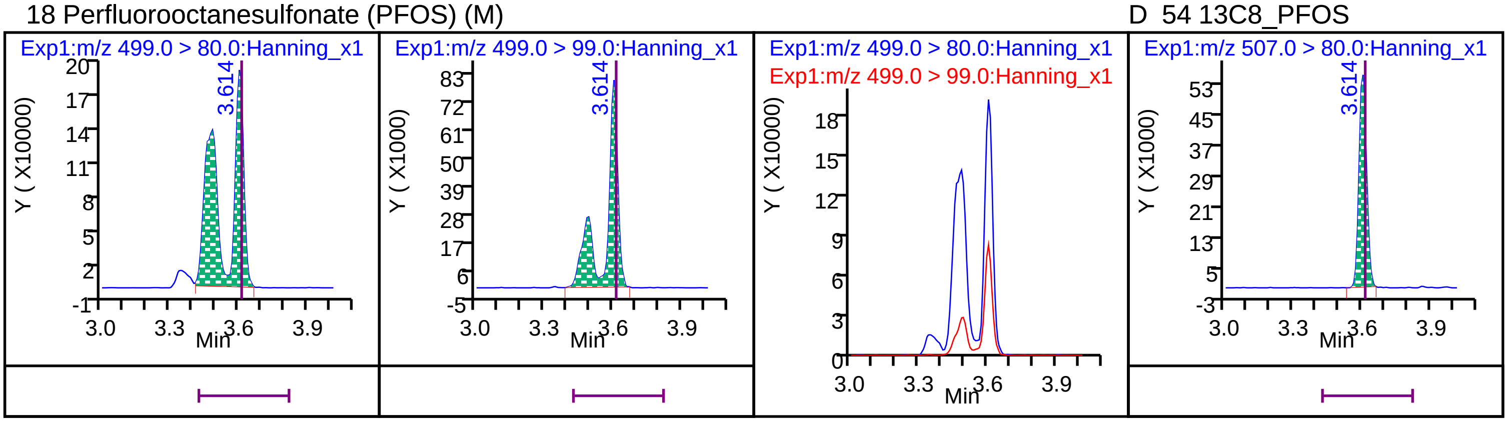
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



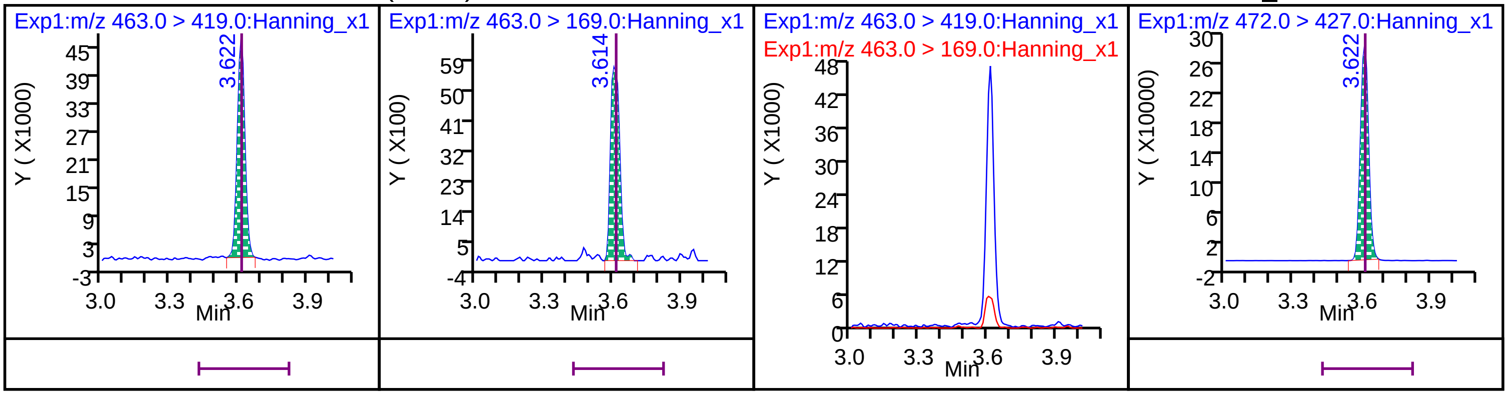
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (M) D 45 13C3_PFHxS



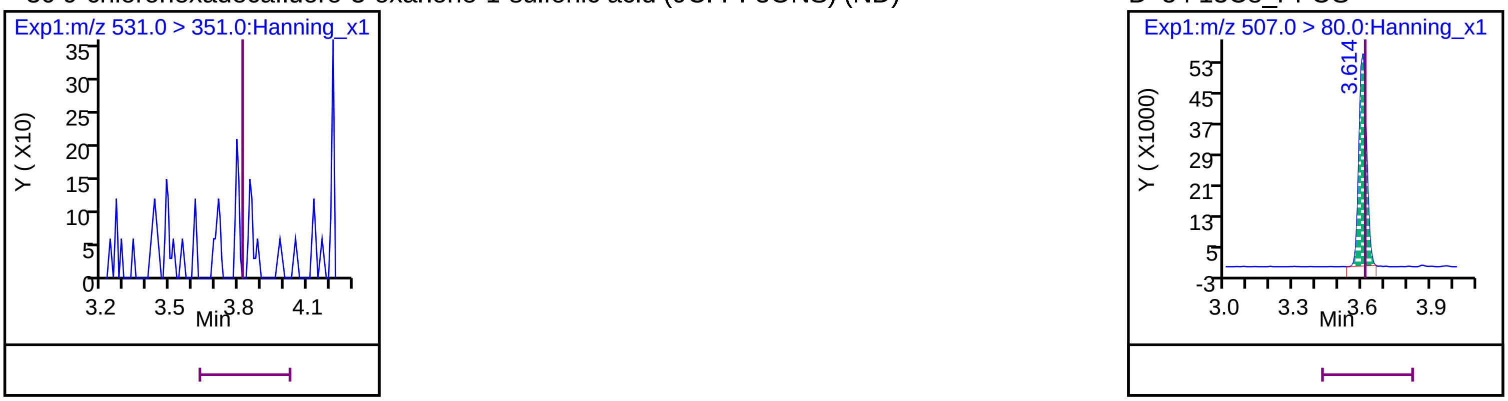
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



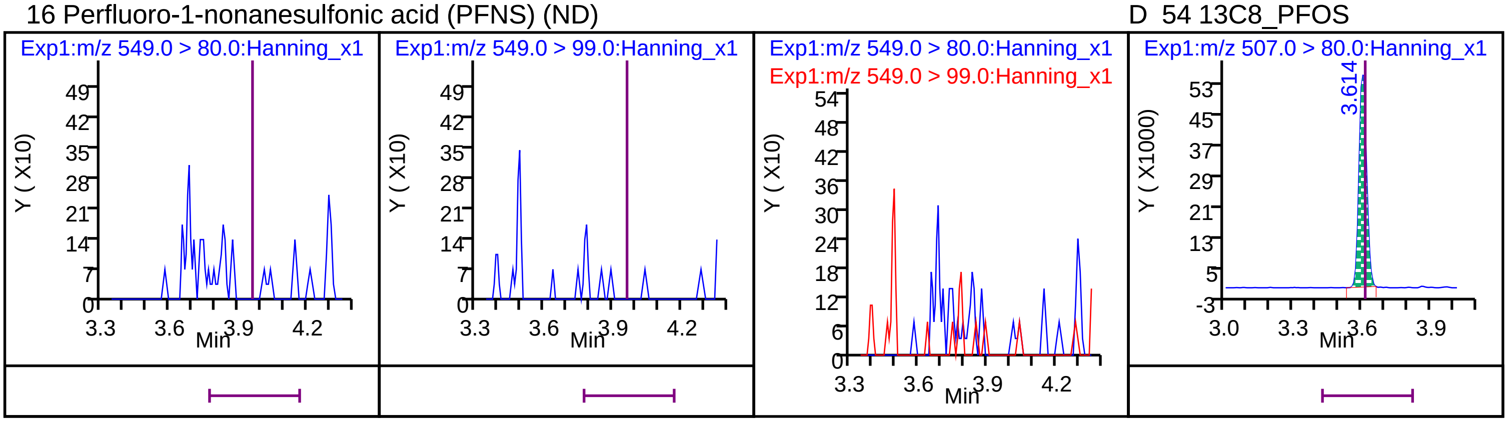
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



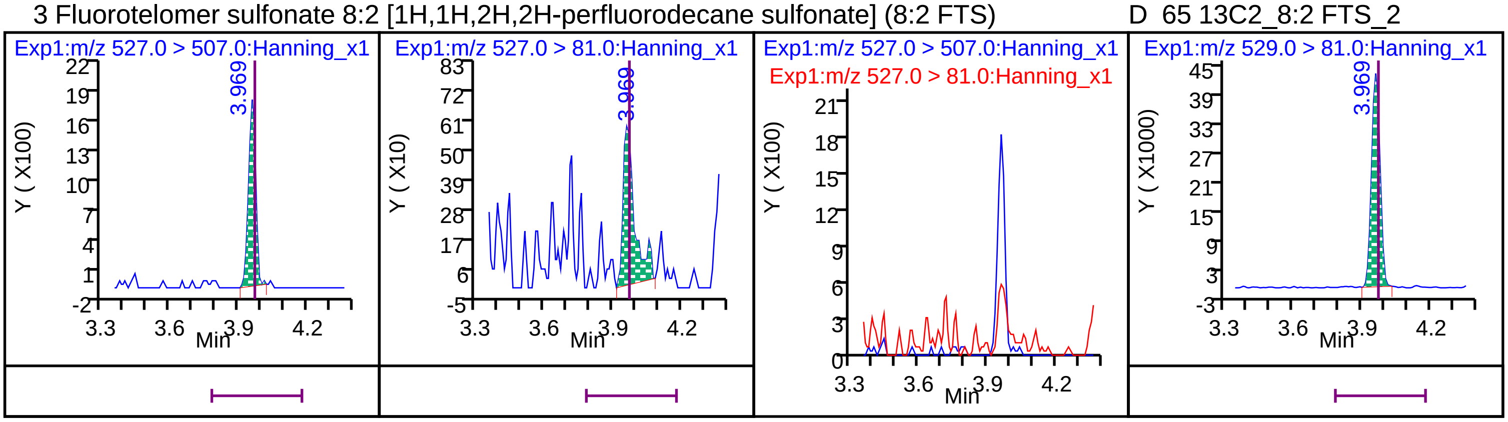
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



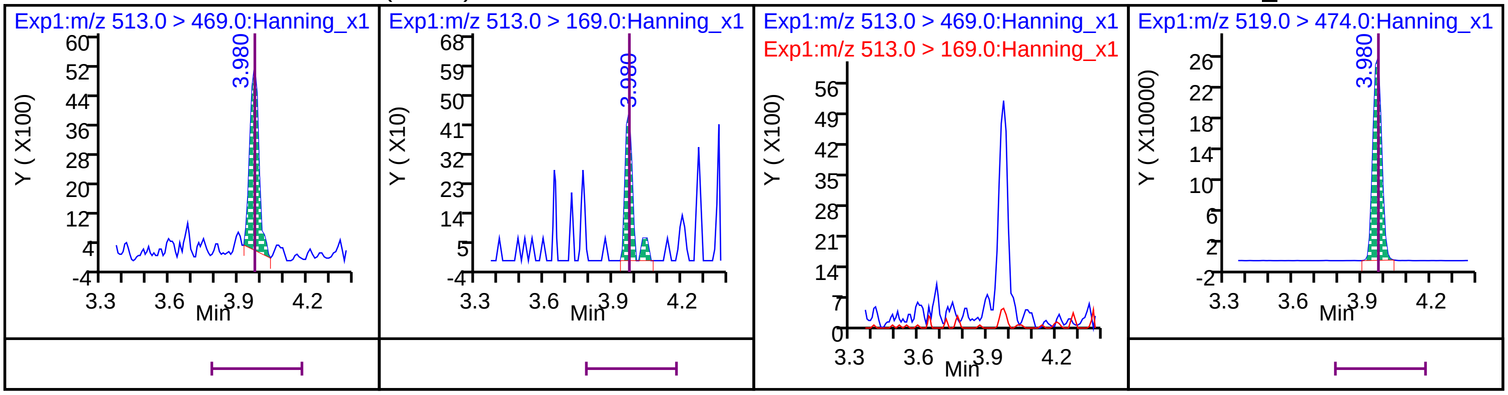
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



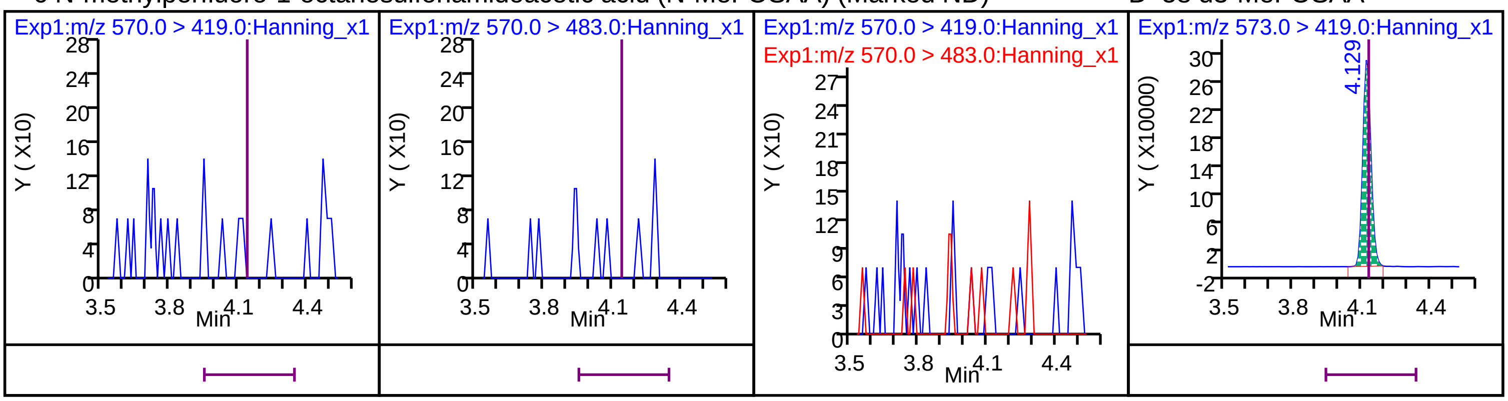
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



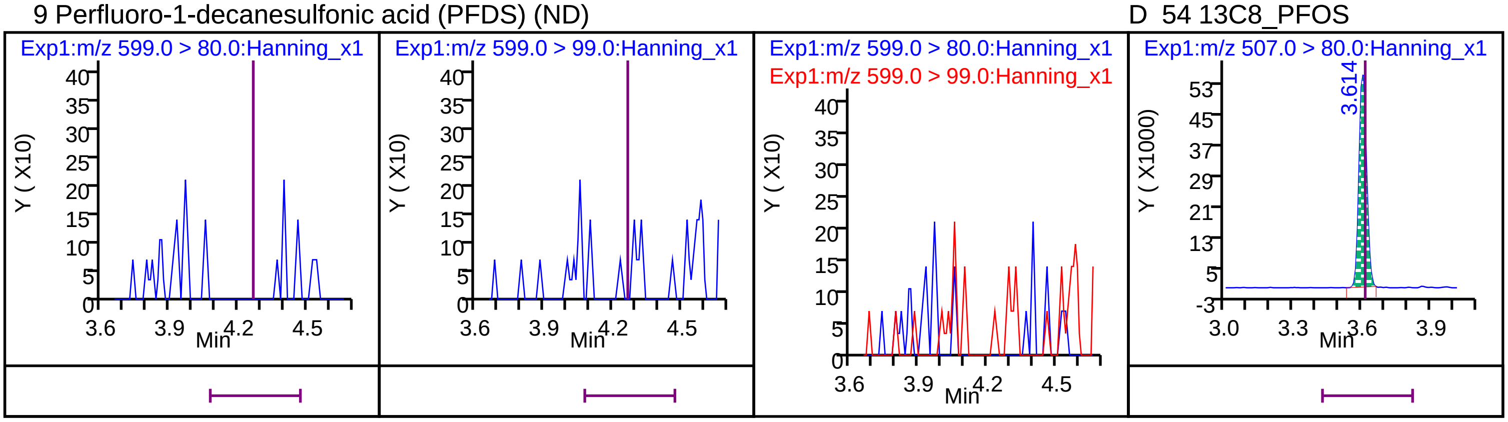
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



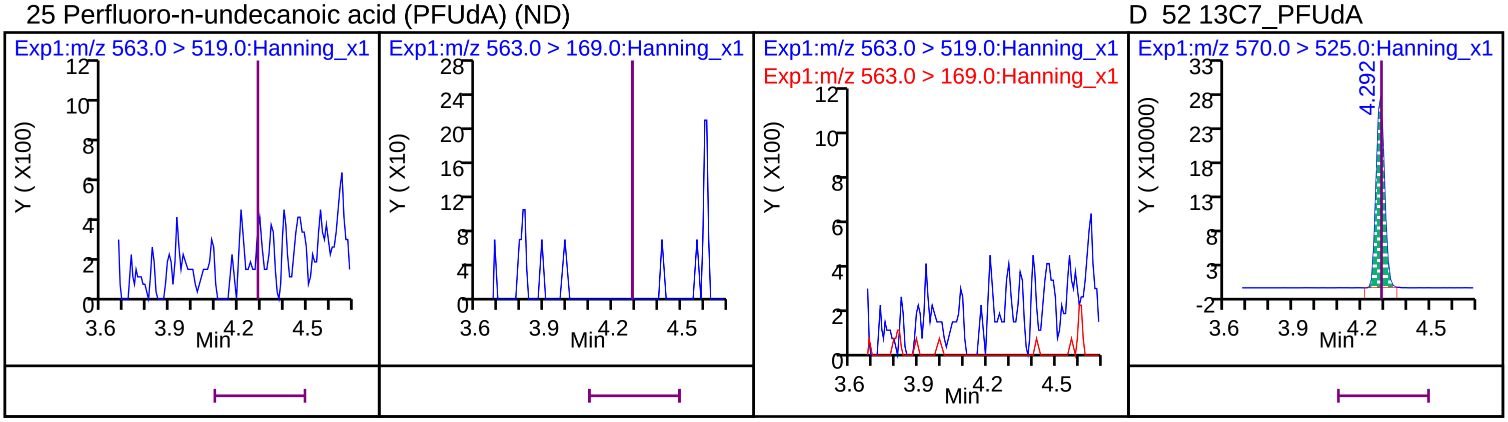
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

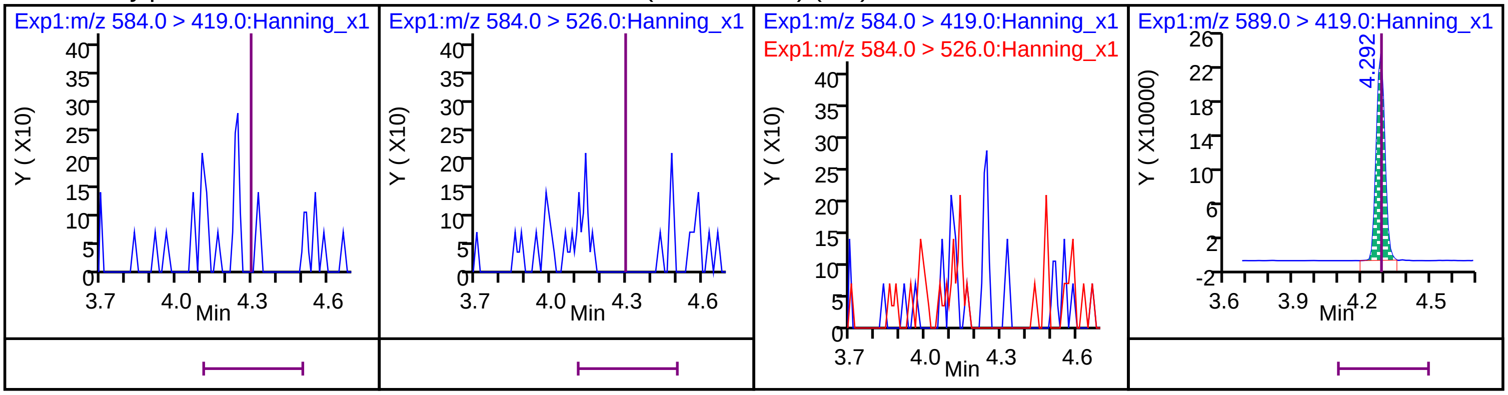


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

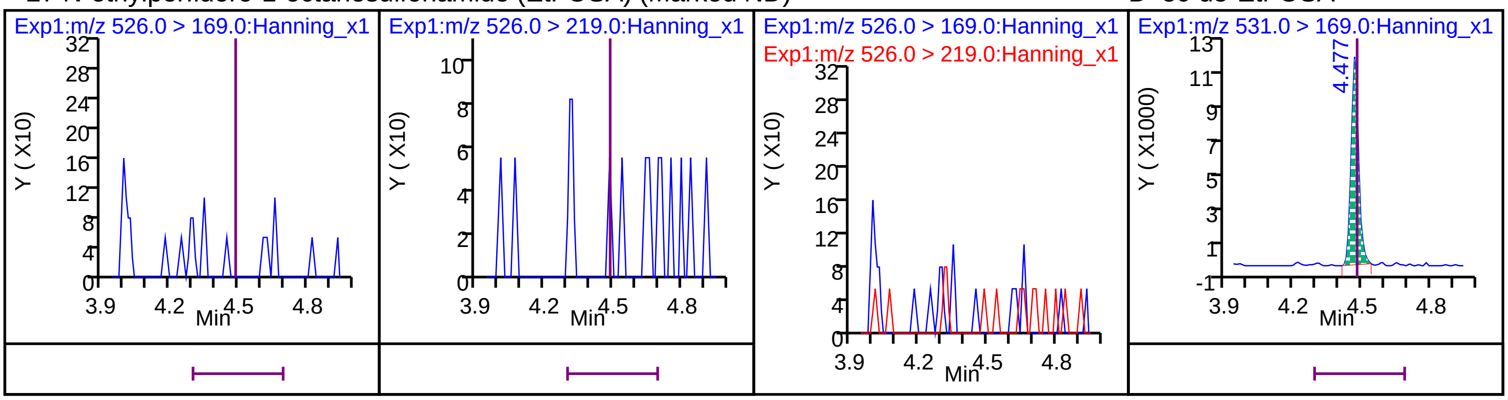


Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d

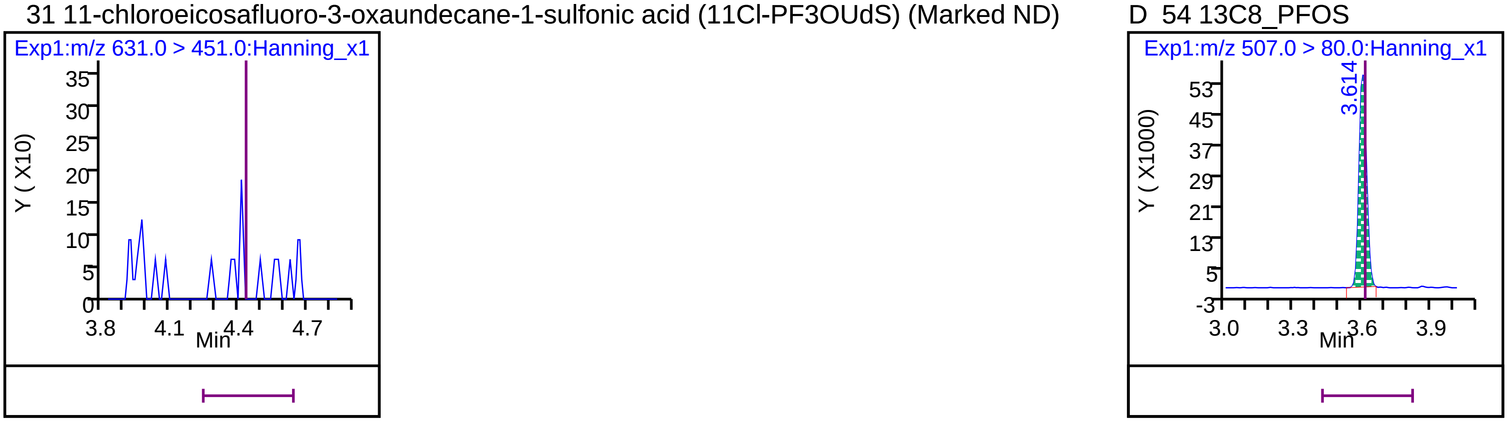
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



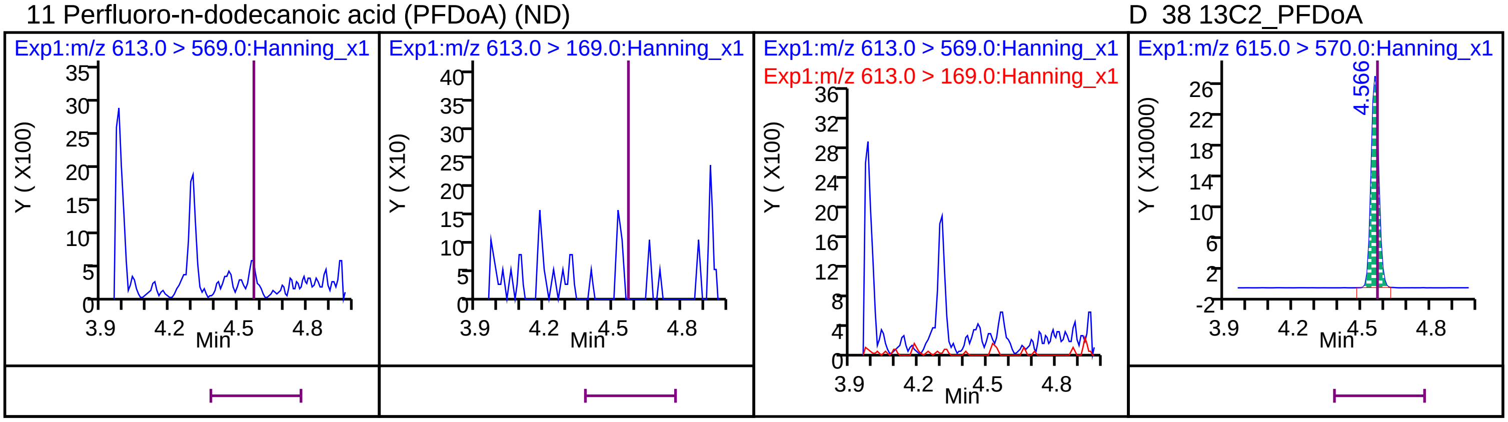
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND) D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



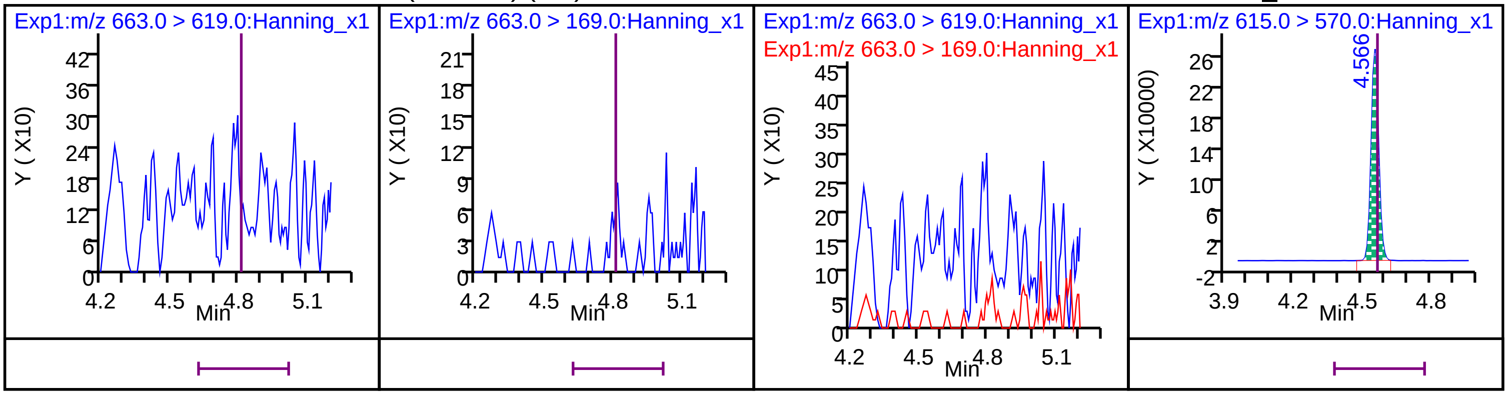
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d

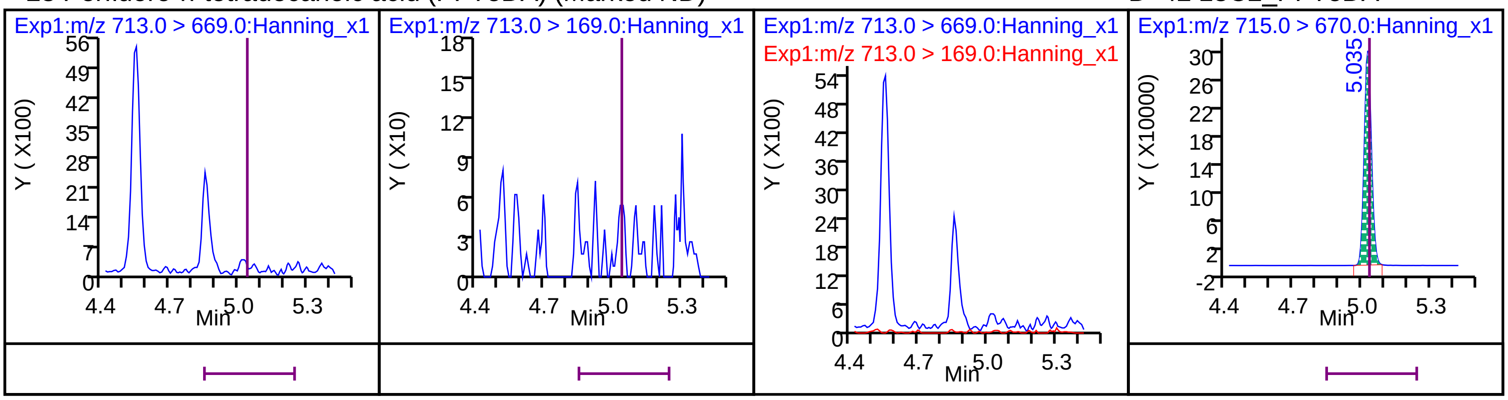
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)

D 38 13C2_PFDoA

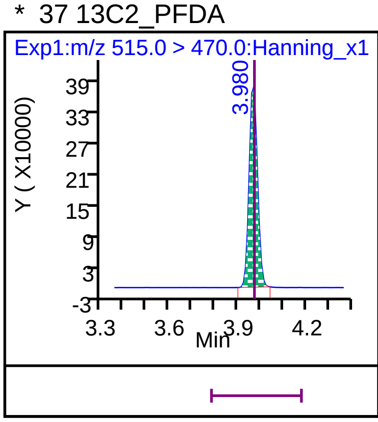


23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND)

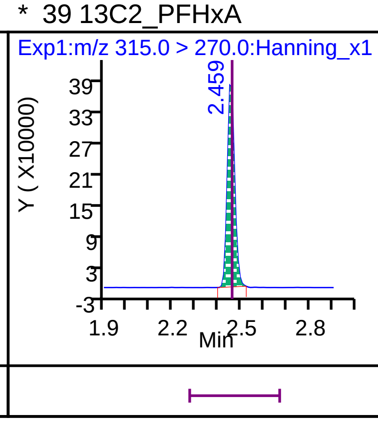
D 42 13C2_PFTeDA



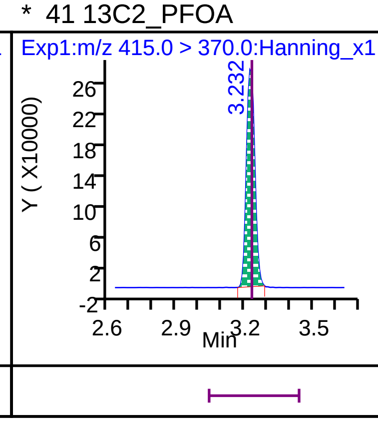
* 37 13C2_PFDA



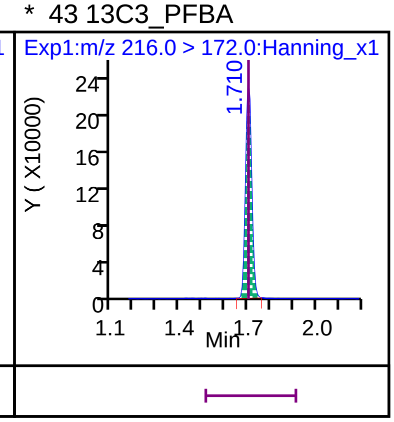
* 39 13C2_PFHxA



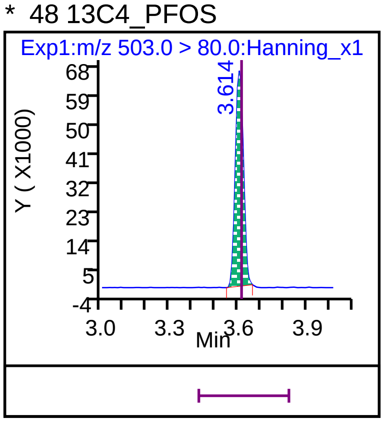
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

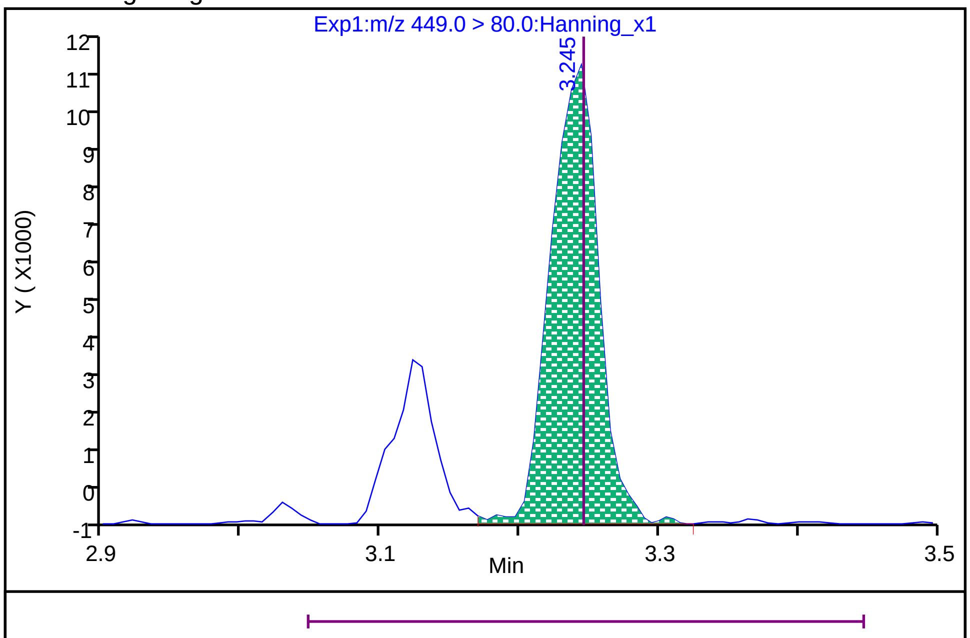
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d		
Injection Date:	09-Nov-2021 22:44:25	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-042.0-20211102	Lab ID:	WK03035-008
Sample Info:	WK03035-008		
Dil. Factor:	1	Operator:	Justin Gavin

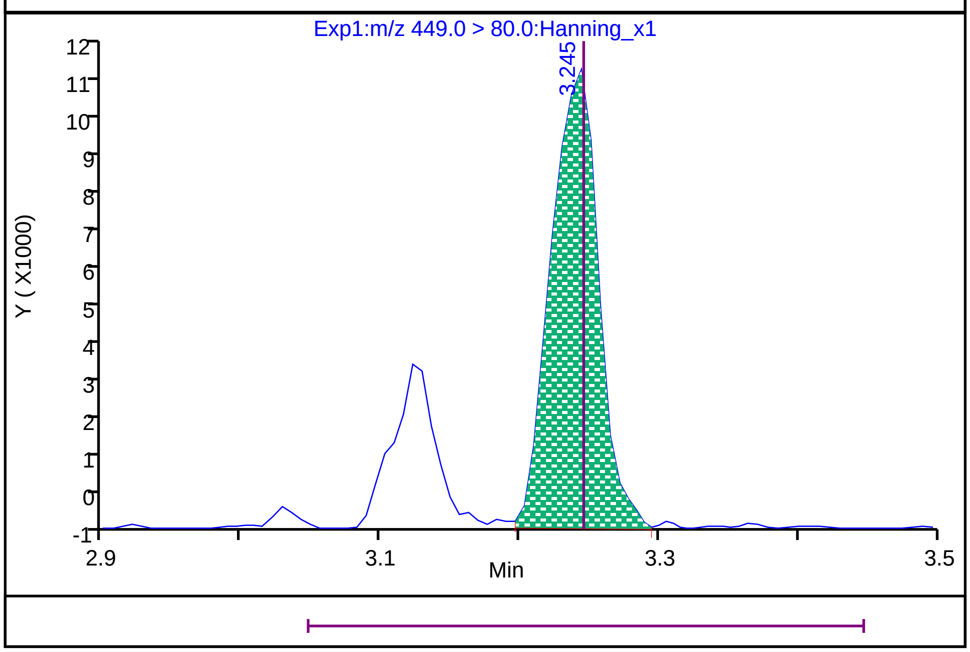
12 PFHpS, CAS: 375-92-8

Processing Integration Results

RT:	3.245
Area:	25473
Conc:	7.4474
Conc Units:	ng/L



RT:	3.245
Area:	25181
Conc:	7.3620
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 17:56:19

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

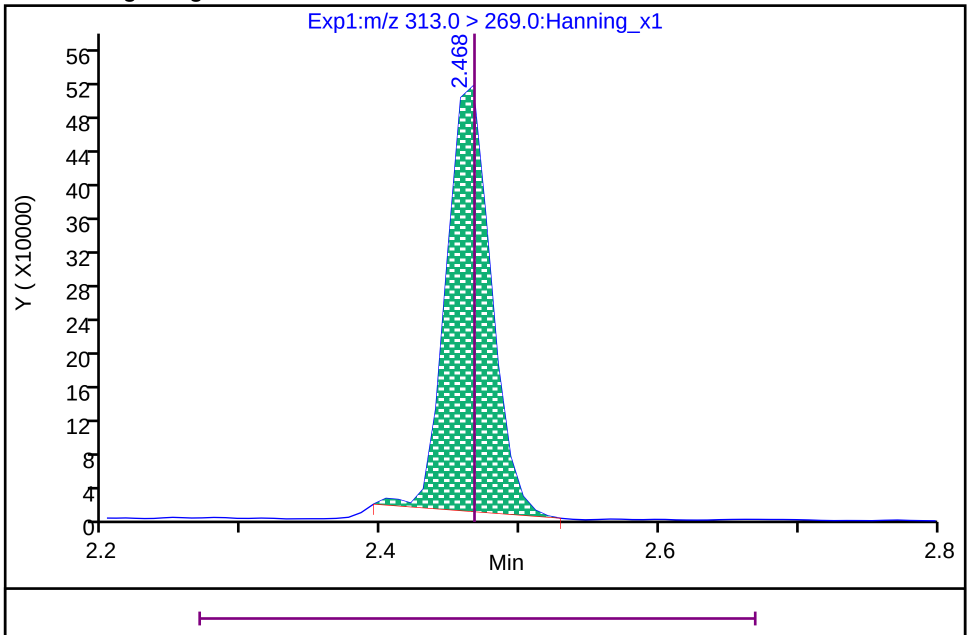
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d
Injection Date:	09-Nov-2021 22:44:25
Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-042.0-20211102
Lab ID:	WK03035-008
Sample Info:	WK03035-008
Dil. Factor:	1
Operator:	Justin Gavin

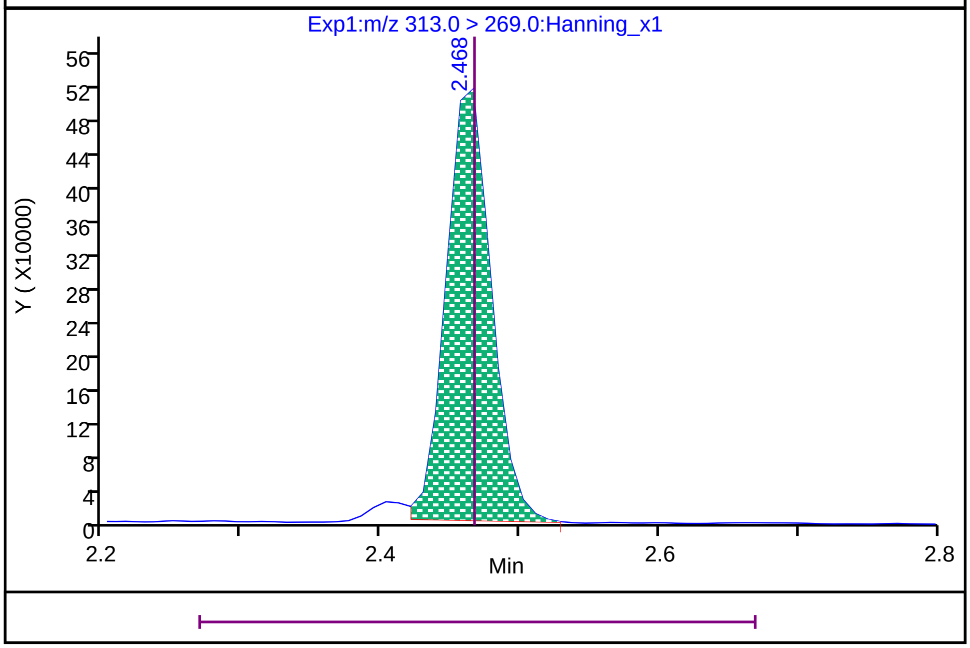
15 PFHxA, CAS: 307-24-4

Processing Integration Results

RT: 2.468
Area: 1123975
Conc: 61.334
Conc Units: ng/L



RT: 2.468
Area: 1152517
Conc: 62.892
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 17:56:07

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921043.d

Injection Date: 09-Nov-2021 22:44:25 Inst. ID: LCMSMS02.i

Client ID: SW3-DPT-0144-042.0-20211102 Lab ID: WK03035-008

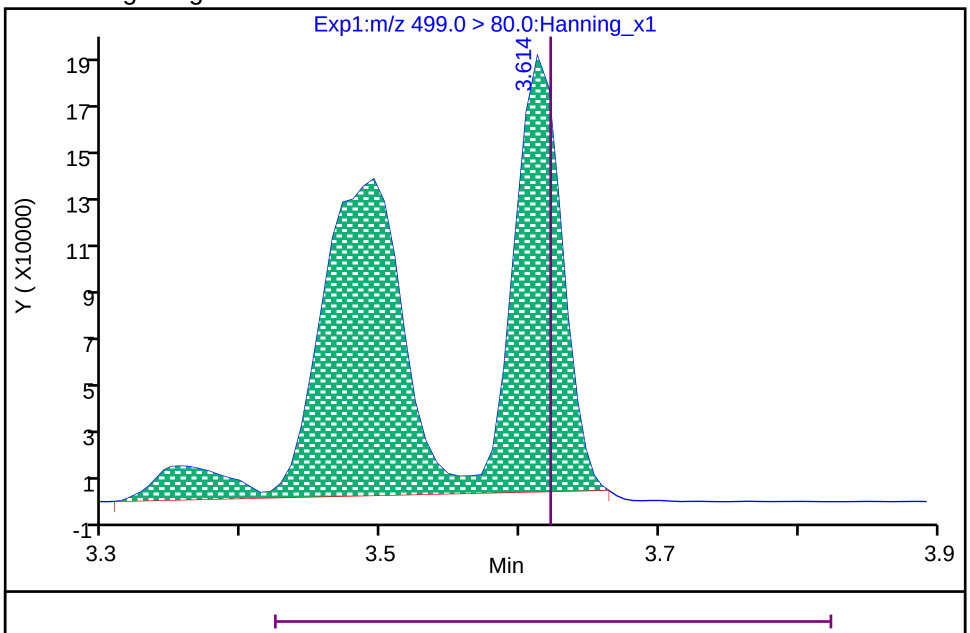
Sample Info: WK03035-008

Dil. Factor: 1 Operator: Justin Gavin

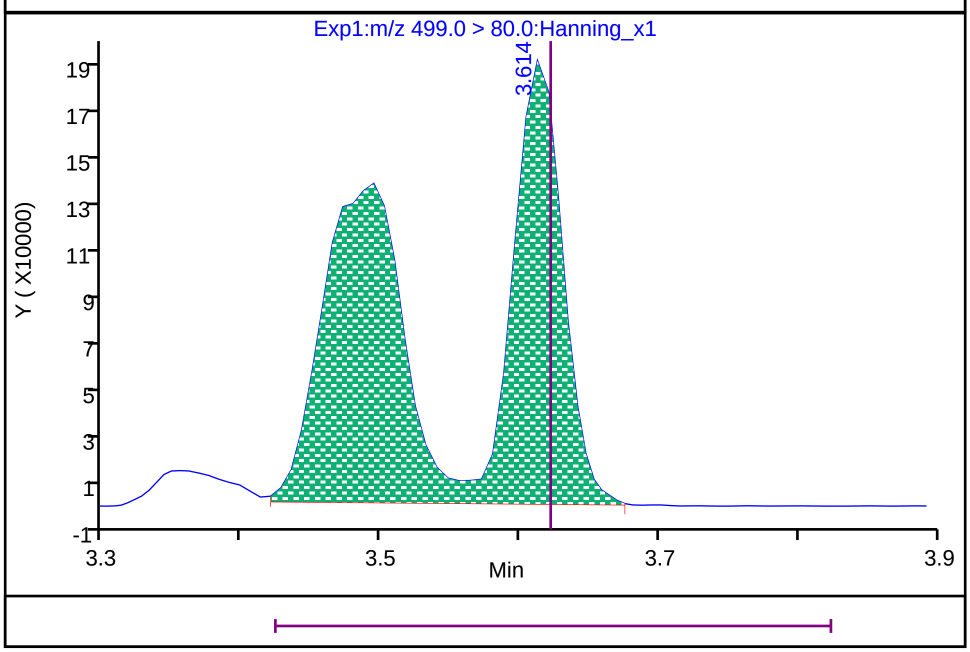
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.614
Area: 1009490
Conc: 264.17
Conc Units: ng/L



RT: 3.614
Area: 986027
Conc: 258.03
Conc Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 17:56:25

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d		
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Sample Type:	Client	Auto Sampler:	15
Lab Sample ID:	WK03035-008	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-042.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-008	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0373776

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	294	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	531464	16	>100:1			1001.00	493.59	45.1*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	1/1	248770	17	89:1			426.03	15.924		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	1	852974	15	>100:1			1001.00	850.50	79.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	1/0	1126957	12	92:1			1234.35	46.137		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	316688	12	>100:1			1001.00	975.12	93.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	179106	13	98:1	Target = 3.80		396.27	14.812		
298.9 > 99	44	2.131	2.141		50870	14	73:1	3.52 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.485	2.502	0/-1	108882	12	>100:1	Target = 3.42		342.04	12.785		
349 > 99	44	2.485	2.502		31505	13	48:1	3.45 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	1	490110	14	>100:1			5005.00	11799	216.6*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.415	2.424	1/0	20216	15	>100:1	Target = 1.54		105.78	3.9537		
327 > 81	63	2.415	2.424		19439	19	12:1	1.03 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.468	1	900149	15	>100:1			1001.00	1007.74	89.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.468	1/0	1372816	16	>100:1	Target = 17.93		1477.45	55.224		
313 > 119	49	2.459	2.468		76069	14	>100:1	18.04 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.587	0	720361	16	>100:1			5005.00	4397.29	77.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.594		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.855	1	996340	16	>100:1			1001.00	1137.12	102	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.855	1/0	614673	14	>100:1	Target = 3.26		641.50	23.978		
363 > 169	47	2.846	2.855		206760	14	>100:1	2.97 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	1	304779	16	>100:1			1001.00	1162.04	102.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	1/0	1071063	25	>100:1	Target = 3.48	6.88	2975.71	111.22		
399 > 99	45	2.855	2.872		280217	25	>100:1	3.82 (1.74-5.22)	9.26				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.898		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.223	3.239	1/0	57918	21	>100:1	Target = 3.56		184.94	6.9128		
449 > 99	45	3.223	3.239		16720	20	>100:1	3.46 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.214	1	311768	19	>100:1			5005.00	8267.28	149.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.198	3.208	1/0	604719	21	>100:1	Target = 1.34		5583.19	208.69		
427 > 81	64	3.198	3.208		439317	20	>100:1	1.37 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.217	3.239	0	880182	20	>100:1			1001.00	1064.31	96.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.223	3.239	1/1	1451185	33	>100:1	Target = 2.50	10.47	1604.00	59.954		
413 > 169	53	3.223	3.239		591152	33	>100:1	2.45 (1.25-3.75)	8.79				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.606	0	242135	17	>100:1			1001.00	1078.65	99.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.581	3.614	-1/-1	1984549	40	>100:1	Target = 4.01	0.84	6959.51	260.13		M
499 > 99	54	3.581	3.614		454216	37	>100:1	4.36 (2.00-6.02)	2.10				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.811		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.948		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.250		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.402		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	841062	20	>100:1			1001.00	1052.62	97.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.614	0/0	103952	19	>100:1	Target = 4.69		135.86	5.0783		
463 > 169	56	3.588	3.614		22741	16	45:1	4.57 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.926	3.948	1	186166	17	>100:1			5005.00	5931.60	109	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													J
527 > 507	65	3.919	3.948	0/-1	4470	12	45:1	Target = 1.58		67.642	2.5283		
527 > 81	65	3.926	3.948		3463	14	4.4:1	1.29 (0.79-2.37)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.956	0	769534	18	>100:1			1001.00	1066.13	96.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.964		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	938113	16	>100:1			5005.00	5290.72	106.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.112		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	766827	16	>100:1			1001.00	1122.04	102	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.268		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.268	0	765216	16	>100:1			5005.00	5117.45	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.277		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.441	4.454	0	49470	25	>100:1			1001.00	768.11	70.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.461		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.541	0	638281	18	>100:1			1001.00	928.22	92	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.541		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.784		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.960	5.000	0	625601	23	>100:1			1001.00	800.25	67.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.003		ND								
*** 37 13C2_PFDA**													
515 > 470		3.926	3.956	0	539023	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	1	607282	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.239	1	609822	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	1	347492	16	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	192103	18	>100:1			200.00			

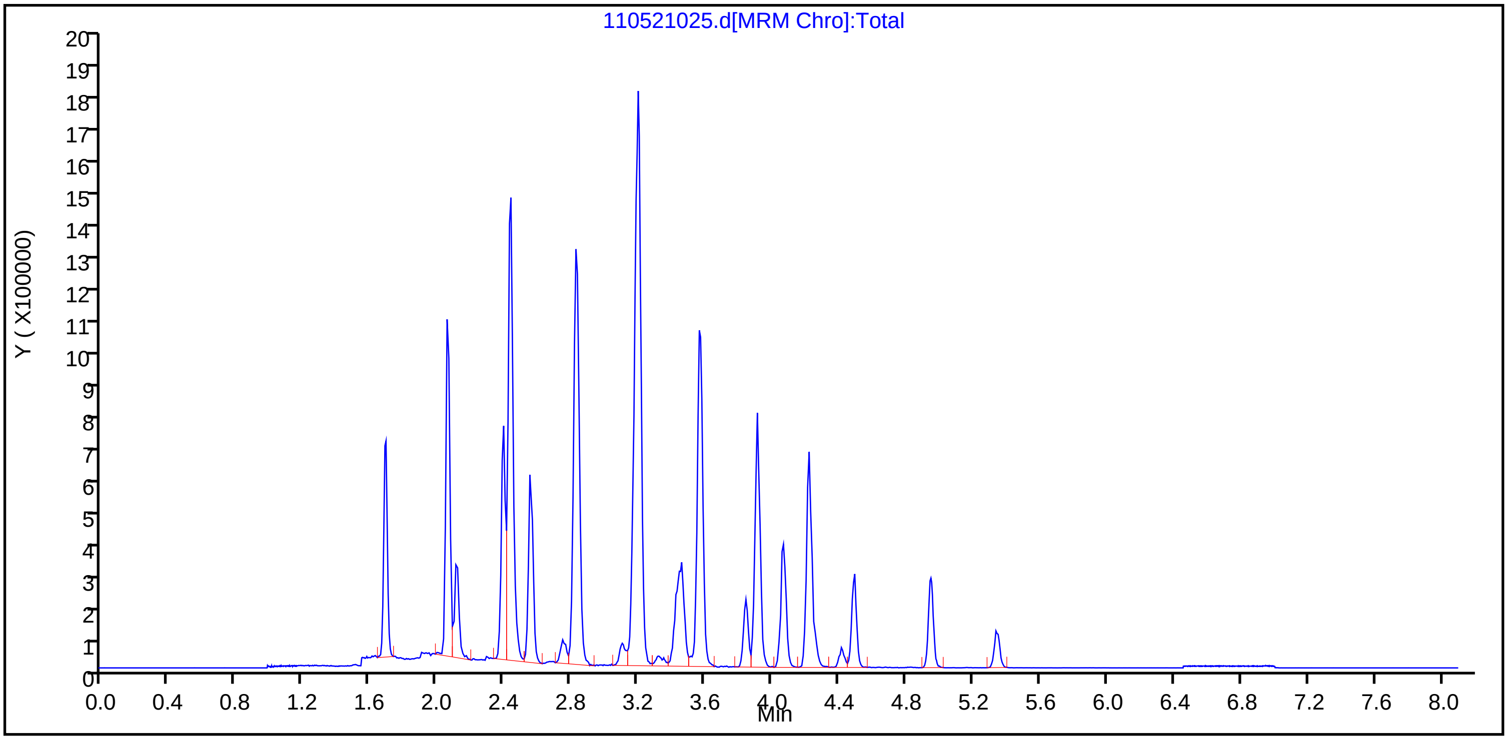
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

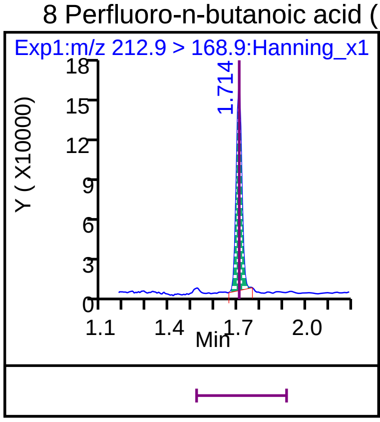
Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

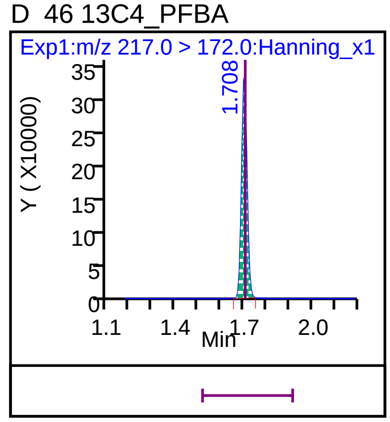
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d		
Injection Date:	05-Nov-2021 15:45:31	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-042.0-20211102	Lab ID:	WK03035-008
Sample Info:	WK03035-008		
Dil. Factor:	1	Operator:	Matthew M. Miller



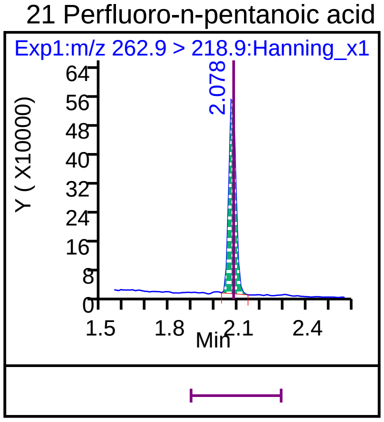
8 Perfluoro-n-butanoic acid (PFBA)



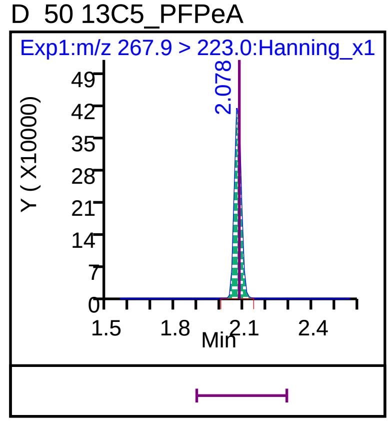
D 46 13C4_PFBA



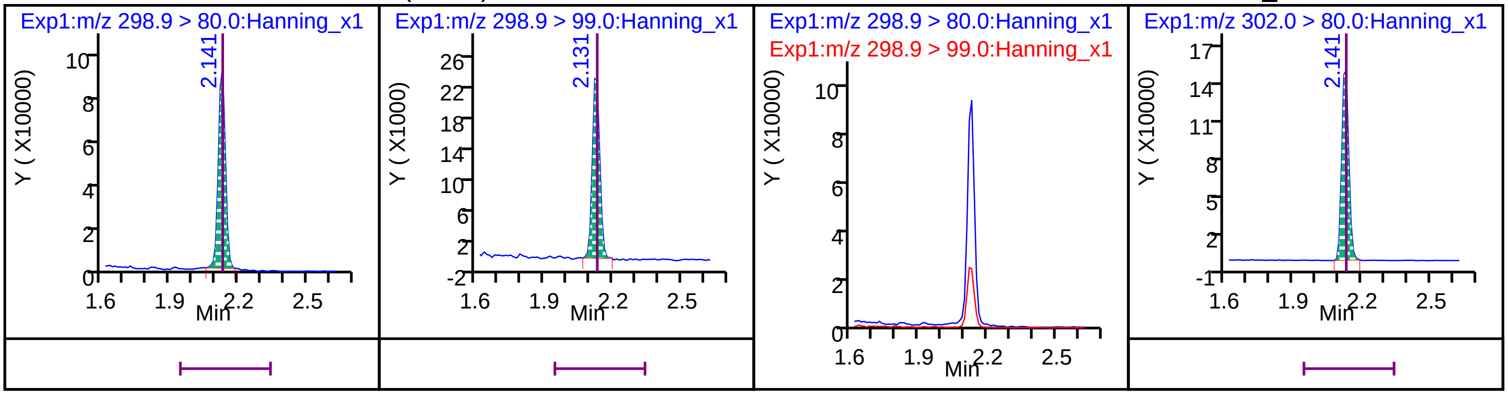
21 Perfluoro-n-pentanoic acid (PFPeA)



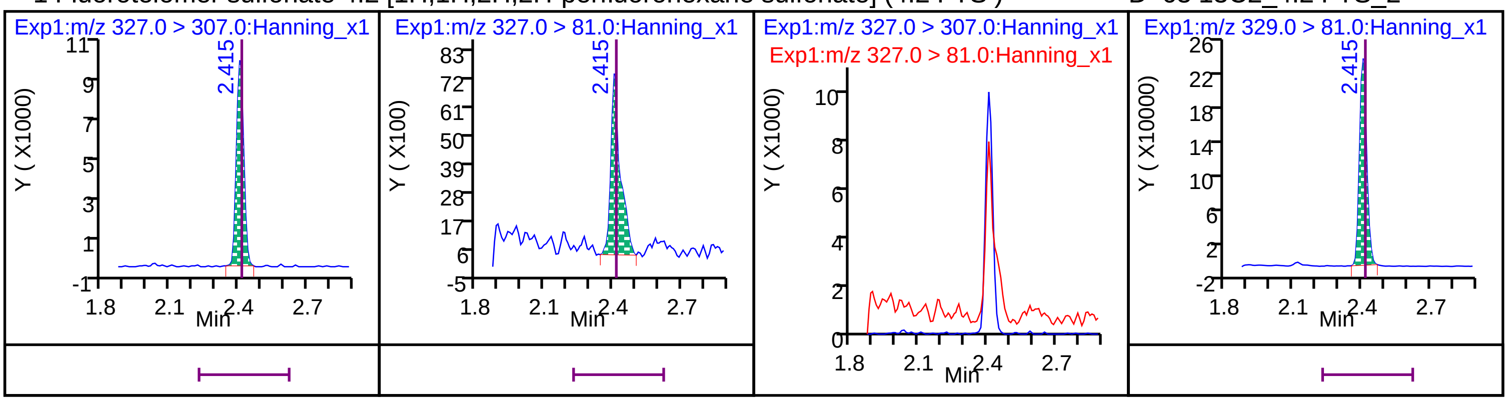
D 50 13C5_PFPeA



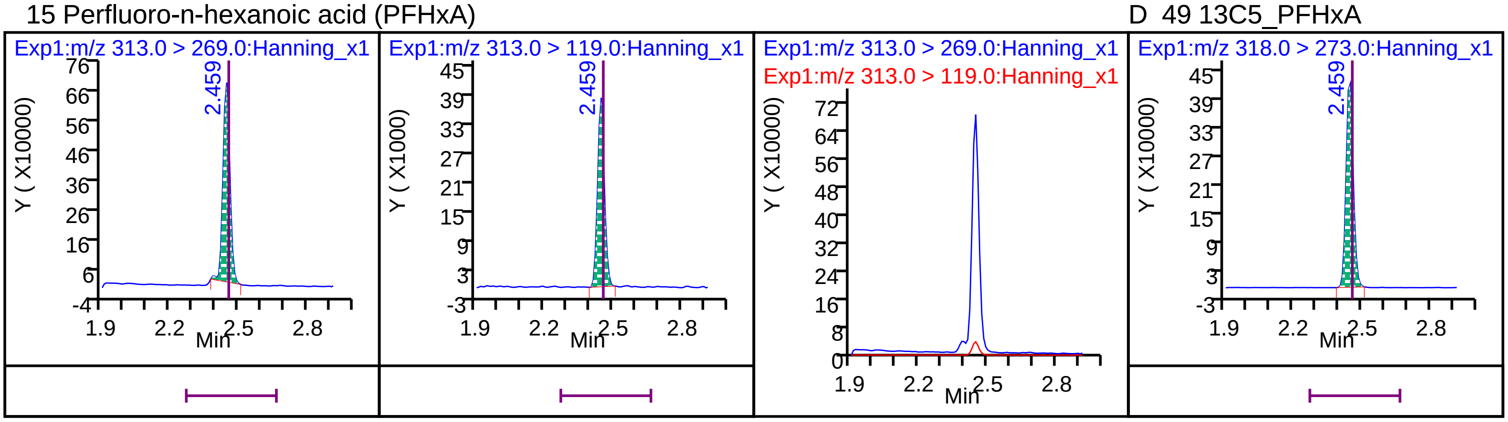
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



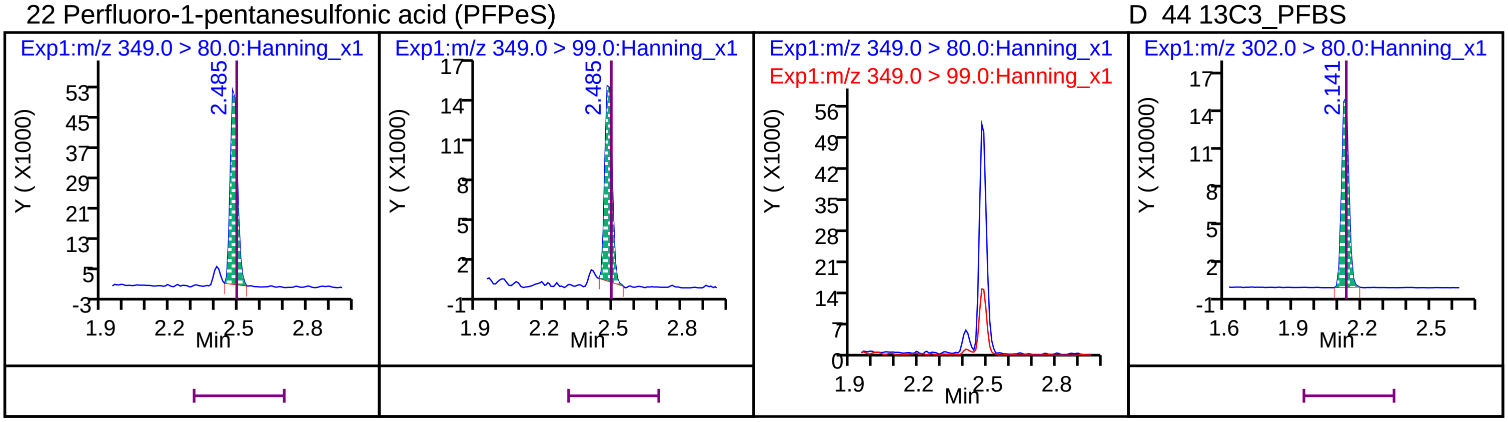
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



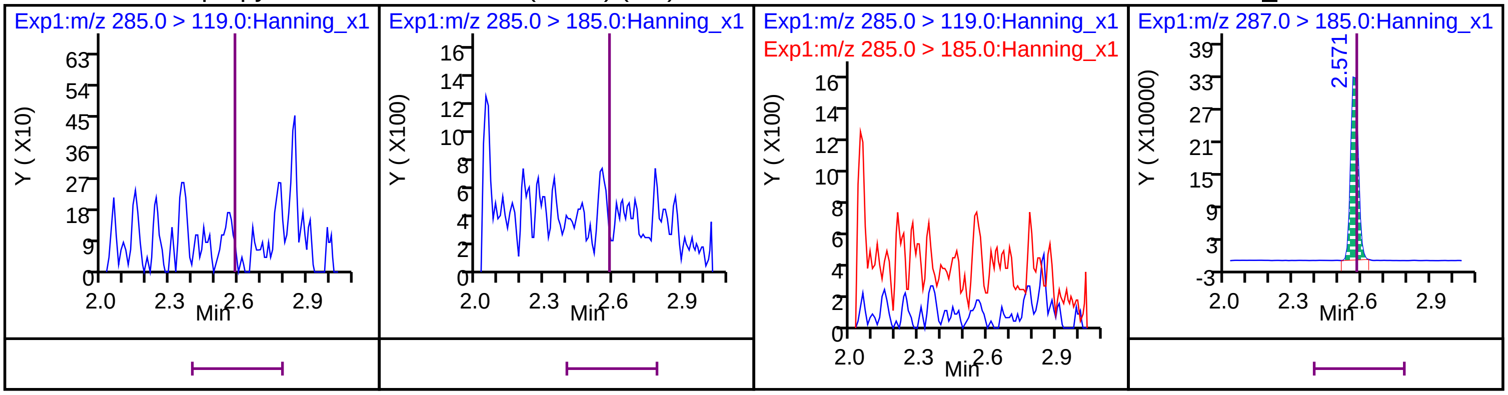
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



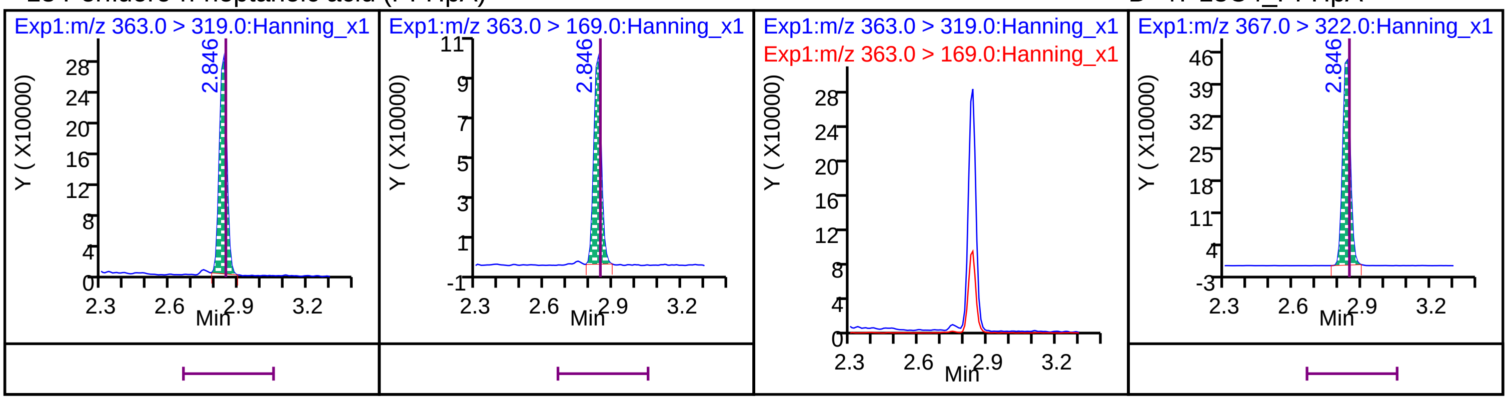
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



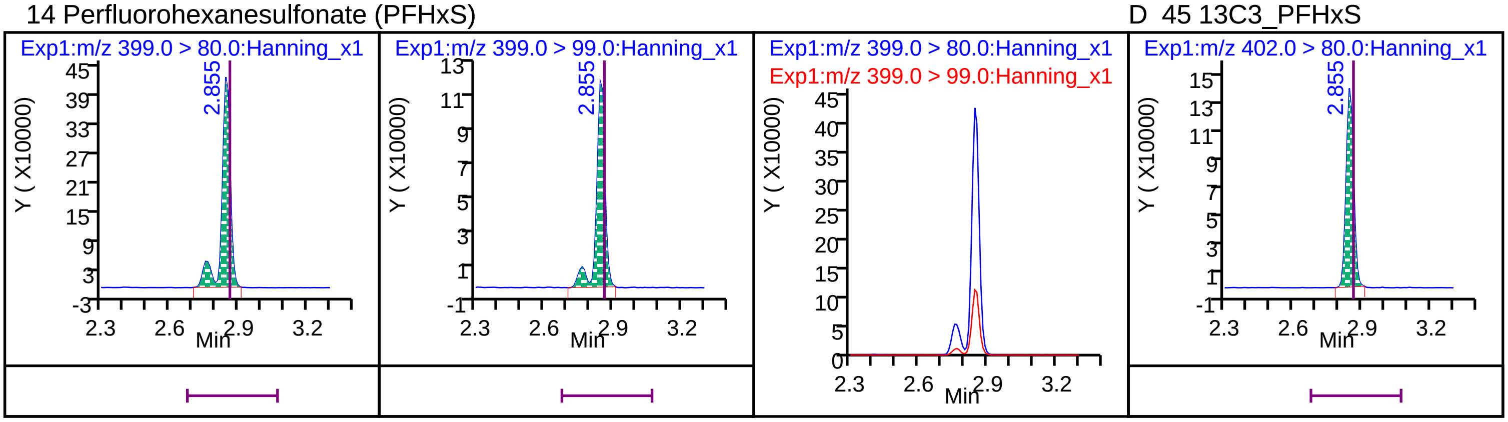
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



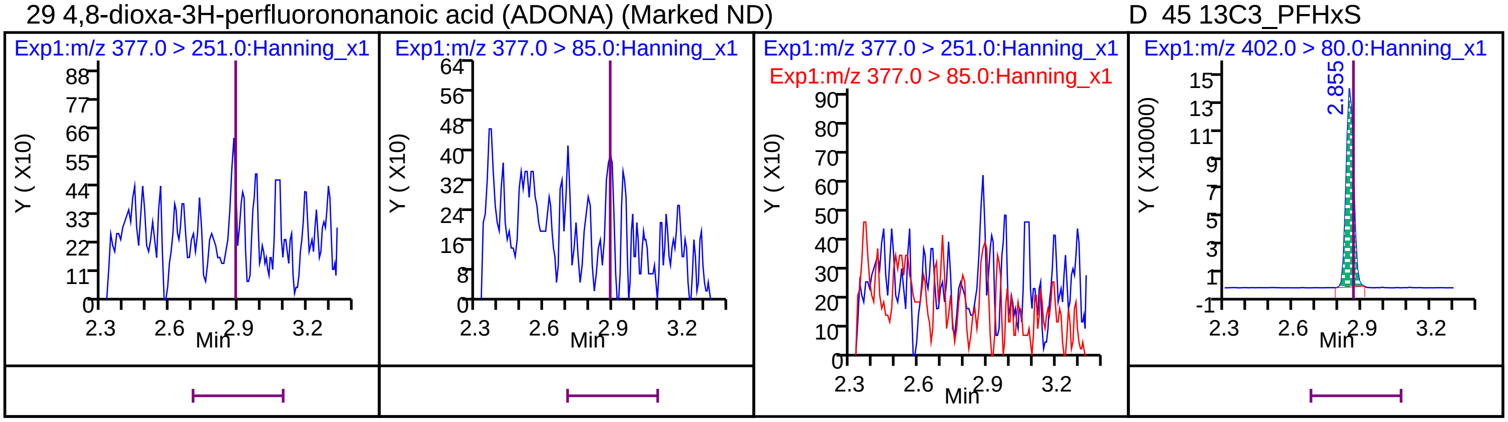
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (Marked ND) D 45 13C3_PFHxS



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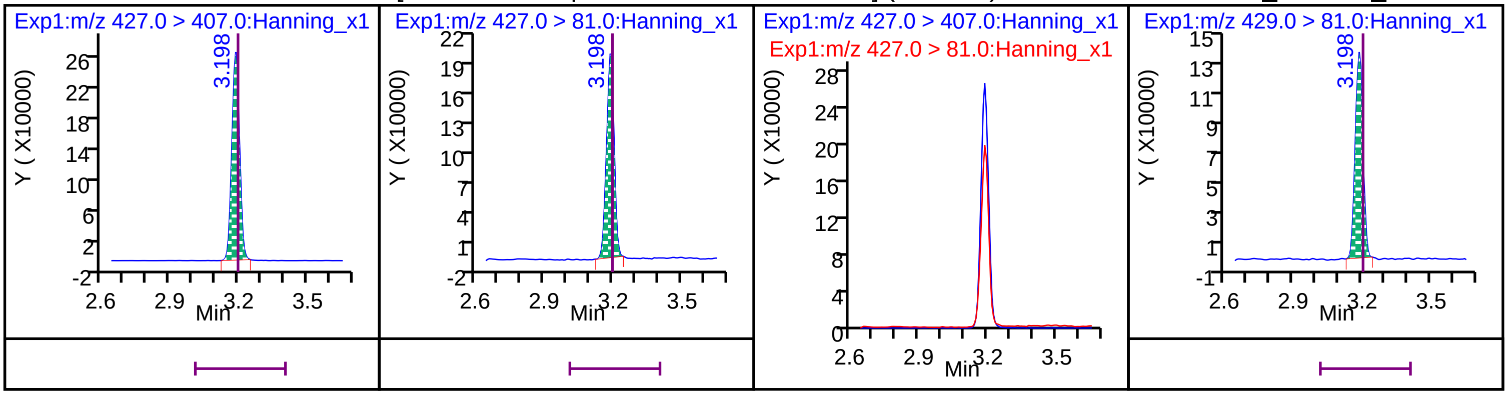
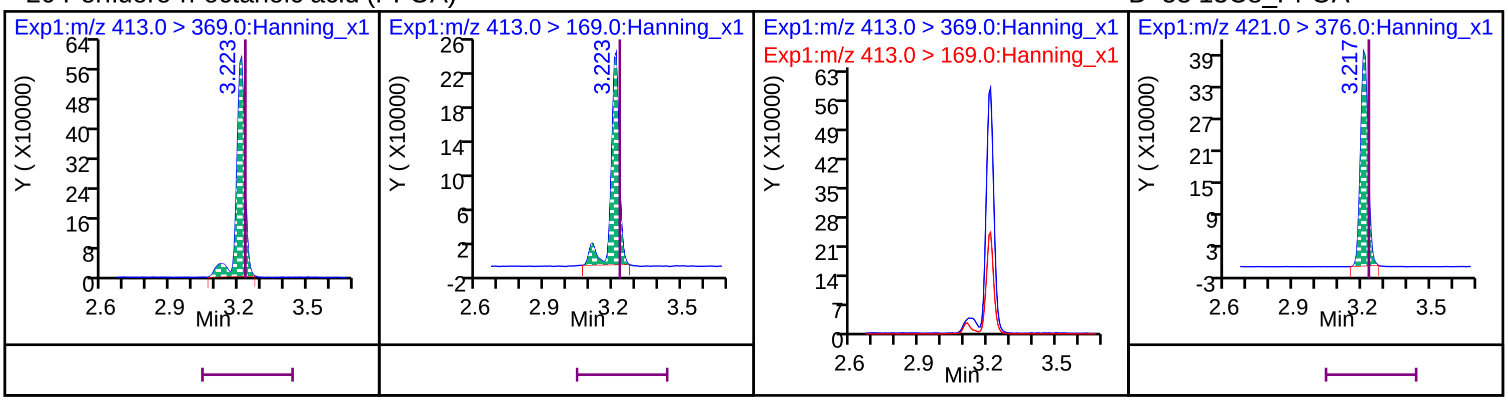
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d

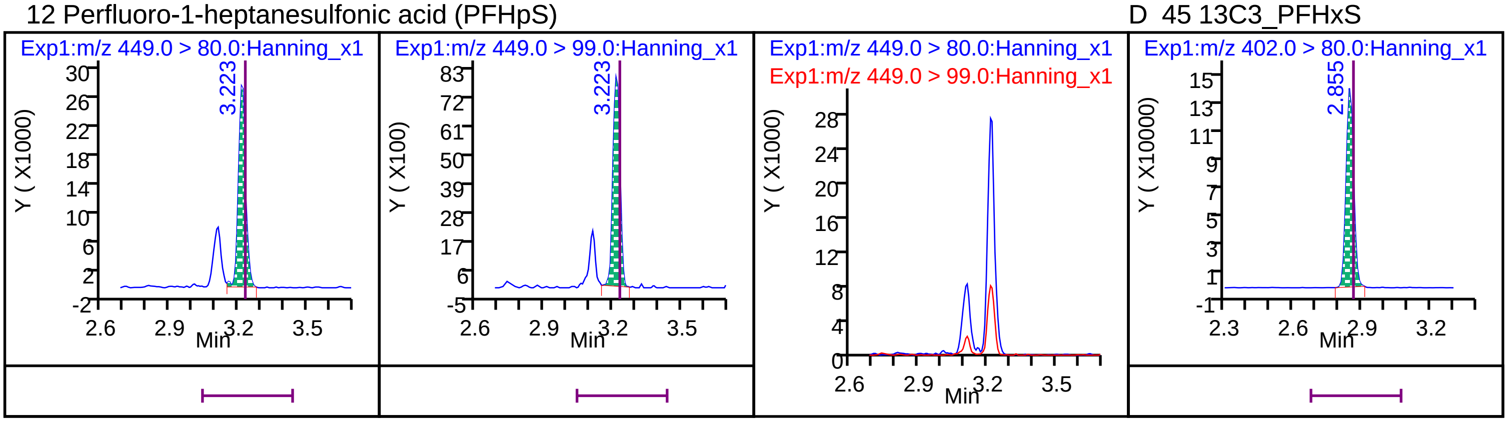
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



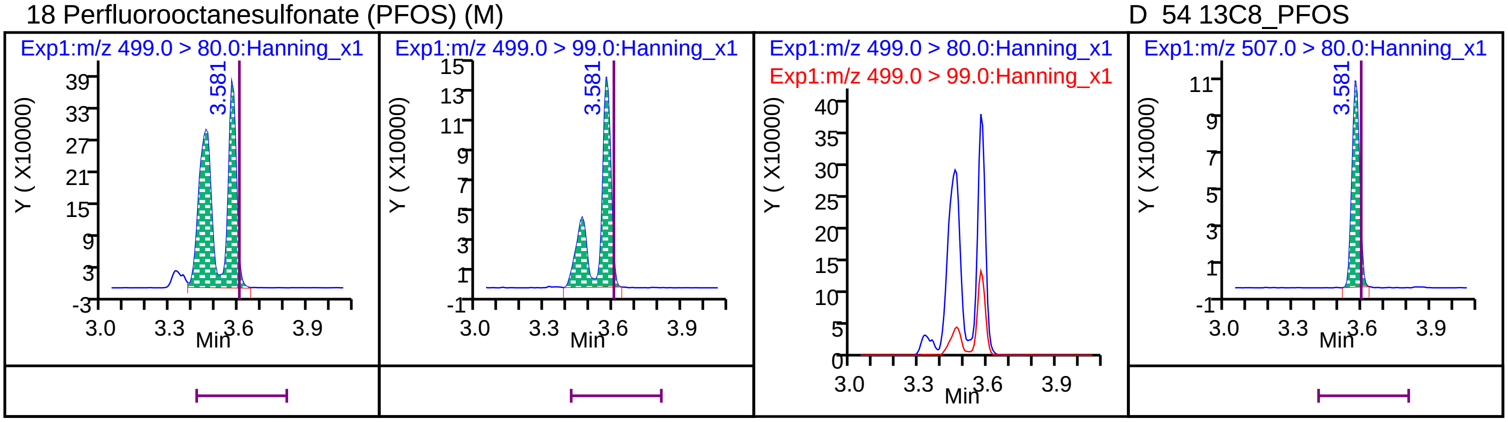
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



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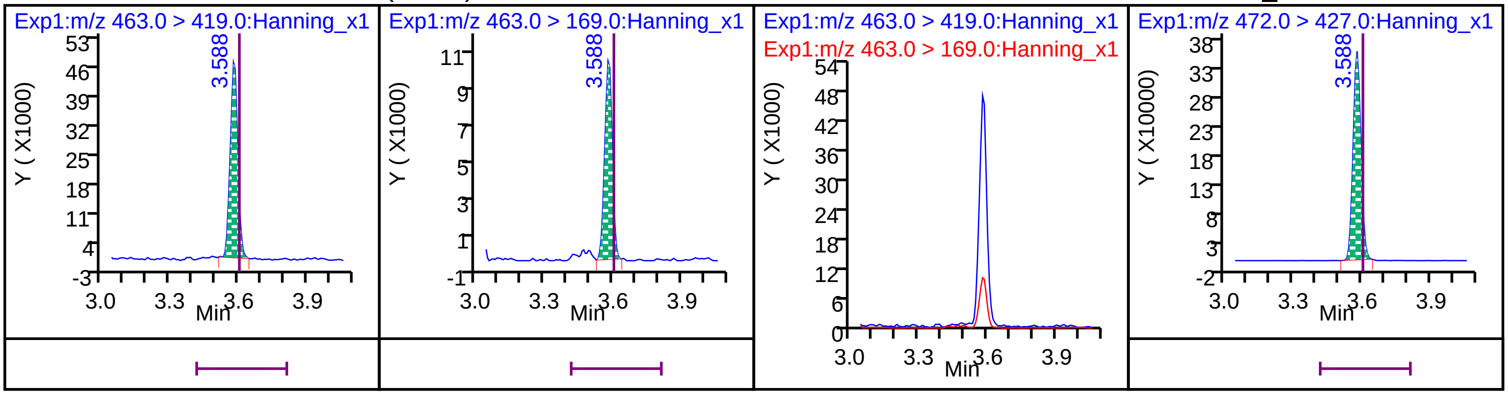
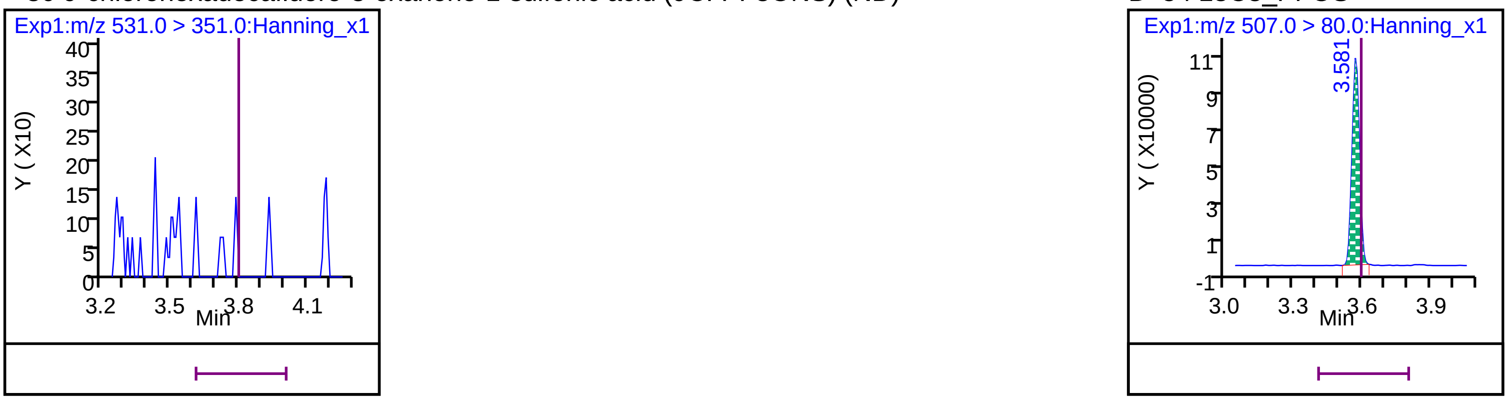
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d

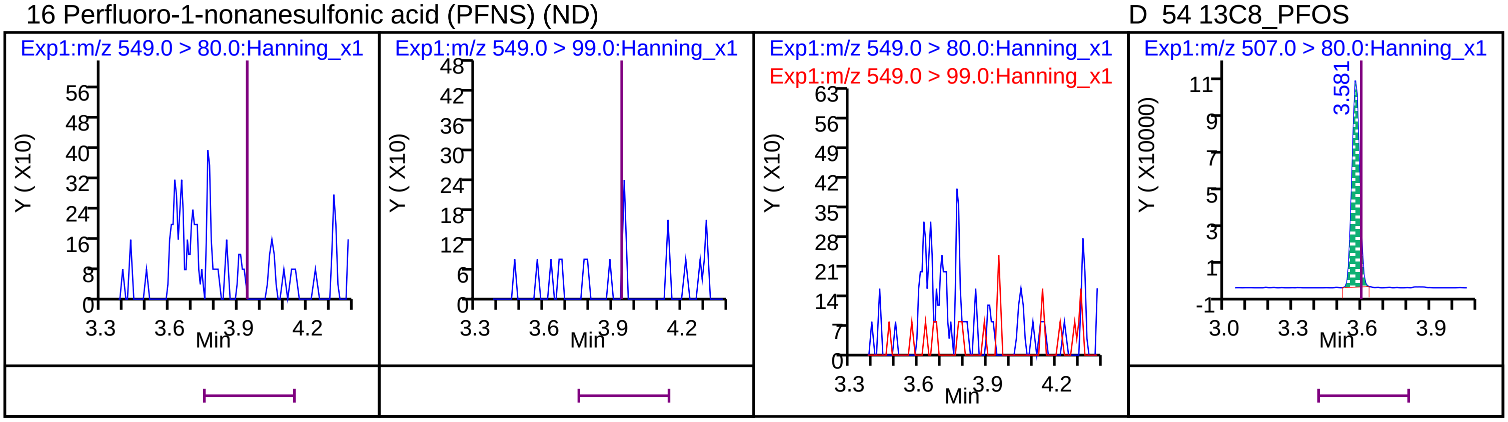
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



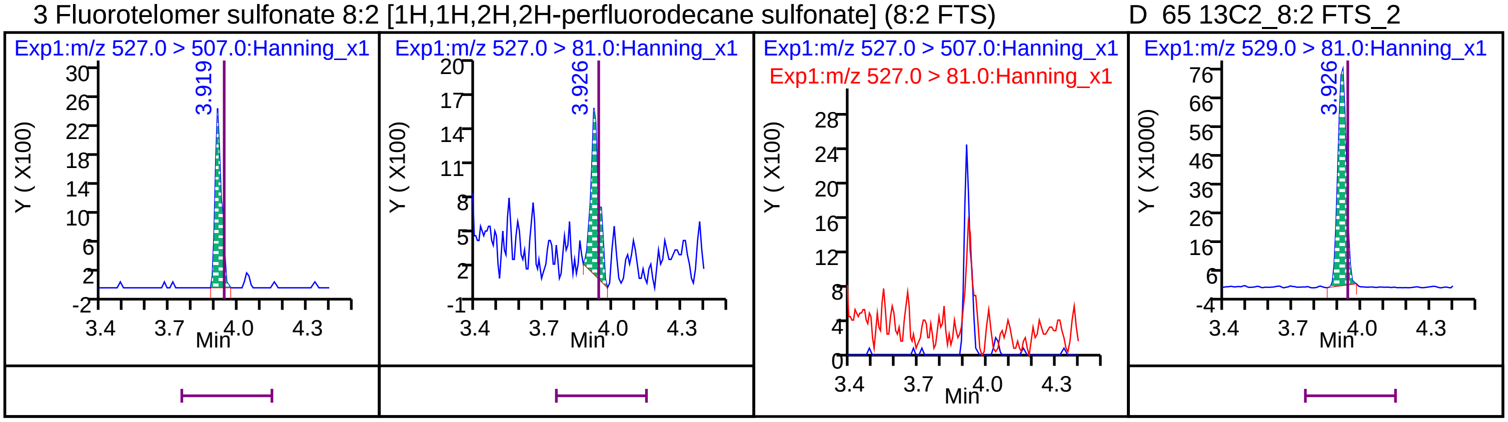
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



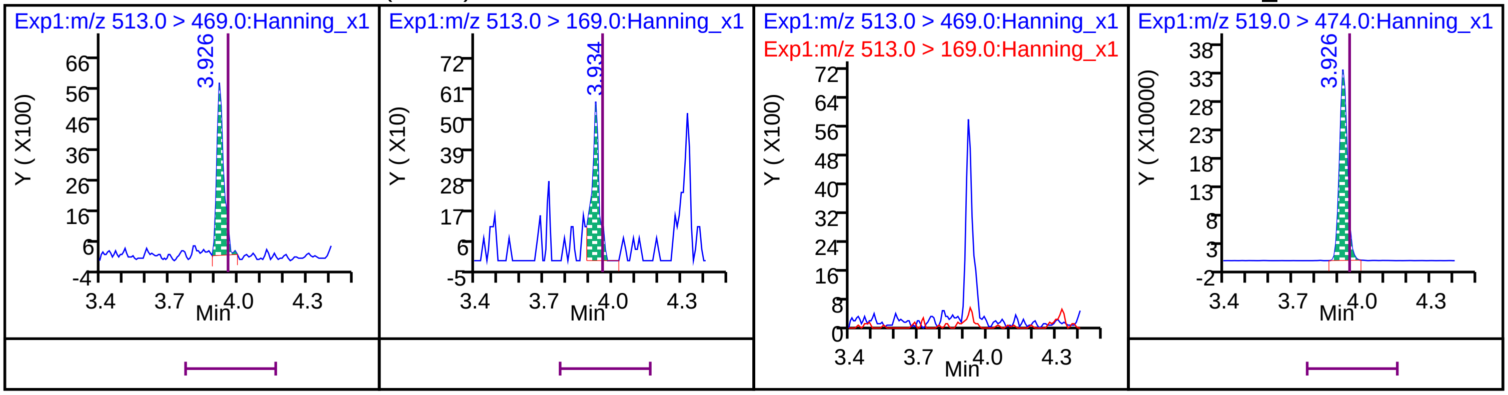
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



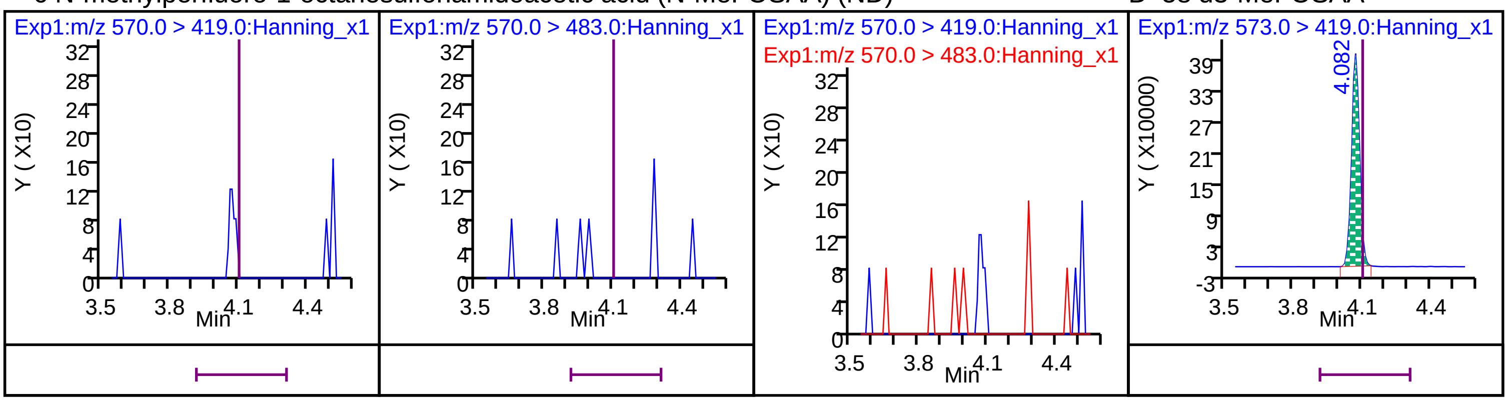
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



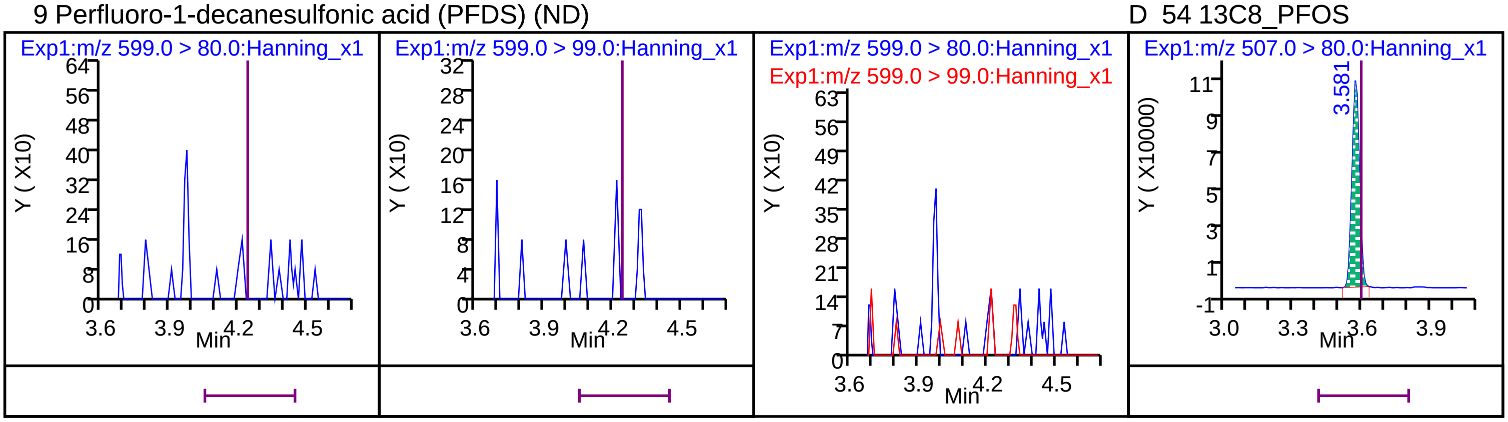
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



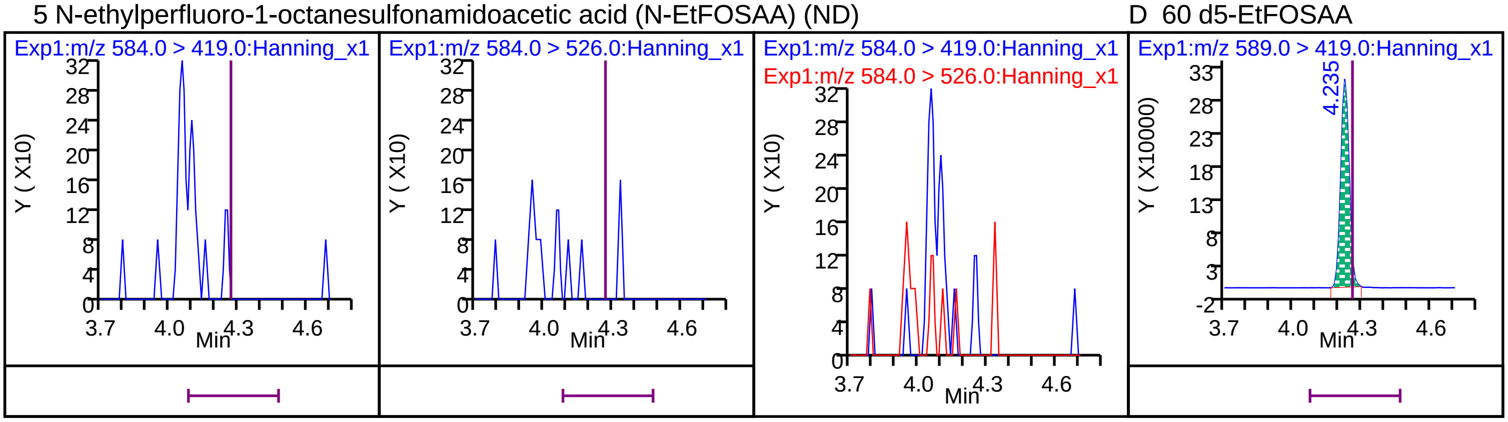
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

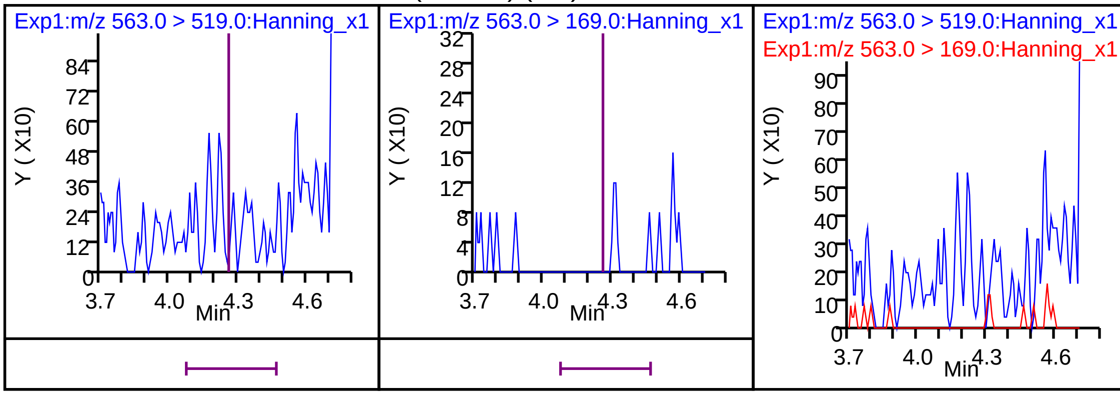


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

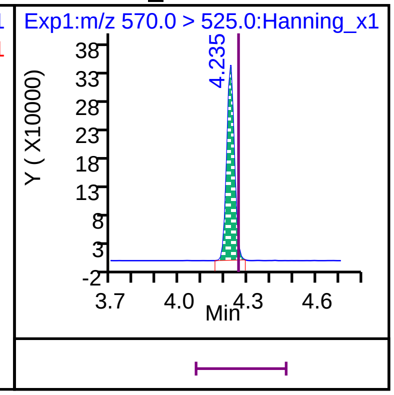


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d

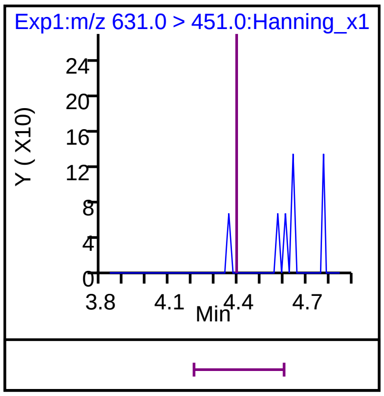
25 Perfluoro-n-undecanoic acid (PFUdA) (ND)



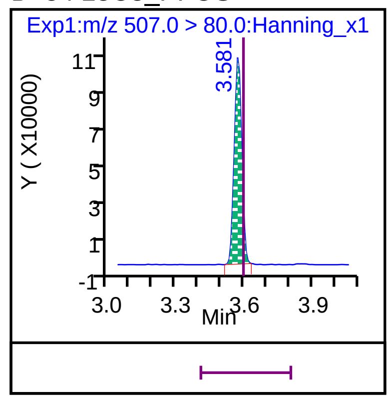
D 52 13C7_PFUdA



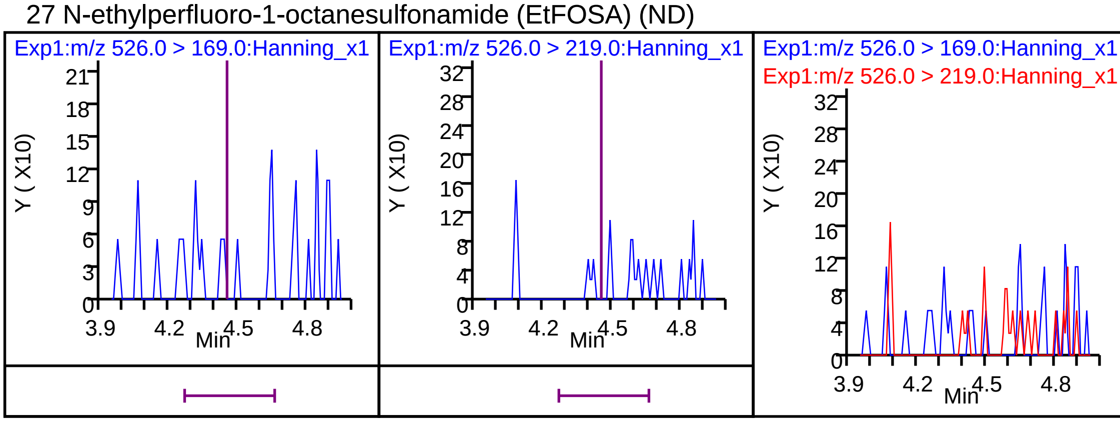
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



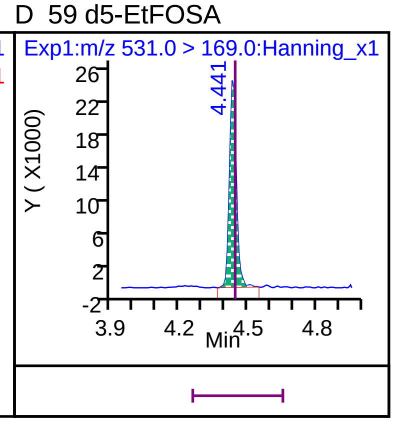
D 54 13C8_PFOS



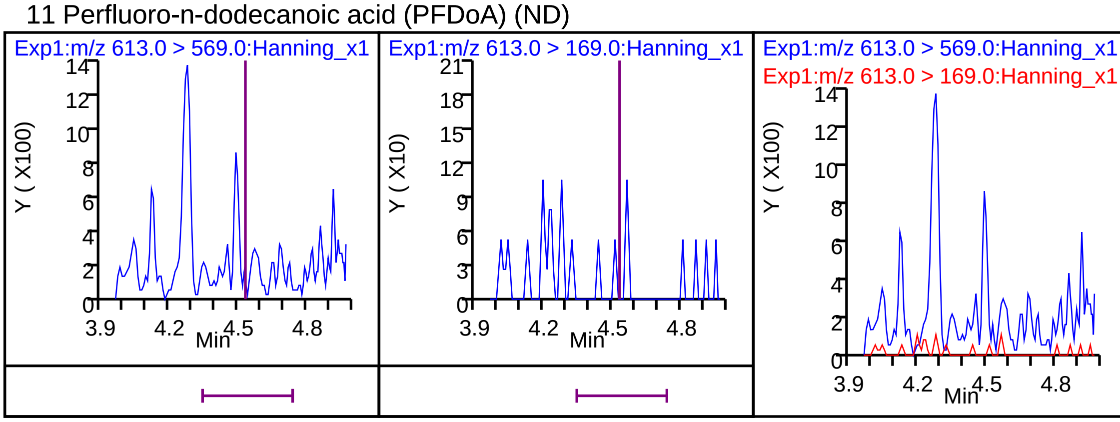
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



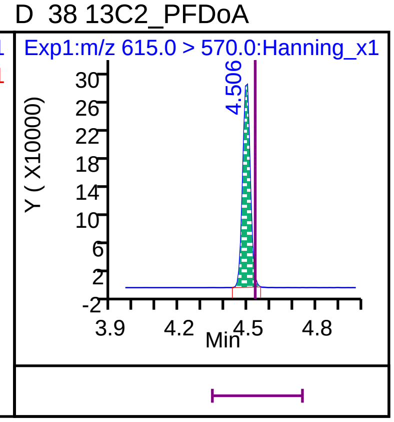
D 59 d5-EtFOSA



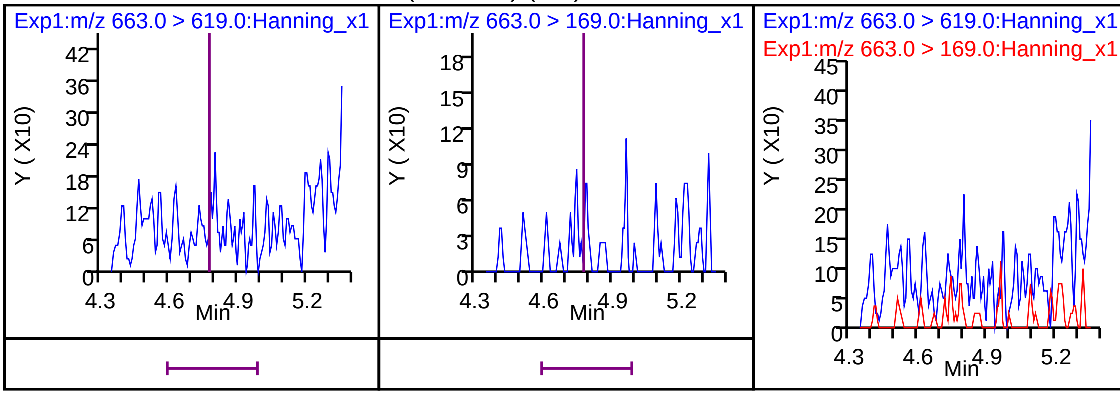
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



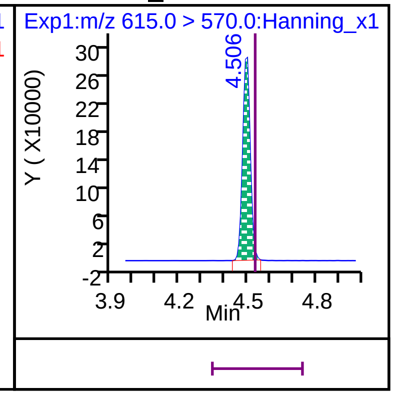
D 38 13C2_PFDoA



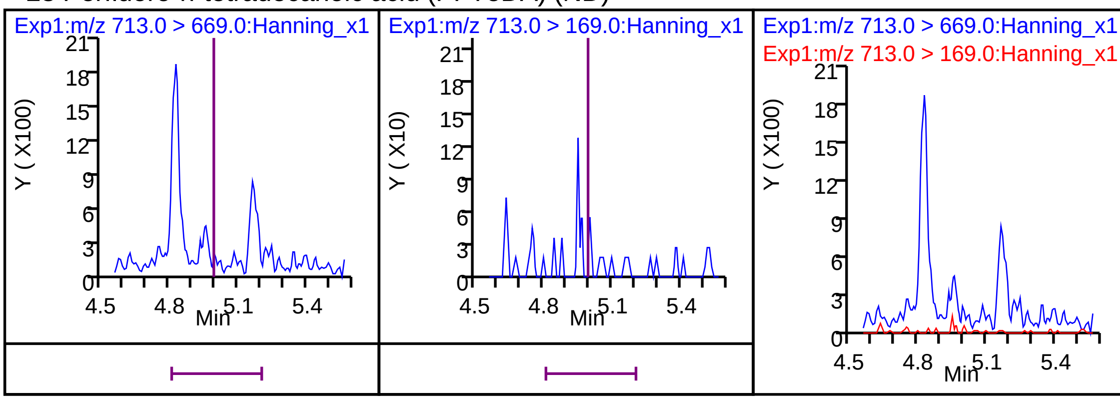
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



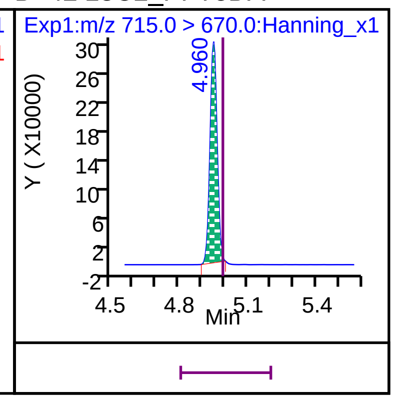
D 38 13C2_PFDoA



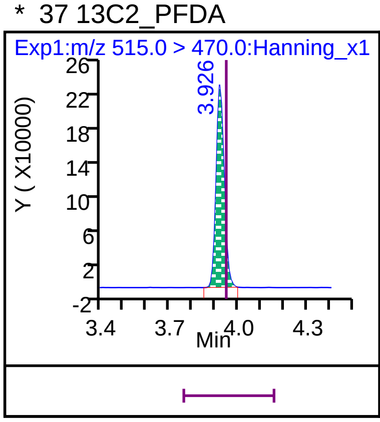
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



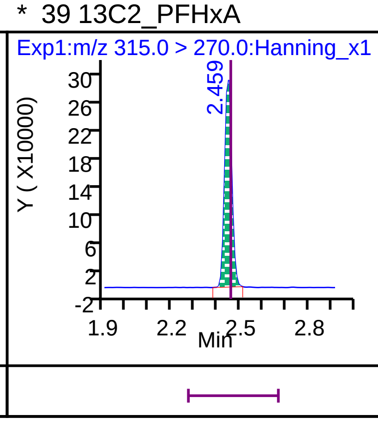
D 42 13C2_PFTeDA



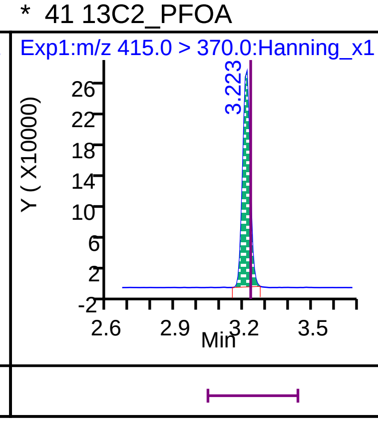
* 37 13C2_PFDA



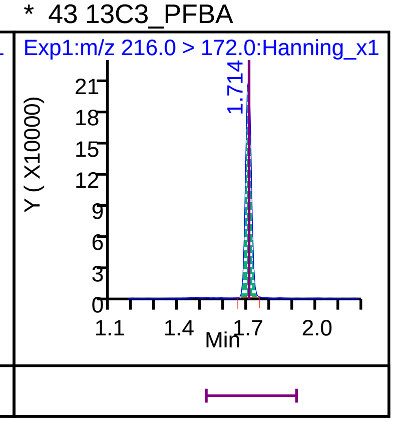
* 39 13C2_PFHxA



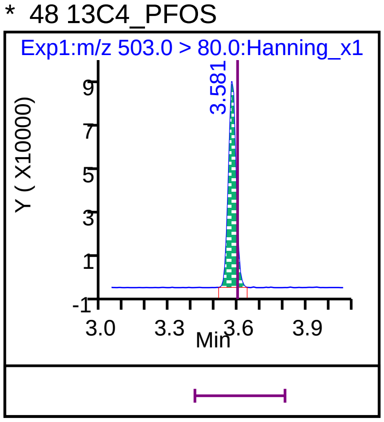
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

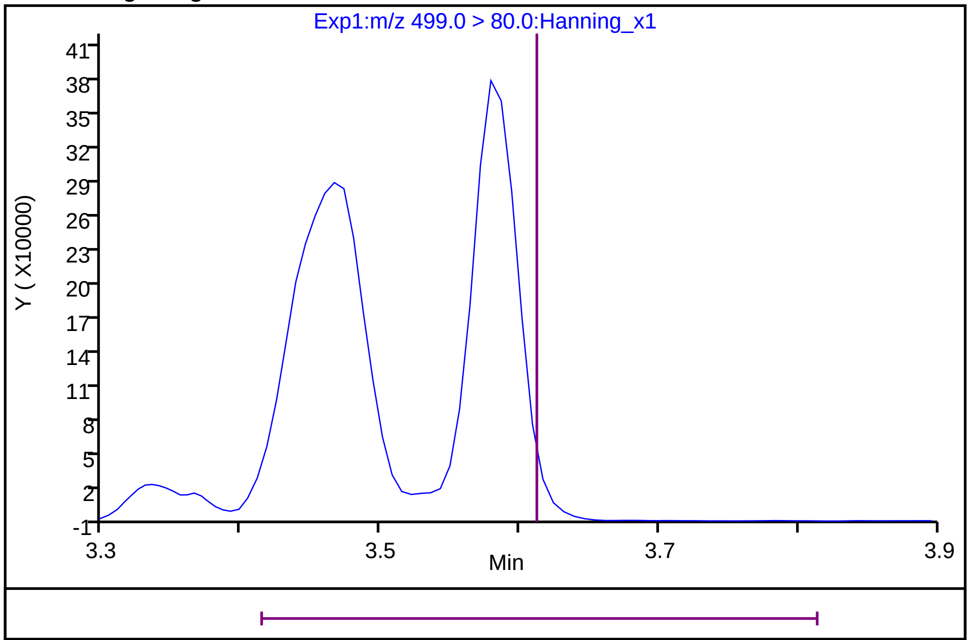
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521025.d		
Injection Date:	05-Nov-2021 15:45:31	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-042.0-20211102	Lab ID:	WK03035-008
Sample Info:	WK03035-008		
Dil. Factor:	1	Operator:	Matthew M. Miller

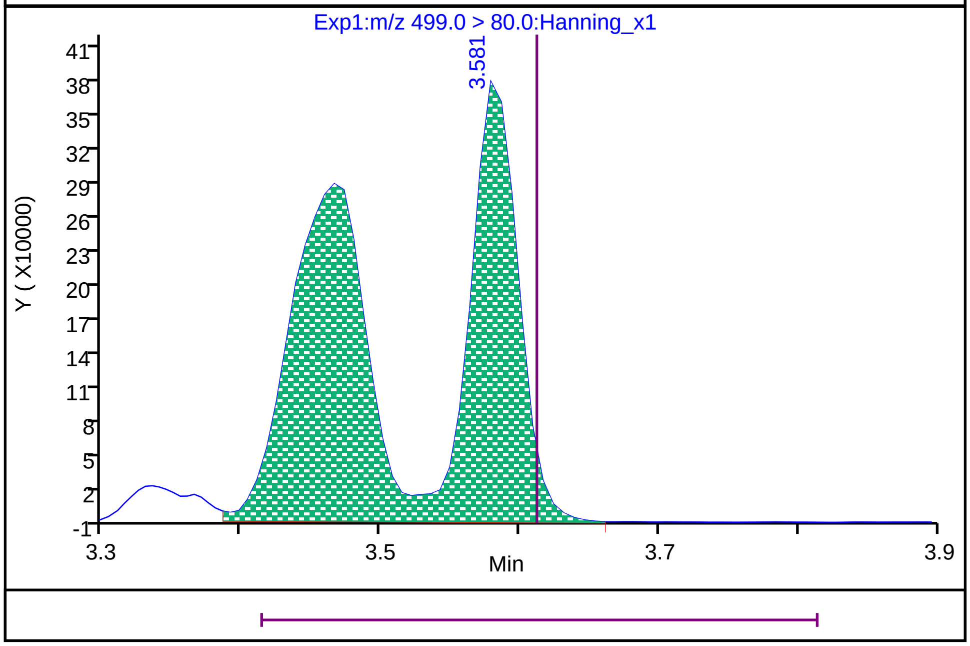
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.581
Area:	2046443
Conc:	268.24
Conc Units:	ng/L



RT:	3.581
Area:	1984549
Conc:	260.13
Conc Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:29:15

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WK03035-009
Description: SW3-DPT-0144-012.0-20211102	Matrix: Aqueous
Date Sampled: 11/02/2021 1210	Project Name: KSC-POL
Date Received: 11/03/2021	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0418	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	5	11/05/2021 1556	MMM	11/03/2021 1629	21177
3	SOP SPE	PFAS by ID SOP QSM B-15	5	11/10/2021 0051	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	410	VD	35	18	8.7	ng/L	3
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.6	IQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.5	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.8	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	71		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	210	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	330		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	500		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	57		3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	230		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	770		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	900	D	18	9.0	4.4	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C2_4:2FTS	N	190	50-150		144	50-150		138	50-150
13C2_6:2FTS		126	50-150		140	50-150		113	50-150
13C2_8:2FTS		103	50-150		108	50-150		117	50-150
13C2_PFDoA		77	50-150		108	50-150		111	50-150
13C2_PFTeDA		58	50-150		88	50-150		93	50-150
13C3_PFBS		77	50-150		116	50-150		112	50-150
13C3_PFHxS		94	50-150		106	50-150		119	50-150
13C3-HFPO-DA		87	50-150		97	50-150		105	50-150
13C4_PFBA	N	35	50-150		84	50-150		90	50-150
13C4_PFHpA		89	50-150		108	50-150		114	50-150
13C5_PFHxA		83	50-150		104	50-150		110	50-150
13C5_PFPeA		65	50-150		109	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-009	
Description: SW3-DPT-0144-012.0-20211102		Matrix: Aqueous	
Date Sampled: 11/02/2021 1210	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C6_PFDA		85	50-150		109	50-150		115	50-150
13C7_PFUdA		85	50-150		107	50-150		111	50-150
13C8_PFOA		86	50-150		111	50-150		113	50-150
13C8_PFOS		80	50-150		114	50-150		116	50-150
13C9_PFNA		80	50-150		111	50-150		104	50-150
d-EtFOSA		56	50-150		92	50-150		103	50-150
d5-EtFOSAA		92	50-150		104	50-150		100	50-150
d3-MeFOSAA		95	50-150		112	50-150		113	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Report Date: 09-Nov-2021 07:56:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A090.d		
Injection Date:	05-Nov-2021 04:18:13	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	66
Lab Sample ID:	WK03035-009	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-012.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-009	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0391068

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	281	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.708	1	395913	16	>100:1			1001.00	367.70	34.7*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	0/-1	2341843	16	>100:1			5383.60	210.54		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.079	1	702480	13	>100:1			1001.00	700.44	64.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	0/-1	14756261	13	>100:1			19625	767.47		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	273114	14	>100:1			1001.00	840.95	77.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													J
298.9 > 80	44	2.141	2.141	0/0	14687	12	7.3:1	Target = 3.80		37.679	1.4735		
298.9 > 99	44	2.141	2.141		3505	12	1.5:1	4.19 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													J
349 > 80	44	2.493	2.494	0/0	19309	17	14:1	Target = 3.42		70.334	2.7506		
349 > 99	44	2.493	2.494		5497	14	8.2:1	3.51 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.416	1	438327	14	>100:1			5005.00	10553	189.7*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													J
327 > 307	63	2.424	2.424	0/-1	11545	14	>100:1	Target = 1.54		67.544	2.6414		
327 > 81	63	2.424	2.424		9356	8	8.4:1	1.23 (0.77-2.32)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	797468	16	>100:1			1001.00	892.79	82.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.459	0/0	10449447	17	>100:1	Target = 17.93		12694	496.42		
313 > 119	49	2.467	2.459		611119	15	>100:1	17.09 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.579	1	746931	15	>100:1			5005.00	4559.48	87.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.579		ND								

Report Date: 09-Nov-2021 07:56:20 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A090.d

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	0	854064	16	>100:1			1001.00	974.74	89.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	0/0	6957817	15	>100:1	Target = 3.26		8471.18	331.28		
363 > 169	47	2.846	2.846		2095410	15	>100:1	3.32 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.855	1	256758	15	>100:1			1001.00	978.95	94.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.855	1/0	551374	23	>100:1	Target = 3.48	16.36	1818.37	71.111		
399 > 99	45	2.864	2.855		133906	26	>100:1	4.11 (1.74-5.22)	17.89				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.230	3.233	0/-1	70725	19	11:1	Target = 3.56		268.08	10.484		
449 > 99	45	3.236	3.233		19782	27	59:1	3.57 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.201	1	236206	20	>100:1			5005.00	6263.57	126.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.201	1/0	617530	22	>100:1	Target = 1.34		7525.37	294.29		
427 > 81	64	3.204	3.201		453792	22	>100:1	1.36 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.230	3.220	1	798205	21	>100:1			1001.00	965.19	85.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.230	3.227	1/0	4777741	35	>100:1	Target = 2.50	21.38	5823.20	227.73		
413 > 169	53	3.230	3.227		2030909	35	>100:1	2.35 (1.25-3.75)	14.26				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.591	1	199507	20	>100:1			1001.00	888.75	80.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.591	1/0	6340294	36	>100:1	Target = 4.01	1.80	26985	1055.31		E
499 > 99	54	3.596	3.591		1534766	39	>100:1	4.13 (2.00-6.02)	4.20				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.796		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.932		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.232		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.384		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.606	0	783951	18	>100:1			1001.00	981.15	79.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.599	1/1	1044898	19	>100:1	Target = 4.69		1465.17	57.298		
463 > 169	56	3.603	3.599		222737	19	>100:1	4.69 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.935	3.932	1	170901	20	>100:1			5005.00	5445.23	103	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.940		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.940	1	696457	17	>100:1			1001.00	964.89	84.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													J
513 > 469	51	3.943	3.940	1/0	23041	15	47:1	Target = 9.77		32.274	1.2621		
513 > 169	51	3.935	3.940		1968	17	9.8:1	11.70 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.099	4.096	1	854358	17	>100:1			5005.00	4818.37	94.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.104		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.253	4.241	1	631361	16	>100:1			1001.00	923.82	85.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.250		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.250	1	750324	18	>100:1			5005.00	5017.86	91.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.250		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.461	1	37311	16	>100:1			1001.00	579.32	55.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.468		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.519	1	546662	18	>100:1			1001.00	794.98	76.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.512		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.758		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.968	1	499254	26	>100:1			1001.00	638.63	57.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.973		ND								
*** 37 13C2_PFDA**													
515 > 470		3.943	3.940	1	612889	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.459	0	639186	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.230	3.227	1	665497	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	0	304029	15	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.591	1	186850	21	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

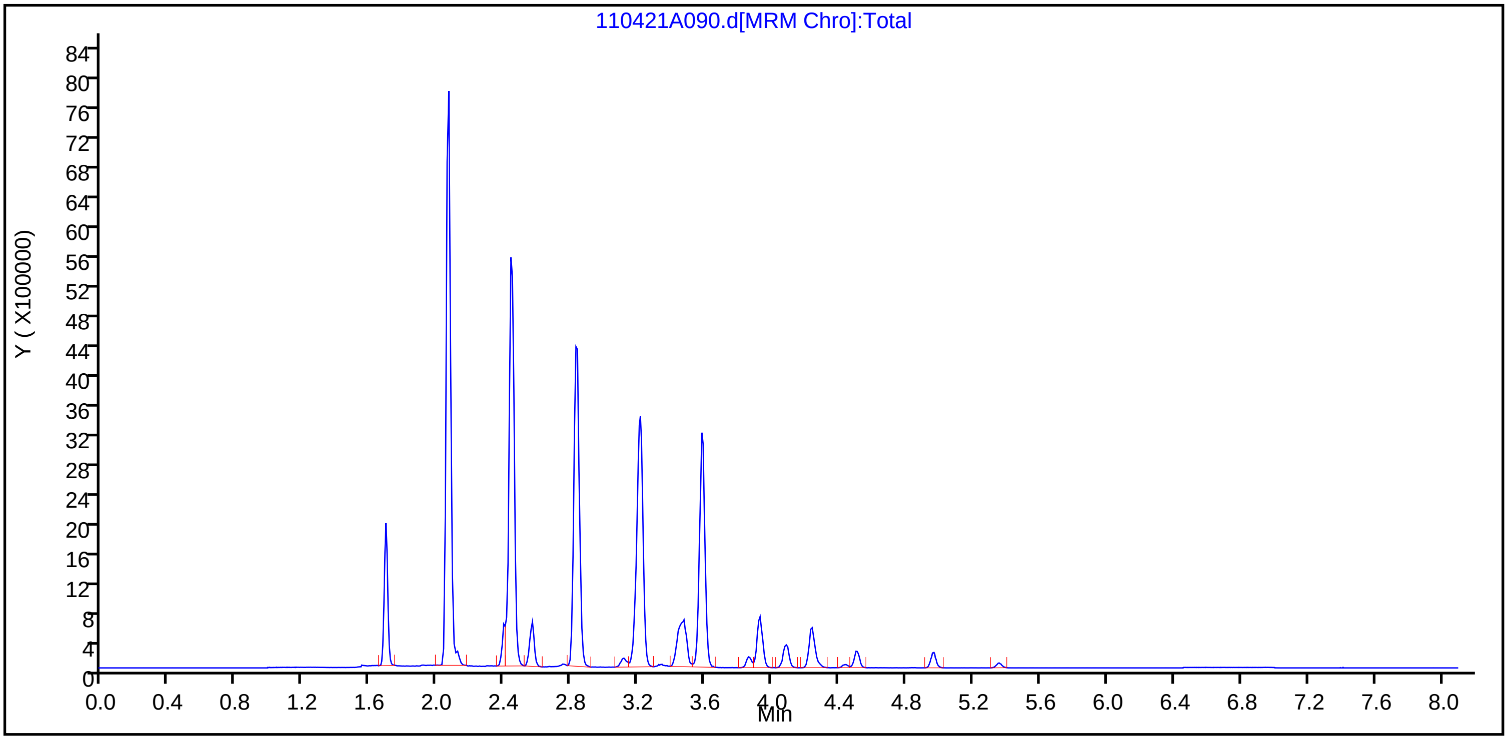
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
E - Compound Concentration Exceeds Max. Calibration Range
M - Compound Hit/Peak Manually Integrated

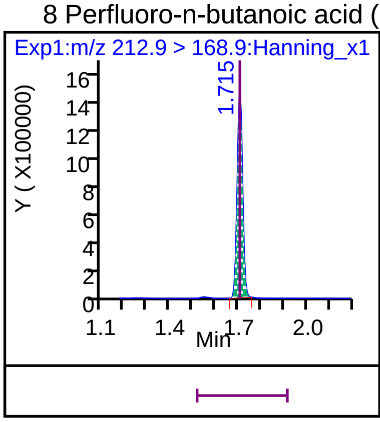
Report Date: 09-Nov-2021 07:56:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

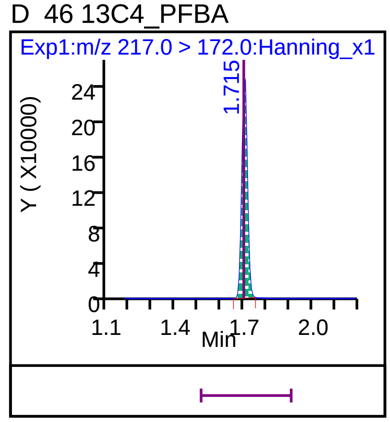
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A090.d		
Injection Date:	05-Nov-2021 04:18:13	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009		
Dil. Factor:	1	Operator:	Matthew M. Miller



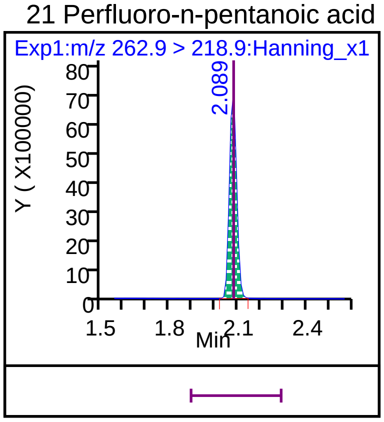
8 Perfluoro-n-butanoic acid (PFBA)



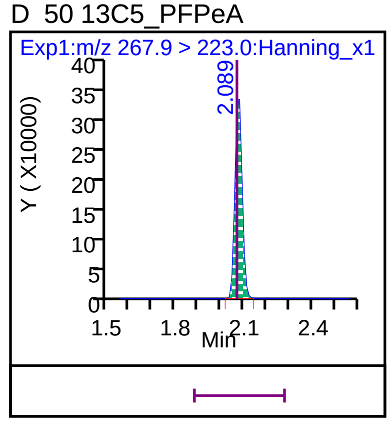
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

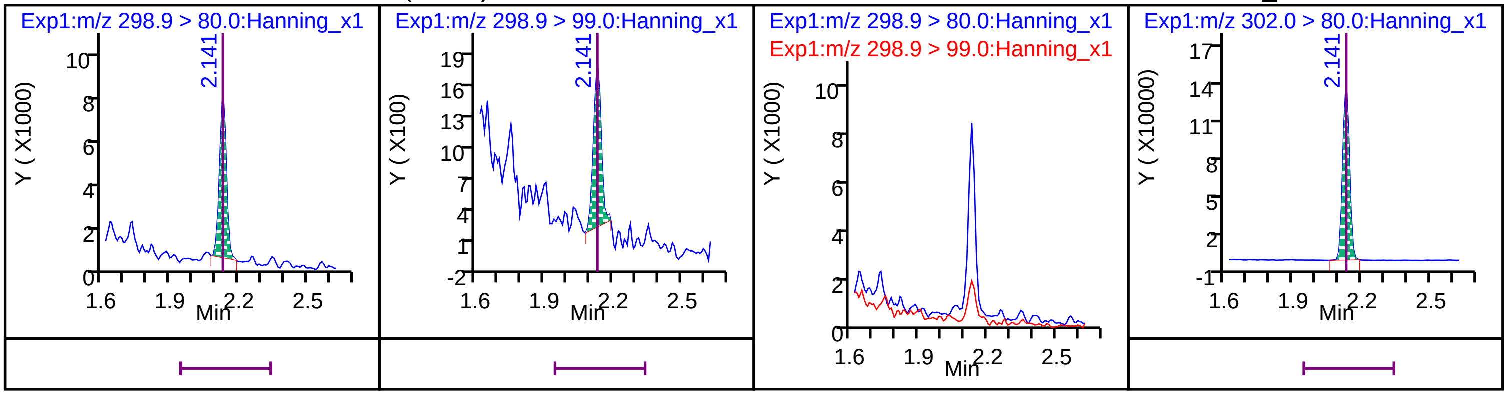


D 50 13C5_PFPeA

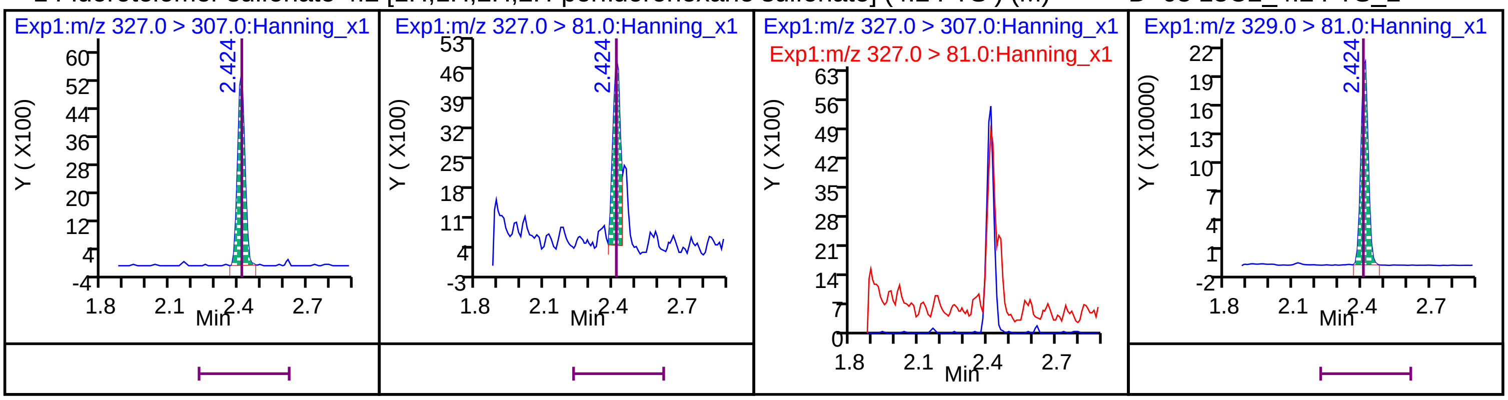


Report Date: 09-Nov-2021 07:56:20 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A090.d

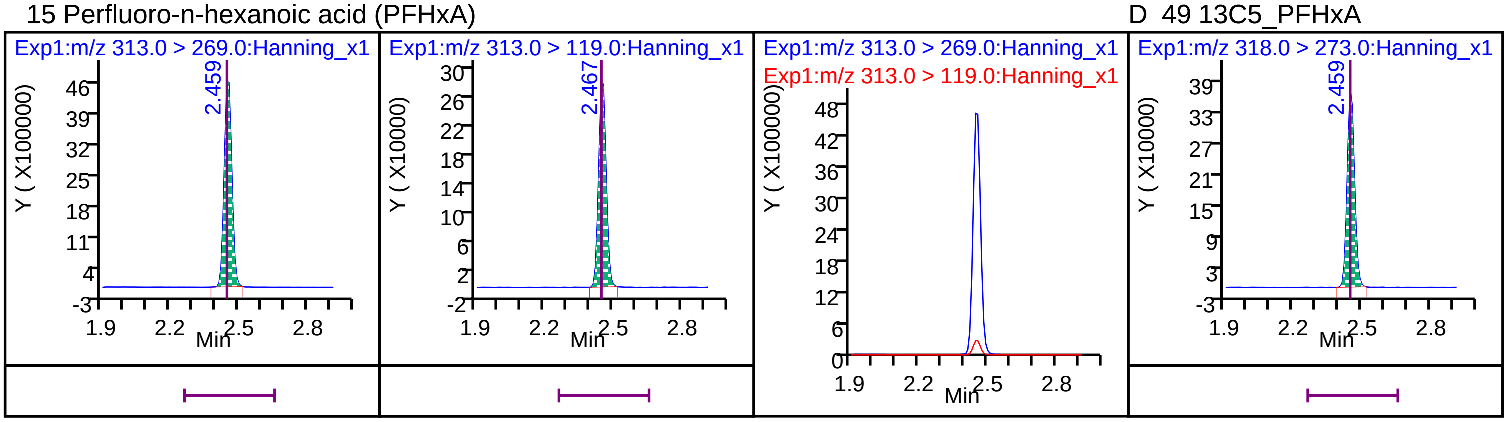
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



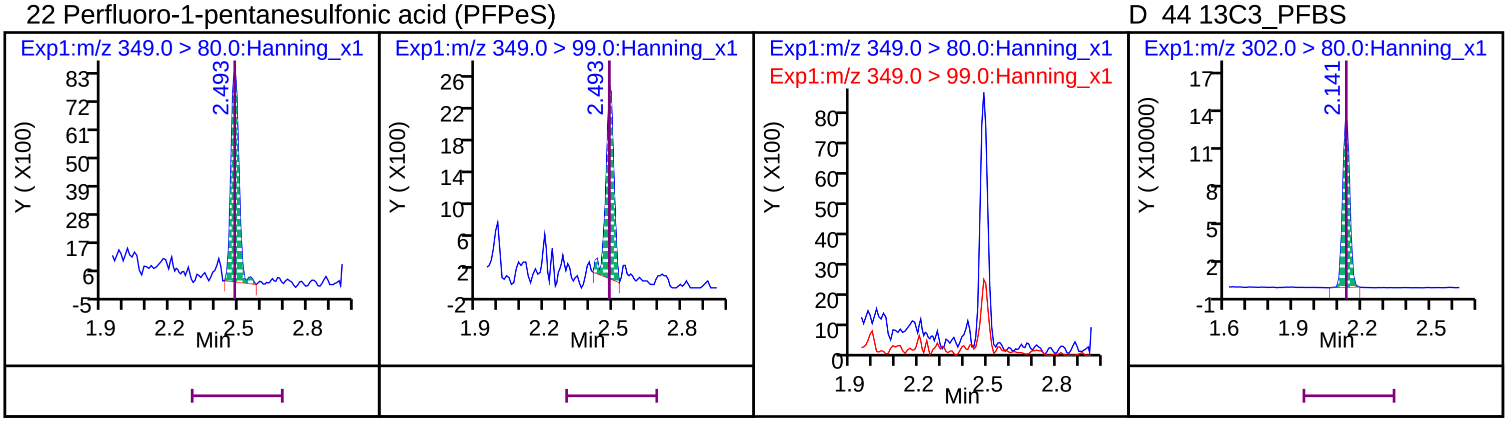
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



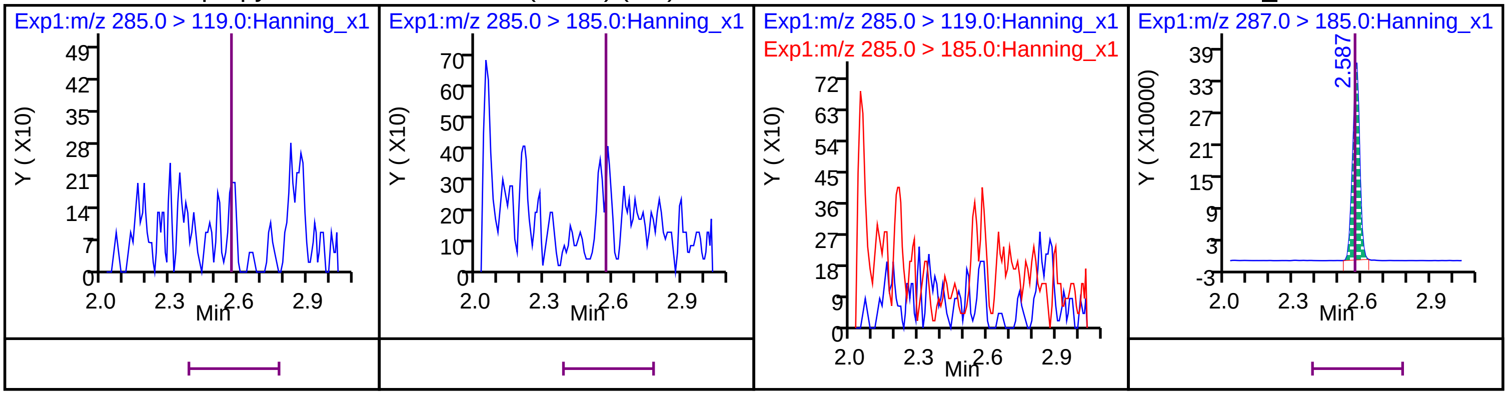
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



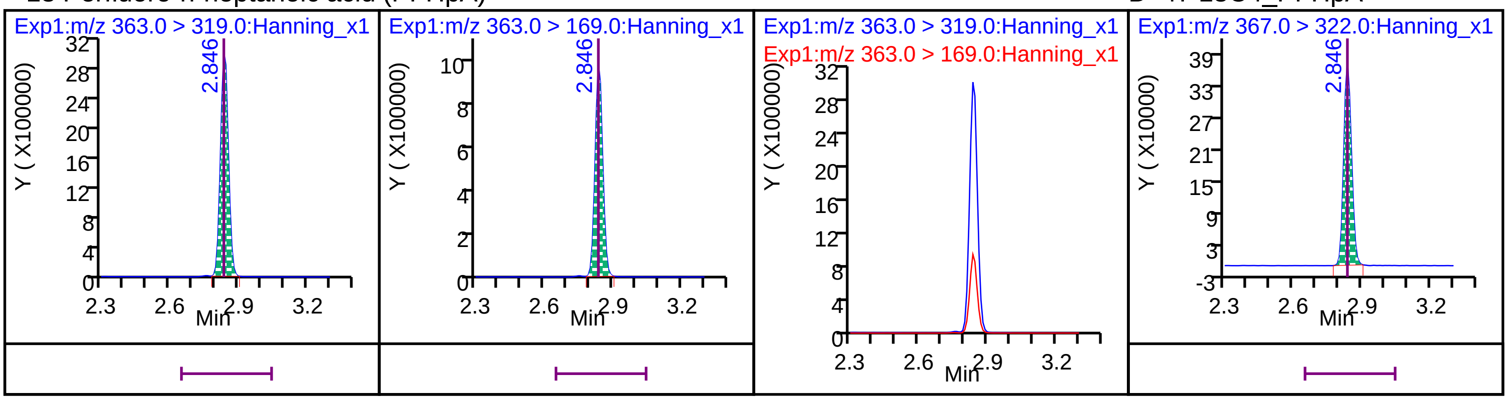
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



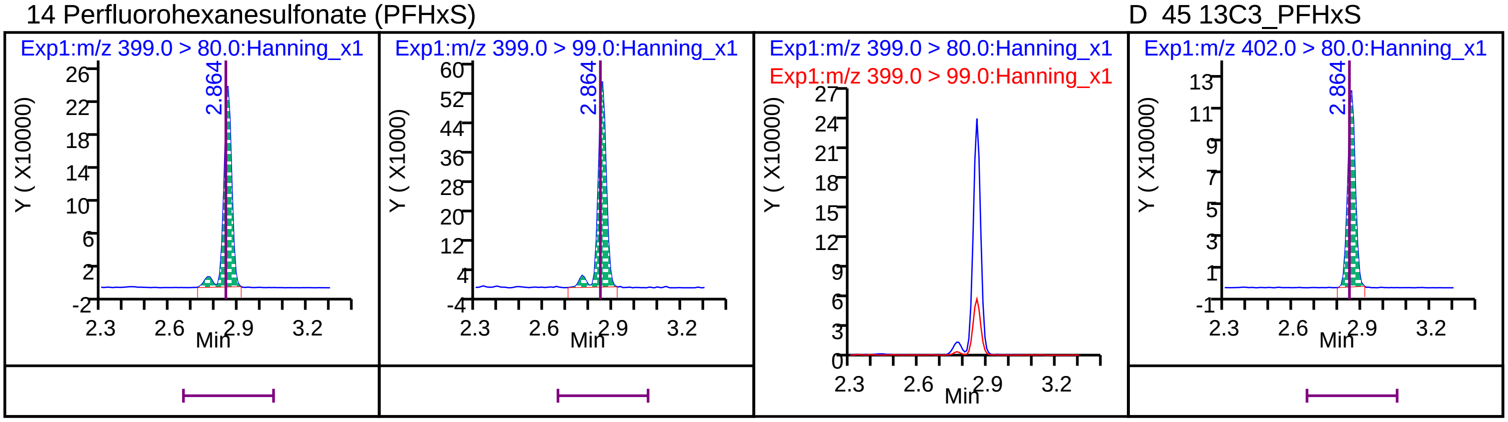
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



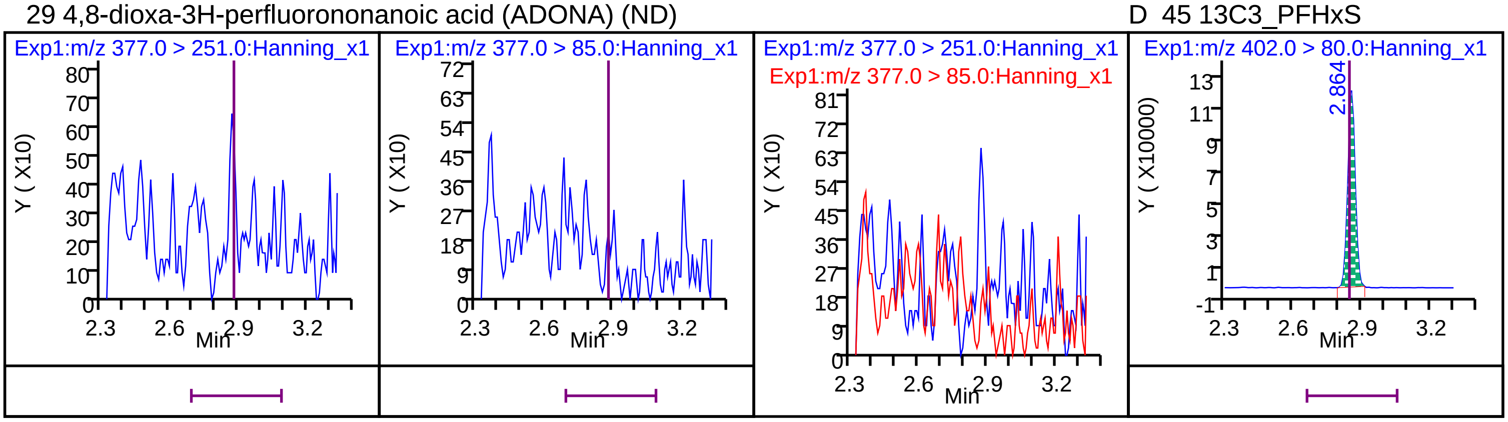
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



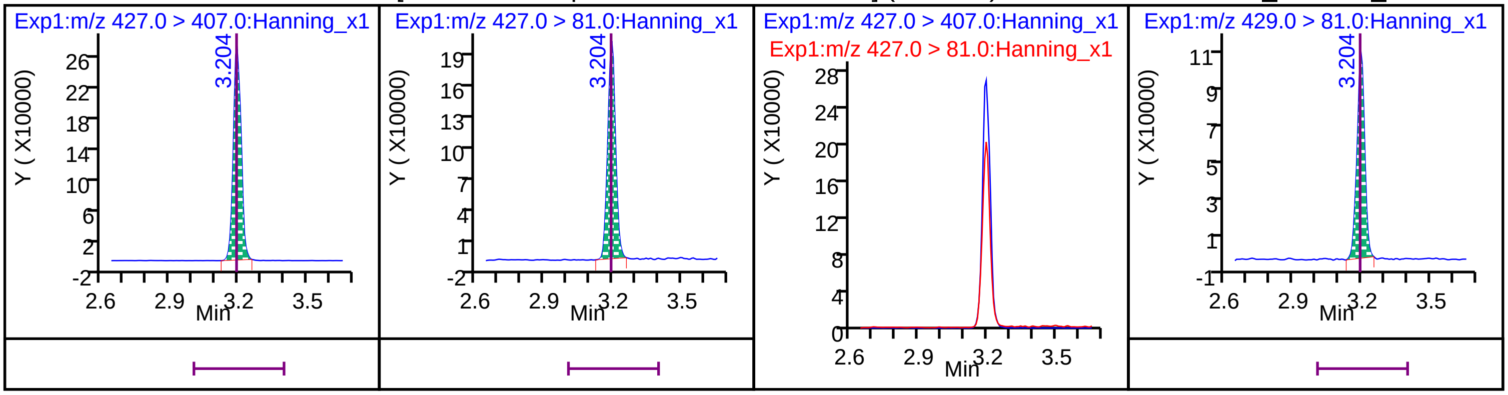
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



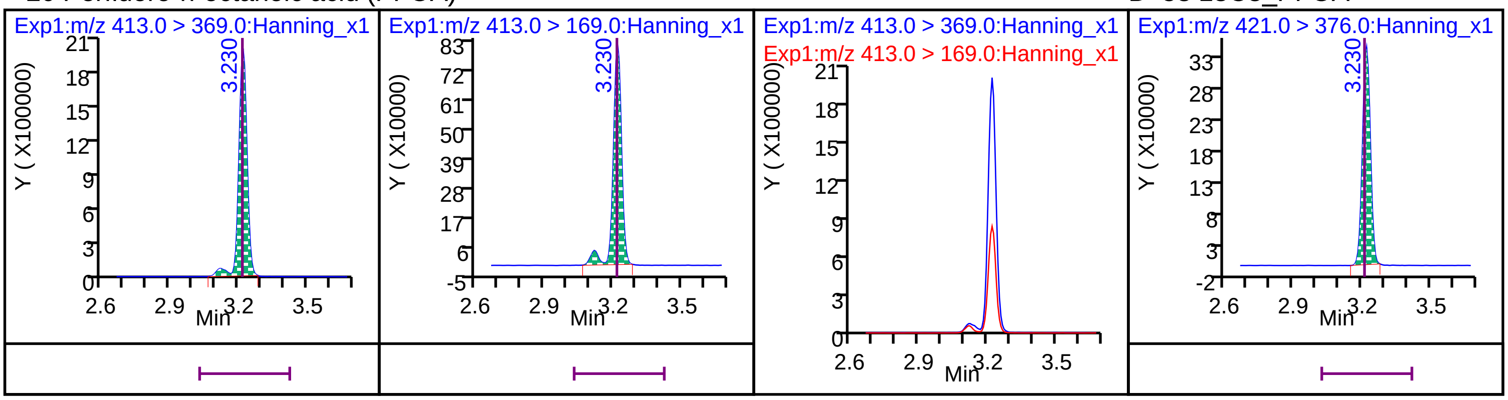
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



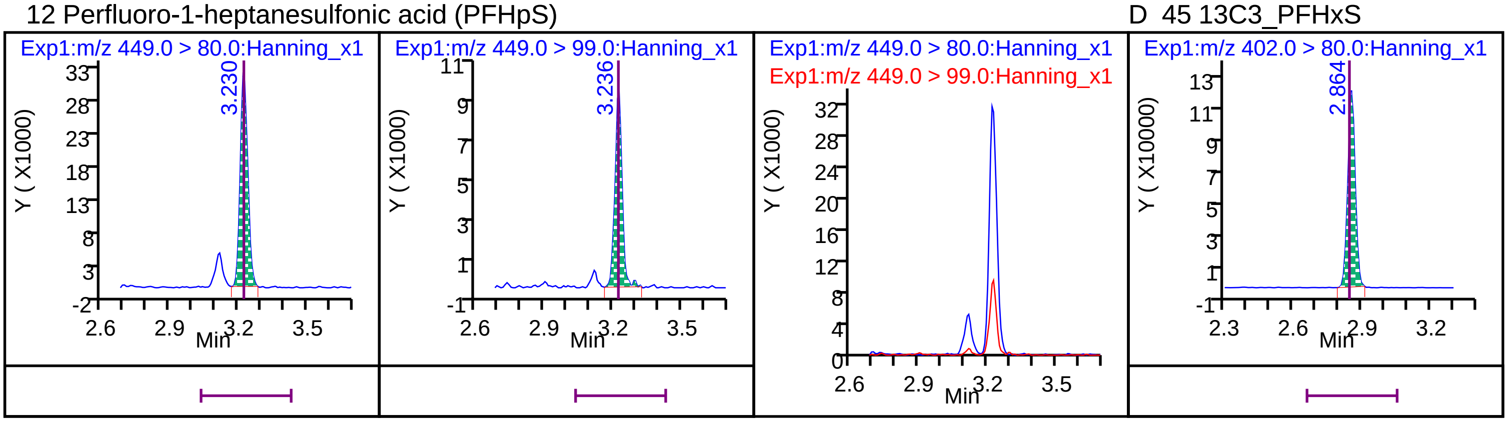
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



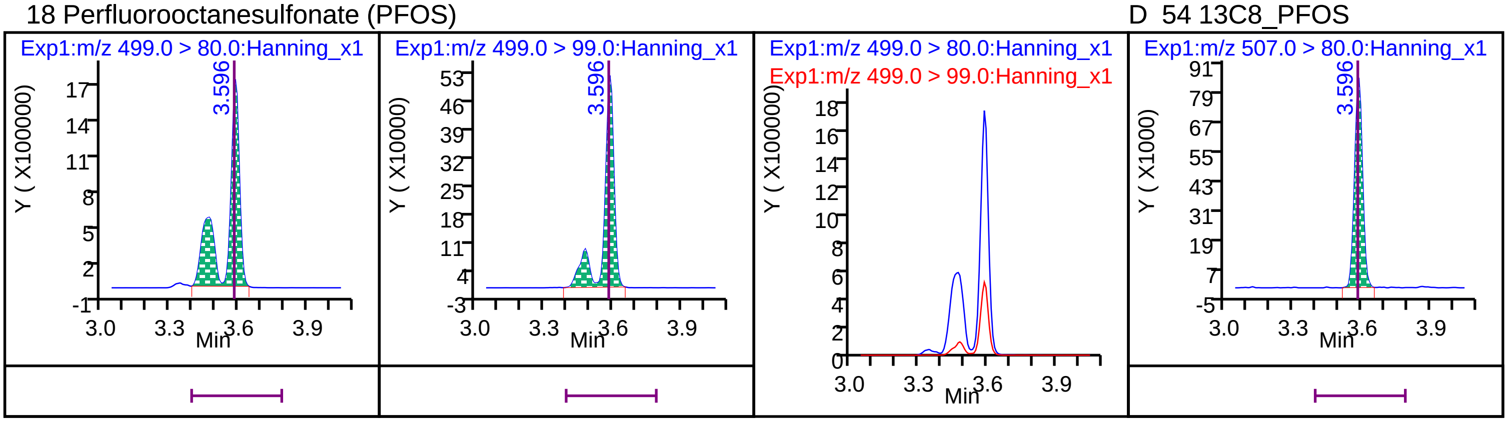
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



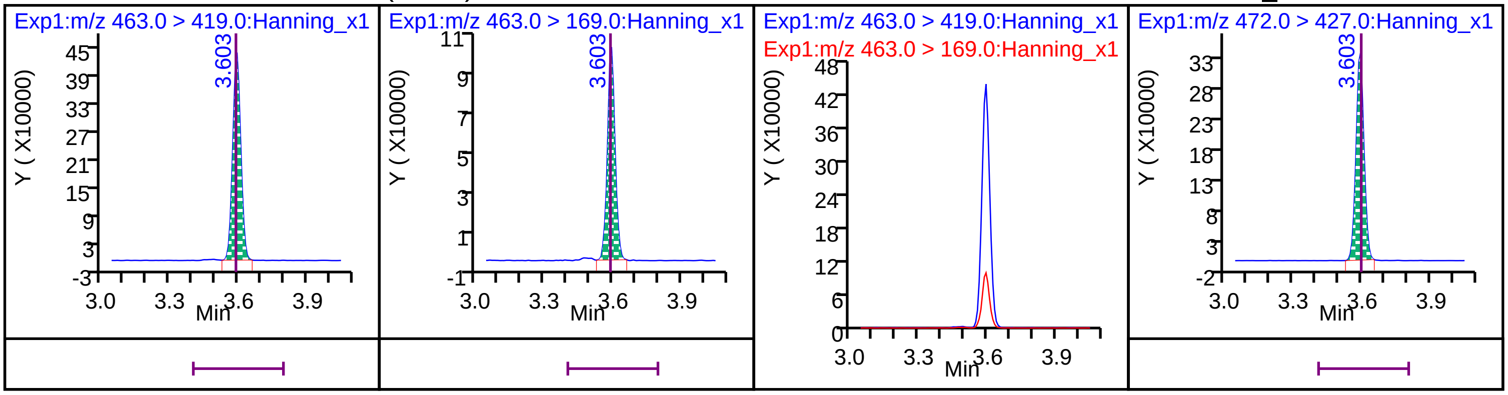
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



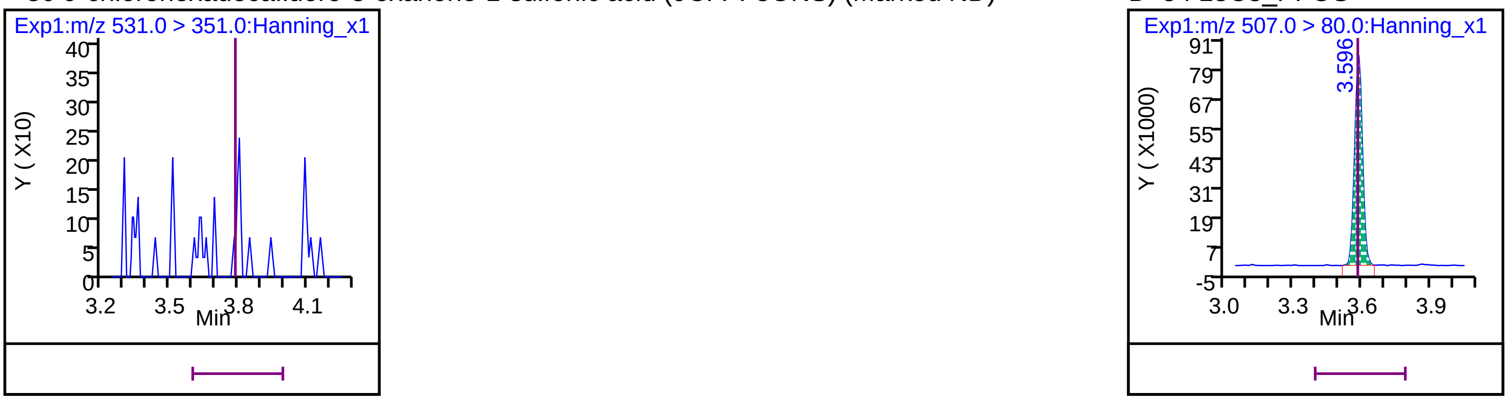
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



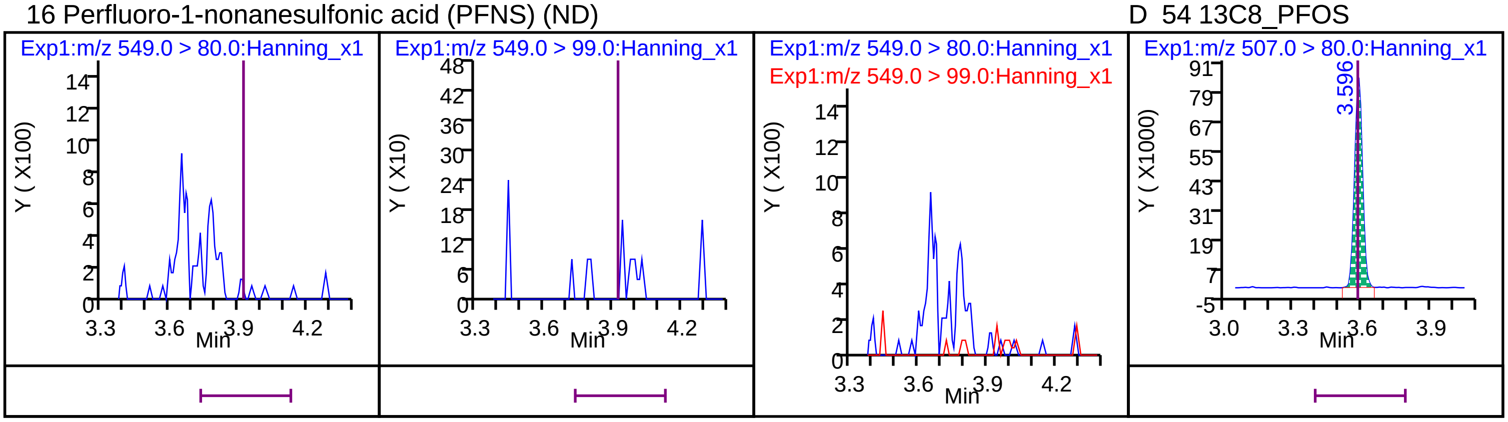
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



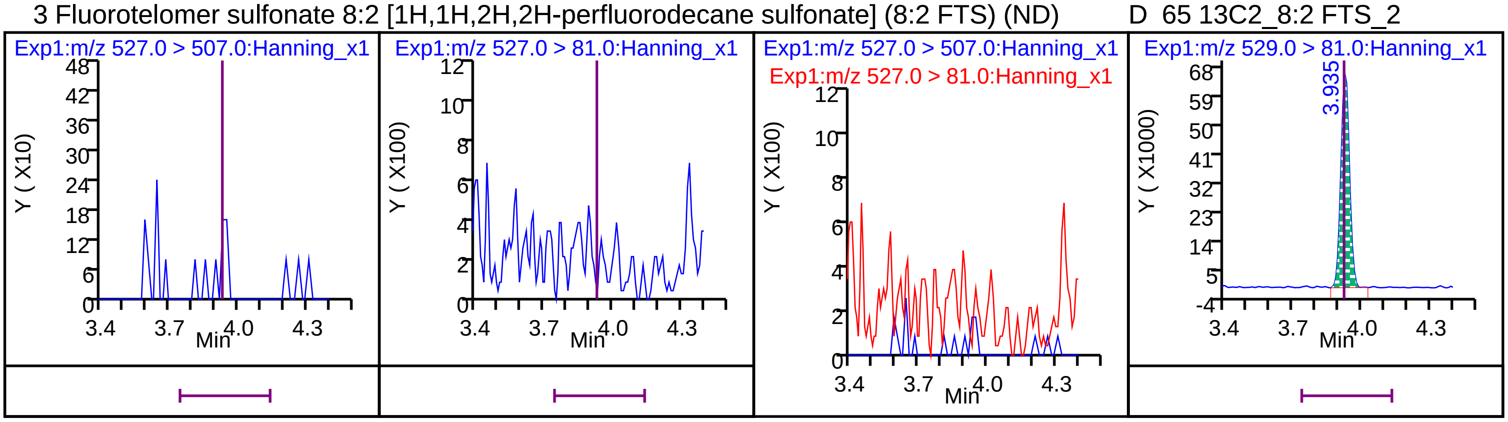
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



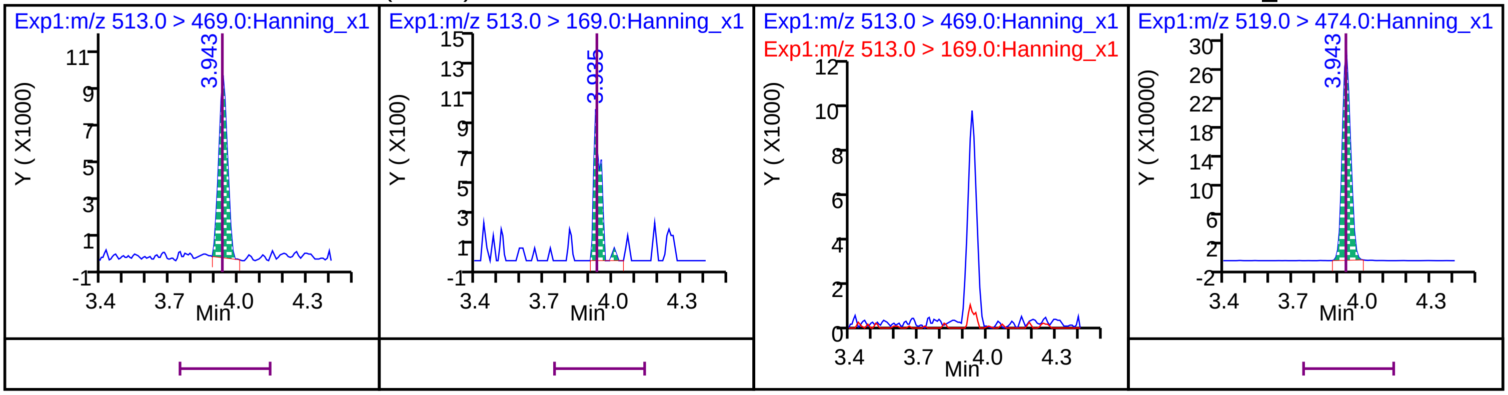
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



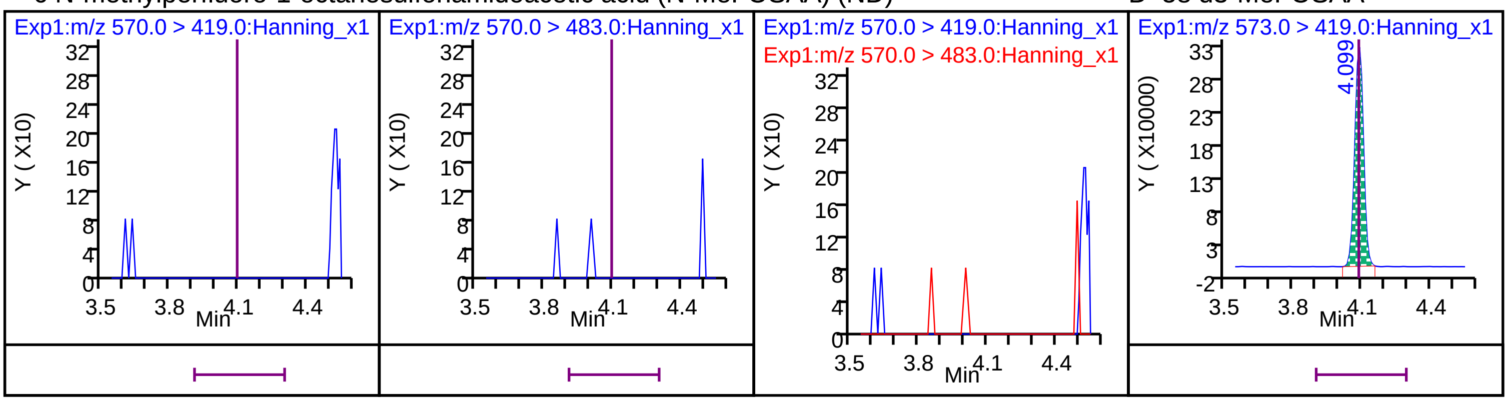
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



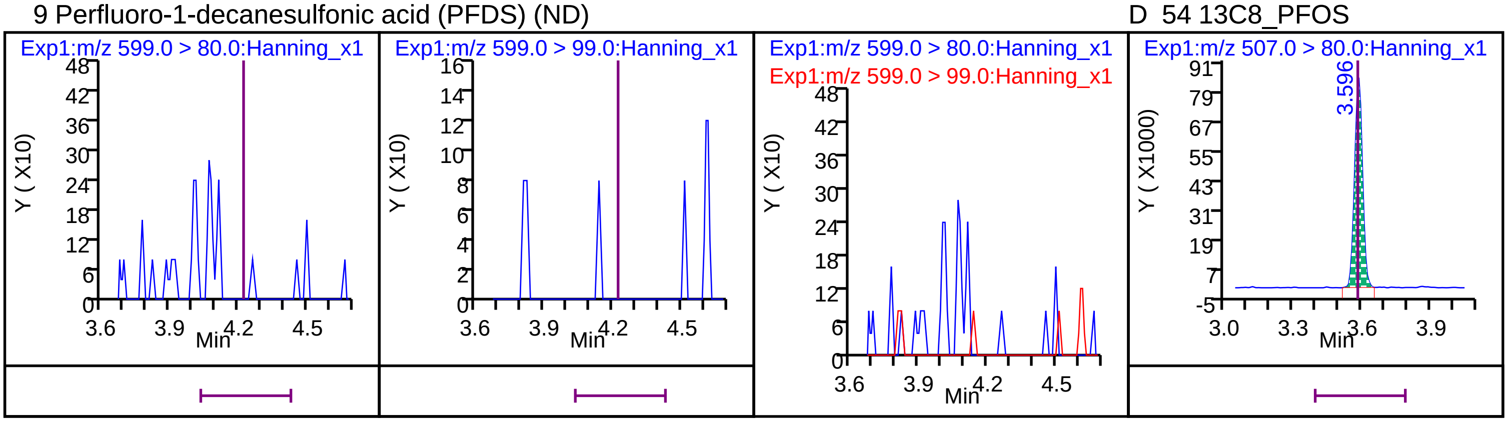
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



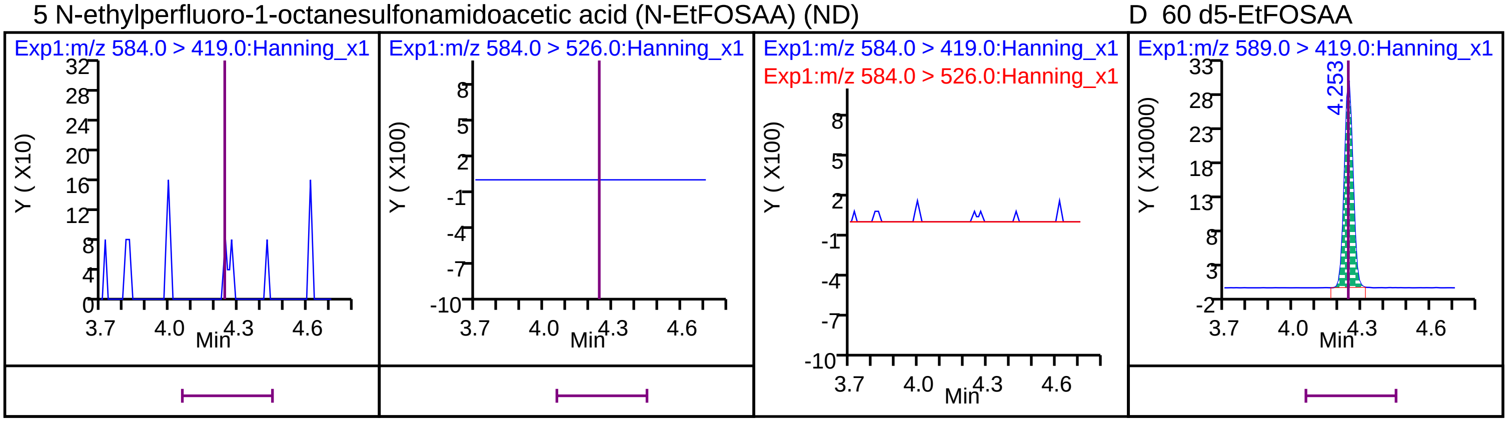
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



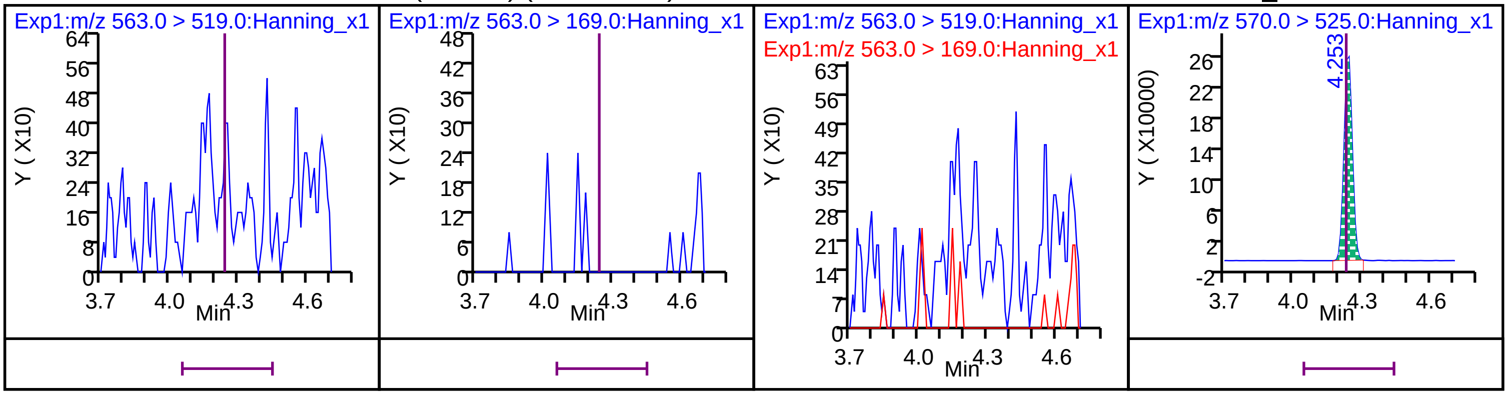
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



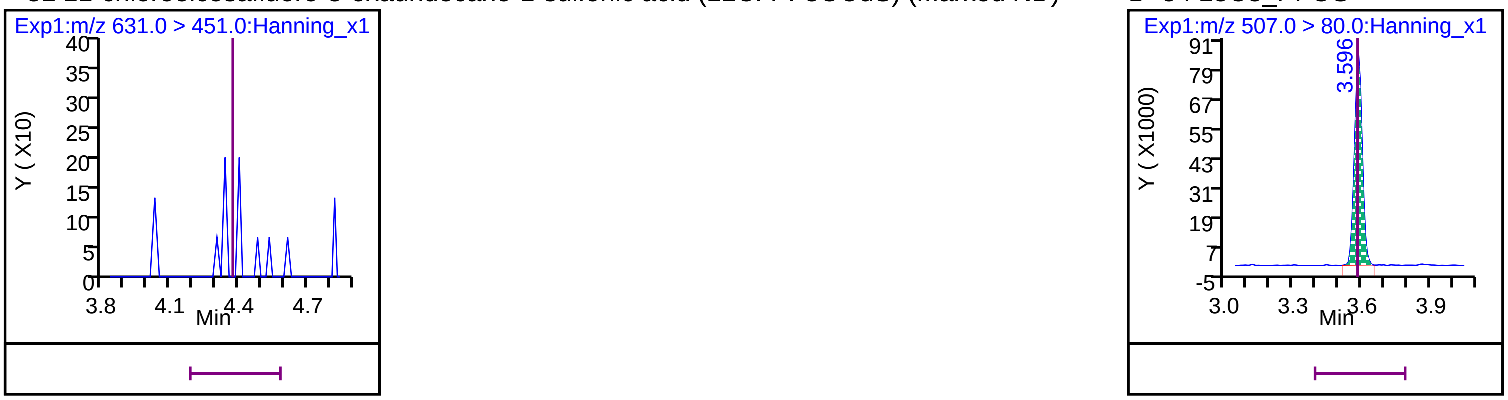
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



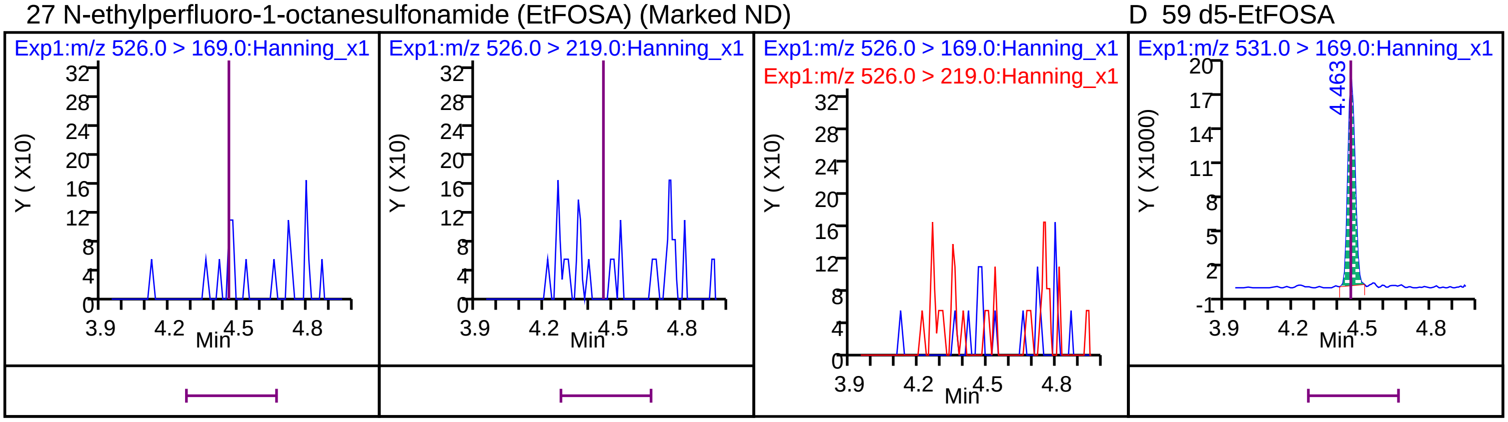
25 Perfluoro-n-undecanoic acid (PFUdA) (Marked ND) D 52 13C7_PFUdA



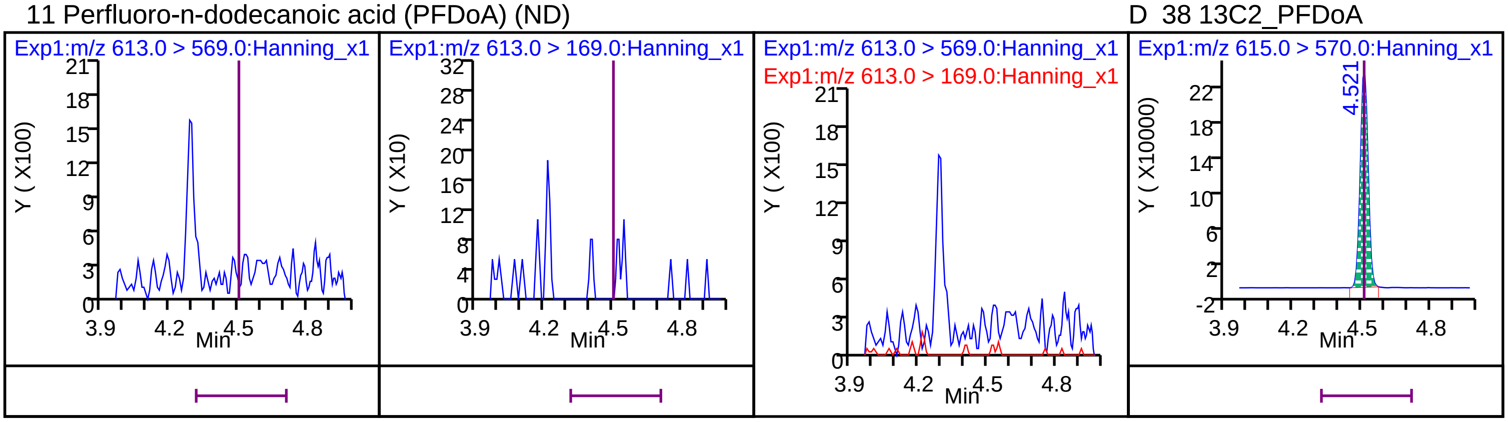
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND) D 59 d5-EtFOSA

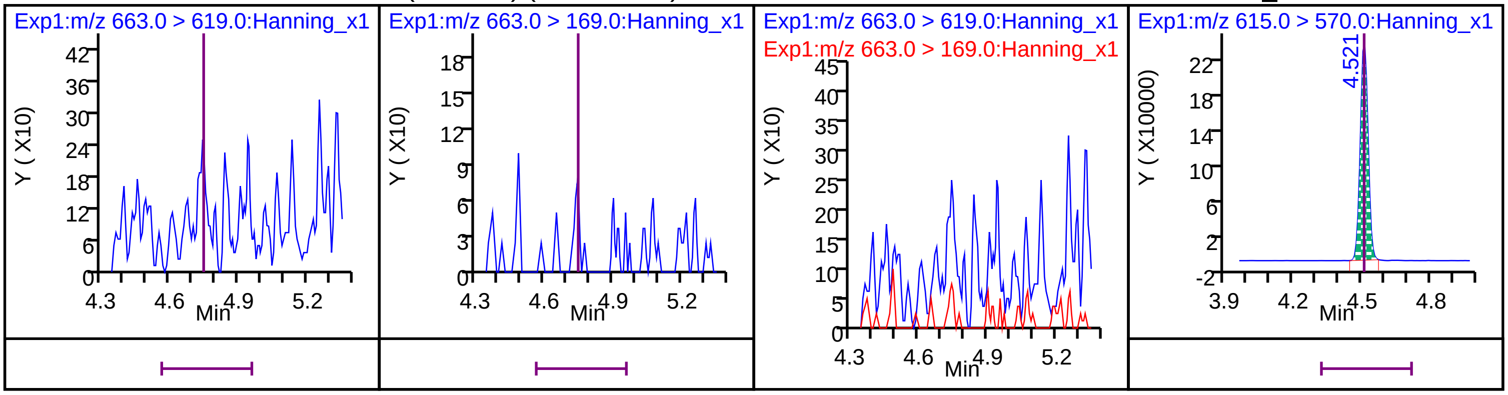


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA

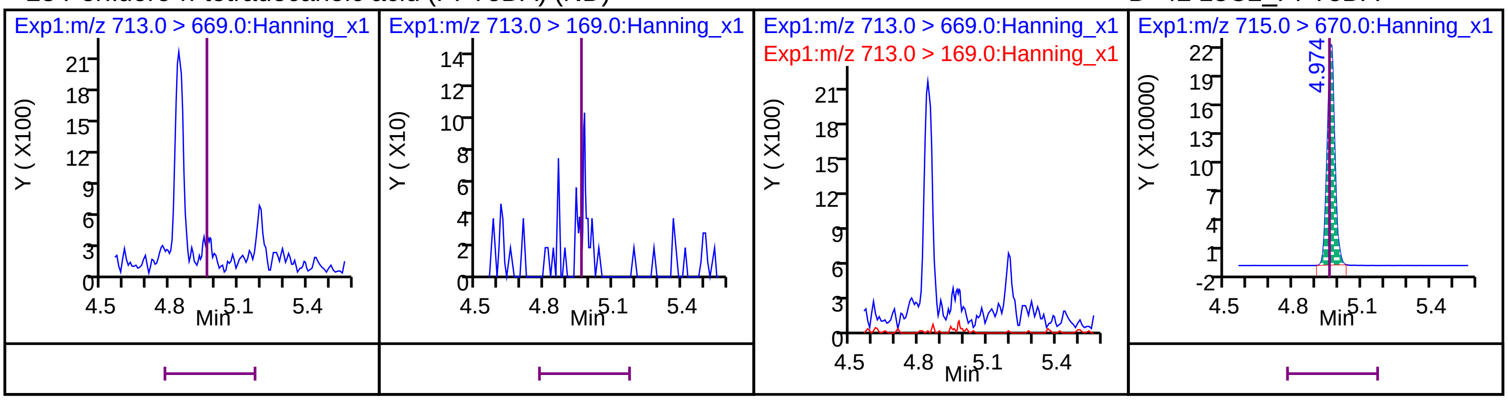


Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A090.d

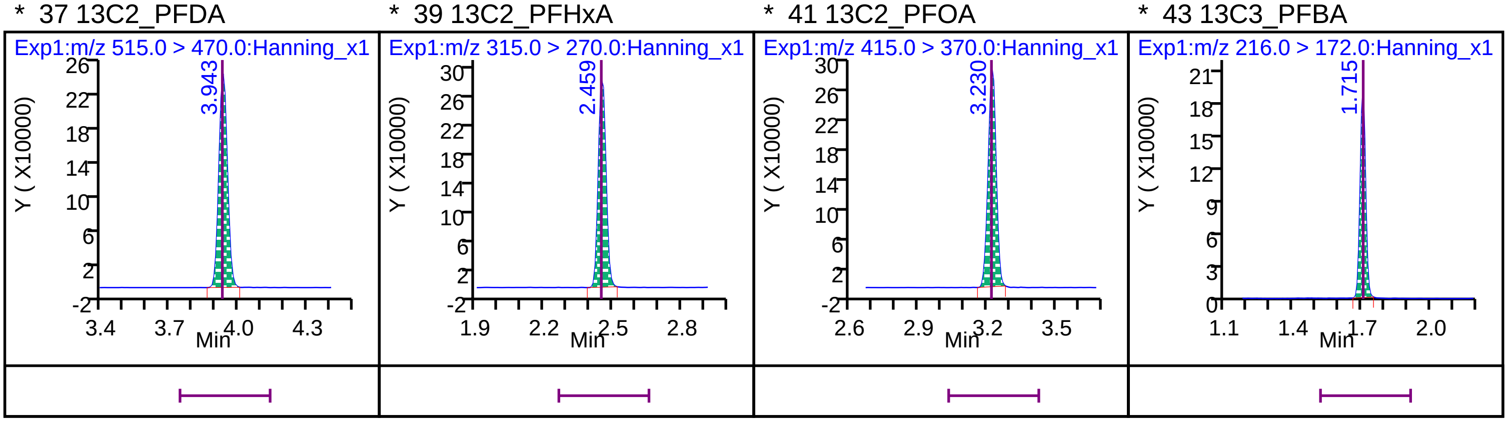
24 Perfluoro-n-tridecanoic acid (PFTrDA) (Marked ND) D 38 13C2_PFDoA



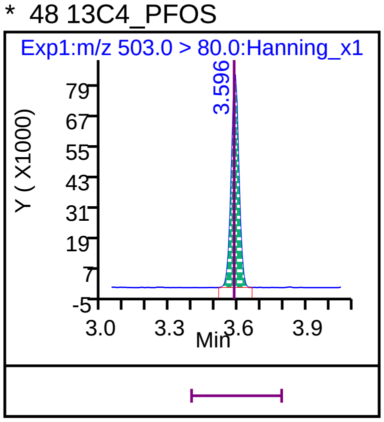
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 07:56:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

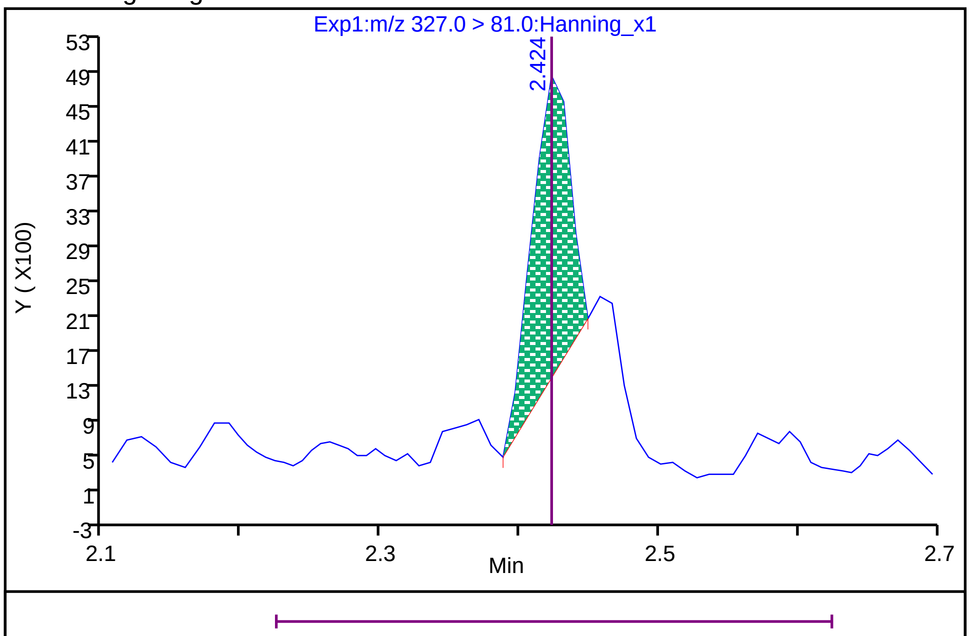
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A090.d
Injection Date:	05-Nov-2021 04:18:13	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009
Dil. Factor:	1	Operator:	Matthew M. Miller

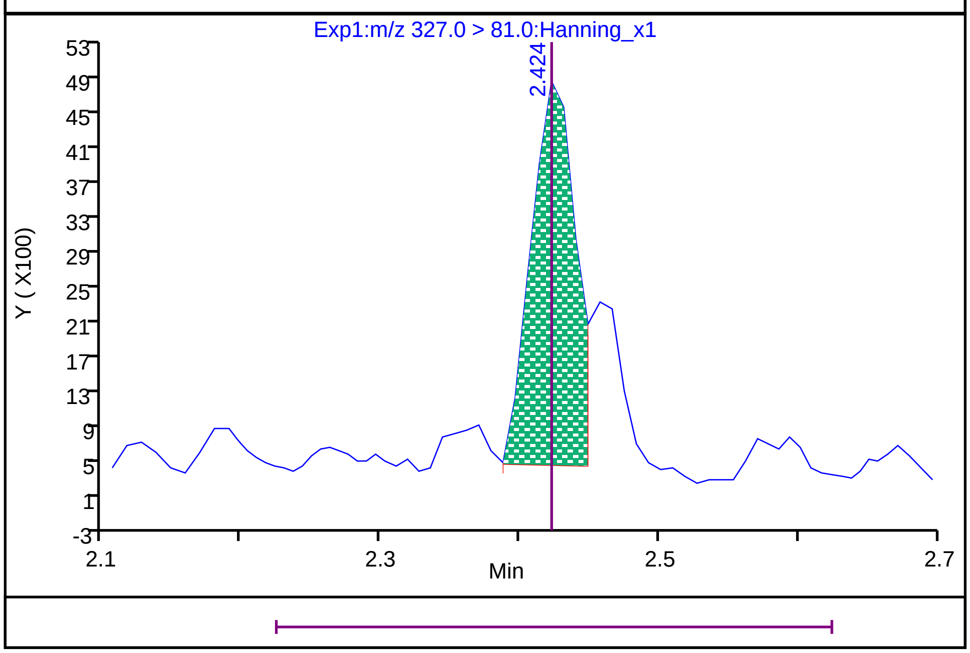
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.424
Area: 6407
Conc: 2.6414
Conc Units: ng/L



RT: 2.424
Area: 9356
Conc: 2.6414
Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:12:57

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d		
Injection Date:	05-Nov-2021 15:56:06	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	16
Lab Sample ID:	WK03035-009	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-012.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-009,5	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0355872

Name	Value	Units	Description
DF	5		Dilution Factor
VF	10000	ul	Final Volume
VI	281	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	982332	19	>100:1			1100.00	912.32	83.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	1/1	1122407	19	>100:1			1142.79	203.34		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	1	1168004	17	>100:1			1100.00	1164.61	108.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	1/0	5064802	15	>100:1			4451.88	792.15		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.141	0	394123	16	>100:1			1100.00	1213.55	116.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.502		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.424	0	325966	18	>100:1			5500.00	7847.61	144.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.468	0	1045785	18	>100:1			1100.00	1170.79	103.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.468	0/0	2798142	18	>100:1	Target = 17.93		2848.40	506.83		
313 > 119	49	2.450	2.468		157306	16	>100:1	17.78 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.587	0	899430	18	>100:1			5500.00	5490.38	97.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.594		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	1	1050728	17	>100:1			1100.00	1199.20	107.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	1/0	1606258	17	>100:1	Target = 3.26		1746.81	310.82		
363 > 169	47	2.837	2.855		475057	16	>100:1	3.38 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.846	2.872	0	314616	16	>100:1			1100.00	1199.54	105.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	-1/-1	132129	25	>100:1	Target = 3.48	14.66	390.78	69.534		
399 > 99	45	2.855	2.872		34555	22	>100:1	3.82 (1.74-5.22)	24.86				M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.898		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													J
449 > 80	45	3.223	3.239	1/1	18561	25	31:1	Target = 3.56		63.094	11.227		
449 > 99	45	3.217	3.239		5557	17	27:1	3.34 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.191	3.214	0	292026	20	>100:1			5500.00	7743.77	139.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.191	3.208	0/0	158495	20	>100:1	Target = 1.34		1716.77	305.48		
427 > 81	64	3.191	3.208		115925	20	>100:1	1.36 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.210	3.239	0	1011050	22	>100:1			1100.00	1222.56	110.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.217	3.239	0/0	1221038	33	>100:1	Target = 2.50	25.36	1291.13	229.74		
413 > 169	53	3.217	3.239		489294	38	>100:1	2.49 (1.25-3.75)	17.05				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.606	0	278546	19	>100:1			1100.00	1240.85	114.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.581	3.614	0/0	1514041	37	>100:1	Target = 4.01	1.89	5071.94	902.48		
499 > 99	54	3.581	3.614		372509	44	>100:1	4.06 (2.00-6.02)	4.00				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.811		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.948		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.250		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.402		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	960650	20	>100:1			1100.00	1202.29	111.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.614	0/0	260148	18	>100:1	Target = 4.69		327.13	58.208		
463 > 169	56	3.588	3.614		56424	21	>100:1	4.61 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.919	3.948	0	184384	20	>100:1			5500.00	5874.82	107.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.948		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.956	0	871248	19	>100:1			1100.00	1207.05	109.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.964		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	990166	16	>100:1			5500.00	5584.29	112.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.112		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	801770	16	>100:1			1100.00	1173.17	106.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.268		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.268	0	834222	17	>100:1			5500.00	5578.93	103.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.277		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.441	4.454	0	64684	25	>100:1			1100.00	1004.33	92.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.461		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.541	0	746690	18	>100:1			1100.00	1085.87	107.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.541		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.784		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.965	5.000	0	813750	23	>100:1			1100.00	1040.93	88	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.003		ND								
*** 37 13C2_PFDA**													
515 > 470		3.926	3.956	0	798669	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.468	0	930136	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.239	0	946745	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.715	0	807535	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	256390	20	>100:1			200.00			

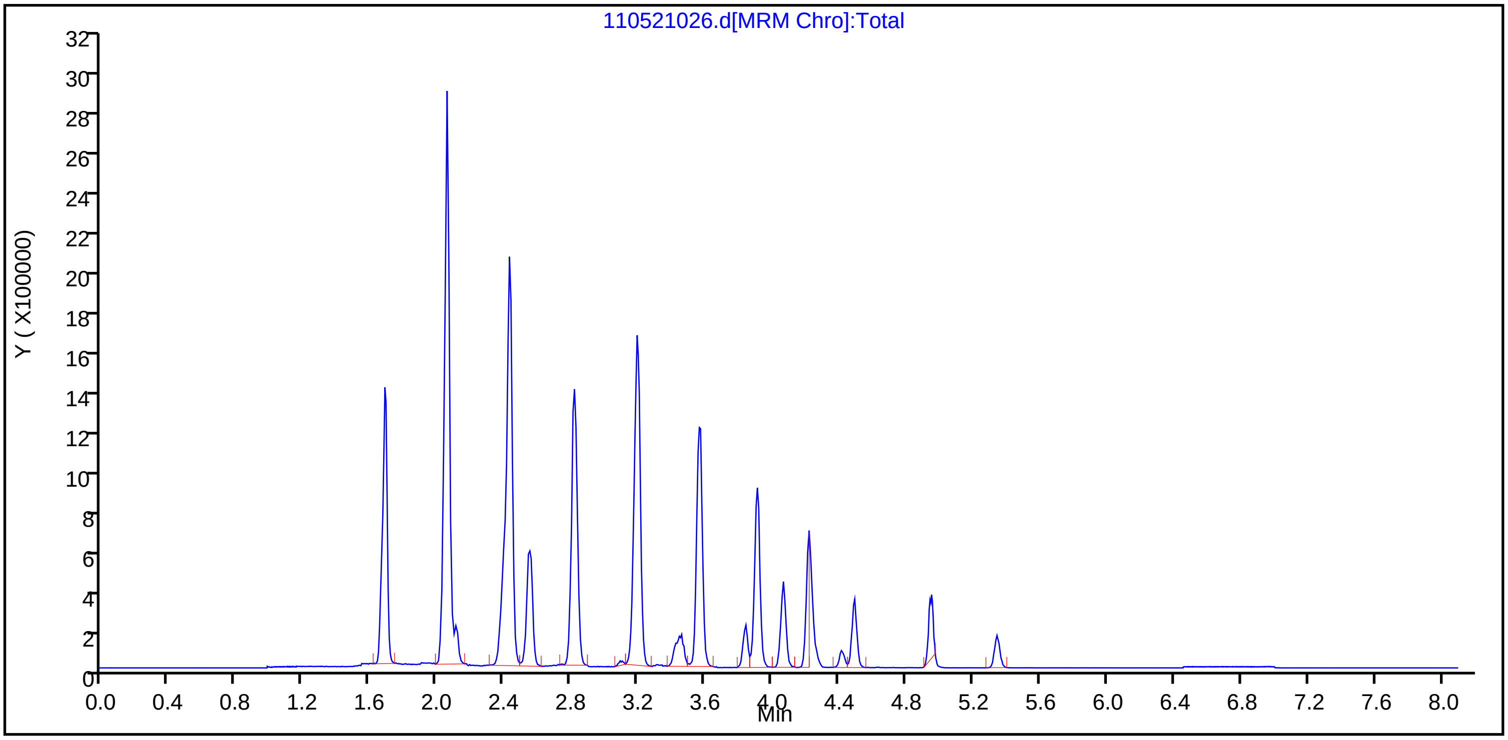
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

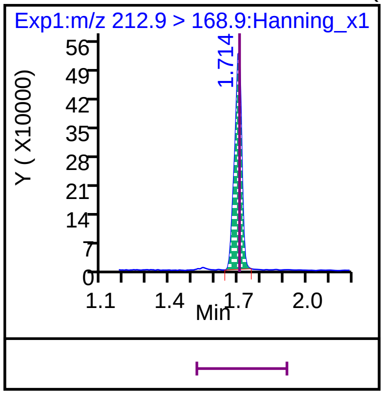
Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

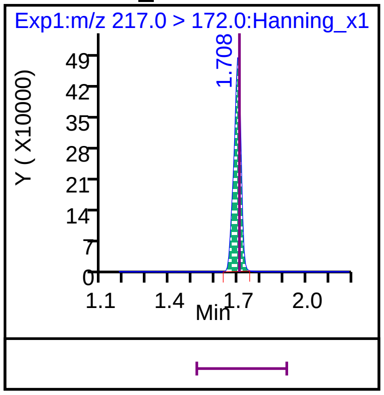
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d		
Injection Date:	05-Nov-2021 15:56:06	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009,5		
Dil. Factor:	5	Operator:	Matthew M. Miller



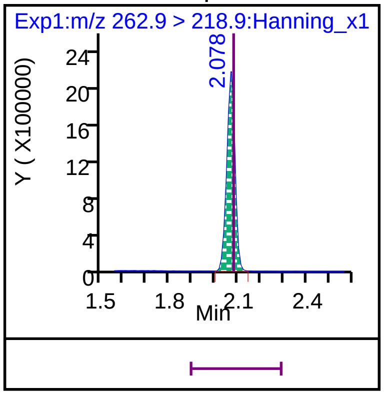
8 Perfluoro-n-butanoic acid (PFBA)



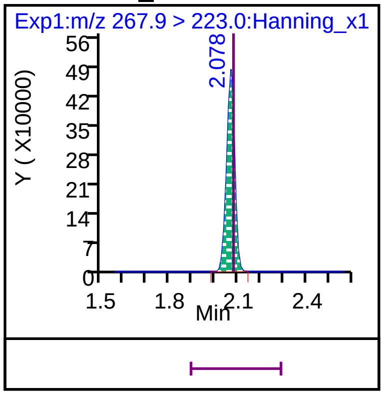
D 46 13C4_PFBA



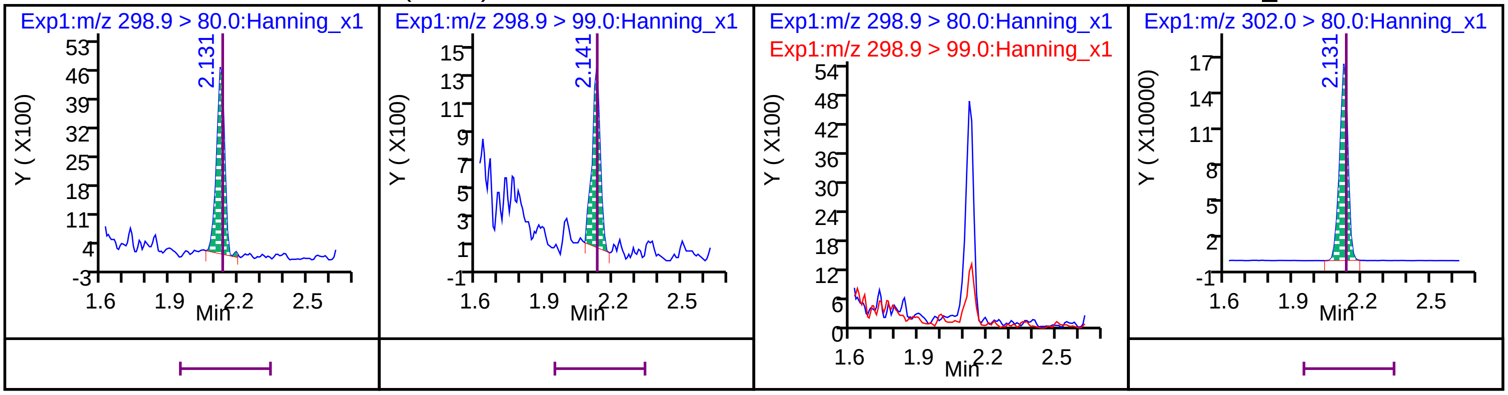
21 Perfluoro-n-pentanoic acid (PFPeA)



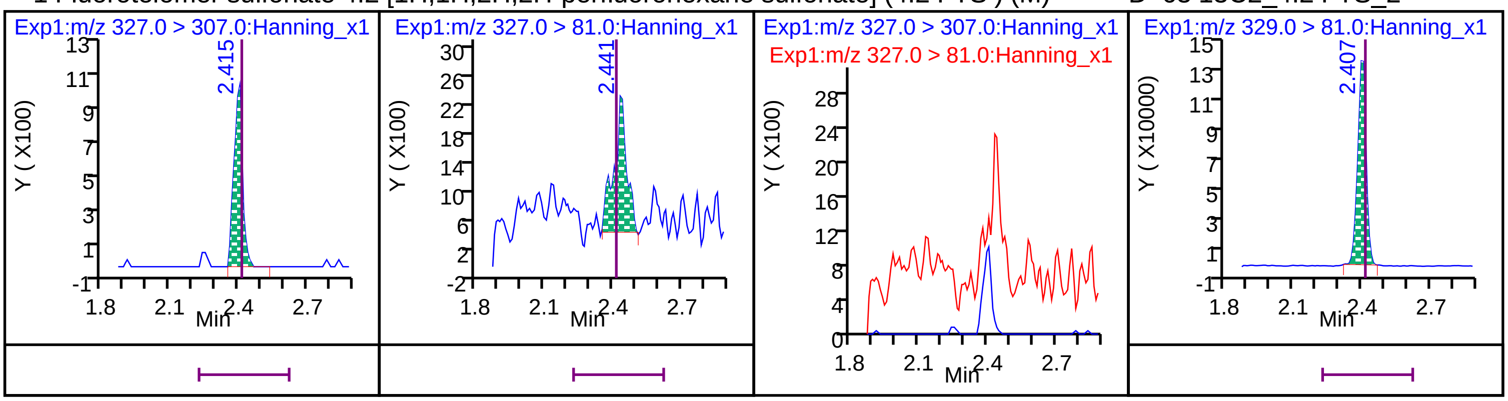
D 50 13C5_PFPeA



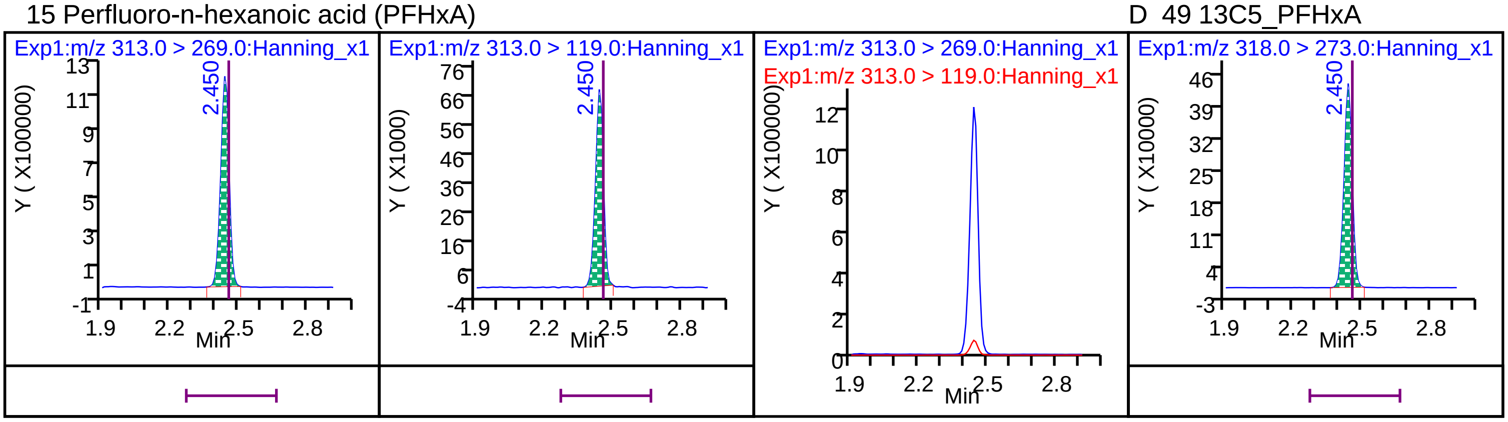
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



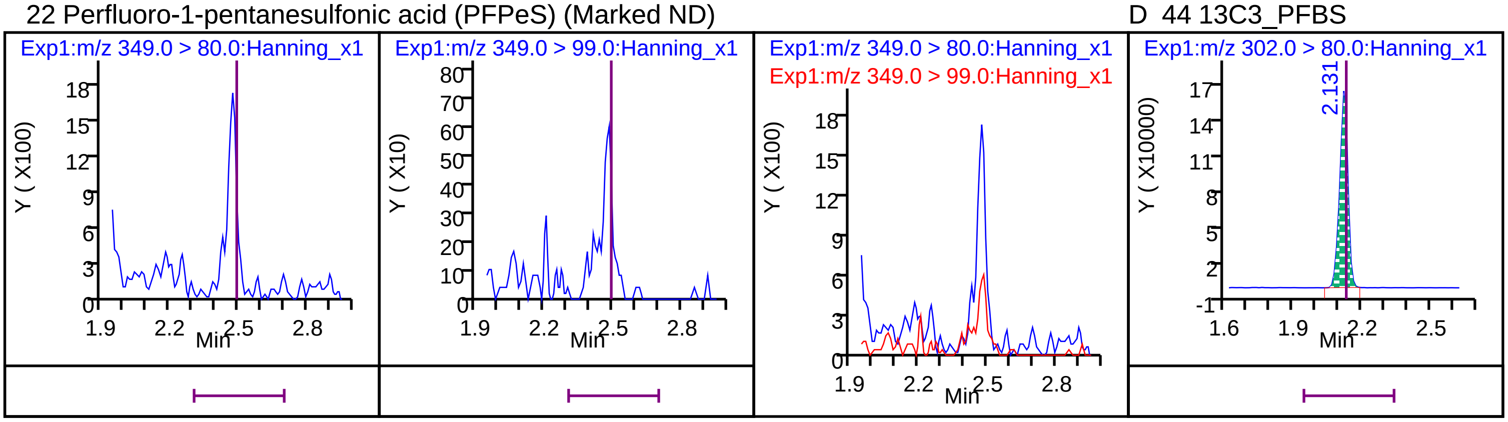
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



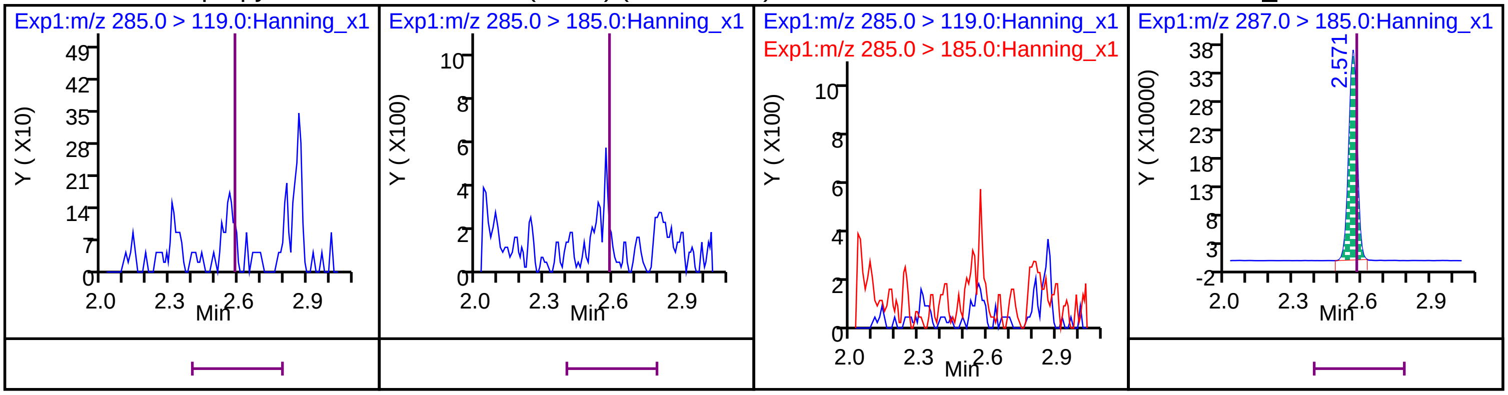
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



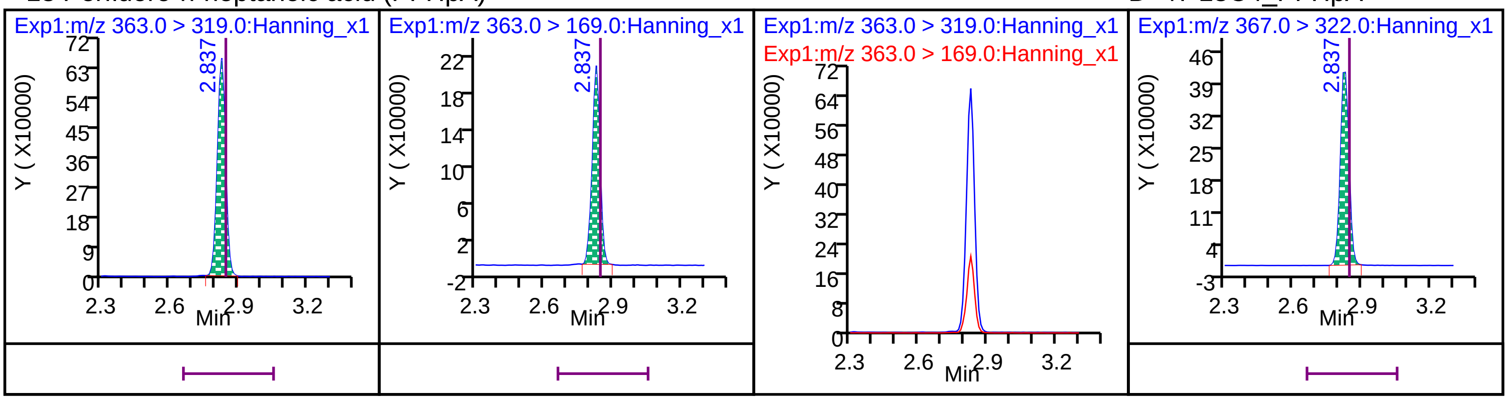
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



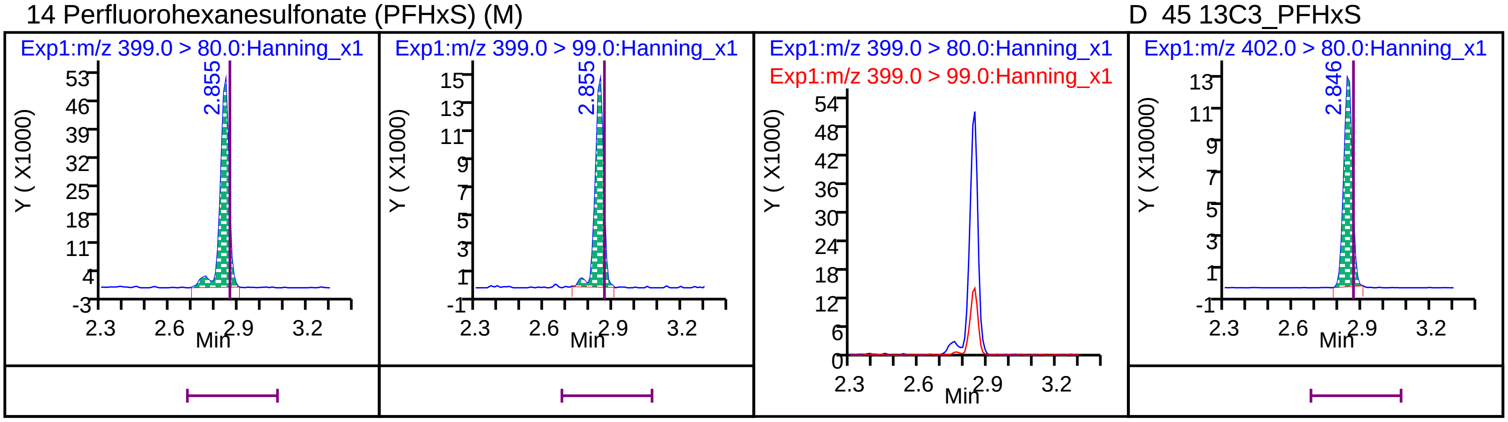
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



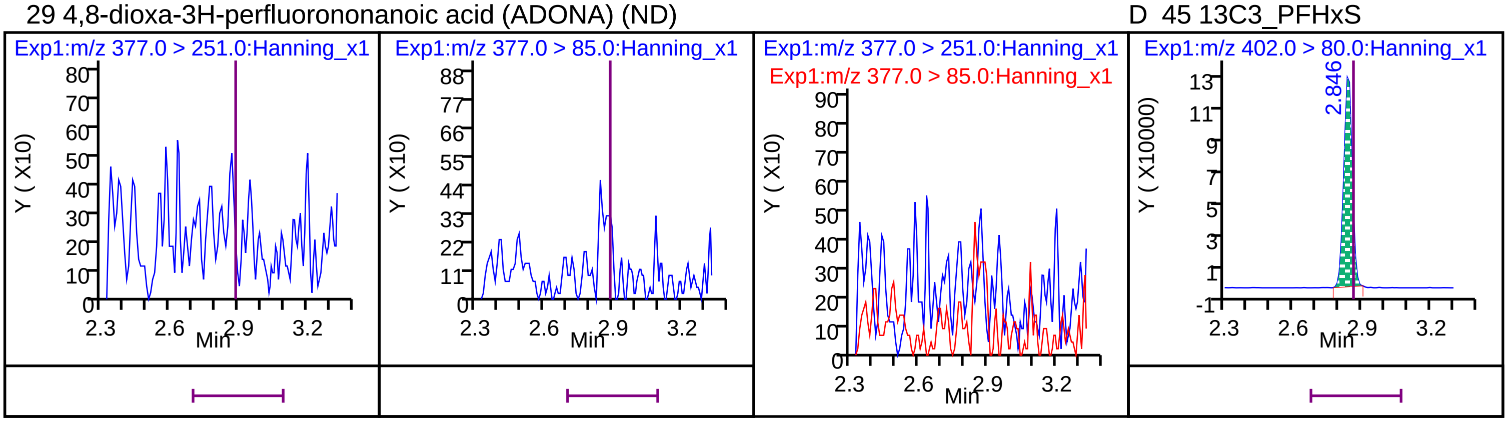
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



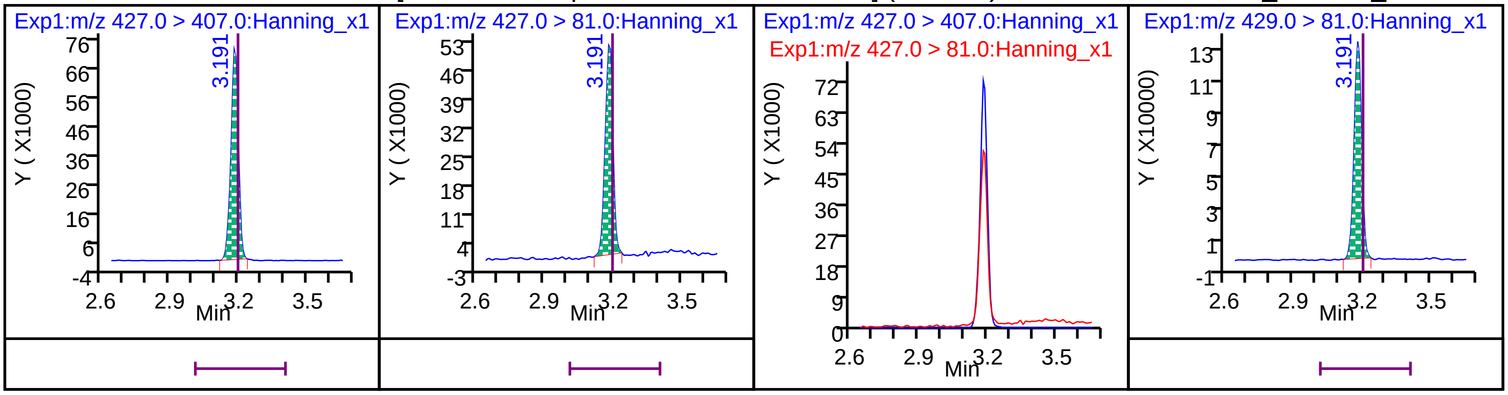
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



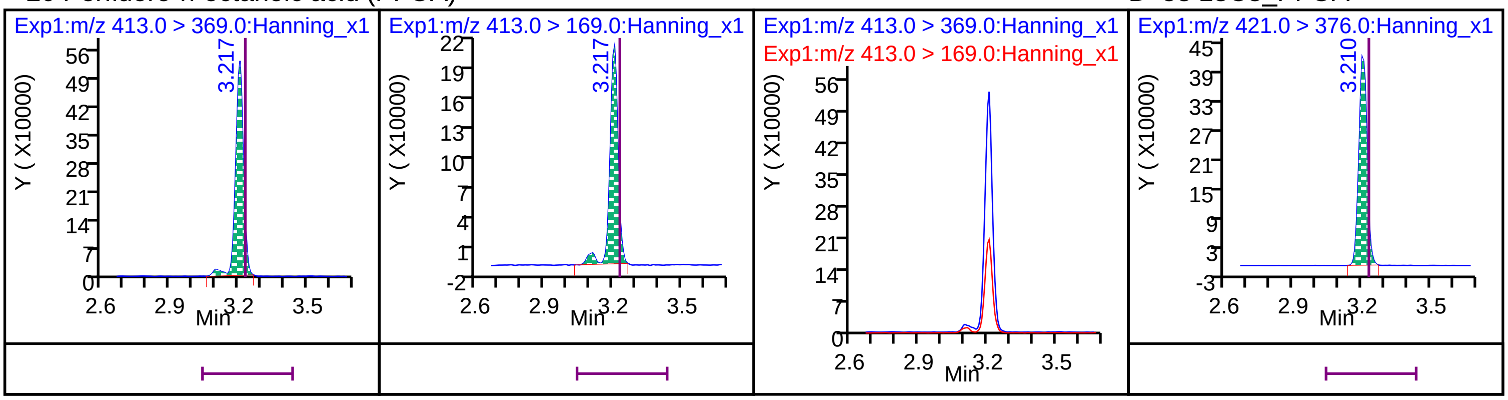
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



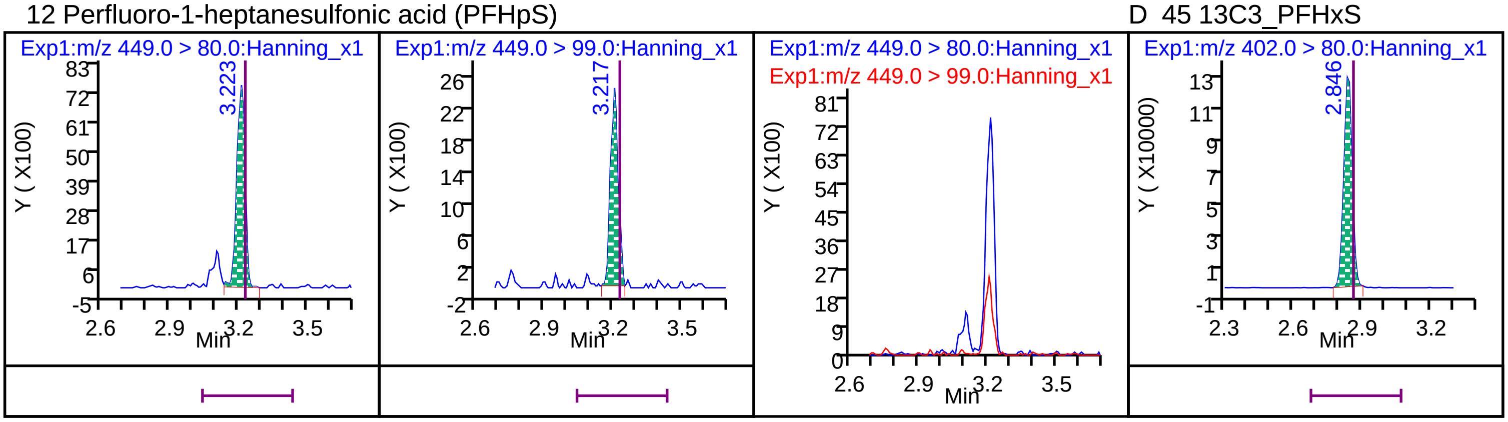
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



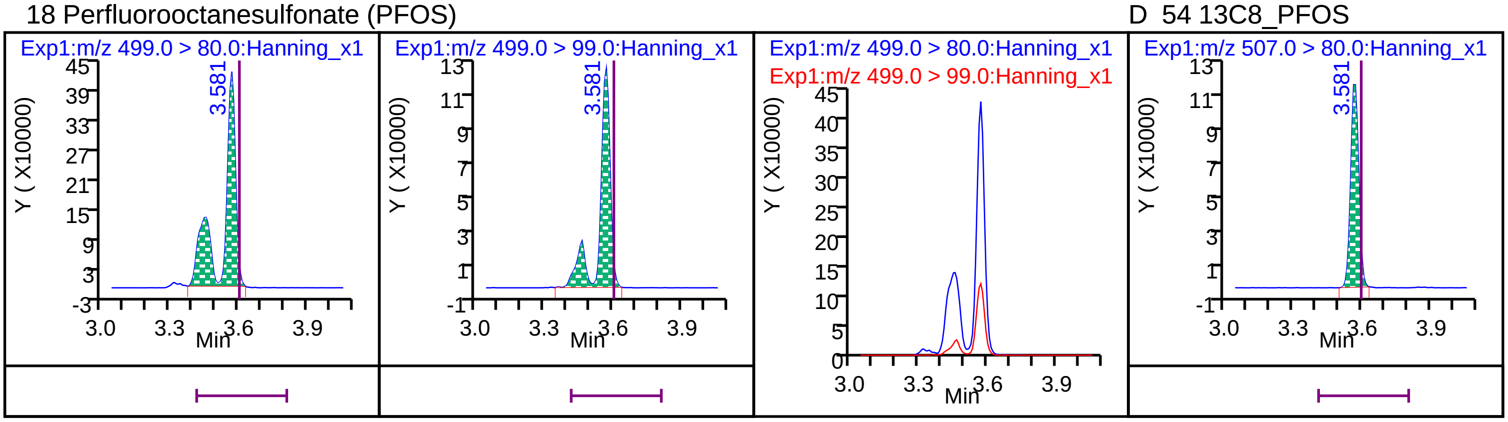
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



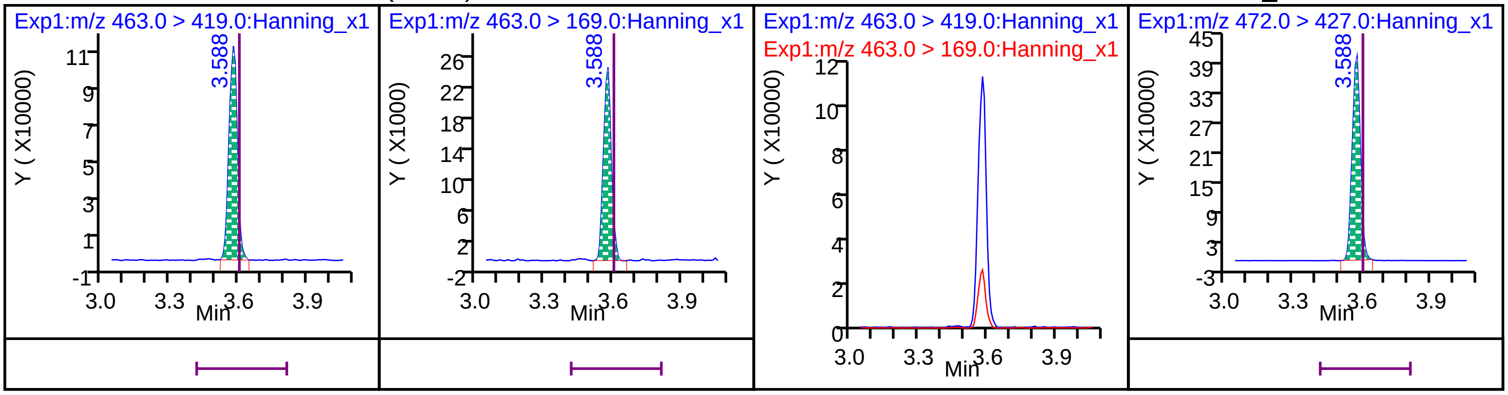
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



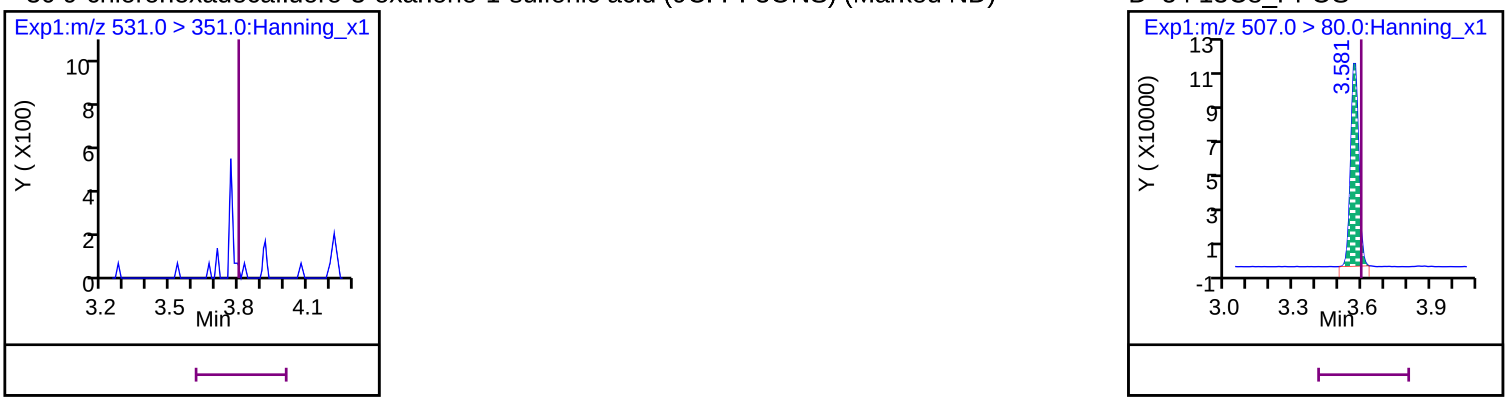
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



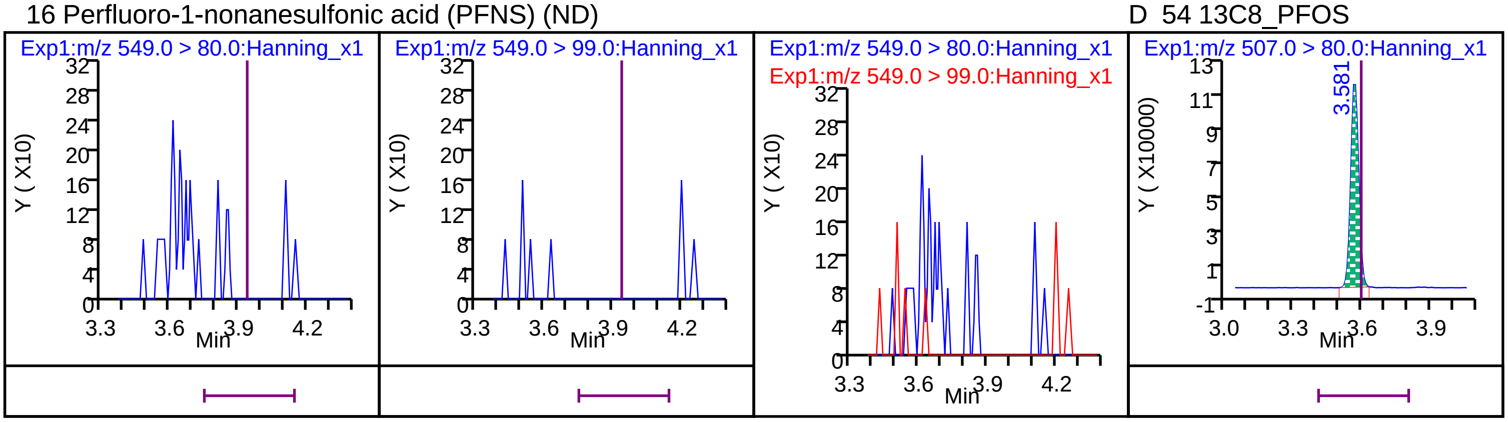
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



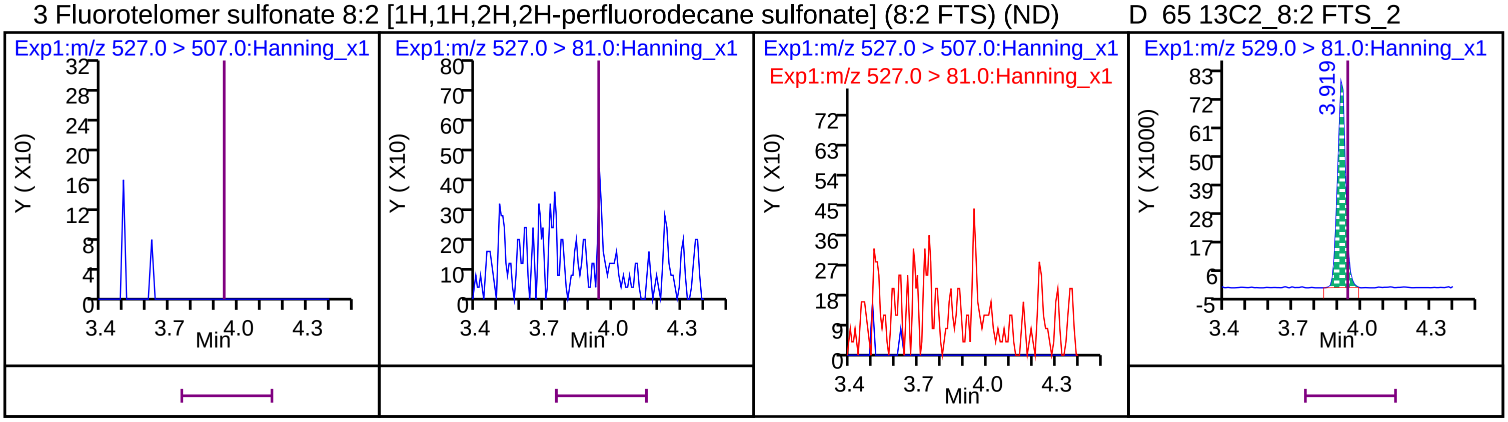
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



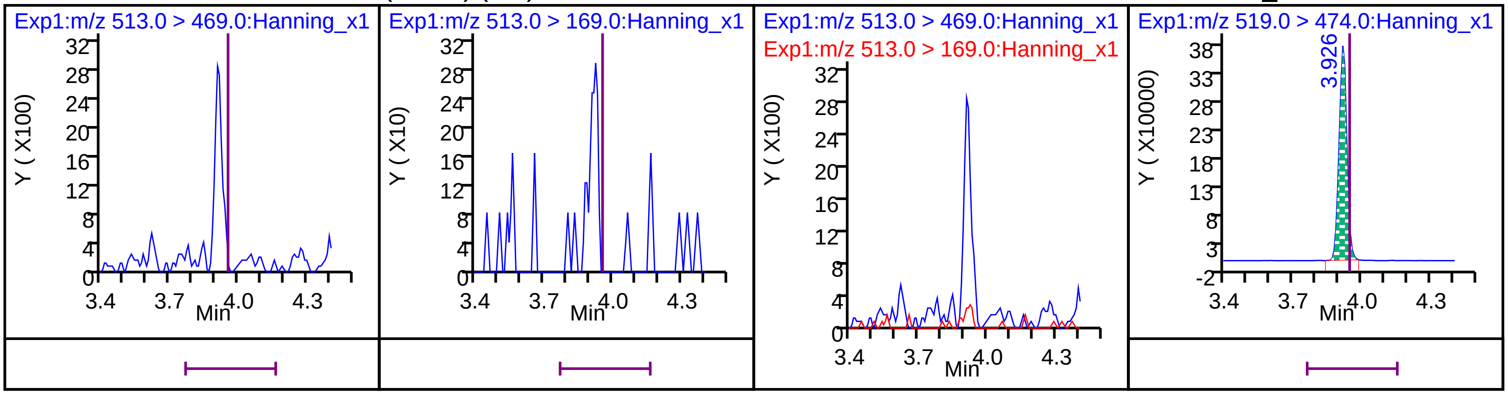
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



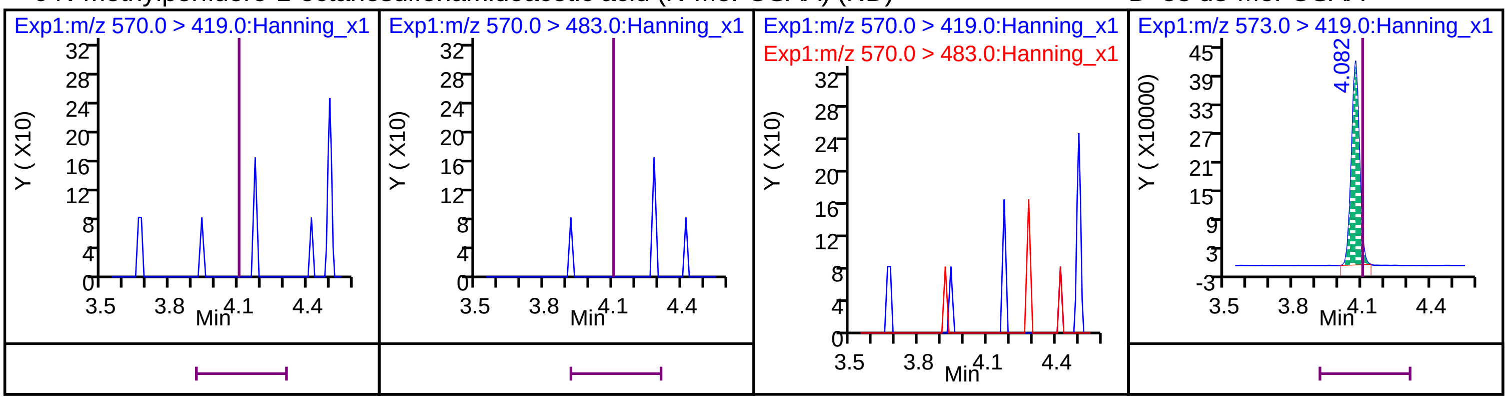
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



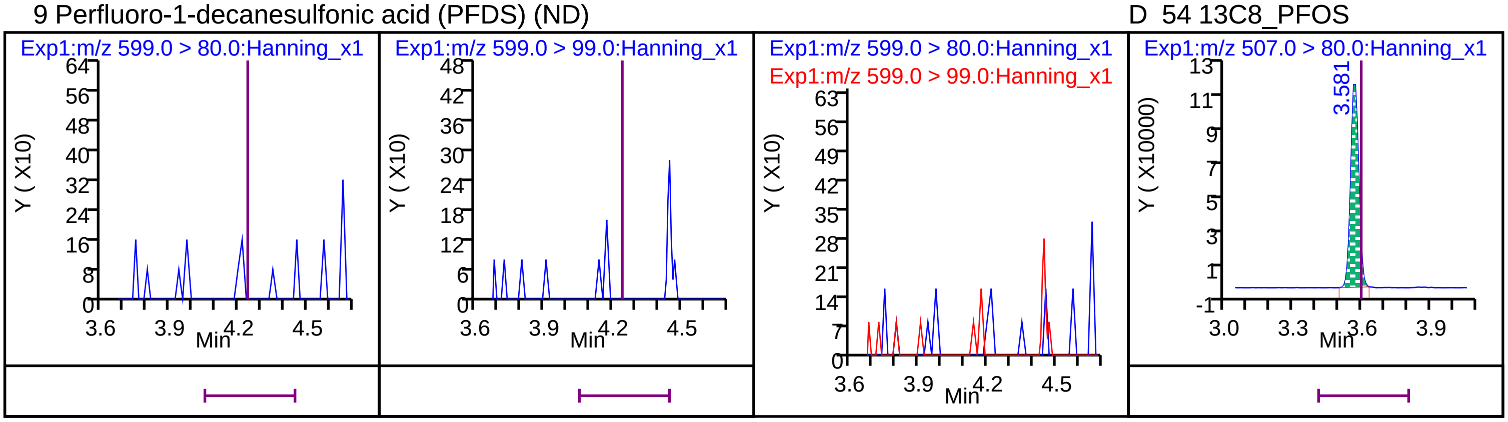
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



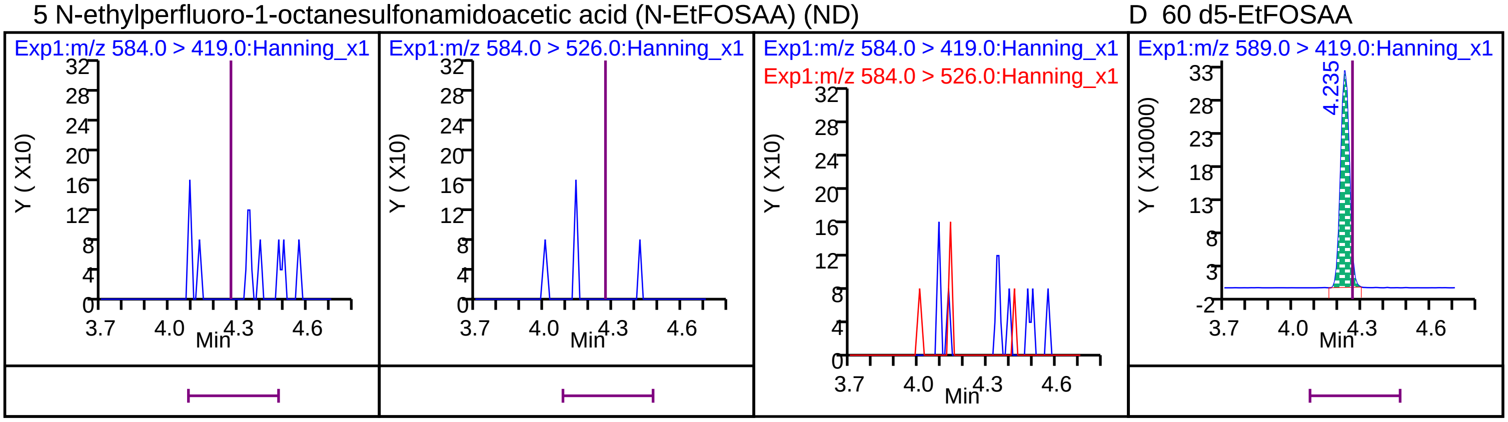
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

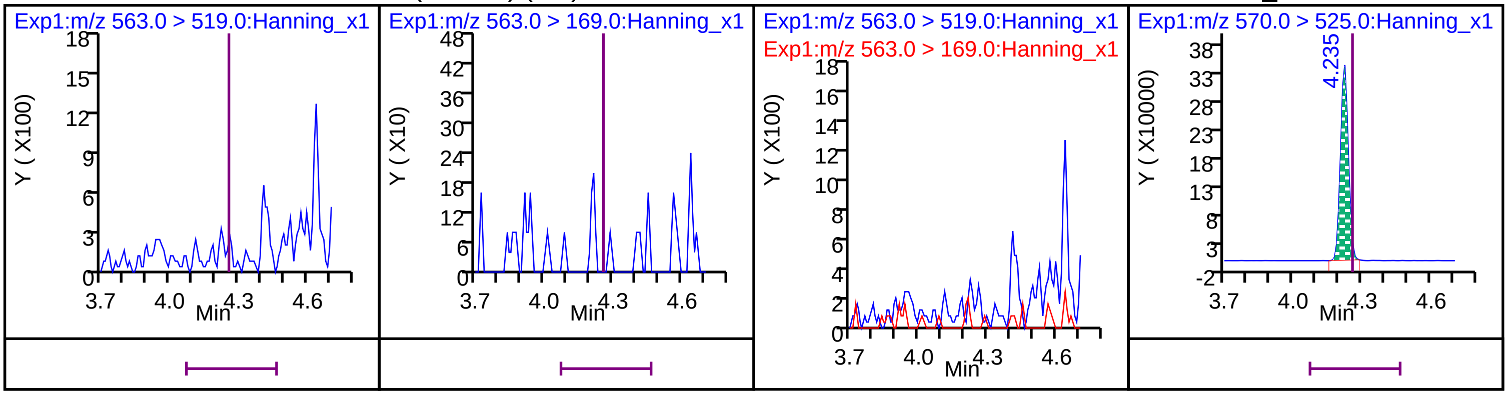


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

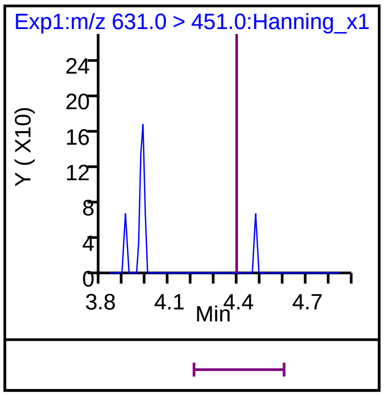


25 Perfluoro-n-undecanoic acid (PFUdA) (ND)

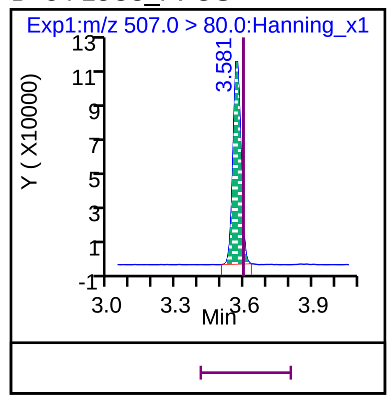
D 52 13C7_PFUdA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

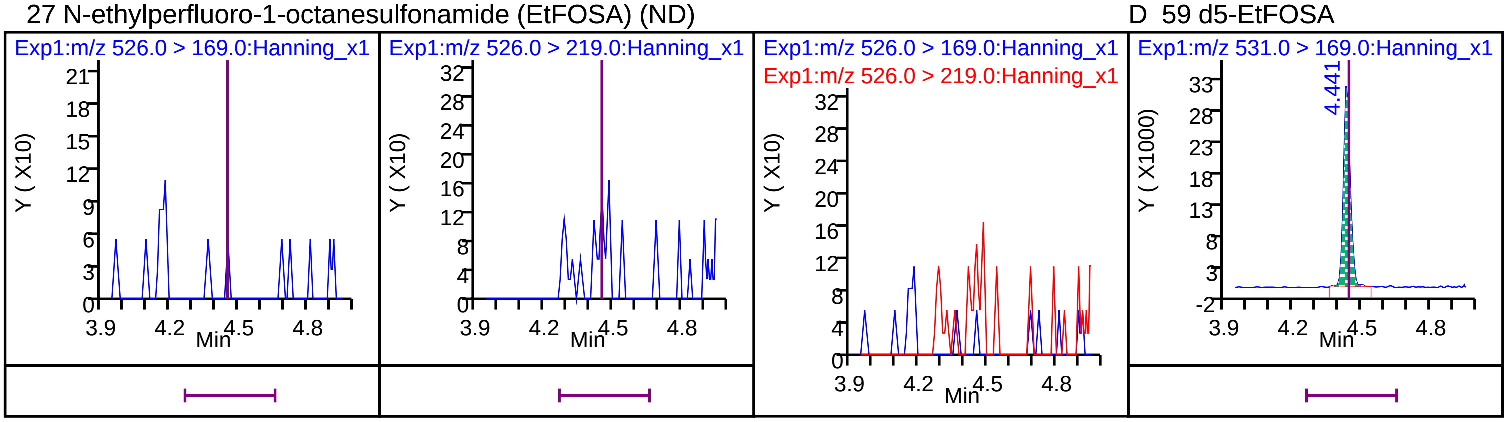


D 54 13C8_PFOS



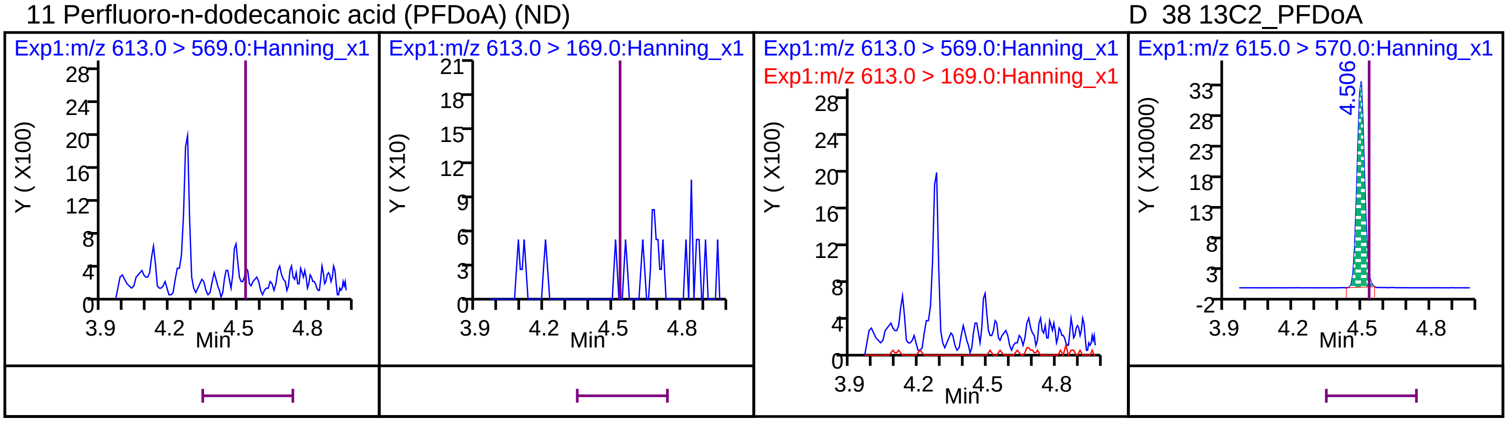
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

D 59 d5-EtFOSA



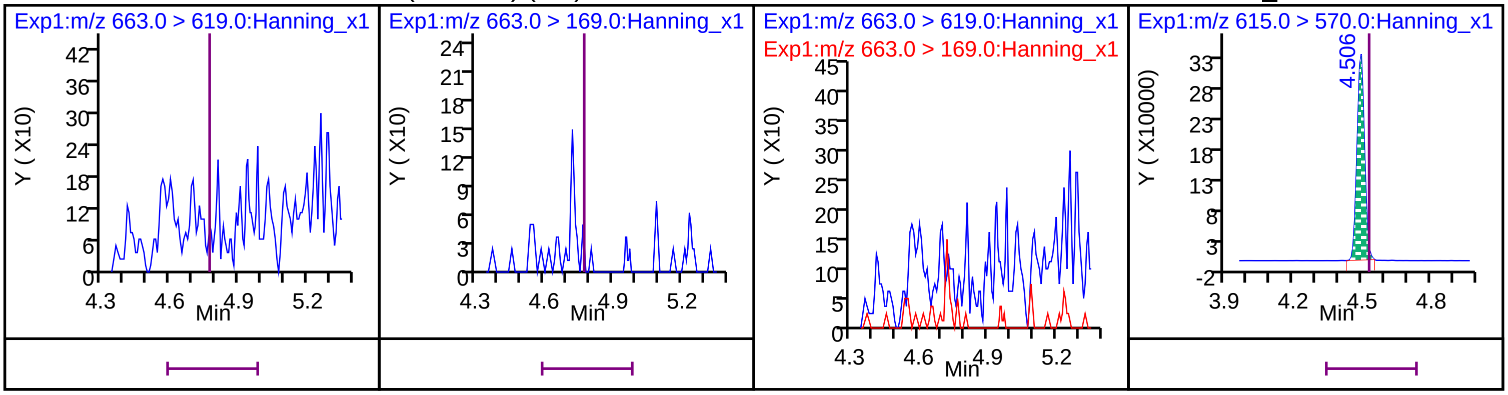
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

D 38 13C2_PFDoA



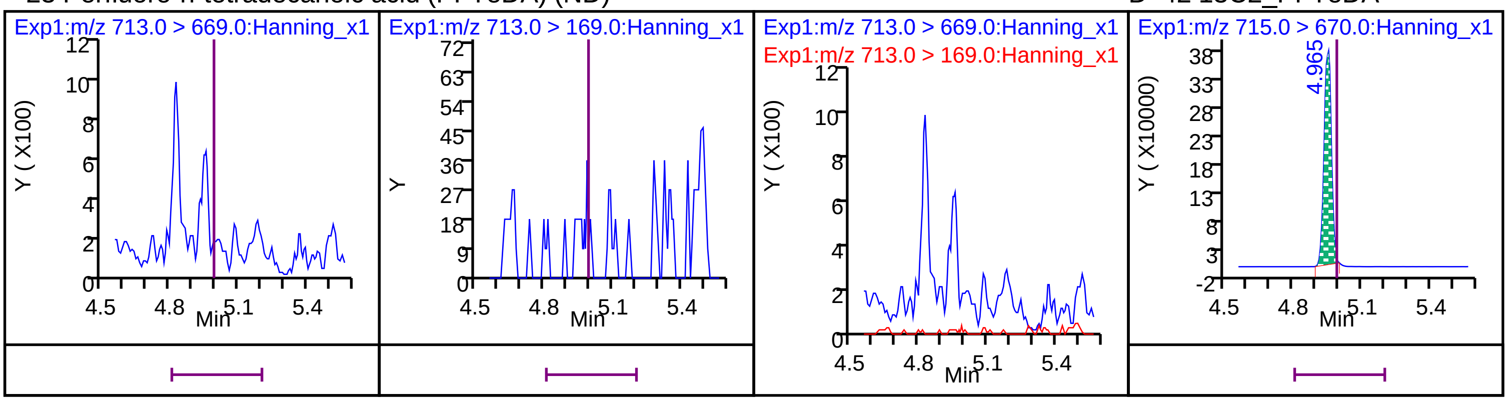
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)

D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)

D 42 13C2_PFTeDA

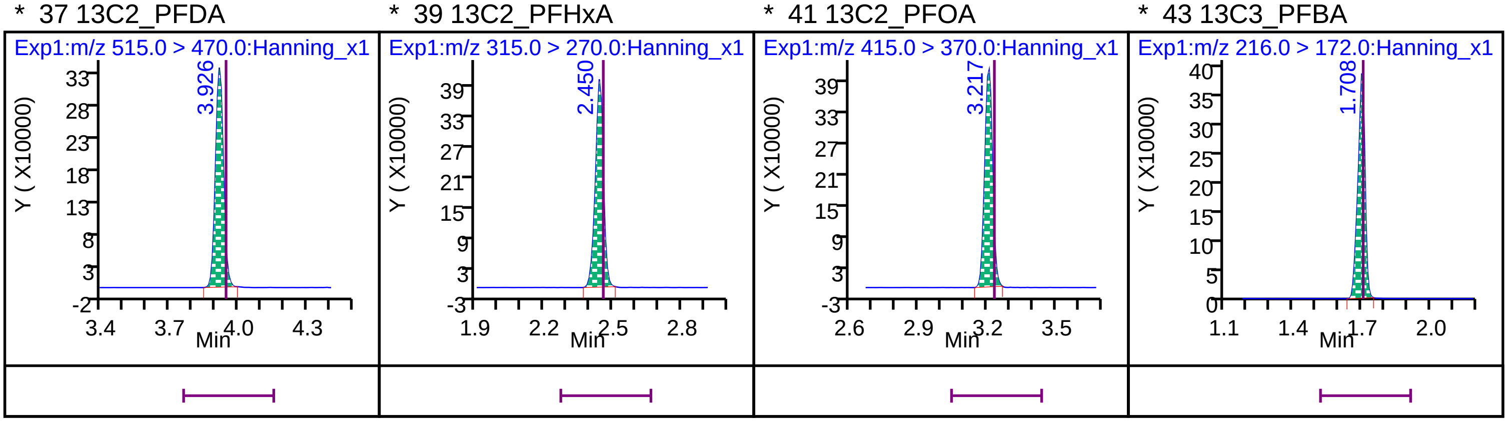


* 37 13C2_PFDA

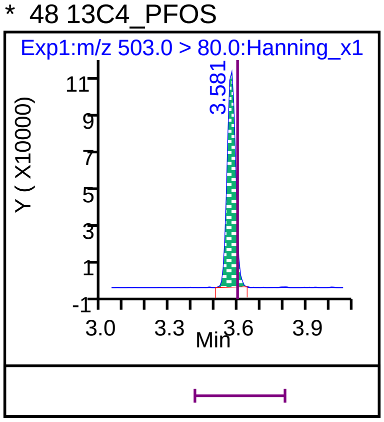
* 39 13C2_PFHxA

* 41 13C2_PFOA

* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:17:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

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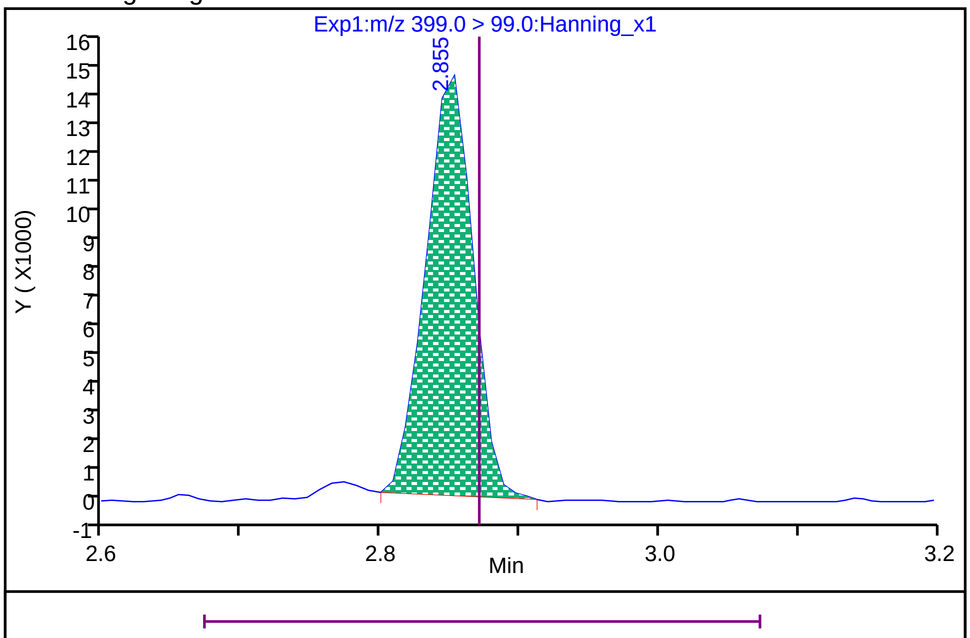
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009,5		
Dil. Factor:	5	Operator:	Matthew M. Miller

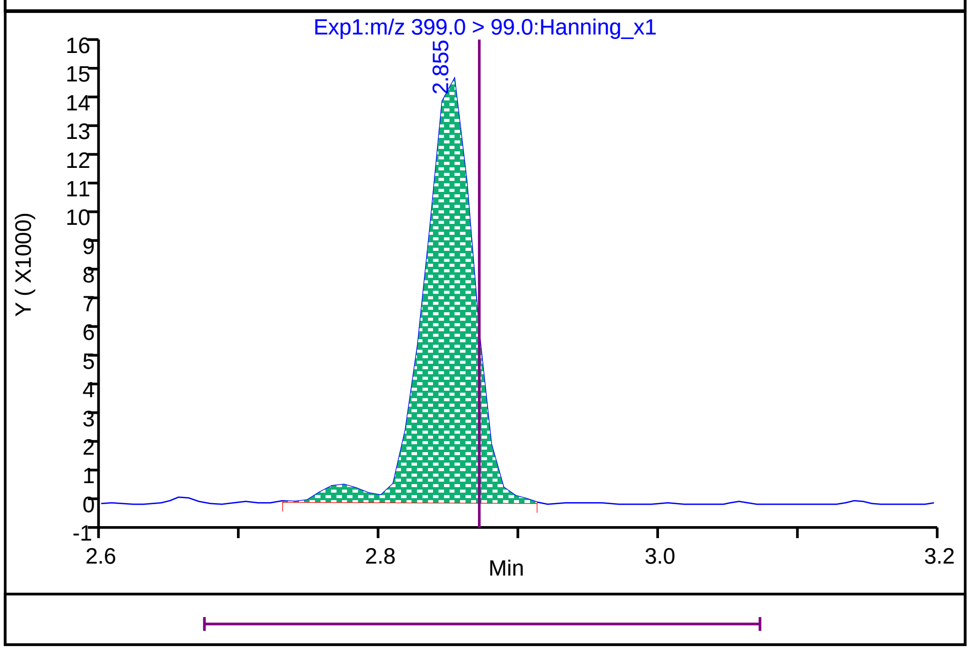
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.855
Area:	32221
Conc:	69.534
Conc Units:	ng/L



RT:	2.855
Area:	34555
Conc:	69.534
Conc Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:35:20

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d		
Injection Date:	05-Nov-2021 15:56:06	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	16
Lab Sample ID:	WK03035-009	Lab Prep. Batch:	21177
Client ID:	SW3-DPT-0144-012.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-009,5	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous

Final Conc.: Amt * DF * CF

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0355872

Name	Value	Units	Description
DF	5		Dilution Factor
VF	10000	ul	Final Volume
VI	281	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	982332	19	>100:1			1100.00	912.32	83.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	1/1	1122407	19	>100:1			1142.79	203.34		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	1	1168004	17	>100:1			1100.00	1164.61	108.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	1/0	5064802	15	>100:1			4451.88	792.15		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.141	0	394123	16	>100:1			1100.00	1213.55	116.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.502		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.424	0	325966	18	>100:1			5500.00	7847.61	144.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.468	0	1045785	18	>100:1			1100.00	1170.79	103.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.468	0/0	2798142	18	>100:1	Target = 17.93		2848.40	506.83		
313 > 119	49	2.450	2.468		157306	16	>100:1	17.78 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.587	0	899430	18	>100:1			5500.00	5490.38	97.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.594		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	1	1050728	17	>100:1			1100.00	1199.20	107.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	1/0	1606258	17	>100:1	Target = 3.26		1746.81	310.82		
363 > 169	47	2.837	2.855		475057	16	>100:1	3.38 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.846	2.872	0	314616	16	>100:1			1100.00	1199.54	105.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	-1/-1	132129	25	>100:1	Target = 3.48	14.66	390.78	69.534		
399 > 99	45	2.855	2.872		34555	22	>100:1	3.82 (1.74-5.22)	24.86				M
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.898		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													J
449 > 80	45	3.223	3.239	1/1	18561	25	31:1	Target = 3.56		63.094	11.227		
449 > 99	45	3.217	3.239		5557	17	27:1	3.34 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.191	3.214	0	292026	20	>100:1			5500.00	7743.77	139.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.191	3.208	0/0	158495	20	>100:1	Target = 1.34		1716.77	305.48		
427 > 81	64	3.191	3.208		115925	20	>100:1	1.36 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.210	3.239	0	1011050	22	>100:1			1100.00	1222.56	110.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.217	3.239	0/0	1221038	33	>100:1	Target = 2.50	25.36	1291.13	229.74		
413 > 169	53	3.217	3.239		489294	38	>100:1	2.49 (1.25-3.75)	17.05				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.606	0	278546	19	>100:1			1100.00	1240.85	114.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.581	3.614	0/0	1514041	37	>100:1	Target = 4.01	1.89	5071.94	902.48		
499 > 99	54	3.581	3.614		372509	44	>100:1	4.06 (2.00-6.02)	4.00				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.811		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.948		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.250		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.402		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	960650	20	>100:1			1100.00	1202.29	111.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.614	0/0	260148	18	>100:1	Target = 4.69		327.13	58.208		
463 > 169	56	3.588	3.614		56424	21	>100:1	4.61 (2.34-7.05)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.919	3.948	0	184384	20	>100:1			5500.00	5874.82	107.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.948		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.956	0	871248	19	>100:1			1100.00	1207.05	109.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.964		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	990166	16	>100:1			5500.00	5584.29	112.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.112		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	801770	16	>100:1			1100.00	1173.17	106.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.268		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.268	0	834222	17	>100:1			5500.00	5578.93	103.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.277		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.441	4.454	0	64684	25	>100:1			1100.00	1004.33	92.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.461		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.541	0	746690	18	>100:1			1100.00	1085.87	107.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.541		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.784		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.965	5.000	0	813750	23	>100:1			1100.00	1040.93	88	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.003		ND								
*** 37 13C2_PFDA**													
515 > 470		3.926	3.956	0	798669	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.468	0	930136	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.239	0	946745	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.708	1.715	0	807535	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	256390	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

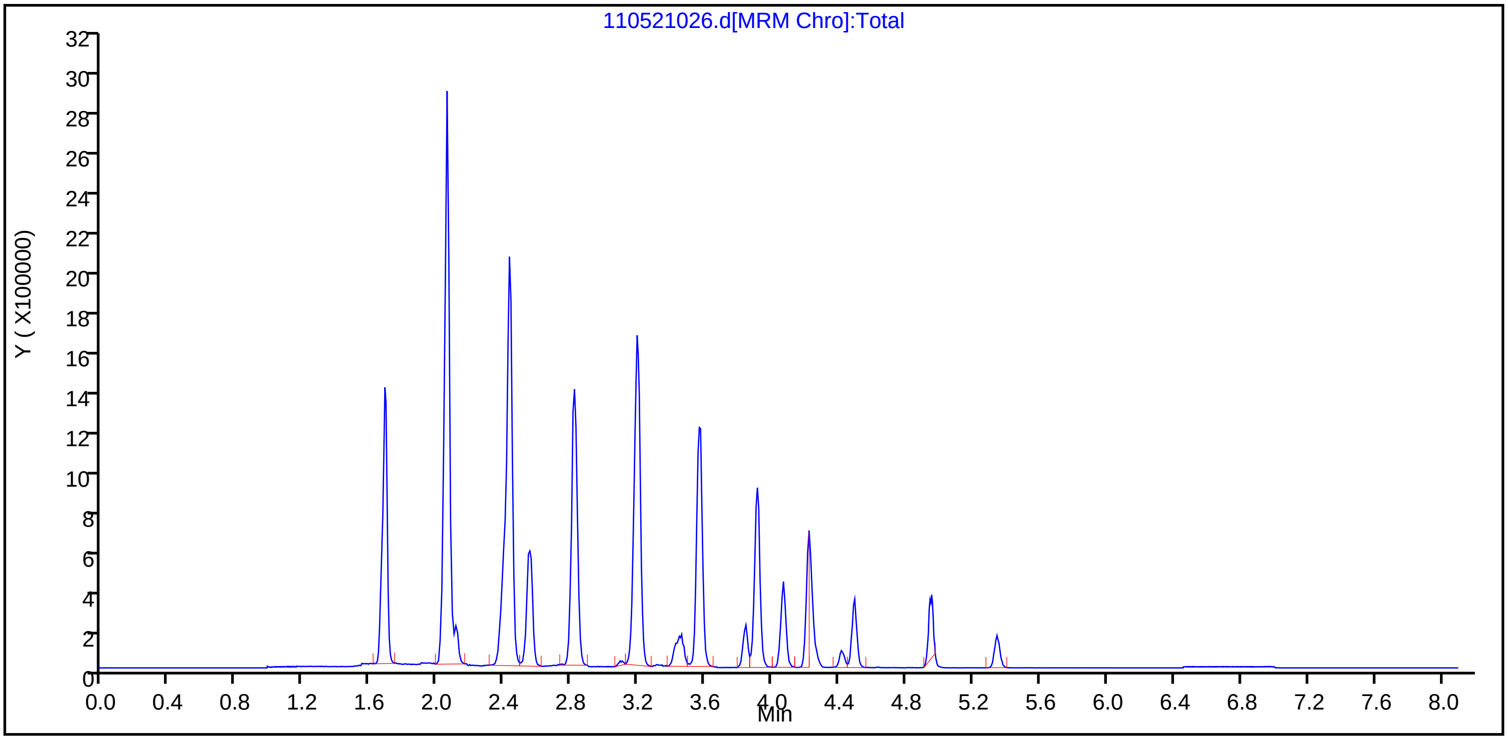
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

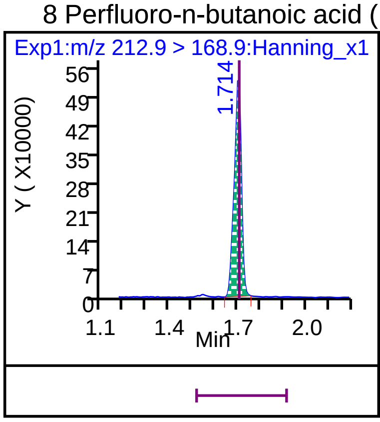
Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

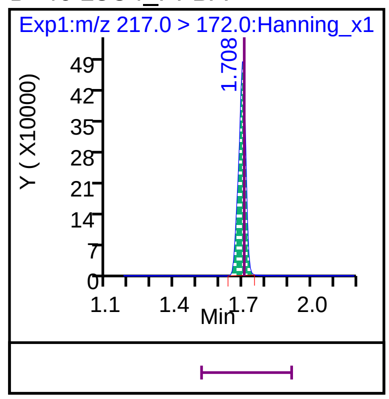
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d		
Injection Date:	05-Nov-2021 15:56:06	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009,5		
Dil. Factor:	5	Operator:	Matthew M. Miller



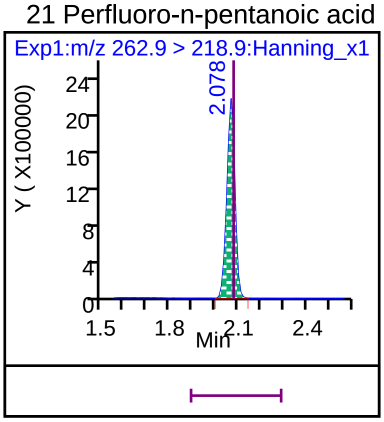
8 Perfluoro-n-butanoic acid (PFBA)



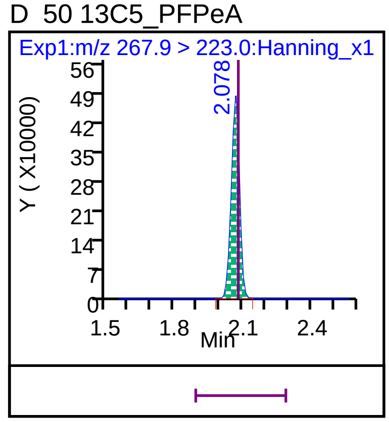
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

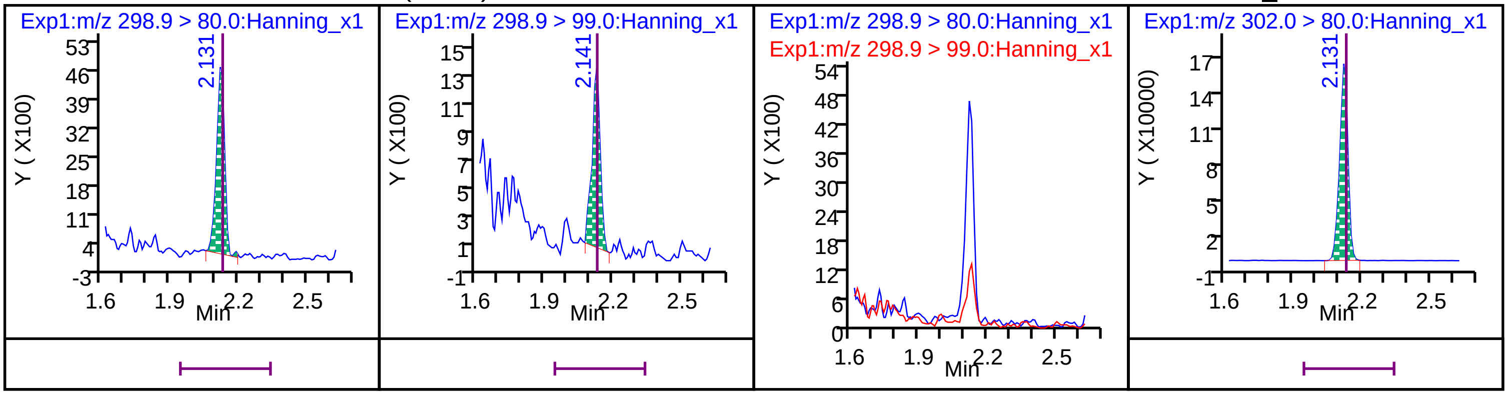


D 50 13C5_PFPeA

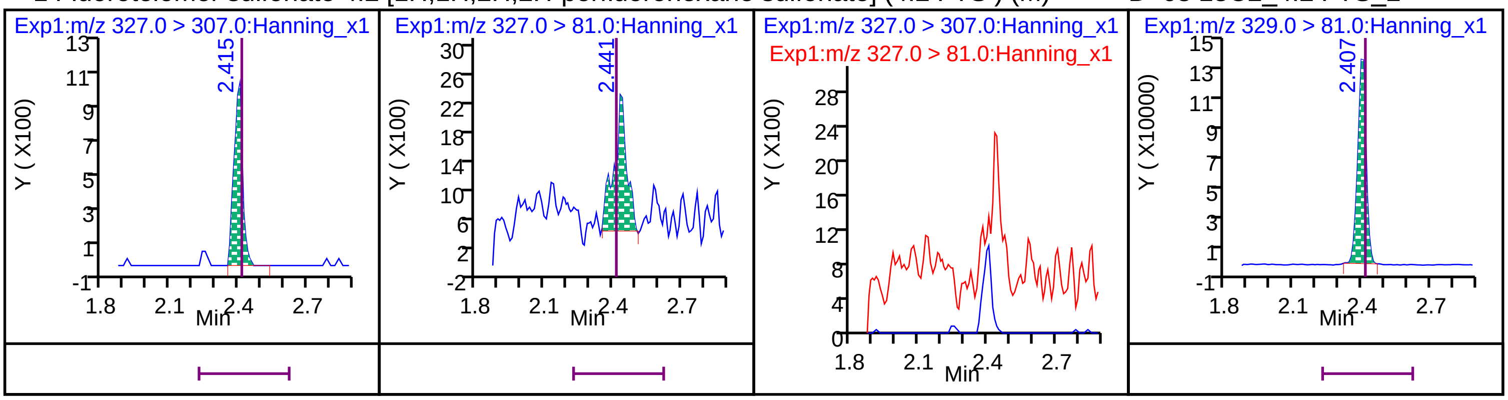


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d

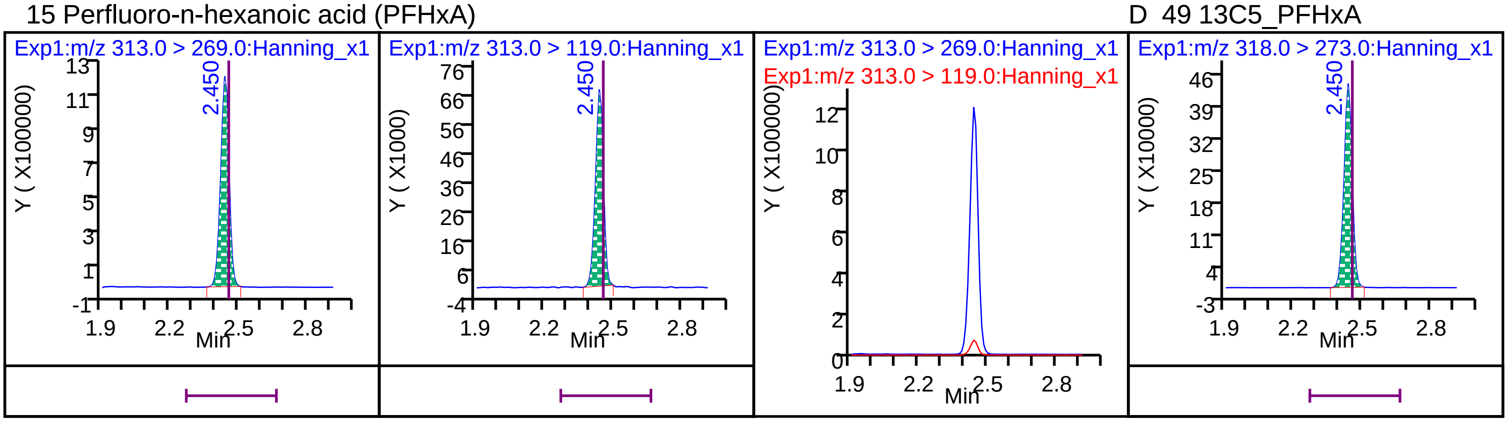
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



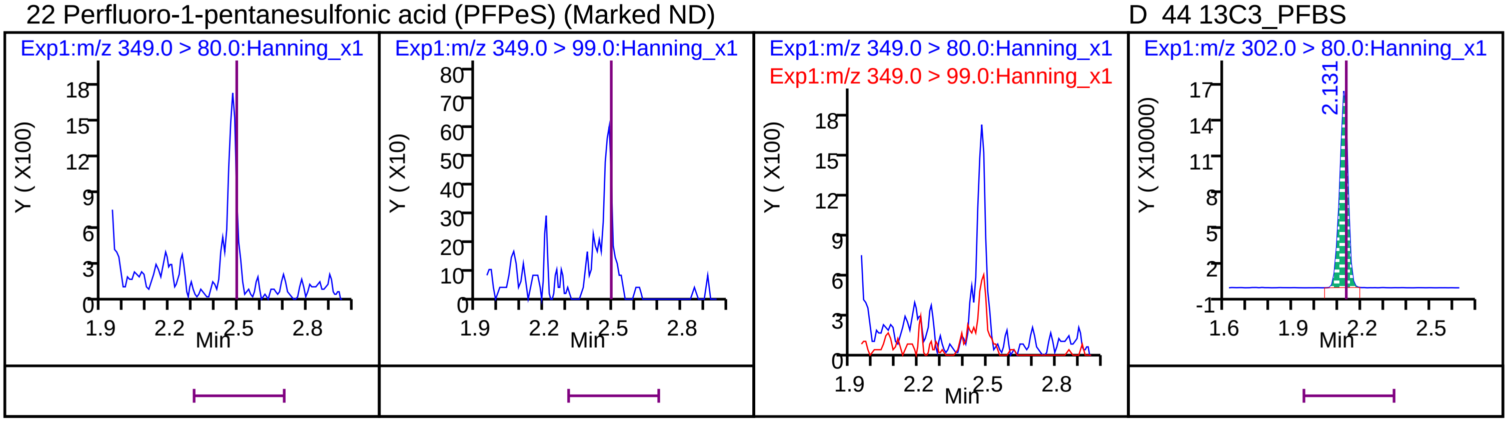
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

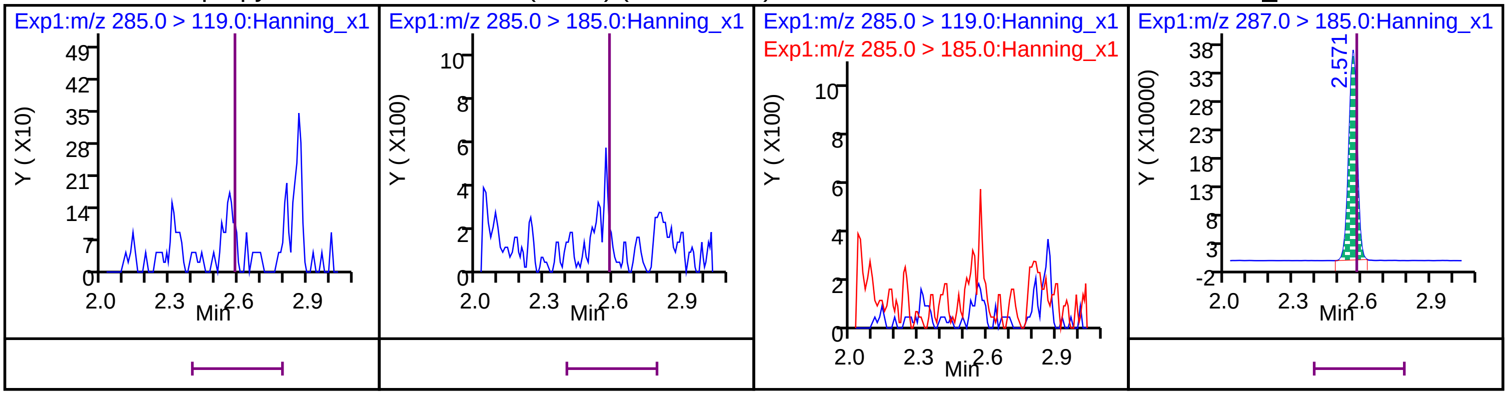


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS

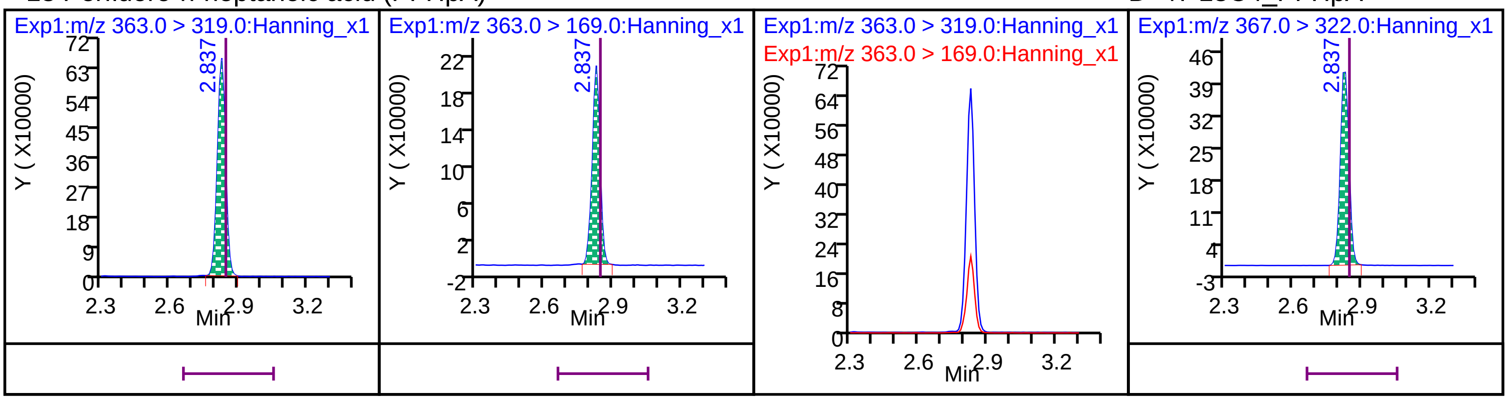


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d

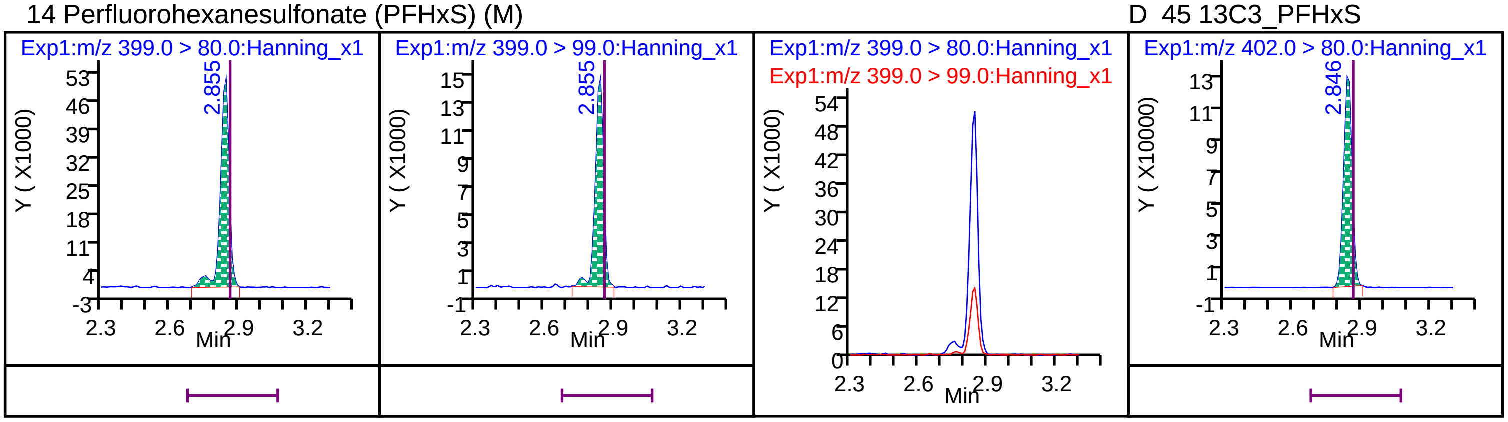
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



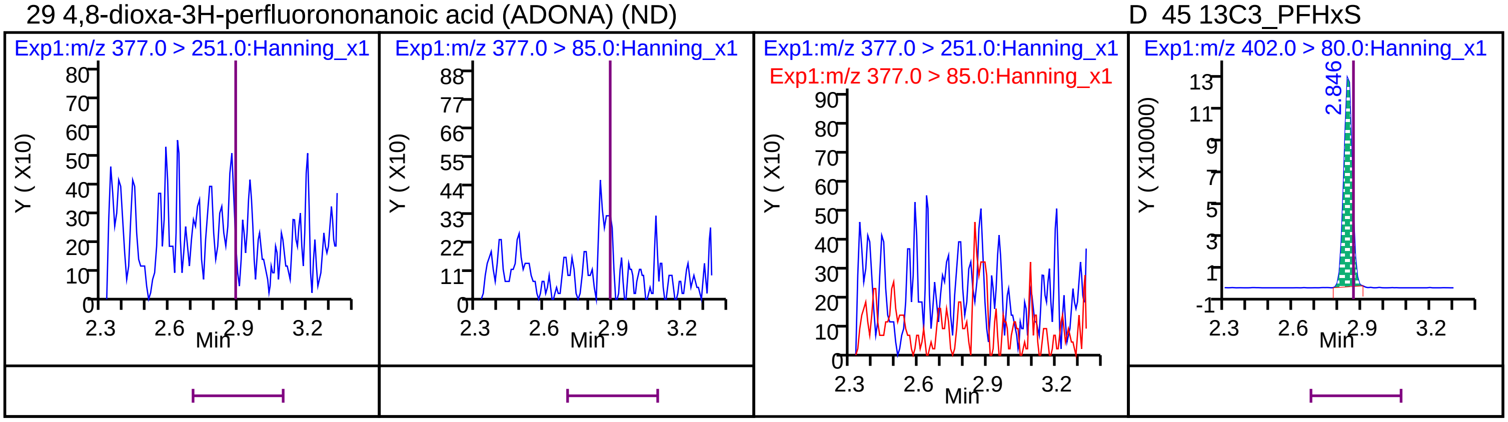
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS

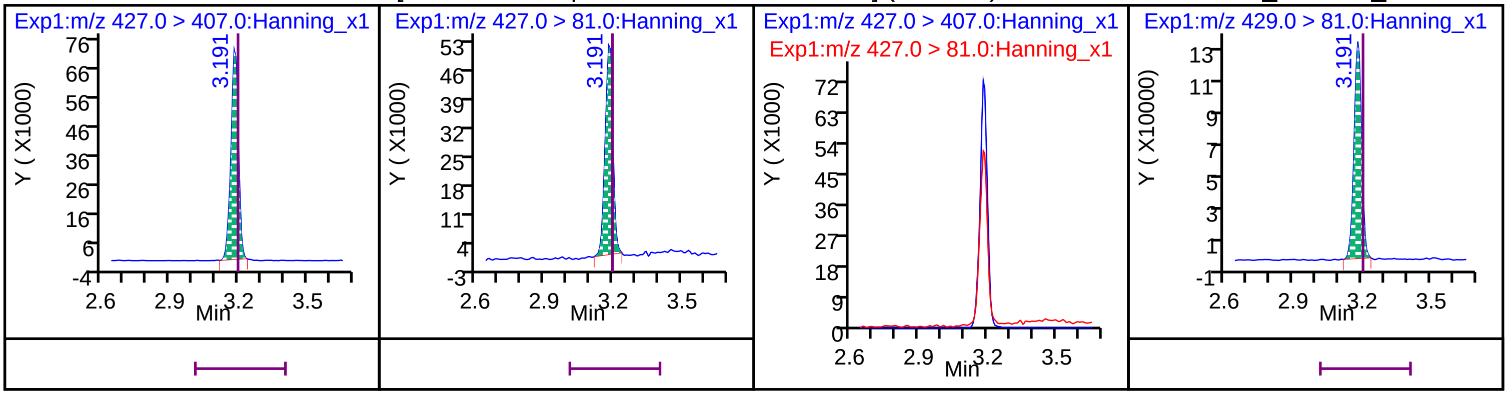


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

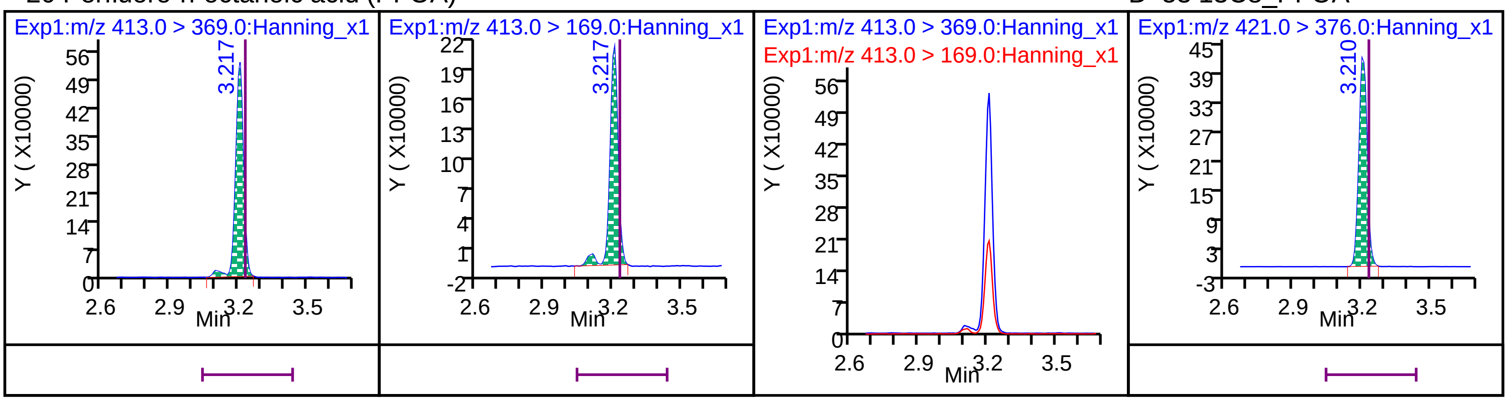


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d

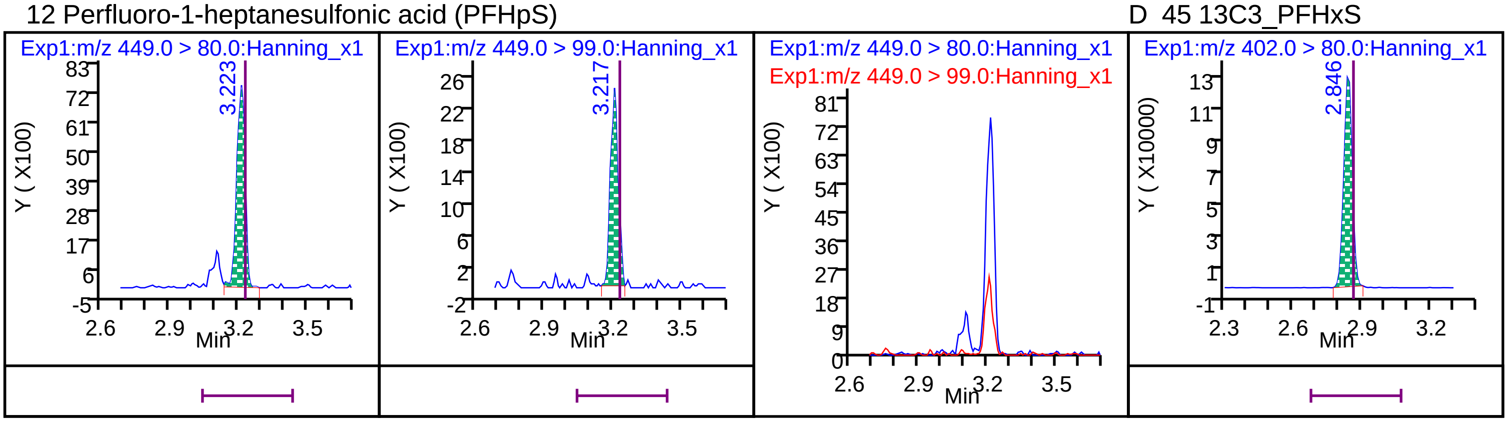
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



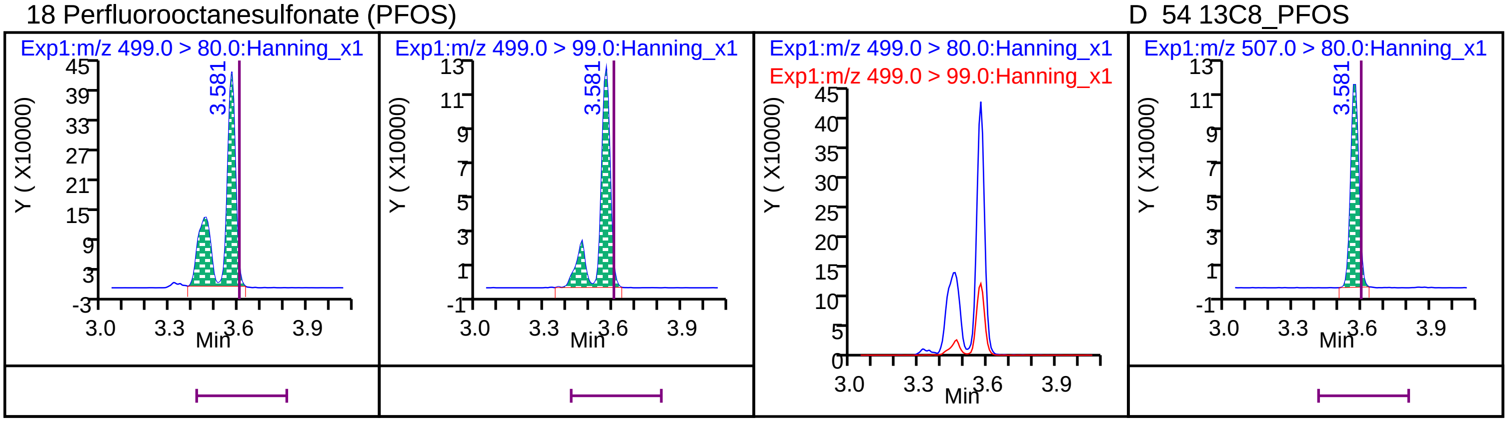
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

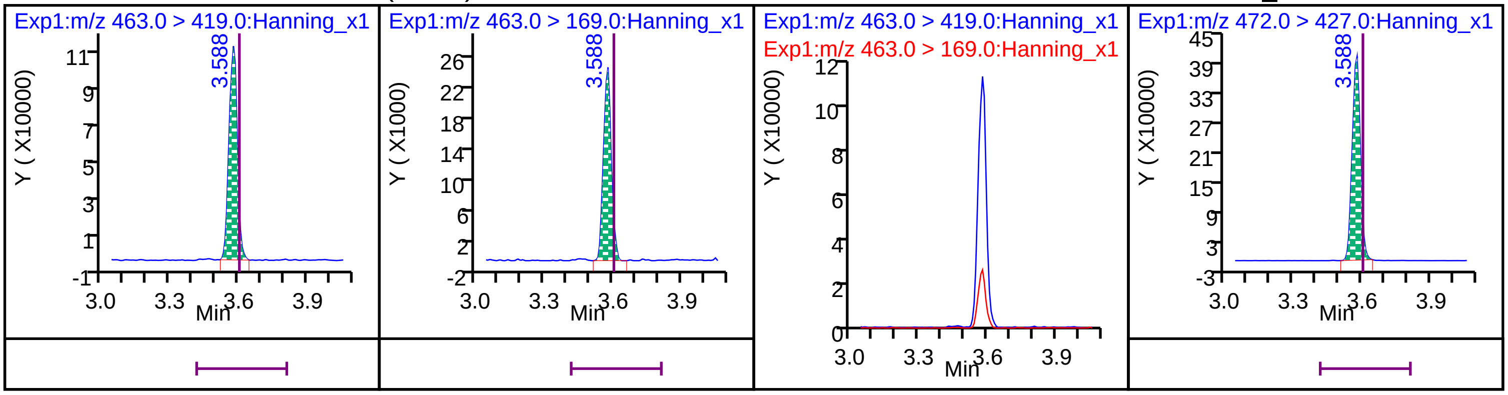


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

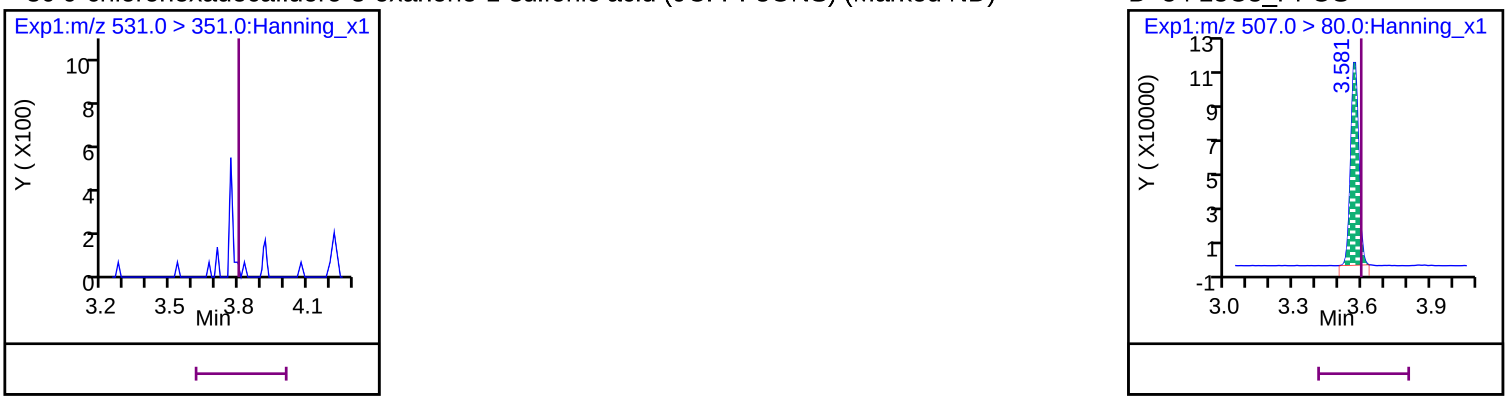


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d

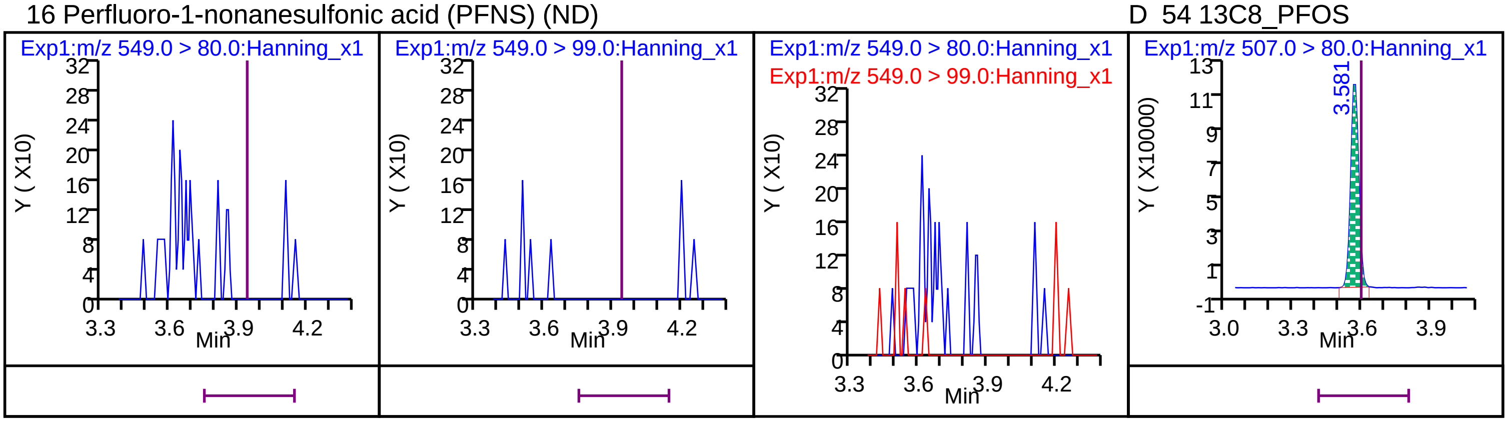
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



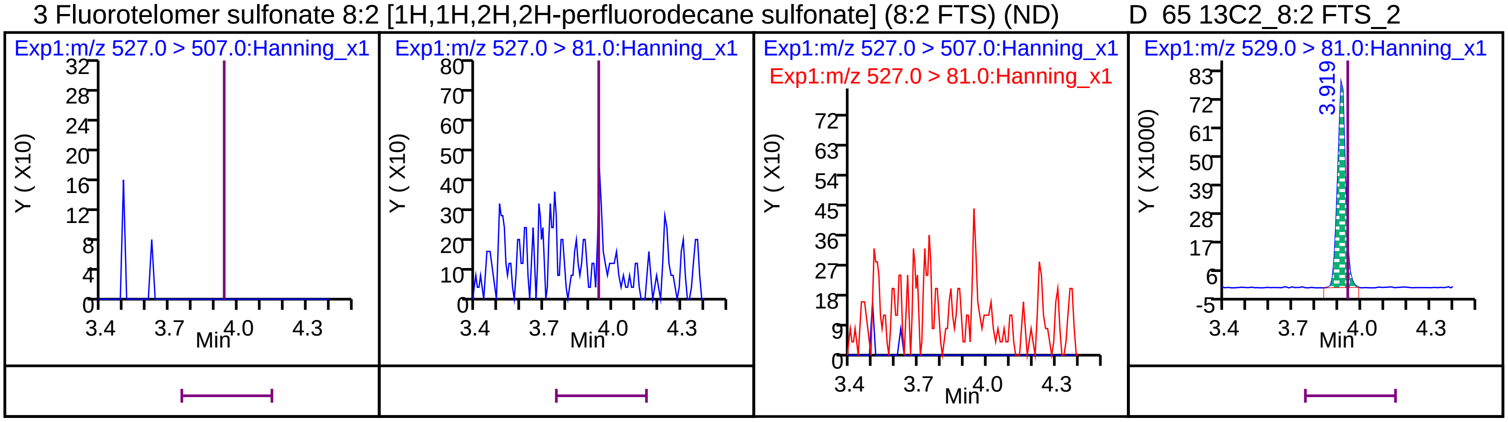
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



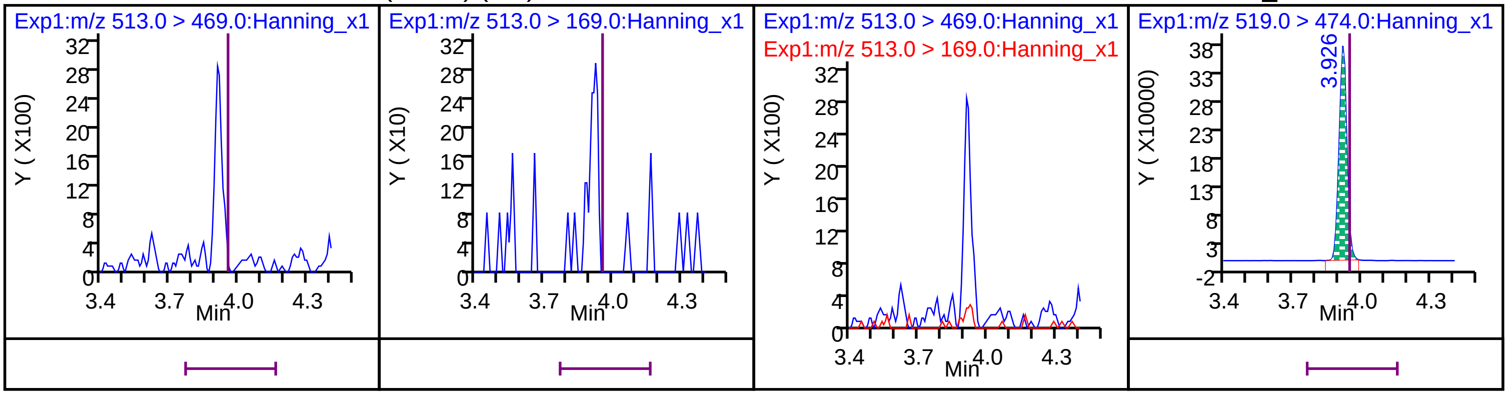
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



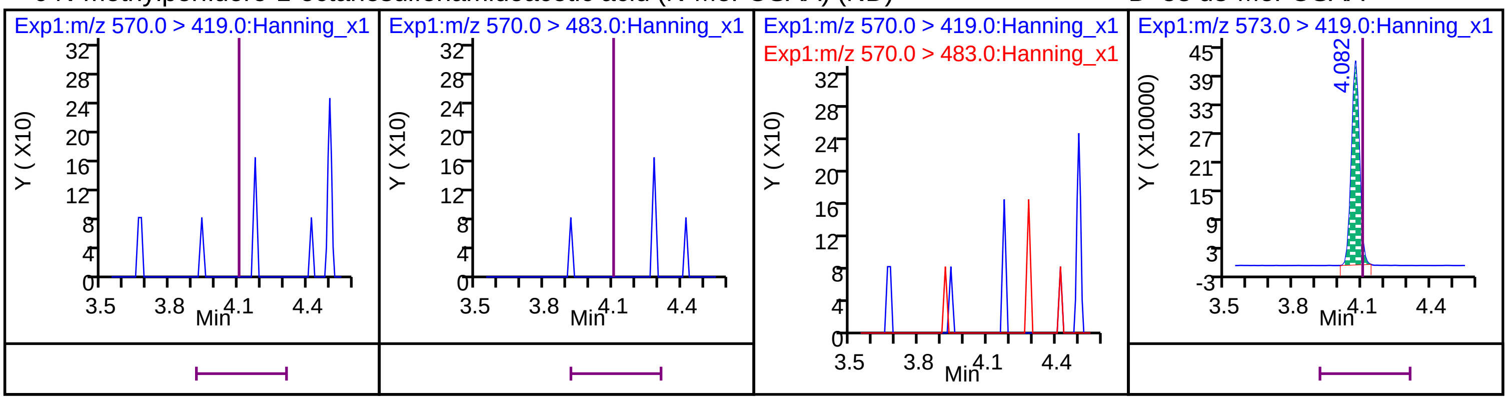
Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d

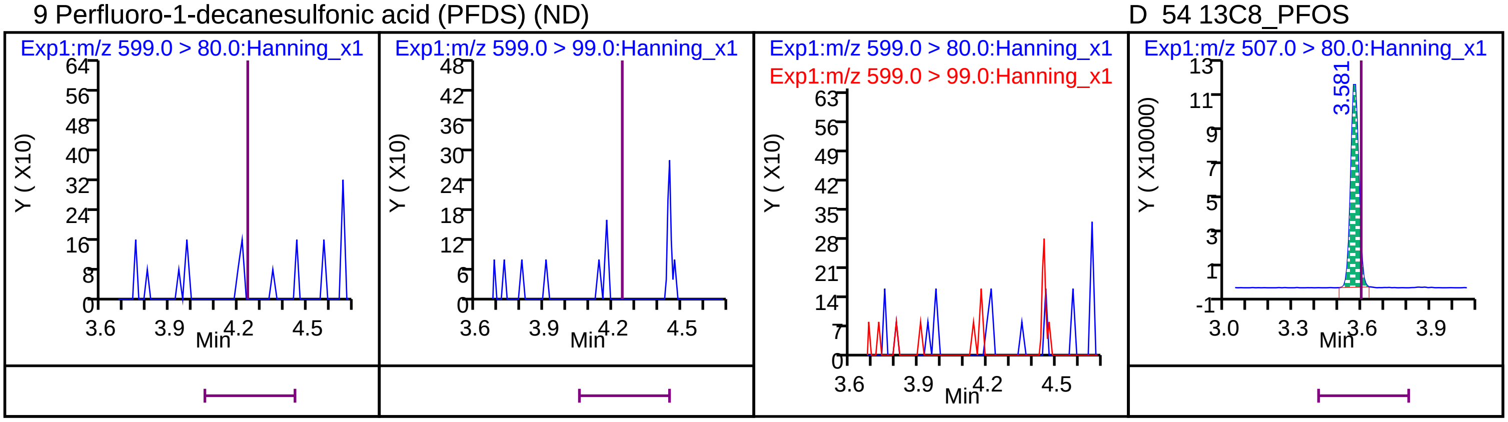
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



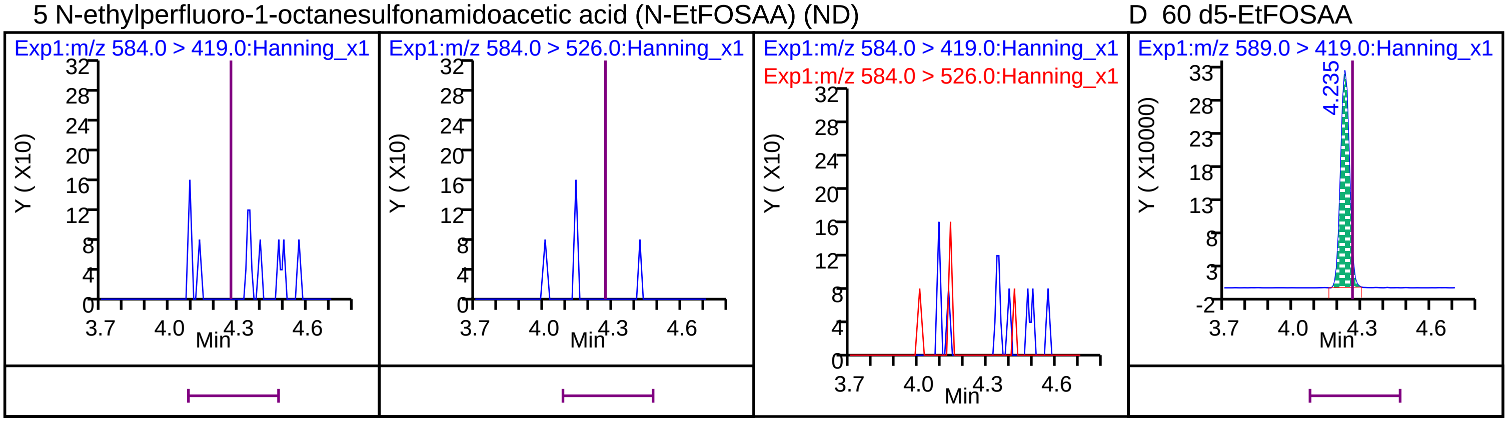
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



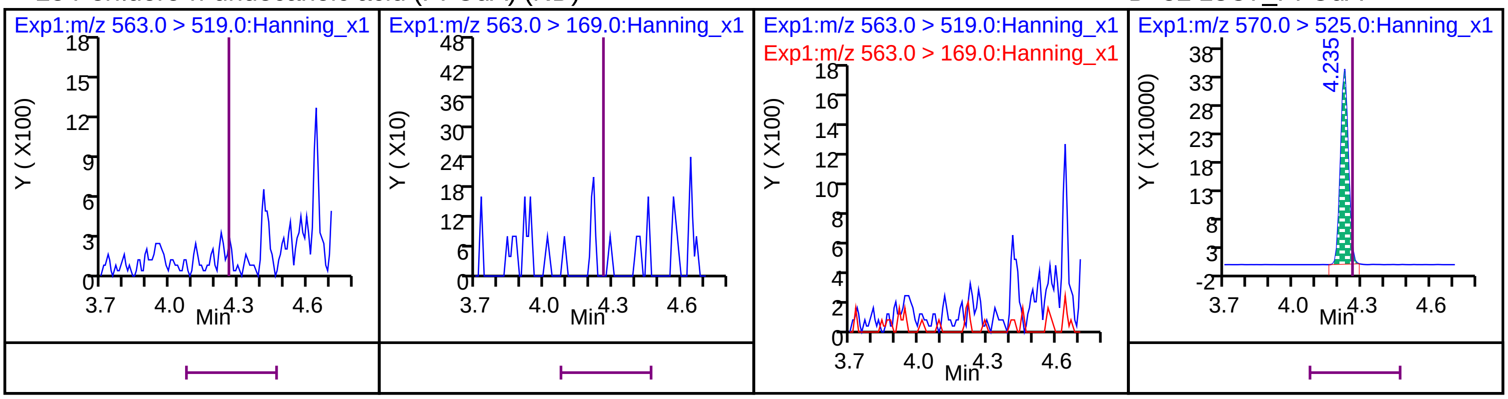
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



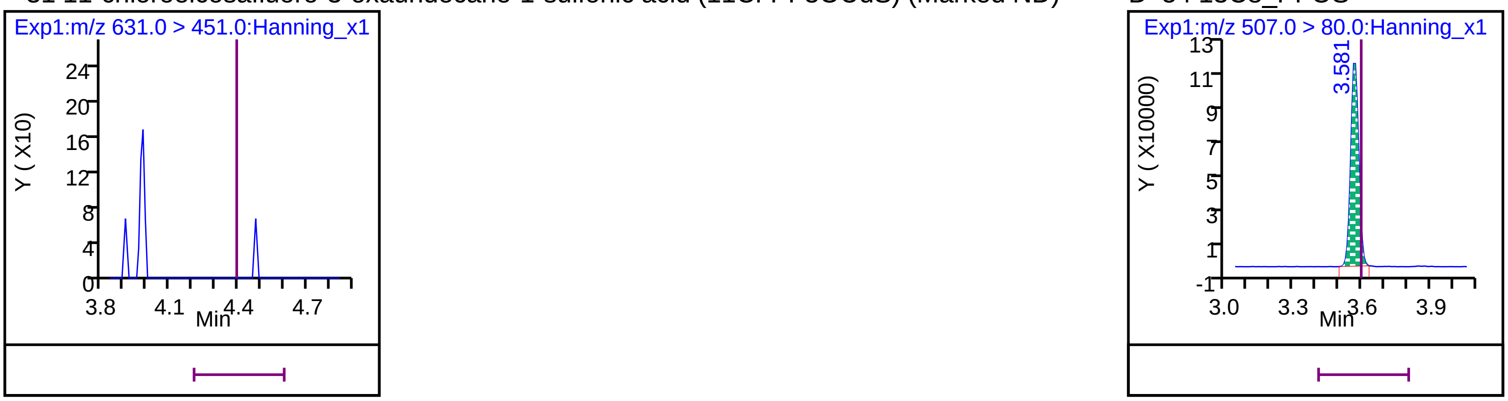
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



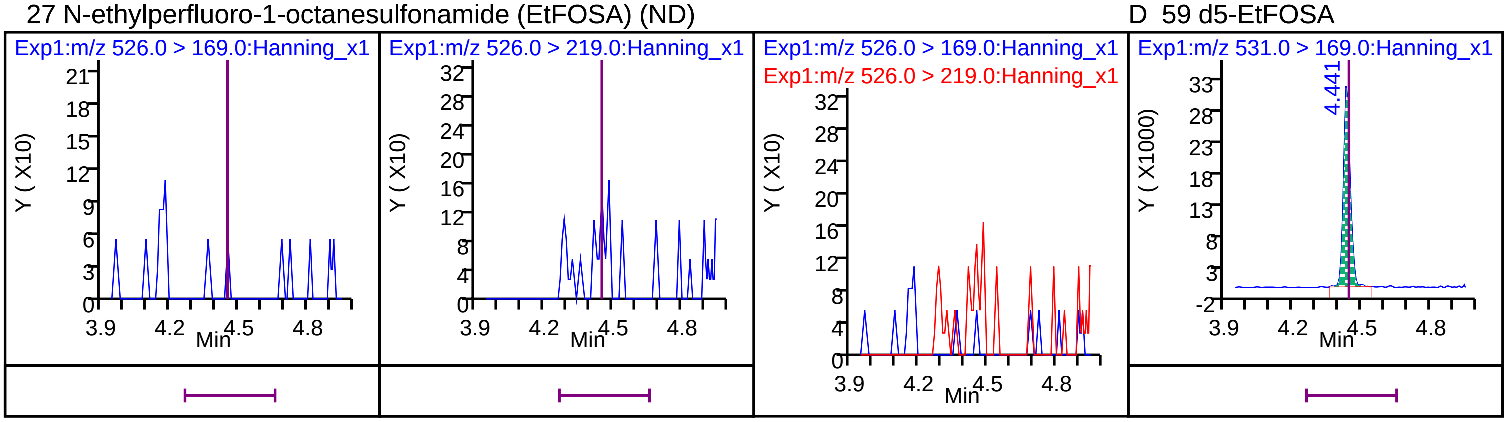
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



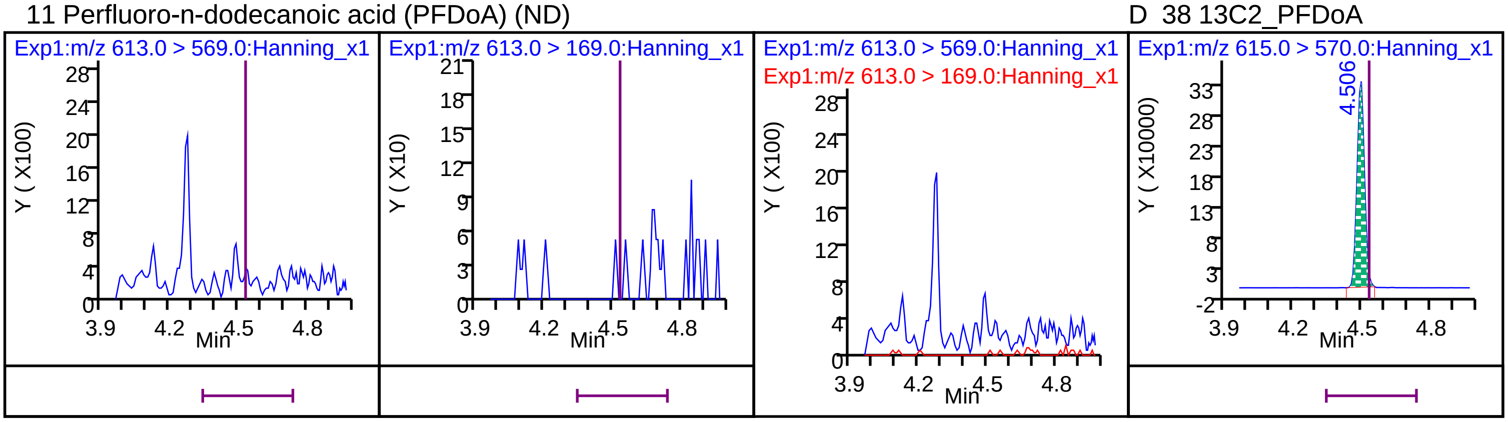
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA

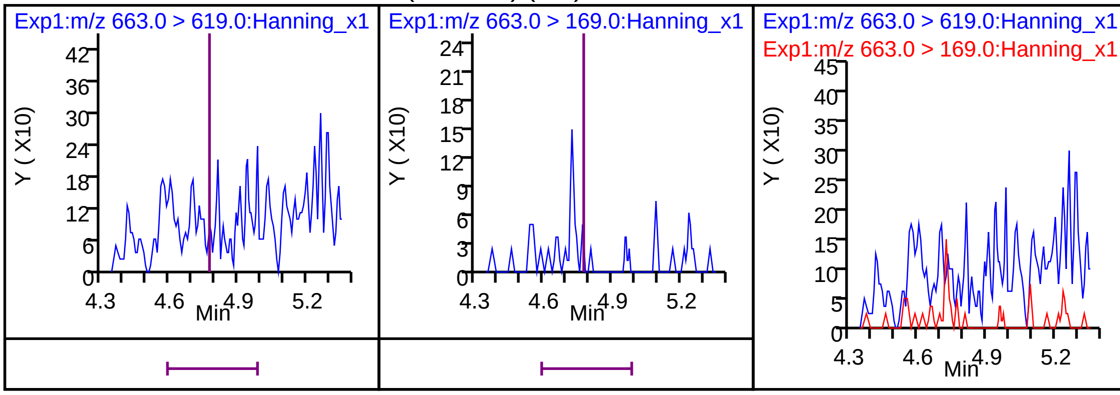


11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA

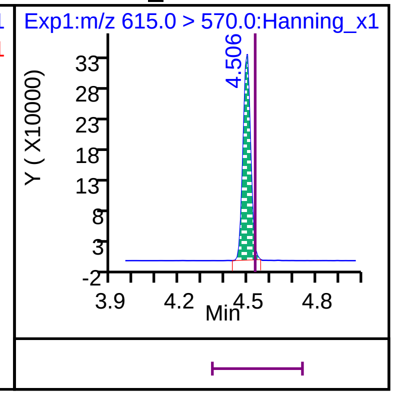


Report Date: 09-Nov-2021 21:16:59 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d

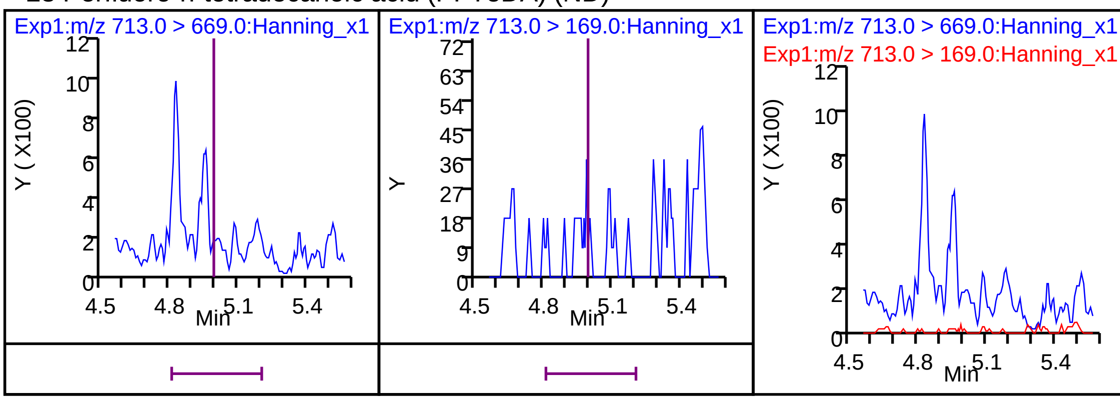
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



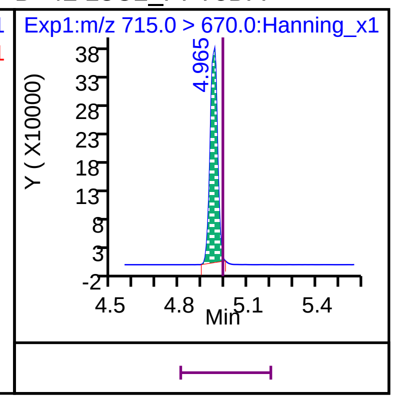
D 38 13C2_PFDoA



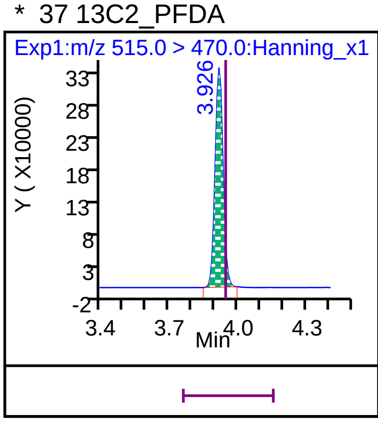
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



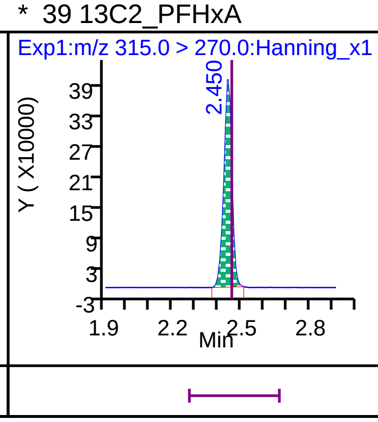
D 42 13C2_PFTeDA



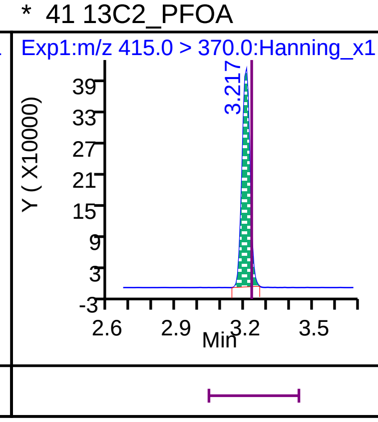
* 37 13C2_PFDA



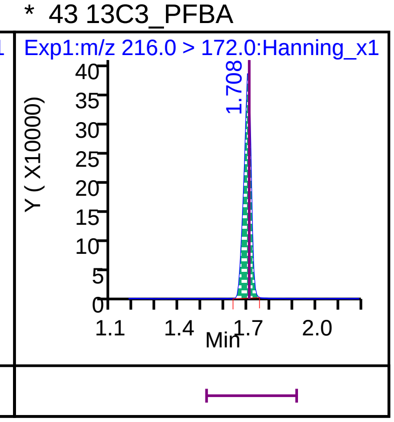
* 39 13C2_PFHxA



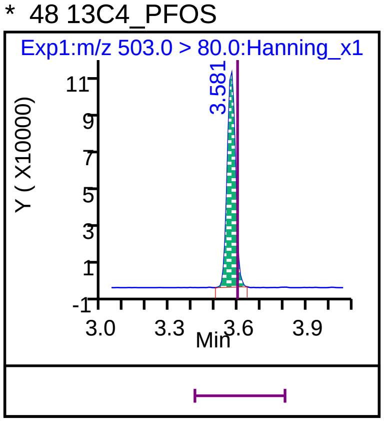
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:17:00 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

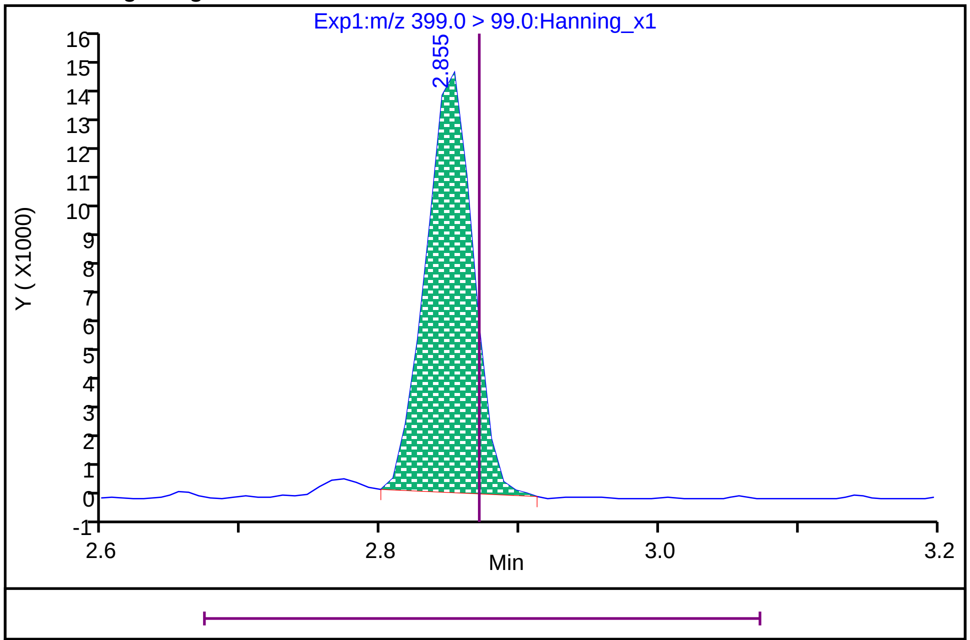
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521026.d		
Injection Date:	05-Nov-2021 15:56:06	Inst. ID:	LCMSMS01.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009,5		
Dil. Factor:	5	Operator:	Matthew M. Miller

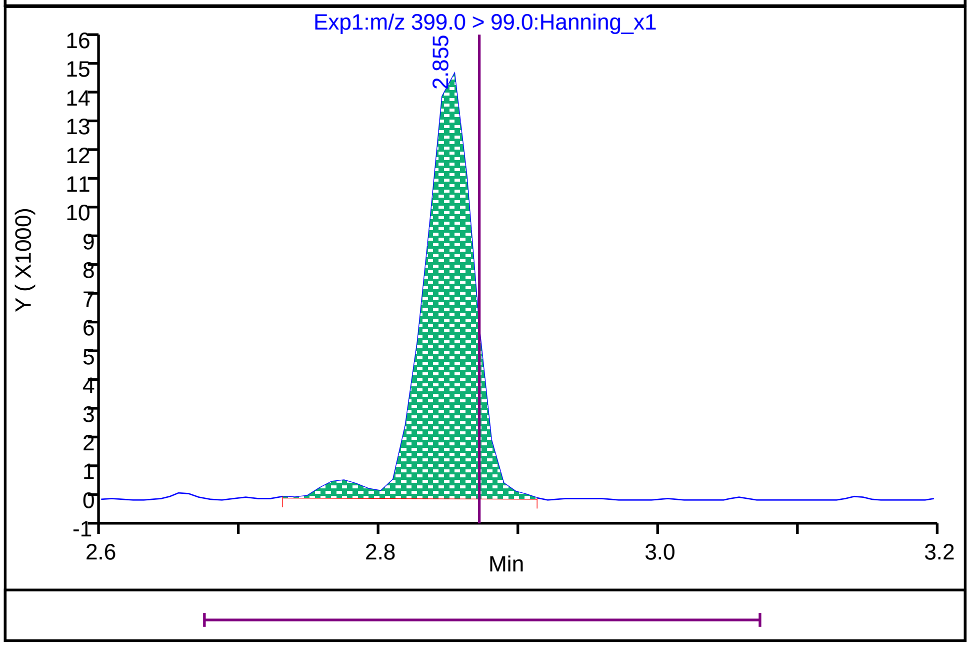
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.855
Area:	32221
Conc:	69.534
Conc Units:	ng/L



RT:	2.855
Area:	34555
Conc:	69.534
Conc Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:35:20

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d		
Injection Date:	10-Nov-2021 00:51:07	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	48
Lab Sample ID:	WK03035-009	Lab Prep. Batch:	21582
Client ID:	SW3-DPT-0144-012.0-20211102	Sample Group:	WK03035
Sample Info:	WK03035-009,5	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0349650

Name	Value	Units	Description
DF	5		Dilution Factor
VF	10000	ul	Final Volume
VI	286	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	583349	19	>100:1			1100.00	938.35	90.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.718	0/-1	815578	20	83:1			1458.24	254.94		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	622282	16	>100:1			1100.00	1088.68	108.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.099	2.098	1/1	3570910	17	>100:1			5608.41	980.49		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	192530	17	>100:1			1100.00	1113.09	111.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	142451	17	>100:1			5500.00	6290.97	137.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	739927	18	>100:1			1100.00	1136.10	110	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	2666856	18	>100:1	Target = 18.91		3813.04	666.61		
313 > 119	49	2.460	2.469		139023	16	>100:1	19.18 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	1	1238118	18	>100:1			5500.00	5342.33	105.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	1	613482	16	>100:1			1100.00	1155.47	114.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	1/0	1328270	16	>100:1	Target = 3.80		2167.43	378.92		
363 > 169	47	2.845	2.845		337793	16	>100:1	3.93 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.864	0	135961	16	>100:1			1100.00	1082.15	119.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.864	0/0	63036	25	>100:1	Target = 2.89	13.12	463.89	81.100		
399 > 99	45	2.864	2.864		18303	15	>100:1	3.44 (1.44-4.34)					
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													J
449 > 80	45	3.241	3.247	0/0	7966	16	16:1	Target = 3.12		62.751	10.970		
449 > 99	45	3.241	3.247		2729	24	19:1	2.91 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.213	1	116878	20	>100:1			5500.00	6493.24	112.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.213	0/-1	119057	18	>100:1	Target = 1.75		2366.70	413.76		
427 > 81	64	3.208	3.213		62691	19	>100:1	1.89 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.234	3.240	0	621394	20	>100:1			1100.00	1184.34	113.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.240	0/0	899542	32	>100:1	Target = 2.89	23.38	1553.91	271.66		
413 > 169	53	3.234	3.240		315470	34	>100:1	2.85 (1.44-4.34)	13.76				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.617	3.623	0	130572	19	>100:1			1100.00	1054.34	115.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.617	3.623	0/0	887358	40	>100:1	Target = 3.30	1.90	6278.38	1097.62		M
499 > 99	54	3.617	3.623		267511	35	>100:1	3.31 (1.65-4.95)	4.00				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	675689	18	>100:1			1100.00	1055.14	104.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.625	3.623	1/1	278426	19	>100:1	Target = 6.51		420.52	73.518		
463 > 169	56	3.625	3.623		39163	22	>100:1	7.10 (3.25-9.76)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	724433	16	>100:1			1100.00	1260.63	114.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	108287	23	>100:1			5500.00	6264.98	117.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.981		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.133	4.139	0	802142	18	>100:1			5500.00	5308.24	112.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.287	4.294	0	680631	16	>100:1			5500.00	5255.30	99.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.287	4.294	0	772481	15	>100:1			1100.00	1282.66	111.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.473	4.488	0	43776	15	>100:1			1100.00	1018.05	102.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	784383	16	>100:1			1100.00	1306.57	111.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.032	5.042	0	880573	20	>100:1			1100.00	1083.13	93	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	897018	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	863859	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.234	3.240	0	690814	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.711	1	590629	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.617	3.623	0	137621	19	>100:1			200.00			

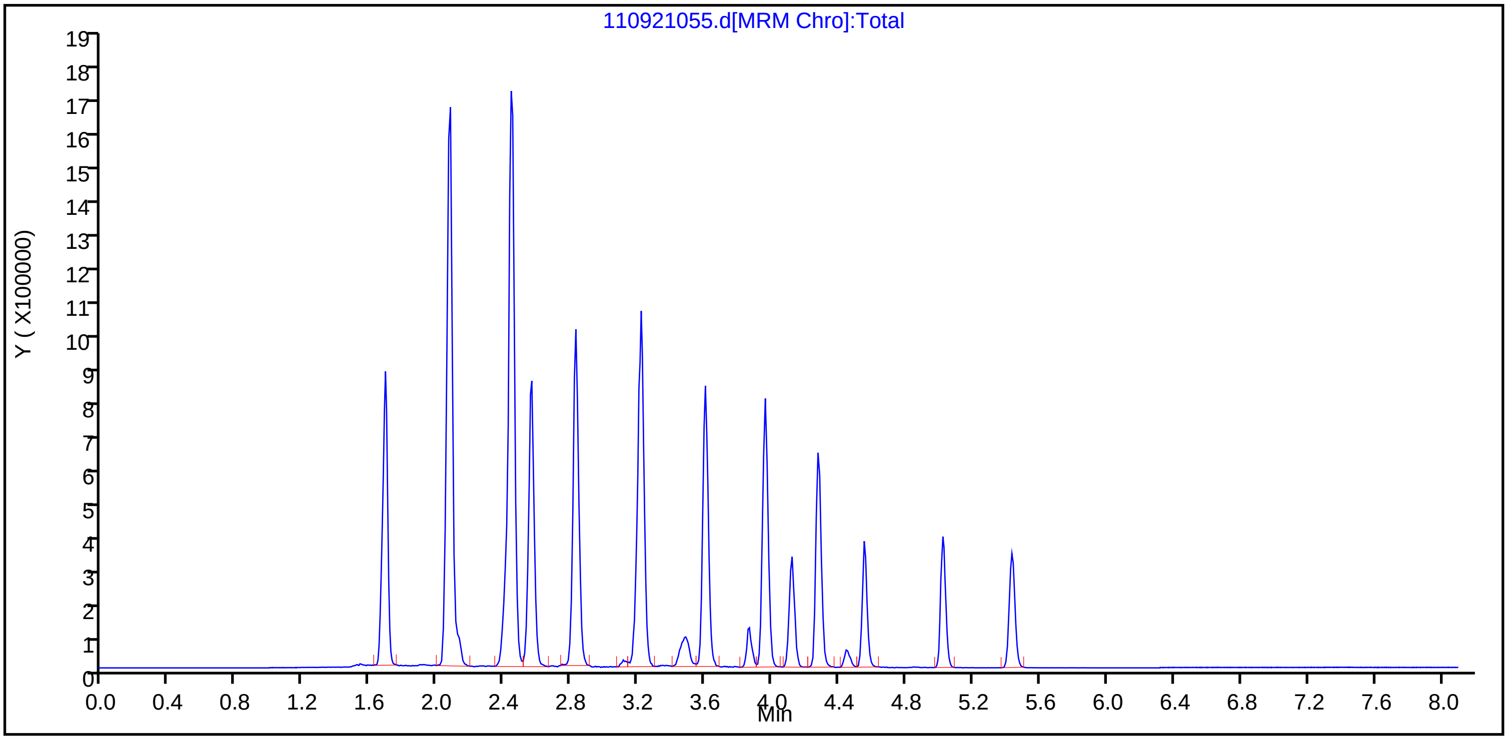
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

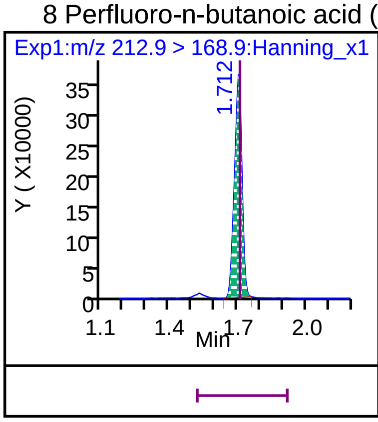
Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

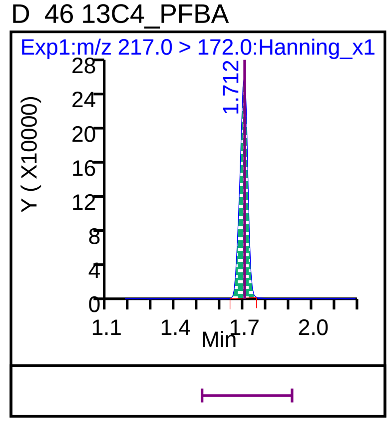
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d		
Injection Date:	10-Nov-2021 00:51:07	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009,5		
Dil. Factor:	5	Operator:	Justin Gavin



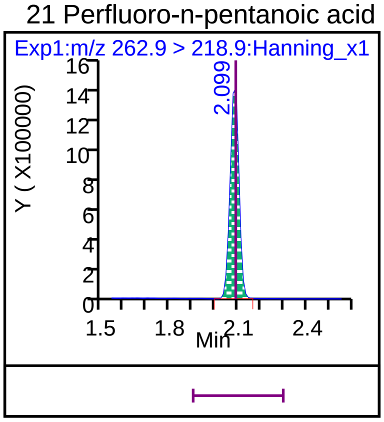
8 Perfluoro-n-butanoic acid (PFBA)



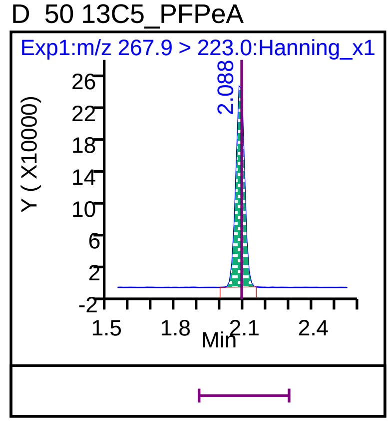
D 46 13C4_PFBA



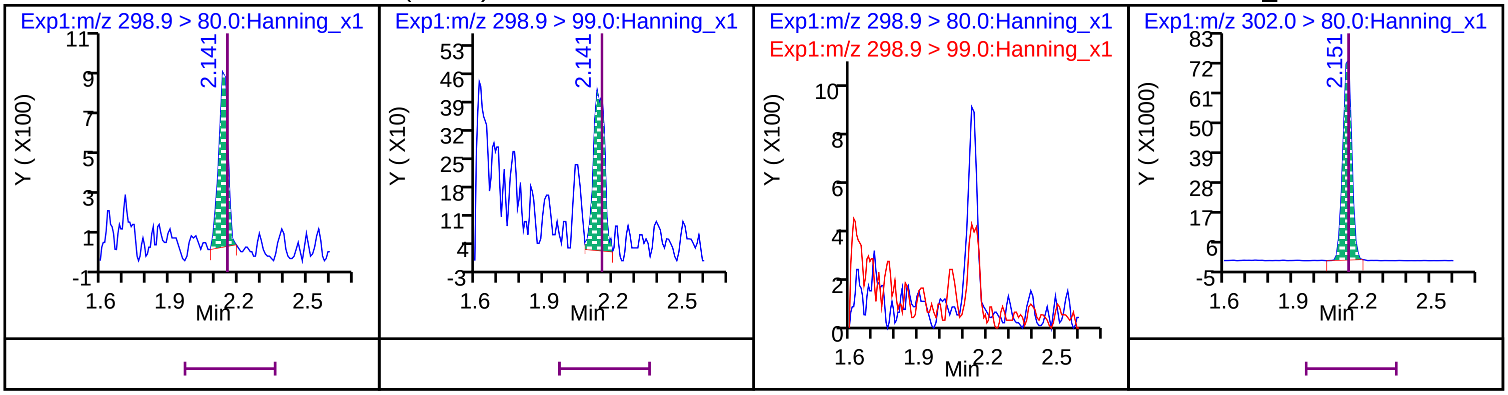
21 Perfluoro-n-pentanoic acid (PFPeA)



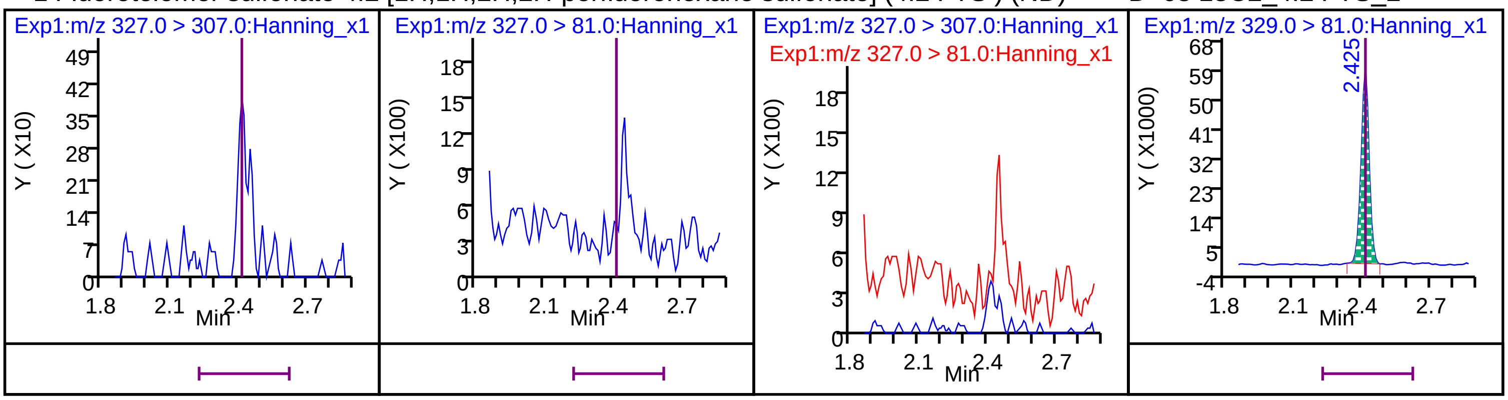
D 50 13C5_PFPeA



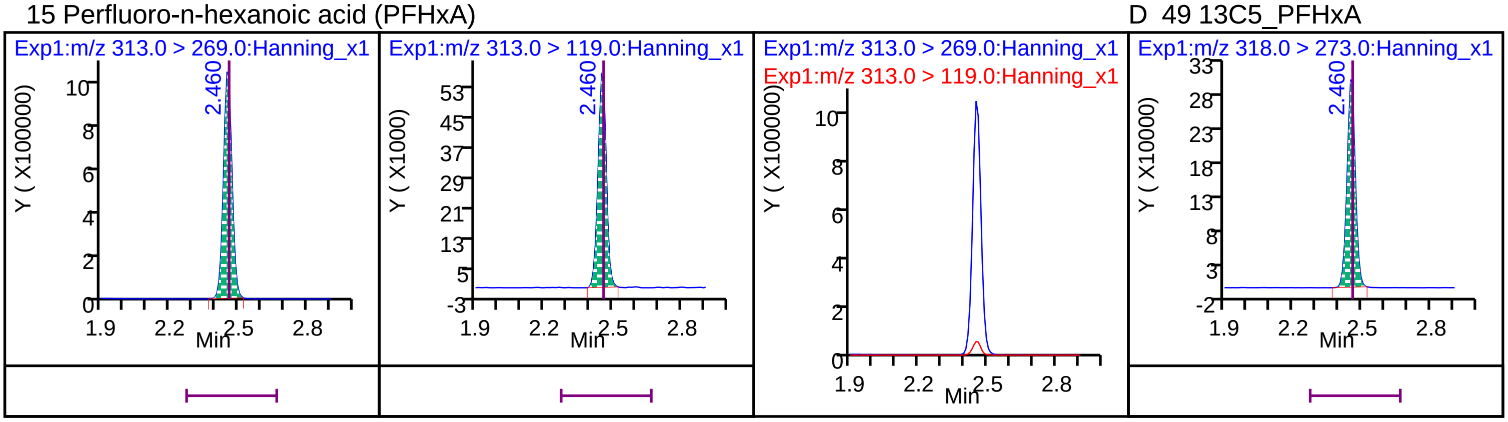
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



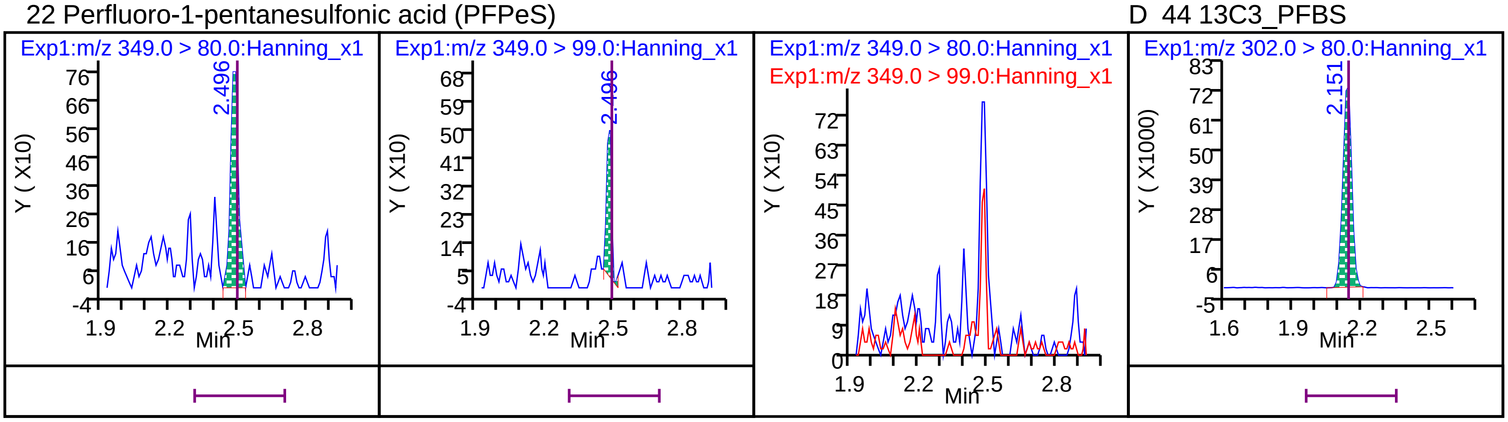
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



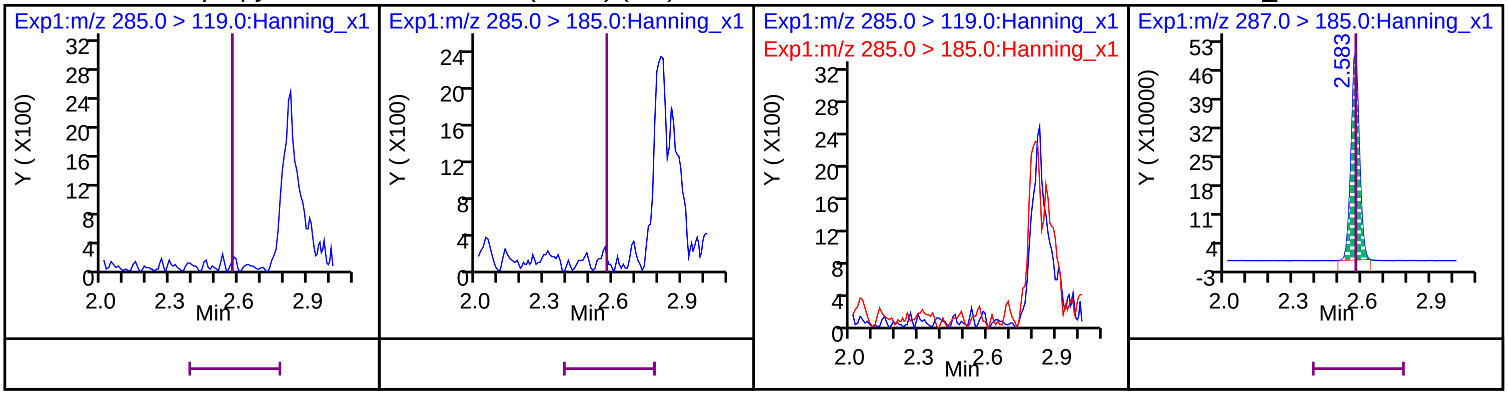
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



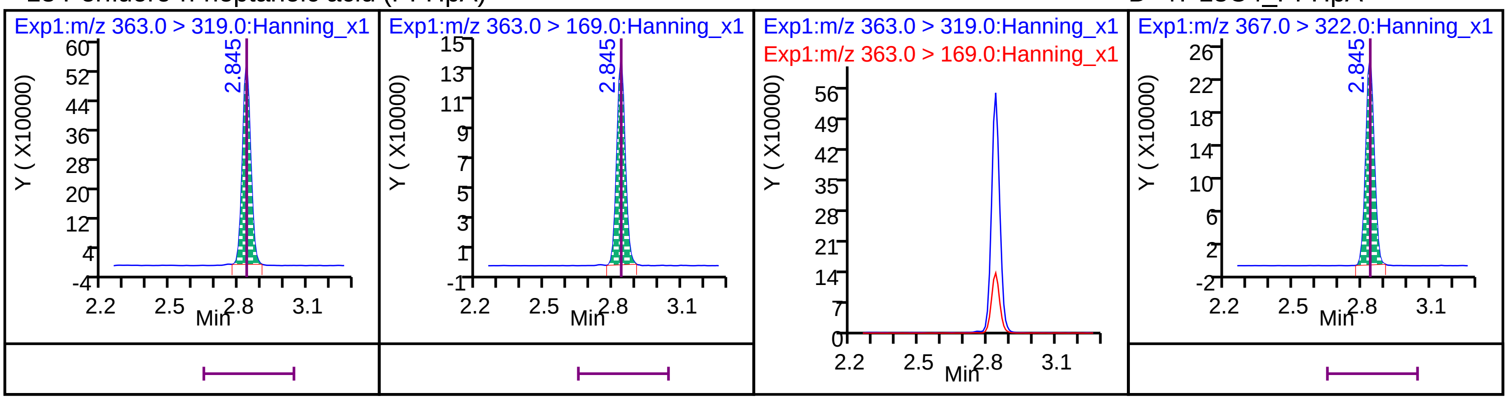
Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d

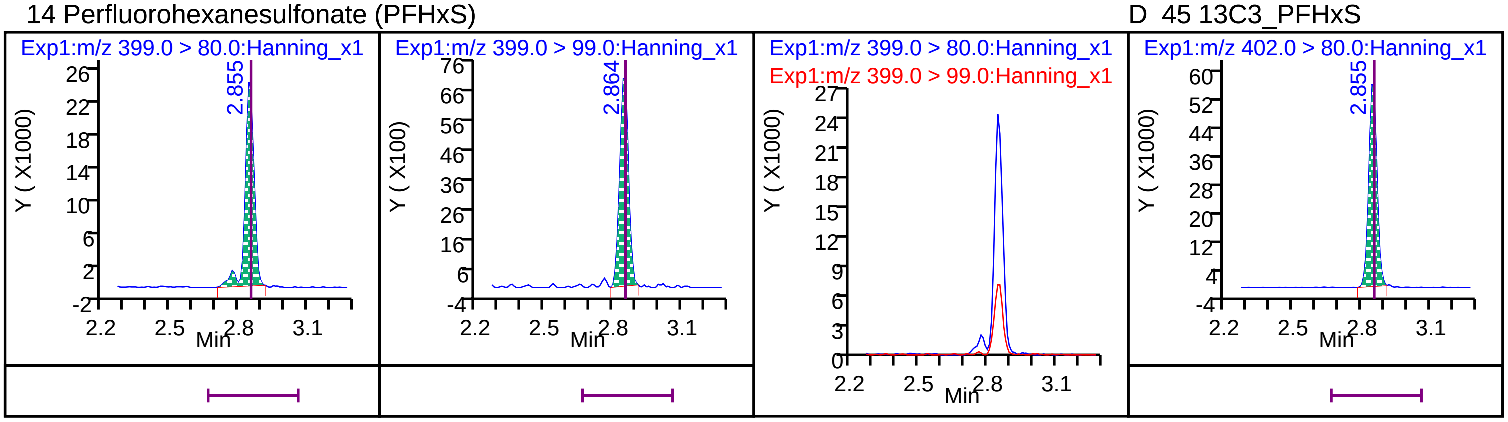
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



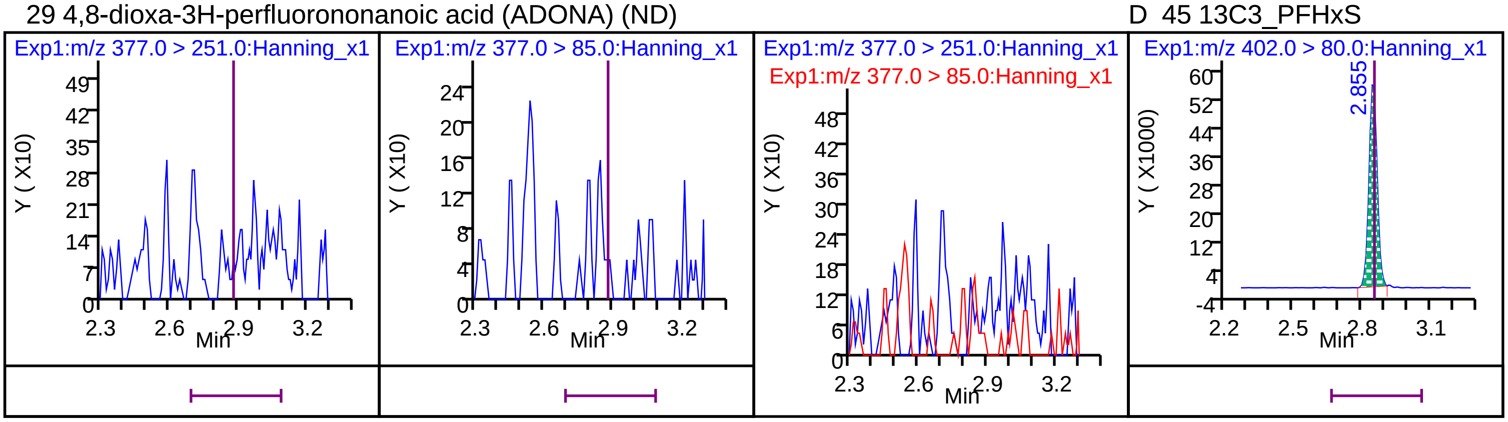
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

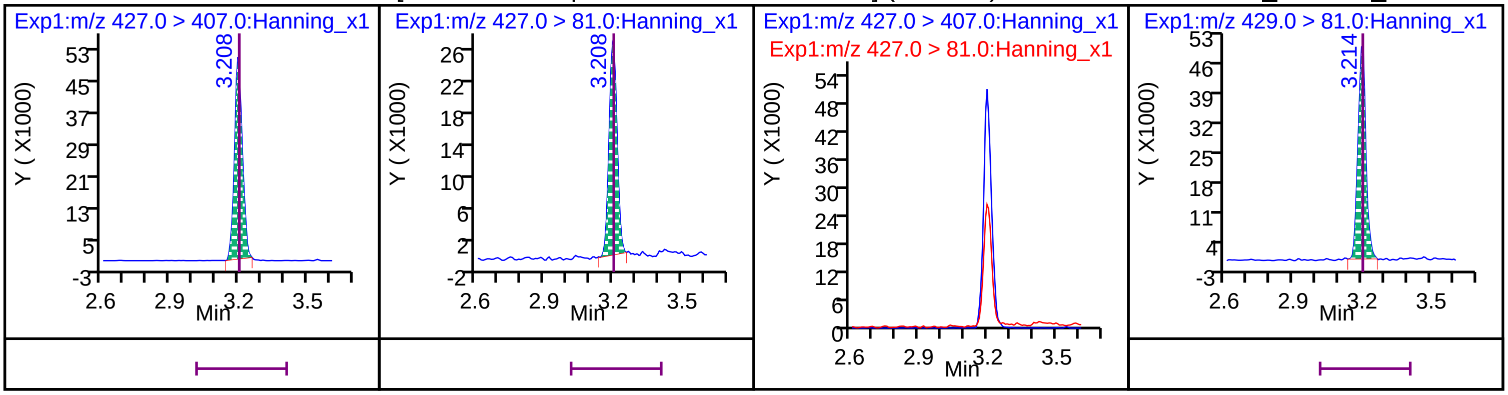


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

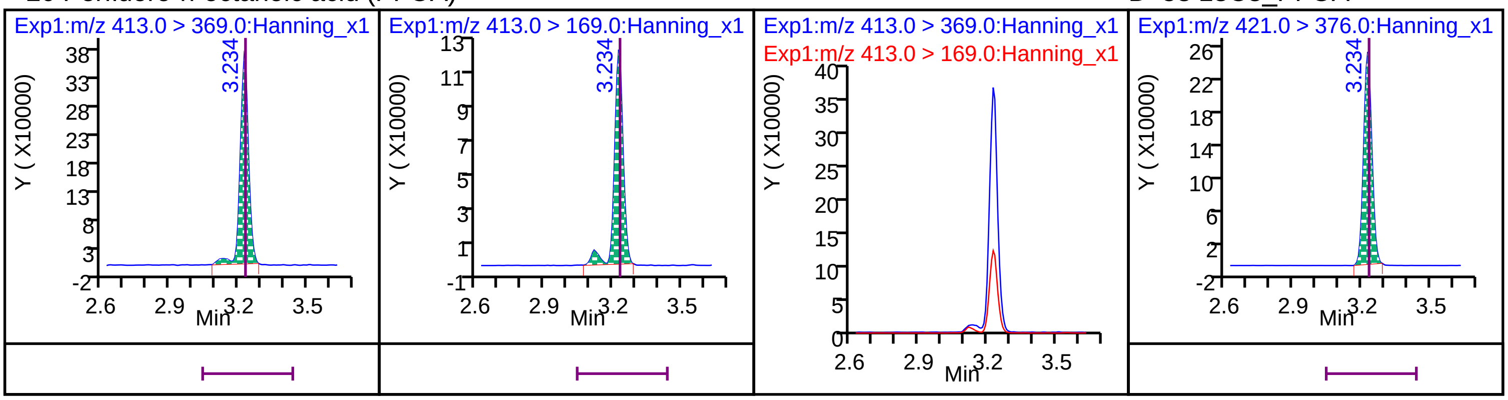


Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d

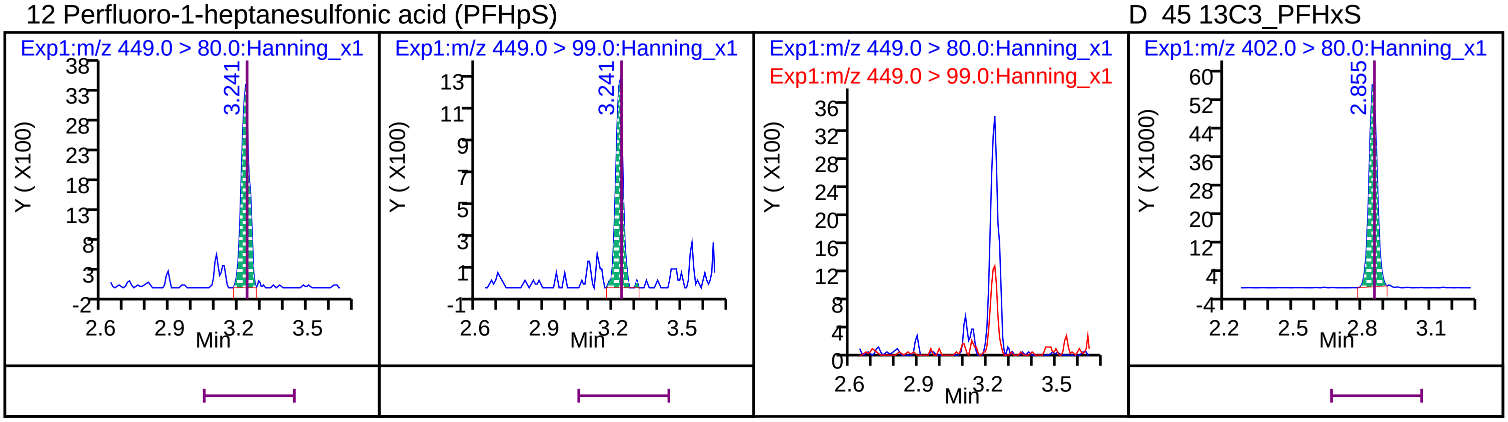
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



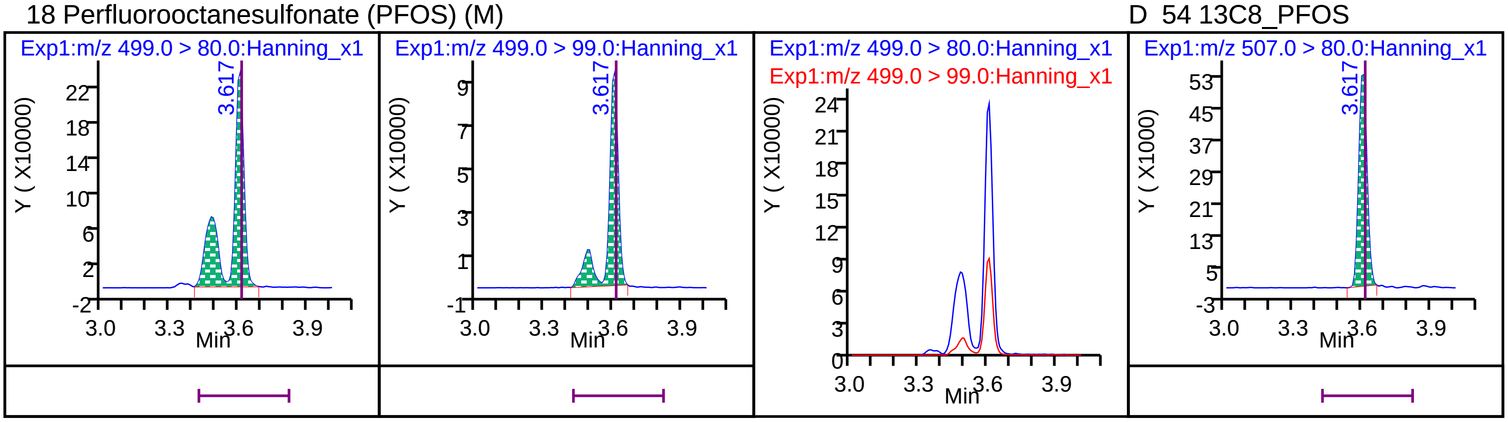
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



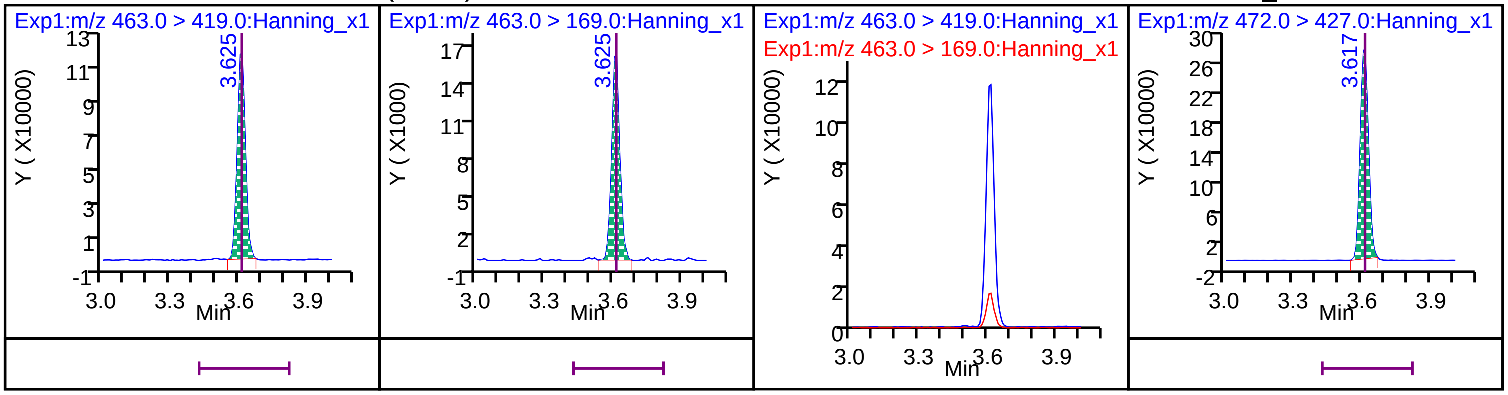
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



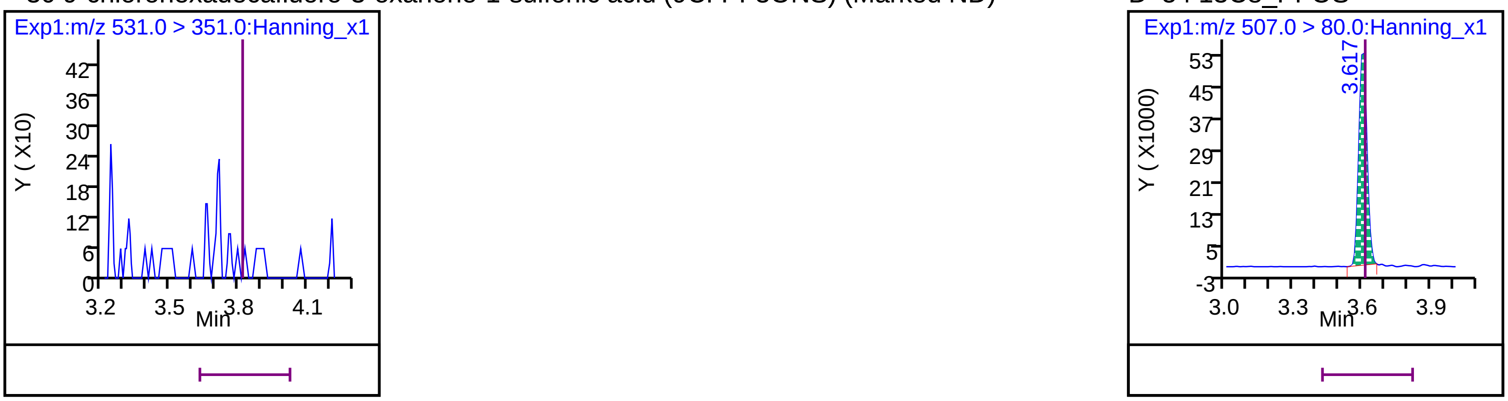
Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d

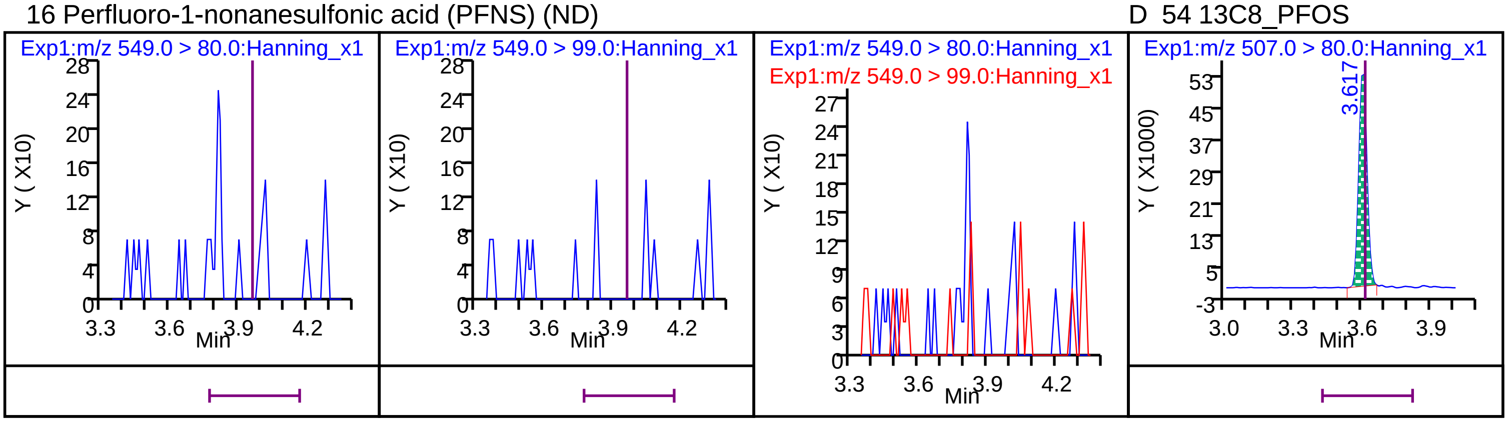
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



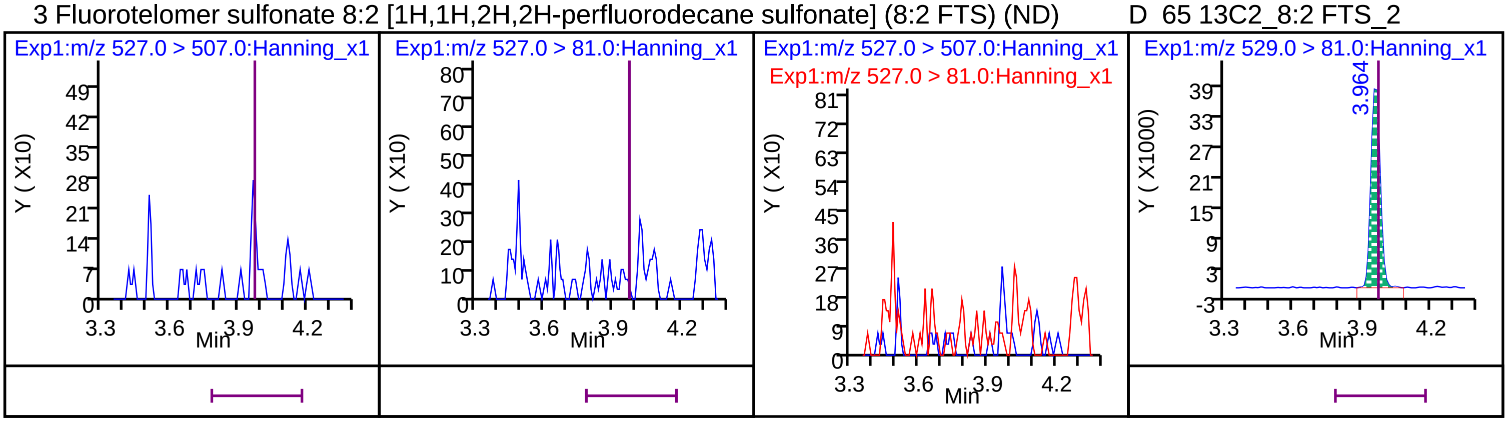
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

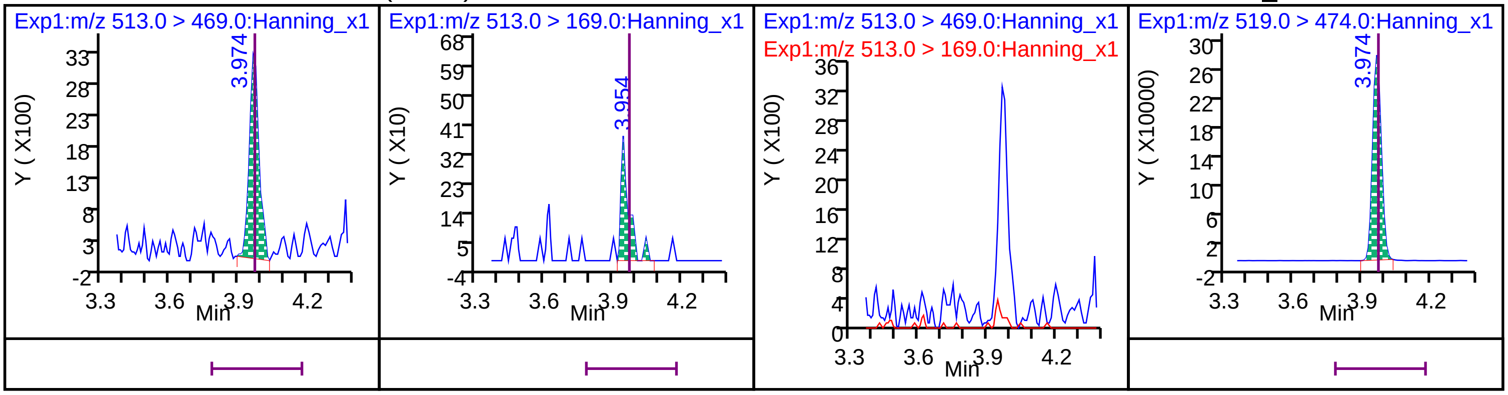


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2

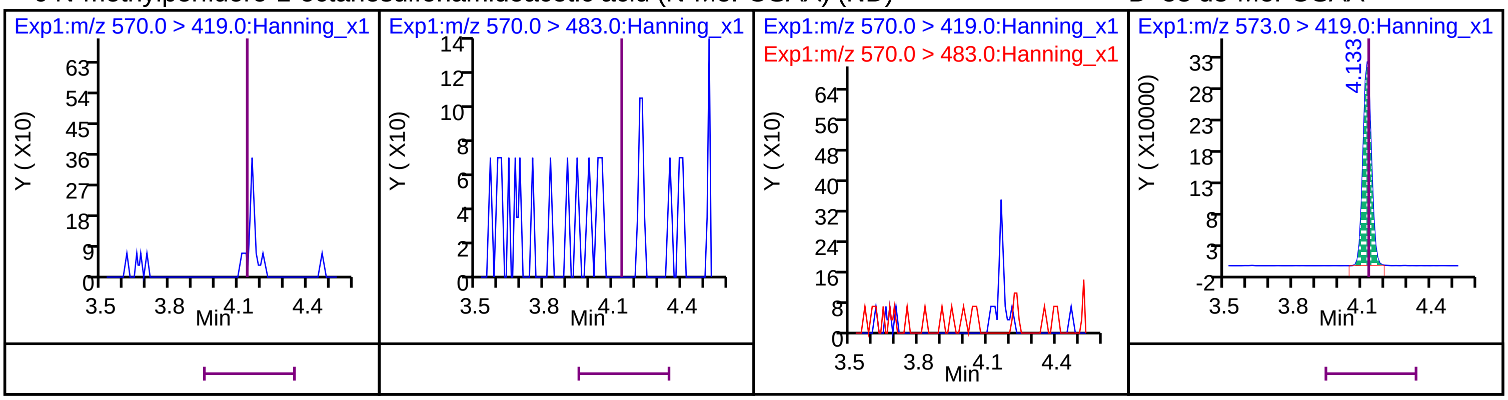


Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d

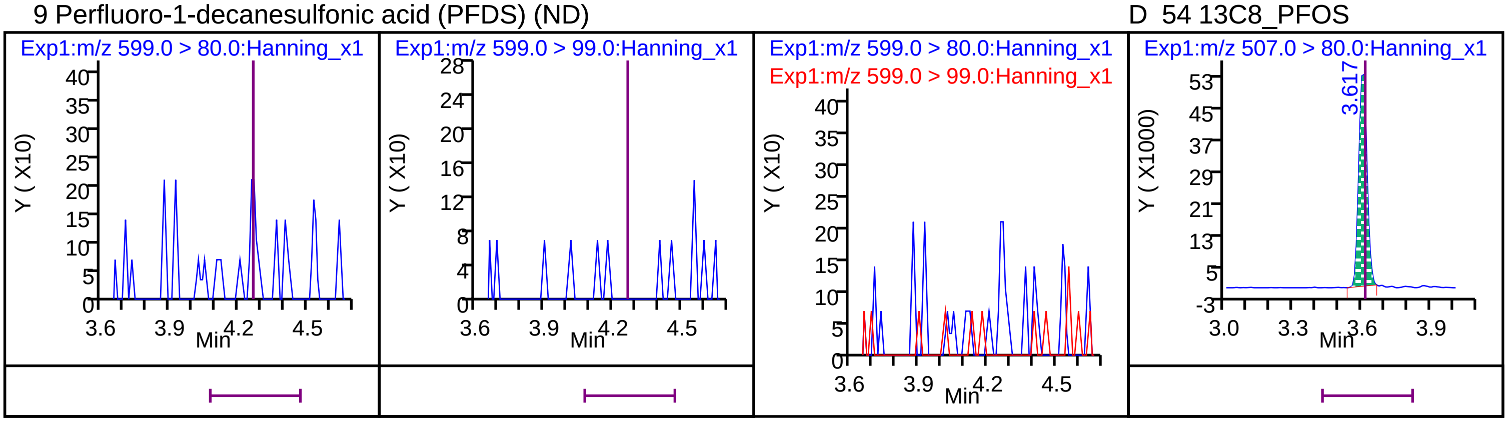
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



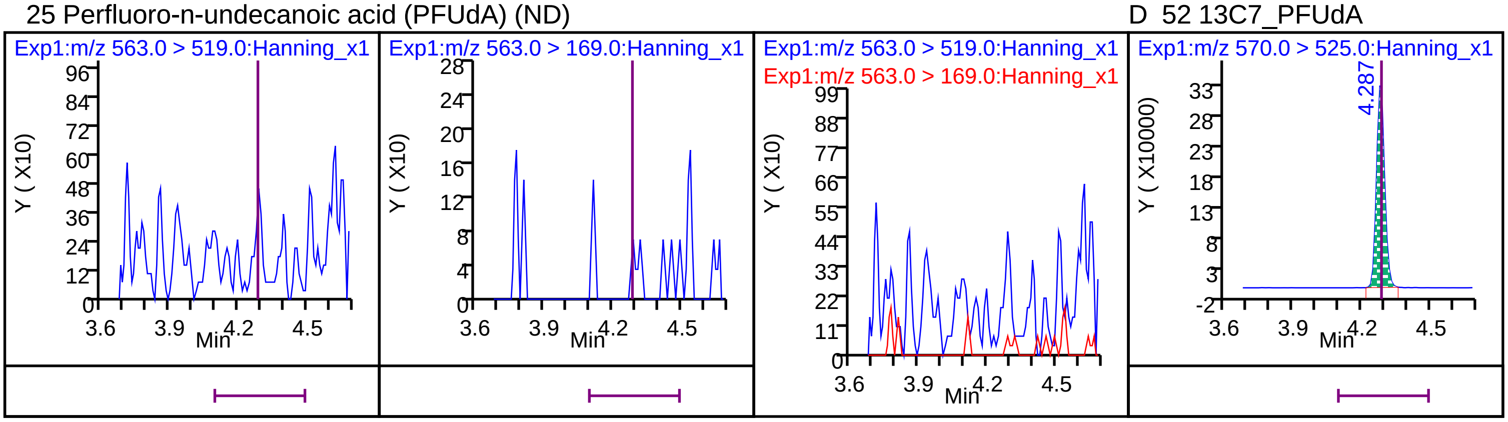
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



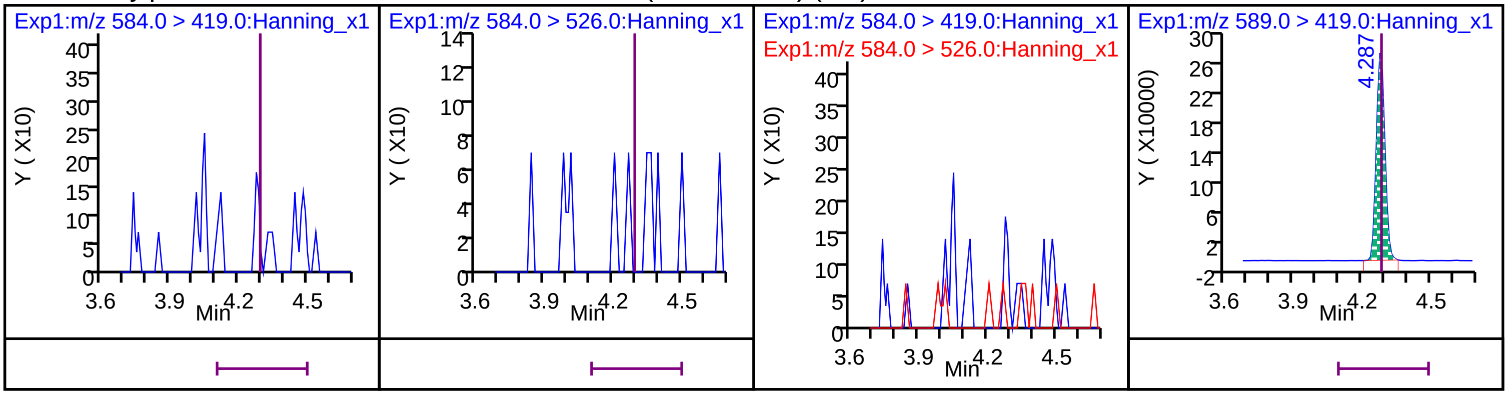
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



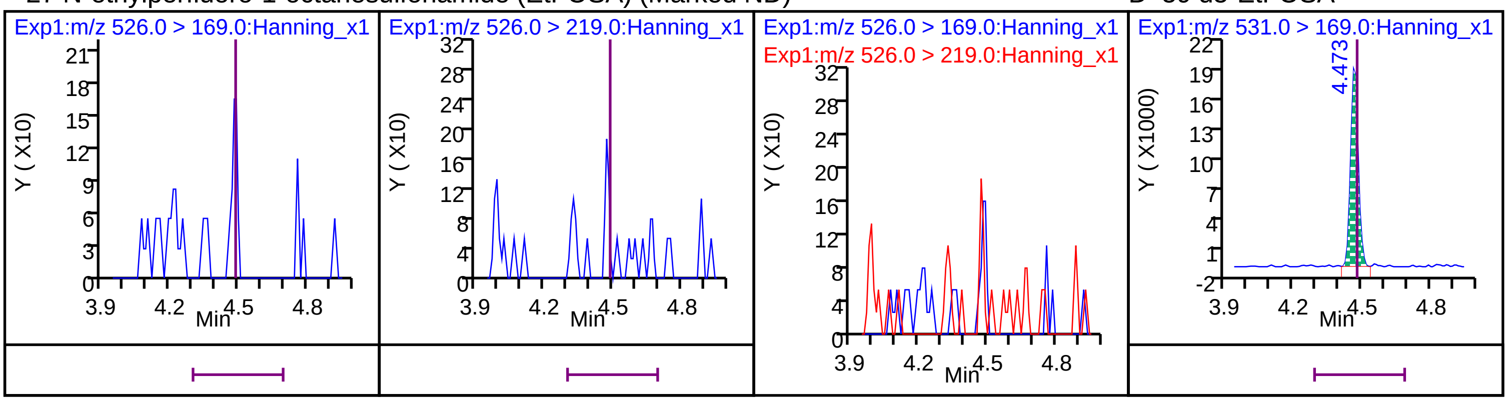
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



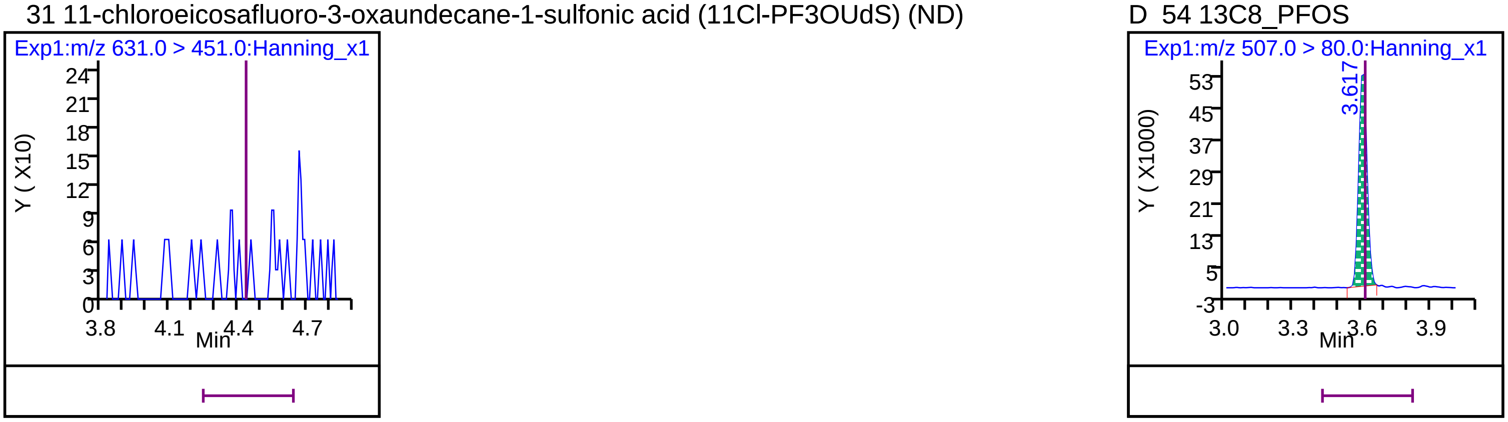
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



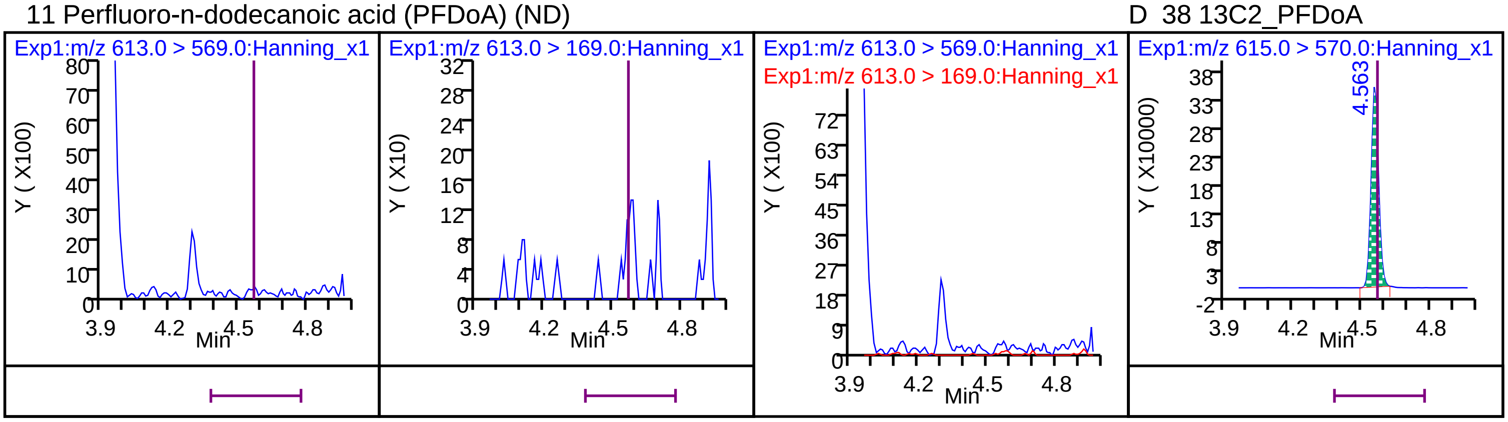
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND) D 59 d5-EtFOSA



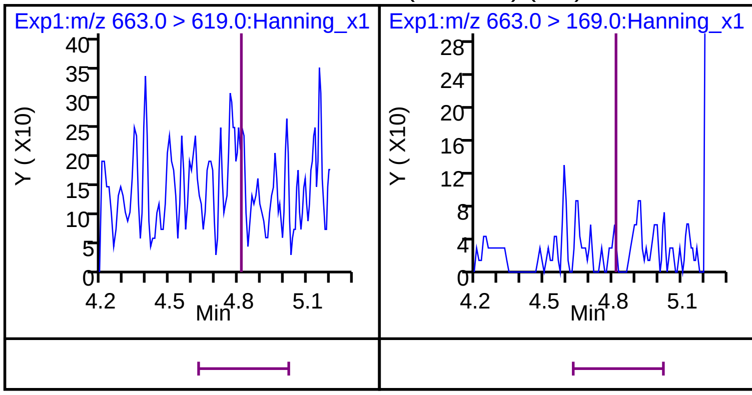
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ND) D 54 13C8_PFOS



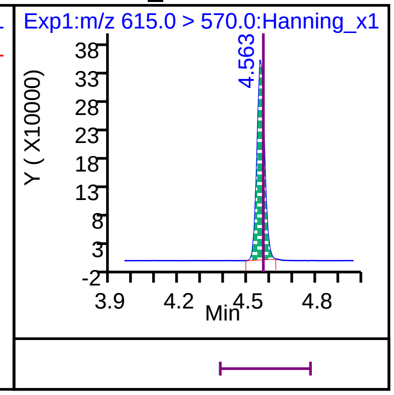
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



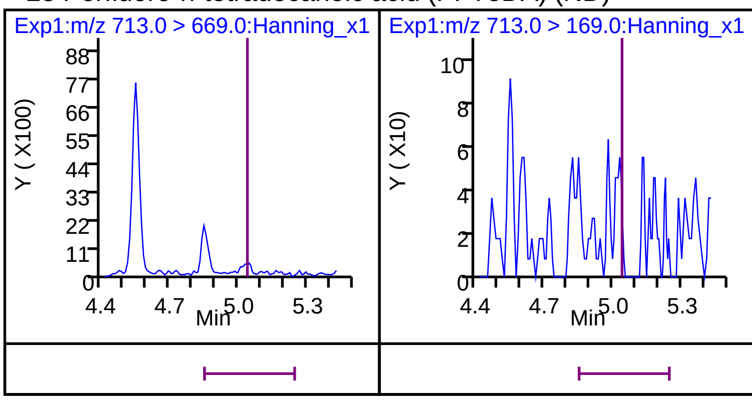
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



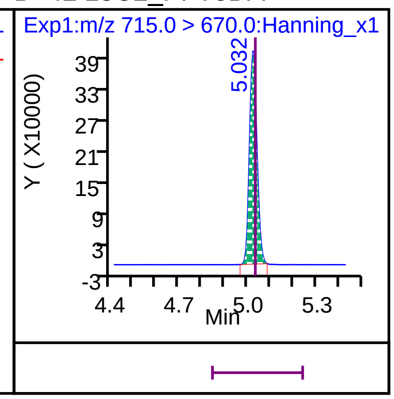
D 38 13C2_PFDoA



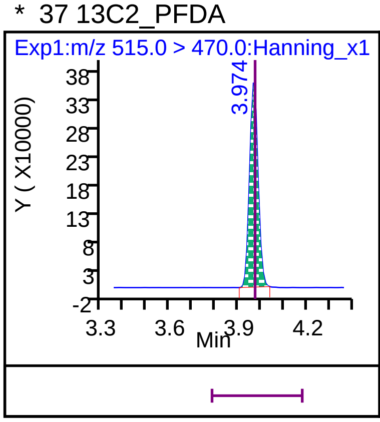
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



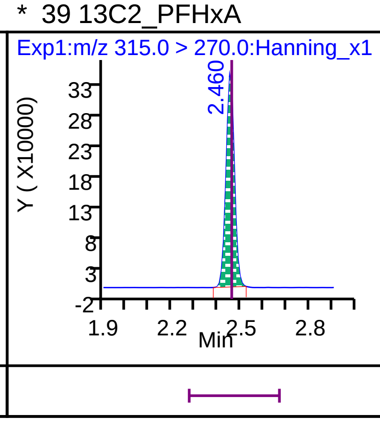
D 42 13C2_PFTeDA



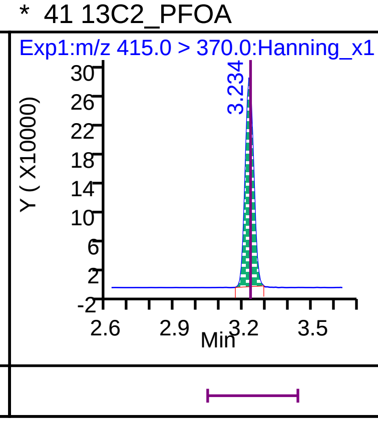
* 37 13C2_PFDA



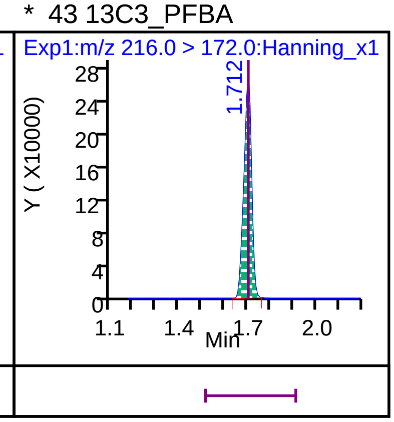
* 39 13C2_PFHxA



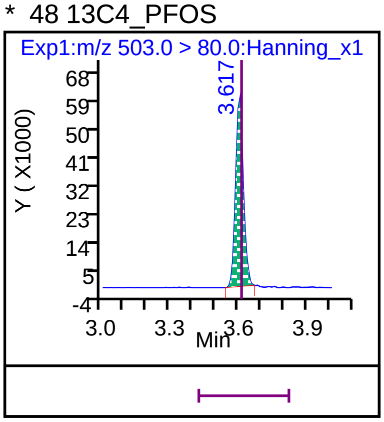
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

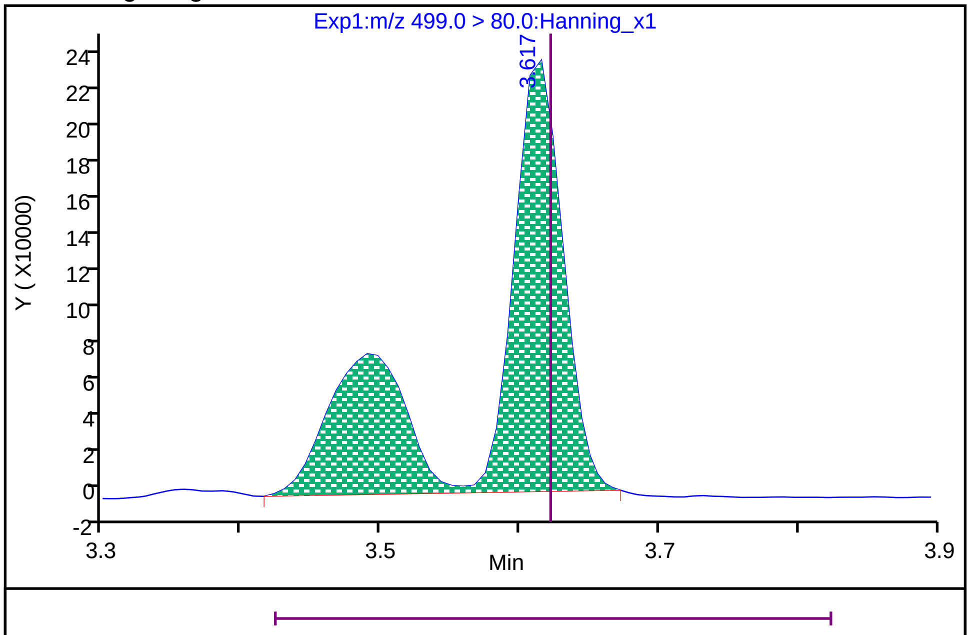
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921055.d		
Injection Date:	10-Nov-2021 00:51:07	Inst. ID:	LCMSMS02.i
Client ID:	SW3-DPT-0144-012.0-20211102	Lab ID:	WK03035-009
Sample Info:	WK03035-009,5		
Dil. Factor:	5	Operator:	Justin Gavin

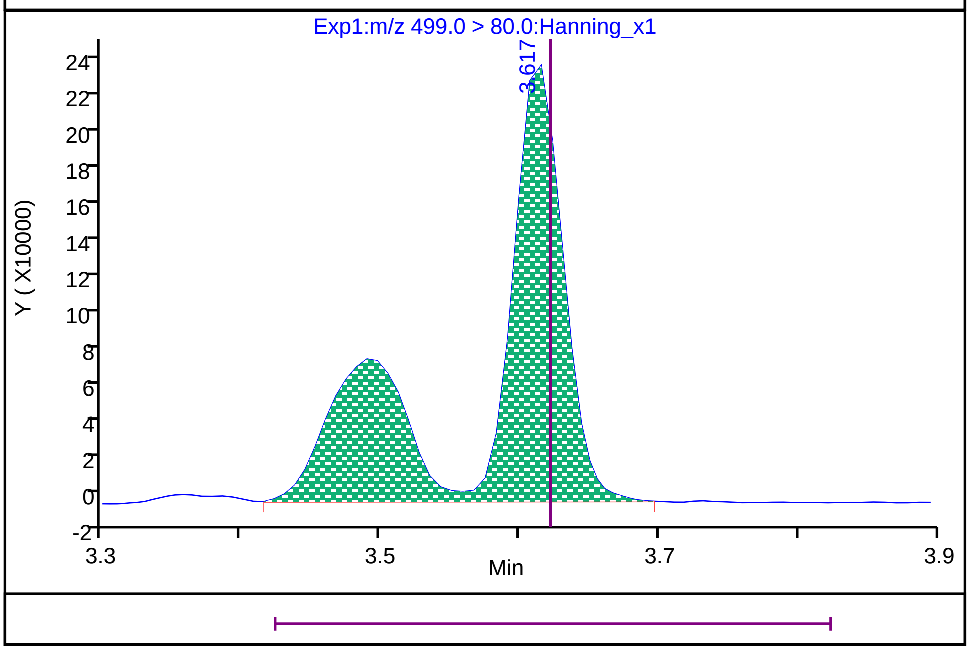
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.617
Area:	856164
Conc:	1059.03
Conc Units:	ng/L



RT:	3.617
Area:	887358
Conc:	1097.62
Conc Units:	ng/L



Data Editor: justin.gavin, 11-Nov-2021 18:03:10

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-010	
Description: SW3-EB-20211102-01		Matrix: Aqueous	
Date Sampled: 11/02/2021 0740	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	11/05/2021 0428	MMM	11/03/2021 1629	21177
2	SOP SPE	PFAS by ID SOP QSM B-15	1	11/09/2021 2255	JJG	11/07/2021 1308	21582

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	I	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		120	50-150		137	50-150
13C2_6:2FTS		131	50-150	N	159	50-150
13C2_8:2FTS		130	50-150		138	50-150
13C2_PFDoA		130	50-150		115	50-150
13C2_PFTeDA		108	50-150		101	50-150
13C3_PFBS		107	50-150		117	50-150
13C3_PFHxS		126	50-150		129	50-150
13C3-HFPO-DA		119	50-150		113	50-150
13C4_PFBA		111	50-150		118	50-150
13C4_PFHpA		116	50-150		120	50-150
13C5_PFHxA		106	50-150		118	50-150
13C5_PFPeA		107	50-150		119	50-150
13C6_PFDA		108	50-150		122	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WK03035-010	
Description: SW3-EB-20211102-01		Matrix: Aqueous	
Date Sampled: 11/02/2021 0740	Project Name: KSC-POL		
Date Received: 11/03/2021	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		111	50-150		115	50-150
13C8_PFOA		110	50-150		122	50-150
13C8_PFOS		119	50-150		123	50-150
13C9_PFNA		105	50-150		117	50-150
d-EtFOSA		86	50-150		84	50-150
d5-EtFOSAA		122	50-150		109	50-150
d3-MeFOSAA		128	50-150		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A091.d		
Injection Date:	05-Nov-2021 04:28:49	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	67
Lab Sample ID:	WK03035-010	Lab Prep. Batch:	21177
Client ID:	SW3-EB-20211102-01	Sample Group:	WK03035
Sample Info:	WK03035-010	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0402528

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	273	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.708	0	1265509	18	>100:1			1001.00	1175.32	111	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.715		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.079	0	1163390	14	>100:1			1001.00	1160.01	106.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.089		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	376851	15	>100:1			1001.00	1160.36	106.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.494		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.416	1	277862	18	>100:1			5005.00	6689.51	120.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	1026709	17	>100:1			1001.00	1149.43	106.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.459		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.579	0	1017956	17	>100:1			5005.00	6213.90	118.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.579		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	0	1114603	17	>100:1			1001.00	1272.10	116.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.846		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.855	1	343281	16	>100:1			1001.00	1308.83	126	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.855		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.233		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.210	3.201	1	245198	21	>100:1			5005.00	6502.01	131.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													J
427 > 407	64	3.210	3.201	1/0	8377	24	43:1	Target = 1.34		98.340	3.9585		
427 > 81	64	3.198	3.201		10014	16	10:1	0.83 (0.67-2.02)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.220	1	1024084	21	>100:1			1001.00	1238.32	110.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.227		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.591	1	296017	19	>100:1			1001.00	1318.68	119.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													J
499 > 80	54	3.596	3.591	1/0	17540	53		Target = 4.01	10.67	50.314	2.0253		M
499 > 99	54	3.596	3.591		1085	38	9.8:1	16.16 (2.00-6.02)	1.55				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.796		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.932		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.232		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.384		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.606	0	1026851	19	>100:1			1001.00	1285.15	104.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.599		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.932	1	215584	19	>100:1			5005.00	6868.91	129.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.940		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.940	1	889462	18	>100:1			1001.00	1232.28	108.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.940		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.098	4.096	1	1154569	18	>100:1			5005.00	6511.48	128.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.104		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.241	1	817460	17	>100:1			1001.00	1196.12	110.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.250		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.250	1	998723	17	>100:1			5005.00	6679.05	121.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.250		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.461	1	57590	19	>100:1			1001.00	894.18	86.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.468		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.519	0	926258	18	>100:1			1001.00	1347.01	129.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.512		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.758		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.968	1	931531	26	>100:1			1001.00	1191.59	108.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.973		ND								
*** 37 13C2_PFDA**													
515 > 470		3.934	3.940	0	863028	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.459	0	908465	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.227	0	916535	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	0	1027040	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.591	1	259768	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

Report Date: 09-Nov-2021 07:56:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A091.d		
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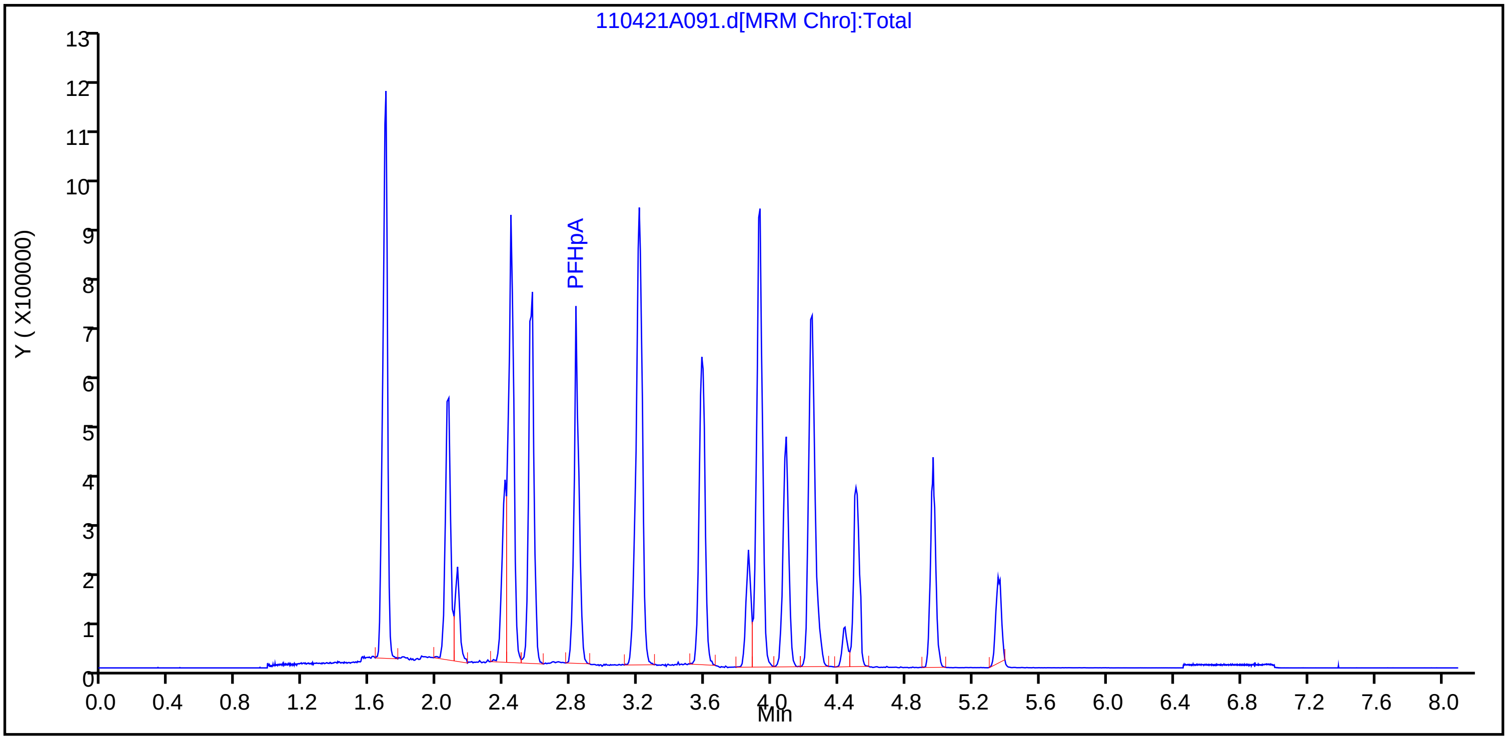
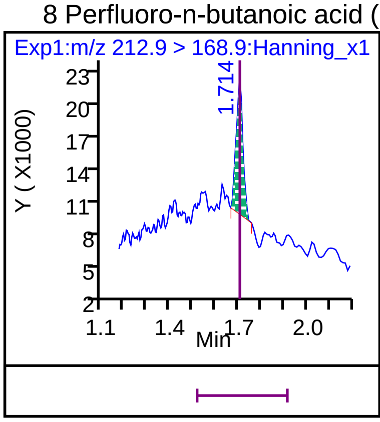
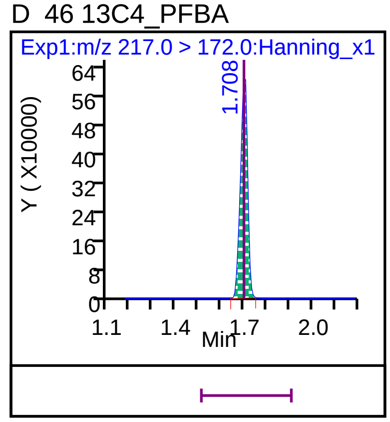
Sample Info:	WK03035-010		
Dil. Factor:	1	Operator:	Matthew M. Miller



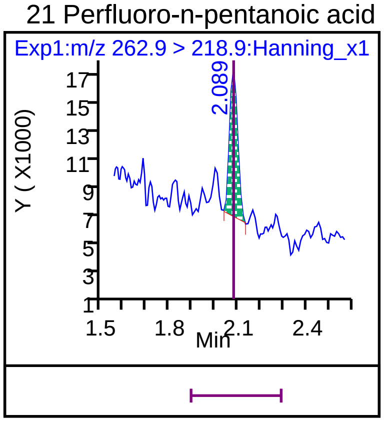
8 Perfluoro-n-butanoic acid (PFBA)



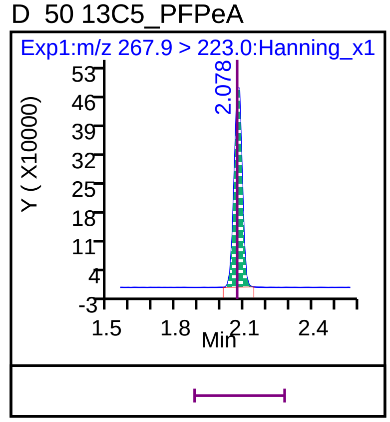
D 46 13C4_PFBA



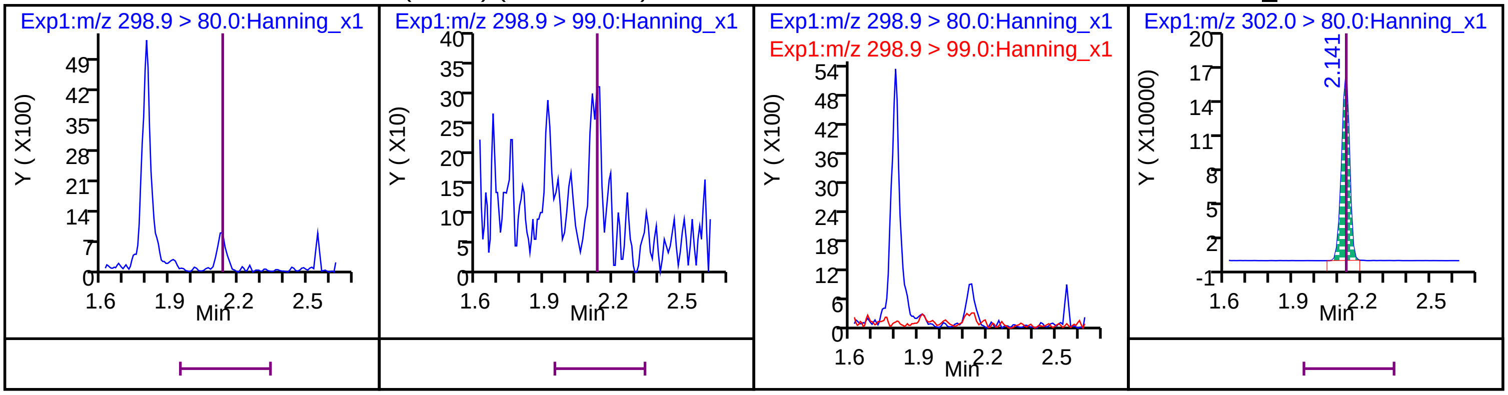
21 Perfluoro-n-pentanoic acid (PFPeA) (M)



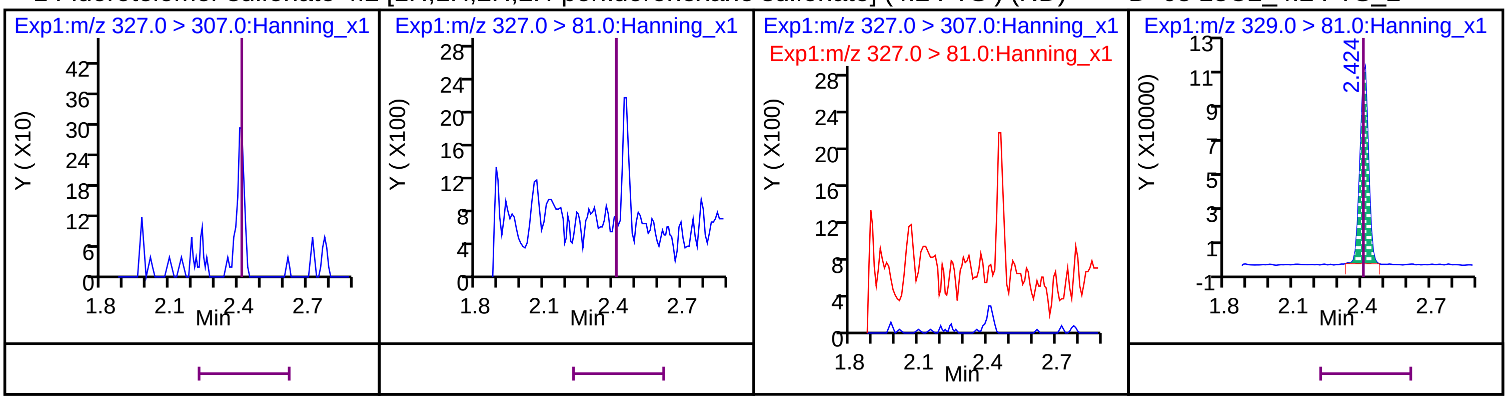
D 50 13C5_PFPeA



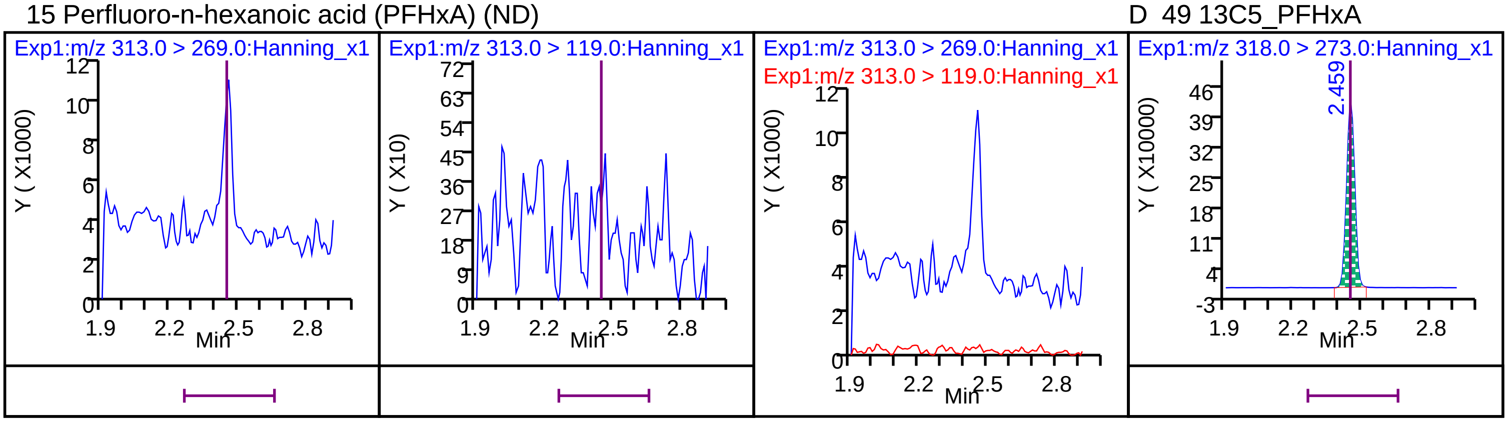
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



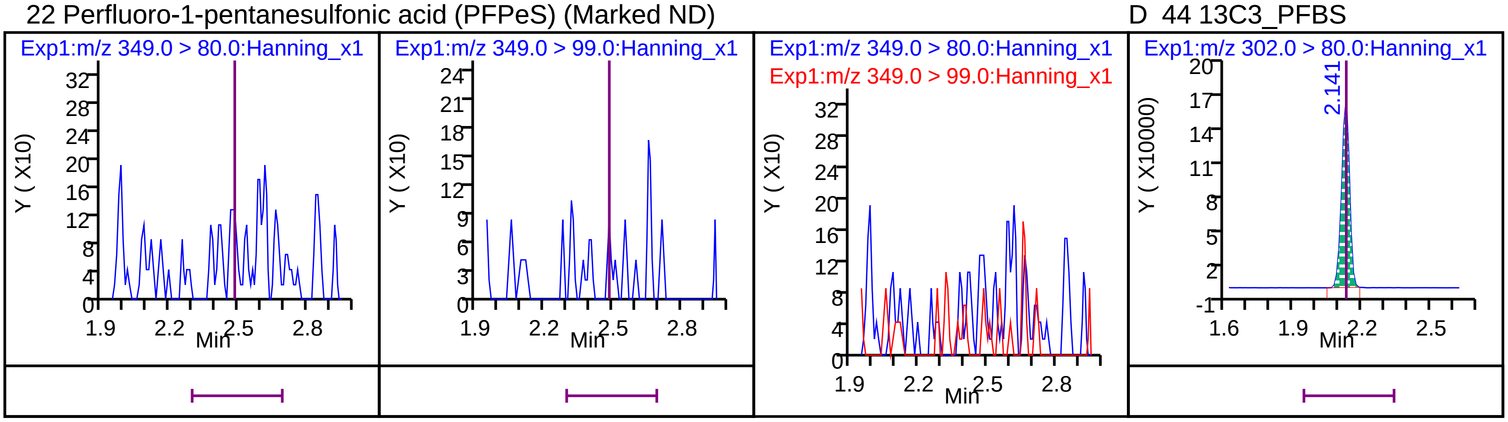
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



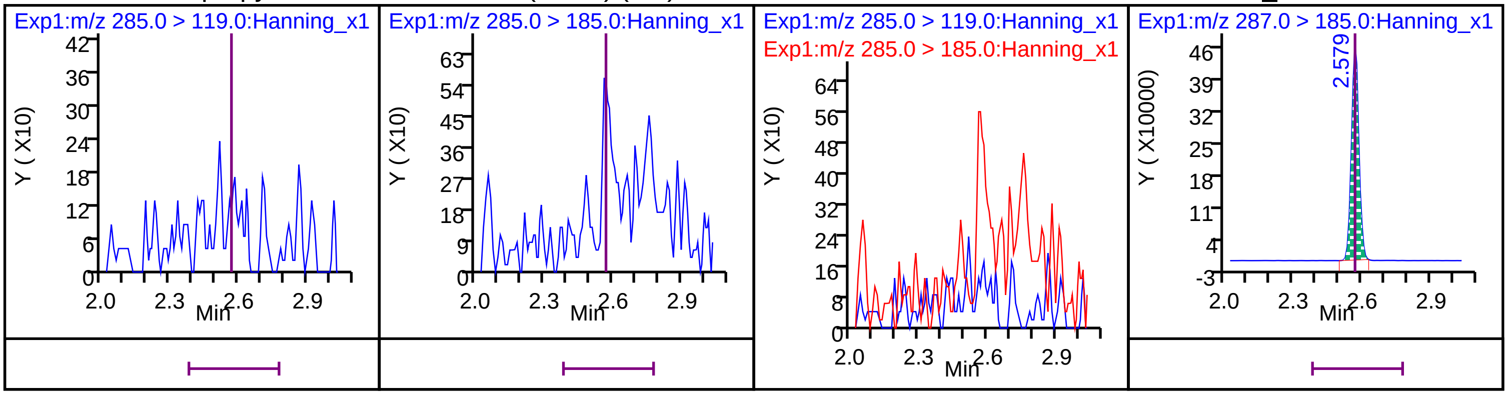
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



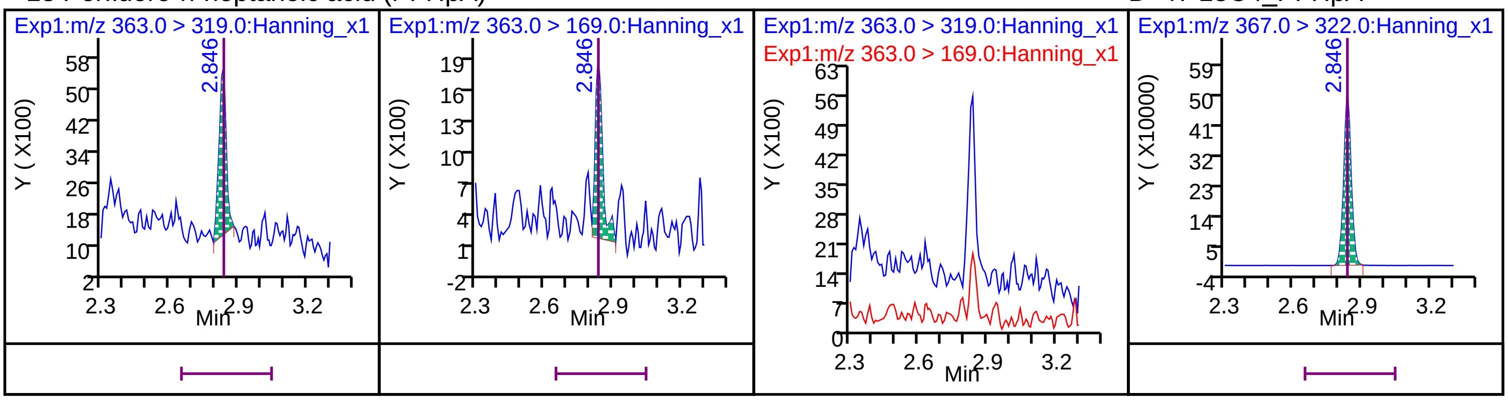
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



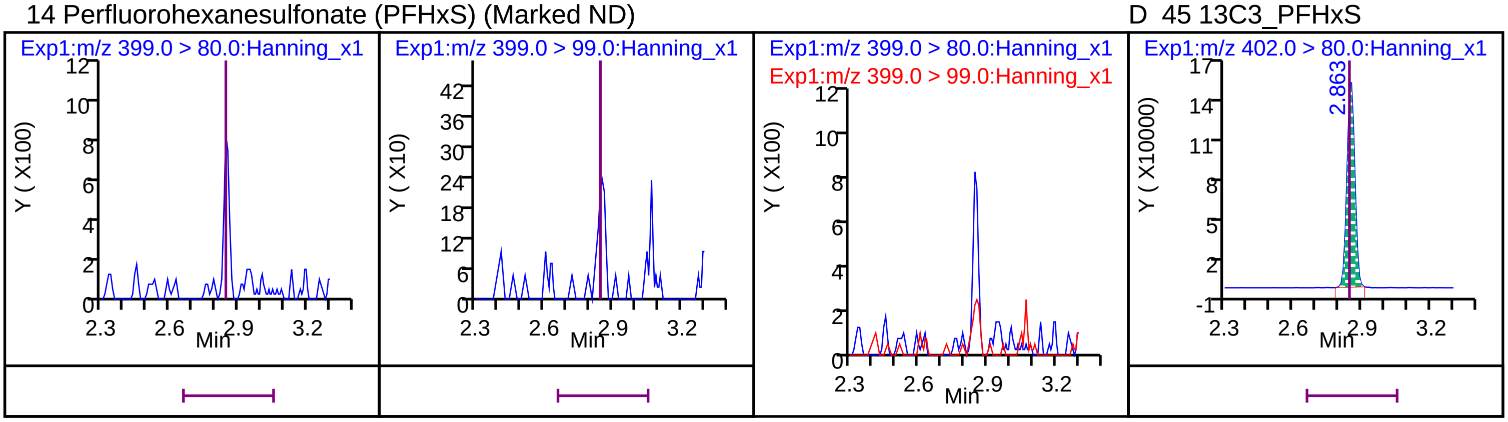
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



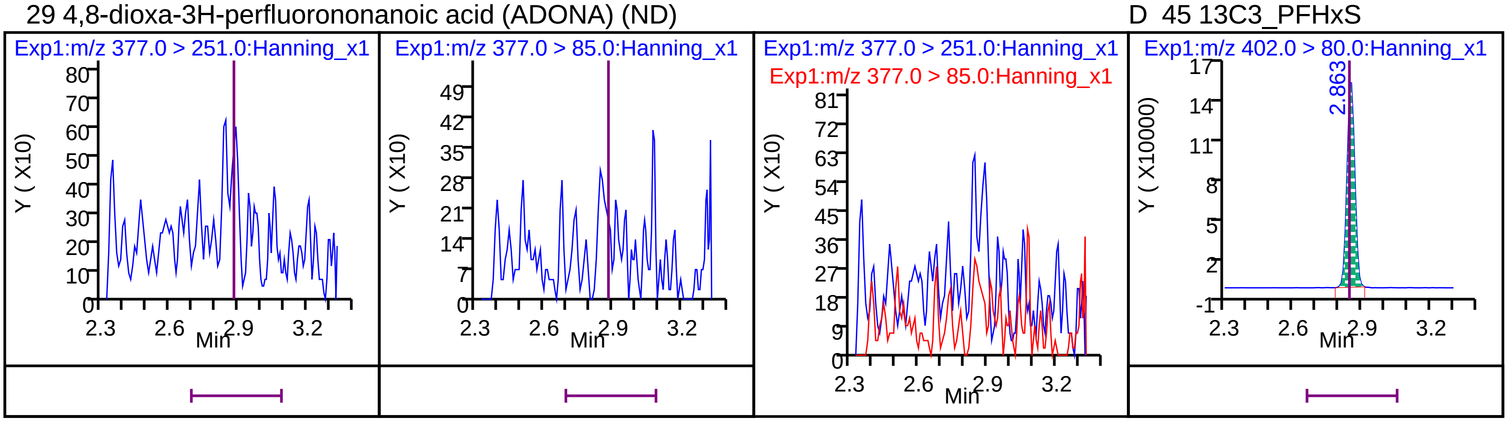
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



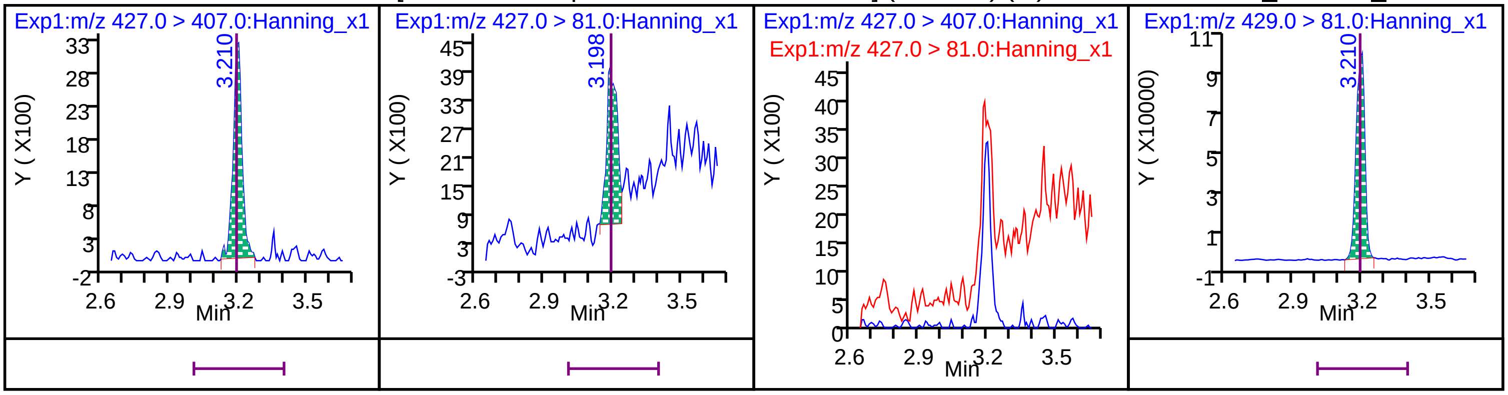
14 Perfluorohexanesulfonate (PFHxS) (Marked ND) D 45 13C3_PFHxS



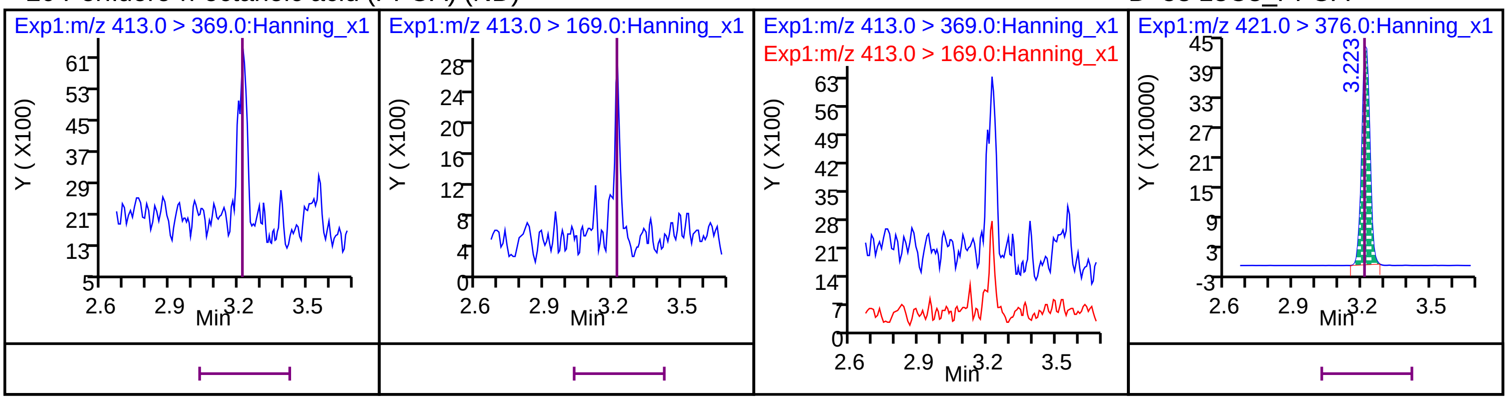
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



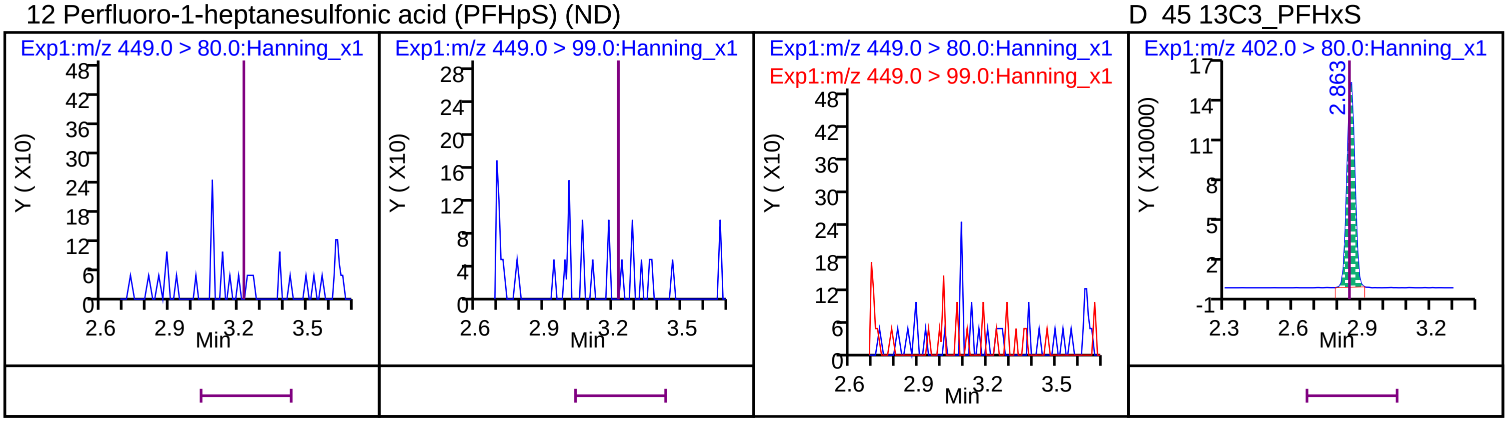
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



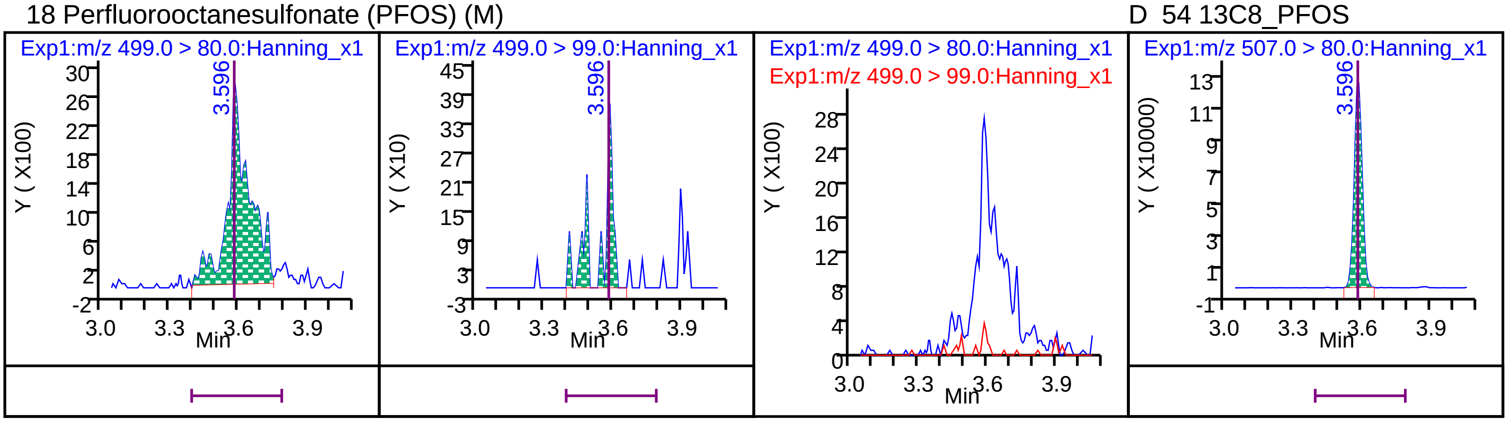
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



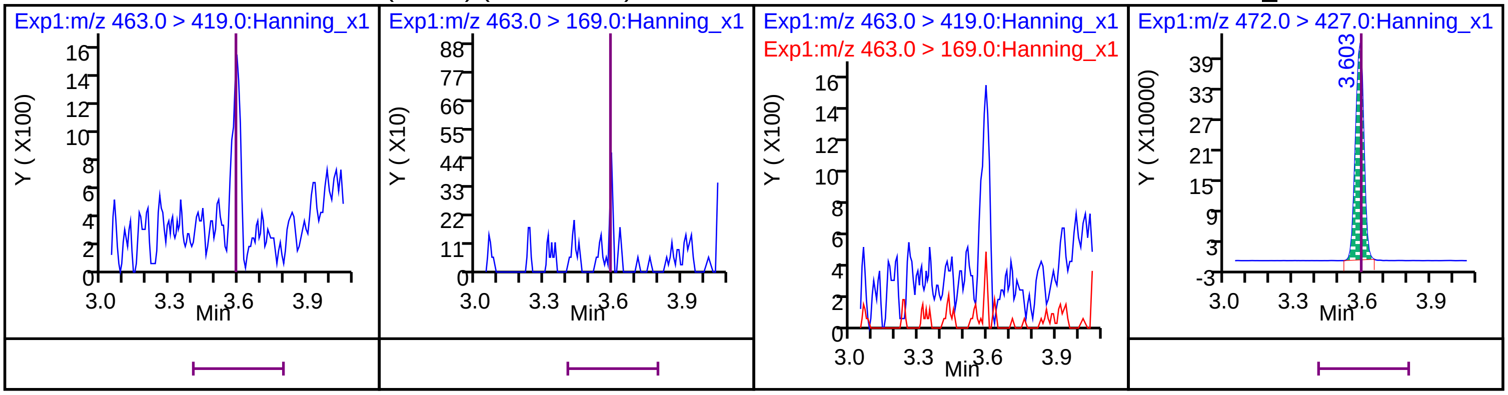
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



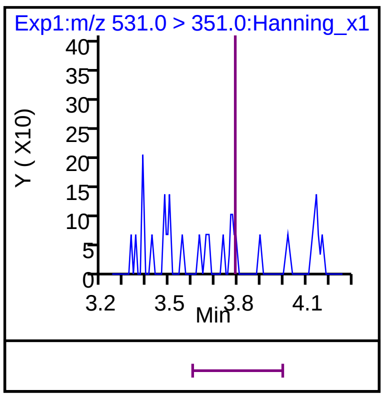
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

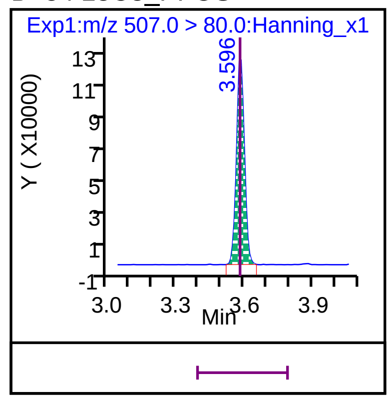


17 Perfluoro-n-nonanoic acid (PFNA) (Marked ND) D 56 13C9_PFNA

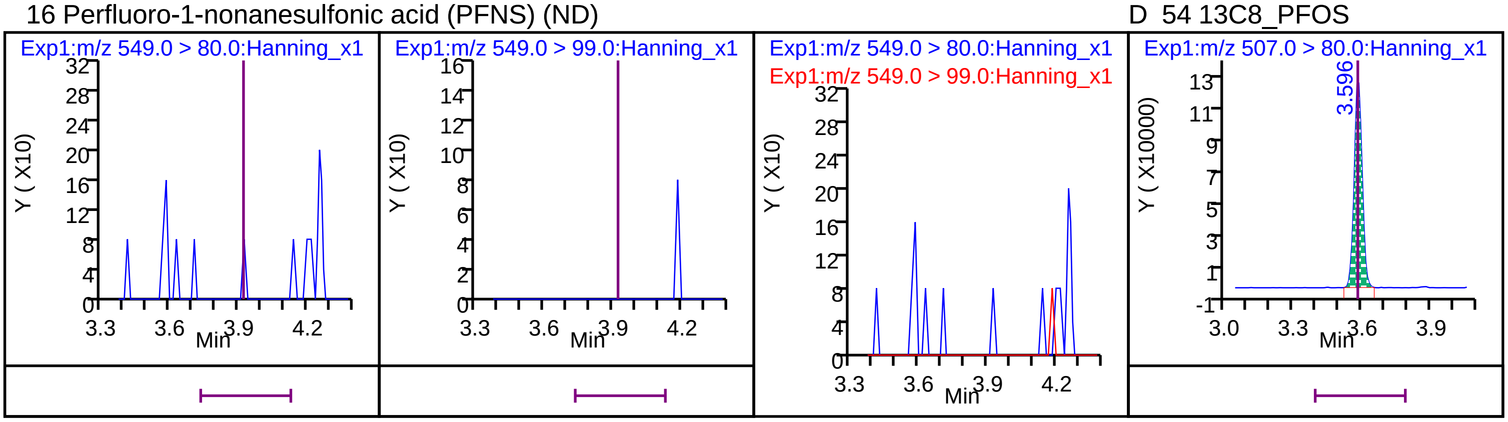


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS

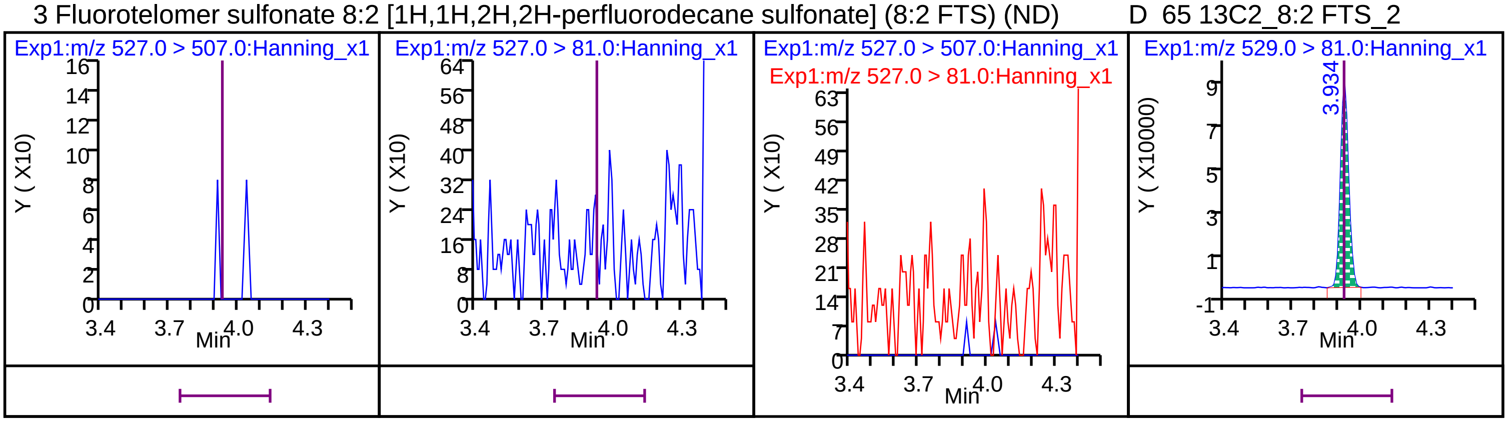




16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

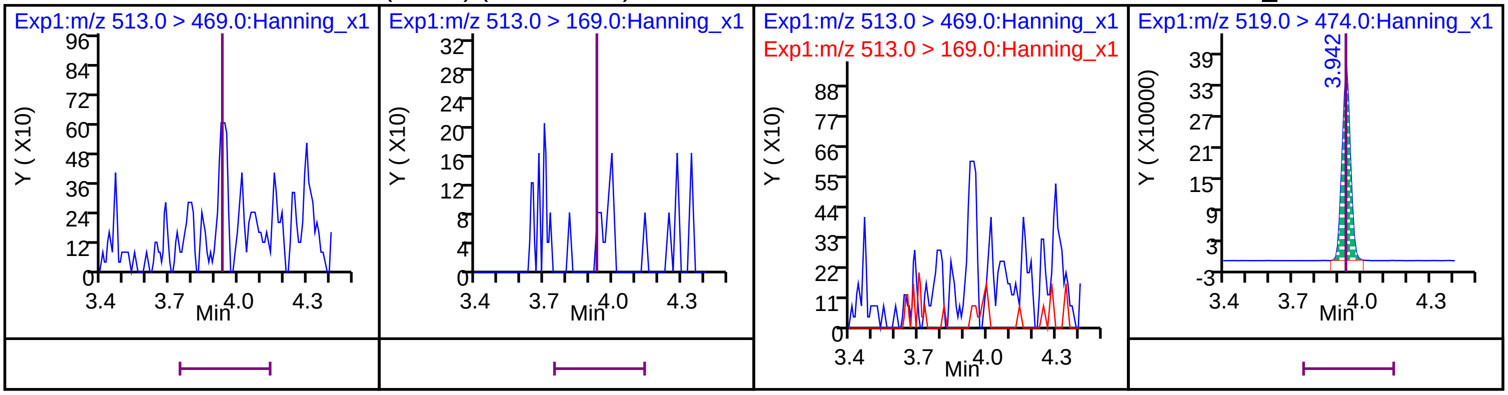


3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2

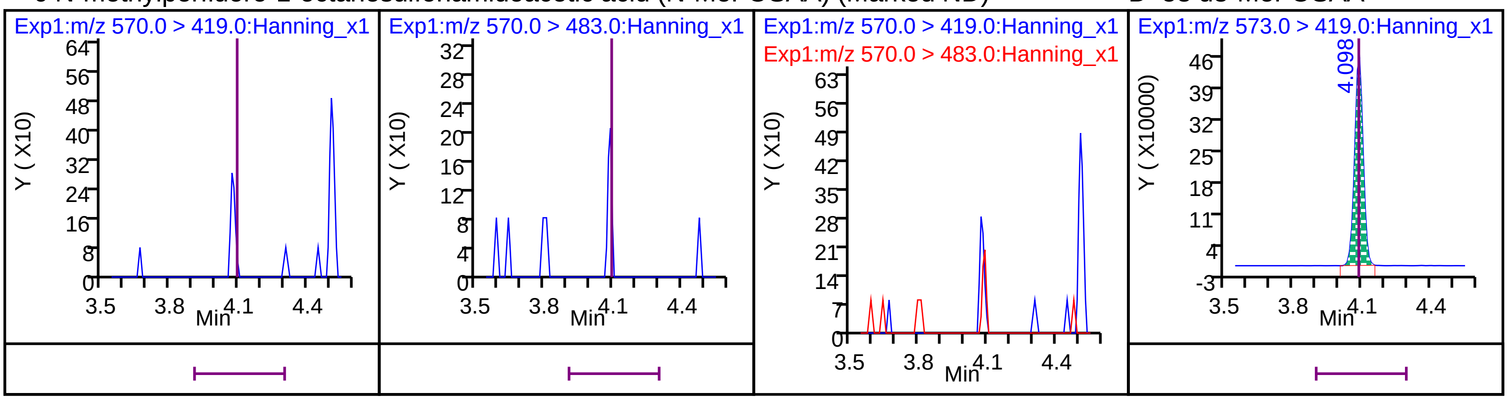


Report Date: 09-Nov-2021 07:56:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A091.d

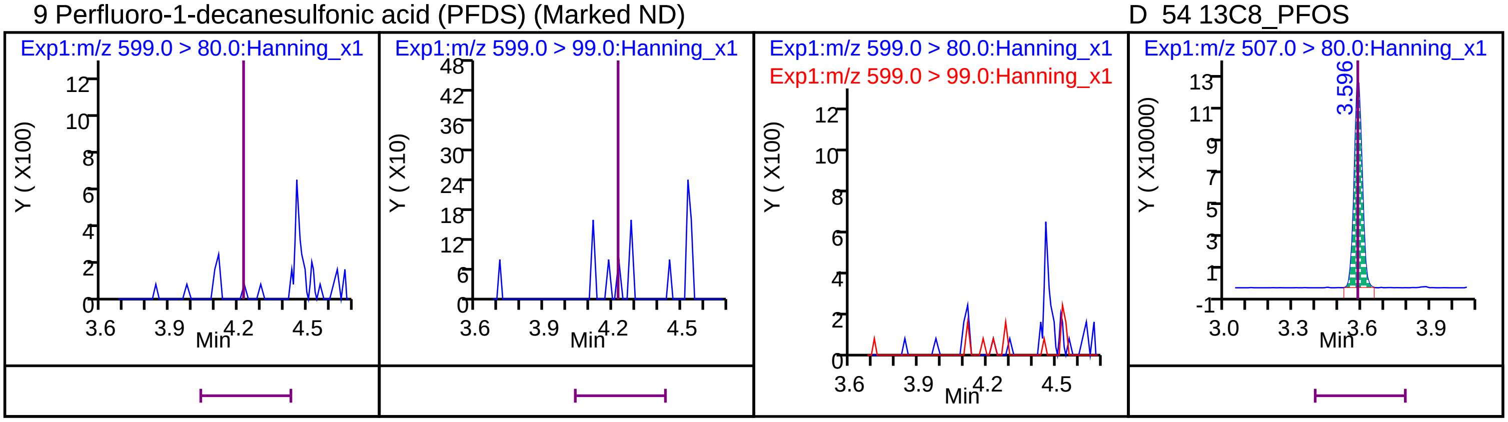
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



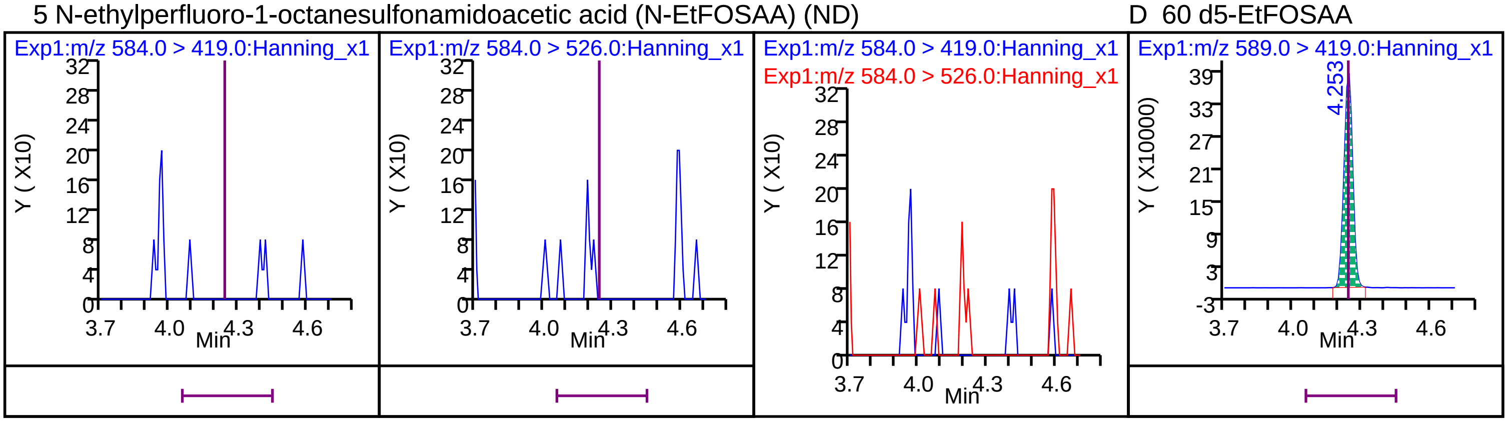
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



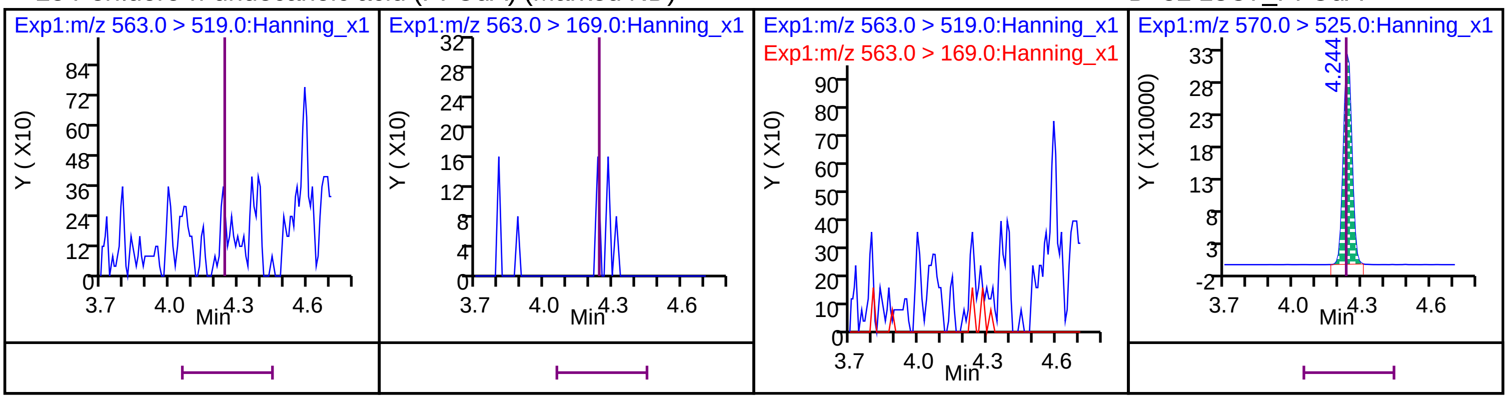
9 Perfluoro-1-decanesulfonic acid (PFDS) (Marked ND) D 54 13C8_PFOS



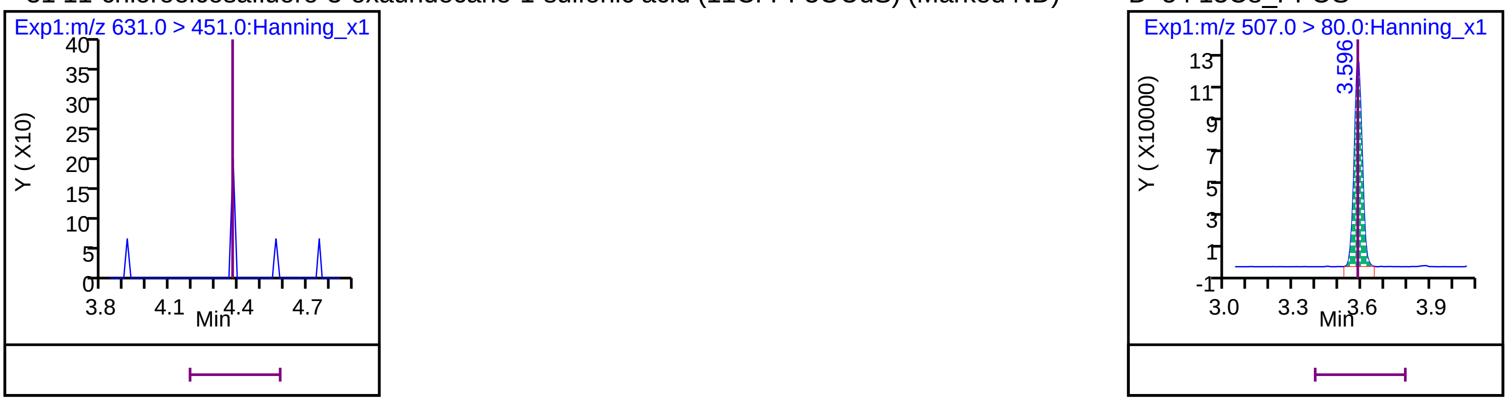
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



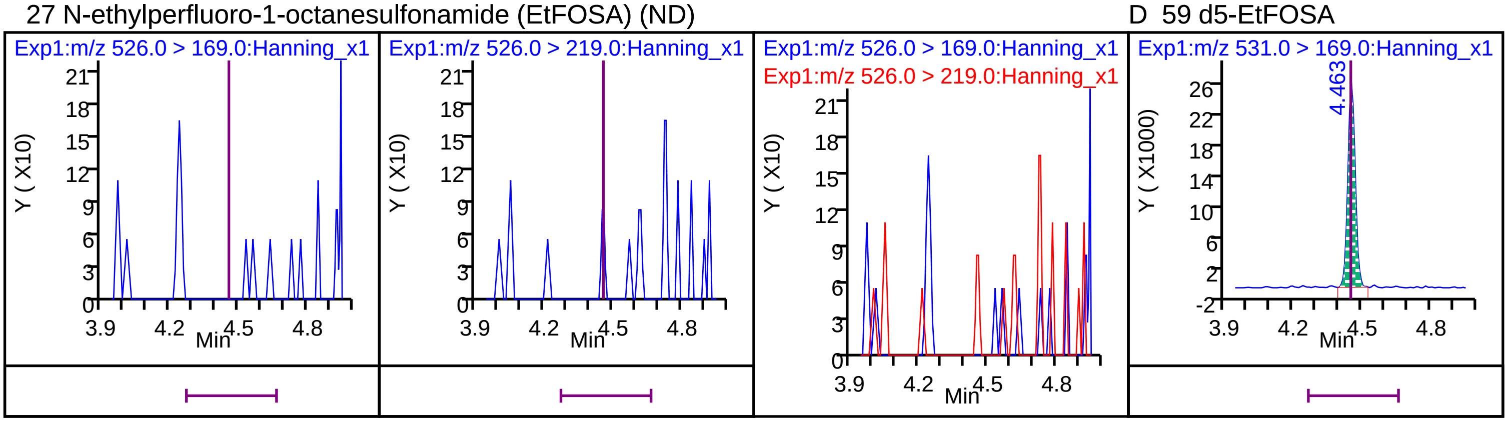
25 Perfluoro-n-undecanoic acid (PFUdA) (Marked ND) D 52 13C7_PFUdA



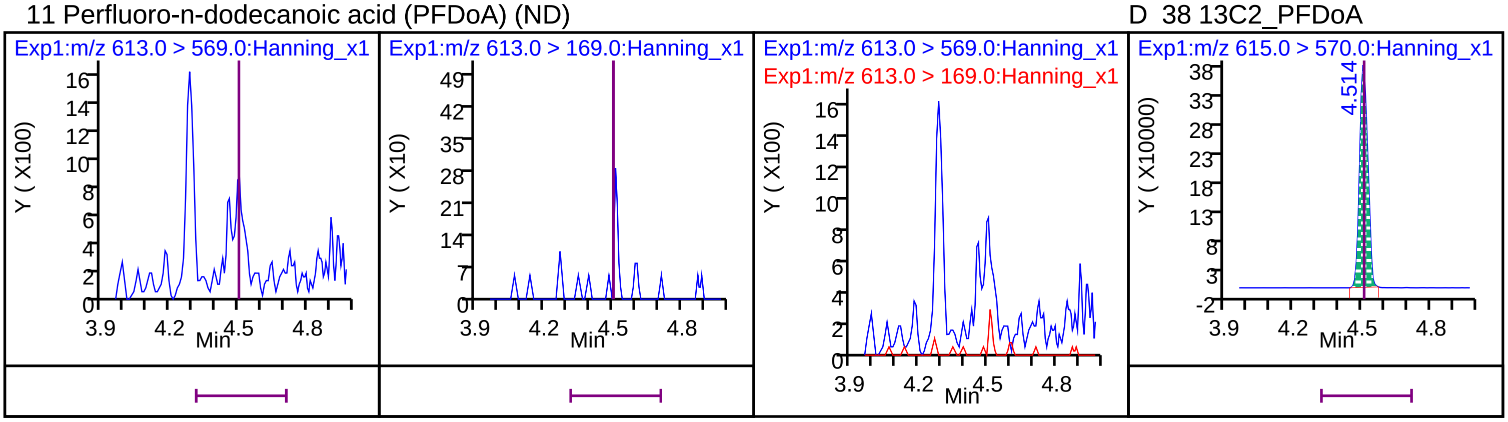
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



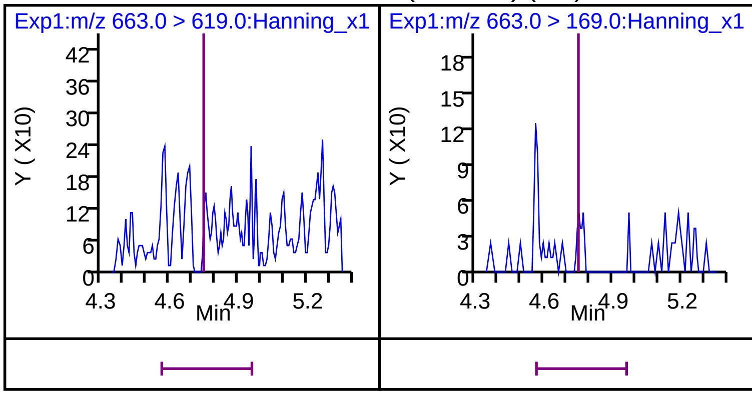
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



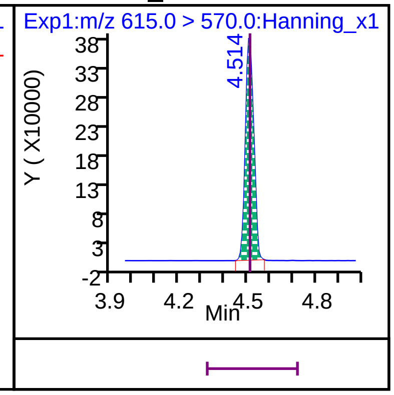
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



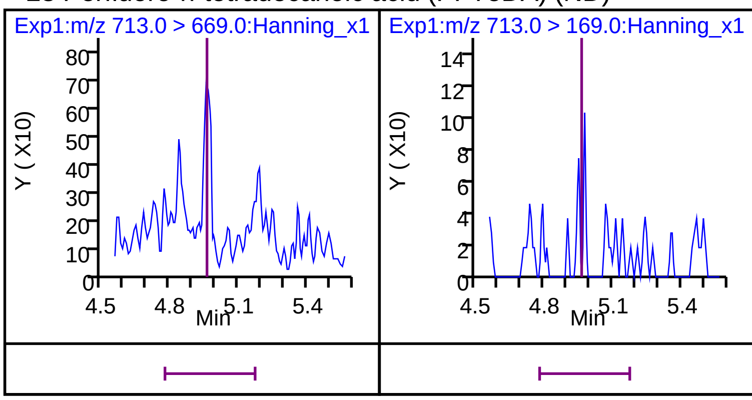
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



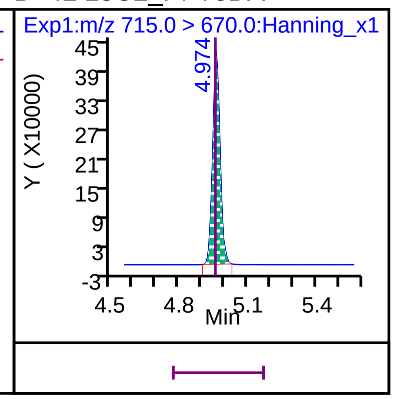
D 38 13C2_PFDoA



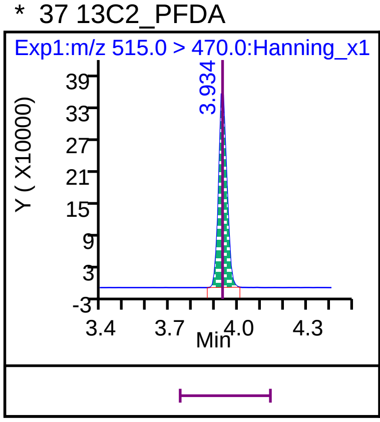
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



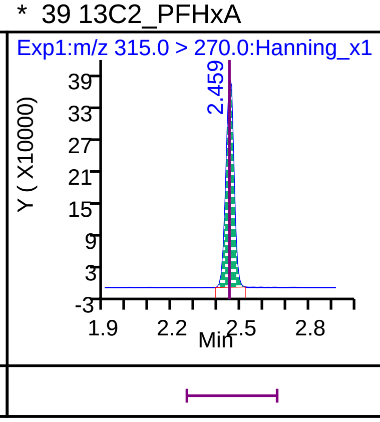
D 42 13C2_PFTeDA



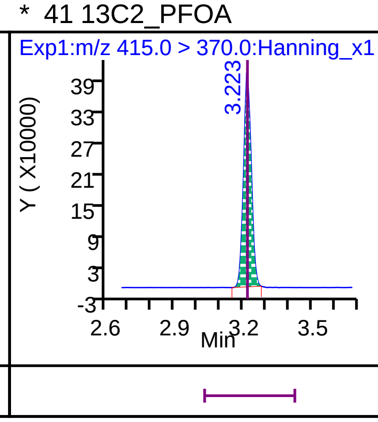
* 37 13C2_PFDA



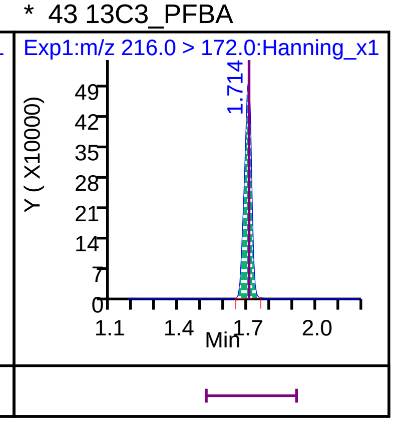
* 39 13C2_PFHxA



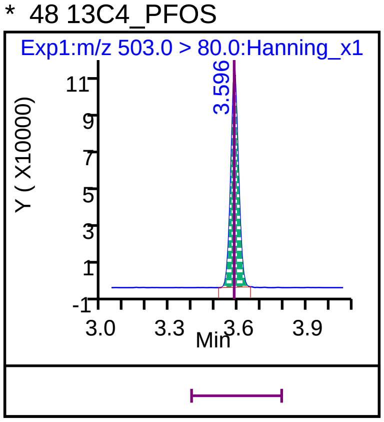
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 07:56:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

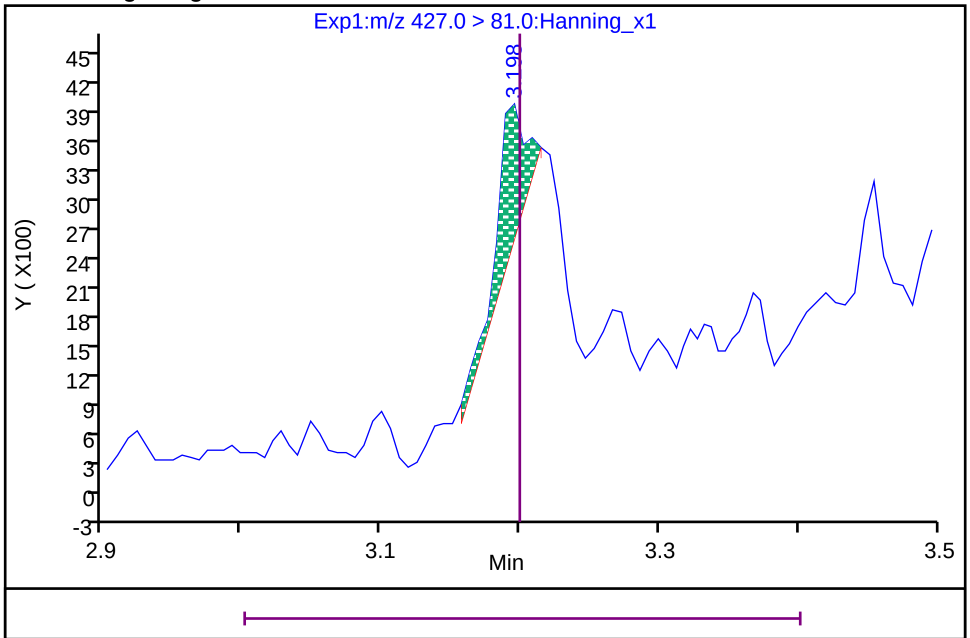
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A091.d		
Injection Date:	05-Nov-2021 04:28:49	Inst. ID:	LCMSMS01.i
Client ID:	SW3-EB-20211102-01	Lab ID:	WK03035-010
Sample Info:	WK03035-010		
Dil. Factor:	1	Operator:	Matthew M. Miller

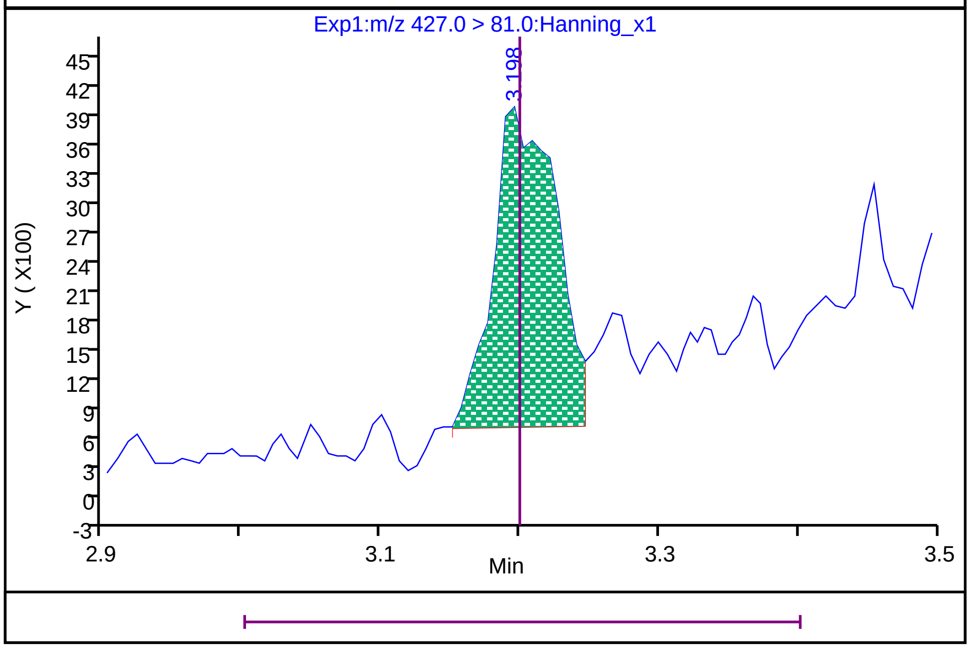
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT:	3.198
Area:	1966
Conc:	3.9585
Conc Units:	ng/L



RT:	3.198
Area:	10014
Conc:	3.9585
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:13:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

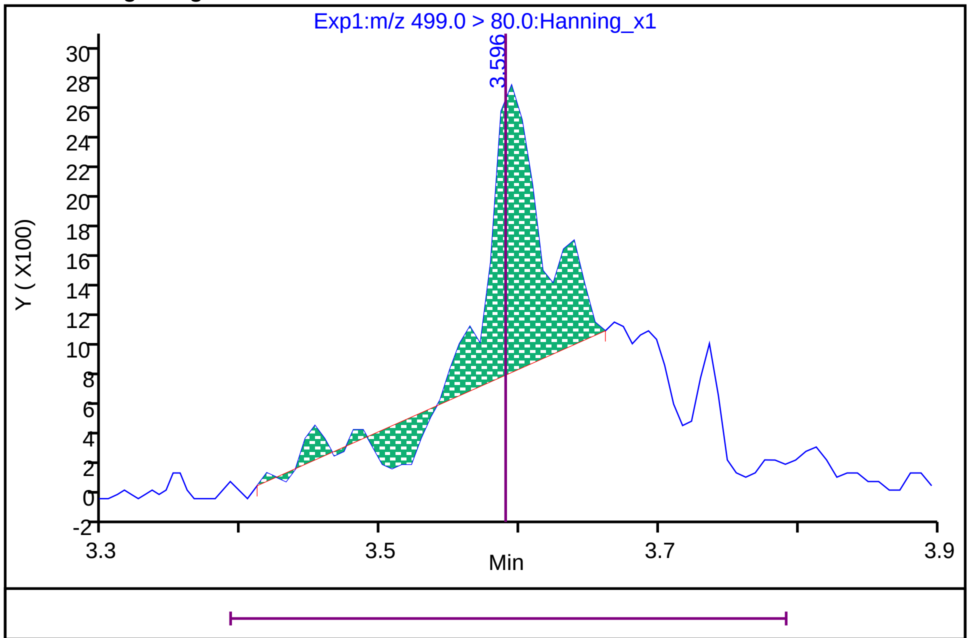
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A091.d		
Injection Date:	05-Nov-2021 04:28:49	Inst. ID:	LCMSMS01.i
Client ID:	SW3-EB-20211102-01	Lab ID:	WK03035-010
Sample Info:	WK03035-010		
Dil. Factor:	1	Operator:	Matthew M. Miller

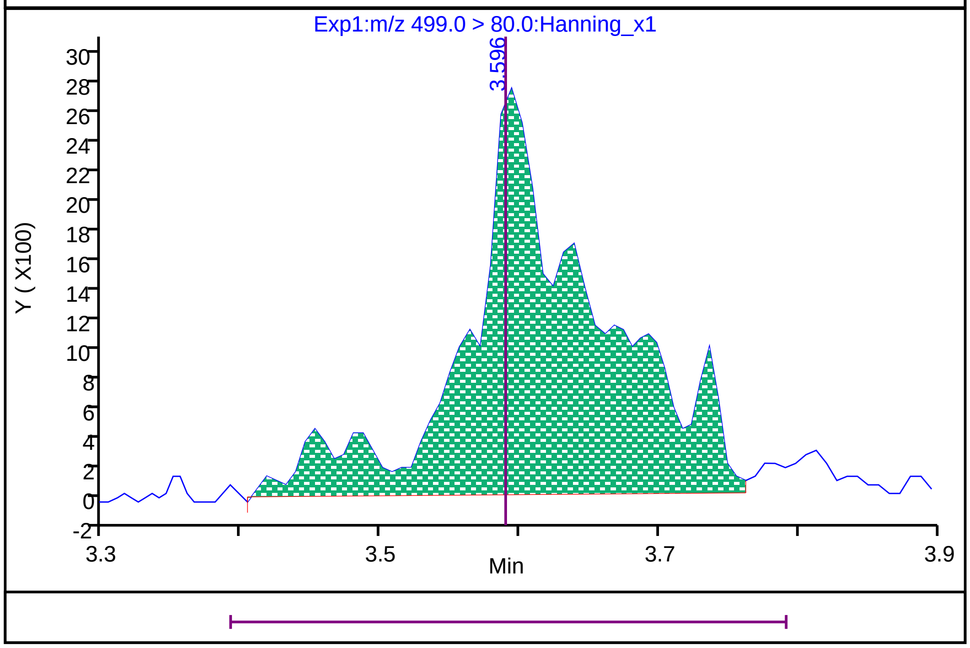
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.596
Area: 4796
Conc: 0.55377
Conc Units: ng/L



RT: 3.596
Area: 17540
Conc: 2.0253
Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:13:57

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921044.d		
Injection Date:	09-Nov-2021 22:55:01	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	37
Lab Sample ID:	WK03035-010	Lab Prep. Batch:	21582
Client ID:	SW3-EB-20211102-01	Sample Group:	WK03035
Sample Info:	WK03035-010	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0378931

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	290	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.705	1.711	0	763385	19	>100:1			1001.00	1227.95	118.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													J
212.9 > 168.9	46	1.711	1.718	0/0	19912	19	5.0:1			24.757	0.93813		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	683483	14	>100:1			1001.00	1195.75	119.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.098		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.151	0	201774	14	>100:1			1001.00	1166.53	116.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	141185	16	>100:1			5005.00	6235.06	136.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	792502	16	>100:1			1001.00	1216.82	117.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.469		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.575	2.583	0	1335322	17	>100:1			5005.00	5761.75	113.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	642108	17	>100:1			1001.00	1209.38	119.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.845		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.854	2.864	0	146922	15	>100:1			1001.00	1169.39	129	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.864		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.247		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	164689	20	>100:1			5005.00	9149.41	158.5*	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.213		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.228	3.240	0	671257	20	>100:1			1001.00	1279.37	122.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.240		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.609	3.623	0	139037	18	>100:1			1001.00	1122.69	123.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.623		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	759179	19	>100:1			1001.00	1185.52	116.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.623		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	770960	15	>100:1			1001.00	1341.59	122.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	127540	19	>100:1			5005.00	7378.87	137.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.981		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.134	4.139	0	825855	17	>100:1			5005.00	5465.17	116.3	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.288	4.294	0	748177	15	>100:1			5005.00	5776.84	109.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.288	4.294	0	795060	14	>100:1			1001.00	1320.15	114.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.488	0	35904	14	>100:1			1001.00	834.98	84.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	810583	17	>100:1			1001.00	1350.21	115.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.038	5.042	0	954764	20	>100:1			1001.00	1174.39	100.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	908762	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	853415	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.228	3.240	0	704491	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	1	719748	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.609	3.623	0	146158	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

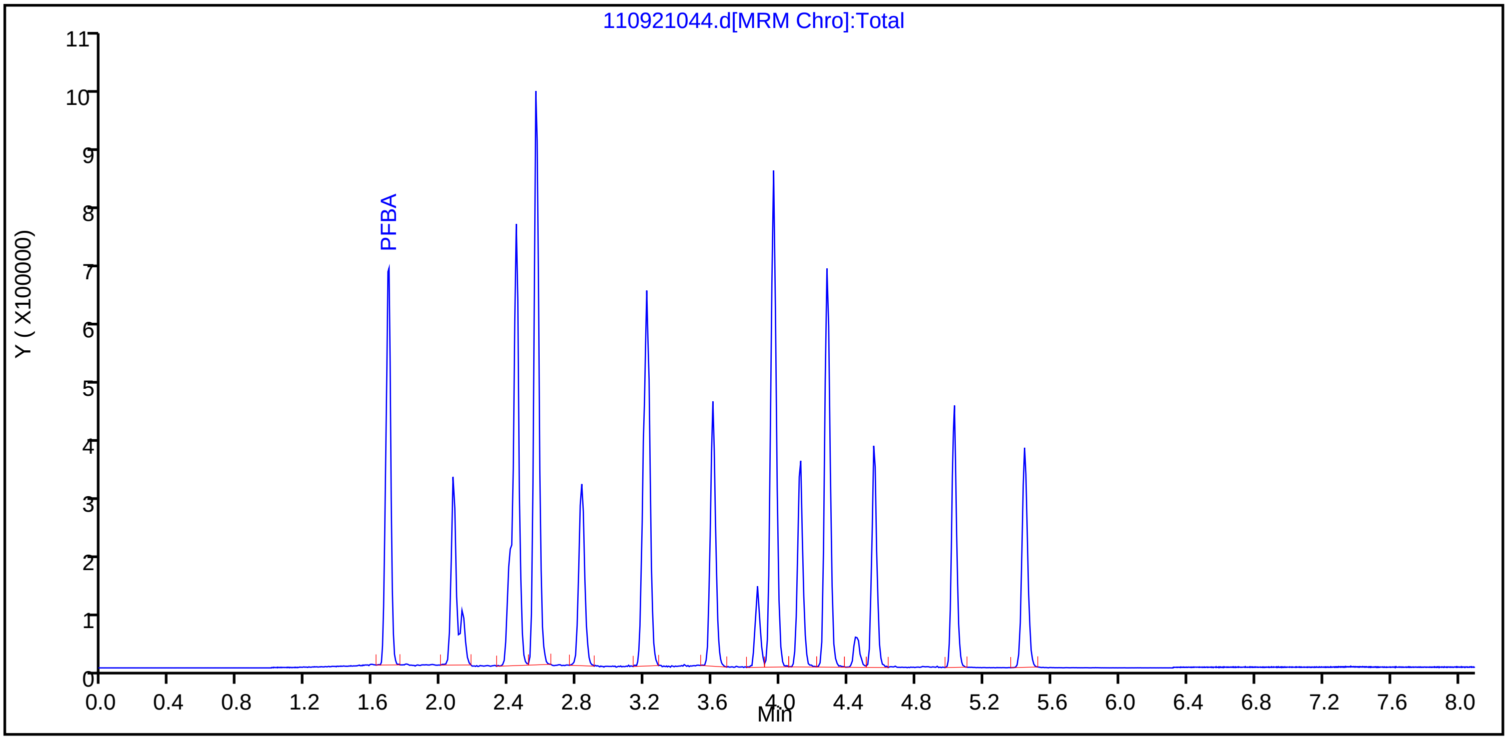
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit

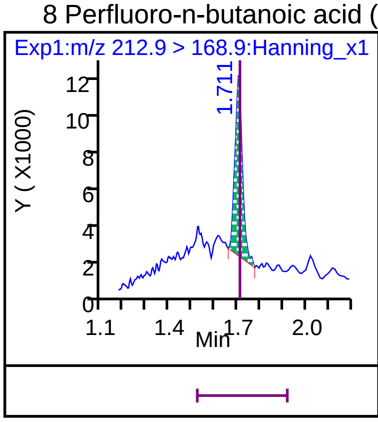
Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

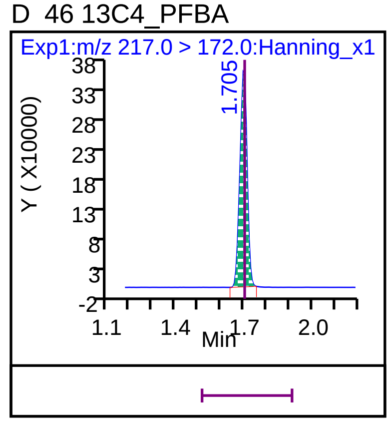
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921044.d		
Injection Date:	09-Nov-2021 22:55:01	Inst. ID:	LCMSMS02.i
Client ID:	SW3-EB-20211102-01	Lab ID:	WK03035-010
Sample Info:	WK03035-010		
Dil. Factor:	1	Operator:	Justin Gavin



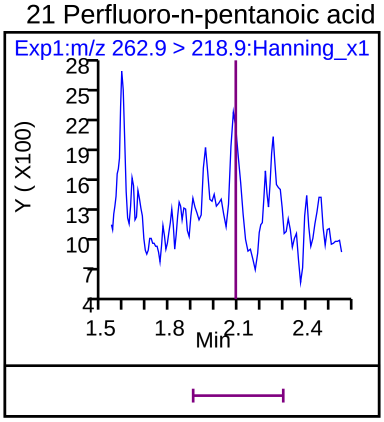
8 Perfluoro-n-butanoic acid (PFBA)



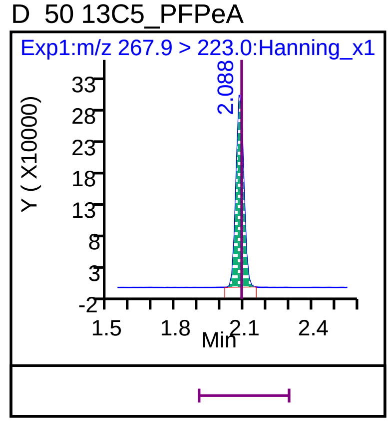
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)

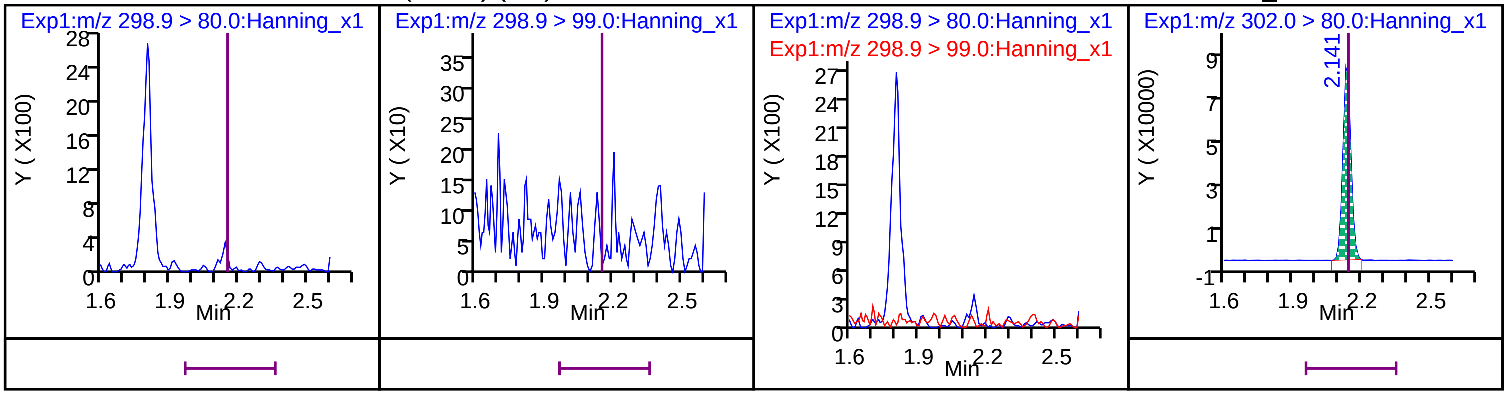


D 50 13C5_PFPeA

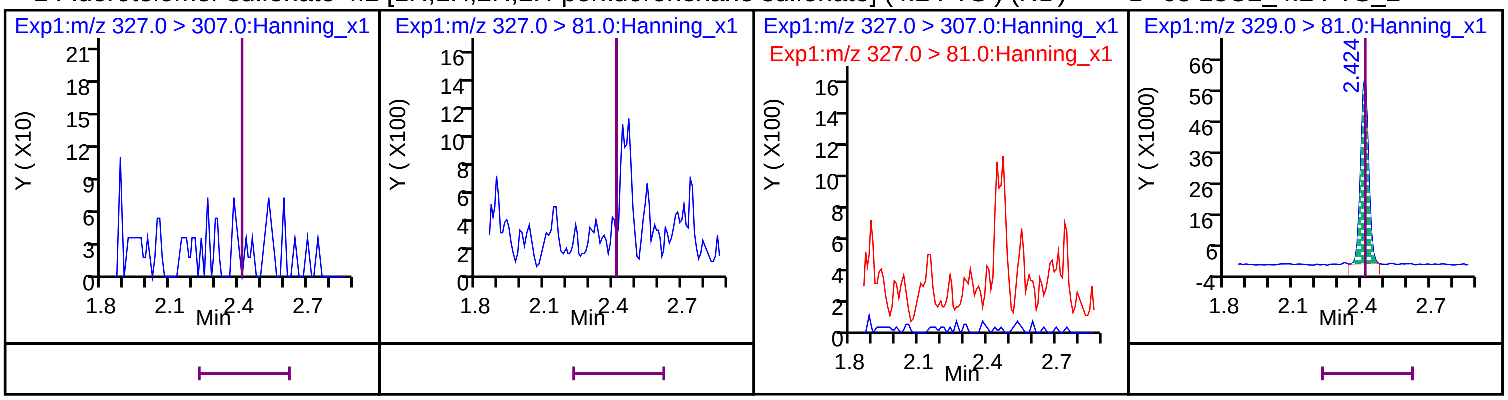


Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921044.d

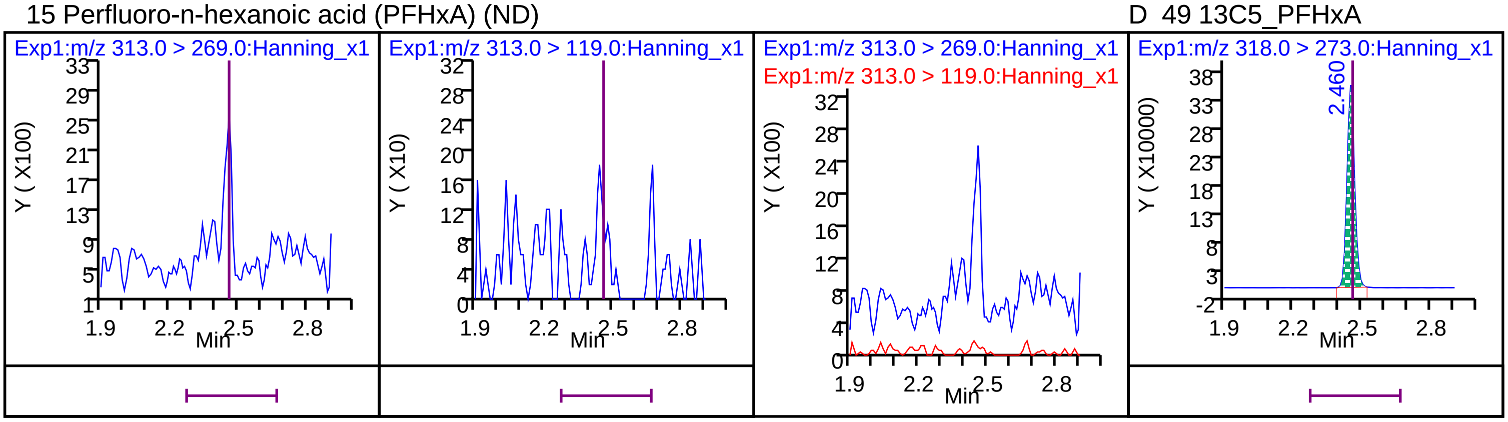
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



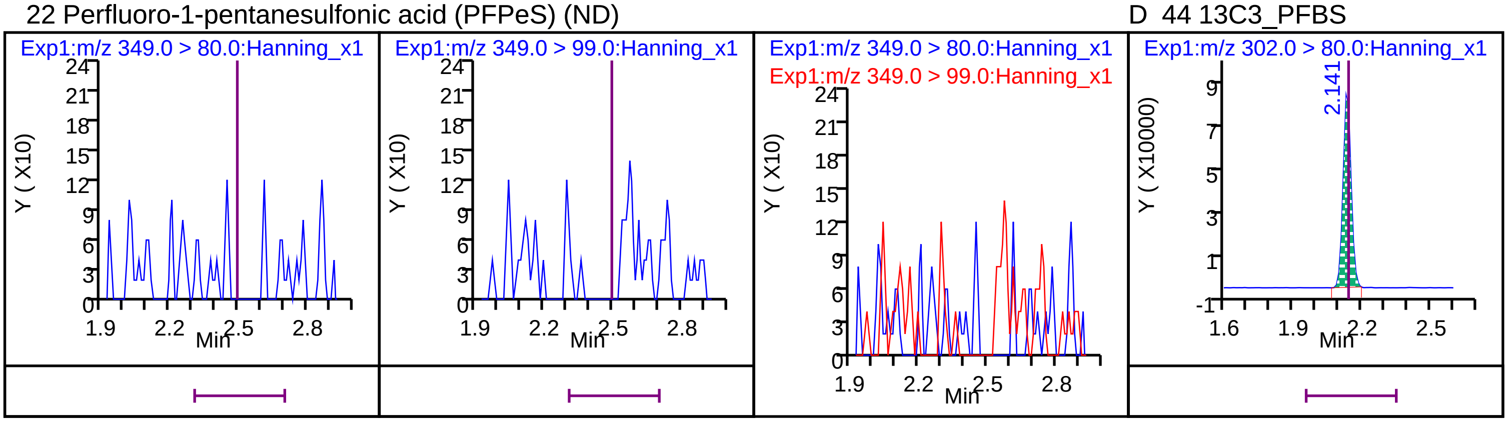
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



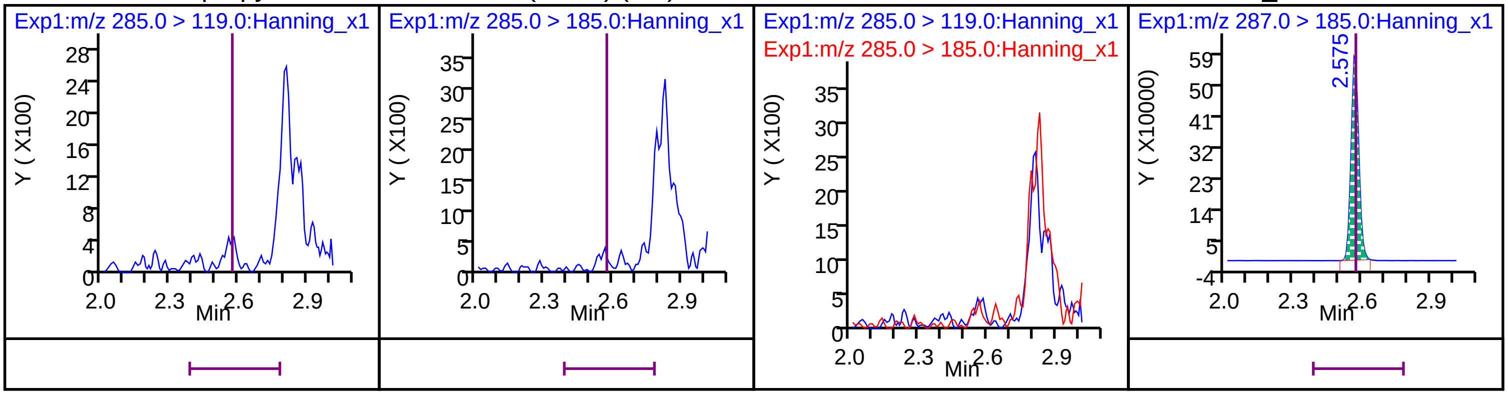
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



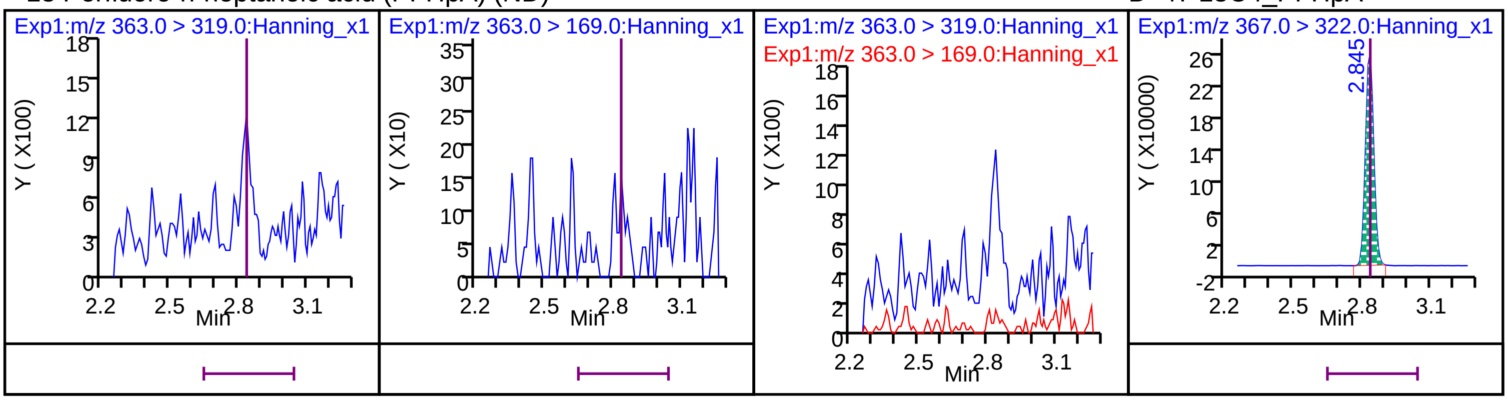
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



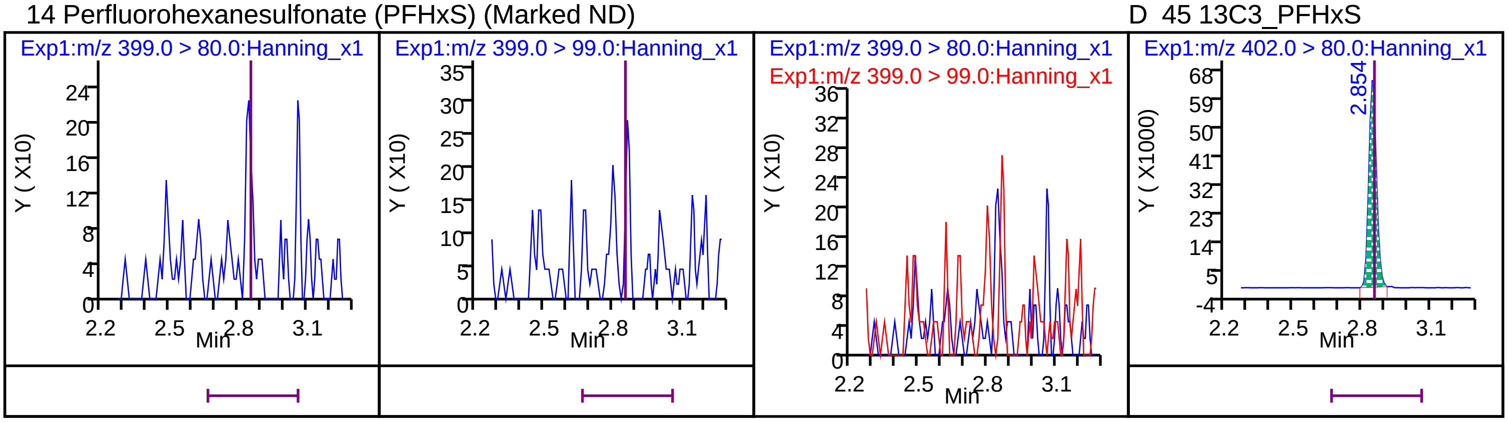
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



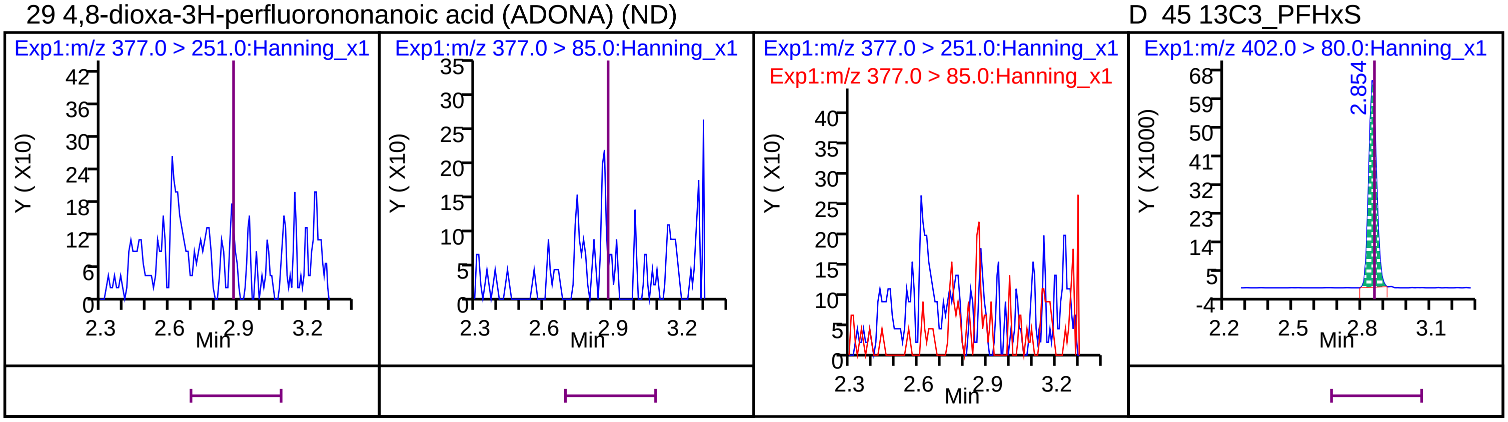
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



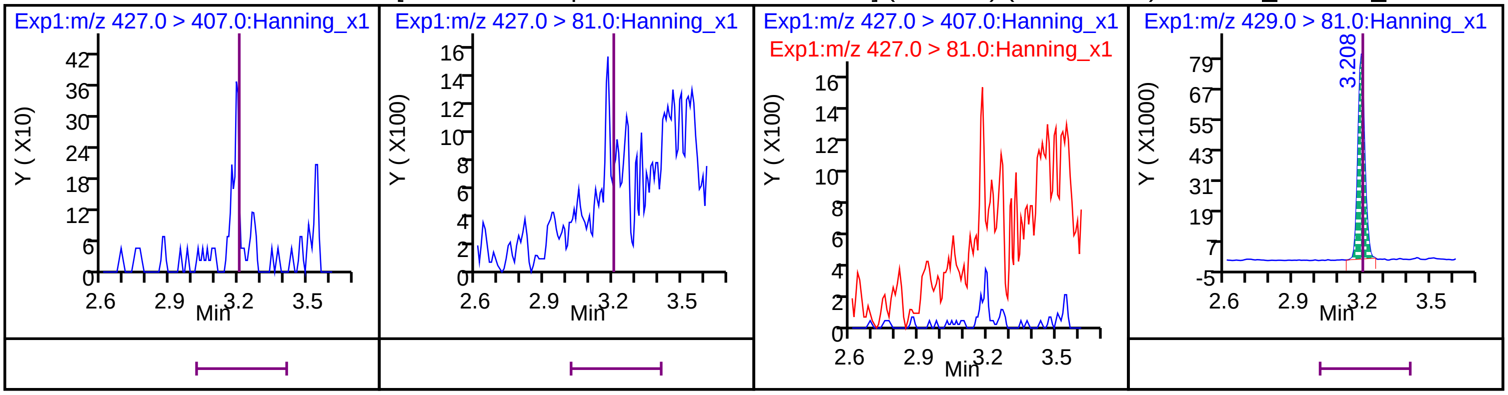
14 Perfluorohexanesulfonate (PFHxS) (Marked ND) D 45 13C3_PFHxS



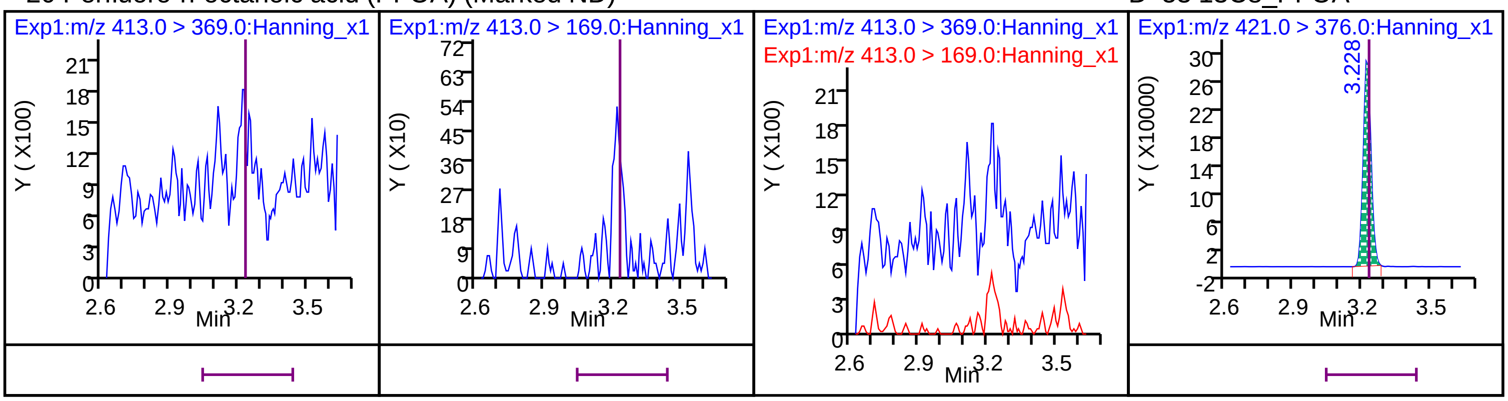
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



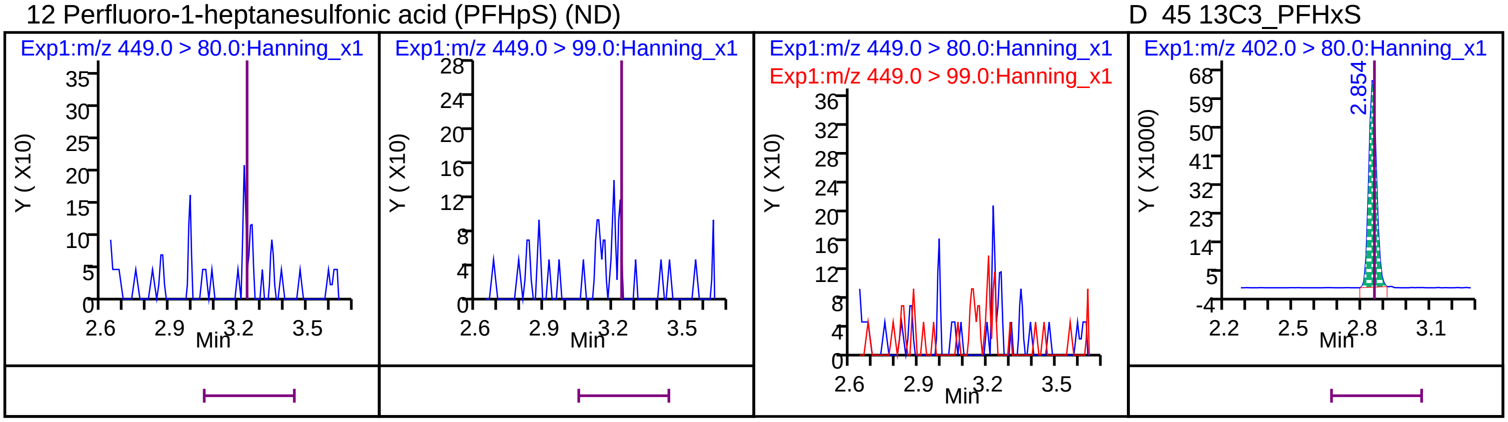
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (Marked ND) D 64 13C2_6:2 FTS_2



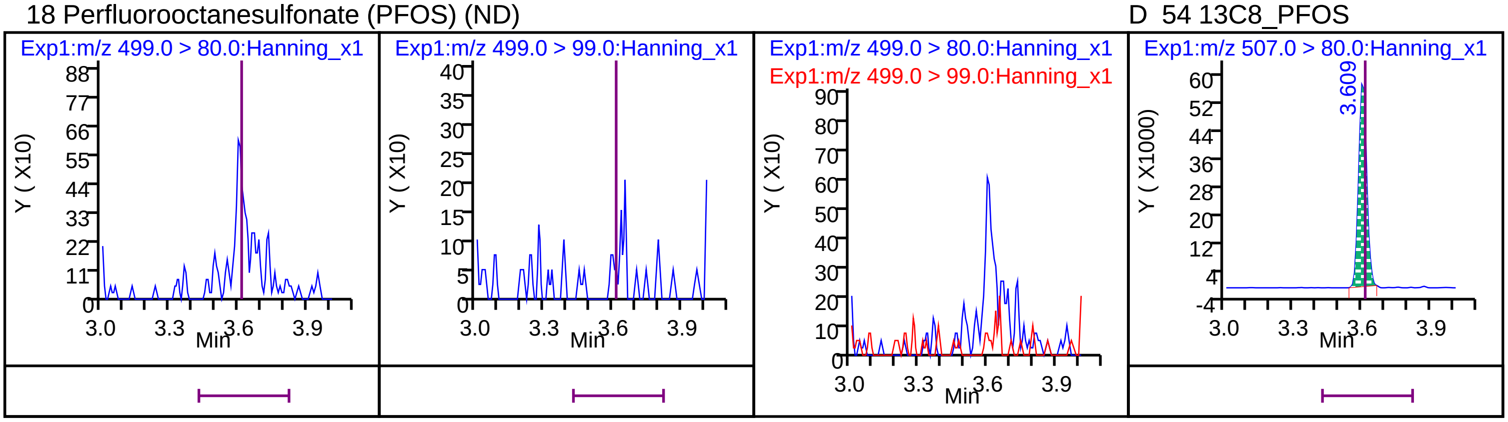
20 Perfluoro-n-octanoic acid (PFOA) (Marked ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



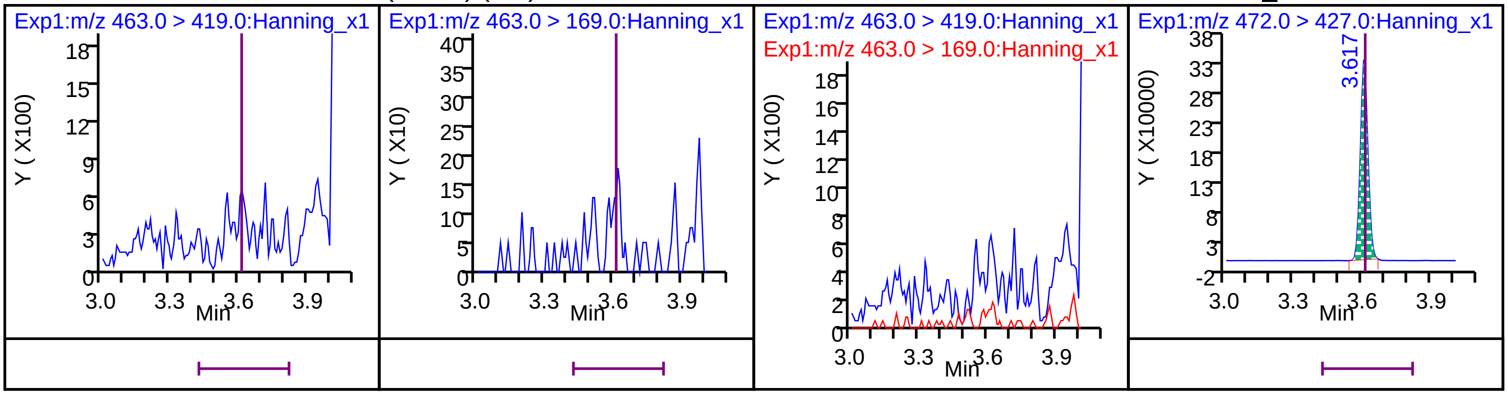
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



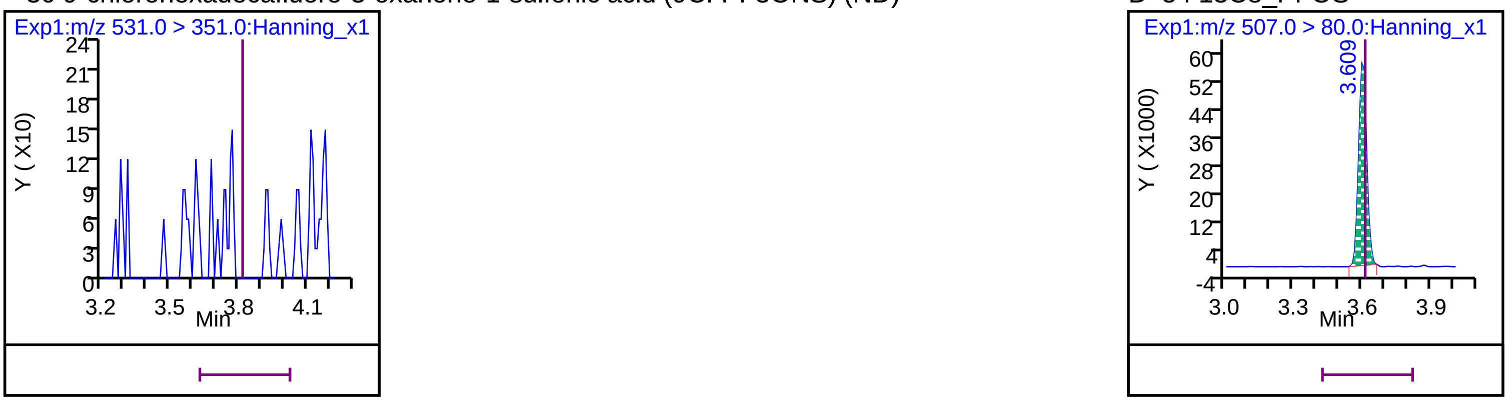
Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921044.d

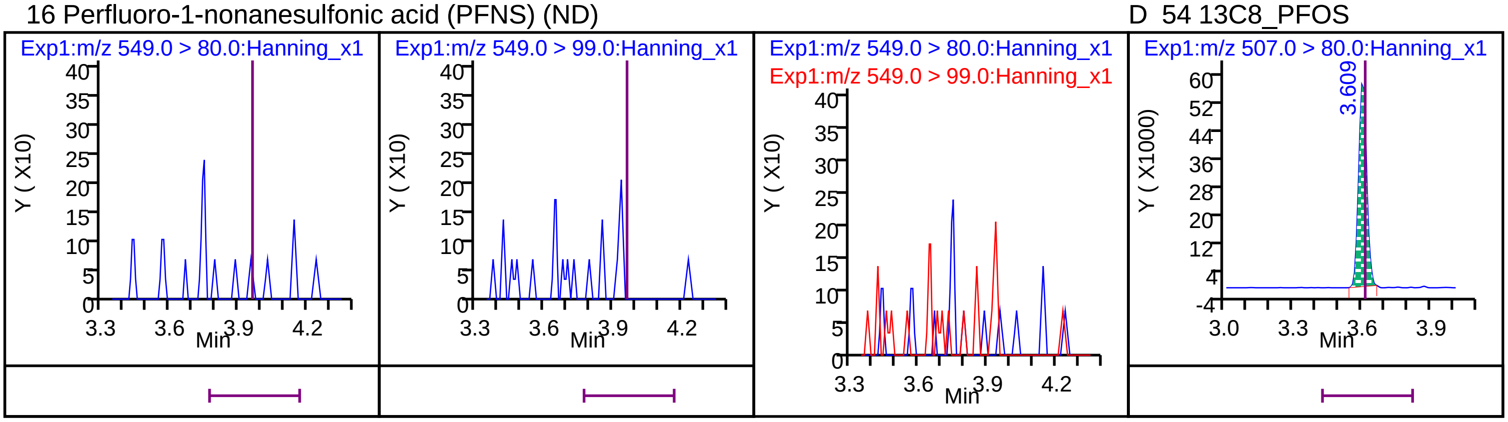
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



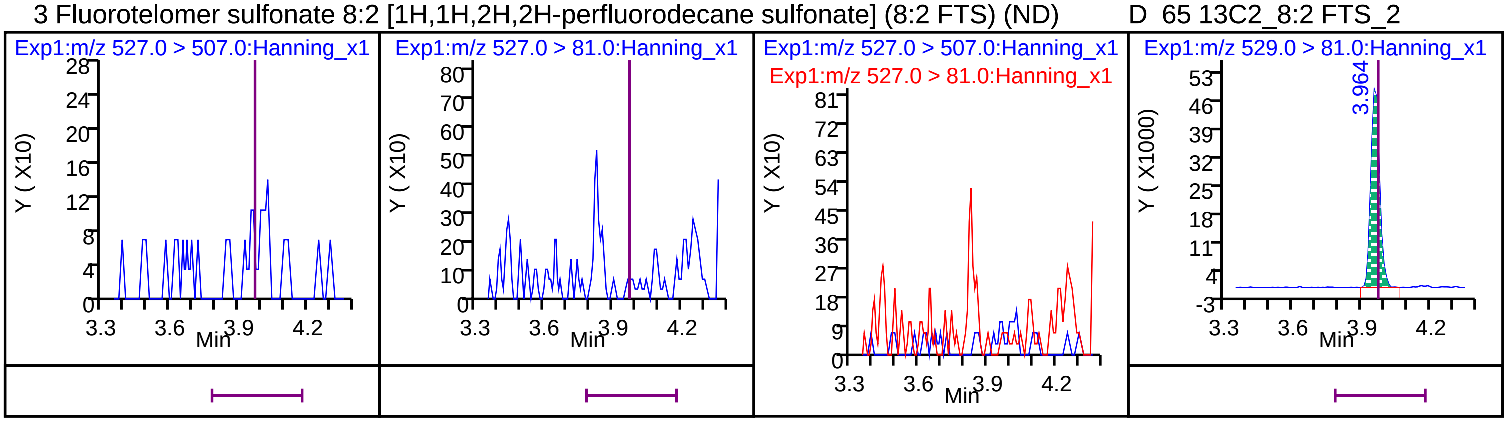
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND) D 54 13C8_PFOS



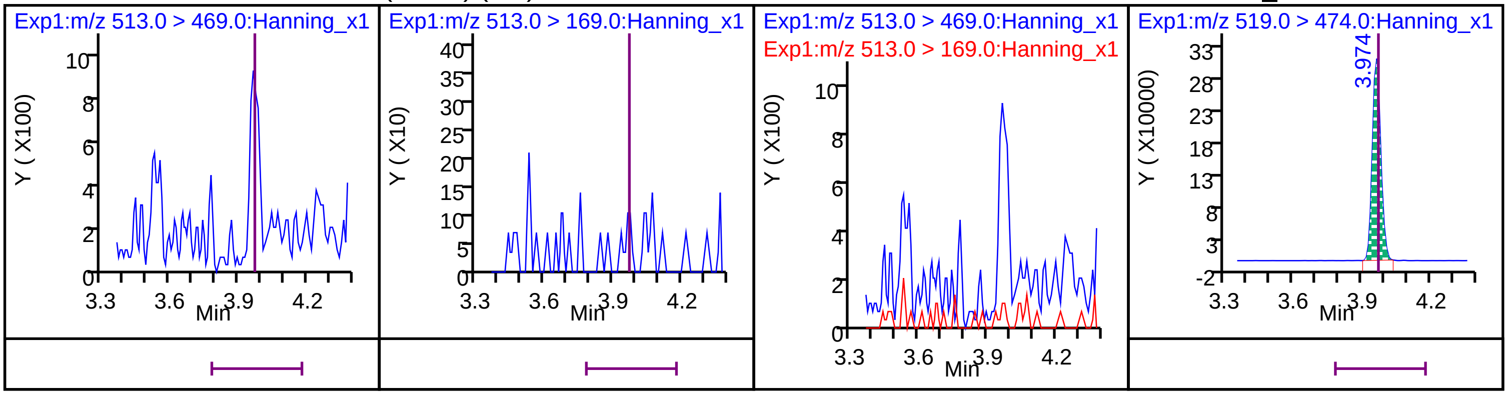
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



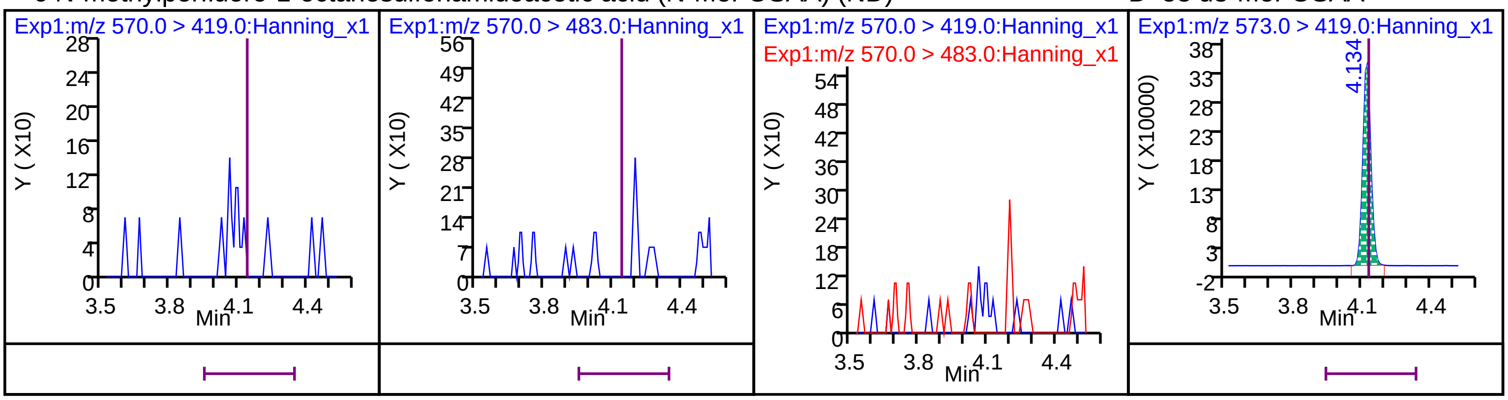
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



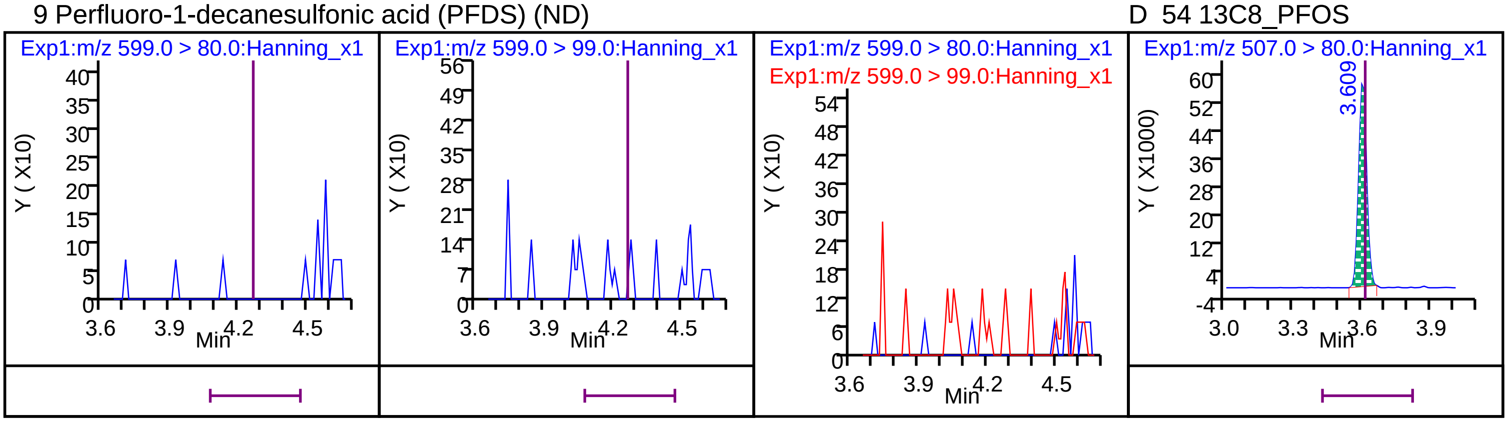
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



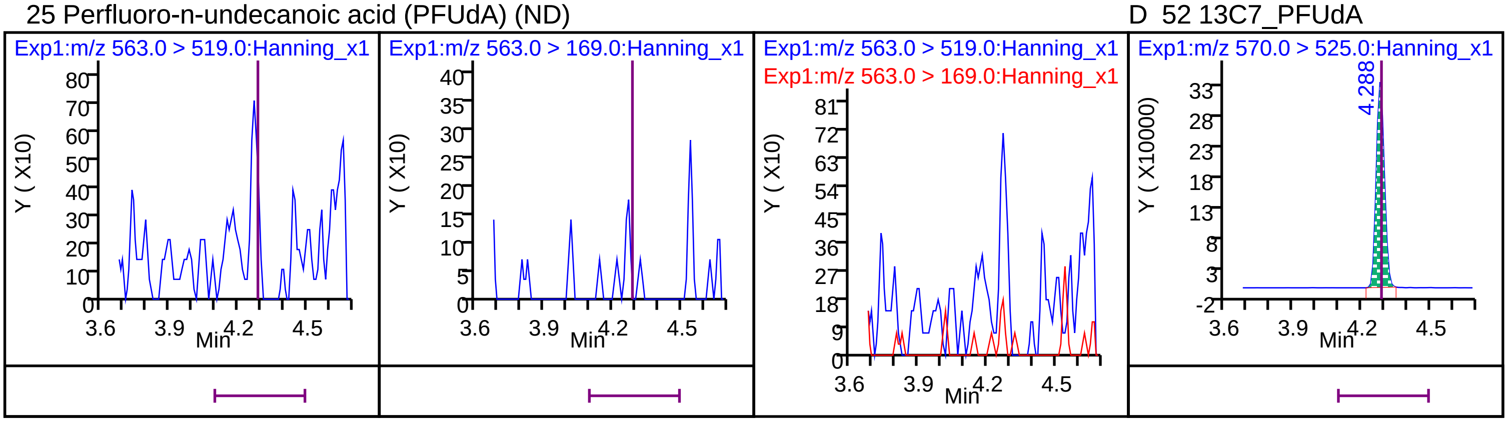
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

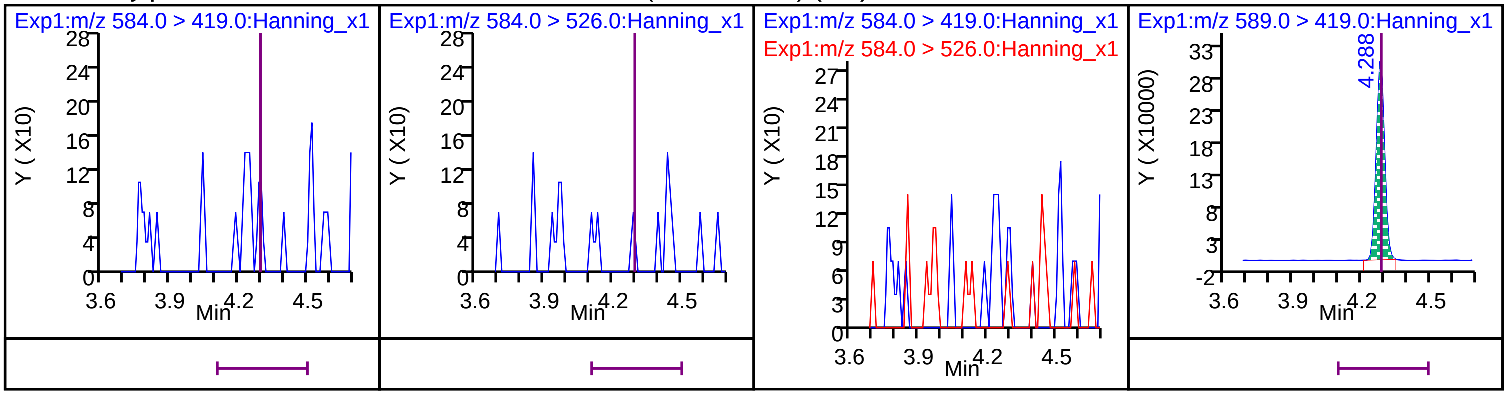


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

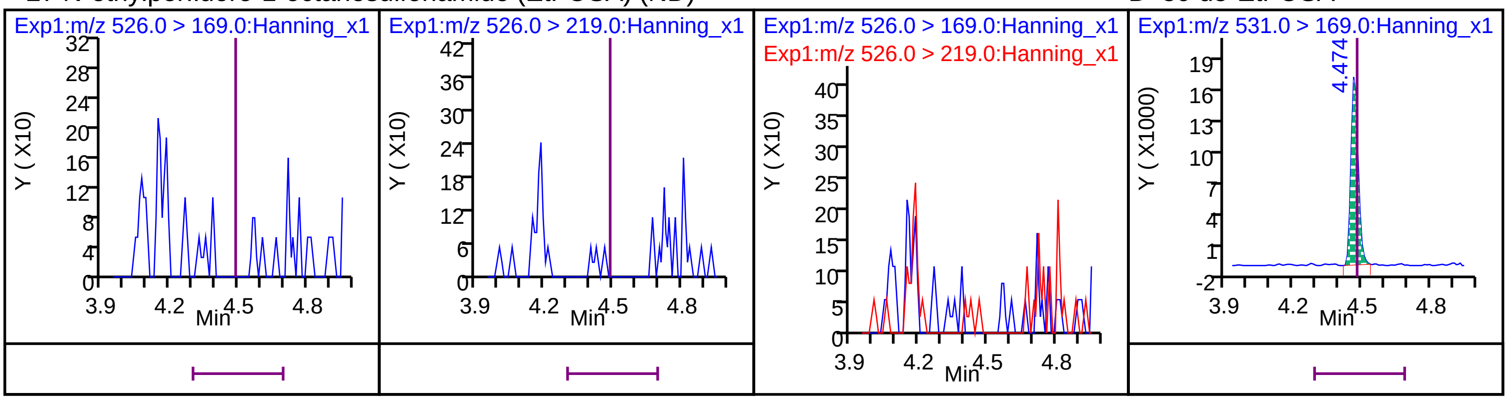


Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921044.d

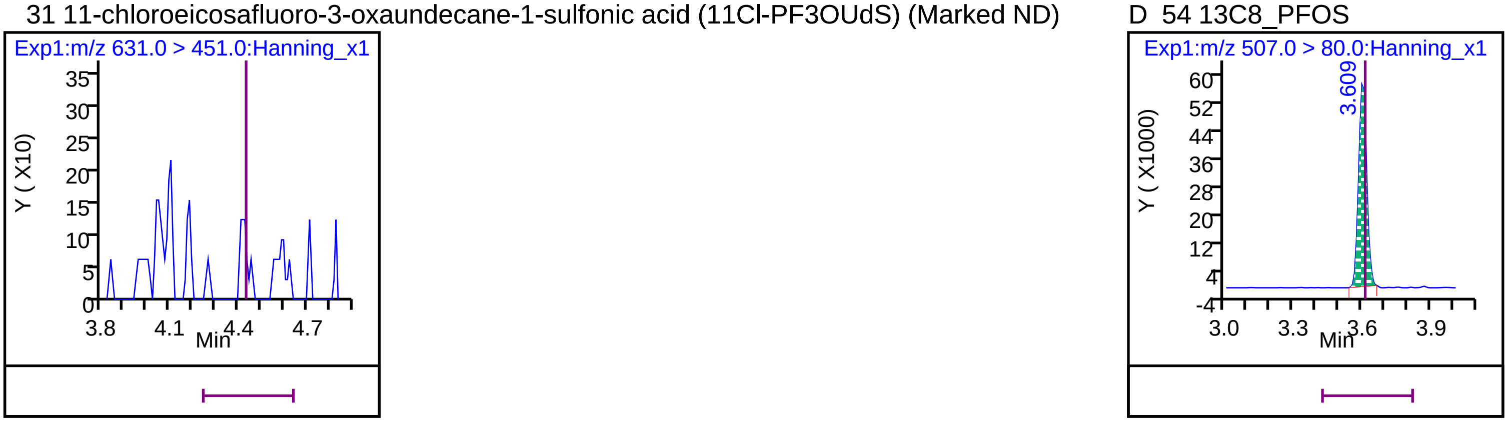
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



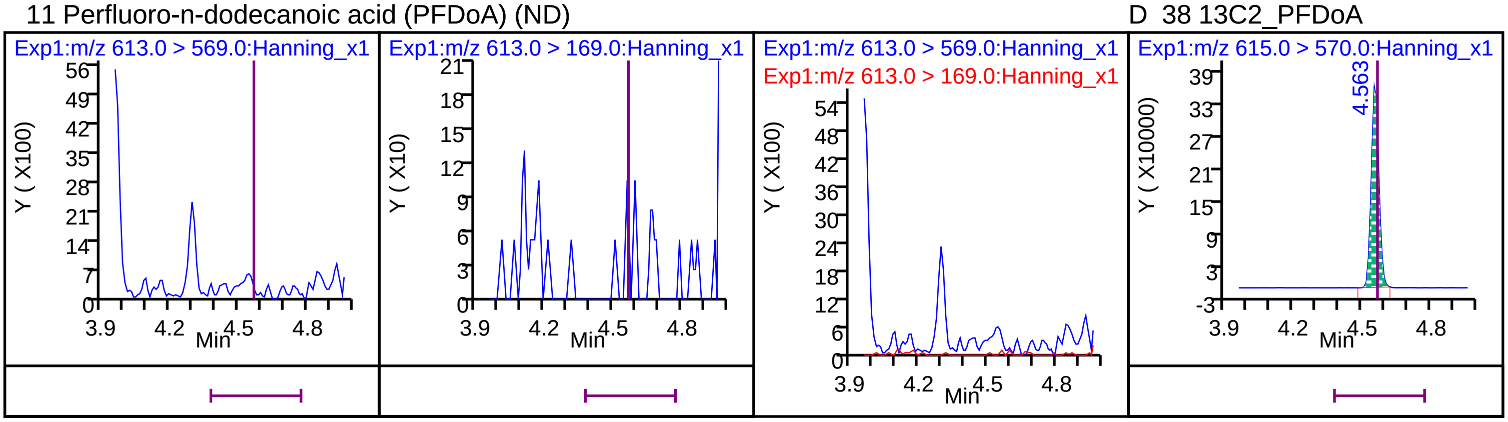
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



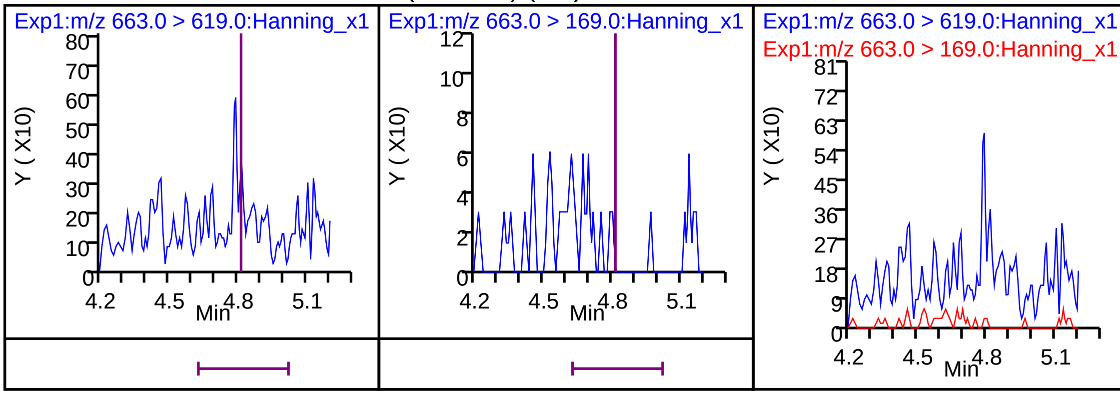
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



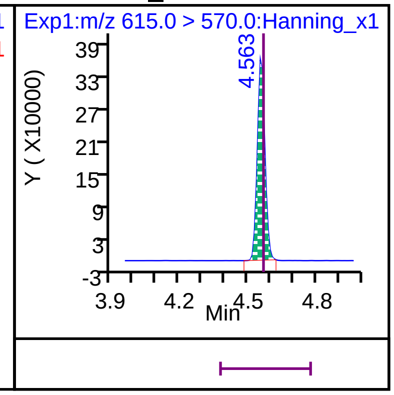
Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921044.d

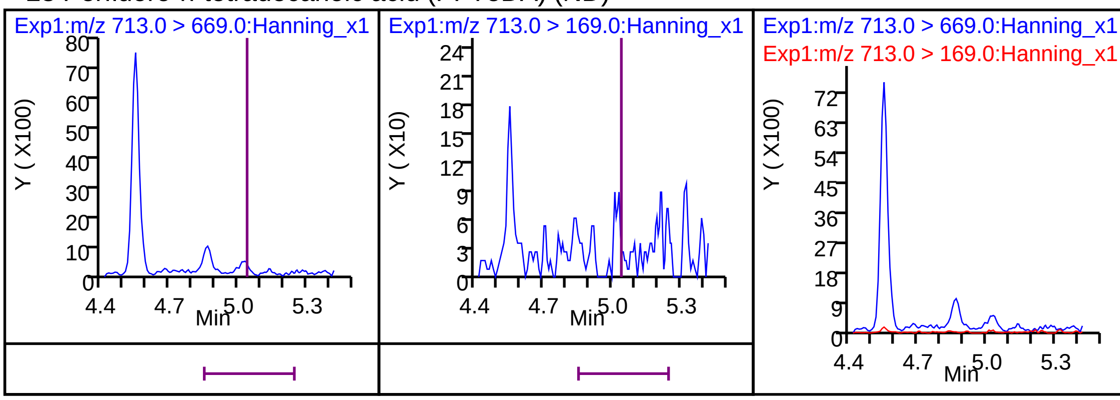
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



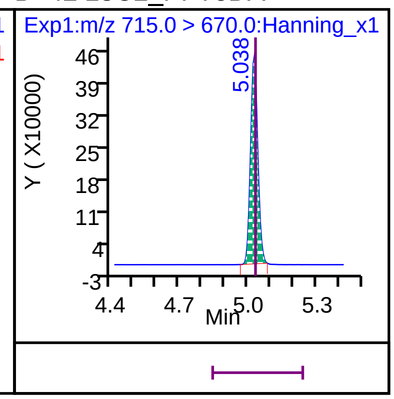
D 38 13C2_PFDoA



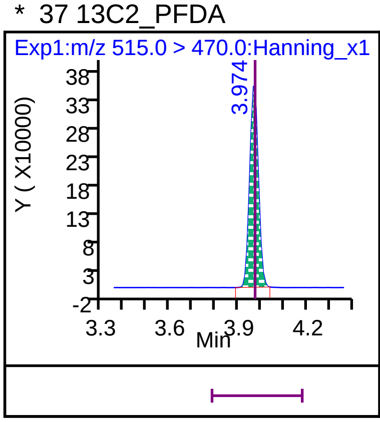
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



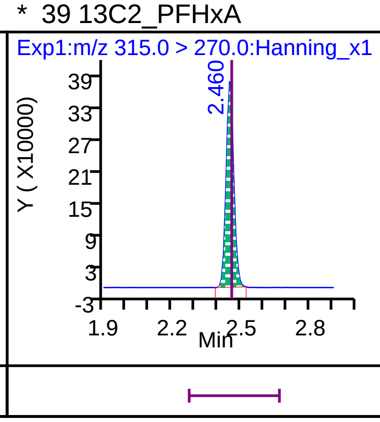
D 42 13C2_PFTeDA



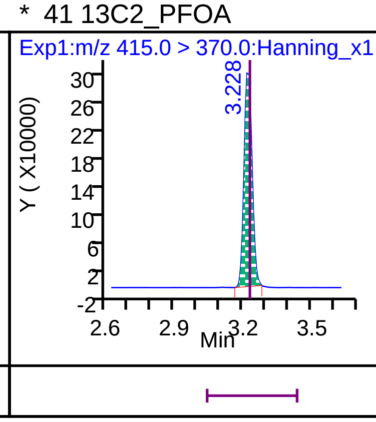
* 37 13C2_PFDA



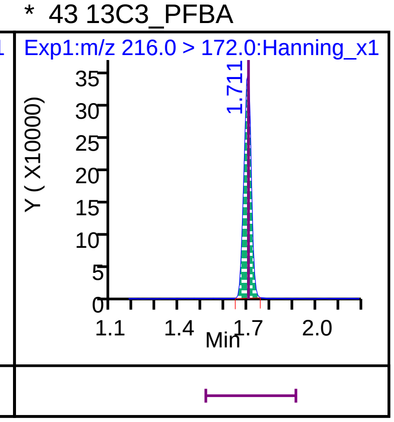
* 39 13C2_PFHxA



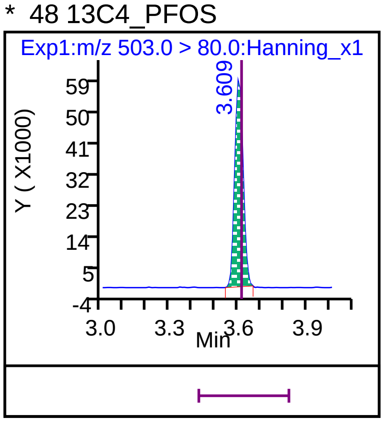
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



CALIBRATION DATA

Report Date: 05-Nov-2021 13:58:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b
Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04
Instrument: LCMSMS01.i Integrator: picker
Cal Start Date: 04-Nov-2021 13:48:20 Cal End Date: 04-Nov-2021 15:23:27
Method Lock: Unknown Lock Date:
Calib Method: PFAS-ID No.Compounds: 66
Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes
Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110421A008.d	ICAL 50_SVLC-1655	04-Nov-2021 13:48:20
2	110421A009.d	ICAL 100_SVLC-1724	04-Nov-2021 13:58:59
3	110421A010.d	ICAL 200_SVLC-1725	04-Nov-2021 14:09:39
4	110421A011.d	ICAL 500_SVLC-1642	04-Nov-2021 14:20:19
5	110421A012.d	ICAL 1000_SVLC-1717	04-Nov-2021 14:31:00
6	110421A013.d	ICAL 2000_SVLC-1643	04-Nov-2021 14:41:28
7	110421A014.d	ICAL 5000_SVLC-1644	04-Nov-2021 14:51:55
8	110421A015.d	ICAL 10000_SVLC-1645	04-Nov-2021 15:02:24
9	110421A016.d	ICAL 15000_SVLC-1646	04-Nov-2021 15:12:55
10	110421A017.d	ICAL 20000_SVLC-1647	04-Nov-2021 15:23:27

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.856	3.645	3.664	3.769	4.062	3.875	3.815	3.848	3.770	3.740	3.804	3.383-4.225	0.14026	1.902
1 4:2 FTS		1.520	1.328	1.456	1.611	1.586	1.671	1.529	1.612	1.627	1.548	1.234-1.863	0.10485	0.774
15 PFHxA	16.428	19.146	20.571	17.886	18.956	18.042	17.038	17.205	17.163	16.865	17.930	13.632-22.227	1.43262	8.965
22 PFPeS	4.273	3.335	3.312	3.276	3.367	3.285	3.184	3.497	3.368	3.370	3.426	2.501-4.351	0.30843	1.713
28 GenX	0.714	0.798	0.780	0.769	0.700	0.687	0.687	0.643	0.677	0.780	0.723	0.552-0.894	0.05686	0.361
13 PFHpA	3.763	3.053	3.301	3.234	3.122	3.216	3.381	3.305	3.173	3.090	3.263	2.677-3.849	0.19530	1.631
14 PFHxS	3.562	3.110	3.321	3.706	3.408	3.572	3.551	3.458	3.564	3.589	3.484	2.926-4.041	0.18576	1.742
29 ADONA	2.343	2.209	2.281	2.431	2.412	2.337	2.425	2.289	2.298	2.182	2.320	1.970-2.670	0.11675	1.160
2 6:2 FTS		1.526	1.290	1.075	1.389	1.421	1.350	1.349	1.355	1.385	1.348	0.942-1.754	0.13533	0.674
20 PFOA	2.501	2.331	2.530	2.679	2.483	2.694	2.544	2.444	2.461	2.372	2.503	2.168-2.838	0.11165	1.251
12 PFHpS	2.561	3.527	3.750	3.779	3.495	3.707	3.686	3.603	3.794	3.715	3.561	2.424-4.699	0.37917	1.780
17 PFNA	6.632	4.461	4.504	4.437	4.346	4.532	4.606	4.515	4.655	4.321	4.700	2.644-6.756	0.68534	2.350
18 PFOS	4.082	4.755	3.980	3.847	3.549	3.900	4.002	3.970	4.005	4.073	4.016	3.150-4.881	0.28844	2.008
19 PFOSA	27.289	59.617	36.337	32.367	38.738	41.886	40.306	43.696	44.116	44.198	40.855	8.581-73.128	10.75777	20.427
16 PFNS	5.568	3.398	3.768	3.301	3.384	3.612	3.670	3.737	3.767	3.665	3.787	1.906-5.667	0.62692	1.893
3 8:2 FTS	1.906	1.661	1.700	1.415	1.582	1.559	1.518	1.478	1.486	1.522	1.582	1.172-1.992	0.13662	0.791
10 PFDA	11.594	7.897	9.101	9.673	9.991	10.770	9.667	9.771	9.759	9.508	9.773	6.970-12.575	0.93414	4.886
6 N-MeFOSAA	1.811	1.207	1.519	1.383	1.410	1.406	1.353	1.325	1.314	1.391	1.411	0.942-1.881	0.15660	0.705
9 PFDS	3.768	5.676	3.714	3.595	4.621	3.390	3.593	3.843	3.788	3.820	3.980	1.894-6.067	0.69544	1.990
5 N-EtFOSAA	2.206	1.495	1.980	1.841	1.611	1.714	1.744	1.611	1.691	1.673	1.756	1.080-2.432	0.22537	0.878
25 PFUdA	8.681	9.326	10.033	9.697	9.269	8.549	9.490	8.845	8.938	9.089	9.191	7.836-10.546	0.45158	4.595
26 MeFOSA	1.022	1.340	1.040	1.107	1.180	1.142	1.075	1.051	1.105	1.128	1.119	0.841-1.396	0.09265	0.559
27 EtFOSA	1.032	0.928	1.172	1.095	1.018	1.102	1.116	0.938	1.142	1.113	1.065	0.794-1.337	0.09050	0.532
11 PFDoA	6.108	6.694	6.530	6.075	6.231	6.292	6.552	6.662	6.619	6.065	6.382	5.604-7.160	0.25936	3.191
4 10:2 FTS	2.095	2.165	2.853	2.356	2.621	2.656	2.555	2.492	2.507	2.382	2.468	1.806-3.130	0.22063	1.234
34 PFDOS	3.932	3.618	3.547	3.832	3.515	3.621	3.757	3.665	3.640	3.707	3.683	3.288-4.078	0.13180	1.841
24 PFTrDA	2.956	2.821	3.181	3.170	3.439	3.313	3.202	3.379	3.387	3.522	3.237	2.562-3.911	0.22490	1.618
23 PFTeDA	7.957	6.970	7.842	7.265	6.988	7.257	7.402	7.386	7.214	7.082	7.336	6.358-8.314	0.32609	3.668
35 PFHxDA	11.511	12.000	12.649	13.641	12.594	12.344	12.015	12.735	11.712	11.954	12.315	10.407-14.223	0.63586	6.157
36 PFODA	154.850	145.546	146.582	141.506	164.154	163.438	173.546	184.975	180.178	198.361	165.313	08.628-221.99	18.8949(	82.656

Report Date: 05-Nov-2021 13:58:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	04-Nov-2021 13:48:20	Cal End Date:	04-Nov-2021 15:23:27
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110421A008.d	ICAL 50_SVLC-1655	04-Nov-2021 13:48:20
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5	110421A012.d	ICAL 1000_SVLC-1717	04-Nov-2021 14:31:00
6	110421A013.d	ICAL 2000_SVLC-1643	04-Nov-2021 14:41:28
7	110421A014.d	ICAL 5000_SVLC-1644	04-Nov-2021 14:51:55
8	110421A015.d	ICAL 10000_SVLC-1645	04-Nov-2021 15:02:24
9	110421A016.d	ICAL 15000_SVLC-1646	04-Nov-2021 15:12:55
10	110421A017.d	ICAL 20000_SVLC-1647	04-Nov-2021 15:23:27

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area

Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None

Org: Origin, F-Force, I-Include, N-Neither

Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	1181	1167	1148	1011	1189	1060	994	1016	946	1055	Avg:A Wt:C2	1077		RSD=8.2	
	109.7	108.4	106.6	93.9	110.4	98.5	92.3	94.3	87.9	98	Org:N Dep:R				
8 PFBA	1.213015	1.118613	1.074137	1.125196	1.059376	1.110238	1.114545	1.063627	1.108983	1.010411	Avg:A Wt:C2	1.099814		RSD=4.9	
	110.3	101.7	97.7	102.3	96.3	100.9	101.3	96.7	100.8	91.9	Org:N Dep:R				
D 50 13C5_PFPeA	1102	1080	1064	946	1091	937	970	955	902	983	Avg:A Wt:C2	1003		RSD=7.3	
	109.9	107.7	106.1	94.3	108.7	93.4	96.7	95.2	89.9	98	Org:N Dep:R				
21 PFPeA	1.099826	1.008363	1.017206	1.124302	1.042944	1.201313	1.069594	1.066146	1.067862	1.016841	Avg:A Wt:C2	1.071440		RSD=5.5	
	102.6	94.1	94.9	104.9	97.3	112.1	99.8	99.5	99.7	94.9	Org:N Dep:R				
D 44 13C3_PFBS	350	361	350	316	364	304	285	309	283	325	Avg:A Wt:C2	325		RSD=9.3	
	107.7	111.2	107.8	97.2	112.1	93.7	87.8	95.1	87.2	100.2	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.695916	1.361516	1.488563	1.415078	1.321307	1.442247	1.452207	1.338592	1.437649	1.333193	Avg:A Wt:C2	1.428627		RSD=7.7	
	118.7	95.3	104.2	99.1	92.5	101	101.7	93.7	100.6	93.3	Org:N Dep:R				
1 4:2 FTS		2.120392	1.939387	1.830192	2.006625	1.895605	2.188075	1.790514	1.968082	1.826306	Avg:A Wt:C2	1.951686		RSD=7.0	
	Disabled	108.6	99.4	93.8	102.8	97.1	112.1	91.7	100.8	93.6	Org:N Dep:R				
D 63 13C2_4:2 FTS_2	44.7666	41.4452	40.2316	44.7514	43.3868	40.3294	36.1416	40.6720	39.1550	44.4900	Avg:A Wt:C2	41.5370		RSD=6.8	
	107.8	99.8	96.9	107.7	104.5	97.1	87	97.9	94.3	107.1	Org:N Dep:R				
D 49 13C5_PFHxA	934	945	918	855	1029	862	837	863	816	872	Avg:A Wt:C2	893		RSD=7.1	
	104.5	105.8	102.8	95.8	115.2	96.5	93.7	96.7	91.4	97.6	Org:N Dep:R				
15 PFHxA	1.172482	0.979880	1.059643	1.106444	0.961175	1.049417	1.029087	0.992348	0.989155	0.993191	Avg:A Wt:C2	1.033282		RSD=6.4	
	113.5	94.8	102.6	107.1	93	101.6	99.6	96	95.7	96.1	Org:N Dep:R				
22 PFPeS	1.068753	0.879344	0.930615	1.007361	0.949260	1.055187	1.039525	1.063287	1.092245	0.976363	Avg:A Wt:C2	1.006194		RSD=7.0	
	106.2	87.4	92.5	100.1	94.3	104.9	103.3	105.7	108.6	97	Org:N Dep:R				
28 GenX	0.808893	0.753024	0.767903	0.781992	0.804133	0.787979	0.737931	0.691530	0.729250	0.799212	Avg:A Wt:C2	0.766185		RSD=5.0	
	105.6	98.3	100.2	102.1	105	102.8	96.3	90.3	95.2	104.3	Org:N Dep:R				
D 66 13C3_GenX	174	179	168	160	176	159	158	163	154	149	Avg:A Wt:C2	164		RSD=6.0	
	106.2	109	102.5	98	107.3	96.8	96.2	99.2	93.9	91	Org:N Dep:R				
13 PFHpA	0.945232	0.911613	0.947497	0.994726	0.932875	0.985635	1.005848	0.965889	1.009363	0.927917	Avg:A Wt:C2	0.962659		RSD=3.6	
	98.2	94.7	98.4	103.3	96.9	102.4	104.5	100.3	104.9	96.4	Org:N Dep:R				
D 47 13C4_PFHpA	992	952	897	838	986	859	809	832	742	854	Avg:A Wt:C2	876		RSD=9.2	
	113.2	108.6	102.4	95.6	112.5	98.1	92.4	95	84.7	97.5	Org:N Dep:R				
D 45 13C3_PFHxS	300	277	290	248	297	250	231	249	228	253	Avg:A Wt:C2	262		RSD=10.2	
	114.5	105.7	110.5	94.7	113.2	95.2	88.2	94.9	86.8	96.4	Org:N Dep:R				
14 PFHxS	1.097459	1.138549	1.025417	1.187141	1.094492	1.290299	1.262927	1.186653	1.303266	1.235329	Avg:A Wt:C2	1.182153		RSD=7.8	
	92.8	96.3	86.7	100.4	92.6	109.1	106.8	100.4	110.2	104.5	Org:N Dep:R				
29 ADONA	5.082619	5.284583	5.099064	5.820376	5.247736	5.803442	6.136580	5.584366	5.737448	5.245613	Avg:A Wt:C2	5.504183		RSD=6.6	
	92.3	96	92.6	105.7	95.3	105.4	111.5	101.5	104.2	95.3	Org:N Dep:R				
2 6:2 FTS		1.851262	1.957231	1.491697	1.885934	1.821600	1.614672	1.563463	1.732168	1.730957	Avg:A Wt:C2	1.738776		RSD=9.0	
	Disabled	106.5	112.6	85.8	108.5	104.8	92.9	89.9	99.6	99.6	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	43.9464	38.5414	36.9532	38.5354	38.9168	36.8156	36.8518	35.8470	33.5816	37.1216	Avg:A Wt:C2	37.7111		RSD=7.1	
	116.5	102.2	98	102.2	103.2	97.6	97.7	95.1	89	98.4	Org:N Dep:R				
D 53 13C8_PFOA	964	877	903	786	924	819	763	734	715	786	Avg:A Wt:C2	827		RSD=10.3	
	116.6	106	109.2	95	111.7	99	92.2	88.7	86.5	95	Org:N Dep:R				
20 PFOA	1.068597	1.044095	0.962999	1.084317	0.974265	1.087265	1.051786	1.037481	1.000170	0.978198	Avg:A Wt:C2	1.028917		RSD=4.5	
	103.9	101.5	93.6	105.4	94.7	105.7	102.2	100.8	97.2	95.1	Org:N Dep:R				
12 PFHpS	0.846986	0.977267	0.908333	1.118258	0.971634	1.099374	1.162776	1.011444	1.126073	1.063282	Avg:A Wt:C2	1.028543		RSD=10.0	
	82.3	95	88.3	108.7	94.5	106.9	113.1	98.3	109.5	103.4	Org:N Dep:R				
D 56 13C9_PFNA	857	858	826	785	999	735	741	766	694	729	Avg:A Wt:C2	799		RSD=11.2	
	107.2	107.4	103.4	98.2	125.1	92	92.8	95.8	86.9	91.2	Org:N Dep:R				
D 54 13C8_PFOS	239	241	243	216	246	214	209	217	195	225	Avg:A Wt:C2	224		RSD=7.6	
	106.5	107.3	108.2	96.4	109.4	95.2	93.2	96.5	86.7	100.4	Org:N Dep:R				
17 PFNA	1.038651	0.908999	0.864128	0.886119	0.780783	0.974416	0.938287	0.875624	0.927965	0.911112	Avg:A Wt:C2	0.910608		RSD=7.5	
	114.1	99.8	94.9	97.3	85.7	107	103	96.2	101.9	100.1	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
18 PFOS	1.025745	1.241334	1.179412	1.197471	1.070080	1.234127	1.206009	1.176373	1.262054	1.195921	Avg:A Wt:C2	1.178853		RSD=6.4	
	87	105.3	100	101.6	90.8	104.7	102.3	99.8	107.1	101.4	Org:N Dep:R				
30 9Cl-PF3ONS	2.822017	2.858481	2.917000	3.172123	3.083283	3.255481	3.277065	2.974690	3.454270	3.090673	Avg:A Wt:C2	3.090508		RSD=6.6	
	91.3	92.5	94.4	102.6	99.8	105.3	106	96.3	111.8	100	Org:N Dep:R				
D 55 13C8_PFOSA	431	420	436	423	428	410	387	394	403	409	Avg:A Wt:C2	414		RSD=3.9	
	104.1	101.4	105.3	102.1	103.3	99.1	93.5	95.2	97.4	98.6	Org:N Dep:R				
19 PFOSA	1.107719	1.147491	1.094755	1.108239	1.182823	1.151467	1.139062	1.133899	1.094816	1.146871	Avg:A Wt:C2	1.130714		RSD=2.5	
	98	101.5	96.8	98	104.6	101.8	100.7	100.3	96.8	101.4	Org:N Dep:R				
16 PFNS	1.060026	0.981660	0.982347	0.998408	0.961307	1.053143	0.999408	1.004528	1.090614	0.968757	Avg:A Wt:C2	1.010020		RSD=4.3	
	105	97.2	97.3	98.9	95.2	104.3	98.9	99.5	108	95.9	Org:N Dep:R				
3 8:2 FTS	1.658039	1.926099	2.162167	1.664454	1.894657	1.773848	1.719545	1.619691	1.665423	1.682207	Avg:A Wt:C2	1.776613		RSD=9.6	
	93.3	108.4	121.7	93.7	106.6	99.8	96.8	91.2	93.7	94.7	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	36.9428	31.3624	31.6918	30.7636	30.7022	31.8546	30.8612	31.1668	28.7196	29.7896	Avg:A Wt:C2	31.3855		RSD=6.9	
	117.7	99.9	101	98	97.8	101.5	98.3	99.3	91.5	94.9	Org:N Dep:R				
10 PFDA	1.025975	0.887044	0.972531	1.074568	1.020935	1.182671	1.084796	0.979505	1.048127	0.984885	Avg:A Wt:C2	1.026104		RSD=7.7	
	100	86.4	94.8	104.7	99.5	115.3	105.7	95.5	102.1	96	Org:N Dep:R				
D 51 13C6_PFDA	819	778	773	678	785	711	661	698	625	691	Avg:A Wt:C2	722		RSD=8.8	
	113.5	107.8	107.1	93.9	108.7	98.4	91.6	96.7	86.6	95.7	Org:N Dep:R				
D 58 d3-MeFOSAA	210	165	177	164	181	167	171	180	169	190	Avg:A Wt:C2	177		RSD=8.0	
	118.6	93.2	99.8	92.2	101.8	94	96.5	101.4	95.3	107.2	Org:N Dep:R				
6 N-MeFOSAA	0.790304	0.870104	0.873017	0.828438	0.854595	0.864279	0.813891	0.742753	0.771608	0.767167	Avg:A Wt:C2	0.817616		RSD=5.8	
	96.7	106.4	106.8	101.3	104.5	105.7	99.5	90.8	94.4	93.8	Org:N Dep:R				
9 PFDS	0.868238	1.009448	0.929861	0.948812	1.082763	1.080313	1.006931	0.965437	1.042223	0.938469	Avg:A Wt:C2	0.987249		RSD=7.0	
	87.9	102.2	94.2	96.1	109.7	109.4	102	97.8	105.6	95.1	Org:N Dep:R				
D 60 d5-EtFOSAA	176	154	162	152	156	154	138	141	133	131	Avg:A Wt:C2	150		RSD=9.4	
	117.8	103	108.1	101.5	104.2	102.9	92.2	94.3	88.6	87.4	Org:N Dep:R				
D 52 13C7_PFUdA	762	728	764	636	733	765	617	642	588	599	Avg:A Wt:C2	683		RSD=10.7	
	111.6	106.5	111.8	93	107.2	111.9	90.3	94	86	87.7	Org:N Dep:R				
5 N-EtFOSAA	1.012710	0.966482	1.017762	1.055467	1.017041	1.020059	1.076794	0.966067	0.990097	1.099267	Avg:A Wt:C2	1.022175		RSD=4.3	
	99.1	94.6	99.6	103.3	99.5	99.8	105.3	94.5	96.9	107.5	Org:N Dep:R				
25 PFUdA	0.859463	0.898121	0.837054	0.977100	0.910927	0.805101	0.989853	0.864512	0.939152	0.889867	Avg:A Wt:C2	0.897115		RSD=6.6	
	95.8	100.1	93.3	108.9	101.5	89.7	110.3	96.4	104.7	99.2	Org:N Dep:R				
D 61 d7-MeFOSE	151	140	137	135	133	125	142	134	135	148	Avg:A Wt:C2	138		RSD=5.5	
	109.5	101.3	99.1	97.6	96.6	90.8	103.1	96.8	98.1	107	Org:N Dep:R				
32 MeFOSE	1.193151	0.938857	1.122701	0.989367	1.014833	1.018207	0.893715	1.071479	0.938800	0.982110	Avg:A Wt:C2	1.016322		RSD=9.0	
	117.4	92.4	110.5	97.3	99.9	100.2	87.9	105.4	92.4	96.6	Org:N Dep:R				
26 MeFOSA	0.932539	1.159014	1.012912	1.070484	1.213059	1.049868	1.102388	0.907338	0.942481	0.965212	Avg:A Wt:C2	1.035530		RSD=9.9	
	90.1	111.9	97.8	103.4	117.1	101.4	106.5	87.6	91	93.2	Org:N Dep:R				
D 57 d3-MeFOSA	76.4150	69.5160	66.2150	67.8590	72.6560	69.6740	61.1420	72.7730	69.1250	74.8340	Avg:A Wt:C2	70.0209		RSD=6.3	
	109.1	99.3	94.6	96.9	103.8	99.5	87.3	103.9	98.7	106.9	Org:N Dep:R				
31 11Cl-PF3OUDS	2.492958	2.544292	2.634050	2.744688	2.634333	2.980993	2.977237	2.938188	2.947442	2.885135	Avg:A Wt:C2	2.777932		RSD=6.8	
	89.7	91.6	94.8	98.8	94.8	107.3	107.2	105.8	106.1	103.9	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 62 d9-EtFOSE	138	124	142	121	129	124	121	131	125	131	Avg:A Wt:C2	129		RSD=5.4	
	107.5	96.2	110.1	94	100.6	96.3	94.4	101.8	97.3	101.8	Org:N Dep:R				
33 EtFOSE	0.735395	0.953178	0.793756	0.820341	0.973094	0.836705	0.839695	0.839565	0.854412	0.865865	Avg:A Wt:C2	0.851201		RSD=8.2	
	86.4	112	93.3	96.4	114.3	98.3	98.6	98.6	100.4	101.7	Org:N Dep:R				
D 59 d5-EtFOSA	72.3480	63.3070	63.2020	61.5520	65.4730	65.1550	60.4690	63.3300	58.1570	71.0590	Avg:A Wt:C2	64.4052		RSD=6.9	
	112.3	98.3	98.1	95.6	101.7	101.2	93.9	98.3	90.3	110.3	Org:N Dep:R				
27 EtFOSA	1.277713	1.280111	1.275197	1.136600	1.185389	1.113606	1.116446	1.080488	1.186206	1.039290	Avg:A Wt:C2	1.169105		RSD=7.4	
	109.3	109.5	109.1	97.2	101.4	95.3	95.5	92.4	101.5	88.9	Org:N Dep:R				
D 38 13C2_PFDoA	771	712	726	646	747	657	623	667	621	707	Avg:A Wt:C2	688		RSD=7.6	
	112.2	103.5	105.6	93.9	108.6	95.6	90.6	96.9	90.3	102.8	Org:N Dep:R				
11 PFDoA	0.917236	0.993563	0.992522	1.061859	0.965334	1.019532	0.998838	0.977570	0.989428	0.905067	Avg:A Wt:C2	0.982095		RSD=4.7	
	93.4	101.2	101.1	108.1	98.3	103.8	101.7	99.5	100.7	92.2	Org:N Dep:R				
4 10:2 FTS	1.386016	2.020947	1.957553	1.753972	1.780658	1.801885	1.820062	1.778075	1.721166	1.813248	Avg:A Wt:C2	1.783358		RSD=9.4	
	77.7	113.3	109.8	98.4	99.8	101	102.1	99.7	96.5	101.7	Org:N Dep:R				
34 PFDOS	0.936014	0.865366	0.877915	1.044897	0.805755	1.024431	1.047182	0.994048	1.078451	1.010794	Avg:A Wt:C2	0.968485		RSD=9.5	
	96.6	89.4	90.6	107.9	83.2	105.8	108.1	102.6	111.4	104.4	Org:N Dep:R				
24 PFTrDA	0.471154	0.514349	0.523020	0.544307	0.568708	0.551559	0.555126	0.531480	0.556267	0.543030	Avg:A Wt:C2	0.535900		RSD=5.2	
	87.9	96	97.6	101.6	106.1	102.9	103.6	99.2	103.8	101.3	Org:N Dep:R				
D 42 13C2_PFTeDA	839	844	813	747	901	744	740	716	682	791	Avg:A Wt:C2	782		RSD=8.6	
	107.4	107.9	104	95.6	115.2	95.2	94.7	91.5	87.2	101.2	Org:N Dep:R				
23 PFTeDA	0.870782	0.846092	0.877600	0.912252	0.817860	0.954968	0.883918	0.910913	0.885441	0.828303	Avg:A Wt:C2	0.878813		RSD=4.7	
	99.1	96.3	99.9	103.8	93.1	108.7	100.6	103.7	100.8	94.3	Org:N Dep:R				
35 PFHxDA	2.163254	2.066843	2.084261	1.883254	2.015892	1.778380	1.905154	1.798722	1.750404	1.682491	Avg:A Wt:C2	1.912865		RSD=8.5	
	113.1	108	109	98.5	105.4	93	99.6	94	91.5	88	Org:N Dep:R				
D 40 13C2_PFHxDA	440	393	388	390	403	396	361	374	362	398	Avg:A Wt:C2	390		RSD=5.8	
	112.6	100.7	99.3	100	103.3	101.3	92.4	95.8	92.6	101.9	Org:N Dep:R				
36 PFODA	1.416189	1.484594	1.472766	1.506135	1.442535	1.543467	1.659960	1.536677	1.507292	1.527300	Avg:A Wt:C2	1.509692		RSD=4.4	
	93.8	98.3	97.6	99.8	95.6	102.2	110	101.8	99.8	101.2	Org:N Dep:R				

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	04-Nov-2021 13:48:20	Cal End Date:	04-Nov-2021 15:23:27
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110421A008.d	ICAL 50_SVLC-1655	04-Nov-2021 13:48:20
2	110421A009.d	ICAL 100_SVLC-1724	04-Nov-2021 13:58:59
3	110421A010.d	ICAL 200_SVLC-1725	04-Nov-2021 14:09:39
4	110421A011.d	ICAL 500_SVLC-1642	04-Nov-2021 14:20:19
5	110421A012.d	ICAL 1000_SVLC-1717	04-Nov-2021 14:31:00
6	110421A013.d	ICAL 2000_SVLC-1643	04-Nov-2021 14:41:28
7	110421A014.d	ICAL 5000_SVLC-1644	04-Nov-2021 14:51:55
8	110421A015.d	ICAL 10000_SVLC-1645	04-Nov-2021 15:02:24
9	110421A016.d	ICAL 15000_SVLC-1646	04-Nov-2021 15:12:55
10	110421A017.d	ICAL 20000_SVLC-1647	04-Nov-2021 15:23:27

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	768502	797631	798378	686224	735062	686279	655494	654332	650219	719157	1.65
* 39 13C2_PFHxA	961998	916916	923683	861473	873310	873105	795646	841155	834073	901844	1.61
* 41 13C2_PFOA	899767	889973	908345	797460	844185	821709	767260	756299	672240	808687	2.66
* 43 13C3_PFBA	1040818	1108930	1099832	945953	1054064	955733	930693	946275	906217	996709	1.08
* 48 13C4_PFOS	237529	267187	252478	216676	223757	210060	213860	218305	201079	232050	0.58

13C2_PFDA ((|719157 - 768502| / (719157 + 768502)) / 2) * 100 = 1.66
13C2_PFHxA ((|901844 - 961998| / (901844 + 961998)) / 2) * 100 = 1.61
13C2_PFOA ((|808687 - 899767| / (808687 + 899767)) / 2) * 100 = 2.67
13C3_PFBA ((|996709 - 1040818| / (996709 + 1040818)) / 2) * 100 = 1.08
13C4_PFOS ((|232050 - 237529| / (232050 + 237529)) / 2) * 100 = 0.58

Report Date: 05-Nov-2021 13:58:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 04-Nov-2021 13:48:20 Cal End Date: 04-Nov-2021 15:23:27

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110421A008.d	ICAL 50_SVLC-1655	04-Nov-2021 13:48:20
2	110421A009.d	ICAL 100_SVLC-1724	04-Nov-2021 13:58:59
3	110421A010.d	ICAL 200_SVLC-1725	04-Nov-2021 14:09:39
4	110421A011.d	ICAL 500_SVLC-1642	04-Nov-2021 14:20:19
5	110421A012.d	ICAL 1000_SVLC-1717	04-Nov-2021 14:31:00
6	110421A013.d	ICAL 2000_SVLC-1643	04-Nov-2021 14:41:28
7	110421A014.d	ICAL 5000_SVLC-1644	04-Nov-2021 14:51:55
8	110421A015.d	ICAL 10000_SVLC-1645	04-Nov-2021 15:02:24
9	110421A016.d	ICAL 15000_SVLC-1646	04-Nov-2021 15:12:55
10	110421A017.d	ICAL 20000_SVLC-1647	04-Nov-2021 15:23:27

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA
* 39 13C2_PFHxA
* 41 13C2_PFOA
* 43 13C3_PFBA
* 48 13C4_PFOS
D 38 13C2_PFDoA
D 40 13C2_PFHxDA
D 42 13C2_PFTeDA
D 44 13C3_PFBS
D 45 13C3_PFHxS
D 46 13C4_PFBA
D 47 13C4_PFHpA
D 49 13C5_PFHxA
D 50 13C5_PFPeA
D 51 13C6_PFDA
D 52 13C7_PFUdA
D 53 13C8_PFOA
D 54 13C8_PFOS
D 55 13C8_PFOSA
D 56 13C9_PFNA
D 57 d3-MeFOSA
D 58 d3-MeFOSAA
D 59 d5-EtFOSA
D 60 d5-EtFOSAA
D 61 d7-MeFOSE
D 62 d9-EtFOSE
D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2
D 65 13C2_8:2 FTS_2
D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	1181107	1167490	1147912	1011040	1188899	1060275	993579	1015813	946312	1054921	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	71635	130597	246603	568809	1259491	2354315	5536945	10804463	15741656	21318082	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	1102156	1080008	1063870	945714	1090536	936781	970276	955253	901970	982552	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	60609	108904	216435	531634	1137368	2250734	5189007	10184392	14447698	19981981	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	349749	360998	349999	315759	364125	304403	285078	308860	283353	325374	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	26217	43449	92112	197496	425311	776195	1829846	3654789	5401624	7669343	
1 4:2 FTS		93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
		8208	14575	38249	81315	142806	369306	680174	1079614	1517794	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	223833	207226	201158	223757	216934	201647	180708	203360	195775	222450	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	933763	944922	918177	855288	1029068	862297	837233	863369	816219	871981	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	961998	916916	923683	861473	873310	873105	795646	841155	834073	901844	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	54741	92591	194588	473164	989114	1809819	4307928	8567623	12110505	17320881	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	17531	29776	61104	149181	324219	602575	1389862	3080455	4354538	5959733	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	14075	26887	51580	125481	282614	499988	1162546	2247556	3365715	4764218	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	870016	892634	839624	802316	878629	793149	787706	812530	769218	745143	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	46893	86762	169974	416816	919935	1693670	4070148	8040748	11234376	15846747	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	992201	951742	896963	838052	986129	859177	809297	832471	742011	853888	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	300274	277334	289783	248261	296861	249807	231402	248786	227575	252717	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	14994	28734	54081	134098	295670	586633	1329709	2686527	4048464	5681831	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	71883	138059	278384	680582	1467493	2731311	6688280	13087320	18449538	24975352	
2 6:2 FTS		94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
		6764	13713	27247	69578	127152	282047	531311	827163	1218292	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	219732	192707	184766	192677	194584	184078	184259	179235	167908	185608	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	899767	889973	908345	797460	844185	821709	767260	756299	672240	808687	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	964087	876932	902722	785892	923846	818898	762812	733739	715031	785986	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	51511	91560	173864	426078	900071	1780719	4011575	7612405	10727291	15377002	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	12106	25802	50117	132147	274595	522898	1280767	2395546	3659479	5116228	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	856919	858153	825815	784538	999317	735388	741339	765827	694094	728753	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	239145	240929	242998	216309	245640	213802	209258	216542	194699	225479	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	237529	267187	252478	216676	223757	210060	213860	218305	201079	232050	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	44502	78006	142722	347597	780250	1433148	3477945	6705764	9661421	13279512	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	11382	27754	53192	120187	243929	489722	1170983	2363933	3420431	5004799	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	31449	64186	132125	319750	705876	1297397	3195605	6003435	9402149	12989877	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	431120	419794	436148	423017	427823	410415	387245	394482	403354	408510	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	23878	48171	95495	234402	506039	945159	2205480	4473029	6623978	9370163	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	12168	22705	45832	103663	226690	432315	1003844	2088217	3057718	4193938	
3 8:2 FTS	47.900	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	2934	5787	13129	24527	55727	108264	254192	483604	687321	960151	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	184714	156812	158459	153818	153511	159273	154306	155834	143598	148948	
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	768502	797631	798378	686224	735062	686279	655494	654332	650219	719157	
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	42018	69027	150393	364046	801278	1680661	3585505	6835368	9822529	13610125	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	819084	778169	773204	677567	784847	710536	661047	697839	624767	690950	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	1051368	826453	884576	817647	902679	832963	855917	898584	845053	950401	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	8309	14382	30890	67737	154285	287965	696623	1334852	1956150	2916466	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	10008	23445	43564	98924	256395	445316	1015614	2015316	2934219	4079746	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	880706	770061	807998	759228	779079	769164	689576	704748	662535	653444	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	762430	727942	764049	635818	732655	764928	616996	642405	587736	599285	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	8919	14885	32894	80134	158471	313837	742531	1361667	1967922	2873239	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	32764	65378	127910	310629	667395	1231688	3053677	5553671	8279601	10665676	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	151146	139819	136715	134678	133282	125309	142223	133636	135378	147673	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	9017	13127	30698	66623	135259	255181	635534	1431882	1906394	2900622	
26 MeFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	3563	8057	13414	36321	88136	146297	337011	660297	977235	1444613	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	76415	69516	66215	67859	72656	69674	61142	72773	69125	74834	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	28080	57744	120589	279633	609566	1200753	2934380	5993391	8108699	12256122	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	138157	123723	141536	120857	129304	123776	121406	130921	125040	130819	
33 EtFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	5080	11793	22469	49572	125825	207128	509720	1099167	1602536	2265431	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	72348	63307	63202	61552	65473	65155	60469	63330	58157	71059	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	4622	8104	16119	34980	77611	145114	337552	684273	1034793	1477018	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	771383	711560	726397	645547	746808	657243	622777	666640	620984	707078	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	35377	70698	144193	342740	720919	1340161	3110268	6516871	9216289	12799056	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	2468	6110	11961	26008	52702	110664	270736	534219	714775	1041427	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	10834	20182	41301	109394	191592	424033	1060595	2083650	3048814	4412393	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	18172	36599	75984	175688	424716	725017	1728600	3543055	5181494	7679290	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	839498	843513	813161	747223	900924	744334	740344	715596	681598	791355	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	36551	71369	142726	340828	736830	1421631	3272017	6518454	9052722	13109630	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	47544	81254	161599	367678	812993	1407079	3435079	6725711	9495716	13388957	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	439560	393131	387665	390471	403292	395607	360609	373916	361658	397891	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	31125	58364	114188	294051	581763	1221213	2992982	5745880	8176865	12153978	

Report Date: 05-Nov-2021 13:58:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 04-Nov-2021 13:48:20 Cal End Date: 04-Nov-2021 15:23:27

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110421A008.d	ICAL 50_SVLC-1655	04-Nov-2021 13:48:20
2	110421A009.d	ICAL 100_SVLC-1724	04-Nov-2021 13:58:59
3	110421A010.d	ICAL 200_SVLC-1725	04-Nov-2021 14:09:39
4	110421A011.d	ICAL 500_SVLC-1642	04-Nov-2021 14:20:19
5	110421A012.d	ICAL 1000_SVLC-1717	04-Nov-2021 14:31:00
6	110421A013.d	ICAL 2000_SVLC-1643	04-Nov-2021 14:41:28
7	110421A014.d	ICAL 5000_SVLC-1644	04-Nov-2021 14:51:55
8	110421A015.d	ICAL 10000_SVLC-1645	04-Nov-2021 15:02:24
9	110421A016.d	ICAL 15000_SVLC-1646	04-Nov-2021 15:12:55
10	110421A017.d	ICAL 20000_SVLC-1647	04-Nov-2021 15:23:27

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.714	1.714	1.714	1.714	1.714	1.714	1.715	1.714	1.715	1.715	1.714	0.000
8 PFBA	1.721	1.714	1.721	1.714	1.714	1.714	1.715	1.714	1.715	1.715	1.715	0.147
D 50 13C5_PFPeA	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.088	0.015
21 PFPeA	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.089	2.088	0.015
D 44 13C3_PFBS	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.140	0.023
7 PFBS	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.141	2.140	0.023
1 4:2 FTS		2.415	2.433	2.424	2.415	2.424	2.424	2.415	2.424	2.424	2.422	0.235
D 63 13C2_4:2 FTS_2	2.424	2.424	2.424	2.415	2.424	2.415	2.424	2.424	2.424	2.424	2.422	0.149
D 49 13C5_PFHxA	2.459	2.459	2.467	2.459	2.459	2.459	2.459	2.459	2.459	2.459	2.459	0.116
* 39 13C2_PFHxA	2.468	2.467	2.467	2.459	2.467	2.459	2.459	2.459	2.459	2.459	2.462	0.189
15 PFHxA	2.468	2.467	2.467	2.467	2.467	2.459	2.459	2.459	2.467	2.459	2.463	0.189
22 PFPeS	2.494	2.493	2.502	2.493	2.493	2.493	2.494	2.493	2.493	2.493	2.494	0.101
28 GenX	2.587	2.587	2.587	2.587	2.587	2.579	2.587	2.579	2.579	2.587	2.584	0.138
D 66 13C3_GenX	2.587	2.587	2.587	2.579	2.587	2.579	2.587	2.587	2.579	2.579	2.583	0.145
13 PFHpA	2.855	2.846	2.855	2.846	2.846	2.846	2.846	2.846	2.846	2.846	2.847	0.129
D 47 13C4_PFHpA	2.846	2.846	2.846	2.846	2.846	2.846	2.846	2.846	2.846	2.846	2.845	0.018
D 45 13C3_PFHxS	2.864	2.863	2.863	2.863	2.863	2.863	2.864	2.863	2.864	2.864	2.863	0.000
14 PFHxS	2.864	2.863	2.863	2.863	2.863	2.863	2.864	2.863	2.864	2.864	2.863	0.000
29 ADONA	2.890	2.890	2.890	2.890	2.890	2.890	2.890	2.890	2.890	2.890	2.889	0.015
2 6:2 FTS		3.204	3.204	3.204	3.204	3.202	3.201	3.204	3.202	3.202	3.202	0.033
D 64 13C2_6:2 FTS_2	3.202	3.204	3.204	3.204	3.204	3.202	3.201	3.198	3.202	3.202	3.202	0.058
* 41 13C2_PFOA	3.227	3.229	3.223	3.229	3.223	3.227	3.227	3.223	3.227	3.227	3.226	0.086
D 53 13C8_PFOA	3.227	3.229	3.229	3.223	3.223	3.221	3.227	3.223	3.221	3.227	3.225	0.107
20 PFOA	3.234	3.229	3.223	3.229	3.229	3.227	3.227	3.223	3.227	3.234	3.228	0.118
12 PFHpS	3.234	3.229	3.236	3.229	3.229	3.227	3.233	3.229	3.234	3.234	3.231	0.083
D 56 13C9_PFNA	3.599	3.603	3.603	3.603	3.595	3.599	3.606	3.596	3.599	3.599	3.600	0.098
D 54 13C8_PFOS	3.599	3.596	3.596	3.596	3.595	3.592	3.599	3.588	3.592	3.592	3.594	0.096
* 48 13C4_PFOS	3.599	3.596	3.596	3.596	3.595	3.592	3.599	3.588	3.592	3.592	3.594	0.096
17 PFNA	3.607	3.603	3.603	3.603	3.595	3.599	3.599	3.596	3.599	3.599	3.600	0.099
18 PFOS	3.592	3.596	3.596	3.596	3.595	3.592	3.599	3.596	3.592	3.592	3.594	0.069
30 9Cl-PF3ONS	3.797	3.799	3.799	3.799	3.799	3.797	3.796	3.799	3.797	3.797	3.797	0.028
D 55 13C8_PFOSA	3.879	3.873	3.873	3.881	3.873	3.871	3.878	3.873	3.871	3.879	3.875	0.089

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
19 PFOSA	3.879	3.881	3.873	3.881	3.873	3.879	3.878	3.873	3.871	3.879	3.876	0.086
16 PFNS	3.940	3.934	3.926	3.926	3.926	3.924	3.932	3.926	3.924	3.932	3.929	0.133
3 8:2 FTS	3.940	3.942	3.934	3.934	3.934	3.932	3.940	3.934	3.932	3.940	3.936	0.095
D 65 13C2_8:2 FTS_2	3.940	3.934	3.934	3.934	3.934	3.932	3.940	3.934	3.932	3.932	3.935	0.071
* 37 13C2_PFDA	3.940	3.942	3.943	3.942	3.942	3.940	3.948	3.934	3.940	3.948	3.942	0.099
10 PFDA	3.948	3.942	3.943	3.942	3.942	3.940	3.940	3.942	3.940	3.948	3.943	0.079
D 51 13C6_PFDA	3.940	3.942	3.943	3.942	3.942	3.940	3.940	3.942	3.940	3.948	3.942	0.063
D 58 d3-MeFOSAA	4.096	4.098	4.099	4.098	4.098	4.096	4.096	4.090	4.096	4.096	4.096	0.059
6 N-MeFOSAA	4.096	4.098	4.099	4.107	4.098	4.096	4.104	4.098	4.096	4.105	4.099	0.092
9 PFDS	4.233	4.226	4.235	4.235	4.226	4.232	4.232	4.226	4.232	4.233	4.230	0.088
D 60 d5-EtFOSAA	4.251	4.253	4.253	4.253	4.253	4.250	4.250	4.253	4.251	4.251	4.251	0.025
D 52 13C7_PFUdA	4.251	4.253	4.253	4.253	4.253	4.241	4.250	4.244	4.251	4.251	4.249	0.093
5 N-EtFOSAA	4.260	4.253	4.253	4.262	4.253	4.250	4.259	4.253	4.260	4.260	4.256	0.099
25 PFUdA	4.251	4.253	4.253	4.253	4.253	4.250	4.250	4.244	4.251	4.251	4.250	0.063
D 61 d7-MeFOSE	4.287	4.280	4.280	4.280	4.280	4.278	4.286	4.280	4.278	4.287	4.281	0.084
32 MeFOSE	4.295	4.297	4.289	4.297	4.288	4.295	4.295	4.289	4.287	4.295	4.292	0.099
26 MeFOSA	4.304	4.306	4.306	4.306	4.306	4.304	4.304	4.306	4.304	4.304	4.305	0.028
D 57 d3-MeFOSA	4.304	4.306	4.297	4.306	4.306	4.304	4.304	4.306	4.304	4.304	4.304	0.063
31 11Cl-PF3OUDS	4.385	4.386	4.386	4.386	4.386	4.385	4.384	4.386	4.385	4.385	4.385	0.024
D 62 d9-EtFOSE	4.447	4.448	4.441	4.441	4.448	4.447	4.446	4.441	4.440	4.447	4.444	0.077
33 EtFOSE	4.454	4.456	4.456	4.456	4.456	4.454	4.454	4.456	4.454	4.454	4.454	0.016
D 59 d5-EtFOSA	4.469	4.463	4.463	4.463	4.463	4.461	4.468	4.463	4.461	4.461	4.463	0.061
27 EtFOSA	4.469	4.470	4.470	4.470	4.470	4.469	4.475	4.470	4.469	4.476	4.470	0.059
D 38 13C2_PFDoA	4.519	4.521	4.521	4.514	4.521	4.519	4.519	4.514	4.519	4.519	4.518	0.060
11 PFDoA	4.519	4.521	4.521	4.521	4.521	4.519	4.519	4.521	4.519	4.519	4.519	0.015
4 10:2 FTS	4.527	4.528	4.535	4.528	4.528	4.527	4.526	4.528	4.527	4.527	4.528	0.061
34 PFDOS	4.732	4.733	4.727	4.733	4.733	4.732	4.731	4.733	4.732	4.732	4.731	0.045
24 PFTrDA	4.759	4.761	4.761	4.760	4.760	4.759	4.758	4.761	4.759	4.759	4.759	0.017
D 42 13C2_PFTeDA	4.973	4.973	4.973	4.973	4.978	4.973	4.977	4.973	4.973	4.973	4.974	0.034
23 PFTeDA	4.978	4.978	4.977	4.978	4.978	4.973	4.973	4.973	4.973	4.973	4.975	0.045
35 PFHxDA	5.372	5.372	5.371	5.372	5.372	5.372	5.372	5.366	5.372	5.372	5.371	0.036
D 40 13C2_PFHxDA	5.372	5.366	5.366	5.372	5.372	5.367	5.366	5.366	5.366	5.366	5.367	0.053
36 PFODA	5.761	5.761	5.761	5.761	5.761	5.762	5.761	5.761	5.761	5.761	5.760	0.008

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d		
Injection Date:	04-Nov-2021 13:48:20	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	77
Sample Info:	ICAL 50_SVLC-1655	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	0	1181107	21	>100:1			1000.00	1096.93	99.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.721	1.714	1/1	71635	19	61:1			50.000	55.146		M
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	-1	1102156	17	>100:1			1000.00	1098.96	101.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	-1/0	60609	16	48:1			50.000	51.325		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	-1	349749	16	>100:1			1000.00	1076.91	96.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	-1/0	26217	17	>100:1	Target = 3.80		44.200	52.470		
298.9 > 99	44	2.141	2.141		6799	14	58:1	3.85 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.494	2.493	-2/-1	17531	17	>100:1	Target = 3.42		46.900	49.816		
349 > 99	44	2.494	2.493		4102	15	66:1	4.27 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	-1	223833	18	>100:1			5000.00	5388.77	103.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.415		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	-1	933763	18	>100:1			1000.00	1045.38	90.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.468	2.467	-1/0	54741	22	46:1	Target = 17.93		50.000	56.736		
313 > 119	49	2.468	2.467		3332	14	15:1	16.42 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	-1	870016	19	>100:1			5000.00	5310.83	99	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	-1/0	14075	17	50:1	Target = 0.72		100.00	105.57		
285 > 185	66	2.587	2.587		19699	17	90:1	0.71 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	-2	992201	18	>100:1			1000.00	1132.40	100.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.855	2.846	-2/0	46893	17	93:1	Target = 3.26		50.000	49.095		
363 > 169	47	2.846	2.846		12459	14	51:1	3.76 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	-2	300274	18	>100:1			1000.00	1144.86	101.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	-2/0	14994	25	59:1	Target = 3.48	6.83	45.500	42.240		
399 > 99	45	2.864	2.863		4209	26	41:1	3.56 (1.74-5.22)	8.52				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	-2/0	71883	20	>100:1	Target = 2.31		47.100	43.493		
377 > 85	45	2.890	2.890		30678	20	>100:1	2.34 (1.16-3.48)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.229	-2/0	12106	16	>100:1	Target = 3.56		47.600	39.198		
449 > 99	45	3.234	3.229		4727	18	63:1	2.56 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.204	-3	219732	21	>100:1			5000.00	5826.72	112.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.204		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.223	-3	964087	22	>100:1			1000.00	1165.77	104.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.229	-2/1	51511	21	51:1	Target = 2.50		50.000	51.928		
413 > 169	53	3.234	3.229		20589	20	34:1	2.50 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.599	3.595	-3	239145	19	>100:1			1000.00	1065.33	97.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.595	-4/-1	11382	40	42:1	Target = 4.01	4.52	46.400	40.374		
499 > 99	54	3.599	3.595		2788	39	32:1	4.08 (2.00-6.02)	6.39				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.797	3.799	-4/-1	31449	19	>100:1			46.600	42.552		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.940	3.926	-4/-1	12168	17		Target = 3.78		48.000	50.376		
549 > 99	54	3.932	3.926		2185	17	23:1	5.56 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.233	4.226	-4/-1	10008	15	86:1	Target = 3.98		48.200	42.390		
599 > 99	54	4.233	4.226		2656	18	22:1	3.76 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.385	4.386	-5/-2	28080	17	>100:1			47.100	42.268		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.733	-5/-2	10834	23	>100:1	Target = 3.68		48.400	46.777		
699 > 99	54	4.732	4.733		2755	21	72:1	3.93 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	-3	856919	19	>100:1			1000.00	1072.47	85.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.607	3.595	-3/0	44502	19	>100:1	Target = 4.69		50.000	57.031		
463 > 169	56	3.607	3.595		6710	14	32:1	6.63 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.879	3.873	0	431120	18	>100:1			1000.00	1040.87	100.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.879	3.873	0/0	23878	17	32:1	Target = 40.85		50.000	48.983		
498>478	55	3.879	3.873		875	18	5.6:1	27.28 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.940	3.934	-4	184714	17	>100:1			5000.00	5885.34	120.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.940	3.934	1/5	2934	16	20:1	Target = 1.58		47.900	44.703		M
527 > 81	65	3.948	3.934		1539	11	4.7:1	1.90 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.527	4.528	-5/-1	2468	21		Target = 2.46		48.200	37.461		
627 > 80	65	4.527	4.528		1178	24	19:1	2.09 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	-4	819084	18	>100:1			1000.00	1134.78	104.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.948	3.942	-4/0	42018	16	>100:1	Target = 9.77		50.000	49.994		
513 > 169	51	3.940	3.942		3624	16	13:1	11.59 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	-4	1051368	16	>100:1			5000.00	5929.45	116.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.096	4.098	-4/0	8309	23	49:1	Target = 1.41	5.18	50.000	48.330		
570 > 483	58	4.105	4.098		4587	33	19:1	1.81 (0.70-2.11)	6.40				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.251	4.253	-4	762430	16	>100:1			1000.00	1115.60	104.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.251	4.253	-4/0	32764	20	>100:1	Target = 9.19		50.000	47.901		
563 > 169	52	4.251	4.253		3774	18	18:1	8.68 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.251	4.253	-5	880706	16	>100:1			5000.00	5889.80	113	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.260	4.253	-4/1	8919	34	31:1	Target = 1.75	11.47	50.000	49.537		
584 > 526	60	4.260	4.253		4043	35		2.20 (0.87-2.63)	4.09				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.280	-1	151146	14	>100:1			1000.00	1095.37	113.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.295	4.288	0/1	9017	12	33:1			50.000	58.699		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.306	-1	76415	15	>100:1			1000.00	1091.32	105.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.306	-1/0	3563	19	34:1	Target = 1.11		50.000	45.027		
512 > 219	57	4.304	4.306		3486	13	27:1	1.02 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.447	4.448	-1	138157	17	>100:1			1000.00	1074.70	106.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.456	0/1	5080	14	31:1			50.000	43.198		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.469	4.463	0	72348	16	>100:1			1000.00	1123.33	110.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.469	4.470	0/0	4622	24	38:1	Target = 1.06		50.000	54.645		
526 > 219	59	4.469	4.470		4478	24	33:1	1.03 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	-5	771383	18	>100:1			1000.00	1121.78	103.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.521	-5/0	35377	18	28:1	Target = 6.38		50.000	46.698		
613 > 169	38	4.519	4.521		5791	22	65:1	6.10 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.760	-6/-1	18172	21	>100:1	Target = 3.23		50.000	43.959		
663 > 169	38	4.759	4.760		6147	18	>100:1	2.95 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	-7	839498	25	>100:1			1000.00	1073.86	93.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.978	-6/1	36551	36	>100:1	Target = 7.33		50.000	49.543		
713 > 169	42	4.973	4.978		4593	22	87:1	7.95 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.372	5.372	-10	439560	21	>100:1			1000.00	1125.98	109	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	-10/0	47544	21	>100:1	Target = 12.31		50.000	56.545		
813 > 269	40	5.366	5.372		4130	22	>100:1	11.51 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	-14/-4	31125	19	>100:1	Target = 165.31		50.000	46.903		
913 > 319	40	5.753	5.761		201	23		154.85 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	-4	768502	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.468	2.467	-1	961998	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.223	-3	899767	21	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	0	1040818	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.599	3.595	-3	237529	20	>100:1			1000.00			

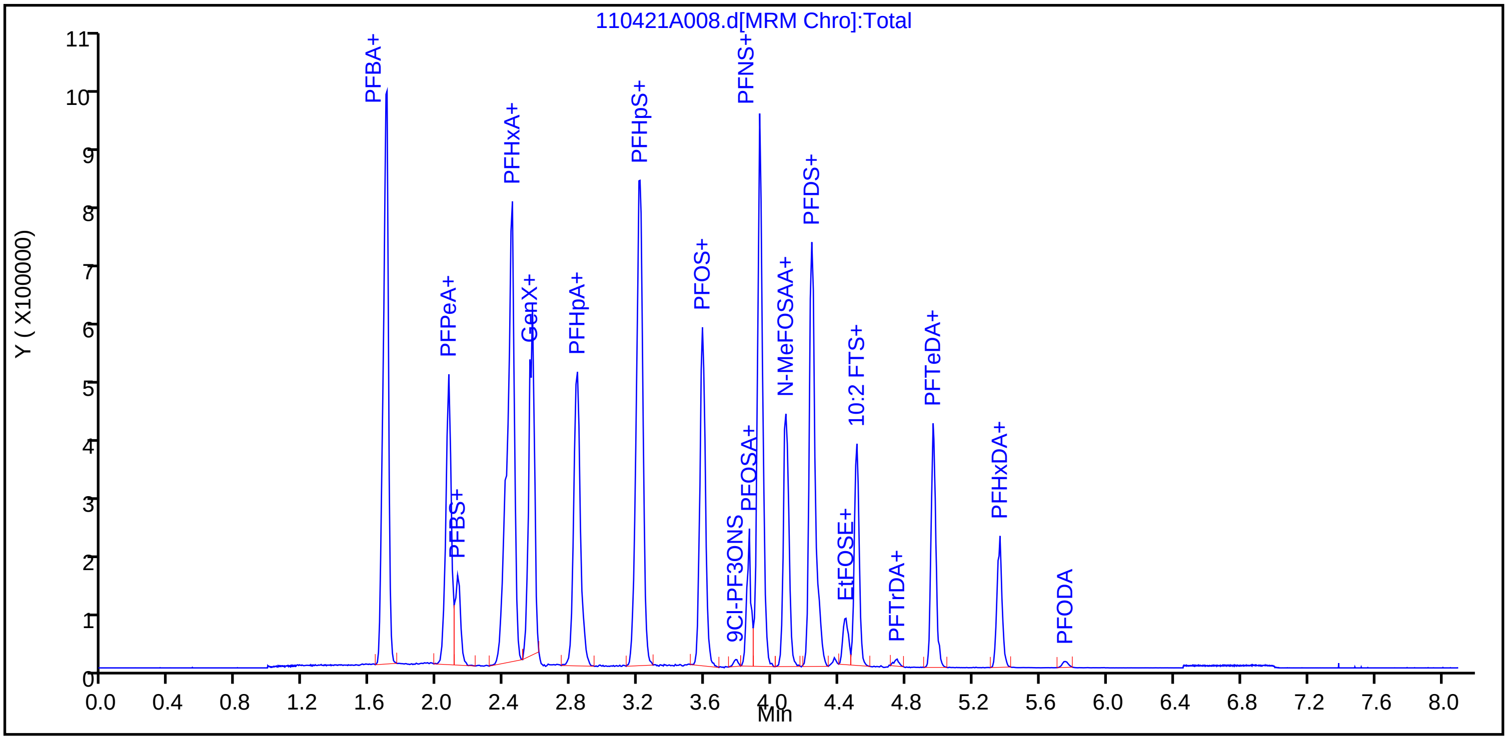
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

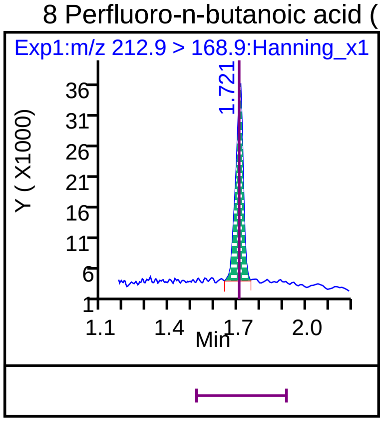
Report Date: 05-Nov-2021 13:58:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

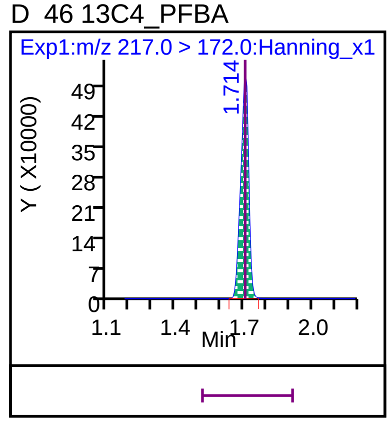
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d		
Injection Date:	04-Nov-2021 13:48:20	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller



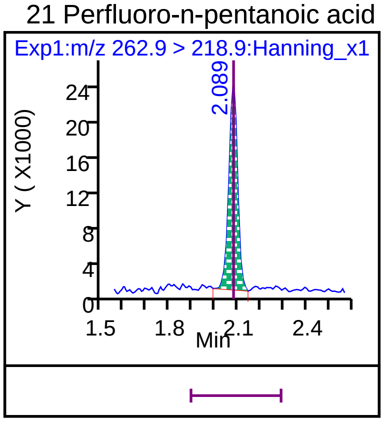
8 Perfluoro-n-butanoic acid (PFBA) (M)



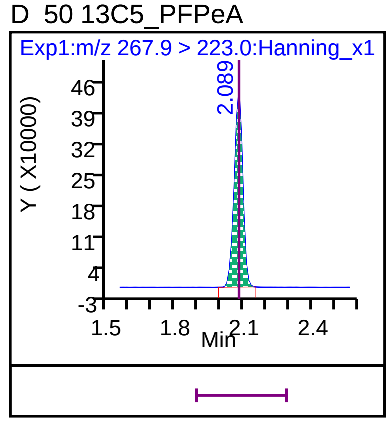
D 46 13C4_PFBA



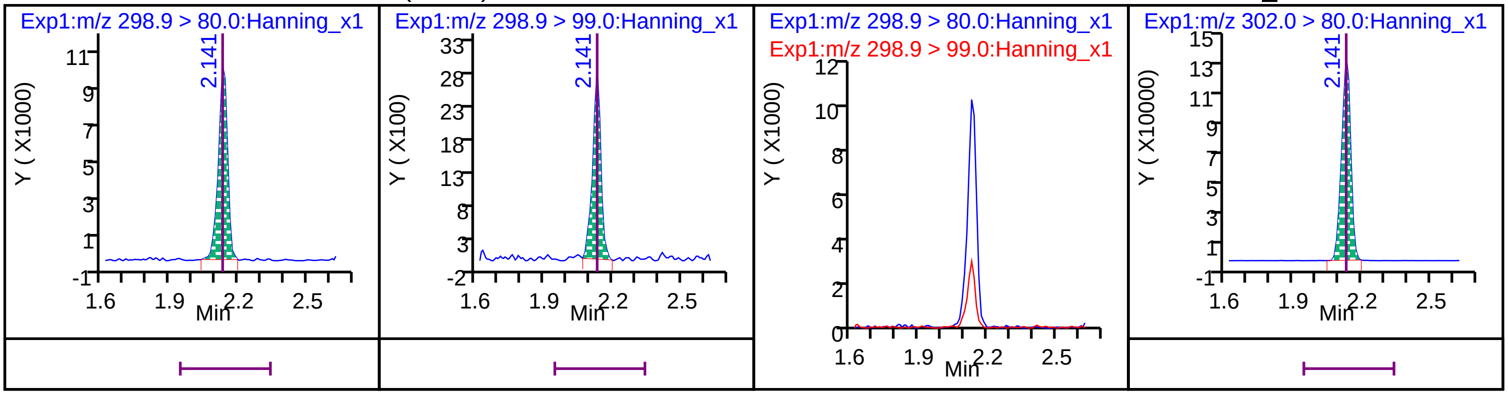
21 Perfluoro-n-pentanoic acid (PFPeA)



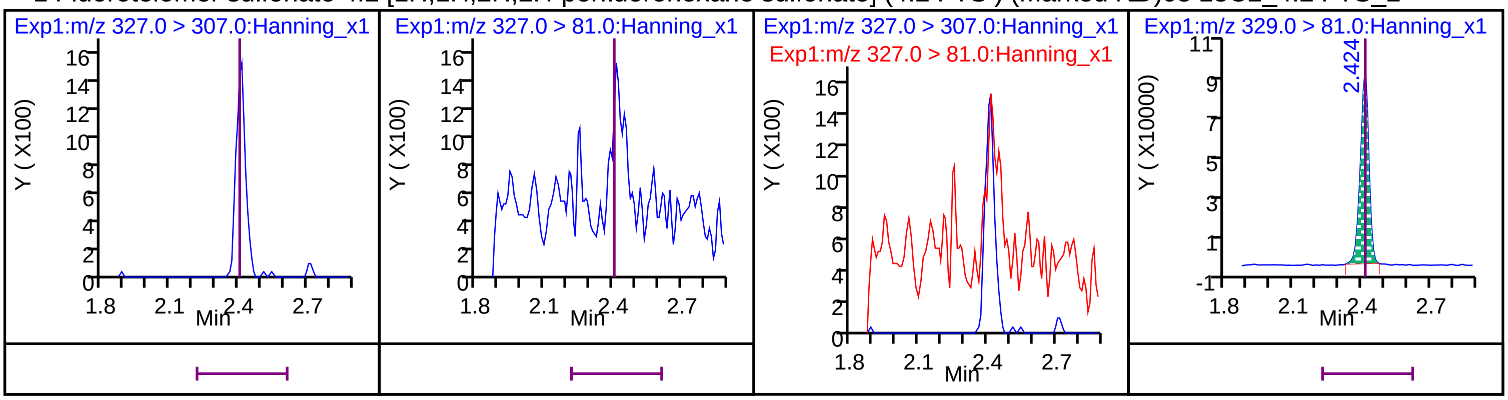
D 50 13C5_PFPeA



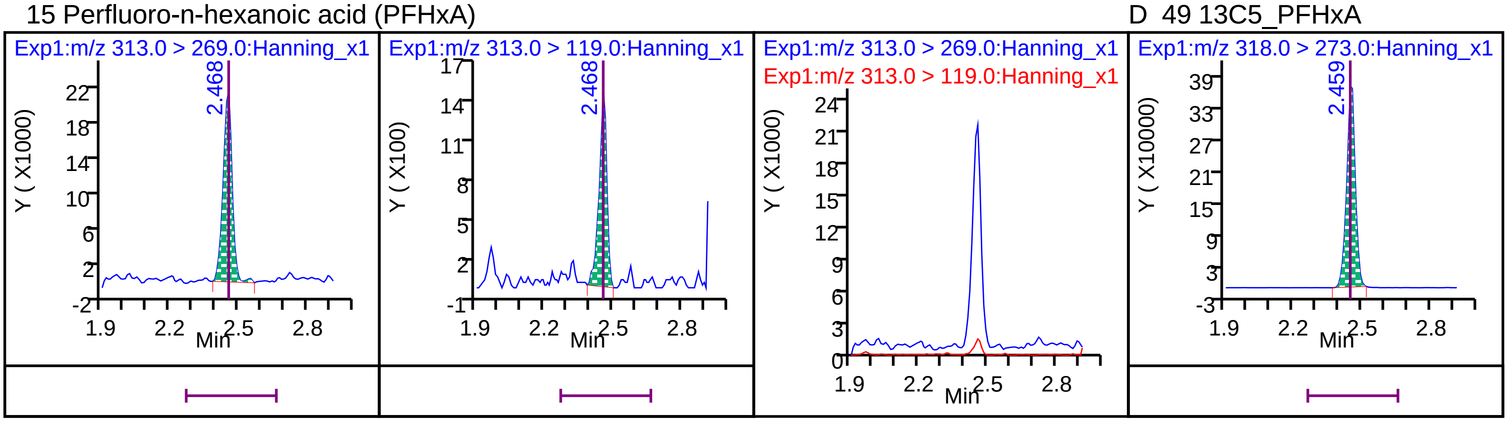
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



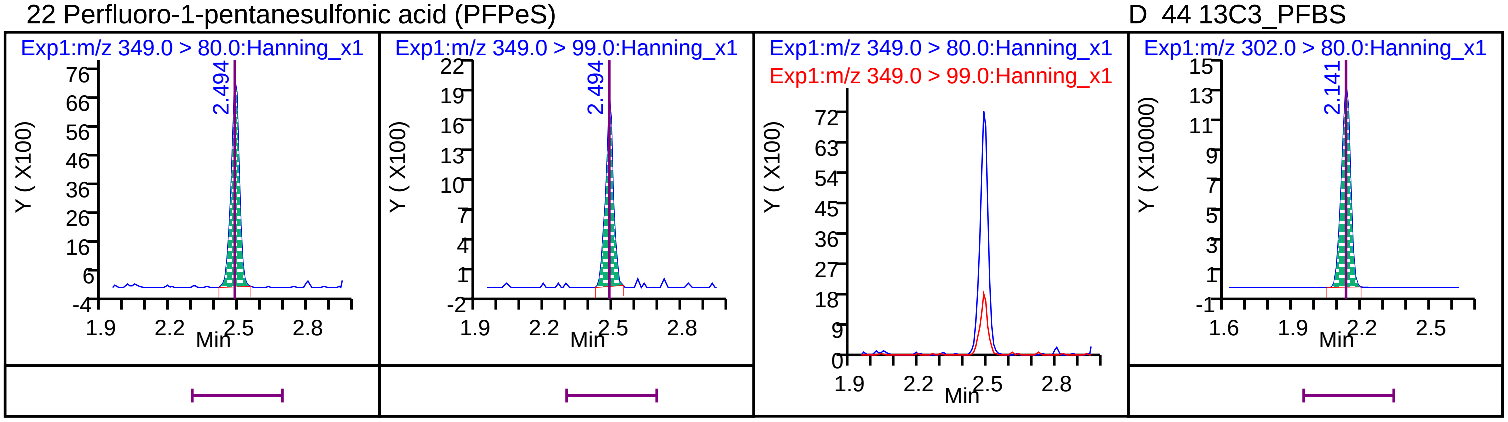
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (Marked ND) D 63 13C2_4:2 FTS_2



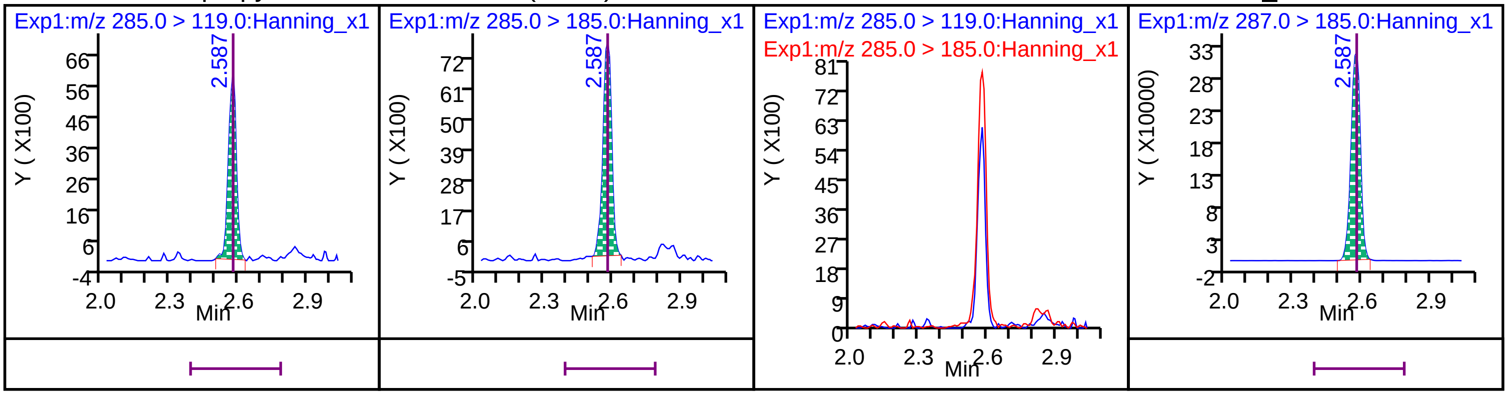
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



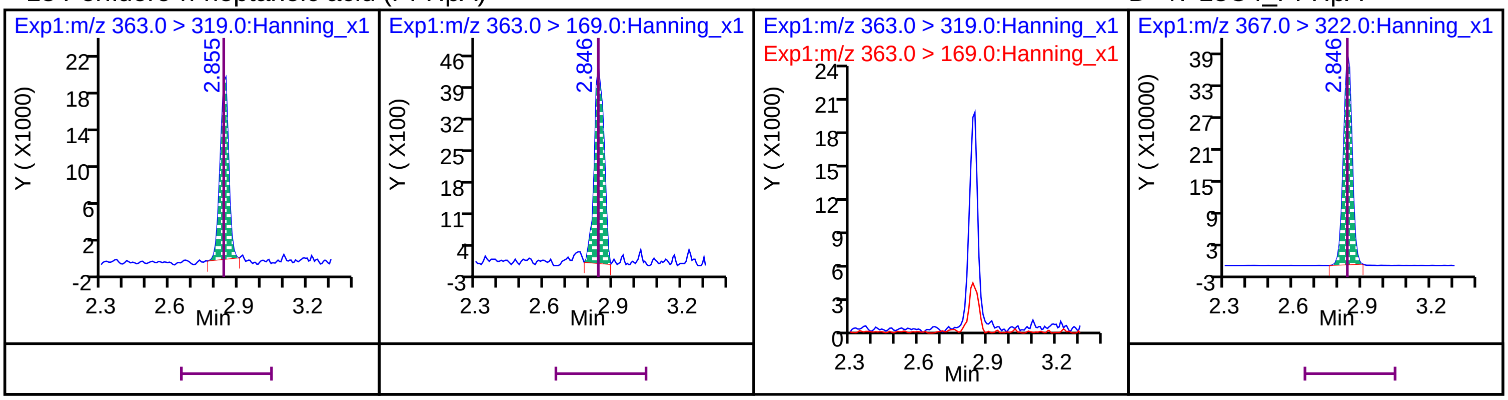
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



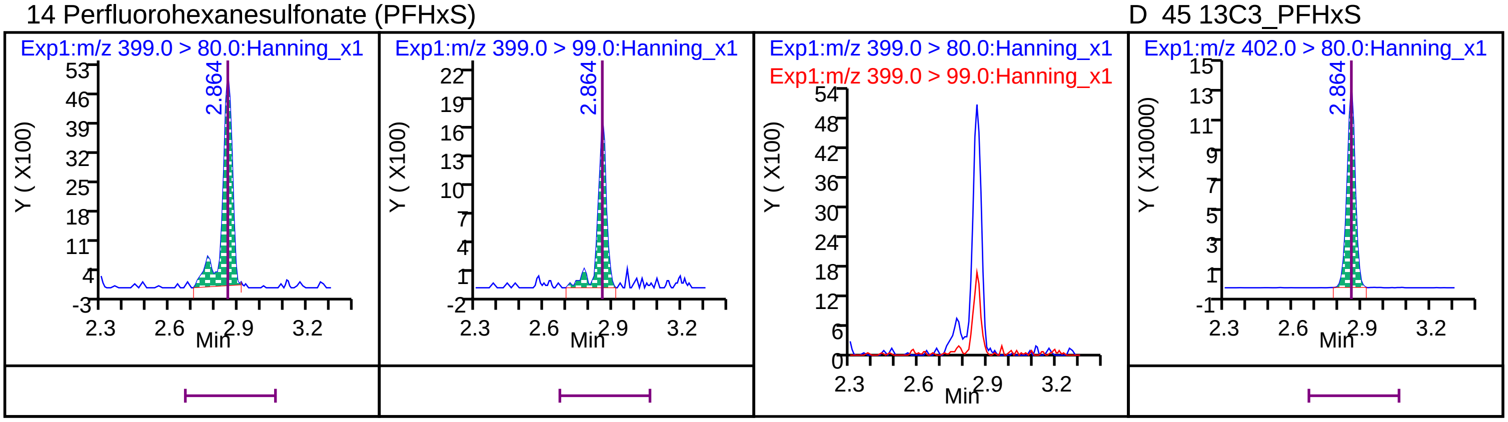
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



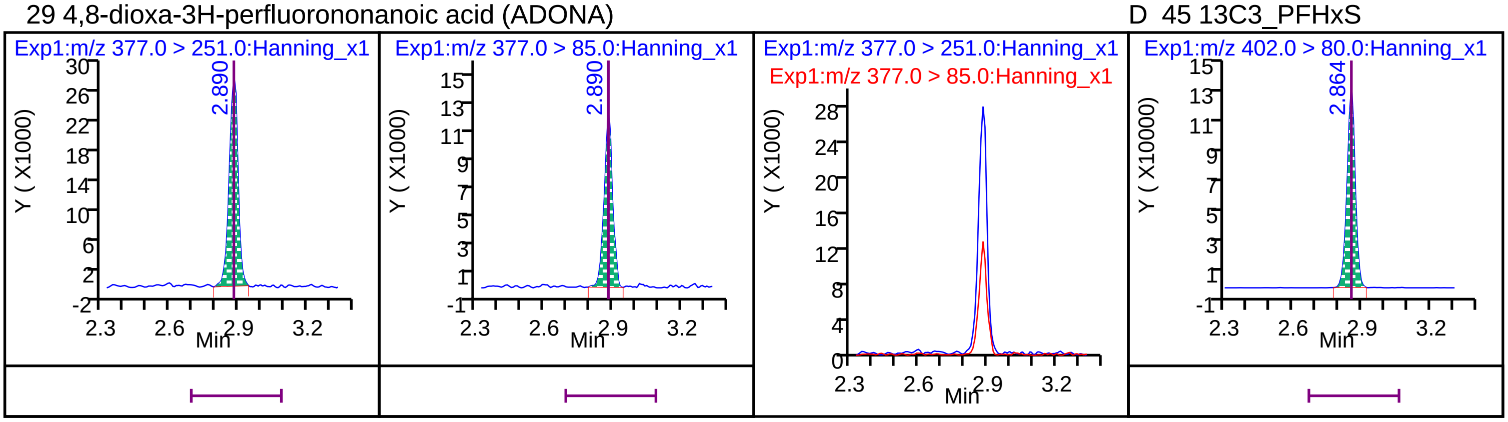
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

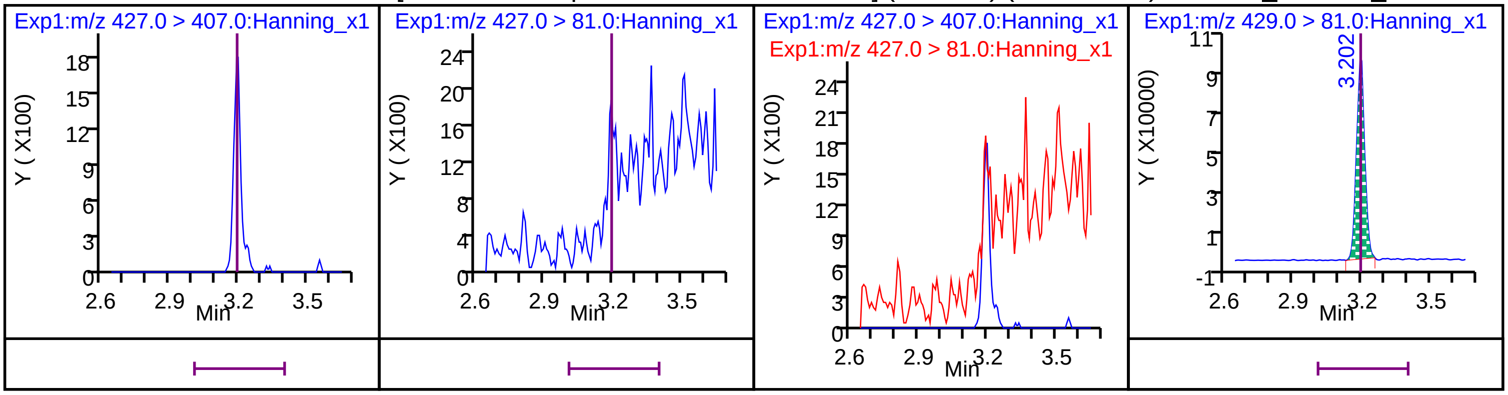


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

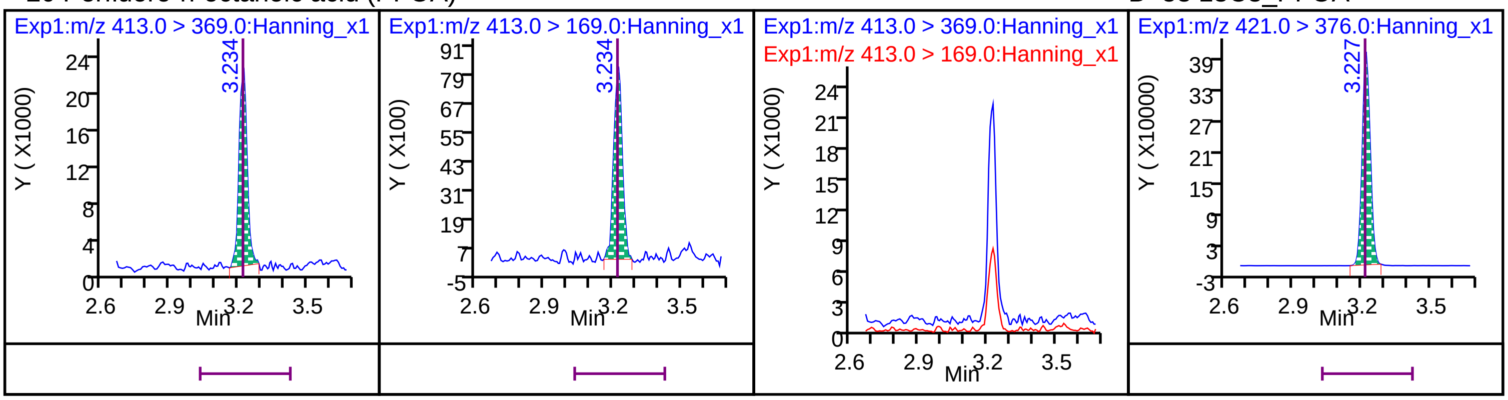


Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d

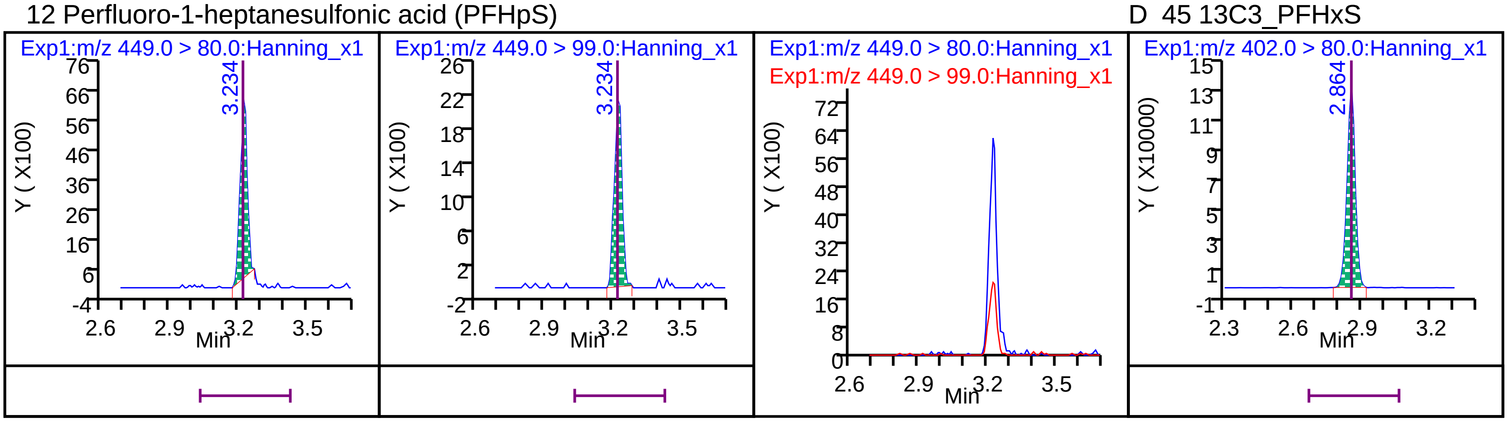
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (Marked ND) 64 13C2_6:2 FTS_2



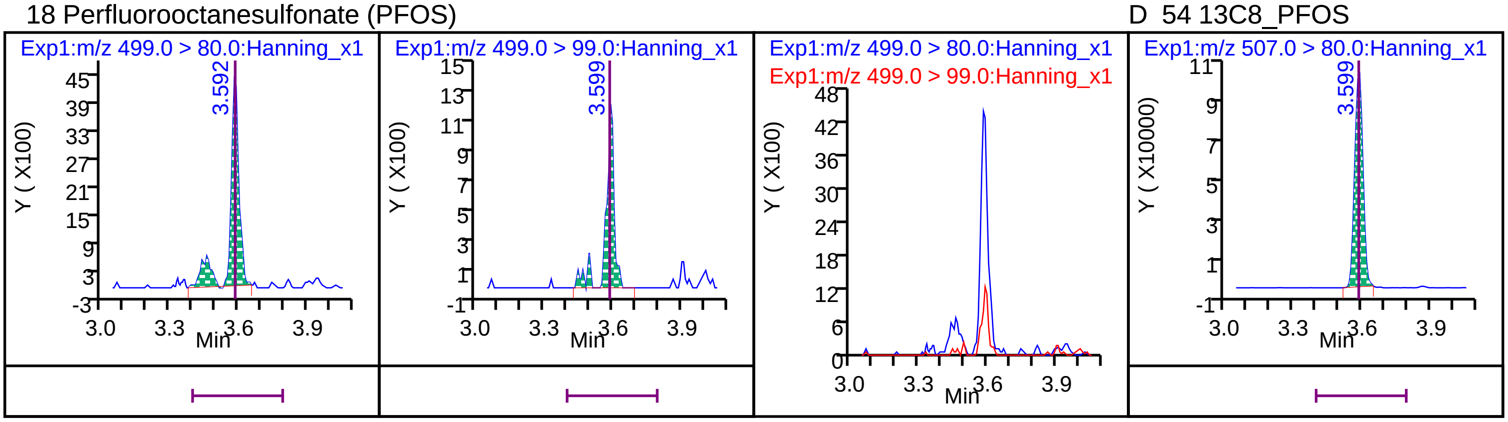
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



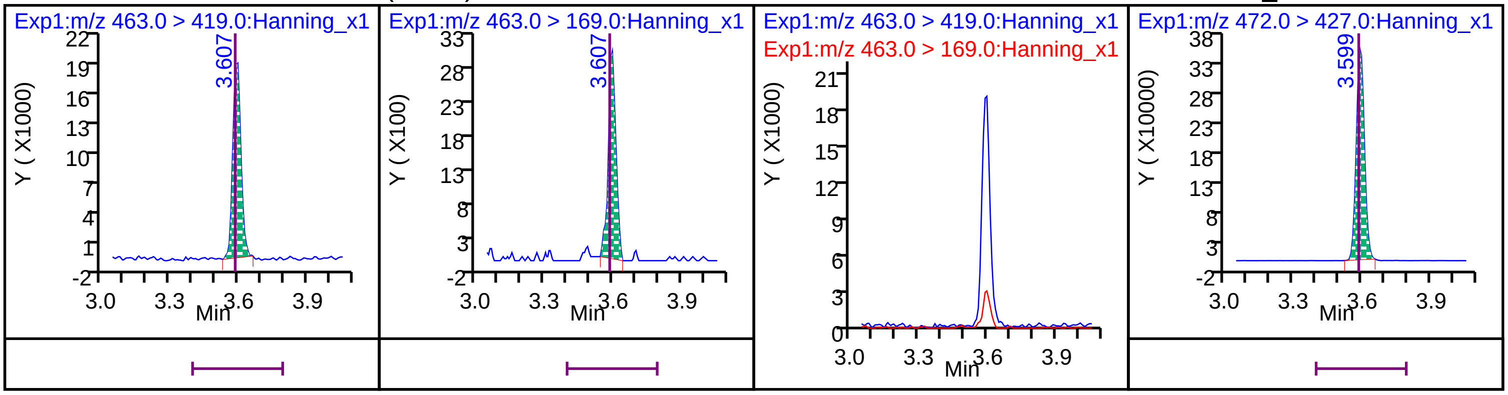
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



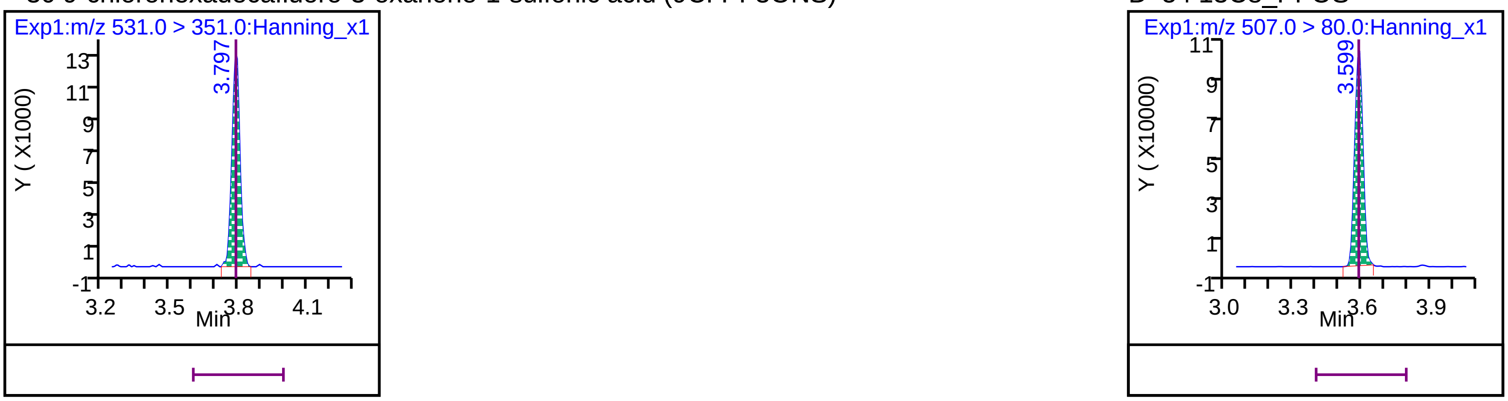
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



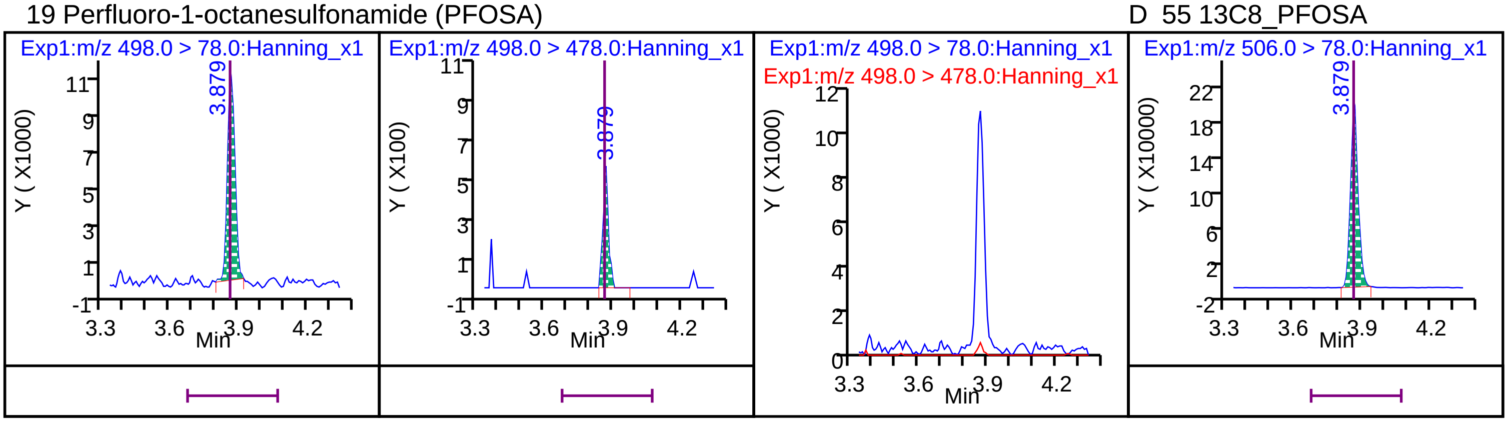
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



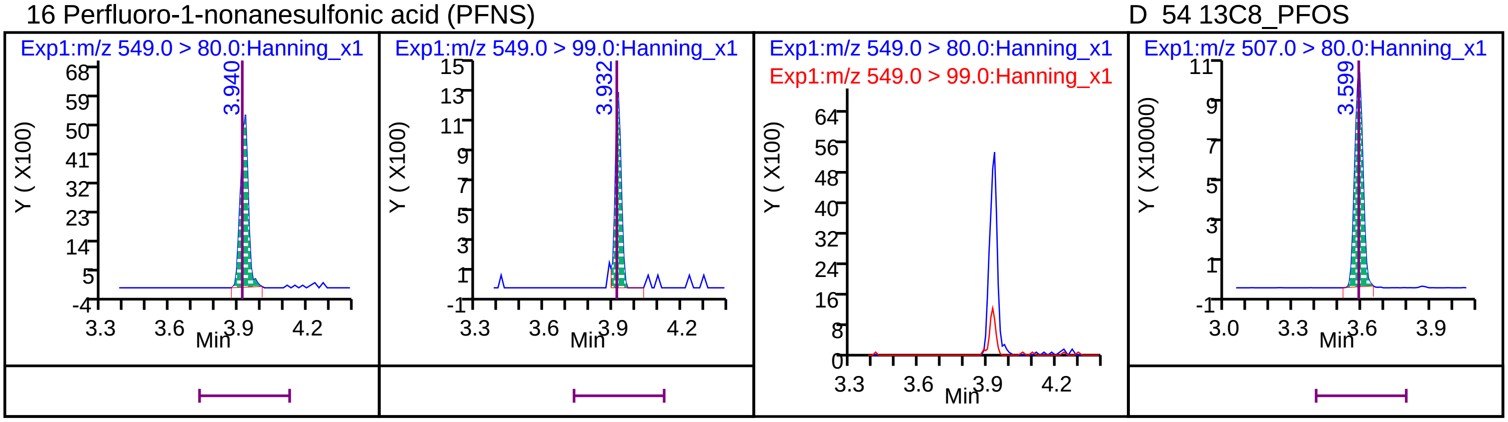
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

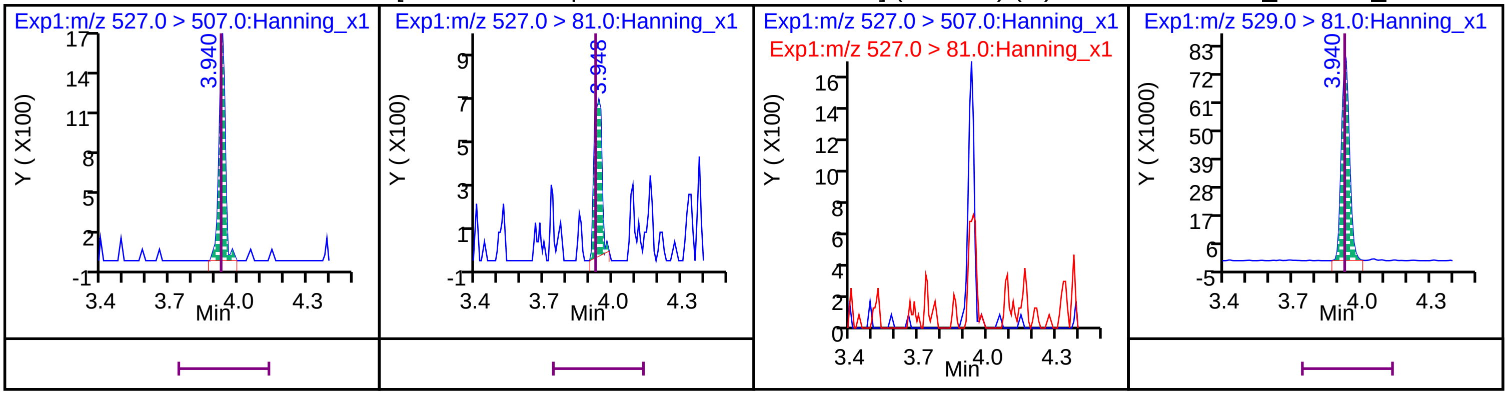


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

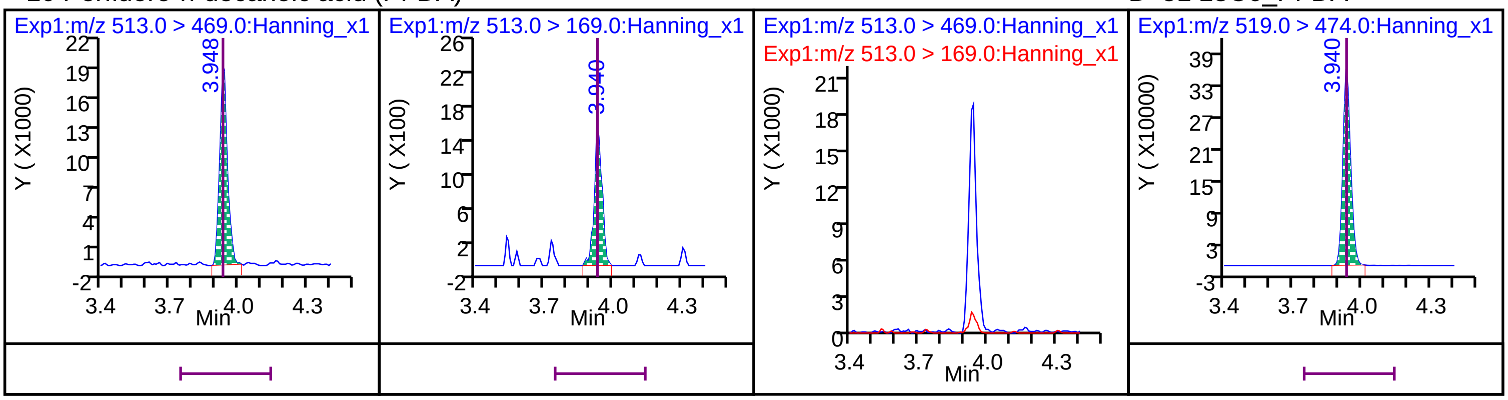


Report Date: 05-Nov-2021 13:58:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d

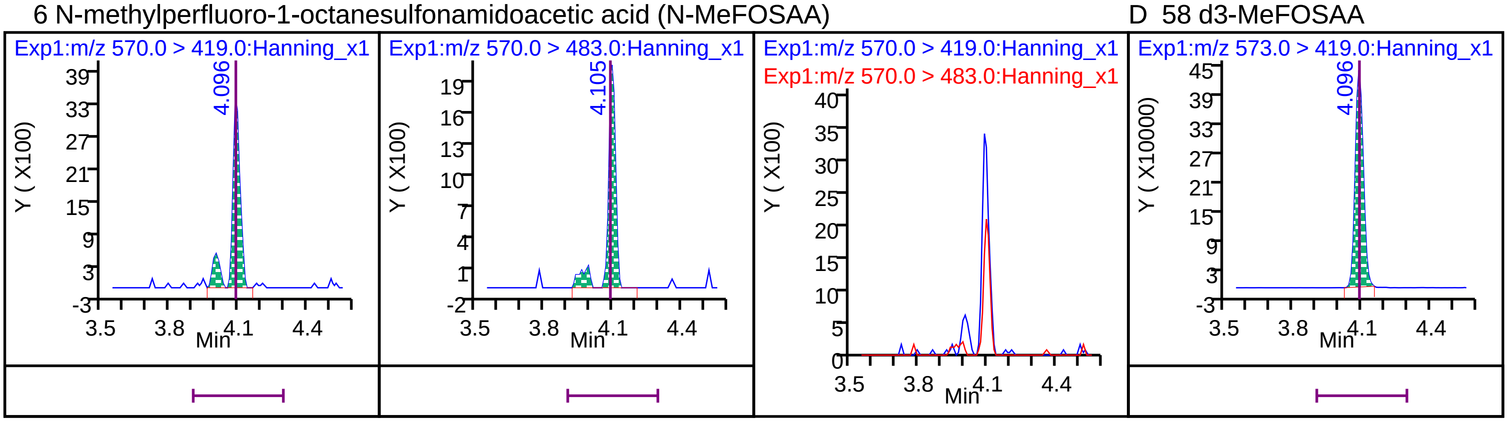
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



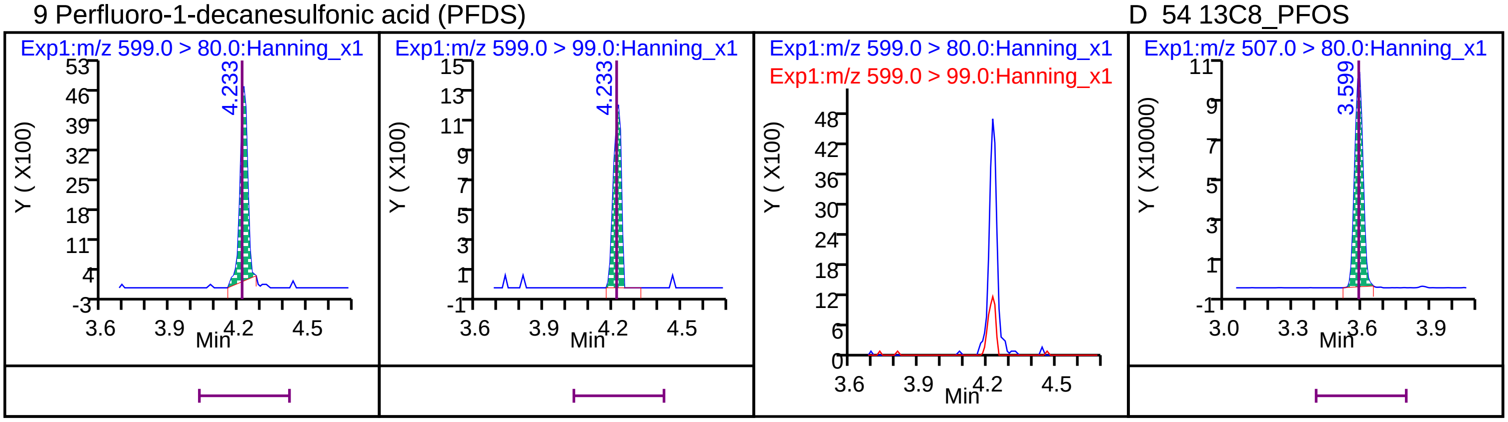
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

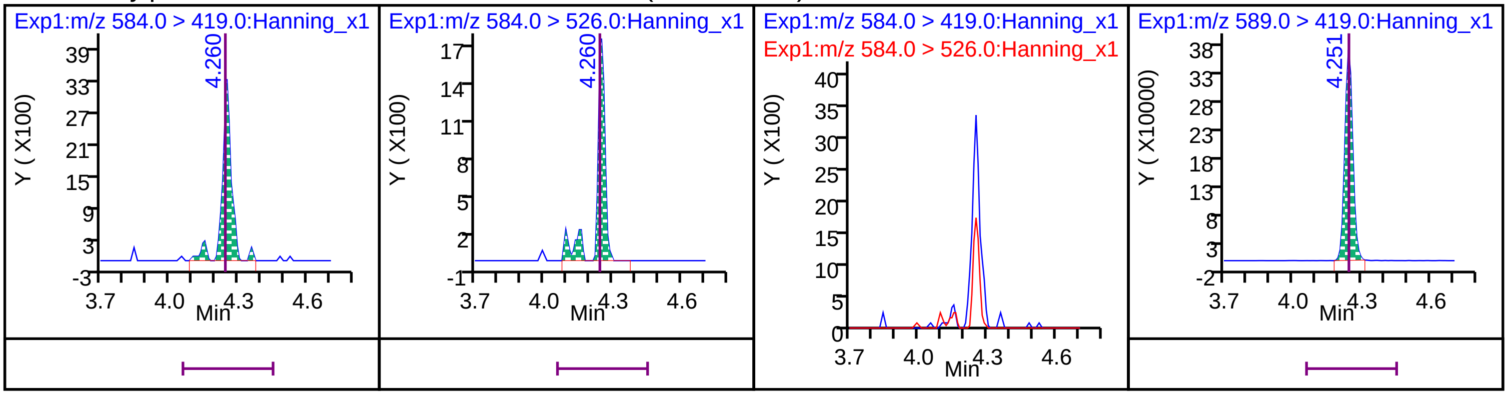


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

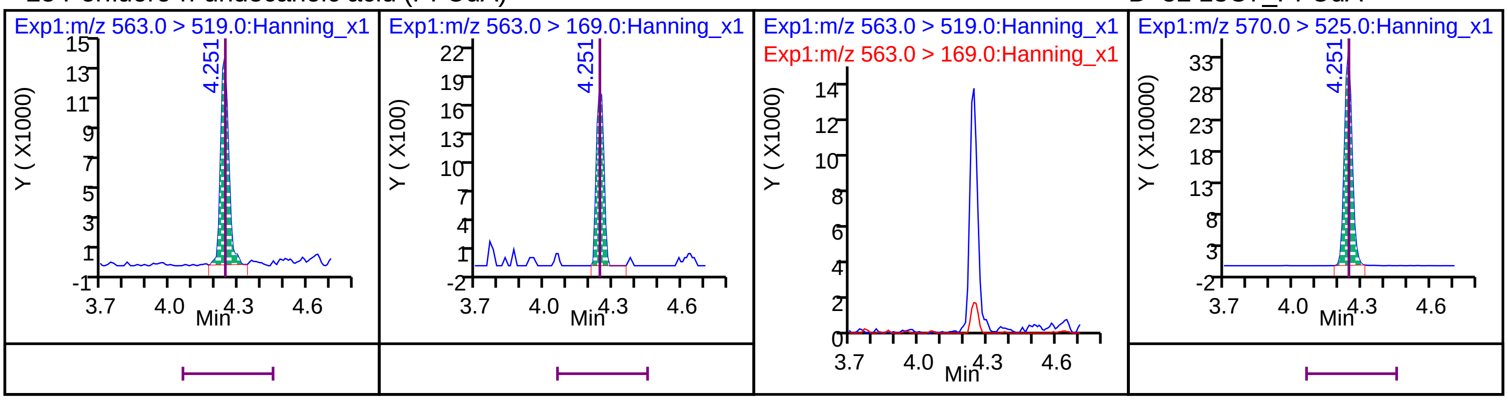


Report Date: 05-Nov-2021 13:58:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d

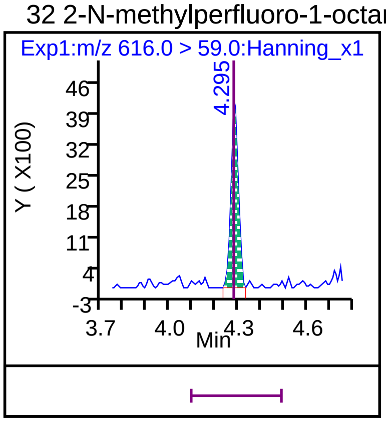
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



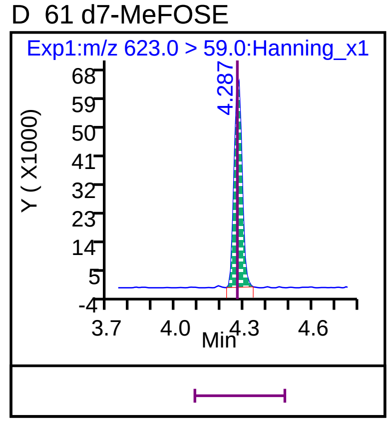
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



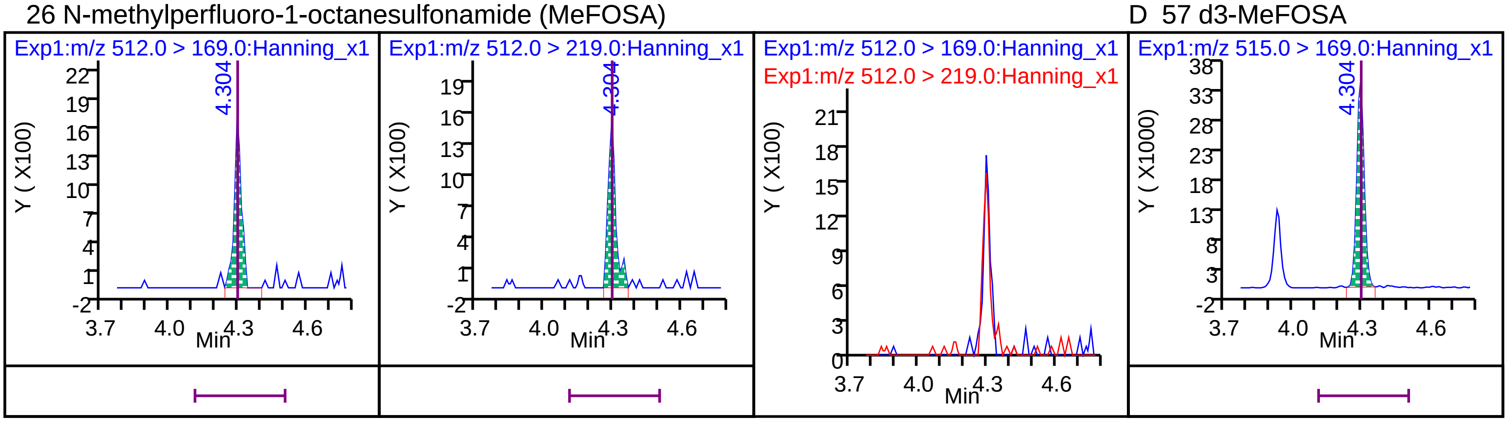
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



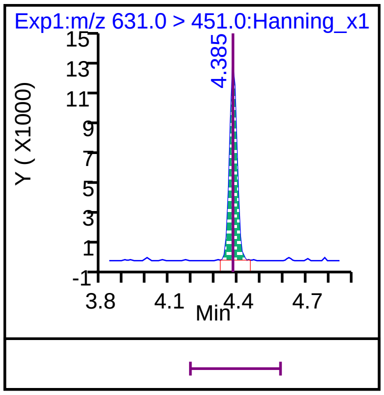
D 61 d7-MeFOSE



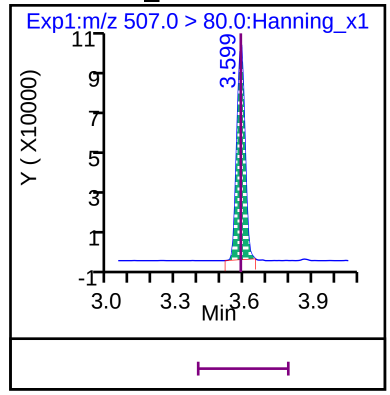
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



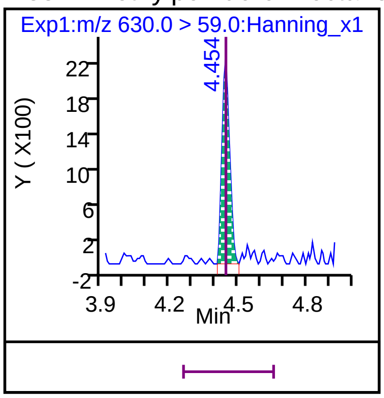
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



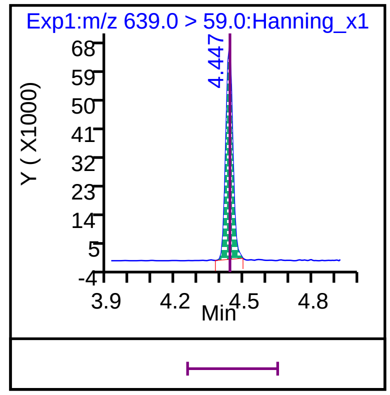
D 54 13C8_PFOS



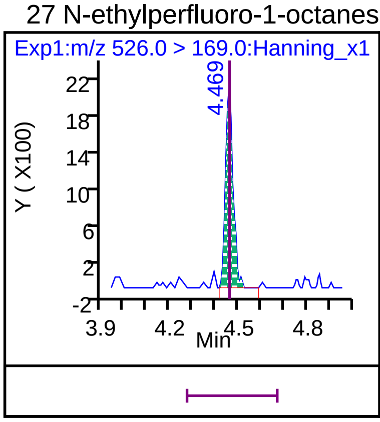
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

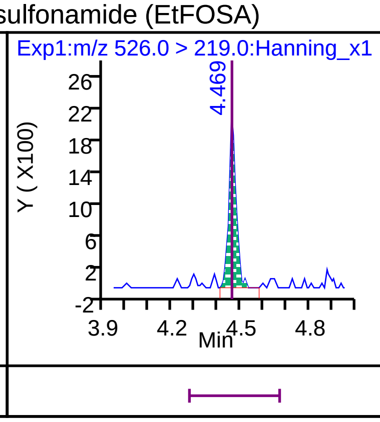


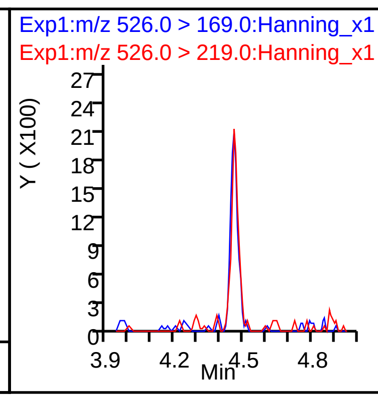
D 62 d9-EtFOSE



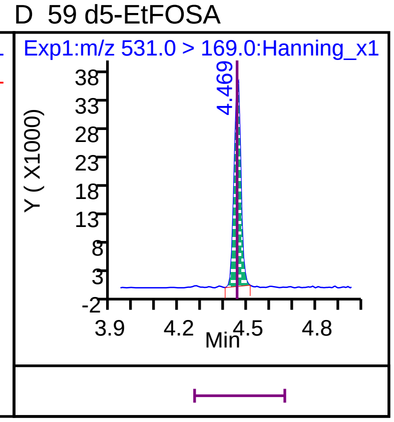
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



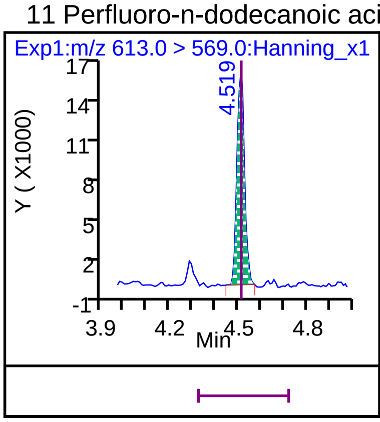


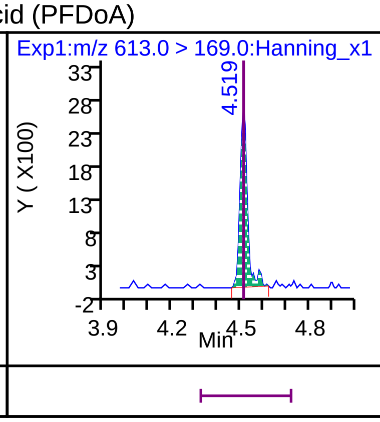


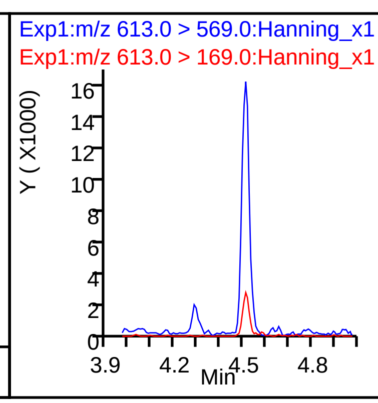
D 59 d5-EtFOSA



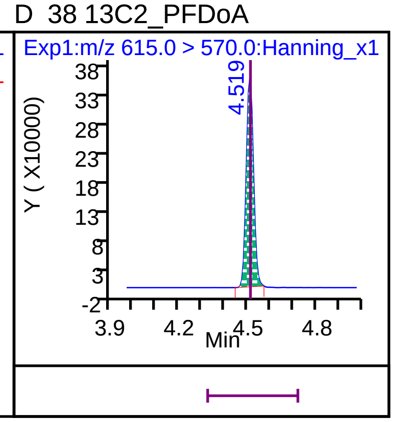
11 Perfluoro-n-dodecanoic acid (PFDoA)





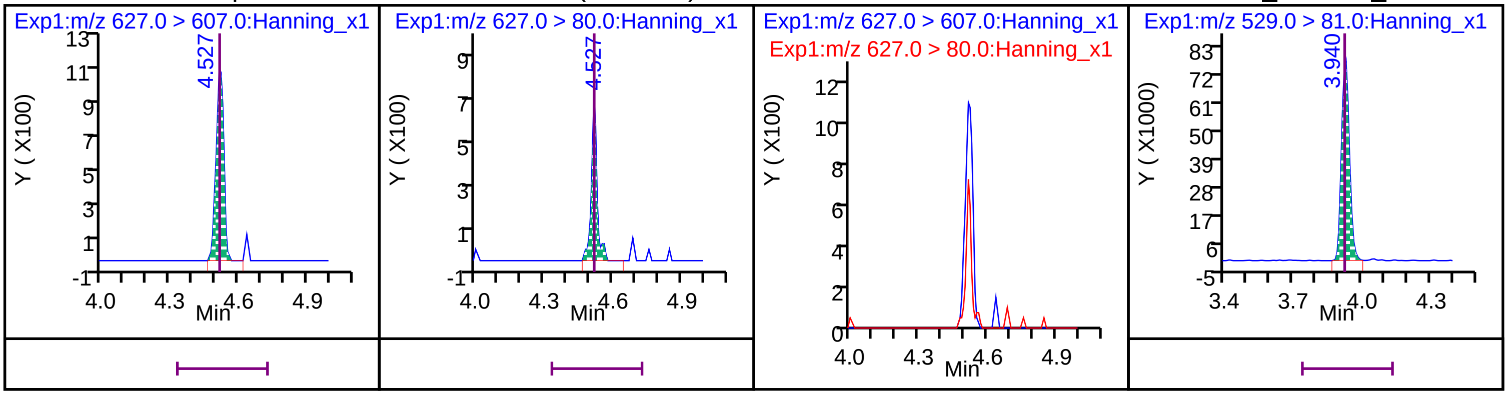


D 38 13C2_PFDoA

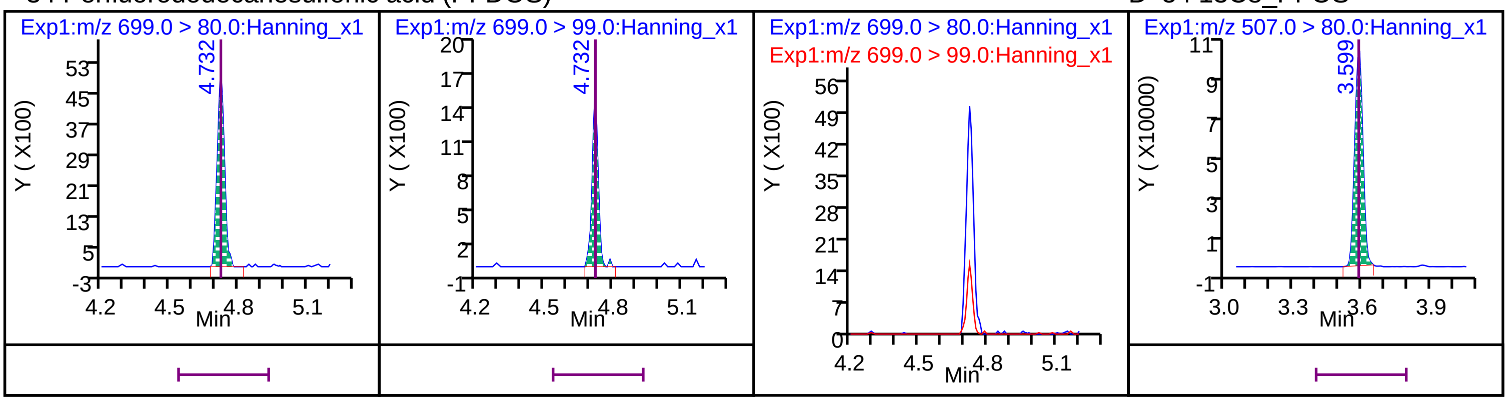


Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d

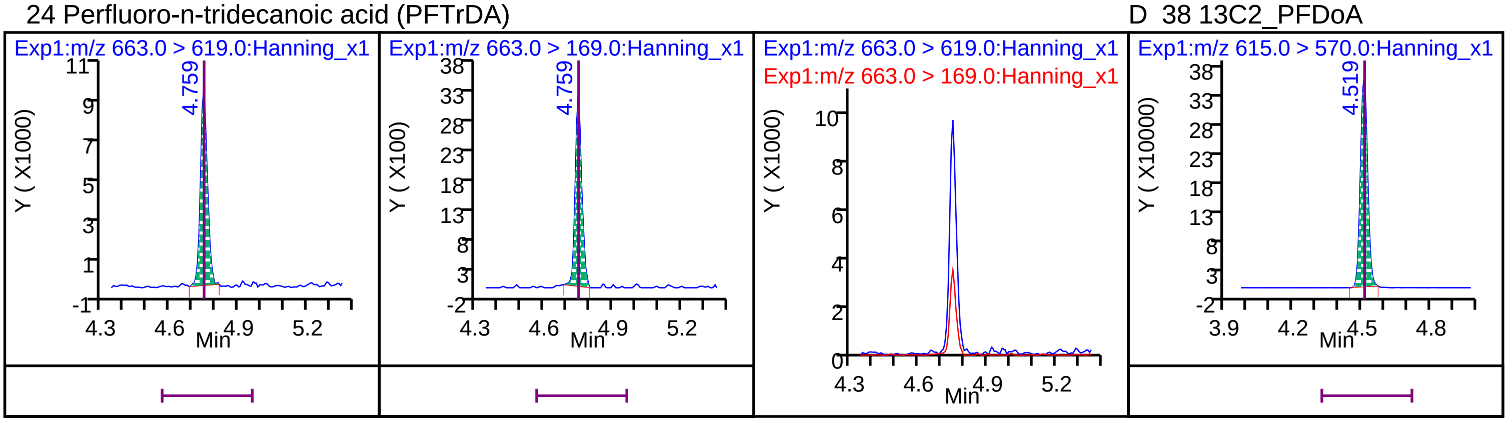
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



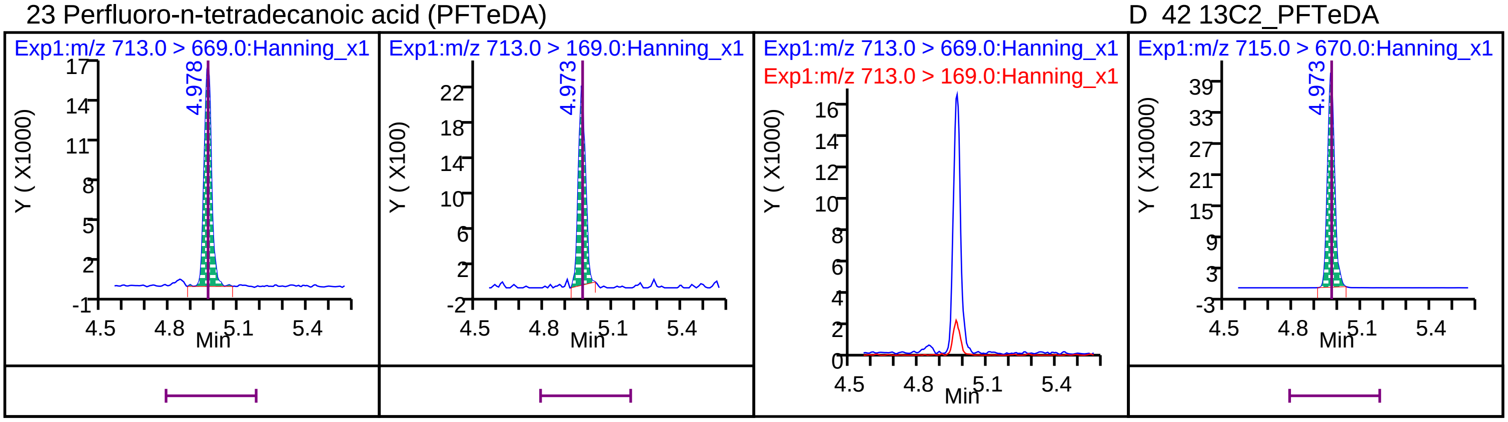
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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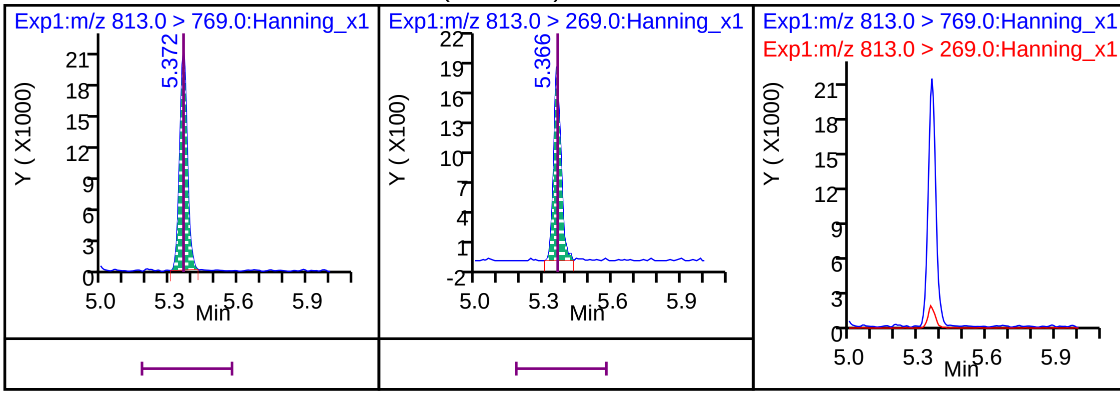
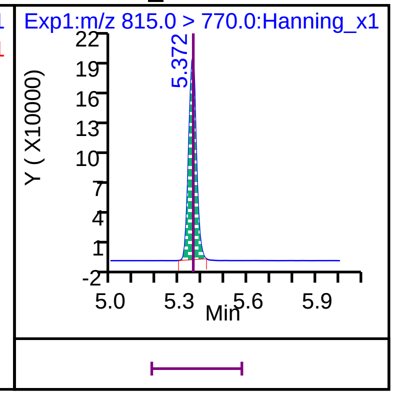
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d

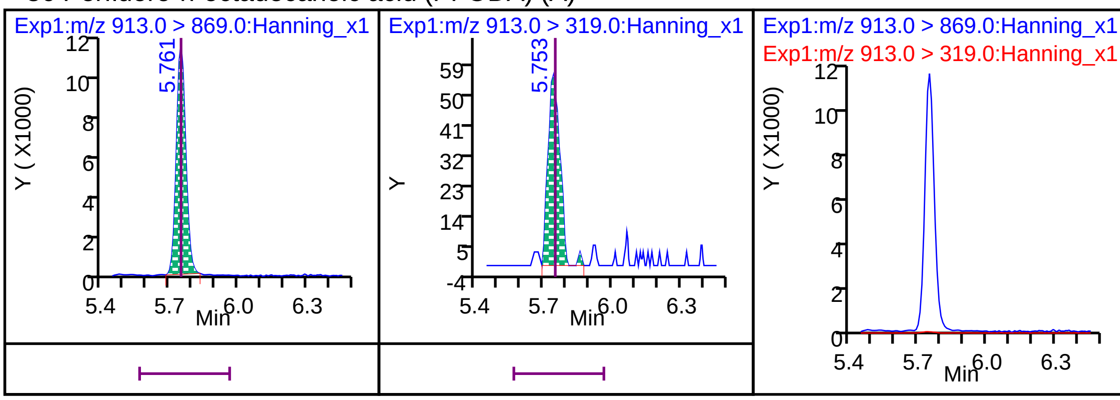
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



D 40 13C2_PFHxDA



36 Perfluoro-n-octadecanoic acid (PFODA) (A)



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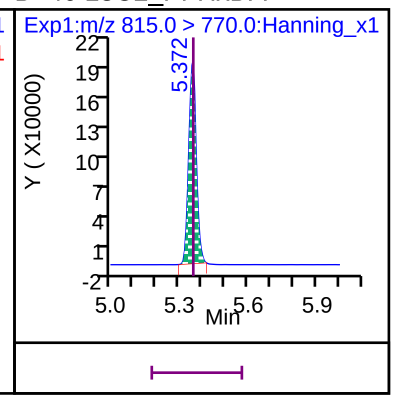
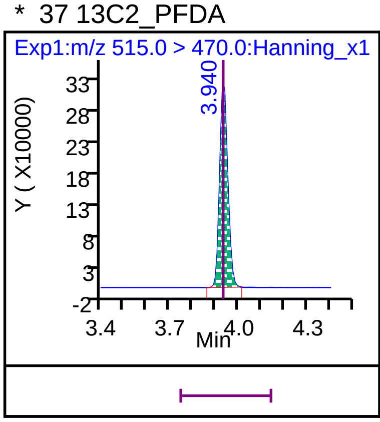
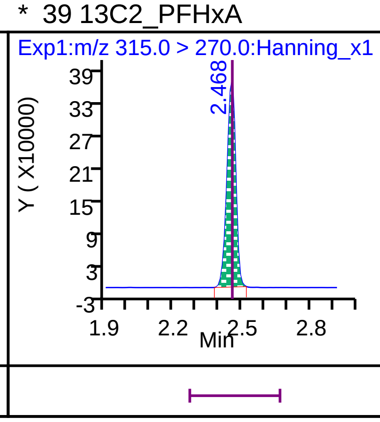


* 37 13C2_PFDA



* 39 13C2_PFHxA



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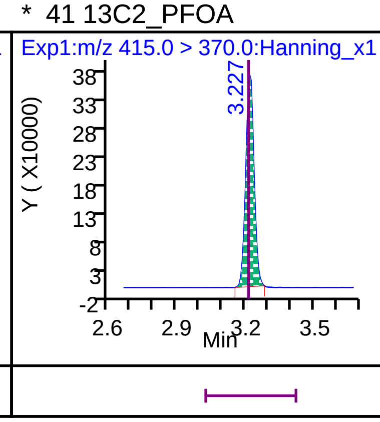

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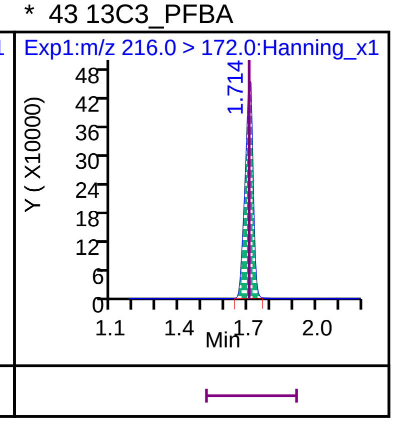

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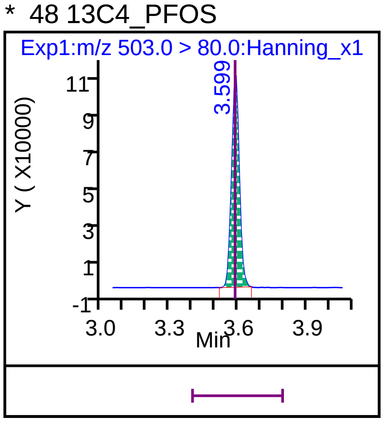


Report Date: 05-Nov-2021 13:58:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

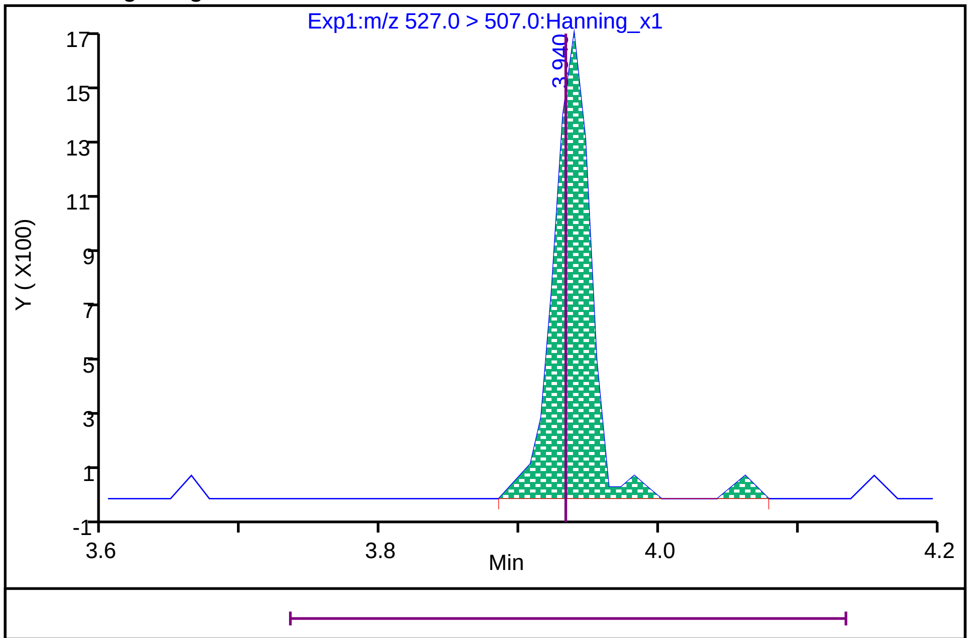
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d		
Injection Date:	04-Nov-2021 13:48:20	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1655
Sample Info:	ICAL 50_SVLC-1655		
Dil. Factor:	1	Operator:	Matthew M. Miller

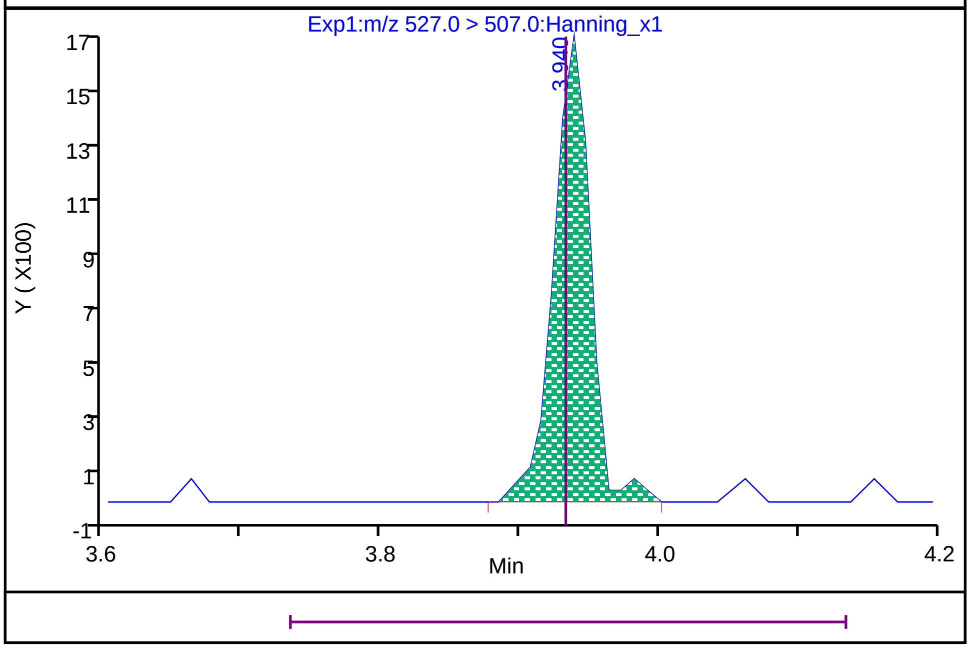
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT: 3.940
Area: 3022
Amount: 45.755
Amount Units: ng/L



RT: 3.940
Area: 2934
Amount: 44.703
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:12:05

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A008.d

Injection Date: 04-Nov-2021 13:48:20 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ICAL 50_SVLC-1655

Sample Info: ICAL 50_SVLC-1655

Dil. Factor: 1 Operator: Matthew M. Miller

8 PFBA, CAS: 375-22-4

Processing Integration Results

RT: 1.721
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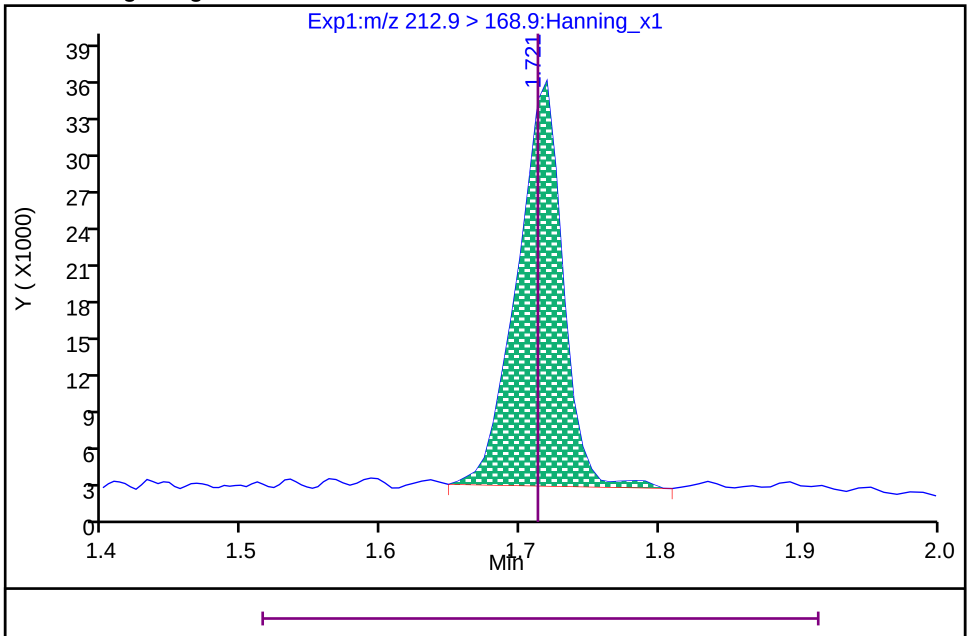
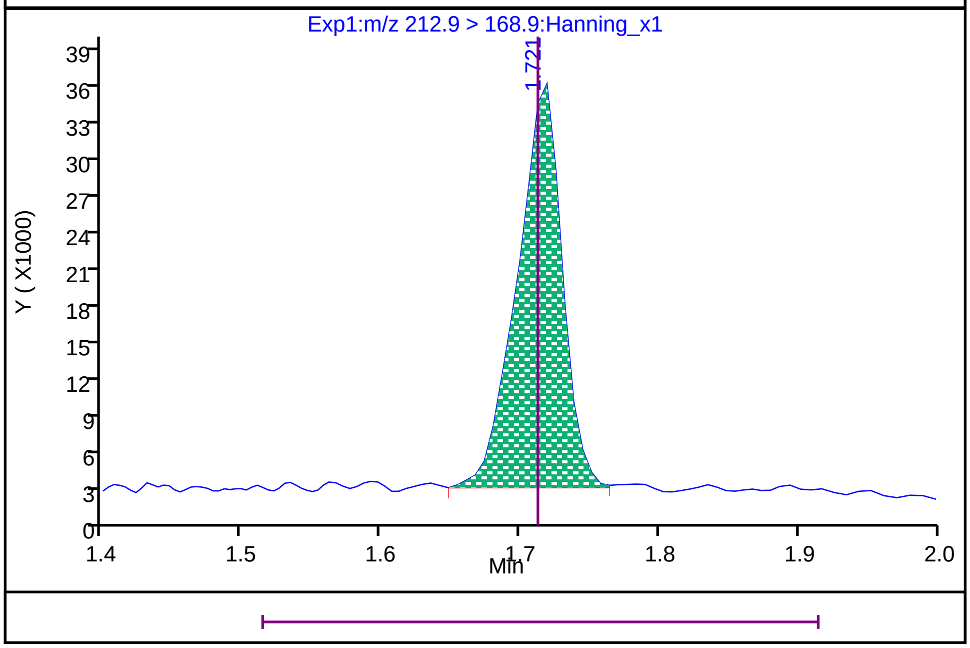
Amount Units: ng/L



RT: 1.721
Area: 71635
Amount: 55.146
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:11:44

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d		
Injection Date:	04-Nov-2021 13:58:59	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	78
Sample Info:	ICAL 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1167490	20	>100:1			1000.00	1084.29	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	1/0	130597	17	91:1			100.00	101.71		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1080008	17	>100:1			1000.00	1076.87	99	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	108904	17	>100:1			100.00	94.113		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	360998	16	>100:1			1000.00	1111.55	99.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	43449	15	>100:1	Target = 3.80		88.400	84.247		
298.9 > 99	44	2.141	2.141		11919	14	>100:1	3.64 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	29776	20	>100:1	Target = 3.42		93.800	81.975		
349 > 99	44	2.502	2.493		8926	26	71:1	3.33 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	207226	18	>100:1			5000.00	4988.95	95.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.415	1/0	8208	22	>100:1	Target = 1.54		93.400	101.47		
327 > 81	63	2.424	2.415		5398	14	4.1:1	1.52 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	944922	17	>100:1			1000.00	1057.87	91.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/0	92591	18	>100:1	Target = 17.93		100.00	94.832		
313 > 119	49	2.467	2.467		4836	15	27:1	19.14 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	892634	19	>100:1			5000.00	5448.89	101.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/0	26887	17	>100:1	Target = 0.72		200.00	196.56		
285 > 185	66	2.587	2.587		33674	17	>100:1	0.79 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	951742	18	>100:1			1000.00	1086.22	96.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	86762	21	>100:1	Target = 3.26		100.00	94.697		
363 > 169	47	2.846	2.846		28417	17	96:1	3.05 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	277334	18	>100:1			1000.00	1057.40	93.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	28734	24	>100:1	Target = 3.48	4.51	91.000	87.643		
399 > 99	45	2.863	2.863		9238	24	59:1	3.11 (1.74-5.22)	10.78				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	138059	20	>100:1	Target = 2.31		94.200	90.442		
377 > 85	45	2.890	2.890		62478	19	>100:1	2.20 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.229	3.229	1/0	25802	19	>100:1	Target = 3.56		95.200	90.454		
449 > 99	45	3.229	3.229		7314	21	57:1	3.52 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	1	192707	21	>100:1			5000.00	5110.09	99	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	1/0	6764	25	95:1	Target = 1.34		94.800	100.93		
427 > 81	64	3.204	3.204		4430	15	8.2:1	1.52 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.229	3.223	1	876932	20	>100:1			1000.00	1060.38	94.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.229	1/0	91560	19	90:1	Target = 2.50		100.00	101.48		
413 > 169	53	3.229	3.229		39267	25	68:1	2.33 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.595	1	240929	19	>100:1			1000.00	1073.28	98.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.595	1/0	27754	40	>100:1	Target = 4.01	3.56	92.800	97.719		M
499 > 99	54	3.603	3.595		5836	34	34:1	4.75 (2.00-6.02)	7.82				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/0	64186	19	>100:1			93.200	86.203		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.934	3.926	1/0	22705	26		Target = 3.78		96.000	93.304		
549 > 99	54	3.926	3.926		6681	26	48:1	3.39 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.226	1/0	23445	22	>100:1	Target = 3.98		96.400	98.568		
599 > 99	54	4.226	4.226		4130	18	33:1	5.67 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/0	57744	15	>100:1			94.200	86.277		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.733	4.733	1/0	20182	15	>100:1	Target = 3.68		96.800	86.493		
699 > 99	54	4.733	4.733		5578	16	96:1	3.61 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.595	1	858153	19	>100:1			1000.00	1074.01	85.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.595	1/0	78006	18	>100:1	Target = 4.69		100.00	99.823		
463 > 169	56	3.603	3.595		17486	16	>100:1	4.46 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	1	419794	18	>100:1			1000.00	1013.53	98.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.881	3.873	1/0	48171	18	>100:1	Target = 40.85		100.00	101.48		
498>478	55	3.873	3.873		808	12	7.5:1	59.61 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	1	156812	18	>100:1			5000.00	4996.33	102.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.942	3.934	1/0	5787	17	46:1	Target = 1.58		95.800	103.86		M
527 > 81	65	3.934	3.934		3483	14	10:1	1.66 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.528	1/0	6110	19	45:1	Target = 2.46		96.400	109.24		
627 > 80	65	4.528	4.528		2822	27	34:1	2.16 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.942	1	778169	17	>100:1			1000.00	1078.09	99.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.942	3.942	1/0	69027	18	>100:1	Target = 9.77		100.00	86.448		
513 > 169	51	3.934	3.942		8740	14	41:1	7.89 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.098	4.098	1	826453	17	>100:1			5000.00	4660.99	91.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.098	4.098	1/0	14382	26	>100:1	Target = 1.41	9.56	100.00	106.42		
570 > 483	58	4.098	4.098		11910	39	86:1	1.20 (0.70-2.11)	6.07				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.253	4.253	1	727942	16	>100:1			1000.00	1065.14	99.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.253	4.253	1/0	65378	16	>100:1	Target = 9.19		100.00	100.11		
563 > 169	52	4.253	4.253		7010	11	41:1	9.32 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	770061	18	>100:1			5000.00	5149.85	98.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.253	1/0	14885	39	>100:1	Target = 1.75	7.47	100.00	94.552		
584 > 526	60	4.262	4.253		9955	29	69:1	1.49 (0.87-2.63)	3.80				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	1	139819	22	>100:1			1000.00	1013.28	104.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.297	4.288	1/0	13127	16	53:1			100.00	92.378		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.306	4.306	1	69516	14	>100:1			1000.00	992.79	95.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/0	8057	14	76:1	Target = 1.11		100.00	111.92		
512 > 219	57	4.306	4.306		6012	13	29:1	1.34 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.448	4.448	1	123723	15	>100:1			1000.00	962.42	95.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/0	11793	18	92:1			100.00	111.98		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	1	63307	16	>100:1			1000.00	982.95	96.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/0	8104	12	86:1	Target = 1.06		100.00	109.49		
526 > 219	59	4.477	4.470		8730	15	98:1	0.92 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.521	1	711560	17	>100:1			1000.00	1034.78	95.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.521	1/0	70698	18	99:1	Target = 6.38		100.00	101.17		
613 > 169	38	4.521	4.521		10560	17	>100:1	6.69 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.761	4.760	1/0	36599	18	>100:1	Target = 3.23		100.00	95.978		
663 > 169	38	4.761	4.760		12973	19	>100:1	2.82 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	843513	25	>100:1			1000.00	1079.00	93.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.978	1/1	71369	24	>100:1	Target = 7.33		100.00	96.277		
713 > 169	42	4.973	4.978		10238	20	>100:1	6.97 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	393131	20	>100:1			1000.00	1007.05	97.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	81254	19	>100:1	Target = 12.31		100.00	108.05		
813 > 269	40	5.372	5.372		6771	21	>100:1	12.00 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	1/1	58364	20	>100:1	Target = 165.31		100.00	98.338		
913 > 319	40	5.761	5.761		401	25	71:1	145.54 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.942	3.942	1	797631	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.467	2.467	1	916916	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.229	3.223	1	889973	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	1108930	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.595	1	267187	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

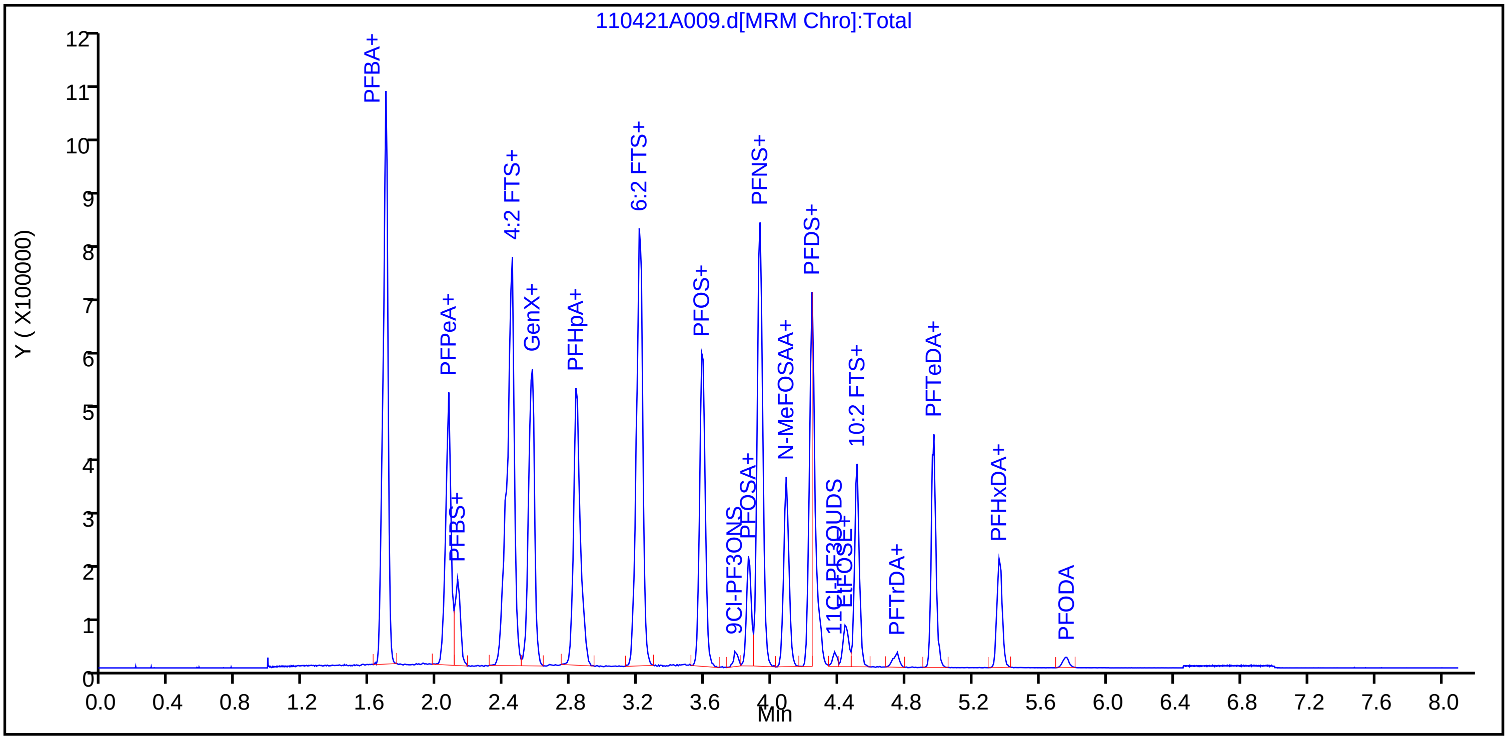
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

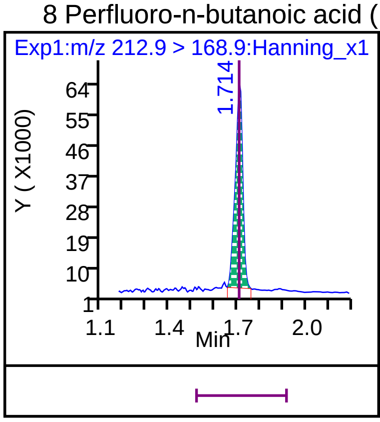
Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

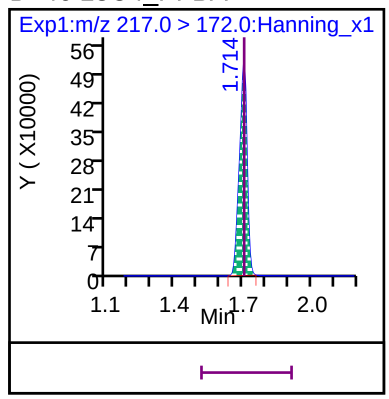
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d		
Injection Date:	04-Nov-2021 13:58:59	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1724
Sample Info:	ICAL 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller



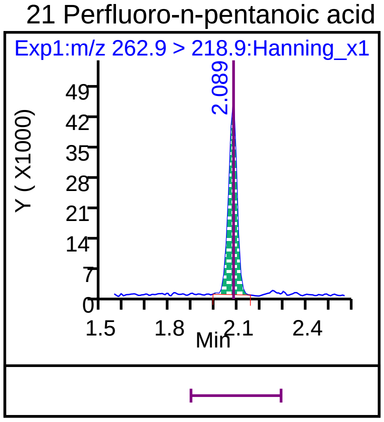
8 Perfluoro-n-butanoic acid (PFBA)



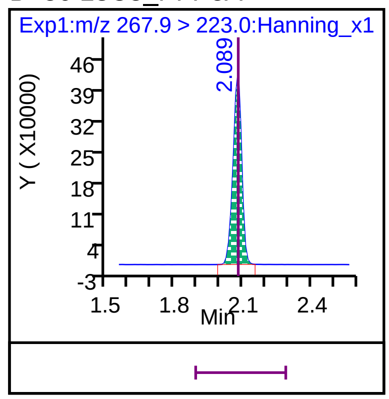
D 46 13C4_PFBA



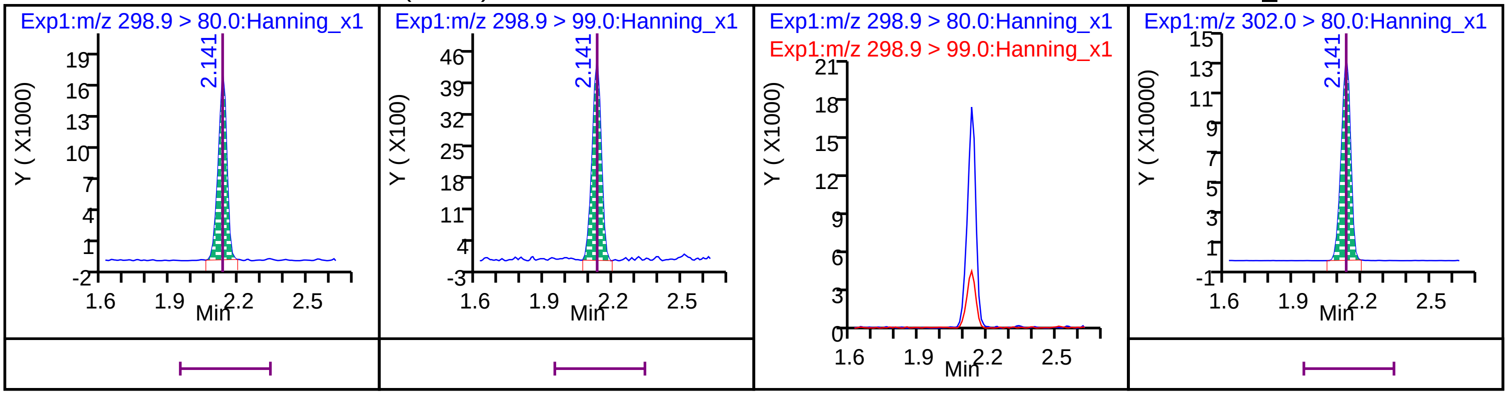
21 Perfluoro-n-pentanoic acid (PFPeA)



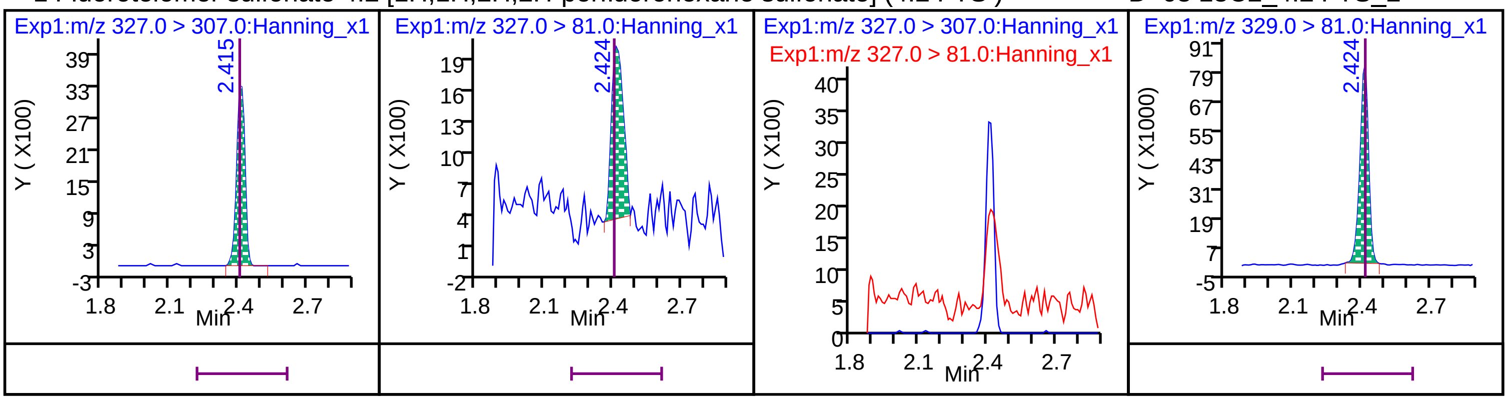
D 50 13C5_PFPeA



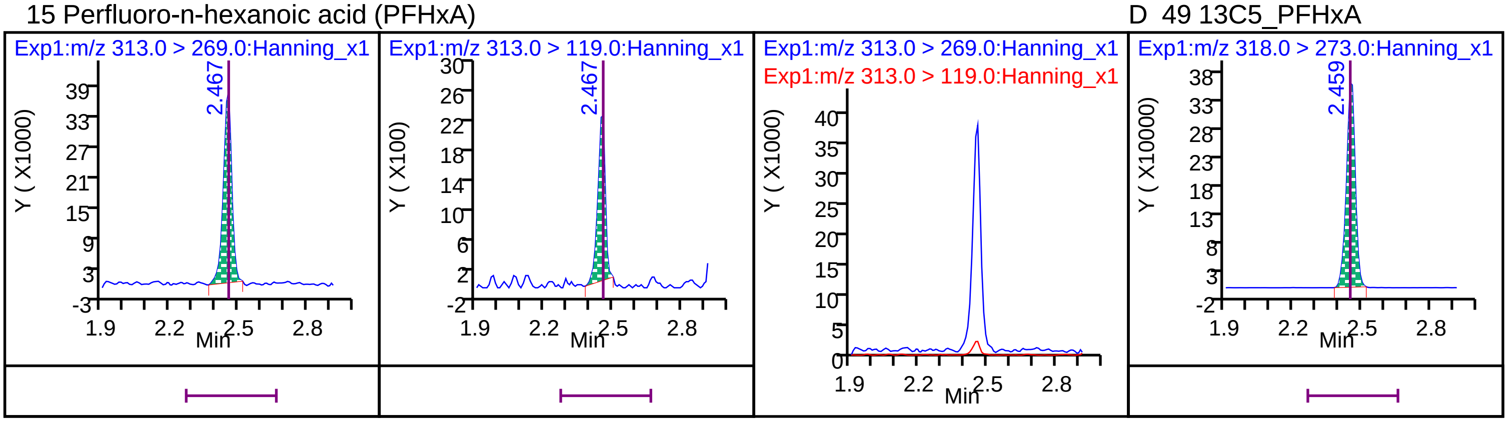
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



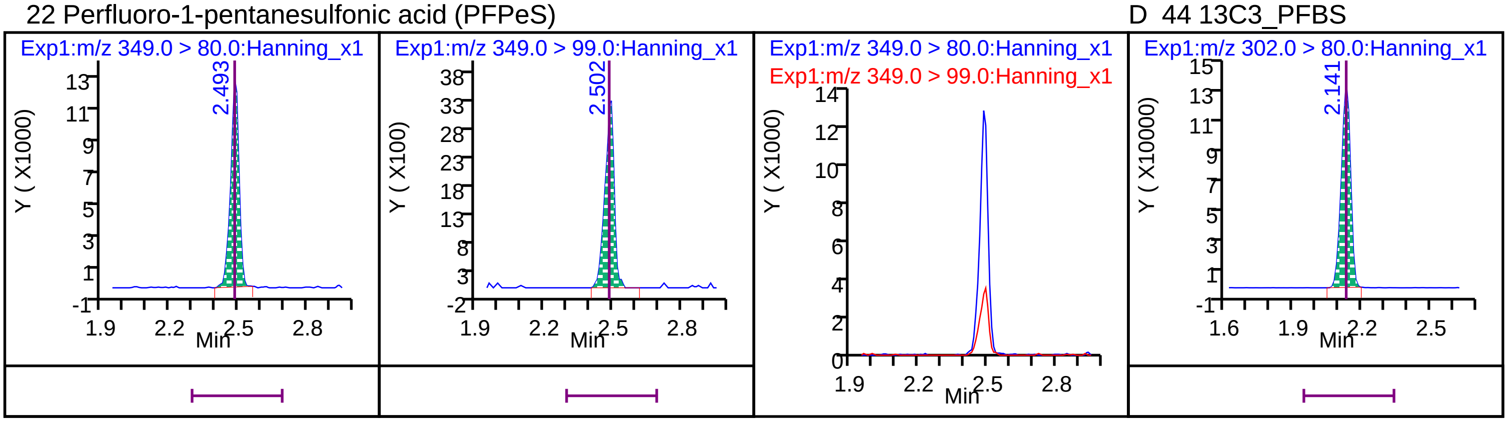
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

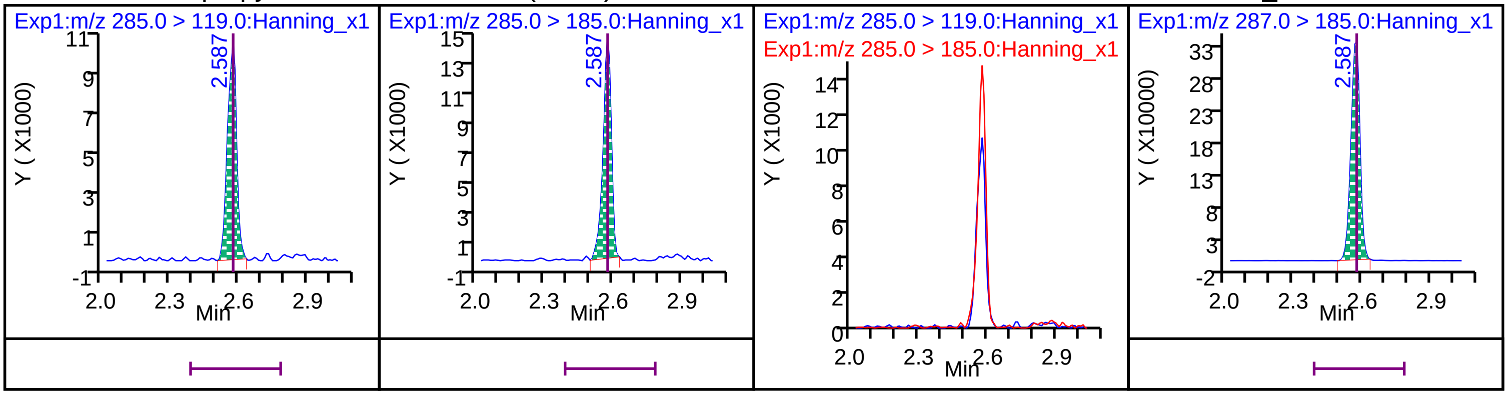


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

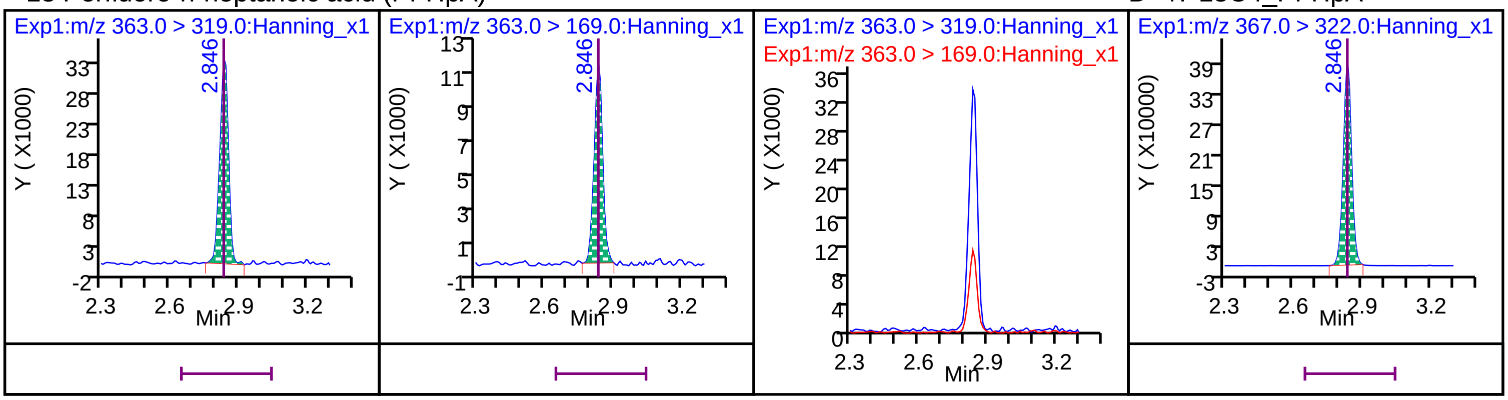


Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d

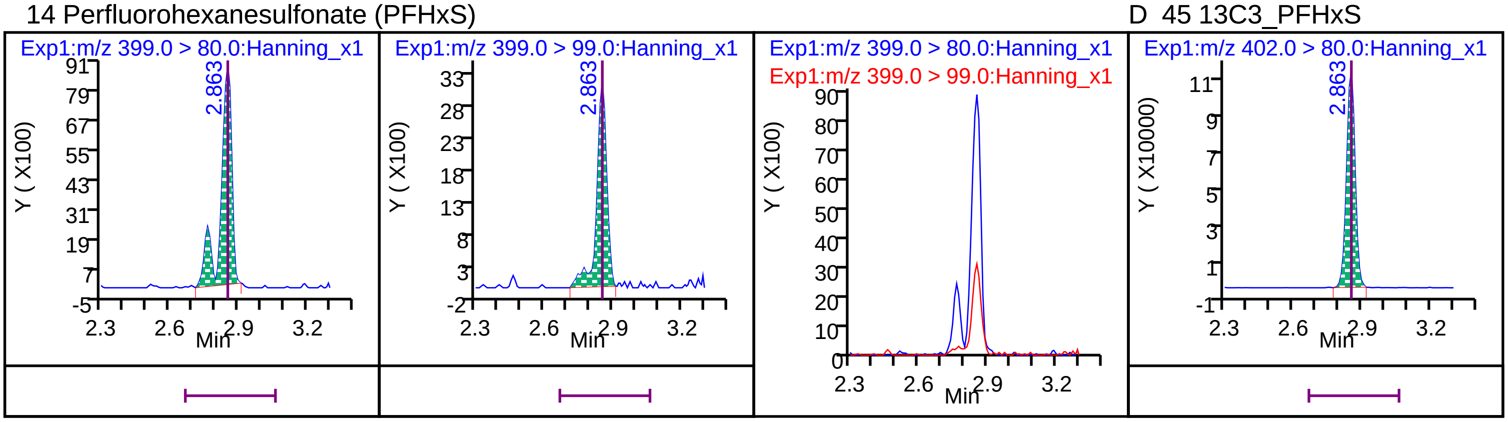
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



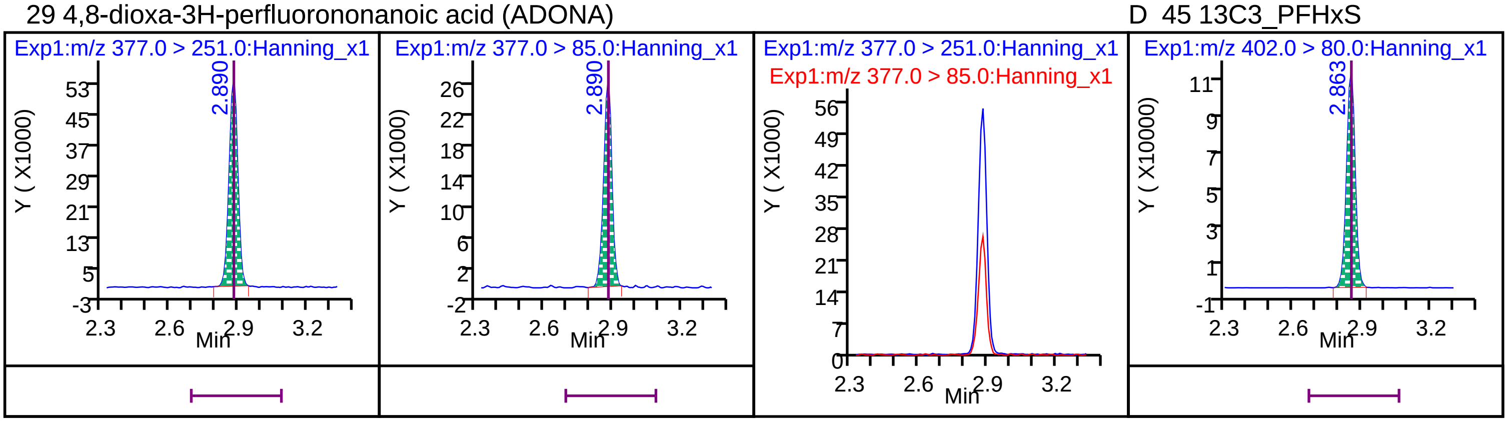
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



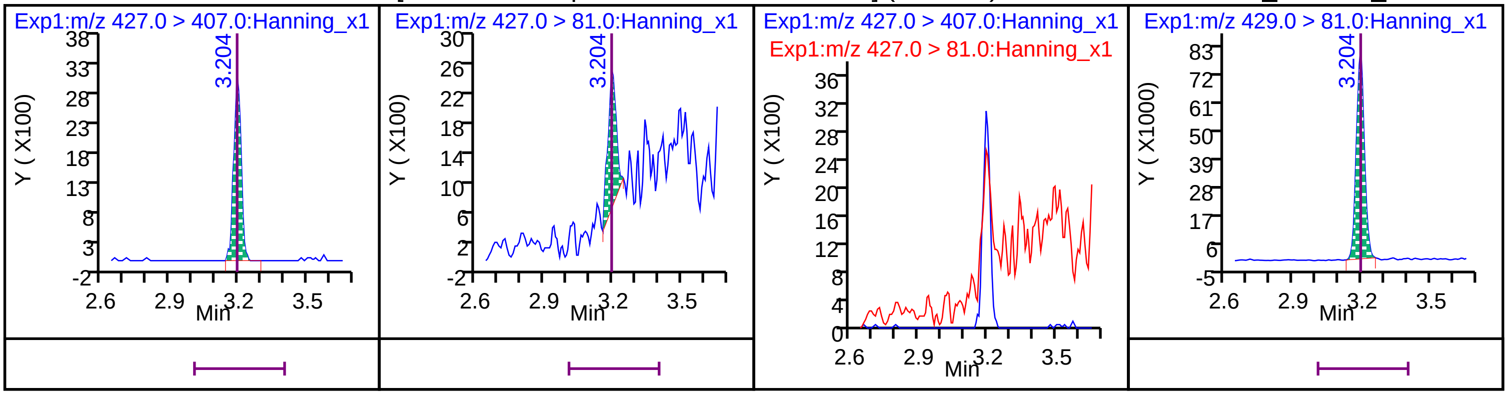
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



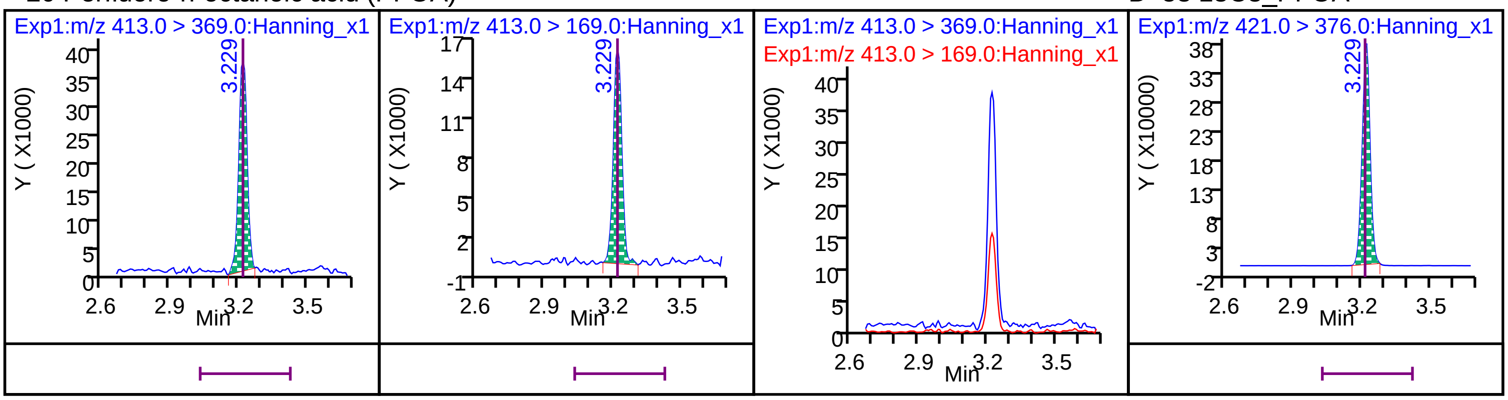
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



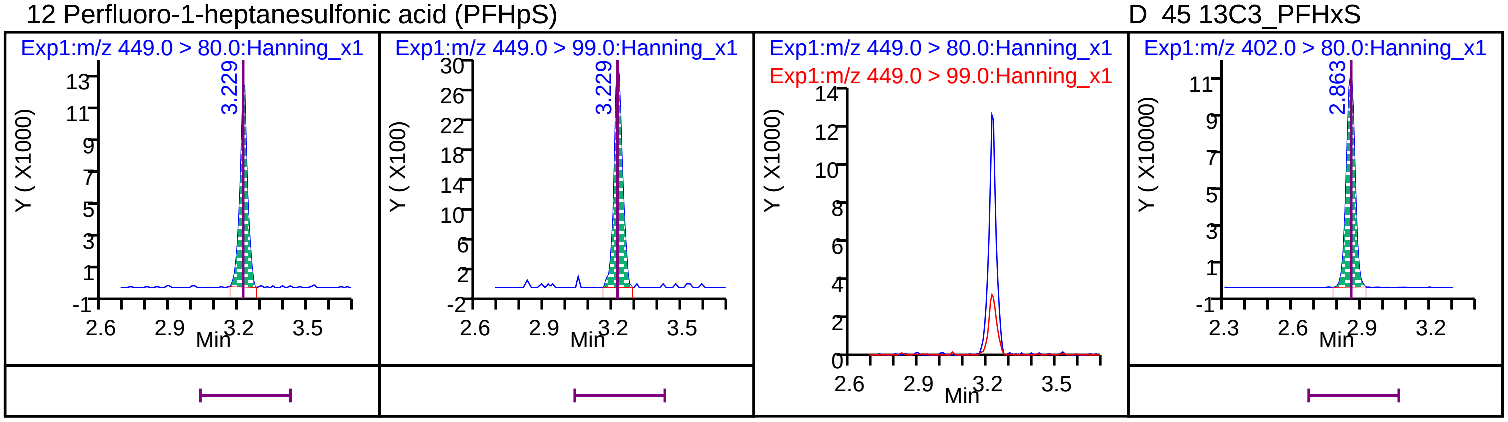
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



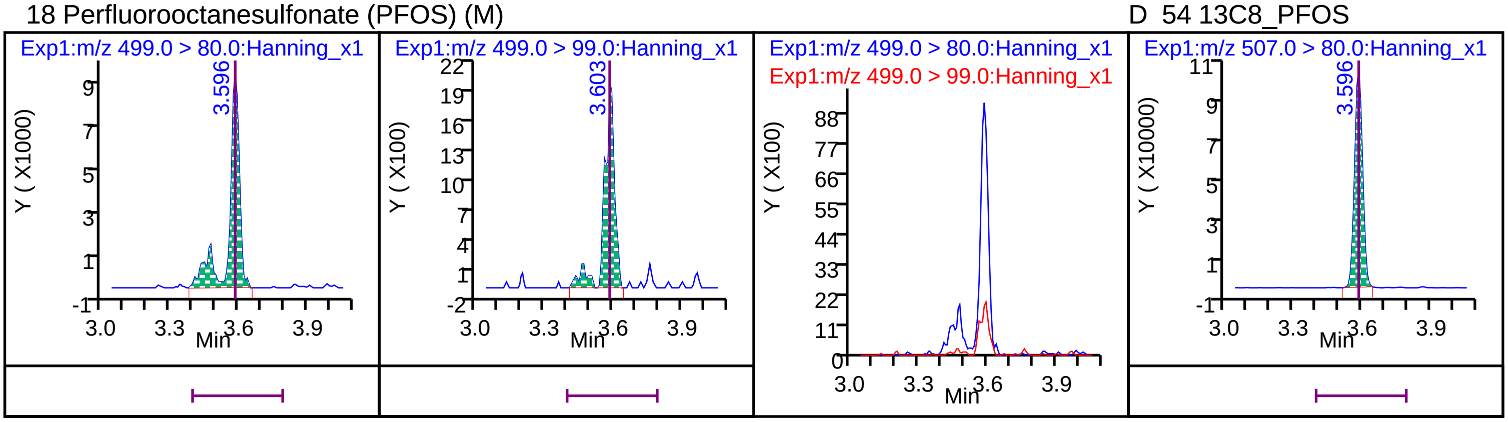
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

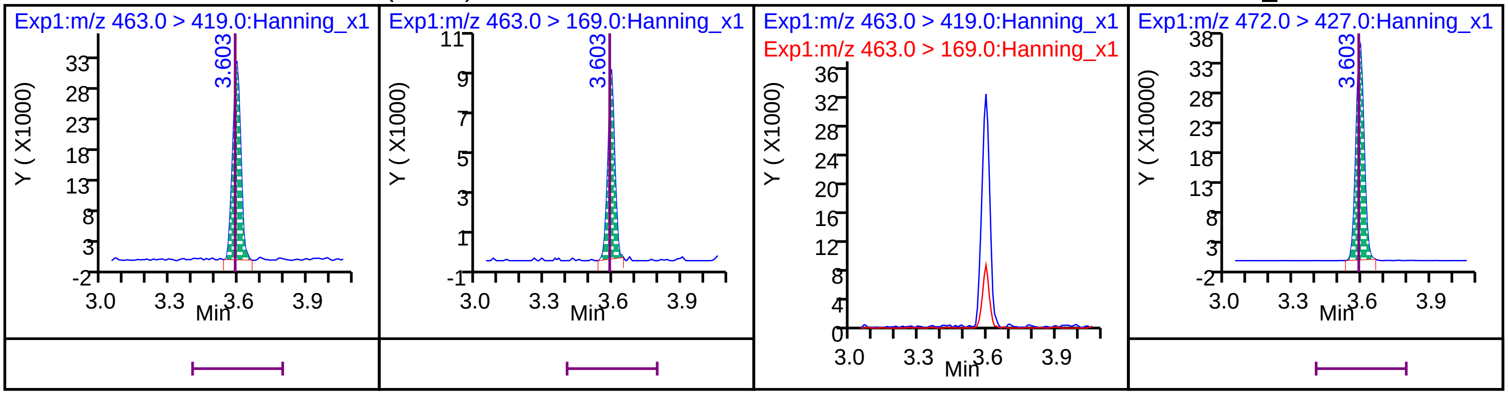


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

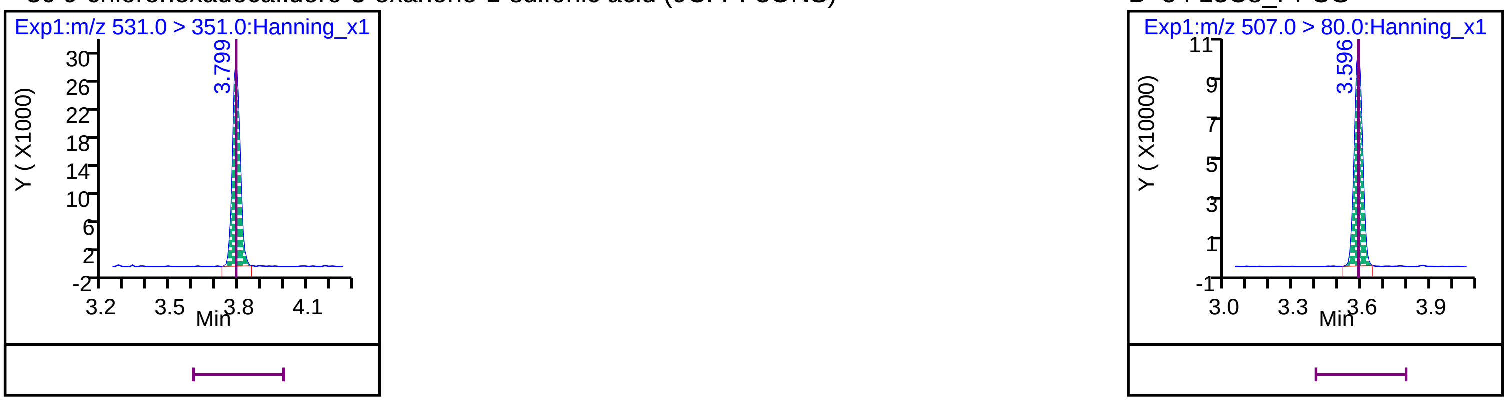


Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d

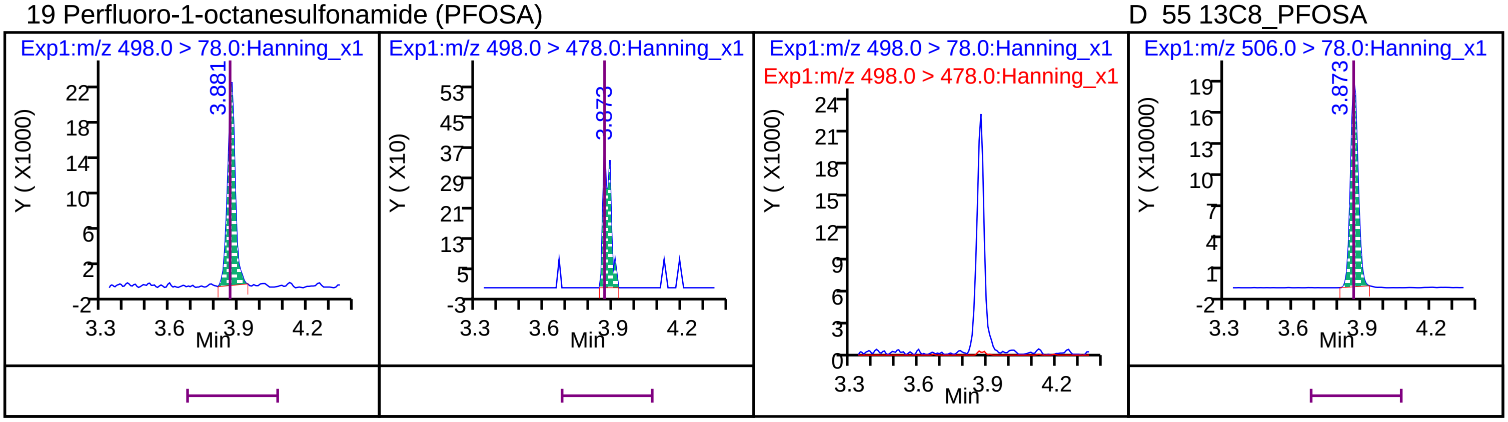
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



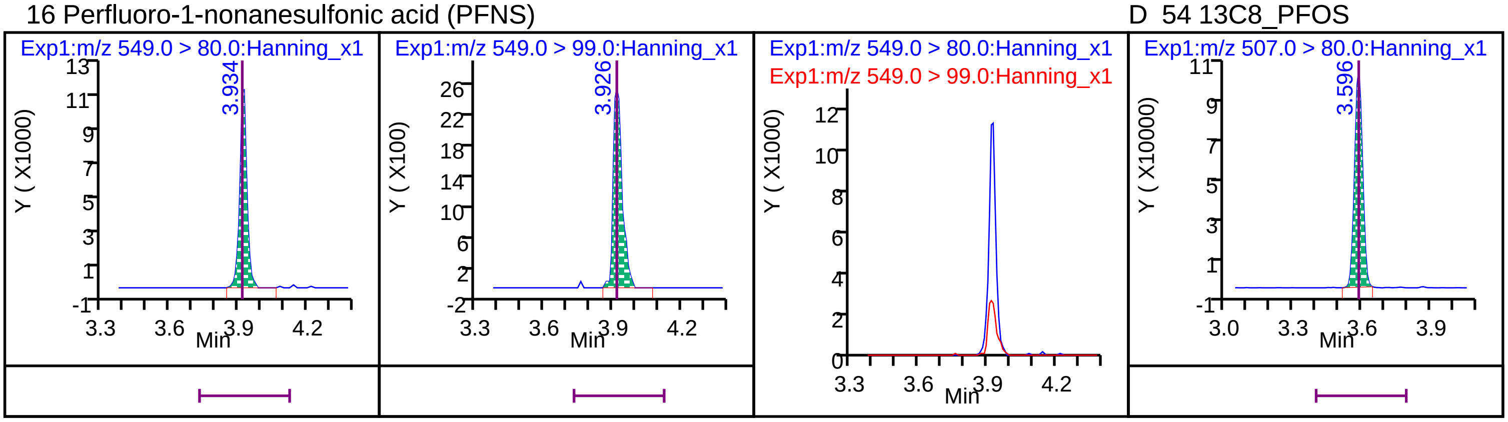
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



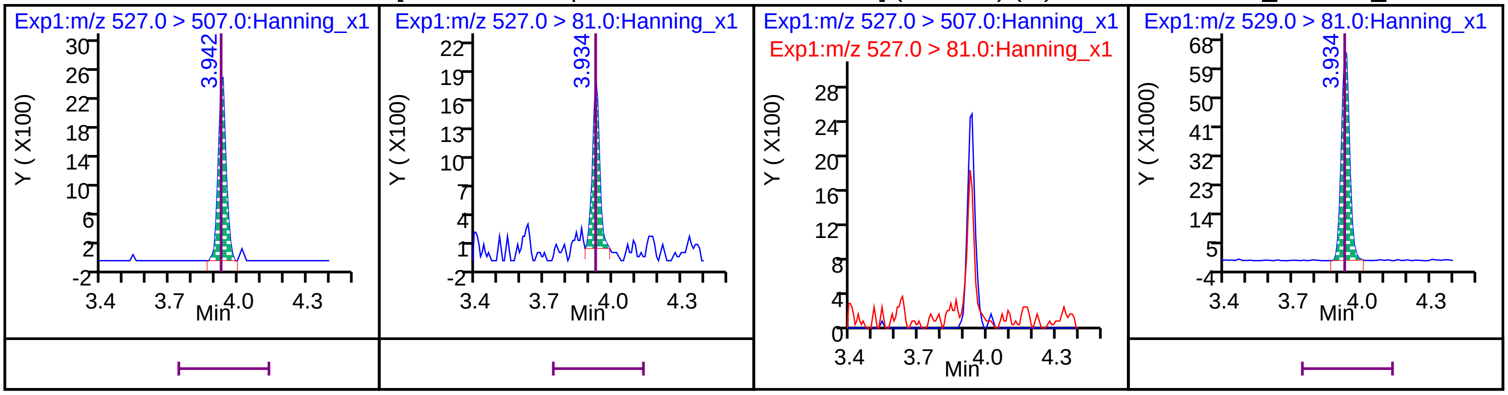
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



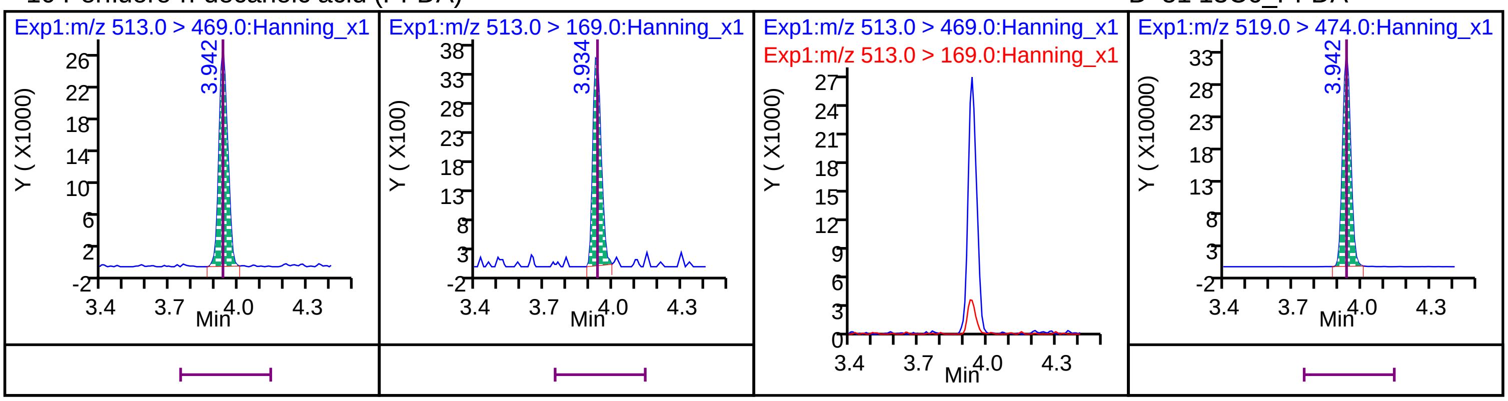
Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d

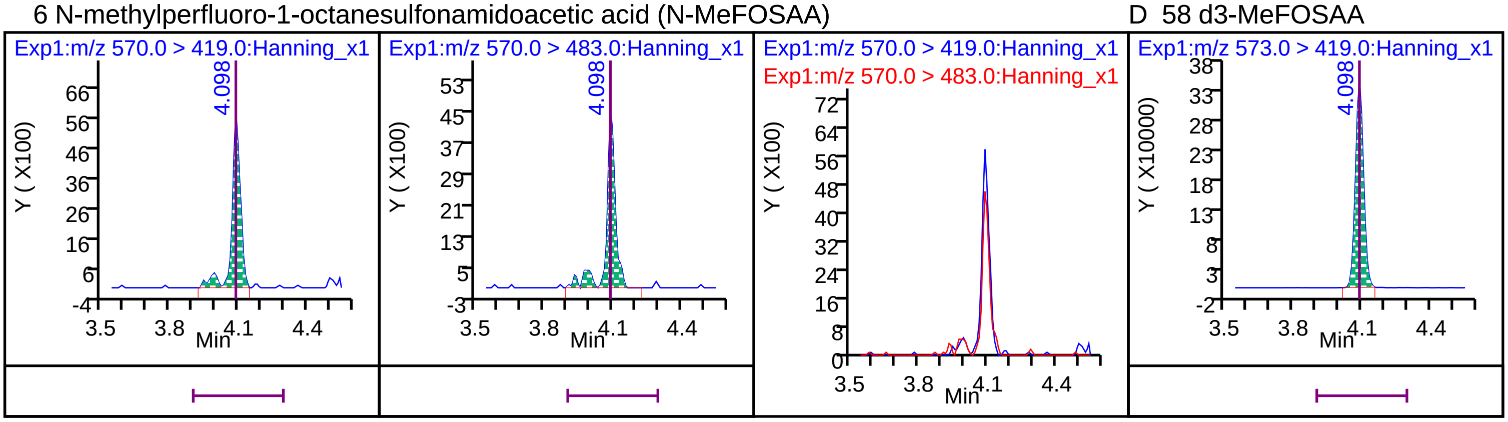
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



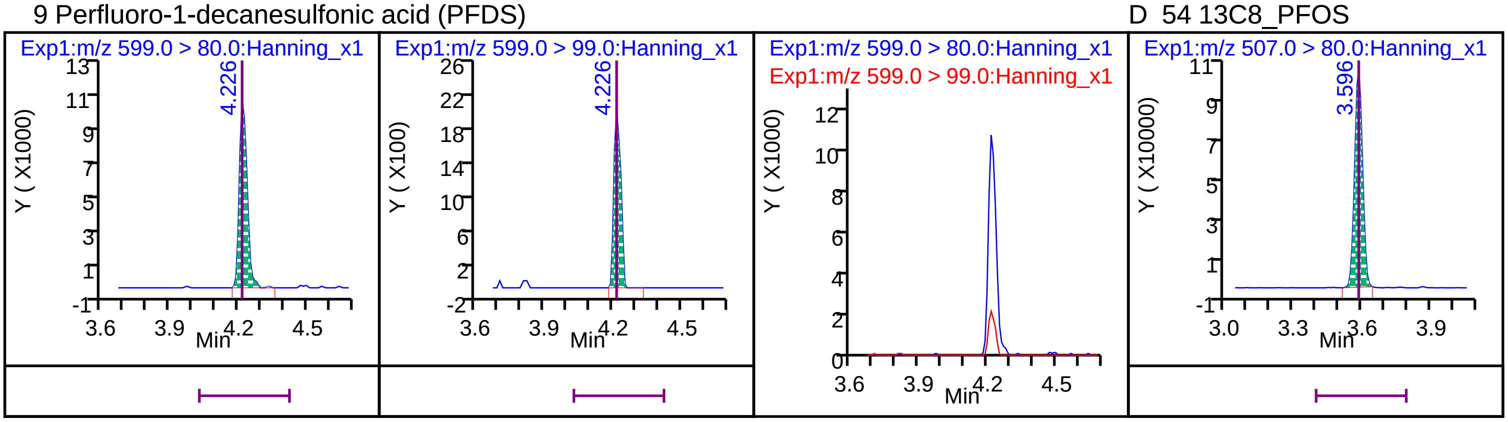
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



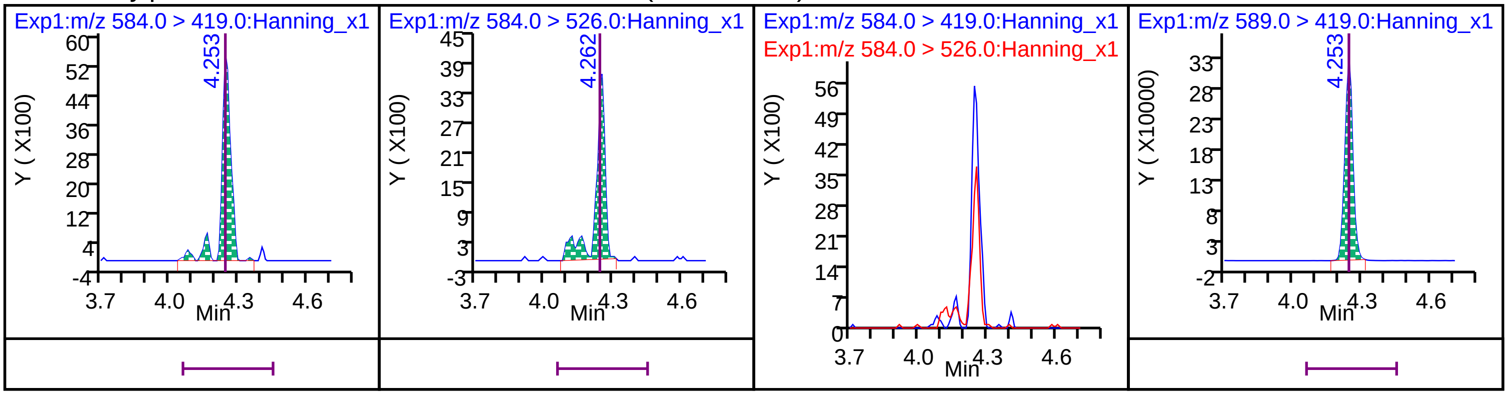
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



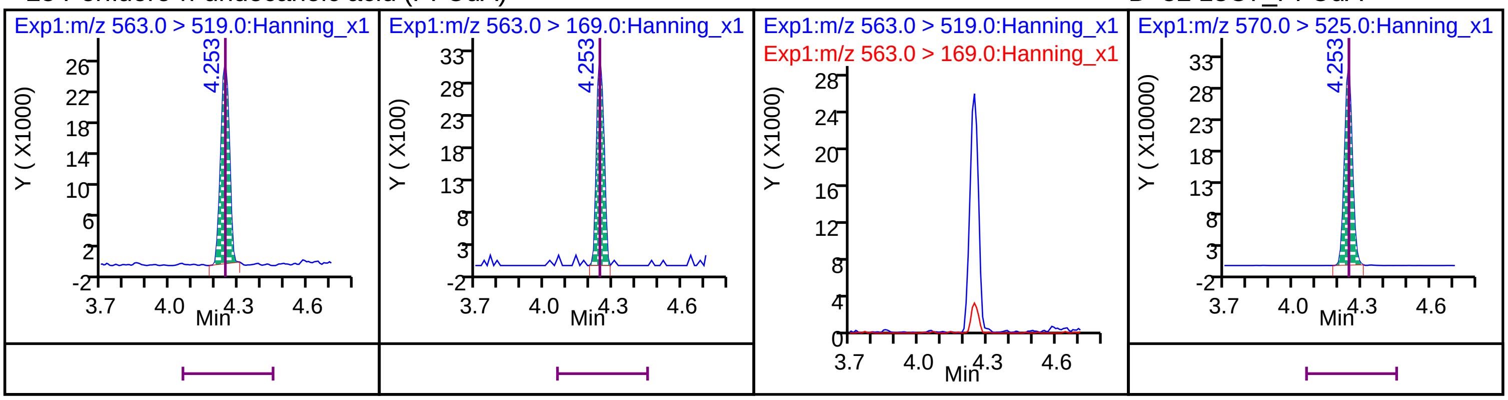
Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d

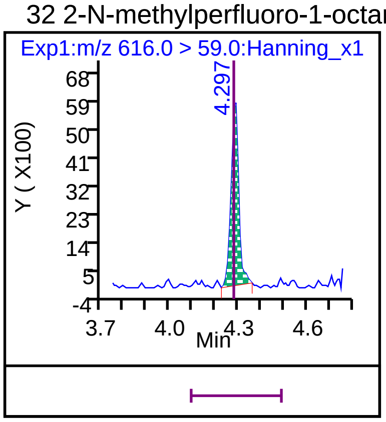
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

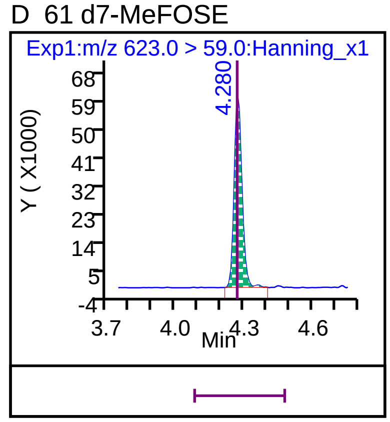


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

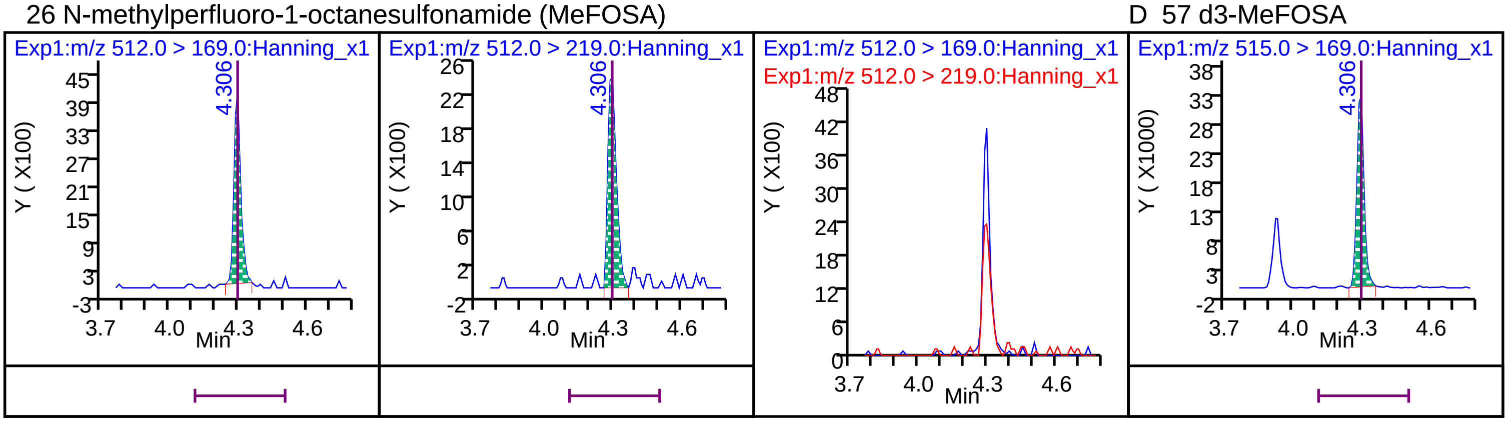


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

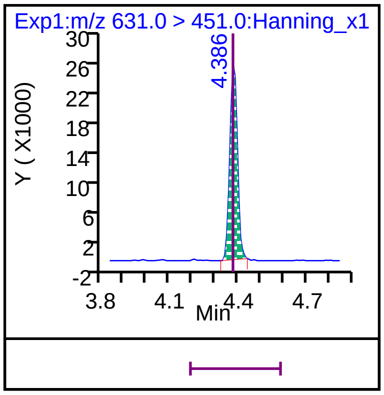




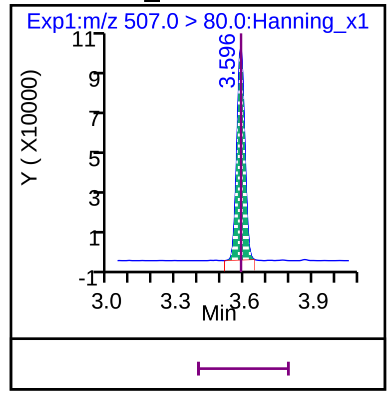
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



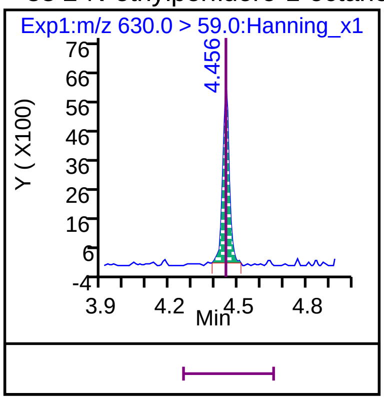
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



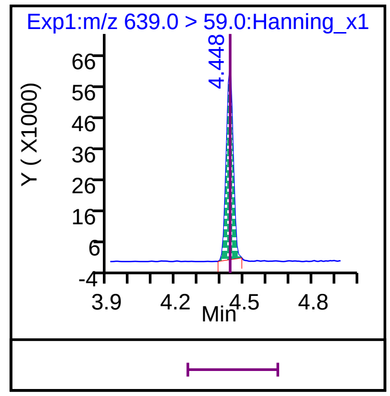
D 54 13C8_PFOS



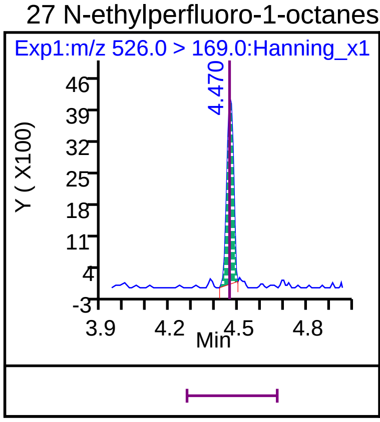
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

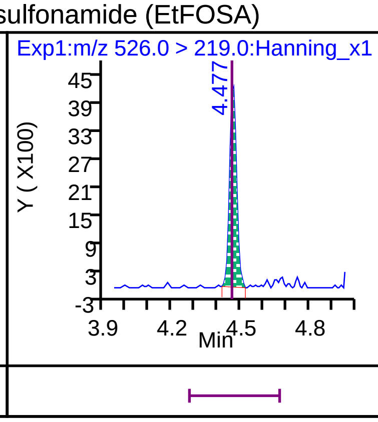


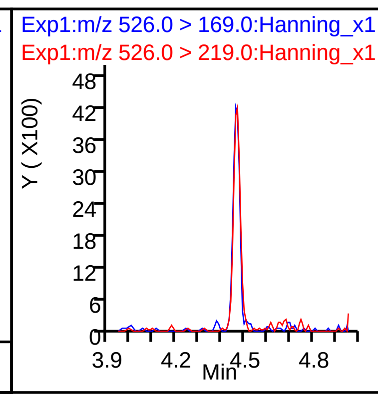
D 62 d9-EtFOSE



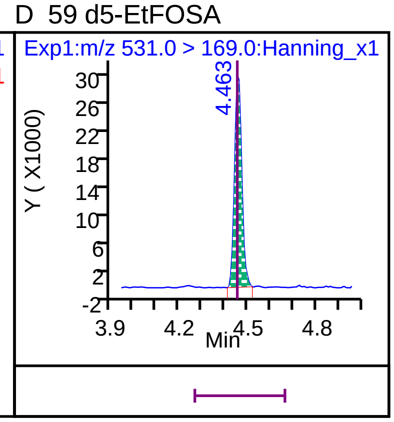
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



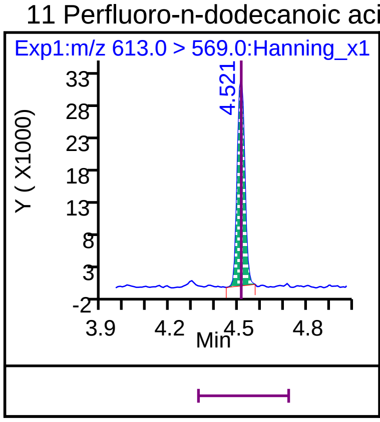


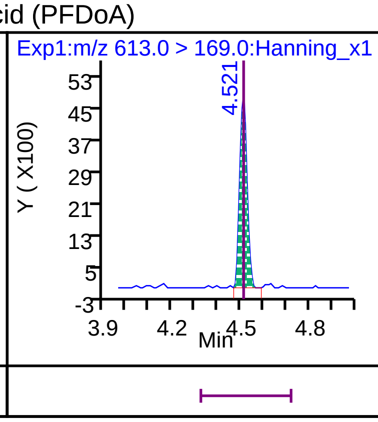


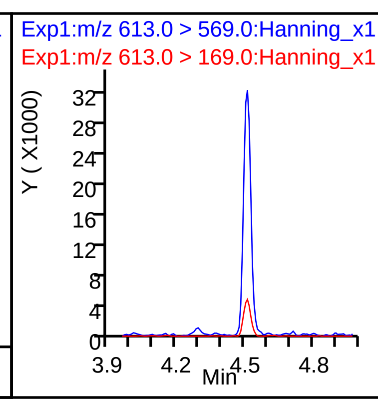
D 59 d5-EtFOSA



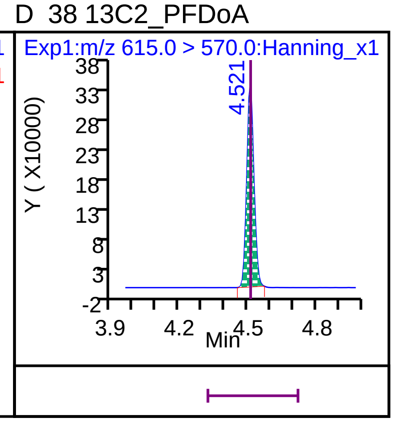
11 Perfluoro-n-dodecanoic acid (PFDoA)





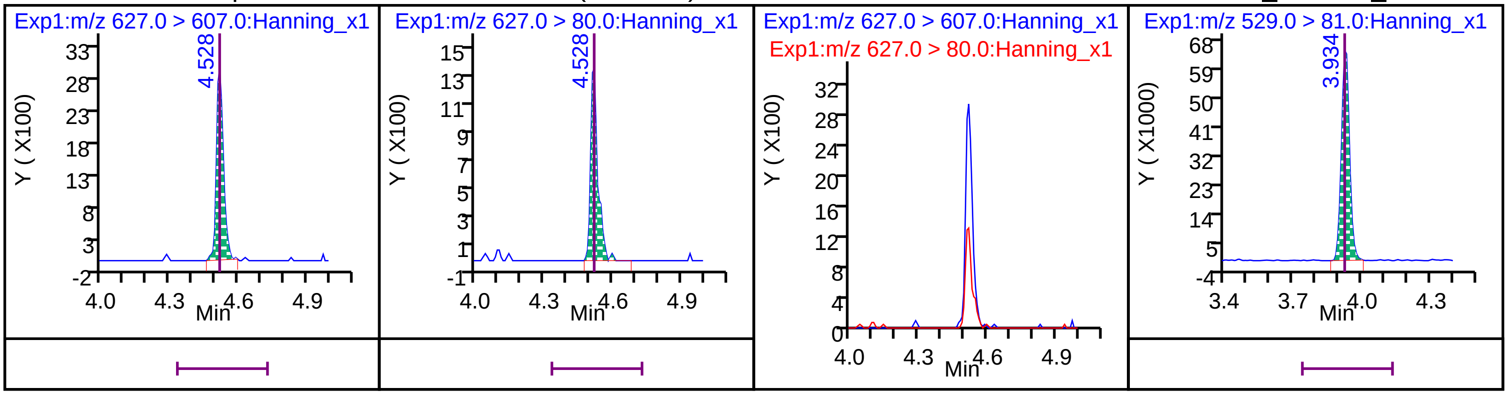


D 38 13C2_PFDoA

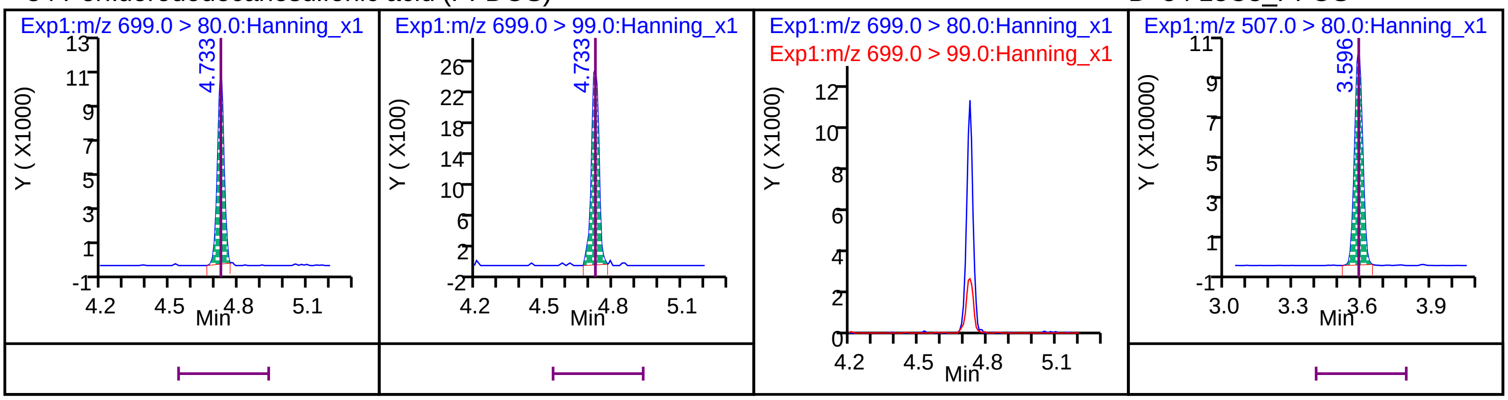


Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d

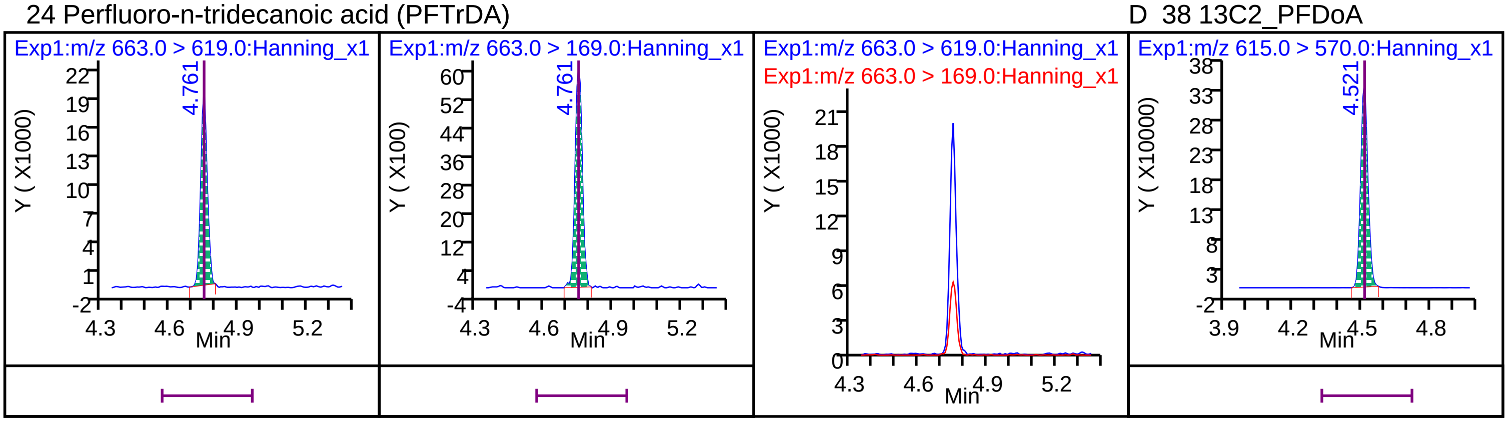
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



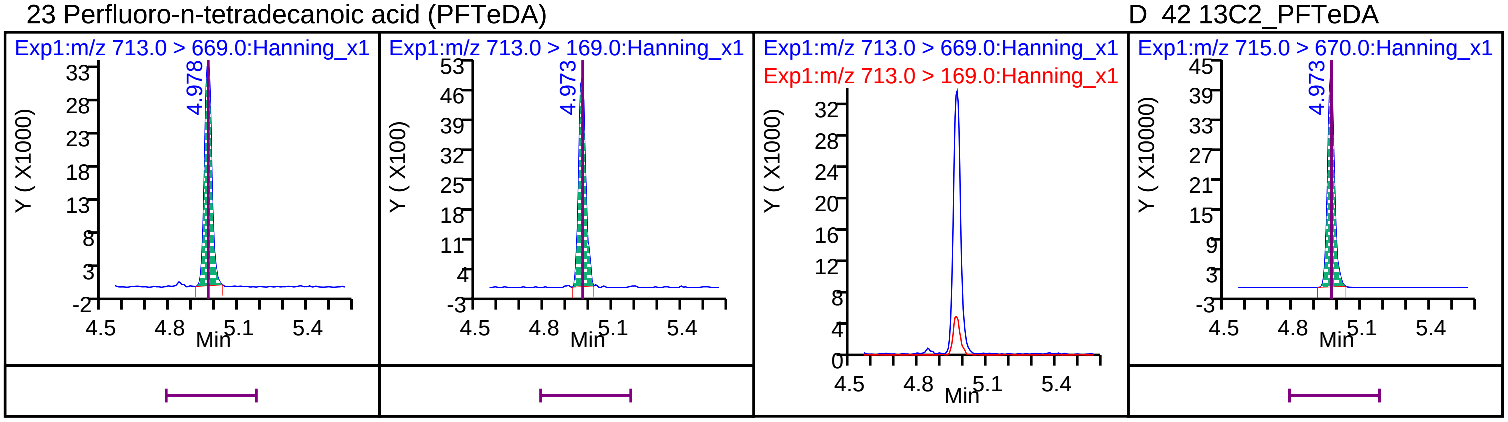
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



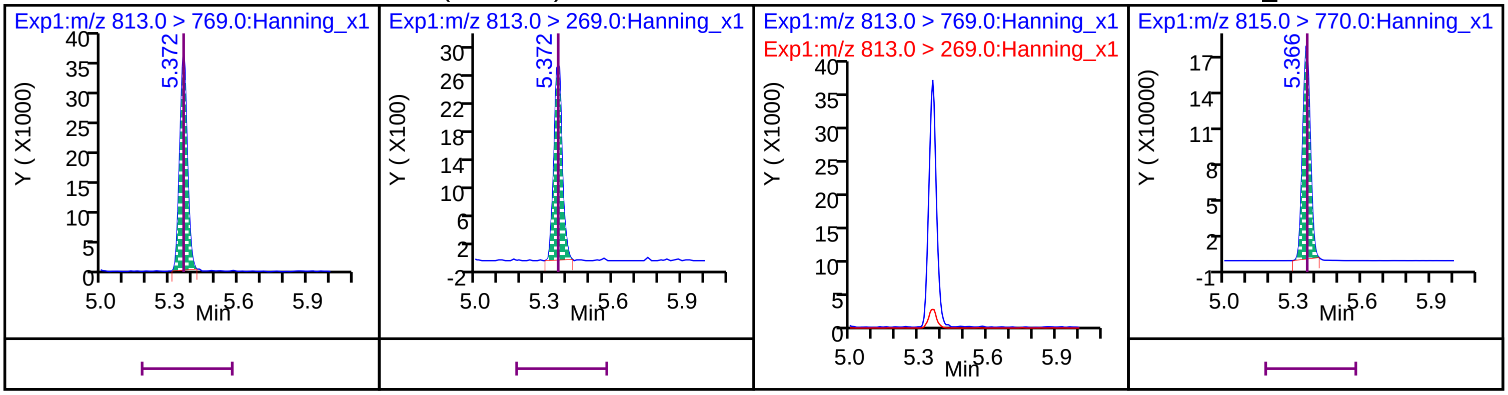
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



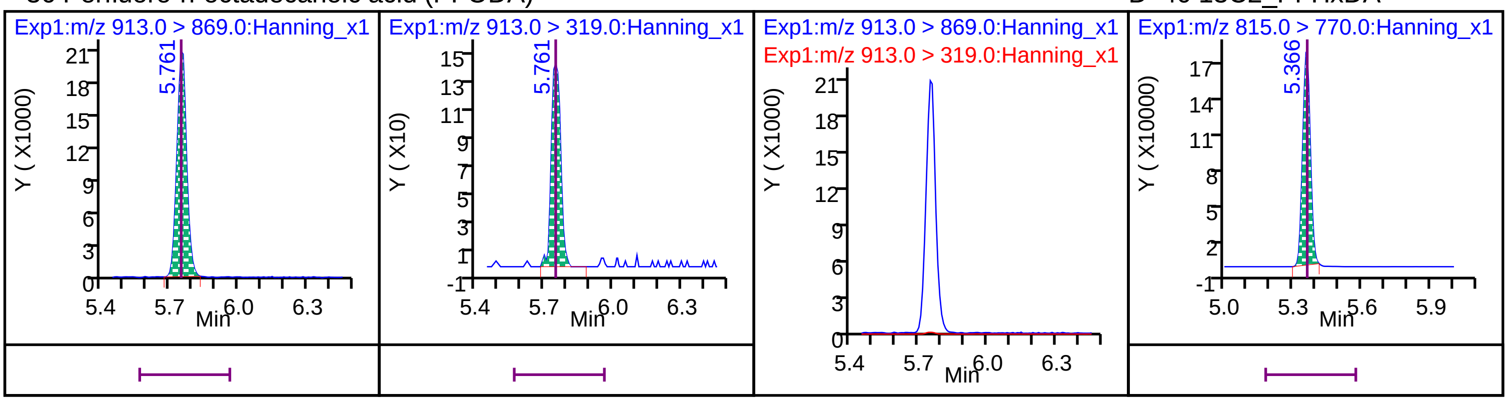
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



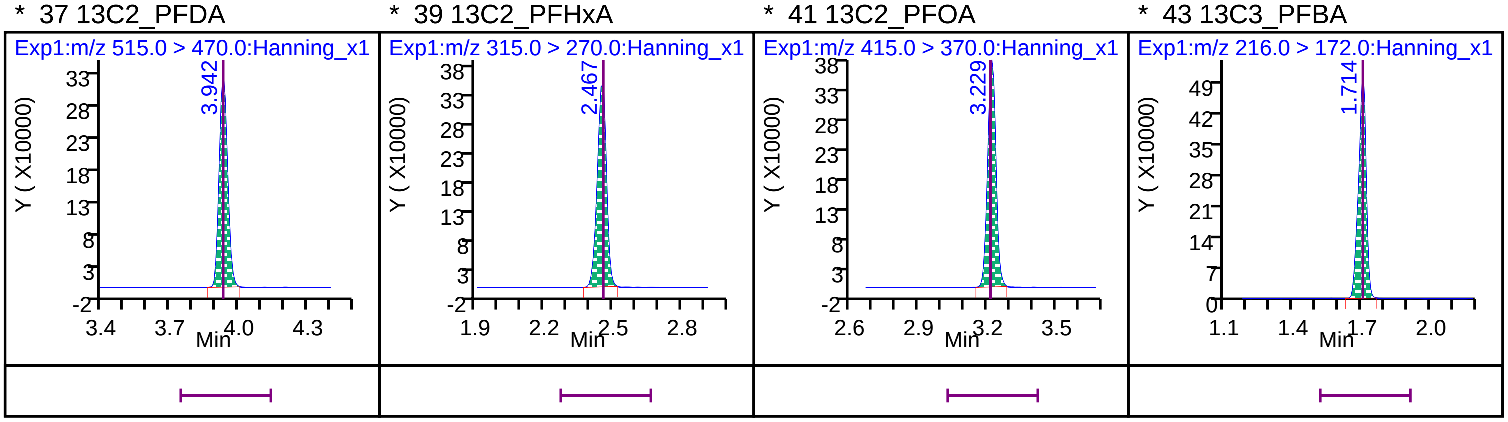
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



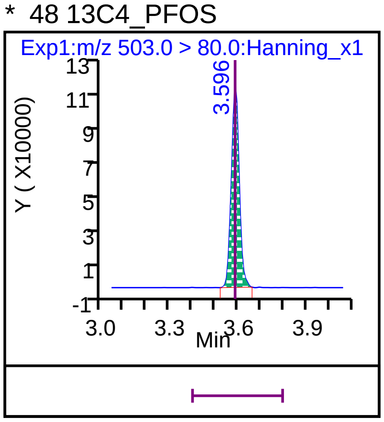
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

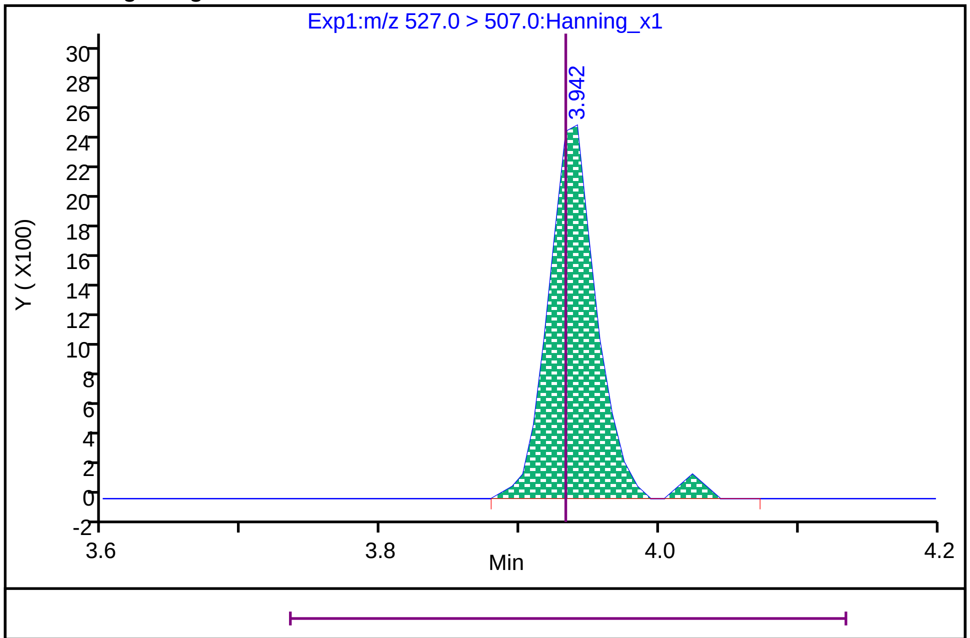
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d		
Injection Date:	04-Nov-2021 13:58:59	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1724
Sample Info:	ICAL 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

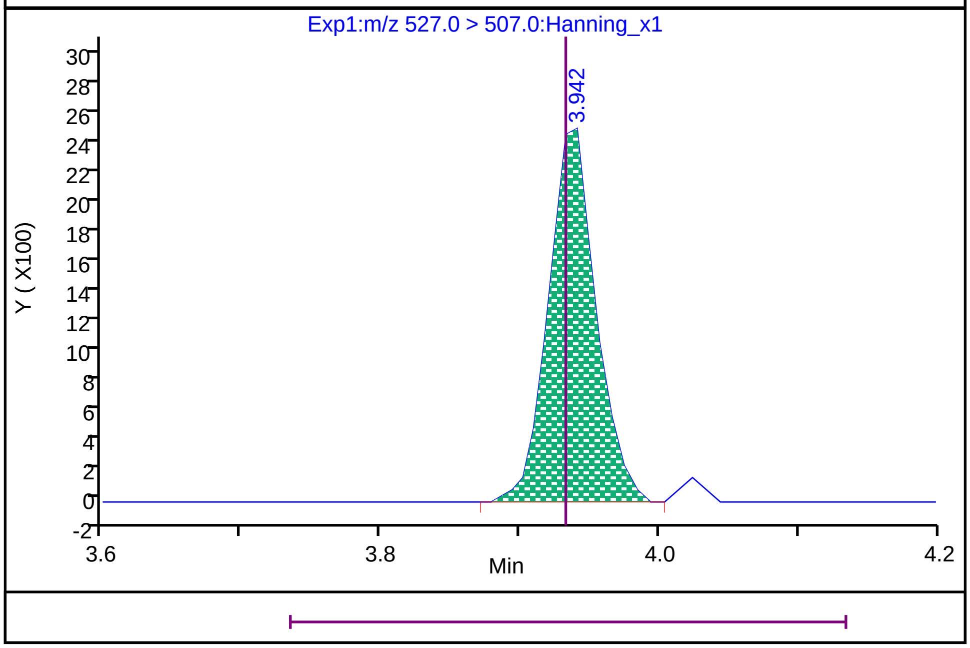
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT: 3.942
Area: 5975
Amount: 106.86
Amount Units: ng/L



RT: 3.942
Area: 5787
Amount: 103.86
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:35:45

Audit Action: Mint

Audit Reason: Assign Peak

Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

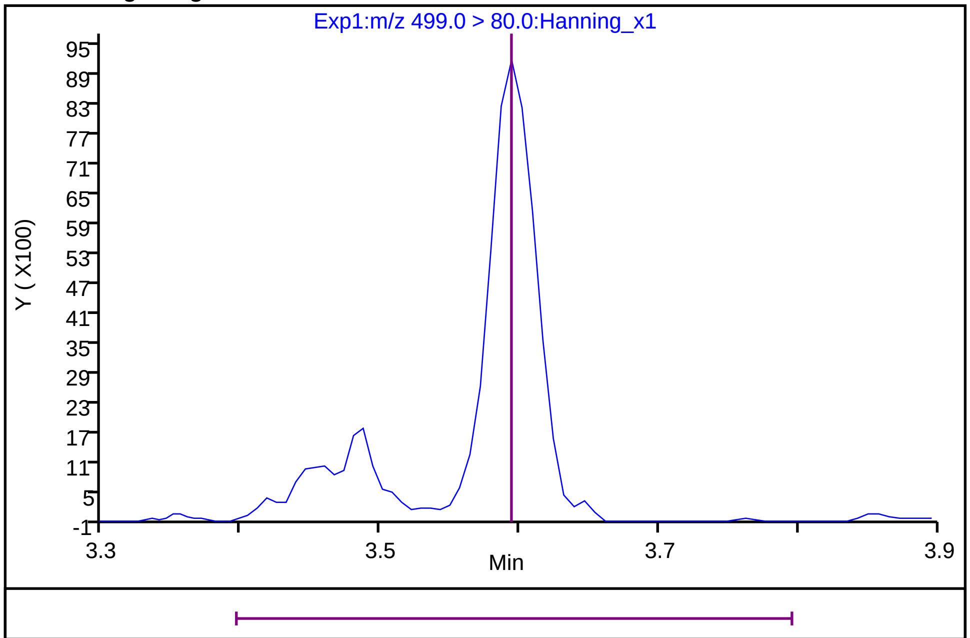
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d		
Injection Date:	04-Nov-2021 13:58:59	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1724
Sample Info:	ICAL 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

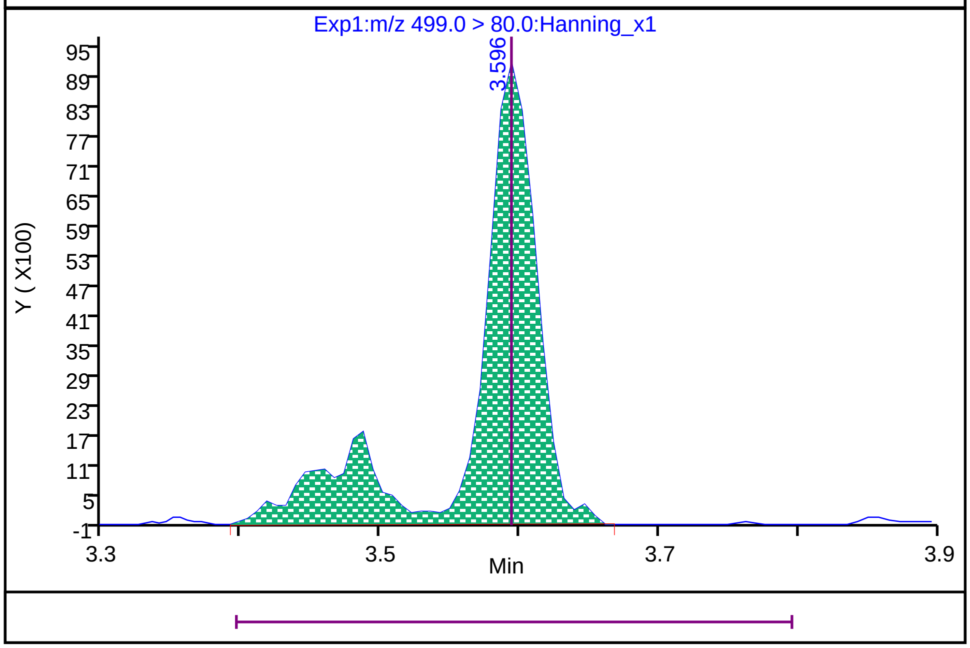
18 PFOS, CAS: 1763-23-1

Processing Integration Results

Not Detected
Expected RT: 3.595
RT Window: 3.395-3.795



RT: 3.596
Area: 27754
Amount: 97.719
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:35:18
Audit Action: Mint
Audit Reason: Assign Peak

Report Date: 05-Nov-2021 13:58:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A009.d		
Injection Date:	04-Nov-2021 13:58:59	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1724
Sample Info:	ICAL 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

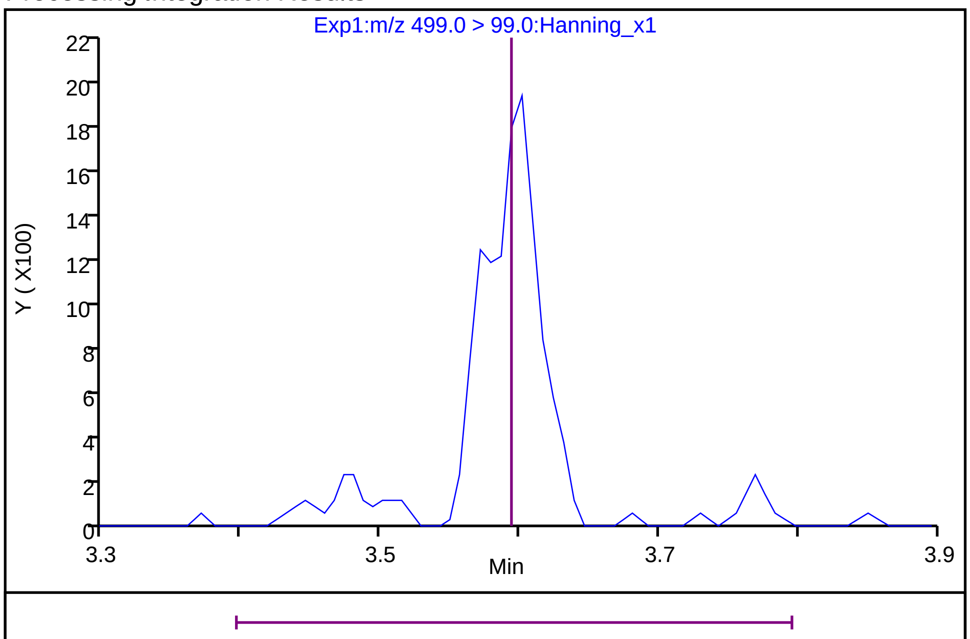
18 PFOS, CAS: 1763-23-1

Processing Integration Results

Not Detected

Expected RT: 3.595

RT Window: 3.395-3.795

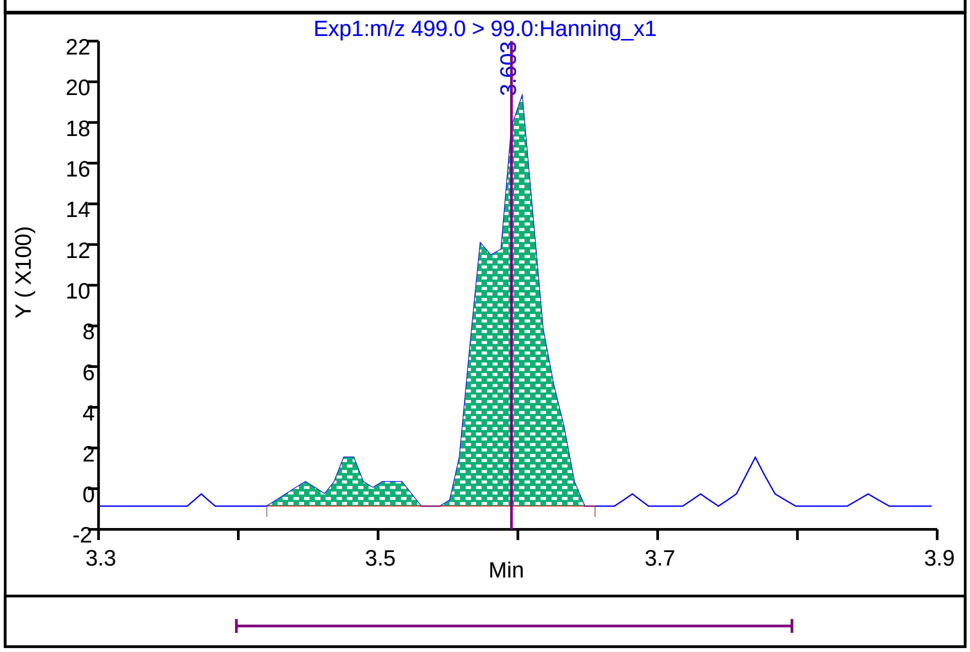


RT: 3.603

Area: 5836

Amount: 97.719

Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:35:21

Audit Action: Mint

Audit Reason: Assign Peak

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A010.d		
Injection Date:	04-Nov-2021 14:09:39	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	79
Sample Info:	ICAL 200_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1147912	19	>100:1			1000.00	1066.10	96.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.721	1.714	1/0	246603	19	>100:1			200.00	195.33		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1063870	16	>100:1			1000.00	1060.78	97.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	216435	15	>100:1			200.00	189.88		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	349999	15	>100:1			1000.00	1077.68	96.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	92112	15	>100:1	Target = 3.80		176.80	184.22		
298.9 > 99	44	2.141	2.141		25133	15	>100:1	3.66 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.502	2.493	1/0	61104	16	>100:1	Target = 3.42		187.60	173.51		
349 > 99	44	2.493	2.493		18447	17	>100:1	3.31 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	201158	19	>100:1			5000.00	4842.87	92.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.433	2.415	2/1	14575	25		Target = 1.54		186.80	185.62		
327 > 81	63	2.424	2.415		10973	15	9.8:1	1.32 (0.77-2.32)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.467	2.459	1	918177	20	>100:1			1000.00	1027.93	89.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/0	194588	18	>100:1	Target = 17.93		200.00	205.10		
313 > 119	49	2.467	2.467		9459	18	71:1	20.57 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	839624	18	>100:1			5000.00	5125.31	95.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/0	51580	19	>100:1	Target = 0.72		400.00	400.90		
285 > 185	66	2.587	2.587		66110	19	>100:1	0.78 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	896963	18	>100:1			1000.00	1023.70	91	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.855	2.846	1/0	169974	17	>100:1	Target = 3.26		200.00	196.85		
363 > 169	47	2.846	2.846		51477	17	>100:1	3.30 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	289783	19	>100:1			1000.00	1104.86	97.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	54081	27	>100:1	Target = 3.48	6.76	182.00	157.87		
399 > 99	45	2.863	2.863		16284	26	90:1	3.32 (1.74-5.22)	6.84				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	278384	20	>100:1	Target = 2.31		188.40	174.53		
377 > 85	45	2.890	2.890		122008	19	>100:1	2.28 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.236	3.229	1/0	50117	19	>100:1	Target = 3.56		190.40	168.15		
449 > 99	45	3.236	3.229		13364	24	>100:1	3.75 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	1	184766	21	>100:1			5000.00	4899.51	95	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	0/-1	13713	26	>100:1	Target = 1.34		189.60	213.42		
427 > 81	64	3.191	3.204		10626	25	16:1	1.29 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.229	3.223	1	902722	22	>100:1			1000.00	1091.57	97.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.223	3.229	0/-1	173864	20	>100:1	Target = 2.50		200.00	187.19		
413 > 169	53	3.229	3.229		68707	21	>100:1	2.53 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.595	0	242998	20	>100:1			1000.00	1082.49	98.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.595	1/1	53192	36	>100:1	Target = 4.01	3.87	185.60	185.69		
499 > 99	54	3.596	3.595		13364	35	>100:1	3.98 (2.00-6.02)	8.14				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/1	132125	18	>100:1			186.40	175.94		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.926	3.926	0/0	45832	17	>100:1	Target = 3.78		192.00	186.74		
549 > 99	54	3.926	3.926		12161	16	80:1	3.76 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.235	4.226	1/1	43564	18	>100:1	Target = 3.98		192.80	181.59		
599 > 99	54	4.226	4.226		11728	21	>100:1	3.71 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/1	120589	14	>100:1			188.40	178.64		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.727	4.733	0/0	41301	20	>100:1	Target = 3.68		193.60	175.50		
699 > 99	54	4.733	4.733		11641	24	>100:1	3.54 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.595	1	825815	20	>100:1			1000.00	1033.54	82.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.595	0/-1	142722	19	>100:1	Target = 4.69		200.00	189.79		
463 > 169	56	3.603	3.595		31687	18	>100:1	4.50 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	436148	17	>100:1			1000.00	1053.01	101.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.873	0/0	95495	20	>100:1	Target = 40.85		200.00	193.64		
498>478	55	3.873	3.873		2628	18		36.33 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	0	158459	19	>100:1			5000.00	5048.80	103.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.934	3.934	0/0	13129	17	>100:1	Target = 1.58		191.60	233.18		
527 > 81	65	3.934	3.934		7721	15	23:1	1.70 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.535	4.528	1/1	11961	24	>100:1	Target = 2.46		192.80	211.63		
627 > 80	65	4.535	4.528		4191	15	75:1	2.85 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.942	1	773204	18	>100:1			1000.00	1071.21	98.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.943	3.942	0/-1	150393	19	>100:1	Target = 9.77		200.00	189.56		
513 > 169	51	3.943	3.942		16524	18	60:1	9.10 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.099	4.098	1	884576	17	>100:1			5000.00	4988.79	98	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.099	4.098	1/0	30890	35	>100:1	Target = 1.41	8.27	200.00	213.55		M
570 > 483	58	4.107	4.098		20328	31	>100:1	1.51 (0.70-2.11)	2.74				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.253	4.253	1	764049	16	>100:1			1000.00	1117.97	104.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.253	4.253	1/0	127910	15	>100:1	Target = 9.19		200.00	186.61		
563 > 169	52	4.253	4.253		12748	21	62:1	10.03 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	807998	17	>100:1			5000.00	5403.56	103.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.253	0/-1	32894	31		Target = 1.75	5.48	200.00	199.14		
584 > 526	60	4.262	4.253		16612	37	>100:1	1.98 (0.87-2.63)	3.93				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	0	136715	14	>100:1			1000.00	990.79	102.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.288	0/0	30698	14	>100:1			200.00	220.93		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.297	4.306	0	66215	14	>100:1			1000.00	945.65	91.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/1	13414	13	>100:1	Target = 1.11		200.00	195.63		
512 > 219	57	4.306	4.306		12888	17	86:1	1.04 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.448	0	141536	23	>100:1			1000.00	1100.99	109.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/1	22469	15	>100:1			200.00	186.50		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	0	63202	17	>100:1			1000.00	981.32	96.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/1	16119	21	91:1	Target = 1.06		200.00	218.15		
526 > 219	59	4.470	4.470		13753	15	>100:1	1.17 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.521	1	726397	17	>100:1			1000.00	1056.36	97.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.521	1/0	144193	18	>100:1	Target = 6.38		200.00	202.12		
613 > 169	38	4.521	4.521		22079	16	>100:1	6.53 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.761	4.760	1/0	75984	18	>100:1	Target = 3.23		200.00	195.19		
663 > 169	38	4.761	4.760		23882	18	>100:1	3.18 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	1	813161	25	>100:1			1000.00	1040.17	90.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.977	4.978	1/0	142726	26	>100:1	Target = 7.33		200.00	199.72		
713 > 169	42	4.973	4.978		18198	23	>100:1	7.84 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	387665	21	>100:1			1000.00	993.05	96.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.371	5.372	1/1	161599	22	>100:1	Target = 12.31		200.00	217.92		
813 > 269	40	5.371	5.372		12775	21	>100:1	12.64 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/1	114188	21	>100:1	Target = 165.31		200.00	195.11		
913 > 319	40	5.761	5.761		779	23	88:1	146.58 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.943	3.942	1	798378	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.467	2.467	1	923683	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.223	0	908345	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	1099832	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.595	0	252478	18	>100:1			1000.00			

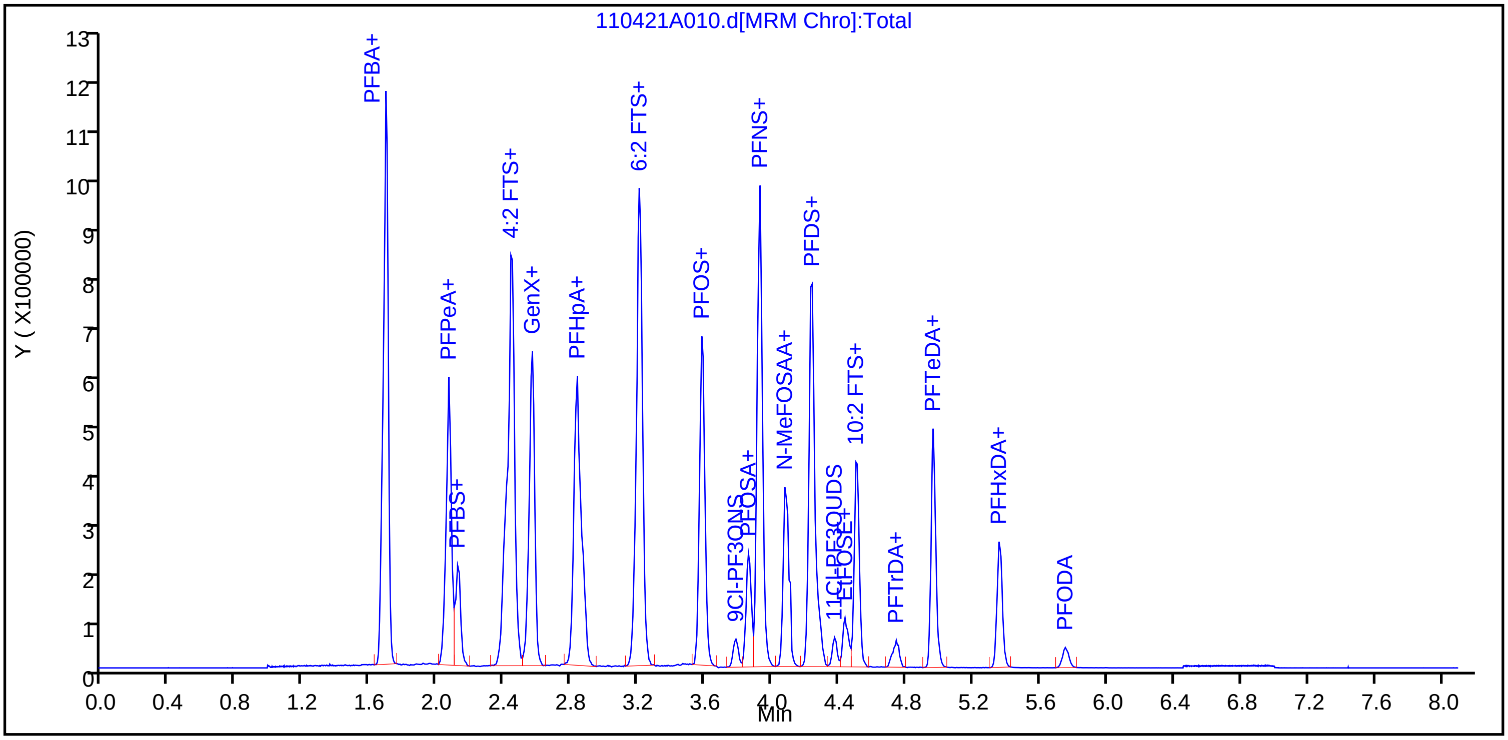
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

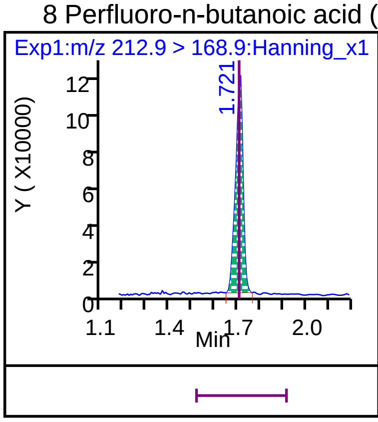
Report Date: 05-Nov-2021 13:58:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

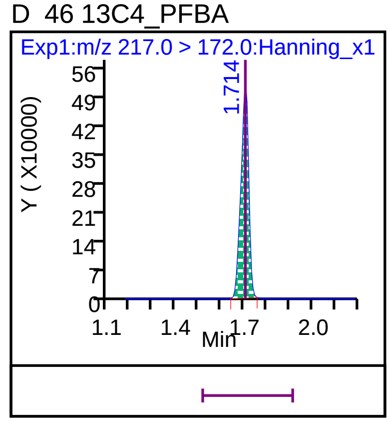
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A010.d		
Injection Date:	04-Nov-2021 14:09:39	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1725
Sample Info:	ICAL 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller



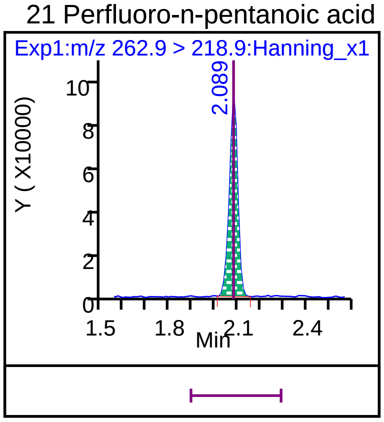
8 Perfluoro-n-butanoic acid (PFBA)



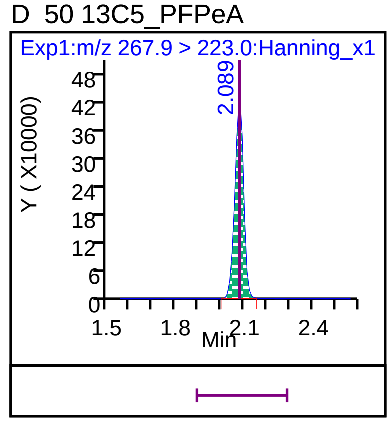
D 46 13C4_PFBA



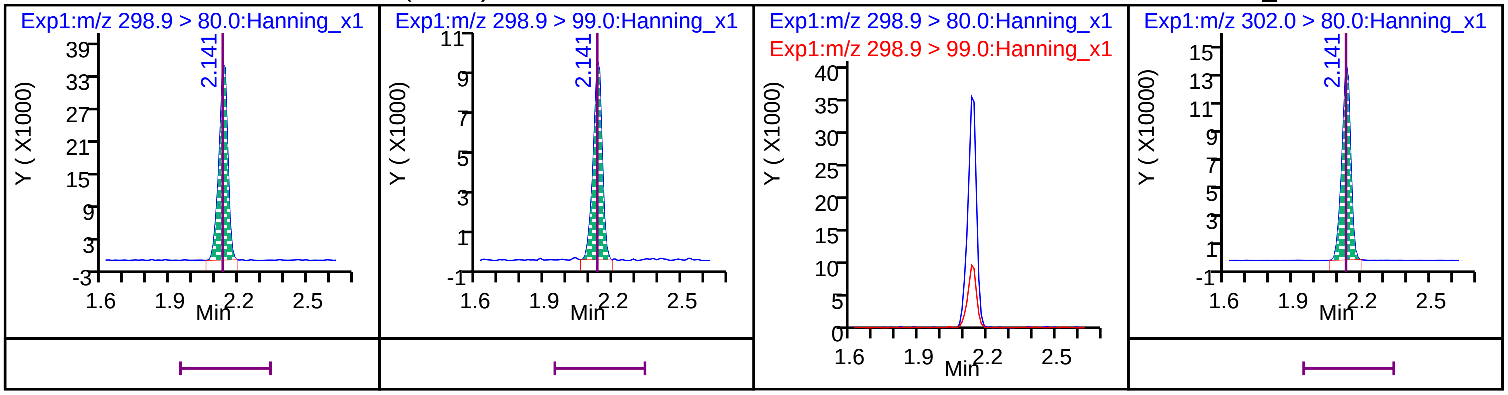
21 Perfluoro-n-pentanoic acid (PFPeA)



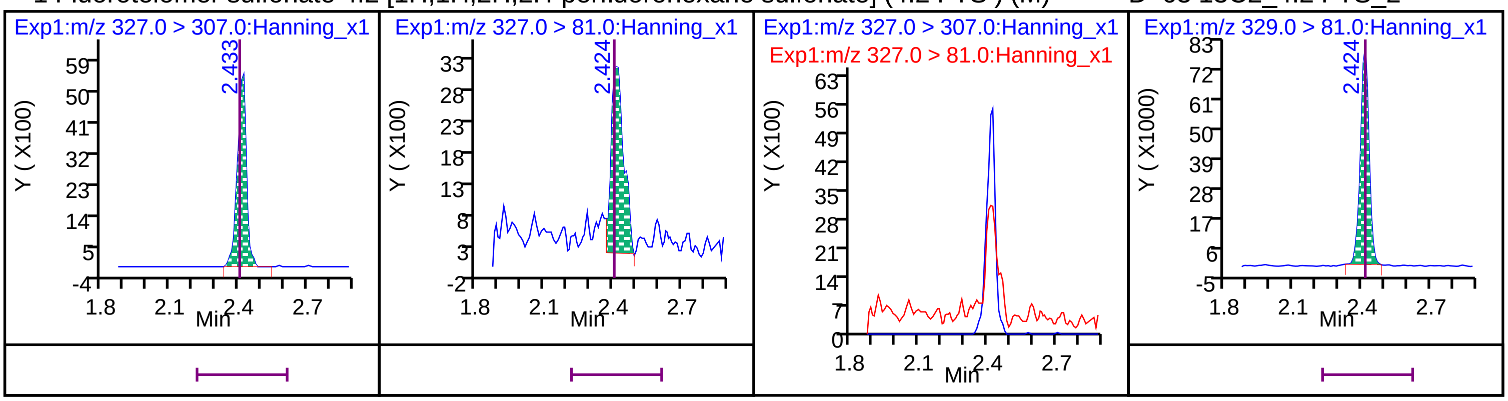
D 50 13C5_PFPeA



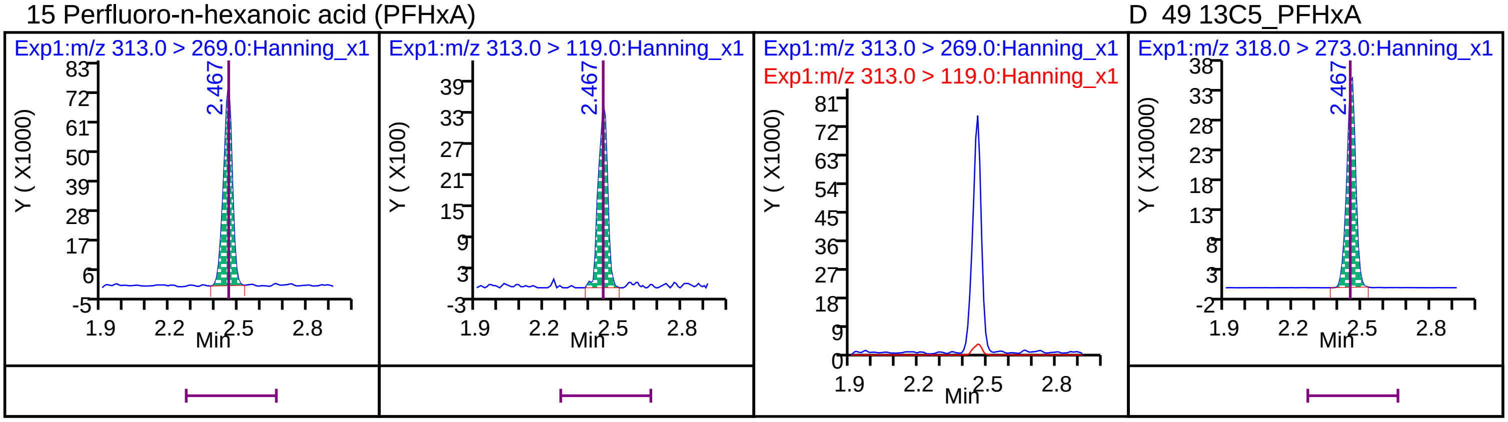
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



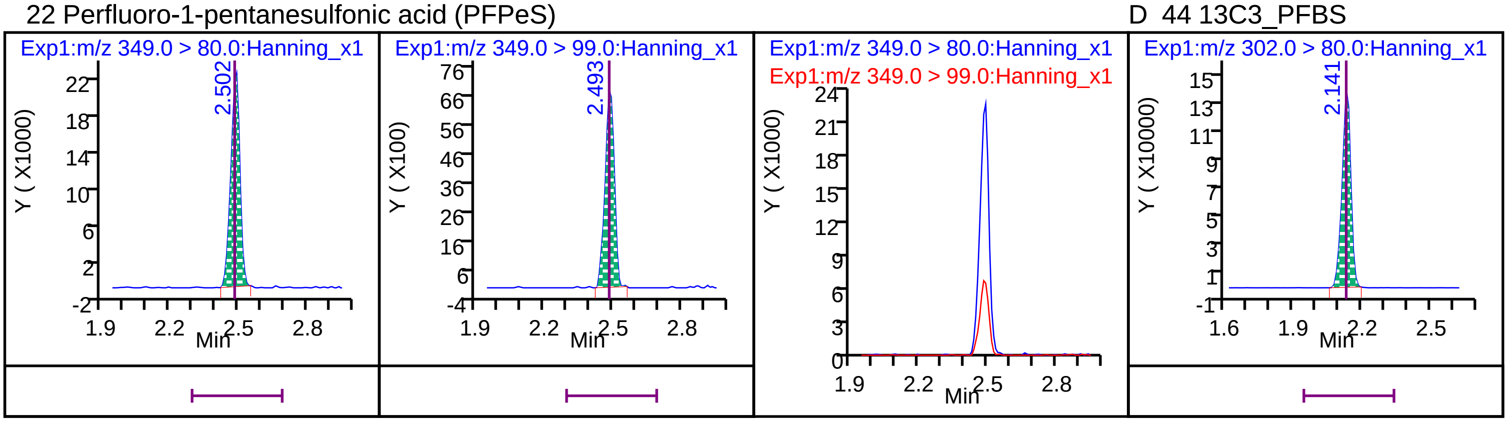
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



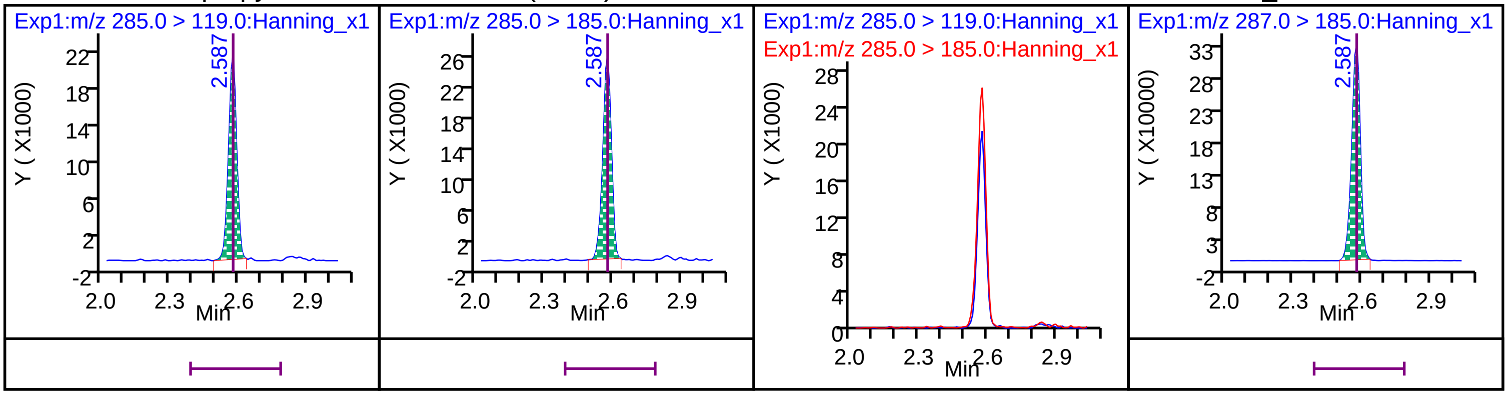
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



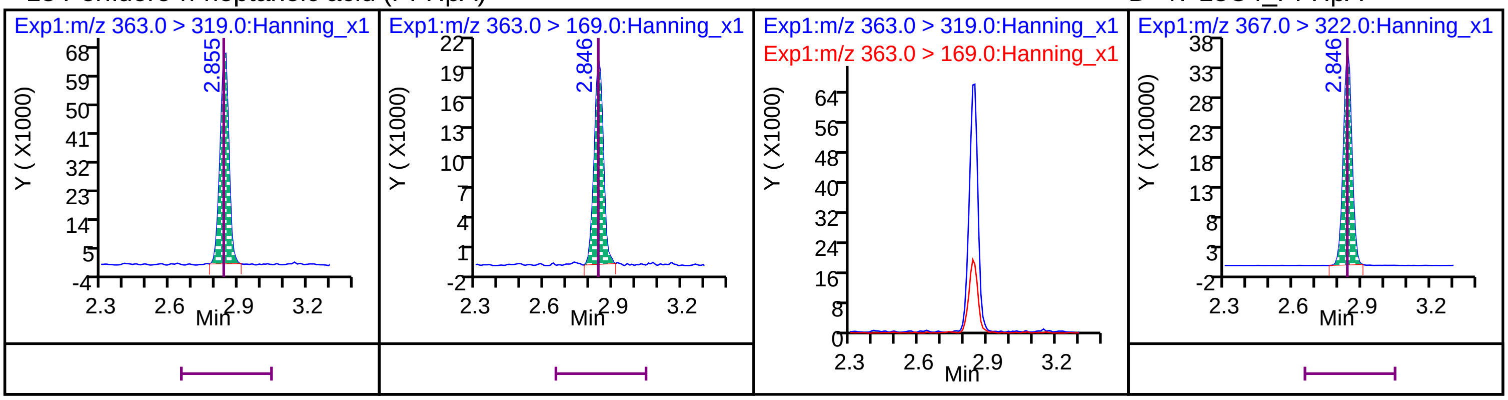
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



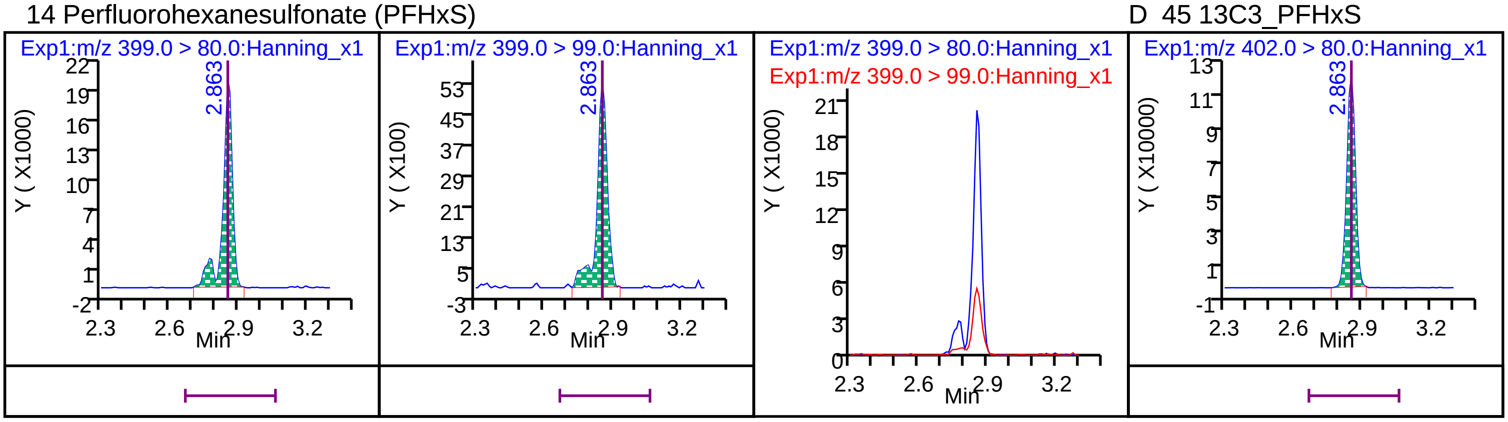
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



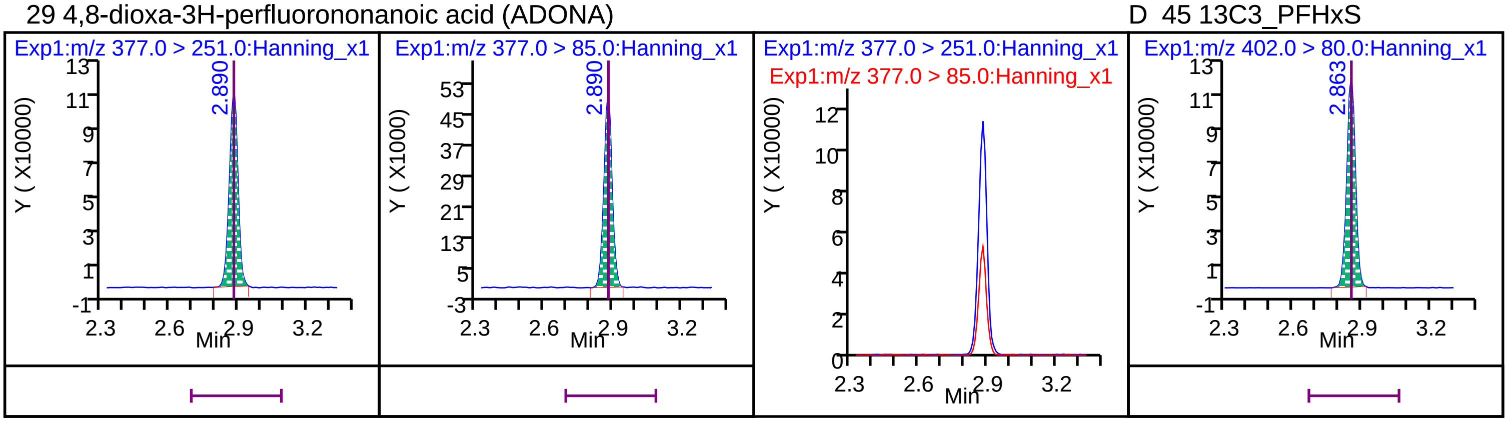
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



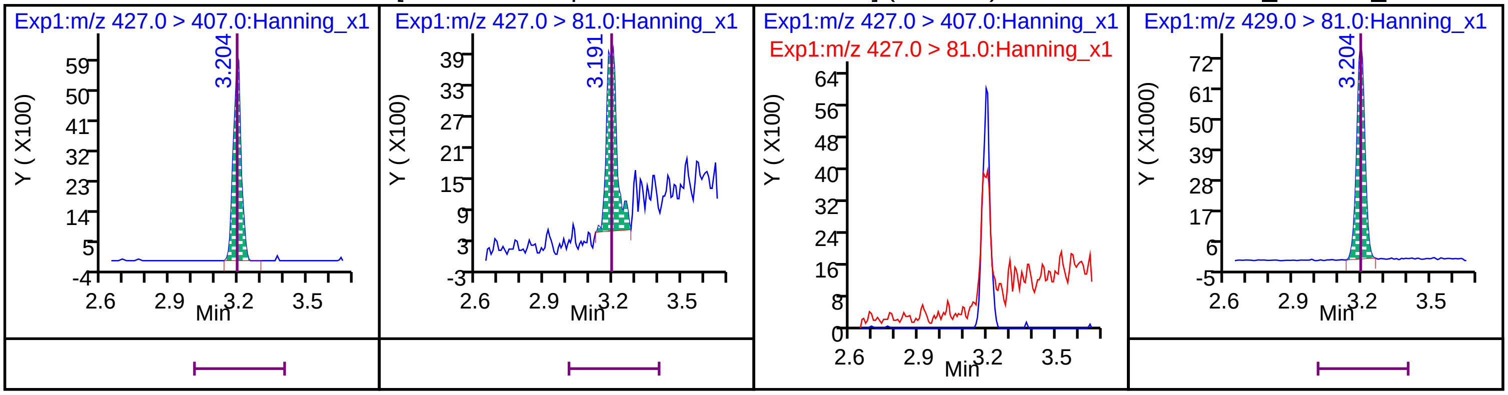
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



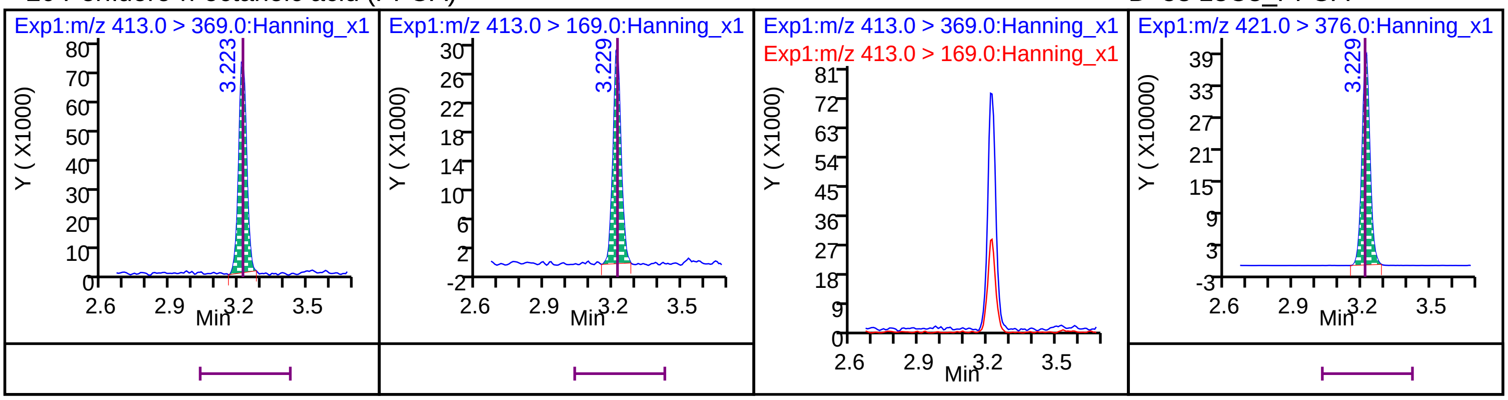
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



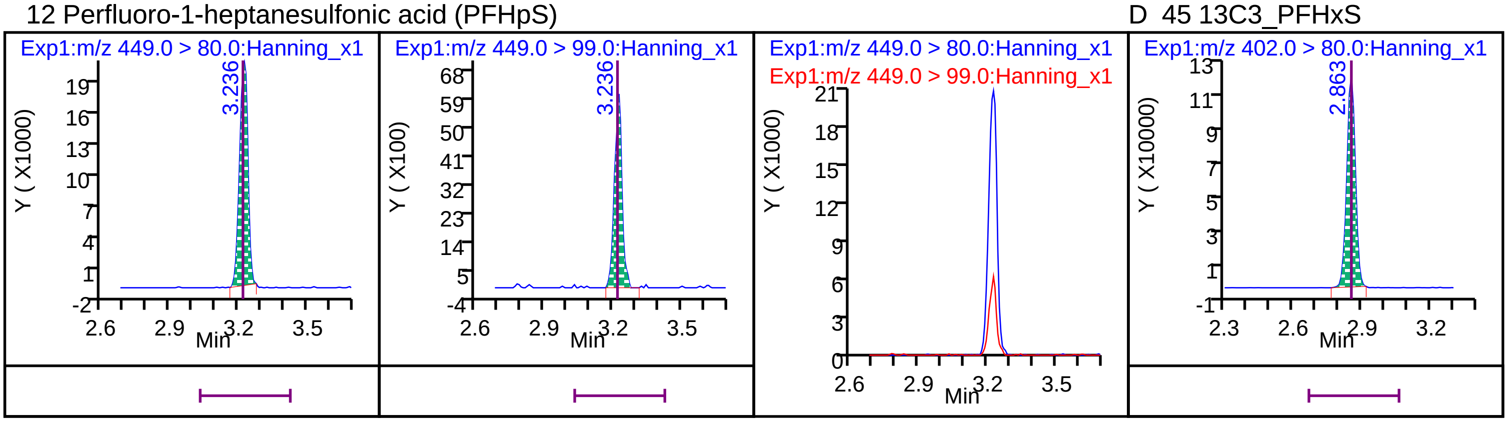
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



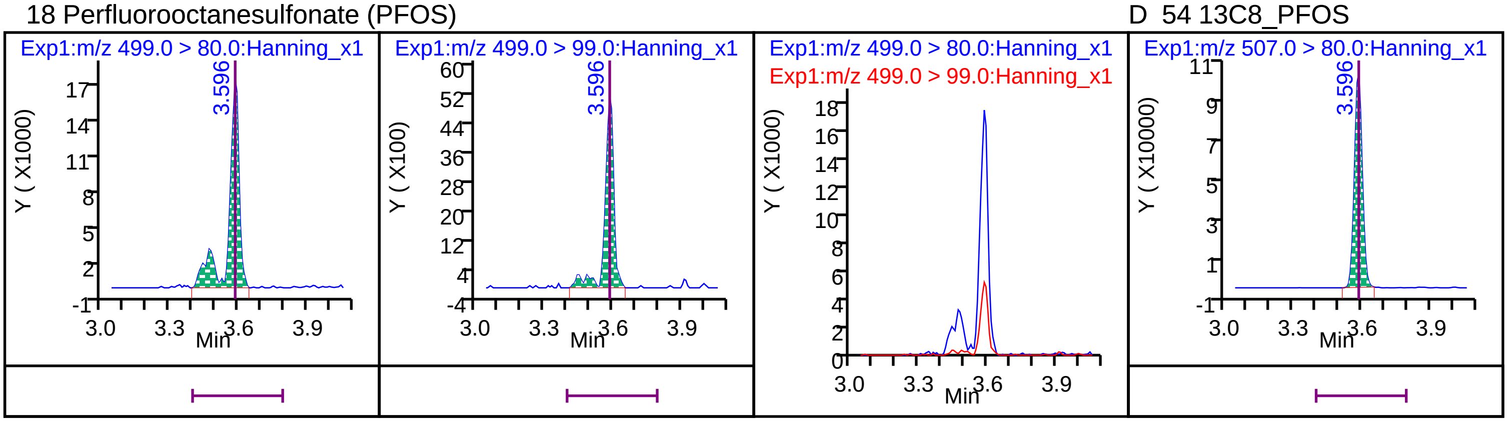
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



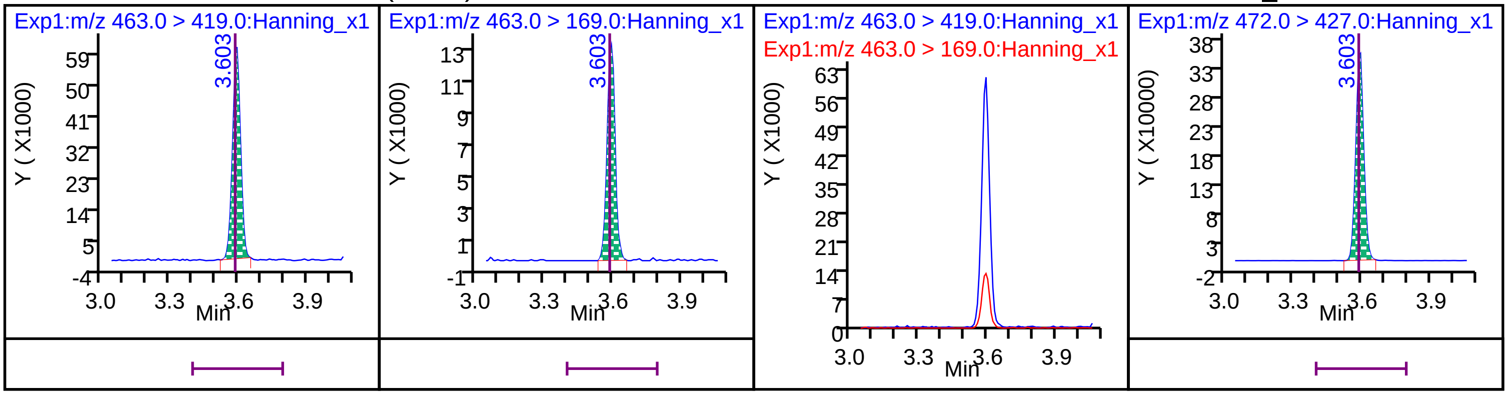
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



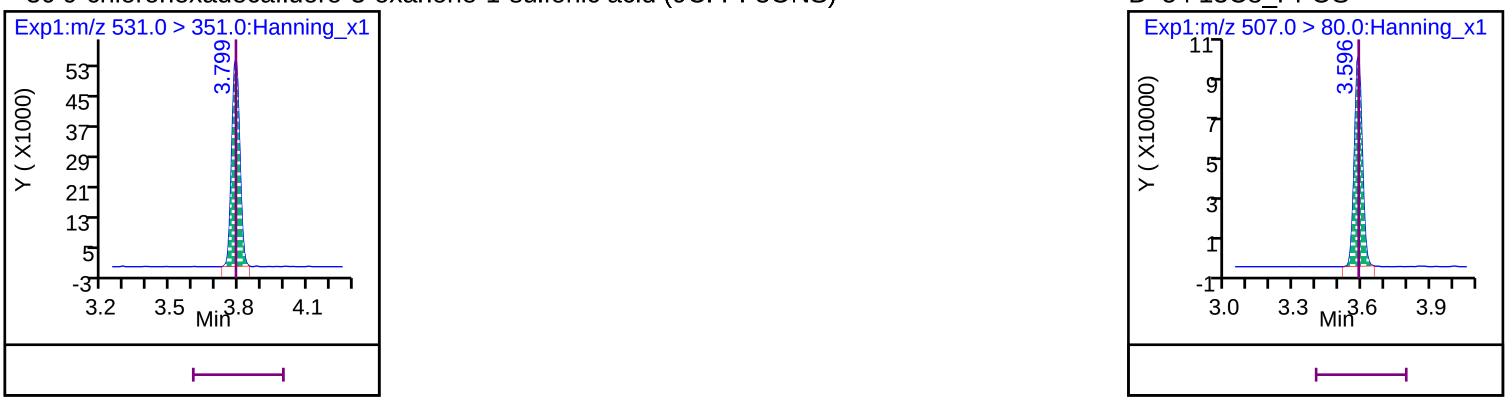
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



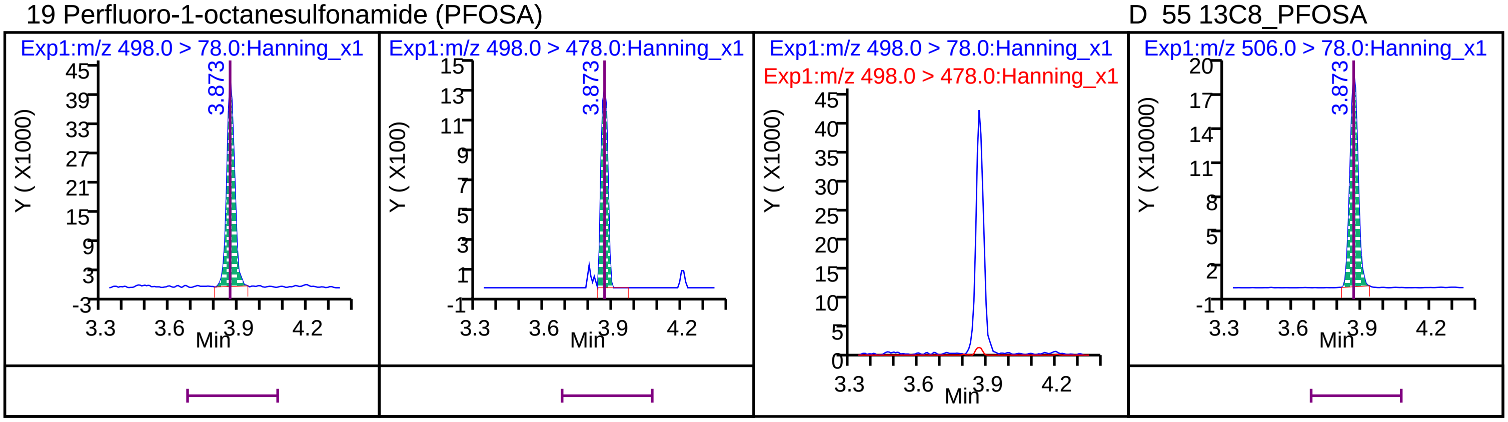
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



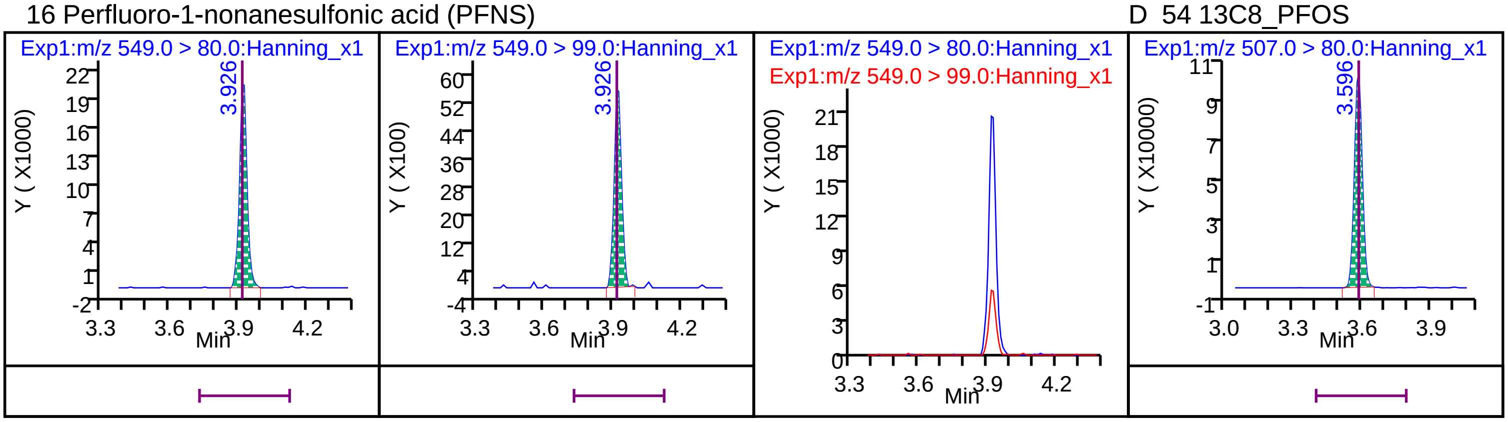
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



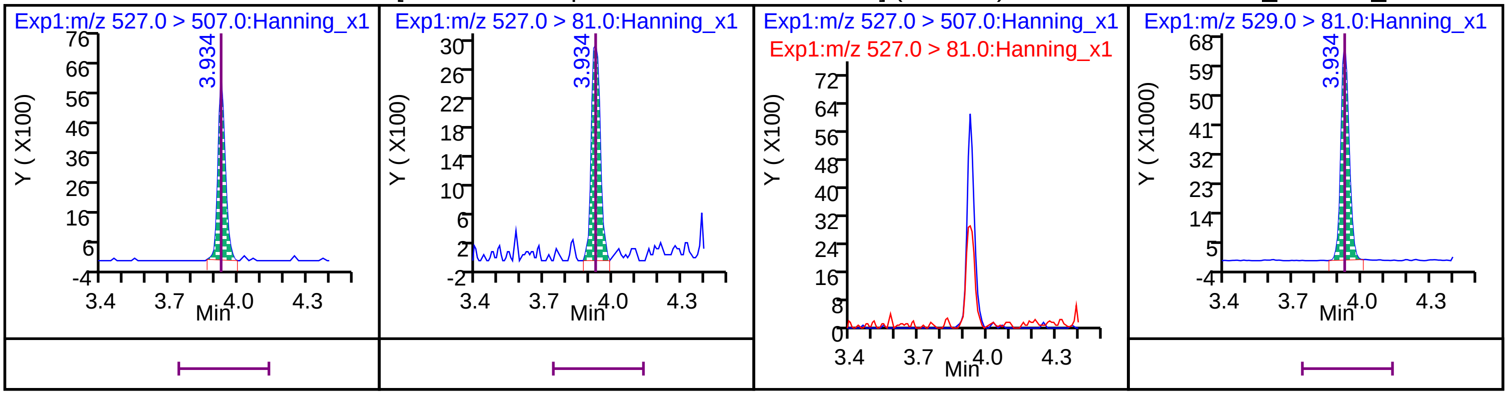
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



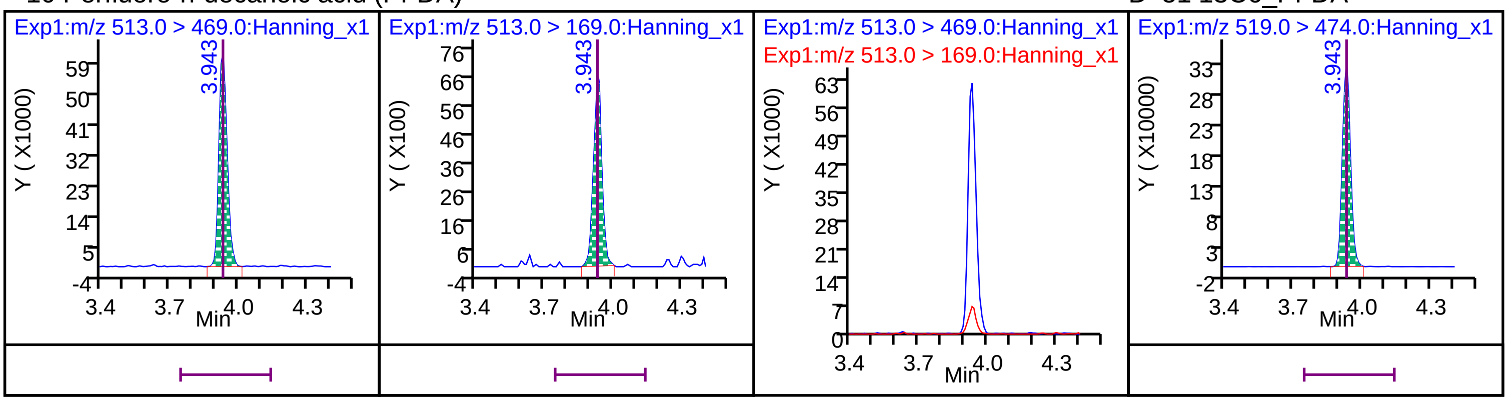
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



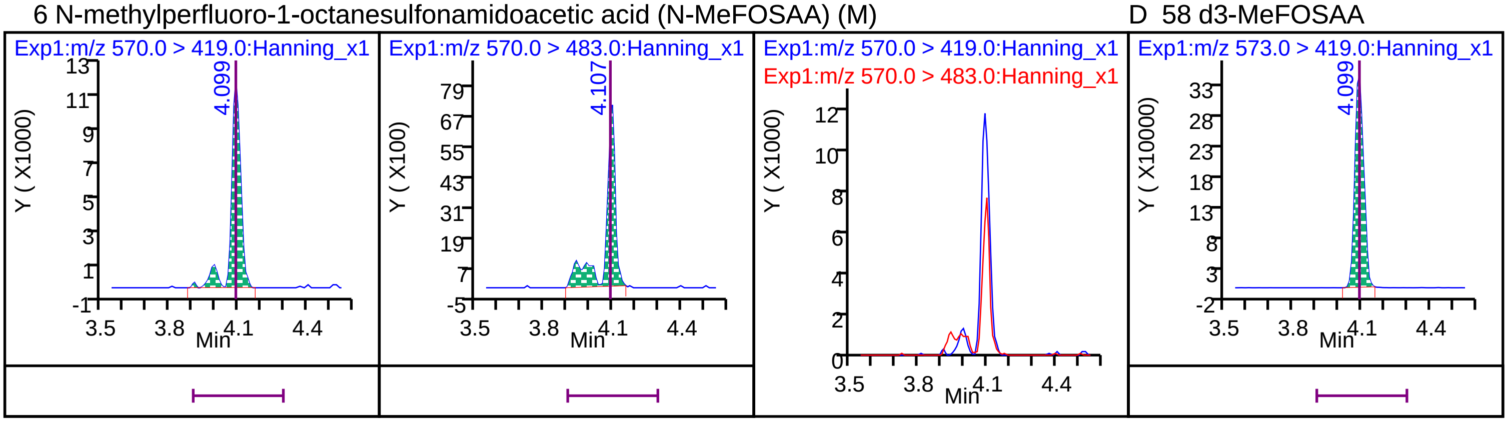
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



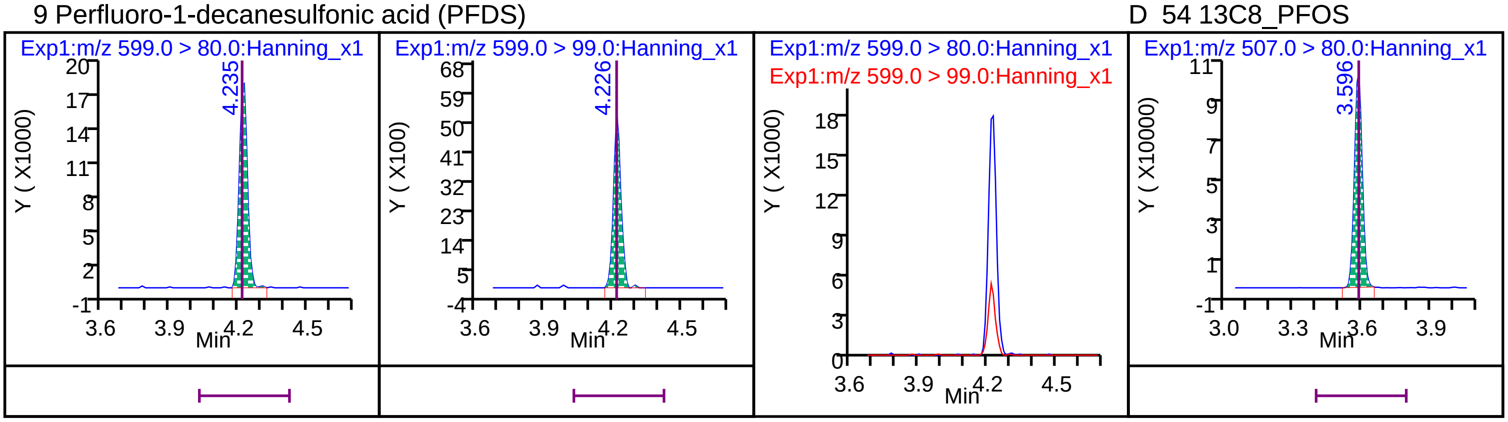
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



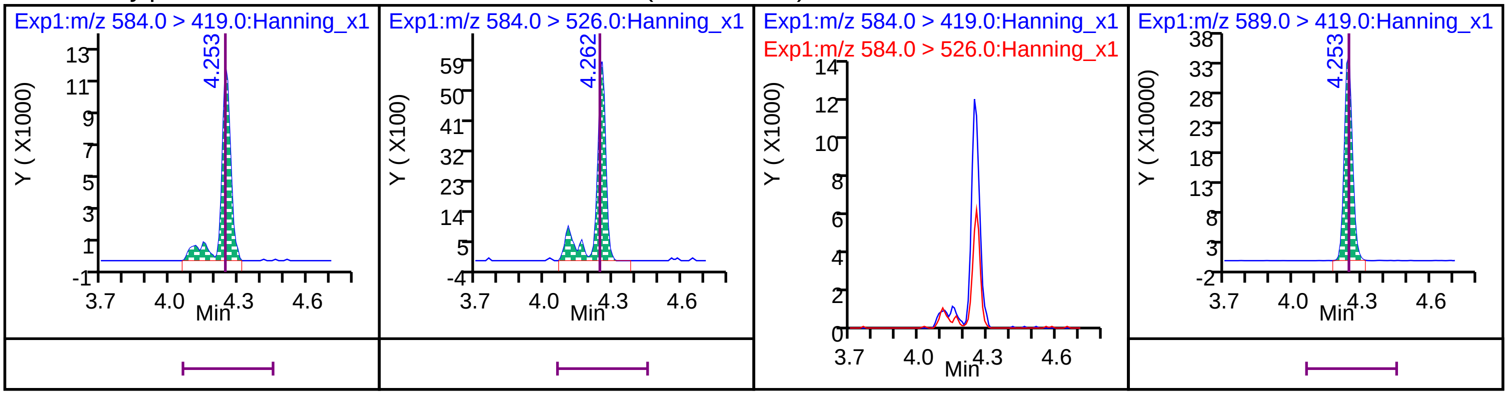
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



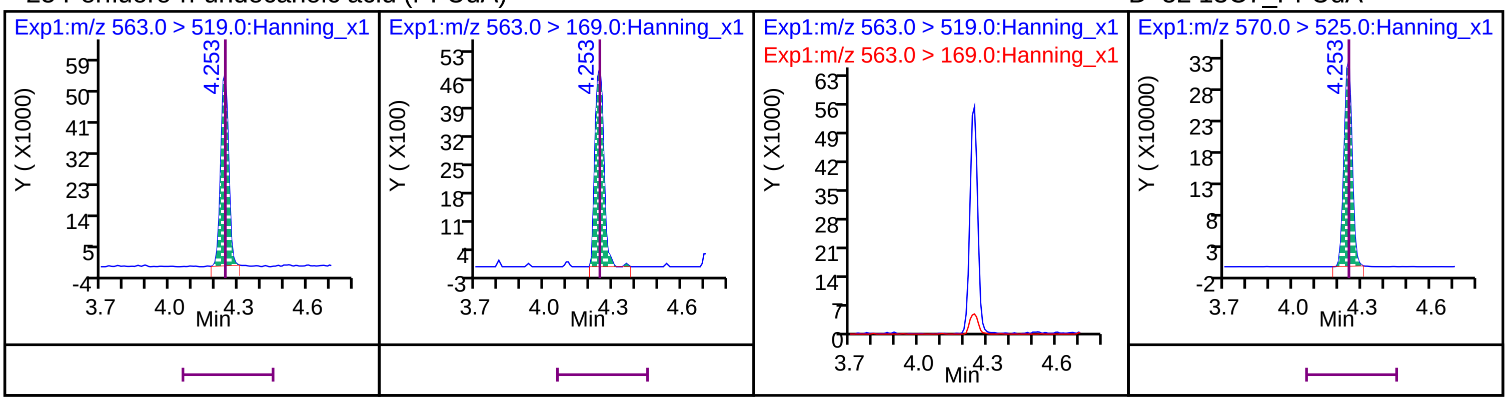
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

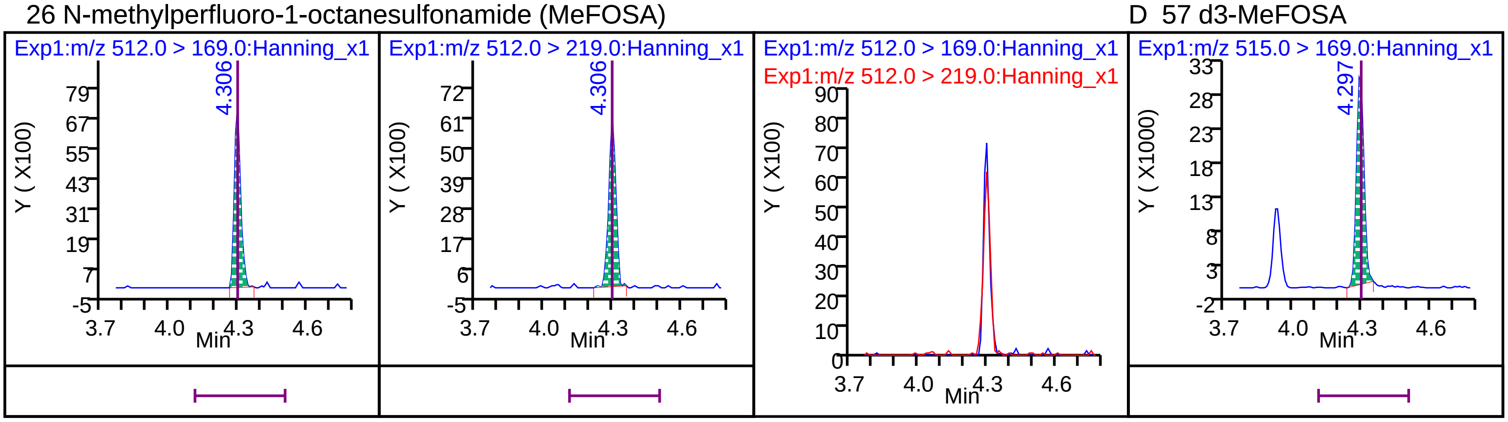


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



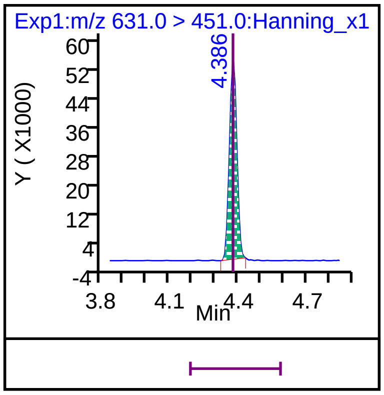
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

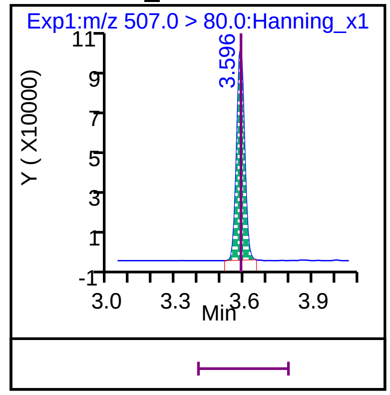


Report Date: 05-Nov-2021 13:58:20 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A010.d

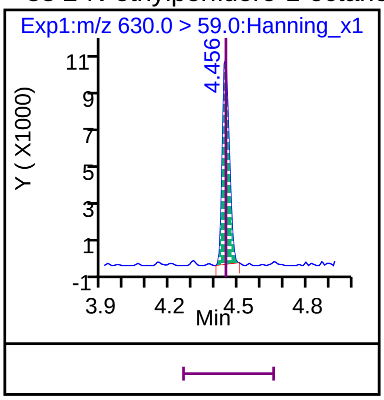
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



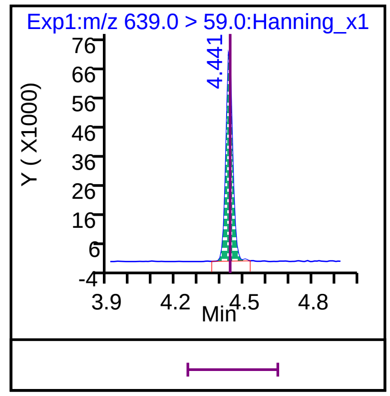
D 54 13C8_PFOS



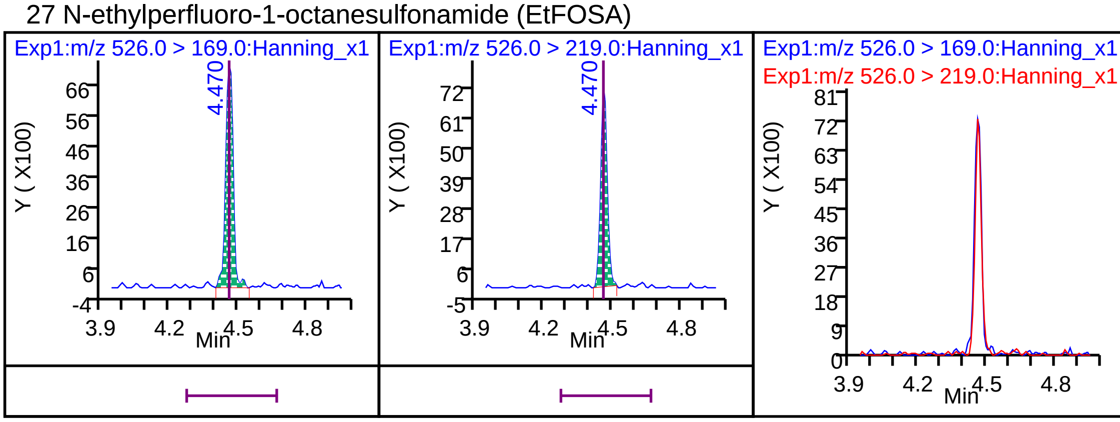
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



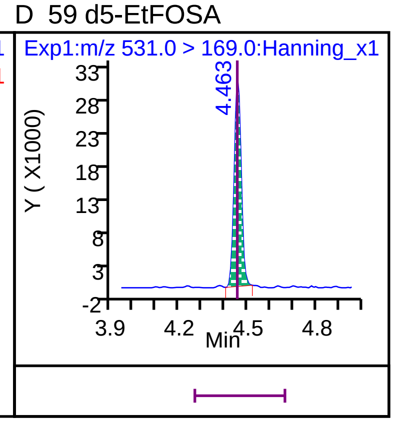
D 62 d9-EtFOSE



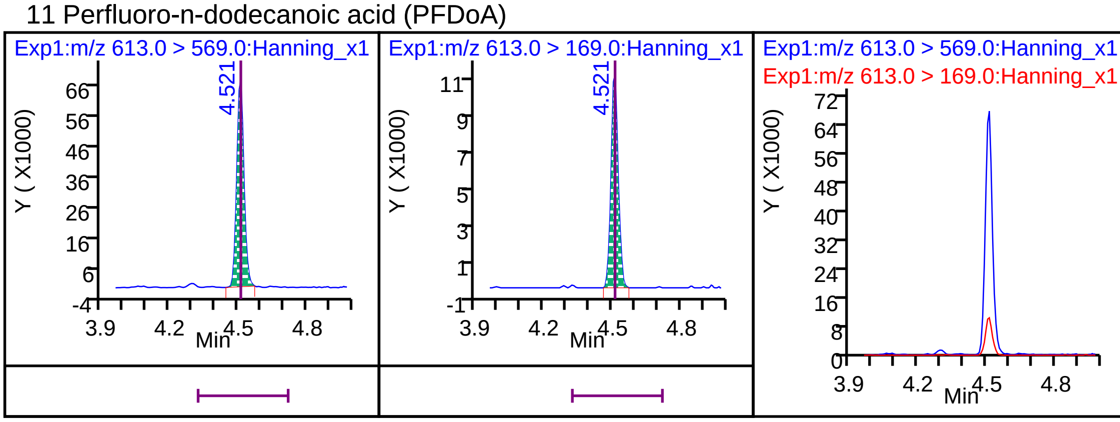
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



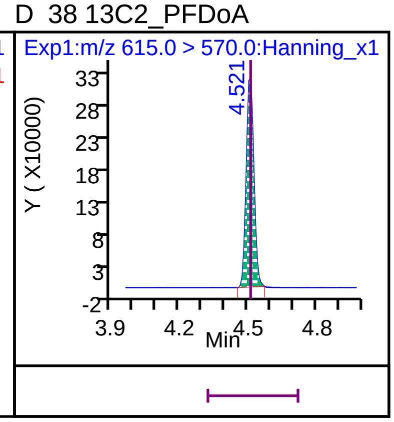
D 59 d5-EtFOSA



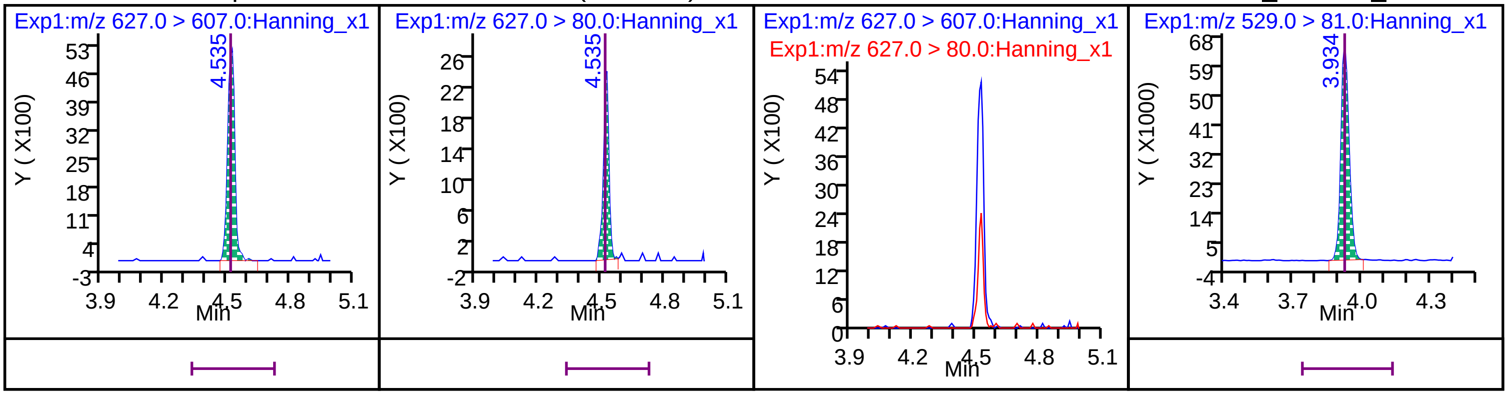
11 Perfluoro-n-dodecanoic acid (PFDoA)



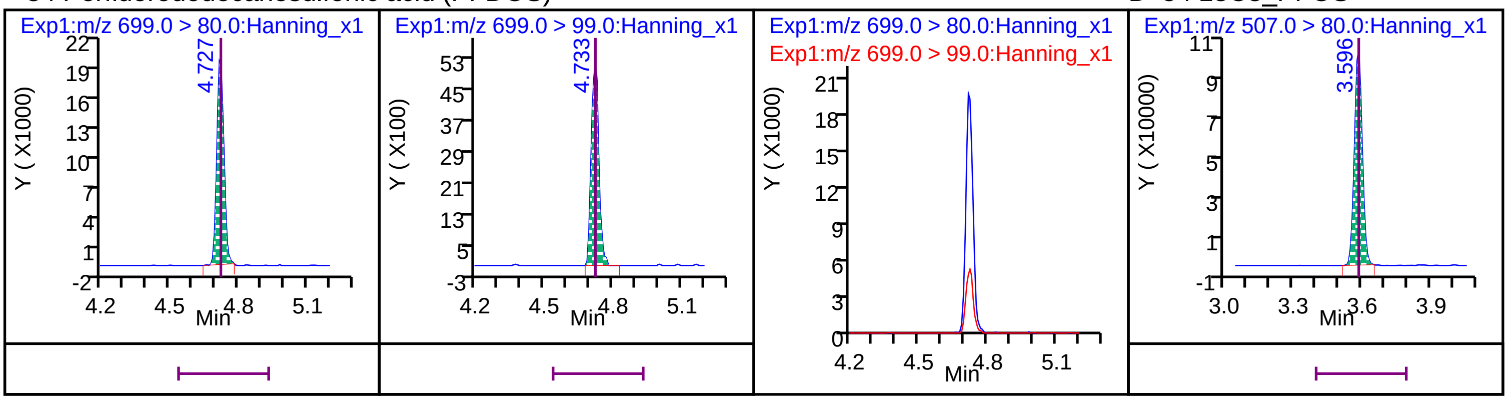
D 38 13C2_PFDoA



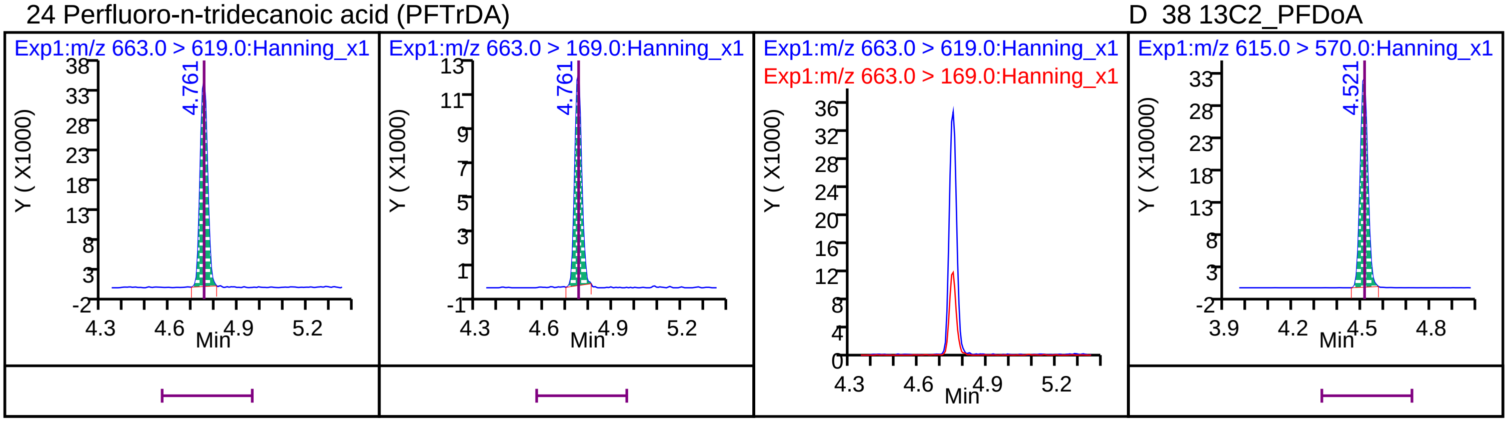
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



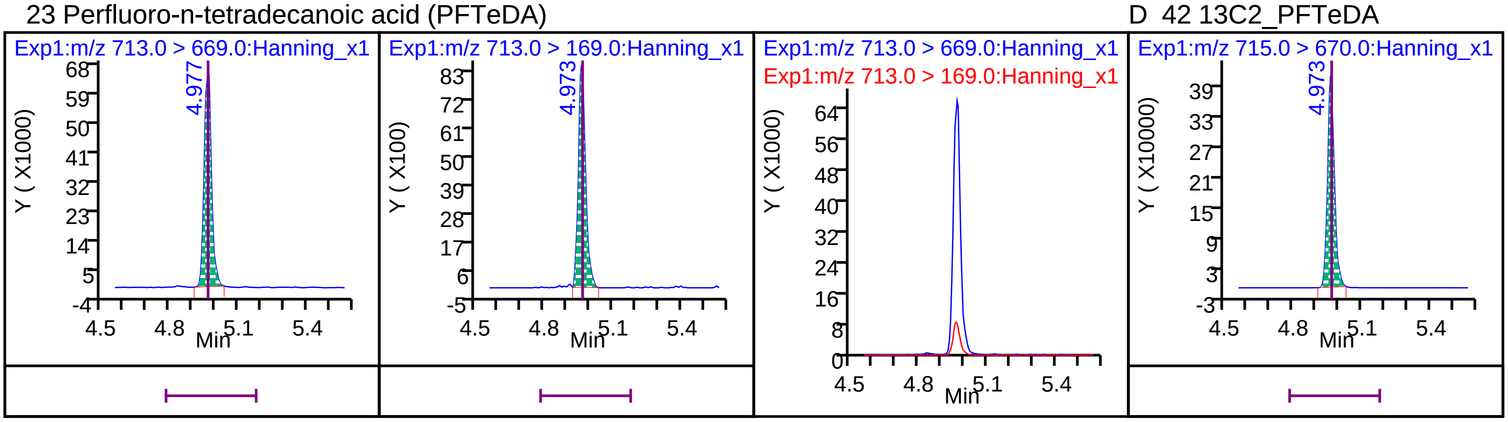
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



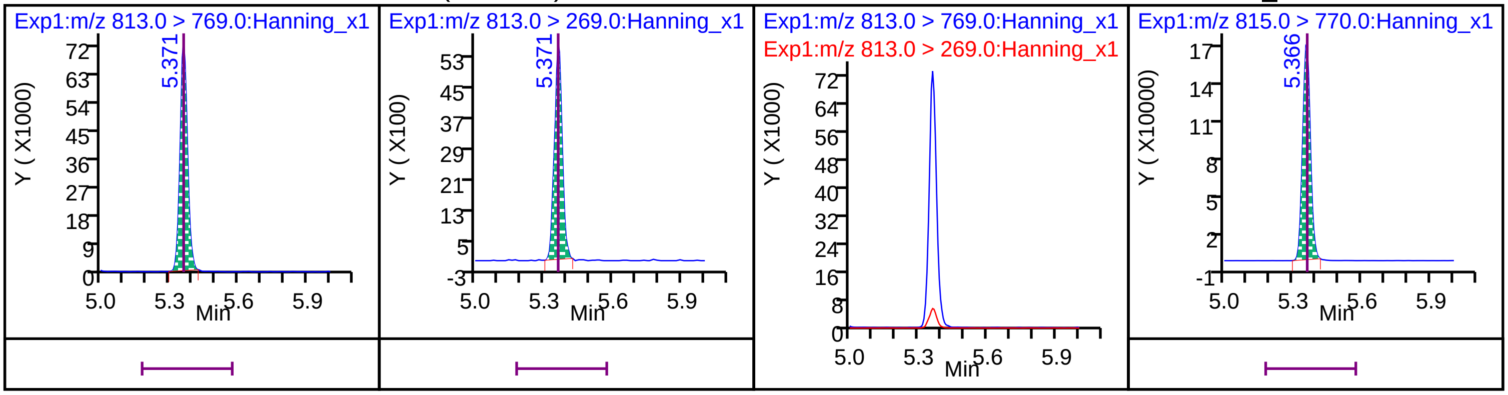
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



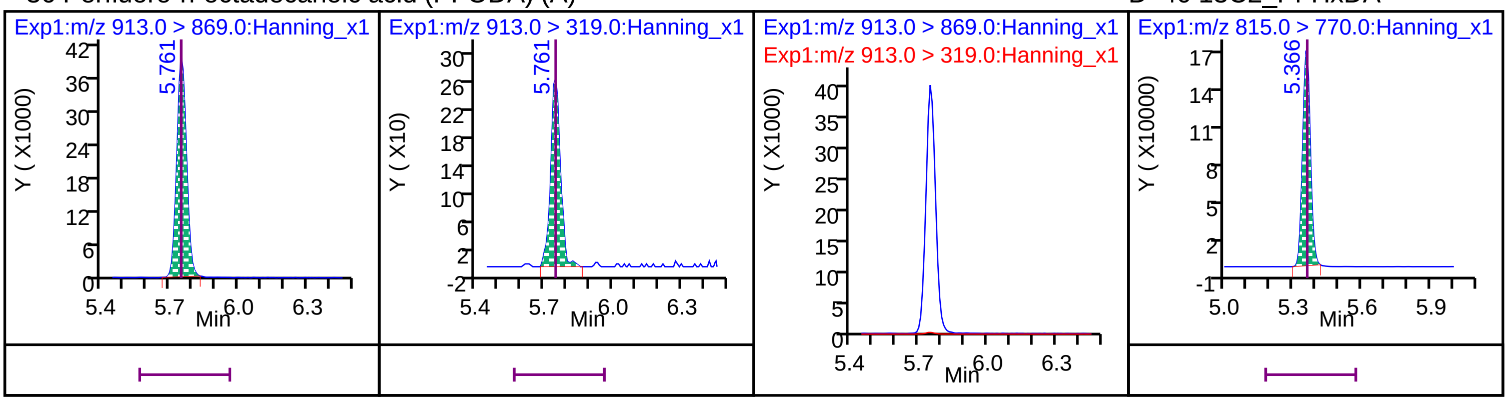
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



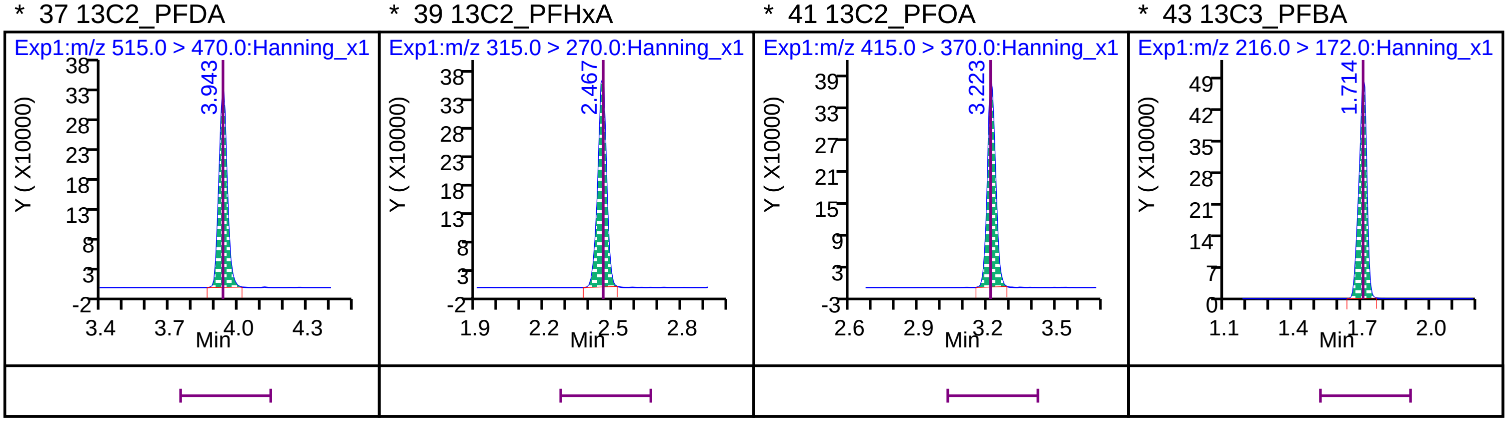
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



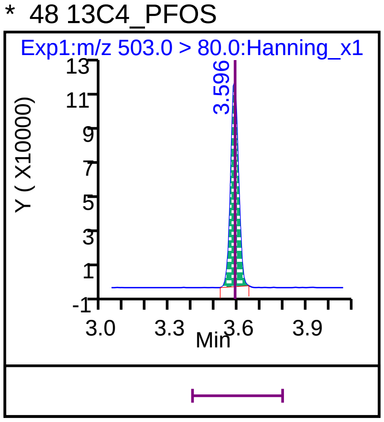
36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

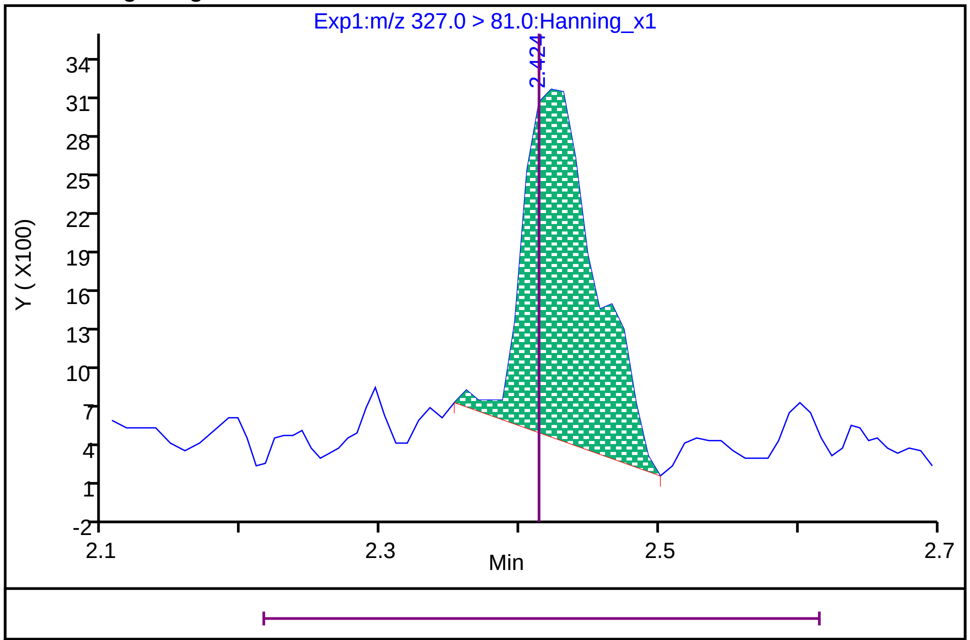
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A010.d		
Injection Date:	04-Nov-2021 14:09:39	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1725
Sample Info:	ICAL 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

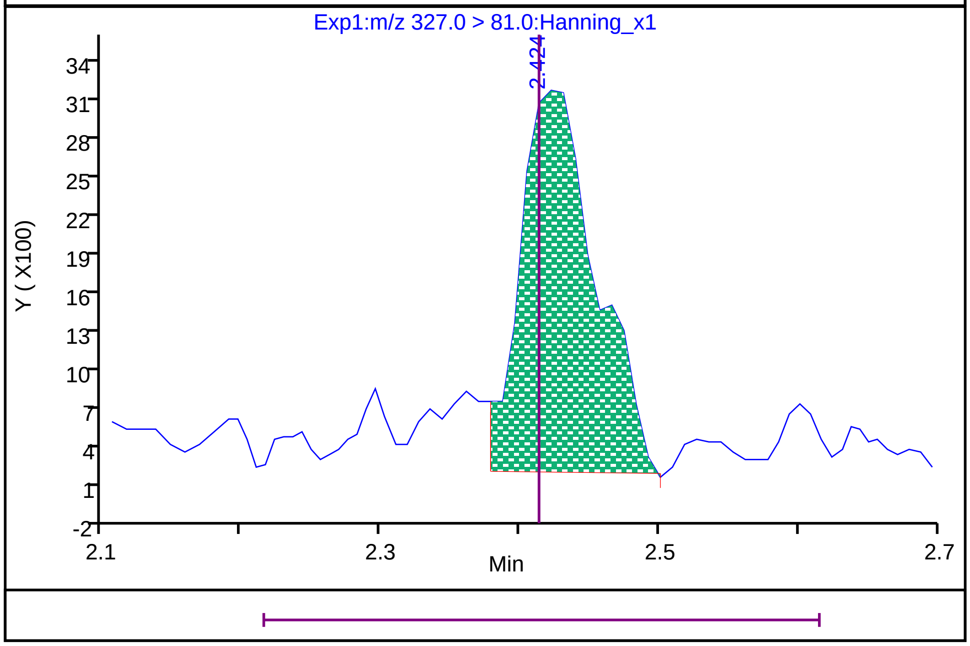
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT:	2.424
Area:	9710
Amount:	185.62
Amount Units:	ng/L



RT:	2.424
Area:	10973
Amount:	185.62
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:14:42

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

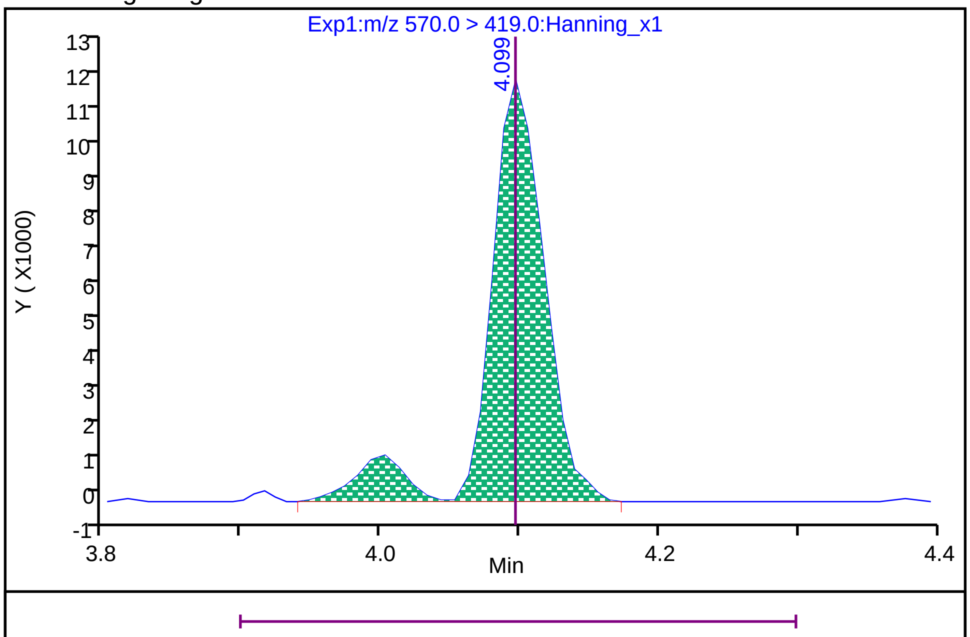
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A010.d		
Injection Date:	04-Nov-2021 14:09:39	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1725
Sample Info:	ICAL 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

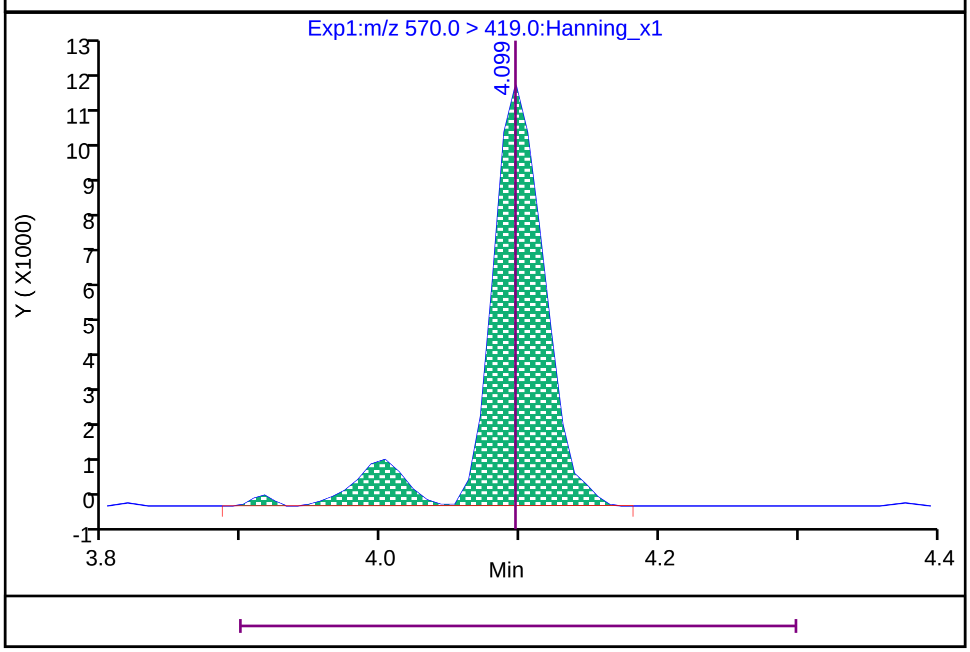
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.099
Area: 30746
Amount: 212.66
Amount Units: ng/L



RT: 4.099
Area: 30890
Amount: 213.55
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 15:55:59

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d		
Injection Date:	04-Nov-2021 14:20:19	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	80
Sample Info:	ICAL 500_SVLC-1642	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1011040	20	>100:1			1000.00	938.99	85	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	0/-1	568809	20	>100:1			500.00	511.54		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	945714	17	>100:1			1000.00	942.97	86.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	531634	16	>100:1			500.00	524.67		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	315759	16	>100:1			1000.00	972.25	86.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	197496	16	>100:1	Target = 3.80		442.00	437.81		
298.9 > 99	44	2.141	2.141		52395	18	>100:1	3.76 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	0/-1	149181	17	>100:1	Target = 3.42		469.00	469.54		
349 > 99	44	2.493	2.493		45530	19	>100:1	3.27 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	223757	18	>100:1			5000.00	5386.94	103.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/1	38249	24	>100:1	Target = 1.54		467.00	437.93		
327 > 81	63	2.424	2.415		26254	21	35:1	1.45 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	855288	18	>100:1			1000.00	957.52	83.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/1	473164	17	>100:1	Target = 17.93		500.00	535.40		
313 > 119	49	2.459	2.467		26454	17	>100:1	17.88 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	802316	19	>100:1			5000.00	4897.57	91.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/1	125481	18	>100:1	Target = 0.72		1000.00	1020.63		
285 > 185	66	2.579	2.587		162994	18	>100:1	0.76 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	838052	18	>100:1			1000.00	956.47	85	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	0/-1	416816	18	>100:1	Target = 3.26		500.00	516.66		
363 > 169	47	2.846	2.846		128858	19	>100:1	3.23 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	248261	18	>100:1			1000.00	946.55	83.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	134098	26	>100:1	Target = 3.48	4.40	455.00	456.92		
399 > 99	45	2.863	2.863		36175	25	>100:1	3.70 (1.74-5.22)	8.64				

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	680582	19	>100:1	Target = 2.31		471.00	498.06		
377 > 85	45	2.890	2.890		279911	20	>100:1	2.43 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.229	3.229	0/-1	132147	21	>100:1	Target = 3.56		476.00	517.52		
449 > 99	45	3.229	3.229		34960	22	>100:1	3.77 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	1	192677	21	>100:1			5000.00	5109.29	99	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	0/-1	27247	20		Target = 1.34		474.00	406.64		
427 > 81	64	3.204	3.204		25331	23	51:1	1.07 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	0	785892	22	>100:1			1000.00	950.30	85.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.229	1/1	426078	21	>100:1	Target = 2.50		500.00	526.92		
413 > 169	53	3.229	3.229		159022	21	>100:1	2.67 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.595	0	216309	19	>100:1			1000.00	963.60	88.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.595	1/1	120187	39	>100:1	Target = 4.01	3.31	464.00	471.33		M
499 > 99	54	3.596	3.595		31240	36	>100:1	3.84 (2.00-6.02)	5.79				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/1	319750	17	>100:1			466.00	478.31		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.926	3.926	0/0	103663	23	>100:1	Target = 3.78		480.00	474.48		
549 > 99	54	3.934	3.926		31398	18	>100:1	3.30 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.235	4.226	1/1	98924	15	>100:1	Target = 3.98		482.00	463.23		
599 > 99	54	4.235	4.226		27510	15	>100:1	3.59 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/1	279633	16	>100:1			471.00	465.36		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.733	4.733	1/1	109394	19	>100:1	Target = 3.68		484.00	522.19		
699 > 99	54	4.733	4.733		28546	18		3.83 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.595	1	784538	20	>100:1			1000.00	981.88	78.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.595	0/-1	347597	19	>100:1	Target = 4.69		500.00	486.55		
463 > 169	56	3.603	3.595		78332	18	>100:1	4.43 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.881	3.873	1	423017	19	>100:1			1000.00	1021.31	98.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.881	3.873	1/0	234402	18	>100:1	Target = 40.85		500.00	490.06		
498>478	55	3.881	3.873		7242	14	60:1	32.36 (20.42-61.28)					M
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	0	153818	16	>100:1			5000.00	4900.93	100.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.934	3.934	0/0	24527	17	>100:1	Target = 1.58		479.00	448.76		
527 > 81	65	3.934	3.934		17326	18	80:1	1.41 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.528	0/0	26008	20	>100:1	Target = 2.46		482.00	474.06		
627 > 80	65	4.528	4.528		11038	16	>100:1	2.35 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.942	1	677567	18	>100:1			1000.00	938.72	86.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.942	3.942	0/-1	364046	19	>100:1	Target = 9.77		500.00	523.62		
513 > 169	51	3.942	3.942		37633	16	>100:1	9.67 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.098	4.098	1	817647	17	>100:1			5000.00	4611.32	90.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.107	4.098	1/0	67737	31		Target = 1.41	6.34	500.00	506.62		
570 > 483	58	4.098	4.098		48950	29		1.38 (0.70-2.11)	4.45				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.253	4.253	1	635818	16	>100:1			1000.00	930.34	86.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.253	4.253	1/0	310629	15	>100:1	Target = 9.19		500.00	544.58		
563 > 169	52	4.253	4.253		32033	15	>100:1	9.69 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	759228	18	>100:1			5000.00	5077.40	97.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.262	4.253	1/0	80134	34	>100:1	Target = 1.75	6.82	500.00	516.29		
584 > 526	60	4.262	4.253		43519	39	>100:1	1.84 (0.87-2.63)	3.49				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	0	134678	19	>100:1			1000.00	976.03	101	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.297	4.288	1/1	66623	15	>100:1			500.00	486.74		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.306	4.306	1	67859	16	>100:1			1000.00	969.12	93.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/0	36321	21	>100:1	Target = 1.11		500.00	516.88		
512 > 219	57	4.306	4.306		32793	15	>100:1	1.10 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.448	0	120857	17	>100:1			1000.00	940.13	93.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/1	49572	19	>100:1			500.00	481.87		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	0	61552	17	>100:1			1000.00	955.70	94	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/1	34980	21	>100:1	Target = 1.06		500.00	486.10		
526 > 219	59	4.470	4.470		31918	23	>100:1	1.09 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.521	0	645547	19	>100:1			1000.00	938.78	86.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.521	1/1	342740	19	>100:1	Target = 6.38		500.00	540.61		
613 > 169	38	4.514	4.521		56416	18	>100:1	6.07 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.760	4.760	1/1	175688	19	>100:1	Target = 3.23		500.00	507.84		
663 > 169	38	4.760	4.760		55408	18	>100:1	3.17 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	1	747223	25	>100:1			1000.00	955.83	82.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.978	1/0	340828	24	>100:1	Target = 7.33		500.00	519.03		
713 > 169	42	4.978	4.978		46908	25	>100:1	7.26 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.372	5.372	1	390471	21	>100:1			1000.00	1000.23	96.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/0	367678	20	>100:1	Target = 12.31		500.00	492.26		
813 > 269	40	5.372	5.372		26953	23	>100:1	13.64 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/0	294051	21	>100:1	Target = 165.31		500.00	498.82		
913 > 319	40	5.761	5.761		2078	19	>100:1	141.50 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.942	3.942	1	686224	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	861473	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.229	3.223	1	797460	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	945953	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.595	0	216676	19	>100:1			1000.00			

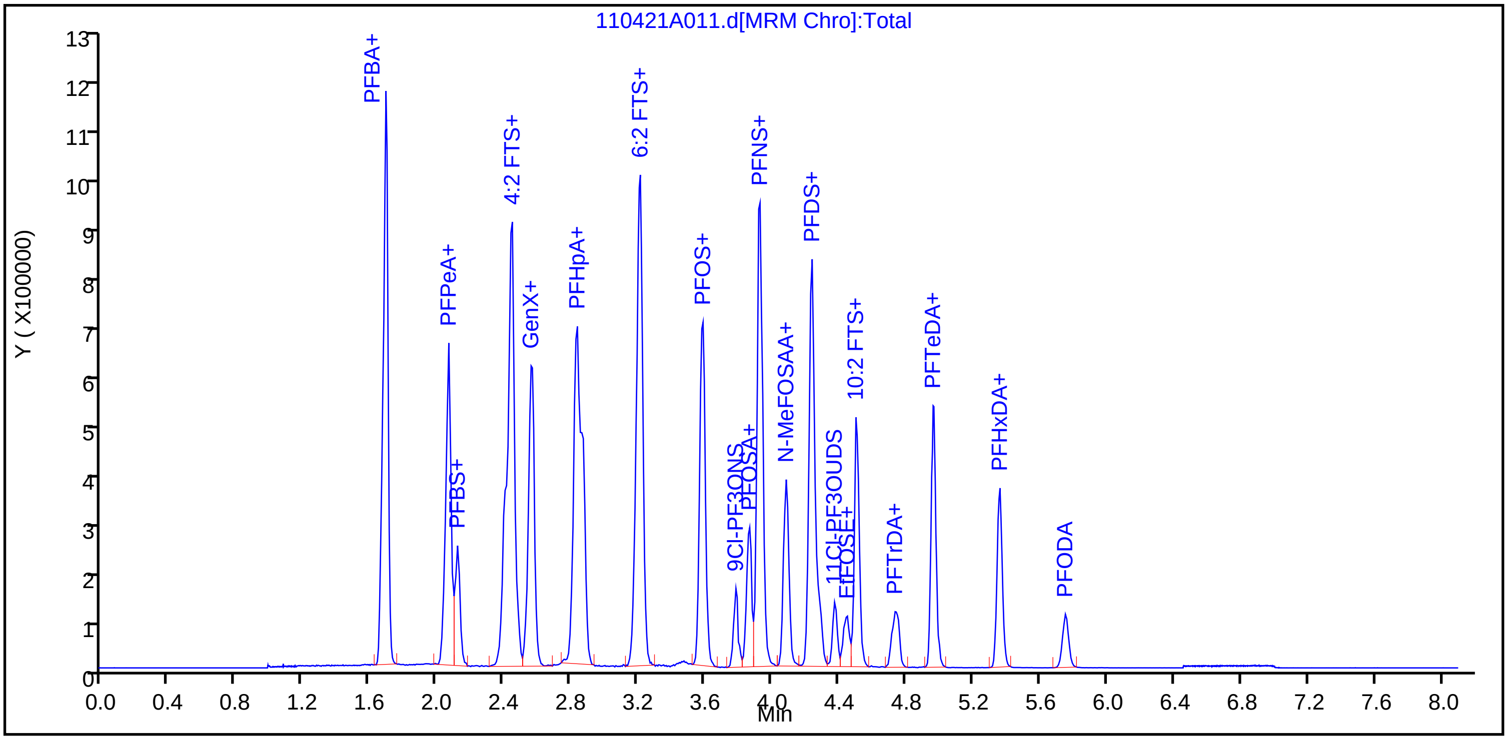
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

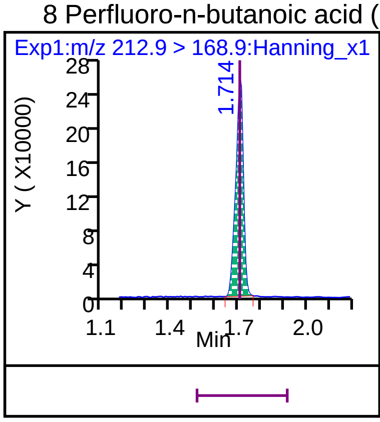
Report Date: 05-Nov-2021 13:58:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

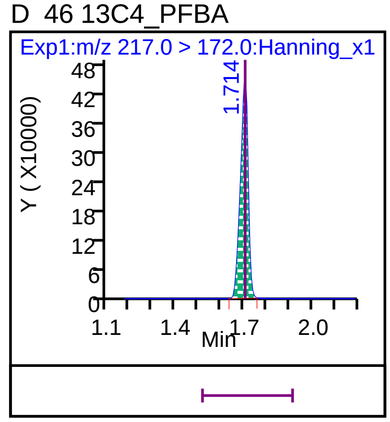
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d		
Injection Date:	04-Nov-2021 14:20:19	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1642
Sample Info:	ICAL 500_SVLC-1642		
Dil. Factor:	1	Operator:	Matthew M. Miller



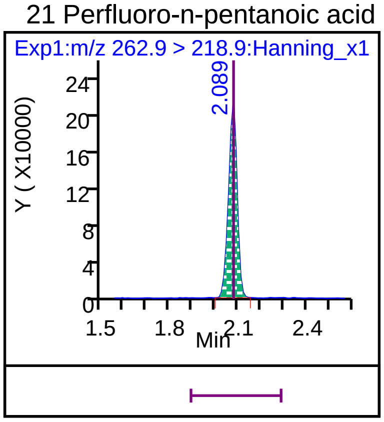
8 Perfluoro-n-butanoic acid (PFBA)



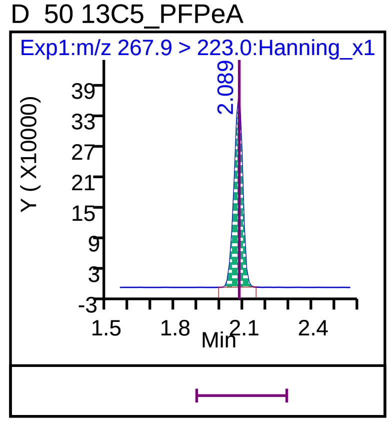
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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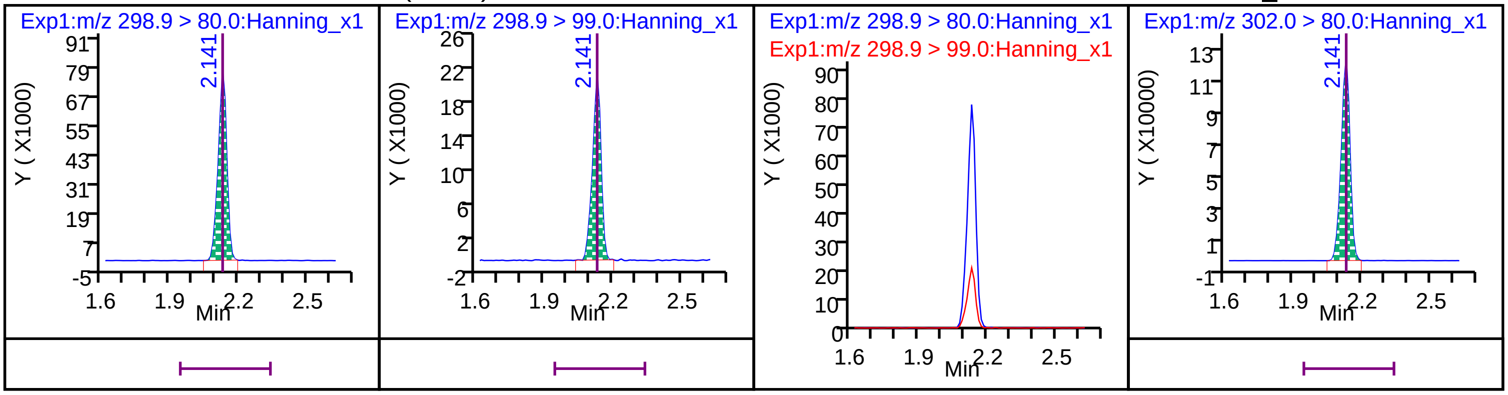
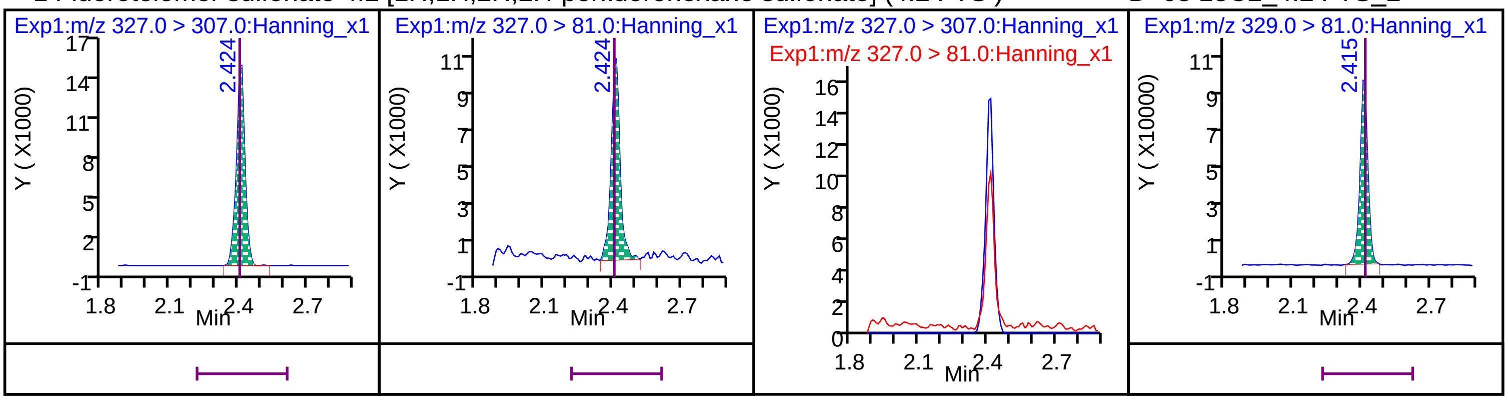
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d

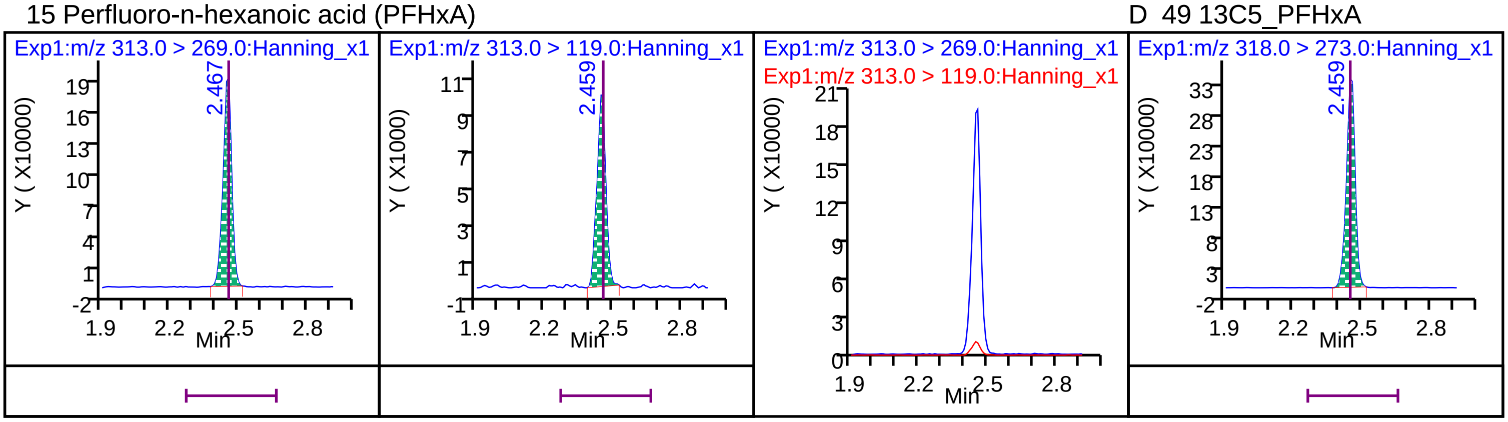
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



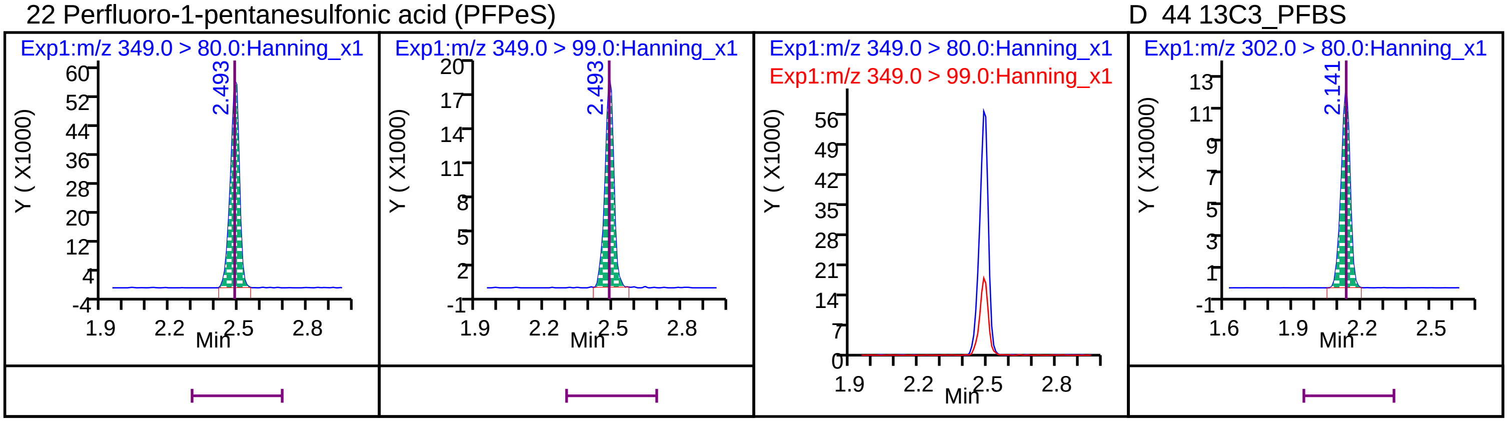
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



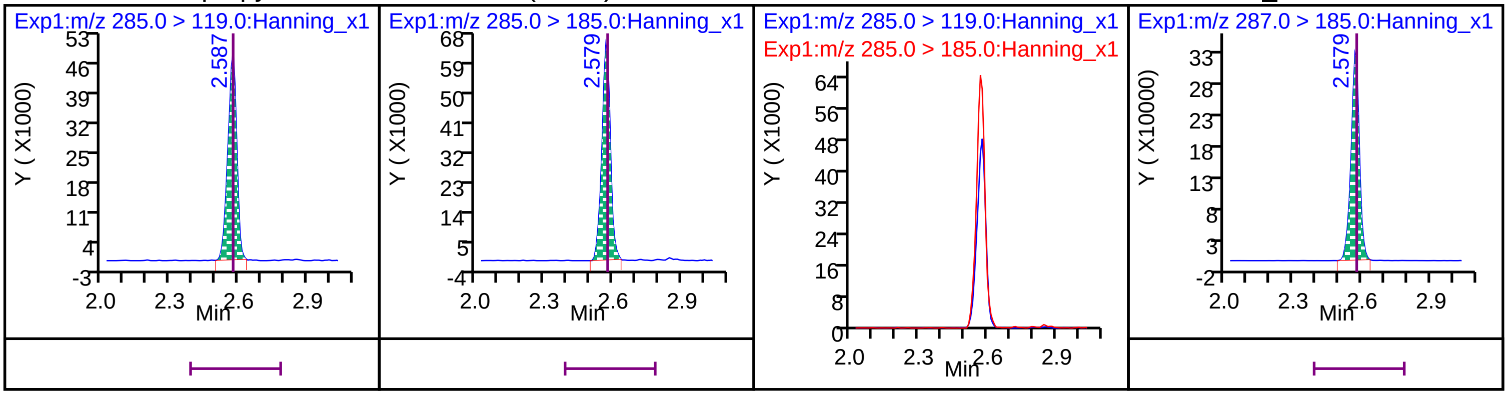
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



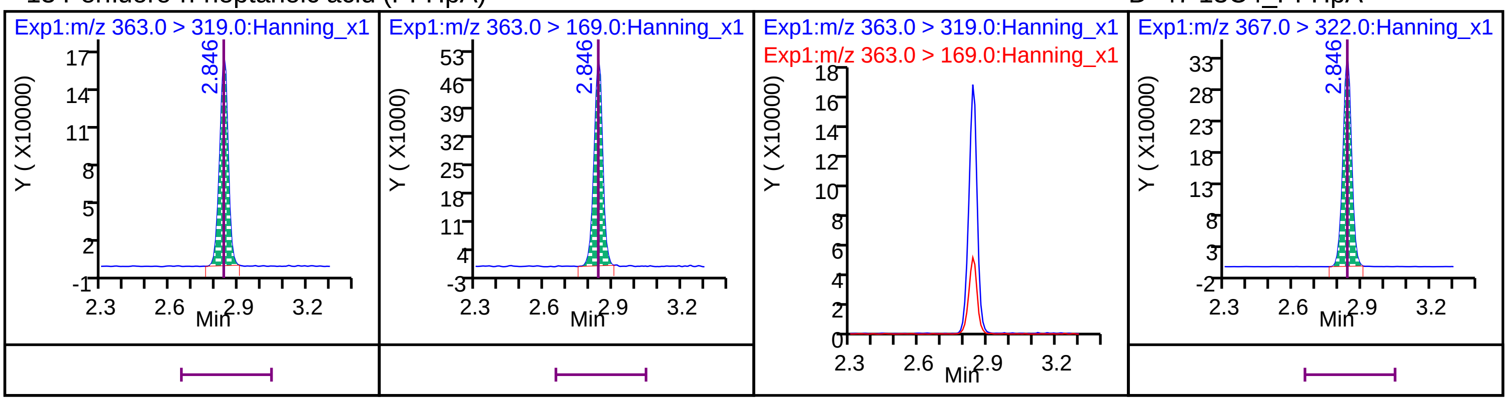
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



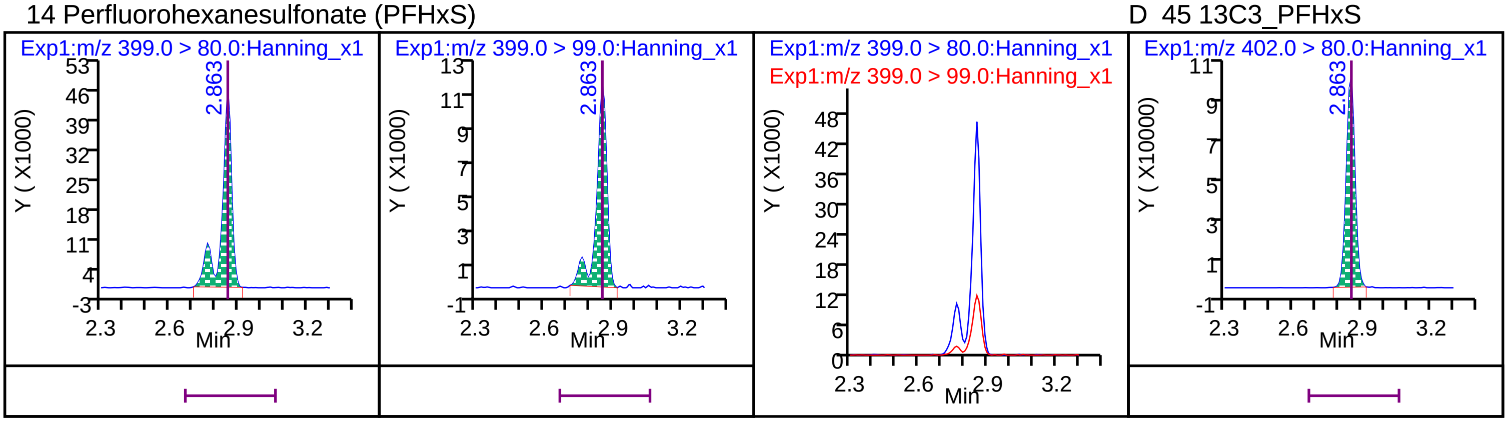
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



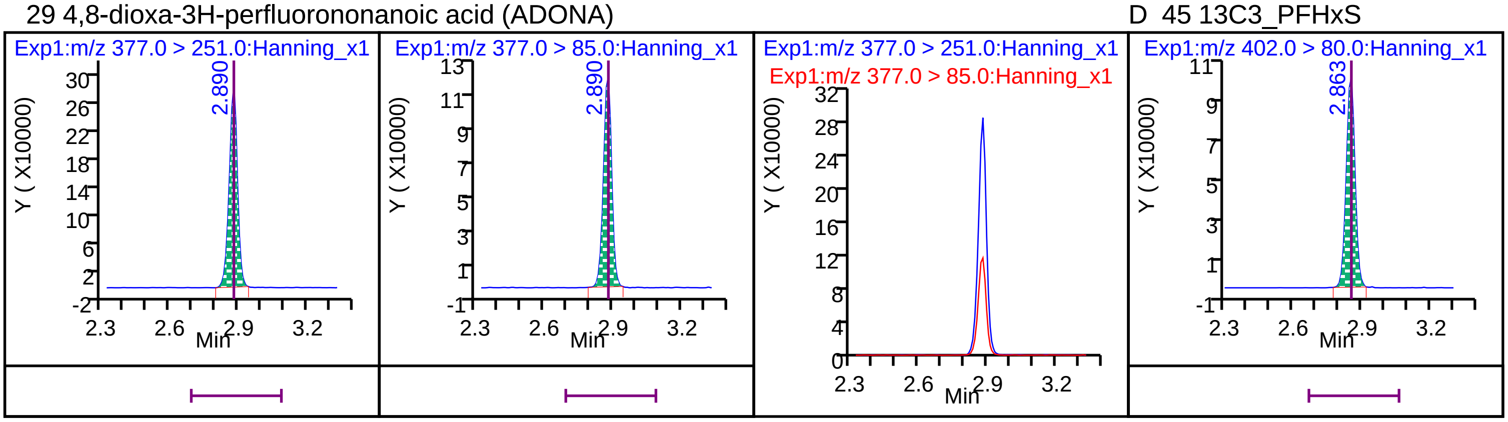
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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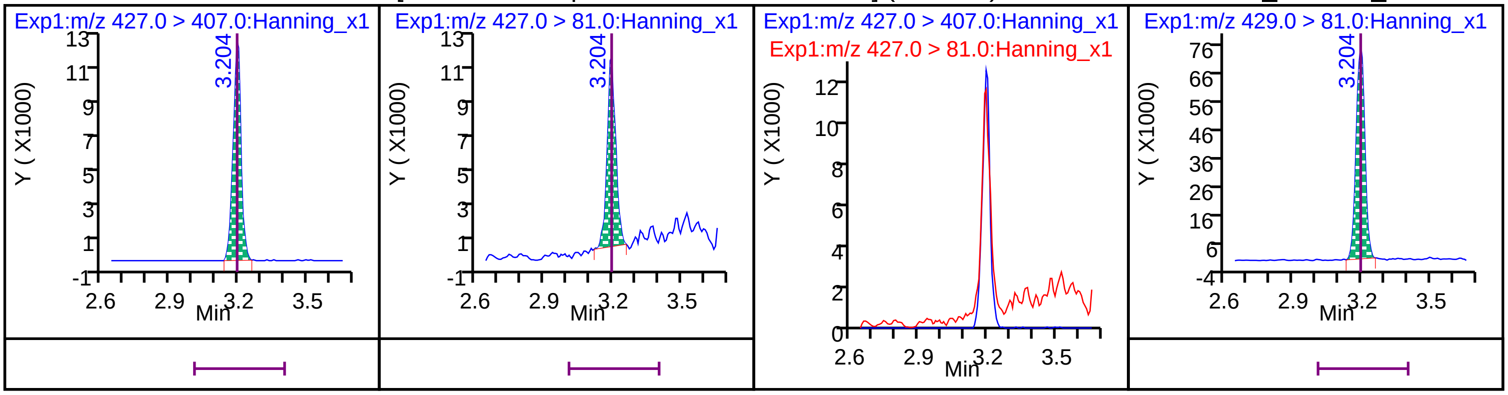
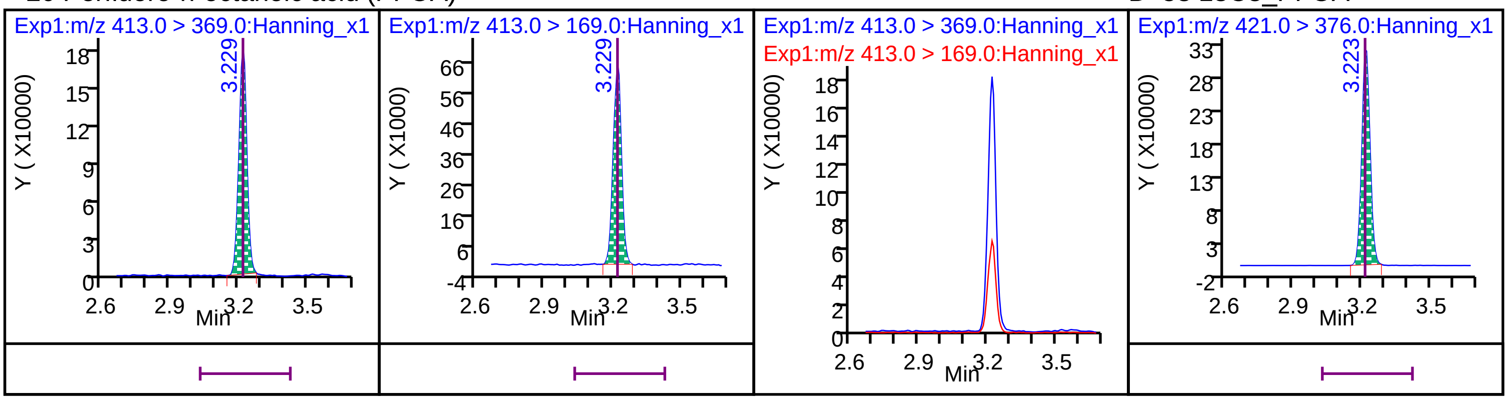
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d

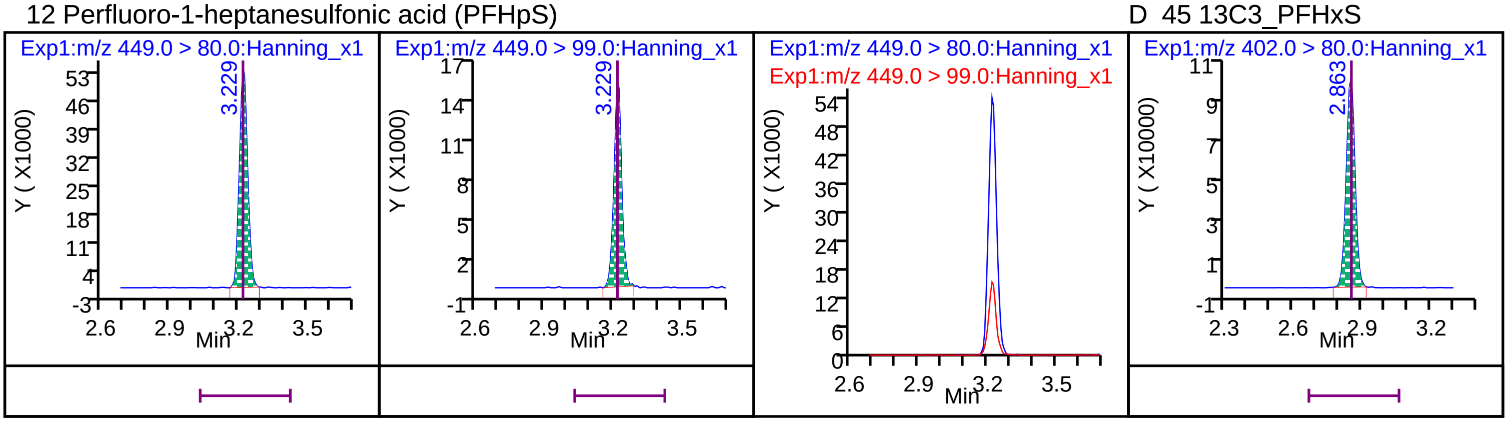
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



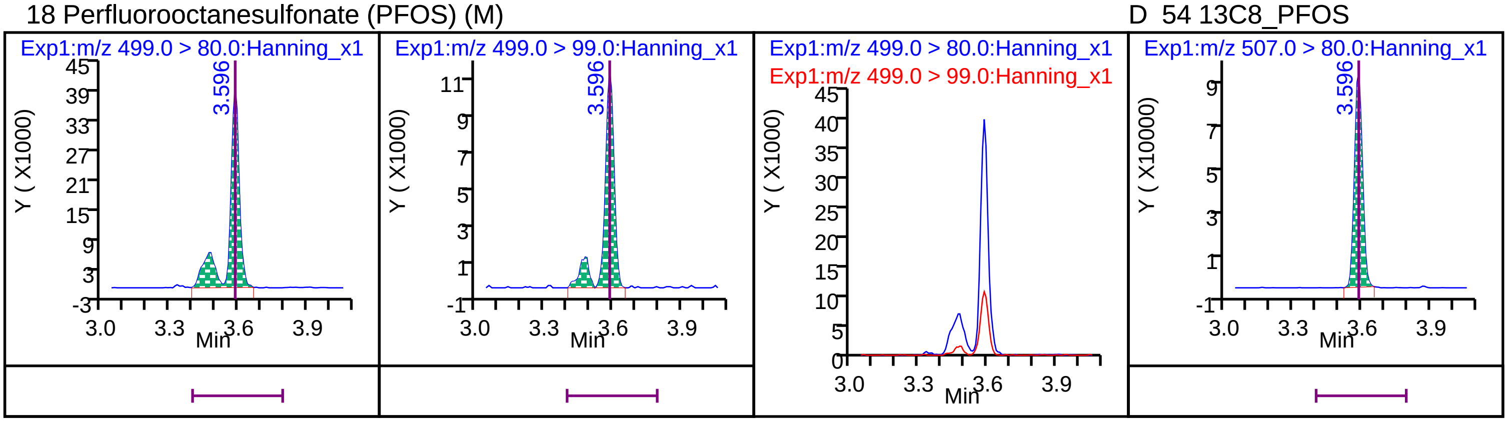
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



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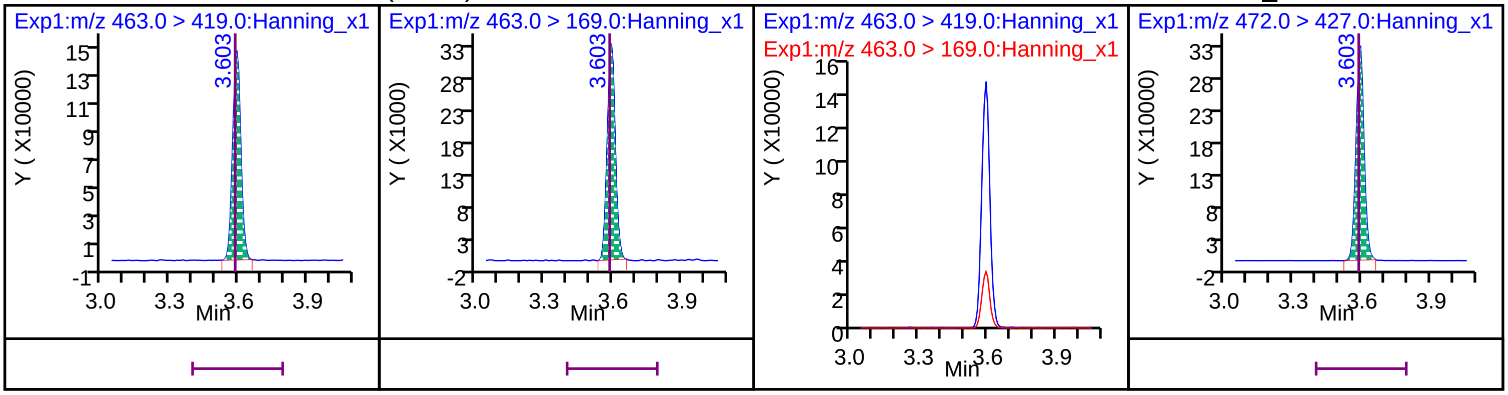
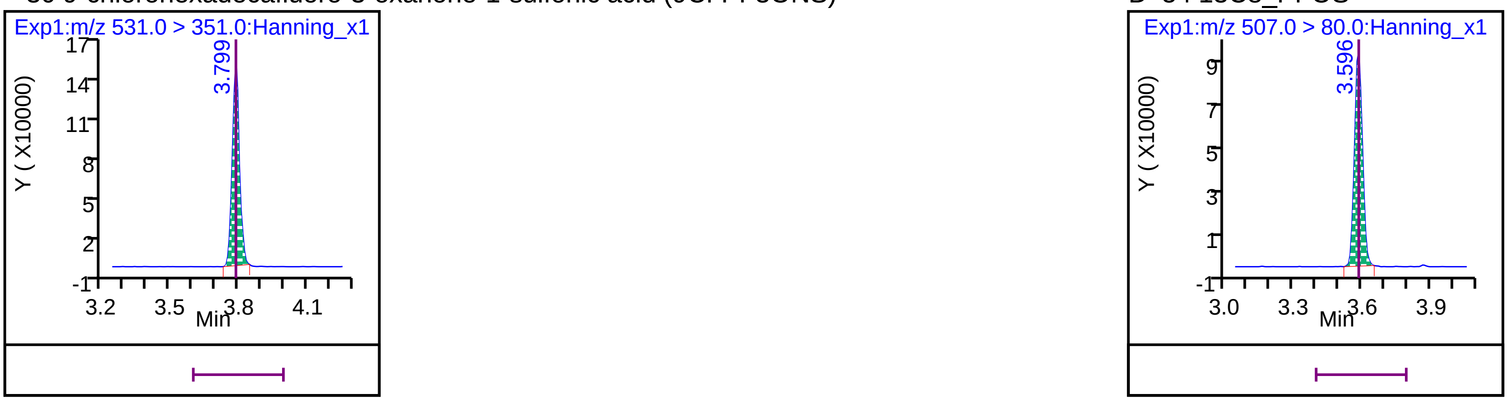
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d

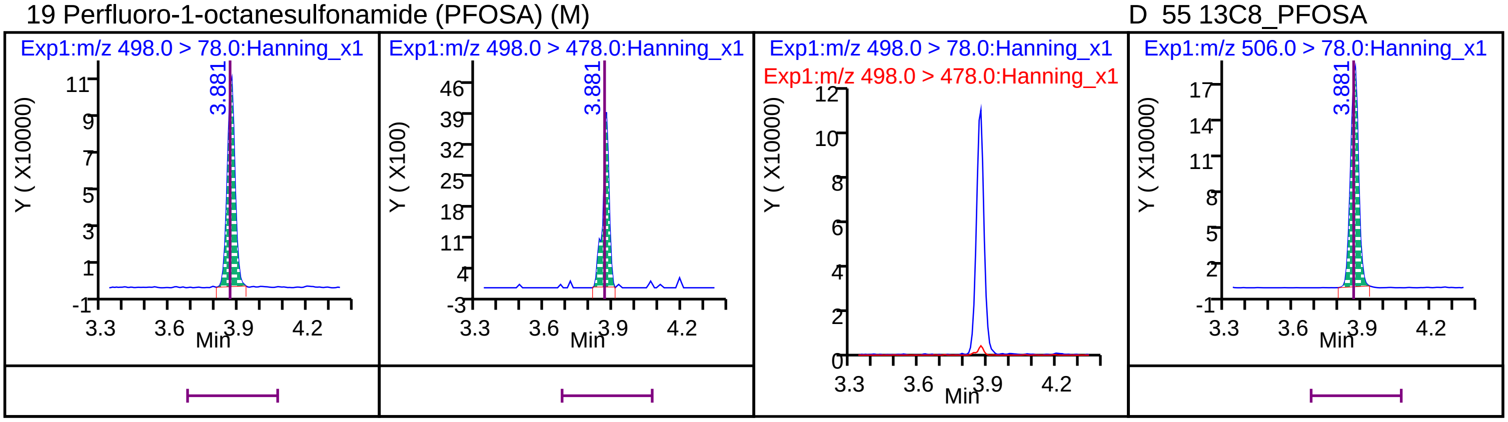
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



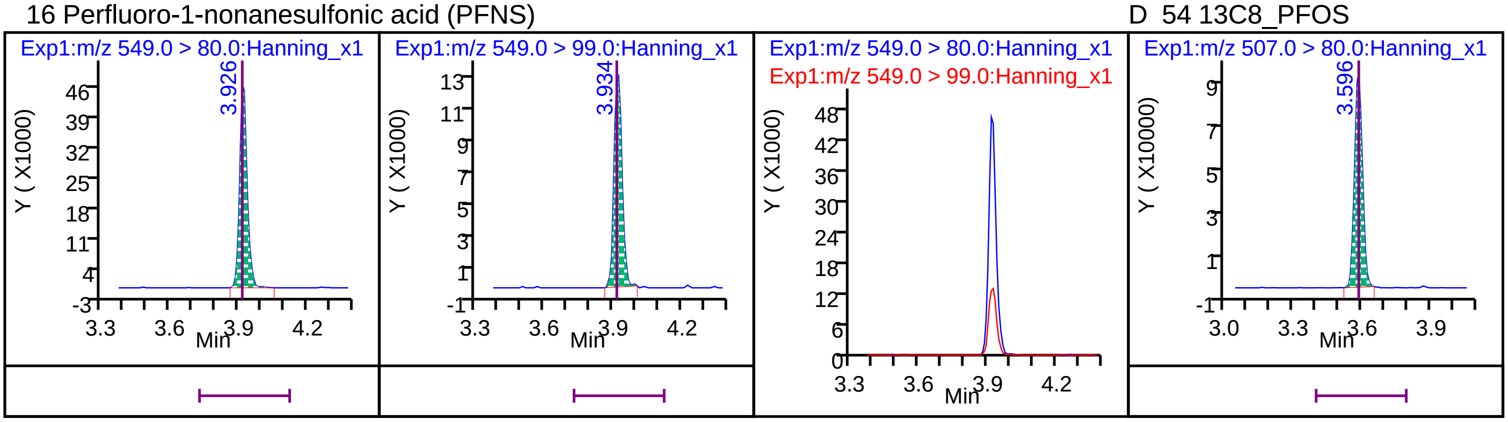
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



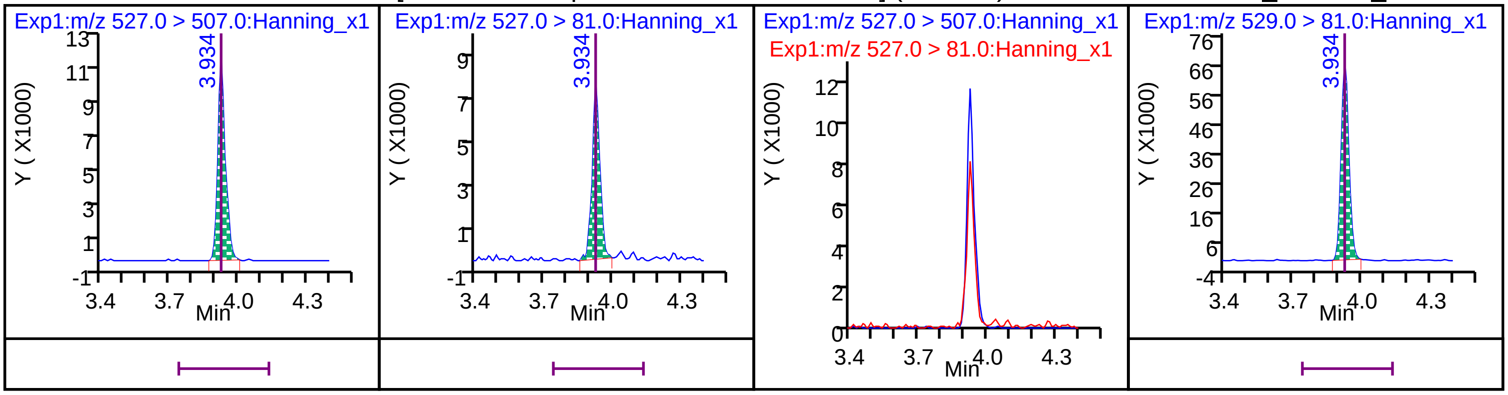
19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA



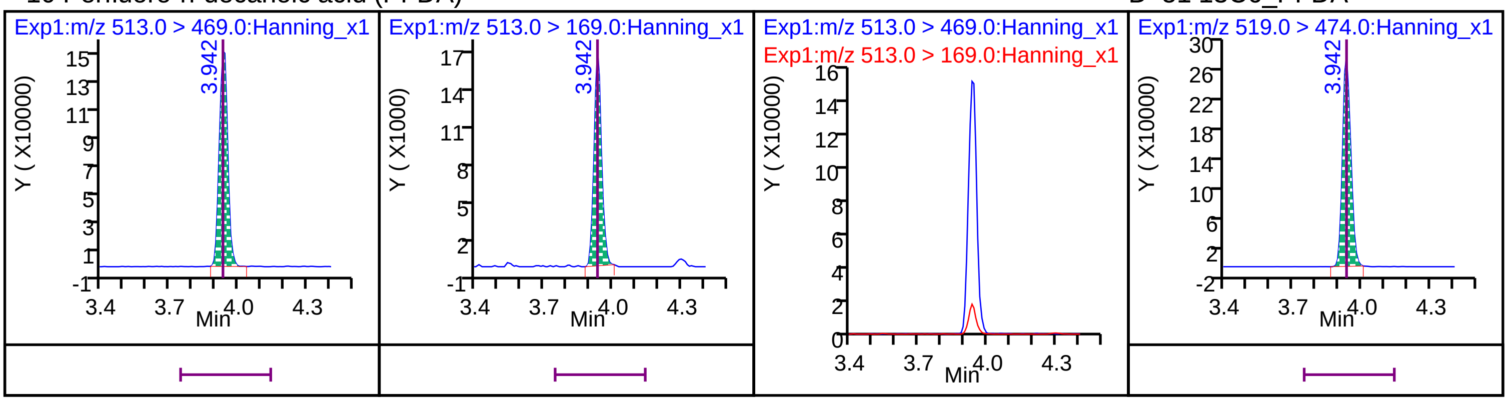
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



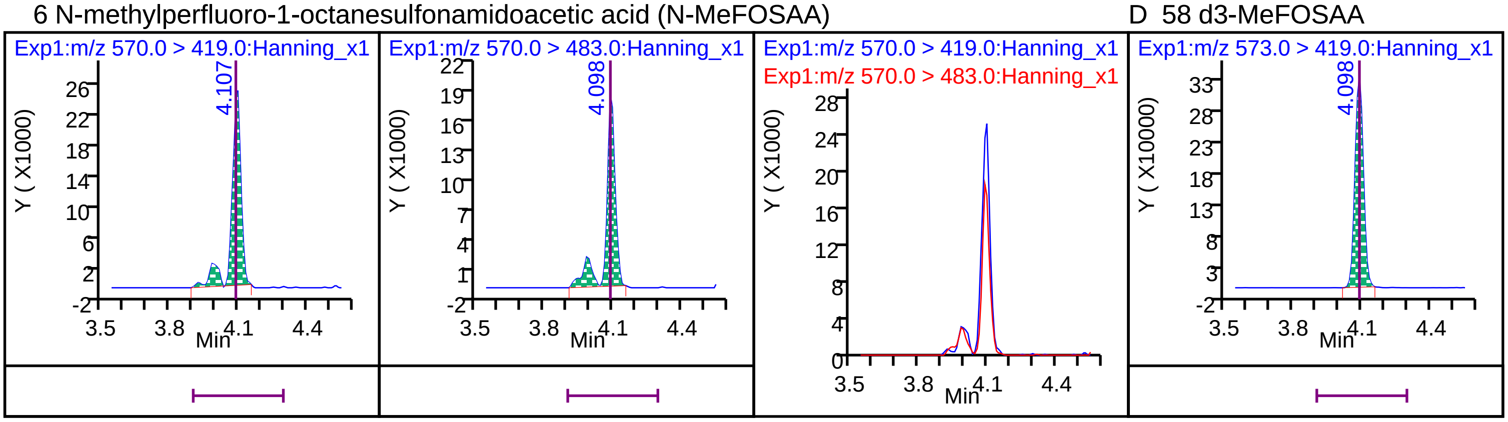
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



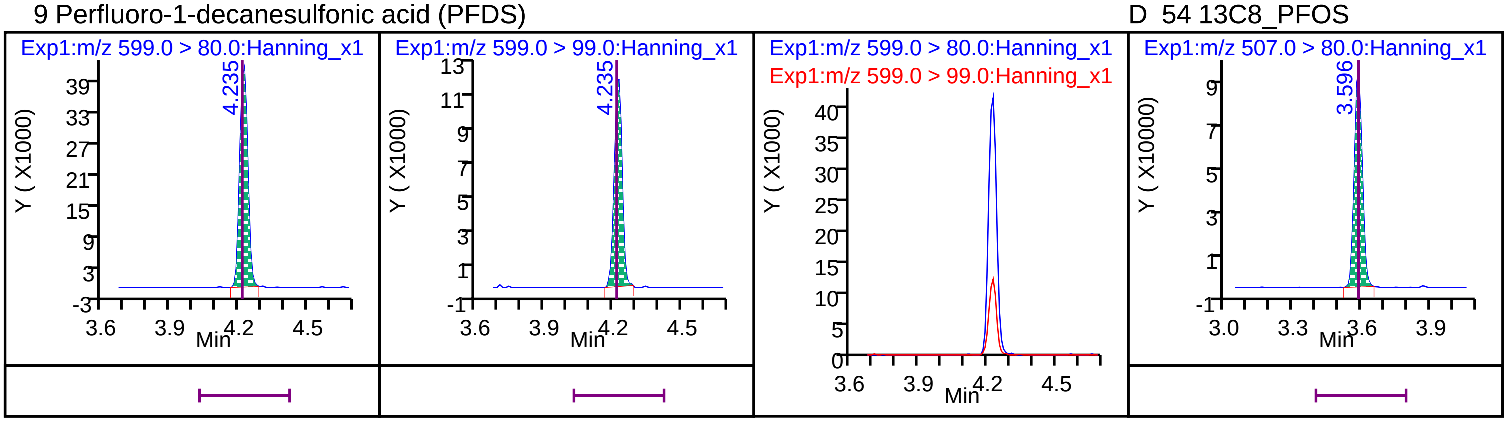
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



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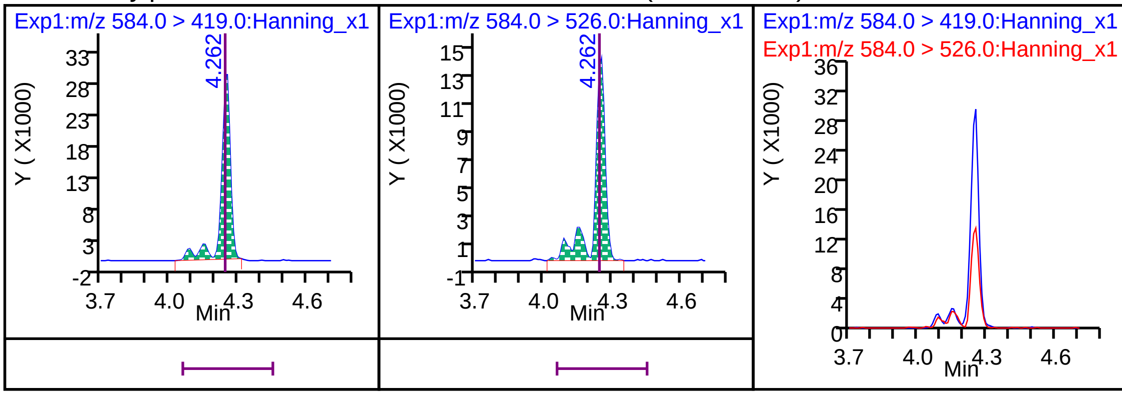
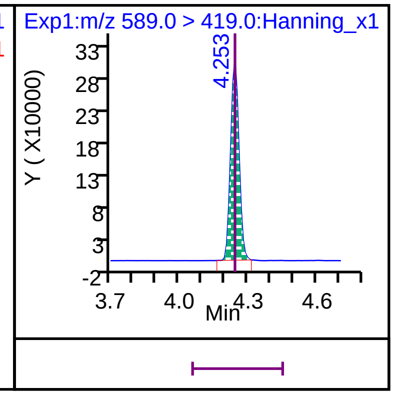
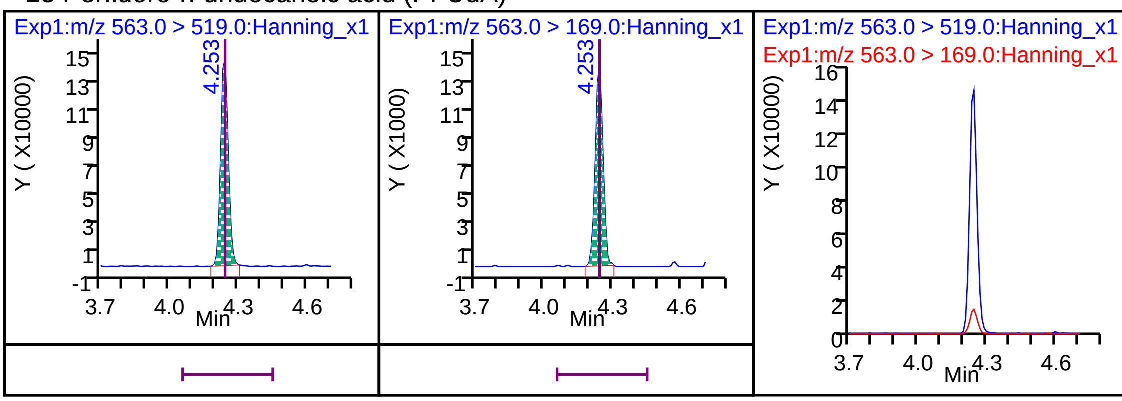
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



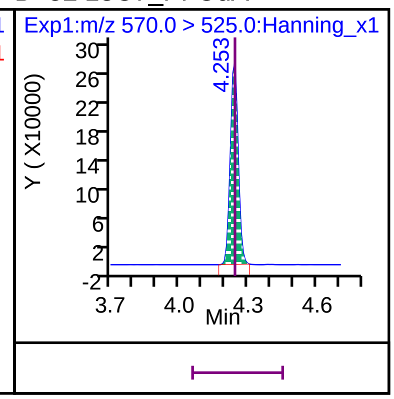
D 60 d5-EtFOSAA



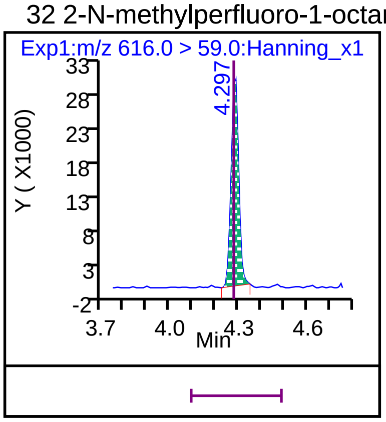
25 Perfluoro-n-undecanoic acid (PFUdA)



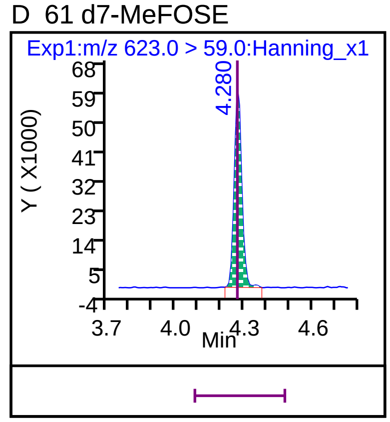
D 52 13C7_PFUdA



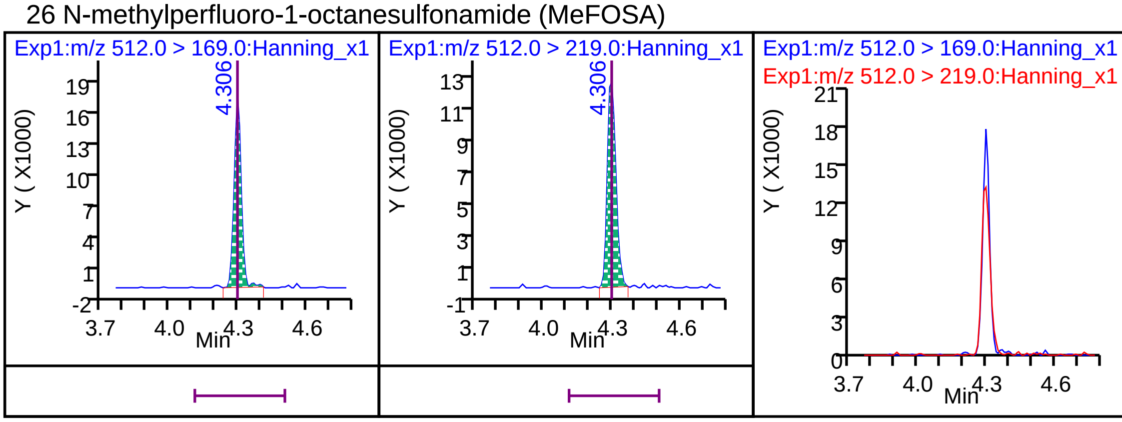
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



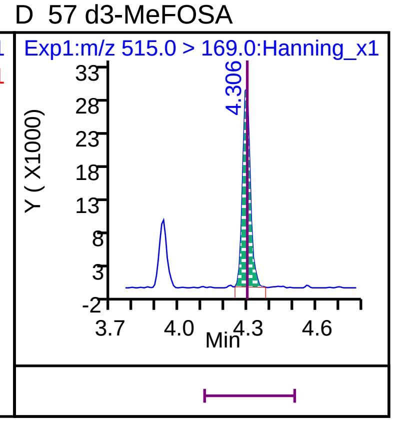
D 61 d7-MeFOSE



26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)

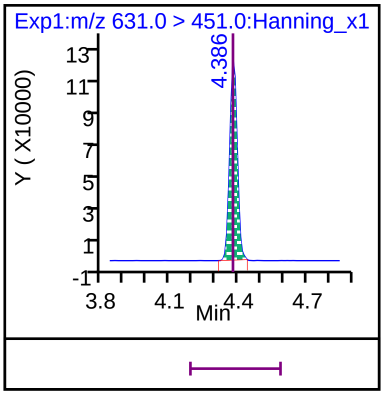


D 57 d3-MeFOSA

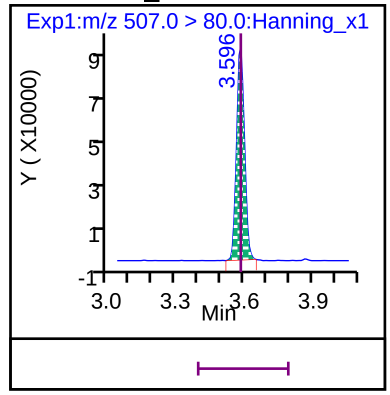


Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d

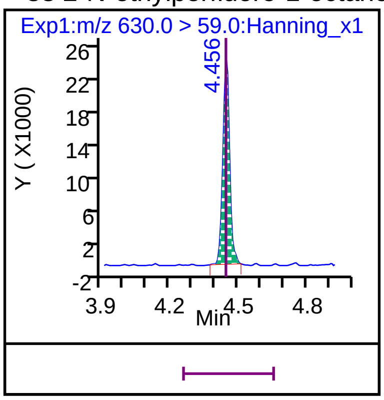
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



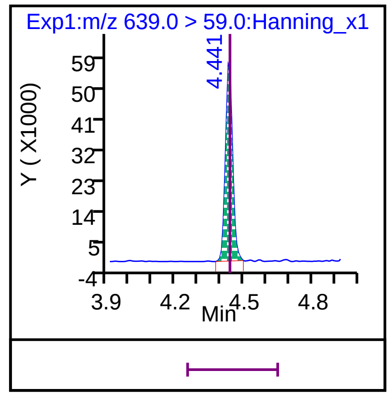
D 54 13C8_PFOS



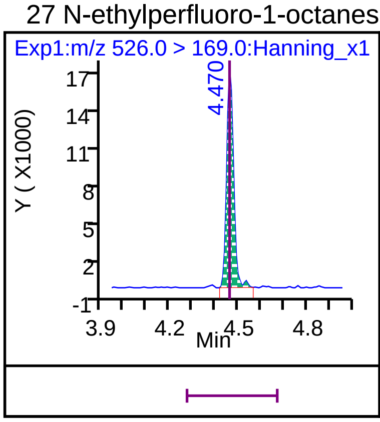
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

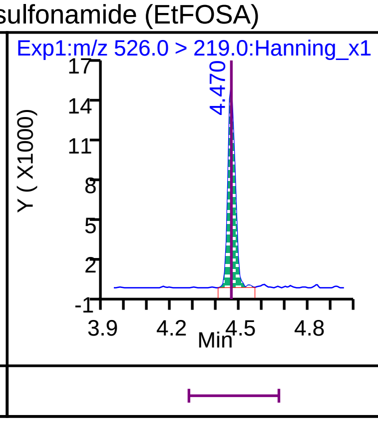


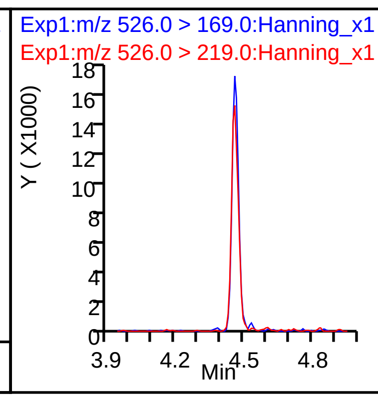
D 62 d9-EtFOSE



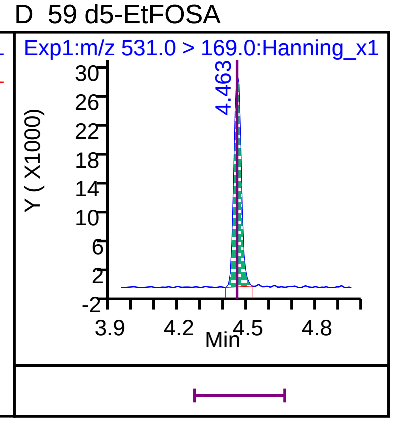
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



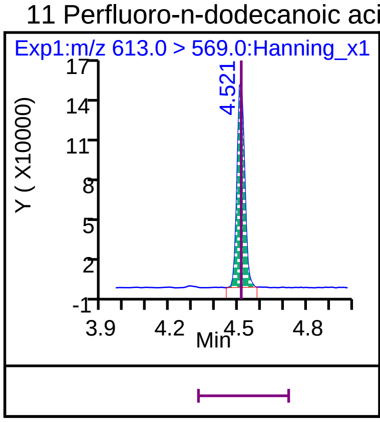


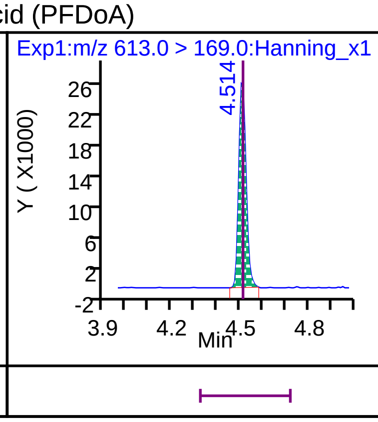


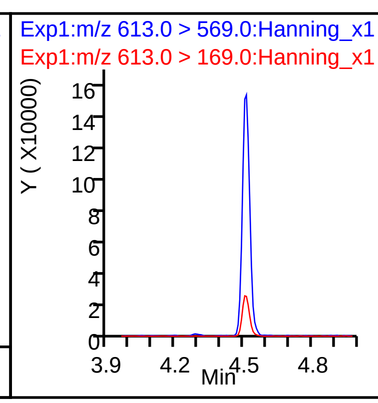
D 59 d5-EtFOSA



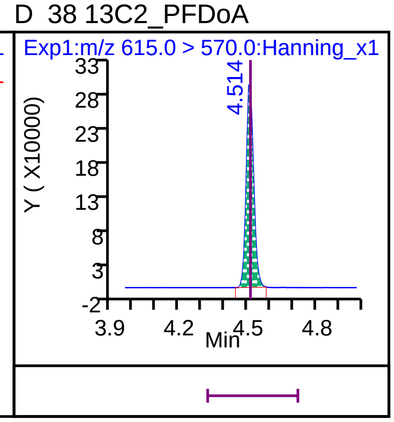
11 Perfluoro-n-dodecanoic acid (PFDoA)



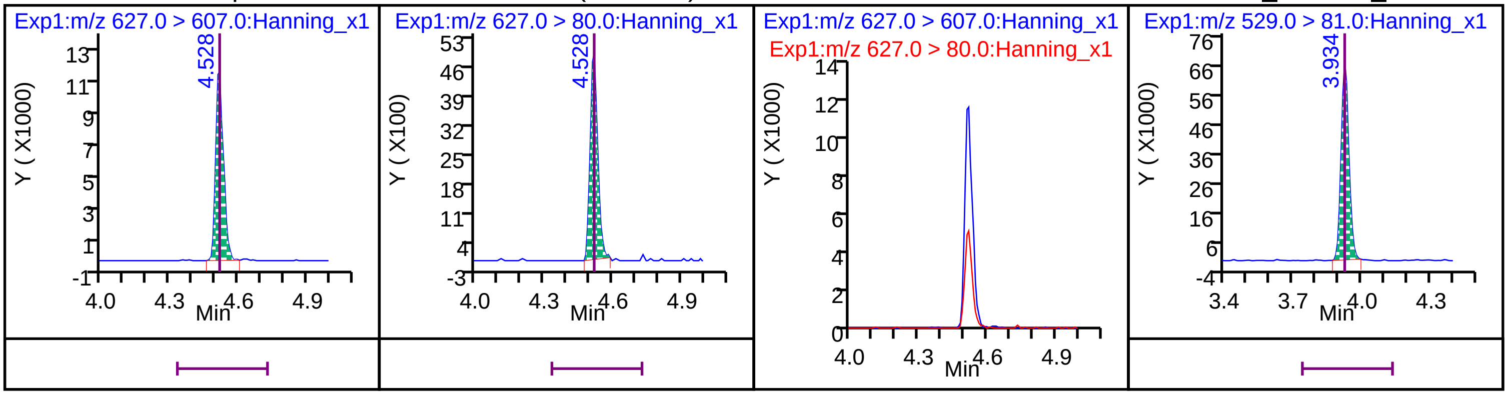




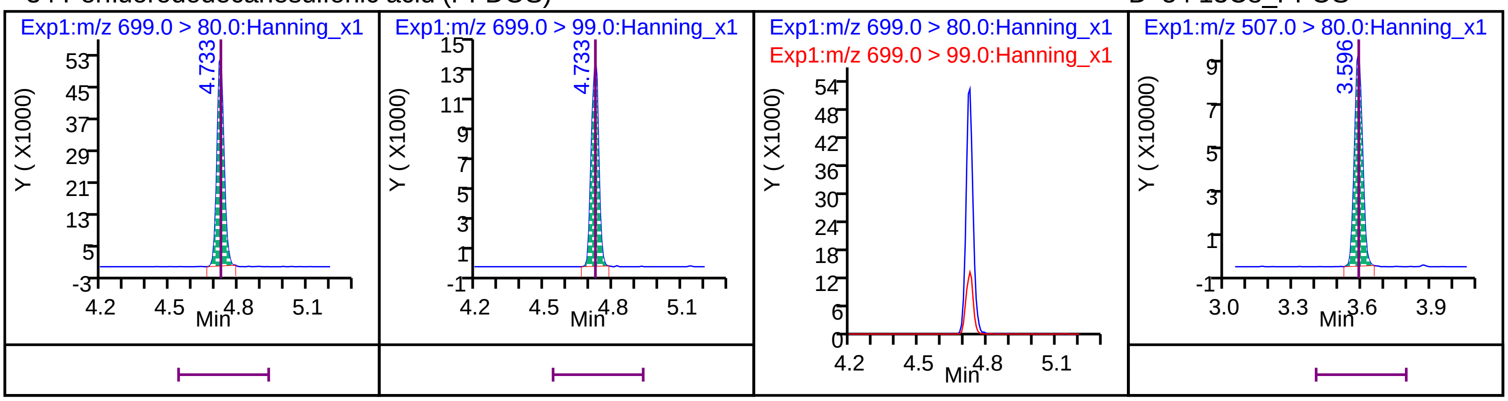
D 38 13C2_PFDoA



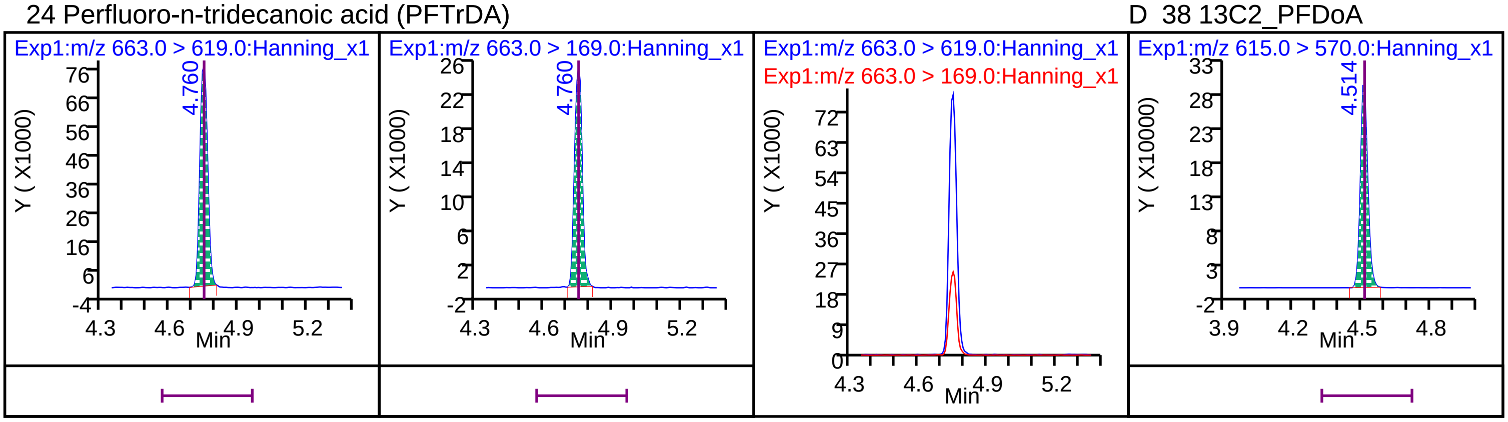
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



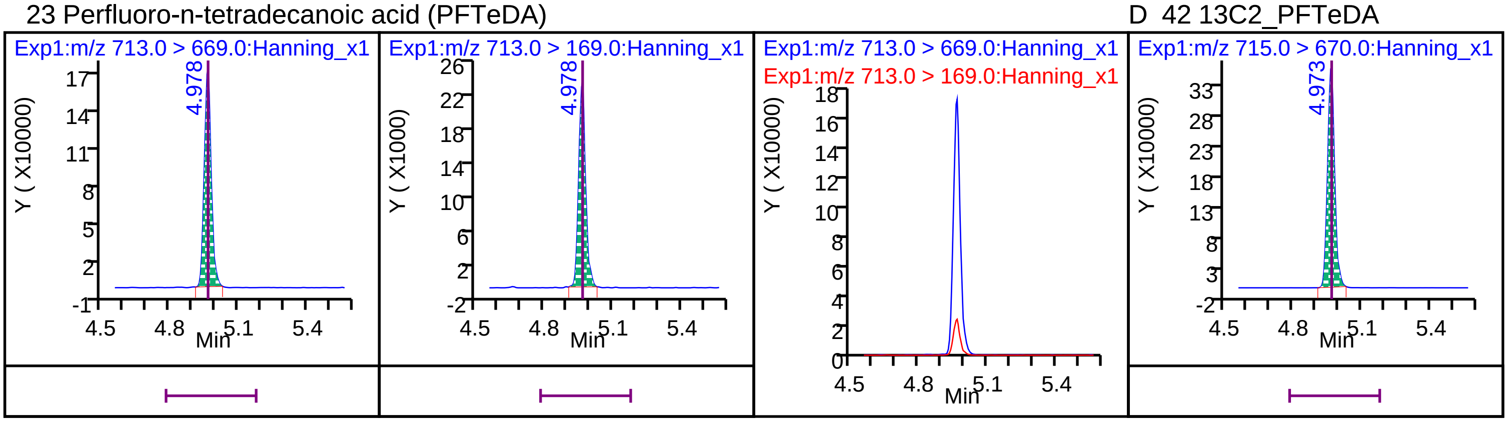
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



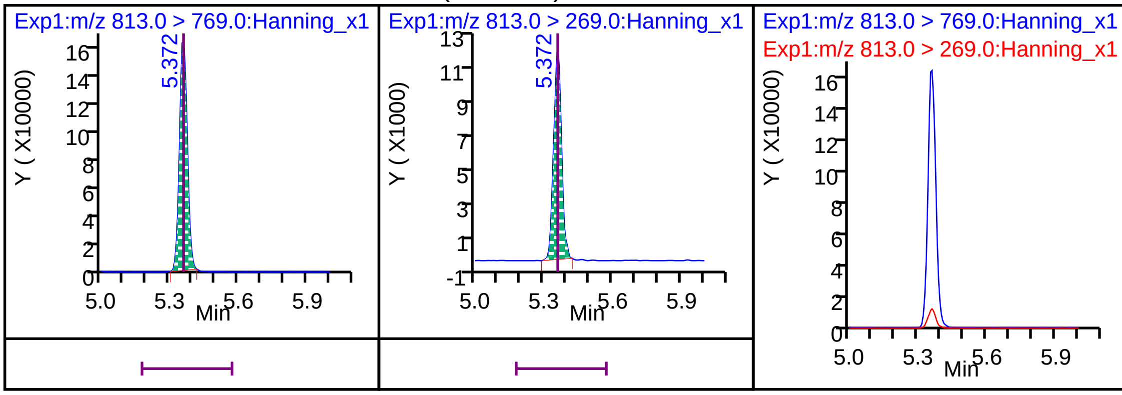
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



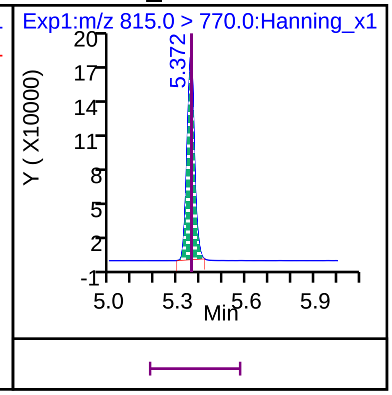
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



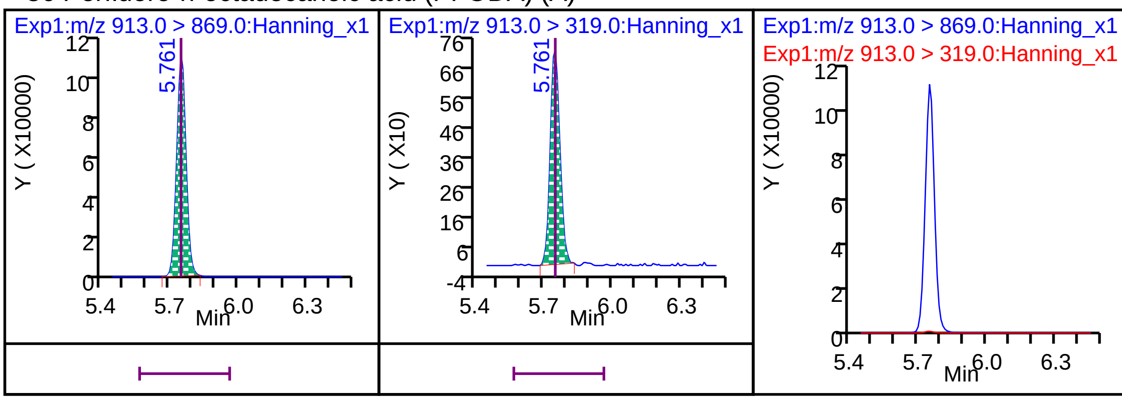
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



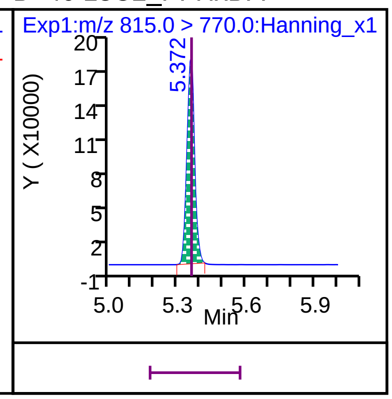
D 40 13C2_PFHxDA



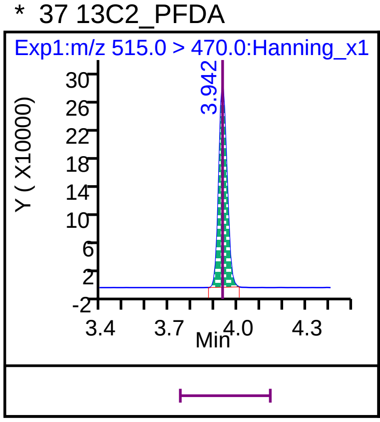
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



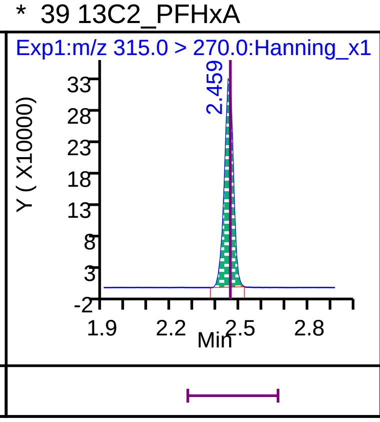
D 40 13C2_PFHxDA



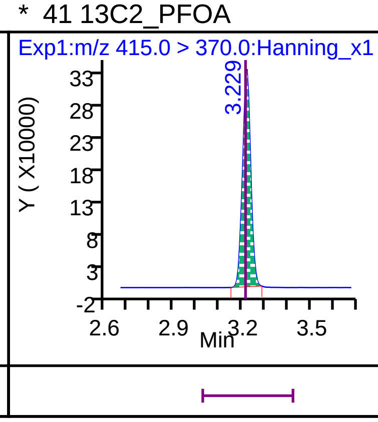
* 37 13C2_PFDA



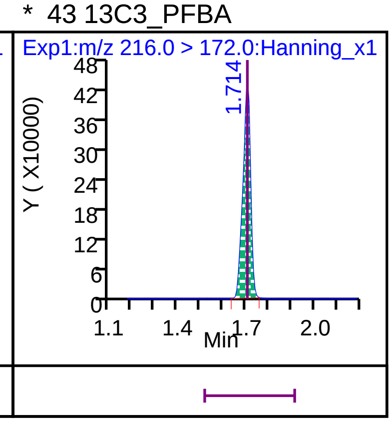
* 39 13C2_PFHxA



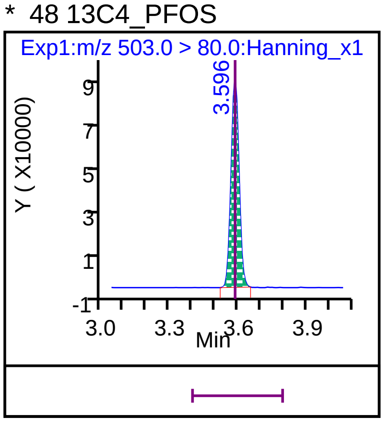
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

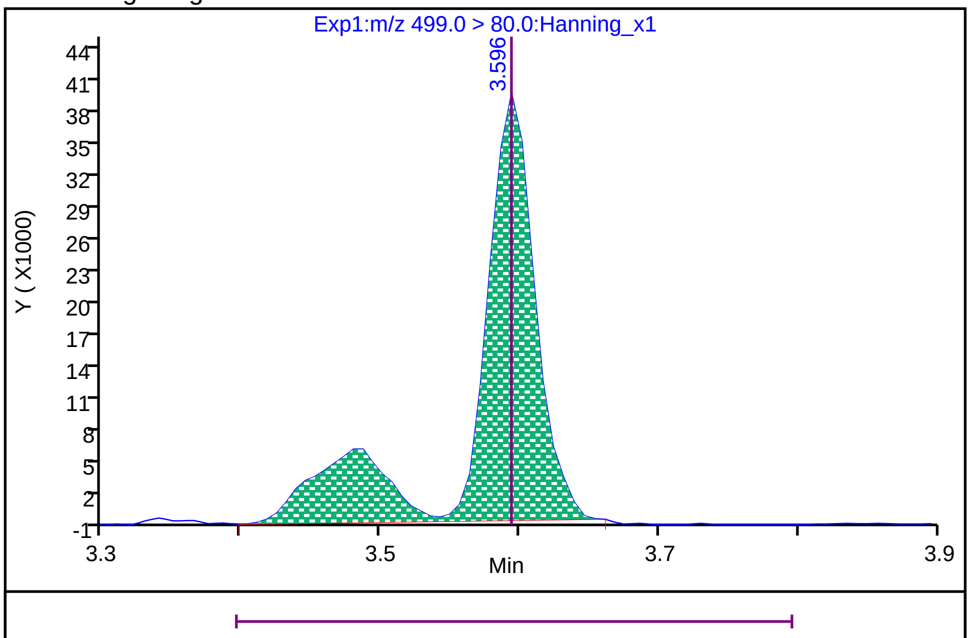
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d		
Injection Date:	04-Nov-2021 14:20:19	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1642
Sample Info:	ICAL 500_SVLC-1642		
Dil. Factor:	1	Operator:	Matthew M. Miller

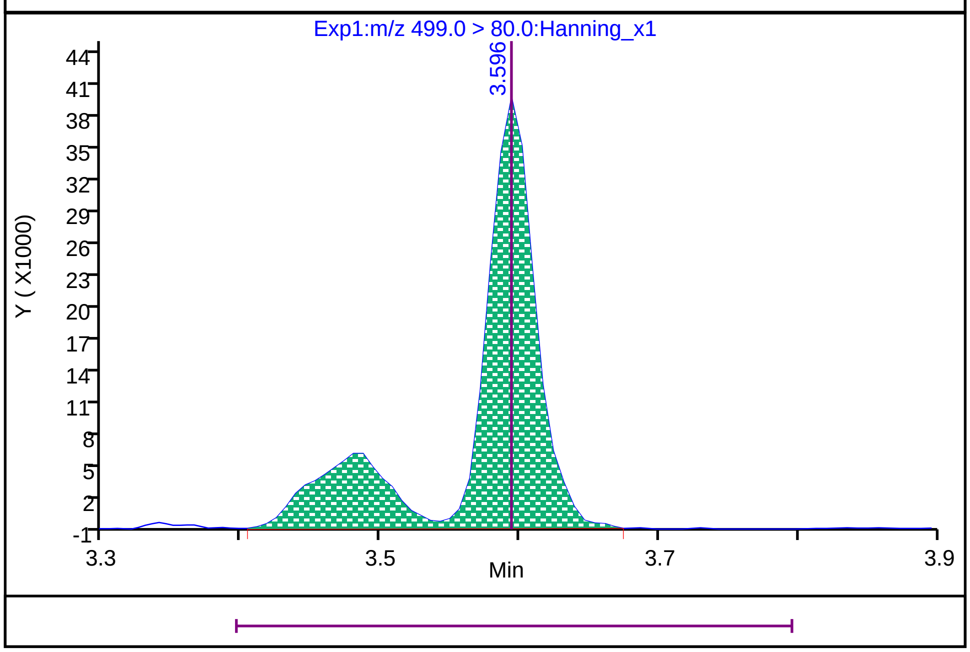
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.596
Area:	116500
Amount:	463.61
Amount Units:	ng/L



RT:	3.596
Area:	120187
Amount:	471.33
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:05

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

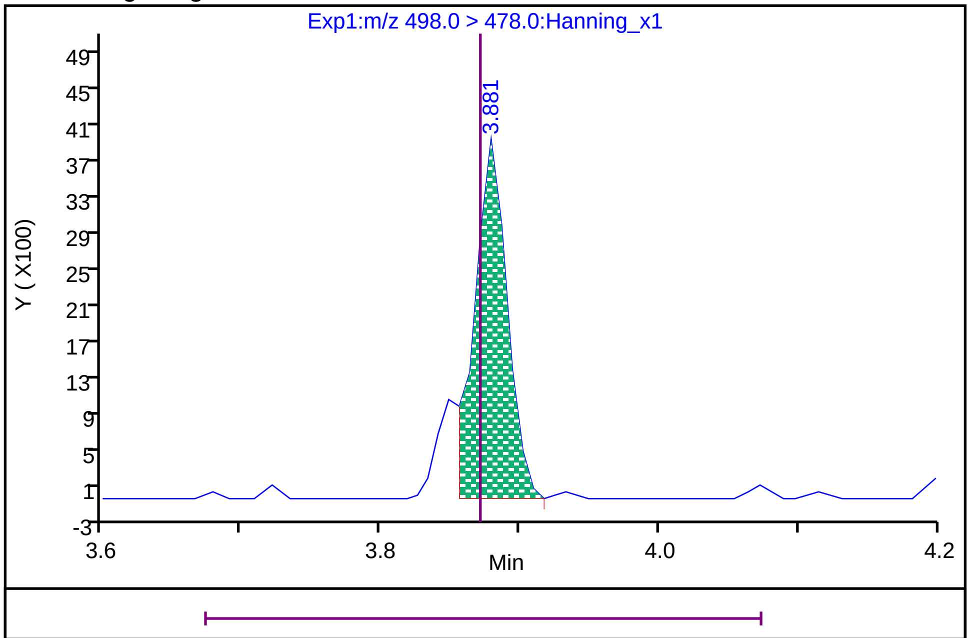
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A011.d		
Injection Date:	04-Nov-2021 14:20:19	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1642
Sample Info:	ICAL 500_SVLC-1642		
Dil. Factor:	1	Operator:	Matthew M. Miller

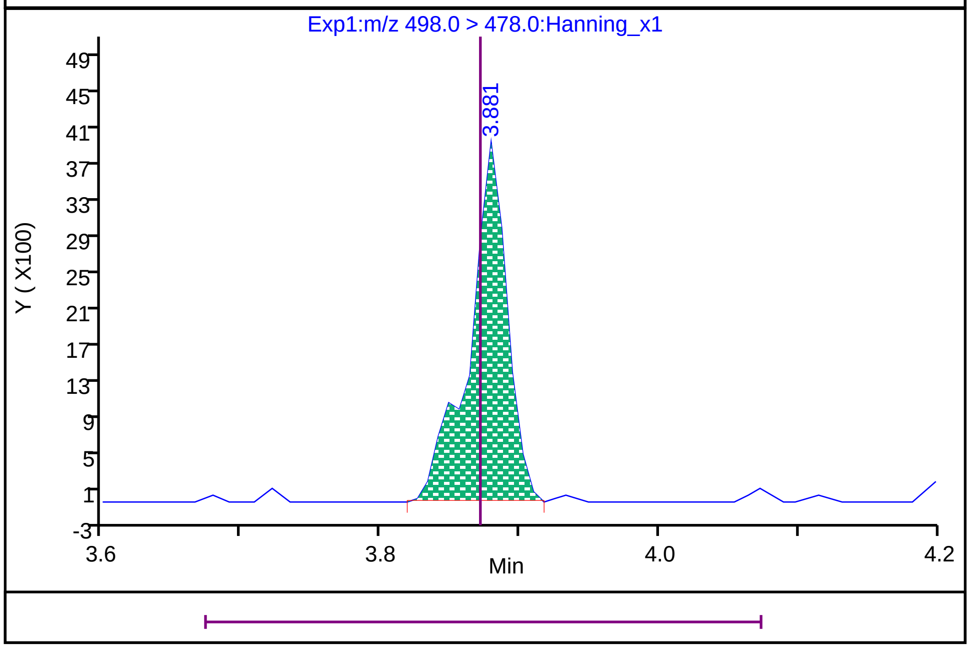
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT:	3.881
Area:	6195
Amount:	490.06
Amount Units:	ng/L



RT:	3.881
Area:	7242
Amount:	490.06
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:15:22

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A012.d		
Injection Date:	04-Nov-2021 14:31:00	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	81
Sample Info:	ICAL 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1188899	20	>100:1			1000.00	1104.17	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	0/-1	1259491	20	>100:1			1000.00	963.23		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1090536	17	>100:1			1000.00	1087.37	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	1137368	16	>100:1			1000.00	973.40		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	364125	16	>100:1			1000.00	1121.18	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	425311	15	>100:1	Target = 3.80		884.00	817.59		
298.9 > 99	44	2.141	2.141		104698	15	>100:1	4.06 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	0/-1	324219	18	>100:1	Target = 3.42		938.00	884.92		
349 > 99	44	2.493	2.493		96274	19	>100:1	3.36 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	216934	20	>100:1			5000.00	5222.67	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.415	0/-1	81315	18	>100:1	Target = 1.54		934.00	960.29		
327 > 81	63	2.415	2.415		50451	19	71:1	1.61 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	1029068	18	>100:1			1000.00	1152.07	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/1	989114	18	>100:1	Target = 17.93		1000.00	930.22		
313 > 119	49	2.459	2.467		52177	17	>100:1	18.95 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	878629	19	>100:1			5000.00	5363.40	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/0	282614	19	>100:1	Target = 0.72		2000.00	2099.06		
285 > 185	66	2.587	2.587		403484	19	>100:1	0.70 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	986129	18	>100:1			1000.00	1125.47	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	0/-1	919935	17	>100:1	Target = 3.26		1000.00	969.06		
363 > 169	47	2.846	2.846		294618	18	>100:1	3.12 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	296861	18	>100:1			1000.00	1131.85	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	295670	26	>100:1	Target = 3.48	5.26	910.00	842.52		
399 > 99	45	2.863	2.863		86734	25	>100:1	3.40 (1.74-5.22)	8.60				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	1467493	19	>100:1	Target = 2.31		942.00	898.11		
377 > 85	45	2.890	2.890		608174	17	>100:1	2.41 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.229	3.229	0/-1	274595	21	>100:1	Target = 3.56		952.00	899.33		
449 > 99	45	3.236	3.229		78560	20	>100:1	3.49 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	1	194584	22	>100:1			5000.00	5159.86	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	0/-1	69578	20	>100:1	Target = 1.34		948.00	1028.23		
427 > 81	64	3.204	3.204		50092	20	>100:1	1.38 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	0	923846	22	>100:1			1000.00	1117.11	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.229	1/1	900071	21	>100:1	Target = 2.50		1000.00	946.88		
413 > 169	53	3.229	3.229		362413	22	>100:1	2.48 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.595	3.595	0	245640	18	>100:1			1000.00	1094.26	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.595	3.595	0/0	243929	40	>100:1	Target = 4.01	3.48	928.00	842.37		M
499 > 99	54	3.588	3.595		68723	35	>100:1	3.54 (2.00-6.02)	8.04				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/1	705876	18	>100:1			932.00	929.82		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.926	3.926	0/0	226690	17	>100:1	Target = 3.78		960.00	913.70		
549 > 99	54	3.926	3.926		66973	18	>100:1	3.38 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.226	0/0	256395	17	>100:1	Target = 3.98		964.00	1057.26		
599 > 99	54	4.235	4.226		55477	15	>100:1	4.62 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/1	609566	16	>100:1			942.00	893.31		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.733	4.733	1/1	191592	19	>100:1	Target = 3.68		968.00	805.35		
699 > 99	54	4.733	4.733		54493	18	>100:1	3.51 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.595	3.595	0	999317	19	>100:1			1000.00	1250.69	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.595	3.595	0/0	780250	19	>100:1	Target = 4.69		1000.00	857.43		
463 > 169	56	3.603	3.595		179501	19	>100:1	4.34 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	0	427823	20	>100:1			1000.00	1032.91	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.873	0/0	506039	19	>100:1	Target = 40.85		1000.00	1046.08		
498>478	55	3.866	3.873		13063	16	>100:1	38.73 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	0	153511	17	>100:1			5000.00	4891.15	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.934	3.934	0/0	55727	16	>100:1	Target = 1.58		958.00	1021.65		
527 > 81	65	3.934	3.934		35212	19	>100:1	1.58 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.528	0/0	52702	16	>100:1	Target = 2.46		964.00	962.54		
627 > 80	65	4.528	4.528		20105	19	>100:1	2.62 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.942	1	784847	18	>100:1			1000.00	1087.35	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.942	3.942	0/-1	801278	18	>100:1	Target = 9.77		1000.00	994.96		
513 > 169	51	3.942	3.942		80194	18	>100:1	9.99 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.098	4.098	1	902679	17	>100:1			5000.00	5090.88	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.098	4.098	0/-1	154285	32		Target = 1.41	8.10	1000.00	1045.23		
570 > 483	58	4.098	4.098		109392	38	>100:1	1.41 (0.70-2.11)	3.51				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.253	4.253	1	732655	16	>100:1			1000.00	1072.04	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.253	4.253	1/0	667395	16	>100:1	Target = 9.19		1000.00	1015.40		
563 > 169	52	4.253	4.253		71997	15	>100:1	9.26 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	779079	17	>100:1			5000.00	5210.16	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.253	0/-1	158471	32	>100:1	Target = 1.75	6.03	1000.00	994.98		
584 > 526	60	4.262	4.253		98358	33	>100:1	1.61 (0.87-2.63)	4.12				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	0	133282	15	>100:1			1000.00	965.91	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.288	4.288	0/0	135259	15	>100:1			1000.00	998.54		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.306	4.306	1	72656	14	>100:1			1000.00	1037.63	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/0	88136	14	>100:1	Target = 1.11		1000.00	1171.44		
512 > 219	57	4.306	4.306		74677	14	>100:1	1.18 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.448	4.448	1	129304	16	>100:1			1000.00	1005.83	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/0	125825	17	>100:1			1000.00	1143.20		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	0	65473	19	>100:1			1000.00	1016.58	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/1	77611	20	>100:1	Target = 1.06		1000.00	1013.93		
526 > 219	59	4.477	4.470		76222	15	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.521	1	746808	18	>100:1			1000.00	1086.04	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.521	1/0	720919	20	>100:1	Target = 6.38		1000.00	982.93		
613 > 169	38	4.521	4.521		115696	18	>100:1	6.23 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.760	4.760	1/0	424716	19	>100:1	Target = 3.23		1000.00	1061.22		
663 > 169	38	4.760	4.760		123489	18	>100:1	3.43 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.978	4.978	1	900924	25	>100:1			1000.00	1152.44	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.978	1/0	736830	26	>100:1	Target = 7.33		1000.00	930.64		
713 > 169	42	4.978	4.978		105441	24	>100:1	6.98 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.372	5.372	1	403292	21	>100:1			1000.00	1033.08	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/0	812993	22	>100:1	Target = 12.31		1000.00	1053.86		
813 > 269	40	5.372	5.372		64550	22	>100:1	12.59 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/0	581763	20	>100:1	Target = 165.31		1000.00	955.52		
913 > 319	40	5.761	5.761		3544	19	>100:1	164.15 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.942	3.942	1	735062	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.467	2.467	1	873310	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.223	0	844185	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	1054064	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.595	3.595	0	223757	18	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

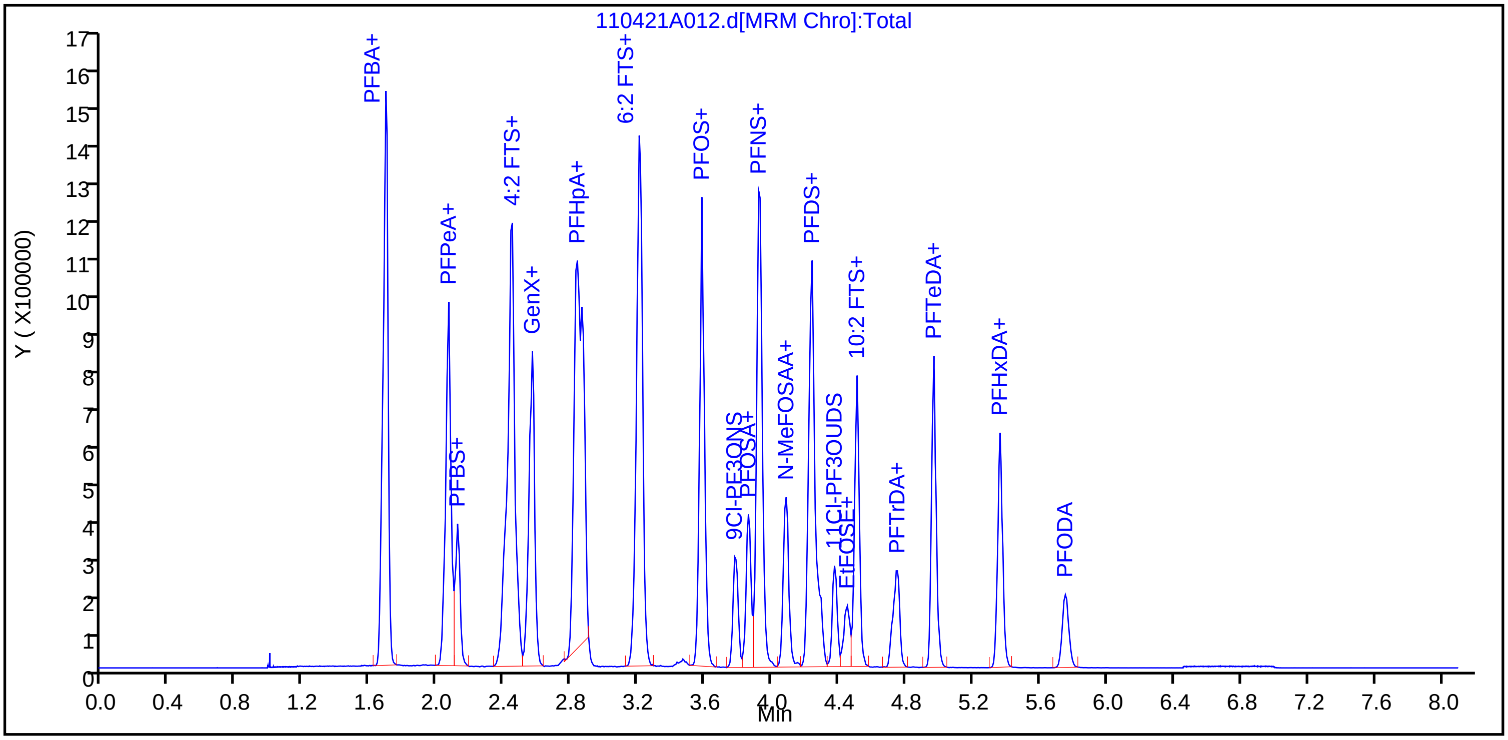
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

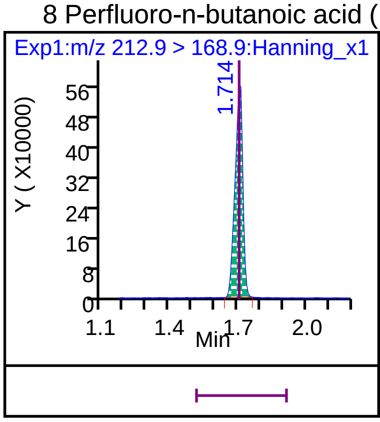
Report Date: 05-Nov-2021 13:58:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

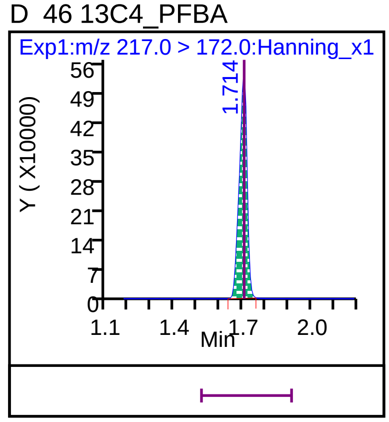
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A012.d		
Injection Date:	04-Nov-2021 14:31:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1717
Sample Info:	ICAL 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



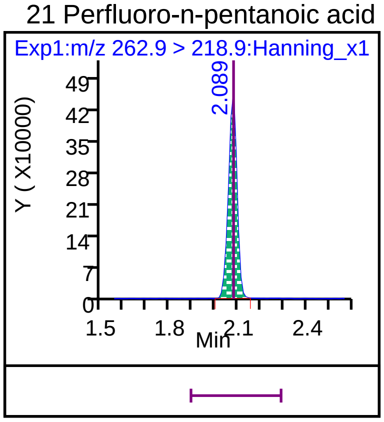
8 Perfluoro-n-butanoic acid (PFBA)



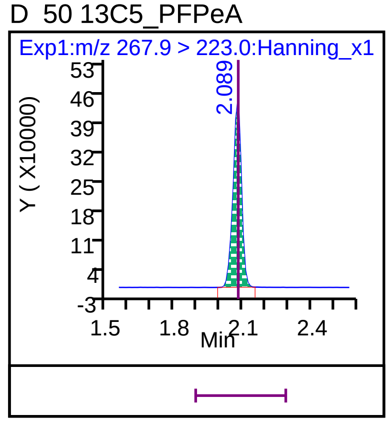
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

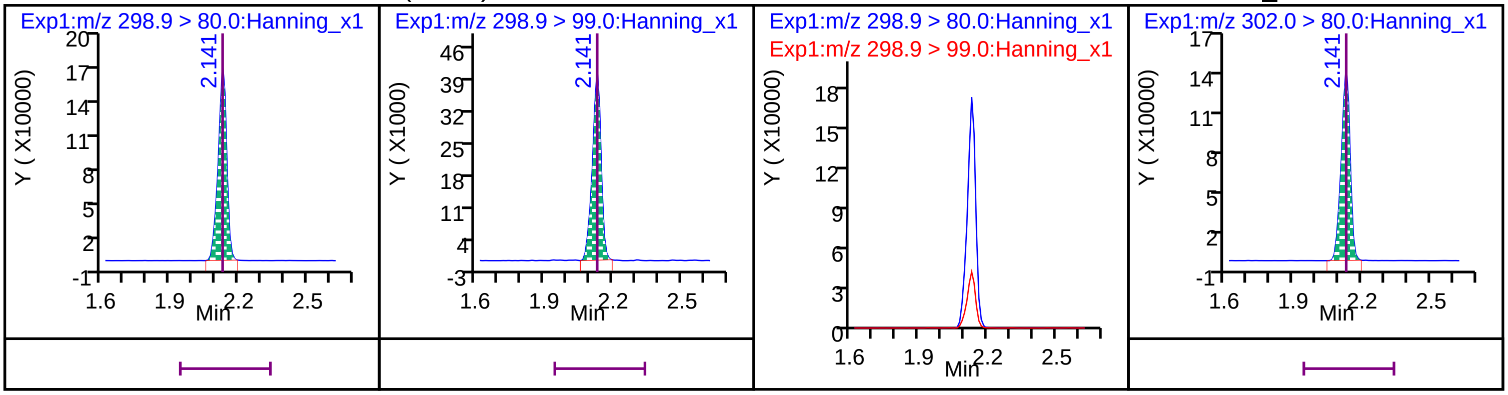


D 50 13C5_PFPeA

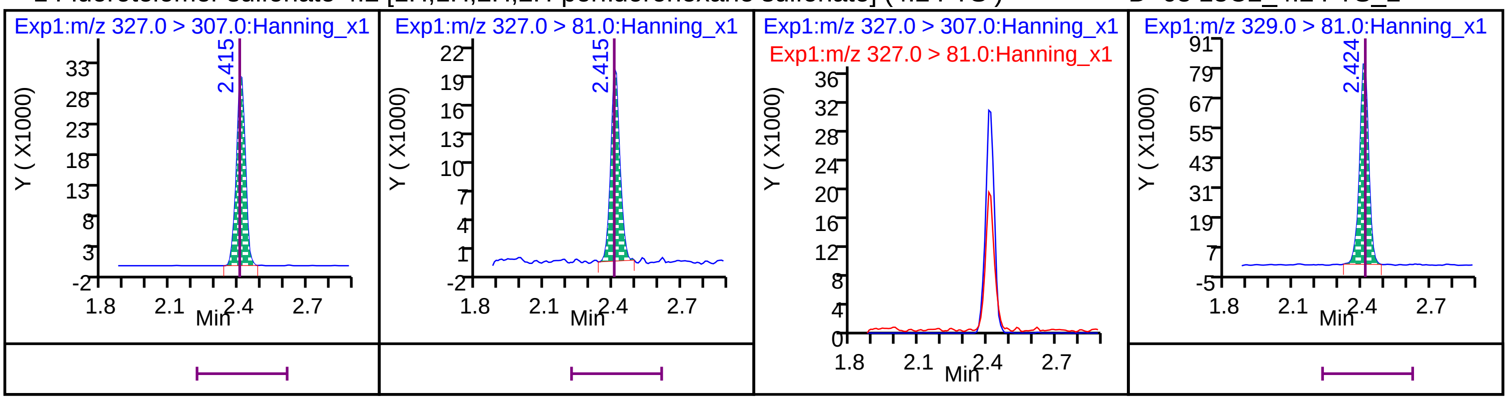


Report Date: 05-Nov-2021 13:58:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A012.d

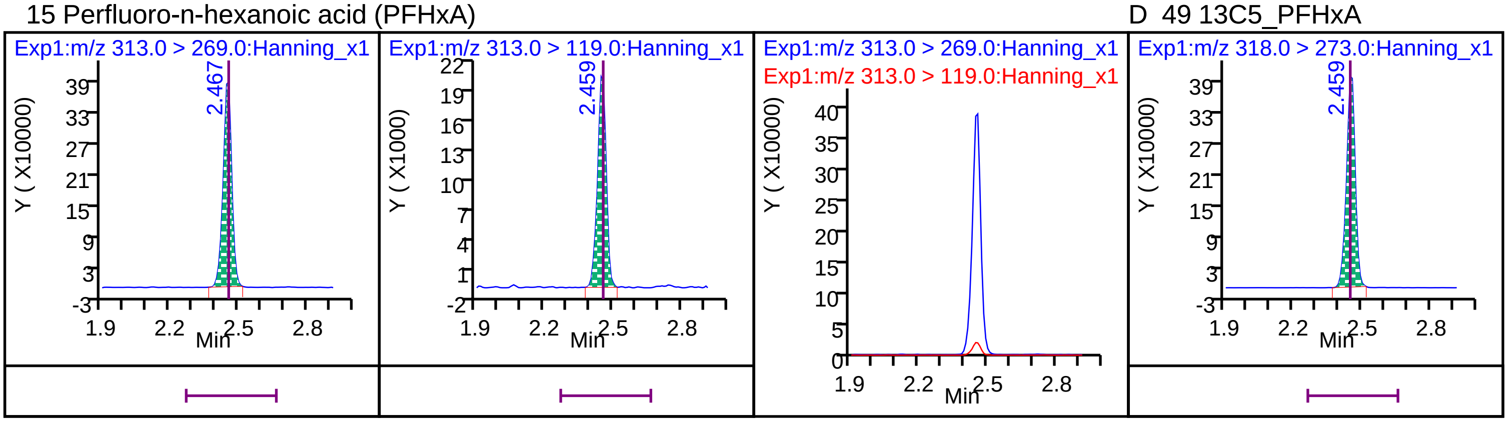
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



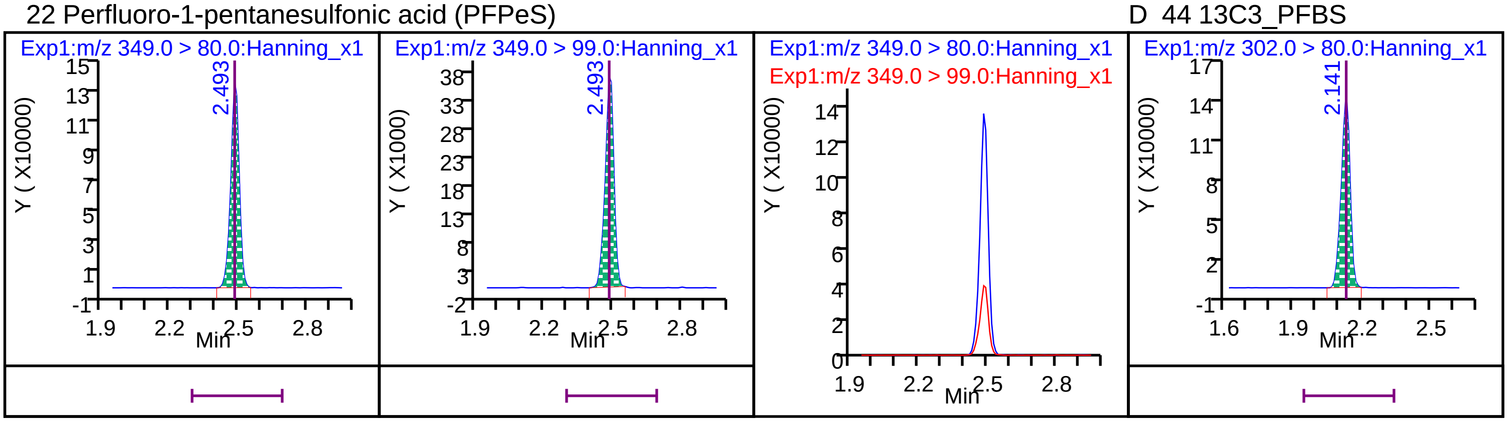
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



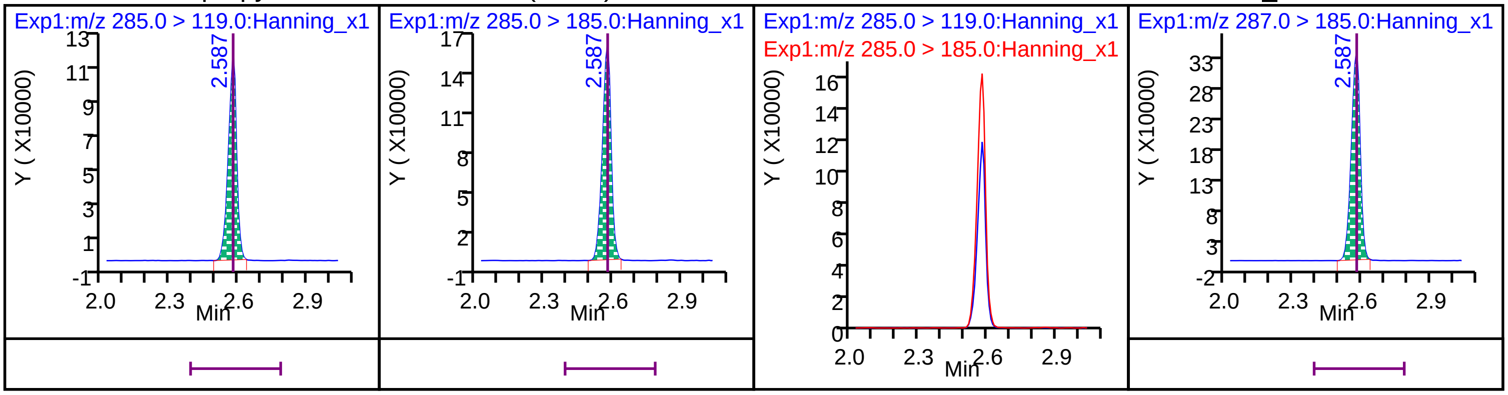
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



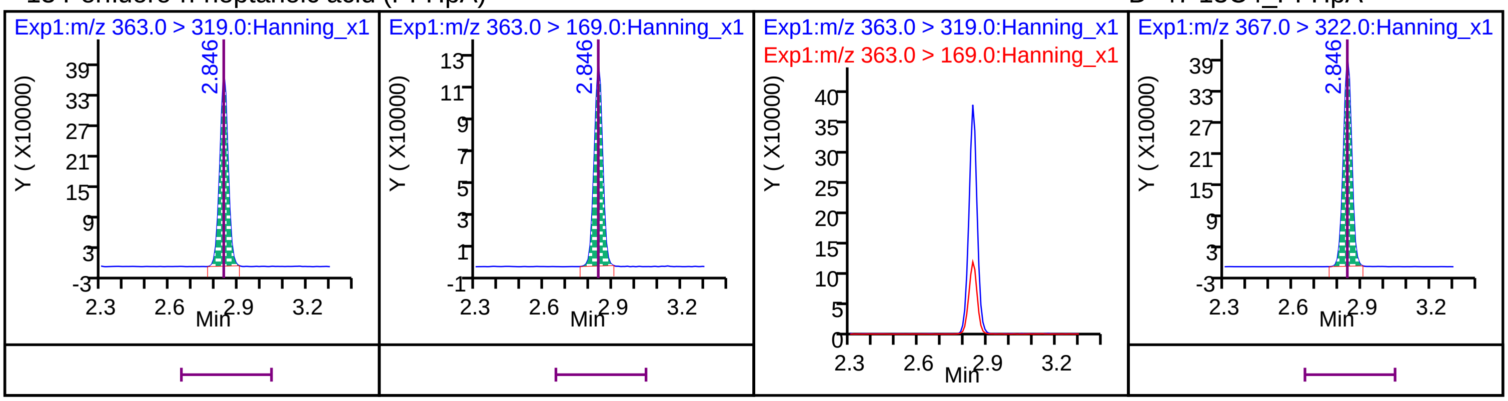
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



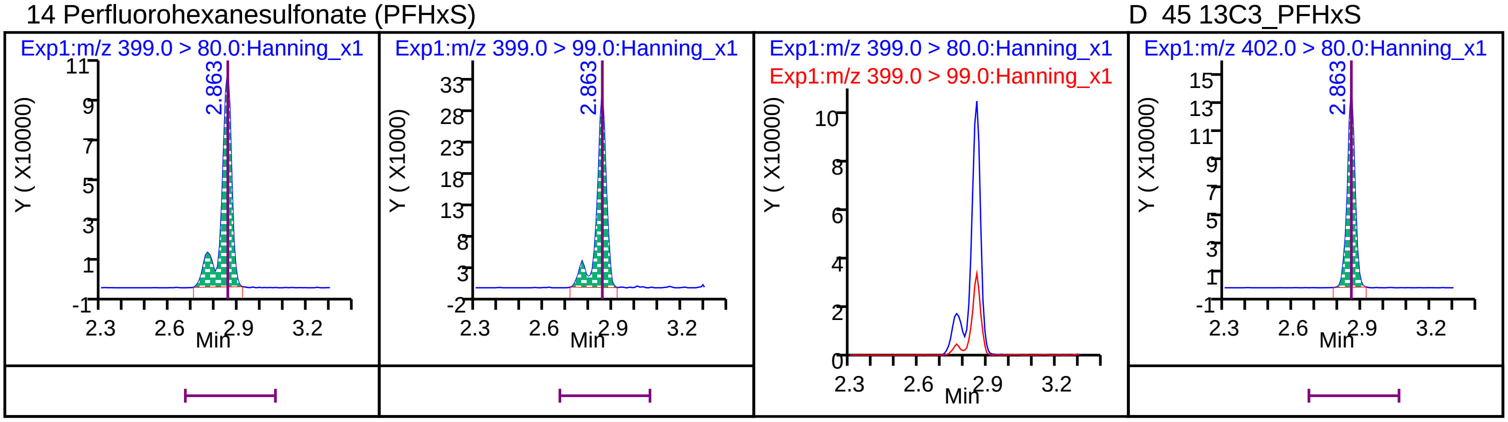
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



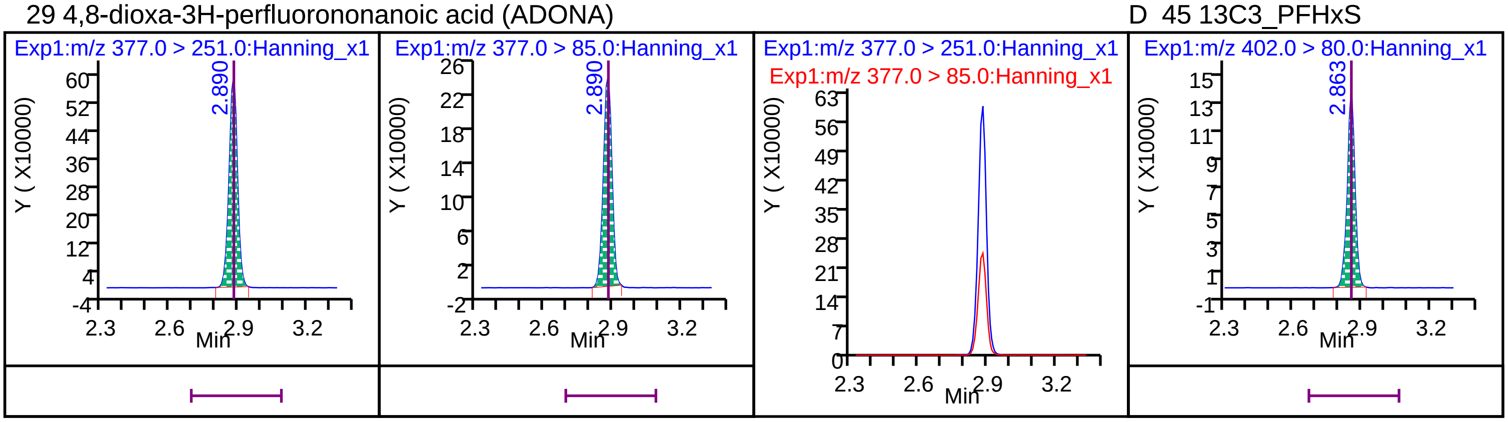
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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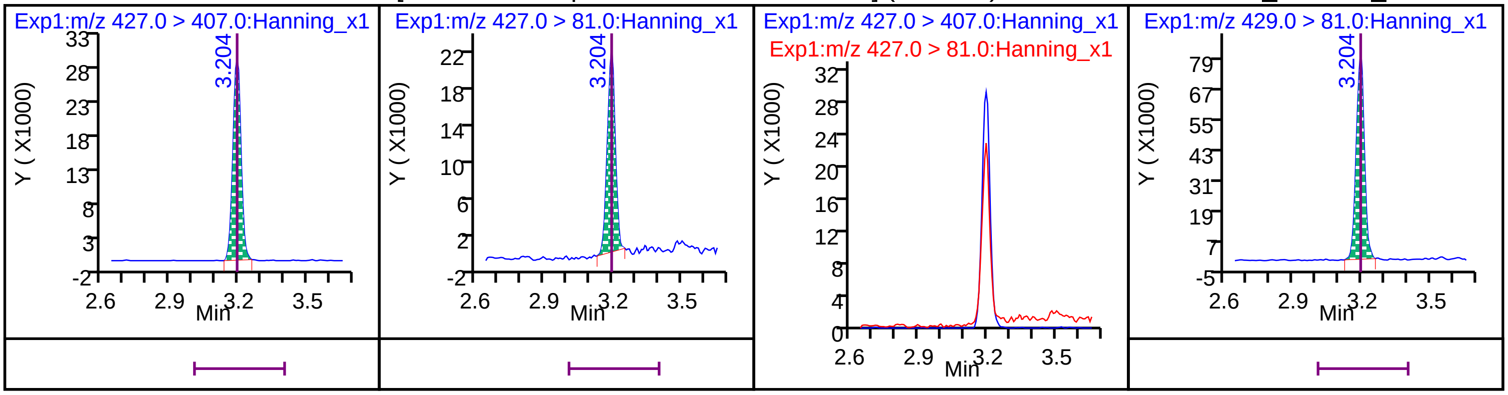
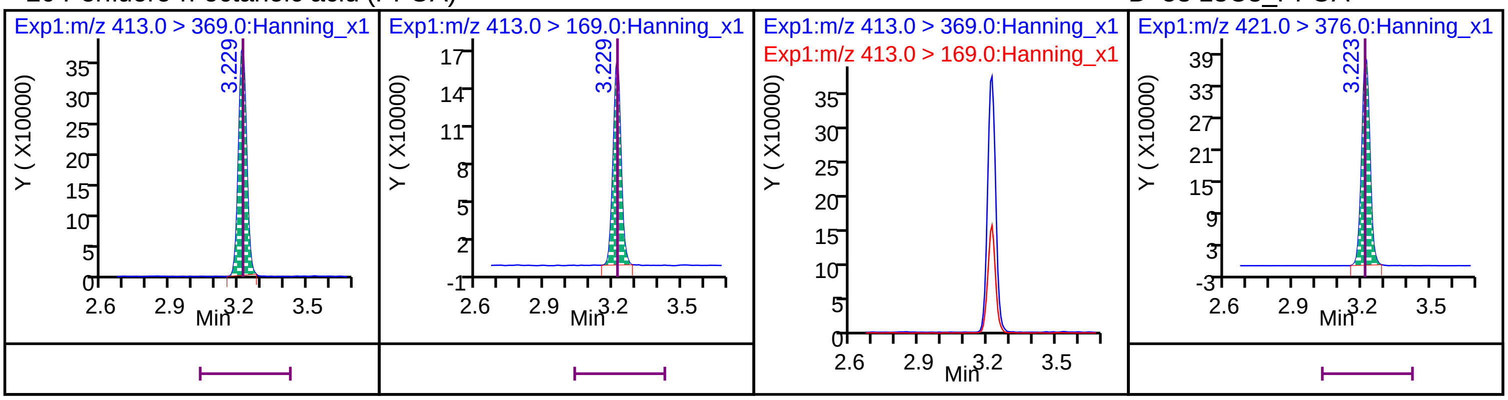
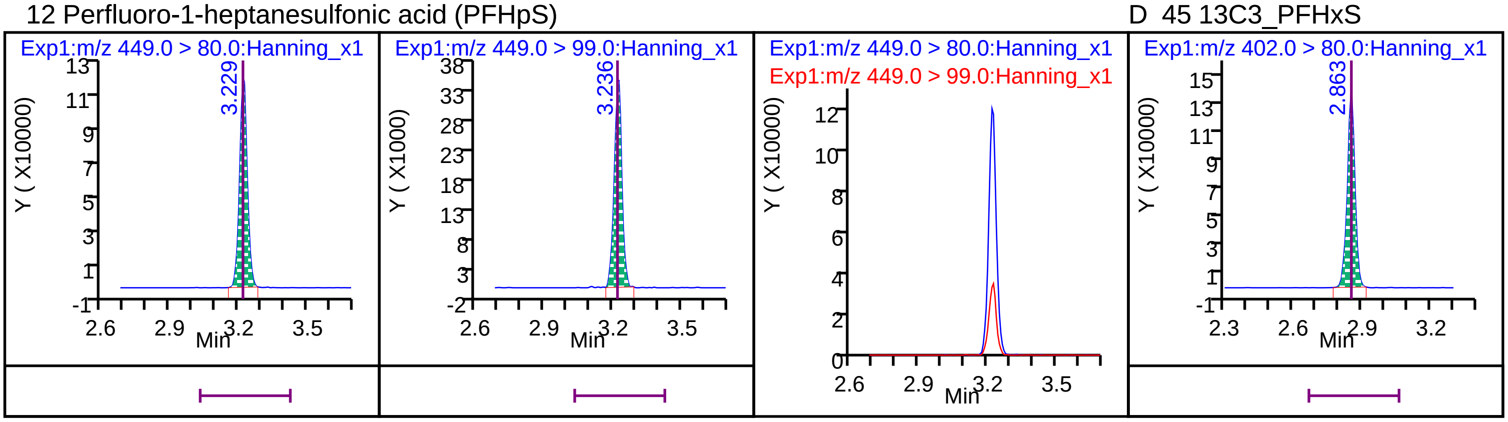
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



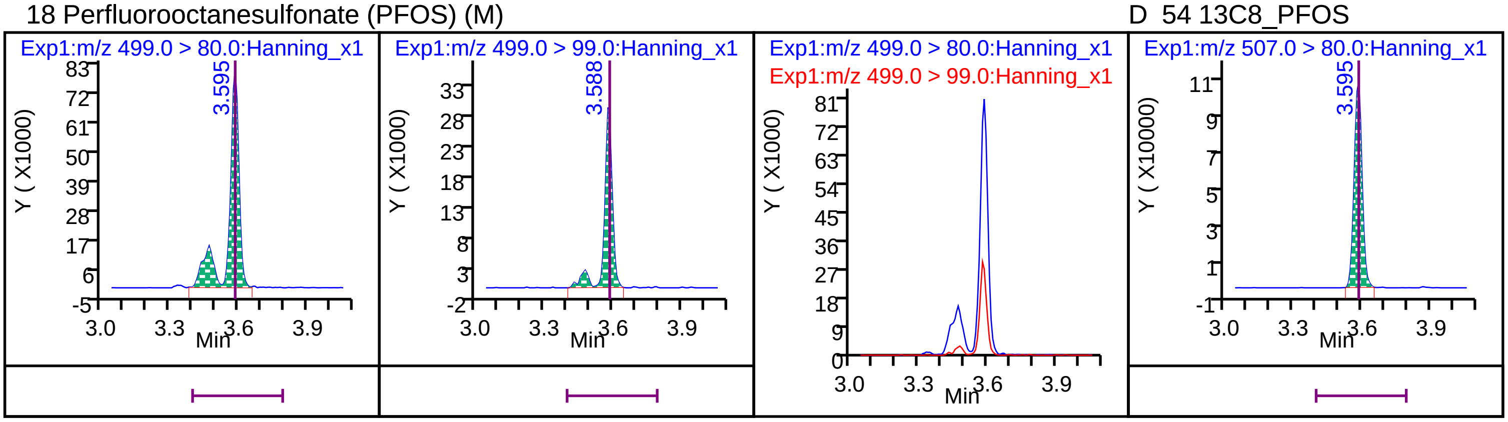
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



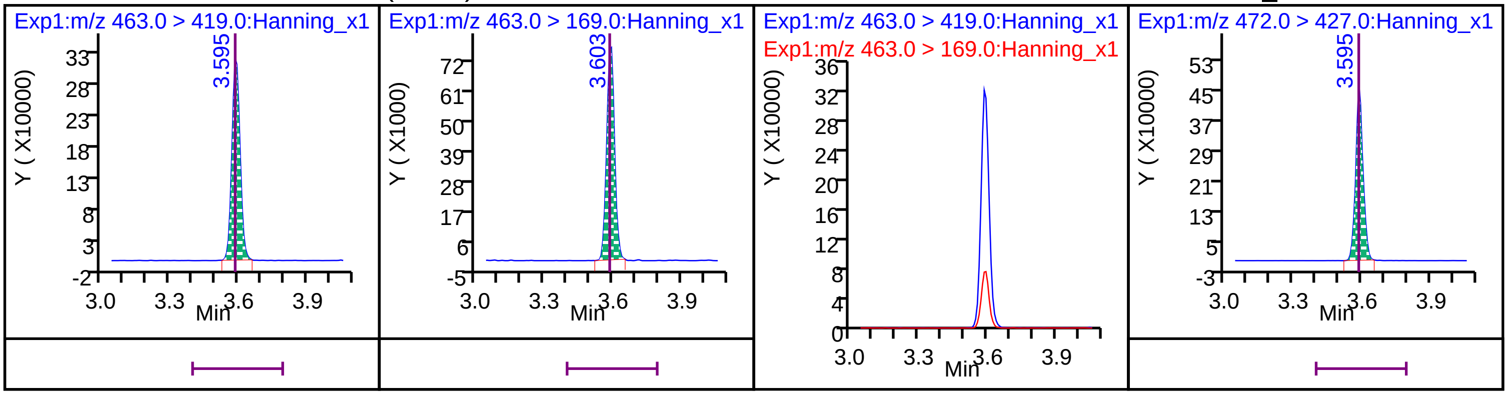
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



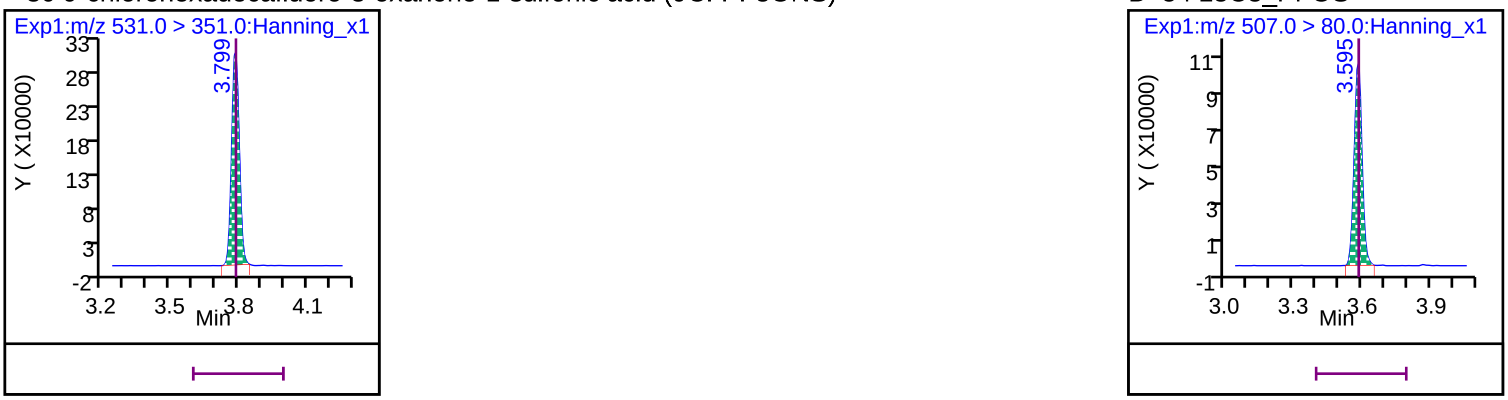
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



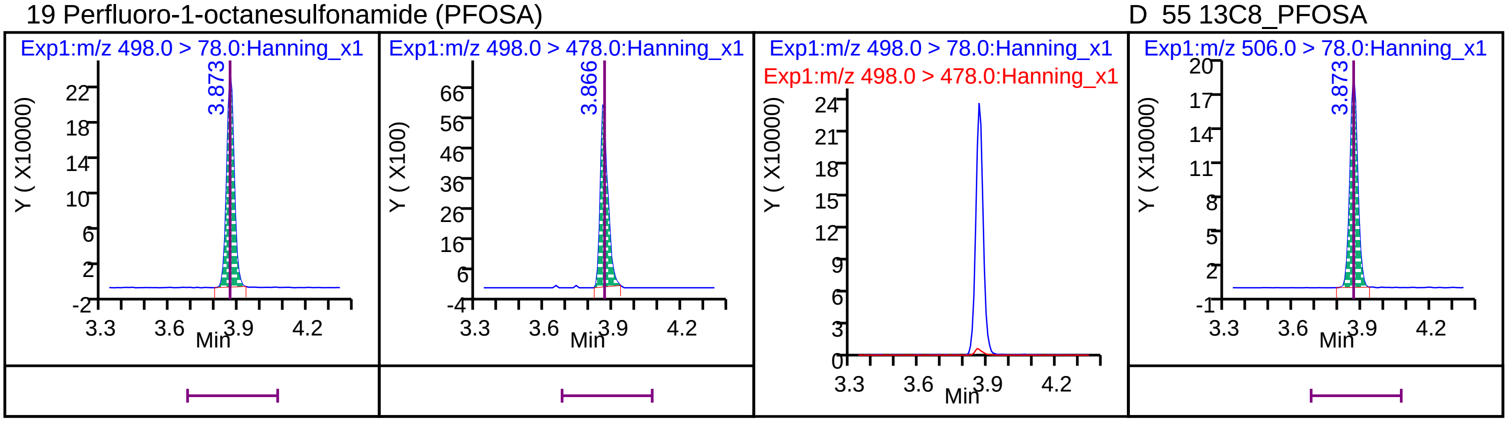
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



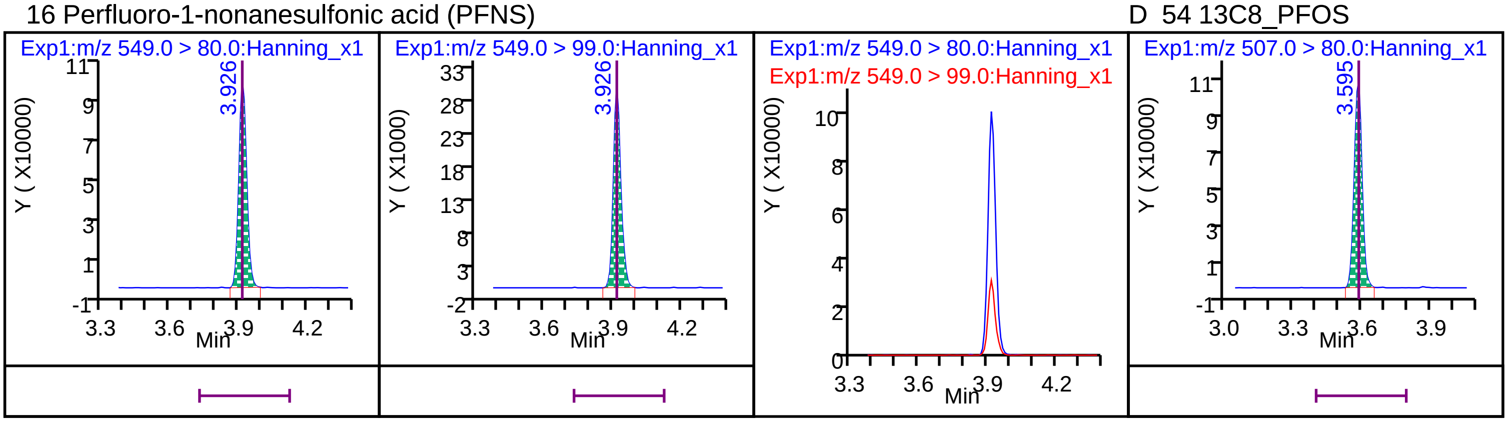
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



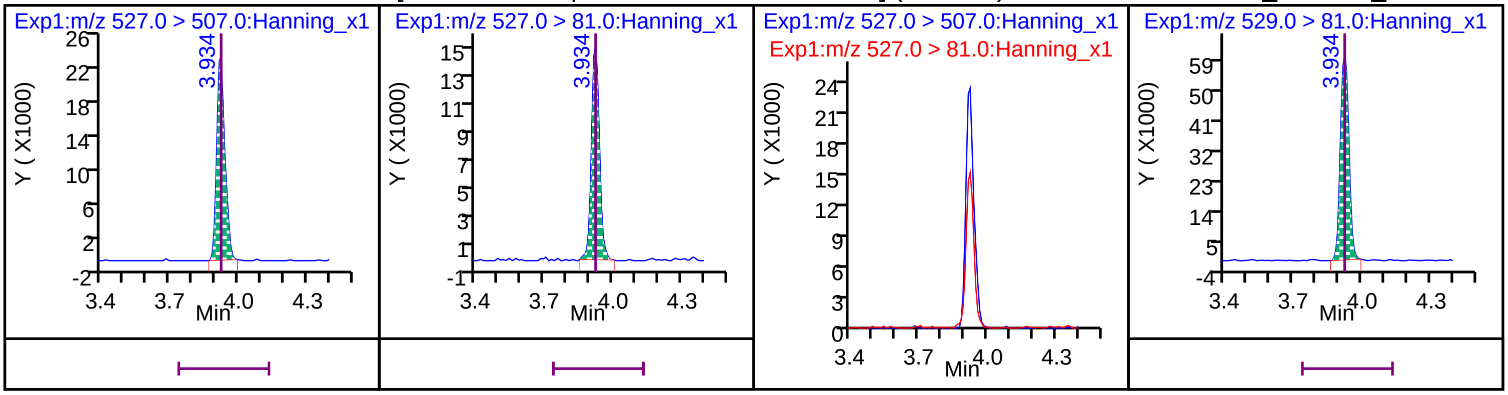
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



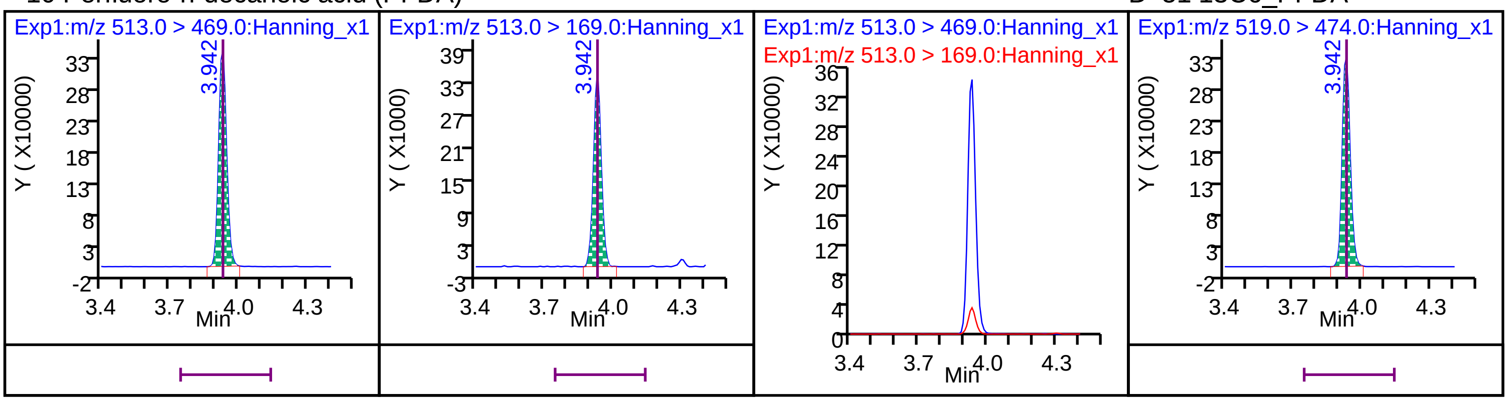
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



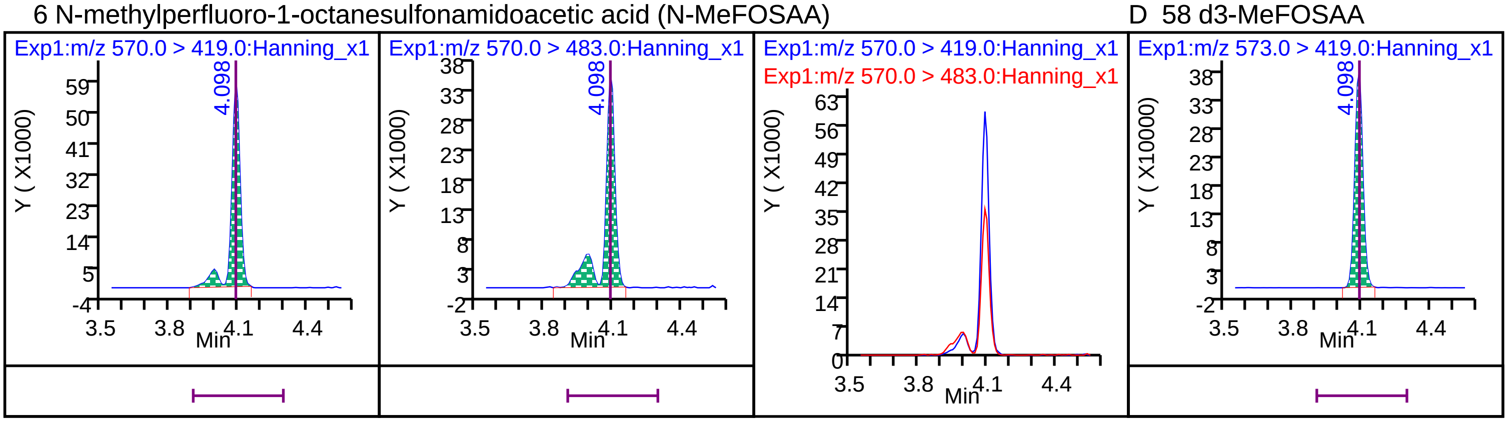
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



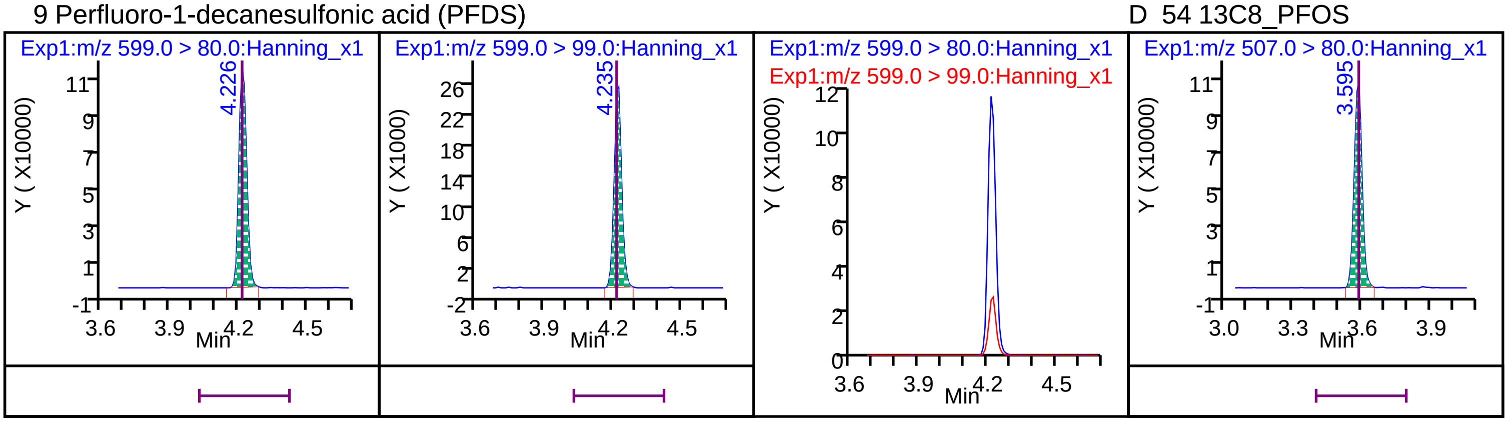
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



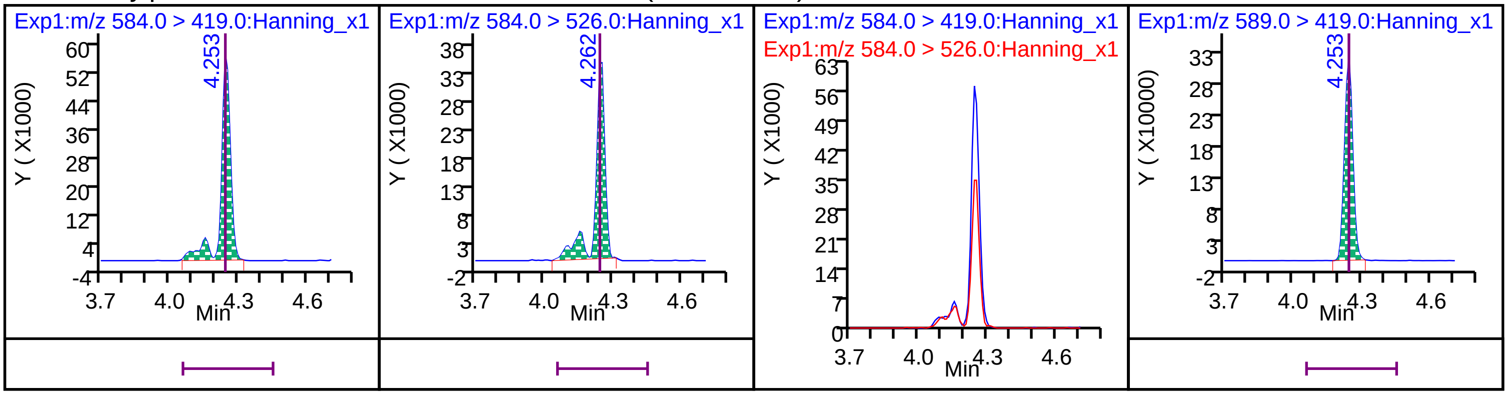
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



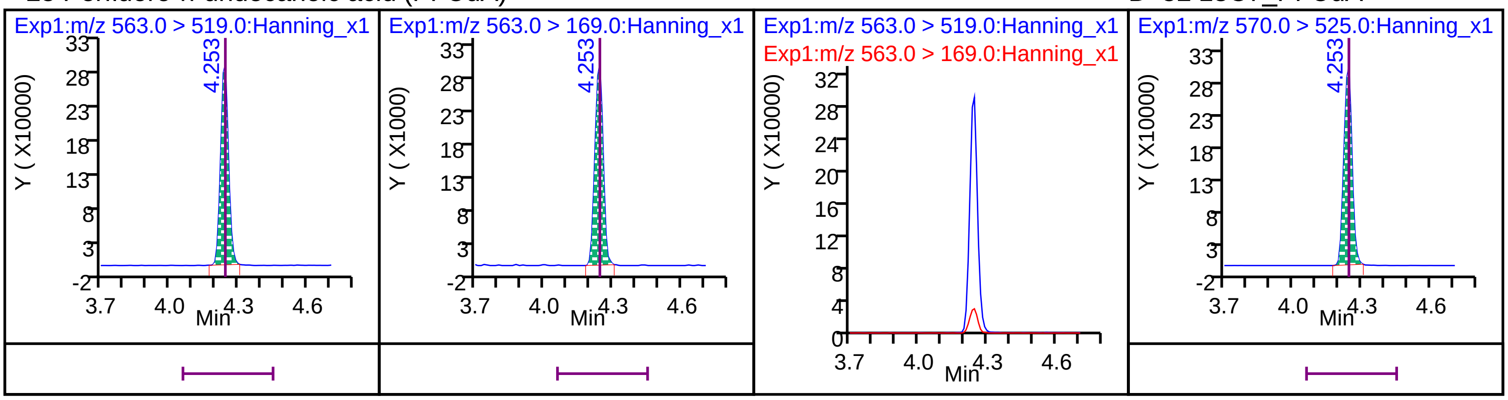
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



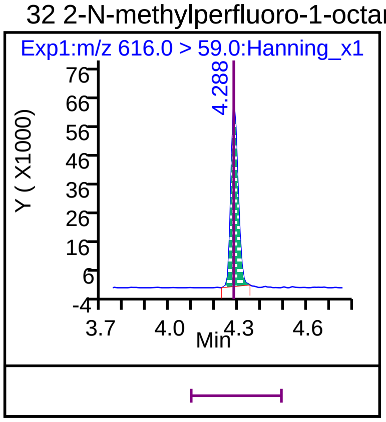
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

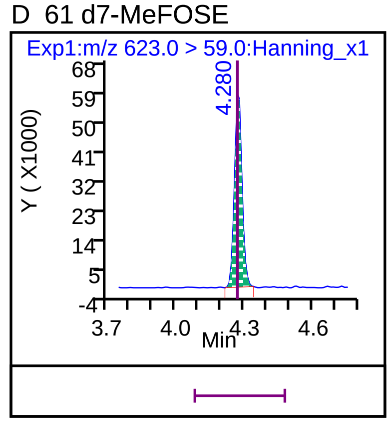


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

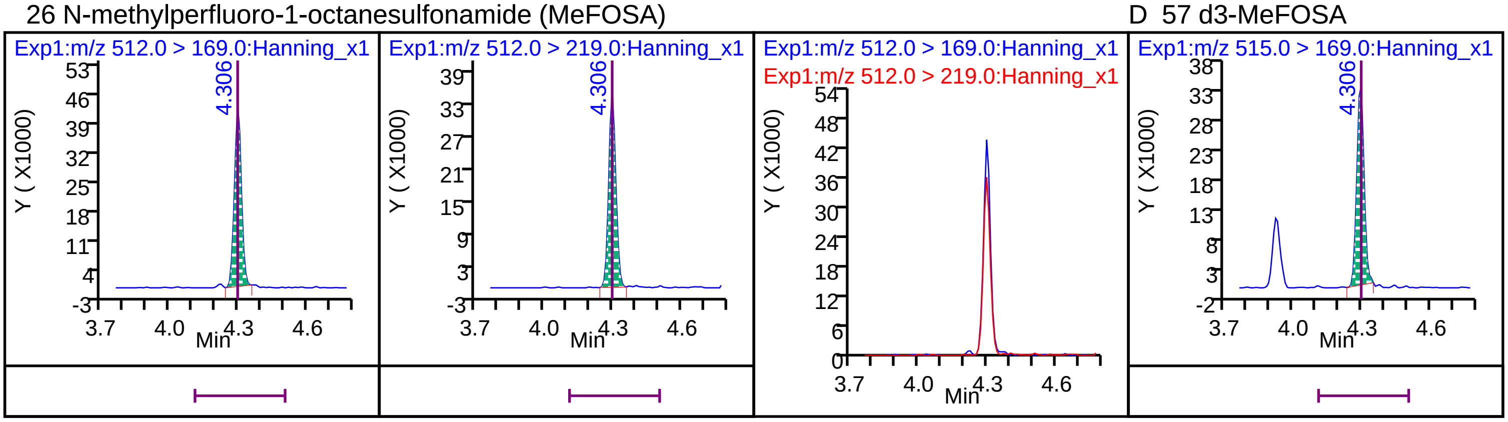


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

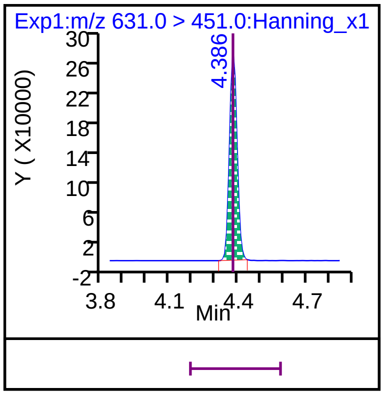




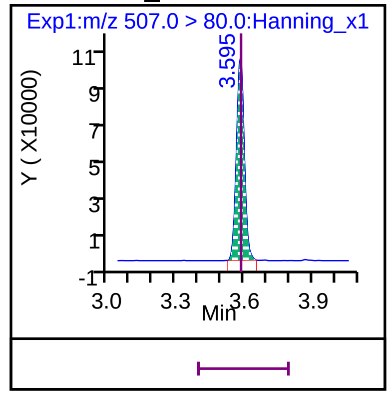
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



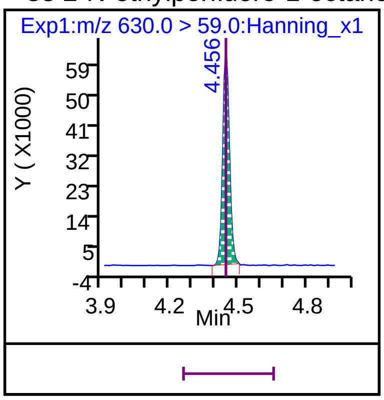
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



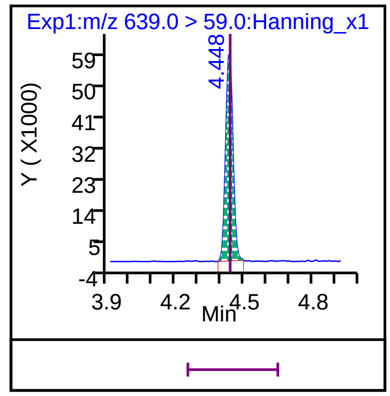
D 54 13C8_PFOS



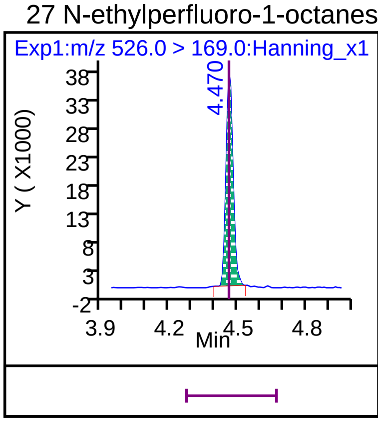
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

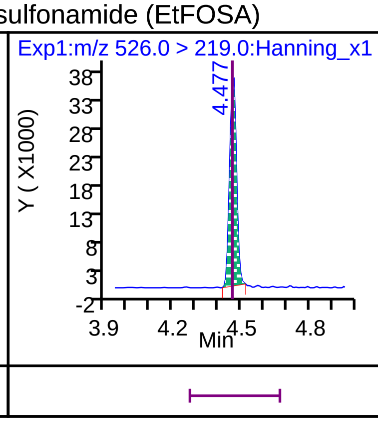


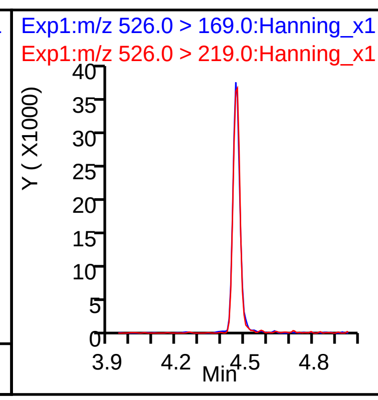
D 62 d9-EtFOSE



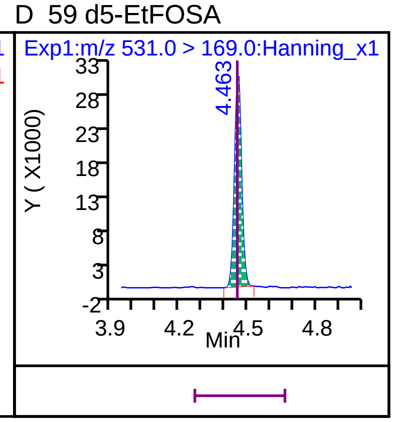
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



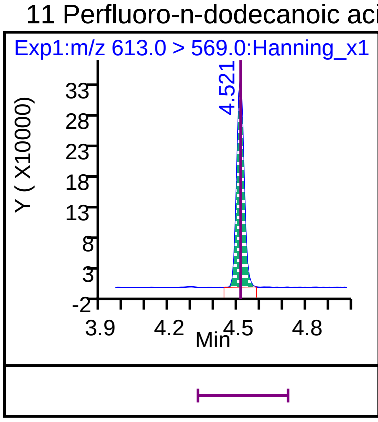


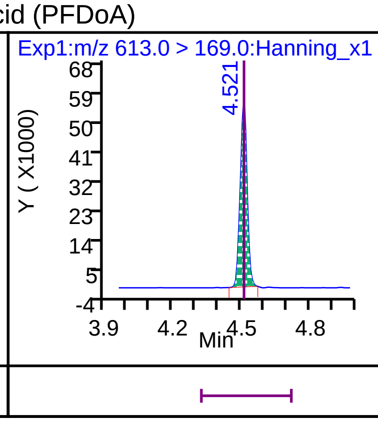


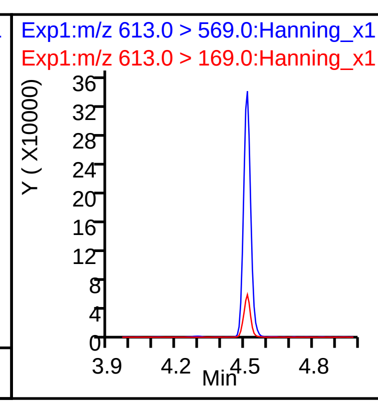
D 59 d5-EtFOSA



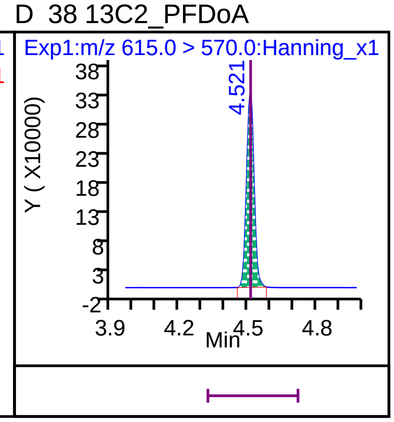
11 Perfluoro-n-dodecanoic acid (PFDoA)



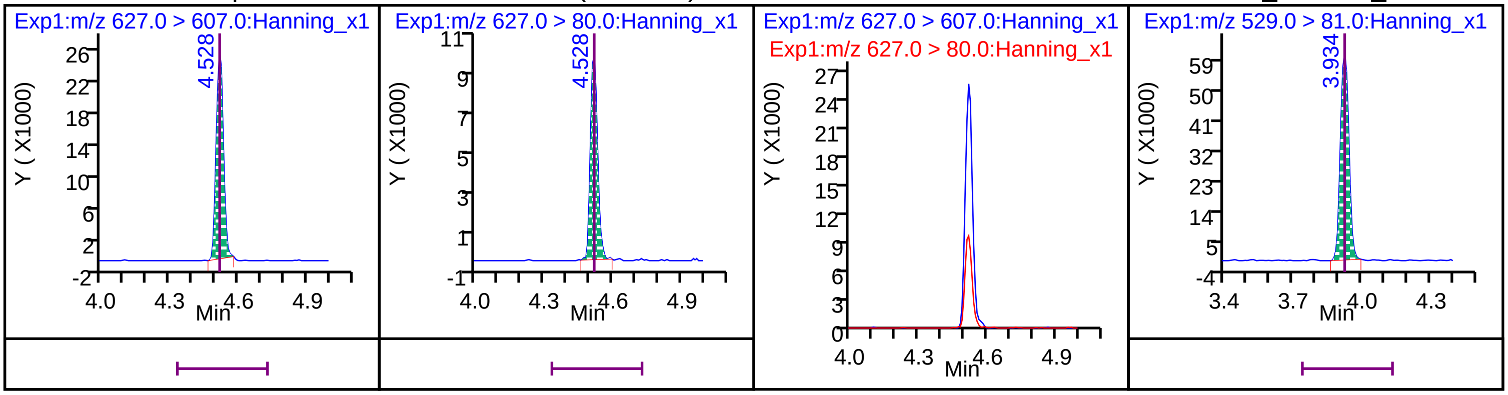




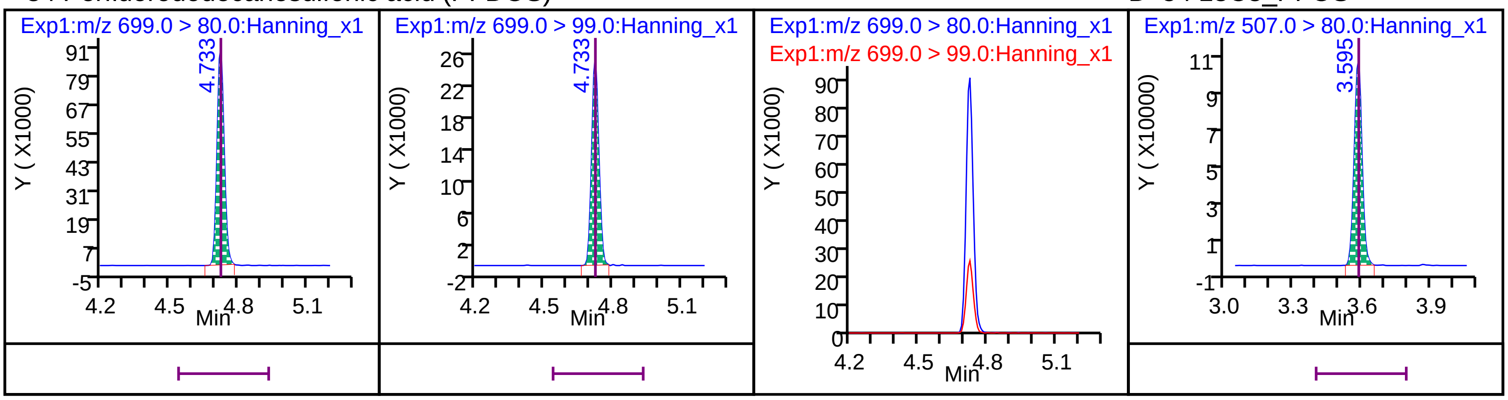
D 38 13C2_PFDoA



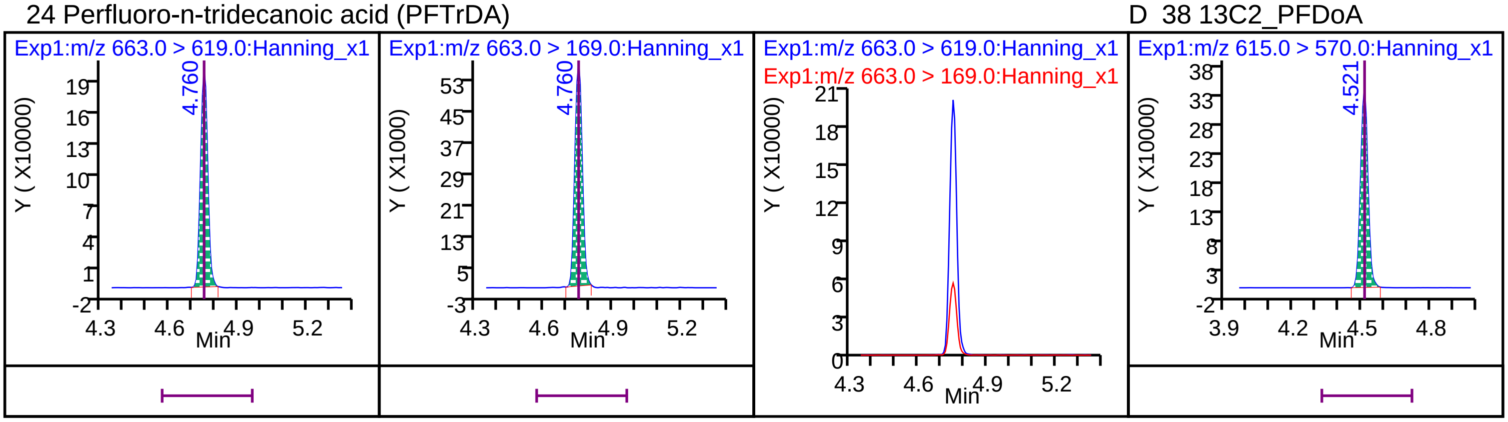
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



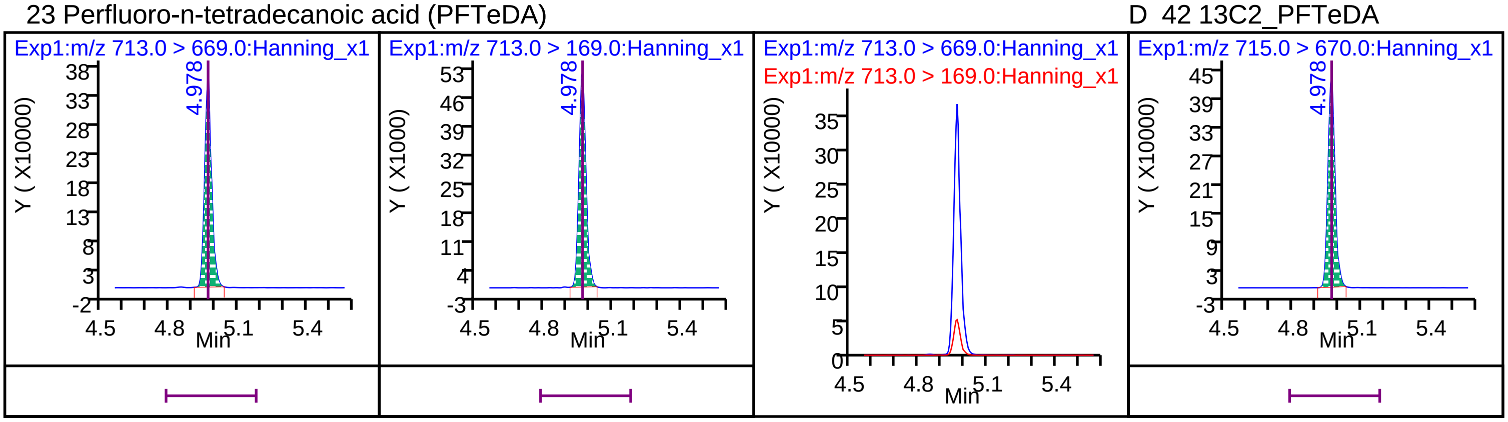
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



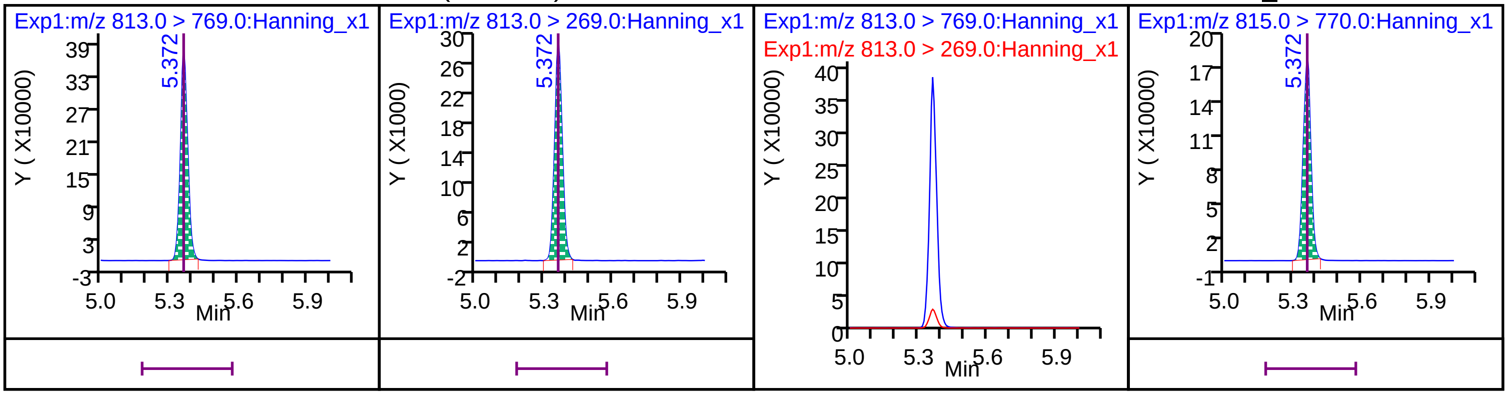
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



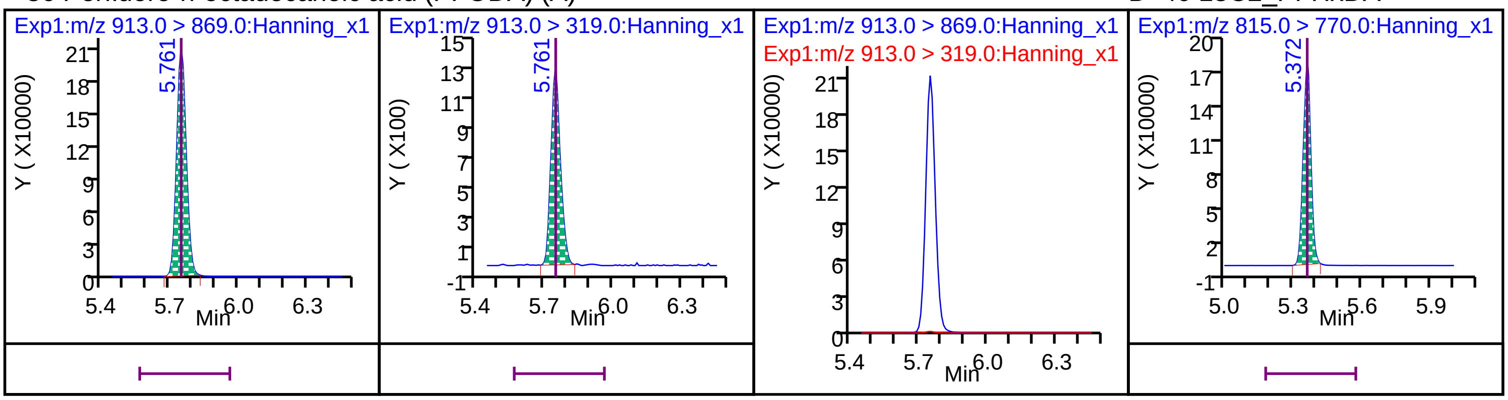
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



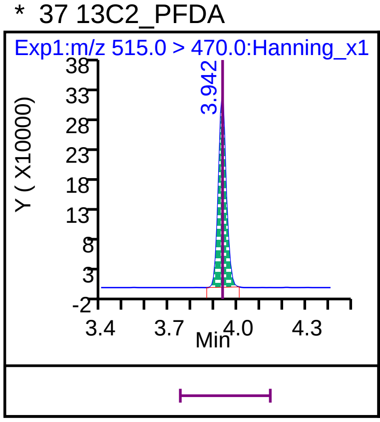
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



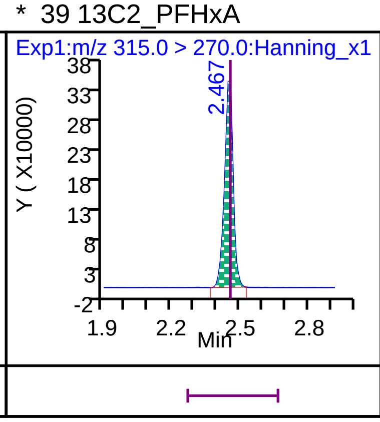
36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA



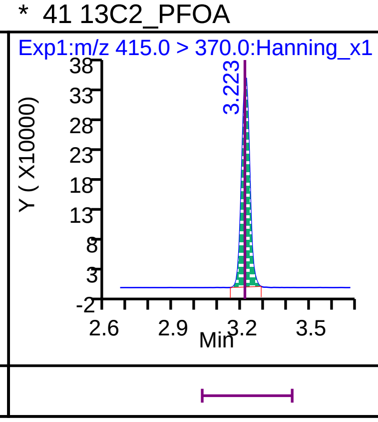
* 37 13C2_PFDA



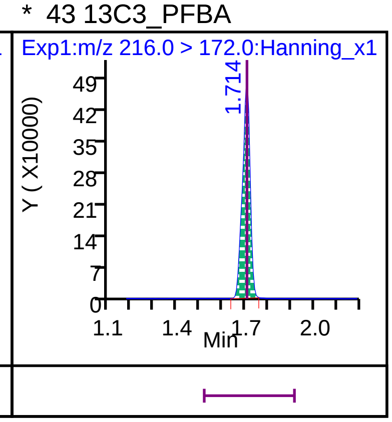
* 39 13C2_PFHxA



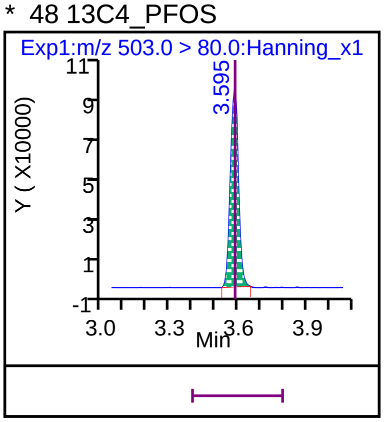
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

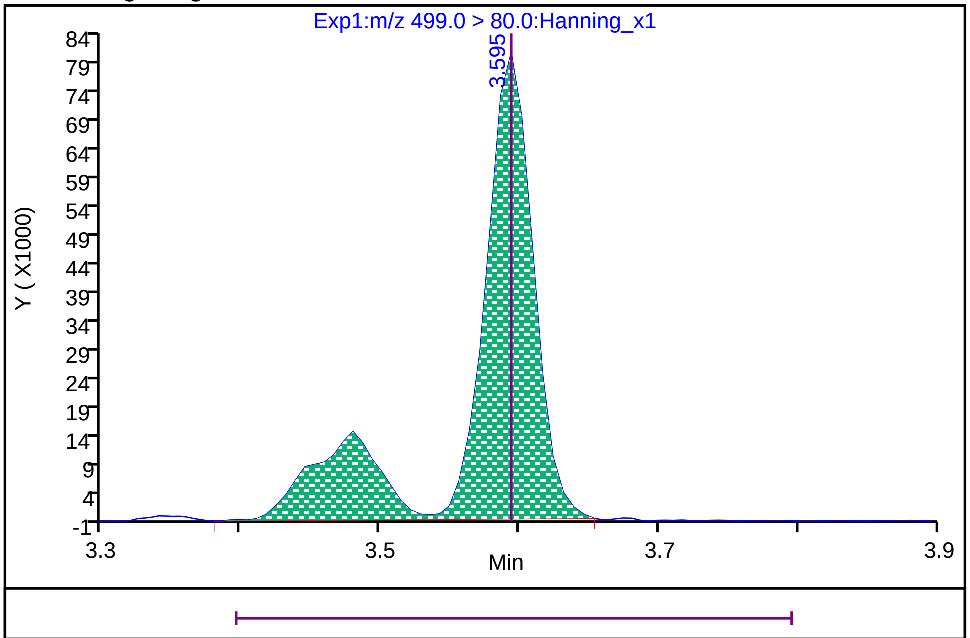
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A012.d		
Injection Date:	04-Nov-2021 14:31:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1717
Sample Info:	ICAL 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

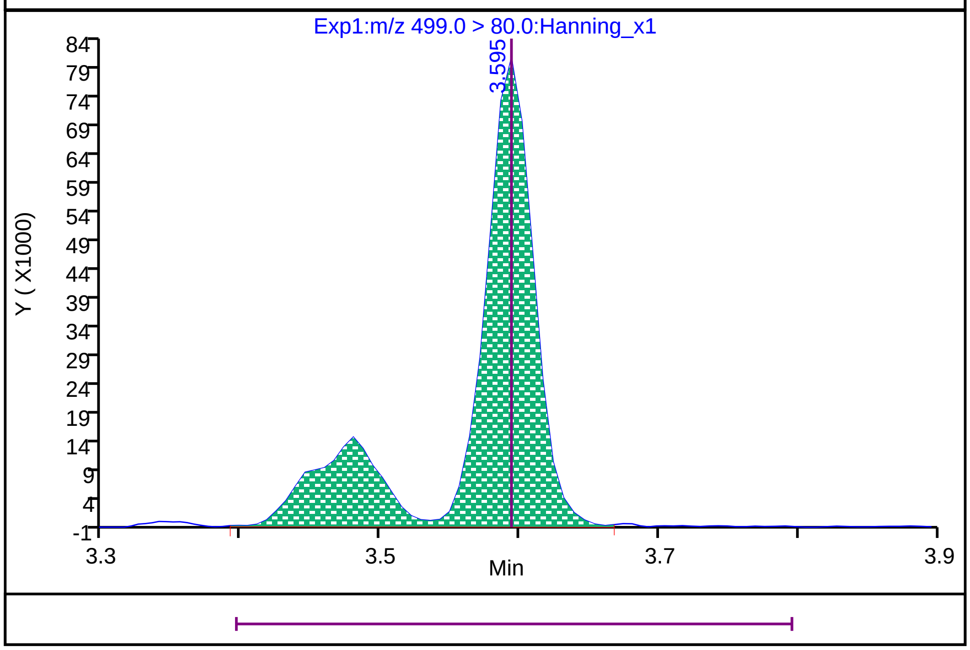
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.595
Area:	239390
Amount:	834.89
Amount Units:	ng/L



RT:	3.595
Area:	243929
Amount:	842.37
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:09

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A013.d		
Injection Date:	04-Nov-2021 14:41:28	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	82
Sample Info:	ICAL 2000_SVLC-1643	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1060275	20	>100:1			1000.00	984.71	89.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	1/0	2354315	20	>100:1			2000.00	2018.96		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	936781	17	>100:1			1000.00	934.06	85.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	2250734	16	>100:1			2000.00	2242.43		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	304403	16	>100:1			1000.00	937.29	83.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	776195	16	>100:1	Target = 3.80		1768.00	1784.86		
298.9 > 99	44	2.141	2.141		200297	17	>100:1	3.87 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	602575	18	>100:1	Target = 3.42		1876.00	1967.34		
349 > 99	44	2.493	2.493		183403	18	>100:1	3.28 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	201647	19	>100:1			5000.00	4854.64	93	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/1	142806	18		Target = 1.54		1868.00	1814.32		
327 > 81	63	2.415	2.415		90003	18	>100:1	1.58 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	862297	18	>100:1			1000.00	965.37	83.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	1809819	19	>100:1	Target = 17.93		2000.00	2031.23		
313 > 119	49	2.467	2.467		100309	17	>100:1	18.04 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	793149	19	>100:1			5000.00	4841.61	90.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.587	0/0	499988	20	>100:1	Target = 0.72		4000.00	4113.78		
285 > 185	66	2.579	2.587		727108	19	>100:1	0.68 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	859177	19	>100:1			1000.00	980.58	87.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	1693670	19	>100:1	Target = 3.26		2000.00	2047.73		
363 > 169	47	2.846	2.846		526509	19	>100:1	3.21 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	249807	18	>100:1			1000.00	952.44	84.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	586633	27	>100:1	Target = 3.48	5.40	1820.00	1986.50		
399 > 99	45	2.863	2.863		164204	24	>100:1	3.57 (1.74-5.22)	7.43				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	2731311	18	>100:1	Target = 2.31		1884.00	1986.43		
377 > 85	45	2.881	2.890		1168541	19	>100:1	2.33 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.227	3.229	0/-1	522898	21	>100:1	Target = 3.56		1904.00	2035.12		
449 > 99	45	3.227	3.229		141056	21	>100:1	3.70 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.204	0	184078	23	>100:1			5000.00	4881.27	94.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.202	3.204	0/0	127152	23	>100:1	Target = 1.34		1896.00	1986.31		
427 > 81	64	3.202	3.204		89427	20	>100:1	1.42 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.221	3.223	0	818898	22	>100:1			1000.00	990.21	88.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.229	0/0	1780719	22	>100:1	Target = 2.50		2000.00	2113.42		
413 > 169	53	3.221	3.229		660984	22	>100:1	2.69 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.592	3.595	0	213802	20	>100:1			1000.00	952.43	87	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.595	0/0	489722	43	>100:1	Target = 4.01	3.52	1856.00	1943.02		M
499 > 99	54	3.592	3.595		125540	34	>100:1	3.90 (2.00-6.02)	8.23				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.797	3.799	0/0	1297397	20	>100:1			1864.00	1963.50		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.924	3.926	0/0	432315	19	>100:1	Target = 3.78		1920.00	2001.97		
549 > 99	54	3.924	3.926		119664	17	>100:1	3.61 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.232	4.226	1/1	445316	16	>100:1	Target = 3.98		1928.00	2109.74		
599 > 99	54	4.223	4.226		131336	15	>100:1	3.39 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.385	4.386	0/0	1200753	16	>100:1			1884.00	2021.72		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.733	0/0	424033	18	>100:1	Target = 3.68		1936.00	2047.83		
699 > 99	54	4.732	4.733		117100	18		3.62 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	735388	19	>100:1			1000.00	920.37	73.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/0	1433148	20	>100:1	Target = 4.69		2000.00	2140.14		
463 > 169	56	3.599	3.595		316216	20	>100:1	4.53 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.873	0	410415	19	>100:1			1000.00	990.88	95.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.879	3.873	1/1	945159	18	>100:1	Target = 40.85		2000.00	2036.71		
498>478	55	3.871	3.873		22565	17	>100:1	41.88 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	159273	19	>100:1			5000.00	5074.74	103.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.932	3.934	0/0	108264	17	>100:1	Target = 1.58		1916.00	1913.02		
527 > 81	65	3.932	3.934		69411	16	>100:1	1.55 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.527	4.528	0/0	110664	19	>100:1	Target = 2.46		1928.00	1948.03		
627 > 80	65	4.527	4.528		41653	17	>100:1	2.65 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	0	710536	18	>100:1			1000.00	984.39	90.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.940	3.942	0/0	1680661	17	>100:1	Target = 9.77		2000.00	2305.17		
513 > 169	51	3.940	3.942		156039	16	>100:1	10.77 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	832963	16	>100:1			5000.00	4697.70	92.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.096	4.098	0/0	287965	31	>100:1	Target = 1.41	7.18	2000.00	2114.15		
570 > 483	58	4.096	4.098		204679	32	>100:1	1.40 (0.70-2.11)	4.49				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.241	4.253	0	764928	16	>100:1			1000.00	1119.26	104.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.250	4.253	0/0	1231688	15	>100:1	Target = 9.19		2000.00	1794.87		
563 > 169	52	4.250	4.253		144060	15	>100:1	8.54 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.253	0	769164	17	>100:1			5000.00	5143.85	98.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.250	4.253	0/0	313837	33	>100:1	Target = 1.75	6.05	2000.00	1995.86		
584 > 526	60	4.250	4.253		183095	33	>100:1	1.71 (0.87-2.63)	4.21				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.278	4.280	0	125309	14	>100:1			1000.00	908.13	94	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.295	4.288	1/1	255181	16	>100:1			2000.00	2003.71		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.306	0	69674	14	>100:1			1000.00	995.05	95.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.306	0/0	146297	14	>100:1	Target = 1.11		2000.00	2027.69		
512 > 219	57	4.304	4.306		128031	18	>100:1	1.14 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.447	4.448	0	123776	16	>100:1			1000.00	962.83	95.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.456	0/0	207128	17	>100:1			2000.00	1965.94		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.463	0	65155	19	>100:1			1000.00	1011.64	99.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.469	4.470	0/0	145114	17	>100:1	Target = 1.06		2000.00	1905.06		
526 > 219	59	4.469	4.470		131611	17	>100:1	1.10 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	657243	17	>100:1			1000.00	955.79	88	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.521	0/0	1340161	17	>100:1	Target = 6.38		2000.00	2076.24		
613 > 169	38	4.519	4.521		212972	19	>100:1	6.29 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.760	0/0	725017	18	>100:1	Target = 3.23		2000.00	2058.44		
663 > 169	38	4.759	4.760		218795	18	>100:1	3.31 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	744334	25	>100:1			1000.00	952.13	82.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.978	0/0	1421631	25	>100:1	Target = 7.33		2000.00	2173.31		
713 > 169	42	4.973	4.978		195871	24	>100:1	7.25 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.367	5.372	0	395607	20	>100:1			1000.00	1013.39	98.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	1407079	21	>100:1	Target = 12.31		2000.00	1859.39		
813 > 269	40	5.372	5.372		113987	22	>100:1	12.34 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.762	5.761	1/1	1221213	21	>100:1	Target = 165.31		2000.00	2044.75		
913 > 319	40	5.762	5.761		7472	19	>100:1	163.43 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	0	686279	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	873105	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.223	1	821709	22	>100:1			1000.00			

Report Date: 05-Nov-2021 13:58:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A013.d

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	955733	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.592	3.595	0	210060	18	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

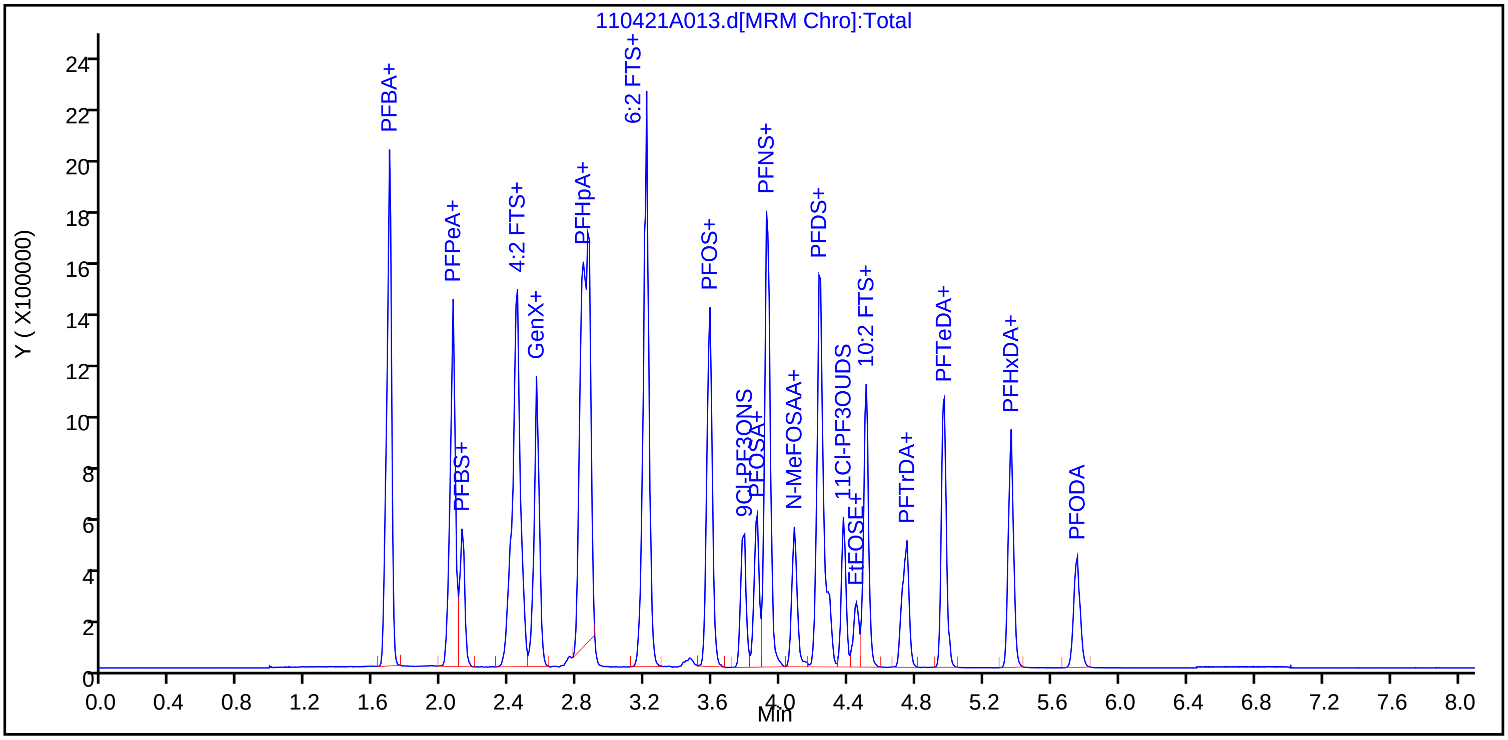
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

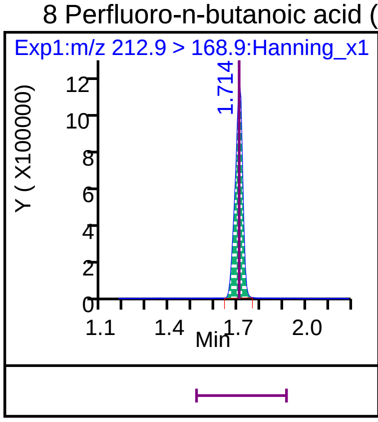
Report Date: 05-Nov-2021 13:58:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

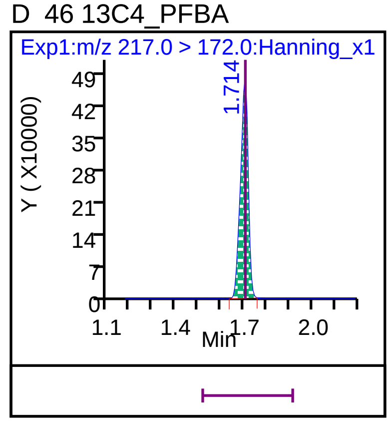
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A013.d		
Injection Date:	04-Nov-2021 14:41:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 2000_SVLC-1643
Sample Info:	ICAL 2000_SVLC-1643		
Dil. Factor:	1	Operator:	Matthew M. Miller



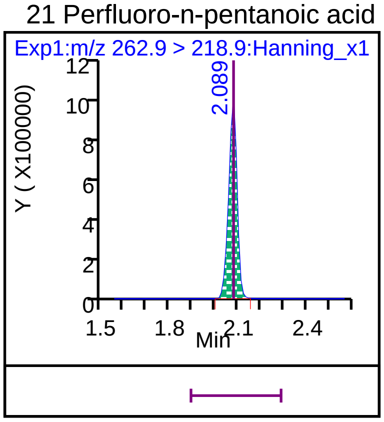
8 Perfluoro-n-butanoic acid (PFBA)



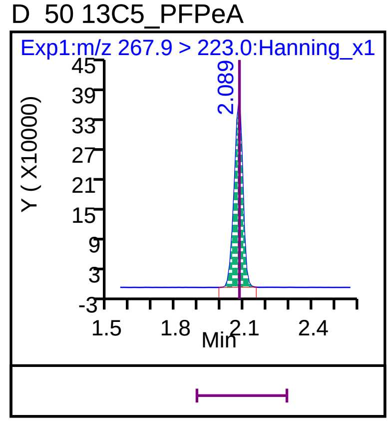
D 46 13C4_PFBA



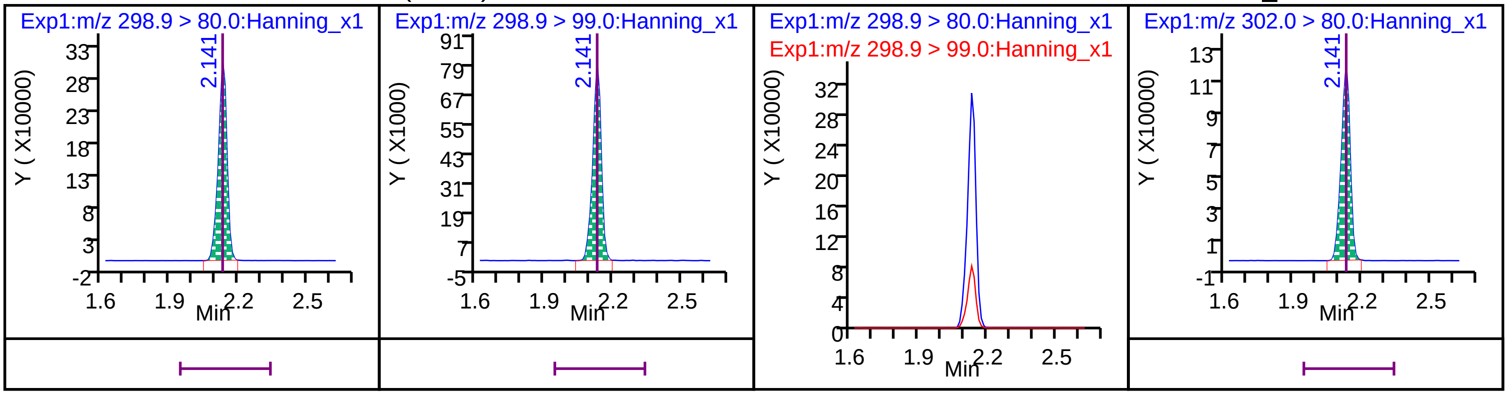
21 Perfluoro-n-pentanoic acid (PFPeA)



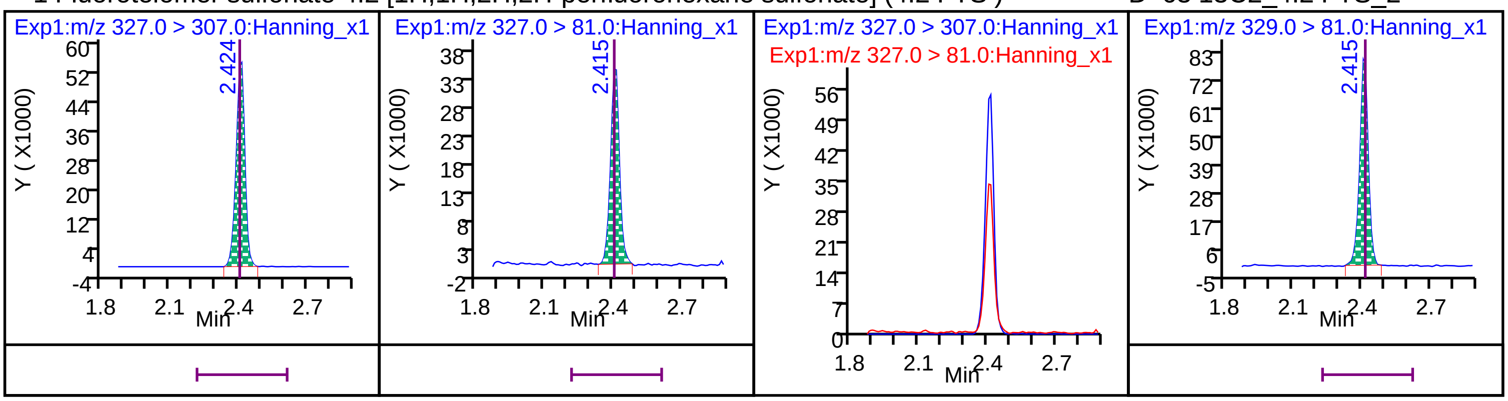
D 50 13C5_PFPeA



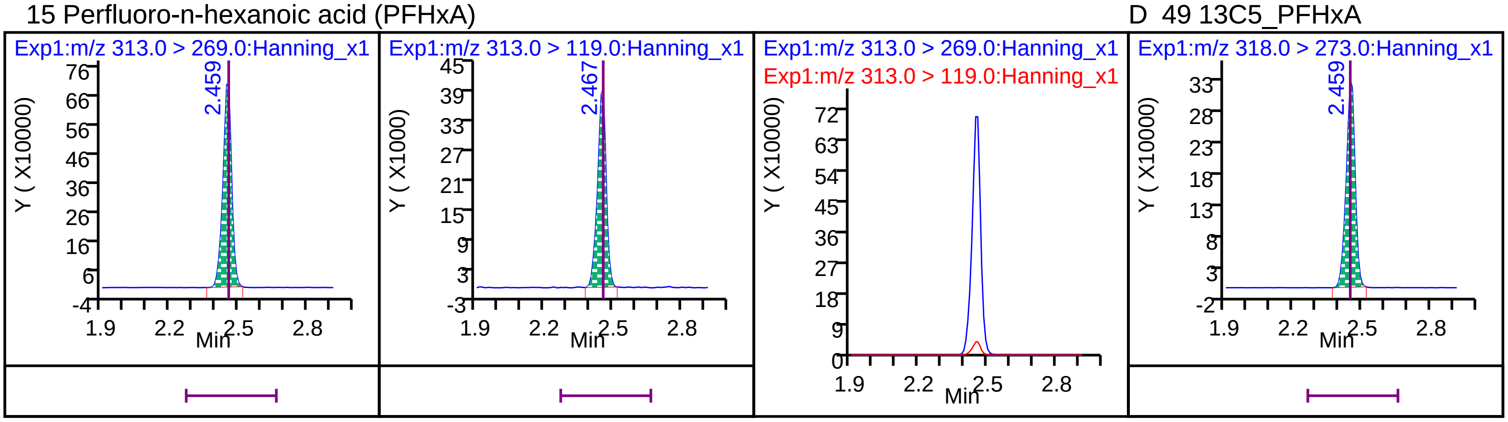
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



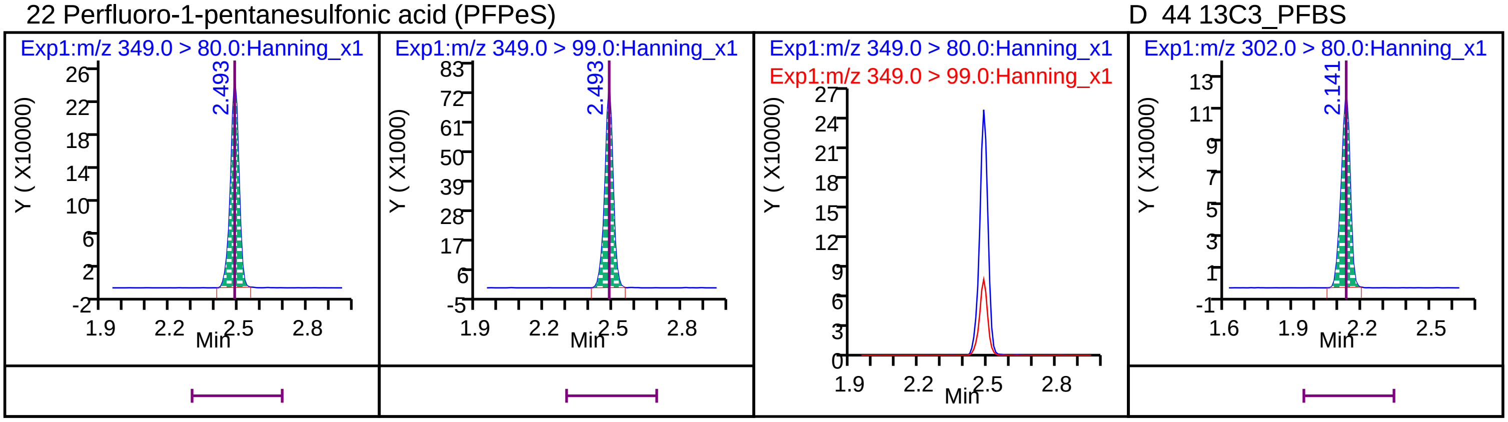
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

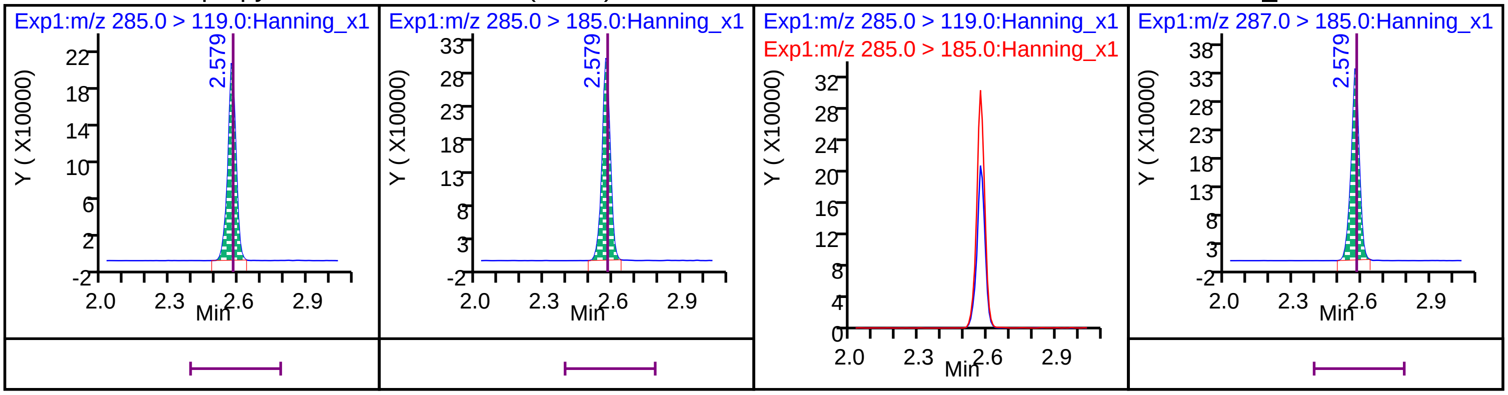


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

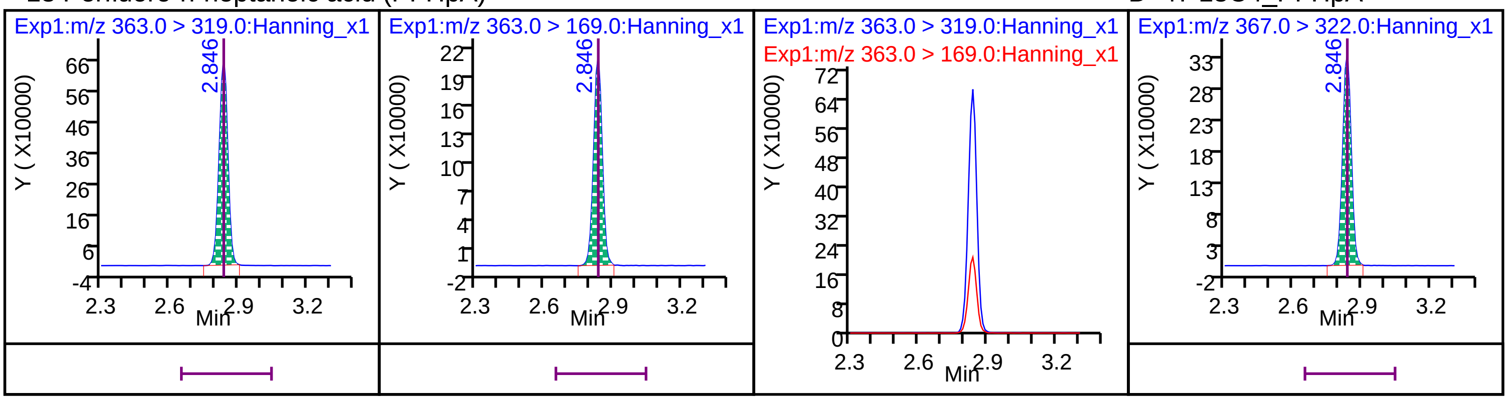


Report Date: 05-Nov-2021 13:58:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A013.d

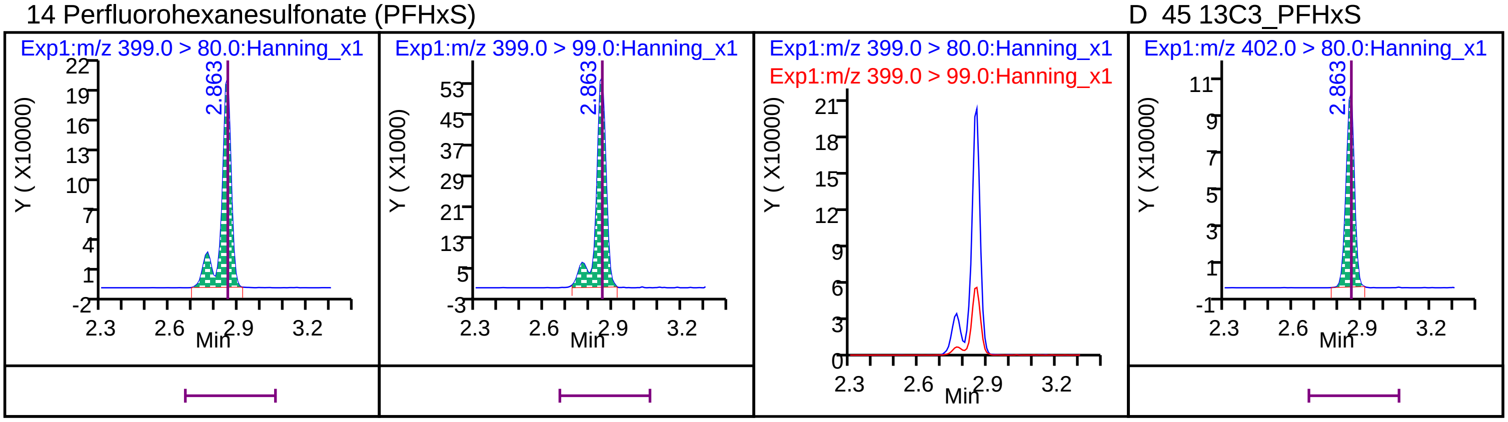
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



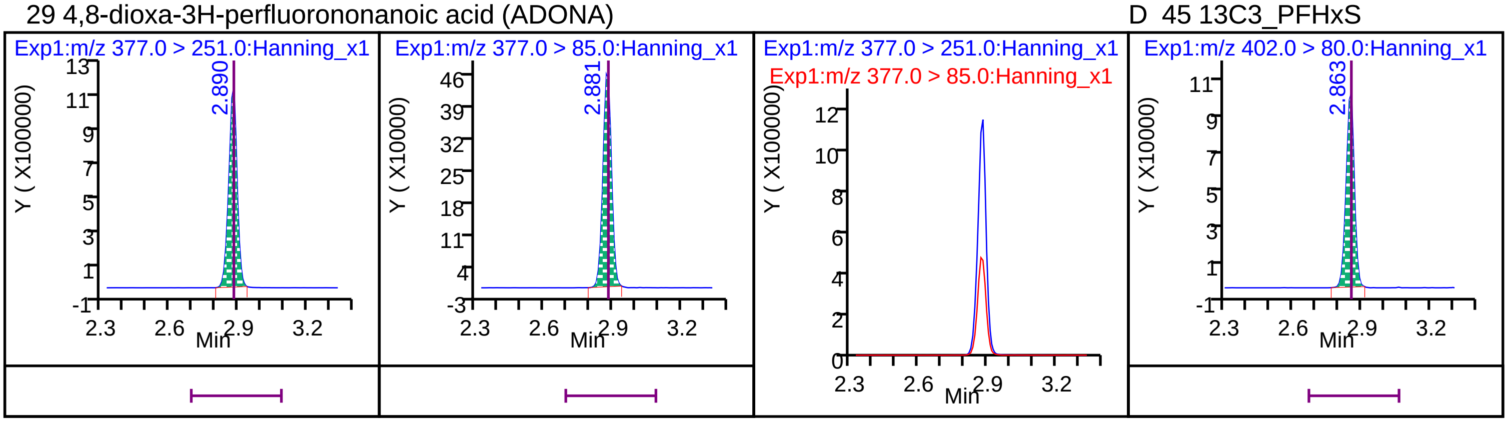
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

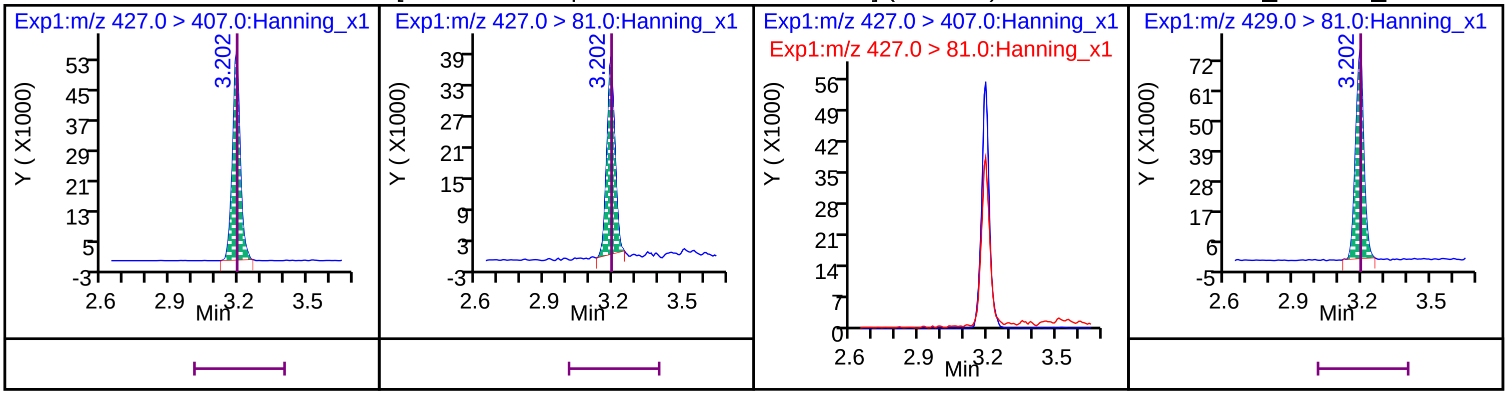


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

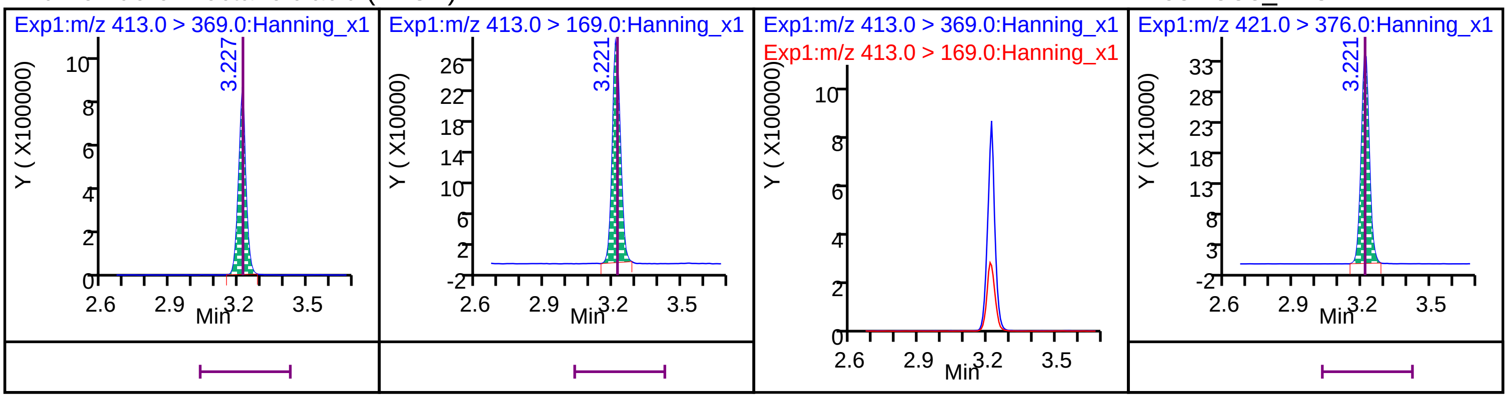


Report Date: 05-Nov-2021 13:58:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A013.d

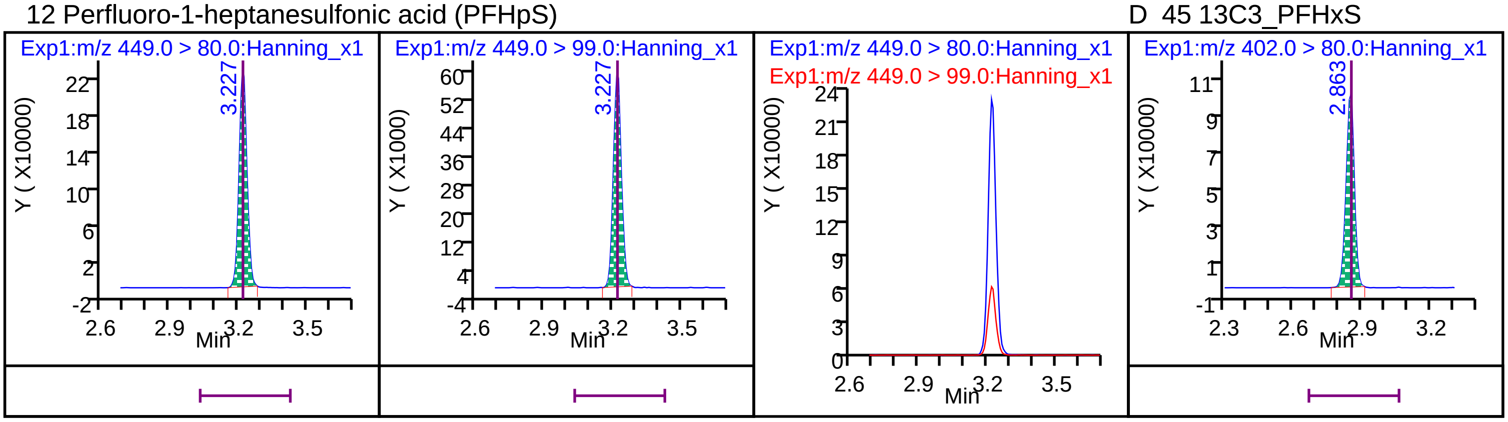
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



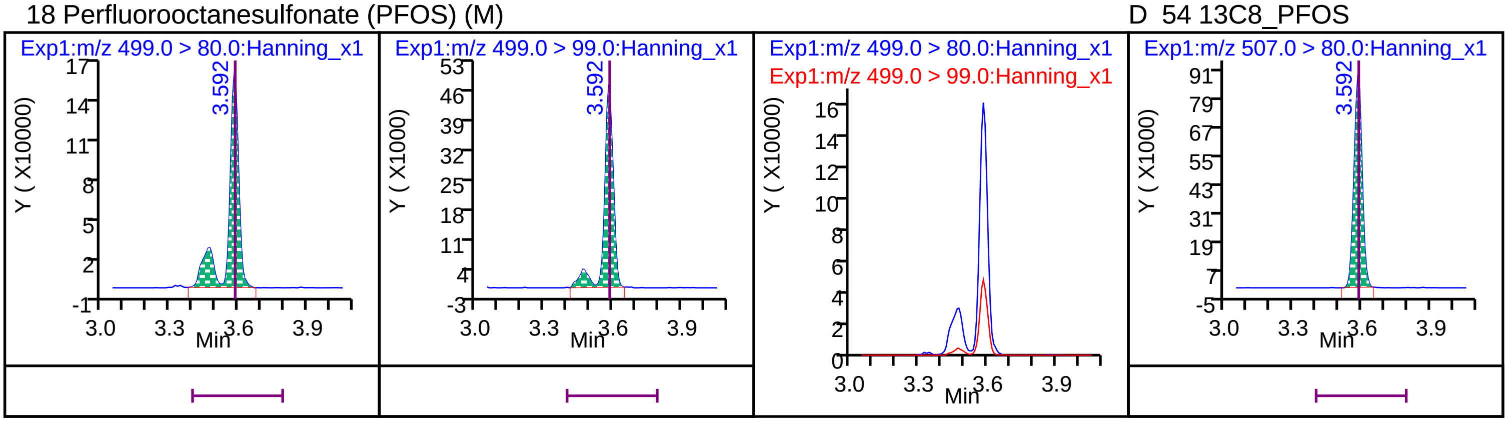
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



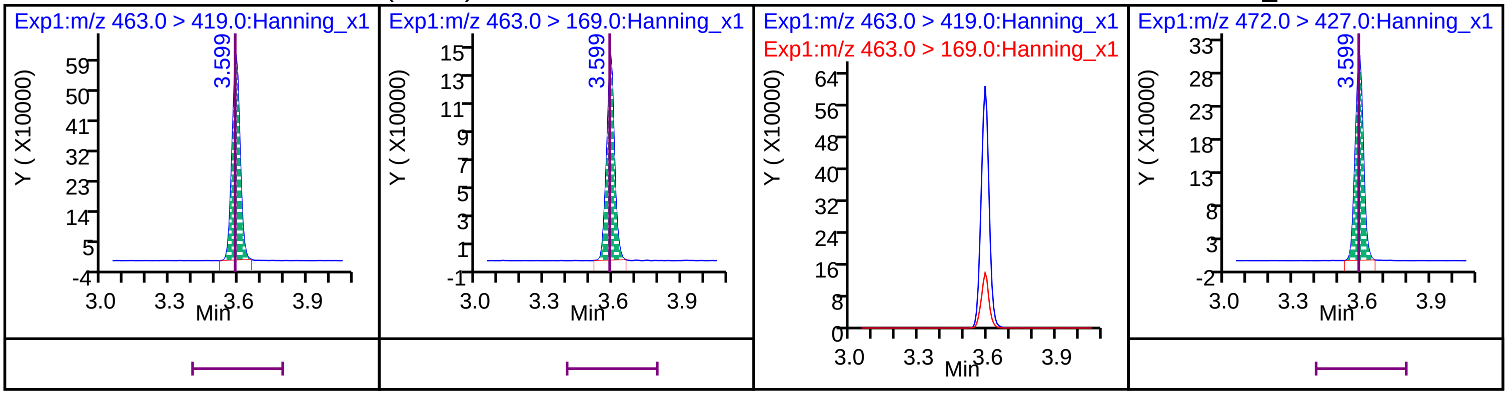
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



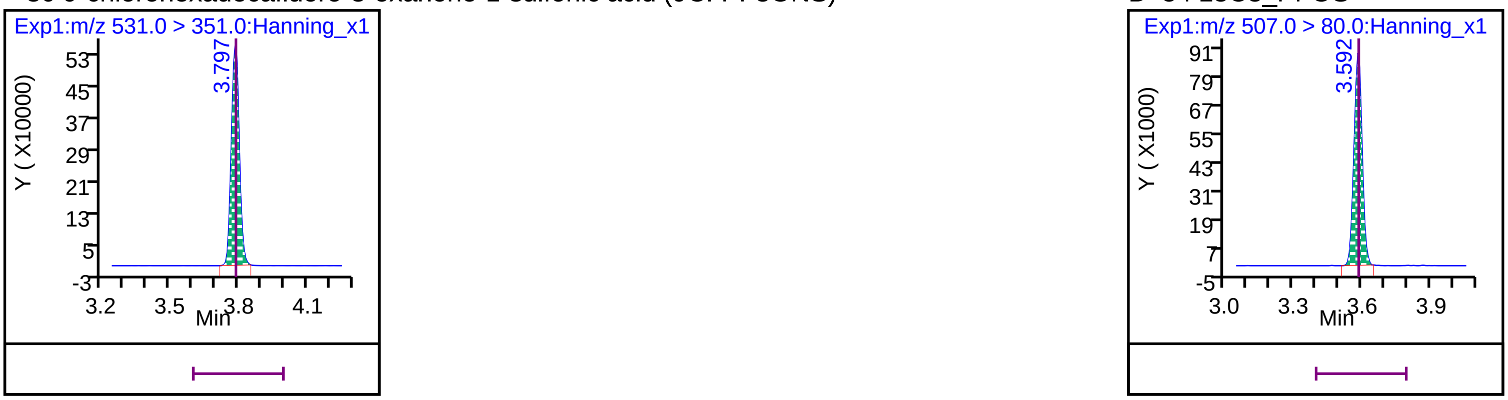
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



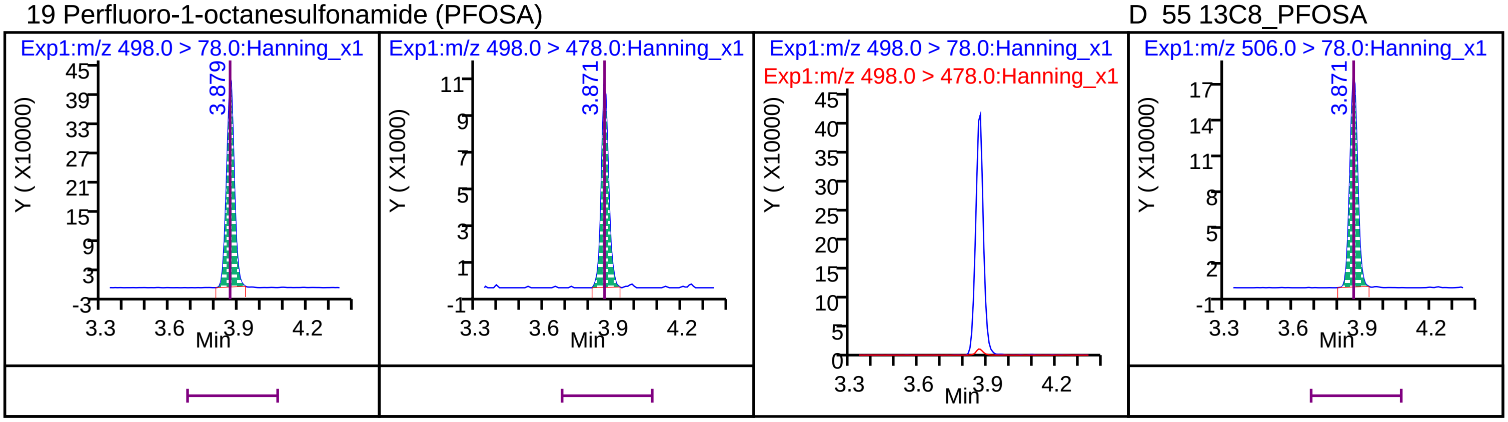
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



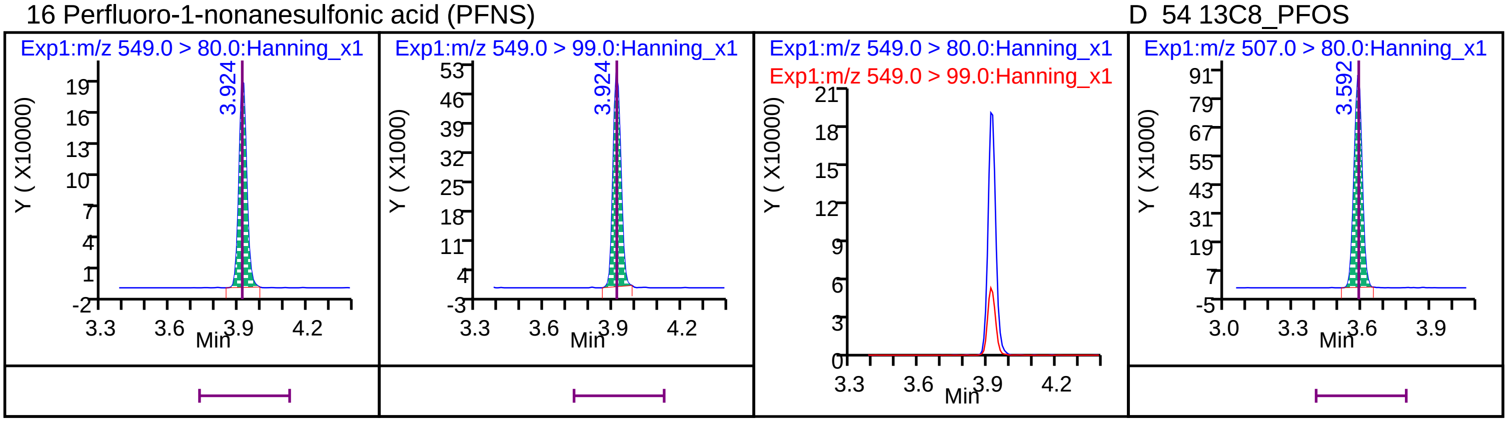
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



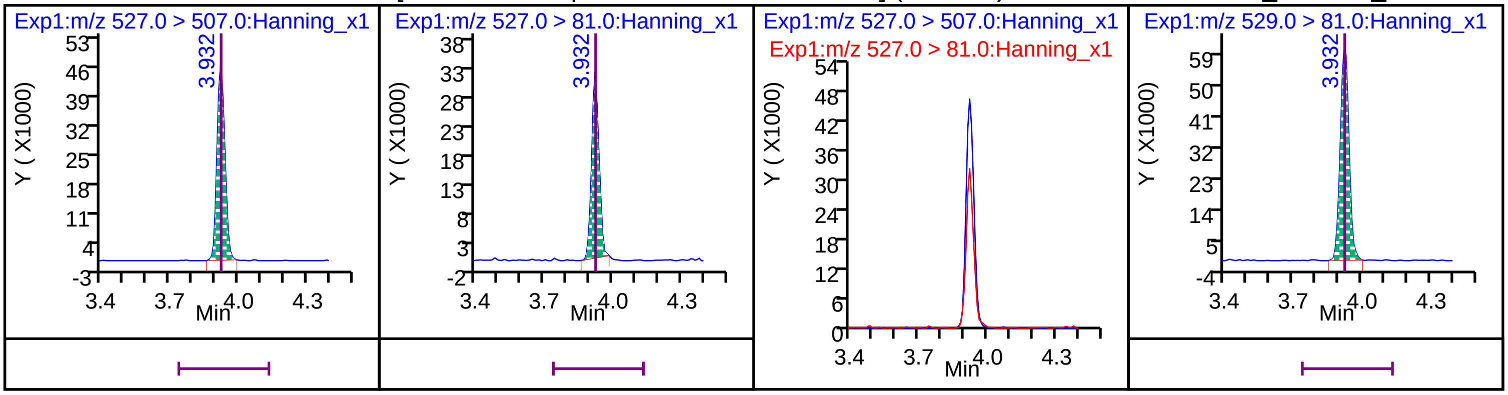
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



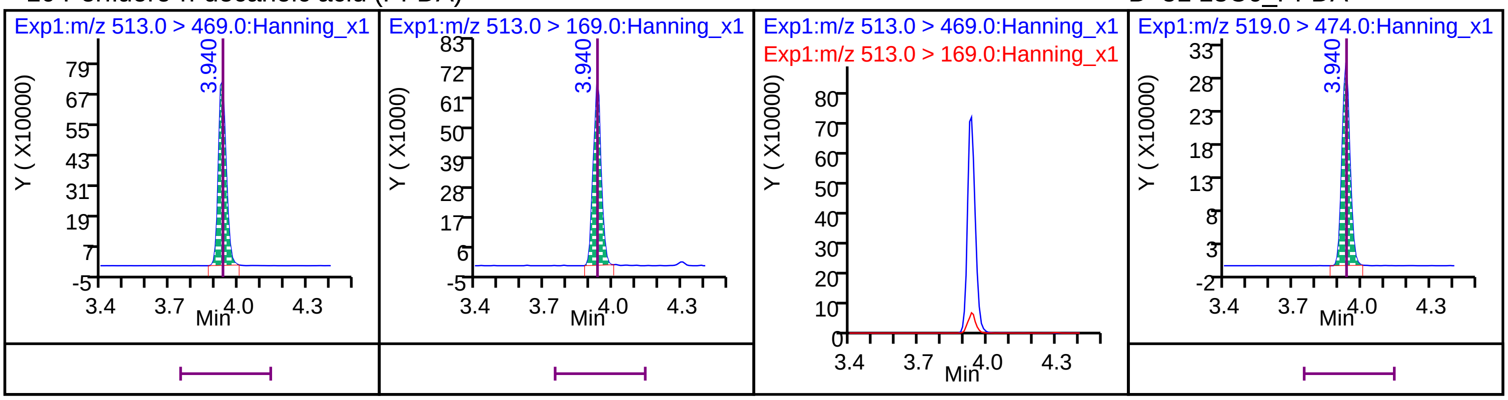
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



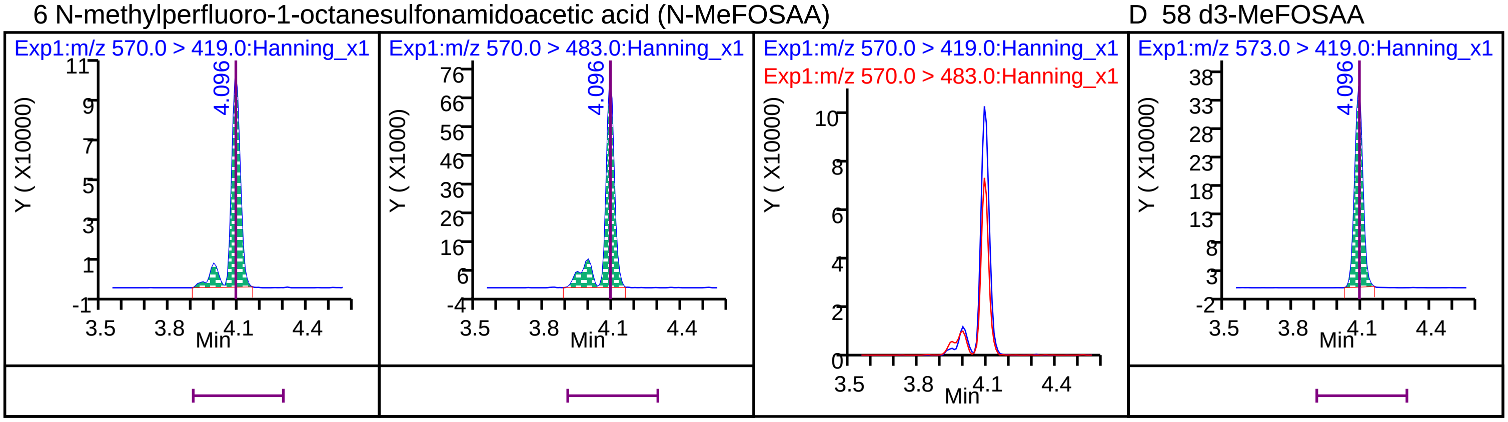
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



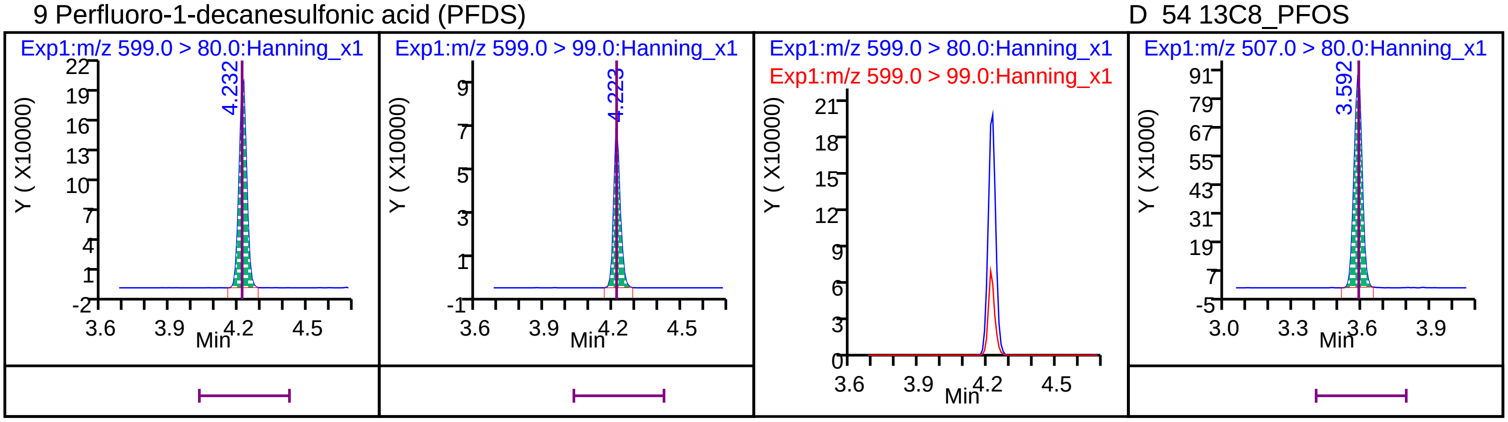
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



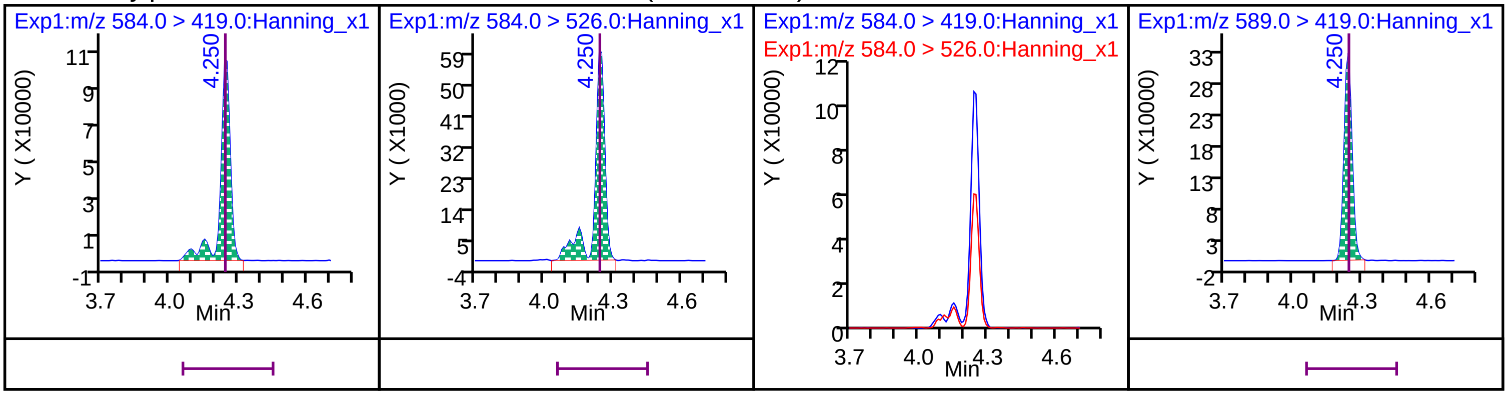
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



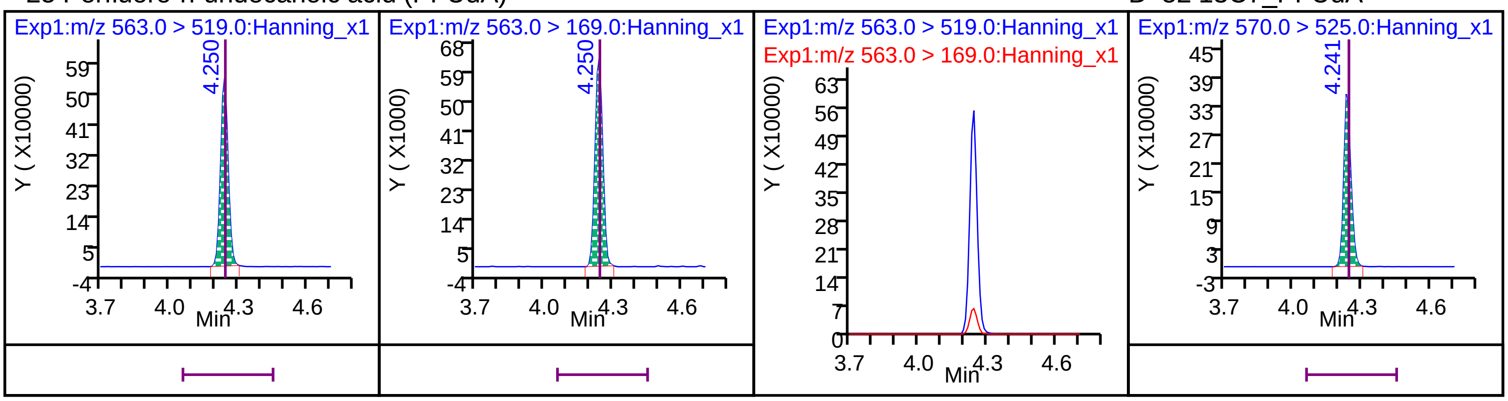
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



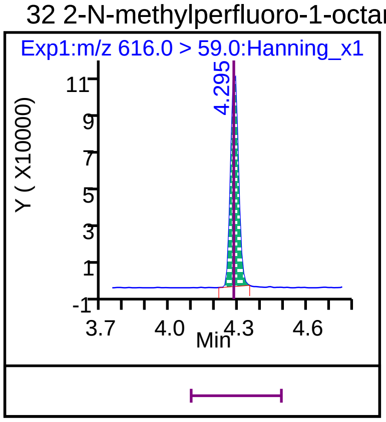
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

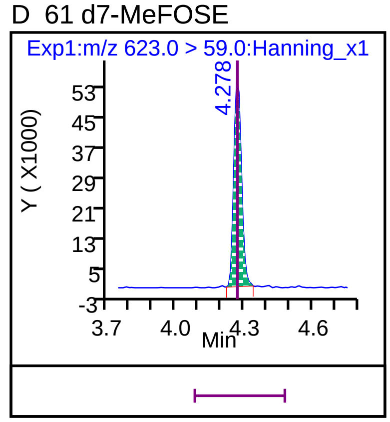


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

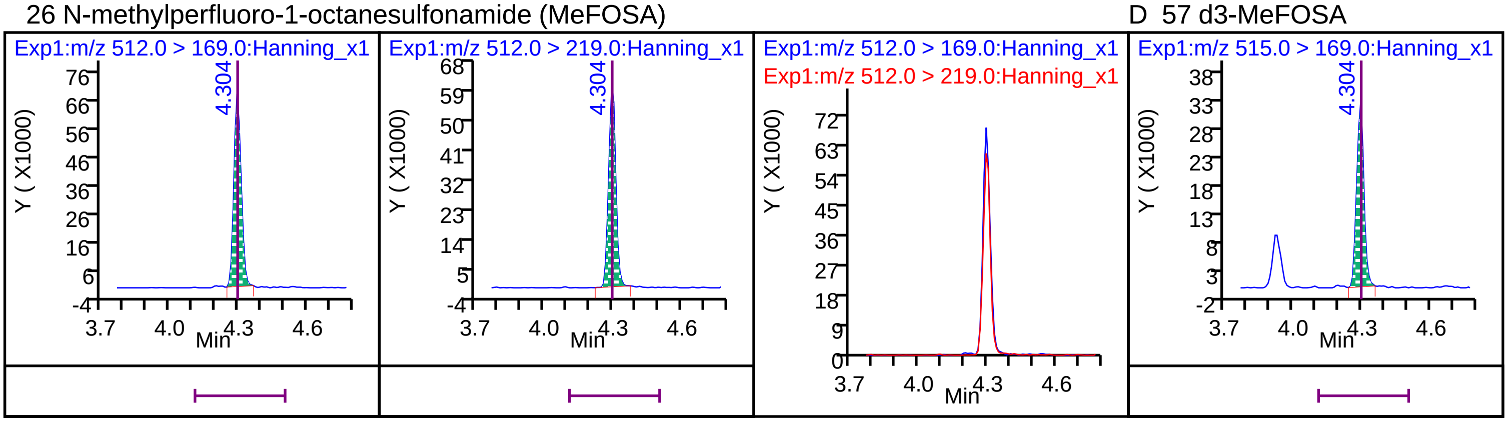


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

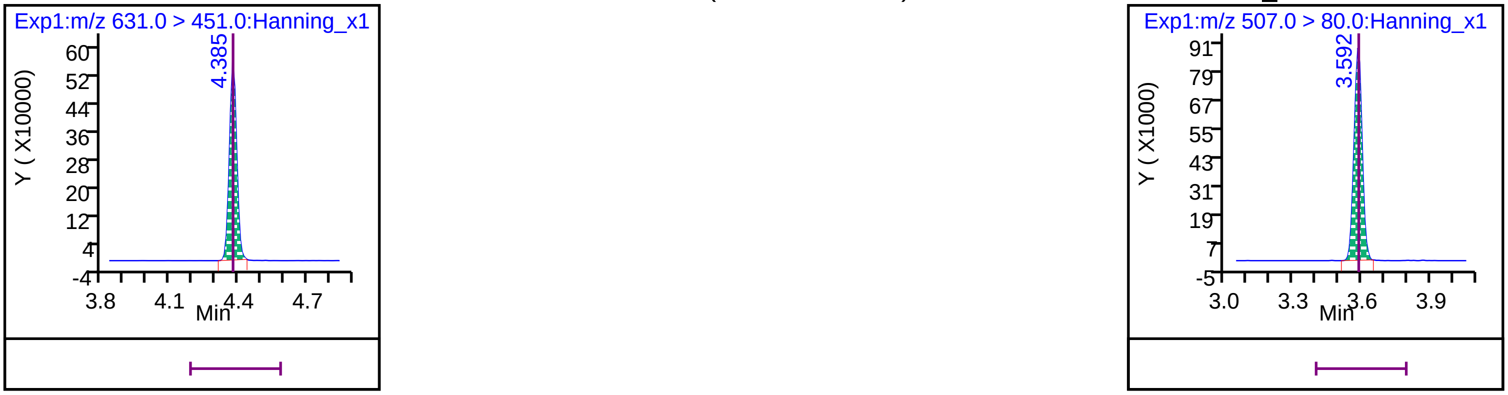




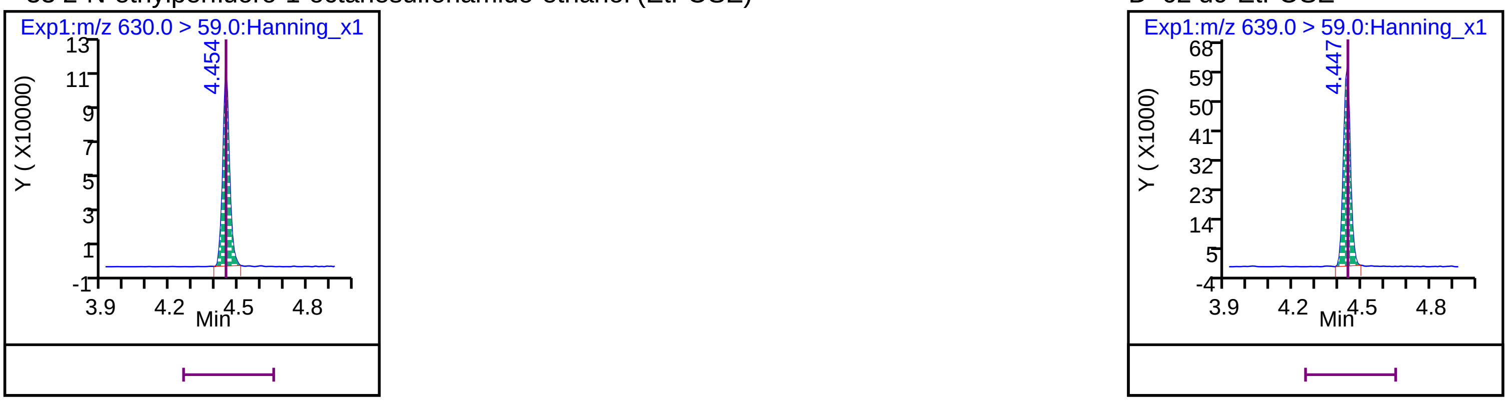
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



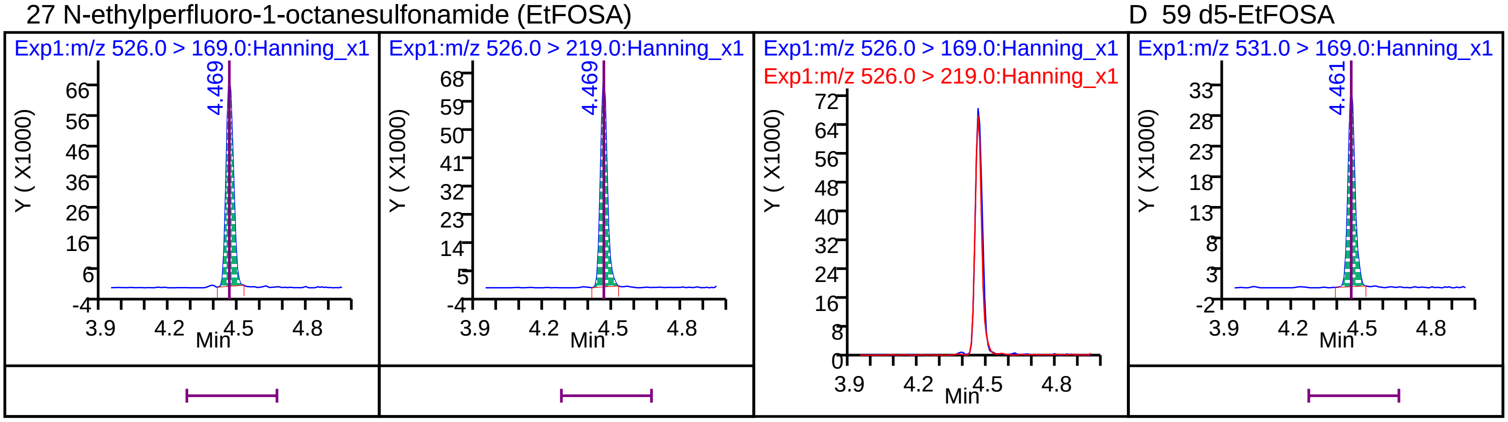
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS



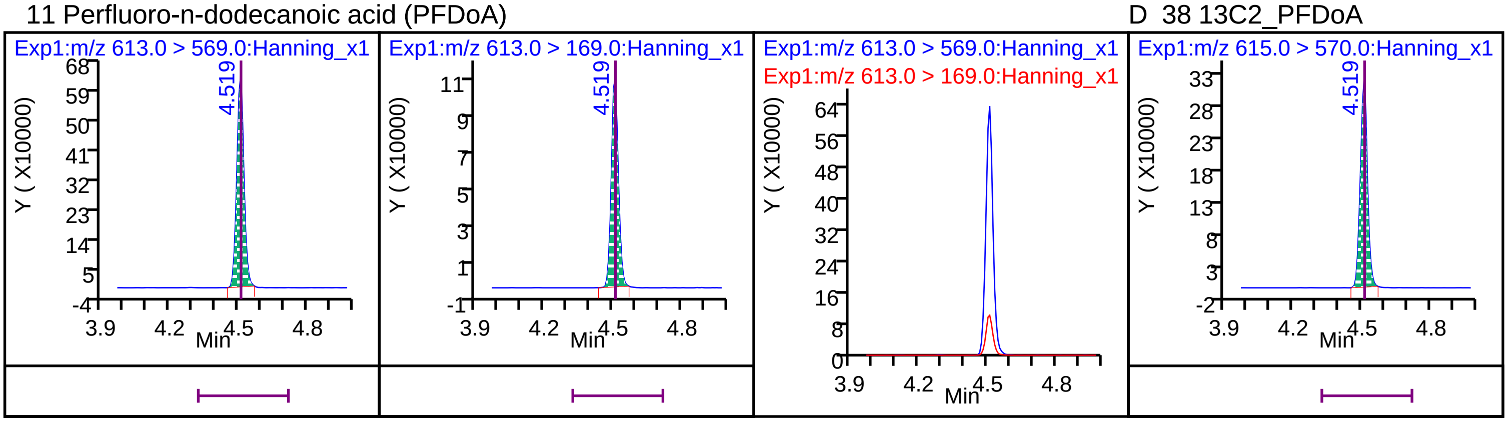
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) D 62 d9-EtFOSE



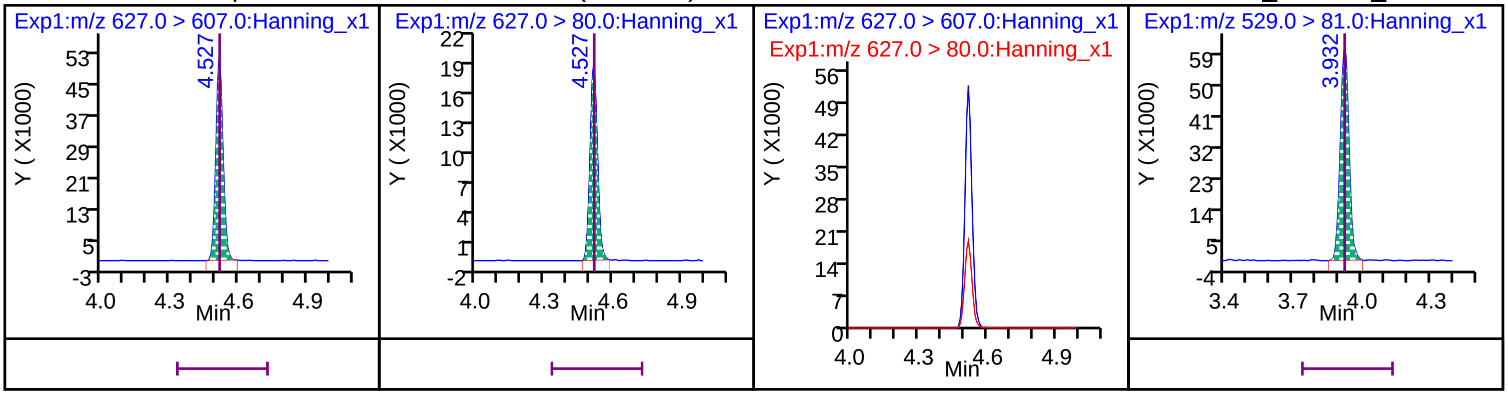
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) D 59 d5-EtFOSA



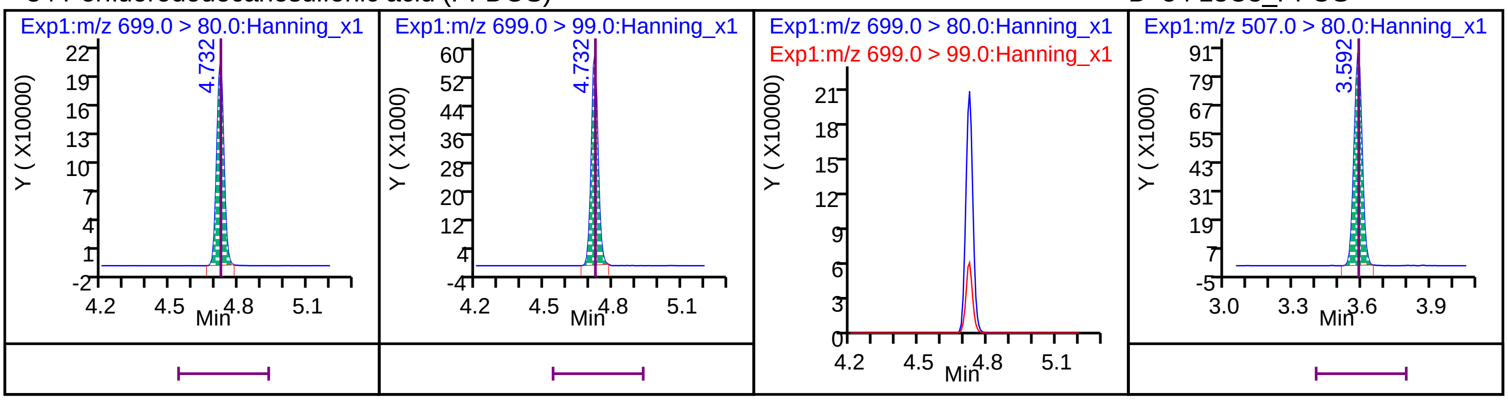
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



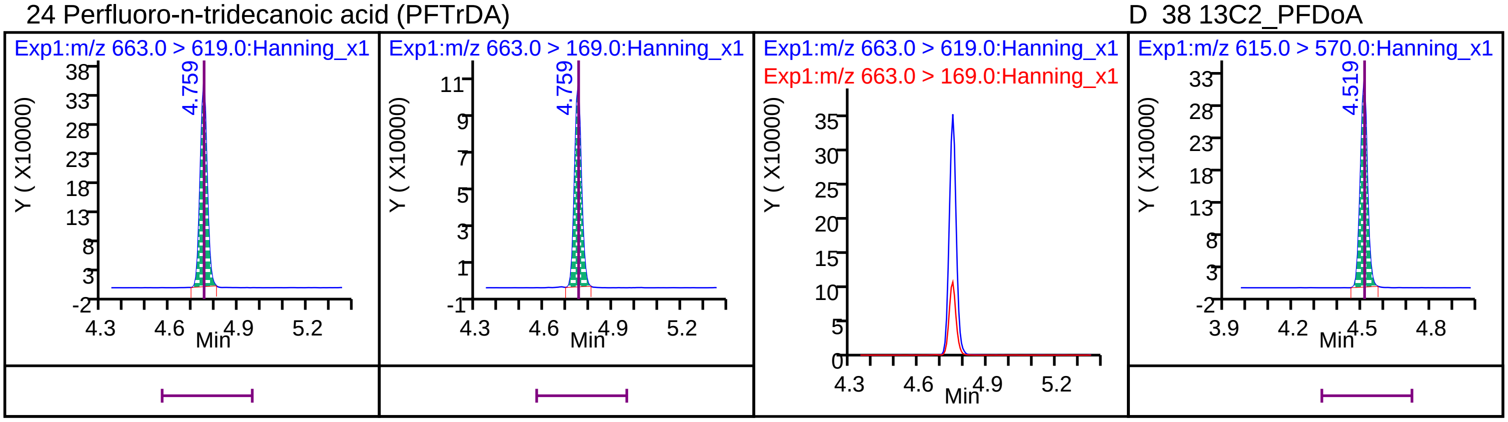
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



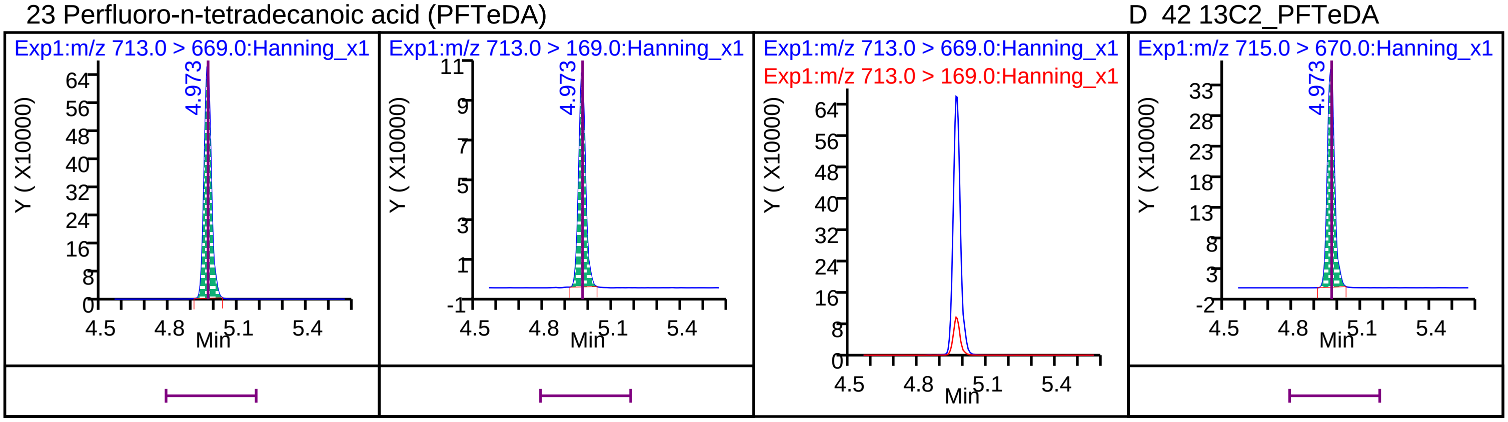
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



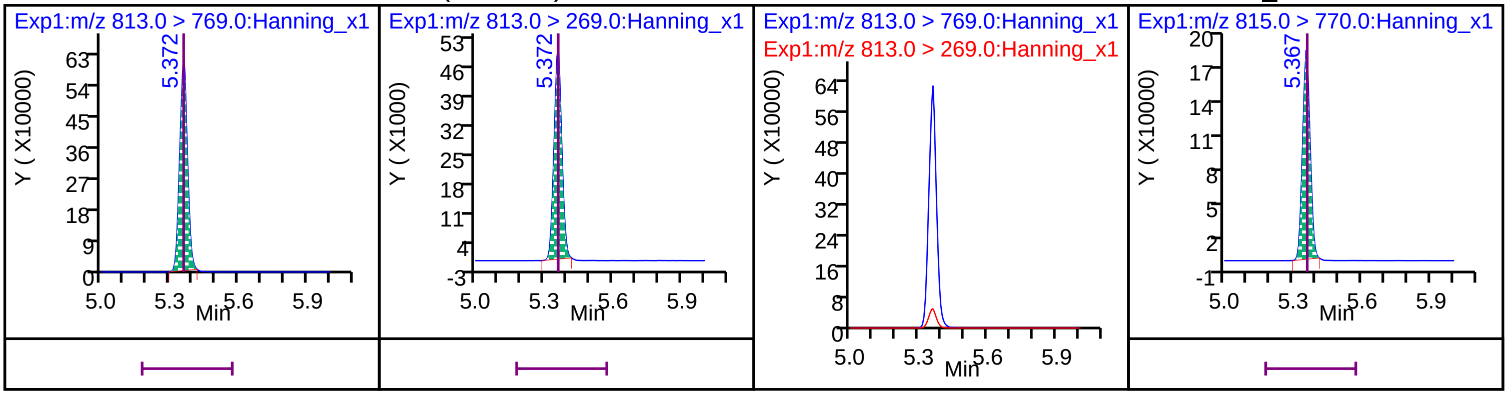
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



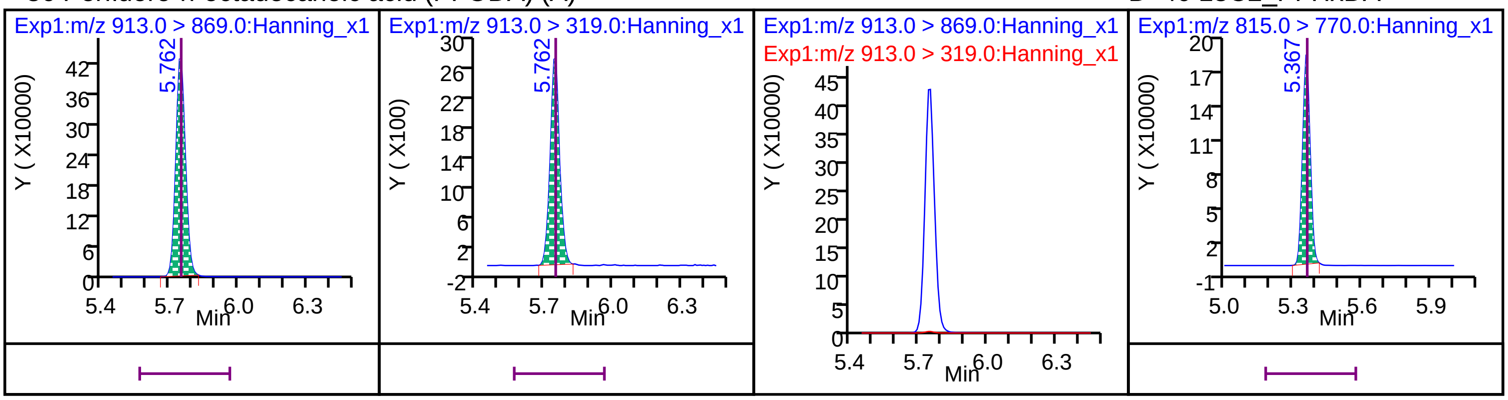
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



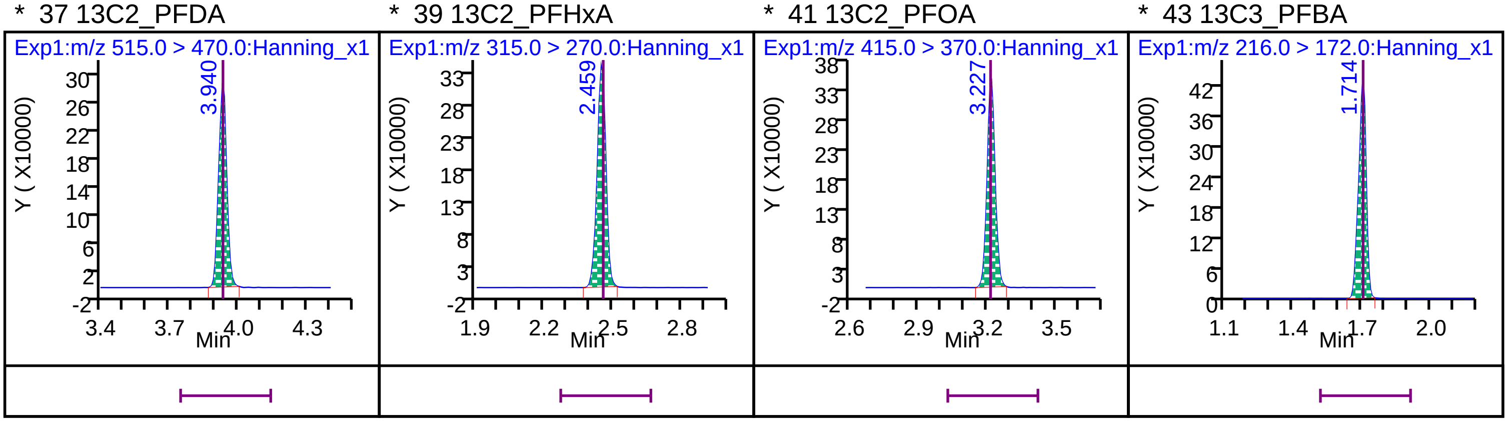
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



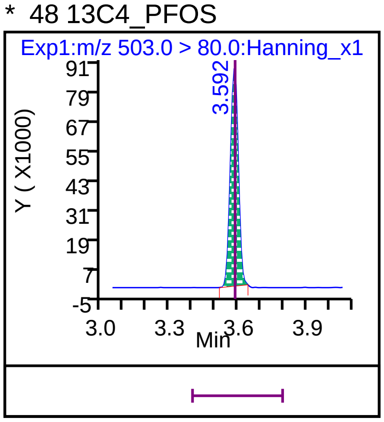
36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

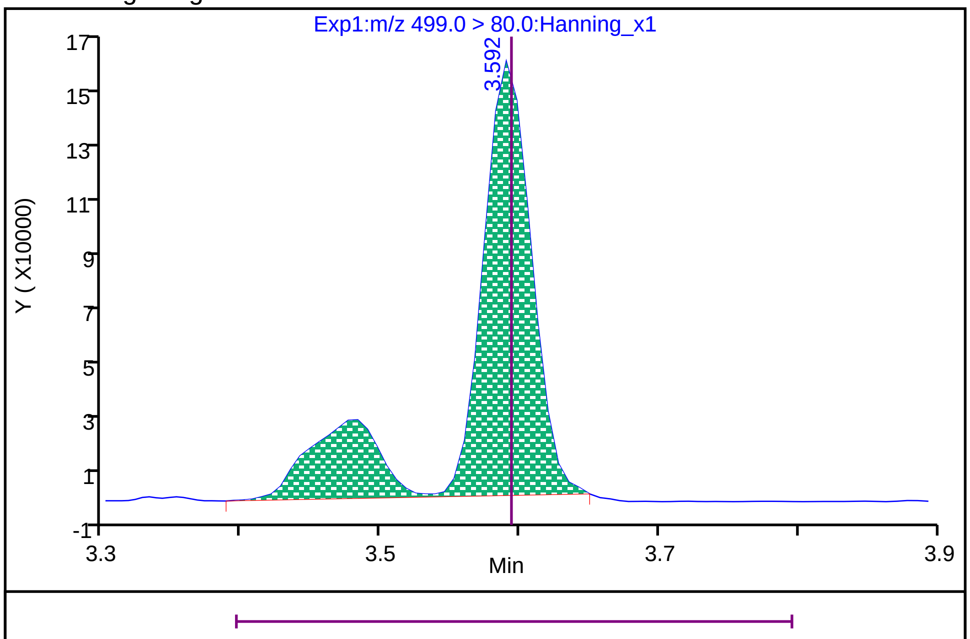
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A013.d		
Injection Date:	04-Nov-2021 14:41:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 2000_SVLC-1643
Sample Info:	ICAL 2000_SVLC-1643		
Dil. Factor:	1	Operator:	Matthew M. Miller

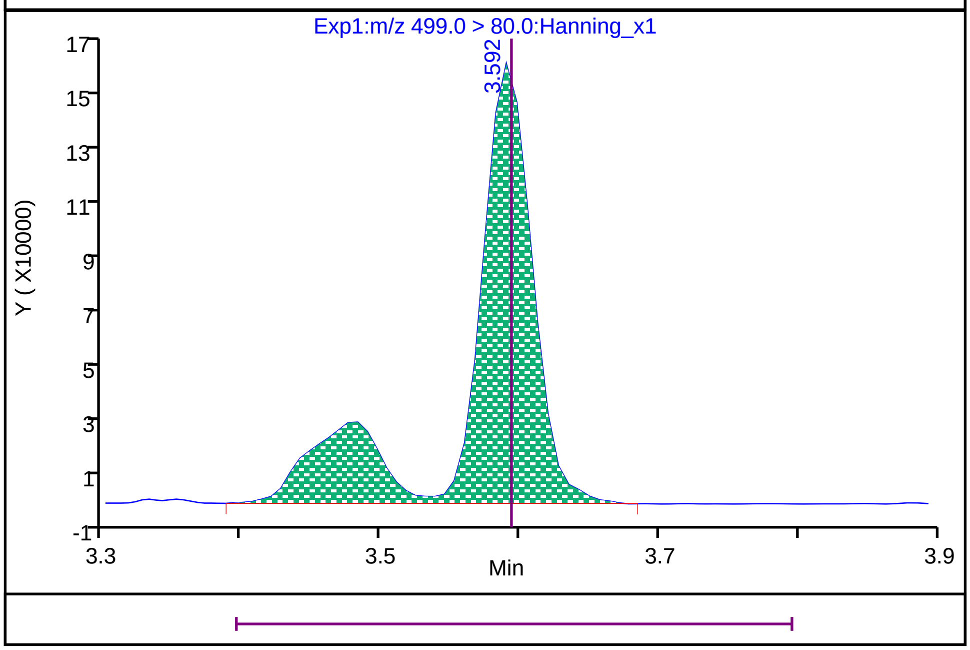
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.592
Area:	467555
Amount:	1869.29
Amount Units:	ng/L



RT:	3.592
Area:	489722
Amount:	1943.02
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:14

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A014.d		
Injection Date:	04-Nov-2021 14:51:55	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	83
Sample Info:	ICAL 5000_SVLC-1644	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	993579	20	>100:1			1000.00	922.77	83.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/0	5536945	21	>100:1			5000.00	5066.97		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	970276	17	>100:1			1000.00	967.46	89	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	5189007	16	>100:1			5000.00	4991.39		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	285078	16	>100:1			1000.00	877.78	78.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	1829846	16	>100:1	Target = 3.80		4420.00	4492.95		
298.9 > 99	44	2.141	2.141		479596	16	>100:1	3.81 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.494	2.493	1/0	1389862	18	>100:1	Target = 3.42		4690.00	4845.36		
349 > 99	44	2.494	2.493		436509	19	>100:1	3.18 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	180708	21	>100:1			5000.00	4350.54	83.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/0	369306	17	>100:1	Target = 1.54		4670.00	5235.63		
327 > 81	63	2.424	2.415		220888	19	>100:1	1.67 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	837233	18	>100:1			1000.00	937.31	81.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	4307928	18	>100:1	Target = 17.93		5000.00	4979.70		
313 > 119	49	2.468	2.467		252833	19	>100:1	17.03 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	787706	19	>100:1			5000.00	4808.38	89.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/0	1162546	19	>100:1	Target = 0.72		10000	9631.24		
285 > 185	66	2.587	2.587		1689749	19	>100:1	0.68 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	809297	18	>100:1			1000.00	923.65	82.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	4070148	18	>100:1	Target = 3.26		5000.00	5224.32		
363 > 169	47	2.846	2.846		1203647	18	>100:1	3.38 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	231402	17	>100:1			1000.00	882.27	77.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/0	1329709	26	>100:1	Target = 3.48	5.10	4550.00	4860.89		
399 > 99	45	2.864	2.863		374437	25	>100:1	3.55 (1.74-5.22)	7.90				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	6688280	19	>100:1	Target = 2.31		4710.00	5251.15		
377 > 85	45	2.890	2.890		2757373	19	>100:1	2.42 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.229	1/0	1280767	22	>100:1	Target = 3.56		4760.00	5381.22		
449 > 99	45	3.233	3.229		347384	22	>100:1	3.68 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.204	0	184259	22	>100:1			5000.00	4886.07	94.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.201	3.204	0/0	282047	22	>100:1	Target = 1.34		4740.00	4401.69		
427 > 81	64	3.201	3.204		208803	21	>100:1	1.35 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.223	1	762812	22	>100:1			1000.00	922.39	82.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.229	0/-1	4011575	23	>100:1	Target = 2.50		5000.00	5111.13		
413 > 169	53	3.227	3.229		1576423	21	>100:1	2.54 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.599	3.595	1	209258	20	>100:1			1000.00	932.19	85.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.599	3.595	1/0	1170983	38	>100:1	Target = 4.01	3.64	4640.00	4746.89		M
499 > 99	54	3.599	3.595		292527	38	>100:1	4.00 (2.00-6.02)	6.74				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.796	3.799	0/-1	3195605	19	>100:1			4660.00	4941.30		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.932	3.926	1/0	1003844	18	>100:1	Target = 3.78		4800.00	4749.57		
549 > 99	54	3.932	3.926		273472	18	>100:1	3.67 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.232	4.226	1/0	1015614	15	>100:1	Target = 3.98		4820.00	4916.09		
599 > 99	54	4.232	4.226		282596	16	>100:1	3.59 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.384	4.386	0/-1	2934380	16	>100:1			4710.00	5047.92		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.731	4.733	0/-1	1060595	18	>100:1	Target = 3.68		4840.00	5233.29		
699 > 99	54	4.731	4.733		282278	17	>100:1	3.75 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.606	3.595	1	741339	20	>100:1			1000.00	927.82	74.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/0	3477945	19	>100:1	Target = 4.69		5000.00	5151.98		
463 > 169	56	3.599	3.595		754956	19	>100:1	4.60 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.878	3.873	1	387245	20	>100:1			1000.00	934.94	90.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.878	3.873	1/0	2205480	19	>100:1	Target = 40.85		5000.00	5036.91		
498>478	55	3.878	3.873		54718	23	>100:1	40.30 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.940	3.934	1	154306	20	>100:1			5000.00	4916.48	100.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.940	3.934	1/0	254192	17	>100:1	Target = 1.58		4790.00	4636.14		
527 > 81	65	3.940	3.934		167375	18	>100:1	1.51 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.526	4.528	0/-1	270736	19	>100:1	Target = 2.46		4820.00	4919.20		
627 > 80	65	4.526	4.528		105961	17		2.55 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	0	661047	16	>100:1			1000.00	915.83	84.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.940	3.942	0/0	3585505	18	>100:1	Target = 9.77		5000.00	5285.99		
513 > 169	51	3.948	3.942		370865	19	>100:1	9.66 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	855917	16	>100:1			5000.00	4827.16	94.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.104	4.098	1/1	696623	33	>100:1	Target = 1.41	7.98	5000.00	4977.22		
570 > 483	58	4.104	4.098		514833	32	>100:1	1.35 (0.70-2.11)	3.58				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.250	4.253	0	616996	17	>100:1			1000.00	902.80	84.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.250	4.253	0/0	3053677	16	>100:1	Target = 9.19		5000.00	5516.87		
563 > 169	52	4.250	4.253		321776	18	>100:1	9.49 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.253	0	689576	17	>100:1			5000.00	4611.60	88.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.259	4.253	1/1	742531	36	>100:1	Target = 1.75	6.02	5000.00	5267.17		M
584 > 526	60	4.259	4.253		425668	41	>100:1	1.74 (0.87-2.63)	3.68				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.286	4.280	1	142223	14	>100:1			1000.00	1030.71	106.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.295	4.288	1/0	635534	15	>100:1			5000.00	4396.81		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.306	0	61142	13	>100:1			1000.00	873.20	84.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.306	0/0	337011	14	>100:1	Target = 1.11		5000.00	5322.82		
512 > 219	57	4.304	4.306		313227	16	>100:1	1.07 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.446	4.448	0	121406	16	>100:1			1000.00	944.40	93.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.456	0/0	509720	17	>100:1			5000.00	4932.41		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.468	4.463	1	60469	17	>100:1			1000.00	938.88	92.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.475	4.470	1/0	337552	16	>100:1	Target = 1.06		5000.00	4774.79		
526 > 219	59	4.475	4.470		302222	17	>100:1	1.11 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	622777	18	>100:1			1000.00	905.67	83.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.521	0/0	3110268	18	>100:1	Target = 6.38		5000.00	5085.24		
613 > 169	38	4.519	4.521		474691	18	>100:1	6.55 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.758	4.760	0/0	1728600	19	>100:1	Target = 3.23		5000.00	5179.38		
663 > 169	38	4.758	4.760		539742	19	>100:1	3.20 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.977	4.978	0	740344	24	>100:1			1000.00	947.03	82.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.978	0/0	3272017	25	>100:1	Target = 7.33		5000.00	5029.04		
713 > 169	42	4.973	4.978		442009	25	>100:1	7.40 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	360609	20	>100:1			1000.00	923.74	89.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	3435079	21	>100:1	Target = 12.31		5000.00	4979.84		
813 > 269	40	5.372	5.372		285885	21	>100:1	12.01 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/1	2992982	22	>100:1	Target = 165.31		5000.00	5497.68		
913 > 319	40	5.761	5.761		17246	21	>100:1	173.54 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.948	3.942	1	655494	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	795646	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.223	1	767260	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	930693	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.599	3.595	1	213860	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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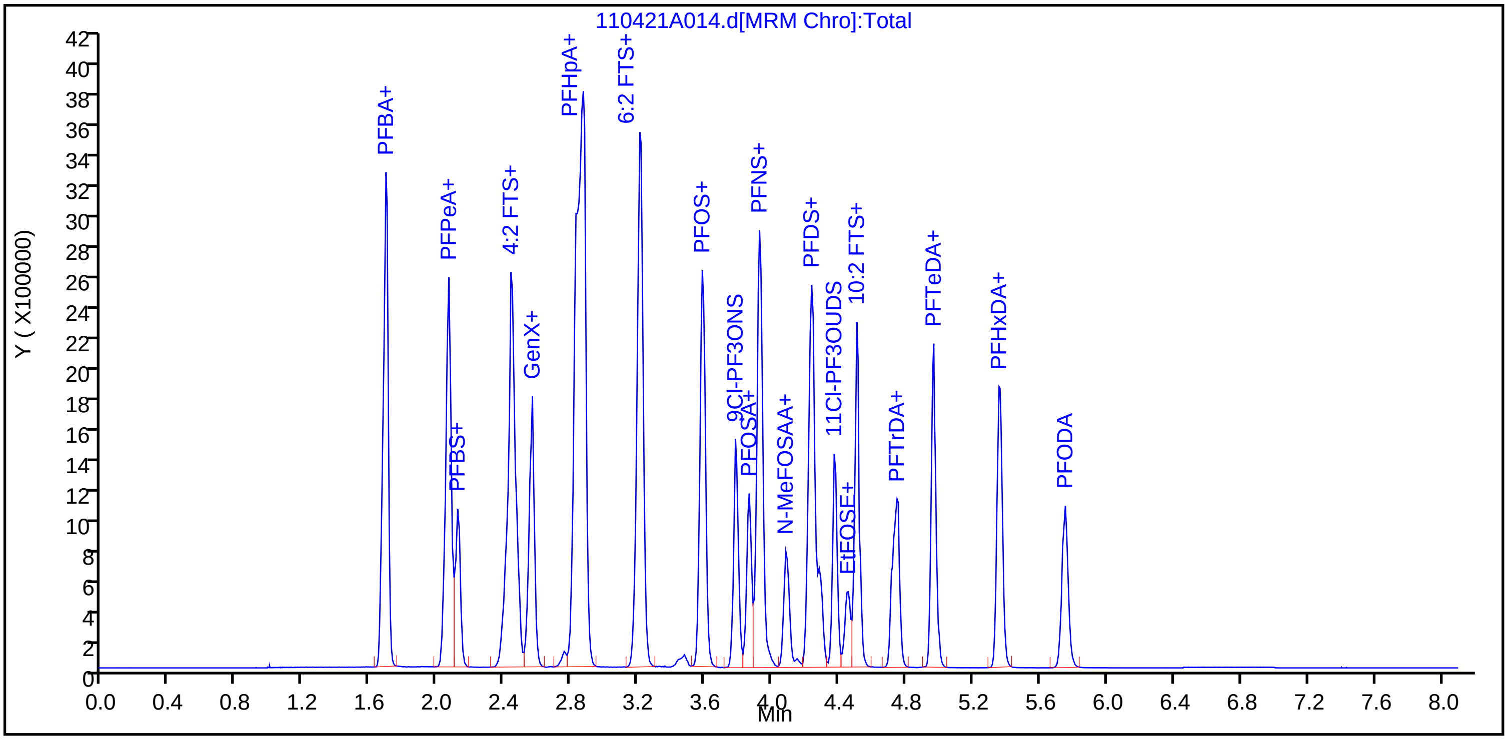
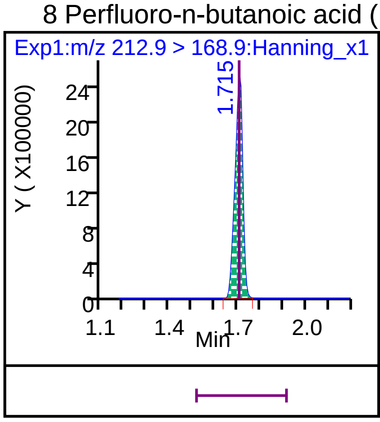
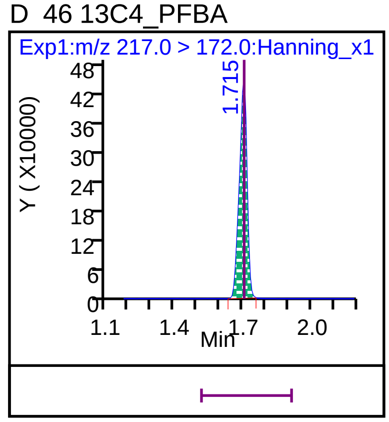
Injection Date:	04-Nov-2021 14:51:55	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1644
Sample Info:	ICAL 5000_SVLC-1644		
Dil. Factor:	1	Operator:	Matthew M. Miller



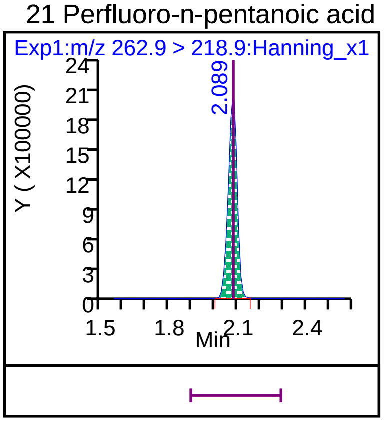
8 Perfluoro-n-butanoic acid (PFBA)



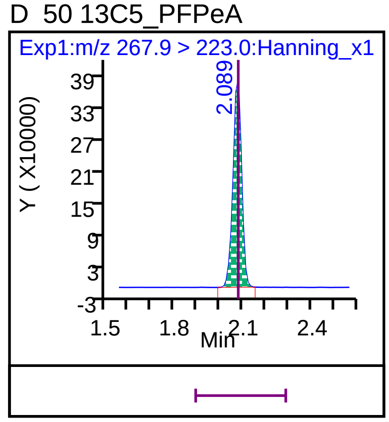
D 46 13C4_PFBA



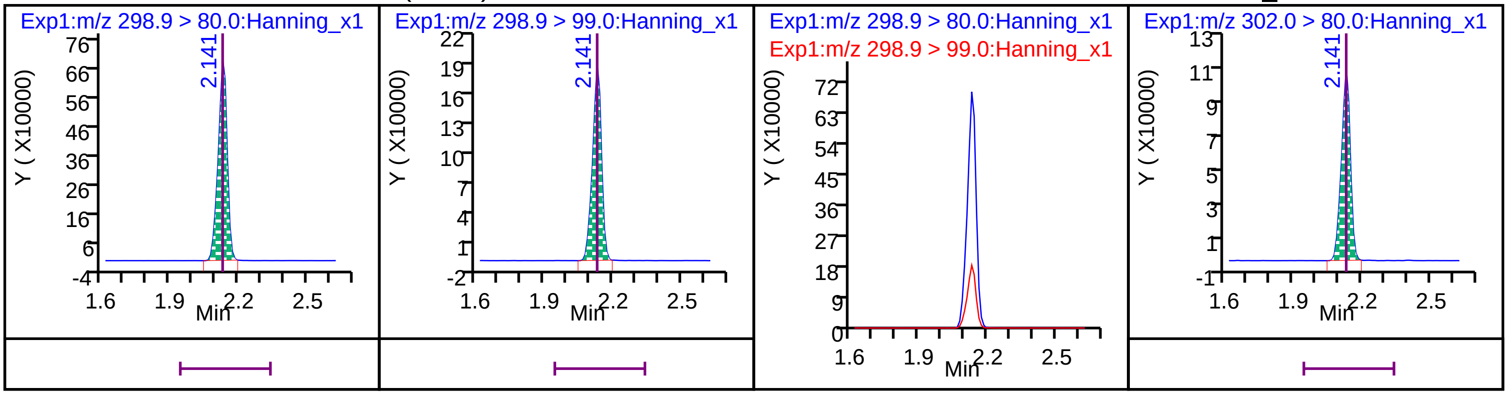
21 Perfluoro-n-pentanoic acid (PFPeA)



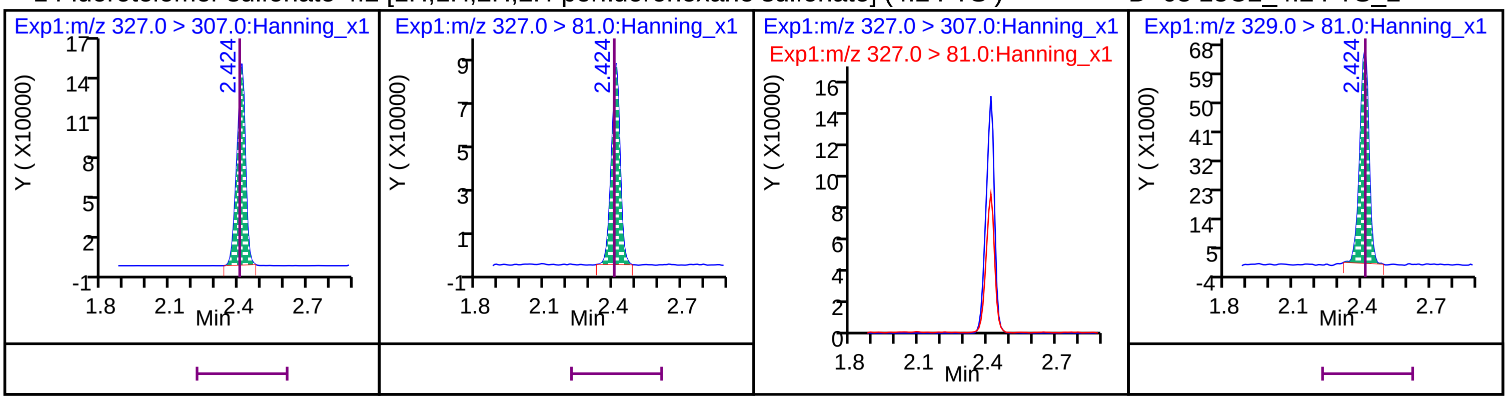
D 50 13C5_PFPeA



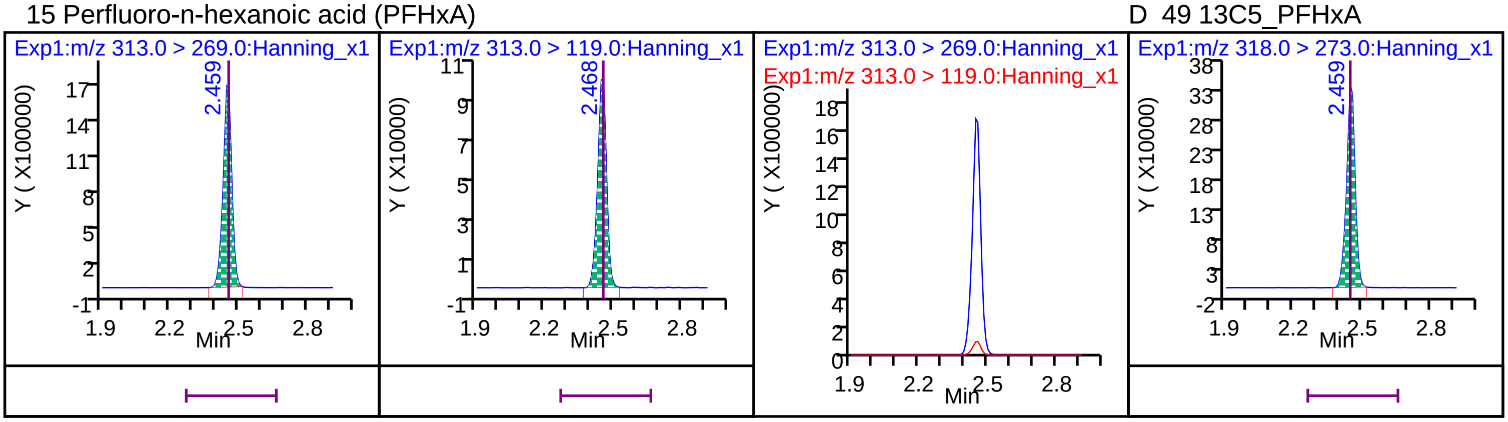
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



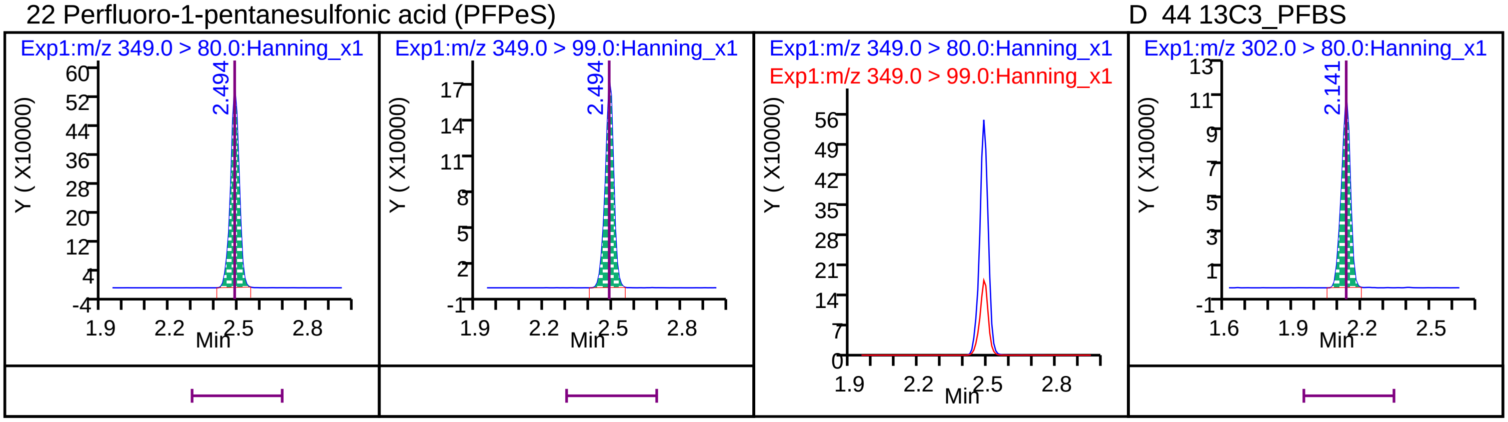
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

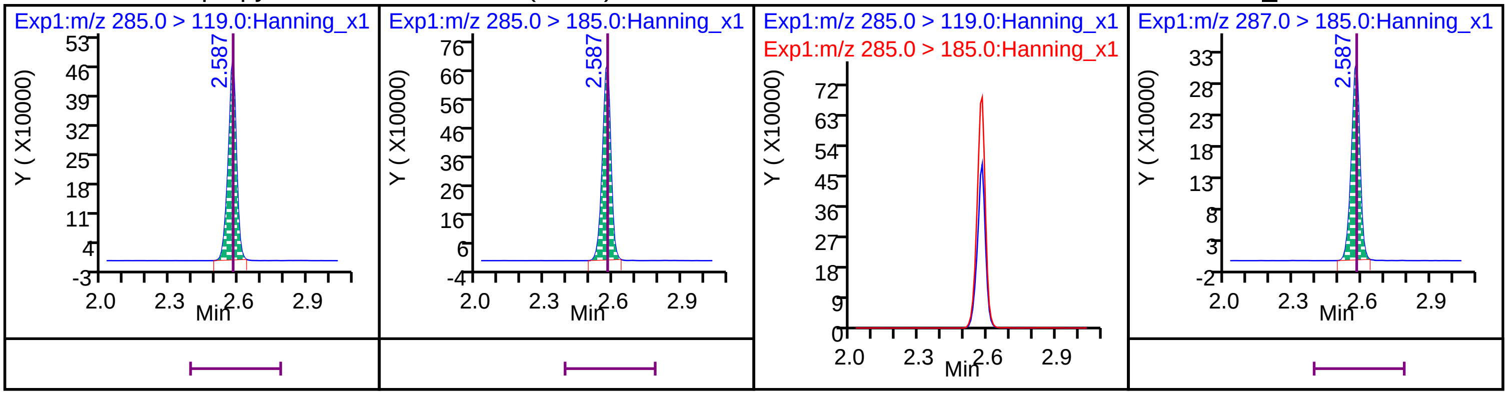


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

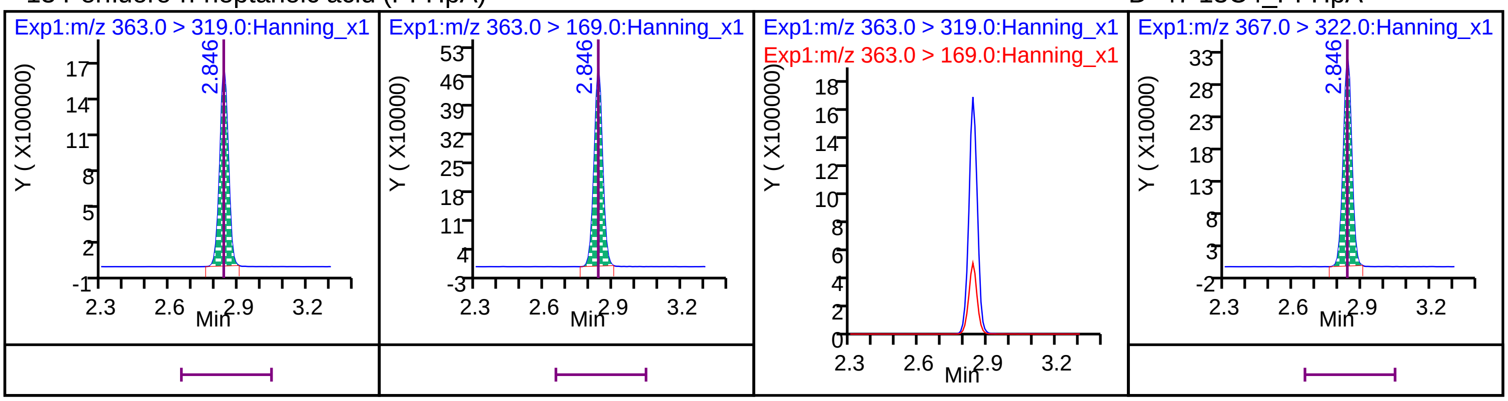


Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A014.d

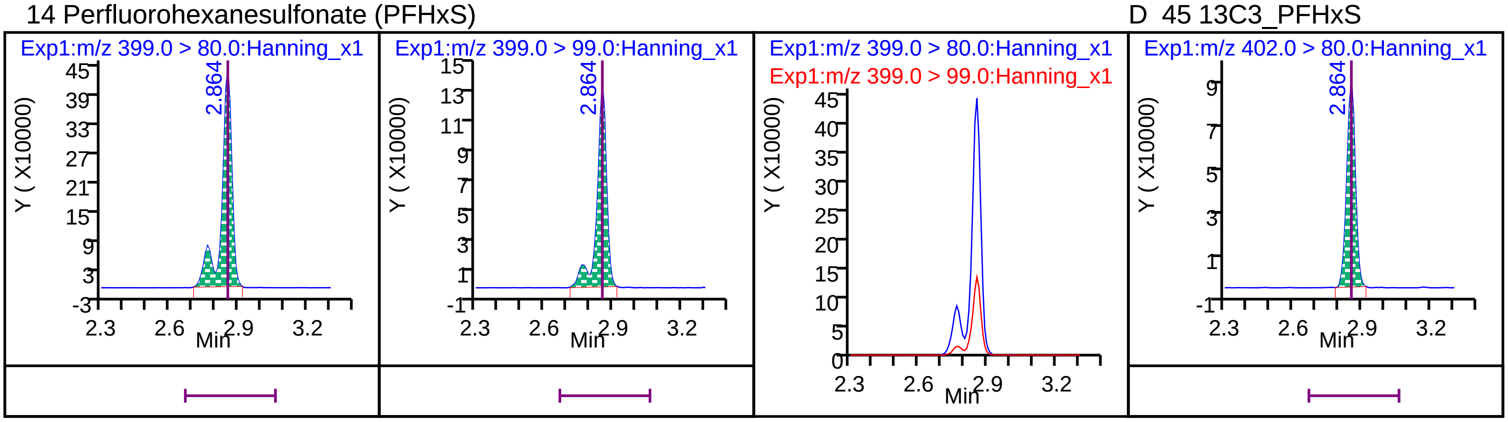
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



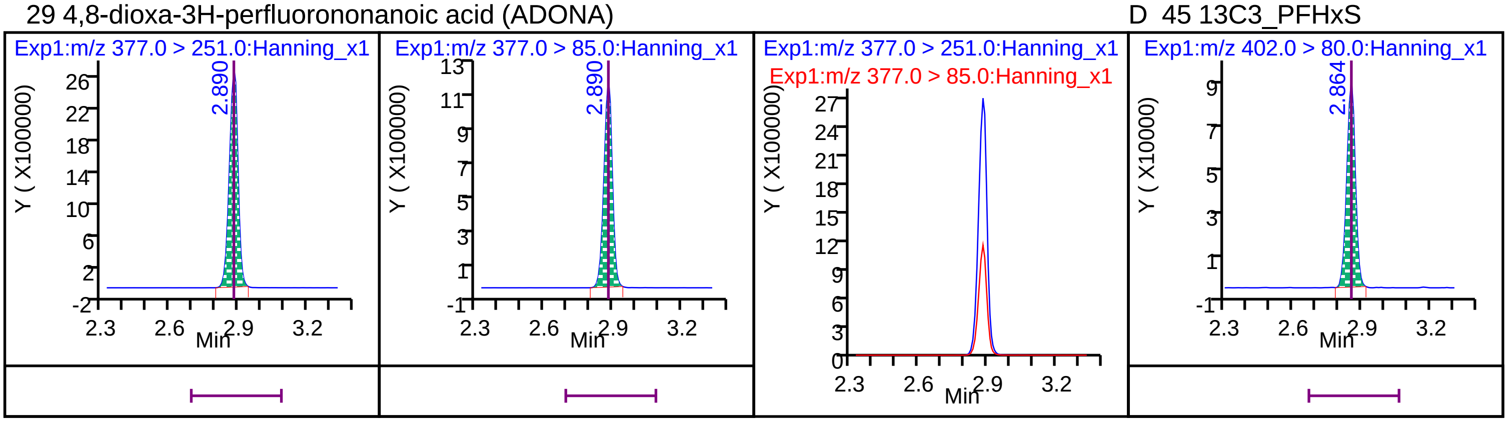
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



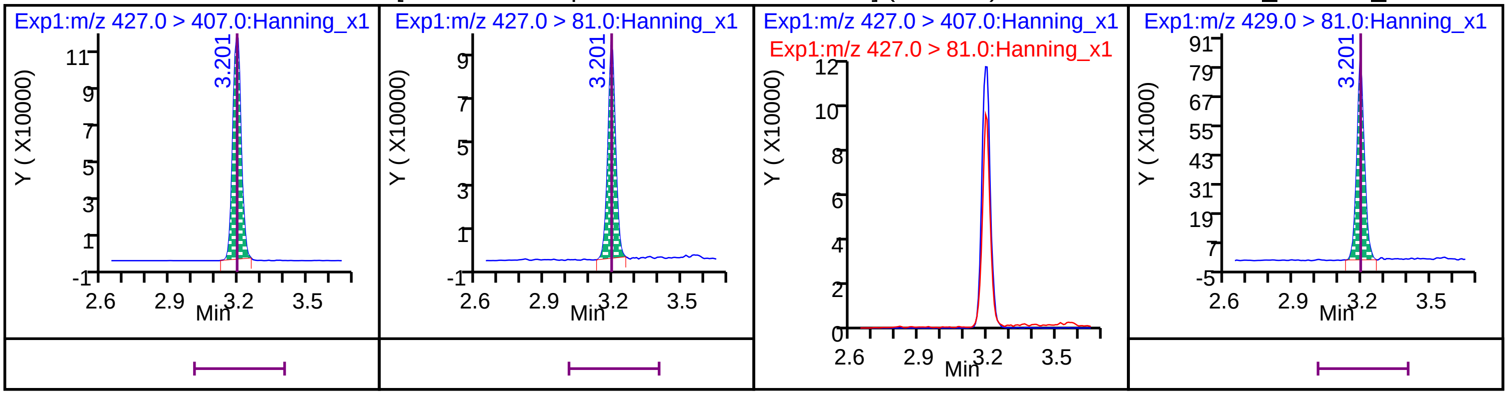
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



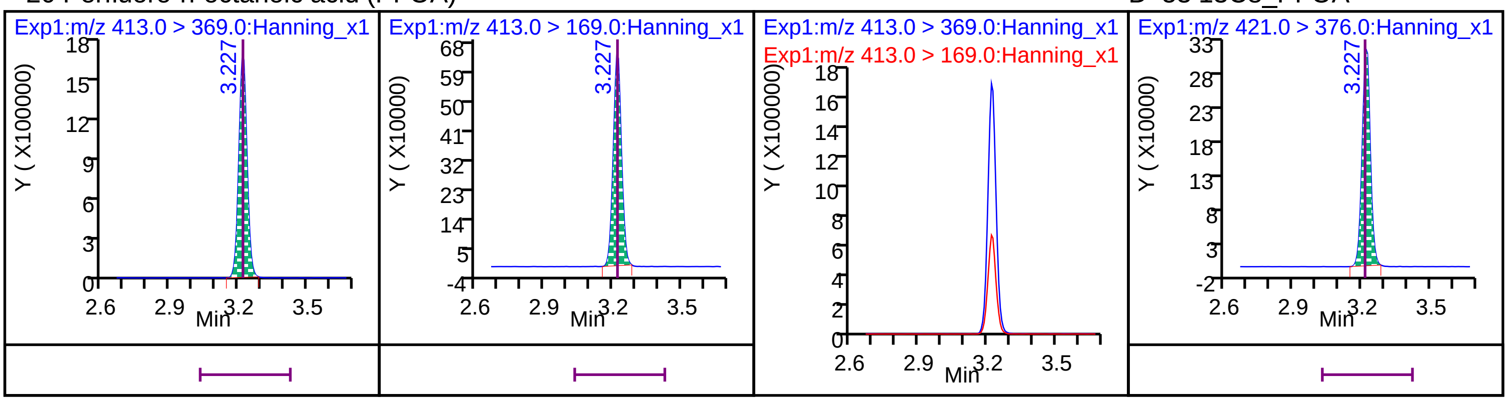
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



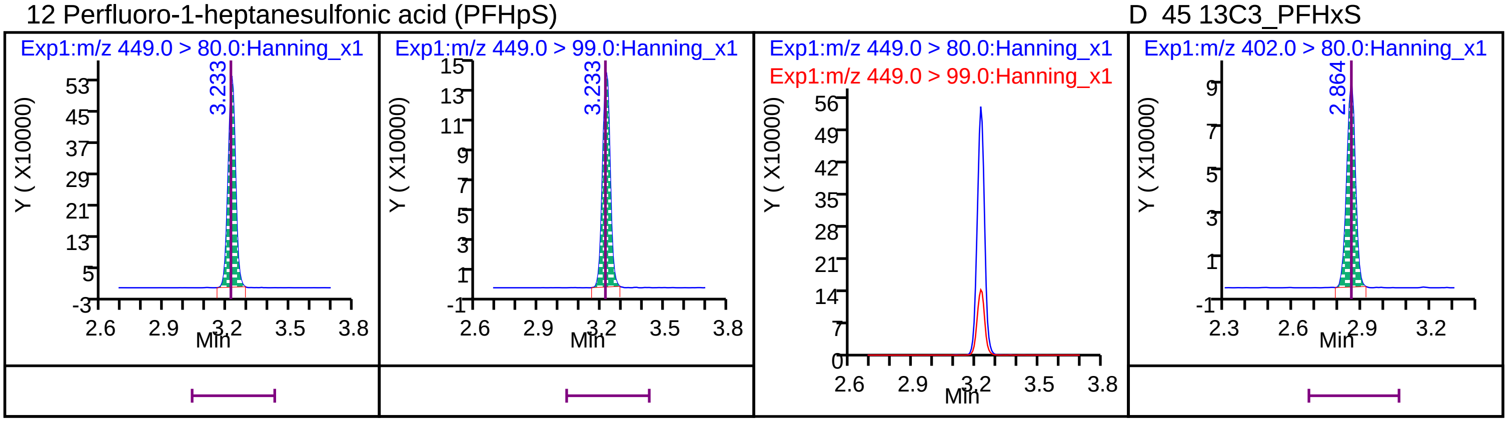
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



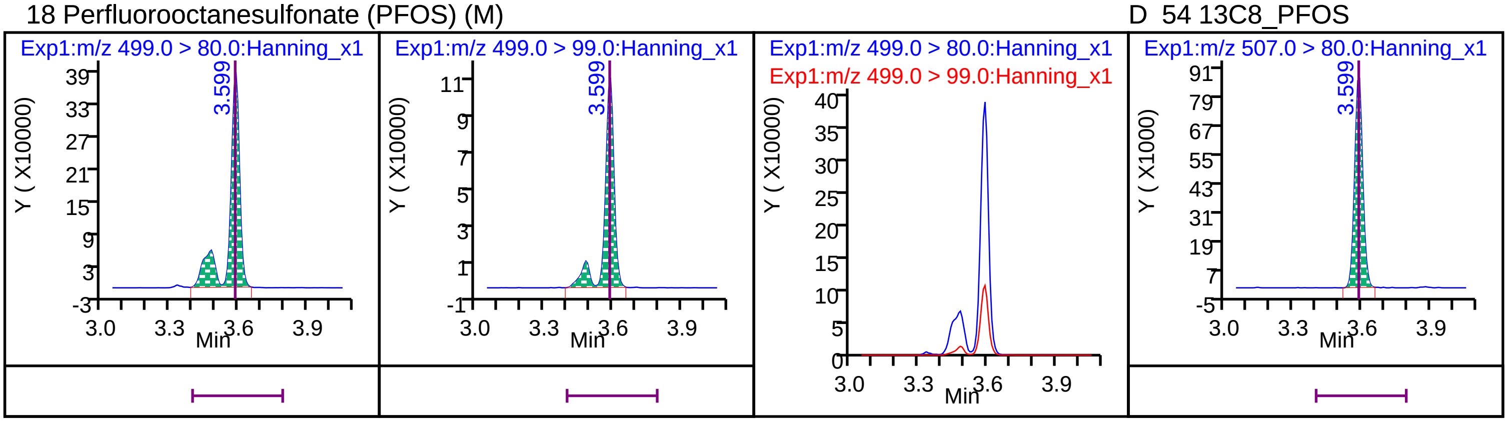
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



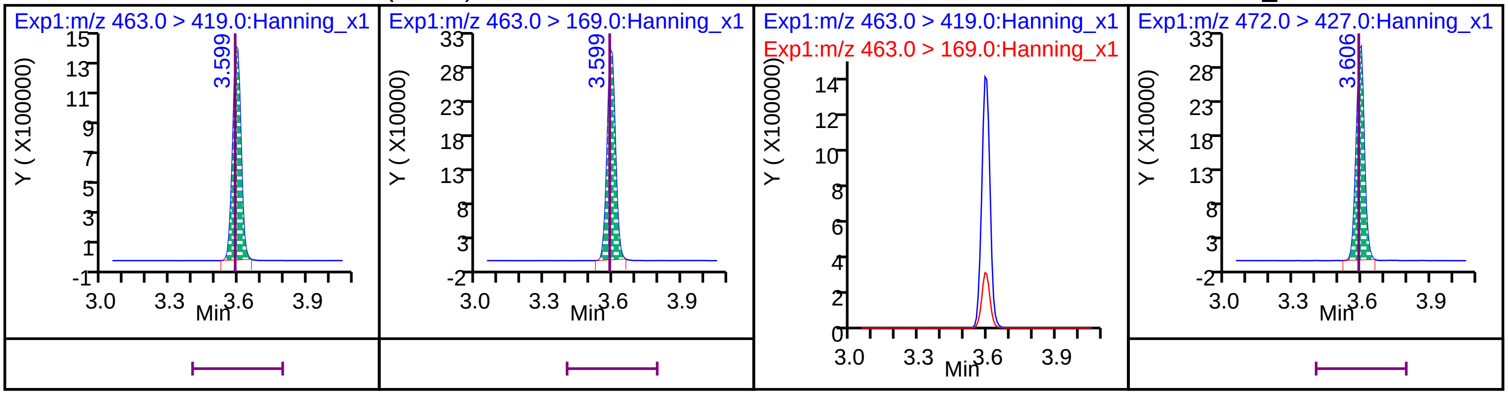
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



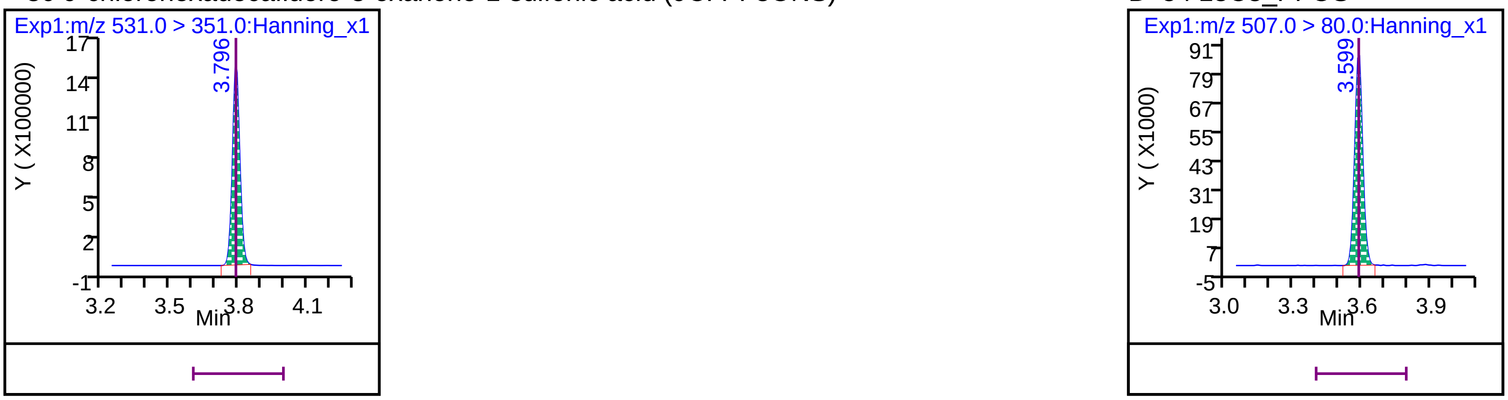
Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A014.d

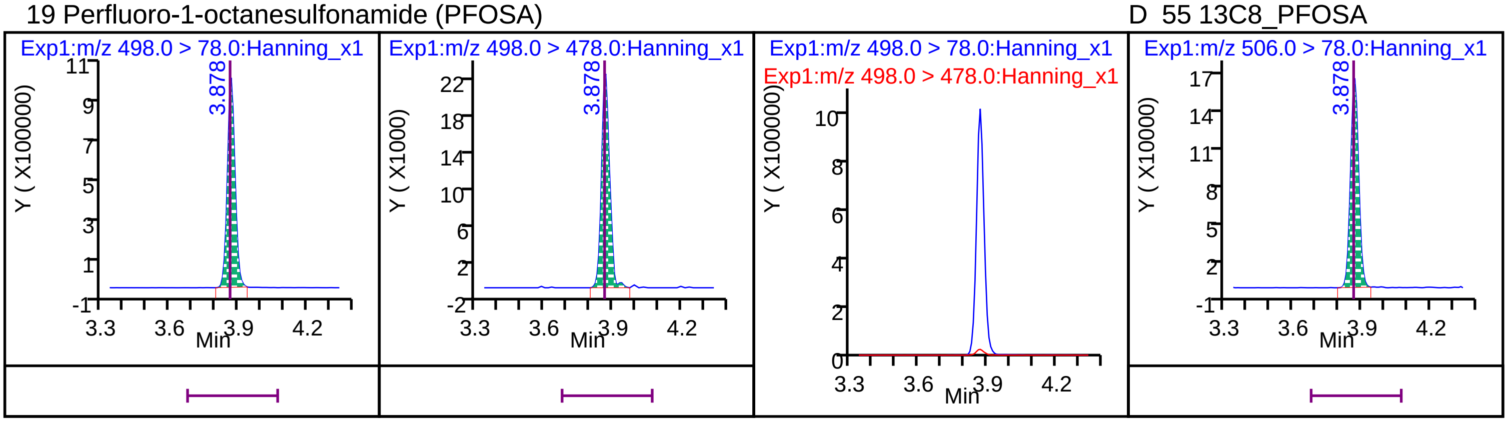
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



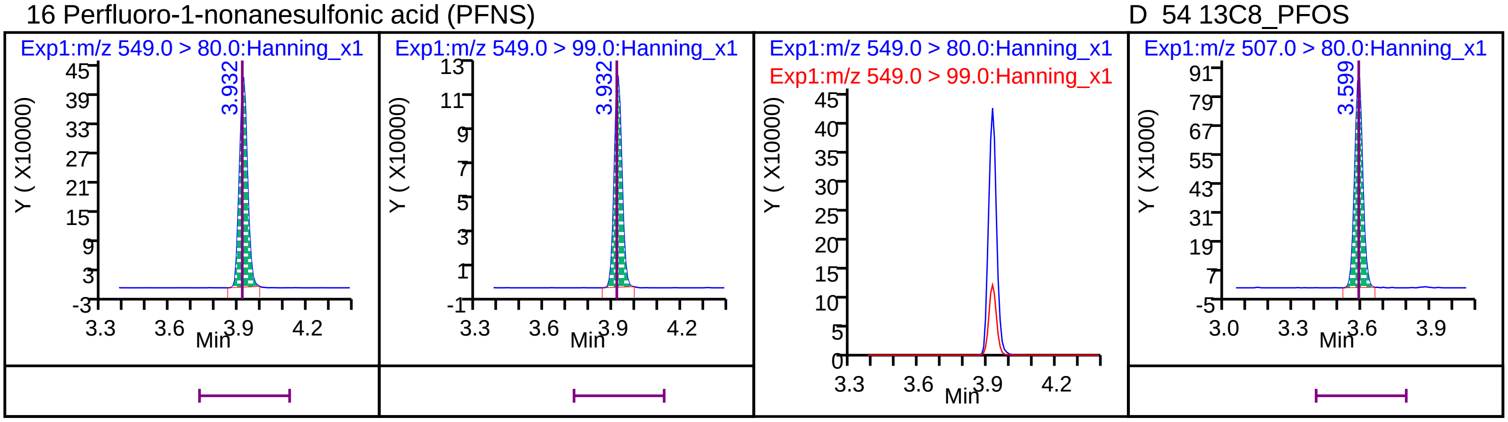
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



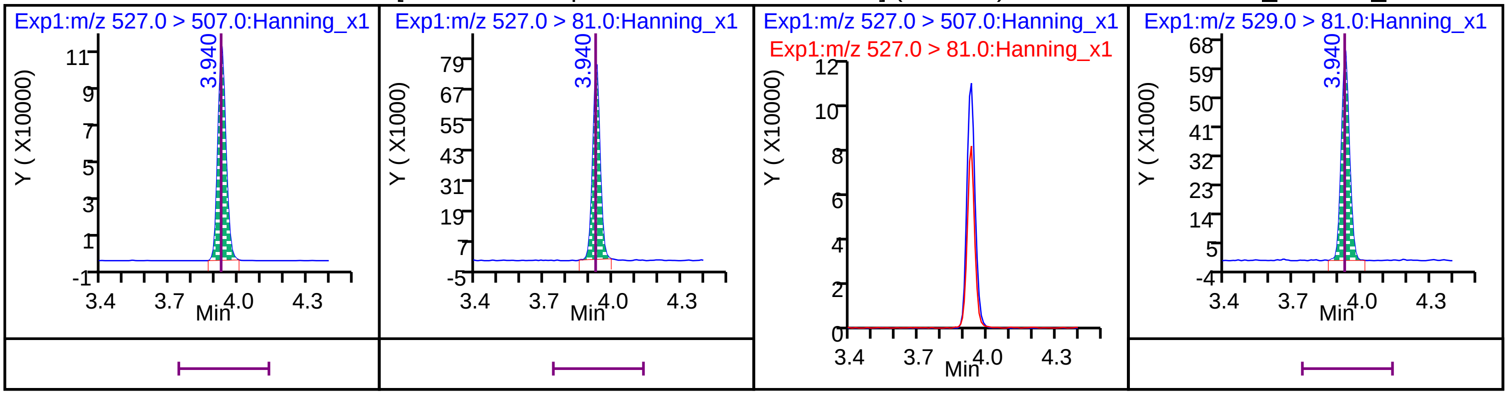
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



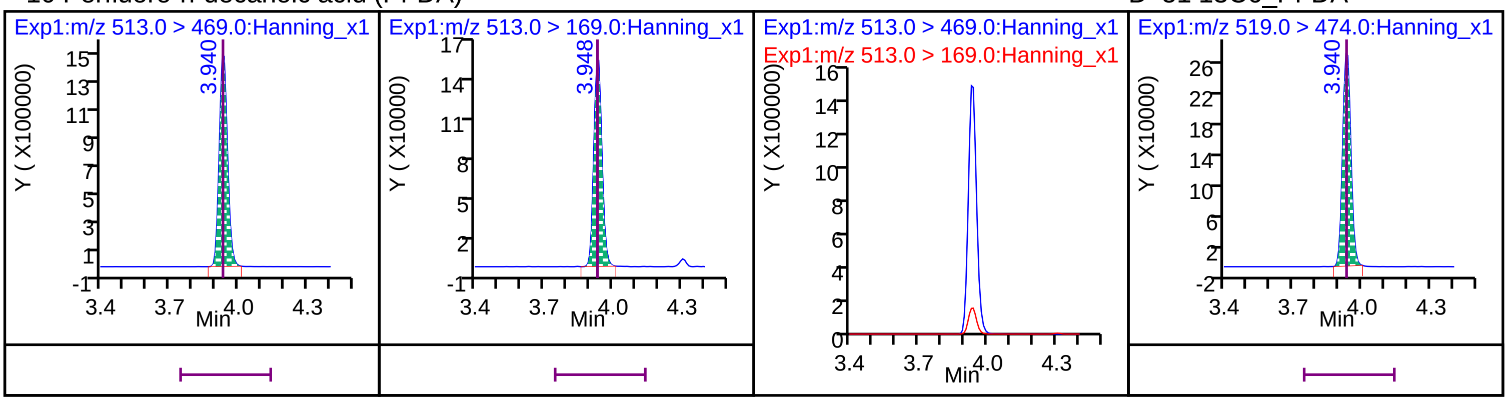
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



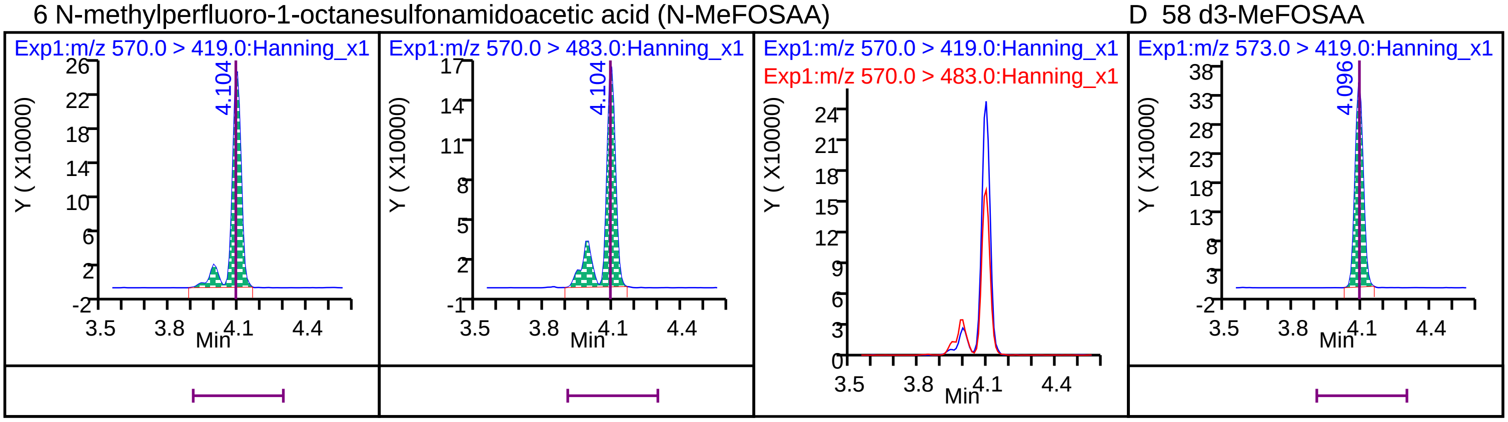
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



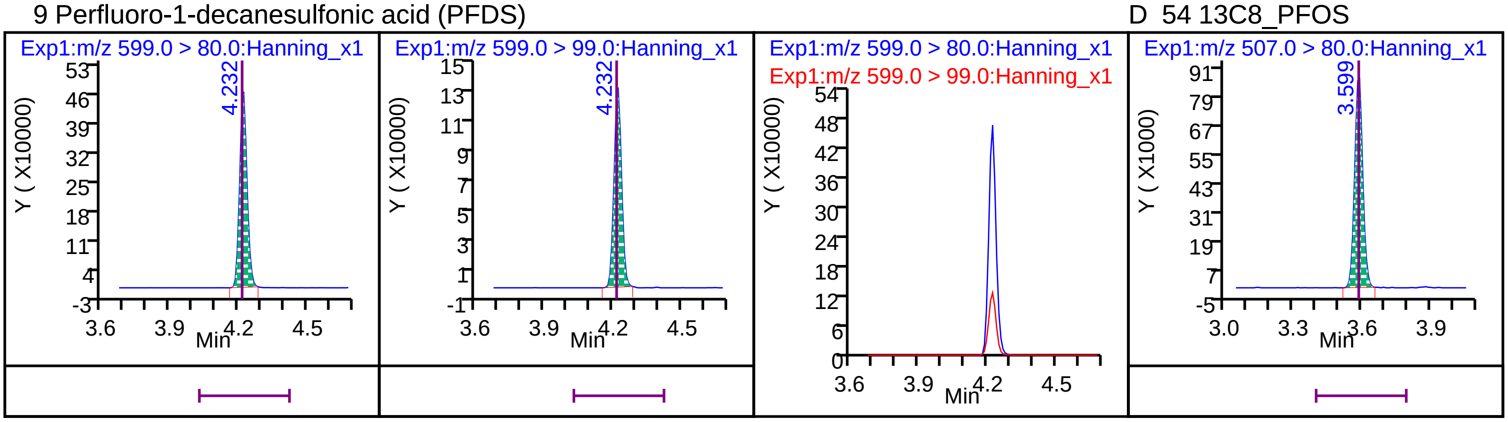
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



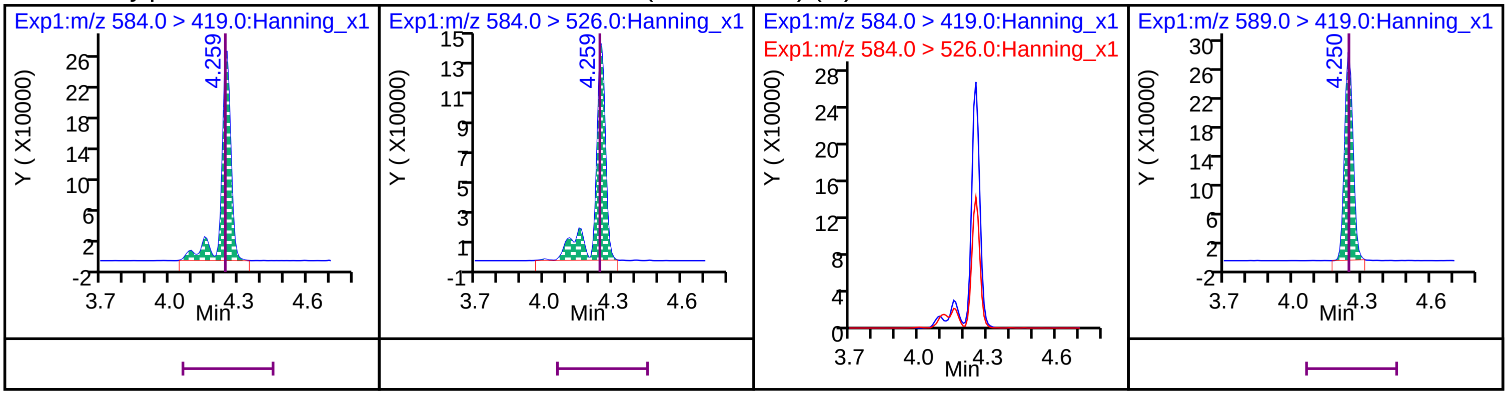
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



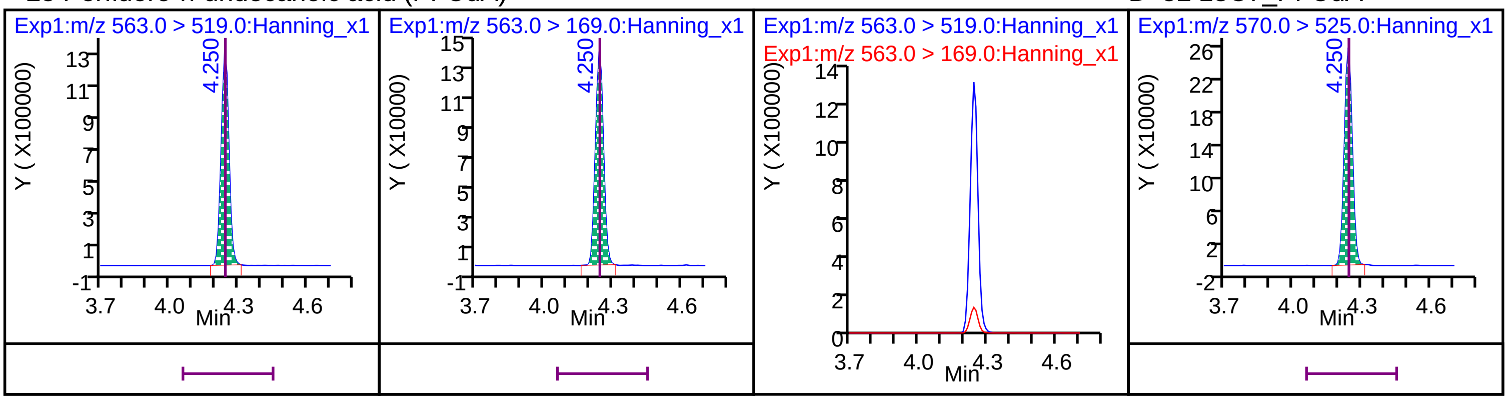
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



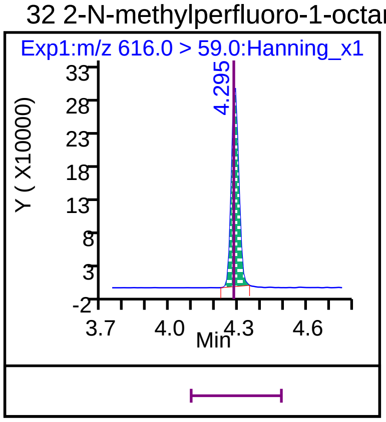
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

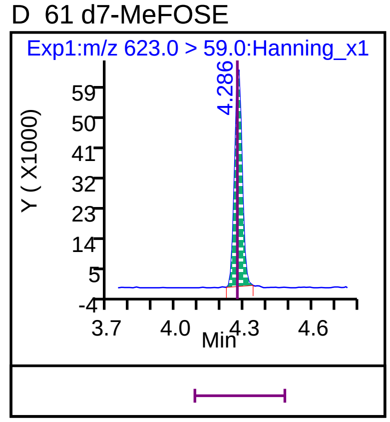


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

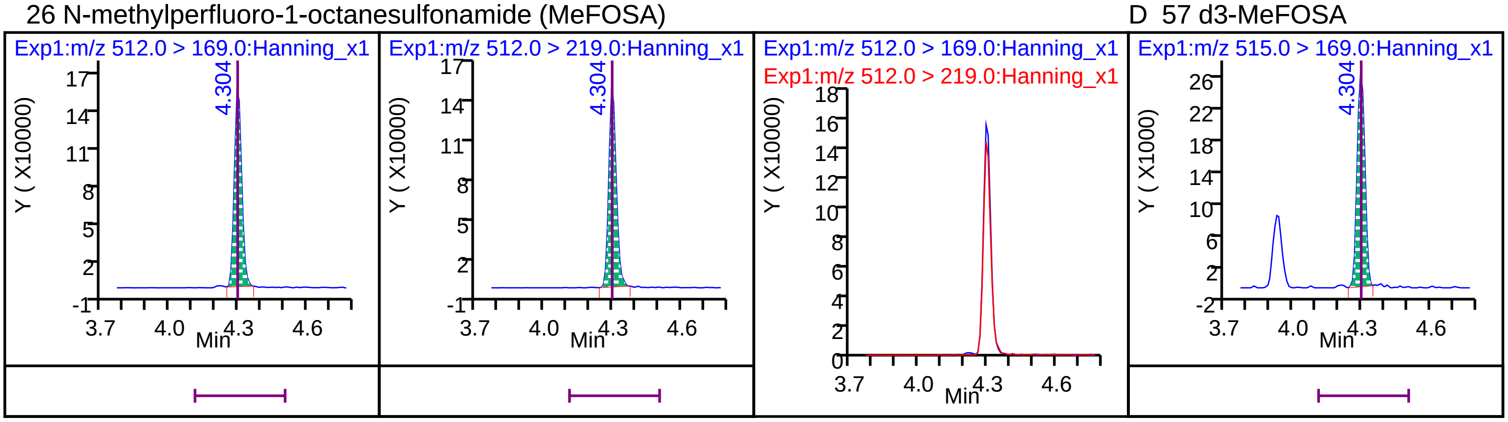


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

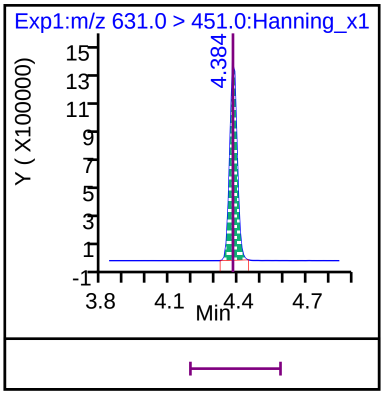




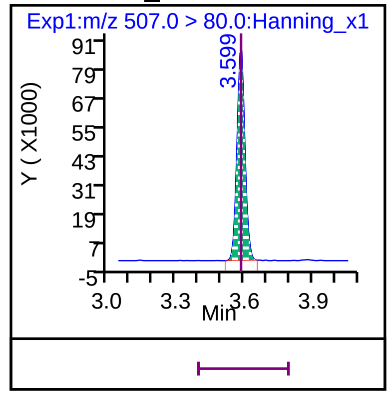
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



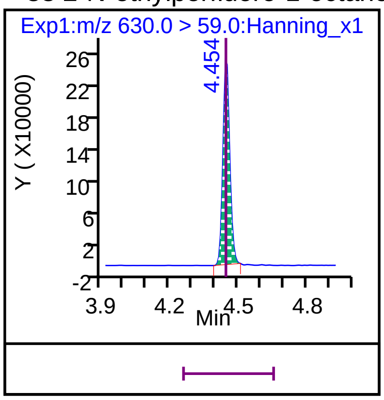
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



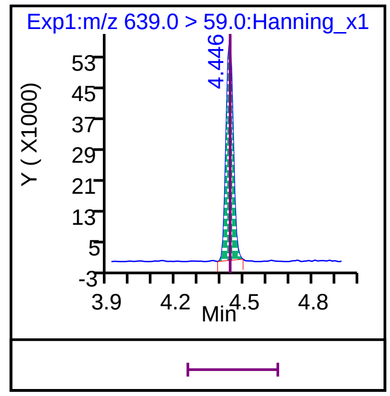
D 54 13C8_PFOS



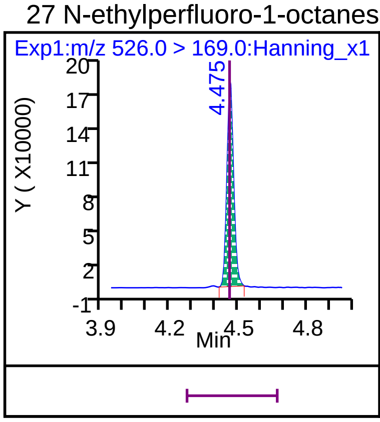
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

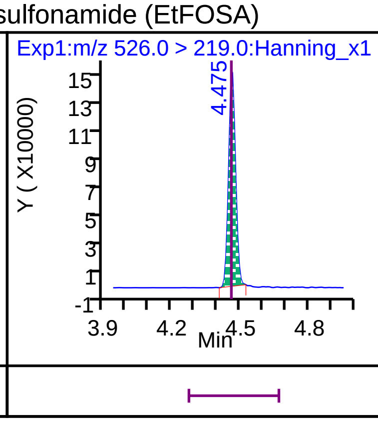


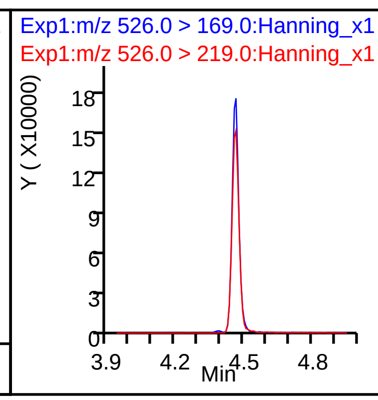
D 62 d9-EtFOSE



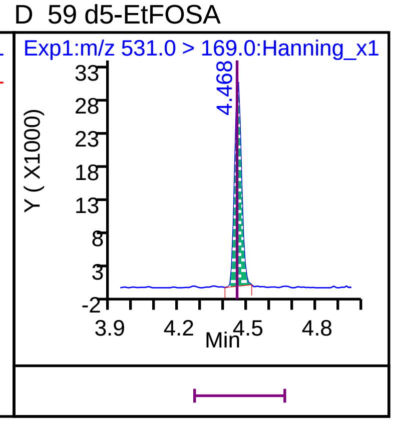
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



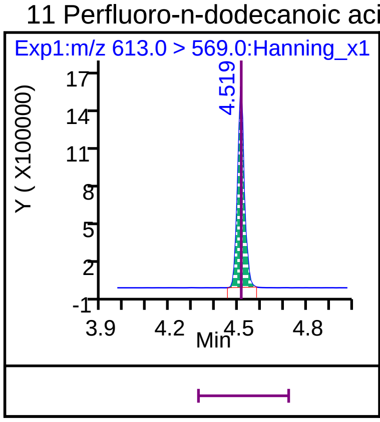


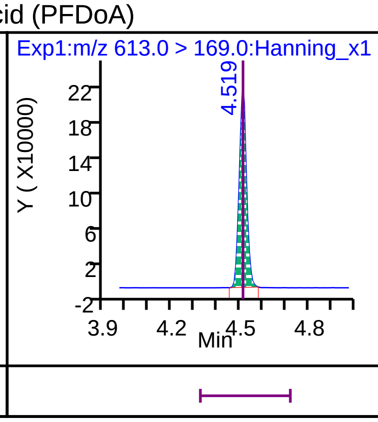


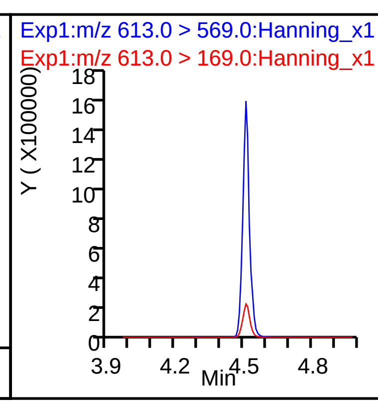
D 59 d5-EtFOSA



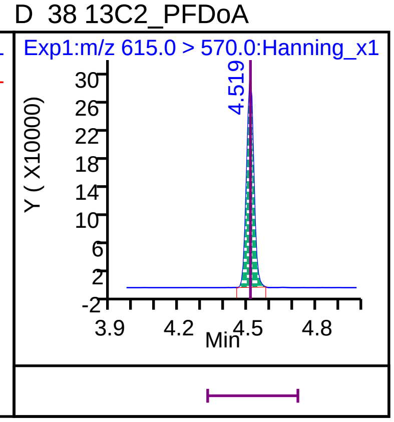
11 Perfluoro-n-dodecanoic acid (PFDoA)





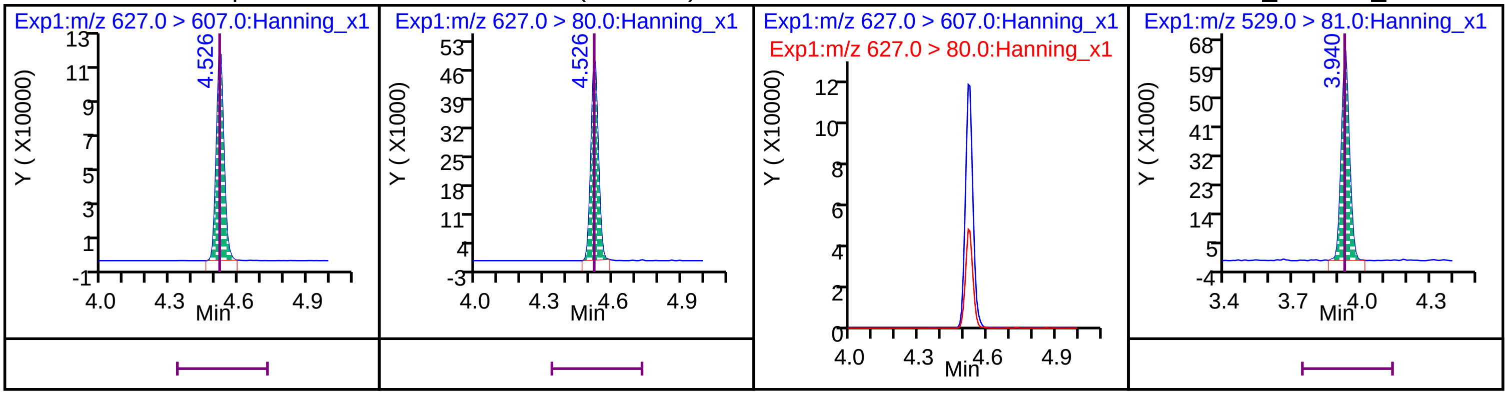


D 38 13C2_PFDoA

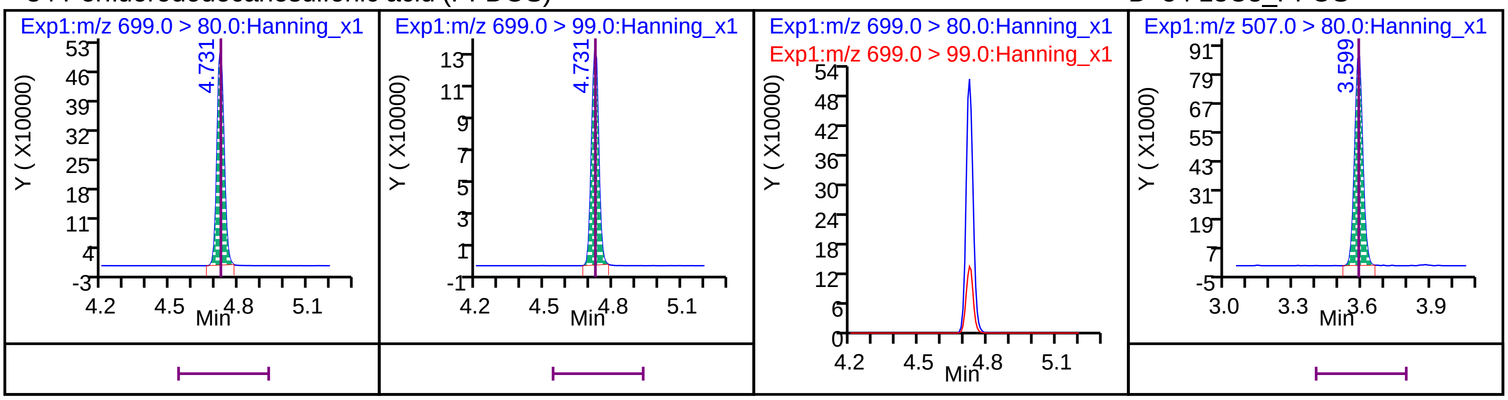


Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A014.d

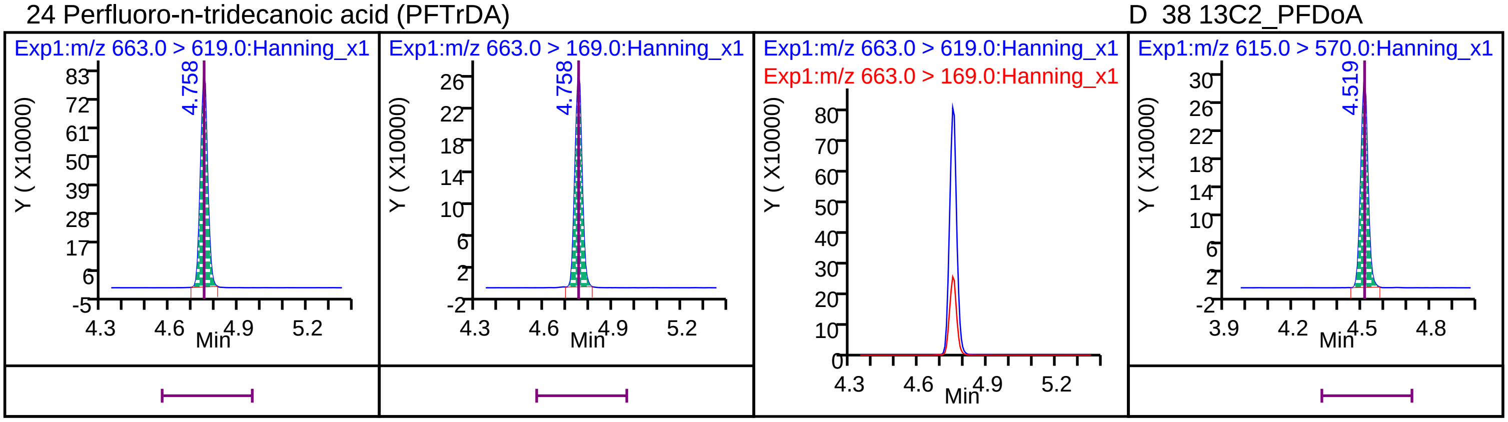
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



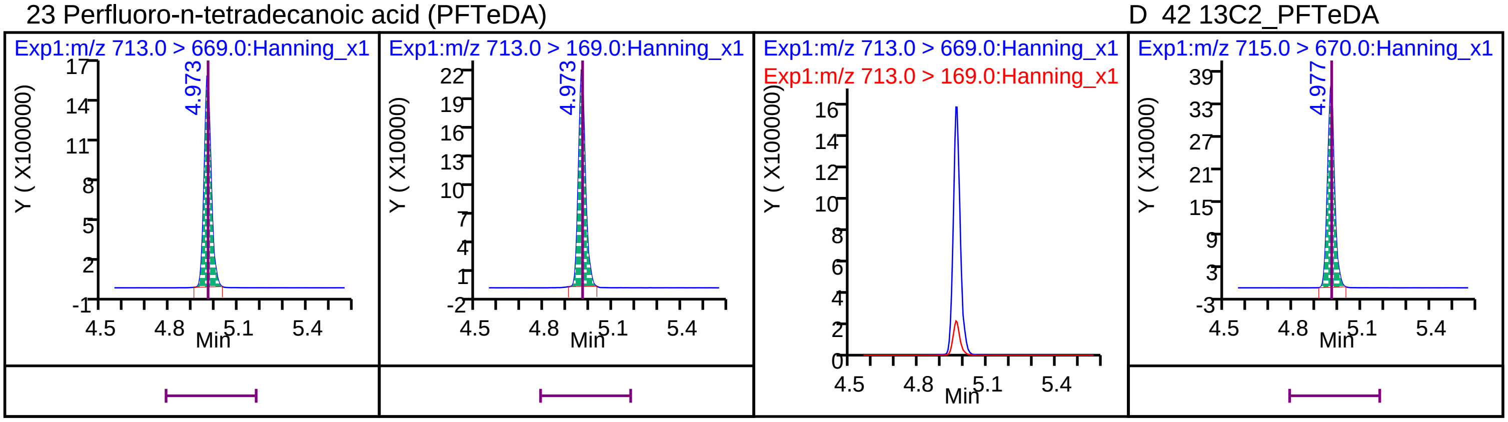
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



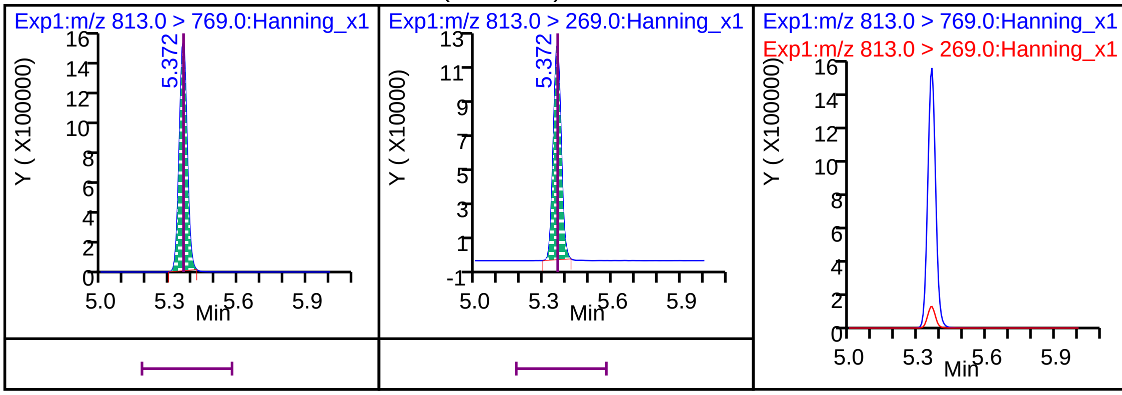
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



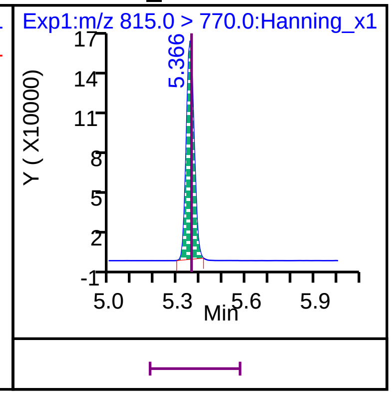
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



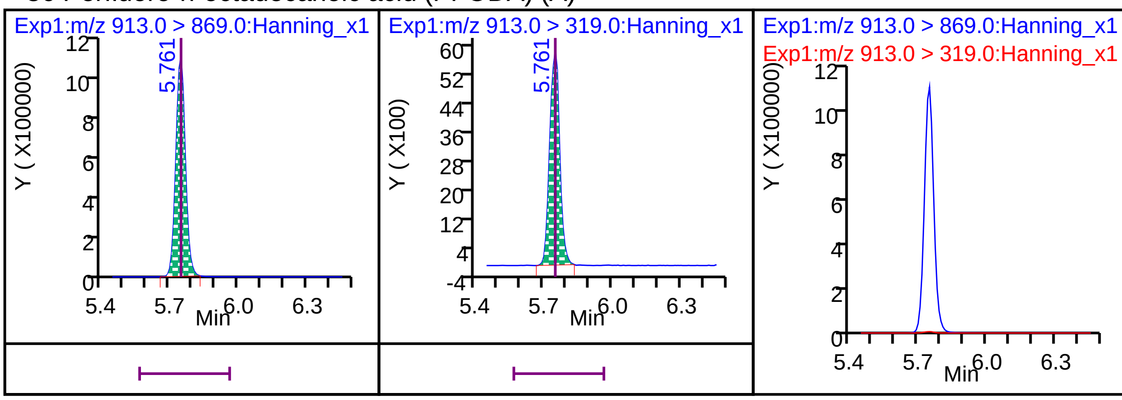
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



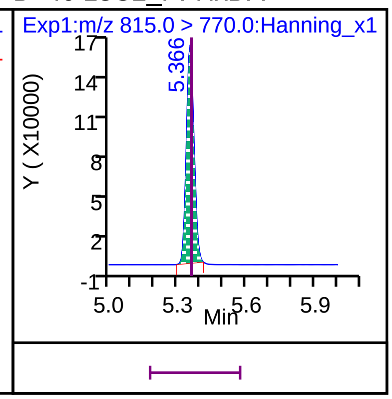
D 40 13C2_PFHxDA



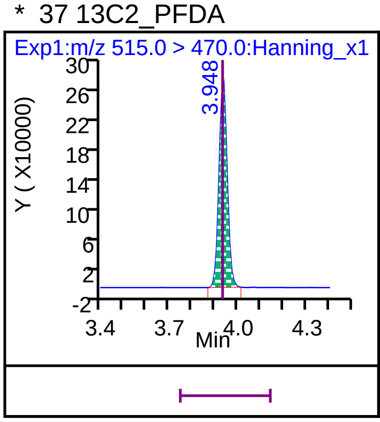
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



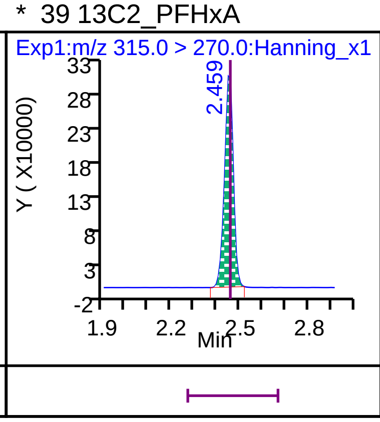
D 40 13C2_PFHxDA



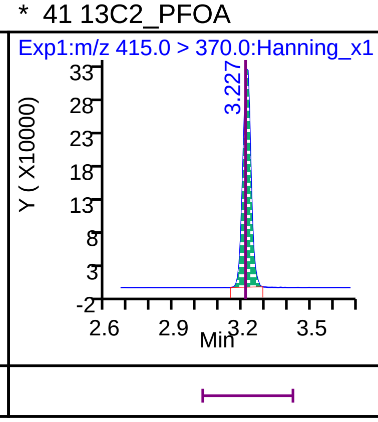
* 37 13C2_PFDA



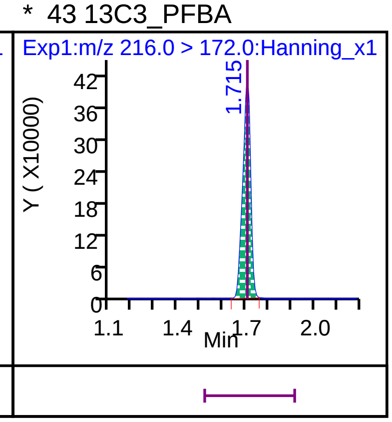
* 39 13C2_PFHxA



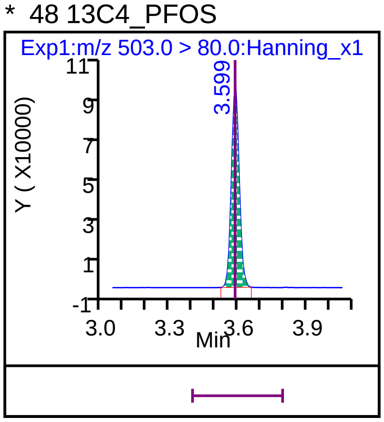
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

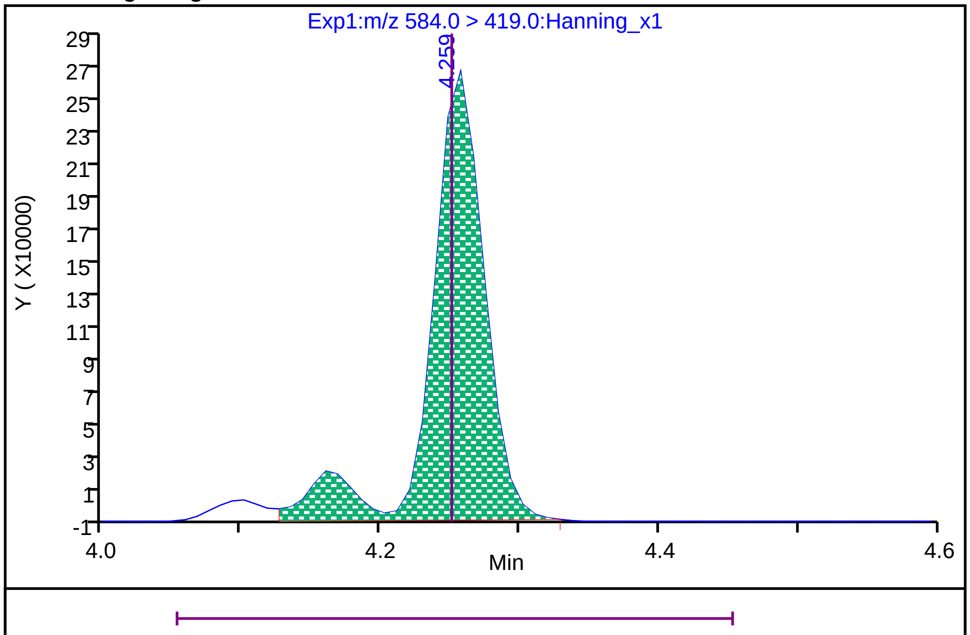
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A014.d		
Injection Date:	04-Nov-2021 14:51:55	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1644
Sample Info:	ICAL 5000_SVLC-1644		
Dil. Factor:	1	Operator:	Matthew M. Miller

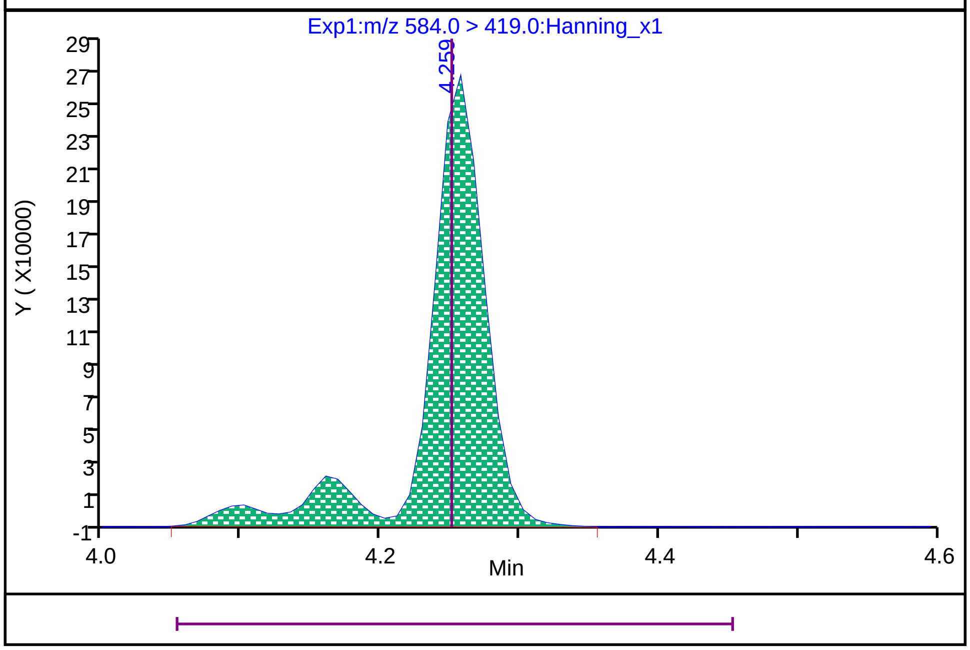
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.259
Area: 702000
Amount: 5045.50
Amount Units: ng/L



RT: 4.259
Area: 742531
Amount: 5267.17
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 15:56:45
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

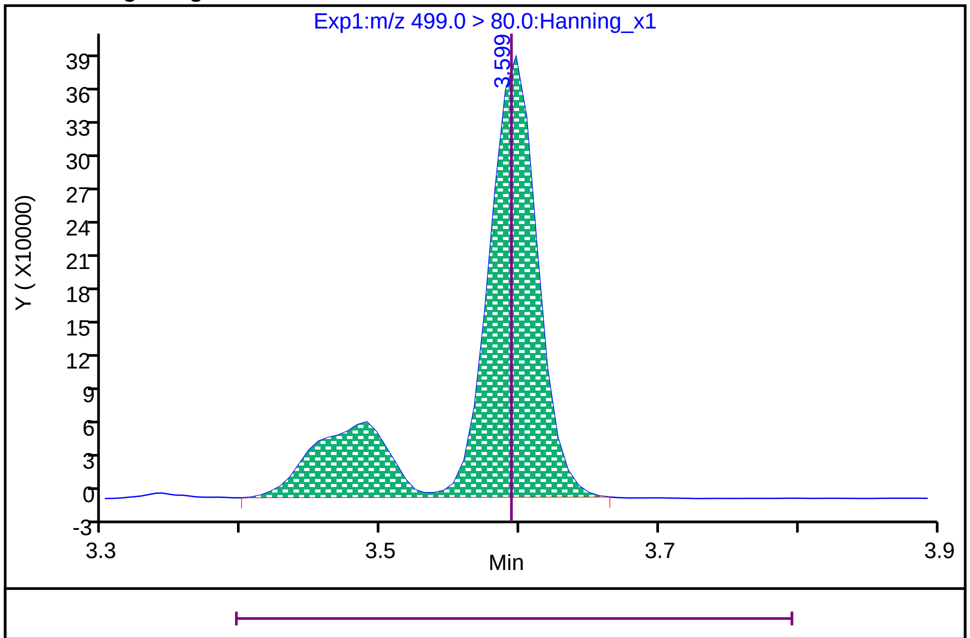
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A014.d		
Injection Date:	04-Nov-2021 14:51:55	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1644
Sample Info:	ICAL 5000_SVLC-1644		
Dil. Factor:	1	Operator:	Matthew M. Miller

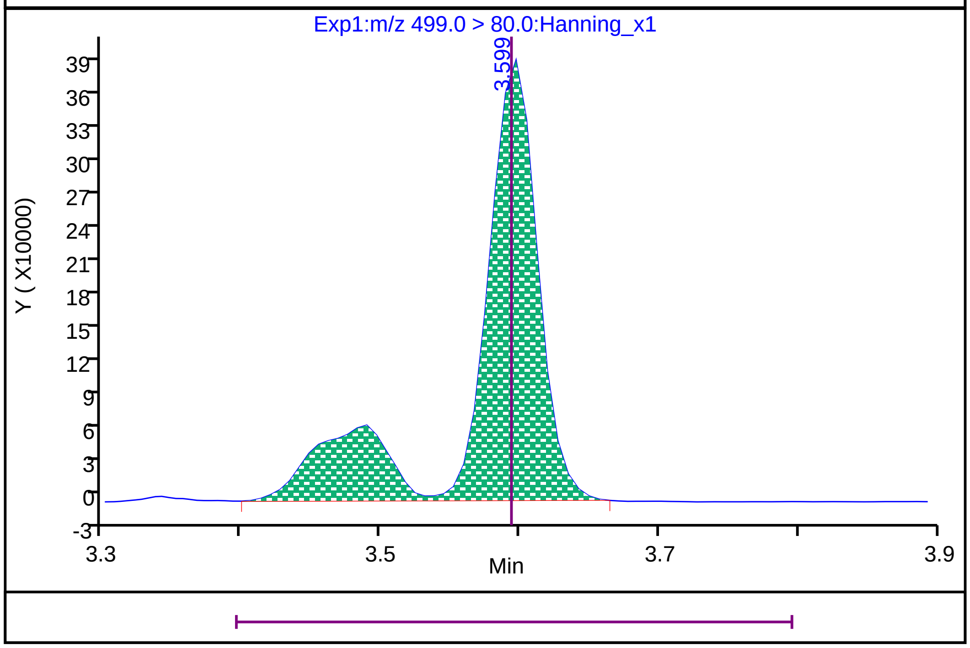
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.599
Area:	1169317
Amount:	4742.61
Amount Units:	ng/L



RT:	3.599
Area:	1170983
Amount:	4746.89
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:18

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d		
Injection Date:	04-Nov-2021 15:02:24	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	84
Sample Info:	ICAL 10000_SVLC-1645	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1015813	20	>100:1			1000.00	943.42	85.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	1/0	10804463	20	>100:1			10000	9670.97		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	955253	17	>100:1			1000.00	952.48	87.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	10184392	16	>100:1			10000	9950.59		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	308860	16	>100:1			1000.00	951.01	84.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	3654789	16	>100:1	Target = 3.80		8840.00	8282.89		
298.9 > 99	44	2.141	2.141		949597	15	>100:1	3.84 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	3080455	18	>100:1	Target = 3.42		9380.00	9912.23		
349 > 99	44	2.493	2.493		880773	19	>100:1	3.49 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	203360	18	>100:1			5000.00	4895.88	93.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.415	1/0	680174	18	>100:1	Target = 1.54		9340.00	8568.69		
327 > 81	63	2.424	2.415		444831	18	>100:1	1.52 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	863369	19	>100:1			1000.00	966.57	83.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	8567623	19	>100:1	Target = 17.93		10000	9603.84		
313 > 119	49	2.467	2.467		497948	19	>100:1	17.20 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	812530	19	>100:1			5000.00	4959.92	92.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.587	0/-1	2247556	19	>100:1	Target = 0.72		20000	18051		
285 > 185	66	2.579	2.587		3491634	19	>100:1	0.64 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	832471	18	>100:1			1000.00	950.10	84.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	8040748	18	>100:1	Target = 3.26		10000	10034		
363 > 169	47	2.846	2.846		2432286	18	>100:1	3.30 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	248786	18	>100:1			1000.00	948.55	83.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	2686527	26	>100:1	Target = 3.48	4.91	9100.00	9134.64		
399 > 99	45	2.863	2.863		776835	24	>100:1	3.45 (1.74-5.22)	6.72				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	13087320	18	>100:1	Target = 2.31		9420.00	9557.23		
377 > 85	45	2.881	2.890		5717384	18	>100:1	2.28 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.229	3.229	1/0	2395546	22	>100:1	Target = 3.56		9520.00	9361.73		
449 > 99	45	3.229	3.229		664849	22	>100:1	3.60 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.204	0	179235	24	>100:1			5000.00	4752.85	92.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	1/1	531311	21	>100:1	Target = 1.34		9480.00	8524.17		
427 > 81	64	3.198	3.204		393752	21	>100:1	1.34 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	1	733739	22	>100:1			1000.00	887.24	79.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.223	3.229	0/-1	7612405	21	>100:1	Target = 2.50		10000	10083		
413 > 169	53	3.229	3.229		3114117	21	>100:1	2.44 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.595	0	216542	19	>100:1			1000.00	964.64	88.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.595	1/1	2363933	41	>100:1	Target = 4.01	3.52	9280.00	9260.48		M
499 > 99	54	3.596	3.595		595378	37	>100:1	3.97 (2.00-6.02)	6.80				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/1	6003435	18	>100:1			9320.00	8970.73		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.926	3.926	1/1	2088217	17	>100:1	Target = 3.78		9600.00	9547.81		
549 > 99	54	3.926	3.926		558682	18	>100:1	3.73 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.226	1/1	2015316	16	>100:1	Target = 3.98		9640.00	9427.01		
599 > 99	54	4.226	4.226		524336	16	>100:1	3.84 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/1	5993391	16	>100:1			9420.00	9963.43		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.733	4.733	1/1	2083650	18	>100:1	Target = 3.68		9680.00	9935.50		
699 > 99	54	4.733	4.733		568436	18		3.66 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.596	3.595	1	765827	19	>100:1			1000.00	958.46	76.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.596	3.595	1/0	6705764	20	>100:1	Target = 4.69		10000	9615.81		
463 > 169	56	3.603	3.595		1485078	20	>100:1	4.51 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	1	394482	17	>100:1			1000.00	952.42	92.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.873	1/0	4473029	19	>100:1	Target = 40.85		10000	10028		
498>478	55	3.873	3.873		102366	25	>100:1	43.69 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	1	155834	18	>100:1			5000.00	4965.17	101.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.934	3.934	1/0	483604	18	>100:1	Target = 1.58		9580.00	8733.83		
527 > 81	65	3.934	3.934		327075	18	>100:1	1.47 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.528	1/0	534219	19	>100:1	Target = 2.46		9640.00	9611.44		
627 > 80	65	4.528	4.528		214343	21	>100:1	2.49 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.942	1	697839	18	>100:1			1000.00	966.80	88.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.942	3.942	1/0	6835368	18	>100:1	Target = 9.77		10000	9545.87		
513 > 169	51	3.942	3.942		699541	18	>100:1	9.77 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.090	4.098	0	898584	17	>100:1			5000.00	5067.79	99.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.098	4.098	1/1	1334852	32	>100:1	Target = 1.41	7.69	10000	9084.38		
570 > 483	58	4.098	4.098		1007285	33	>100:1	1.32 (0.70-2.11)	3.52				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.253	0	642405	17				1000.00	939.98	87.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.244	4.253	0/0	5553671	16	>100:1	Target = 9.19		10000	9636.59		
563 > 169	52	4.253	4.253		627855	17	>100:1	8.84 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	704748	16	>100:1			5000.00	4713.06	90.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.253	1/0	1361667	38	>100:1	Target = 1.75	5.51	10000	9451.09		M
584 > 526	60	4.253	4.253		844864	33	>100:1	1.61 (0.87-2.63)	3.62				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	1	133636	15	>100:1			1000.00	968.48	100.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.288	1/0	1431882	15	>100:1			10000	10543		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.306	4.306	1	72773	14	>100:1			1000.00	1039.30	100.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/0	660297	14	>100:1	Target = 1.11		10000	8762.07		
512 > 219	57	4.306	4.306		628163	14	>100:1	1.05 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.448	0	130921	17	>100:1			1000.00	1018.41	101.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/1	1099167	16	>100:1			10000	9863.30		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	1	63330	16	>100:1			1000.00	983.31	96.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/0	684273	16	>100:1	Target = 1.06		10000	9242.01		
526 > 219	59	4.470	4.470		728815	16	>100:1	0.93 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.521	0	666640	17	>100:1			1000.00	969.46	89.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.521	1/1	6516871	17	>100:1	Target = 6.38		10000	9953.92		
613 > 169	38	4.521	4.521		978096	18	>100:1	6.66 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.761	4.760	1/1	3543055	19	>100:1	Target = 3.23		10000	9917.51		
663 > 169	38	4.761	4.760		1048243	18	>100:1	3.37 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	715596	25	>100:1			1000.00	915.37	79.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.978	0/0	6518454	25	>100:1	Target = 7.33		10000	10365		
713 > 169	42	4.978	4.978		882530	24	>100:1	7.38 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	373916	21	>100:1			1000.00	957.83	92.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.372	0/0	6725711	21	>100:1	Target = 12.31		10000	9403.29		
813 > 269	40	5.366	5.372		528123	21	>100:1	12.73 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/1	5745880	22	>100:1	Target = 165.31		10000	10179		
913 > 319	40	5.761	5.761		31063	23	>100:1	184.97 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.934	3.942	0	654332	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	841155	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.223	1	756299	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	946275	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.588	3.595	0	218305	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

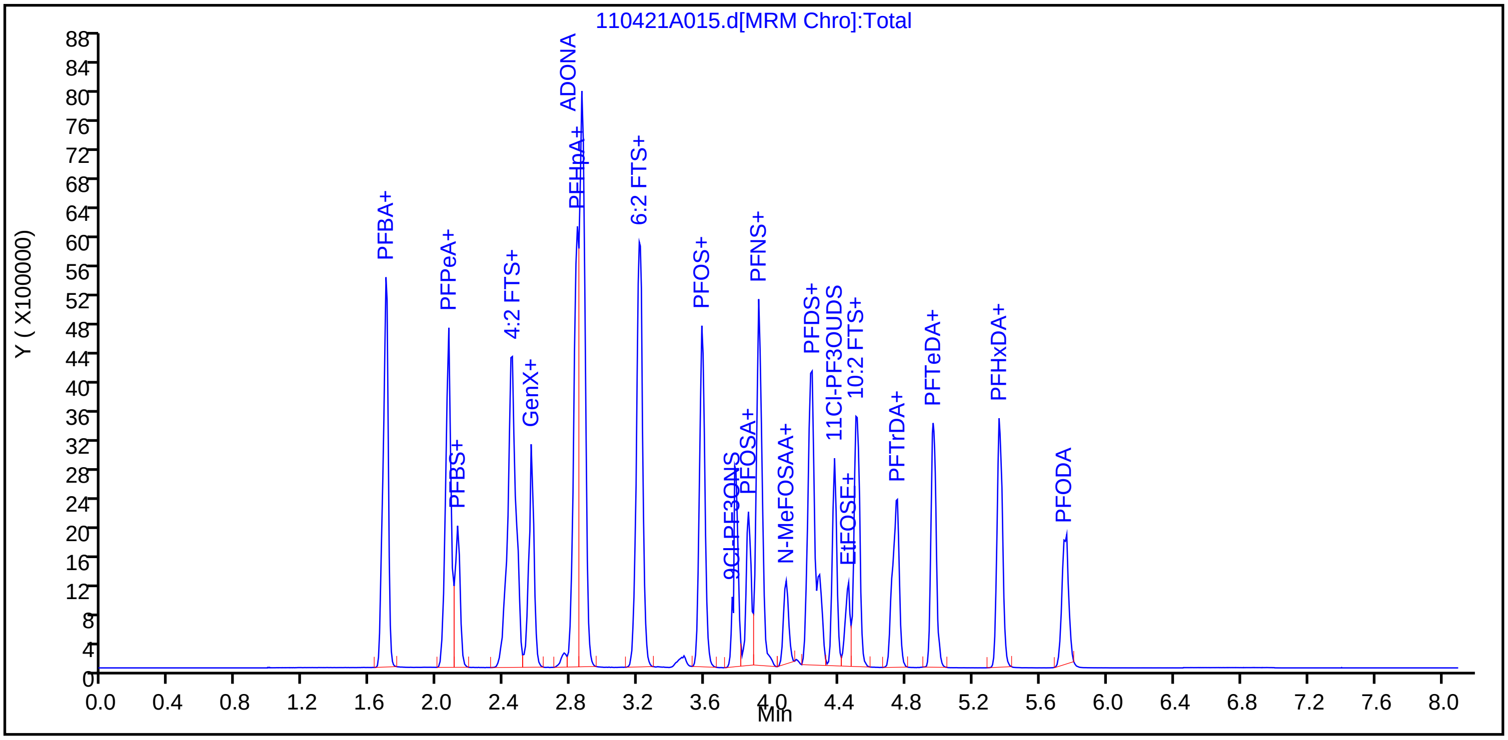
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

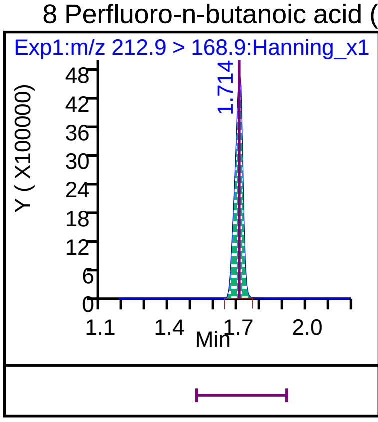
Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

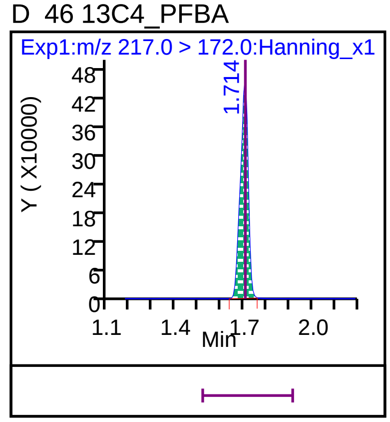
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d		
Injection Date:	04-Nov-2021 15:02:24	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 10000_SVLC-1645
Sample Info:	ICAL 10000_SVLC-1645		
Dil. Factor:	1	Operator:	Matthew M. Miller



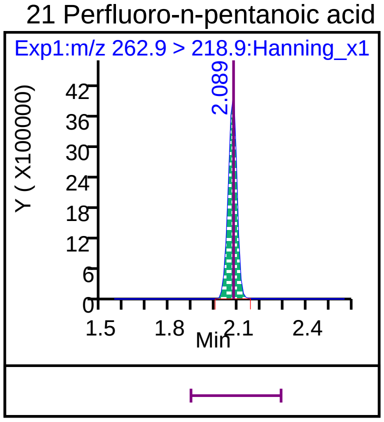
8 Perfluoro-n-butanoic acid (PFBA)



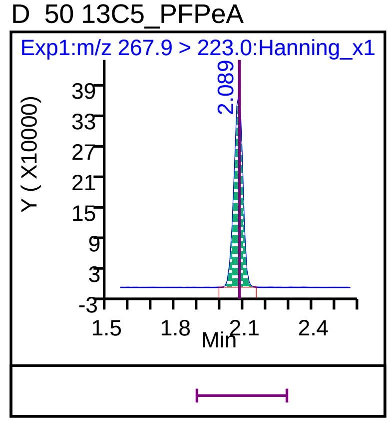
D 46 13C4_PFBA



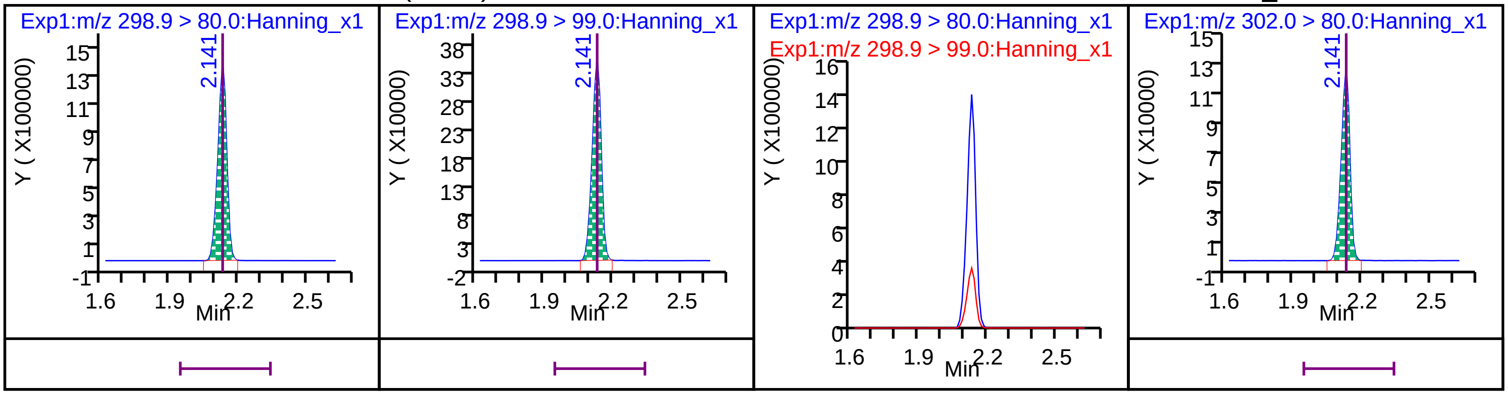
21 Perfluoro-n-pentanoic acid (PFPeA)



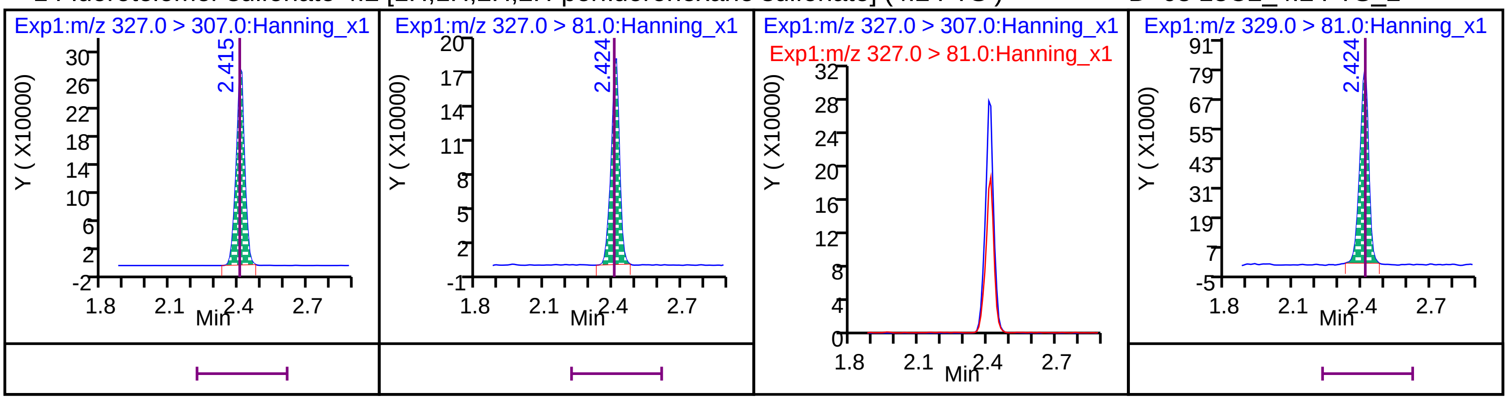
D 50 13C5_PFPeA



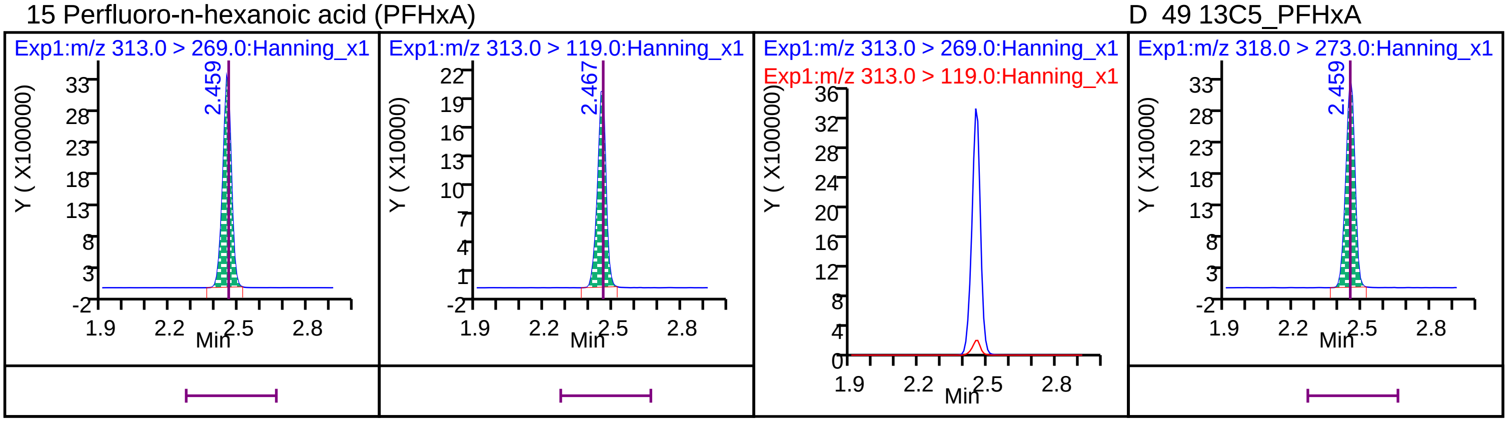
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



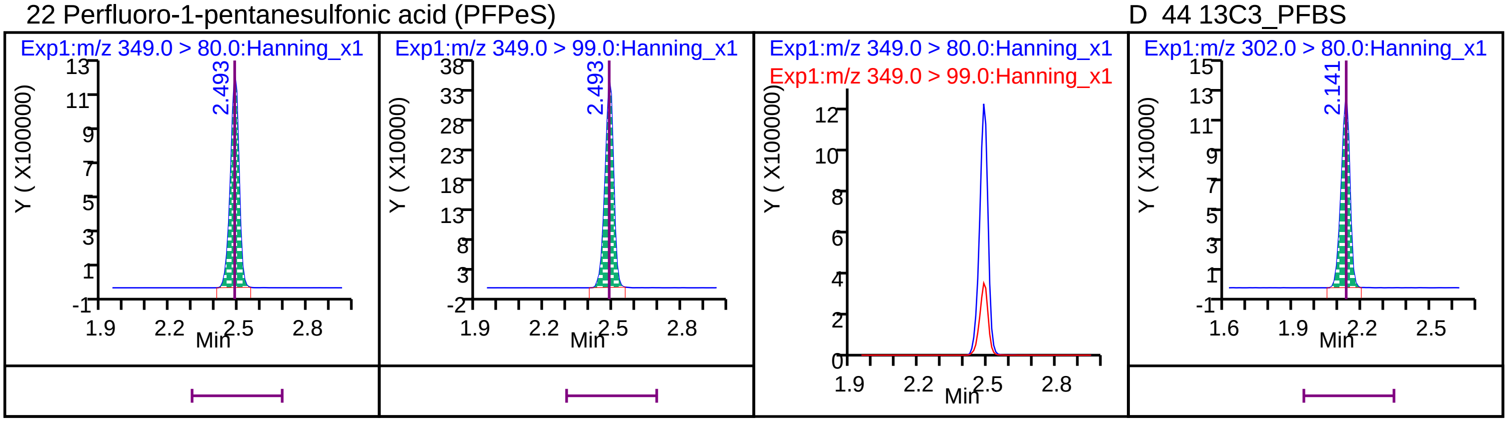
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



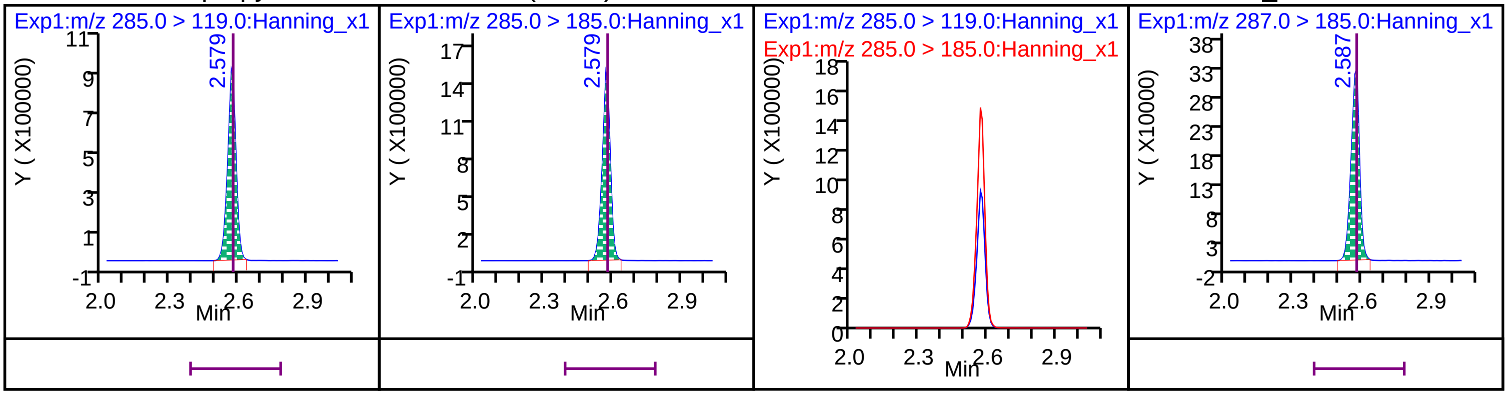
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



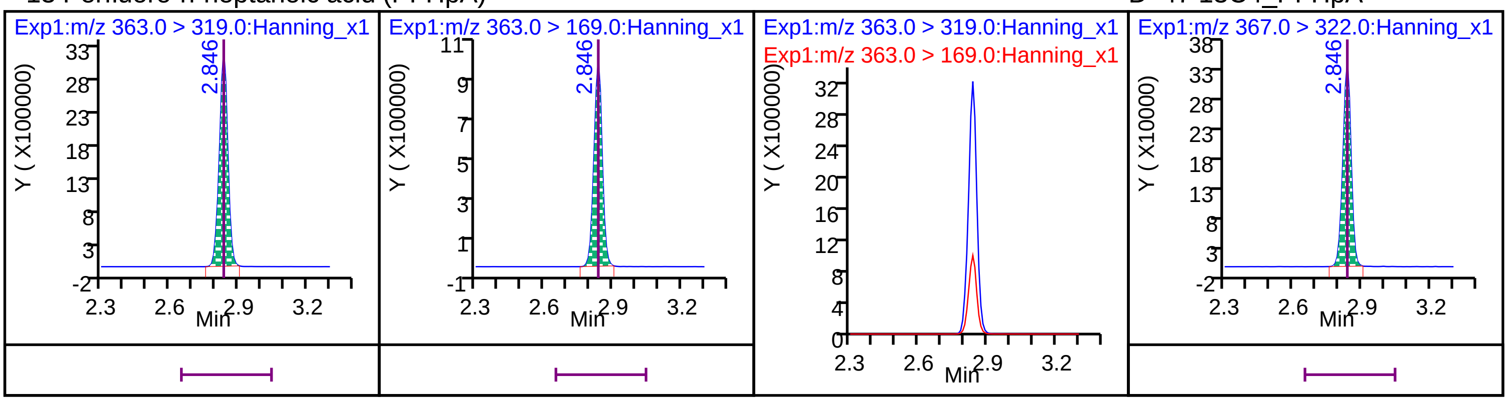
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



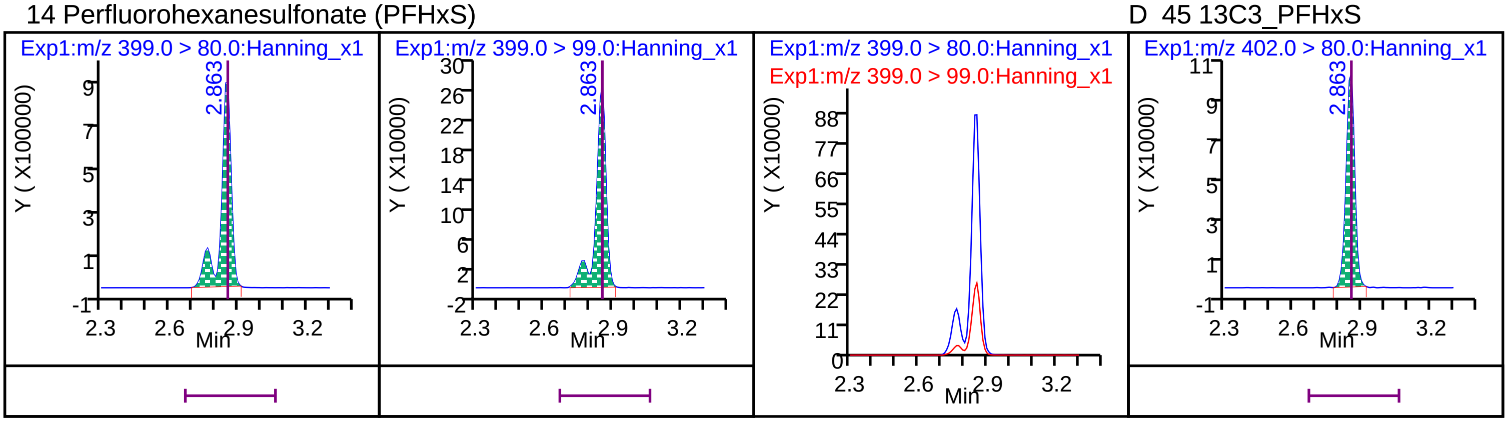
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



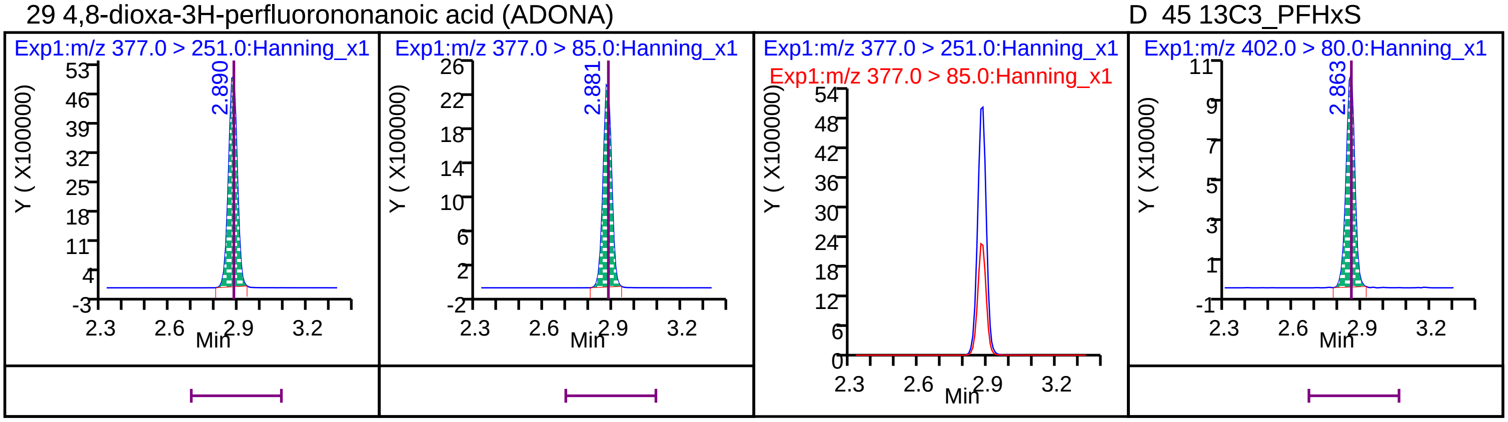
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



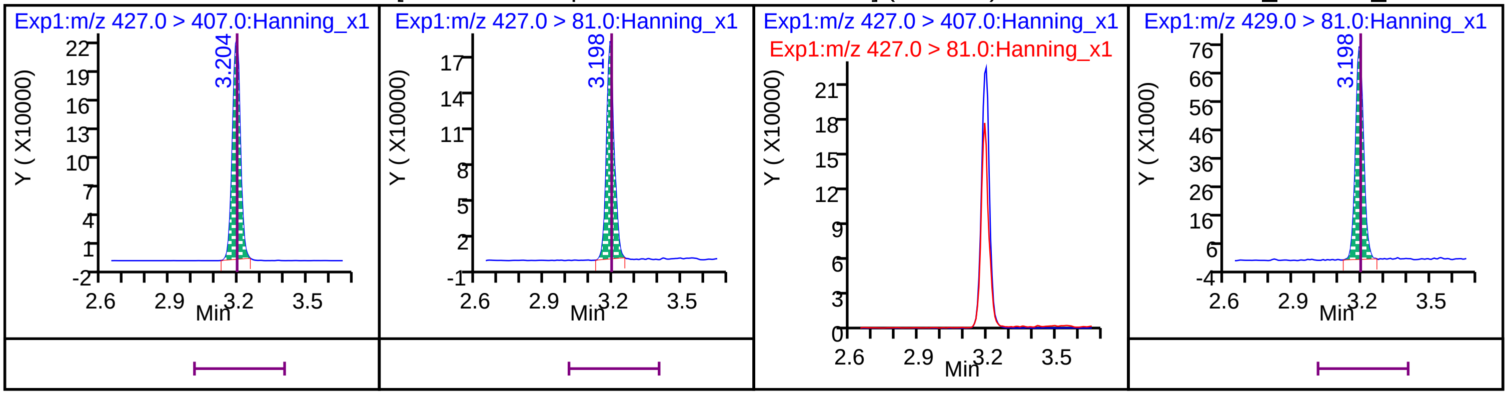
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



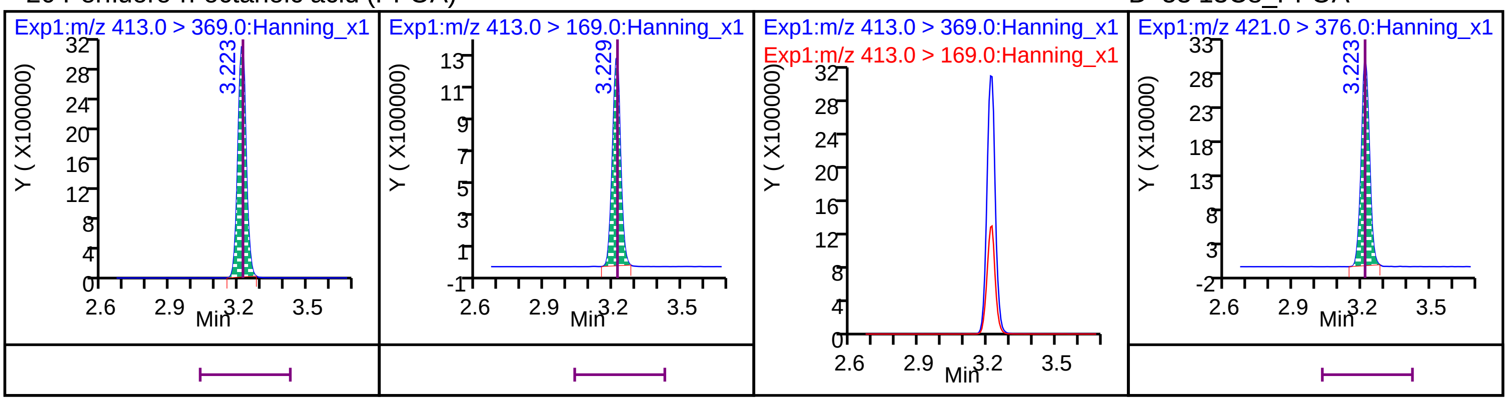
Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d

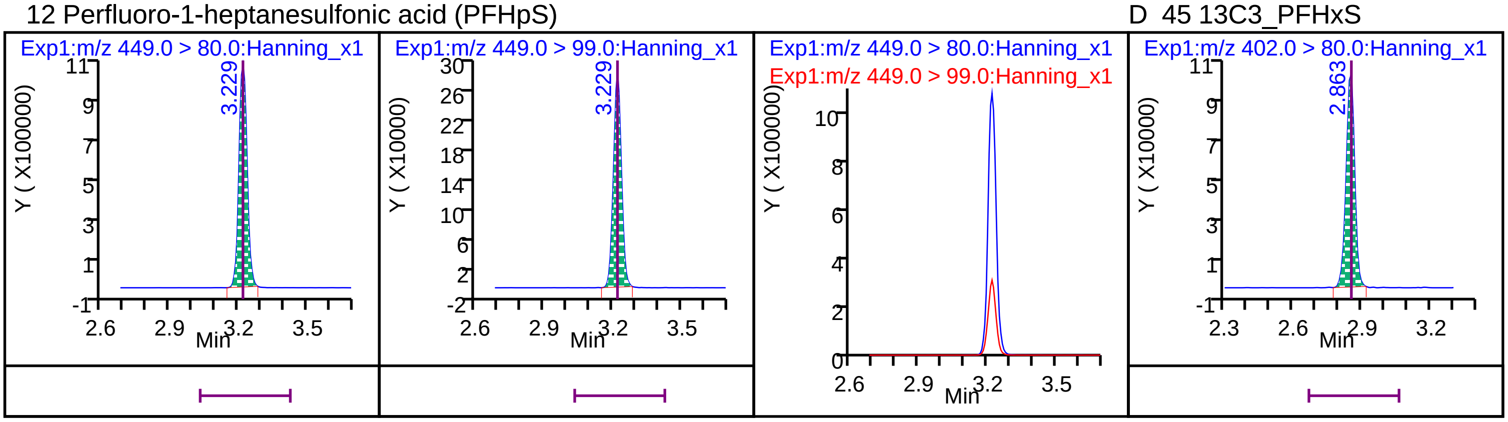
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



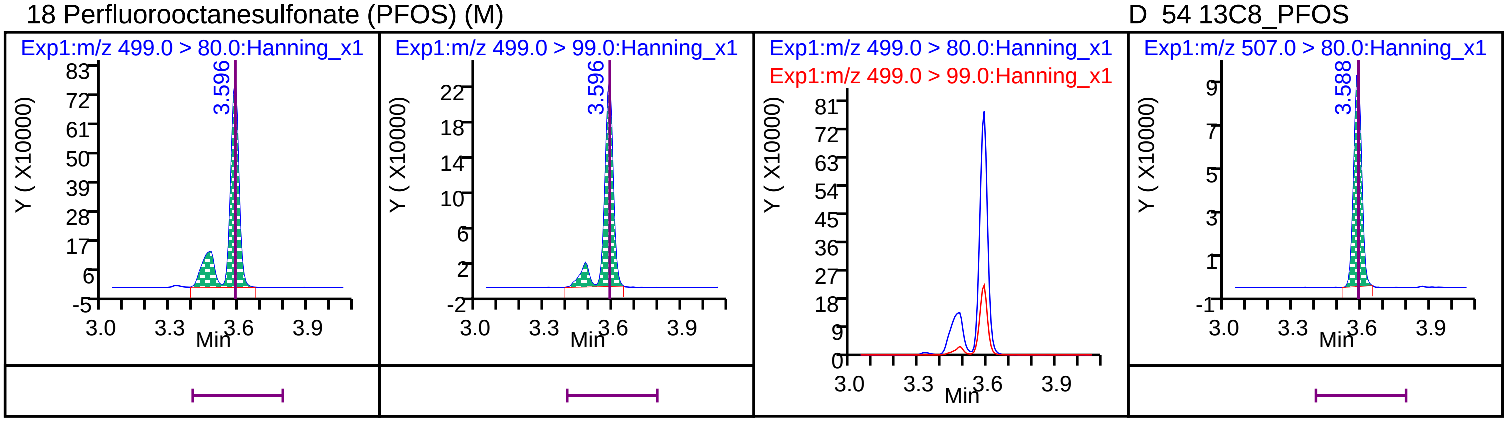
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



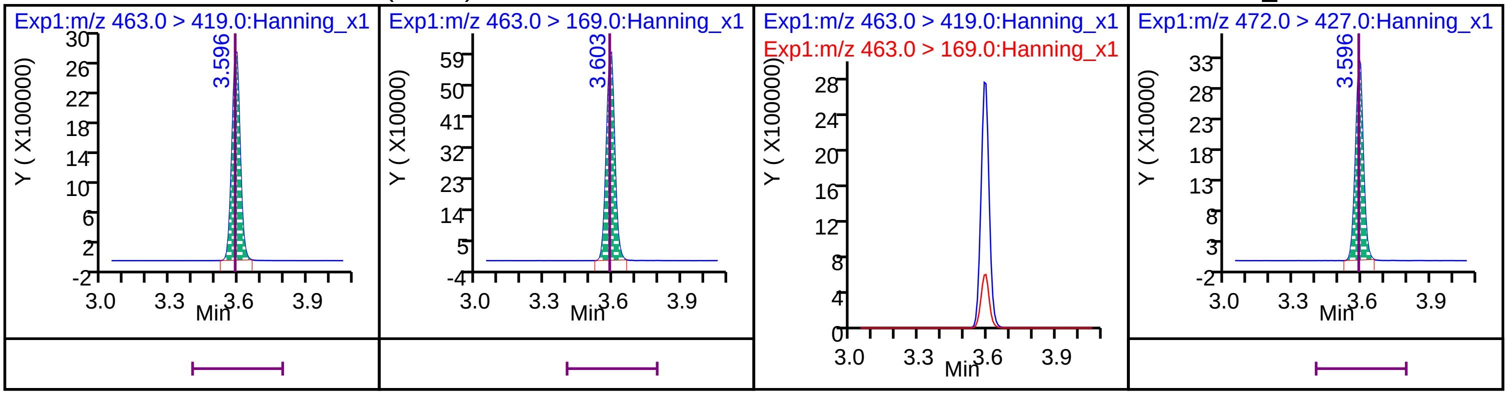
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



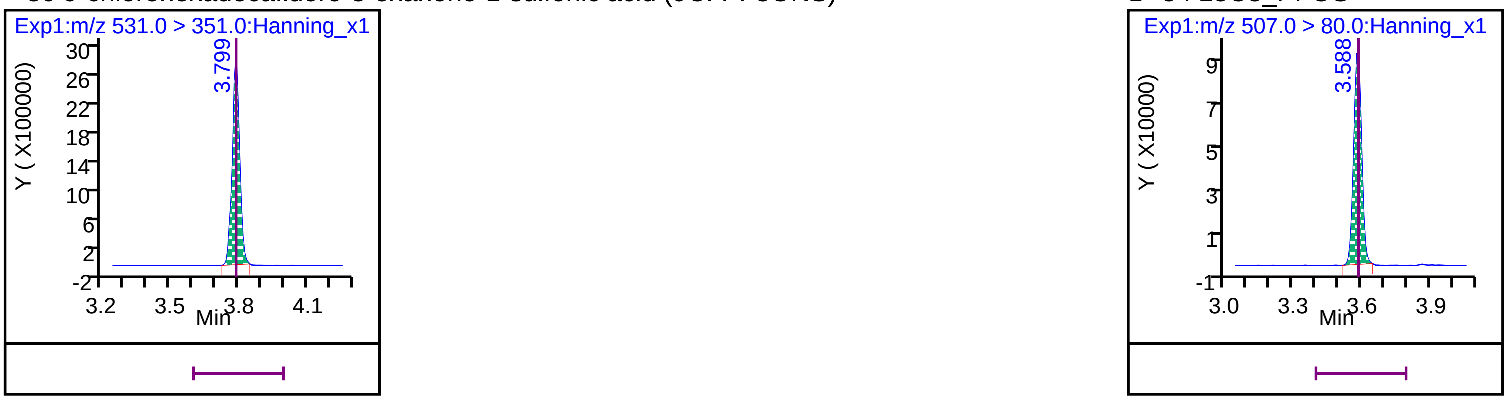
Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d

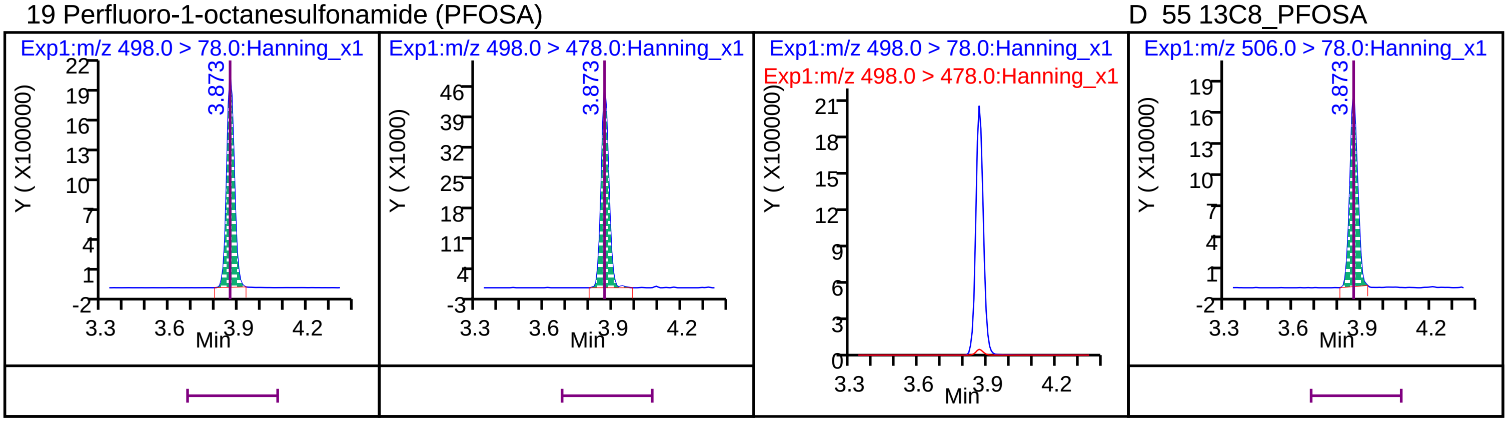
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



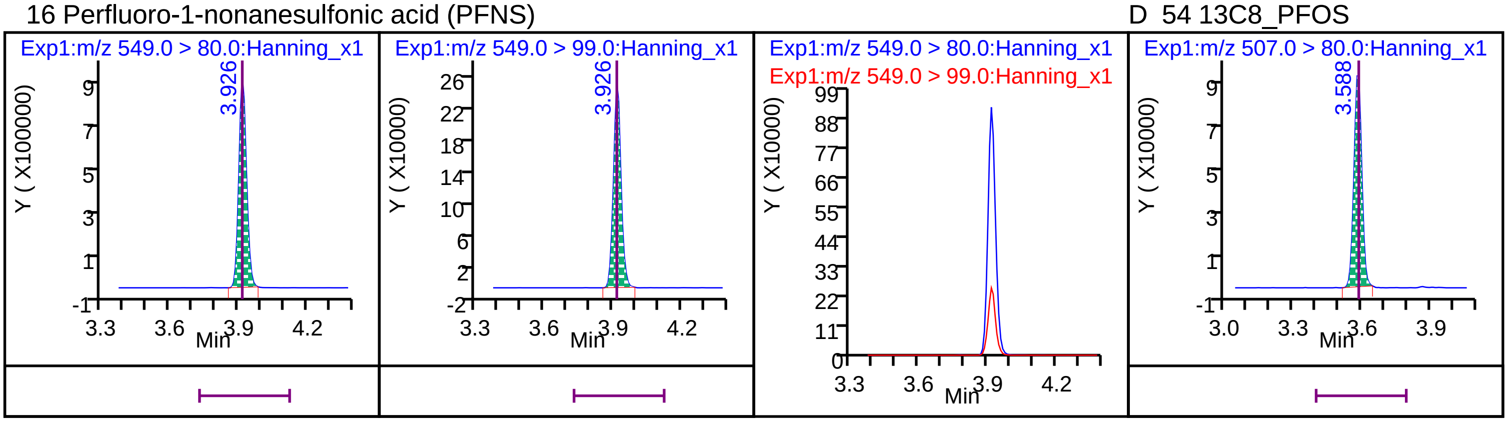
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

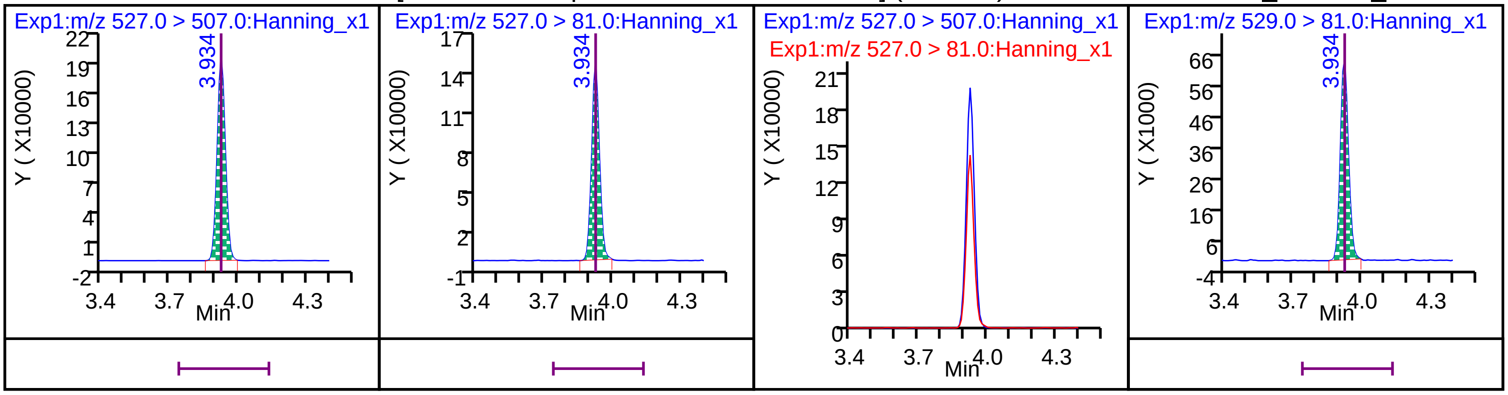


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

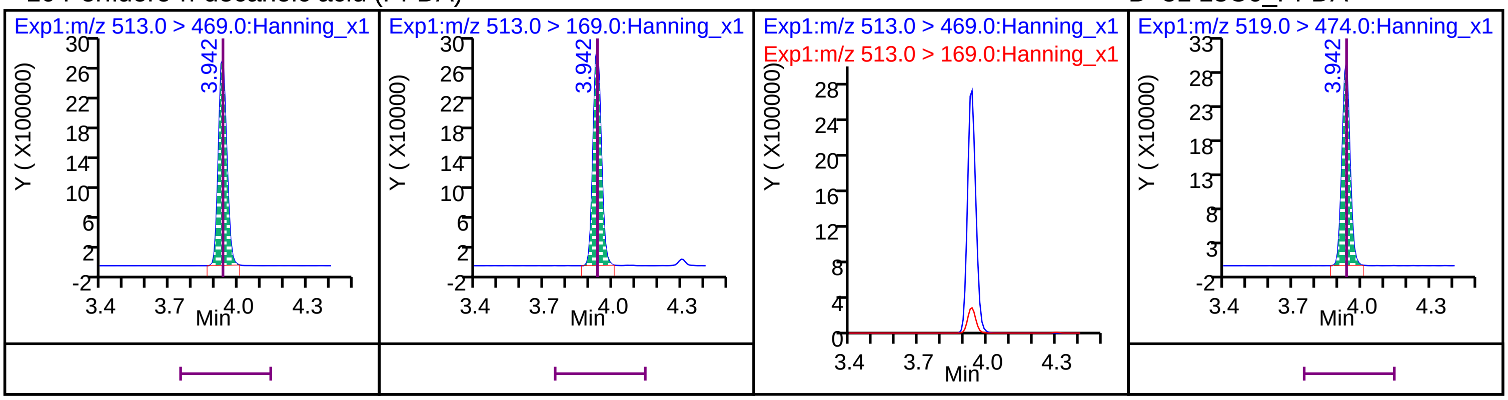


Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d

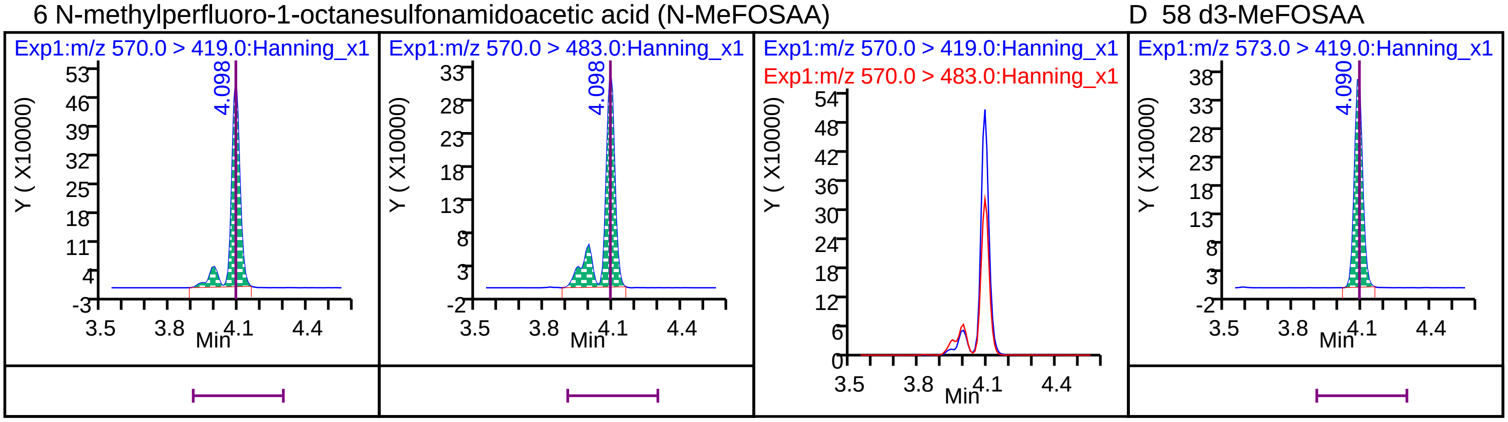
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



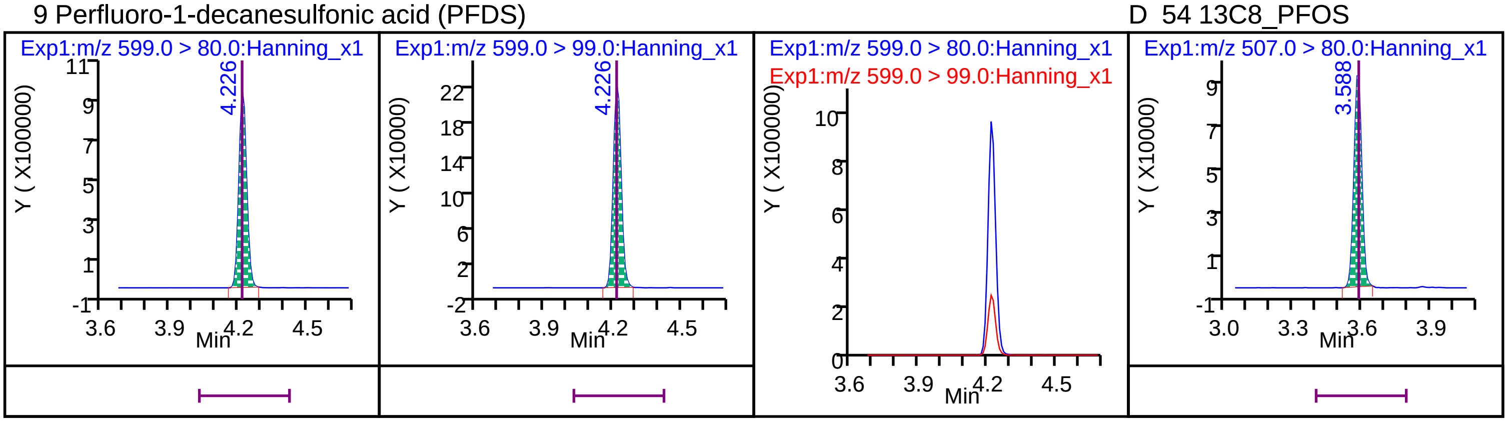
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



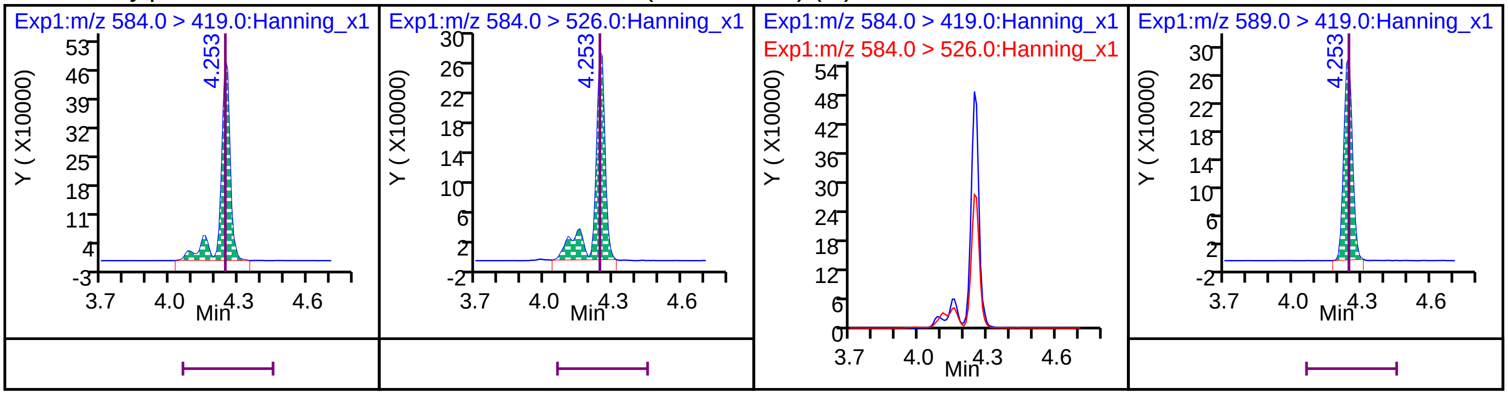
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



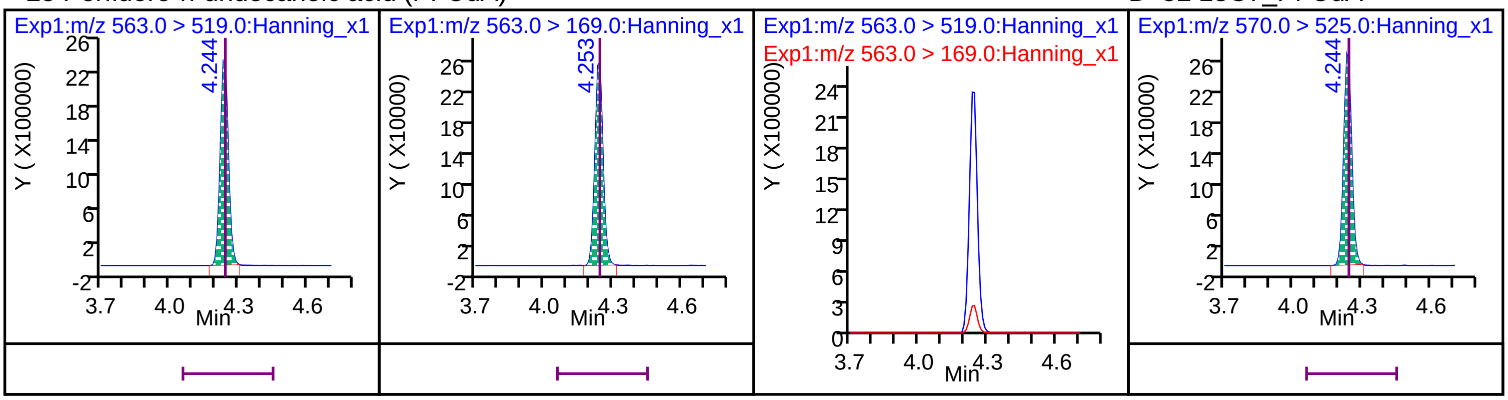
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

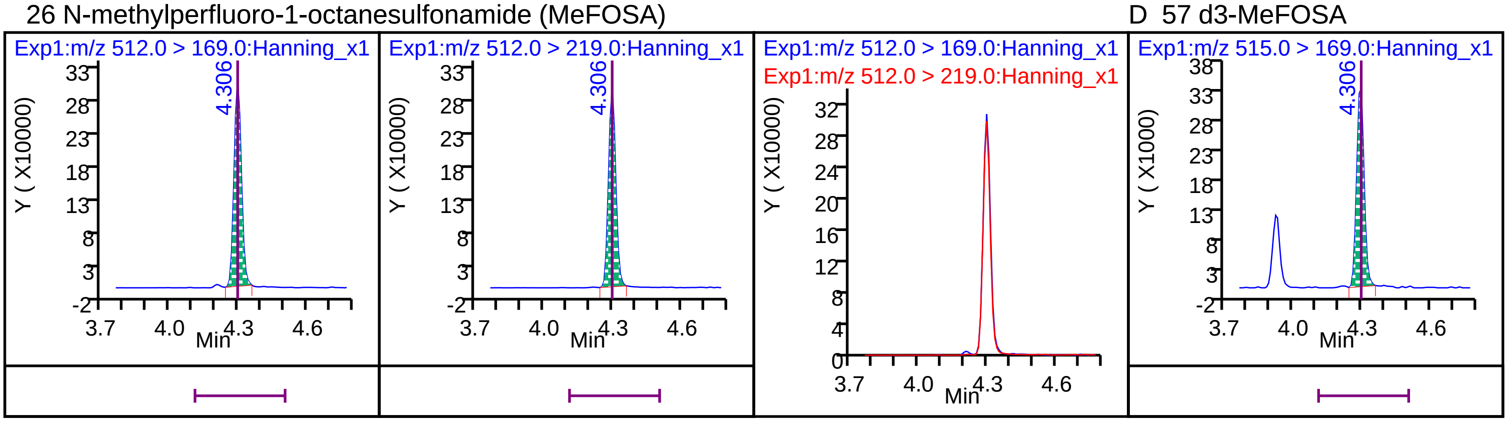


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

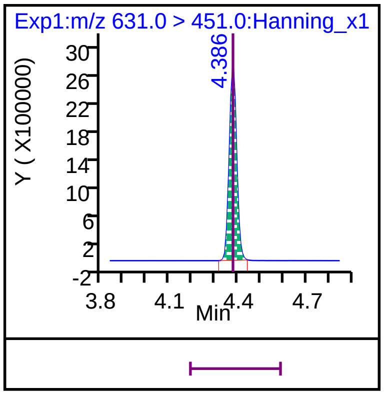


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

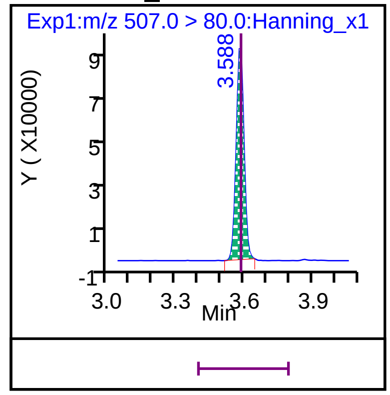
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



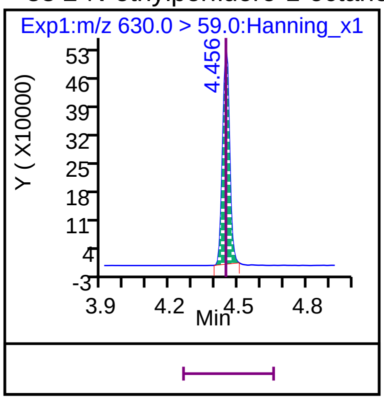
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



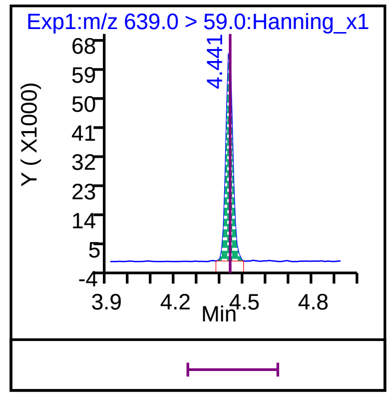
D 54 13C8_PFOS



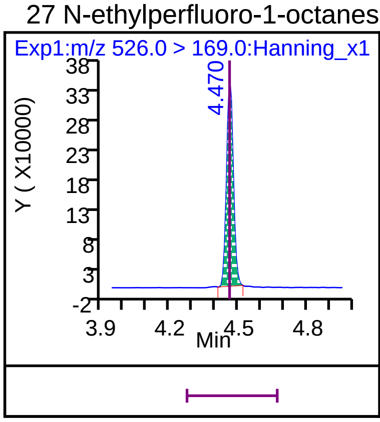
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

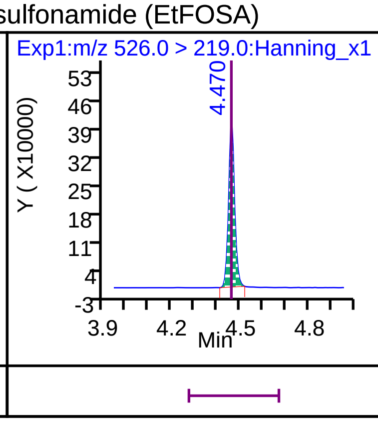


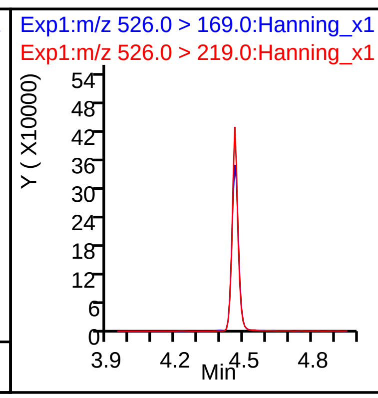
D 62 d9-EtFOSE



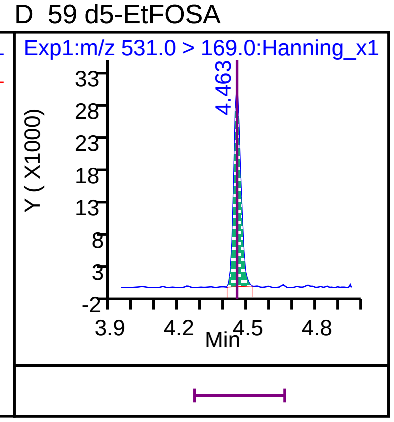
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



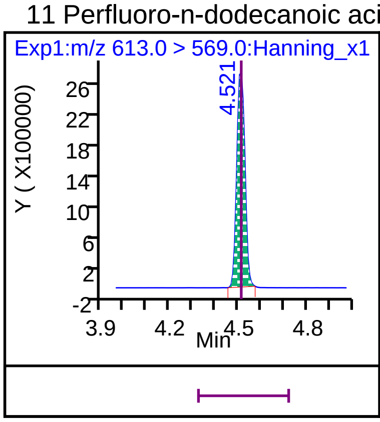


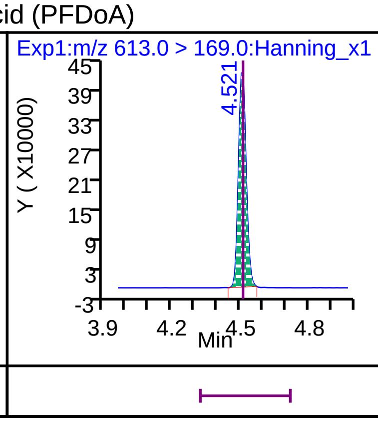


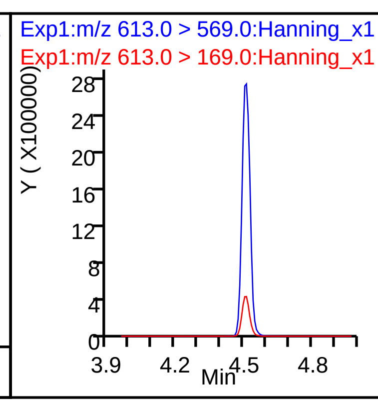
D 59 d5-EtFOSA



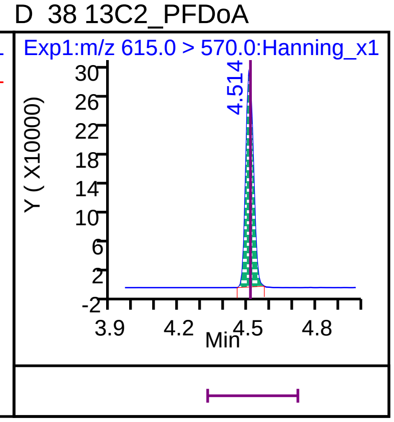
11 Perfluoro-n-dodecanoic acid (PFDoA)



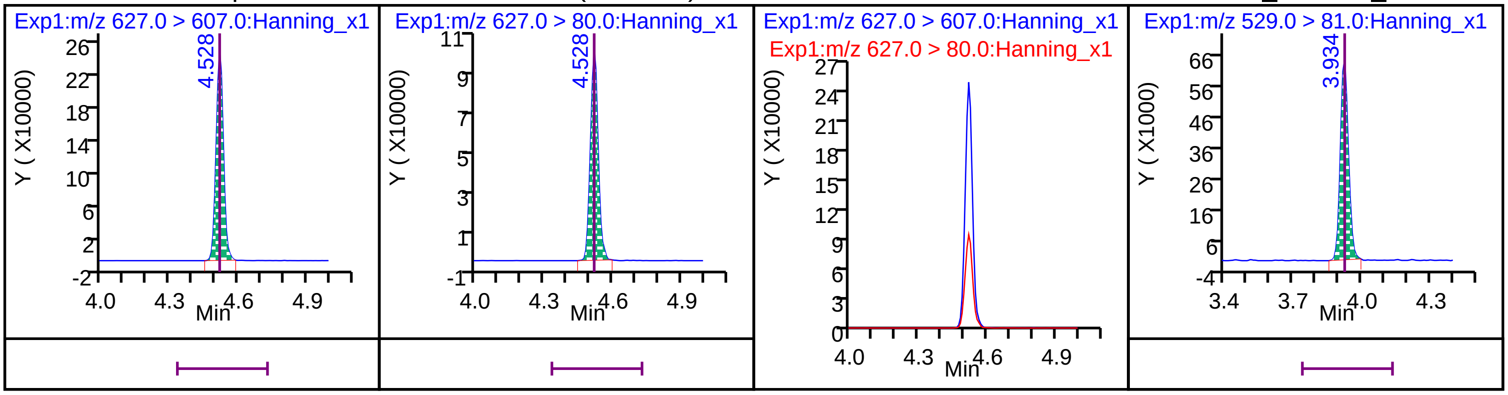




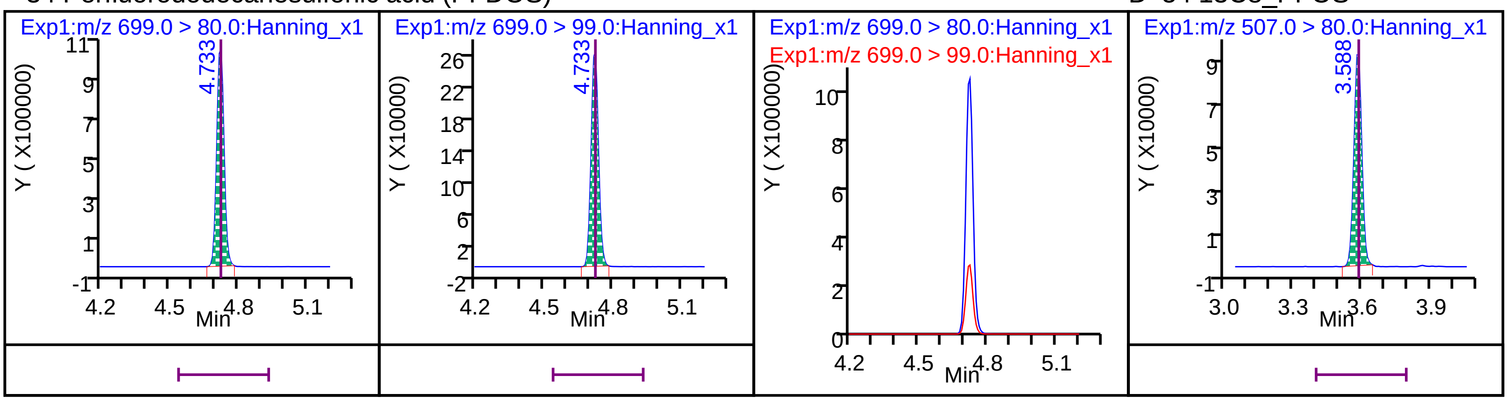
D 38 13C2_PFDoA



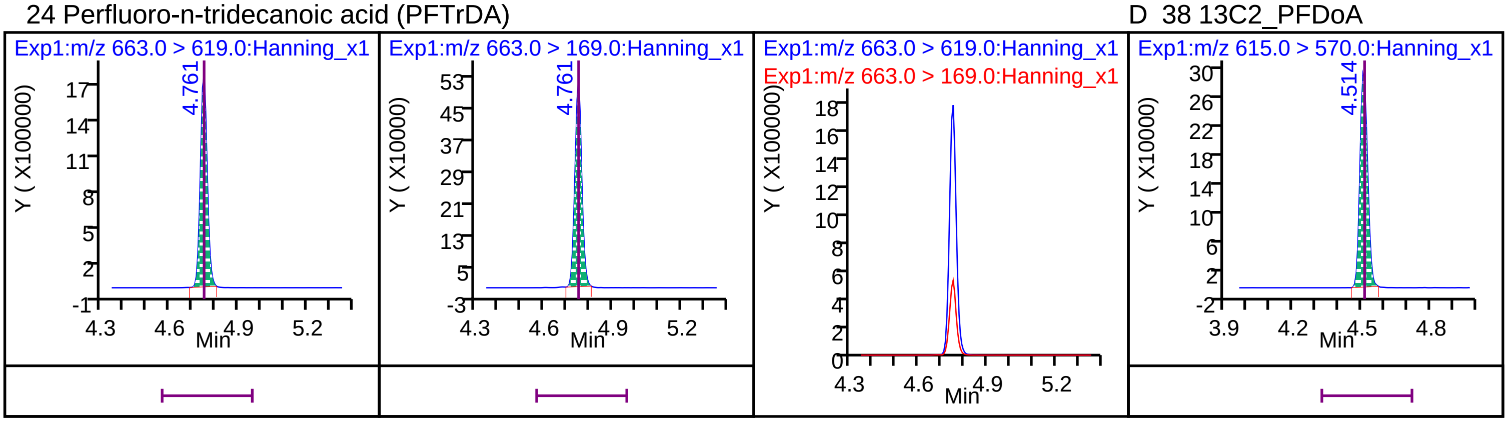
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



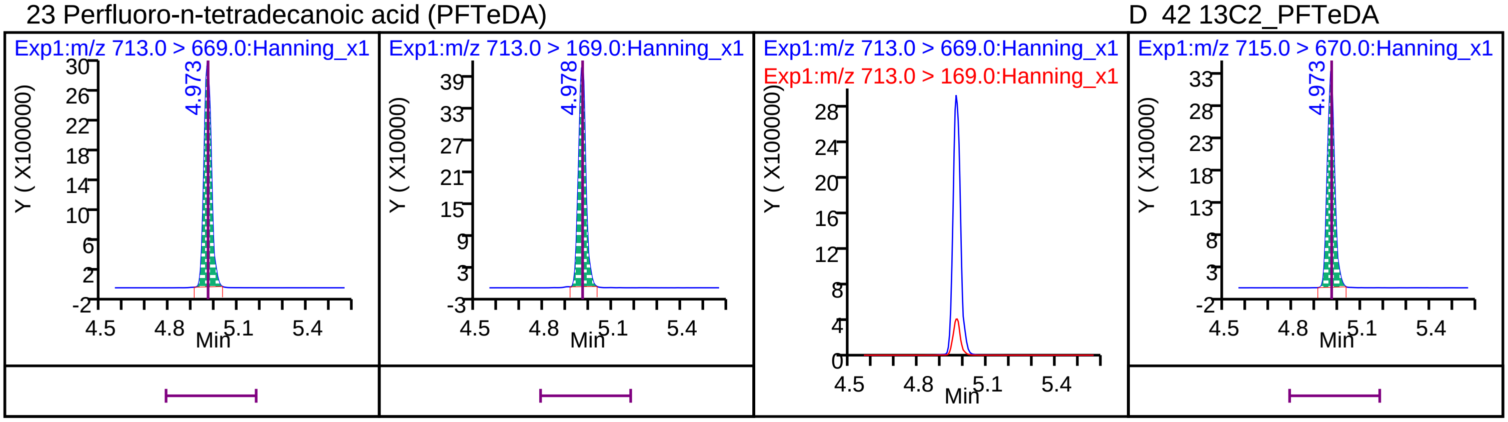
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

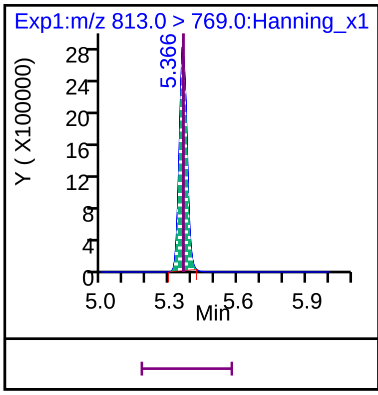


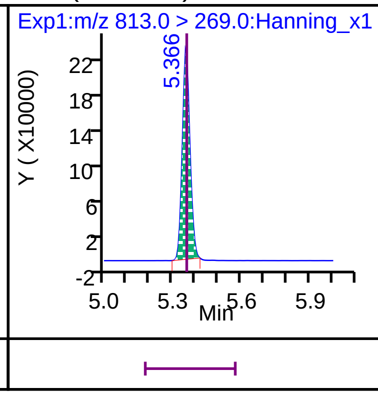
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

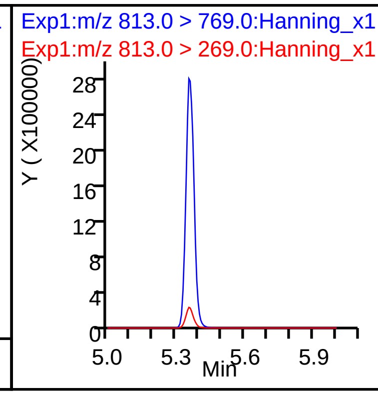


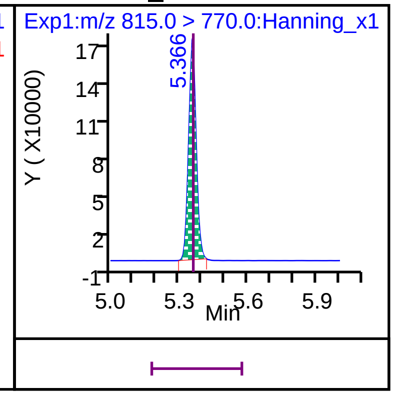
Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d

35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA

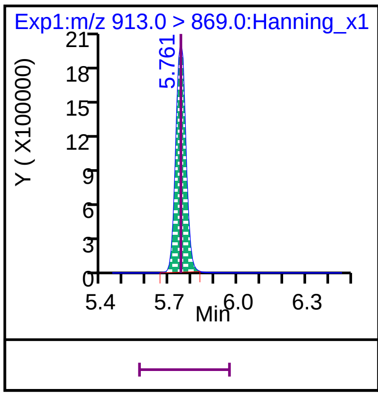


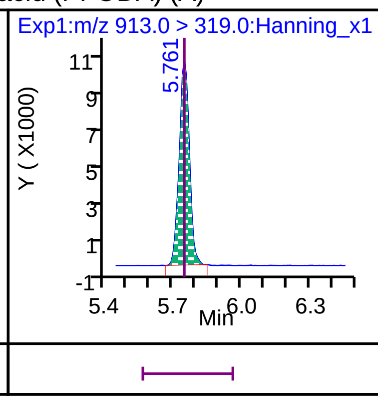


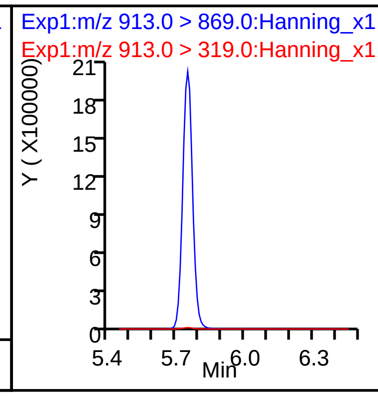


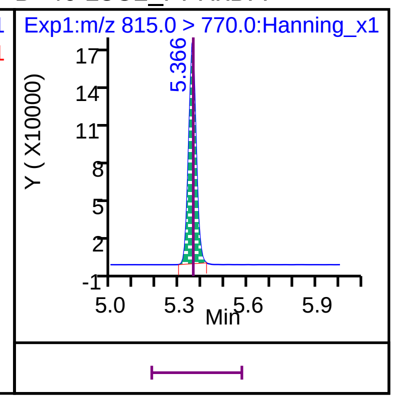


36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA

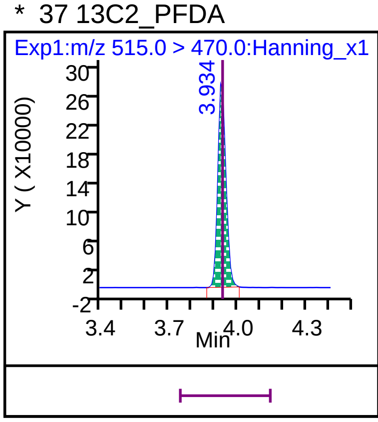


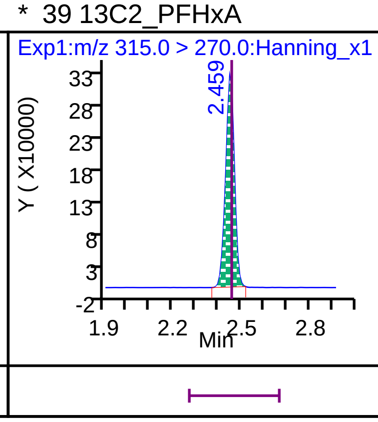


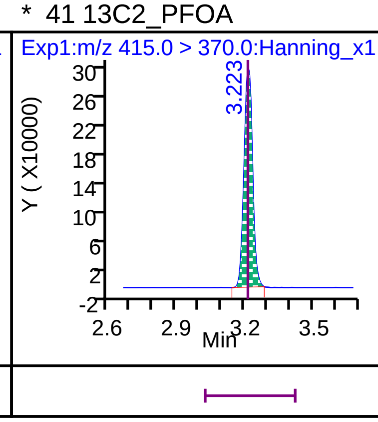


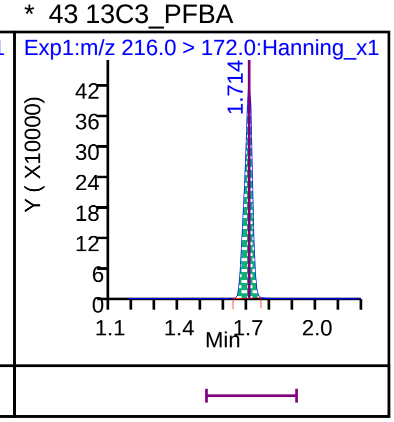


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA

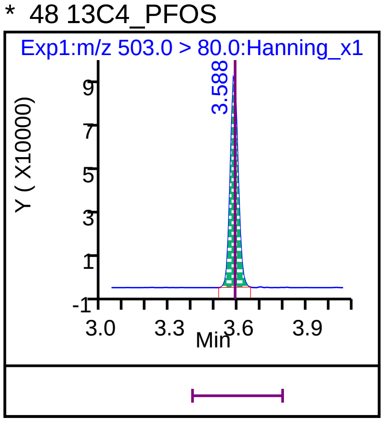








* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

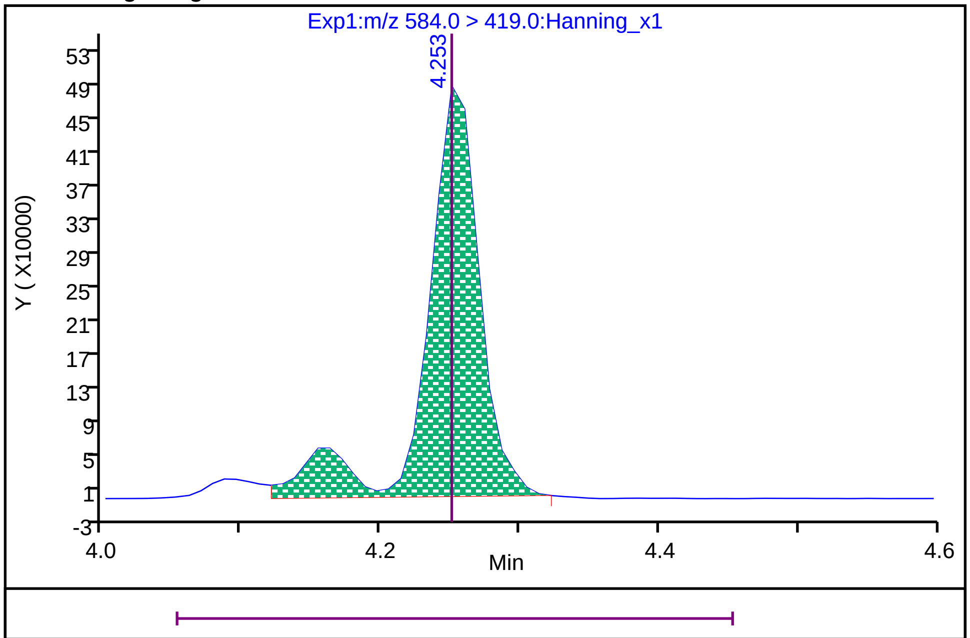
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d		
Injection Date:	04-Nov-2021 15:02:24	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 10000_SVLC-1645
Sample Info:	ICAL 10000_SVLC-1645		
Dil. Factor:	1	Operator:	Matthew M. Miller

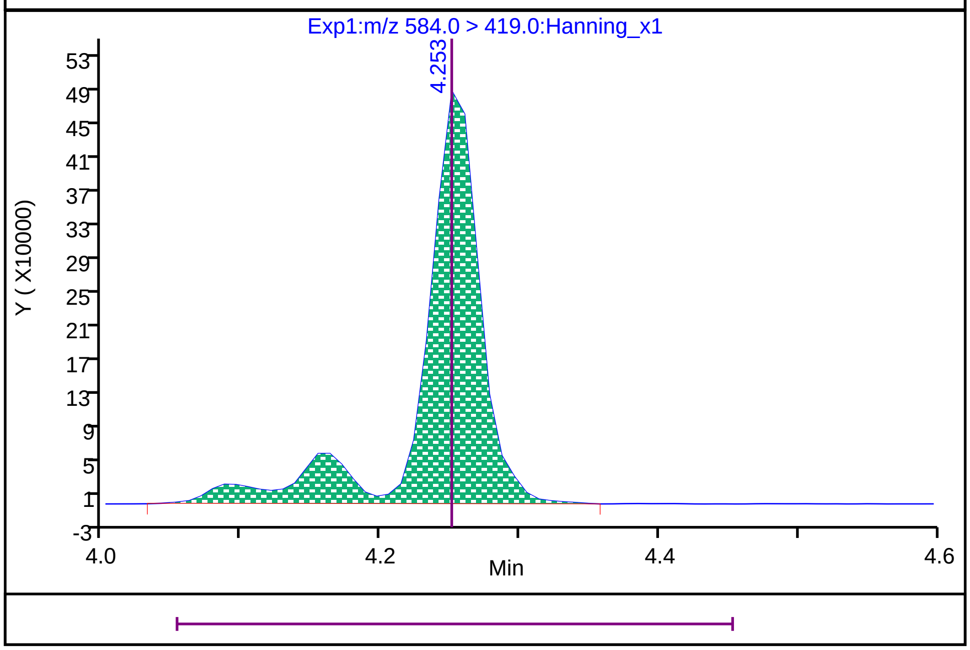
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.253
Area: 1282521
Amount: 8967.21
Amount Units: ng/L



RT: 4.253
Area: 1361667
Amount: 9451.09
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 15:56:50

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

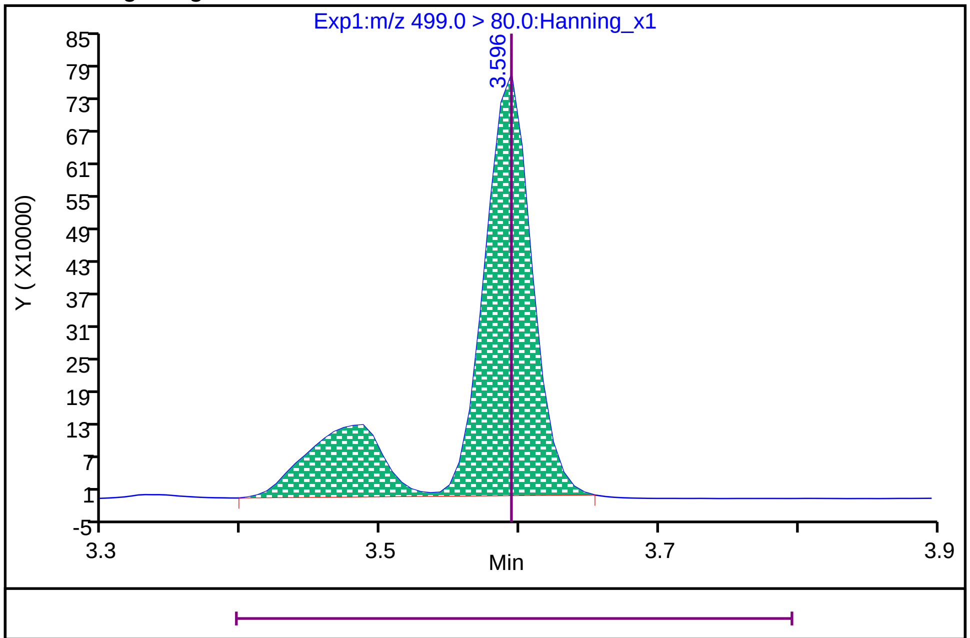
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A015.d		
Injection Date:	04-Nov-2021 15:02:24	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 10000_SVLC-1645
Sample Info:	ICAL 10000_SVLC-1645		
Dil. Factor:	1	Operator:	Matthew M. Miller

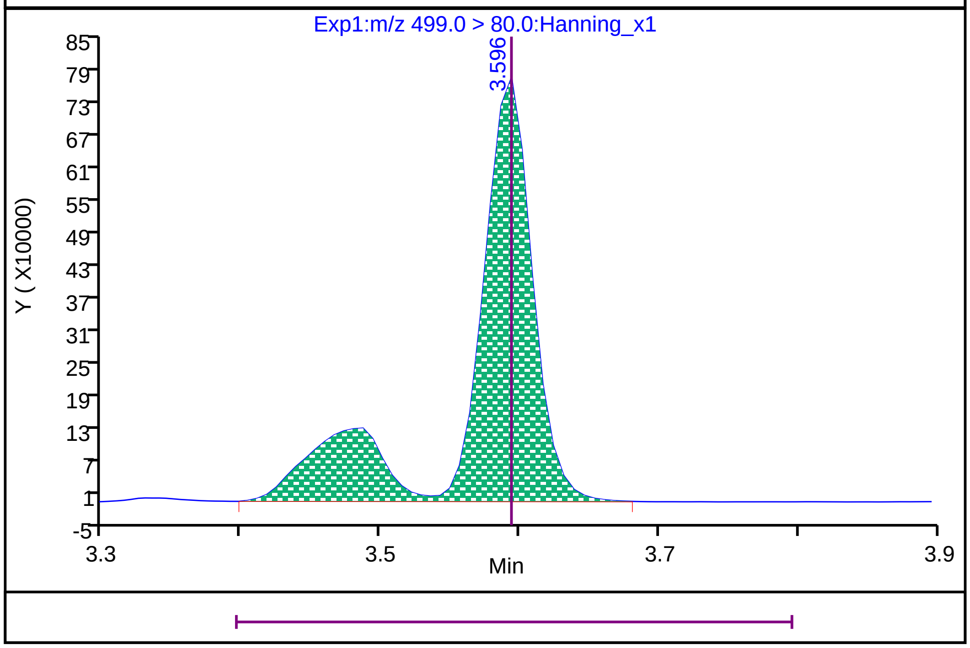
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.596
Area:	2309457
Amount:	9032.58
Amount Units:	ng/L



RT:	3.596
Area:	2363933
Amount:	9260.48
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:23

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A016.d		
Injection Date:	04-Nov-2021 15:12:55	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	85
Sample Info:	ICAL 15000_SVLC-1646	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-9 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	946312	20	>100:1			1000.00	878.87	79.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/0	15741656	21	>100:1			15000	15125		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	901970	16	>100:1			1000.00	899.35	82.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	14447698	16	>100:1			15000	14950		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	283353	16	>100:1			1000.00	872.47	77.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	5401624	15	>100:1	Target = 3.80		13260	13344		
298.9 > 99	44	2.141	2.141		1432527	16	>100:1	3.77 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	4354538	18	>100:1	Target = 3.42		14070	15273		
349 > 99	44	2.493	2.493		1292616	18	>100:1	3.36 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	195775	17	>100:1			5000.00	4713.27	90.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/0	1079614	17	>100:1	Target = 1.54		14010	14128		
327 > 81	63	2.415	2.415		669527	17	>100:1	1.61 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	816219	18	>100:1			1000.00	913.78	79.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/0	12110505	18	>100:1	Target = 17.93		15000	14359		
313 > 119	49	2.467	2.467		705587	18	>100:1	17.16 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	769218	19	>100:1			5000.00	4695.53	87.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.587	0/0	3365715	19	>100:1	Target = 0.72		30000	28554		
285 > 185	66	2.579	2.587		4971487	19	>100:1	0.67 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	742011	18	>100:1			1000.00	846.86	75.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	11234376	18	>100:1	Target = 3.26		15000	15728		
363 > 169	47	2.846	2.846		3540130	18	>100:1	3.17 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	227575	19	>100:1			1000.00	867.68	76.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/0	4048464	27	>100:1	Target = 3.48	4.79	13650	15048		
399 > 99	45	2.864	2.863		1135827	26	>100:1	3.56 (1.74-5.22)	7.00				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	18449538	18	>100:1	Target = 2.31		14130	14729		
377 > 85	45	2.890	2.890		8026585	18	>100:1	2.29 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.229	1/0	3659479	22	>100:1	Target = 3.56		14280	15634		
449 > 99	45	3.234	3.229		964517	21	>100:1	3.79 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.204	0	167908	22	>100:1			5000.00	4452.48	86.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.202	3.204	0/0	827163	22	>100:1	Target = 1.34		14220	14166		
427 > 81	64	3.202	3.204		610319	22	>100:1	1.35 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.221	3.223	0	715031	22	>100:1			1000.00	864.61	77.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.229	0/0	10727291	22	>100:1	Target = 2.50		15000	14581		
413 > 169	53	3.227	3.229		4357258	22	>100:1	2.46 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.592	3.595	0	194699	19	>100:1			1000.00	867.33	79.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.595	0/0	3420431	43	>100:1	Target = 4.01	3.44	13920	14902		M
499 > 99	54	3.592	3.595		853931	37	>100:1	4.00 (2.00-6.02)	6.89				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.797	3.799	0/0	9402149	20	>100:1			13980	15625		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.924	3.926	0/0	3057718	18	>100:1	Target = 3.78		14400	15549		
549 > 99	54	3.932	3.926		811620	19	>100:1	3.76 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.232	4.226	1/1	2934219	16	>100:1	Target = 3.98		14460	15265		
599 > 99	54	4.232	4.226		774524	15	>100:1	3.78 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.385	4.386	0/0	8108699	16	>100:1			14130	14992		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.733	0/0	3048814	17	>100:1	Target = 3.68		14520	16169		
699 > 99	54	4.732	4.733		837431	18	>100:1	3.64 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	694094	20	>100:1			1000.00	868.69	69.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/0	9661421	20	>100:1	Target = 4.69		15000	15286		
463 > 169	56	3.599	3.595		2075453	19	>100:1	4.65 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.873	0	403354	18	>100:1			1000.00	973.84	94.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.871	3.873	0/0	6623978	19	>100:1	Target = 40.85		15000	14524		
498>478	55	3.879	3.873		150149	18	>100:1	44.11 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	143598	19	>100:1			5000.00	4575.30	93.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.932	3.934	0/0	687321	19	>100:1	Target = 1.58		14370	13471		
527 > 81	65	3.932	3.934		462351	20	>100:1	1.48 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.527	4.528	0/0	714775	18	>100:1	Target = 2.46		14460	13956		
627 > 80	65	4.527	4.528		285078	18	>100:1	2.50 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	0	624767	25	>100:1			1000.00	865.57	79.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.940	3.942	0/0	9822529	19	>100:1	Target = 9.77		15000	15322		
513 > 169	51	3.940	3.942		1006446	17	>100:1	9.75 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	845053	17	>100:1			5000.00	4765.89	93.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.096	4.098	0/0	1956150	30	>100:1	Target = 1.41	7.69	15000	14156		
570 > 483	58	4.096	4.098		1487834	33	>100:1	1.31 (0.70-2.11)	4.31				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.251	4.253	0	587736	16				1000.00	859.99	80.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.251	4.253	0/0	8279601	16	>100:1	Target = 9.19		15000	15703		
563 > 169	52	4.251	4.253		926310	15	>100:1	8.93 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.251	4.253	0	662535	17	>100:1			5000.00	4430.76	85	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.260	4.253	1/1	1967922	36	>100:1	Target = 1.75	5.95	15000	14529		M
584 > 526	60	4.260	4.253		1163322	33	>100:1	1.69 (0.87-2.63)	3.57				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.278	4.280	0	135378	16	>100:1			1000.00	981.10	101.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.288	0/0	1906394	15	>100:1			15000	13856		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.306	0	69125	14	>100:1			1000.00	987.21	95.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.306	0/0	977235	14	>100:1	Target = 1.11		15000	13652		
512 > 219	57	4.304	4.306		884070	15	>100:1	1.10 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.448	0	125040	17	>100:1			1000.00	972.67	96.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.456	0/0	1602536	17	>100:1			15000	15057		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.463	0	58157	16	>100:1			1000.00	902.99	88.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.469	4.470	0/0	1034793	17	>100:1	Target = 1.06		15000	15219		
526 > 219	59	4.469	4.470		905883	17	>100:1	1.14 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	620984	18	>100:1			1000.00	903.06	83.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.521	0/0	9216289	17	>100:1	Target = 6.38		15000	15112		
613 > 169	38	4.519	4.521		1392367	18	>100:1	6.61 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.760	0/0	5181494	18	>100:1	Target = 3.23		15000	15570		
663 > 169	38	4.759	4.760		1529579	18	>100:1	3.38 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	681598	25	>100:1			1000.00	871.88	75.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.978	0/0	9052722	25	>100:1	Target = 7.33		15000	15113		
713 > 169	42	4.973	4.978		1254823	24	>100:1	7.21 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	361658	22	>100:1			1000.00	926.43	89.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	9495716	21	>100:1	Target = 12.31		15000	13726		
813 > 269	40	5.372	5.372		810747	22	>100:1	11.71 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/1	8176865	22	>100:1	Target = 165.31		15000	14976		
913 > 319	40	5.761	5.761		45382	22	>100:1	180.17 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	0	650219	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	834073	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.223	1	672240	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	906217	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.592	3.595	0	201079	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

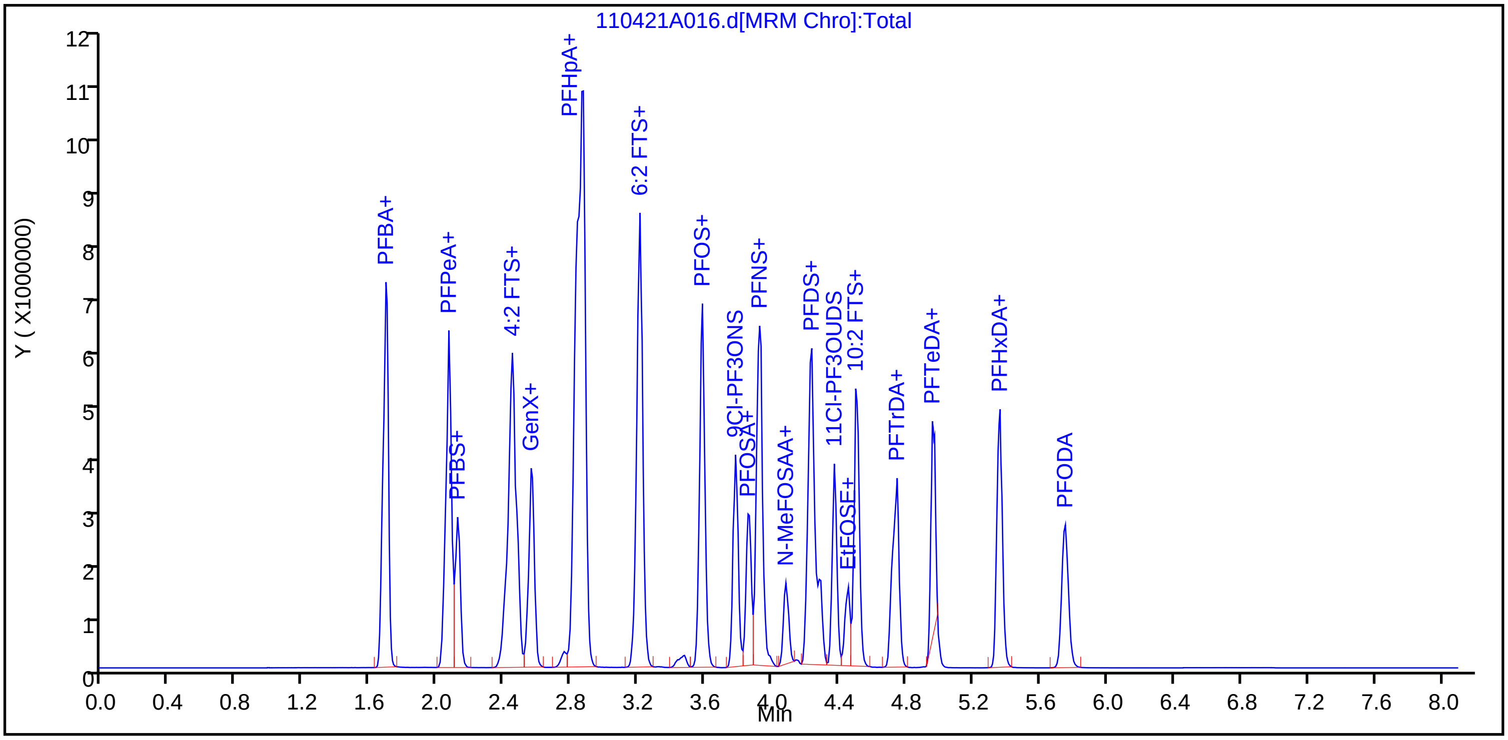
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

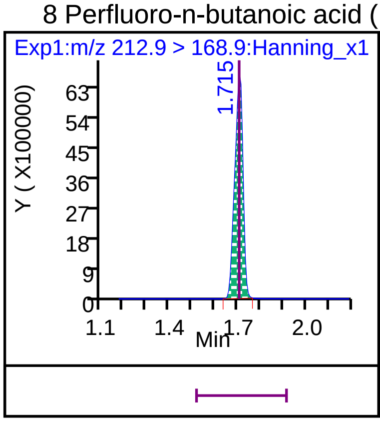
Report Date: 05-Nov-2021 13:58:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

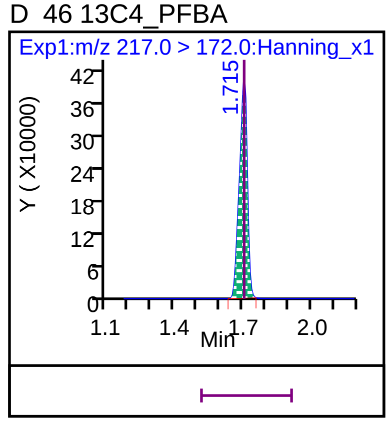
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A016.d		
Injection Date:	04-Nov-2021 15:12:55	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1646
Sample Info:	ICAL 15000_SVLC-1646		
Dil. Factor:	1	Operator:	Matthew M. Miller



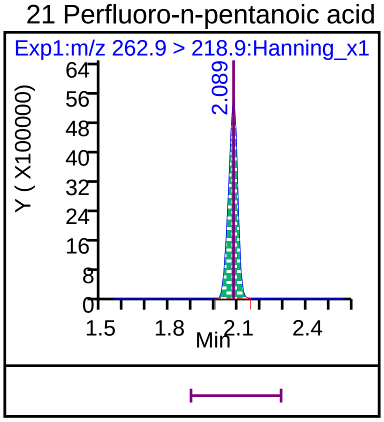
8 Perfluoro-n-butanoic acid (PFBA)



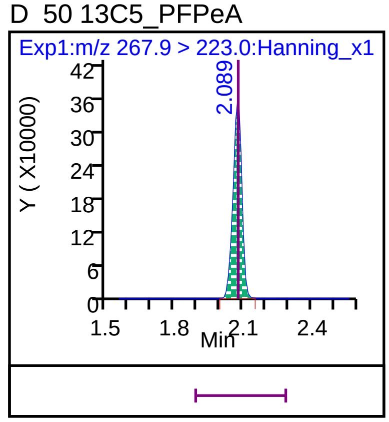
D 46 13C4_PFBA



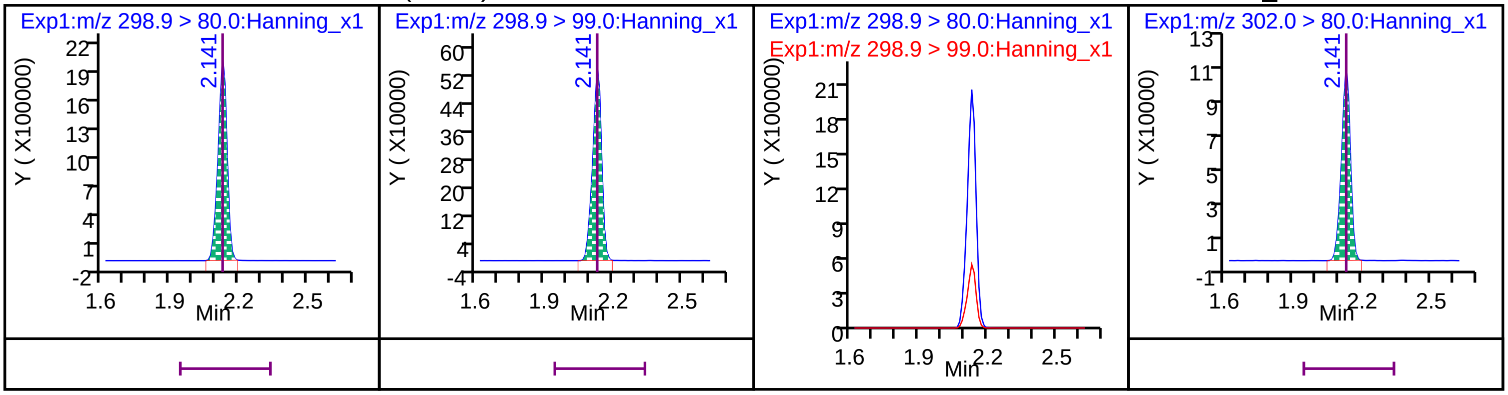
21 Perfluoro-n-pentanoic acid (PFPeA)



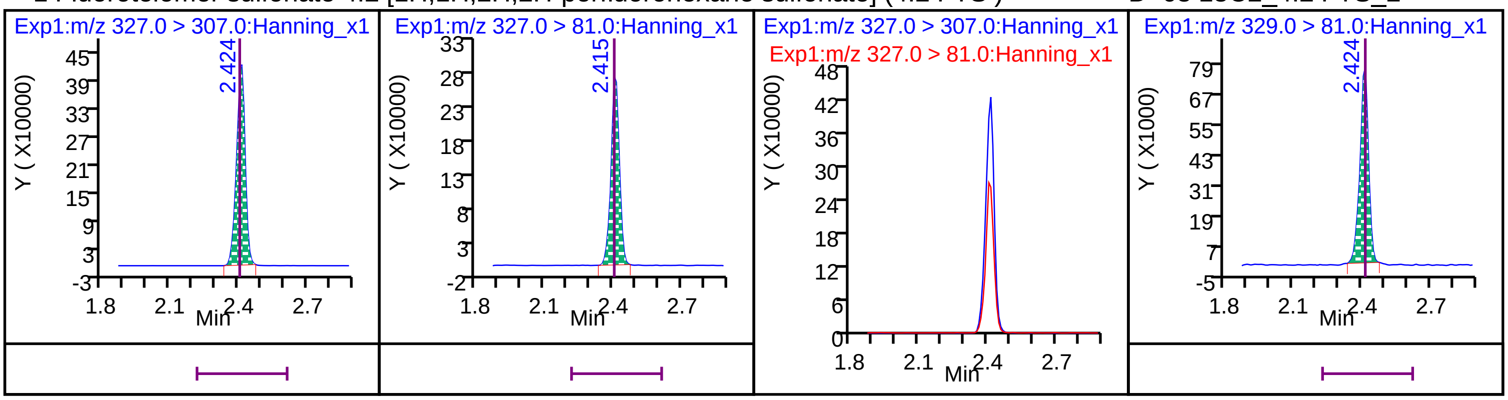
D 50 13C5_PFPeA



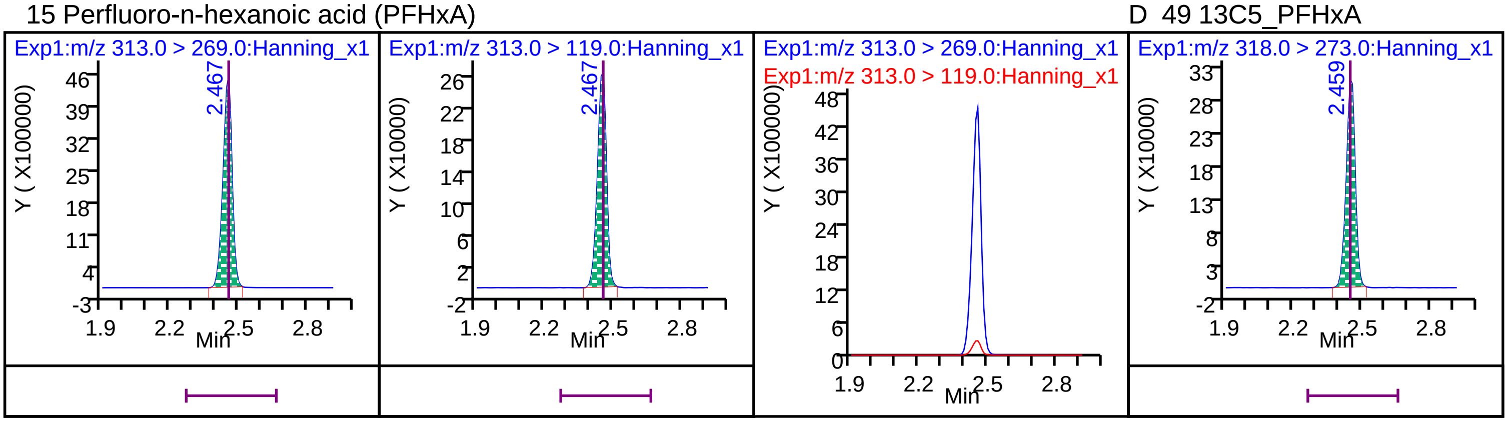
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



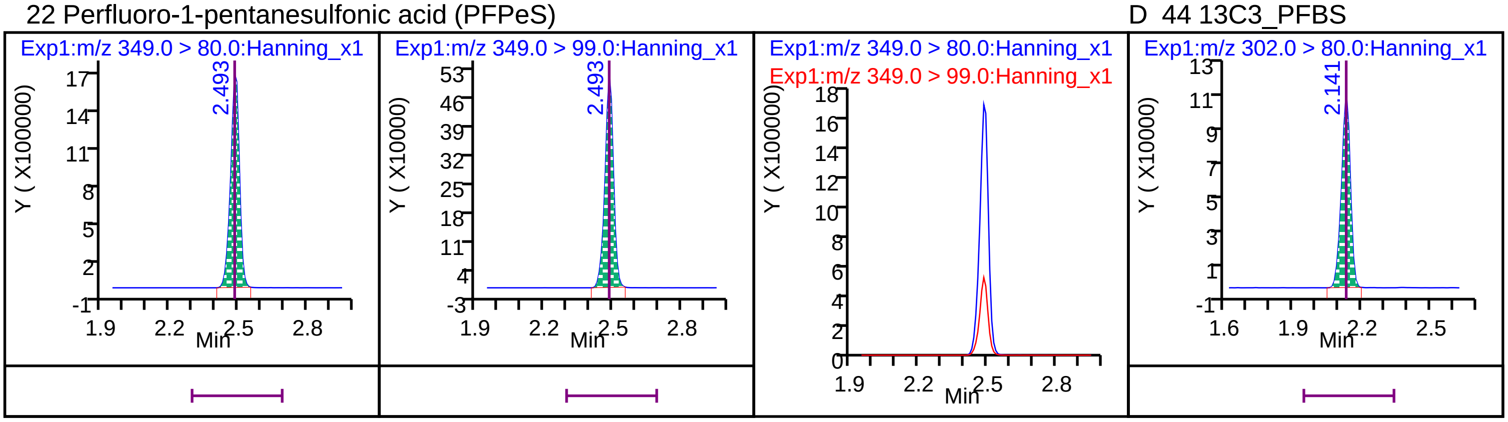
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



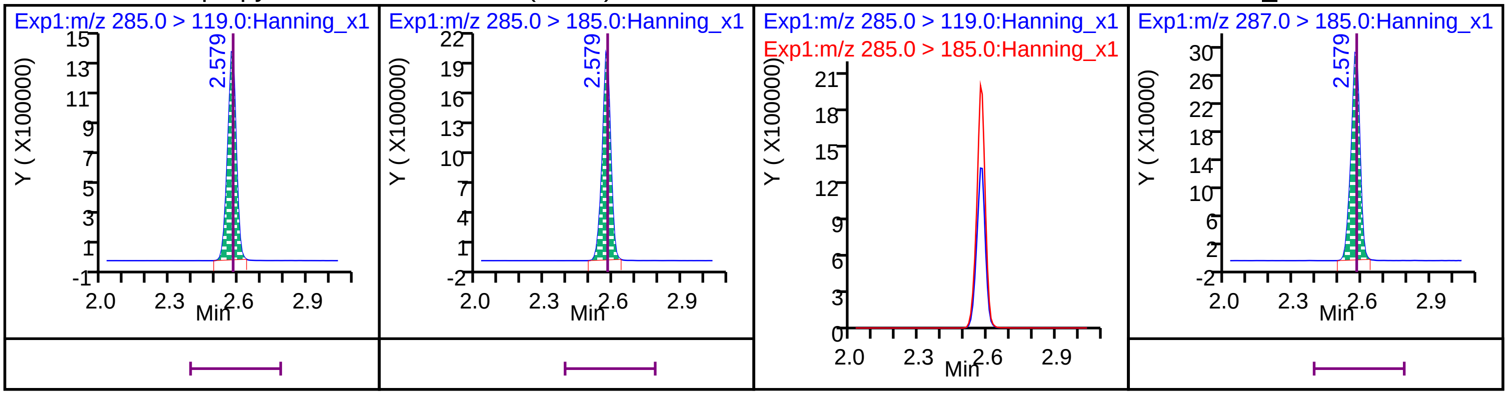
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



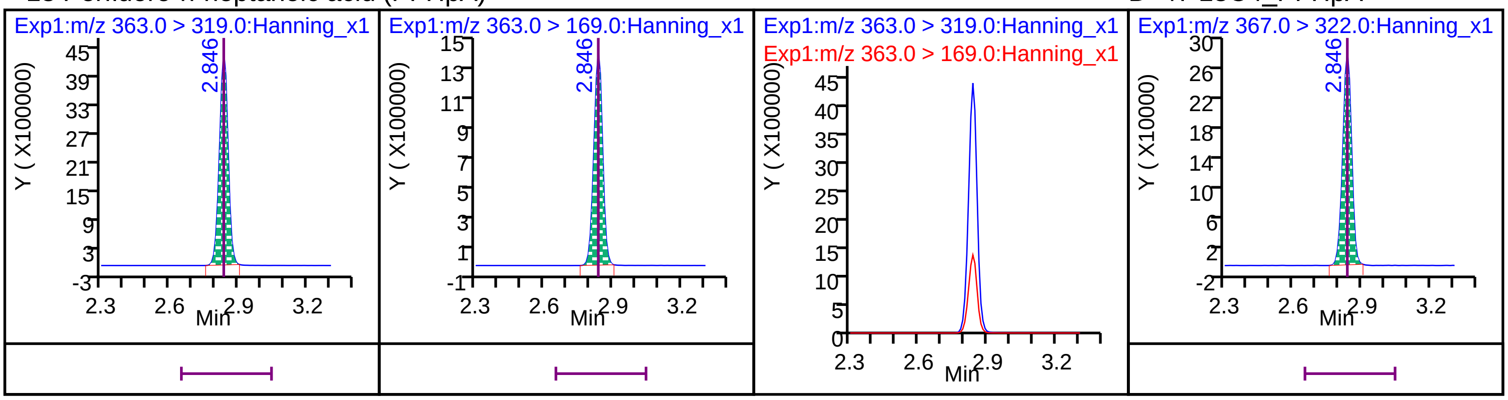
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



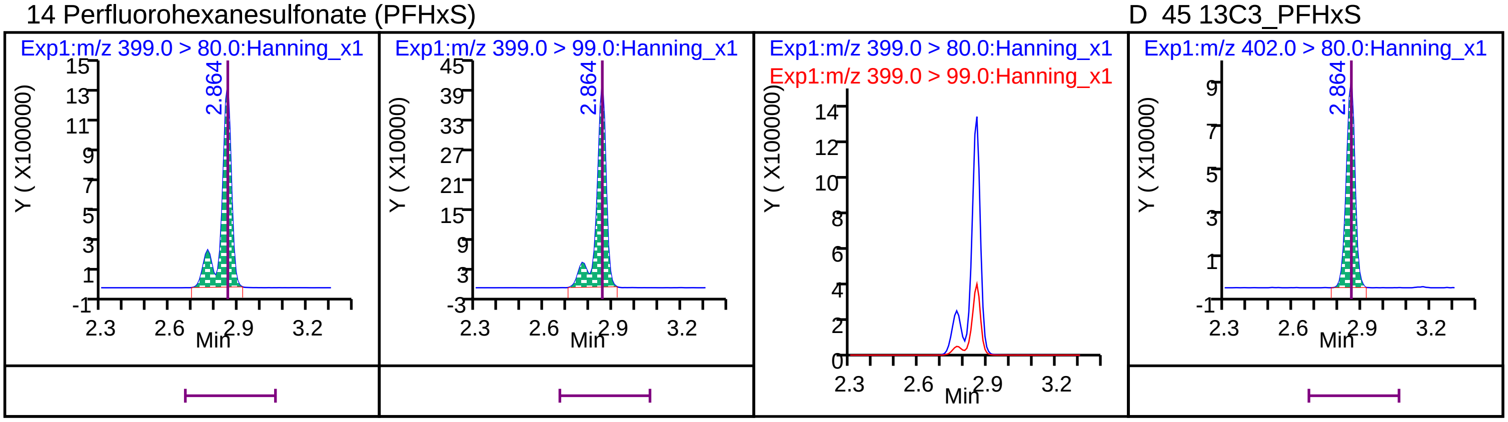
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



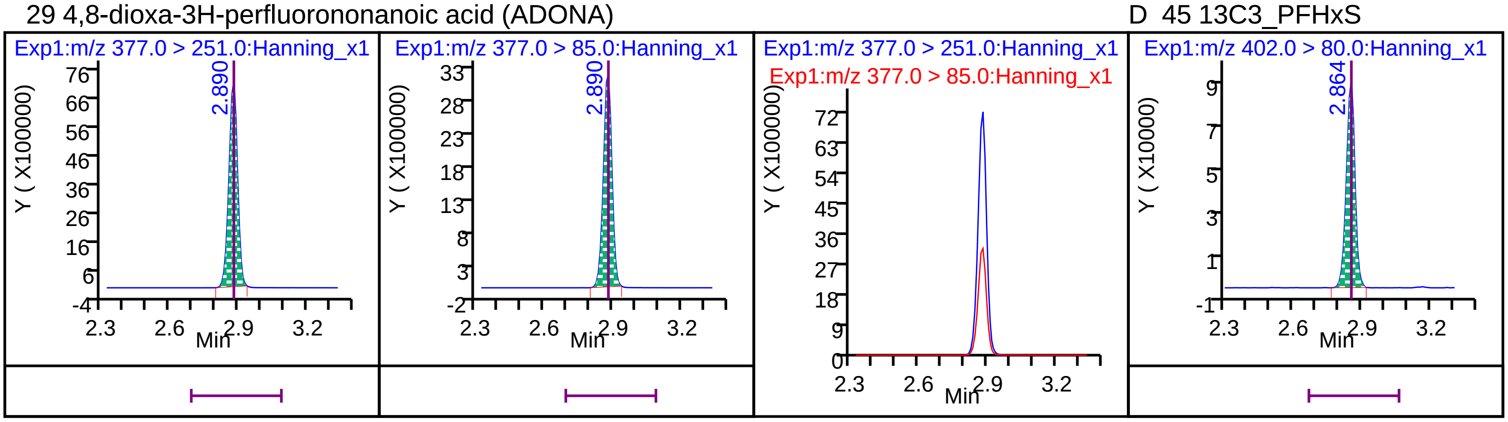
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



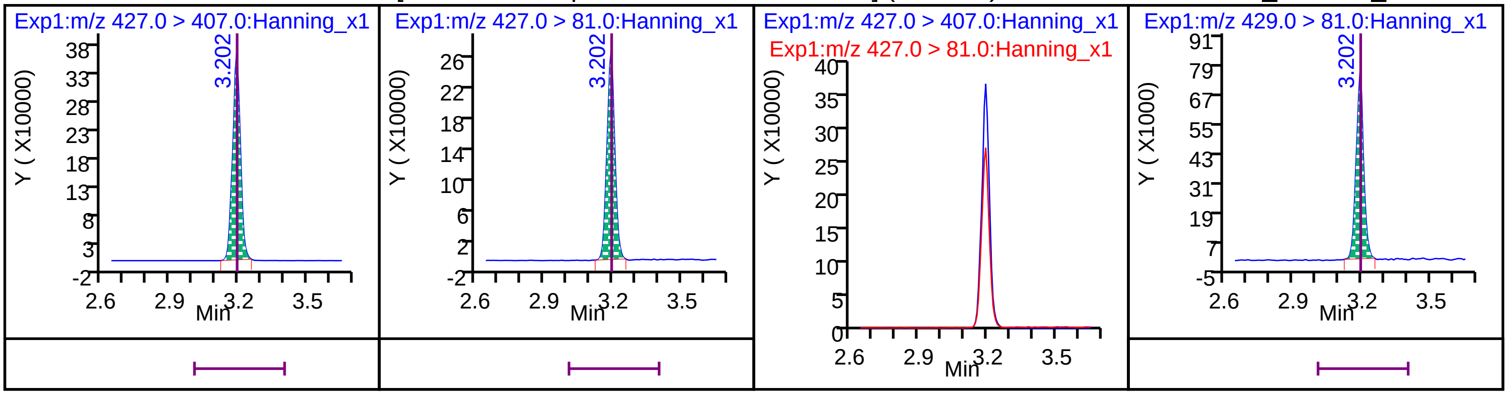
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



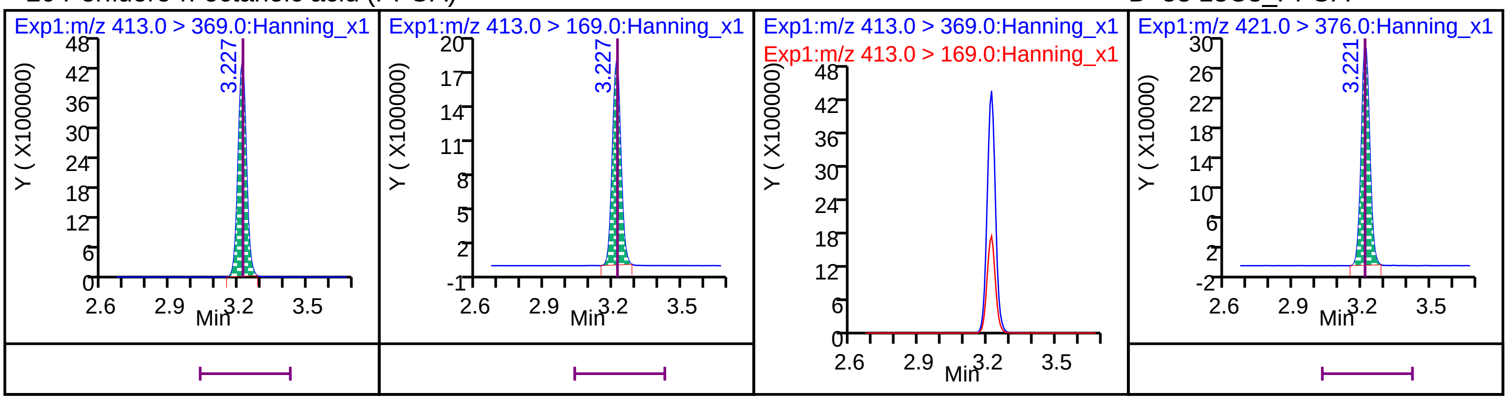
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



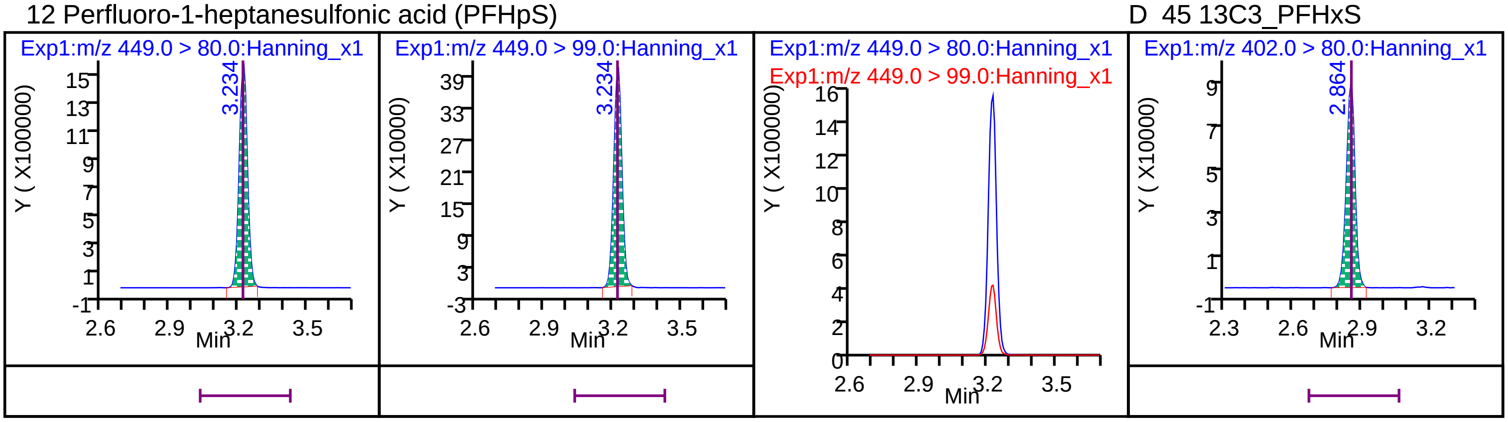
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



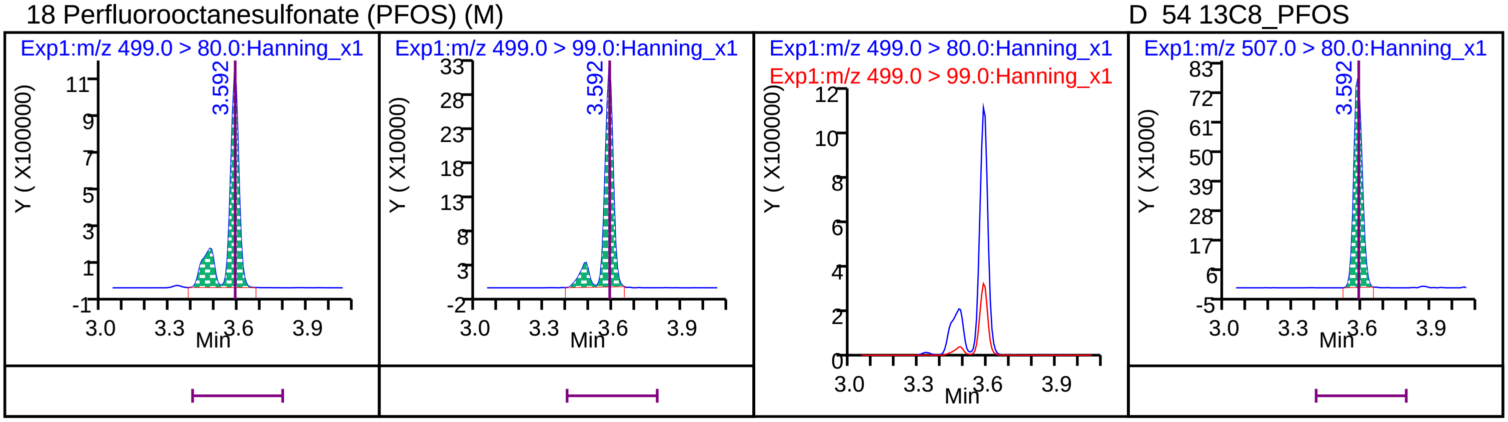
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



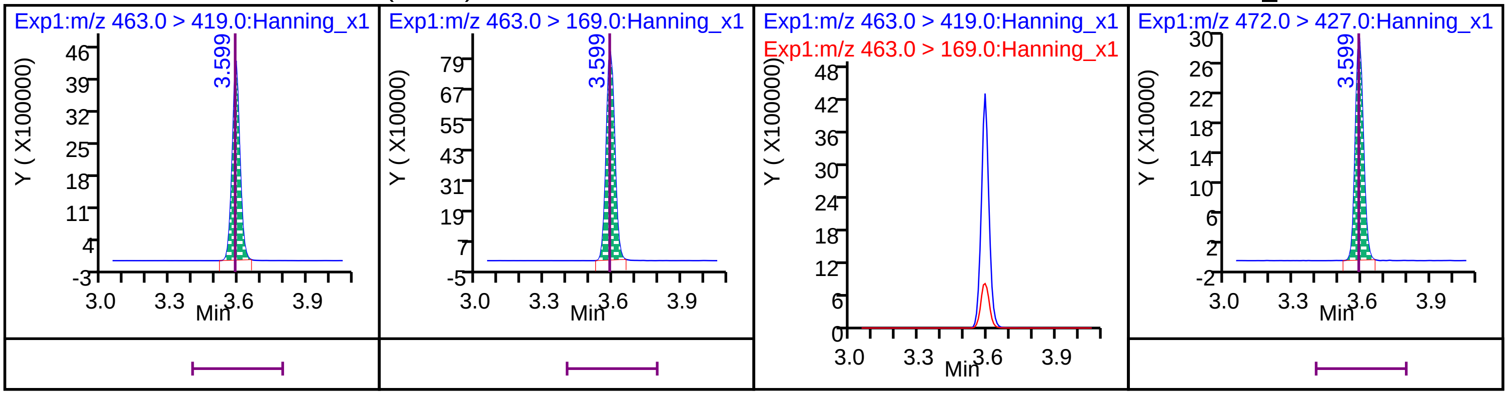
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



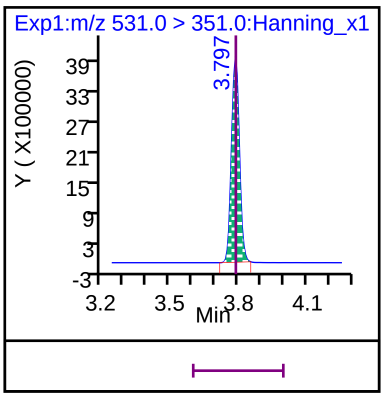
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

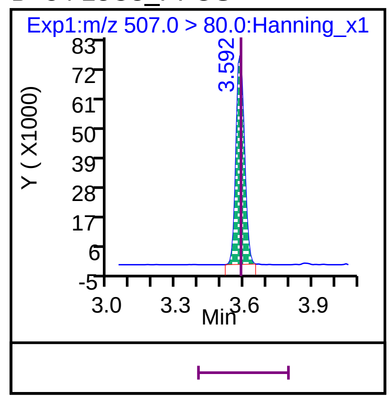


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

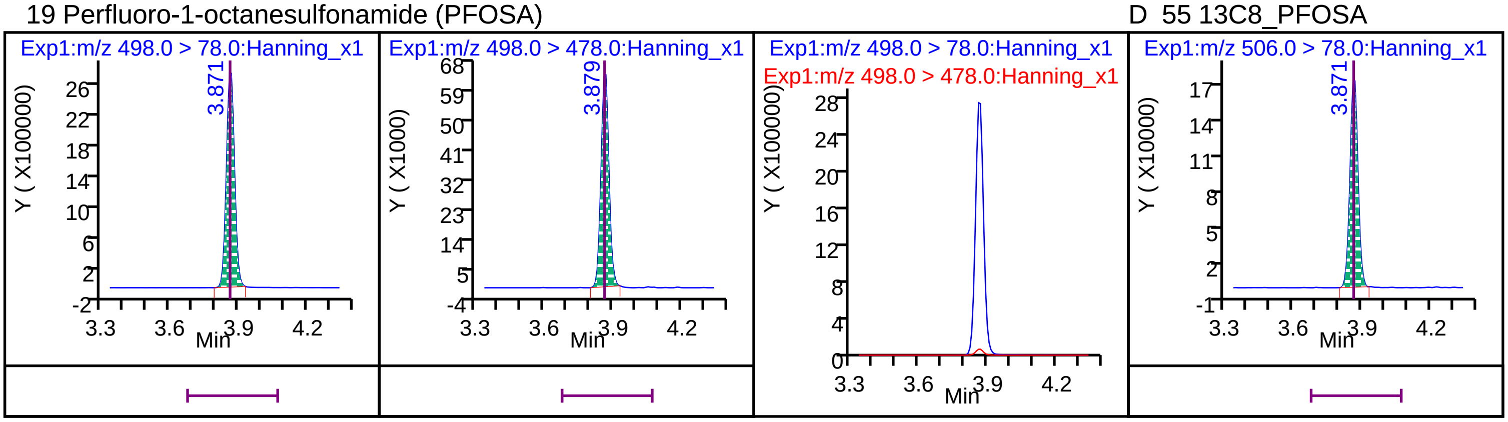


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

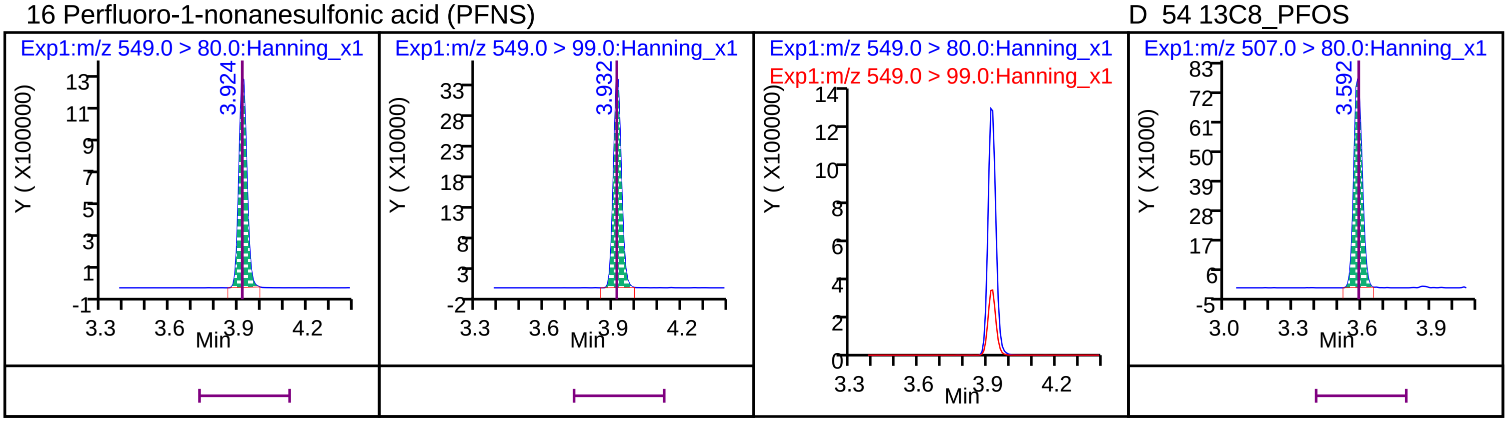




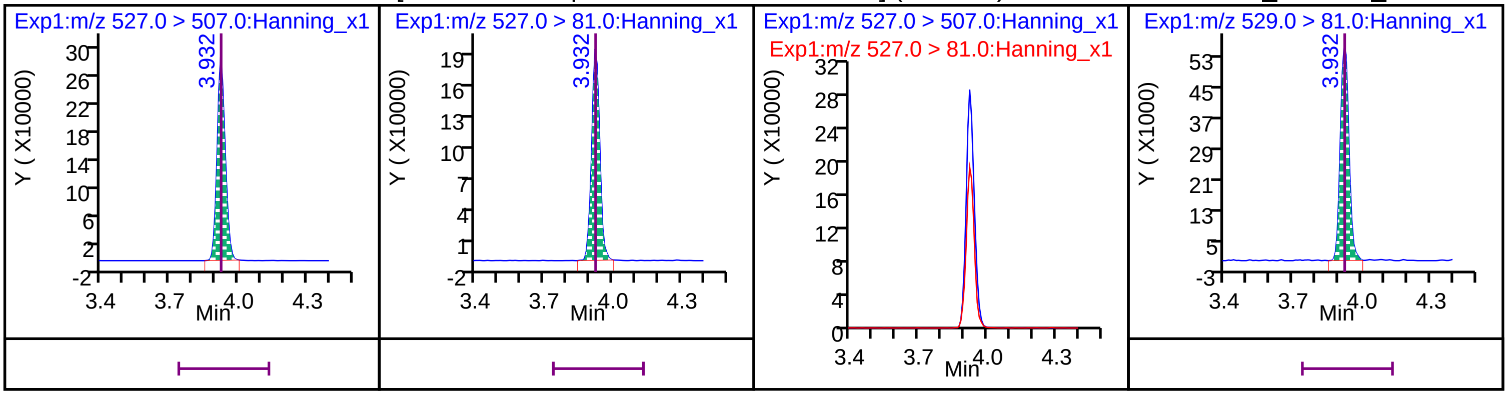
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



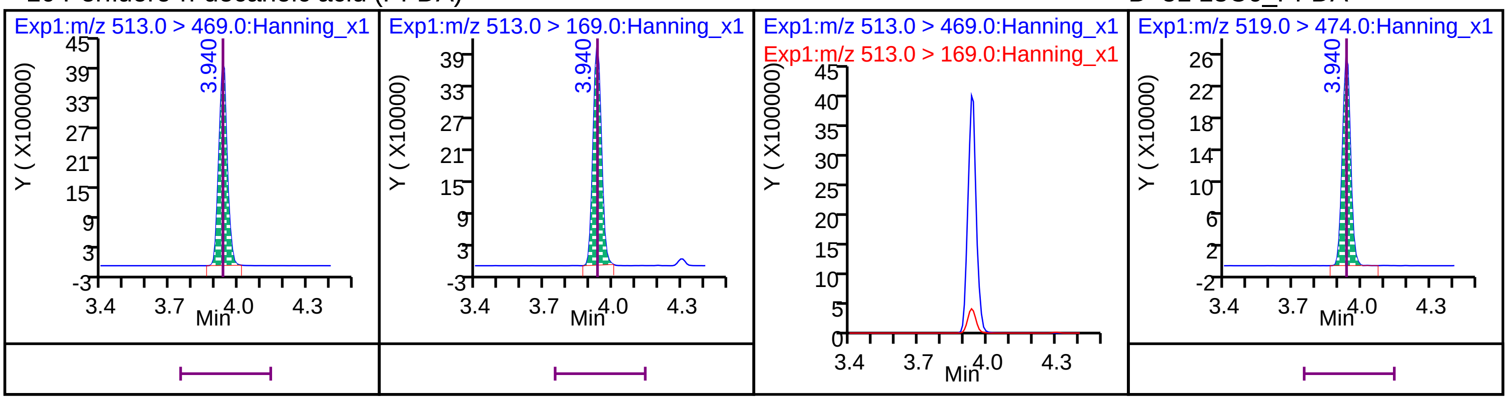
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



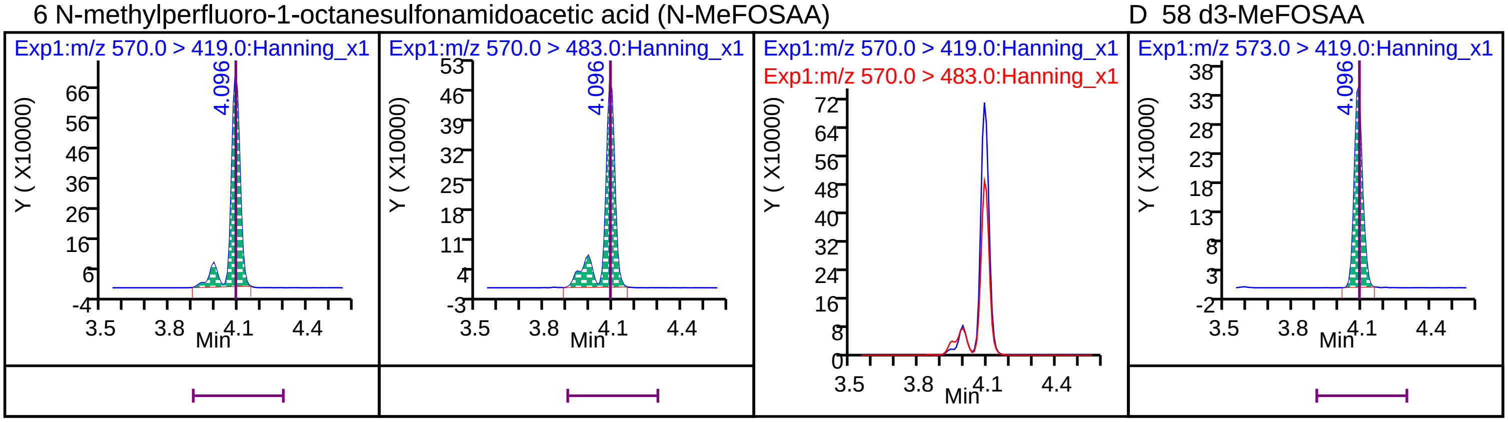
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



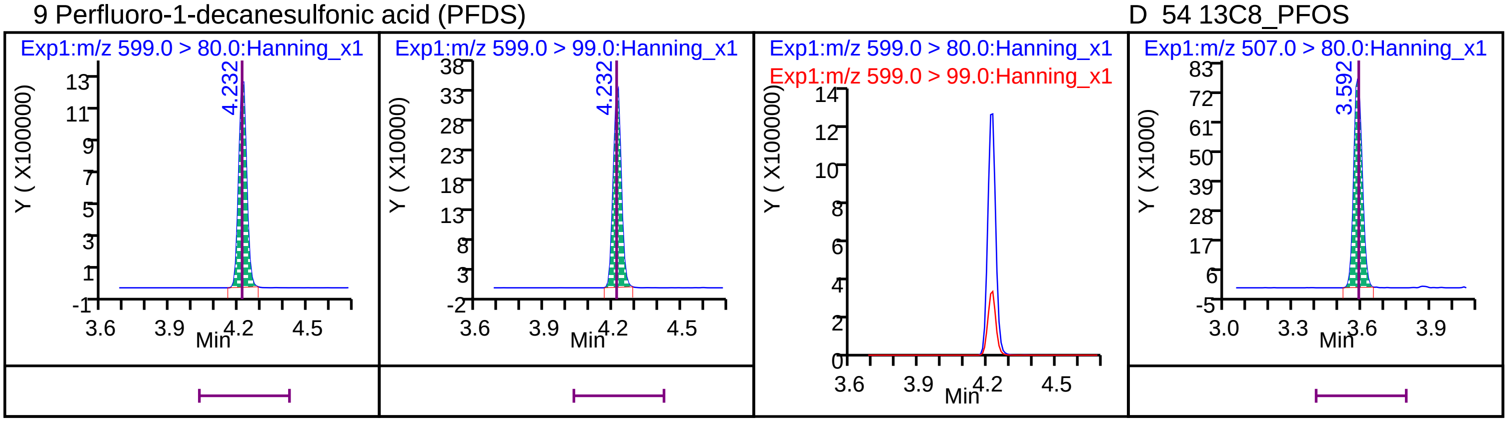
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



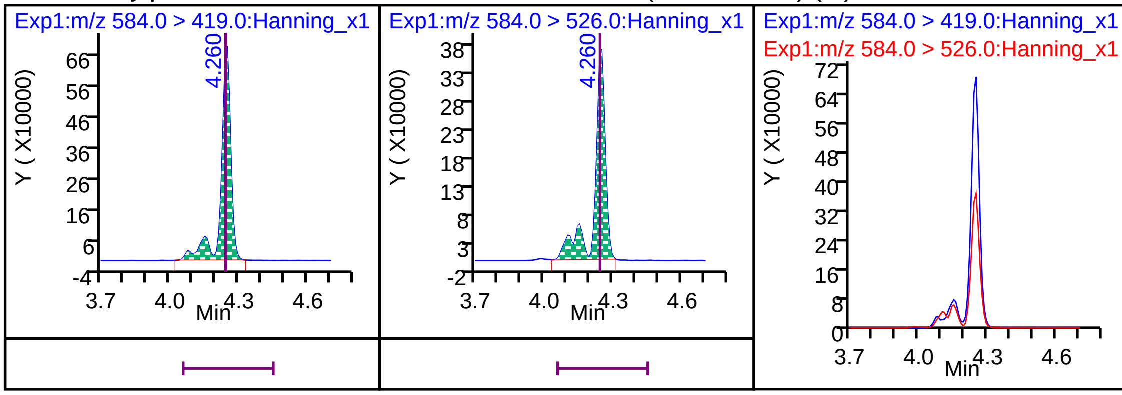
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



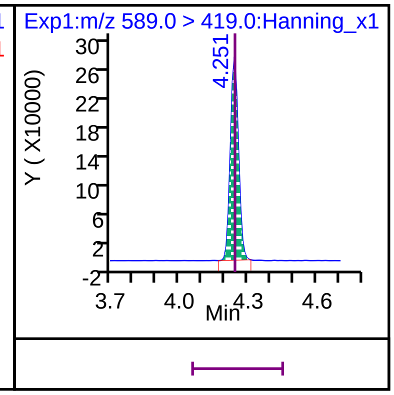
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



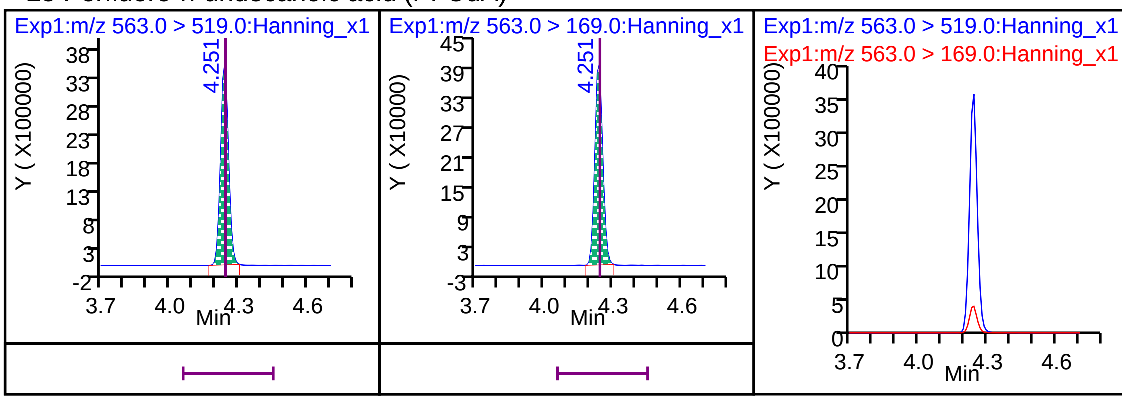
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)



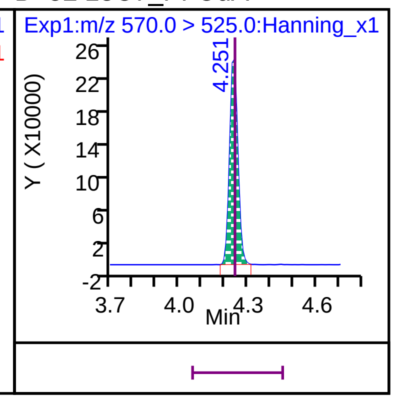
D 60 d5-EtFOSAA



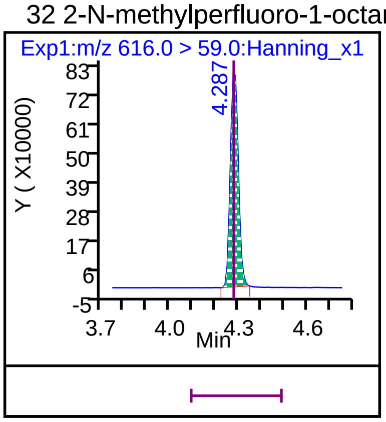
25 Perfluoro-n-undecanoic acid (PFUdA)



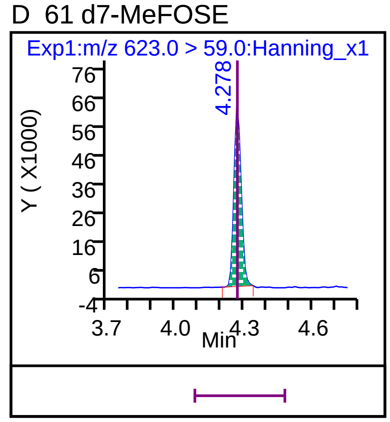
D 52 13C7_PFUdA



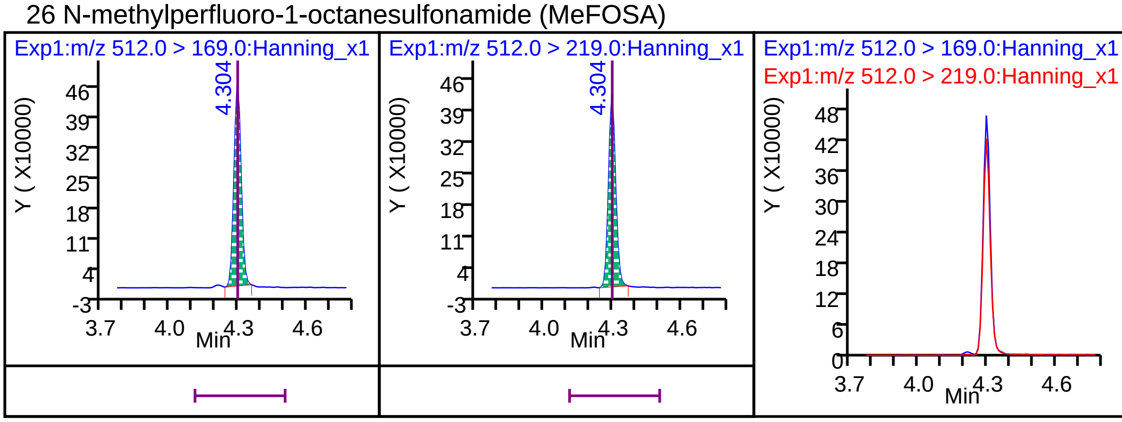
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



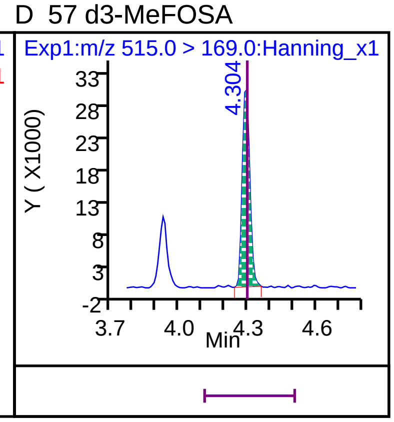
D 61 d7-MeFOSE



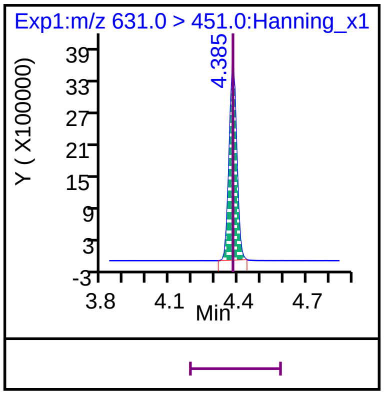
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)



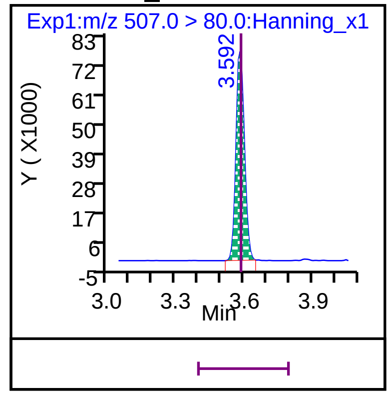
D 57 d3-MeFOSA



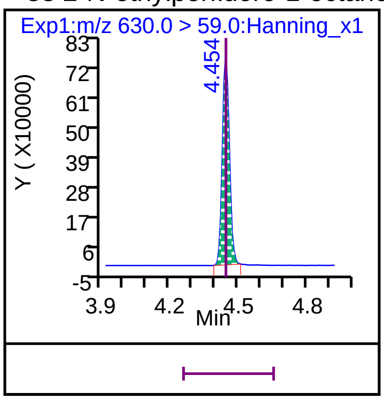
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



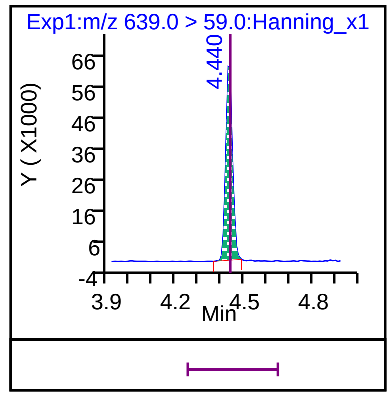
D 54 13C8_PFOS



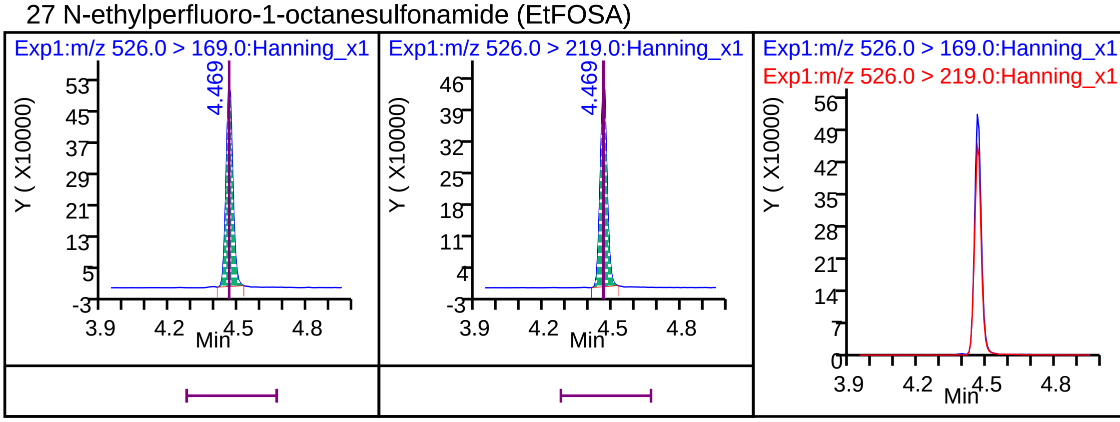
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



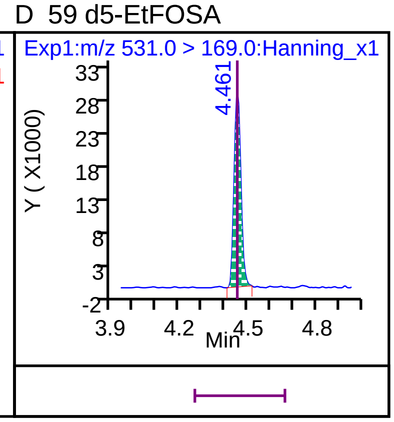
D 62 d9-EtFOSE



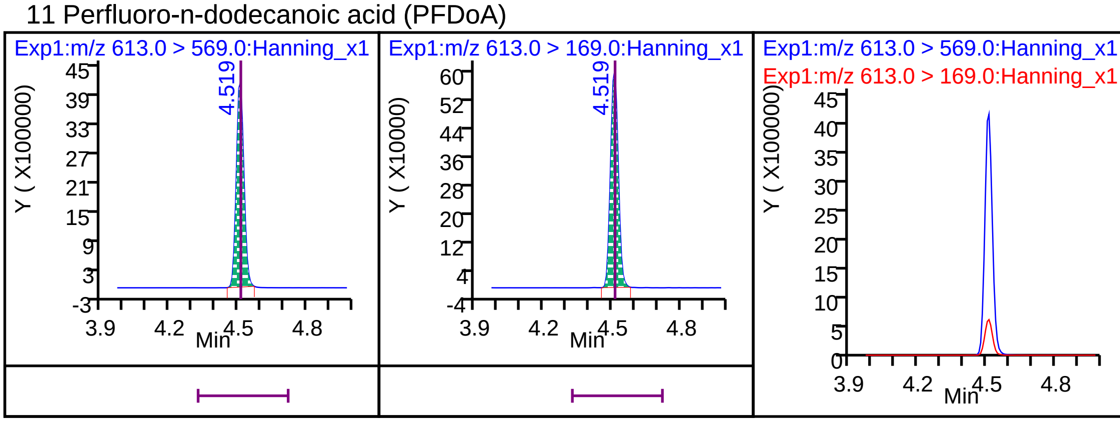
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



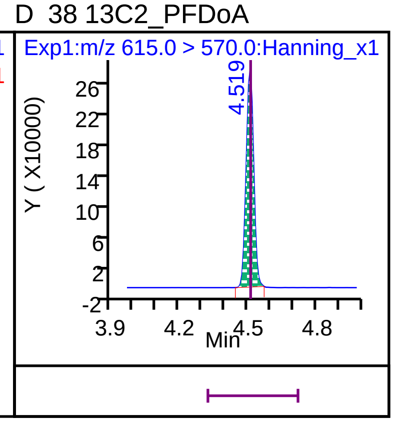
D 59 d5-EtFOSA



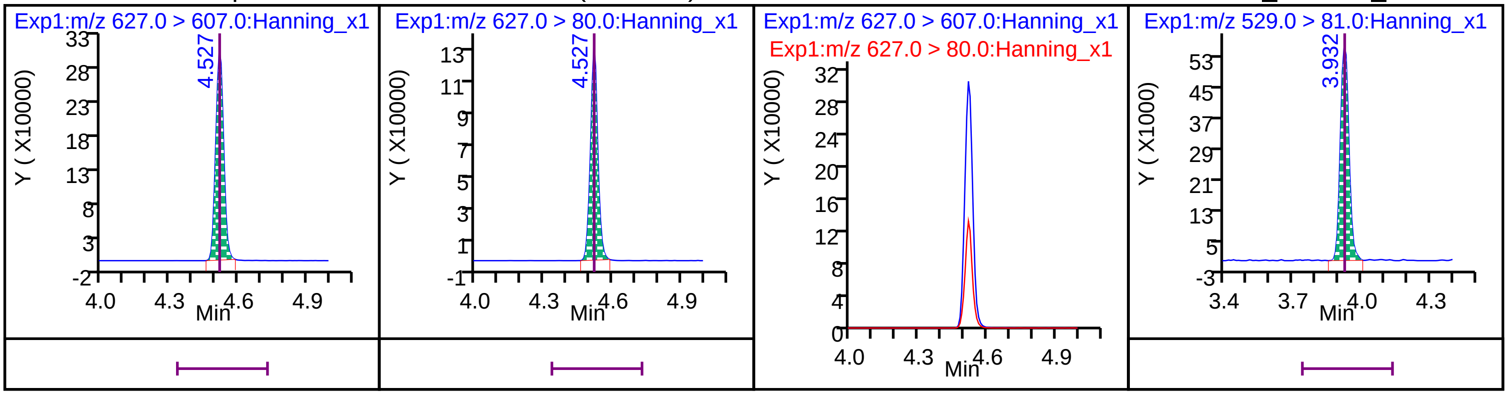
11 Perfluoro-n-dodecanoic acid (PFDoA)



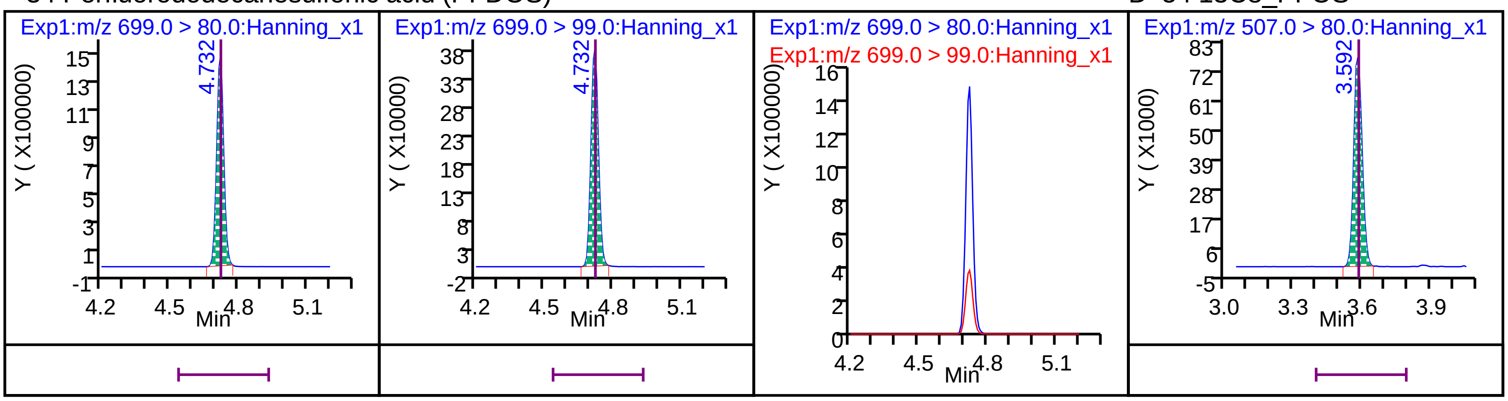
D 38 13C2_PFDoA



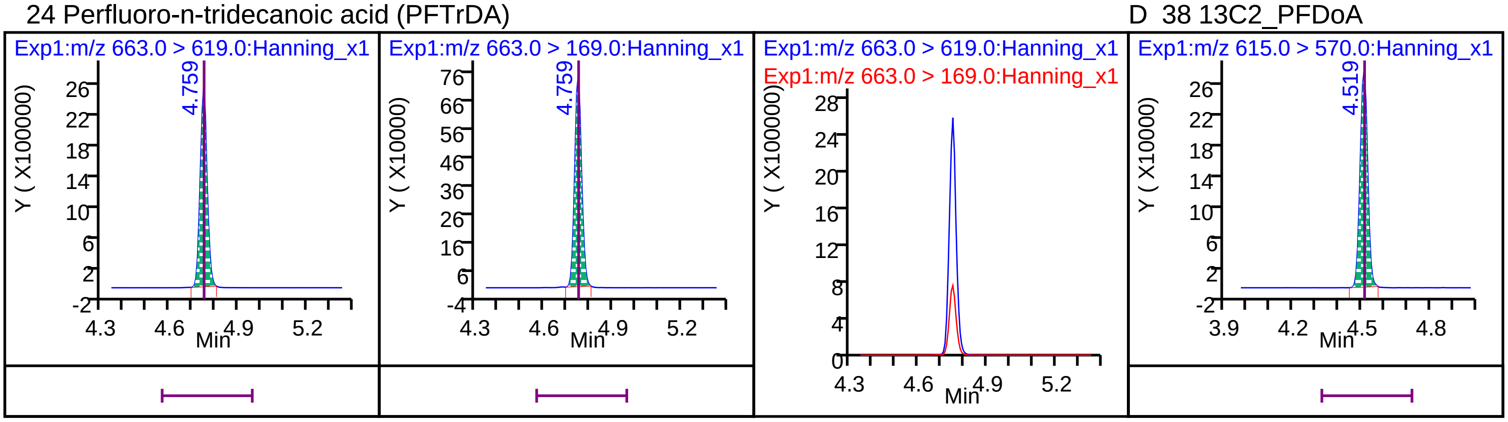
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



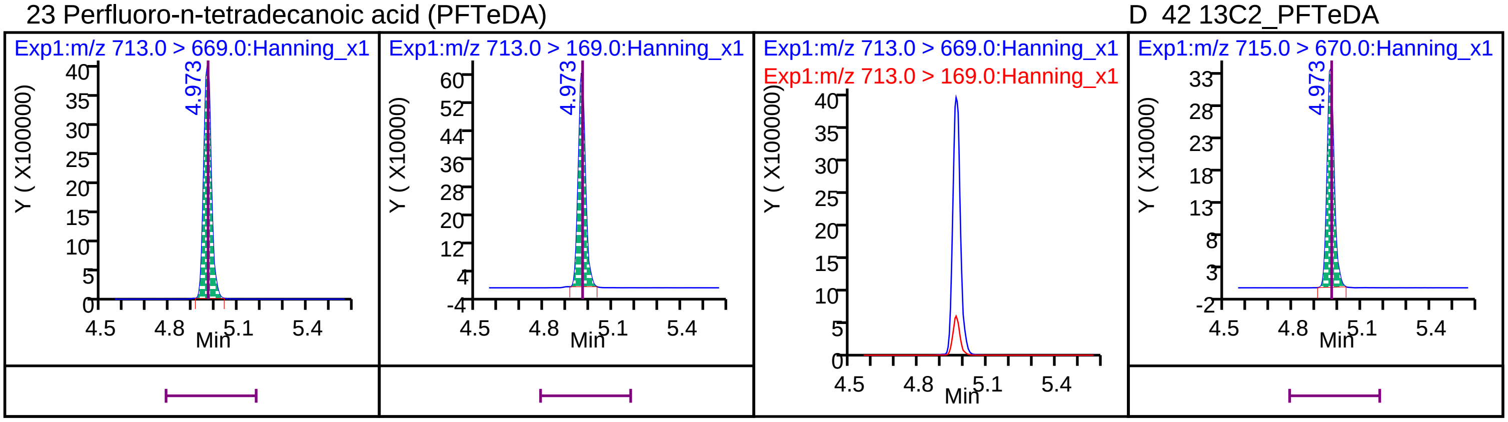
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



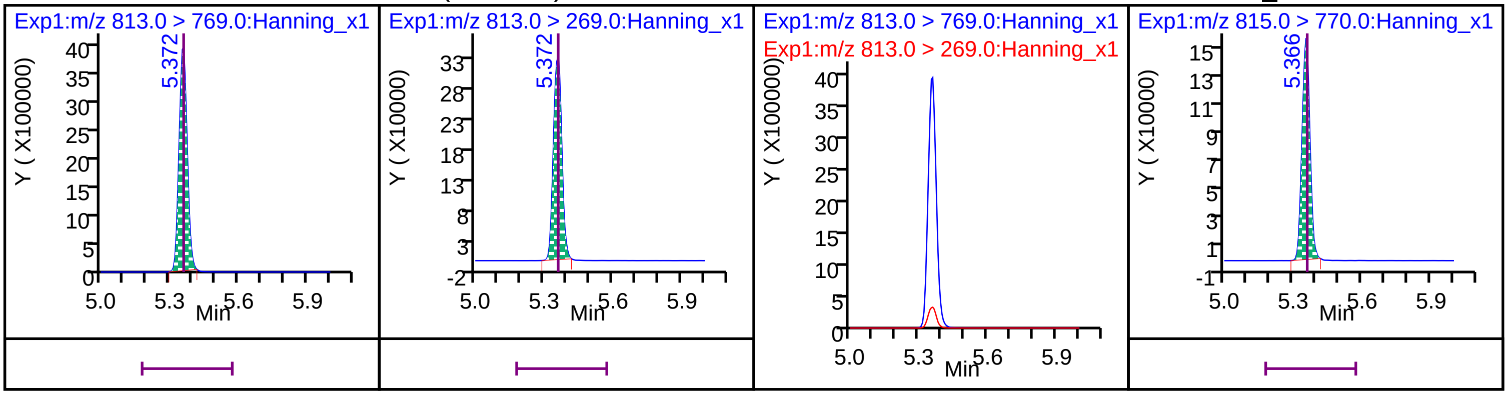
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



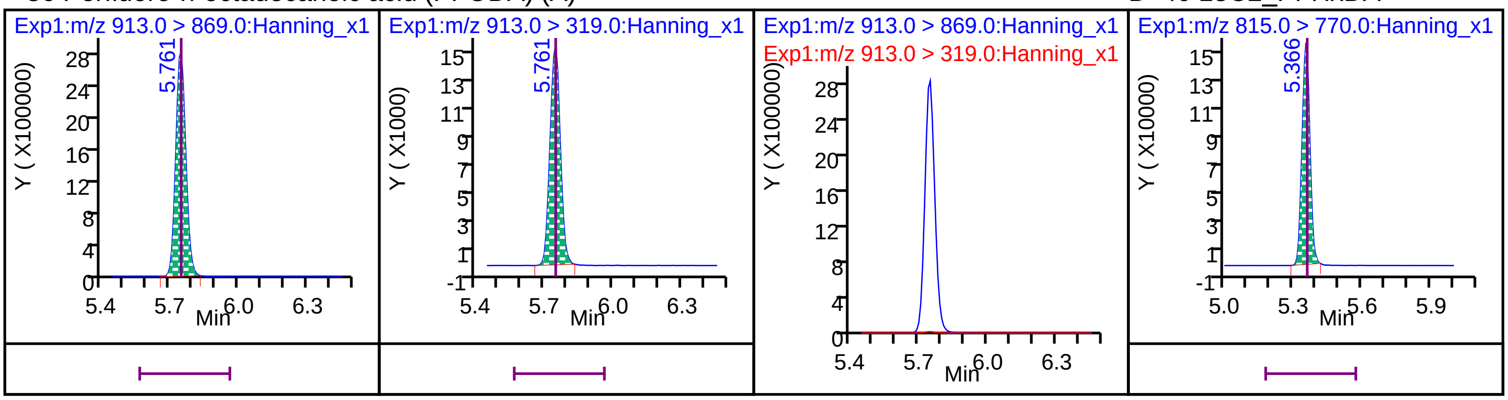
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



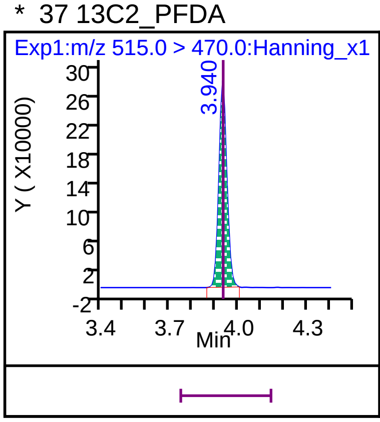
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



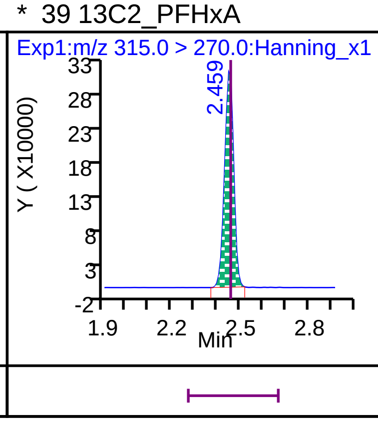
36 Perfluoro-n-octadecanoic acid (PFODA) (A) D 40 13C2_PFHxDA



* 37 13C2_PFDA



* 39 13C2_PFHxA



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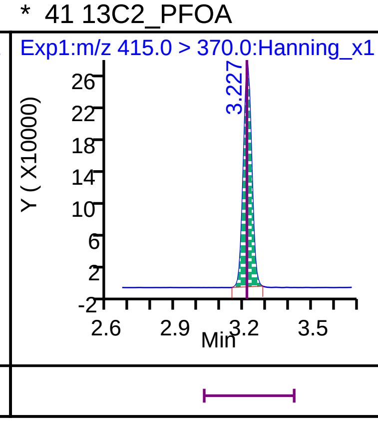

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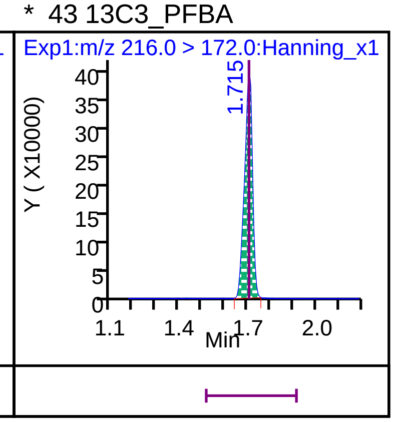
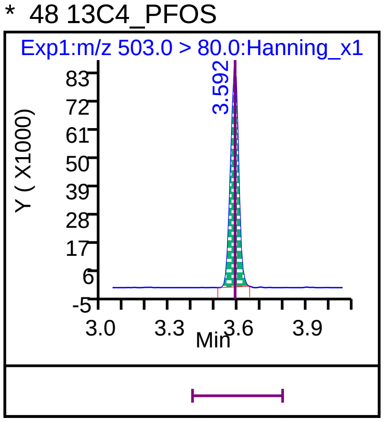


* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

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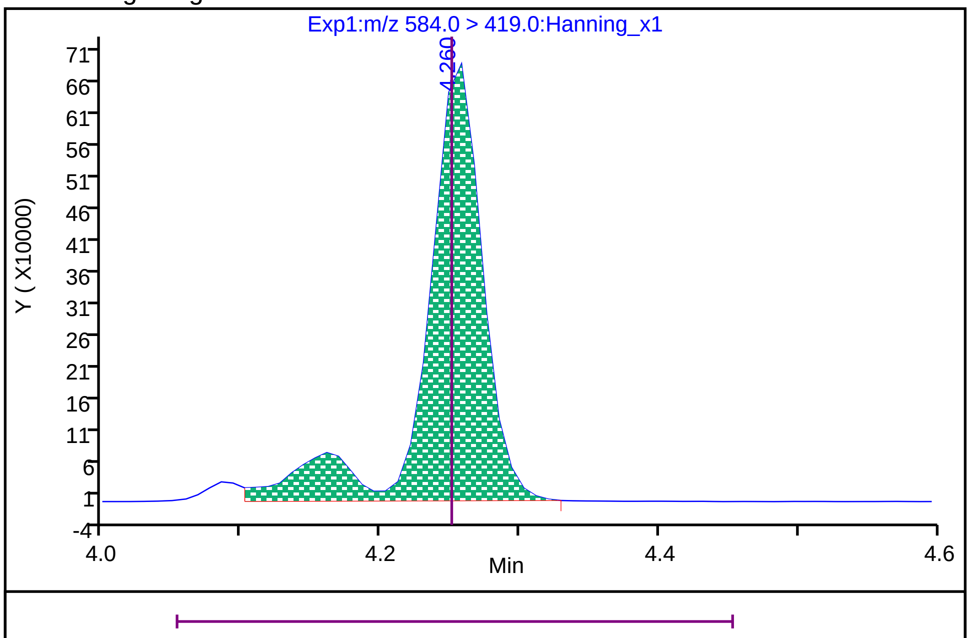
Client ID:		Lab ID:	ICAL 15000_SVLC-1646
Sample Info:	ICAL 15000_SVLC-1646		
Dil. Factor:	1	Operator:	Matthew M. Miller

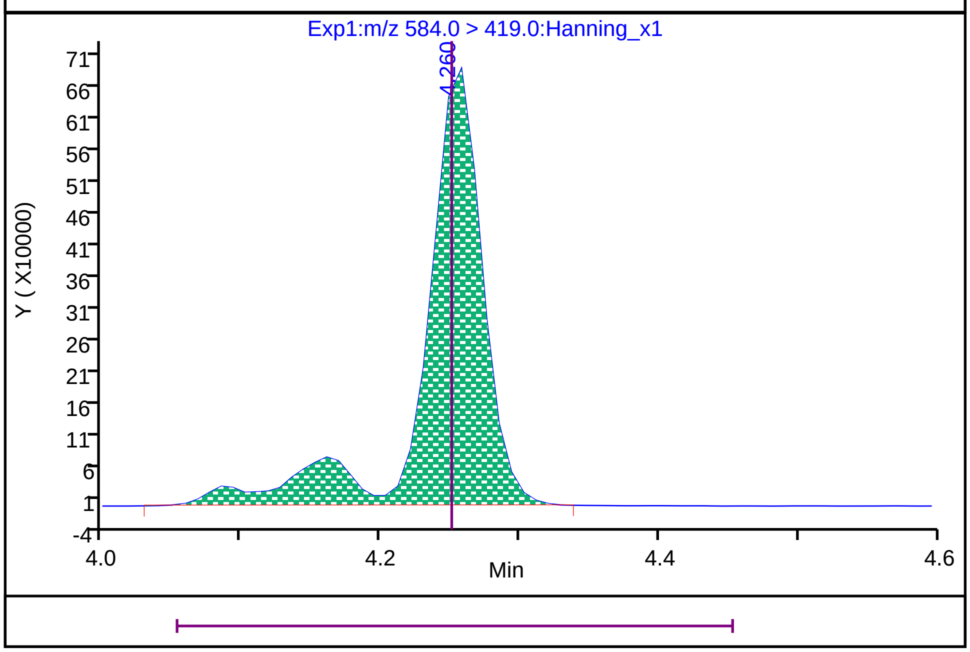
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.260
Area: 1931228
Amount: 14284
Amount Units: ng/L



RT: 4.260
Area: 1967922
Amount: 14529
Amount Units: ng/L



Data Editor: matthew.miller, 04-Nov-2021 15:56:54

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

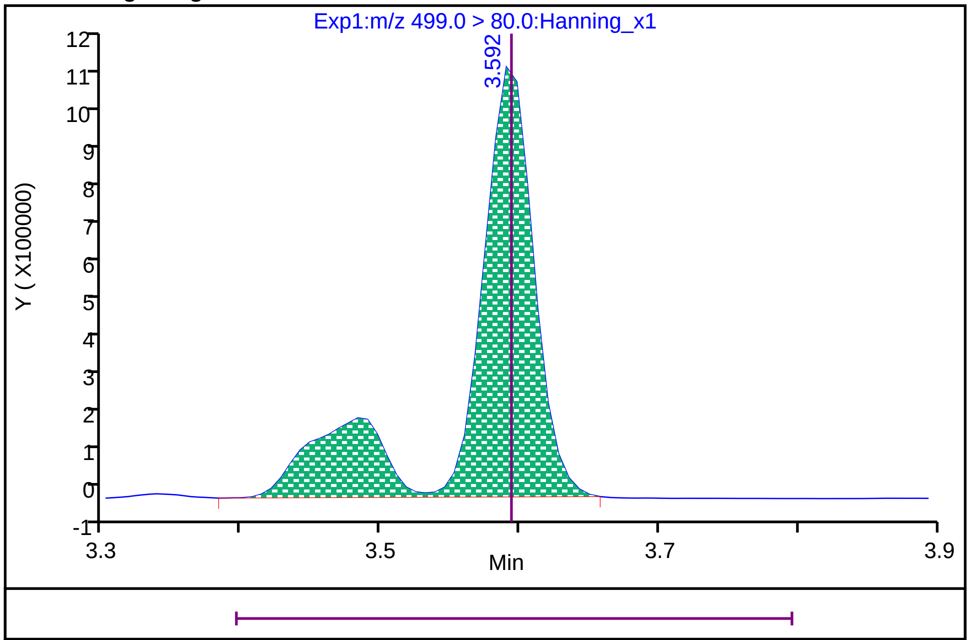
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A016.d		
Injection Date:	04-Nov-2021 15:12:55	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1646
Sample Info:	ICAL 15000_SVLC-1646		
Dil. Factor:	1	Operator:	Matthew M. Miller

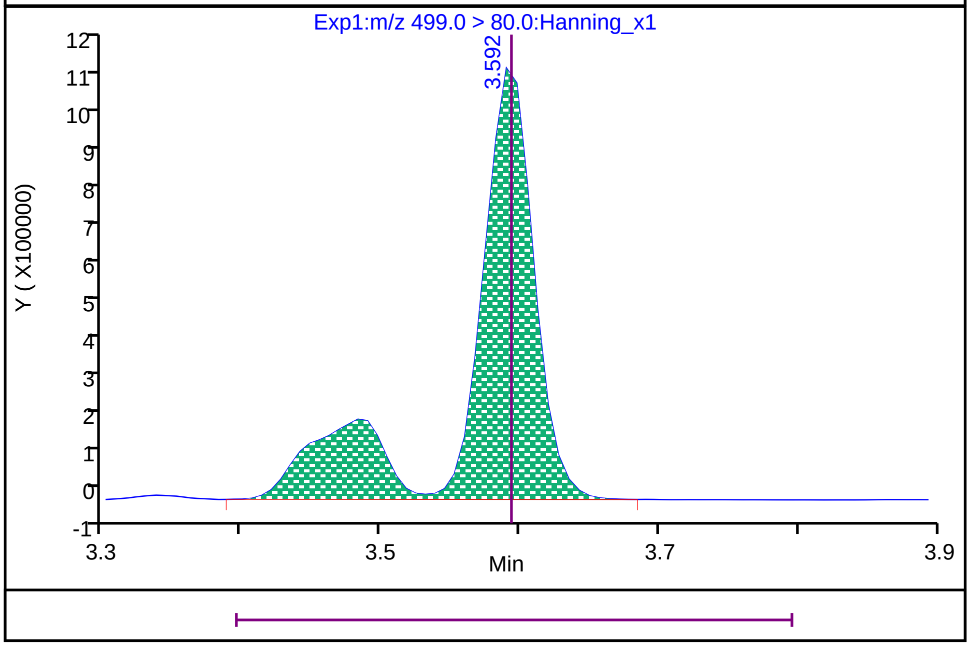
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.592
Area:	3385260
Amount:	14674
Amount Units:	ng/L



RT:	3.592
Area:	3420431
Amount:	14902
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:29

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A017.d		
Injection Date:	04-Nov-2021 15:23:27	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	86
Sample Info:	ICAL 20000_SVLC-1647	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	1054921	19	>100:1			1000.00	979.74	88.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/0	21318082	20	>100:1			20000	18374		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	982552	16	>100:1			1000.00	979.70	90.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	19981981	16	>100:1			20000	18981		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	325374	16	>100:1			1000.00	1001.86	89.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	7669343	15	>100:1	Target = 3.80		17680	16499		
298.9 > 99	44	2.141	2.141		2050505	15	>100:1	3.74 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	5959733	18	>100:1	Target = 3.42		18760	18204		
349 > 99	44	2.493	2.493		1768097	18	>100:1	3.37 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	222450	18	>100:1			5000.00	5355.47	102.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/0	1517794	18	>100:1	Target = 1.54		18680	17480		
327 > 81	63	2.424	2.415		932822	17	>100:1	1.62 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	871981	18	>100:1			1000.00	976.21	84.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	17320881	18	>100:1	Target = 17.93		20000	19224		
313 > 119	49	2.459	2.467		1026972	18	>100:1	16.86 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	745143	20	>100:1			5000.00	4548.57	84.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/1	4764218	19	>100:1	Target = 0.72		40000	41724		
285 > 185	66	2.579	2.587		6106993	19	>100:1	0.78 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	853888	17	>100:1			1000.00	974.54	86.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	15846747	18	>100:1	Target = 3.26		20000	19278		
363 > 169	47	2.846	2.846		5126931	18	>100:1	3.09 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	252717	19	>100:1			1000.00	963.54	85.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/0	5681831	27	>100:1	Target = 3.48	4.51	18200	19019		
399 > 99	45	2.864	2.863		1582890	24	>100:1	3.58 (1.74-5.22)	7.01				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	24975352	19	>100:1	Target = 2.31		18840	17955		
377 > 85	45	2.890	2.890		11441563	18	>100:1	2.18 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.229	1/0	5116228	22	>100:1	Target = 3.56		19040	19683		
449 > 99	45	3.234	3.229		1376935	22	>100:1	3.71 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.204	0	185608	23	>100:1			5000.00	4921.84	95.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.202	3.204	0/0	1218292	22	>100:1	Target = 1.34		18960	18875		
427 > 81	64	3.202	3.204		879425	21	>100:1	1.38 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.223	1	785986	22	>100:1			1000.00	950.41	85.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.229	1/0	15377002	22	>100:1	Target = 2.50		20000	19014		
413 > 169	53	3.227	3.229		6482021	22	>100:1	2.37 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.592	3.595	0	225479	20	>100:1			1000.00	1004.45	91.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.595	0/0	5004799	45	>100:1	Target = 4.01	3.24	18560	18829		M
499 > 99	54	3.592	3.595		1228549	36	>100:1	4.07 (2.00-6.02)	6.88				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.797	3.799	0/0	12989877	19	>100:1			18640	18641		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.932	3.926	1/1	4193938	17	>100:1	Target = 3.78		19200	18416		
549 > 99	54	3.932	3.926		1144186	18	>100:1	3.66 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.233	4.226	1/1	4079746	16	>100:1	Target = 3.98		19280	18327		
599 > 99	54	4.233	4.226		1067941	15	>100:1	3.82 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.385	4.386	0/0	12256122	15	>100:1			18840	19567		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.733	0/0	4412393	17	>100:1	Target = 3.68		19360	20206		
699 > 99	54	4.732	4.733		1190205	18	>100:1	3.70 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	728753	19	>100:1			1000.00	912.07	72.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/0	13279512	19	>100:1	Target = 4.69		20000	20011		
463 > 169	56	3.599	3.595		3072673	19	>100:1	4.32 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.879	3.873	1	408510	19	>100:1			1000.00	986.28	95.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.879	3.873	1/0	9370163	19	>100:1	Target = 40.85		20000	20286		
498>478	55	3.879	3.873		212004	18	>100:1	44.19 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	148948	21	>100:1			5000.00	4745.76	97	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.940	3.934	1/1	960151	20	>100:1	Target = 1.58		19160	18142		
527 > 81	65	3.932	3.934		630780	19	>100:1	1.52 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.527	4.528	0/0	1041427	19		Target = 2.46		19280	19603		
627 > 80	65	4.527	4.528		437164	18	>100:1	2.38 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.948	3.942	1	690950	18	>100:1			1000.00	957.26	88	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.948	3.942	1/0	13610125	18	>100:1	Target = 9.77		20000	19197		
513 > 169	51	3.948	3.942		1431402	17	>100:1	9.50 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	950401	17	>100:1			5000.00	5360.02	105.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.105	4.098	1/1	2916466	32	>100:1	Target = 1.41	7.76	20000	18766		
570 > 483	58	4.105	4.098		2096279	33	>100:1	1.39 (0.70-2.11)	4.12				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.251	4.253	0	599285	16	>100:1			1000.00	876.89	81.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.251	4.253	0/0	10665676	17	>100:1	Target = 9.19		20000	19838		
563 > 169	52	4.251	4.253		1173404	16	>100:1	9.08 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.251	4.253	0	653444	16	>100:1			5000.00	4369.96	83.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.260	4.253	1/1	2873239	32	>100:1	Target = 1.75	5.39	20000	21508		
584 > 526	60	4.260	4.253		1717020	41	>100:1	1.67 (0.87-2.63)	3.09				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.280	1	147673	15	>100:1			1000.00	1070.20	110.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.295	4.288	1/0	2900622	14	>100:1			20000	19327		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.306	0	74834	14	>100:1			1000.00	1068.74	103	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.306	0/0	1444613	14	>100:1	Target = 1.11		20000	18642		
512 > 219	57	4.304	4.306		1280088	15	>100:1	1.12 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.447	4.448	0	130819	17	>100:1			1000.00	1017.62	101.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.456	0/0	2265431	17	>100:1			20000	20345		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.463	0	71059	22	>100:1			1000.00	1103.31	108.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.476	4.470	1/1	1477018	16	>100:1	Target = 1.06		20000	17779		
526 > 219	59	4.476	4.470		1326011	17	>100:1	1.11 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	707078	19	>100:1			1000.00	1028.27	94.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.521	0/0	12799056	19	>100:1	Target = 6.38		20000	18431		
613 > 169	38	4.519	4.521		2110056	17	>100:1	6.06 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.760	0/0	7679290	18	>100:1	Target = 3.23		20000	20266		
663 > 169	38	4.759	4.760		2180323	18	>100:1	3.52 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	791355	25	>100:1			1000.00	1012.28	87.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.978	0/0	13109630	26	>100:1	Target = 7.33		20000	18850		
713 > 169	42	4.973	4.978		1850871	24	>100:1	7.08 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	397891	21	>100:1			1000.00	1019.24	98.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	13388957	21	>100:1	Target = 12.31		20000	17591		
813 > 269	40	5.366	5.372		1119949	21	>100:1	11.95 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	5.761	5.761	1/1	12153978	21	>100:1	Target = 165.31		20000	20233		
913 > 319	40	5.753	5.761		61272	21	>100:1	198.36 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.948	3.942	1	719157	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	901844	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.223	1	808687	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	996709	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.592	3.595	0	232050	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

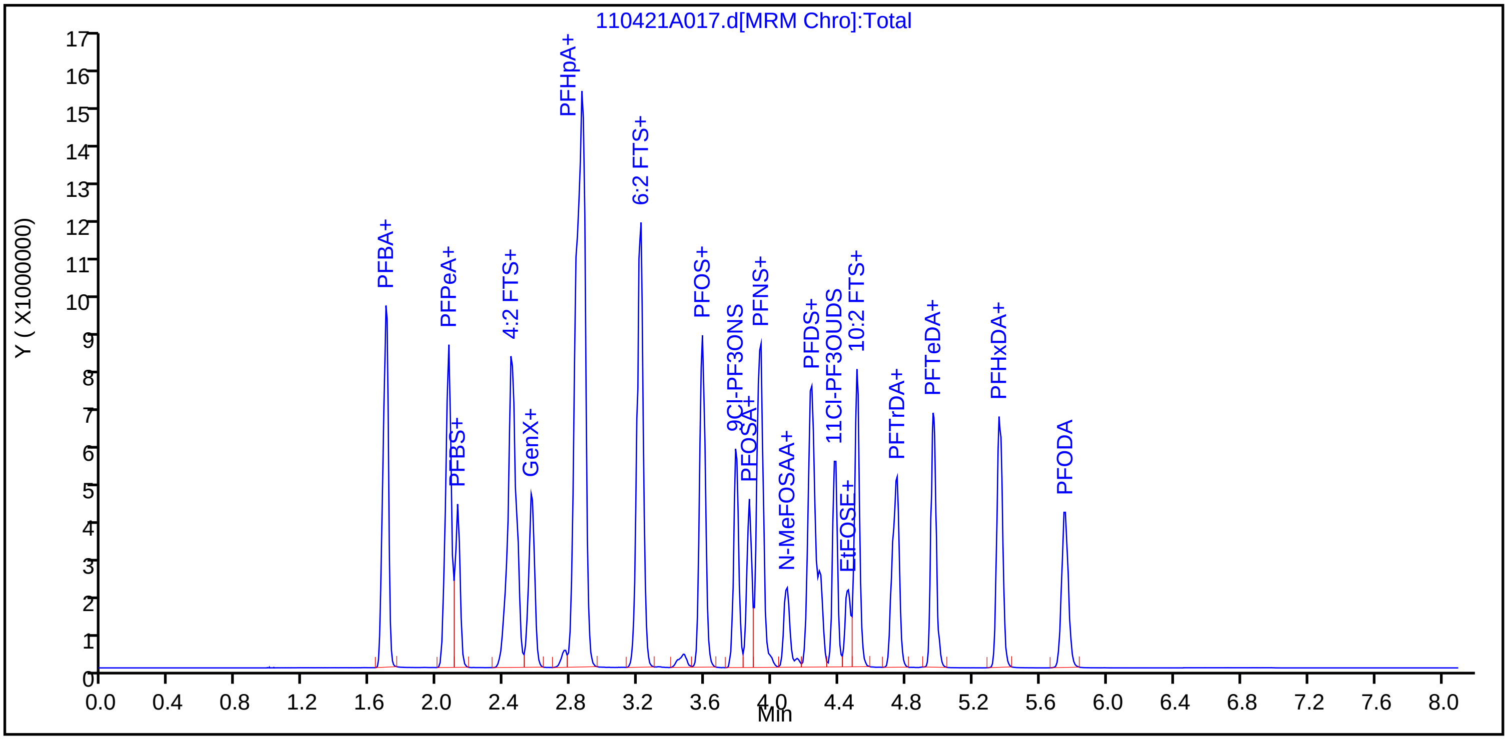
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

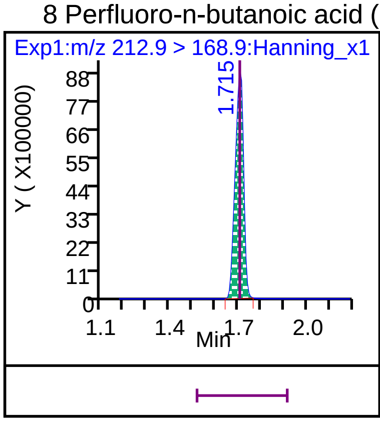
Report Date: 05-Nov-2021 13:58:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

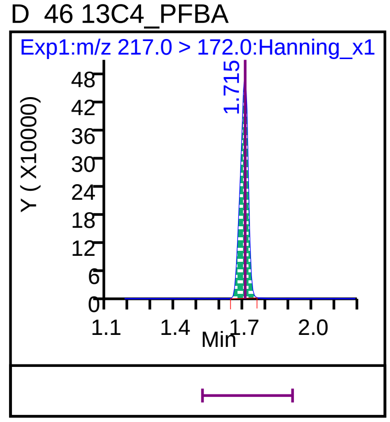
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A017.d		
Injection Date:	04-Nov-2021 15:23:27	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 20000_SVLC-1647
Sample Info:	ICAL 20000_SVLC-1647		
Dil. Factor:	1	Operator:	Matthew M. Miller



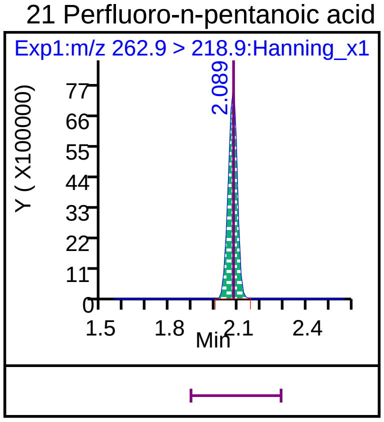
8 Perfluoro-n-butanoic acid (PFBA)



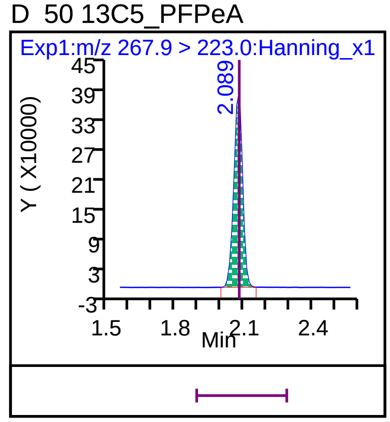
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

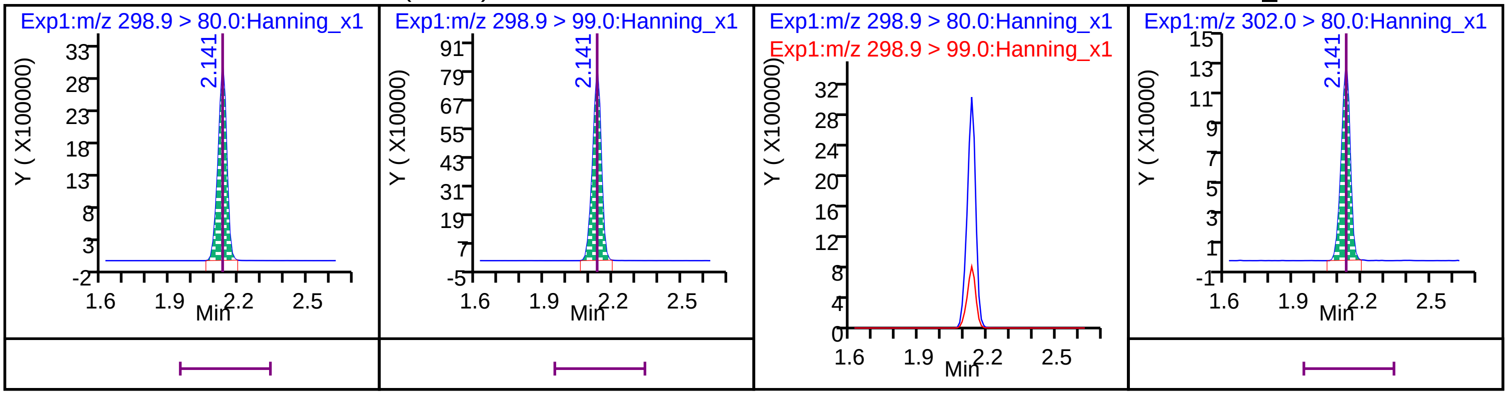


D 50 13C5_PFPeA

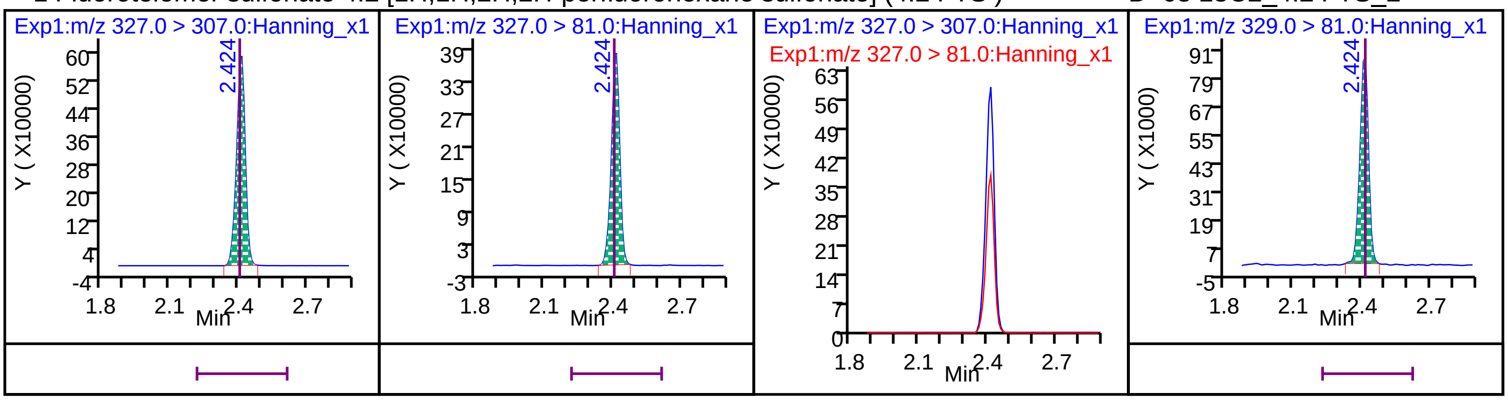


Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A017.d

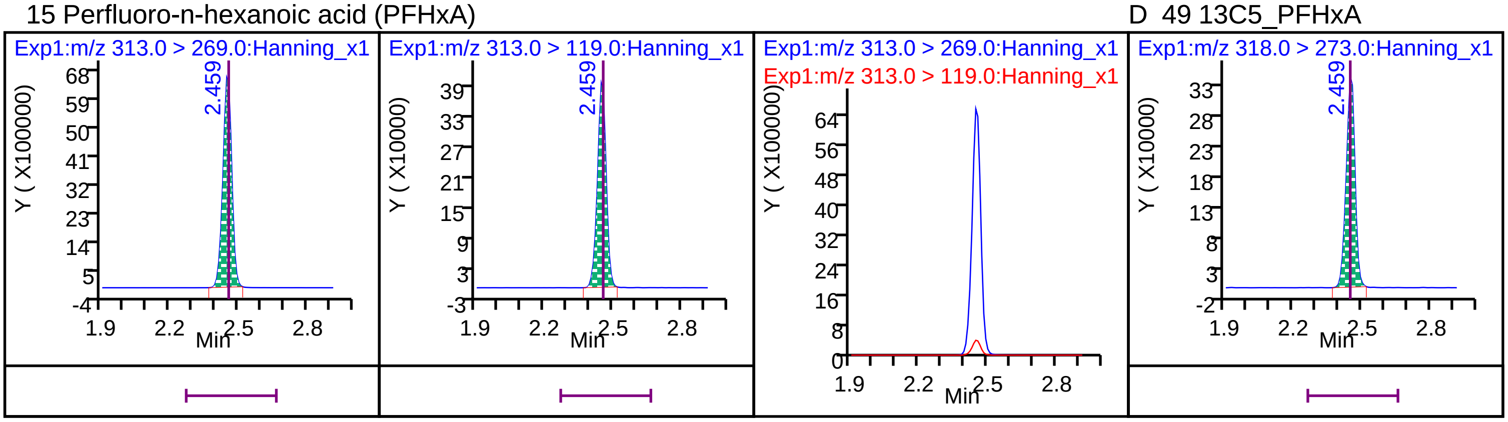
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



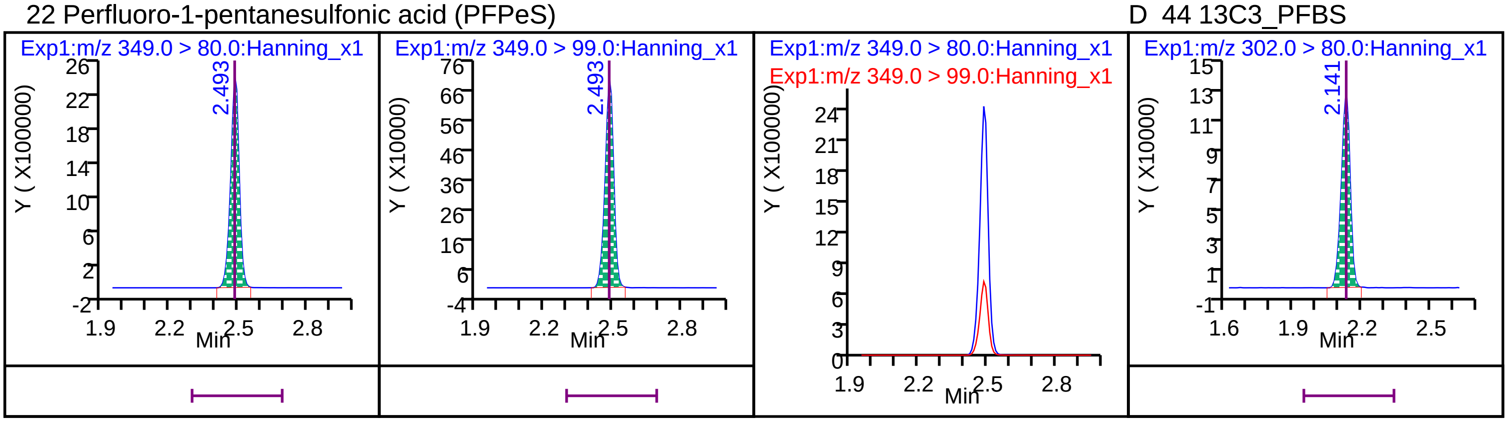
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



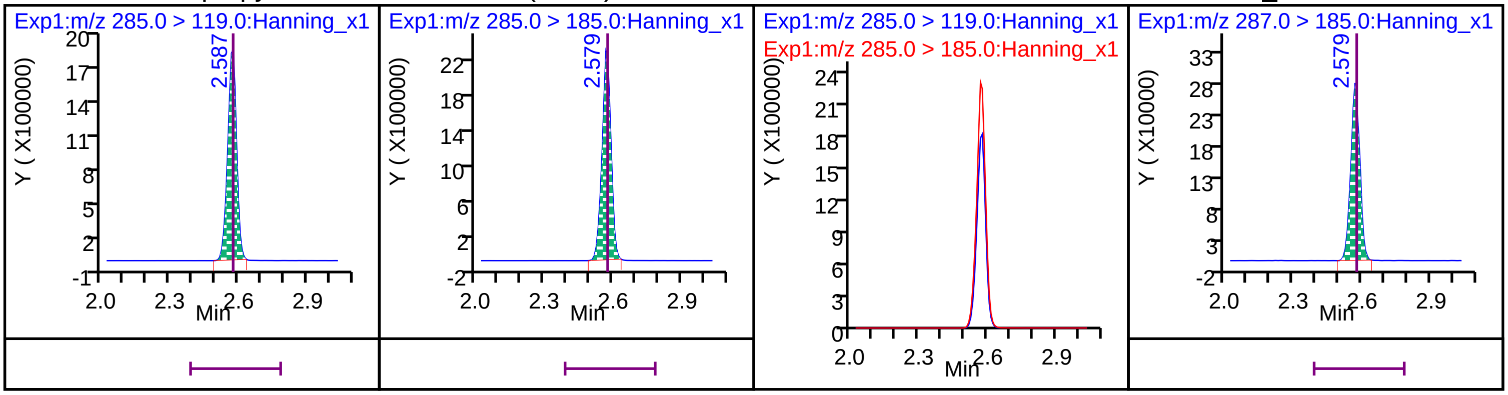
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



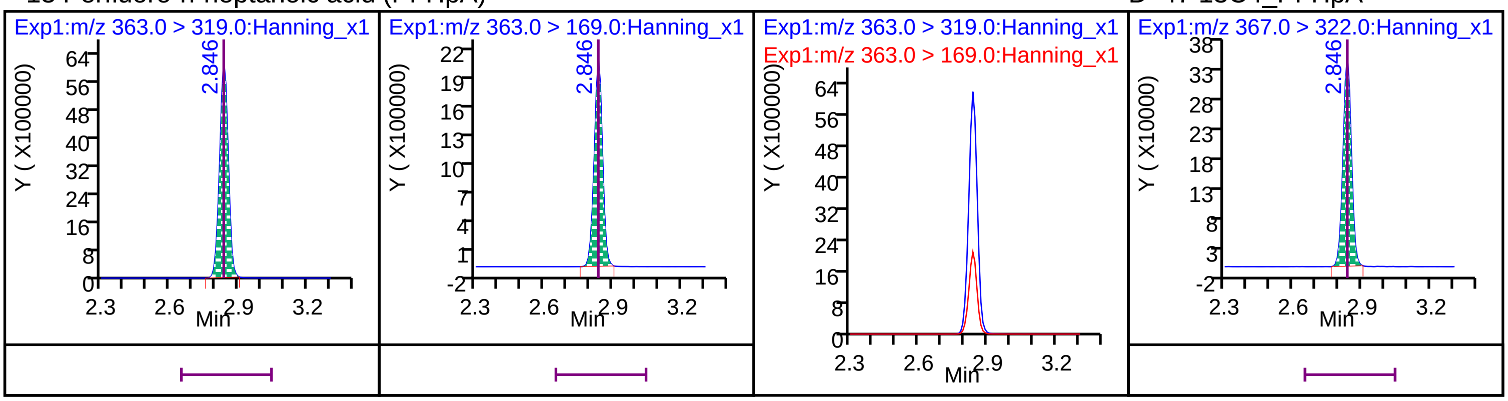
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



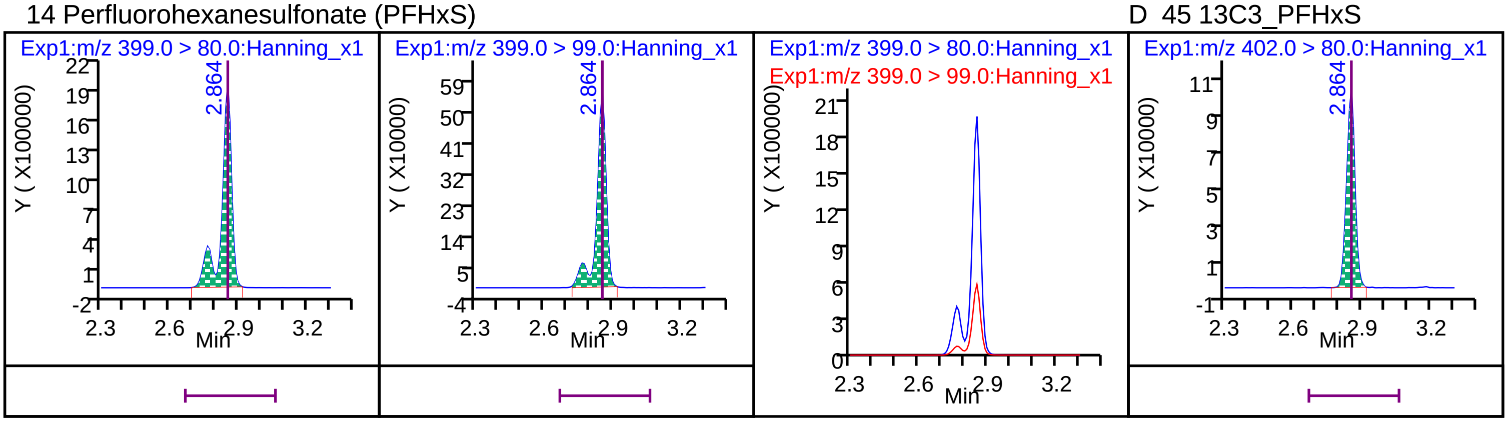
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



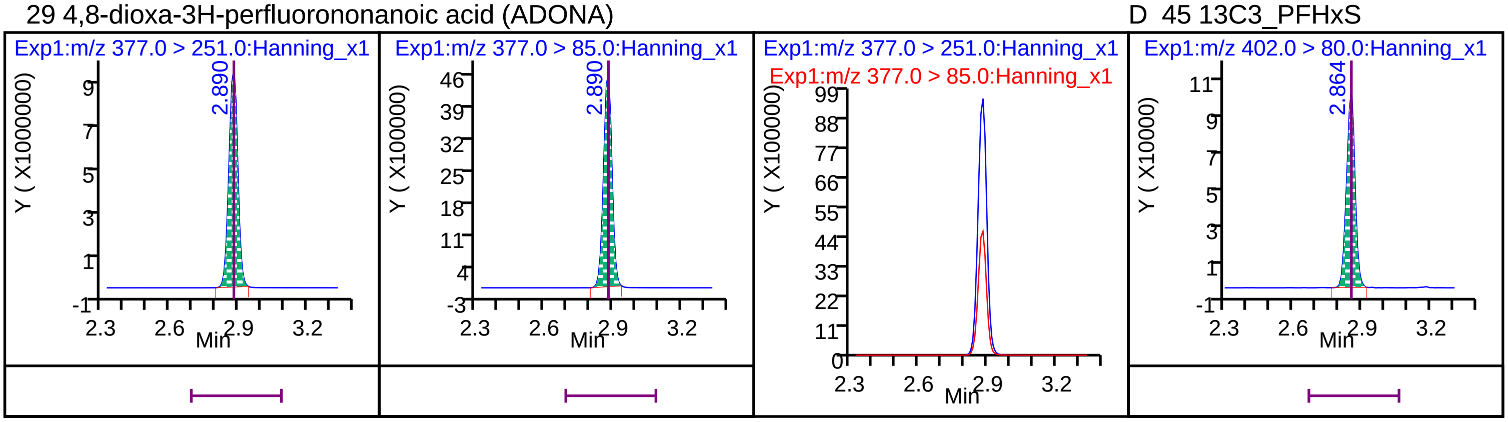
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



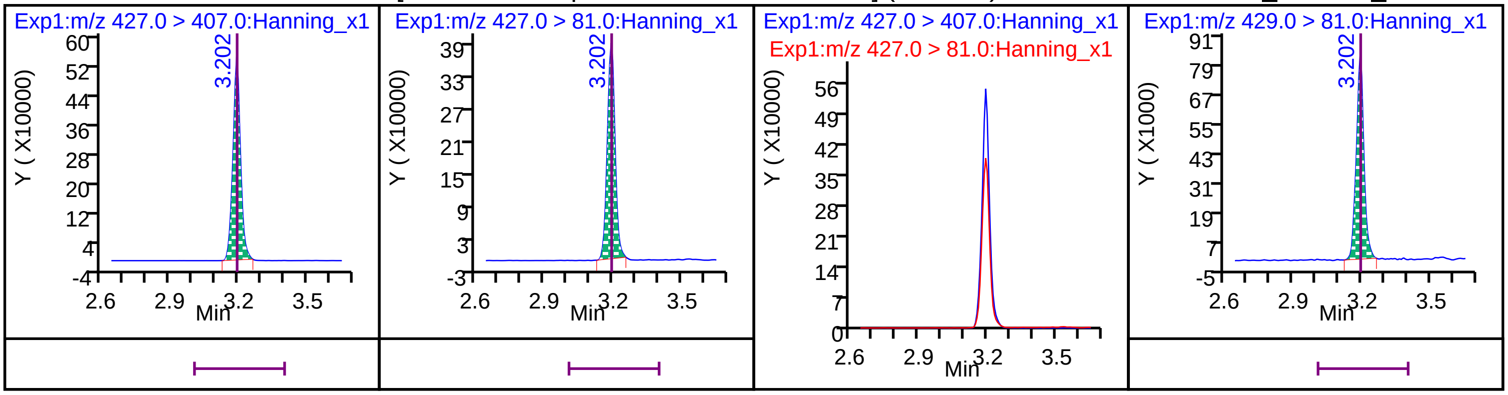
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



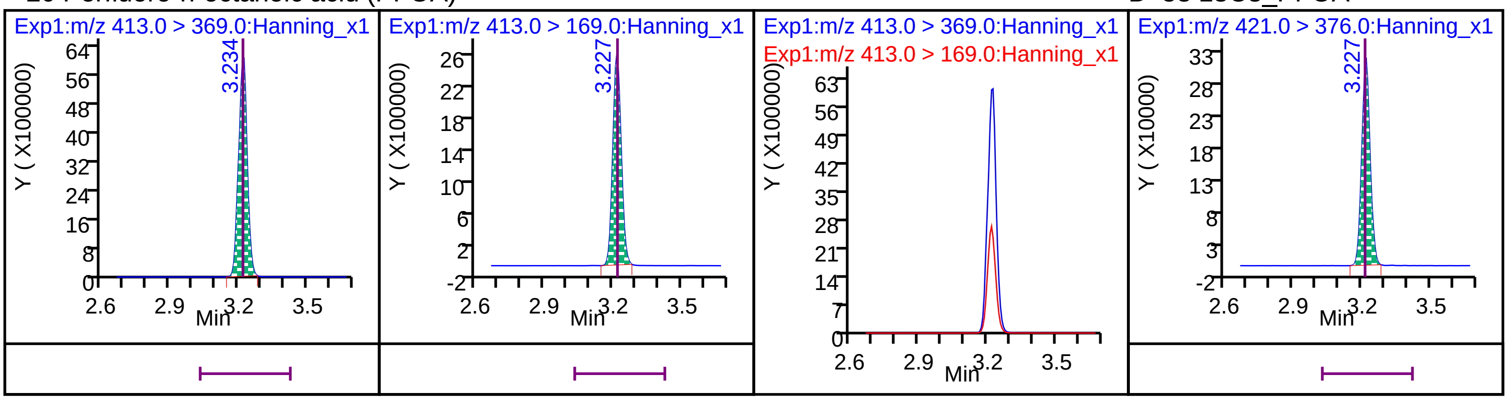
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



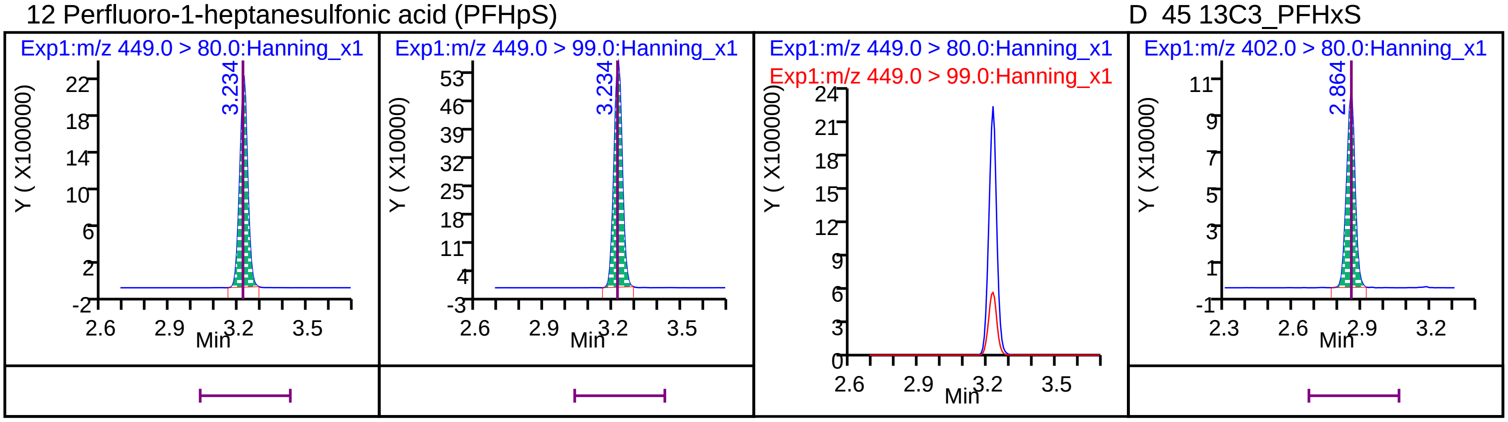
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



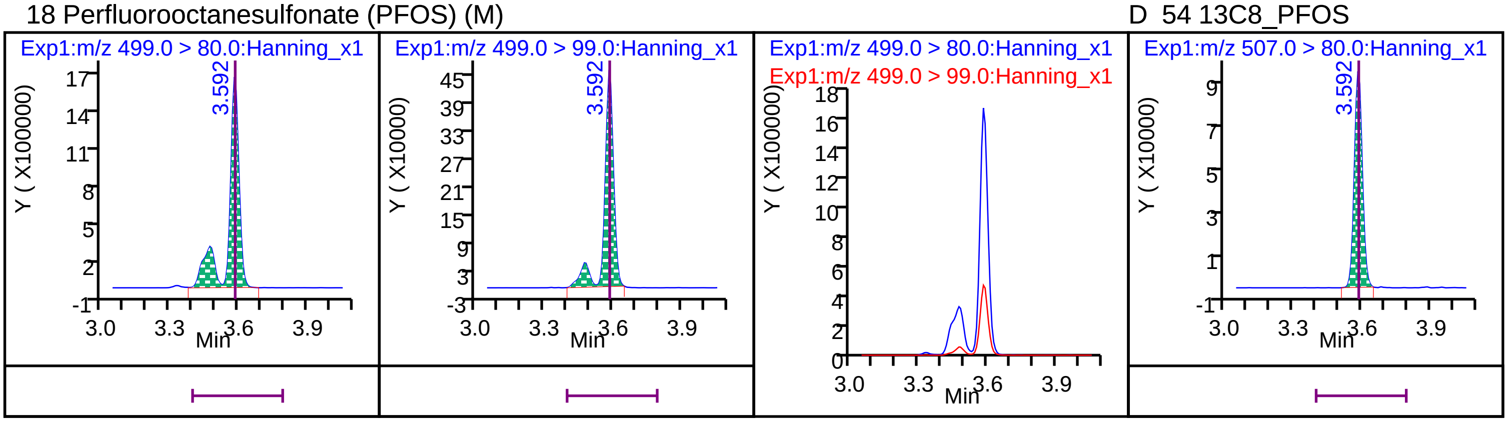
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



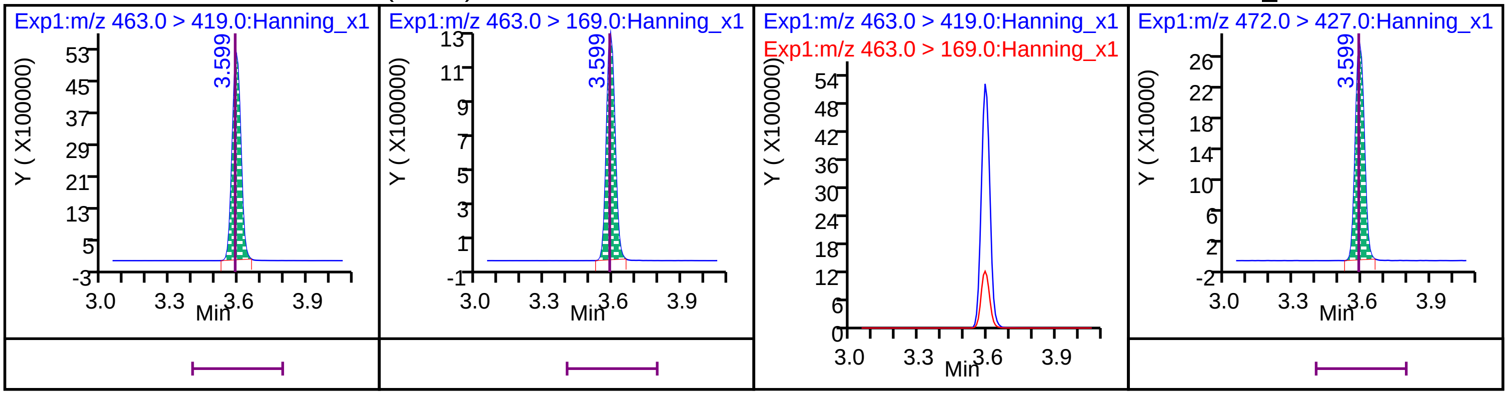
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



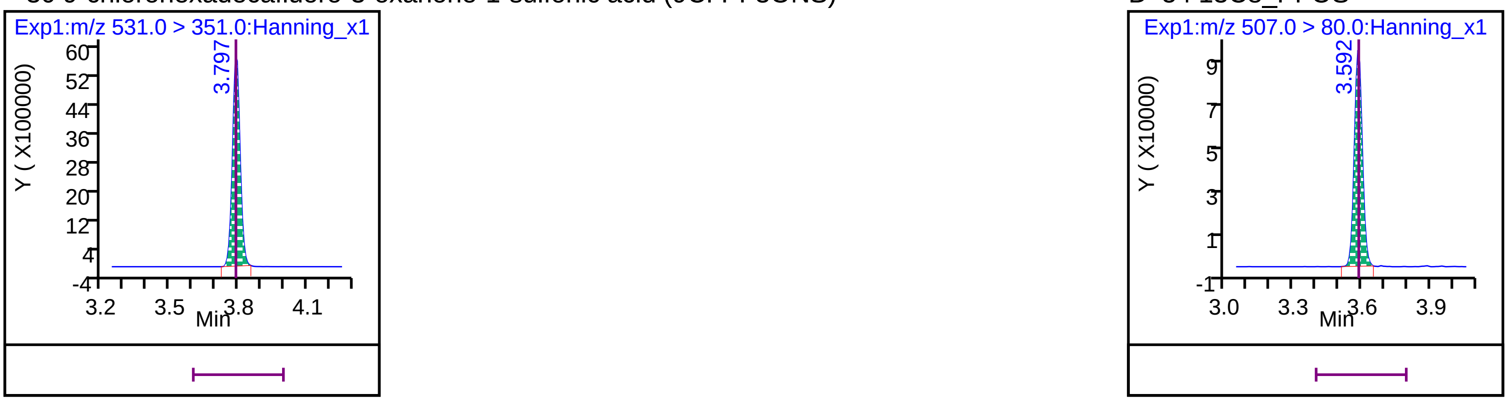
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



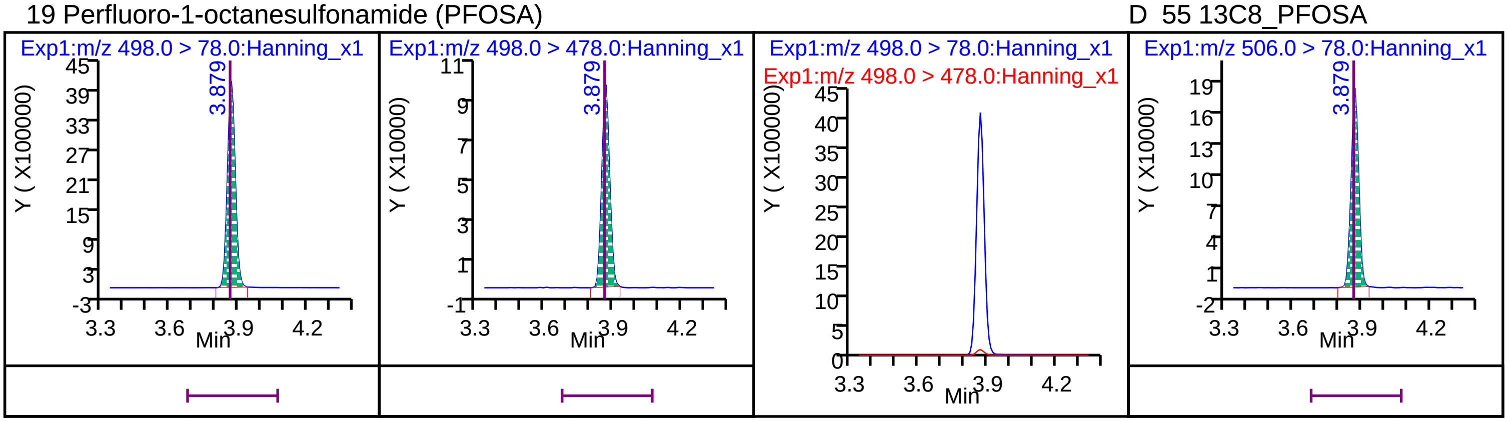
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



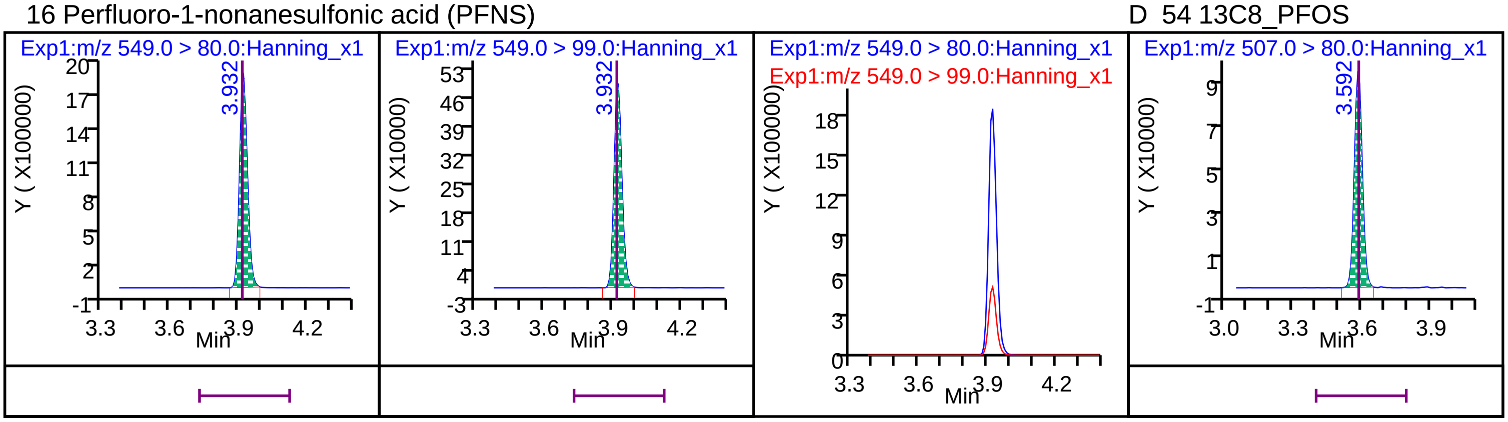
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



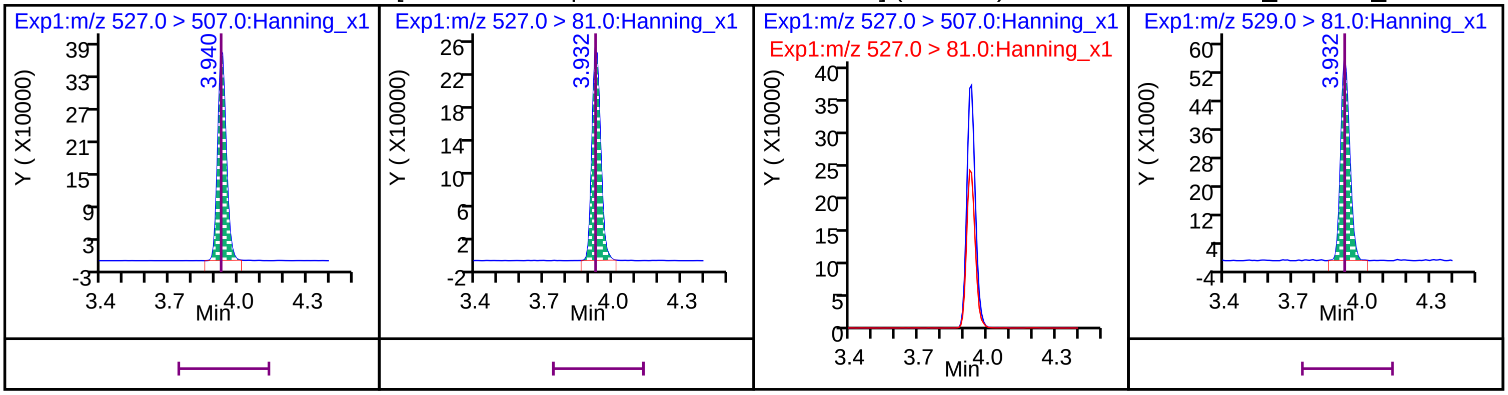
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



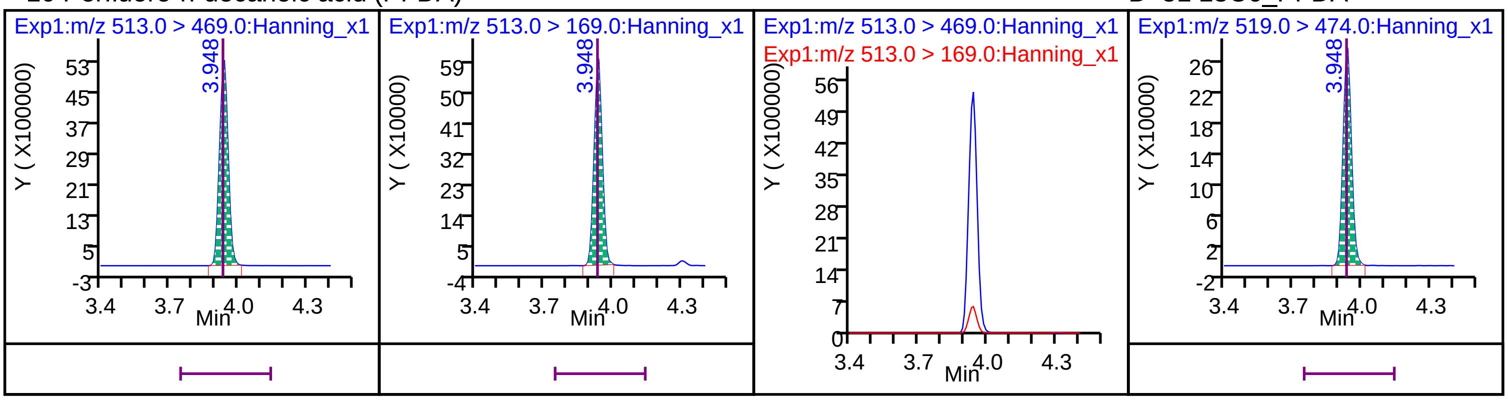
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



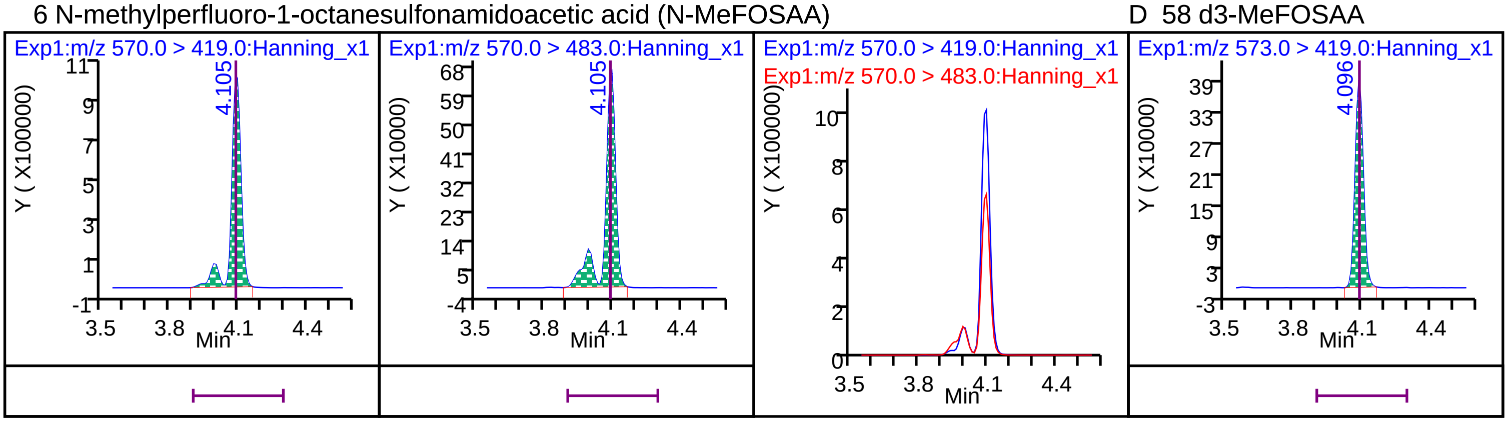
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



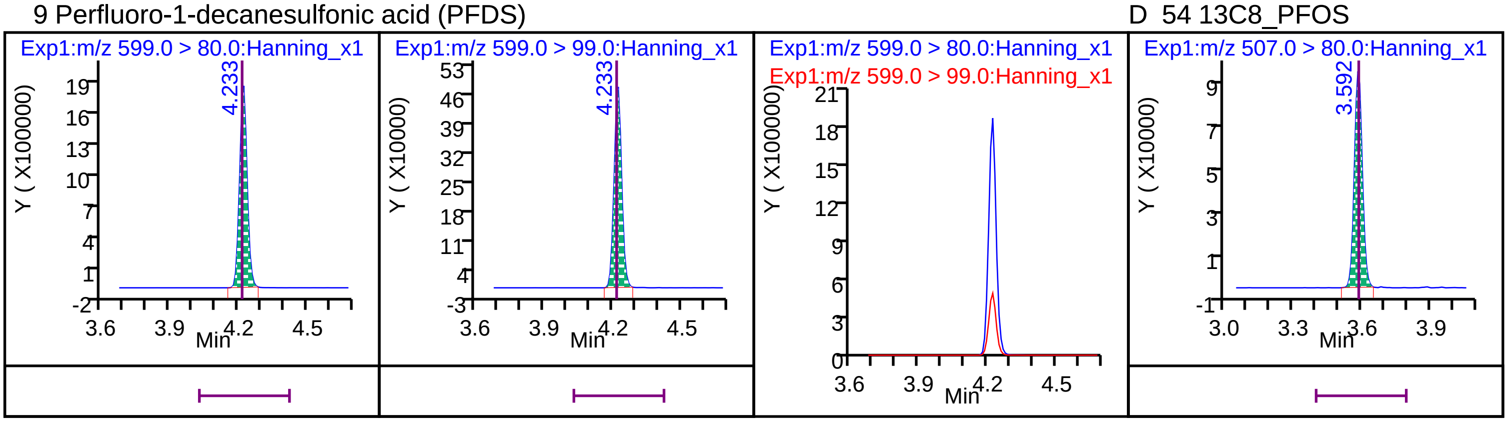
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



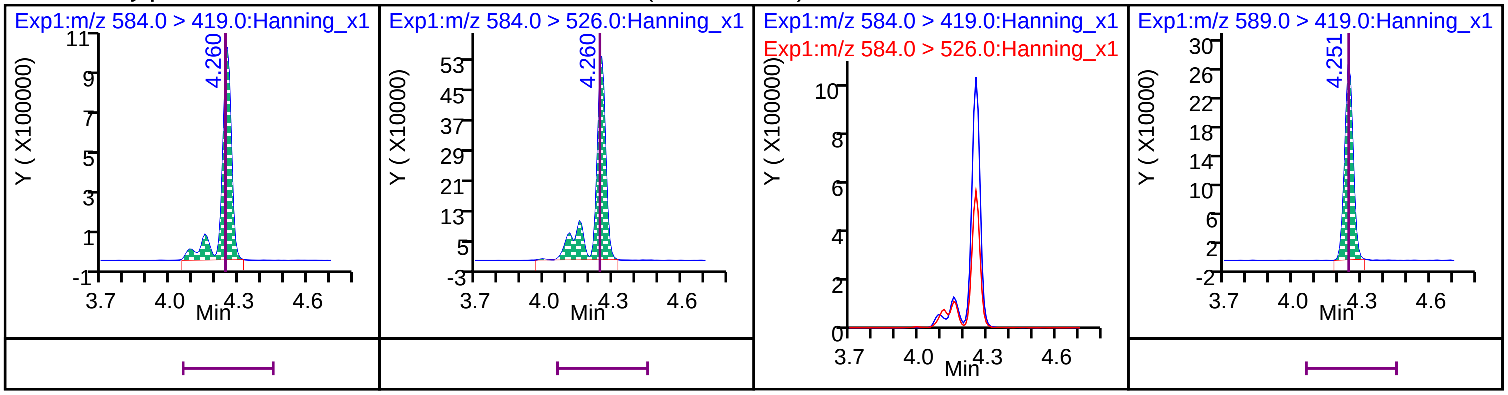
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



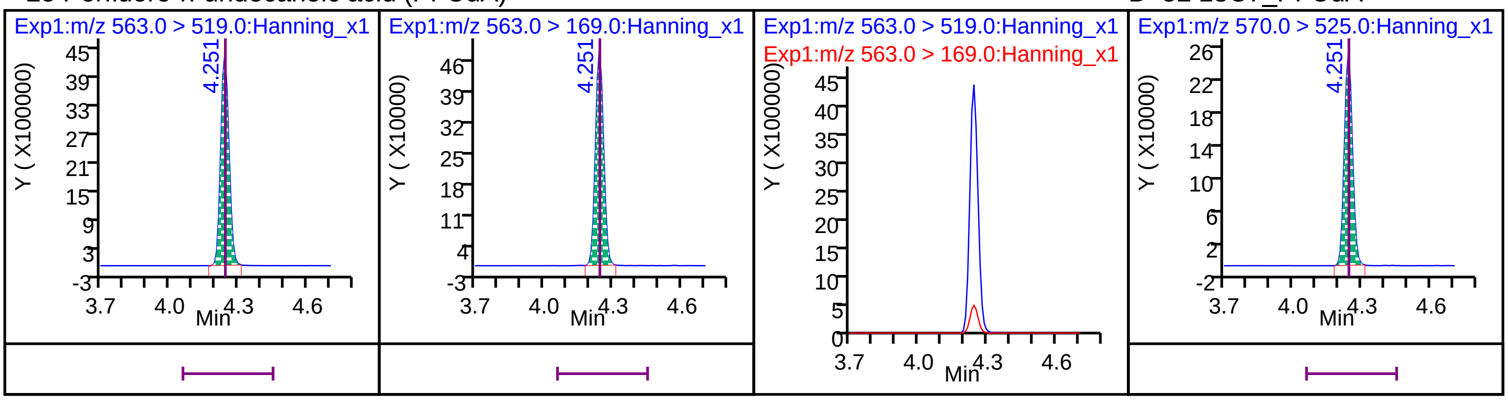
Report Date: 05-Nov-2021 13:58:28 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A017.d

5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

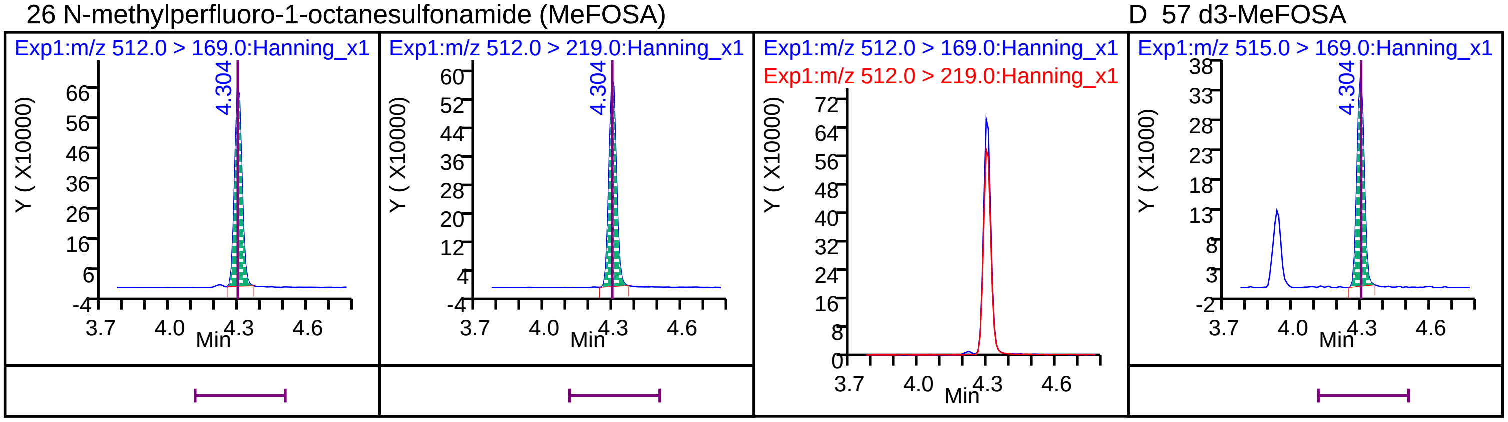


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

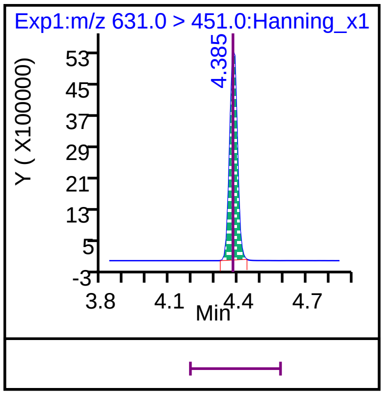


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

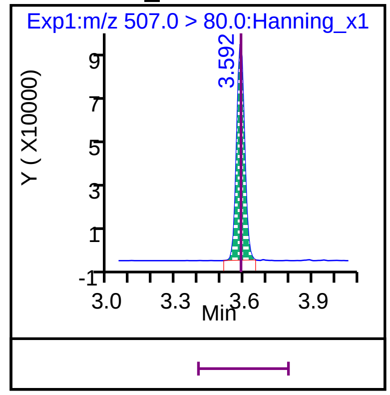
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



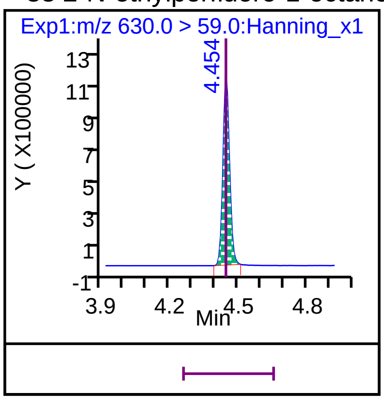
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



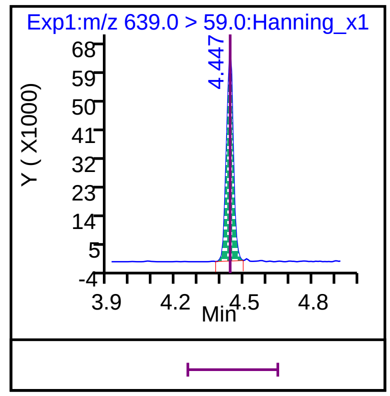
D 54 13C8_PFOS



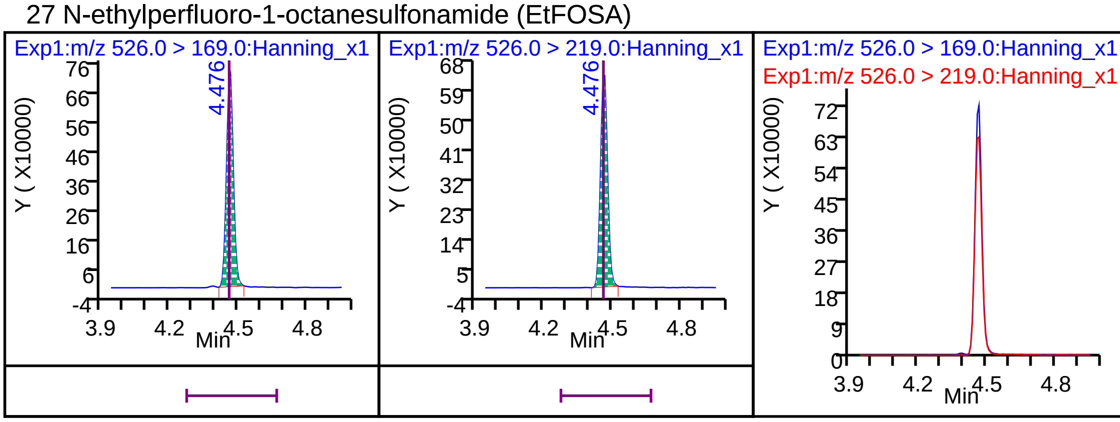
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



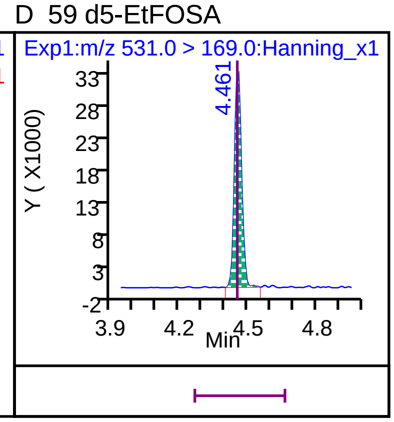
D 62 d9-EtFOSE



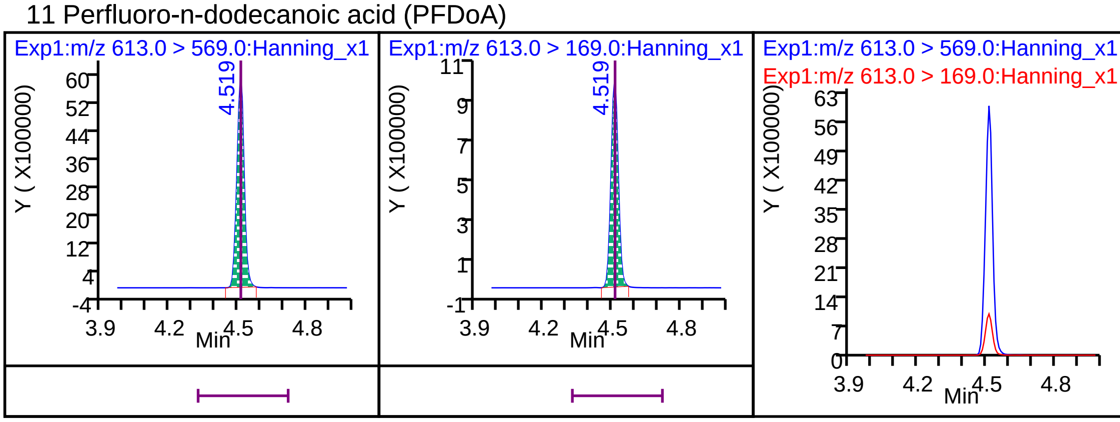
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



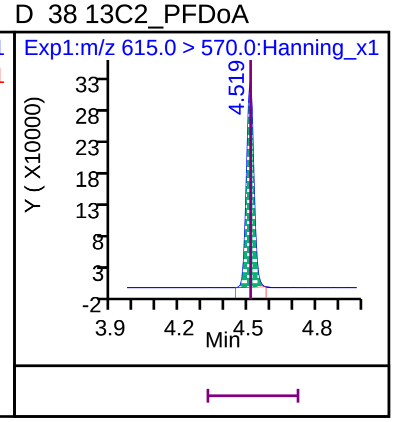
D 59 d5-EtFOSA



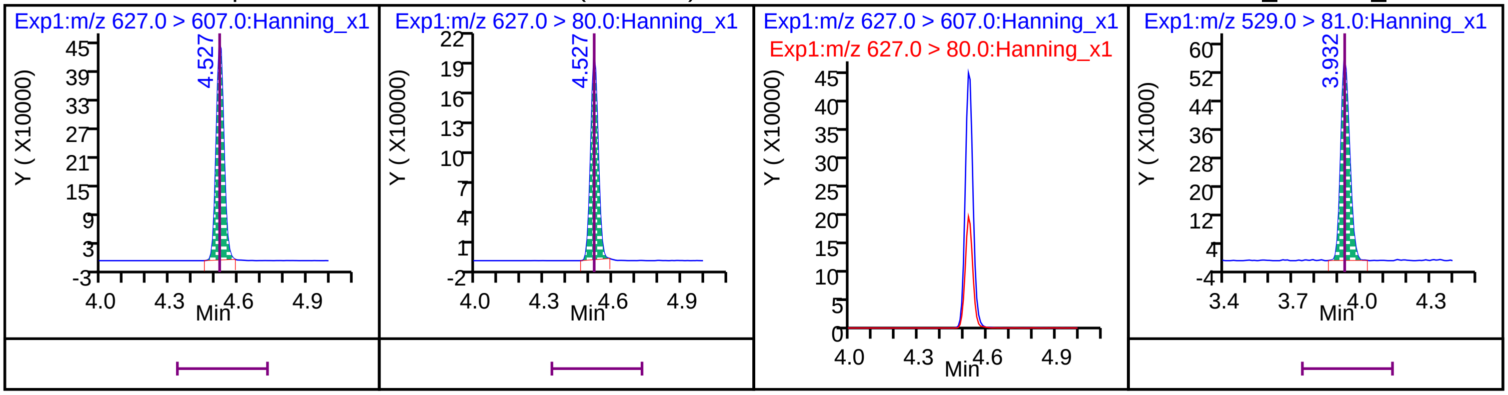
11 Perfluoro-n-dodecanoic acid (PFDoA)



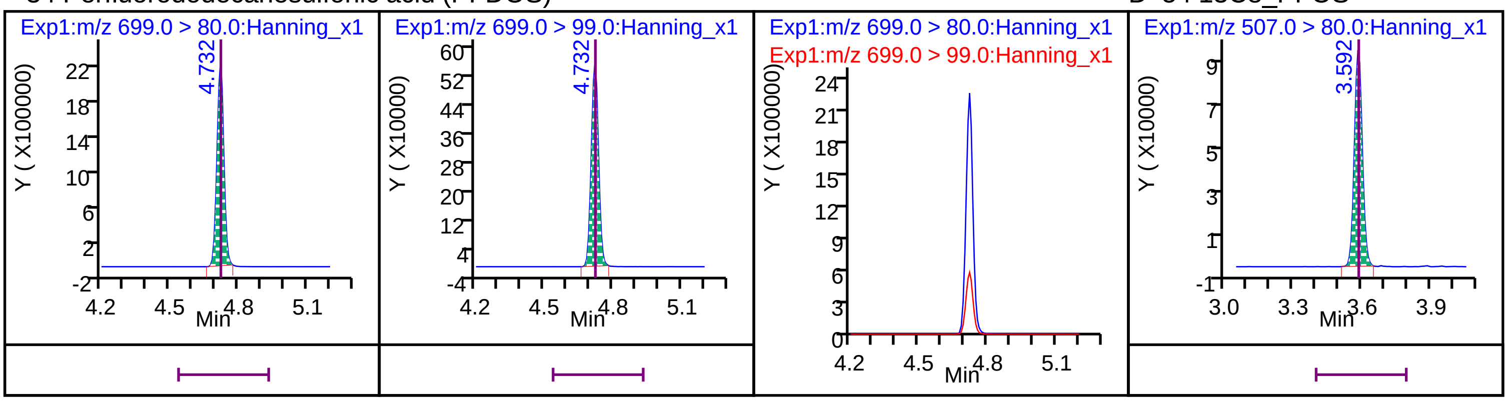
D 38 13C2_PFDoA



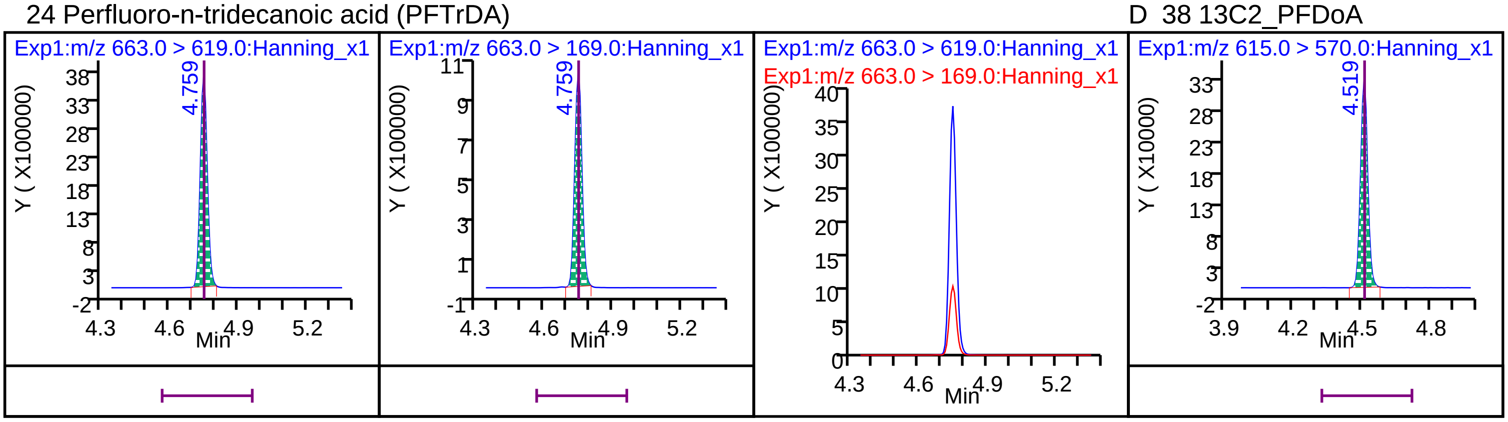
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



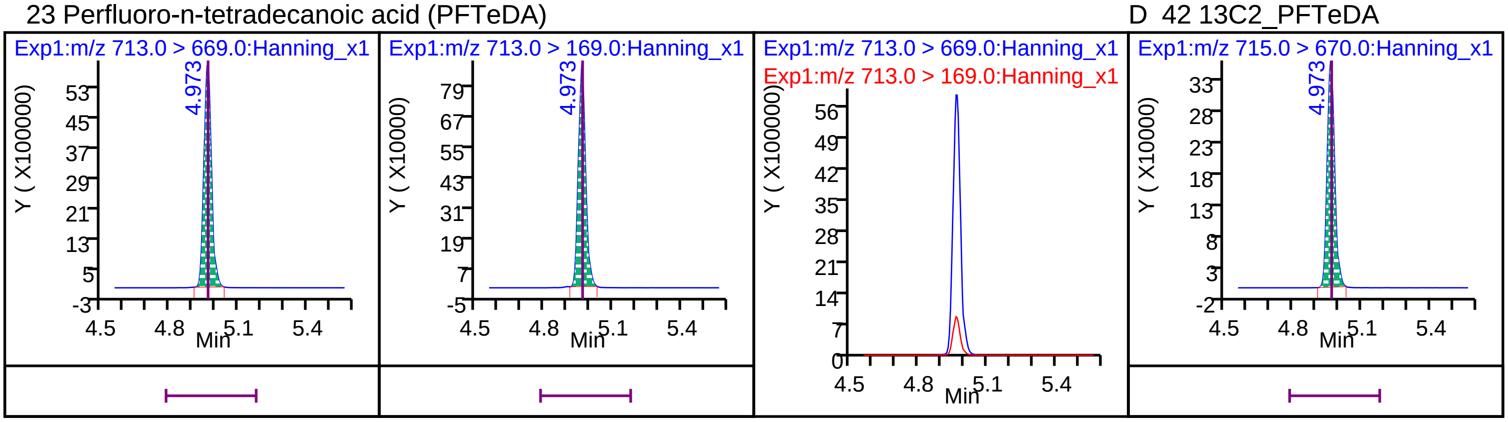
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



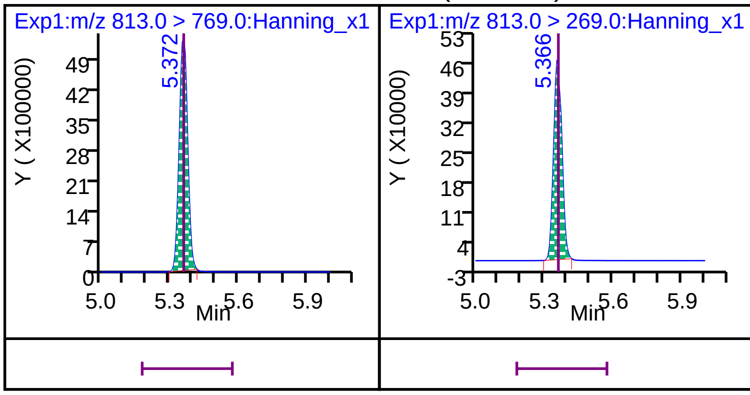
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



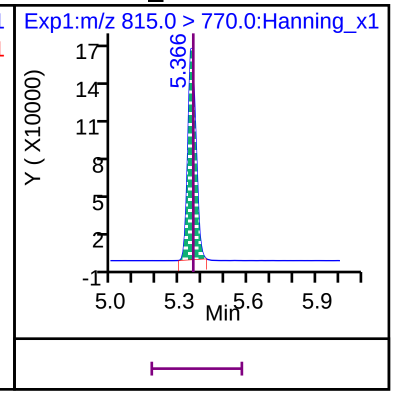
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



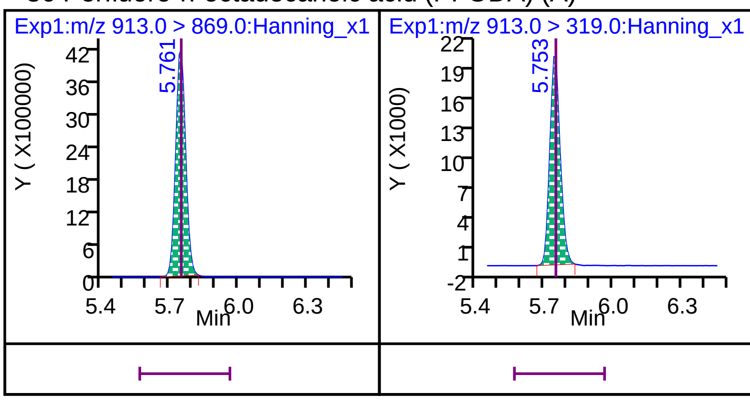
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



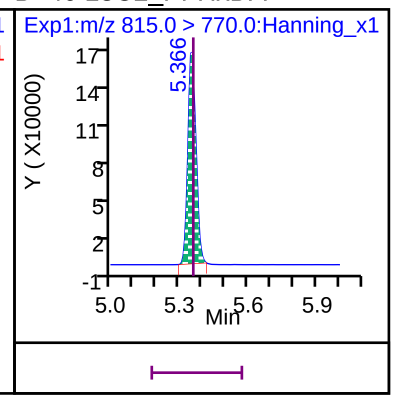
D 40 13C2_PFHxDA



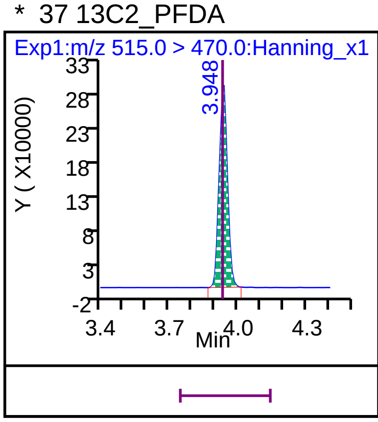
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



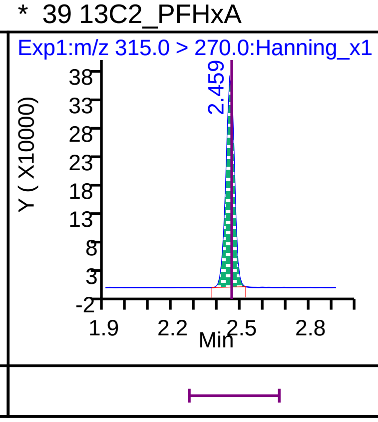
D 40 13C2_PFHxDA



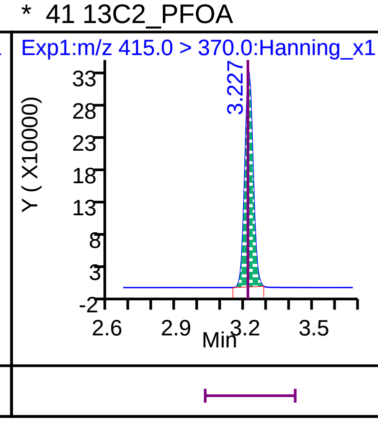
* 37 13C2_PFDA



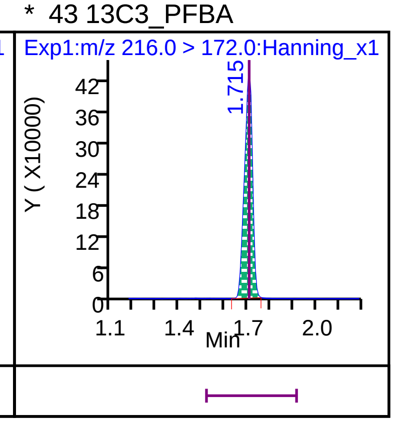
* 39 13C2_PFHxA



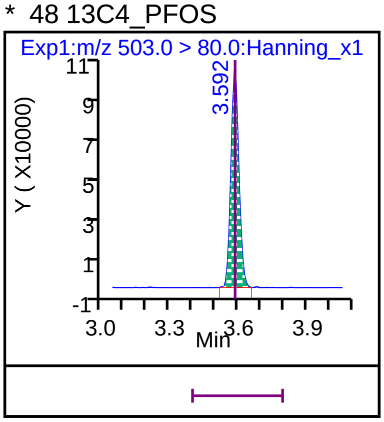
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:29 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

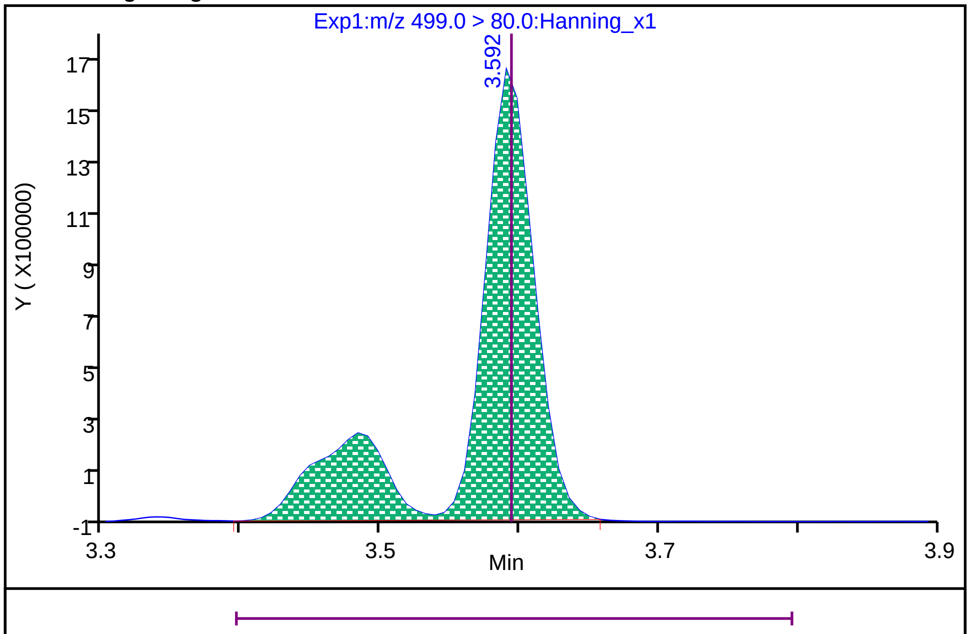
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A017.d		
Injection Date:	04-Nov-2021 15:23:27	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 20000_SVLC-1647
Sample Info:	ICAL 20000_SVLC-1647		
Dil. Factor:	1	Operator:	Matthew M. Miller

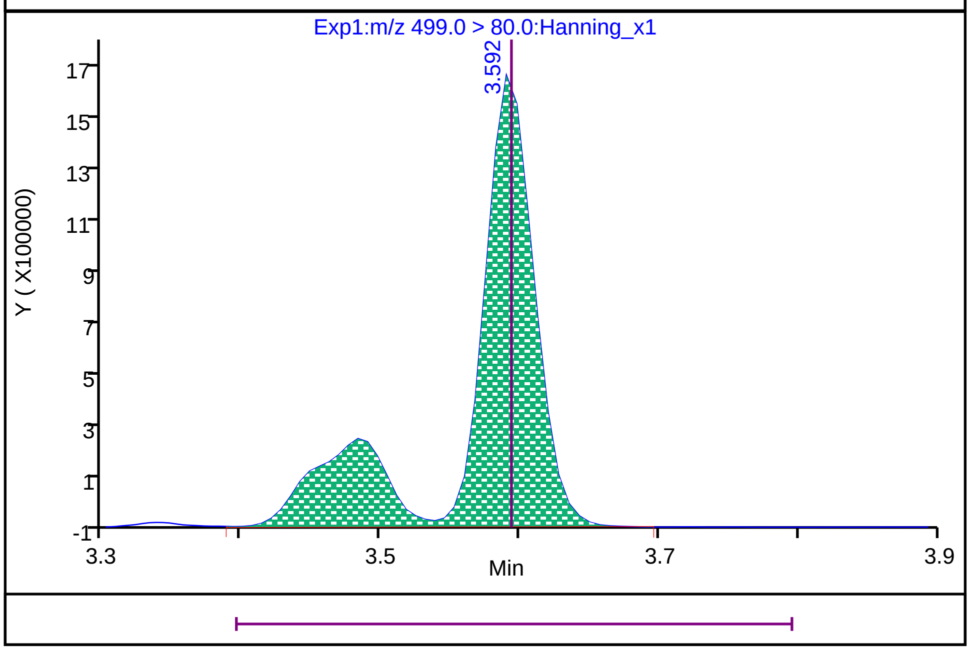
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.592
Area:	4935009
Amount:	18426
Amount Units:	ng/L



RT:	3.592
Area:	5004799
Amount:	18829
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:39:33

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d		
Injection Date:	04-Nov-2021 15:33:59	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	100
Lab Sample ID:	ID BLK C1	Lab Prep. Batch:	
Sample Info:	ID BLK C1	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1183307	20	>100:1			1001.00	1098.98	99.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.714		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1108485	15	>100:1			1001.00	1105.27	101.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.089		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	369575	17	>100:1			1001.00	1137.96	101.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.493		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	224011	20	>100:1			5005.00	5393.05	103.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.415		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	960092	18	>100:1			1001.00	1074.85	93.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.467		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	871277	19	>100:1			5005.00	5318.52	99.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.587		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	969827	18	>100:1			1001.00	1106.86	98.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.846		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	285174	18	>100:1			1001.00	1087.29	96.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.863		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	3244	14	4.2:1	Target = 2.31		2.0688	2.0688		
377 > 85	45	2.899	2.890		1297	18	3.7:1	2.50 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.229		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.204	0	198376	19	>100:1			5005.00	5260.42	101.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.204		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	1	886970	22	>100:1			1001.00	1072.52	96	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.229		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.595	1	245759	19	>100:1			1001.00	1094.79	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.595		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/0	1488	22	10:1			1.9611	1.9611		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.926		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.226		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.386		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.733		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.596	3.595	1	840385	19	>100:1			1001.00	1051.78	84.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.595		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	1	451448	19	>100:1			1001.00	1089.95	105.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.873		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.935	3.934	1	149665	17	>100:1			5005.00	4768.61	97.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.934		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.528		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.942	1	769897	17	>100:1			1001.00	1066.63	98.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.942		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.090	4.098	0	881982	17	>100:1			5005.00	4974.16	97.7	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.098		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.253	0	708050	17	>100:1			1001.00	1036.03	96.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.253		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	828065	16	>100:1			5005.00	5537.76	106.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.253		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	1	134317	15	>100:1			1001.00	973.41	100.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.288		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.306	4.306	1	70806	20	>100:1			1001.00	1011.21	97.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.306		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.448	0	120799	17	>100:1			1001.00	939.68	93.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.456		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	1	67780	16	>100:1			1001.00	1052.40	103.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.470		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.521	0	780147	17	>100:1			1001.00	1134.53	104.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.521		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.760		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.978	0	849786	25	>100:1			1001.00	1087.02	94.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.978		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	420129	20	>100:1			1001.00	1076.21	104.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.372	0/0	8058	18	24:1	Target = 12.31		10.037	10.037		
813 > 269	40	5.378	5.372		639	17	31:1	12.61 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.761		ND								
*** 37 13C2_PFDA**													
515 > 470		3.943	3.942	1	717924	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	845828	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.229	3.223	1	806100	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	993952	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.595	1	204723	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

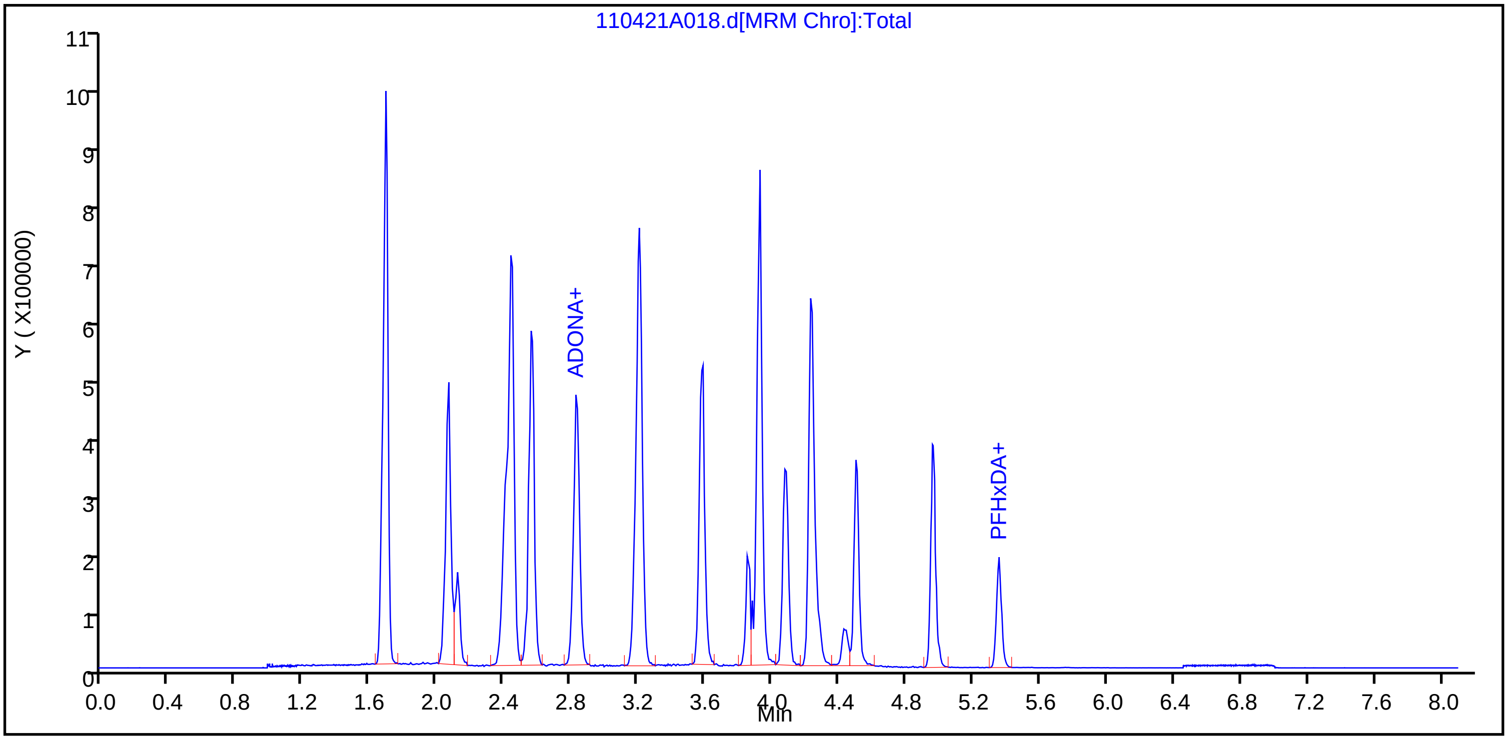
QC Flag Legend

U - Result Less Than Method Detection Limit

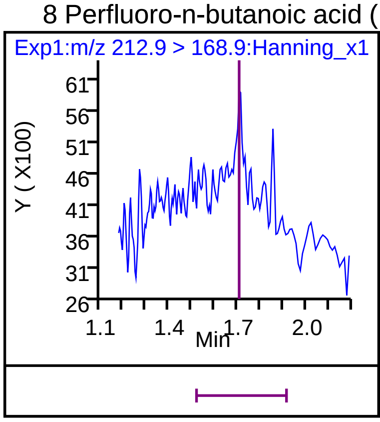
Report Date: 05-Nov-2021 13:58:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

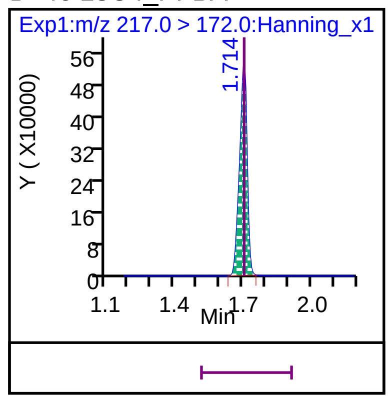
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d		
Injection Date:	04-Nov-2021 15:33:59	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID BLK C1
Sample Info:	ID BLK C1		
Dil. Factor:	1	Operator:	Matthew M. Miller



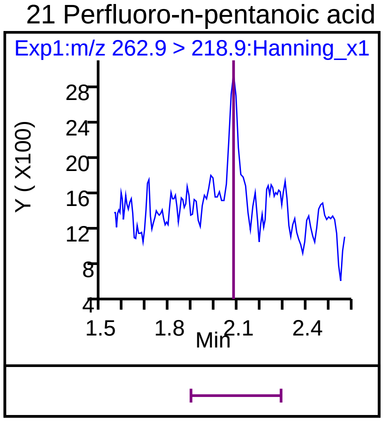
8 Perfluoro-n-butanoic acid (PFBA) (ND)



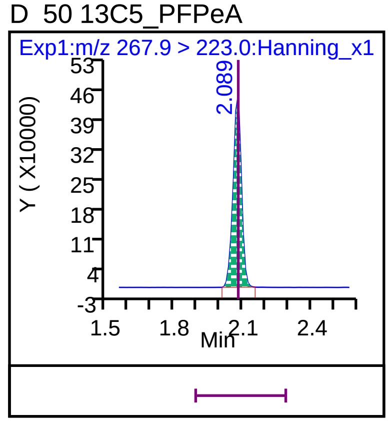
D 46 13C4_PFBA



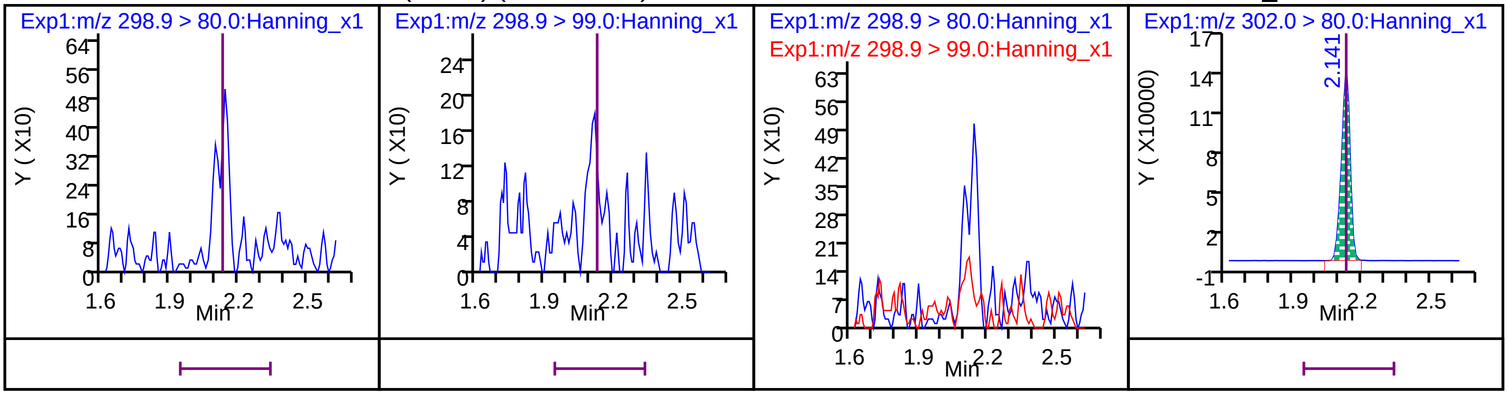
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



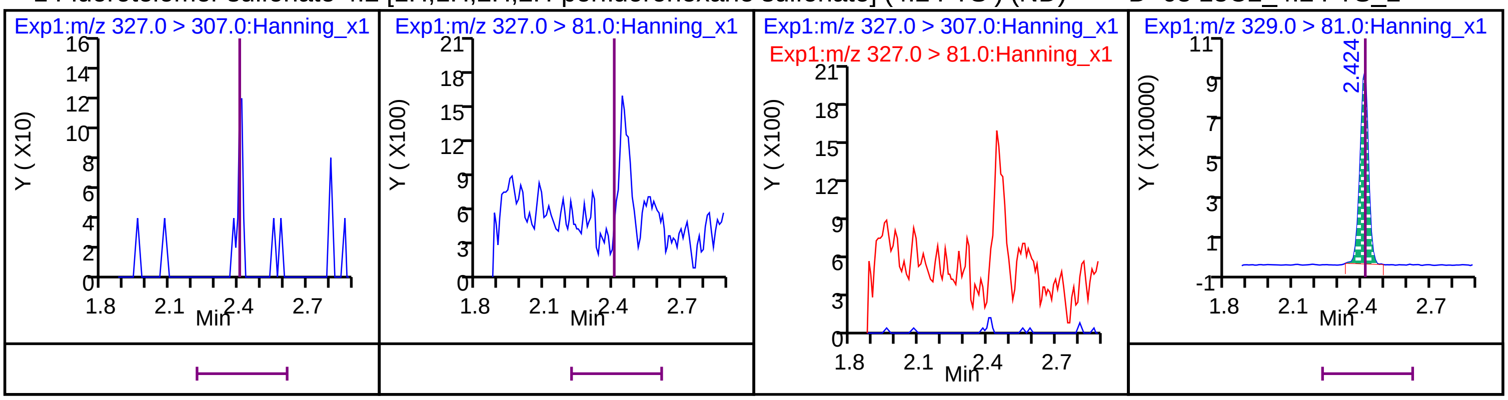
D 50 13C5_PFPeA



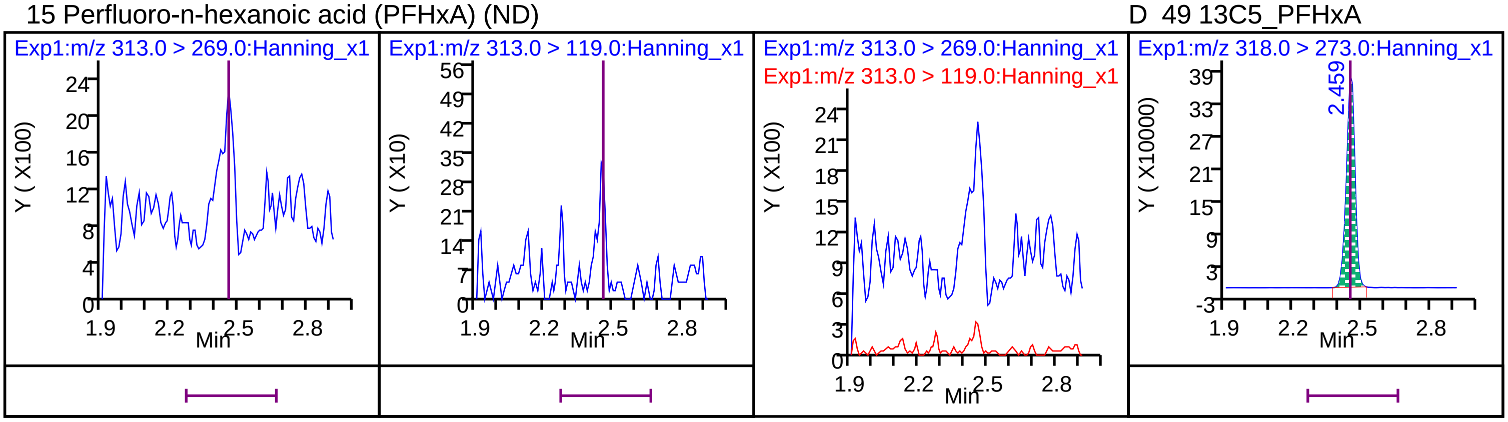
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



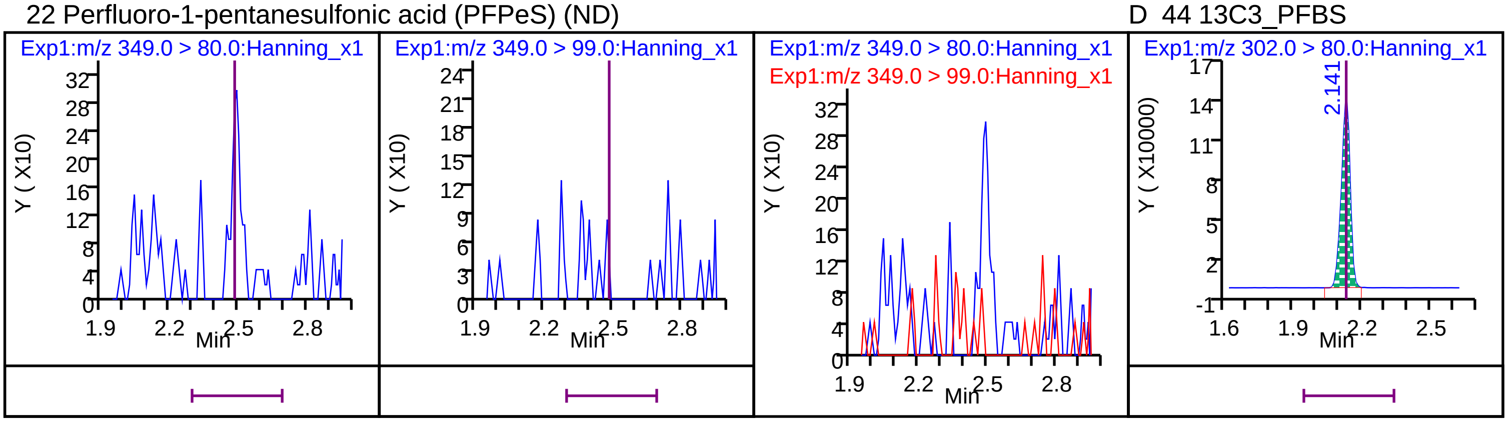
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



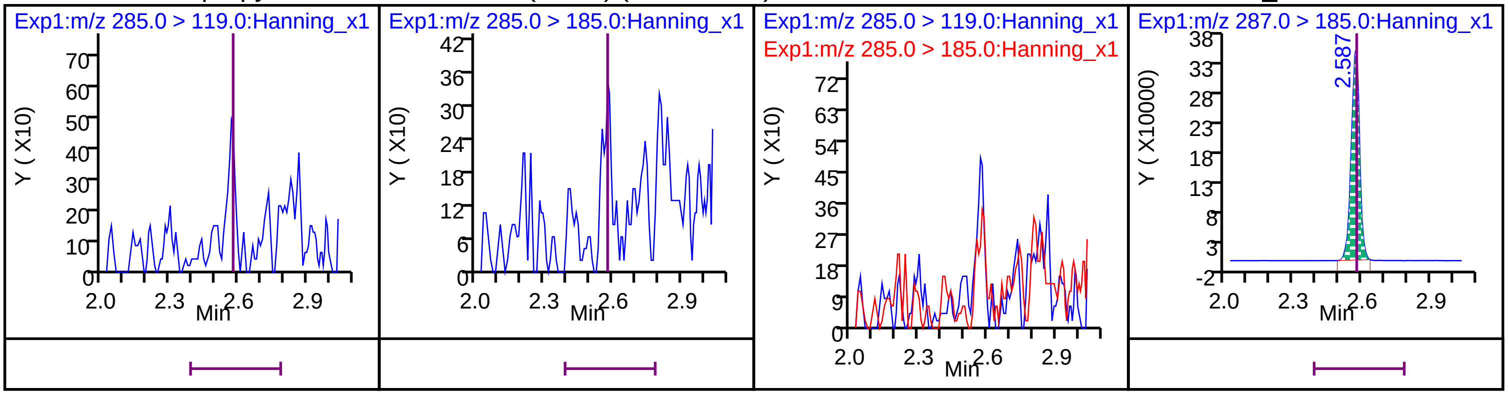
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



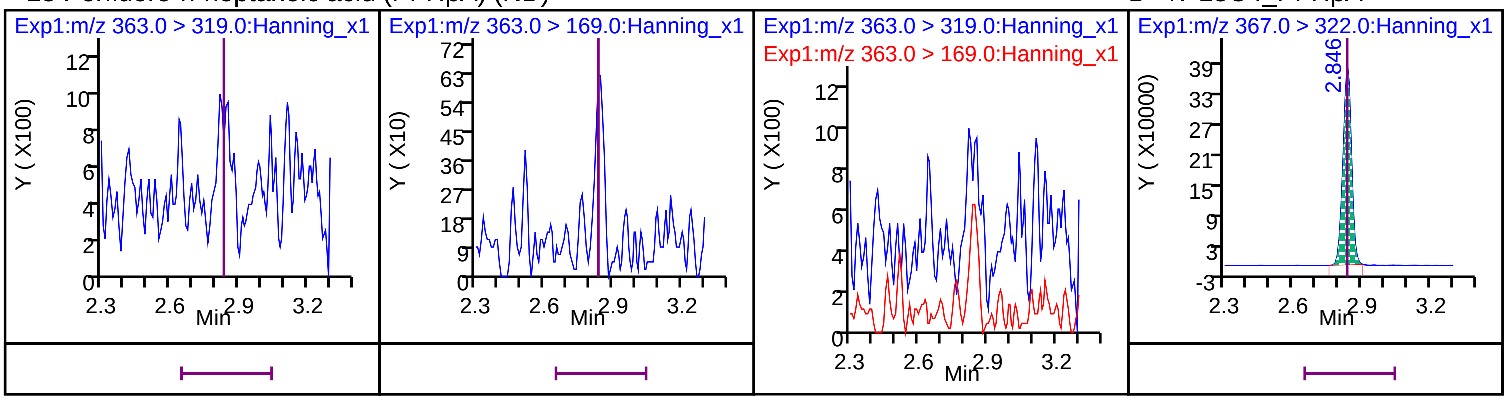
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



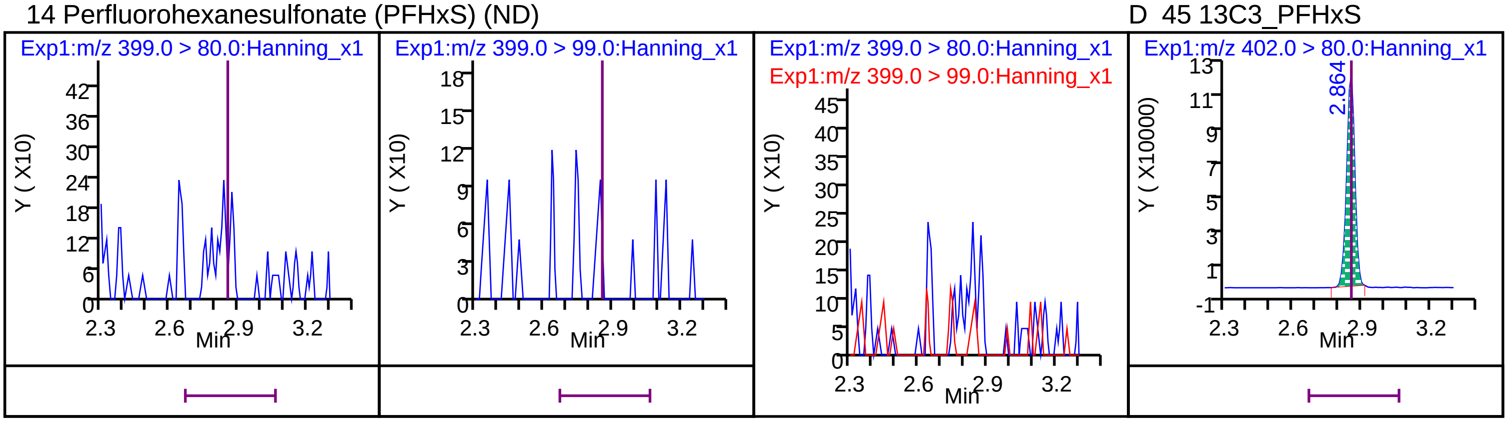
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



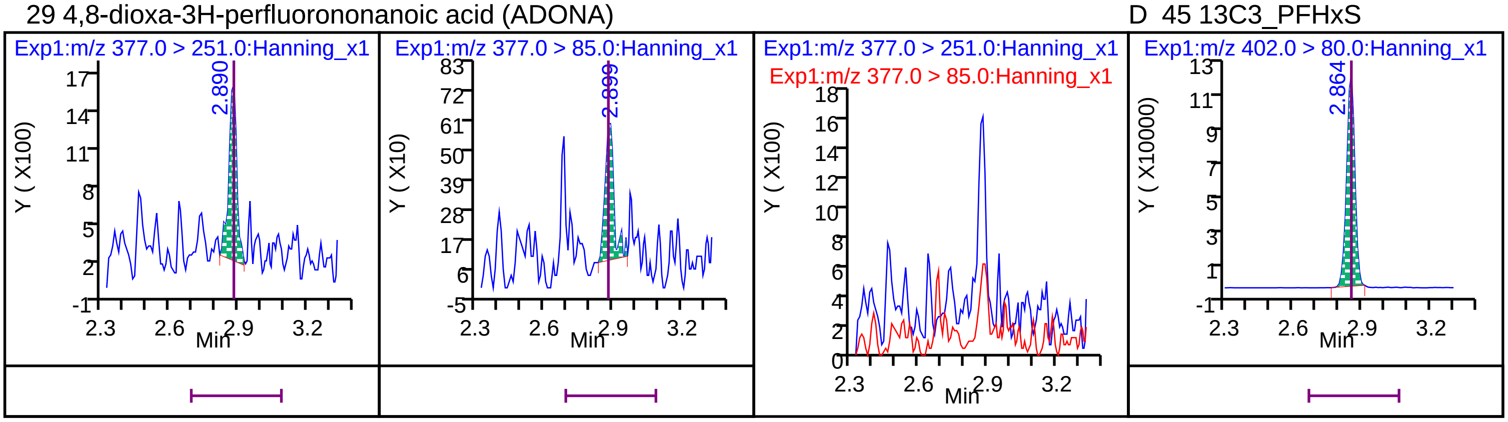
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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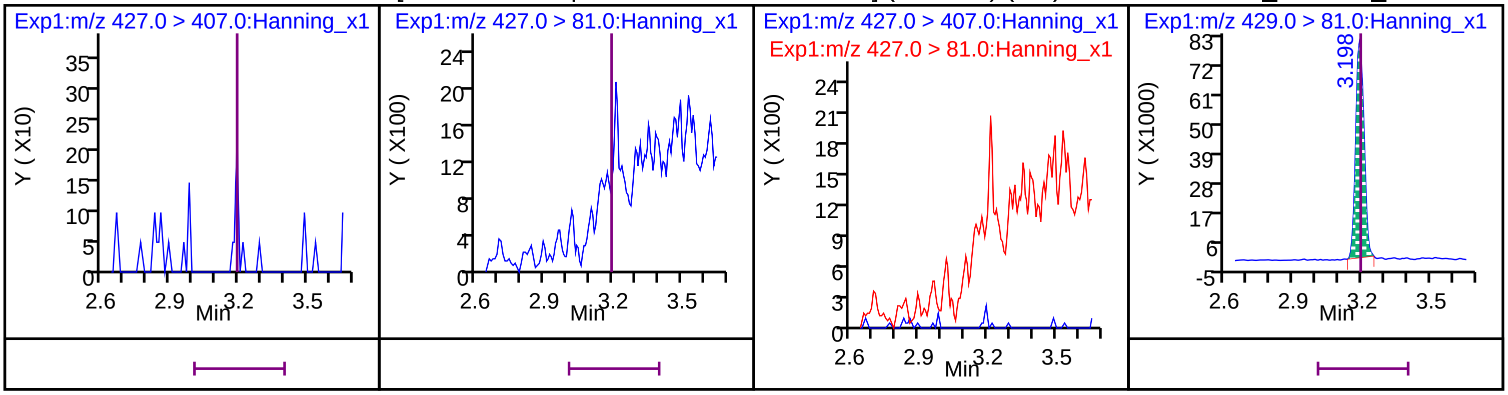
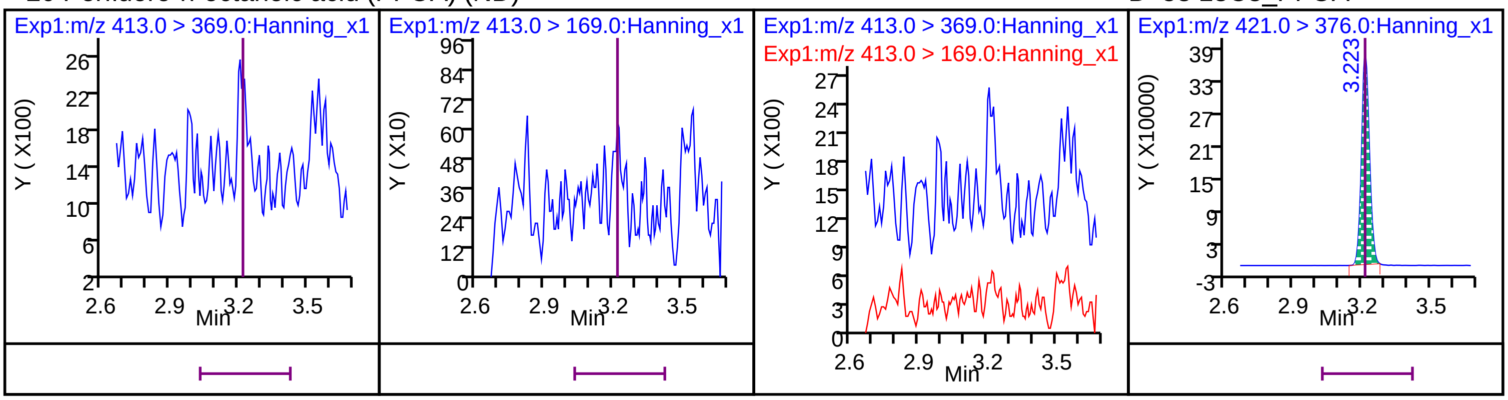
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d

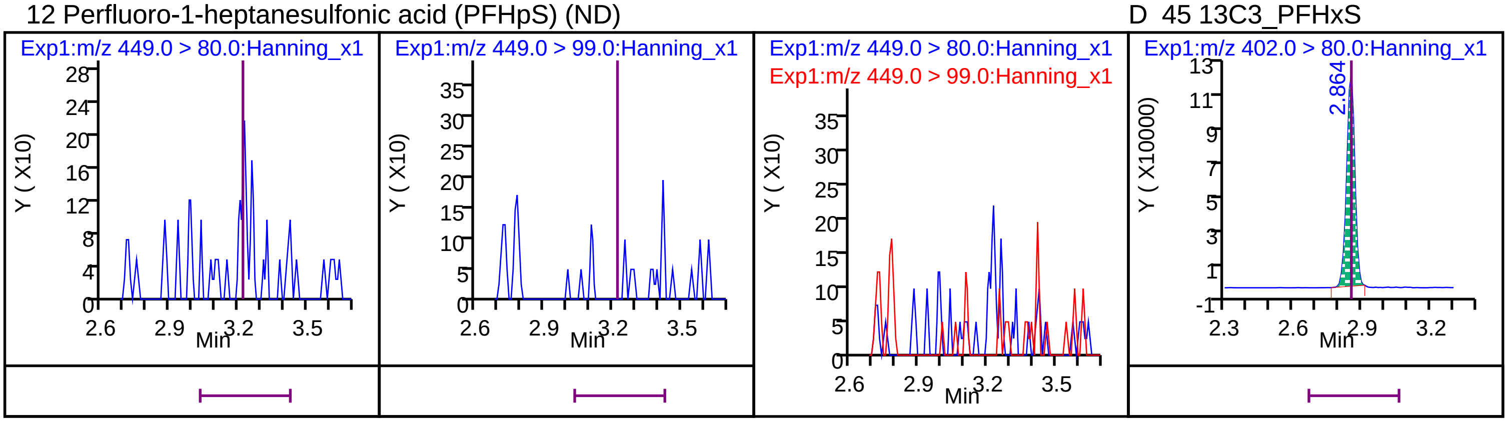
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



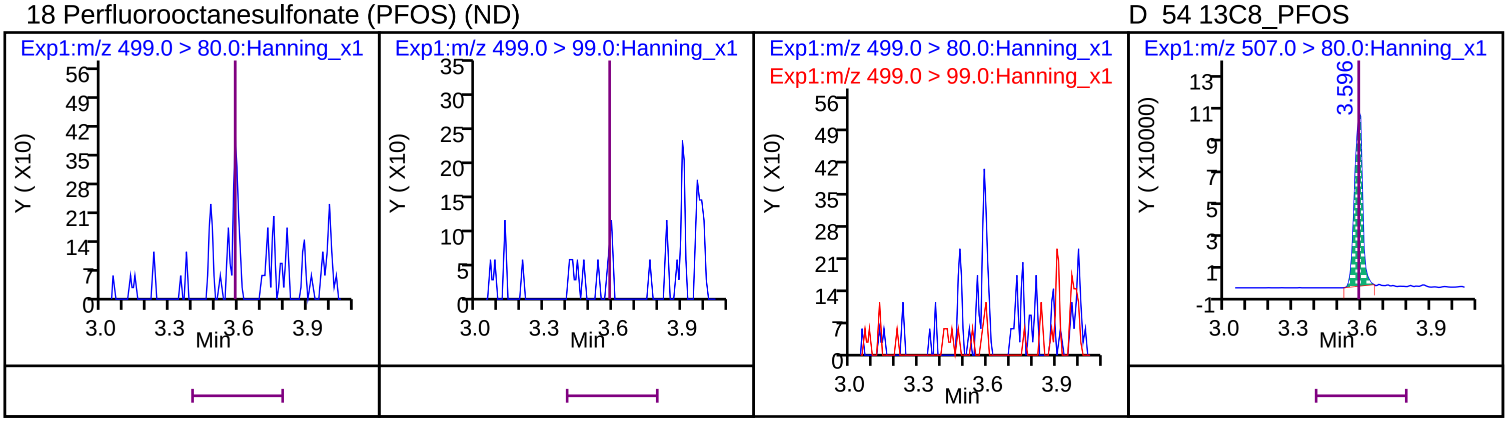
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



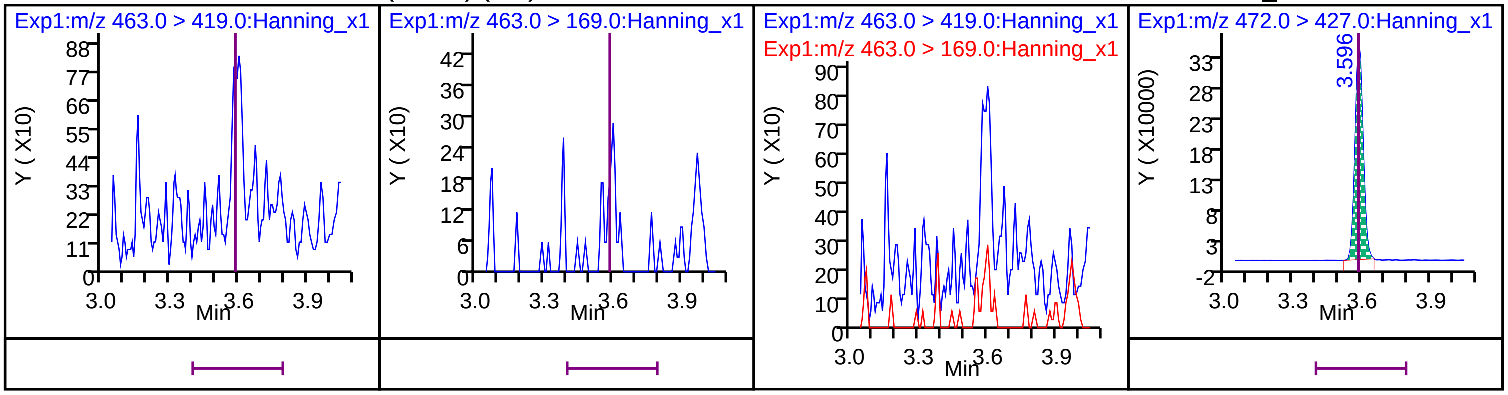
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



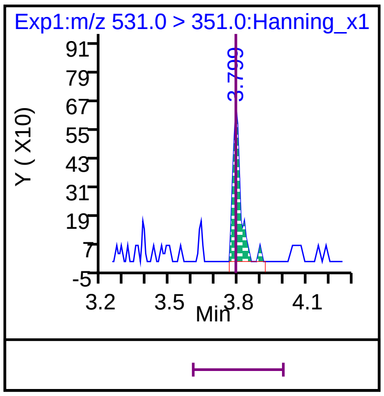
Report Date: 05-Nov-2021 13:58:30 AIM Revision: 2.0.2021.0812

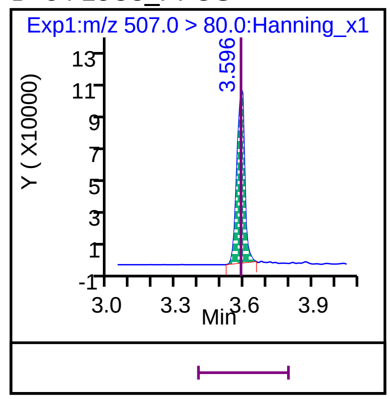
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d

17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA

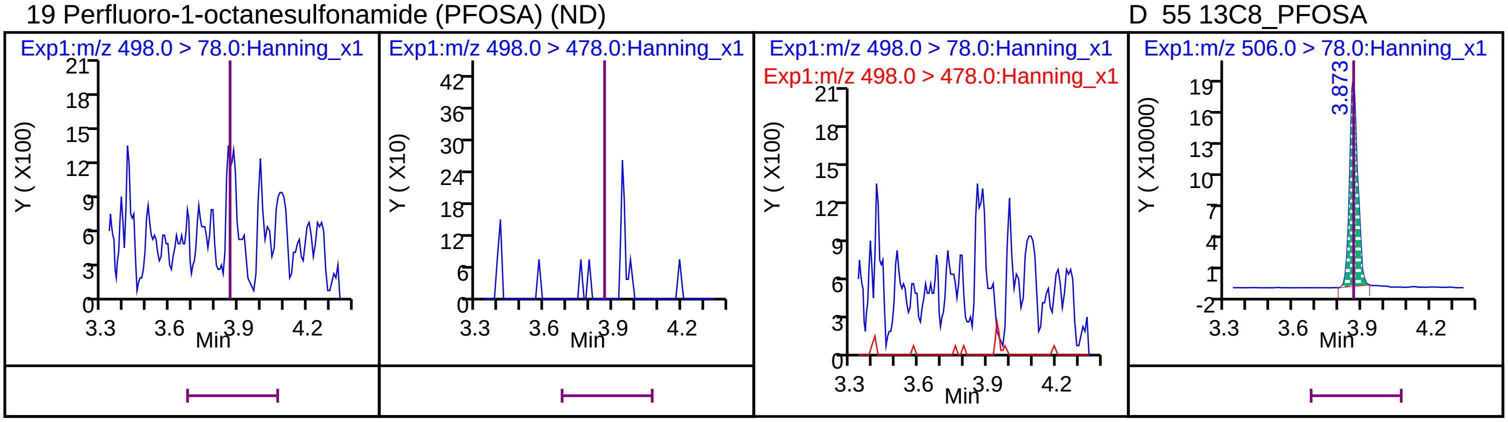


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

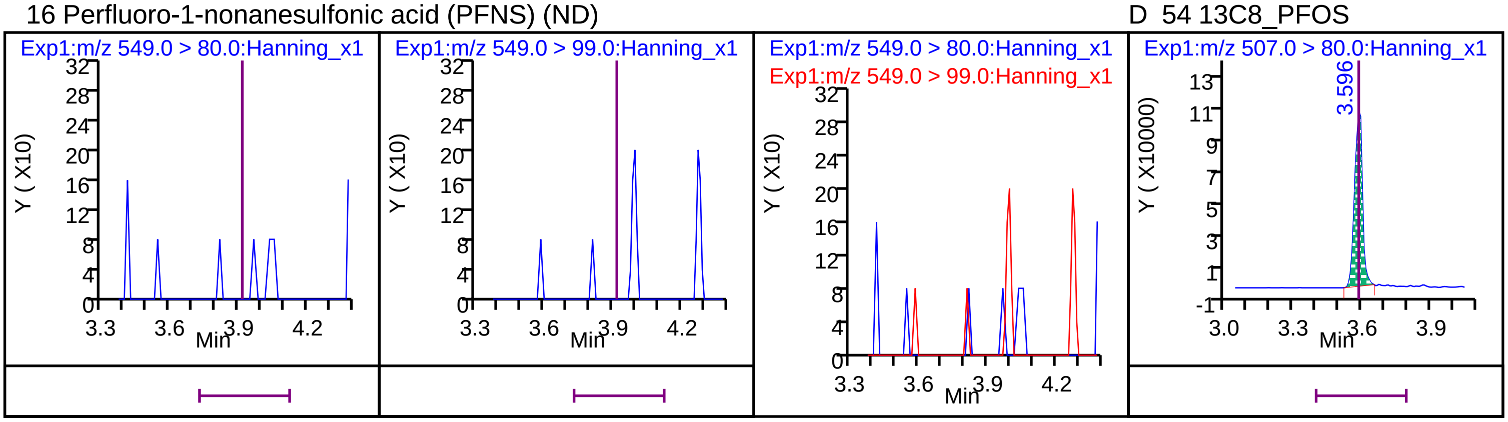




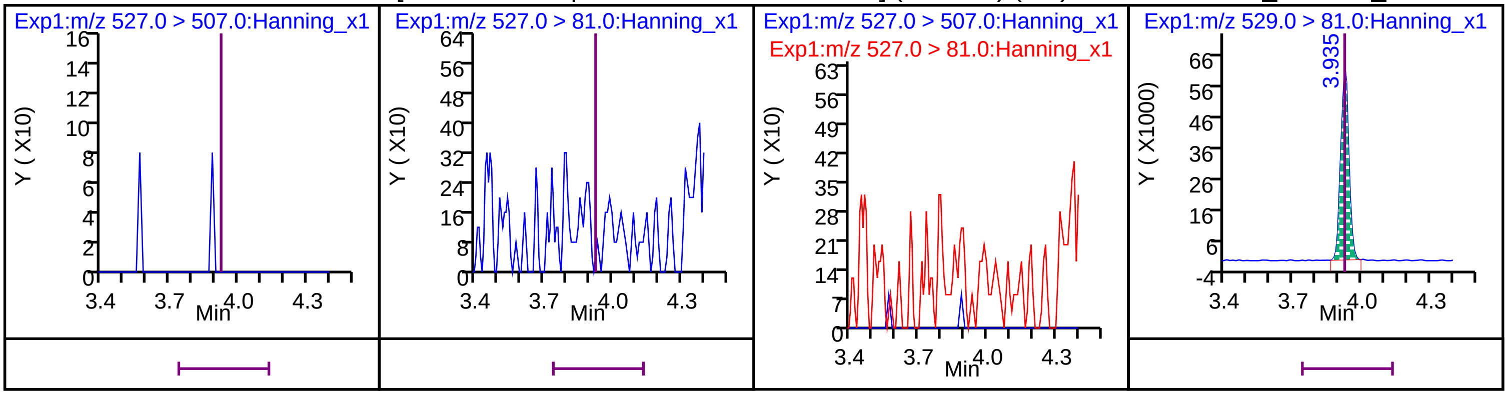
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



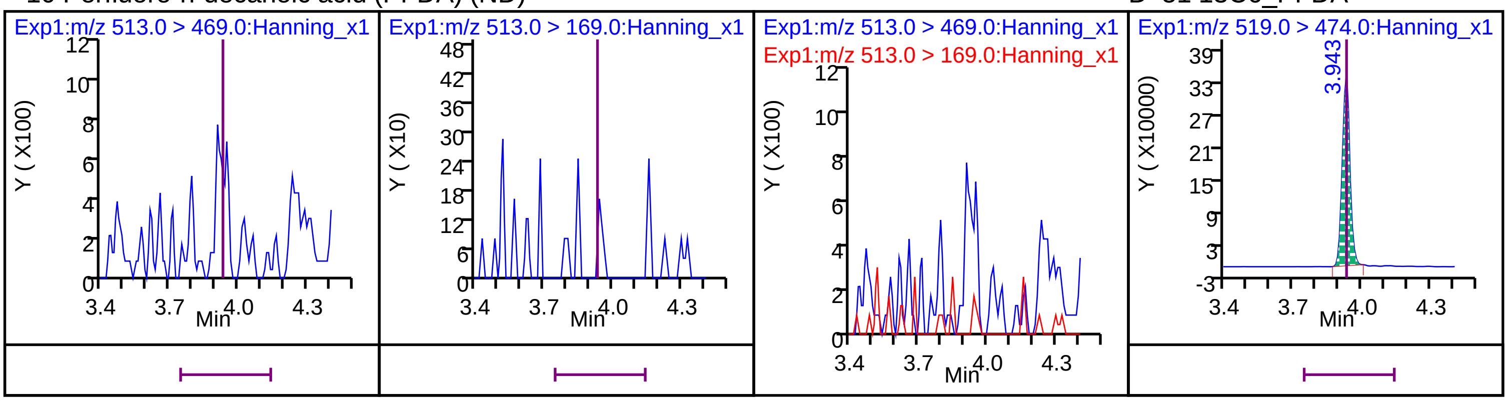
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



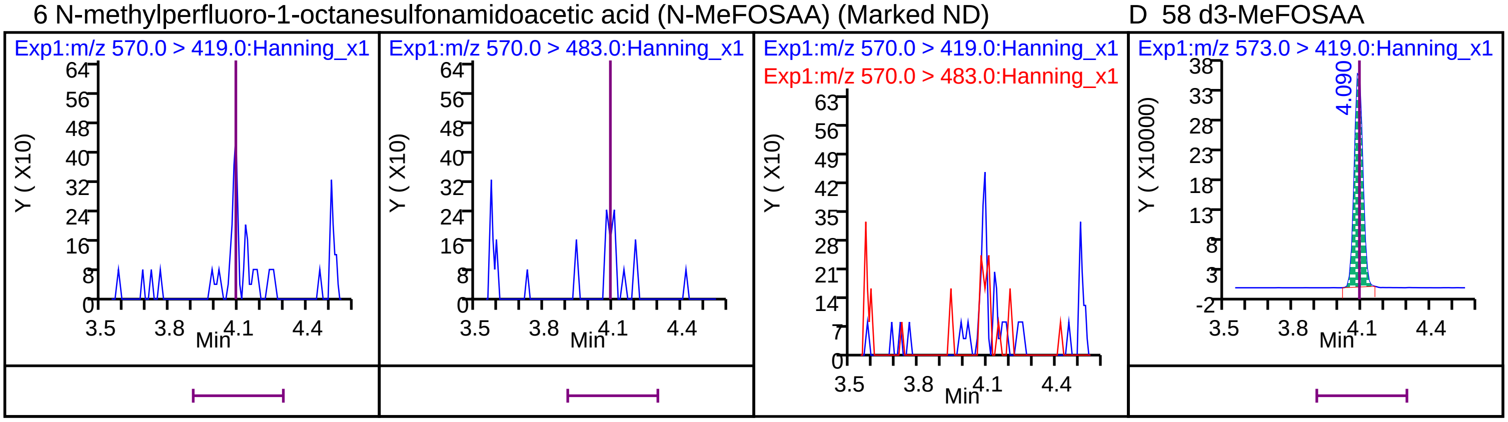
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



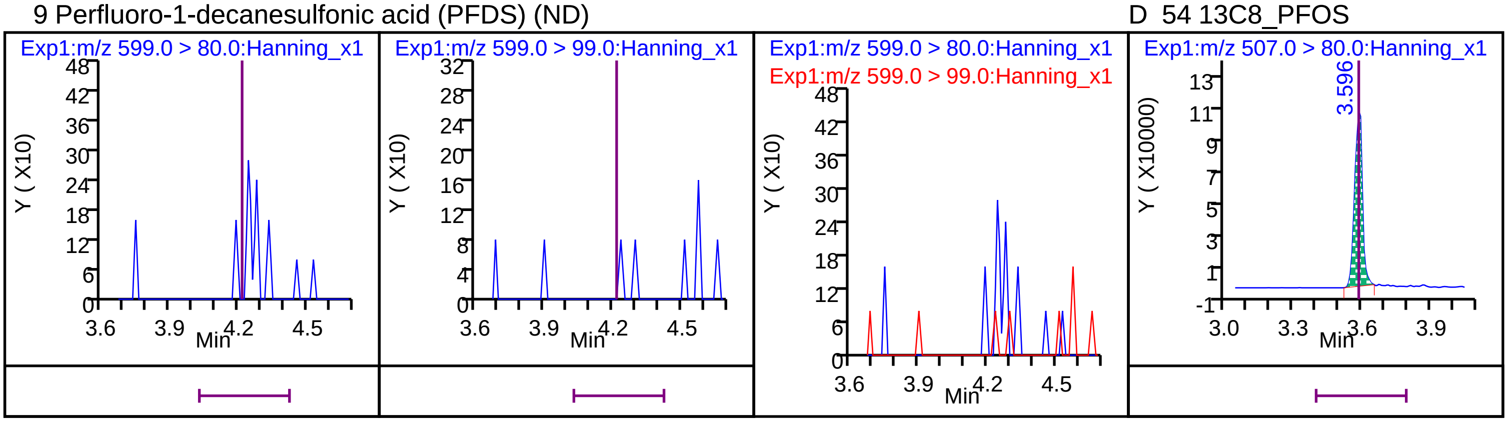
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



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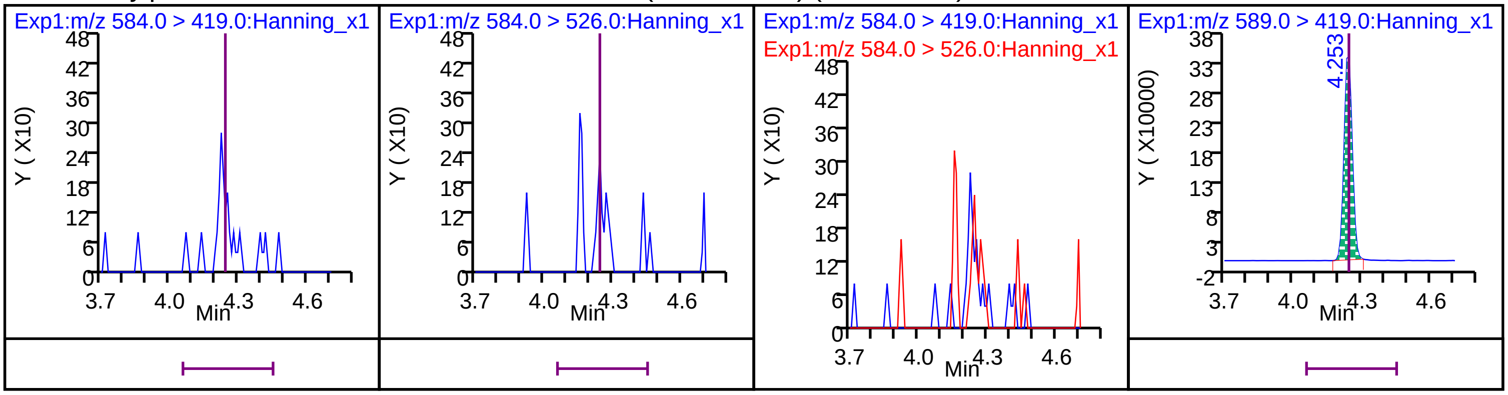
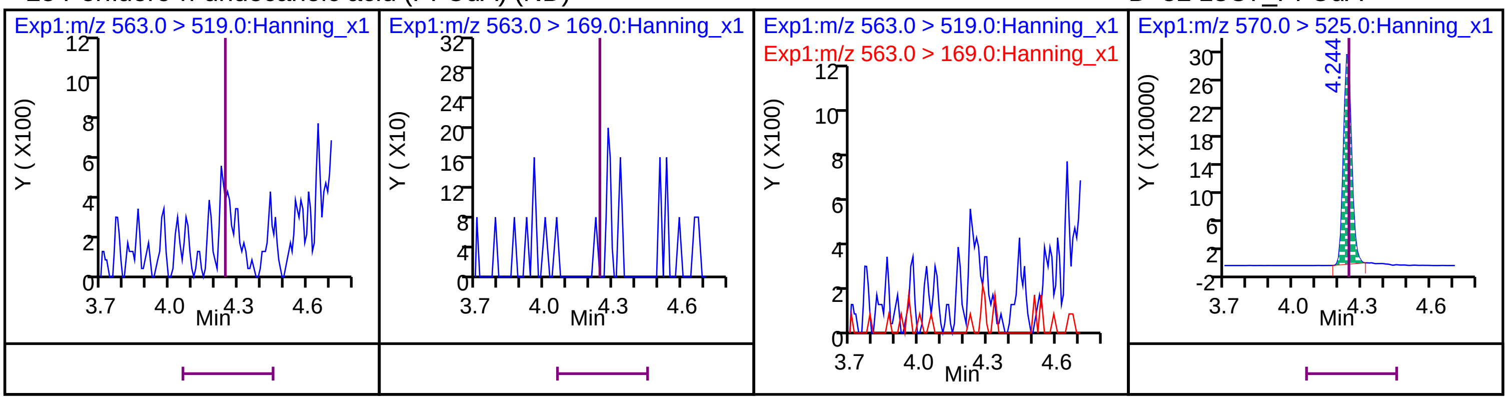
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d

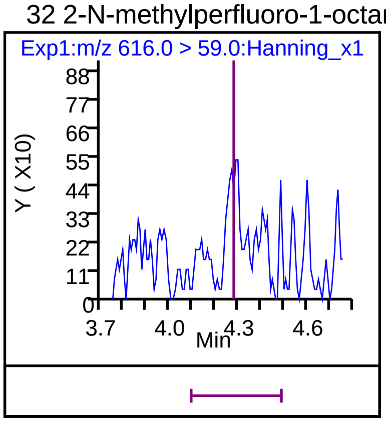
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA

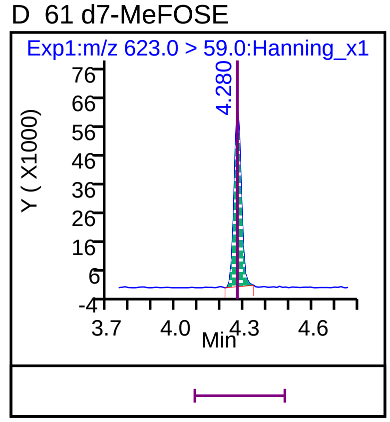


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

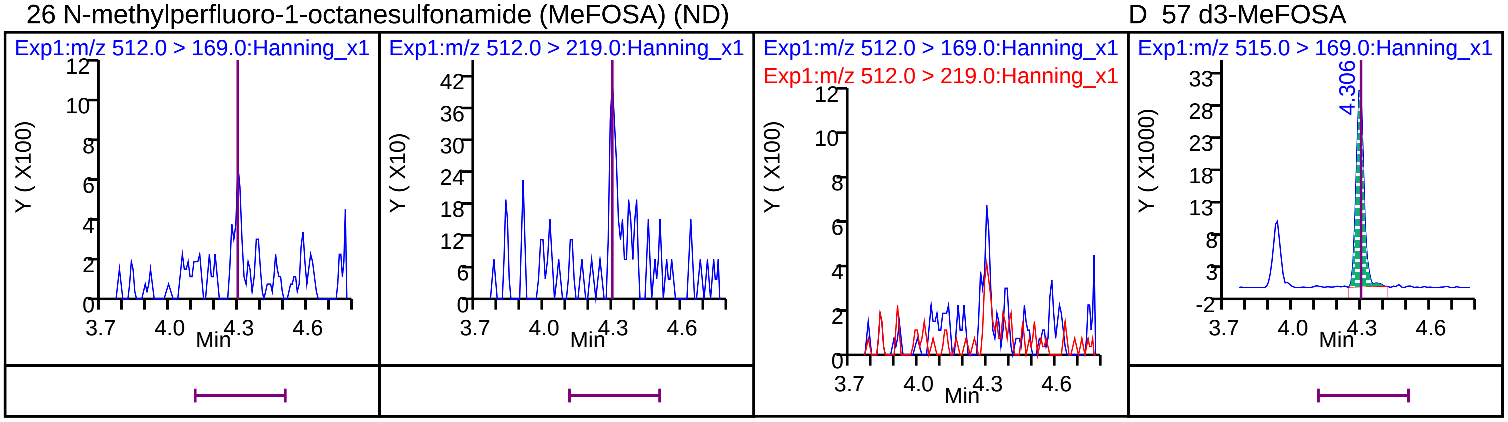


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

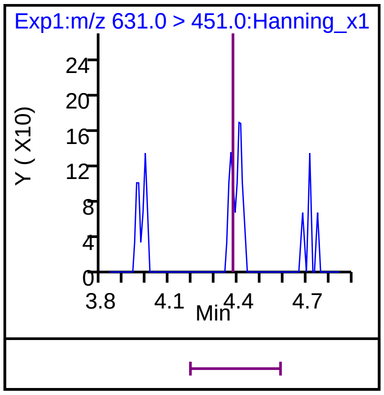




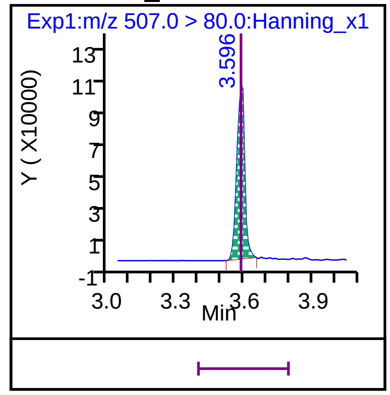
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



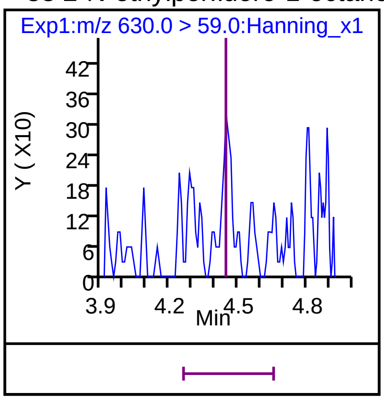
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



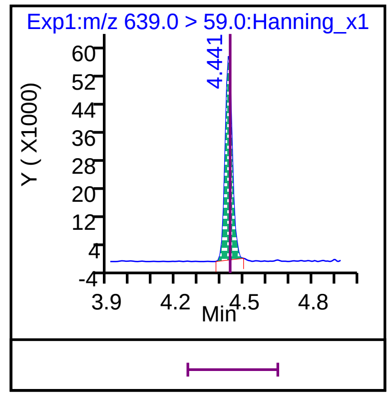
D 54 13C8_PFOS



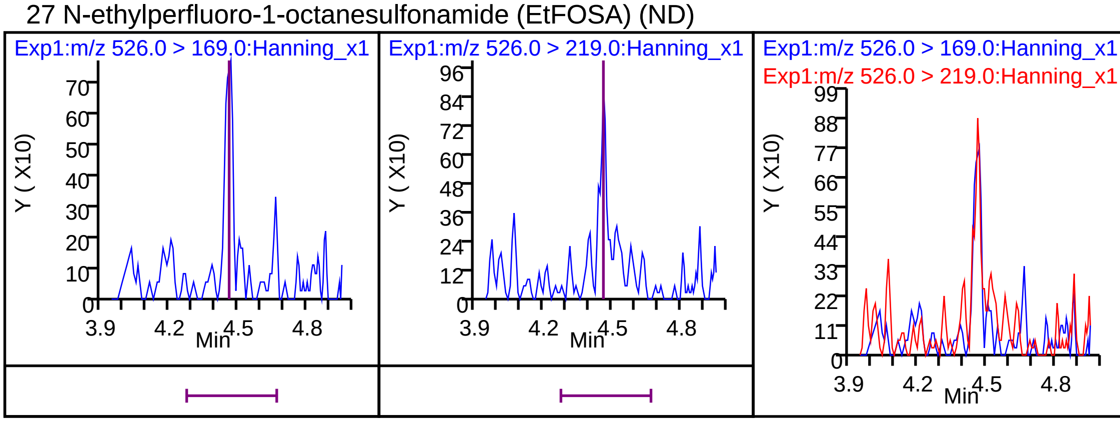
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (ND)



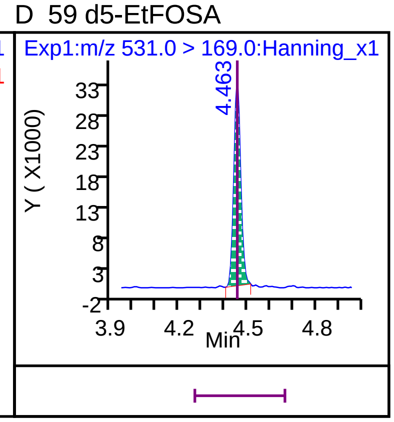
D 62 d9-EtFOSE



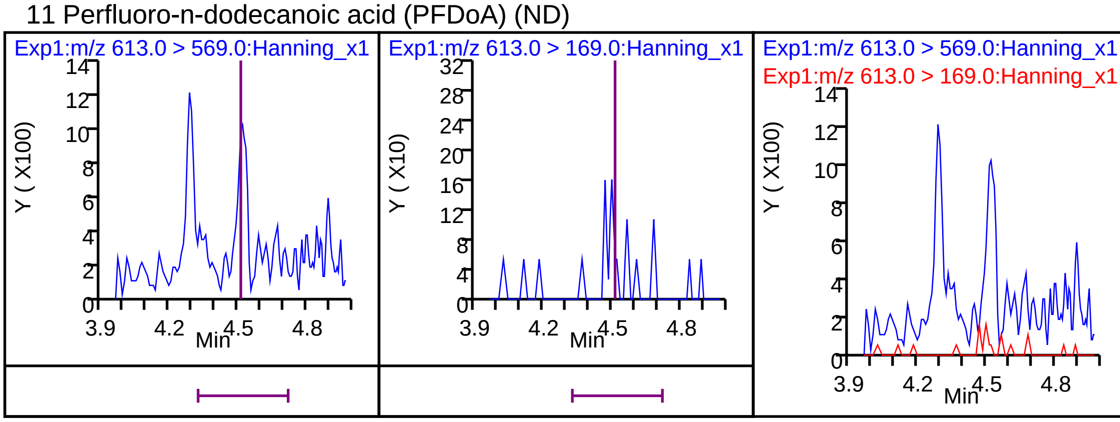
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



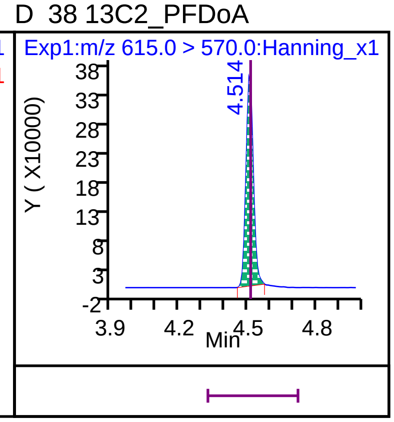
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

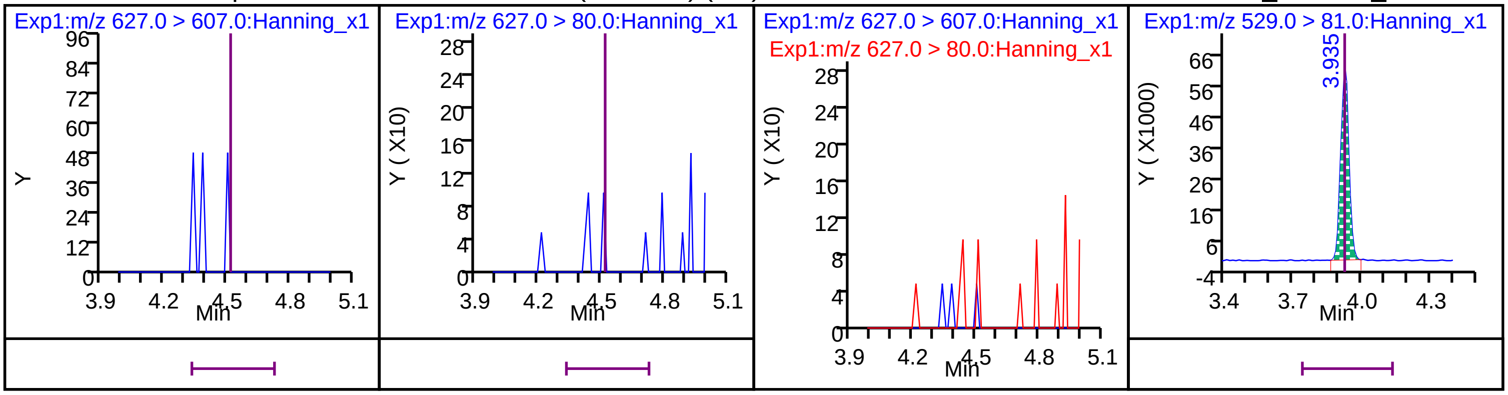


D 38 13C2_PFDoA

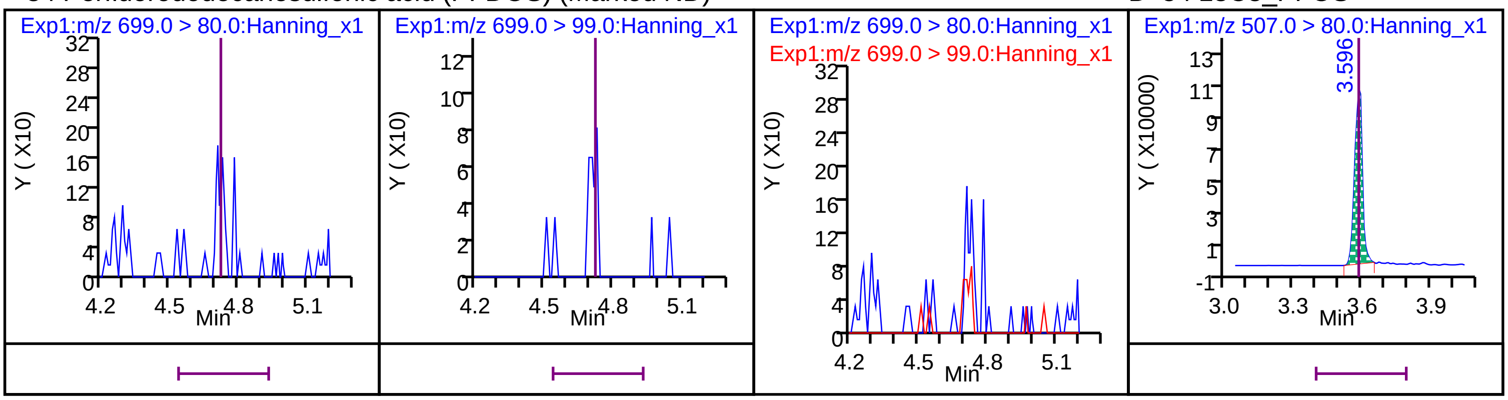


Report Date: 05-Nov-2021 13:58:30 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d

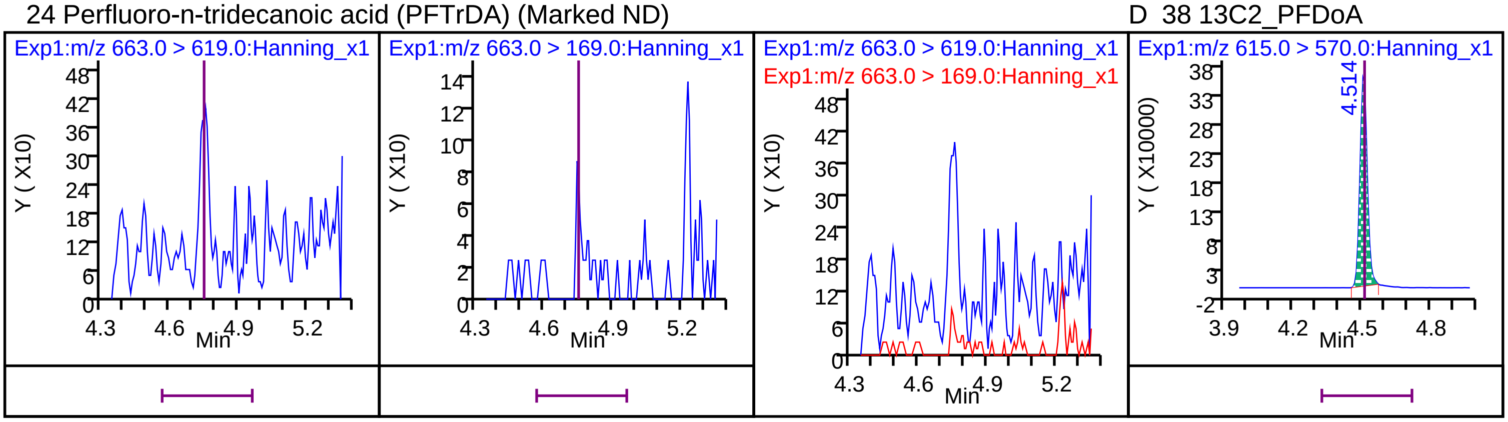
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



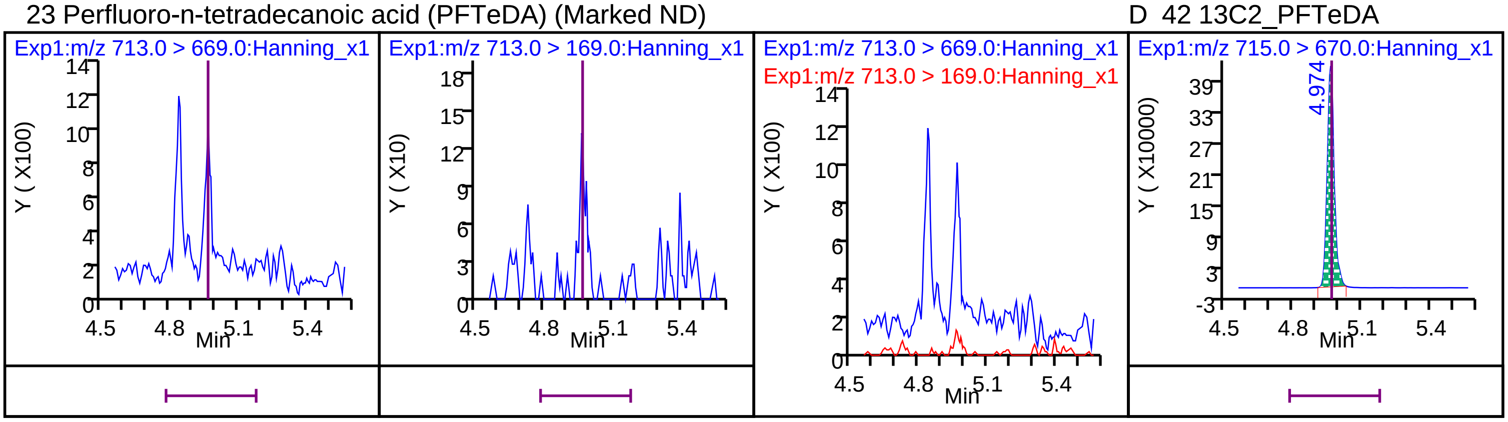
34 Perfluorododecanesulfonic acid (PFDOS) (Marked ND) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) (Marked ND) D 38 13C2_PFDoA



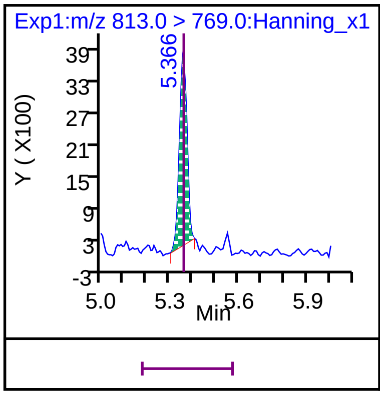
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) D 42 13C2_PFTeDA

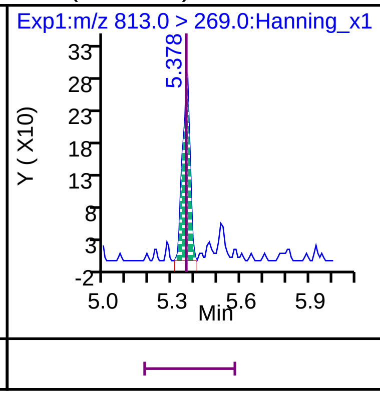


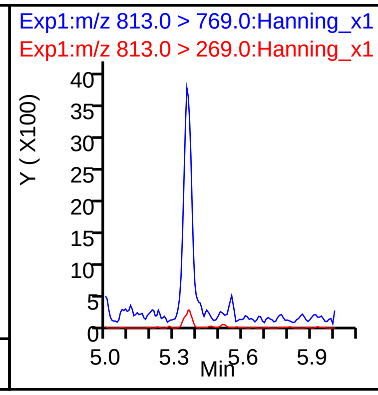
Report Date: 05-Nov-2021 13:58:30 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A018.d

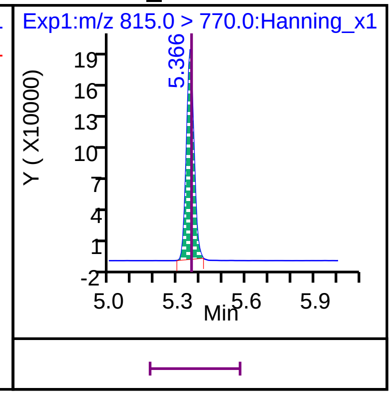
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



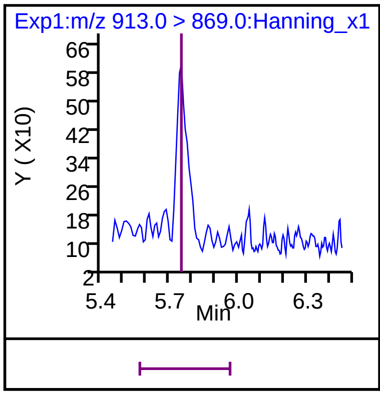


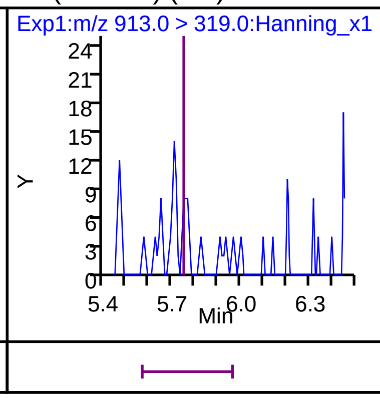


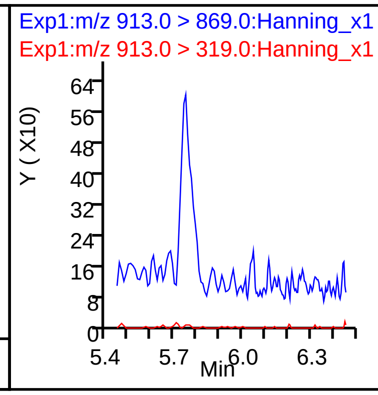
D 40 13C2_PFHxDA



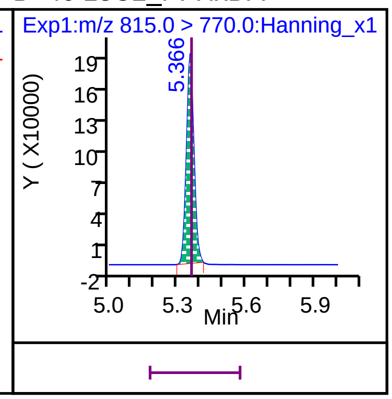
36 Perfluoro-n-octadecanoic acid (PFODA) (ND)



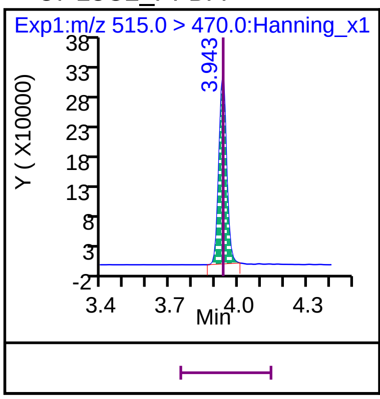




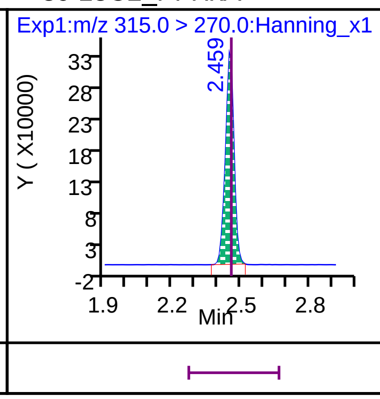
D 40 13C2_PFHxDA



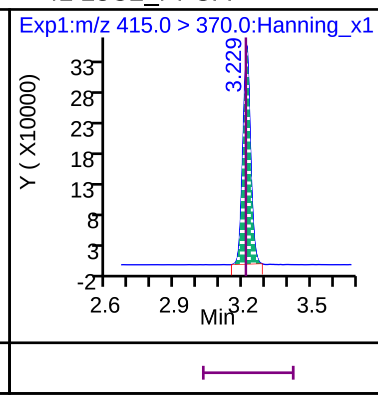
* 37 13C2_PFDA



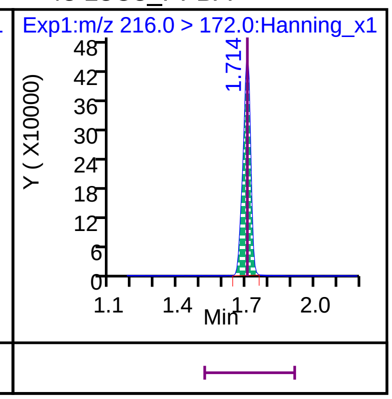
* 39 13C2_PFHxA



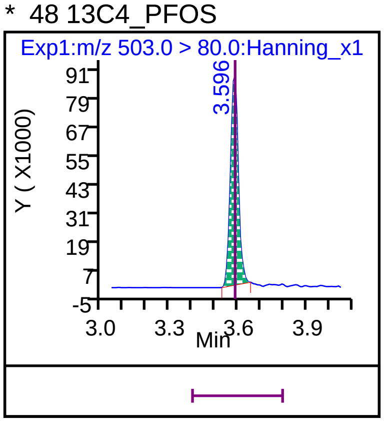
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Initial Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d		
Injection Date:	04-Nov-2021 15:44:42	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	87
Sample Info:	ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			500.00	439.93	88	70 - 130
D 46 13C4_PFBA	1188899	1124332			94.6	50 - 150
D 50 13C5_PFPeA	1090536	1068627			98	50 - 150
21 PFPeA			500.00	463.24	92.6	70 - 130
7 PFBS			442.50	383.17	86.6	70 - 130
D 44 13C3_PFBS	364125	332867			91.4	50 - 150
1 4:2 FTS			467.50	422.79	90.4	70 - 130
D 63 13C2_4:2 FTS_2	216934	198280			91.4	50 - 150
D 49 13C5_PFHxA	1029068	985786			95.8	50 - 150
15 PFHxA			500.00	407.78	81.6	70 - 130
22 PFPeS			470.00	426.59	90.8	70 - 130
28 GenX			2500.00	2261.61	90.5	70 - 130
D 66 13C3_GenX	878629	814221			92.7	50 - 150
D 47 13C4_PFHpA	986129	940835			95.4	50 - 150
13 PFHpA			500.00	450.63	90.1	70 - 130
D 45 13C3_PFHxS	296861	269135			90.7	50 - 150
14 PFHxS			456.00	385.87	84.6	70 - 130
29 ADONA			2355.00	2186.64	92.9	70 - 130
D 64 13C2_6:2 FTS_2	194584	178304			91.6	50 - 150
2 6:2 FTS			475.00	439.39	92.5	70 - 130
D 53 13C8_PFOA	923846	856947			92.8	50 - 150
20 PFOA			500.00	438.90	87.8	70 - 130
12 PFHpS			475.00	457.25	96.3	70 - 130
18 PFOS			462.75	399.26	86.3	70 - 130
17 PFNA			500.00	432.82	86.6	70 - 130
D 56 13C9_PFNA	999317	827083			82.8	50 - 150
D 54 13C8_PFOS	245640	236764			96.4	50 - 150
30 9Cl-PF3ONS			2330.00	2110.16	90.6	70 - 130
D 55 13C8_PFOSA	427823	437103			102.2	50 - 150
19 PFOSA			500.00	433.82	86.8	70 - 130
16 PFNS			480.00	418.55	87.2	70 - 130
D 65 13C2_8:2 FTS_2	153511	147593			96.1	50 - 150
3 8:2 FTS			480.00	459.30	95.7	70 - 130
10 PFDA			500.00	438.21	87.6	70 - 130
D 51 13C6_PFDA	784847	762981			97.2	50 - 150
6 N-MeFOSAA			500.00	543.70	108.7	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	902679	862239			95.5	50 - 150
9 PFDS			482.50	396.02	82.1	70 - 130
5 N-EtFOSAA			500.00	571.06	114.2	70 - 130
25 PFUdA			500.00	452.02	90.4	70 - 130
D 60 d5-EtFOSAA	779079	766263			98.4	50 - 150
D 52 13C7_PFUdA	732655	799492			109.1	50 - 150
D 61 d7-MeFOSE	133282	122404			91.8	50 - 150
D 57 d3-MeFOSA	72656	65563			90.2	50 - 150
31 11Cl-PF3OUDS			2355.00	1807.09	76.7	70 - 130
D 62 d9-EtFOSE	129304	123584			95.6	50 - 150
D 59 d5-EtFOSA	65473	67907			103.7	50 - 150
11 PFDoA			500.00	419.39	83.9	70 - 130
D 38 13C2_PFDoA	746808	761510			102	50 - 150
4 10:2 FTS			2410.00	2698.95	112	70 - 130
24 PFTrDA			500.00	444.60	88.9	70 - 130
23 PFTeDA			500.00	450.68	90.1	70 - 130
D 42 13C2_PFTeDA	900924	831003			92.2	50 - 150
D 40 13C2_PFHxDA	403292	392573			97.3	50 - 150

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d		
Injection Date:	04-Nov-2021 15:44:42	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	87
Sample Info:	ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	1124332	20	>100:1			1000.00	1044.21	94.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/0	543999	19	>100:1			500.00	439.93		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1068627	16	>100:1			1000.00	1065.52	98	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	530401	16	>100:1			500.00	463.24		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	332867	16	>100:1			1000.00	1024.93	91.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	182216	16	>100:1	Target = 3.80		442.50	383.17		
298.9 > 99	44	2.141	2.141		51610	17	>100:1	3.53 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	142878	17	>100:1	Target = 3.42		470.00	426.59		
349 > 99	44	2.493	2.493		44323	17	>100:1	3.22 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	198280	19	>100:1			5000.00	4773.58	91.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/1	32722	22	>100:1	Target = 1.54		467.50	422.79		
327 > 81	63	2.424	2.415		22389	16	32:1	1.46 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	985786	19	>100:1			1000.00	1103.62	95.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/0	415367	18	>100:1	Target = 17.93		500.00	407.78		
313 > 119	49	2.467	2.467		25123	17	>100:1	16.53 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	814221	19	>100:1			5000.00	4970.24	92.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.587	0/0	282178	20	>100:1	Target = 0.72		2500.00	2261.61		
285 > 185	66	2.579	2.587		421026	19	>100:1	0.67 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	940835	18	>100:1			1000.00	1073.78	95.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	408133	18	>100:1	Target = 3.26		500.00	450.63		
363 > 169	47	2.846	2.846		125869	19	>100:1	3.24 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	269135	18	>100:1			1000.00	1026.14	90.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/0	122767	26	>100:1	Target = 3.48	5.64	456.00	385.87		
399 > 99	45	2.864	2.863		36700	26	>100:1	3.34 (1.74-5.22)	7.04				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	3239225	20	>100:1	Target = 2.31		2355.00	2186.64		
377 > 85	45	2.890	2.890		1247827	18	>100:1	2.59 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.227	3.229	0/-1	126575	20	>100:1	Target = 3.56		475.00	457.25		
449 > 99	45	3.227	3.229		32846	18	>100:1	3.85 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.204	0	178304	23	>100:1			5000.00	4728.16	91.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.196	3.204	0/0	27245	19	>100:1	Target = 1.34		475.00	439.39		
427 > 81	64	3.208	3.204		23962	23	41:1	1.13 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.223	1	856947	21	>100:1			1000.00	1036.22	92.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.229	0/-1	386990	20	>100:1	Target = 2.50		500.00	438.90		
413 > 169	53	3.227	3.229		155538	21	>100:1	2.48 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.592	3.595	0	236764	19	>100:1			1000.00	1054.72	96.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.595	0/0	111437	37	>100:1	Target = 4.01	3.72	462.75	399.26		
499 > 99	54	3.584	3.595		28188	42	>100:1	3.95 (2.00-6.02)	7.03				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.797	3.799	0/0	1544052	19	>100:1			2330.00	2110.16		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.924	3.926	0/0	100091	16	>100:1	Target = 3.78		480.00	418.55		
549 > 99	54	3.924	3.926		26606	17	>100:1	3.76 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.223	4.226	0/0	92567	16	>100:1	Target = 3.98		482.50	396.02		
599 > 99	54	4.223	4.226		21203	15	>100:1	4.36 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.385	4.386	0/0	1188550	17	>100:1			2355.00	1807.09		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.592	3.595	0	827083	18	>100:1			1000.00	1035.13	82.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.595	1/1	325980	18	>100:1	Target = 4.69		500.00	432.82		
463 > 169	56	3.599	3.595		76881	25	>100:1	4.24 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.873	0	437103	18	>100:1			1000.00	1055.32	102.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.871	3.873	0/0	214409	19	>100:1	Target = 40.85		500.00	433.82		
498>478	55	3.879	3.873		3358	18	22:1	63.85 (20.42-61.28)					M
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	147593	18	>100:1			5000.00	4702.59	96.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.932	3.934	0/0	24087	17	>100:1	Target = 1.58		480.00	459.30		
527 > 81	65	3.932	3.934		15426	23	39:1	1.56 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.519	4.528	0/0	142079	17	>100:1	Target = 2.46		2410.00	2698.95		
627 > 80	65	4.519	4.528		59699	19	>100:1	2.37 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.932	3.942	0	762981	19	>100:1			1000.00	1057.05	97.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.940	3.942	0/0	343072	19	>100:1	Target = 9.77		500.00	438.21		
513 > 169	51	3.932	3.942		37215	16	>100:1	9.21 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.088	4.098	0	862239	17	>100:1			5000.00	4862.81	95.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.096	4.098	0/0	76659	19	>100:1	Target = 1.41		500.00	543.70		
570 > 483	58	4.096	4.098		57455	18	>100:1	1.33 (0.70-2.11)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.242	4.253	0	799492	16	>100:1			1000.00	1169.83	109.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.242	4.253	0/0	324205	17	>100:1	Target = 9.19		500.00	452.02		
563 > 169	52	4.242	4.253		34288	17	>100:1	9.45 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.242	4.253	0	766263	16	>100:1			5000.00	5124.45	98.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.251	4.253	0/0	89457	15	>100:1	Target = 1.75		500.00	571.06		
584 > 526	60	4.251	4.253		43831	16	>100:1	2.04 (0.87-2.63)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.278	4.280	0	122404	17	>100:1			1000.00	887.08	91.8	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.306	0	65563	14	>100:1			1000.00	936.33	90.2	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.448	0	123584	16	>100:1			1000.00	961.34	95.6	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.463	0	67907	19	>100:1			1000.00	1054.37	103.7	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.512	4.521	0	761510	17	>100:1			1000.00	1107.42	102	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.512	4.521	0/0	313652	17	>100:1	Target = 6.38		500.00	419.39		
613 > 169	38	4.512	4.521		50513	16	>100:1	6.20 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.752	4.760	0/0	181438	19	>100:1	Target = 3.23		500.00	444.60		
663 > 169	38	4.752	4.760		52726	18	>100:1	3.44 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.969	4.978	0	831003	25	>100:1			1000.00	1063.00	92.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.978	0/0	329130	26	>100:1	Target = 7.33		500.00	450.68		
713 > 169	42	4.969	4.978		44479	25	>100:1	7.39 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.360	5.372	0	392573	20	>100:1			1000.00	1005.62	97.3	
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	0	713034	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	878369	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.223	1	826038	22	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	996476	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.592	3.595	0	248440	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

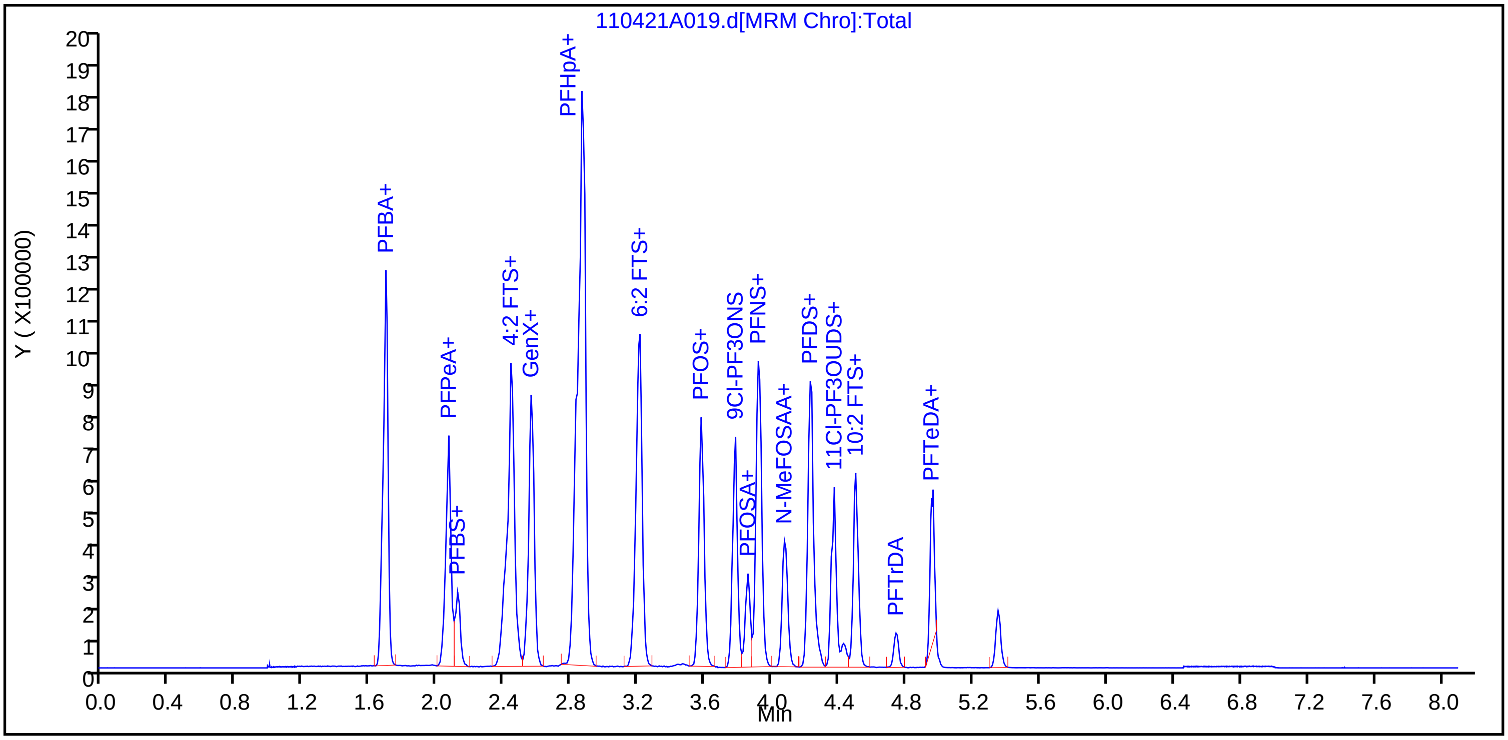
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

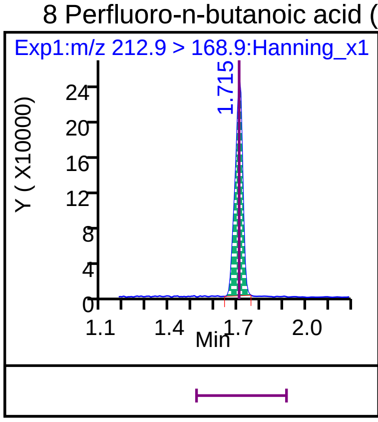
Report Date: 05-Nov-2021 13:58:31		AIM Revision: 2.0.2021.0812	

Pace Environmental Services, LLC

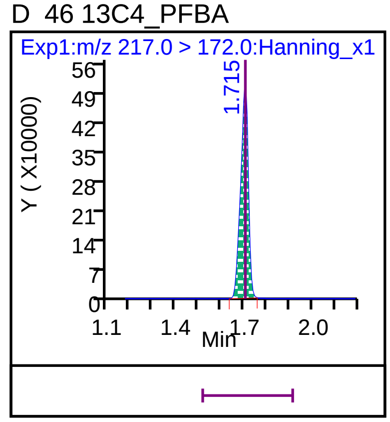
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d		
Injection Date:	04-Nov-2021 15:44:42	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICV 500_SVLC-1734
Sample Info:	ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Matthew M. Miller



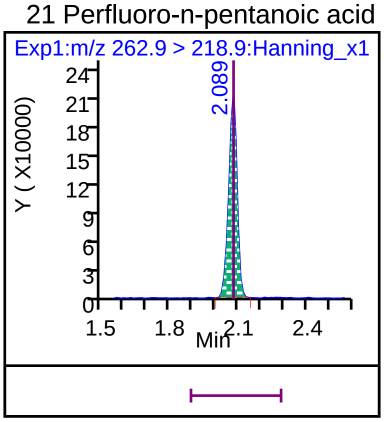
8 Perfluoro-n-butanoic acid (PFBA)



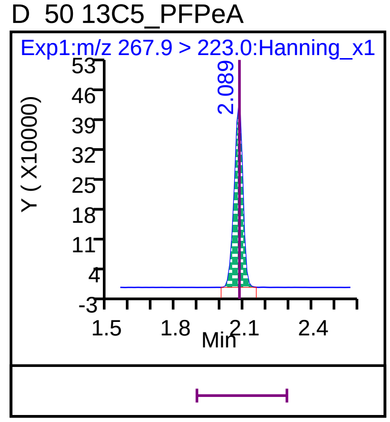
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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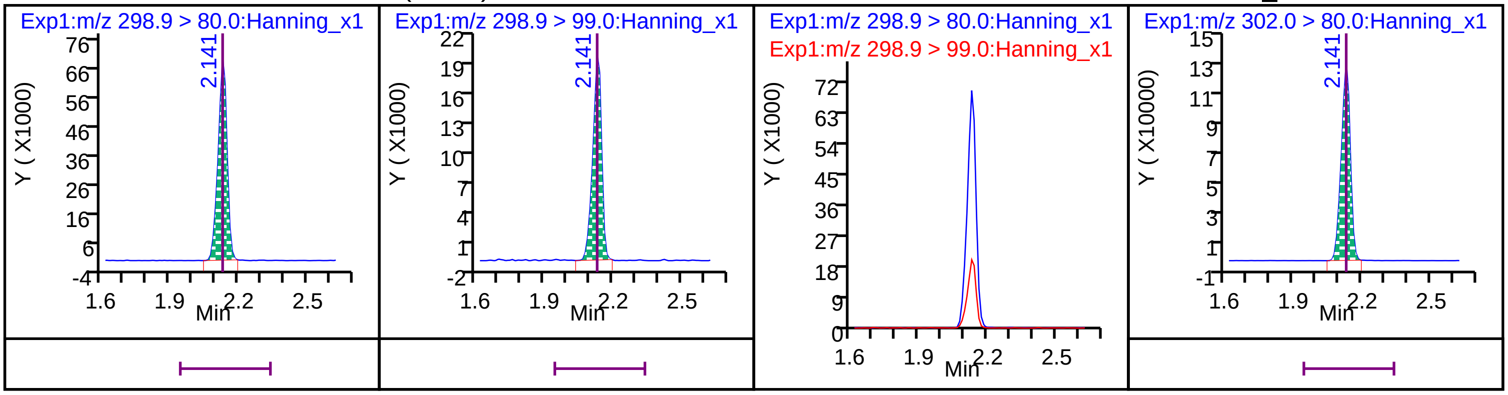
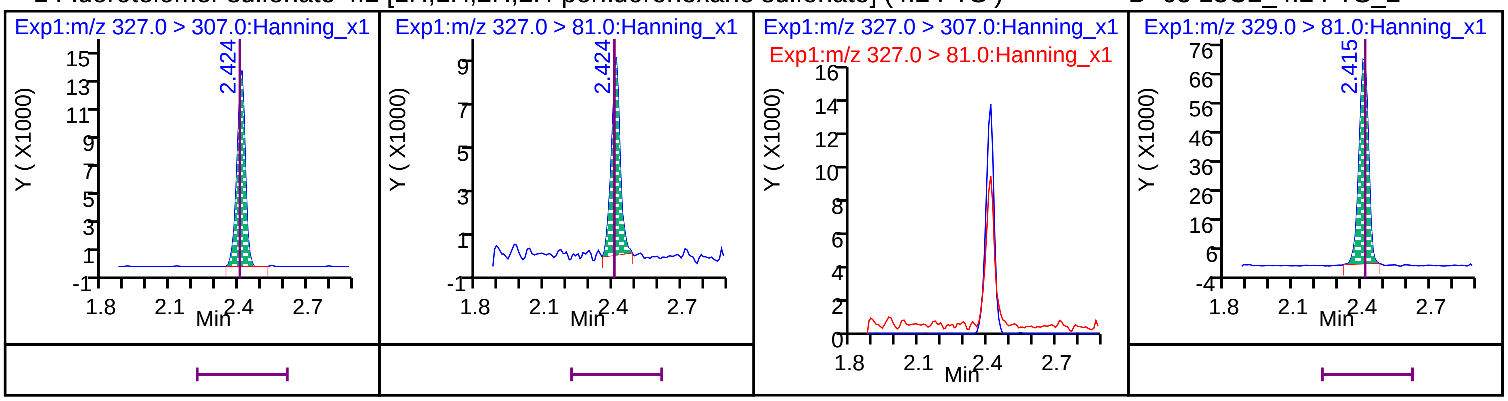
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d

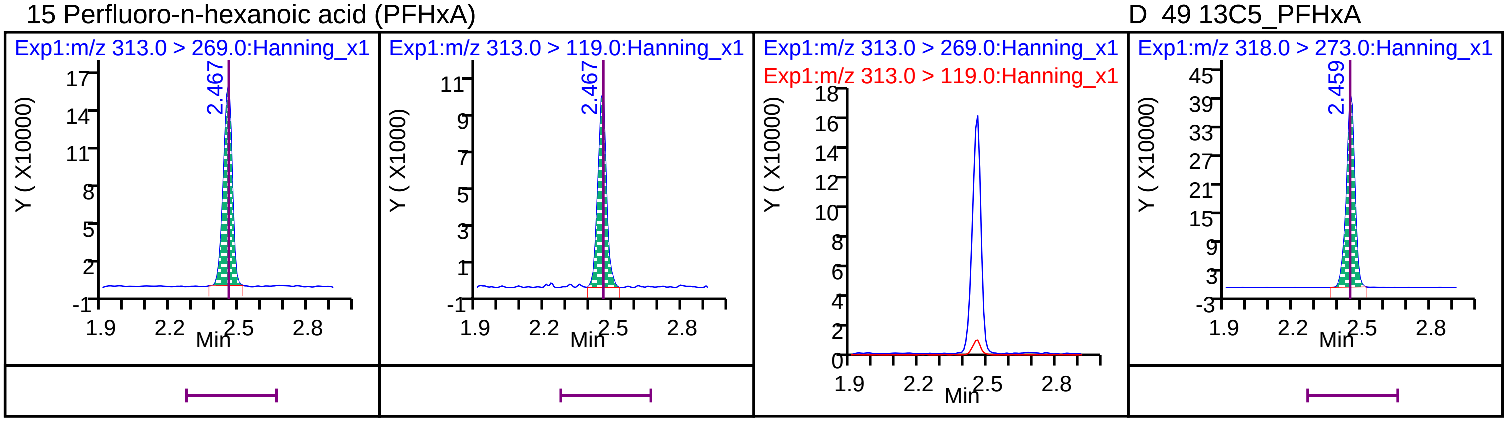
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



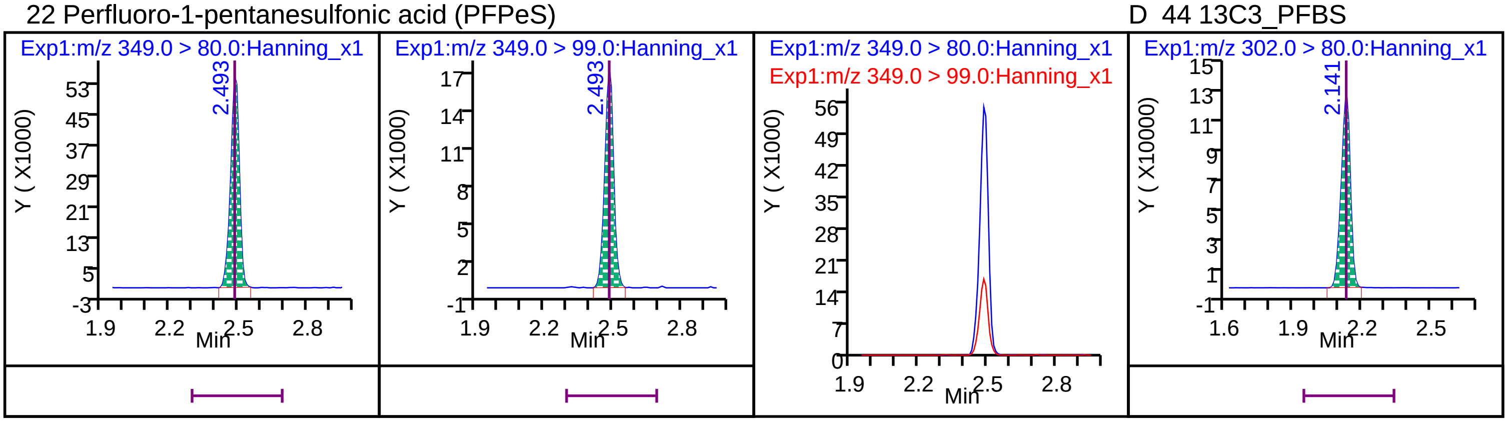
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



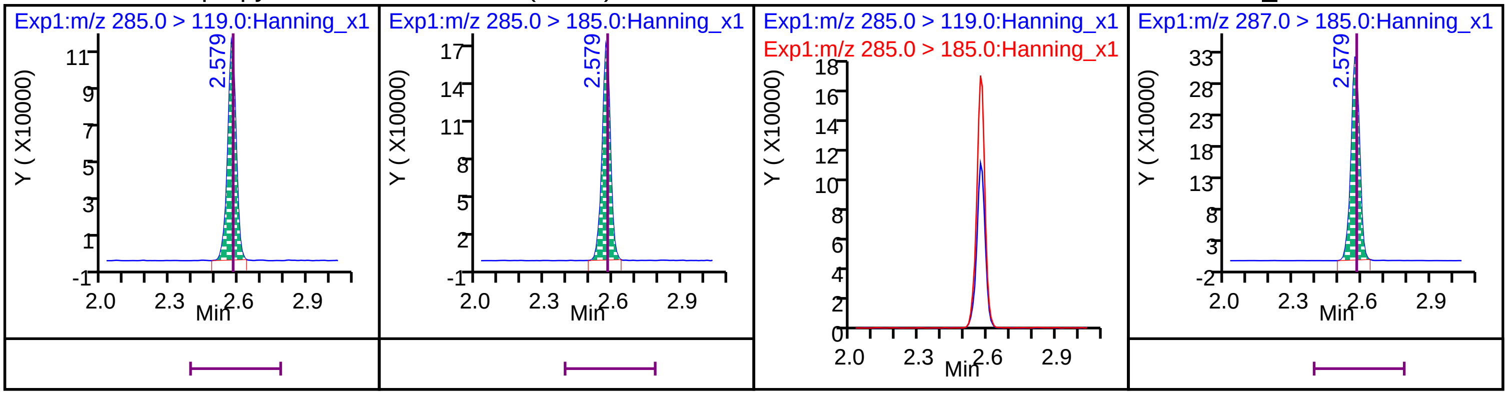
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



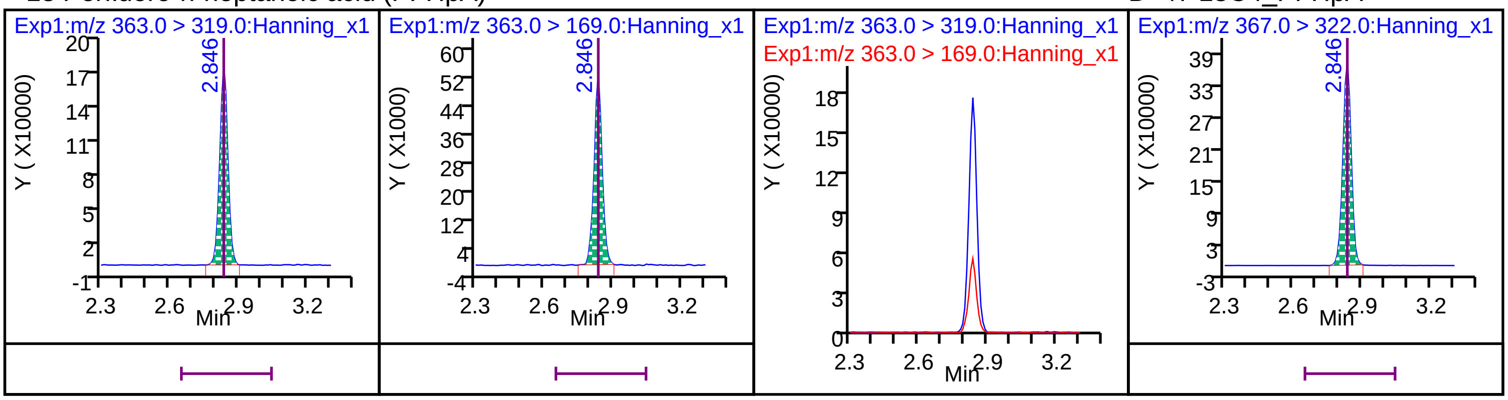
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



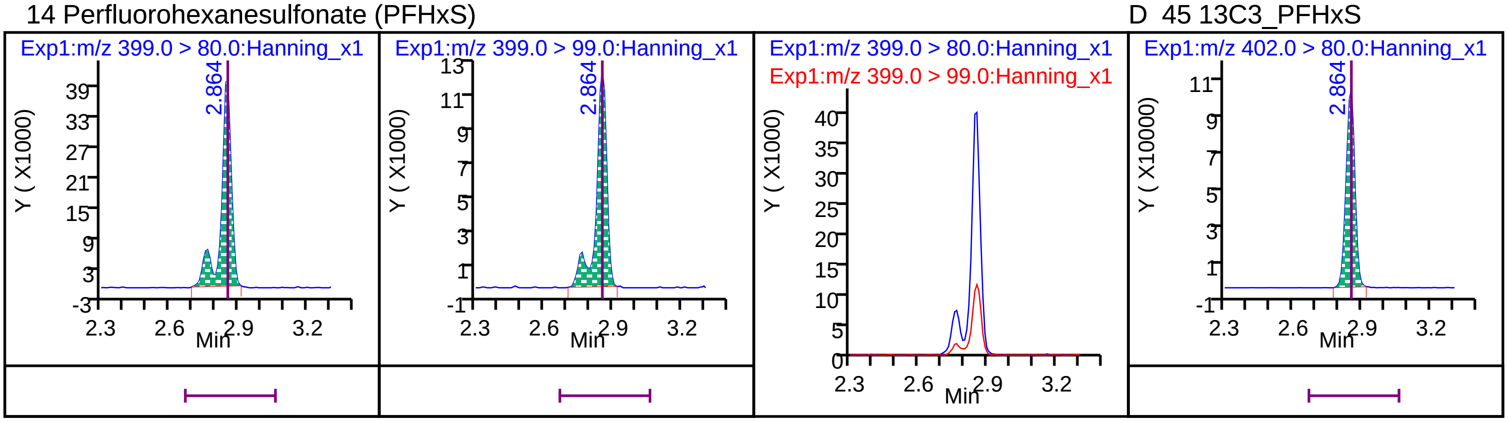
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



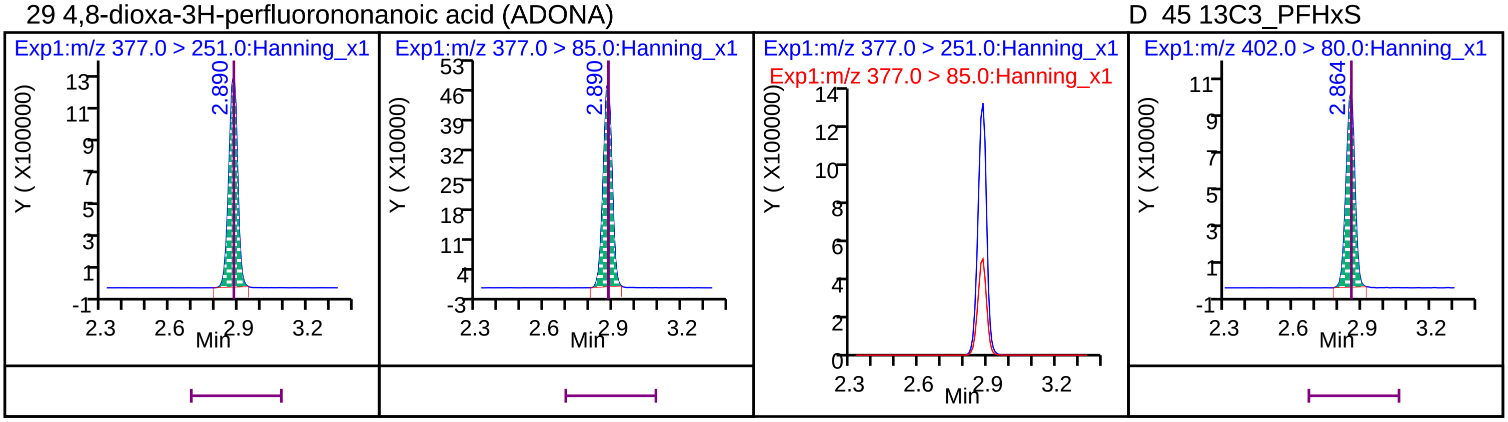
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



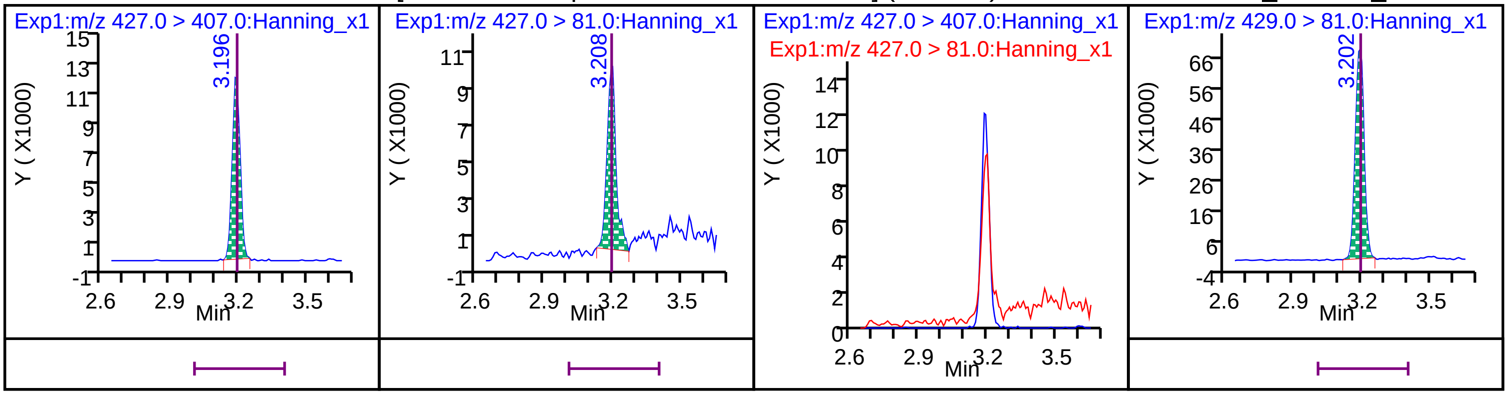
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



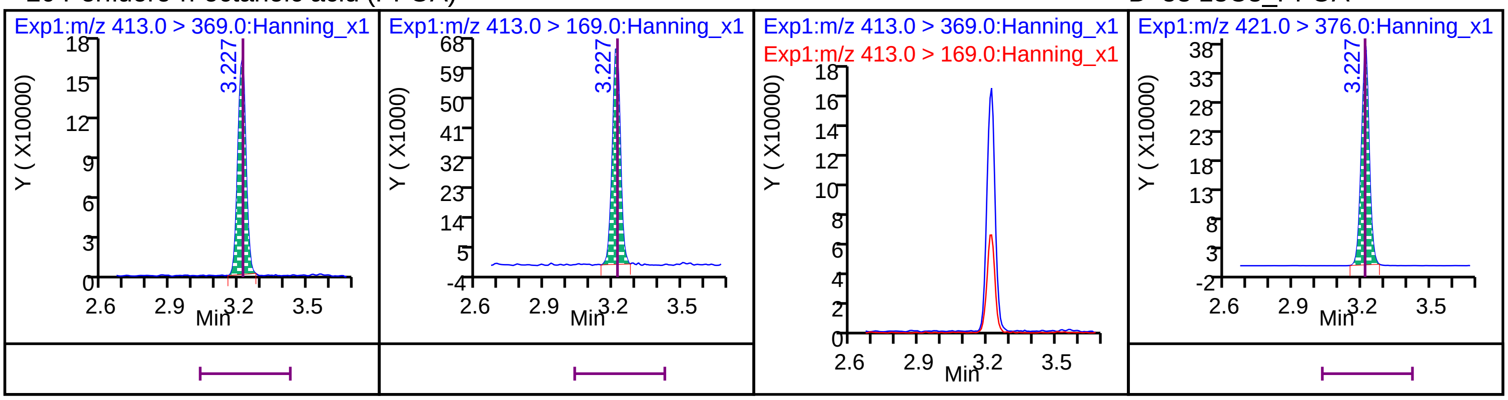
Report Date: 05-Nov-2021 13:58:31 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d

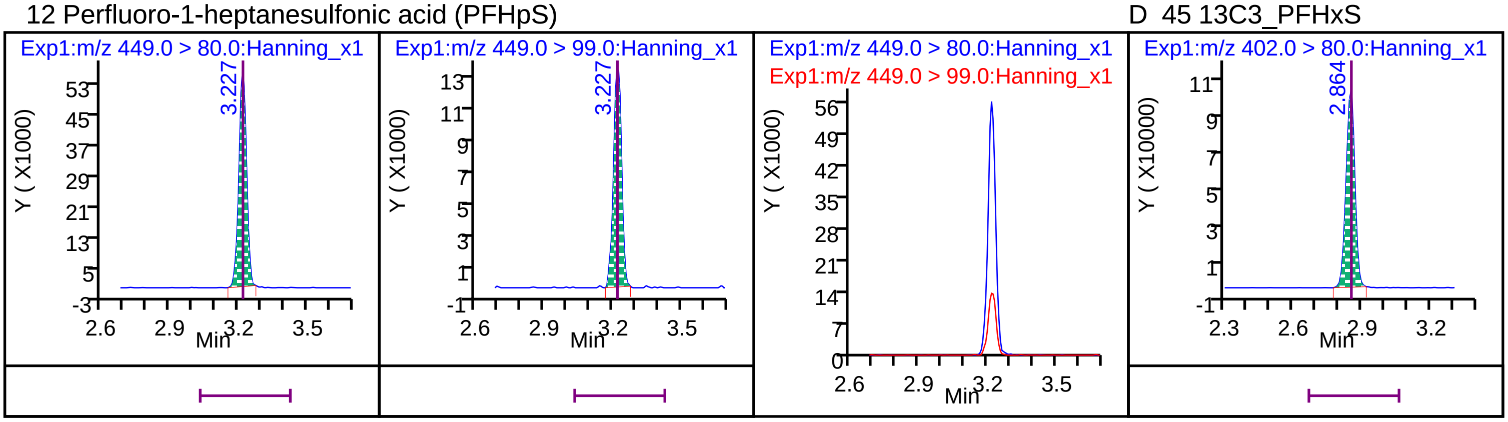
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



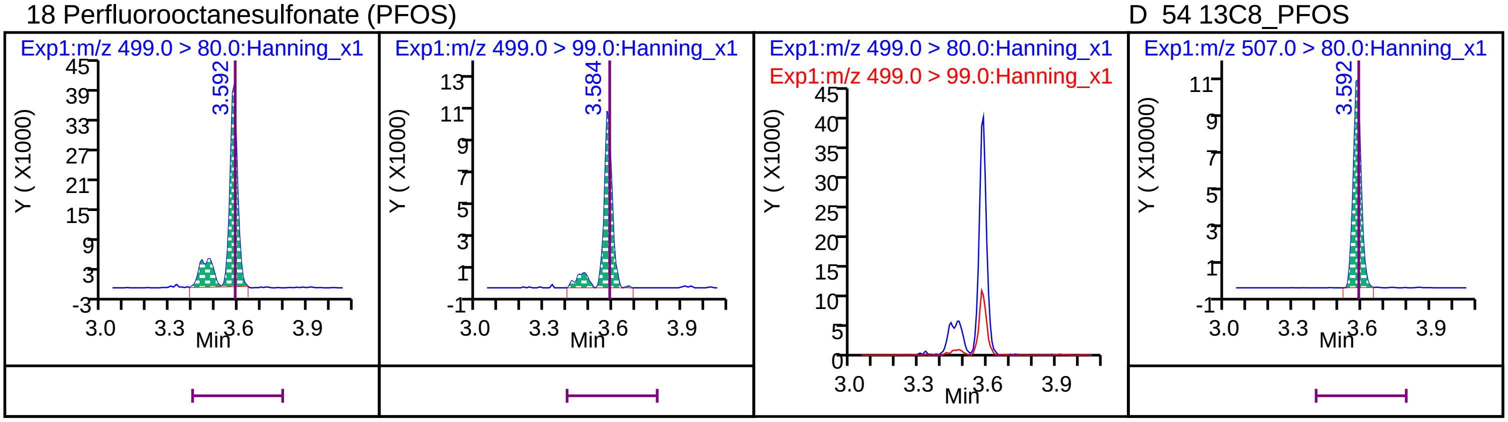
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



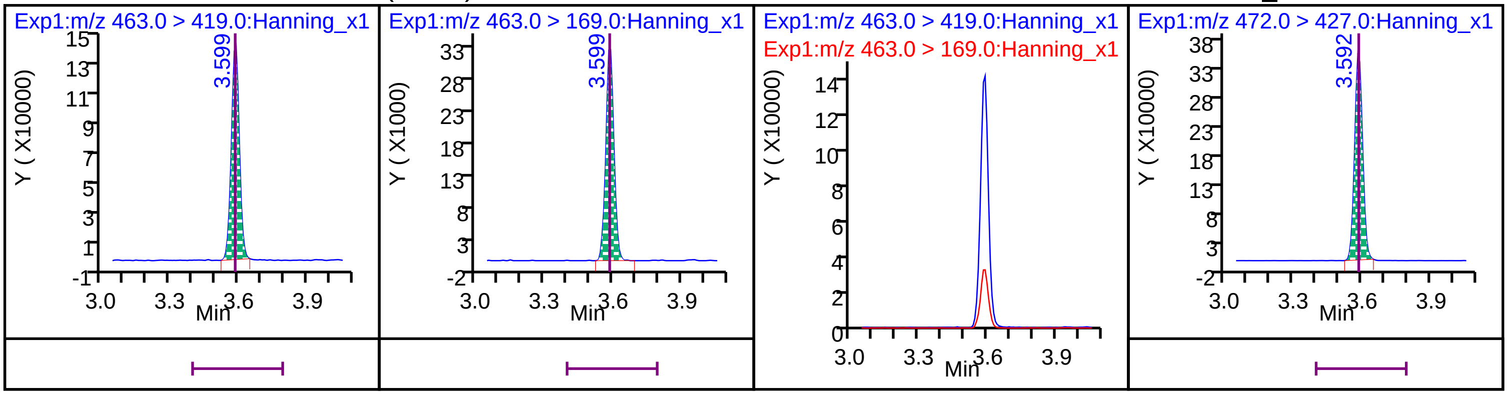
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



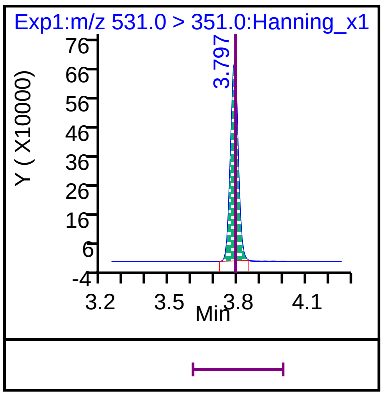
Report Date: 05-Nov-2021 13:58:31 AIM Revision: 2.0.2021.0812

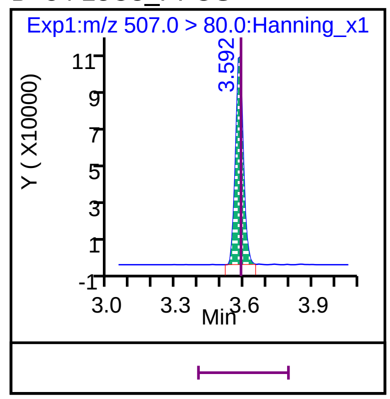
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

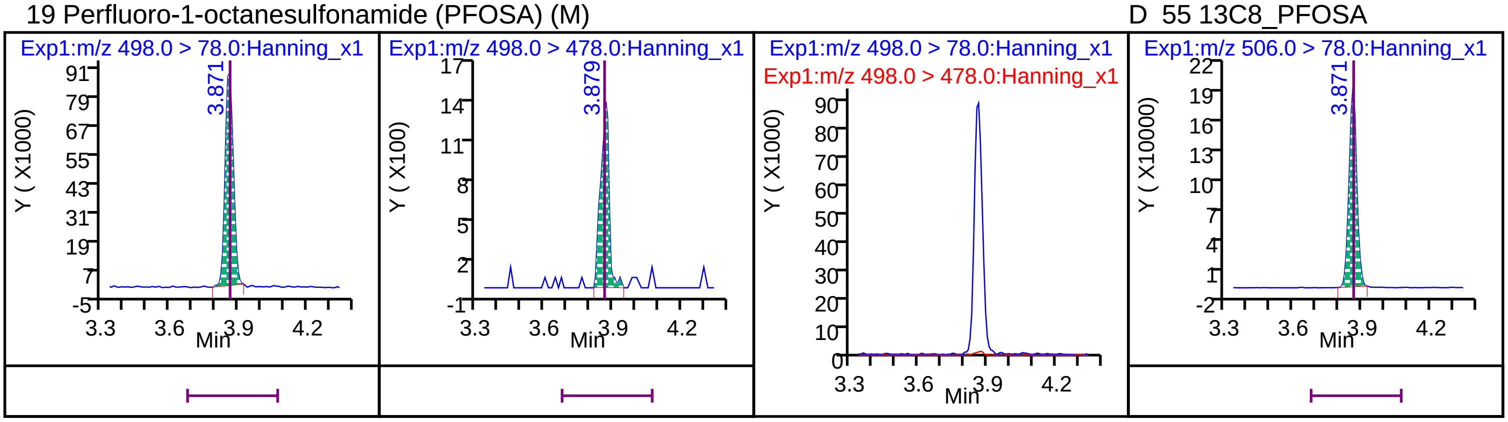


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

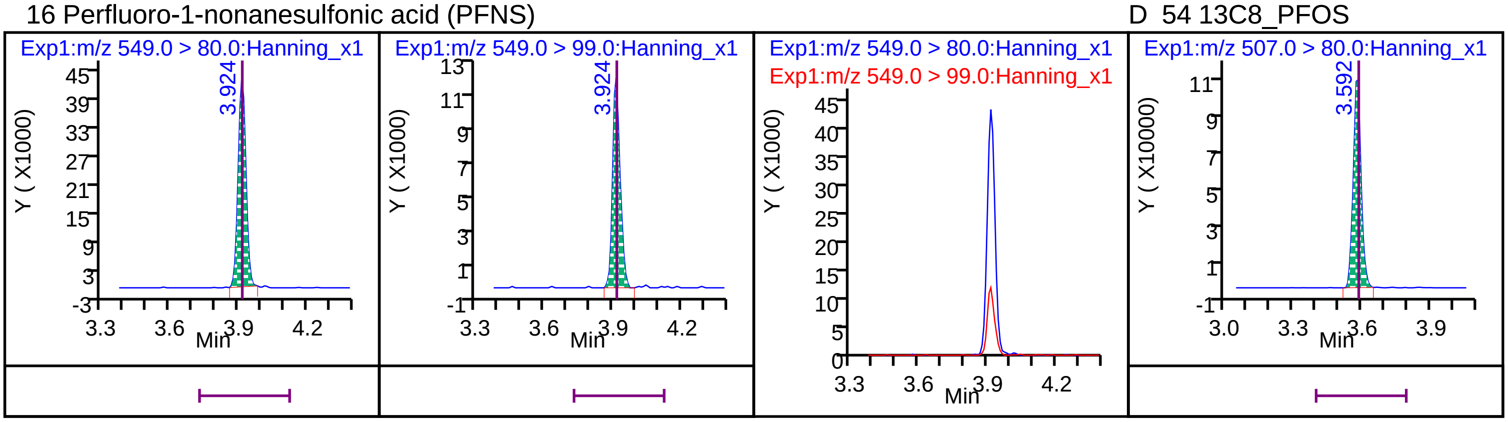




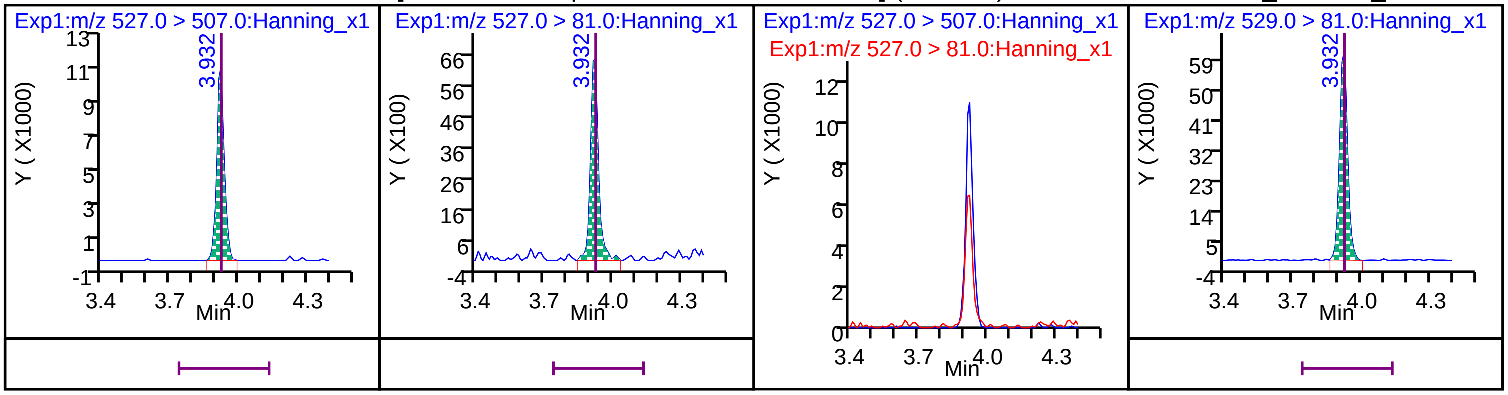
19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA



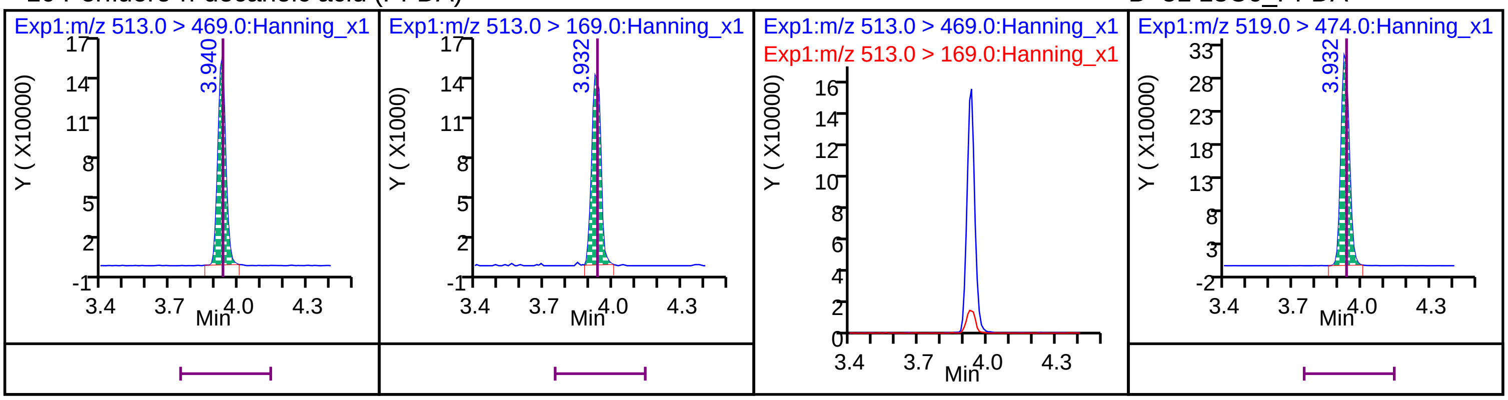
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



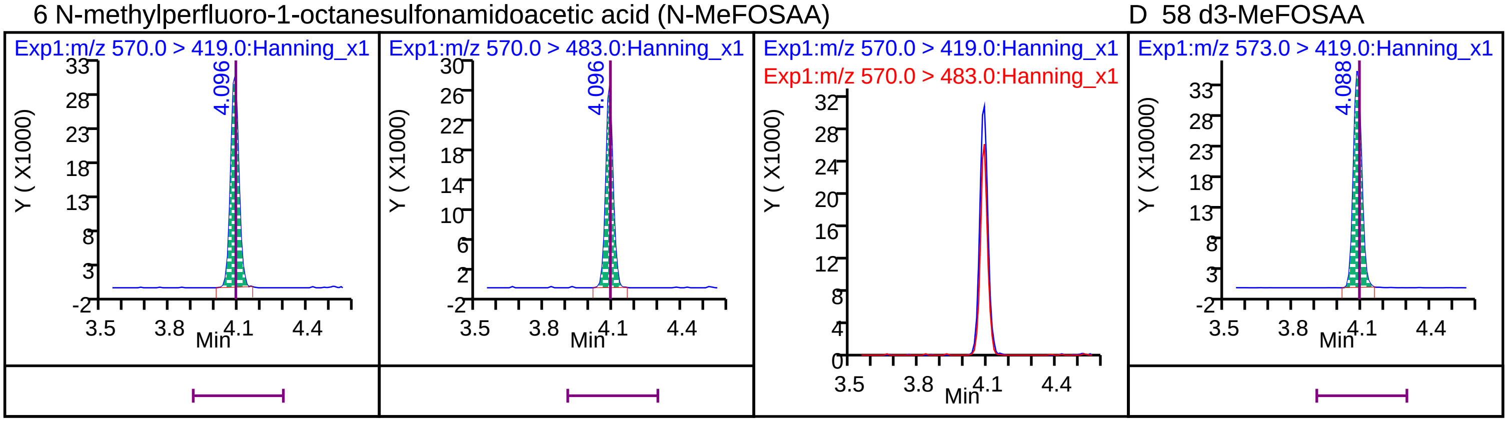
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



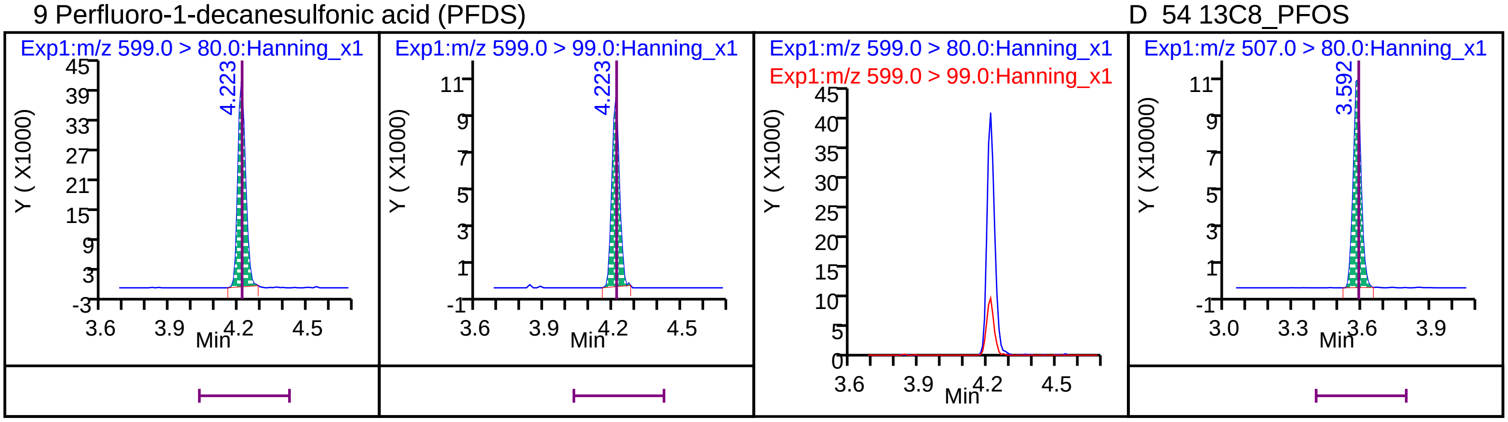
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

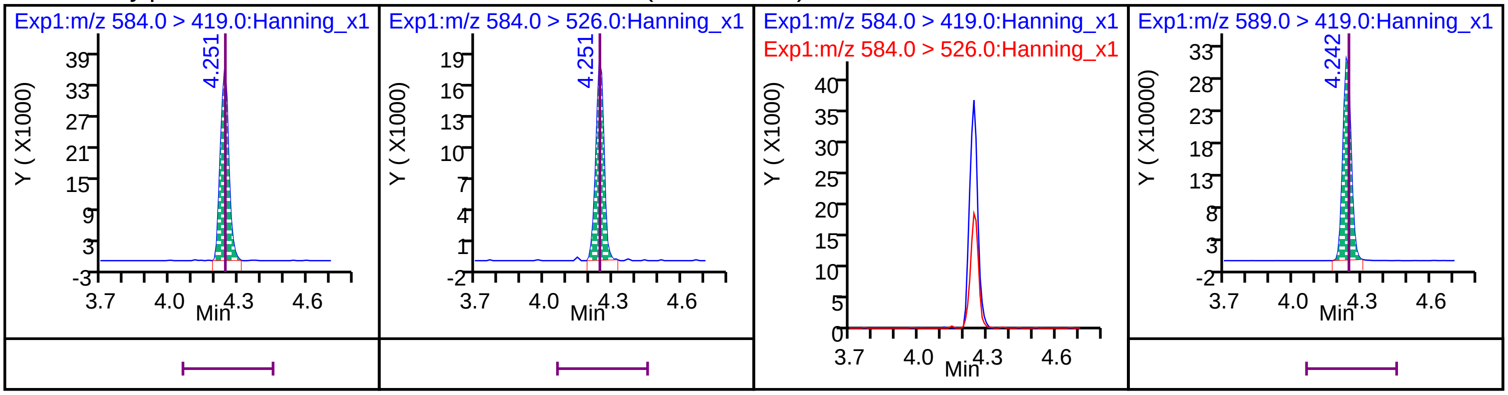


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

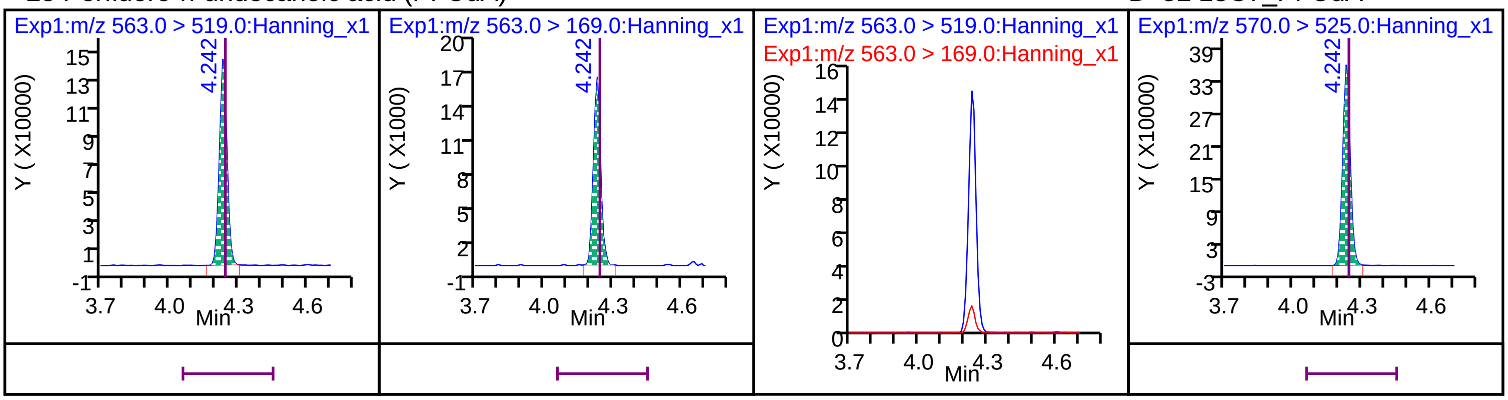


Report Date: 05-Nov-2021 13:58:31 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d

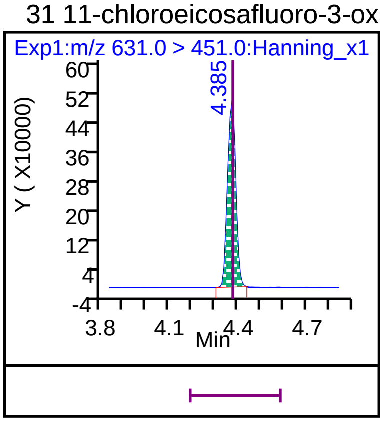
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

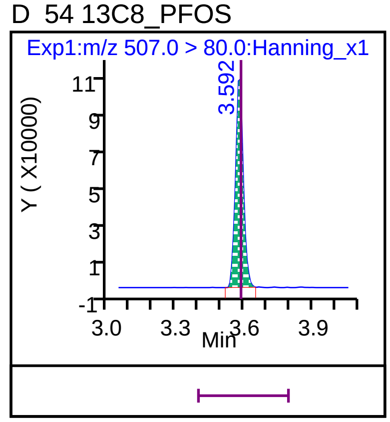


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

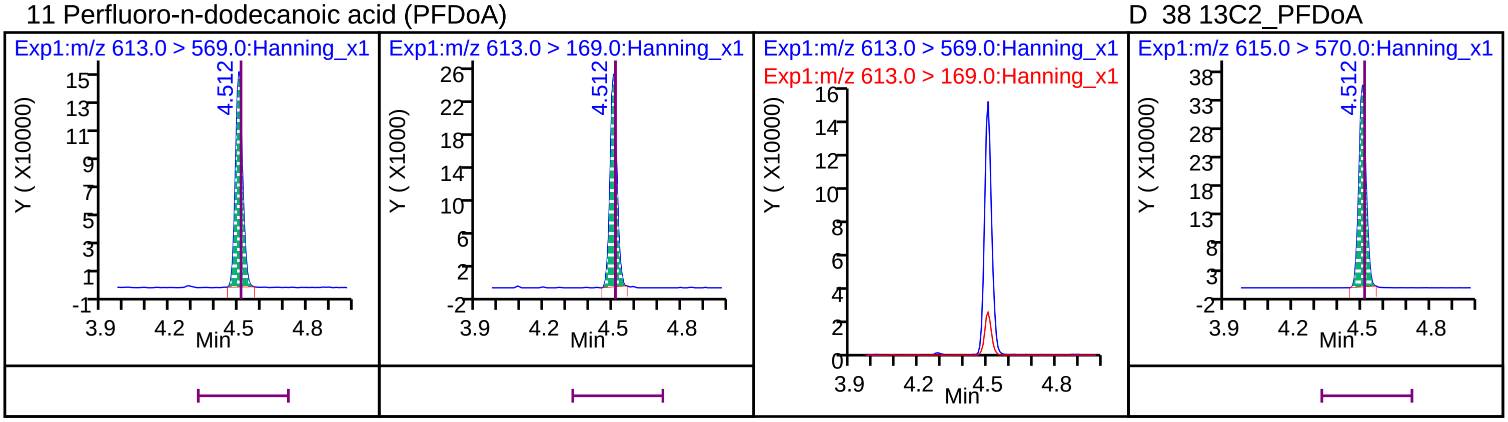


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS

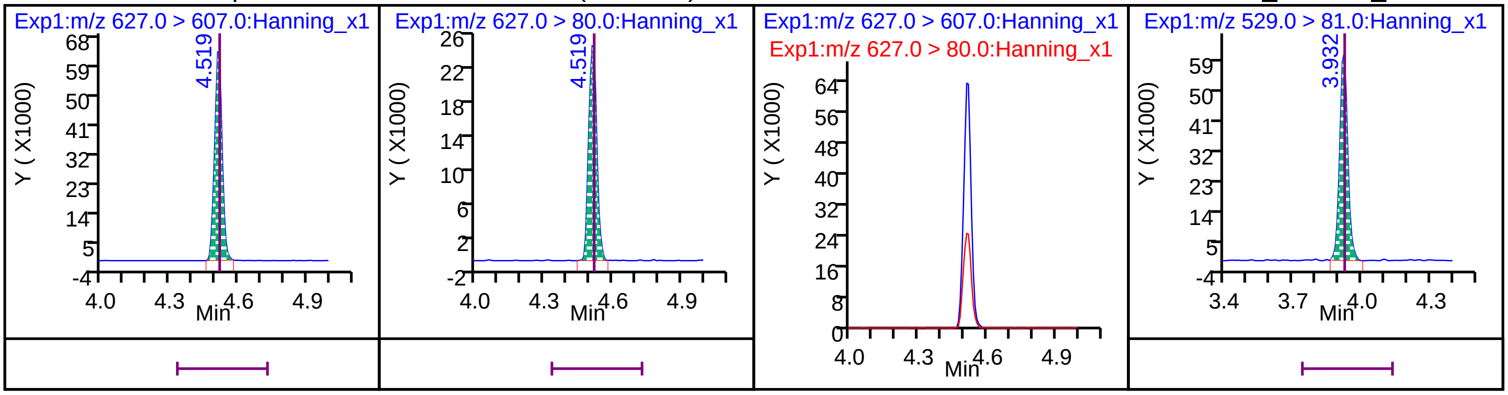




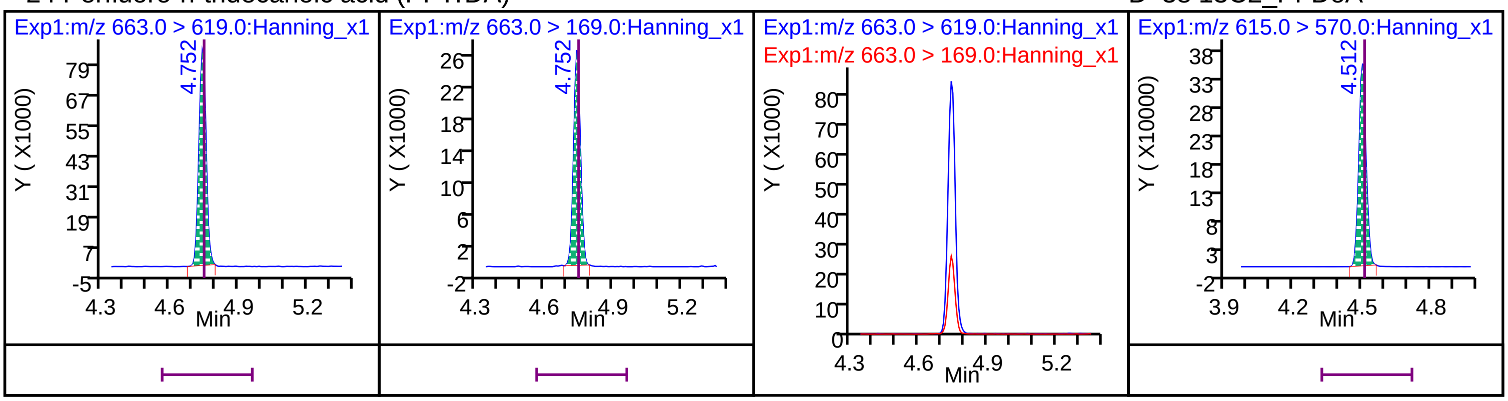
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



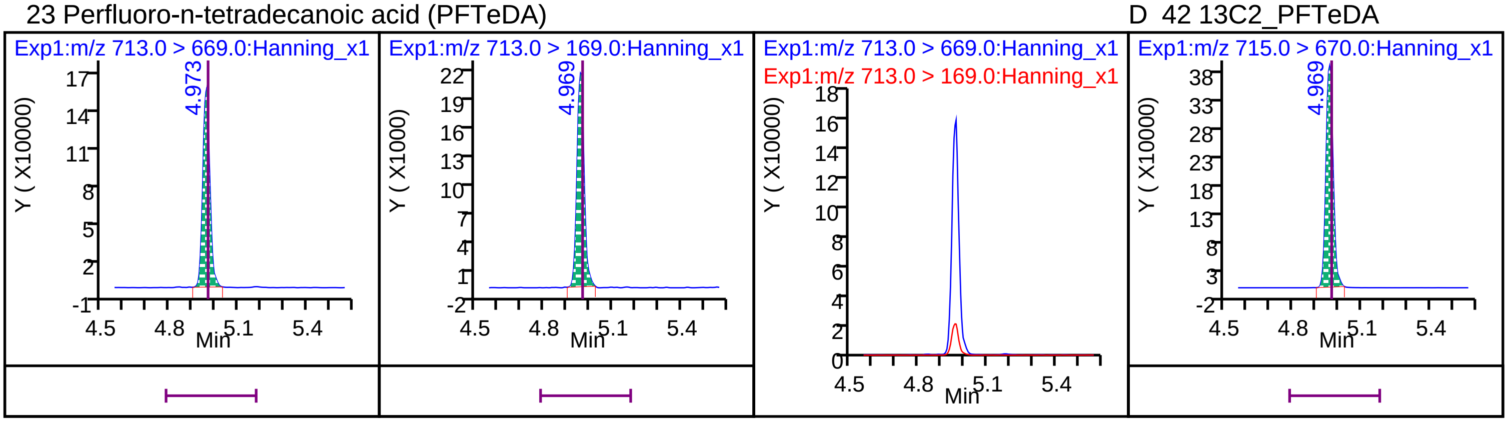
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



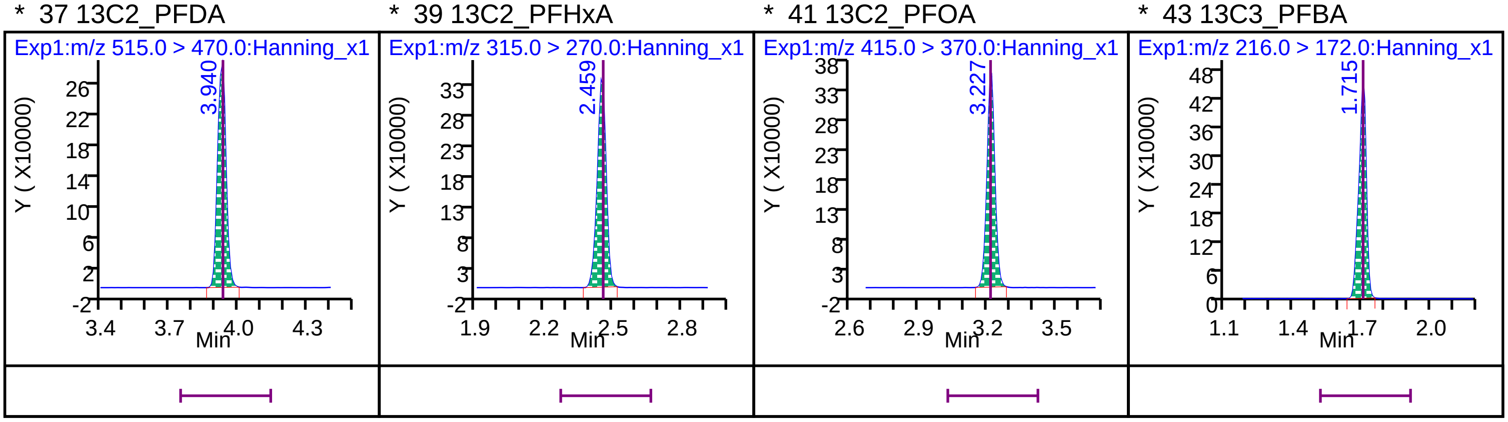
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

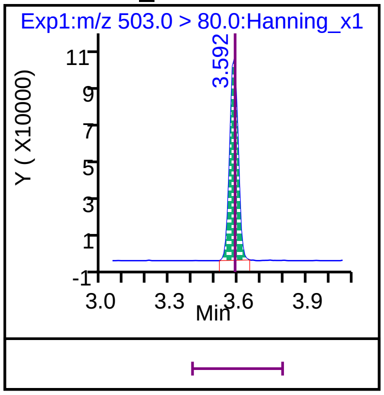


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



Report Date: 05-Nov-2021 13:58:31 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d

* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

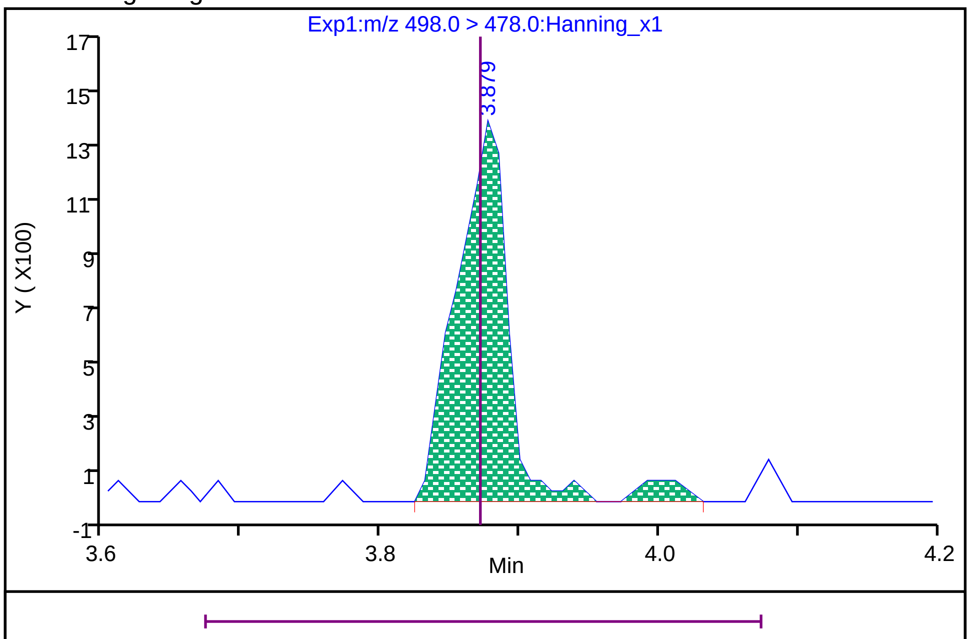
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A019.d		
Injection Date:	04-Nov-2021 15:44:42	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICV 500_SVLC-1734
Sample Info:	ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Matthew M. Miller

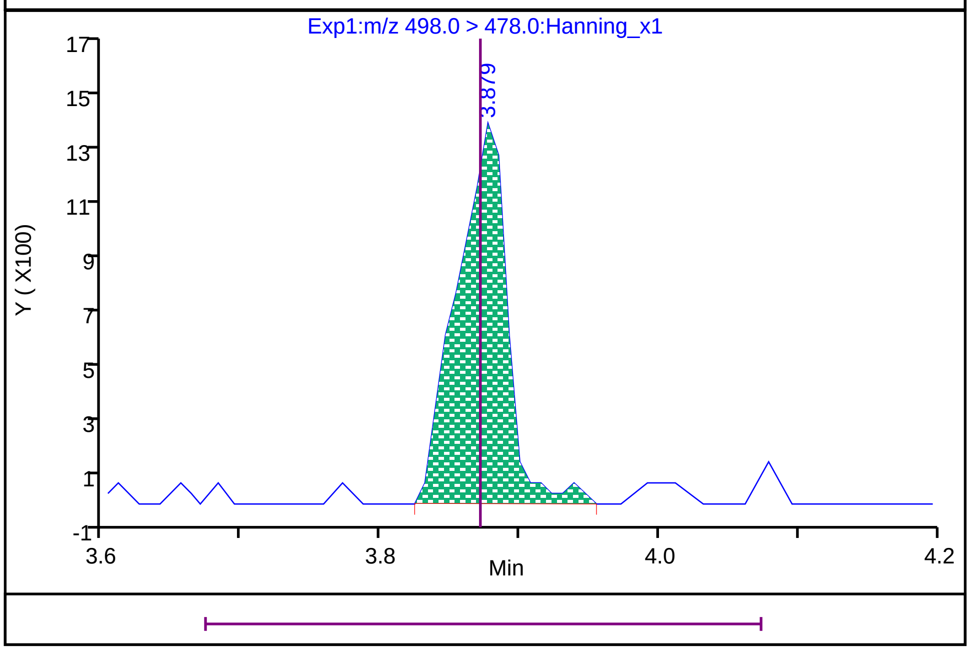
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT:	3.879
Area:	3541
Amount:	433.82
Amount Units:	ng/L



RT:	3.879
Area:	3358
Amount:	433.82
Amount Units:	ng/L



Data Editor: matthew.miller, 04-Nov-2021 16:18:51

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A020.d		
Injection Date:	04-Nov-2021 15:55:15	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	88
Sample Info:	ISOMERS_SVLC-1652	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Surrogates Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	1142015	20	>100:1			100000	1060.63	96.1	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.079	2.089	0	1077549	17	>100:1			100000	1074.42	98.8	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	346835	15	>100:1			100000	1067.94	95.3	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.416	2.424	0	217432	19	>100:1			500000	5234.66	100.2	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	914187	18	>100:1			100000	1023.46	88.8	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	916920	18	>100:1			500000	5597.14	104.4	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	942709	18	>100:1			100000	1075.91	95.6	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.863	0	269305	18	>100:1			100000	1026.78	90.7	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.196	3.204	0	196291	21	>100:1			500000	5205.13	100.9	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.221	3.223	0	820218	22	>100:1			100000	991.81	88.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.221	3.229	0/0	9844123	42	>100:1	Target = 2.50	6.10	0	1166453		
413 > 169	53	3.221	3.229		4216495	35	>100:1	2.33 (1.25-3.75)	4.28				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.584	3.595	0	236882	18	>100:1			100000	1055.25	96.4	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.592	3.595	0	809604	19	>100:1			100000	1013.25	81	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.873	0	454344	18	>100:1			100000	1096.94	106.2	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.924	3.934	0	203815	18	>100:1			500000	6493.93	132.8	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.932	3.942	0	829254	19	>100:1			100000	1148.87	105.7	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.088	4.098	0	1051859	16	>100:1			500000	5932.22	116.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.096	4.098	0/0	2485092	32	>100:1	Target = 1.41	8.76	0	1444793		
570 > 483	58	4.096	4.098		1541938	32	>100:1	1.61 (0.70-2.11)	3.95				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.242	4.253	0	760416	17	>100:1			100000	1112.66	103.8	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.242	4.253	0	968866	18	>100:1			500000	6479.38	124.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.251	4.253	0/0	2037437	32	>100:1	Target = 1.75	6.79	0	1028645		
584 > 526	60	4.251	4.253		1182880	39	>100:1	1.72 (0.87-2.63)	3.91				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.278	4.280	0	155384	15	>100:1			100000	1126.09	116.6	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.306	0	75591	14	>100:1			100000	1079.55	104	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.448	0	124862	17	>100:1			100000	971.28	96.6	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.463	0	74175	17	>100:1			100000	1151.69	113.3	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.512	4.521	0	895429	18	>100:1			100000	1302.17	119.9	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.959	4.978	-1	898834	23	>100:1			100000	1149.76	99.8	
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.353	5.372	-1	429787	21	>100:1			100000	1100.95	106.6	
*** 37 13C2_PFDA**													
515 > 470		3.932	3.942	0	755889	18	>100:1			0			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	923577	18	>100:1			0			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.221	3.223	0	802049	22	>100:1			0			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	985541	19	>100:1			0			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.584	3.595	0	235645	19	>100:1			0			

Compound Type Legend

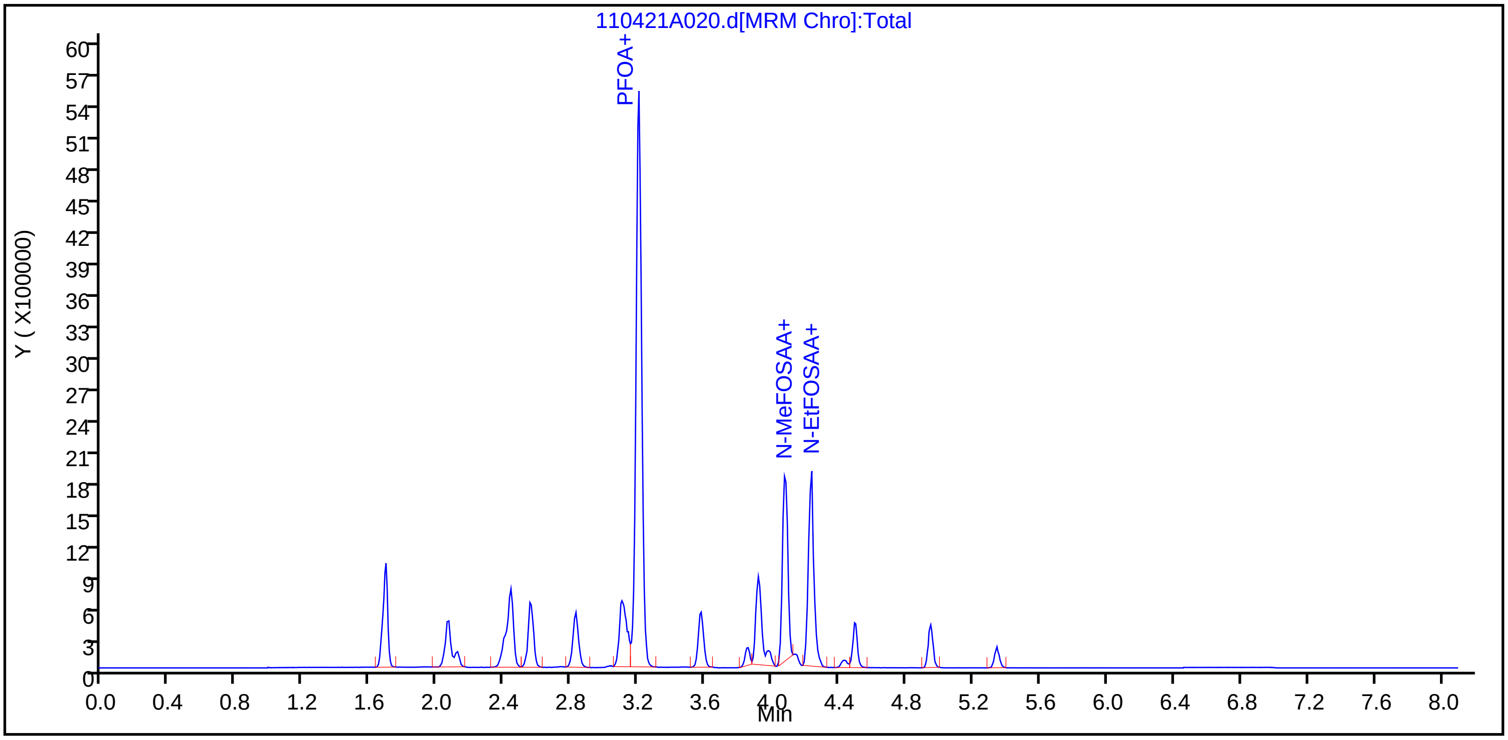
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

Report Date: 05-Nov-2021 13:58:32 AIM Revision: 2.0.2021.0812

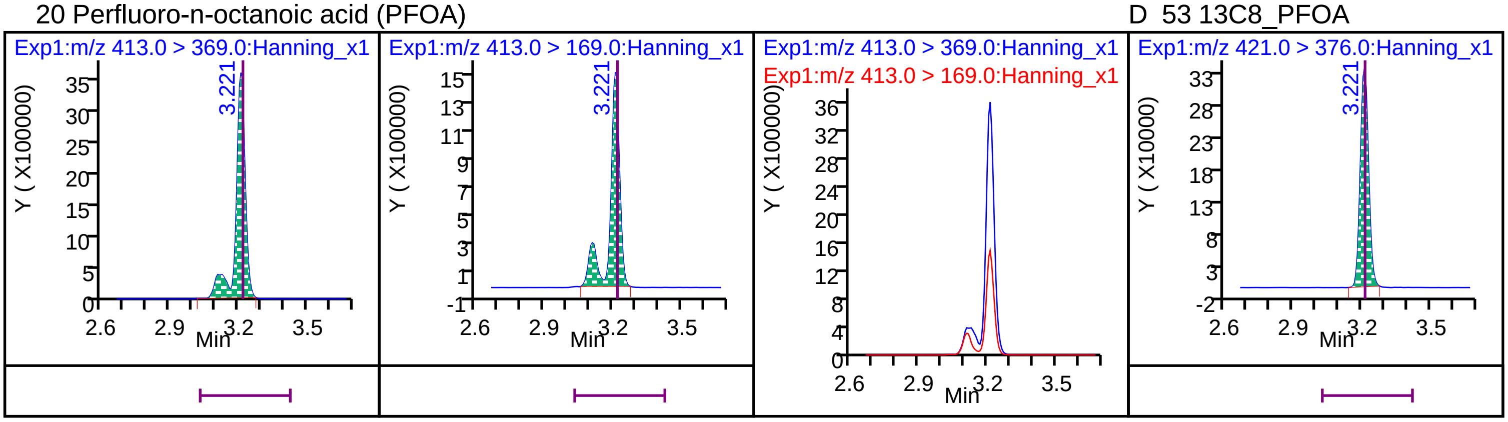
Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A020.d		
Injection Date:	04-Nov-2021 15:55:15	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ISOMERS_SVLC-1652
Sample Info:	ISOMERS_SVLC-1652		
Dil. Factor:	1	Operator:	Matthew M. Miller



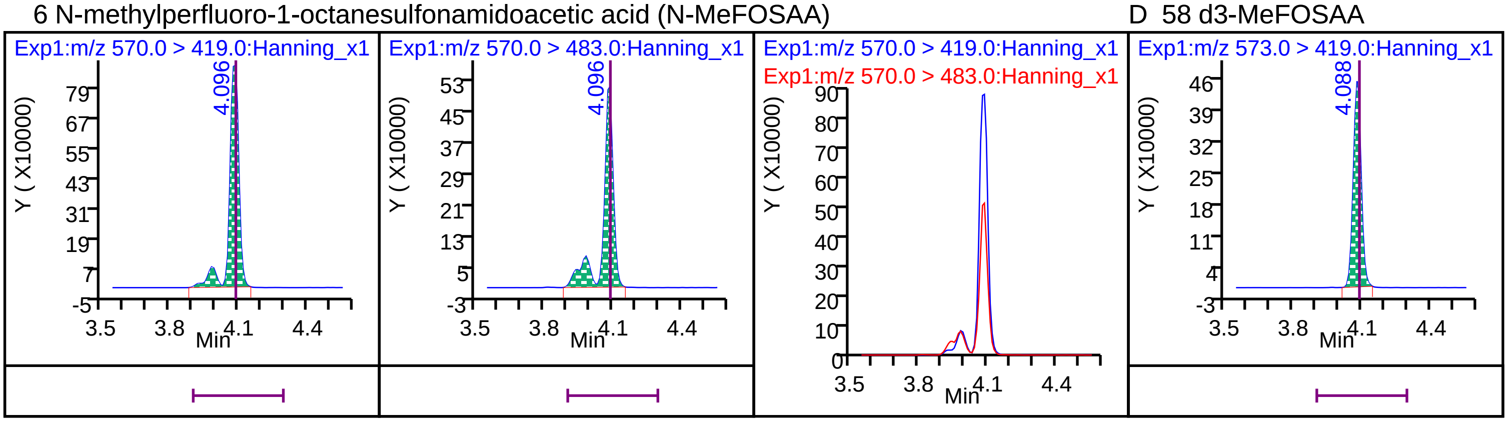
20 Perfluoro-n-octanoic acid (PFOA)

D 53 13C8_PFOA



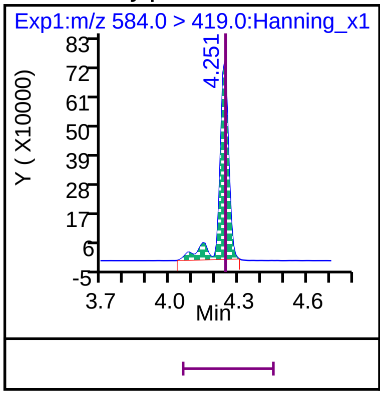
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

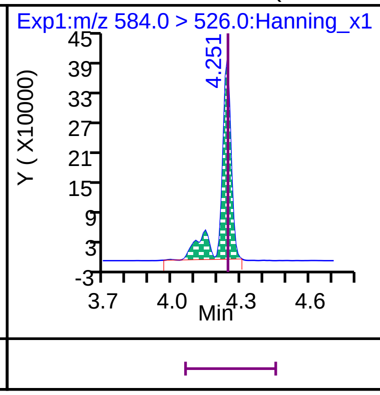
D 58 d3-MeFOSAA

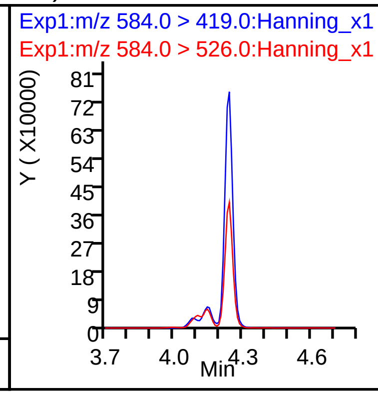


Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A020.d

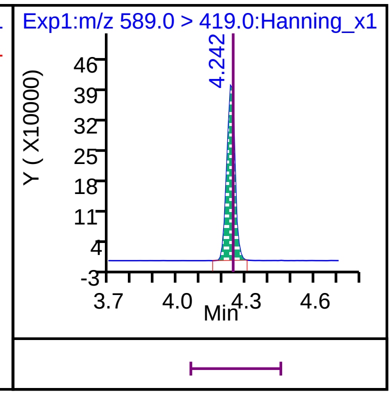
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



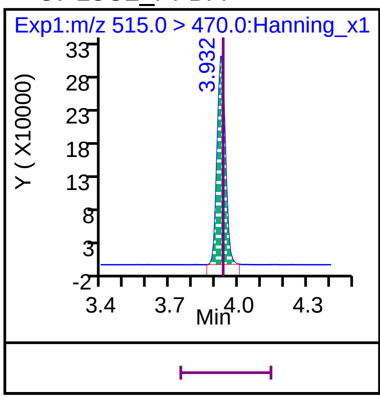




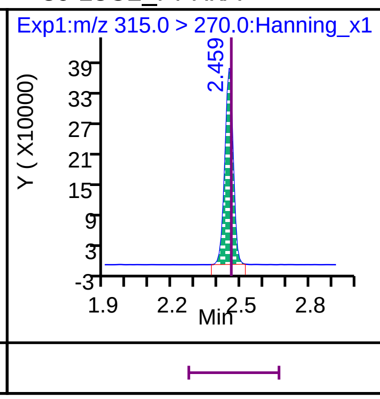
D 60 d5-EtFOSAA



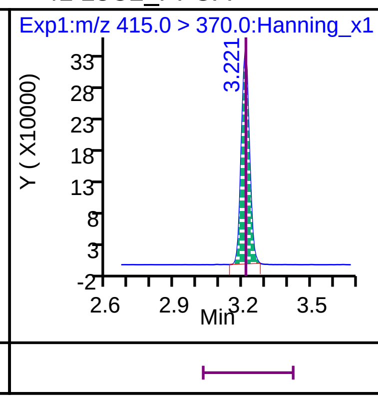
* 37 13C2_PFDA



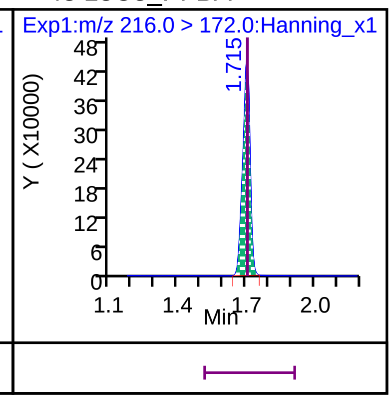
* 39 13C2_PFHxA



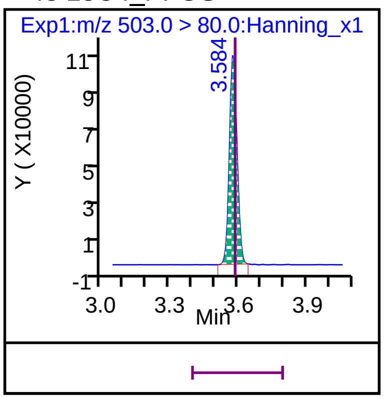
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 06-Nov-2021 14:39:28 Cal End Date: 06-Nov-2021 16:14:38

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\ORGANICS\LL\LCMSMS01.i\110621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110621014.d	ICAL 50_SVLC-1740	06-Nov-2021 14:39:28
2	110621015.d	ICAL 100_SVLC-1741	06-Nov-2021 14:50:00
3	110621016.d	ICAL 200_SVLC-1742	06-Nov-2021 15:00:33
4	110621017.d	ICAL 500_SVLC-1743	06-Nov-2021 15:11:07
5	110621018.d	ICAL 1000_SVLC-1744	06-Nov-2021 15:21:40
6	110621019.d	ICAL 2000_SVLC-1745	06-Nov-2021 15:32:15
7	110621020.d	ICAL 5000_SVLC-1746	06-Nov-2021 15:42:48
8	110621021.d	ICAL 10000_SVLC-1747	06-Nov-2021 15:53:24
9	110621022.d	ICAL 15000_SVLC-1748	06-Nov-2021 16:04:00
10	110621023.d	ICAL 20000_SVLC-1749	06-Nov-2021 16:14:38

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.543	3.821	4.561	3.825	3.840	3.570	3.788	3.790	3.686	3.946	3.837	2.997-4.676	0.27997	1.918
1 4:2 FTS	0.804	1.192	1.078	1.468	1.449	1.639	1.584	1.550	1.551	1.602	1.391	0.473-2.309	0.30609	0.695
15 PFHxA	16.691	15.571	19.192	18.309	16.904	16.349	17.182	17.518	17.155	16.706	17.157	14.172-20.142	0.99501	8.578
22 PFPeS	4.011	3.746	3.031	3.480	3.523	3.469	3.338	3.344	3.331	3.468	3.474	2.727-4.220	0.24871	1.737
28 GenX	0.813	0.748	0.690	0.701	0.690	0.724	0.762	0.726	0.716	0.719	0.728	0.618-0.839	0.03678	0.364
13 PFHpA	3.457	3.142	3.051	3.126	3.290	3.401	3.160	3.222	3.163	3.116	3.212	2.802-3.623	0.13689	1.606
14 PFHxS	2.336	3.267	3.920	3.225	3.494	3.480	3.571	3.509	3.397	3.405	3.360	2.142-4.578	0.40603	1.680
29 ADONA	2.295	2.415	2.463	2.436	2.380	2.639	2.387	2.261	2.393	2.220	2.388	2.053-2.724	0.11186	1.194
2 6:2 FTS	0.876	1.091	1.365	1.241	1.430	1.347	1.363	1.264	1.270	1.354	1.260	0.723-1.796	0.17894	0.630
12 PFHpS	5.193	4.124	3.708	3.312	3.707	3.746	3.717	3.709	3.777	3.731	3.872	2.353-5.391	0.50628	1.936
20 PFOA	2.444	2.553	2.400	2.492	2.523	2.529	2.423	2.409	2.507	2.405	2.468	2.287-2.649	0.06045	1.234
18 PFOS	4.404	3.726	4.099	3.879	4.104	4.023	3.871	3.895	3.892	3.938	3.983	3.383-4.583	0.19999	1.991
17 PFNA	4.690	4.389	4.201	4.360	4.517	4.518	4.642	4.544	4.323	4.387	4.457	3.983-4.930	0.15790	2.228
19 PFOSA	88.422	43.087	41.350	33.627	48.605	47.262	43.913	46.483	39.802	44.832	47.738	2.642-92.834	15.03193	23.869
16 PFNS	3.447	3.328	3.319	3.362	3.581	3.692	3.682	3.647	3.976	3.691	3.572	2.907-4.237	0.22172	1.786
3 8:2 FTS	0.762	1.385	1.657	1.445	1.426	1.481	1.574	1.493	1.371	1.551	1.414	0.686-2.142	0.24281	0.707
10 PFDA	10.035	9.429	8.356	9.458	9.610	9.461	9.123	9.336	9.524	9.300	9.363	7.972-10.754	0.46373	4.681
6 N-MeFOSAA	1.632	1.072	1.310	1.528	1.421	1.420	1.469	1.473	1.438	1.468	1.423	0.998-1.847	0.14140	0.711
9 PFDS	3.756	3.379	3.437	3.681	4.643	3.509	3.621	3.730	3.750	3.860	3.736	2.721-4.751	0.33838	1.868
25 PFUdA	6.943	9.703	8.878	8.090	8.682	8.475	9.089	8.978	9.161	8.576	8.657	6.495-10.819	0.72052	4.328
5 N-EtFOSAA	2.231	1.705	1.659	1.744	1.950	1.764	1.771	1.744	1.751	1.714	1.803	1.289-2.316	0.17115	0.901
26 MeFOSA	1.101	0.862	1.099	1.139	1.151	1.007	1.130	1.236	1.099	1.145	1.096	0.789-1.403	0.10234	0.548
11 PFDoA	9.247	7.127	6.122	7.486	6.453	6.486	6.762	7.048	6.036	6.700	6.946	4.214-9.679	0.91087	3.473
4 10:2 FTS	6.115	2.559	2.344	2.280	2.312	2.629	2.347	2.481	2.469	2.584	2.812	-0.672-6.296	1.16156	1.406
27 EtFOSA	1.098	1.307	0.958	1.231	1.015	1.152	1.164	1.042	1.091	1.092	1.115	0.799-1.430	0.10523	0.557
34 PFDOS	3.304	3.061	3.325	3.962	3.322	3.281	3.420	3.572	3.722	3.438	3.440	2.646-4.234	0.26471	1.720
24 PFTrDA	3.093	2.799	2.654	2.808	2.654	2.769	2.818	2.927	2.908	2.837	2.826	2.443-3.209	0.12769	1.413
23 PFTeDA	8.005	6.869	7.686	7.111	6.822	7.160	7.201	6.893	7.615	6.974	7.233	5.984-8.483	0.41653	3.616
35 PFHxDA	11.886	12.280	12.902	12.517	11.894	12.632	12.288	11.597	12.193	12.310	12.249	11.087-13.411	0.38732	6.124
36 PFODA	180.536	142.977	133.680	136.531	130.184	151.333	146.695	152.567	148.737	157.394	148.063	04.918-191.20	14.3815(	74.031

Report Date: 09-Nov-2021 13:31:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b
Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04
Instrument: LCMSMS01.i Integrator: picker
Cal Start Date: 06-Nov-2021 14:39:28 Cal End Date: 06-Nov-2021 16:14:38
Method Lock: Unknown Lock Date:
Calib Method: PFAS-ID No.Compounds: 66
Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes
Batch: \\ORGANICS\LL\LCMSMS01.i\110621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110621014.d	ICAL 50_SVLC-1740	06-Nov-2021 14:39:28
2	110621015.d	ICAL 100_SVLC-1741	06-Nov-2021 14:50:00
3	110621016.d	ICAL 200_SVLC-1742	06-Nov-2021 15:00:33
4	110621017.d	ICAL 500_SVLC-1743	06-Nov-2021 15:11:07
5	110621018.d	ICAL 1000_SVLC-1744	06-Nov-2021 15:21:40
6	110621019.d	ICAL 2000_SVLC-1745	06-Nov-2021 15:32:15
7	110621020.d	ICAL 5000_SVLC-1746	06-Nov-2021 15:42:48
8	110621021.d	ICAL 10000_SVLC-1747	06-Nov-2021 15:53:24
9	110621022.d	ICAL 15000_SVLC-1748	06-Nov-2021 16:04:00
10	110621023.d	ICAL 20000_SVLC-1749	06-Nov-2021 16:14:38

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area
Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None
Org: Origin, F-Force, I-Include, N-Neither
Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	1089	1158	1148	1112	1103	1140	1097	1101	1026	989	Avg:A Wt:C2	1096		RSD=4.8	
	99.3	105.6	104.7	101.4	100.6	104	100	100.4	93.6	90.2	Org:N Dep:R				
8 PFBA	1.203855	1.120944	1.078087	1.093409	1.021836	1.065625	1.065867	1.038256	0.988298	0.980700	Avg:A Wt:C2	1.065688		RSD=6.2	
	113	105.2	101.2	102.6	95.9	100	100	97.4	92.7	92	Org:N Dep:R				
D 50 13C5_PFPeA	1012	1065	1038	1067	1031	1080	1030	1001	973	902	Avg:A Wt:C2	1020		RSD=5.2	
	99.2	104.4	101.8	104.6	101.1	105.9	101	98.1	95.4	88.5	Org:N Dep:R				
21 PFPeA	1.141720	1.073979	1.080337	1.069112	1.087163	1.032059	1.070541	1.086350	1.024471	1.068136	Avg:A Wt:C2	1.073387		RSD=3.0	
	106.4	100.1	100.6	99.6	101.3	96.1	99.7	101.2	95.4	99.5	Org:N Dep:R				
D 44 13C3_PFBS	338	345	355	343	341	364	324	337	319	310	Avg:A Wt:C2	337		RSD=4.8	
	100.1	102.4	105.1	101.6	100.9	107.7	95.9	99.9	94.6	91.8	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.815634	1.555109	1.476397	1.378771	1.289992	1.254987	1.368754	1.358175	1.296348	1.361461	Avg:A Wt:C2	1.415563		RSD=11.7	
	128.3	109.9	104.3	97.4	91.1	88.7	96.7	95.9	91.6	96.2	Org:N Dep:R				
1 4:2 FTS	1.942930	2.034659	1.748231	2.084140	1.705898	1.964807	1.856156	1.808318	1.705584	1.742637	Avg:A Wt:C2	1.859336		RSD=7.5	
	104.5	109.4	94	112.1	91.7	105.7	99.8	97.3	91.7	93.7	Org:N Dep:R				
D 63 13C2_4:2 FTS_2	45.2858	49.2588	48.8380	44.0936	46.2892	45.8548	46.4388	48.2106	45.9742	46.7244	Avg:A Wt:C2	46.6968		RSD=3.5	
	97	105.5	104.6	94.4	99.1	98.2	99.4	103.2	98.5	100.1	Org:N Dep:R				
D 49 13C5_PFHxA	927	960	888	978	914	955	904	934	836	824	Avg:A Wt:C2	912		RSD=5.6	
	101.6	105.3	97.4	107.2	100.2	104.8	99.1	102.4	91.7	90.3	Org:N Dep:R				
15 PFHxA	1.211934	1.107756	1.091128	0.960037	0.952856	0.967965	1.020063	0.950913	0.955890	0.945162	Avg:A Wt:C2	1.016370		RSD=9.0	
	119.2	109	107.4	94.5	93.8	95.2	100.4	93.6	94	93	Org:N Dep:R				
22 PFPeS	0.964129	1.050658	0.939991	1.033696	0.964825	0.974902	1.070483	1.021113	0.976146	1.013331	Avg:A Wt:C2	1.000927		RSD=4.3	
	96.3	105	93.9	103.3	96.4	97.4	106.9	102	97.5	101.2	Org:N Dep:R				
D 66 13C3_GenX	135	143	152	157	137	158	157	149	146	138	Avg:A Wt:C2	147		RSD=5.8	
	92	97	103.6	106.4	93.2	107.3	106.4	101.1	99	94	Org:N Dep:R				
28 GenX	0.938775	0.824521	0.725807	0.714240	0.723524	0.727046	0.740721	0.687542	0.678850	0.698147	Avg:A Wt:C2	0.745917		RSD=10.6	
	125.9	110.5	97.3	95.8	97	97.5	99.3	92.2	91	93.6	Org:N Dep:R				
13 PFHpA	1.101435	0.969964	0.935347	0.926854	0.935766	0.988778	0.933968	0.924517	0.941131	0.895712	Avg:A Wt:C2	0.955347		RSD=6.0	
	115.3	101.5	97.9	97	98	103.5	97.8	96.8	98.5	93.8	Org:N Dep:R				
D 47 13C4_PFHpA	886	908	893	915	905	931	900	900	785	825	Avg:A Wt:C2	885		RSD=5.1	
	100.2	102.7	100.9	103.4	102.3	105.2	101.8	101.7	88.7	93.3	Org:N Dep:R				
14 PFHxS	1.203621	1.202821	1.177600	1.153066	1.169509	1.097364	1.100631	1.190365	1.077440	1.154956	Avg:A Wt:C2	1.152737		RSD=4.0	
	104.4	104.3	102.2	100	101.5	95.2	95.5	103.3	93.5	100.2	Org:N Dep:R				
D 45 13C3_PFHxS	270	295	277	282	276	294	293	266	266	246	Avg:A Wt:C2	277		RSD=5.6	
	97.7	106.8	100.1	101.9	99.7	106.4	106.1	96.1	96.1	89	Org:N Dep:R				
29 ADONA	5.382740	5.511180	5.554850	5.439797	5.282255	5.356979	5.141898	5.349490	5.003192	4.997844	Avg:A Wt:C2	5.302023		RSD=3.7	
	101.5	103.9	104.8	102.6	99.6	101	97	100.9	94.4	94.3	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	40.6796	42.6504	42.3308	41.6726	43.3822	44.3510	41.2560	41.0974	36.9440	37.7904	Avg:A Wt:C2	41.2154		RSD=5.6	
	98.7	103.5	102.7	101.1	105.3	107.6	100.1	99.7	89.6	91.7	Org:N Dep:R				
2 6:2 FTS	1.965032	1.664005	1.704478	1.725526	1.581809	1.591768	1.616453	1.545092	1.670156	1.545910	Avg:A Wt:C2	1.661023		RSD=7.5	
	118.3	100.2	102.6	103.9	95.2	95.8	97.3	93	100.5	93.1	Org:N Dep:R				
D 53 13C8_PFOA	882	882	888	917	844	891	822	846	747	705	Avg:A Wt:C2	842		RSD=8.0	
	104.7	104.7	105.4	108.8	100.2	105.8	97.6	100.4	88.7	83.7	Org:N Dep:R				
12 PFHpS	1.201810	1.154166	1.093150	1.071149	1.034900	1.011028	0.984098	1.078034	0.991046	1.023192	Avg:A Wt:C2	1.064257		RSD=6.7	
	112.9	108.4	102.7	100.6	97.2	95	92.5	101.3	93.1	96.1	Org:N Dep:R				
20 PFOA	0.986951	1.052558	1.003067	0.997564	0.986364	0.993487	1.029817	0.967620	1.000137	0.982601	Avg:A Wt:C2	1.000017		RSD=2.5	
	98.7	105.3	100.3	99.8	98.6	99.3	103	96.8	100	98.3	Org:N Dep:R				
D 54 13C8_PFOS	236	244	253	239	238	245	232	240	225	217	Avg:A Wt:C2	237		RSD=4.3	
	99.5	103.1	106.7	100.7	100.6	103.3	98	101.4	95.2	91.5	Org:N Dep:R				
18 PFOS	1.289172	1.110059	1.159518	1.206166	1.150049	1.146228	1.149739	1.139655	1.108255	1.175494	Avg:A Wt:C2	1.163433		RSD=4.5	
	110.8	95.4	99.7	103.7	98.8	98.5	98.8	98	95.3	101	Org:N Dep:R				
D 56 13C9_PFNA	828	882	818	800	848	872	787	818	759	701	Avg:A Wt:C2	811		RSD=6.6	
	102	108.8	100.8	98.6	104.5	107.5	97.1	100.8	93.5	86.4	Org:N Dep:R				

Report Date: 09-Nov-2021 13:31:39 AIM Revision: 2.0.2021.0812
Method Path: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\LCMSMS01_PFAS-ID.m

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
17 PFNA	0.999308	0.930605	0.909736	0.918083	0.847400	0.833338	0.920895	0.883945	0.812876	0.862903	Avg:A Wt:C2	0.891909		RSD=6.2	
	112	104.3	102	102.9	95	93.4	103.2	99.1	91.1	96.7	Org:N Dep:R				
30 9Cl-PF3ONS	2.911252	3.022031	2.834082	3.110960	2.939454	3.014362	3.042879	3.102793	2.982926	3.260030	Avg:A Wt:C2	3.022077		RSD=3.9	
	96.3	100	93.8	102.9	97.3	99.7	100.7	102.7	98.7	107.9	Org:N Dep:R				
D 55 13C8_PFOSA	425	420	425	409	426	442	419	433	392	363	Avg:A Wt:C2	415		RSD=5.5	
	102.4	101.1	102.3	98.4	102.7	106.3	100.9	104.2	94.5	87.4	Org:N Dep:R				
19 PFOSA	1.210384	1.147299	1.093874	1.151851	0.986543	1.047523	1.090155	1.032962	1.023302	1.112040	Avg:A Wt:C2	1.089593		RSD=6.3	
	111.1	105.3	100.4	105.7	90.5	96.1	100.1	94.8	93.9	102.1	Org:N Dep:R				
16 PFNS	1.090944	0.970911	0.827222	0.976570	0.924620	0.959837	0.970001	0.936889	0.913194	0.952140	Avg:A Wt:C2	0.952233		RSD=6.9	
	114.6	102	86.9	102.6	97.1	100.8	101.9	98.4	95.9	100	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	35.0250	40.3964	37.1922	36.1416	35.7596	37.7858	33.6768	33.6980	31.2638	27.2826	Avg:A Wt:C2	34.8222		RSD=10.5	
	100.6	116	106.8	103.8	102.7	108.5	96.7	96.8	89.8	78.3	Org:N Dep:R				
3 8:2 FTS	1.452586	1.555824	1.847173	1.826670	1.585337	1.701051	1.732334	1.550605	1.488848	1.759985	Avg:A Wt:C2	1.650041		RSD=8.6	
	88	94.3	111.9	110.7	96.1	103.1	105	94	90.2	106.7	Org:N Dep:R				
D 51 13C6_PFDA	759	762	760	761	771	720	700	673	649	599	Avg:A Wt:C2	715		RSD=8.2	
	106.1	106.6	106.2	106.4	107.7	100.6	97.8	94	90.7	83.8	Org:N Dep:R				
10 PFDA	1.125913	1.029388	0.986700	1.000311	0.935968	1.059335	1.059703	1.030385	1.002567	0.983284	Avg:A Wt:C2	1.021355		RSD=5.1	
	110.2	100.8	96.6	97.9	91.6	103.7	103.8	100.9	98.2	96.3	Org:N Dep:R				
D 58 d3-MeFOSAA	149	163	165	168	158	173	172	164	150	155	Avg:A Wt:C2	162		RSD=5.1	
	92.4	100.7	101.8	104	97.9	106.7	106.5	101.3	92.7	96.1	Org:N Dep:R				
6 N-MeFOSAA	0.873871	0.804286	0.792401	0.800432	0.785467	0.797500	0.789809	0.825228	0.813897	0.787564	Avg:A Wt:C2	0.807046		RSD=3.3	
	108.3	99.7	98.2	99.2	97.3	98.8	97.9	102.3	100.8	97.6	Org:N Dep:R				
9 PFDS	1.137749	0.817338	0.912145	0.899720	0.994654	0.915244	0.940258	0.919454	0.912923	0.923755	Avg:A Wt:C2	0.937324		RSD=8.8	
	121.4	87.2	97.3	96	106.1	97.6	100.3	98.1	97.4	98.6	Org:N Dep:R				
D 60 d5-EtFOSAA	157	156	148	153	150	151	142	143	129	117	Avg:A Wt:C2	145		RSD=8.9	
	108.5	108.2	102.2	106	103.7	104.2	98.2	99	89.3	80.6	Org:N Dep:R				
25 PFUdA	0.974828	0.962501	0.903009	0.863859	0.870605	0.955143	0.869287	0.869835	0.885999	0.850527	Avg:A Wt:C2	0.900559		RSD=5.1	
	108.2	106.9	100.3	95.9	96.7	106.1	96.5	96.6	98.4	94.4	Org:N Dep:R				
D 52 13C7_PFUdA	708	746	739	706	720	710	752	696	652	593	Avg:A Wt:C2	702		RSD=6.8	
	100.8	106.2	105.2	100.6	102.6	101.1	107	99.1	92.9	84.5	Org:N Dep:R				
5 N-EtFOSAA	0.945247	0.973842	1.040001	0.918111	0.961064	1.012317	1.035176	0.986560	0.966198	1.025967	Avg:A Wt:C2	0.986448		RSD=4.1	
	95.8	98.7	105.4	93.1	97.4	102.6	104.9	100	97.9	104	Org:N Dep:R				
D 61 d7-MeFOSE	117	123	122	118	124	131	124	126	121	122	Avg:A Wt:C2	123		RSD=3.2	
	95.3	99.9	99.4	96.3	101.3	106.7	100.8	102.8	98.7	99.1	Org:N Dep:R				
32 MeFOSE	1.282933	1.079296	1.085342	0.988818	0.922249	0.944191	0.998729	0.952778	0.999197	0.944020	Avg:A Wt:C2	1.019755		RSD=10.6	
	125.8	105.8	106.4	97	90.4	92.6	97.9	93.4	98	92.6	Org:N Dep:R				
D 57 d3-MeFOSA	62.3350	61.2550	62.0460	66.4630	63.4570	66.5760	66.0620	65.6040	65.0530	63.6440	Avg:A Wt:C2	64.2495		RSD=3.0	
	97	95.3	96.6	103.4	98.8	103.6	102.8	102.1	101.3	99.1	Org:N Dep:R				
26 MeFOSA	1.401781	0.887764	1.286545	1.091013	1.030131	0.998445	1.090015	1.036576	0.992601	1.018329	Avg:A Wt:C2	1.083320		RSD=14.0	
	129.4	81.9	118.8	100.7	95.1	92.2	100.6	95.7	91.6	94	Org:N Dep:R				
31 11Cl-PF3OUDS	2.527951	2.218677	2.412768	2.276079	2.297359	2.312647	2.438507	2.597944	2.472811	2.546421	Avg:A Wt:C2	2.410116		RSD=5.3	
	104.9	92.1	100.1	94.4	95.3	96	101.2	107.8	102.6	105.7	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 62 d9-EtFOSE	114	114	115	117	111	117	106	115	113	113	Avg:A Wt:C2	114		RSD=2.8	
	100.6	100.4	101.5	103.3	97.4	102.9	93.6	101.1	99.5	99.7	Org:N Dep:R				
33 EtFOSE	0.902339	0.753953	0.849978	0.815516	0.712216	0.955423	0.836035	0.822544	0.807424	0.821030	Avg:A Wt:C2	0.827646		RSD=8.2	
	109	91.1	102.7	98.5	86.1	115.4	101	99.4	97.6	99.2	Org:N Dep:R				
D 59 d5-EtFOSA	58.5860	60.8350	58.0930	60.0590	64.4040	66.0970	64.4630	63.0810	54.1640	53.4860	Avg:A Wt:C2	60.3268		RSD=7.2	
	97.1	100.8	96.3	99.6	106.8	109.6	106.9	104.6	89.8	88.7	Org:N Dep:R				
D 38 13C2_PFDoA	680	747	745	687	689	731	688	692	652	648	Avg:A Wt:C2	696		RSD=5.0	
	97.7	107.4	107.1	98.7	99	105.1	98.9	99.4	93.7	93.1	Org:N Dep:R				
11 PFDoA	1.171530	1.055375	0.968403	1.044669	0.962344	0.977159	1.010866	1.010290	0.910989	0.932601	Avg:A Wt:C2	1.004423		RSD=7.4	
	116.6	105.1	96.4	104	95.8	97.3	100.6	100.6	90.7	92.8	Org:N Dep:R				
4 10:2 FTS	2.133627	2.092849	2.200357	2.185101	1.927231	2.159036	2.173184	2.062311	2.002818	2.275811	Avg:A Wt:C2	2.121232		RSD=4.8	
	100.6	98.7	103.7	103	90.9	101.8	102.4	97.2	94.4	107.3	Org:N Dep:R				
27 EtFOSA	1.350152	1.495356	1.138433	1.183103	1.034392	1.125490	1.162431	1.058536	1.206702	1.189321	Avg:A Wt:C2	1.194392		RSD=11.4	
	113	125.2	95.3	99.1	86.6	94.2	97.3	88.6	101	99.6	Org:N Dep:R				
34 PFDOS	0.792572	0.801948	0.782375	0.810096	0.767673	0.775460	0.837801	0.827767	0.842566	0.837189	Avg:A Wt:C2	0.807545		RSD=3.4	
	98.1	99.3	96.9	100.3	95.1	96	103.7	102.5	104.3	103.7	Org:N Dep:R				
24 PFTrDA	0.463334	0.422474	0.431916	0.456762	0.435623	0.432853	0.448096	0.455724	0.432395	0.435099	Avg:A Wt:C2	0.441428		RSD=3.1	
	105	95.7	97.8	103.5	98.7	98.1	101.5	103.2	98	98.6	Org:N Dep:R				
D 42 13C2_PFTeDA	707	764	783	759	752	792	758	793	699	655	Avg:A Wt:C2	746		RSD=6.1	
	94.8	102.3	105	101.7	100.8	106.1	101.6	106.3	93.7	87.8	Org:N Dep:R				
23 PFTeDA	0.954572	0.930425	0.867241	0.866639	0.816913	0.824988	0.861597	0.807345	0.873787	0.824807	Avg:A Wt:C2	0.862831		RSD=5.6	
	110.6	107.8	100.5	100.4	94.7	95.6	99.9	93.6	101.3	95.6	Org:N Dep:R				
D 40 13C2_PFHxDA	344	362	363	338	344	371	351	347	334	326	Avg:A Wt:C2	348		RSD=4.0	
	99	104	104.4	97	98.8	106.6	100.9	99.8	95.9	93.7	Org:N Dep:R				
35 PFHxDA	2.214155	2.002045	1.911075	1.860769	1.818469	1.734578	1.816480	1.662611	1.678869	1.688823	Avg:A Wt:C2	1.838787		RSD=9.3	
	120.4	108.9	103.9	101.2	98.9	94.3	98.8	90.4	91.3	91.8	Org:N Dep:R				
36 PFODA	1.426169	1.252754	1.338274	1.368619	1.349844	1.344959	1.369485	1.387118	1.302130	1.373627	Avg:A Wt:C2	1.351298		RSD=3.5	
	105.5	92.7	99	101.3	99.9	99.5	101.3	102.7	96.4	101.7	Org:N Dep:R				

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	06-Nov-2021 14:39:28	Cal End Date:	06-Nov-2021 16:14:38
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\ORGANICS\LL\LCMSMS01.i\110621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110621014.d	ICAL 50_SVLC-1740	06-Nov-2021 14:39:28
2	110621015.d	ICAL 100_SVLC-1741	06-Nov-2021 14:50:00
3	110621016.d	ICAL 200_SVLC-1742	06-Nov-2021 15:00:33
4	110621017.d	ICAL 500_SVLC-1743	06-Nov-2021 15:11:07
5	110621018.d	ICAL 1000_SVLC-1744	06-Nov-2021 15:21:40
6	110621019.d	ICAL 2000_SVLC-1745	06-Nov-2021 15:32:15
7	110621020.d	ICAL 5000_SVLC-1746	06-Nov-2021 15:42:48
8	110621021.d	ICAL 10000_SVLC-1747	06-Nov-2021 15:53:24
9	110621022.d	ICAL 15000_SVLC-1748	06-Nov-2021 16:04:00
10	110621023.d	ICAL 20000_SVLC-1749	06-Nov-2021 16:14:38

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	753719	762491	791038	763108	731219	702275	680404	643412	633849	621030	4.82
* 39 13C2_PFHxA	918464	932902	924027	930447	863137	936128	899131	910535	850440	836293	2.34
* 41 13C2_PFOA	851847	867154	893089	910152	857205	910782	809569	848016	761321	731076	3.81
* 43 13C3_PFBA	1032162	1063553	1069677	1062866	1008335	1061571	1035266	1027483	946762	904696	3.29
* 48 13C4_PFOS	253350	249470	251994	250691	256709	261040	252526	259788	227105	225918	2.86

13C2_PFDA ((|621030 - 753719| / (621030 + 753719)) / 2) * 100 = 4.83

13C2_PFHxA ((|836293 - 918464| / (836293 + 918464)) / 2) * 100 = 2.34

13C2_PFOA ((|731076 - 851847| / (731076 + 851847)) / 2) * 100 = 3.81

13C3_PFBA ((|904696 - 1032162| / (904696 + 1032162)) / 2) * 100 = 3.29

13C4_PFOS ((|225918 - 253350| / (225918 + 253350)) / 2) * 100 = 2.86

Report Date: 09-Nov-2021 13:31:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 06-Nov-2021 14:39:28 Cal End Date: 06-Nov-2021 16:14:38

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\ORGANICS\LL\LCMSMS01.i\110621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110621014.d	ICAL 50_SVLC-1740	06-Nov-2021 14:39:28
2	110621015.d	ICAL 100_SVLC-1741	06-Nov-2021 14:50:00
3	110621016.d	ICAL 200_SVLC-1742	06-Nov-2021 15:00:33
4	110621017.d	ICAL 500_SVLC-1743	06-Nov-2021 15:11:07
5	110621018.d	ICAL 1000_SVLC-1744	06-Nov-2021 15:21:40
6	110621019.d	ICAL 2000_SVLC-1745	06-Nov-2021 15:32:15
7	110621020.d	ICAL 5000_SVLC-1746	06-Nov-2021 15:42:48
8	110621021.d	ICAL 10000_SVLC-1747	06-Nov-2021 15:53:24
9	110621022.d	ICAL 15000_SVLC-1748	06-Nov-2021 16:04:00
10	110621023.d	ICAL 20000_SVLC-1749	06-Nov-2021 16:14:38

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA	* 39 13C2_PFHxA	* 41 13C2_PFOA
* 43 13C3_PFBA	* 48 13C4_PFOS	D 38 13C2_PFDoA
D 40 13C2_PFHxDA	D 42 13C2_PFTeDA	D 44 13C3_PFBS
D 45 13C3_PFHxS	D 46 13C4_PFBA	D 47 13C4_PFHpA
D 49 13C5_PFHxA	D 50 13C5_PFPeA	D 51 13C6_PFDA
D 52 13C7_PFUdA	D 53 13C8_PFOA	D 54 13C8_PFOS
D 55 13C8_PFOSA	D 56 13C9_PFNA	D 57 d3-MeFOSA
D 58 d3-MeFOSAA	D 59 d5-EtFOSA	D 60 d5-EtFOSAA
D 61 d7-MeFOSE	D 62 d9-EtFOSE	D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2	D 65 13C2_8:2 FTS_2	D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	1088636	1157596	1147820	1111939	1102554	1140316	1096712	1101048	1026268	988863	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	65528	129760	247490	607902	1126629	2430298	5844746	11431694	15213877	19395552	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	1011702	1065114	1038111	1067233	1031391	1080480	1030325	1000817	973260	902489	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	57754	114391	224302	570496	1121290	2230239	5515028	10872372	14956148	19279622	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	337678	345453	354515	342772	340591	363570	323639	337153	319130	309870	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	27099	47490	92538	208891	388394	806695	1957981	4047949	5485707	7458765	
1 4:2 FTS	46.700	93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
	4109	9361	15949	42916	73753	168299	402543	814262	1098564	1520994	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	226429	246294	244190	220468	231446	229274	232194	241053	229871	233622	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	926899	960076	887852	978116	914193	955344	903860	933908	836226	823510	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	918464	932902	924027	930447	863137	936128	899131	910535	850440	836293	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	56167	106353	193752	469514	871094	1849479	4609972	8880648	11990098	15567003	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	15269	34045	62516	166177	308237	664939	1624850	3229264	4383053	5890657	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	676999	713657	762427	782895	686066	789984	782797	744137	728802	691929	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	12711	23537	44270	111835	198554	459484	1159669	2046503	2968483	3864544	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	48815	88114	166998	423996	846707	1840880	4205010	8321386	11079590	14781832	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	886389	908425	892706	914914	904828	930886	900461	900079	784842	825144	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	14805	32323	59336	147868	293520	587693	1469645	2879989	3909091	5176960	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	270338	295304	276853	281844	275799	294258	293467	265870	265797	246285	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	68538	153308	289736	722125	1372344	2969813	7107284	13397772	18790548	23190045	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	203398	213252	211654	208363	216911	221755	206280	205487	184720	188952	
2 6:2 FTS	47.400	94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
	3789	6728	13680	34084	65054	133851	316103	601973	877406	1107654	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	881928	881624	887598	916655	844338	891426	821947	845998	747498	705207	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	851847	867154	893089	910152	857205	910782	809569	848016	761321	731076	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	15465	32447	57623	143703	271724	566446	1374689	2728592	3761595	4798021	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	43521	92796	178064	457211	832825	1771241	4232273	8186043	11214010	13858748	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	235633	244240	252892	238682	238349	244774	232262	240208	225484	216742	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	14095	25160	54424	133581	254377	520732	1239069	2540439	3478520	4728696	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	253350	249470	251994	250691	256709	261040	252526	259788	227105	225918	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	827893	882437	818045	800324	847911	871938	787423	817880	758541	700988	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	41366	82120	148841	367382	718520	1453238	3625671	7229610	9248999	12097690	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	31967	68791	133596	346019	652974	1375329	3293432	6946343	9402977	13170751	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	425171	419873	424889	408777	426468	441620	418944	432650	392404	363094	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	25731	48172	92955	235425	420729	925214	2283570	4469109	6023219	8075500	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	12339	22765	40166	111883	211567	451091	1081413	2160462	2965114	3962279	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	175125	201982	185961	180708	178798	188929	168384	168490	156319	136413	
3 8:2 FTS	47.900	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	2437	6021	13163	31623	54310	123152	279446	500577	668881	920005	
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	759064	762375	760023	761493	770724	719853	699838	672735	648953	599327	
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	42732	78478	149983	380865	721373	1525131	3708102	6931758	9759281	11786175	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	753719	762491	791038	763108	731219	702275	680404	643412	633849	621030	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	747364	814014	822847	840596	791294	862564	860647	818909	749538	776649	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	6531	13094	26081	67284	124307	275158	679747	1351573	1830140	2446642	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	12922	19244	44474	103508	228540	431926	1052622	2129093	2976584	3860174	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	784663	782365	738653	766443	749456	753677	710234	715920	645255	582908	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	34515	71756	133443	305046	627000	1356876	3267105	6052024	8666291	10095710	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	708125	745516	738880	706240	720189	710300	751675	695767	652092	593497	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	7417	15238	30728	70368	144055	305184	735217	1412596	1870333	2392177	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	116904	122617	121957	118135	124281	130929	123648	126097	121074	121564	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	7499	13234	26473	58407	114618	247244	617454	1201425	1814652	2295178	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	62335	61255	62046	66463	63457	66576	66062	65604	65053	63644	
26 MeFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	4369	5438	15965	36256	65369	132945	360043	680035	968575	1296211	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	28056	51046	114956	255875	515814	1066487	2667614	5878523	7878596	10398104	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	114303	114039	115350	117430	110687	116978	106348	114930	113020	113239	
33 EtFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	5157	8598	19609	47883	78833	223527	444553	945350	1368826	1859453	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	58586	60835	58093	60059	64404	66097	64463	63081	54164	53486	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	679812	747289	745237	686782	689160	731268	688463	692207	652156	648329	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	39821	78867	144338	358730	663209	1429130	3479718	6993297	8911608	12092645	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	3602	8150	15778	38065	66436	157288	352756	669939	905423	1197096	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	3955	9097	13227	35528	66619	148783	374669	667735	980397	1272240	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	9039	18960	38305	93584	177119	367477	941812	1924734	2758584	3512950	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	15749	31571	64376	156848	300214	633063	1542488	3154550	4229838	5641746	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	707186	763597	783392	758521	752016	791650	757850	793245	698879	654895	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	33753	71047	135878	328682	614332	1306204	3264806	6404222	9160069	10803234	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	344321	361795	363102	337584	343727	370693	351002	347147	333511	326087	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	38119	72433	138783	314083	625057	1285992	3187940	5771704	8398820	11014063	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	24553	45324	97186	231012	463978	997134	2403460	4815339	6514121	8958439	

Report Date: 09-Nov-2021 13:31:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b		
Method:	LCMSMS01_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS01.i	Integrator:	picker
Cal Start Date:	06-Nov-2021 14:39:28	Cal End Date:	06-Nov-2021 16:14:38
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\ORGANICS\LL\LCMSMS01.i\110621-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110621014.d	ICAL 50_SVLC-1740	06-Nov-2021 14:39:28
2	110621015.d	ICAL 100_SVLC-1741	06-Nov-2021 14:50:00
3	110621016.d	ICAL 200_SVLC-1742	06-Nov-2021 15:00:33
4	110621017.d	ICAL 500_SVLC-1743	06-Nov-2021 15:11:07
5	110621018.d	ICAL 1000_SVLC-1744	06-Nov-2021 15:21:40
6	110621019.d	ICAL 2000_SVLC-1745	06-Nov-2021 15:32:15
7	110621020.d	ICAL 5000_SVLC-1746	06-Nov-2021 15:42:48
8	110621021.d	ICAL 10000_SVLC-1747	06-Nov-2021 15:53:24
9	110621022.d	ICAL 15000_SVLC-1748	06-Nov-2021 16:04:00
10	110621023.d	ICAL 20000_SVLC-1749	06-Nov-2021 16:14:38

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.725	1.727	1.732	1.727	1.725	1.725	1.725	1.726	1.727	1.725	1.726	0.106
8 PFBA	1.732	1.733	1.732	1.733	1.732	1.732	1.725	1.726	1.727	1.732	1.730	0.166
D 50 13C5_PFPeA	2.105	2.108	2.105	2.108	2.105	2.105	2.105	2.106	2.108	2.105	2.106	0.067
21 PFPeA	2.105	2.108	2.105	2.108	2.105	2.105	2.105	2.106	2.108	2.105	2.106	0.067
D 44 13C3_PFBS	2.158	2.161	2.168	2.161	2.169	2.158	2.158	2.159	2.161	2.168	2.161	0.220
7 PFBS	2.158	2.161	2.168	2.161	2.169	2.168	2.158	2.159	2.161	2.168	2.163	0.227
1 4:2 FTS	2.449	2.443	2.449	2.452	2.449	2.449	2.449	2.450	2.452	2.449	2.448	0.090
D 63 13C2_4:2 FTS_2	2.440	2.443	2.449	2.452	2.449	2.449	2.449	2.450	2.452	2.449	2.447	0.149
D 49 13C5_PFHxA	2.484	2.487	2.493	2.487	2.493	2.493	2.493	2.494	2.487	2.493	2.490	0.138
* 39 13C2_PFHxA	2.484	2.487	2.493	2.487	2.493	2.493	2.493	2.494	2.487	2.493	2.490	0.138
15 PFHxA	2.484	2.487	2.493	2.496	2.493	2.493	2.493	2.494	2.496	2.493	2.492	0.149
22 PFPeS	2.519	2.523	2.528	2.523	2.529	2.529	2.520	2.529	2.523	2.528	2.525	0.161
D 66 13C3_GenX	2.606	2.609	2.614	2.617	2.614	2.614	2.614	2.614	2.617	2.621	2.613	0.167
28 GenX	2.606	2.609	2.614	2.617	2.622	2.614	2.614	2.614	2.617	2.614	2.613	0.167
13 PFHpA	2.878	2.872	2.878	2.881	2.878	2.878	2.878	2.879	2.881	2.878	2.878	0.087
D 47 13C4_PFHpA	2.869	2.872	2.878	2.881	2.878	2.878	2.878	2.879	2.881	2.878	2.877	0.129
14 PFHxS	2.896	2.890	2.896	2.899	2.896	2.896	2.896	2.897	2.899	2.896	2.896	0.087
D 45 13C3_PFHxS	2.896	2.890	2.887	2.899	2.896	2.896	2.887	2.888	2.899	2.896	2.893	0.165
29 ADONA	2.914	2.916	2.923	2.916	2.923	2.923	2.923	2.923	2.925	2.923	2.920	0.132
D 64 13C2_6:2 FTS_2	3.220	3.221	3.207	3.202	3.201	3.207	3.207	3.207	3.208	3.201	3.208	0.219
2 6:2 FTS	3.214	3.227	3.207	3.202	3.201	3.207	3.207	3.207	3.208	3.201	3.208	0.247
D 53 13C8_PFOA	3.245	3.240	3.233	3.227	3.220	3.227	3.226	3.226	3.227	3.226	3.229	0.228
* 41 13C2_PFOA	3.245	3.240	3.233	3.227	3.226	3.227	3.226	3.226	3.227	3.226	3.230	0.208
12 PFHpS	3.252	3.246	3.233	3.234	3.226	3.233	3.233	3.233	3.234	3.226	3.234	0.248
20 PFOA	3.245	3.246	3.233	3.227	3.226	3.227	3.226	3.233	3.234	3.226	3.232	0.239
D 54 13C8_PFOS	3.585	3.588	3.564	3.560	3.558	3.560	3.565	3.565	3.567	3.564	3.567	0.291
18 PFOS	3.592	3.588	3.571	3.567	3.558	3.560	3.572	3.565	3.567	3.564	3.570	0.317
* 48 13C4_PFOS	3.585	3.588	3.564	3.560	3.558	3.566	3.565	3.565	3.567	3.564	3.568	0.281
D 56 13C9_PFNA	3.592	3.595	3.571	3.567	3.565	3.573	3.572	3.572	3.574	3.571	3.575	0.280
17 PFNA	3.592	3.588	3.571	3.574	3.565	3.573	3.572	3.572	3.581	3.571	3.575	0.237
30 9Cl-PF3ONS	3.786	3.782	3.767	3.757	3.755	3.762	3.767	3.761	3.763	3.761	3.766	0.267
D 55 13C8_PFOSA	3.900	3.895	3.878	3.881	3.872	3.873	3.878	3.872	3.874	3.864	3.878	0.289

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
19 PFOSA	3.900	3.895	3.878	3.874	3.872	3.880	3.878	3.872	3.874	3.864	3.878	0.288
16 PFNS	3.908	3.911	3.892	3.896	3.886	3.894	3.893	3.894	3.896	3.886	3.895	0.201
D 65 13C2_8:2 FTS_2	3.915	3.918	3.900	3.896	3.894	3.894	3.900	3.901	3.896	3.894	3.900	0.232
3 8:2 FTS	3.908	3.911	3.900	3.896	3.894	3.902	3.900	3.901	3.896	3.894	3.899	0.147
D 51 13C6_PFDA	3.923	3.918	3.907	3.903	3.901	3.902	3.908	3.909	3.903	3.901	3.907	0.188
10 PFDA	3.930	3.926	3.907	3.903	3.901	3.902	3.908	3.909	3.911	3.901	3.909	0.261
* 37 13C2_PFDA	3.923	3.918	3.907	3.903	3.901	3.902	3.908	3.909	3.911	3.901	3.908	0.186
D 58 d3-MeFOSAA	4.071	4.074	4.061	4.054	4.053	4.063	4.061	4.062	4.064	4.052	4.061	0.174
6 N-MeFOSAA	4.080	4.083	4.061	4.064	4.062	4.063	4.071	4.062	4.064	4.062	4.067	0.201
9 PFDS	4.206	4.208	4.190	4.192	4.191	4.191	4.198	4.191	4.200	4.190	4.195	0.165
D 60 d5-EtFOSAA	4.231	4.232	4.214	4.216	4.207	4.215	4.215	4.215	4.216	4.214	4.217	0.193
25 PFUdA	4.231	4.232	4.214	4.216	4.207	4.215	4.215	4.215	4.216	4.214	4.217	0.193
D 52 13C7_PFUdA	4.231	4.224	4.214	4.216	4.207	4.207	4.215	4.215	4.216	4.206	4.214	0.188
5 N-EtFOSAA	4.240	4.232	4.222	4.224	4.223	4.223	4.223	4.223	4.224	4.222	4.225	0.138
D 61 d7-MeFOSE	4.313	4.305	4.294	4.296	4.295	4.295	4.294	4.295	4.296	4.294	4.297	0.142
32 MeFOSE	4.322	4.323	4.313	4.314	4.304	4.313	4.304	4.304	4.305	4.304	4.310	0.182
D 57 d3-MeFOSA	4.331	4.332	4.322	4.323	4.313	4.313	4.322	4.313	4.323	4.313	4.320	0.168
26 MeFOSA	4.340	4.332	4.322	4.323	4.322	4.322	4.322	4.322	4.323	4.313	4.324	0.166
31 11Cl-PF3OUDS	4.367	4.368	4.358	4.359	4.349	4.358	4.358	4.358	4.359	4.358	4.359	0.119
D 62 d9-EtFOSE	4.478	4.480	4.470	4.464	4.463	4.463	4.463	4.463	4.472	4.463	4.467	0.152
33 EtFOSE	4.486	4.487	4.478	4.480	4.479	4.479	4.478	4.479	4.480	4.478	4.480	0.078
D 59 d5-EtFOSA	4.494	4.495	4.486	4.488	4.486	4.486	4.486	4.486	4.488	4.486	4.488	0.078
D 38 13C2_PFDoA	4.494	4.495	4.486	4.488	4.486	4.486	4.486	4.486	4.495	4.486	4.489	0.092
11 PFDoA	4.494	4.495	4.486	4.488	4.486	4.486	4.486	4.486	4.488	4.486	4.488	0.078
4 10:2 FTS	4.510	4.511	4.502	4.495	4.494	4.494	4.494	4.502	4.503	4.494	4.500	0.141
27 EtFOSA	4.510	4.503	4.502	4.495	4.494	4.494	4.494	4.494	4.495	4.494	4.497	0.117
34 PFDOS	4.706	4.707	4.698	4.700	4.698	4.699	4.698	4.698	4.707	4.706	4.701	0.081
24 PFTrDA	4.735	4.736	4.727	4.729	4.727	4.728	4.727	4.727	4.736	4.735	4.730	0.081
D 42 13C2_PFTeDA	4.950	4.951	4.942	4.943	4.942	4.950	4.942	4.950	4.951	4.950	4.947	0.090
23 PFTeDA	4.950	4.951	4.950	4.951	4.942	4.950	4.950	4.950	4.951	4.950	4.949	0.053
D 40 13C2_PFHxDA	5.323	5.324	5.323	5.324	5.323	5.331	5.323	5.331	5.332	5.331	5.326	0.081
35 PFHxDA	5.323	5.324	5.331	5.332	5.331	5.331	5.331	5.331	5.332	5.331	5.330	0.061
36 PFODA	5.671	5.673	5.671	5.672	5.678	5.679	5.678	5.678	5.687	5.685	5.677	0.097

Report Date: 09-Nov-2021 13:30:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	1
Sample Info:	ICAL 50_SVLC-1740	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1088636	19	>100:1			1000.00	993.12	98.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	65528	18	26:1			50.000	56.483		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1011702	16	>100:1			1000.00	991.78	98.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	57754	13	36:1			50.000	53.183		M
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	337678	22	>100:1			1000.00	1000.71	99.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.158	2.169	0/0	27099	15	>100:1	Target = 3.83		44.200	56.692		
298.9 > 99	44	2.158	2.169		7648	17	41:1	3.54 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.519	2.529	0/0	15269	15	>100:1	Target = 3.47		46.900	45.176		
349 > 99	44	2.519	2.529		3806	20	35:1	4.01 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.440	2.449	0	226429	17	>100:1			5000.00	4848.92	97.8	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	0/0	4109	23	64:1	Target = 1.39		46.700	48.800		
327 > 81	63	2.449	2.449		5109	16	2.9:1	0.80 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.484	2.493	0	926899	17	>100:1			1000.00	1016.34	101.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.484	2.493	0/0	56167	16	56:1	Target = 17.15		50.000	59.621		
313 > 119	49	2.493	2.493		3365	18	7.3:1	16.69 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.614	0	676999	19	>100:1			5000.00	4599.37	98.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.622	0/0	12711	17	37:1	Target = 0.72		100.00	125.86		
285 > 185	66	2.614	2.622		15628	21	36:1	0.81 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.869	2.878	0	886389	17	>100:1			1000.00	1001.72	98	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	48815	17	65:1	Target = 3.21		50.000	57.646		
363 > 169	47	2.878	2.878		14119	14	32:1	3.45 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	270338	18	>100:1			1000.00	977.43	98	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	14805	21	84:1	Target = 3.35	4.97	45.500	47.508		
399 > 99	45	2.887	2.896		6336	24	45:1	2.33 (1.67-5.04)	10.95				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.914	2.923	0/0	68538	14	81:1	Target = 2.38		47.100	47.817		
377 > 85	45	2.923	2.923		29853	15	68:1	2.29 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.252	3.226	2/2	15465	26	93:1	Target = 3.87		47.600	53.752		
449 > 99	45	3.258	3.226		2978	16	22:1	5.19 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.220	3.201	2	203398	20	>100:1			5000.00	4935.00	93.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.214	3.201	1/-1	3789	26	25:1	Target = 1.26		47.400	56.075		
427 > 81	64	3.233	3.201		4323	14	3.6:1	0.87 (0.63-1.89)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.245	3.220	2	881928	21	>100:1			1000.00	1046.90	104.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.245	3.226	2/0	43521	16	40:1	Target = 2.46		50.000	49.347		
413 > 169	53	3.245	3.226		17802	21	28:1	2.44 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.585	3.558	2	235633	20	>100:1			1000.00	994.54	98.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.558	3/1	14095	35	70:1	Target = 3.98	4.36	46.400	51.415		
499 > 99	54	3.599	3.558		3200	42	23:1	4.40 (1.99-5.97)	5.37				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.786	3.755	2/0	31967	19	>100:1			46.600	44.891		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.908	3.886	2/0	12339	21	78:1	Target = 3.57		48.000	54.992		
549 > 99	54	3.915	3.886		3579	20	49:1	3.44 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.206	4.191	1/-1	12922	22	64:1	Target = 3.73		48.200	58.506		
599 > 99	54	4.206	4.191		3440	18	33:1	3.75 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.367	4.349	2/0	28056	20	>100:1			47.100	49.403		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.706	4.698	1/-1	9039	16	>100:1	Target = 3.44		48.400	47.503		
699 > 99	54	4.698	4.698		2735	20	50:1	3.30 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.592	3.565	2	827893	20	>100:1			1000.00	1020.40	97.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.592	3.565	2/0	41366	17	75:1	Target = 4.45		50.000	56.021		
463 > 169	56	3.599	3.565		8820	17	34:1	4.69 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.900	3.872	2	425171	19	>100:1			1000.00	1023.55	99.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.900	3.872	2/0	25731	17	26:1	Target = 47.73		50.000	55.543		
498>478	55	3.908	3.872		291	13	3.0:1	88.42 (23.86-71.60)					M
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.915	3.894	2	175125	16	>100:1			5000.00	5029.12	97.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													a
527 > 507	65	3.908	3.894	1/-1	2437	16	15:1	Target = 1.41		47.900	42.168		
527 > 81	65	3.930	3.894		3195	19	4.0:1	0.76 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.510	4.494	1/-1	3602	20	38:1	Target = 2.81		48.200	48.482		
627 > 80	65	4.494	4.494		589	18	6.9:1	6.11 (1.40-4.21)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.923	3.901	2	759064	18	>100:1			1000.00	1060.98	98.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.930	3.901	2/0	42732	21	82:1	Target = 9.36		50.000	55.119		
513 > 169	51	3.923	3.901		4258	12	19:1	10.03 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.071	4.053	2	747364	16	>100:1			5000.00	4622.25	94.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.080	4.062	2/0	6531	32	40:1	Target = 1.42	6.15	50.000	54.140		
570 > 483	58	4.080	4.062		4001	71		1.63 (0.71-2.13)	2.02				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.231	4.207	2	784663	16	>100:1			5000.00	5426.76	104.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.240	4.223	2/0	7417	34		Target = 1.80	9.29	50.000	47.912		M
584 > 526	60	4.231	4.223		3324	33	9.1:1	2.23 (0.90-2.70)	2.22				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.231	4.207	2	708125	17	>100:1			1000.00	1008.40	98.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.231	4.207	2/0	34515	14	96:1	Target = 8.65		50.000	54.123		
563 > 169	52	4.231	4.207		4971	17	47:1	6.94 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.313	4.295	2	116904	14	>100:1			1000.00	952.60	94.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.322	4.304	2/0	7499	16	32:1			50.000	62.904		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.331	4.313	2	62335	15	>100:1			1000.00	970.20	98.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.340	4.322	2/0	4369	21	21:1	Target = 1.09		50.000	64.698		
512 > 219	57	4.340	4.322		3968	13	27:1	1.10 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.478	4.463	1	114303	17	>100:1			1000.00	1005.90	103.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.486	4.479	1/0	5157	18	29:1			50.000	54.512		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.494	4.486	1	679812	17	>100:1			1000.00	976.64	98.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.494	4.486	1/0	39821	14	36:1	Target = 6.94		50.000	58.319		
613 > 169	38	4.494	4.486		4306	12	30:1	9.24 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.735	4.727	1/0	15749	18	>100:1	Target = 2.82		50.000	52.481		
663 > 169	38	4.727	4.727		5091	12	96:1	3.09 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.494	4.486	1	58586	15	>100:1			1000.00	971.14	91	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.510	4.494	1/0	3955	20	39:1	Target = 1.11		50.000	56.520		
526 > 219	59	4.502	4.494		3600	16	26:1	1.09 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.950	4.942	1	707186	16	>100:1			1000.00	947.81	94	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/0	33753	17	14:1	Target = 7.23		50.000	55.316		
713 > 169	42	4.950	4.942		4216	21	38:1	8.00 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.323	5.323	0	344321	16	>100:1			1000.00	989.72	100.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.323	5.331	0/0	38119	17	11:1	Target = 12.24		50.000	60.207		
813 > 269	40	5.323	5.331		3207	17	80:1	11.88 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.671	5.678	0/0	24553	19	8.8:1	Target = 148.06		50.000	52.770		
913 > 319	40	5.671	5.678		136	19	17:1	180.53 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.923	3.901	2	753719	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.484	2.493	0	918464	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.245	3.226	2	851847	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	1032162	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.585	3.558	2	253350	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

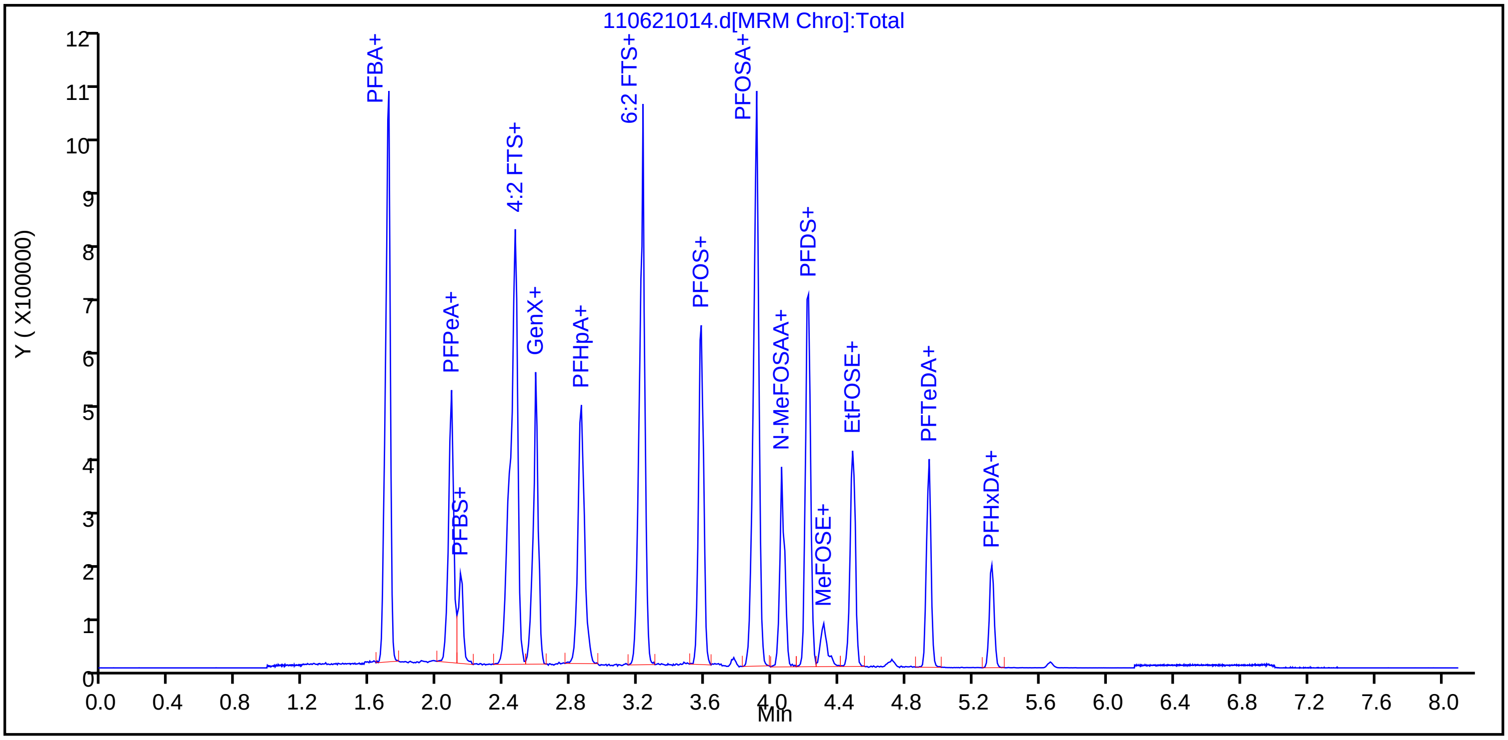
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

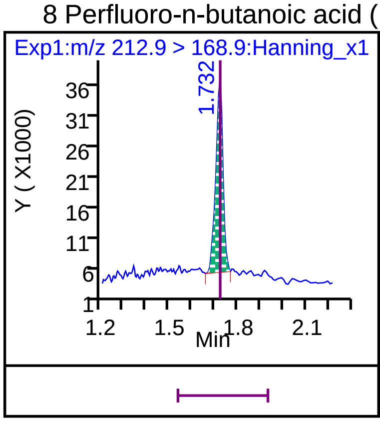
Report Date: 09-Nov-2021 13:30:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

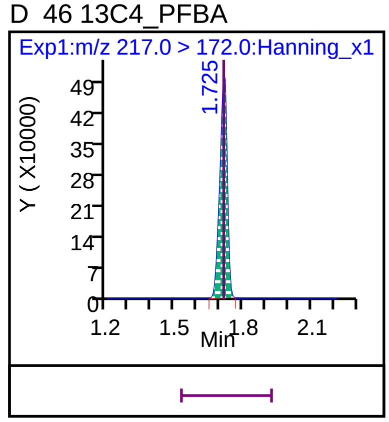
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1740
Sample Info:	ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Matthew M. Miller



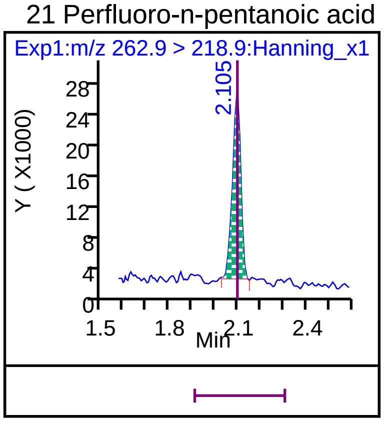
8 Perfluoro-n-butanoic acid (PFBA)



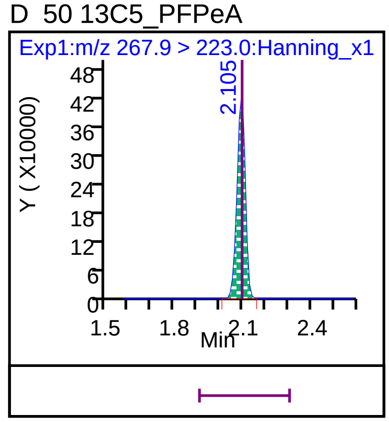
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (M)

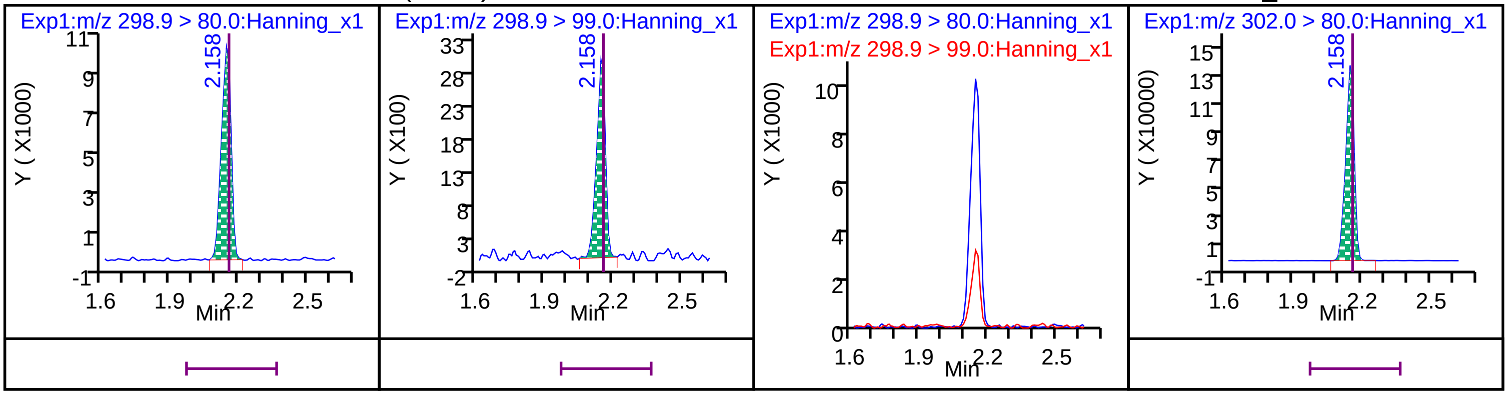


D 50 13C5_PFPeA

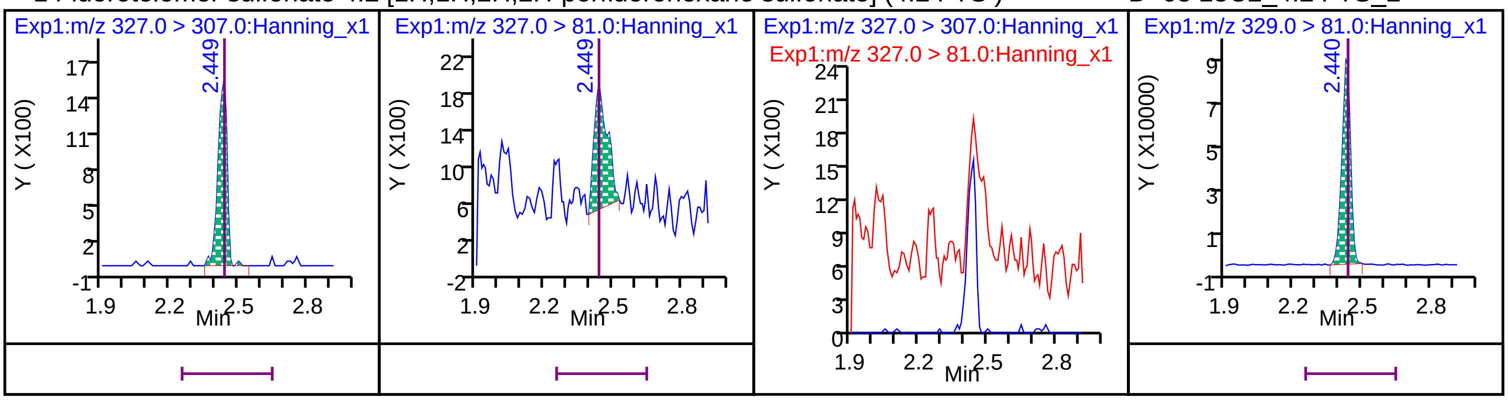


Report Date: 09-Nov-2021 13:30:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d

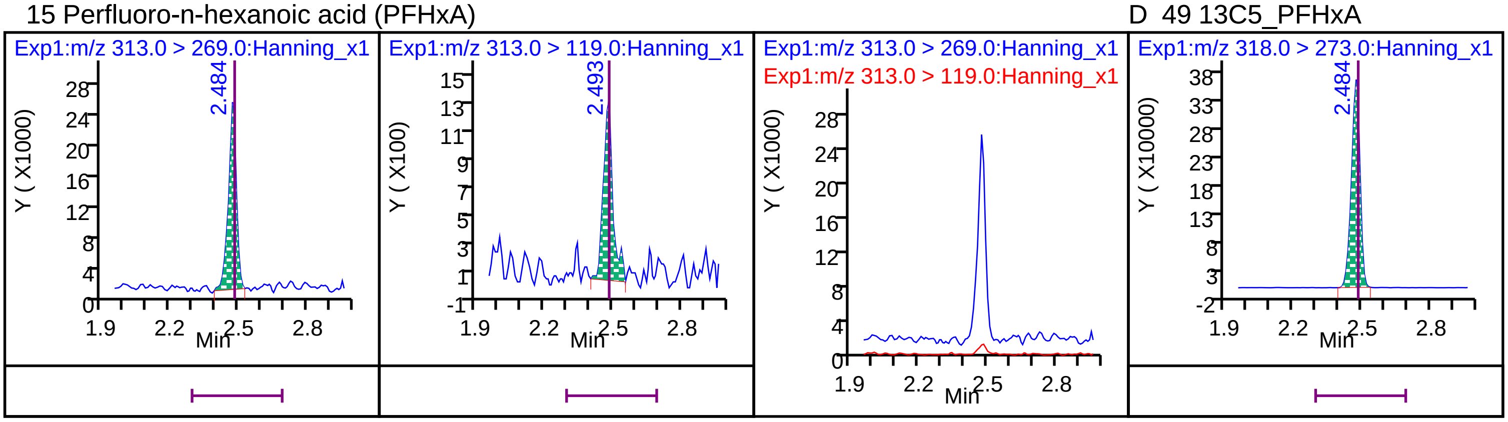
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



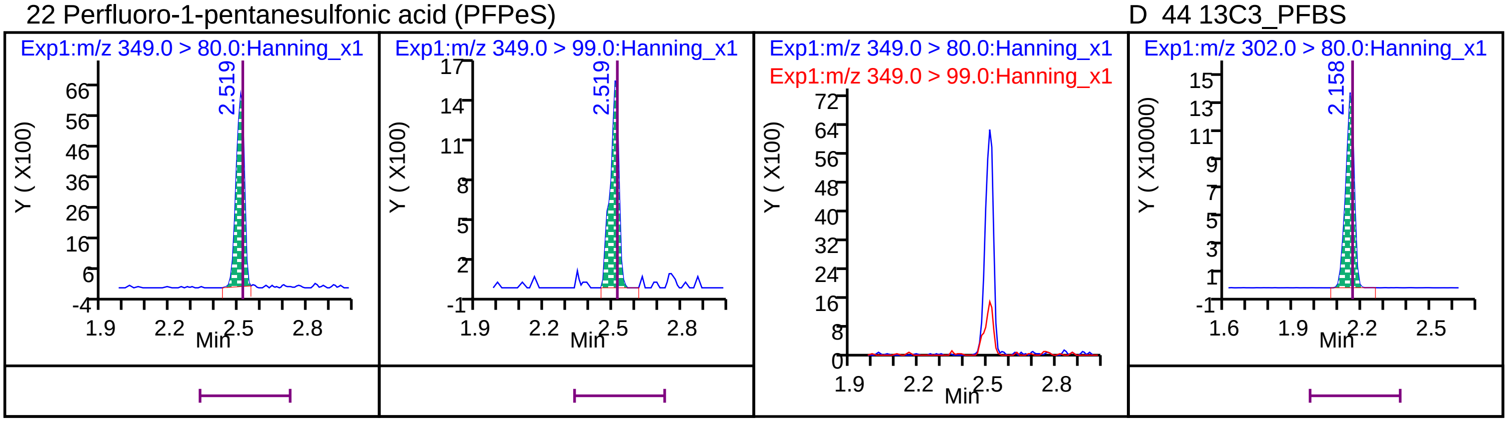
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



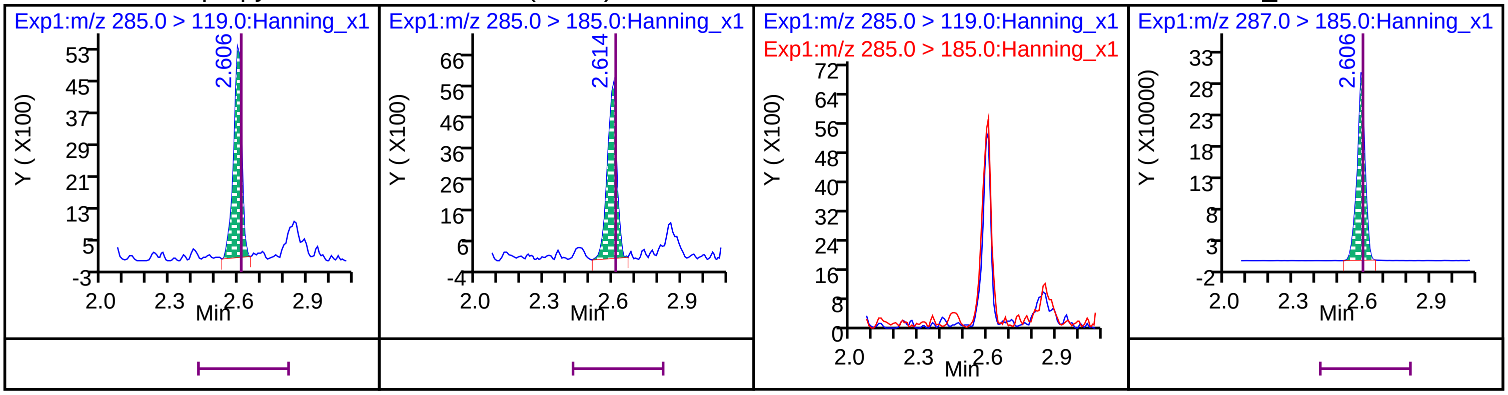
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



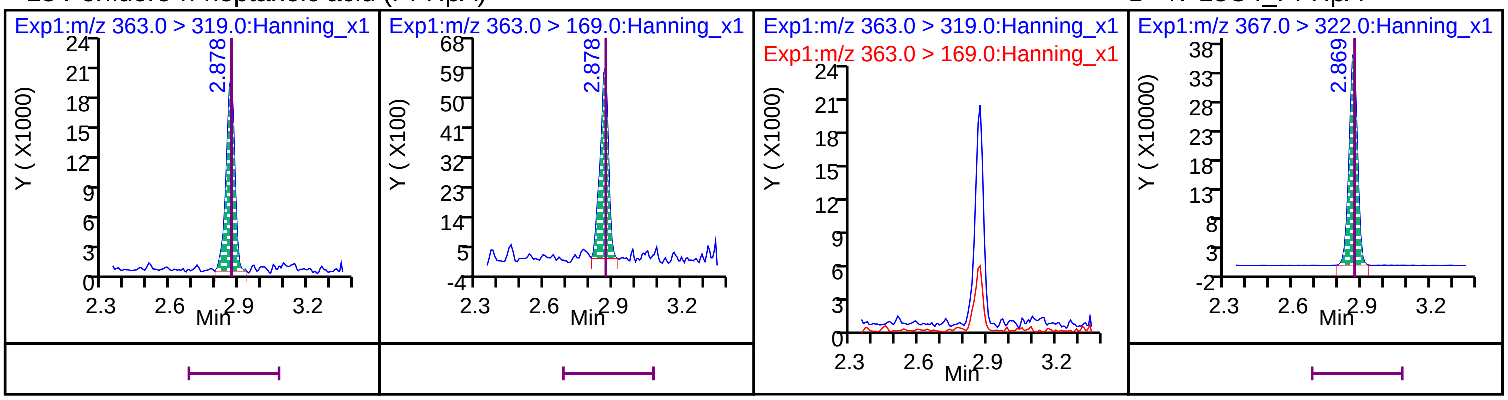
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



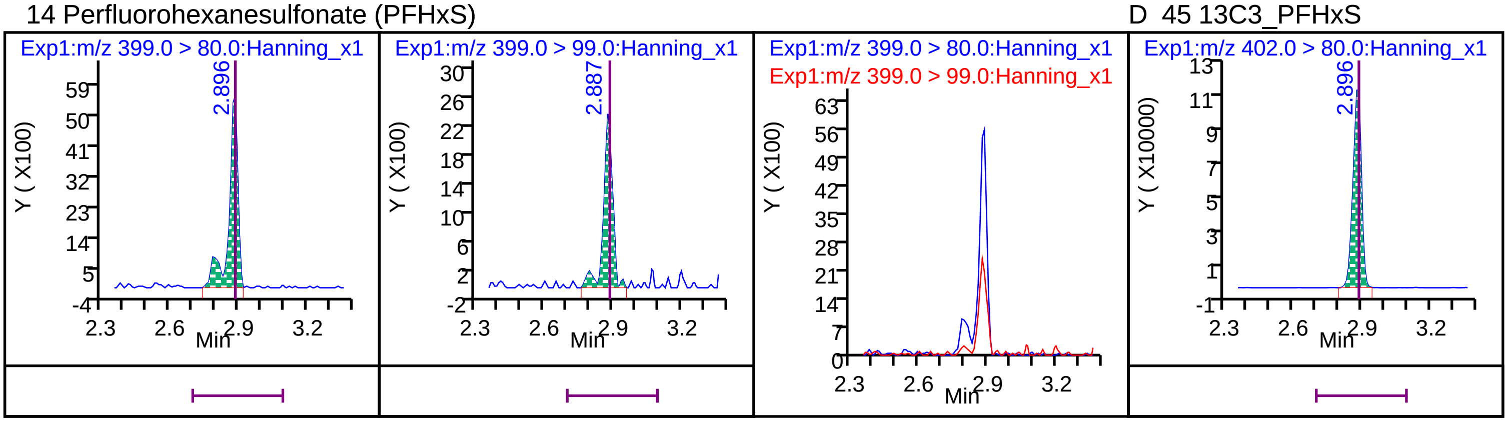
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



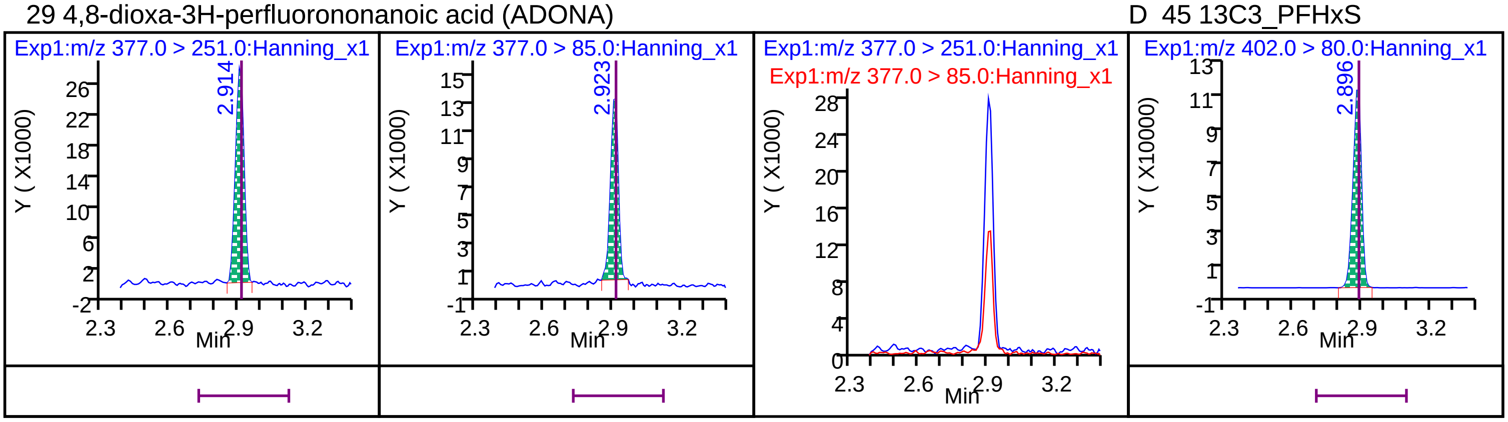
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



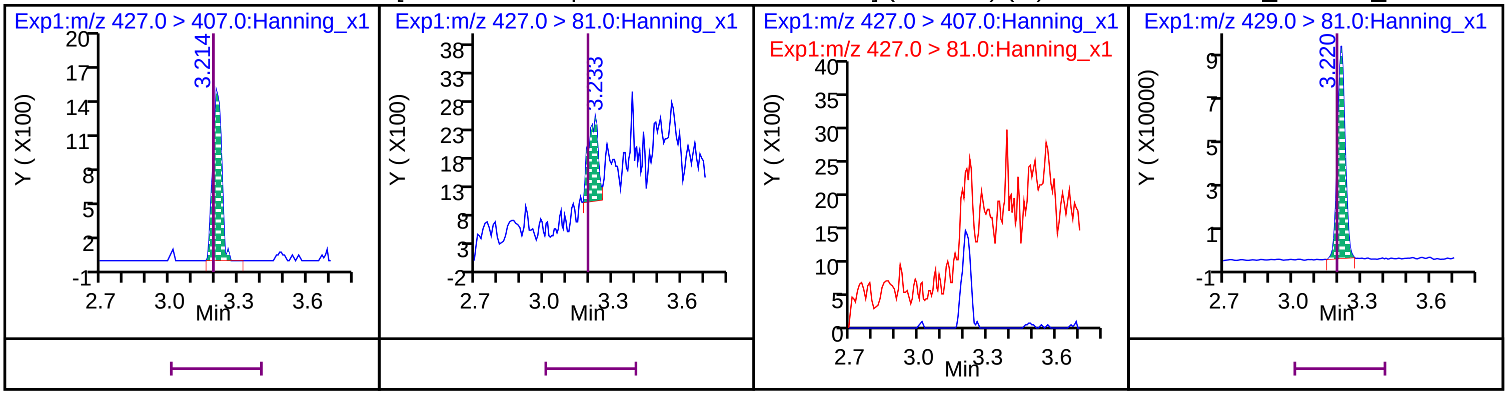
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



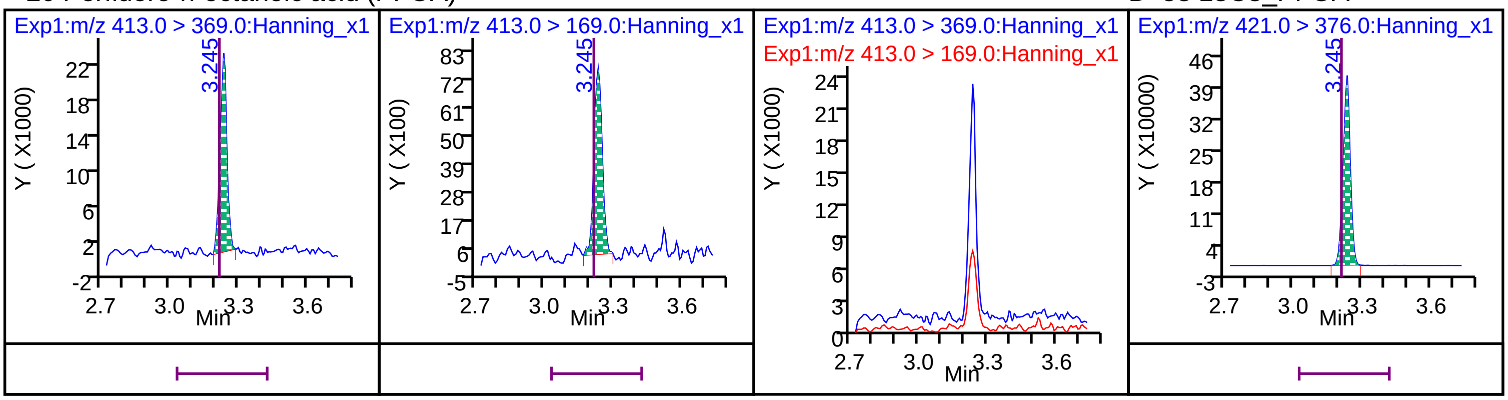
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



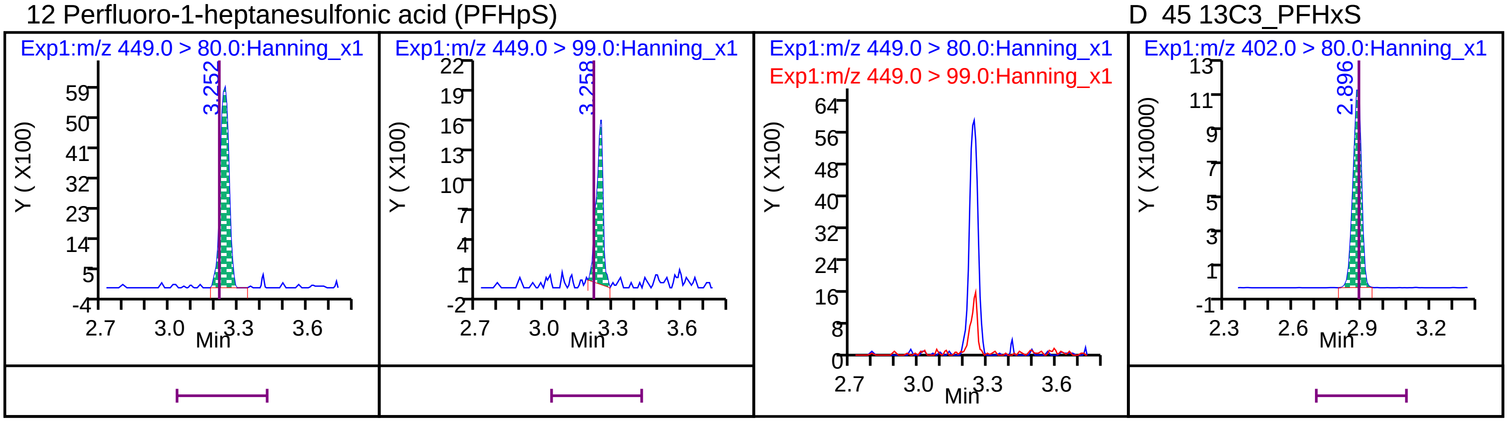
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



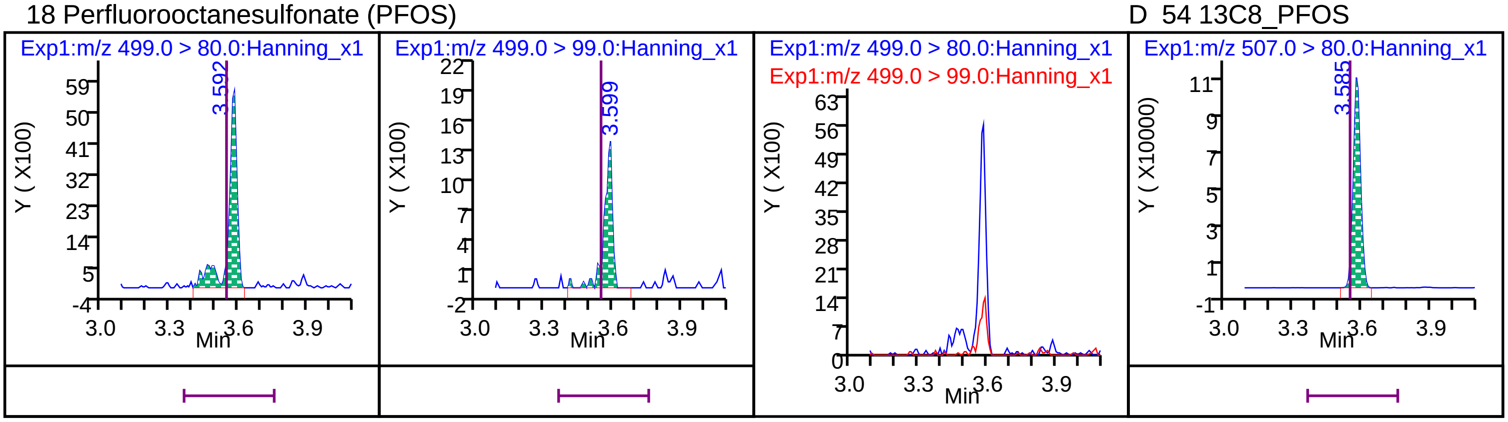
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



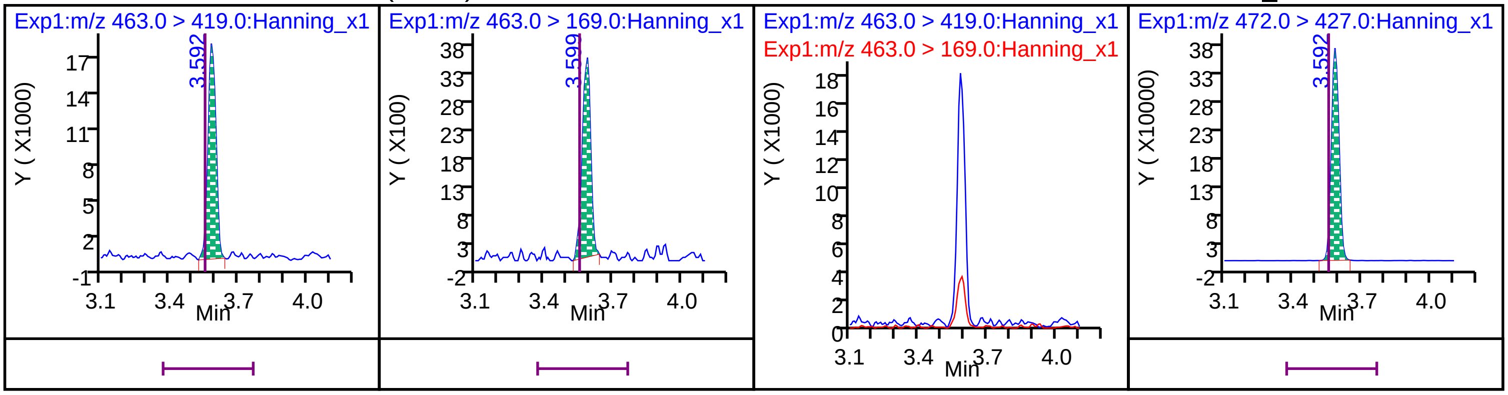
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



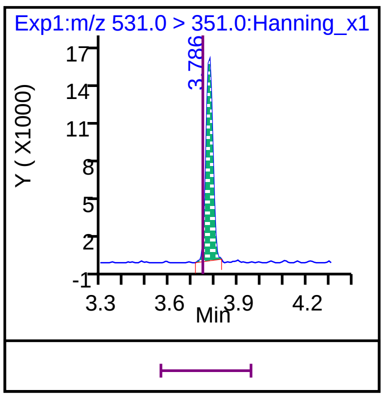
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

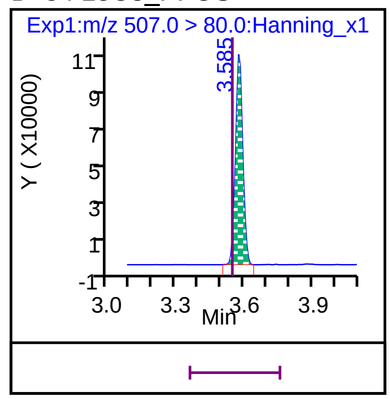


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

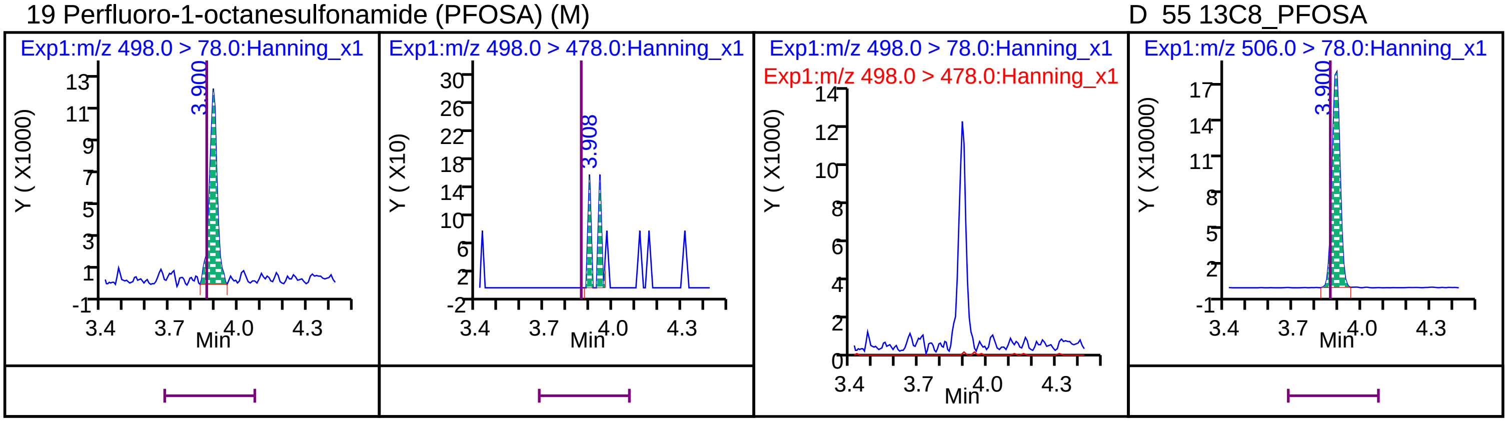


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

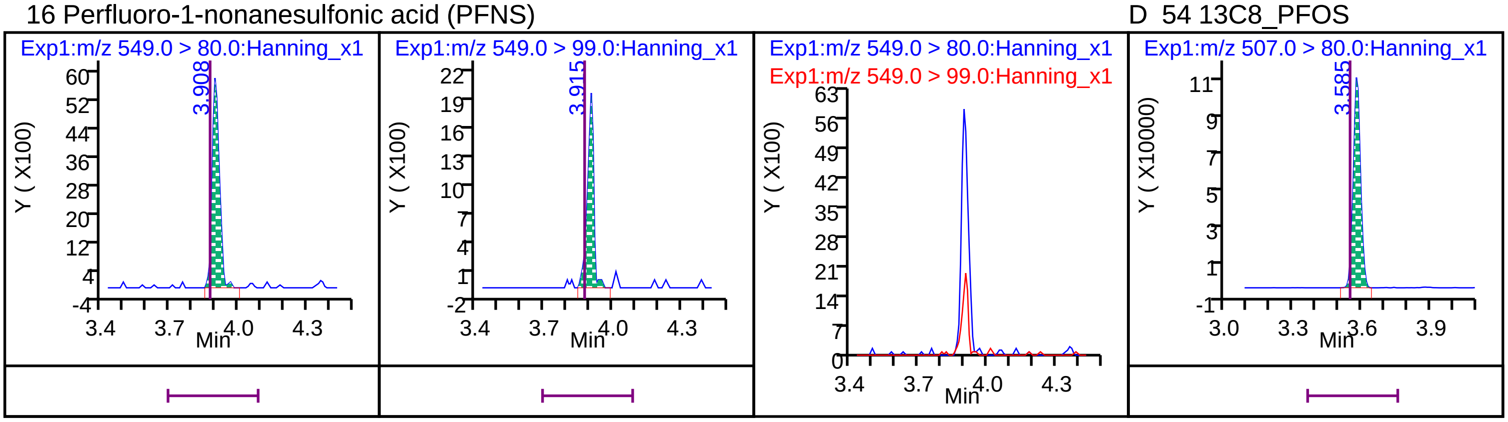




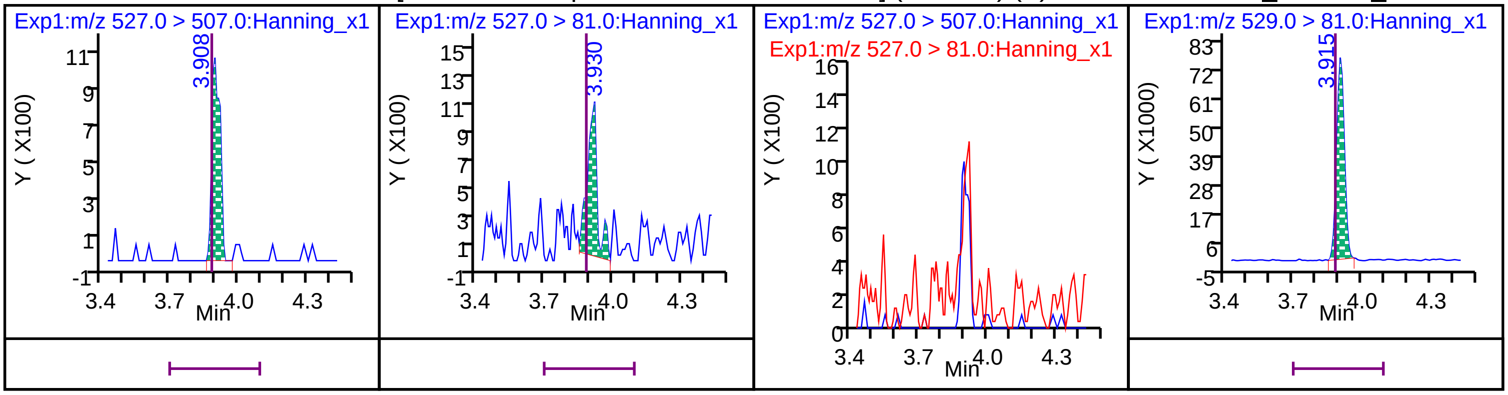
19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA



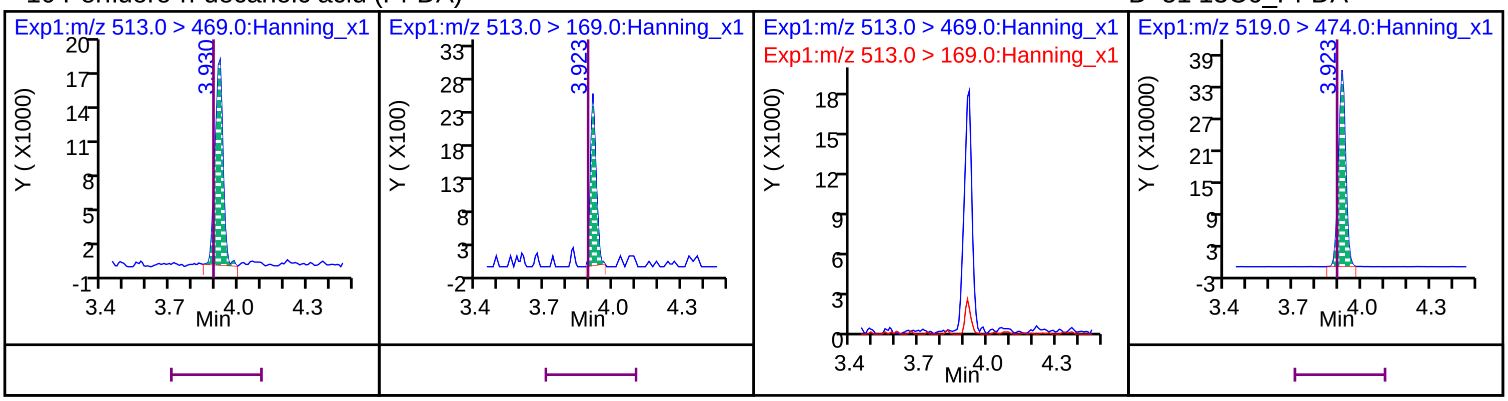
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



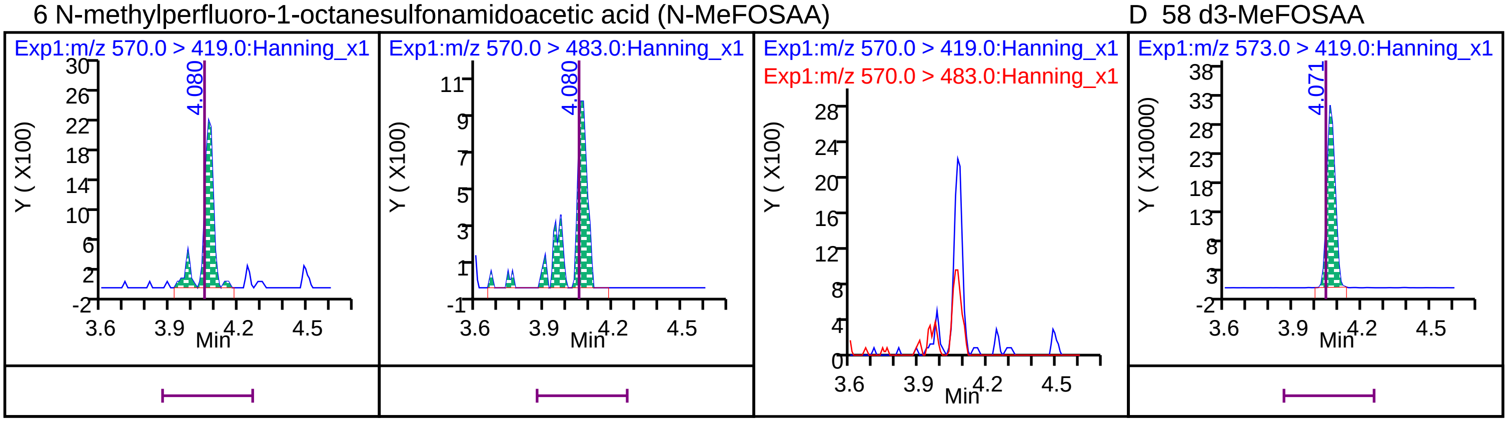
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (A) D 65 13C2_8:2 FTS_2



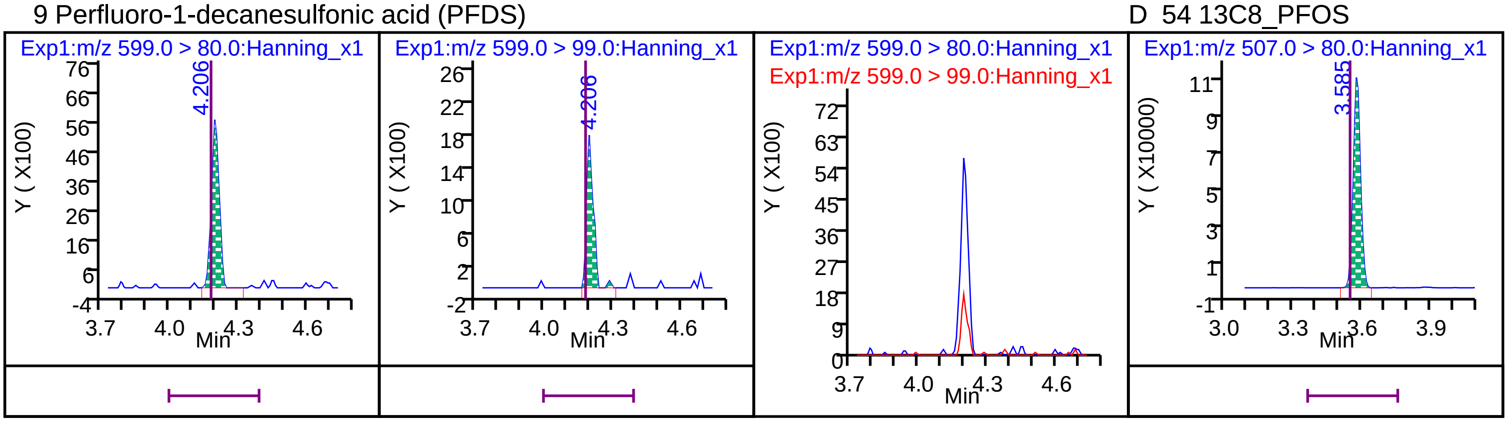
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



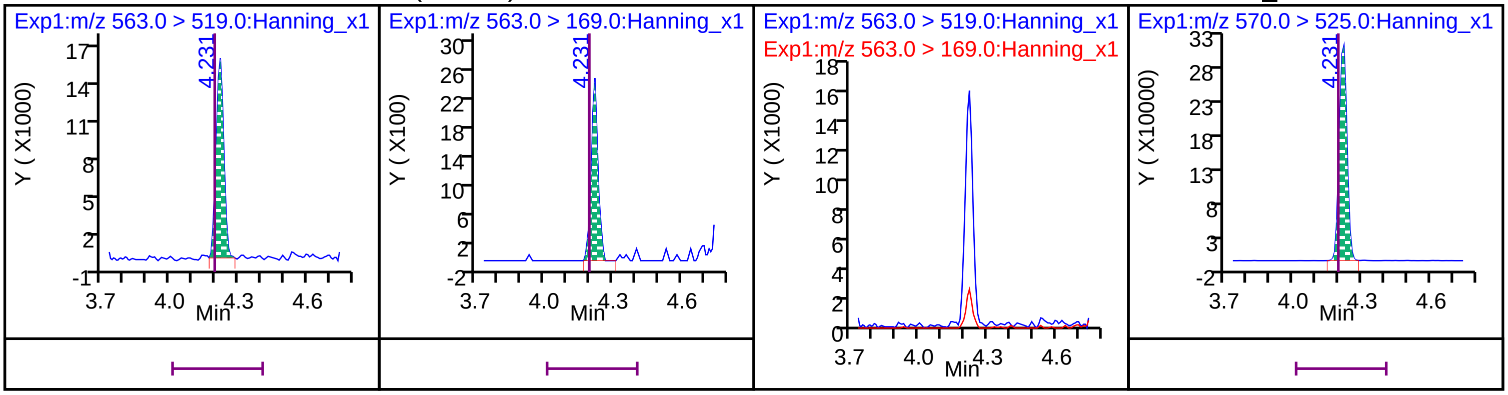
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



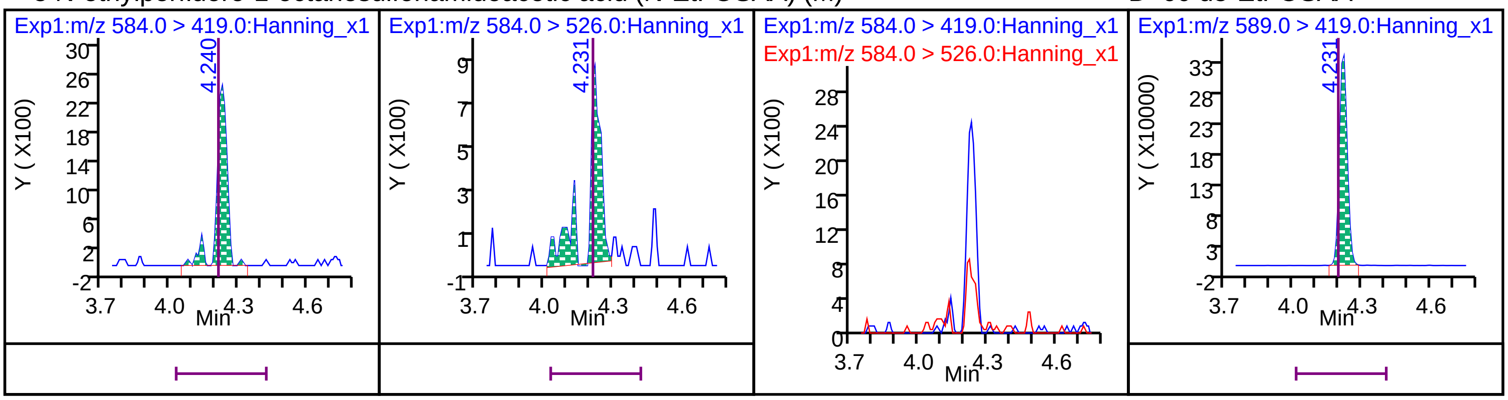
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



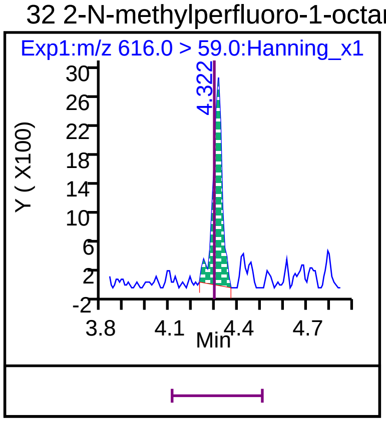
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

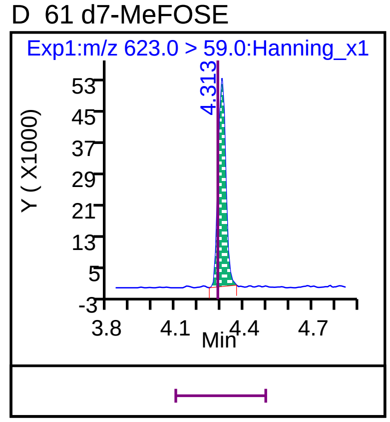


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

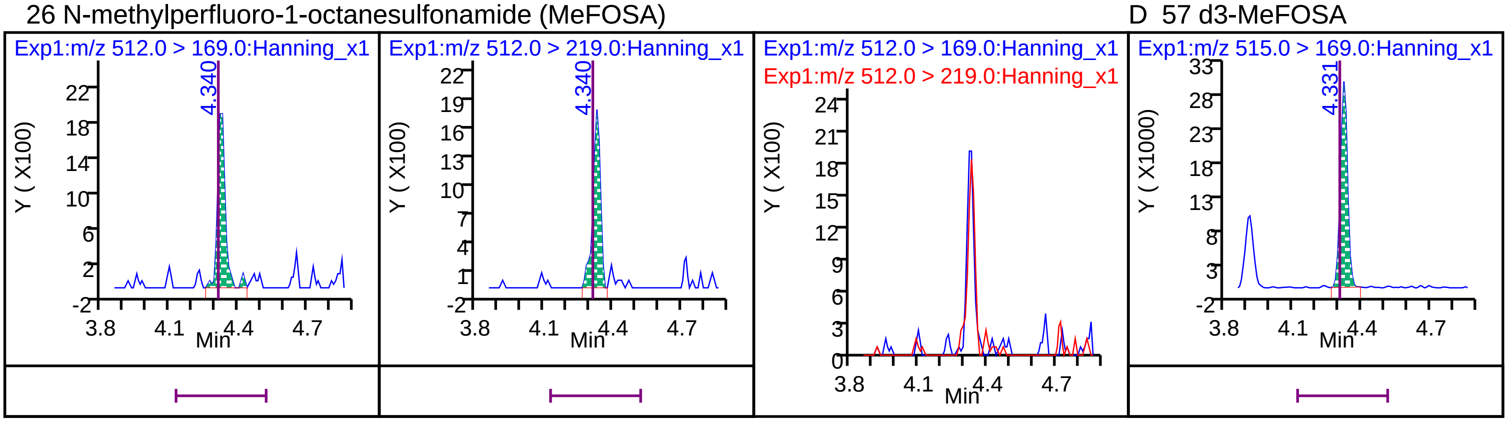


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

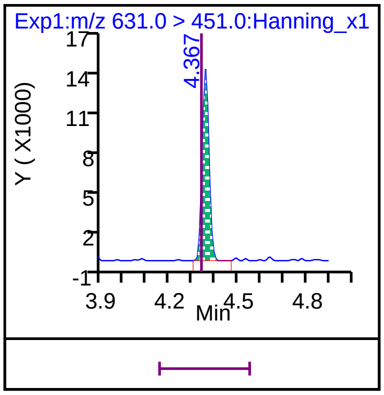




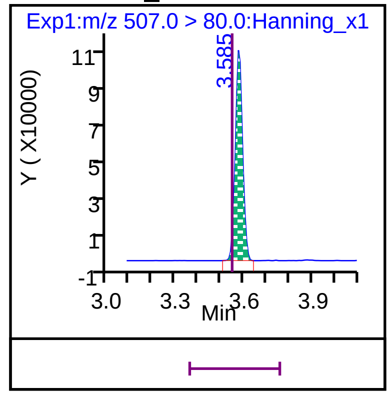
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



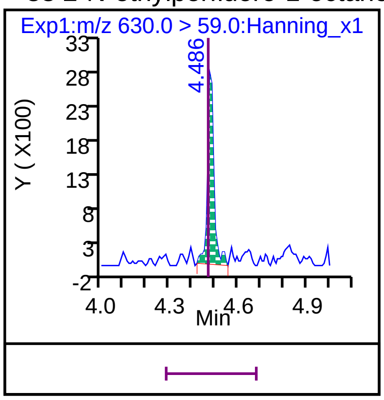
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



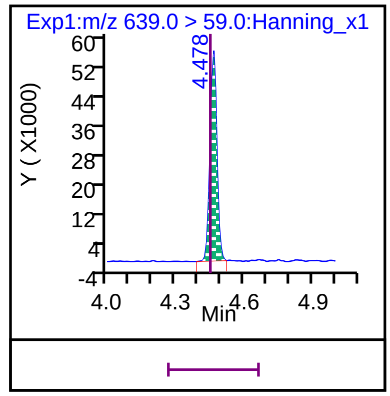
D 54 13C8_PFOS



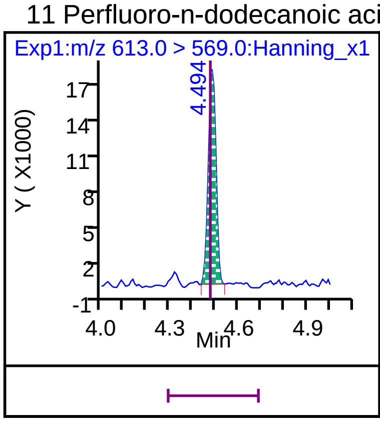
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

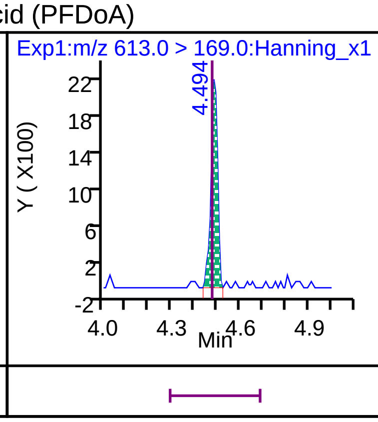


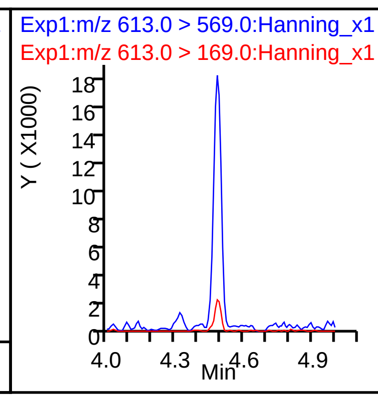
D 62 d9-EtFOSE



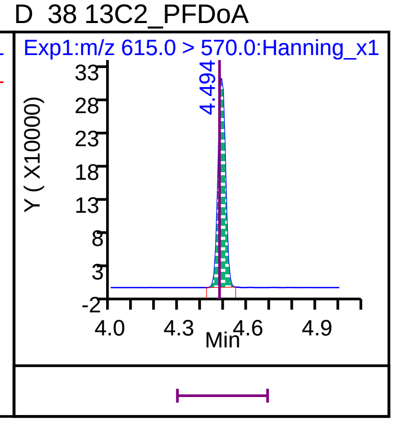
11 Perfluoro-n-dodecanoic acid (PFDoA)



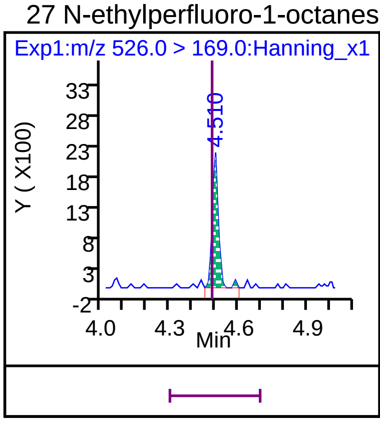


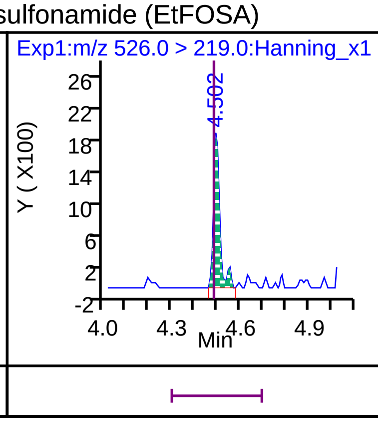


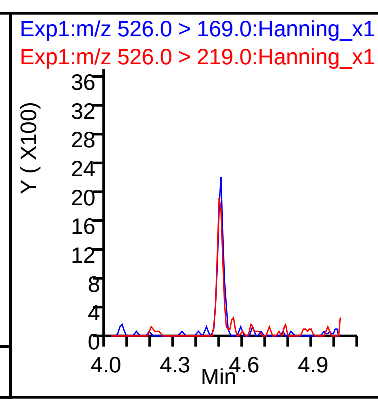
D 38 13C2_PFDoA



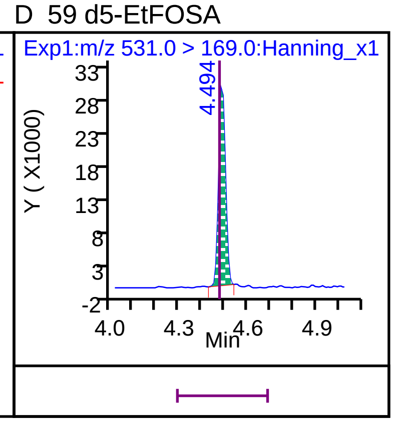
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)





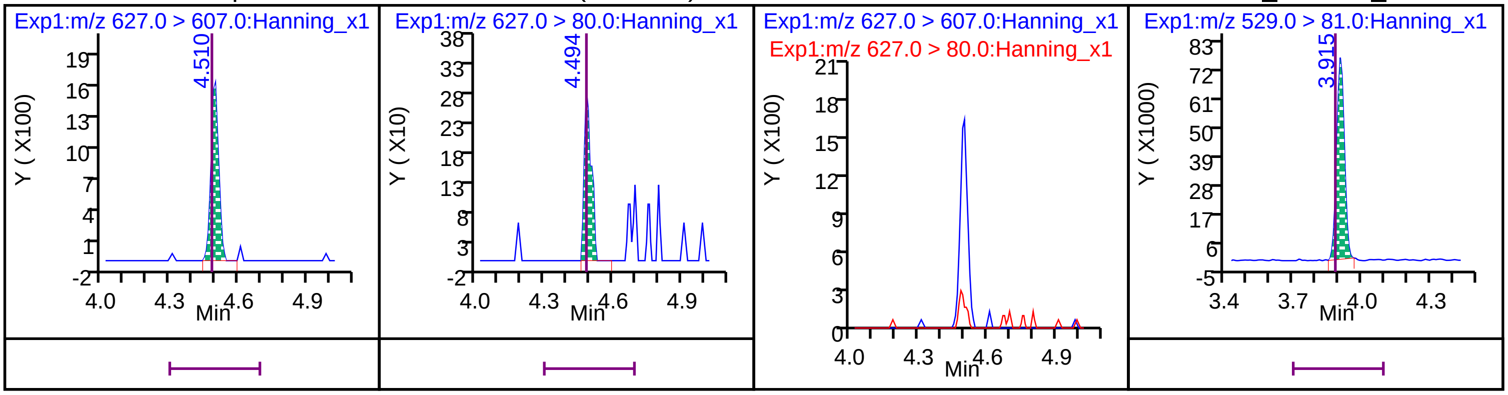


D 59 d5-EtFOSA

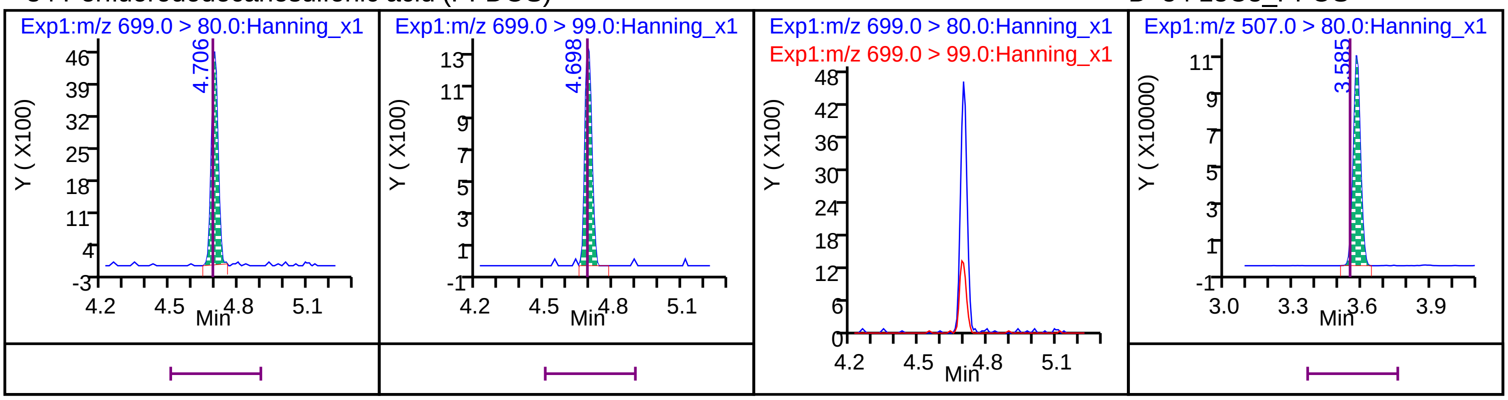


Report Date: 09-Nov-2021 13:30:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d

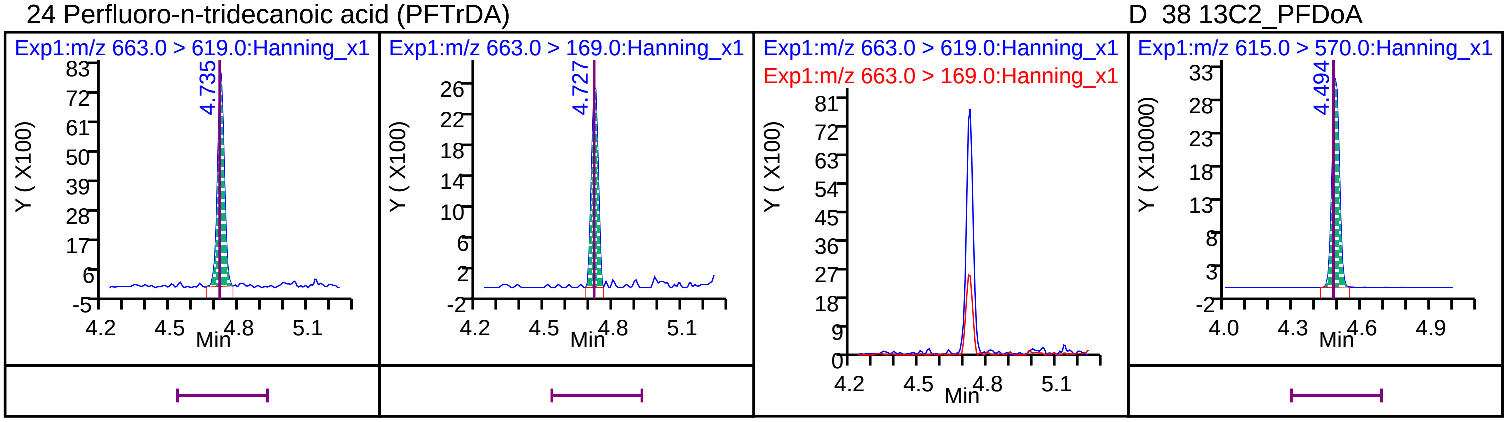
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



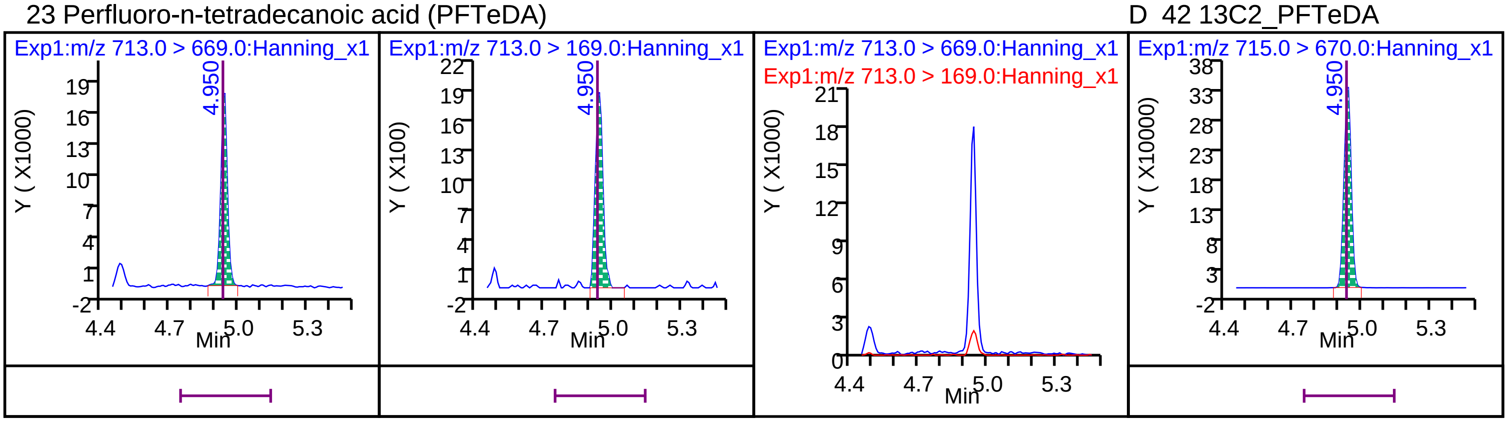
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



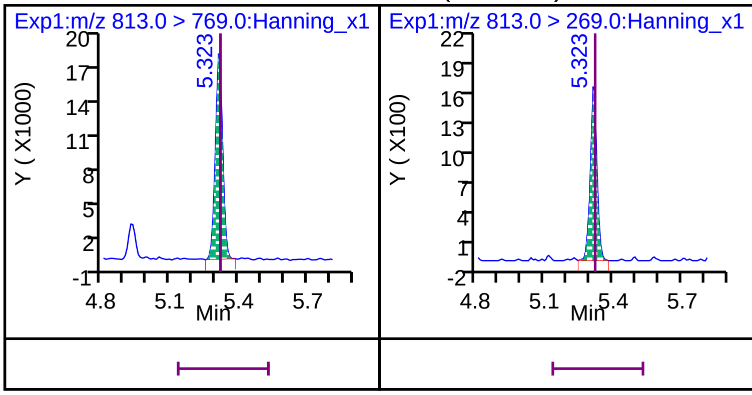
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



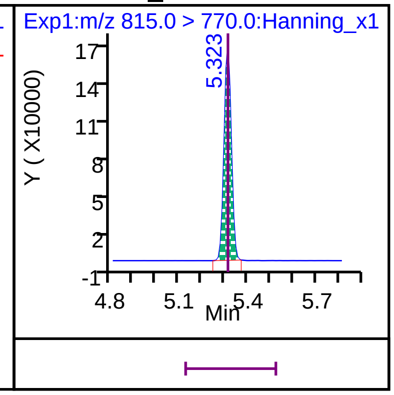
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



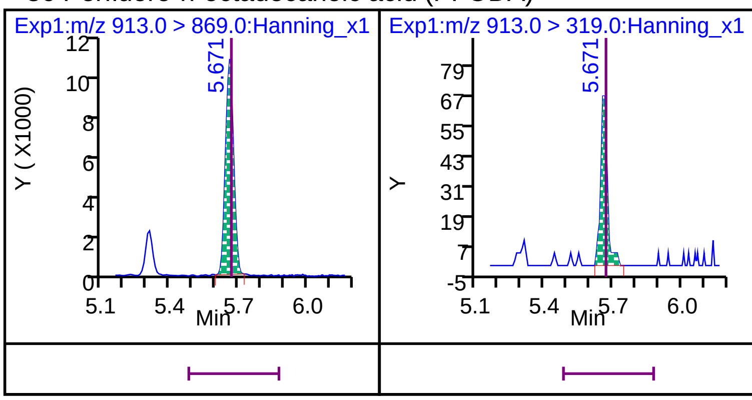
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



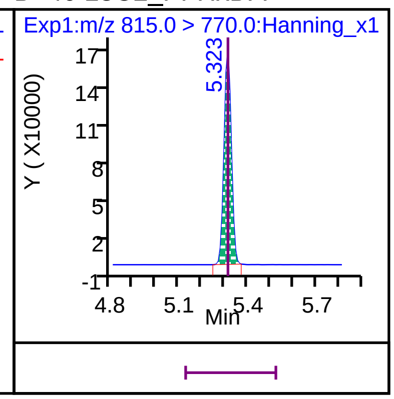
D 40 13C2_PFHxDA



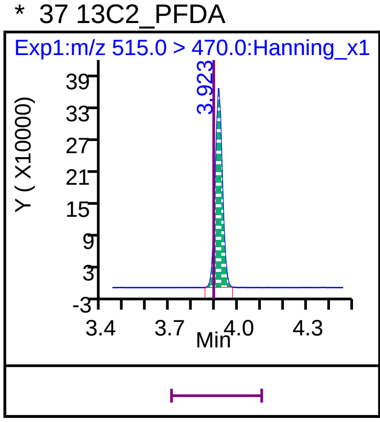
36 Perfluoro-n-octadecanoic acid (PFODA)



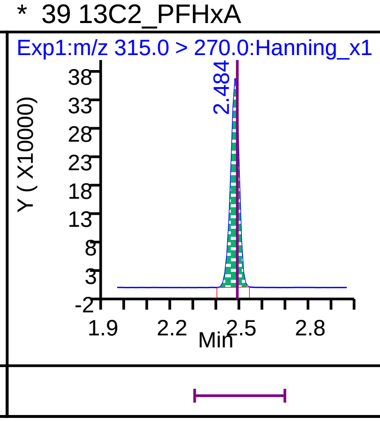
D 40 13C2_PFHxDA



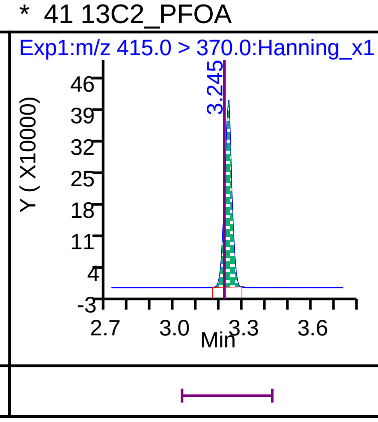
* 37 13C2_PFDA



* 39 13C2_PFHxA



* 41 13C2_PFOA



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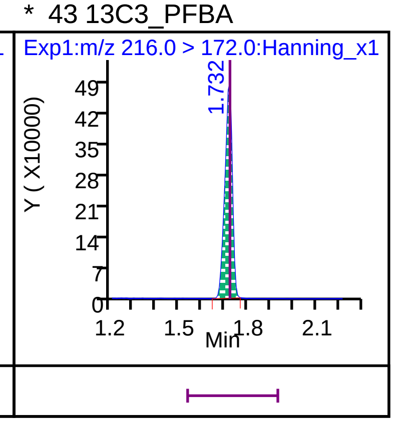
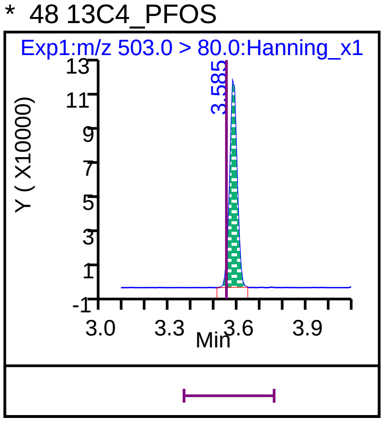


* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

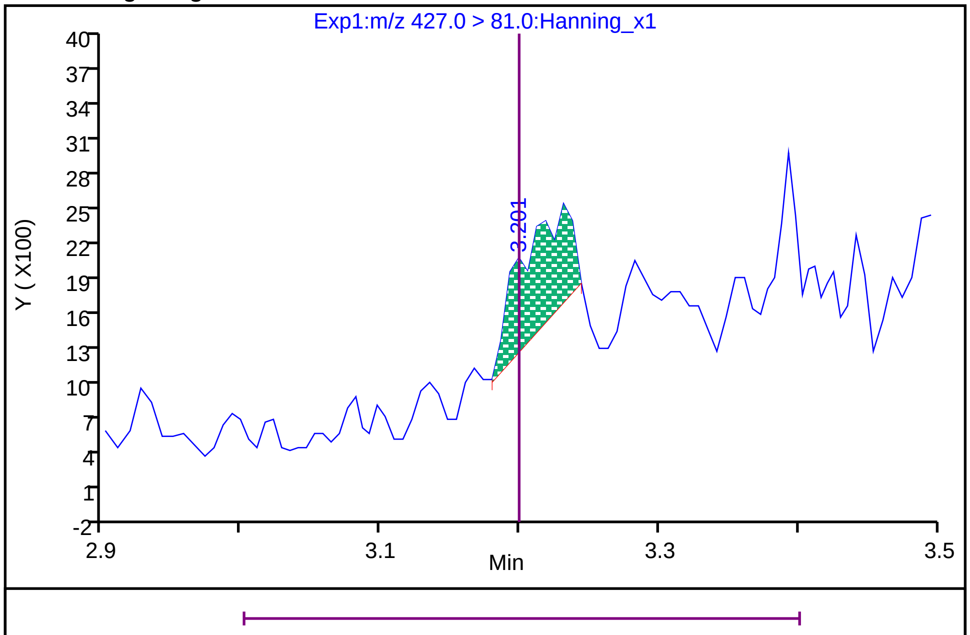
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1740
Sample Info:	ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Matthew M. Miller

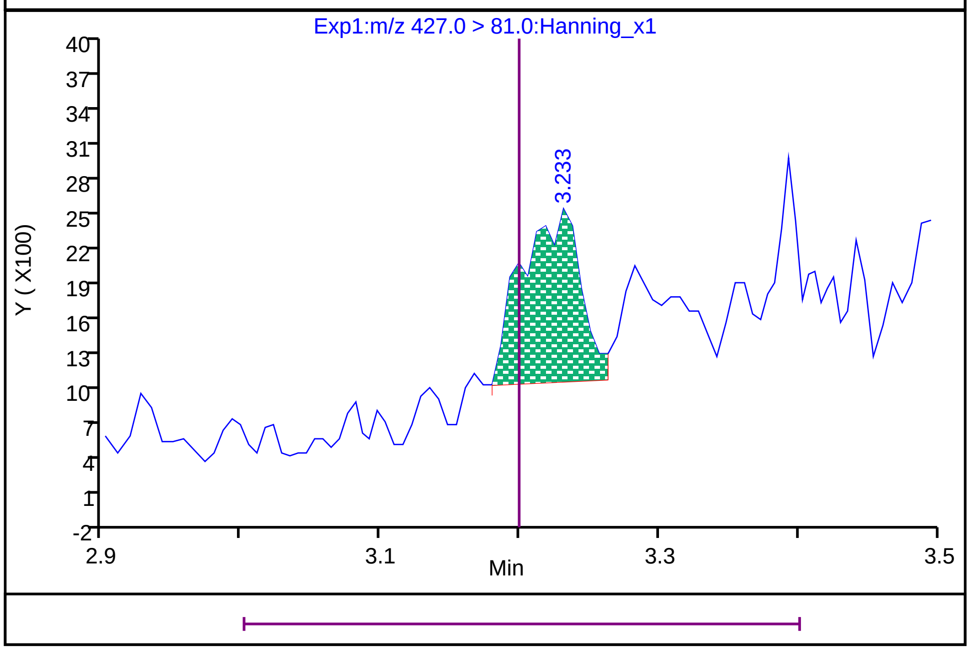
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT:	3.201
Area:	2410
Amount:	56.075
Amount Units:	ng/L



RT:	3.233
Area:	4323
Amount:	56.075
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:39:35

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

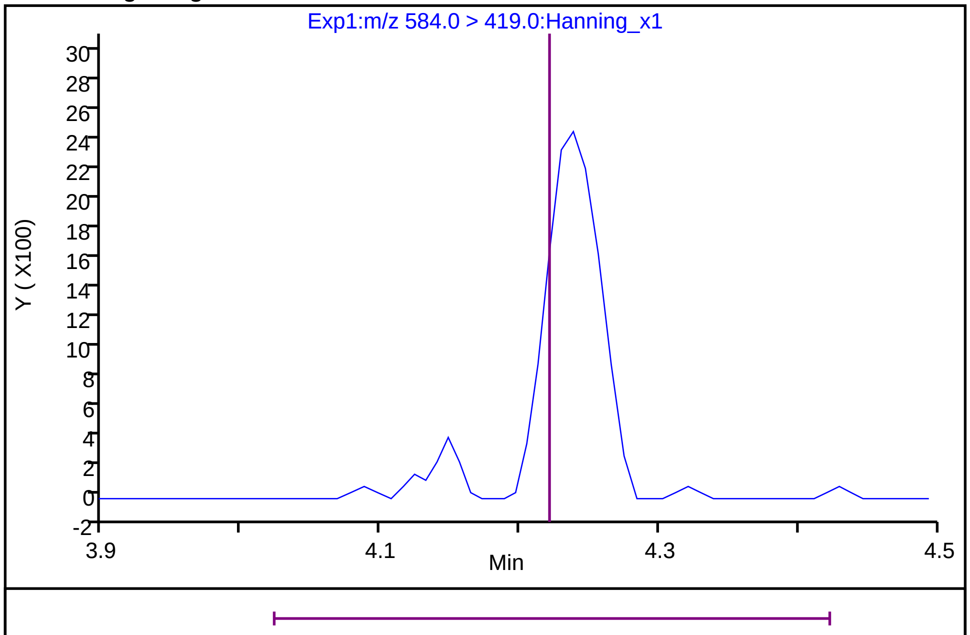
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1740
Sample Info:	ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Matthew M. Miller

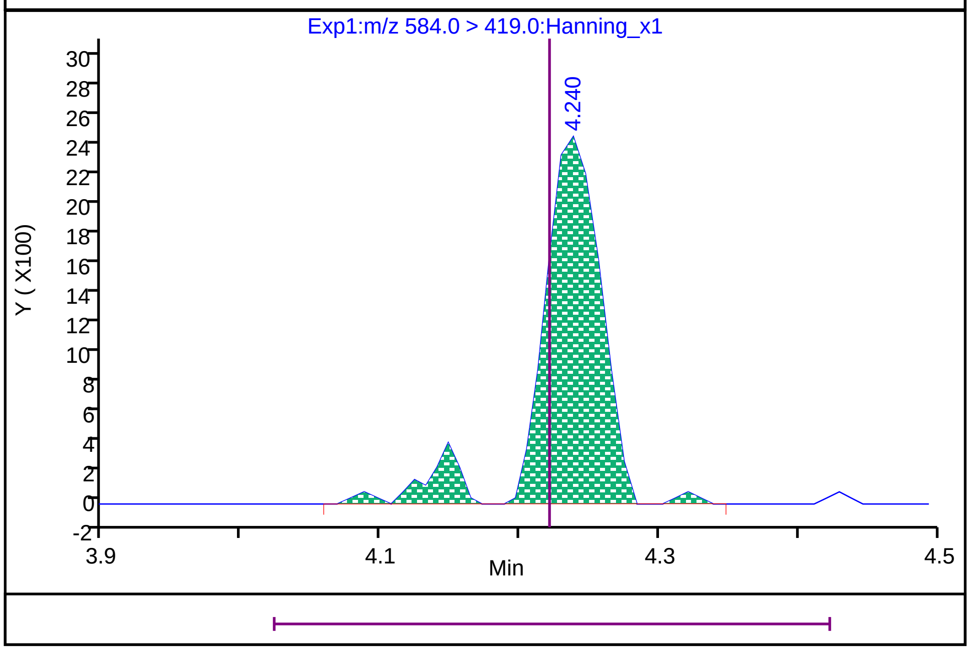
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.240
Area:	7762
Amount:	50.895
Amount Units:	ng/L



RT:	4.240
Area:	7417
Amount:	47.912
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:30

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

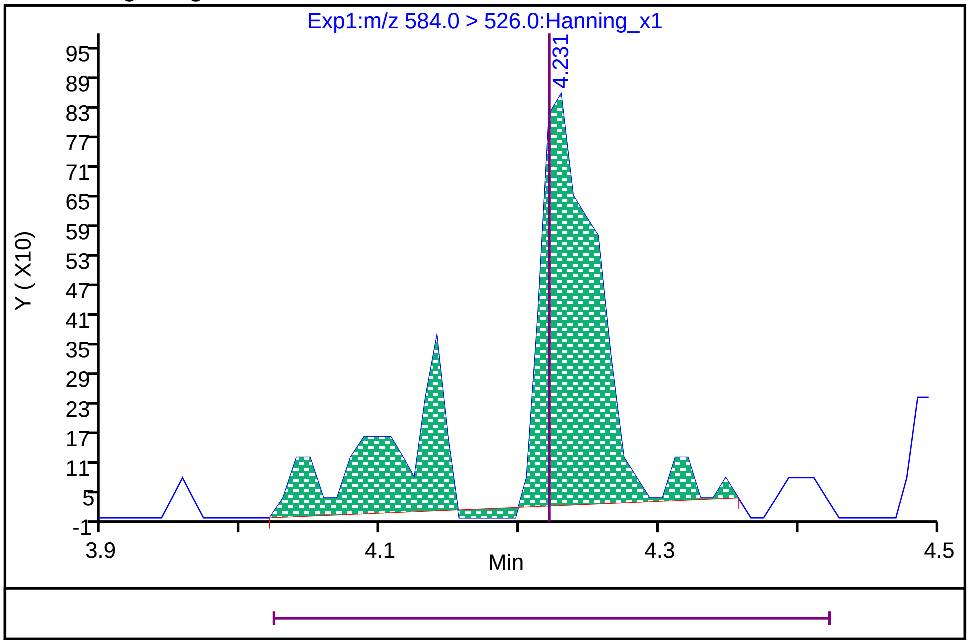
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1740
Sample Info:	ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Matthew M. Miller

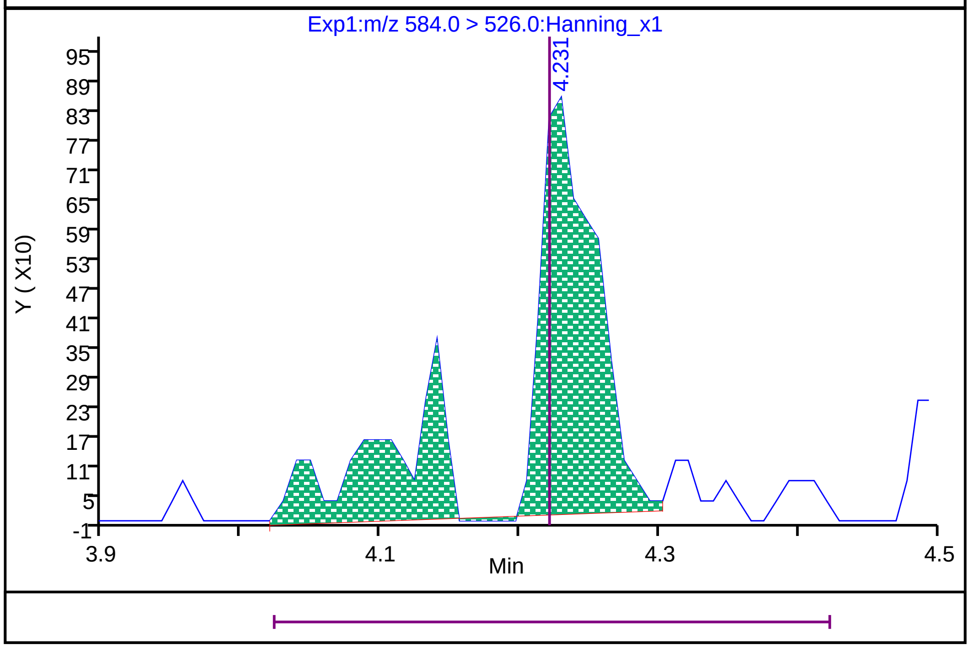
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.231
Area:	3256
Amount:	47.912
Amount Units:	ng/L



RT:	4.231
Area:	3324
Amount:	47.912
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:32

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

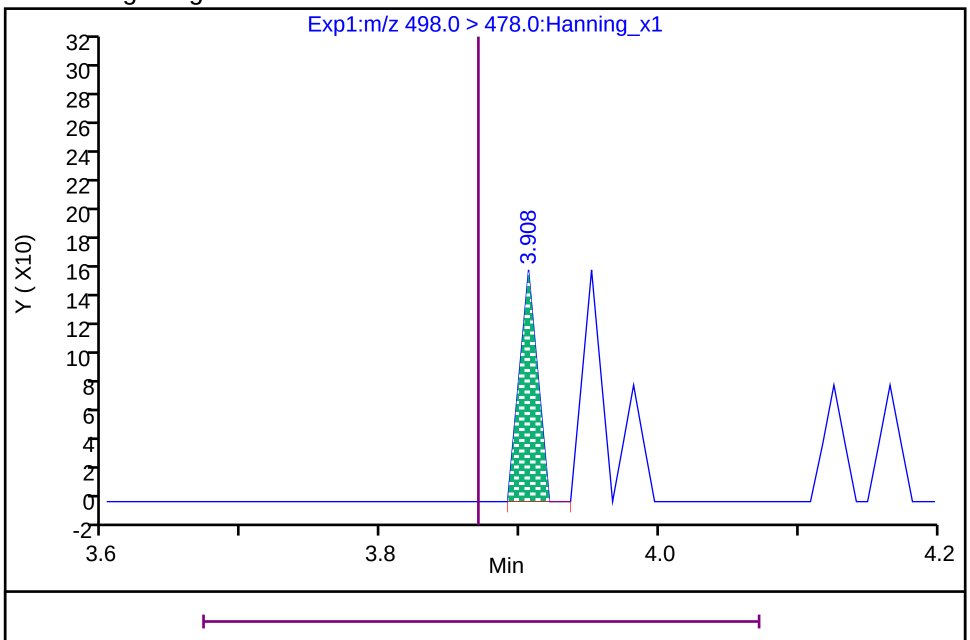
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1740
Sample Info:	ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Matthew M. Miller

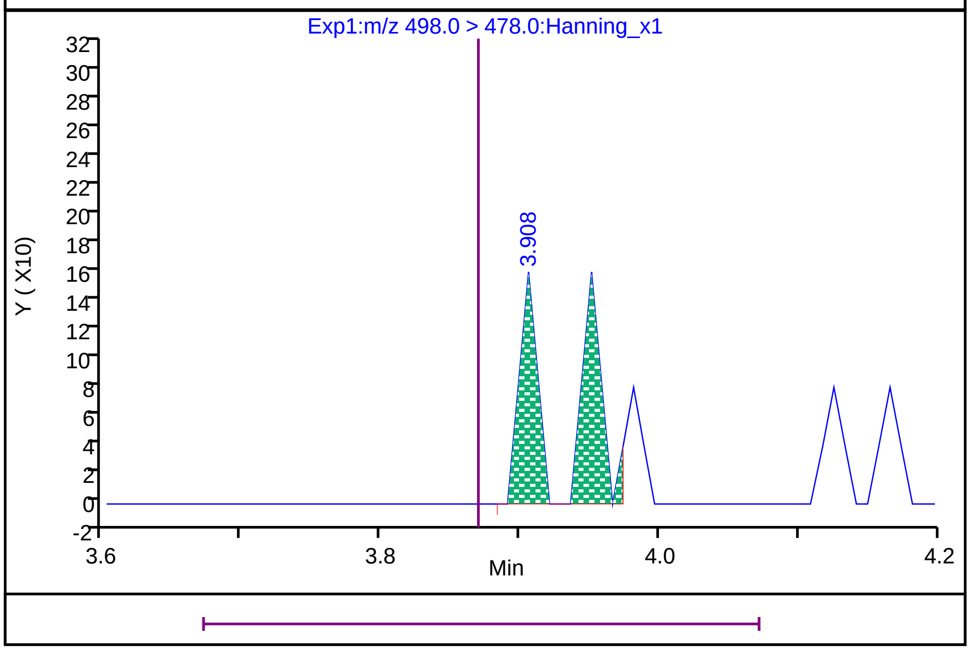
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT: 3.908
Area: 141
Amount: 55.543
Amount Units: ng/L



RT: 3.908
Area: 291
Amount: 55.543
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:39:51

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

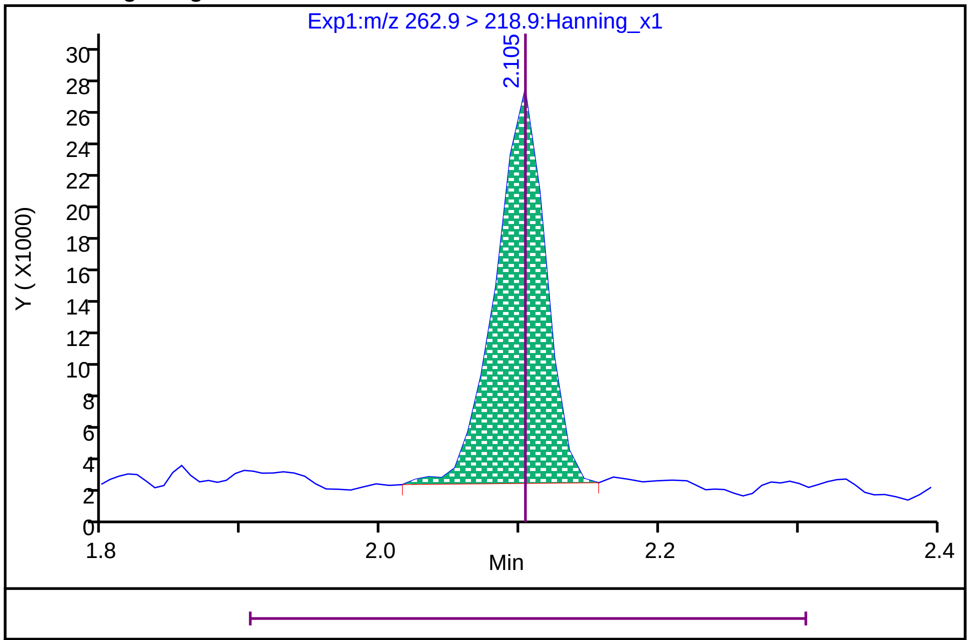
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621014.d		
Injection Date:	06-Nov-2021 14:39:28	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 50_SVLC-1740
Sample Info:	ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Matthew M. Miller

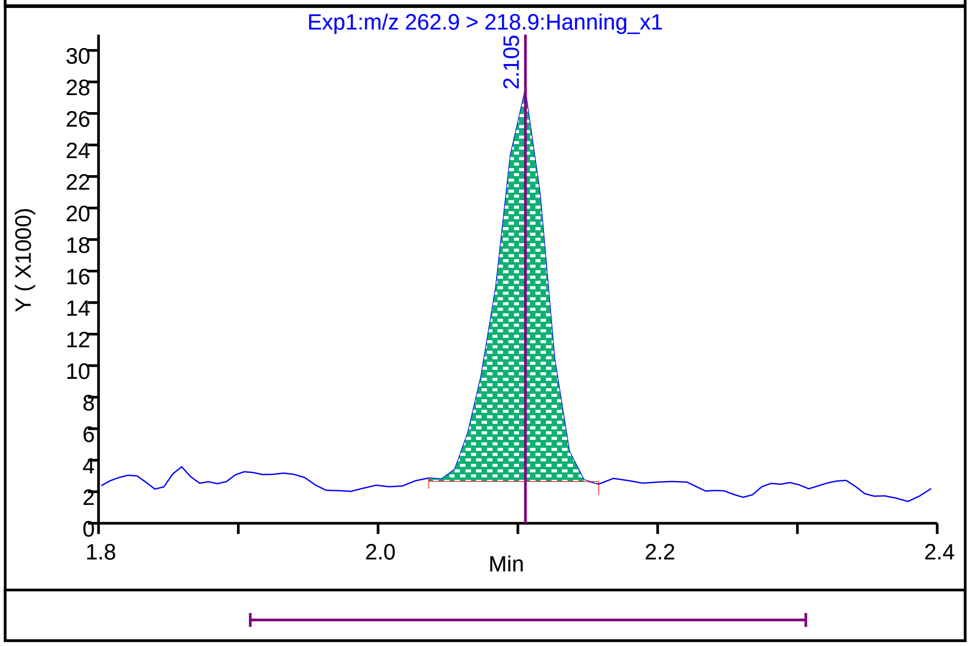
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT:	2.105
Area:	59577
Amount:	54.678
Amount Units:	ng/L



RT:	2.105
Area:	57754
Amount:	53.183
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:39:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d		
Injection Date:	06-Nov-2021 14:50:00	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	2
Sample Info:	ICAL 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.727	1.725	1	1157596	19	>100:1			1000.00	1056.03	105	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.733	1.732	1/0	129760	17	70:1			100.00	105.19		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.108	2.105	1	1065114	15	>100:1			1000.00	1044.14	103.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.108	2.105	1/0	114391	14	85:1			100.00	100.06		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.161	2.169	0	345453	14	>100:1			1000.00	1023.76	101.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.161	2.169	0/0	47490	13	>100:1	Target = 3.83		88.400	97.115		
298.9 > 99	44	2.161	2.169		12428	14	89:1	3.82 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.523	2.529	0/0	34045	16	>100:1	Target = 3.47		93.800	98.460		
349 > 99	44	2.523	2.529		9087	15	56:1	3.74 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.443	2.449	0	246294	17	>100:1			5000.00	5274.32	106.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.443	2.449	0/0	9361	23	>100:1	Target = 1.39		93.400	102.21		
327 > 81	63	2.443	2.449		7851	16	5.0:1	1.19 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.493	0	960076	17	>100:1			1000.00	1052.72	105	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.487	2.493	0/0	106353	16	85:1	Target = 17.15		100.00	108.99		
313 > 119	49	2.496	2.493		6830	15	18:1	15.57 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.609	2.614	0	713657	18	>100:1			5000.00	4848.42	104	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.609	2.622	0/0	23537	18	75:1	Target = 0.72		200.00	221.08		
285 > 185	66	2.609	2.622		31455	17	>100:1	0.74 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.878	0	908425	17	>100:1			1000.00	1026.62	100.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.872	2.878	0/0	88114	16	>100:1	Target = 3.21		100.00	101.53		
363 > 169	47	2.881	2.878		28040	18	52:1	3.14 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.890	2.896	0	295304	17	>100:1			1000.00	1067.69	107.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.890	2.896	0/0	32323	24	>100:1	Target = 3.35	4.74	91.000	94.954		
399 > 99	45	2.890	2.896		9892	32	73:1	3.26 (1.67-5.04)	14.82				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.916	2.923	0/0	153308	25	>100:1	Target = 2.38		94.200	97.916		
377 > 85	45	2.916	2.923		63464	18	>100:1	2.41 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.246	3.226	2/2	32447	21	>100:1	Target = 3.87		95.200	103.24		
449 > 99	45	3.253	3.226		7867	19	96:1	4.12 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.221	3.201	2	213252	20	>100:1			5000.00	5174.08	98.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.227	3.201	2/0	6728	23	51:1	Target = 1.26		94.800	94.970		
427 > 81	64	3.214	3.201		6164	19	4.8:1	1.09 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.240	3.220	2	881624	21	>100:1			1000.00	1046.53	104.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.246	3.226	2/0	92796	26	100:1	Target = 2.46		100.00	105.25		
413 > 169	53	3.246	3.226		36347	18	80:1	2.55 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.558	2	244240	18	>100:1			1000.00	1030.87	102.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.588	3.558	2/0	25160	40	73:1	Target = 3.98	4.05	92.800	88.543		
499 > 99	54	3.588	3.558		6752	30	41:1	3.72 (1.99-5.97)	9.66				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.782	3.755	2/0	68791	18	>100:1			93.200	93.199		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.911	3.886	2/0	22765	16	>100:1	Target = 3.57		96.000	97.883		
549 > 99	54	3.918	3.886		6839	30	28:1	3.32 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.208	4.191	2/0	19244	14	98:1	Target = 3.73		96.400	84.060		
599 > 99	54	4.200	4.191		5694	18	22:1	3.37 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.368	4.349	2/0	51046	20	>100:1			94.200	86.718		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.707	4.698	1/-1	18960	17	>100:1	Target = 3.44		96.800	96.129		
699 > 99	54	4.707	4.698		6193	21	>100:1	3.06 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.595	3.565	2	882437	19	>100:1			1000.00	1087.63	104.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.565	2/0	82120	20	>100:1	Target = 4.45		100.00	104.34		
463 > 169	56	3.595	3.565		18709	17	72:1	4.38 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.872	2	419873	19	>100:1			1000.00	1010.79	98.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.872	2/0	48172	16	66:1	Target = 47.73		100.00	105.30		
498>478	55	3.903	3.872		1118	15	7.3:1	43.08 (23.86-71.60)					M
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.918	3.894	2	201982	17	>100:1			5000.00	5800.38	113	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.911	3.894	2/0	6021	22	23:1	Target = 1.41		95.800	90.330		
527 > 81	65	3.911	3.894		4345	15	12:1	1.38 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.511	4.494	2/0	8150	19		Target = 2.81		96.400	95.110		
627 > 80	65	4.519	4.494		3184	24	20:1	2.55 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.918	3.901	2	762375	18	>100:1			1000.00	1065.61	98.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.926	3.901	2/0	78478	16	>100:1	Target = 9.36		100.00	100.79		
513 > 169	51	3.918	3.901		8323	13	47:1	9.42 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.074	4.053	2	814014	16	>100:1			5000.00	5034.46	102.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.083	4.062	2/0	13094	38	43:1	Target = 1.42	8.34	100.00	99.658		M
570 > 483	58	4.074	4.062		12210	30	41:1	1.07 (0.71-2.13)	6.51				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.232	4.207	2	782365	17	>100:1			5000.00	5410.87	104.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.232	4.223	1/-1	15238	45	93:1	Target = 1.80	3.43	100.00	98.722		M
584 > 526	60	4.232	4.223		8936	38	60:1	1.70 (0.90-2.70)	3.82				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.224	4.207	2	745516	18	>100:1			1000.00	1061.64	103.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.232	4.207	2/0	71756	22	>100:1	Target = 8.65		100.00	106.88		
563 > 169	52	4.224	4.207		7395	20	63:1	9.70 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.305	4.295	1	122617	17	>100:1			1000.00	999.16	98.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.323	4.304	2/1	13234	12	36:1			100.00	105.84		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.332	4.313	2	61255	15	>100:1			1000.00	953.39	96.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.332	4.322	1/-1	5438	22	56:1	Target = 1.09		100.00	81.948		
512 > 219	57	4.332	4.322		6308	13	45:1	0.86 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.480	4.463	2	114039	16	>100:1			1000.00	1003.58	103	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.487	4.479	1/-1	8598	13	24:1			100.00	91.096		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.495	4.486	1	747289	17	>100:1			1000.00	1073.58	108.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.495	4.486	1/0	78867	18	54:1	Target = 6.94		100.00	105.07		
613 > 169	38	4.503	4.486		11065	23	56:1	7.12 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.736	4.727	1/0	31571	18	>100:1	Target = 2.82		100.00	95.706		
663 > 169	38	4.729	4.727		11277	16	>100:1	2.79 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.495	4.486	1	60835	15	>100:1			1000.00	1008.42	94.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.503	4.494	1/0	9097	16	63:1	Target = 1.11		100.00	125.20		
526 > 219	59	4.503	4.494		6955	10	64:1	1.30 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.951	4.942	1	763597	17	>100:1			1000.00	1023.42	101.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.951	4.942	1/0	71047	20	26:1	Target = 7.23		100.00	107.83		
713 > 169	42	4.951	4.942		10342	23	98:1	6.86 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.324	5.323	1	361795	18	>100:1			1000.00	1039.95	105.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.324	5.331	1/0	72433	17	18:1	Target = 12.24		100.00	108.88		
813 > 269	40	5.324	5.331		5898	13	>100:1	12.28 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.673	5.678	1/0	45324	20	13:1	Target = 148.06		100.00	92.707		
913 > 319	40	5.673	5.678		317	26	33:1	142.97 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.918	3.901	2	762491	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.493	0	932902	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.240	3.226	1	867154	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.727	1.732	0	1063553	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.588	3.558	2	249470	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

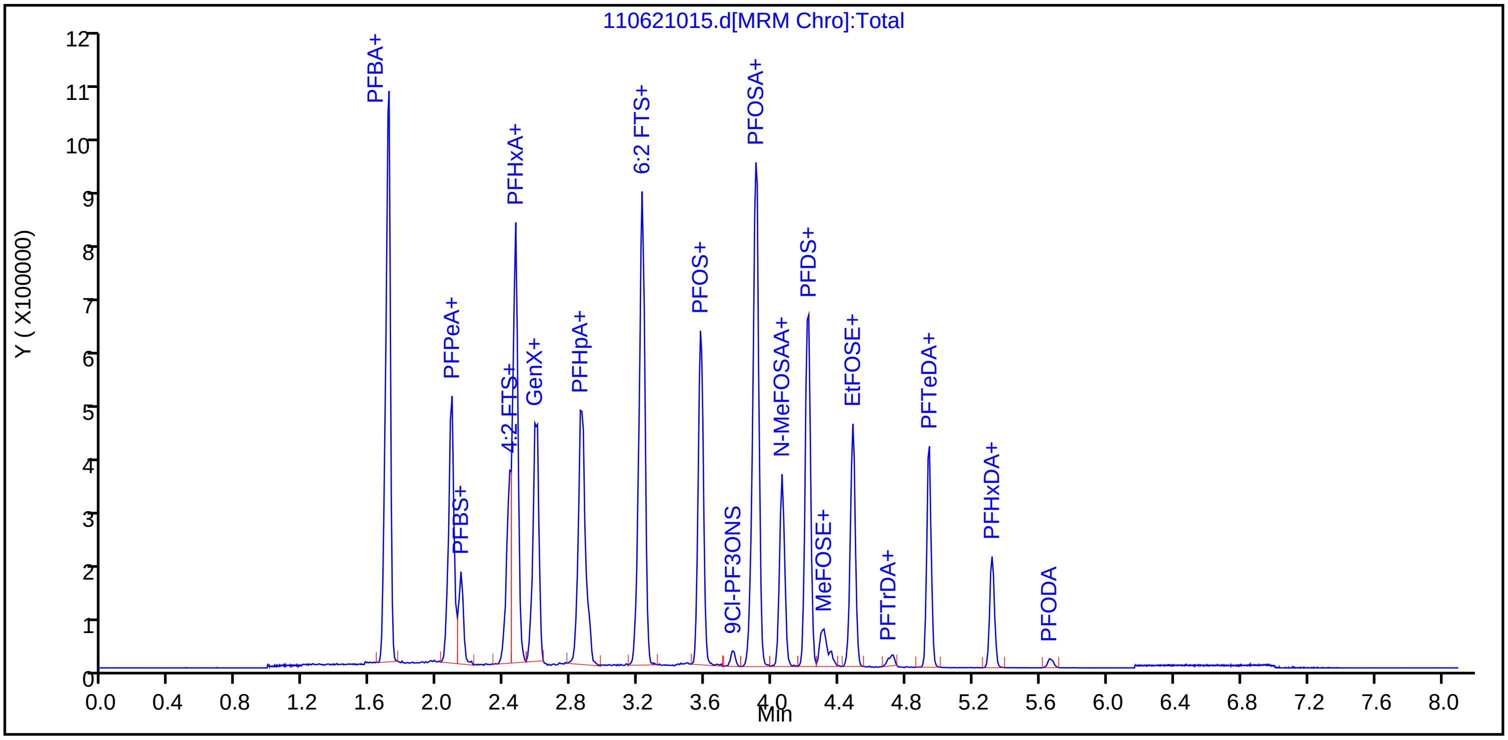
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

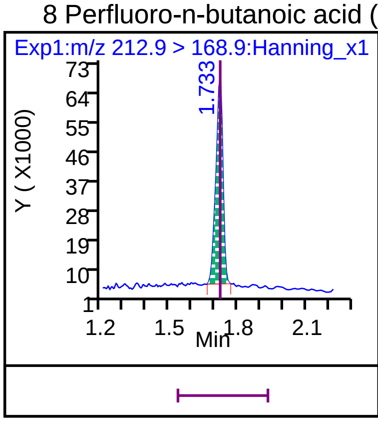
Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

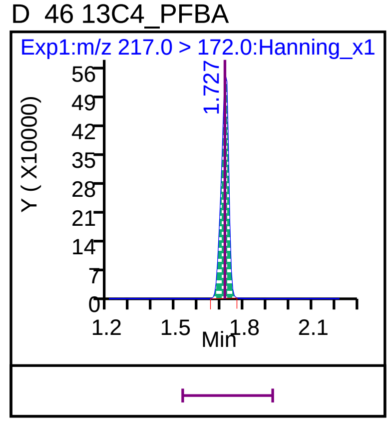
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d		
Injection Date:	06-Nov-2021 14:50:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1741
Sample Info:	ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Matthew M. Miller



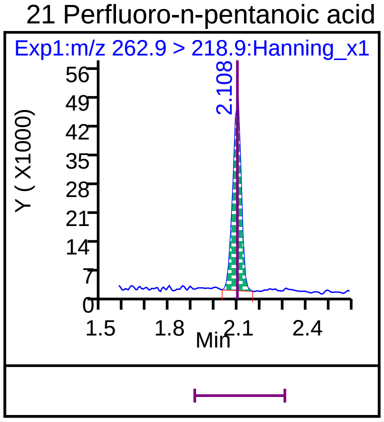
8 Perfluoro-n-butanoic acid (PFBA)



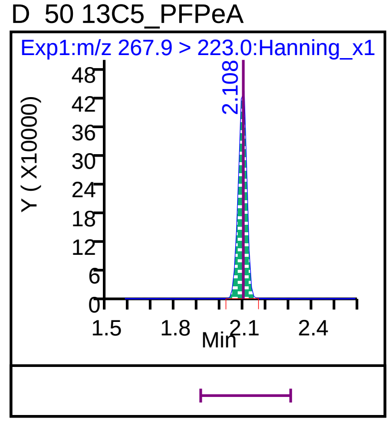
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

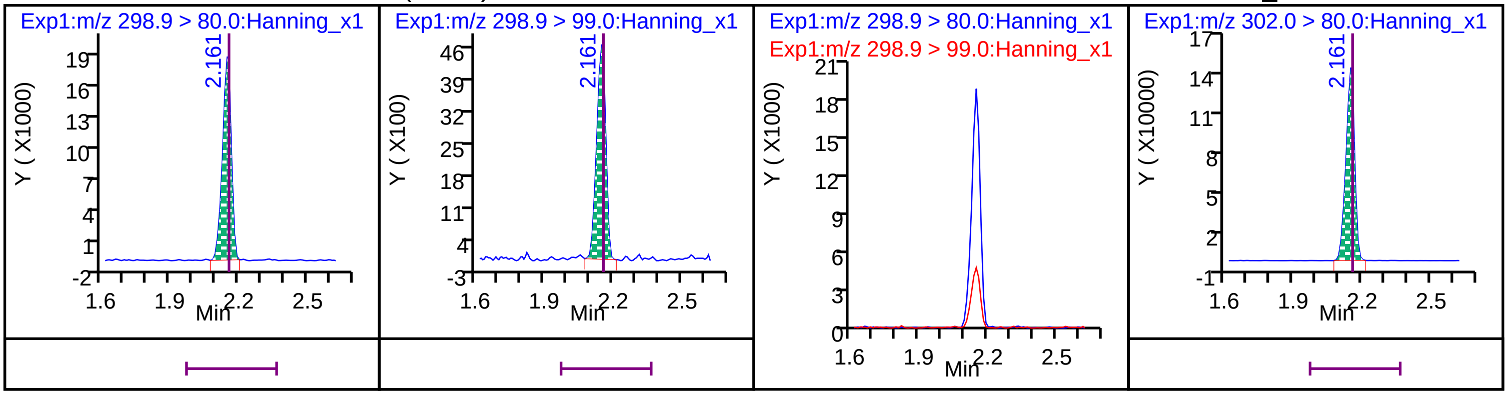


D 50 13C5_PFPeA

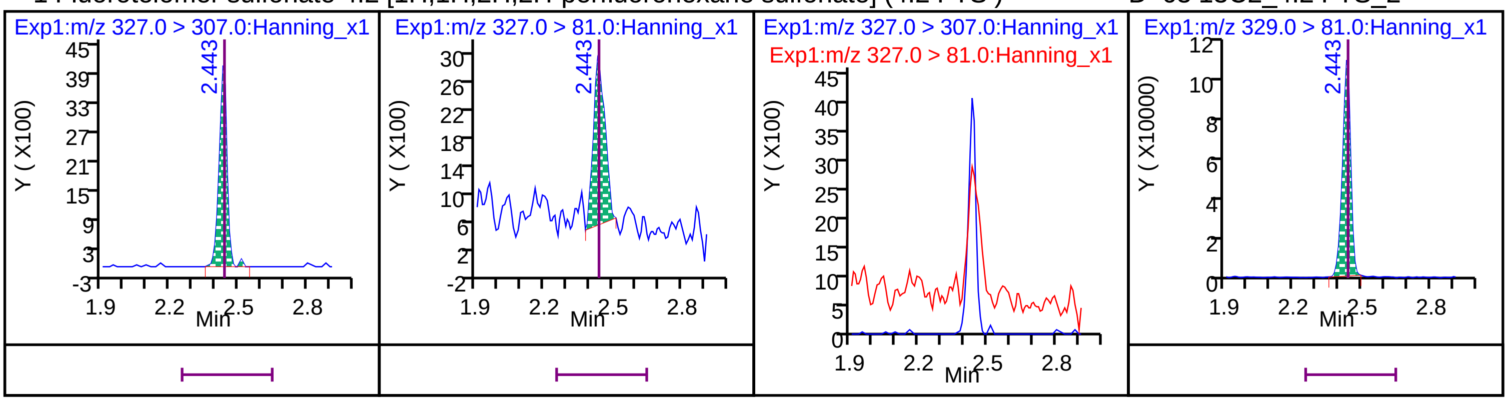


Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d

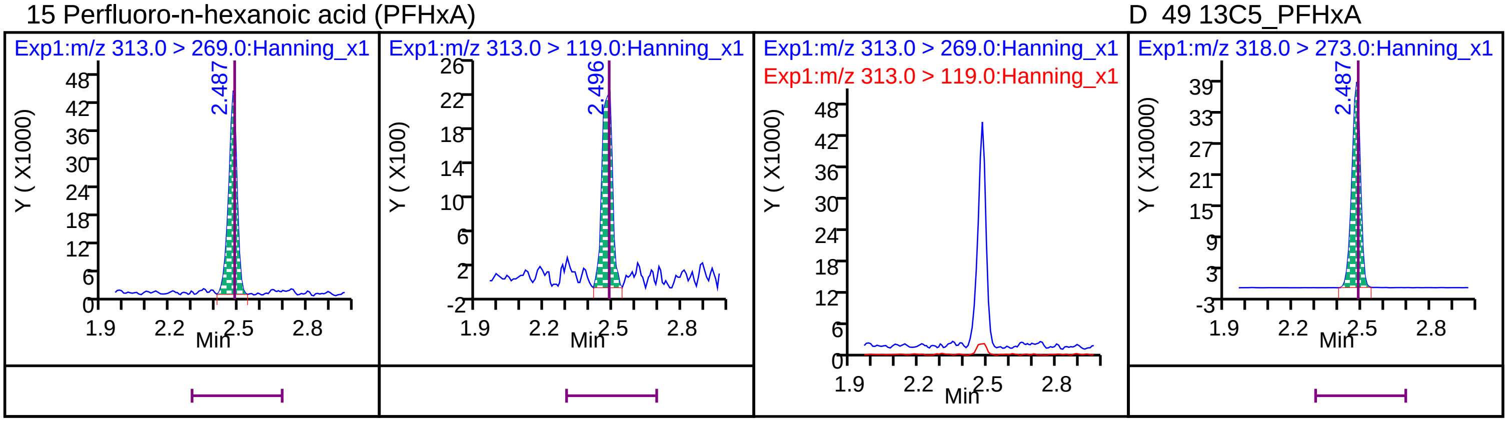
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



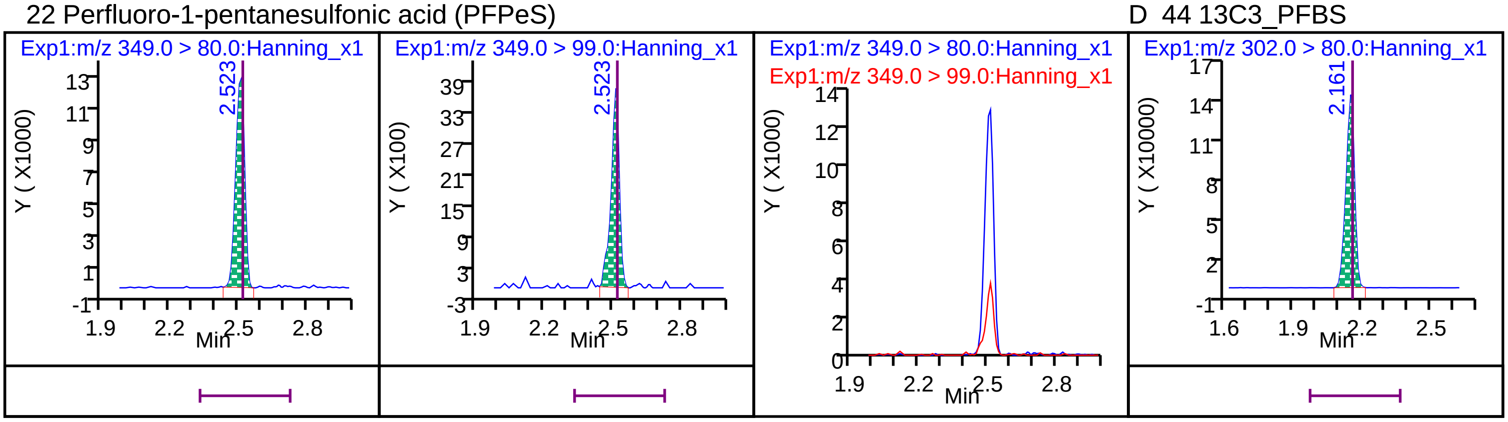
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

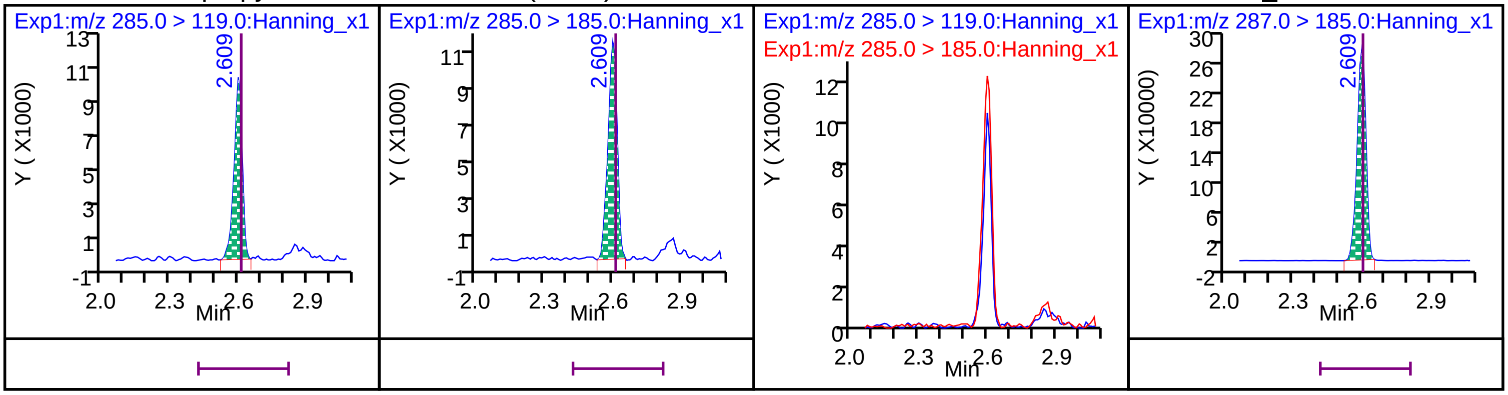


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

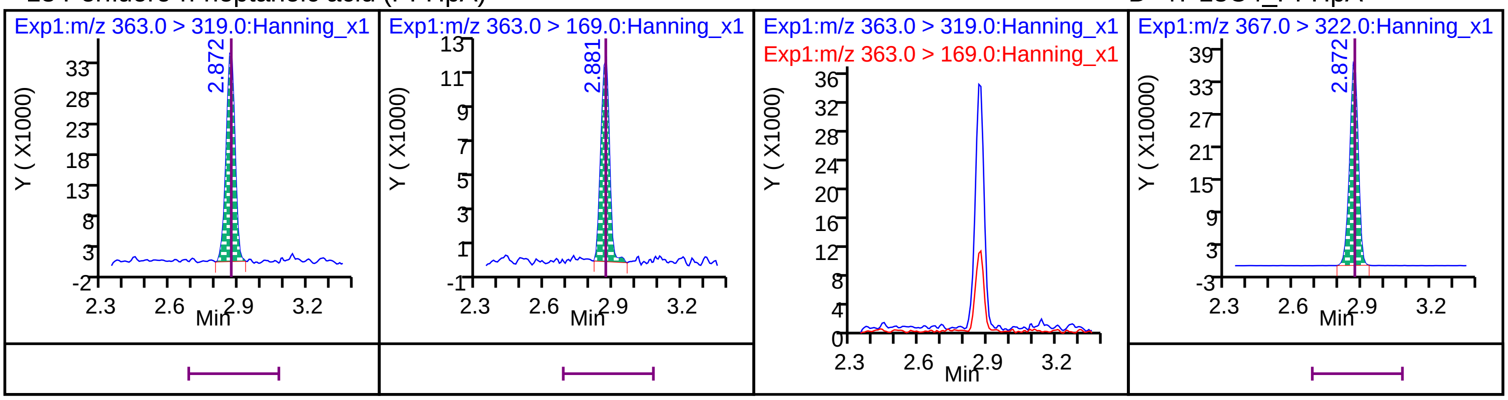


Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d

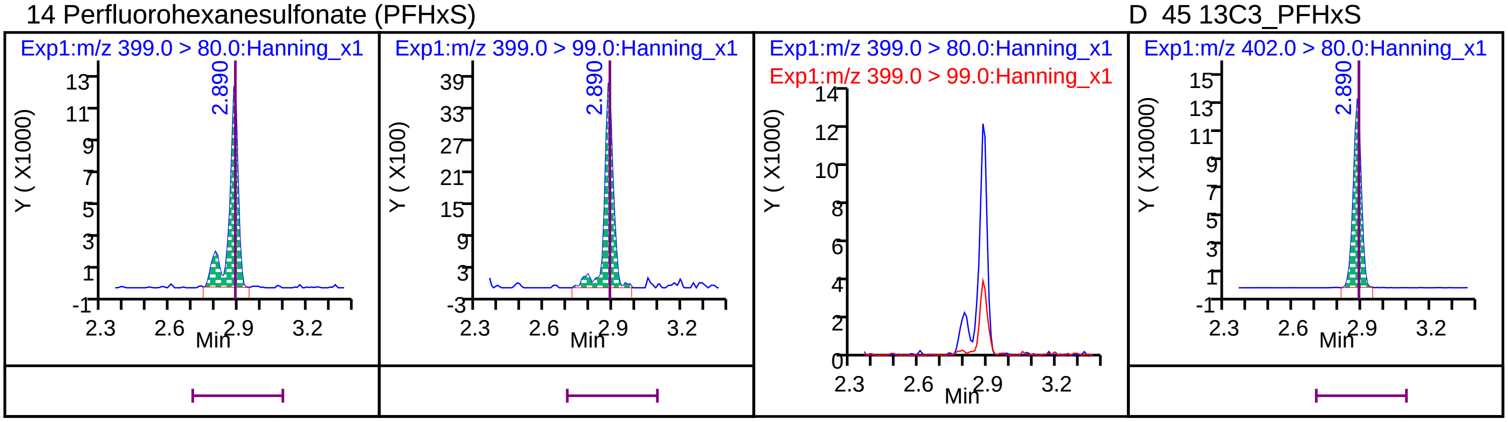
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



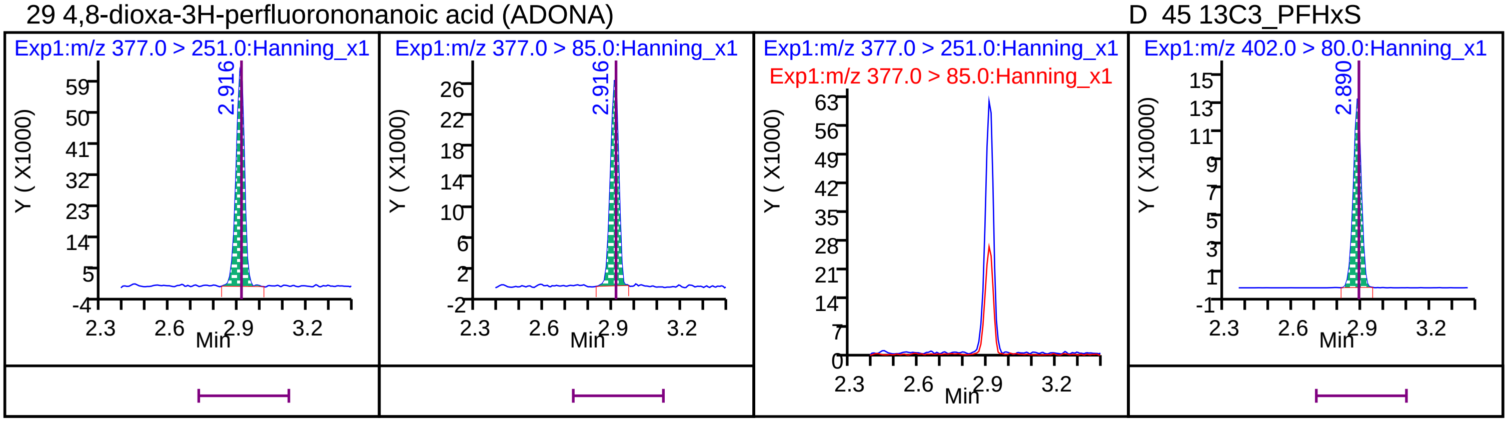
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



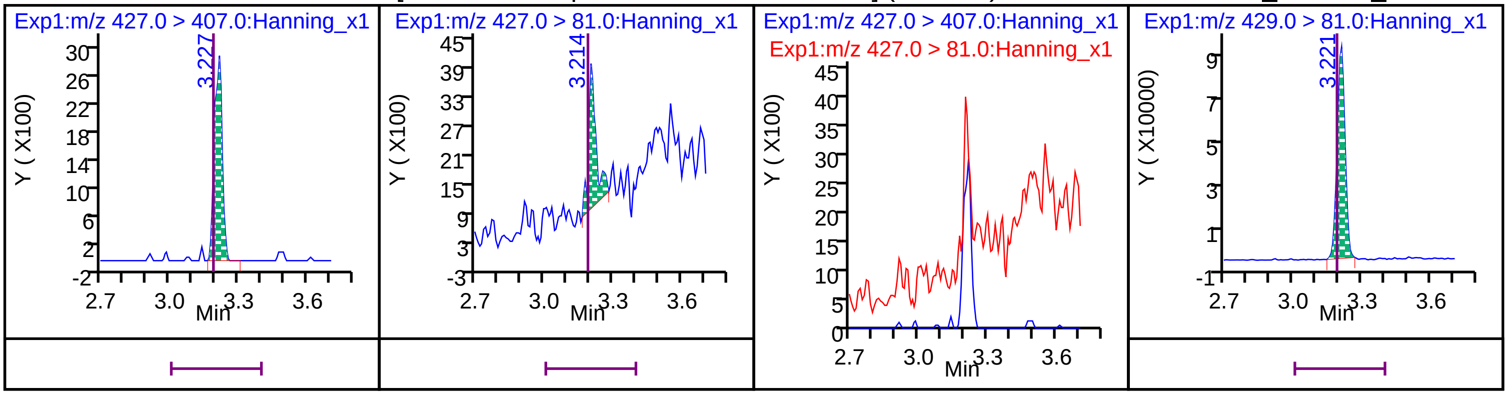
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



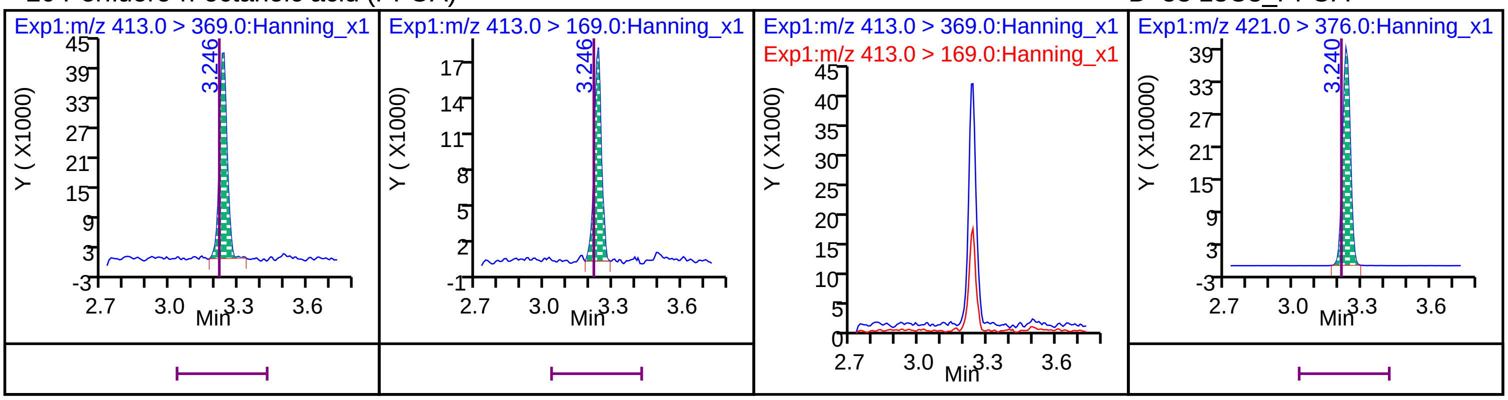
Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d

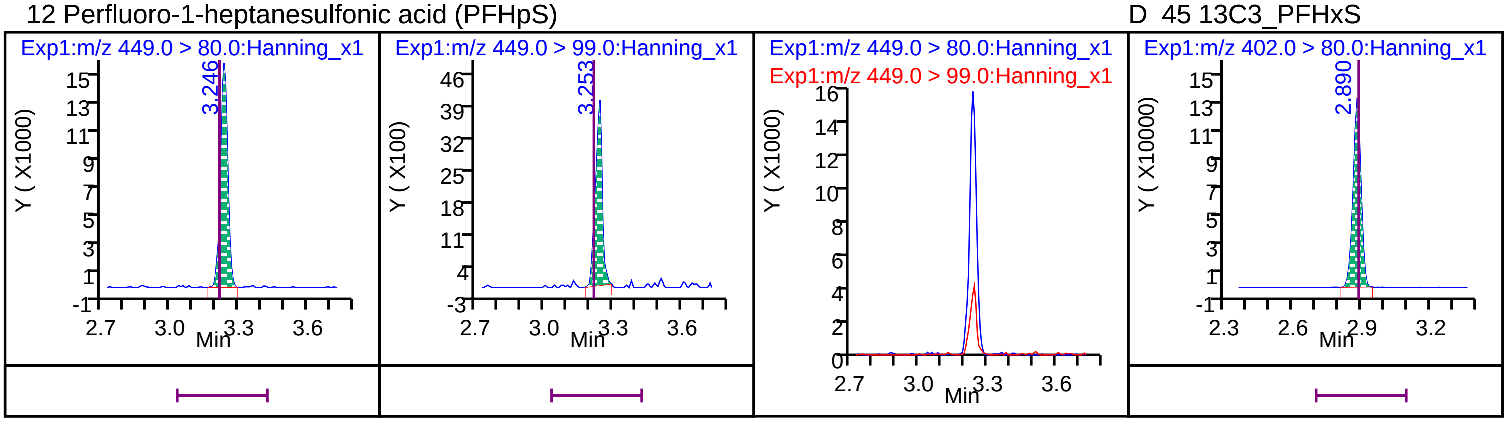
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



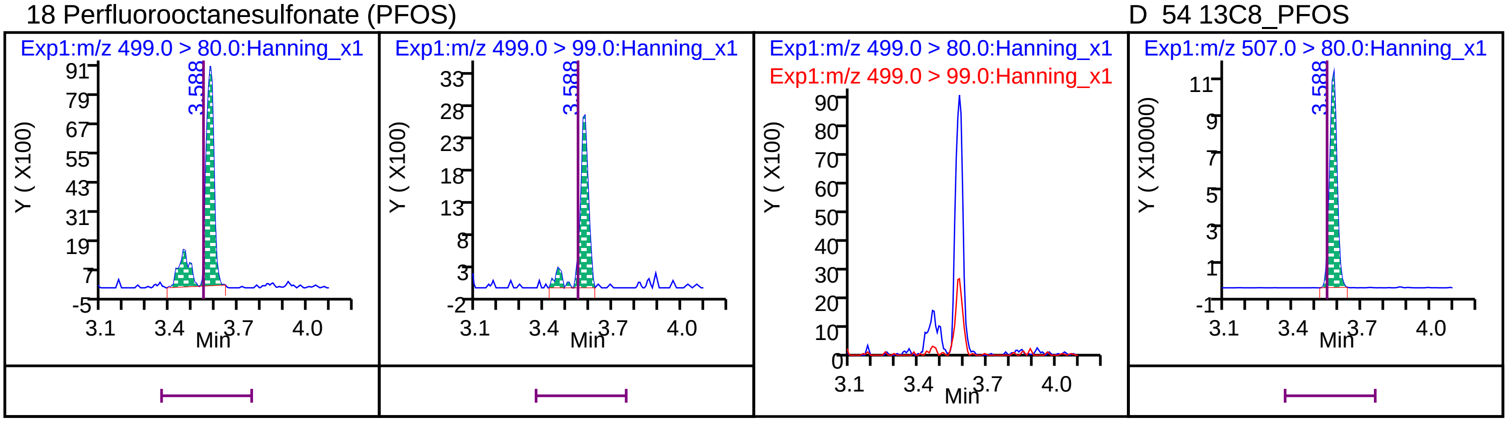
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



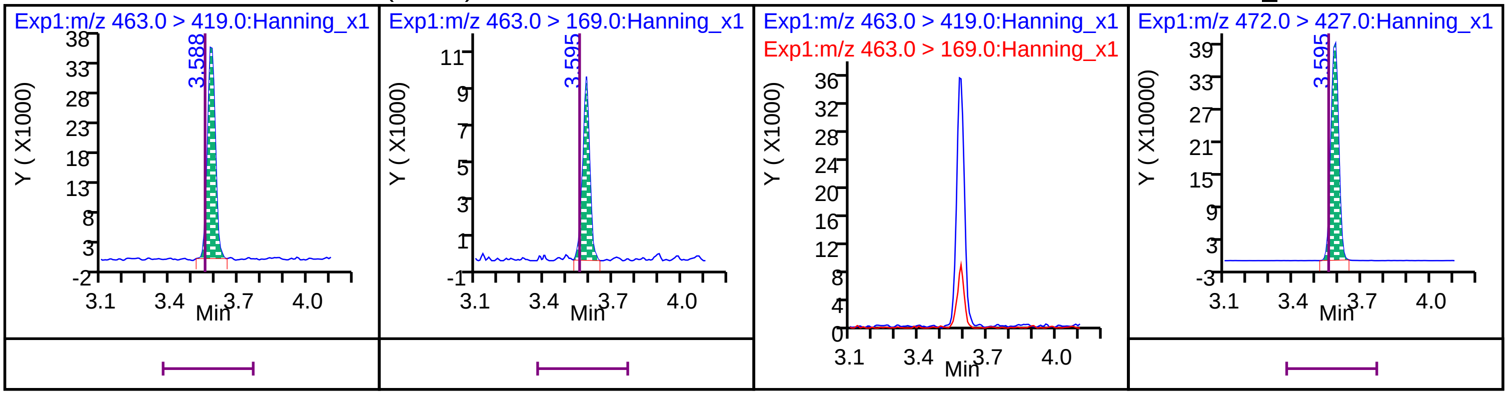
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



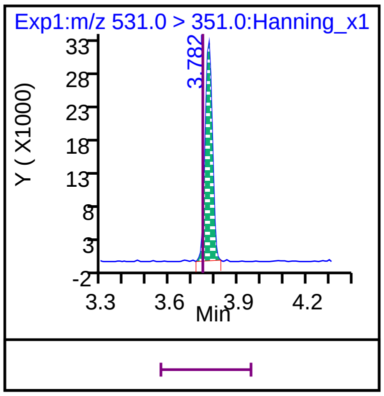
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



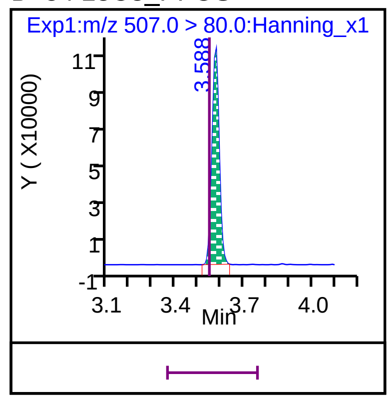
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



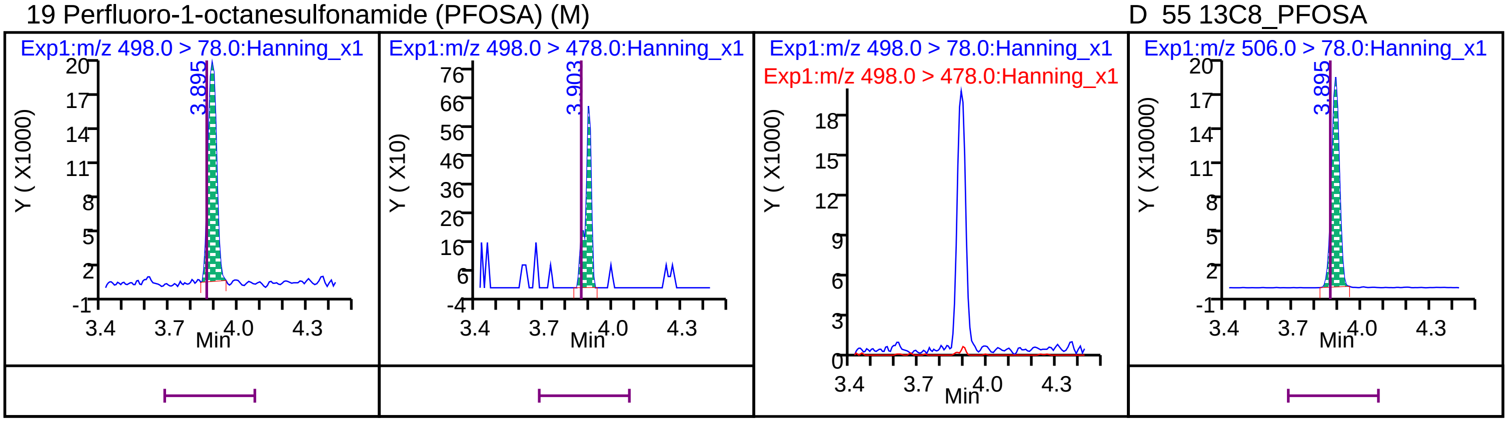
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



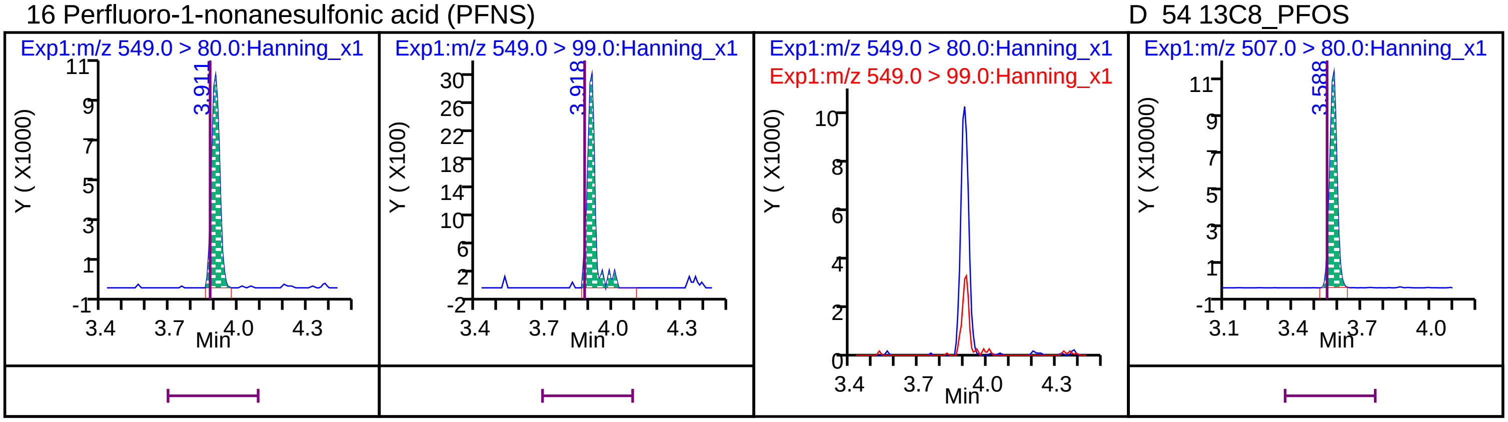
D 54 13C8_PFOS



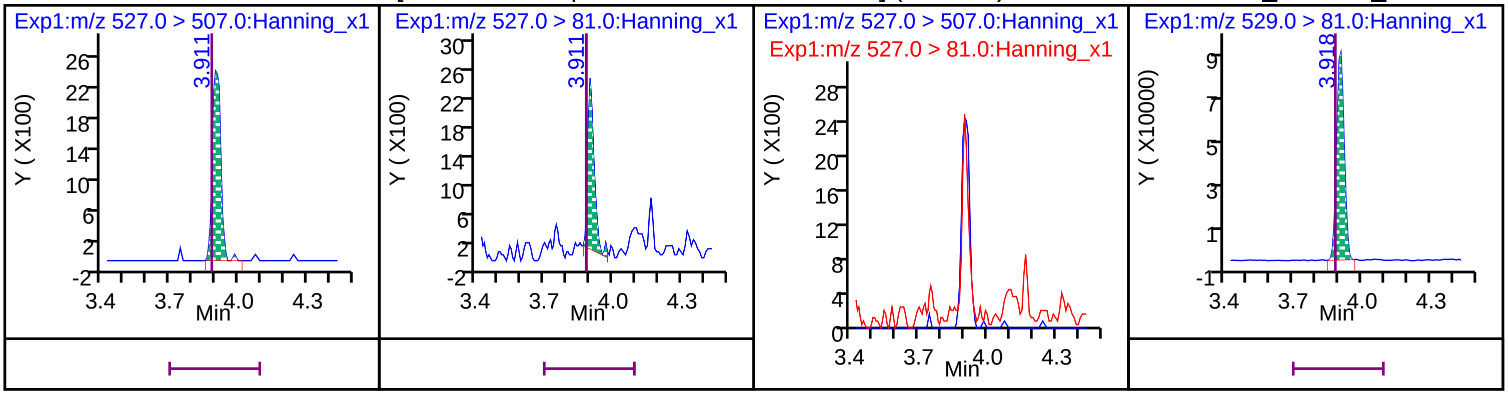
19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA



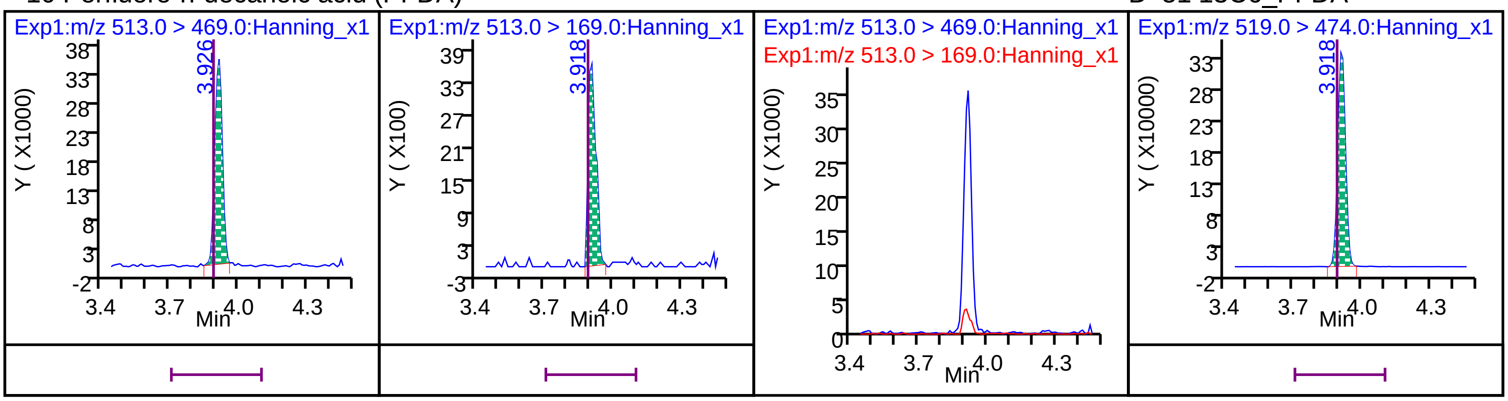
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



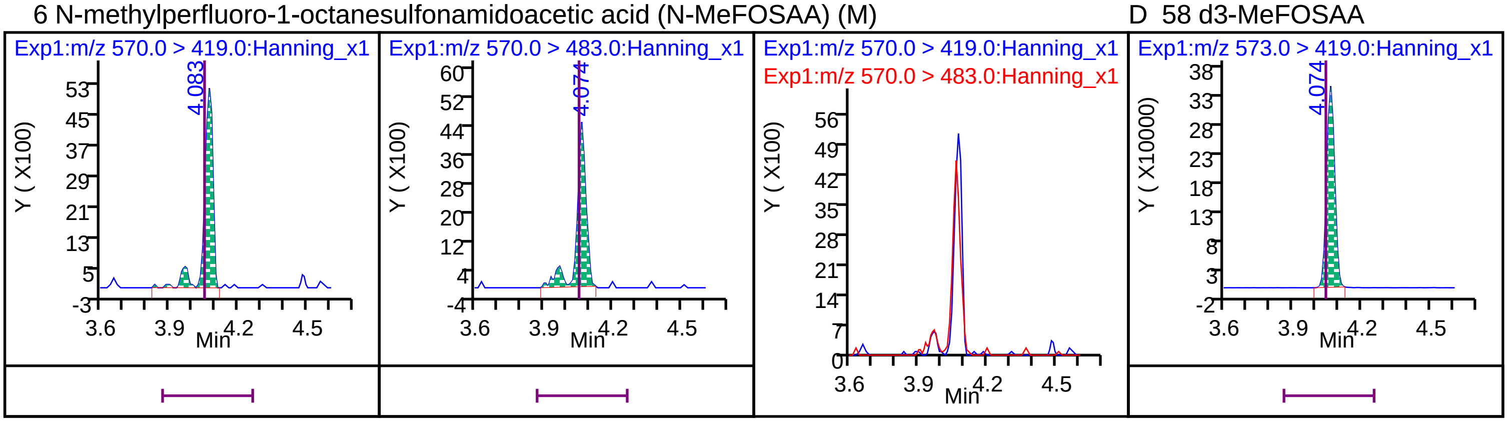
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



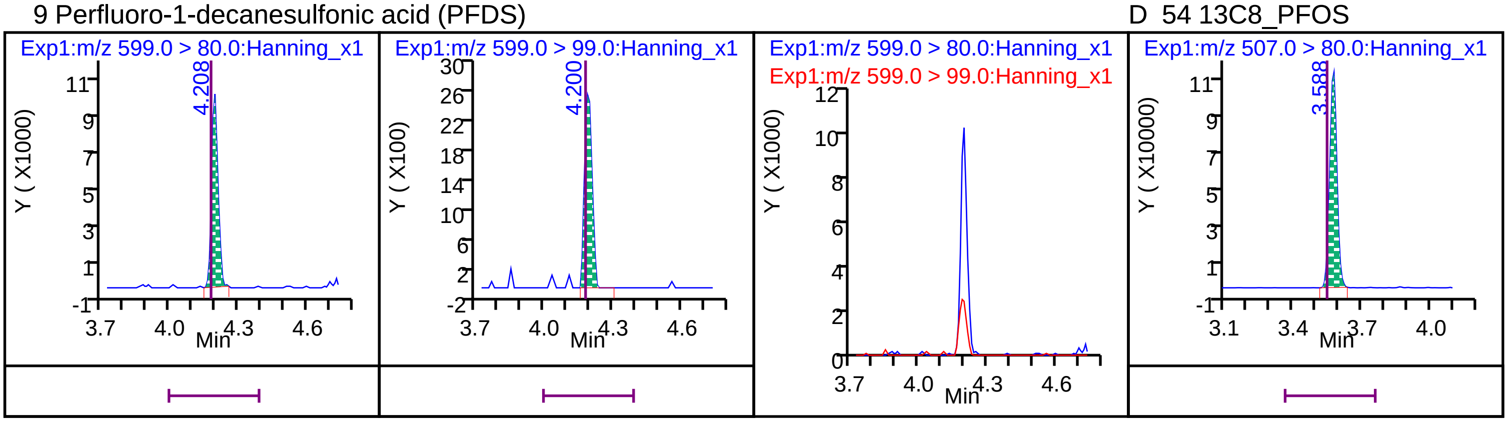
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



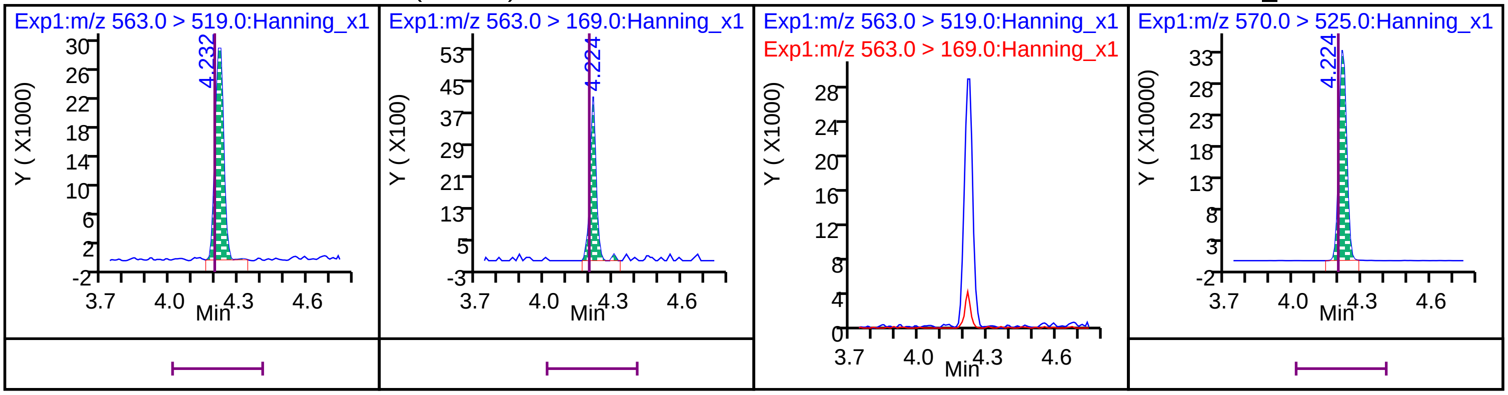
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



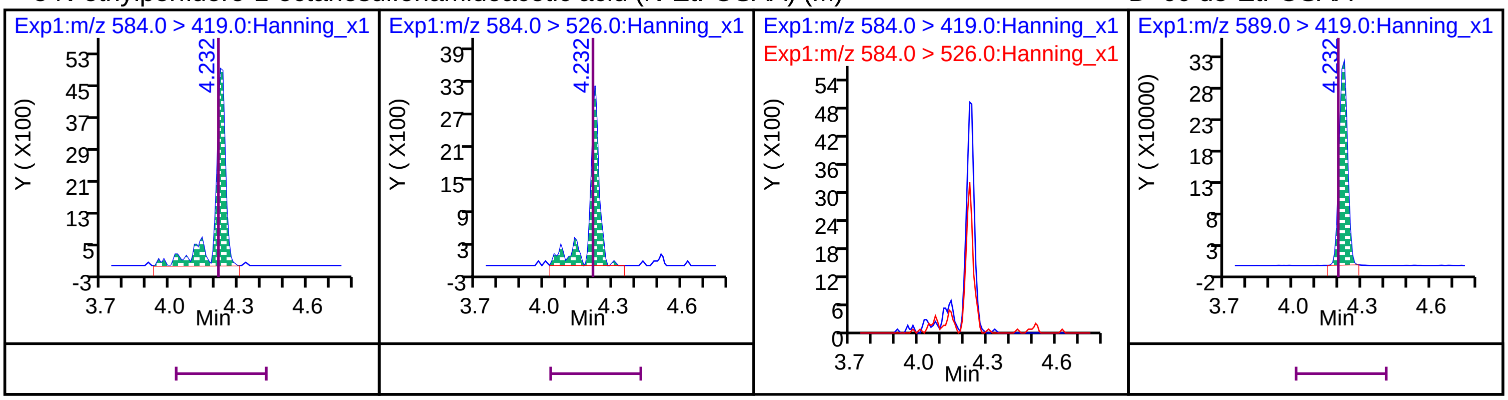
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



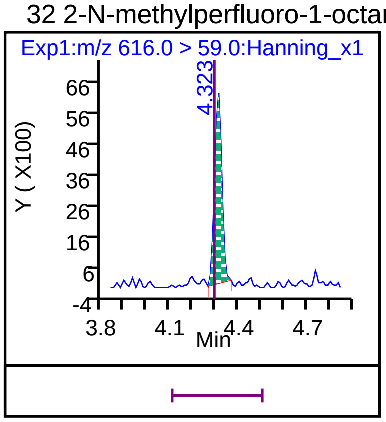
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

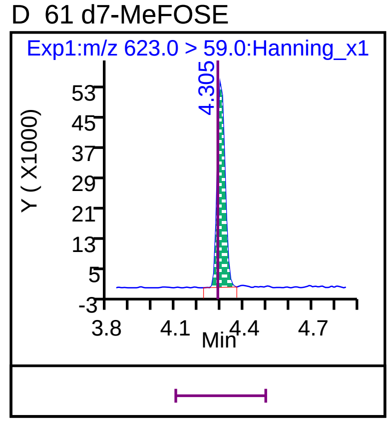


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

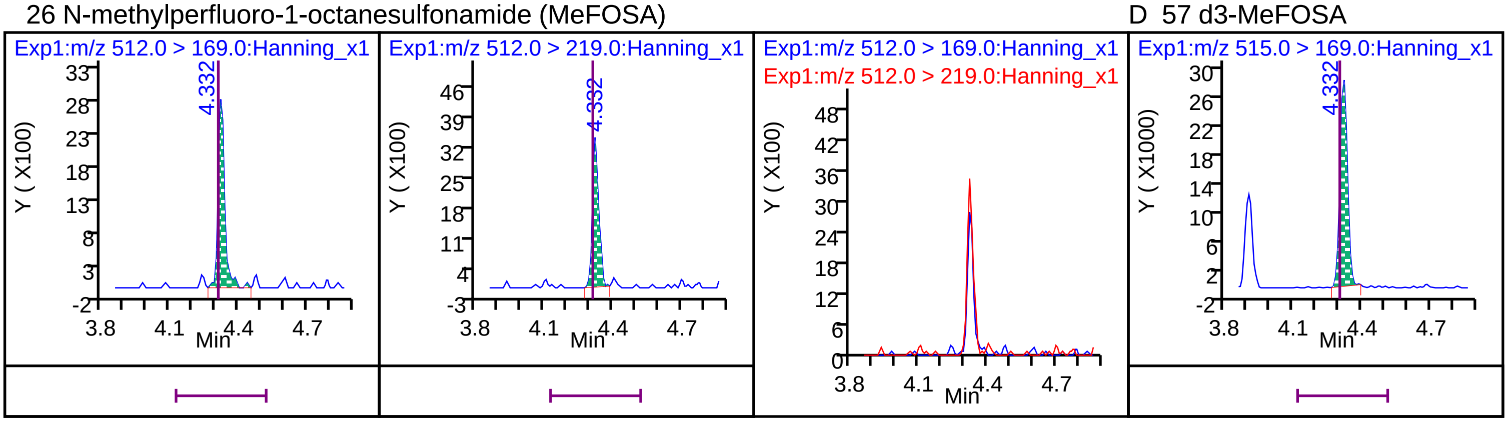


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

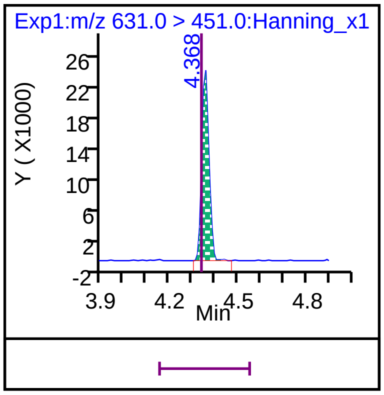




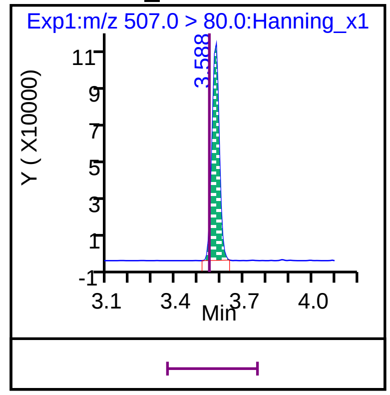
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



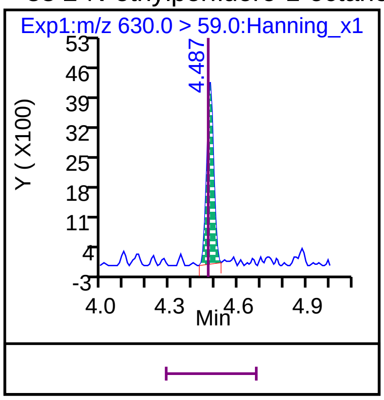
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



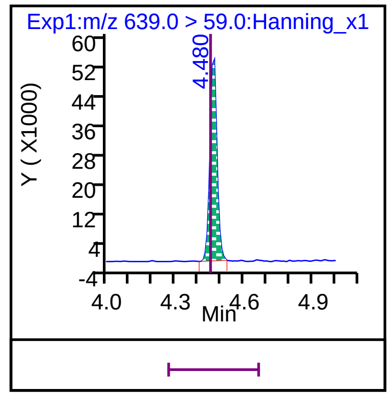
D 54 13C8_PFOS



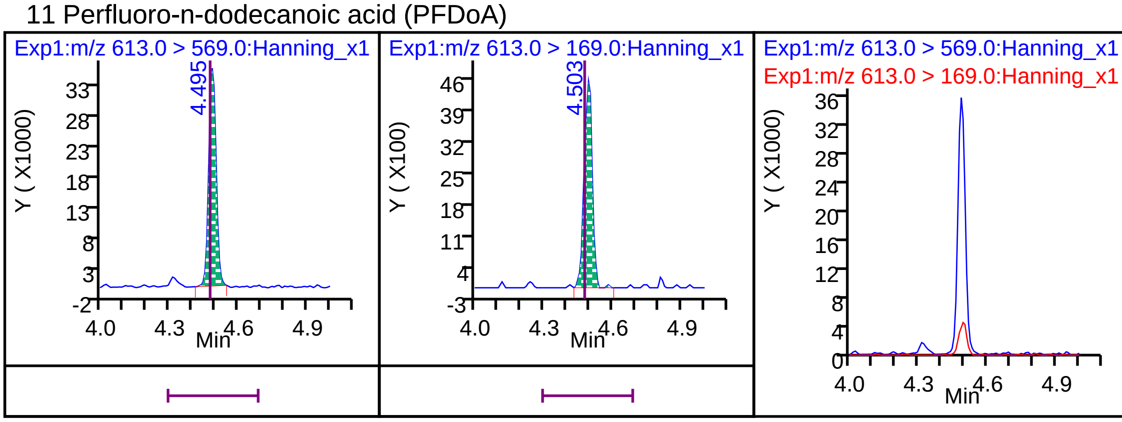
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



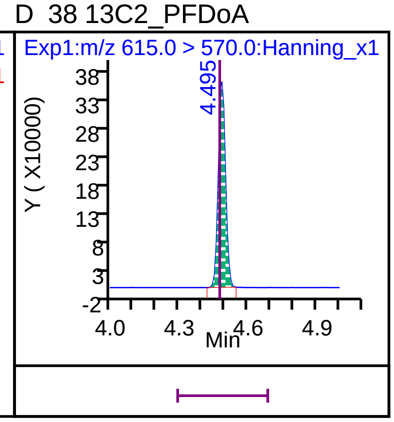
D 62 d9-EtFOSE



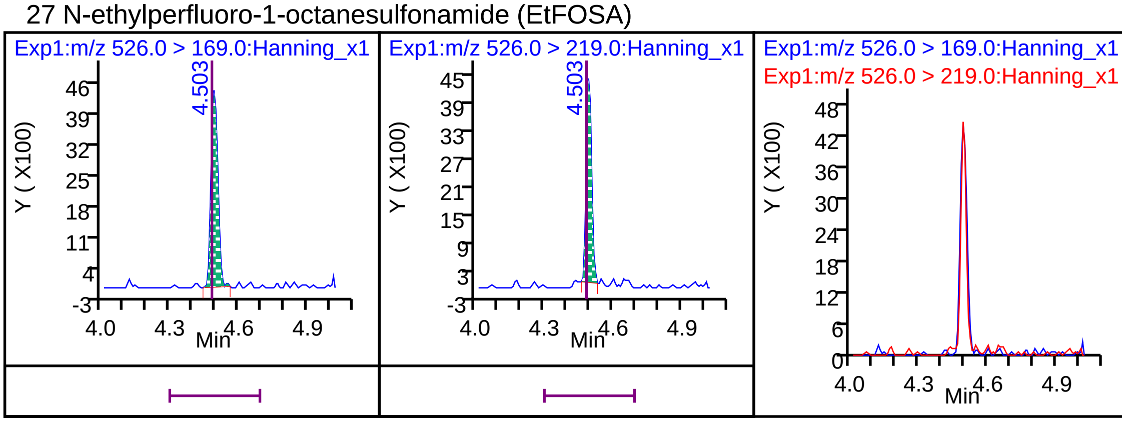
11 Perfluoro-n-dodecanoic acid (PFDoA)



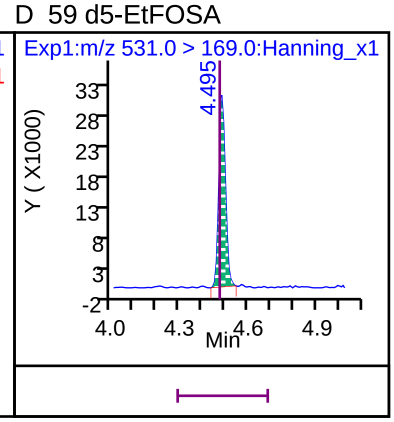
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

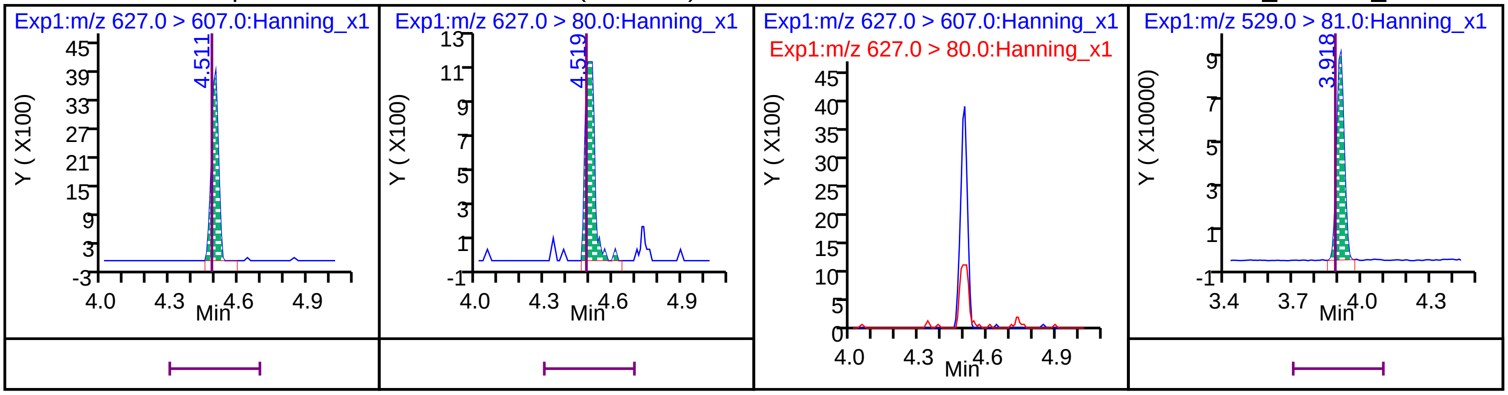


D 59 d5-EtFOSA

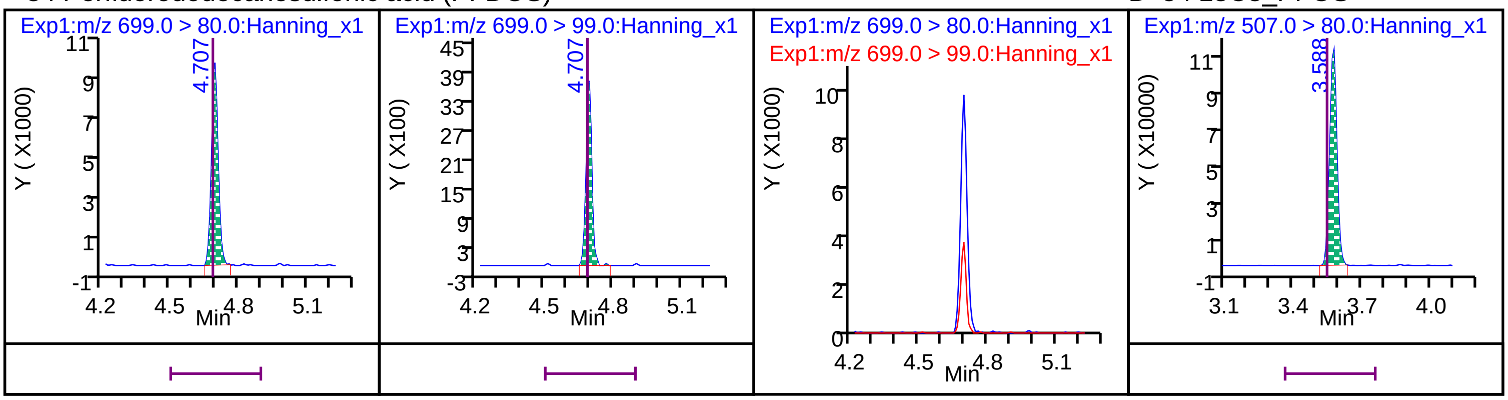


Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d

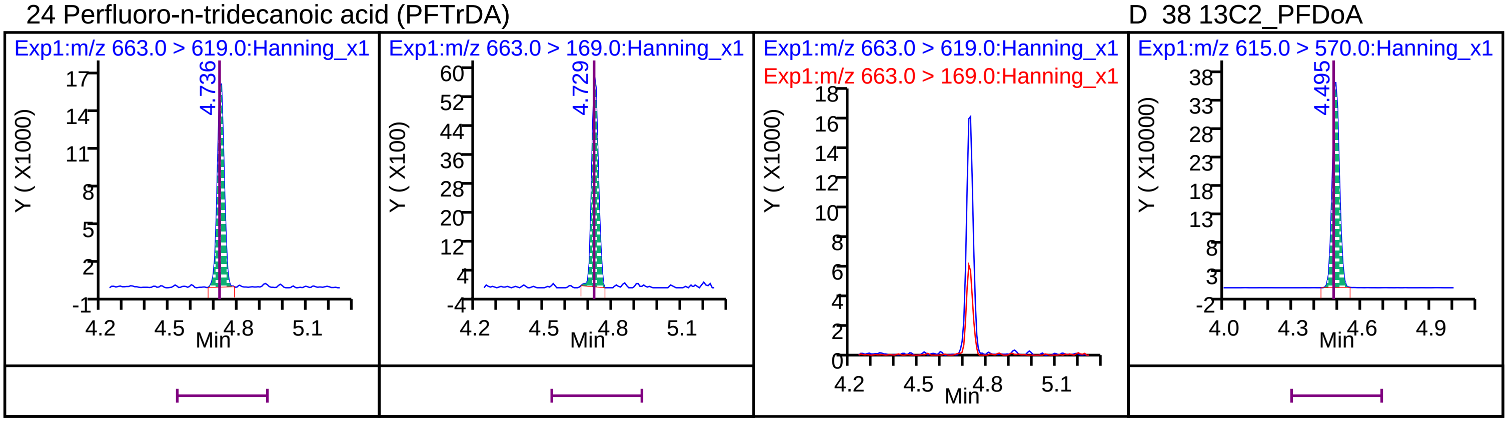
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



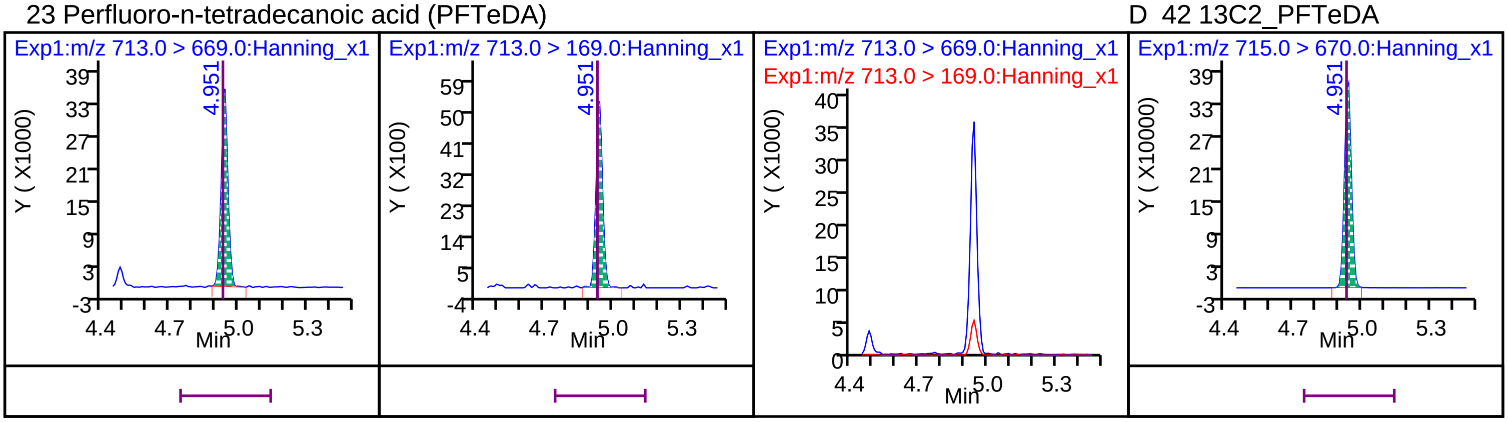
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



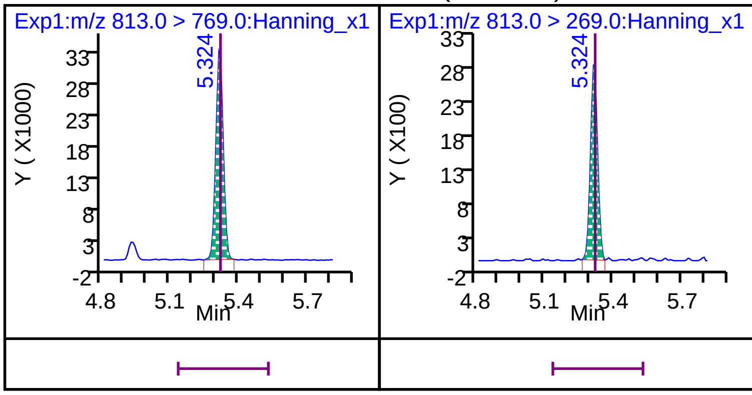
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



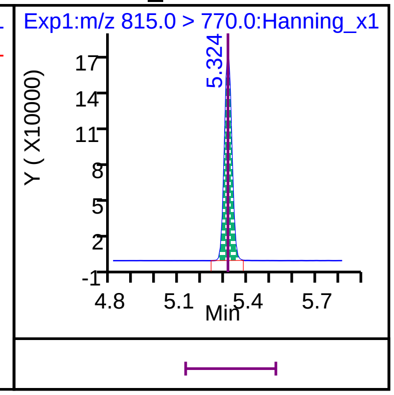
Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d

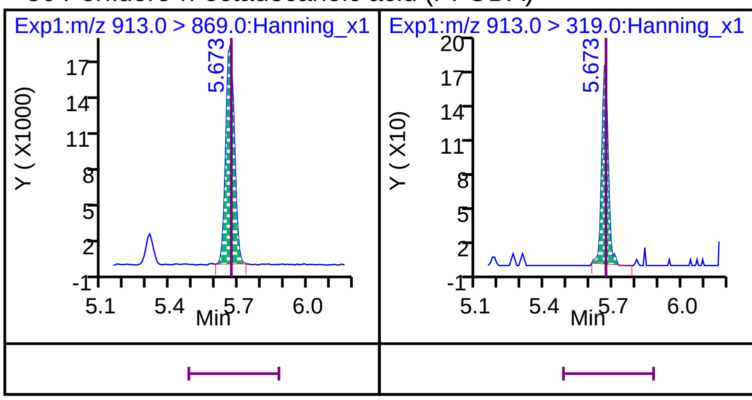
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



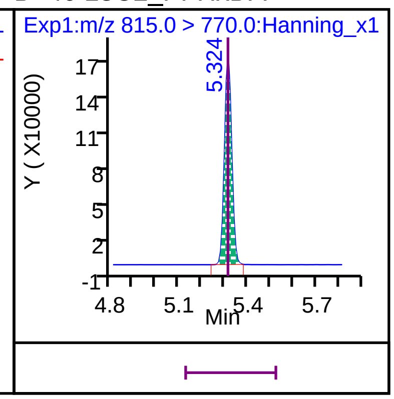
D 40 13C2_PFHxDA



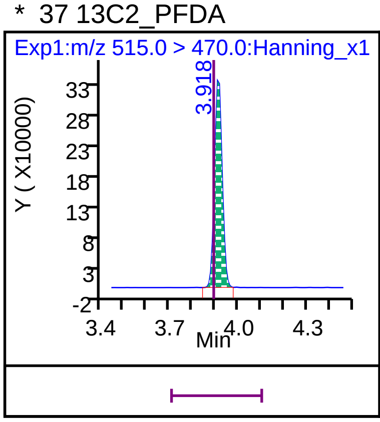
36 Perfluoro-n-octadecanoic acid (PFODA)



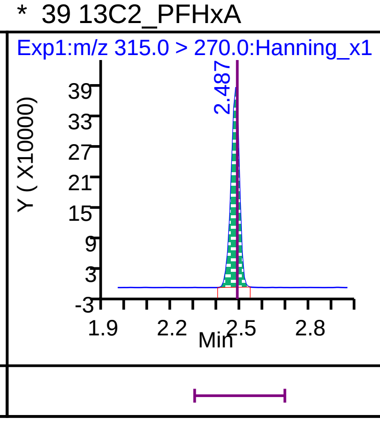
D 40 13C2_PFHxDA



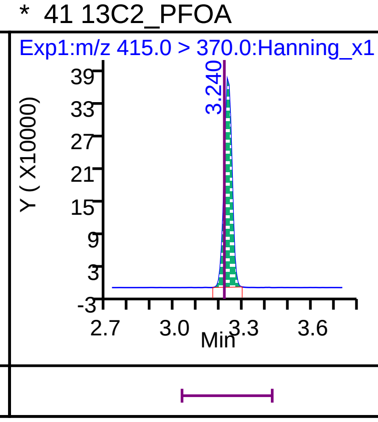
* 37 13C2_PFDA



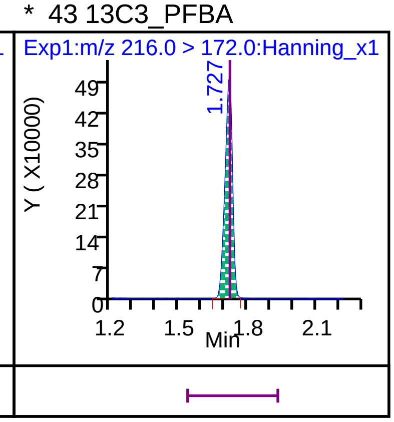
* 39 13C2_PFHxA



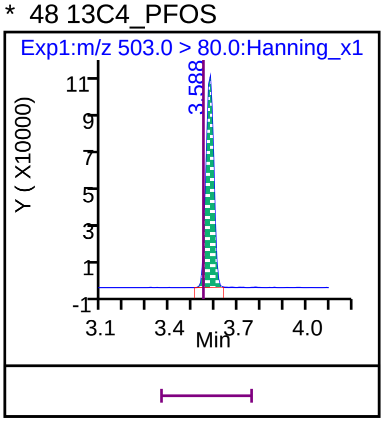
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

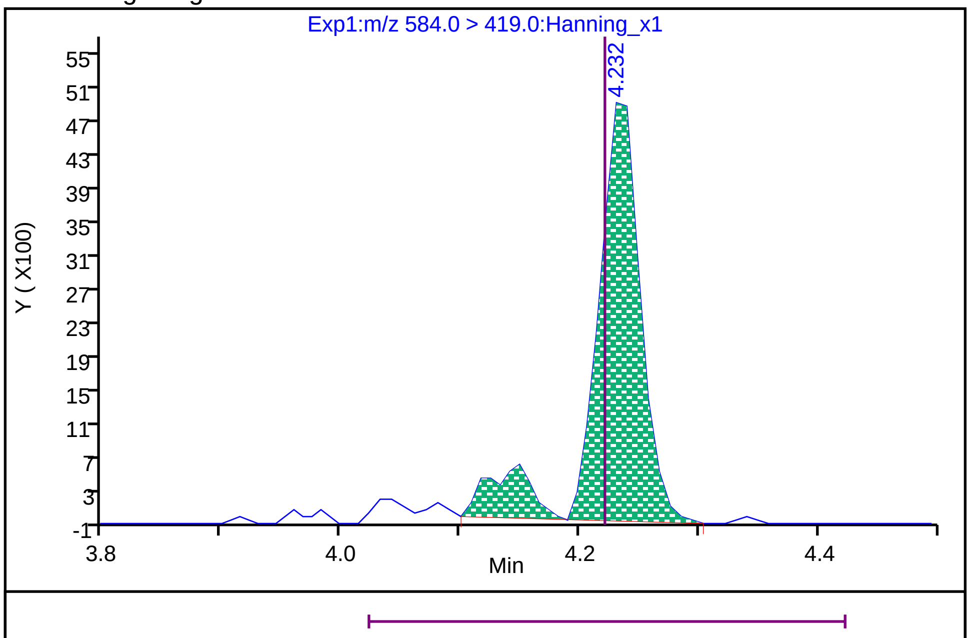
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d		
Injection Date:	06-Nov-2021 14:50:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1741
Sample Info:	ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Matthew M. Miller

5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.232
Area:	13194
Amount:	87.161
Amount Units:	ng/L



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Area:	15238
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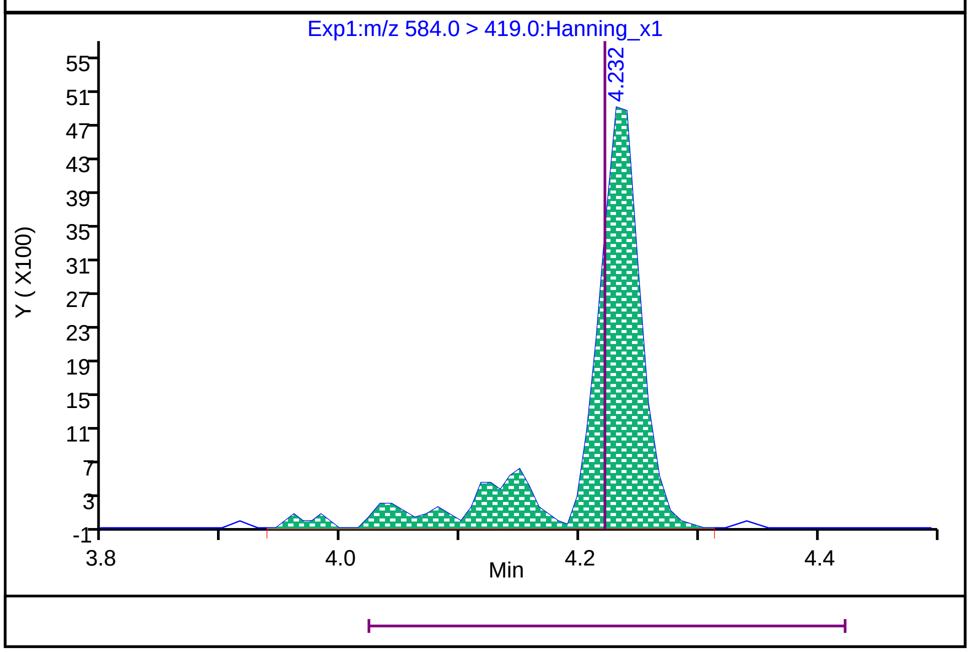
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:38

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:38   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

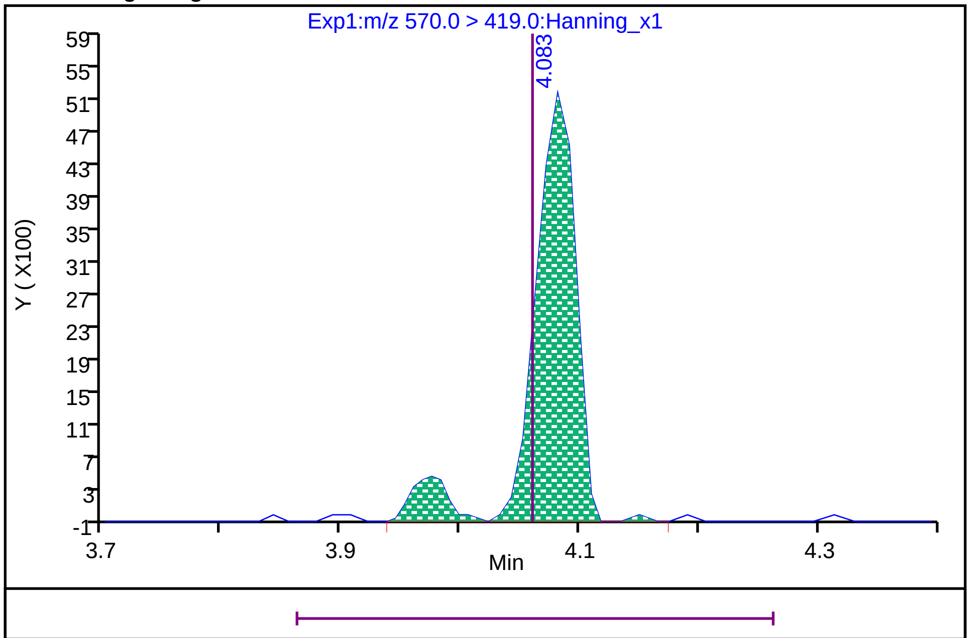
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d		
Injection Date:	06-Nov-2021 14:50:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1741
Sample Info:	ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Matthew M. Miller

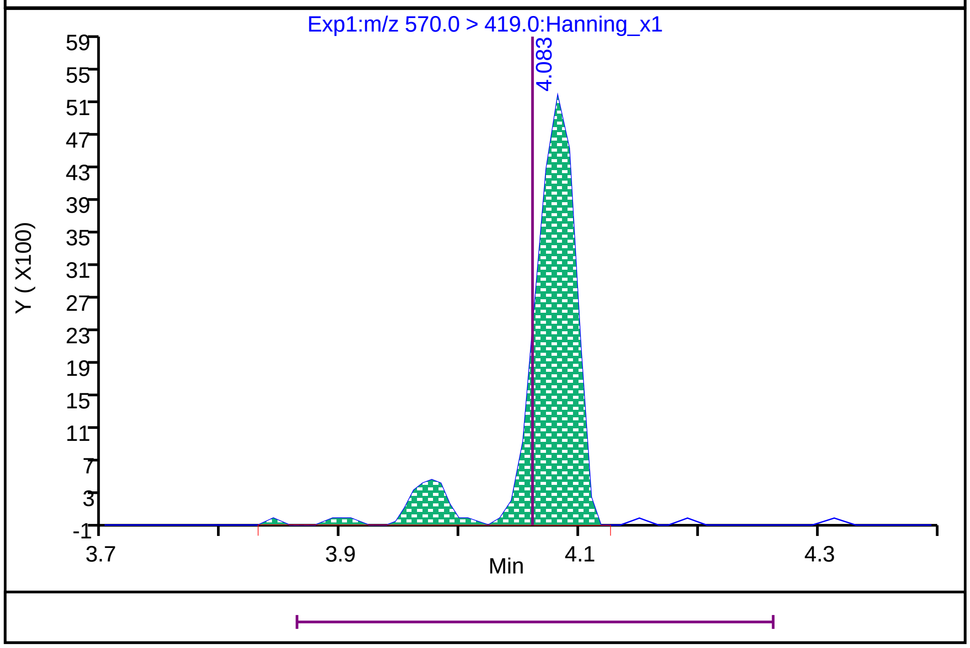
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.083
Area: 12961
Amount: 103.17
Amount Units: ng/L



RT: 4.083
Area: 13094
Amount: 99.658
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:37:53

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

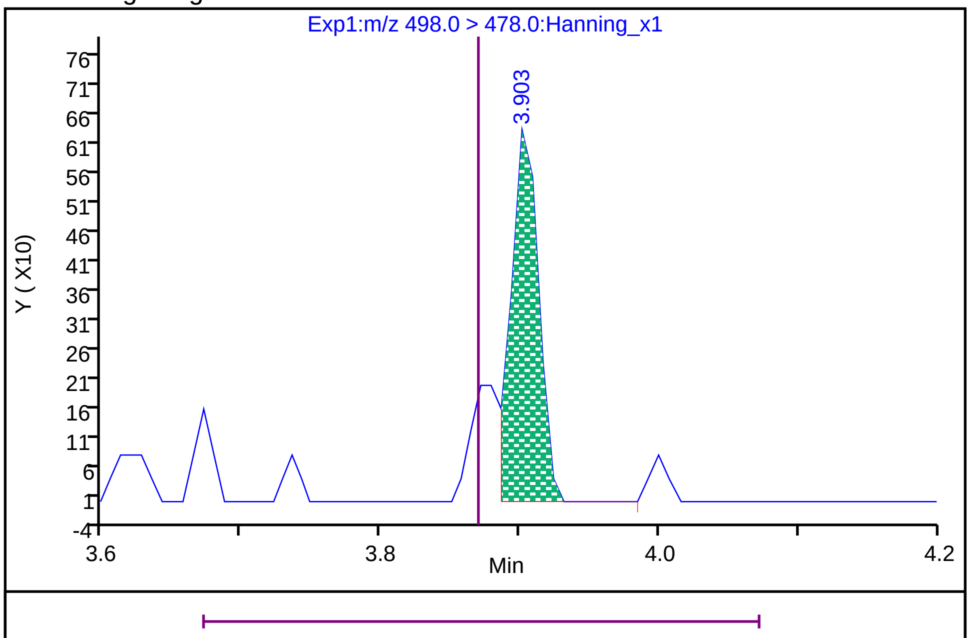
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621015.d		
Injection Date:	06-Nov-2021 14:50:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 100_SVLC-1741
Sample Info:	ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Matthew M. Miller

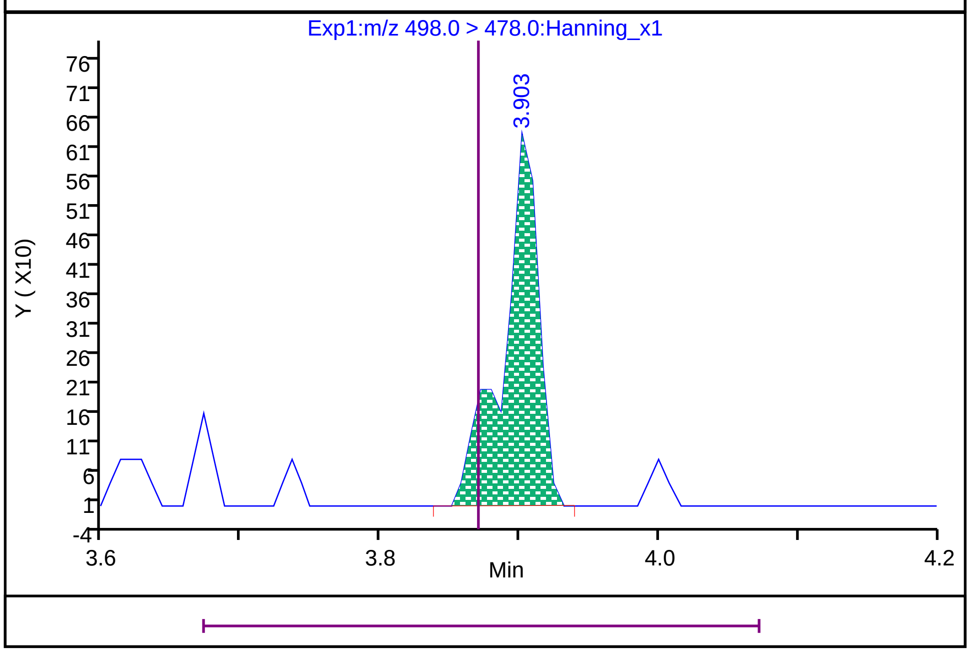
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT:	3.903
Area:	848
Amount:	105.30
Amount Units:	ng/L



RT:	3.903
Area:	1118
Amount:	105.30
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:40:21

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d		
Injection Date:	06-Nov-2021 15:00:33	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	3
Sample Info:	ICAL 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.732	1.725	1	1147820	20	>100:1			1000.00	1047.11	104.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/-1	247490	19	>100:1			200.00	202.33		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1038111	16	>100:1			1000.00	1017.66	100.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	224302	14	>100:1			200.00	201.30		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.169	0	354515	16	>100:1			1000.00	1050.61	104.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.168	2.169	0/0	92538	15	>100:1	Target = 3.83		176.80	184.40		
298.9 > 99	44	2.168	2.169		20288	18	>100:1	4.56 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.528	2.529	0/0	62516	22	>100:1	Target = 3.47		187.60	176.18		
349 > 99	44	2.519	2.529		20619	17	>100:1	3.03 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	244190	16	>100:1			5000.00	5229.26	105.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	0/0	15949	15	>100:1	Target = 1.39		186.80	175.64		
327 > 81	63	2.458	2.449		14784	17	15:1	1.07 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	887852	18	>100:1			1000.00	973.52	97.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	0/0	193752	21	>100:1	Target = 17.15		200.00	214.71		
313 > 119	49	2.493	2.493		10095	15	47:1	19.19 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	0	762427	18	>100:1			5000.00	5179.75	111.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	44270	19	>100:1	Target = 0.72		400.00	389.22		
285 > 185	66	2.614	2.622		64119	24	>100:1	0.69 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	892706	18	>100:1			1000.00	1008.86	98.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	166998	15	>100:1	Target = 3.21		200.00	195.81		
363 > 169	47	2.878	2.878		54721	18	>100:1	3.05 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	276853	18	>100:1			1000.00	1000.98	100.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	59336	24	>100:1	Target = 3.35	5.30	182.00	185.93		
399 > 99	45	2.896	2.896		15136	25	59:1	3.92 (1.67-5.04)	5.80				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	0/0	289736	21	>100:1	Target = 2.38		188.40	197.38		
377 > 85	45	2.914	2.923		117614	17	>100:1	2.46 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.226	1/1	57623	20	>100:1	Target = 3.87		190.40	195.57		
449 > 99	45	3.239	3.226		15539	23	>100:1	3.70 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.207	3.201	1	211654	20	>100:1			5000.00	5135.31	97.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.207	3.201	1/0	13680	24	>100:1	Target = 1.26		189.60	194.56		
427 > 81	64	3.207	3.201		10015	13	8.7:1	1.36 (0.63-1.89)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.220	1	887598	21	>100:1			1000.00	1053.63	105.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.233	3.226	1/0	178064	21	>100:1	Target = 2.46		200.00	200.61		
413 > 169	53	3.233	3.226		74181	20	>100:1	2.40 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.564	3.558	1	252892	20	>100:1			1000.00	1067.39	106.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.571	3.558	1/0	54424	39	>100:1	Target = 3.98	3.71	185.60	184.98		
499 > 99	54	3.571	3.558		13275	40	70:1	4.09 (1.99-5.97)	6.59				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.767	3.755	1/0	133596	21	>100:1			186.40	174.80		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.892	3.886	1/0	40166	17	>100:1	Target = 3.57		192.00	166.79		
549 > 99	54	3.892	3.886		12099	17	98:1	3.31 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.190	4.191	0/-1	44474	17		Target = 3.73		192.80	187.62		
599 > 99	54	4.190	4.191		12938	19	>100:1	3.43 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.358	4.349	1/0	114956	17	>100:1			188.40	188.61		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/-1	38305	18	>100:1	Target = 3.44		193.60	187.57		
699 > 99	54	4.698	4.698		11520	23	>100:1	3.32 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.571	3.565	1	818045	20	>100:1			1000.00	1008.27	96.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.571	3.565	1/0	148841	18	>100:1	Target = 4.45		200.00	204.00		
463 > 169	56	3.571	3.565		35424	25	>100:1	4.20 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.878	3.872	1	424889	19	>100:1			1000.00	1022.87	99.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.878	3.872	1/0	92955	19	>100:1	Target = 47.73		200.00	200.79		
498>478	55	3.878	3.872		2248	20	26:1	41.35 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.900	3.894	1	185961	19	>100:1			5000.00	5340.30	104	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.900	3.894	1/0	13163	23	>100:1	Target = 1.41		191.60	214.49		
527 > 81	65	3.900	3.894		7940	17	13:1	1.65 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.502	4.494	1/0	15778	20	>100:1	Target = 2.81		192.80	199.99		
627 > 80	65	4.502	4.494		6731	20	44:1	2.34 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.907	3.901	1	760023	18	>100:1			1000.00	1062.32	98.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.907	3.901	1/0	149983	19	>100:1	Target = 9.36		200.00	193.21		
513 > 169	51	3.907	3.901		17948	23	>100:1	8.35 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.061	4.053	1	822847	16	>100:1			5000.00	5089.09	104	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.061	4.062	0/-1	26081	32	92:1	Target = 1.42	6.65	200.00	196.37		M
570 > 483	58	4.061	4.062		19899	38	62:1	1.31 (0.71-2.13)	3.34				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.214	4.207	1	738653	17	>100:1			5000.00	5108.55	98.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.222	4.223	0/-1	30728	32	>100:1	Target = 1.80	5.87	200.00	210.86		
584 > 526	60	4.222	4.223		18512	31	58:1	1.65 (0.90-2.70)	5.61				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.214	4.207	1	738880	18	>100:1			1000.00	1052.19	102.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.214	4.207	1/0	133443	16	>100:1	Target = 8.65		200.00	200.54		
563 > 169	52	4.222	4.207		15030	12	85:1	8.87 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.294	4.295	0	121957	17	>100:1			1000.00	993.78	98.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.313	4.304	1/1	26473	14	69:1			200.00	212.86		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.322	4.313	1	62046	15	>100:1			1000.00	965.70	97.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.322	4.322	0/-1	15965	15	55:1	Target = 1.09		200.00	237.52		
512 > 219	57	4.322	4.322		14521	16	69:1	1.09 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.470	4.463	1	115350	14	>100:1			1000.00	1015.12	104.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.478	4.479	0/-1	19609	16	72:1			200.00	205.40		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	0	745237	17	>100:1			1000.00	1070.63	108.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	0/0	144338	21	>100:1	Target = 6.94		200.00	192.83		
613 > 169	38	4.486	4.486		23574	16	>100:1	6.12 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.727	0/0	64376	21	>100:1	Target = 2.82		200.00	195.69		
663 > 169	38	4.727	4.727		24248	18	>100:1	2.65 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	0	58093	15	>100:1			1000.00	962.97	90.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.502	4.494	1/1	13227	14	79:1	Target = 1.11		200.00	190.63		
526 > 219	59	4.494	4.494		13795	18	>100:1	0.95 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.942	4.942	0	783392	16	>100:1			1000.00	1049.95	104.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/1	135878	15	55:1	Target = 7.23		200.00	201.02		
713 > 169	42	4.950	4.942		17677	14	>100:1	7.68 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.323	5.323	0	363102	17	>100:1			1000.00	1043.71	105.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	1/1	138783	18	34:1	Target = 12.24		200.00	207.86		
813 > 269	40	5.323	5.331		10756	24	>100:1	12.90 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.671	5.678	0/0	97186	20	30:1	Target = 148.06		200.00	198.07		
913 > 319	40	5.671	5.678		727	24	98:1	133.68 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.907	3.901	1	791038	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	924027	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.233	3.226	1	893089	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	1069677	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.564	3.558	1	251994	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 09-Nov-2021 13:30:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

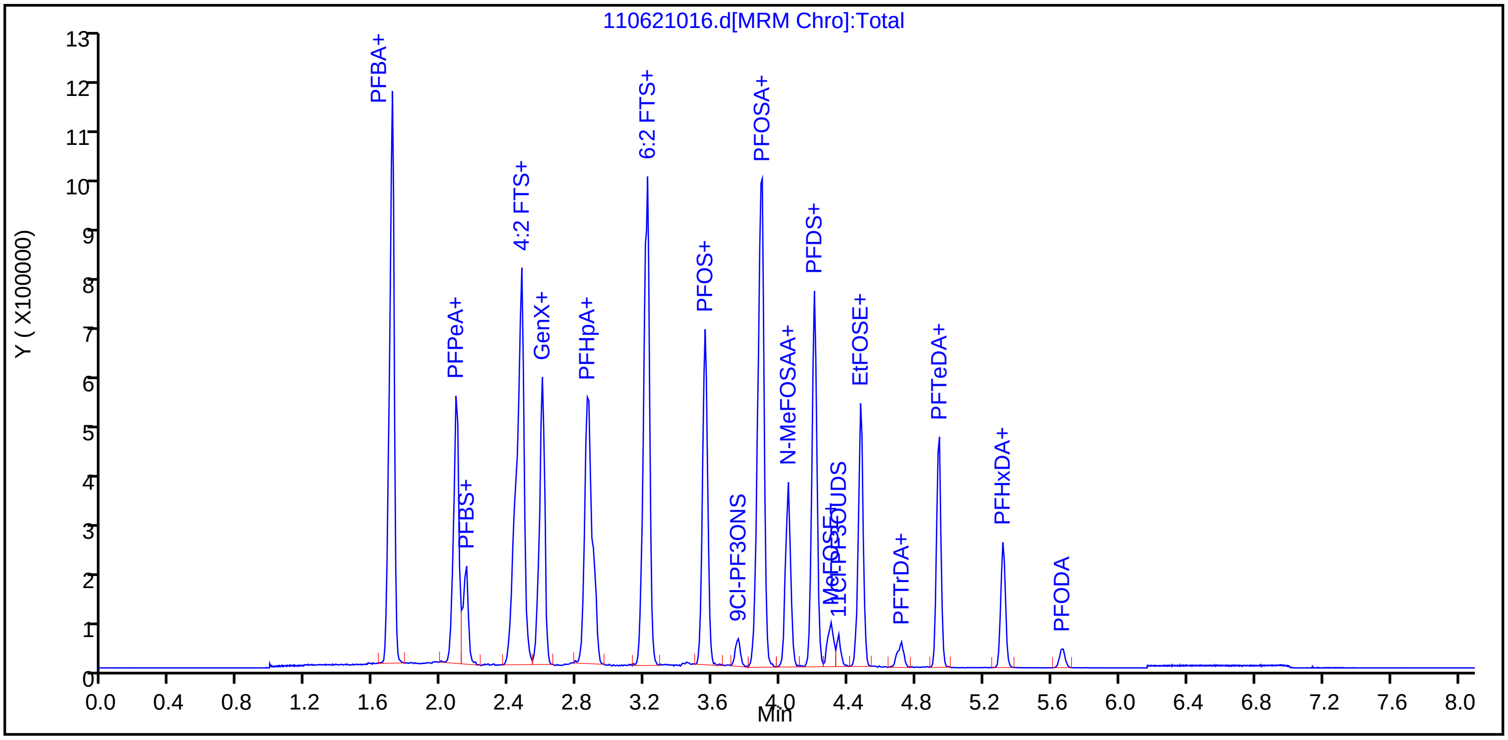
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d

Injection Date: 06-Nov-2021 15:00:33 Inst. ID: LCMSMS01.i

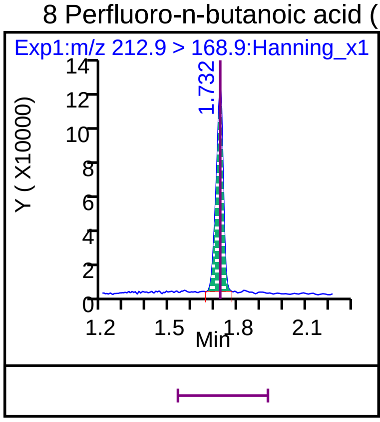
Client ID: Lab ID: ICAL 200_SVLC-1742

Sample Info: ICAL 200_SVLC-1742

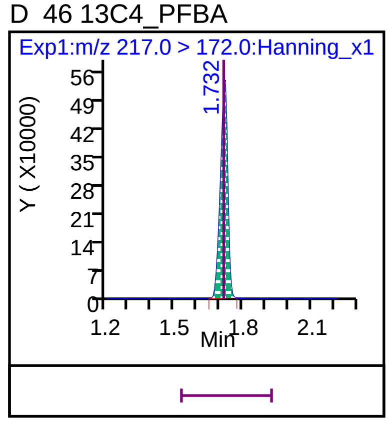
Dil. Factor: 1 Operator: Matthew M. Miller



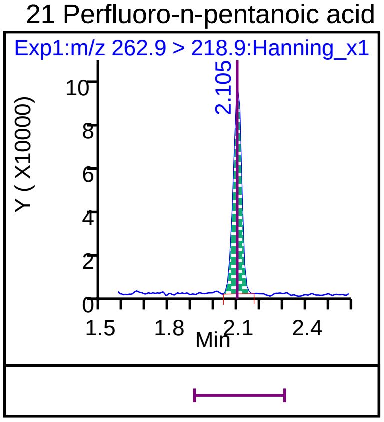
8 Perfluoro-n-butanoic acid (PFBA)



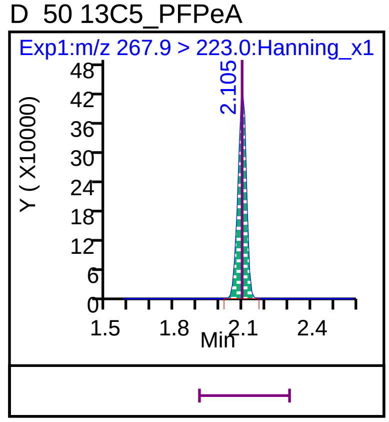
D 46 13C4_PFBA



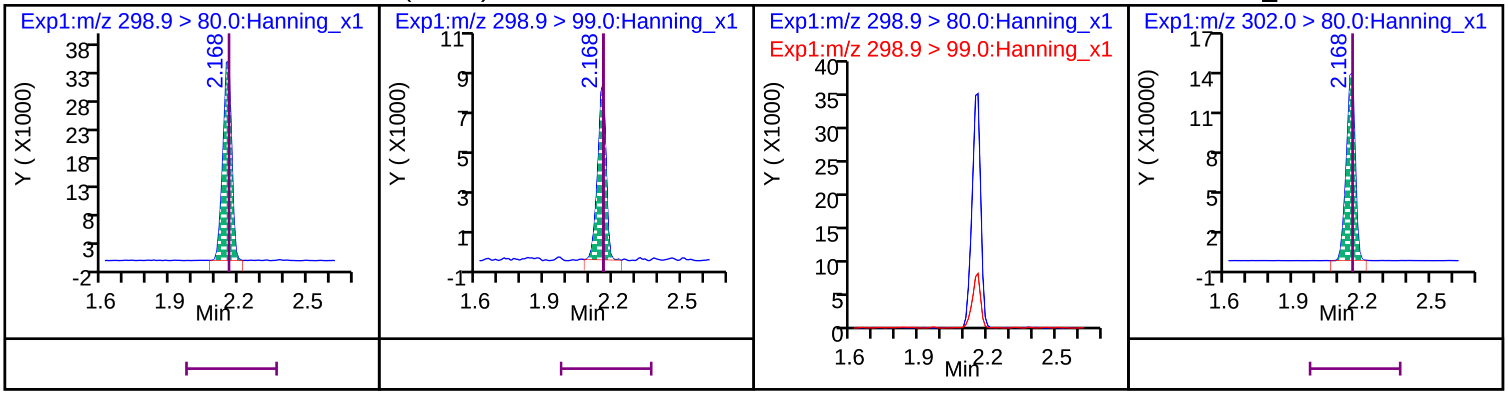
21 Perfluoro-n-pentanoic acid (PFPeA)



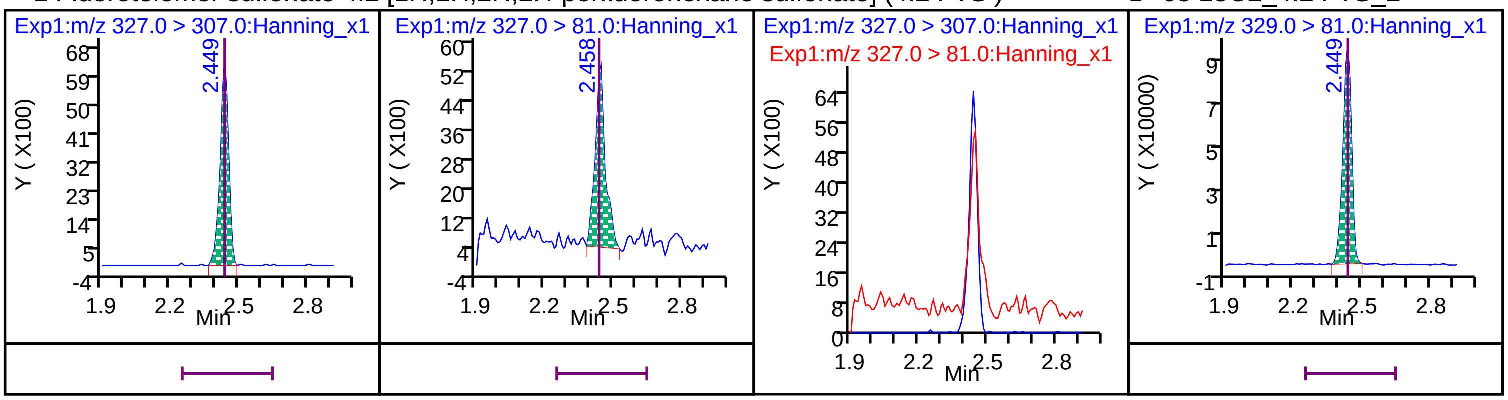
D 50 13C5_PFPeA



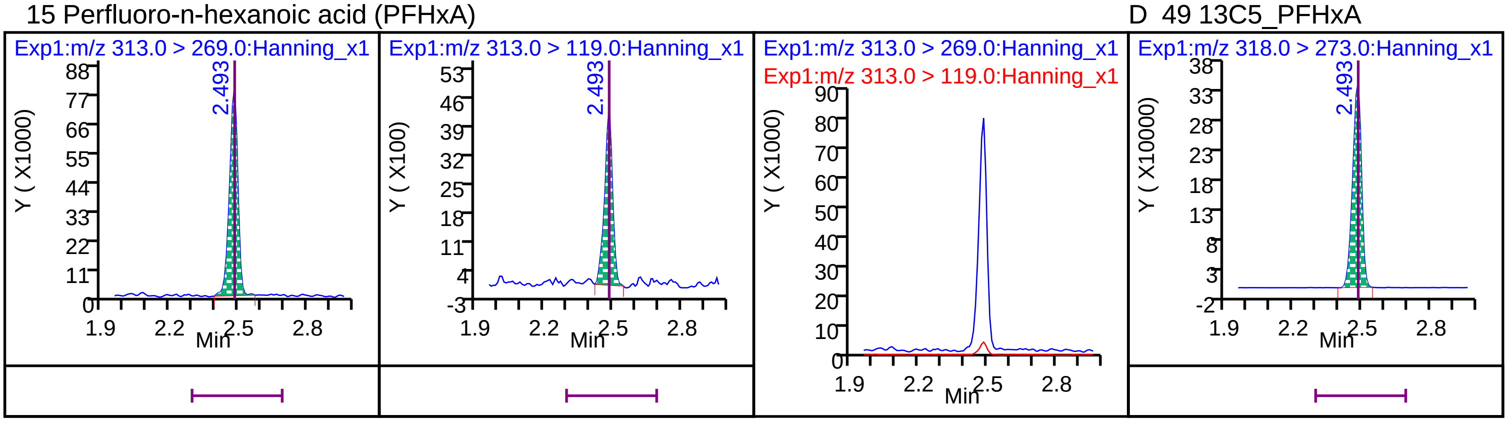
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



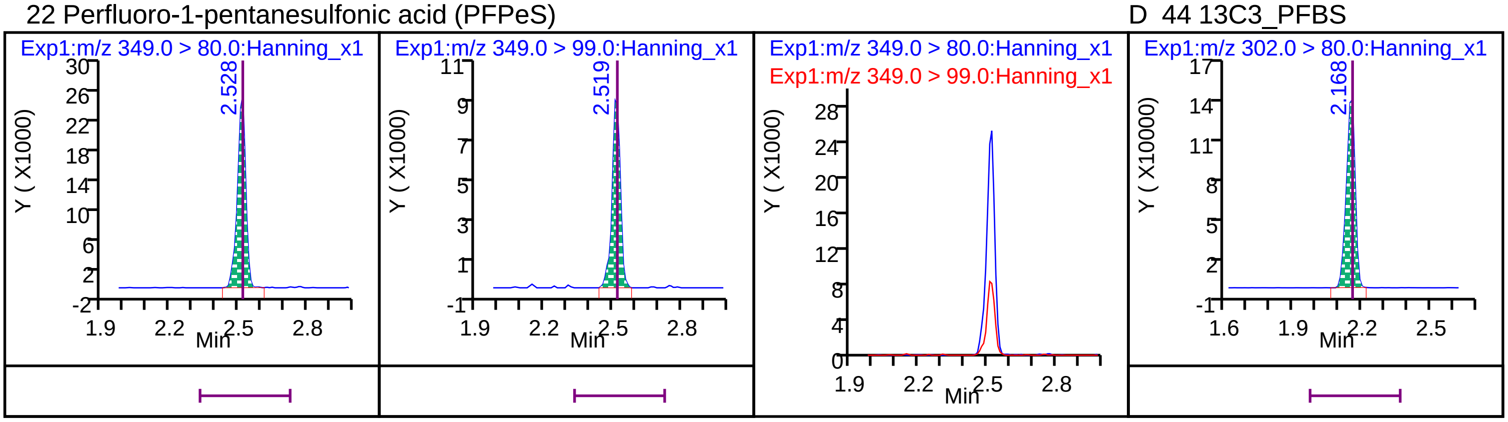
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



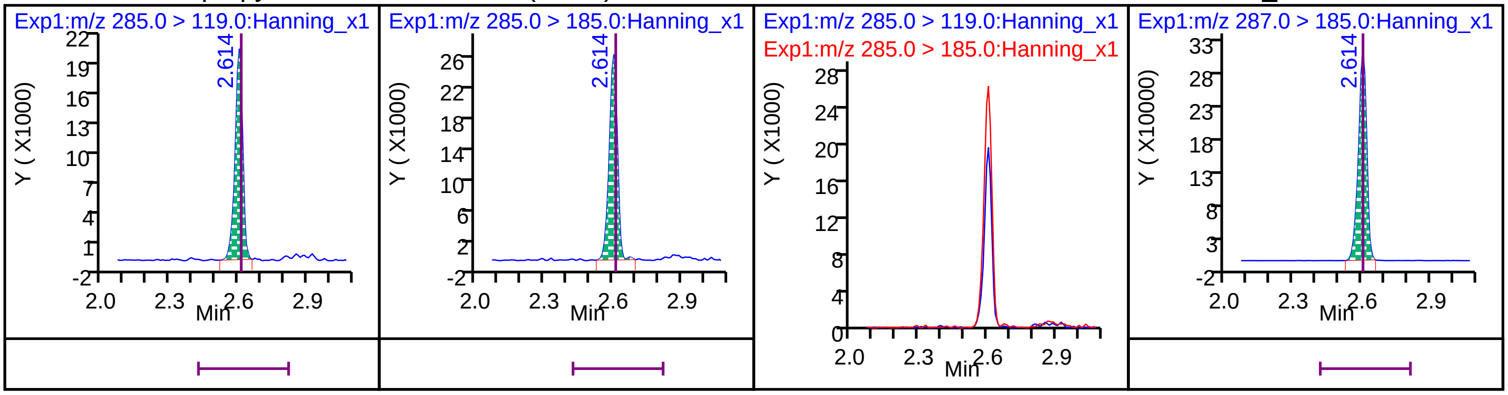
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



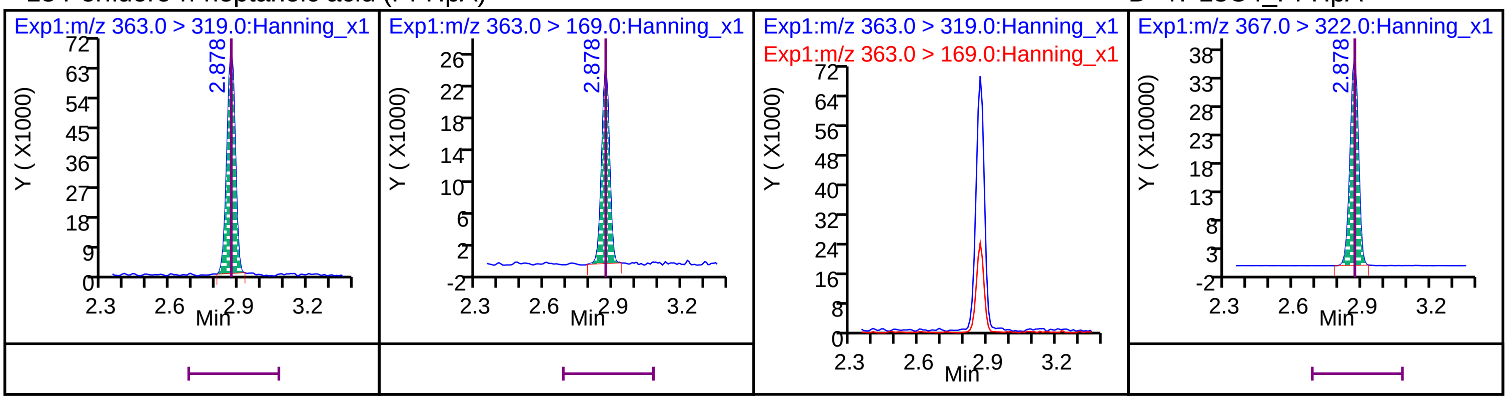
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



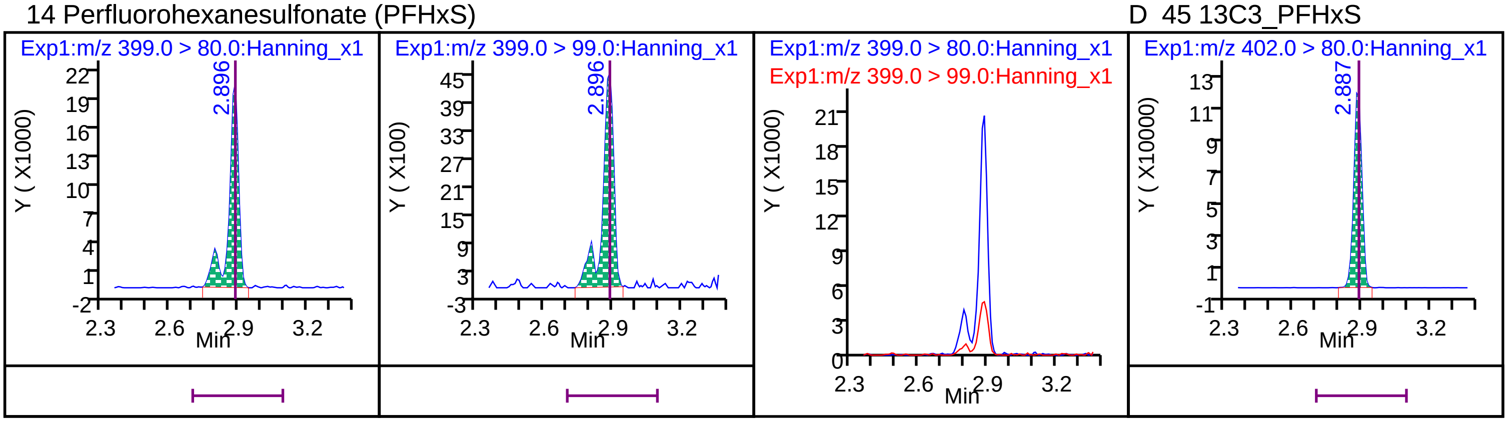
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



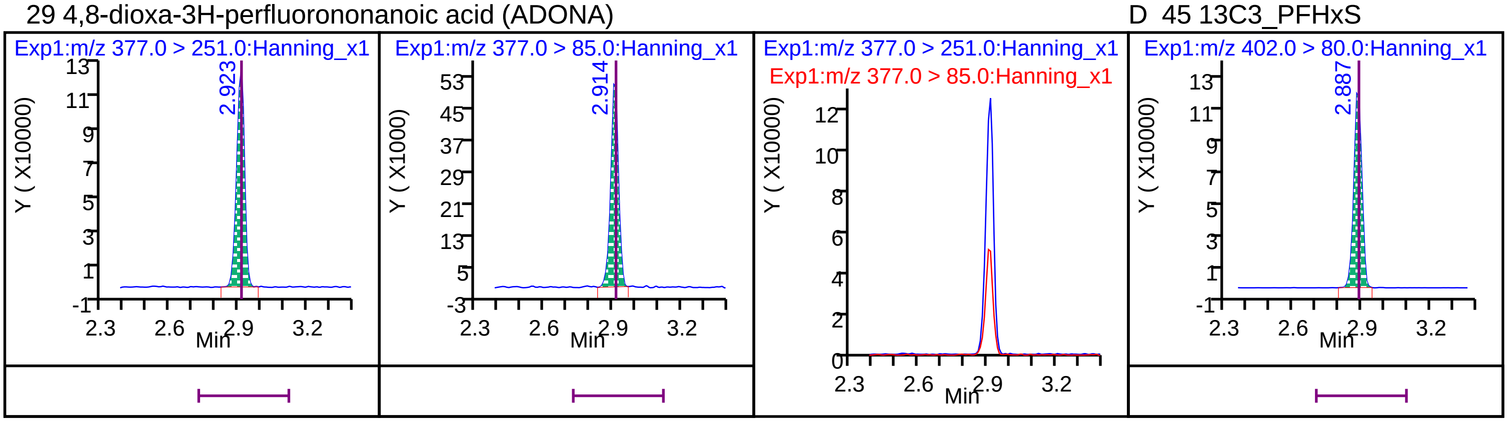
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



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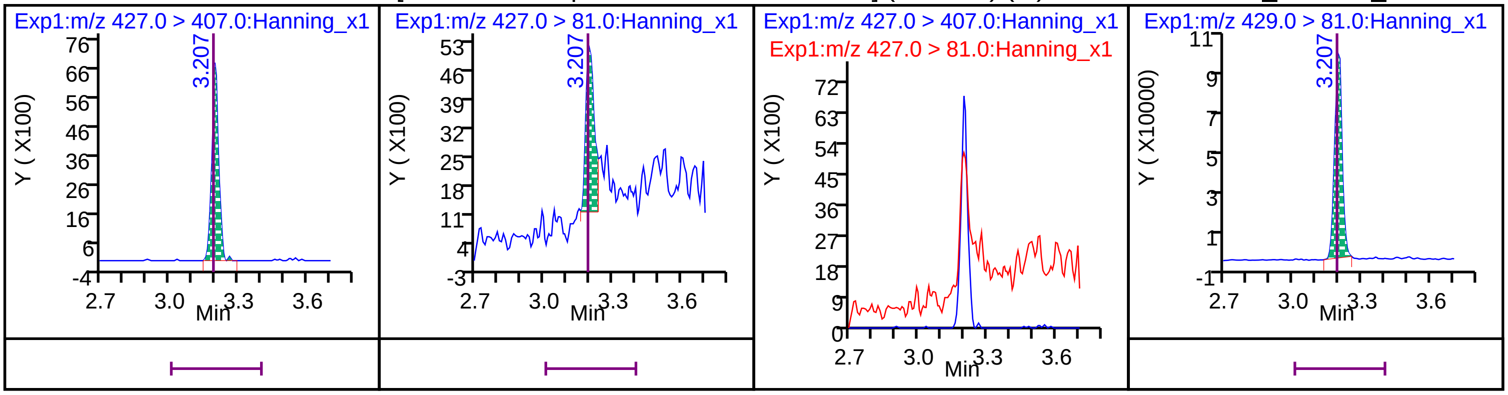
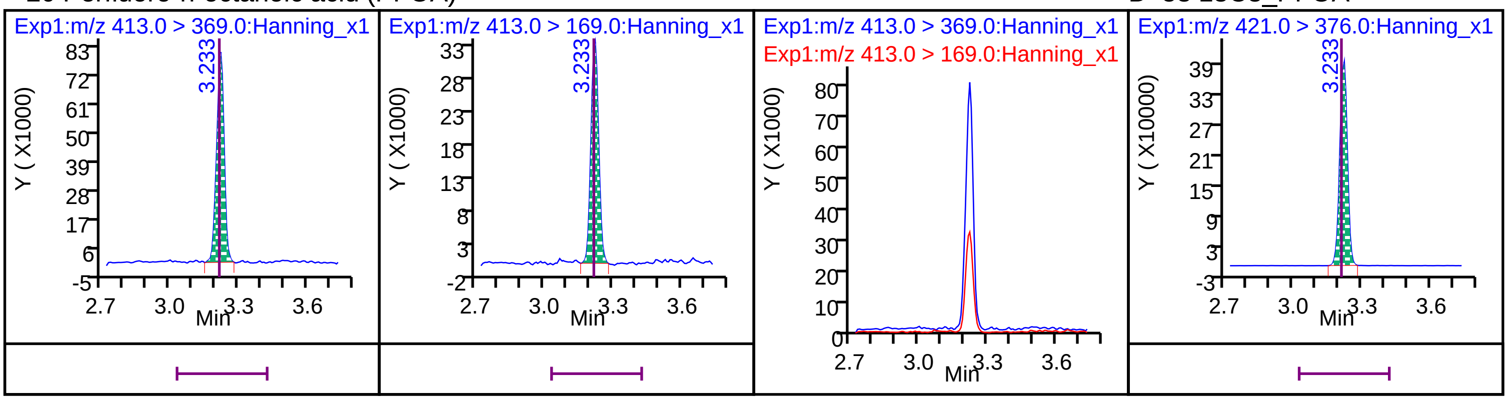
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d

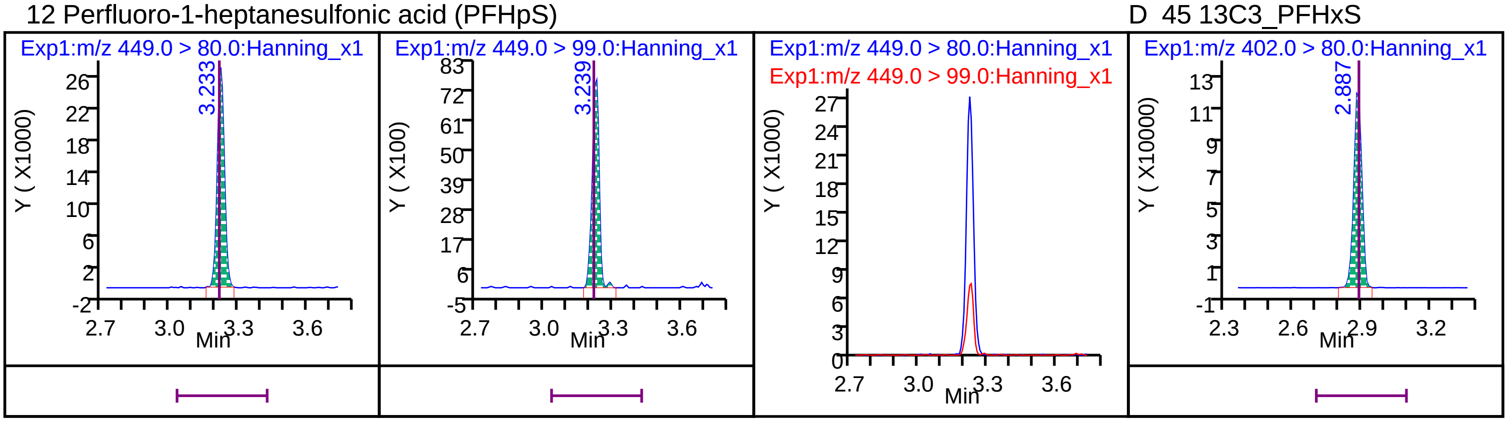
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



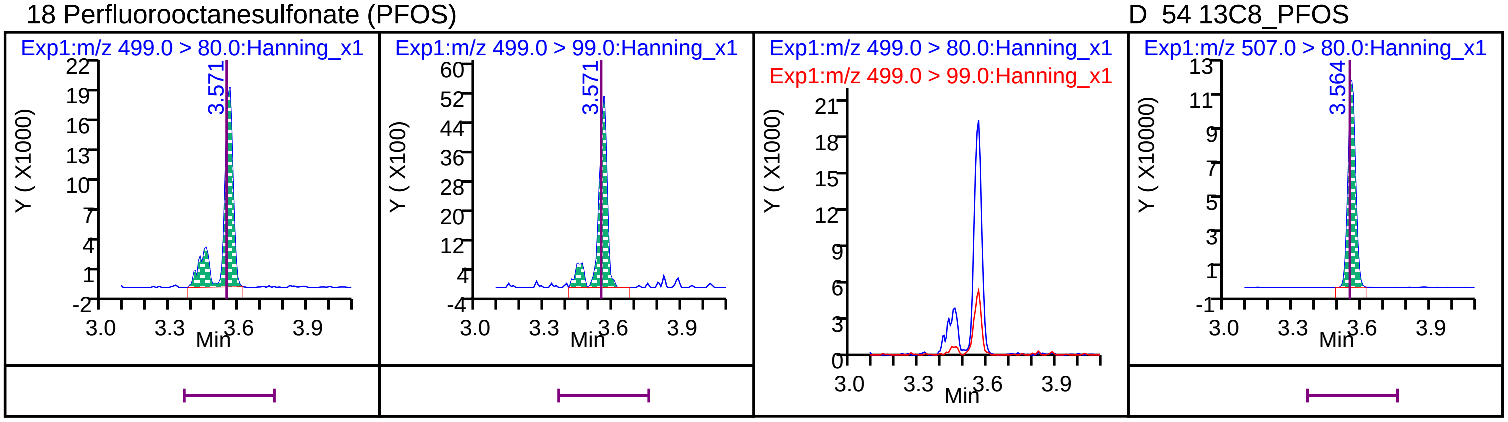
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



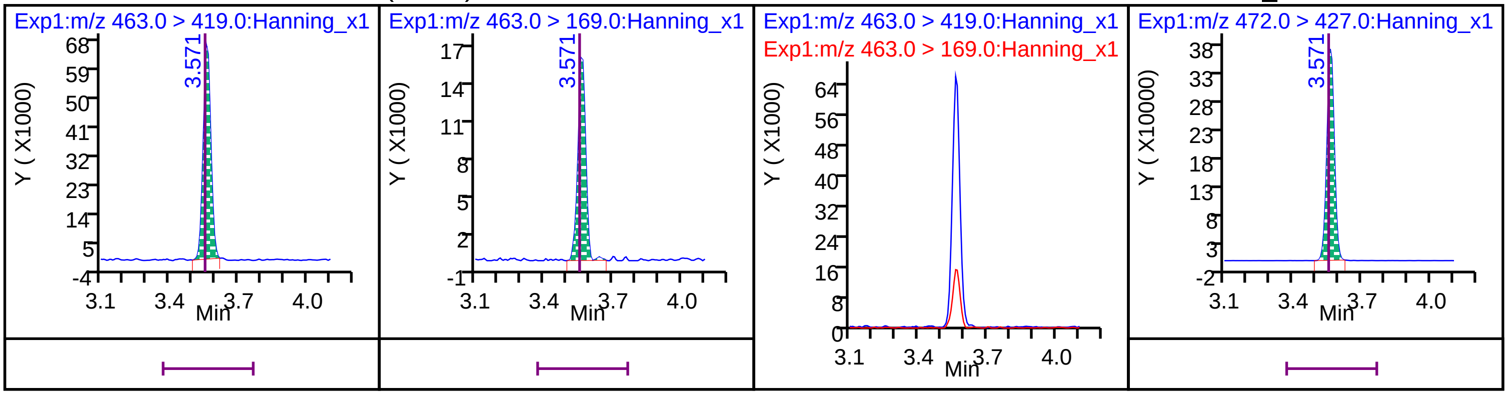
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



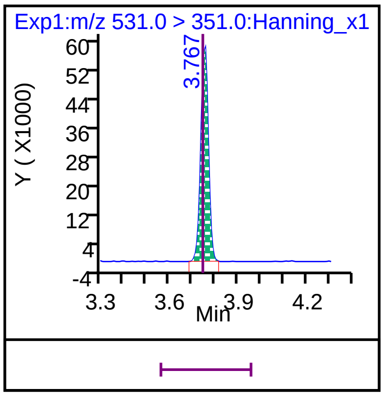
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

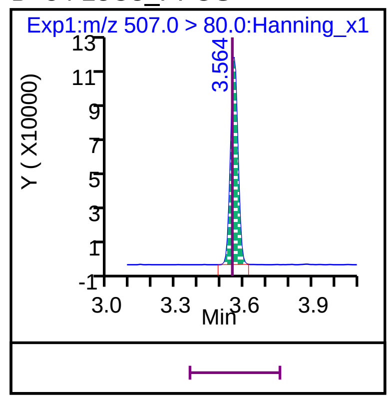


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

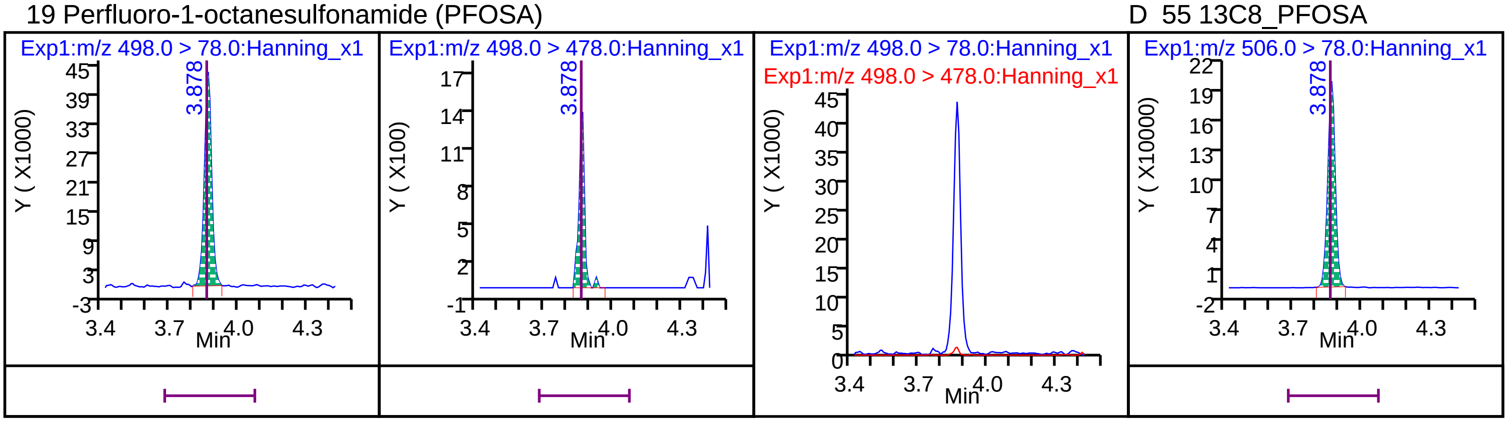


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

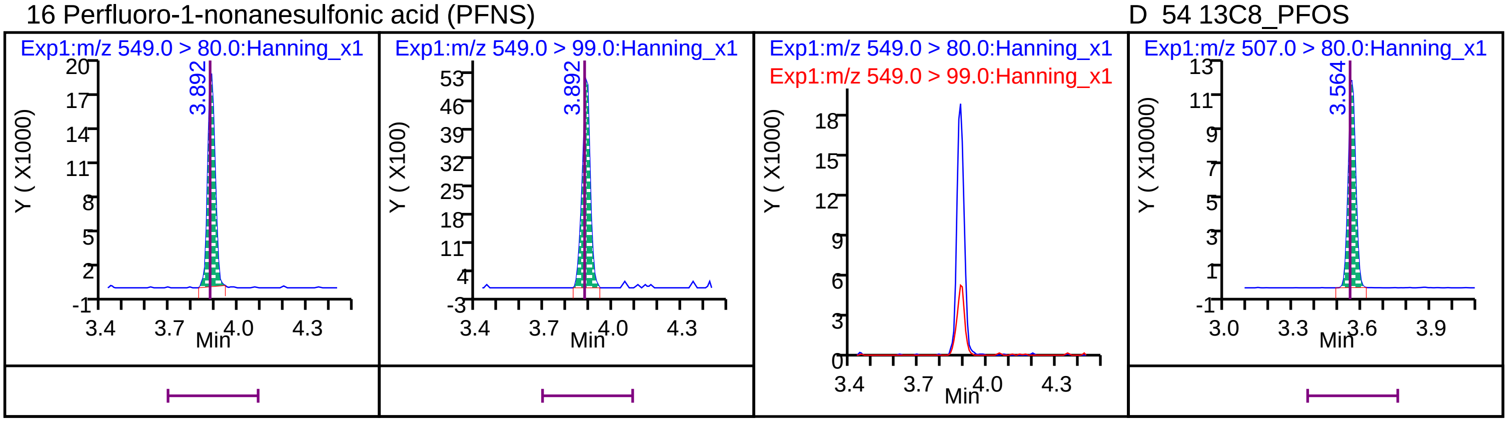




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



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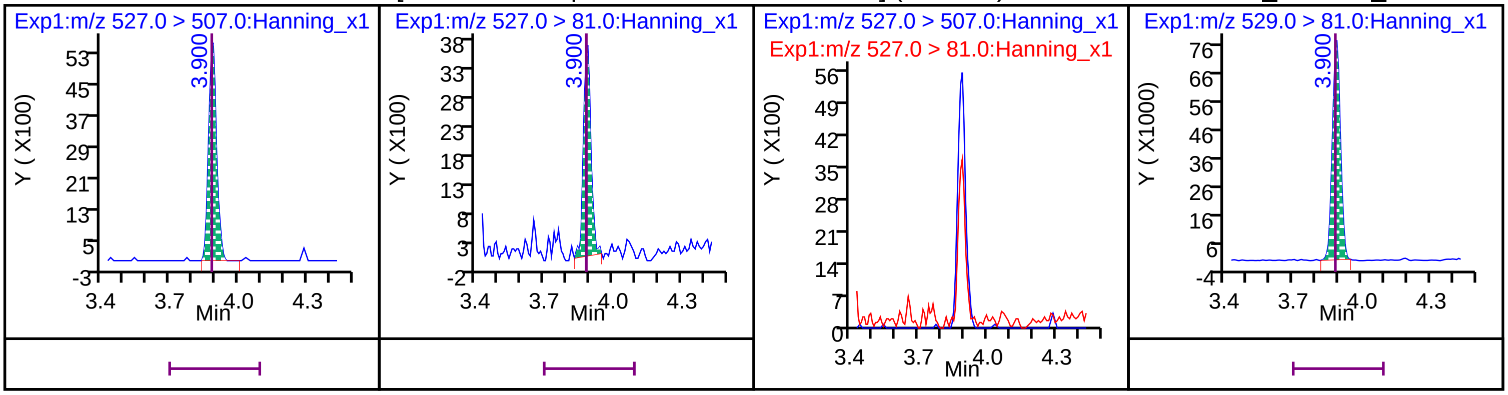
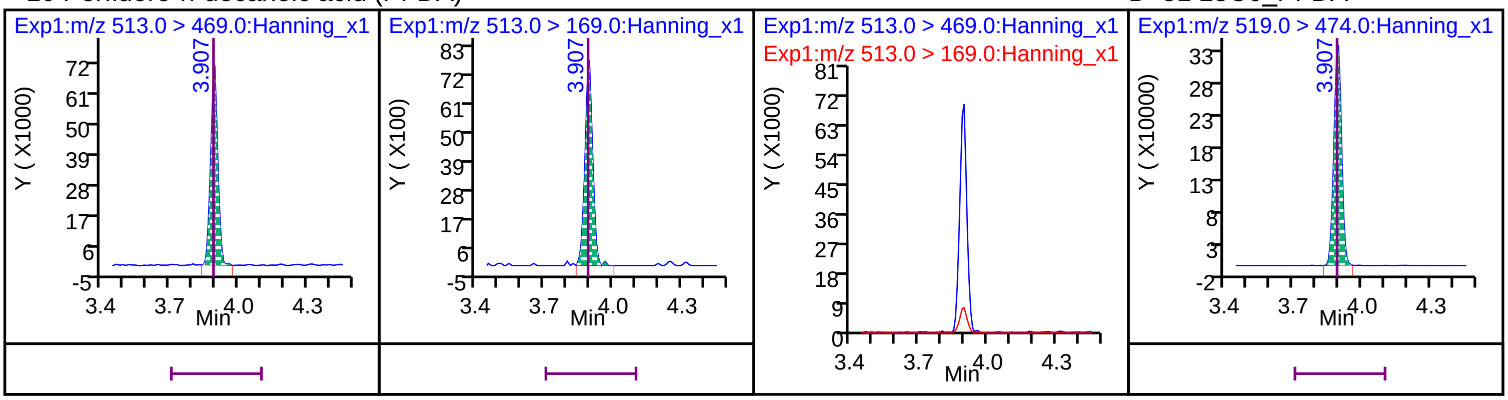
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d

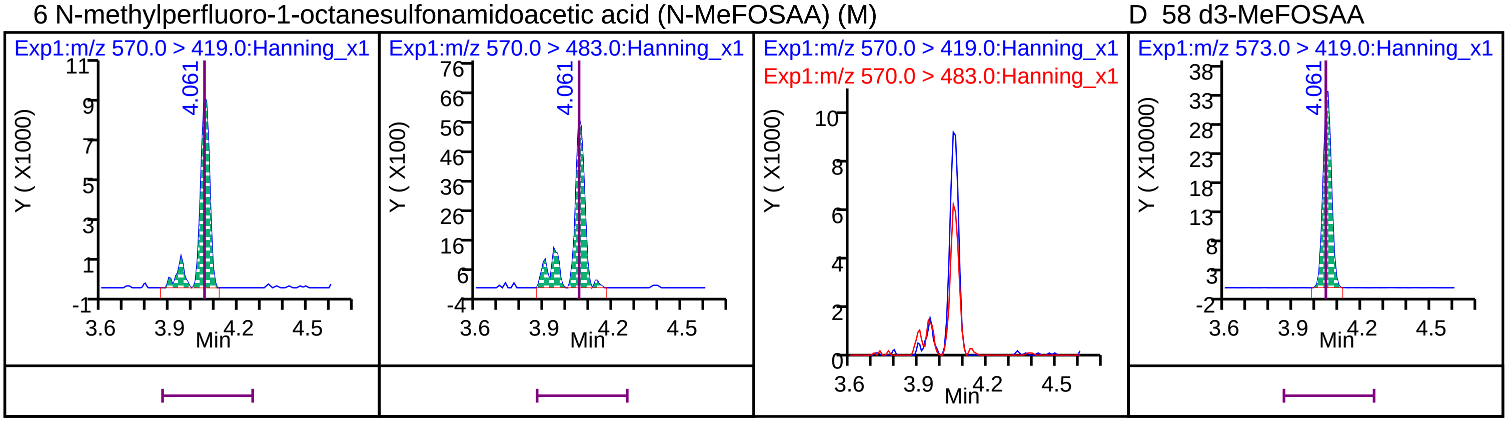
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



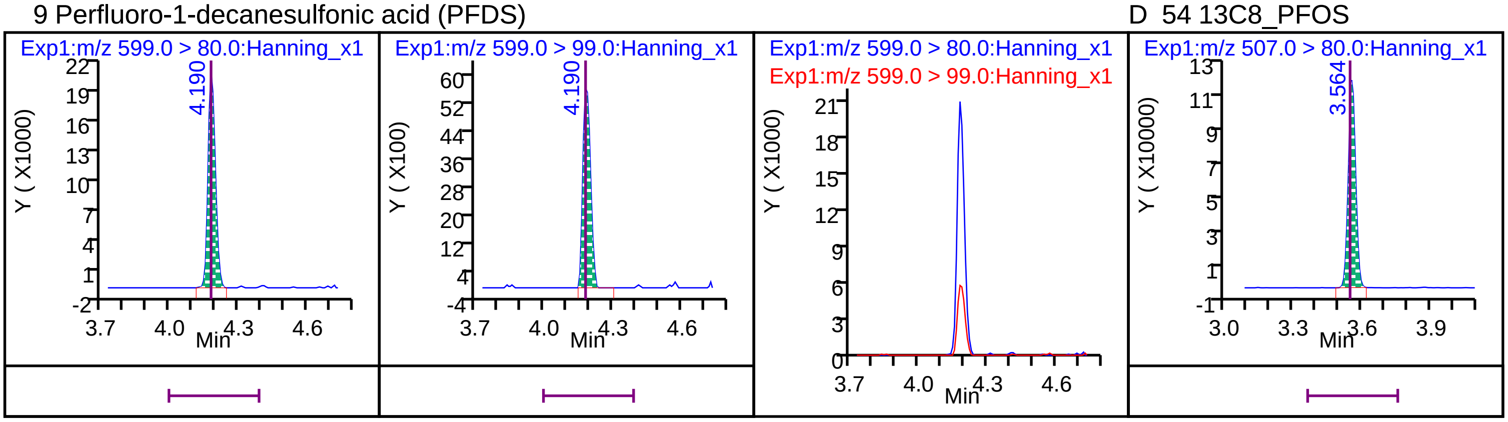
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



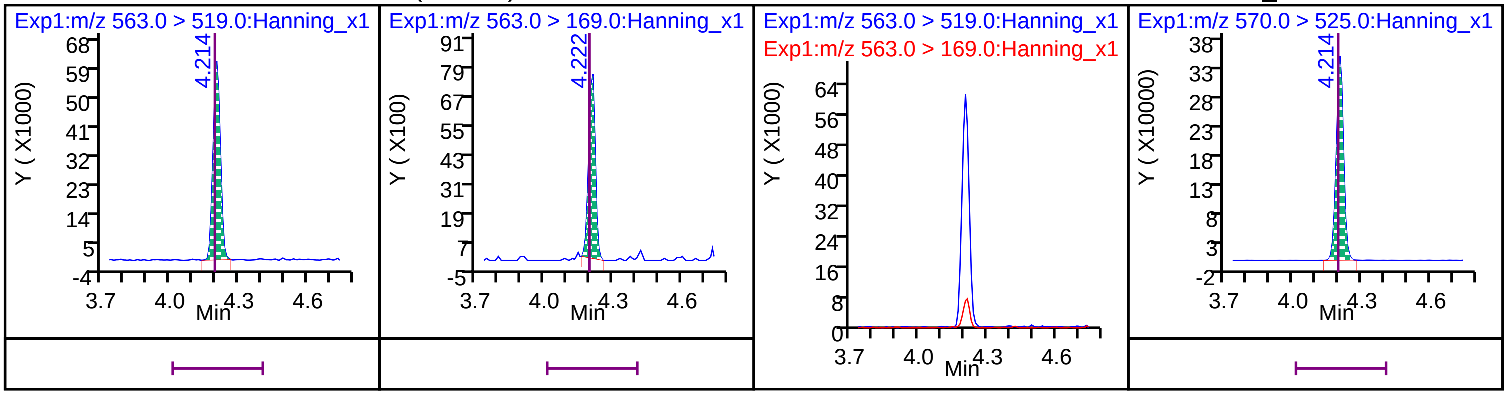
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



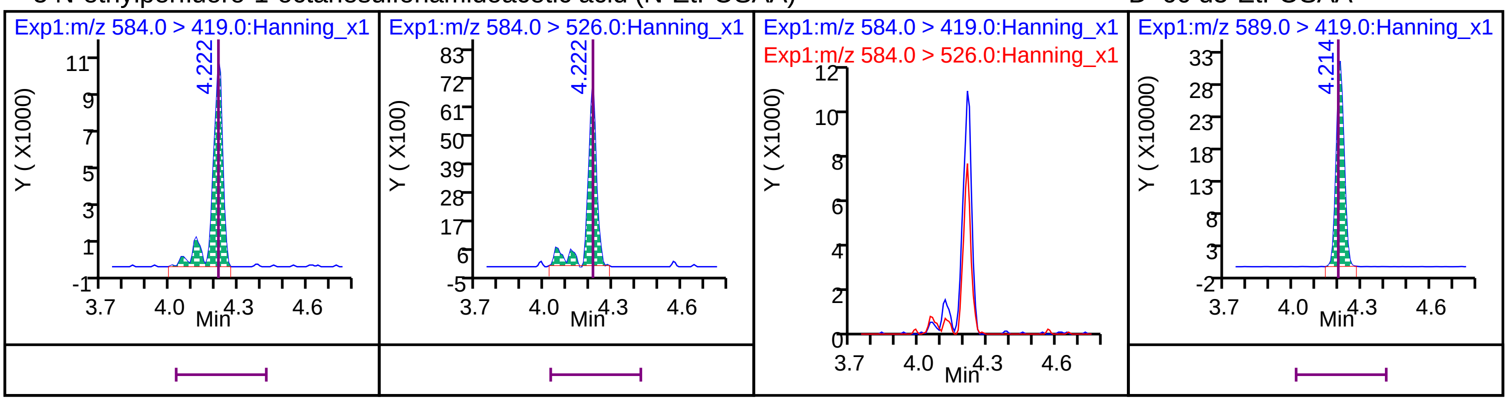
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

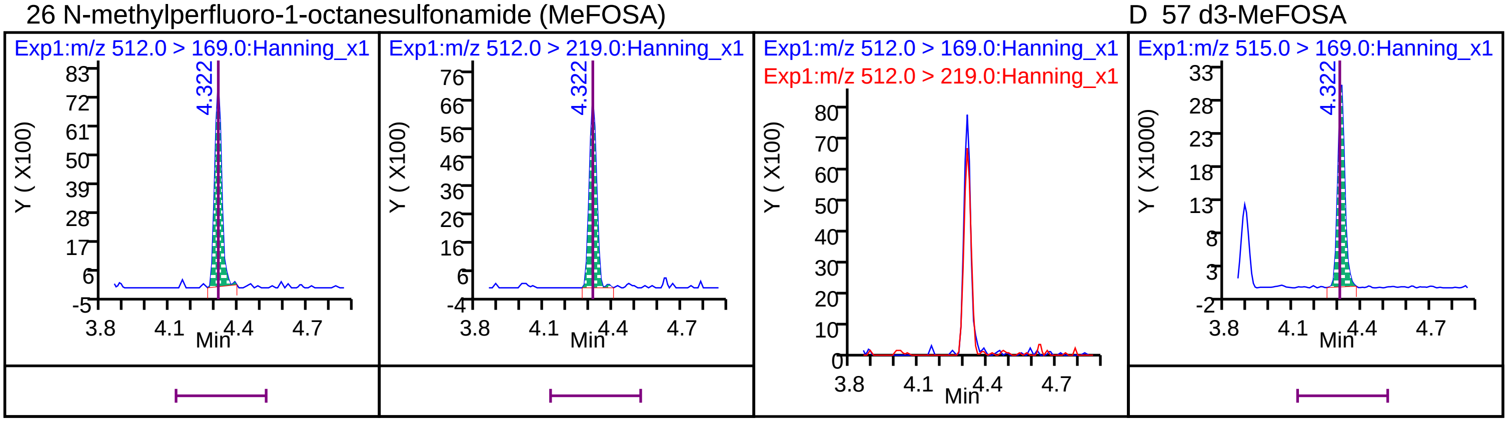


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



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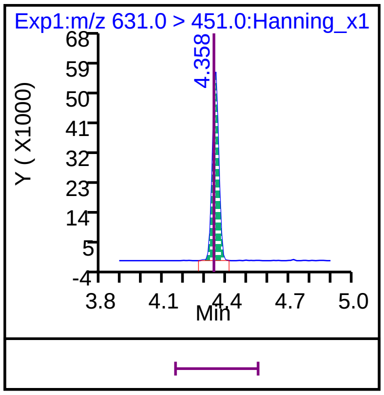
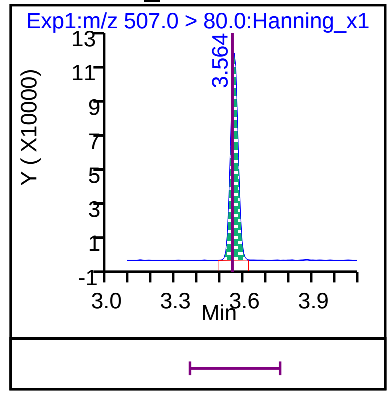
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d

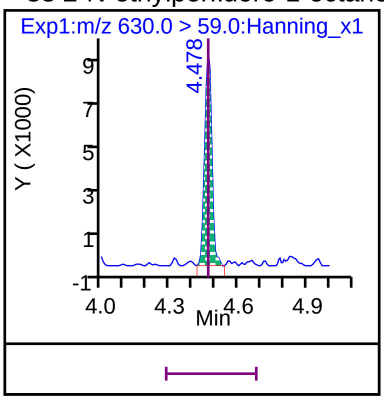
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



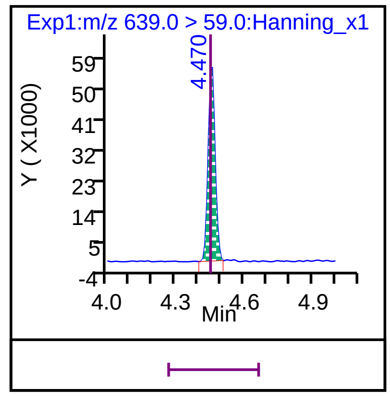
D 54 13C8_PFOS



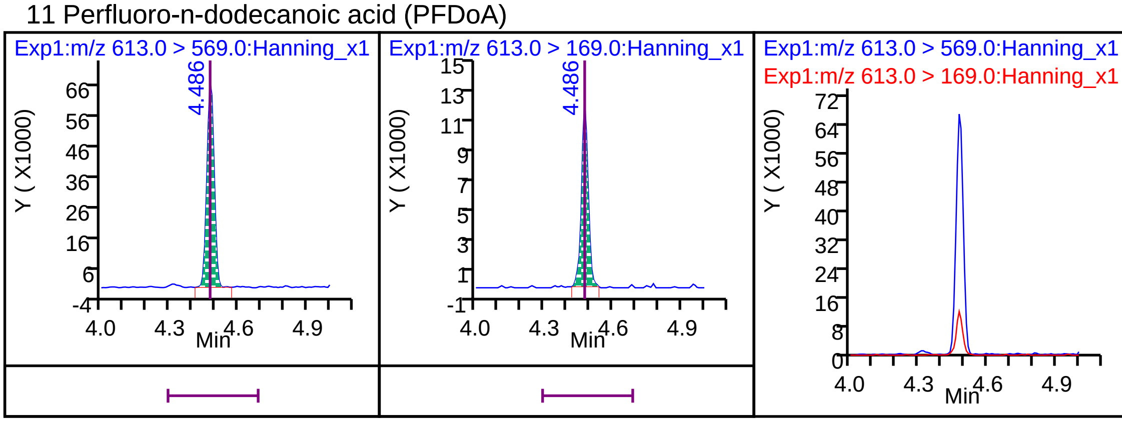
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



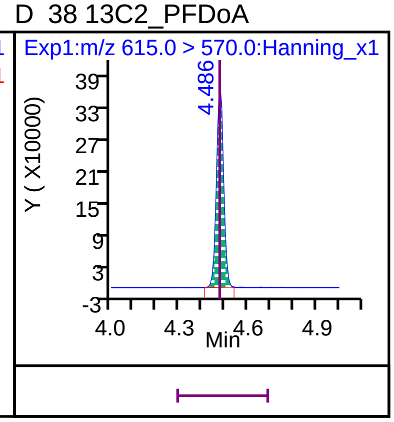
D 62 d9-EtFOSE



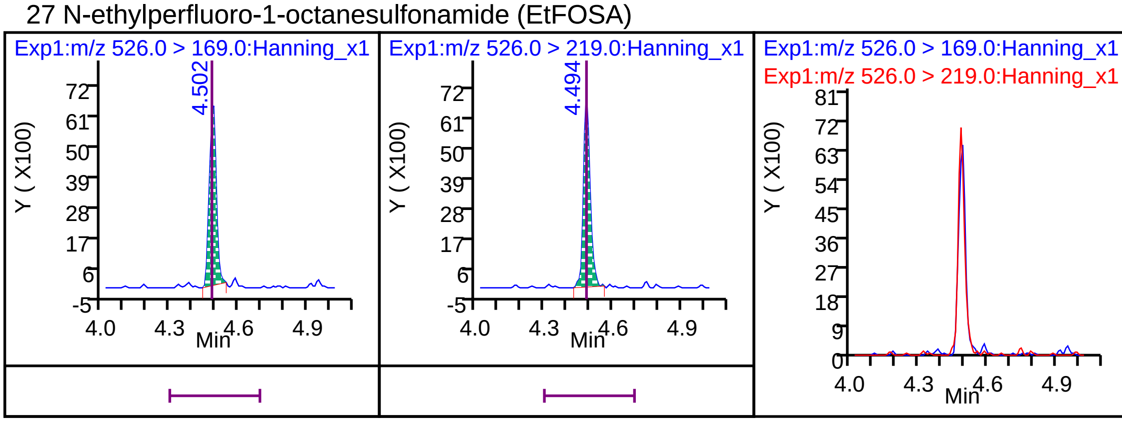
11 Perfluoro-n-dodecanoic acid (PFDoA)



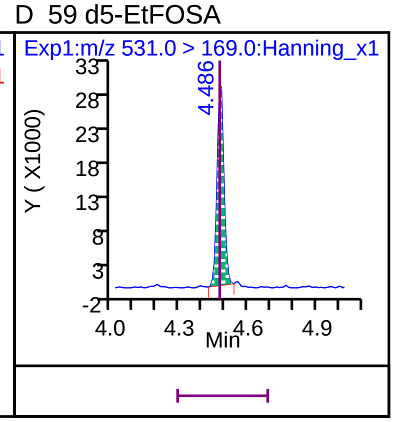
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



D 59 d5-EtFOSA



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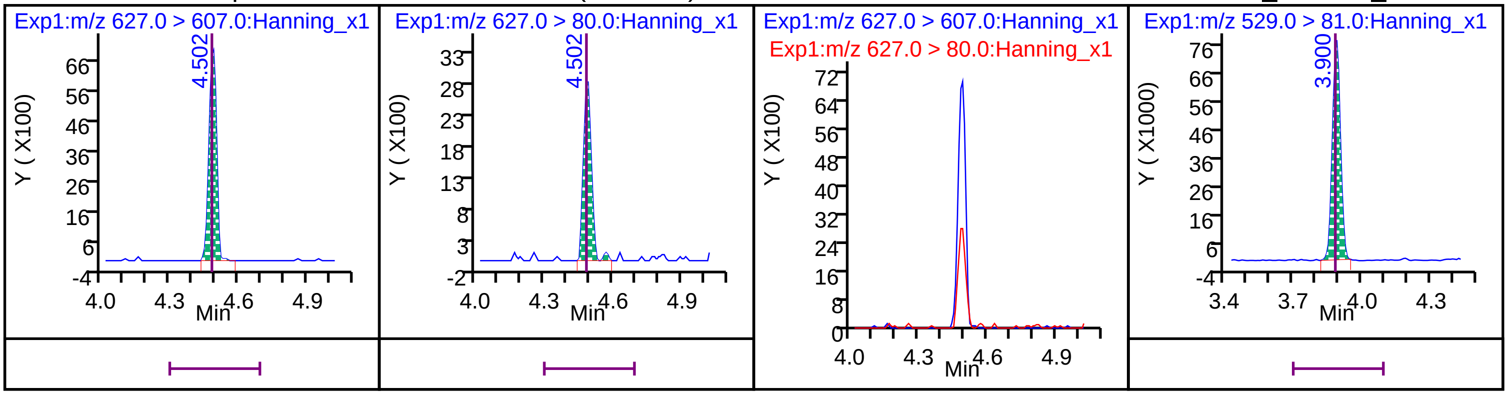
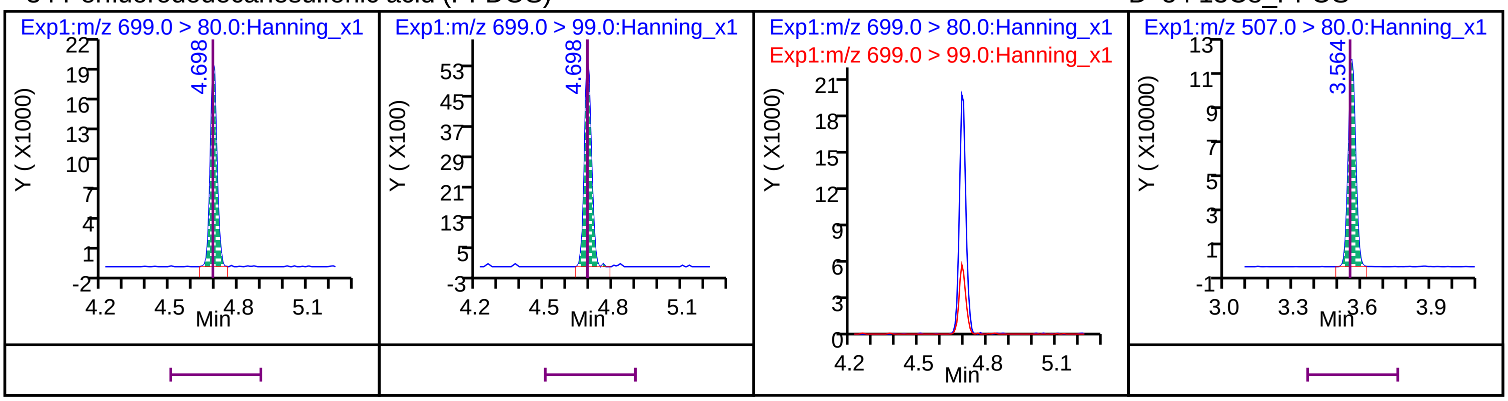
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d

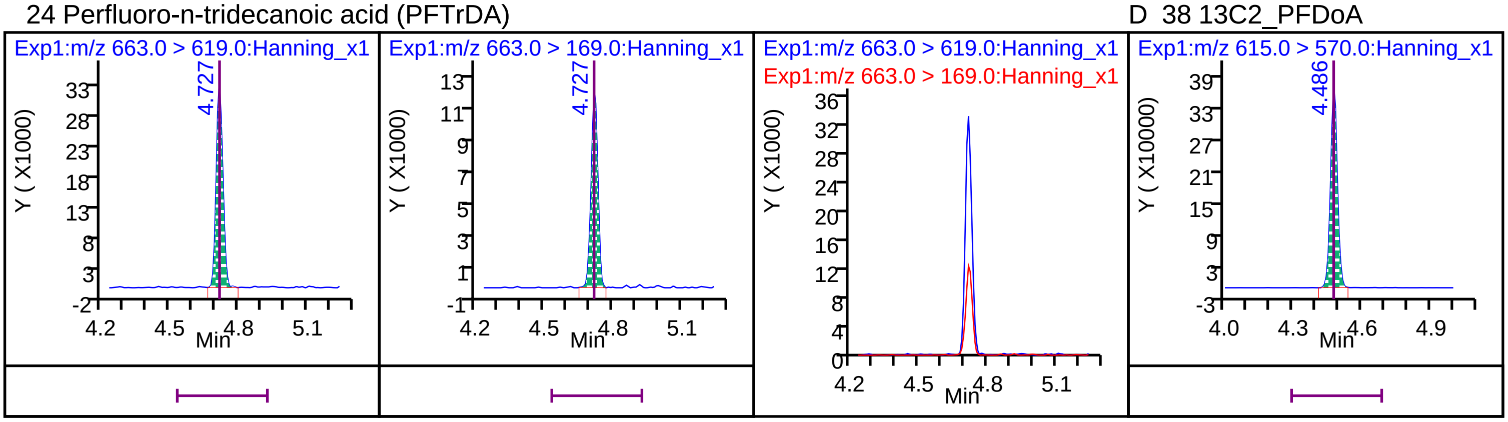
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



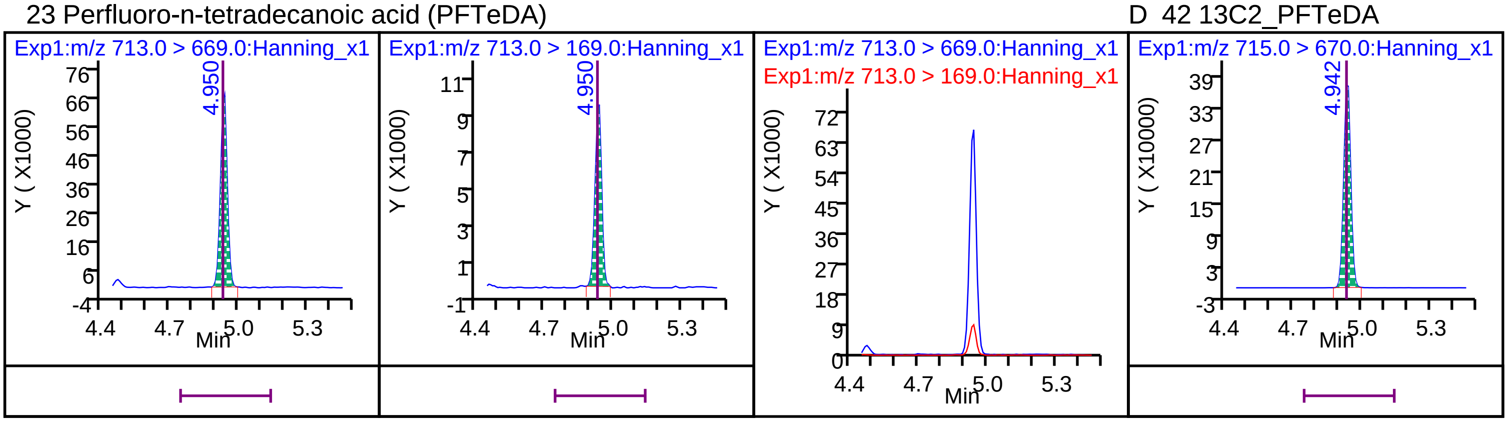
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



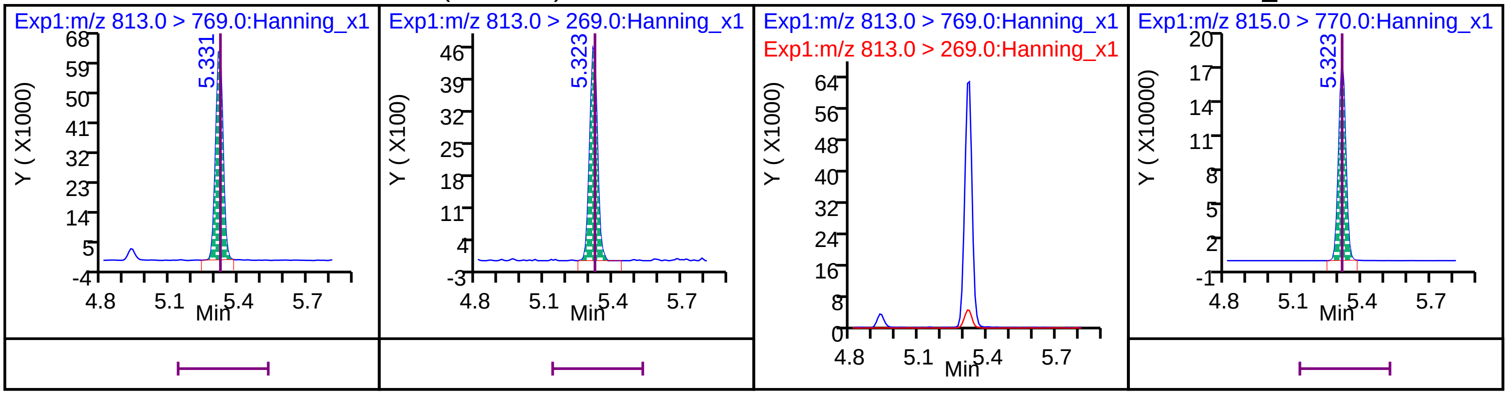
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



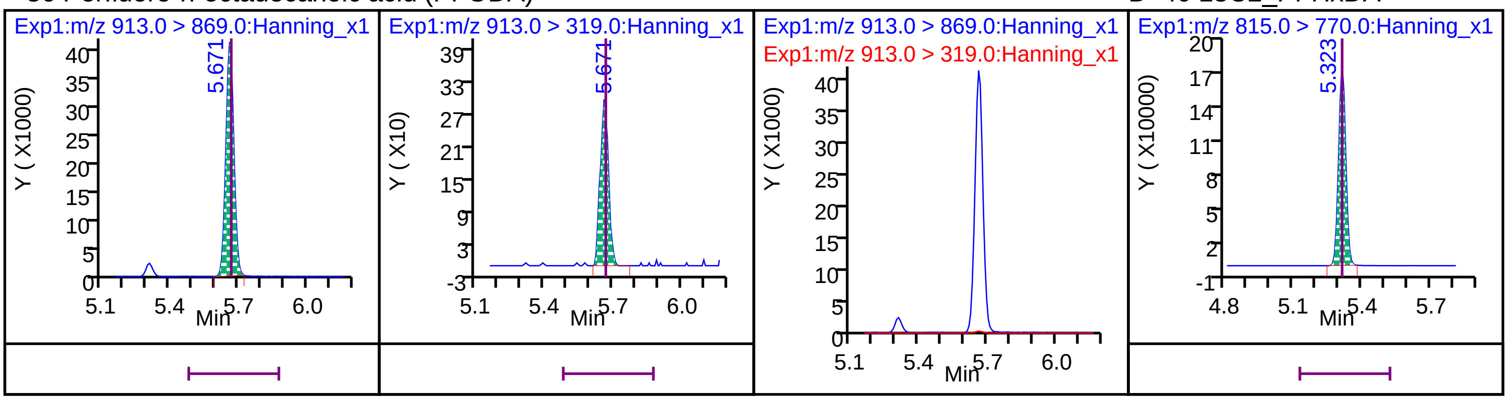
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



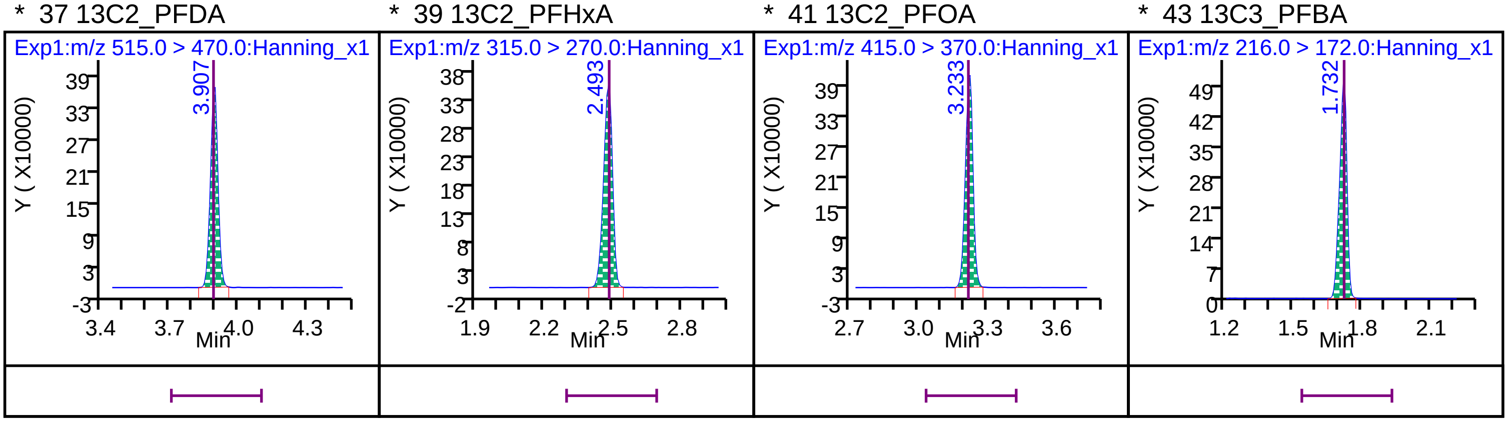
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



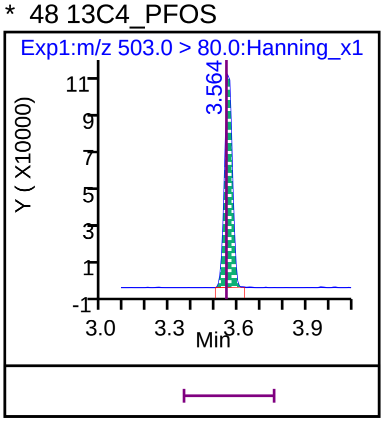
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

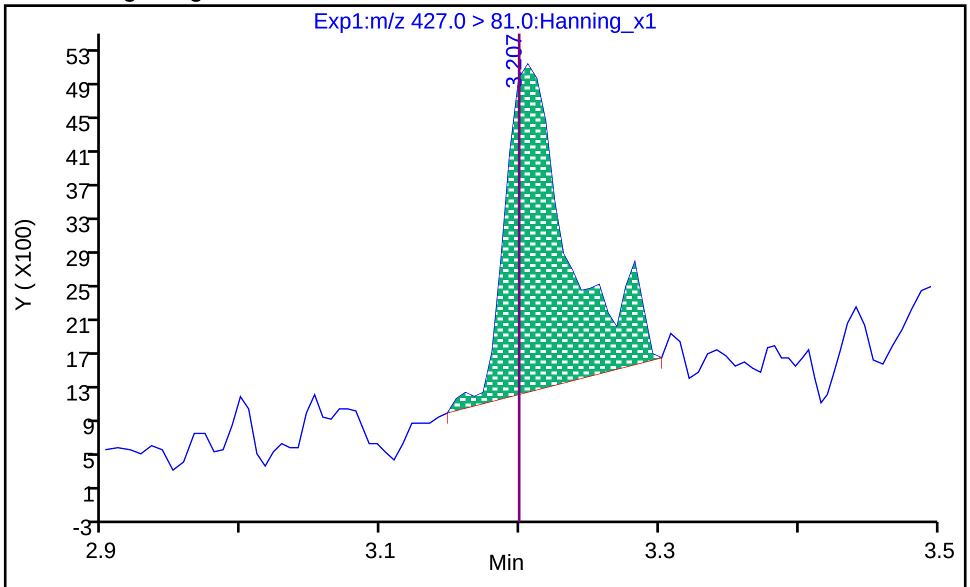
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d		
Injection Date:	06-Nov-2021 15:00:33	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1742
Sample Info:	ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Matthew M. Miller

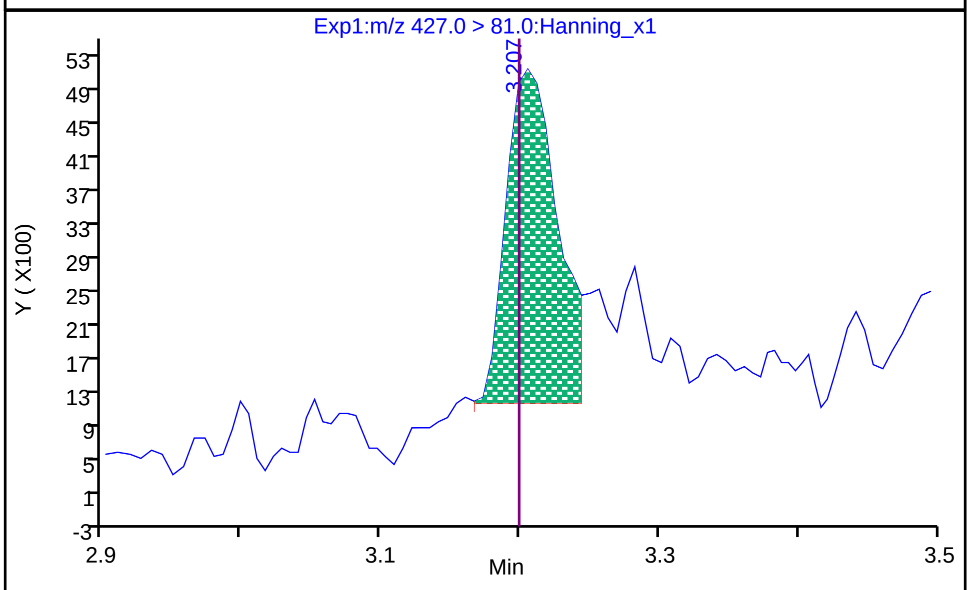
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT: 3.207
Area: 12341
Amount: 194.56
Amount Units: ng/L



RT: 3.207
Area: 10015
Amount: 194.56
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:40:52

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

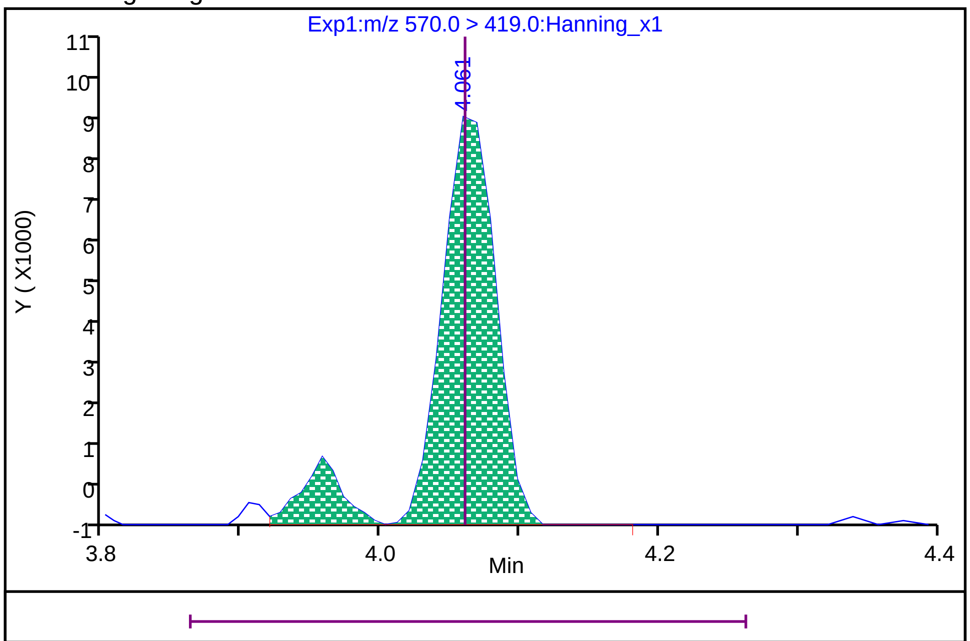
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621016.d		
Injection Date:	06-Nov-2021 15:00:33	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 200_SVLC-1742
Sample Info:	ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Matthew M. Miller

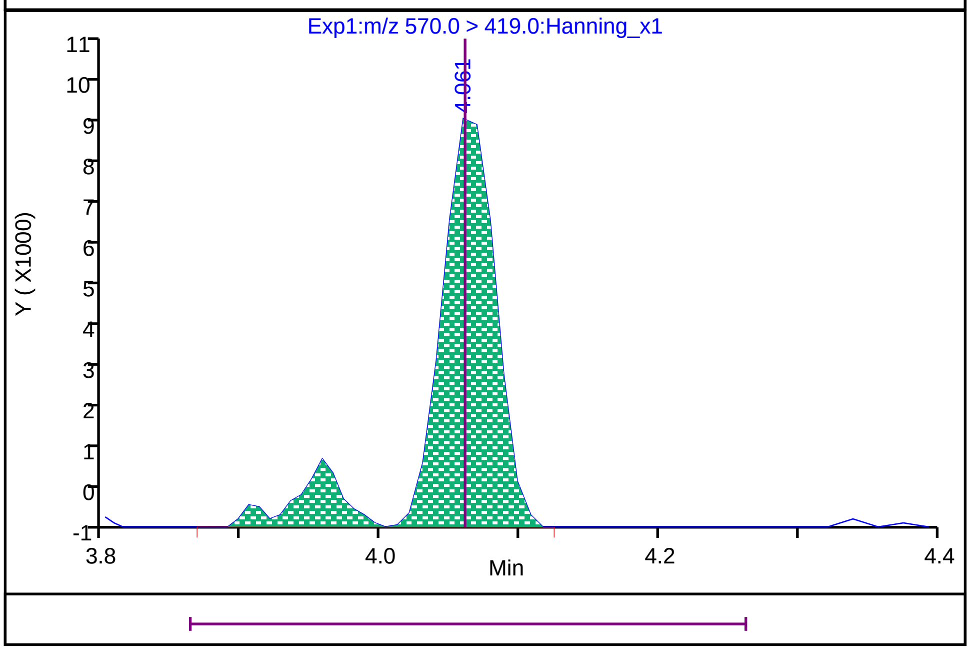
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.061
Area: 25498
Amount: 200.58
Amount Units: ng/L



RT: 4.061
Area: 26081
Amount: 196.37
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:37:57

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d		
Injection Date:	06-Nov-2021 15:11:07	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	4
Sample Info:	ICAL 500_SVLC-1743	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.727	1.725	1	1111939	19	>100:1			1000.00	1014.38	100.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.733	1.732	1/0	607902	21	>100:1			500.00	513.01		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.108	2.105	1	1067233	15	>100:1			1000.00	1046.21	103.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.108	2.105	1/0	570496	14	>100:1			500.00	498.01		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.161	2.169	0	342772	15	>100:1			1000.00	1015.81	100.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.161	2.169	0/0	208891	15	>100:1	Target = 3.83		442.00	430.51		
298.9 > 99	44	2.161	2.169		54601	23	>100:1	3.82 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.523	2.529	0/0	166177	18	>100:1	Target = 3.47		469.00	484.35		
349 > 99	44	2.523	2.529		47739	16	>100:1	3.48 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.452	2.449	1	220468	16	>100:1			5000.00	4721.26	95.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.452	2.449	1/0	42916	17	>100:1	Target = 1.39		467.00	523.46		
327 > 81	63	2.452	2.449		29226	18	36:1	1.46 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.493	0	978116	17	>100:1			1000.00	1072.50	107	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.493	1/1	469514	19	>100:1	Target = 17.15		500.00	472.29		
313 > 119	49	2.496	2.493		25643	17	91:1	18.30 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.617	2.614	1	782895	18	>100:1			5000.00	5318.80	114.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.617	2.622	0/-1	111835	19	>100:1	Target = 0.72		1000.00	957.53		
285 > 185	66	2.617	2.622		159354	19	>100:1	0.70 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.878	1	914914	17	>100:1			1000.00	1033.96	101.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.878	1/0	423996	17	>100:1	Target = 3.21		500.00	485.09		
363 > 169	47	2.881	2.878		135605	16	>100:1	3.12 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.899	2.896	1	281844	18	>100:1			1000.00	1019.03	102.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.899	2.896	1/0	147868	25	>100:1	Target = 3.35	5.15	455.00	455.13		
399 > 99	45	2.899	2.896		45844	25	>100:1	3.22 (1.67-5.04)	7.71				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.916	2.923	0/-1	722125	18	>100:1	Target = 2.38		471.00	483.24		
377 > 85	45	2.916	2.923		296397	18	>100:1	2.43 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.226	1/0	143703	20	>100:1	Target = 3.87		476.00	479.08		
449 > 99	45	3.234	3.226		43378	19	>100:1	3.31 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.201	1	208363	21	>100:1			5000.00	5055.46	96.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.202	3.201	1/0	34084	26	>100:1	Target = 1.26		474.00	492.41		
427 > 81	64	3.202	3.201		27460	17	32:1	1.24 (0.63-1.89)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.220	1	916655	20	>100:1			1000.00	1088.12	108.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.226	1/0	457211	20	>100:1	Target = 2.46		500.00	498.77		
413 > 169	53	3.227	3.226		183402	19	>100:1	2.49 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.560	3.558	1	238682	18	>100:1			1000.00	1007.41	100.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.567	3.558	0/-1	133581	42	>100:1	Target = 3.98	3.35	464.00	481.04		M
499 > 99	54	3.567	3.558		34435	38	>100:1	3.87 (1.99-5.97)	8.34				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.757	3.755	1/0	346019	21	>100:1			466.00	479.71		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.896	3.886	1/0	111883	19	>100:1	Target = 3.57		480.00	492.27		
549 > 99	54	3.888	3.886		33274	22	>100:1	3.36 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.192	4.191	1/0	103508	16	>100:1	Target = 3.73		482.00	462.66		
599 > 99	54	4.192	4.191		28116	21	>100:1	3.68 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.349	1/0	255875	15	>100:1			471.00	444.81		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.700	4.698	1/0	93584	17	>100:1	Target = 3.44		484.00	485.53		
699 > 99	54	4.700	4.698		23620	17		3.96 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.567	3.565	1	800324	19	>100:1			1000.00	986.42	94.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.574	3.565	1/0	367382	18	>100:1	Target = 4.45		500.00	514.67		
463 > 169	56	3.574	3.565		84253	24	>100:1	4.36 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.881	3.872	1	408777	20	>100:1			1000.00	984.08	95.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.874	3.872	1/0	235425	18	>100:1	Target = 47.73		500.00	528.57		
498>478	55	3.874	3.872		7001	23	28:1	33.62 (23.86-71.60)					J
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.896	3.894	1	180708	20	>100:1			5000.00	5189.45	101.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.896	3.894	1/0	31623	19	>100:1	Target = 1.41		479.00	530.27		
527 > 81	65	3.896	3.894		21876	21	48:1	1.44 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.495	4.494	1/0	38065	23	>100:1	Target = 2.81		482.00	496.51		
627 > 80	65	4.495	4.494		16688	18		2.28 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.903	3.901	1	761493	18	>100:1			1000.00	1064.37	98.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.903	3.901	1/0	380865	20	>100:1	Target = 9.36		500.00	489.70		
513 > 169	51	3.903	3.901		40268	17	>100:1	9.45 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.054	4.053	1	840596	21	>100:1			5000.00	5198.86	106.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.064	4.062	1/0	67284	30	>100:1	Target = 1.42	8.05	500.00	495.90		
570 > 483	58	4.064	4.062		44030	32	>100:1	1.52 (0.71-2.13)	3.58				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.207	1	766443	17	>100:1			5000.00	5300.75	102.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.224	4.223	1/0	70368	34	>100:1	Target = 1.80	6.56	500.00	465.36		M
584 > 526	60	4.224	4.223		40335	33	>100:1	1.74 (0.90-2.70)	3.93				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.207	1	706240	16	>100:1			1000.00	1005.71	98.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.207	1/0	305046	19	>100:1	Target = 8.65		500.00	479.62		
563 > 169	52	4.208	4.207		37705	15	>100:1	8.09 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.296	4.295	1	118135	14	>100:1			1000.00	962.63	95.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.314	4.304	1/0	58407	19	>100:1			500.00	484.83		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.323	4.313	1	66463	15	>100:1			1000.00	1034.45	104.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.323	4.322	1/0	36256	21	>100:1	Target = 1.09		500.00	503.55		
512 > 219	57	4.323	4.322		31819	18	>100:1	1.13 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.464	4.463	1	117430	15	>100:1			1000.00	1033.42	106.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.480	4.479	1/0	47883	15	>100:1			500.00	492.67		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.488	4.486	1	686782	16	>100:1			1000.00	986.66	99.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.488	4.486	1/0	358730	17	>100:1	Target = 6.94		500.00	520.03		
613 > 169	38	4.488	4.486		47919	15	>100:1	7.48 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.729	4.727	1/0	156848	16	>100:1	Target = 2.82		500.00	517.37		
663 > 169	38	4.729	4.727		55847	17	>100:1	2.80 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.488	4.486	1	60059	21	>100:1			1000.00	995.56	93.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.495	4.494	1/0	35528	17	>100:1	Target = 1.11		500.00	495.27		
526 > 219	59	4.495	4.494		28838	19	>100:1	1.23 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.943	4.942	1	758521	17	>100:1			1000.00	1016.62	100.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.951	4.942	1/0	328682	17	99:1	Target = 7.23		500.00	502.21		
713 > 169	42	4.951	4.942		46221	17	>100:1	7.11 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.324	5.323	1	337584	16	>100:1			1000.00	970.36	98.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.332	5.331	1/0	314083	17	84:1	Target = 12.24		500.00	505.98		
813 > 269	40	5.324	5.331		25091	17	>100:1	12.51 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.672	5.678	1/0	231012	21	75:1	Target = 148.06		500.00	506.41		
913 > 319	40	5.665	5.678		1692	27	>100:1	136.53 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.903	3.901	1	763108	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.493	0	930447	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.226	1	910152	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.733	1.732	1	1062866	18	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.560	3.558	1	250691	18	>100:1			1000.00			

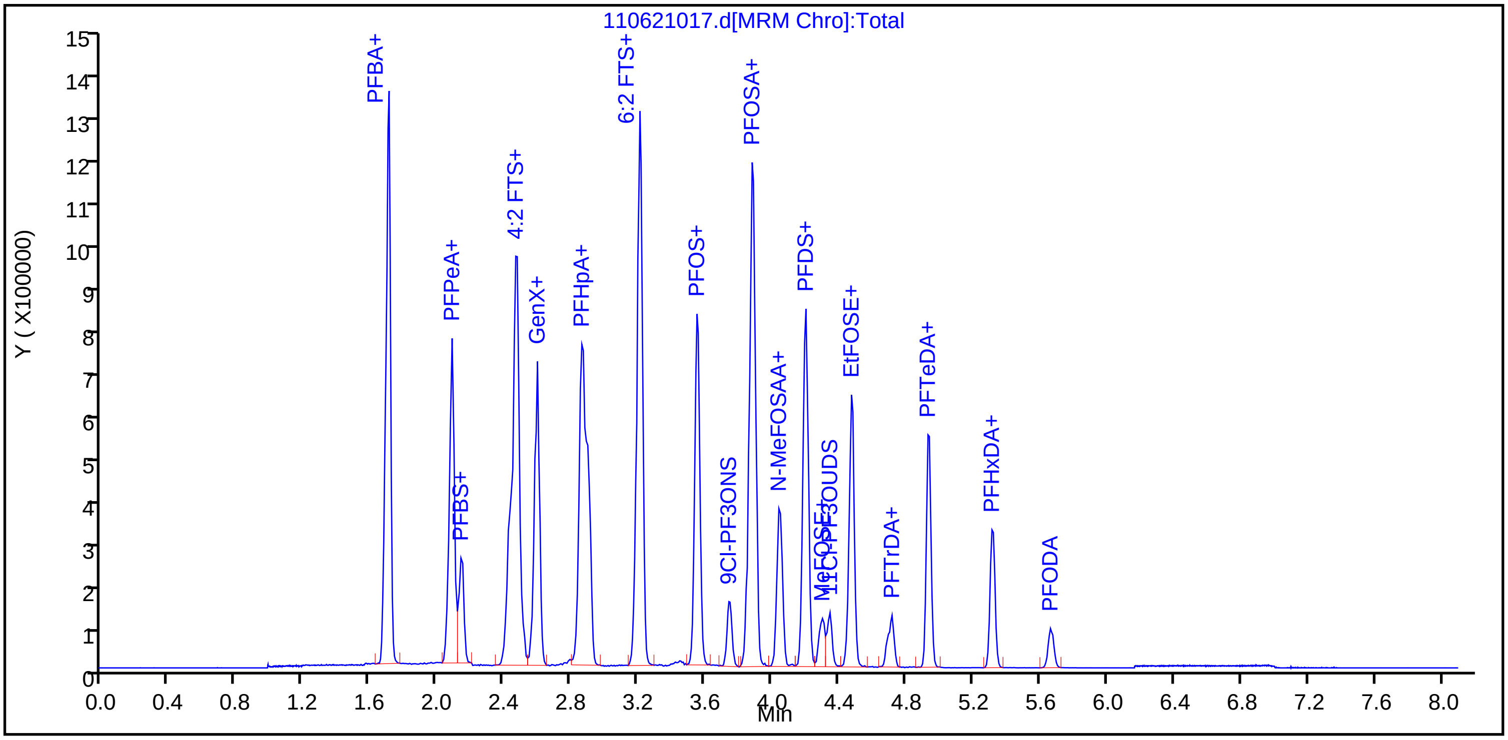
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

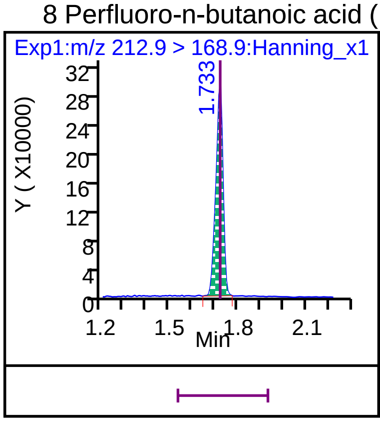
Report Date: 09-Nov-2021 13:30:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

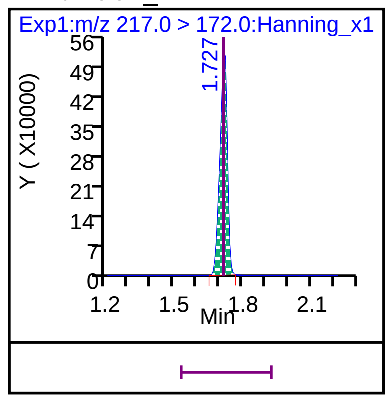
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d		
Injection Date:	06-Nov-2021 15:11:07	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1743
Sample Info:	ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Matthew M. Miller



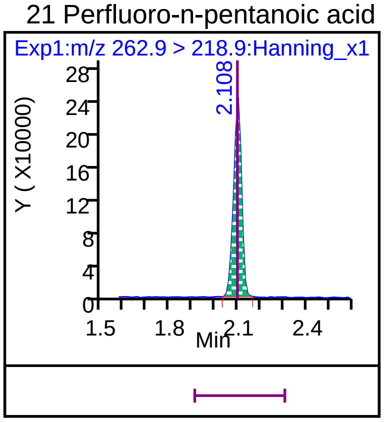
8 Perfluoro-n-butanoic acid (PFBA)



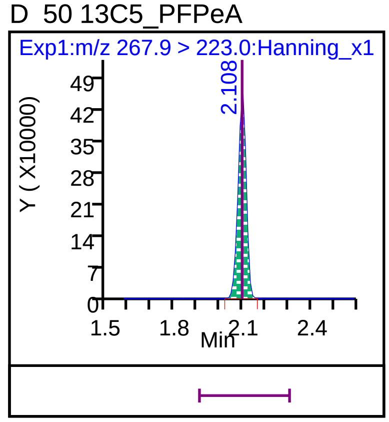
D 46 13C4_PFBA



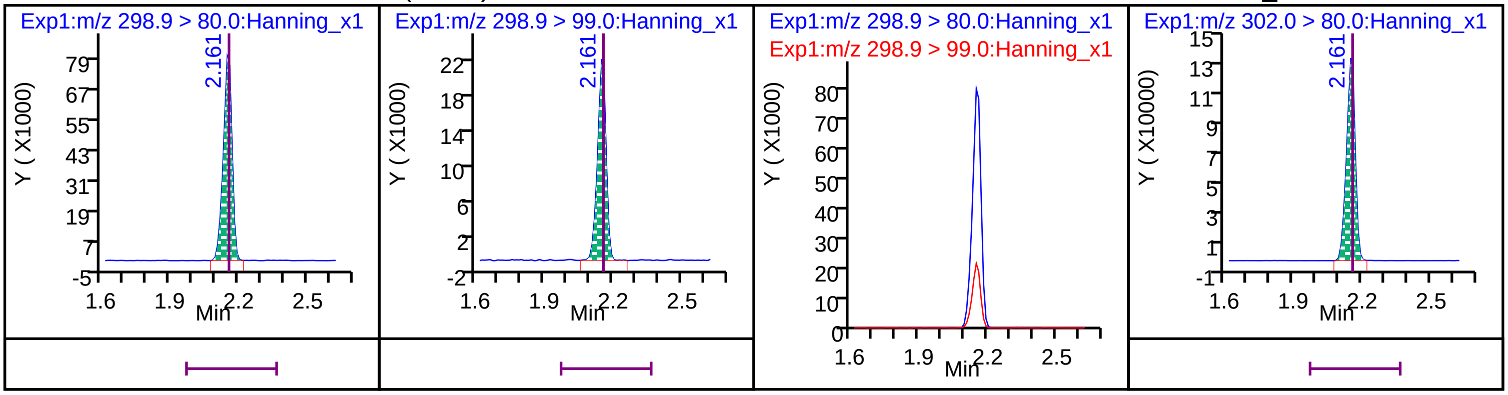
21 Perfluoro-n-pentanoic acid (PFPeA)



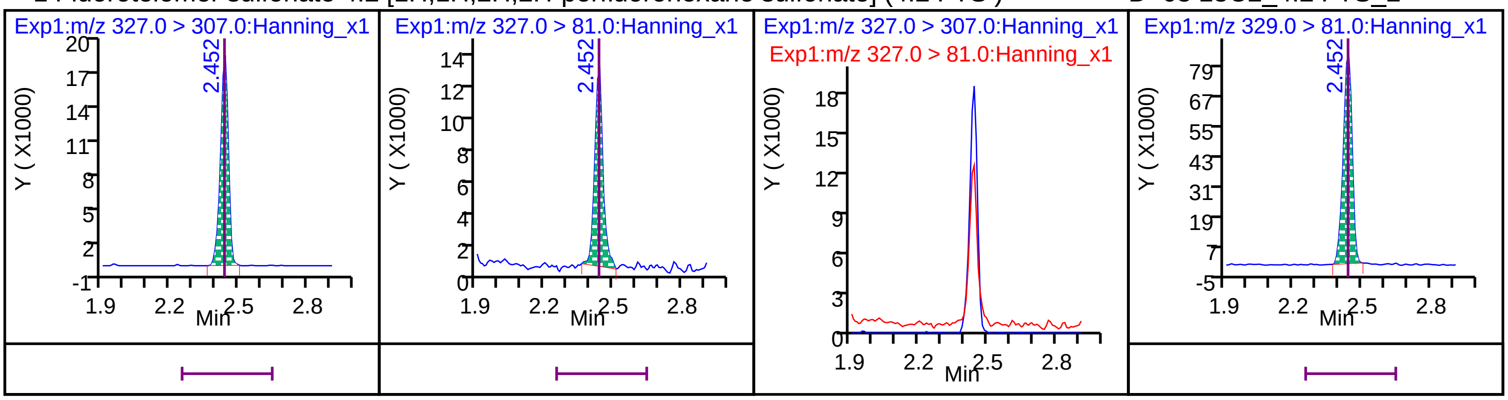
D 50 13C5_PFPeA



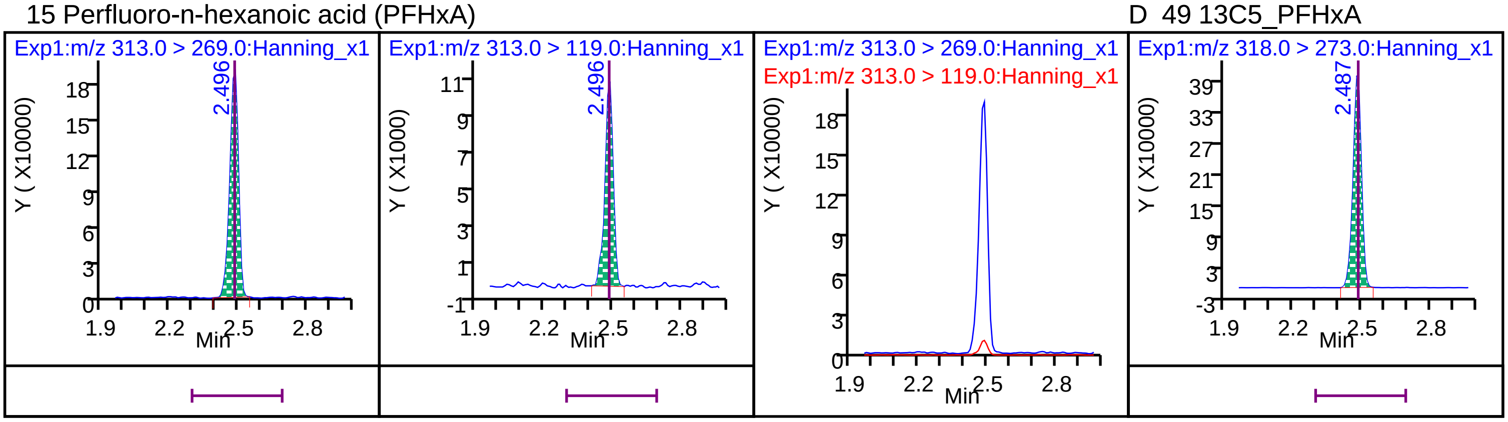
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



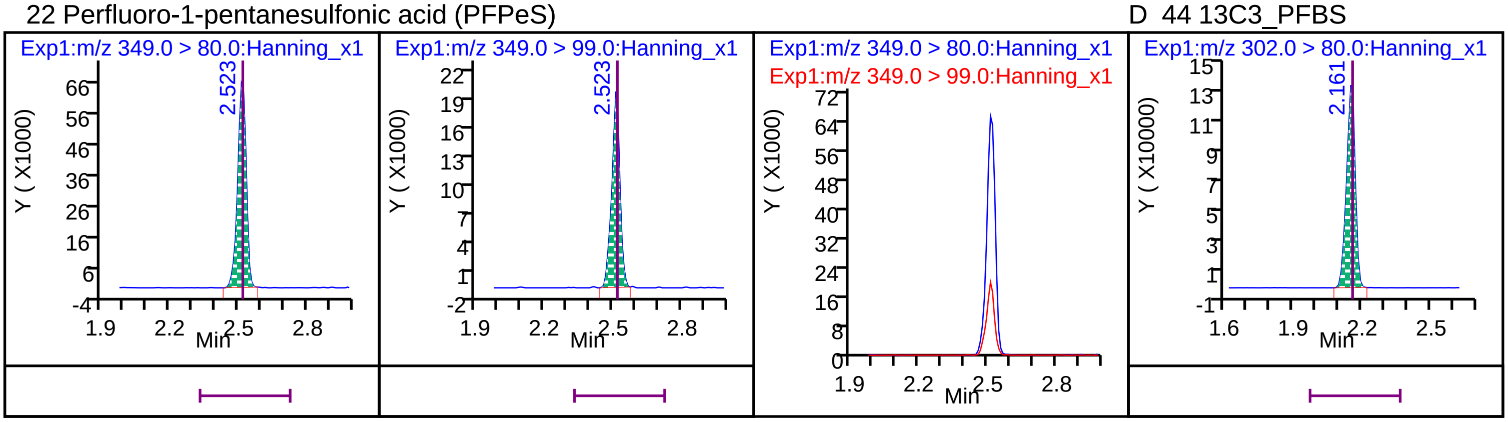
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

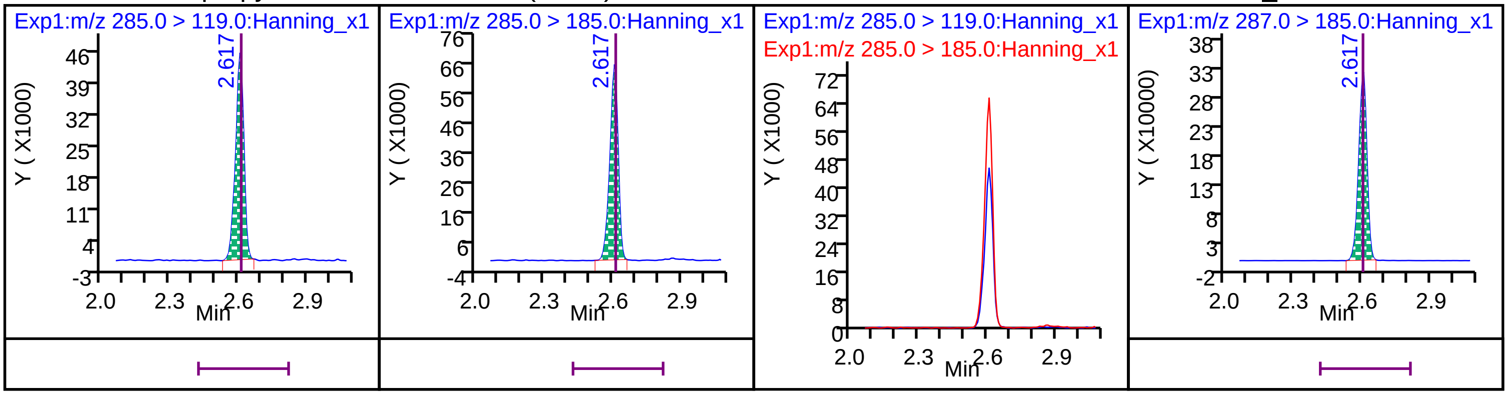


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

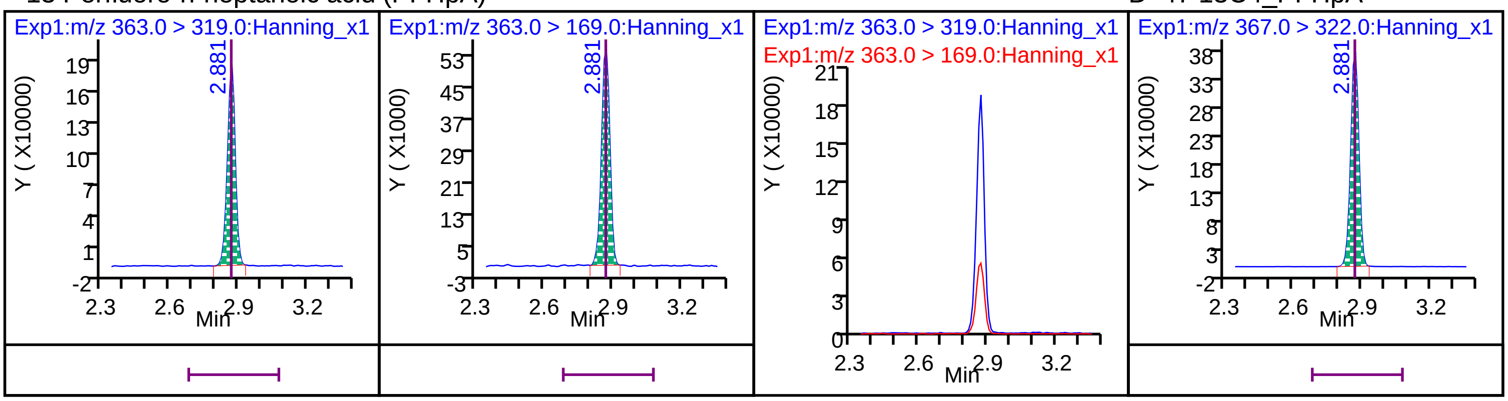


Report Date: 09-Nov-2021 13:30:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d

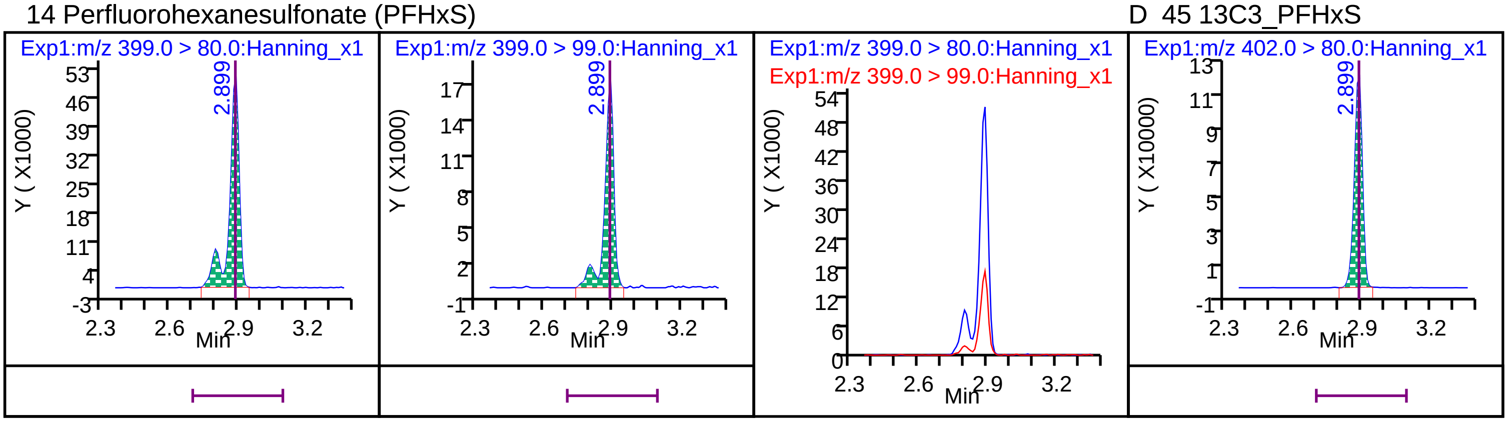
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



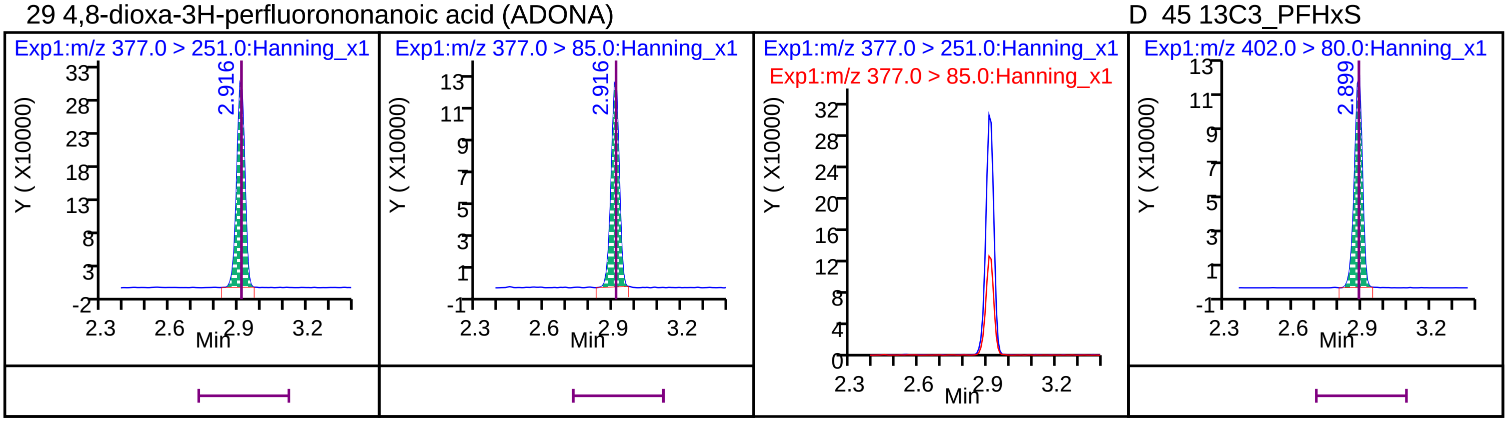
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

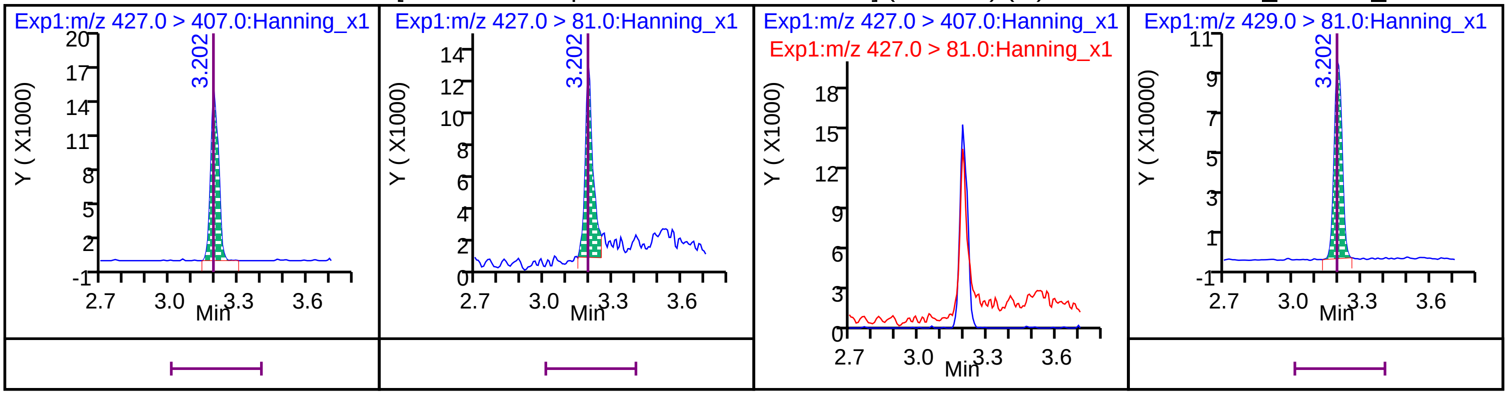


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

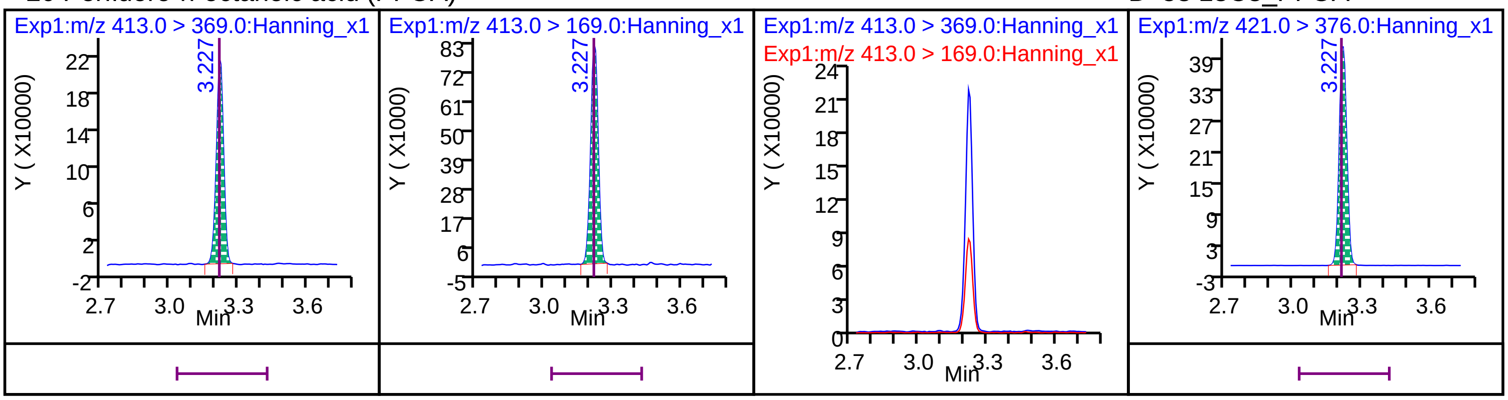


Report Date: 09-Nov-2021 13:30:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d

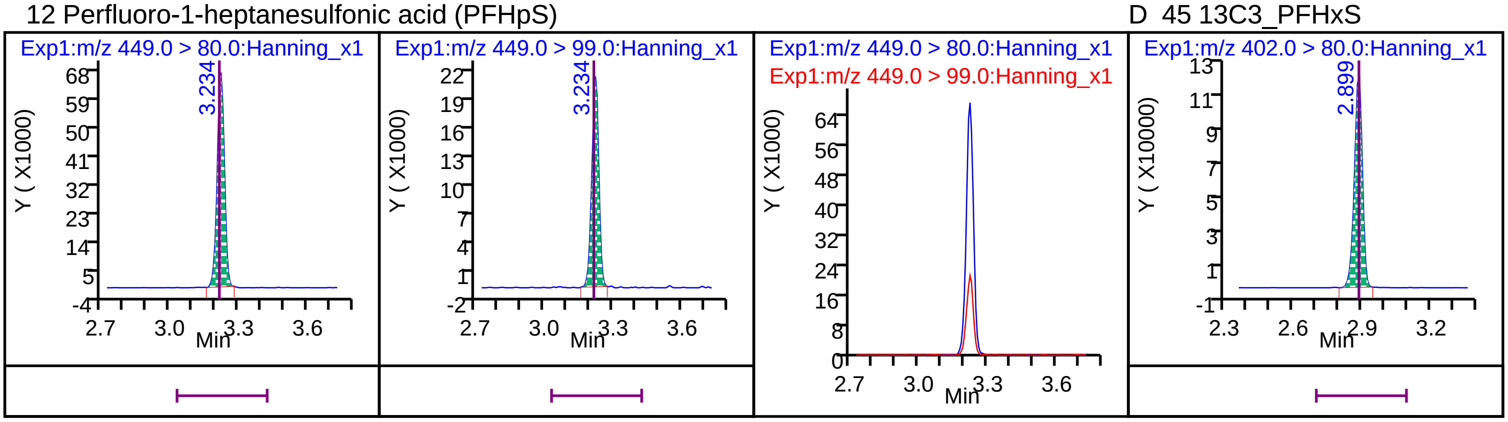
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



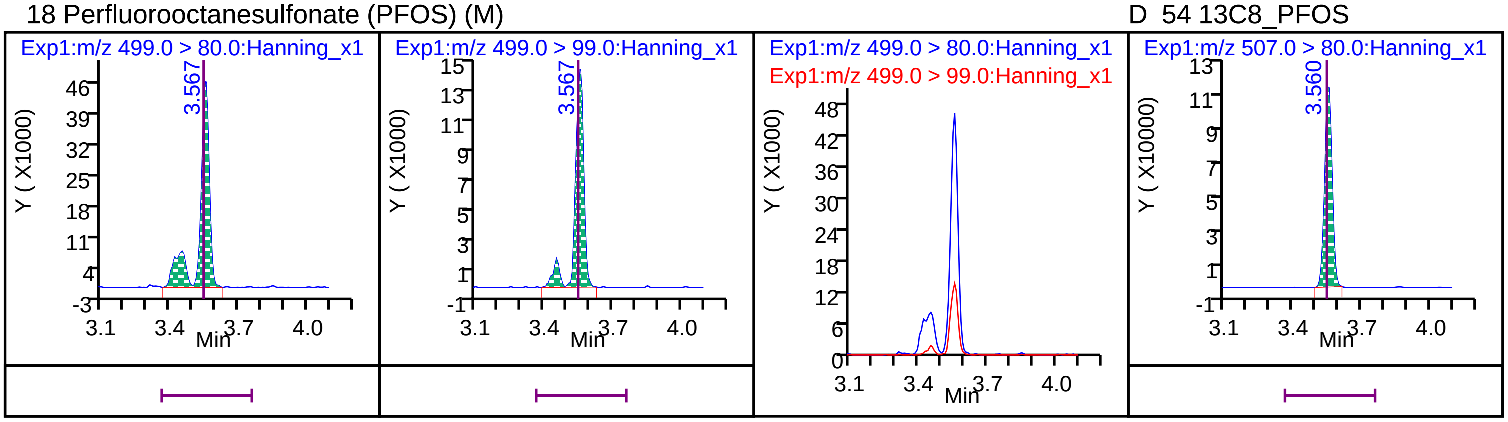
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

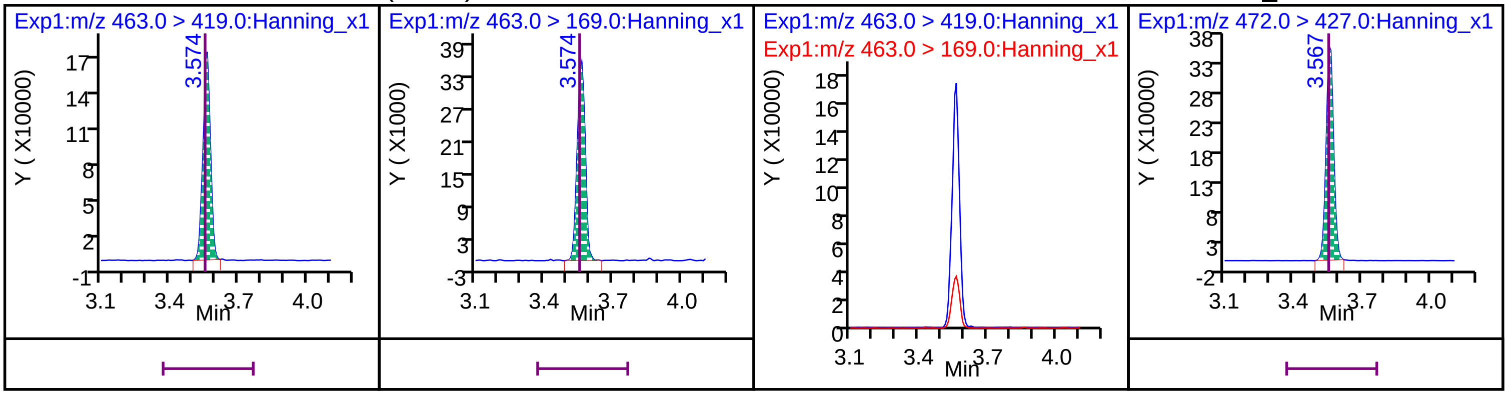


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

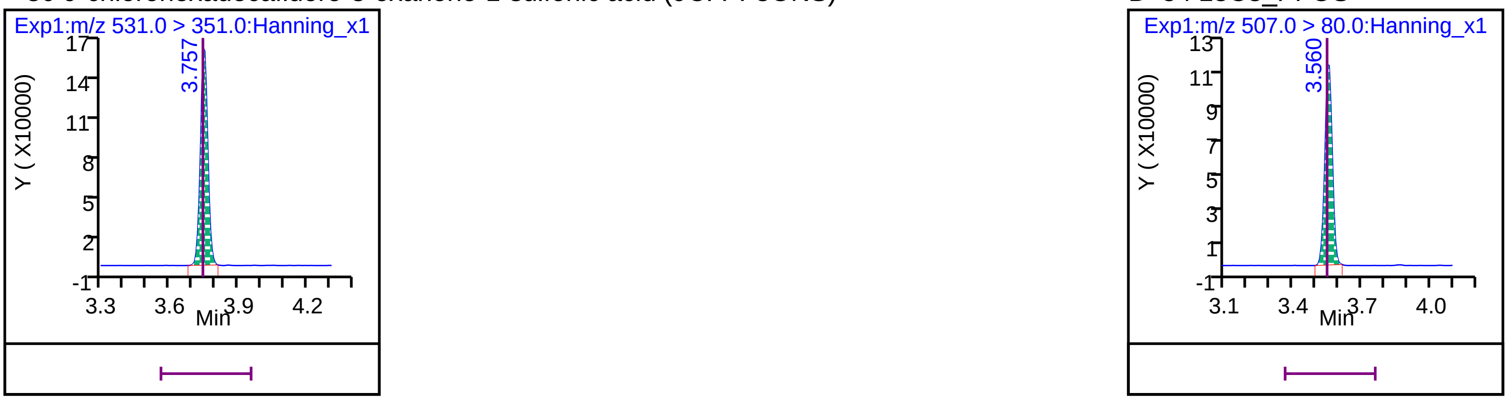


Report Date: 09-Nov-2021 13:30:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d

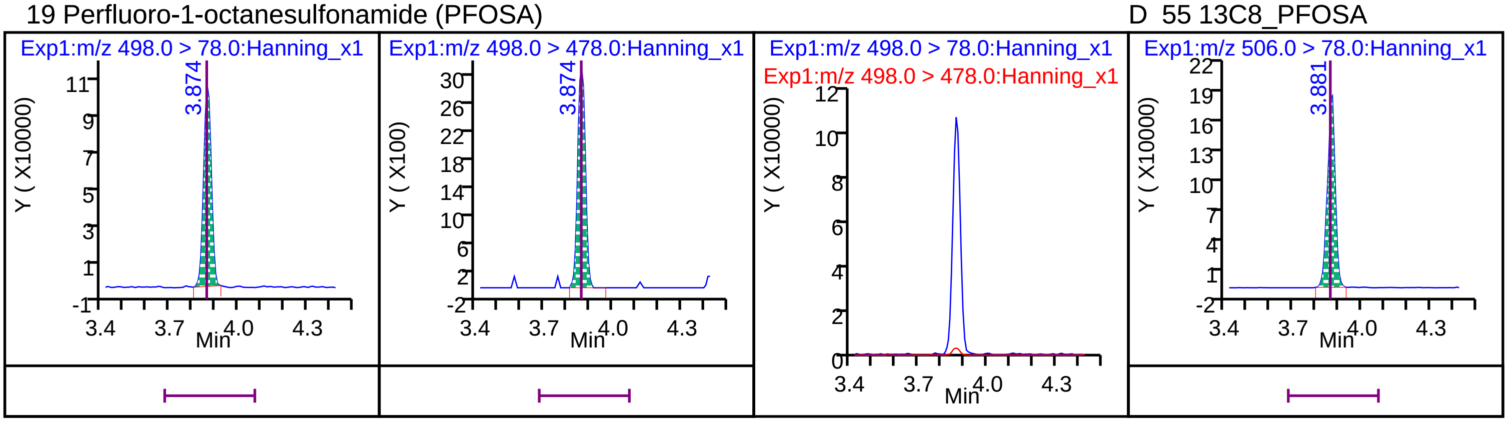
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



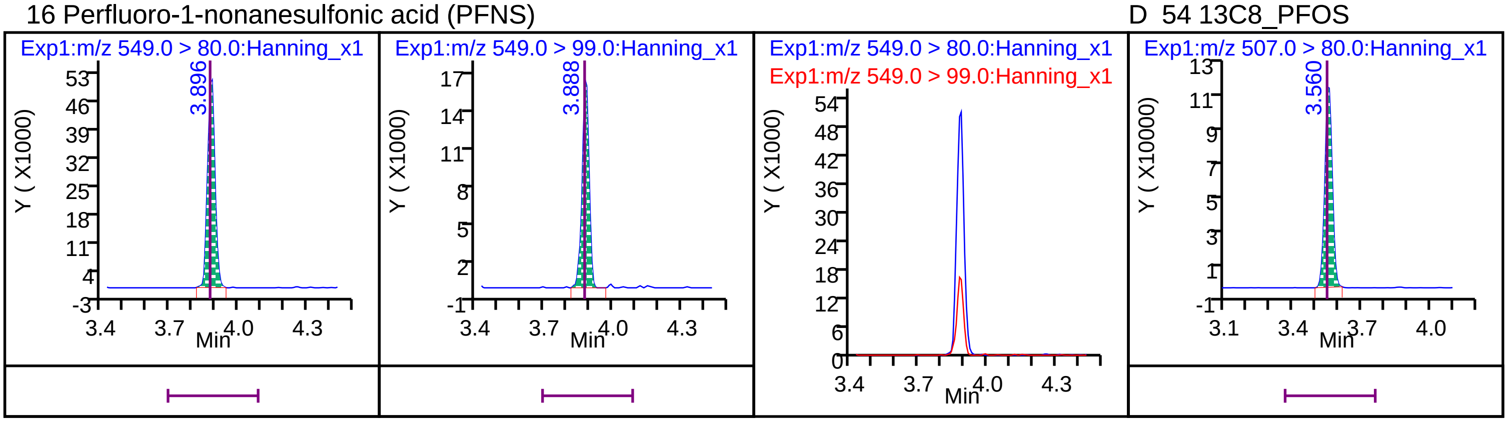
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



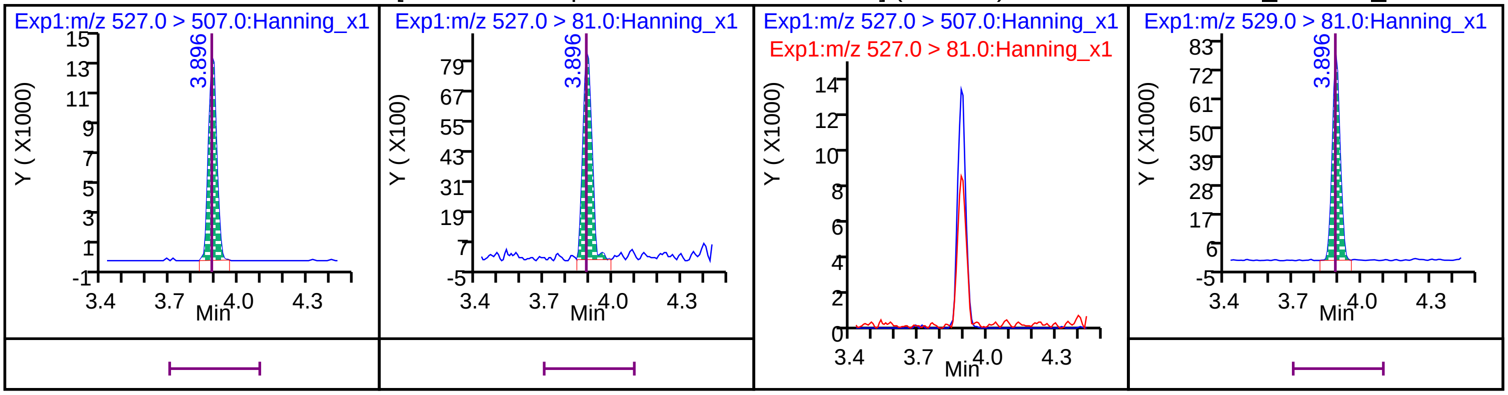
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



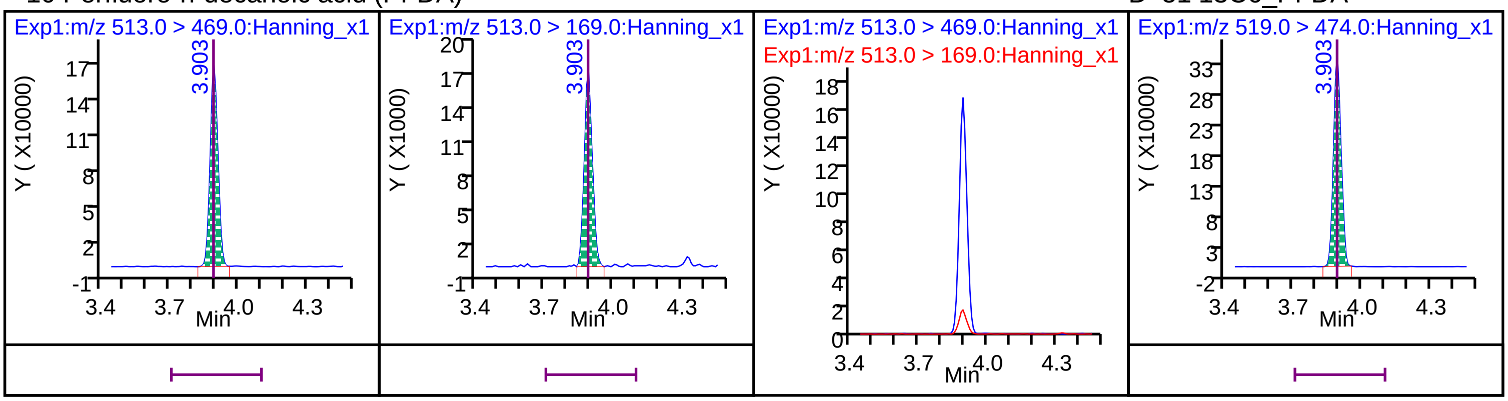
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



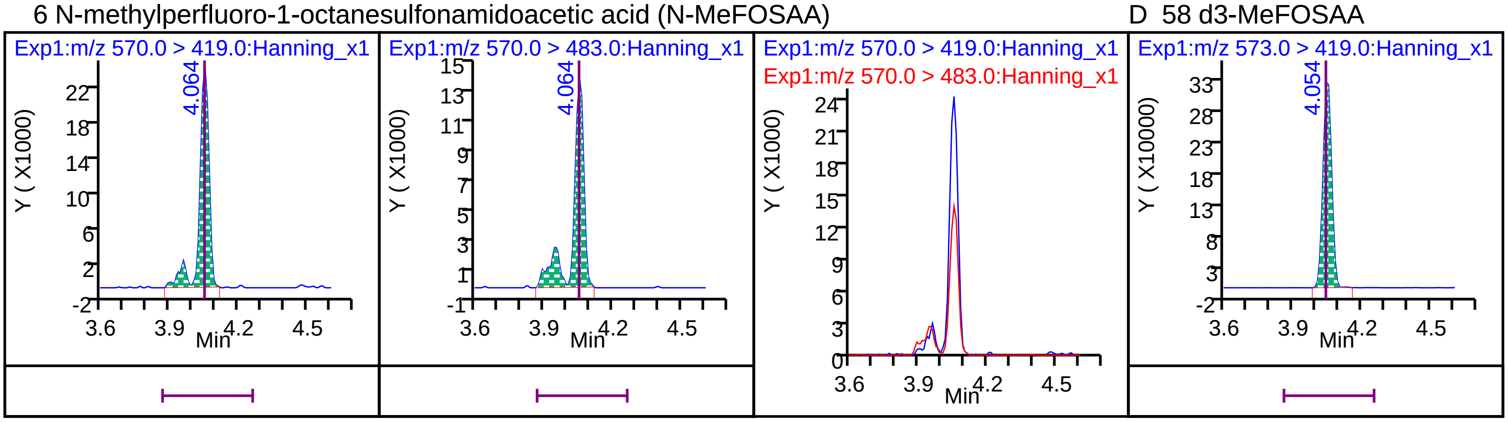
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



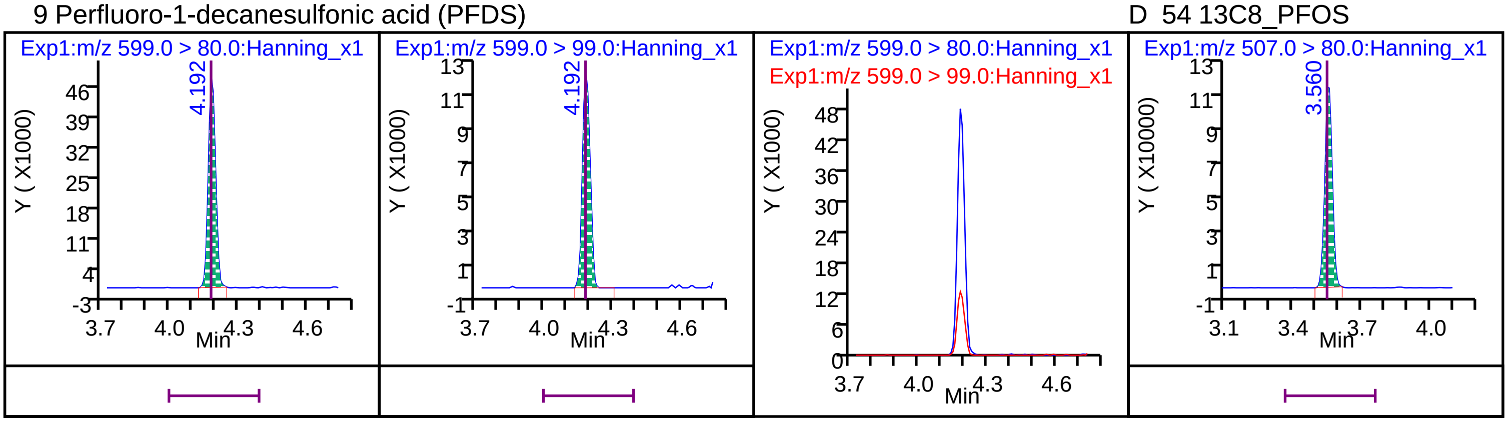
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



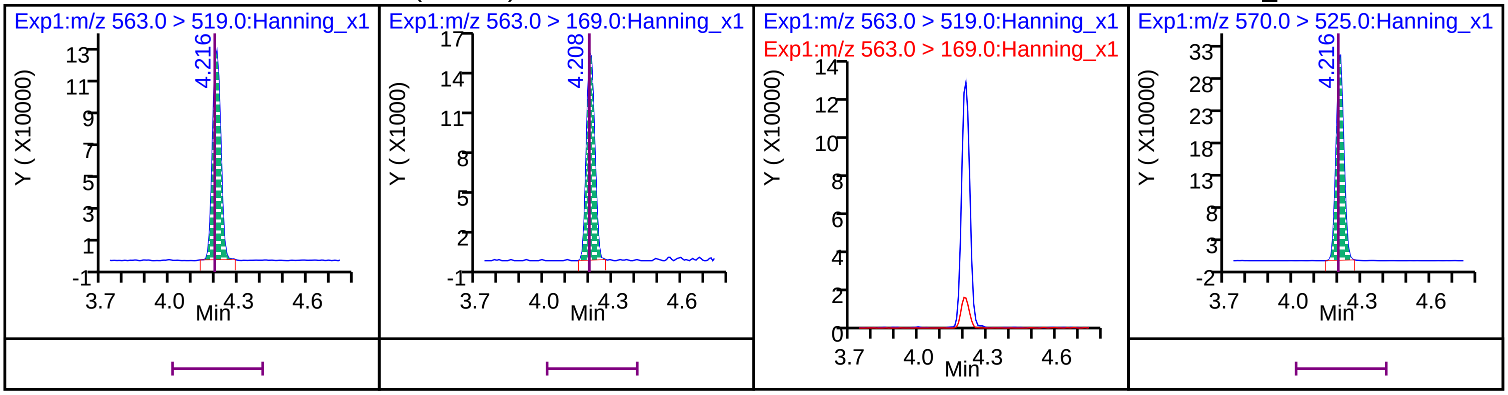
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



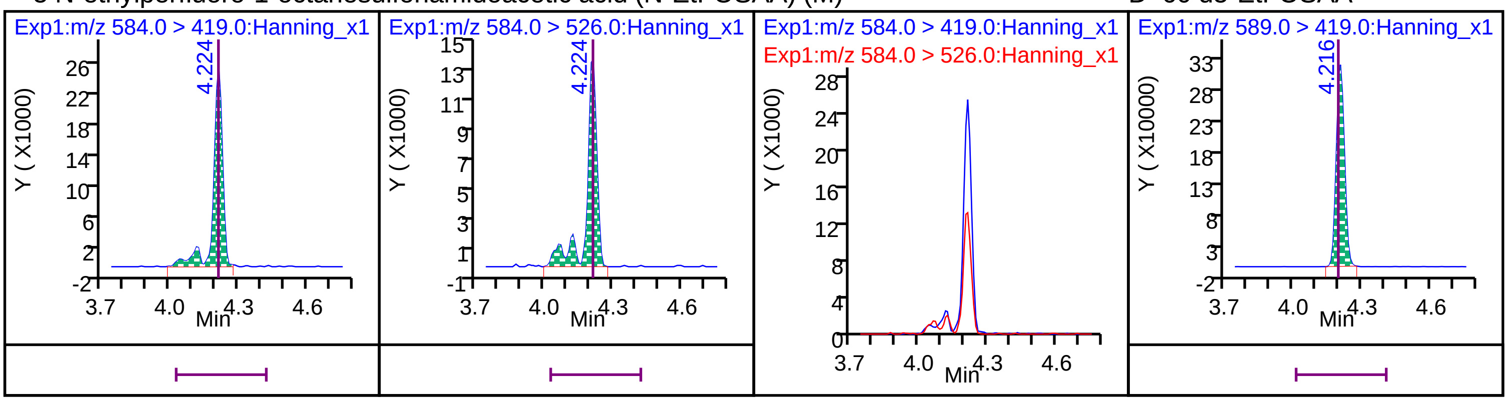
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

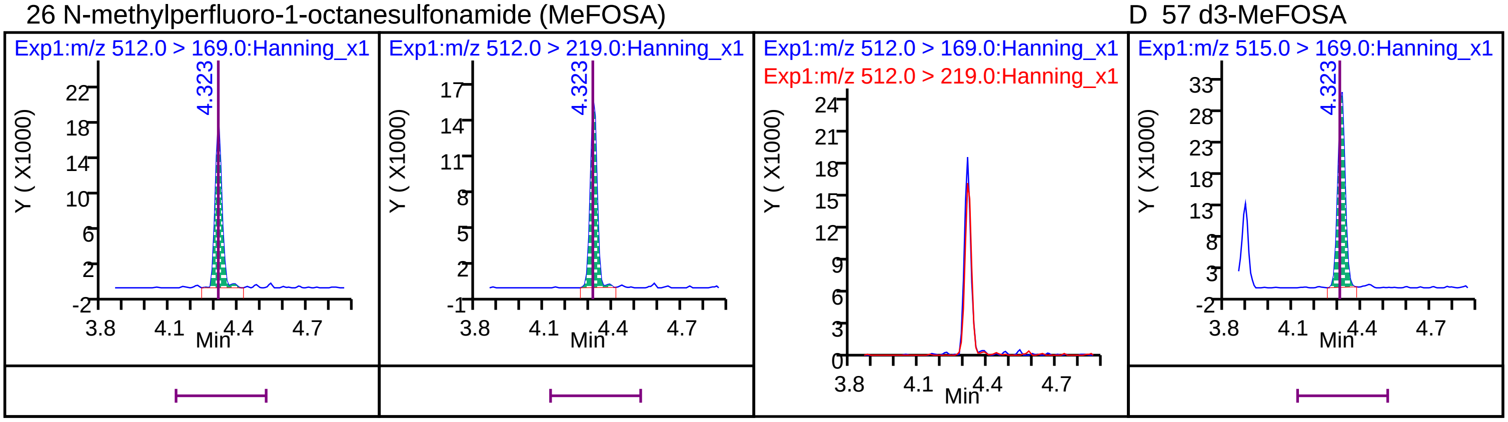


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



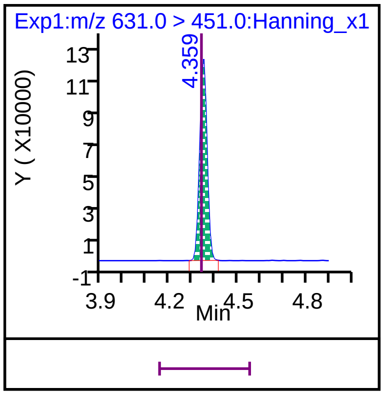
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

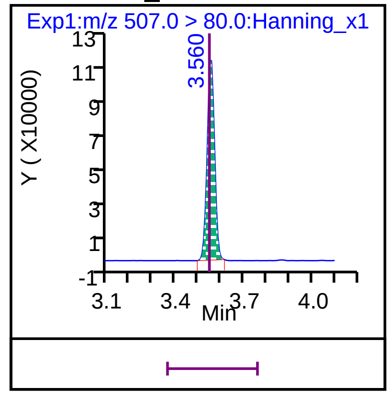


Report Date: 09-Nov-2021 13:30:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d

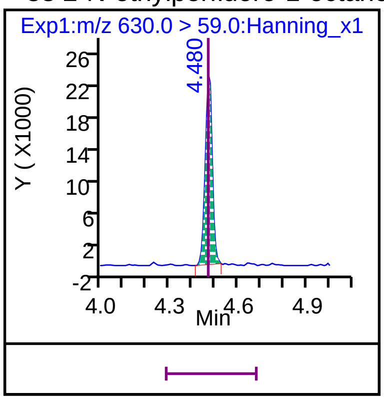
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



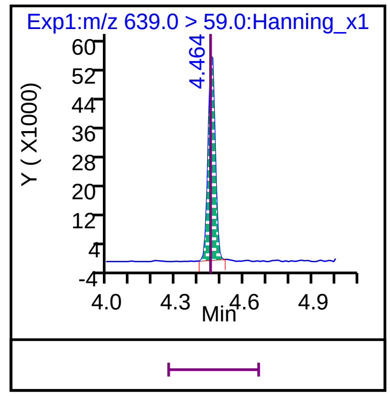
D 54 13C8_PFOS



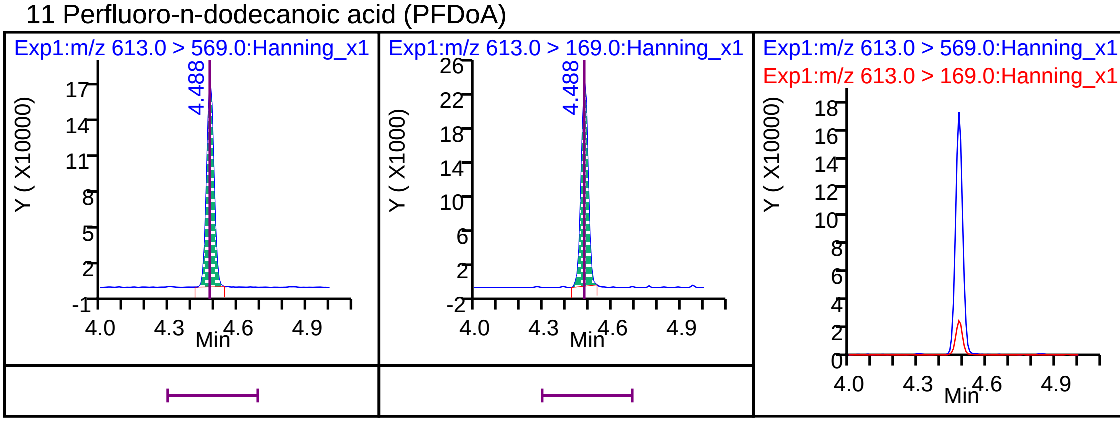
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



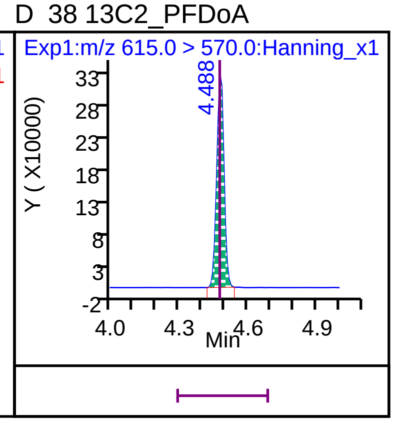
D 62 d9-EtFOSE



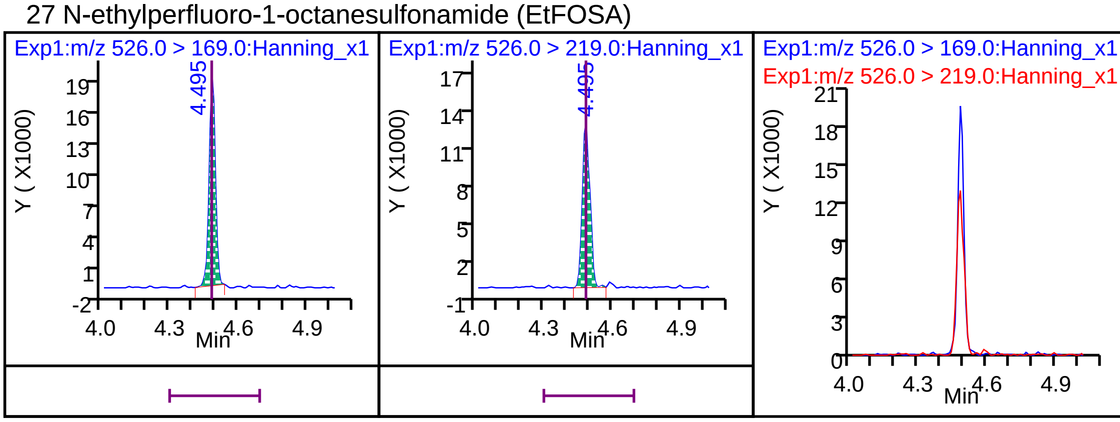
11 Perfluoro-n-dodecanoic acid (PFDoA)



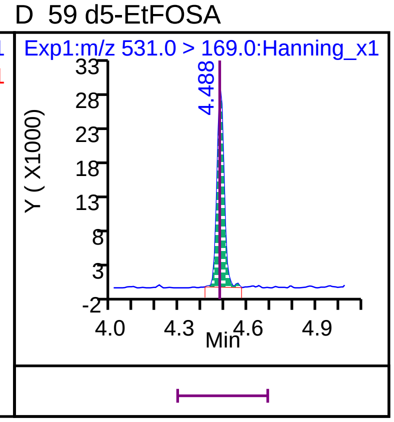
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

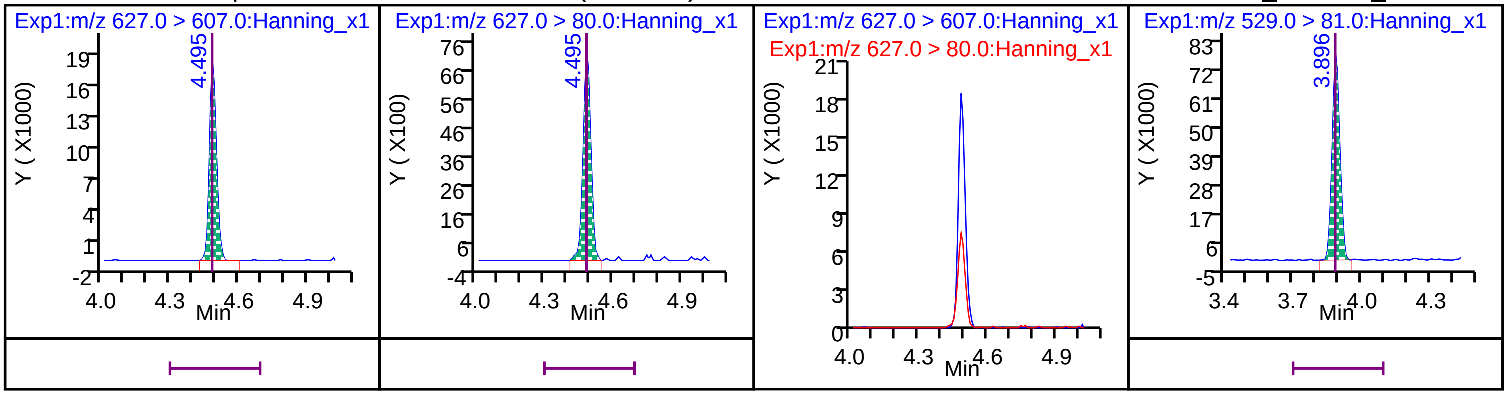


D 59 d5-EtFOSA

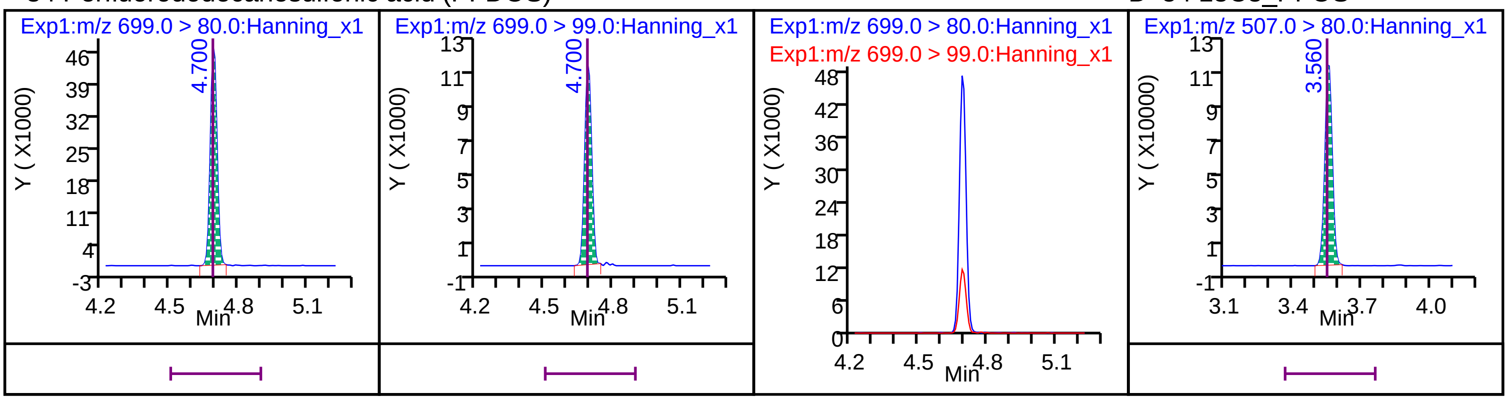


Report Date: 09-Nov-2021 13:30:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d

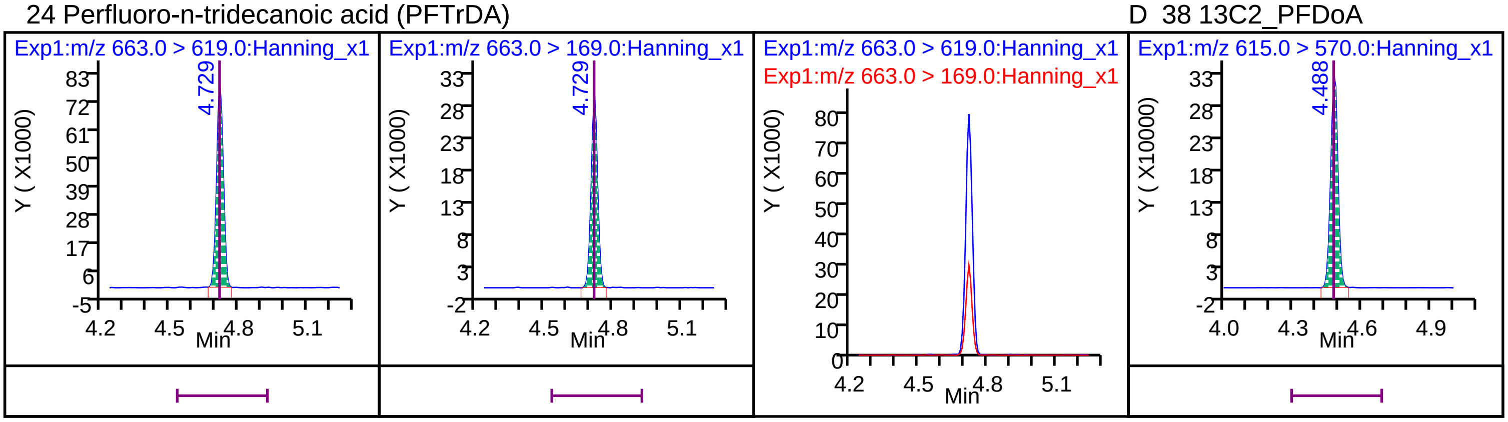
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



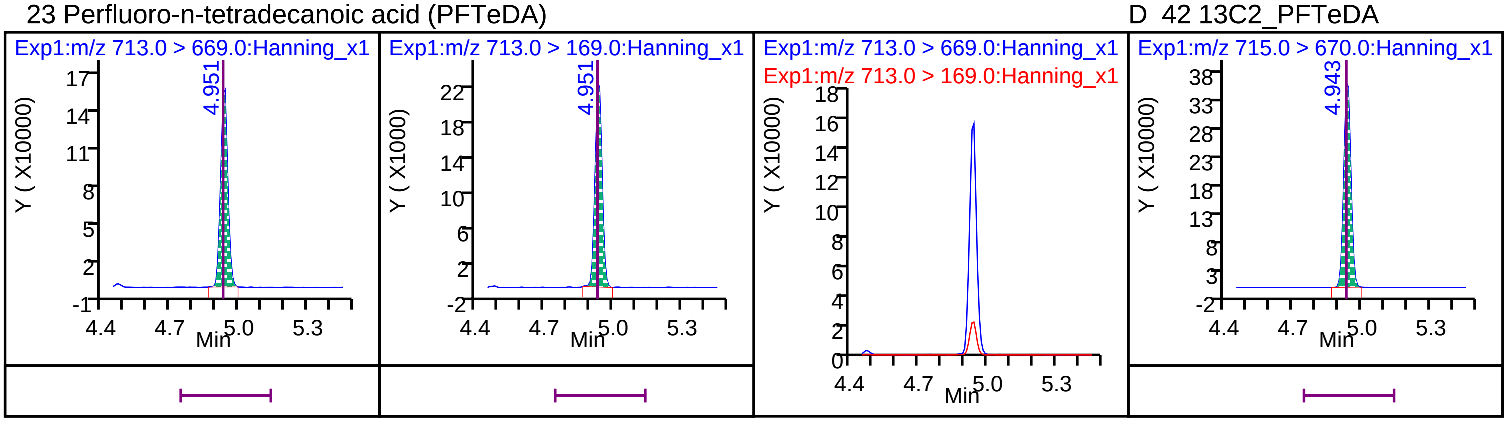
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



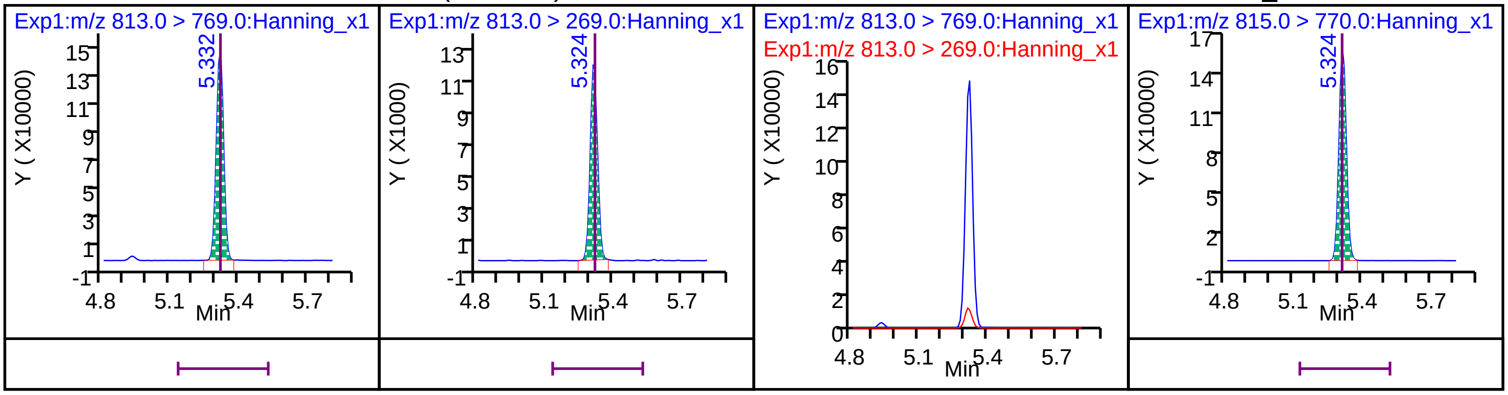
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



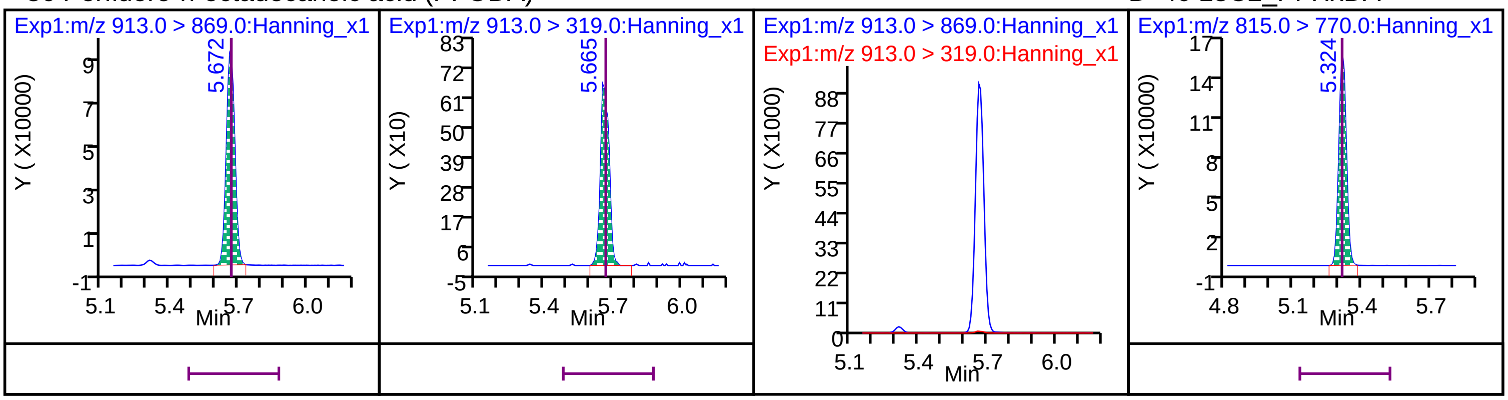
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



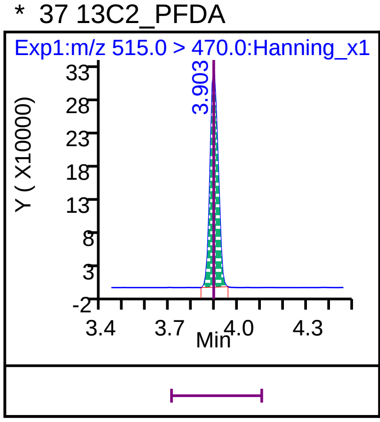
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



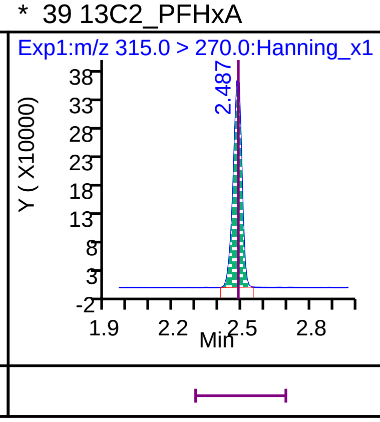
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



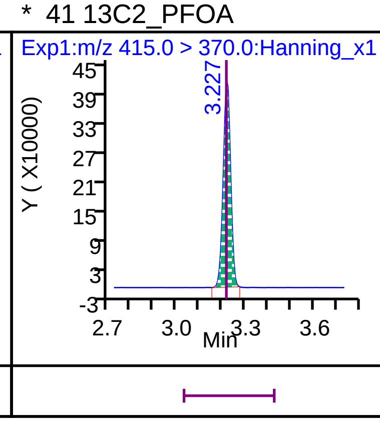
* 37 13C2_PFDA



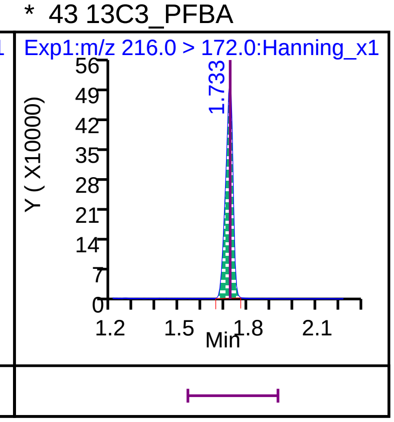
* 39 13C2_PFHxA



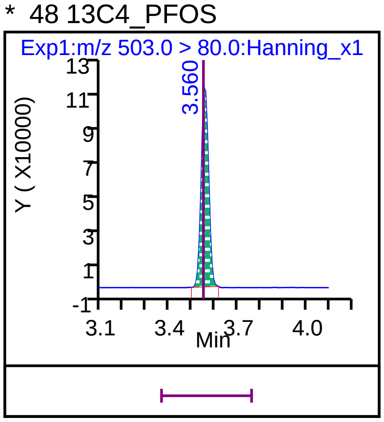
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:41 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

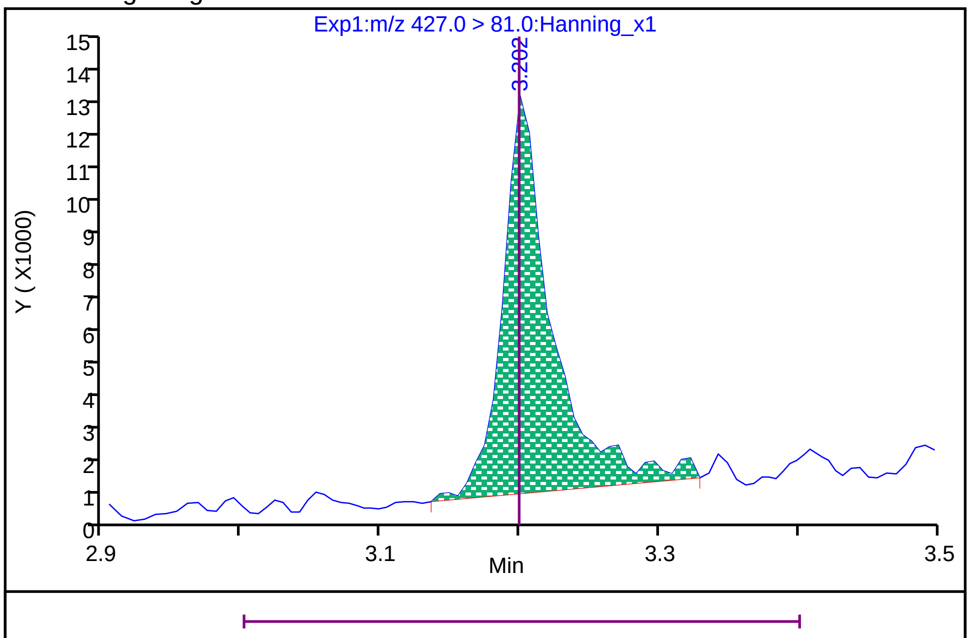
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d		
Injection Date:	06-Nov-2021 15:11:07	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1743
Sample Info:	ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Matthew M. Miller

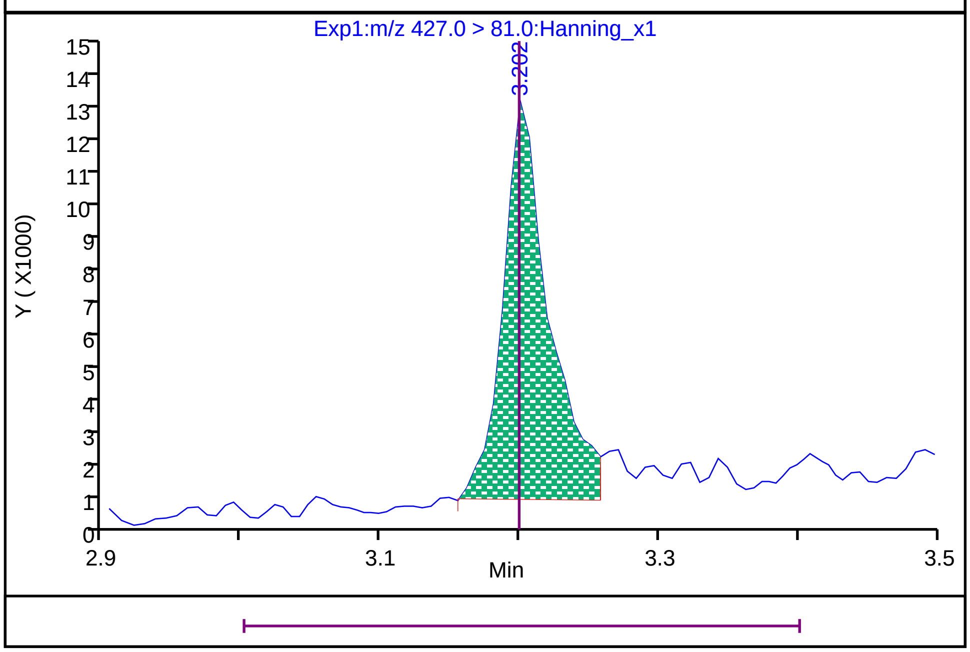
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT:	3.202
Area:	29848
Amount:	492.41
Amount Units:	ng/L



RT:	3.202
Area:	27460
Amount:	492.41
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:41:42

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:41 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d

Injection Date: 06-Nov-2021 15:11:07 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ICAL 500_SVLC-1743

Sample Info: ICAL 500_SVLC-1743

Dil. Factor: 1 Operator: Matthew M. Miller

5 N-EtFOSAA, CAS: 2991-50-6

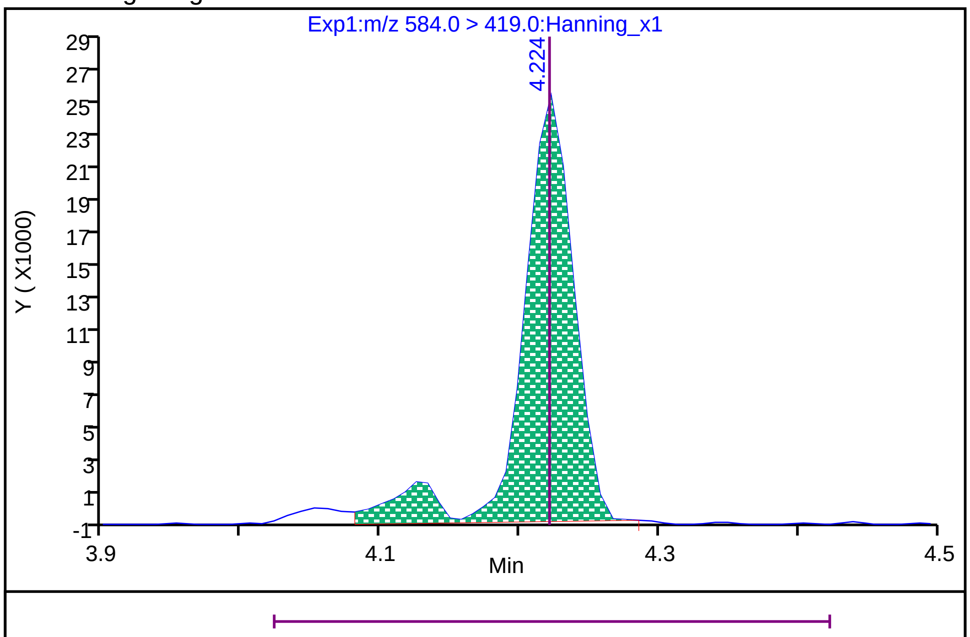
Processing Integration Results

RT: 4.224

Area: 65799

Amount: 437.79

Amount Units: ng/L

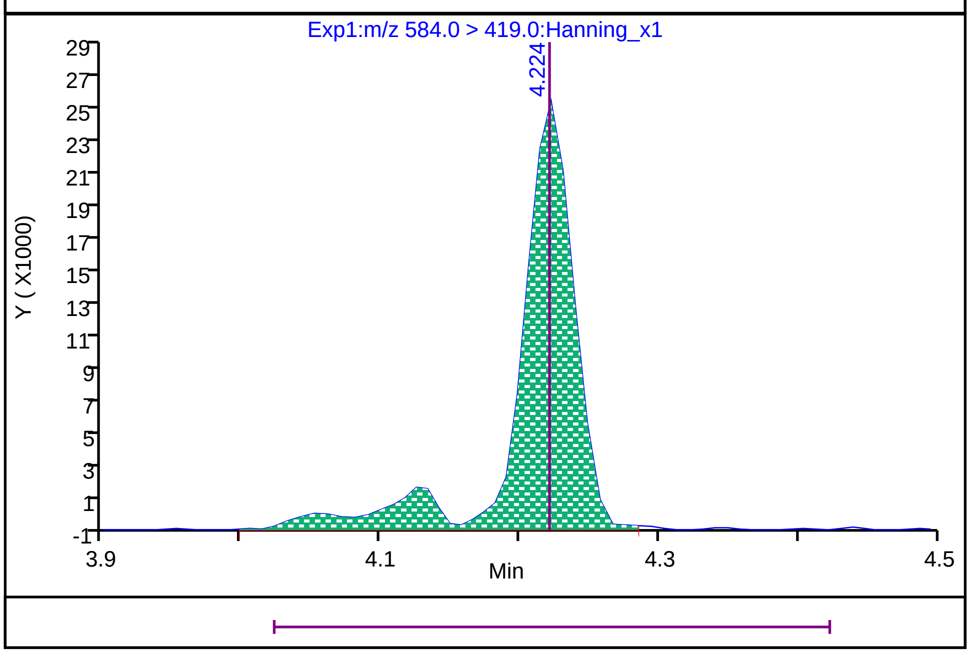


RT: 4.224

Area: 70368

Amount: 465.36

Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:44

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:41 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

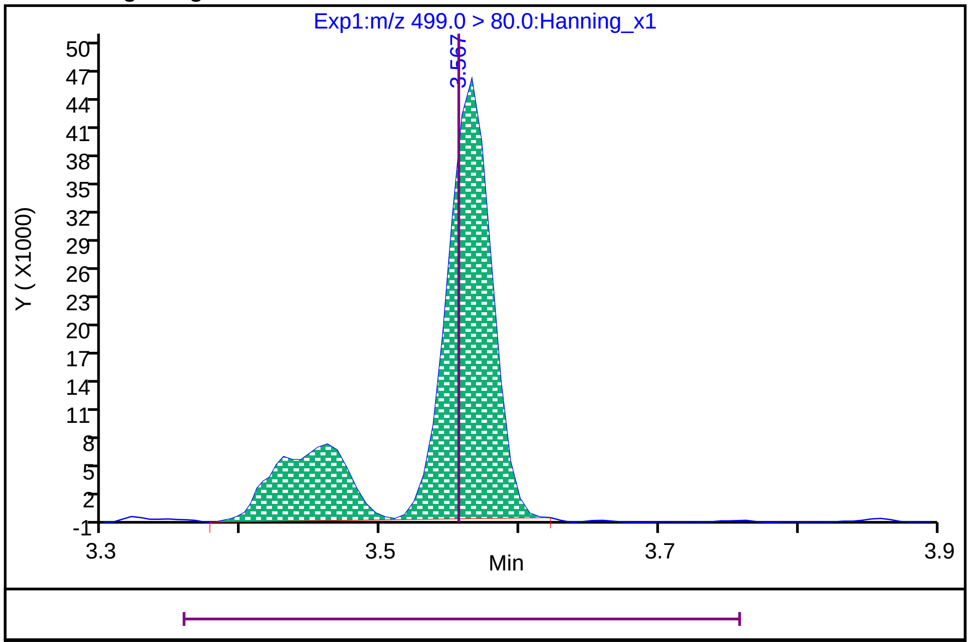
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621017.d		
Injection Date:	06-Nov-2021 15:11:07	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 500_SVLC-1743
Sample Info:	ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Matthew M. Miller

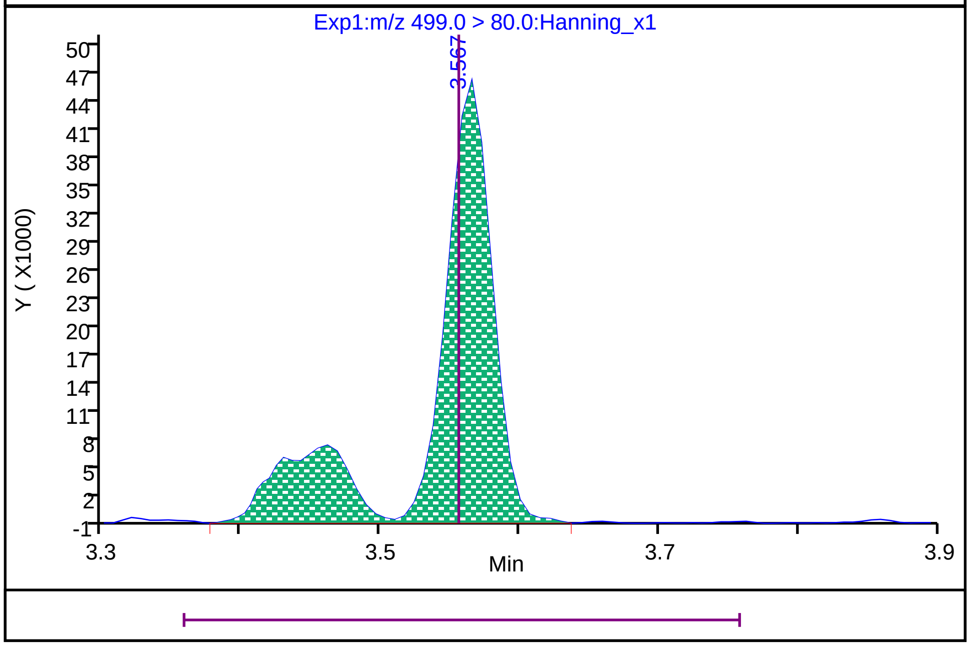
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.567
Area:	129892
Amount:	471.25
Amount Units:	ng/L



RT:	3.567
Area:	133581
Amount:	481.04
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:04

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d		
Injection Date:	06-Nov-2021 15:21:40	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	5
Sample Info:	ICAL 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1102554	19	>100:1			1000.00	1005.82	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	1126629	20	>100:1			1000.00	958.85		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1031391	17	>100:1			1000.00	1011.08	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	1121290	15	>100:1			1000.00	1012.83		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.169	2.169	0	340591	15	>100:1			1000.00	1009.35	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.169	2.169	0/0	388394	16	>100:1	Target = 3.83		884.00	805.58		
298.9 > 99	44	2.169	2.169		101131	15	>100:1	3.84 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.529	2.529	0/0	308237	17	>100:1	Target = 3.47		938.00	904.17		
349 > 99	44	2.529	2.529		87490	17	>100:1	3.52 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	231446	16	>100:1			5000.00	4956.35	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	0/0	73753	17	>100:1	Target = 1.39		934.00	856.92		
327 > 81	63	2.449	2.449		50896	22	50:1	1.44 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	914193	18	>100:1			1000.00	1002.41	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	0/0	871094	18	>100:1	Target = 17.15		1000.00	937.51		
313 > 119	49	2.493	2.493		51531	24	>100:1	16.90 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	0	686066	20	>100:1			5000.00	4660.97	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	0/0	198554	24	>100:1	Target = 0.72		2000.00	1939.96		
285 > 185	66	2.622	2.622		287509	19	>100:1	0.69 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	904828	16	>100:1			1000.00	1022.56	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	846707	17	>100:1	Target = 3.21		1000.00	979.50		
363 > 169	47	2.878	2.878		257282	16	>100:1	3.29 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	275799	18	>100:1			1000.00	997.17	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	293520	25	>100:1	Target = 3.35	4.70	910.00	923.24		
399 > 99	45	2.896	2.896		83985	24	>100:1	3.49 (1.67-5.04)	8.40				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	0/0	1372344	17	>100:1	Target = 2.38		942.00	938.49		
377 > 85	45	2.923	2.923		576467	18	>100:1	2.38 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.226	3.226	0/0	271724	20	>100:1	Target = 3.87		952.00	925.74		
449 > 99	45	3.226	3.226		73296	20	>100:1	3.70 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	0	216911	19	>100:1			5000.00	5262.86	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.201	3.201	0/0	65054	19	>100:1	Target = 1.26		948.00	902.79		
427 > 81	64	3.201	3.201		45465	18	65:1	1.43 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.220	3.220	0	844338	20	>100:1			1000.00	1002.27	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.226	3.226	0/0	832825	20	>100:1	Target = 2.46		1000.00	986.35		
413 > 169	53	3.226	3.226		329980	21	>100:1	2.52 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.558	3.558	0	238349	18	>100:1			1000.00	1006.00	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.558	3.558	0/0	254377	42	>100:1	Target = 3.98	3.43	928.00	917.32		M
499 > 99	54	3.558	3.558		61981	43	>100:1	4.10 (1.99-5.97)	6.64				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.755	3.755	0/0	652974	19	>100:1			932.00	906.52		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.886	3.886	0/0	211567	19	>100:1	Target = 3.57		960.00	932.16		
549 > 99	54	3.886	3.886		59078	17	>100:1	3.58 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.191	4.191	0/0	228540	16	>100:1	Target = 3.73		964.00	1022.96		
599 > 99	54	4.191	4.191		49222	14	>100:1	4.64 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.349	4.349	0/0	515814	16	>100:1			942.00	897.93		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/0	177119	17	>100:1	Target = 3.44		968.00	920.21		
699 > 99	54	4.698	4.698		53306	17		3.32 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.565	3.565	0	847911	20	>100:1			1000.00	1045.08	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.565	3.565	0/0	718520	20	>100:1	Target = 4.45		1000.00	950.10		
463 > 169	56	3.565	3.565		159047	18	>100:1	4.51 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.872	3.872	0	426468	20	>100:1			1000.00	1026.67	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.872	3.872	0/0	420729	19	>100:1	Target = 47.73		1000.00	905.42		
498>478	55	3.864	3.872		8656	15		48.60 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.894	3.894	0	178798	19	>100:1			5000.00	5134.60	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.894	3.894	0/0	54310	19	>100:1	Target = 1.41		958.00	920.43		
527 > 81	65	3.894	3.894		38059	23	75:1	1.42 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.494	4.494	0/0	66436	16	>100:1	Target = 2.81		964.00	875.84		
627 > 80	65	4.494	4.494		28734	15	>100:1	2.31 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.901	3.901	0	770724	19	>100:1			1000.00	1077.27	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.901	3.901	0/0	721373	19	>100:1	Target = 9.36		1000.00	916.40		
513 > 169	51	3.901	3.901		75063	17	>100:1	9.61 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.053	4.053	0	791294	17	>100:1			5000.00	4893.94	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.062	4.062	0/0	124307	36		Target = 1.42	6.91	1000.00	973.26		M
570 > 483	58	4.062	4.062		87441	34	>100:1	1.42 (0.71-2.13)	3.93				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.207	4.207	0	749456	17	>100:1			5000.00	5183.27	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.223	4.223	0/0	144055	31	>100:1	Target = 1.80	22.67	1000.00	974.27		
584 > 526	60	4.223	4.223		73854	34	>100:1	1.95 (0.90-2.70)	3.62				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.207	4.207	0	720189	17	>100:1			1000.00	1025.58	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.207	4.207	0/0	627000	18	>100:1	Target = 8.65		1000.00	966.74		
563 > 169	52	4.207	4.207		72214	16	>100:1	8.68 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.295	4.295	0	124281	22	>100:1			1000.00	1012.72	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.304	4.304	0/0	114618	14	>100:1			1000.00	904.38		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.313	4.313	0	63457	20	>100:1			1000.00	987.67	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.322	4.322	0/0	65369	14	>100:1	Target = 1.09		1000.00	950.90		
512 > 219	57	4.322	4.322		56783	15	>100:1	1.15 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	0	110687	15	>100:1			1000.00	974.08	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.479	4.479	0/0	78833	17	>100:1			1000.00	860.53		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	0	689160	18	>100:1			1000.00	990.07	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	0/0	663209	17	>100:1	Target = 6.94		1000.00	958.11		
613 > 169	38	4.486	4.486		102767	16	>100:1	6.45 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.727	0/0	300214	17	>100:1	Target = 2.82		1000.00	986.85		
663 > 169	38	4.727	4.727		113089	17	>100:1	2.65 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	0	64404	17	>100:1			1000.00	1067.59	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.494	4.494	0/0	66619	14	>100:1	Target = 1.11		1000.00	866.04		
526 > 219	59	4.494	4.494		65622	15	>100:1	1.01 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.942	4.942	0	752016	17	>100:1			1000.00	1007.90	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.942	4.942	0/0	614332	17	>100:1	Target = 7.23		1000.00	946.78		
713 > 169	42	4.942	4.942		90051	16	>100:1	6.82 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.323	5.323	1	343727	17	>100:1			1000.00	988.01	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	1/0	625057	17	>100:1	Target = 12.24		1000.00	988.95		
813 > 269	40	5.331	5.331		52552	19	>100:1	11.89 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.678	5.678	1/0	463978	21	>100:1	Target = 148.06		1000.00	998.92		
913 > 319	40	5.671	5.678		3564	19	>100:1	130.18 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.901	3.901	0	731219	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	863137	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.226	3.226	0	857205	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	1008335	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.558	3.558	0	256709	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

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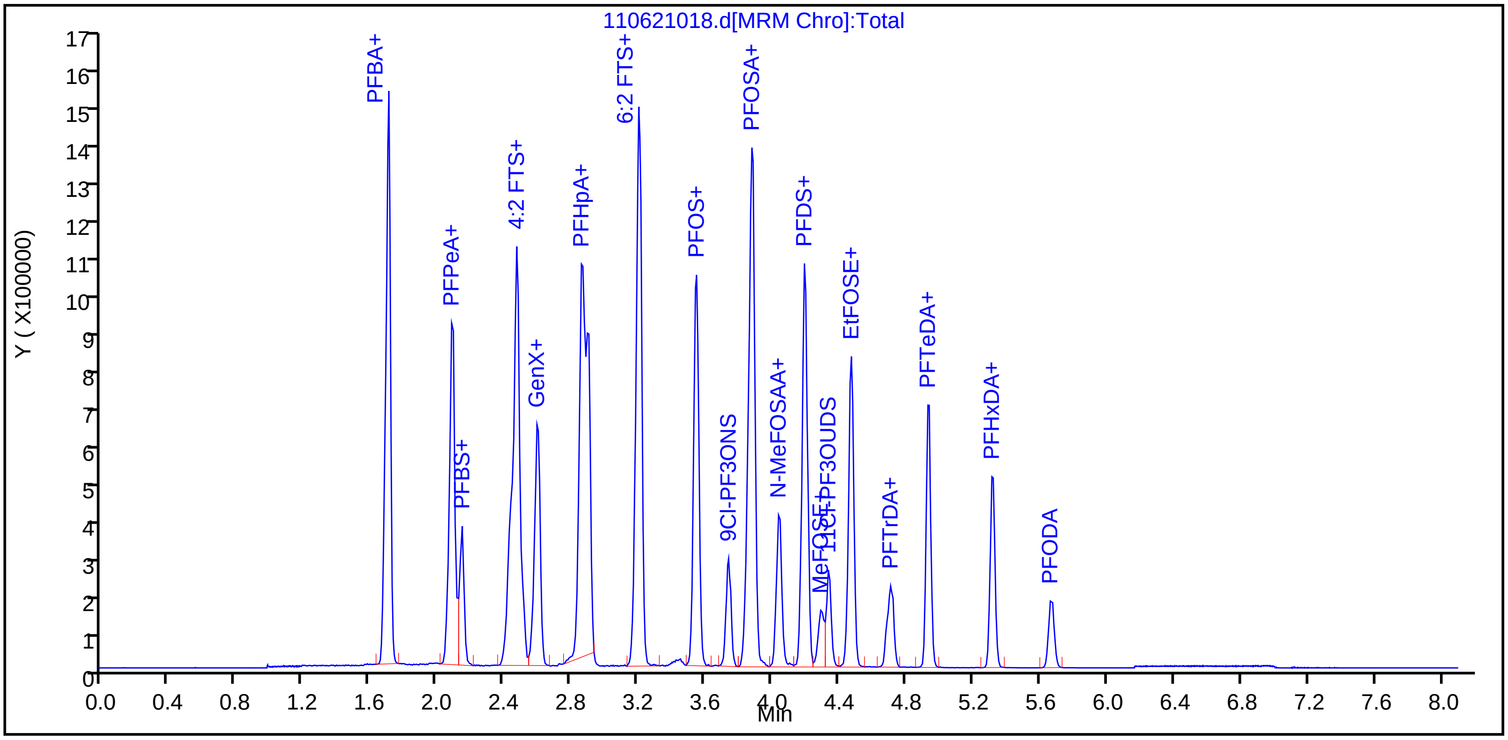
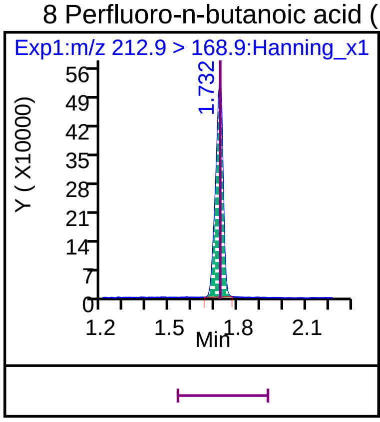
Pace Environmental Services, LLC

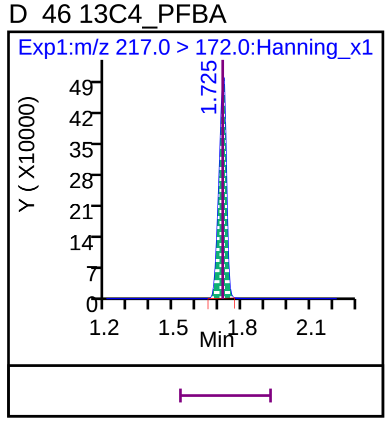
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d		
Injection Date:	06-Nov-2021 15:21:40	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1744
Sample Info:	ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller



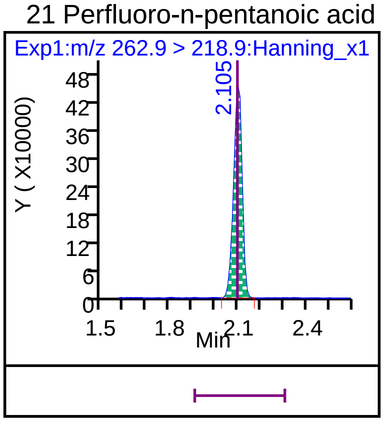
8 Perfluoro-n-butanoic acid (PFBA)



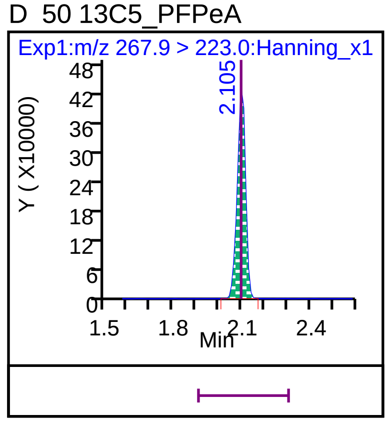
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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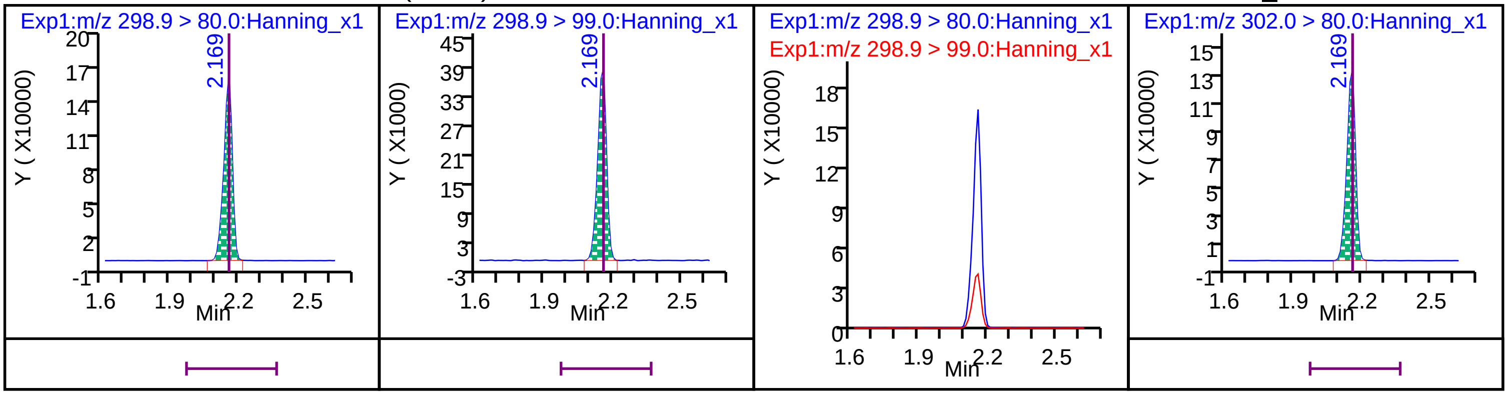
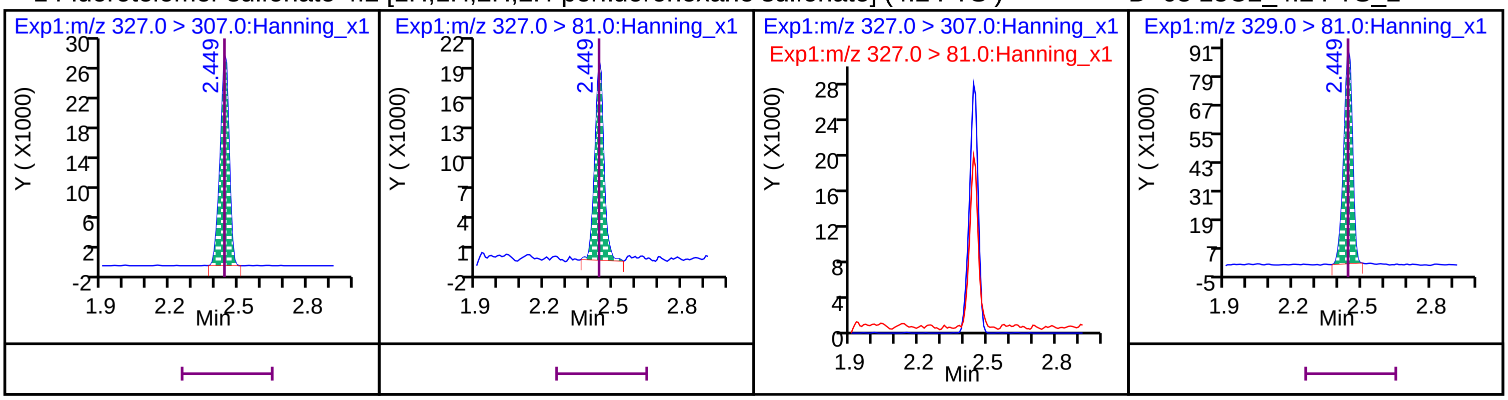
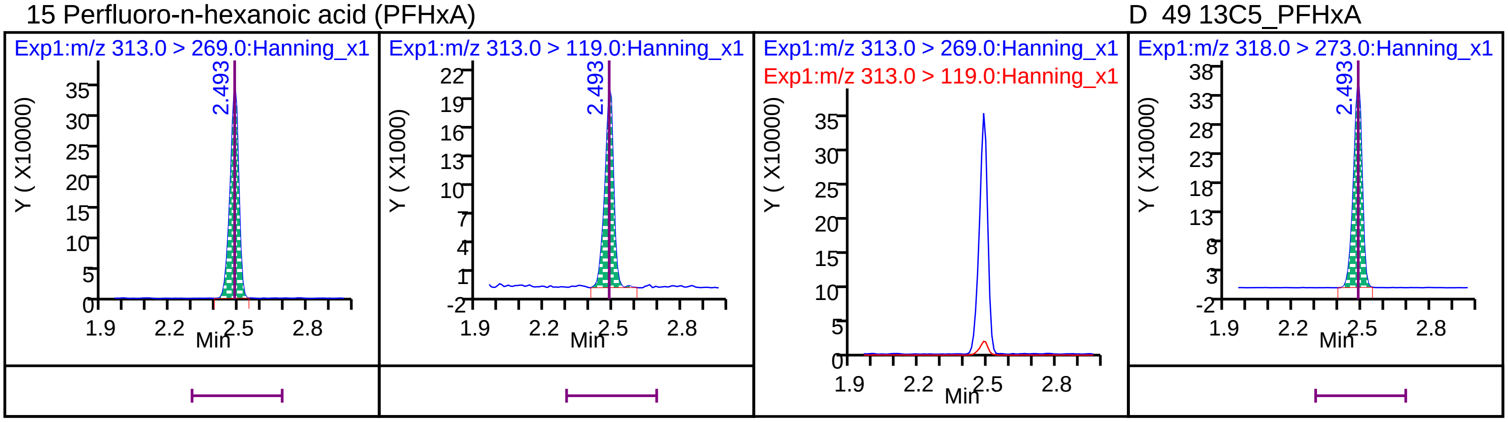
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



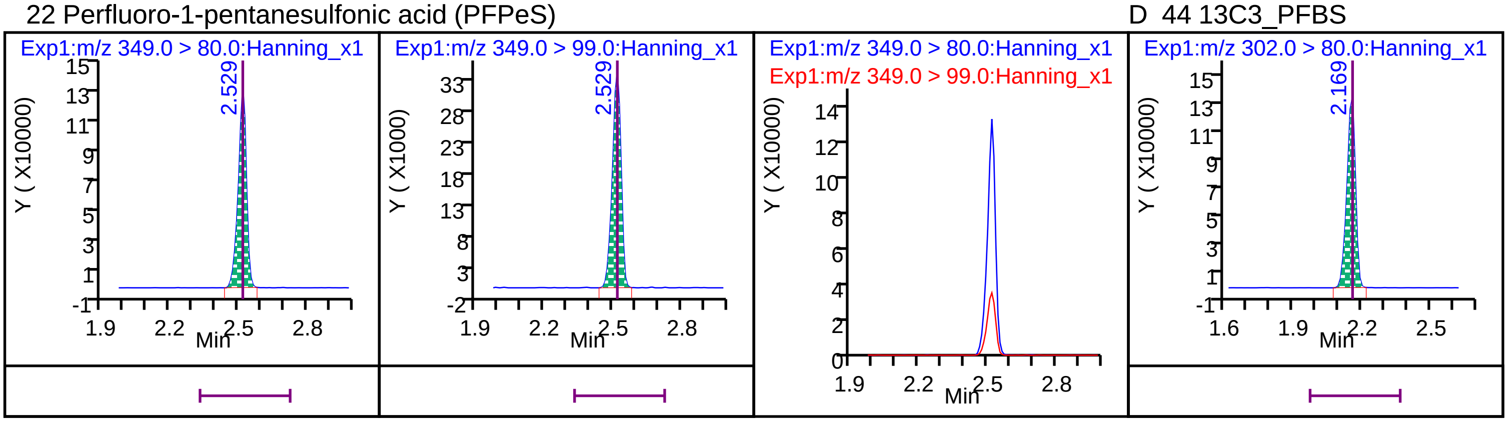
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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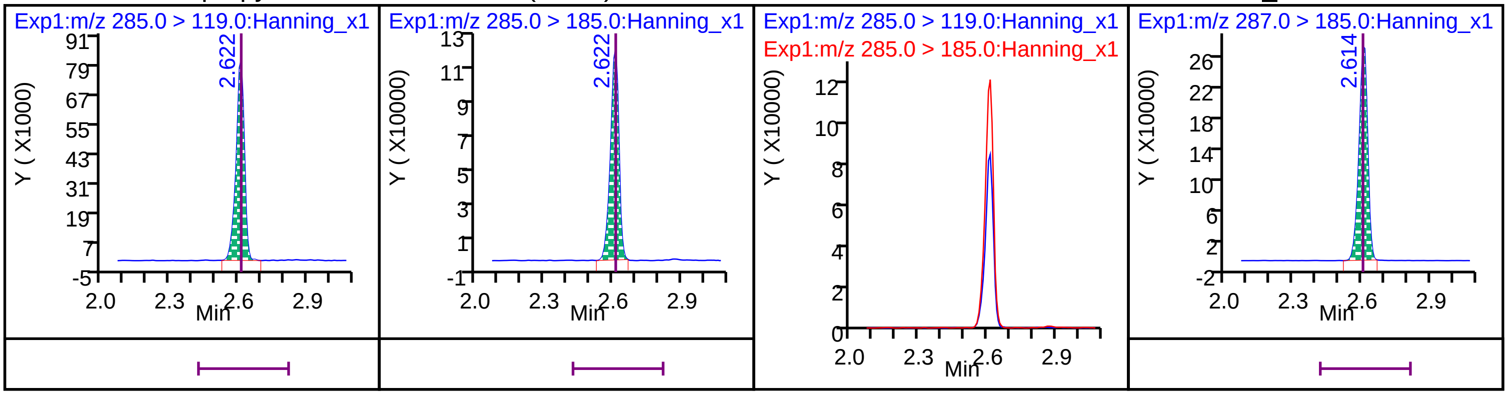
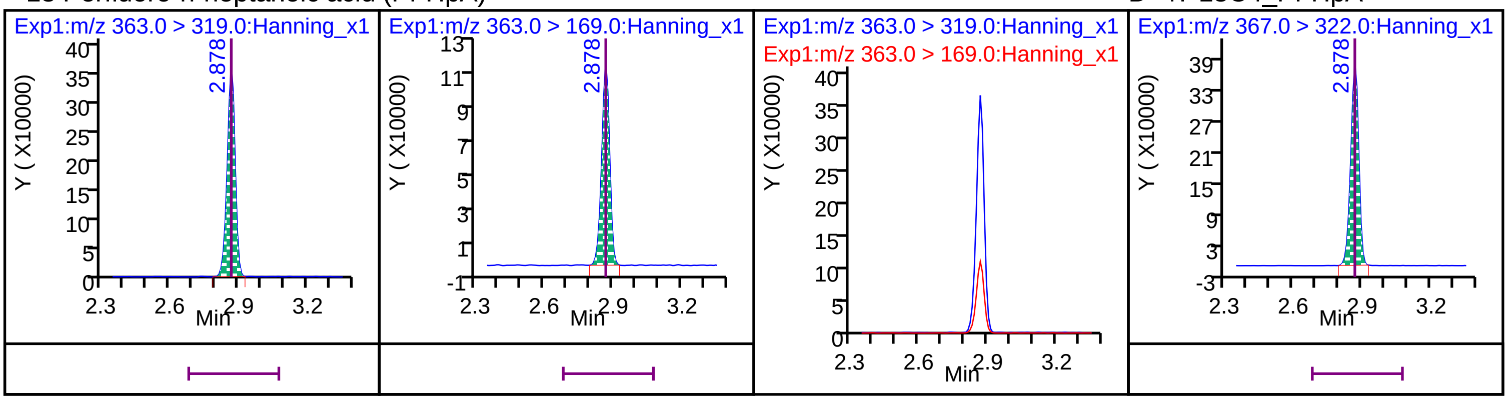
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d

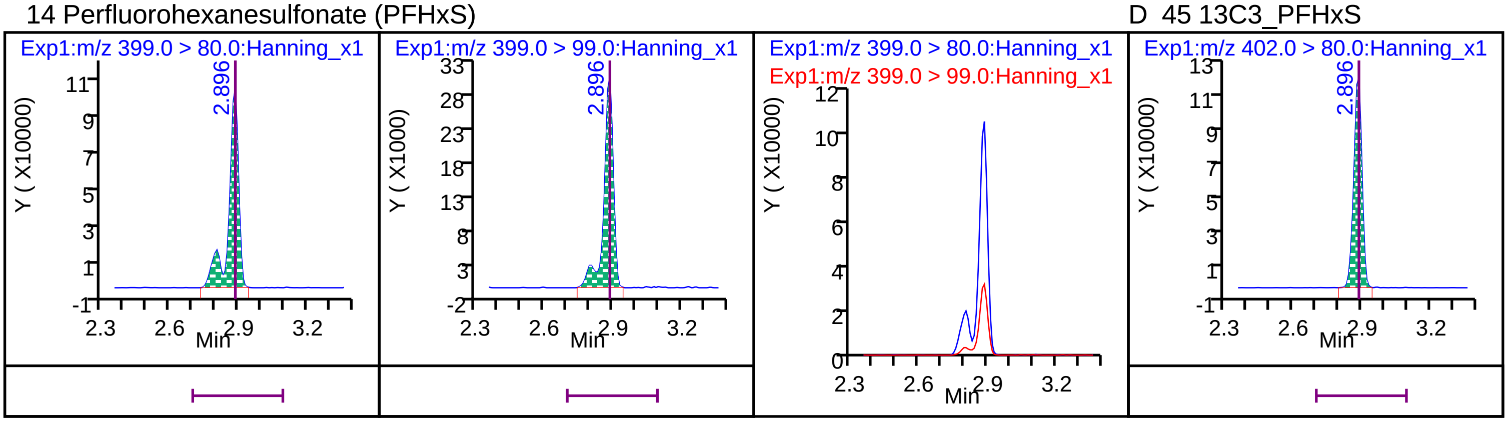
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



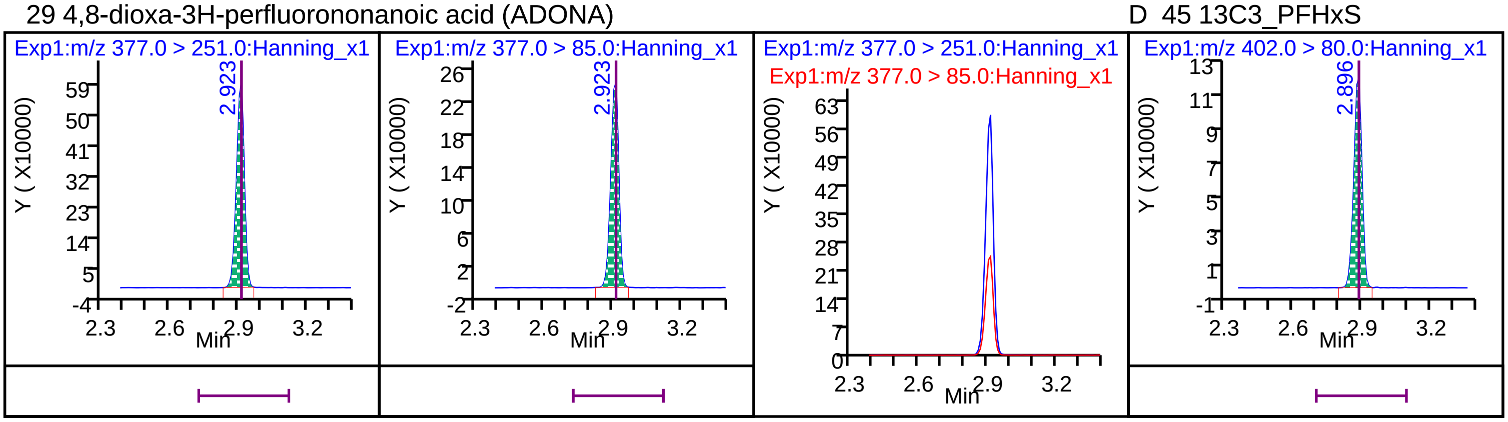
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

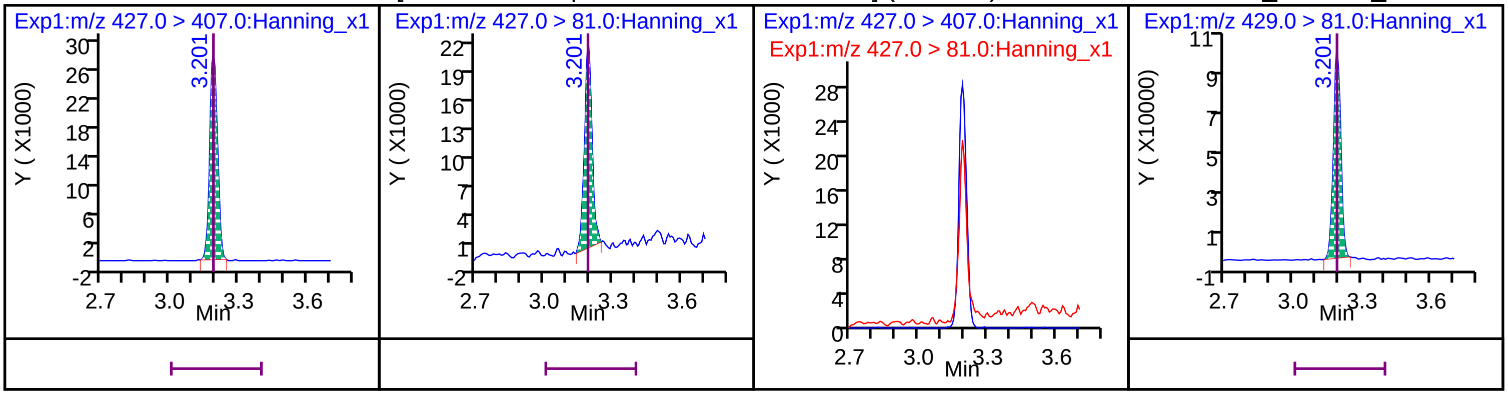


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

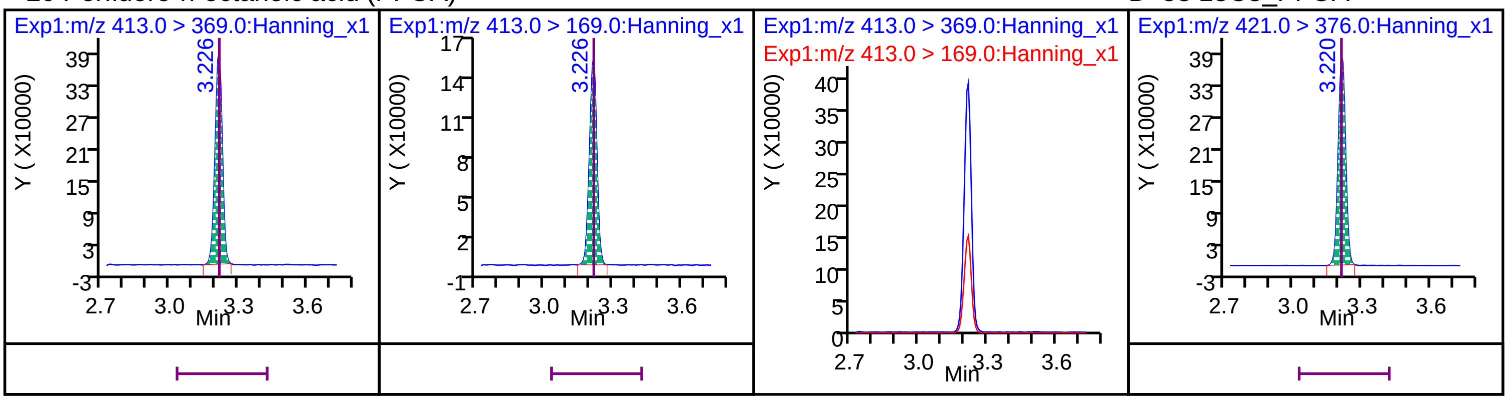


Report Date: 09-Nov-2021 13:30:42 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d

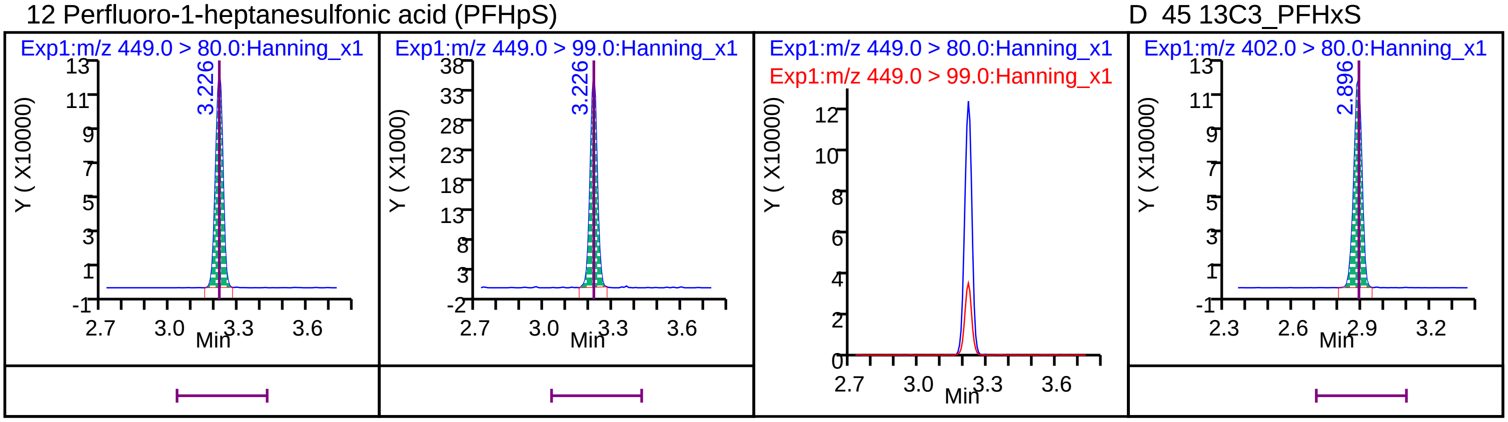
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



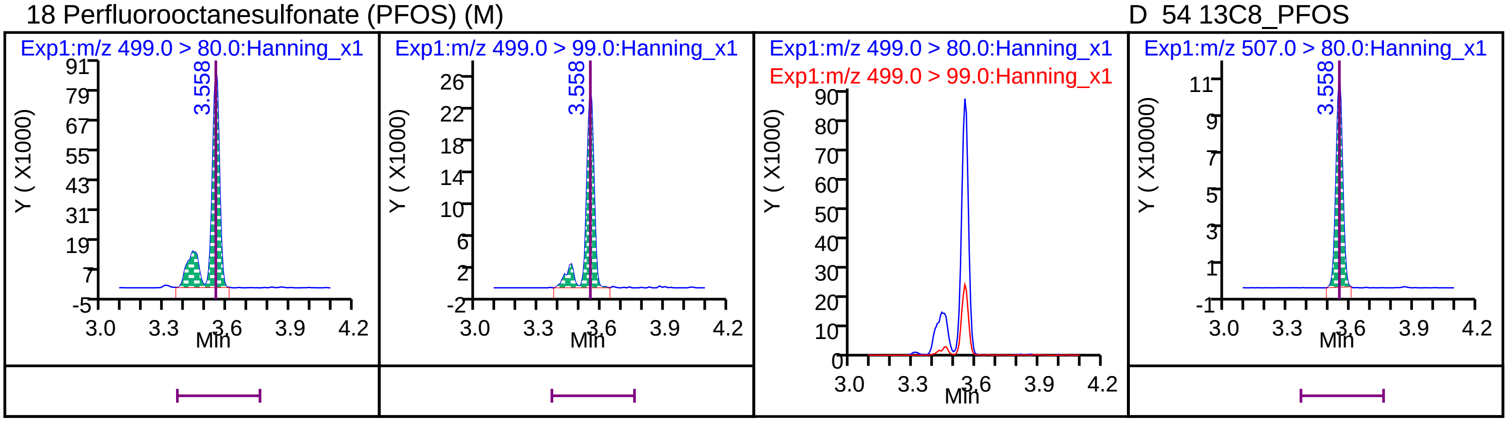
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



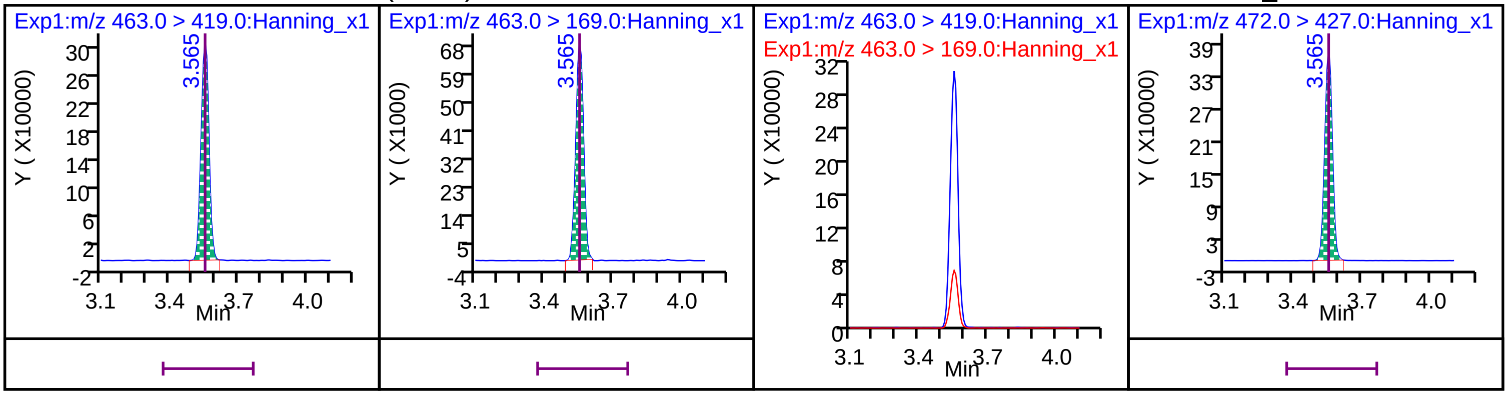
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



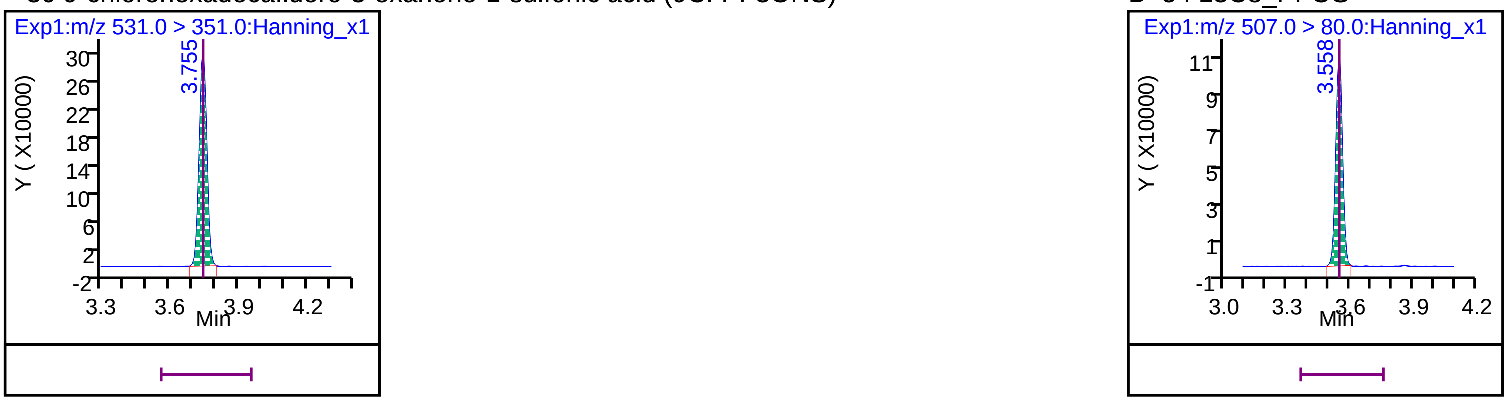
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



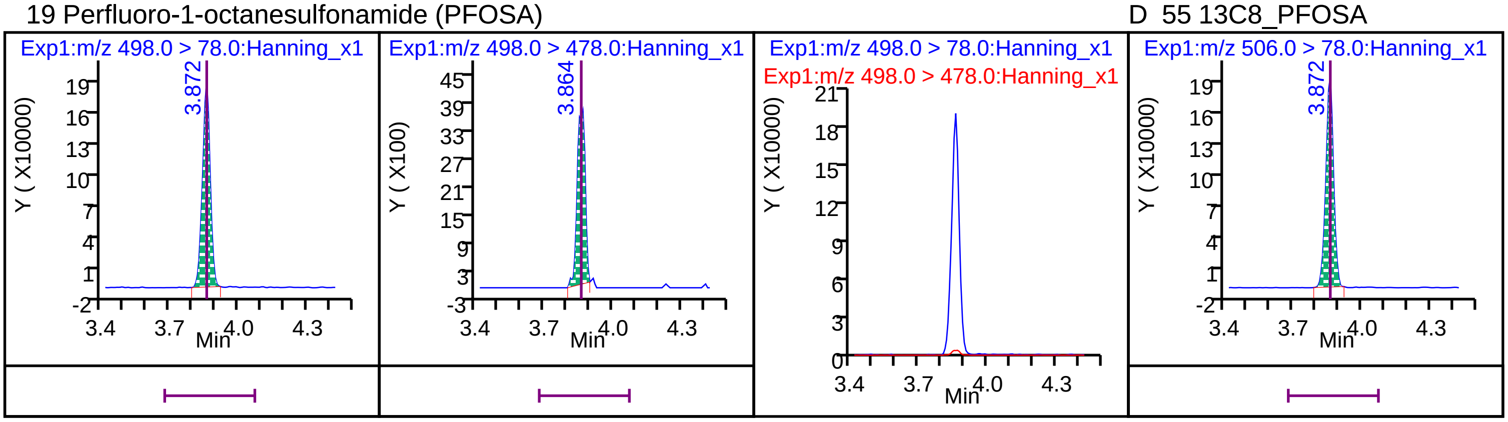
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



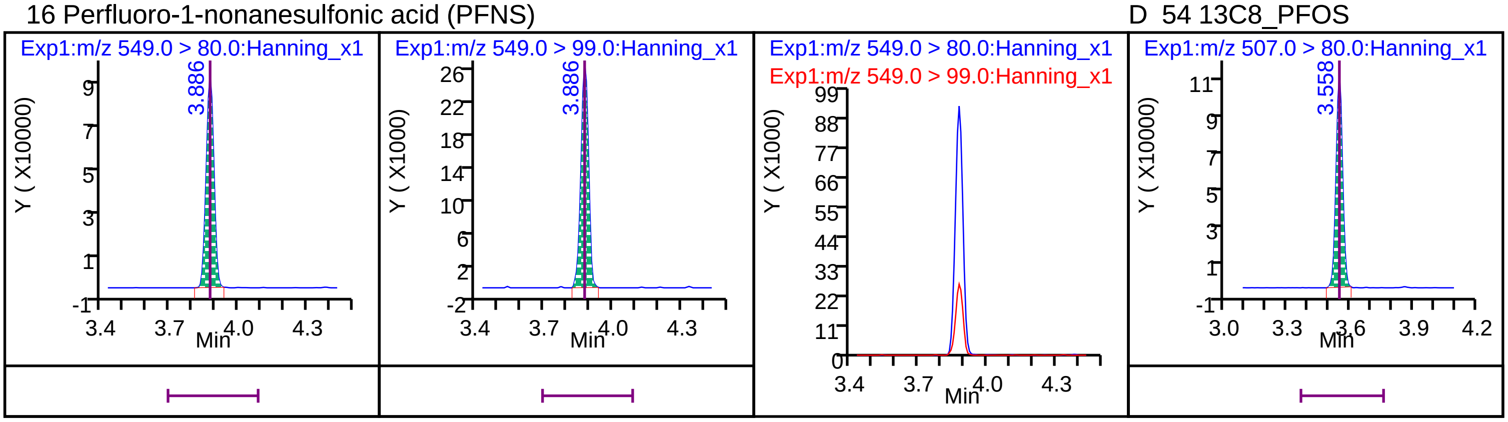
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



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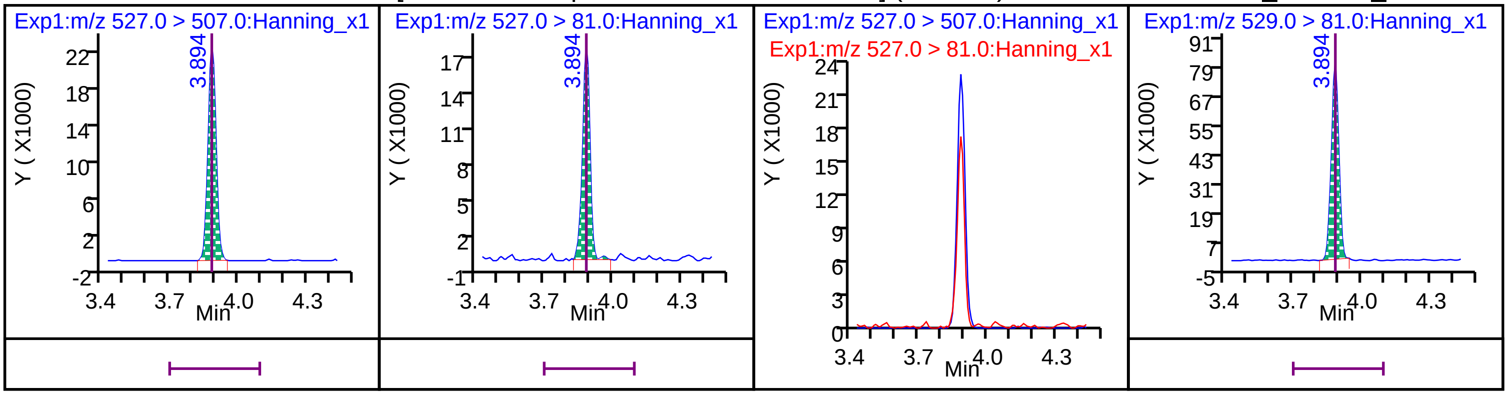
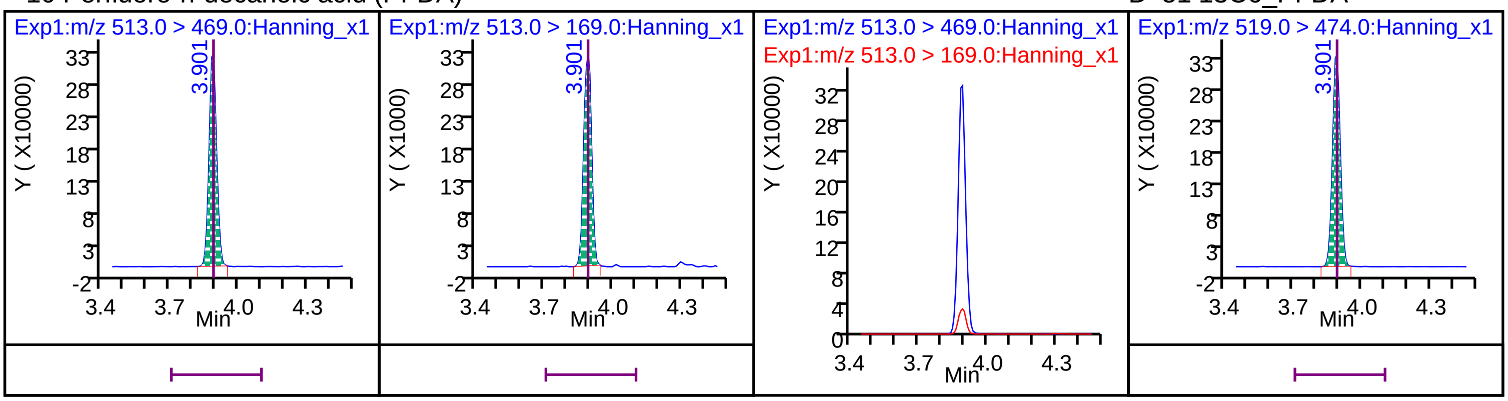
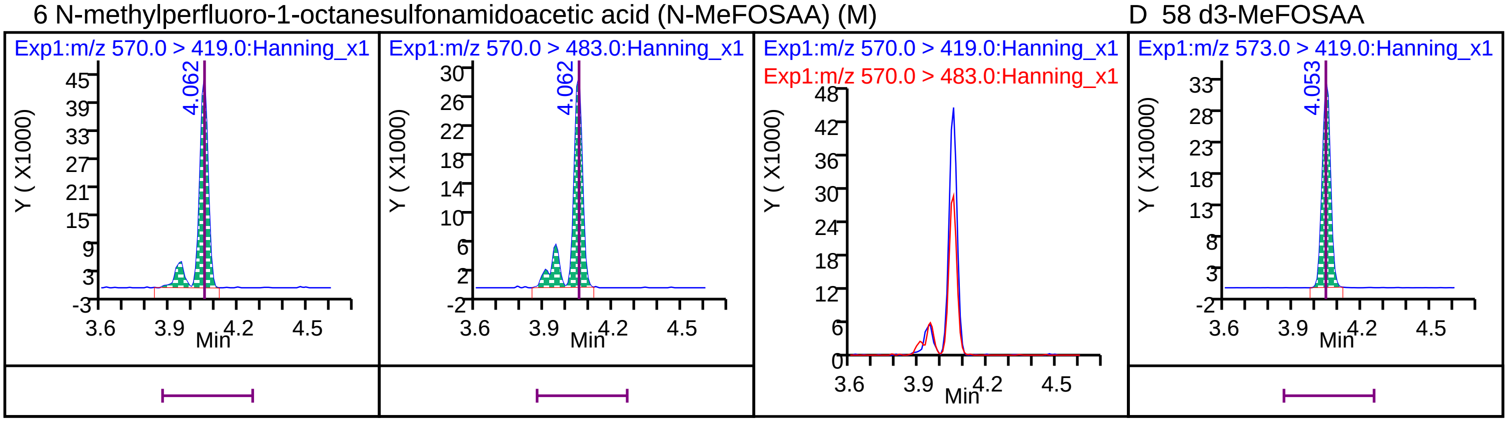
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



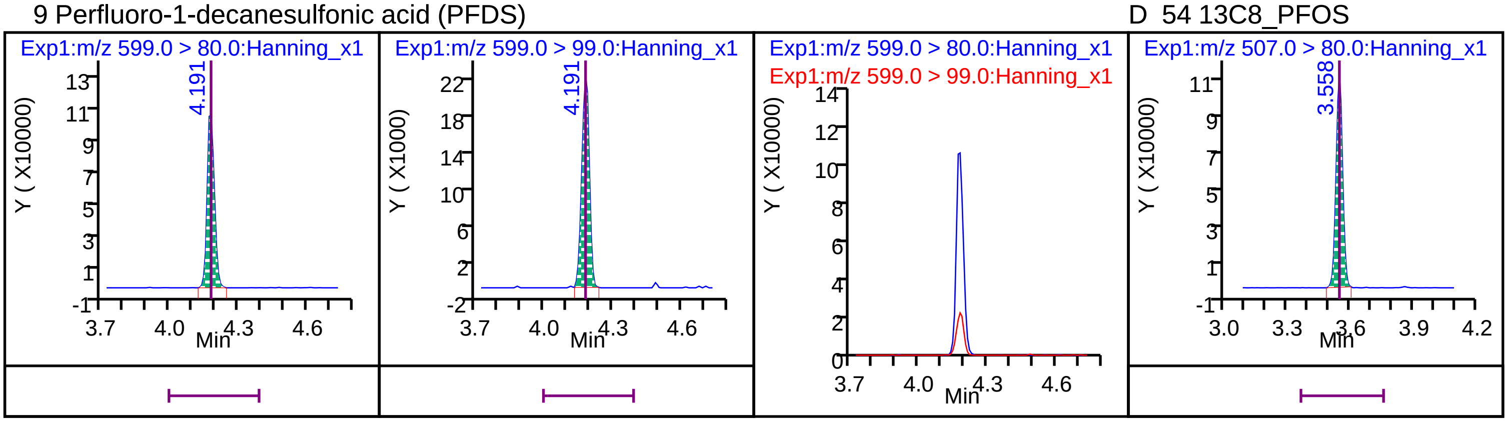
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



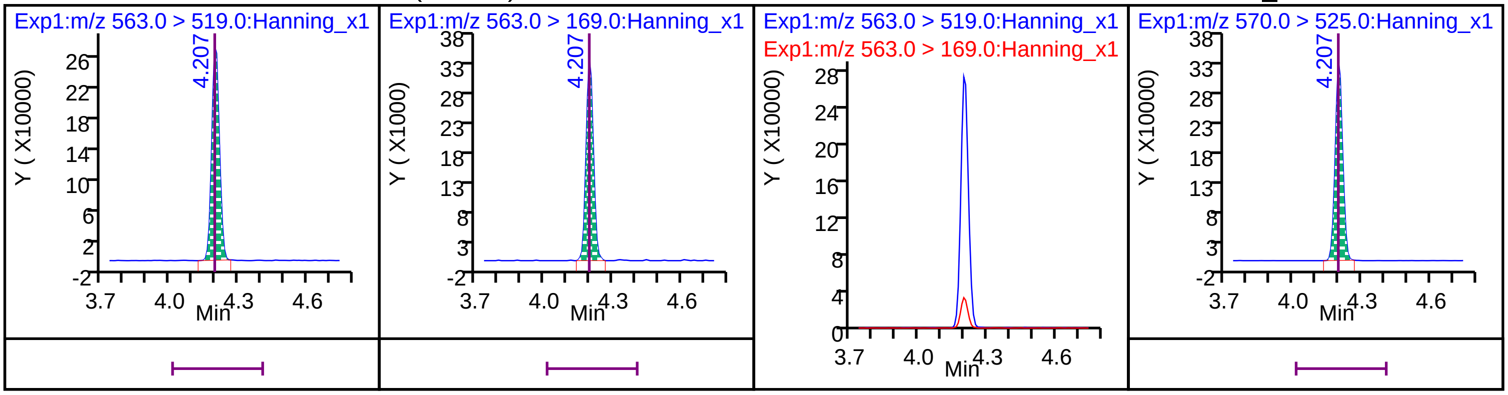
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



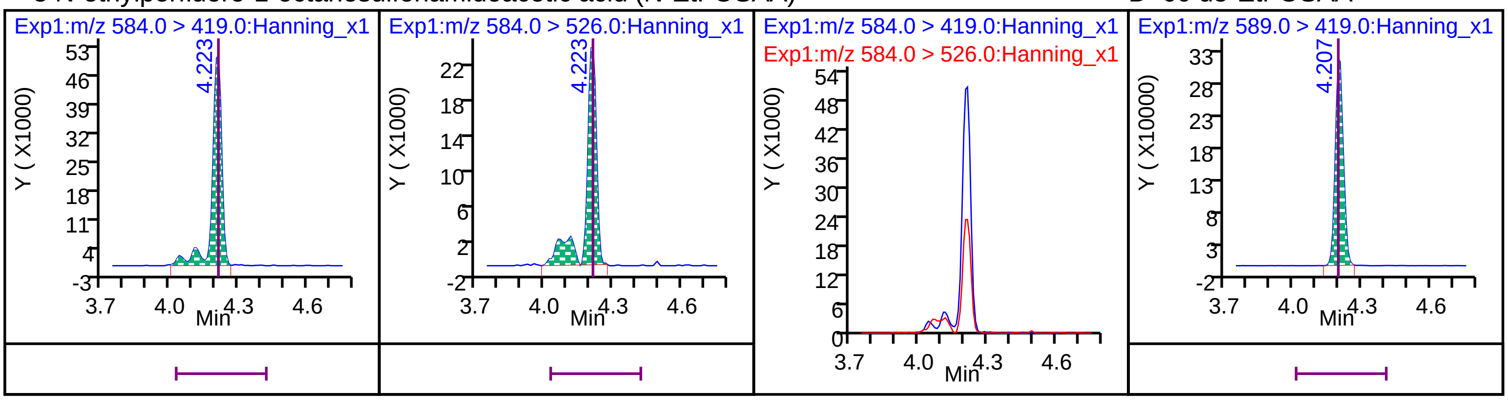
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



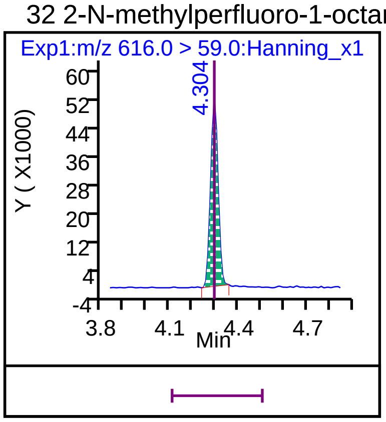
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

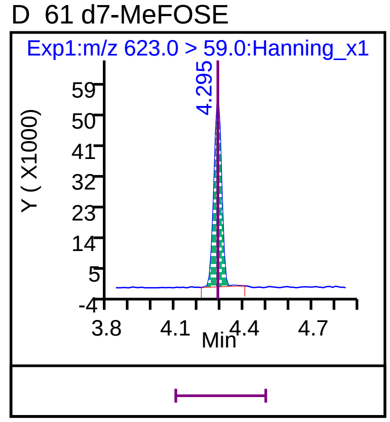


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

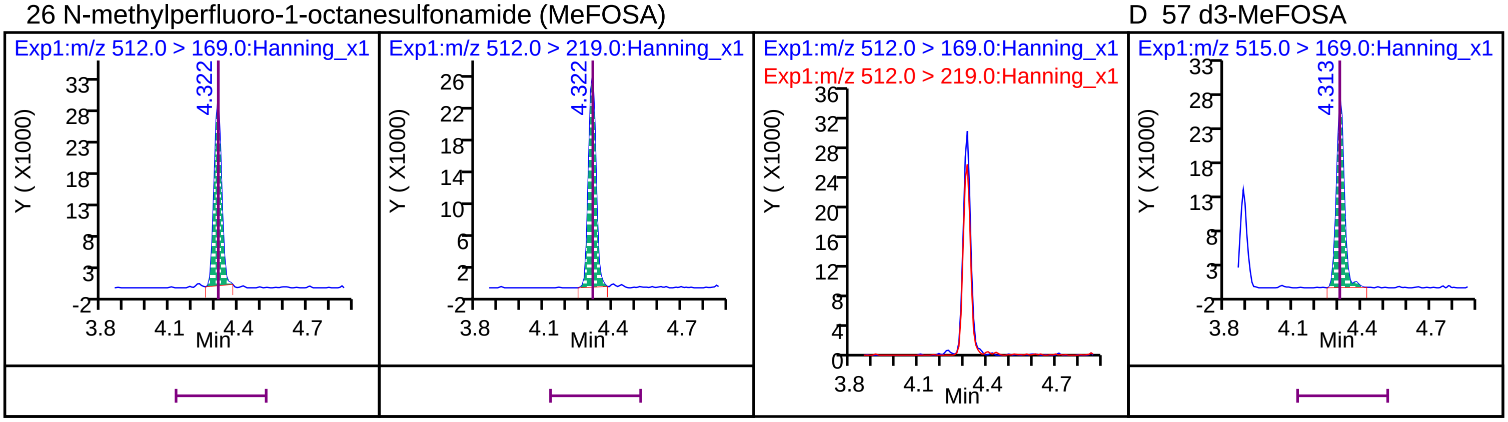


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



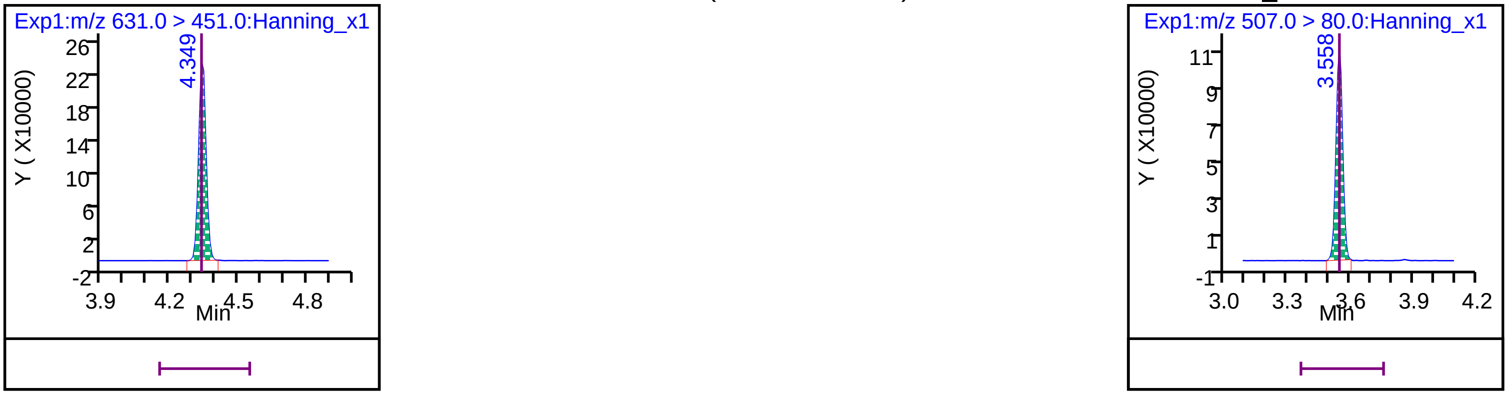


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

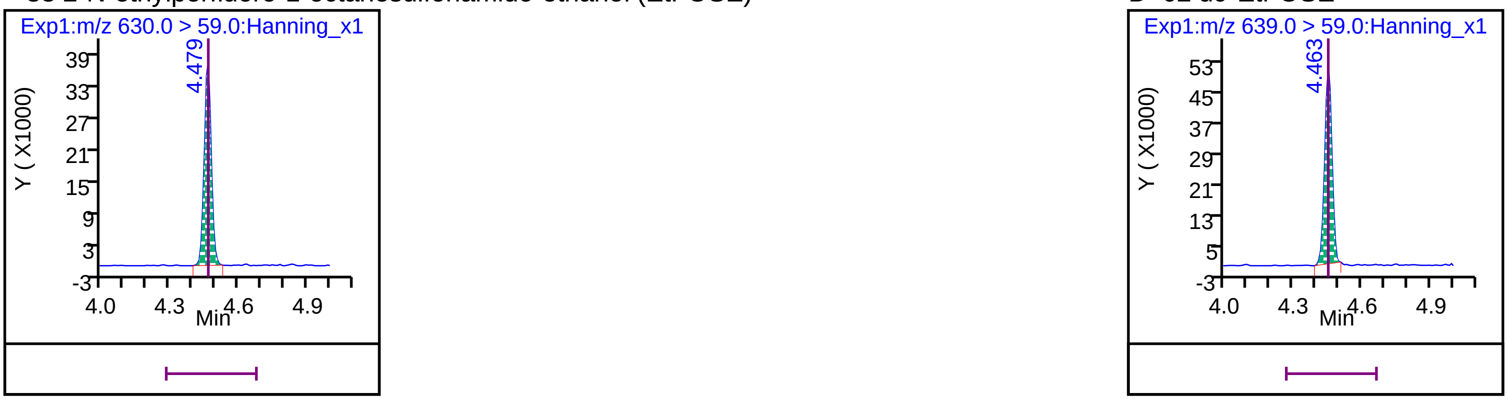


Report Date: 09-Nov-2021 13:30:42 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d

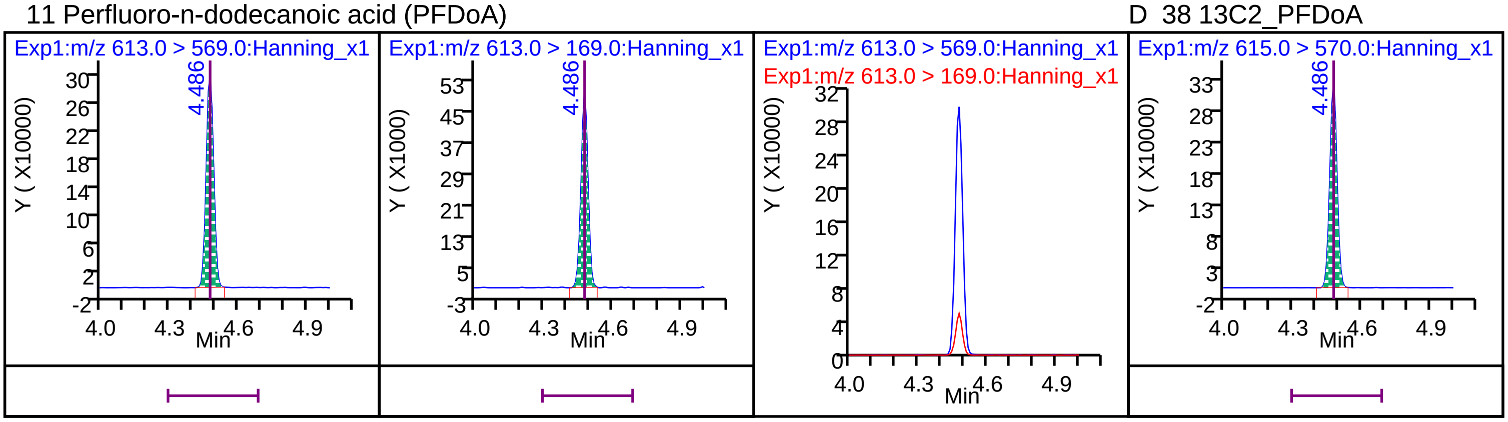
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS



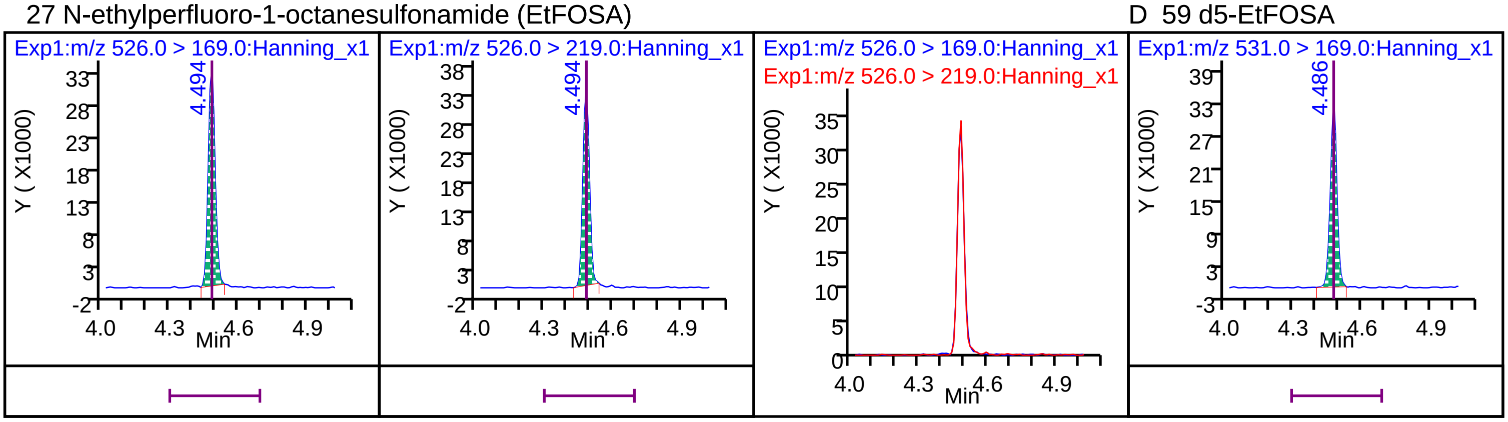
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) D 62 d9-EtFOSE



11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA

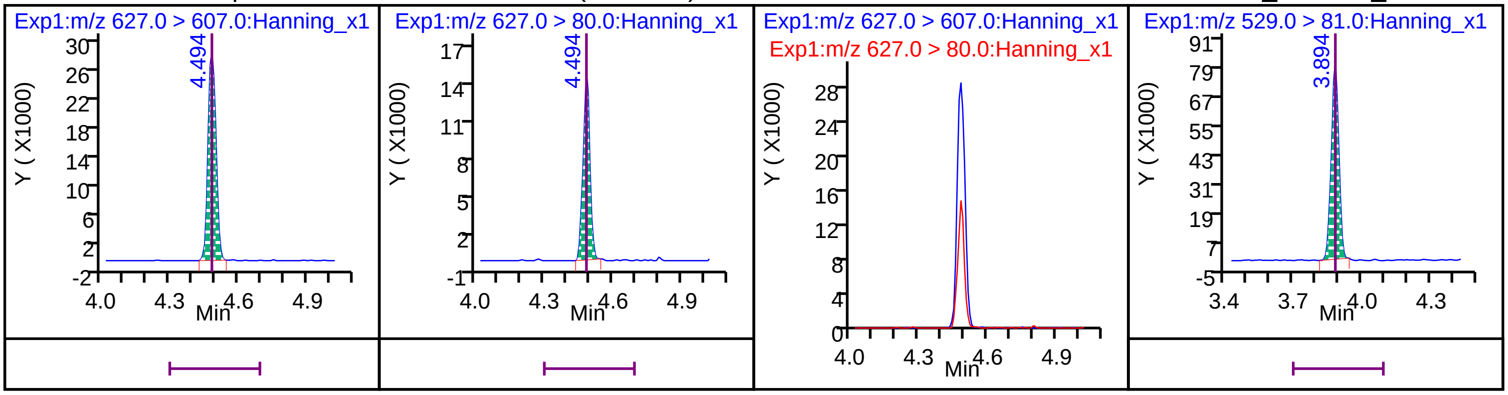


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) D 59 d5-EtFOSA

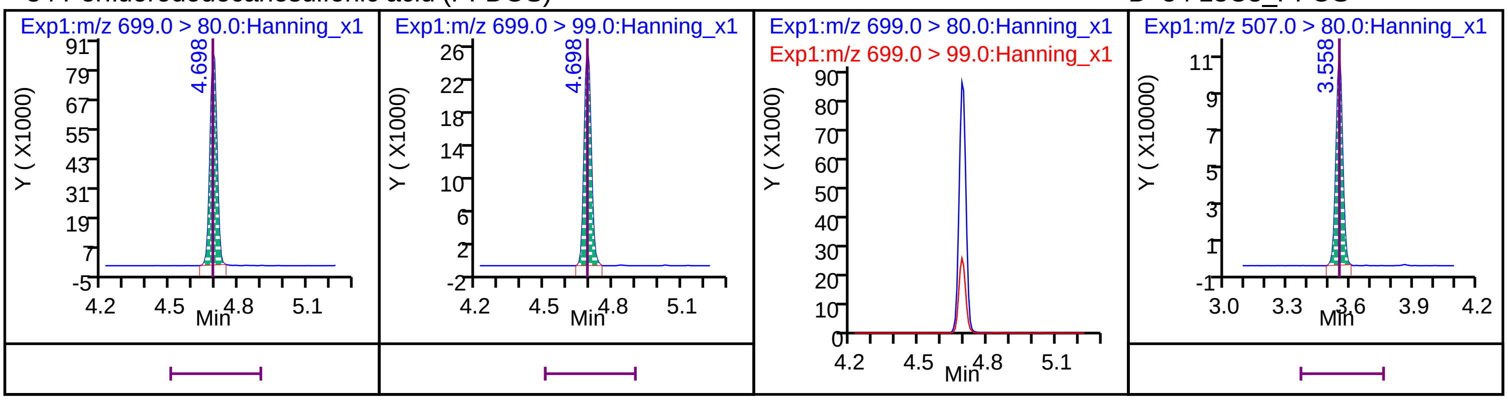


Report Date: 09-Nov-2021 13:30:42 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d

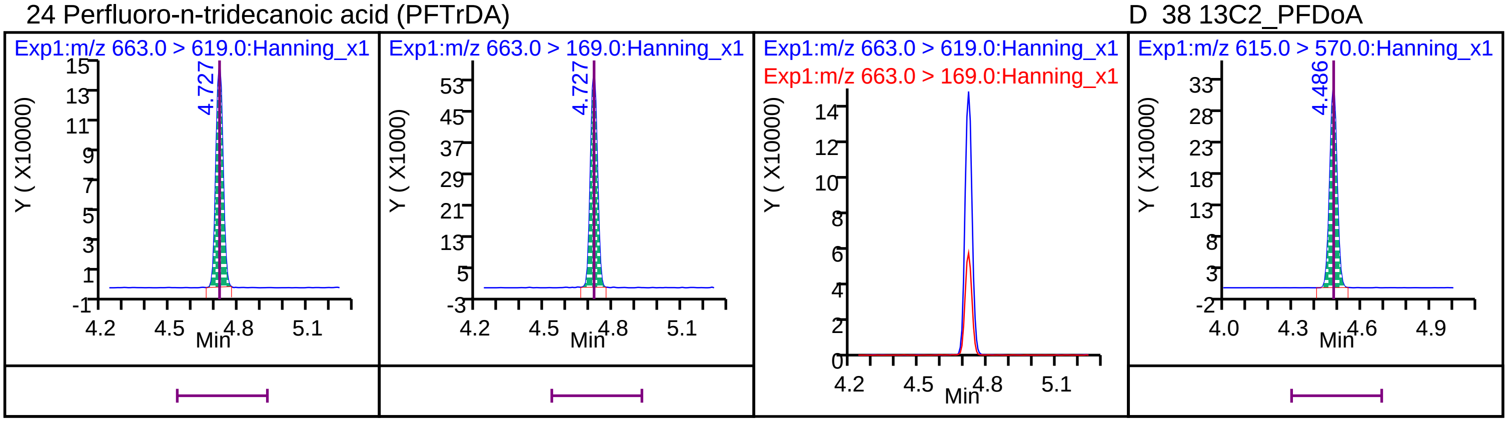
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



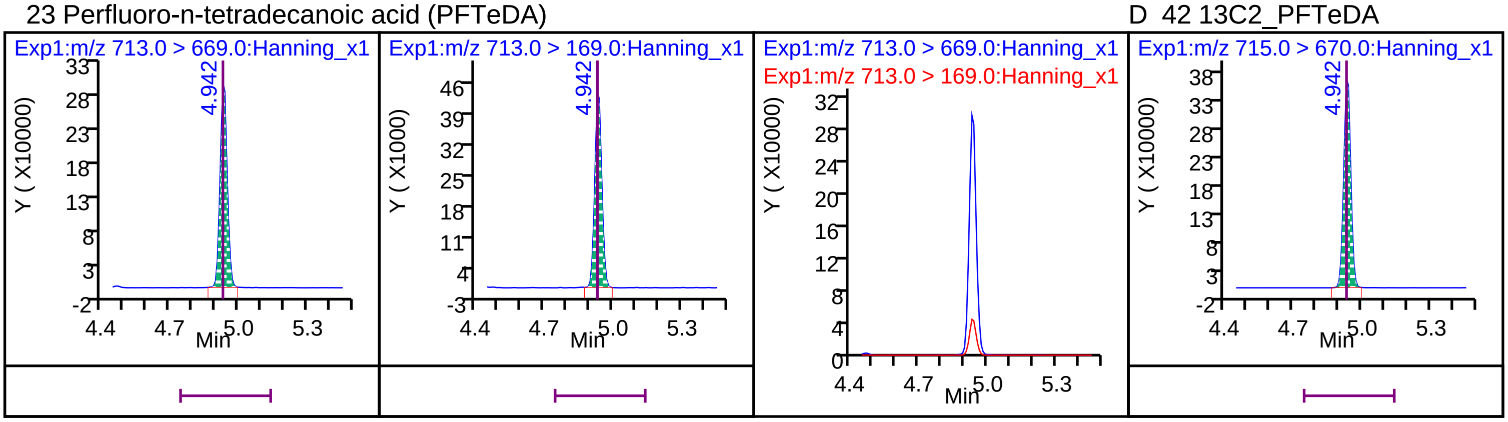
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



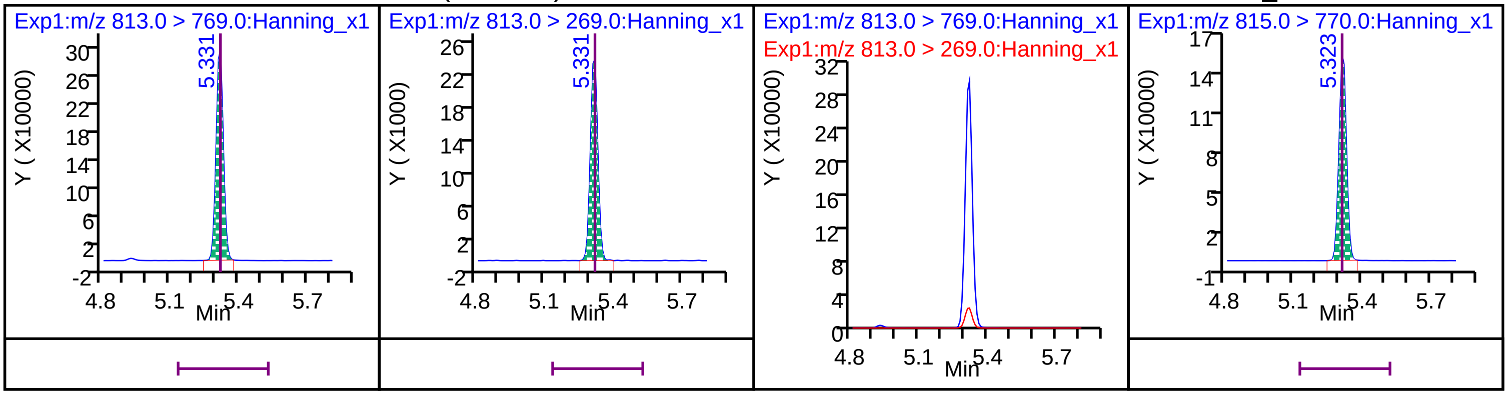
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



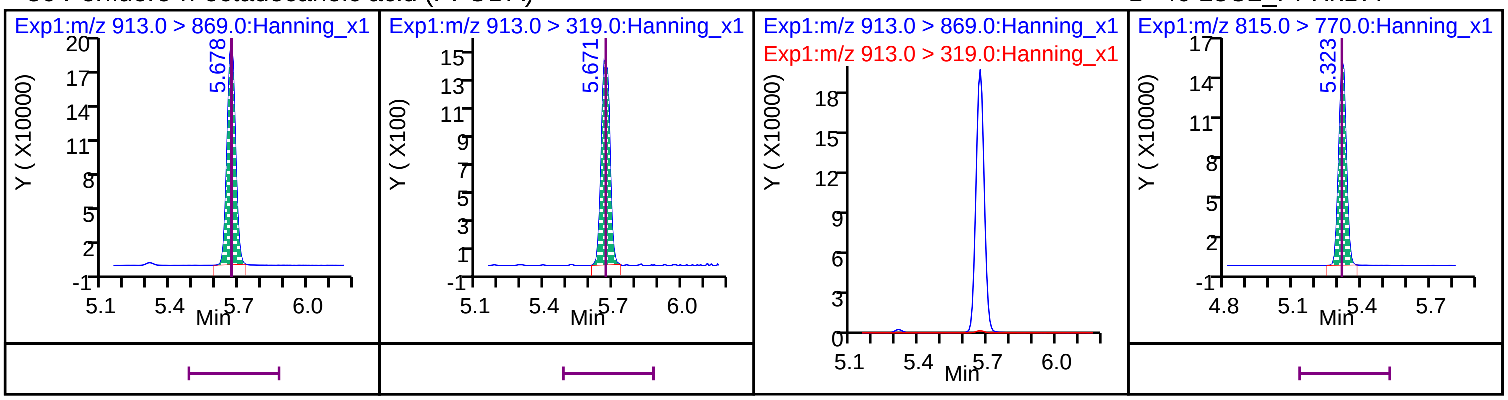
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



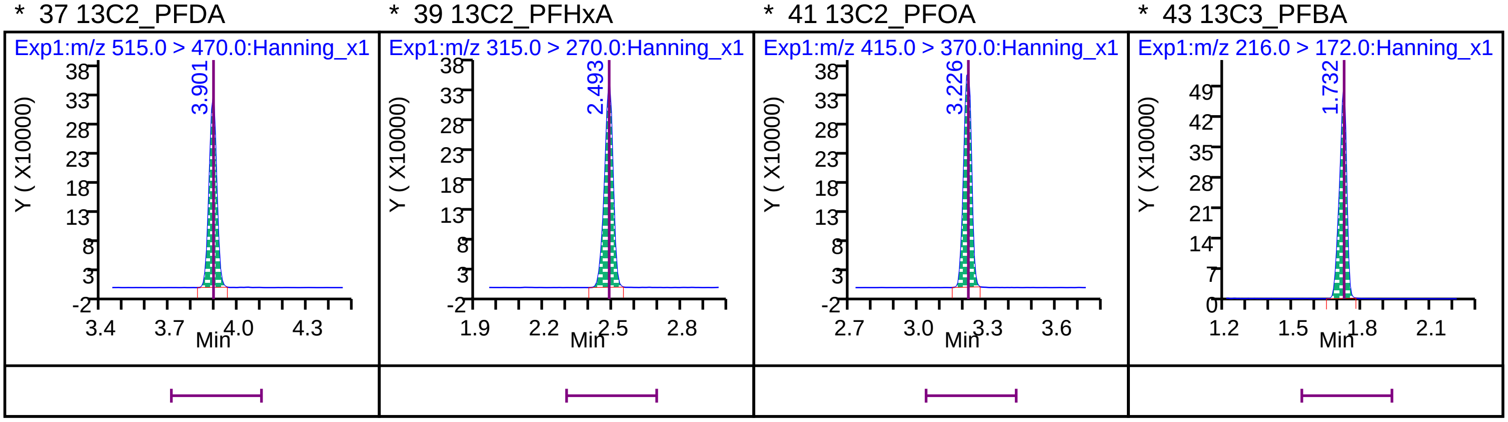
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



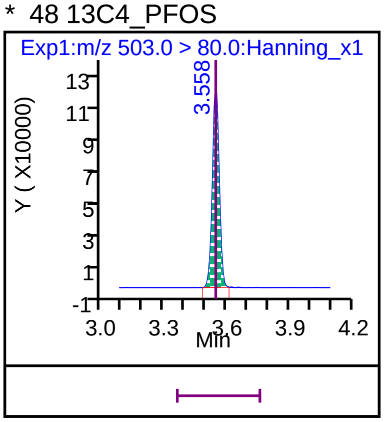
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:42 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

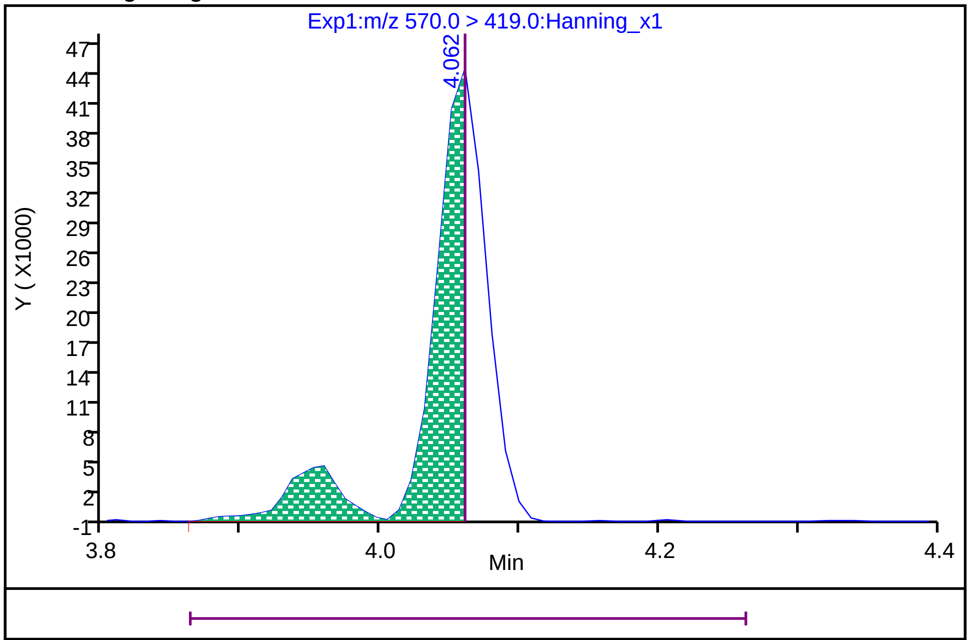
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d		
Injection Date:	06-Nov-2021 15:21:40	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1744
Sample Info:	ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller

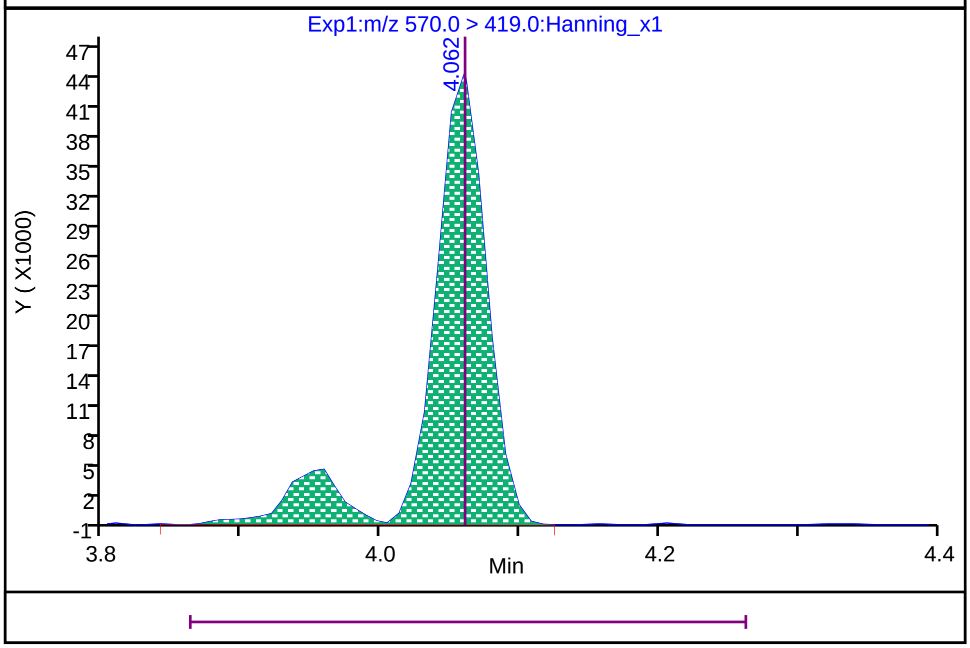
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.062
Area: 75790
Amount: 618.56
Amount Units: ng/L



RT: 4.062
Area: 124307
Amount: 973.26
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:04

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:42 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

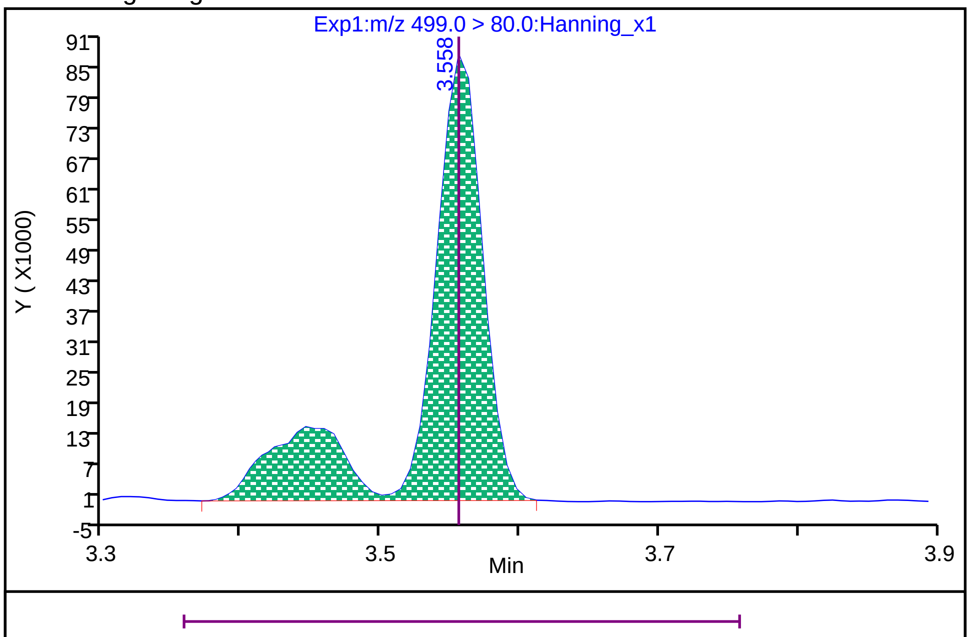
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621018.d		
Injection Date:	06-Nov-2021 15:21:40	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 1000_SVLC-1744
Sample Info:	ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller

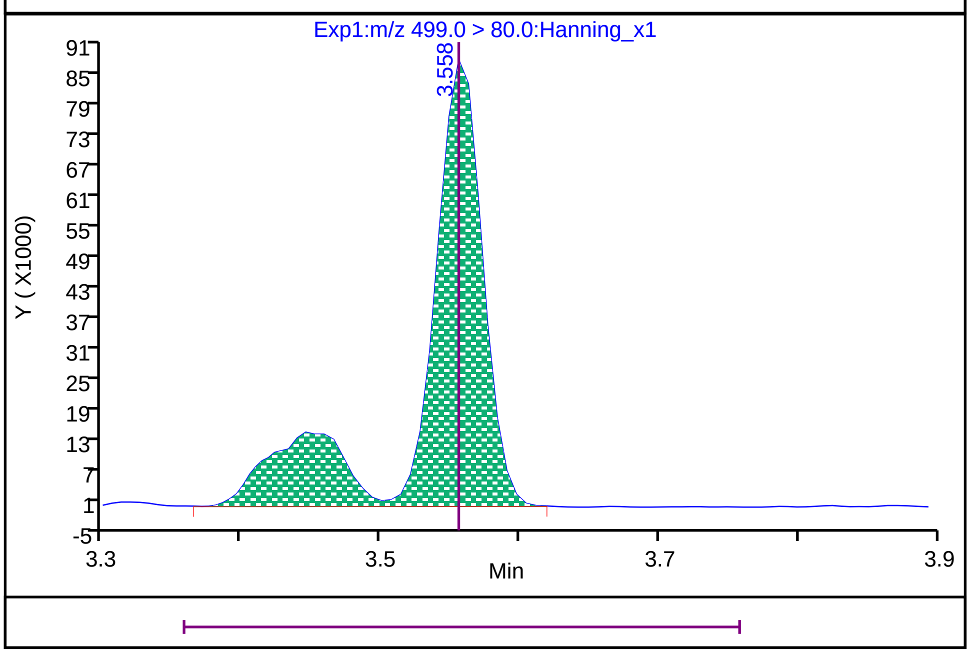
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.558
Area: 252781
Amount: 915.35
Amount Units: ng/L



RT: 3.558
Area: 254377
Amount: 917.32
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:09
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d		
Injection Date:	06-Nov-2021 15:32:15	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	6
Sample Info:	ICAL 2000_SVLC-1745	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1140316	19	>100:1			1000.00	1040.27	103.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	2430298	20	>100:1			2000.00	1999.88		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1080480	15	>100:1			1000.00	1059.20	104.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	2230239	17	>100:1			2000.00	1923.00		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	363570	16	>100:1			1000.00	1077.45	106.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.168	2.169	0/0	806695	15	>100:1	Target = 3.83		1768.00	1567.44		
298.9 > 99	44	2.168	2.169		225951	15	>100:1	3.57 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.529	2.529	0/0	664939	17	>100:1	Target = 3.47		1876.00	1827.22		
349 > 99	44	2.529	2.529		191637	18	>100:1	3.46 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	229274	18	>100:1			5000.00	4909.84	99.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	0/0	168299	19	>100:1	Target = 1.39		1868.00	1973.96		
327 > 81	63	2.449	2.449		102656	18	>100:1	1.63 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	955344	17	>100:1			1000.00	1047.53	104.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	0/0	1849479	17	>100:1	Target = 17.15		2000.00	1904.75		
313 > 119	49	2.493	2.493		113121	18	>100:1	16.34 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	1	789984	19	>100:1			5000.00	5366.96	115.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/-1	459484	19	>100:1	Target = 0.72		4000.00	3898.80		
285 > 185	66	2.614	2.622		634095	19	>100:1	0.72 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	930886	16	>100:1			1000.00	1052.01	102.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	1840880	16	>100:1	Target = 3.21		2000.00	2069.99		
363 > 169	47	2.878	2.878		541130	18	>100:1	3.40 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	294258	19	>100:1			1000.00	1063.91	106.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	587693	25	>100:1	Target = 3.35	5.54	1820.00	1732.57		
399 > 99	45	2.896	2.896		168859	24	>100:1	3.48 (1.67-5.04)	7.10				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	1/1	2969813	19	>100:1	Target = 2.38		1884.00	1903.53		
377 > 85	45	2.914	2.923		1125117	18	>100:1	2.63 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.226	1/1	566446	20	>100:1	Target = 3.87		1904.00	1808.77		
449 > 99	45	3.233	3.226		151190	21	>100:1	3.74 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.207	3.201	1	221755	19	>100:1			5000.00	5380.39	102.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.207	3.201	1/0	133851	27	>100:1	Target = 1.26		1896.00	1816.95		
427 > 81	64	3.207	3.201		99353	19	>100:1	1.34 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.220	1	891426	21	>100:1			1000.00	1058.17	105.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.226	1/0	1771241	20	>100:1	Target = 2.46		2000.00	1986.94		
413 > 169	53	3.227	3.226		700295	20	>100:1	2.52 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.560	3.558	1	244774	19	>100:1			1000.00	1033.12	102.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.560	3.558	1/0	520732	41	>100:1	Target = 3.98	3.23	1856.00	1828.55		M
499 > 99	54	3.560	3.558		129437	39	>100:1	4.02 (1.99-5.97)	7.18				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.762	3.755	1/0	1375329	21	>100:1			1864.00	1859.24		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.894	3.886	1/0	451091	19	>100:1	Target = 3.57		1920.00	1935.33		
549 > 99	54	3.894	3.886		122165	18	>100:1	3.69 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.191	4.191	1/0	431926	17	>100:1	Target = 3.73		1928.00	1882.58		
599 > 99	54	4.191	4.191		123080	15		3.50 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.358	4.349	1/0	1066487	16	>100:1			1884.00	1807.81		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.699	4.698	1/0	367477	17	>100:1	Target = 3.44		1936.00	1859.08		
699 > 99	54	4.699	4.698		111996	18		3.28 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.573	3.565	1	871938	20	>100:1			1000.00	1074.69	102.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.573	3.565	1/0	1453238	19	>100:1	Target = 4.45		2000.00	1868.66		
463 > 169	56	3.573	3.565		321593	19	>100:1	4.51 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.872	1	441620	20	>100:1			1000.00	1063.15	103.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.880	3.872	1/0	925214	20	>100:1	Target = 47.73		2000.00	1922.78		
498>478	55	3.873	3.872		19576	19	97:1	47.26 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.894	3.894	1	188929	18	>100:1			5000.00	5425.54	105.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.902	3.894	1/0	123152	23		Target = 1.41		1916.00	1975.23		
527 > 81	65	3.902	3.894		83153	24	>100:1	1.48 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.494	4.494	1/0	157288	16		Target = 2.81		1928.00	1962.36		
627 > 80	65	4.494	4.494		59821	17	>100:1	2.62 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.902	3.901	1	719853	19	>100:1			1000.00	1006.17	93.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.902	3.901	1/0	1525131	19	>100:1	Target = 9.36		2000.00	2074.37		
513 > 169	51	3.902	3.901		161198	18	>100:1	9.46 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.063	4.053	1	862564	16	>100:1			5000.00	5334.73	109	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.063	4.062	1/0	275158	33	>100:1	Target = 1.42	9.00	2000.00	1976.35		
570 > 483	58	4.063	4.062		193758	35		1.42 (0.71-2.13)	4.24				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.215	4.207	1	753677	16	>100:1			5000.00	5212.46	100.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.223	4.223	1/0	305184	32	>100:1	Target = 1.80	6.22	2000.00	2052.45		
584 > 526	60	4.223	4.223		173002	31	>100:1	1.76 (0.90-2.70)	3.67				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.207	4.207	1	710300	16	>100:1			1000.00	1011.49	98.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.215	4.207	1/0	1356876	16	>100:1	Target = 8.65		2000.00	2121.22		
563 > 169	52	4.215	4.207		160088	16	>100:1	8.47 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.295	4.295	1	130929	14	>100:1			1000.00	1066.89	105.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.313	4.304	1/0	247244	14	>100:1			2000.00	1851.80		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.313	4.313	1	66576	14	>100:1			1000.00	1036.21	104.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.322	4.322	1/0	132945	14	>100:1	Target = 1.09		2000.00	1843.31		
512 > 219	57	4.322	4.322		131956	16	>100:1	1.00 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	1	116978	21	>100:1			1000.00	1029.44	105.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.479	4.479	1/0	223527	16	>100:1			2000.00	2308.77		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	1	731268	17	>100:1			1000.00	1050.57	106.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	1/0	1429130	17	>100:1	Target = 6.94		2000.00	1945.71		
613 > 169	38	4.486	4.486		220340	16	>100:1	6.48 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.728	4.727	1/0	633063	17	>100:1	Target = 2.82		2000.00	1961.15		
663 > 169	38	4.728	4.727		228563	17	>100:1	2.76 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	1	66097	21	>100:1			1000.00	1095.65	102.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.494	4.494	1/0	148783	15	>100:1	Target = 1.11		2000.00	1884.62		
526 > 219	59	4.494	4.494		129105	15	>100:1	1.15 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.950	4.942	1	791650	17	>100:1			1000.00	1061.02	105.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/0	1306204	17	>100:1	Target = 7.23		2000.00	1912.28		
713 > 169	42	4.950	4.942		182415	15	>100:1	7.16 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.331	5.323	1	370693	18	>100:1			1000.00	1065.53	107.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	1/0	1285992	16	>100:1	Target = 12.24		2000.00	1886.65		
813 > 269	40	5.331	5.331		101803	16	>100:1	12.63 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.679	5.678	1/0	997134	21	>100:1	Target = 148.06		2000.00	1990.62		
913 > 319	40	5.685	5.678		6589	20	>100:1	151.33 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.902	3.901	1	702275	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	936128	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.226	1	910782	20	>100:1			1000.00			

Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1061571	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.566	3.558	1	261040	19	>100:1			1000.00			

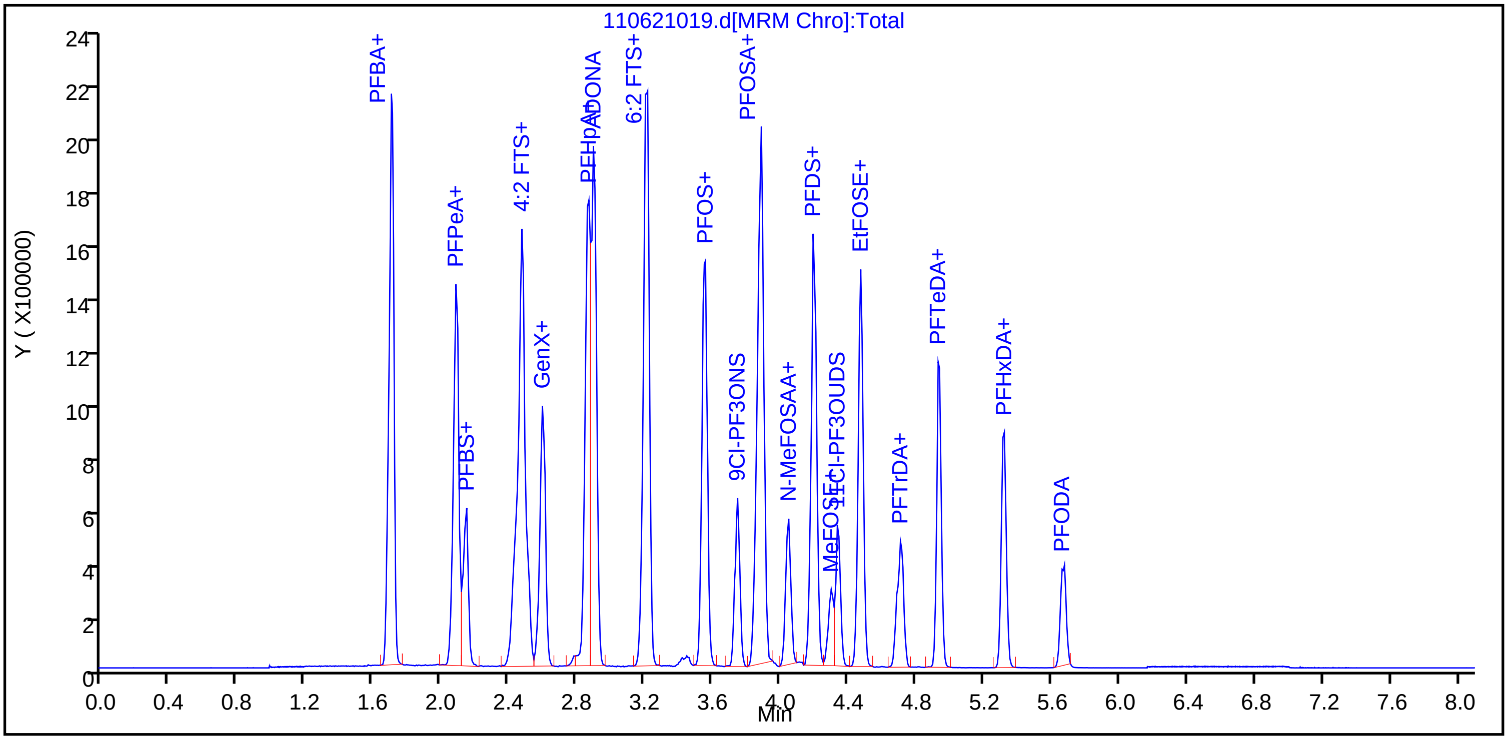
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

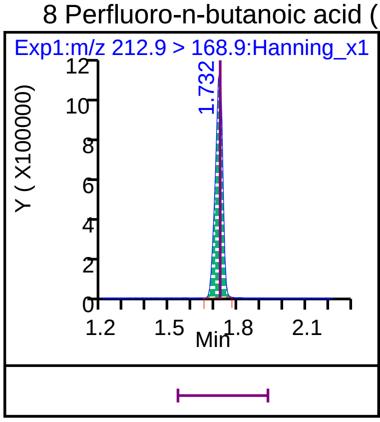
Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

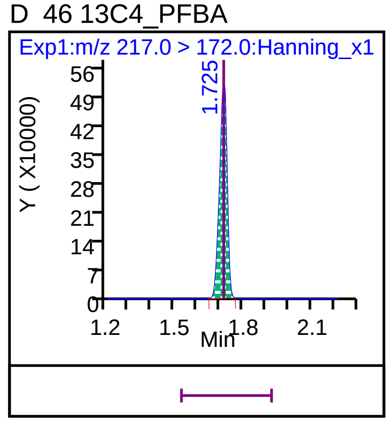
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d		
Injection Date:	06-Nov-2021 15:32:15	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 2000_SVLC-1745
Sample Info:	ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Matthew M. Miller



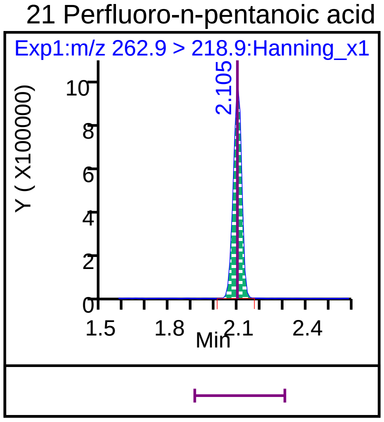
8 Perfluoro-n-butanoic acid (PFBA)



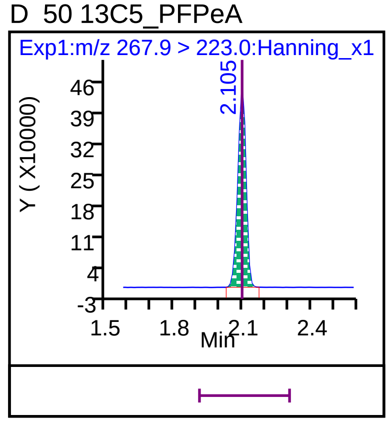
D 46 13C4_PFBA



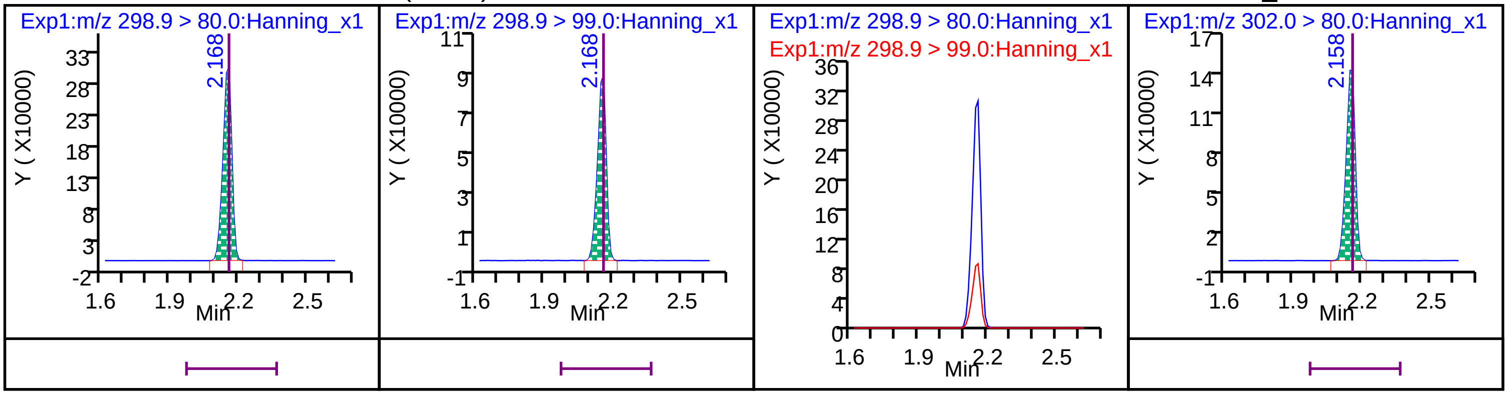
21 Perfluoro-n-pentanoic acid (PFPeA)



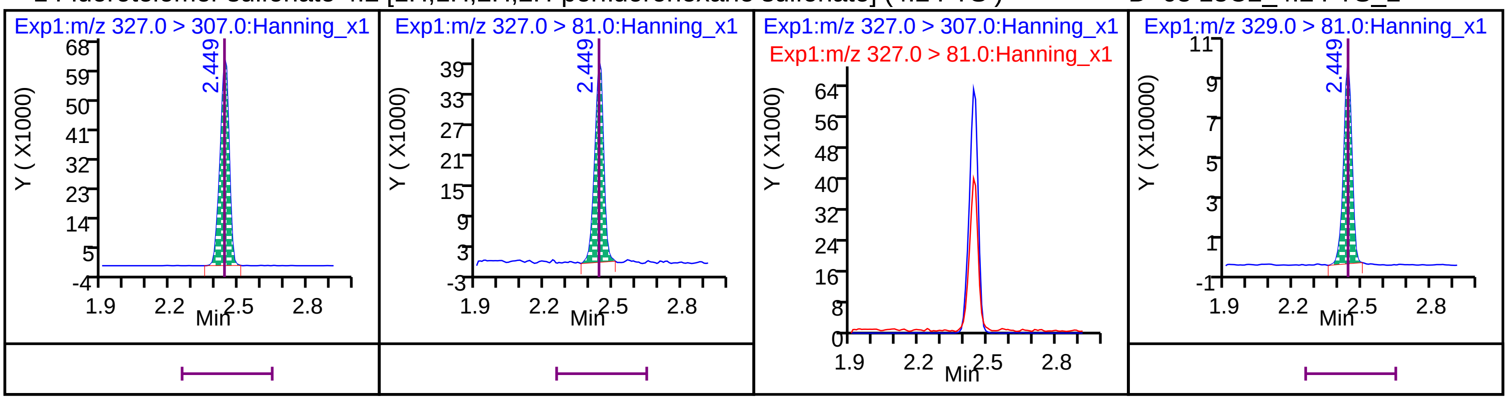
D 50 13C5_PFPeA



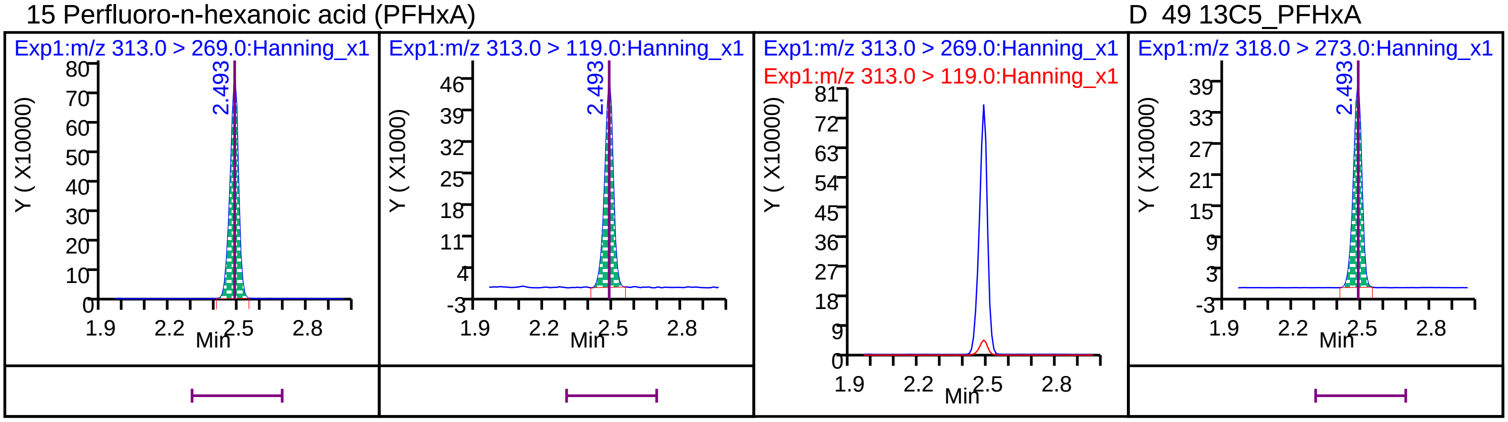
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



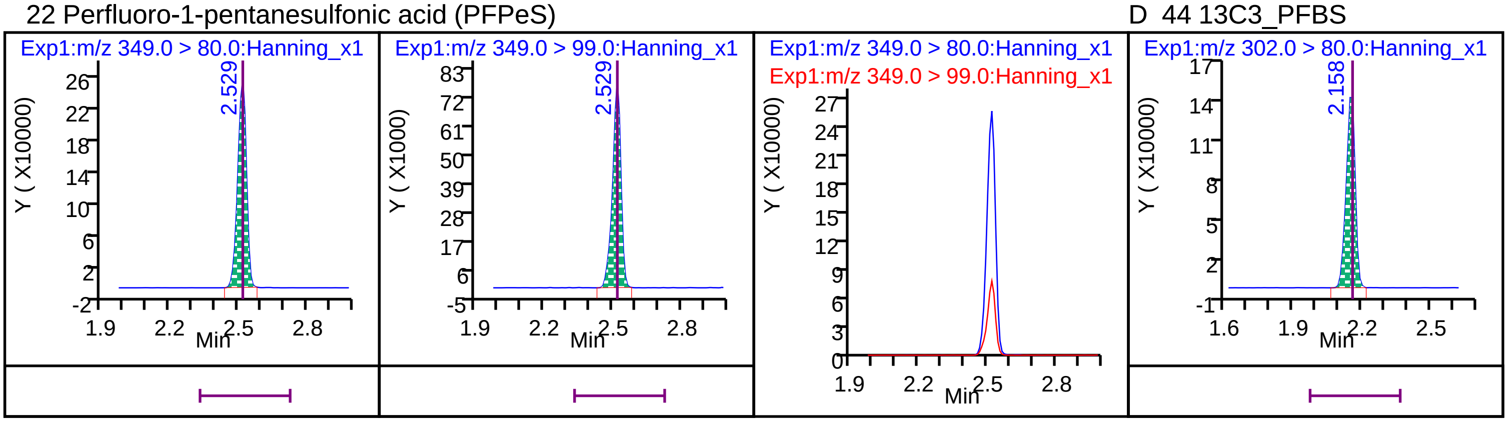
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

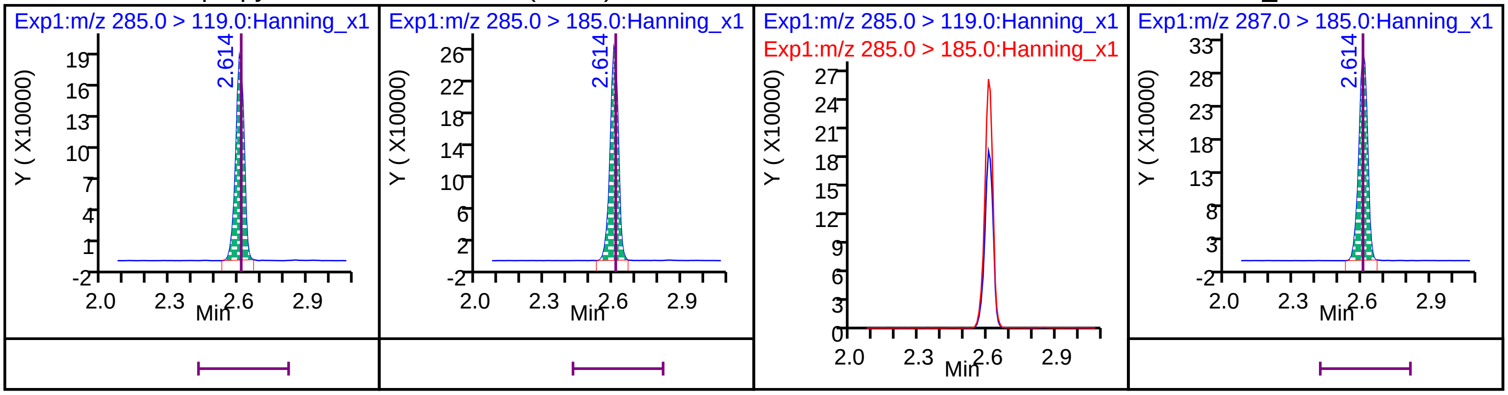


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

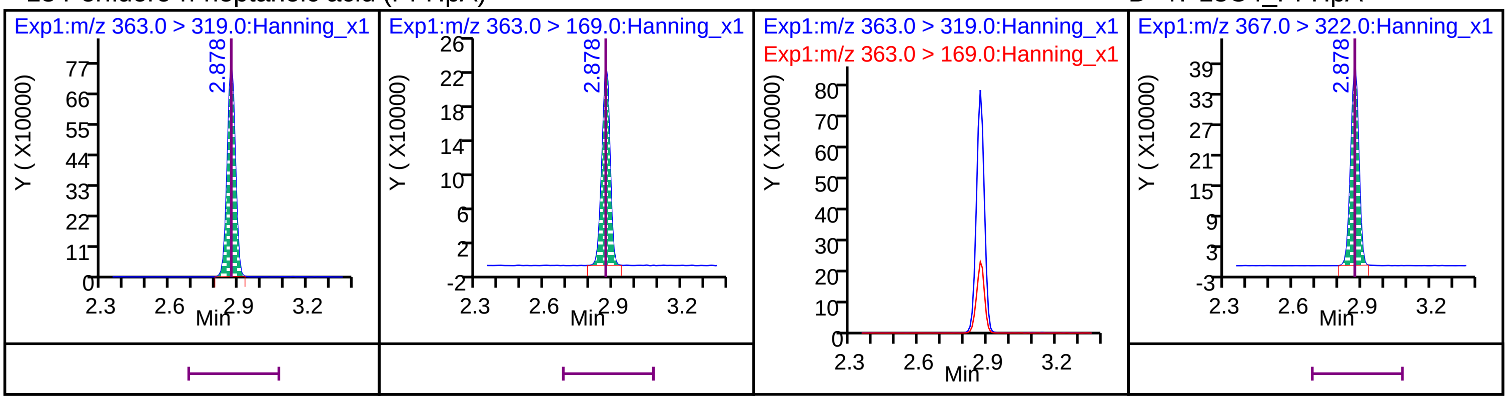


Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d

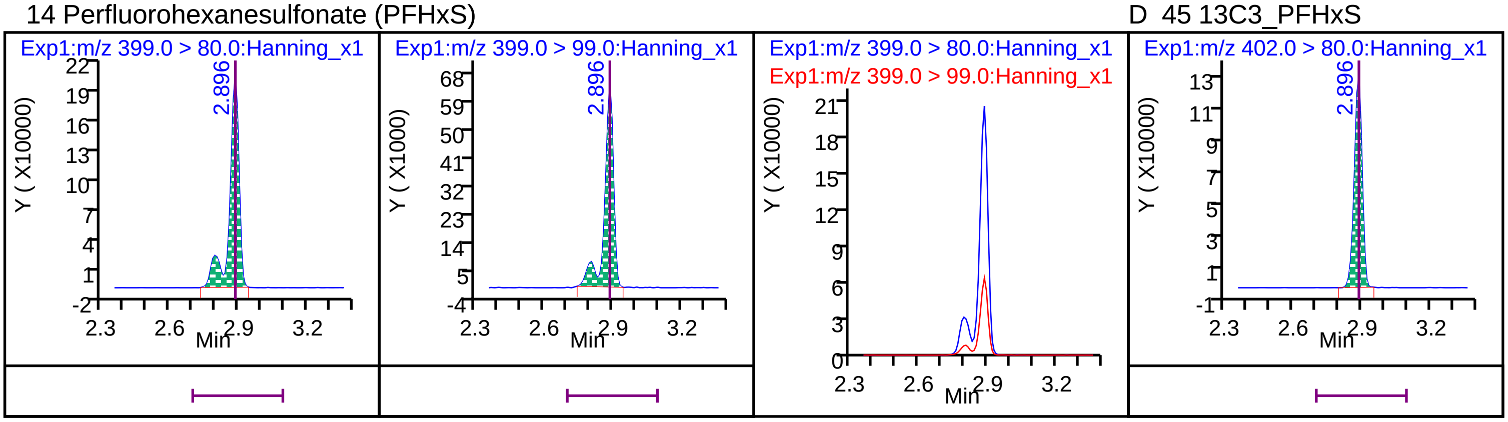
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



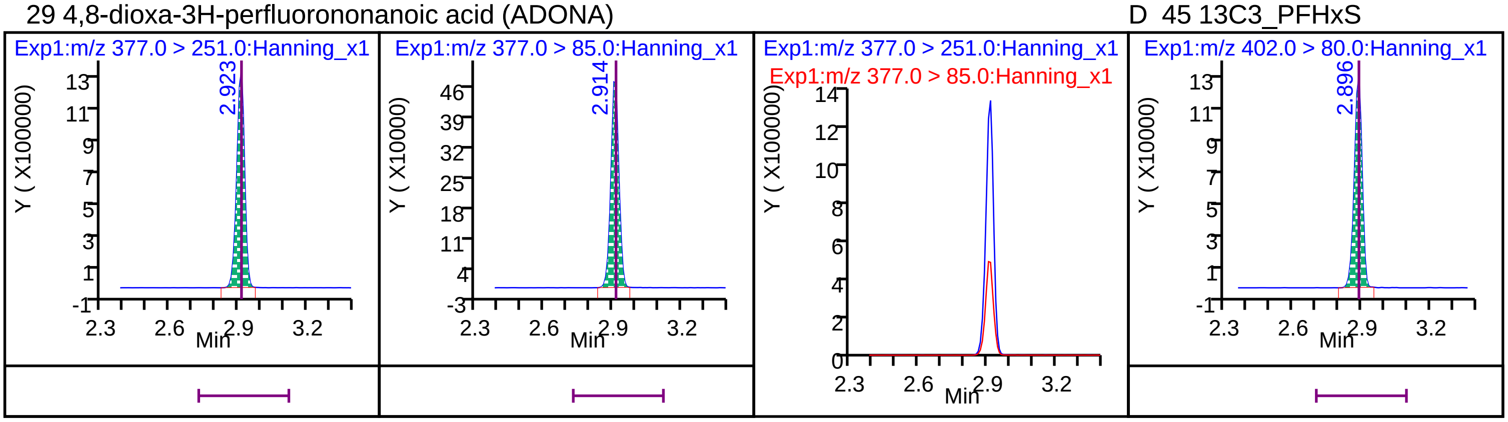
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



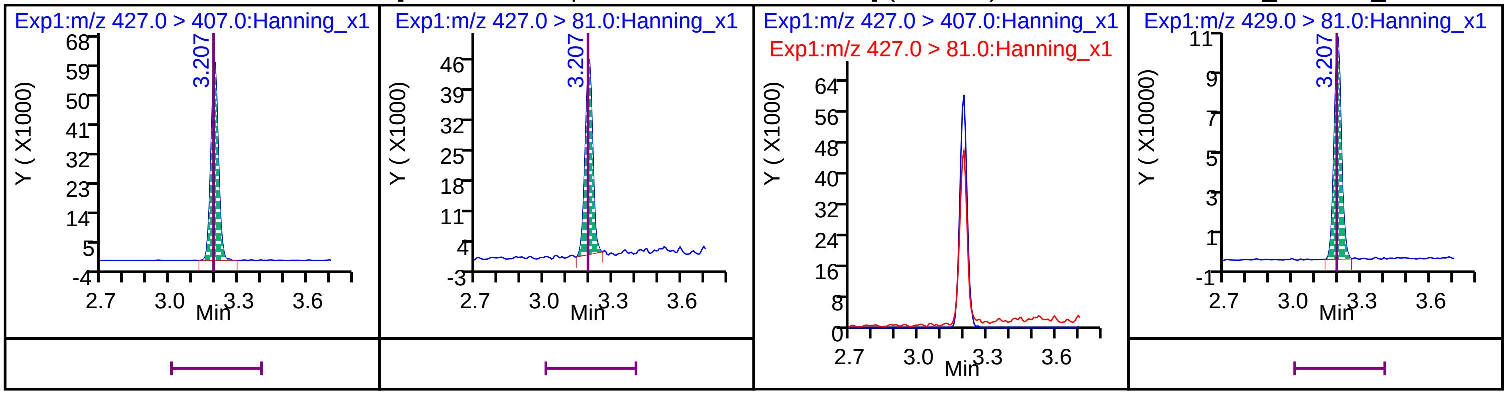
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



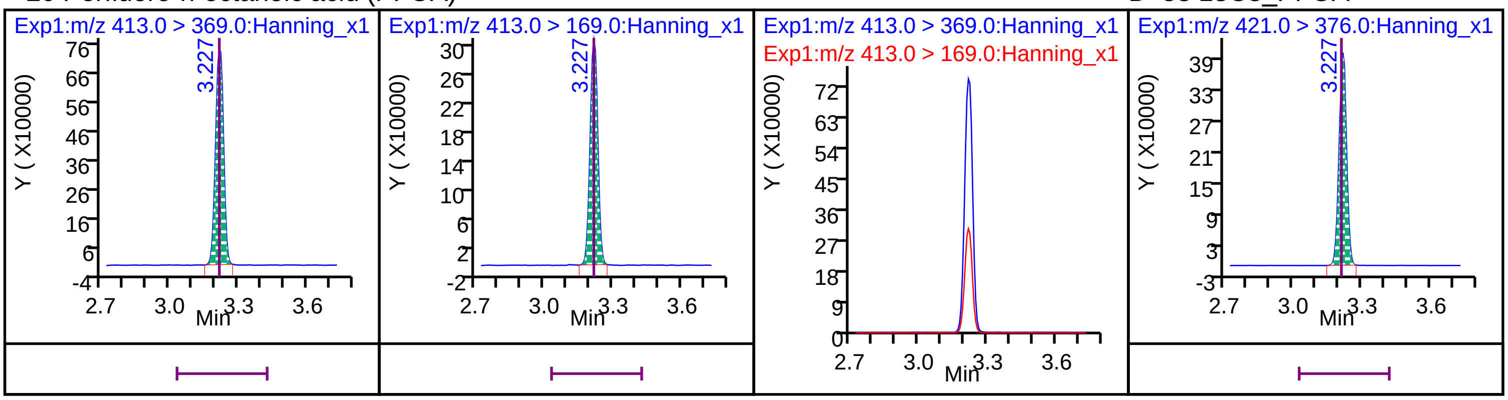
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



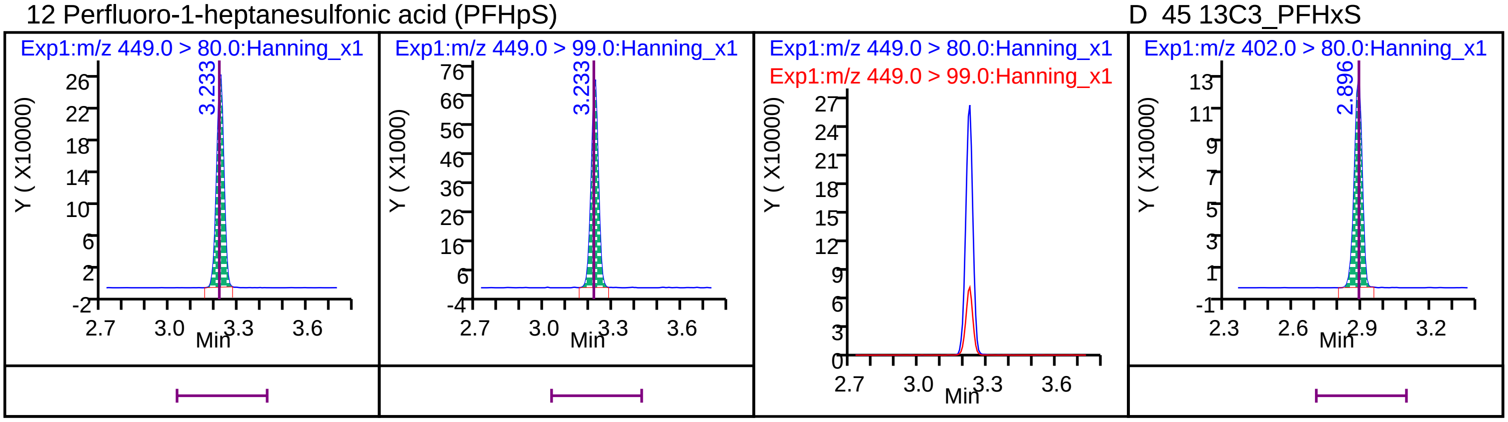
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



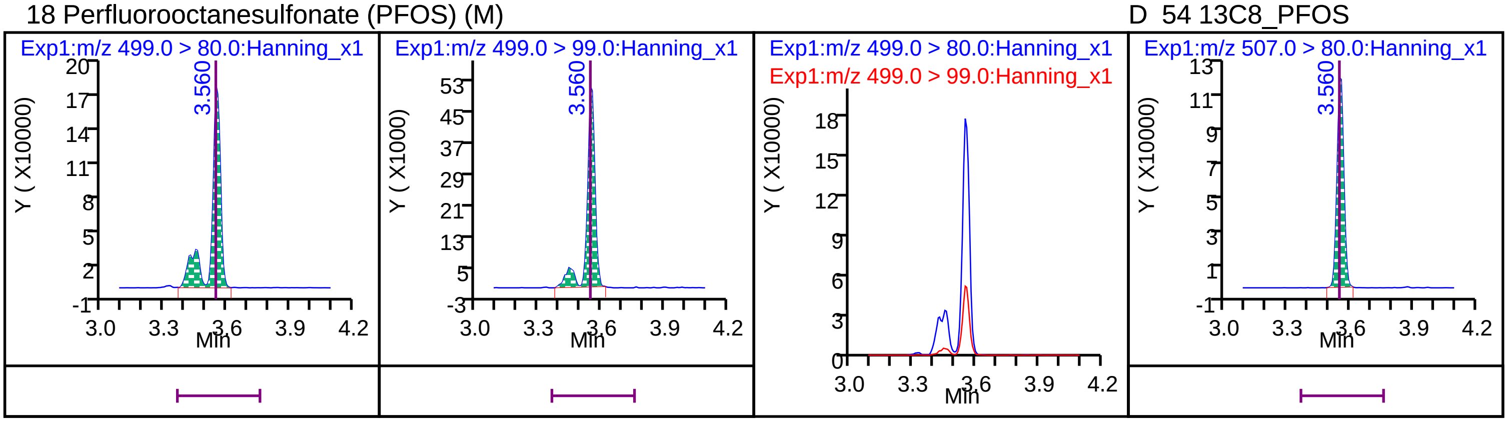
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



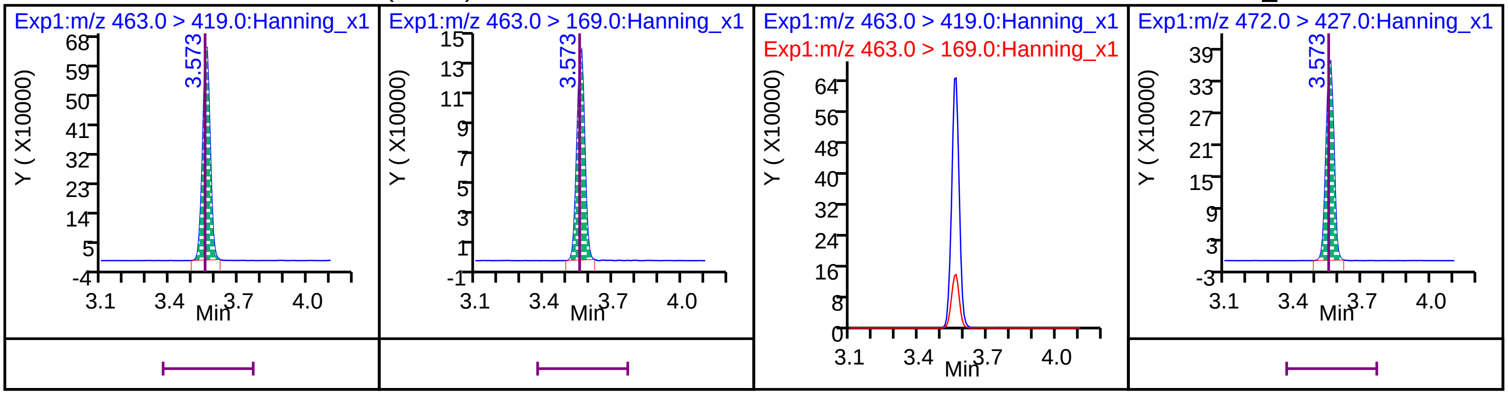
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



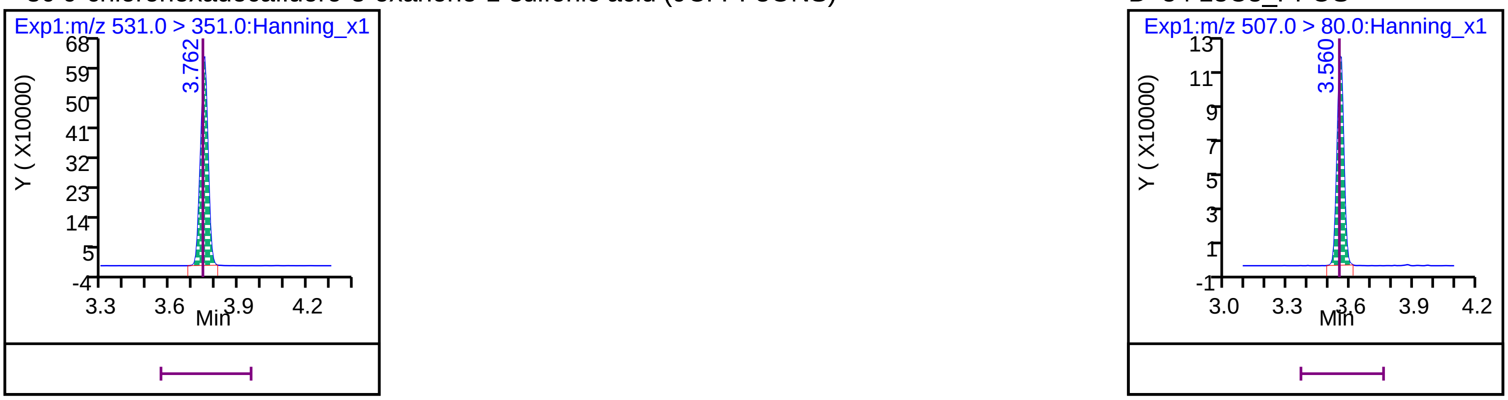
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



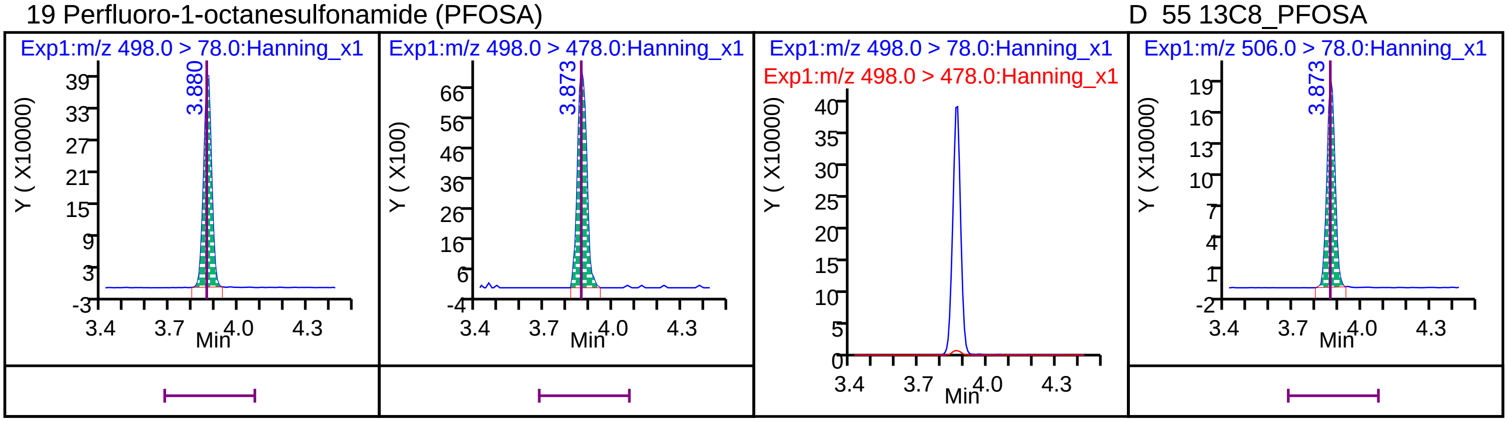
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



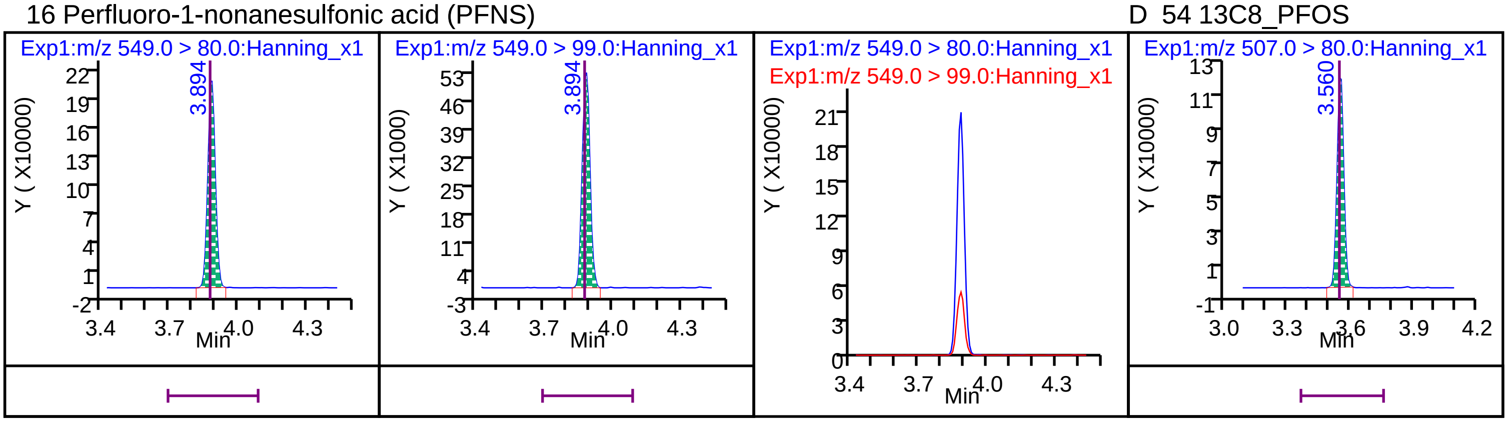
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

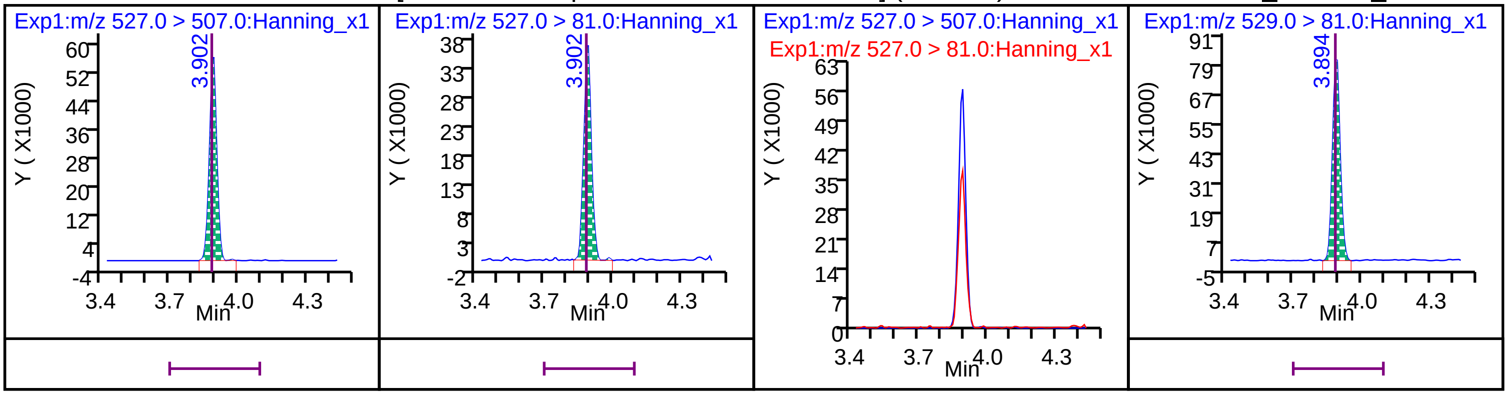


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

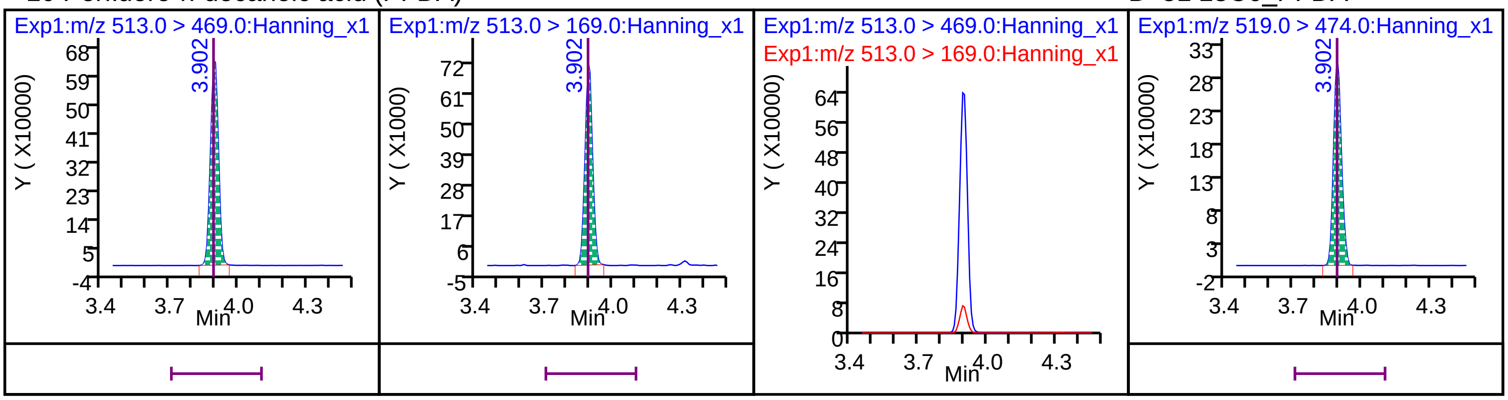


Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d

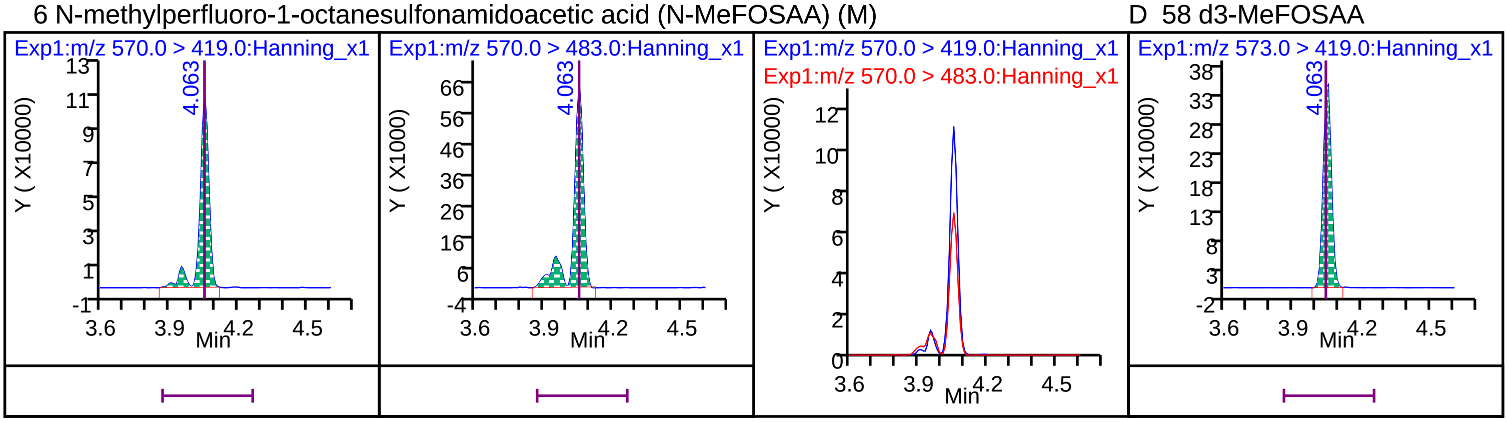
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



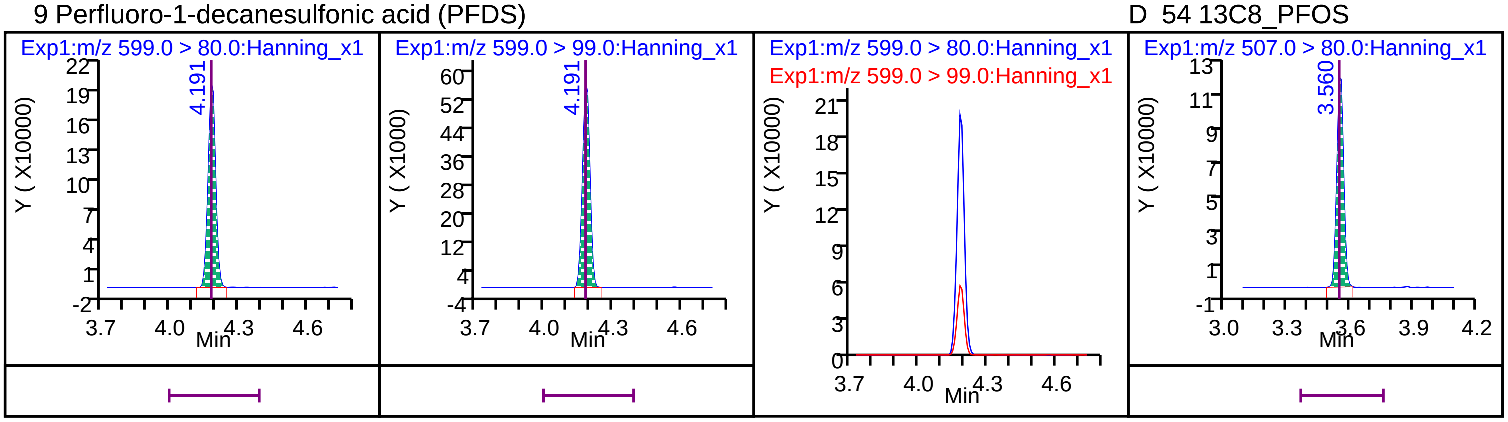
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



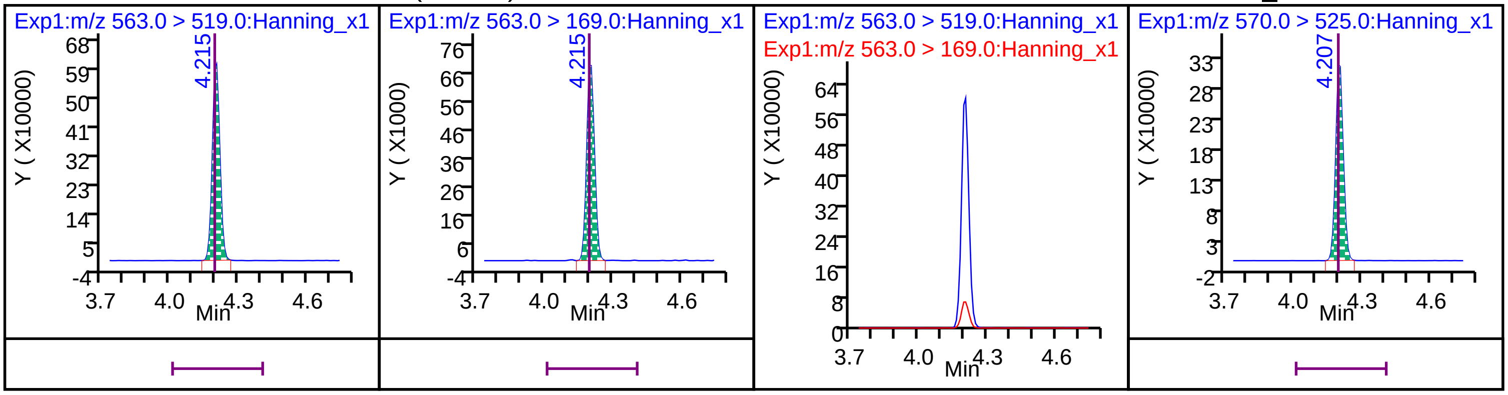
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



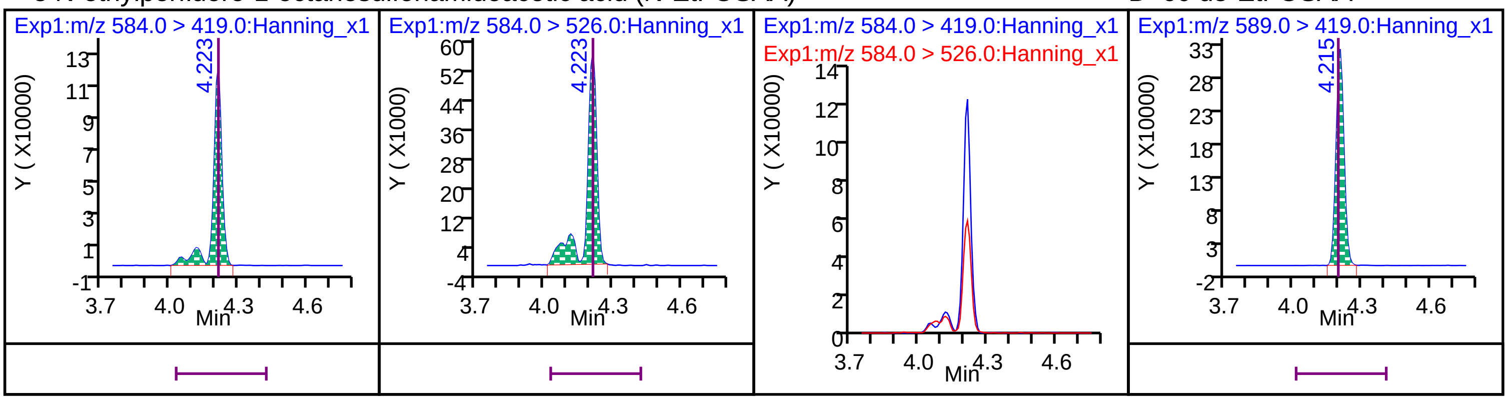
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



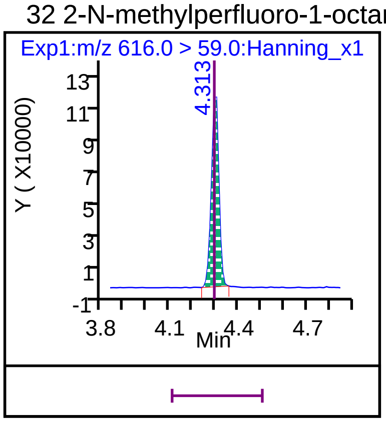
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

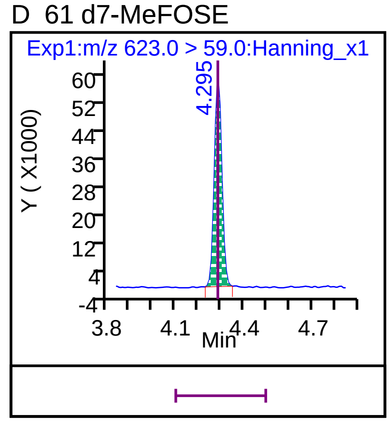


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

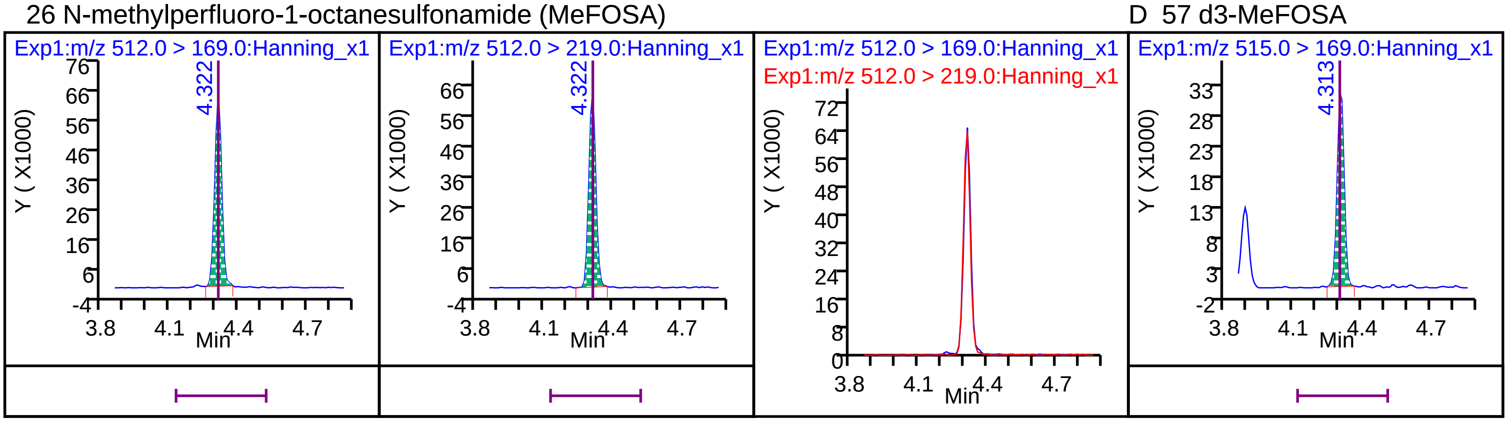


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



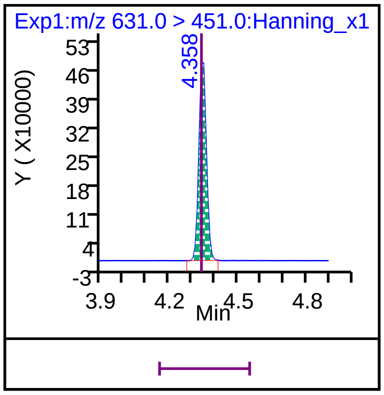


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

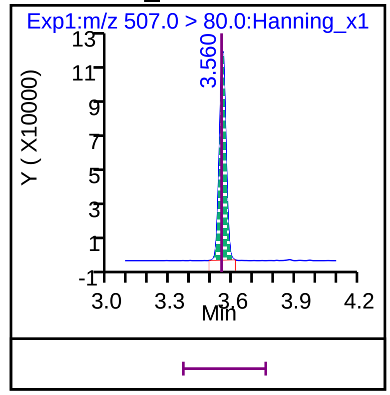


Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d

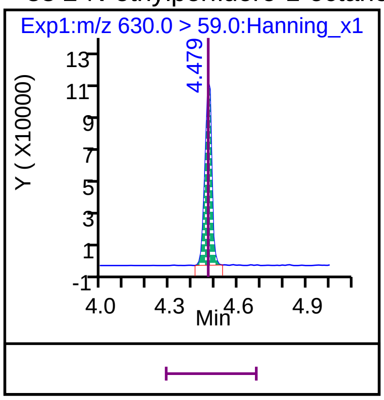
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



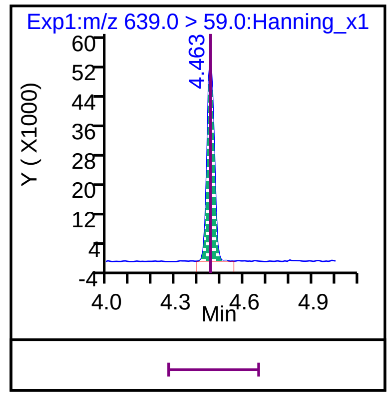
D 54 13C8_PFOS



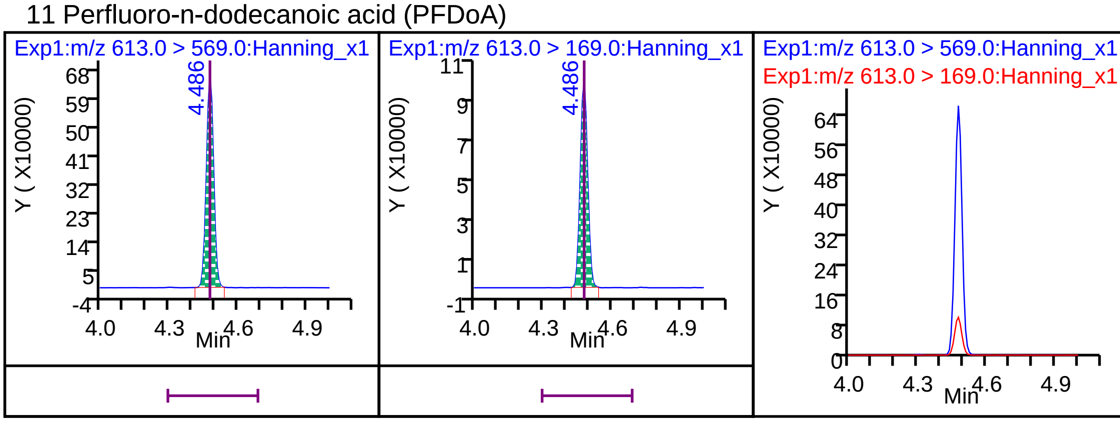
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



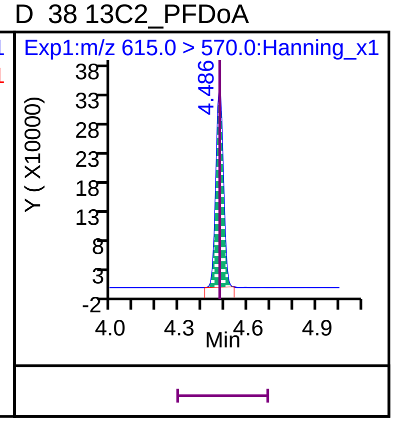
D 62 d9-EtFOSE



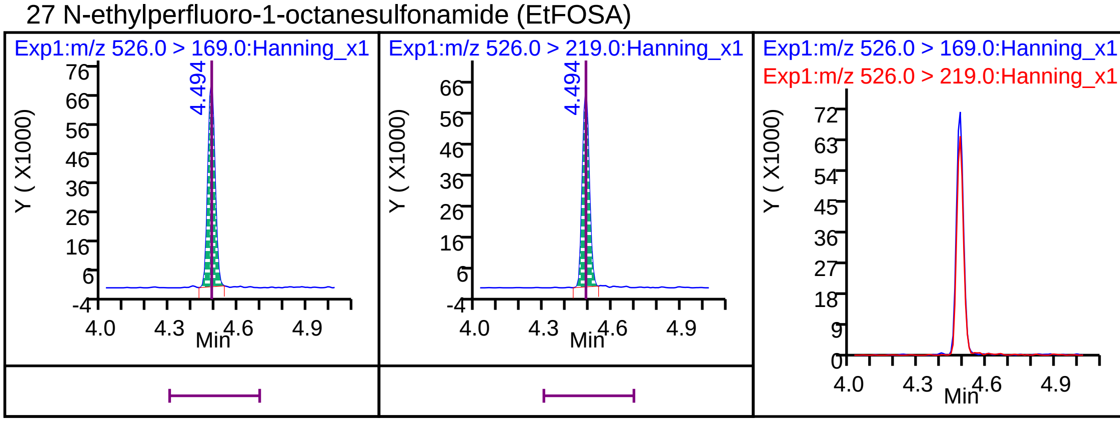
11 Perfluoro-n-dodecanoic acid (PFDoA)



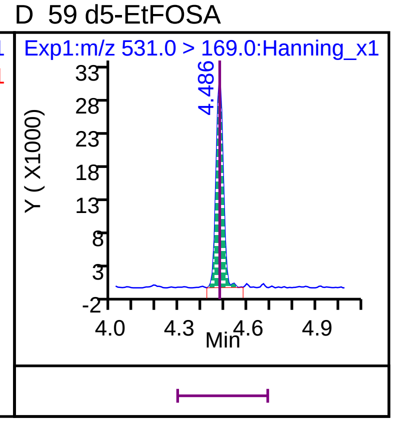
D 38 13C2_PFDoA



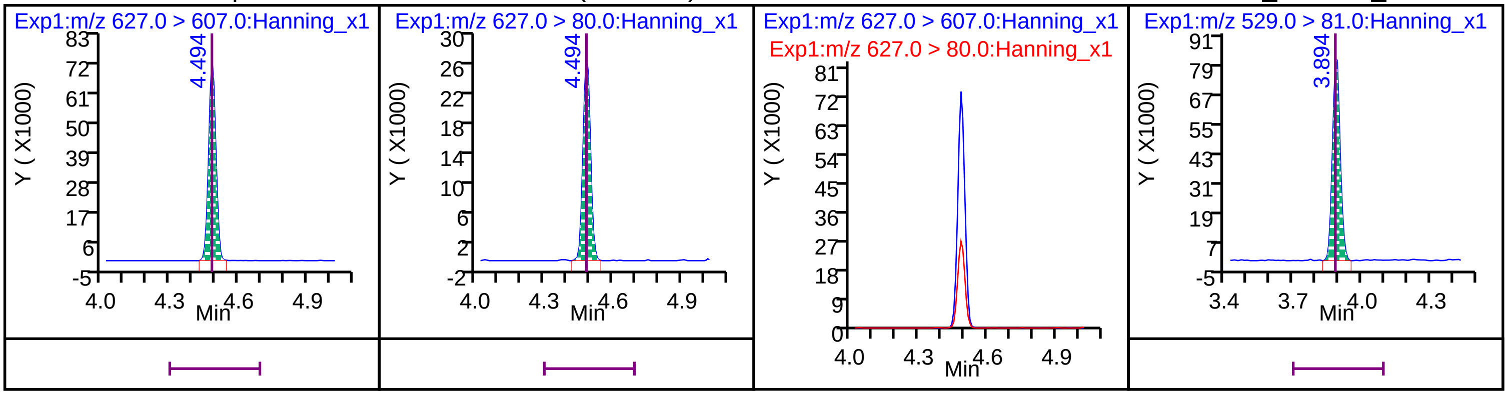
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



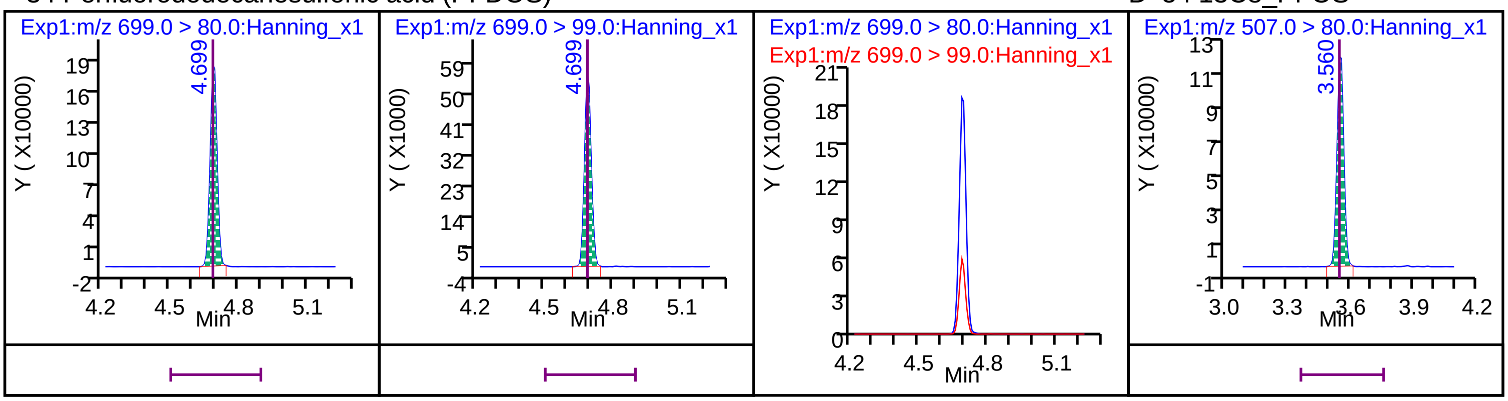
D 59 d5-EtFOSA



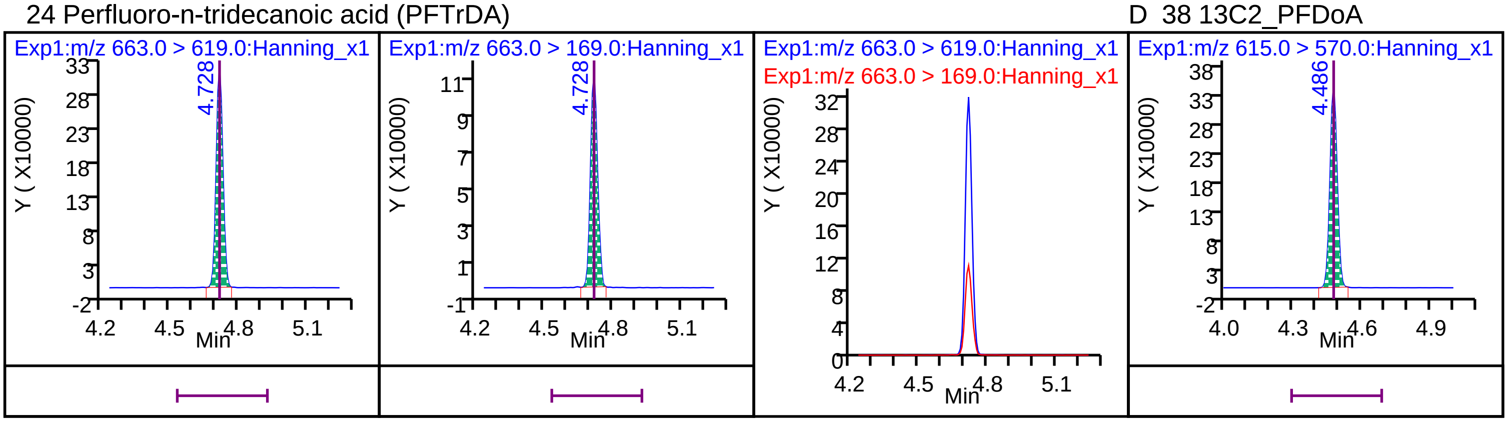
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



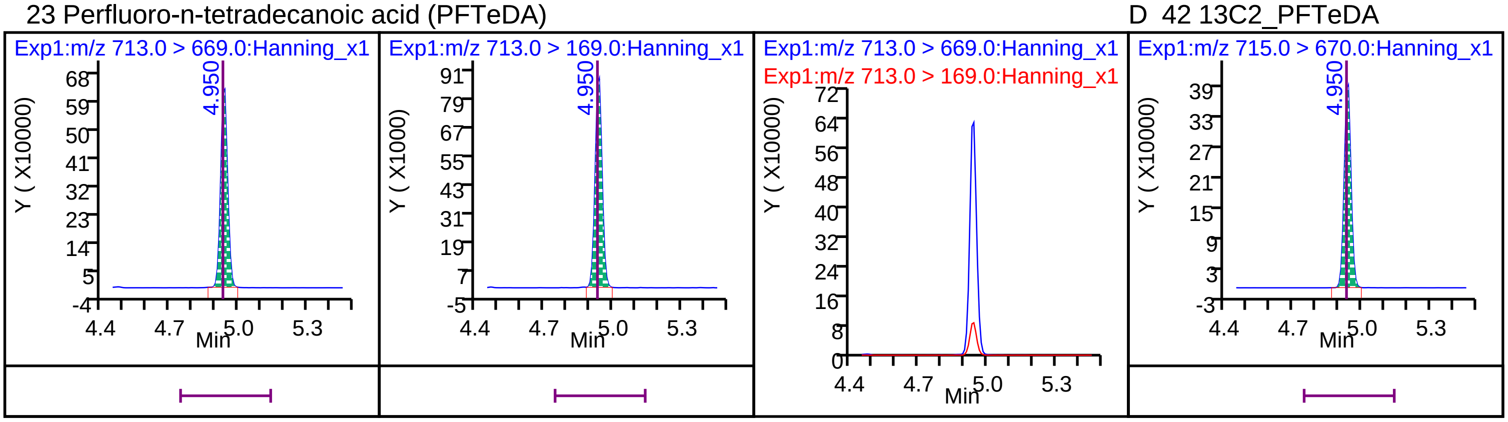
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



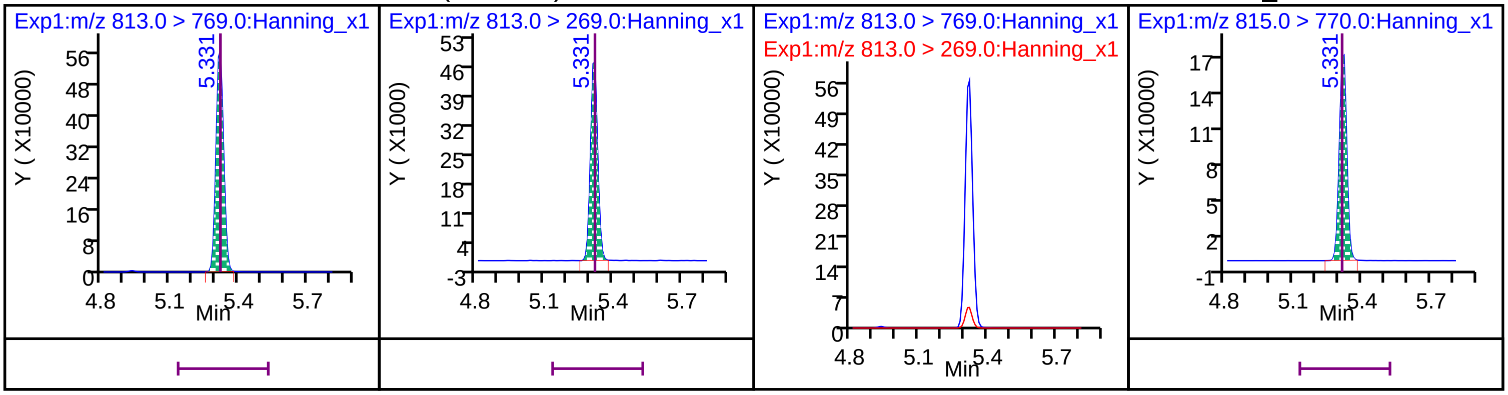
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



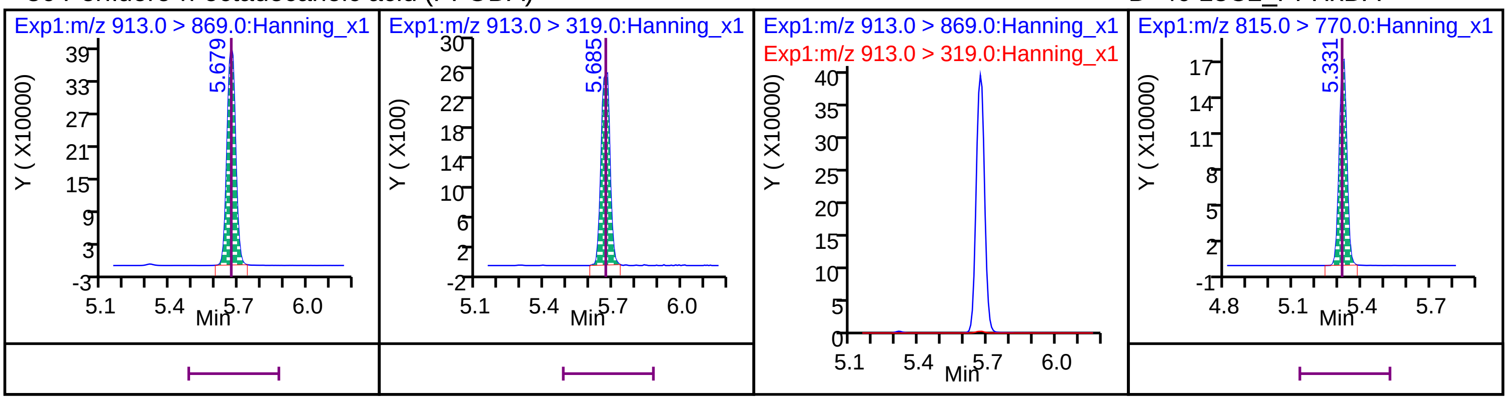
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



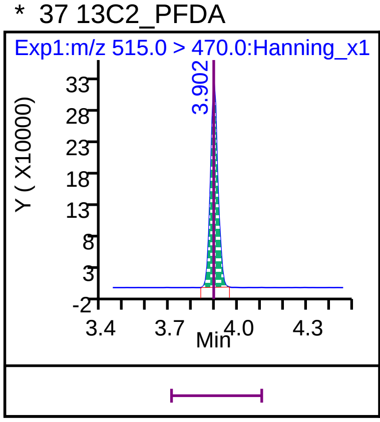
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



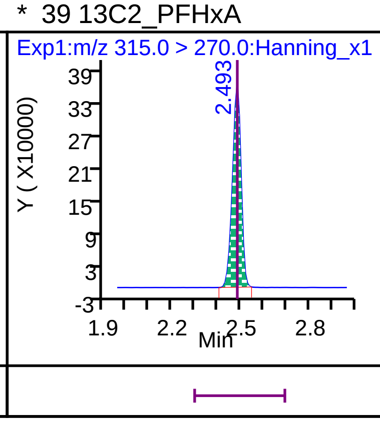
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



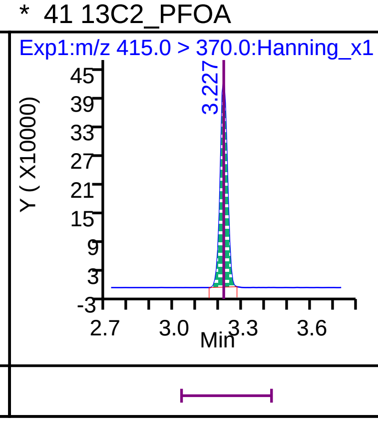
* 37 13C2_PFDA



* 39 13C2_PFHxA



* 41 13C2_PFOA



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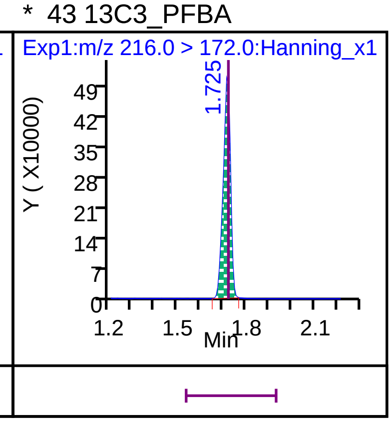
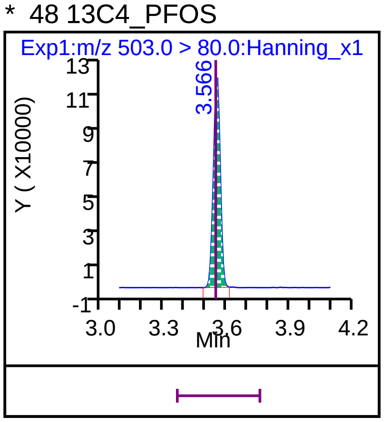


* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

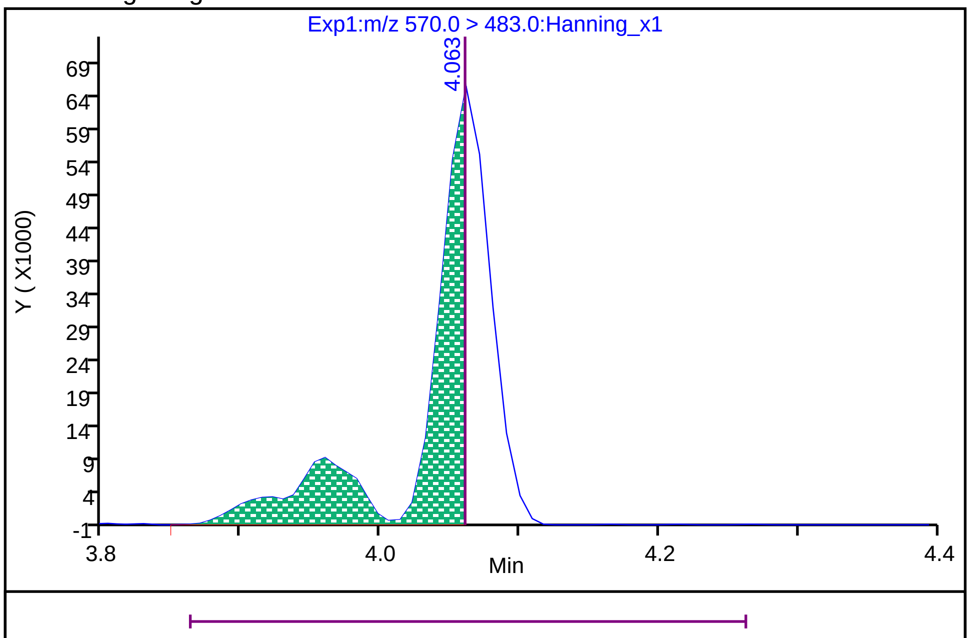
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d		
Injection Date:	06-Nov-2021 15:32:15	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 2000_SVLC-1745
Sample Info:	ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Matthew M. Miller

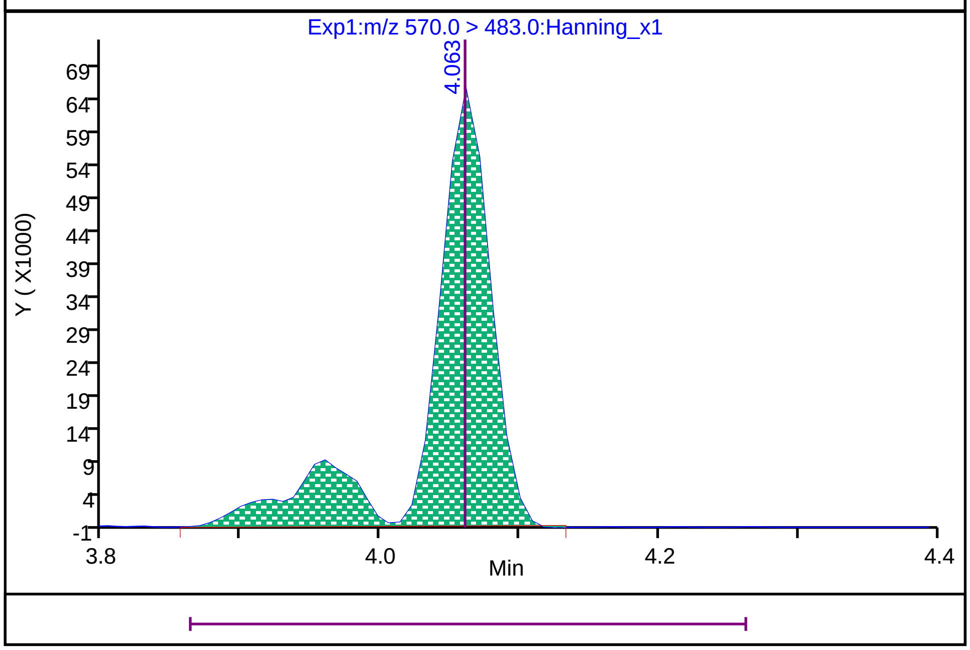
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.063
Area: 116108
Amount: 1976.35
Amount Units: ng/L



RT: 4.063
Area: 193758
Amount: 1976.35
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:09

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

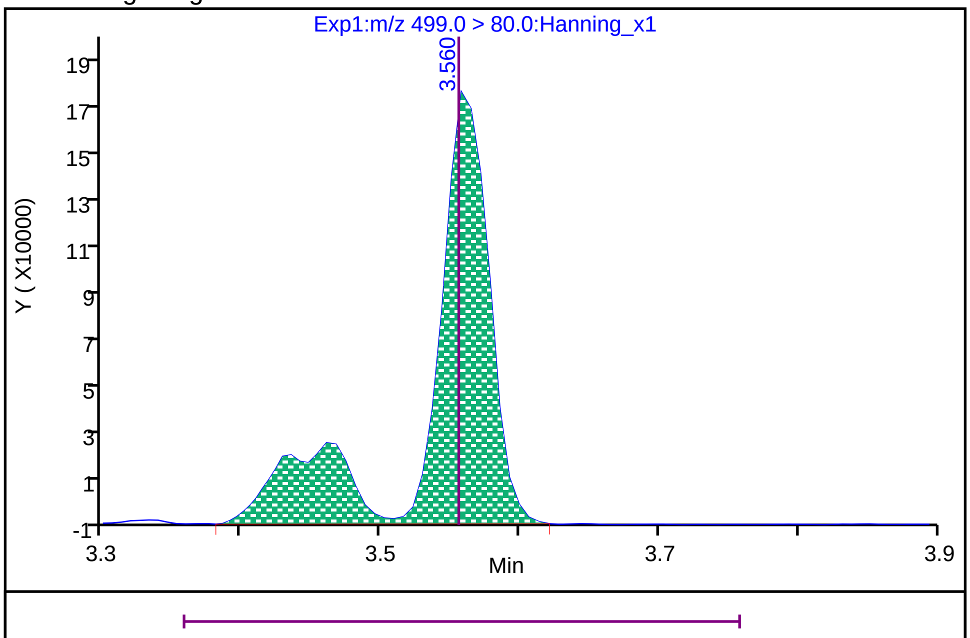
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621019.d		
Injection Date:	06-Nov-2021 15:32:15	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 2000_SVLC-1745
Sample Info:	ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Matthew M. Miller

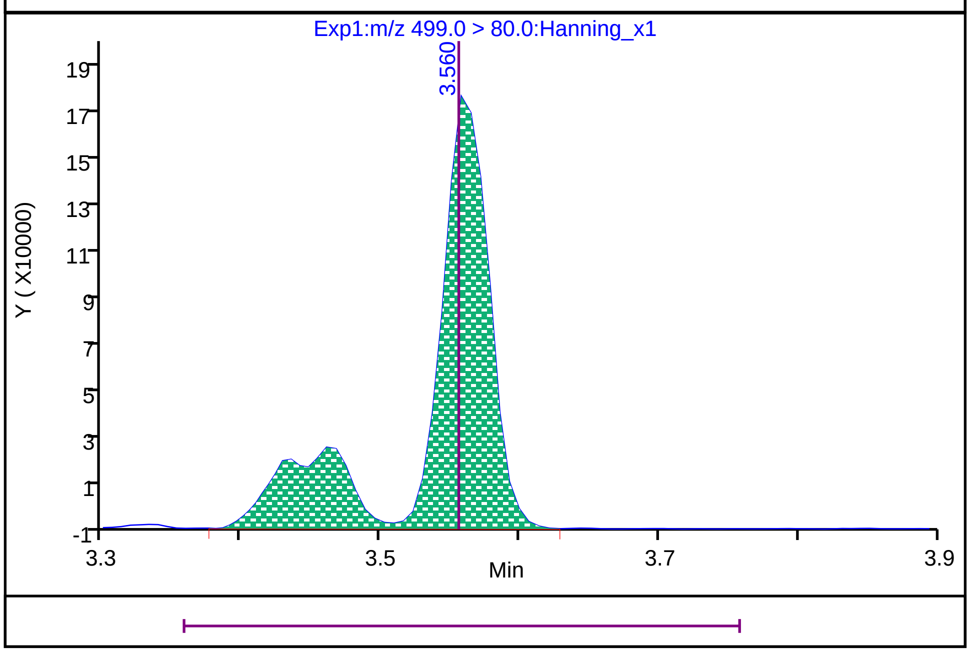
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.560
Area:	516213
Amount:	1816.18
Amount Units:	ng/L



RT:	3.560
Area:	520732
Amount:	1828.55
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:15

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621020.d		
Injection Date:	06-Nov-2021 15:42:48	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	7
Sample Info:	ICAL 5000_SVLC-1746	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1096712	19	>100:1			1000.00	1000.49	99.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.725	1.732	0/0	5844746	19	>100:1			5000.00	5000.84		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1030325	14	>100:1			1000.00	1010.03	99.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	5515028	16	>100:1			5000.00	4986.75		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	323639	16	>100:1			1000.00	959.11	95	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.158	2.169	0/0	1957981	15	>100:1	Target = 3.83		4420.00	4273.84		
298.9 > 99	44	2.158	2.169		516849	15	>100:1	3.78 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.520	2.529	0/0	1624850	18	>100:1	Target = 3.47		4690.00	5015.91		
349 > 99	44	2.528	2.529		486675	18	>100:1	3.33 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	232194	17	>100:1			5000.00	4972.37	100.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	0/0	402543	18	>100:1	Target = 1.39		4670.00	4662.01		
327 > 81	63	2.449	2.449		254068	18	>100:1	1.58 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	903860	18	>100:1			1000.00	991.08	98.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	0/0	4609972	18	>100:1	Target = 17.15		5000.00	5018.17		
313 > 119	49	2.493	2.493		268287	17	>100:1	17.18 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	0	782797	19	>100:1			5000.00	5318.14	114.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	1159669	19	>100:1	Target = 0.72		10000	9930.34		
285 > 185	66	2.614	2.622		1520987	18	>100:1	0.76 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	900461	17	>100:1			1000.00	1017.62	99.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	4205010	17	>100:1	Target = 3.21		5000.00	4888.11		
363 > 169	47	2.878	2.878		1330600	17	>100:1	3.16 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	293467	18	>100:1			1000.00	1061.05	106.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	1469645	26	>100:1	Target = 3.35	4.66	4550.00	4344.33		
399 > 99	45	2.887	2.896		411456	25	>100:1	3.57 (1.67-5.04)	6.68				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	0/0	7107284	17	>100:1	Target = 2.38		4710.00	4567.76		
377 > 85	45	2.914	2.923		2976991	17	>100:1	2.38 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.226	1/1	1374689	21	>100:1	Target = 3.87		4760.00	4401.48		
449 > 99	45	3.233	3.226		369799	20	>100:1	3.71 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.207	3.201	1	206280	20	>100:1			5000.00	5004.92	95.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.207	3.201	1/0	316103	21	>100:1	Target = 1.26		4740.00	4612.81		
427 > 81	64	3.207	3.201		231845	20	>100:1	1.36 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.226	3.220	1	821947	21	>100:1			1000.00	975.70	97.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.226	3.226	0/-1	4232273	20	>100:1	Target = 2.46		5000.00	5149.00		
413 > 169	53	3.226	3.226		1746485	20	>100:1	2.42 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.565	3.558	1	232262	20	>100:1			1000.00	980.31	97.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.572	3.558	1/0	1239069	43	>100:1	Target = 3.98	3.01	4640.00	4585.38		M
499 > 99	54	3.565	3.558		320033	41	>100:1	3.87 (1.99-5.97)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.767	3.755	1/0	3293432	20	>100:1			4660.00	4692.08		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.893	3.886	1/0	1081413	19	>100:1	Target = 3.57		4800.00	4889.57		
549 > 99	54	3.893	3.886		293686	18	>100:1	3.68 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.198	4.191	1/0	1052622	18	>100:1	Target = 3.73		4820.00	4835.09		
599 > 99	54	4.198	4.191		290695	17	>100:1	3.62 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.358	4.349	1/0	2667614	16	>100:1			4710.00	4765.48		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	0/-1	941812	17	>100:1	Target = 3.44		4840.00	5021.34		
699 > 99	54	4.698	4.698		275363	17	>100:1	3.42 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.565	1	787423	20	>100:1			1000.00	970.52	92.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.572	3.565	1/0	3625671	20	>100:1	Target = 4.45		5000.00	5162.50		
463 > 169	56	3.572	3.565		780892	20	>100:1	4.64 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.878	3.872	1	418944	19	>100:1			1000.00	1008.56	98.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.878	3.872	1/0	2283570	19	>100:1	Target = 47.73		5000.00	5002.58		
498>478	55	3.878	3.872		52001	25		43.91 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.900	3.894	1	168384	19	>100:1			5000.00	4835.54	94.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.900	3.894	1/0	279446	18	>100:1	Target = 1.41		4790.00	5028.89		
527 > 81	65	3.900	3.894		177467	18	>100:1	1.57 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.494	4.494	0/-1	352756	18		Target = 2.81		4820.00	4938.05		
627 > 80	65	4.494	4.494		150247	18	>100:1	2.34 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.908	3.901	1	699838	18	>100:1			1000.00	978.19	90.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.908	3.901	1/0	3708102	18	>100:1	Target = 9.36		5000.00	5187.73		
513 > 169	51	3.908	3.901		406432	18	>100:1	9.12 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.061	4.053	1	860647	16	>100:1			5000.00	5322.87	108.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.071	4.062	1/0	679747	34		Target = 1.42	7.59	5000.00	4893.21		
570 > 483	58	4.061	4.062		462724	38	>100:1	1.46 (0.71-2.13)	4.35				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.215	4.207	1	710234	17	>100:1			5000.00	4912.00	94.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.223	4.223	0/-1	735217	32	>100:1	Target = 1.80	5.90	5000.00	5246.98		
584 > 526	60	4.223	4.223		415062	33	>100:1	1.77 (0.90-2.70)	3.90				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.215	4.207	1	751675	17	>100:1			1000.00	1070.41	104.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.215	4.207	1/0	3267105	17	>100:1	Target = 8.65		5000.00	4826.37		
563 > 169	52	4.215	4.207		359444	17	>100:1	9.08 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.294	4.295	0	123648	22	>100:1			1000.00	1007.56	99.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.304	4.304	0/0	617454	16	>100:1			5000.00	4896.90		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.322	4.313	1	66062	20	>100:1			1000.00	1028.21	104.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.322	4.322	0/-1	360043	14	>100:1	Target = 1.09		5000.00	5030.90		
512 > 219	57	4.322	4.322		318610	15	>100:1	1.13 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	0	106348	17	>100:1			1000.00	935.90	96.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.478	4.479	0/0	444553	15	>100:1			5000.00	5050.68		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	0	688463	17	>100:1			1000.00	989.07	99.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	0/0	3479718	17	>100:1	Target = 6.94		5000.00	5032.07		
613 > 169	38	4.486	4.486		514583	16	>100:1	6.76 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.727	0/0	1542488	17	>100:1	Target = 2.82		5000.00	5075.53		
663 > 169	38	4.727	4.727		547292	16	>100:1	2.81 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	0	64463	14	>100:1			1000.00	1068.56	100.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.494	4.494	0/0	374669	15	>100:1	Target = 1.11		5000.00	4866.21		
526 > 219	59	4.494	4.494		321794	15	>100:1	1.16 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.942	4.942	1	757850	16	>100:1			1000.00	1015.72	100.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/0	3264806	17	>100:1	Target = 7.23		5000.00	4992.85		
713 > 169	42	4.950	4.942		453372	15	>100:1	7.20 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.323	5.323	1	351002	16	>100:1			1000.00	1008.93	102.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	1/0	3187940	17	>100:1	Target = 12.24		5000.00	4939.34		
813 > 269	40	5.331	5.331		259431	17	>100:1	12.28 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.678	5.678	1/0	2403460	21	>100:1	Target = 148.06		5000.00	5067.29		
913 > 319	40	5.678	5.678		16384	21	>100:1	146.69 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.908	3.901	1	680404	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	899131	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.226	3.226	0	809569	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1035266	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.565	3.558	1	252526	20	>100:1			1000.00			

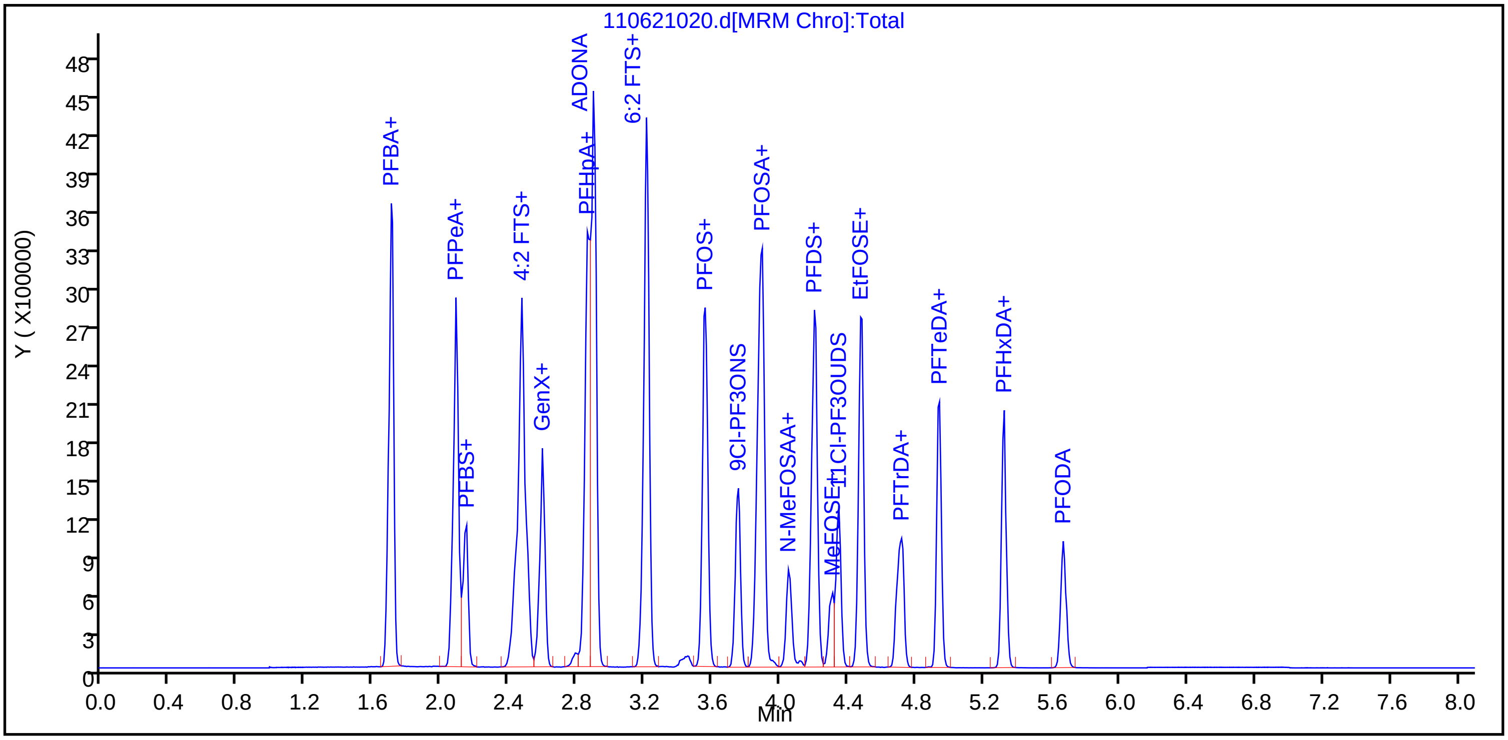
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

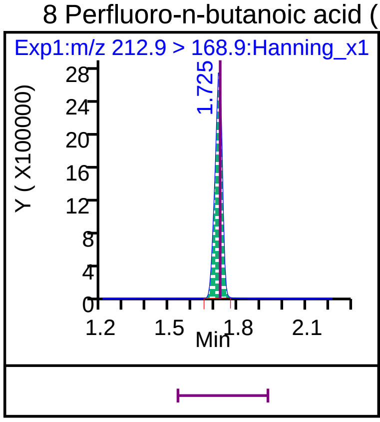
Report Date: 09-Nov-2021 13:30:44 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

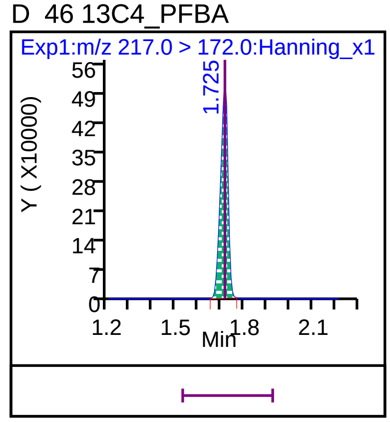
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621020.d		
Injection Date:	06-Nov-2021 15:42:48	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1746
Sample Info:	ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Matthew M. Miller



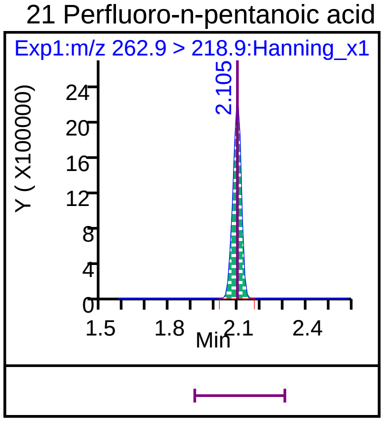
8 Perfluoro-n-butanoic acid (PFBA)



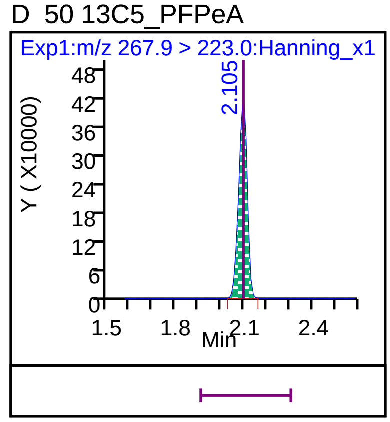
D 46 13C4_PFBA



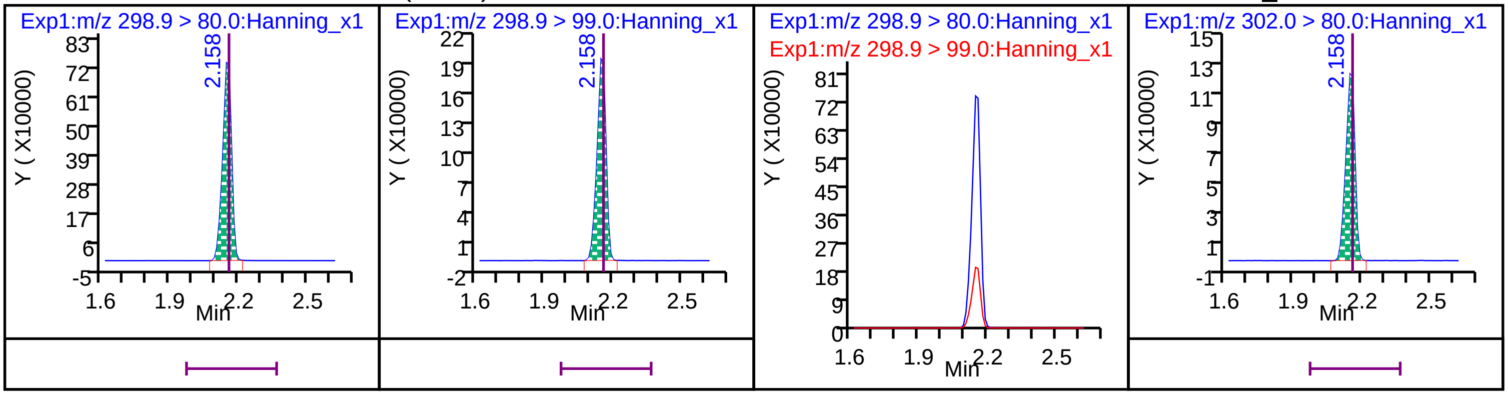
21 Perfluoro-n-pentanoic acid (PFPeA)



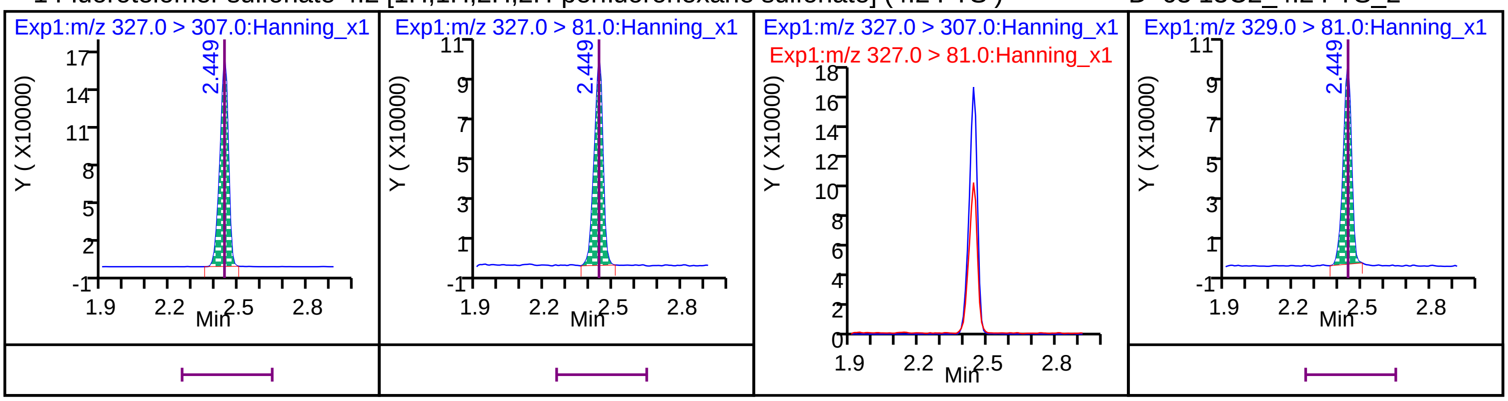
D 50 13C5_PFPeA



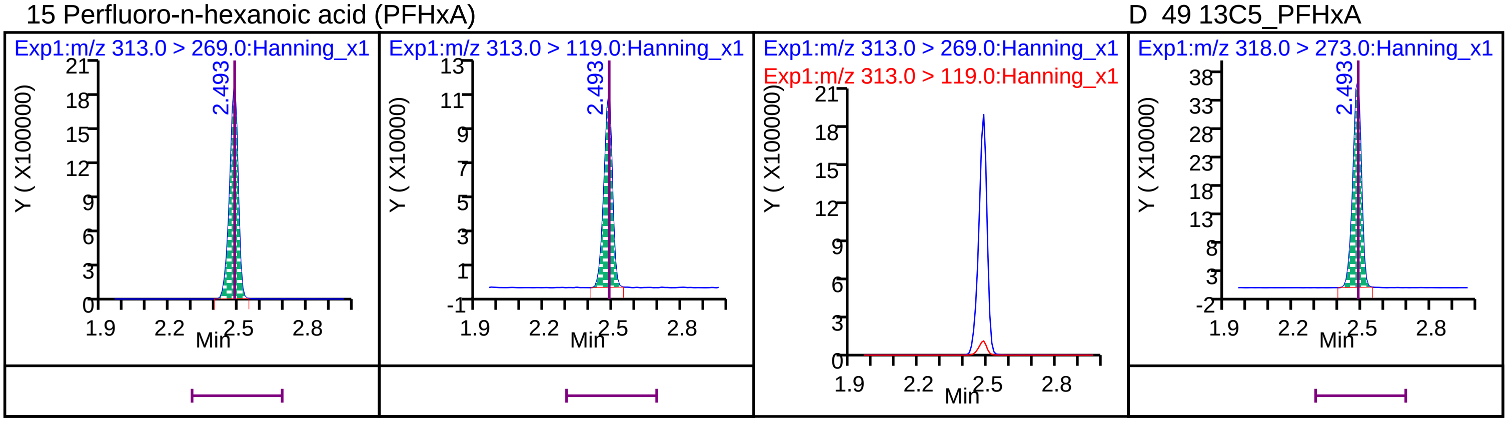
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



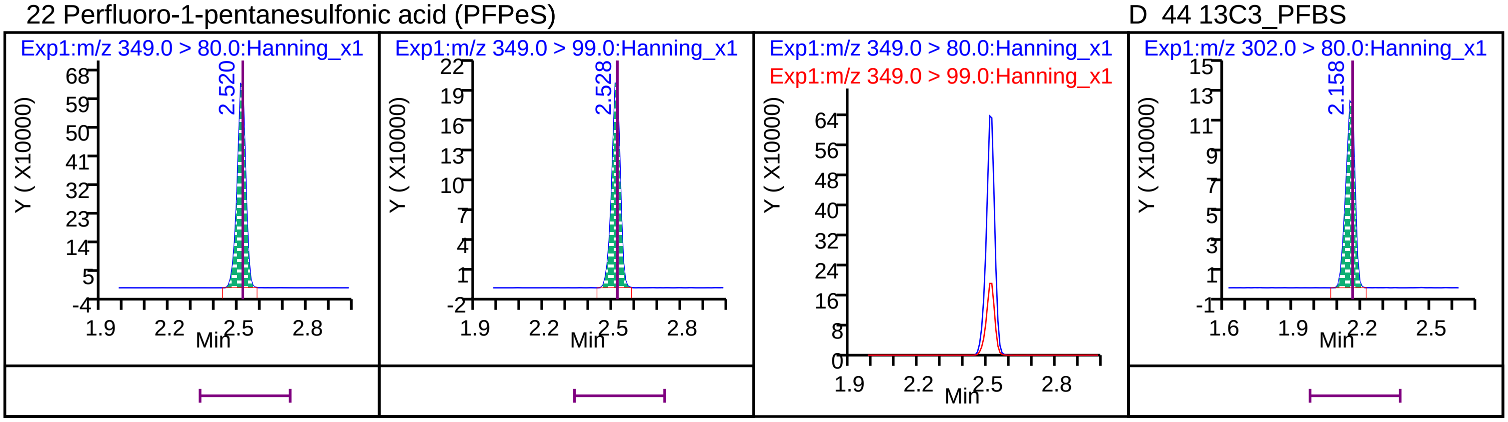
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

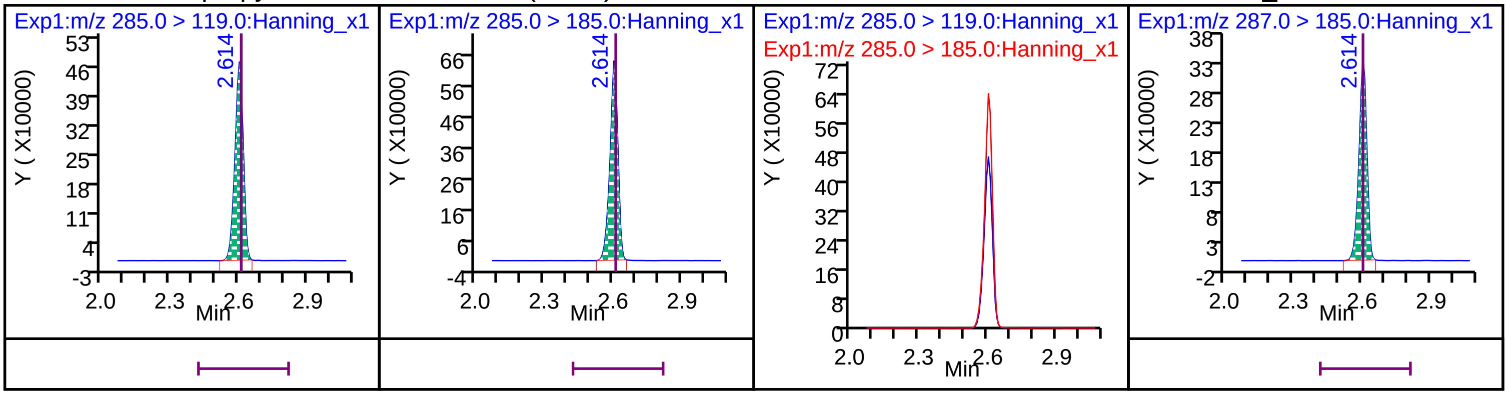


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

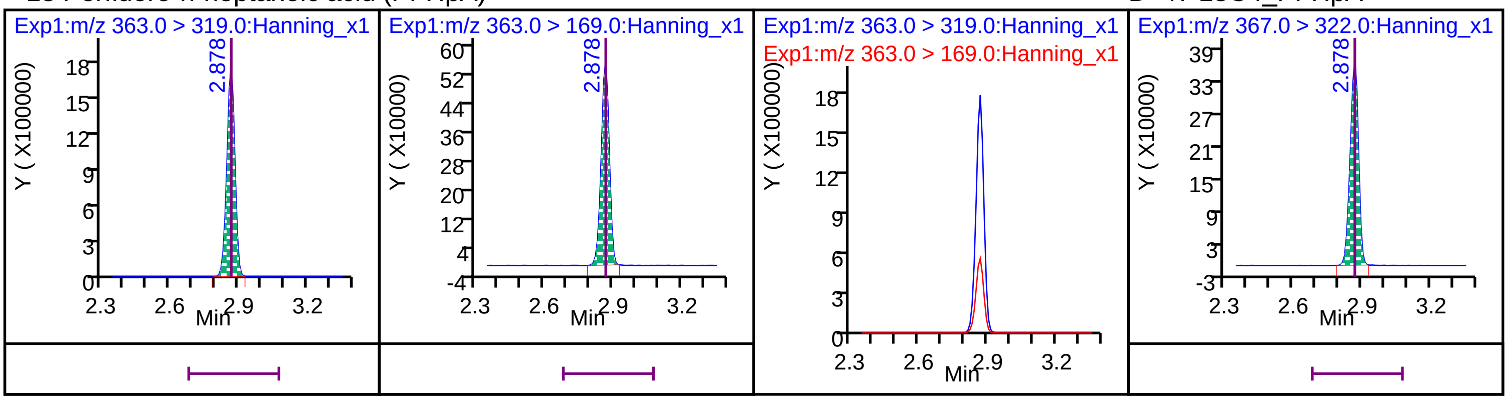


Report Date: 09-Nov-2021 13:30:44 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621020.d

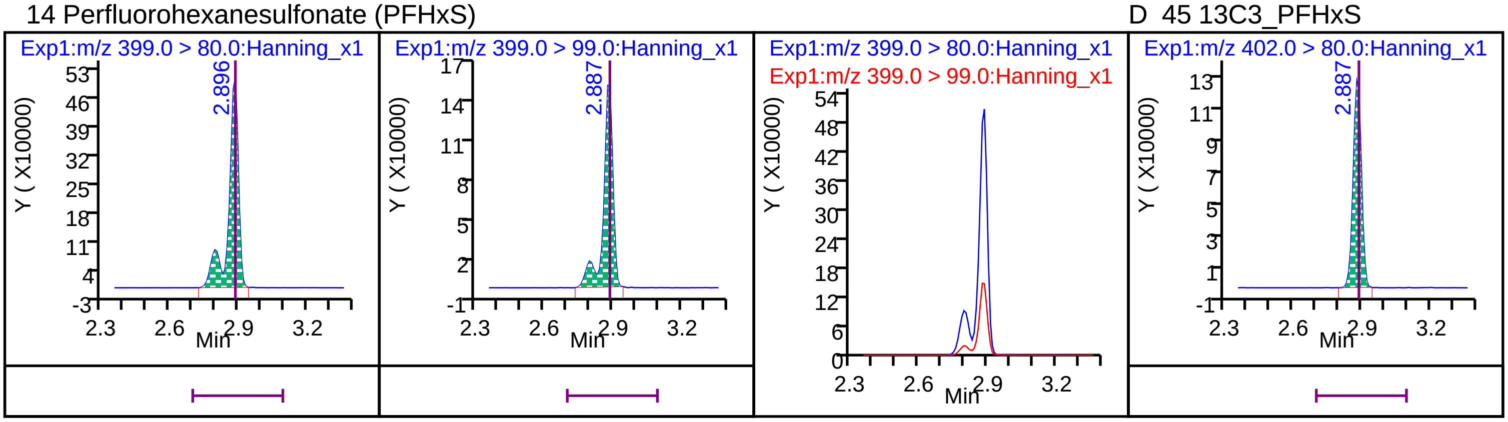
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



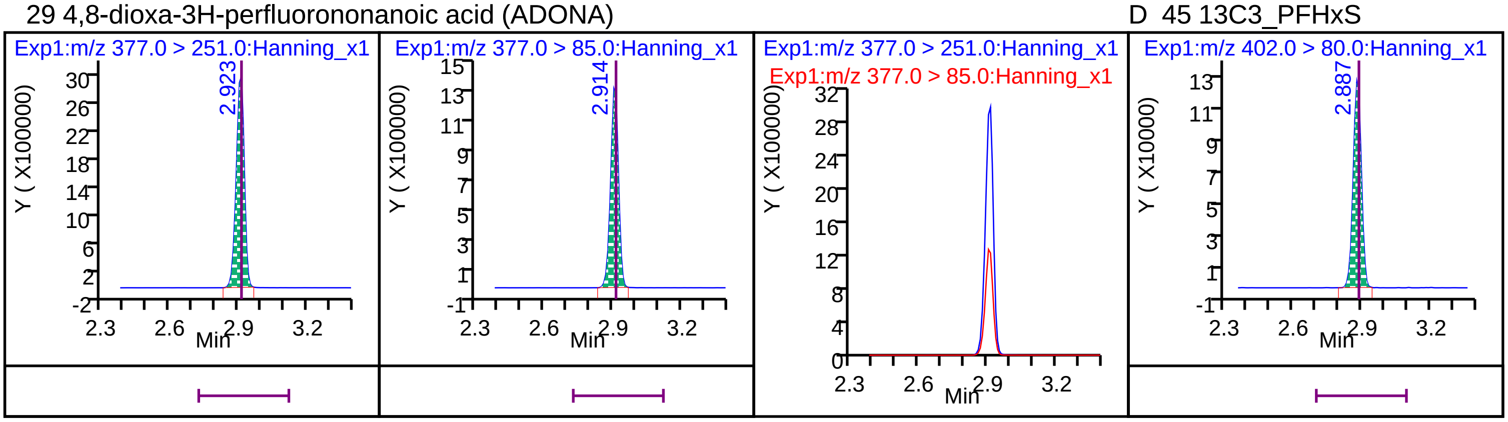
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



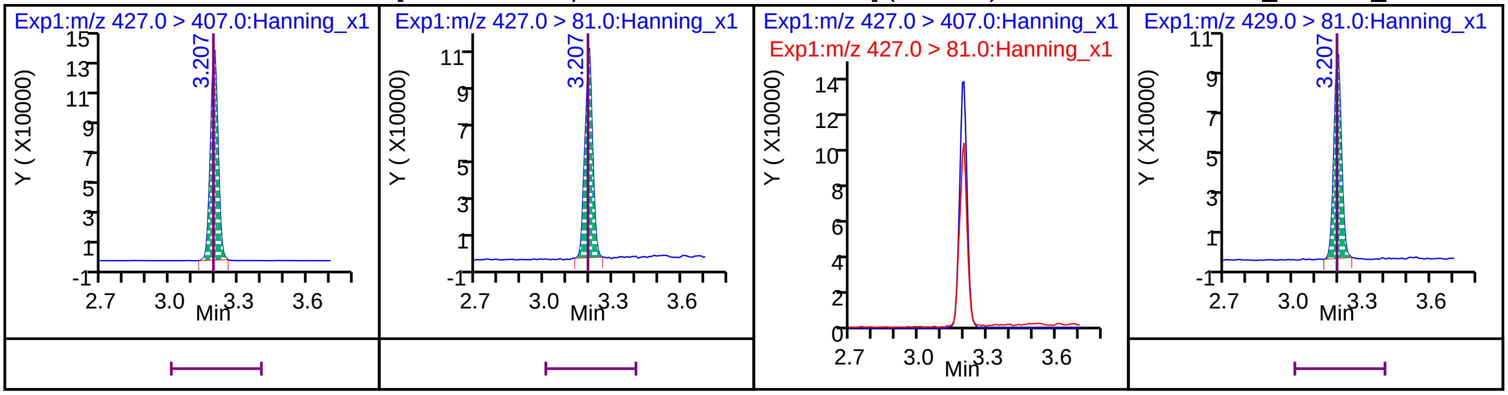
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



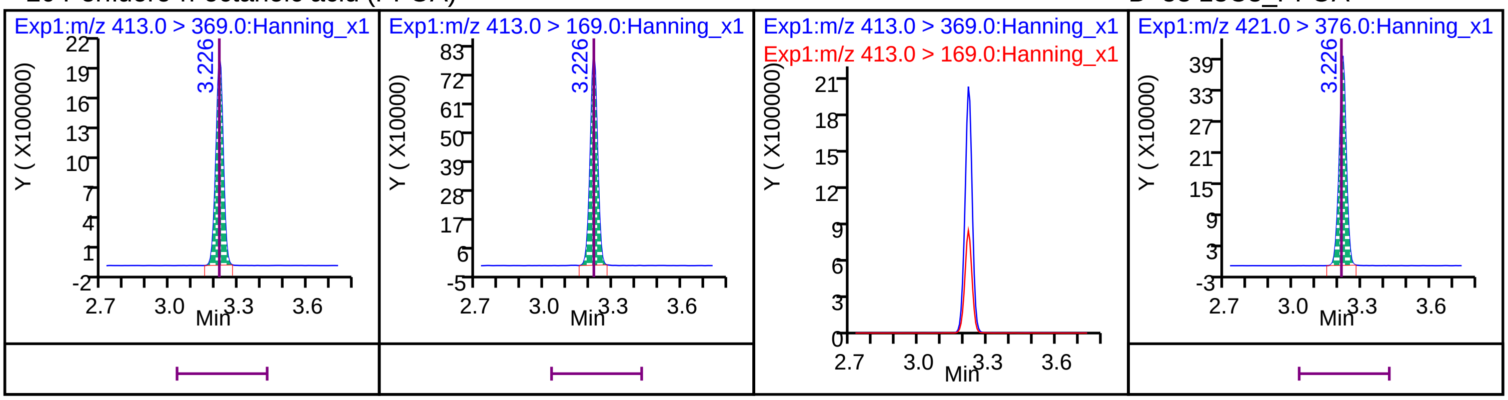
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



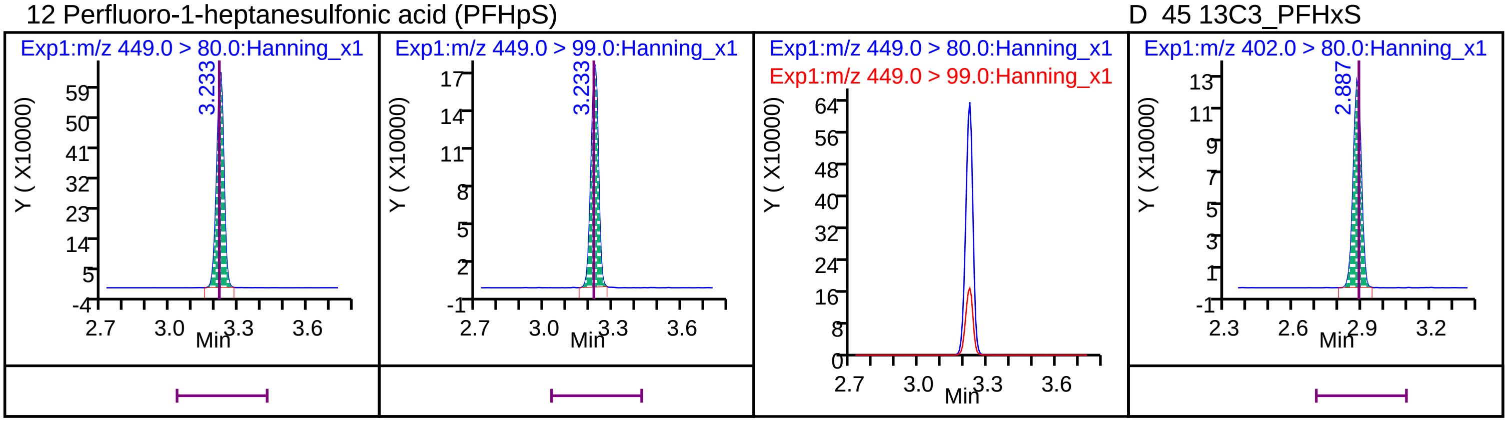
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



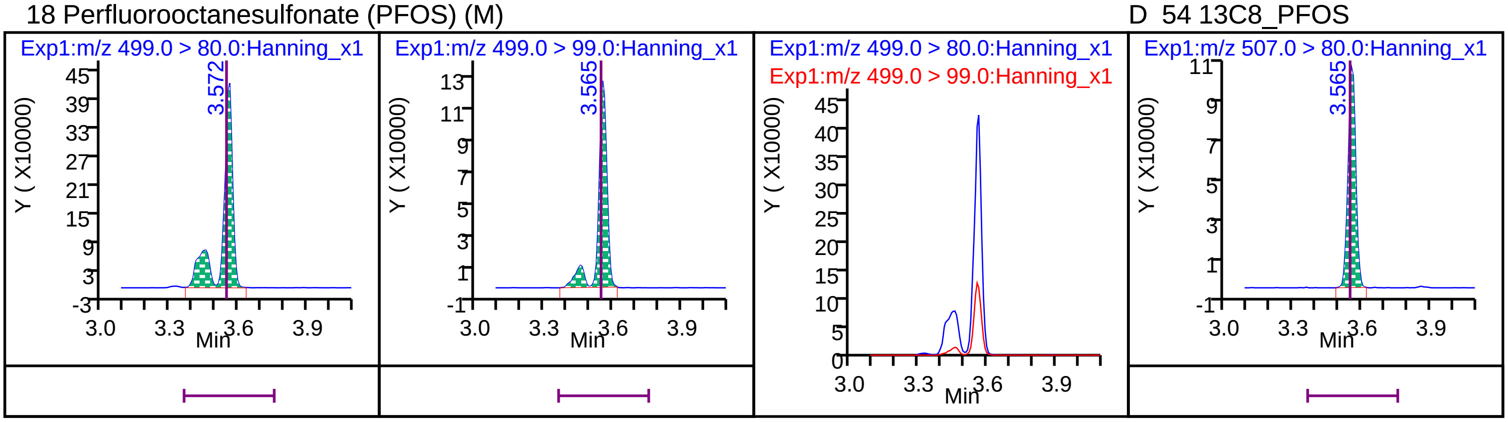
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



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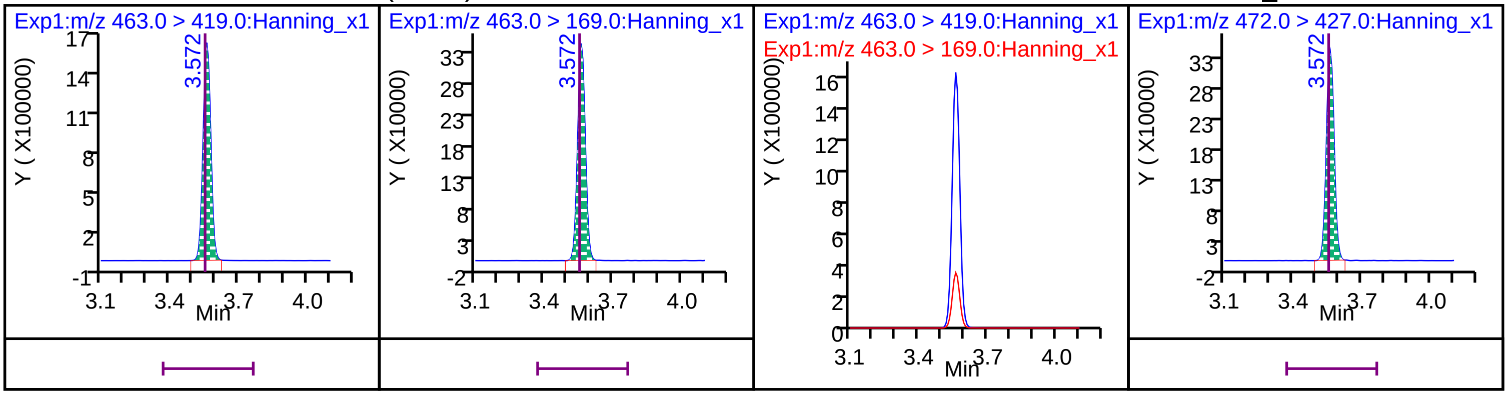
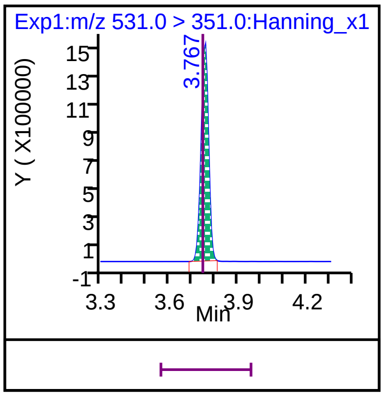
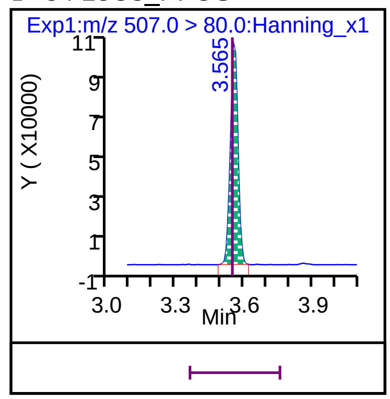
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

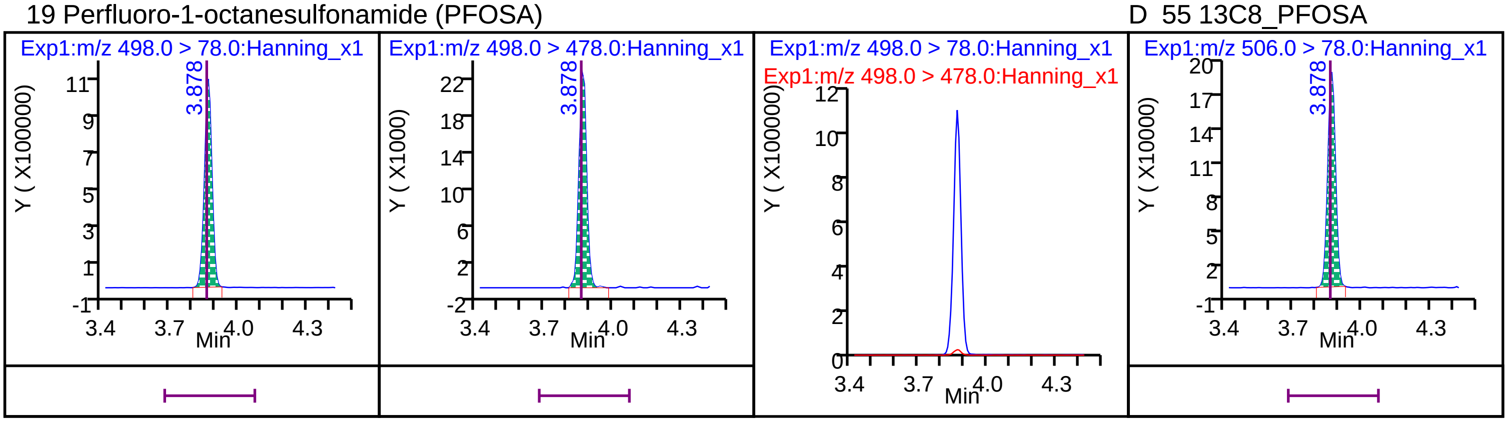


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

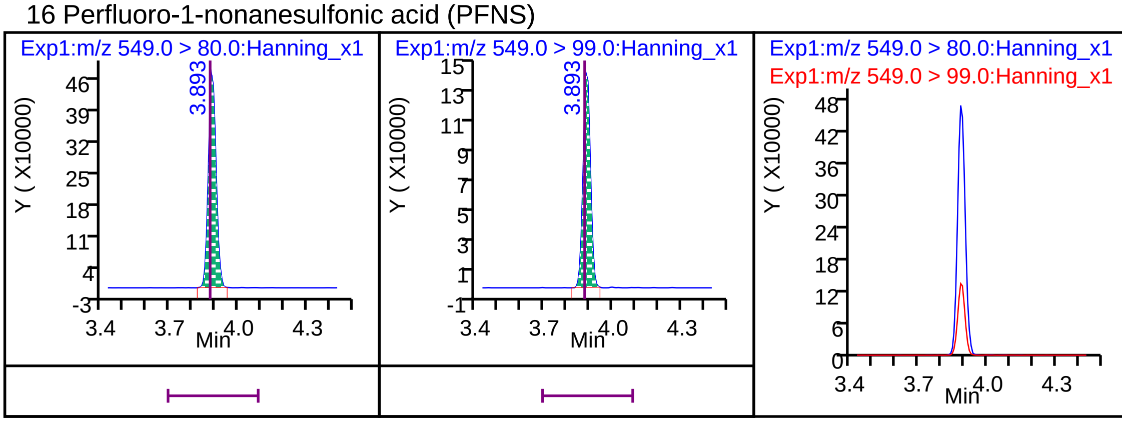


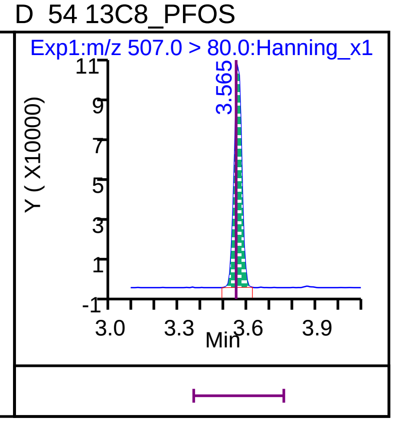


19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

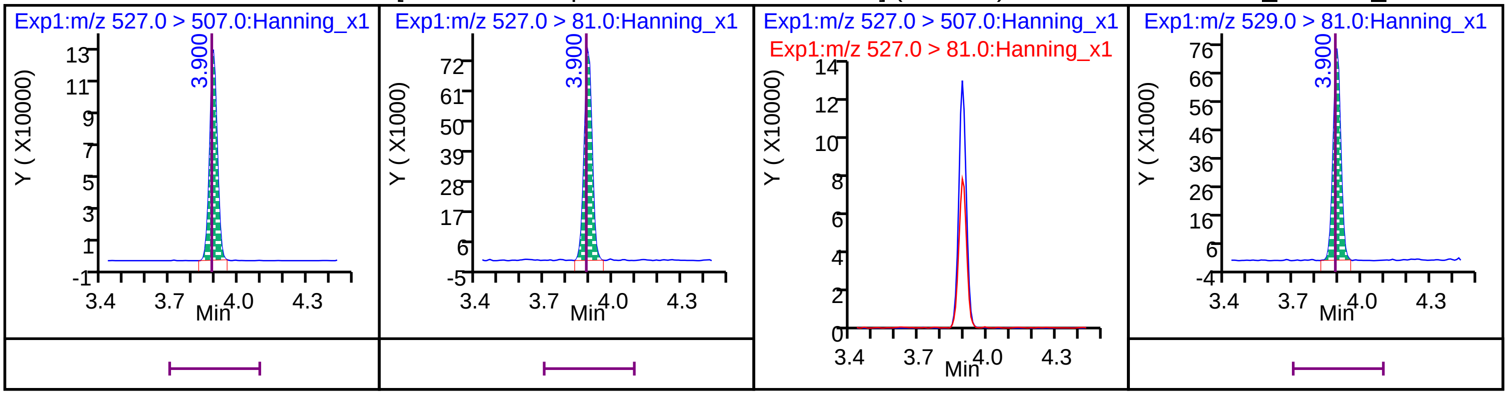


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

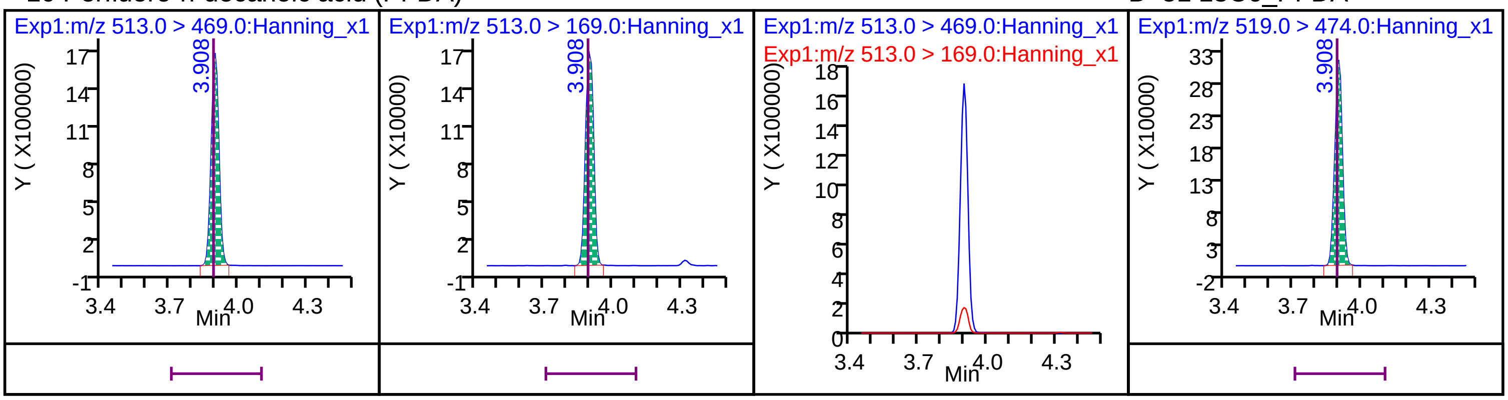




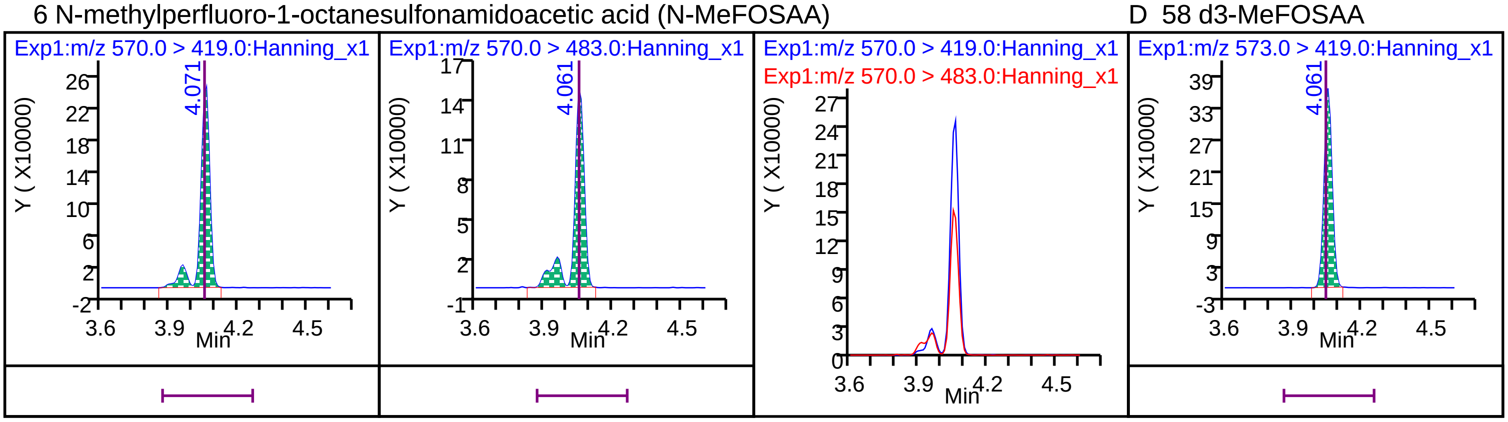
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



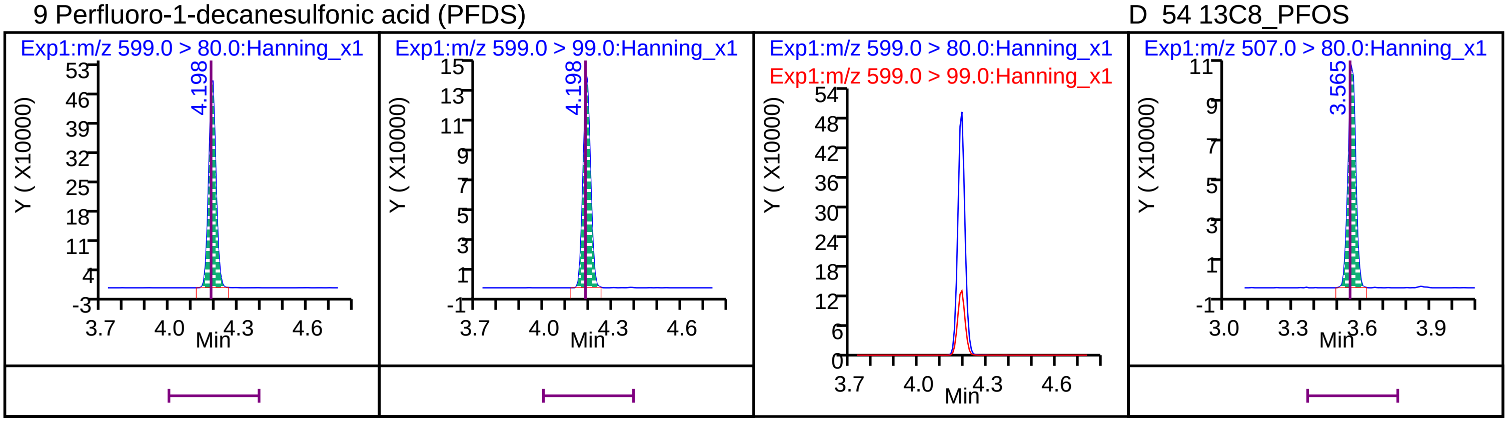
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



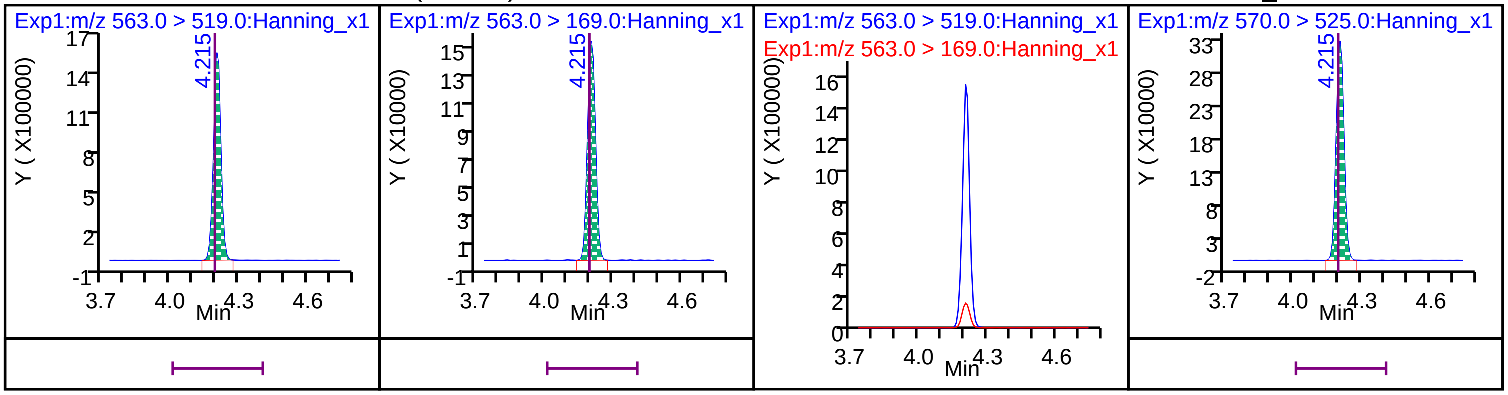
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



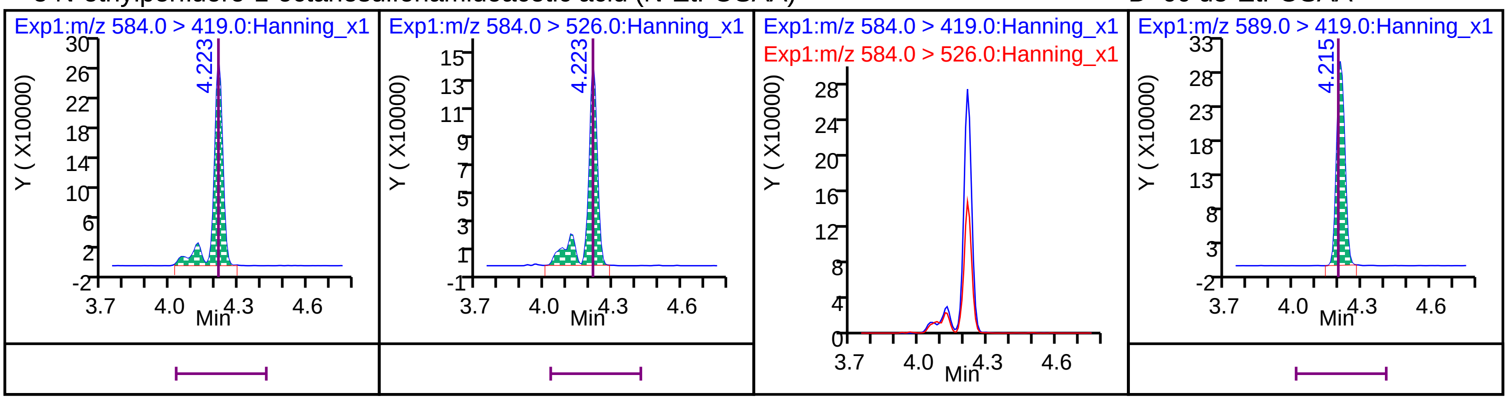
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



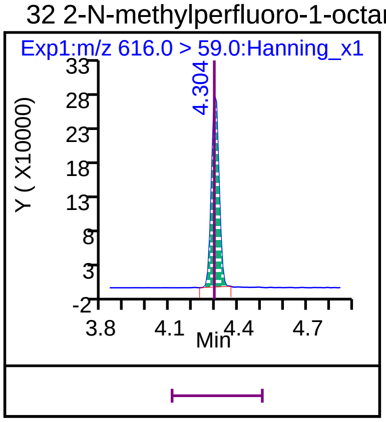
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



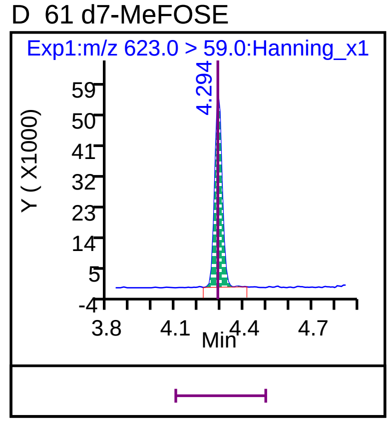
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



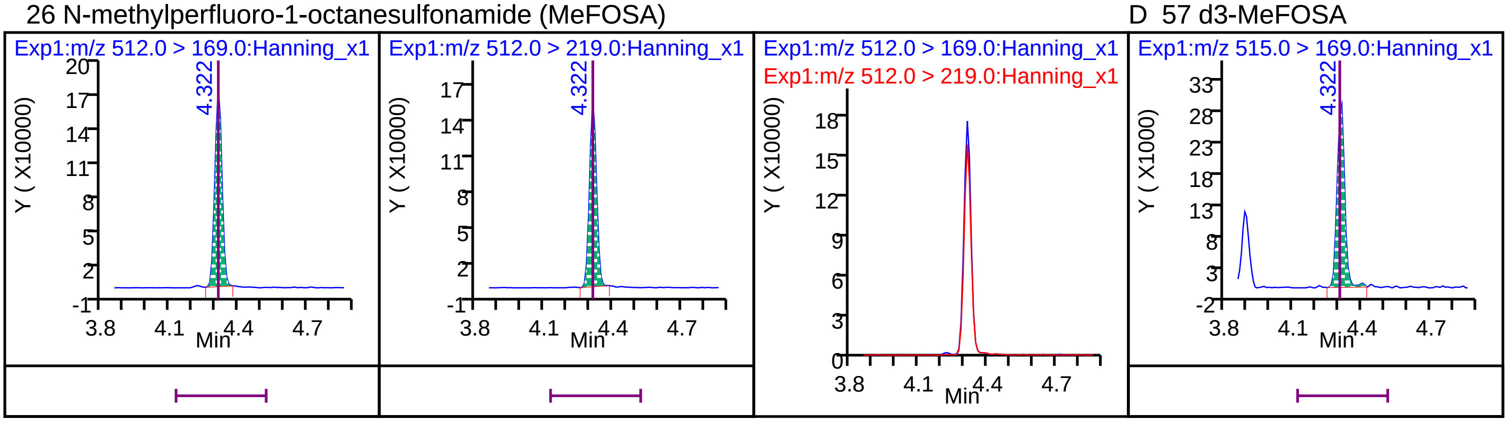
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



D 61 d7-MeFOSE



26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



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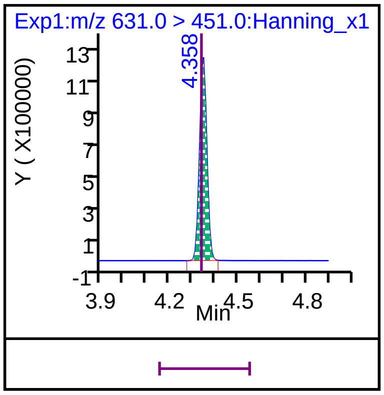
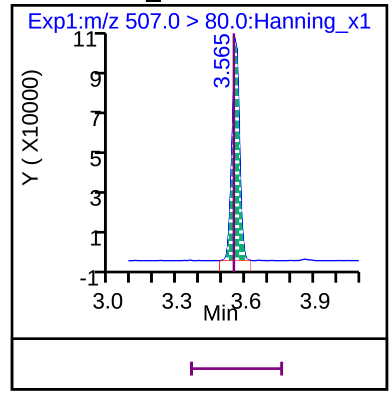
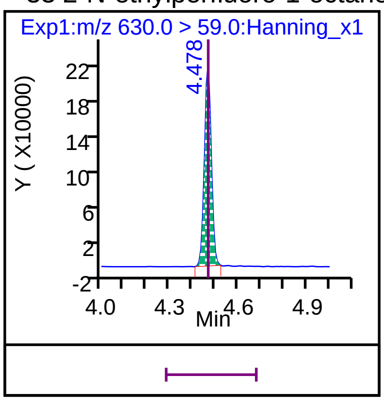
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



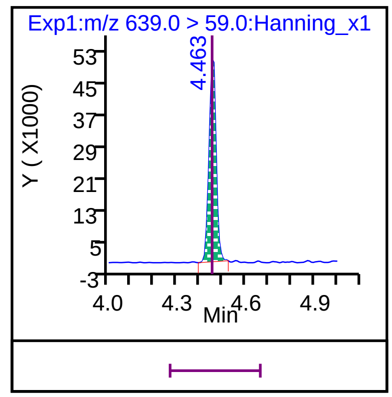
D 54 13C8_PFOS



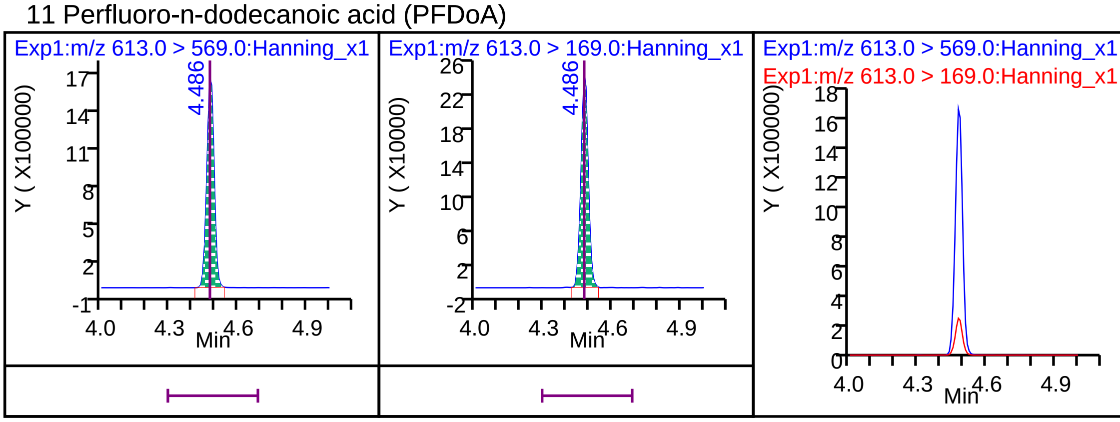
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



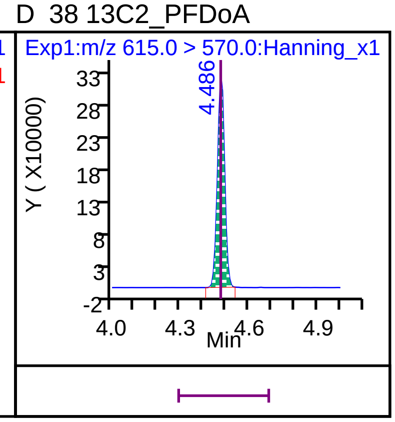
D 62 d9-EtFOSE



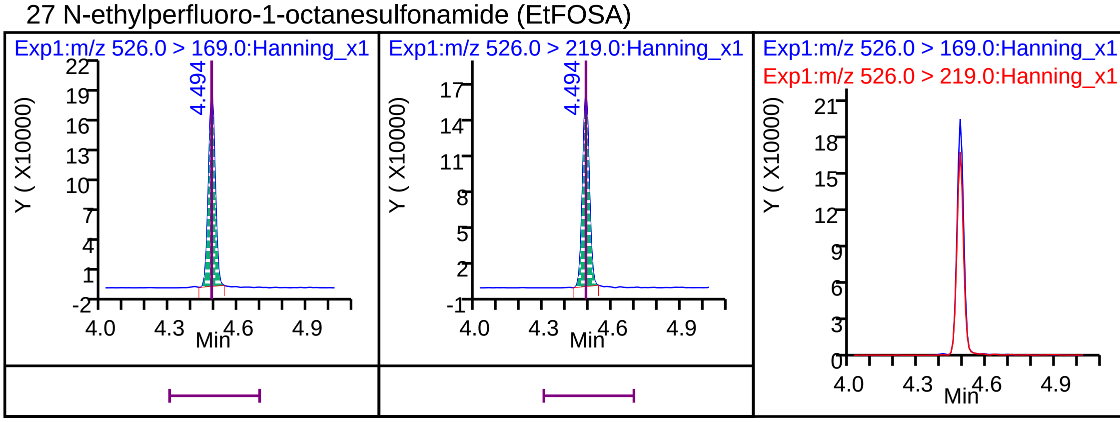
11 Perfluoro-n-dodecanoic acid (PFDoA)



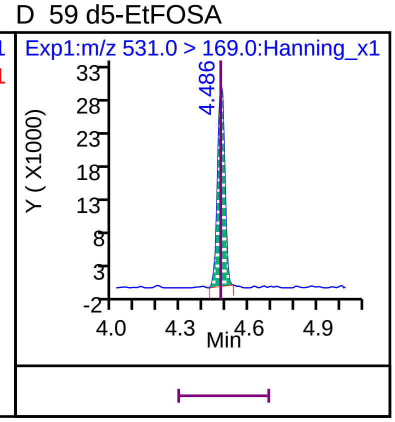
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



D 59 d5-EtFOSA



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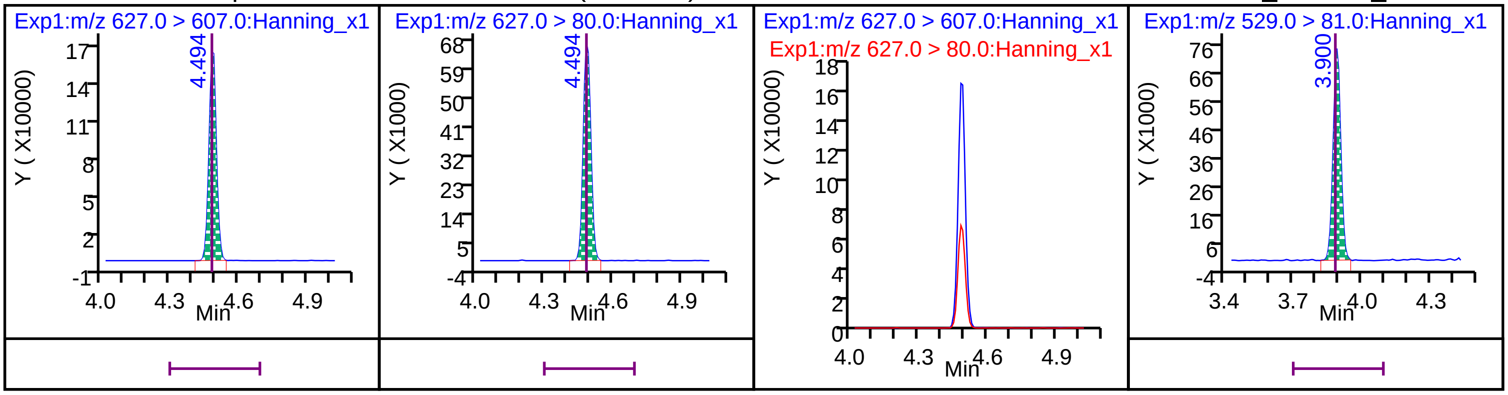
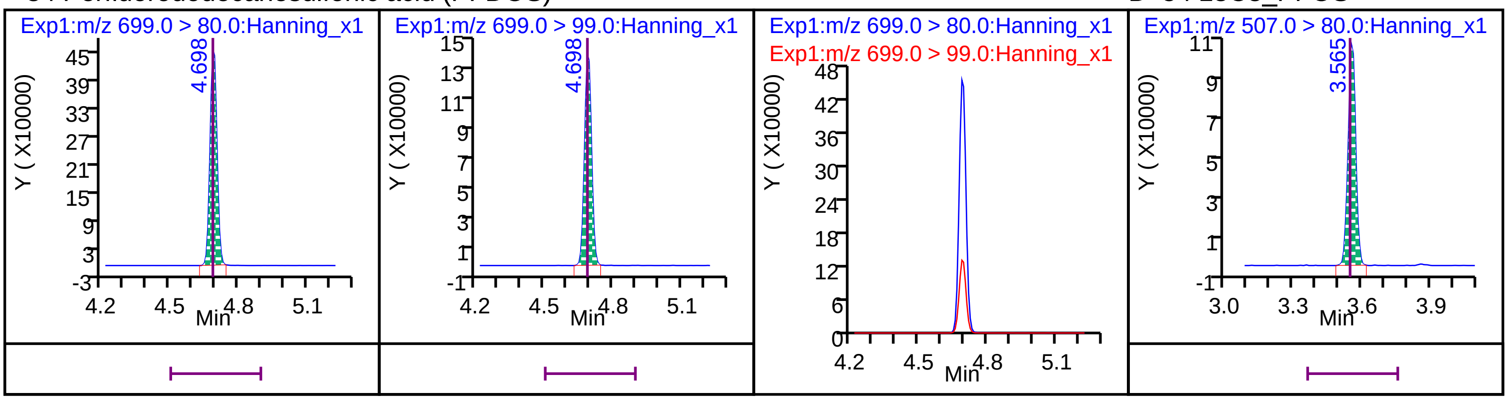
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621020.d

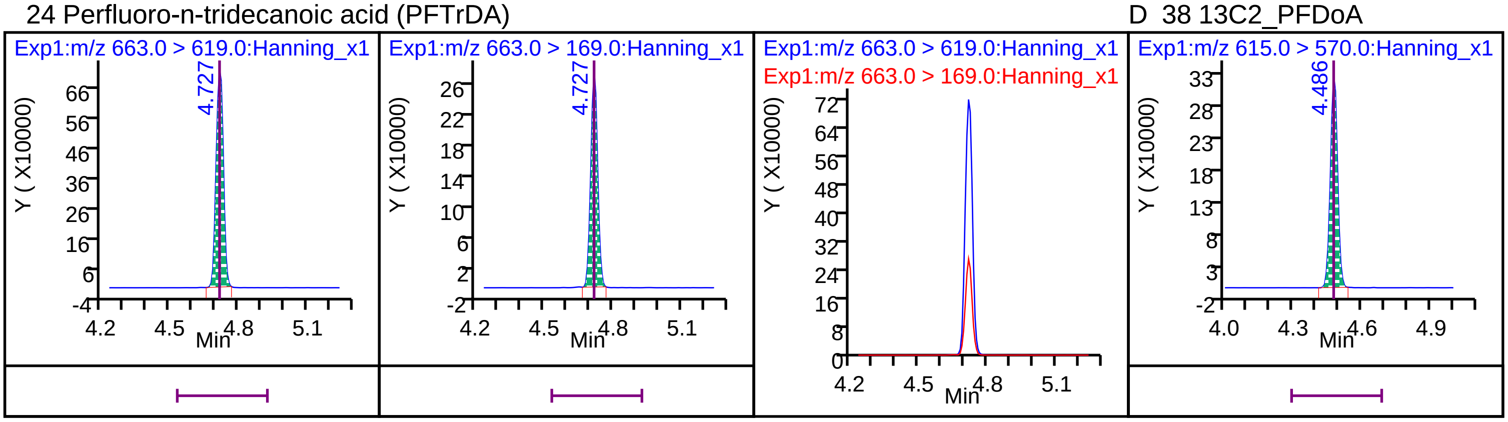
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



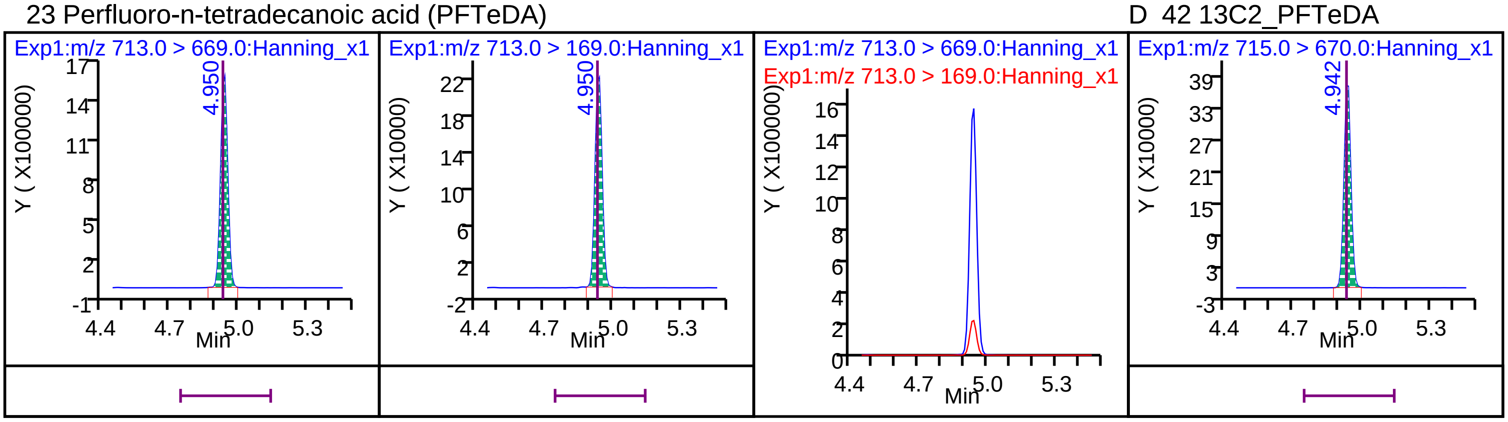
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



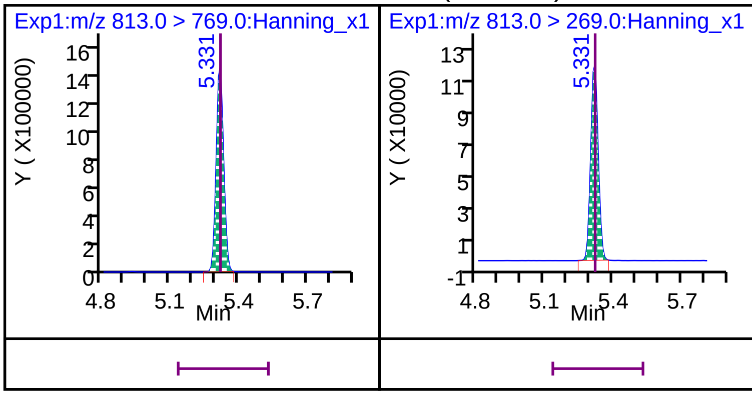
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



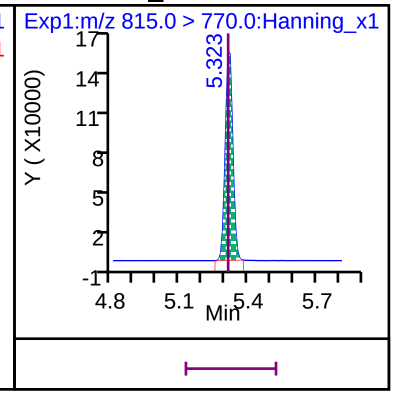
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



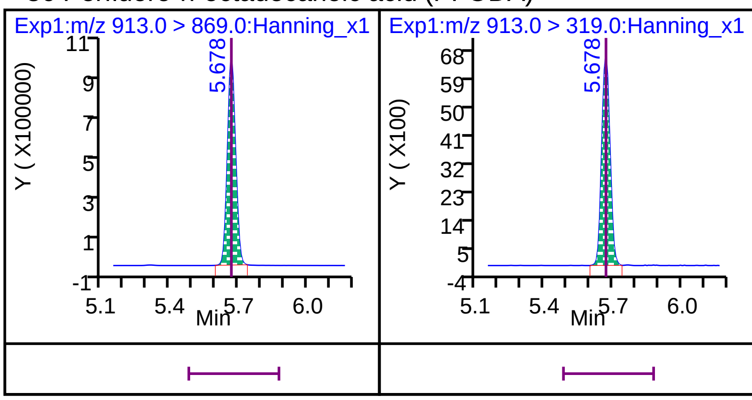
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



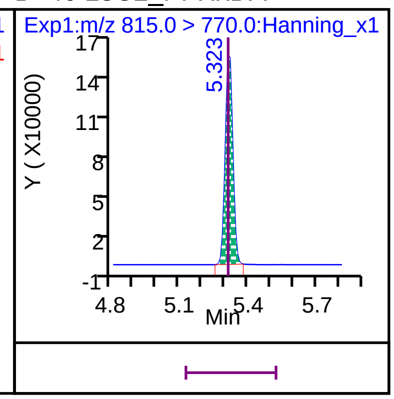
D 40 13C2_PFHxDA



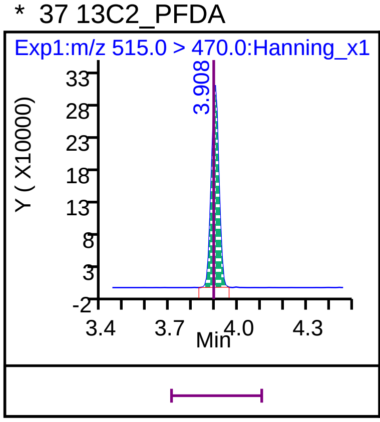
36 Perfluoro-n-octadecanoic acid (PFODA)



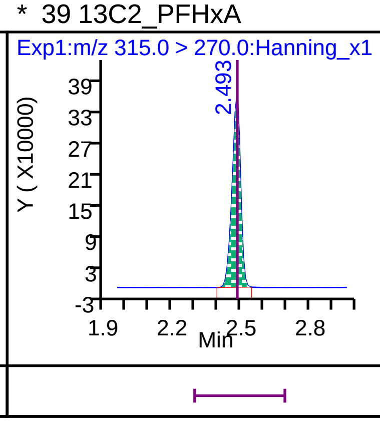
D 40 13C2_PFHxDA



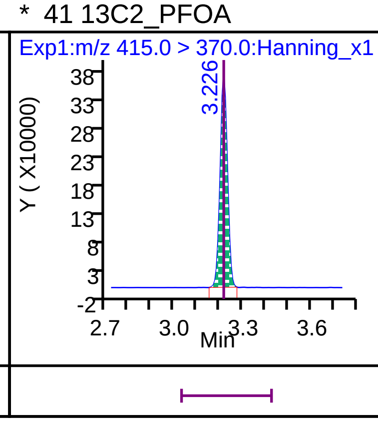
* 37 13C2_PFDA



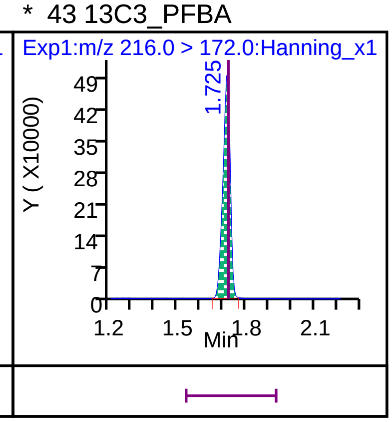
* 39 13C2_PFHxA



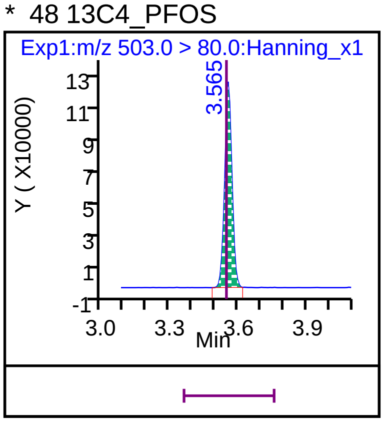
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



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Pace Environmental Services, LLC

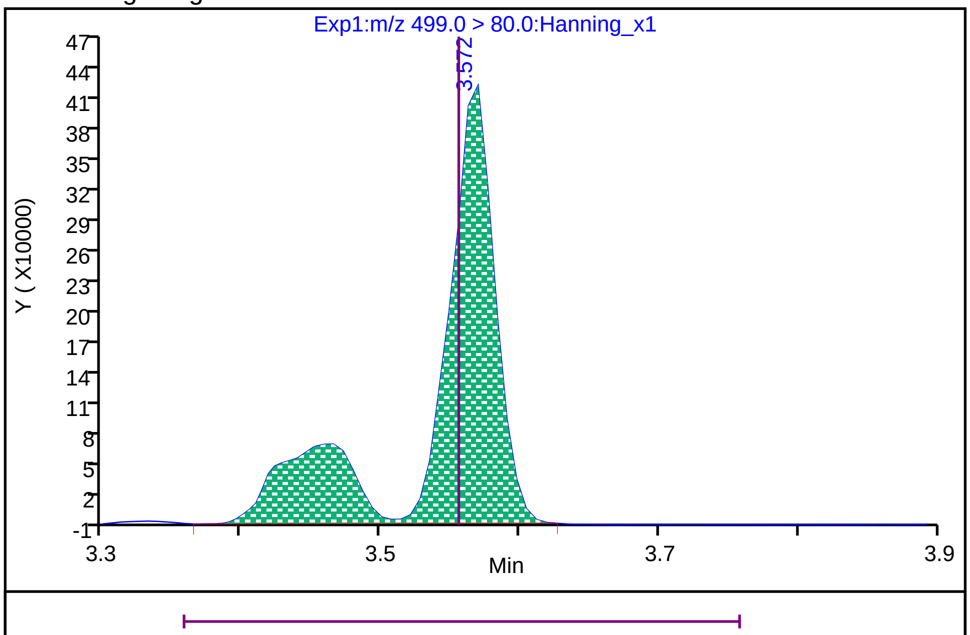
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621020.d		
Injection Date:	06-Nov-2021 15:42:48	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 5000_SVLC-1746
Sample Info:	ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Matthew M. Miller

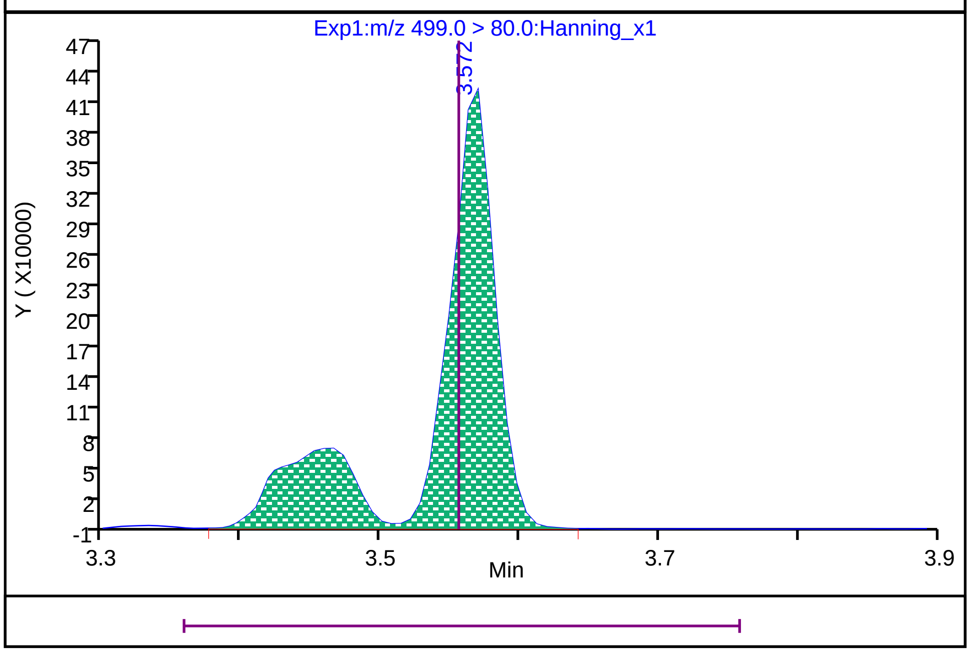
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.572
Area:	1221832
Amount:	4519.44
Amount Units:	ng/L



RT:	3.572
Area:	1239069
Amount:	4585.38
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:20

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621021.d		
Injection Date:	06-Nov-2021 15:53:24	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	8
Sample Info:	ICAL 10000_SVLC-1747	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.726	1.725	1	1101048	20	>100:1			1000.00	1004.45	99.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.726	1.732	0/-1	11431694	19	>100:1			10000	9742.59		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.106	2.105	1	1000817	16	>100:1			1000.00	981.10	97	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.106	2.105	1/0	10872372	16	>100:1			10000	10121		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.159	2.169	0	337153	16	>100:1			1000.00	999.16	99	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.159	2.169	0/0	4047949	15	>100:1	Target = 3.83		8840.00	8481.62		
298.9 > 99	44	2.159	2.169		1067873	15	>100:1	3.79 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.529	2.529	1/1	3229264	17	>100:1	Target = 3.47		9380.00	9569.16		
349 > 99	44	2.529	2.529		965666	18	>100:1	3.34 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.450	2.449	1	241053	18	>100:1			5000.00	5162.09	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.450	2.449	1/0	814262	18	>100:1	Target = 1.39		9340.00	9083.72		
327 > 81	63	2.450	2.449		525141	18	>100:1	1.55 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.494	2.493	1	933908	18	>100:1			1000.00	1024.02	102.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.494	2.493	1/0	8880648	18	>100:1	Target = 17.15		10000	9355.97		
313 > 119	49	2.494	2.493		506934	18	>100:1	17.51 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	1	744137	18	>100:1			5000.00	5055.49	108.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/-1	2046503	19	>100:1	Target = 0.72		20000	18435		
285 > 185	66	2.614	2.622		2816174	19	>100:1	0.72 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.878	1	900079	17	>100:1			1000.00	1017.19	99.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.878	1/0	8321386	17	>100:1	Target = 3.21		10000	9677.29		
363 > 169	47	2.879	2.878		2582223	17	>100:1	3.22 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	265870	17	>100:1			1000.00	961.27	96.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.897	2.896	1/1	2879989	25	>100:1	Target = 3.35	4.97	9100.00	9397.04		
399 > 99	45	2.897	2.896		820738	22	>100:1	3.50 (1.67-5.04)	7.20				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	1/1	13397772	17	>100:1	Target = 2.38		9420.00	9504.33		
377 > 85	45	2.923	2.923		5924571	18	>100:1	2.26 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.226	1/1	2728592	21	>100:1	Target = 3.87		9520.00	9643.23		
449 > 99	45	3.233	3.226		735627	20	>100:1	3.70 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.207	3.201	1	205487	20	>100:1			5000.00	4985.68	94.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.207	3.201	1/0	601973	21	>100:1	Target = 1.26		9480.00	8818.34		
427 > 81	64	3.207	3.201		476015	21	>100:1	1.26 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.226	3.220	1	845998	20	>100:1			1000.00	1004.25	100.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.233	3.226	1/0	8186043	20	>100:1	Target = 2.46		10000	9676.04		
413 > 169	53	3.233	3.226		3397872	20	>100:1	2.40 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.565	3.558	1	240208	19	>100:1			1000.00	1013.85	100.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.565	3.558	1/0	2540439	42	>100:1	Target = 3.98	3.26	9280.00	9090.33		M
499 > 99	54	3.565	3.558		652092	42	>100:1	3.89 (1.99-5.97)	6.60				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.761	3.755	1/0	6946343	21	>100:1			9320.00	9568.93		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.894	3.886	1/0	2160462	18	>100:1	Target = 3.57		9600.00	9445.30		
549 > 99	54	3.894	3.886		592298	18	>100:1	3.64 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.191	4.191	0/-1	2129093	17		Target = 3.73		9640.00	9456.22		
599 > 99	54	4.191	4.191		570672	16	>100:1	3.73 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.358	4.349	1/0	5878523	16	>100:1			9420.00	10154		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.698	4.698	1/0	1924734	17	>100:1	Target = 3.44		9680.00	9922.40		
699 > 99	54	4.698	4.698		538760	17		3.57 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.565	1	817880	19	>100:1			1000.00	1008.06	96.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.572	3.565	1/0	7229610	20	>100:1	Target = 4.45		10000	9910.71		
463 > 169	56	3.572	3.565		1590952	19	>100:1	4.54 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.872	3.872	0	432650	19	>100:1			1000.00	1041.55	101.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.872	3.872	0/0	4469109	20	>100:1	Target = 47.73		10000	9480.25		
498>478	55	3.872	3.872		96143	20	>100:1	46.48 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.901	3.894	1	168490	19	>100:1			5000.00	4838.58	94.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.901	3.894	1/0	500577	19	>100:1	Target = 1.41		9580.00	9002.68		
527 > 81	65	3.901	3.894		335126	19	>100:1	1.49 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.502	4.494	1/0	669939	17		Target = 2.81		9640.00	9372.23		
627 > 80	65	4.494	4.494		269943	17	>100:1	2.48 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.909	3.901	1	672735	19	>100:1			1000.00	940.31	87.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.909	3.901	1/0	6931758	19	>100:1	Target = 9.36		10000	10088		
513 > 169	51	3.909	3.901		742403	19	>100:1	9.33 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.062	4.053	1	818909	16	>100:1			5000.00	5064.73	103.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.062	4.062	0/-1	1351573	32	>100:1	Target = 1.42	7.68	10000	10225		
570 > 483	58	4.062	4.062		917557	34	>100:1	1.47 (0.71-2.13)	3.77				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.215	4.207	1	715920	17	>100:1			5000.00	4951.33	95.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.223	4.223	0/-1	1412596	33	>100:1	Target = 1.80	5.85	10000	10001		
584 > 526	60	4.223	4.223		809707	33	>100:1	1.74 (0.90-2.70)	3.21				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.215	4.207	1	695767	17	>100:1			1000.00	990.80	96.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.215	4.207	1/0	6052024	18	>100:1	Target = 8.65		10000	9658.83		
563 > 169	52	4.215	4.207		674036	17	>100:1	8.97 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.295	4.295	0	126097	16	>100:1			1000.00	1027.51	101.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.304	4.304	0/0	1201425	16	>100:1			10000	9343.21		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.313	4.313	0	65604	14	>100:1			1000.00	1021.08	103.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.322	4.322	0/0	680035	14	>100:1	Target = 1.09		10000	9568.51		
512 > 219	57	4.322	4.322		549845	15	>100:1	1.23 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	0	114930	17	>100:1			1000.00	1011.42	103.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.479	4.479	1/1	945350	16	>100:1			10000	9938.36		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	0	692207	18	>100:1			1000.00	994.45	100.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	0/0	6993297	17	>100:1	Target = 6.94		10000	10058		
613 > 169	38	4.486	4.486		992222	16	>100:1	7.04 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.727	4.727	1/1	3154550	17	>100:1	Target = 2.82		10000	10324		
663 > 169	38	4.727	4.727		1077645	16	>100:1	2.92 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	0	63081	16	>100:1			1000.00	1045.65	97.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.494	4.494	1/1	667735	15	>100:1	Target = 1.11		10000	8862.55		
526 > 219	59	4.494	4.494		640324	15	>100:1	1.04 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.950	4.942	1	793245	16	>100:1			1000.00	1063.16	105.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/0	6404222	17	>100:1	Target = 7.23		10000	9356.92		
713 > 169	42	4.950	4.942		928965	17	>100:1	6.89 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.331	5.323	1	347147	16	>100:1			1000.00	997.84	101	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	1/0	5771704	18	>100:1	Target = 12.24		10000	9041.89		
813 > 269	40	5.331	5.331		497685	18	>100:1	11.59 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.678	5.678	1/0	4815339	21	>100:1	Target = 148.06		10000	10265		
913 > 319	40	5.678	5.678		31562	20	>100:1	152.56 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.909	3.901	1	643412	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.494	2.493	1	910535	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.226	3.226	0	848016	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.726	1.732	0	1027483	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.565	3.558	1	259788	19	>100:1			1000.00			

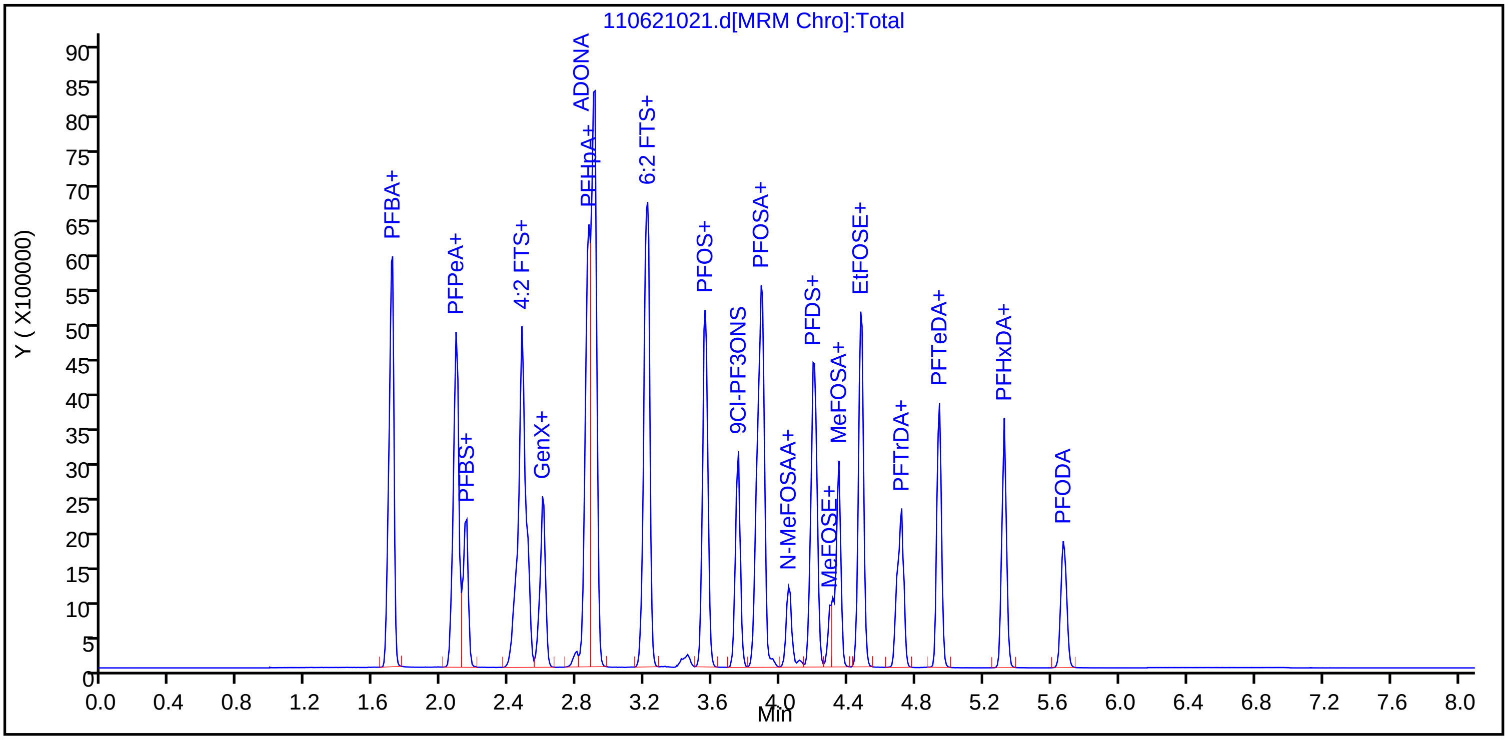
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

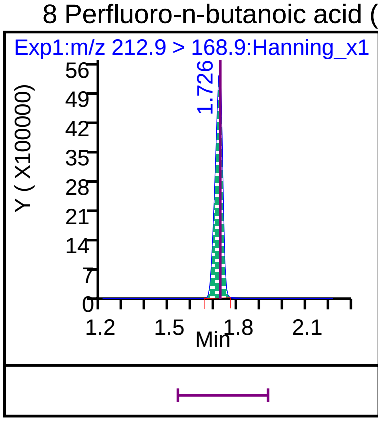
Report Date: 09-Nov-2021 13:30:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

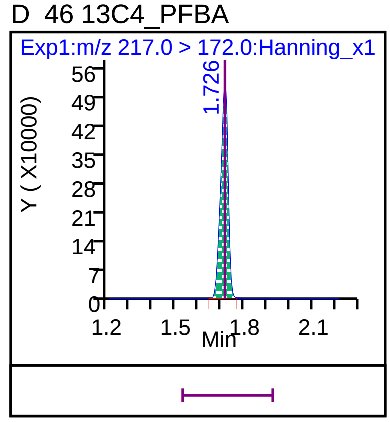
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621021.d		
Injection Date:	06-Nov-2021 15:53:24	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 10000_SVLC-1747
Sample Info:	ICAL 10000_SVLC-1747		
Dil. Factor:	1	Operator:	Matthew M. Miller



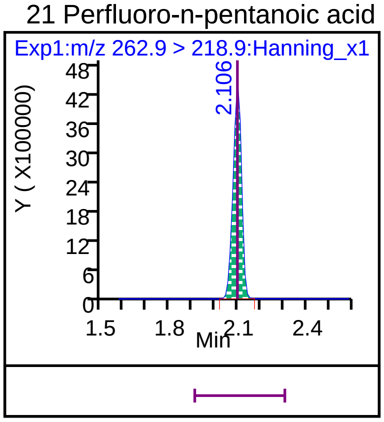
8 Perfluoro-n-butanoic acid (PFBA)



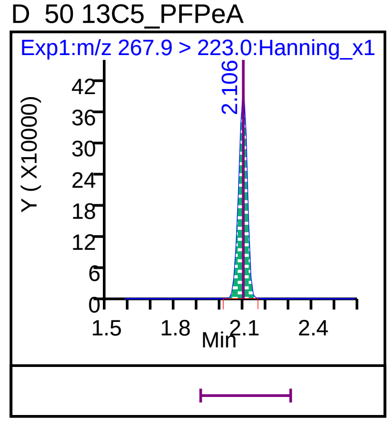
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

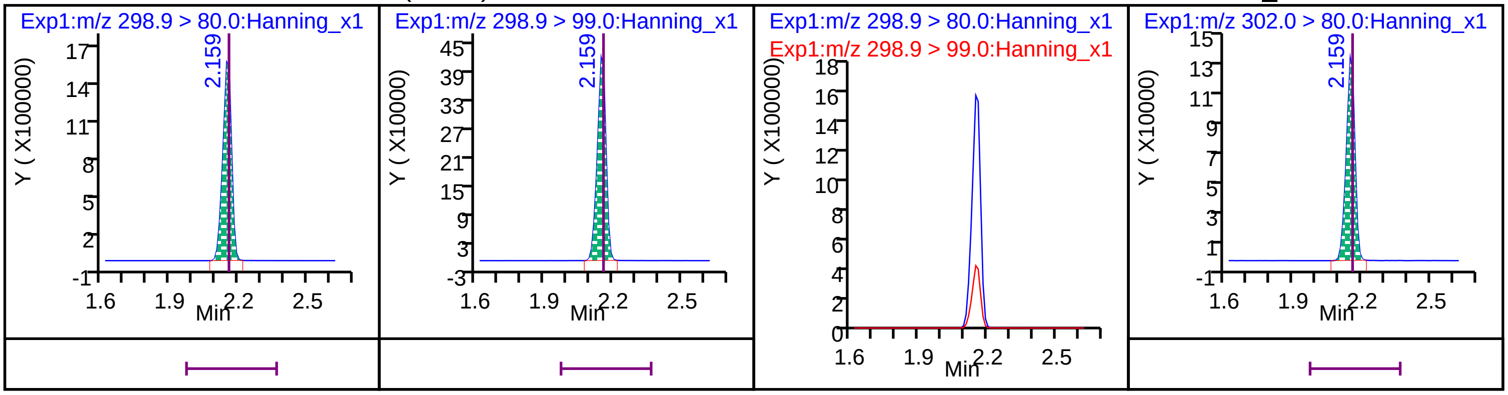


D 50 13C5_PFPeA

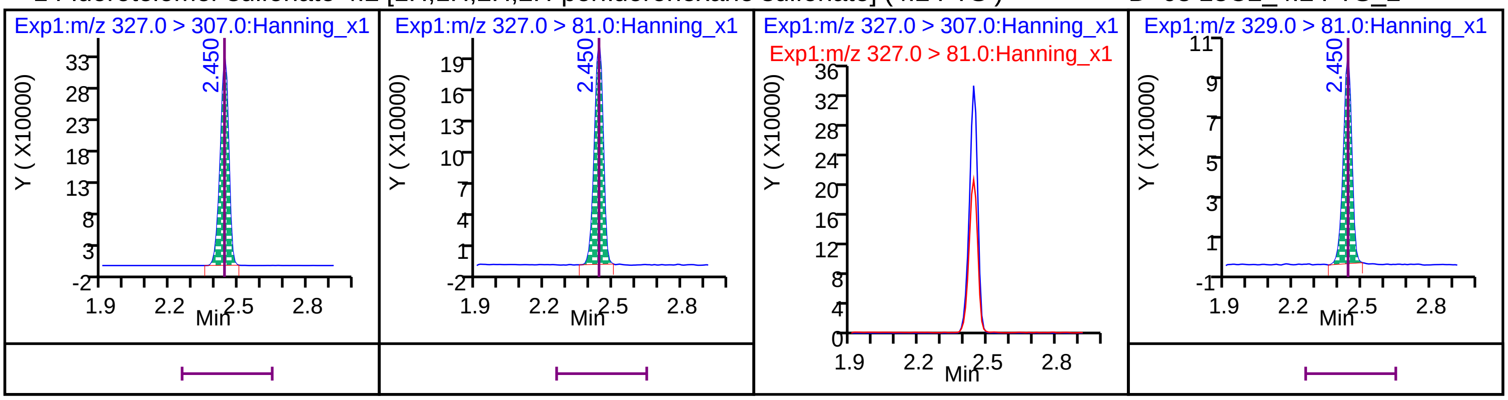


Report Date: 09-Nov-2021 13:30:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621021.d

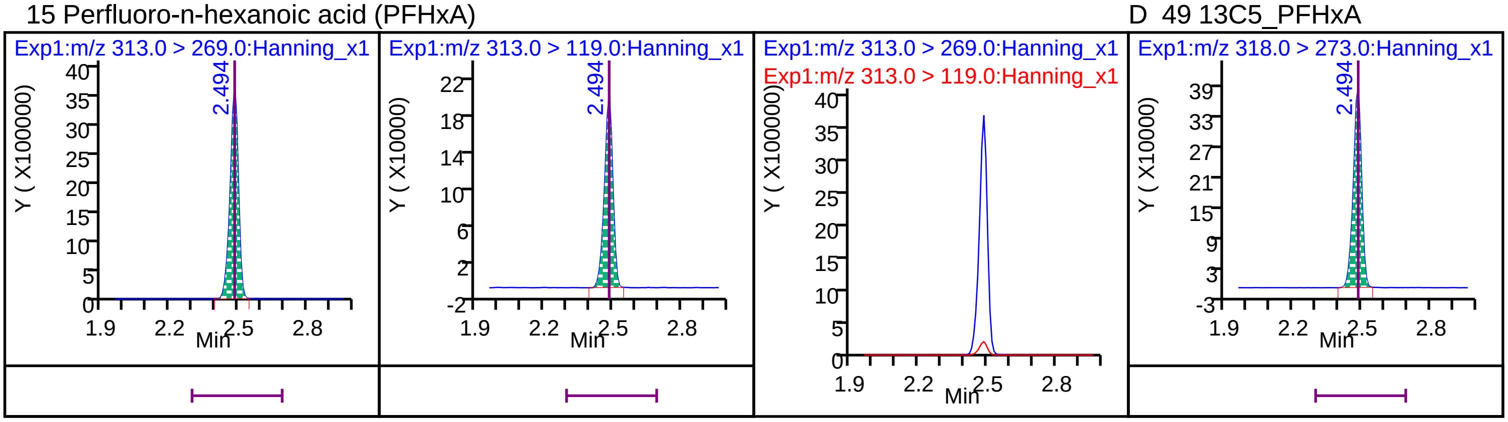
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



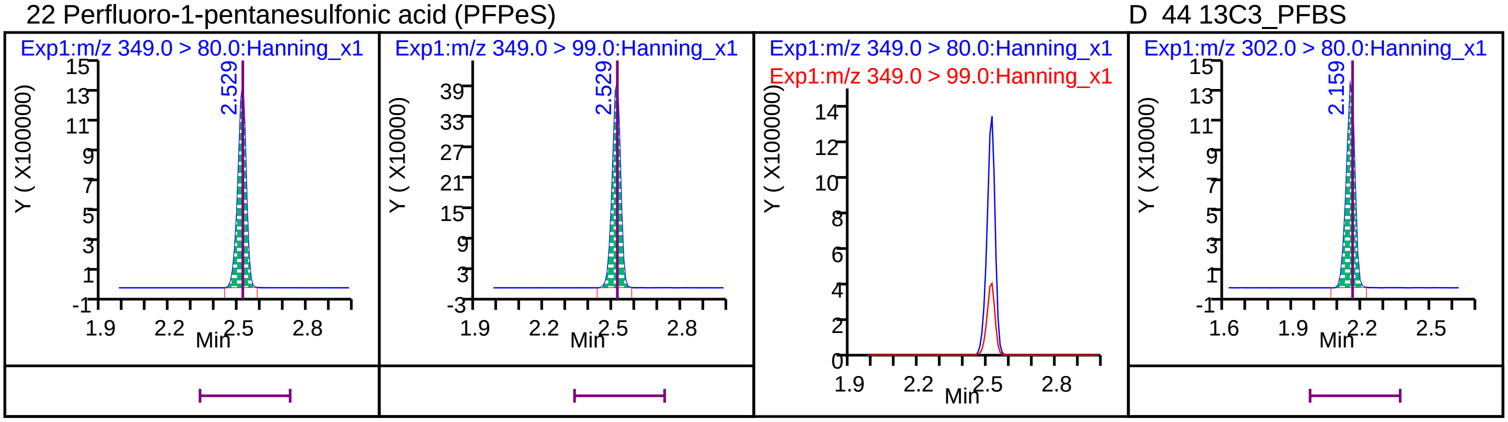
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



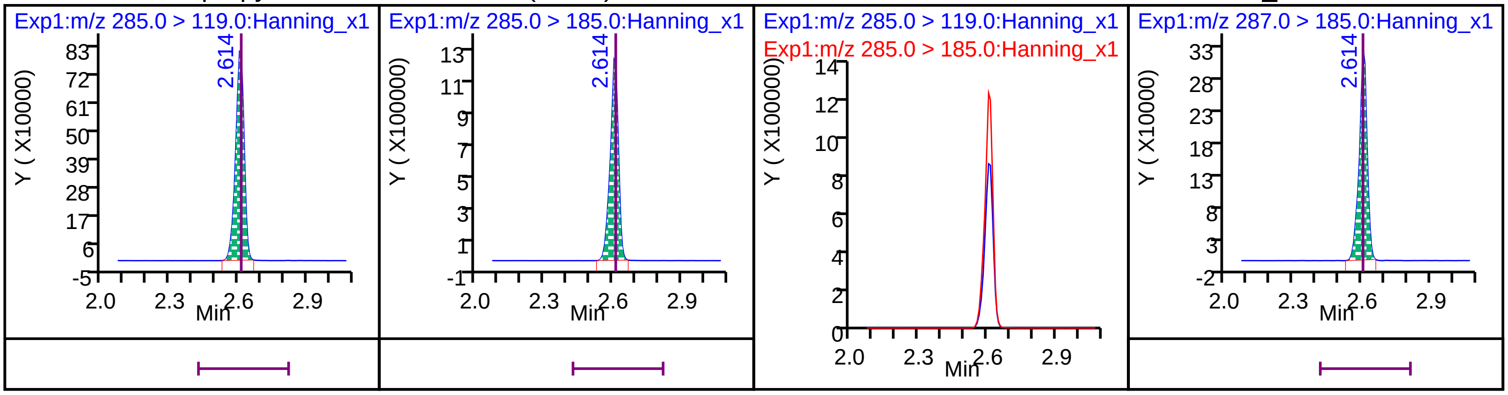
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



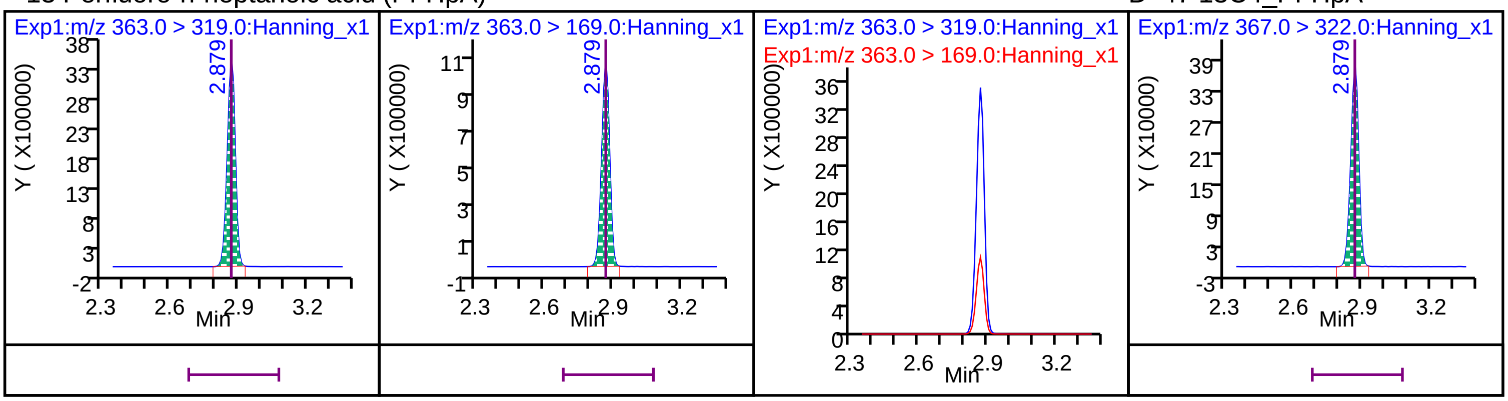
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



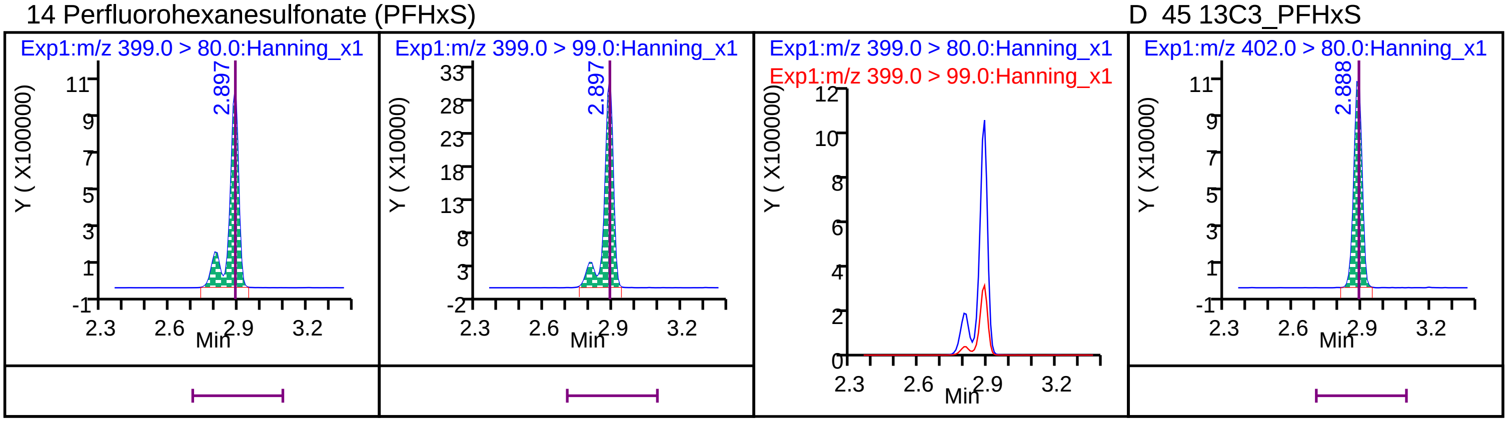
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



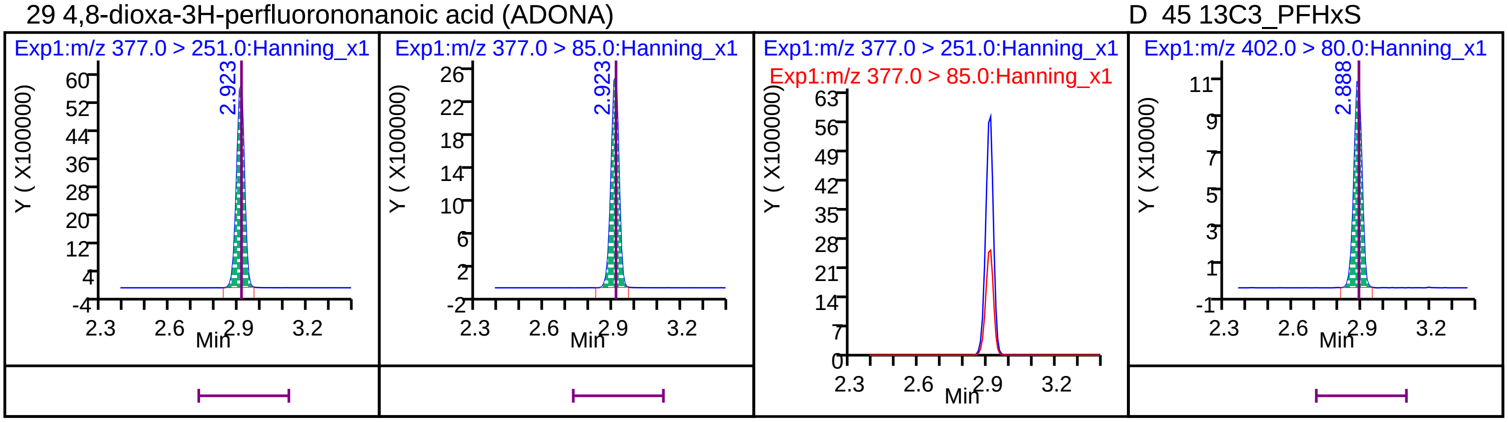
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

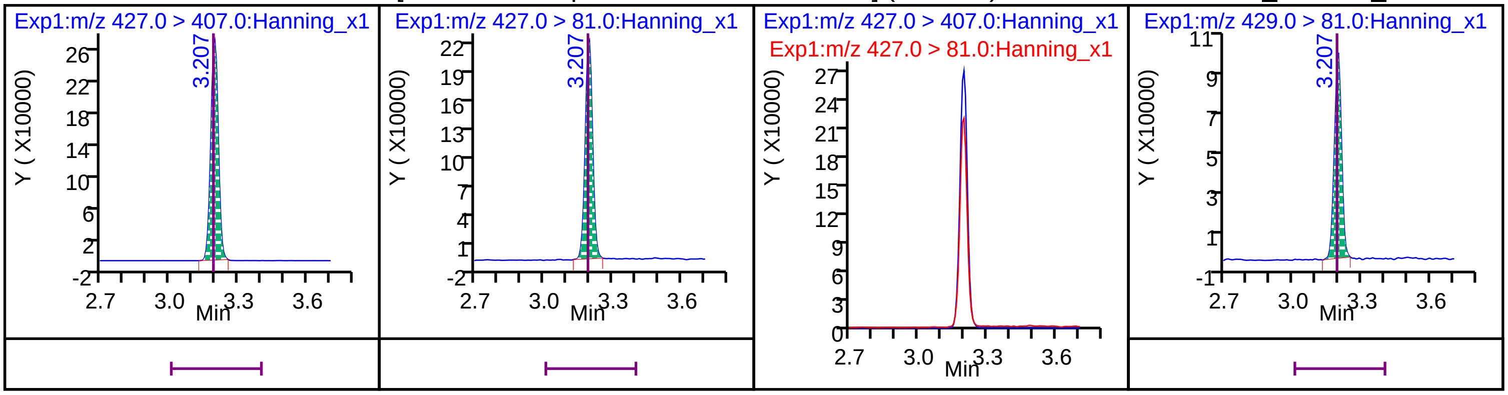


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

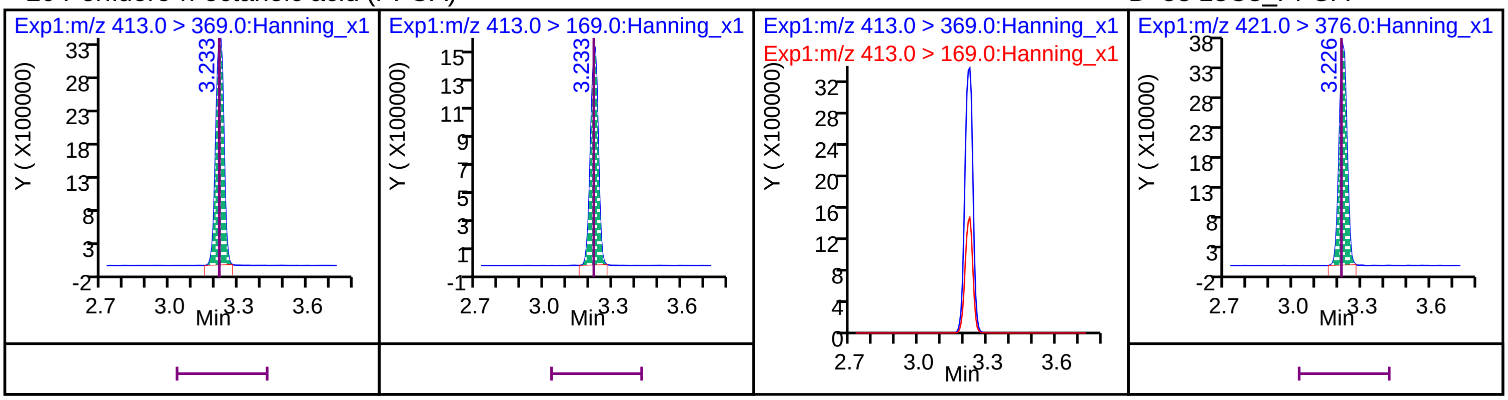


Report Date: 09-Nov-2021 13:30:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621021.d

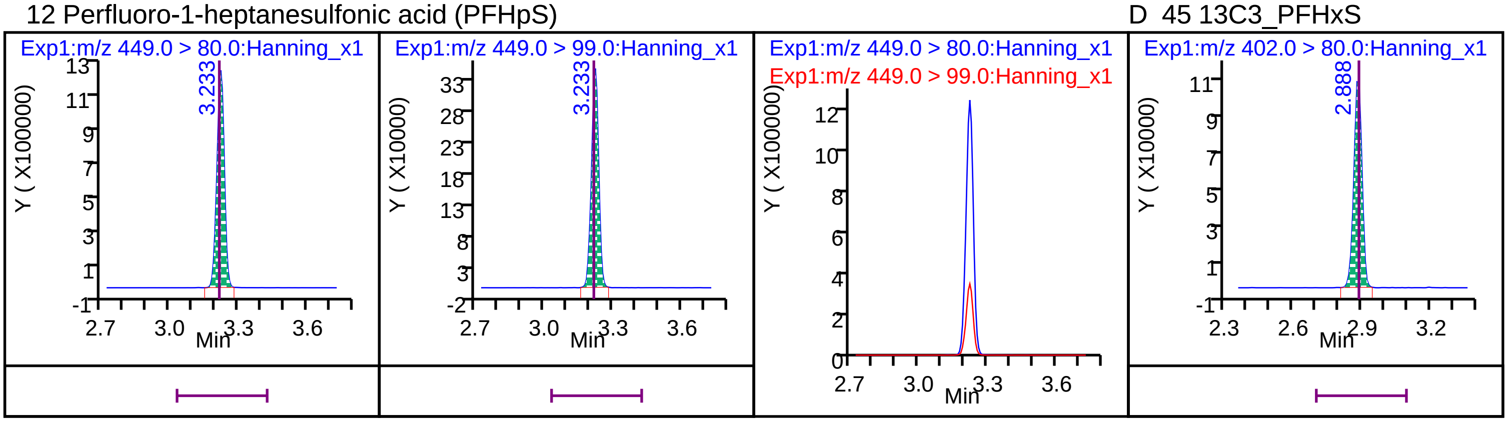
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



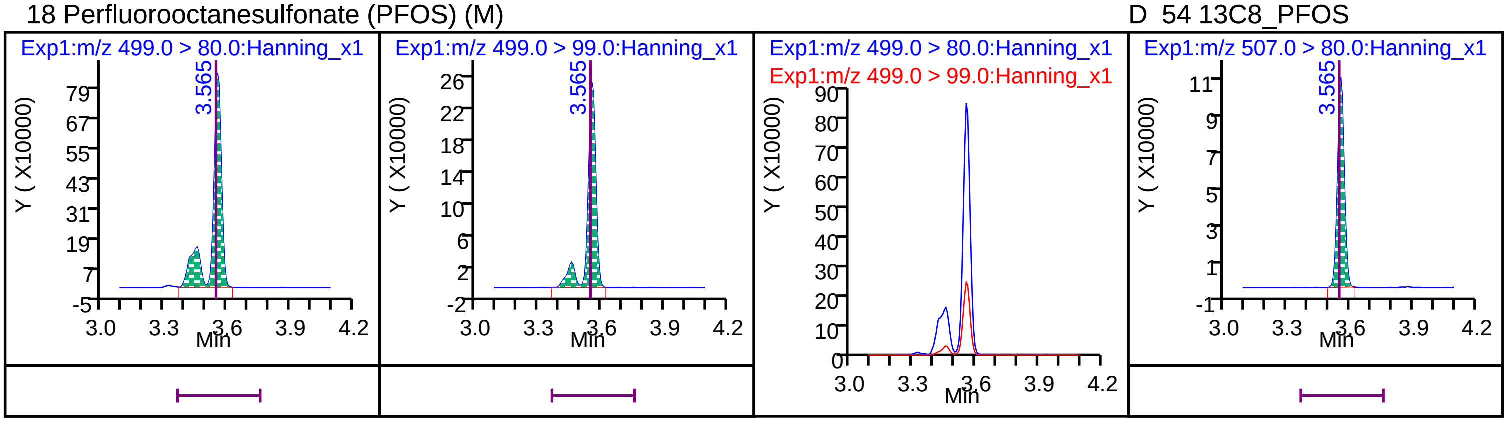
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



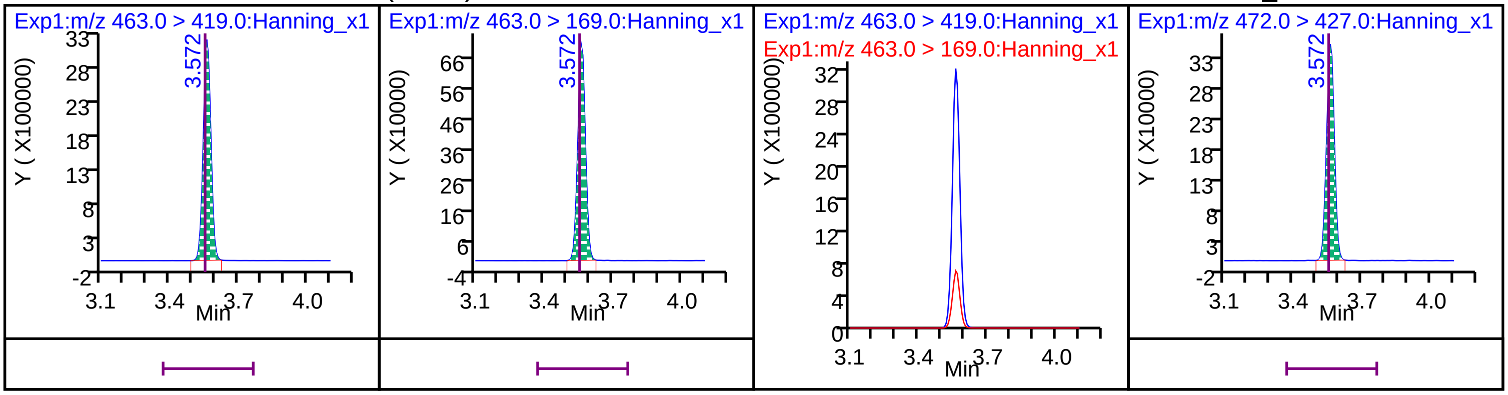
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



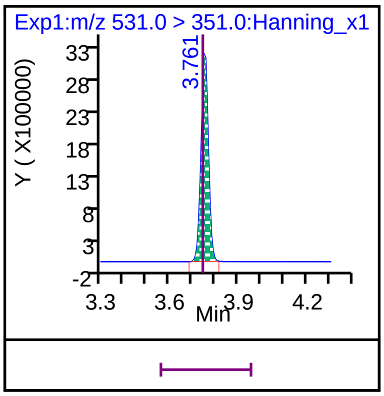
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

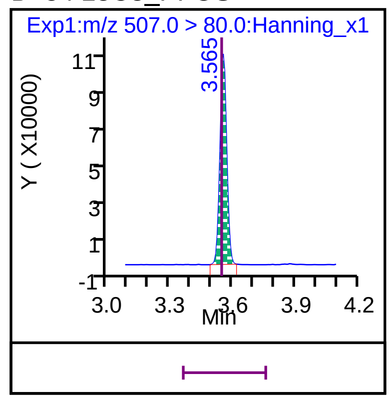


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

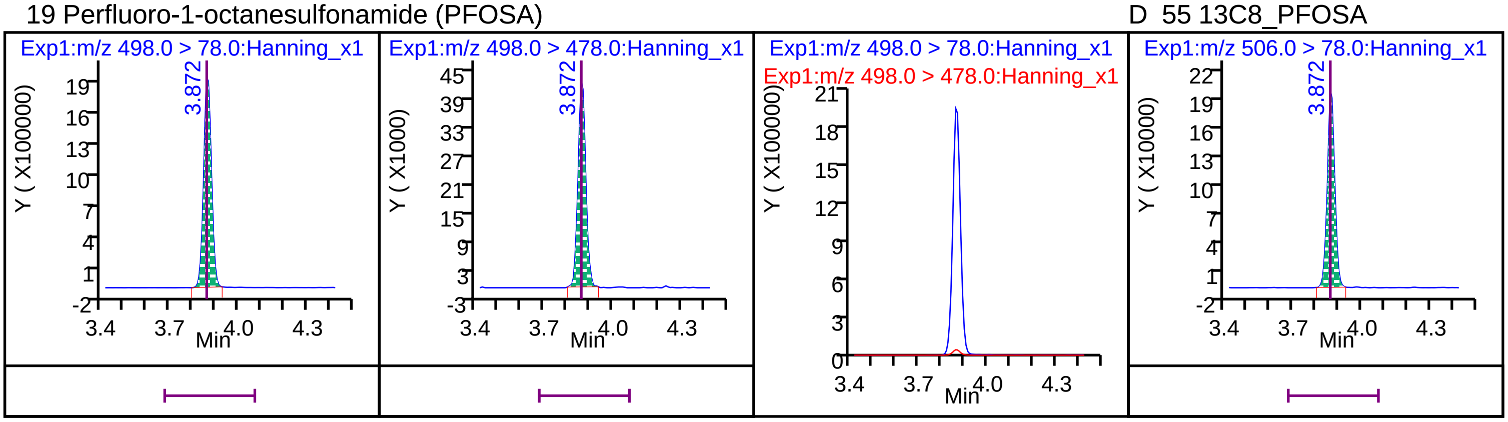


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

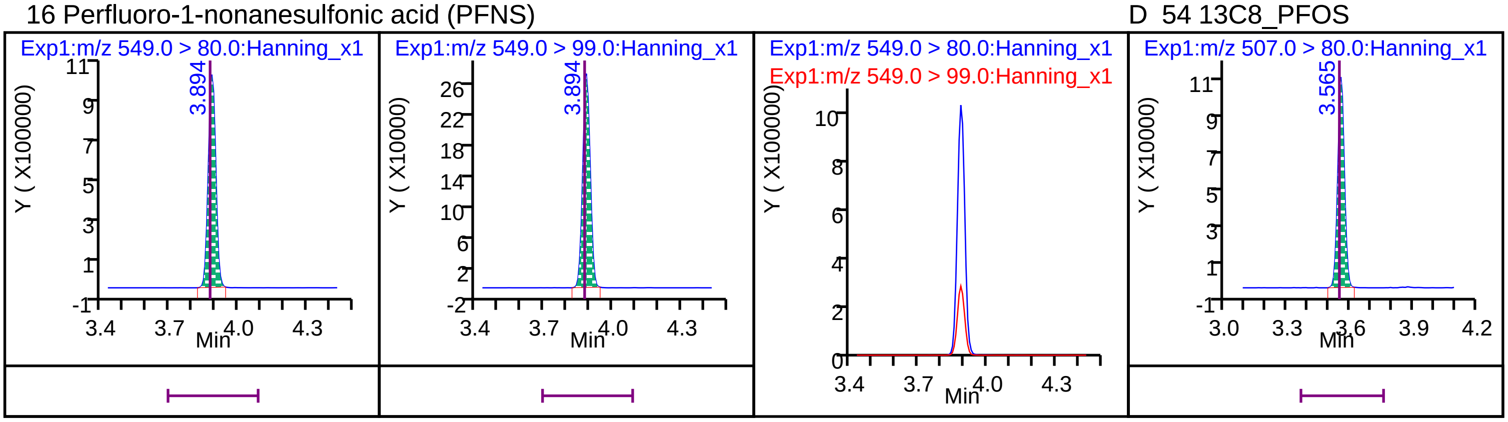




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



Report Date: 09-Nov-2021 13:30:45 AIM Revision: 2.0.2021.0812
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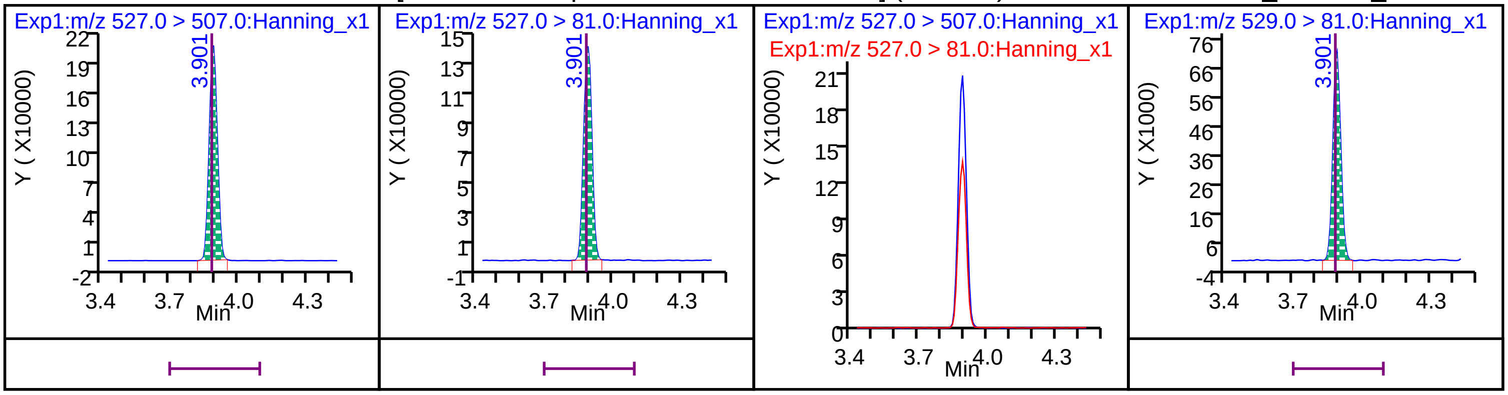
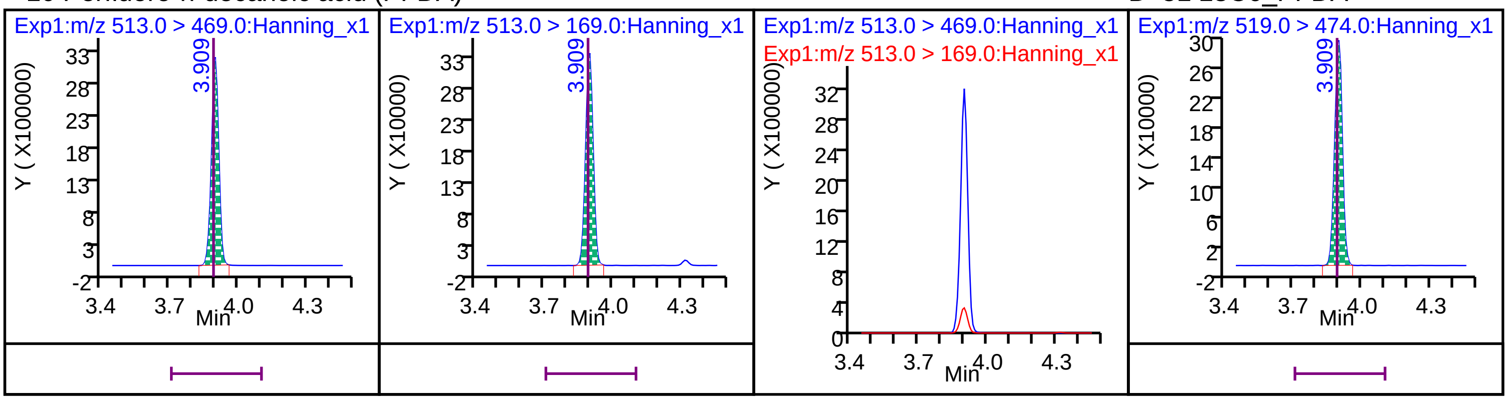
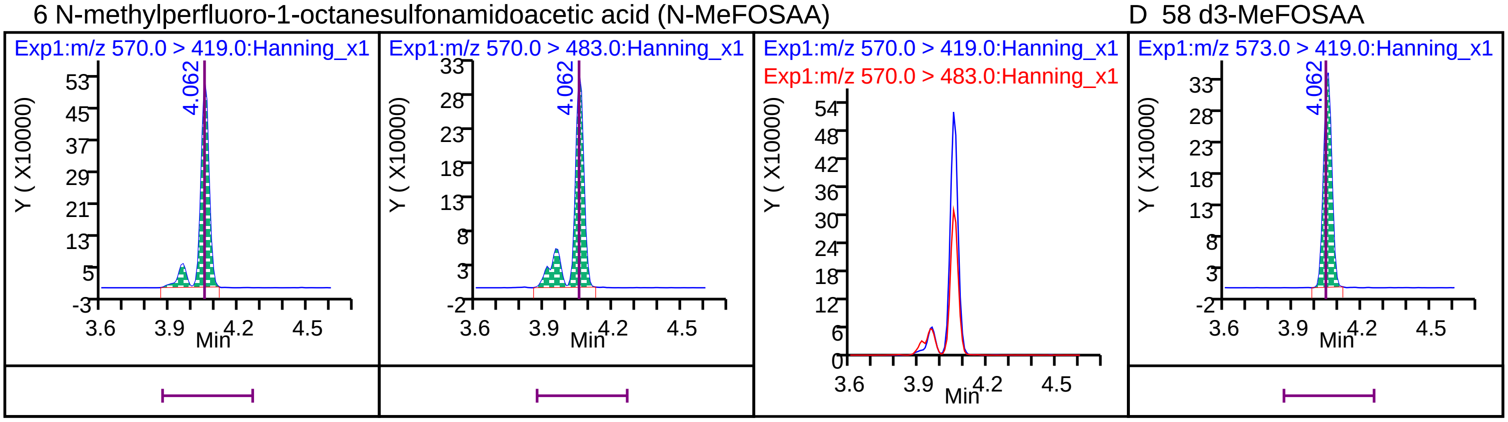
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



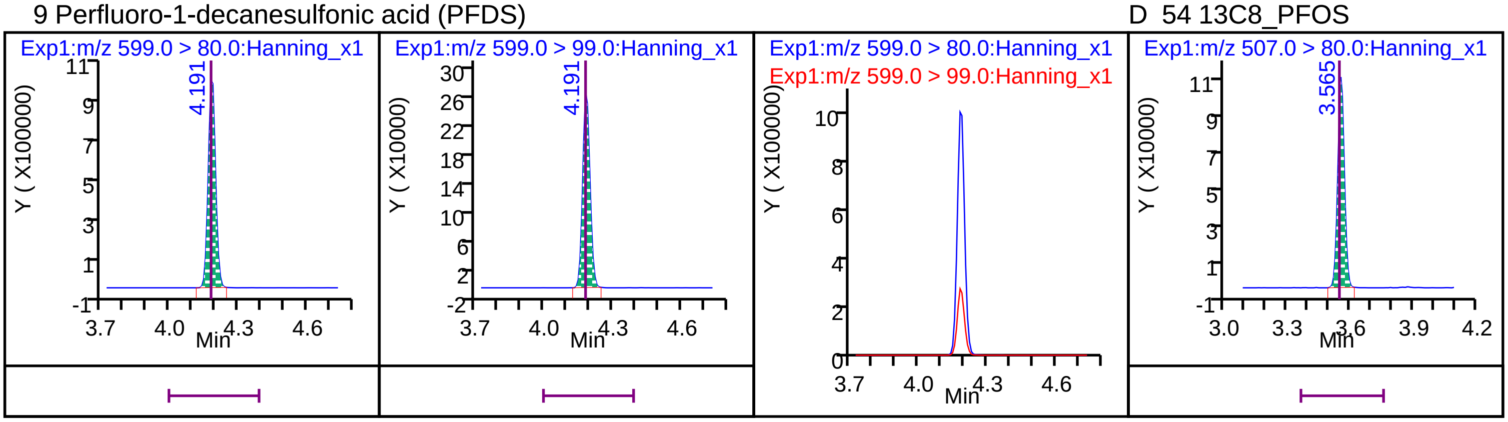
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



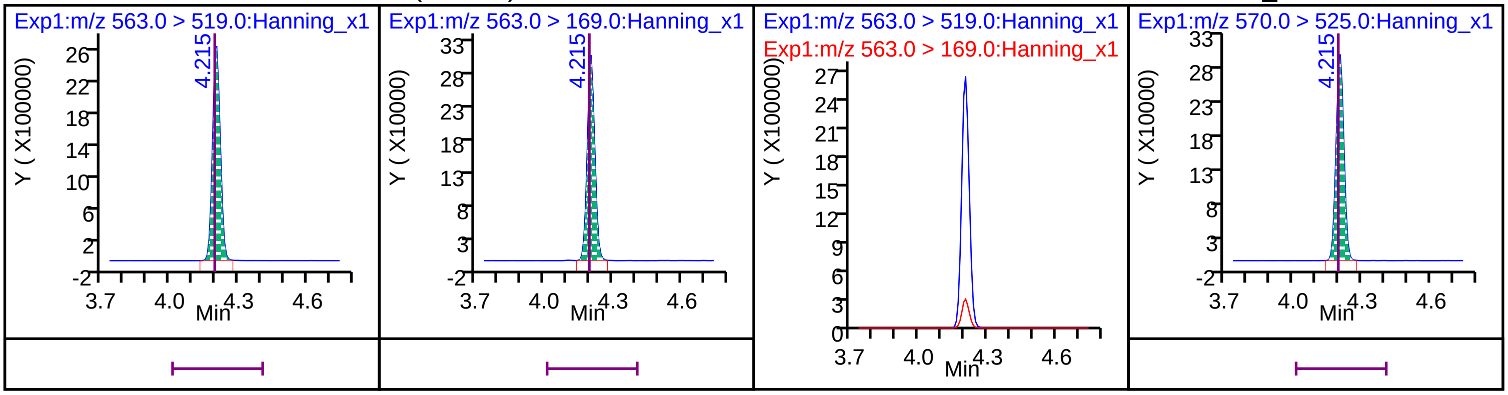
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



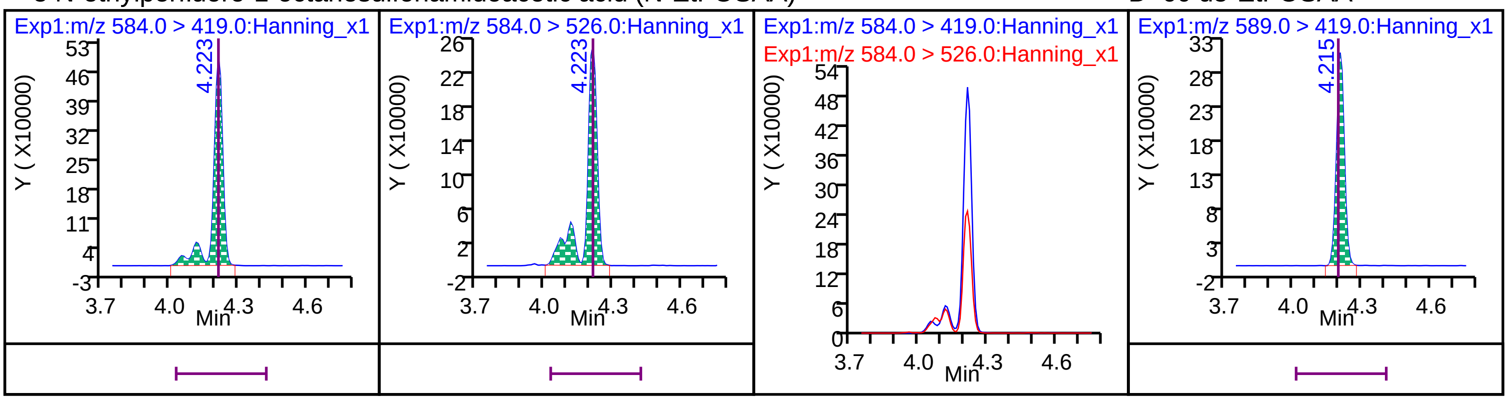
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

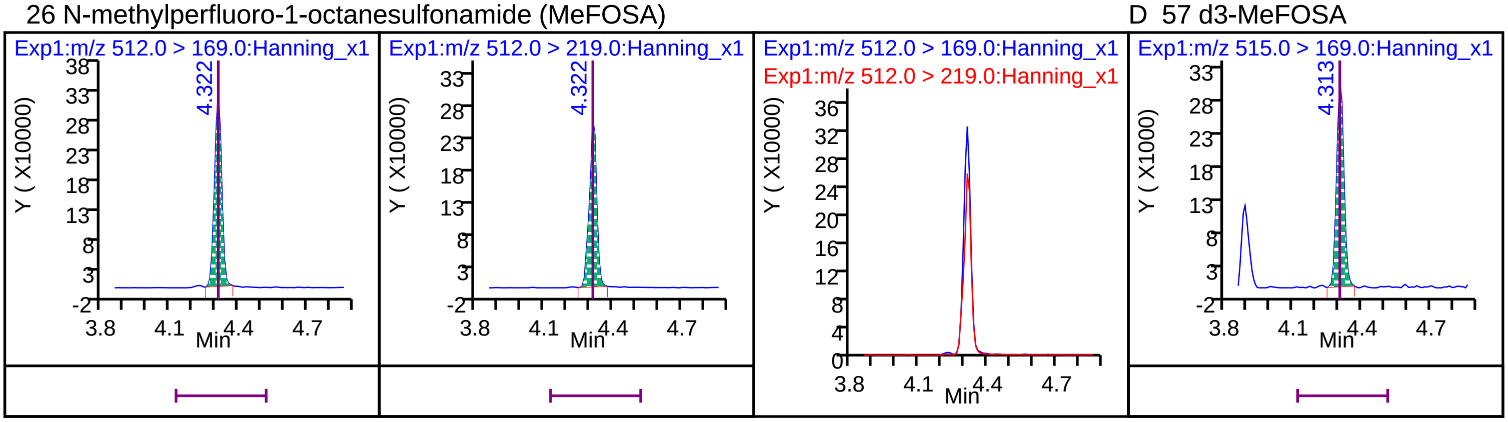


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



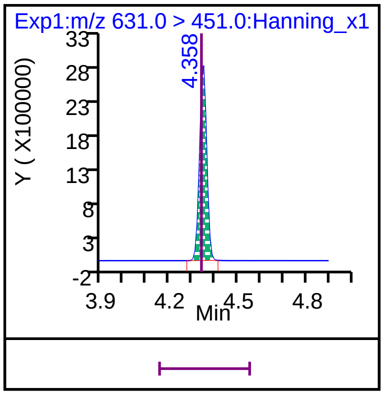
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

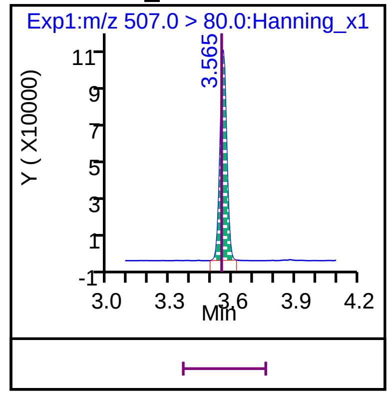


Report Date: 09-Nov-2021 13:30:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621021.d

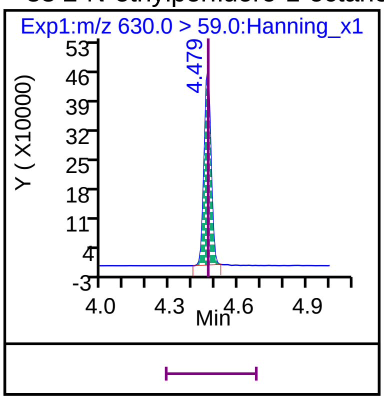
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



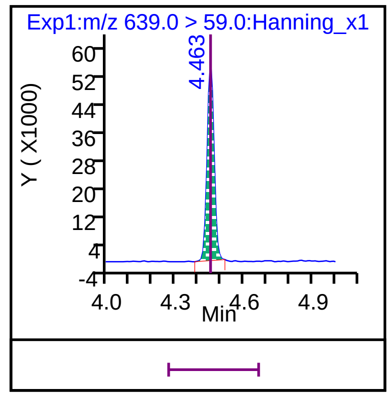
D 54 13C8_PFOS



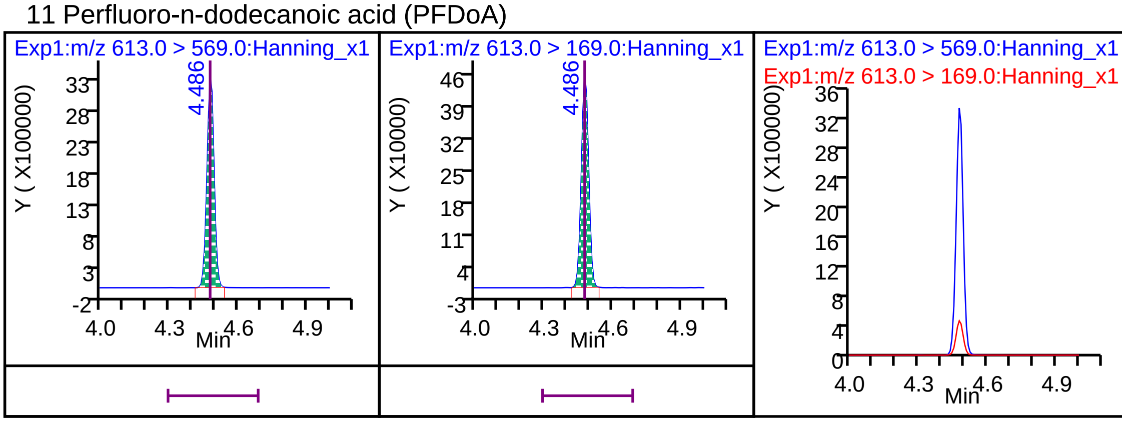
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



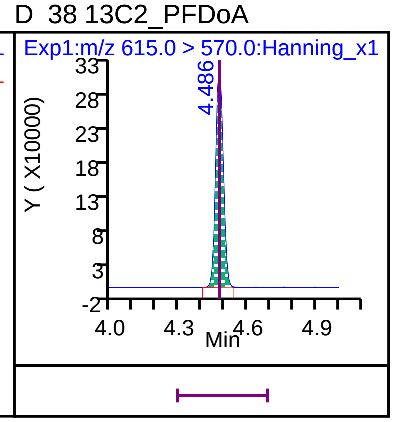
D 62 d9-EtFOSE



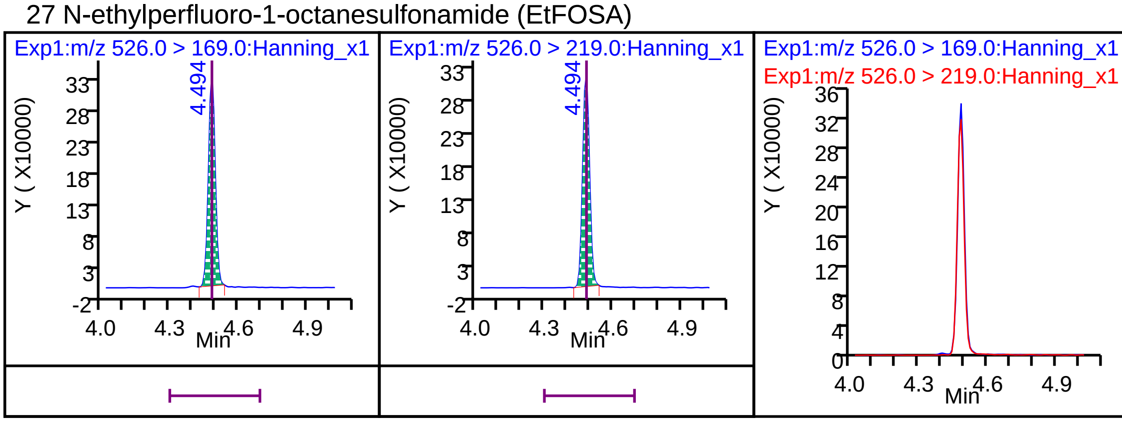
11 Perfluoro-n-dodecanoic acid (PFDoA)



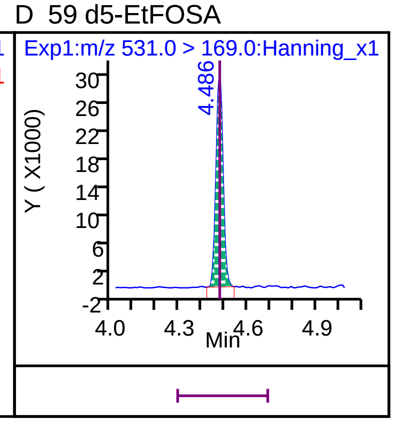
D 38 13C2_PFDoA



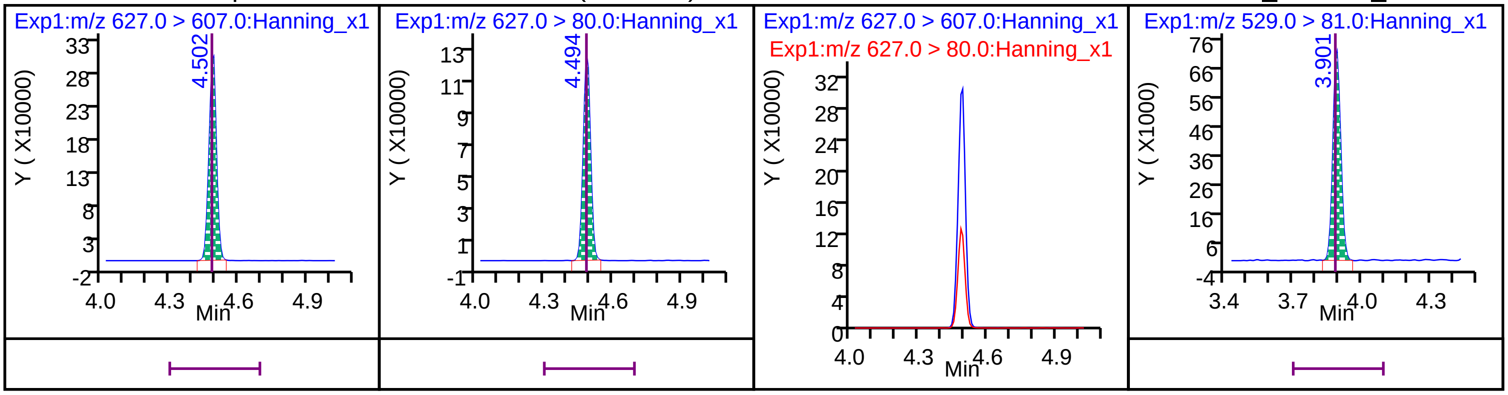
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



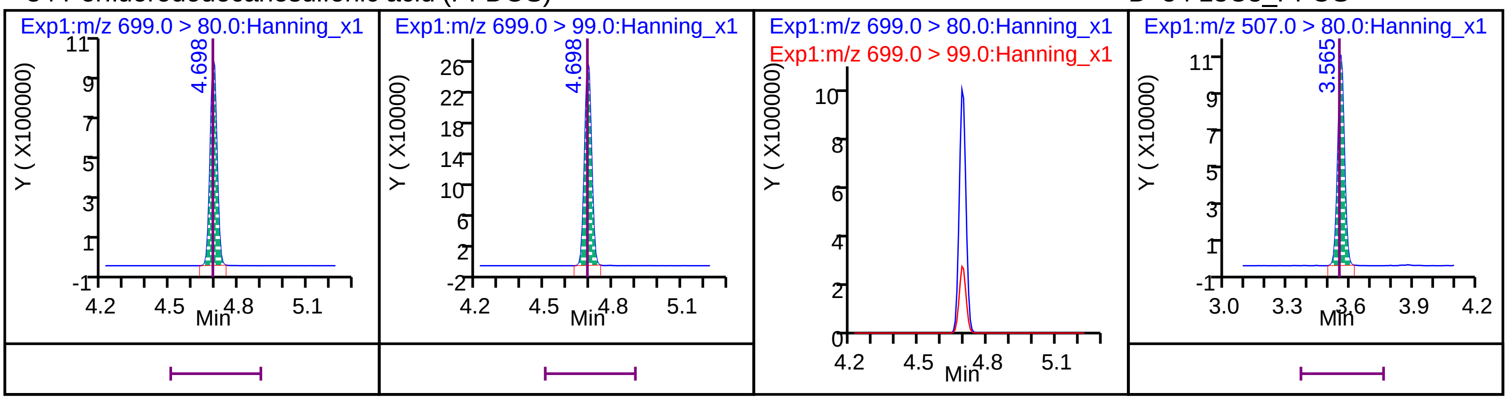
D 59 d5-EtFOSA



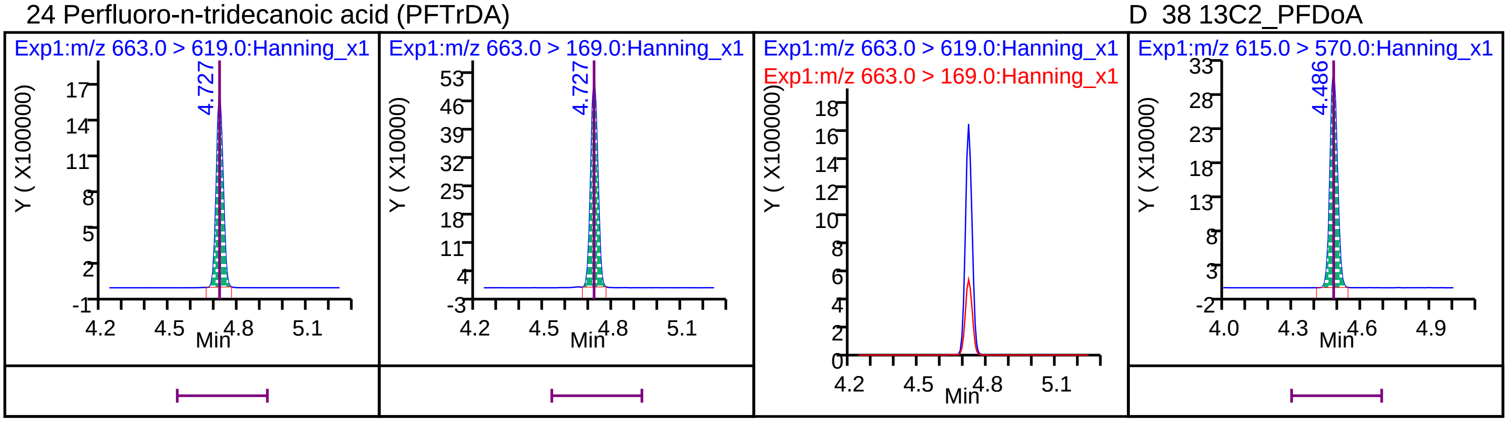
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



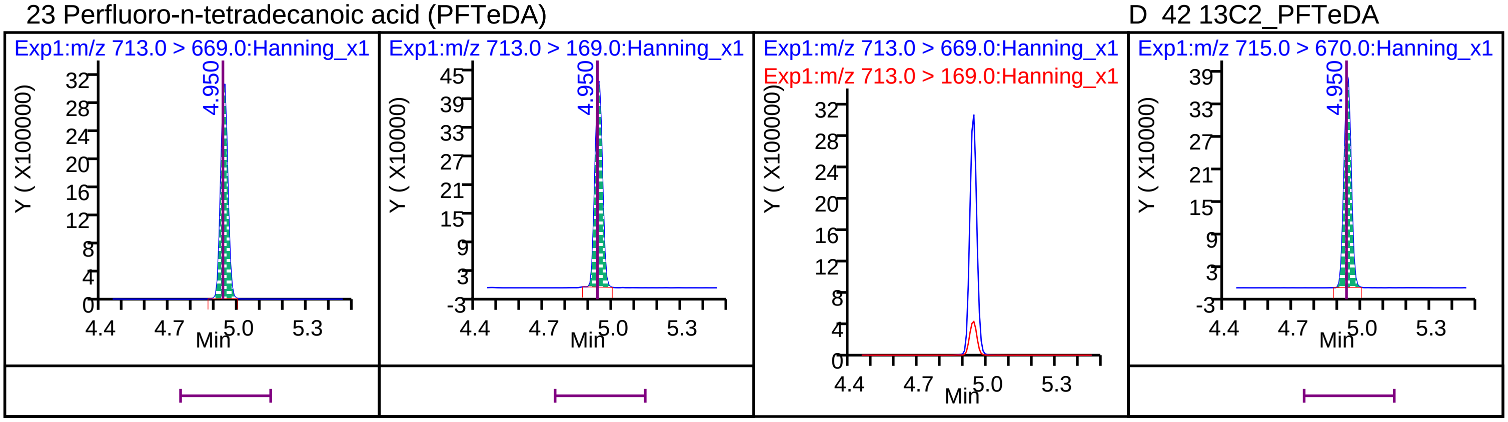
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



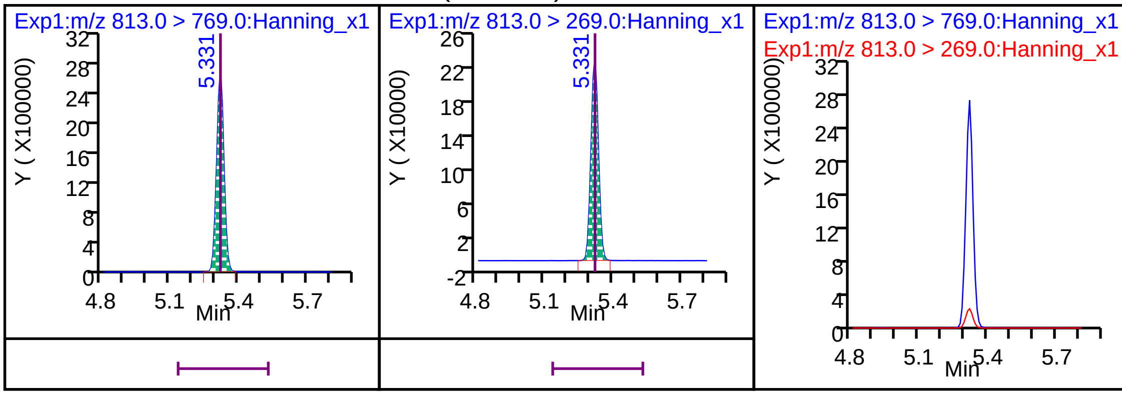
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



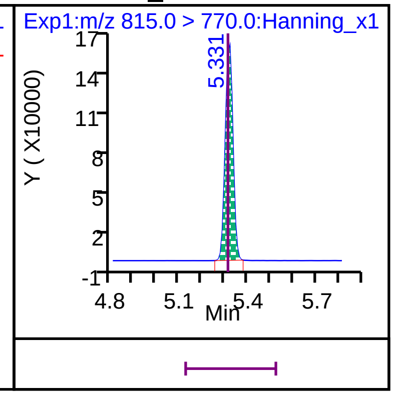
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



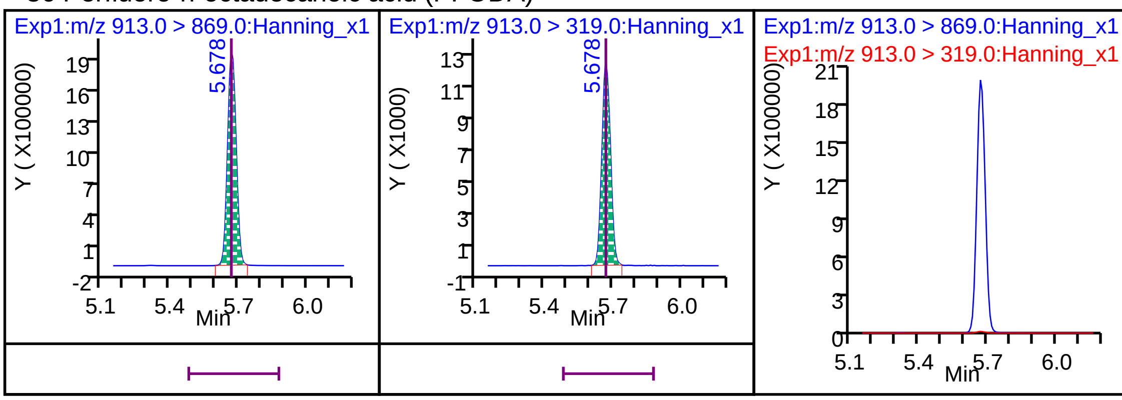
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



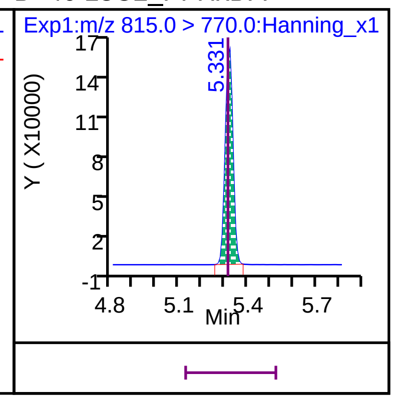
D 40 13C2_PFHxDA



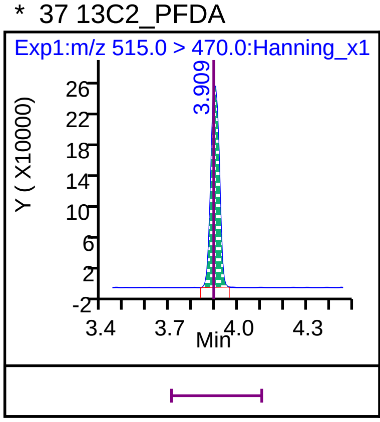
36 Perfluoro-n-octadecanoic acid (PFODA)



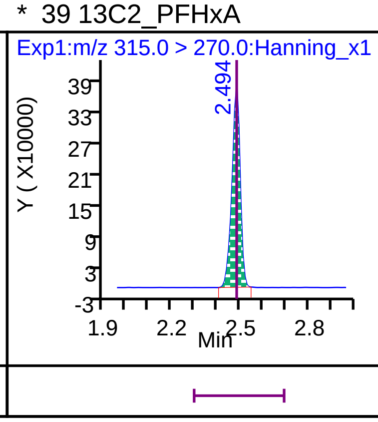
D 40 13C2_PFHxDA



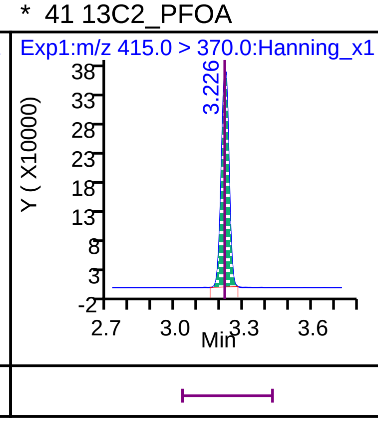
* 37 13C2_PFDA



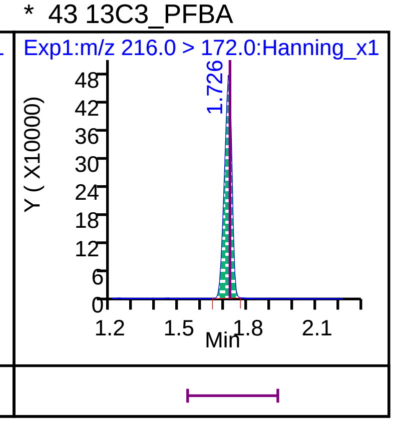
* 39 13C2_PFHxA



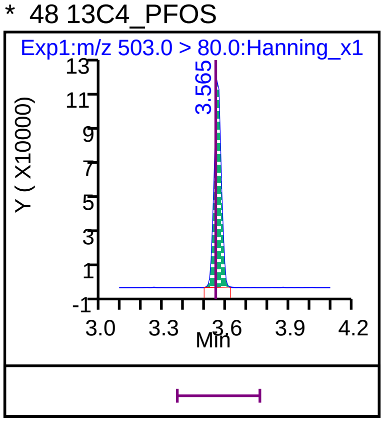
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621021.d

Injection Date: 06-Nov-2021 15:53:24 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ICAL 10000_SVLC-1747

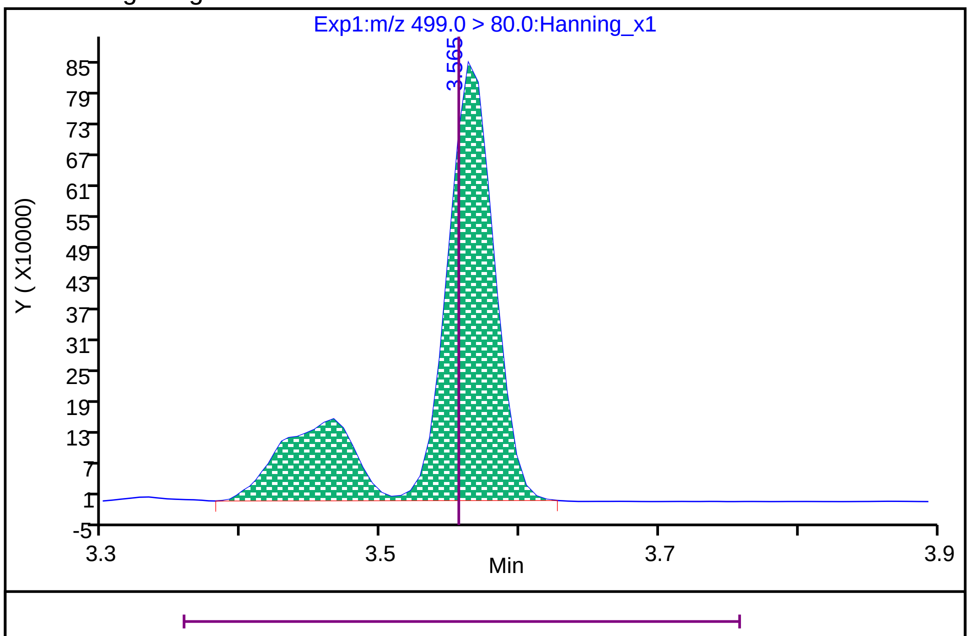
Sample Info: ICAL 10000_SVLC-1747

Dil. Factor: 1 Operator: Matthew M. Miller

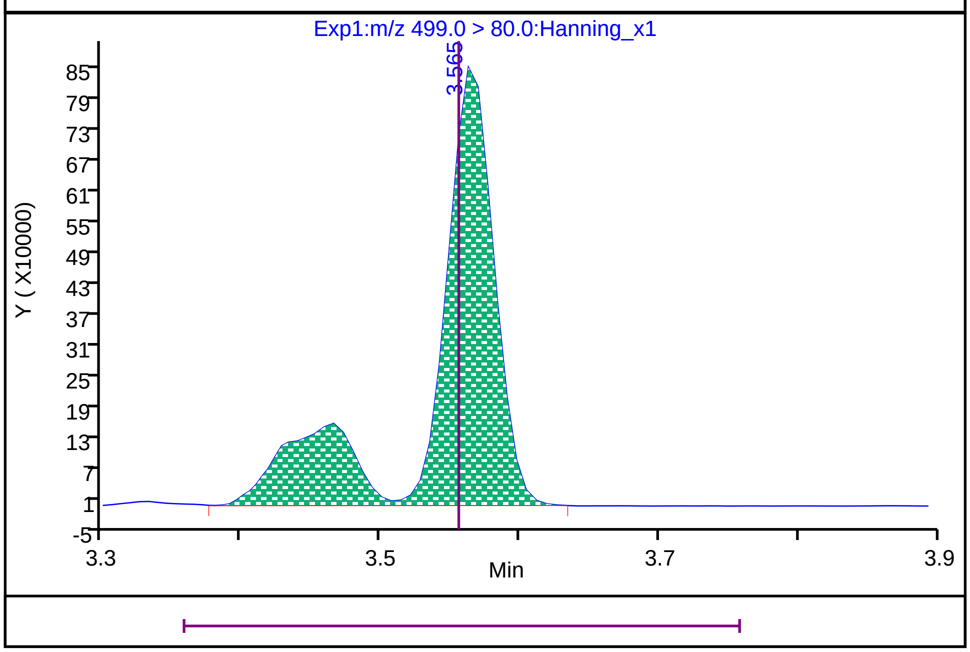
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.565
Area: 2526502
Amount: 9017.16
Amount Units: ng/L



RT: 3.565
Area: 2540439
Amount: 9090.33
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:28

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d		
Injection Date:	06-Nov-2021 16:04:00	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	9
Sample Info:	ICAL 15000_SVLC-1748	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-9 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.727	1.725	1	1026268	21	>100:1			1000.00	936.23	93.1	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.727	1.732	0/-1	15213877	19	>100:1			15000	13911		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.108	2.105	1	973260	16	>100:1			1000.00	954.09	94.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.108	2.105	1/0	14956148	15	>100:1			15000	14316		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.161	2.169	0	319130	17	>100:1			1000.00	945.75	93.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.161	2.169	0/0	5485707	16	>100:1	Target = 3.83		13260	12143		
298.9 > 99	44	2.161	2.169		1488014	16	>100:1	3.68 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.523	2.529	0/0	4383053	18	>100:1	Target = 3.47		14070	13722		
349 > 99	44	2.523	2.529		1315772	18	>100:1	3.33 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.452	2.449	1	229871	17	>100:1			5000.00	4922.63	99.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.452	2.449	1/0	1098564	18	>100:1	Target = 1.39		14010	12851		
327 > 81	63	2.452	2.449		708017	18	>100:1	1.55 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.487	2.493	0	836226	19	>100:1			1000.00	916.92	91.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.493	1/1	11990098	19	>100:1	Target = 17.15		15000	14107		
313 > 119	49	2.496	2.493		698894	17	>100:1	17.15 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.617	2.614	1	728802	19	>100:1			5000.00	4951.31	106.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.617	2.622	0/-1	2968483	20	>100:1	Target = 0.72		30000	27303		
285 > 185	66	2.617	2.622		4141983	19	>100:1	0.71 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.878	1	784842	18	>100:1			1000.00	886.96	86.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.878	1/0	11079590	17	>100:1	Target = 3.21		15000	14777		
363 > 169	47	2.881	2.878		3502624	17	>100:1	3.16 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.899	2.896	1	265797	18	>100:1			1000.00	961.01	96.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.899	2.896	1/0	3909091	25	>100:1	Target = 3.35	4.75	13650	12758		
399 > 99	45	2.899	2.896		1150584	22	>100:1	3.39 (1.67-5.04)	7.16				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.925	2.923	1/0	18790548	17	>100:1	Target = 2.38		14130	13334		
377 > 85	45	2.925	2.923		7850106	17	>100:1	2.39 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.226	1/0	3761595	21	>100:1	Target = 3.87		14280	13298		
449 > 99	45	3.234	3.226		995836	21	>100:1	3.77 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.201	1	184720	19	>100:1			5000.00	4481.82	85.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.201	1/0	877406	21	>100:1	Target = 1.26		14220	14298		
427 > 81	64	3.202	3.201		690779	21	>100:1	1.27 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.220	1	747498	21	>100:1			1000.00	887.32	88.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.226	1/0	11214010	20	>100:1	Target = 2.46		15000	15002		
413 > 169	53	3.227	3.226		4471576	21	>100:1	2.50 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.567	3.558	1	225484	20	>100:1			1000.00	951.70	94.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.567	3.558	1/0	3478520	41	>100:1	Target = 3.98	3.06	13920	13260		M
499 > 99	54	3.567	3.558		893689	41	>100:1	3.89 (1.99-5.97)	6.50				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.763	3.755	1/0	9402977	20	>100:1			13980	13799		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.896	3.886	1/0	2965114	19	>100:1	Target = 3.57		14400	13810		
549 > 99	54	3.896	3.886		745679	19	>100:1	3.97 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.200	4.191	1/0	2976584	17	>100:1	Target = 3.73		14460	14084		
599 > 99	54	4.200	4.191		793592	18	>100:1	3.75 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.359	4.349	1/0	7878596	15	>100:1			14130	14498		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.707	4.698	1/0	2758584	18	>100:1	Target = 3.44		14520	15150		
699 > 99	54	4.707	4.698		741127	17	>100:1	3.72 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.574	3.565	1	758541	20	>100:1			1000.00	934.93	89.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.581	3.565	1/0	9248999	20	>100:1	Target = 4.45		15000	13671		
463 > 169	56	3.574	3.565		2139250	20	>100:1	4.32 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.874	3.872	1	392404	19	>100:1			1000.00	944.67	92	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.874	3.872	1/0	6023219	20	>100:1	Target = 47.73		15000	14087		
498>478	55	3.874	3.872		151329	19		39.80 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.896	3.894	1	156319	19	>100:1			5000.00	4489.06	87.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.896	3.894	1/0	668881	19		Target = 1.41		14370	12966		
527 > 81	65	3.903	3.894		487729	19	>100:1	1.37 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.503	4.494	1/0	905423	18	>100:1	Target = 2.81		14460	13653		
627 > 80	65	4.503	4.494		366657	18	>100:1	2.46 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.903	3.901	1	648953	19	>100:1			1000.00	907.07	84.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.911	3.901	1/0	9759281	19	>100:1	Target = 9.36		15000	14724		
513 > 169	51	3.911	3.901		1024630	18	>100:1	9.52 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.064	4.053	1	749538	16	>100:1			5000.00	4635.69	94.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.064	4.062	1/0	1830140	35	>100:1	Target = 1.42	7.23	15000	15127		M
570 > 483	58	4.064	4.062		1271985	34	>100:1	1.43 (0.71-2.13)	4.19				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.216	4.207	1	645255	18	>100:1			5000.00	4462.61	86.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.224	4.223	1/0	1870333	32	>100:1	Target = 1.80	6.41	15000	14692		
584 > 526	60	4.224	4.223		1068065	33	>100:1	1.75 (0.90-2.70)	3.55				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.216	4.207	1	652092	18	>100:1			1000.00	928.60	90.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.216	4.207	1/0	8666291	17	>100:1	Target = 8.65		15000	14757		
563 > 169	52	4.216	4.207		945963	17	>100:1	9.16 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.296	4.295	1	121074	13	>100:1			1000.00	986.58	97.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.305	4.304	1/0	1814652	15	>100:1			15000	14698		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.323	4.313	1	65053	13	>100:1			1000.00	1012.51	102.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.323	4.322	1/0	968575	14	>100:1	Target = 1.09		15000	13744		
512 > 219	57	4.323	4.322		881078	15	>100:1	1.09 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.472	4.463	1	113020	14	>100:1			1000.00	994.61	102.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.480	4.479	1/0	1368826	16	>100:1			15000	14634		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.495	4.486	1	652156	17	>100:1			1000.00	936.91	94.6	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.488	4.486	1/0	8911608	16	>100:1	Target = 6.94		15000	13605		
613 > 169	38	4.495	4.486		1476199	16	>100:1	6.03 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.736	4.727	1/0	4229838	17	>100:1	Target = 2.82		15000	14693		
663 > 169	38	4.736	4.727		1454477	17	>100:1	2.90 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.488	4.486	1	54164	15	>100:1			1000.00	897.84	84.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.495	4.494	1/0	980397	15	>100:1	Target = 1.11		15000	15155		
526 > 219	59	4.495	4.494		897858	16	>100:1	1.09 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.951	4.942	1	698879	18	>100:1			1000.00	936.68	92.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.951	4.942	1/0	9160069	18	>100:1	Target = 7.23		15000	15190		
713 > 169	42	4.951	4.942		1202829	18	>100:1	7.61 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.332	5.323	1	333511	17	>100:1			1000.00	958.65	97	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.332	5.331	1/0	8398820	18	>100:1	Target = 12.24		15000	13695		
813 > 269	40	5.332	5.331		688771	16	>100:1	12.19 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.687	5.678	1/0	6514121	22	>100:1	Target = 148.06		15000	14454		
913 > 319	40	5.687	5.678		43796	22	>100:1	148.73 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.911	3.901	1	633849	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.487	2.493	0	850440	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.226	1	761321	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.727	1.732	0	946762	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.567	3.558	1	227105	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

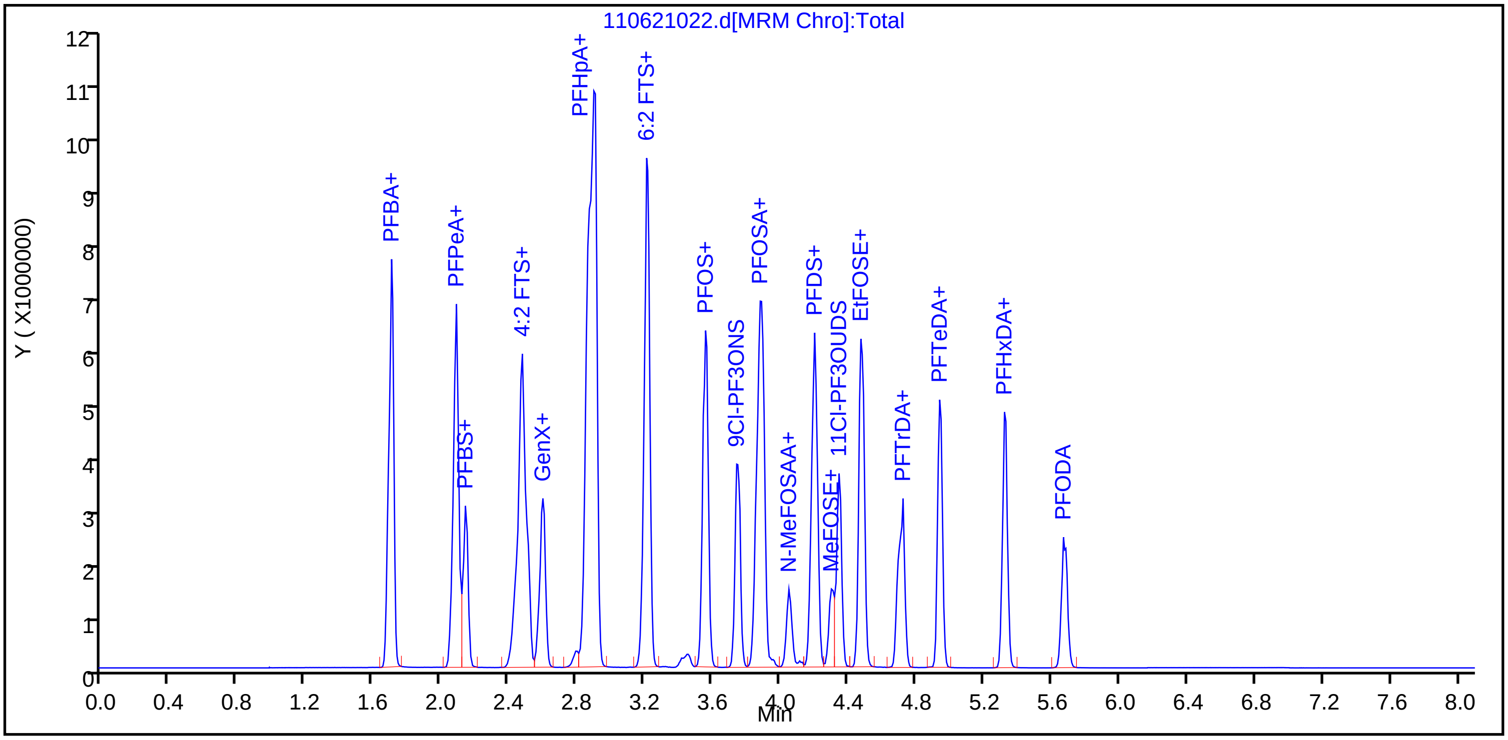
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

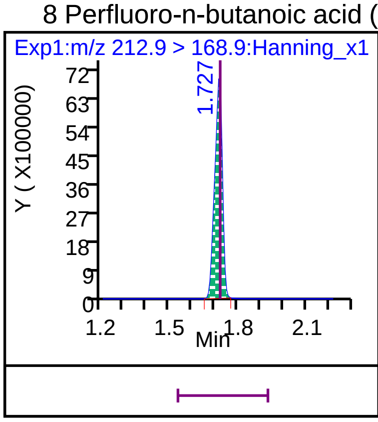
Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

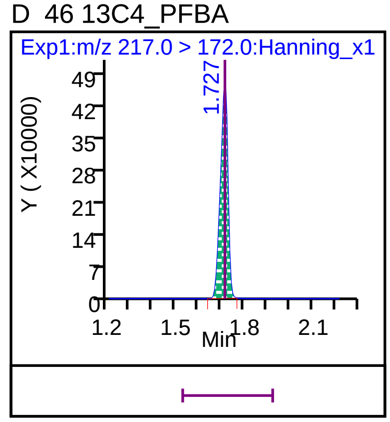
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d		
Injection Date:	06-Nov-2021 16:04:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1748
Sample Info:	ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Matthew M. Miller



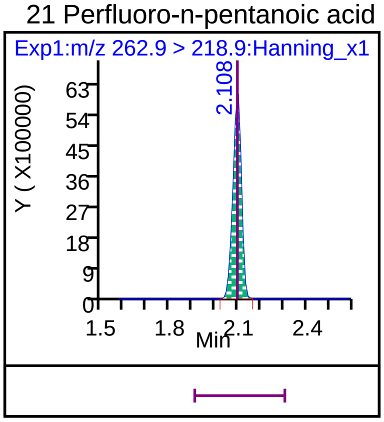
8 Perfluoro-n-butanoic acid (PFBA)



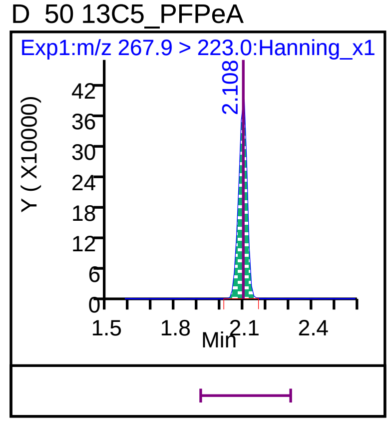
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

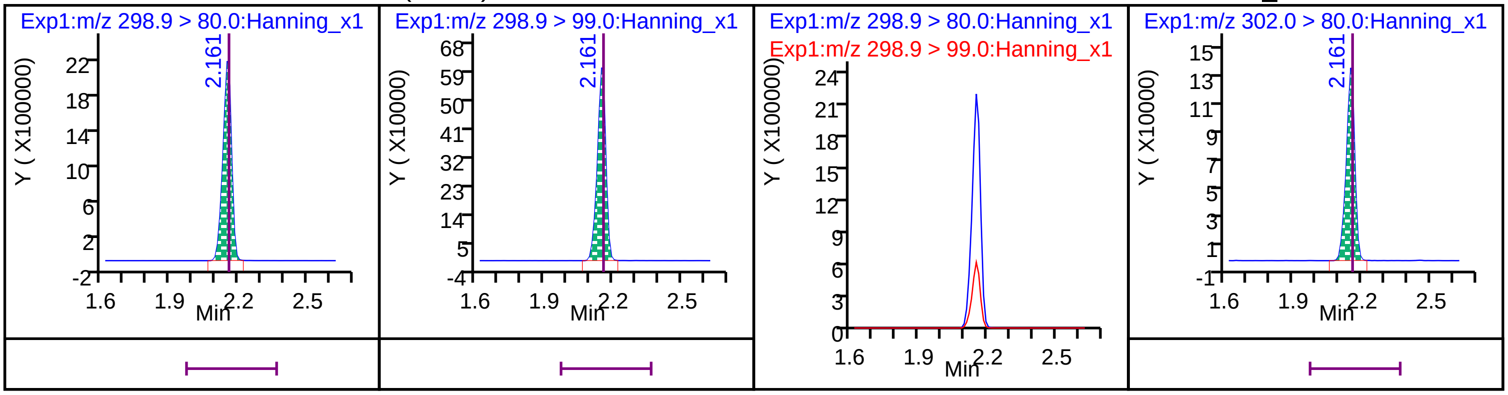


D 50 13C5_PFPeA

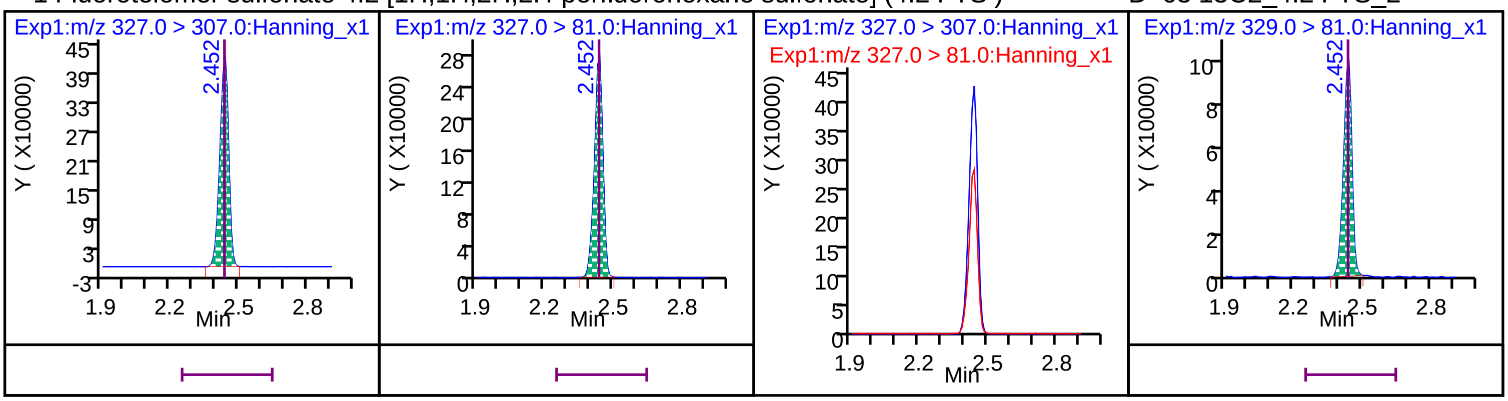


Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d

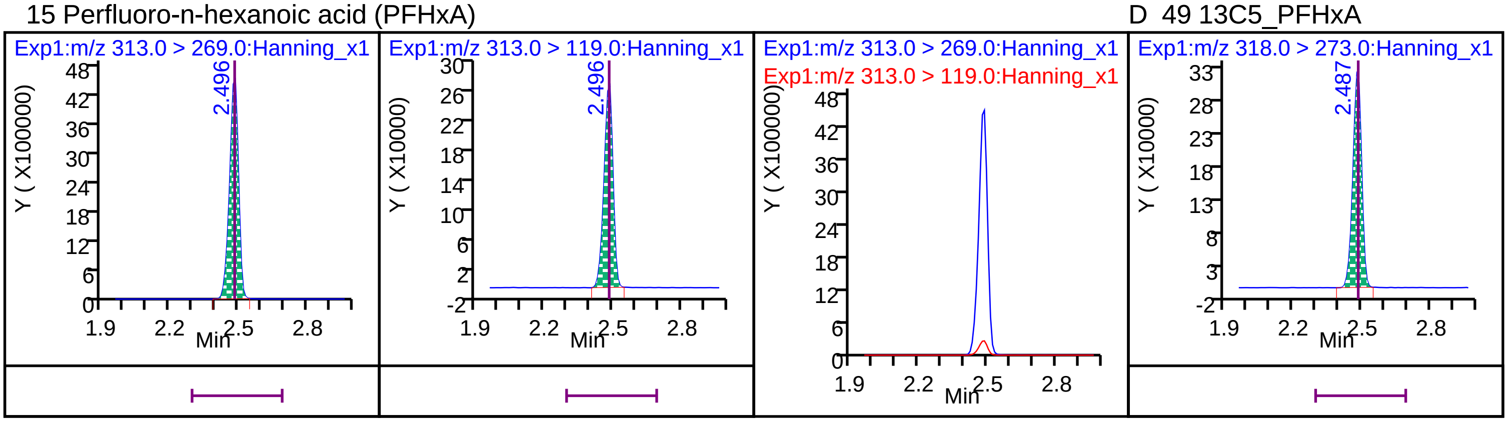
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



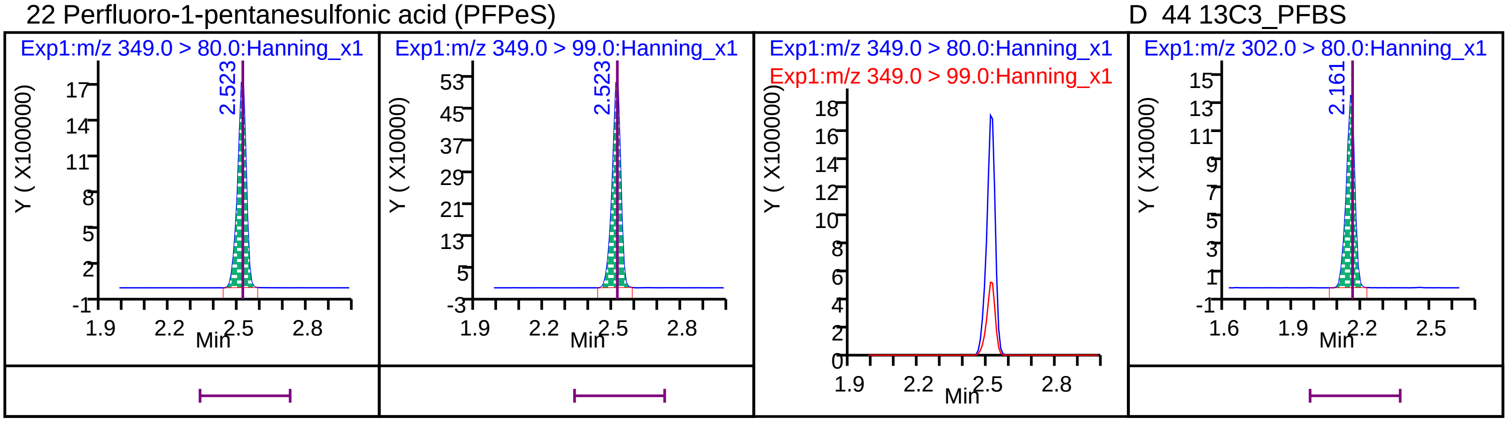
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

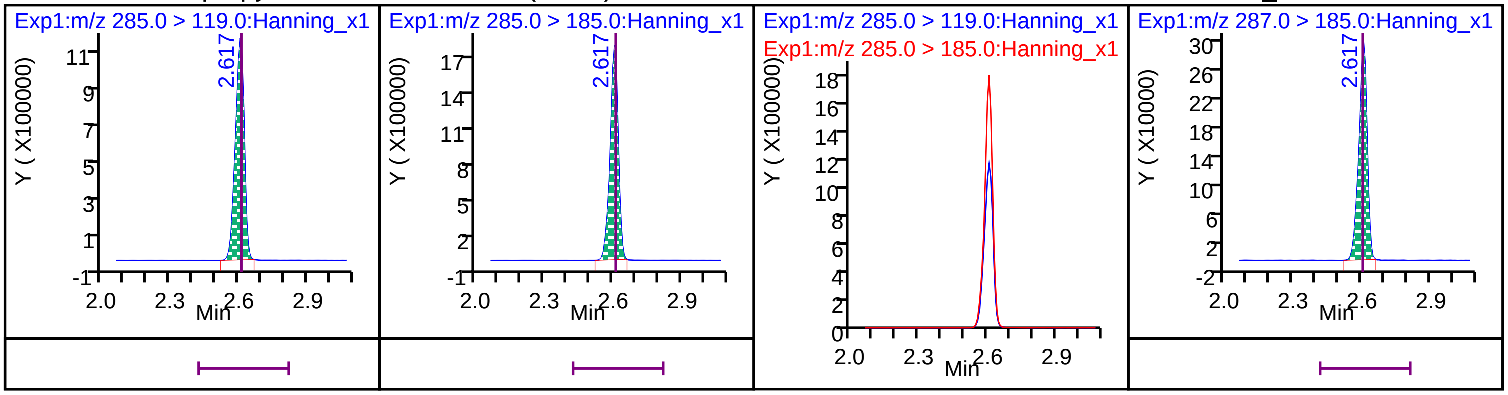


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

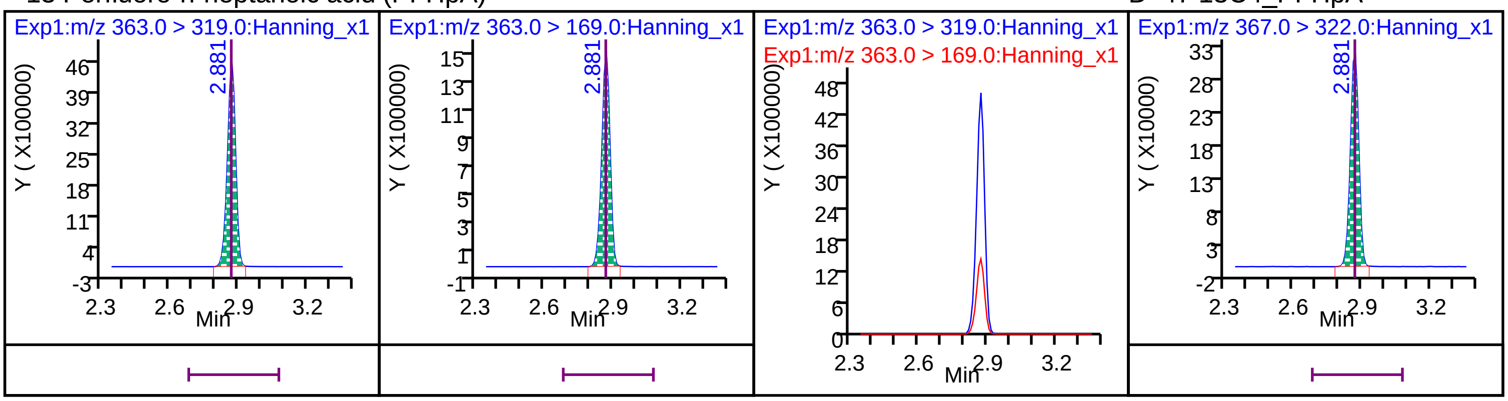


Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d

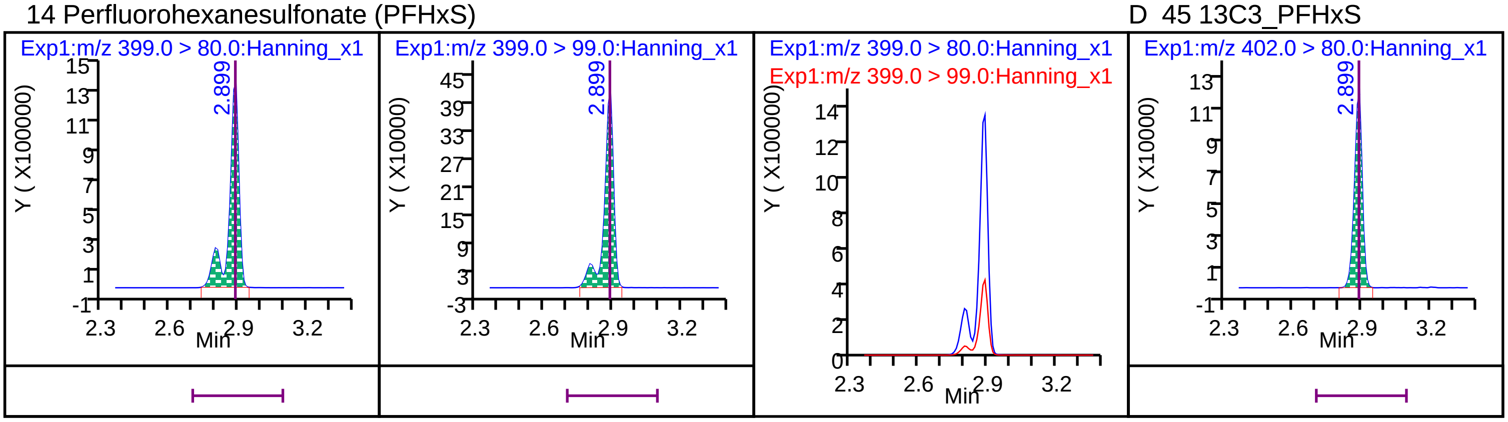
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



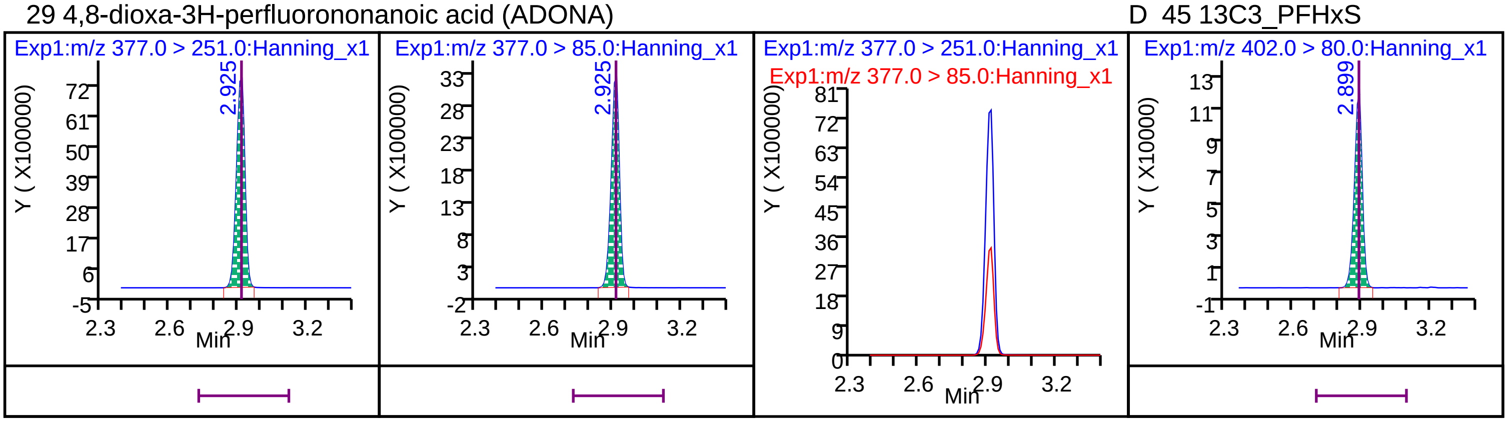
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



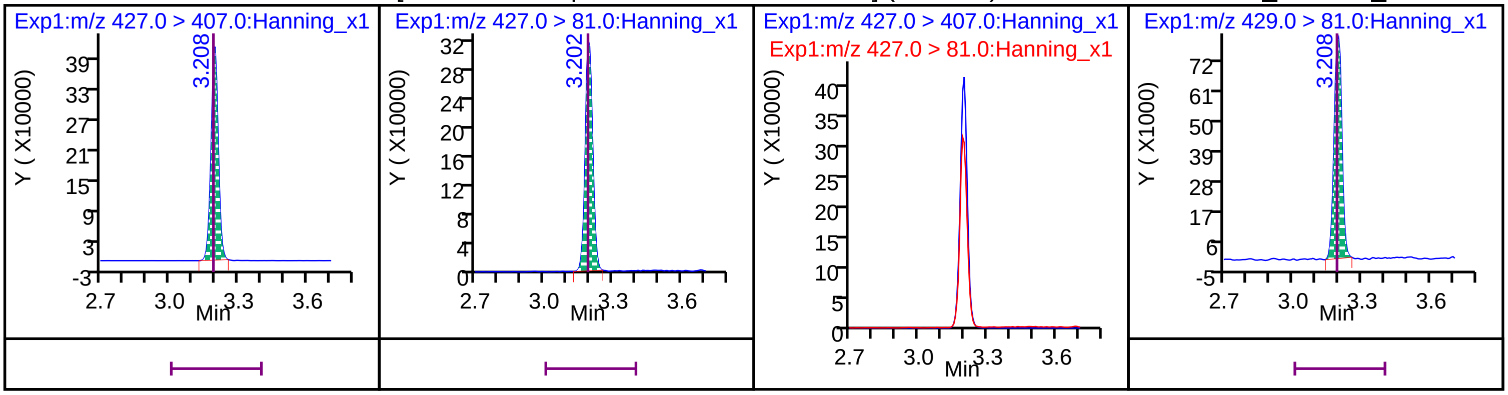
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



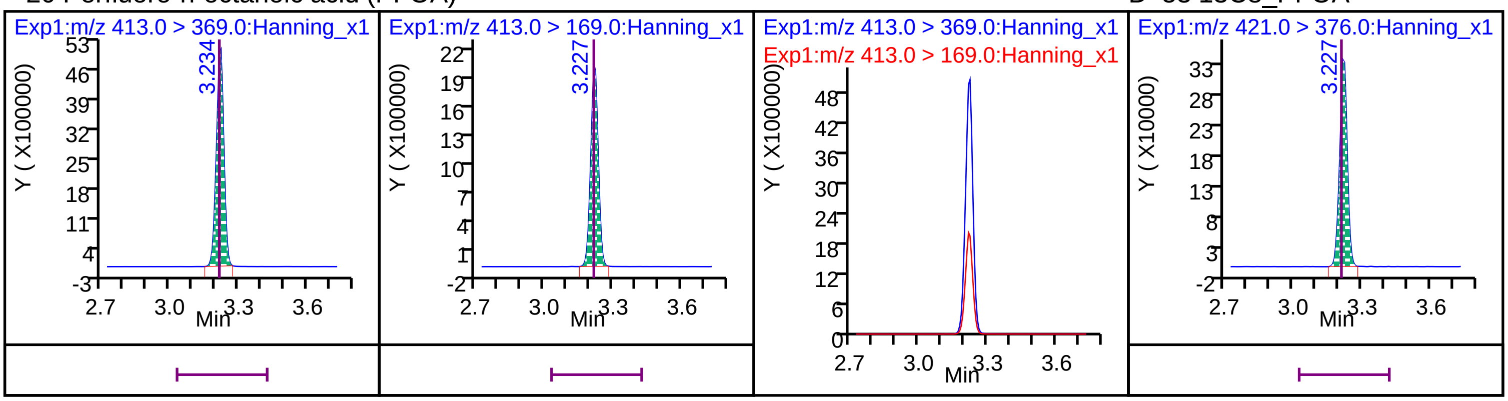
Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d

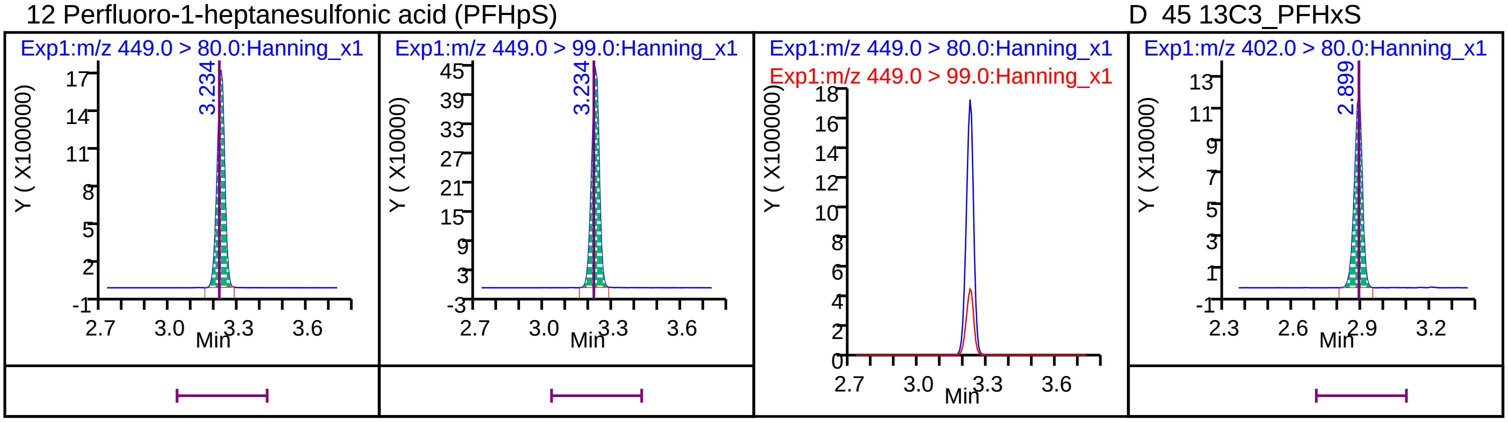
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



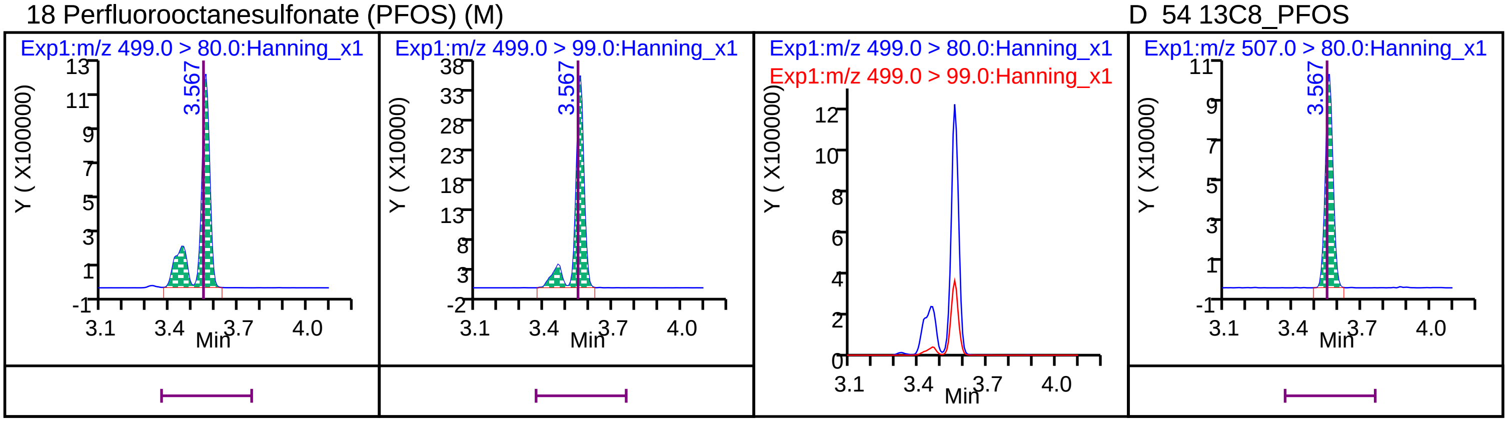
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



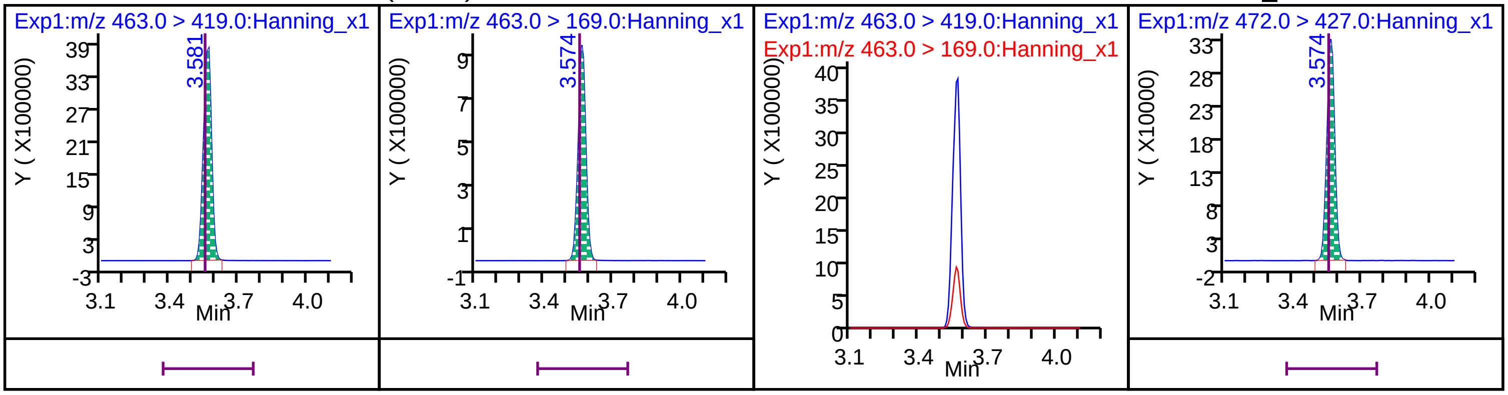
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



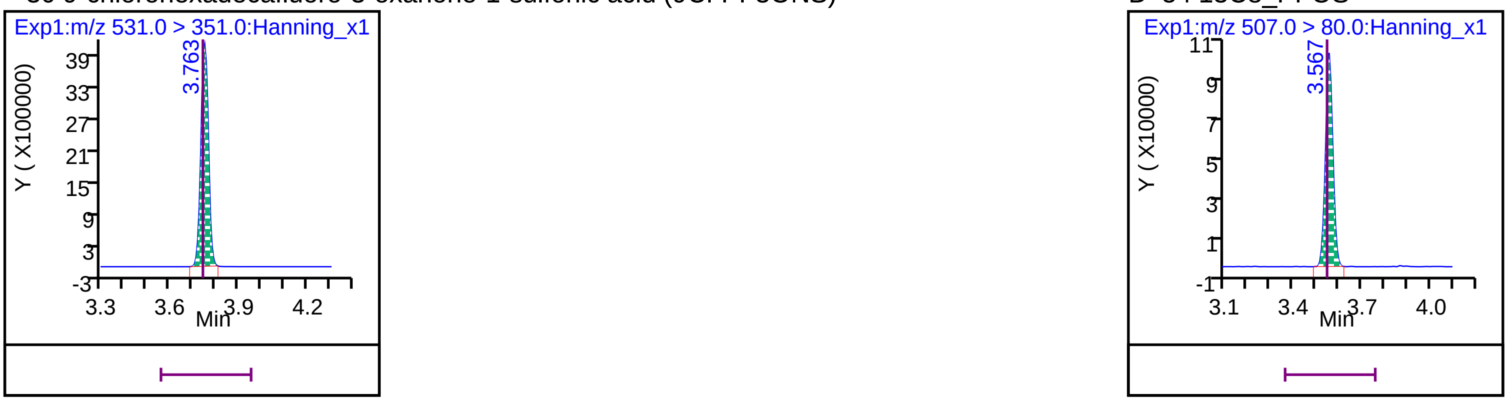
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



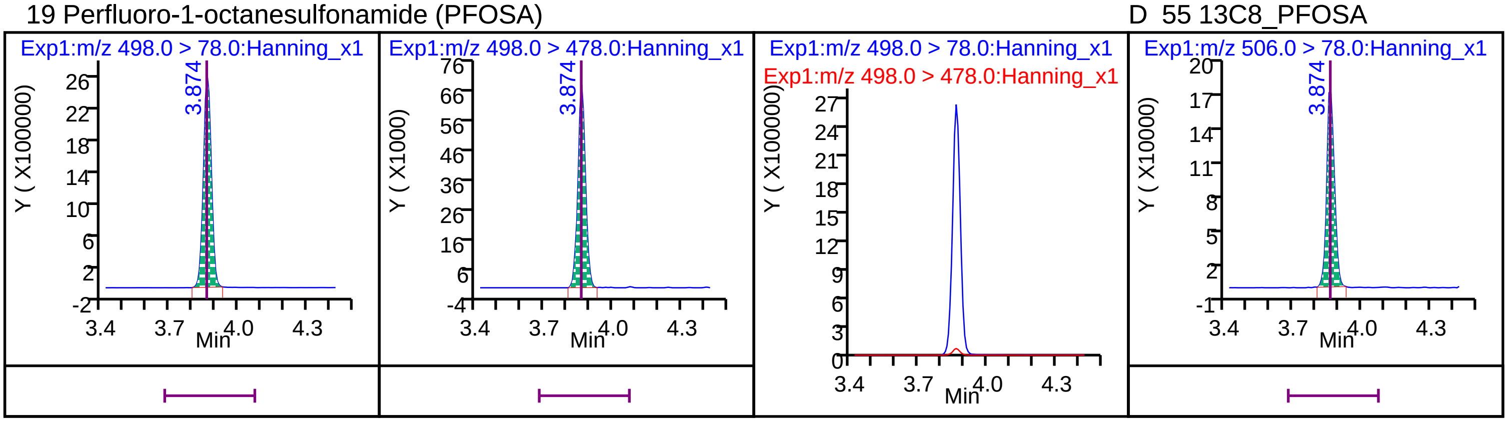
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



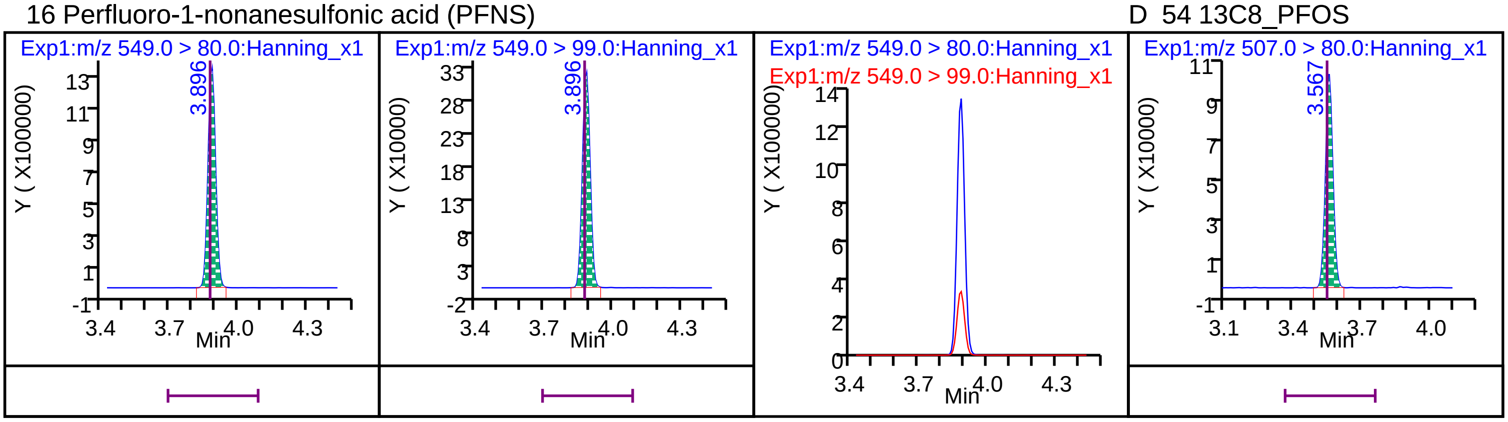
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



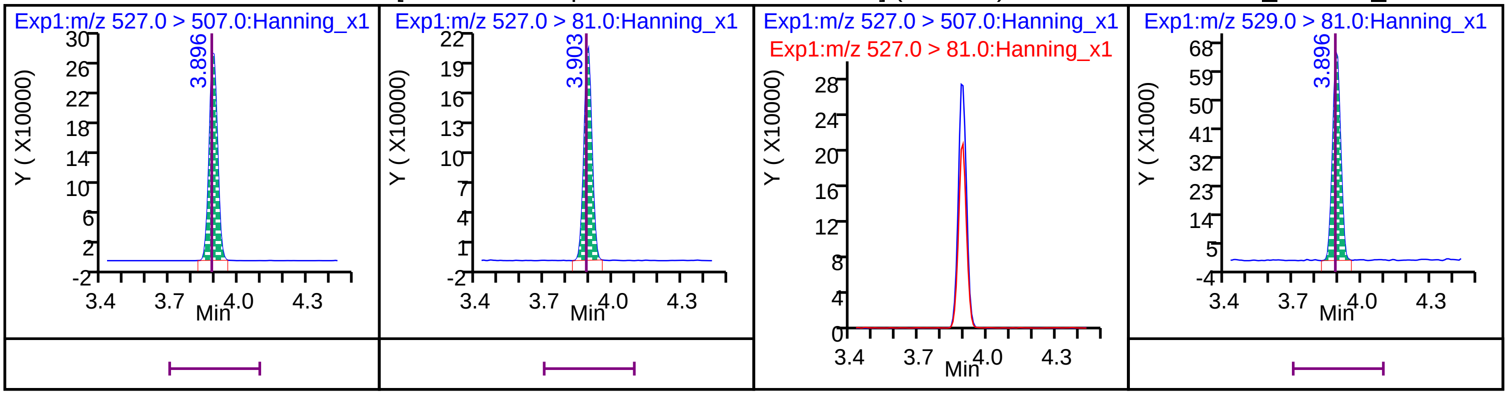
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



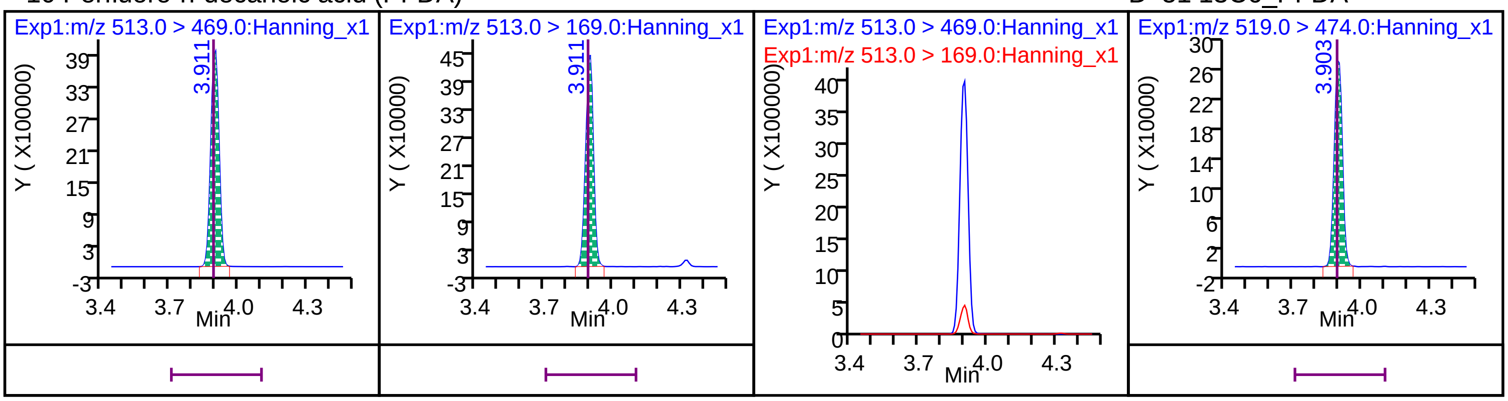
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



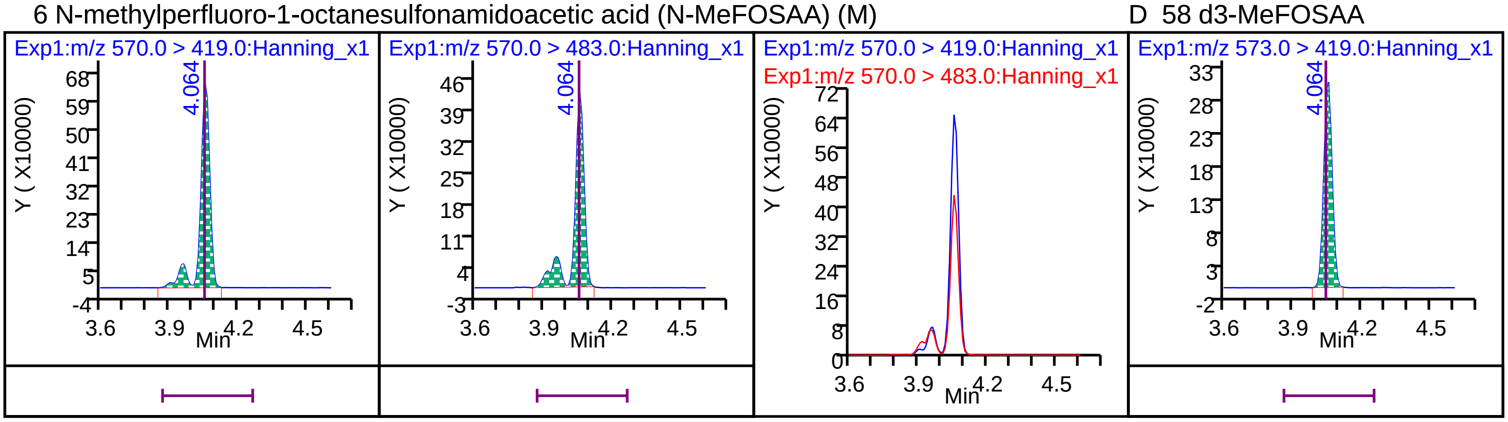
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



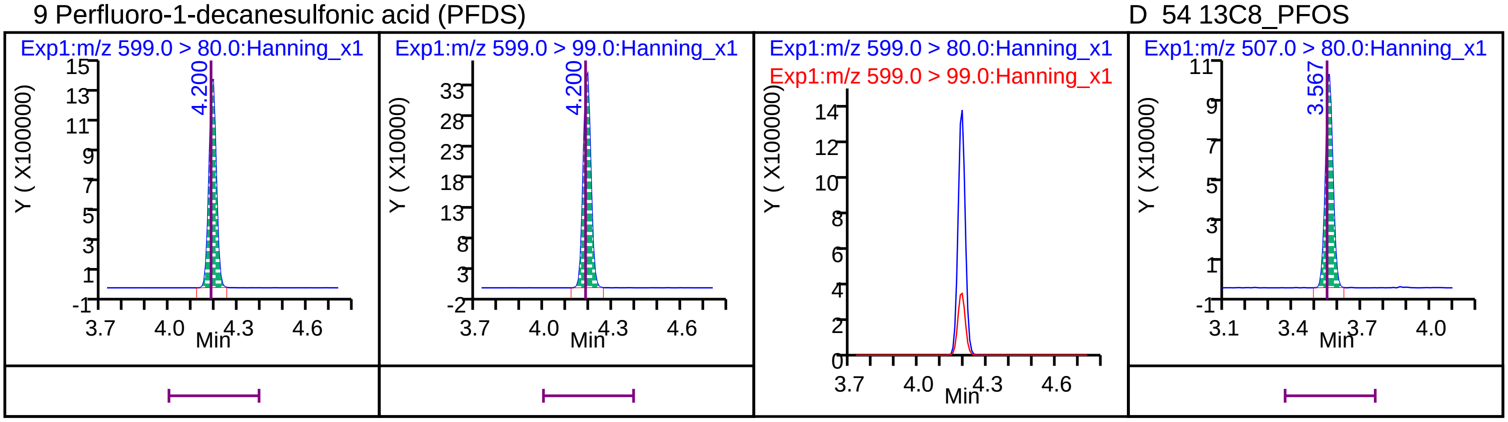
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

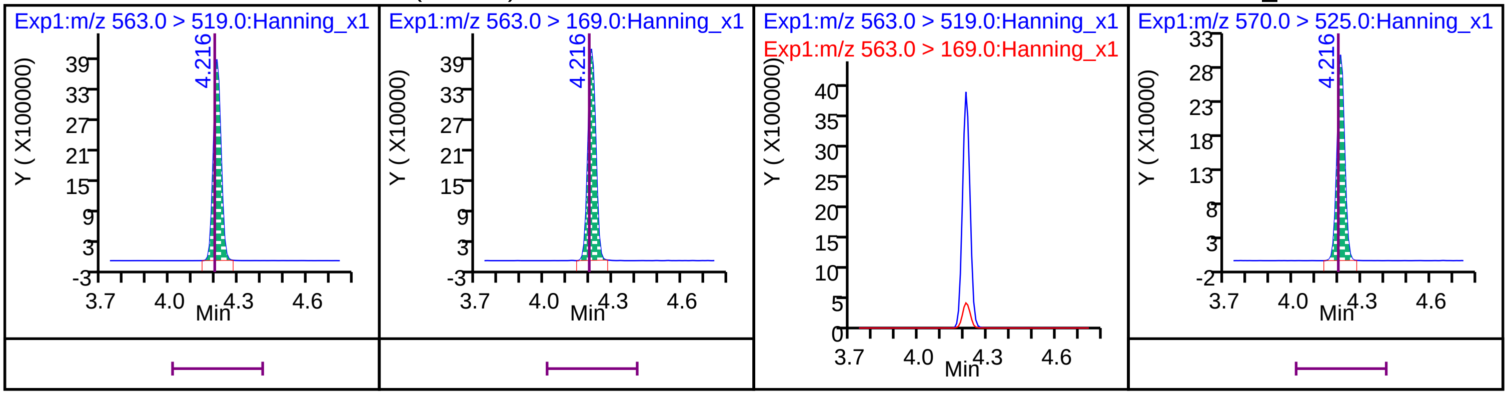


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

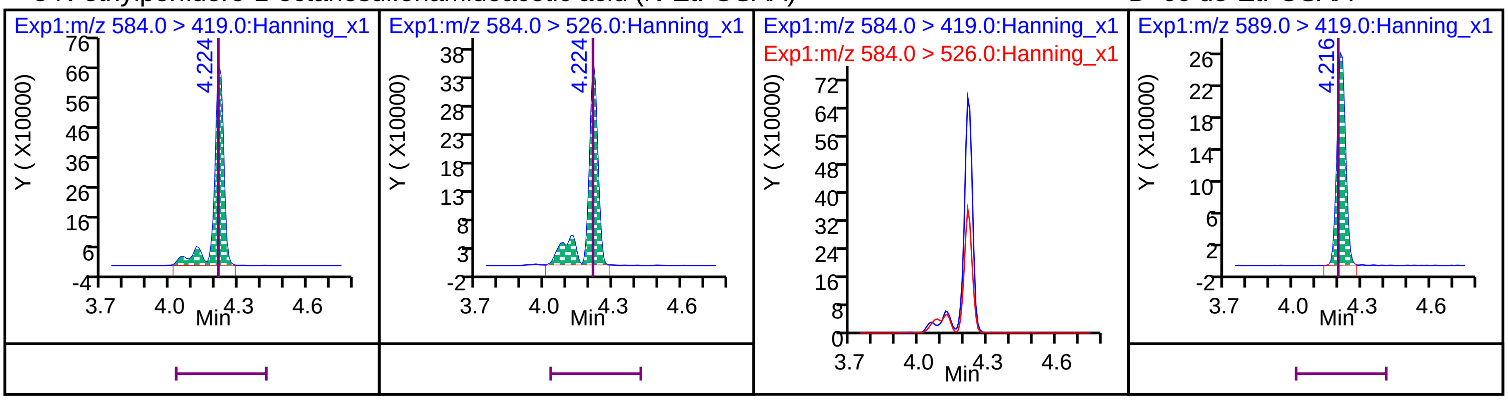


Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d

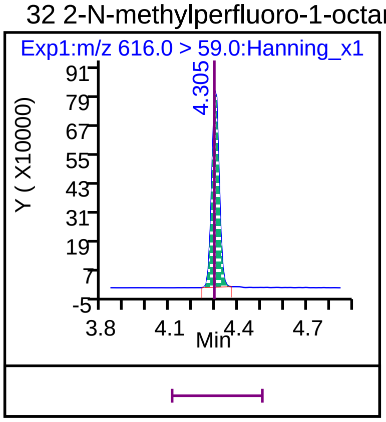
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

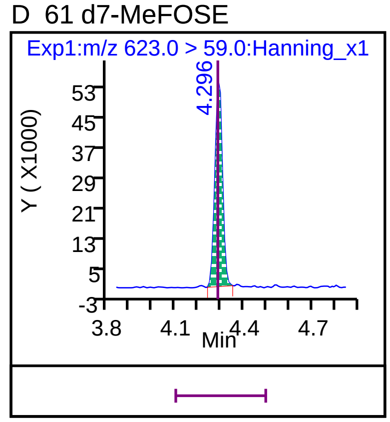


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

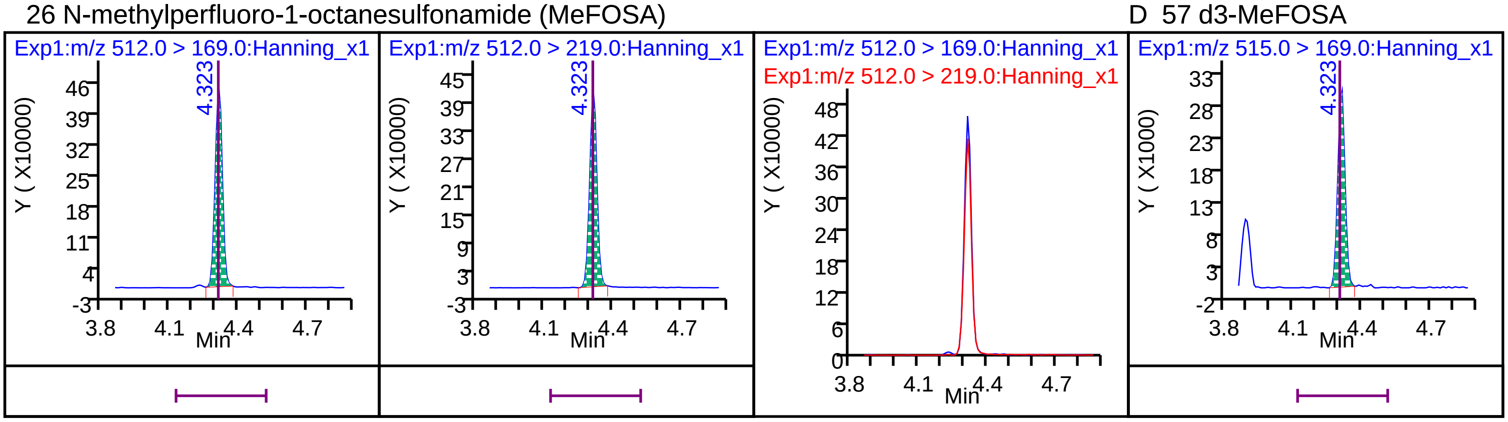


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



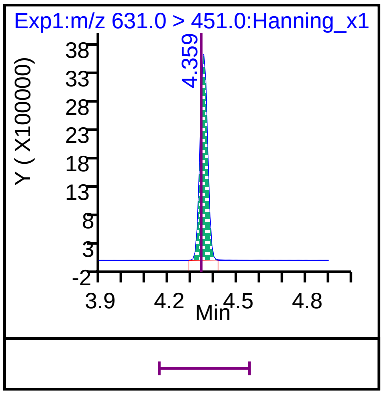


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

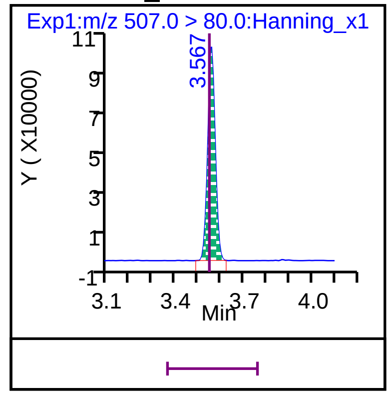


Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d

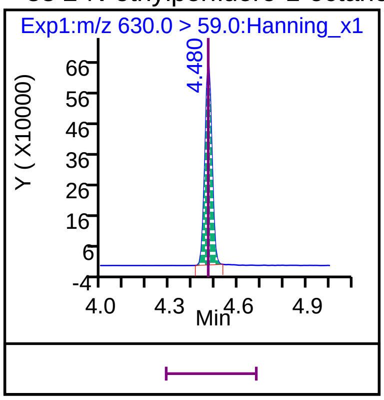
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



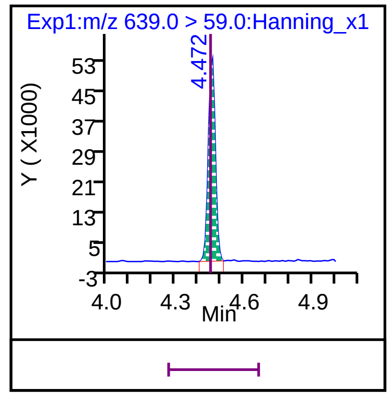
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

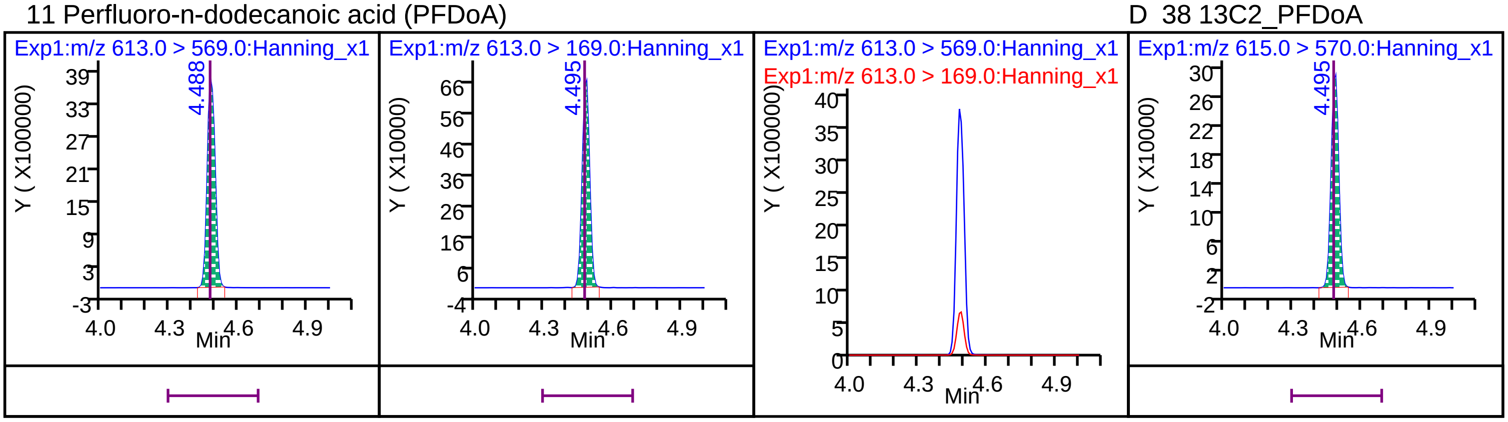


D 62 d9-EtFOSE



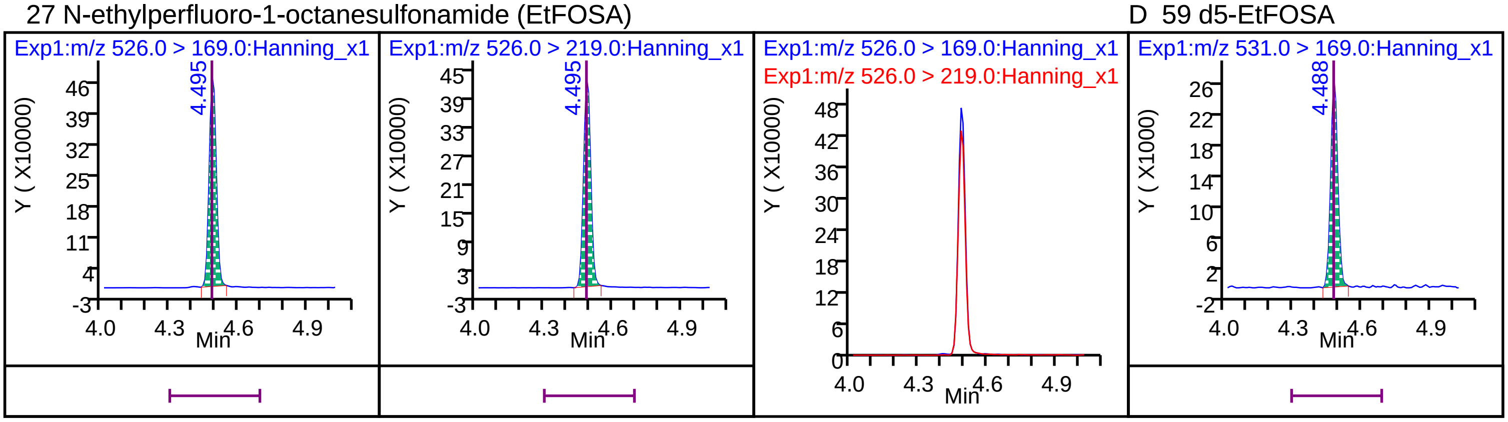
11 Perfluoro-n-dodecanoic acid (PFDoA)

D 38 13C2_PFDoA

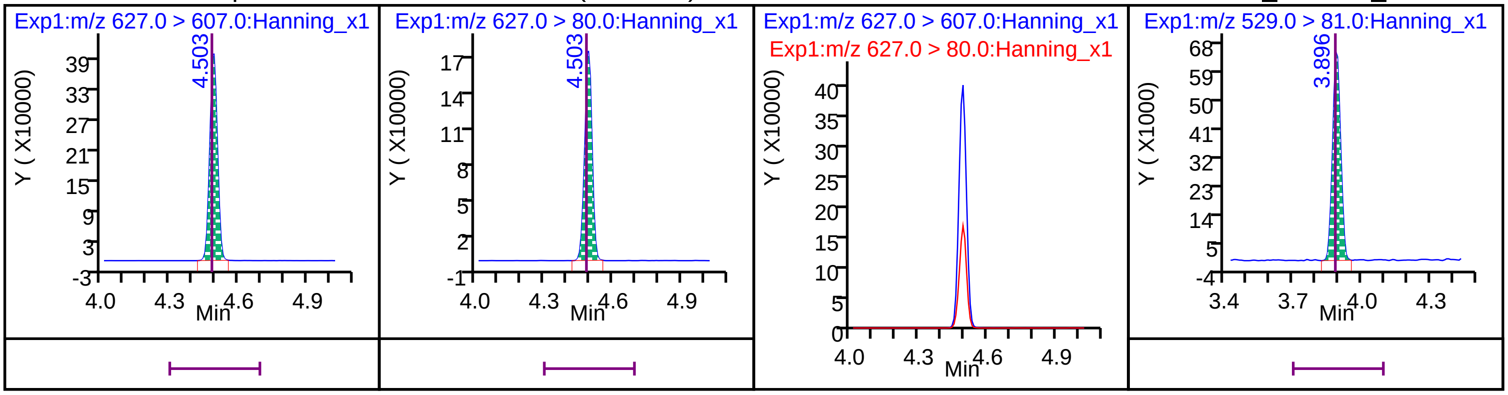


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

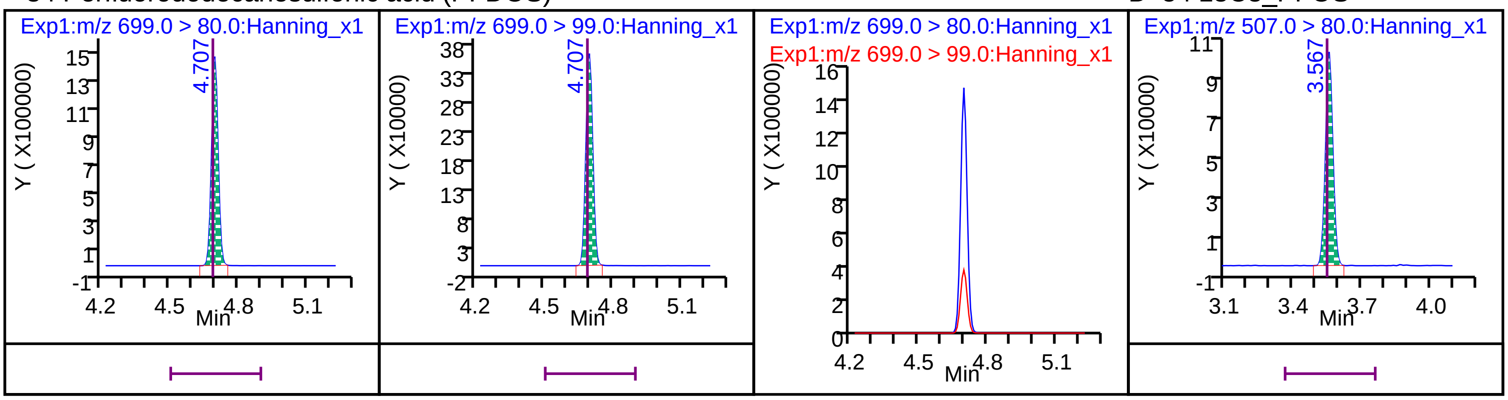
D 59 d5-EtFOSA



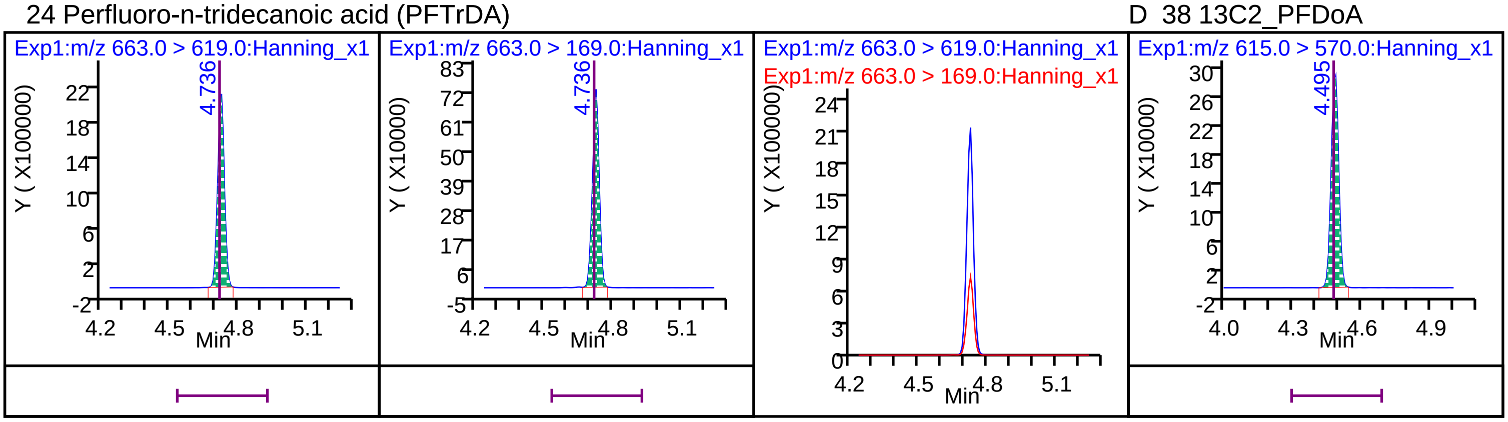
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



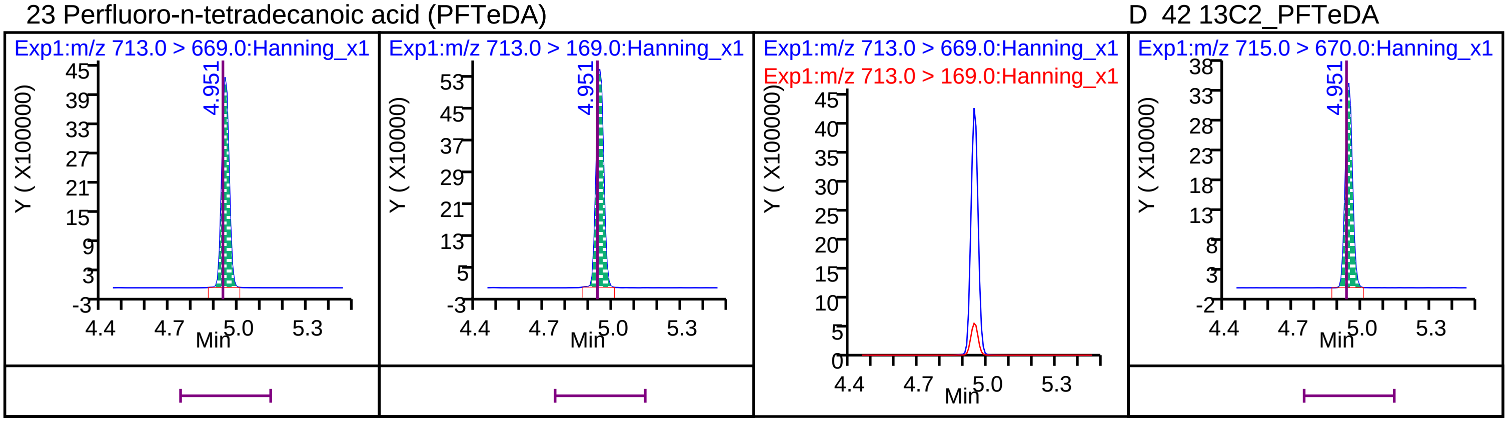
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

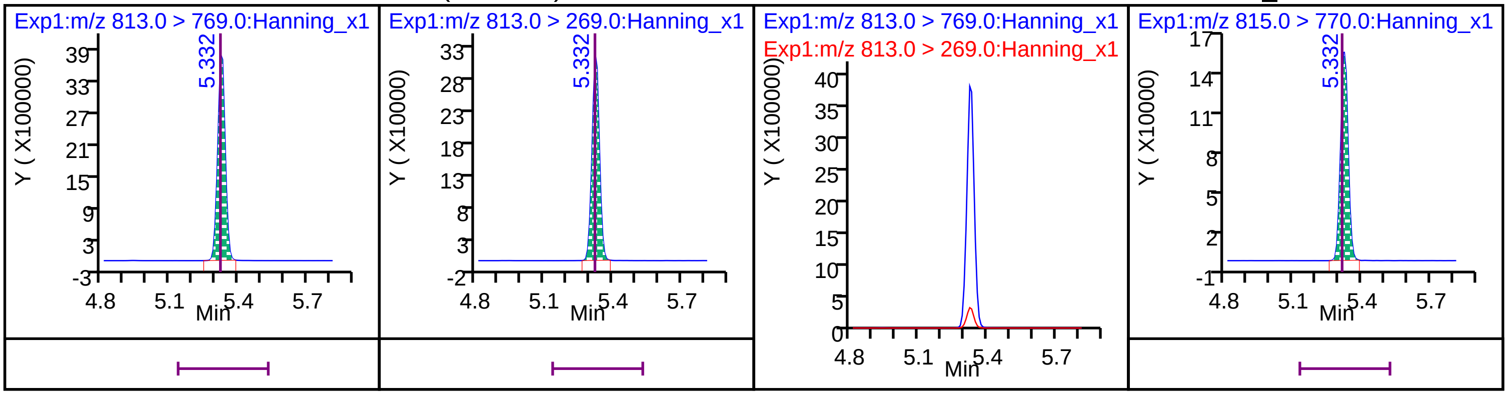


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

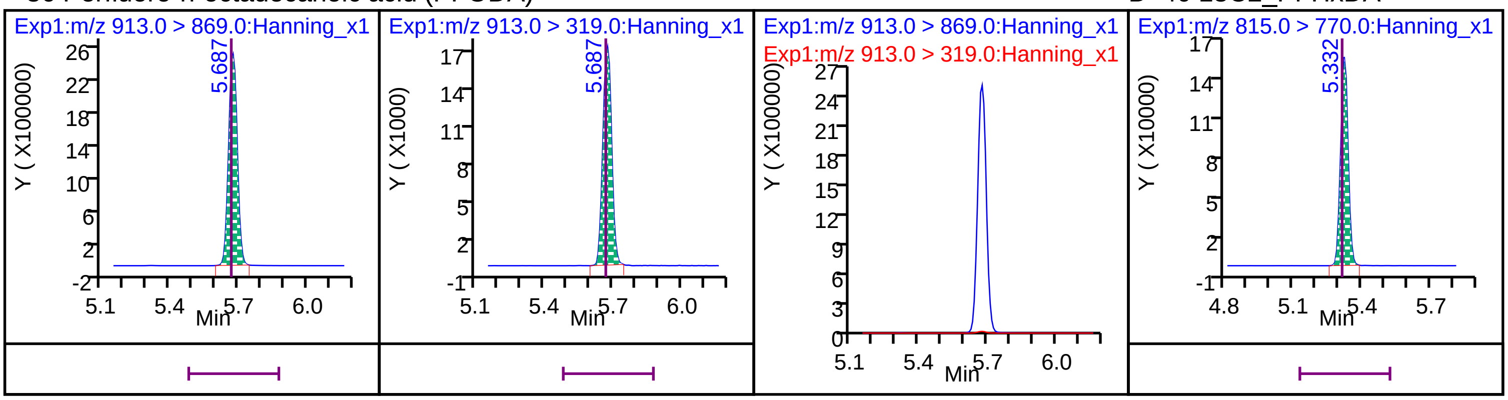


Report Date: 09-Nov-2021 13:30:47 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d

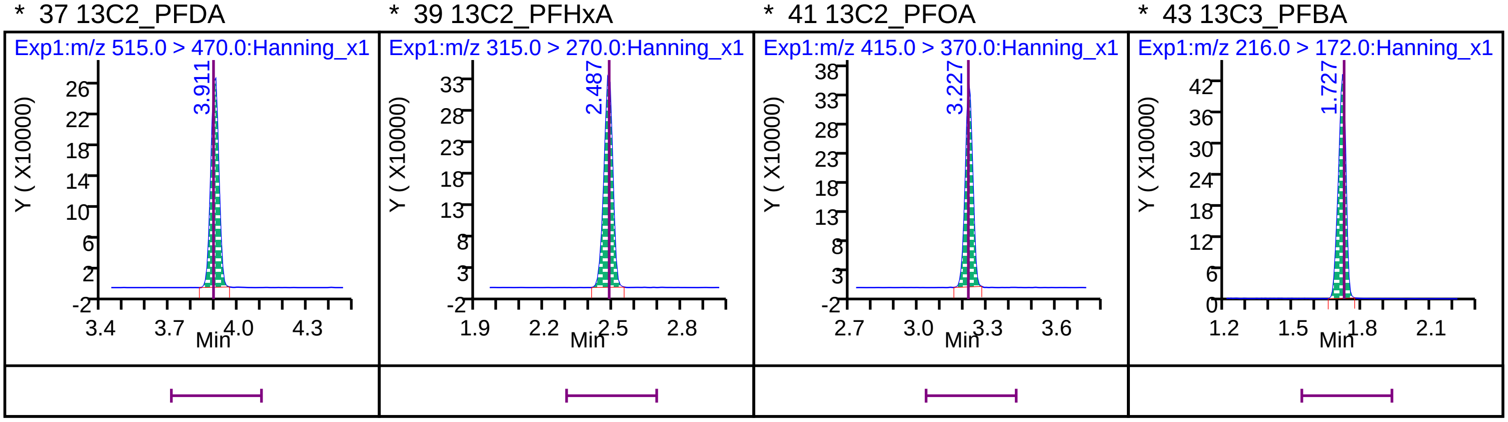
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



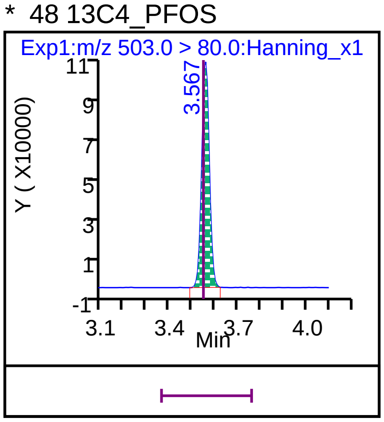
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

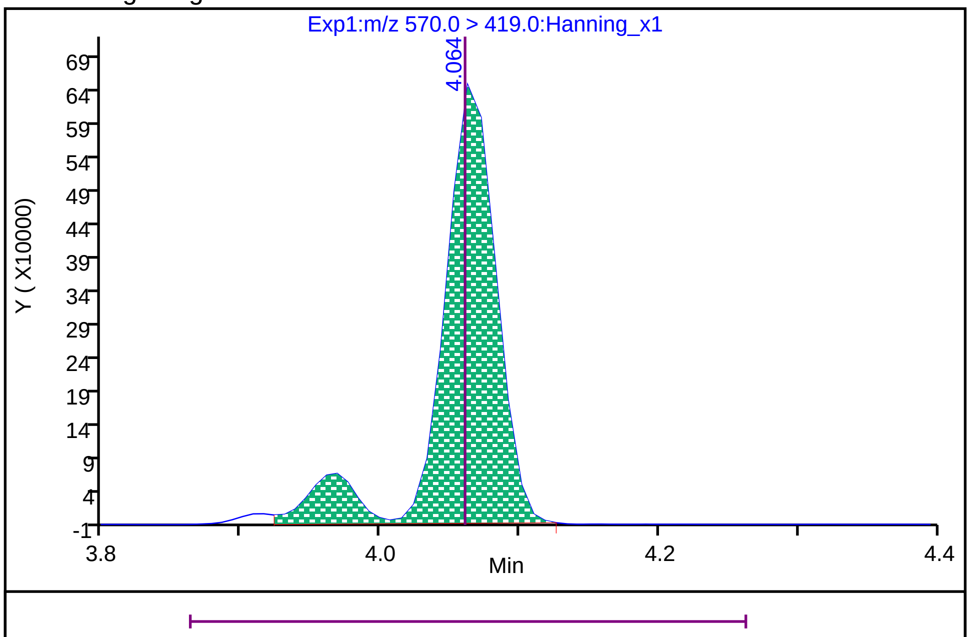
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d		
Injection Date:	06-Nov-2021 16:04:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1748
Sample Info:	ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Matthew M. Miller

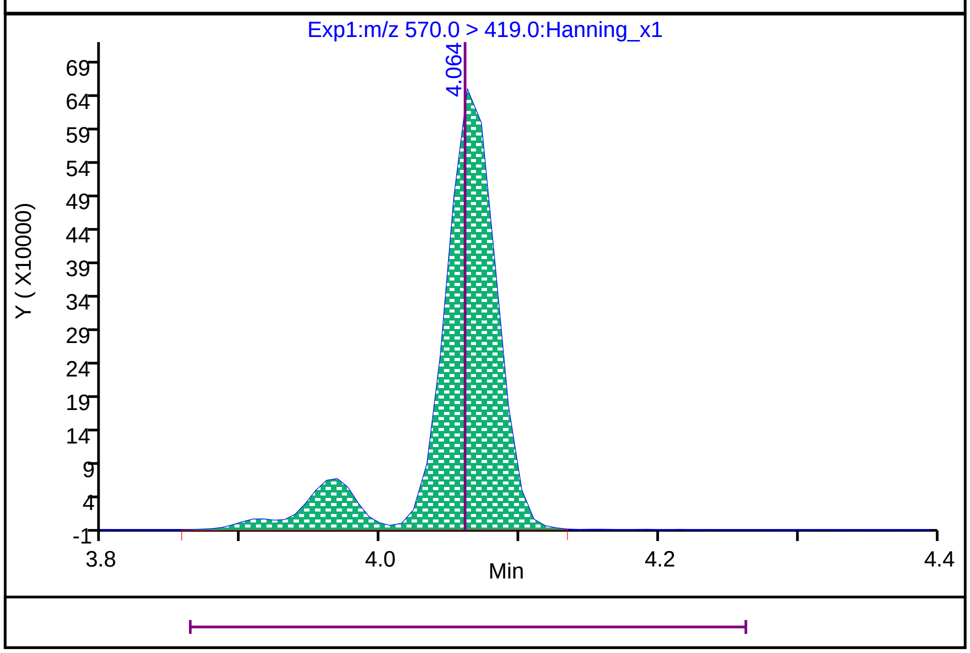
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.064
Area: 1781311
Amount: 14763
Amount Units: ng/L



RT: 4.064
Area: 1830140
Amount: 15127
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:38:19

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

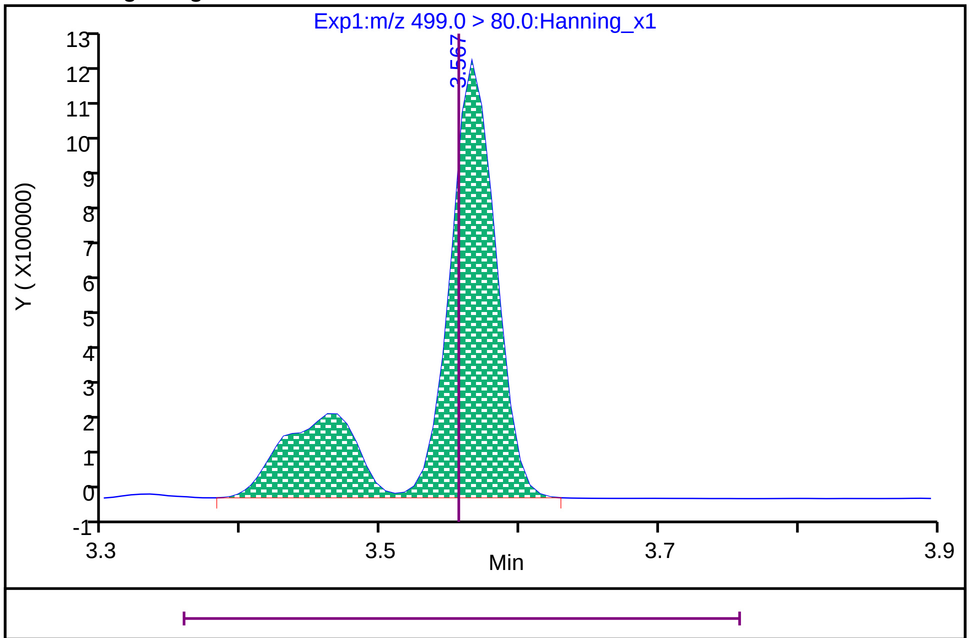
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621022.d		
Injection Date:	06-Nov-2021 16:04:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 15000_SVLC-1748
Sample Info:	ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Matthew M. Miller

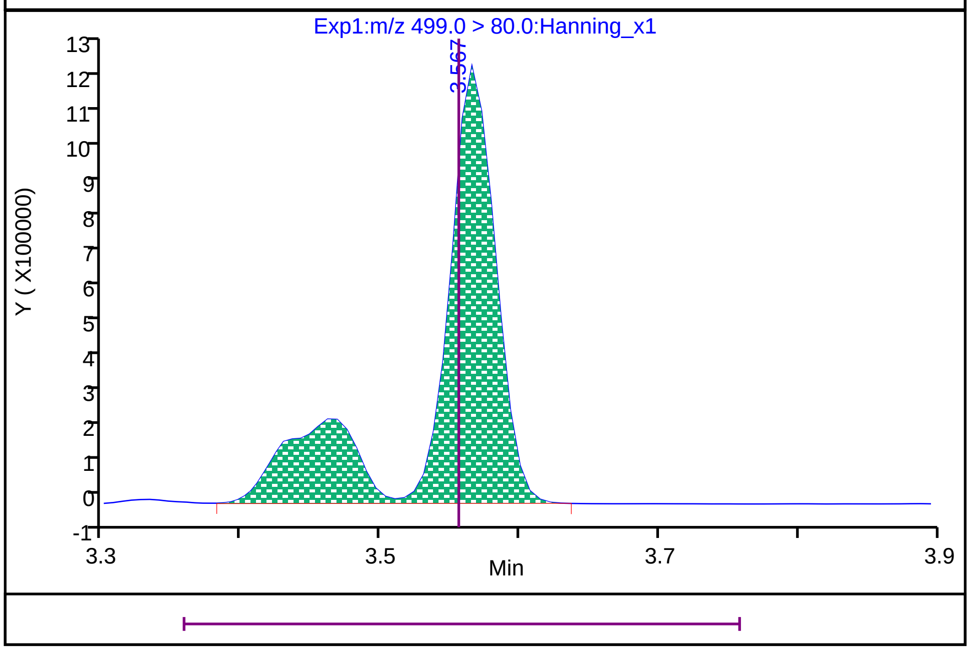
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.567
Area:	3465898
Amount:	13153
Amount Units:	ng/L



RT:	3.567
Area:	3478520
Amount:	13260
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:33

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d		
Injection Date:	06-Nov-2021 16:14:38	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	10
Sample Info:	ICAL 20000_SVLC-1749	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	988863	19	>100:1			1000.00	902.10	89.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	19395552	20	>100:1			20000	18405		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	902489	17	>100:1			1000.00	884.71	87.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	19279622	16	>100:1			20000	19902		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.169	0	309870	16	>100:1			1000.00	918.30	91	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.168	2.169	0/0	7458765	15	>100:1	Target = 3.83		17680	17004		
298.9 > 99	44	2.168	2.169		1889904	15	>100:1	3.94 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.528	2.529	0/0	5890657	18	>100:1	Target = 3.47		18760	18992		
349 > 99	44	2.528	2.529		1698346	18	>100:1	3.46 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	233622	17	>100:1			5000.00	5002.95	100.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	0/0	1520994	18	>100:1	Target = 1.39		18680	17508		
327 > 81	63	2.449	2.449		949241	19	>100:1	1.60 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	823510	17	>100:1			1000.00	902.97	90.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	0/0	15567003	19	>100:1	Target = 17.15		20000	18599		
313 > 119	49	2.493	2.493		931767	19	>100:1	16.70 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.621	2.614	1	691929	18	>100:1			5000.00	4700.80	100.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/-1	3864544	19	>100:1	Target = 0.72		40000	37438		
285 > 185	66	2.621	2.622		5367599	19	>100:1	0.71 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	825144	16	>100:1			1000.00	932.51	91.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	14781832	18	>100:1	Target = 3.21		20000	18752		
363 > 169	47	2.878	2.878		4742338	16	>100:1	3.11 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	246285	18	>100:1			1000.00	890.46	89.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	5176960	25	>100:1	Target = 3.35	4.47	18200	18235		
399 > 99	45	2.896	2.896		1520085	22	>100:1	3.40 (1.67-5.04)	7.17				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	0/0	23190045	18	>100:1	Target = 2.38		18840	17759		
377 > 85	45	2.923	2.923		10441558	18	>100:1	2.22 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.226	3.226	0/0	4798021	20	>100:1	Target = 3.87		19040	18305		
449 > 99	45	3.233	3.226		1285879	21	>100:1	3.73 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	0	188952	20	>100:1			5000.00	4584.50	87.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.201	3.201	0/0	1107654	20	>100:1	Target = 1.26		18960	17646		
427 > 81	64	3.207	3.201		817685	20	>100:1	1.35 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.226	3.220	1	705207	20	>100:1			1000.00	837.12	83.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.226	3.226	0/-1	13858748	21	>100:1	Target = 2.46		20000	19652		
413 > 169	53	3.226	3.226		5760414	21	>100:1	2.40 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.564	3.558	1	216742	20	>100:1			1000.00	914.81	90.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.564	3.558	1/0	4728696	43	>100:1	Target = 3.98	3.22	18560	18752		M
499 > 99	54	3.558	3.558		1200784	39	>100:1	3.93 (1.99-5.97)	6.56				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.761	3.755	1/0	13170751	21	>100:1			18640	20108		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.886	3.886	0/-1	3962279	19	>100:1	Target = 3.57		19200	19198		
549 > 99	54	3.886	3.886		1073374	18	>100:1	3.69 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.190	4.191	0/-1	3860174	18	>100:1	Target = 3.73		19280	19001		
599 > 99	54	4.190	4.191		999832	17	>100:1	3.86 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.358	4.349	1/0	10398104	16	>100:1			18840	19905		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.706	4.698	1/0	3512950	17	>100:1	Target = 3.44		19360	20071		
699 > 99	54	4.706	4.698		1021519	18	>100:1	3.43 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.571	3.565	1	700988	21	>100:1			1000.00	863.99	82.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.571	3.565	1/0	12097690	21	>100:1	Target = 4.45		20000	19350		
463 > 169	56	3.571	3.565		2757209	21	>100:1	4.38 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.864	3.872	0	363094	20	>100:1			1000.00	874.11	85.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.864	3.872	0/0	8075500	20	>100:1	Target = 47.73		20000	20412		
498>478	55	3.864	3.872		180126	19	>100:1	44.83 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.894	3.894	0	136413	23	>100:1			5000.00	3917.42	76.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.894	3.894	0/0	920005	20	>100:1	Target = 1.41		19160	20437		
527 > 81	65	3.894	3.894		593033	20	>100:1	1.55 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.494	4.494	0/0	1197096	17	>100:1	Target = 2.81		19280	20685		
627 > 80	65	4.494	4.494		463244	17	>100:1	2.58 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.901	3.901	0	599327	19	>100:1			1000.00	837.71	77.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.901	3.901	0/0	11786175	19	>100:1	Target = 9.36		20000	19254		
513 > 169	51	3.901	3.901		1267266	19	>100:1	9.30 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.052	4.053	0	776649	17	>100:1			5000.00	4803.37	98.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.062	4.062	0/0	2446642	33	>100:1	Target = 1.42	7.55	20000	19517		
570 > 483	58	4.062	4.062		1666526	34	>100:1	1.46 (0.71-2.13)	3.93				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.214	4.207	1	582908	18	>100:1			5000.00	4031.41	77.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.222	4.223	0/-1	2392177	33	>100:1	Target = 1.80	5.28	20000	20801		
584 > 526	60	4.222	4.223		1395044	33	>100:1	1.71 (0.90-2.70)	3.25				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.206	4.207	0	593497	18	>100:1			1000.00	845.16	82.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.214	4.207	1/1	10095710	17	>100:1	Target = 8.65		20000	18889		
563 > 169	52	4.214	4.207		1177116	17	>100:1	8.57 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.294	4.295	0	121564	16	>100:1			1000.00	990.58	97.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.304	4.304	0/0	2295178	15	>100:1			20000	18515		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.313	4.313	0	63644	23	>100:1			1000.00	990.58	100.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.313	4.322	0/0	1296211	14	>100:1	Target = 1.09		20000	18800		
512 > 219	57	4.313	4.322		1132029	15	>100:1	1.14 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	0	113239	17	>100:1			1000.00	996.54	102.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.478	4.479	0/0	1859453	16	>100:1			20000	19840		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	0	648329	17	>100:1			1000.00	931.41	94.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	0/0	12092645	17	>100:1	Target = 6.94		20000	18570		
613 > 169	38	4.486	4.486		1804637	17	>100:1	6.70 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.735	4.727	1/1	5641746	19	>100:1	Target = 2.82		20000	19713		
663 > 169	38	4.727	4.727		1988590	17	>100:1	2.83 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	0	53486	15	>100:1			1000.00	886.60	83	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.494	4.494	0/0	1272240	15	>100:1	Target = 1.11		20000	19915		
526 > 219	59	4.494	4.494		1164588	15	>100:1	1.09 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.950	4.942	1	654895	17	>100:1			1000.00	877.73	87.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/0	10803234	18	>100:1	Target = 7.23		20000	19119		
713 > 169	42	4.950	4.942		1548894	18	>100:1	6.97 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.331	5.323	1	326087	18	>100:1			1000.00	937.31	94.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	0/-1	11014063	18	>100:1	Target = 12.24		20000	18369		
813 > 269	40	5.331	5.331		894711	17	>100:1	12.31 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.685	5.678	1/0	8958439	21	>100:1	Target = 148.06		20000	20330		
913 > 319	40	5.685	5.678		56917	21	>100:1	157.39 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.901	3.901	0	621030	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	836293	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.226	3.226	0	731076	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	904696	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.564	3.558	1	225918	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

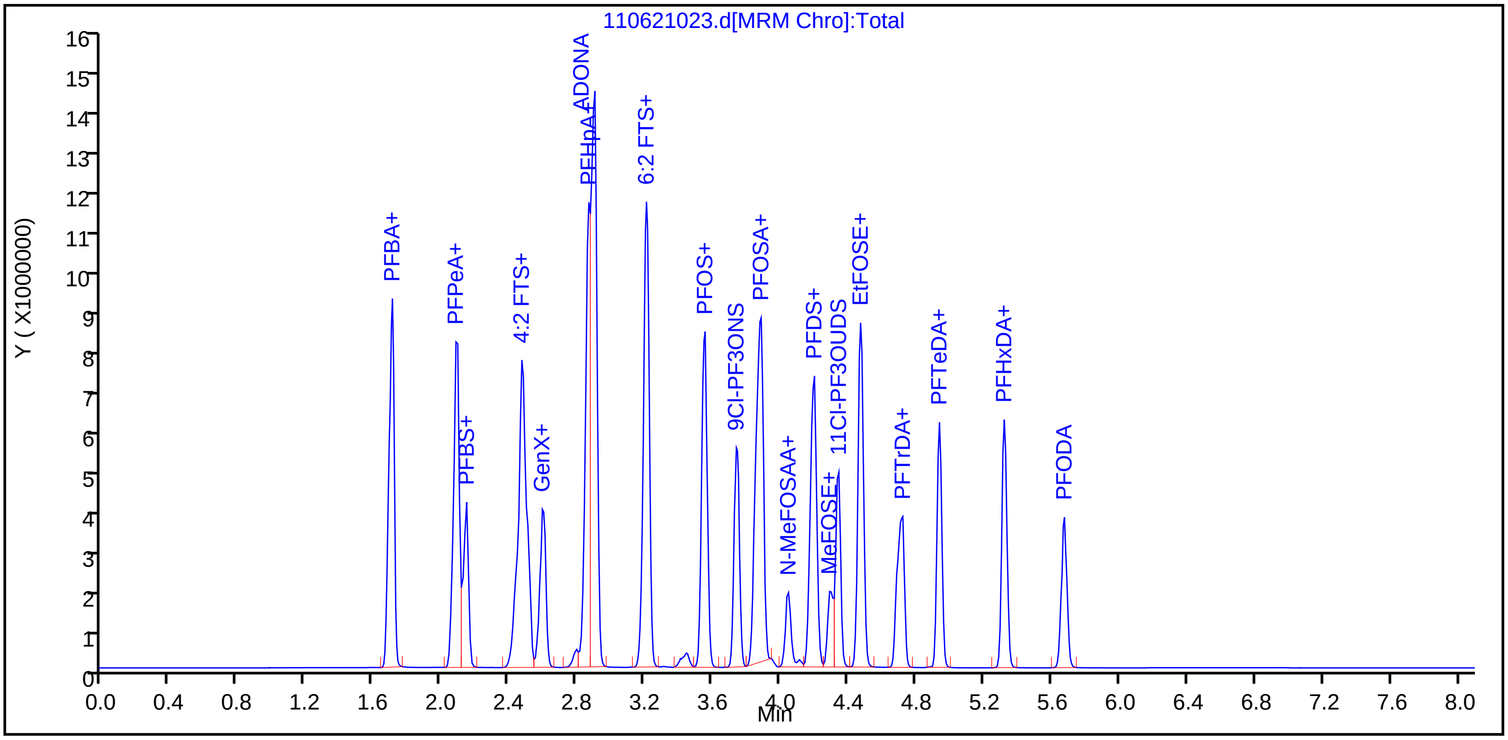
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

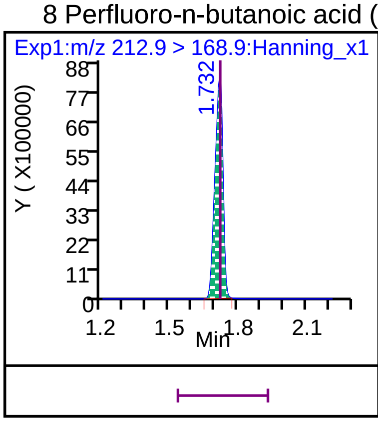
Report Date: 09-Nov-2021 13:30:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

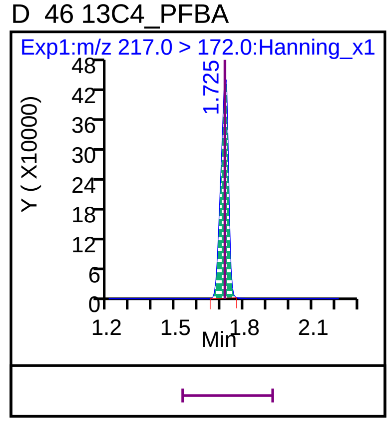
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d		
Injection Date:	06-Nov-2021 16:14:38	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 20000_SVLC-1749
Sample Info:	ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Matthew M. Miller



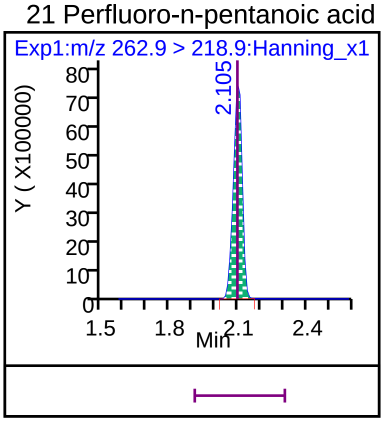
8 Perfluoro-n-butanoic acid (PFBA)



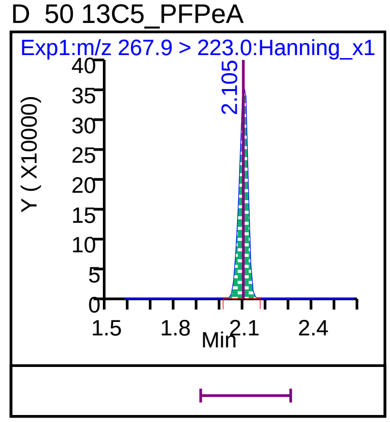
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

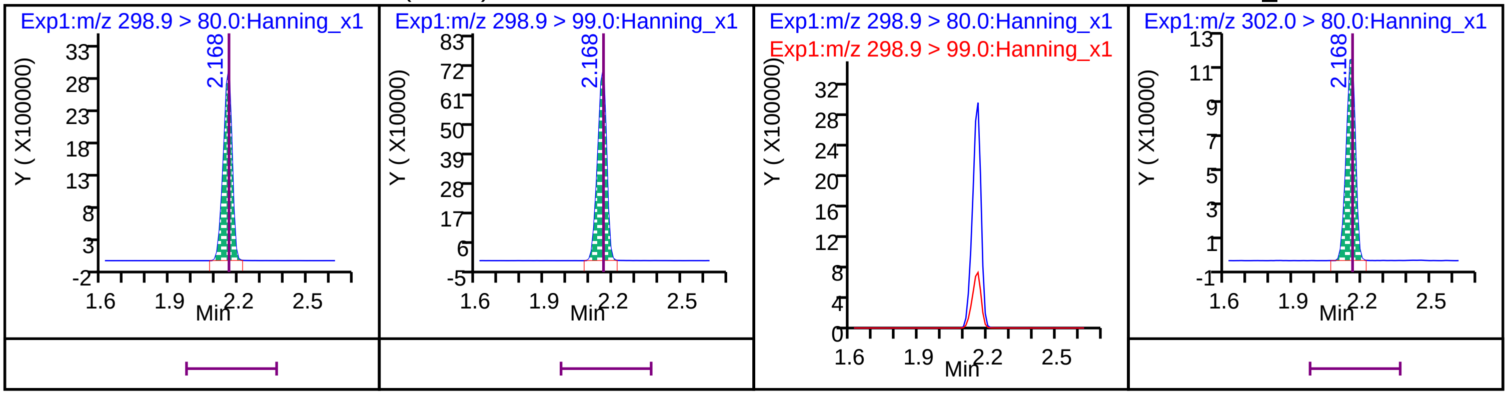


D 50 13C5_PFPeA

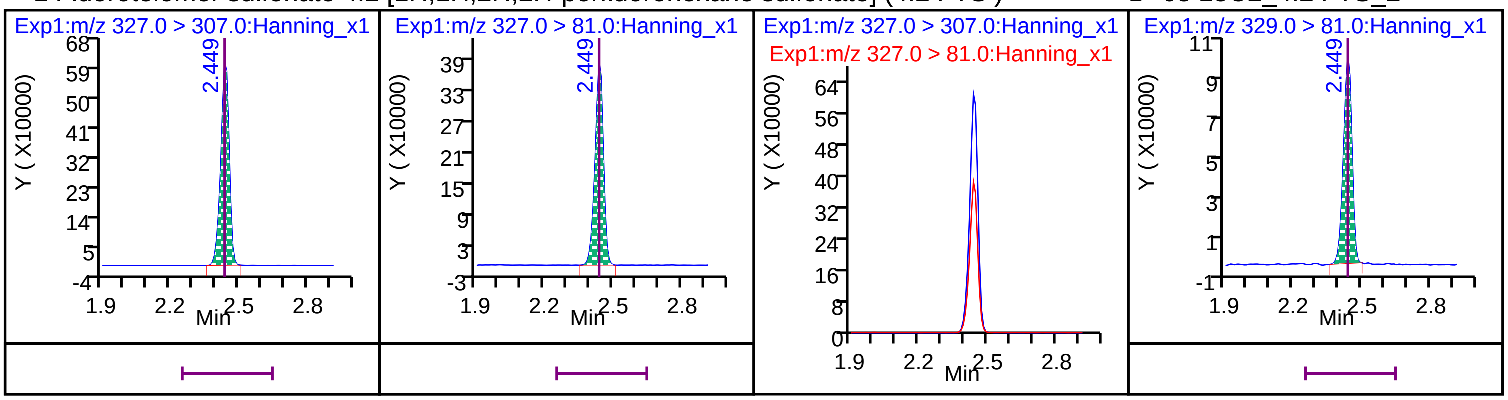


Report Date: 09-Nov-2021 13:30:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d

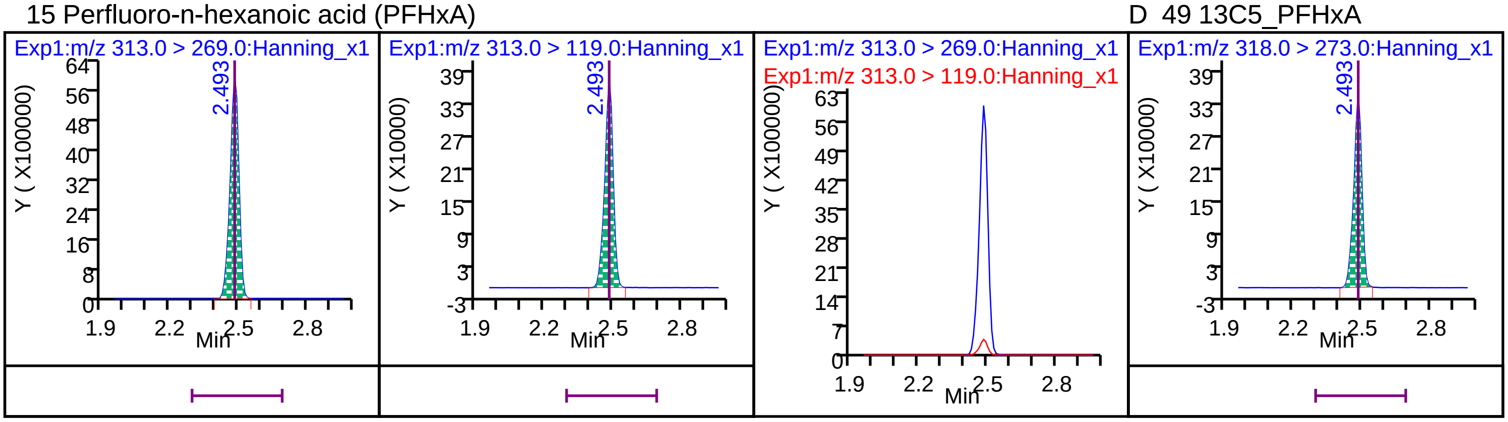
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



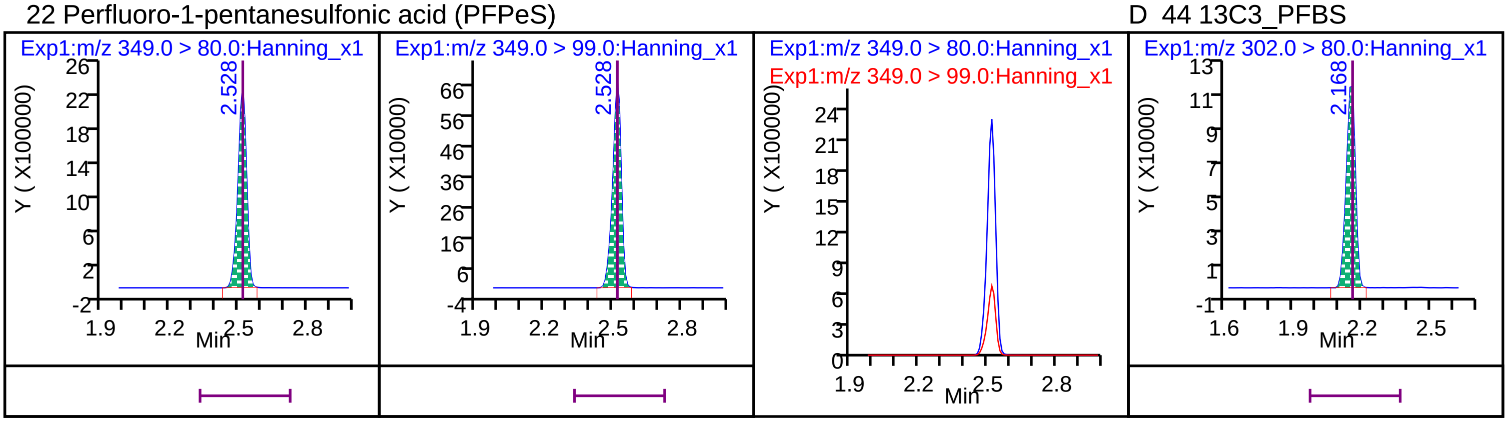
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

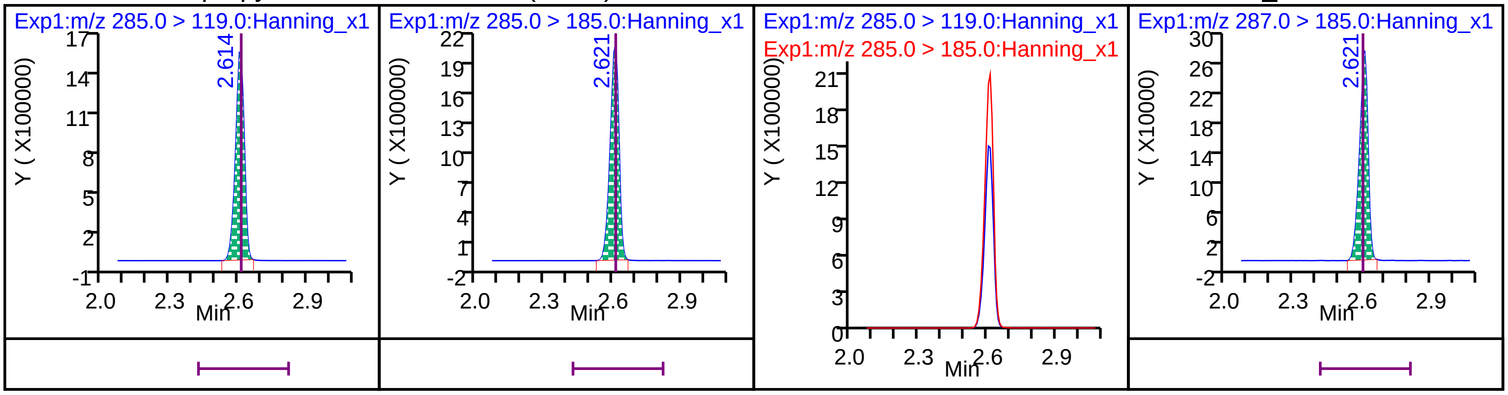


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

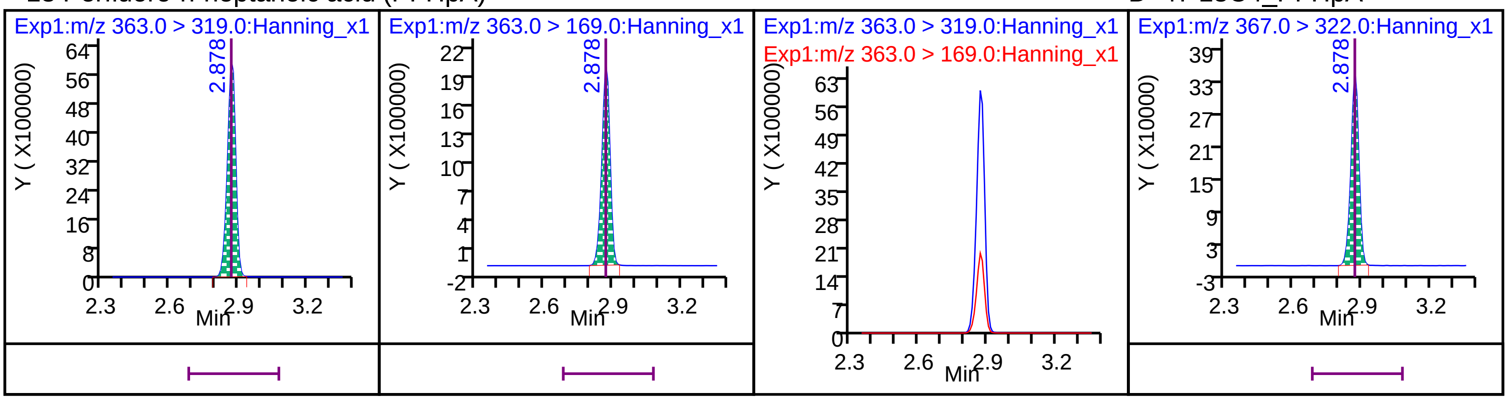


Report Date: 09-Nov-2021 13:30:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d

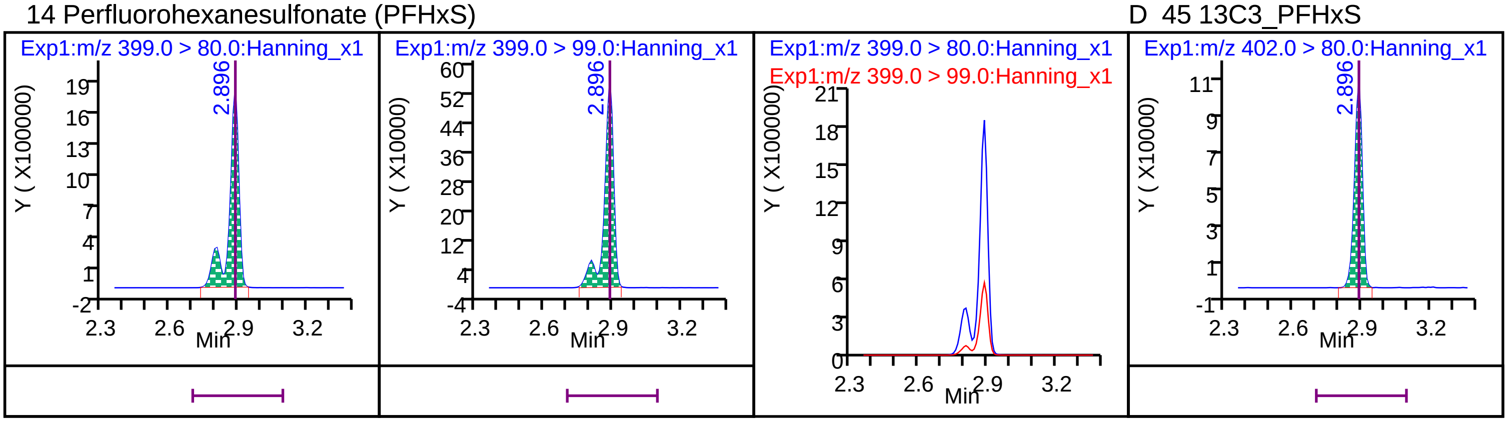
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



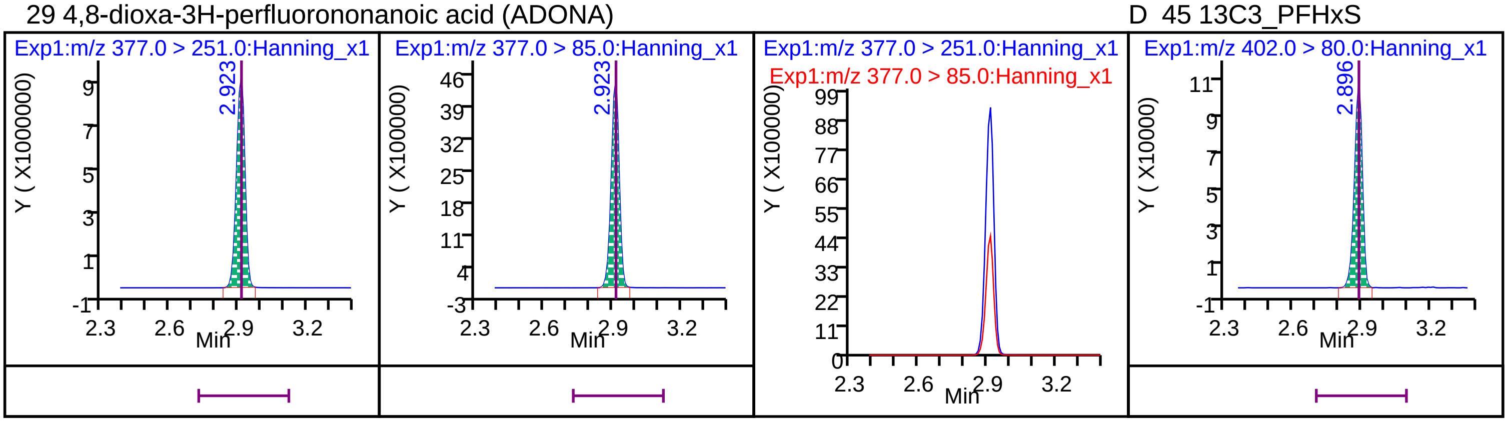
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

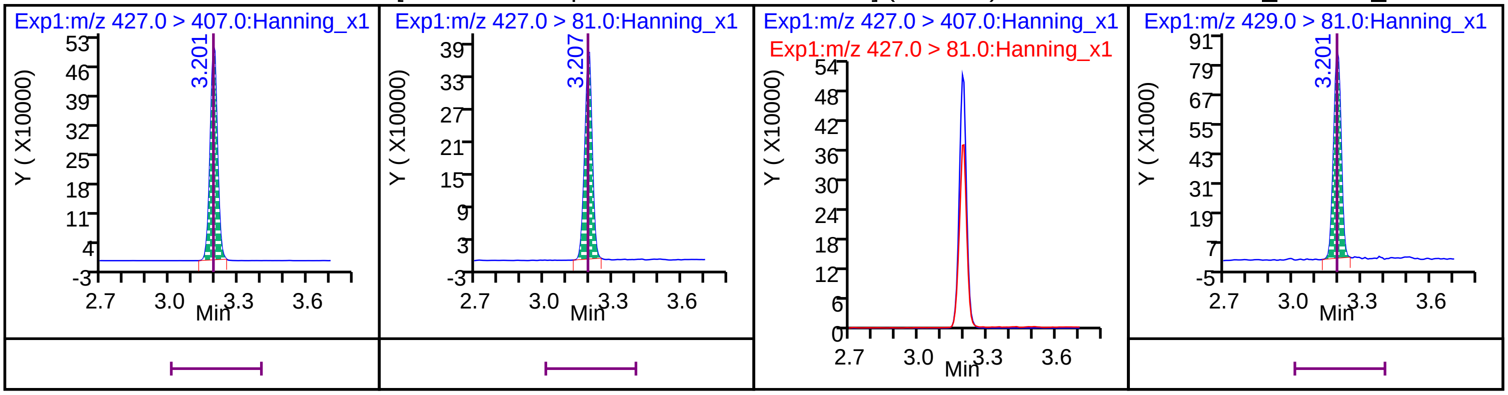


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

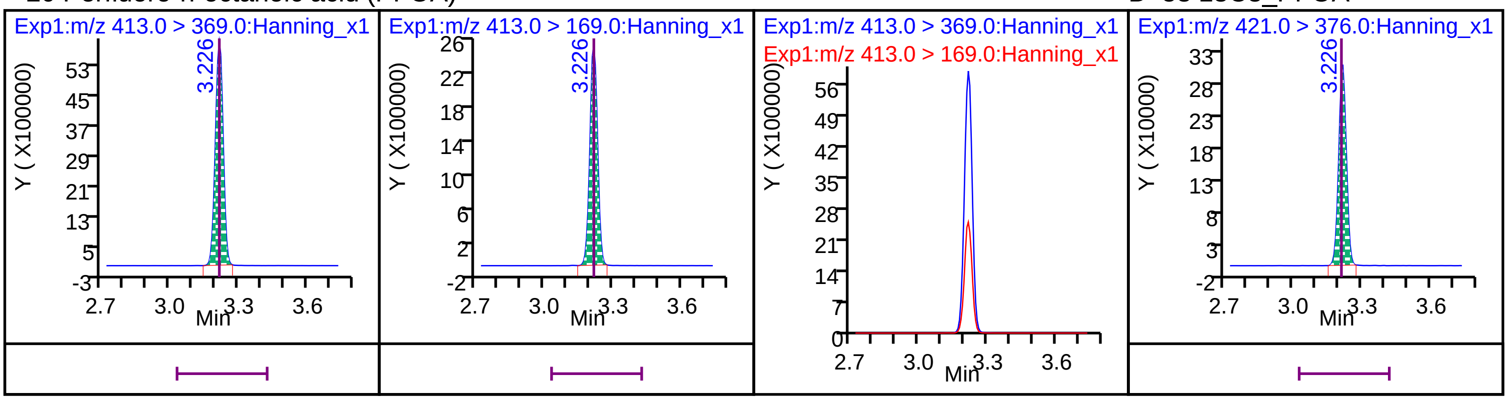


Report Date: 09-Nov-2021 13:30:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d

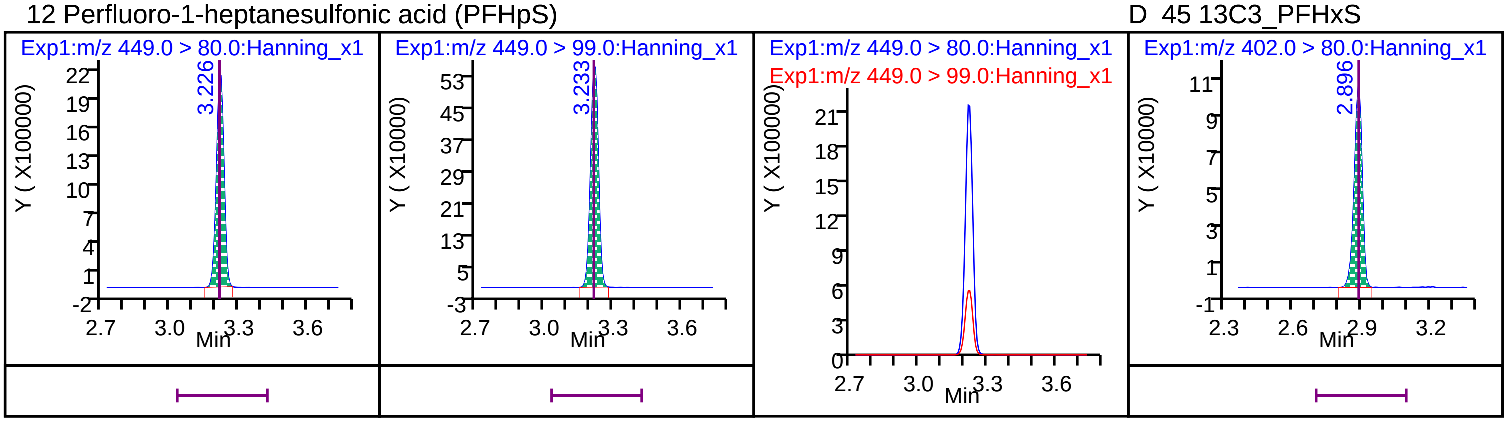
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



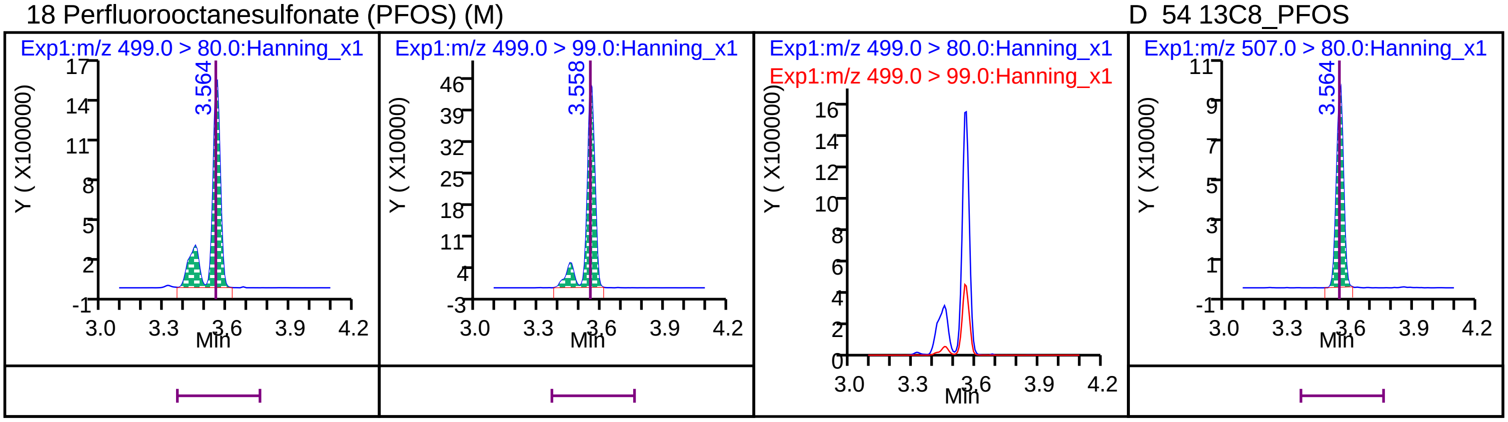
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

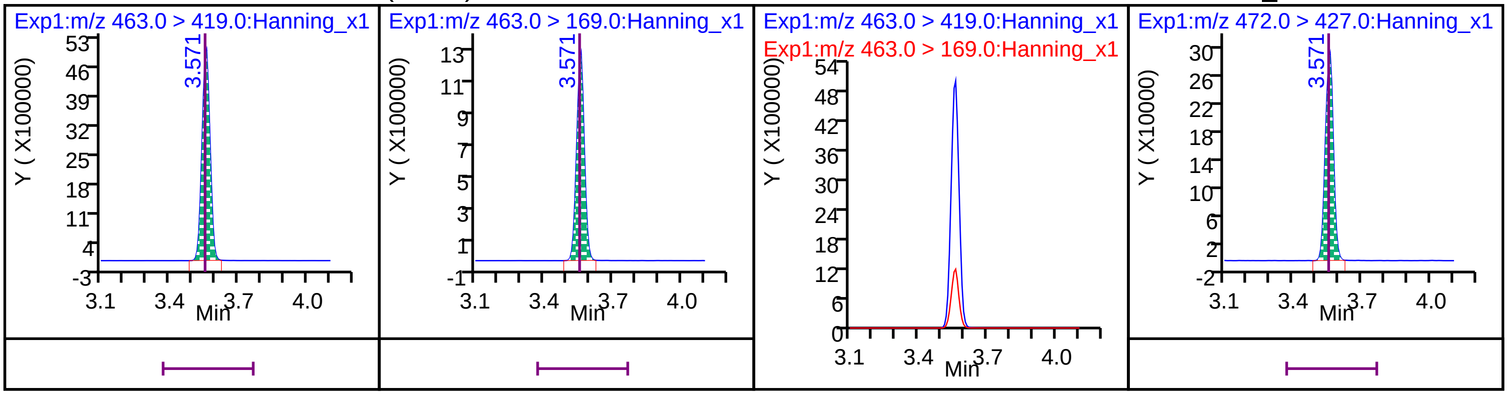


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

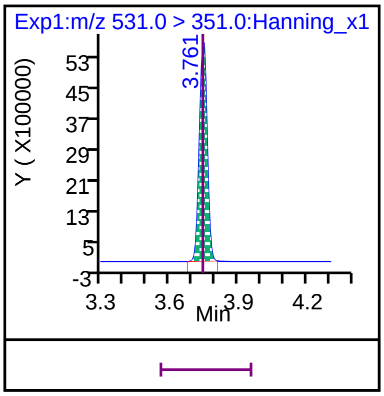


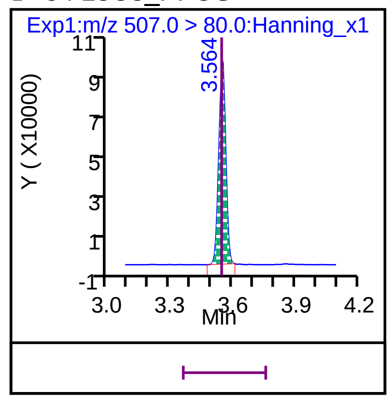
Report Date: 09-Nov-2021 13:30:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

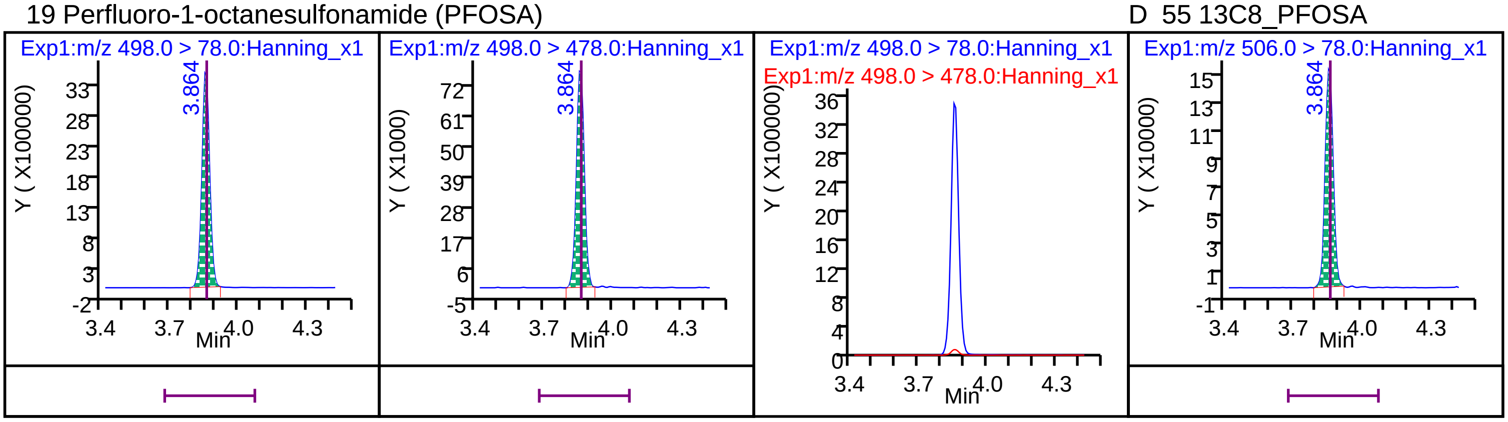


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

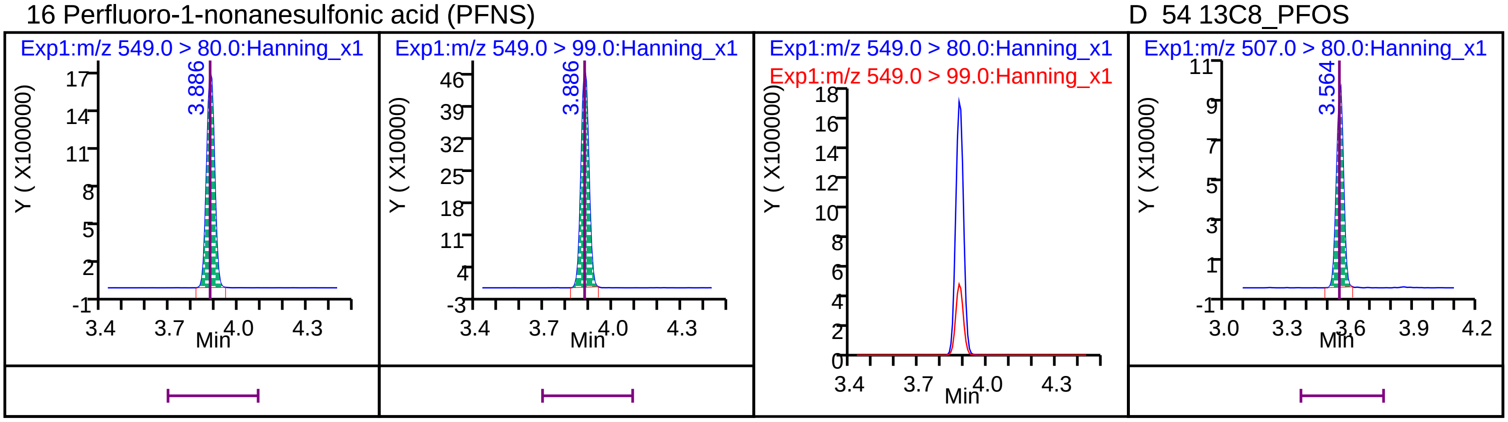




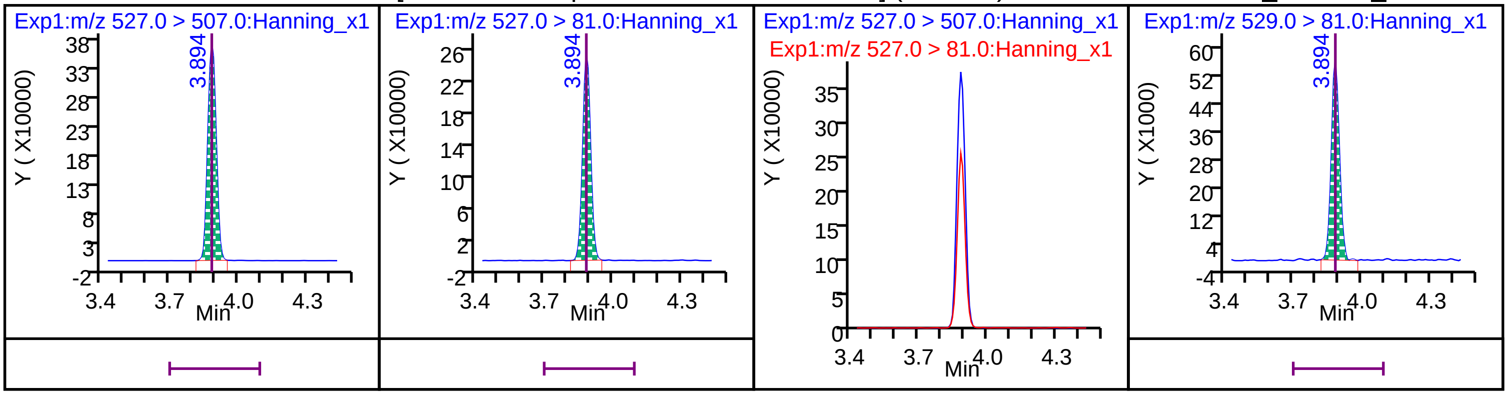
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



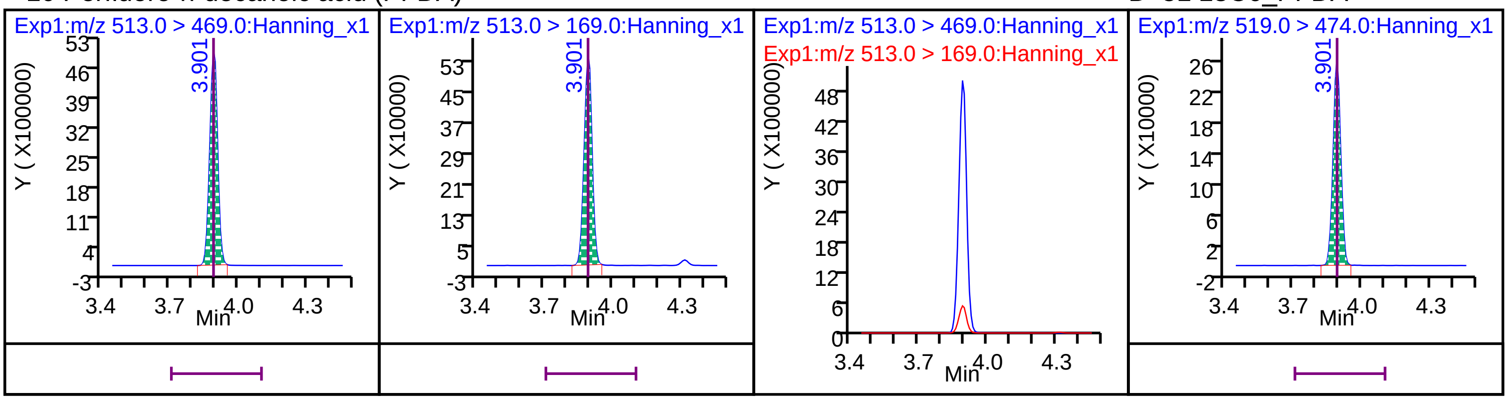
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



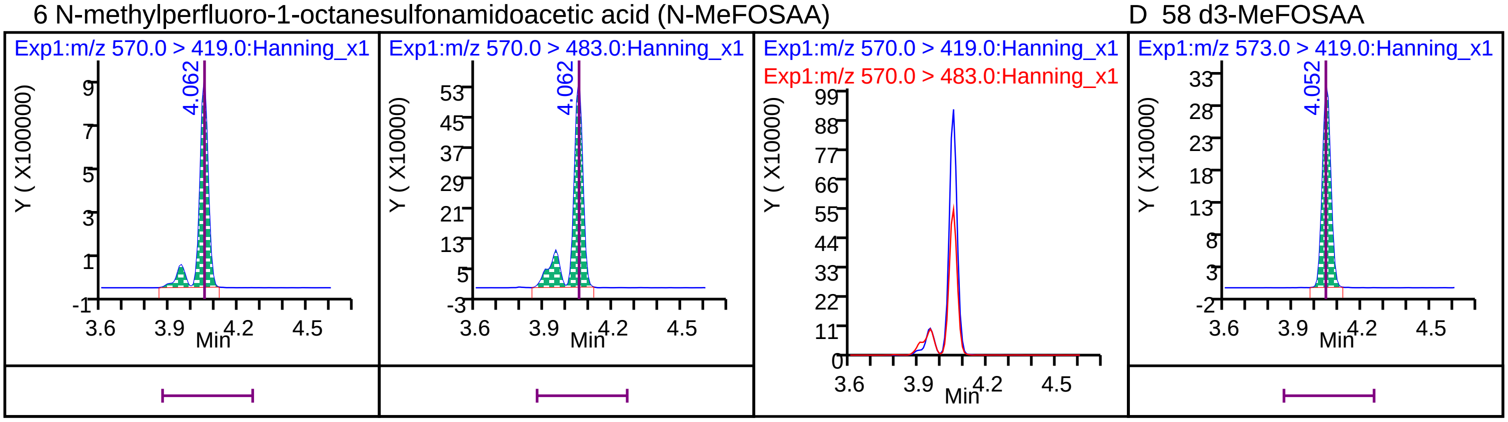
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



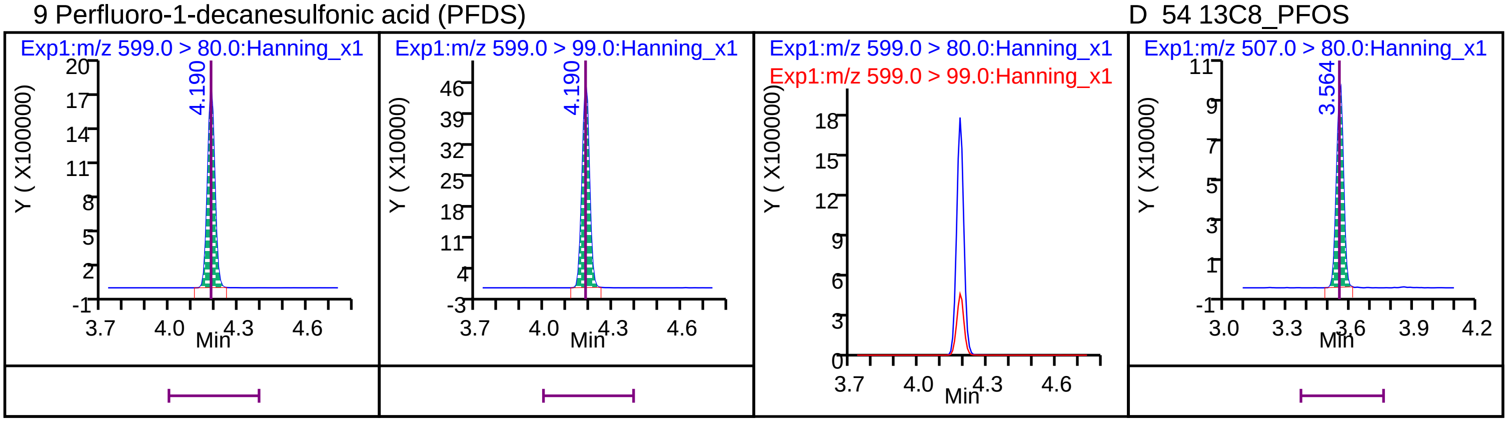
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



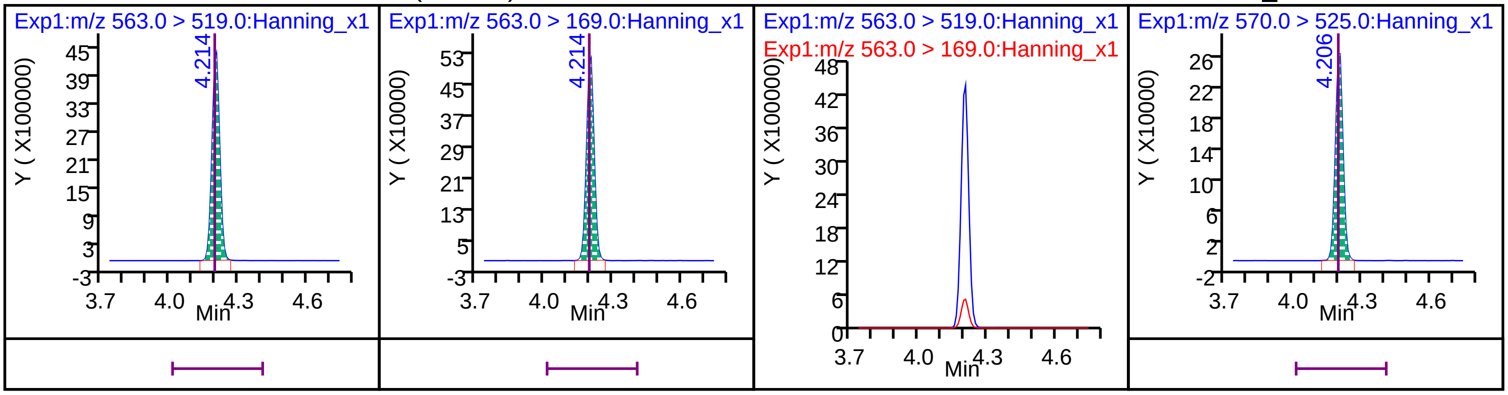
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



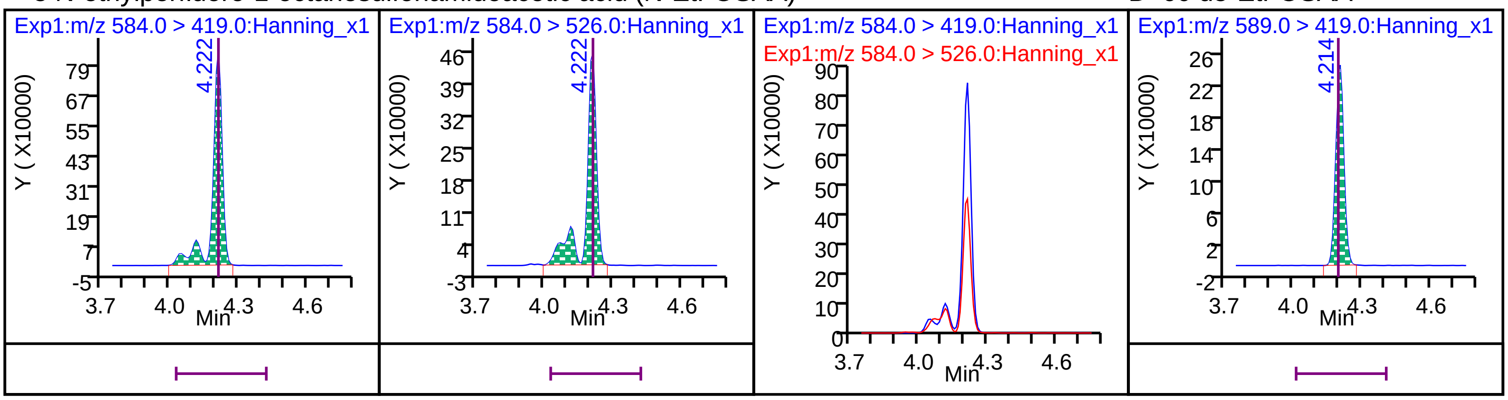
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



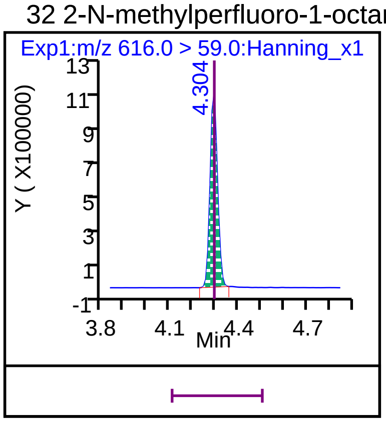
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

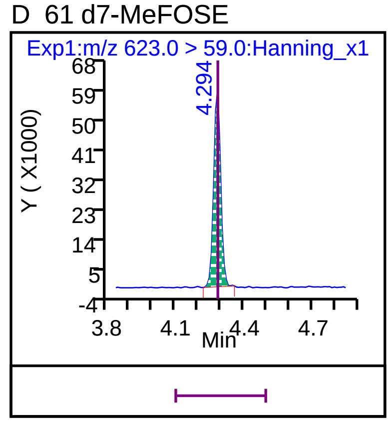


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

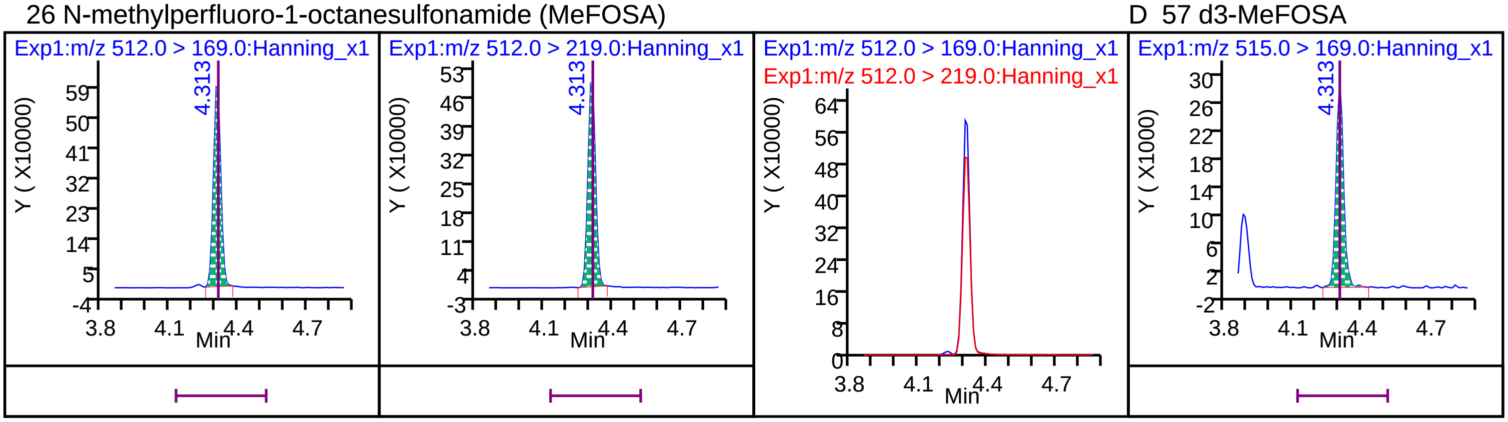


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

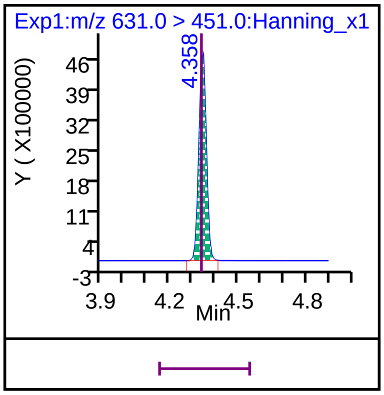




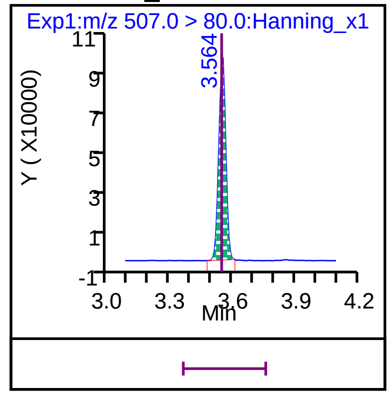
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



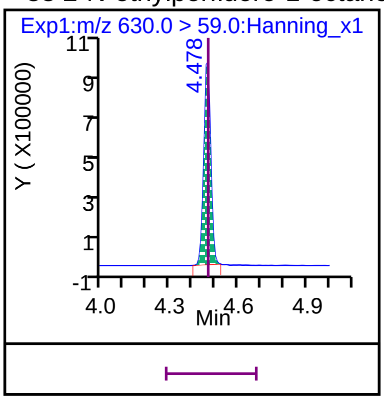
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



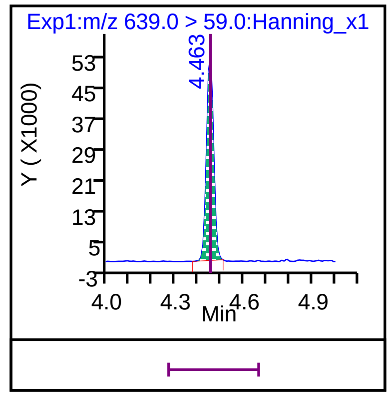
D 54 13C8_PFOS



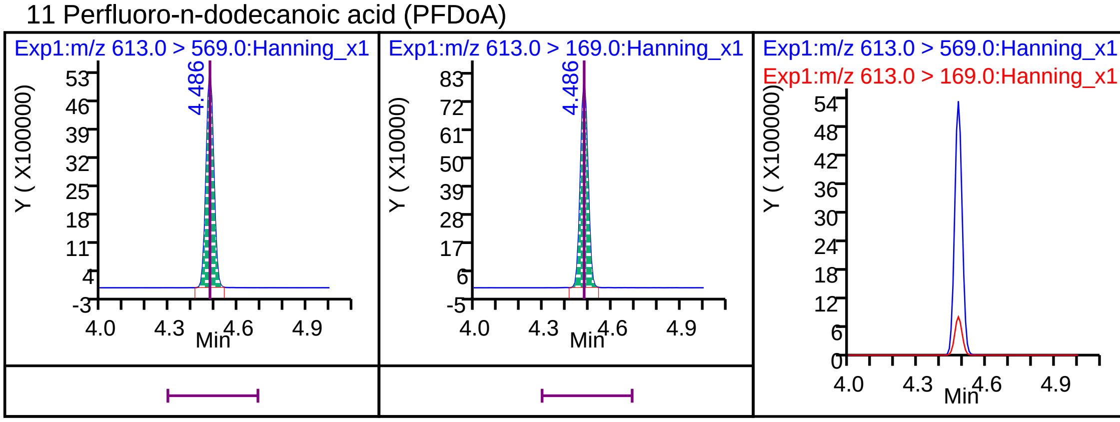
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



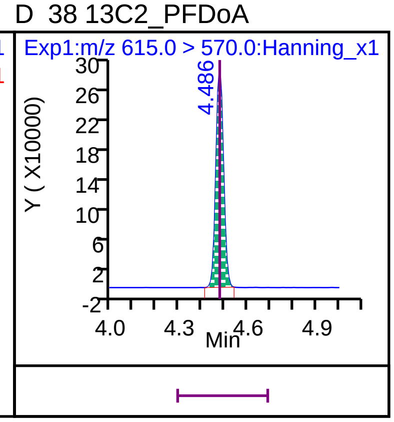
D 62 d9-EtFOSE



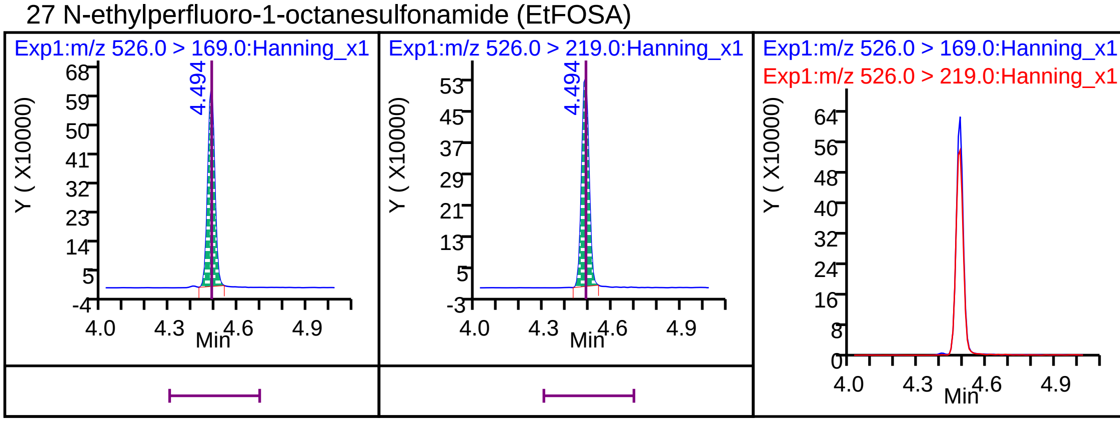
11 Perfluoro-n-dodecanoic acid (PFDoA)



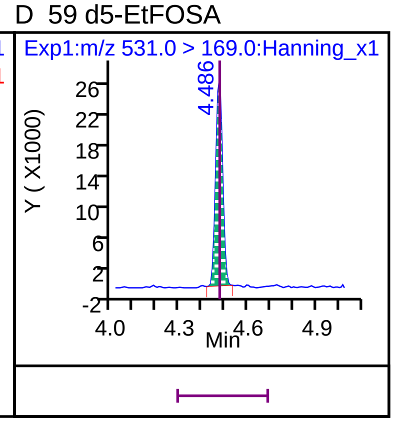
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



D 59 d5-EtFOSA



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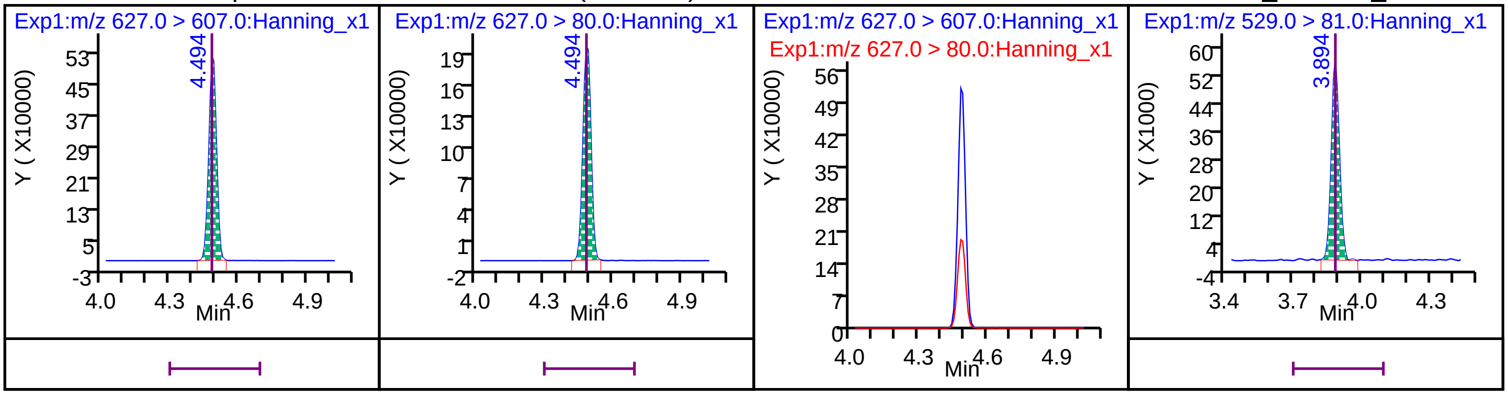
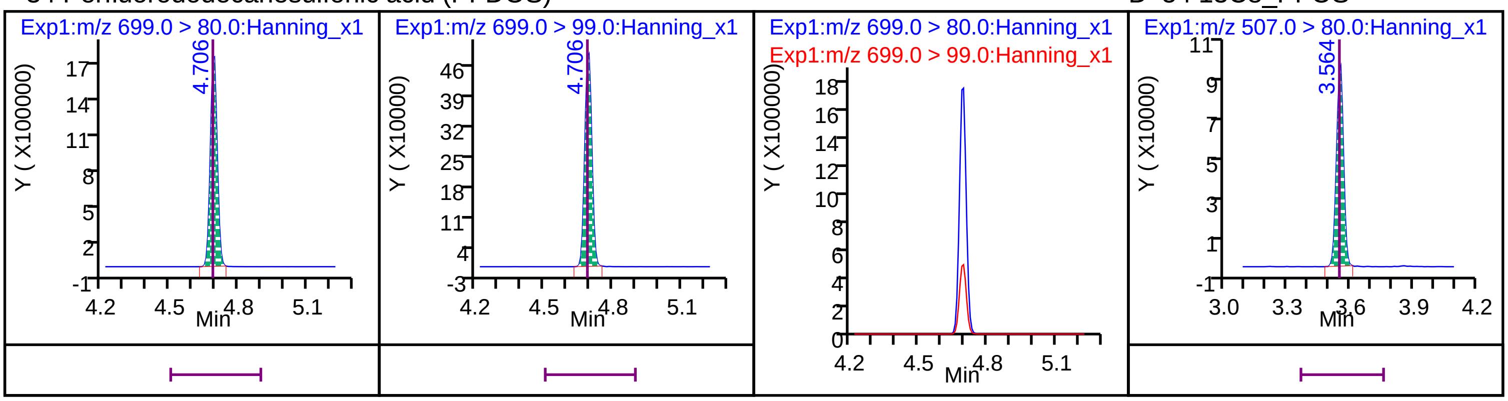
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d

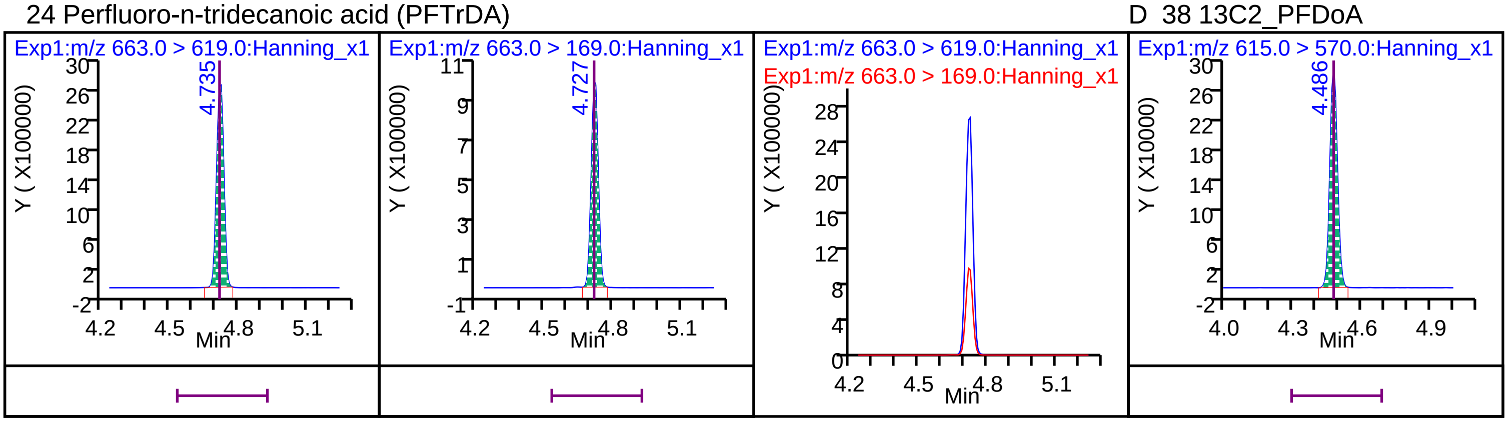
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



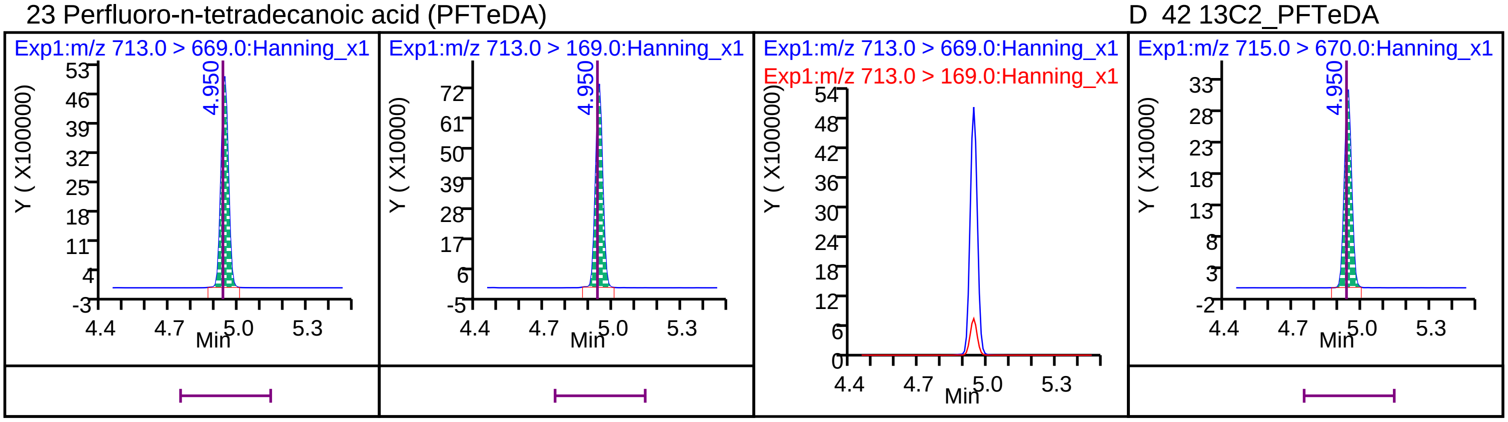
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



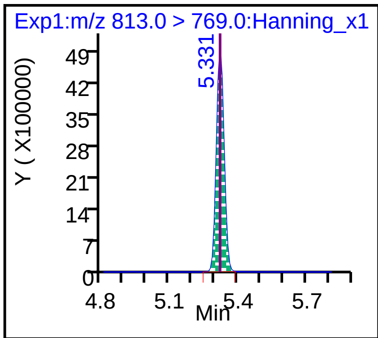
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

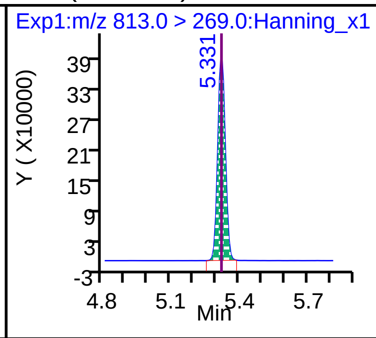


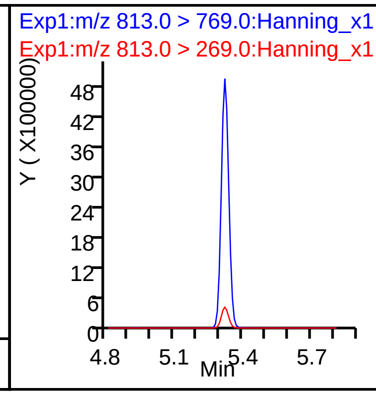
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

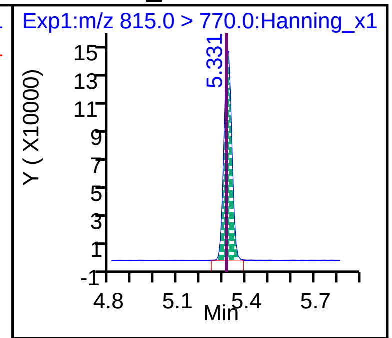


35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA

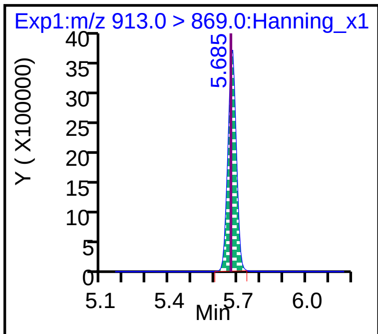


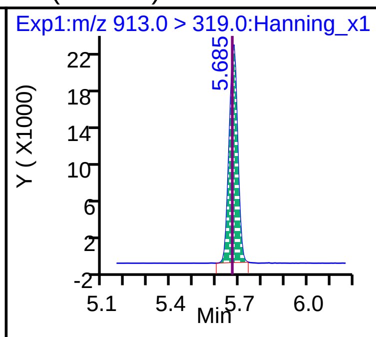


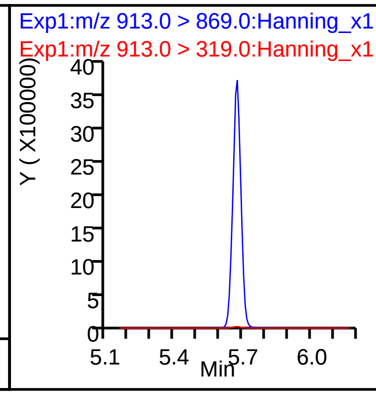


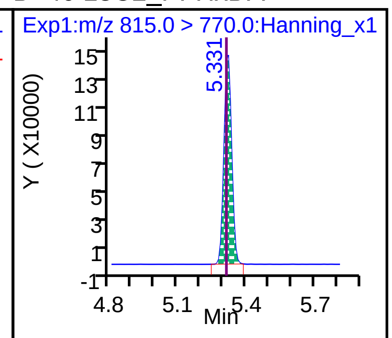


36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA

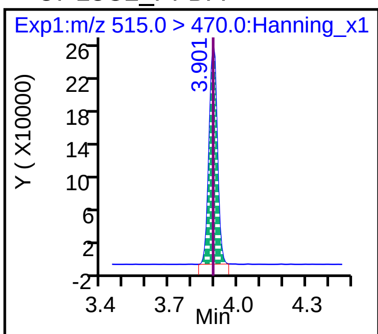


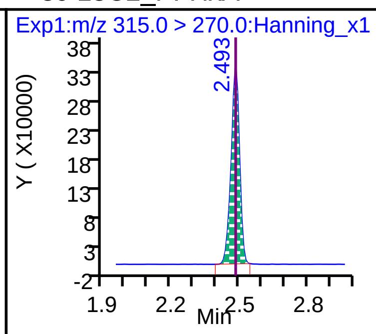


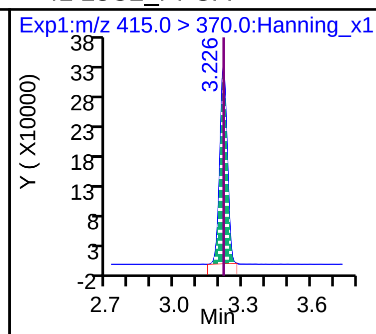


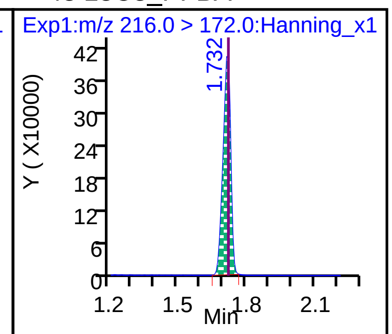


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA

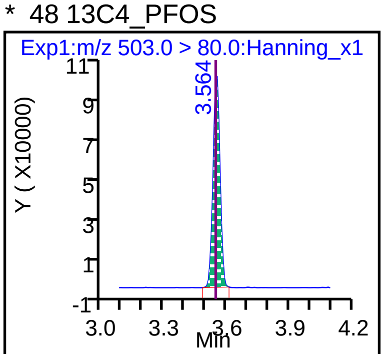








* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

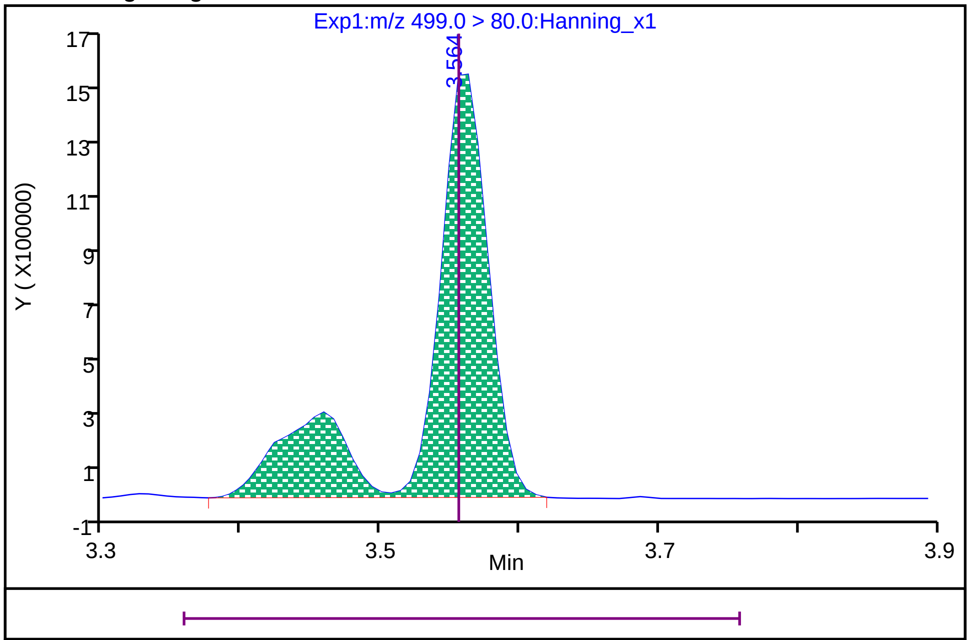
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621023.d		
Injection Date:	06-Nov-2021 16:14:38	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICAL 20000_SVLC-1749
Sample Info:	ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Matthew M. Miller

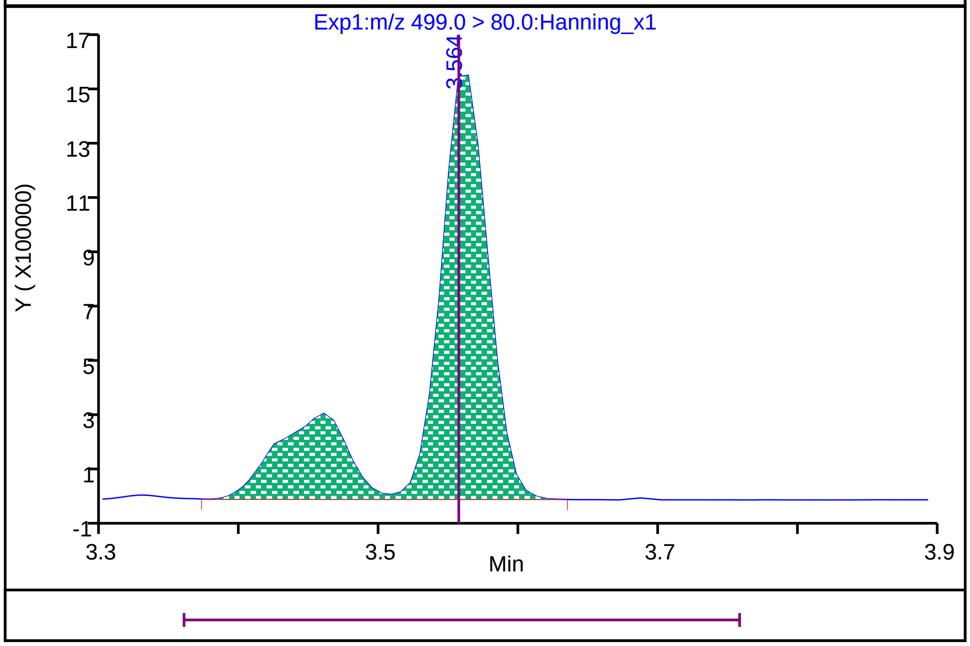
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.564
Area:	4691045
Amount:	18493
Amount Units:	ng/L



RT:	3.564
Area:	4728696
Amount:	18752
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 17:02:38

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621024.d		
Injection Date:	06-Nov-2021 16:25:18	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	100
Lab Sample ID:	ID BLK C1	Lab Prep. Batch:	
Sample Info:	ID BLK C1	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.727	1.725	1	1121532	19	>100:1			1001.00	1023.13	101.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.732		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.108	2.105	1	1082451	17	>100:1			1001.00	1061.13	105	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.105		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.172	2.169	1	347042	16	>100:1			1001.00	1028.46	101.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.169		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.529		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.461	2.449	1	236272	17	>100:1			5005.00	5059.70	102.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.449		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.493	1	945518	16	>100:1			1001.00	1036.75	103.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.493		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.625	2.614	1	768317	18	>100:1			5005.00	5219.76	112	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.878	1	911872	16	>100:1			1001.00	1030.52	100.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.878		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.899	2.896	1	265187	18	>100:1			1001.00	958.80	96.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.202	3.201	1	221038	19	>100:1			5005.00	5362.99	101.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.201		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.221	3.220	1	900711	20	>100:1			1001.00	1069.19	106.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.226		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.553	3.558	0	206029	18	>100:1			1001.00	869.59	86.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.558		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.758	3.755	1/1	2101	21	16:1			3.3777	3.3777		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.698		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.560	3.565	0	764824	19	>100:1			1001.00	942.67	90.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.565		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.868	3.872	0	425102	20	>100:1			1001.00	1023.38	99.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.872		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.890	3.894	0	172107	17	>100:1			5005.00	4942.45	96.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.894		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.494		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.897	3.901	0	730460	18	>100:1			1001.00	1021.00	94.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.057	4.053	1	886421	16	>100:1			5005.00	5482.28	112	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.210	4.207	1	782292	18	>100:1			5005.00	5410.36	104.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.210	4.207	1	686665	16	>100:1			1001.00	977.84	95.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.289	4.295	0	125803	14	>100:1			1001.00	1025.12	101.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.304		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.313	0	62496	14	>100:1			1001.00	972.71	98.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.322		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.457	4.463	0	114494	16	>100:1			1001.00	1007.58	103.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.479		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.482	4.486	0	681384	16	>100:1			1001.00	978.90	98.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.486	0	60721	15	>100:1			1001.00	1006.53	94.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.944	4.942	1	714161	17	>100:1			1001.00	957.16	95	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.332	5.323	1	355045	17	>100:1			1001.00	1020.55	103.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.332	5.331	1/0	7409	16	43:1	Target = 12.24		11.360	11.360		
813 > 269	40	5.332	5.331		734	19	17:1	10.09 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.678		ND								
*** 37 13C2_PFDA**													
515 > 470		3.897	3.901	0	724910	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.493	1	932008	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.226	1	890568	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.733	1.732	1	1045422	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.560	3.558	1	231765	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

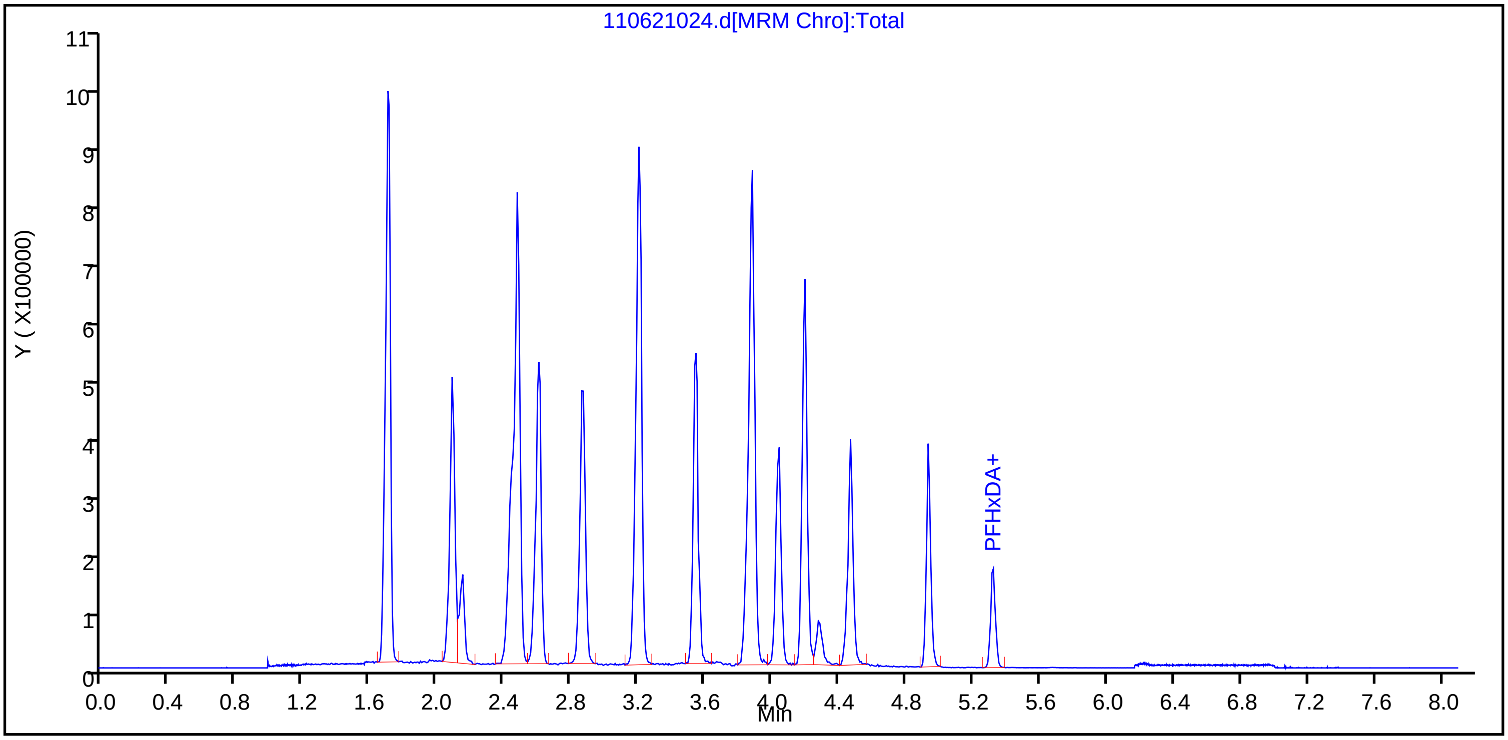
QC Flag Legend

U - Result Less Than Method Detection Limit

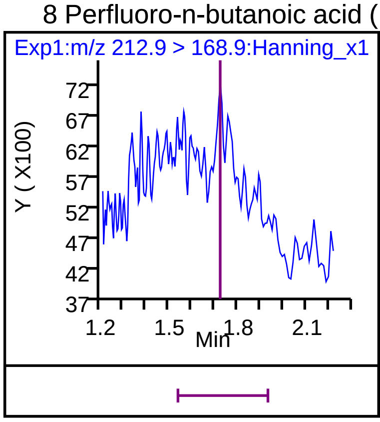
Report Date: 09-Nov-2021 13:30:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

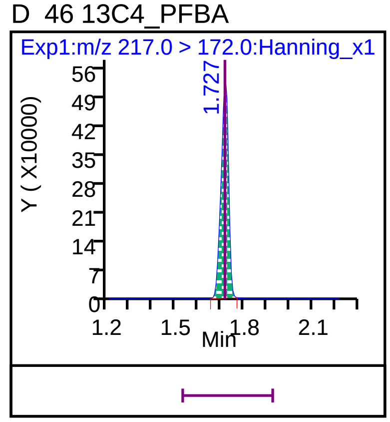
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621024.d		
Injection Date:	06-Nov-2021 16:25:18	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID BLK C1
Sample Info:	ID BLK C1		
Dil. Factor:	1	Operator:	Matthew M. Miller



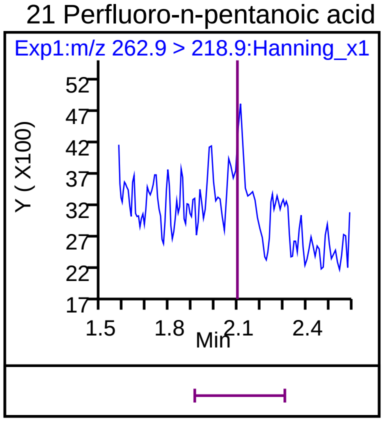
8 Perfluoro-n-butanoic acid (PFBA) (ND)



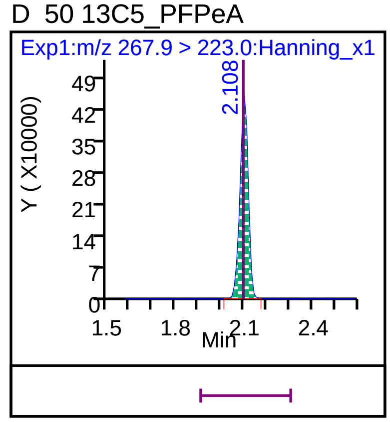
D 46 13C4_PFBA



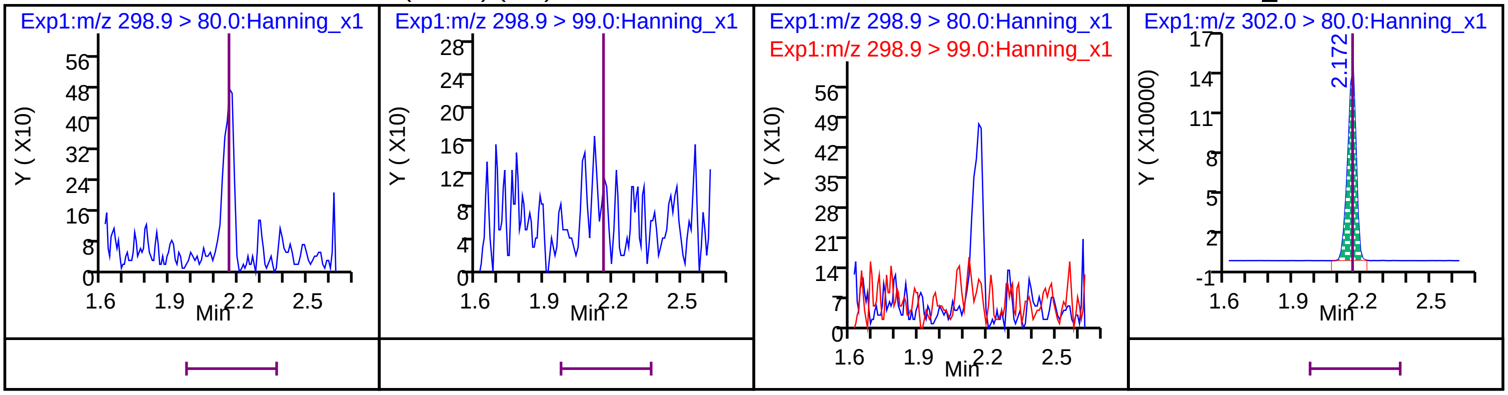
21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)



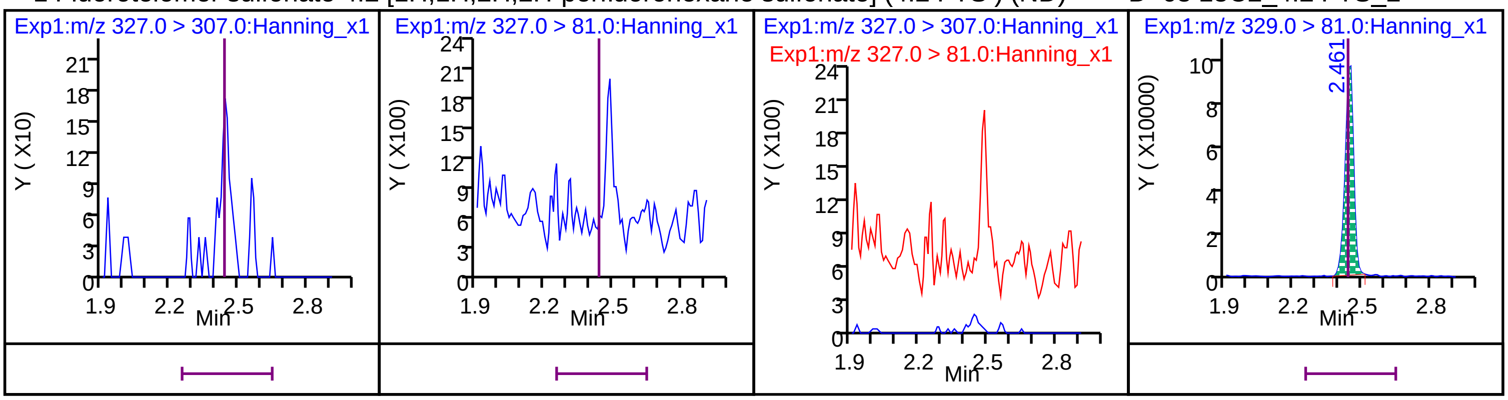
D 50 13C5_PFPeA



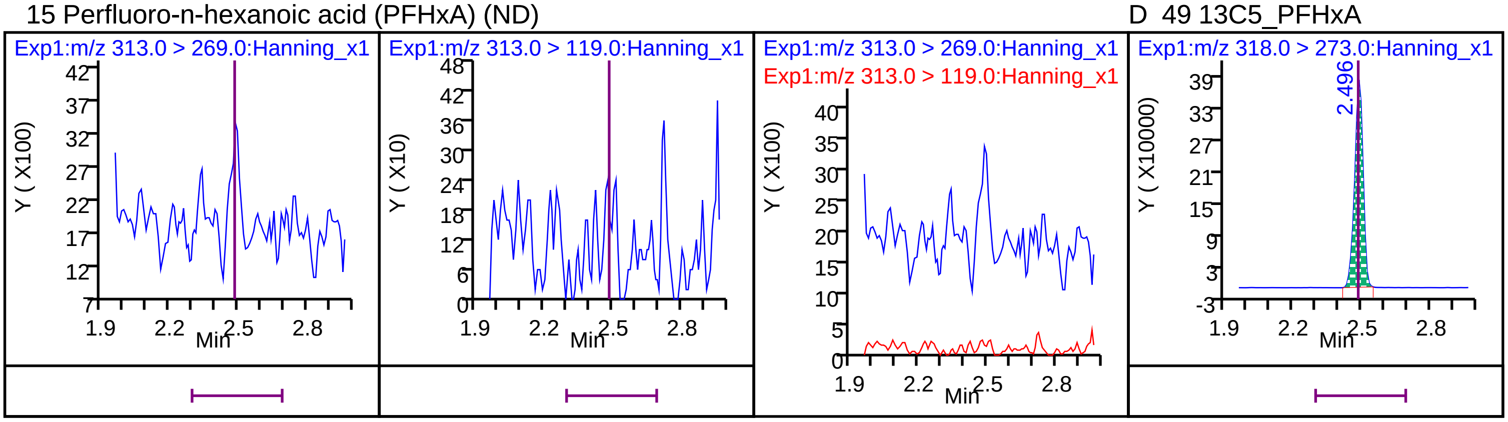
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



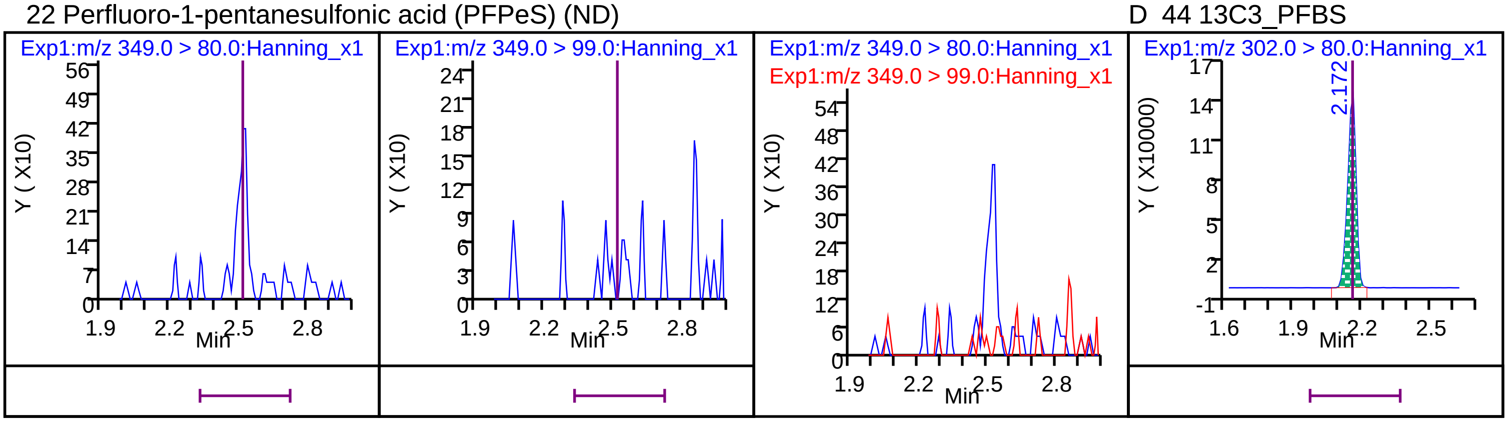
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



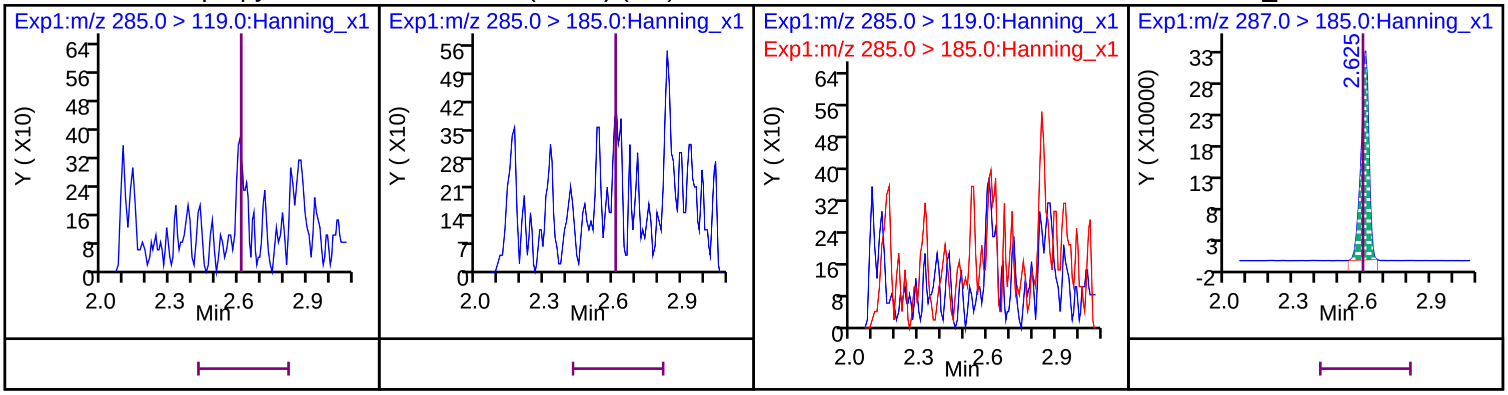
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



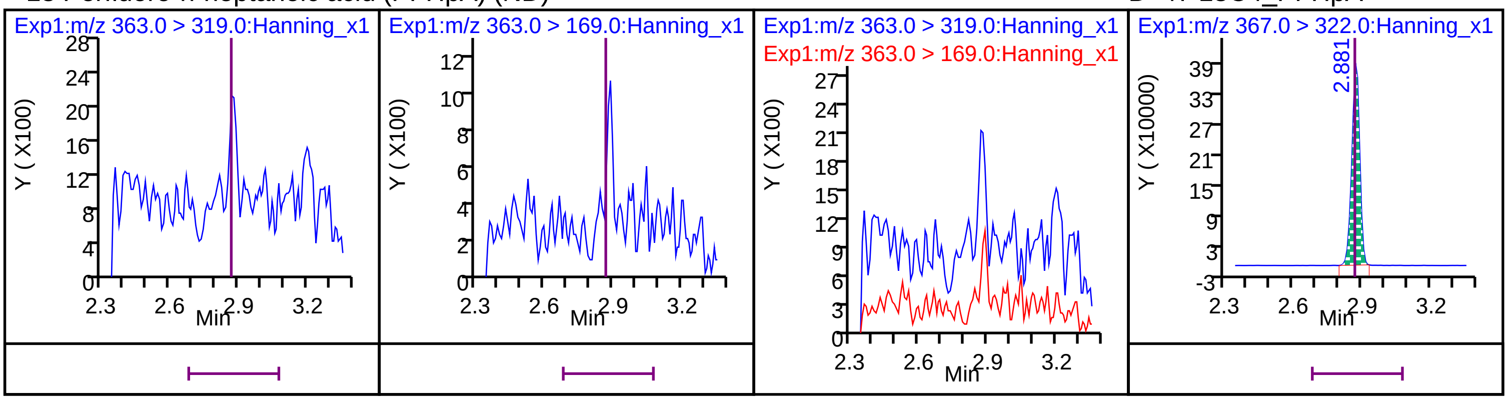
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



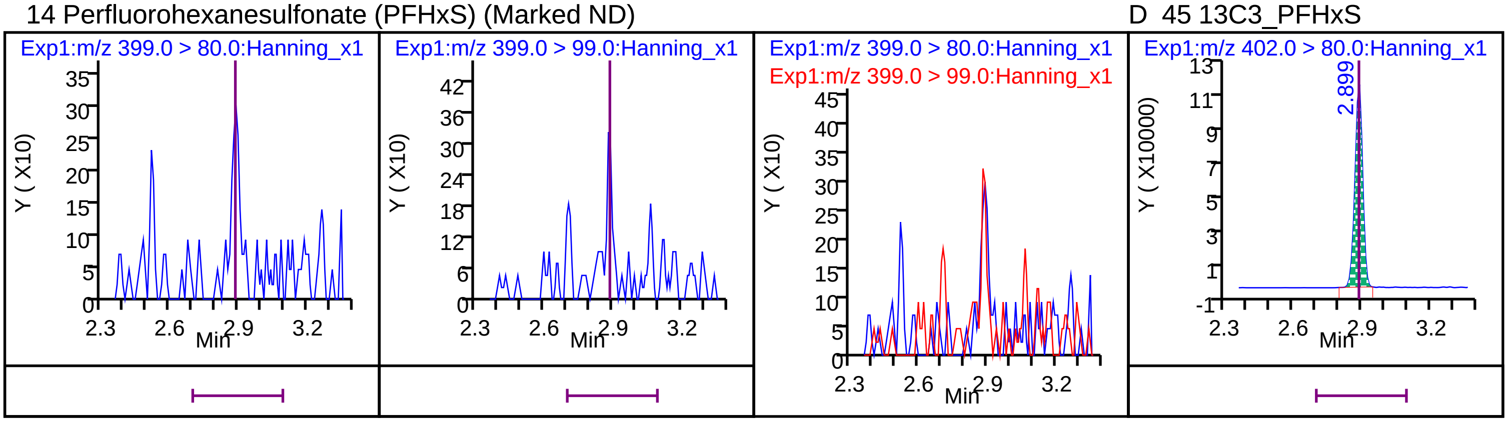
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



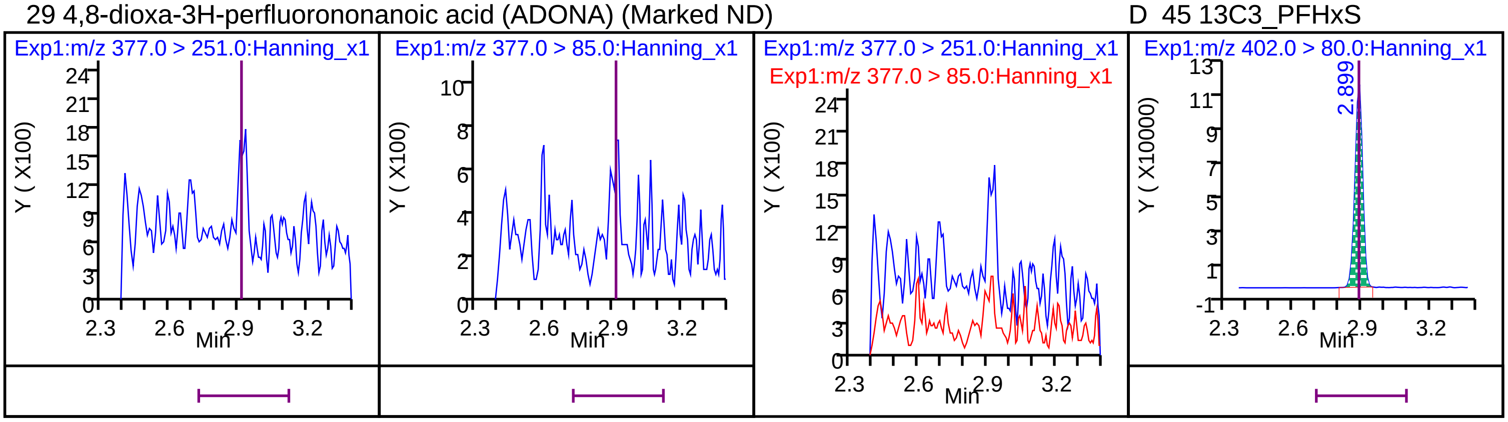
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (Marked ND) D 45 13C3_PFHxS

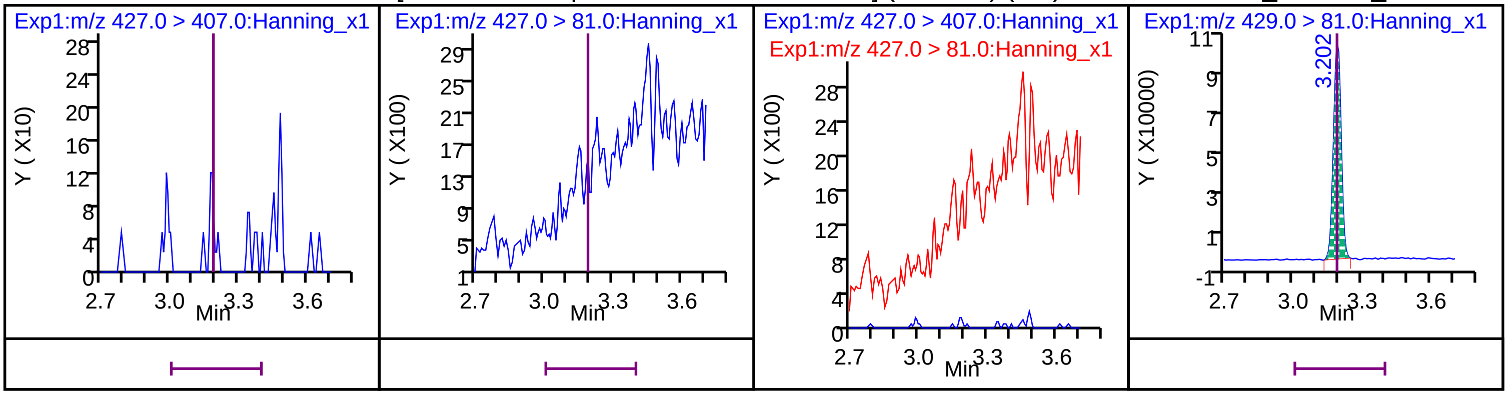


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (Marked ND) D 45 13C3_PFHxS

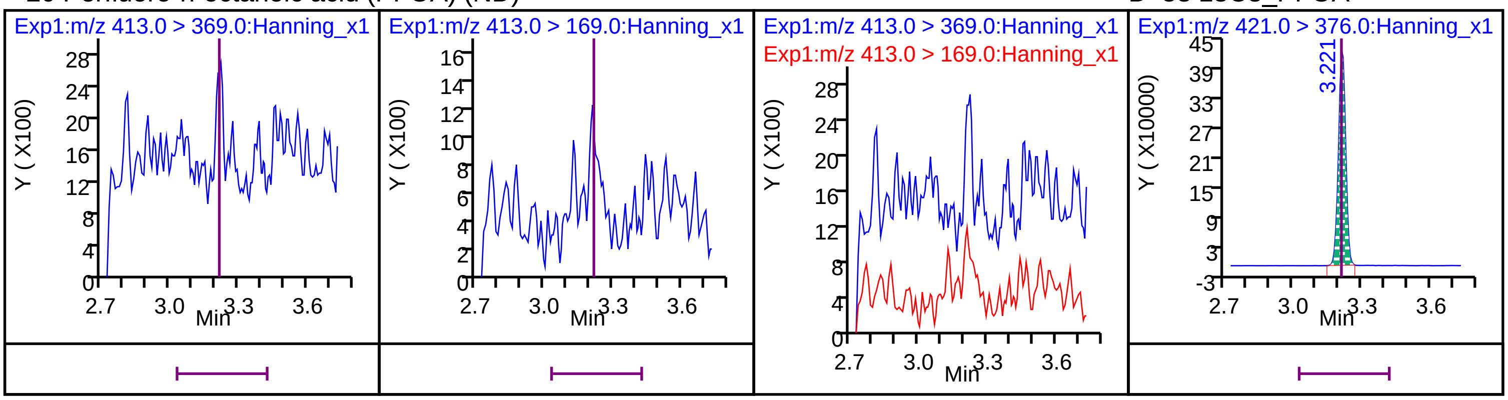


Report Date: 09-Nov-2021 13:30:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621024.d

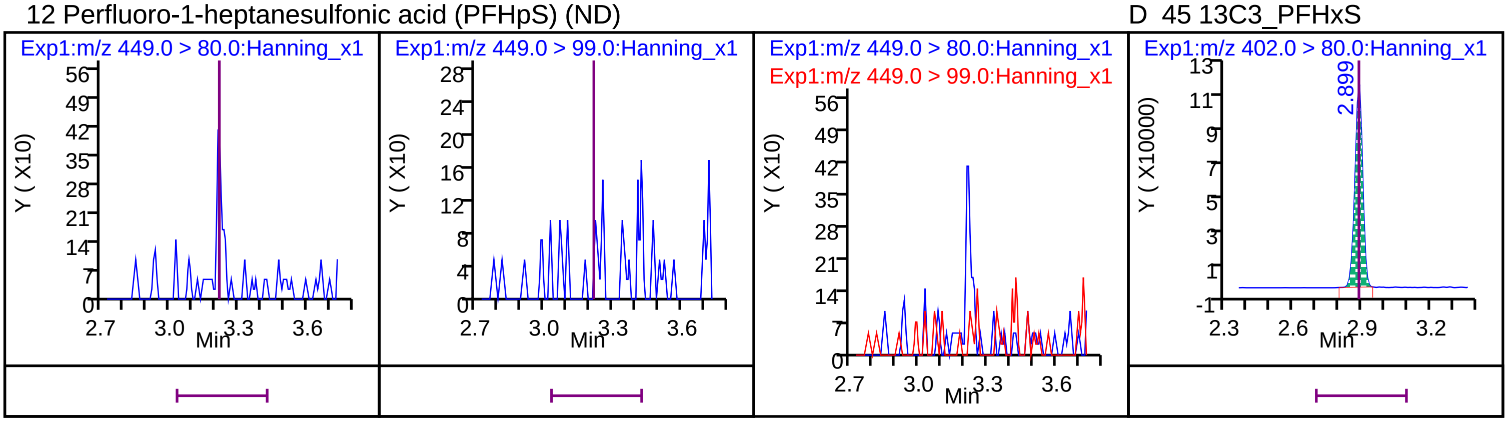
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



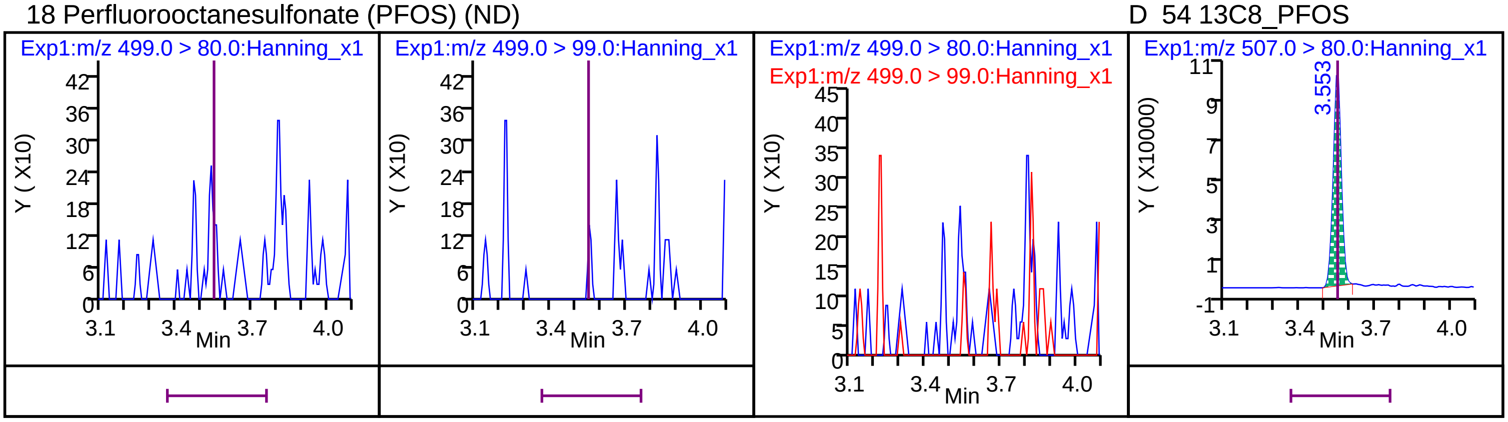
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



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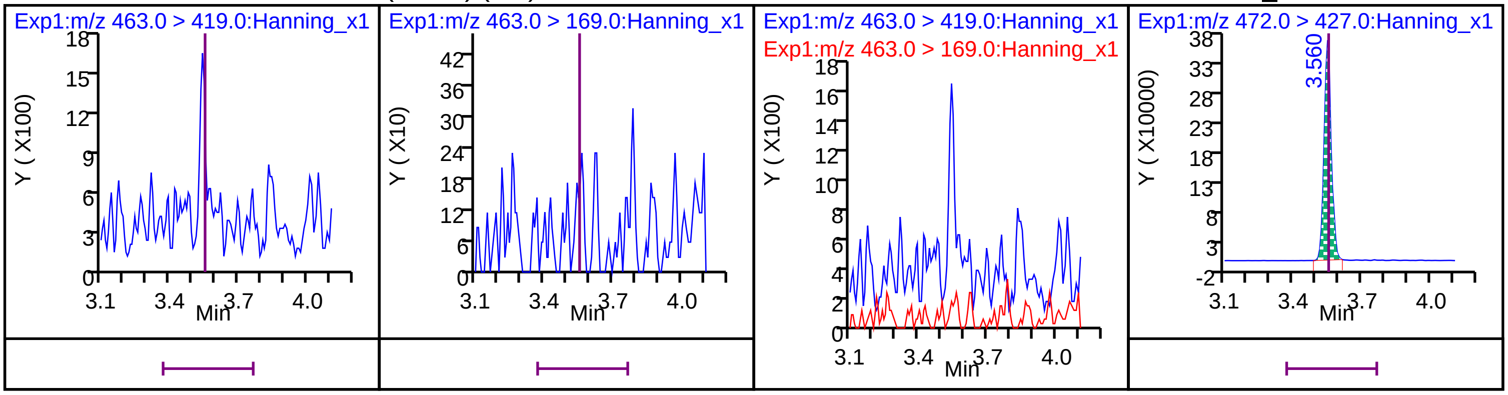
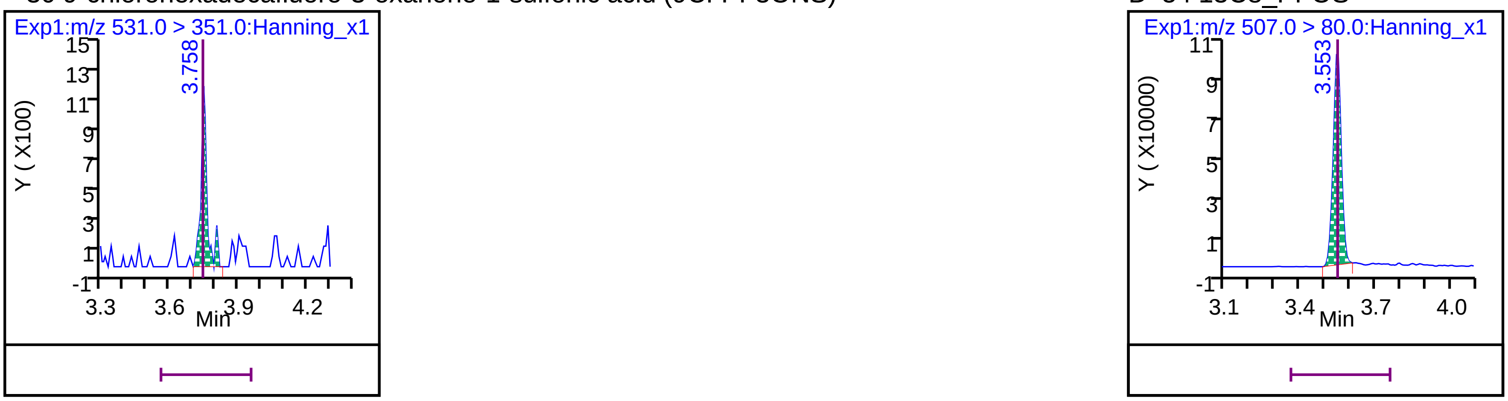
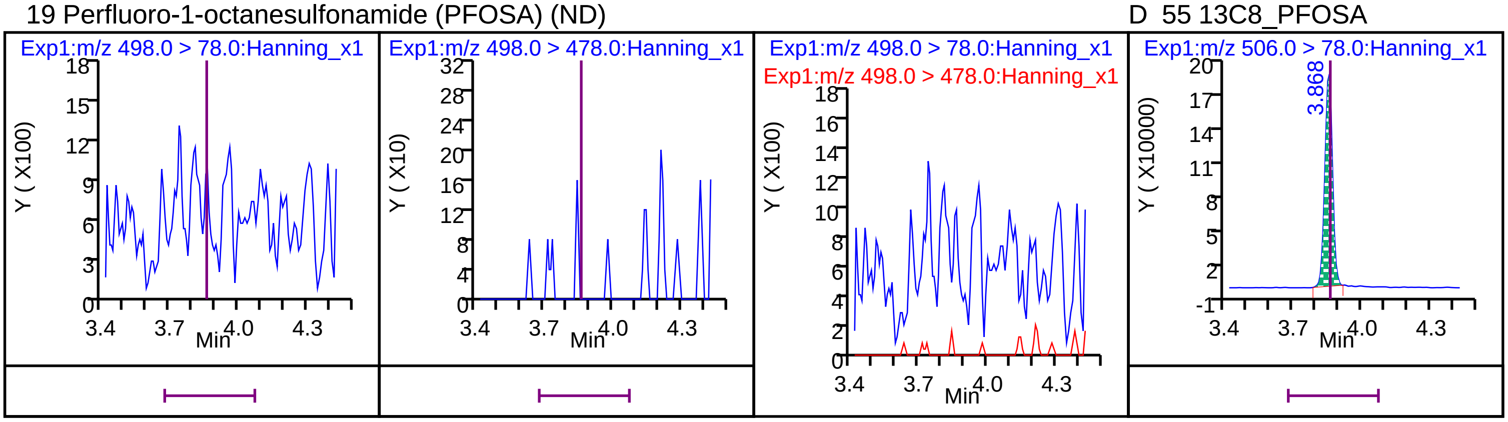
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



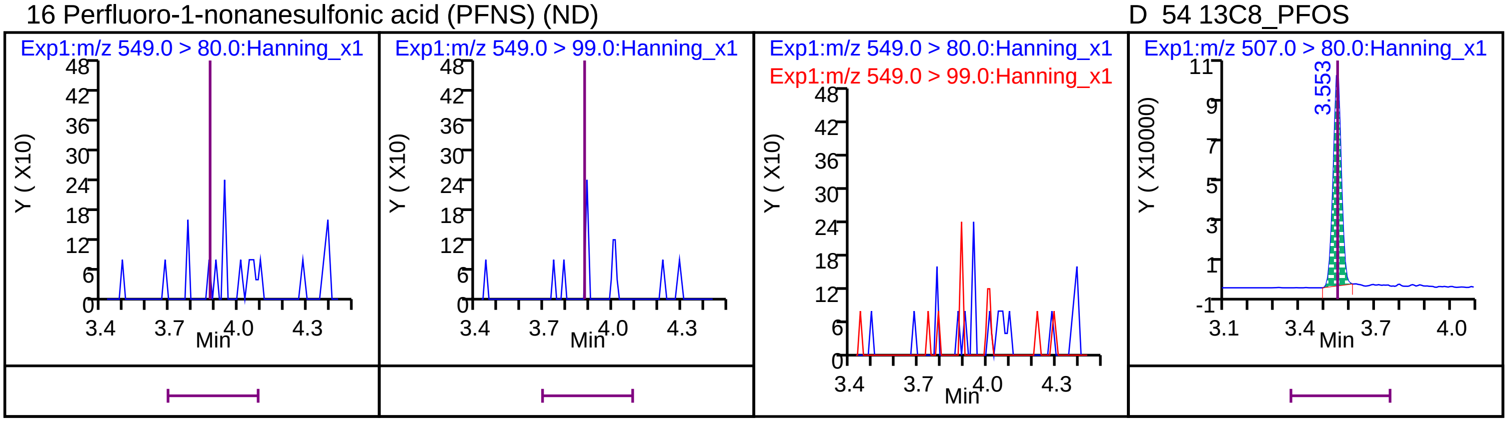
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



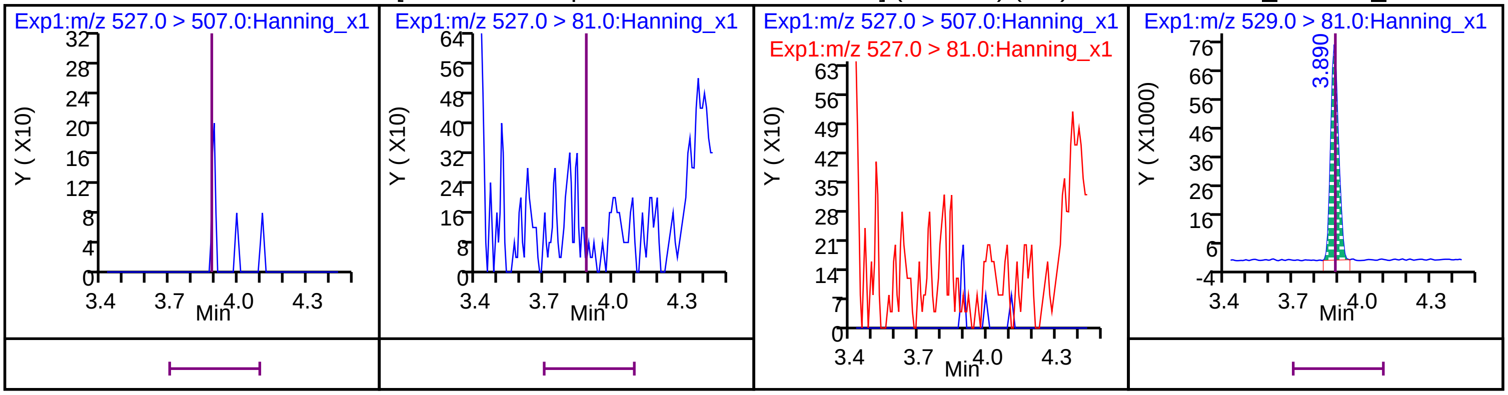
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



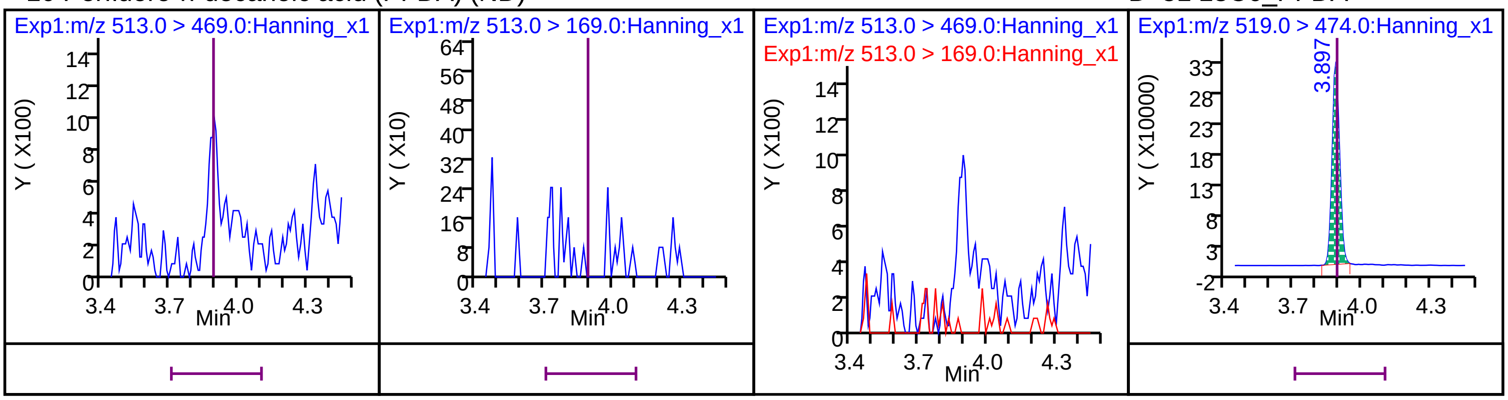
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



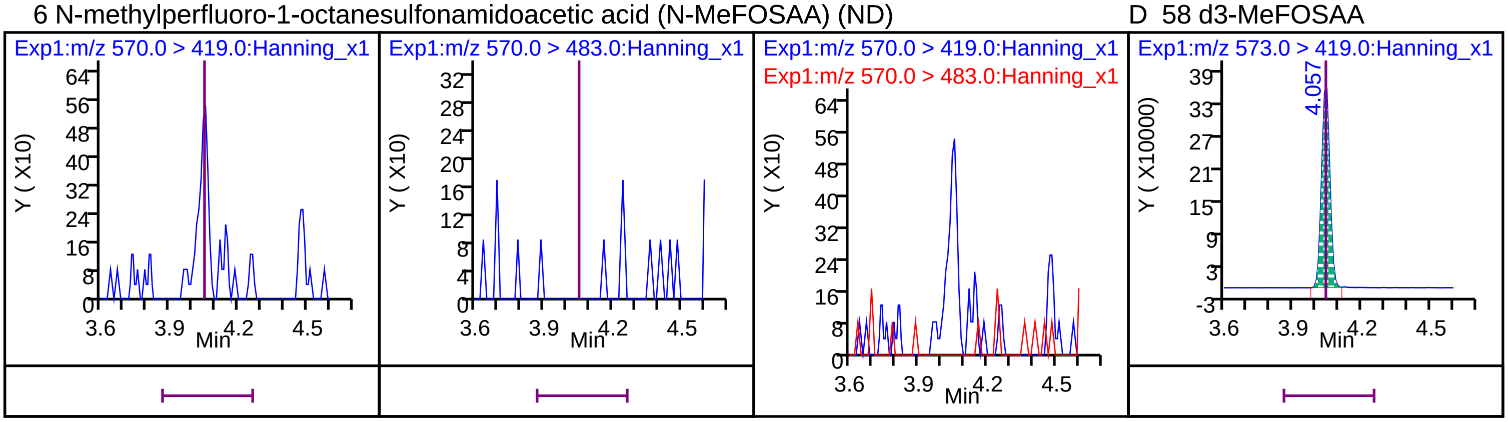
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



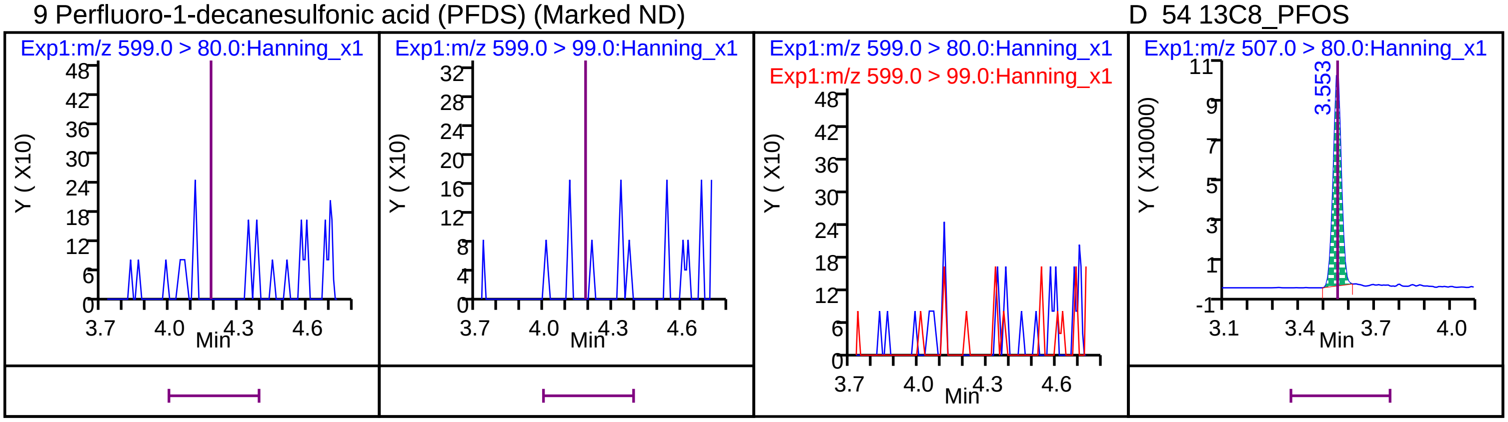
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



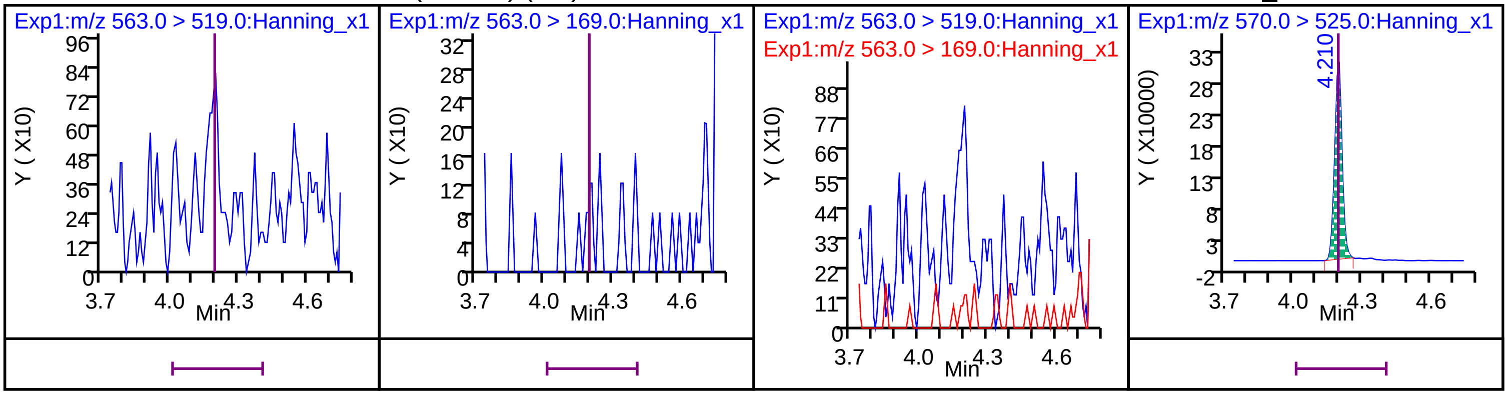
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



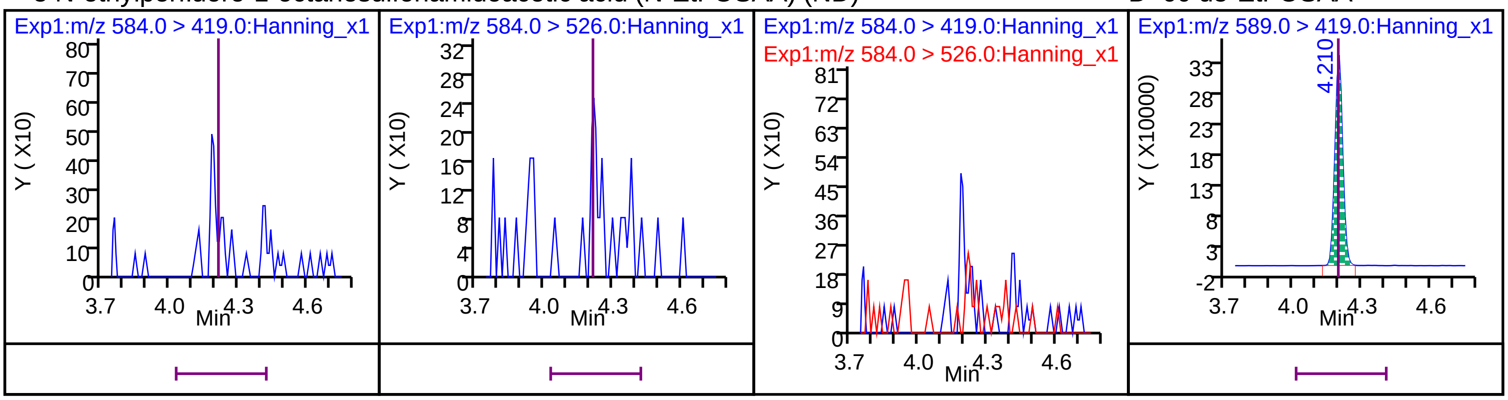
9 Perfluoro-1-decanesulfonic acid (PFDS) (Marked ND) D 54 13C8_PFOS



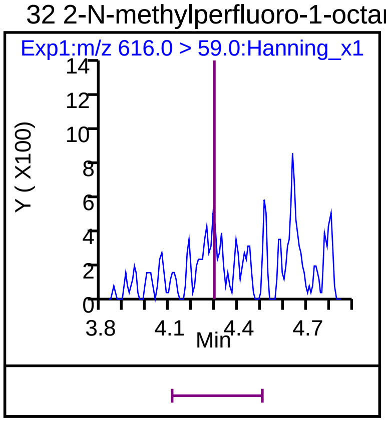
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

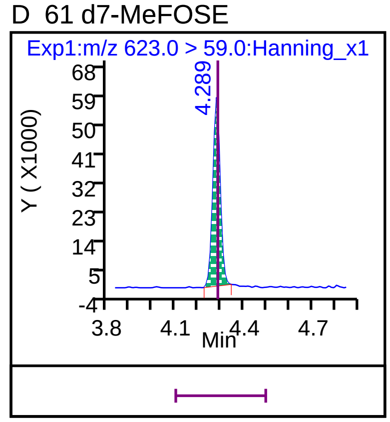


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

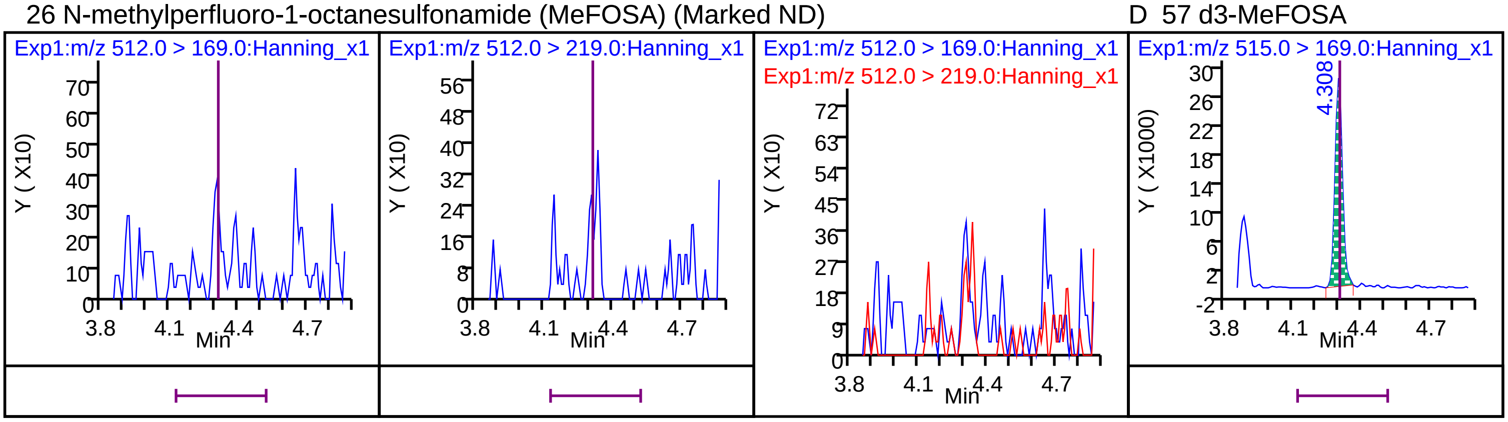


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (ND) D 61 d7-MeFOSE



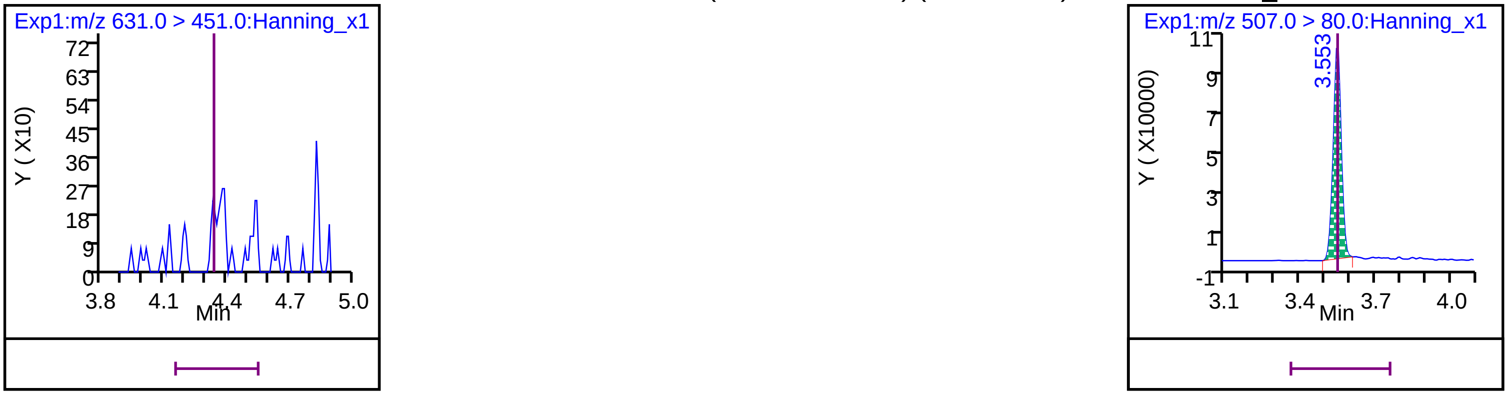


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (Marked ND) D 57 d3-MeFOSA



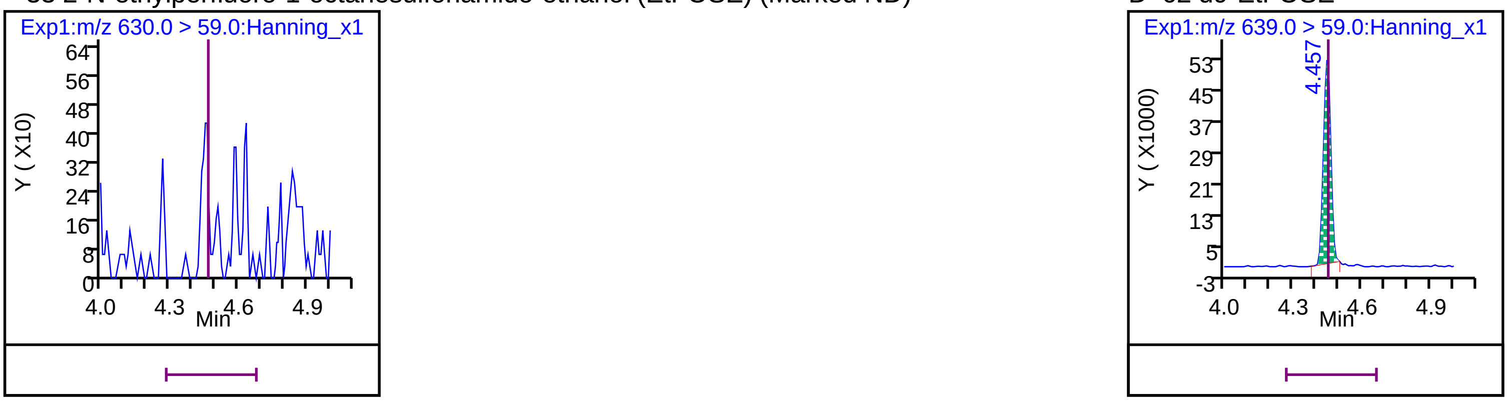
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

D 54 13C8_PFOS



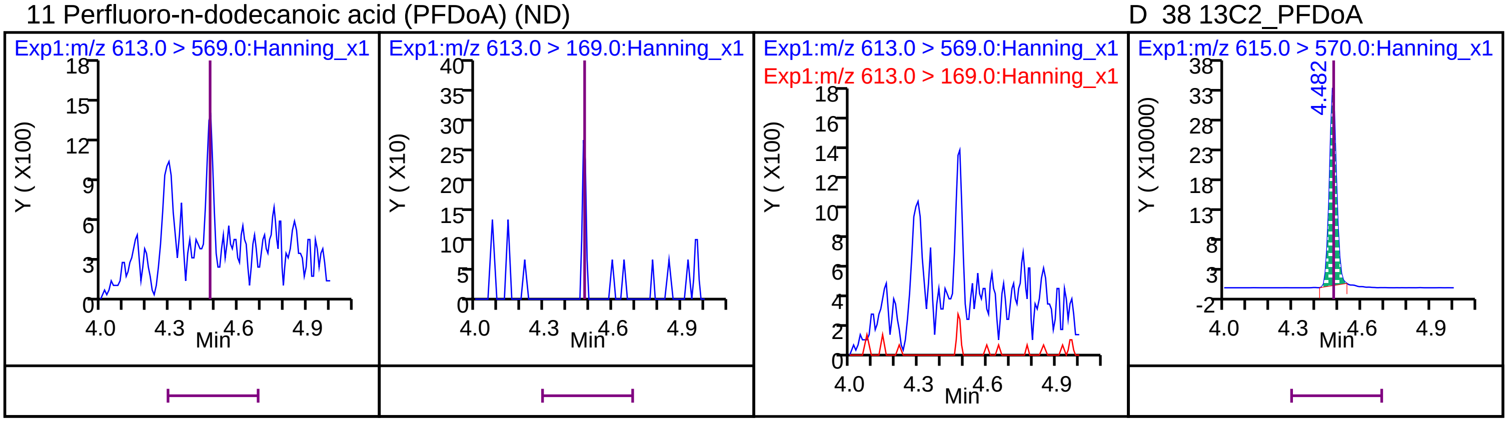
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)

D 62 d9-EtFOSE



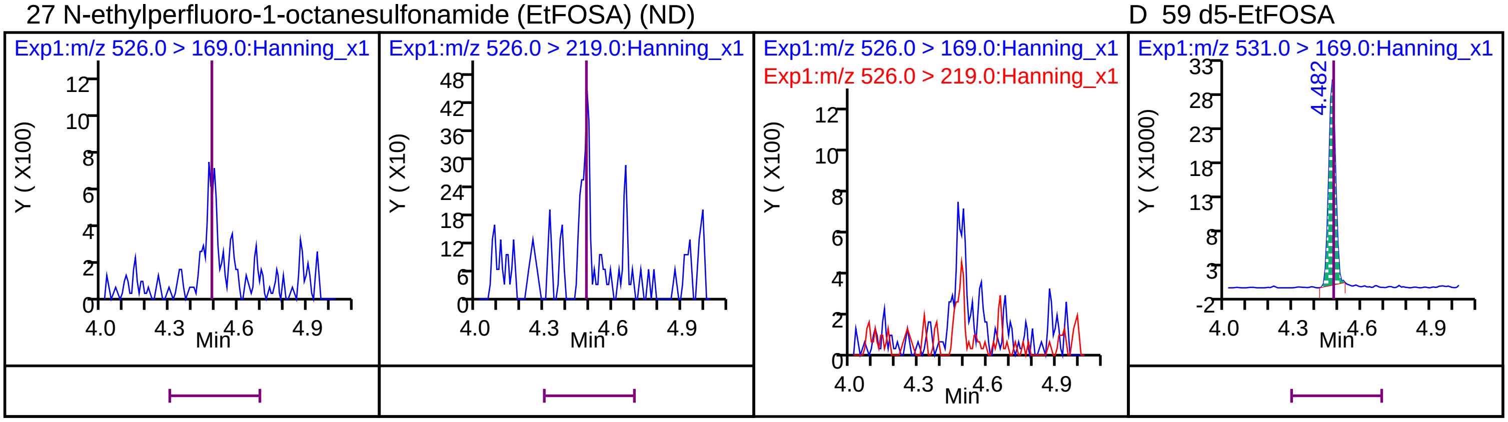
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)

D 38 13C2_PFDoA

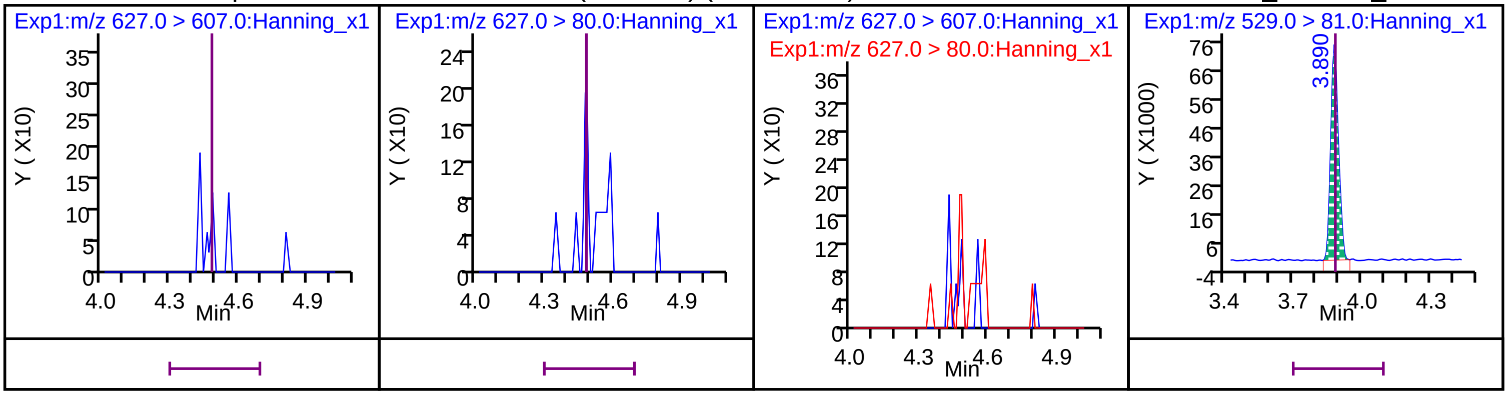


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

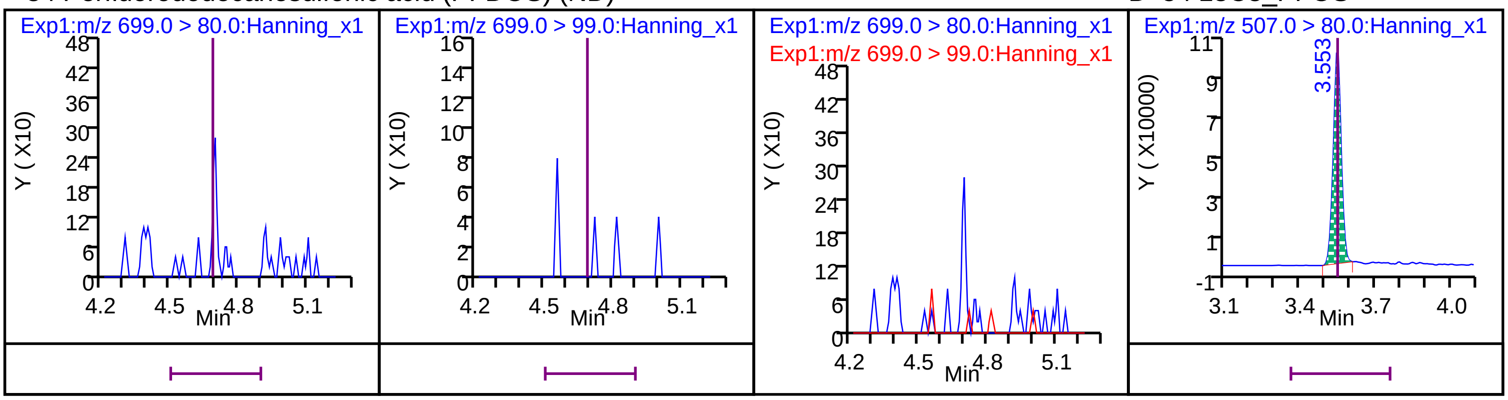
D 59 d5-EtFOSA



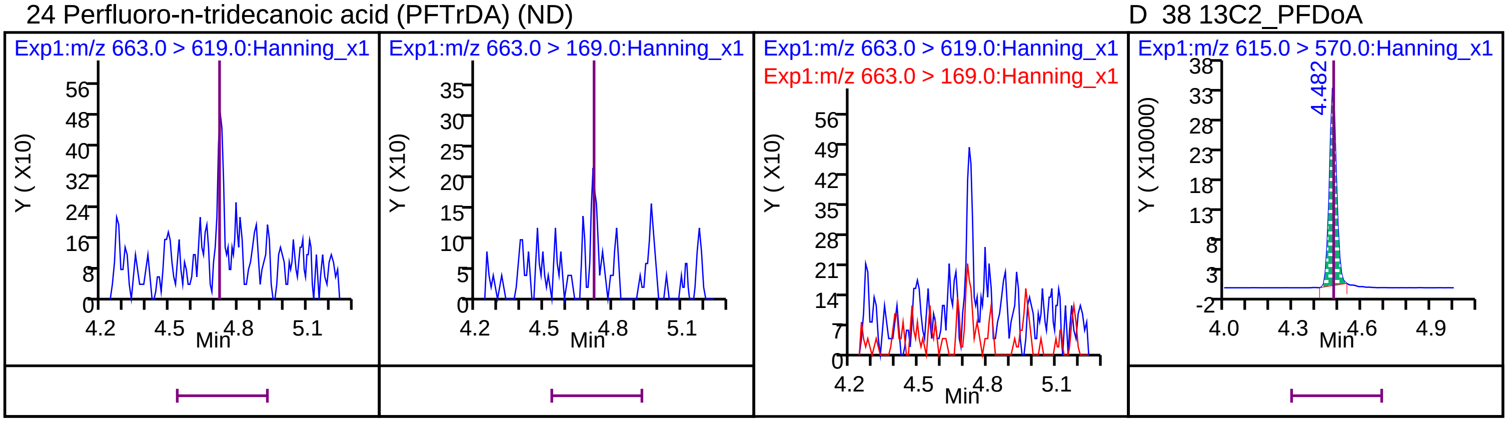
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (Marked ND) D 65 13C2_8:2 FTS_2



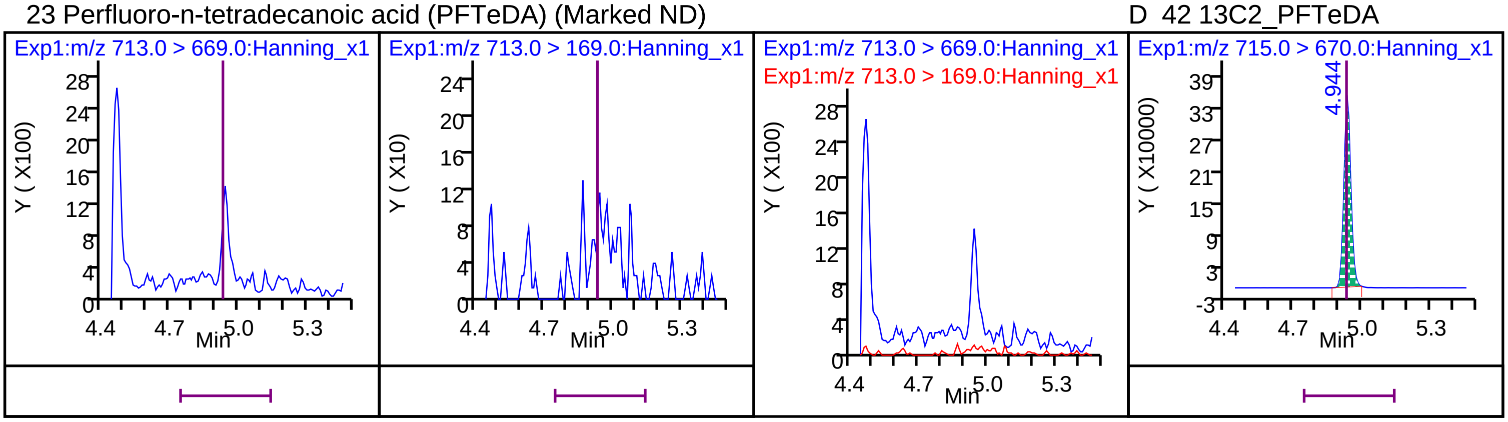
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



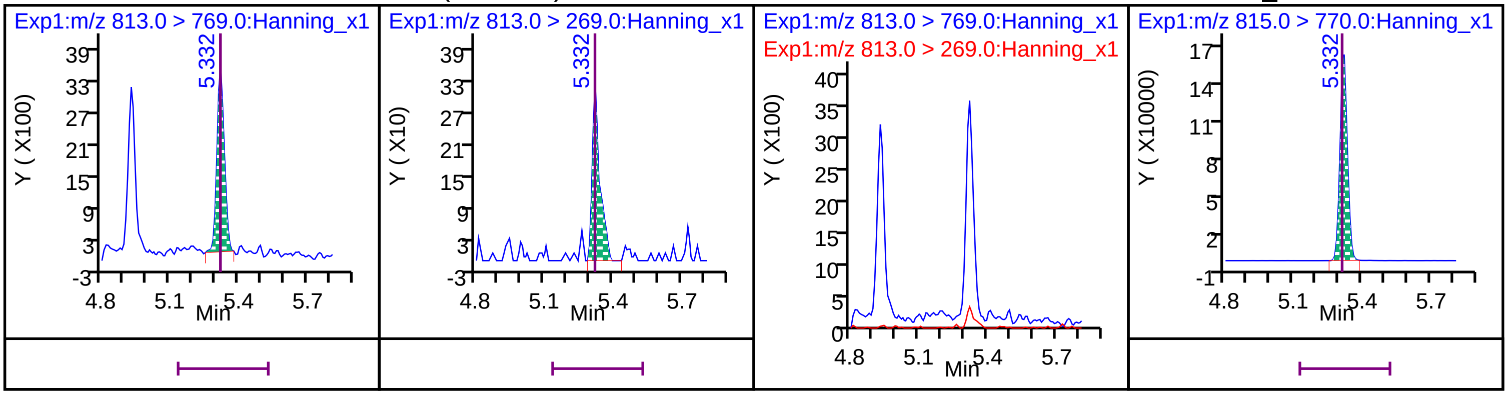
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



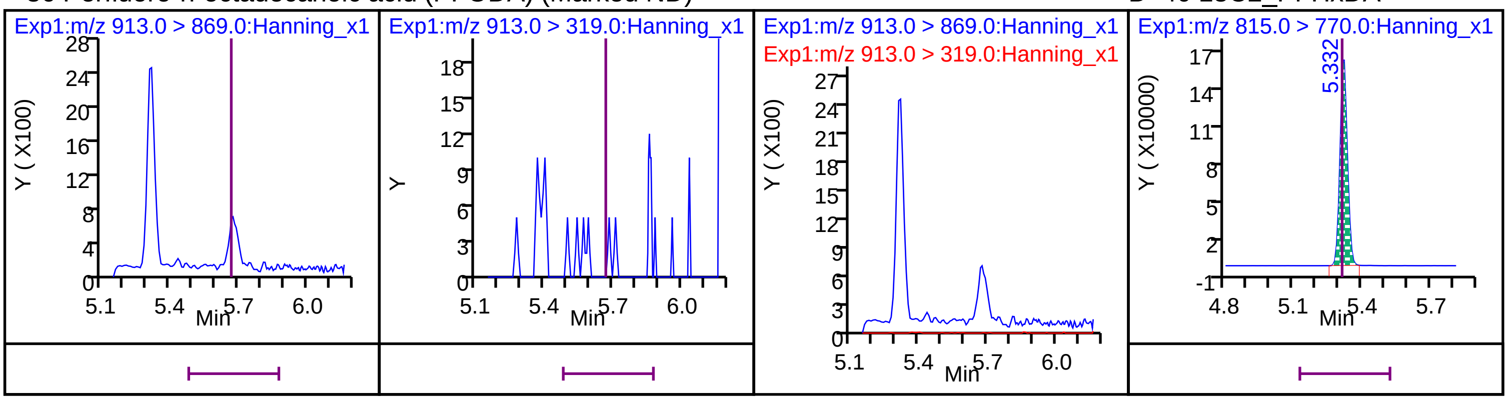
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) D 42 13C2_PFTeDA



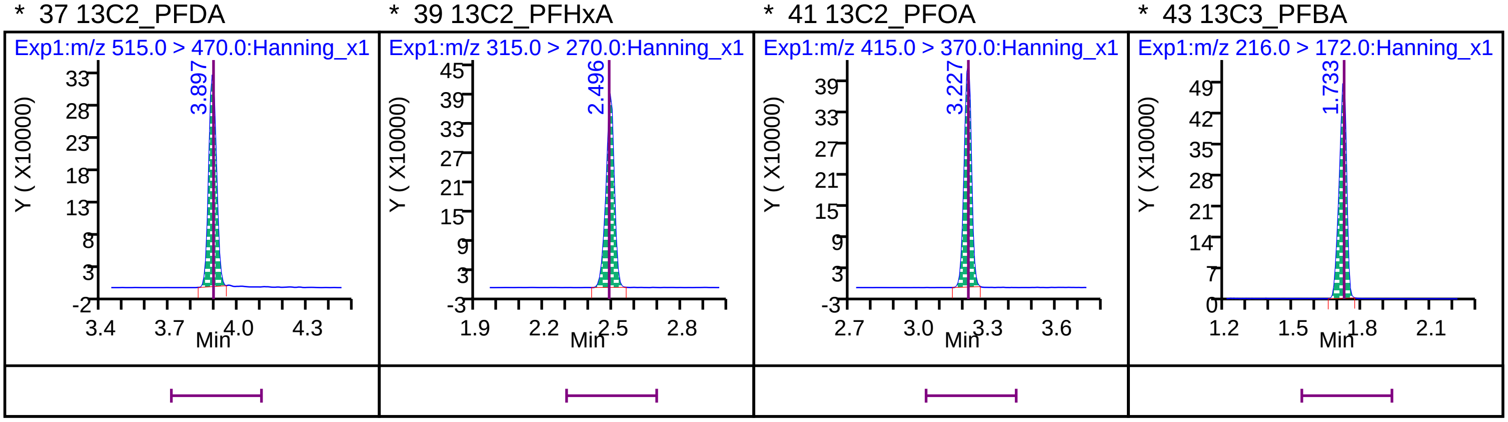
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



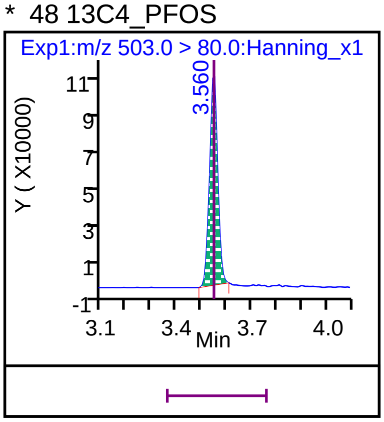
36 Perfluoro-n-octadecanoic acid (PFODA) (Marked ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:50   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Initial Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621025.d		
Injection Date:	06-Nov-2021 16:36:00	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	11
Sample Info:	ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes   Conc. Level: ICV   Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 46 13C4_PFBA	1102554	1239245			112.4	50 - 150
8 PFBA			500.00	444.36	88.9	70 - 130
D 50 13C5_PFPeA	1031391	1176622			114.1	50 - 150
21 PFPeA			500.00	464.21	92.8	70 - 130
7 PFBS			442.50	394.88	89.2	70 - 130
D 44 13C3_PFBS	340591	370018			108.6	50 - 150
1 4:2 FTS			467.50	481.71	103	70 - 130
D 63 13C2_4:2 FTS_2	231446	236749			102.3	50 - 150
D 49 13C5_PFHxA	914193	1040597			113.8	50 - 150
15 PFHxA			500.00	464.56	92.9	70 - 130
22 PFPeS			470.00	442.42	94.1	70 - 130
D 66 13C3_GenX	686066	800630			116.7	50 - 150
28 GenX			2500.00	2399.22	96	70 - 130
D 47 13C4_PFHpA	904828	987691			109.2	50 - 150
13 PFHpA			500.00	486.57	97.3	70 - 130
D 45 13C3_PFHxS	275799	311345			112.9	50 - 150
14 PFHxS			456.00	415.83	91.2	70 - 130
29 ADONA			2355.00	2132.21	90.5	70 - 130
D 64 13C2_6:2 FTS_2	216911	213317			98.3	50 - 150
2 6:2 FTS			475.00	456.50	96.1	70 - 130
D 53 13C8_PFOA	844338	925641			109.6	50 - 150
20 PFOA			500.00	478.84	95.8	70 - 130
12 PFHpS			475.00	422.92	89	70 - 130
18 PFOS			462.75	411.76	89	70 - 130
D 54 13C8_PFOS	238349	256413			107.6	50 - 150
17 PFNA			500.00	445.78	89.2	70 - 130
D 56 13C9_PFNA	847911	969550			114.3	50 - 150
30 9Cl-PF3ONS			2330.00	2073.44	89	70 - 130
D 55 13C8_PFOSA	426468	423229			99.2	50 - 150
19 PFOSA			500.00	492.55	98.5	70 - 130
16 PFNS			480.00	423.93	88.3	70 - 130
D 65 13C2_8:2 FTS_2	178798	175514			98.2	50 - 150
3 8:2 FTS			480.00	505.38	105.3	70 - 130
10 PFDA			500.00	405.85	81.2	70 - 130
D 51 13C6_PFDA	770724	865706			112.3	50 - 150
D 58 d3-MeFOSAA	791294	905710			114.5	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			500.00	516.03	103.2	70 - 130
9 PFDS			482.50	445.17	92.3	70 - 130
25 PFUdA			500.00	446.72	89.3	70 - 130
D 60 d5-EtFOSAA	749456	816520			108.9	50 - 150
D 52 13C7_PFUdA	720189	826919			114.8	50 - 150
5 N-EtFOSAA			500.00	514.98	103	70 - 130
D 61 d7-MeFOSE	124281	127132			102.3	50 - 150
D 57 d3-MeFOSA	63457	63697			100.4	50 - 150
31 11Cl-PF3OUDS			2355.00	2055.87	87.3	70 - 130
D 62 d9-EtFOSE	110687	118074			106.7	50 - 150
D 59 d5-EtFOSA	64404	62563			97.1	50 - 150
11 PFDoA			500.00	441.84	88.4	70 - 130
D 38 13C2_PFDoA	689160	784341			113.8	50 - 150
4 10:2 FTS			2410.00	2150.88	89.2	70 - 130
24 PFTrDA			500.00	466.43	93.3	70 - 130
23 PFTeDA			500.00	440.01	88	70 - 130
D 42 13C2_PFTeDA	752016	811872			108	50 - 150
D 40 13C2_PFHxDA	343727	365746			106.4	50 - 150

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621025.d		
Injection Date:	06-Nov-2021 16:36:00	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	11
Sample Info:	ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1239245	19	>100:1			1000.00	1130.52	112.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	586839	18	>100:1			500.00	444.36		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1176622	17	>100:1			1000.00	1153.45	114.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	586288	16	>100:1			500.00	464.21		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.169	2.169	1	370018	15	>100:1			1000.00	1096.55	108.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.169	2.169	1/0	206830	15	>100:1	Target = 3.83		442.50	394.88		
298.9 > 99	44	2.169	2.169		50873	14	>100:1	4.06 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.529	2.529	1/0	163854	18	>100:1	Target = 3.47		470.00	442.42		
349 > 99	44	2.529	2.529		46737	16	>100:1	3.50 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	1	236749	18	>100:1			5000.00	5069.92	102.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.449	2.449	1/0	42409	19	>100:1	Target = 1.39		467.50	481.71		
327 > 81	63	2.449	2.449		27030	17	29:1	1.56 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	1	1040597	18	>100:1			1000.00	1141.01	113.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.493	2.493	1/0	491332	19	>100:1	Target = 17.15		500.00	464.56		
313 > 119	49	2.493	2.493		29133	17	>100:1	16.86 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.614	1	800630	19	>100:1			5000.00	5439.29	116.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	286565	18	>100:1	Target = 0.72		2500.00	2399.22		
285 > 185	66	2.622	2.622		381231	19	>100:1	0.75 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	1	987691	18	>100:1			1000.00	1116.20	109.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	1/0	459118	17	>100:1	Target = 3.21		500.00	486.57		
363 > 169	47	2.878	2.878		141220	17	>100:1	3.25 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	311345	17	>100:1			1000.00	1125.69	112.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	1/0	149240	24	>100:1	Target = 3.35	5.85	456.00	415.83		
399 > 99	45	2.896	2.896		41425	25	>100:1	3.60 (1.67-5.04)	6.17				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	1/0	3519768	18	>100:1	Target = 2.38		2355.00	2132.21		
377 > 85	45	2.923	2.923		1458362	18	>100:1	2.41 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.226	1/0	140135	21	>100:1	Target = 3.87		475.00	422.92		
449 > 99	45	3.233	3.226		40144	25	>100:1	3.49 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	1	213317	20	>100:1			5000.00	5175.66	98.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.207	3.201	1/0	32350	19	>100:1	Target = 1.26		475.00	456.50		
427 > 81	64	3.207	3.201		23333	19	33:1	1.38 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.220	1	925641	21	>100:1			1000.00	1098.79	109.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.226	1/0	443240	21	>100:1	Target = 2.46		500.00	478.84		
413 > 169	53	3.227	3.226		177084	19	>100:1	2.50 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.565	3.558	1	256413	17	>100:1			1000.00	1082.25	107.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.565	3.558	1/0	122836	44	>100:1	Target = 3.98	3.23	462.75	411.76		
499 > 99	54	3.565	3.558		32295	36	>100:1	3.80 (1.99-5.97)	6.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.761	3.755	1/0	1606711	20	>100:1			2330.00	2073.44		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.893	3.886	1/0	103510	17	>100:1	Target = 3.57		480.00	423.93		
549 > 99	54	3.885	3.886		31681	22	>100:1	3.26 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.199	4.191	1/0	106994	17	>100:1	Target = 3.73		482.50	445.17		
599 > 99	54	4.191	4.191		28998	17	>100:1	3.68 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.358	4.349	1/0	1270496	16	>100:1			2355.00	2055.87		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.572	3.565	1	969550	19	>100:1			1000.00	1195.00	114.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.565	3.565	1/0	385489	19	>100:1	Target = 4.45		500.00	445.78		
463 > 169	56	3.565	3.565		87779	18	>100:1	4.39 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.872	0	423229	20	>100:1			1000.00	1018.87	99.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.871	3.872	0/0	227137	18	>100:1	Target = 47.73		500.00	492.55		
498>478	55	3.864	3.872		6775	22	51:1	33.52 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.893	3.894	0	175514	18	>100:1			5000.00	5040.29	98.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.900	3.894	1/1	29272	18	>100:1	Target = 1.41		480.00	505.38		
527 > 81	65	3.893	3.894		19028	17	44:1	1.53 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.494	4.494	1/1	160157	17	>100:1	Target = 2.81		2410.00	2150.88		
627 > 80	65	4.502	4.494		72055	17	>100:1	2.22 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.900	3.901	0	865706	19	>100:1			1000.00	1210.04	112.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.900	3.901	0/0	358853	19	>100:1	Target = 9.36		500.00	405.85		
513 > 169	51	3.900	3.901		35499	18	>100:1	10.10 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.061	4.053	1	905710	16	>100:1			5000.00	5601.58	114.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.061	4.062	0/-1	75439	19	>100:1	Target = 1.42		500.00	516.03		
570 > 483	58	4.061	4.062		53009	17	>100:1	1.42 (0.71-2.13)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.215	4.207	1	816520	17	>100:1			5000.00	5647.08	108.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.223	4.223	1/0	82958	15	>100:1	Target = 1.80		500.00	514.98		
584 > 526	60	4.223	4.223		44795	22	>100:1	1.85 (0.90-2.70)					
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.215	4.207	1	826919	17	>100:1			1000.00	1177.56	114.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.215	4.207	1/0	332670	18	>100:1	Target = 8.65		500.00	446.72		
563 > 169	52	4.215	4.207		40390	16	>100:1	8.23 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.295	4.295	1	127132	22	>100:1			1000.00	1035.95	102.3	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.313	4.313	1	63697	14	>100:1			1000.00	991.40	100.4	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	1	118074	16	>100:1			1000.00	1039.09	106.7	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.486	4.486	1	784341	17	>100:1			1000.00	1126.81	113.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.486	4.486	1/0	348083	16	>100:1	Target = 6.94		500.00	441.84		
613 > 169	38	4.486	4.486		52475	15	>100:1	6.63 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.728	4.727	1/0	161492	19	>100:1	Target = 2.82		500.00	466.43		
663 > 169	38	4.728	4.727		59398	16	>100:1	2.71 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.486	4.486	1	62563	15	>100:1			1000.00	1037.07	97.1	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.950	4.942	1	811872	16	>100:1			1000.00	1088.12	108	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.950	4.942	1/0	308234	16	79:1	Target = 7.23		500.00	440.01		
713 > 169	42	4.950	4.942		45665	13	>100:1	6.74 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.331	5.323	1	365746	17	>100:1			1000.00	1051.31	106.4	
*** 37 13C2_PFDA**													
515 > 470		3.900	3.901	0	839865	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	1	982412	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.226	1	872370	20	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1099453	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.565	3.558	1	267627	19	>100:1			1000.00			

Compound Type Legend

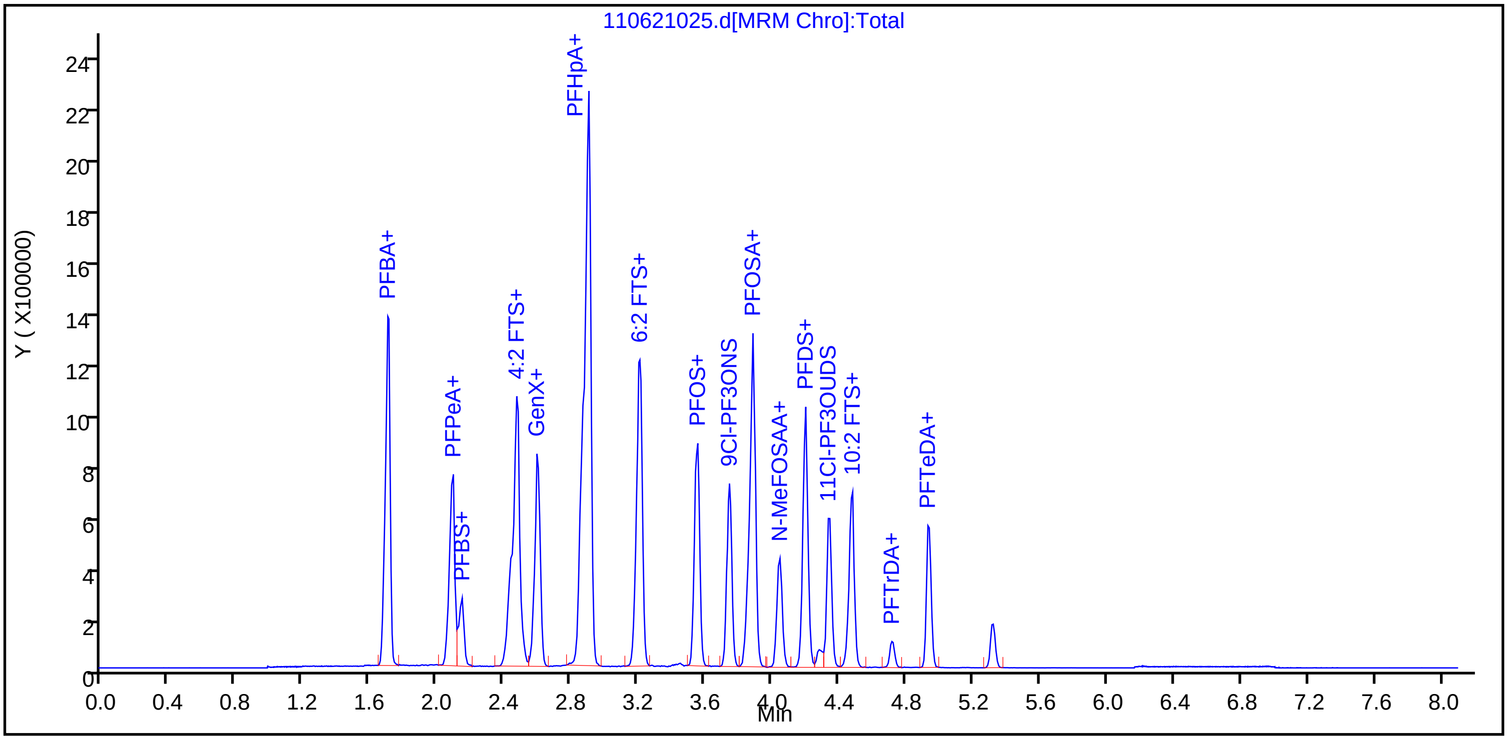
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

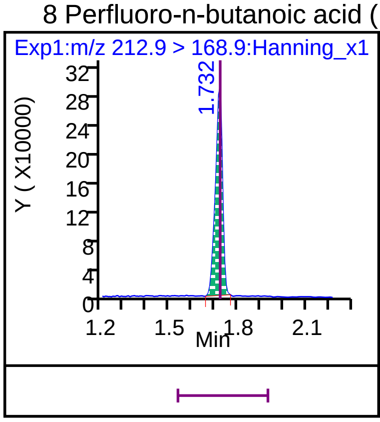
Report Date: 09-Nov-2021 13:30:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

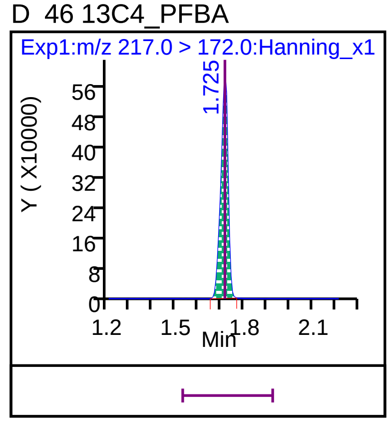
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621025.d		
Injection Date:	06-Nov-2021 16:36:00	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ICV 500_SVLC-1734
Sample Info:	ICV 500_SVLC-1734		
Dil. Factor:	1	Operator:	Matthew M. Miller



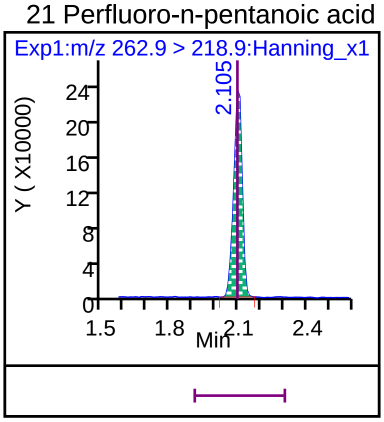
8 Perfluoro-n-butanoic acid (PFBA)



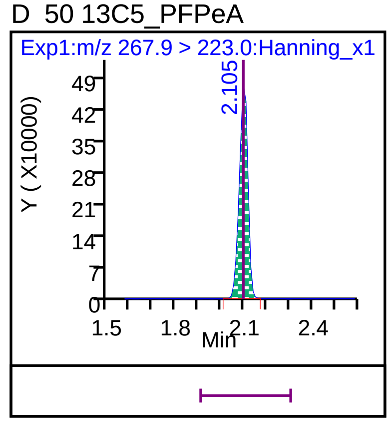
D 46 13C4_PFBA



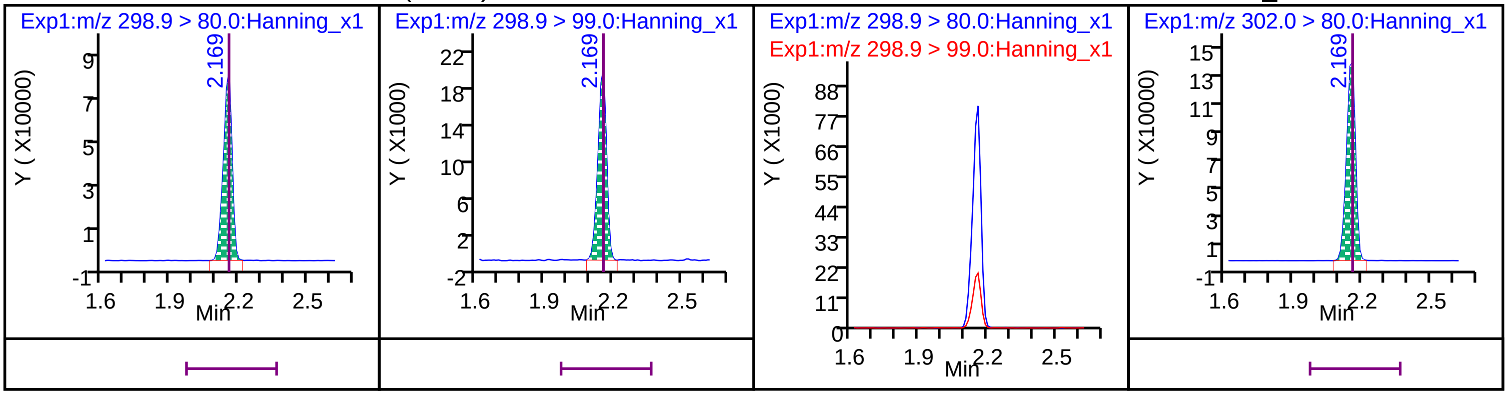
21 Perfluoro-n-pentanoic acid (PFPeA)



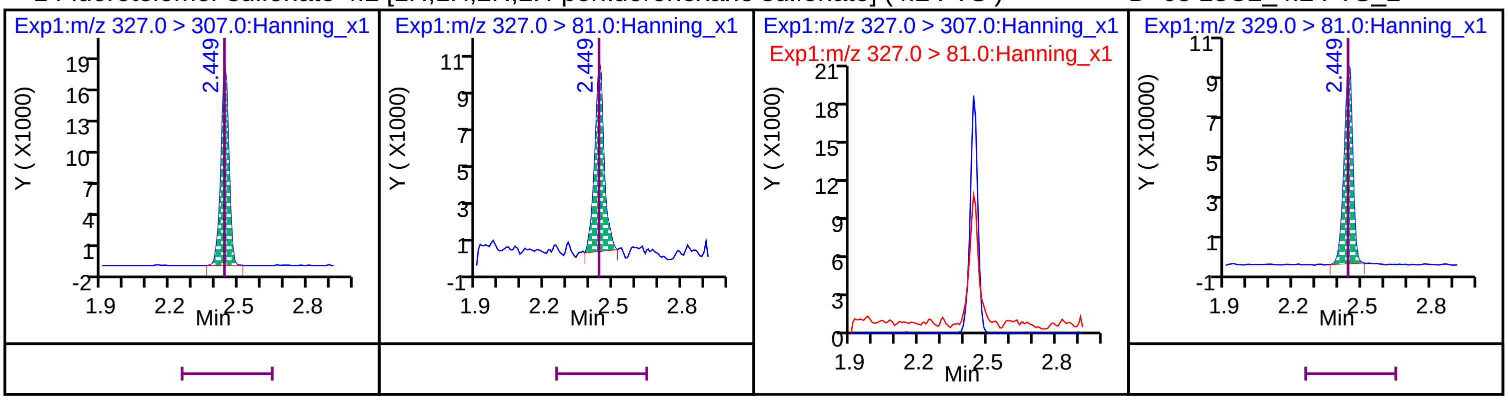
D 50 13C5_PFPeA



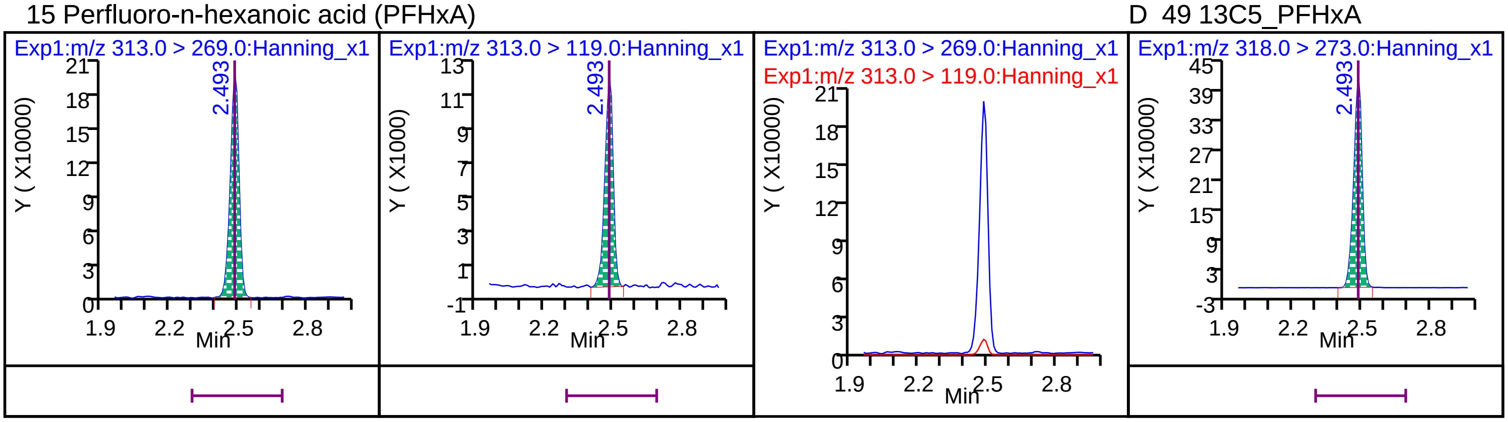
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



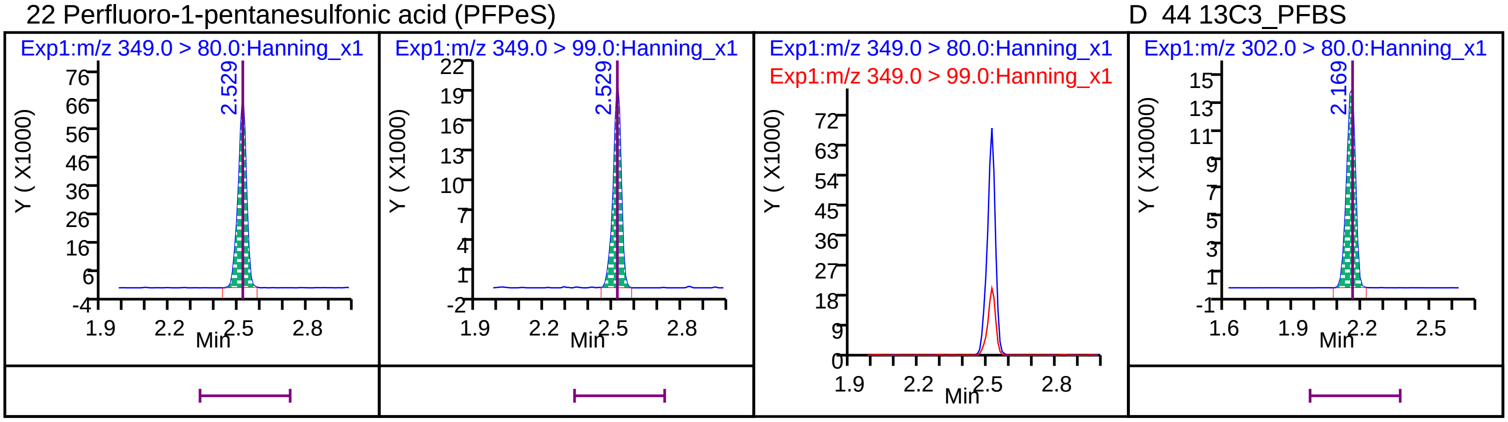
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

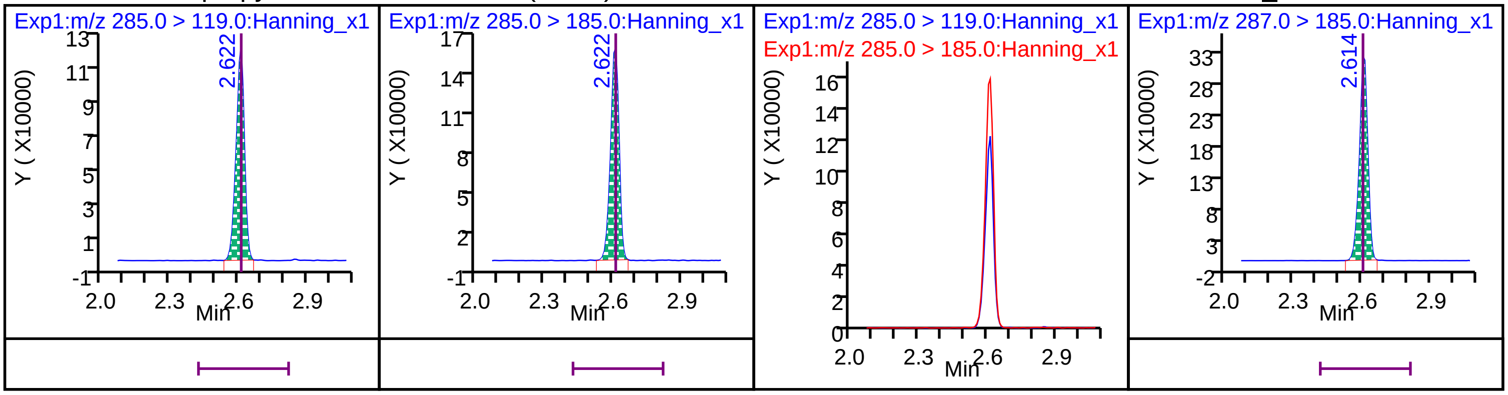


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

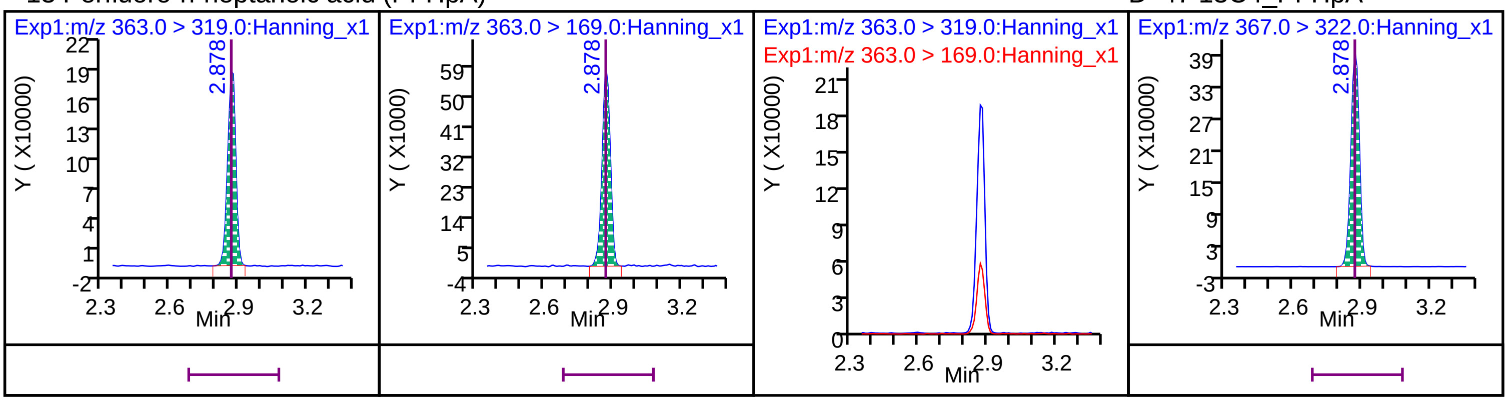


Report Date: 09-Nov-2021 13:30:50 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621025.d

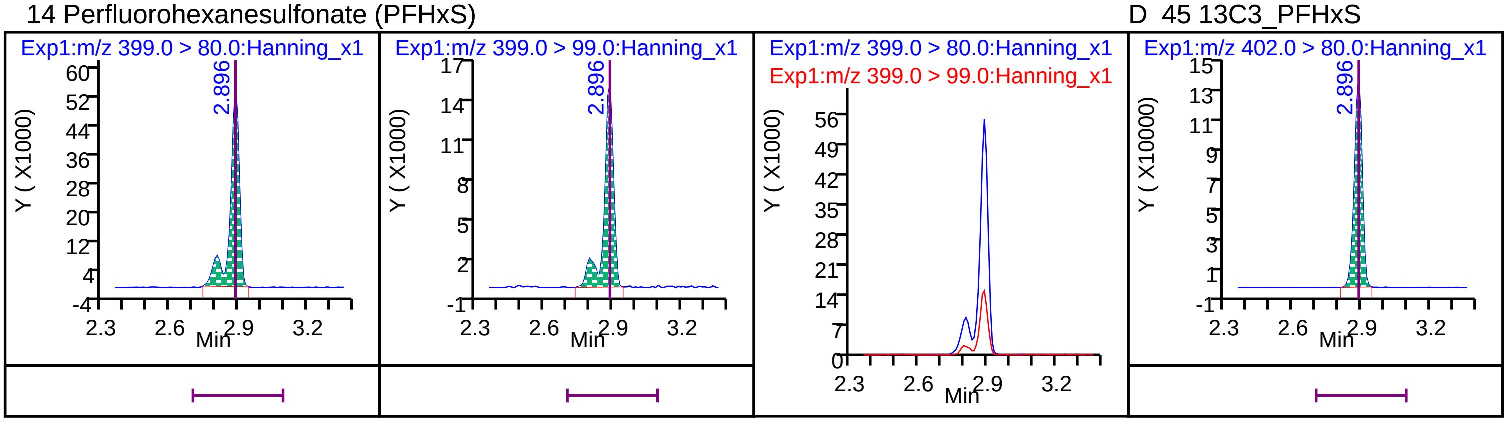
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



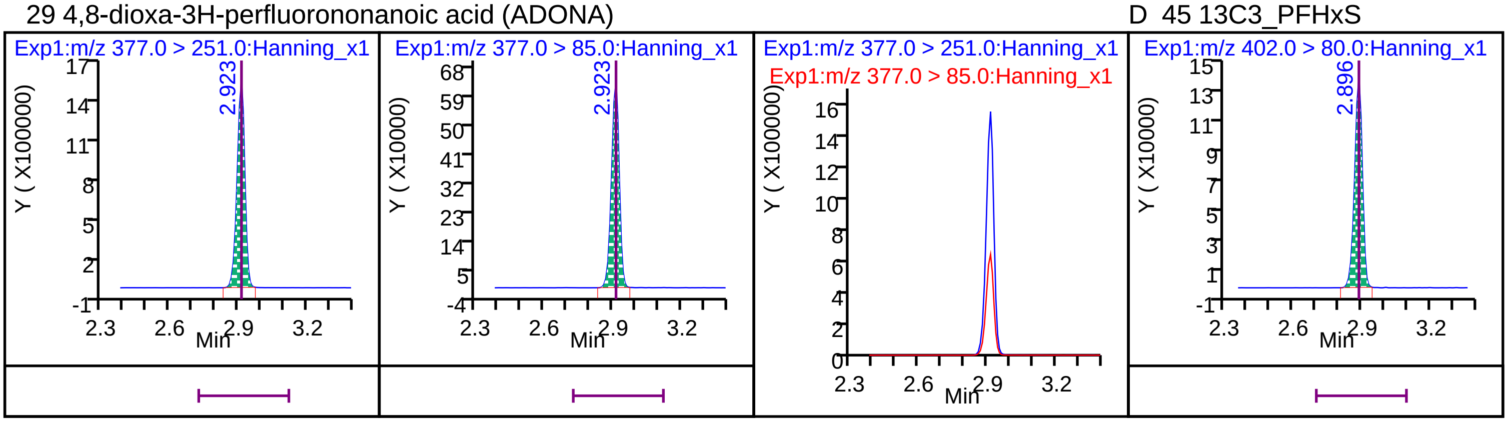
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



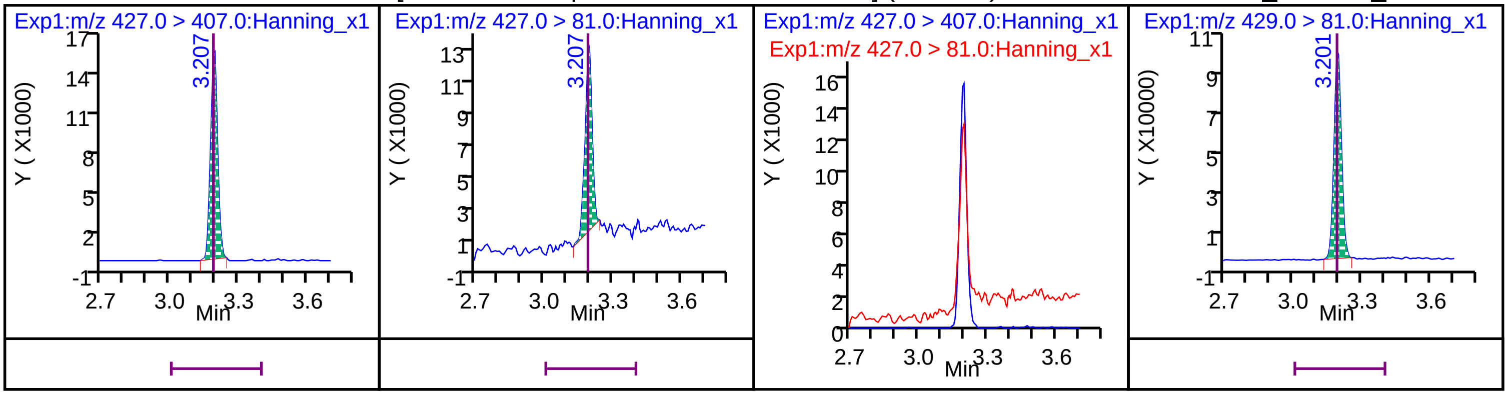
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



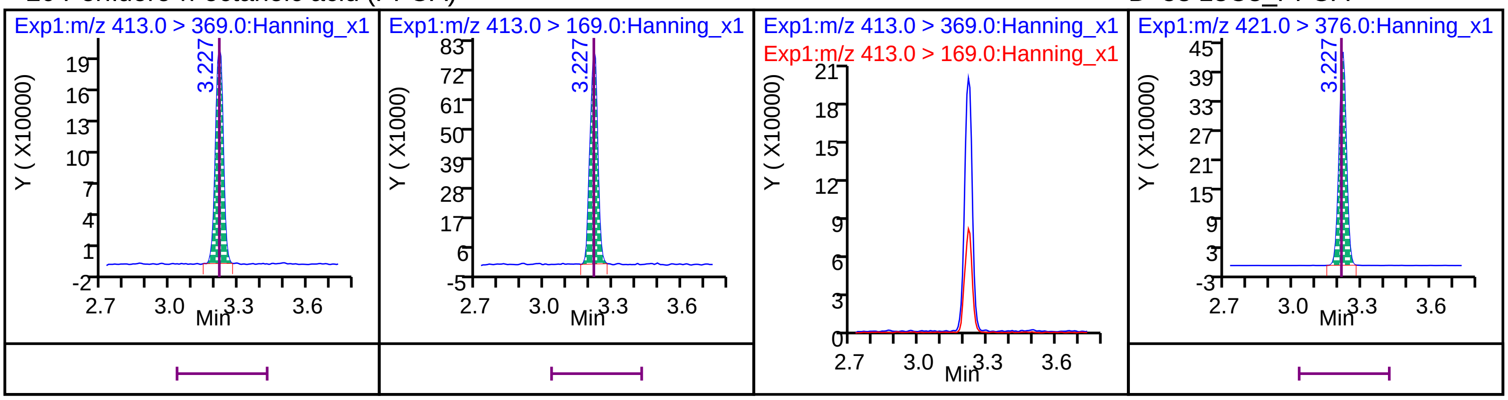
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



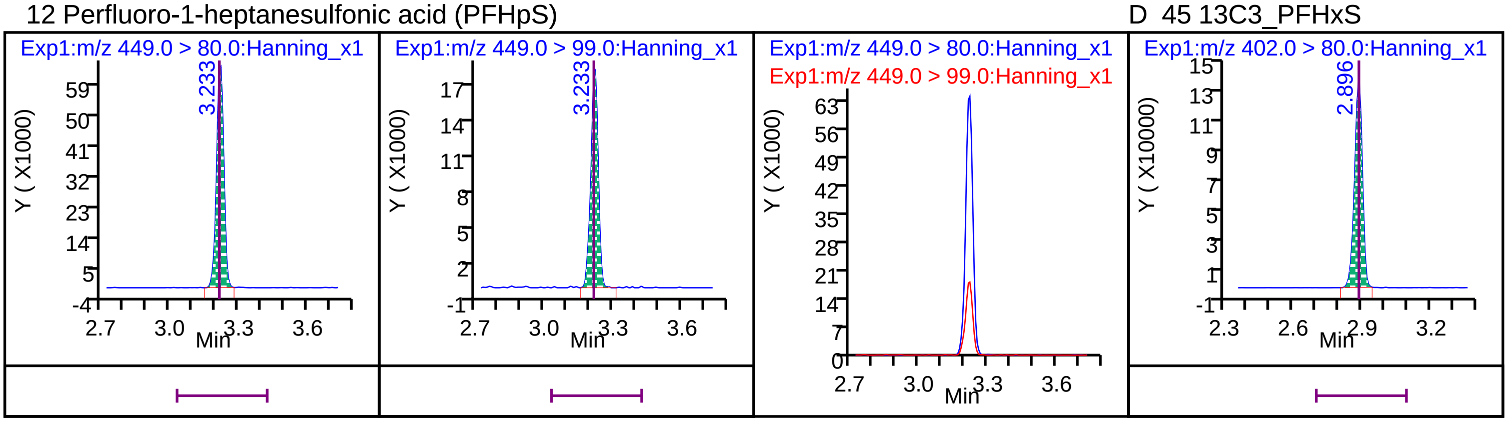
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



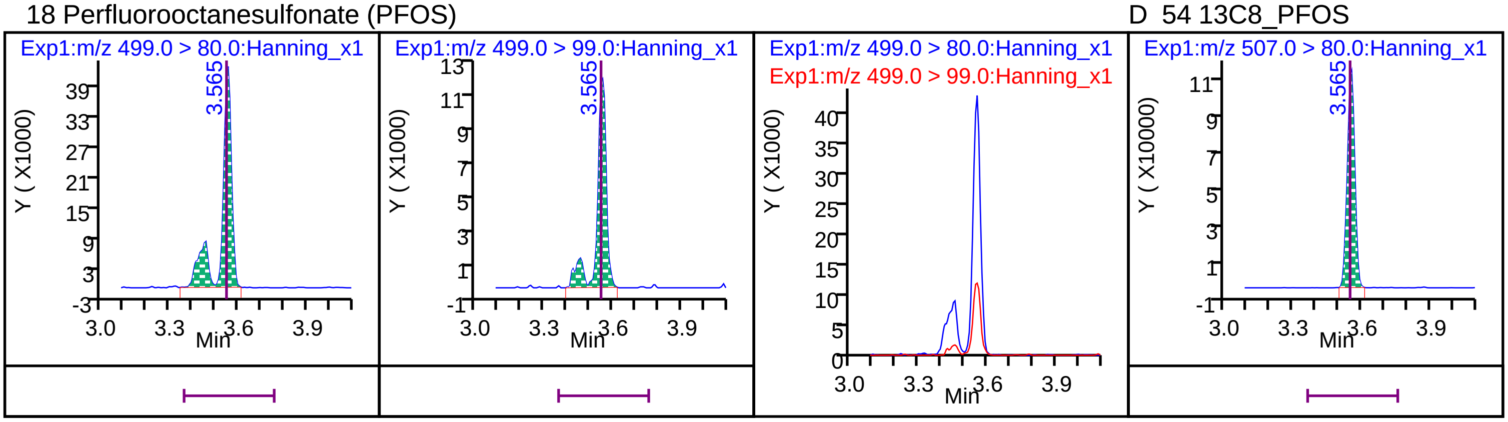
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



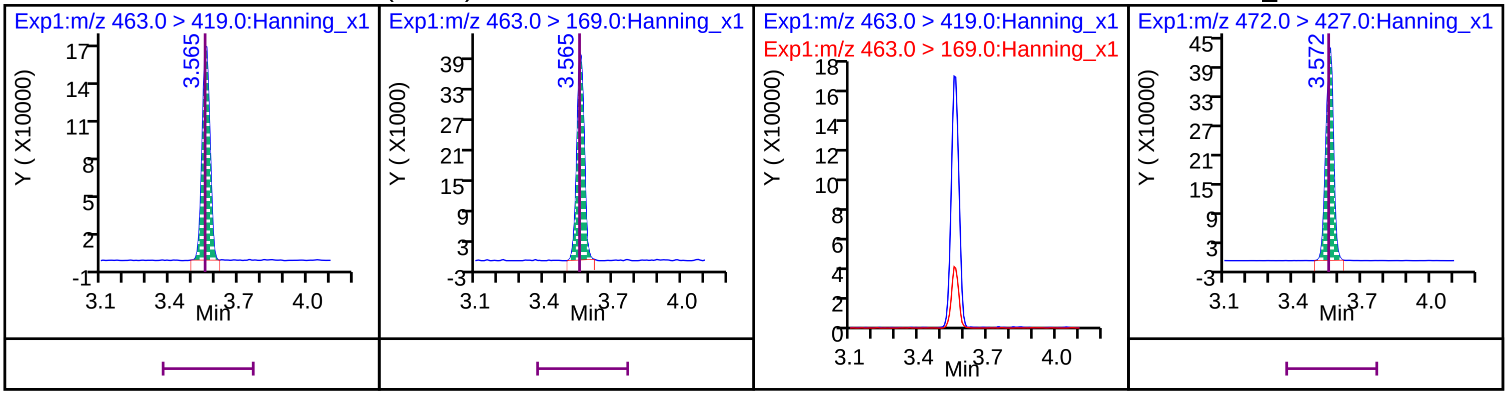
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



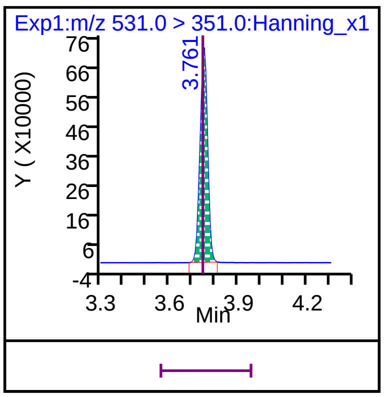
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

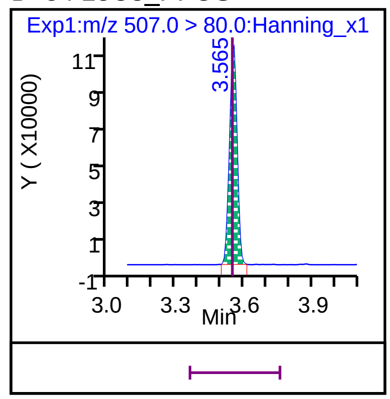


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

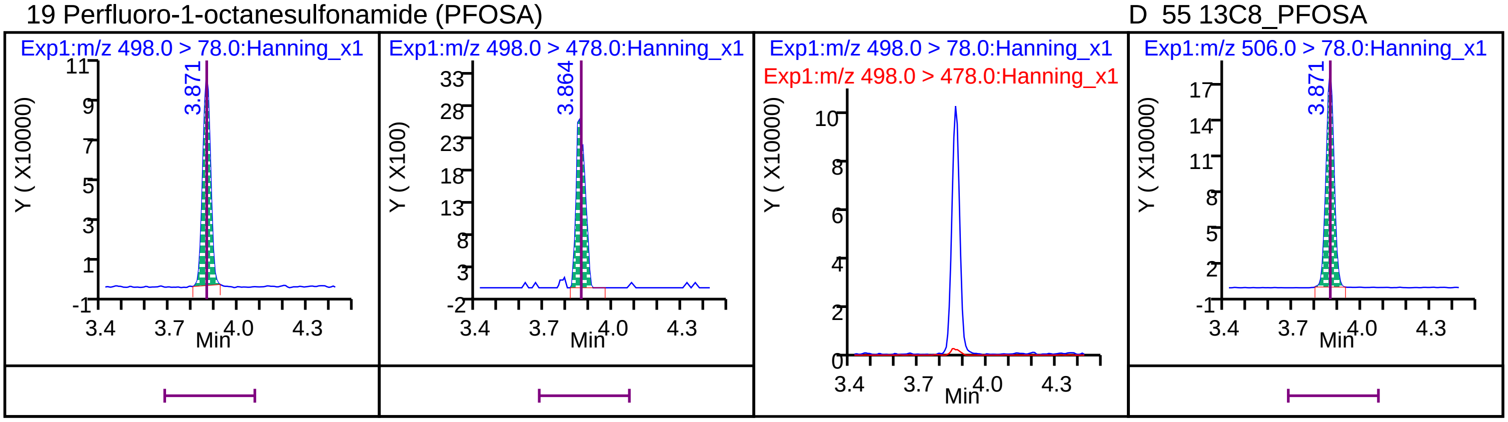


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

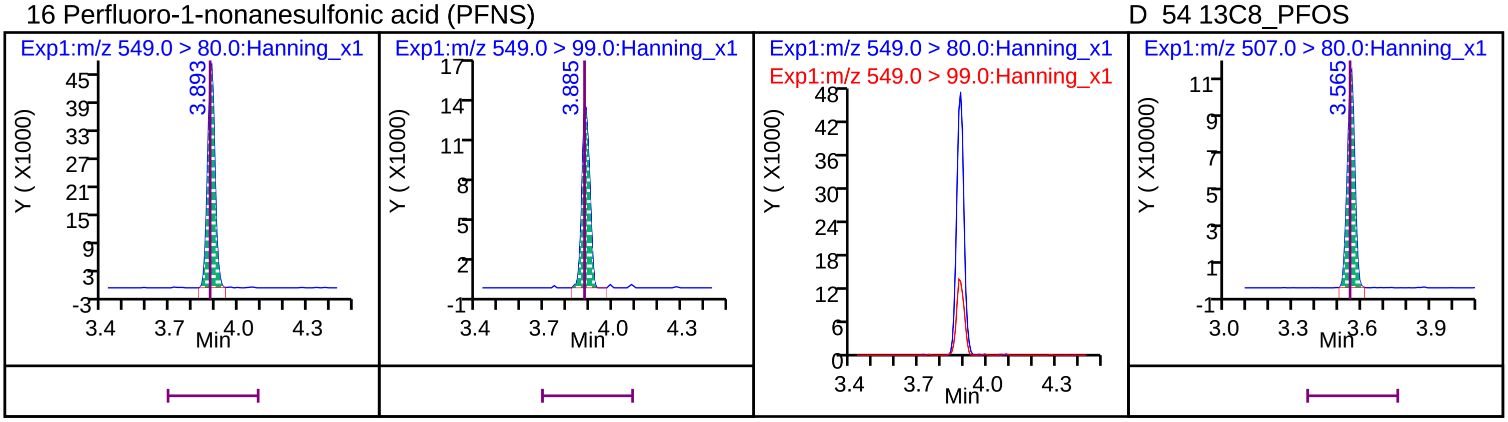




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



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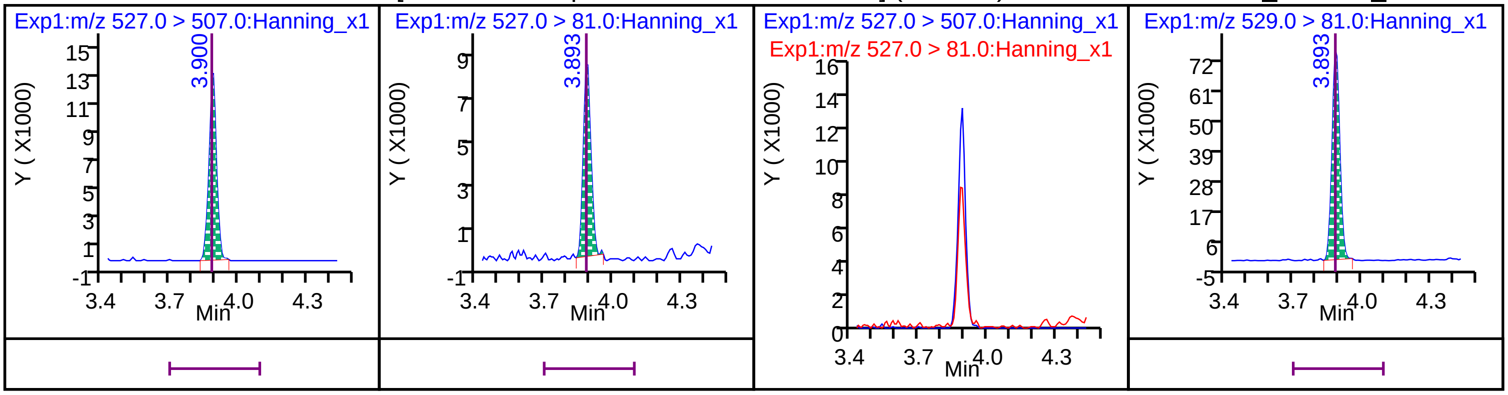
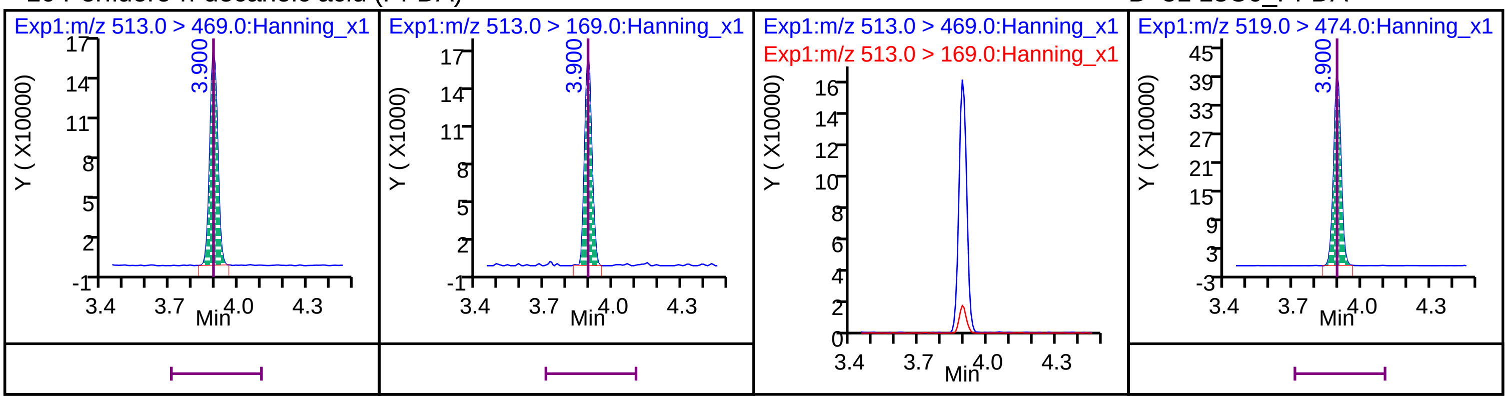
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621025.d

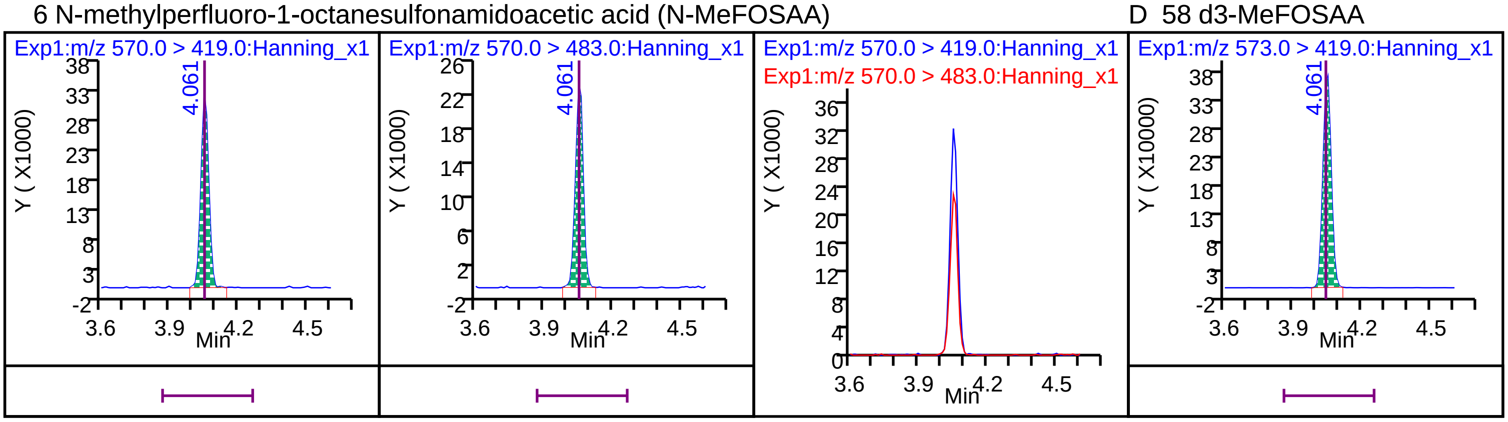
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



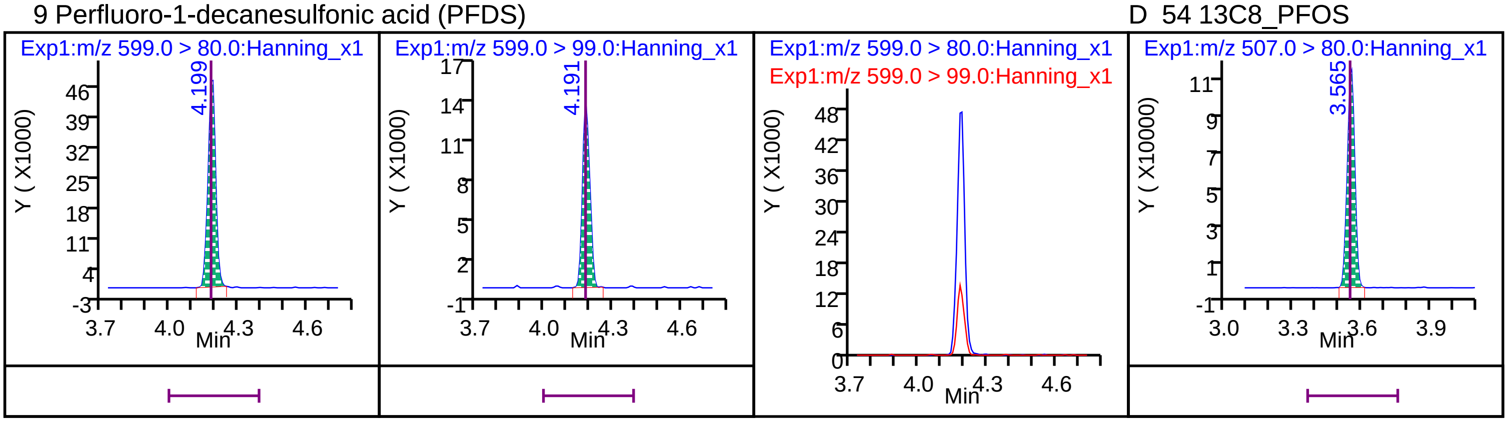
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



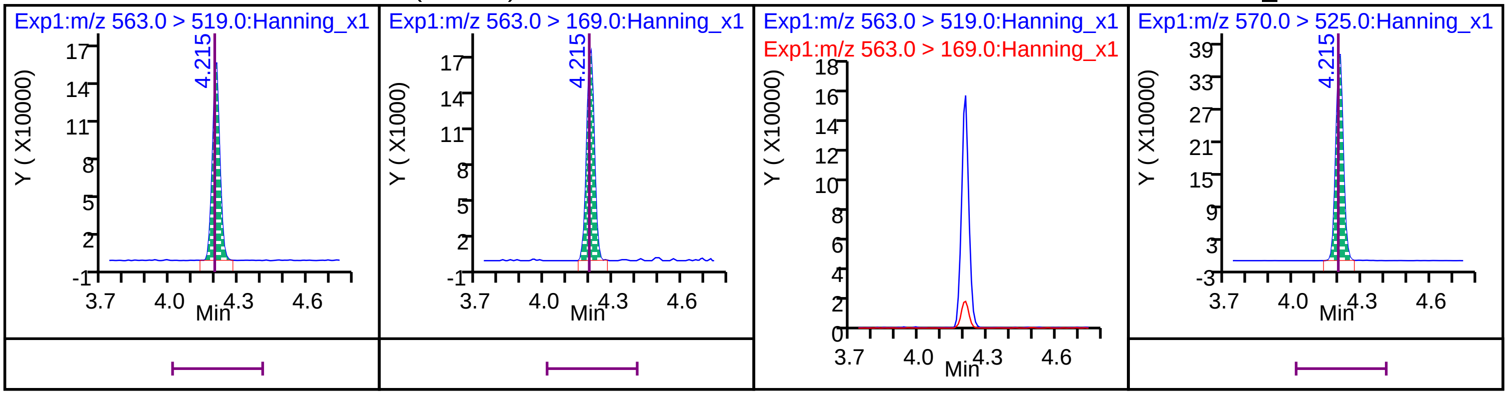
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



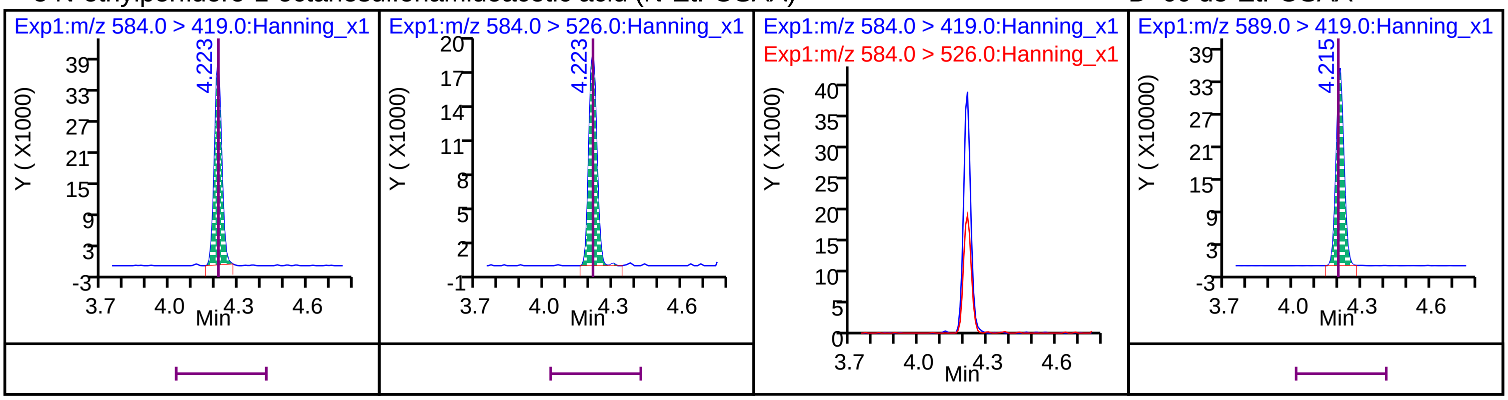
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



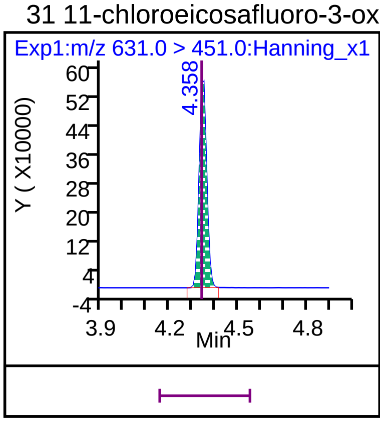
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

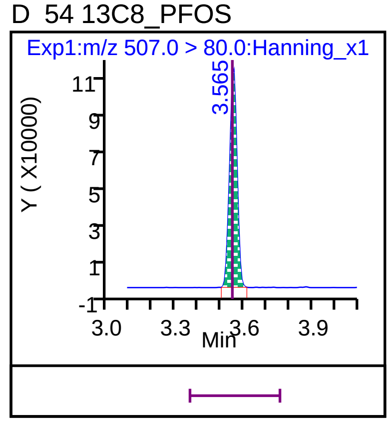


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

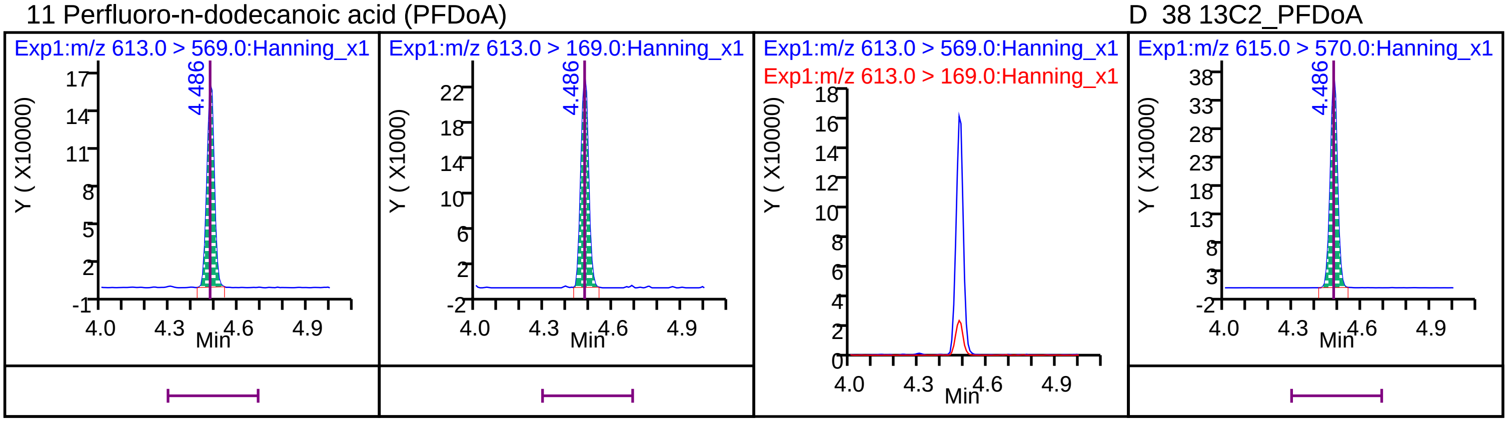


31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS

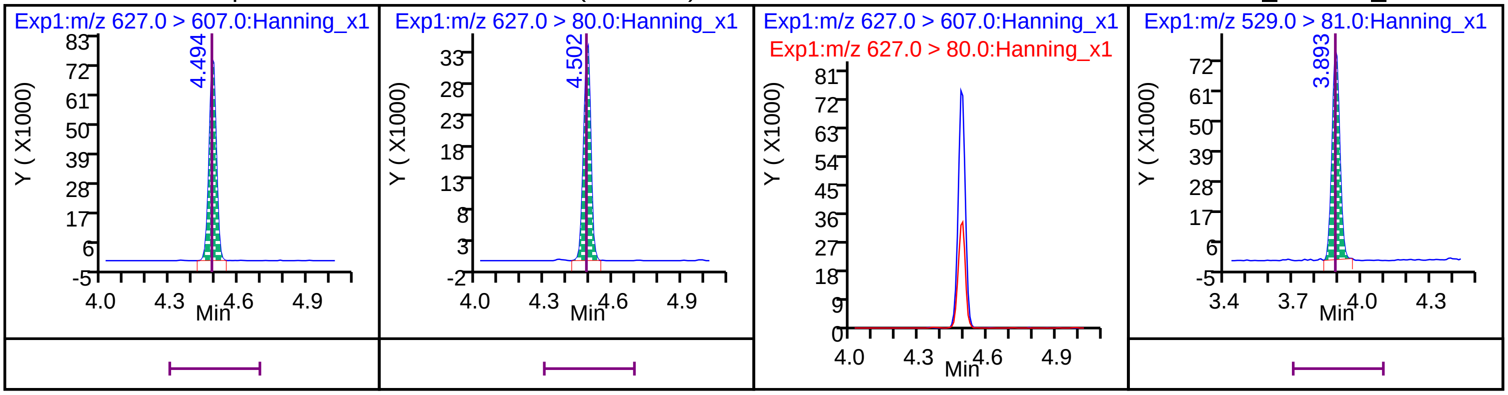




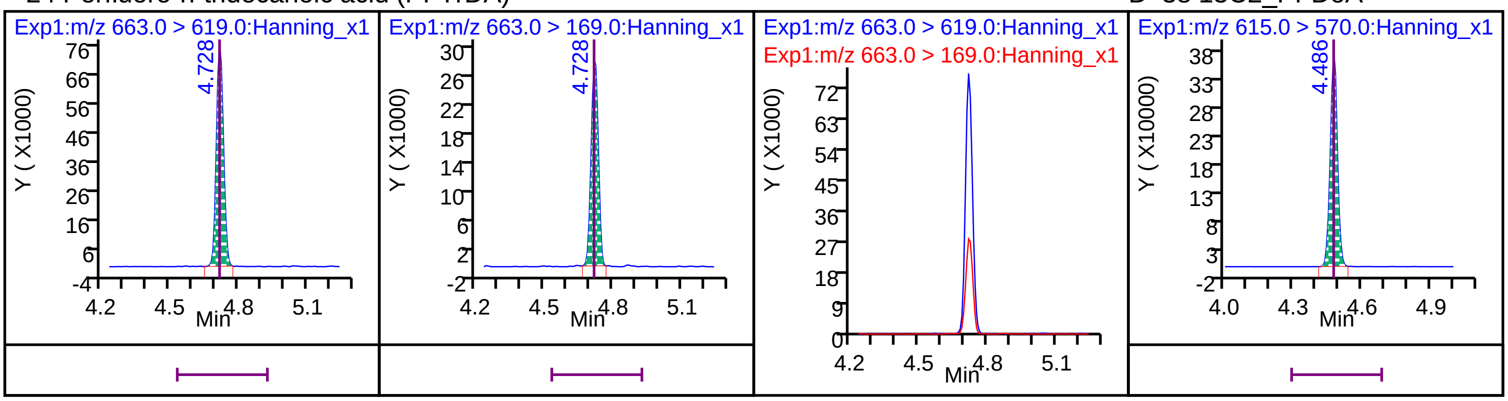
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



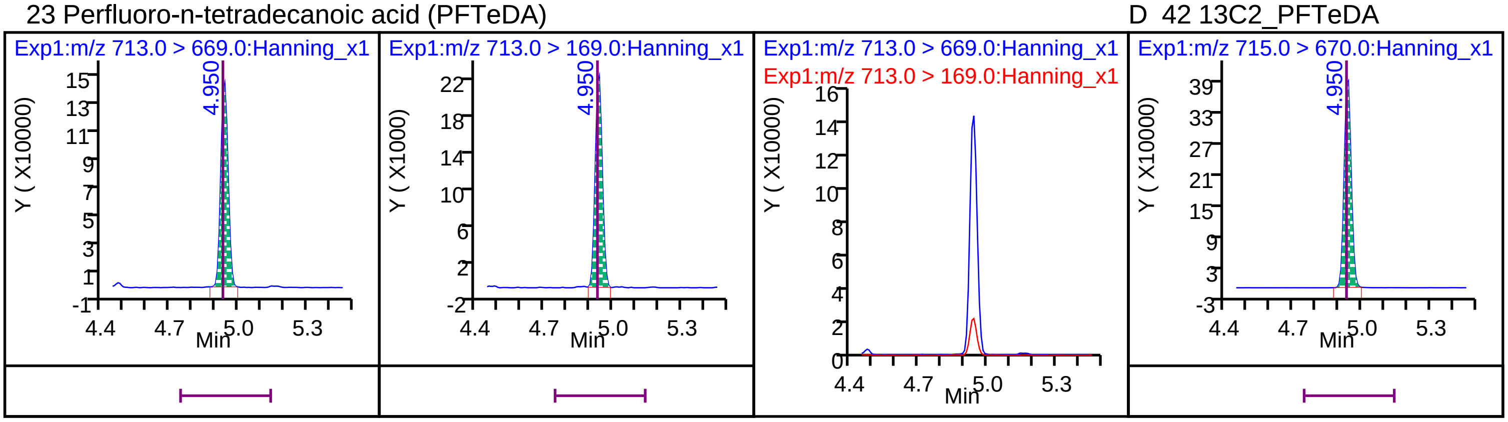
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



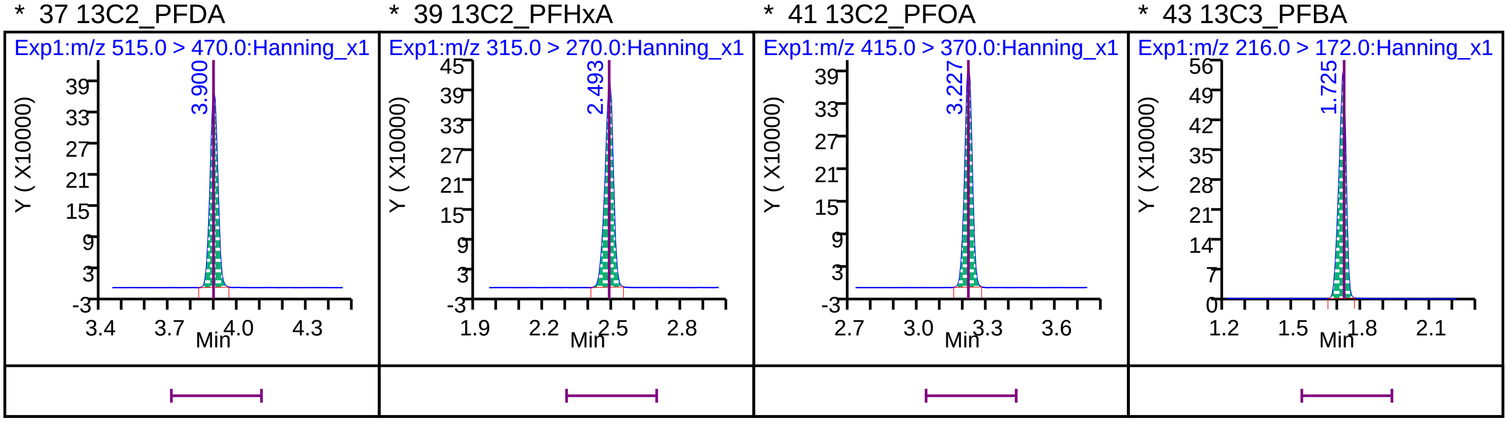
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

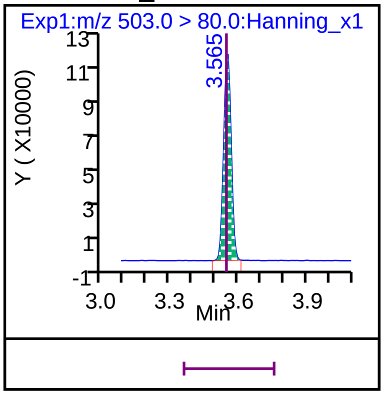


* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



Report Date: 09-Nov-2021 13:30:50 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621025.d

* 48 13C4_PFOS



Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621026.d		
Injection Date:	06-Nov-2021 16:46:32	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	12
Sample Info:	ISOMERS_SVLC-1652	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Surrogates Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1214523	20	>100:1			100000	1107.96	110.2	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1150099	17	>100:1			100000	1127.45	111.5	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.169	0	369711	14	>100:1			100000	1095.64	108.5	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	0	243936	17	>100:1			500000	5223.82	105.4	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.493	2.493	0	998838	17	>100:1			100000	1095.22	109.3	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.621	2.614	1	814202	18	>100:1			500000	5531.49	118.7	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	1014789	16	>100:1			100000	1146.83	112.2	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	315442	17	>100:1			100000	1140.50	114.4	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	0	243377	21	>100:1			500000	5905.00	112.2	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.220	3.220	0	917633	21	>100:1			100000	1089.28	108.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.226	3.226	0/0	10661371	38	>100:1	Target = 2.46	5.73	0	1161815		
413 > 169	53	3.226	3.226		4509166	32	>100:1	2.36 (1.23-3.70)	4.27				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.558	3.558	0	265418	18	>100:1			100000	1120.25	111.4	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.564	3.565	0	899383	19	>100:1			100000	1108.52	106.1	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.864	3.872	0	475477	20	>100:1			100000	1144.65	111.5	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.893	3.894	0	205975	20	>100:1			500000	5915.05	115.2	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.901	3.901	0	824373	19	>100:1			100000	1152.26	107	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.052	4.053	0	895660	16	>100:1			500000	5539.42	113.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.052	4.062	0/0	1959791	36	>100:1	Target = 1.42	6.88	0	1355622		M
570 > 483	58	4.062	4.062		1347994	34	>100:1	1.45 (0.71-2.13)	3.45				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.214	4.207	1	839612	17	>100:1			500000	5806.79	112	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.214	4.223	0/-1	2130989	36	>100:1	Target = 1.80	6.31	0	1286466		M
584 > 526	60	4.214	4.223		1195978	33	>100:1	1.78 (0.90-2.70)	4.05				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.206	4.207	0	789650	17	>100:1			100000	1124.49	109.6	
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.294	4.295	0	143099	14	>100:1			100000	1166.06	115.1	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.313	4.313	0	78197	14	>100:1			100000	1217.08	123.2	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.463	4.463	1	126878	17	>100:1			100000	1116.57	114.6	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.479	4.486	0	843940	16	>100:1			100000	1212.44	122.5	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.479	4.486	0	64379	16	>100:1			100000	1067.17	100	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.943	4.942	1	908324	16	>100:1			100000	1217.39	120.8	
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.324	5.323	1	350653	18	>100:1			100000	1007.92	102	
*** 37 13C2_PFDA**													
515 > 470		3.901	3.901	0	765352	19	>100:1			0			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.493	2.493	0	953869	18	>100:1			0			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.226	3.226	0	858582	20	>100:1			0			
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1080703	18	>100:1			0			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.558	3.558	0	246055	18	>100:1			0			

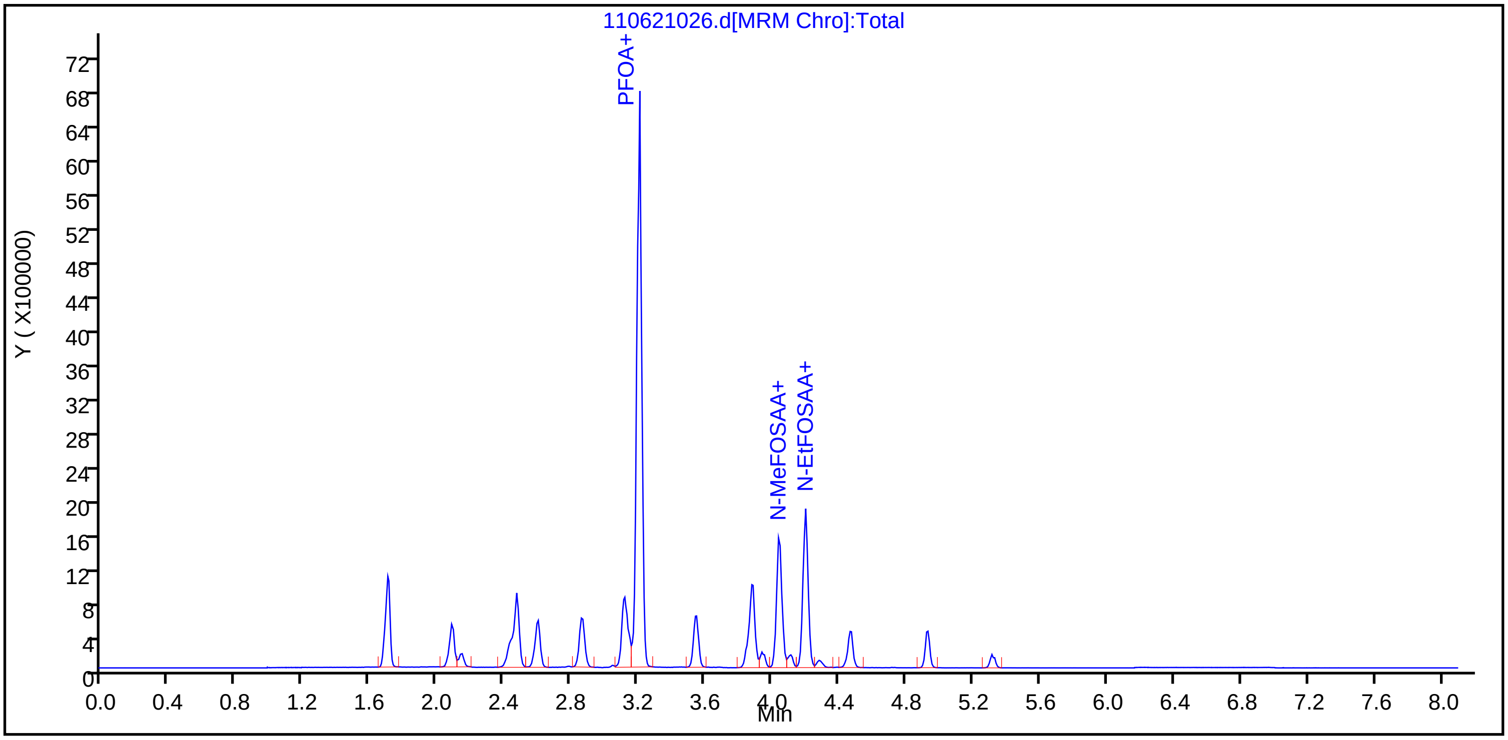
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

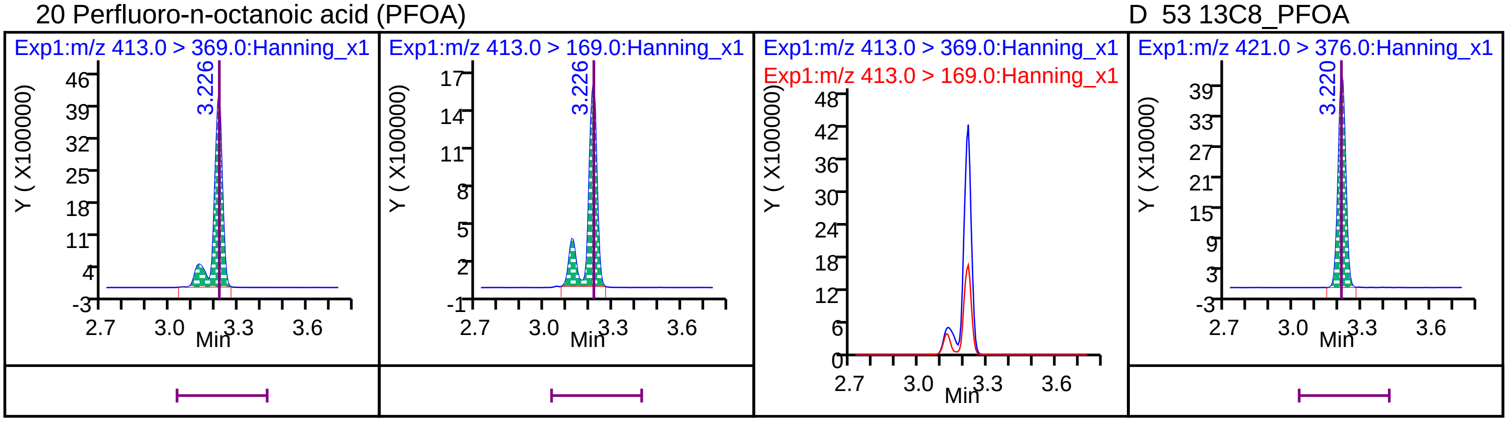
Report Date: 09-Nov-2021 13:30:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

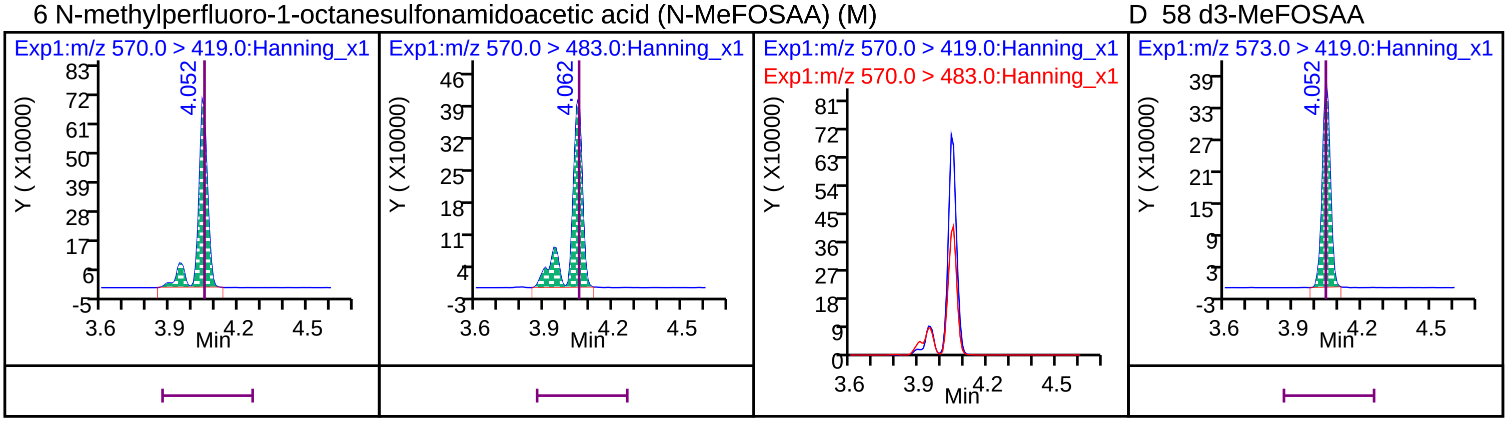
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621026.d		
Injection Date:	06-Nov-2021 16:46:32	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ISOMERS_SVLC-1652
Sample Info:	ISOMERS_SVLC-1652		
Dil. Factor:	1	Operator:	Matthew M. Miller



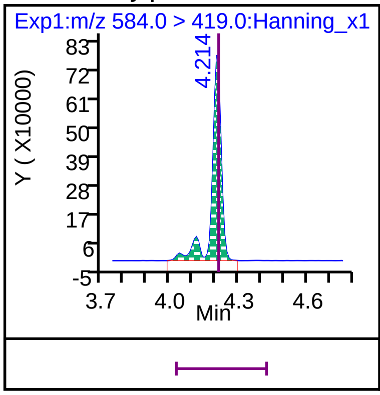
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA

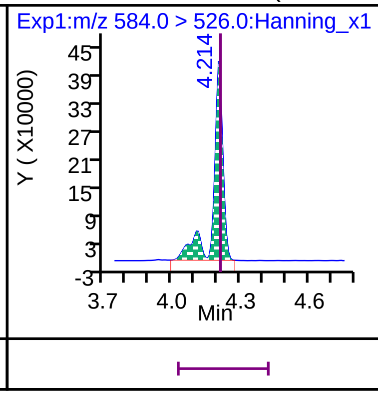


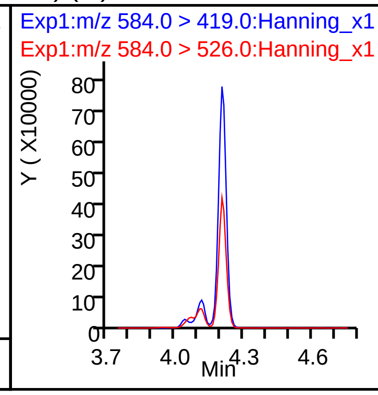
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



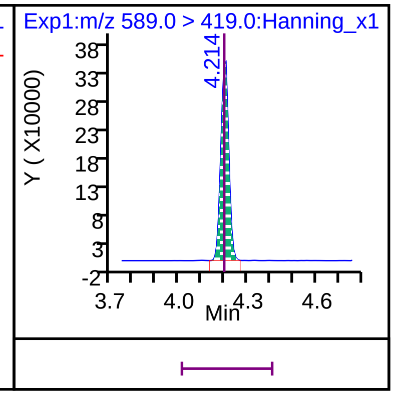
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)



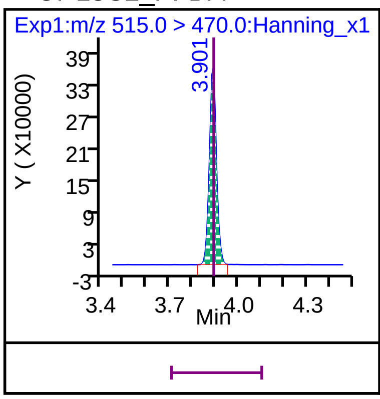




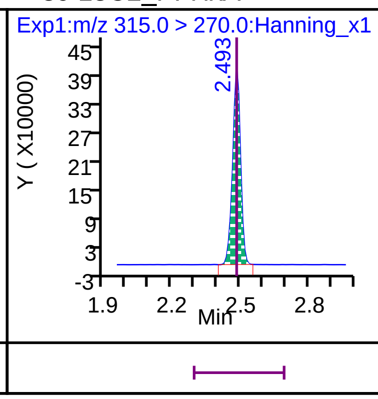
D 60 d5-EtFOSAA



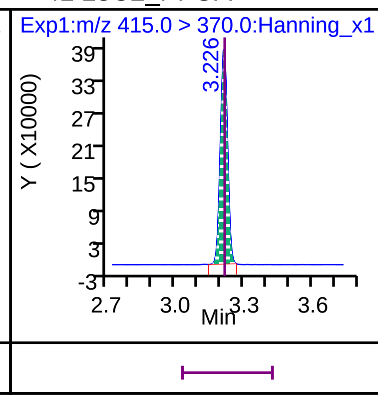
* 37 13C2_PFDA



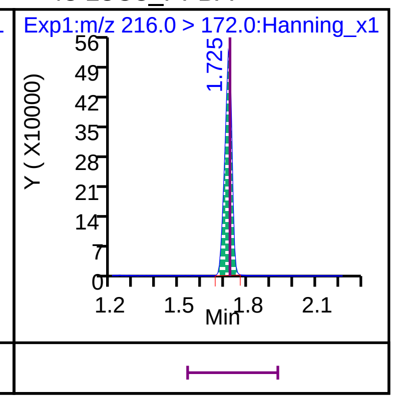
* 39 13C2_PFHxA



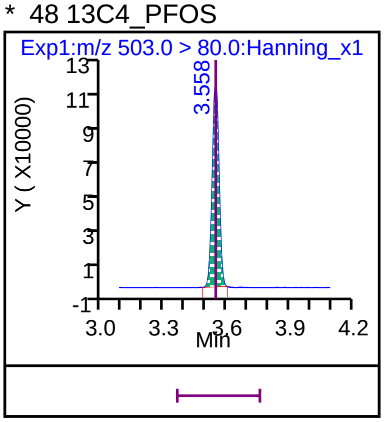
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621026.d

Injection Date: 06-Nov-2021 16:46:32 Inst. ID: LCMSMS01.i

Client ID: Lab ID: ISOMERS_SVLC-1652

Sample Info: ISOMERS_SVLC-1652

Dil. Factor: 1 Operator: Matthew M. Miller

5 N-EtFOSAA, CAS: 2991-50-6

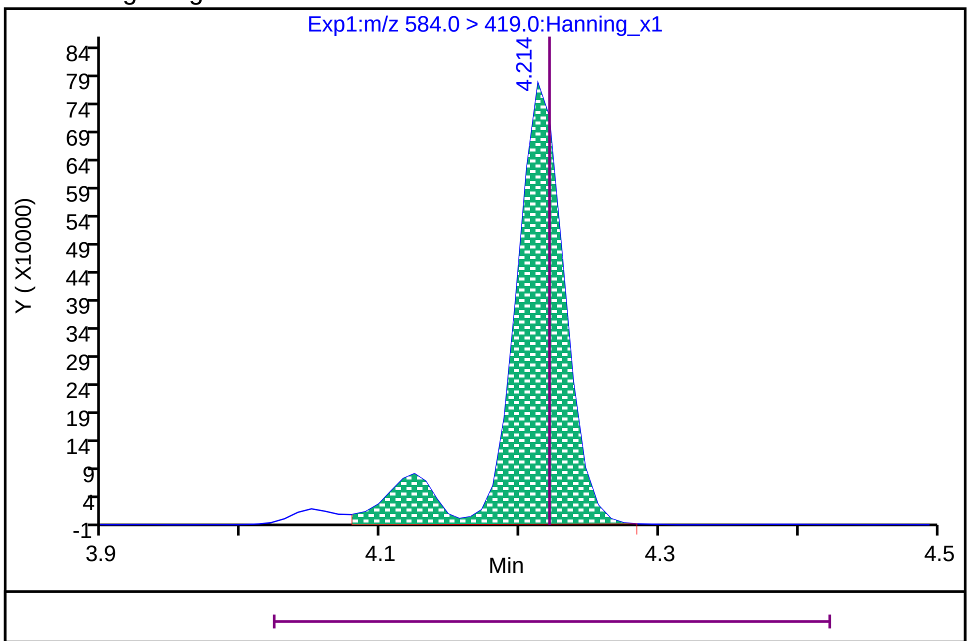
Processing Integration Results

RT: 4.214

Area: 2051926

Amount: 12387

Amount Units: ng/L

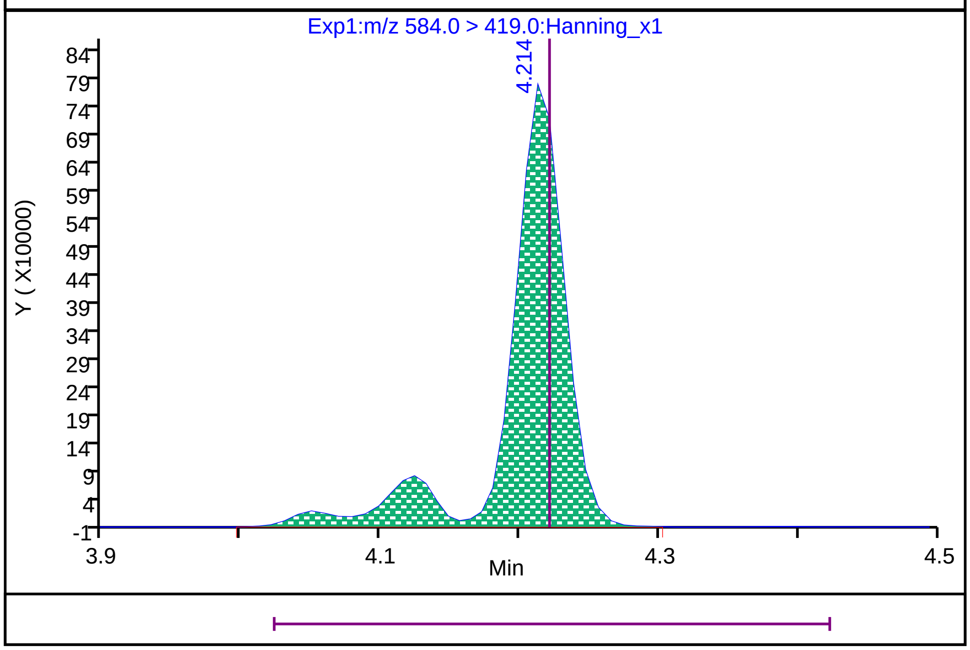


RT: 4.214

Area: 2130989

Amount: 1286466

Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:59:16

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:30:51 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

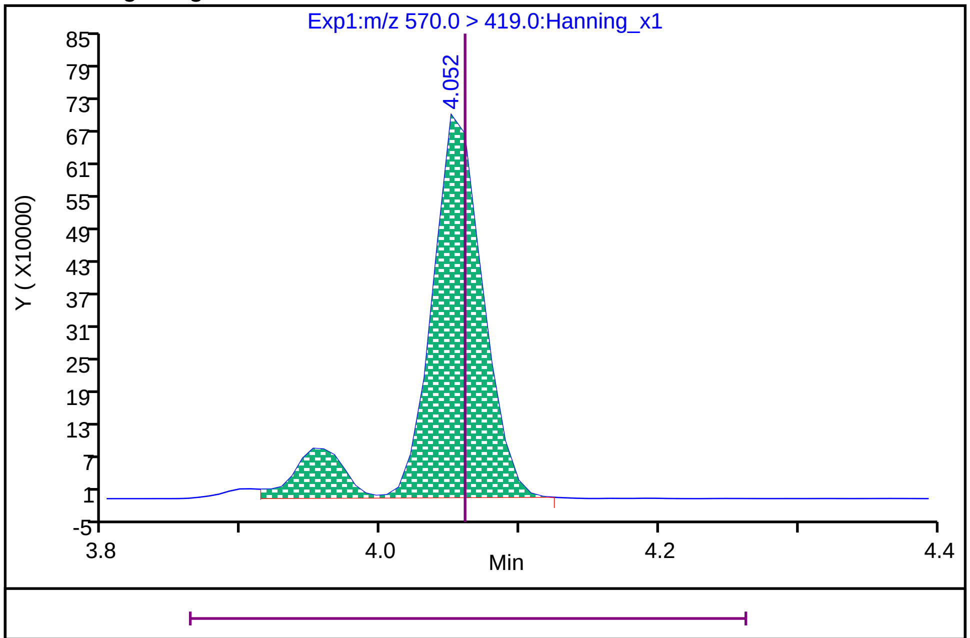
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621026.d		
Injection Date:	06-Nov-2021 16:46:32	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ISOMERS_SVLC-1652
Sample Info:	ISOMERS_SVLC-1652		
Dil. Factor:	1	Operator:	Matthew M. Miller

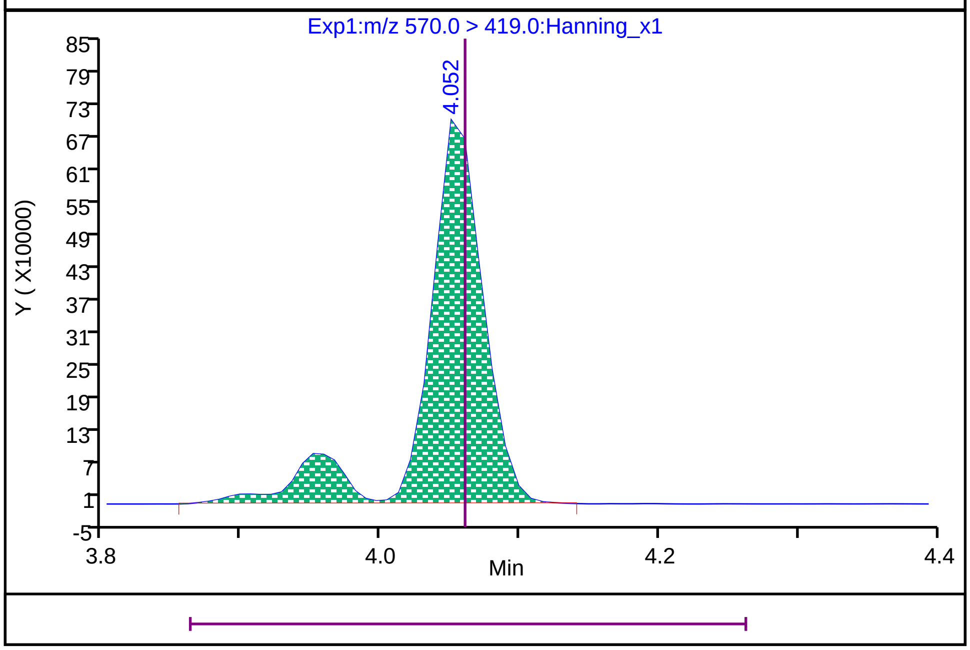
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.052
Area:	1942214
Amount:	13435
Amount Units:	ng/L



RT:	4.052
Area:	1959791
Amount:	1355622
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 16:59:11

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 12:29:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Signal Ratios Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Ratio Level 1	Ratio Level 2	Ratio Level 3	Ratio Level 4	Ratio Level 5	Ratio Level 6	Ratio Level 7	Ratio Level 8	Ratio Level 9	Ratio Level 10	Average Ratio	Avg. +/-3 SD Ratio Limits	StdD Limit	50% Limit
7 PFBS	3.634	3.197	3.738	3.673	3.397	3.639	3.447	3.523	3.554	3.568	3.537	3.080-3.993	0.15212	1.768
1 4:2 FTS	1.893	1.412	1.266	1.684	1.636	1.878	1.837	2.042	1.940	1.920	1.750	0.995-2.506	0.25181	0.875
15 PFHxA	15.856	22.669	18.862	17.962	18.726	19.217	19.405	19.267	18.592	18.615	18.917	14.119-23.714	1.59907	9.458
22 PFPeS	3.578	3.757	2.495	3.096	3.130	2.987	3.000	3.001	3.002	3.023	3.106	2.089-4.124	0.33920	1.553
28 GenX	0.824	0.765	0.831	0.788	0.776	0.800	0.764	0.789	0.783	0.801	0.792	0.722-0.861	0.02315	0.396
13 PFHpA	4.108	3.712	3.770	3.703	3.651	3.876	3.934	3.962	3.653	3.676	3.804	3.343-4.265	0.15353	1.902
14 PFHxS	1.874	2.322	3.190	3.259	2.988	2.846	3.107	3.105	3.108	3.176	2.897	1.416-4.378	0.49357	1.448
29 ADONA	3.655	3.261	2.962	3.089	3.373	3.349	3.221	3.256	3.098	3.121	3.238	2.684-3.792	0.18471	1.619
2 6:2 FTS	0.000	1.614	1.642	1.778	1.698	1.804	1.804	1.802	1.783	1.850	1.752	1.341-2.164	0.13709	0.876
20 PFOA	2.873	2.489	3.050	3.082	2.950	2.853	2.888	2.971	2.922	2.884	2.896	2.426-3.365	0.15650	1.448
12 PFHpS	4.029	2.614	3.357	2.784	3.057	3.223	3.126	3.028	2.961	3.080	3.125	1.981-4.269	0.38136	1.562
18 PFOS	3.445	3.037	3.173	3.219	3.251	3.227	3.451	3.436	3.401	3.420	3.306	2.711-3.900	0.19818	1.653
17 PFNA	5.539	6.259	6.790	6.458	6.946	6.819	6.644	6.584	6.577	6.507	6.512	5.371-7.653	0.38033	3.256
19 PFOSA	18.235	149.762	27.748	32.307	26.924	32.142	31.344	32.880	33.286	31.697	41.632	71.284-154.54	37.6388	20.816
16 PFNS	5.558	2.825	3.406	2.743	3.152	2.411	2.846	2.751	2.511	2.649	3.085	0.363-5.807	0.90728	1.542
3 8:2 FTS	Disabled	1.522	2.213	1.803	2.194	2.011	1.997	1.878	1.900	1.952	1.941	1.280-2.601	0.22011	0.970
10 PFDA	14.280	16.419	10.754	13.070	14.384	13.700	14.292	14.213	12.828	14.103	13.804	9.593-18.014	1.40352	6.902
6 N-MeFOSAA	1.186	1.787	1.319	1.227	1.475	1.316	1.353	1.379	1.344	1.343	1.372	0.886-1.859	0.16227	0.686
9 PFDS	2.547	3.124	3.158	2.639	2.448	2.551	2.689	2.671	2.657	2.735	2.721	2.020-3.423	0.23372	1.360
26 MeFOSA	1.063	1.009	1.066	1.428	1.202	0.990	1.136	1.066	1.094	1.085	1.113	0.718-1.509	0.13175	0.556
25 PFUdA	11.976	14.485	13.569	15.701	14.269	15.663	15.085	15.205	15.058	14.239	14.525	11.279-17.770	1.08167	7.262
5 N-EtFOSAA	1.955	1.081	1.363	1.509	1.626	1.545	1.417	1.488	1.570	1.550	1.510	0.874-2.146	0.21210	0.755
27 EtFOSA	1.094	1.499	1.138	0.851	0.954	1.056	1.014	0.960	1.026	1.034	1.062	0.534-1.590	0.17611	0.531
11 PFDoA	8.889	9.847	12.326	11.248	11.074	10.936	11.003	10.790	10.792	10.157	10.706	8.032-13.380	0.89128	5.353
4 10:2 FTS	6.655	2.764	3.147	2.371	3.143	3.722	3.362	3.478	3.544	3.227	3.541	0.183-6.898	1.11912	1.770
34 PFDOS	4.347	3.215	3.153	3.264	3.341	3.202	2.998	3.020	3.067	3.094	3.270	2.052-4.487	0.40573	1.635
24 PFTrDA	7.726	7.768	8.470	8.201	8.334	8.577	8.885	8.628	8.384	8.197	8.317	7.256-9.377	0.35356	4.158
23 PFTeDA	11.631	12.616	12.732	11.936	12.074	11.949	12.369	12.474	11.973	11.964	12.171	11.039-13.304	0.37747	6.085
35 PFHxDA	11.012	10.679	10.177	10.398	10.446	10.508	10.500	10.210	10.326	10.141	10.439	9.651-11.228	0.26290	5.219
36 PFODA	13.717	12.677	13.595	13.678	14.012	13.889	13.933	13.924	13.769	13.597	13.679	12.518-14.839	0.38693	6.839

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RF Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Curve Legend: Ex. Avg:H Wt:C2 Org:F Dep:R

Curve Type: Avg, Ln, Qd Response Type: H-Height, A-Area

Wt: Curve Weighting, C-1/Conc, C2-1/Conc^2, R-1/Rsp, R2-1/Rsp^2, N-None

Org: Origin, F-Force, I-Include, N-Neither

Dep: Dependent Variable, C-Concentration, R-Response

%Rec = (Measured Amount / True Amount) * 100

Column: 1 Detector: LCMS-Q3

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 46 13C4_PFBA	639	639	635	624	636	632	608	613	590	601	Avg:A Wt:C2	622		RSD=2.8	
	102.8	102.8	102.2	100.4	102.3	101.7	97.7	98.6	94.8	96.7	Org:N Dep:R				
8 PFBA	1.093604	1.044216	1.054876	1.085637	1.058922	1.056054	1.064531	1.042459	1.025815	1.020220	Avg:A Wt:C2	1.054633		RSD=2.2	
	103.7	99	100	102.9	100.4	100.1	100.9	98.8	97.3	96.7	Org:N Dep:R				
D 50 13C5_PFPeA	575	580	577	592	580	591	542	575	542	563	Avg:A Wt:C2	572		RSD=3.1	
	100.6	101.4	100.9	103.6	101.5	103.4	94.8	100.5	94.9	98.4	Org:N Dep:R				
21 PFPeA	1.220626	1.173679	1.170037	1.103992	1.080300	1.089167	1.142643	1.073904	1.108750	1.091886	Avg:A Wt:C2	1.125498		RSD=4.3	
	108.5	104.3	104	98.1	96	96.8	101.5	95.4	98.5	97	Org:N Dep:R				
D 44 13C3_PFBS	176	172	176	176	178	169	170	170	170	173	Avg:A Wt:C2	173		RSD=1.9	
	101.6	99.6	101.5	101.8	103.2	97.5	98.4	98.3	98.4	99.7	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
7 PFBS	1.228740	1.376090	1.248048	1.278962	1.178356	1.291760	1.223638	1.217217	1.186756	1.240756	Avg:A Wt:C2	1.247032		RSD=4.6	
	98.5	110.3	100.1	102.6	94.5	103.6	98.1	97.6	95.2	99.5	Org:N Dep:R				
1 4:2 FTS	2.204134	2.099897	2.048929	2.242499	2.191925	2.141071	2.403999	2.020901	2.482072	2.208397	Avg:A Wt:C2	2.204382		RSD=6.6	
	100	95.3	92.9	101.7	99.4	97.1	109.1	91.7	112.6	100.2	Org:N Dep:R				
D 63 13C2_4:2 FTS_2	23.9476	23.4130	23.6244	21.9442	22.4598	23.3938	19.7876	25.5426	20.0558	22.2684	Avg:A Wt:C2	22.6437		RSD=7.8	
	105.8	103.4	104.3	96.9	99.2	103.3	87.4	112.8	88.6	98.3	Org:N Dep:R				
D 49 13C5_PFHxA	664	671	647	676	665	635	646	645	634	630	Avg:A Wt:C2	651		RSD=2.5	
	102	103	99.4	103.7	102.1	97.5	99.1	99.1	97.3	96.8	Org:N Dep:R				
15 PFHxA	1.152929	0.997028	1.062543	1.040881	1.028211	1.046735	1.022696	1.006346	1.003983	1.036231	Avg:A Wt:C2	1.039758		RSD=4.3	
	110.9	95.9	102.2	100.1	98.9	100.7	98.4	96.8	96.6	99.7	Org:N Dep:R				
22 PFPeS	1.065959	0.960891	0.850038	0.939012	0.871228	0.928577	0.904603	0.911903	0.905064	0.930429	Avg:A Wt:C2	0.926770		RSD=6.3	
	115	103.7	91.7	101.3	94	100.2	97.6	98.4	97.7	100.4	Org:N Dep:R				
28 GenX	0.693832	0.612990	0.641206	0.659909	0.627348	0.649947	0.634083	0.653577	0.642220	0.661199	Avg:A Wt:C2	0.647631		RSD=3.4	
	107.1	94.7	99	101.9	96.9	100.4	97.9	100.9	99.2	102.1	Org:N Dep:R				
D 66 13C3_GenX	235	240	240	233	241	238	227	227	219	218	Avg:A Wt:C2	232		RSD=3.7	
	101.6	103.4	103.6	100.5	104	102.8	97.8	97.9	94.6	93.9	Org:N Dep:R				
13 PFHpA	1.279100	1.093710	1.103691	1.103542	1.084325	1.036241	1.121621	1.112854	0.989808	1.063427	Avg:A Wt:C2	1.098832		RSD=6.8	
	116.4	99.5	100.4	100.4	98.7	94.3	102.1	101.3	90.1	96.8	Org:N Dep:R				
D 47 13C4_PFHpA	533	549	547	538	533	554	513	512	523	508	Avg:A Wt:C2	531		RSD=3.1	
	100.4	103.4	103.1	101.3	100.4	104.4	96.6	96.4	98.4	95.7	Org:N Dep:R				
14 PFHxS	0.990168	1.066144	1.184213	1.118151	1.084169	1.050532	1.155686	1.089155	1.122447	1.133206	Avg:A Wt:C2	1.099387		RSD=5.1	
	90.1	97	107.7	101.7	98.6	95.6	105.1	99.1	102.1	103.1	Org:N Dep:R				
D 45 13C3_PFHxS	128	126	130	133	130	128	122	123	117	118	Avg:A Wt:C2	126		RSD=4.2	
	101.8	100.2	103.6	106.2	103.2	102.2	97.2	98.1	93.5	93.8	Org:N Dep:R				
29 ADONA	8.316831	8.040642	7.300605	7.321912	7.828526	7.769082	7.983214	7.657087	7.605731	7.728870	Avg:A Wt:C2	7.755250		RSD=4.0	
	107.2	103.7	94.1	94.4	100.9	100.2	102.9	98.7	98.1	99.7	Org:N Dep:R				
2 6:2 FTS	2.396080	2.951233	2.340941	2.292609	2.181824	2.311379	2.316137	2.469699	2.295395	2.117074	Avg:A Wt:C2	2.367237		RSD=9.6	
	101.2	124.7	98.9	96.8	92.2	97.6	97.8	104.3	97	89.4	Org:N Dep:R				
D 64 13C2_6:2 FTS_2	18.2788	18.6470	18.1596	18.8912	18.7892	18.5258	17.0896	16.5418	16.8202	18.2564	Avg:A Wt:C2	18.0000		RSD=4.8	
	101.5	103.6	100.9	105	104.4	102.9	94.9	91.9	93.4	101.4	Org:N Dep:R				
D 53 13C8_PFOA	566	554	528	524	548	534	496	502	493	501	Avg:A Wt:C2	525		RSD=5.0	
	107.9	105.6	100.6	99.9	104.4	101.8	94.6	95.7	94	95.6	Org:N Dep:R				
20 PFOA	1.153060	0.938381	1.041106	1.074437	1.017702	1.008160	1.042997	1.007636	0.985356	0.978720	Avg:A Wt:C2	1.024756		RSD=5.8	
	112.5	91.6	101.6	104.8	99.3	98.4	101.8	98.3	96.2	95.5	Org:N Dep:R				
12 PFHpS	1.185281	1.095679	1.044224	0.912560	0.996569	1.044817	1.002795	0.992578	0.983259	1.012883	Avg:A Wt:C2	1.027065		RSD=7.1	
	115.4	106.7	101.7	88.9	97	101.7	97.6	96.6	95.7	98.6	Org:N Dep:R				
D 54 13C8_PFOS	121	121	122	130	132	132	120	120	122	117	Avg:A Wt:C2	124		RSD=4.4	
	97.7	97.9	98.8	104.8	106.5	106.9	97.3	97	98.5	94.5	Org:N Dep:R				
18 PFOS	1.387235	1.268998	1.211515	1.146369	1.104372	1.097088	1.159871	1.181776	1.126016	1.223539	Avg:A Wt:C2	1.190678		RSD=7.4	
	116.5	106.6	101.8	96.3	92.8	92.1	97.4	99.3	94.6	102.8	Org:N Dep:R				
17 PFNA	1.050870	1.071600	1.096972	1.100487	1.083246	1.090361	1.077734	1.072861	1.066654	1.067938	Avg:A Wt:C2	1.077872		RSD=1.4	
	97.5	99.4	101.8	102.1	100.5	101.2	100	99.5	99	99.1	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
D 56 13C9_PFNA	674	668	650	653	639	666	629	622	601	602	Avg:A Wt:C2	640		RSD=4.1	
	105.2	104.3	101.5	101.9	99.8	104.1	98.2	97.2	93.9	93.9	Org:N Dep:R				
30 9Cl-PF3ONS	3.804328	3.764996	3.910266	3.641353	3.531021	3.768664	3.804656	3.931447	3.721179	3.993131	Avg:A Wt:C2	3.787104		RSD=3.6	
	100.5	99.4	103.3	96.2	93.2	99.5	100.5	103.8	98.3	105.4	Org:N Dep:R				
19 PFOSA	1.079234	0.994144	1.026780	1.080506	1.070462	1.093312	1.009769	1.044775	1.066238	1.056609	Avg:A Wt:C2	1.052183		RSD=3.1	
	102.6	94.5	97.6	102.7	101.7	103.9	96	99.3	101.3	100.4	Org:N Dep:R				
D 55 13C8_PFOSA	262	279	271	279	267	271	276	257	255	265	Avg:A Wt:C2	268		RSD=3.2	
	97.6	104	101	104.1	99.5	101.2	102.9	95.9	95.2	98.8	Org:N Dep:R				
16 PFNS	0.966286	0.800304	0.726913	0.796849	0.762371	0.737477	0.846127	0.803489	0.752232	0.830833	Avg:A Wt:C2	0.802288		RSD=8.7	
	120.4	99.8	90.6	99.3	95	91.9	105.5	100.1	93.8	103.6	Org:N Dep:R				
3 8:2 FTS	Disabled	1.847311	2.645265	2.308095	2.775809	2.072917	2.297090	1.977371	2.296578	2.116028	Avg:A Wt:C2	2.259607		RSD=13.3	
	Disabled	81.8	117.1	102.1	122.8	91.7	101.7	87.5	101.6	93.6	Org:N Dep:R				
D 65 13C2_8:2 FTS_2	18.6108	17.9576	18.2940	16.8862	15.7670	18.9888	16.4626	17.3706	15.2564	17.2510	Avg:A Wt:C2	17.2845		RSD=7.1	
	107.7	103.9	105.8	97.7	91.2	109.9	95.2	100.5	88.3	99.8	Org:N Dep:R				
D 51 13C6_PFDA	610	567	576	591	576	617	563	570	545	532	Avg:A Wt:C2	575		RSD=4.6	
	106.1	98.6	100.3	102.9	100.2	107.3	98	99.2	94.8	92.5	Org:N Dep:R				
10 PFDA	1.068077	1.203242	1.144485	1.200156	1.221802	1.151593	1.220548	1.159487	1.105462	1.162616	Avg:A Wt:C2	1.163747		RSD=4.3	
	91.8	103.4	98.3	103.1	105	99	104.9	99.6	95	99.9	Org:N Dep:R				
D 58 d3-MeFOSAA	154	151	150	149	155	157	152	147	143	153	Avg:A Wt:C2	151		RSD=2.7	
	102.1	100.2	99.4	98.6	102.3	104.1	100.6	97.1	94.7	101	Org:N Dep:R				
6 N-MeFOSAA	0.821729	0.805199	0.886579	0.770566	0.839126	0.770432	0.762918	0.804530	0.781896	0.781274	Avg:A Wt:C2	0.802425		RSD=4.8	
	102.4	100.3	110.5	96	104.6	96	95.1	100.3	97.4	97.4	Org:N Dep:R				
D 61 d7-MeFOSE	89.3790	97.5870	89.9580	94.5070	90.0700	85.7370	86.5710	86.1910	88.6230	93.2650	Avg:A Wt:C2	90.1888		RSD=4.3	
	99.1	108.2	99.7	104.8	99.9	95.1	96	95.6	98.3	103.4	Org:N Dep:R				
32 MeFOSE	1.397644	0.929325	0.988072	0.977113	1.097280	1.212843	1.114868	1.137026	1.073985	1.000270	Avg:A Wt:C2	1.092842		RSD=12.6	
	127.9	85	90.4	89.4	100.4	111	102	104	98.3	91.5	Org:N Dep:R				
9 PFDS	0.906913	0.773802	0.851604	0.750876	0.748851	0.733544	0.791521	0.756089	0.735397	0.776763	Avg:A Wt:C2	0.782536		RSD=7.1	
	115.9	98.9	108.8	96	95.7	93.7	101.1	96.6	94	99.3	Org:N Dep:R				
26 MeFOSA	1.114709	0.937183	1.076227	1.235609	1.174256	1.096348	1.025609	1.121700	1.052213	1.004998	Avg:A Wt:C2	1.083885		RSD=7.9	
	102.8	86.5	99.3	114	108.3	101.1	94.6	103.5	97.1	92.7	Org:N Dep:R				
D 57 d3-MeFOSA	45.0880	51.3240	50.1660	51.1100	44.9970	47.1830	47.3110	42.3910	44.3290	46.5130	Avg:A Wt:C2	47.0412		RSD=6.4	
	95.8	109.1	106.6	108.6	95.7	100.3	100.6	90.1	94.2	98.9	Org:N Dep:R				
D 60 d5-EtFOSAA	138	140	132	142	138	128	131	122	117	107	Avg:A Wt:C2	130		RSD=8.6	
	106.5	108.1	101.9	109.3	106.5	99.2	101.1	94.1	90.3	82.9	Org:N Dep:R				
25 PFUdA	0.968905	1.004448	1.014149	0.904867	0.952735	0.954277	1.001736	0.967584	1.005611	0.915340	Avg:A Wt:C2	0.968965		RSD=3.9	
	100	103.7	104.7	93.4	98.3	98.5	103.4	99.9	103.8	94.5	Org:N Dep:R				
D 52 13C7_PFUdA	633	606	622	645	635	645	567	587	527	556	Avg:A Wt:C2	602		RSD=6.8	
	105.1	100.6	103.3	107.1	105.4	107	94.2	97.4	87.6	92.4	Org:N Dep:R				
5 N-EtFOSAA	1.195885	0.762096	0.986538	0.881703	1.027486	0.953052	0.930356	0.961725	0.976301	1.075368	Avg:A Wt:C2	0.975051		RSD=11.8	
	122.6	78.2	101.2	90.4	105.4	97.7	95.4	98.6	100.1	110.3	Org:N Dep:R				
D 62 d9-EtFOSE	115	112	104	104	102	104	101	106	105	107	Avg:A Wt:C2	106		RSD=4.1	
	108	105.9	98.1	98.4	95.8	98.3	95.2	100.3	99	101	Org:N Dep:R				

Compound	Level 1 / %Rec	Level 2 / %Rec	Level 3 / %Rec	Level 4 / %Rec	Level 5 / %Rec	Level 6 / %Rec	Level 7 / %Rec	Level 8 / %Rec	Level 9 / %Rec	Level 10 / %Rec	Curve	M1	B	Curve Errors	Flags
33 EtFOSE	0.998097	0.918667	0.904640	0.929645	1.041532	1.027513	1.062925	0.959872	0.960782	0.931131	Avg:A Wt:C2	0.973480		RSD=5.7	
	102.5	94.4	92.9	95.5	107	105.6	109.2	98.6	98.7	95.6	Org:N Dep:R				
D 59 d5-EtFOSA	44.5470	41.1580	43.2240	44.9430	42.8950	42.6590	42.7900	40.7960	43.6680	43.3190	Avg:A Wt:C2	42.9999		RSD=3.0	
	103.6	95.7	100.5	104.5	99.8	99.2	99.5	94.9	101.6	100.7	Org:N Dep:R				
31 11Cl-PF3OUDS	3.668871	3.605975	3.692567	3.254992	3.203625	3.229571	3.367778	3.488174	3.167200	3.557629	Avg:A Wt:C2	3.423638		RSD=5.9	
	107.2	105.3	107.9	95.1	93.6	94.3	98.4	101.9	92.5	103.9	Org:N Dep:R				
27 EtFOSA	1.193346	1.622285	1.335138	1.162183	1.165008	1.228568	1.184394	1.202807	1.152069	1.195907	Ln:A Wt:C	1.182603	15.8204	R^2=0.999	
	74.2	123.8	106.2	95.6	97.2	103.2	99.9	101.6	97.3	101.1	Org:N Dep:R			RSE=12.9	
D 38 13C2_PFDoA	595	610	601	603	604	603	568	599	640	580	Avg:A Wt:C2	600		RSD=3.1	
	99.1	101.6	100.1	100.5	100.7	100.4	94.7	99.7	106.7	96.6	Org:N Dep:R				
11 PFDoA	1.048769	1.023111	1.145845	1.084212	1.068810	1.118181	1.115233	1.042366	0.968551	1.045669	Avg:A Wt:C2	1.066075		RSD=4.9	
	98.4	96	107.5	101.7	100.3	104.9	104.6	97.8	90.9	98.1	Org:N Dep:R				
4 10:2 FTS	2.285292	3.033887	2.202386	2.237826	2.831693	2.398635	2.546360	2.525754	2.880110	2.424145	Avg:A Wt:C2	2.536609		RSD=11.4	
	90.1	119.6	86.8	88.2	111.6	94.6	100.4	99.6	113.5	95.6	Org:N Dep:R				
34 PFDOS	1.021971	0.807150	0.858975	0.794433	0.830829	0.786619	0.858952	0.869142	0.809819	0.960994	Avg:A Wt:C2	0.859888		RSD=8.9	
	118.8	93.9	99.9	92.4	96.6	91.5	99.9	101.1	94.2	111.8	Org:N Dep:R				
24 PFTrDA	1.175527	1.043726	1.061081	1.082422	1.067820	1.090161	1.128893	1.055680	0.844959	0.960614	Avg:A Wt:C2	1.051088		RSD=8.7	
	111.8	99.3	101	103	101.6	103.7	107.4	100.4	80.4	91.4	Org:N Dep:R				
D 42 13C2_PFTeDA	843	822	812	818	838	821	789	801	787	798	Avg:A Wt:C2	813		RSD=2.4	
	103.7	101.1	99.8	100.6	103.1	101	97.1	98.5	96.8	98.2	Org:N Dep:R				
23 PFTeDA	0.949070	0.890846	0.909849	0.891955	0.844266	0.871775	0.887309	0.863476	0.814294	0.806494	Avg:A Wt:C2	0.872933		RSD=5.0	
	108.7	102.1	104.2	102.2	96.7	99.9	101.6	98.9	93.3	92.4	Org:N Dep:R				
D 40 13C2_PFHxDA	905	862	859	852	878	874	844	880	870	856	Avg:A Wt:C2	868		RSD=2.0	
	104.2	99.3	98.9	98.1	101.1	100.7	97.3	101.4	100.2	98.6	Org:N Dep:R				
35 PFHxDA	0.787907	0.689110	0.661678	0.650915	0.609247	0.621284	0.622652	0.582303	0.593215	0.586194	Avg:A Wt:C2	0.640451		RSD=9.7	
	123	107.6	103.3	101.6	95.1	97	97.2	90.9	92.6	91.5	Org:N Dep:R				
36 PFODA	0.964798	0.930131	0.923499	0.945970	0.936326	0.943438	0.906510	0.862526	0.815725	0.874939	Avg:A Wt:C2	0.910386		RSD=5.1	
	106	102.2	101.4	103.9	102.8	103.6	99.6	94.7	89.6	96.1	Org:N Dep:R				

Report Date: 08-Nov-2021 12:29:03 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Ion Suppression Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Response Level 1	Response Level 2	Response Level 3	Response Level 4	Response Level 5	Response Level 6	Response Level 7	Response Level 8	Response Level 9	Response Level 10	RPD
* 37 13C2_PFDA	664485	665974	635729	690187	652287	684156	646194	625216	641184	627731	1.42
* 39 13C2_PFHxA	686523	662021	662023	670207	682639	687359	655717	669175	626878	669431	0.63
* 41 13C2_PFOA	569415	543161	531844	553624	562836	543856	519402	506174	503361	495600	3.46
* 43 13C3_PFBA	601508	568408	575690	590590	589407	590309	554269	565087	532630	550746	2.20
* 48 13C4_PFOS	127140	128160	131882	132512	130980	132467	122600	116530	118944	118894	1.67

13C2_PFDA ((|627731 - 664485| / (627731 + 664485)) / 2) * 100 = 1.42

13C2_PFHxA ((|669431 - 686523| / (669431 + 686523)) / 2) * 100 = 0.63

13C2_PFOA ((|495600 - 569415| / (495600 + 569415)) / 2) * 100 = 3.47

13C3_PFBA ((|550746 - 601508| / (550746 + 601508)) / 2) * 100 = 2.20

13C4_PFOS ((|118894 - 127140| / (118894 + 127140)) / 2) * 100 = 1.68

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration Response Report

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b
Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04
Instrument: LCMSMS02.i Integrator: picker
Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32
Method Lock: Unknown Lock Date:
Calib Method: PFAS-ID No.Compounds: 66
Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes
Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Quantitation Standards (* - Istd) (D - Iso Dil Std)

* 37 13C2_PFDA
* 39 13C2_PFHxA
* 41 13C2_PFOA
* 43 13C3_PFBA
* 48 13C4_PFOS
D 38 13C2_PFDoA
D 40 13C2_PFHxDA
D 42 13C2_PFTeDA
D 44 13C3_PFBS
D 45 13C3_PFHxS
D 46 13C4_PFBA
D 47 13C4_PFHpA
D 49 13C5_PFHxA
D 50 13C5_PFPeA
D 51 13C6_PFDA
D 52 13C7_PFUdA
D 53 13C8_PFOA
D 54 13C8_PFOS
D 55 13C8_PFOSA
D 56 13C9_PFNA
D 57 d3-MeFOSA
D 58 d3-MeFOSAA
D 59 d5-EtFOSA
D 60 d5-EtFOSAA
D 61 d7-MeFOSE
D 62 d9-EtFOSE
D 63 13C2_4:2 FTS_2
D 64 13C2_6:2 FTS_2
D 65 13C2_8:2 FTS_2
D 66 13C3_GenX

Column: 1 Detector: LCMS-Q3

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
D 46 13C4_PFBA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	638915	639140	635065	624336	635753	631978	607576	612919	589637	601428	
8 PFBA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#46
	34936	66740	133983	338901	673213	1334806	3233918	6389427	9072875	12271777	
D 50 13C5_PFPeA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	574918	579707	576704	592341	580113	590743	541862	574561	542414	562559	
21 PFPeA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#50
	35088	68039	134953	326970	626696	1286836	3095773	6170232	9021019	12285003	
D 44 13C3_PFBS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	175823	172237	175591	176030	178463	168596	170276	170031	170122	172528	
7 PFBS	44.200	88.400	176.80	442.00	884.00	1768.00	4420.00	8840.00	13260	17680	#44
	9549	20952	38745	99510	185899	385045	920934	1829568	2677106	3784673	
1 4:2 FTS	46.700	93.400	186.80	467.00	934.00	1868.00	4670.00	9340.00	14010	18680	#63
	2465	4592	9042	22981	45981	93564	222149	482122	697417	918635	
D 63 13C2_4:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	119738	117065	118122	109721	112299	116969	98938	127713	100279	111342	
D 49 13C5_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	664013	670974	647409	675545	664948	635316	645583	645118	633613	630351	
* 39 13C2_PFHxA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	686523	662021	662023	670207	682639	687359	655717	669175	626878	669431	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
15 PFHxA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#49
	38278	66898	137580	351581	683707	1330015	3301175	6492122	9542047	13063789	
22 PFPeS	46.900	93.800	187.60	469.00	938.00	1876.00	4690.00	9380.00	14070	18760	#44
	8790	15524	28001	77523	145842	293696	722411	1454385	2166376	3011449	
28 GenX	100.00	200.00	400.00	1000.00	2000.00	4000.00	10000	20000	30000	40000	#66
	16330	29374	61561	153699	302352	619228	1437846	2964456	4224675	5757611	
D 66 13C3_GenX	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	1176798	1197981	1200102	1164547	1204882	1190921	1133799	1133936	1096372	1088480	
13 PFHpA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#47
	34076	60017	120846	296723	577941	1148679	2877261	5693105	7758440	10807866	
D 47 13C4_PFHpA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	532812	548747	547463	537765	532996	554253	513054	511577	522555	508162	
14 PFHxS	45.500	91.000	182.00	455.00	910.00	1820.00	4550.00	9100.00	13650	18200	#45
	5763	12218	28059	67873	127977	245510	642452	1221767	1799881	2431672	
D 45 13C3_PFHxS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	127917	125934	130188	133409	129716	128407	122177	123270	117475	117903	
29 ADONA	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#45
	50108	95386	179065	460077	956587	1879487	4593970	8891435	12624919	17168081	
2 6:2 FTS	47.400	94.800	189.60	474.00	948.00	1896.00	4740.00	9480.00	14220	18960	#64
	2076	5217	8060	20529	38863	81187	187618	387289	549020	732807	
D 64 13C2_6:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	91394	93235	90798	94456	93946	92629	85448	82709	84101	91282	
* 41 13C2_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	569415	543161	531844	553624	562836	543856	519402	506174	503361	495600	
D 53 13C8_PFOA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	566059	554295	527785	524379	547741	533931	496199	501858	493065	501453	
20 PFOA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#53
	32635	52014	109896	281706	557437	1076576	2587671	5056901	7287671	9815646	
12 PFHpS	47.600	95.200	190.40	476.00	952.00	1904.00	4760.00	9520.00	14280	19040	#45
	7217	13136	25884	57950	123066	255444	583188	1164821	1649459	2273794	
D 54 13C8_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	121039	121269	122371	129829	131913	132396	120487	120102	122035	116988	
* 48 13C4_PFOS	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	127140	128160	131882	132512	130980	132467	122600	116530	118944	118894	
18 PFOS	46.400	92.800	185.60	464.00	928.00	1856.00	4640.00	9280.00	13920	18560	#54
	7791	14281	27516	69058	135192	269584	648437	1317144	1912794	2656667	
17 PFNA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#56
	35389	71588	142641	359052	692229	1453207	3388713	6678173	9619483	12848388	
D 56 13C9_PFNA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	673518	668048	650158	652533	639032	666388	628859	622464	601225	601551	
30 9Cl-PF3ONS	46.600	93.200	186.40	466.00	932.00	1864.00	4660.00	9320.00	13980	18640	#54
	21458	42553	89193	220303	434114	930054	2136198	4400668	6348515	8707646	
19 PFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#55
	14114	27706	55580	150716	285564	593408	1391997	2684423	4080280	5595676	
D 55 13C8_PFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	261556	278692	270652	278973	266767	271381	275706	256938	255120	264794	
16 PFNS	48.000	96.000	192.00	480.00	960.00	1920.00	4800.00	9600.00	14400	19200	#54
	5614	9317	17079	49658	96544	187467	489347	926406	1321901	1866192	
3 8:2 FTS	Disabled	95.800	191.60	479.00	958.00	1916.00	4790.00	9580.00	14370	19160	#65
	Disabled	3178	9272	18669	41928	75418	181139	329055	503489	699409	
* 37 13C2_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	664485	665974	635729	690187	652287	684156	646194	625216	641184	627731	
D 65 13C2_8:2 FTS_2	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	93054	89788	91470	84431	78835	94944	82313	86853	76282	86255	
D 51 13C6_PFDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	609675	566586	576412	591408	575846	616544	563256	570320	544823	531731	

Compound	Level 1 Conc/Rsp	Level 2 Conc/Rsp	Level 3 Conc/Rsp	Level 4 Conc/Rsp	Level 5 Conc/Rsp	Level 6 Conc/Rsp	Level 7 Conc/Rsp	Level 8 Conc/Rsp	Level 9 Conc/Rsp	Level 10 Conc/Rsp	Std #
10 PFDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#51
	32559	68174	131939	354891	703570	1420016	3437405	6612786	9034213	12363983	
D 58 d3-MeFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	771544	757204	751315	744712	772780	786283	759801	733412	715483	763092	
6 N-MeFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#58
	6340	12194	26644	57385	129692	242311	579666	1180104	1678300	2384735	
D 61 d7-MeFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	89379	97587	89958	94507	90070	85737	86571	86191	88623	93265	
32 MeFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#61
	6246	9069	17777	46172	98832	207971	482576	980014	1427696	1865803	
9 PFDS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#54
	5291	9046	20092	46988	95227	187244	459674	875387	1297701	1752012	
26 MeFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#57
	2513	4810	10798	31576	52838	103458	242613	475500	699653	934909	
D 57 d3-MeFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	45088	51324	50166	51110	44997	47183	47311	42391	44329	46513	
D 60 d5-EtFOSAA	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	
	689949	700240	659630	708039	689688	642300	654701	609480	584720	536911	
25 PFUdA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#52
	30659	60854	126197	291697	604574	1230135	2841498	5676476	7956538	10184582	
D 52 13C7_PFUdA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	632859	605845	622182	644729	634567	644538	567315	586665	527476	556328	
5 N-EtFOSAA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#60
	8251	10673	26030	62428	141729	244858	609105	1172304	1712589	2309508	
D 62 d9-EtFOSE	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	114558	112304	104069	104371	101585	104277	101022	106365	105046	107173	
33 EtFOSE	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#62
	5717	10317	18829	48514	105804	214292	536894	1020968	1513895	1995842	
D 59 d5-EtFOSA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	44547	41158	43224	44943	42895	42659	42790	40796	43668	43319	
31 11Cl-PF3OUDS	47.100	94.200	188.40	471.00	942.00	1884.00	4710.00	9420.00	14130	18840	#54
	20916	41193	85131	199041	398089	805565	1911193	3946384	5461375	7841206	
27 EtFOSA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#59
	2658	6677	11542	26116	49973	104819	253401	490697	754628	1036110	
D 38 13C2_PFDoA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	594678	609758	600845	603349	604291	602891	568288	598735	640359	580173	
11 PFDoA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	31184	62385	137695	327079	645872	1348282	3168869	6241011	9303305	12133384	
4 10:2 FTS	48.200	96.400	192.80	482.00	964.00	1928.00	4820.00	9640.00	14460	19280	#65
	2050	5252	7768	18214	43040	87815	202053	422944	635374	806269	
34 PFDOS	48.400	96.800	193.60	484.00	968.00	1936.00	4840.00	9680.00	14520	19360	#54
	5987	9475	20350	49920	106090	201625	500904	1010453	1434957	2176544	
24 PFTrDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#38
	34953	63642	127509	326539	645274	1314496	3207682	6320725	8116160	11146450	
D 42 13C2_PFTeDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	843457	821567	811547	818088	838224	821412	789132	800702	787350	798422	
23 PFTeDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#42
	40025	73189	147677	364849	707684	1432173	3501019	6913870	9617011	12878458	
D 40 13C2_PFHxDA	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00	
	904853	861836	858869	851524	877835	874416	844444	880463	870178	855945	
35 PFHxDA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	35647	59390	113659	277135	534818	1086521	2628973	5126962	7743034	10035004	
36 PFODA	50.000	100.00	200.00	500.00	1000.00	2000.00	5000.00	10000	15000	20000	#40
	43650	80162	158633	402758	821940	1649914	3827486	7594218	10647394	14977998	

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Initial Calibration RT Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

Calibration Concentration Units: ng/L

Initial Calibration Samples: Primary Reagent: Analytes

Batch: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b

Level	Cal File	Cal Sample ID	Cal Date
1	110721A12.d	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44
2	110721A13.d	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19
3	110721A14.d	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54
4	110721A15.d	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30
5	110721A16.d	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06
6	110721A17.d	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43
7	110721A18.d	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18
8	110721A19.d	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42
9	110721A20.d	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06
10	110721A21.d	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32

Column: 1 Detector: LCMS-Q3

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 46 13C4_PFBA	1.731	1.724	1.724	1.724	1.731	1.731	1.731	1.731	1.728	1.724	1.727	0.173
8 PFBA	1.731	1.731	1.731	1.731	1.731	1.731	1.731	1.731	1.734	1.731	1.730	0.073
D 50 13C5_PFPeA	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.119	2.125	2.120	2.127	0.221
21 PFPeA	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.119	2.125	2.120	2.127	0.221
D 44 13C3_PFBS	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.178	2.183	2.182	0.080
7 PFBS	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.183	2.178	2.183	2.182	0.080
1 4:2 FTS	2.451	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.460	2.459	0.116
D 63 13C2_4:2 FTS_2	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.460	2.459	2.460	2.460	0.026
D 49 13C5_PFHxA	2.505	2.496	2.505	2.505	2.505	2.496	2.496	2.496	2.495	2.496	2.499	0.190
* 39 13C2_PFHxA	2.505	2.505	2.505	2.496	2.505	2.505	2.496	2.496	2.503	2.496	2.500	0.183
15 PFHxA	2.505	2.505	2.505	2.505	2.505	2.505	2.505	2.496	2.503	2.496	2.502	0.150
22 PFPeS	2.540	2.531	2.532	2.531	2.531	2.532	2.531	2.531	2.530	2.532	2.532	0.114
28 GenX	2.622	2.622	2.622	2.622	2.622	2.614	2.614	2.614	2.613	2.614	2.617	0.151
D 66 13C3_GenX	2.622	2.622	2.622	2.614	2.622	2.614	2.614	2.614	2.613	2.614	2.617	0.147
13 PFHpA	2.888	2.880	2.881	2.881	2.880	2.881	2.880	2.880	2.879	2.881	2.881	0.090
D 47 13C4_PFHpA	2.880	2.880	2.881	2.881	2.880	2.881	2.880	2.880	2.879	2.873	2.879	0.087
14 PFHxS	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.895	2.888	2.895	0.088
D 45 13C3_PFHxS	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.896	2.895	2.896	2.896	0.022
29 ADONA	2.918	2.919	2.919	2.919	2.919	2.919	2.918	2.918	2.917	2.919	2.918	0.011
2 6:2 FTS	3.255	3.248	3.255	3.248	3.248	3.248	3.248	3.241	3.245	3.241	3.248	0.142
D 64 13C2_6:2 FTS_2	3.248	3.248	3.248	3.255	3.248	3.248	3.248	3.241	3.238	3.241	3.246	0.152
* 41 13C2_PFOA	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.276	3.273	3.269	3.273	0.090
D 53 13C8_PFOA	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.269	3.266	3.269	3.272	0.125
20 PFOA	3.282	3.276	3.276	3.276	3.276	3.276	3.276	3.269	3.266	3.269	3.273	0.145
12 PFHpS	3.276	3.282	3.287	3.282	3.276	3.276	3.276	3.276	3.273	3.276	3.277	0.137
D 54 13C8_PFOS	3.657	3.657	3.657	3.652	3.651	3.657	3.651	3.651	3.648	3.646	3.652	0.105
* 48 13C4_PFOS	3.657	3.657	3.657	3.652	3.657	3.657	3.657	3.651	3.648	3.652	3.654	0.085
18 PFOS	3.662	3.651	3.657	3.662	3.662	3.657	3.657	3.651	3.648	3.652	3.656	0.143
17 PFNA	3.668	3.668	3.662	3.662	3.662	3.662	3.662	3.662	3.659	3.657	3.662	0.089
D 56 13C9_PFNA	3.668	3.668	3.662	3.662	3.662	3.662	3.662	3.657	3.659	3.657	3.661	0.103
30 9Cl-PF3ONS	3.871	3.871	3.871	3.871	3.863	3.863	3.862	3.863	3.858	3.863	3.865	0.122
19 PFOSA	3.895	3.895	3.896	3.896	3.896	3.896	3.895	3.896	3.891	3.896	3.895	0.036

Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Avg. RT	%Rsd RT
D 55 13C8_PFOSA	3.895	3.895	3.896	3.896	3.896	3.896	3.895	3.888	3.891	3.888	3.893	0.091
16 PFNS	4.005	4.005	4.006	4.006	4.006	4.006	4.005	4.006	3.999	3.995	4.004	0.091
3 8:2 FTS	Disabled	4.027	4.017	4.017	4.016	4.017	4.016	4.016	4.010	4.006	4.015	0.137
* 37 13C2_PFDA	4.027	4.027	4.027	4.027	4.016	4.017	4.016	4.016	4.010	4.017	4.019	0.161
D 65 13C2_8:2 FTS_2	4.016	4.016	4.017	4.017	4.016	4.017	4.005	4.006	3.999	4.006	4.011	0.164
D 51 13C6_PFDA	4.027	4.027	4.017	4.017	4.016	4.017	4.016	4.016	4.020	4.017	4.018	0.106
10 PFDA	4.027	4.027	4.027	4.017	4.016	4.017	4.016	4.016	4.010	4.017	4.018	0.148
D 58 d3-MeFOSAA	4.178	4.187	4.178	4.178	4.178	4.178	4.178	4.178	4.171	4.169	4.177	0.109
6 N-MeFOSAA	4.196	4.178	4.178	4.187	4.178	4.178	4.178	4.178	4.171	4.169	4.179	0.183
D 61 d7-MeFOSE	4.287	4.287	4.288	4.288	4.288	4.288	4.297	4.288	4.290	4.288	4.289	0.073
32 MeFOSE	4.308	4.298	4.308	4.298	4.298	4.298	4.297	4.298	4.300	4.298	4.300	0.098
9 PFDS	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.308	4.310	4.308	4.315	0.101
26 MeFOSA	4.328	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.320	4.318	4.319	0.069
D 57 d3-MeFOSA	4.308	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.310	4.308	4.315	0.107
D 60 d5-EtFOSAA	4.348	4.347	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.338	0.139
25 PFUdA	4.348	4.338	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.337	0.118
D 52 13C7_PFUdA	4.338	4.338	4.339	4.339	4.338	4.339	4.338	4.338	4.330	4.328	4.336	0.086
5 N-EtFOSAA	4.348	4.347	4.348	4.339	4.348	4.348	4.347	4.348	4.340	4.339	4.345	0.100
D 62 d9-EtFOSE	4.455	4.455	4.456	4.455	4.455	4.465	4.455	4.455	4.459	4.455	4.456	0.069
33 EtFOSE	4.473	4.464	4.474	4.474	4.464	4.474	4.473	4.474	4.468	4.465	4.470	0.099
D 59 d5-EtFOSA	4.482	4.482	4.474	4.474	4.483	4.483	4.482	4.483	4.477	4.474	4.479	0.097
31 11Cl-PF3OUDS	4.482	4.482	4.483	4.483	4.483	4.474	4.473	4.474	4.477	4.474	4.478	0.104
27 EtFOSA	4.482	4.482	4.483	4.483	4.483	4.492	4.482	4.483	4.486	4.483	4.483	0.065
D 38 13C2_PFDoA	4.622	4.622	4.623	4.623	4.614	4.623	4.613	4.614	4.608	4.606	4.616	0.142
11 PFDoA	4.622	4.622	4.623	4.623	4.622	4.623	4.613	4.614	4.617	4.606	4.618	0.127
4 10:2 FTS	4.639	4.631	4.631	4.631	4.631	4.631	4.630	4.631	4.625	4.623	4.630	0.095
34 PFDOS	4.851	4.851	4.843	4.843	4.842	4.843	4.842	4.834	4.838	4.825	4.840	0.158
24 PFTrDA	4.876	4.877	4.877	4.877	4.877	4.868	4.868	4.868	4.864	4.860	4.871	0.128
D 42 13C2_PFTeDA	5.112	5.112	5.106	5.106	5.106	5.106	5.099	5.100	5.097	5.094	5.103	0.118
23 PFTeDA	5.112	5.112	5.106	5.106	5.106	5.106	5.099	5.100	5.097	5.094	5.103	0.118
D 40 13C2_PFHxDA	5.559	5.552	5.552	5.552	5.544	5.544	5.543	5.536	5.539	5.529	5.544	0.162
35 PFHxDA	5.559	5.552	5.552	5.552	5.552	5.544	5.543	5.536	5.539	5.536	5.546	0.140
36 PFODA	6.026	6.031	6.021	6.017	6.026	6.012	6.001	6.007	6.000	6.002	6.014	0.189

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 1	Auto Sampler:	75
Sample Info:	ID ICAL 50_SVLC-1740	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-1 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	5	638915	20	>100:1			1000.00	1027.73	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	5/0	34936	18	44:1			50.000	51.848		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	7	574918	16	>100:1			1000.00	1005.82	99.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	7/0	35088	14	43:1			50.000	54.226		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	7	175823	16	>100:1			1000.00	1016.50	98.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	7/0	9549	17	>100:1	Target = 3.53		44.200	43.552		
298.9 > 99	44	2.183	2.183		2627	13	27:1	3.63 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.540	2.531	9/2	8790	25	>100:1	Target = 3.10		46.900	53.944		
349 > 99	44	2.522	2.531		2456	19	17:1	3.57 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	8	119738	17	>100:1			5000.00	5287.91	106.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													a
327 > 307	63	2.451	2.460	0/-8	2465	21		Target = 1.75		46.700	46.695		
327 > 81	63	2.487	2.460		1302	10	1.1:1	1.89 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	9	664013	16	>100:1			1000.00	1019.54	99.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	9/0	38278	17	72:1	Target = 18.91		50.000	55.442		
313 > 119	49	2.496	2.505		2414	18	12:1	15.85 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	9	1176798	19	>100:1			5000.00	5077.74	97.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	9/0	16330	18	57:1	Target = 0.79		100.00	107.13		
285 > 185	66	2.622	2.622		19809	17	>100:1	0.82 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	10	532812	18	>100:1			1000.00	1003.53	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.888	2.880	10/0	34076	16	59:1	Target = 3.80		50.000	58.203		
363 > 169	47	2.888	2.880		8295	16	71:1	4.10 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	10	127917	20	>100:1			1000.00	1018.13	98.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/-4	5763	24	23:1	Target = 2.89	4.10	45.500	40.980		M
399 > 99	45	2.888	2.896		3074	26	22:1	1.87 (1.44-4.34)	5.41				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	9/-1	50108	19	>100:1	Target = 3.23		47.100	50.511		
377 > 85	45	2.918	2.919		13707	16	>100:1	3.65 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	11/1	7217	26	97:1	Target = 3.12		47.600	54.933		
449 > 99	45	3.287	3.276		1791	17	19:1	4.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	11	91394	23	>100:1			5000.00	5077.46	97.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.255	3.248	1/-10	2076	11	39:1	Target = 1.75		47.400	47.978		M
427 > 81	64	0.000	3.248		0	1		0.00 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	11	566059	22	>100:1			1000.00	1078.87	103.3	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.282	3.276	1/-10	32635	16	21:1	Target = 2.89		50.000	56.260		M
413 > 169	53	3.282	3.276		11356	31	73:1	2.87 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	12	121039	21	>100:1			1000.00	977.36	91.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	12/0	7791	35	72:1	Target = 3.30	3.27	46.400	54.060		
499 > 99	54	3.668	3.662		2261	39	35:1	3.44 (1.65-4.95)	6.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	12/0	21458	16	>100:1			46.600	46.812		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	12/0	5614	21	48:1	Target = 3.08		48.000	57.812		
549 > 99	54	4.005	4.006		1010	14	4.1:1	5.55 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	12/0	5291	18		Target = 2.72		48.200	55.861		
599 > 99	54	4.338	4.318		2077	17	9.8:1	2.54 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.483	12/0	20916	19	>100:1			47.100	50.474		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.851	4.842	10/-2	5987	22	51:1	Target = 3.27		48.400	57.523		
699 > 99	54	4.842	4.842		1377	18	36:1	4.34 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.662	12	673518	22	>100:1			1000.00	1051.75	105.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.662	12/0	35389	21	80:1	Target = 6.51		50.000	48.747		
463 > 169	56	3.662	3.662		6388	27	42:1	5.53 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	8	261556	16				1000.00	975.74	98	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	8/0	14114	15	67:1	Target = 41.63		50.000	51.285		
498>478	55	3.895	3.896		774	16	11:1	18.23 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													a
519 > 474		4.027	4.016	1	609675	16	>100:1			1000.00	1060.93	105.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/0	32559	12	65:1	Target = 13.80		50.000	45.890		M
513 > 169	51	4.027	4.016		2280	21	17:1	14.28 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	12	93054	18	>100:1			5000.00	5383.67	118	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/-12	2894	11	21:1	Target = 1.94		47.900	68.818		M
527 > 81	65	3.995	4.016		1153	11	4.8:1	2.50 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.639	4.631	1/-11	2050	23	22:1	Target = 3.54		48.200	43.425		
627 > 80	65	4.639	4.631		308	15	6.8:1	6.65 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	12	771544	17	>100:1			5000.00	5105.76	99.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.196	4.178	2/-10	6340	24	45:1	Target = 1.37	5.84	50.000	51.203		M
570 > 483	58	4.196	4.178		5342	25		1.18 (0.68-2.05)	6.95				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.288	6	89379	14	>100:1			1000.00	991.02	99.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.298	7/1	6246	13	43:1			50.000	63.945		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	45088	12	>100:1			1000.00	958.48	100.2	M
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.328	4.318	7/1	2513	17		Target = 1.11		50.000	51.422		
512 > 219	57	4.318	4.318		2364	15	18:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.348	4.338	12	689949	18	>100:1			5000.00	5327.25	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	12/0	8251	24	66:1	Target = 1.51	5.95	50.000	61.324		
584 > 526	60	4.348	4.348		4220	47		1.95 (0.75-2.26)	4.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	12	632859	17	>100:1			1000.00	1050.82	99.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.348	4.338	12/0	30659	15	86:1	Target = 14.52		50.000	49.997		
563 > 169	52	4.338	4.338		2560	21	12:1	11.97 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	6	114558	15	>100:1			1000.00	1079.95	112.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.464	7/1	5717	21	47:1			50.000	51.264		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	7	44547	16	>100:1			1000.00	1035.98	103.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	6/-1	2658	18	44:1	Target = 1.06		50.000	37.077		
526 > 219	59	4.482	4.483		2428	22	30:1	1.09 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.614	12	594678	17	>100:1			1000.00	990.57	98.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	12/0	31184	14	>100:1	Target = 10.70		50.000	49.188		
613 > 169	38	4.631	4.622		3508	22	30:1	8.88 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.876	4.877	12/0	34953	16	>100:1	Target = 8.31		50.000	55.920		
663 > 169	38	4.885	4.877		4524	21	65:1	7.72 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.112	5.106	12	843457	22	>100:1			1000.00	1037.48	100.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													a
713 > 669	42	5.112	5.106	1/-11	40025	21	>100:1	Target = 12.17		50.000	54.361		
713 > 169	42	5.112	5.106		3441	20	48:1	11.63 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.559	5.544	15	904853	22	>100:1			1000.00	1042.41	103.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.559	5.552	15	35647	20	>100:1	Target = 10.43		50.000	61.512		
813 > 269	40	5.567	5.552		3237	21	76:1	11.01 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.026	6.026	0/-15	43650	36	>100:1	Target = 13.67		50.000	52.988		M
913 > 319	40	6.021	6.026		3182	39	>100:1	13.71 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	12	664485	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	9	686523	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	11	569415	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	5	601508	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	12	127140	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

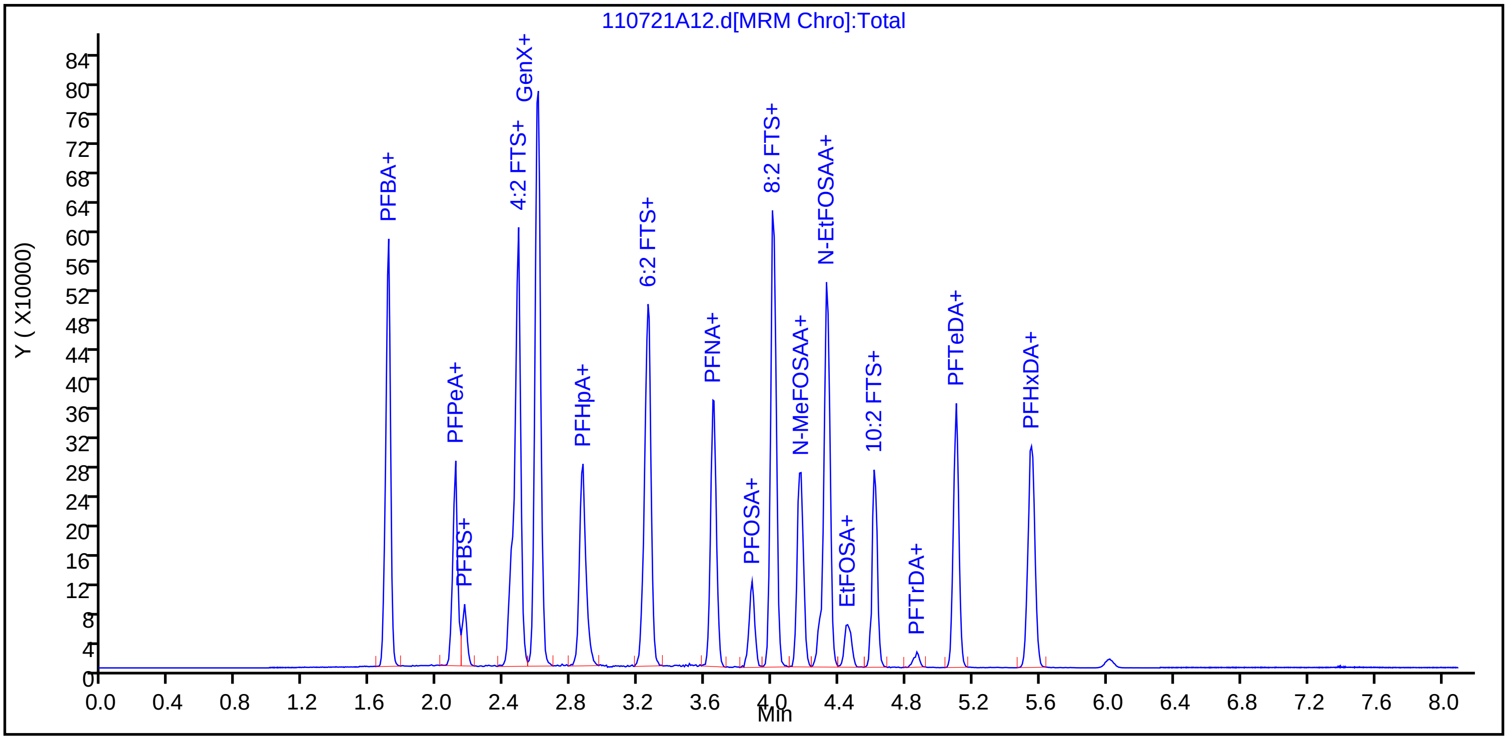
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

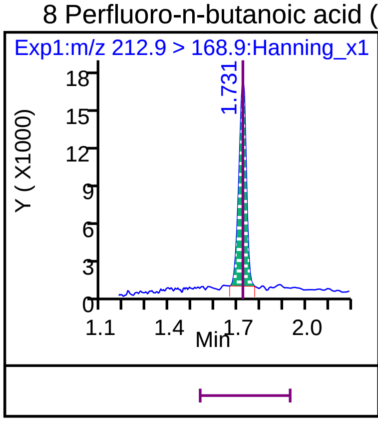
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

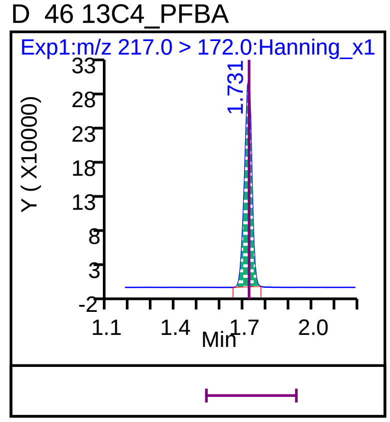
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin



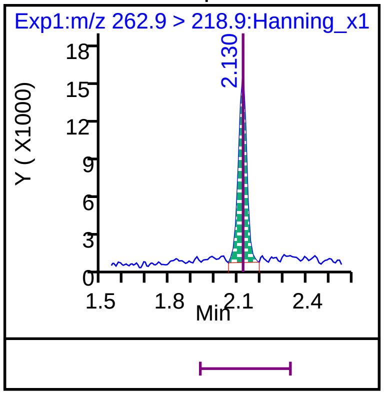
8 Perfluoro-n-butanoic acid (PFBA)



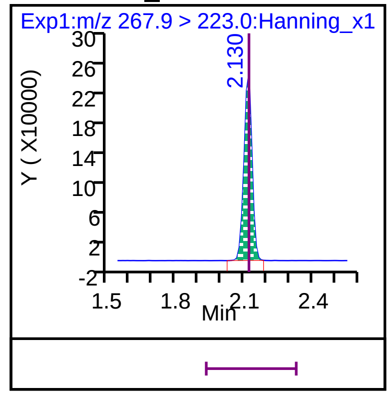
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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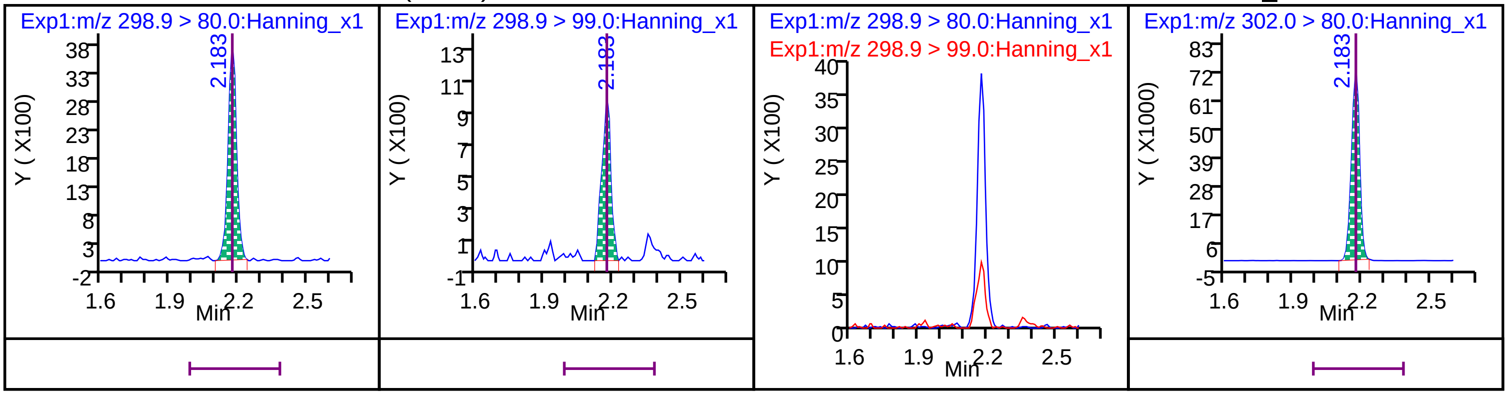
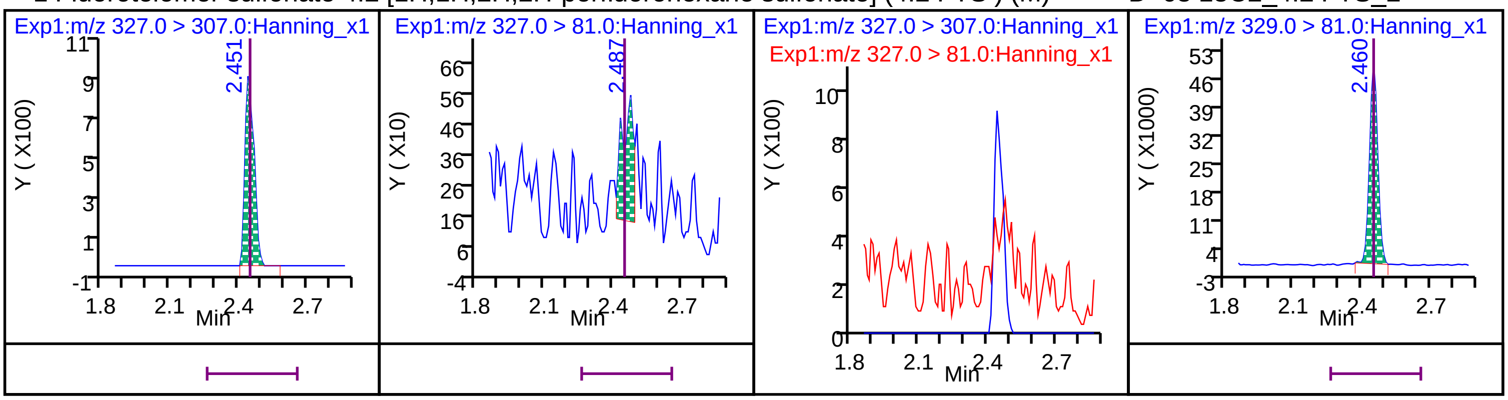
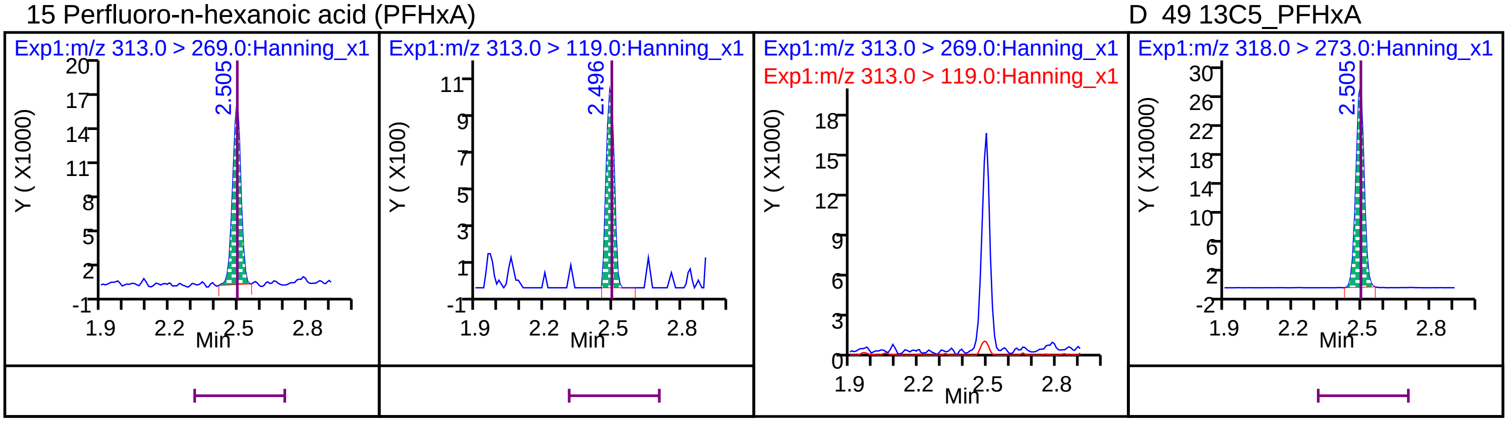
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



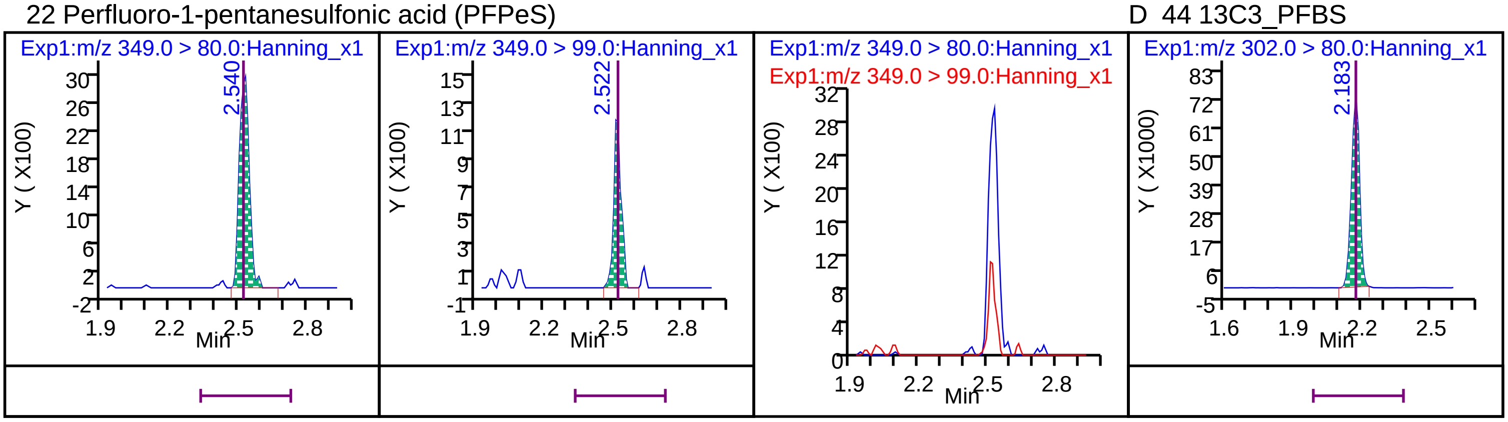
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

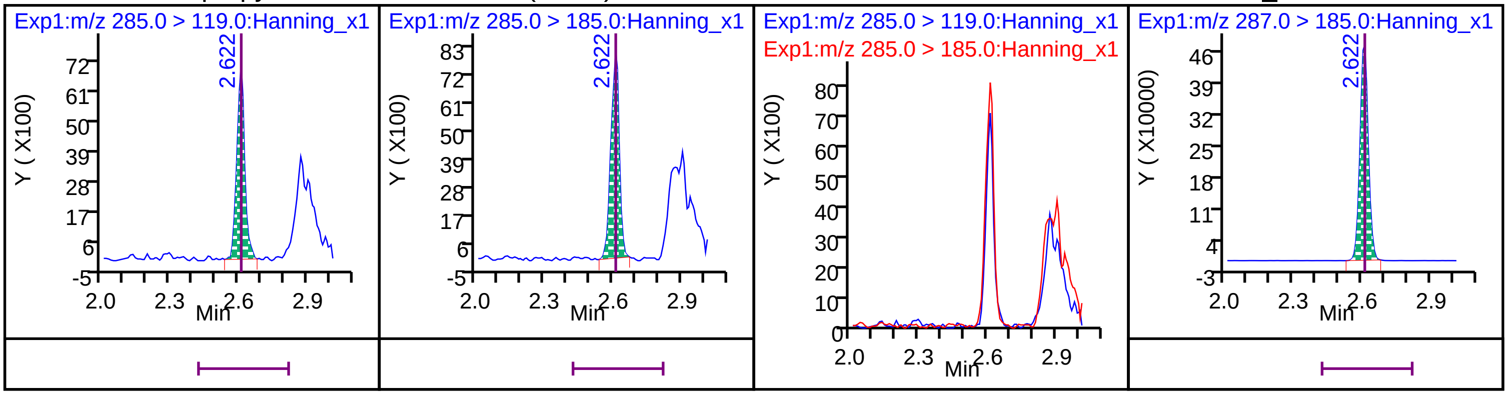


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

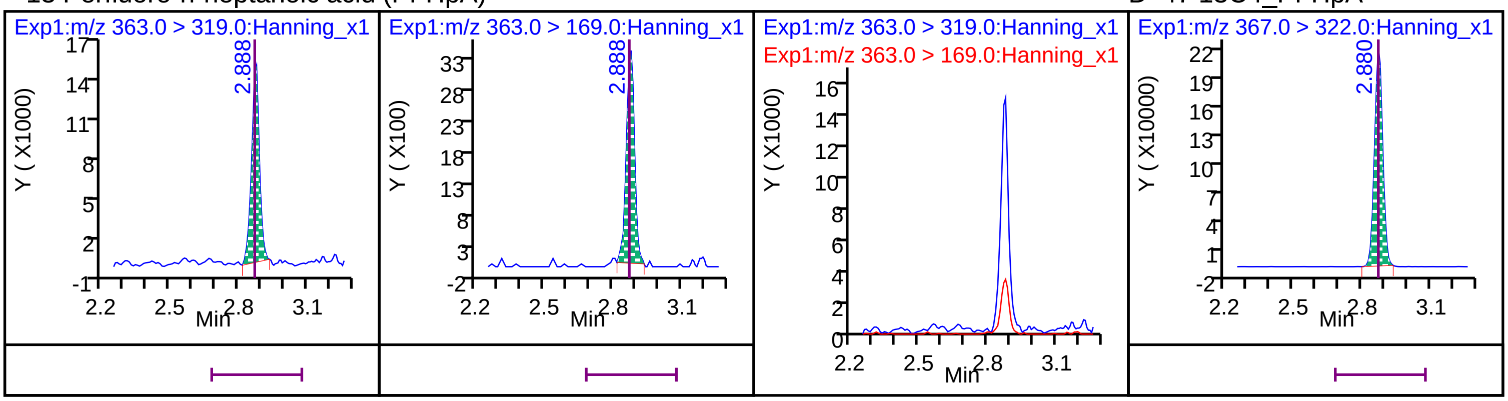


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

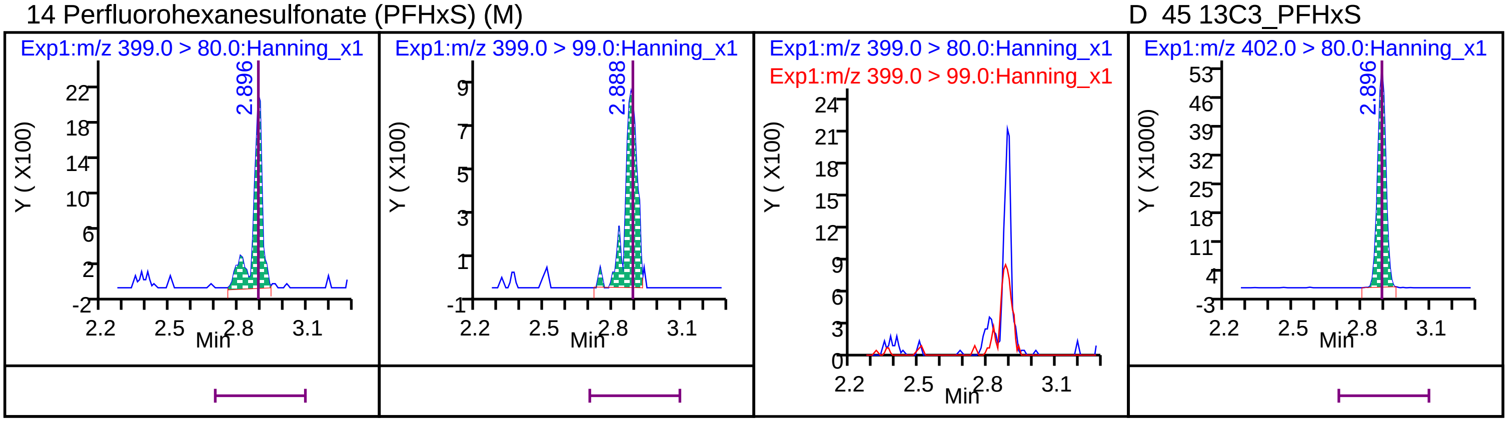
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



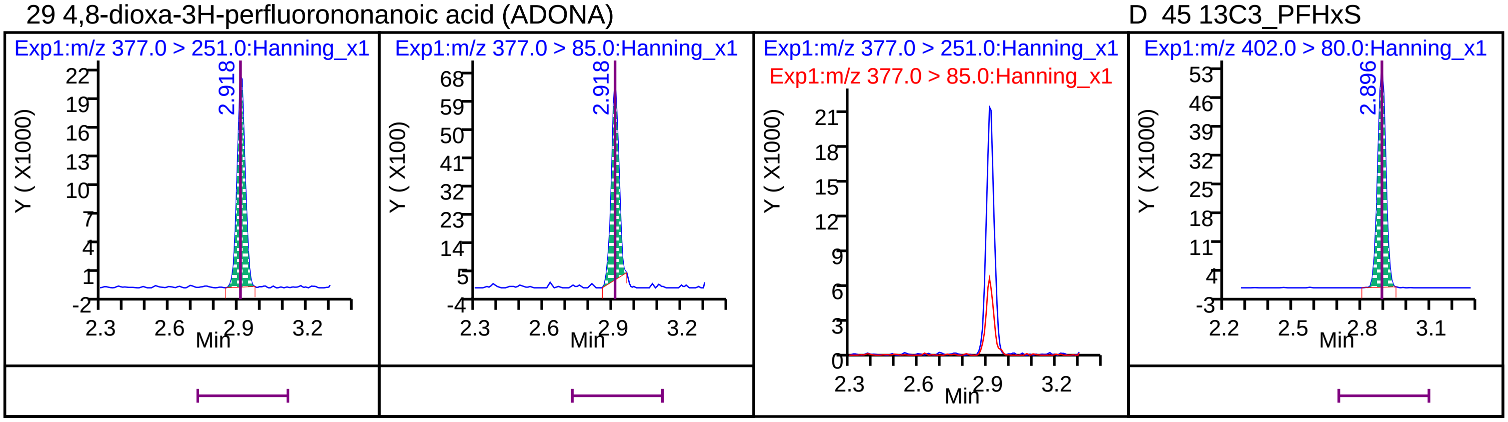
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



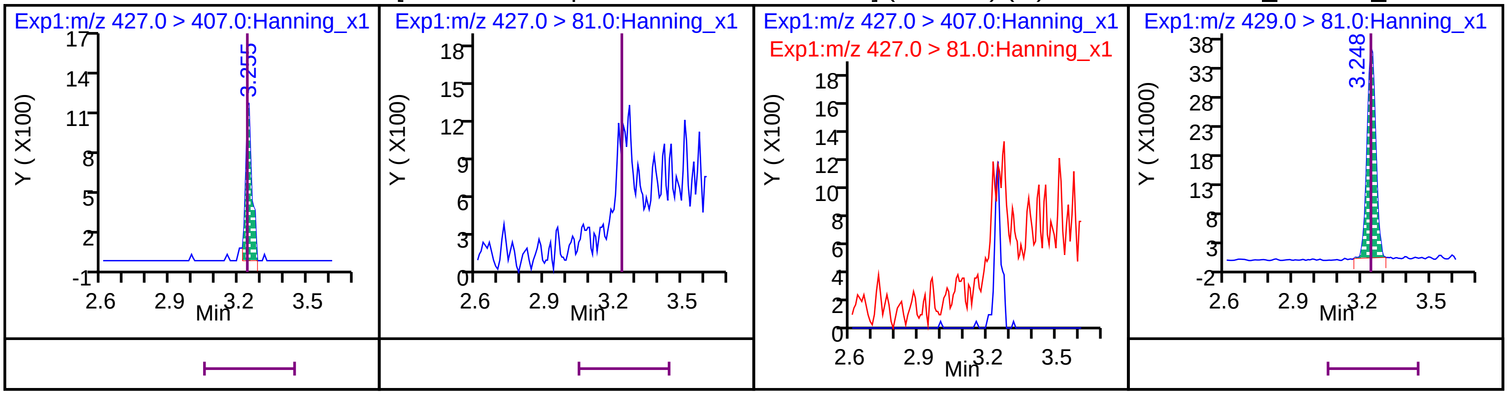
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



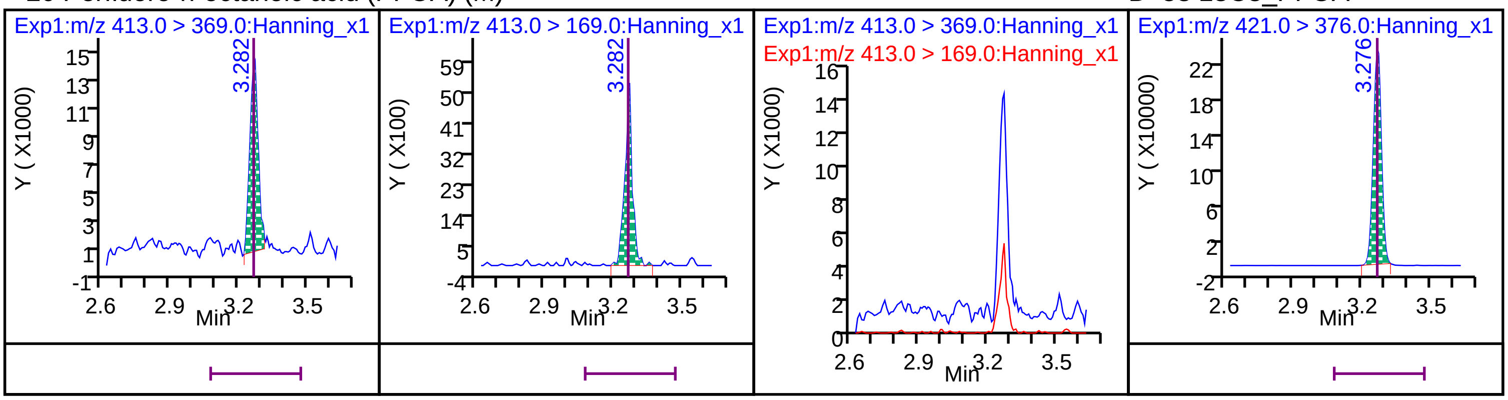
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



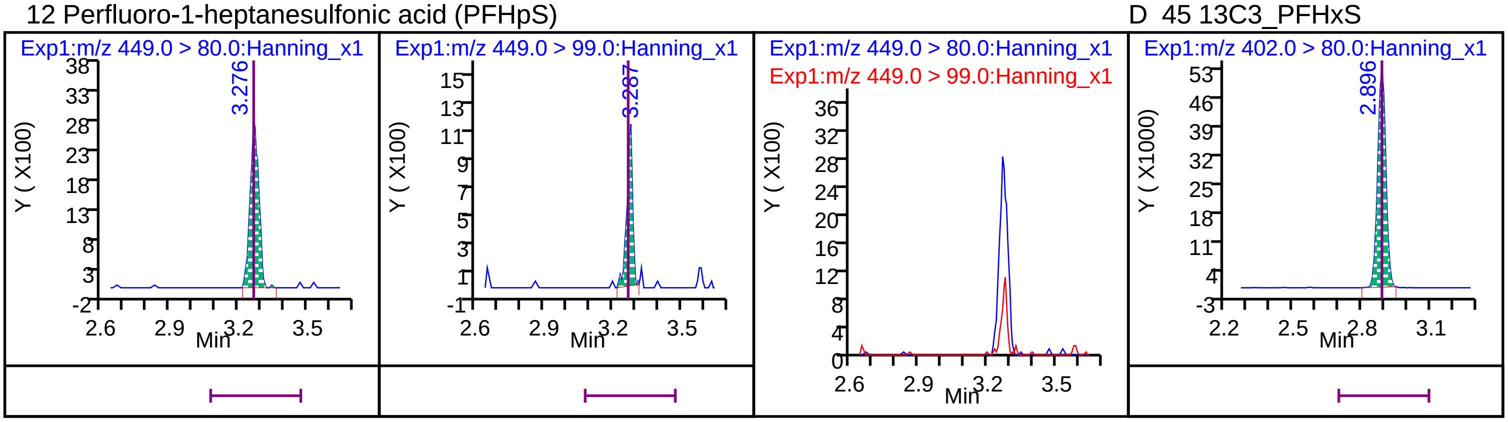
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



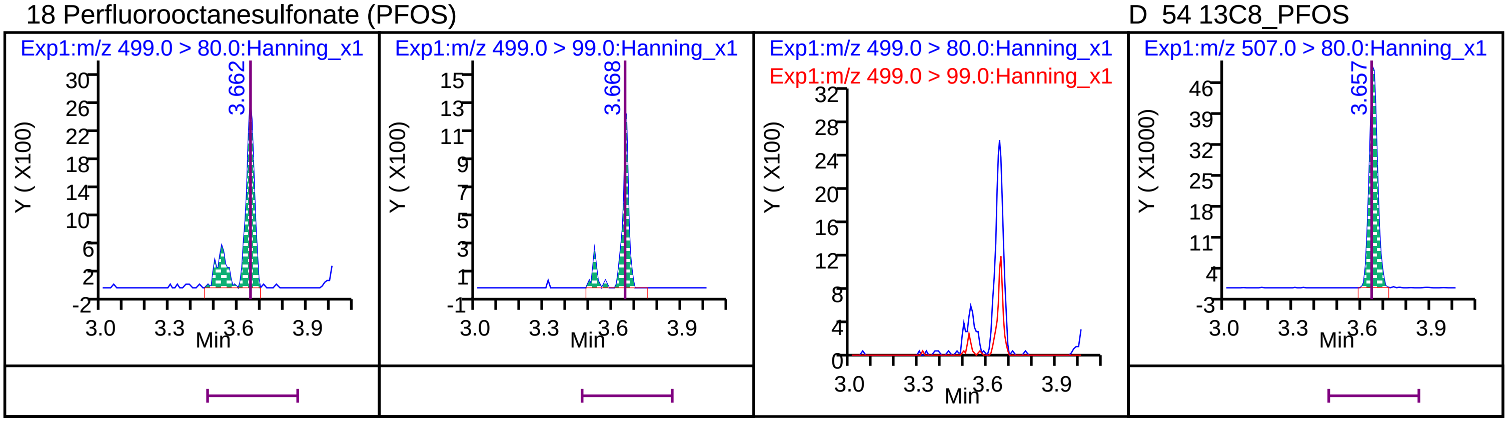
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



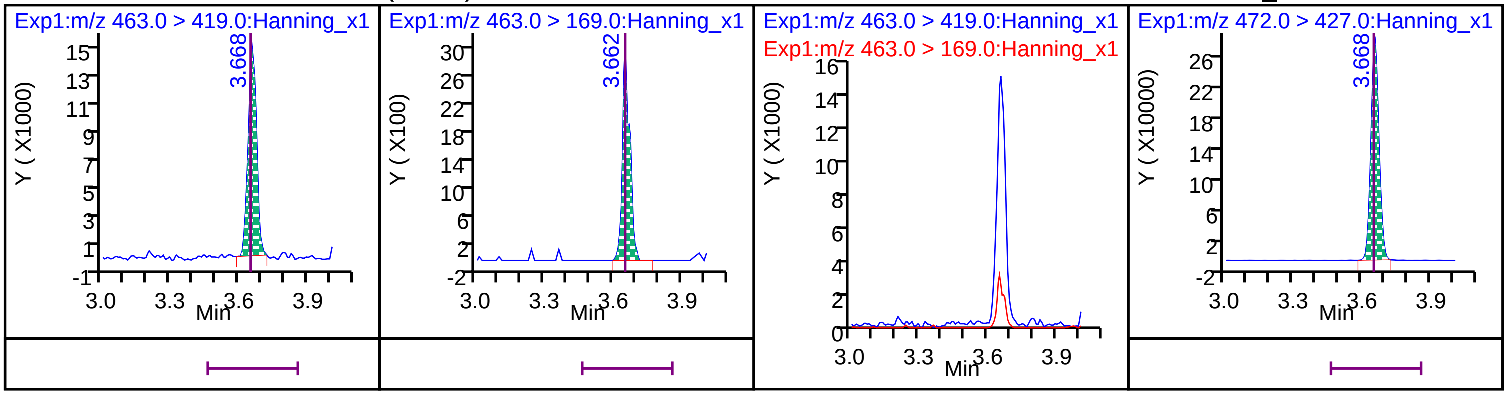
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



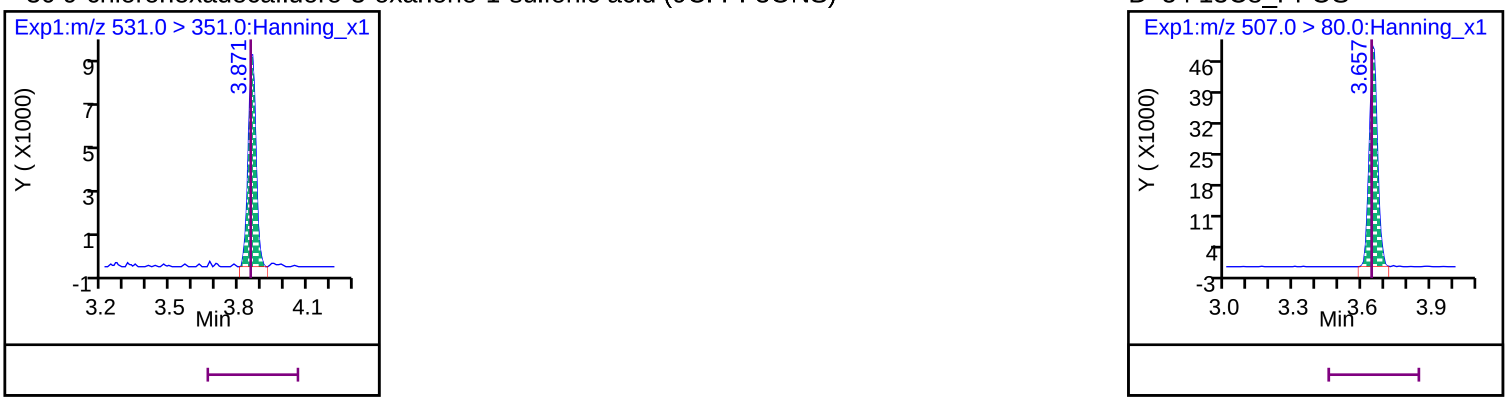
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



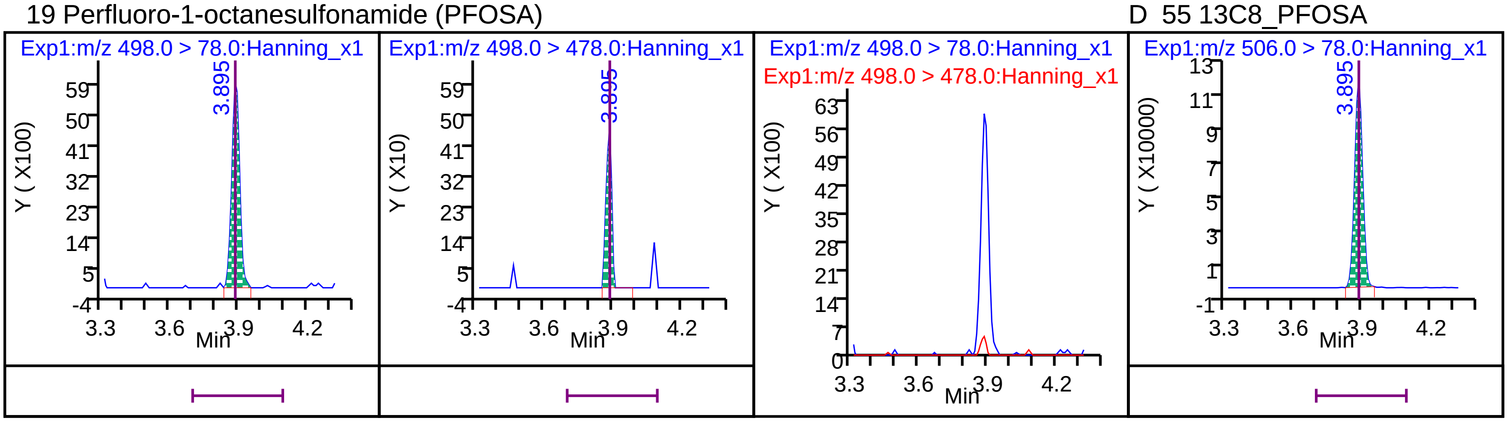
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



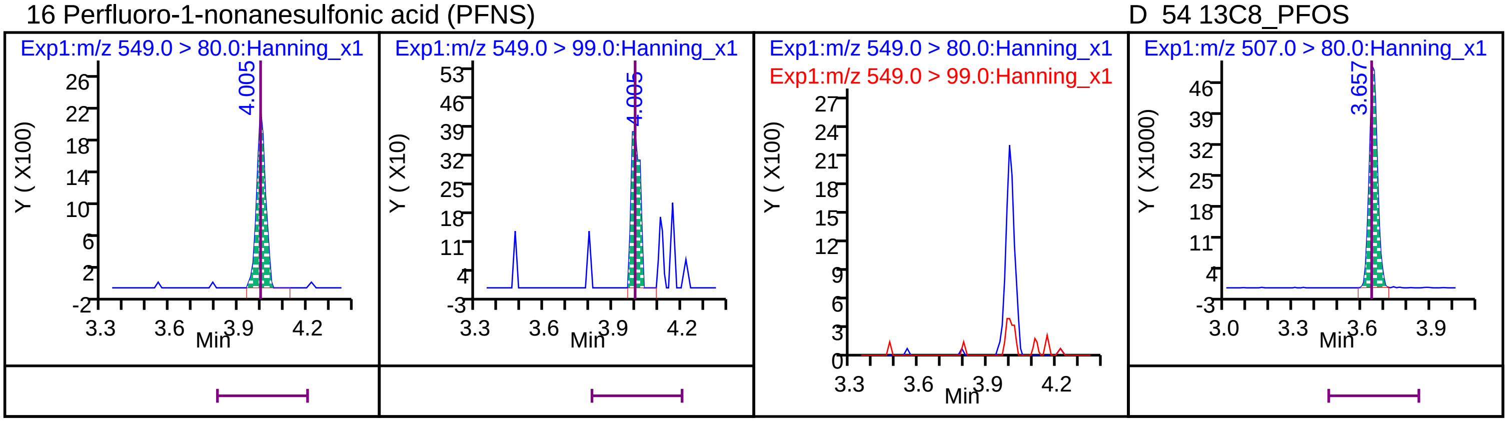
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



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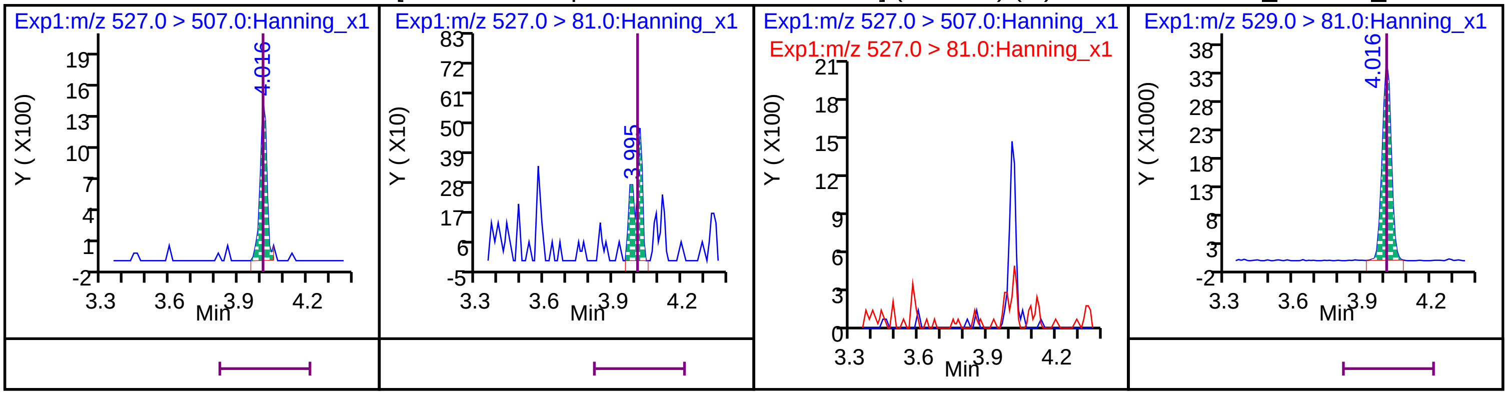
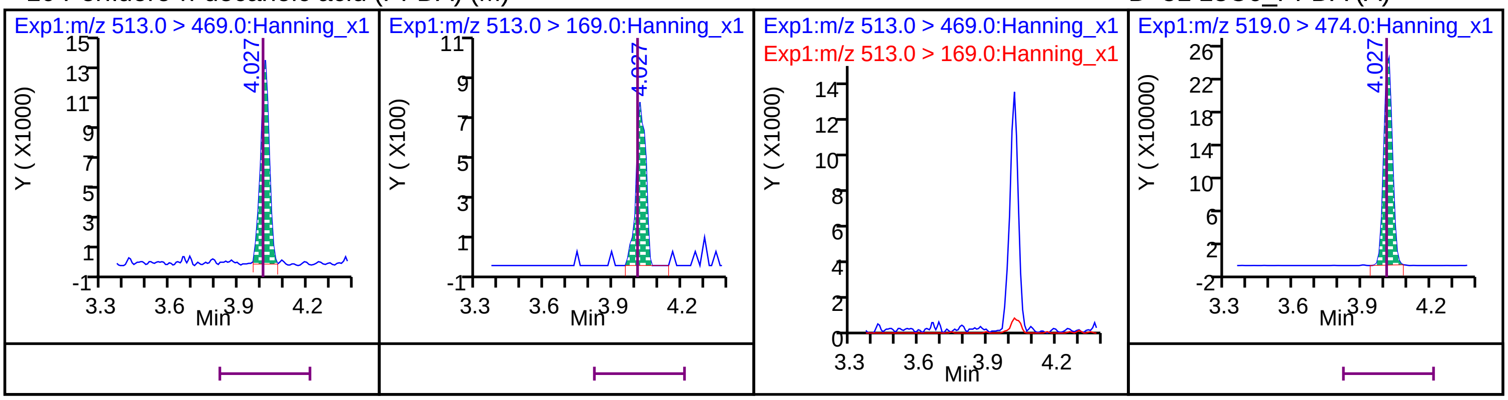
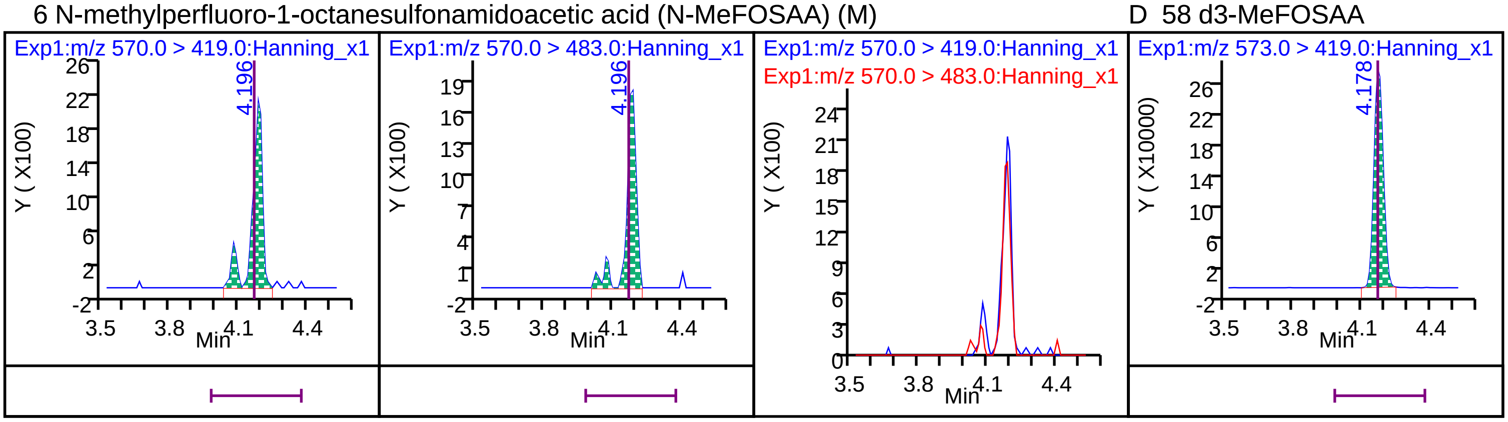
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



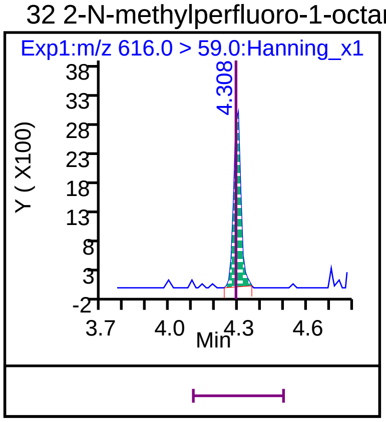
10 Perfluoro-n-decanoic acid (PFDA) (M) D 51 13C6_PFDA (A)

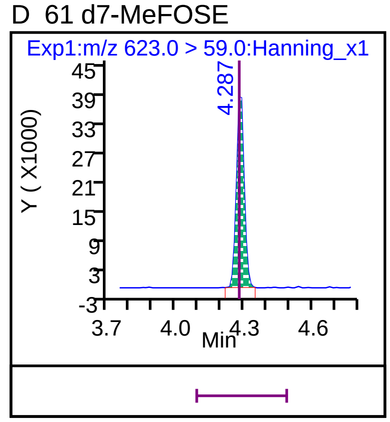


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

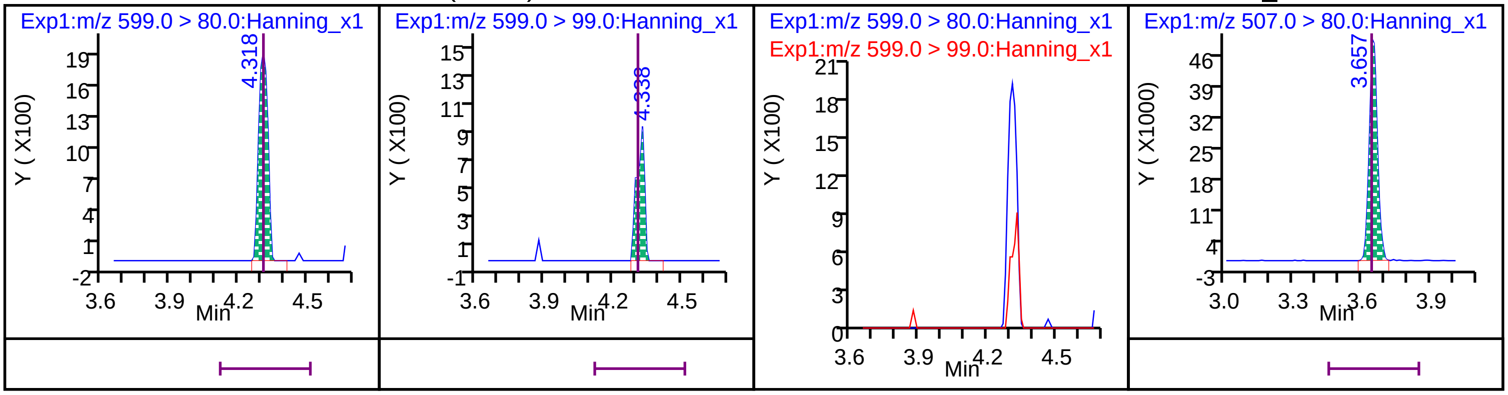


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

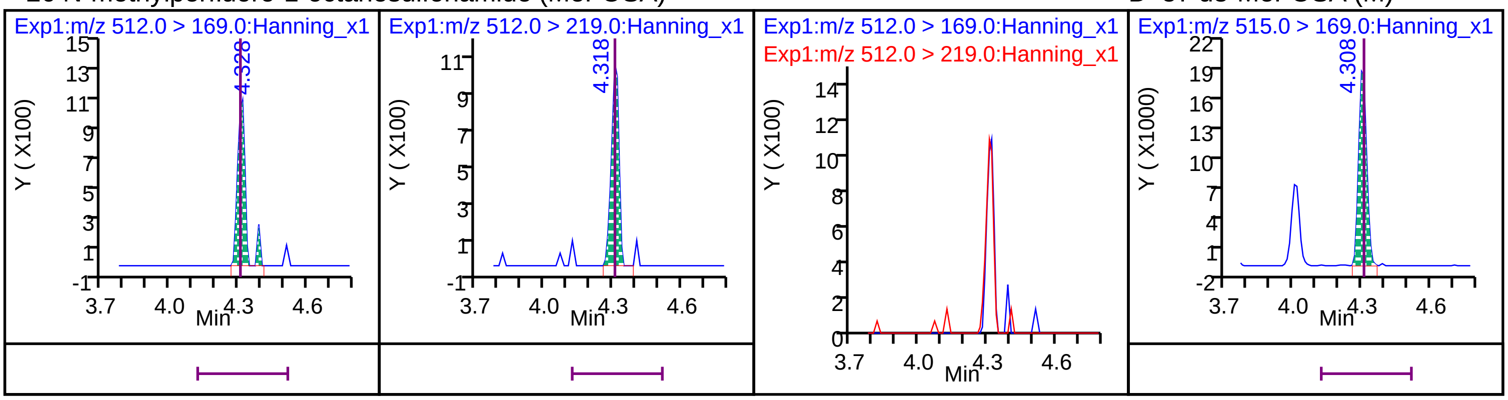




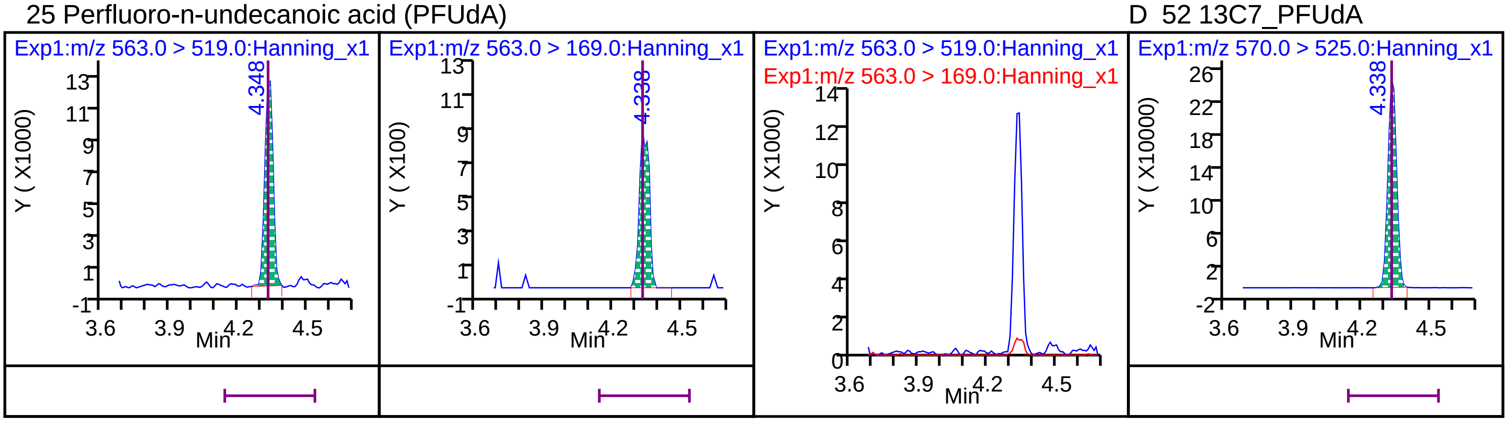
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



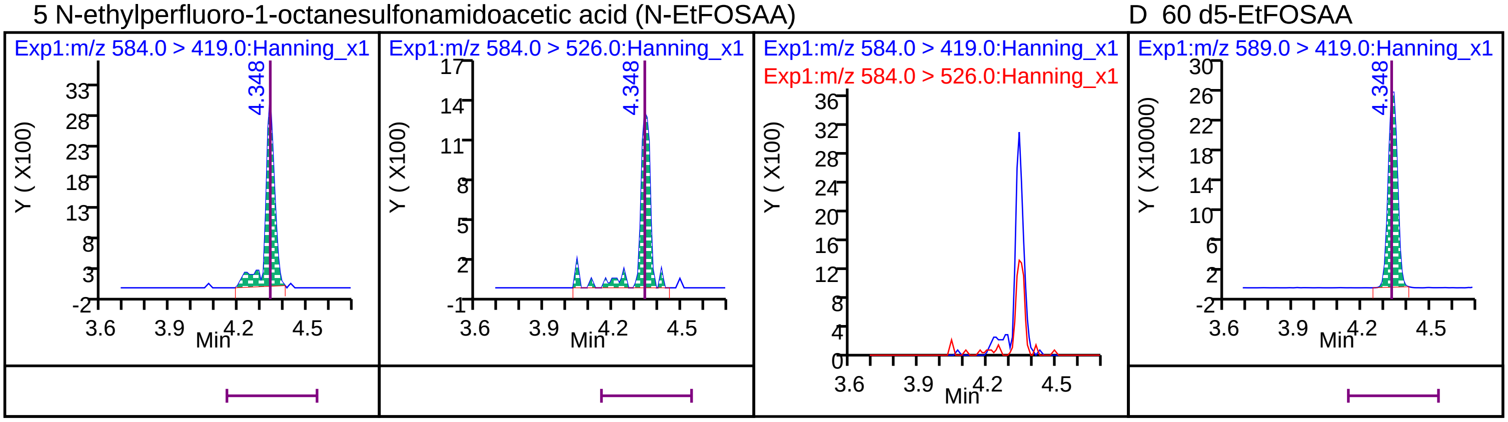
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA (M)



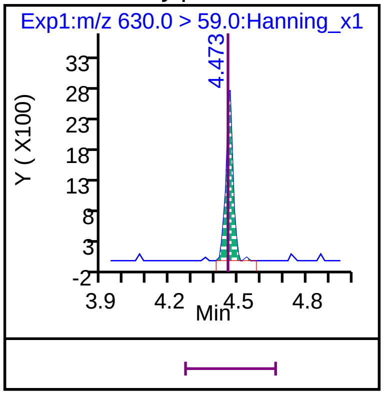
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



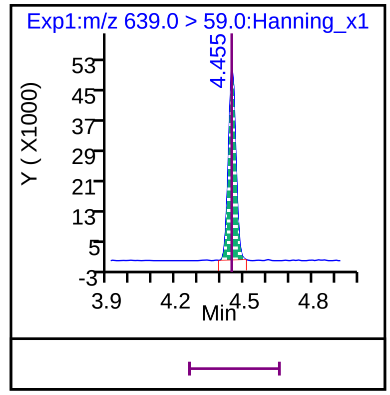
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



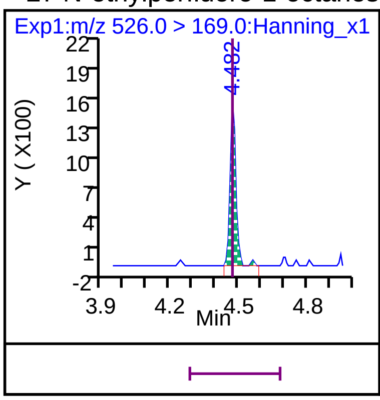
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

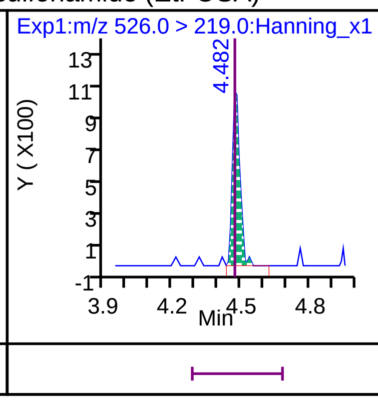


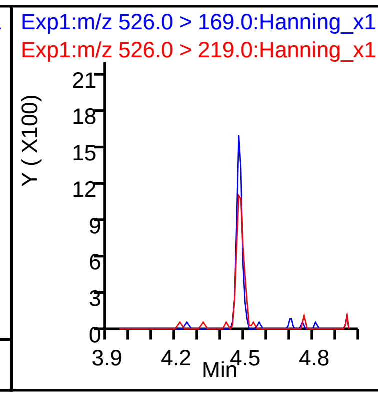
D 62 d9-EtFOSE



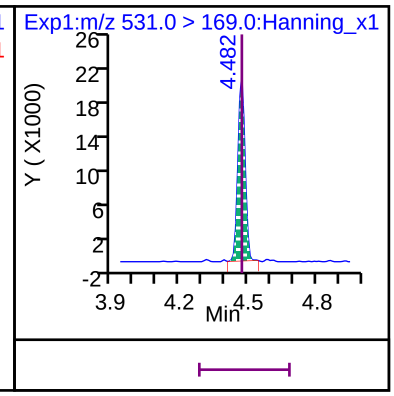
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



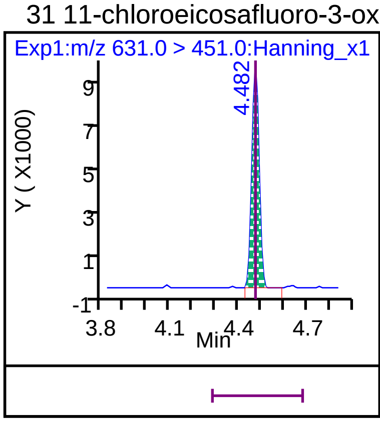




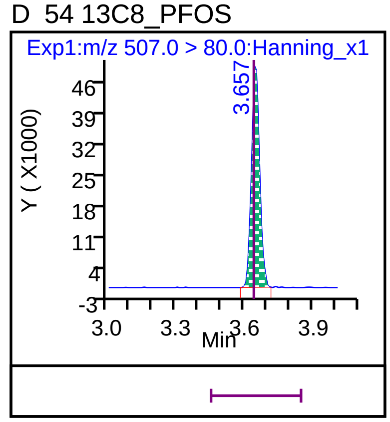
D 59 d5-EtFOSA



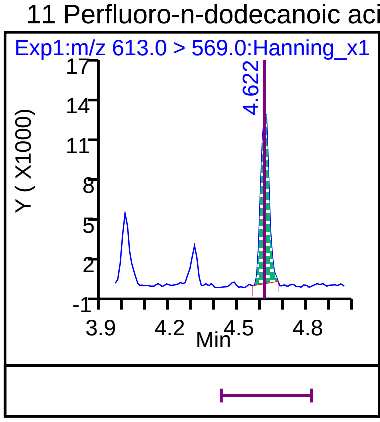
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

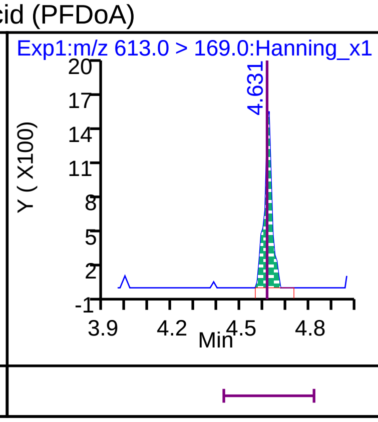


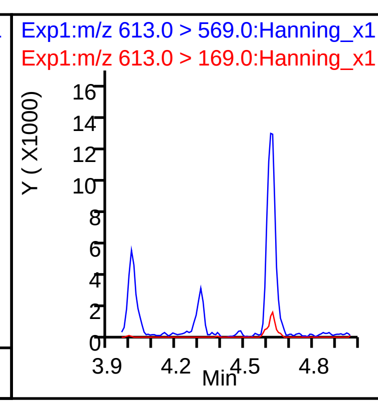
D 54 13C8_PFOS



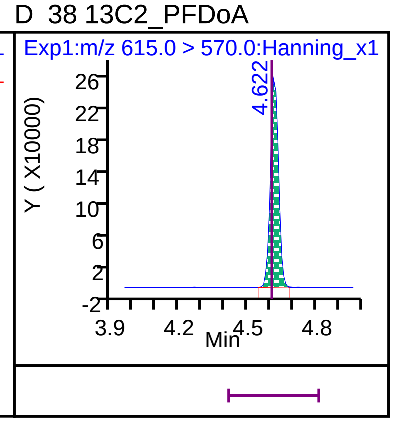
11 Perfluoro-n-dodecanoic acid (PFDoA)







D 38 13C2_PFDoA



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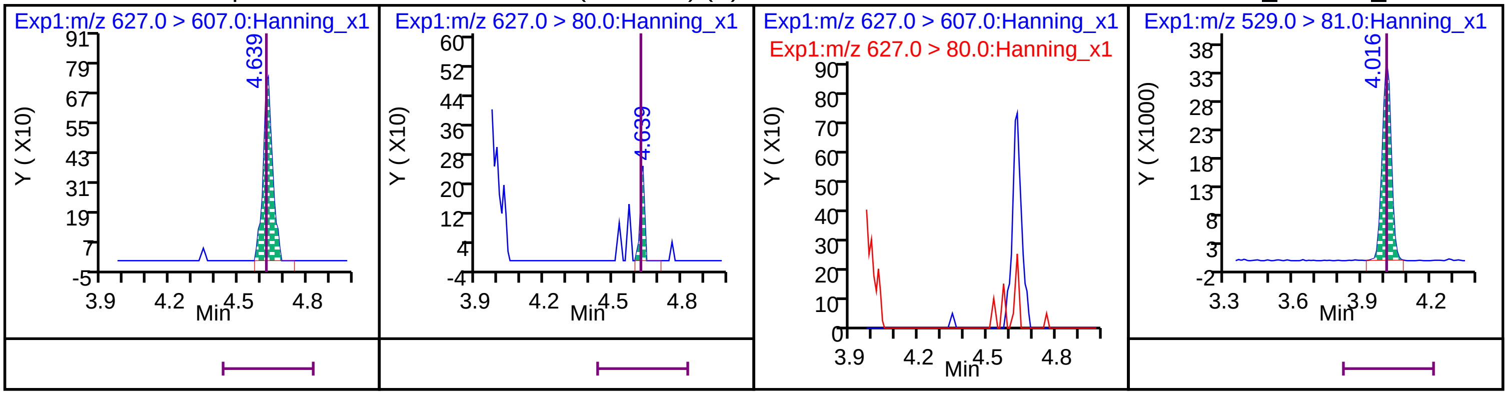
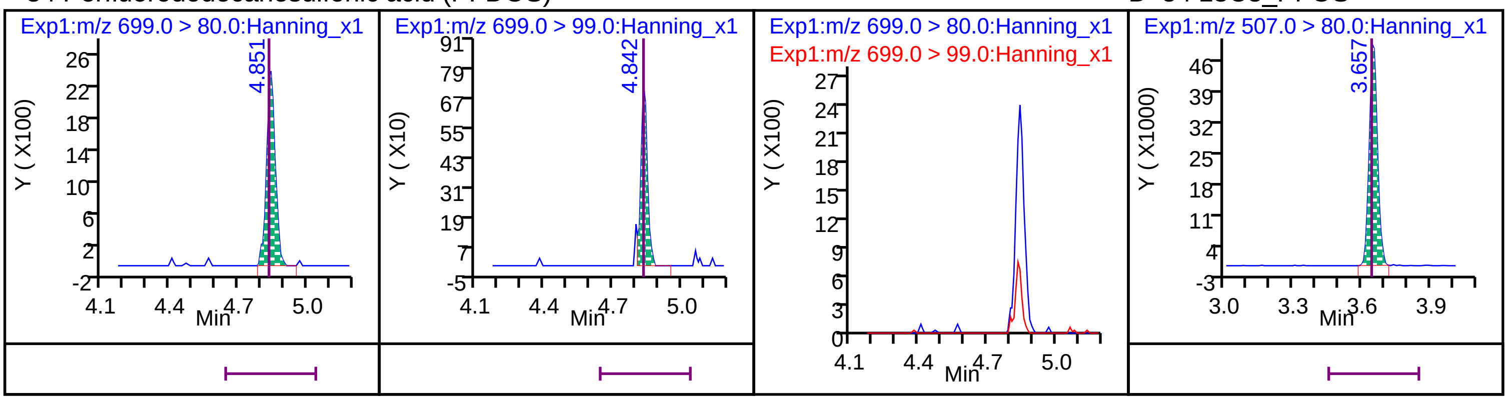
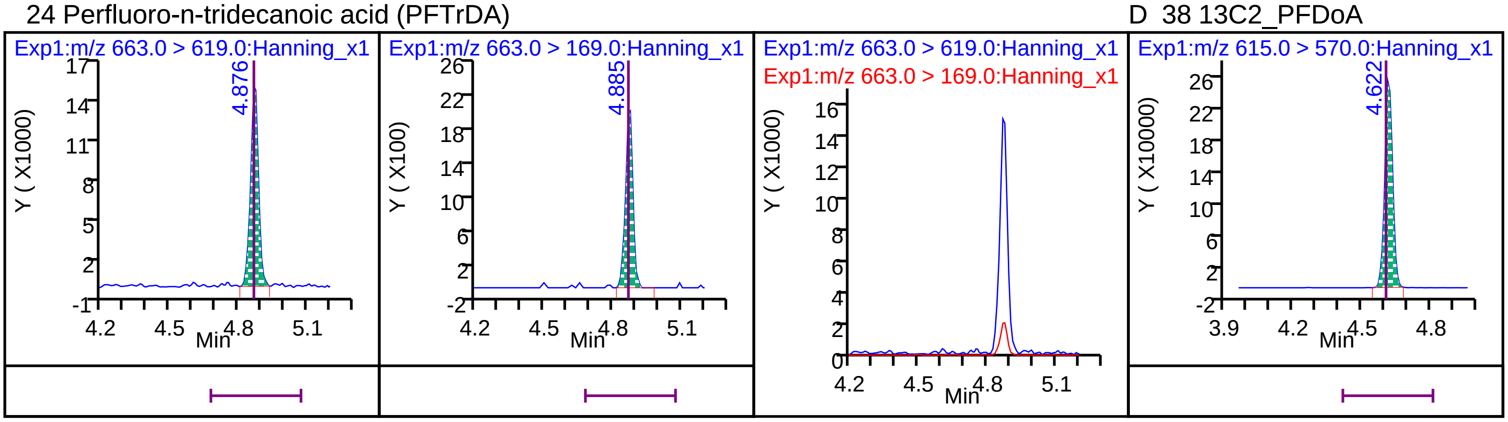
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



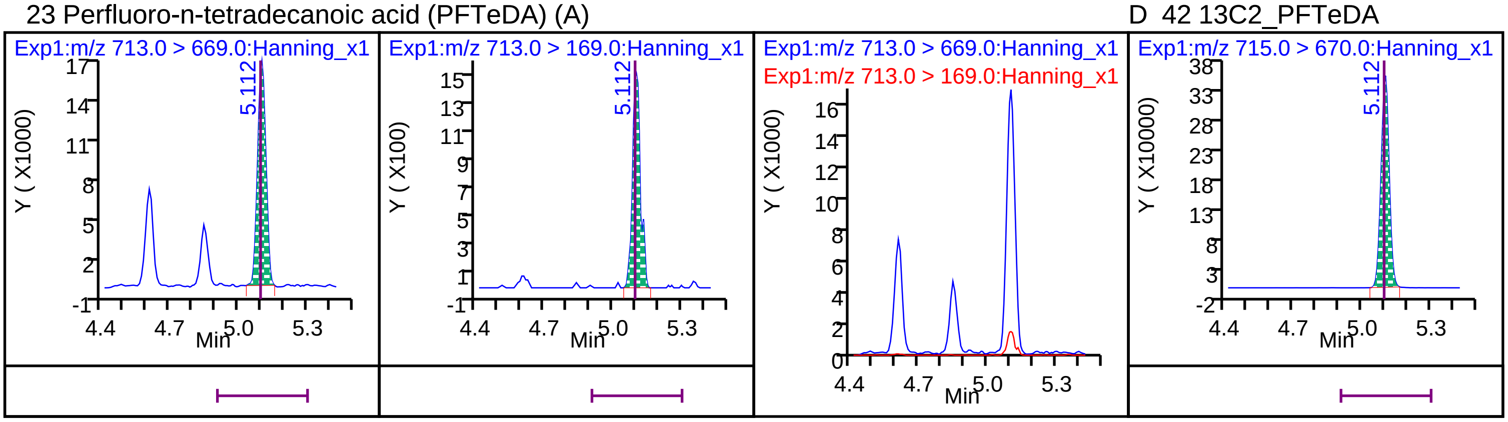
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) (A) D 42 13C2_PFTeDA



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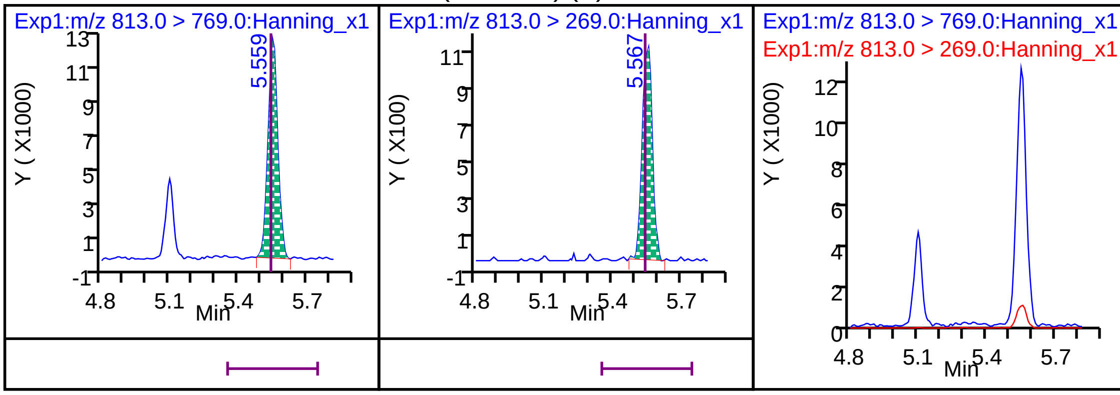
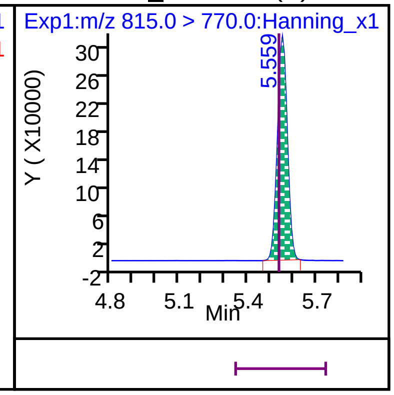
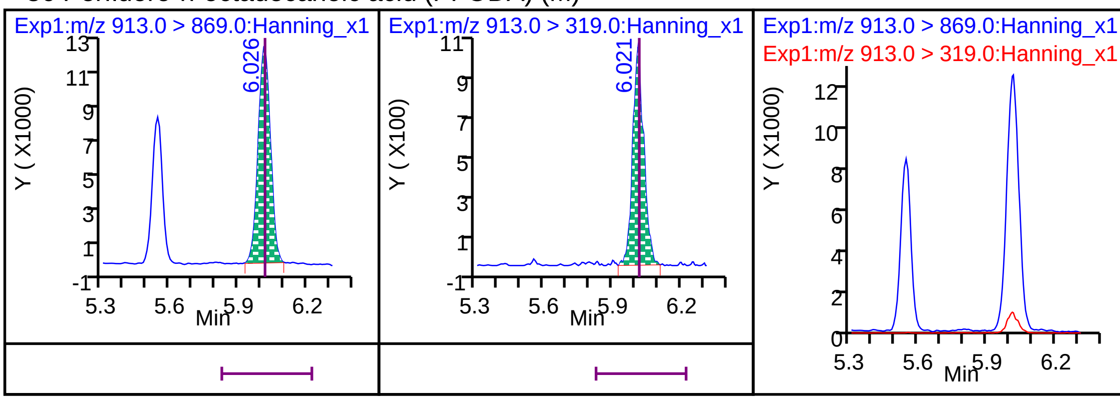
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A)



D 40 13C2_PFHxDA (A)



36 Perfluoro-n-octadecanoic acid (PFODA) (M)



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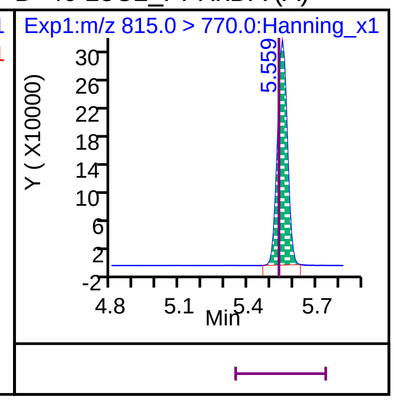
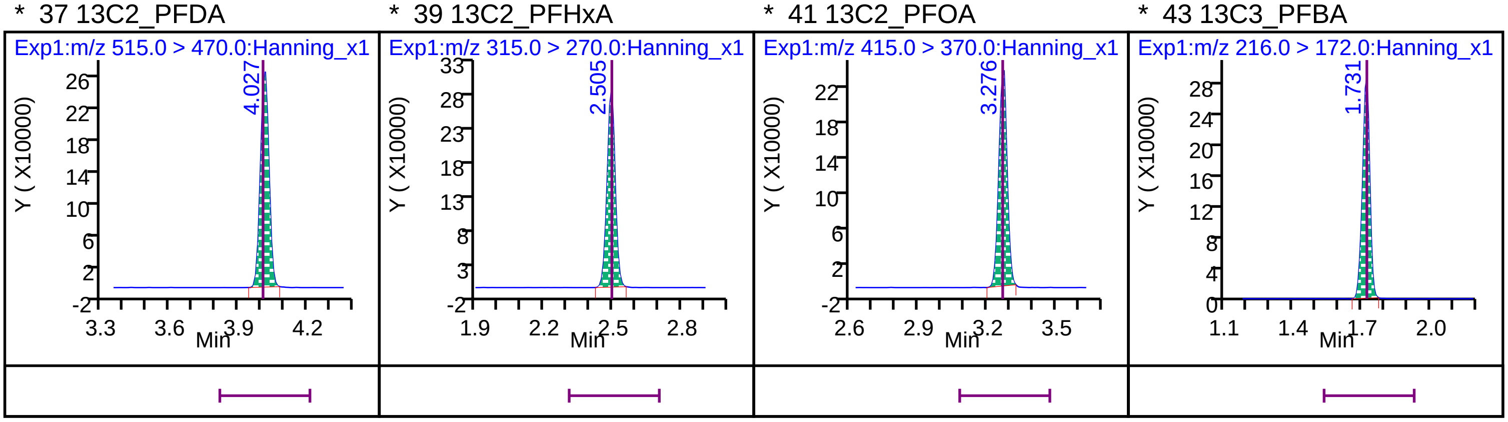


* 37 13C2_PFDA

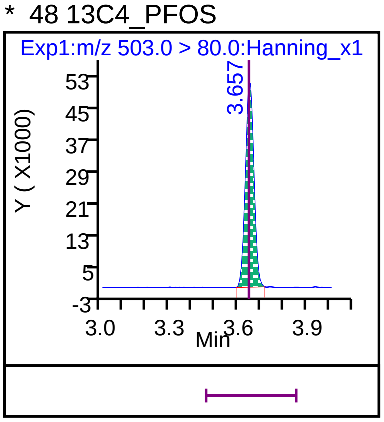
* 39 13C2_PFHxA

* 41 13C2_PFOA

* 43 13C3_PFBA



* 48 13C4_PFOS



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Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

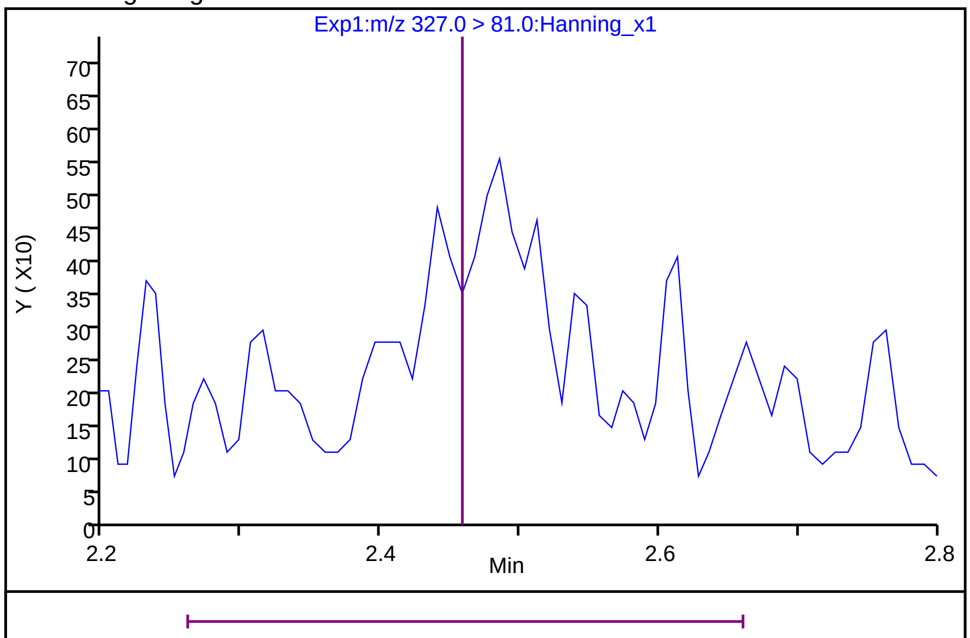
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected

Expected RT: 2.460

RT Window: 2.260-2.660

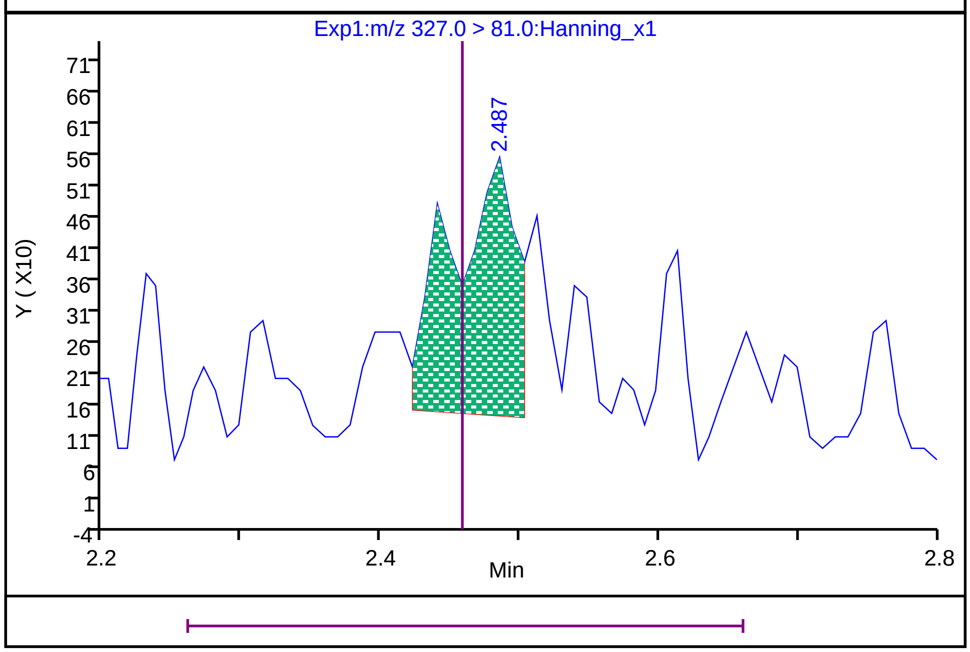


RT: 2.487

Area: 1302

Amount: 46.695

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:38

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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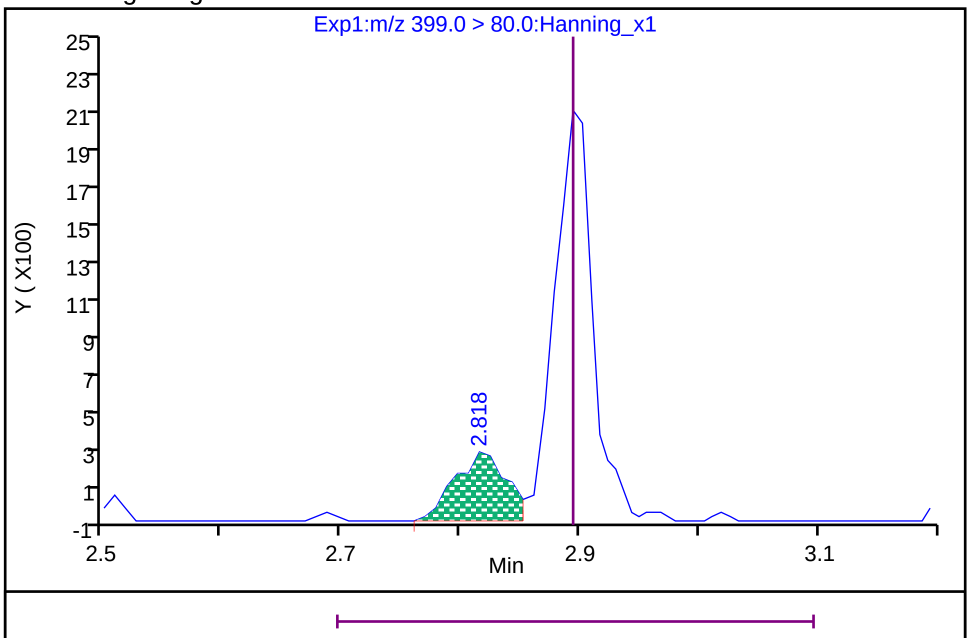
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

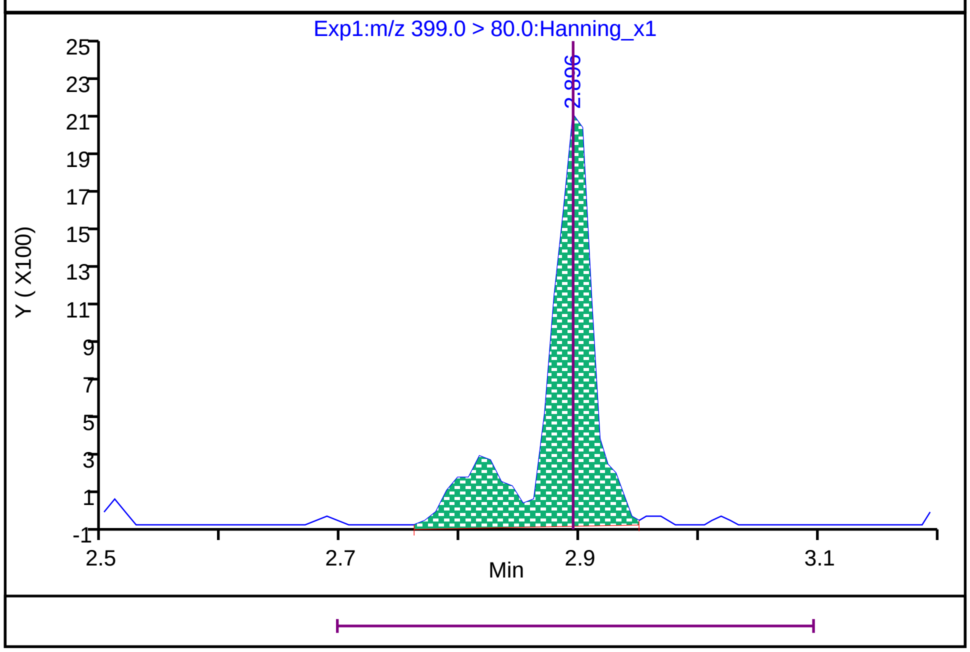
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 1033
Amount: -979.48
Amount Units: ng/L



RT: 2.896
Area: 5763
Amount: 40.980
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:56
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

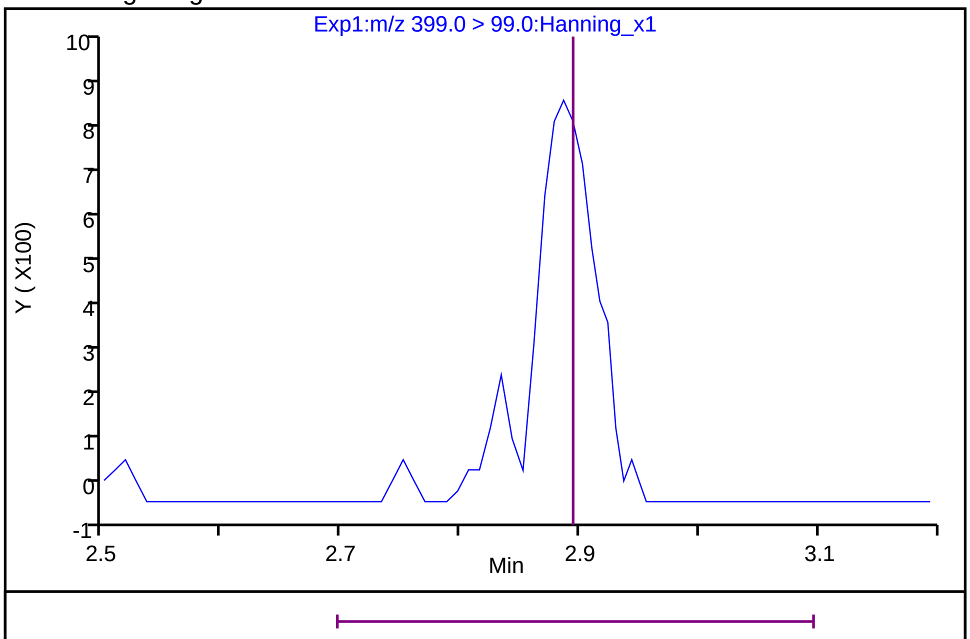
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

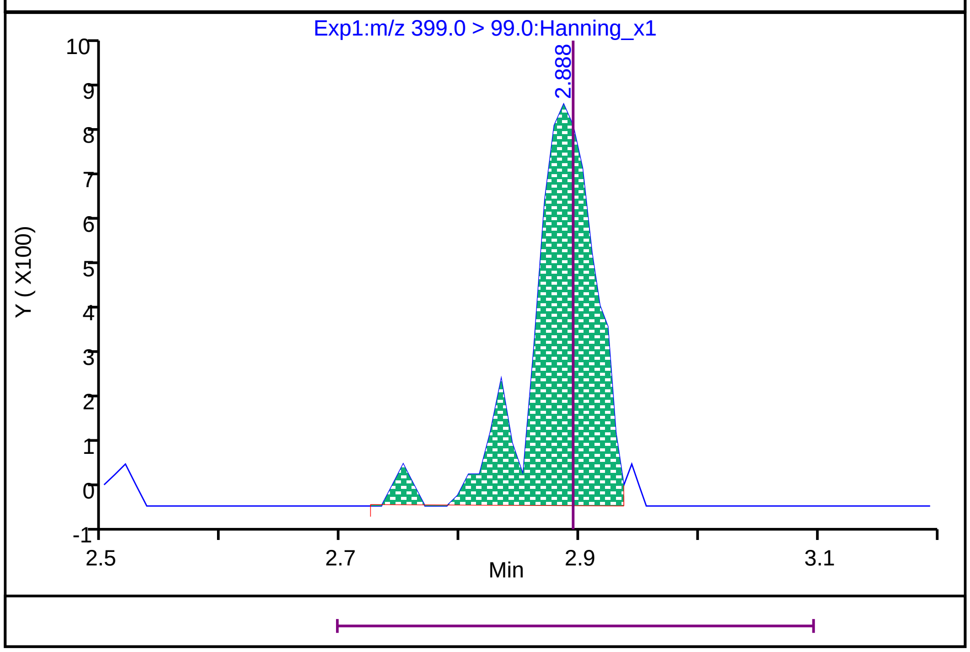
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.836
Area:	634
Amount:	40.980
Amount Units:	ng/L



RT:	2.888
Area:	3074
Amount:	40.980
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

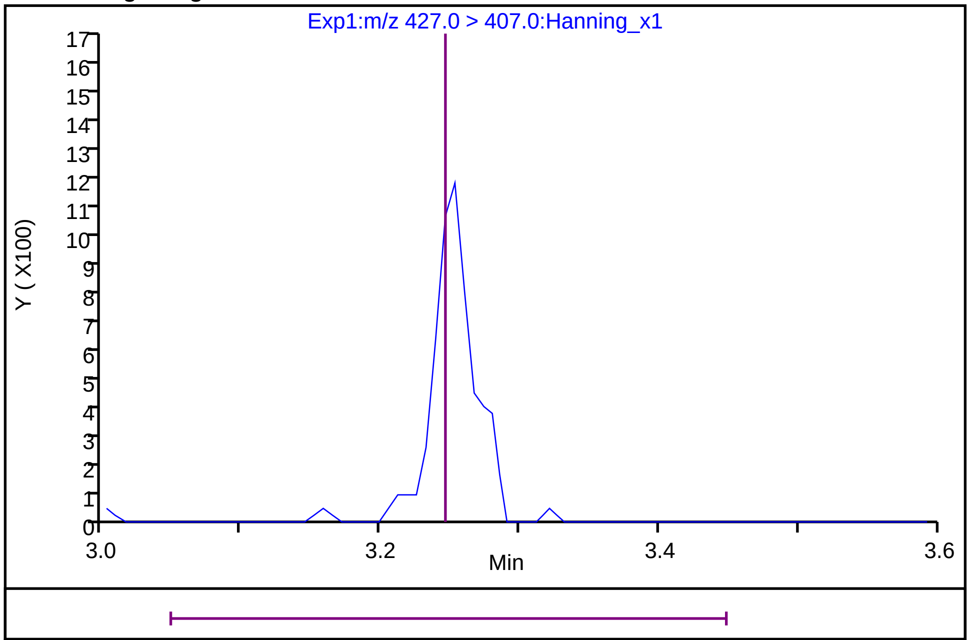
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

Not Detected

Expected RT: 3.248

RT Window: 3.048-3.448

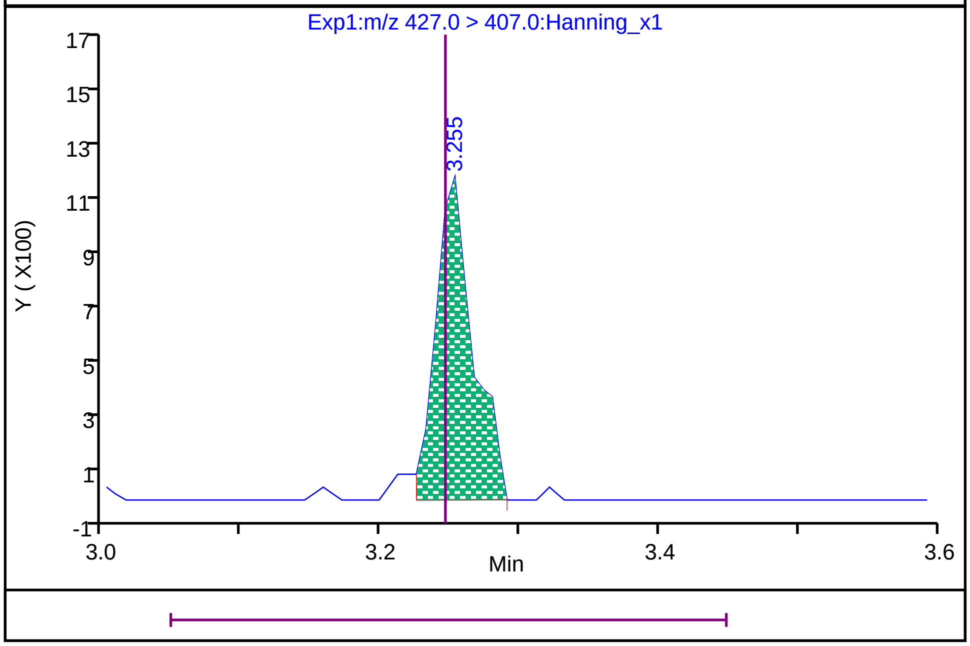


RT: 3.255

Area: 2076

Amount: 47.978

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:49

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

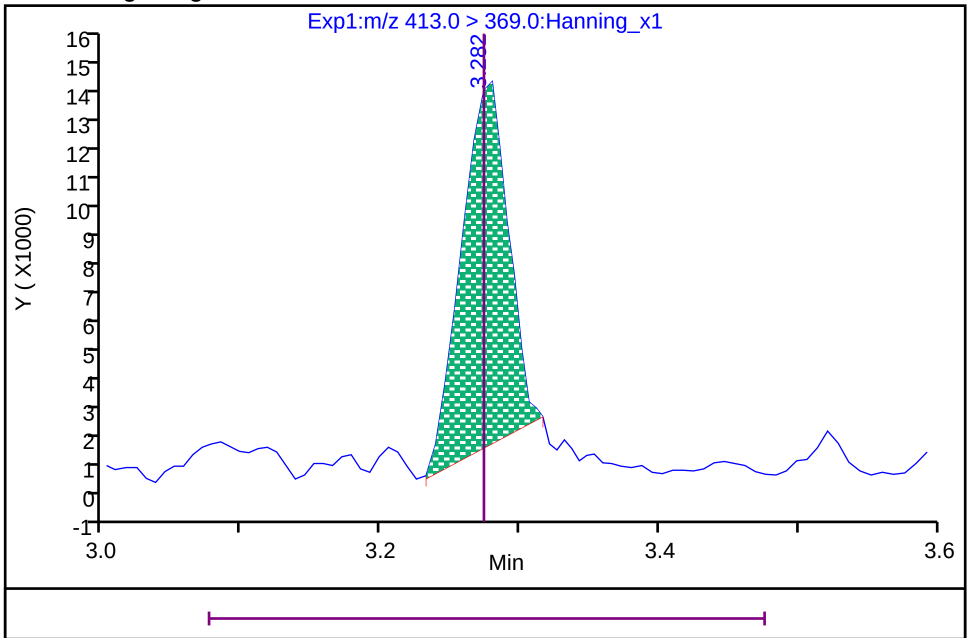
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

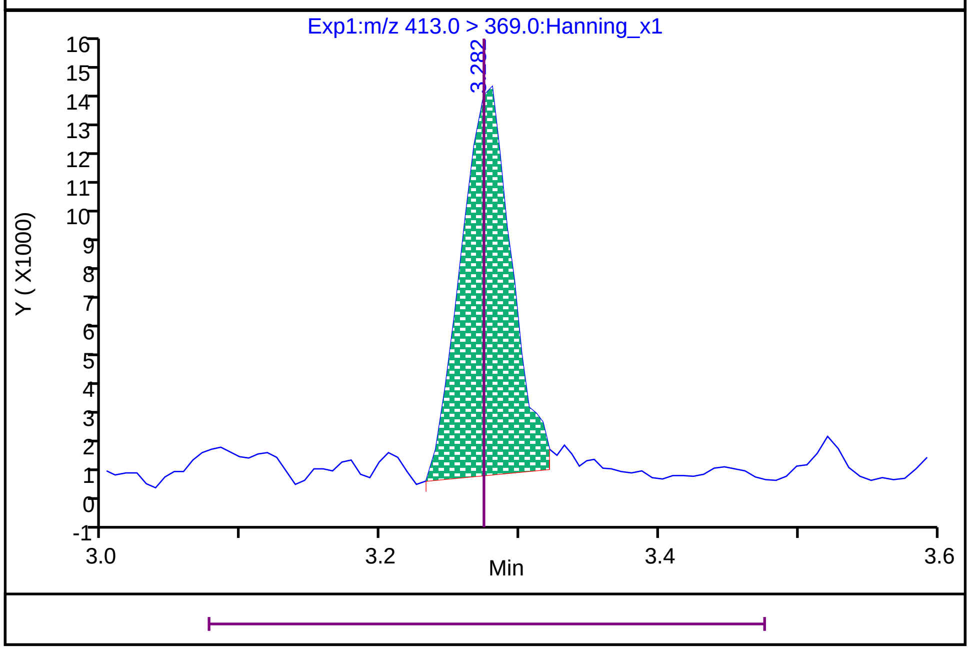
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.282
Area:	28523
Amount:	49.879
Amount Units:	ng/L



RT:	3.282
Area:	32635
Amount:	56.260
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:54:54

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

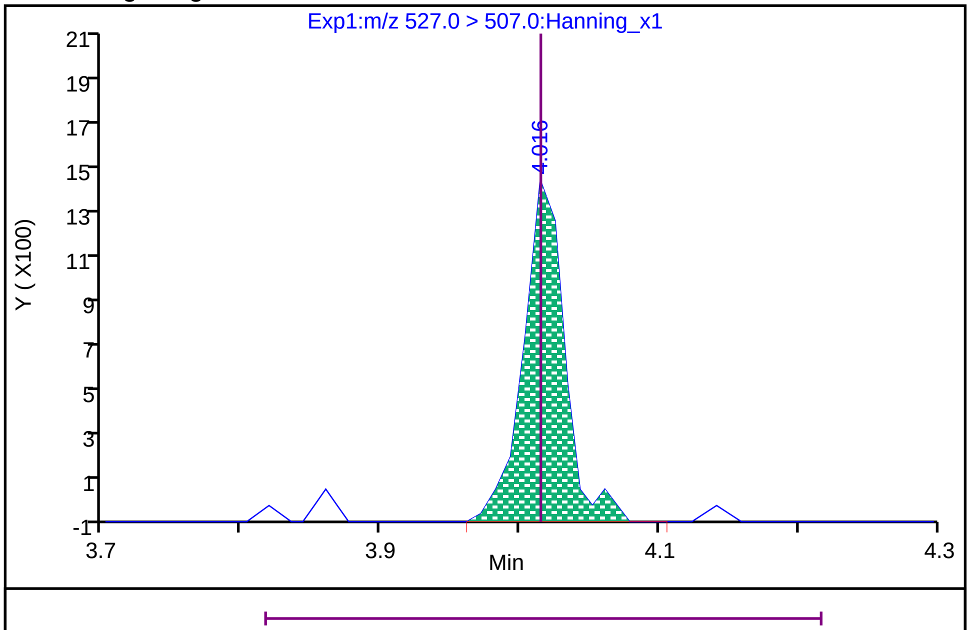
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

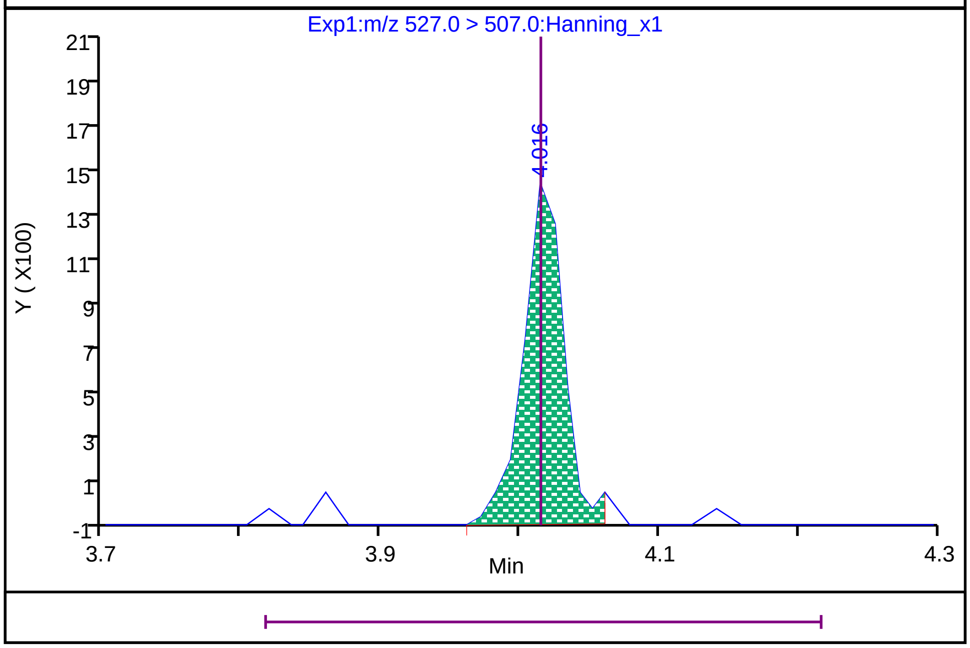
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT:	4.016
Area:	2973
Amount:	67.485
Amount Units:	ng/L



RT:	4.016
Area:	2894
Amount:	68.818
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:47:19

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

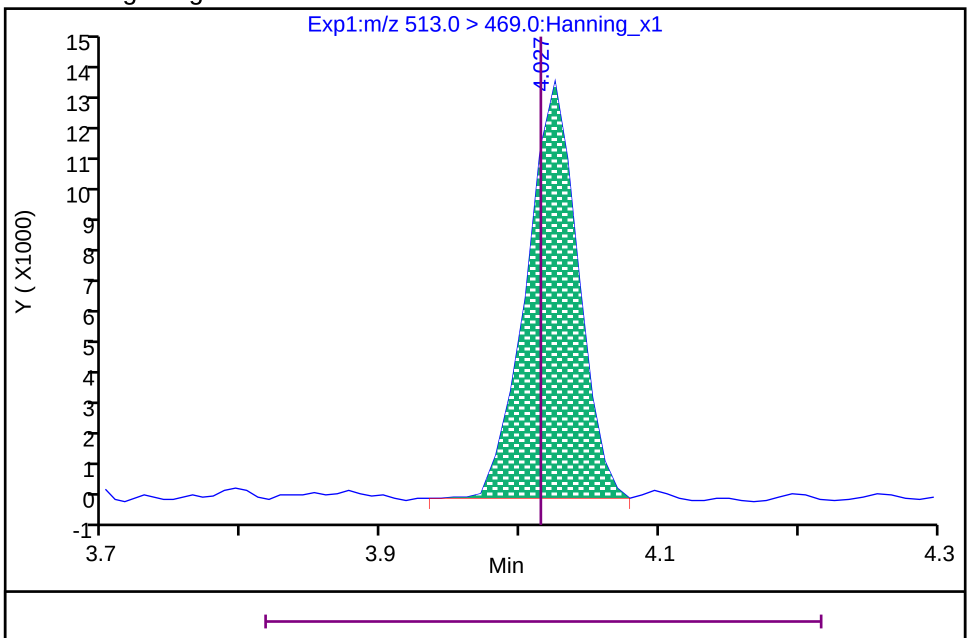
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

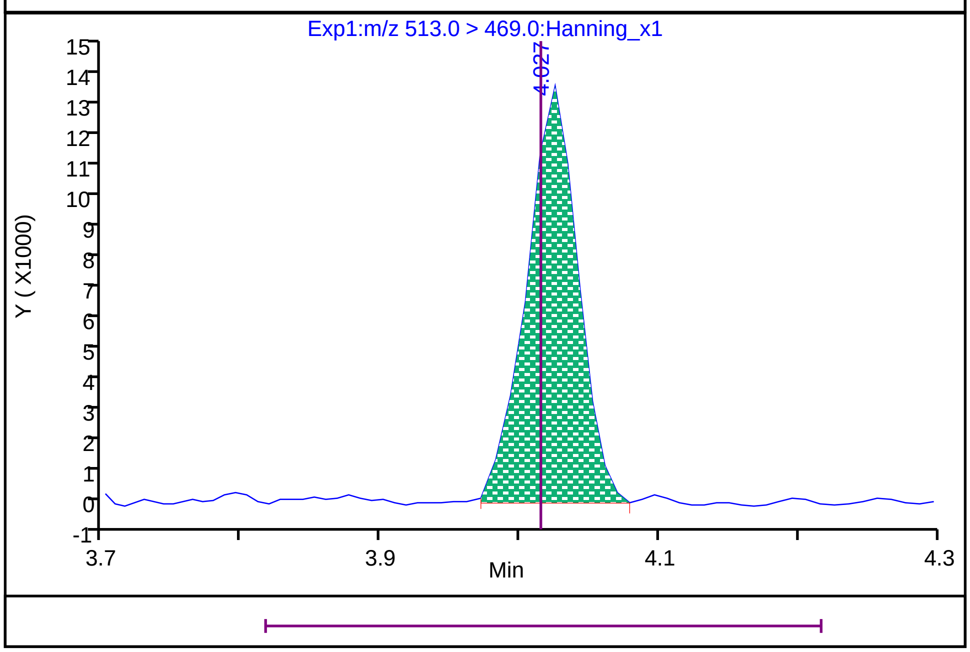
10 PFDA, CAS: 335-76-2

Processing Integration Results

RT: 4.027
Area: 32568
Amount: 71.158
Amount Units: ng/L



RT: 4.027
Area: 32559
Amount: 45.890
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:57
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

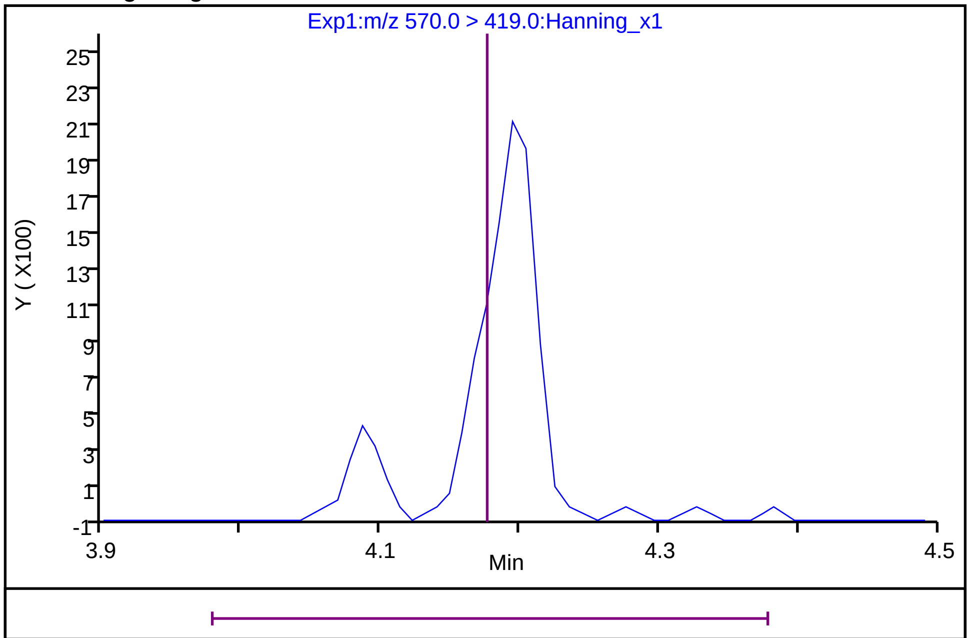
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

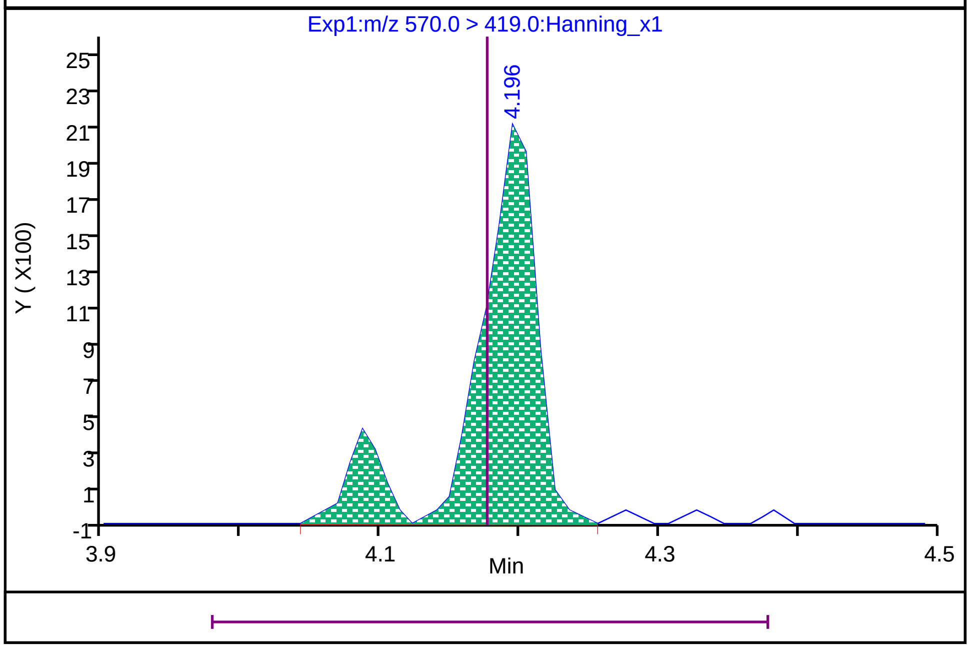
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected
Expected RT: 4.178
RT Window: 3.978-4.378



RT: 4.196
Area: 6340
Amount: 51.203
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:44
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

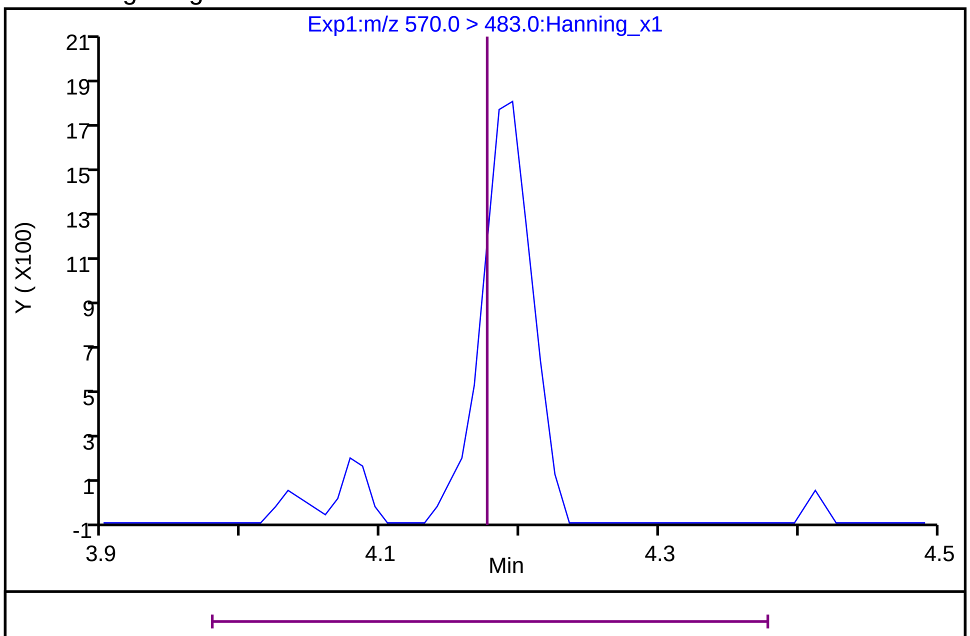
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d		
Injection Date:	07-Nov-2021 18:47:44	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740		
Dil. Factor:	1	Operator:	Justin Gavin

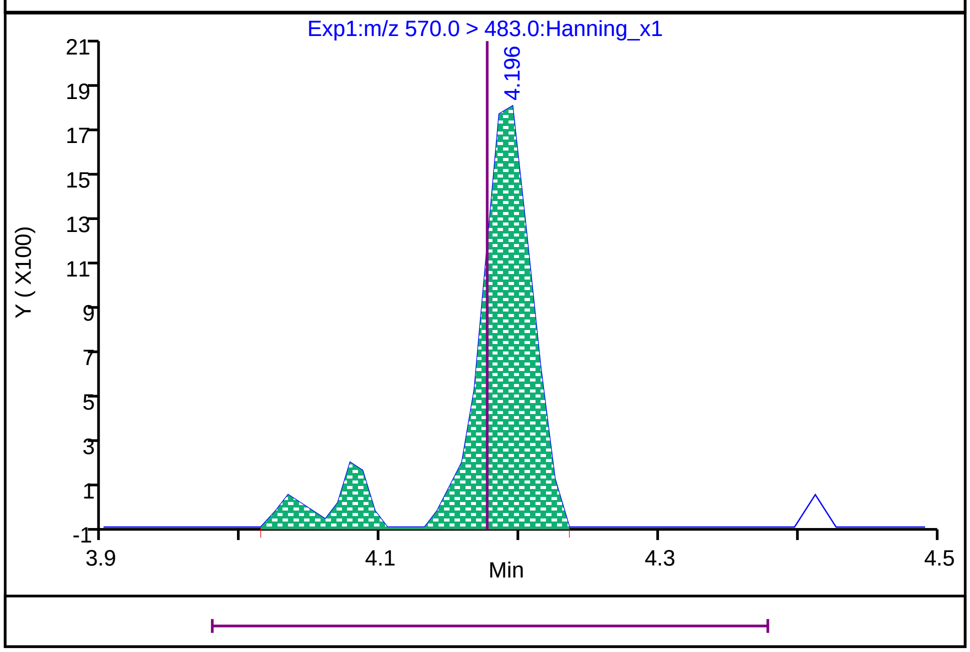
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

Not Detected
Expected RT: 4.178
RT Window: 3.978-4.378



RT: 4.196
Area: 5342
Amount: 51.203
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:46:48
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d

Injection Date: 07-Nov-2021 18:47:44 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 50_SVLC-1740

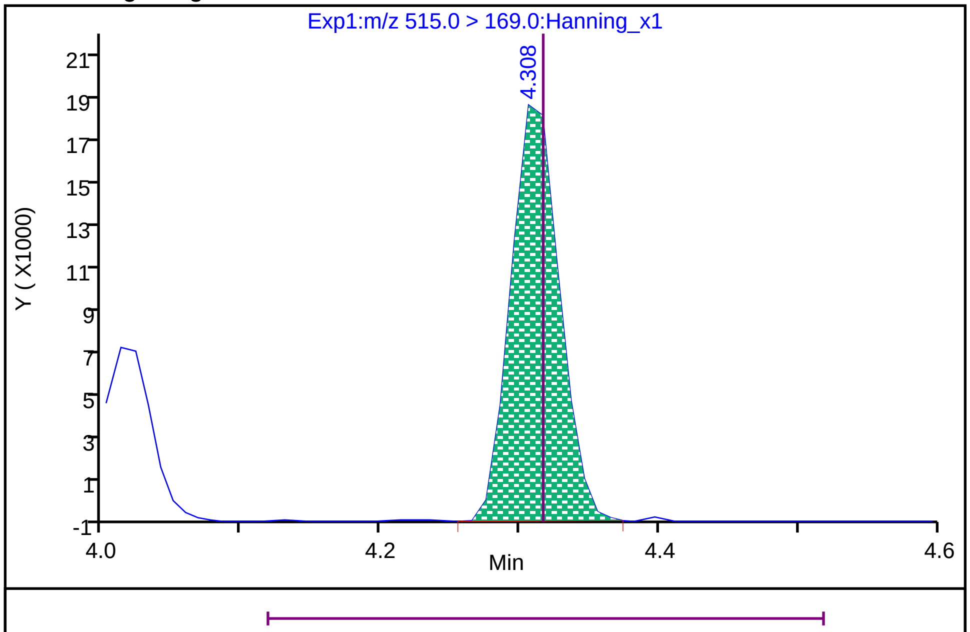
Sample Info: ID ICAL 50_SVLC-1740

Dil. Factor: 1 Operator: Justin Gavin

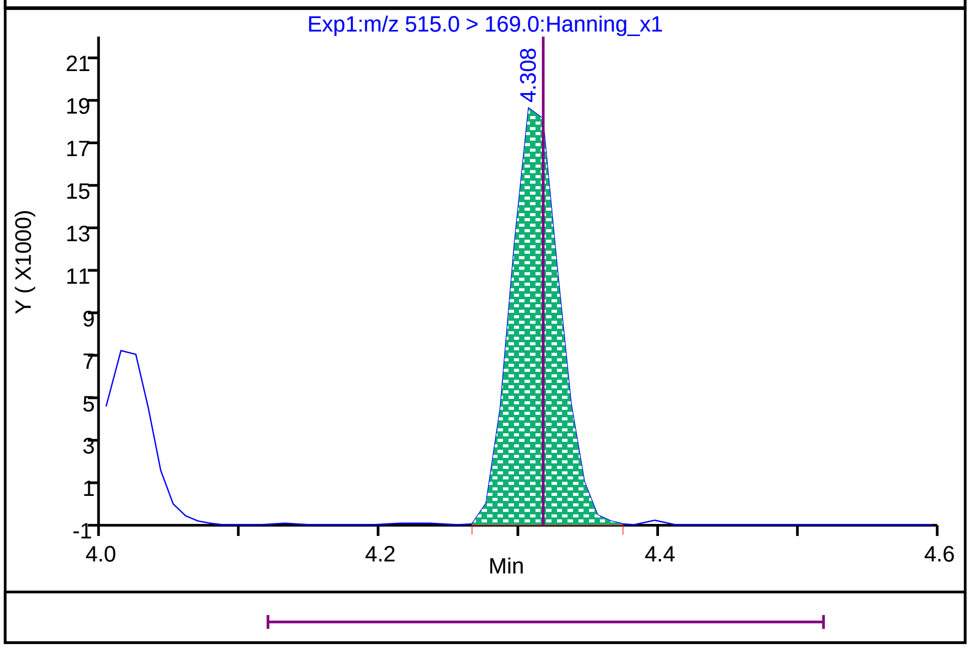
D 57 d3-MeFOSA, CAS: SESI-0109

Processing Integration Results

RT: 4.308
Area: 44820
Amount: 953.32
Amount Units: ng/L



RT: 4.308
Area: 45088
Amount: 958.48
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:55:16

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

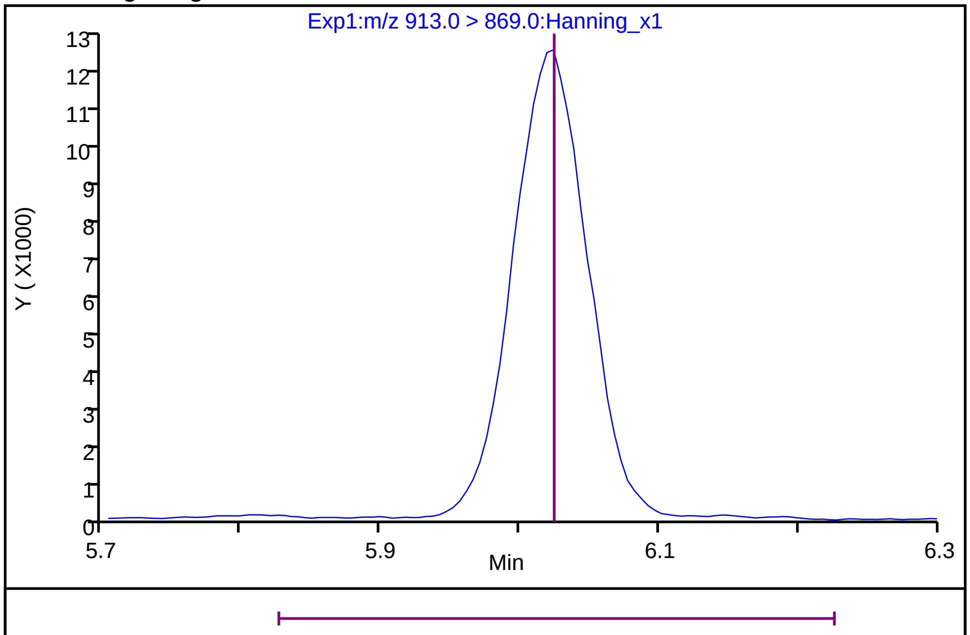
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A12.d
Injection Date:	07-Nov-2021 18:47:44
Inst. ID:	LCMSMS02.i
Client ID:	
Lab ID:	ID ICAL 50_SVLC-1740
Sample Info:	ID ICAL 50_SVLC-1740
Dil. Factor:	1
Operator:	Justin Gavin

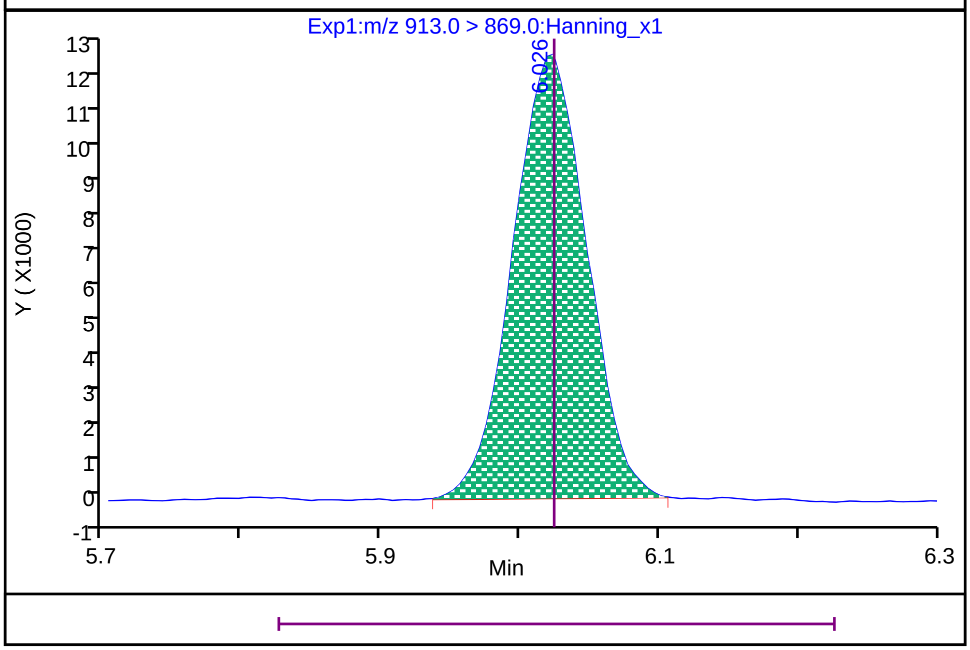
36 PFODA, CAS: 16517-11-6

Processing Integration Results

Not Detected
Expected RT: 6.026
RT Window: 5.826-6.226



RT: 6.026
Area: 43650
Amount: 52.988
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:55:05
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 2	Auto Sampler:	76
Sample Info:	ID ICAL 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	639140	20	>100:1			1000.00	1028.09	100.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	66740	19	97:1			100.00	99.012		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	579707	15	>100:1			1000.00	1014.20	99.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	68039	14	70:1			100.00	104.28		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	172237	16	>100:1			1000.00	995.76	96.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	20952	14	>100:1	Target = 3.53		88.400	97.549		
298.9 > 99	44	2.183	2.183		6553	19	83:1	3.19 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	1/1	15524	16	>100:1	Target = 3.10		93.800	97.253		
349 > 99	44	2.531	2.531		4132	12	58:1	3.75 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	117065	14	>100:1			5000.00	5169.87	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	4592	14	72:1	Target = 1.75		93.400	88.973		M
327 > 81	63	2.460	2.460		3250	11		1.41 (0.87-2.62)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	670974	17	>100:1			1000.00	1030.23	100.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/1	66898	21	>100:1	Target = 18.91		100.00	95.890		
313 > 119	49	2.505	2.505		2951	11	42:1	22.66 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	1	1197981	19	>100:1			5000.00	5169.14	99.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	29374	16	100:1	Target = 0.79		200.00	189.30		M
285 > 185	66	2.622	2.622		38380	18	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	1	548747	18	>100:1			1000.00	1033.54	103	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	1/0	60017	18	>100:1	Target = 3.80		100.00	99.534		
363 > 169	47	2.888	2.880		16168	16	>100:1	3.71 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	125934	19	>100:1			1000.00	1002.34	97.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													a
399 > 80	45	2.896	2.896	6/5	12218	24	61:1	Target = 2.89	5.96	91.000	88.248		M
399 > 99	45	2.888	2.896		5261	20	69:1	2.32 (1.44-4.34)	9.97				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	95386	17	>100:1	Target = 3.23		94.200	97.667		
377 > 85	45	2.925	2.919		29244	18	>100:1	3.26 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.282	3.276	1/0	13136	20	>100:1	Target = 3.12		95.200	101.56		
449 > 99	45	3.282	3.276		5024	20	45:1	2.61 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	93235	24	>100:1			5000.00	5179.73	99.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	5217	19		Target = 1.75		94.800	118.19		
427 > 81	64	3.241	3.248		3232	14	5.0:1	1.61 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	0	554295	23	>100:1			1000.00	1056.45	101.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	52014	21	42:1	Target = 2.89		100.00	91.571		
413 > 169	53	3.282	3.276		20893	21	>100:1	2.48 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	121269	21	>100:1			1000.00	979.22	91.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.662	0/-1	14281	45	34:1	Target = 3.30	3.55	92.800	98.904		
499 > 99	54	3.657	3.662		4701	29	62:1	3.03 (1.65-4.95)	14.37				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/0	42553	19	>100:1			93.200	92.656		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	0/-1	9317	18		Target = 3.08		96.000	95.763		
549 > 99	54	4.005	4.006		3298	20	13:1	2.82 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/-1	9046	20	36:1	Target = 2.72		96.400	95.324		
599 > 99	54	4.318	4.318		2895	18	23:1	3.12 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.482	4.483	0/-1	41193	16	>100:1			94.200	99.217		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.851	4.842	1/0	9475	26	65:1	Target = 3.27		96.800	90.863		
699 > 99	54	4.851	4.842		2947	19		3.21 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.668	3.662	1	668048	22	>100:1			1000.00	1043.21	104.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.668	3.662	1/0	71588	21	>100:1	Target = 6.51		100.00	99.418		
463 > 169	56	3.668	3.662		11437	21	>100:1	6.25 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	0	278692	17	>100:1			1000.00	1039.67	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	0/0	27706	13	>100:1	Target = 41.63		100.00	94.484		
498>478	55	3.912	3.896		185	13		149.76 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.016	1	566586	16	>100:1			1000.00	985.95	98.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/0	68174	18	>100:1	Target = 13.80		100.00	103.39		
513 > 169	51	4.027	4.016		4152	21		16.41 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	0	89788	16	>100:1			5000.00	5194.71	113.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.027	4.016	1/1	3178	19	15:1	Target = 1.94		95.800	78.320		
527 > 81	65	4.027	4.016		2087	10	8.9:1	1.52 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	5252	15		Target = 3.54		96.400	115.30		
627 > 80	65	4.631	4.631		1900	23	5.8:1	2.76 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.187	4.178	1	757204	17	>100:1			5000.00	5010.86	98	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/-1	12194	23	66:1	Target = 1.37	10.57	100.00	100.35		
570 > 483	58	4.187	4.178		6822	27	25:1	1.78 (0.68-2.05)	5.14				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.287	4.288	0	97587	14	>100:1			1000.00	1082.03	108.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/0	9069	19	56:1			100.00	85.037		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	51324	14	>100:1			1000.00	1091.04	114.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	4810	16	25:1	Target = 1.11		100.00	86.465		
512 > 219	57	4.318	4.318		4765	21	32:1	1.00 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.347	4.338	1	700240	16	>100:1			5000.00	5406.71	101.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.347	4.348	0/-1	10673	29		Target = 1.51	8.24	100.00	78.160		
584 > 526	60	4.347	4.348		9865	33		1.08 (0.75-2.26)	3.20				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	605845	17	>100:1			1000.00	1005.97	95.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	60854	16	>100:1	Target = 14.52		100.00	103.66		
563 > 169	52	4.347	4.338		4201	21		14.48 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	112304	14	>100:1			1000.00	1058.70	110.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.464	0/0	10317	20	57:1			100.00	94.369		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	0	41158	16	>100:1			1000.00	957.17	96	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	0/0	6677	12	41:1	Target = 1.06		100.00	123.80		
526 > 219	59	4.482	4.483		4453	19	22:1	1.49 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.622	4.614	1	609758	17	>100:1			1000.00	1015.69	100.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	0/-1	62385	14	15:1	Target = 10.70		100.00	95.970		
613 > 169	38	4.631	4.622		6335	15	26:1	9.84 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	0/-1	63642	18	>100:1	Target = 8.31		100.00	99.300		
663 > 169	38	4.877	4.877		8192	21	>100:1	7.76 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.112	5.106	1	821567	22	>100:1			1000.00	1010.55	98	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.112	5.106	1/0	73189	20	18:1	Target = 12.17		100.00	102.05		
713 > 169	42	5.106	5.106		5801	21	97:1	12.61 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.552	5.544	0	861836	21	>100:1			1000.00	992.86	98.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.552	5.552	0/0	59390	21	8.1:1	Target = 10.43		100.00	107.60		
813 > 269	40	5.560	5.552		5561	25	>100:1	10.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.031	6.026	1/1	80162	32	>100:1	Target = 13.67		100.00	102.17		
913 > 319	40	6.031	6.026		6323	38	>100:1	12.67 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	665974	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	662021	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	543161	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	568408	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	128160	21	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

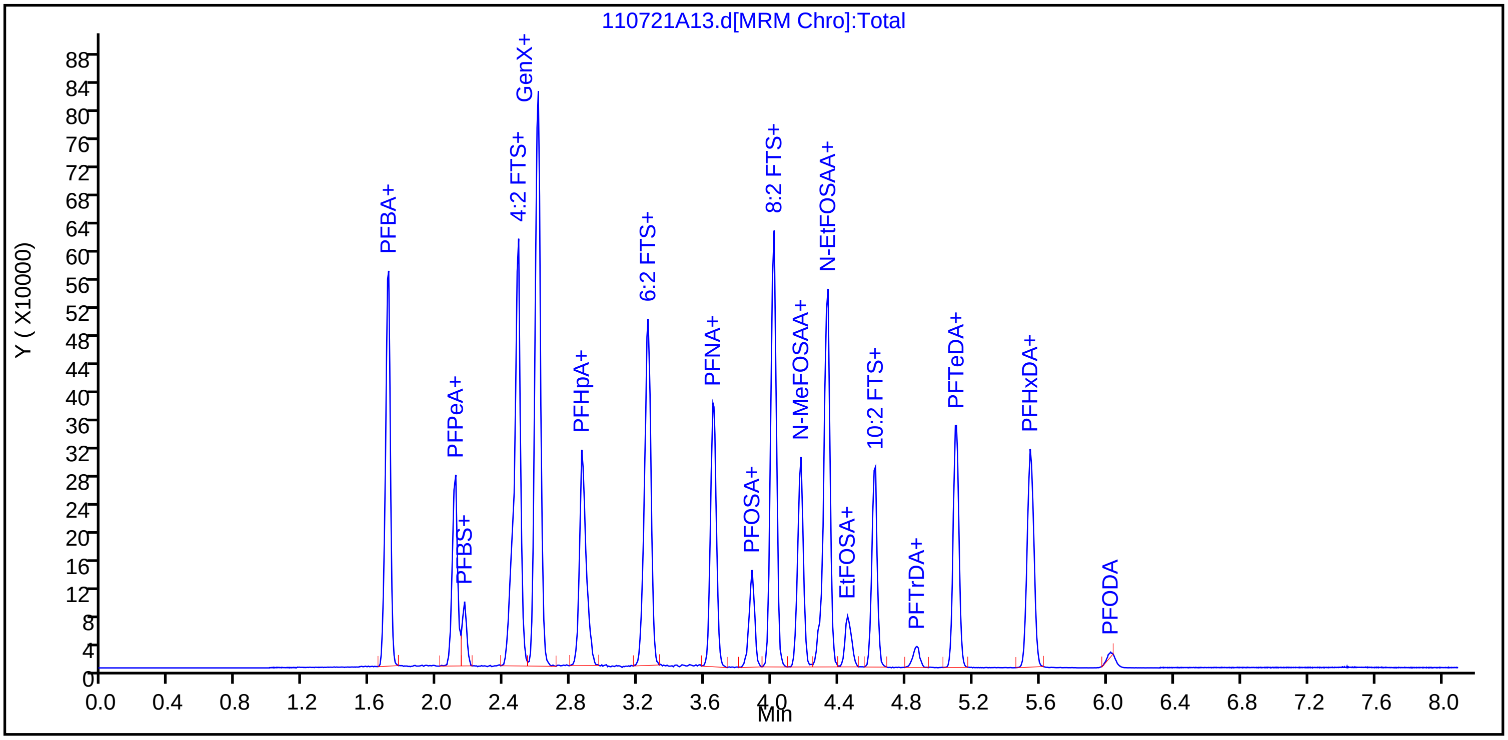
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

Injection Date: 07-Nov-2021 18:58:19 Inst. ID: LCMSMS02.i

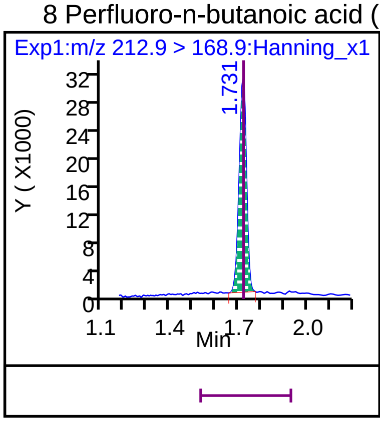
Client ID: Lab ID: ID ICAL 100_SVLC-1741

Sample Info: ID ICAL 100_SVLC-1741

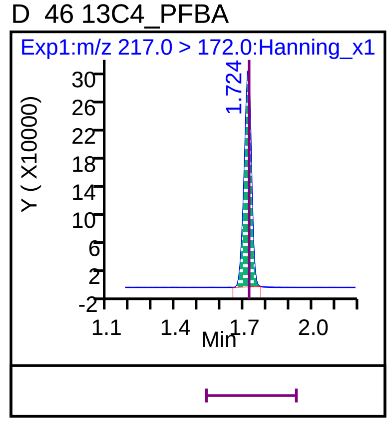
Dil. Factor: 1 Operator: Justin Gavin



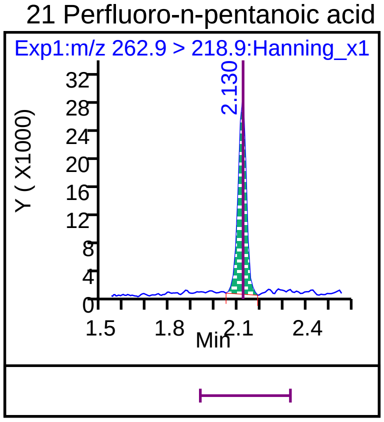
8 Perfluoro-n-butanoic acid (PFBA)



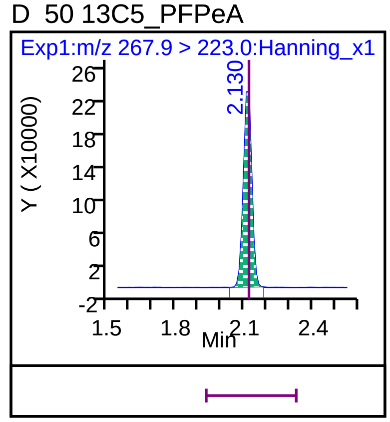
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

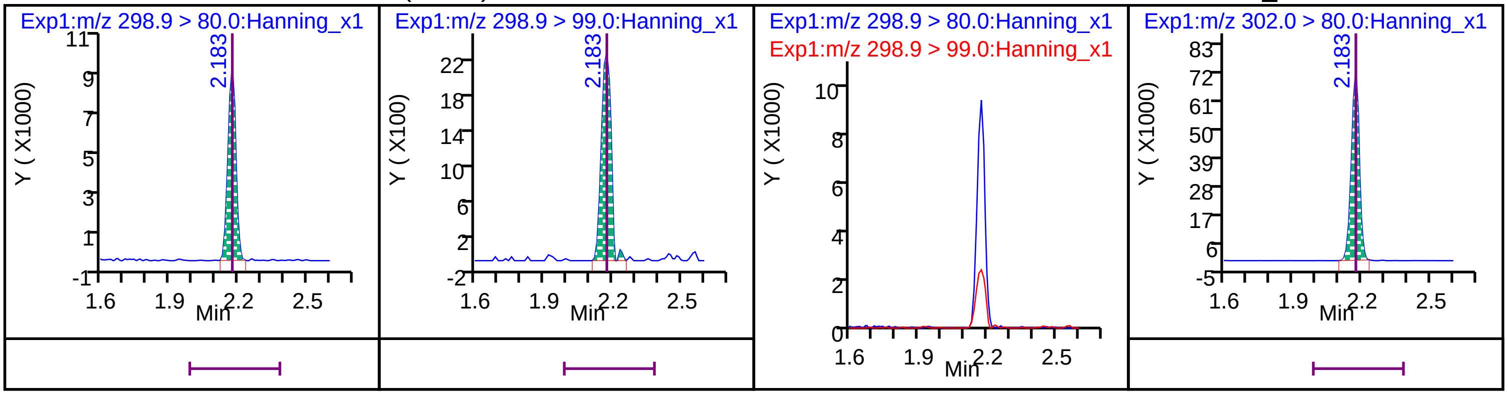


D 50 13C5_PFPeA

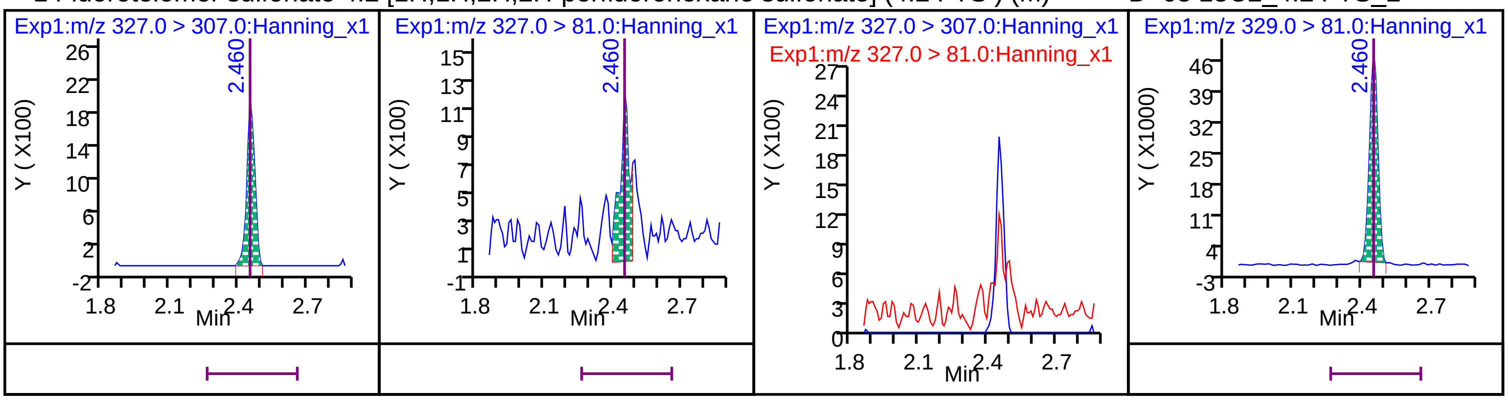


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

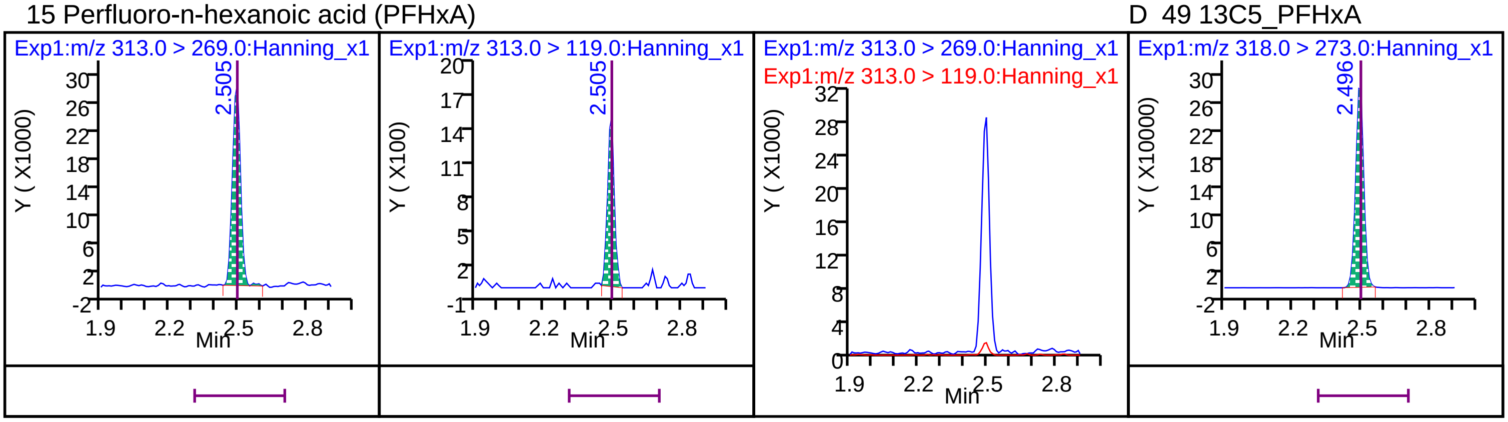
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



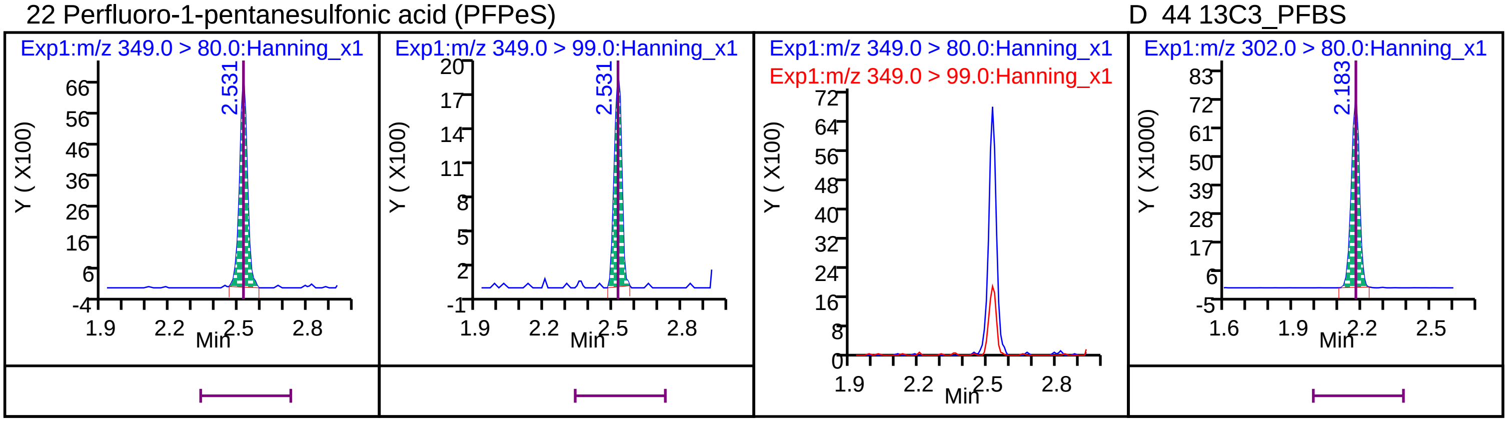
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

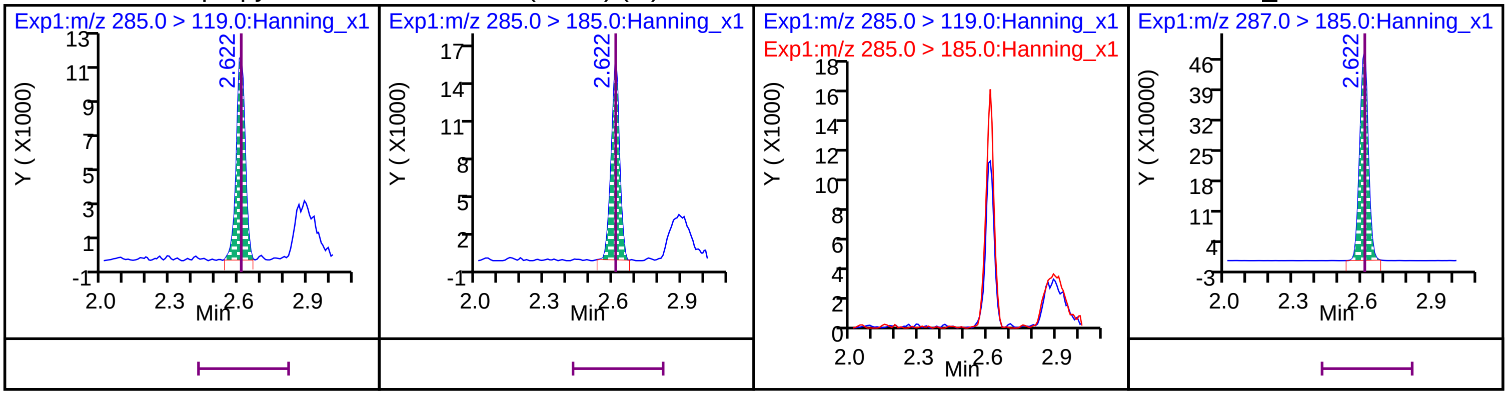


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

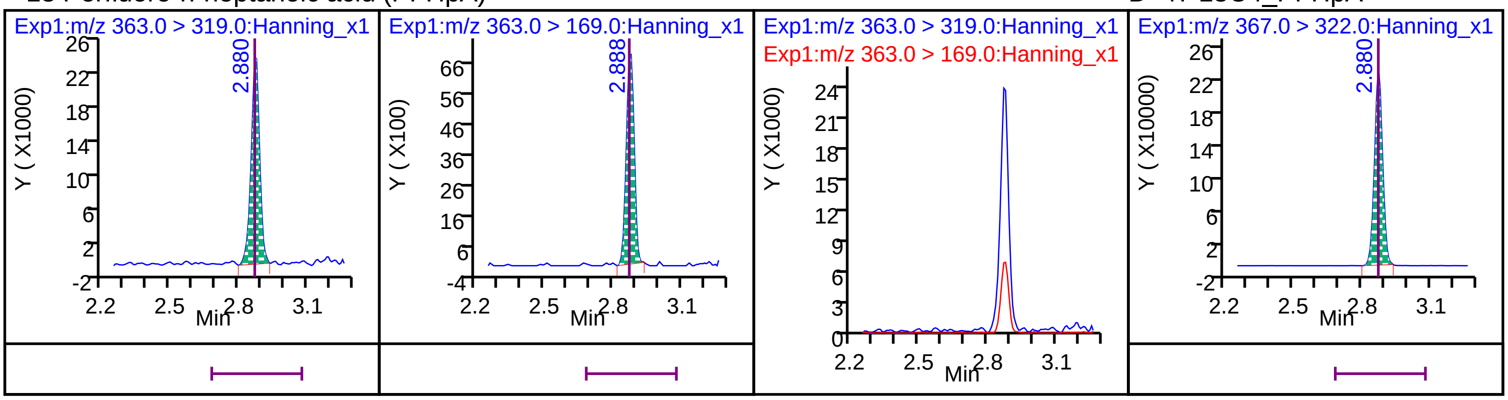


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

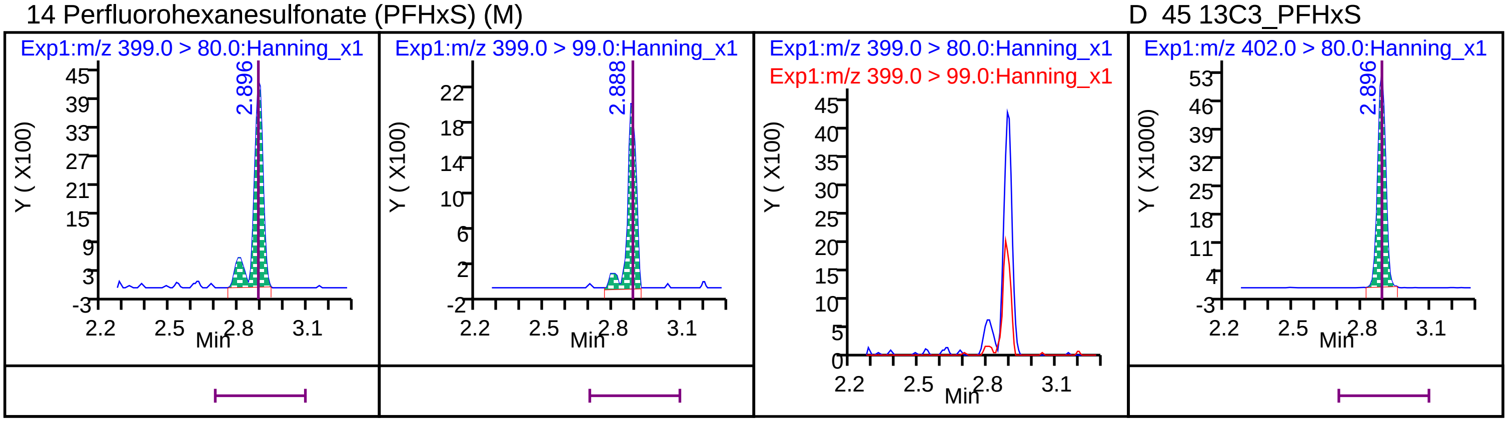
28 Hexafluoropropylene oxide dimer acid (GenX) (M) D 66 13C3_GenX



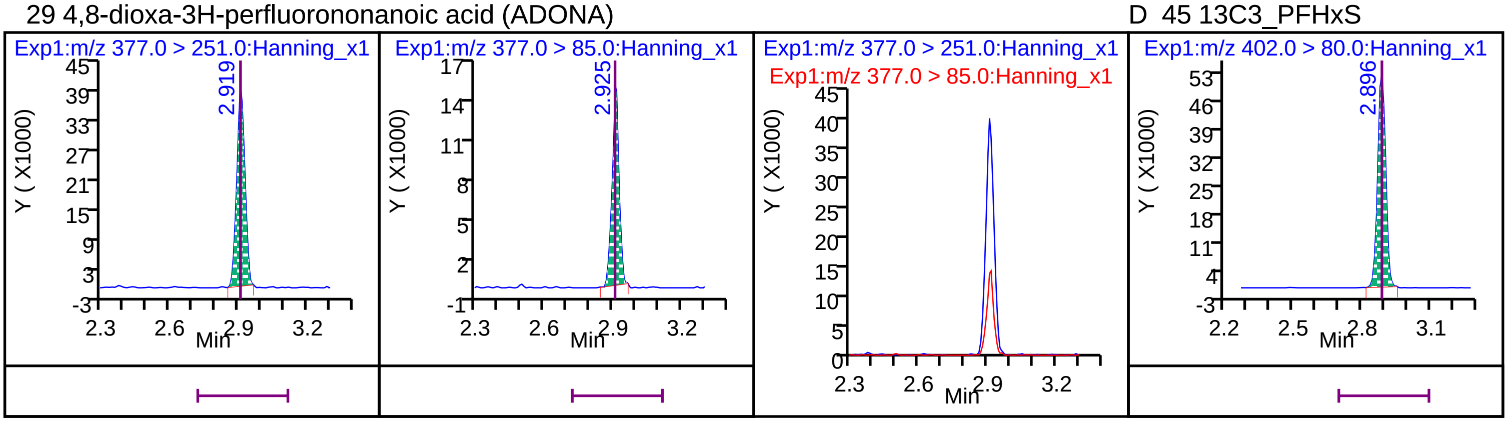
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



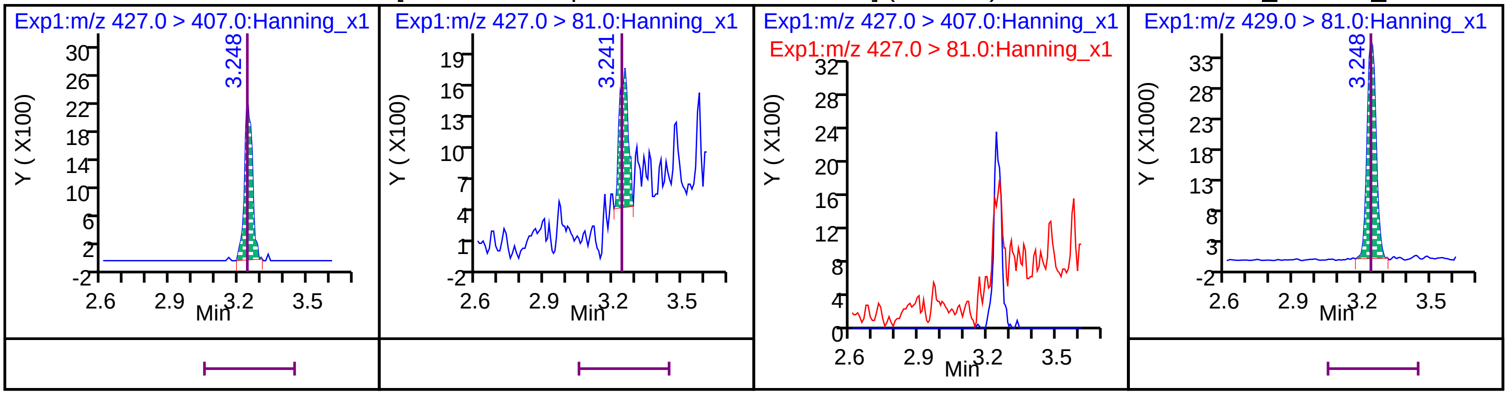
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



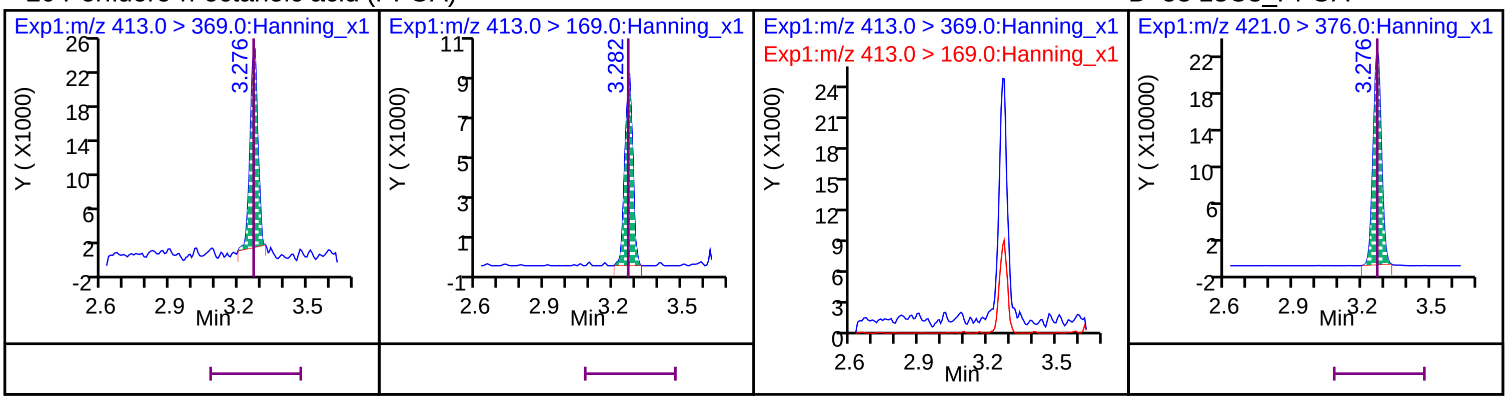
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

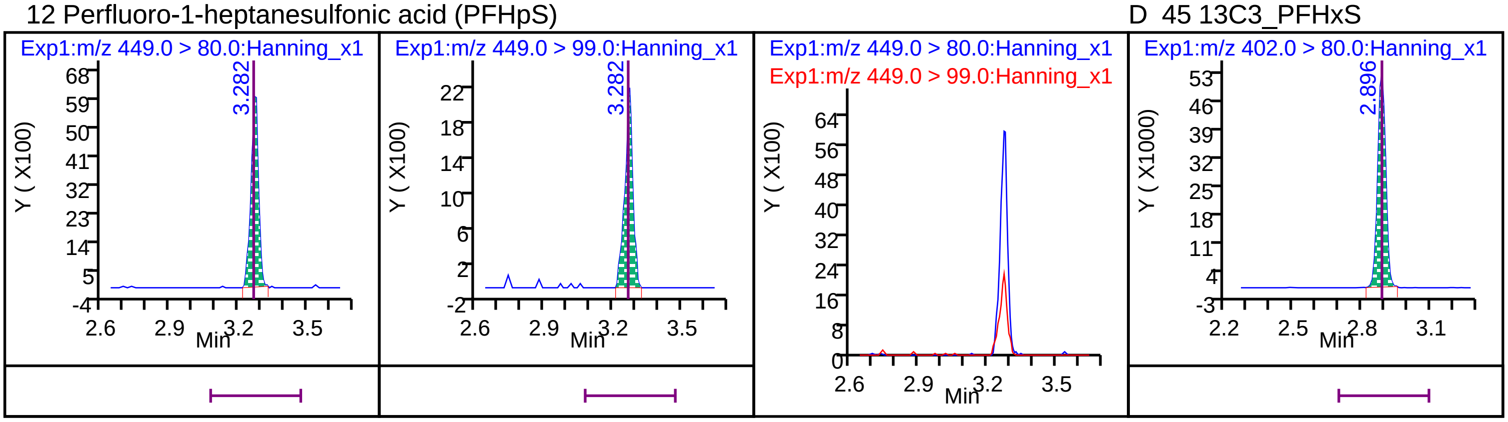
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



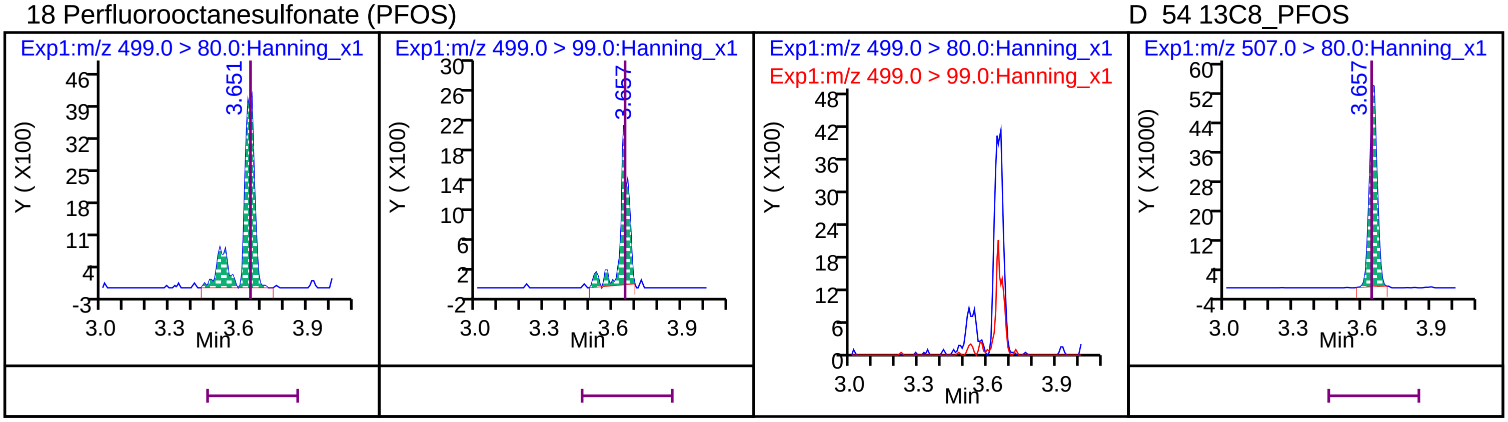
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



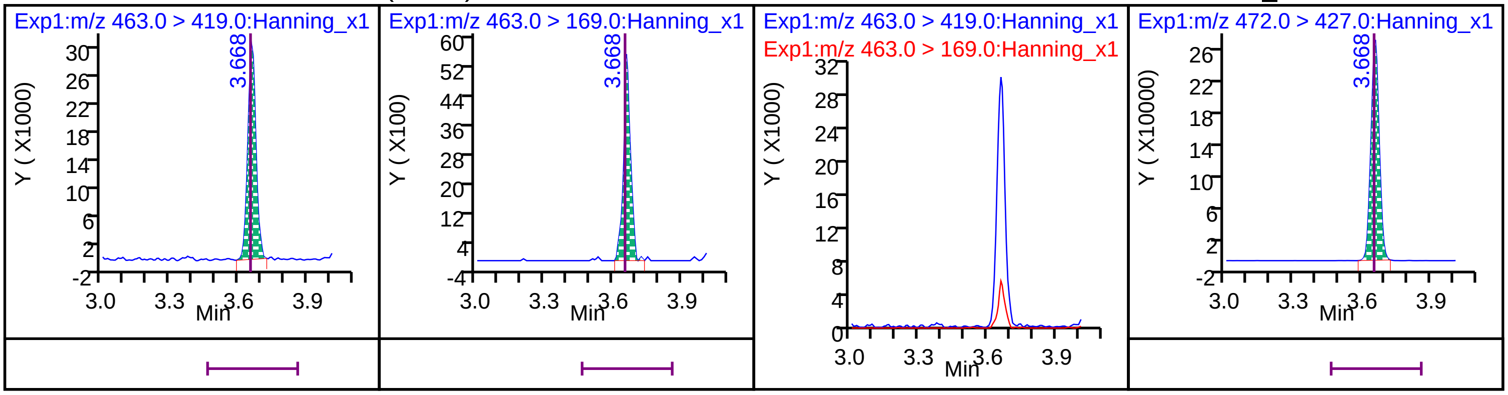
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



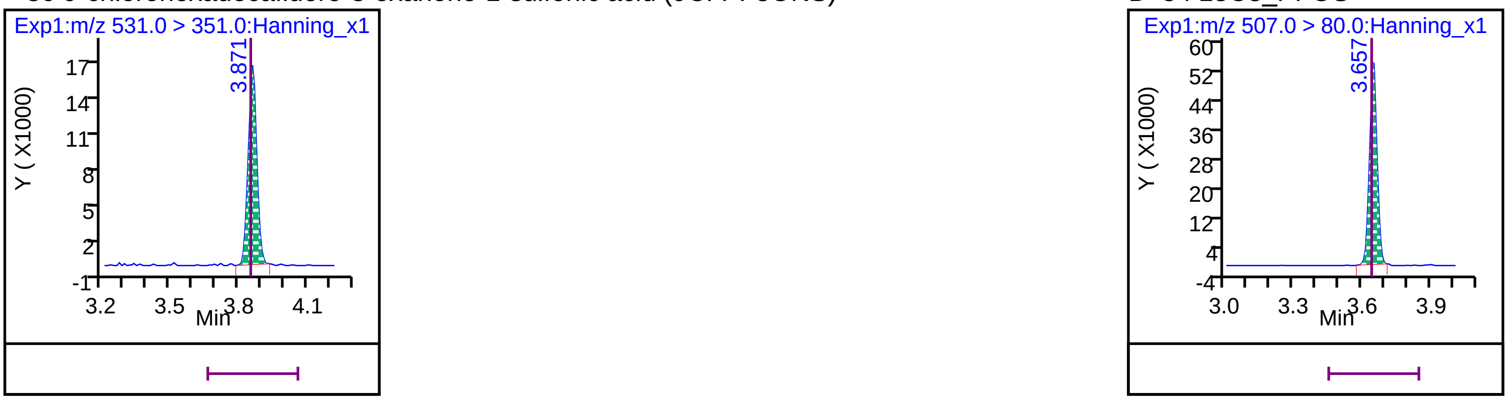
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



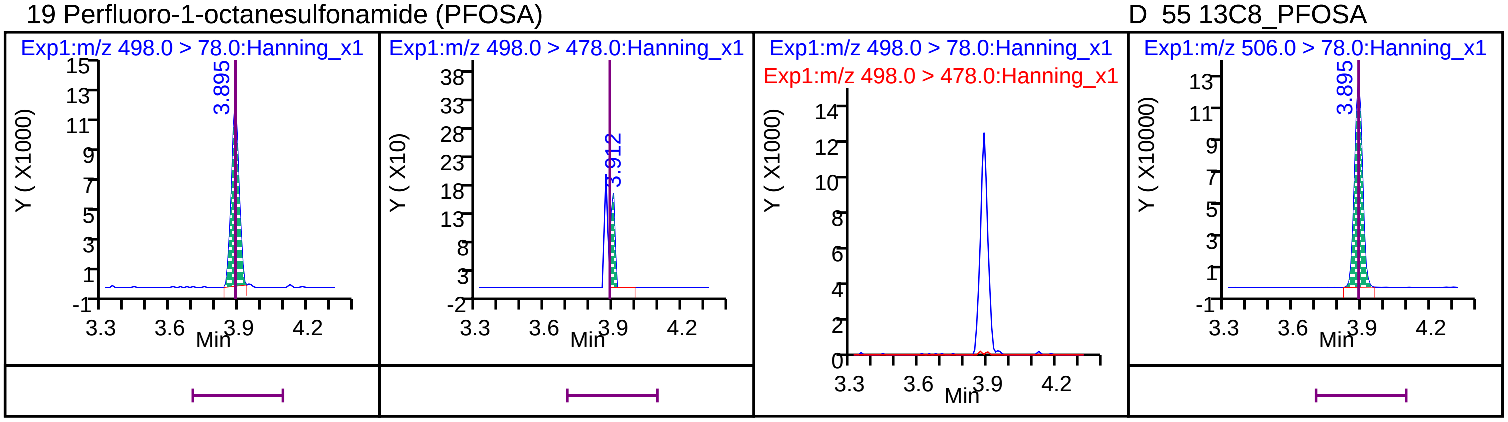
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



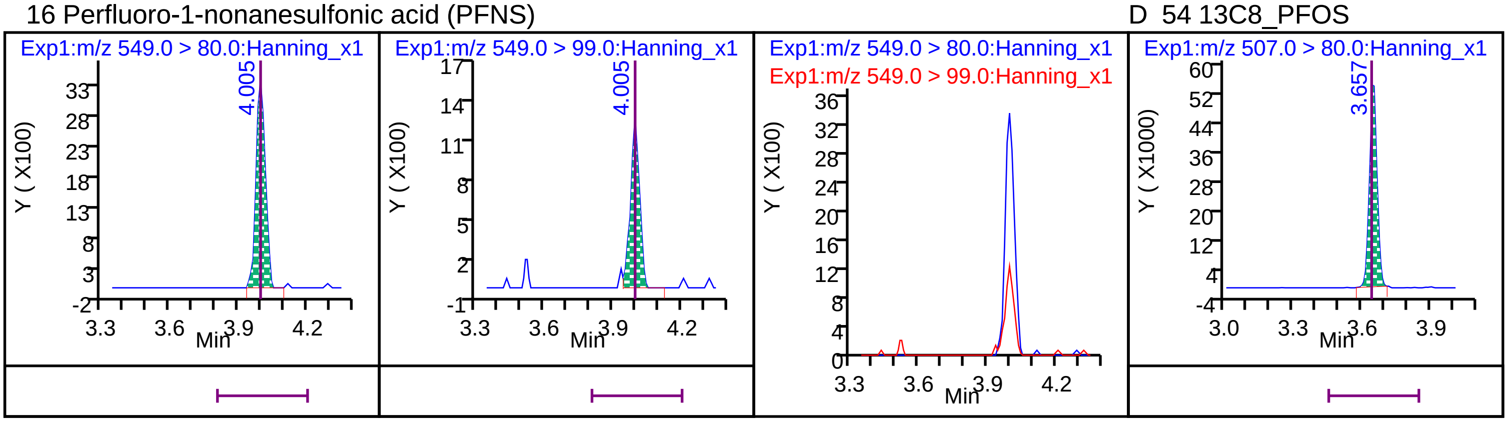
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

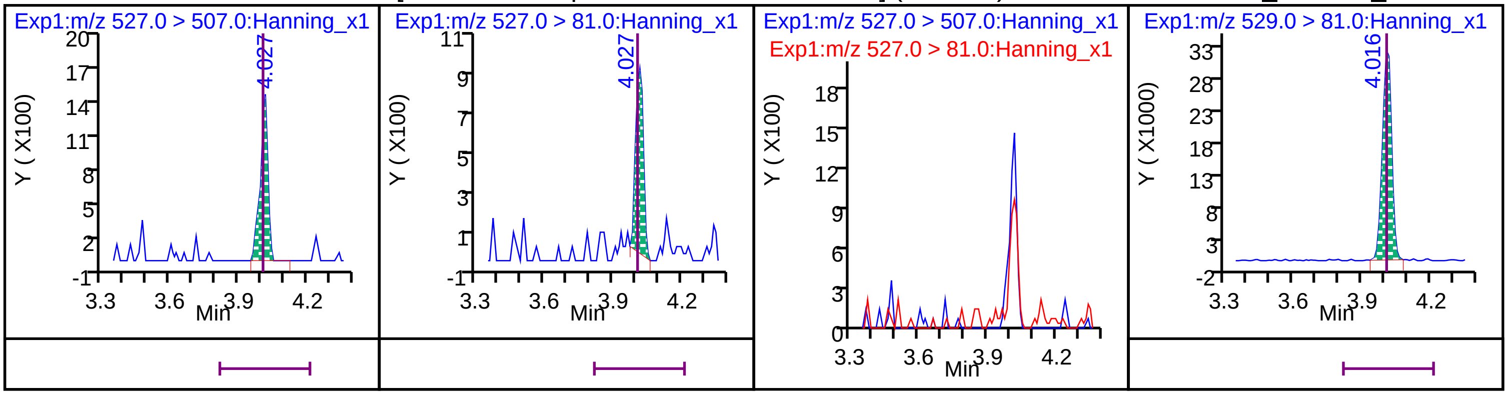


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

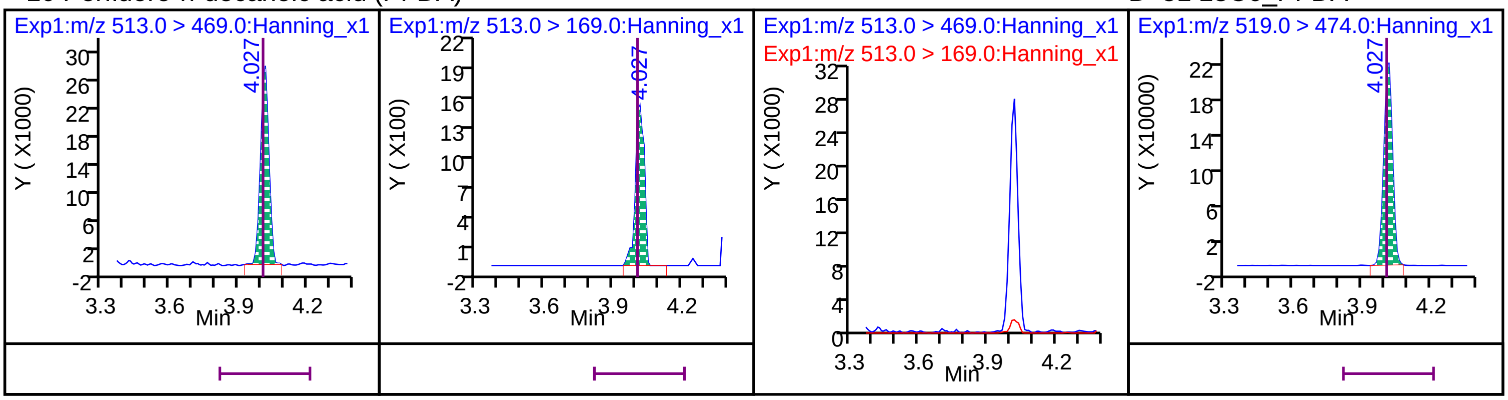


Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

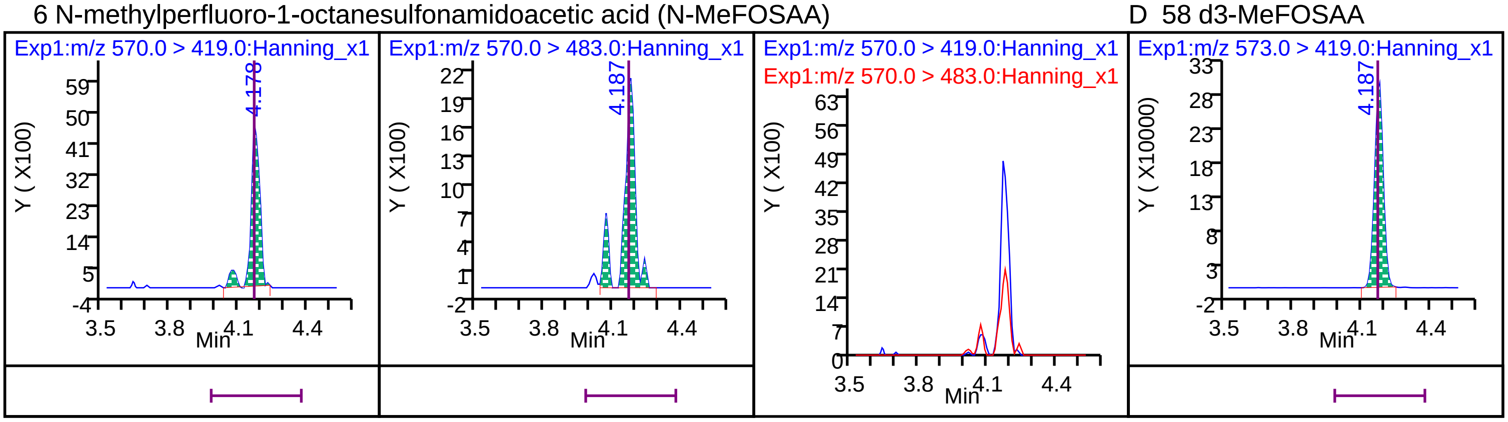
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

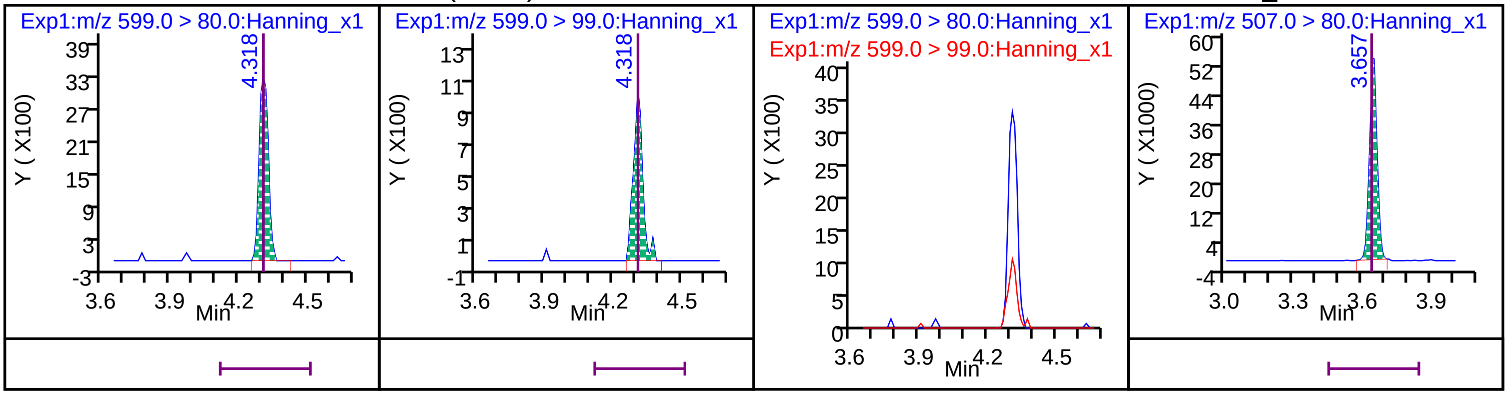


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

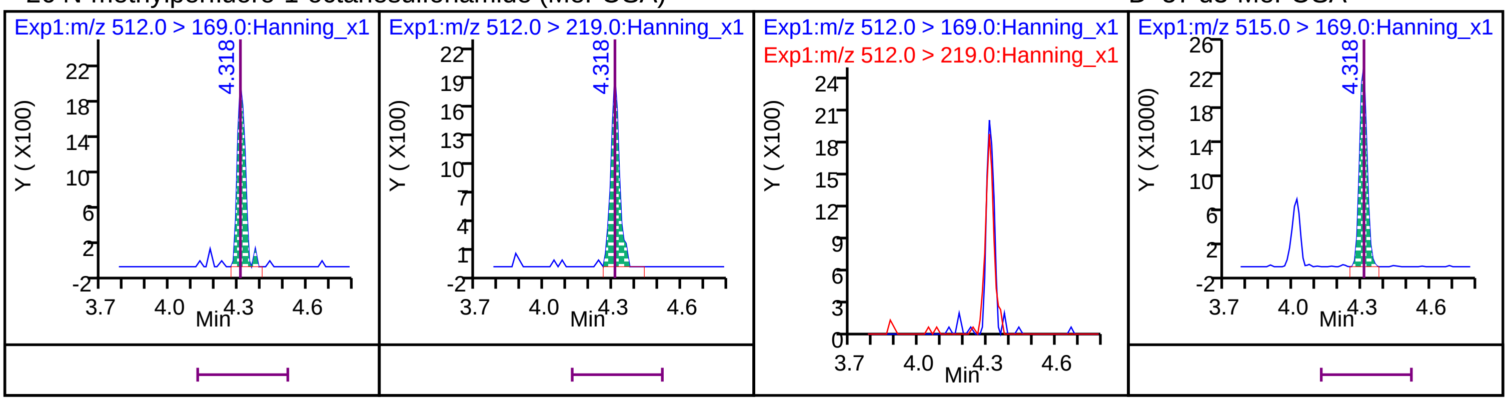


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

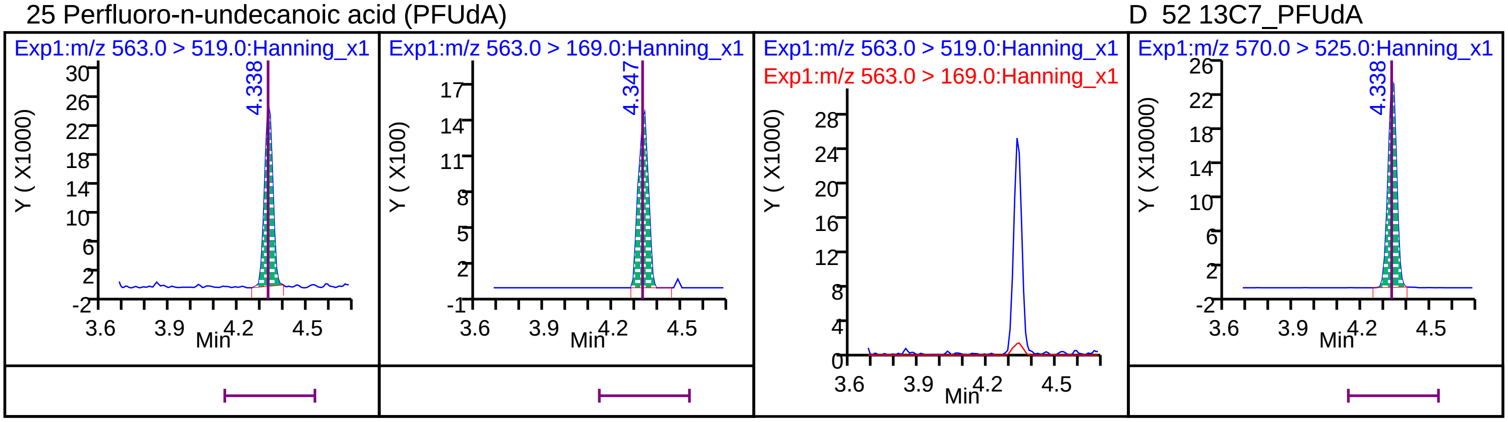
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



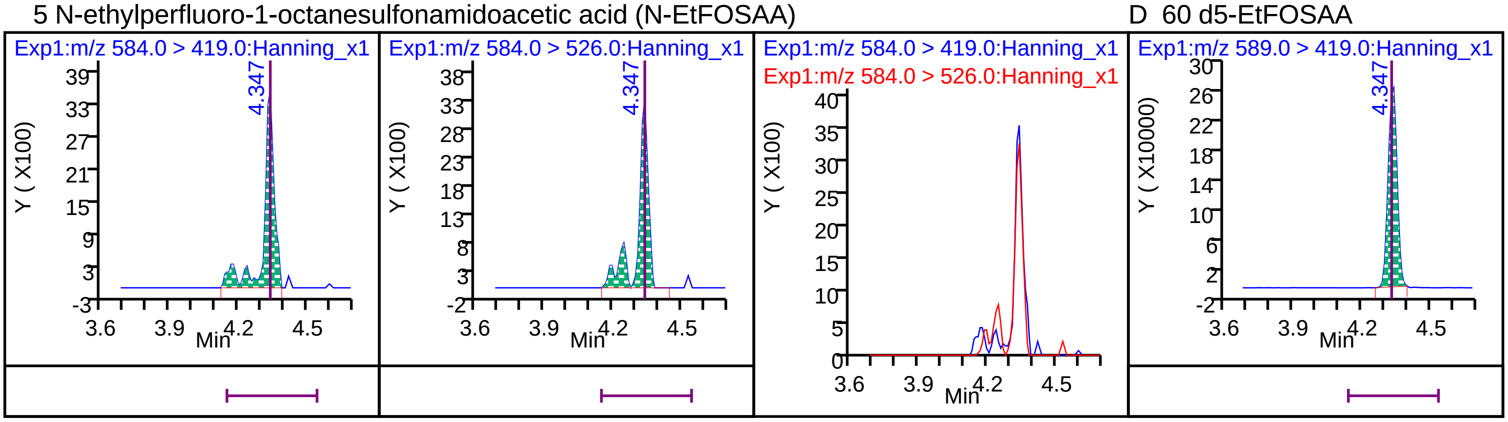
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



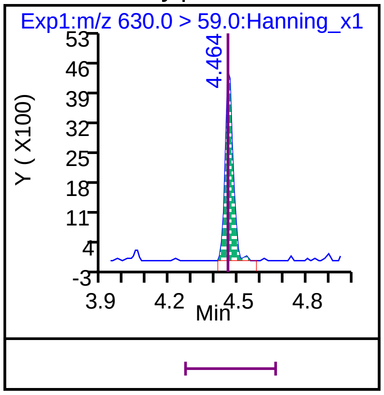
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



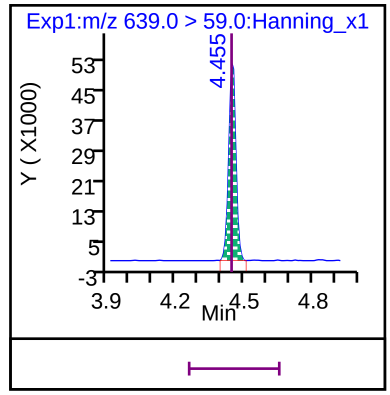
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



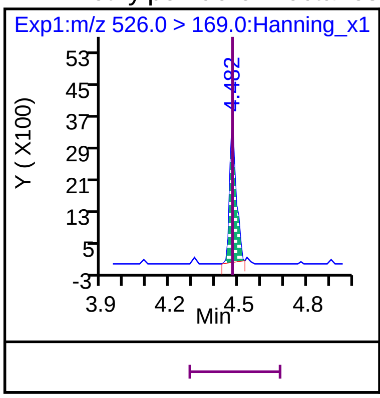
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

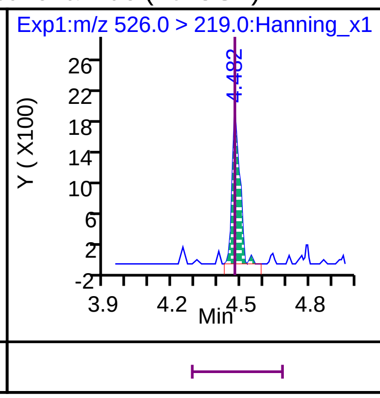


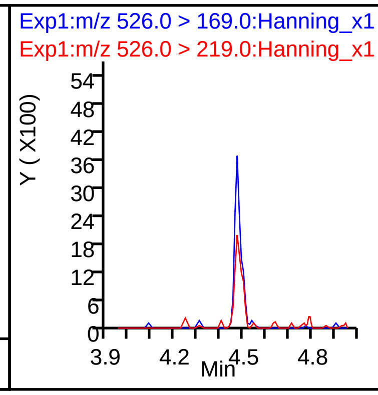
D 62 d9-EtFOSE



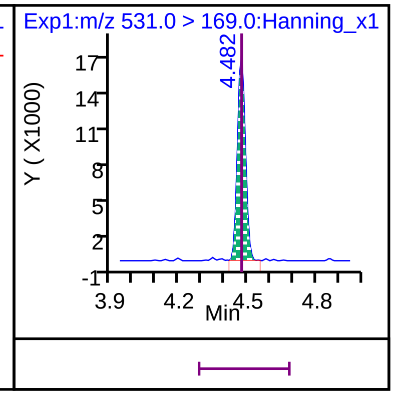
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



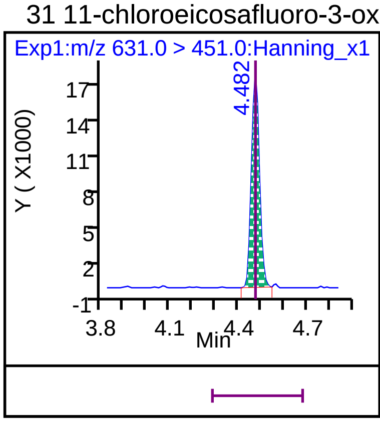




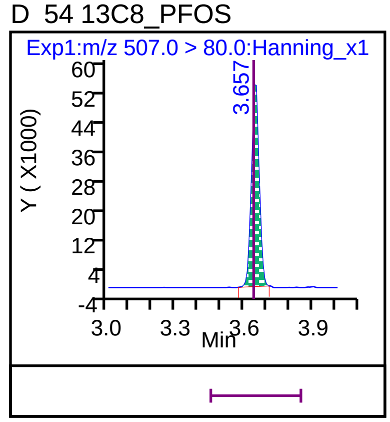
D 59 d5-EtFOSA



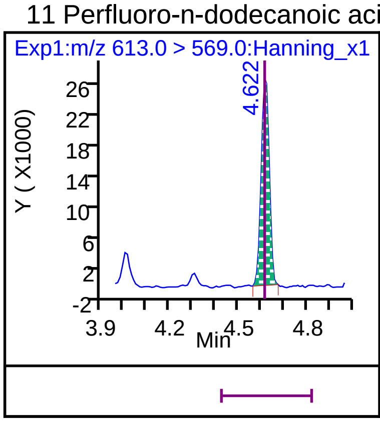
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

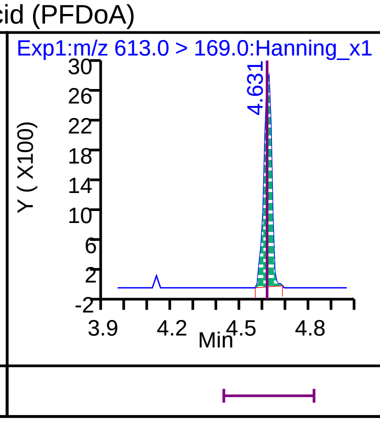


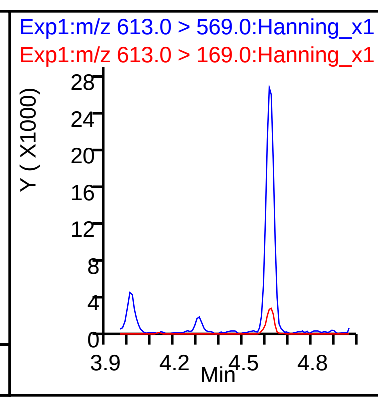
D 54 13C8_PFOS



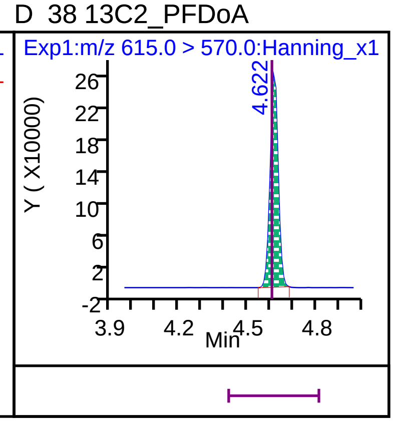
11 Perfluoro-n-dodecanoic acid (PFDoA)



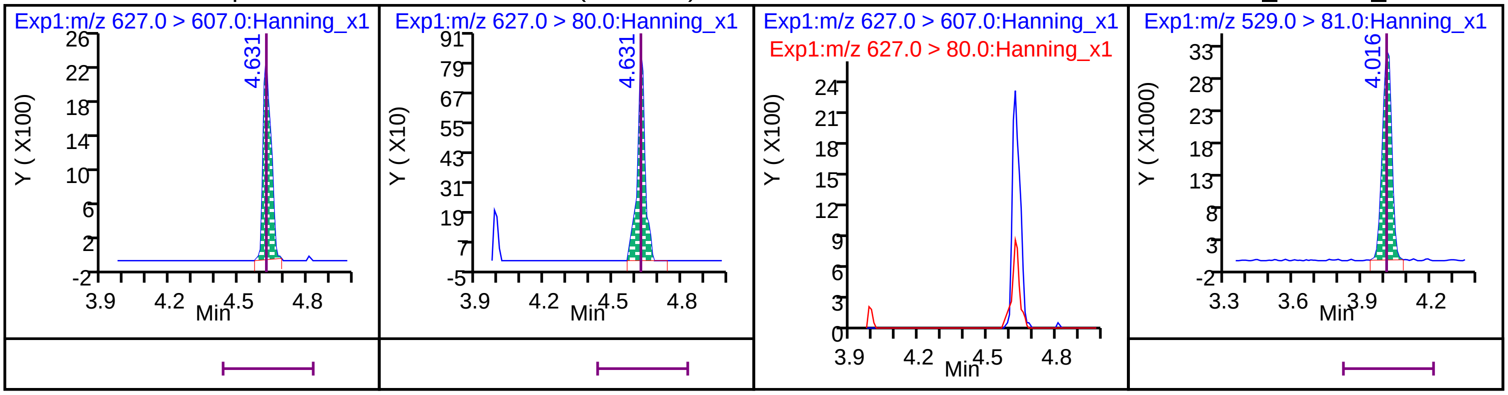




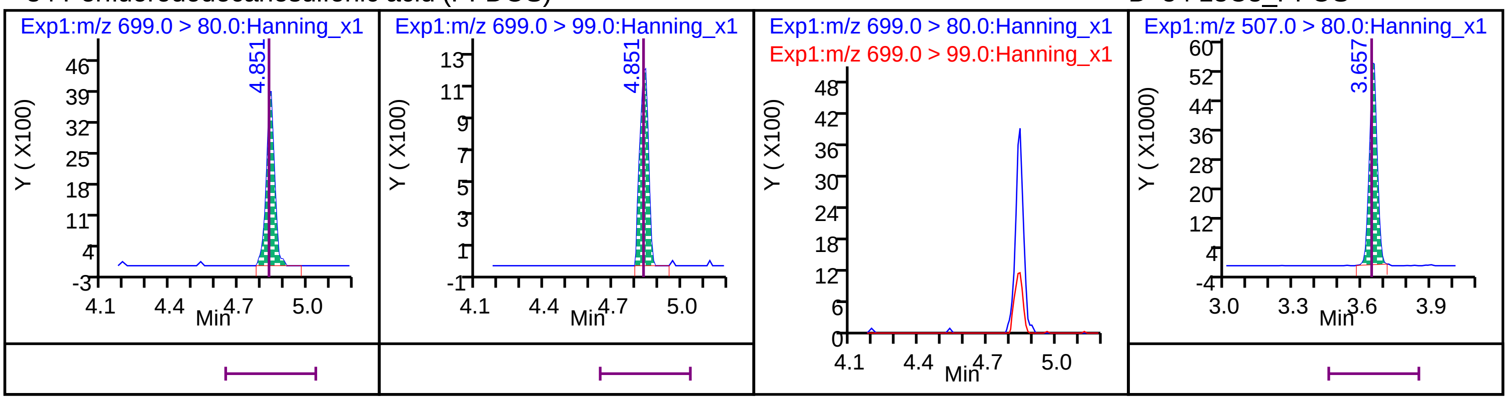
D 38 13C2_PFDoA



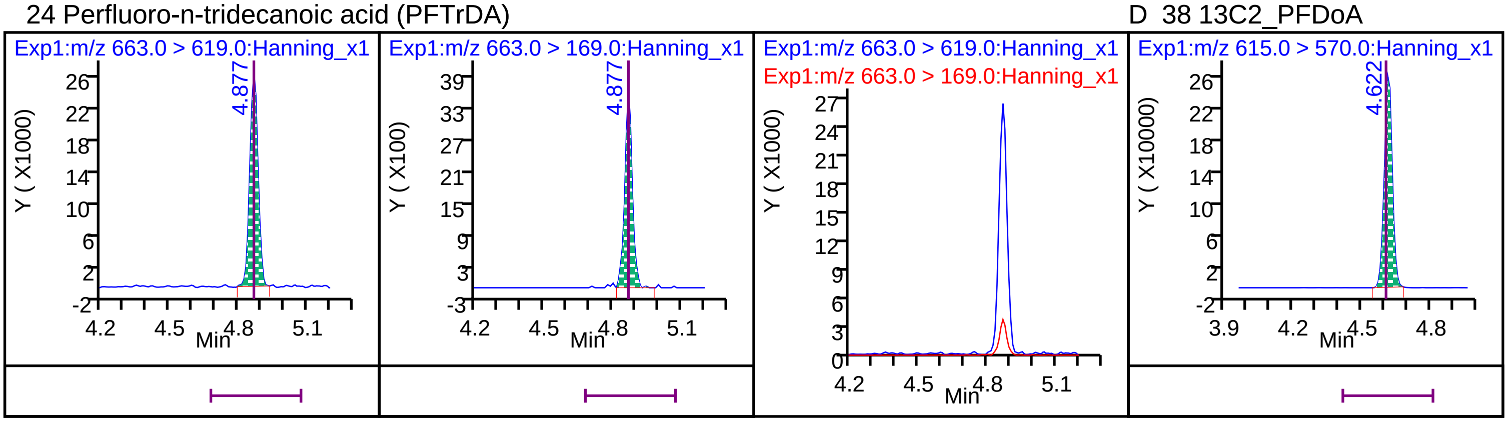
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



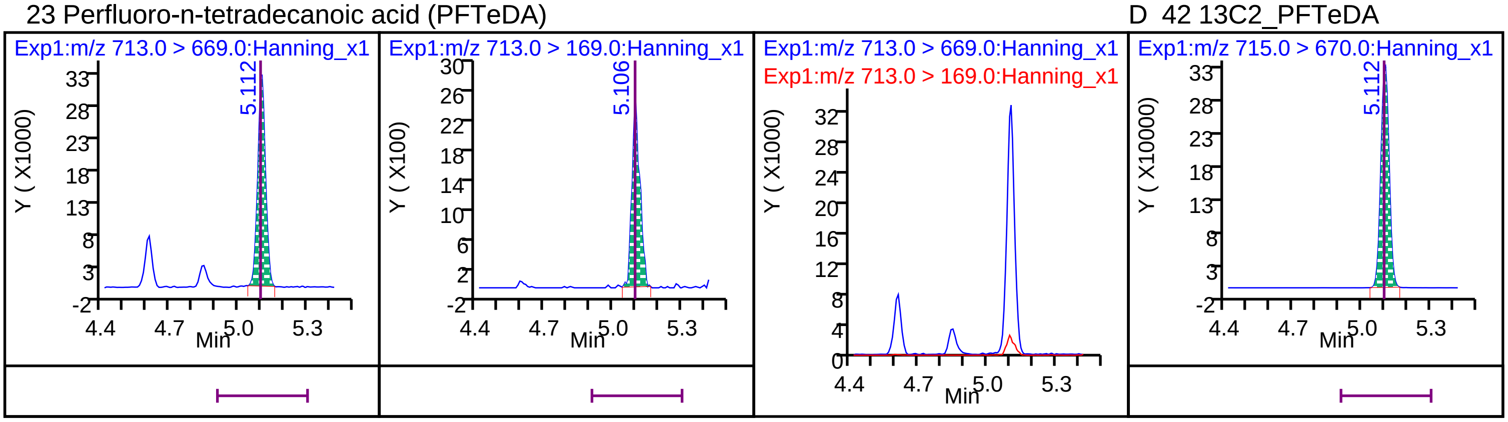
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



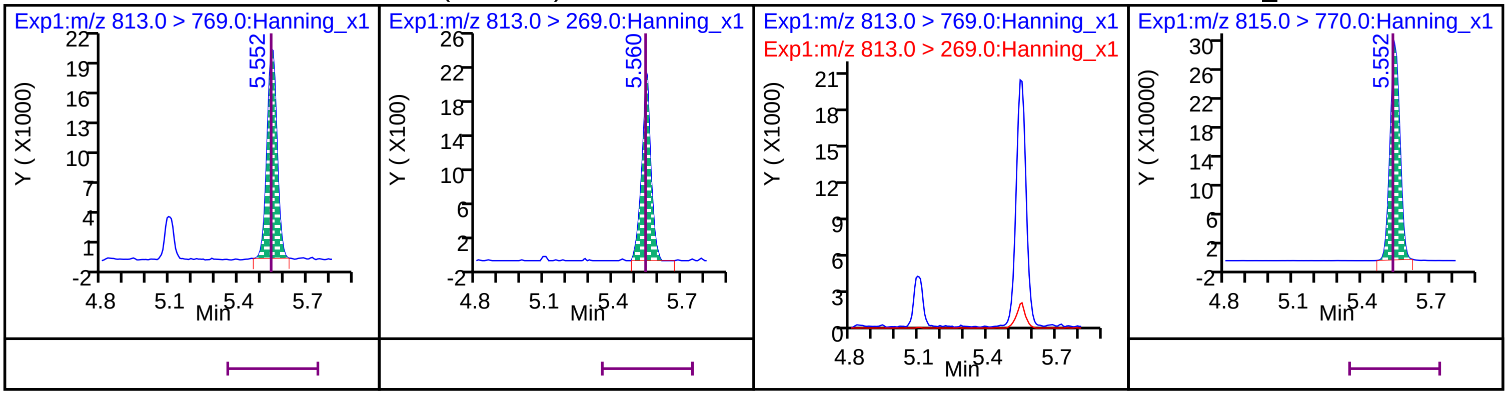
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



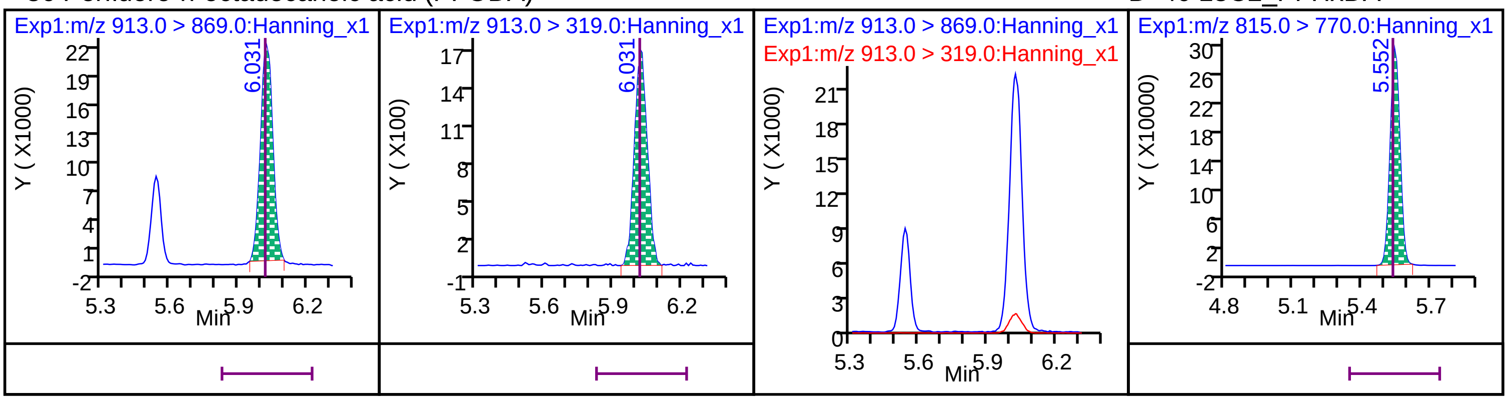
Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

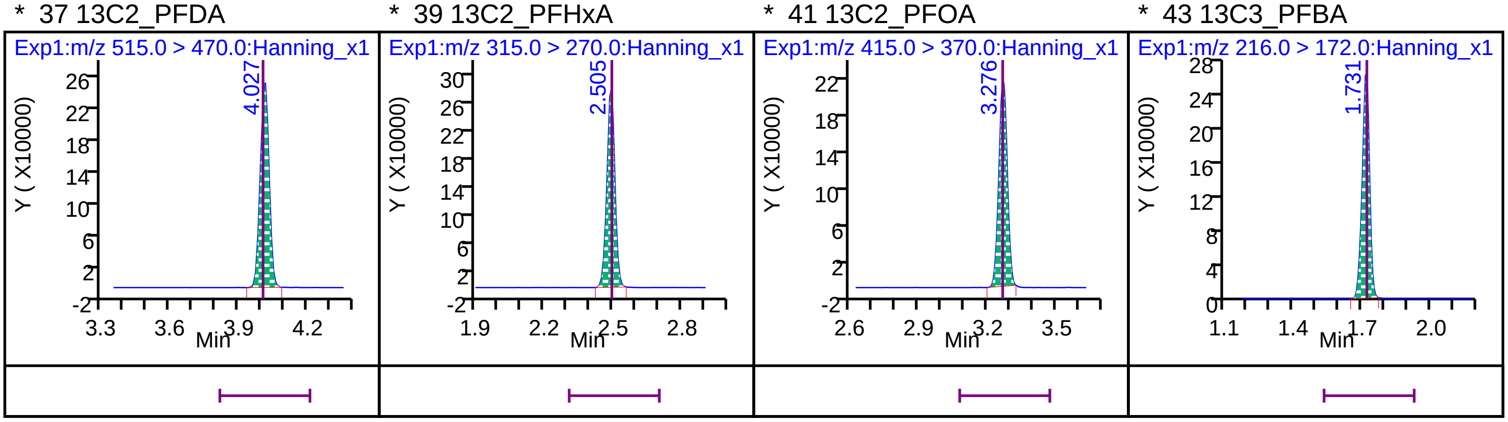
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



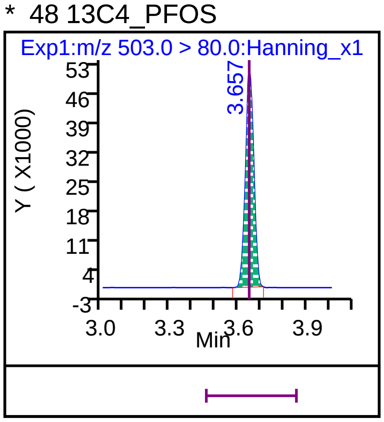
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

Injection Date: 07-Nov-2021 18:58:19 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 100_SVLC-1741

Sample Info: ID ICAL 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

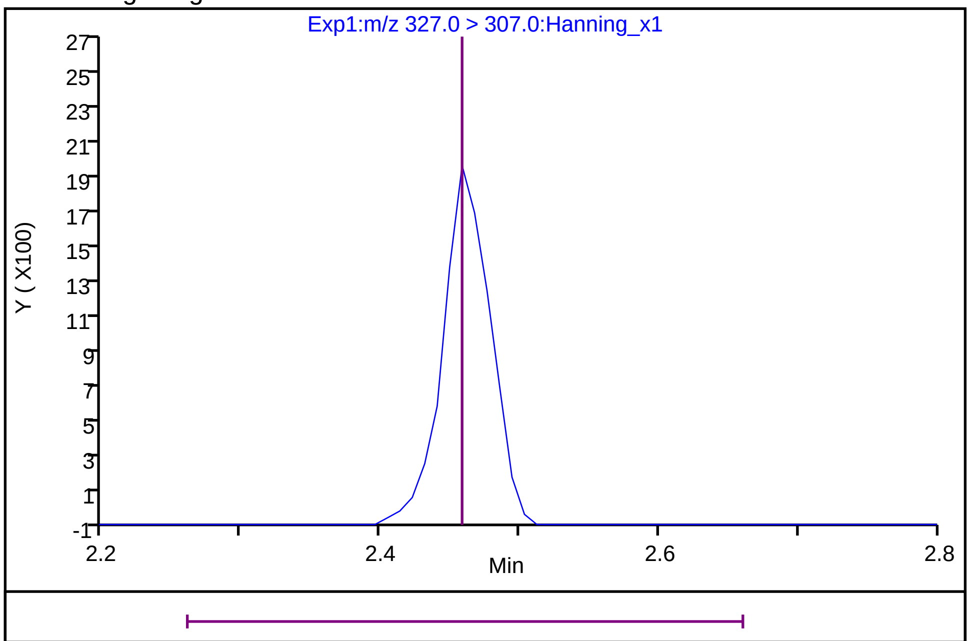
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected

Expected RT: 2.460

RT Window: 2.260-2.660

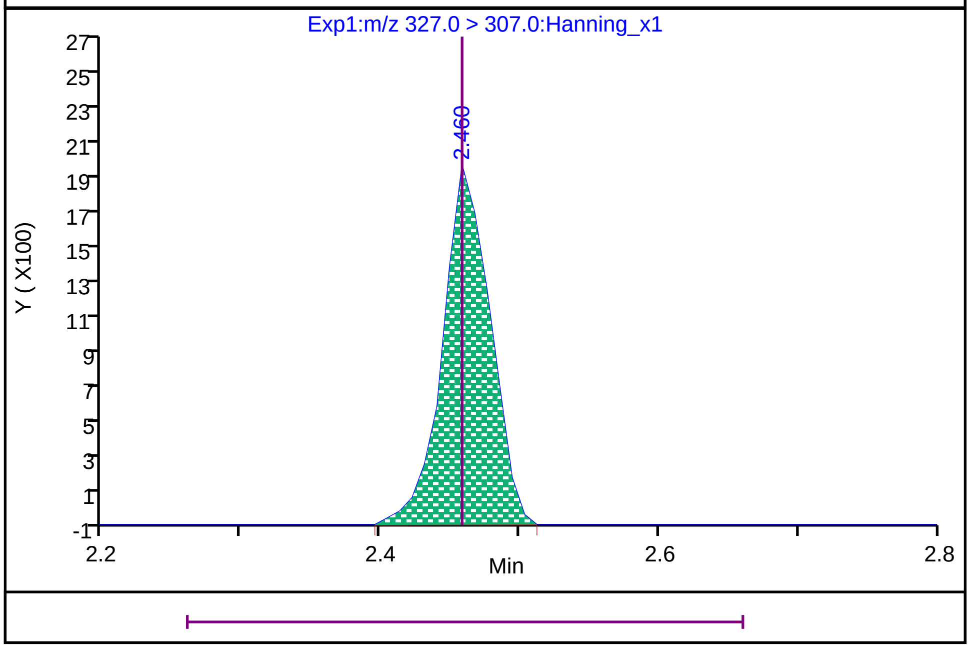


RT: 2.460

Area: 4592

Amount: 88.973

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:54

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

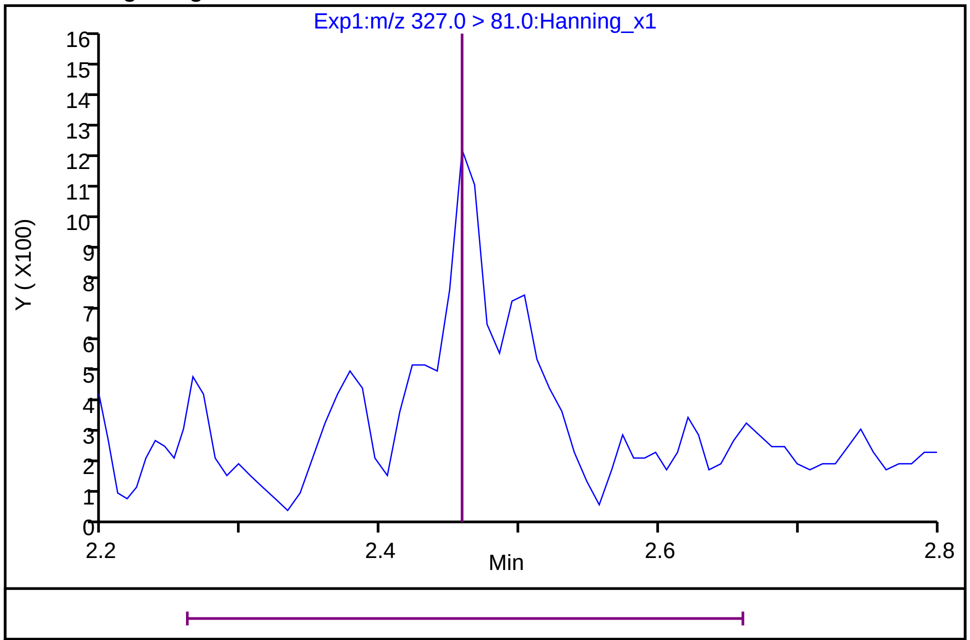
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

Not Detected

Expected RT: 2.460

RT Window: 2.260-2.660

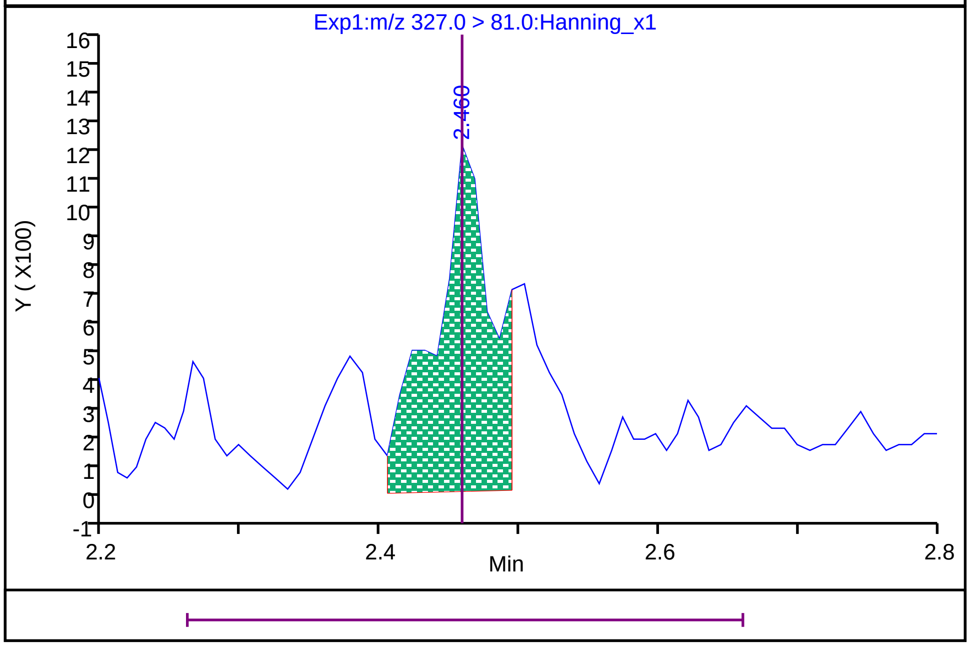


RT: 2.460

Area: 3250

Amount: 88.973

Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:49:37

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d

Injection Date: 07-Nov-2021 18:58:19 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 100_SVLC-1741

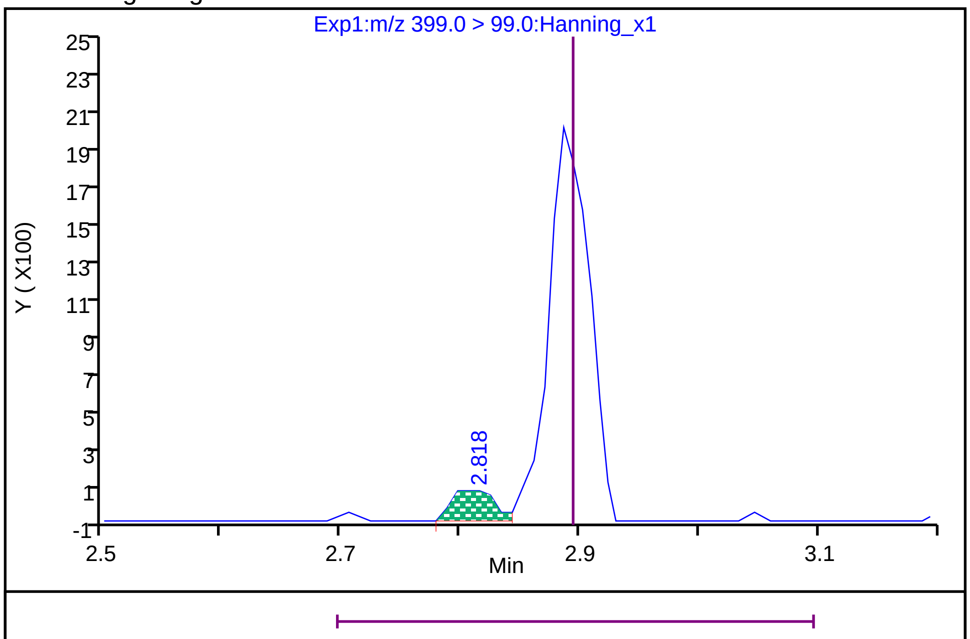
Sample Info: ID ICAL 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

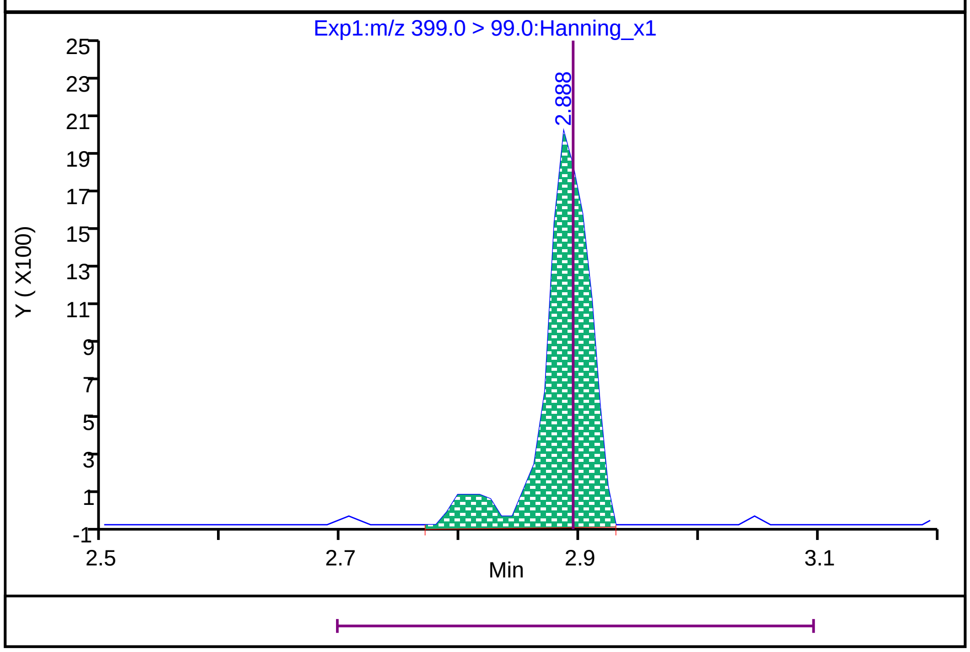
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 392
Amount: 88.248
Amount Units: ng/L



RT: 2.888
Area: 5261
Amount: 88.248
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:48:21

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

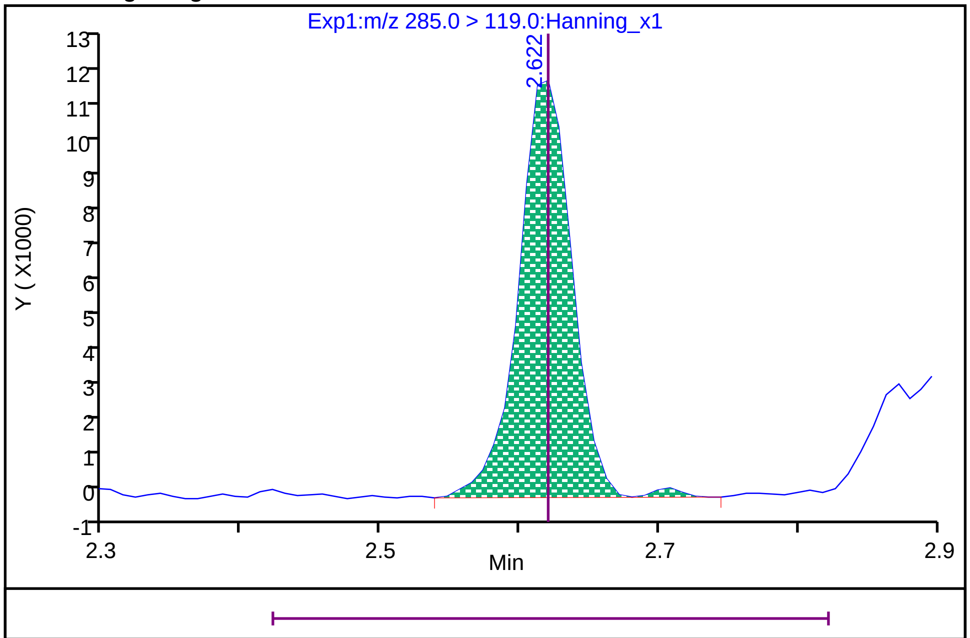
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A13.d		
Injection Date:	07-Nov-2021 18:58:19	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 100_SVLC-1741
Sample Info:	ID ICAL 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

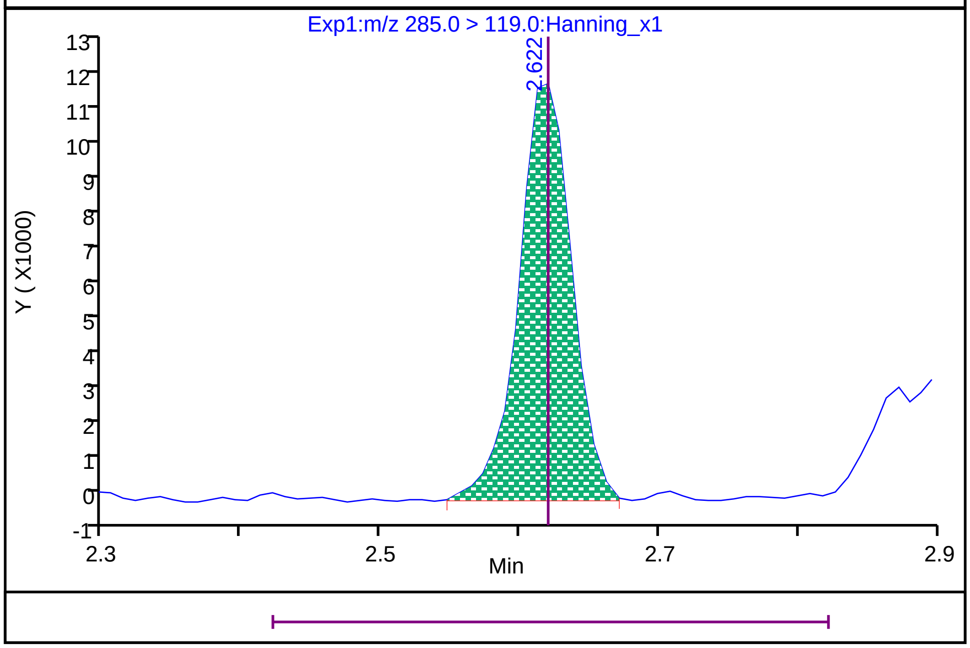
28 GenX, CAS: 13252-13-6

Processing Integration Results

RT:	2.622
Area:	29787
Amount:	191.71
Amount Units:	ng/L



RT:	2.622
Area:	29374
Amount:	189.30
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:49:46

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 3	Auto Sampler:	77
Sample Info:	ID ICAL 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	635065	20	>100:1			1000.00	1021.54	99.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	133983	24	>100:1			200.00	200.05		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	576704	16	>100:1			1000.00	1008.94	99.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	134953	14	>100:1			200.00	207.91		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	175591	16	>100:1			1000.00	1015.15	98.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	38745	18	>100:1	Target = 3.53		176.80	176.94		
298.9 > 99	44	2.183	2.183		10365	16	>100:1	3.73 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	0/-1	28001	15	>100:1	Target = 3.10		187.60	172.07		
349 > 99	44	2.532	2.531		11219	17	60:1	2.49 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	118122	17	>100:1			5000.00	5216.55	105.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	8/7	9042	22		Target = 1.75		186.80	173.63		
327 > 81	63	2.469	2.460		7137	22	10.0:1	1.26 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	1	647409	17	>100:1			1000.00	994.05	97.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/0	137580	17	>100:1	Target = 18.91		200.00	204.38		
313 > 119	49	2.505	2.505		7294	15	53:1	18.86 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	1	1200102	19	>100:1			5000.00	5178.29	99.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/0	61561	19	>100:1	Target = 0.79		400.00	396.03		
285 > 185	66	2.622	2.622		74073	18	>100:1	0.83 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	547463	18	>100:1			1000.00	1031.12	102.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	0/-1	120846	17	>100:1	Target = 3.80		200.00	200.88		
363 > 169	47	2.888	2.880		32050	19	>100:1	3.77 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	130188	19	>100:1			1000.00	1036.20	100.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/5	28059	25	>100:1	Target = 2.89	6.88	182.00	196.04		M
399 > 99	45	2.896	2.896		8795	22		3.19 (1.44-4.34)	10.98				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	179065	19	>100:1	Target = 3.23		188.40	177.36		
377 > 85	45	2.925	2.919		60441	24	>100:1	2.96 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.287	3.276	1/0	25884	41	>100:1	Target = 3.12		190.40	193.58		
449 > 99	45	3.276	3.276		7710	16	58:1	3.35 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	1	90798	21	>100:1			5000.00	5044.34	96.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.255	3.248	1/0	8060	27	47:1	Target = 1.75		189.60	187.49		
427 > 81	64	3.255	3.248		4906	19	9.5:1	1.64 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	527785	21	>100:1			1000.00	1005.92	96.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/-1	109896	22	90:1	Target = 2.89		200.00	203.19		
413 > 169	53	3.276	3.276		36021	28	>100:1	3.05 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	122371	25	>100:1			1000.00	988.11	92.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	1/0	27516	40	92:1	Target = 3.30	3.84	185.60	188.85		
499 > 99	54	3.657	3.662		8671	34	>100:1	3.17 (1.65-4.95)	7.44				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/0	89193	17	>100:1			186.40	192.46		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	17079	19	>100:1	Target = 3.08		192.00	173.96		
549 > 99	54	4.006	4.006		5014	19		3.40 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/0	20092	14		Target = 2.72		192.80	209.82		
599 > 99	54	4.318	4.318		6361	18	28:1	3.15 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	1/0	85131	16	>100:1			188.40	203.20		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	0/-1	20350	17		Target = 3.27		193.60	193.39		
699 > 99	54	4.851	4.842		6453	17	66:1	3.15 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	650158	20	>100:1			1000.00	1015.27	101.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	142641	21	>100:1	Target = 6.51		200.00	203.54		
463 > 169	56	3.668	3.662		21007	27	>100:1	6.79 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	270652	18	>100:1			1000.00	1009.68	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	55580	18	>100:1	Target = 41.63		200.00	195.17		
498>478	55	3.904	3.896		2003	18		27.74 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	12	576412	15	>100:1			1000.00	1003.05	100.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.016	1/-11	131939	15	>100:1	Target = 13.80		200.00	196.69		
513 > 169	51	4.017	4.016		12268	14	65:1	10.75 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	91470	14	>100:1			5000.00	5292.02	116	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	0/-1	9272	17	25:1	Target = 1.94		191.60	224.30		
527 > 81	65	4.027	4.016		4188	14	15:1	2.21 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													a
627 > 607	65	4.631	4.631	1/0	7768	15	>100:1	Target = 3.54		192.80	167.40		
627 > 80	65	4.614	4.631		2468	23	4.0:1	3.14 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	751315	17	>100:1			5000.00	4971.89	97.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/1	26644	29	92:1	Target = 1.37	7.51	200.00	220.97		M
570 > 483	58	4.178	4.178		20187	28	86:1	1.31 (0.68-2.05)	4.44				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	89958	13	>100:1			1000.00	997.44	99.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.298	1/0	17777	16	>100:1			200.00	180.83		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	50166	14	>100:1			1000.00	1066.43	111.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/-1	10798	16	85:1	Target = 1.11		200.00	198.59		
512 > 219	57	4.318	4.318		10129	18	82:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	0	659630	16	>100:1			5000.00	5093.15	95.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/1	26030	29	56:1	Target = 1.51	5.75	200.00	202.36		
584 > 526	60	4.348	4.348		19087	28	51:1	1.36 (0.75-2.26)	2.06				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	622182	16	>100:1			1000.00	1033.10	98	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	0/-1	126197	14	>100:1	Target = 14.52		200.00	209.33		
563 > 169	52	4.348	4.338		9300	18	47:1	13.56 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.456	4.455	1	104069	15	>100:1			1000.00	981.07	102.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	18829	17	>100:1			200.00	185.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	43224	14	>100:1			1000.00	1005.21	100.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	11542	14	>100:1	Target = 1.06		200.00	212.42		
526 > 219	59	4.483	4.483		10137	13	67:1	1.13 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	600845	16	>100:1			1000.00	1000.85	99.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	137695	16	27:1	Target = 10.70		200.00	214.97		
613 > 169	38	4.623	4.622		11171	21	68:1	12.32 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	1/0	127509	15	>100:1	Target = 8.31		200.00	201.90		
663 > 169	38	4.877	4.877		15054	23	98:1	8.47 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	811547	22	>100:1			1000.00	998.22	96.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	12/12	147677	22	21:1	Target = 12.17		200.00	208.46		
713 > 169	42	5.112	5.106		11598	23	>100:1	12.73 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.552	5.544	0	858869	22	>100:1			1000.00	989.44	97.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.552	5.552	0	113659	21	16:1	Target = 10.43		200.00	206.63		
813 > 269	40	5.552	5.552		11168	21	>100:1	10.17 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	6.021	6.026	0	158633	32	9.1:1	Target = 13.67		200.00	202.88		
913 > 319	40	6.017	6.026		11668	45	>100:1	13.59 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	635729	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	662023	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	531844	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	575690	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	1	131882	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

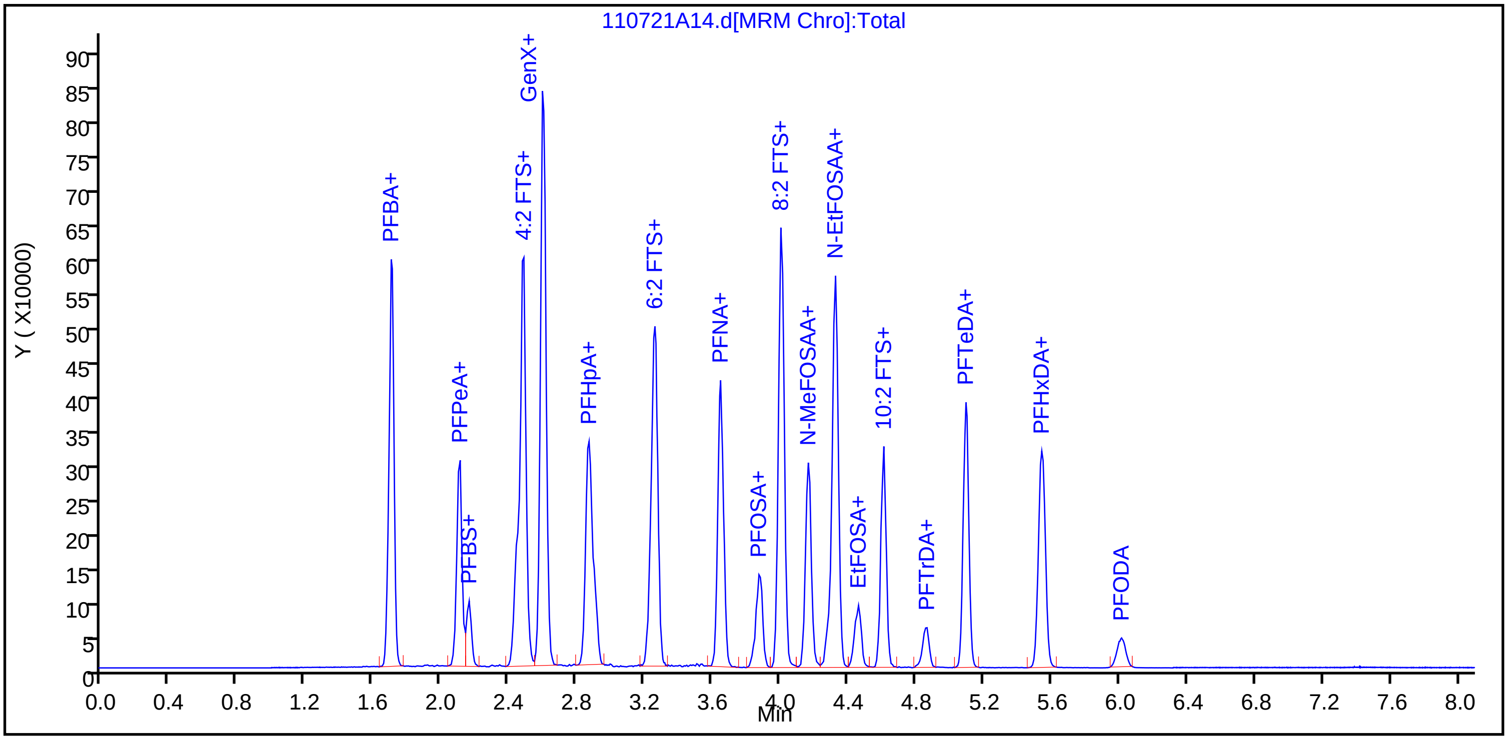
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

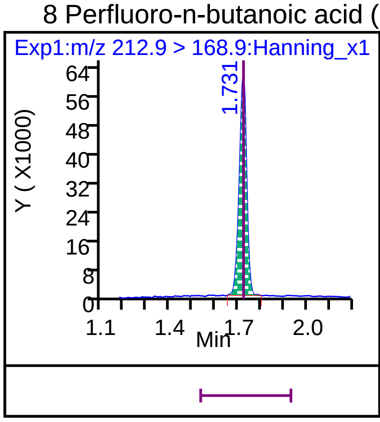
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

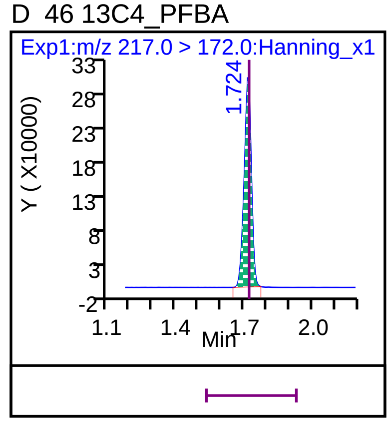
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



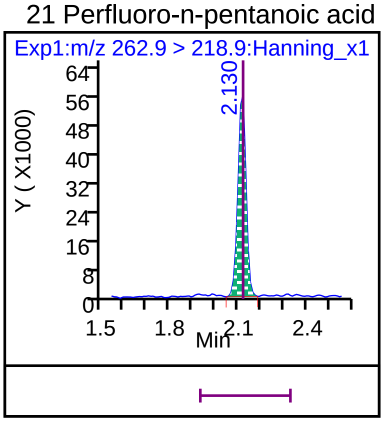
8 Perfluoro-n-butanoic acid (PFBA)



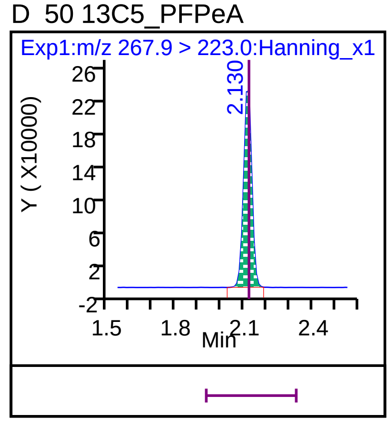
D 46 13C4_PFBA



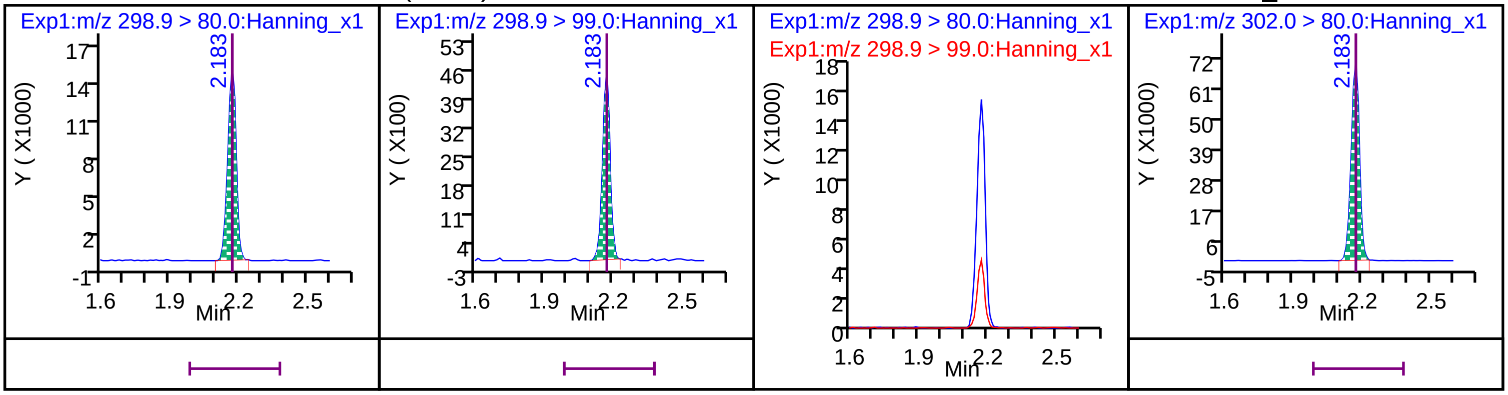
21 Perfluoro-n-pentanoic acid (PFPeA)



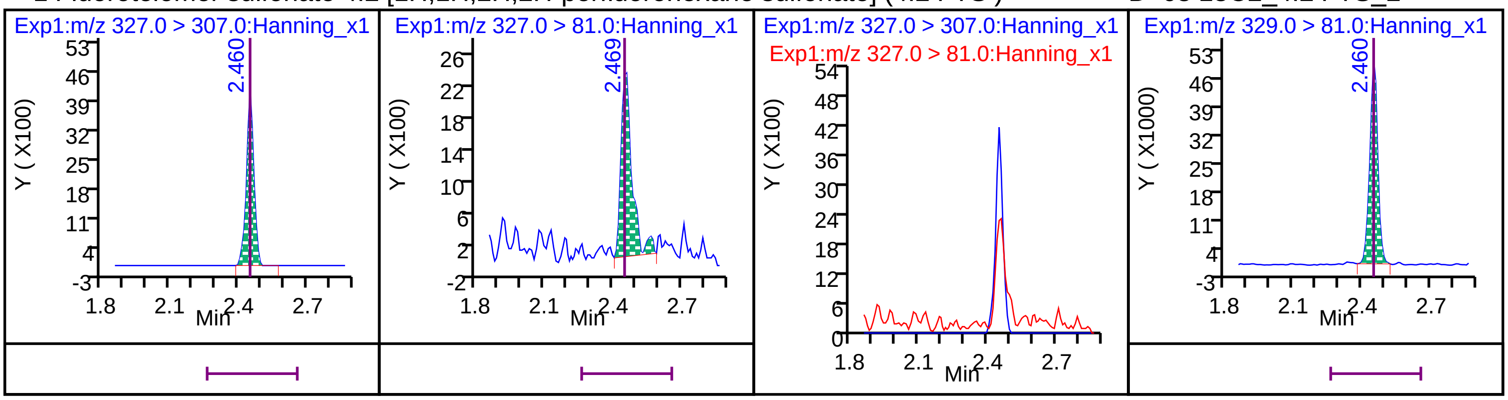
D 50 13C5_PFPeA



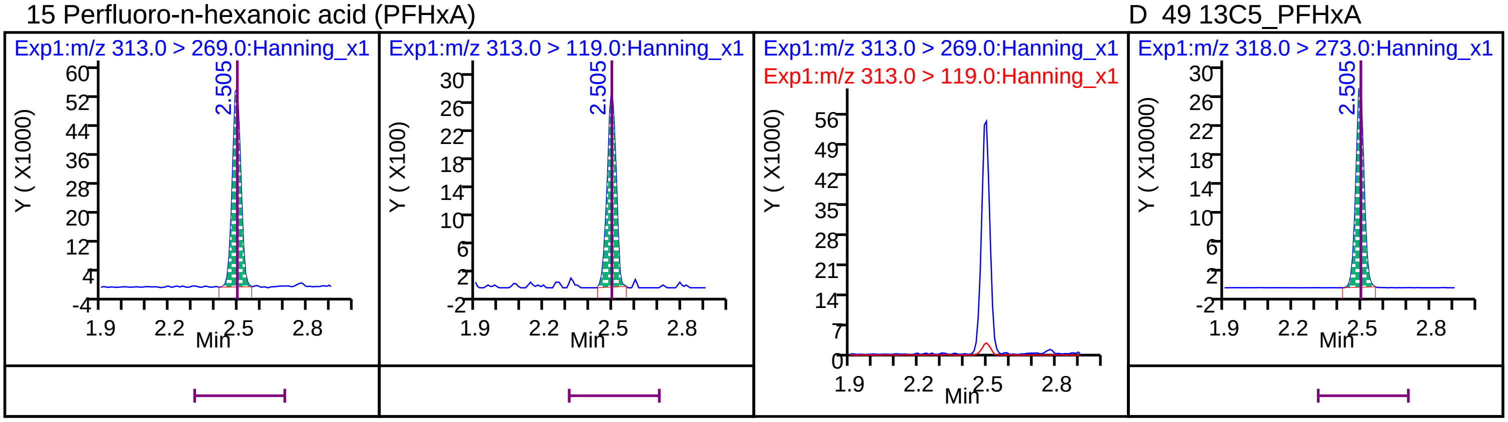
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



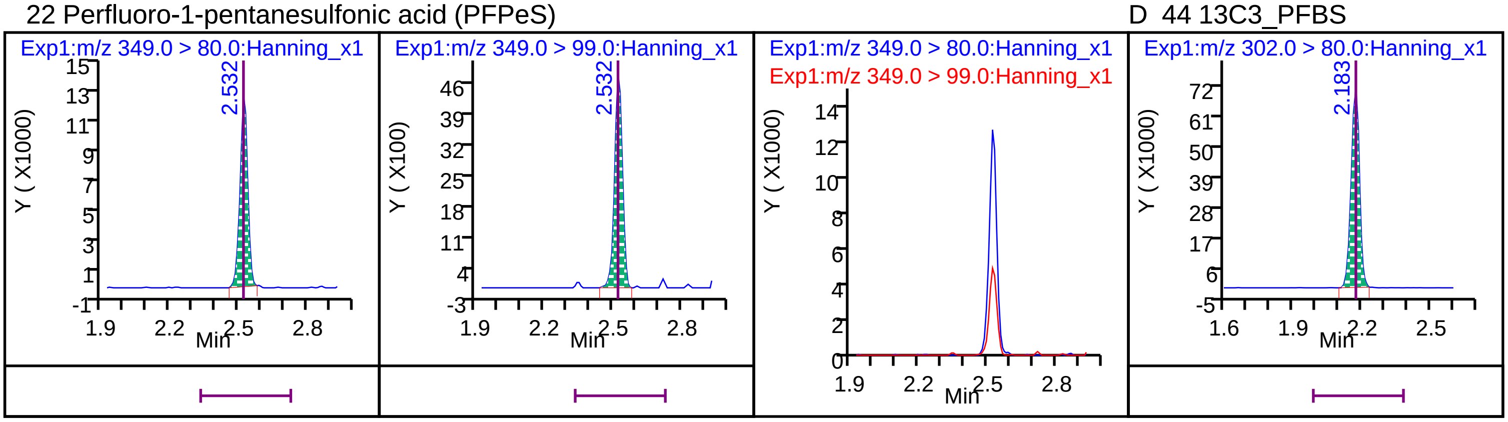
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



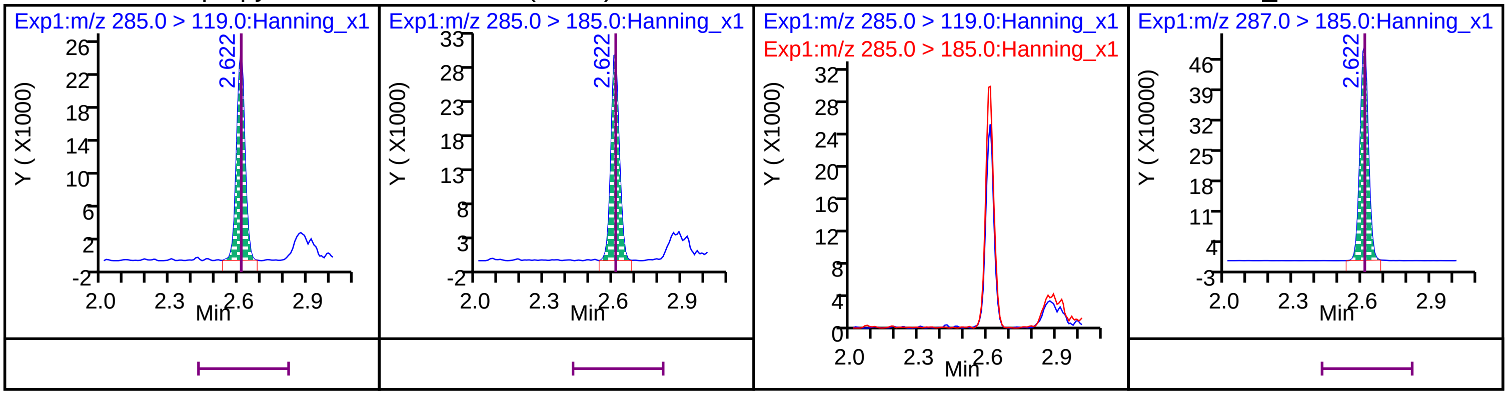
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



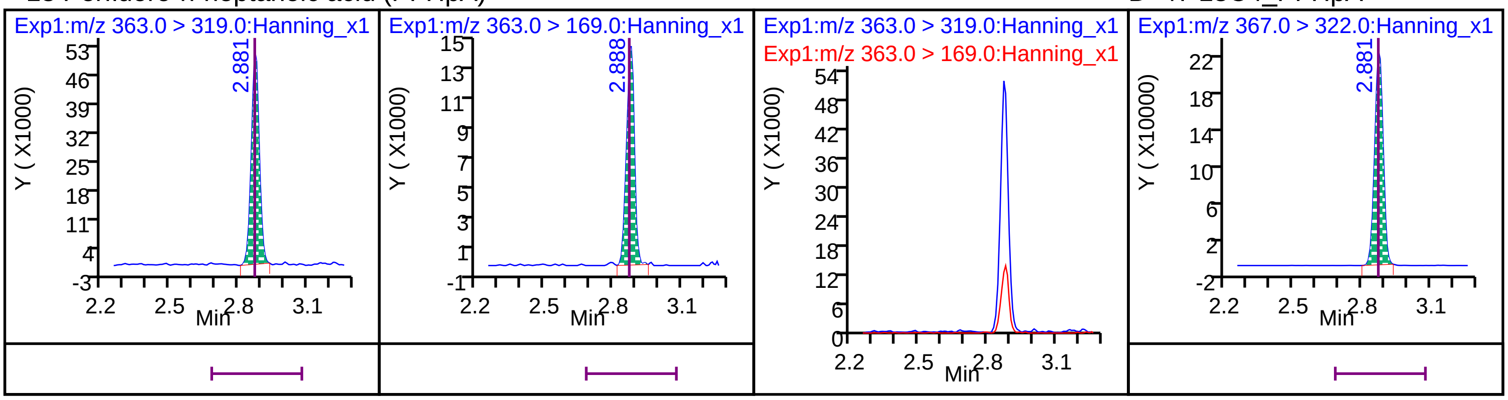
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



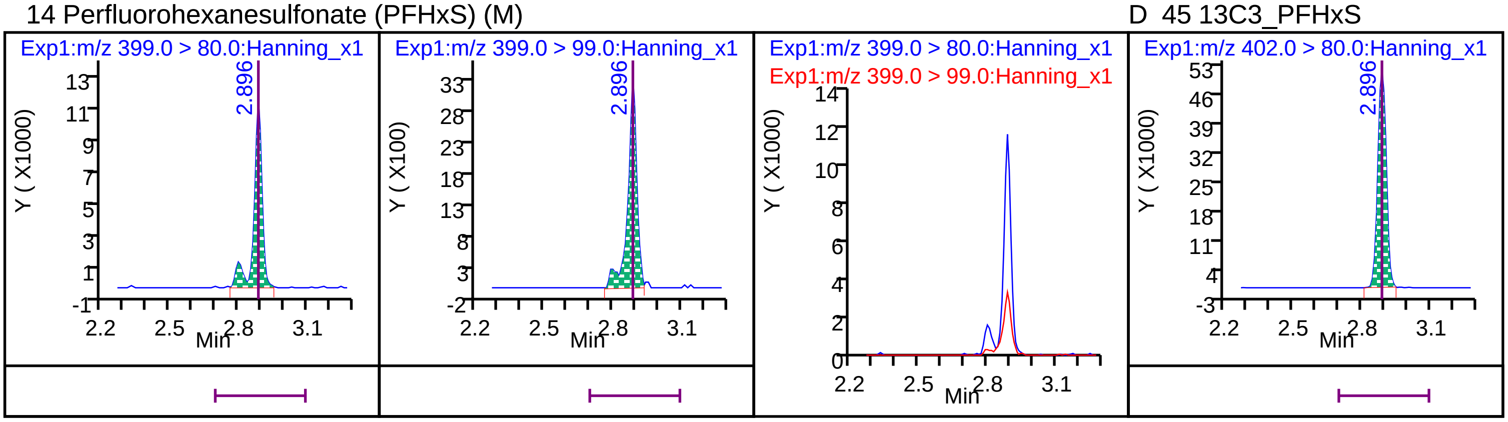
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



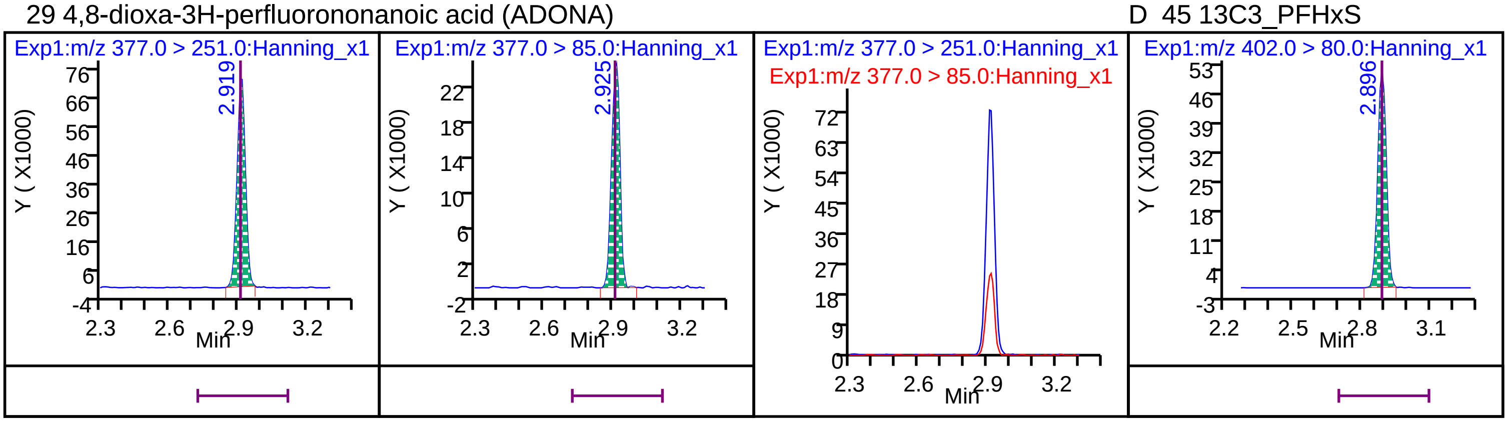
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



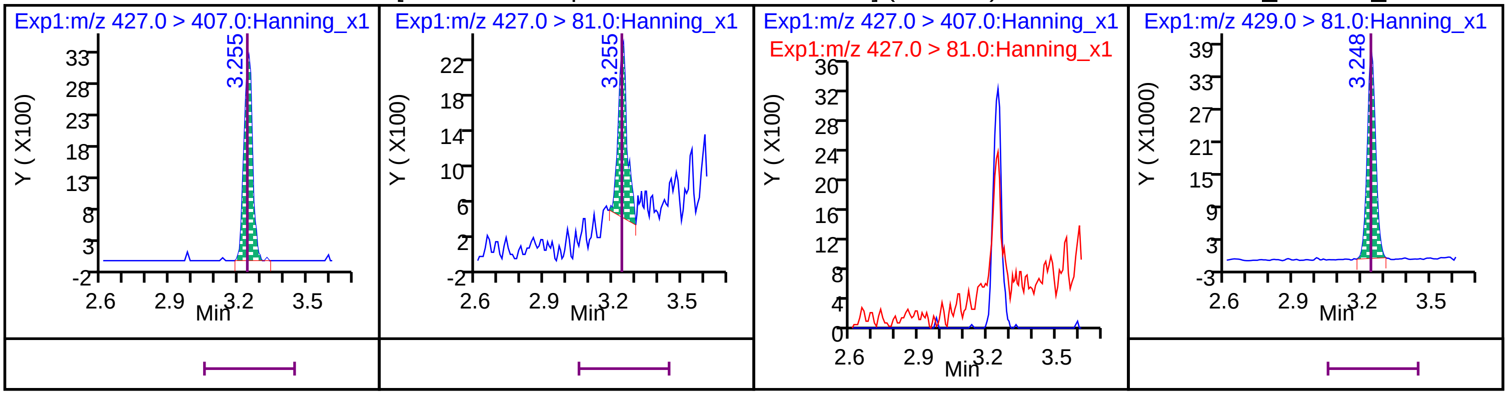
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



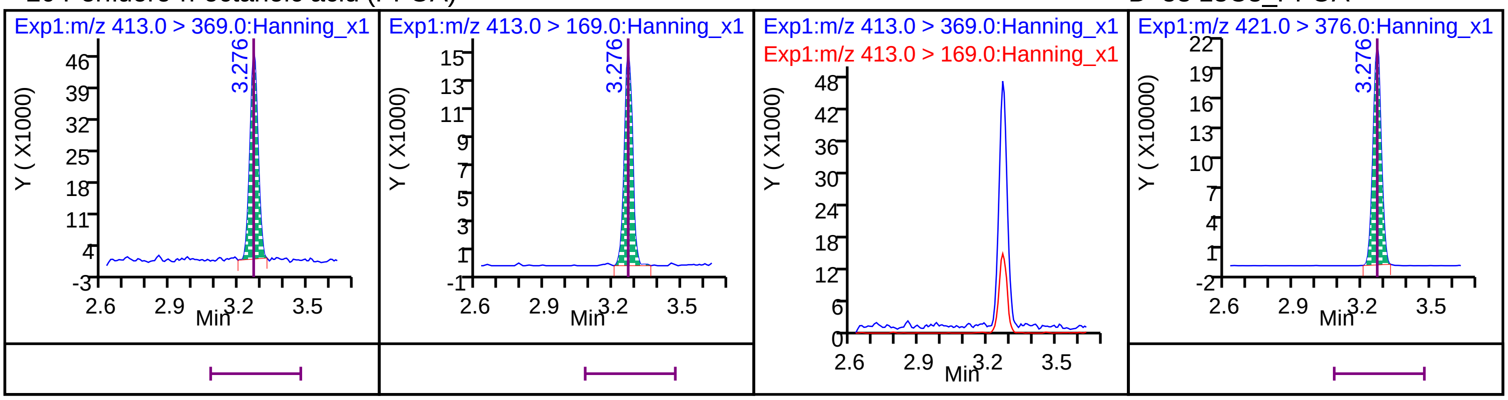
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



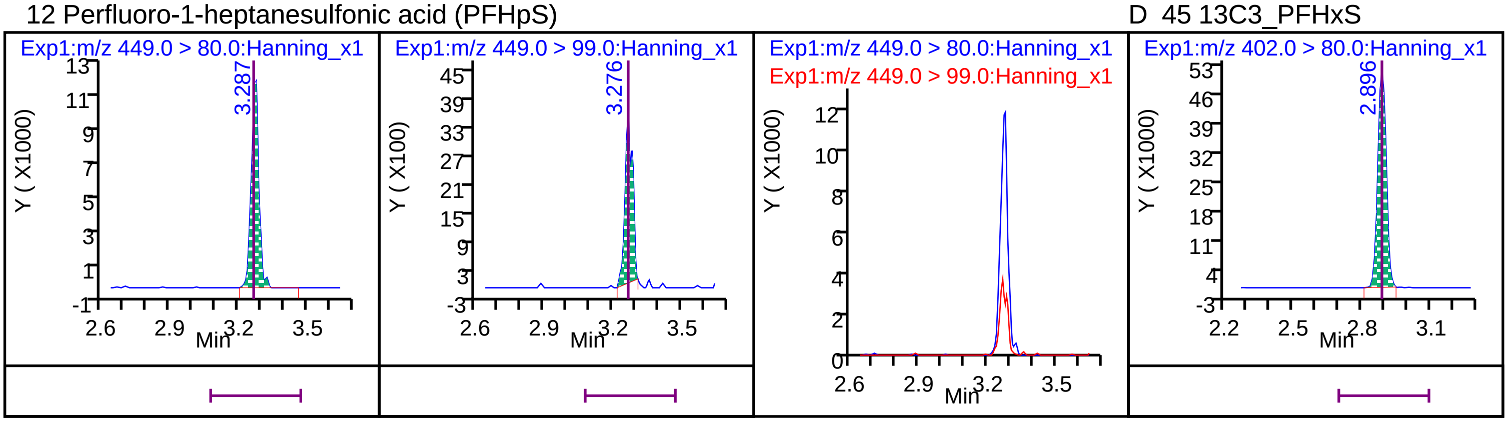
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



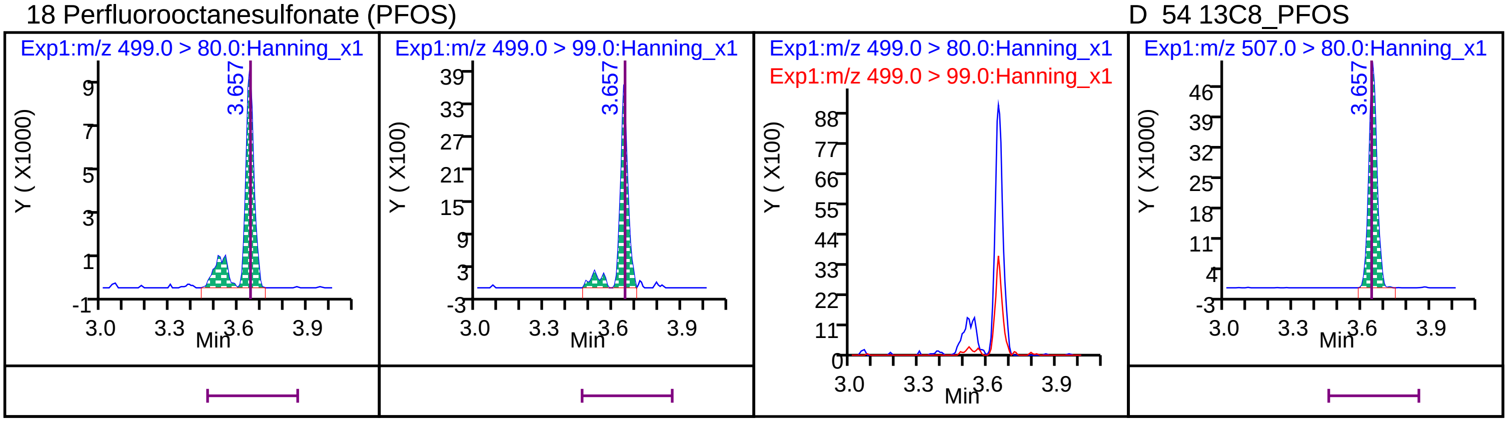
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

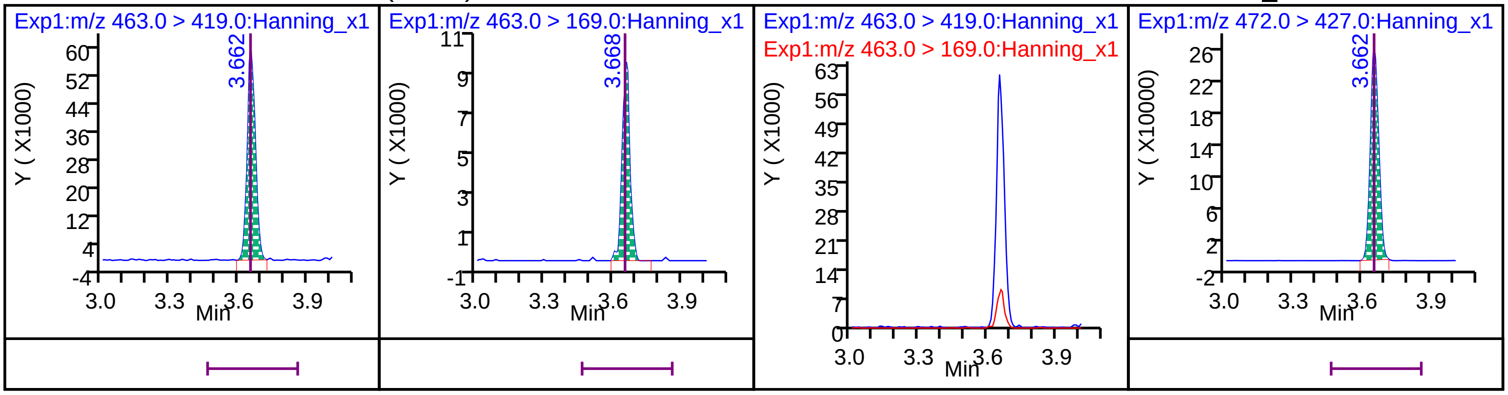


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



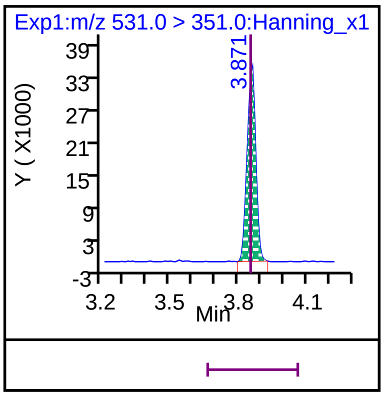
17 Perfluoro-n-nonanoic acid (PFNA)

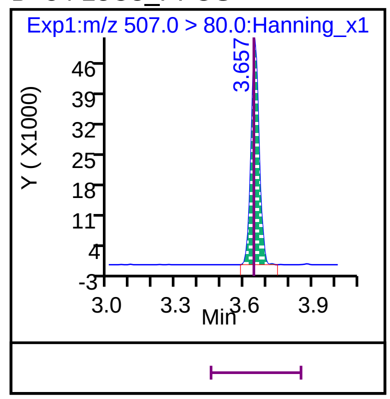
D 56 13C9_PFNA



30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)

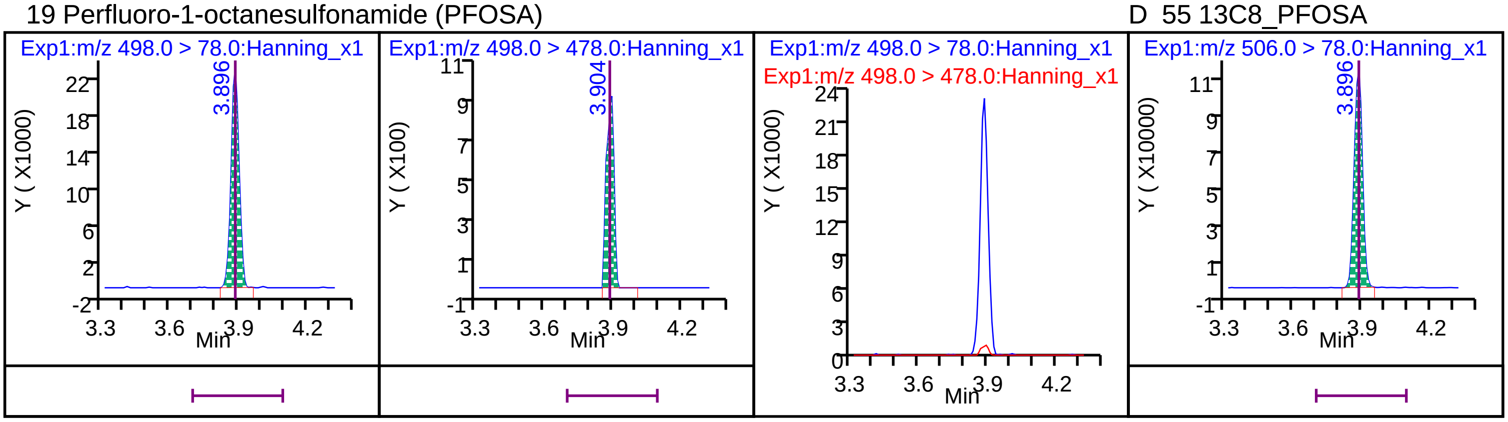
D 54 13C8_PFOS





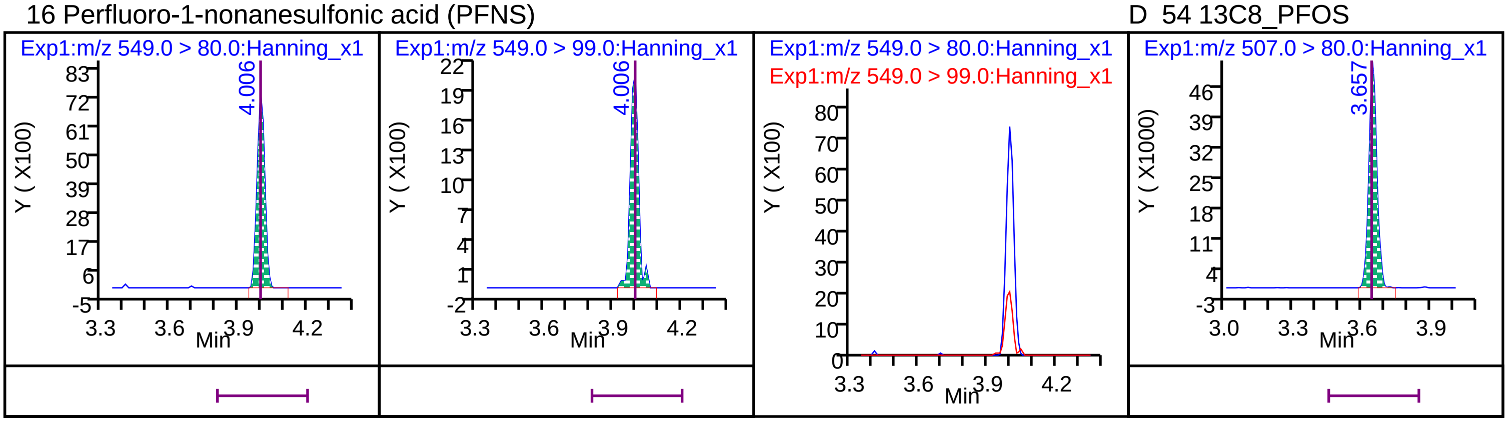
19 Perfluoro-1-octanesulfonamide (PFOSA)

D 55 13C8_PFOSA

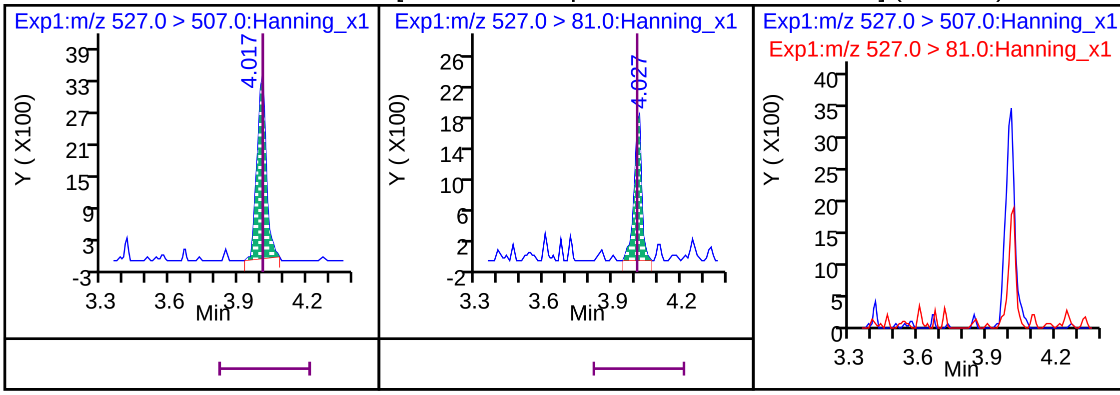


16 Perfluoro-1-nonanesulfonic acid (PFNS)

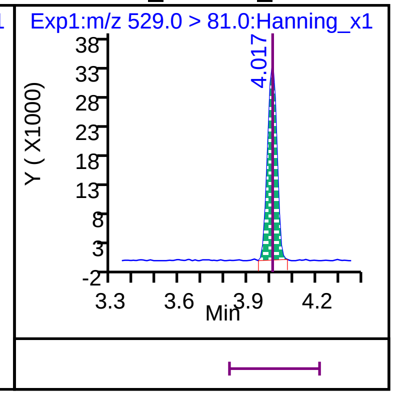
D 54 13C8_PFOS



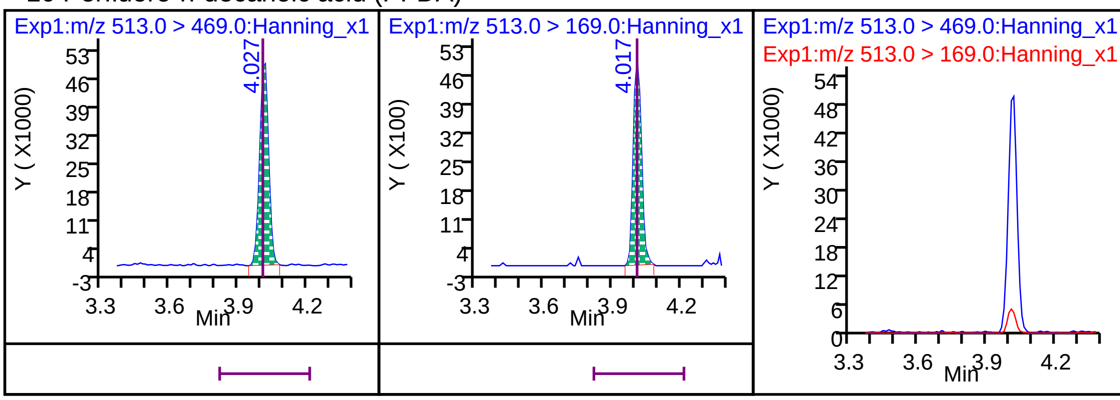
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)



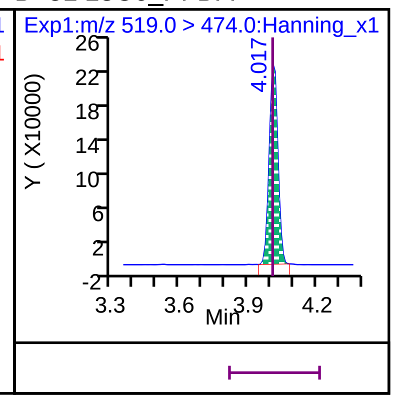
D 65 13C2_8:2 FTS_2



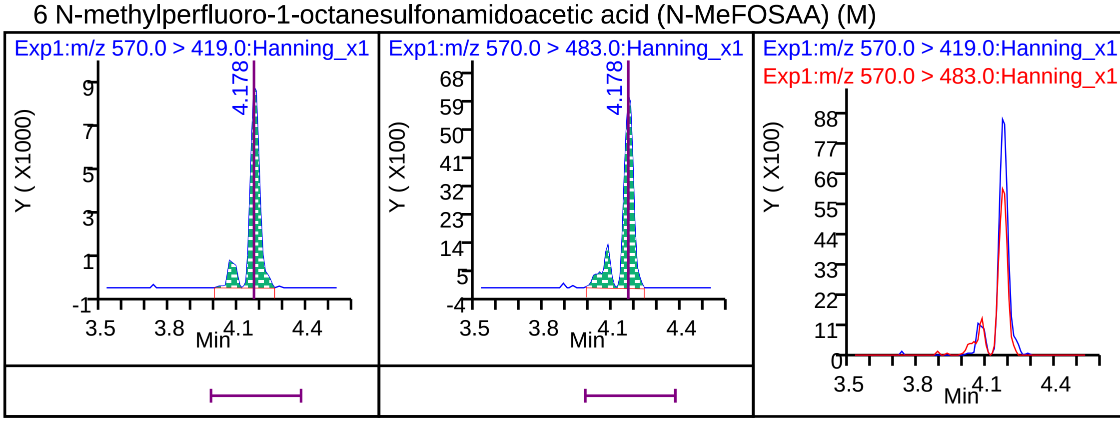
10 Perfluoro-n-decanoic acid (PFDA)



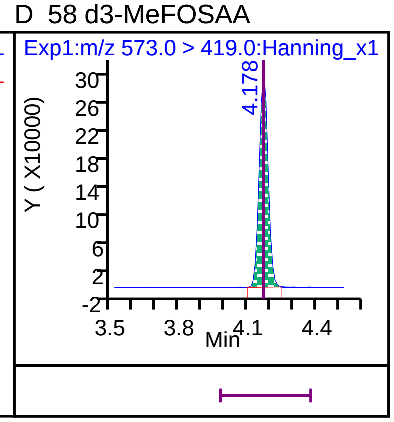
D 51 13C6_PFDA



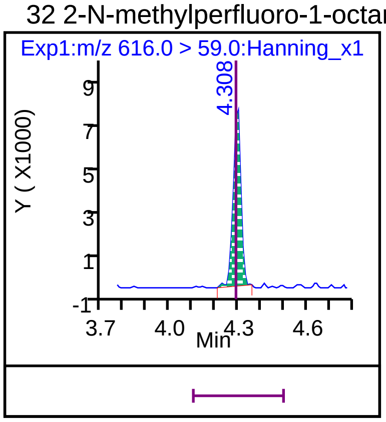
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)



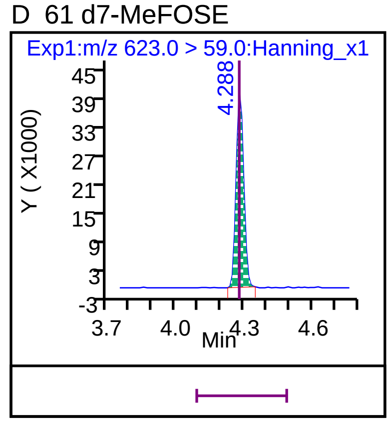
D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

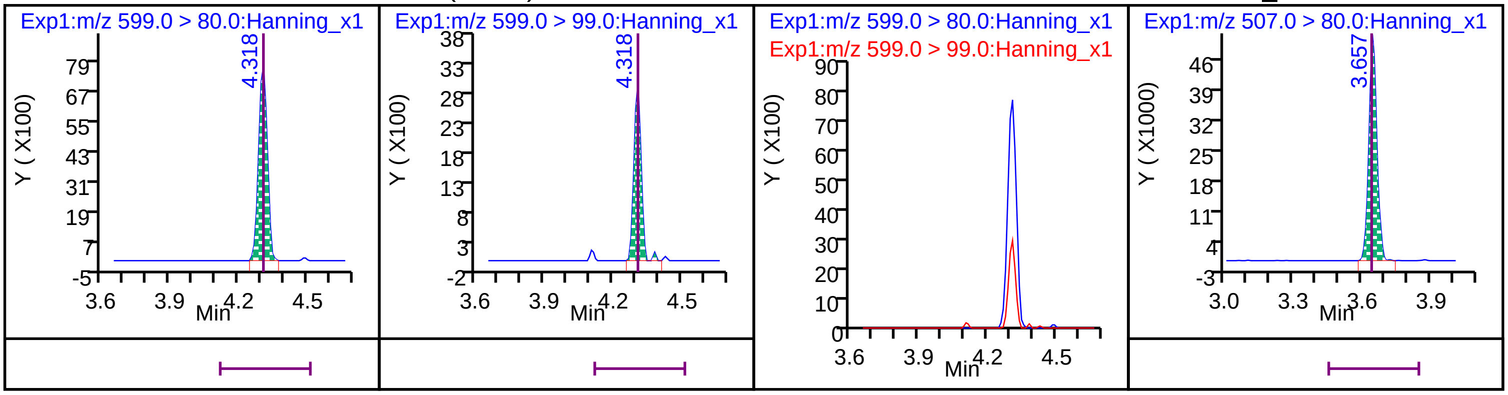


D 61 d7-MeFOSE

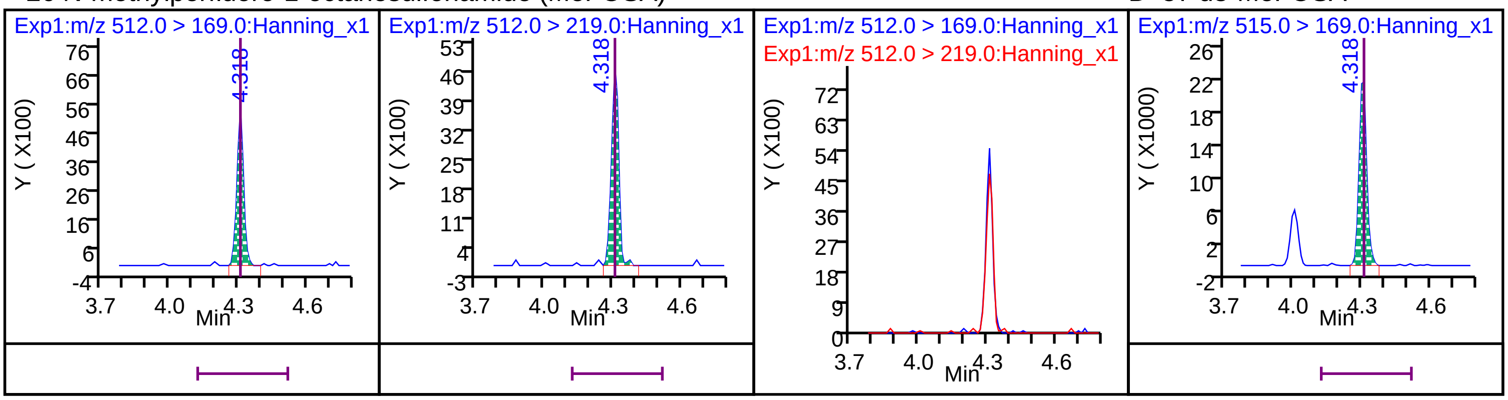


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

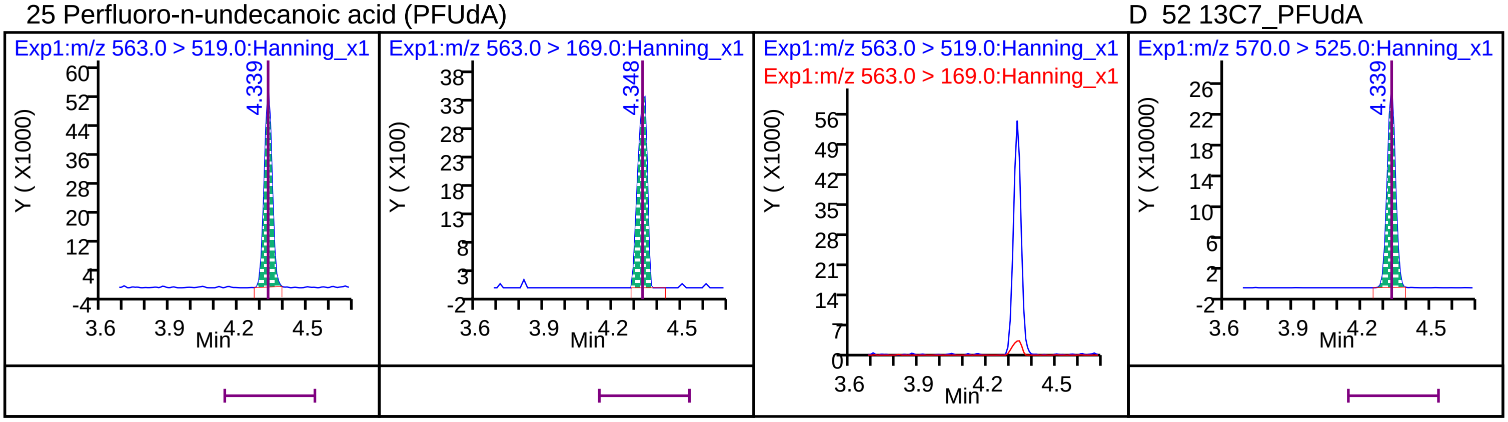
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



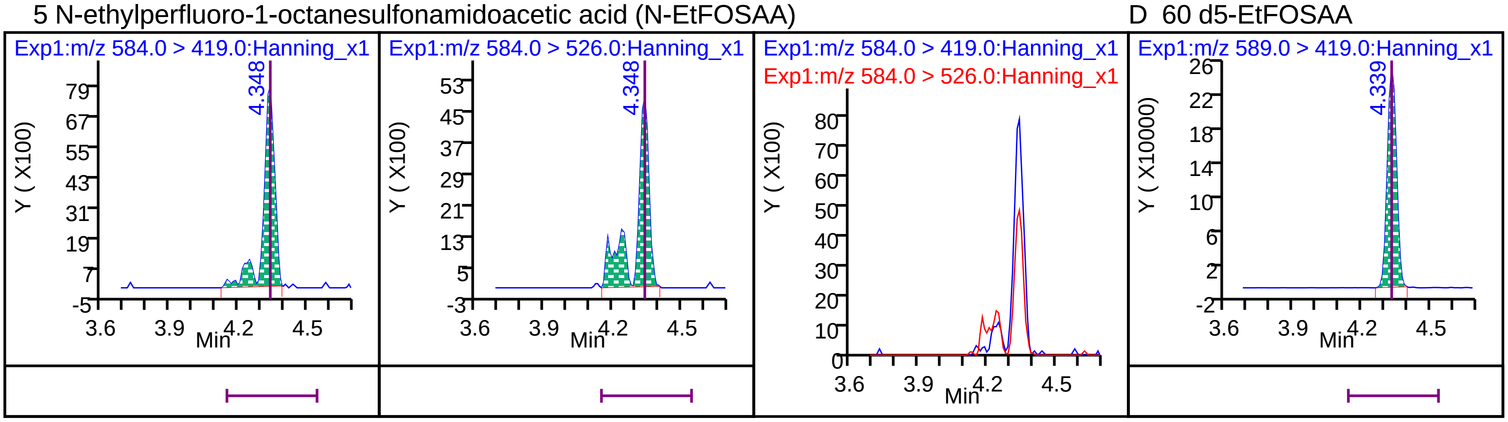
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
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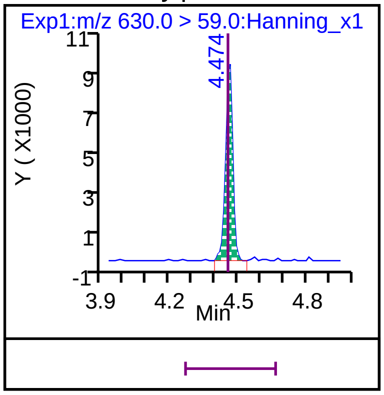
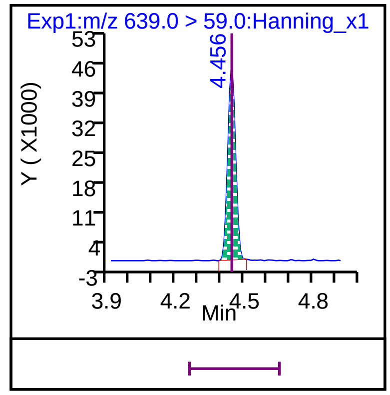
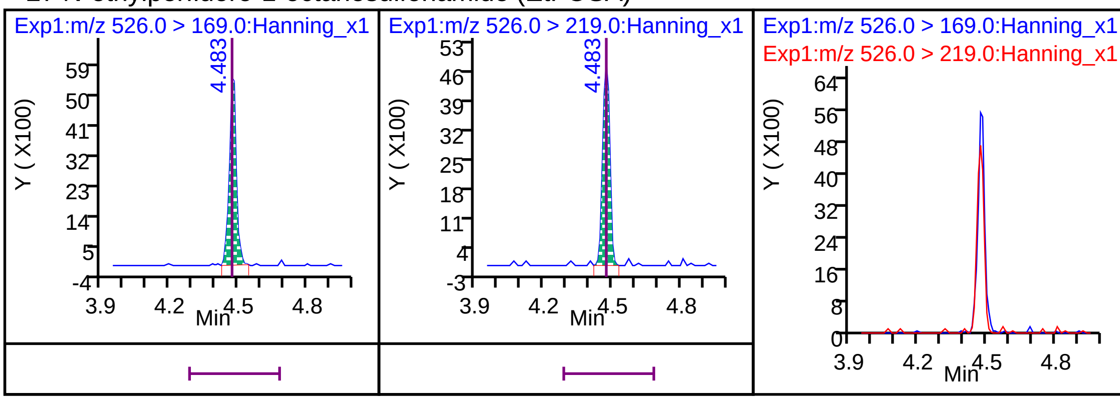
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



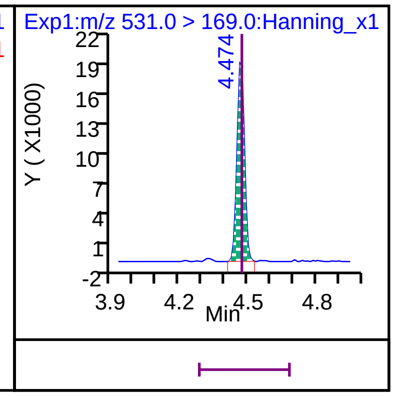
D 62 d9-EtFOSE



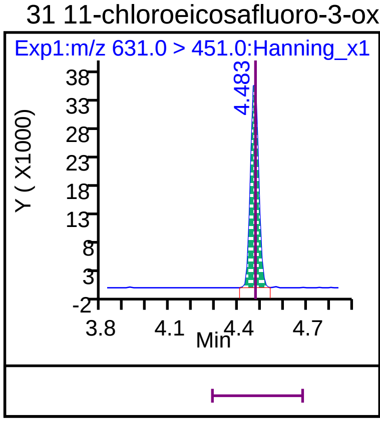
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



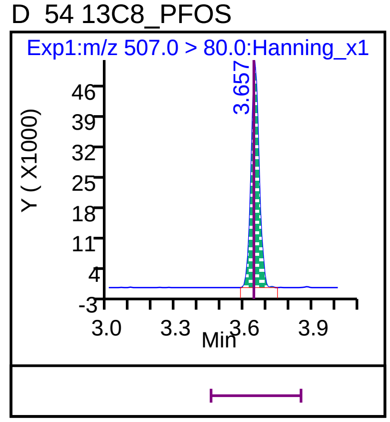
D 59 d5-EtFOSA



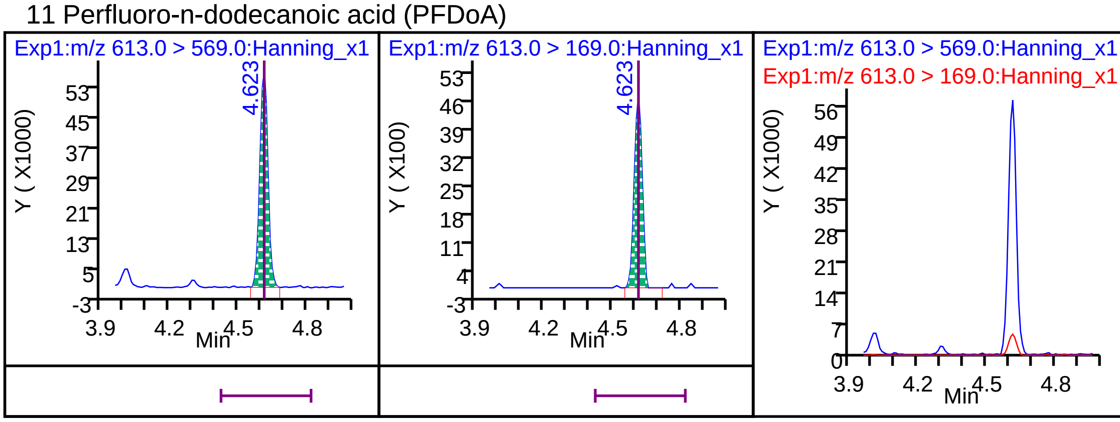
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



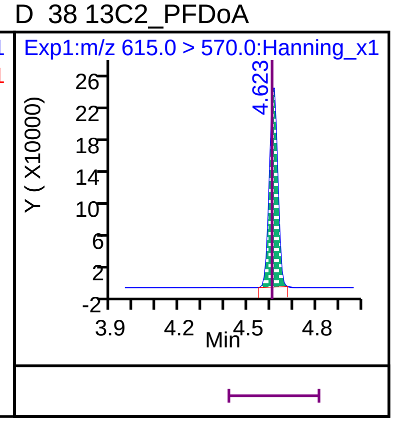
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)



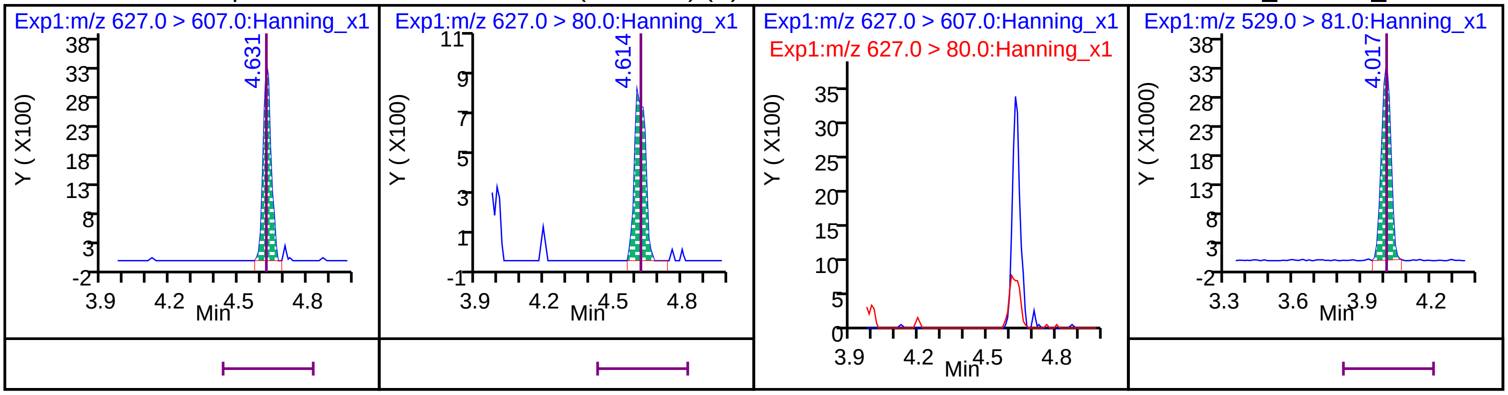
D 38 13C2_PFDoA



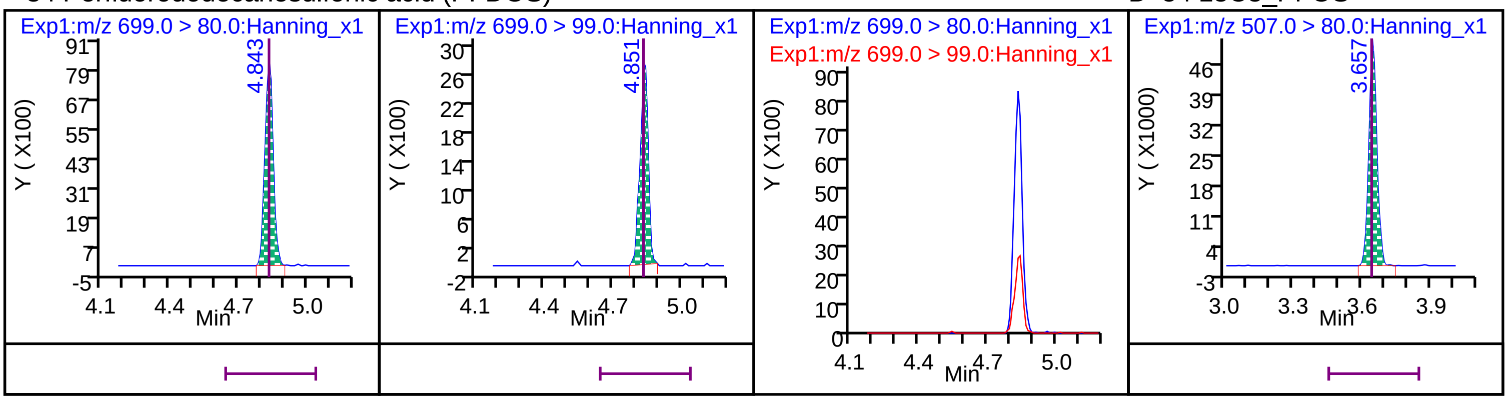
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

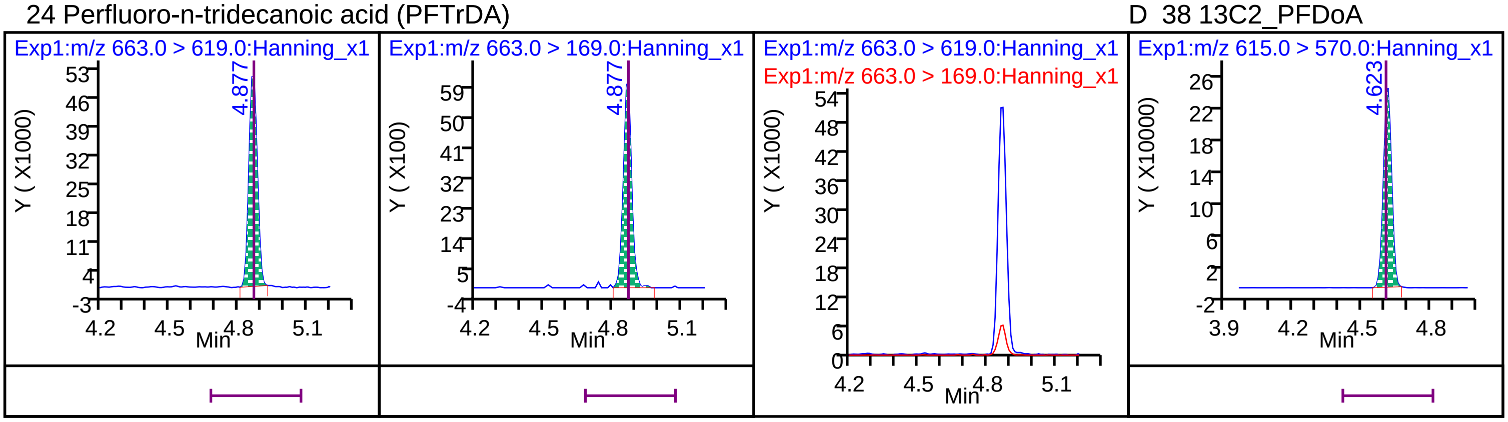
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A) D 65 13C2_8:2 FTS_2



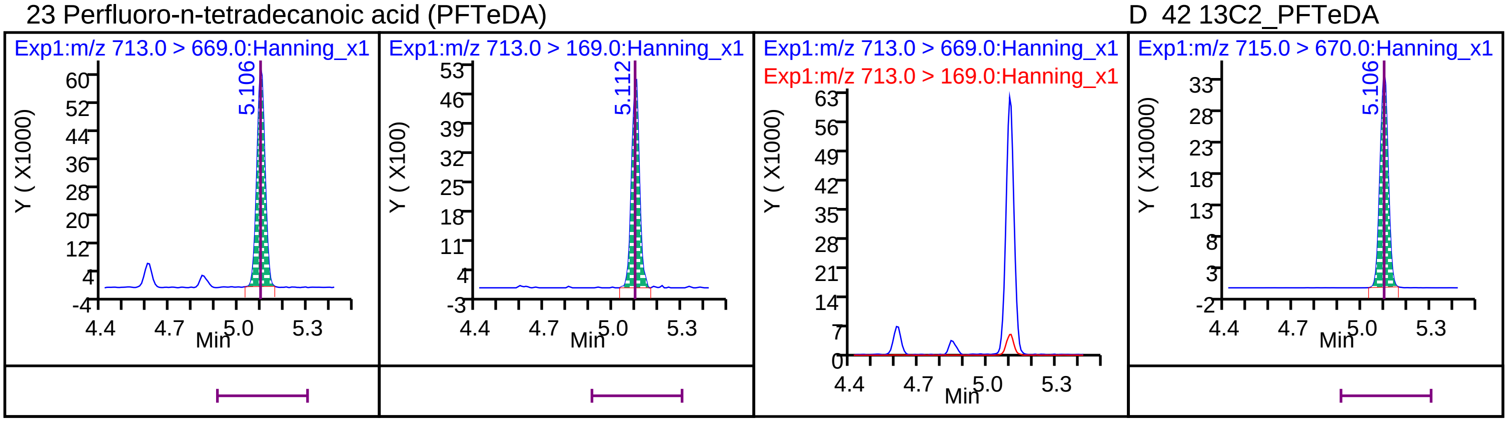
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



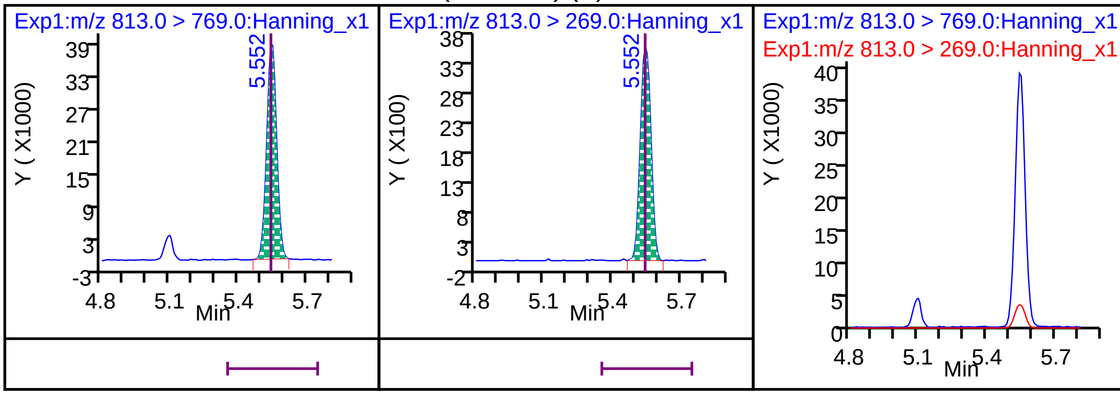
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



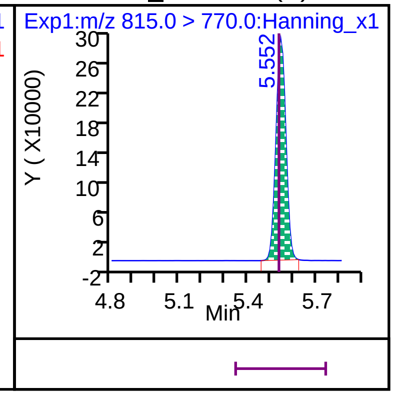
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



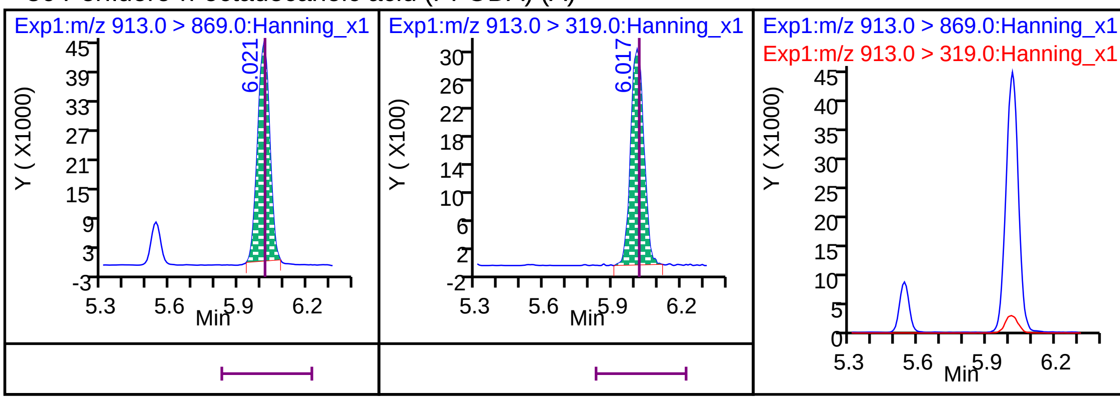
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A)



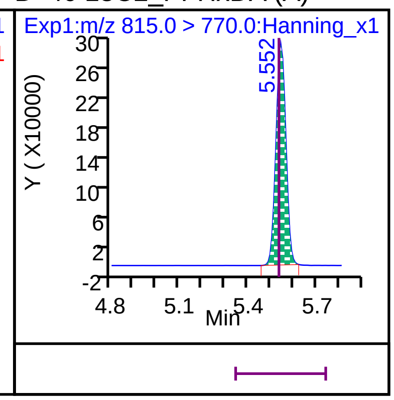
D 40 13C2_PFHxDA (A)



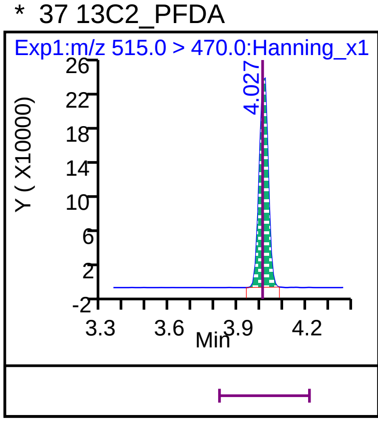
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



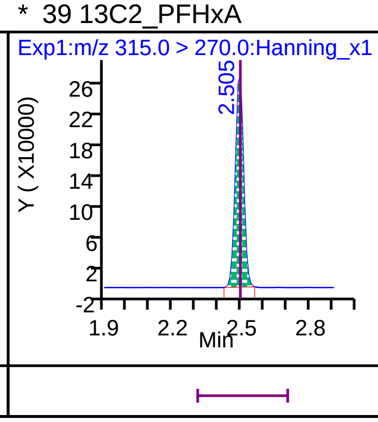
D 40 13C2_PFHxDA (A)



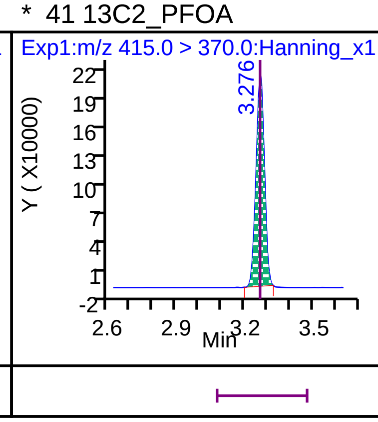
* 37 13C2_PFDA



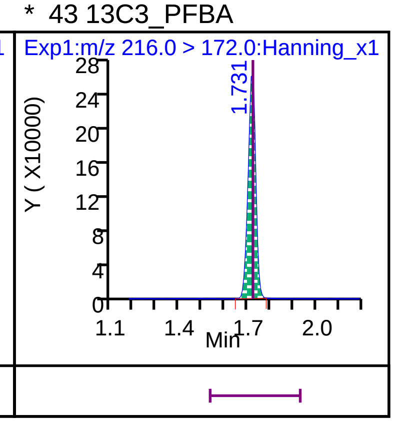
* 39 13C2_PFHxA



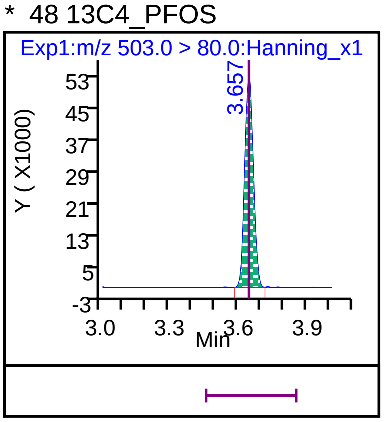
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

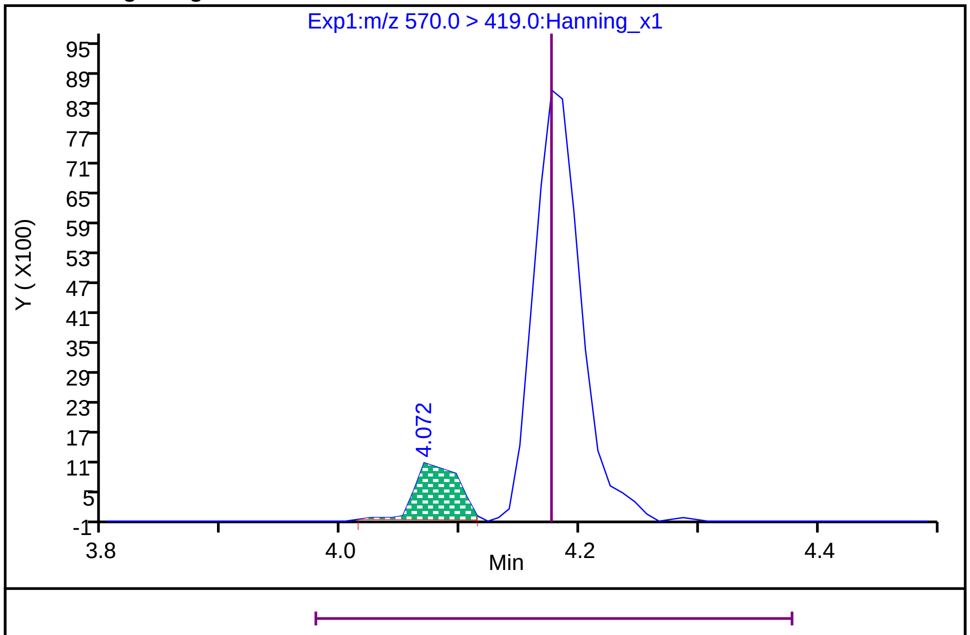
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

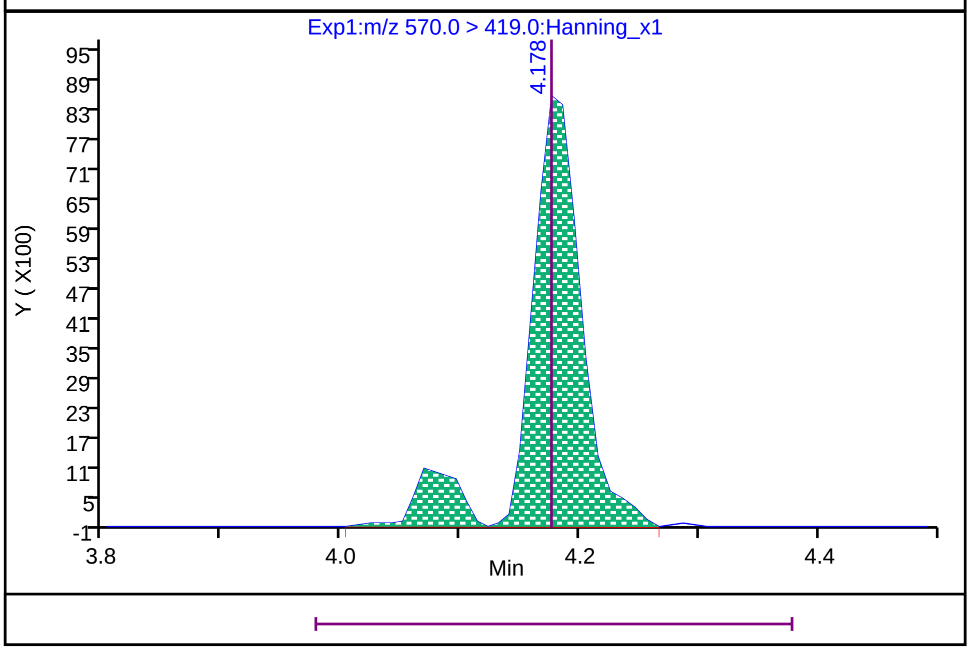
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.072
Area: 2850
Amount: 44.406
Amount Units: ng/L



RT: 4.178
Area: 26644
Amount: 220.97
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:26

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

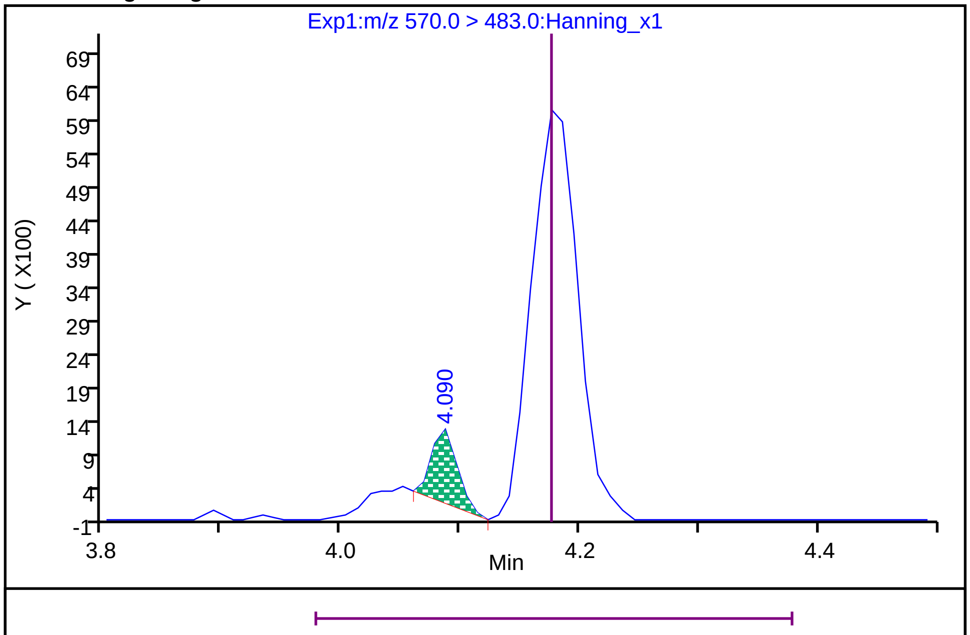
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

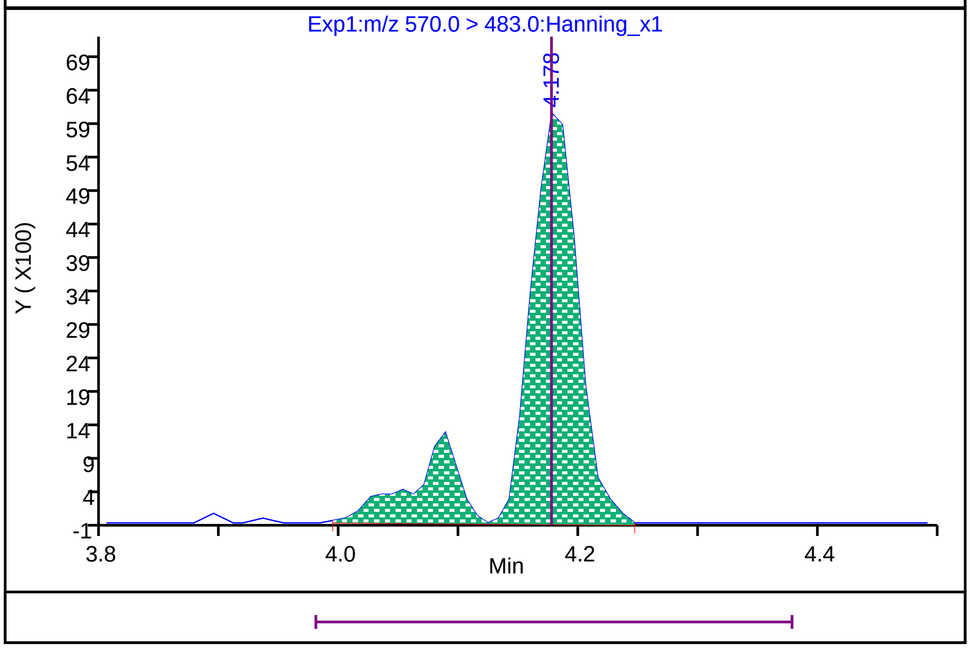
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.090
Area: 1622
Amount: 220.97
Amount Units: ng/L



RT: 4.178
Area: 20187
Amount: 220.97
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:28

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d

Injection Date: 07-Nov-2021 19:08:54 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 200_SVLC-1742

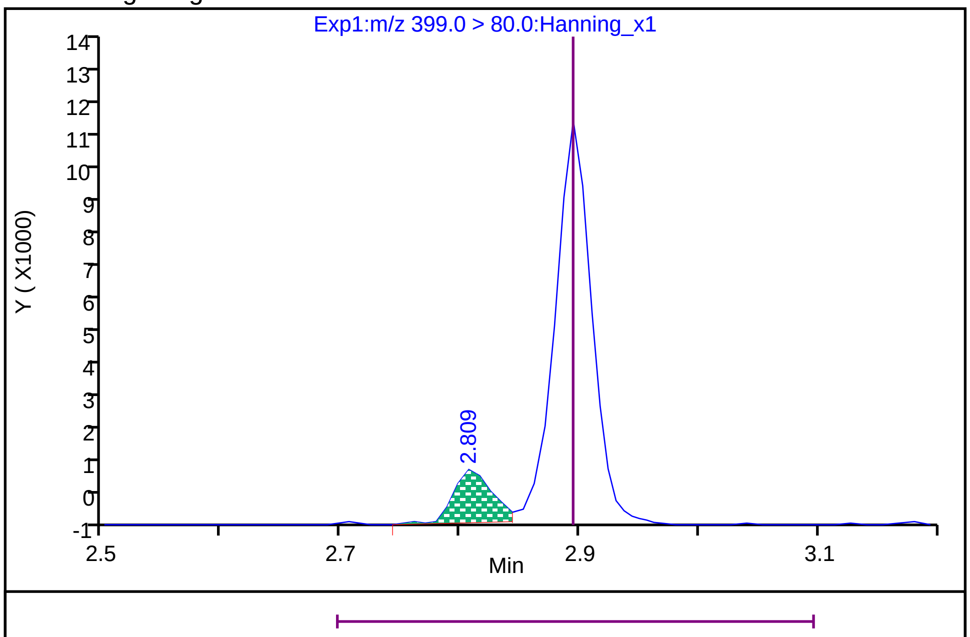
Sample Info: ID ICAL 200_SVLC-1742

Dil. Factor: 1 Operator: Justin Gavin

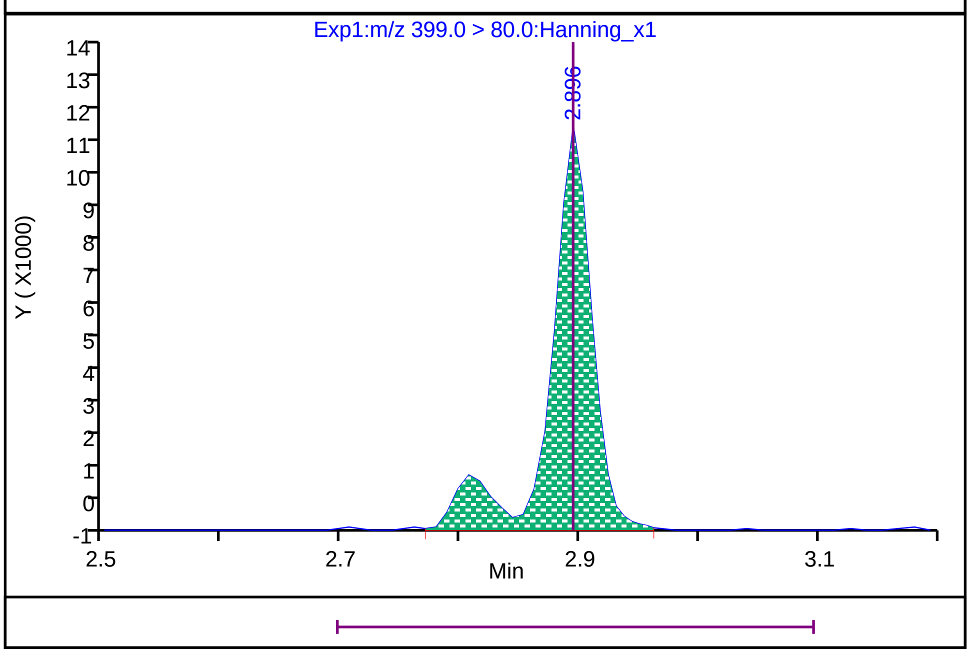
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 3354
Amount: -996.38
Amount Units: ng/L



RT: 2.896
Area: 28059
Amount: 196.04
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:09

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

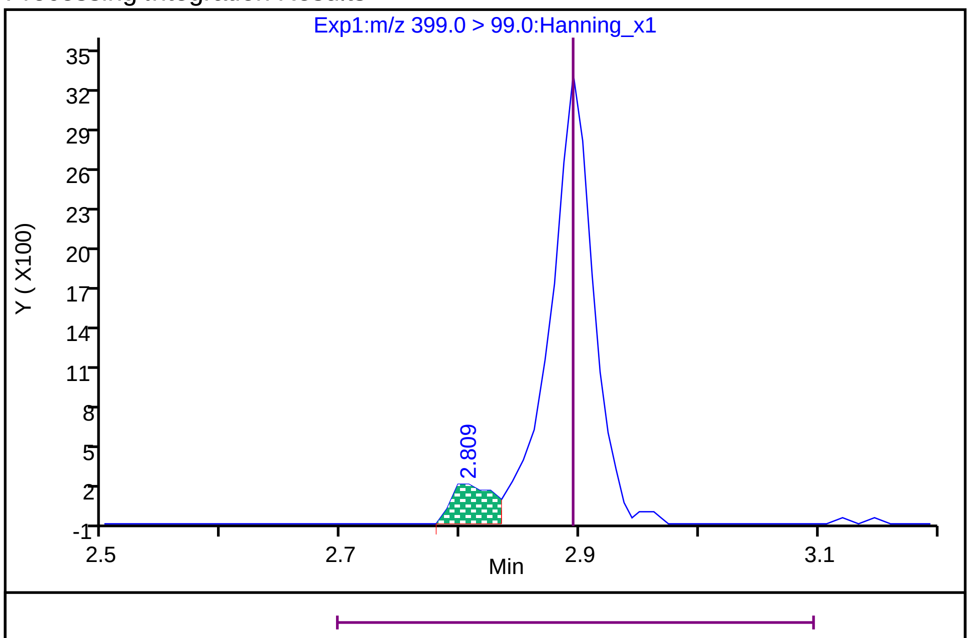
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A14.d		
Injection Date:	07-Nov-2021 19:08:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 200_SVLC-1742
Sample Info:	ID ICAL 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

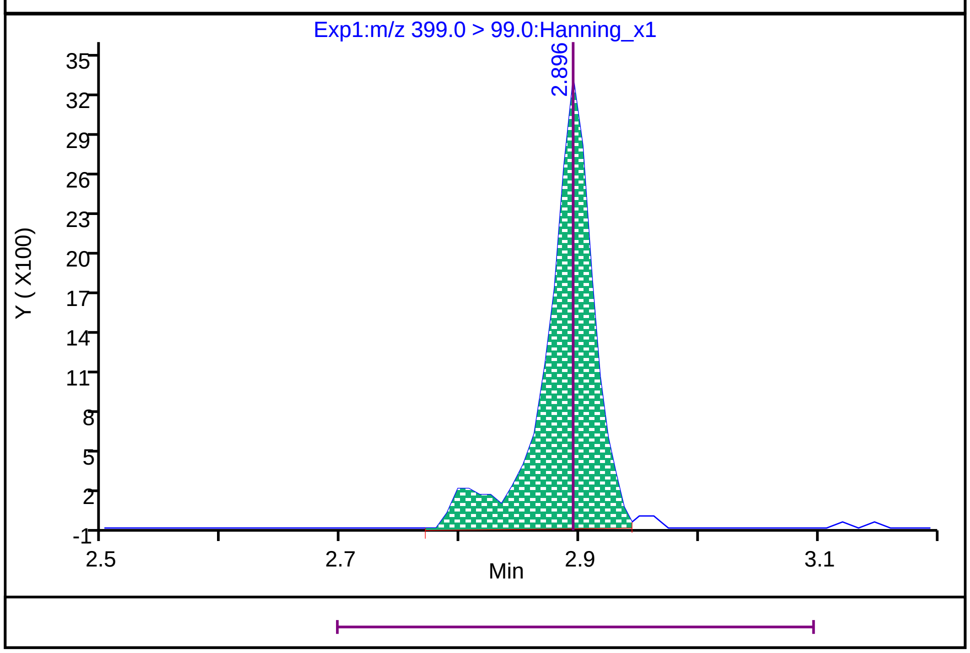
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 681
Amount: 196.04
Amount Units: ng/L



RT: 2.896
Area: 8795
Amount: 196.04
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:50:12

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 4	Auto Sampler:	78
Sample Info:	ID ICAL 500_SVLC-1743	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-4 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	624336	20	>100:1			1000.00	1004.28	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	338901	19	>100:1			500.00	514.70		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	592341	16	>100:1			1000.00	1036.30	102.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	326970	16	>100:1			500.00	490.45		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	176030	16	>100:1			1000.00	1017.69	98.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	99510	18	>100:1	Target = 3.53		442.00	453.32		
298.9 > 99	44	2.183	2.183		27088	23	>100:1	3.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/-1	77523	18	>100:1	Target = 3.10		469.00	475.19		
349 > 99	44	2.531	2.531		25032	17	>100:1	3.09 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	109721	16	>100:1			5000.00	4845.54	97.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/-1	22981	16		Target = 1.75		467.00	475.08		
327 > 81	63	2.469	2.460		13645	19	31:1	1.68 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	1	675545	17	>100:1			1000.00	1037.25	101.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/0	351581	16	>100:1	Target = 18.91		500.00	500.54		
313 > 119	49	2.505	2.505		19573	15	>100:1	17.96 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1164547	19	>100:1			5000.00	5024.88	96.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	1/1	153699	19	>100:1	Target = 0.79		1000.00	1018.96		
285 > 185	66	2.622	2.622		194997	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	537765	18	>100:1			1000.00	1012.86	100.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	0/-1	296723	17	>100:1	Target = 3.80		500.00	502.14		
363 > 169	47	2.881	2.880		80115	20	>100:1	3.70 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	133409	18	>100:1			1000.00	1061.84	102.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	6/5	67873	27	>100:1	Target = 2.89	4.35	455.00	462.77		M
399 > 99	45	2.896	2.896		20824	25	>100:1	3.25 (1.44-4.34)	7.53				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	460077	20	>100:1	Target = 3.23		471.00	444.68		
377 > 85	45	2.919	2.919		148929	21	>100:1	3.08 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.282	3.276	1/0	57950	21	>100:1	Target = 3.12		476.00	422.93		
449 > 99	45	3.276	3.276		20808	19	>100:1	2.78 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.255	3.248	1	94456	20	>100:1			5000.00	5247.57	100.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/-1	20529	20		Target = 1.75		474.00	459.06		
427 > 81	64	3.255	3.248		11546	19	28:1	1.77 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	524379	22	>100:1			1000.00	999.43	95.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/-1	281706	20	>100:1	Target = 2.89		500.00	524.24		
413 > 169	53	3.276	3.276		91375	23	>100:1	3.08 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.652	3.651	0	129829	20	>100:1			1000.00	1048.34	98.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	1/1	69058	41	>100:1	Target = 3.30	3.54	464.00	446.73		M
499 > 99	54	3.652	3.662		21453	44	>100:1	3.21 (1.65-4.95)	5.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.871	3.863	1/1	220303	17	>100:1			466.00	448.07		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/1	49658	21	>100:1	Target = 3.08		480.00	476.75		
549 > 99	54	4.006	4.006		18097	22	>100:1	2.74 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/1	46988	20	>100:1	Target = 2.72		482.00	462.50		
599 > 99	54	4.318	4.318		17800	20		2.63 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	1/1	199041	17	>100:1			471.00	447.80		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	0/0	49920	17	>100:1	Target = 3.27		484.00	447.16		
699 > 99	54	4.843	4.842		15294	16	>100:1	3.26 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	652533	21	>100:1			1000.00	1018.98	102.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	359052	23	>100:1	Target = 6.51		500.00	510.49		
463 > 169	56	3.662	3.662		55590	21	>100:1	6.45 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	278973	18	>100:1			1000.00	1040.72	104.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	150716	17	>100:1	Target = 41.63		500.00	513.46		
498>478	55	3.888	3.896		4665	15	28:1	32.30 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	0	591408	17	>100:1			1000.00	1029.14	102.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	0/0	354891	17	>100:1	Target = 13.80		500.00	515.64		
513 > 169	51	4.027	4.016		27152	20	>100:1	13.07 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	84431	15	>100:1			5000.00	4884.78	107.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	0/-1	18669	17	85:1	Target = 1.94		479.00	489.28		
527 > 81	65	4.017	4.016		10352	15	37:1	1.80 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0												a	
627 > 607	65	4.631	4.631	1/0	18214	16		Target = 3.54		482.00	425.23		
627 > 80	65	4.631	4.631		7681	15	20:1	2.37 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	744712	18	>100:1			5000.00	4928.20	96.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.187	4.178	7/7	57385	27	>100:1	Target = 1.37	10.02	500.00	480.15		
570 > 483	58	4.178	4.178		46738	31	>100:1	1.22 (0.68-2.05)	4.99				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	94507	15	>100:1			1000.00	1047.88	104.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/-1	46172	14	>100:1			500.00	447.05		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	51110	14	>100:1			1000.00	1086.49	113.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/-1	31576	13	>100:1	Target = 1.11		500.00	569.99		
512 > 219	57	4.318	4.318		22112	11	>100:1	1.42 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	0	708039	16	>100:1			5000.00	5466.93	102.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.348	0/0	62428	21	36:1	Target = 1.51	10.51	500.00	452.13		
584 > 526	60	4.348	4.348		41356	30	66:1	1.50 (0.75-2.26)	3.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	644729	15	>100:1			1000.00	1070.53	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	0/-1	291697	15	>100:1	Target = 14.52		500.00	466.92		
563 > 169	52	4.339	4.338		18578	20	>100:1	15.70 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	104371	16	>100:1			1000.00	983.92	102.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	48514	15	>100:1			500.00	477.49		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	44943	16	>100:1			1000.00	1045.19	104.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	26116	20	>100:1	Target = 1.06		500.00	477.99		
526 > 219	59	4.483	4.483		30666	15	>100:1	0.85 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	603349	17	>100:1			1000.00	1005.02	99.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	327079	18	75:1	Target = 10.70		500.00	508.51		
613 > 169	38	4.623	4.622		29077	16	>100:1	11.24 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	1/0	326539	17	>100:1	Target = 8.31		500.00	514.91		
663 > 169	38	4.877	4.877		39813	15	>100:1	8.20 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	818088	22	>100:1			1000.00	1006.27	97.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	1/1	364849	22	50:1	Target = 12.17		500.00	510.90		
713 > 169	42	5.106	5.106		30567	23	>100:1	11.93 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													a
815 > 770		5.552	5.544	0	851524	21	>100:1			1000.00	980.98	97	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													a
813 > 769	40	5.552	5.552	0	277135	22	40:1	Target = 10.43		500.00	508.17		
813 > 269	40	5.552	5.552		26652	21	>100:1	10.39 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													a
913 > 869	40	6.017	6.026	0	402758	33	23:1	Target = 13.67		500.00	519.54		
913 > 319	40	6.017	6.026		29444	42	>100:1	13.67 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.016	1	690187	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	670207	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	553624	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	590590	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.657	0	132512	21	>100:1			1000.00			

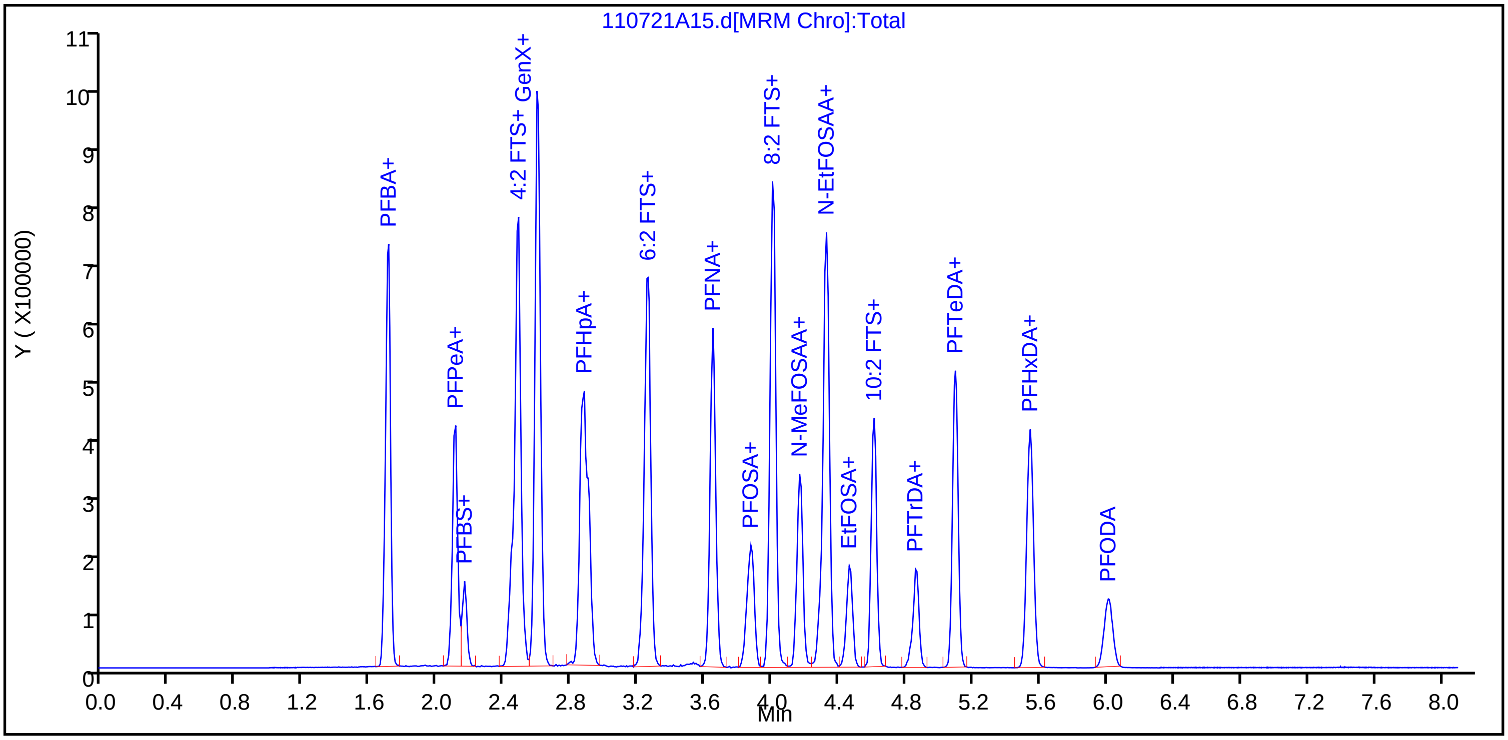
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

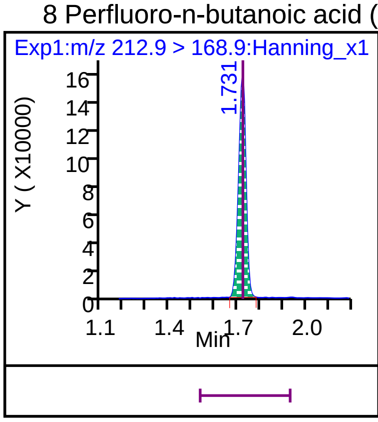
Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

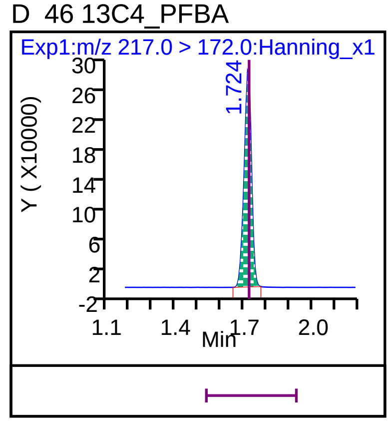
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin



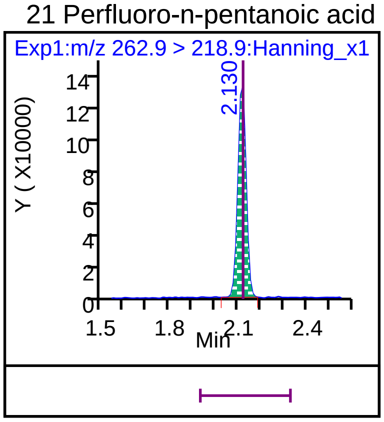
8 Perfluoro-n-butanoic acid (PFBA)



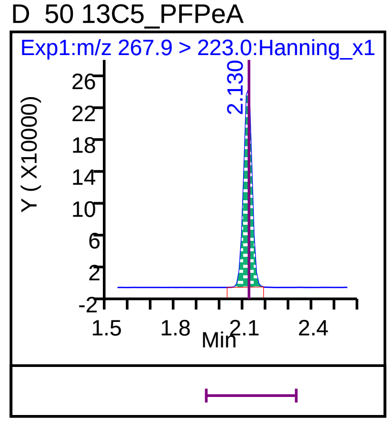
D 46 13C4_PFBA



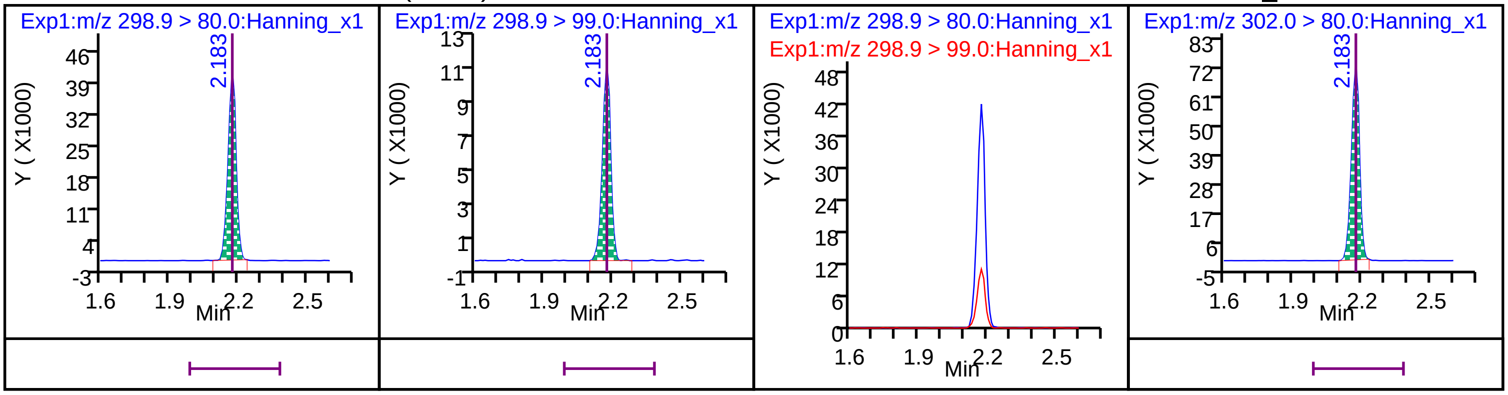
21 Perfluoro-n-pentanoic acid (PFPeA)



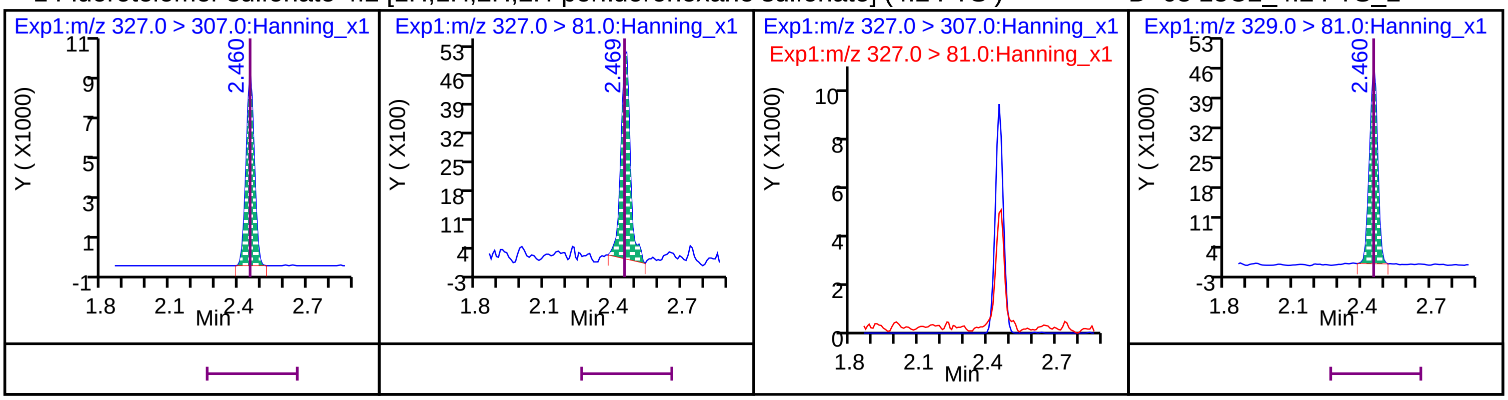
D 50 13C5_PFPeA



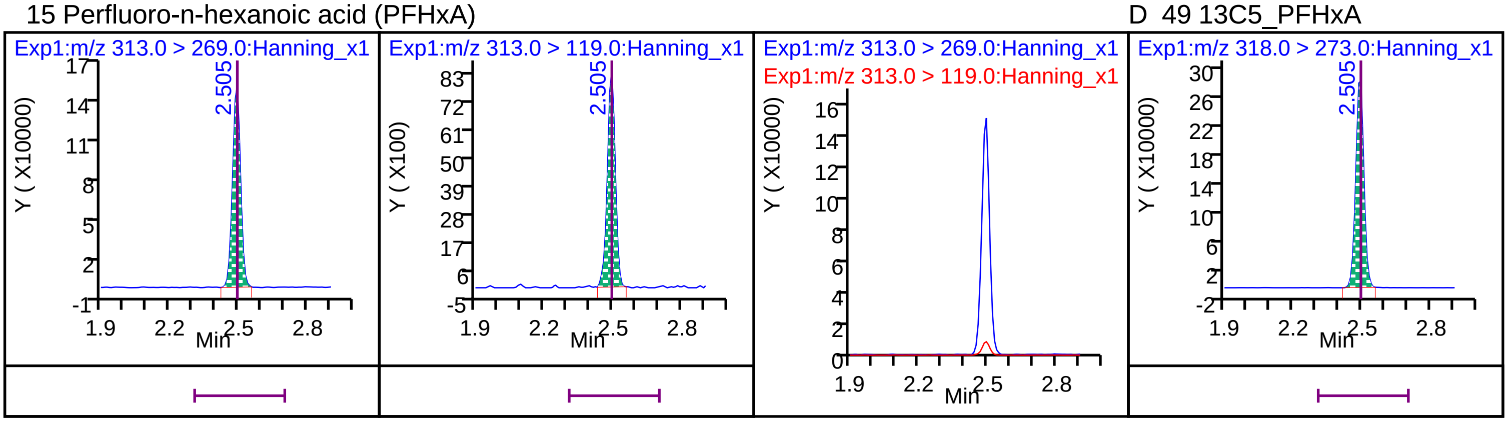
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



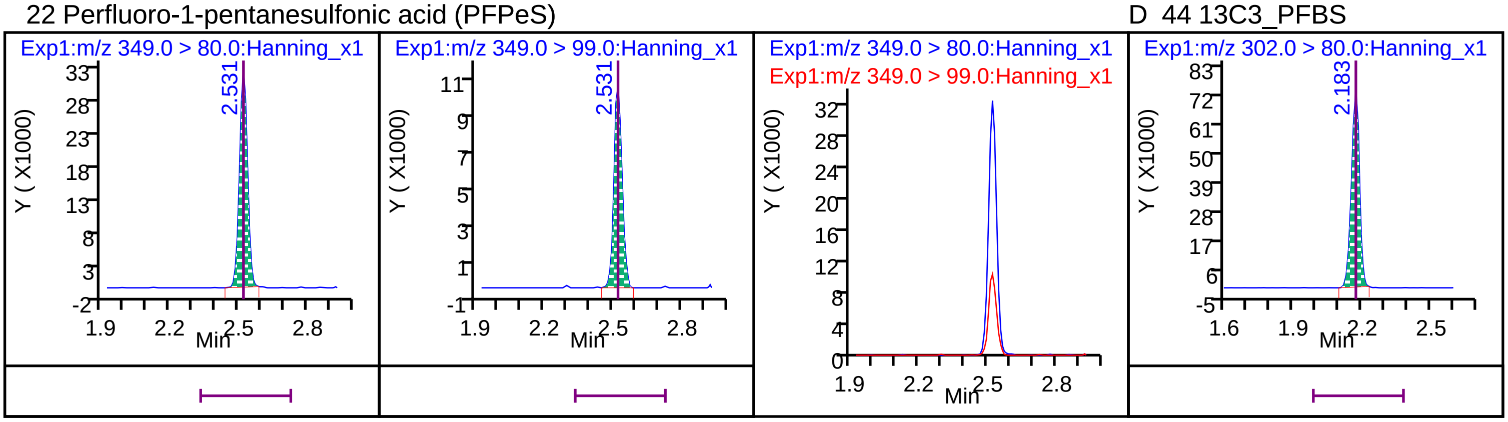
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



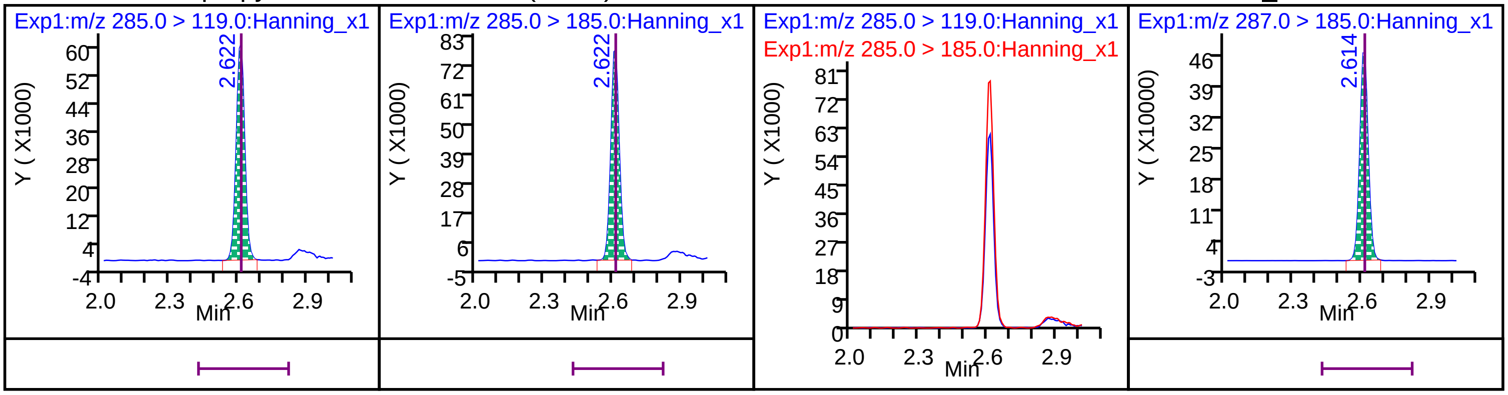
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



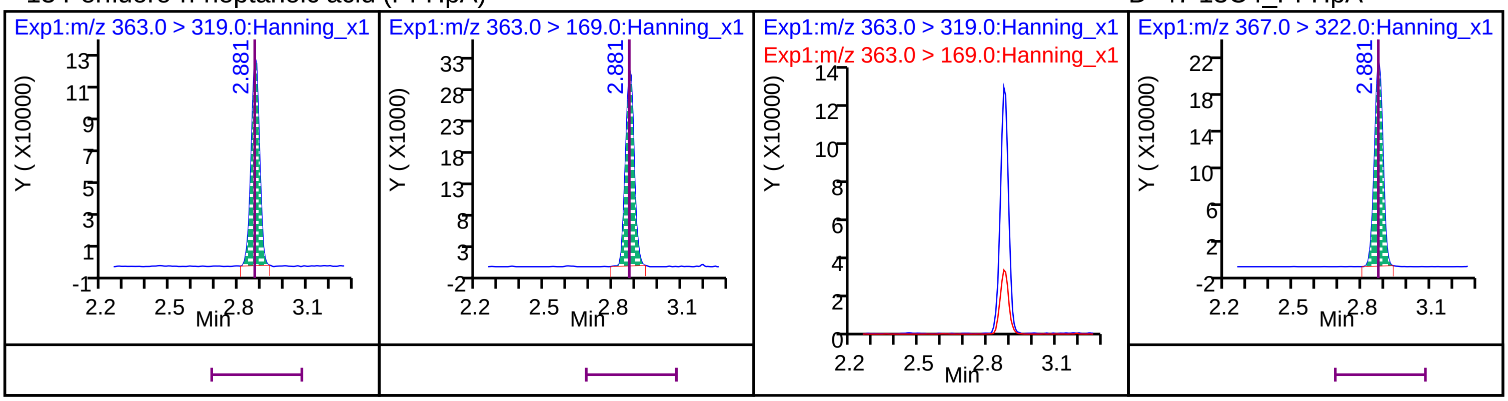
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



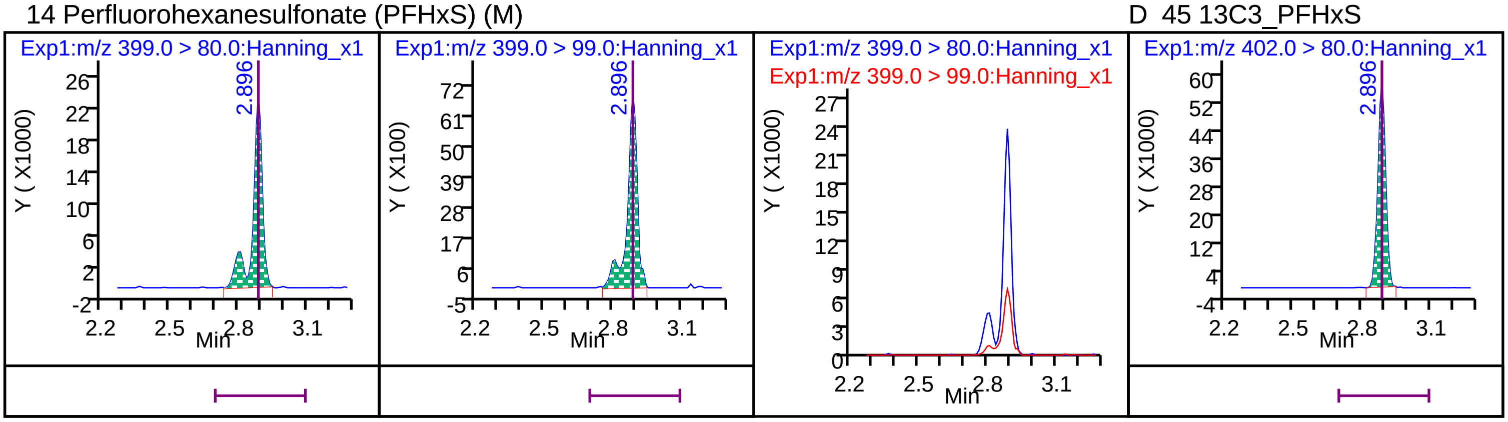
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



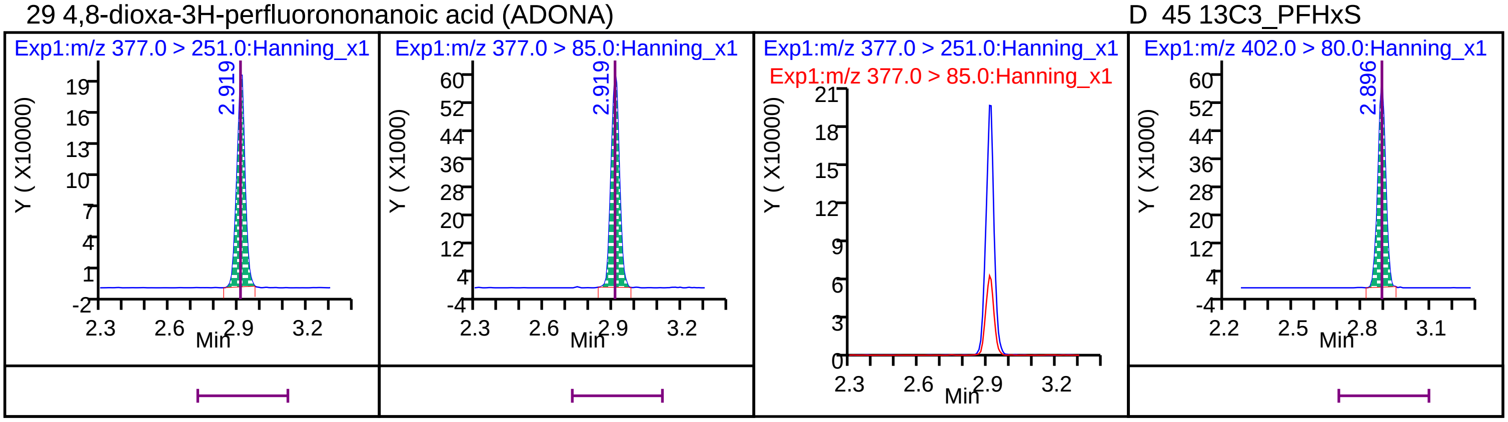
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



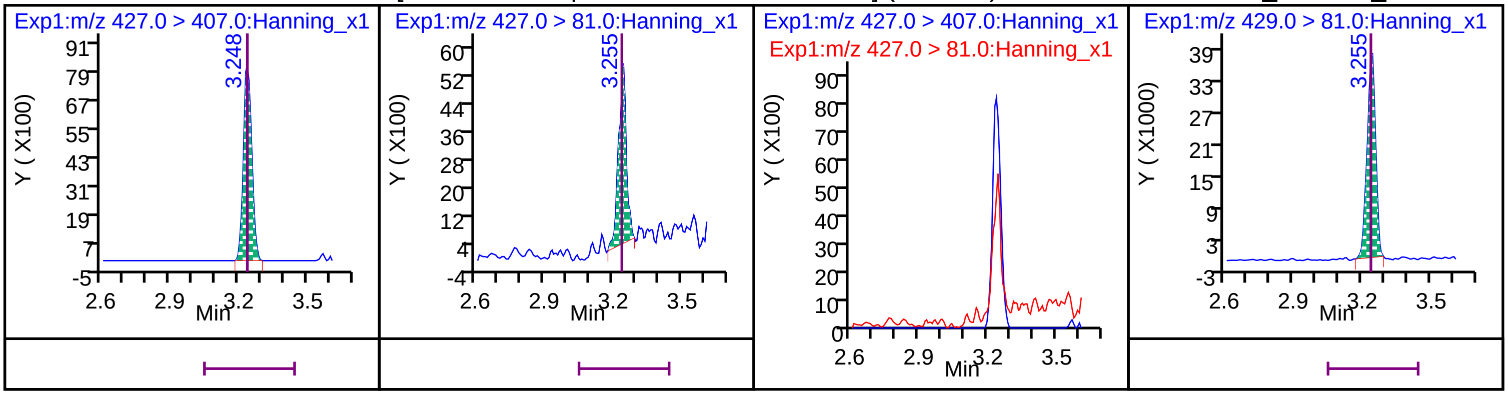
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



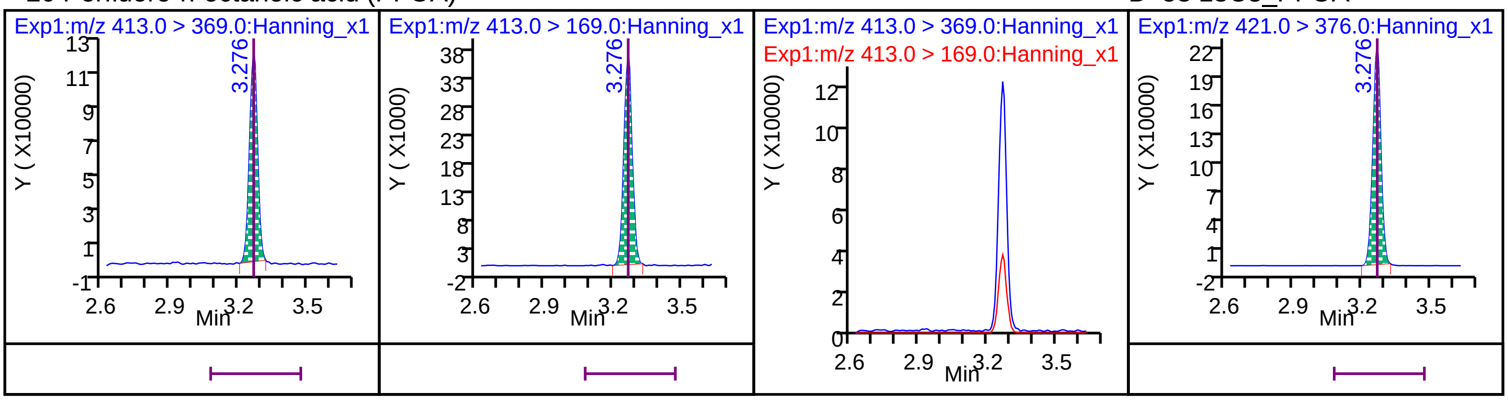
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



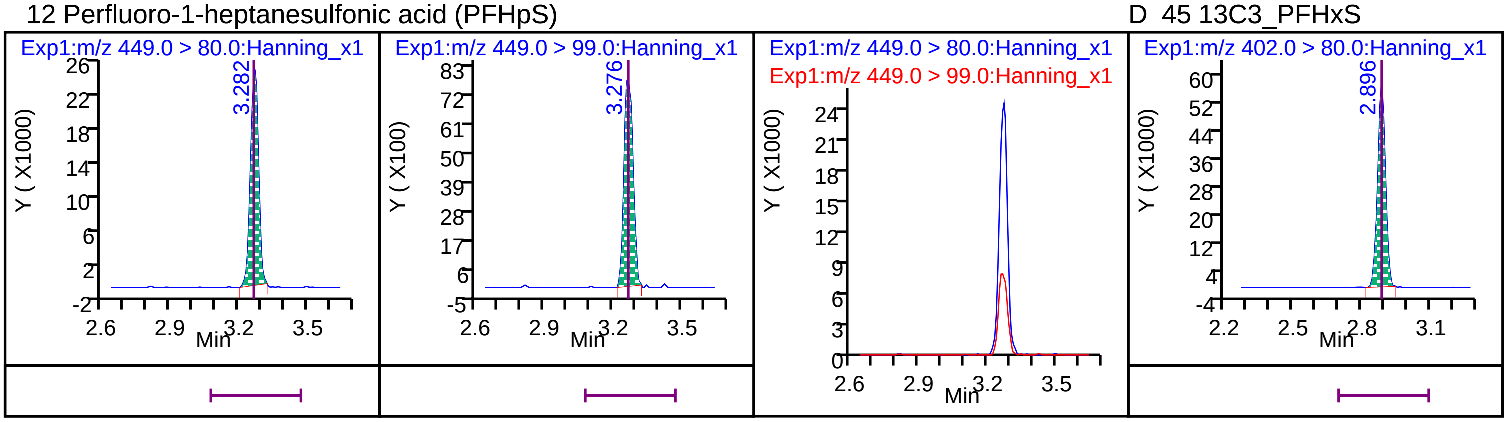
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



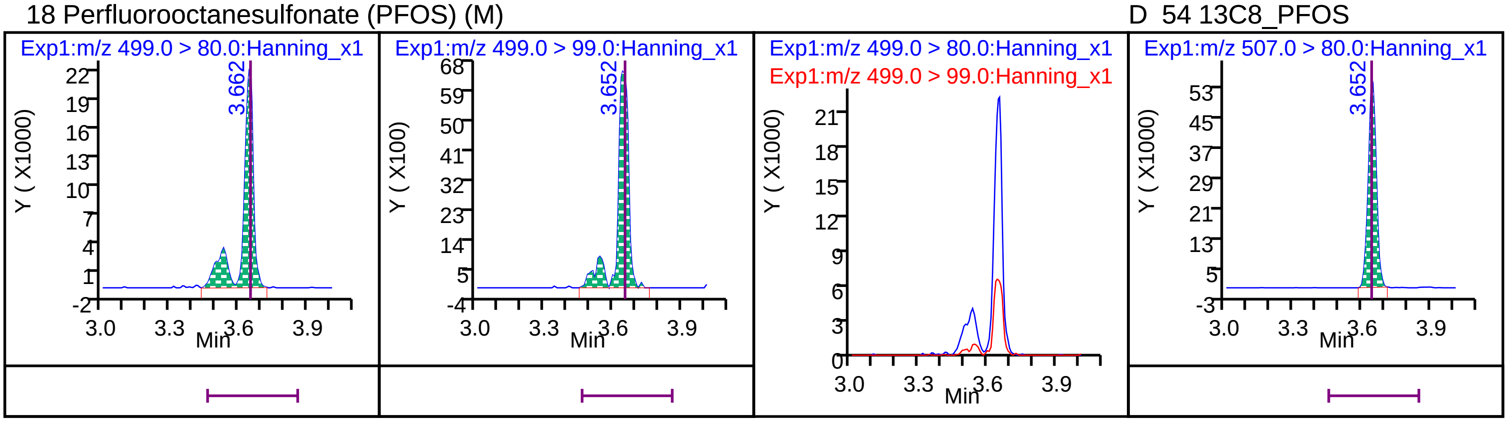
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



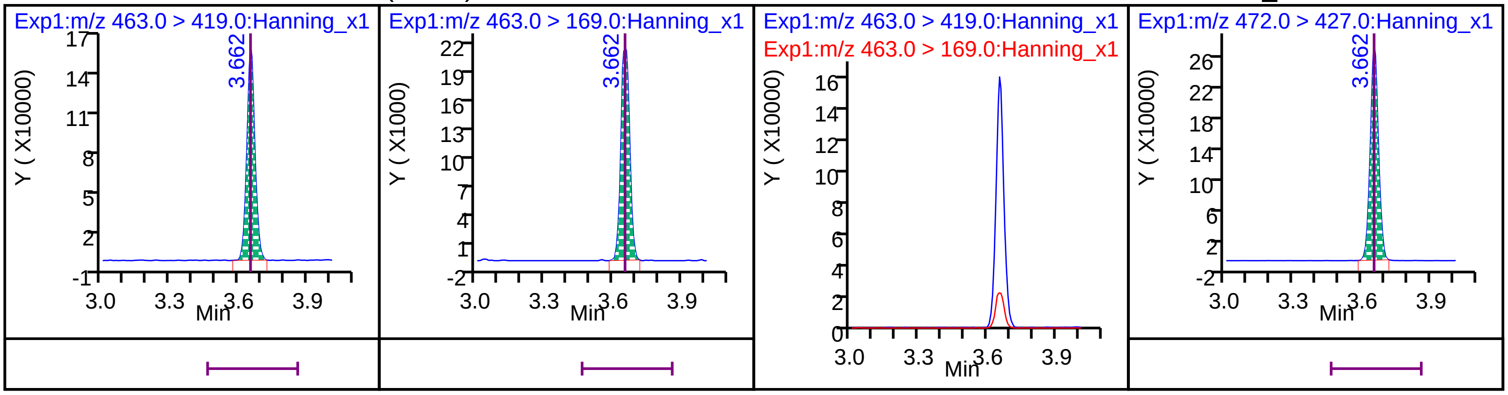
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



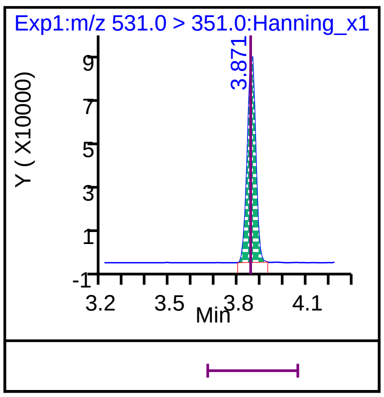
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

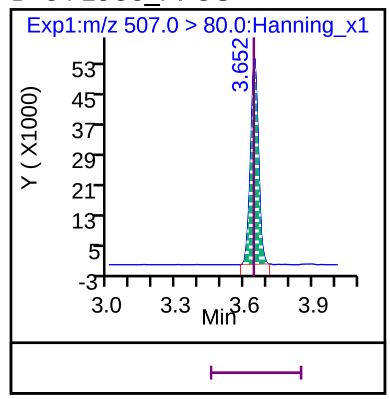


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

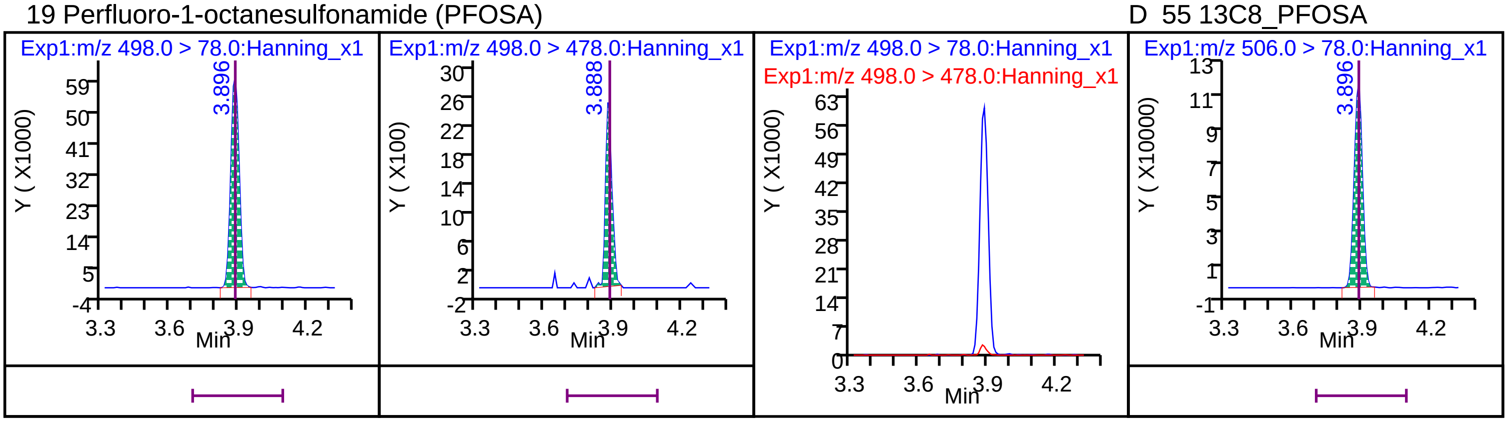


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

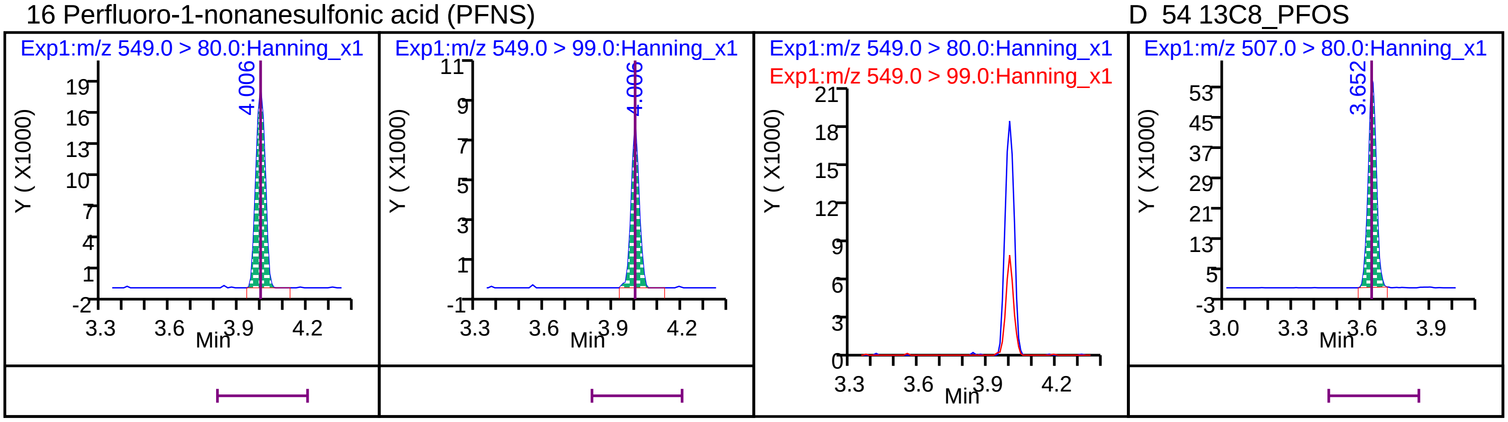




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

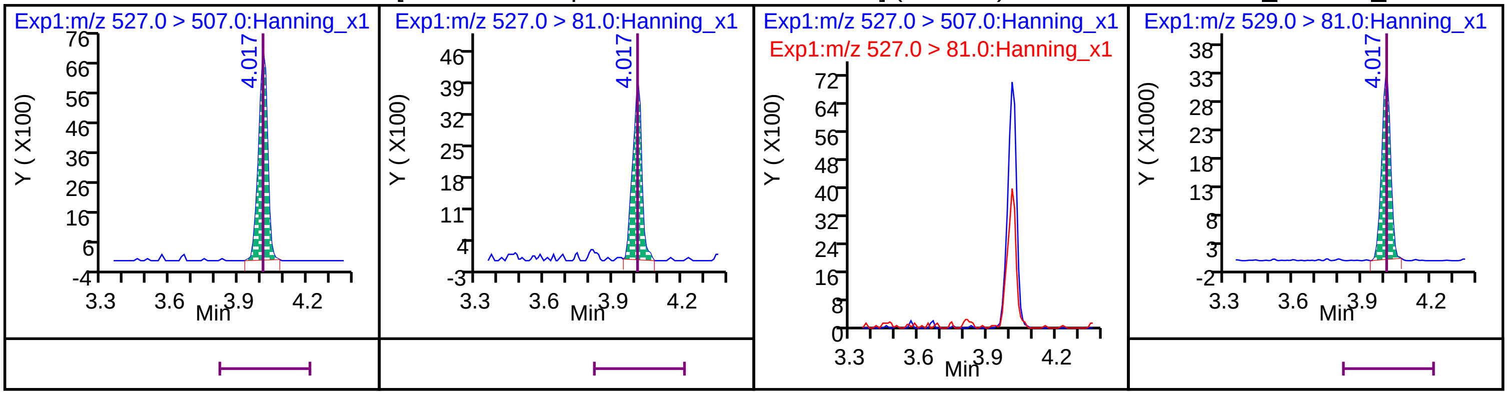


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

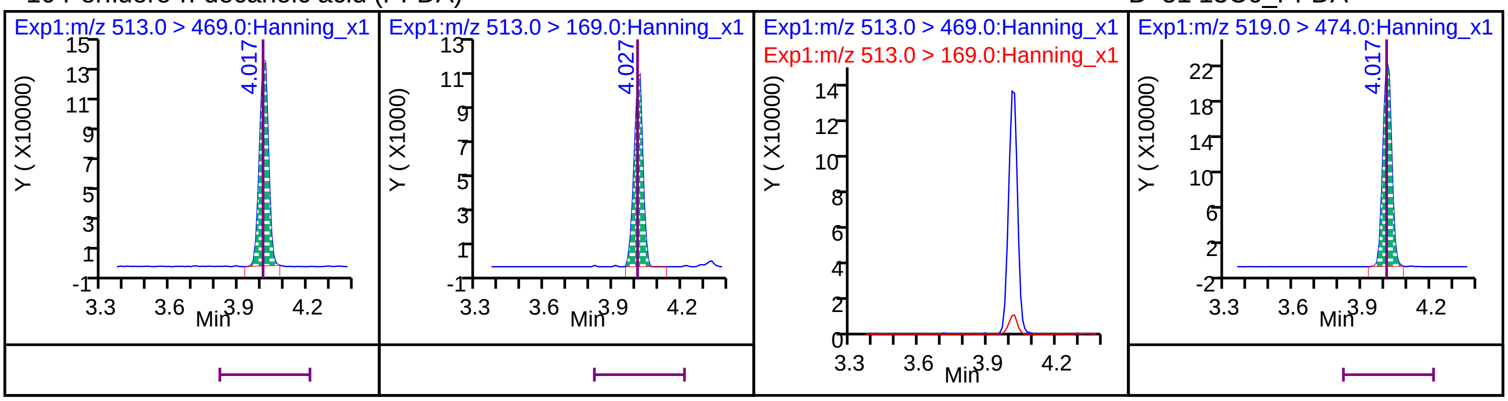


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

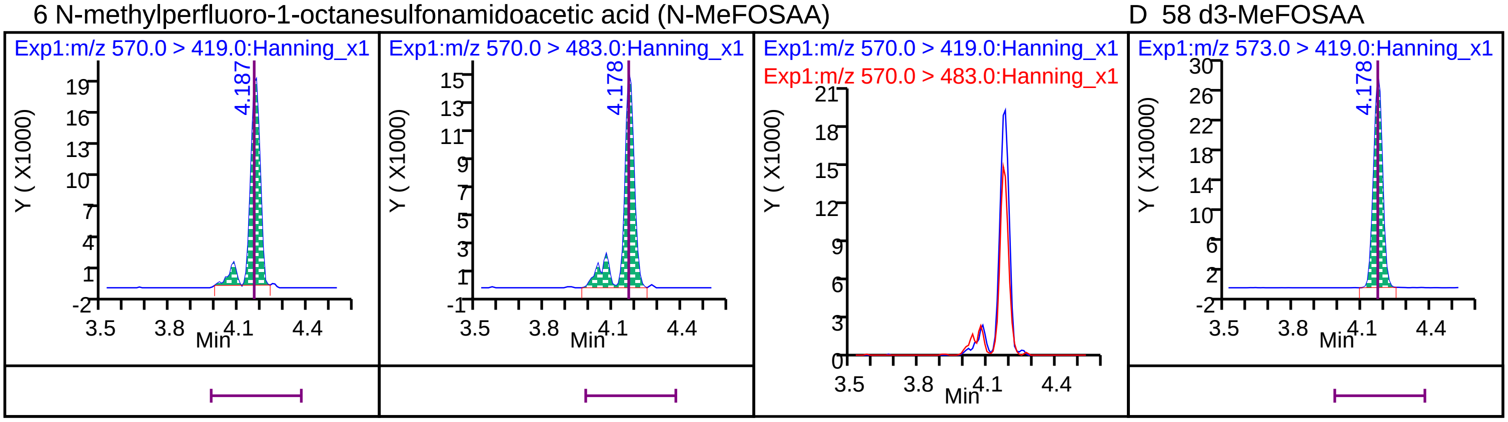
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



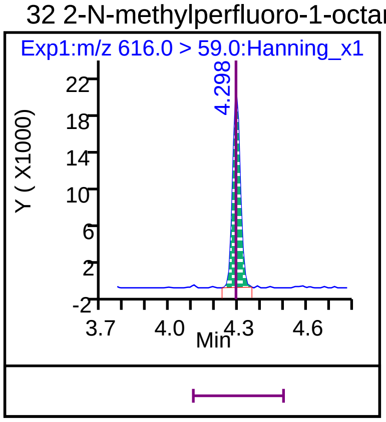
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

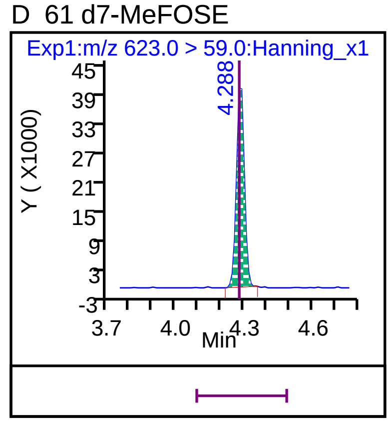


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



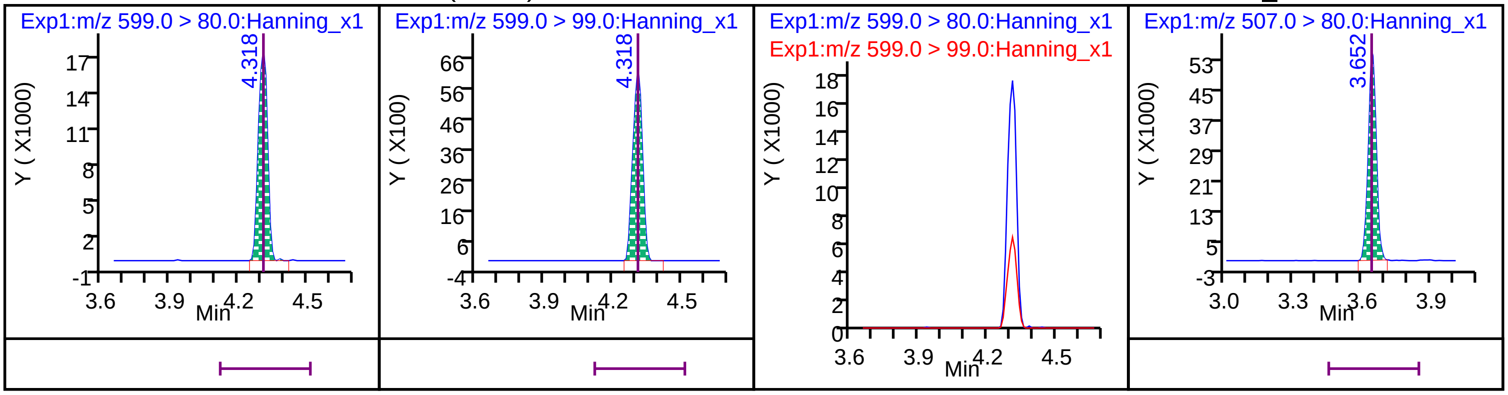
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



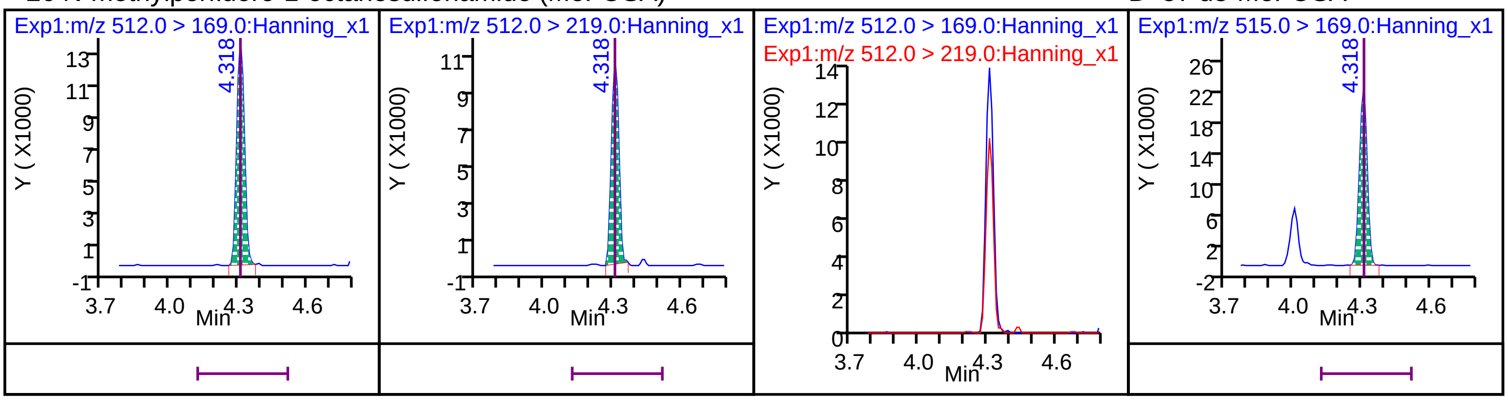


Report Date: 08-Nov-2021 10:00:23 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

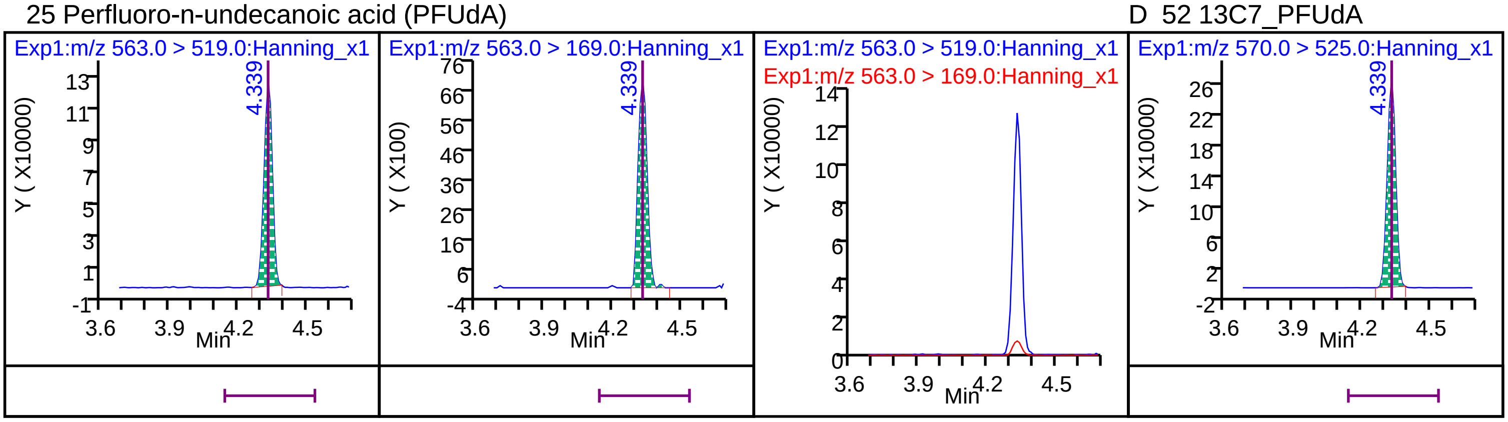
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



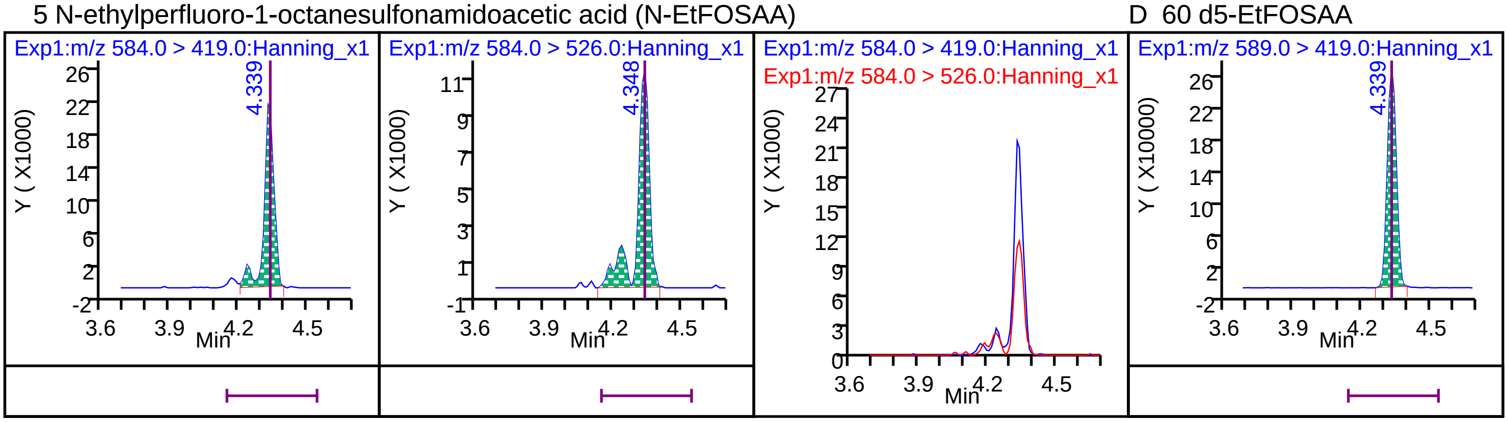
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



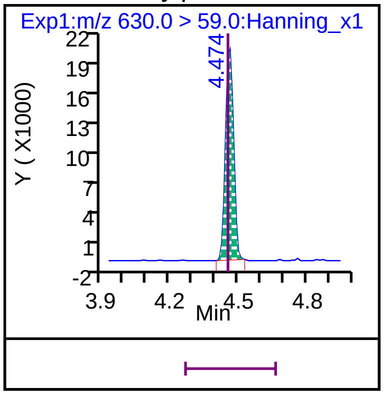
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



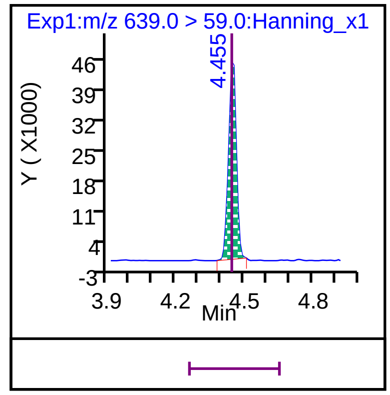
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

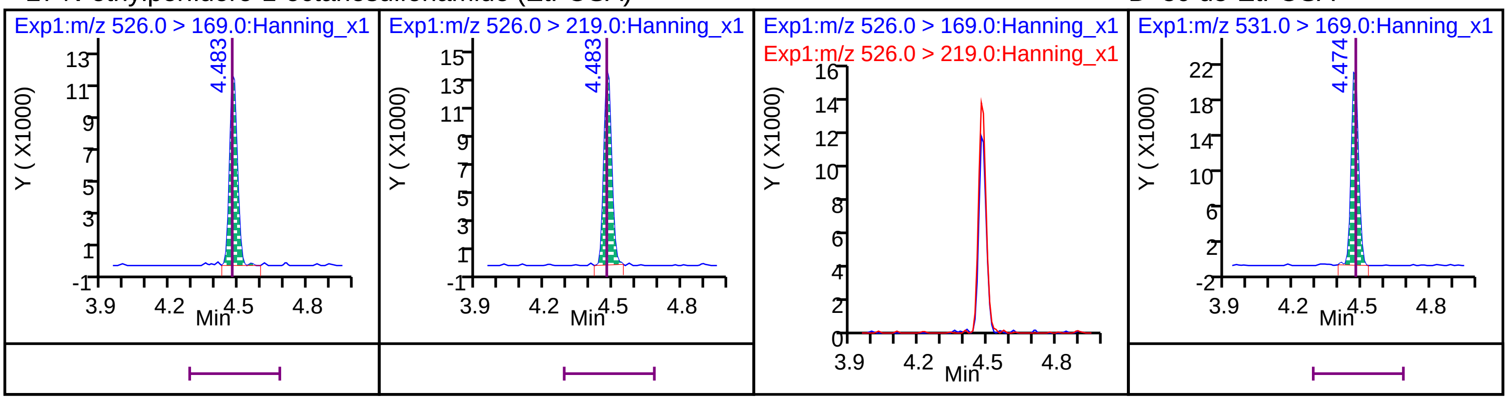


D 62 d9-EtFOSE

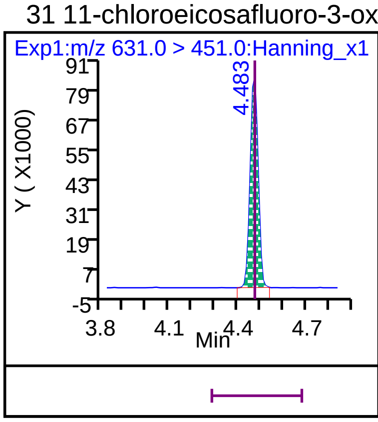


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

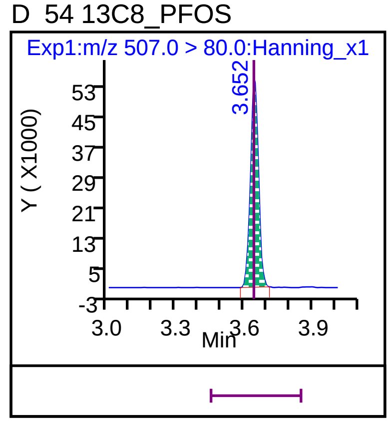
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

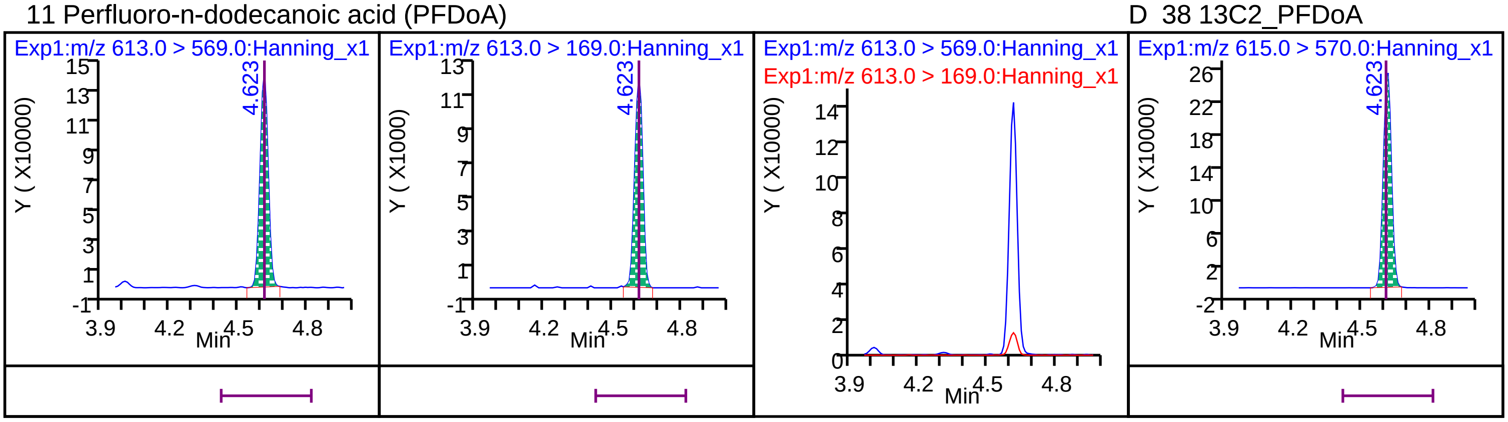


D 54 13C8_PFOS

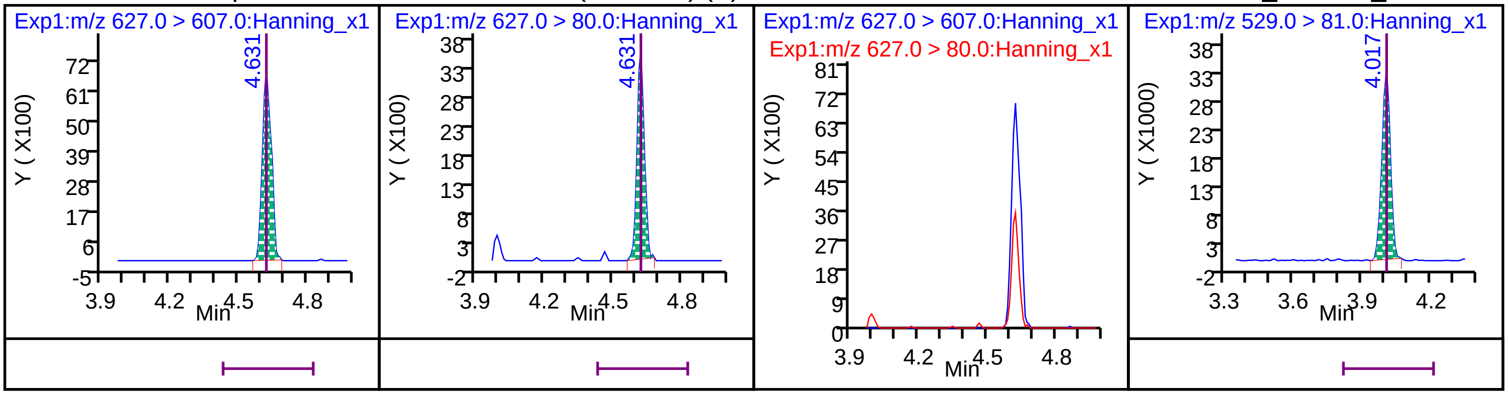


11 Perfluoro-n-dodecanoic acid (PFDoA)

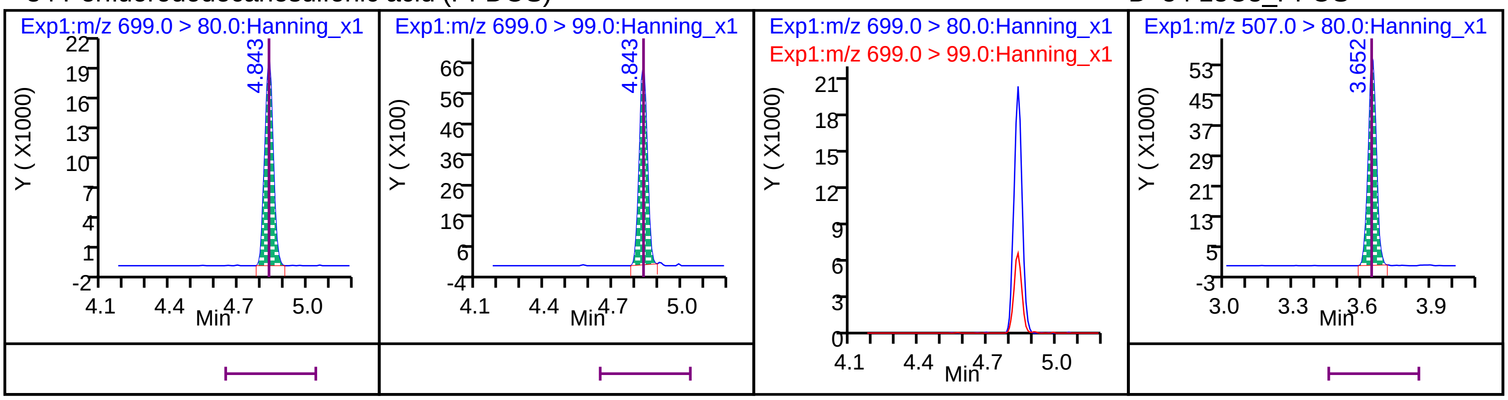
D 38 13C2_PFDoA



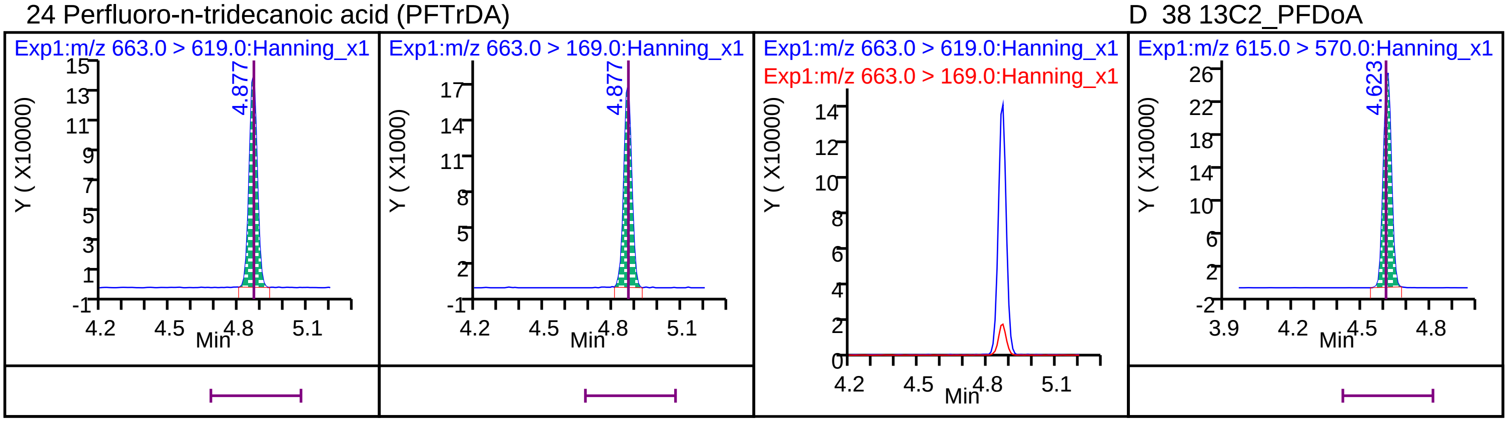
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (A)   D 65 13C2_8:2 FTS_2



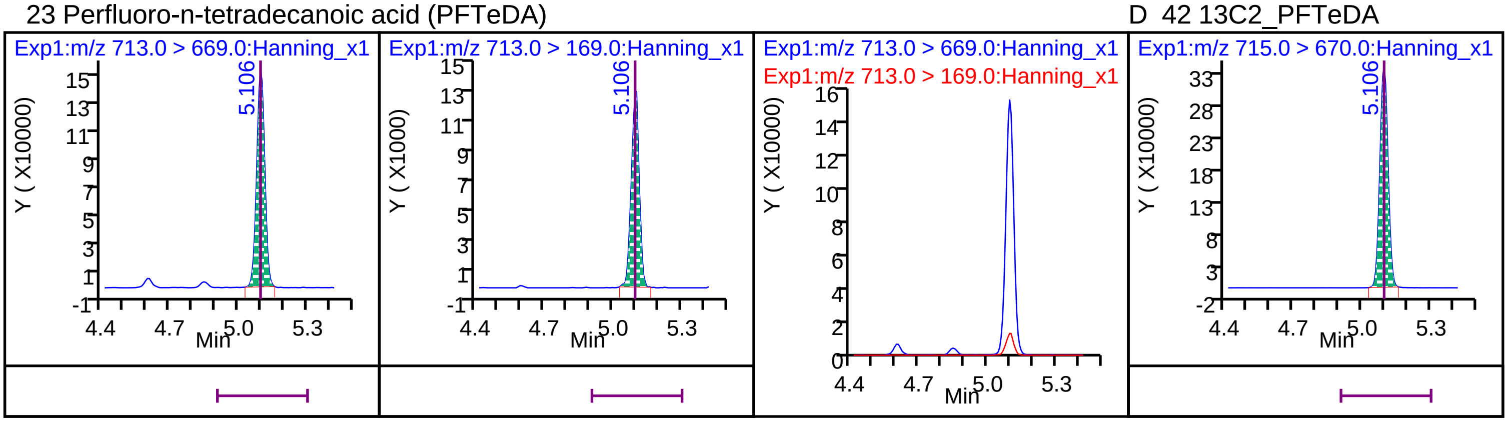
34 Perfluorododecanesulfonic acid (PFDOS)   D 54 13C8_PFOS



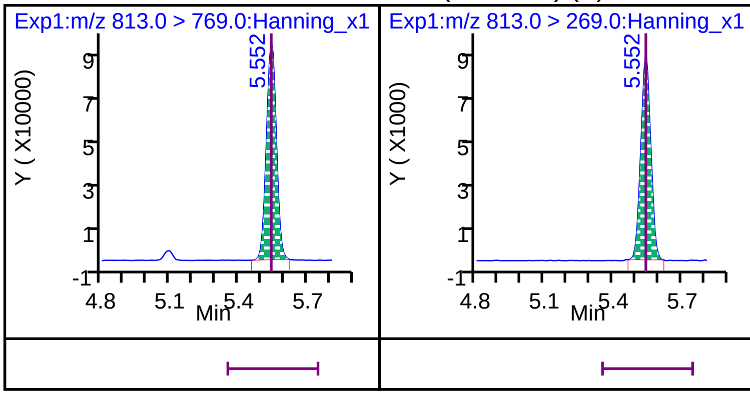
24 Perfluoro-n-tridecanoic acid (PFTrDA)   D 38 13C2_PFDoA



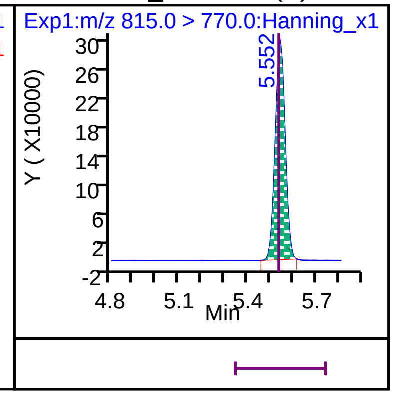
23 Perfluoro-n-tetradecanoic acid (PFTeDA)   D 42 13C2_PFTeDA



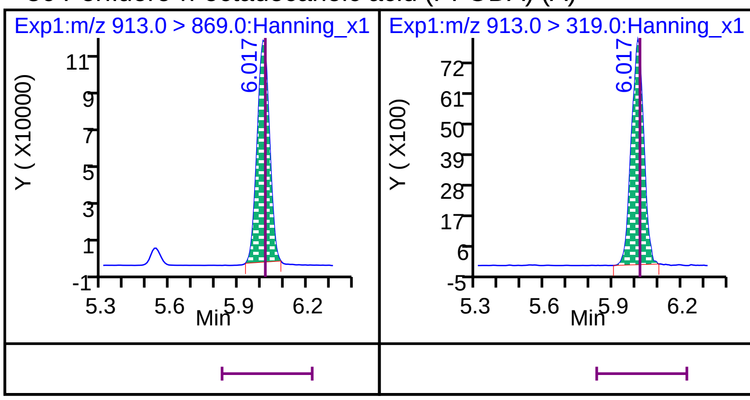
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (A)



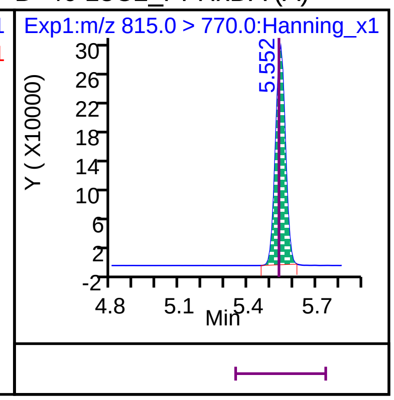
D 40 13C2_PFHxDA (A)



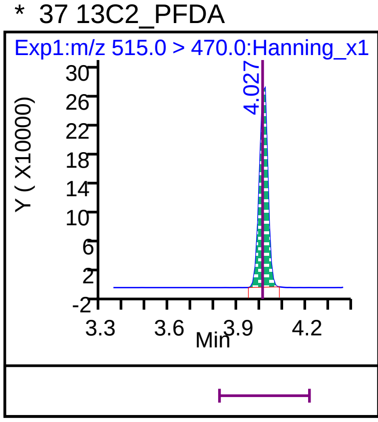
36 Perfluoro-n-octadecanoic acid (PFODA) (A)



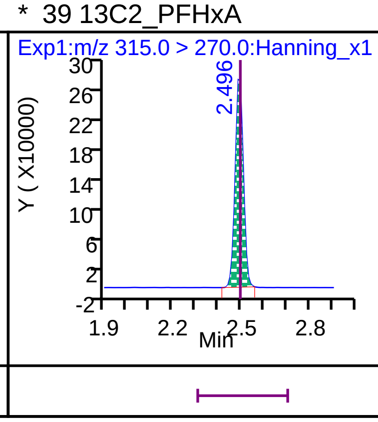
D 40 13C2_PFHxDA (A)



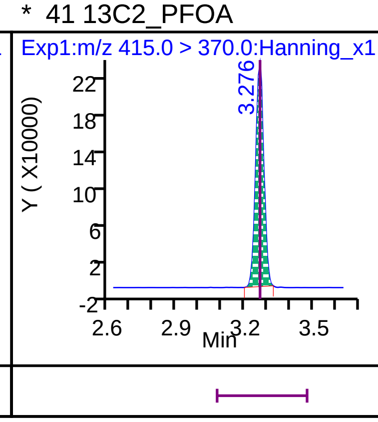
* 37 13C2_PFDA



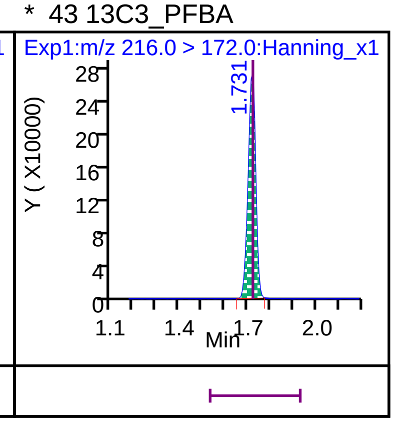
* 39 13C2_PFHxA



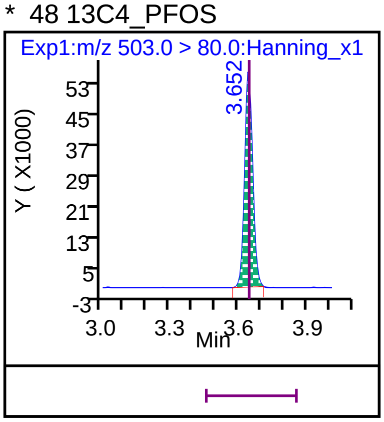
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

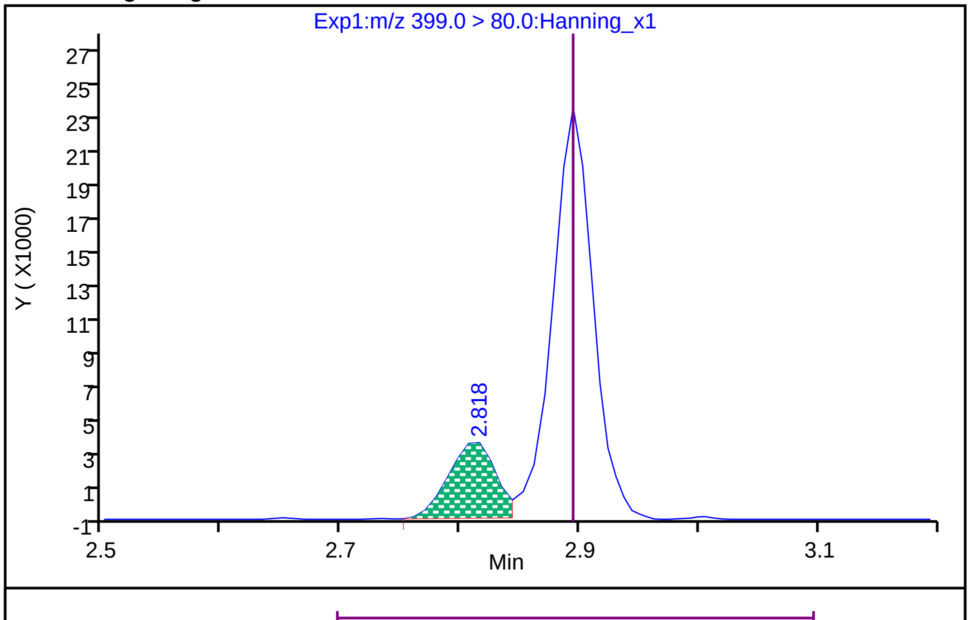
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT:	2.818
Area:	11901
Amount:	-828.52
Amount Units:	ng/L



RT:	2.896
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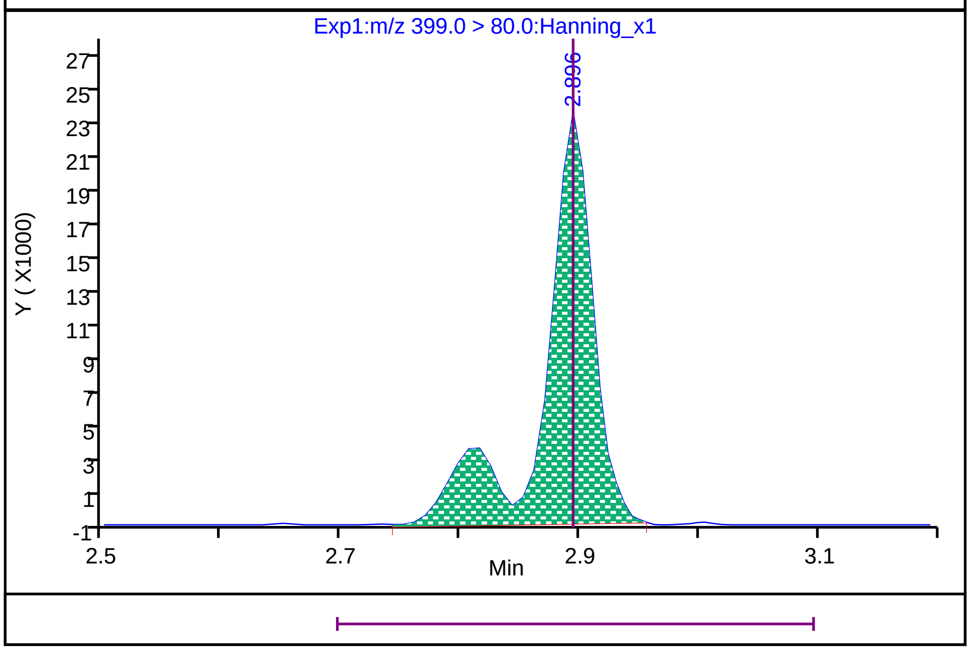
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:51:24

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d

Injection Date: 07-Nov-2021 19:19:30 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID ICAL 500_SVLC-1743

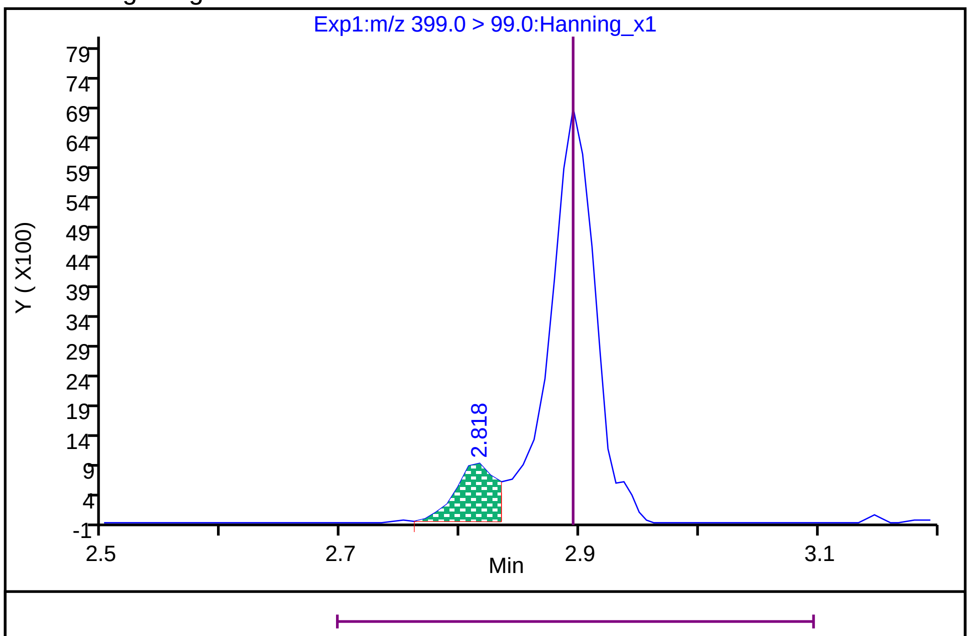
Sample Info: ID ICAL 500_SVLC-1743

Dil. Factor: 1 Operator: Justin Gavin

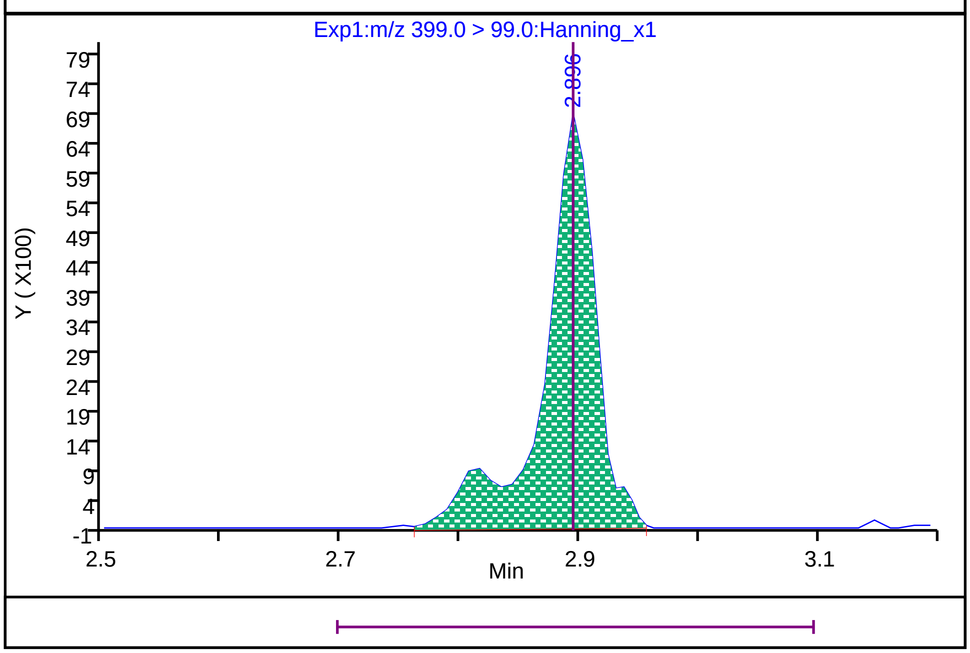
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.818
Area: 2213
Amount: 462.77
Amount Units: ng/L



RT: 2.896
Area: 20824
Amount: 462.77
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:51:27

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

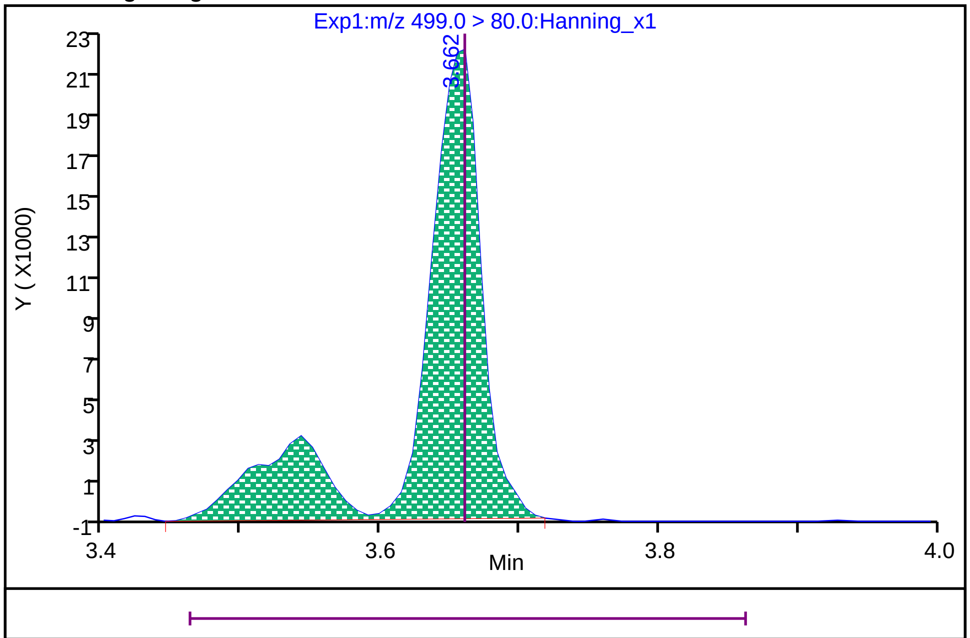
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A15.d		
Injection Date:	07-Nov-2021 19:19:30	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 500_SVLC-1743
Sample Info:	ID ICAL 500_SVLC-1743		
Dil. Factor:	1	Operator:	Justin Gavin

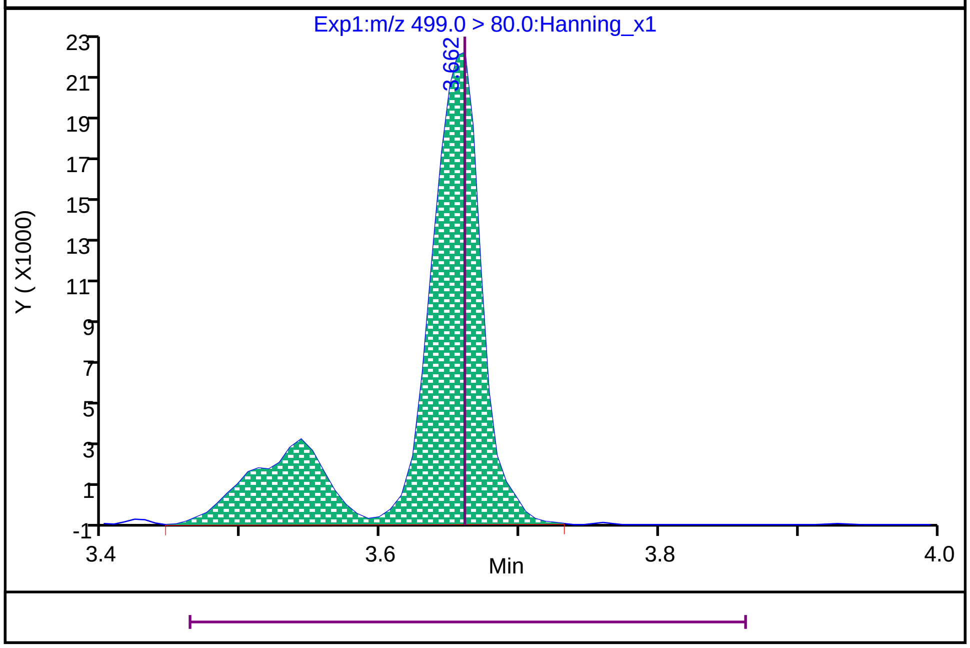
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.662
Area:	67608
Amount:	441.12
Amount Units:	ng/L



RT:	3.662
Area:	69058
Amount:	446.73
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:06

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 5	Auto Sampler:	79
Sample Info:	ID ICAL 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	635753	19	>100:1			1000.00	1022.65	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	673213	20	>100:1			1000.00	1004.07		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	580113	15	>100:1			1000.00	1014.91	100	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	626696	14	>100:1			1000.00	959.84		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	178463	17	>100:1			1000.00	1031.76	100	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	185899	15	>100:1	Target = 3.53		884.00	835.32		
298.9 > 99	44	2.183	2.183		54712	15	>100:1	3.39 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/-1	145842	17	>100:1	Target = 3.10		938.00	881.78		
349 > 99	44	2.531	2.531		46591	16	>100:1	3.13 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	112299	18	>100:1			5000.00	4959.39	100	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	45981	16	>100:1	Target = 1.75		934.00	928.72		
327 > 81	63	2.460	2.460		28095	17	52:1	1.63 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.505	2.505	0	664948	17	>100:1			1000.00	1020.98	100	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	0/0	683707	16	>100:1	Target = 18.91		1000.00	988.89		
313 > 119	49	2.505	2.505		36511	21	>100:1	18.72 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.622	0	1204882	18	>100:1			5000.00	5198.92	100	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.622	2.622	0/0	302352	19	>100:1	Target = 0.79		2000.00	1937.36		
285 > 185	66	2.622	2.622		389193	18	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	532996	16	>100:1			1000.00	1003.88	100	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	577941	18	>100:1	Target = 3.80		1000.00	986.80		
363 > 169	47	2.880	2.880		158273	16	>100:1	3.65 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	129716	24	>100:1			1000.00	1032.45	100	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	127977	26	>100:1	Target = 2.89	4.78	910.00	897.40		M
399 > 99	45	2.896	2.896		42817	25	>100:1	2.98 (1.44-4.34)	7.51				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	0/0	956587	20	>100:1	Target = 3.23		942.00	950.90		
377 > 85	45	2.919	2.919		283572	20	>100:1	3.37 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	123066	21	>100:1	Target = 3.12		952.00	923.73		
449 > 99	45	3.282	3.276		40248	22	>100:1	3.05 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	93946	20	>100:1			5000.00	5219.23	100	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	38863	21	>100:1	Target = 1.75		948.00	873.75		
427 > 81	64	3.255	3.248		22878	18	42:1	1.69 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	0	547741	21	>100:1			1000.00	1043.96	100	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	557437	23	>100:1	Target = 2.89		1000.00	993.12		
413 > 169	53	3.276	3.276		188943	22	>100:1	2.95 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	0	131913	20	>100:1			1000.00	1065.16	100	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.662	3.662	0/0	135192	39	>100:1	Target = 3.30	3.36	928.00	860.73		M
499 > 99	54	3.657	3.662		41577	36	>100:1	3.25 (1.65-4.95)	6.84				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	0/0	434114	16	>100:1			932.00	868.98		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	0/0	96544	14	>100:1	Target = 3.08		960.00	912.24		
549 > 99	54	4.006	4.006		30621	15	>100:1	3.15 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/0	95227	15		Target = 2.72		964.00	922.50		
599 > 99	54	4.318	4.318		38891	14	>100:1	2.44 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	0/0	398089	17	>100:1			942.00	881.46		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	0/0	106090	18	>100:1	Target = 3.27		968.00	935.29		
699 > 99	54	4.842	4.842		31753	18	>100:1	3.34 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	639032	21	>100:1			1000.00	997.90	100	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	692229	21	>100:1	Target = 6.51		1000.00	1004.99		
463 > 169	56	3.662	3.662		99650	20	>100:1	6.94 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	0	266767	21	>100:1			1000.00	995.18	100	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	0/0	285564	18	>100:1	Target = 41.63		1000.00	1017.37		
498>478	55	3.896	3.896		10606	21		26.92 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	0	575846	17	>100:1			1000.00	1002.06	100	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	0/0	703570	16	>100:1	Target = 13.80		1000.00	1049.89		
513 > 169	51	4.016	4.016		48911	15		14.38 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.016	4.016	0	78835	15	>100:1			5000.00	4561.02	100	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/0	41928	20	>100:1	Target = 1.94		958.00	1176.85		
527 > 81	65	4.006	4.016		19107	18	63:1	2.19 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	43040	15	>100:1	Target = 3.54		964.00	1076.14		
627 > 80	65	4.631	4.631		13692	14	43:1	3.14 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	772780	18	>100:1			5000.00	5113.94	100	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/0	129692	30	>100:1	Target = 1.37	8.10	1000.00	1045.74		
570 > 483	58	4.178	4.178		87893	32	>100:1	1.47 (0.68-2.05)	4.77				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	0	90070	16	>100:1			1000.00	998.68	100	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	0/0	98832	14	>100:1			1000.00	1004.06		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	44997	13	97:1			1000.00	956.54	100	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	52838	13	>100:1	Target = 1.11		1000.00	1083.38		
512 > 219	57	4.318	4.318		43925	14	>100:1	1.20 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	0	689688	16	>100:1			5000.00	5325.23	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	0/0	141729	32	>100:1	Target = 1.51	6.54	1000.00	1053.78		
584 > 526	60	4.348	4.348		87163	30	>100:1	1.62 (0.75-2.26)	3.83				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	634567	15	>100:1			1000.00	1053.66	100	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	604574	15	>100:1	Target = 14.52		1000.00	983.25		
563 > 169	52	4.338	4.338		42367	17	>100:1	14.26 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	101585	19	>100:1			1000.00	957.65	100	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.464	0/0	105804	17	>100:1			1000.00	1069.91		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	0	42895	17	>100:1			1000.00	997.56	100	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	0/0	49973	15	>100:1	Target = 1.06		1000.00	971.74		
526 > 219	59	4.483	4.483		52334	15	>100:1	0.95 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	0	604291	17	>100:1			1000.00	1006.59	100	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.622	4.622	0/0	645872	16	>100:1	Target = 10.70		1000.00	1002.57		
613 > 169	38	4.622	4.622		58323	15	>100:1	11.07 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.877	4.877	0/0	645274	16	>100:1	Target = 8.31		1000.00	1015.92		
663 > 169	38	4.877	4.877		77419	21	>100:1	8.33 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	0	838224	21	>100:1			1000.00	1031.04	100	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	0/0	707684	22	100:1	Target = 12.17		1000.00	967.16		
713 > 169	42	5.106	5.106		58611	22	>100:1	12.07 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.544	5.544	0	877835	21	>100:1			1000.00	1011.29	100	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.552	5.552	0/0	534818	21	71:1	Target = 10.43		1000.00	951.28		
813 > 269	40	5.552	5.552		51196	21	>100:1	10.44 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.026	6.026	1/1	821940	44	48:1	Target = 13.67		1000.00	1028.49		
913 > 319	40	6.021	6.026		58656	40	>100:1	14.01 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	0	652287	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	0	682639	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	562836	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	589407	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	130980	23	>100:1			1000.00			

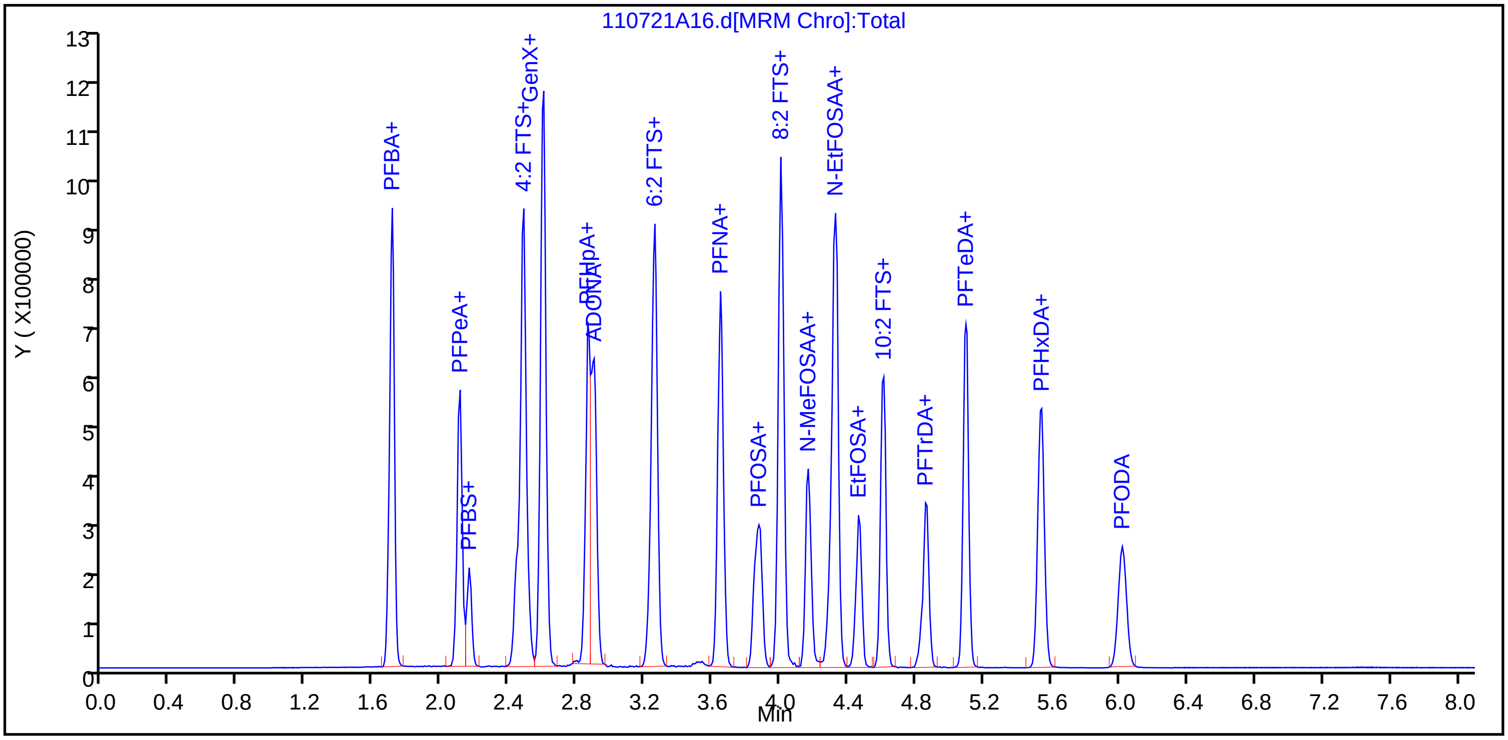
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

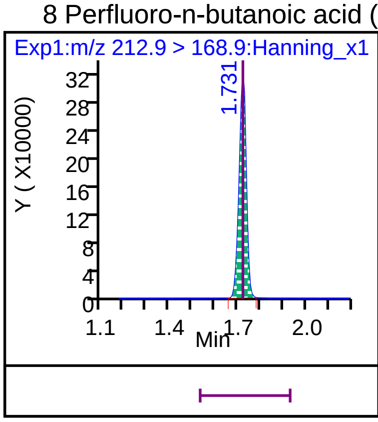
Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

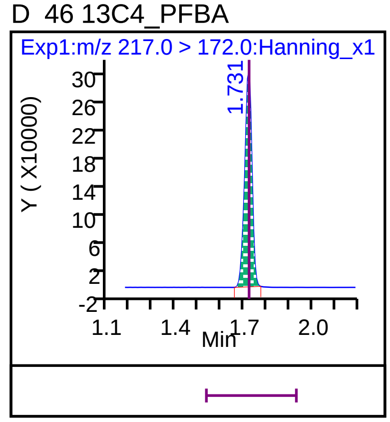
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



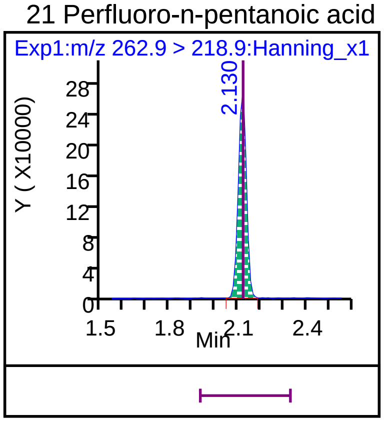
8 Perfluoro-n-butanoic acid (PFBA)



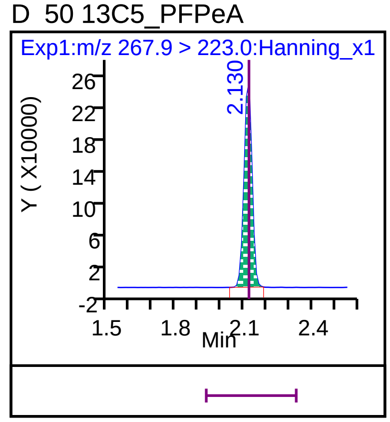
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

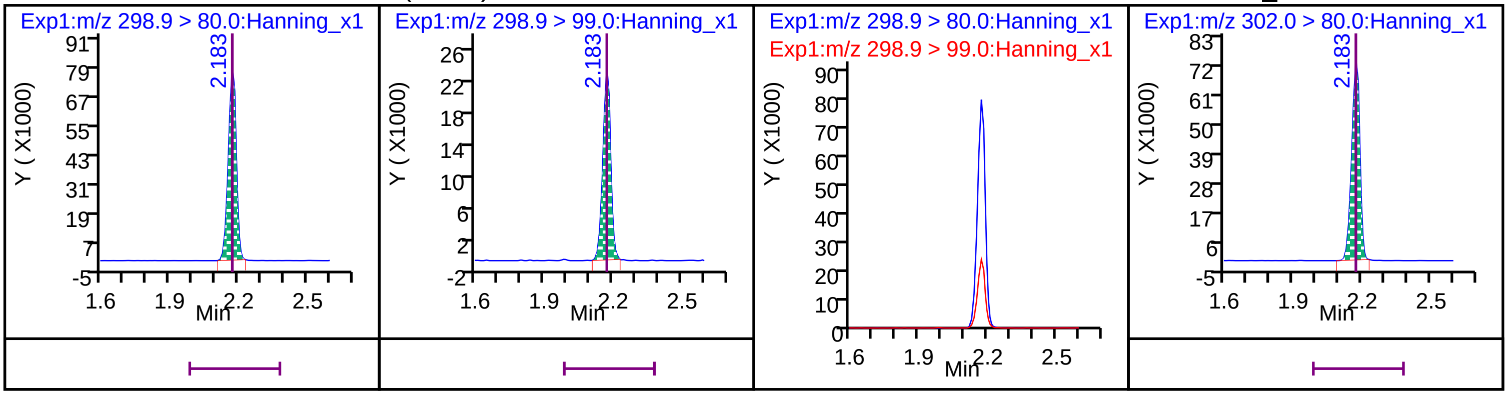


D 50 13C5_PFPeA

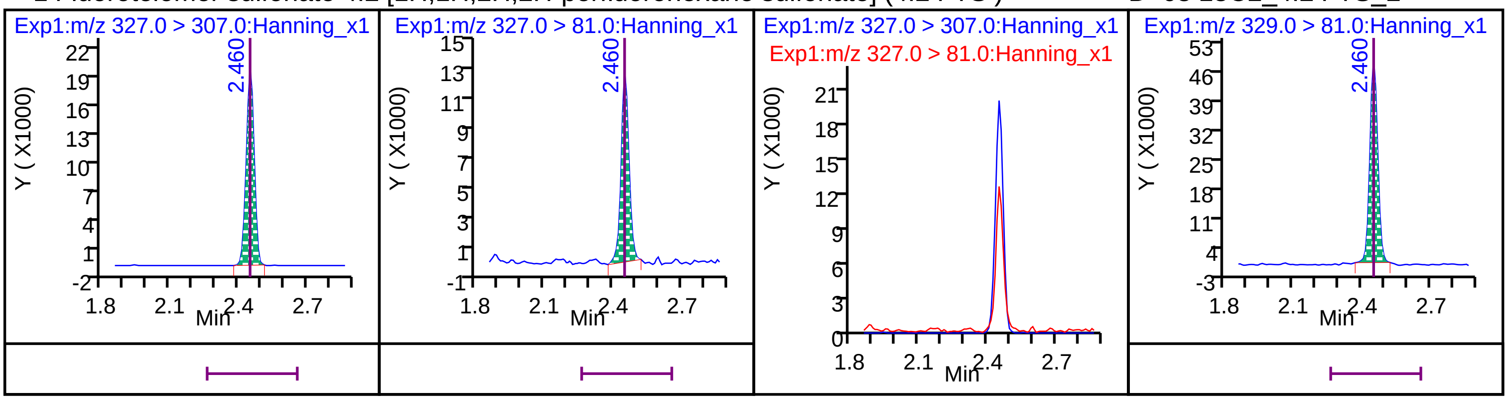


Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

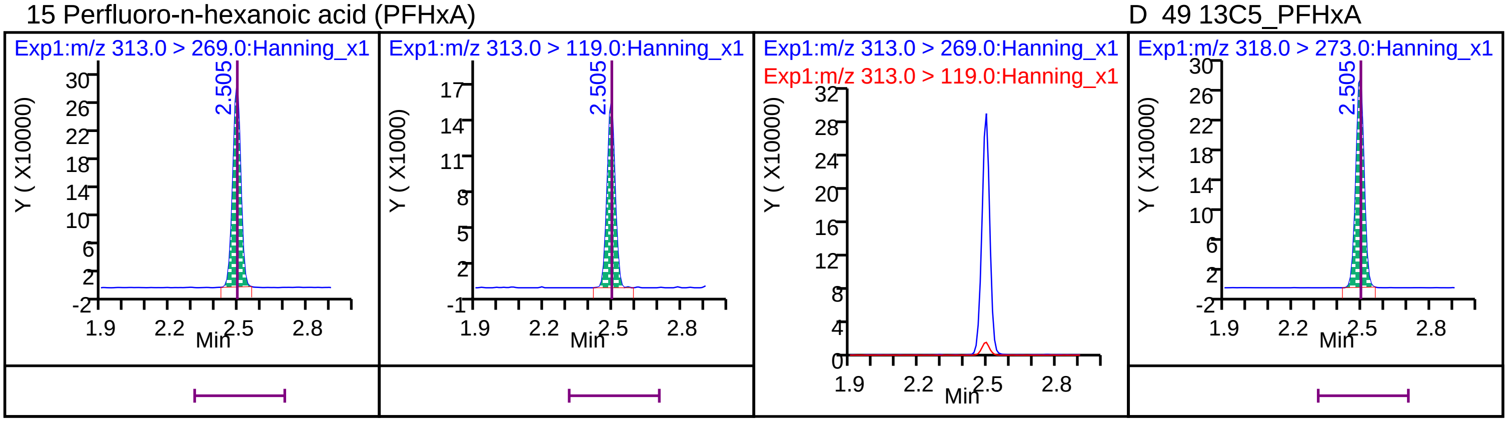
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



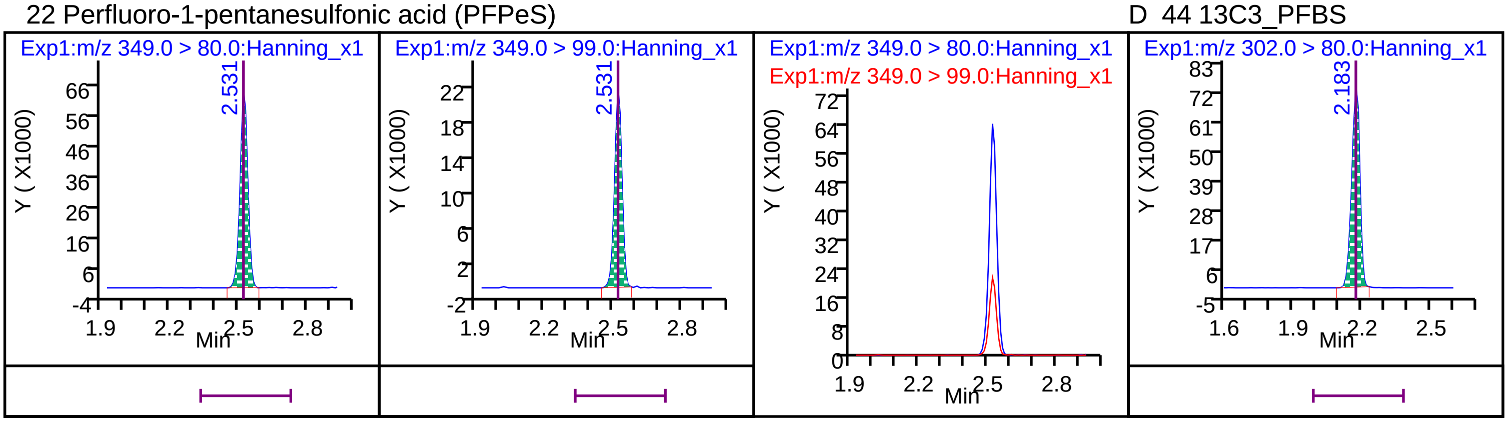
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

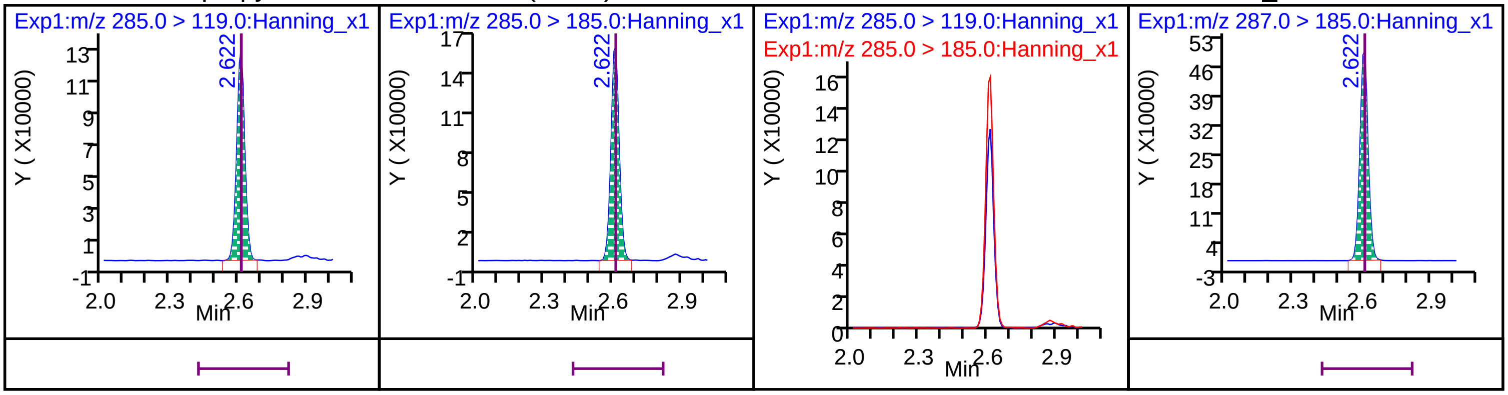


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

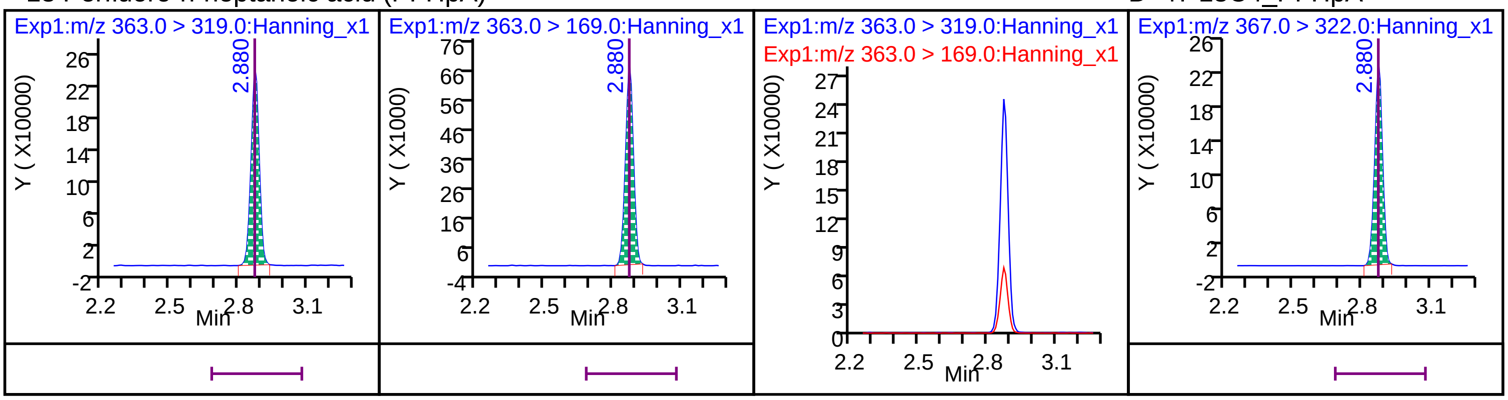


Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

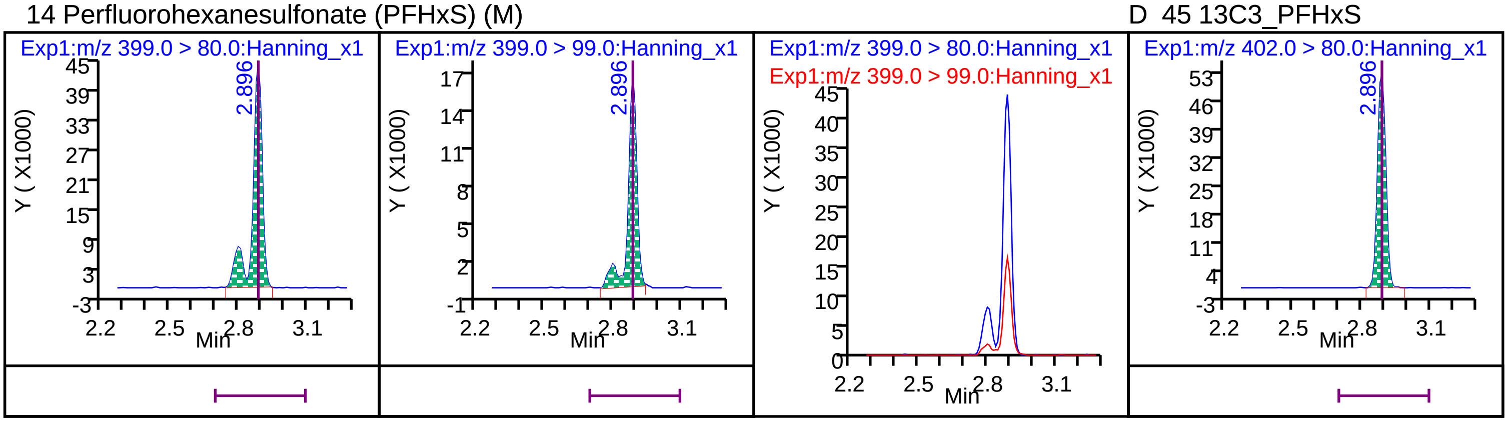
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



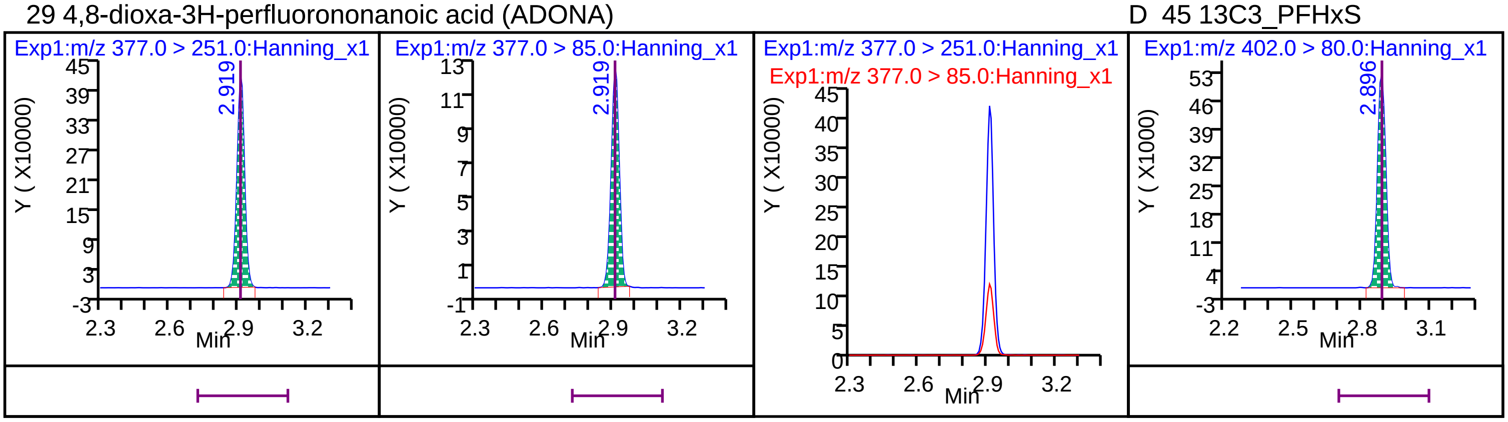
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



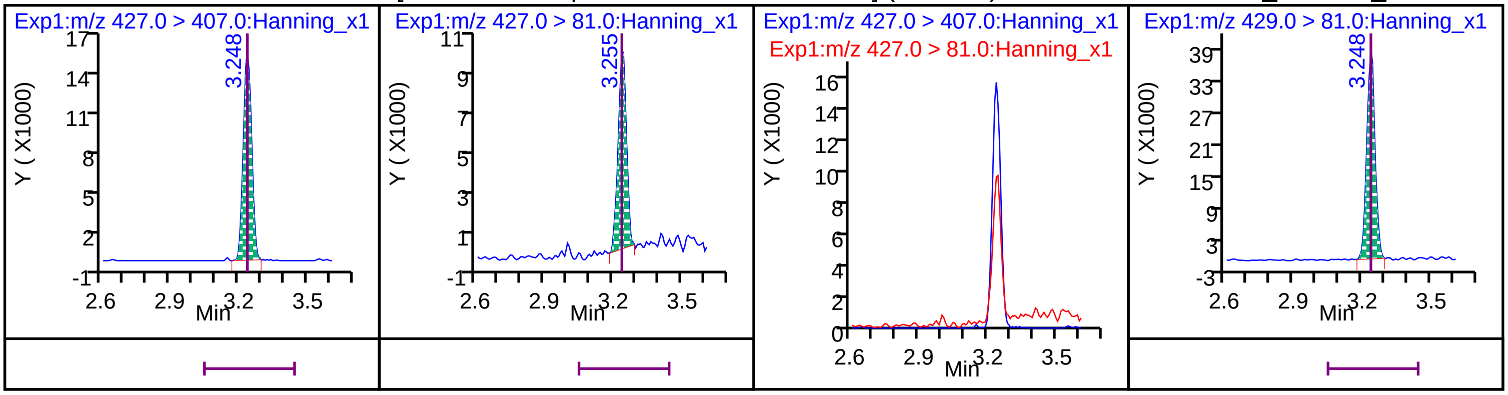
14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS



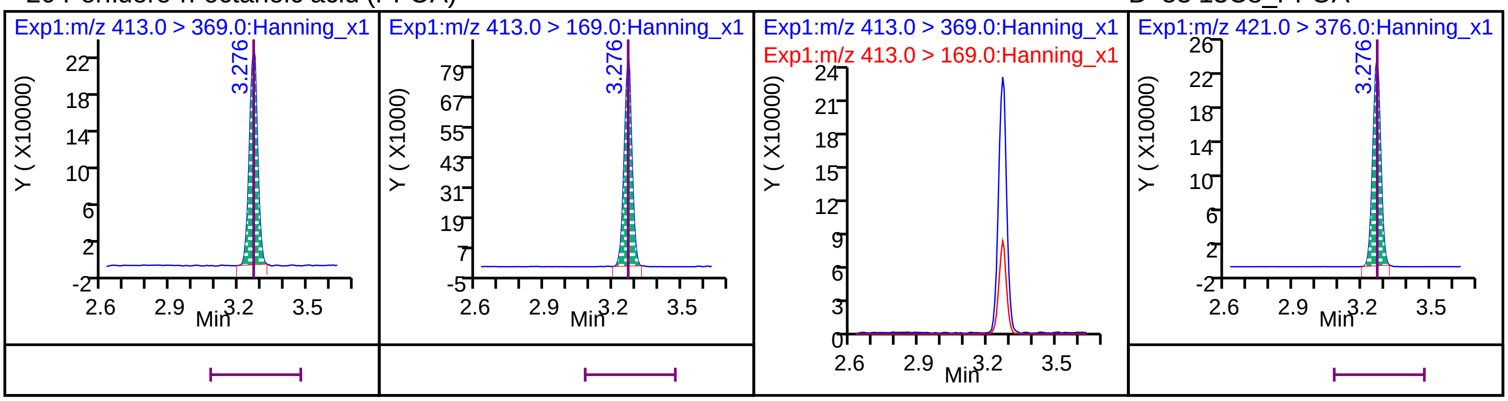
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



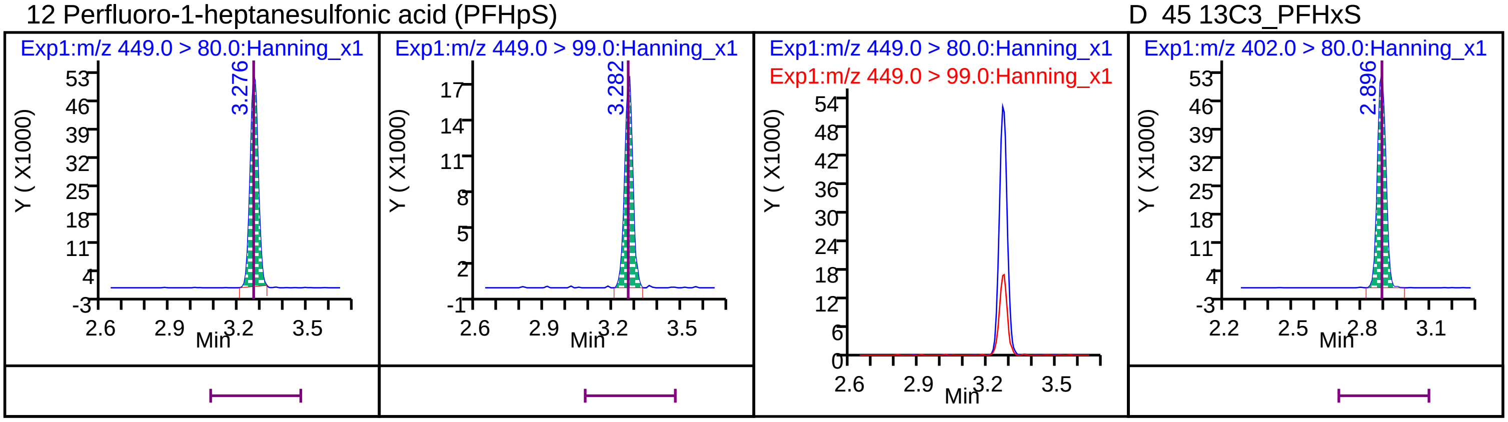
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



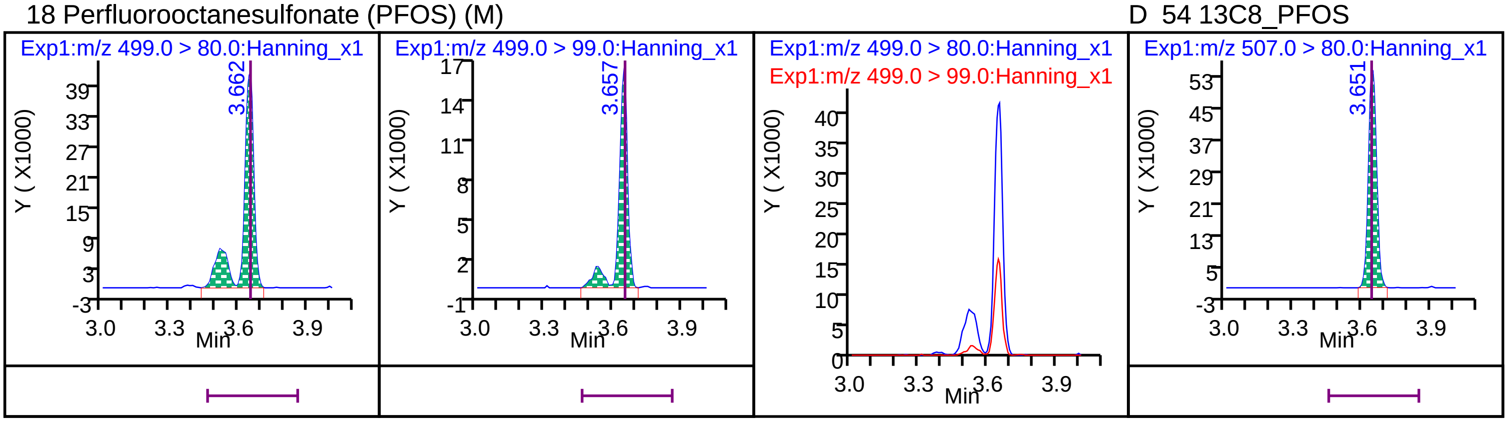
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

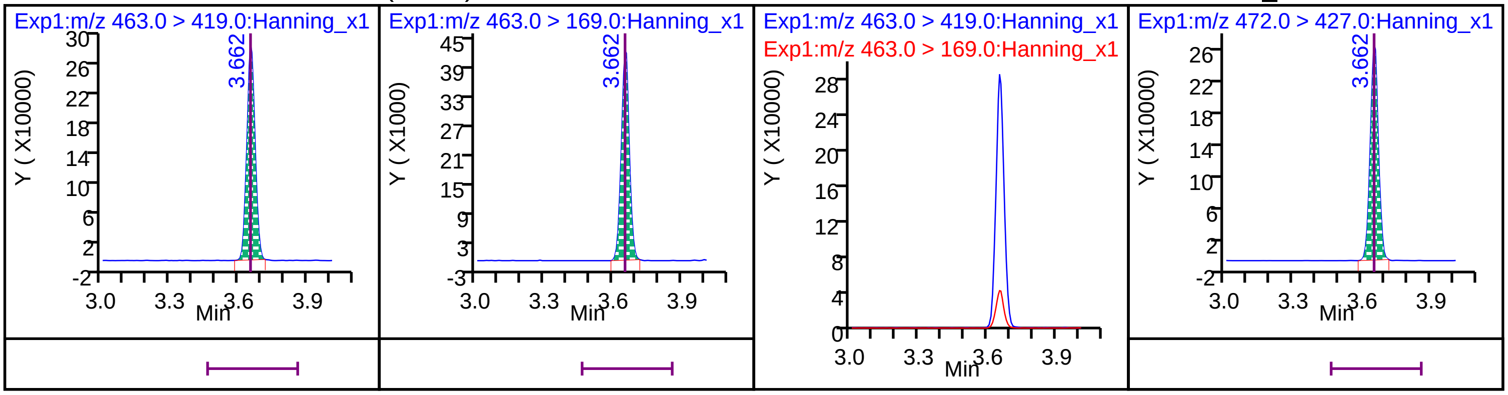


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

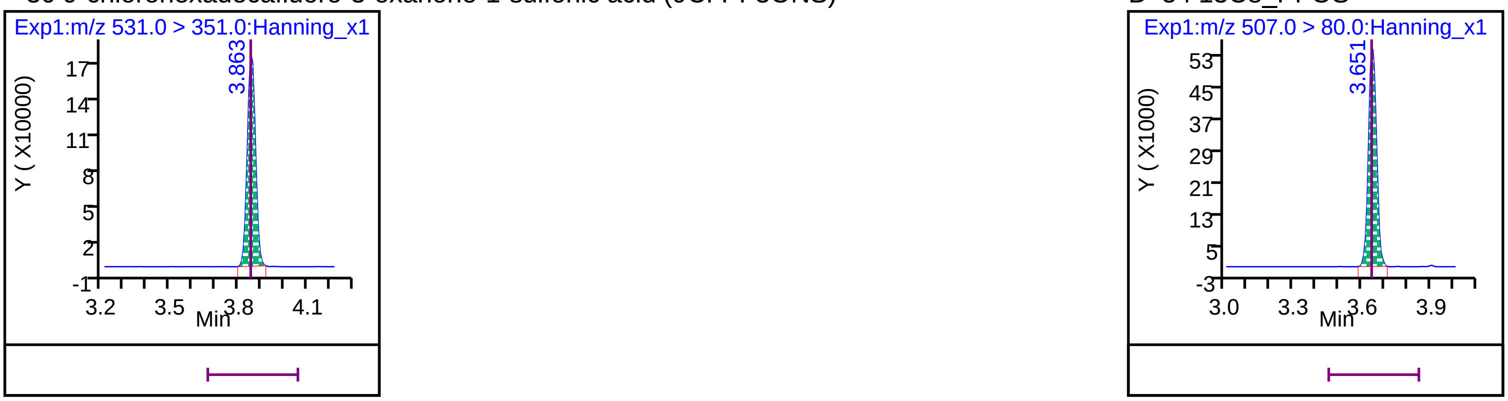


Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

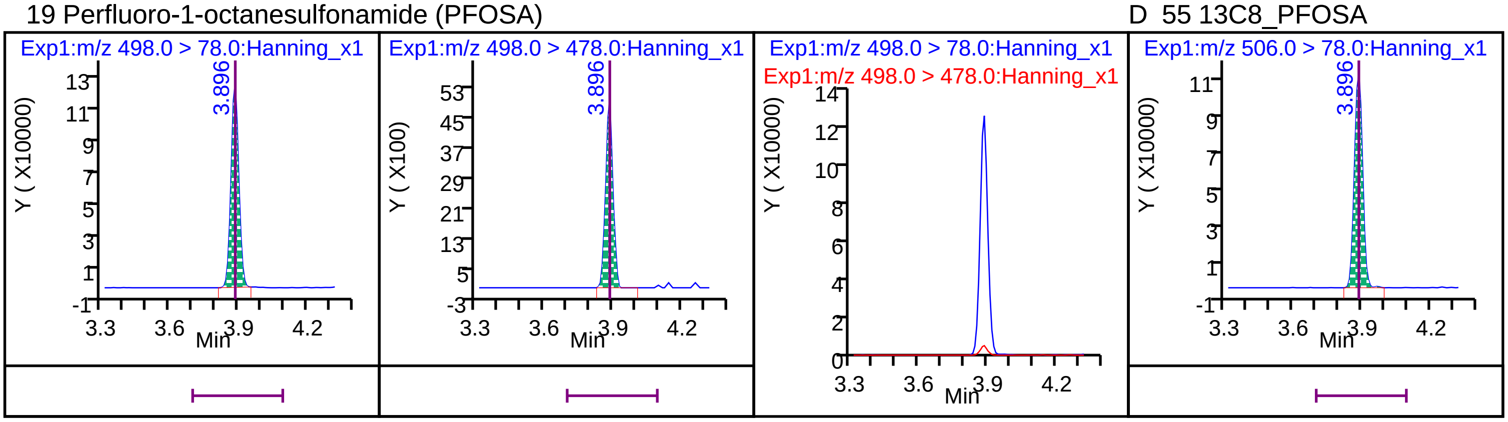
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



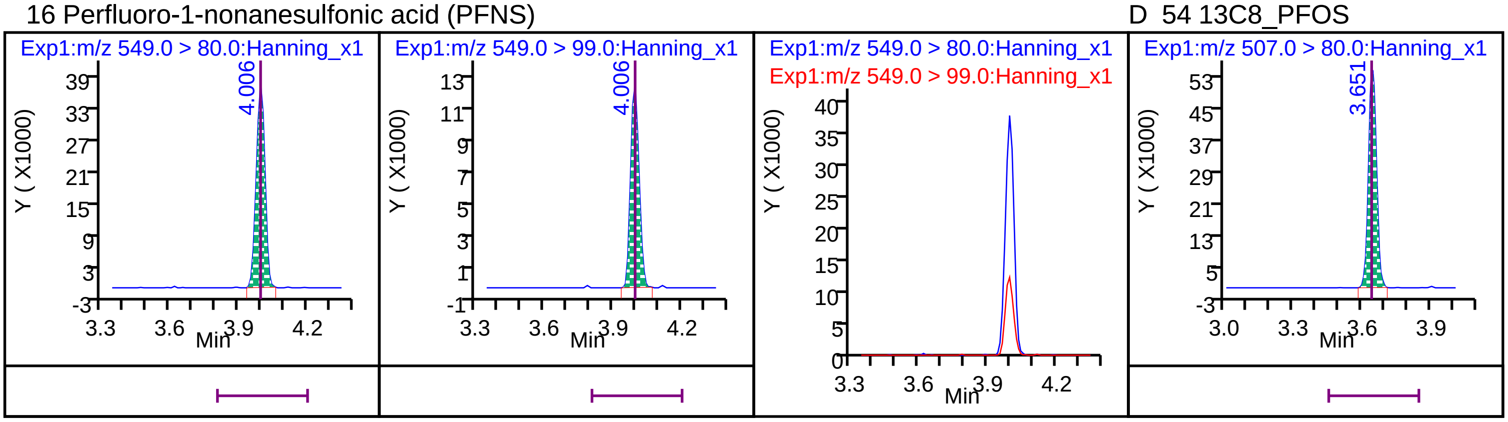
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



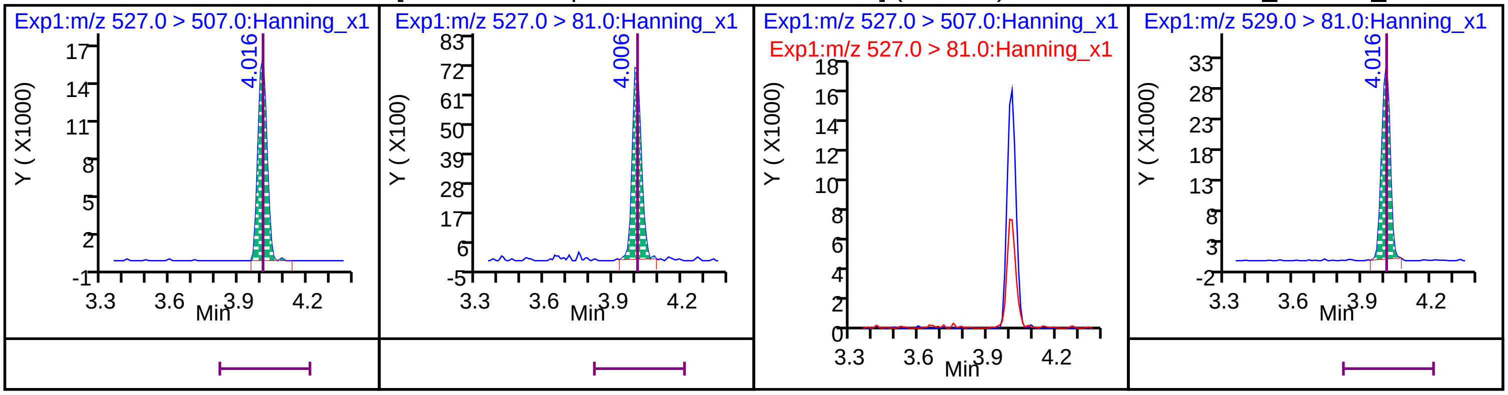
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



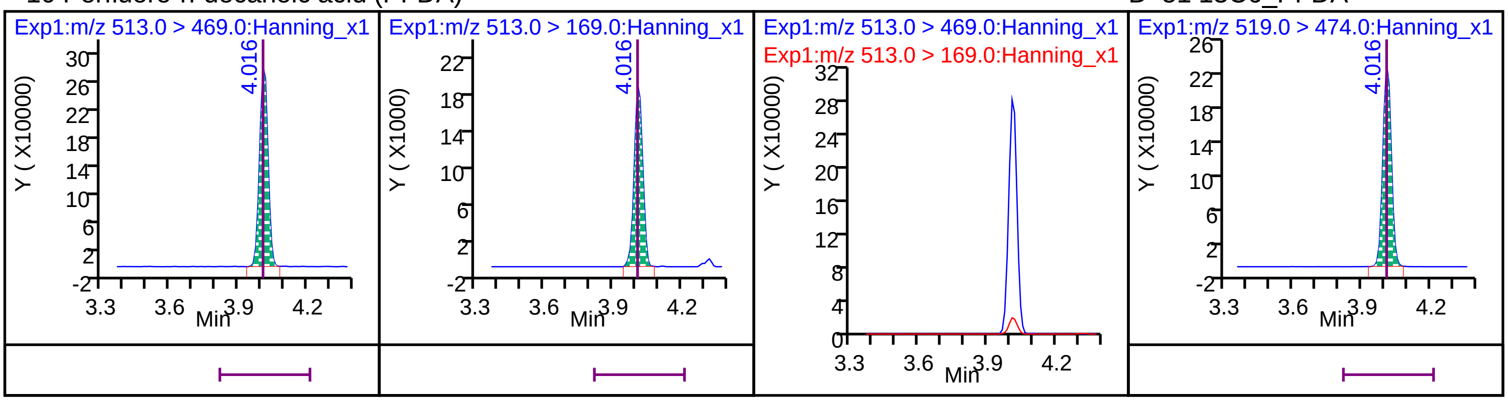
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



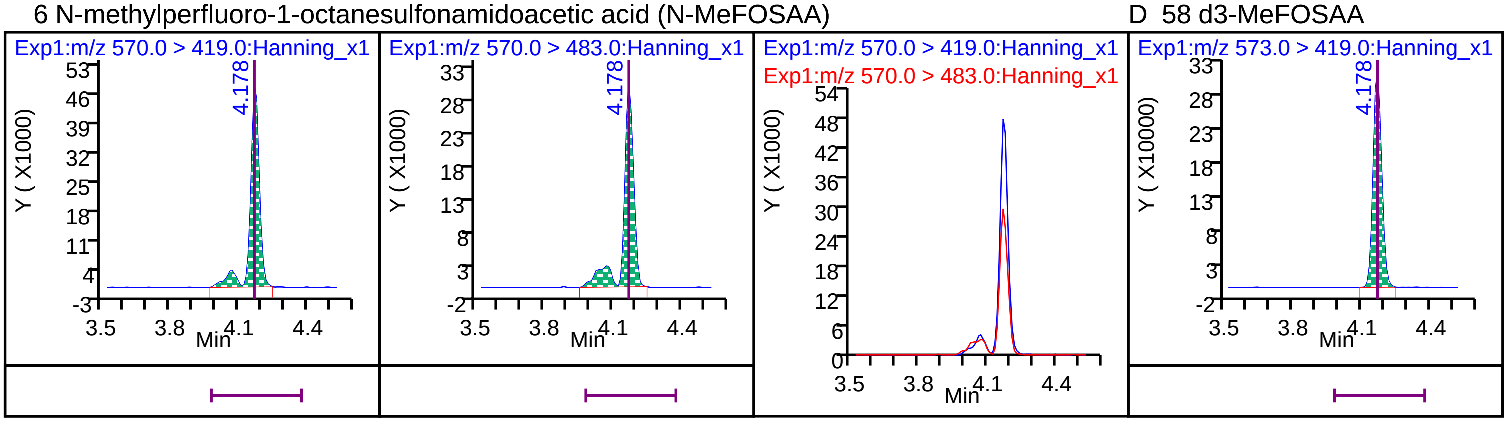
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

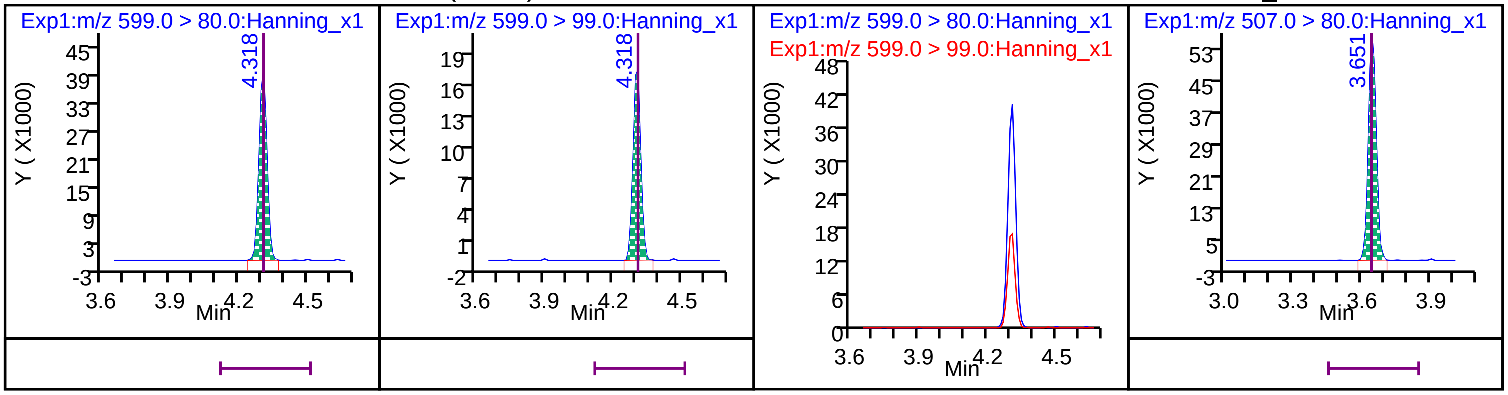


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

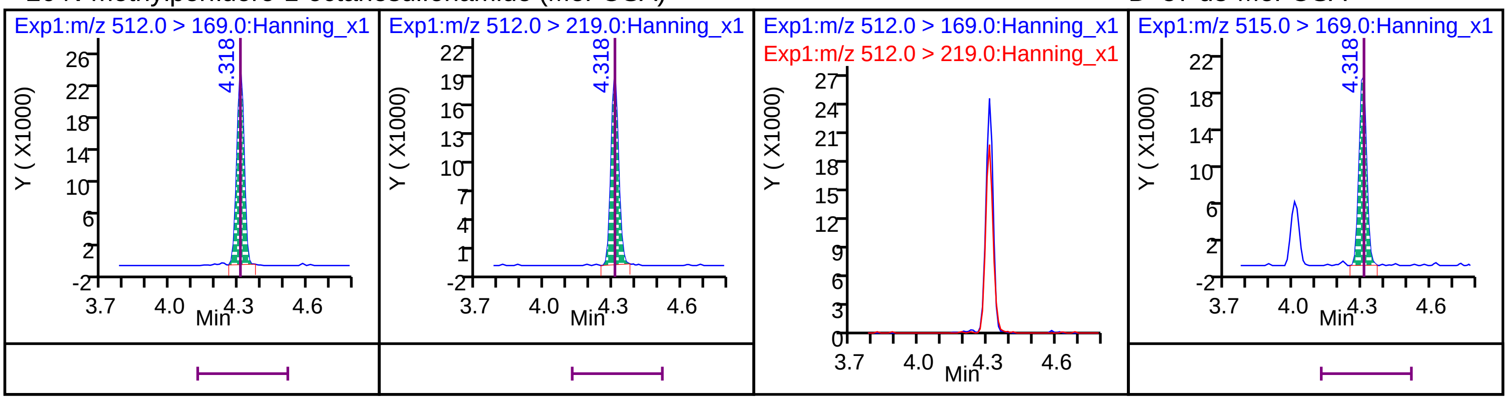


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

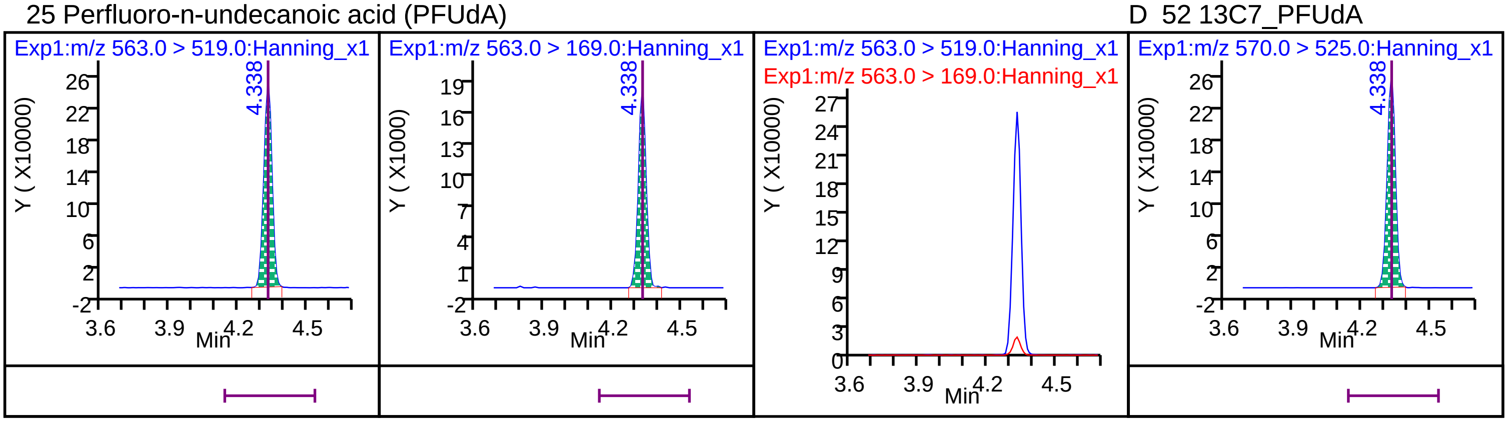
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



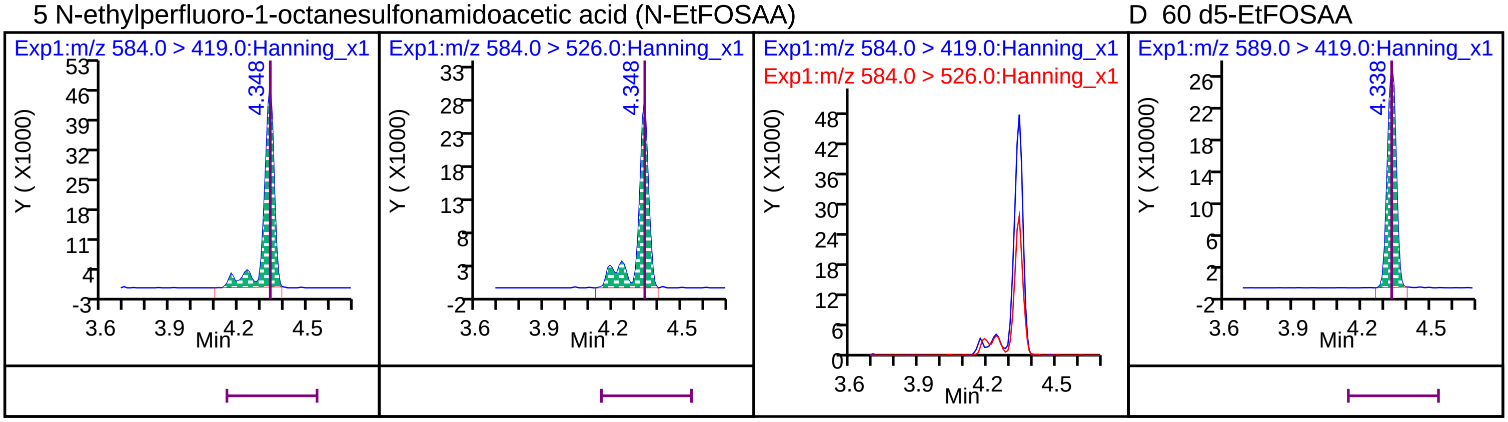
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

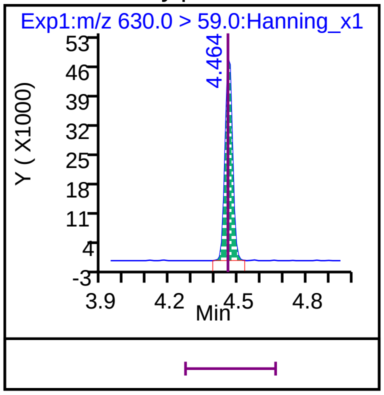


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

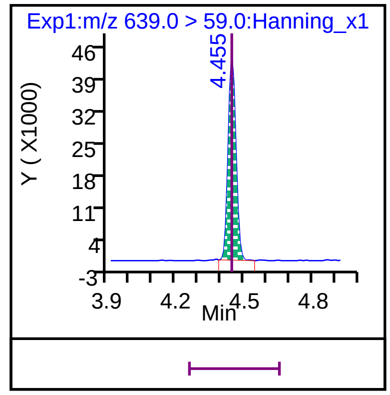


Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d

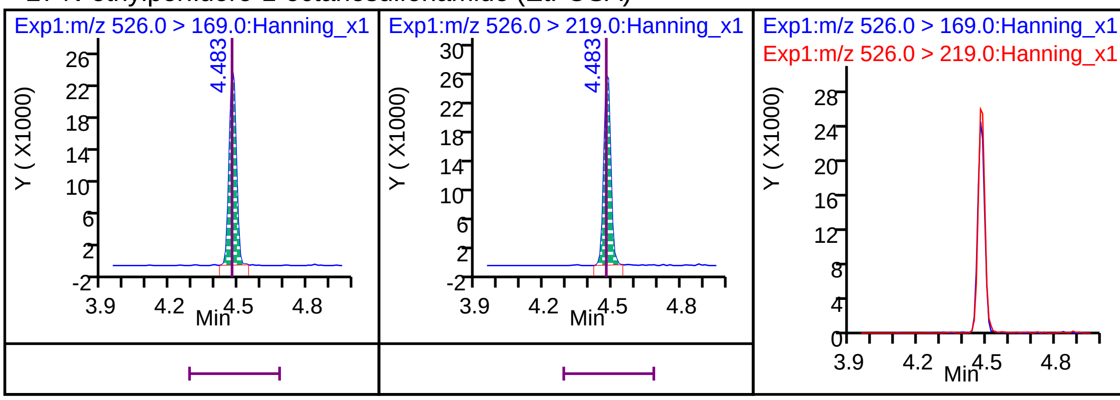
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



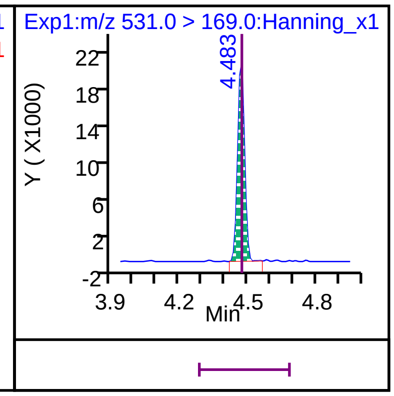
D 62 d9-EtFOSE



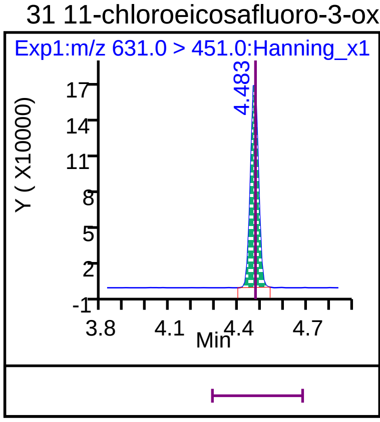
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



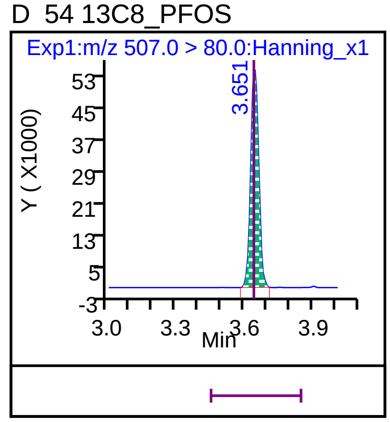
D 59 d5-EtFOSA



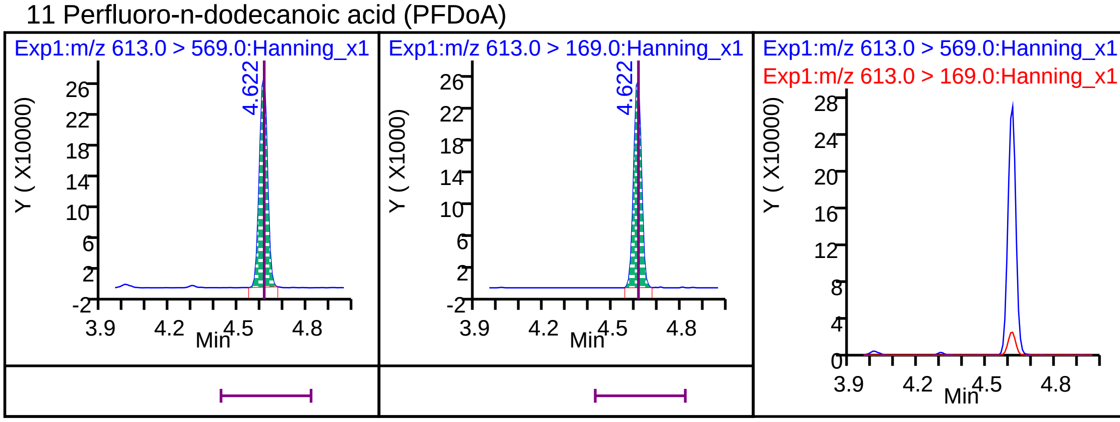
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



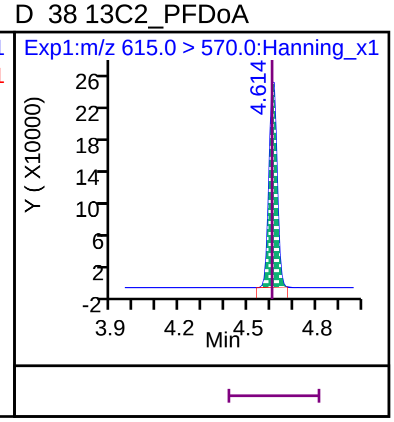
D 54 13C8_PFOS



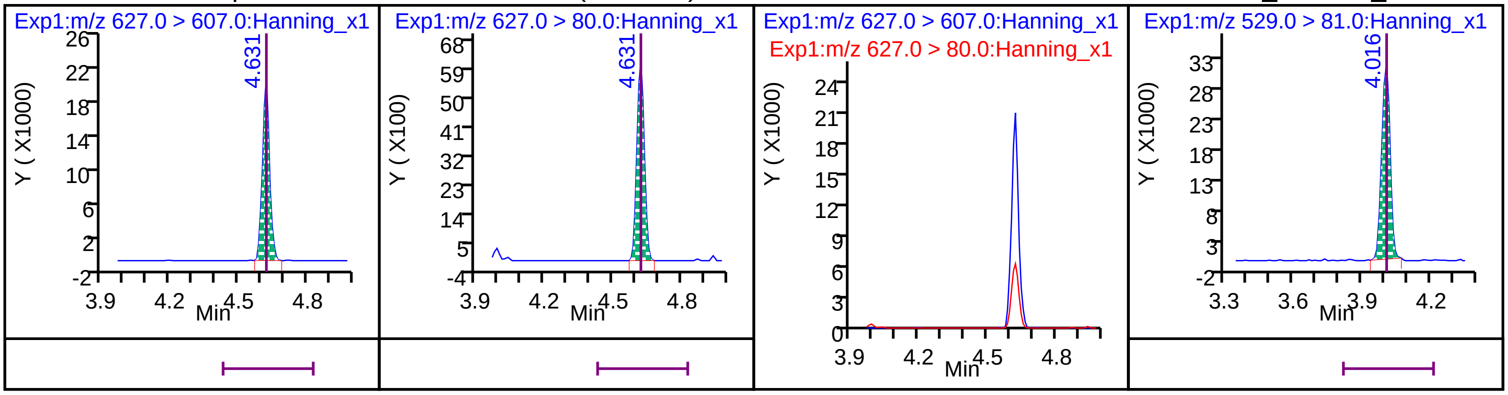
11 Perfluoro-n-dodecanoic acid (PFDoA)



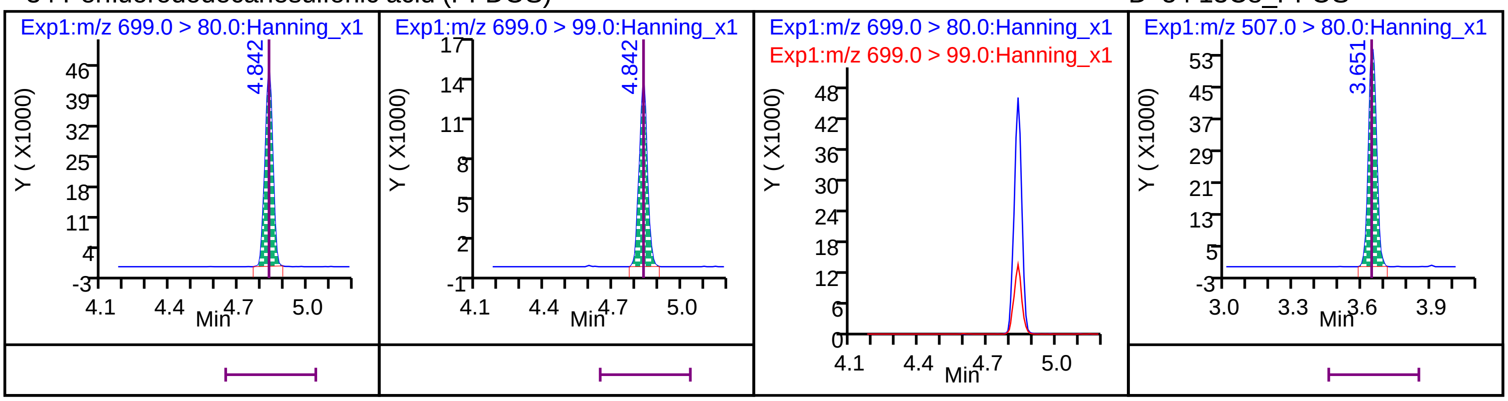
D 38 13C2_PFDoA



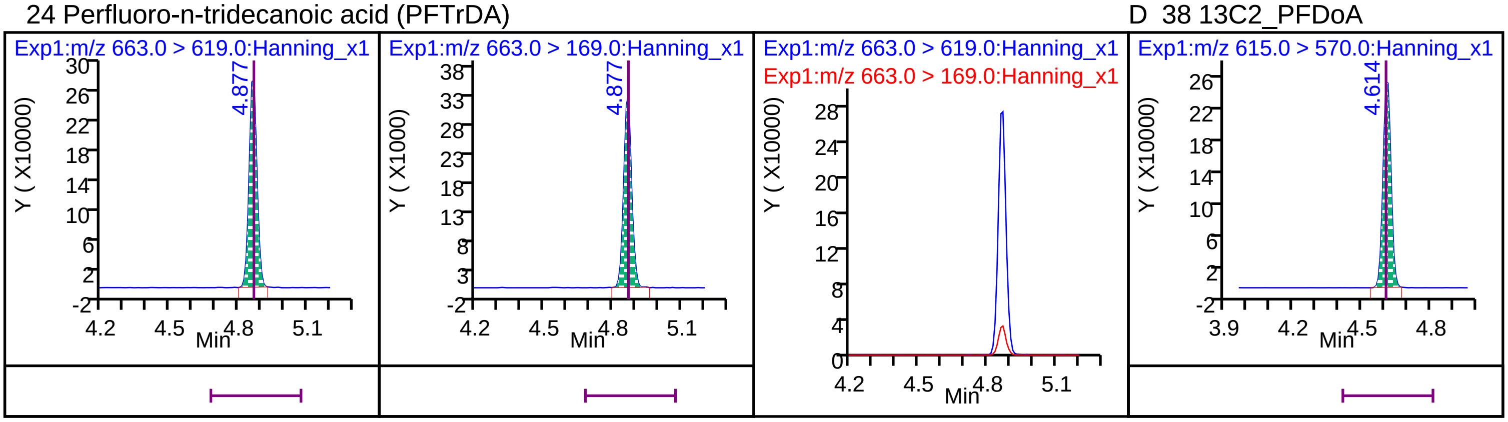
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



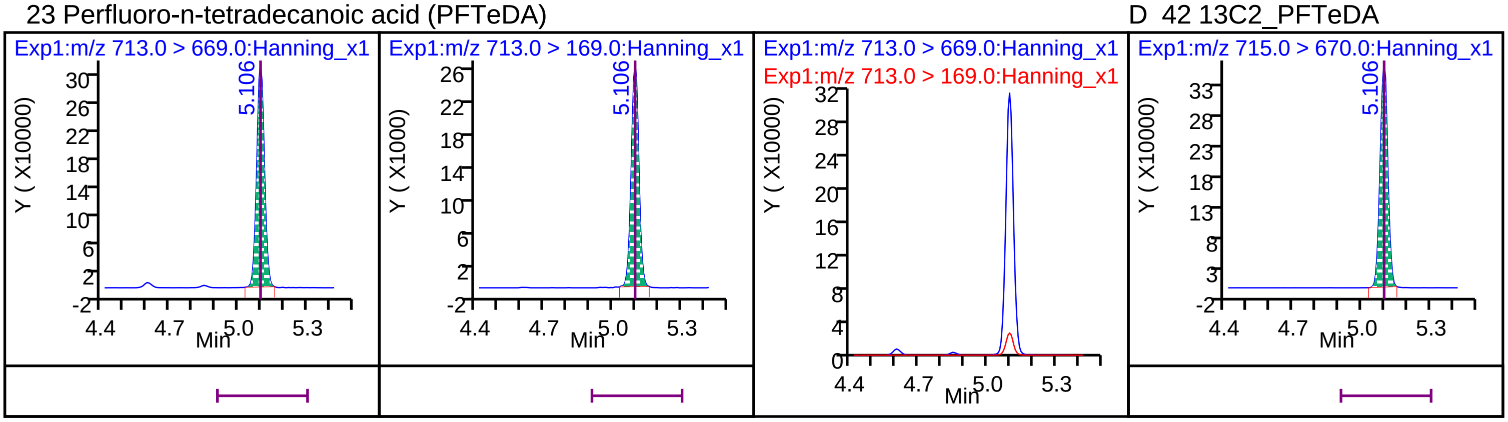
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



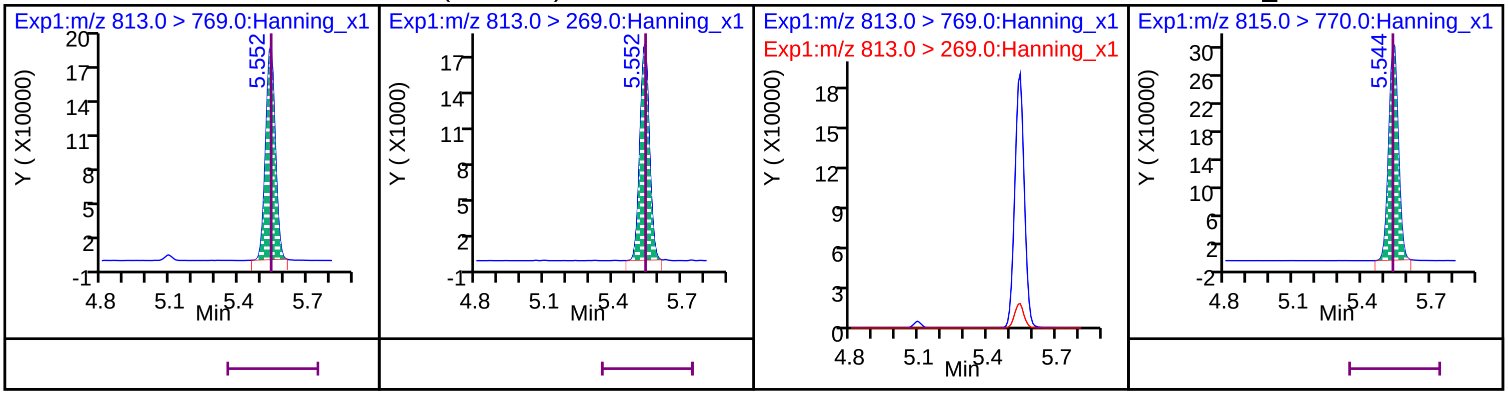
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



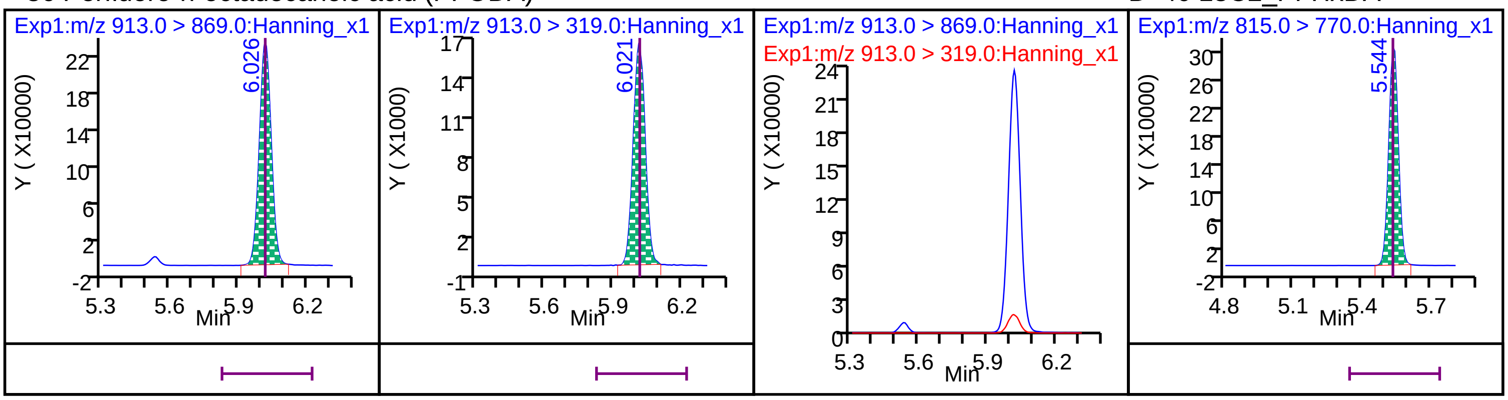
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



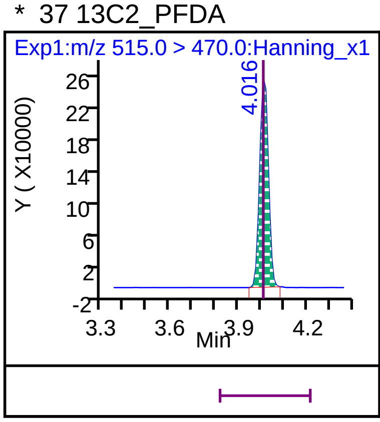
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



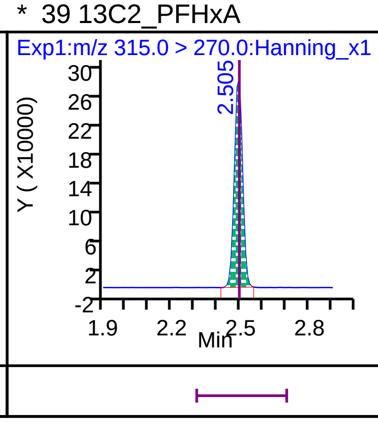
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



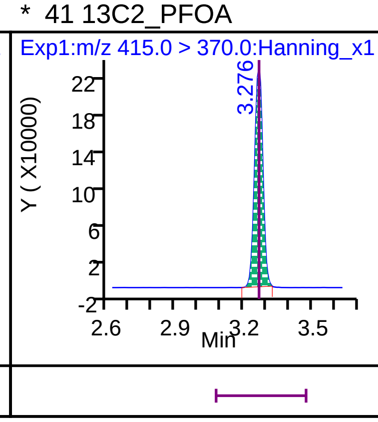
* 37 13C2_PFDA



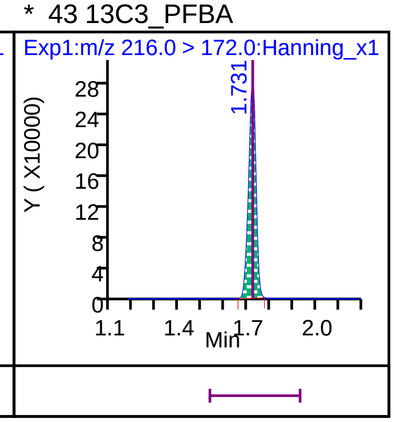
* 39 13C2_PFHxA



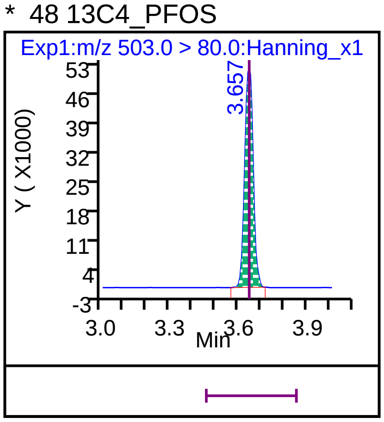
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

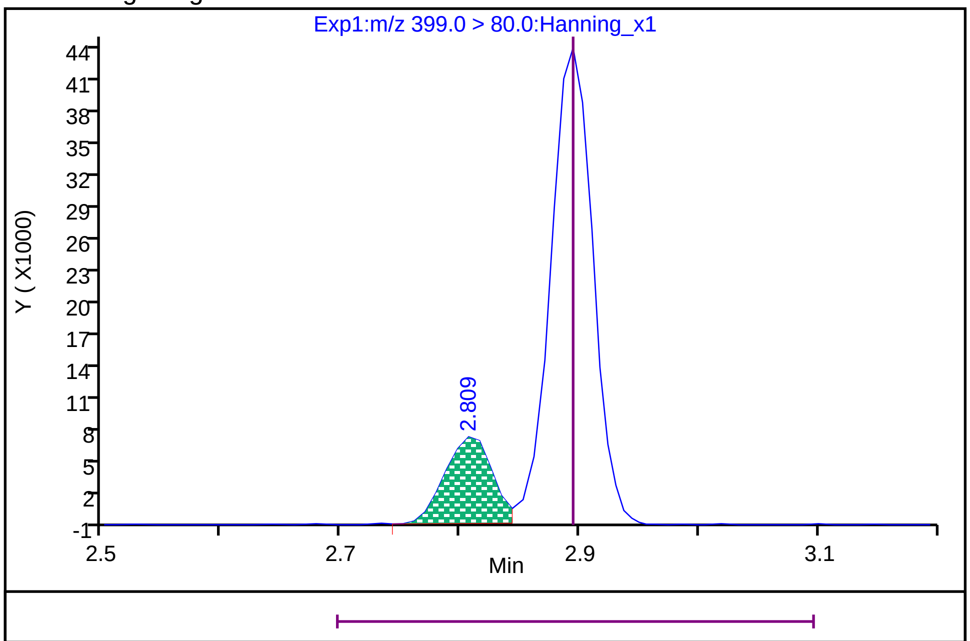
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

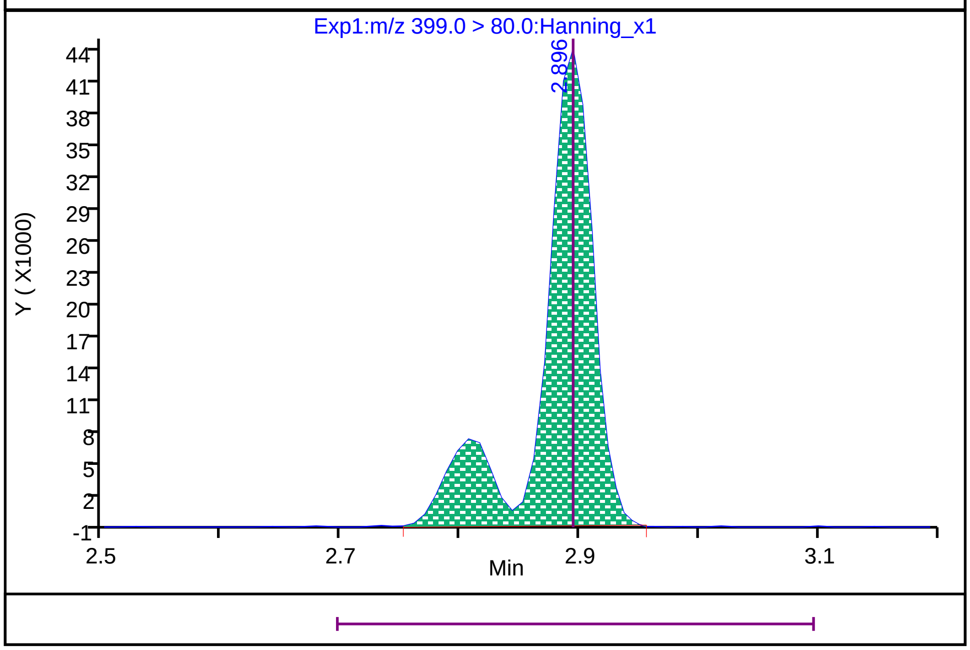
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 21672
Amount: -782.67
Amount Units: ng/L



RT: 2.896
Area: 127977
Amount: 897.40
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:52:42

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

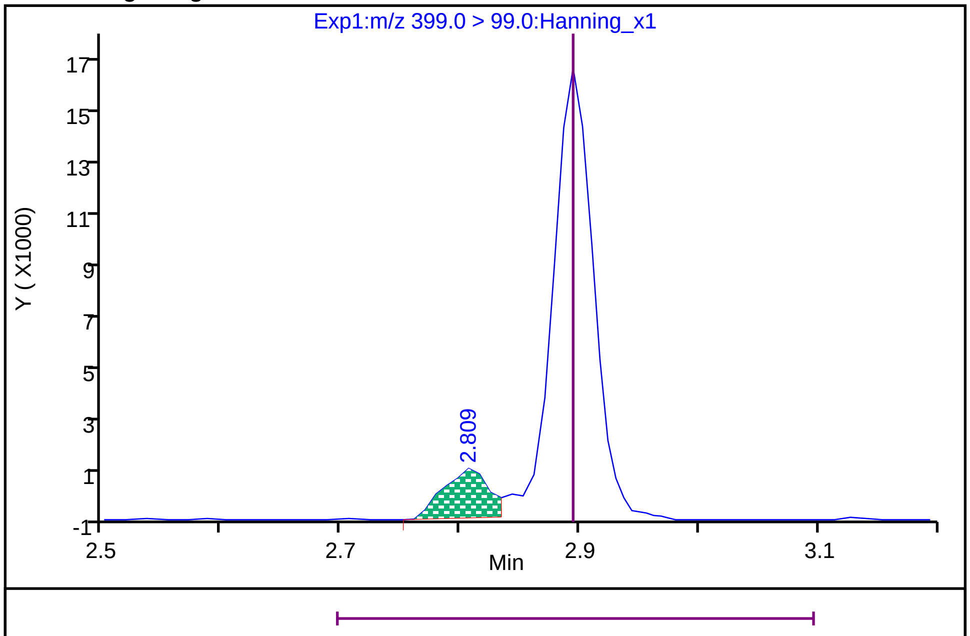
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

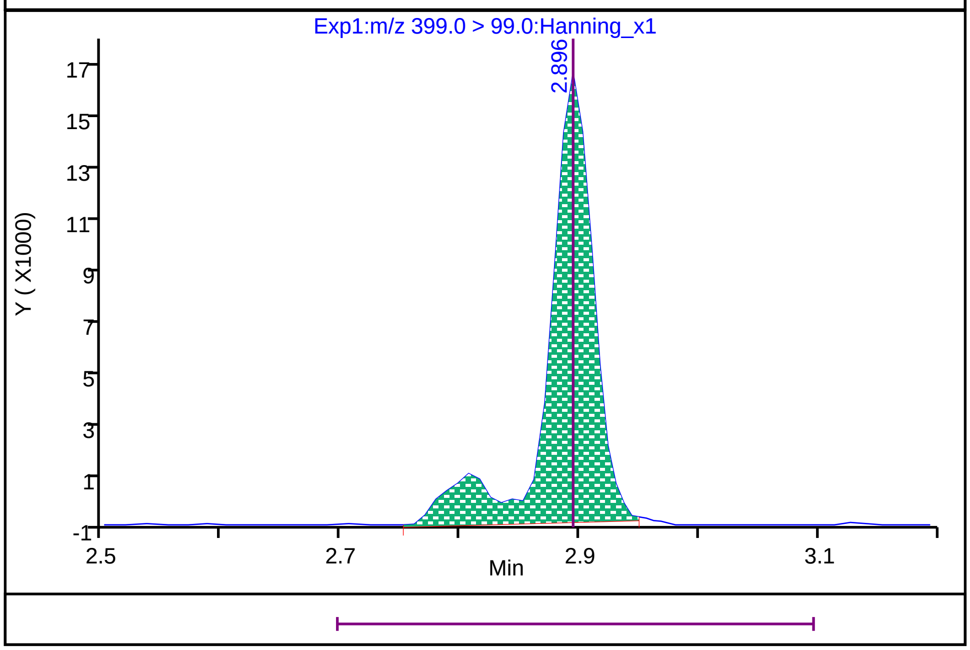
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.809
Area: 4604
Amount: 897.40
Amount Units: ng/L



RT: 2.896
Area: 42817
Amount: 897.40
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:52:45

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:24 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

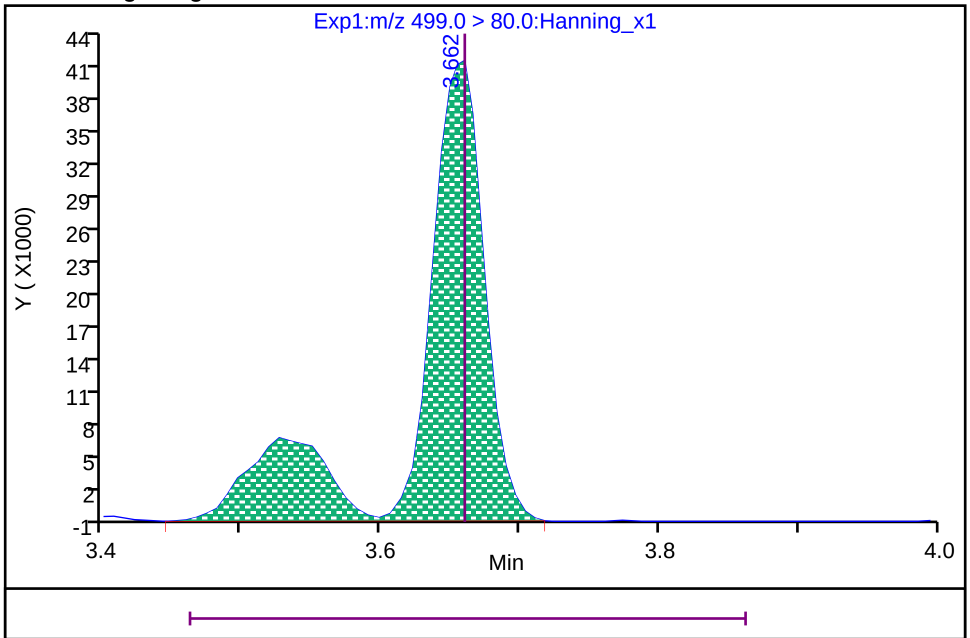
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A16.d		
Injection Date:	07-Nov-2021 19:30:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 1000_SVLC-1744
Sample Info:	ID ICAL 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

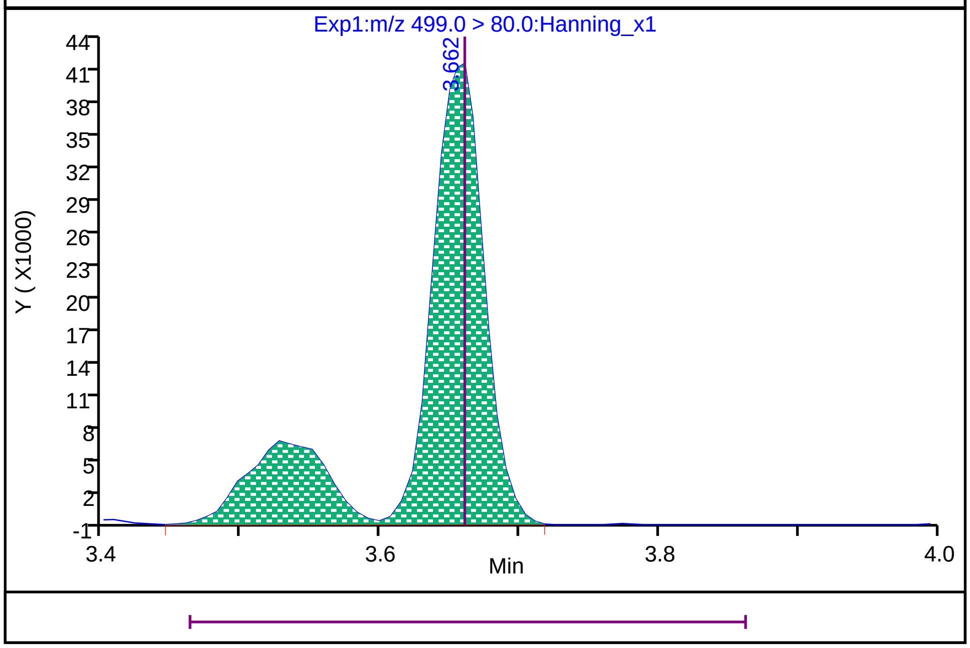
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.662
Area:	134248
Amount:	863.31
Amount Units:	ng/L



RT:	3.662
Area:	135192
Amount:	860.73
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:15

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 6	Auto Sampler:	80
Sample Info:	ID ICAL 2000_SVLC-1745	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-6 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	1	631978	19	>100:1			1000.00	1016.57	99.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/0	1334806	20	>100:1			2000.00	2002.69		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	1	590743	15	>100:1			1000.00	1033.50	101.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	1/0	1286836	16	>100:1			2000.00	1935.44		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	168596	16	>100:1			1000.00	974.71	94.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	385045	16	>100:1	Target = 3.53		1768.00	1831.41		
298.9 > 99	44	2.183	2.183		105793	17	>100:1	3.63 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	293696	16	>100:1	Target = 3.10		1876.00	1879.66		
349 > 99	44	2.532	2.531		98296	17	>100:1	2.98 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	116969	17	>100:1			5000.00	5165.63	104.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	93564	16		Target = 1.75		1868.00	1814.35		
327 > 81	63	2.460	2.460		49805	17	>100:1	1.87 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	635316	16	>100:1			1000.00	975.48	95.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	1/1	1330015	17	>100:1	Target = 18.91		2000.00	2013.42		
313 > 119	49	2.505	2.505		69209	17	>100:1	19.21 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1190921	19	>100:1			5000.00	5138.68	98.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	619228	19	>100:1	Target = 0.79		4000.00	4014.30		
285 > 185	66	2.622	2.622		773921	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.881	2.880	1	554253	17	>100:1			1000.00	1043.91	104	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/0	1148679	18	>100:1	Target = 3.80		2000.00	1886.08		
363 > 169	47	2.881	2.880		296345	18	>100:1	3.87 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	128407	16	>100:1			1000.00	1022.03	99	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	1/0	245510	27	>100:1	Target = 2.89	4.60	1820.00	1739.12		
399 > 99	45	2.896	2.896		86241	26	>100:1	2.84 (1.44-4.34)	8.78				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	1879487	19	>100:1	Target = 3.23		1884.00	1887.36		
377 > 85	45	2.919	2.919		561111	19	>100:1	3.34 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	1/0	255444	22	>100:1	Target = 3.12		1904.00	1936.91		
449 > 99	45	3.276	3.276		79234	21	>100:1	3.22 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	1	92629	20	>100:1			5000.00	5146.07	98.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	1/0	81187	22	>100:1	Target = 1.75		1896.00	1851.26		
427 > 81	64	3.248	3.248		44979	22	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.276	3.276	1	533931	23	>100:1			1000.00	1017.64	97.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	1/0	1076576	21	>100:1	Target = 2.89		2000.00	1967.61		
413 > 169	53	3.276	3.276		377307	23	>100:1	2.85 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.651	1	132396	24	>100:1			1000.00	1069.06	100.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	0/-1	269584	40	>100:1	Target = 3.30	4.09	1856.00	1710.11		M
499 > 99	54	3.652	3.662		83529	39		3.22 (1.65-4.95)	7.71				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/0	930054	18	>100:1			1864.00	1854.92		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	187467	15	>100:1	Target = 3.08		1920.00	1764.90		
549 > 99	54	4.006	4.006		77754	15	>100:1	2.41 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	1/0	187244	15	>100:1	Target = 2.72		1928.00	1807.29		
599 > 99	54	4.318	4.318		73400	21	>100:1	2.55 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/-1	805565	17	>100:1			1884.00	1777.21		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.843	4.842	1/0	201625	19	>100:1	Target = 3.27		1936.00	1771.04		
699 > 99	54	4.843	4.842		62965	17		3.20 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	1	666388	21	>100:1			1000.00	1040.62	104.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	1/0	1453207	21	>100:1	Target = 6.51		2000.00	2023.17		
463 > 169	56	3.662	3.662		213087	21	>100:1	6.81 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.896	3.896	1	271381	19	>100:1			1000.00	1012.40	101.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/0	593408	17	>100:1	Target = 41.63		2000.00	2078.18		
498>478	55	3.888	3.896		18462	21		32.14 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	1	616544	16	>100:1			1000.00	1072.88	107.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	1/0	1420016	16	>100:1	Target = 13.80		2000.00	1979.11		
513 > 169	51	4.017	4.016		103646	14	>100:1	13.70 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.016	1	94944	16	>100:1			5000.00	5493.01	120.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.017	4.016	1/0	75418	16	>100:1	Target = 1.94		1916.00	1757.70		
527 > 81	65	4.006	4.016		37486	18	>100:1	2.01 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/0	87815	17		Target = 3.54		1928.00	1823.13		
627 > 80	65	4.631	4.631		23593	16	55:1	3.72 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	1	786283	16	>100:1			5000.00	5203.29	101.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/0	242311	33		Target = 1.37	7.52	2000.00	1920.26		
570 > 483	58	4.178	4.178		184100	32	>100:1	1.31 (0.68-2.05)	4.18				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	85737	13	>100:1			1000.00	950.64	95.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	207971	13	>100:1			2000.00	2219.61		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	47183	12	>100:1			1000.00	1003.01	104.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/0	103458	13	>100:1	Target = 1.11		2000.00	2023.00		
512 > 219	57	4.318	4.318		104435	13	>100:1	0.99 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.338	1	642300	17	>100:1			5000.00	4959.34	93.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/0	244858	30	>100:1	Target = 1.51	6.39	2000.00	1954.88		M
584 > 526	60	4.348	4.348		158435	31	>100:1	1.54 (0.75-2.26)	3.53				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.338	1	644538	15	>100:1			1000.00	1070.22	101.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.338	1/0	1230135	16	>100:1	Target = 14.52		2000.00	1969.68		
563 > 169	52	4.339	4.338		78534	14	>100:1	15.66 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.465	4.455	1	104277	15	>100:1			1000.00	983.03	102.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	214292	15	>100:1			2000.00	2111.01		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	1	42659	13	>100:1			1000.00	992.07	99.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.492	4.483	1/0	104819	20	>100:1	Target = 1.06		2000.00	2064.36		
526 > 219	59	4.483	4.483		99256	15	>100:1	1.05 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.623	4.614	1	602891	17	>100:1			1000.00	1004.25	99.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.623	4.622	1/0	1348282	16	>100:1	Target = 10.70		2000.00	2097.75		
613 > 169	38	4.623	4.622		123278	18	>100:1	10.93 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/-1	1314496	17	>100:1	Target = 8.31		2000.00	2074.35		
663 > 169	38	4.868	4.877		153257	22	>100:1	8.57 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.106	5.106	1	821412	21	>100:1			1000.00	1010.36	98	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.106	5.106	1/0	1432173	22	>100:1	Target = 12.17		2000.00	1997.35		
713 > 169	42	5.106	5.106		119851	20	>100:1	11.94 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.544	5.544	1	874416	21	>100:1			1000.00	1007.35	99.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.544	5.552	0/-1	1086521	21	>100:1	Target = 10.43		2000.00	1940.15		
813 > 269	40	5.544	5.552		103391	21	>100:1	10.50 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.012	6.026	0/-1	1649914	42	95:1	Target = 13.67		2000.00	2072.61		
913 > 319	40	6.012	6.026		118785	43	>100:1	13.88 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.017	4.016	1	684156	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.505	2.505	1	687359	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	1	543856	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	590309	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	1	132467	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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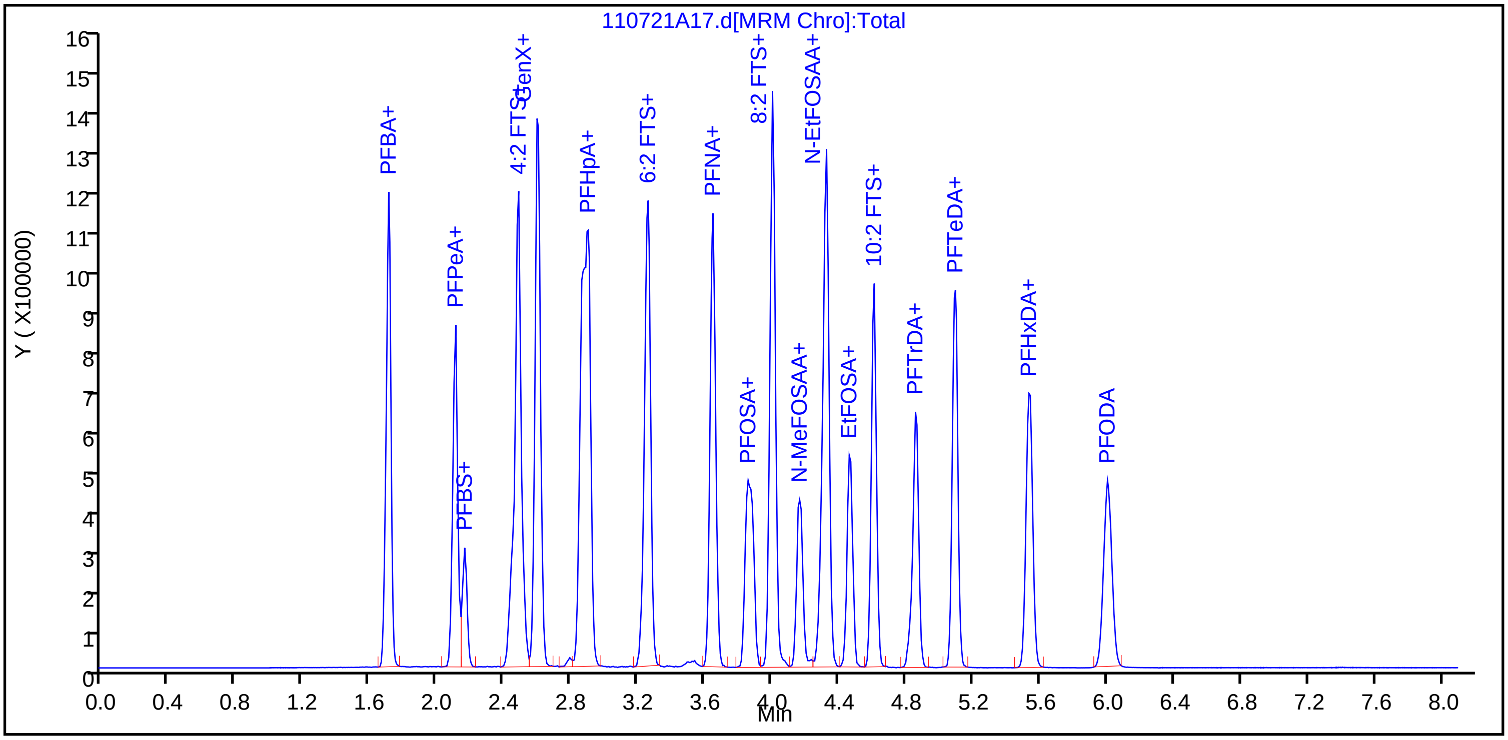
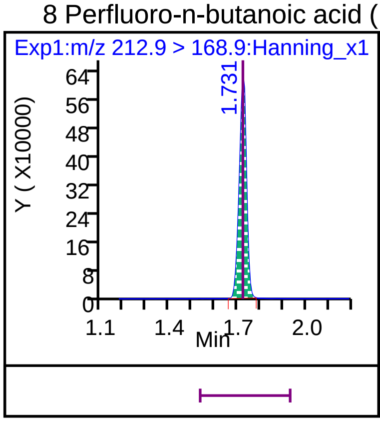
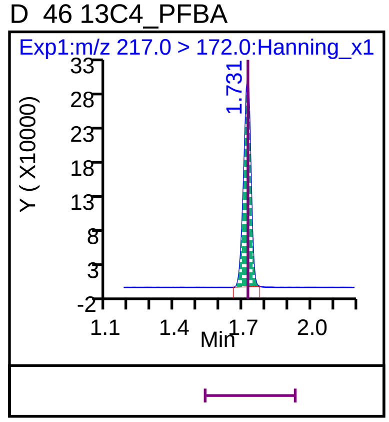
Injection Date:	07-Nov-2021 19:40:43	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 2000_SVLC-1745
Sample Info:	ID ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin



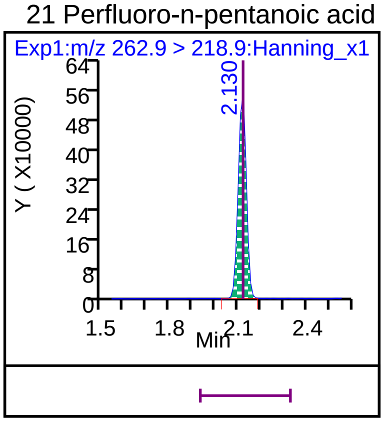
8 Perfluoro-n-butanoic acid (PFBA)



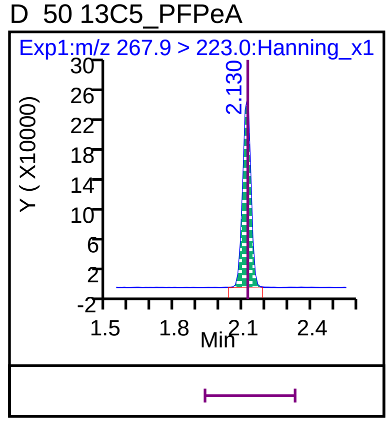
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

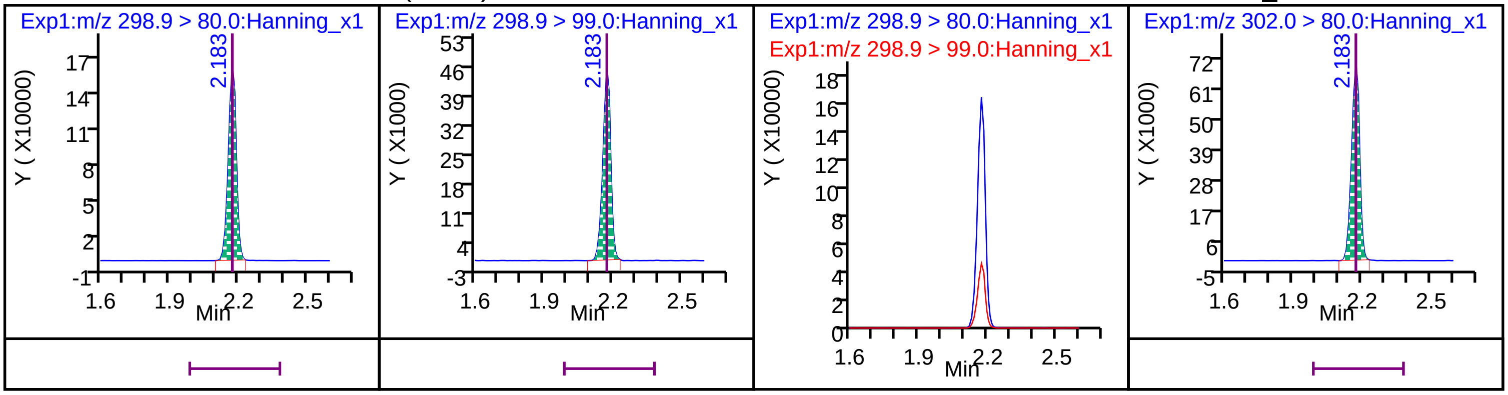


D 50 13C5_PFPeA

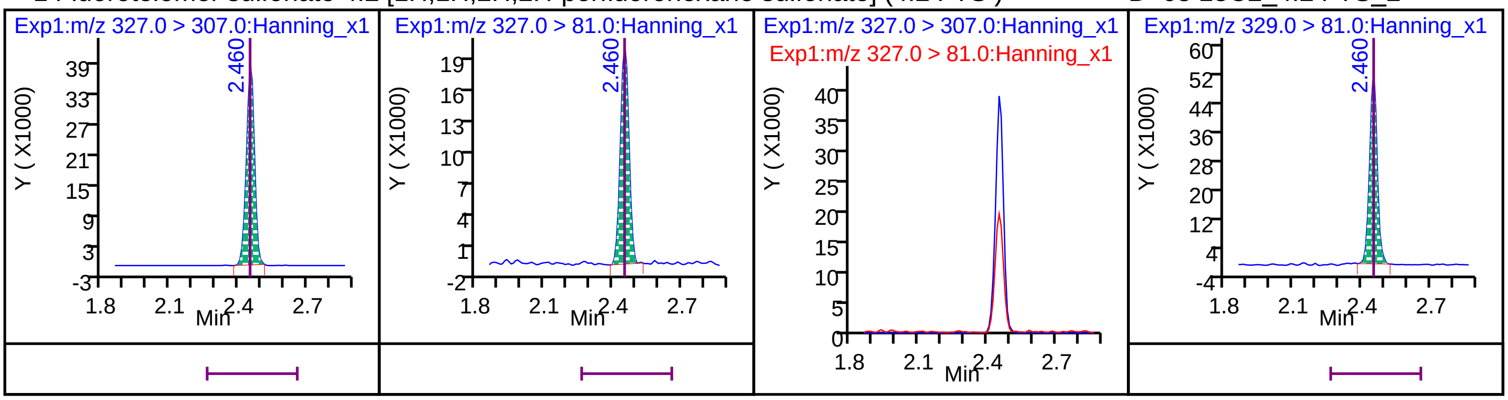


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

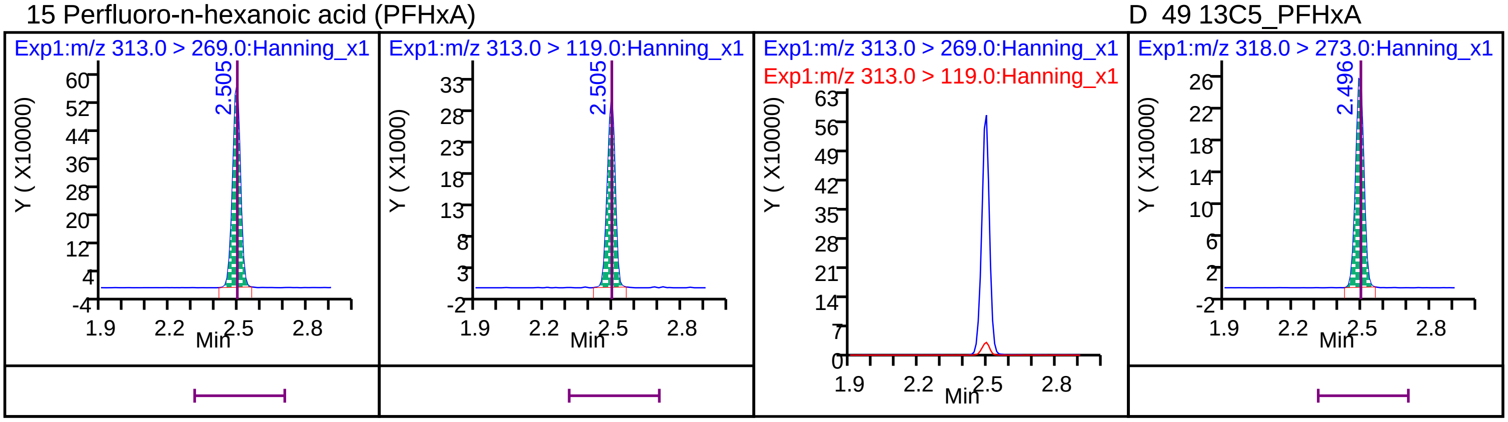
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



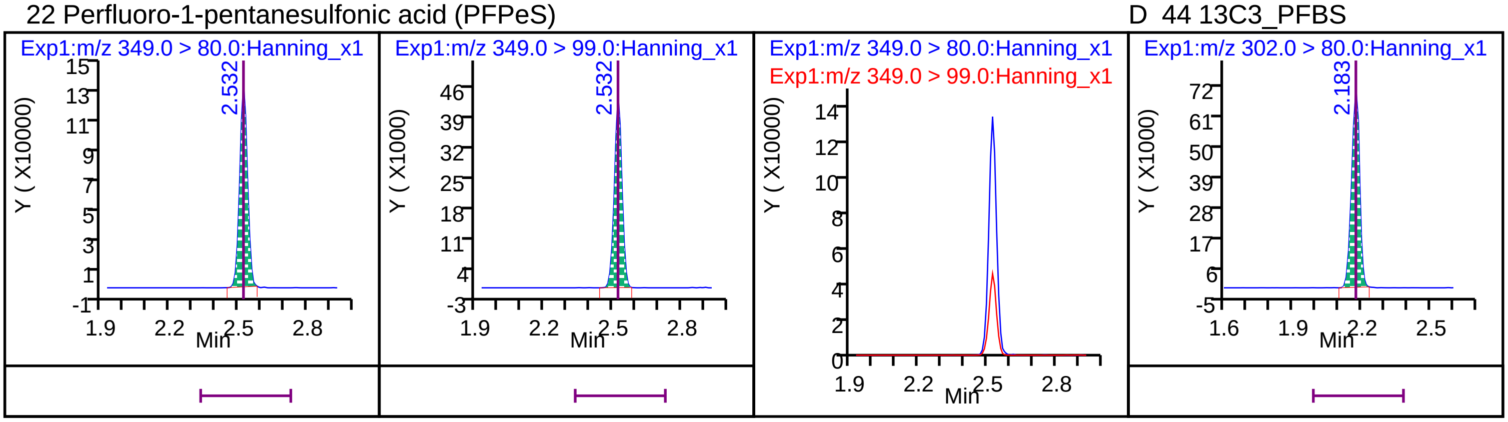
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



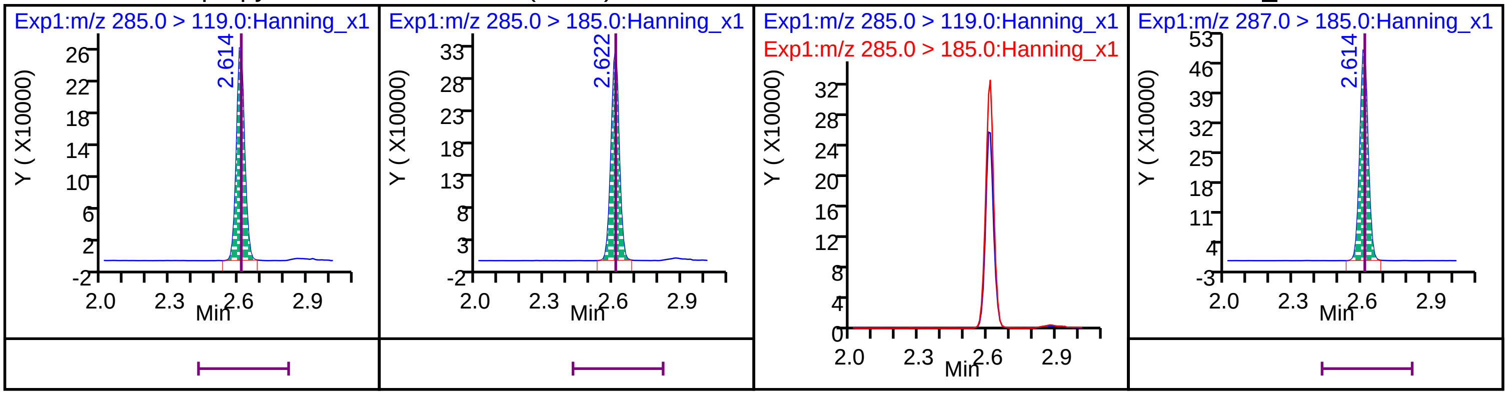
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



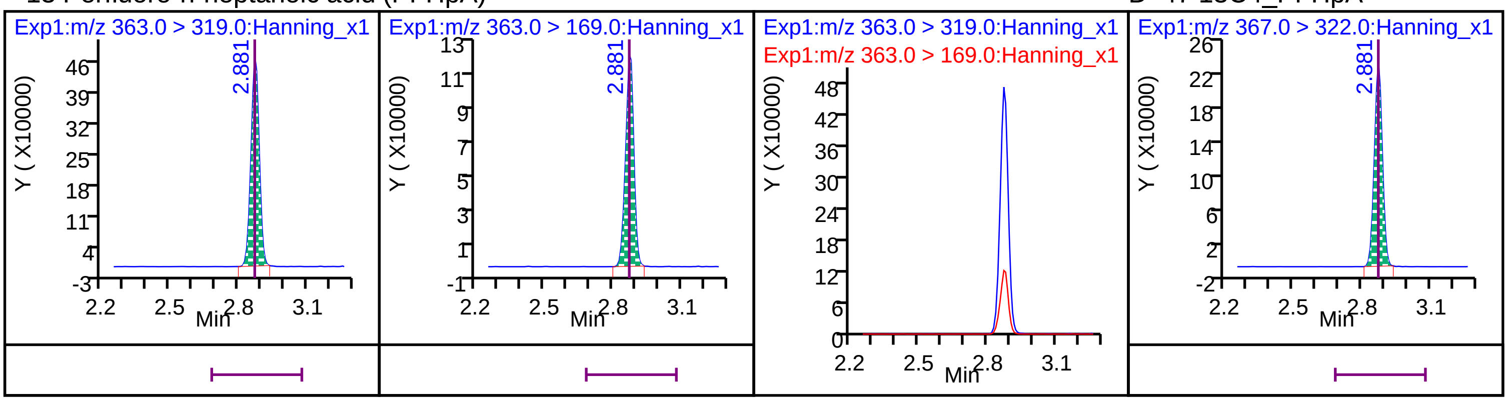
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



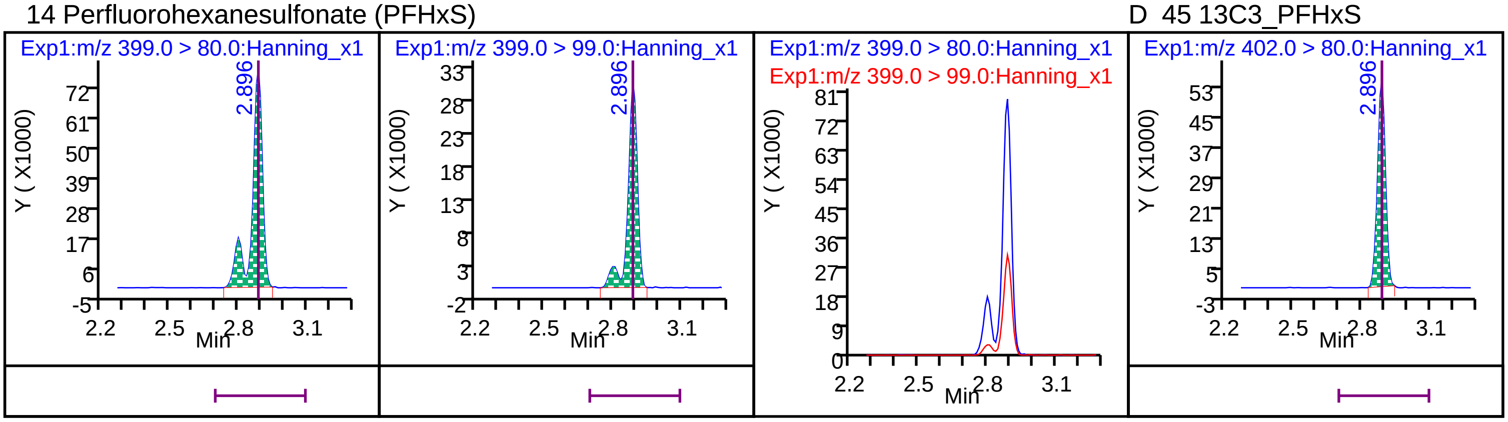
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



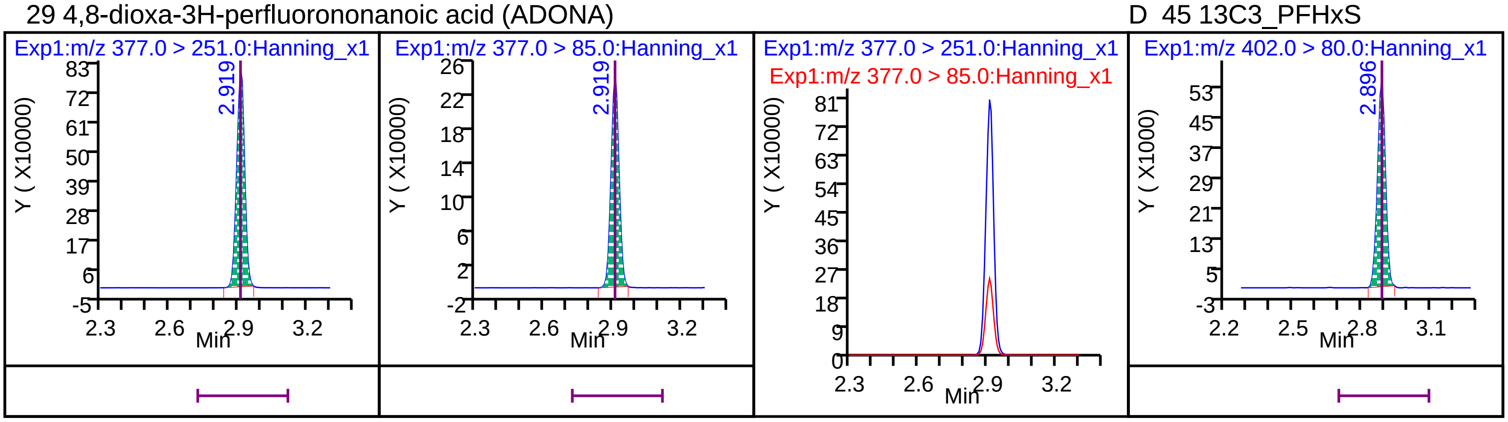
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



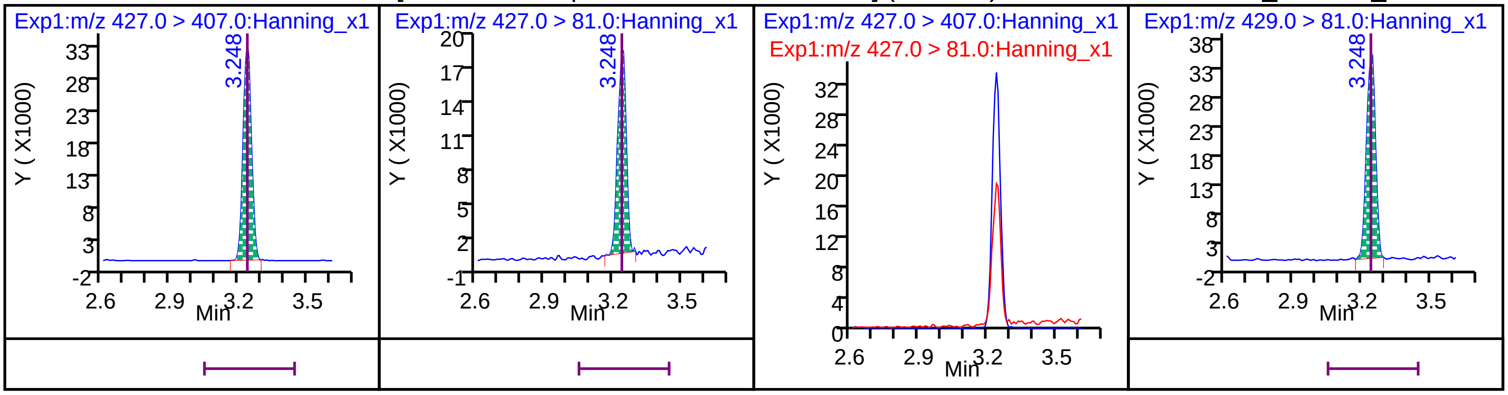
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



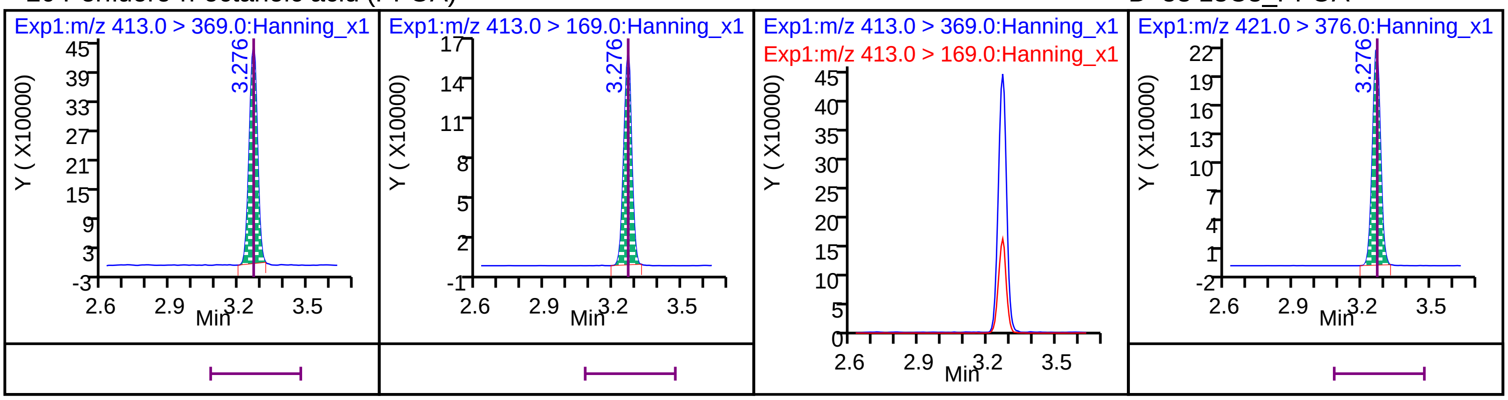
Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

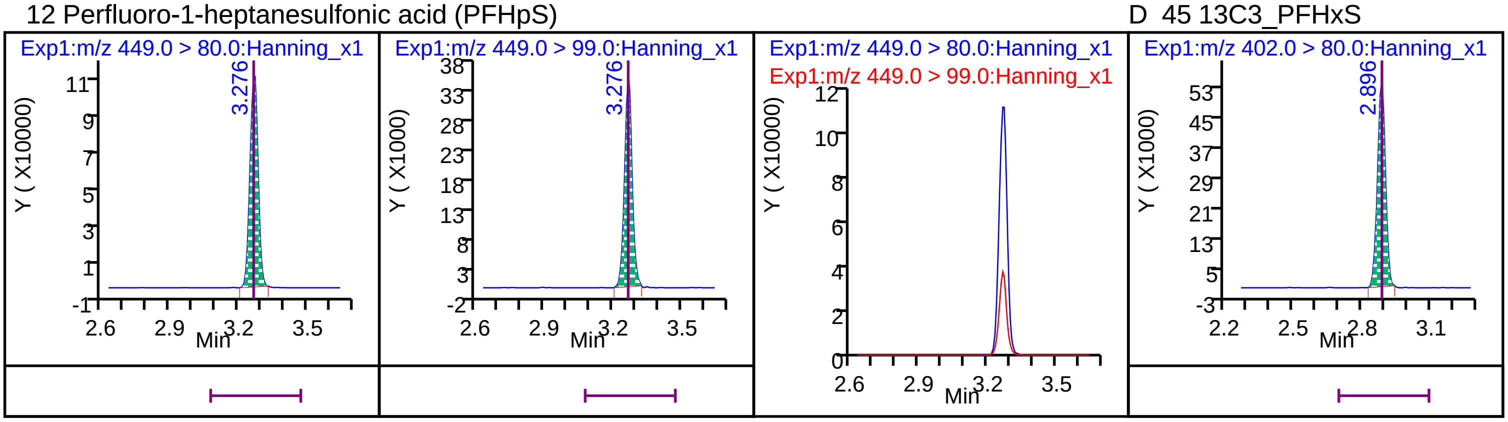
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



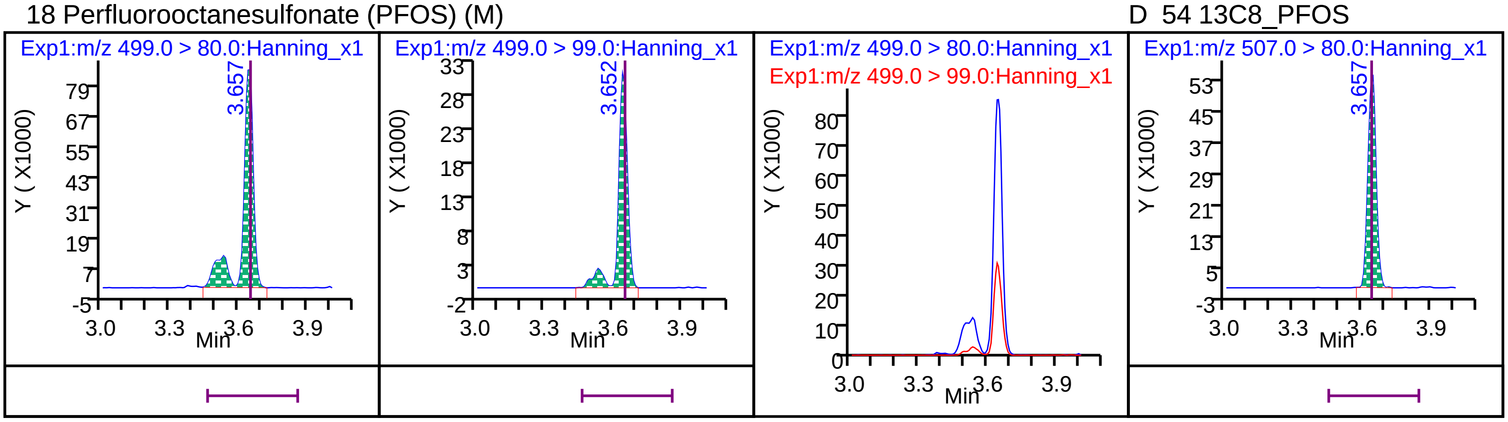
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

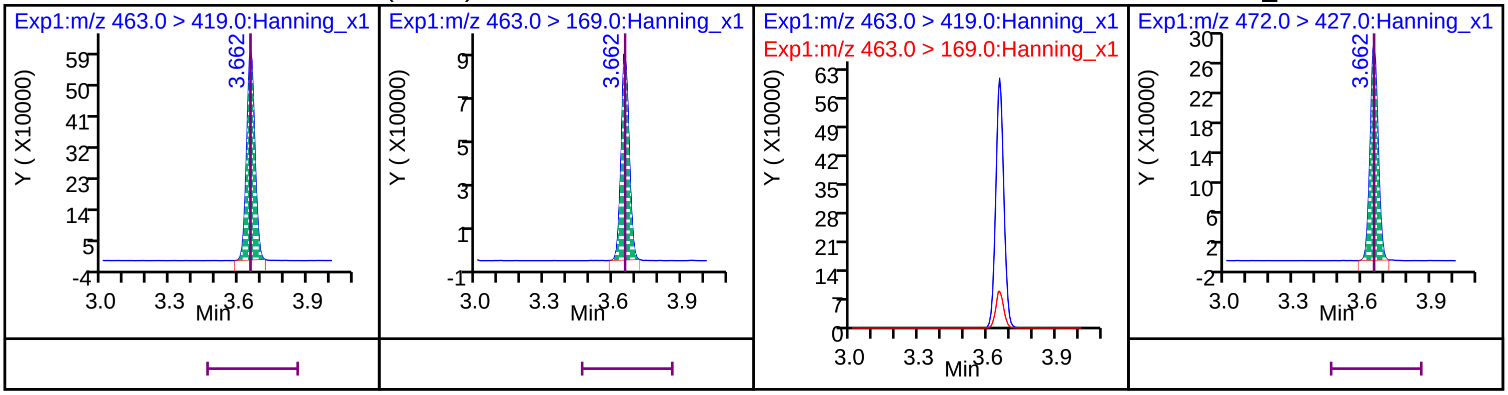


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

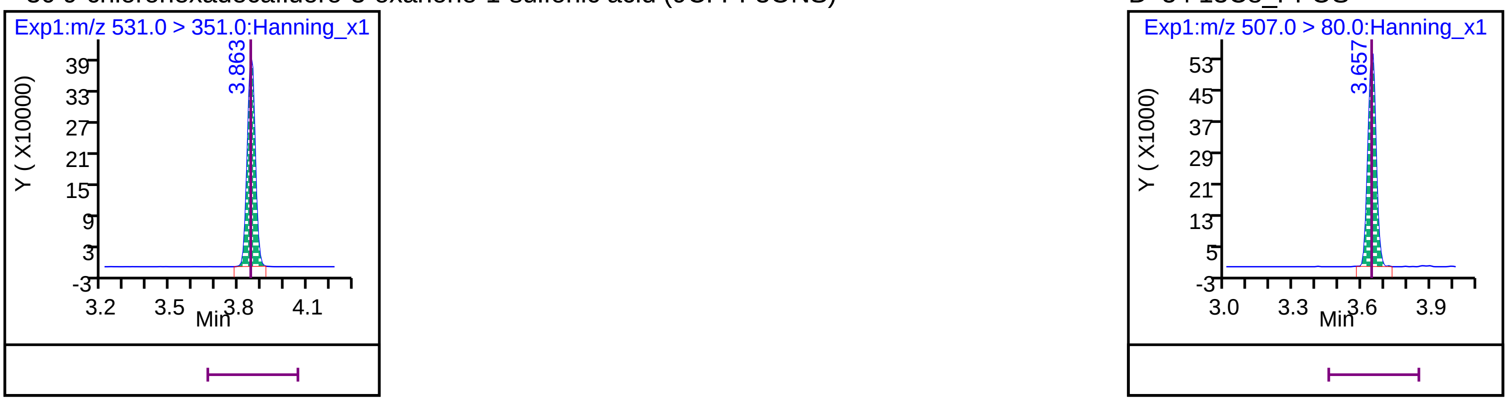


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

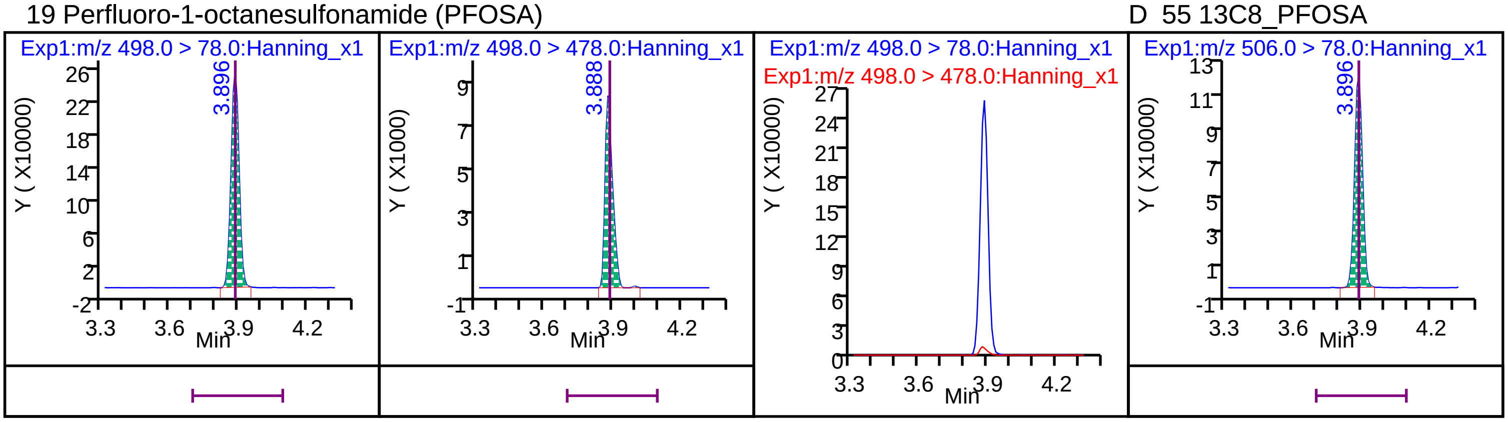
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



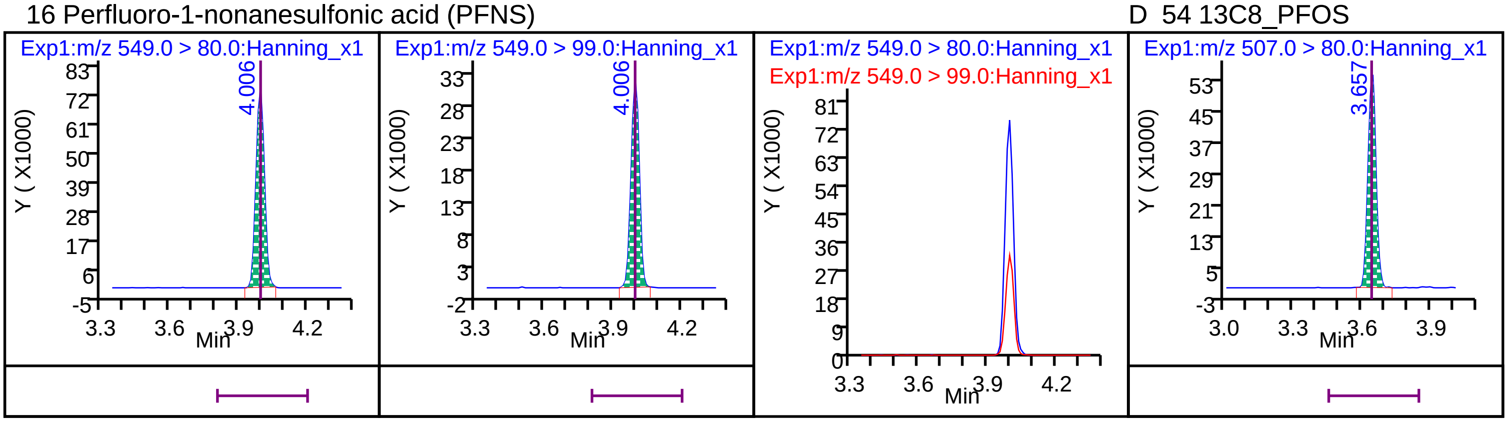
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



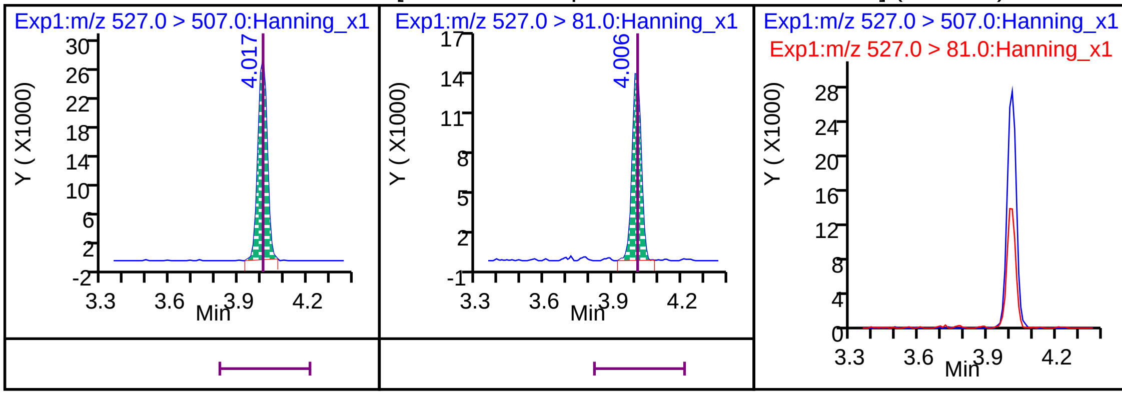
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



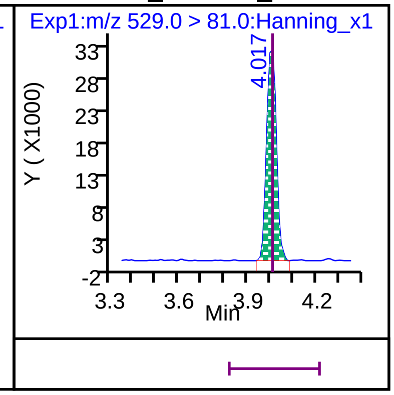
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



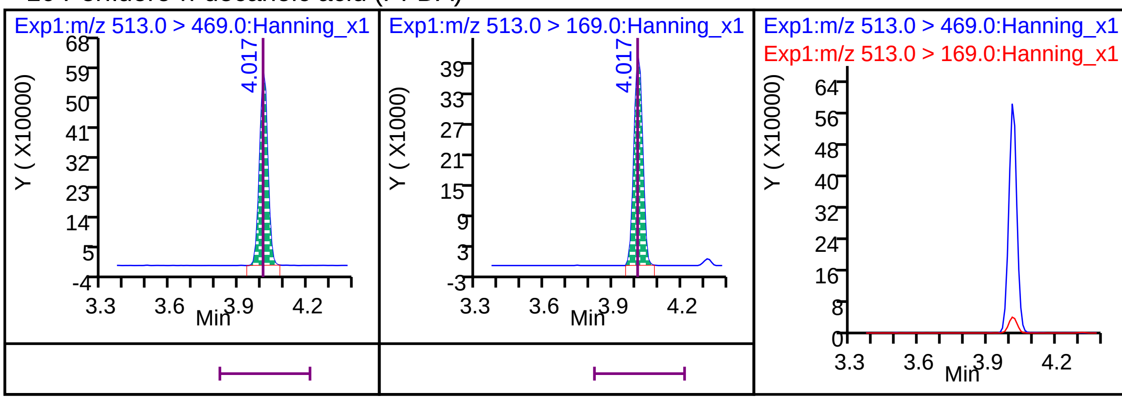
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)



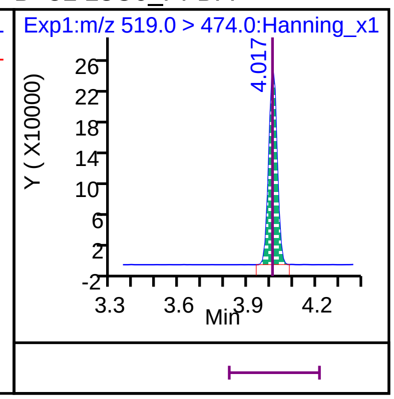
D 65 13C2_8:2 FTS_2



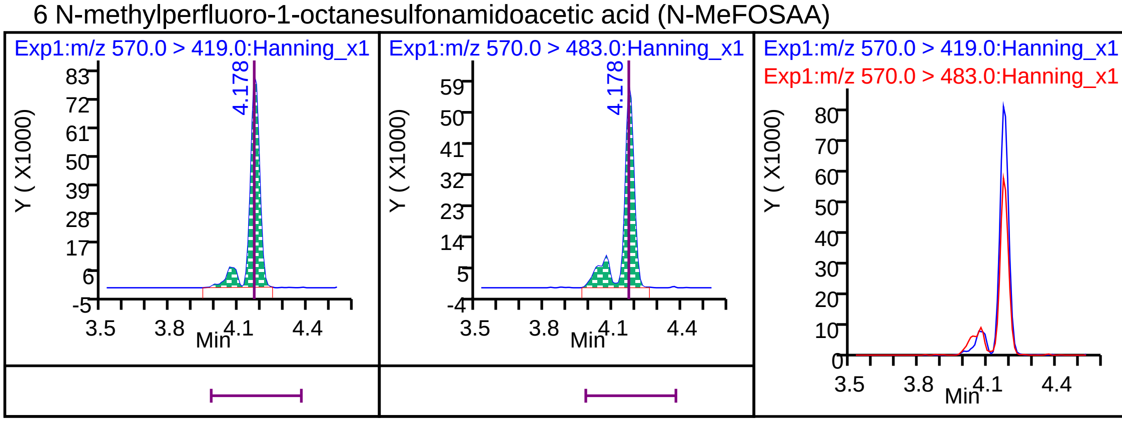
10 Perfluoro-n-decanoic acid (PFDA)



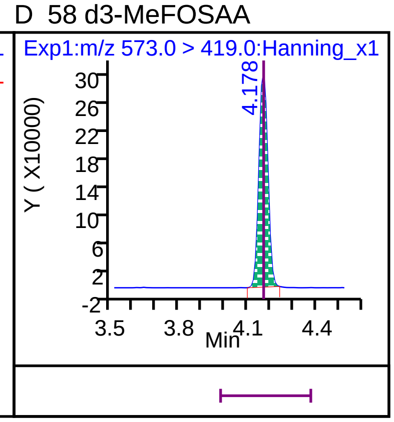
D 51 13C6_PFDA



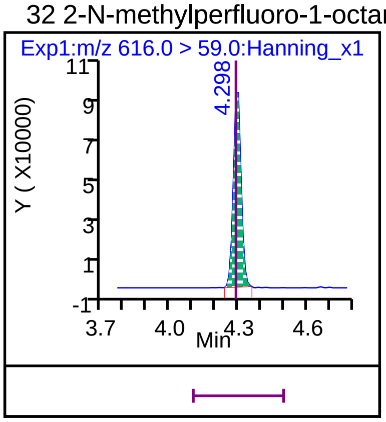
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)



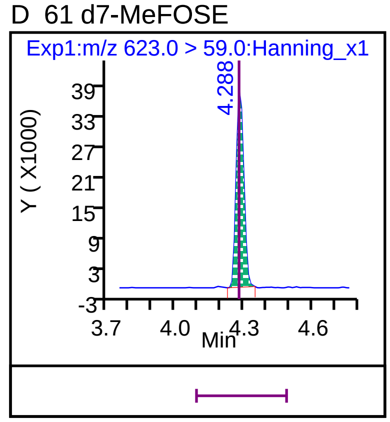
D 58 d3-MeFOSAA



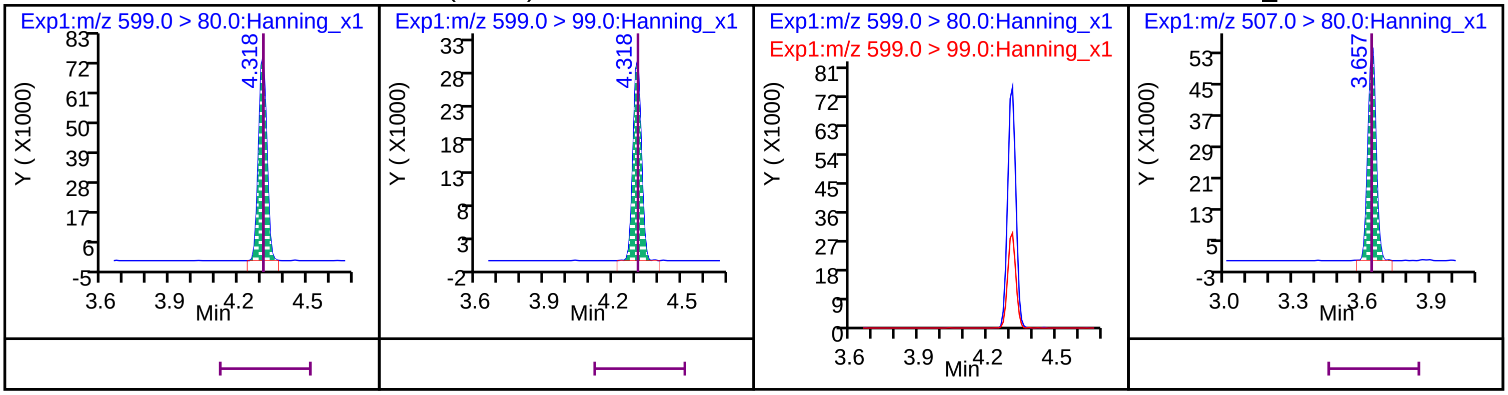
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



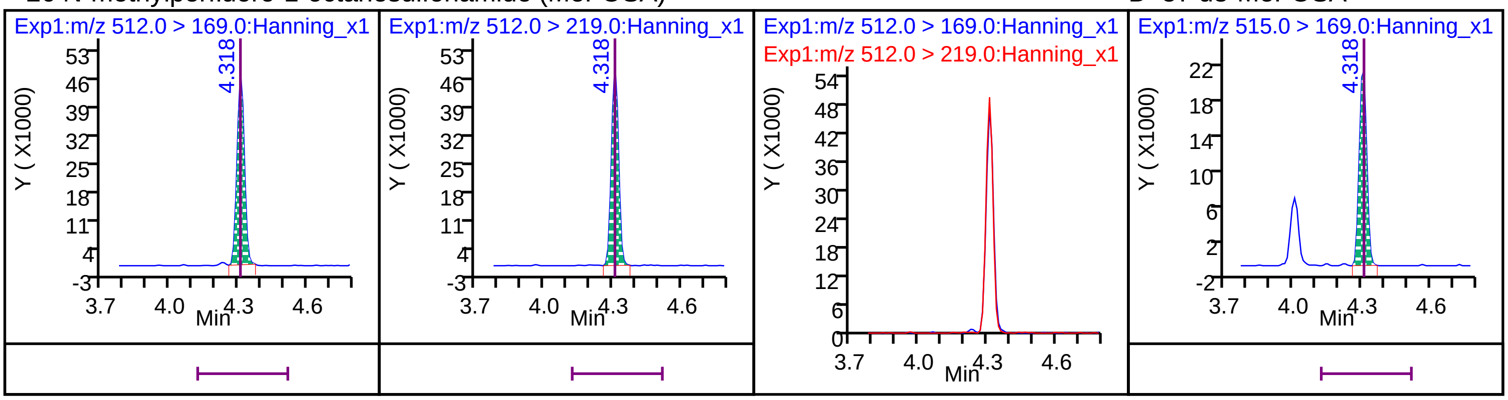
D 61 d7-MeFOSE



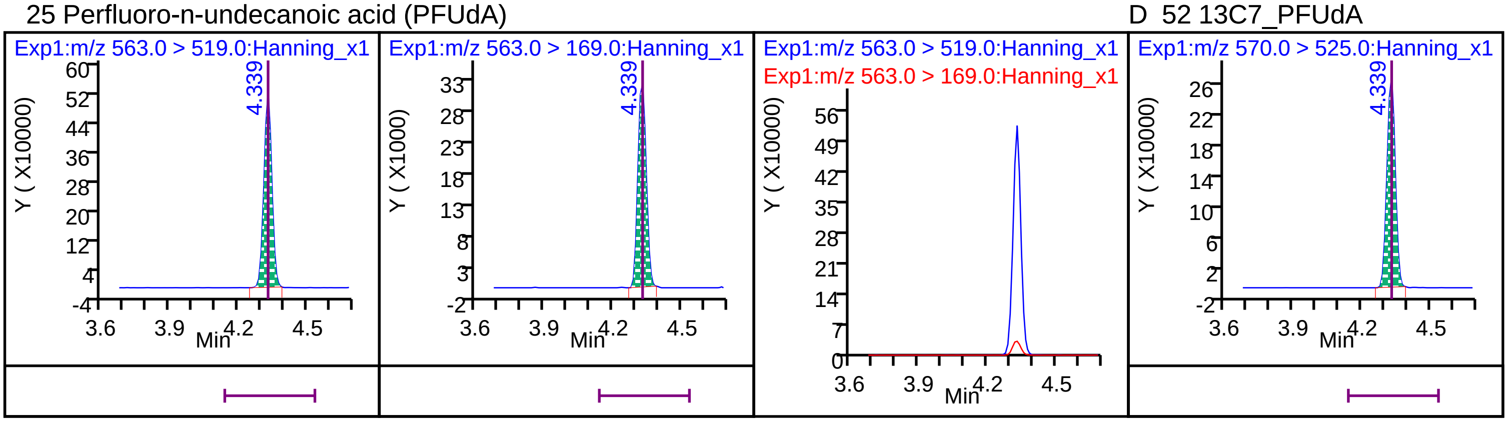
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



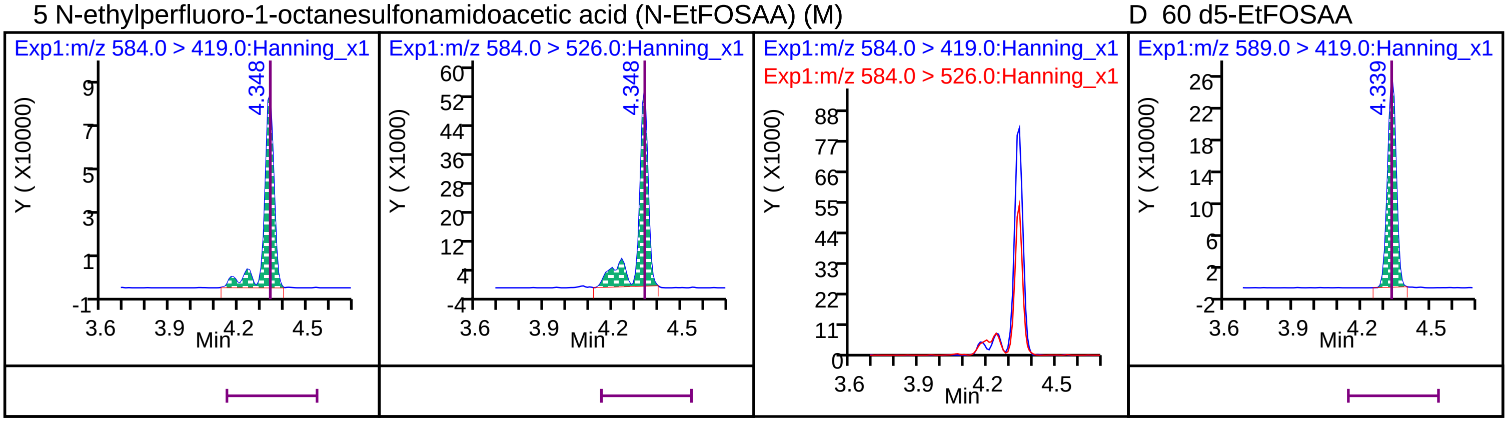
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



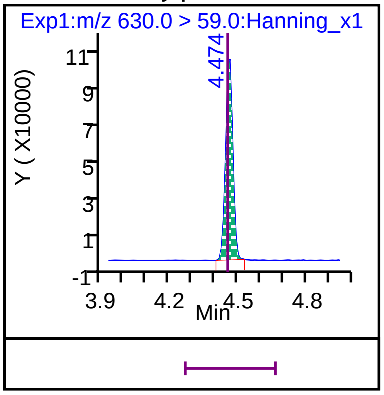
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



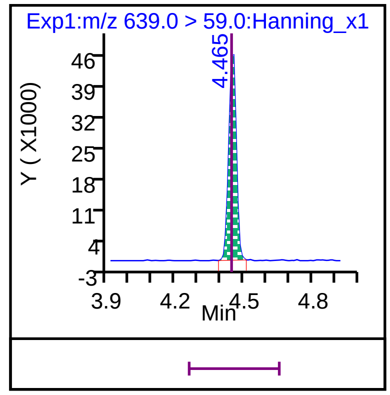
Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

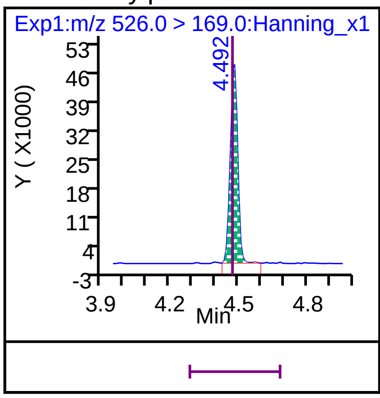
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

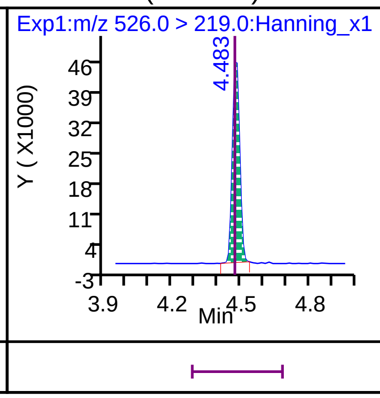


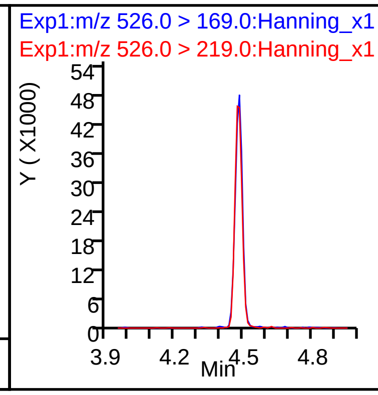
D 62 d9-EtFOSE



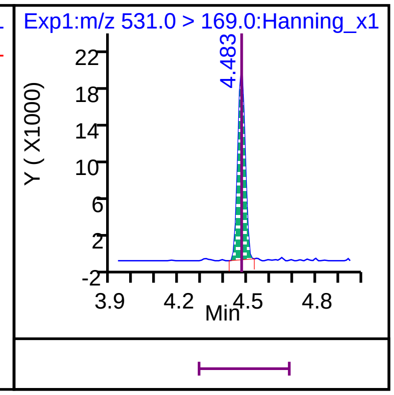
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



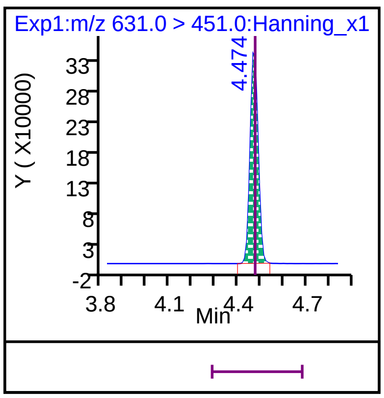




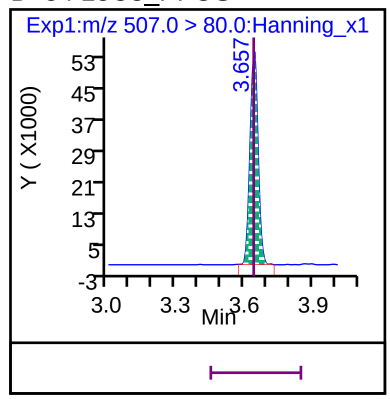
D 59 d5-EtFOSA



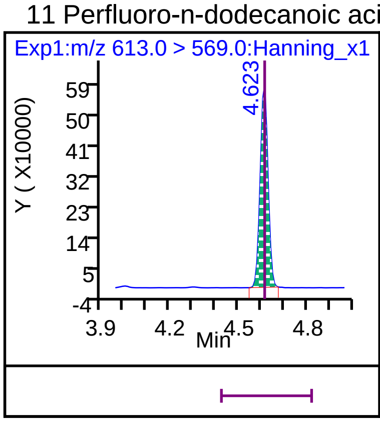
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

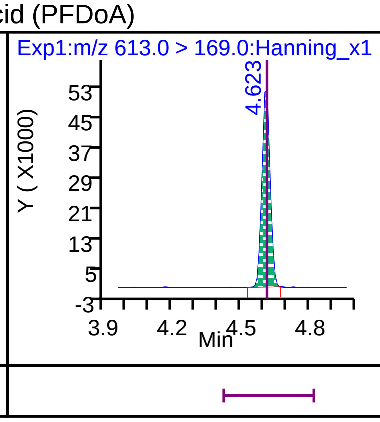


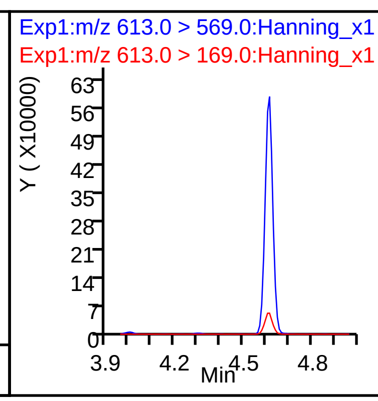
D 54 13C8_PFOS



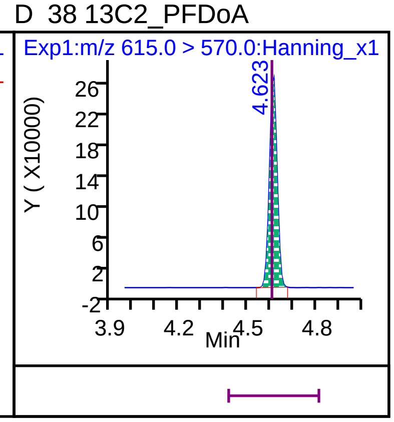
11 Perfluoro-n-dodecanoic acid (PFDoA)



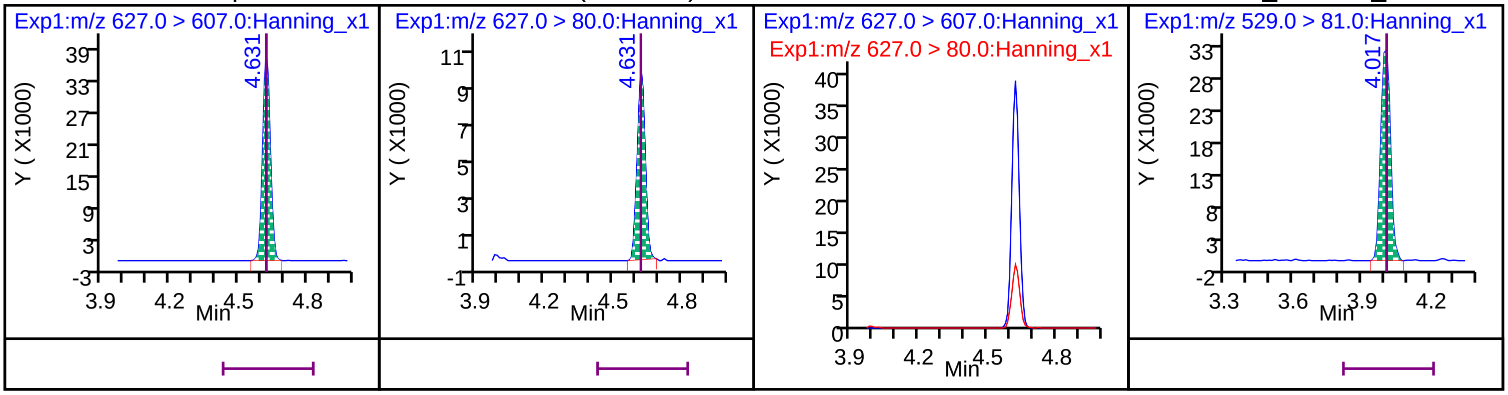




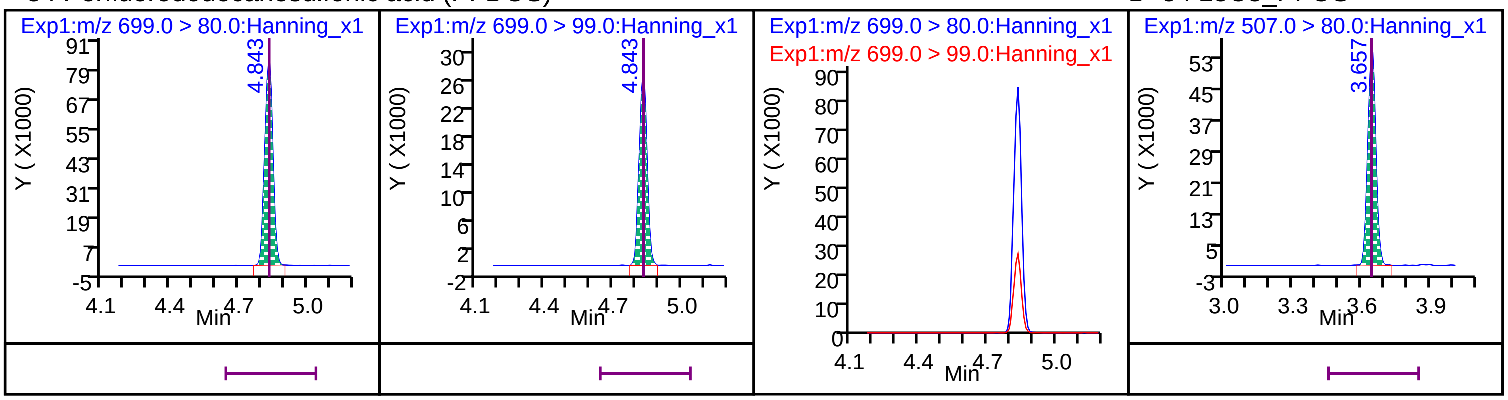
D 38 13C2_PFDoA



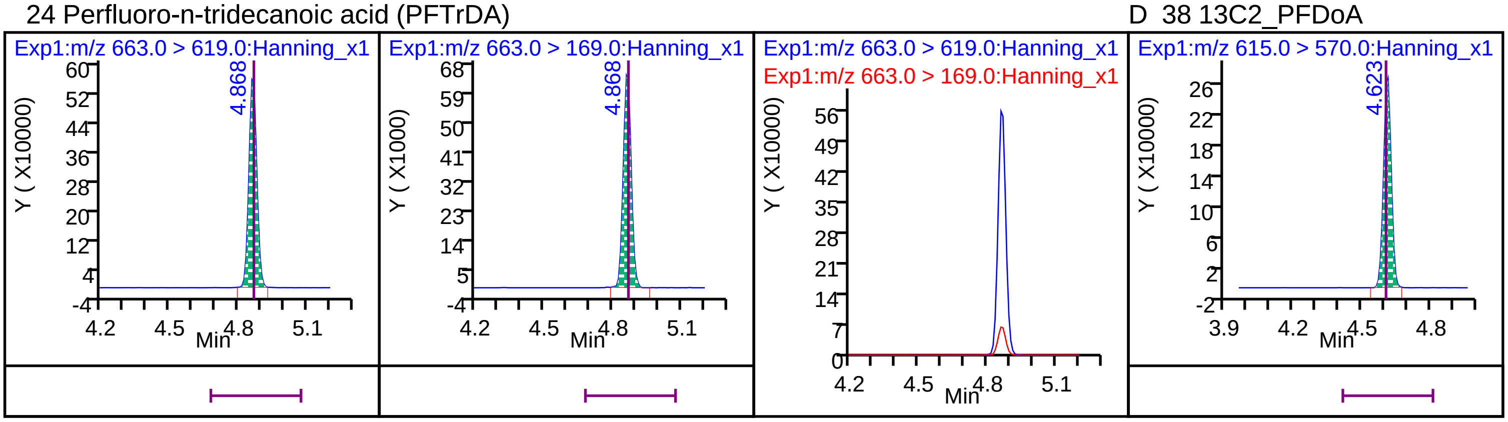
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



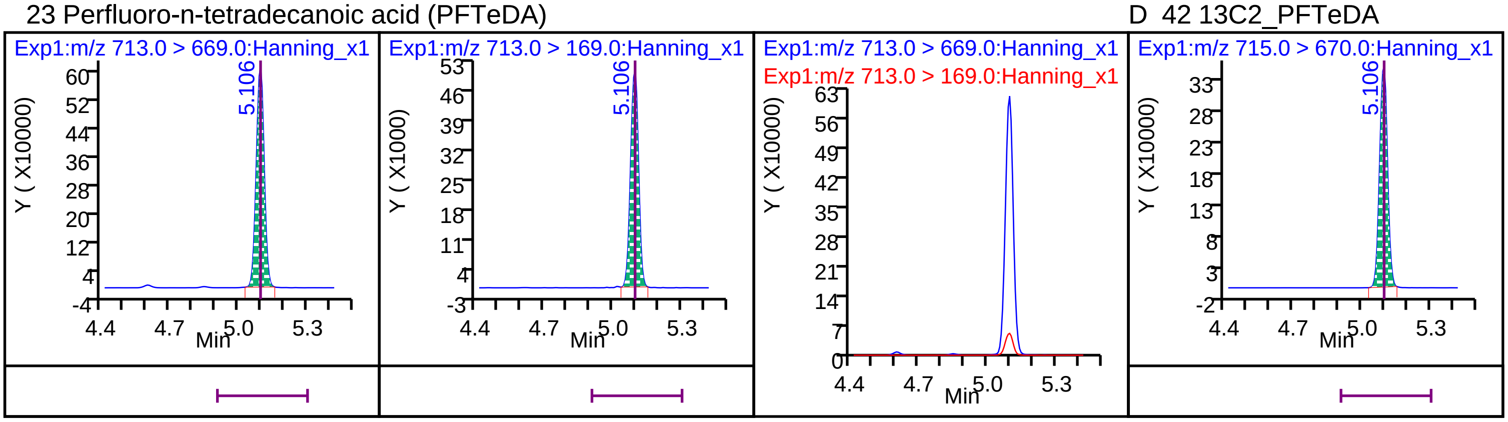
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



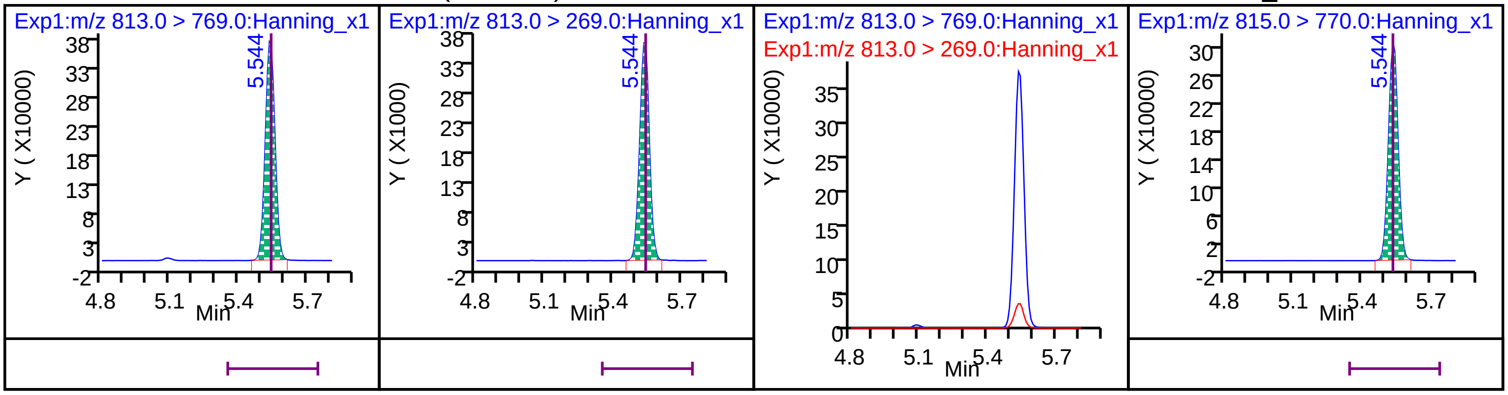
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



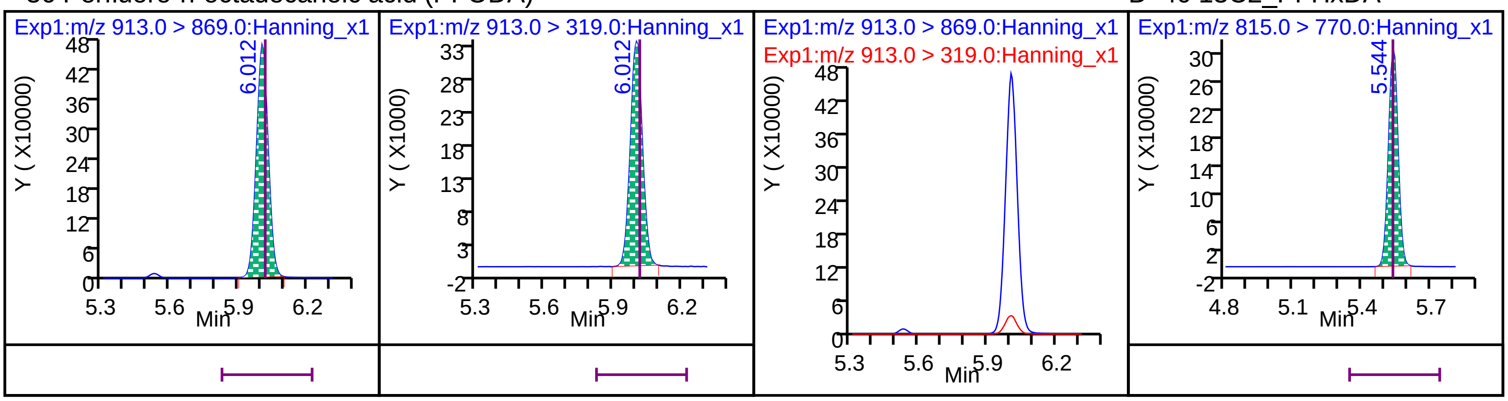
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



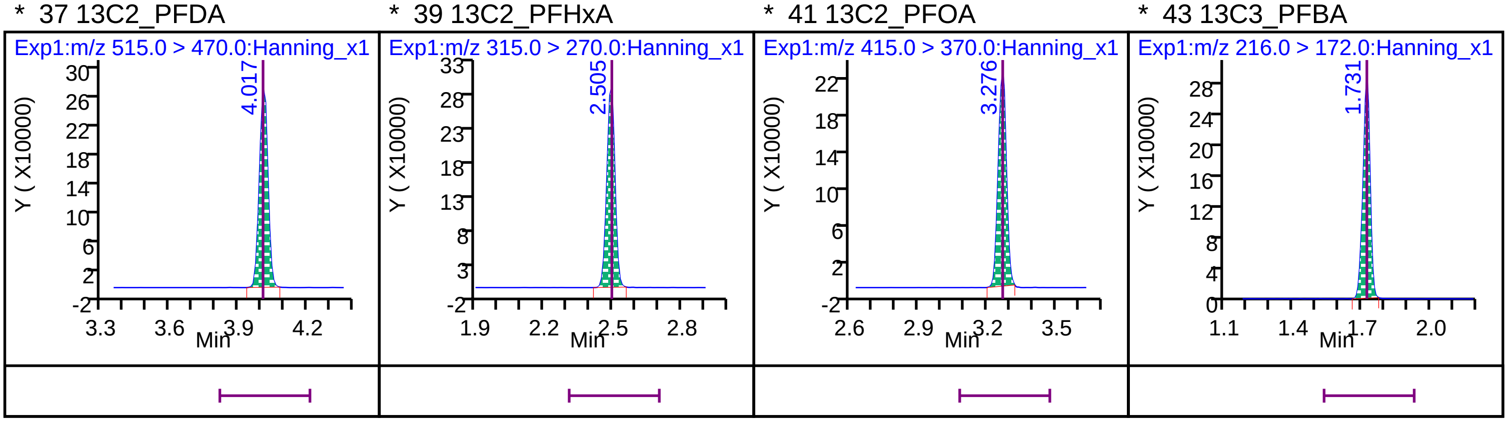
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



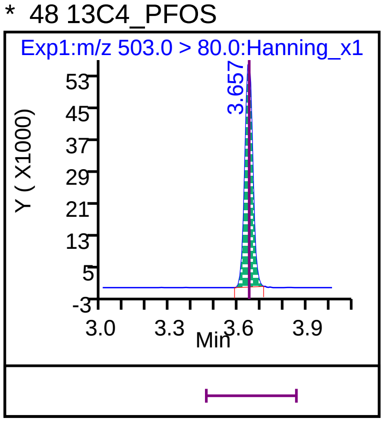
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d

Injection Date: 07-Nov-2021 19:40:43

Inst. ID: LCMSMS02.i

Client ID:

Lab ID: ID ICAL 2000_SVLC-1745

Sample Info: ID ICAL 2000_SVLC-1745

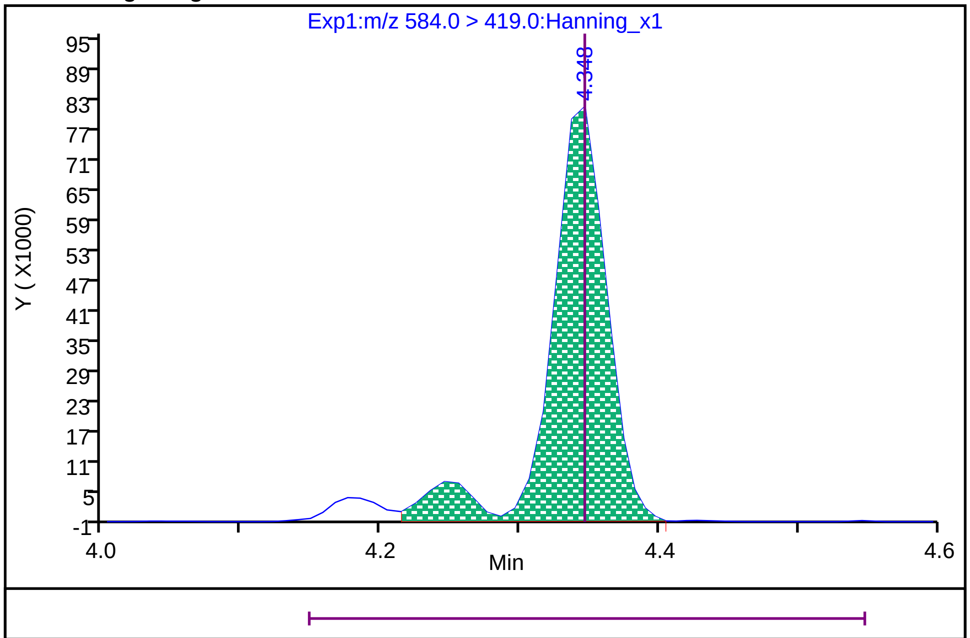
Dil. Factor: 1

Operator: Justin Gavin

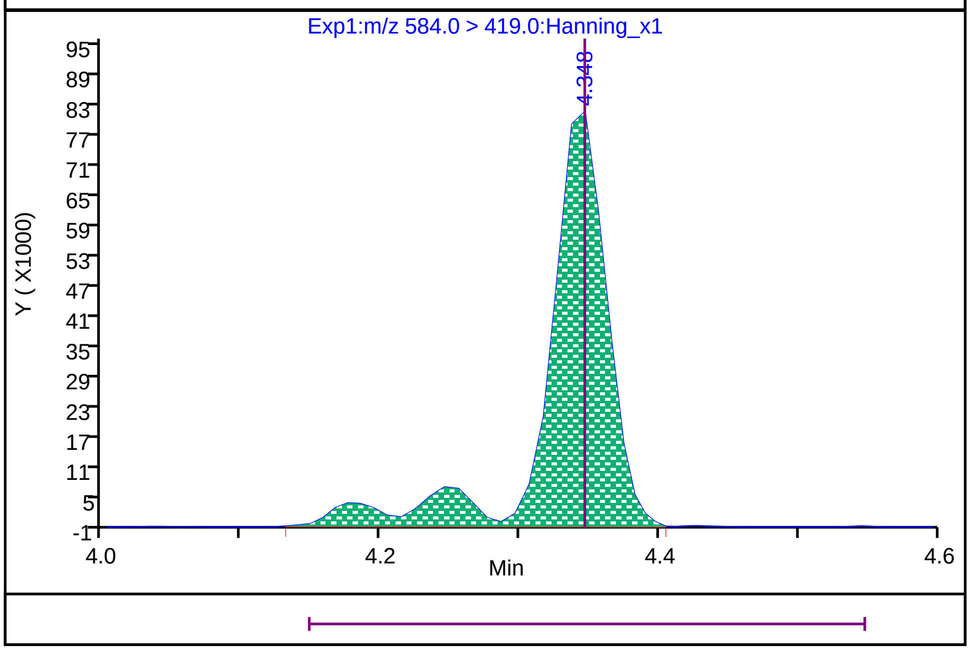
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.348
Area: 231135
Amount: 1855.48
Amount Units: ng/L



RT: 4.348
Area: 244858
Amount: 1954.88
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 08:56:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

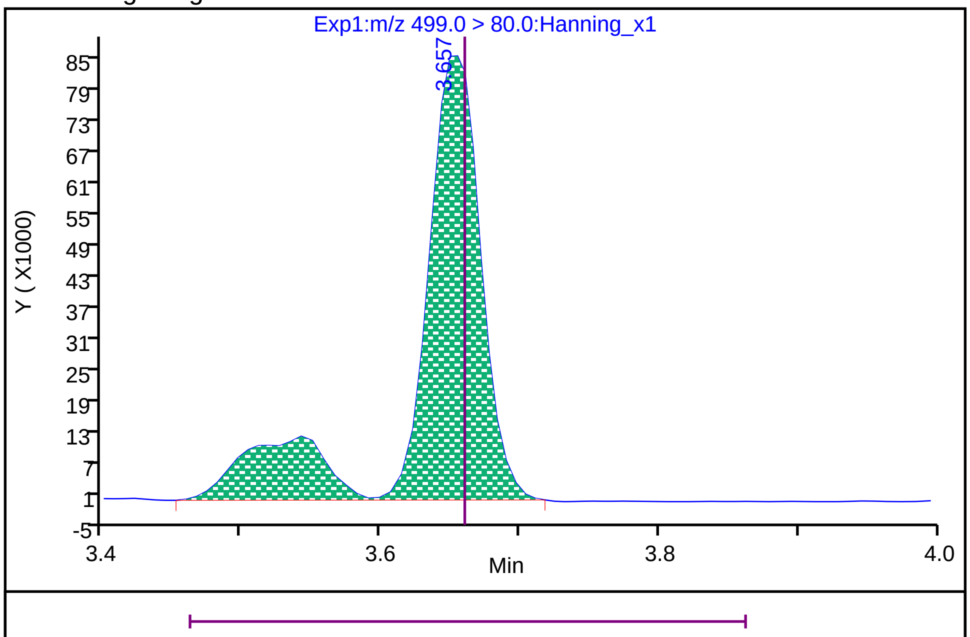
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A17.d		
Injection Date:	07-Nov-2021 19:40:43	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 2000_SVLC-1745
Sample Info:	ID ICAL 2000_SVLC-1745		
Dil. Factor:	1	Operator:	Justin Gavin

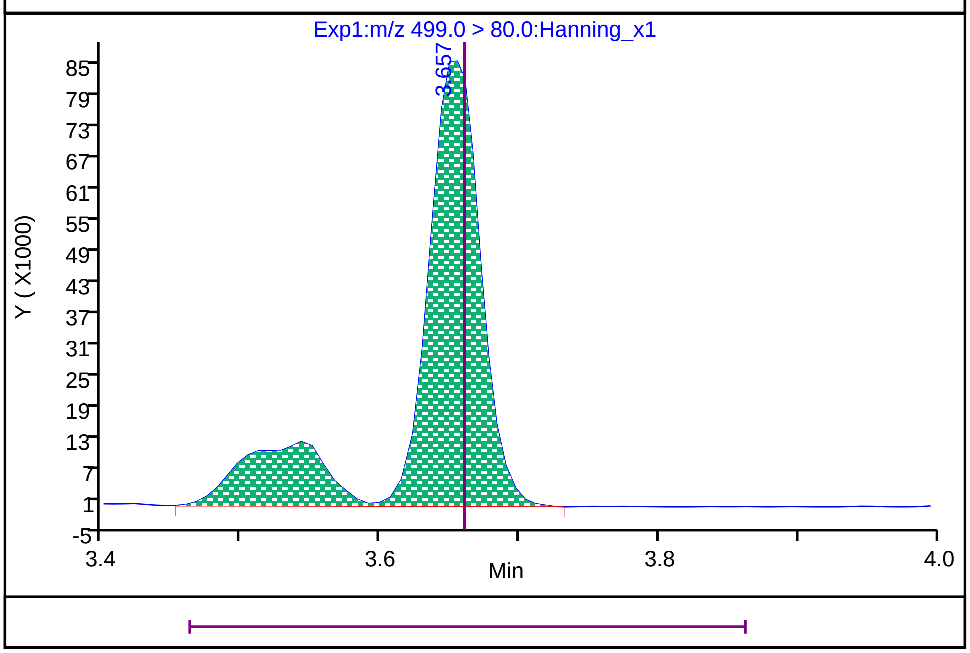
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.657
Area:	266367
Amount:	1699.43
Amount Units:	ng/L



RT:	3.657
Area:	269584
Amount:	1710.11
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:20

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 7	Auto Sampler:	81
Sample Info:	ID ICAL 5000_SVLC-1746	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-7 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	607576	20	>100:1			1000.00	977.32	95.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	3233918	20	>100:1			5000.00	5046.93		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.130	2.130	0	541862	15	>100:1			1000.00	947.99	93.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.130	2.130	0/0	3095773	14	>100:1			5000.00	5076.16		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	170276	17	>100:1			1000.00	984.43	95.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	920934	16	>100:1	Target = 3.53		4420.00	4337.08		
298.9 > 99	44	2.183	2.183		267102	16	>100:1	3.44 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/0	722411	16	>100:1	Target = 3.10		4690.00	4577.82		
349 > 99	44	2.531	2.531		240798	17	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	98938	16	>100:1			5000.00	4369.34	88.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	222149	16	>100:1	Target = 1.75		4670.00	5092.89		
327 > 81	63	2.460	2.460		120907	15	>100:1	1.83 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	645583	18	>100:1			1000.00	991.24	97.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.505	2.505	0/0	3301175	18	>100:1	Target = 18.91		5000.00	4917.95		
313 > 119	49	2.496	2.505		170114	17	>100:1	19.40 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1133799	19	>100:1			5000.00	4892.20	94.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	1437846	19	>100:1	Target = 0.79		10000	9790.81		
285 > 185	66	2.614	2.622		1880218	19	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	513054	17	>100:1			1000.00	966.32	96.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	2877261	17	>100:1	Target = 3.80		5000.00	5103.70		
363 > 169	47	2.880	2.880		731294	17	>100:1	3.93 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	122177	19				1000.00	972.44	94.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	642452	27	>100:1	Target = 2.89	5.16	4550.00	4783.00		
399 > 99	45	2.896	2.896		206768	25	>100:1	3.10 (1.44-4.34)	8.18				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	0/0	4593970	19	>100:1	Target = 3.23		4710.00	4848.45		
377 > 85	45	2.918	2.919		1425848	20	>100:1	3.22 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	583188	23	>100:1	Target = 3.12		4760.00	4647.52		
449 > 99	45	3.276	3.276		186516	21	>100:1	3.12 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.248	3.248	0	85448	26	>100:1			5000.00	4747.12	91	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.248	3.248	0/0	187618	21	>100:1	Target = 1.75		4740.00	4637.68		
427 > 81	64	3.248	3.248		103987	21	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	496199	22	>100:1			1000.00	945.72	90.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	0/0	2587671	22	>100:1	Target = 2.89		5000.00	5089.01		
413 > 169	53	3.276	3.276		895796	21	>100:1	2.88 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	0	120487	20	>100:1			1000.00	972.90	91.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.657	3.662	0/0	648437	44	>100:1	Target = 3.30	3.69	4640.00	4519.95		M
499 > 99	54	3.657	3.662		187869	37	>100:1	3.45 (1.65-4.95)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.862	3.863	0/0	2136198	17	>100:1			4660.00	4681.60		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.005	4.006	0/0	489347	15	>100:1	Target = 3.08		4800.00	5062.28		
549 > 99	54	4.005	4.006		171885	16		2.84 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.318	4.318	0/0	459674	15	>100:1	Target = 2.72		4820.00	4875.35		
599 > 99	54	4.318	4.318		170917	21	>100:1	2.68 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.473	4.483	0/0	1911193	17	>100:1			4710.00	4633.15		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	0/0	500904	18	>100:1	Target = 3.27		4840.00	4834.73		
699 > 99	54	4.842	4.842		167070	18		2.99 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	0	628859	21	>100:1			1000.00	982.01	98.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	0/0	3388713	21	>100:1	Target = 6.51		5000.00	4999.36		
463 > 169	56	3.662	3.662		510000	21	>100:1	6.64 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.895	3.896	0	275706	18	>100:1			1000.00	1028.53	103.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.895	3.896	0/0	1391997	18	>100:1	Target = 41.63		5000.00	4798.45		
498>478	55	3.895	3.896		44410	15	>100:1	31.34 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	0	563256	16	>100:1			1000.00	980.16	97.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	0/0	3437405	16	>100:1	Target = 13.80		5000.00	5244.04		
513 > 169	51	4.016	4.016		240497	15	>100:1	14.29 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.005	4.016	0	82313	17	>100:1			5000.00	4762.24	104.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	0/0	181139	16	>100:1	Target = 1.94		4790.00	4869.46		
527 > 81	65	4.016	4.016		90684	16	>100:1	1.99 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.630	4.631	0/0	202053	16		Target = 3.54		4820.00	4838.53		
627 > 80	65	4.630	4.631		60086	15	>100:1	3.36 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	0	759801	17	>100:1			5000.00	5028.05	98.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	0/0	579666	34	>100:1	Target = 1.37	7.05	5000.00	4753.83		
570 > 483	58	4.178	4.178		428300	31	>100:1	1.35 (0.68-2.05)	3.82				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.297	4.288	1	86571	14	>100:1			1000.00	959.89	96.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.297	4.298	0/-1	482576	14	>100:1			5000.00	5100.77		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	0	47311	12	>100:1			1000.00	1005.74	105.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	0/0	242613	13	>100:1	Target = 1.11		5000.00	4731.17		
512 > 219	57	4.318	4.318		213499	14	>100:1	1.13 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	0	654701	16	>100:1			5000.00	5055.09	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.347	4.348	0/0	609105	29	>100:1	Target = 1.51	6.24	5000.00	4770.81		
584 > 526	60	4.347	4.348		429723	31	>100:1	1.41 (0.75-2.26)	3.48				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	0	567315	16				1000.00	941.99	89.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	0/0	2841498	16	>100:1	Target = 14.52		5000.00	5169.10		
563 > 169	52	4.338	4.338		188357	15	>100:1	15.08 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	0	101022	14	>100:1			1000.00	952.35	99.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.464	1/1	536894	16	>100:1			5000.00	5459.41		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.483	0	42790	12	>100:1			1000.00	995.12	99.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.482	4.483	0/0	253401	13	>100:1	Target = 1.06		5000.00	4994.19		
526 > 219	59	4.482	4.483		249853	16	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.613	4.614	0	568288	16	>100:1			1000.00	946.62	94	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.613	4.622	0/0	3168869	17	>100:1	Target = 10.70		5000.00	5230.56		
613 > 169	38	4.613	4.622		287989	16	>100:1	11.00 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/0	3207682	18	>100:1	Target = 8.31		5000.00	5370.12		
663 > 169	38	4.868	4.877		361012	16	>100:1	8.88 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.099	5.106	0	789132	21	>100:1			1000.00	970.65	94.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.099	5.106	0/0	3501019	22	>100:1	Target = 12.17		5000.00	5082.34		
713 > 169	42	5.099	5.106		283044	22	>100:1	12.36 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.543	5.544	0	844444	20	>100:1			1000.00	972.82	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.543	5.552	0/0	2628973	21	>100:1	Target = 10.43		5000.00	4861.05		
813 > 269	40	5.543	5.552		250370	21	>100:1	10.50 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.001	6.026	-1/-1	3827486	42	>100:1	Target = 13.67		5000.00	4978.71		
913 > 319	40	5.997	6.026		274691	43	>100:1	13.93 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	0	646194	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	655717	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	519402	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	554269	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	0	122600	21	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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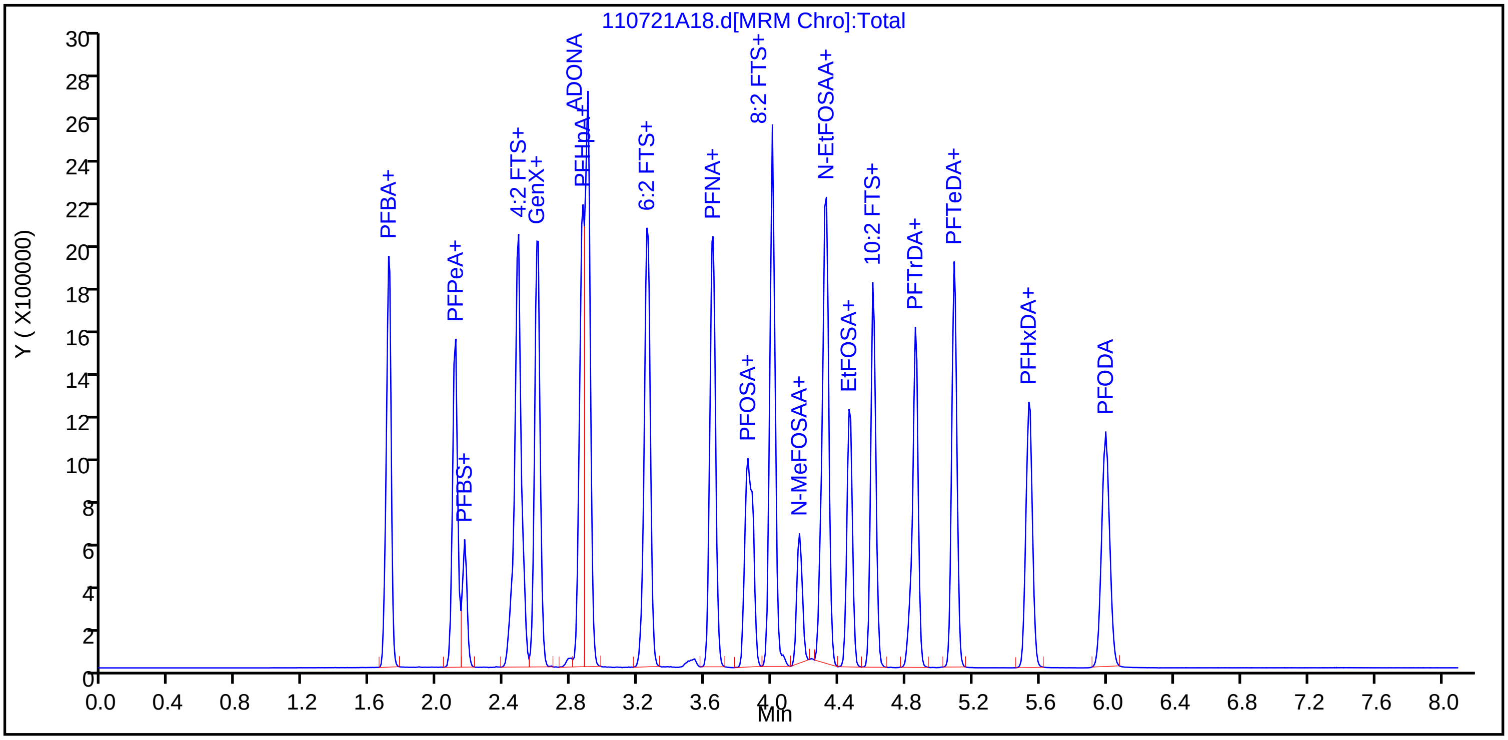
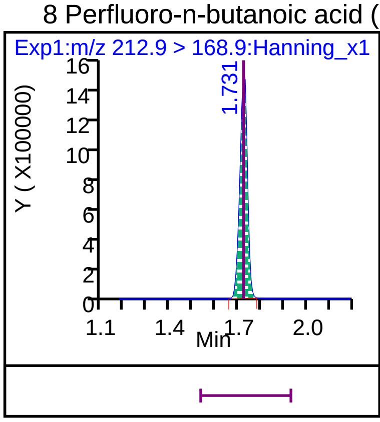
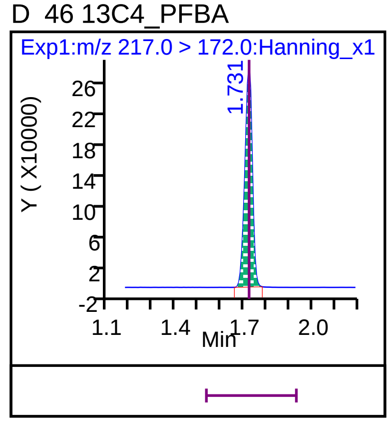
Injection Date:	07-Nov-2021 19:51:18	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 5000_SVLC-1746
Sample Info:	ID ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin



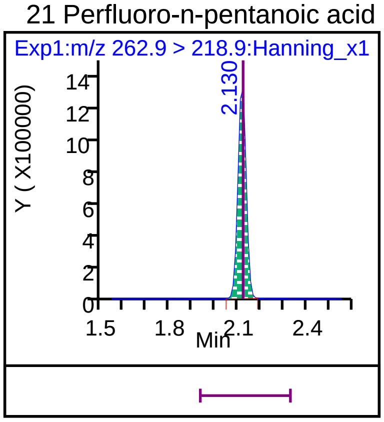
8 Perfluoro-n-butanoic acid (PFBA)



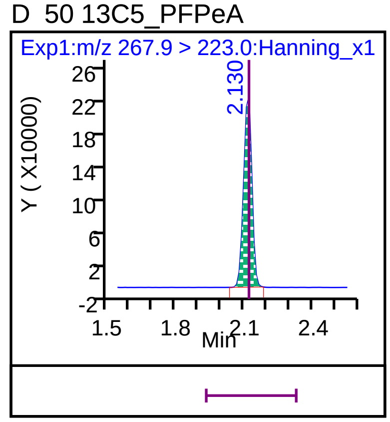
D 46 13C4_PFBA



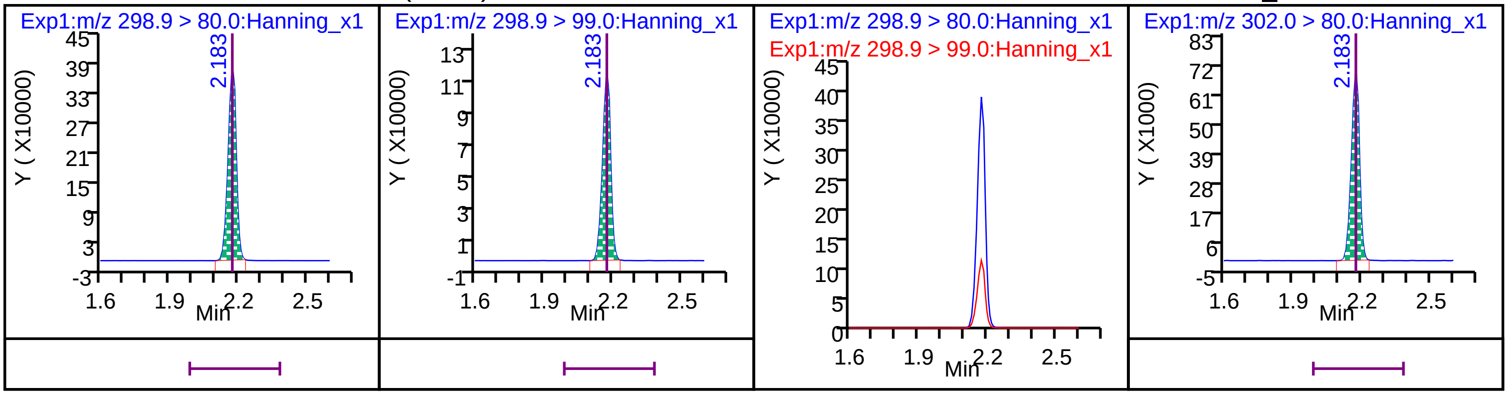
21 Perfluoro-n-pentanoic acid (PFPeA)



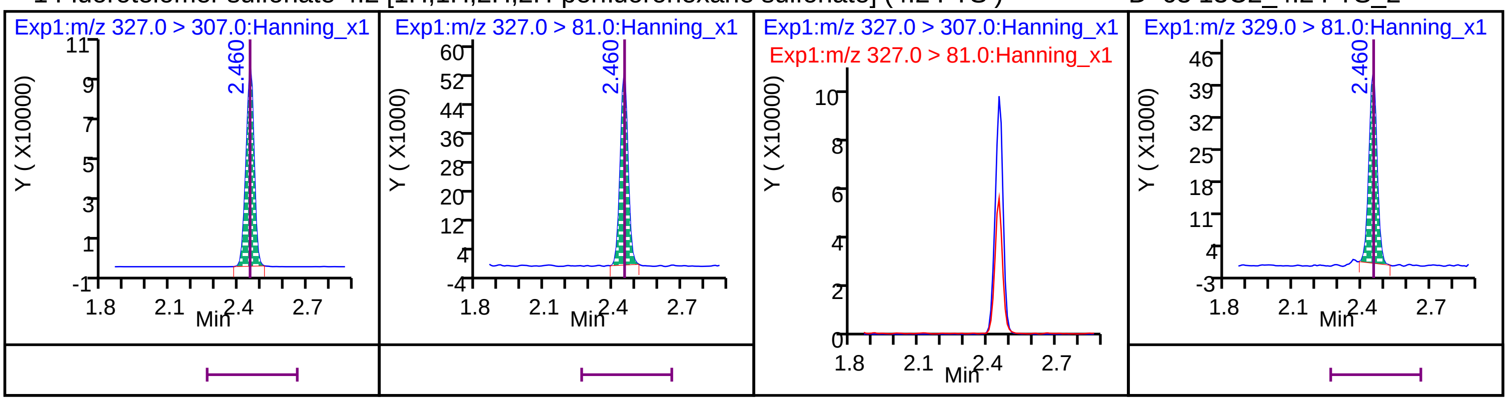
D 50 13C5_PFPeA



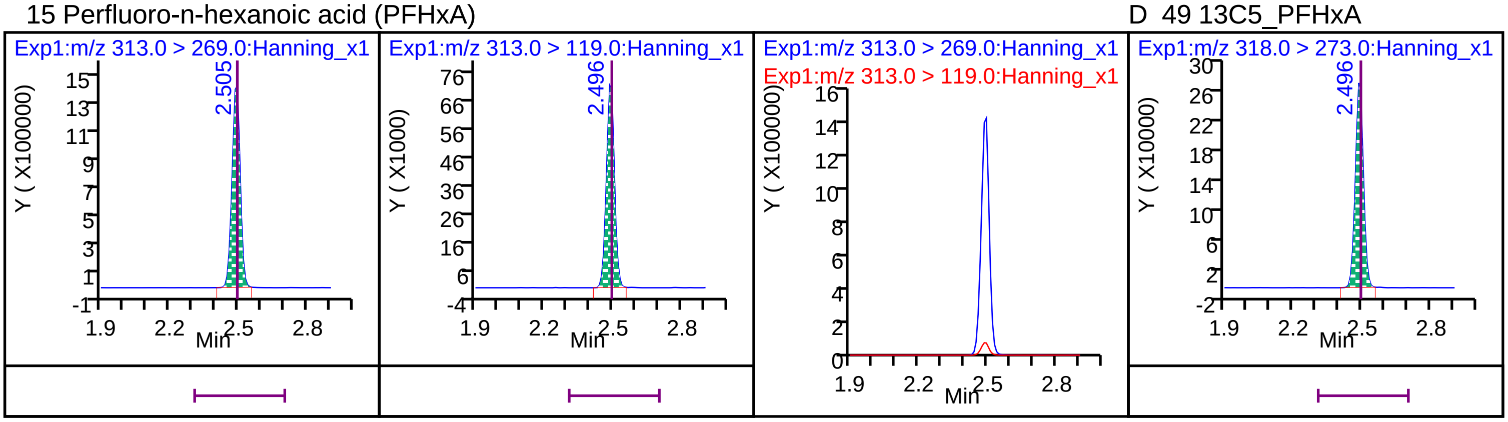
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



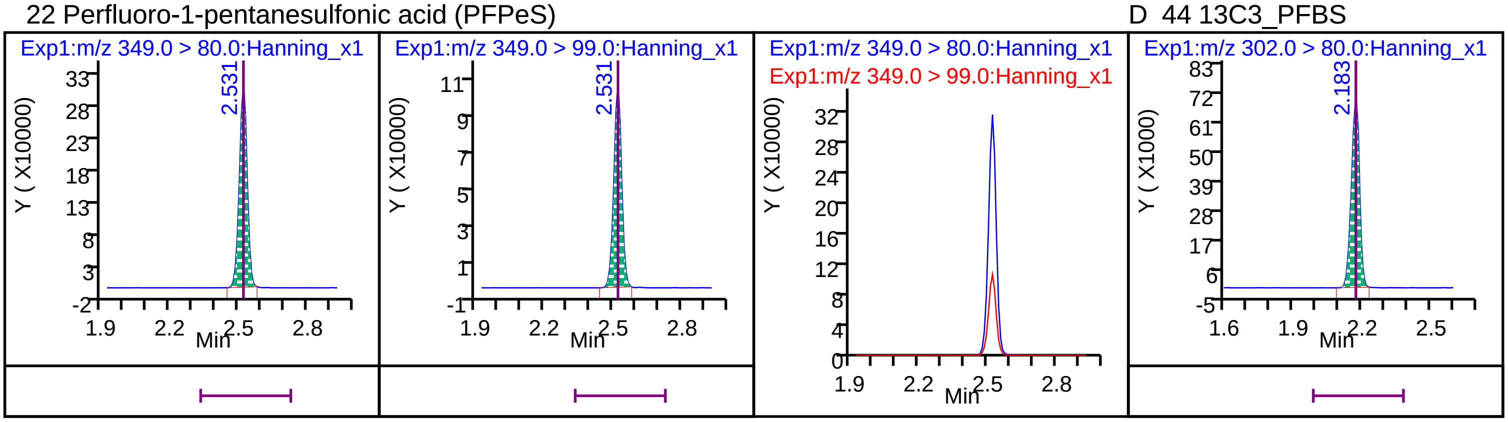
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

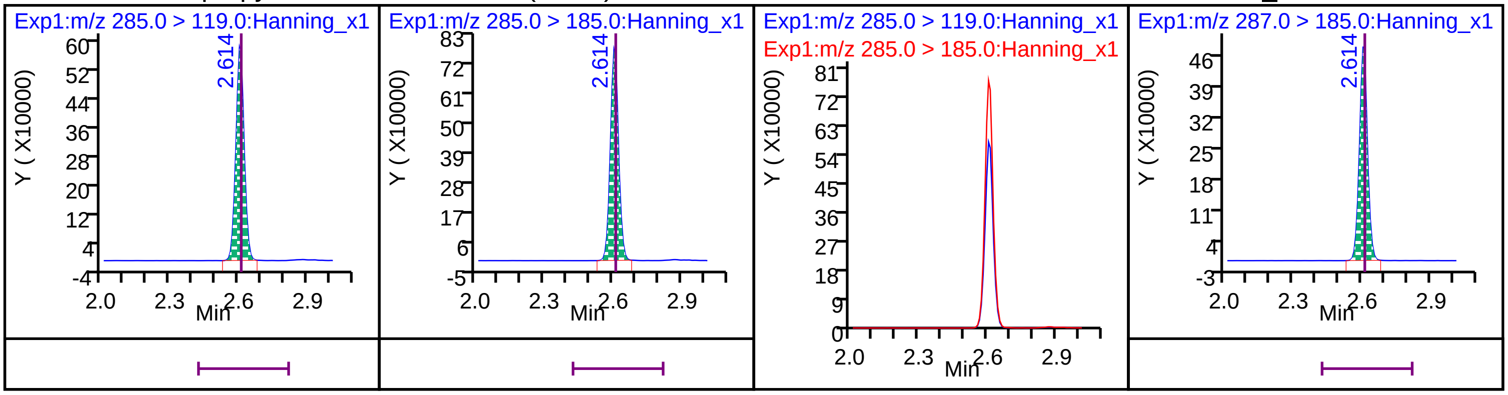


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

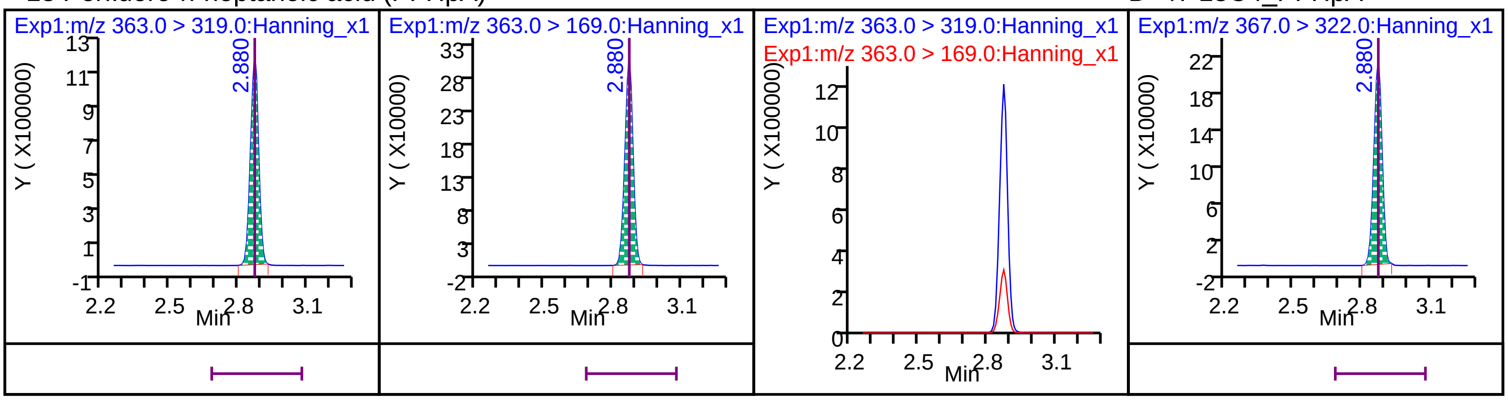


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d

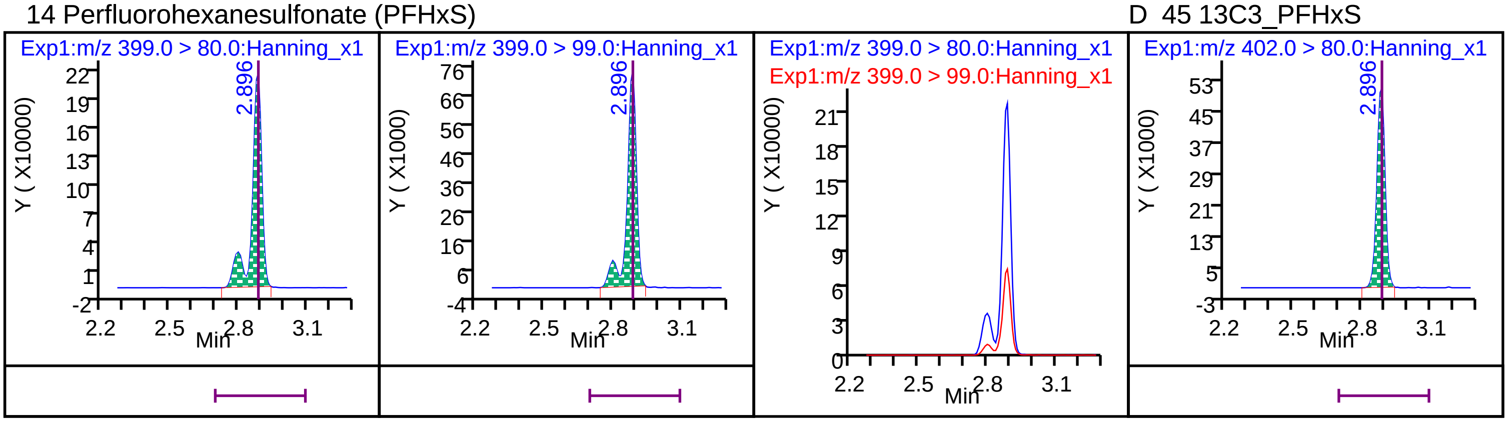
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



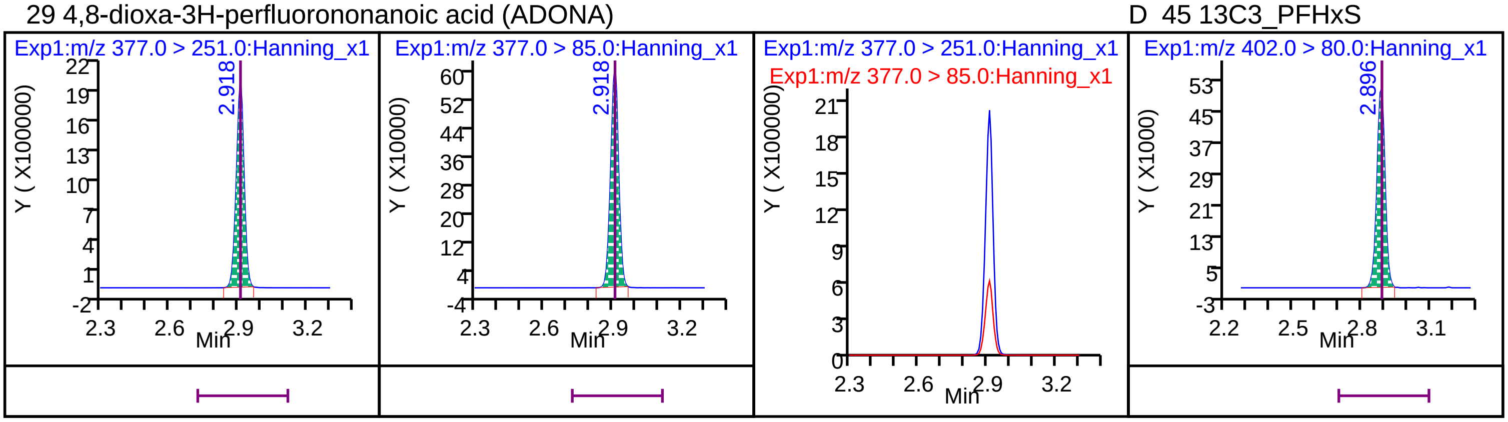
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



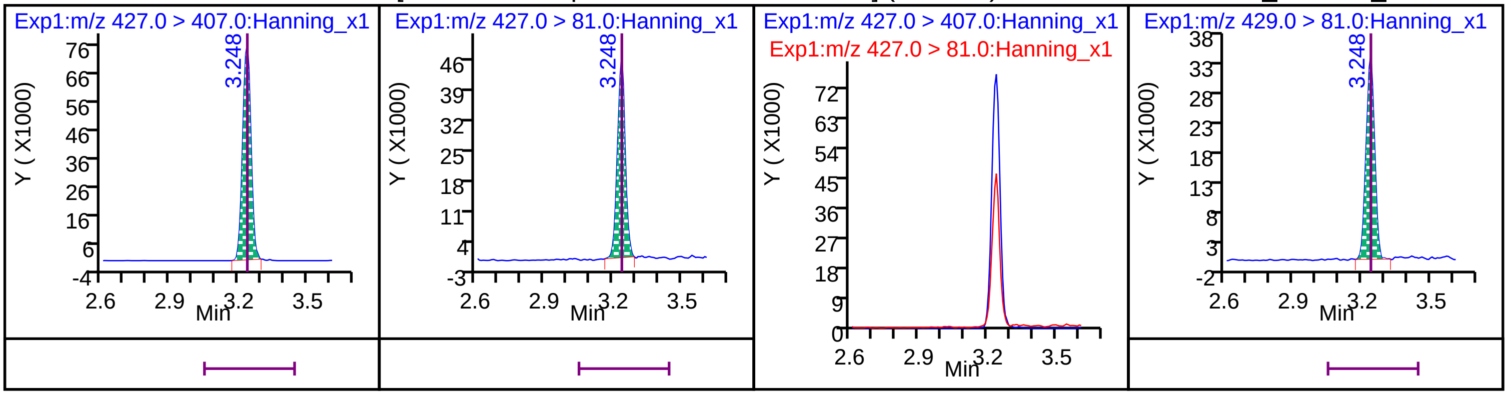
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



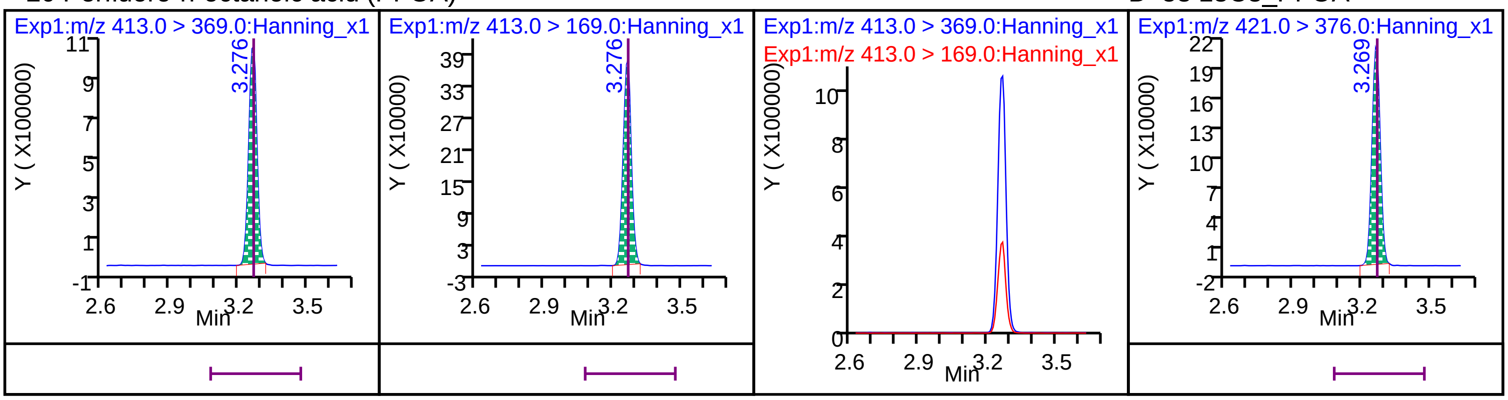
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



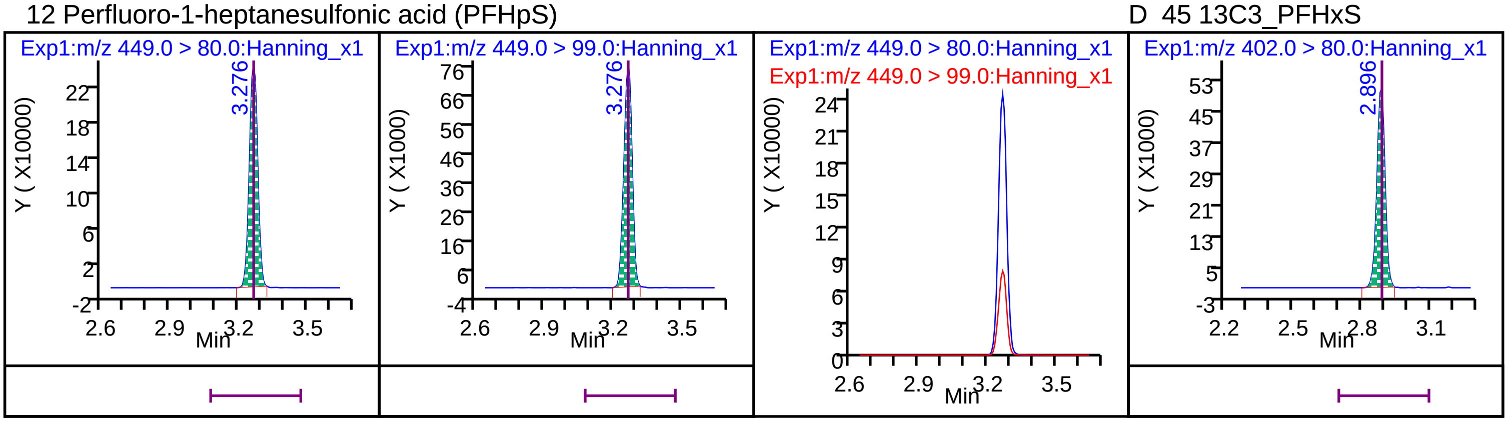
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



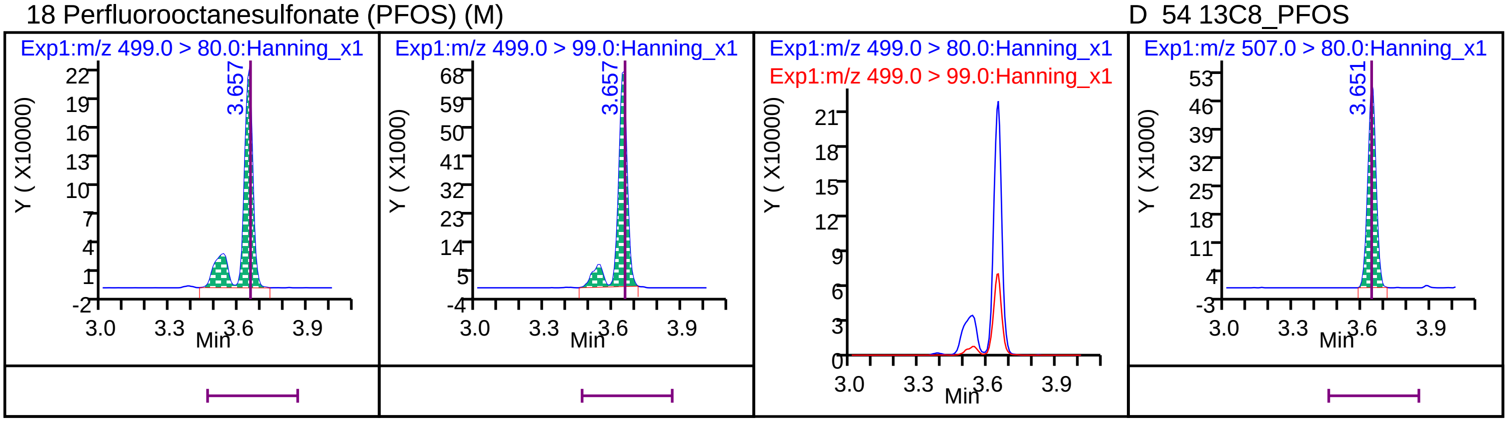
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

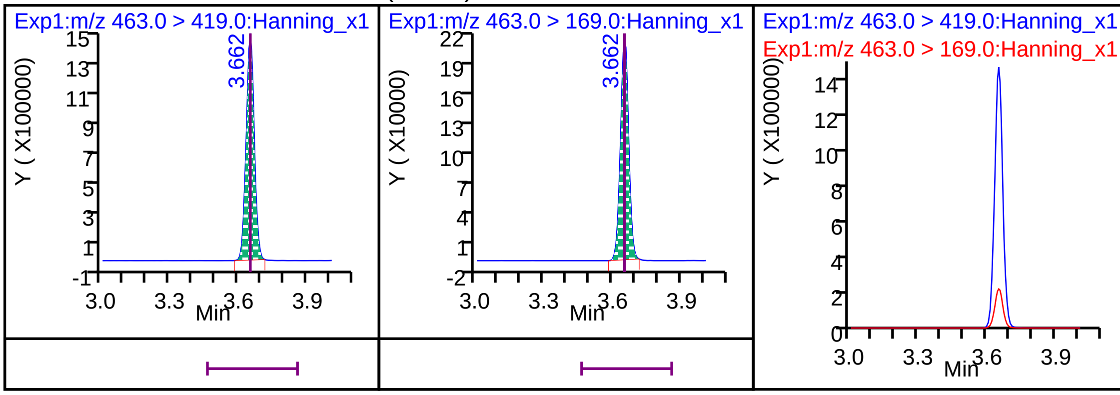


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

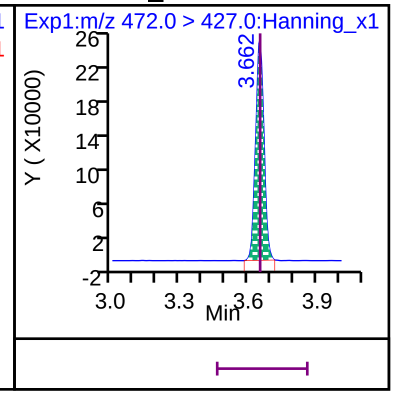


Report Date: 08-Nov-2021 10:00:25 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d

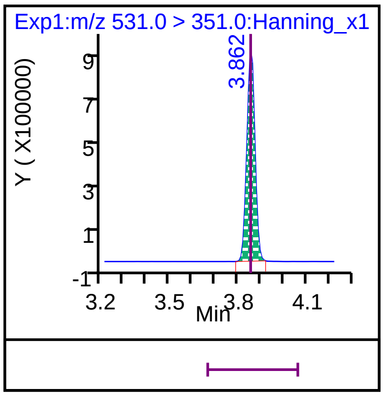
17 Perfluoro-n-nonanoic acid (PFNA)



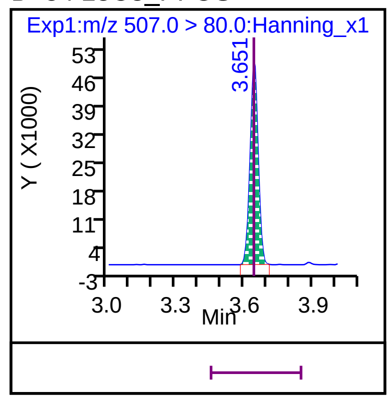
D 56 13C9_PFNA



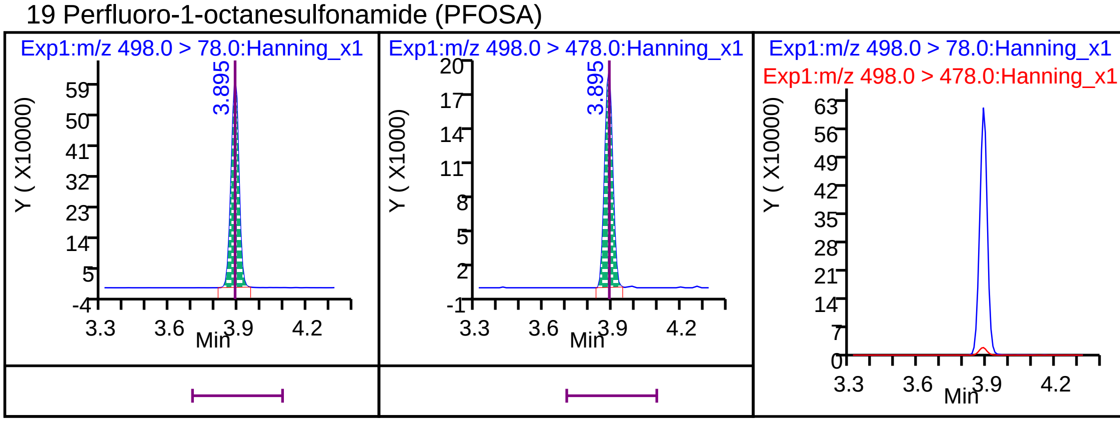
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



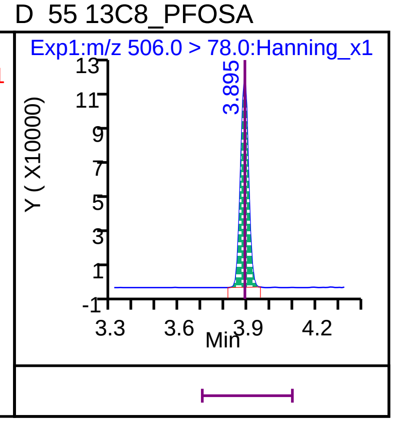
D 54 13C8_PFOS



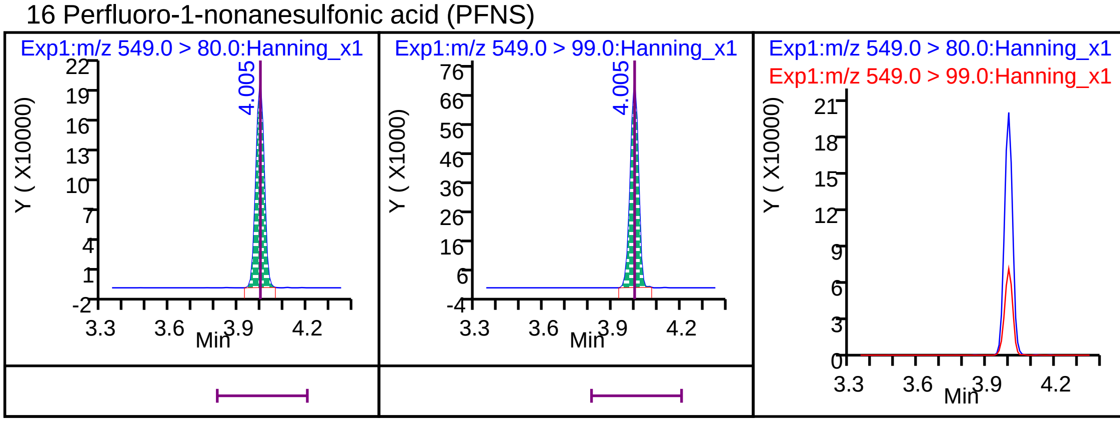
19 Perfluoro-1-octanesulfonamide (PFOSA)



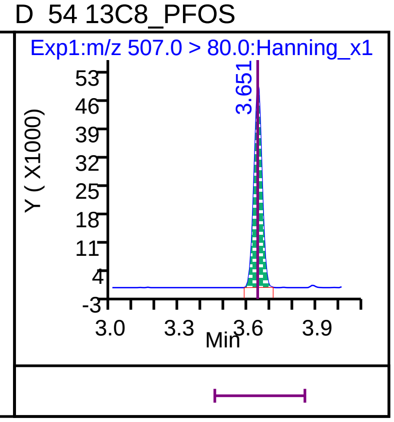
D 55 13C8_PFOSA



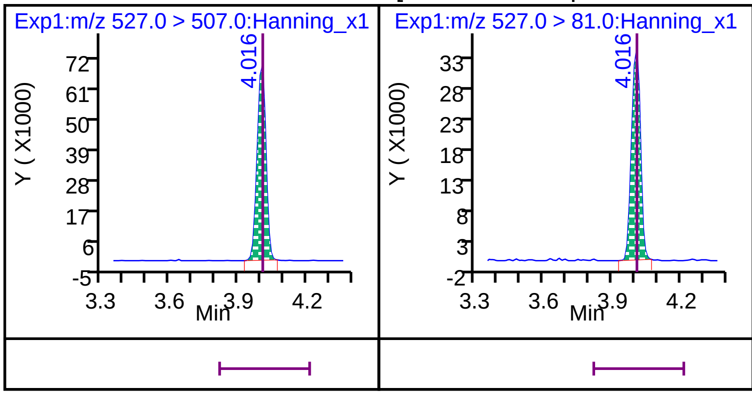
16 Perfluoro-1-nonanesulfonic acid (PFNS)



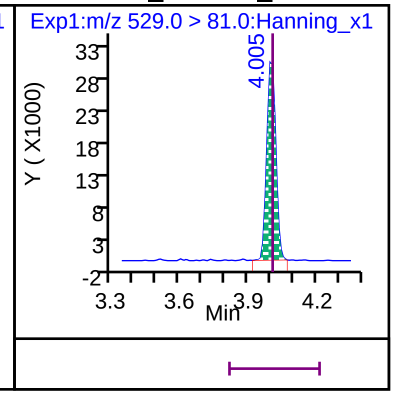
D 54 13C8_PFOS



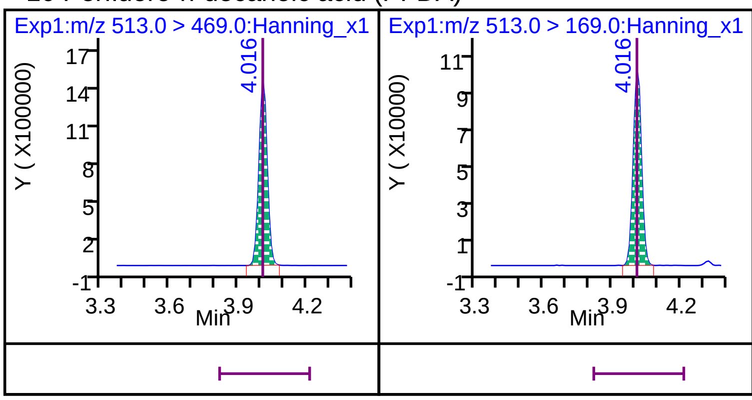
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)



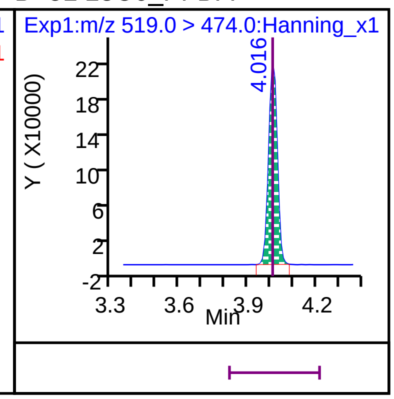
D 65 13C2_8:2 FTS_2



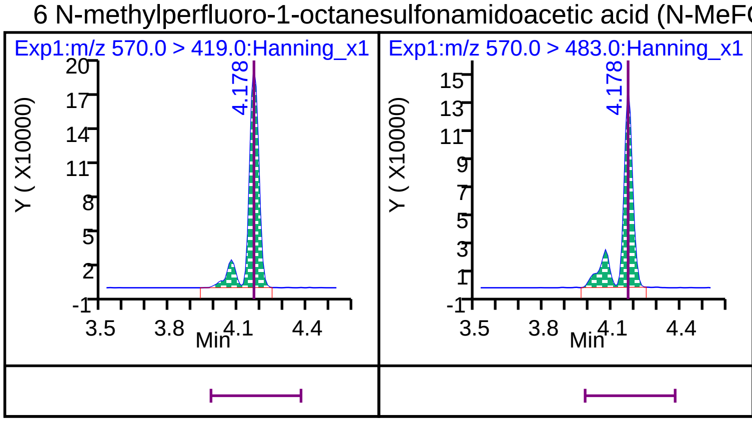
10 Perfluoro-n-decanoic acid (PFDA)



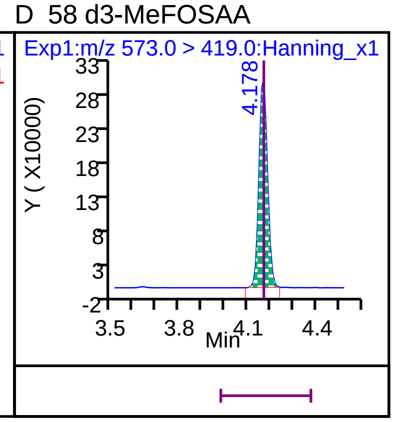
D 51 13C6_PFDA



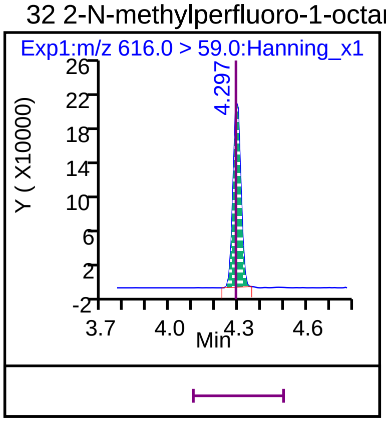
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)



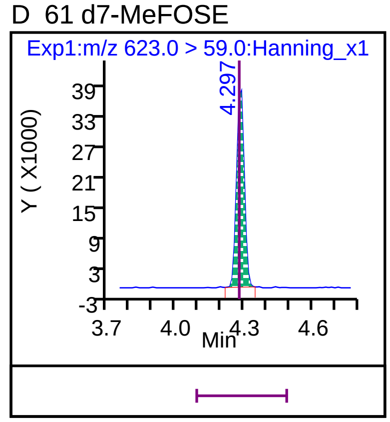
D 58 d3-MeFOSAA



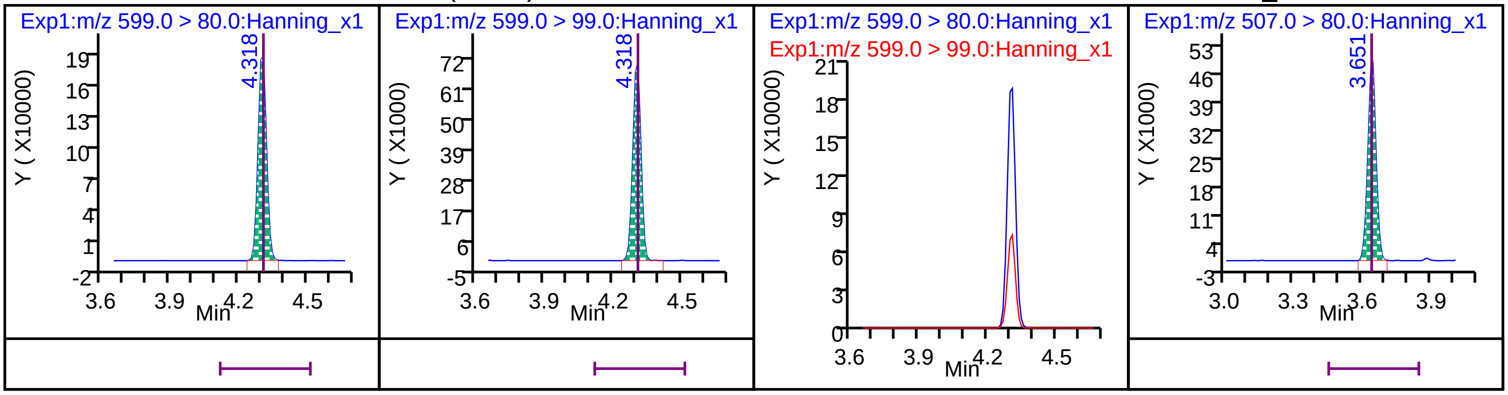
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



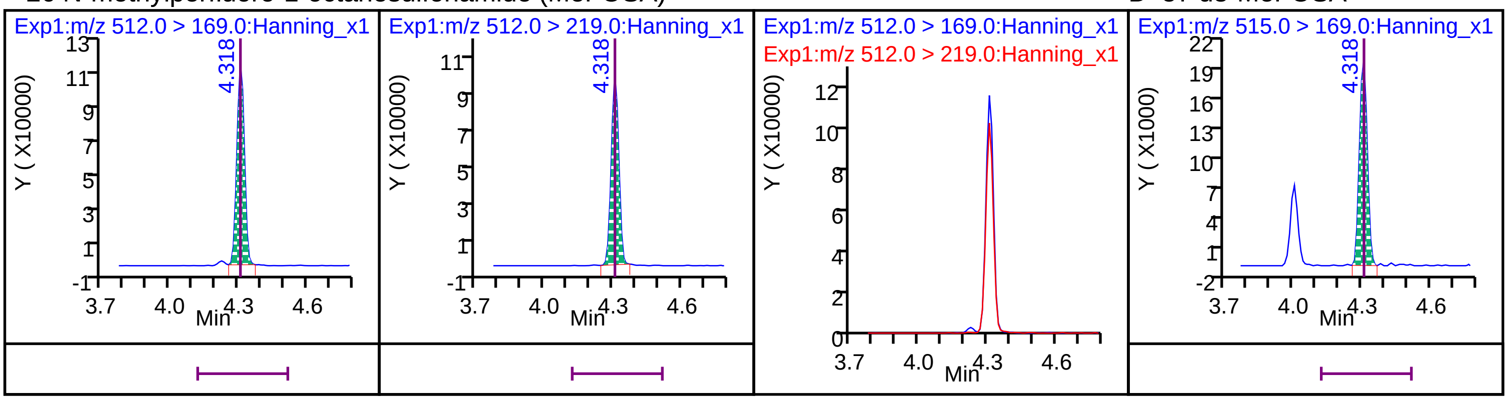
D 61 d7-MeFOSE



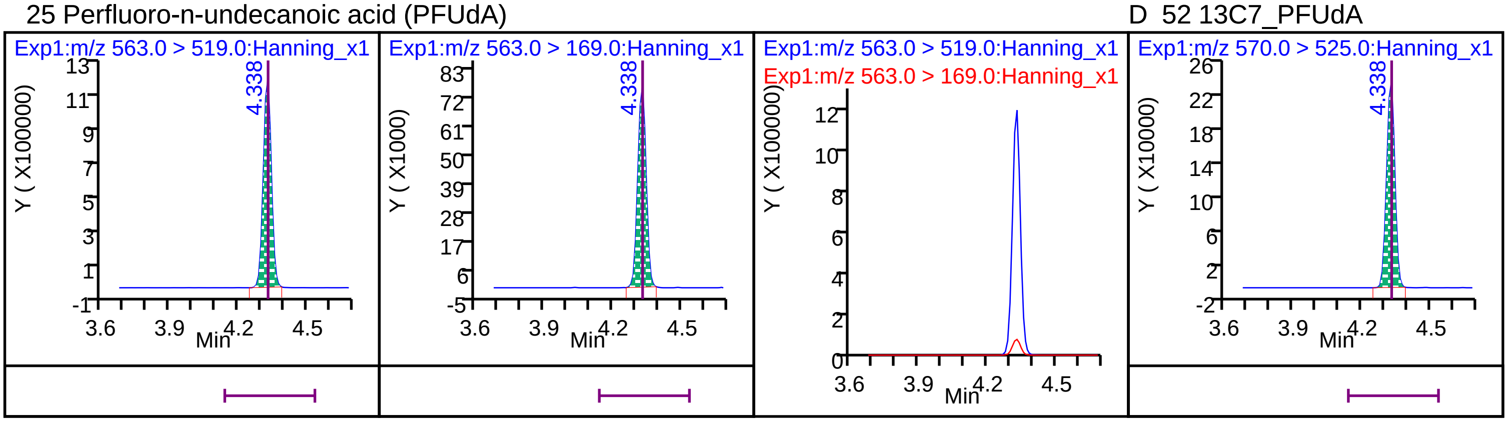
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



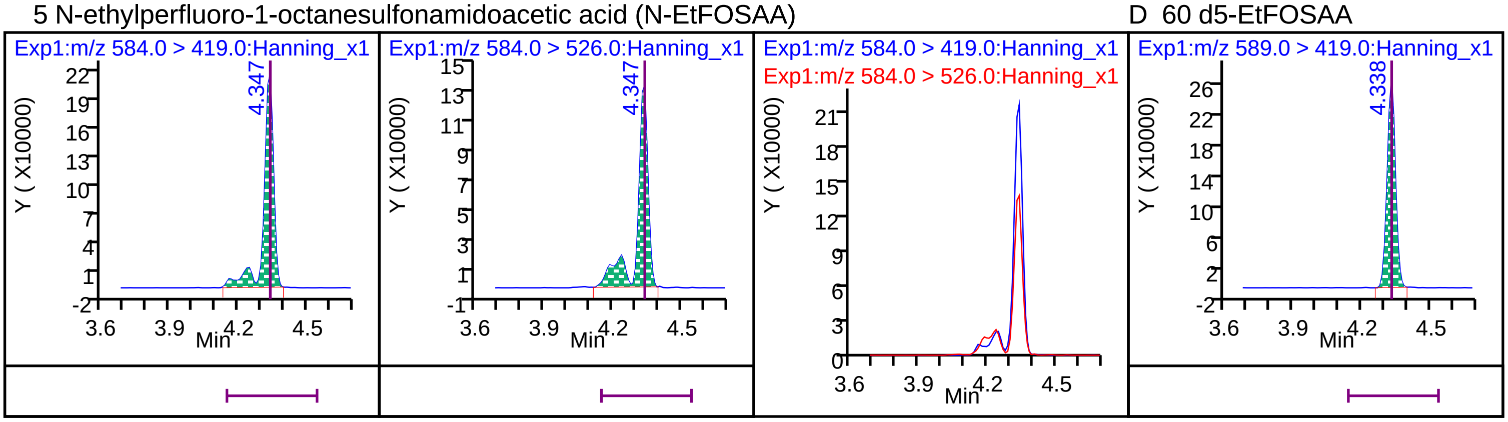
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



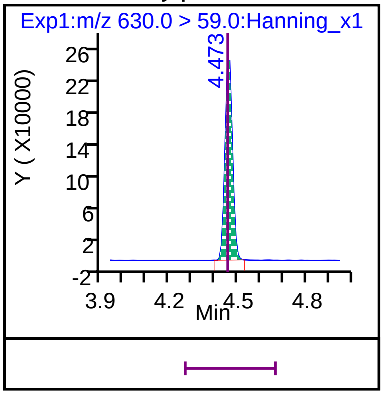
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



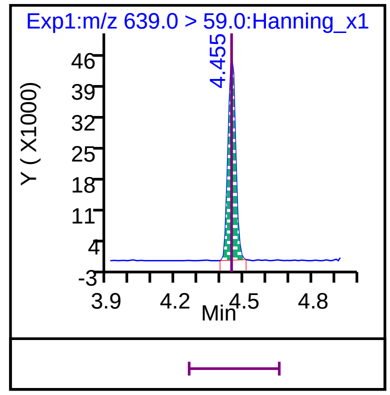
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



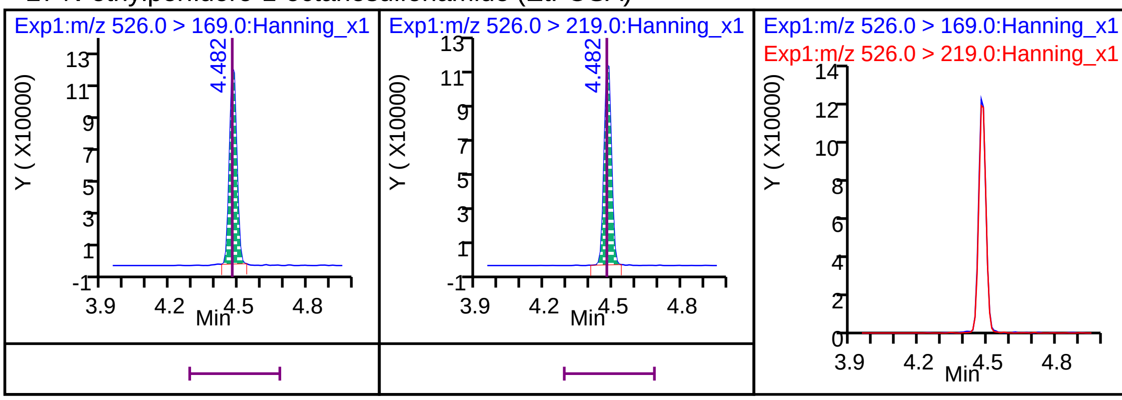
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



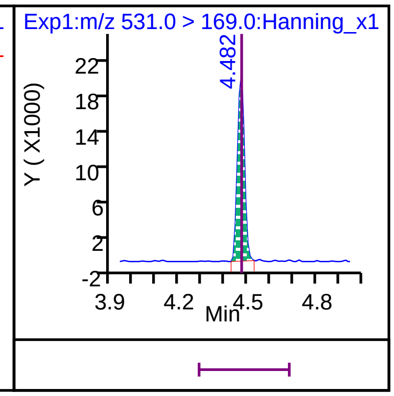
D 62 d9-EtFOSE



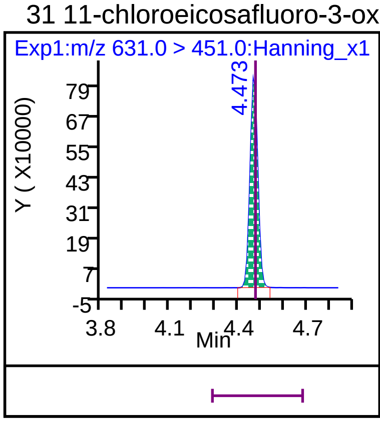
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



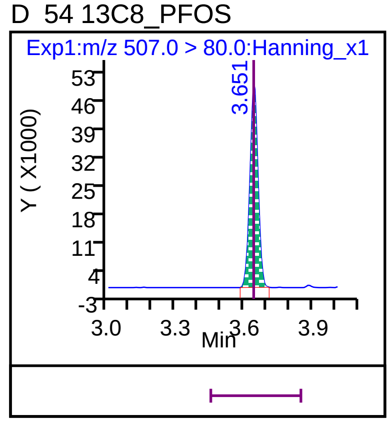
D 59 d5-EtFOSA



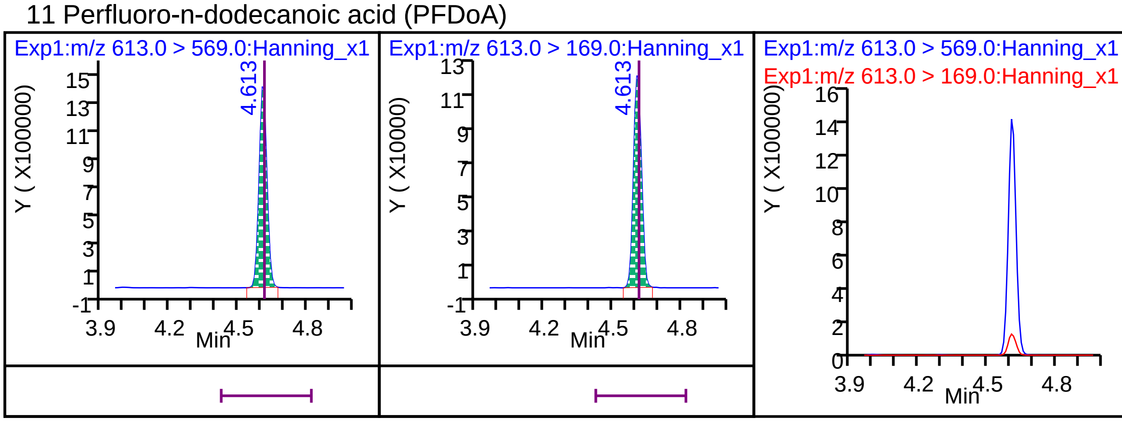
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



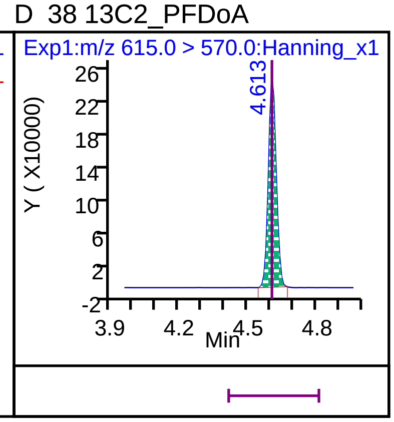
D 54 13C8_PFOS



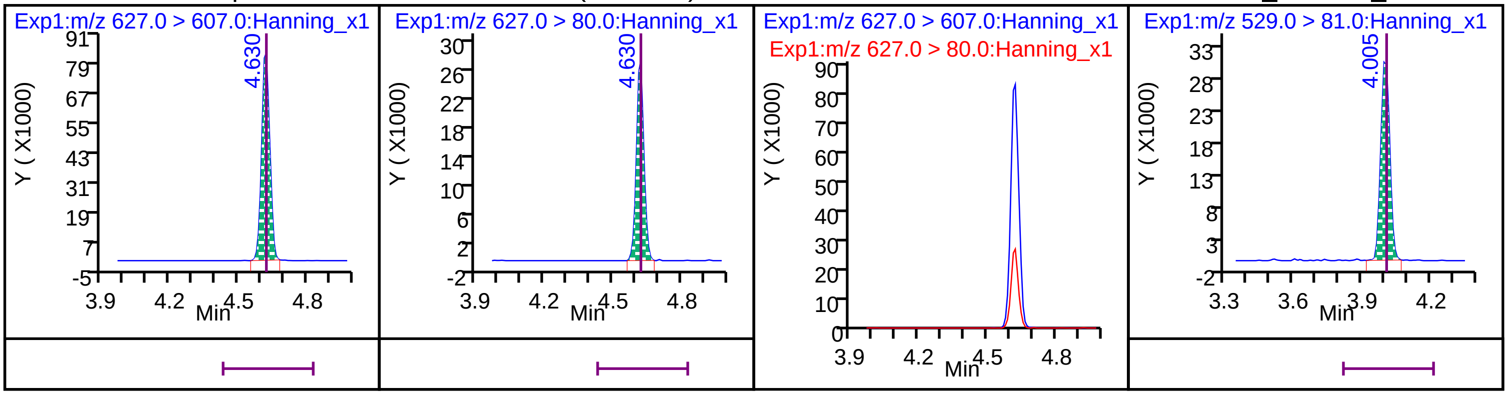
11 Perfluoro-n-dodecanoic acid (PFDoA)



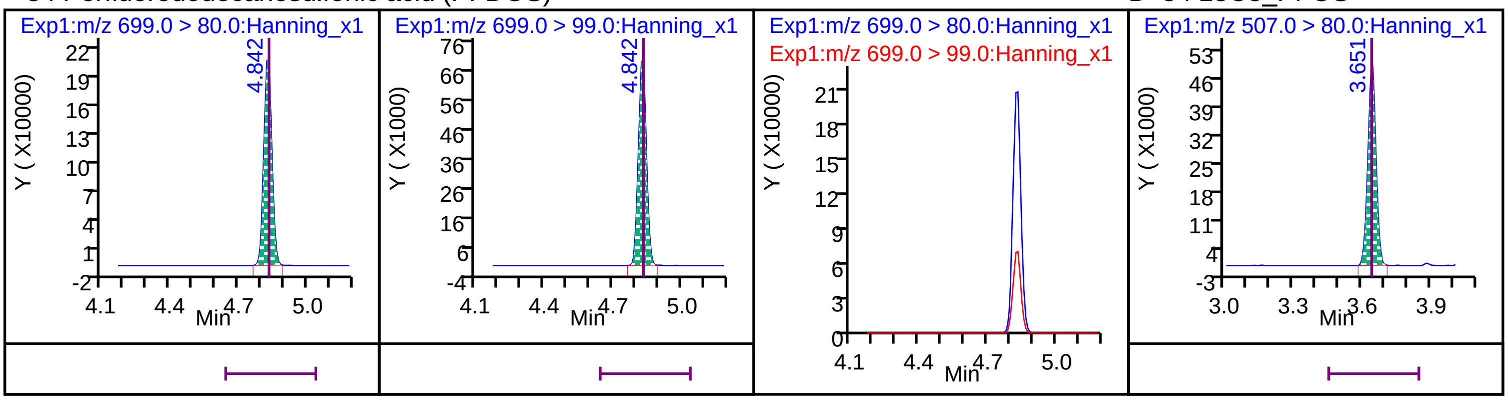
D 38 13C2_PFDoA



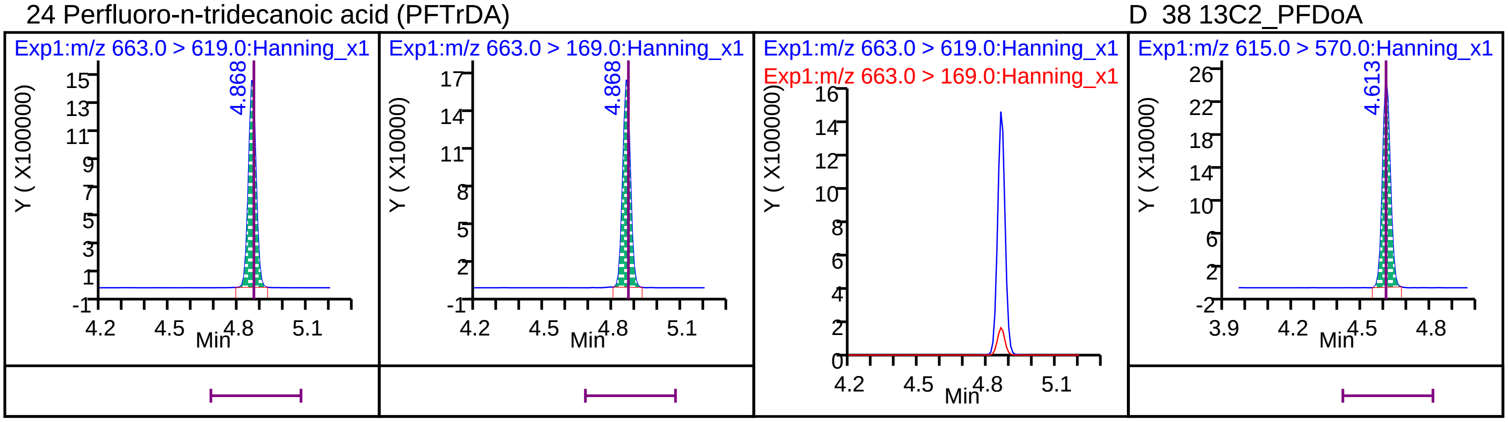
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



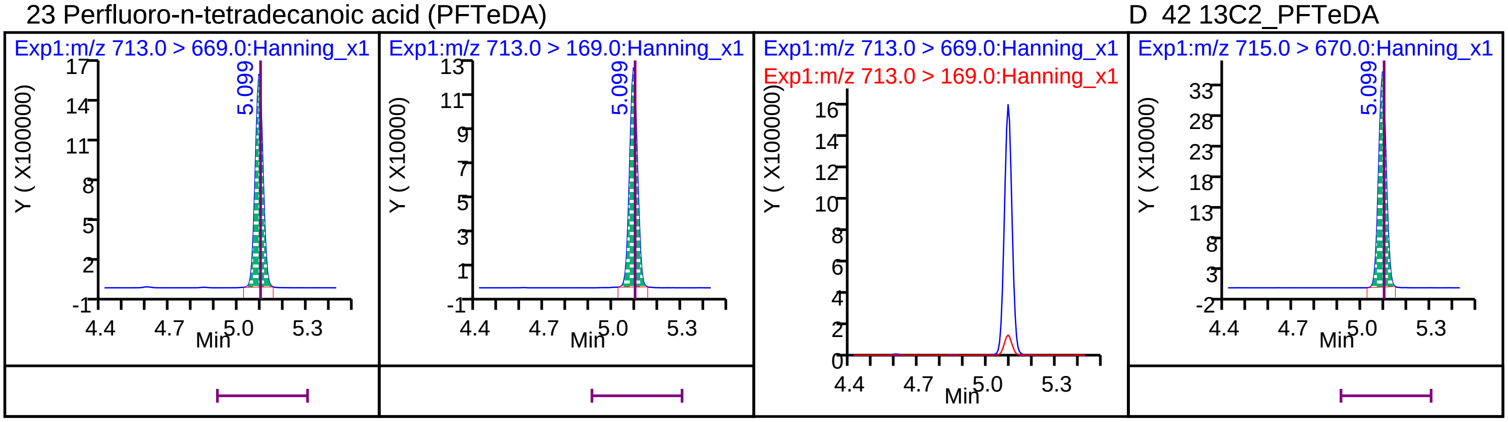
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



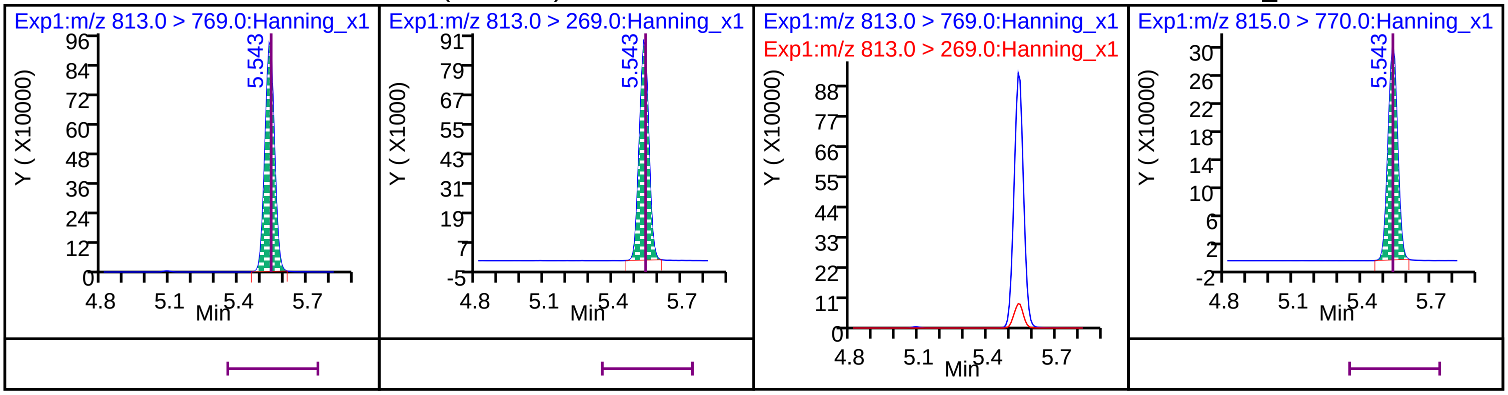
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



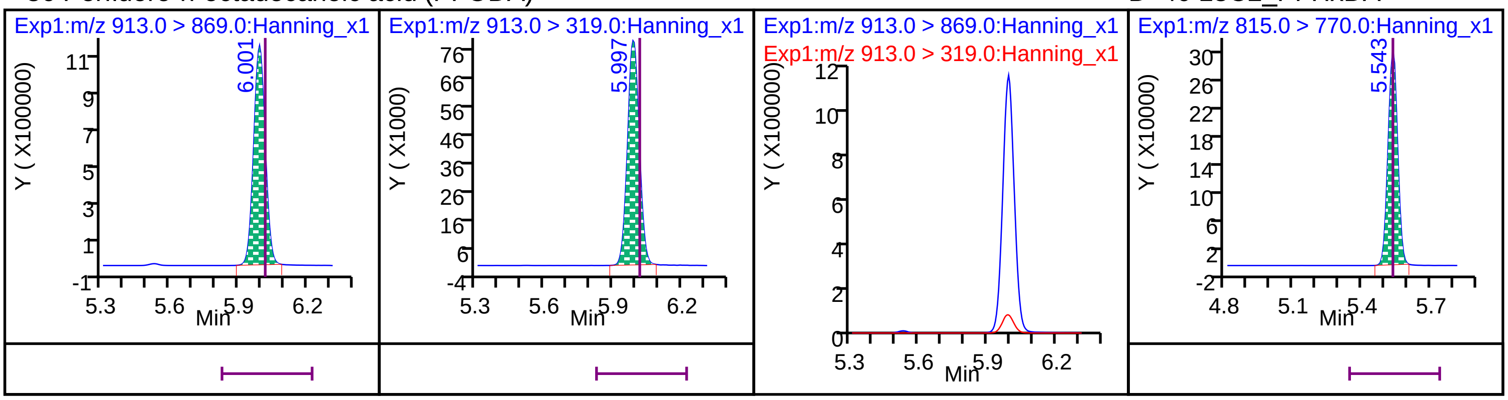
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



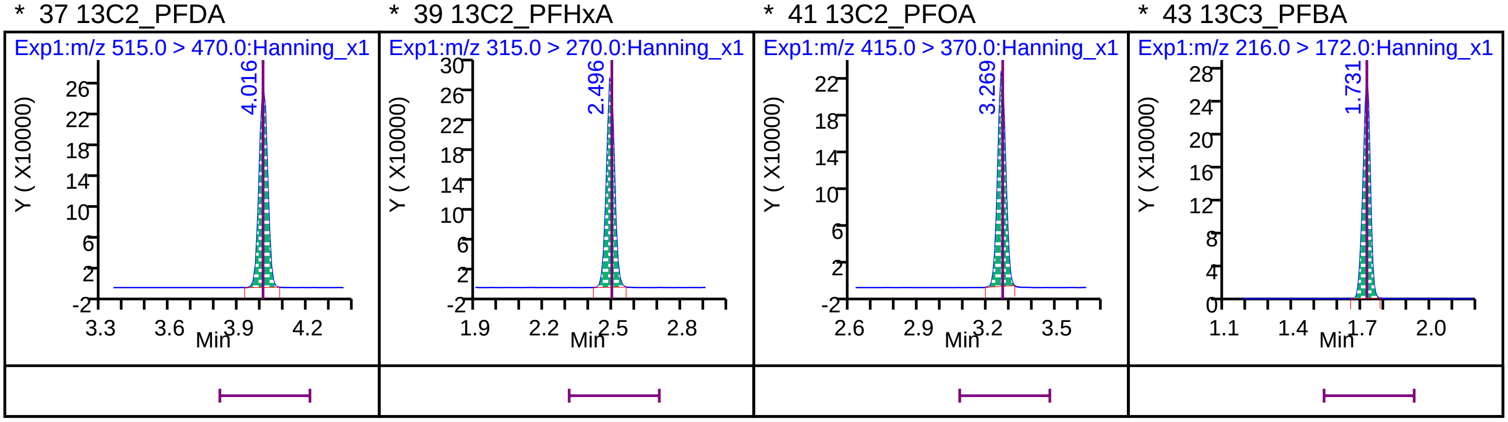
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



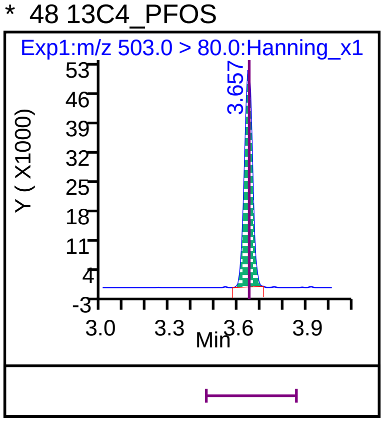
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

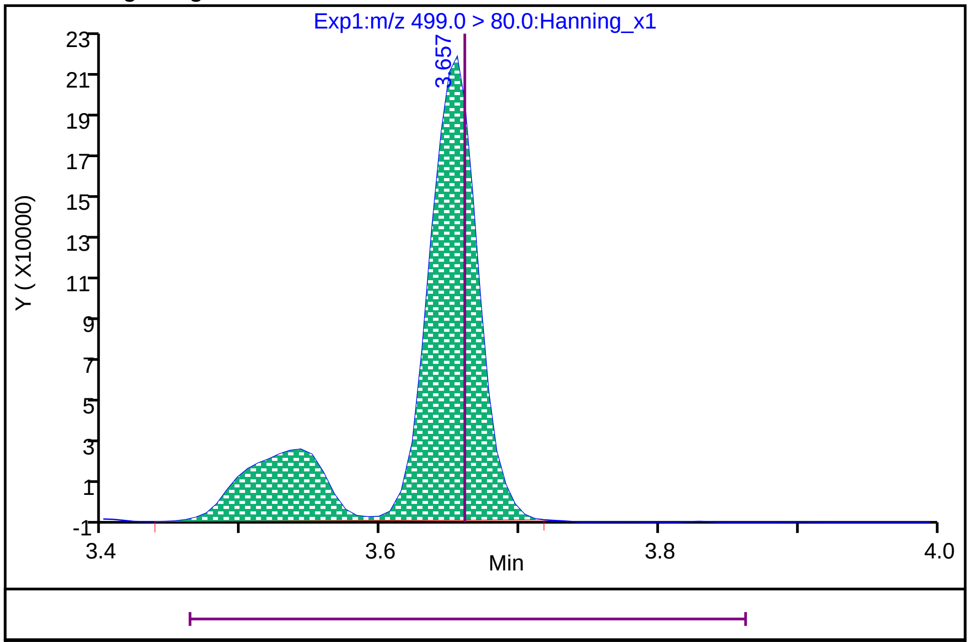
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A18.d		
Injection Date:	07-Nov-2021 19:51:18	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 5000_SVLC-1746
Sample Info:	ID ICAL 5000_SVLC-1746		
Dil. Factor:	1	Operator:	Justin Gavin

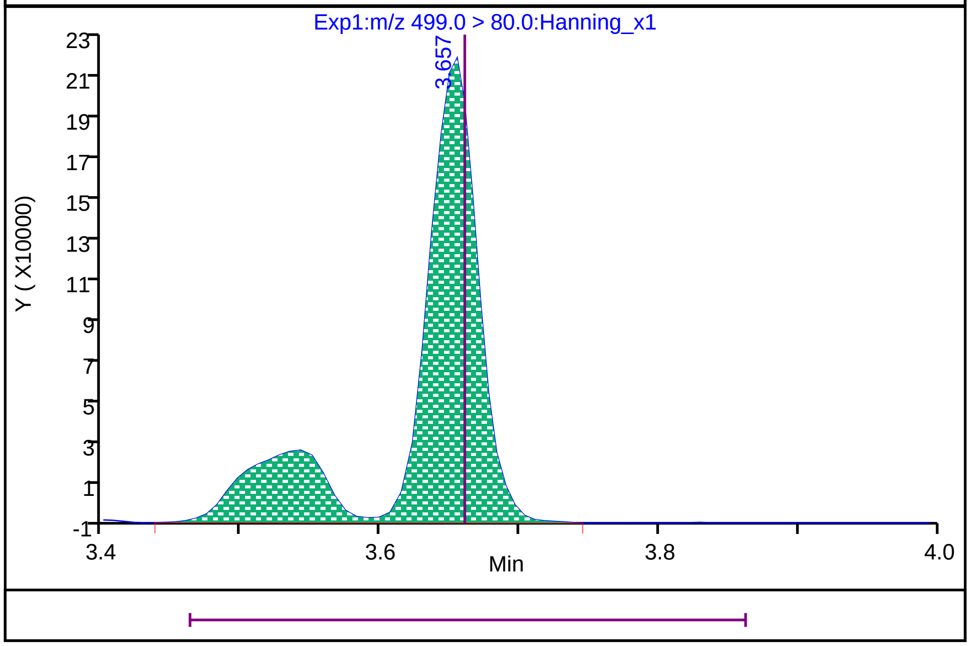
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.657
Area: 637895
Amount: 4460.48
Amount Units: ng/L



RT: 3.657
Area: 648437
Amount: 4519.95
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:27
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 8	Auto Sampler:	82
Sample Info:	ID ICAL 10000_SVLC-1747	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-8 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	612919	20	>100:1			1000.00	985.92	96.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	0/0	6389427	20	>100:1			10000	9884.56		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.119	2.130	0	574561	14	>100:1			1000.00	1005.19	99	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.119	2.130	0/0	6170232	15	>100:1			10000	9541.58		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	170031	16	>100:1			1000.00	983.01	95.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	0/0	1829568	16	>100:1	Target = 3.53		8840.00	8628.65		
298.9 > 99	44	2.183	2.183		519284	16	>100:1	3.52 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.531	2.531	0/0	1454385	18	>100:1	Target = 3.10		9380.00	9229.52		
349 > 99	44	2.531	2.531		484535	16	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	0	127713	16	>100:1			5000.00	5640.11	113.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	0/0	482122	17	>100:1	Target = 1.75		9340.00	8562.59		
327 > 81	63	2.460	2.460		236058	17	>100:1	2.04 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	645118	17	>100:1			1000.00	990.53	97	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	6492122	18	>100:1	Target = 18.91		10000	9678.66		
313 > 119	49	2.496	2.505		336946	18	>100:1	19.26 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1133936	19	>100:1			5000.00	4892.79	94.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	2964456	19	>100:1	Target = 0.79		20000	20184		
285 > 185	66	2.614	2.622		3754397	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.880	2.880	0	511577	18	>100:1			1000.00	963.53	96	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.880	2.880	0/0	5693105	18	>100:1	Target = 3.80		10000	10128		
363 > 169	47	2.880	2.880		1436859	18	>100:1	3.96 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	123270	17	>100:1			1000.00	981.14	95	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	1221767	27	>100:1	Target = 2.89	5.14	9100.00	9015.30		
399 > 99	45	2.896	2.896		393459	27	>100:1	3.10 (1.44-4.34)	6.96				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.918	2.919	0/0	8891435	19	>100:1	Target = 3.23		9420.00	9300.76		
377 > 85	45	2.918	2.919		2730031	19	>100:1	3.25 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	0/0	1164821	23	>100:1	Target = 3.12		9520.00	9200.34		
449 > 99	45	3.276	3.276		384601	23	>100:1	3.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	82709	20	>100:1			5000.00	4594.95	88	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	387289	20		Target = 1.75		9480.00	9890.33		
427 > 81	64	3.248	3.248		214804	20	>100:1	1.80 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	501858	21	>100:1			1000.00	956.51	91.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	5056901	21	>100:1	Target = 2.89		10000	9832.94		
413 > 169	53	3.276	3.276		1701870	22	>100:1	2.97 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.651	3.651	1	120102	21	>100:1			1000.00	969.79	91	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.651	3.662	0/-1	1317144	41	>100:1	Target = 3.30	3.67	9280.00	9210.62		M
499 > 99	54	3.651	3.662		383258	37	>100:1	3.43 (1.65-4.95)	7.66				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/0	4400668	18	>100:1			9320.00	9675.23		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.006	4.006	1/0	926406	17	>100:1	Target = 3.08		9600.00	9614.37		
549 > 99	54	4.006	4.006		336636	15	>100:1	2.75 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/-1	875387	15	>100:1	Target = 2.72		9640.00	9314.20		
599 > 99	54	4.308	4.318		327736	15	>100:1	2.67 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/-1	3946384	16	>100:1			9420.00	9597.57		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.834	4.842	0/-1	1010453	19	>100:1	Target = 3.27		9680.00	9784.17		
699 > 99	54	4.834	4.842		334518	18		3.02 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.662	0	622464	23	>100:1			1000.00	972.03	97.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	1/1	6678173	22	>100:1	Target = 6.51		10000	9953.51		
463 > 169	56	3.662	3.662		1014269	21	>100:1	6.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	256938	18	>100:1			1000.00	958.52	96.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/1	2684423	17	>100:1	Target = 41.63		10000	9929.59		
498>478	55	3.896	3.896		81642	17		32.88 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.016	4.016	1	570320	15	>100:1			1000.00	992.45	99	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.016	4.016	1/0	6612786	15	>100:1	Target = 13.80		10000	9963.39		
513 > 169	51	4.016	4.016		465257	17	>100:1	14.21 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	4.016	0	86853	16	>100:1			5000.00	5024.91	110.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.016	4.016	1/1	329055	16	>100:1	Target = 1.94		9580.00	8383.41		
527 > 81	65	4.006	4.016		175195	15	>100:1	1.87 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	1/1	422944	16		Target = 3.54		9640.00	9598.75		
627 > 80	65	4.631	4.631		121604	16	>100:1	3.47 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	1	733412	16	>100:1			5000.00	4853.42	94.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.178	4.178	1/0	1180104	31	>100:1	Target = 1.37	7.91	10000	10026		
570 > 483	58	4.178	4.178		855310	30	>100:1	1.37 (0.68-2.05)	4.25				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	86191	13				1000.00	955.67	95.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	980014	14	>100:1			10000	10404		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.318	1	42391	14	>100:1			1000.00	901.15	94.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/0	475500	13	>100:1	Target = 1.11		10000	10349		
512 > 219	57	4.318	4.318		445953	14	>100:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.338	4.338	1	609480	15	>100:1			5000.00	4705.93	88.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	1/0	1172304	30	>100:1	Target = 1.51	5.65	10000	9863.33		
584 > 526	60	4.338	4.348		787771	29	>100:1	1.48 (0.75-2.26)	3.75				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.338	4.338	1	586665	16	>100:1			1000.00	974.12	92.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.338	4.338	1/0	5676476	16	>100:1	Target = 14.52		10000	9985.75		
563 > 169	52	4.338	4.338		373326	15		15.20 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	106365	14	>100:1			1000.00	1002.72	104.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.474	4.464	1/0	1020968	15	>100:1			10000	9860.21		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.483	4.483	1	40796	18	>100:1			1000.00	948.75	95.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/0	490697	15	>100:1	Target = 1.06		10000	10157		
526 > 219	59	4.483	4.483		511101	15	>100:1	0.96 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	1	598735	17	>100:1			1000.00	997.33	99.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.622	0/-1	6241011	17	>100:1	Target = 10.70		10000	9777.61		
613 > 169	38	4.614	4.622		578392	17	>100:1	10.79 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.877	0/-1	6320725	18	>100:1	Target = 8.31		10000	10044		
663 > 169	38	4.868	4.877		732527	17	>100:1	8.62 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.100	5.106	0	800702	21	>100:1			1000.00	984.89	95.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.100	5.106	0/0	6913870	22	>100:1	Target = 12.17		10000	9891.66		
713 > 169	42	5.100	5.106		554226	21	>100:1	12.47 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.536	5.544	0	880463	21	>100:1			1000.00	1014.32	100.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.536	5.552	0/0	5126962	21	>100:1	Target = 10.43		10000	9092.08		
813 > 269	40	5.536	5.552		502124	21	>100:1	10.21 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.007	6.026	-1/-1	7594218	42	>100:1	Target = 13.67		10000	9474.28		
913 > 319	40	6.002	6.026		545393	44	>100:1	13.92 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.016	4.016	1	625216	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	669175	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.276	3.276	0	506174	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	565087	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.651	3.657	0	116530	19	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

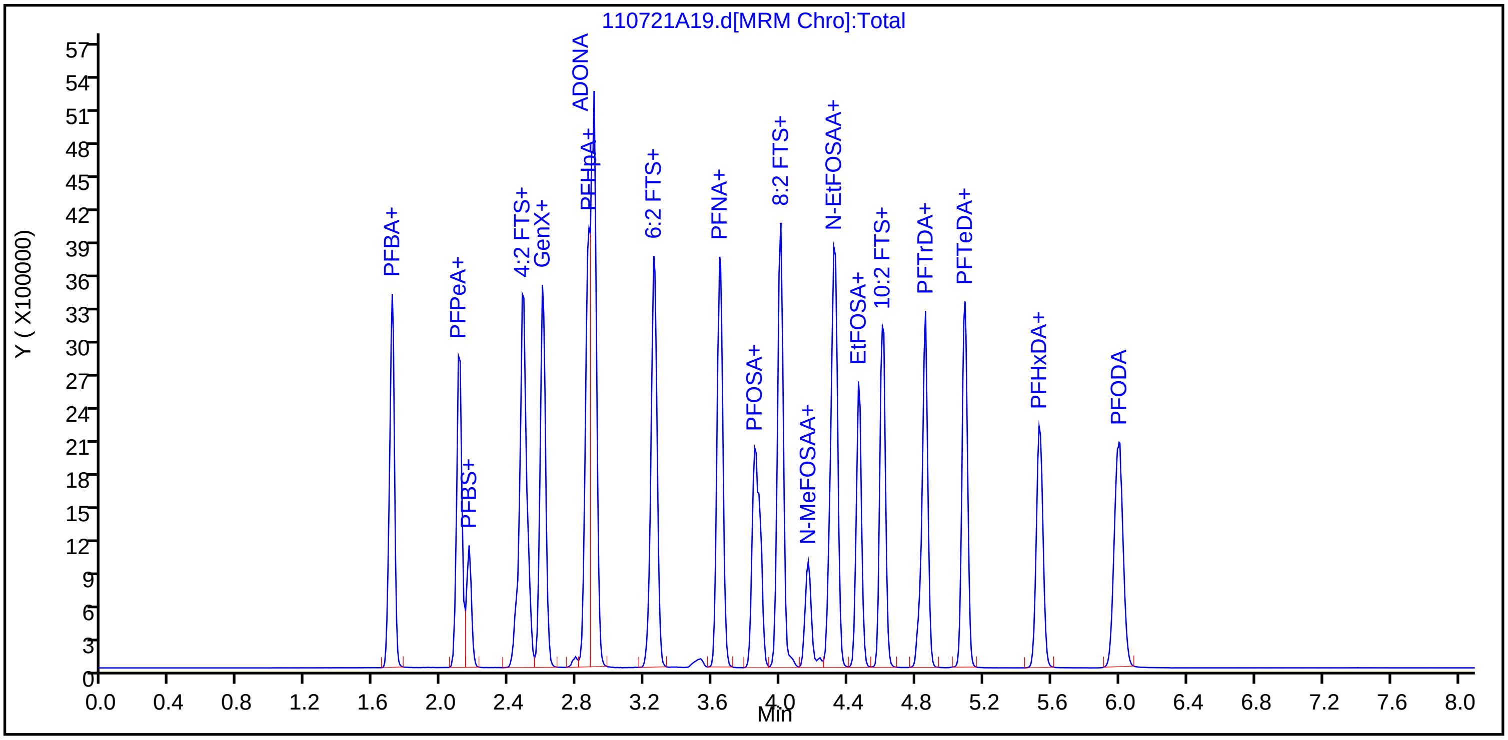
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

Injection Date: 07-Nov-2021 20:01:42 Inst. ID: LCMSMS02.i

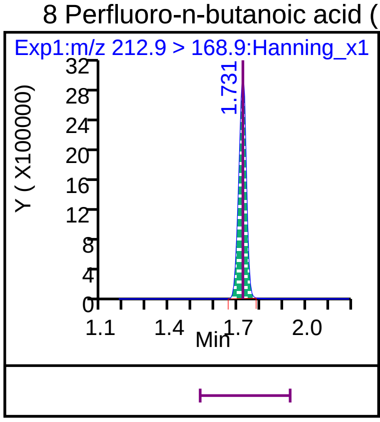
Client ID: Lab ID: ID ICAL 10000_SVLC-1747

Sample Info: ID ICAL 10000_SVLC-1747

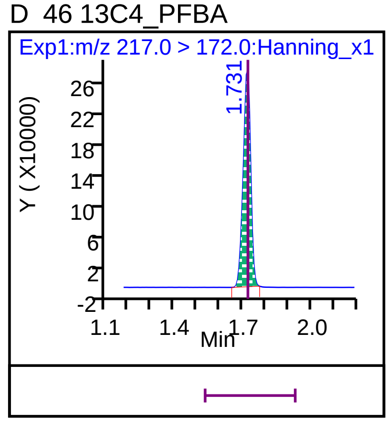
Dil. Factor: 1 Operator: Justin Gavin



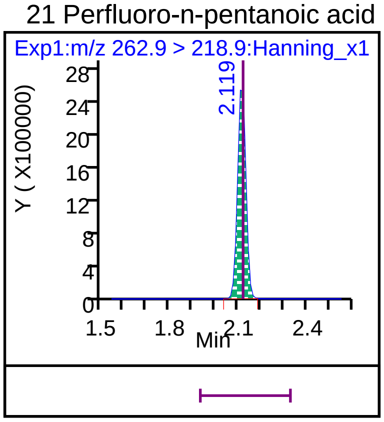
8 Perfluoro-n-butanoic acid (PFBA)



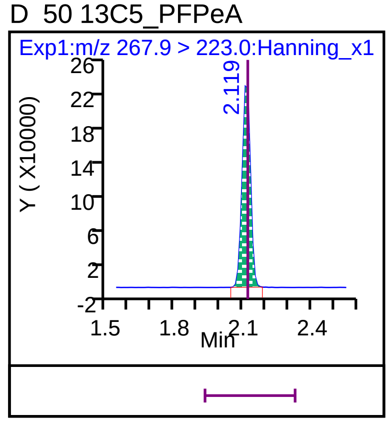
D 46 13C4_PFBA



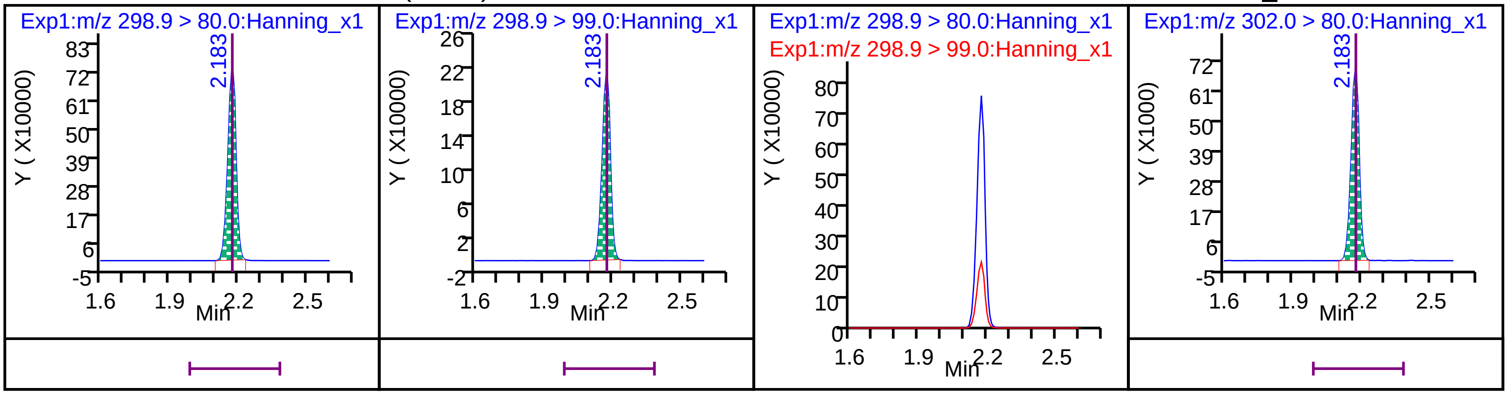
21 Perfluoro-n-pentanoic acid (PFPeA)



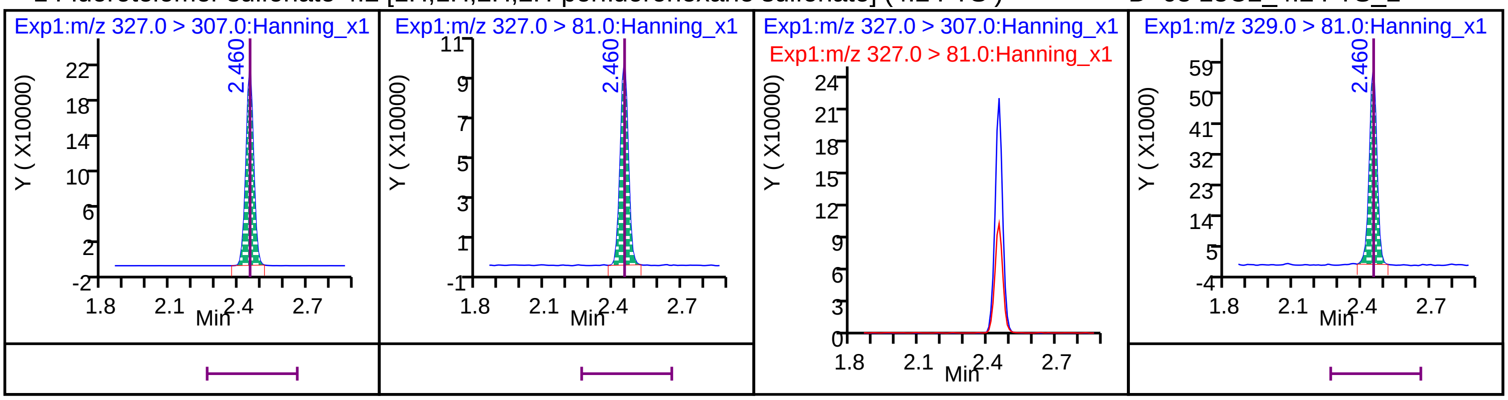
D 50 13C5_PFPeA



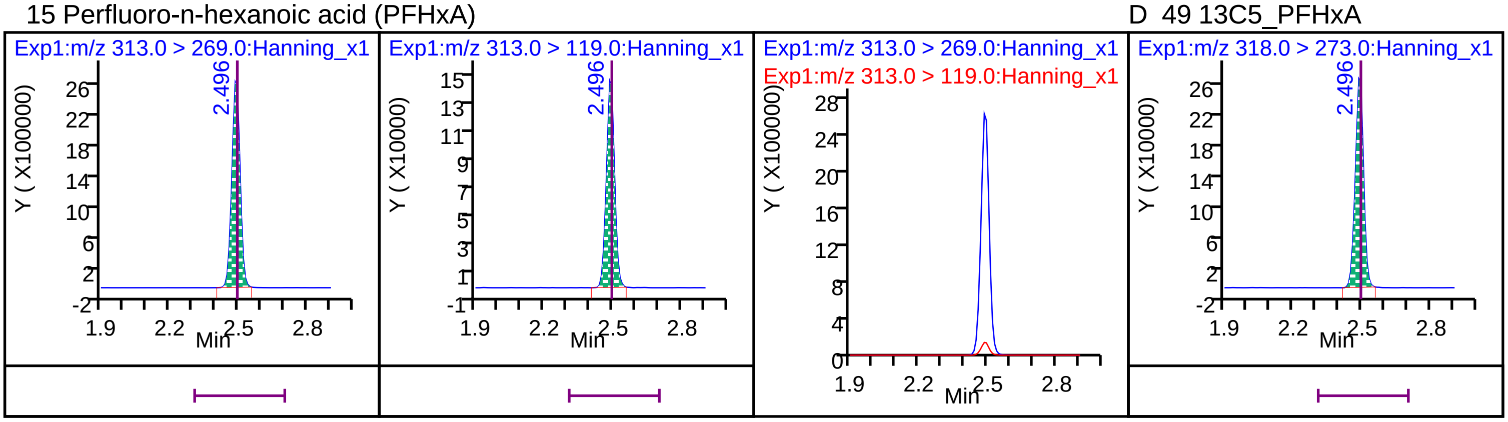
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



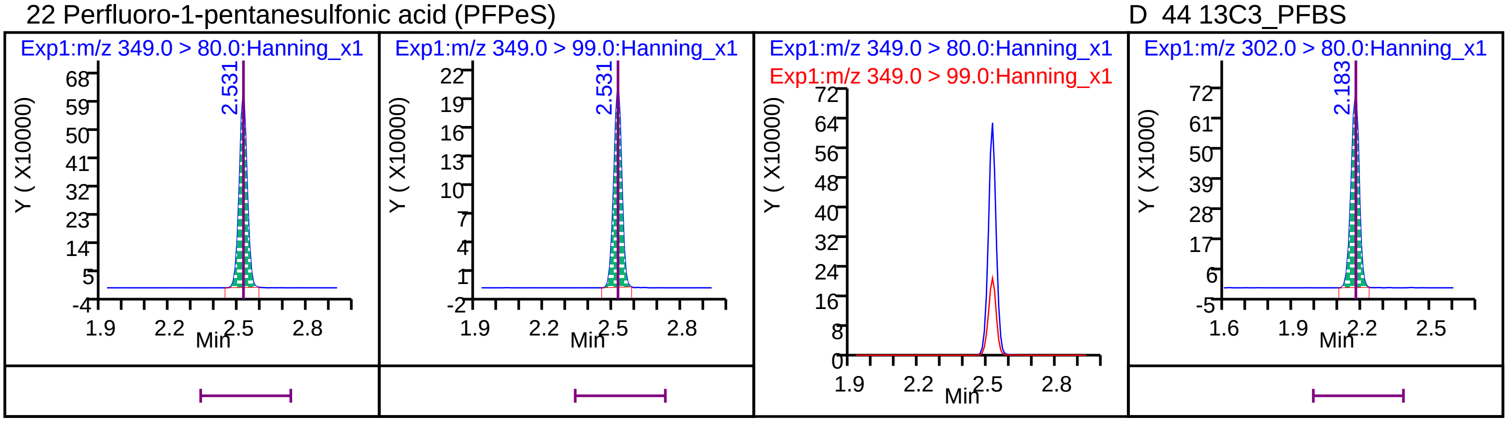
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

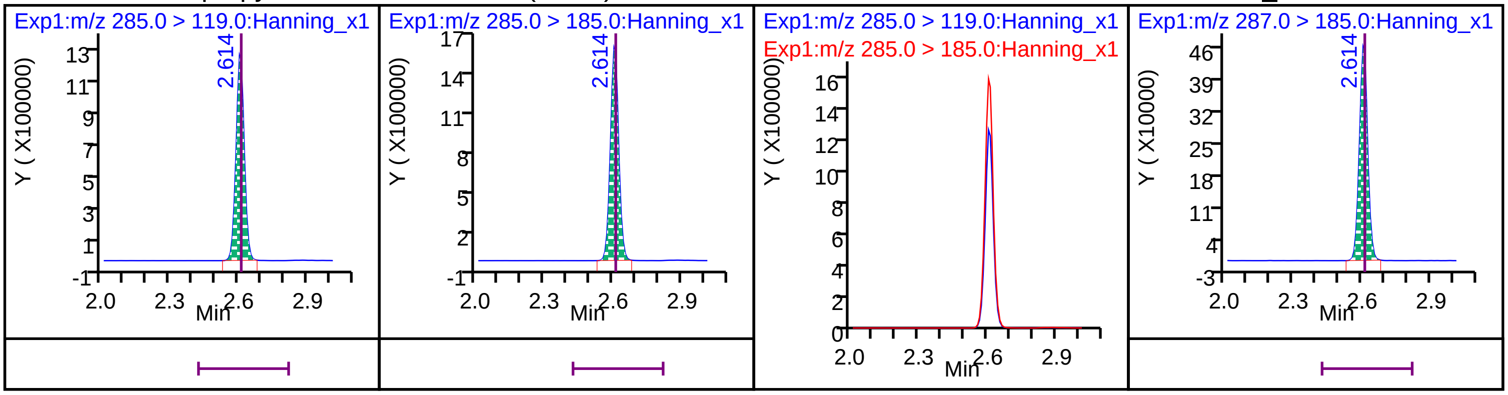


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

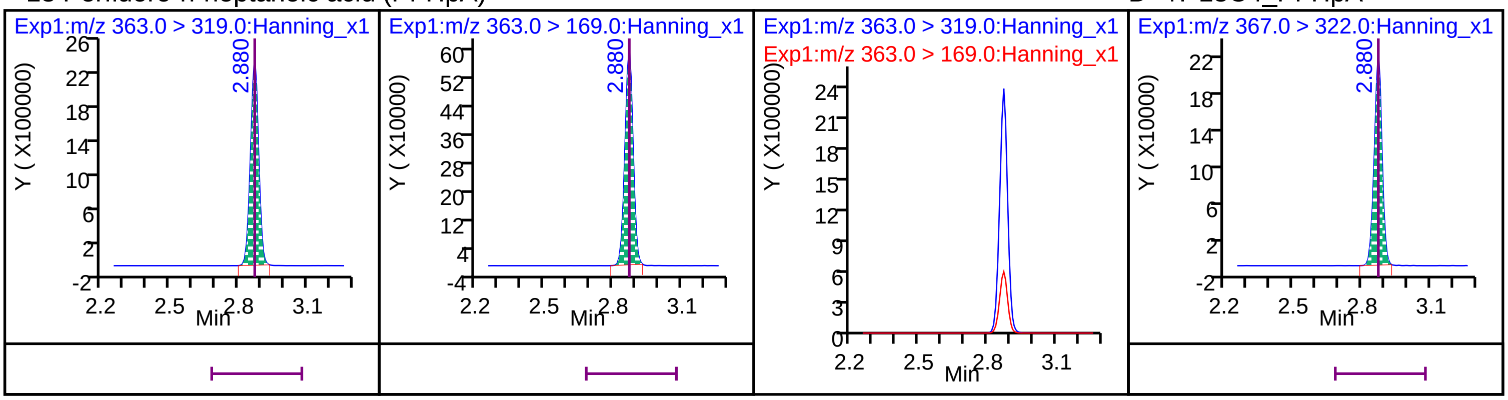


Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

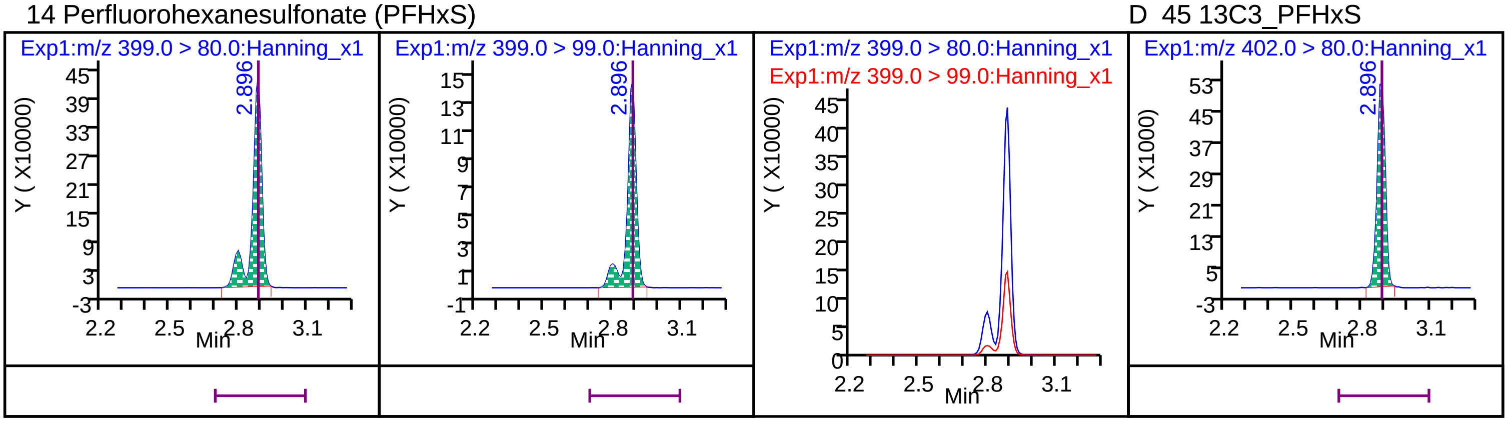
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



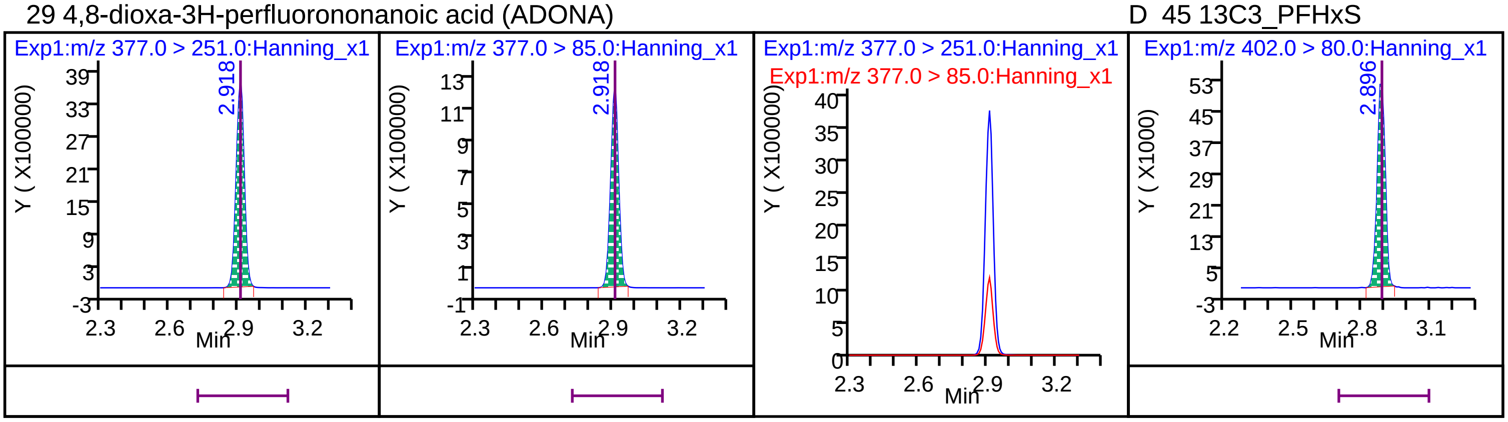
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



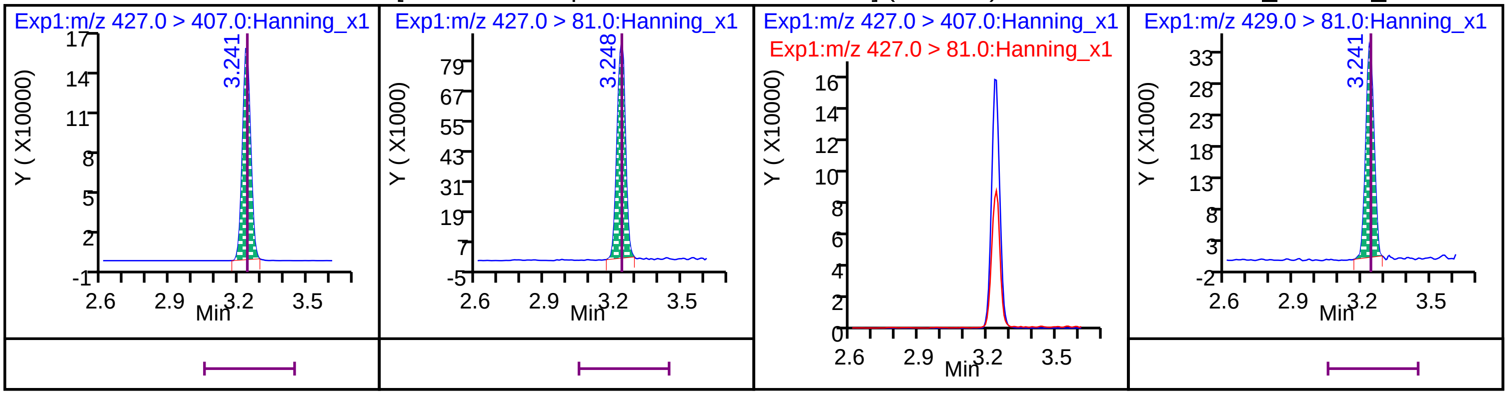
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



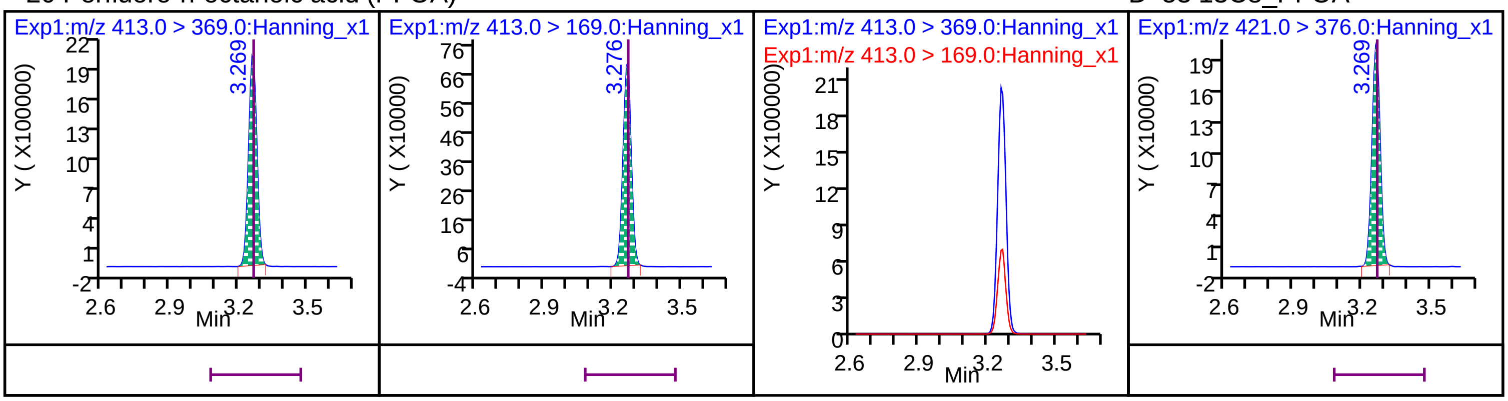
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



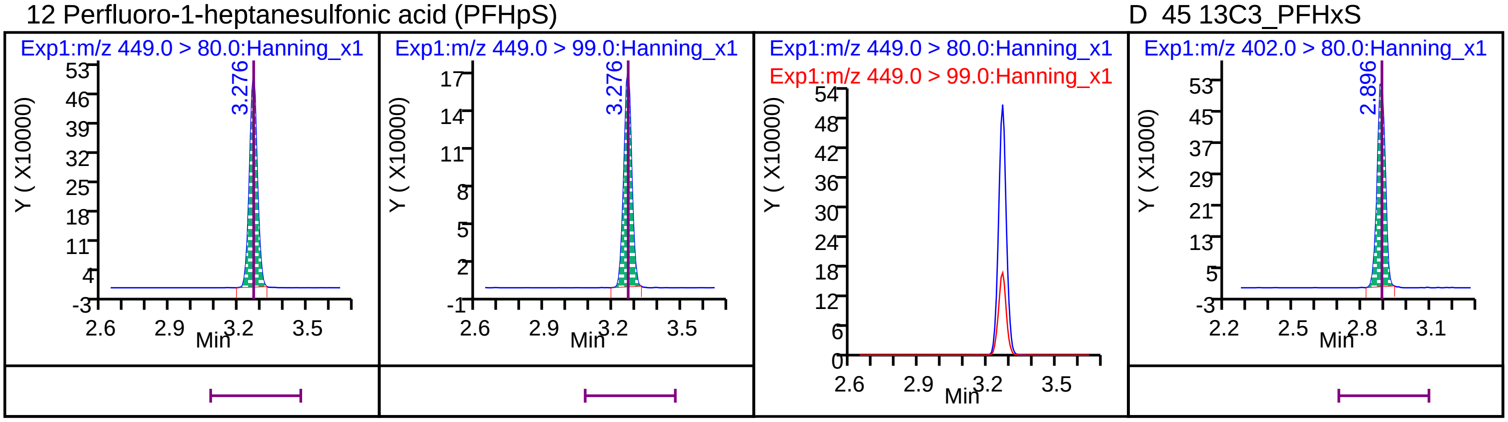
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



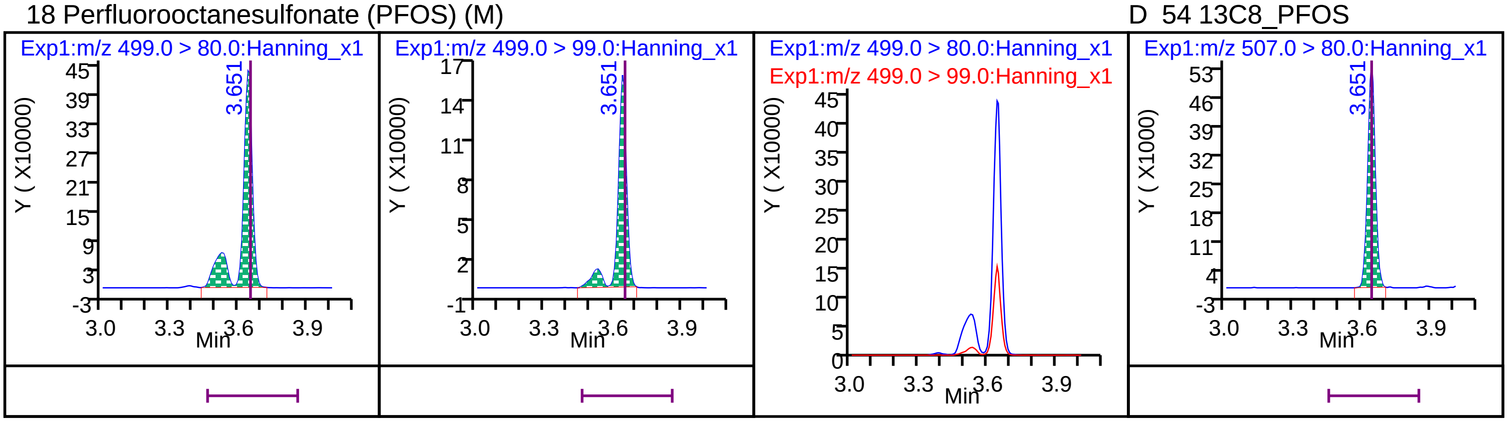
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



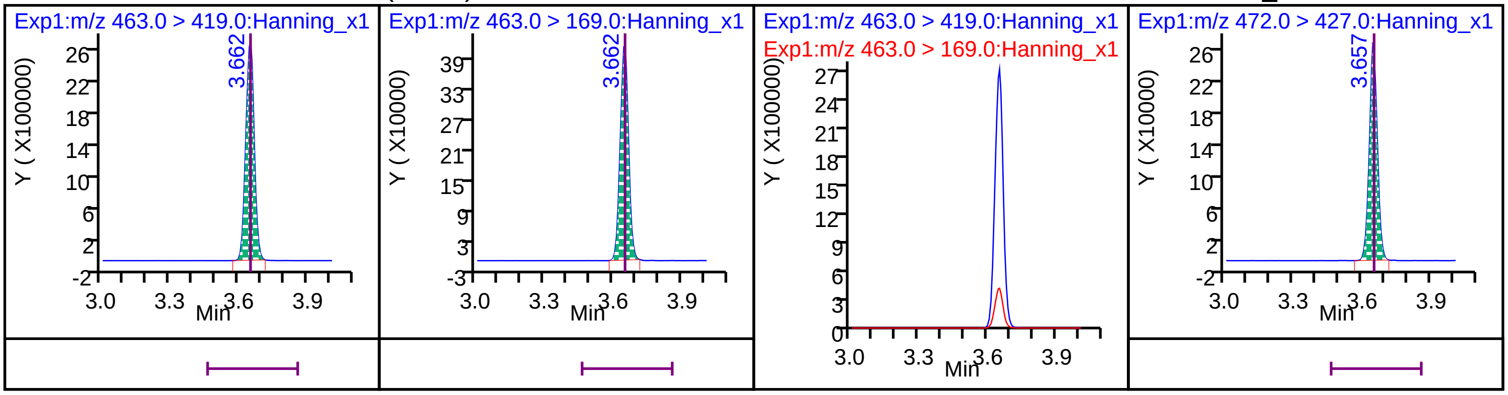
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



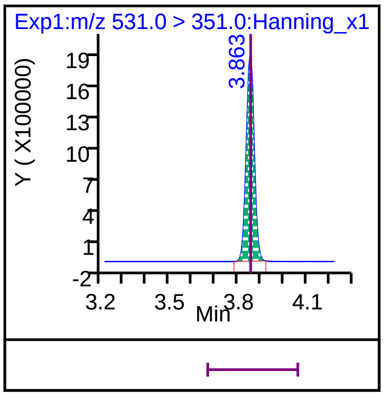
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

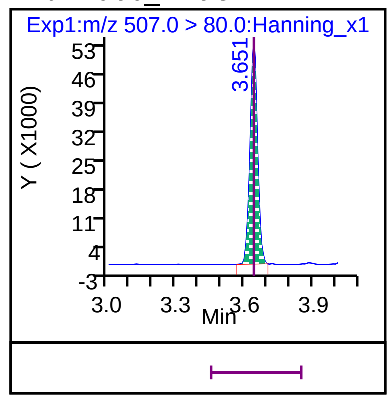


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

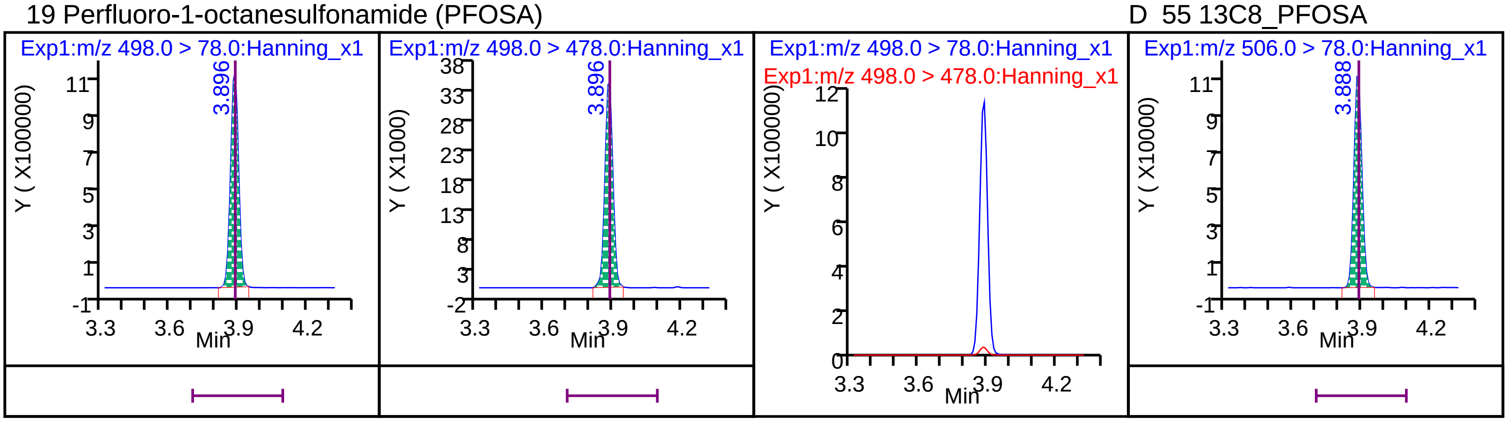


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

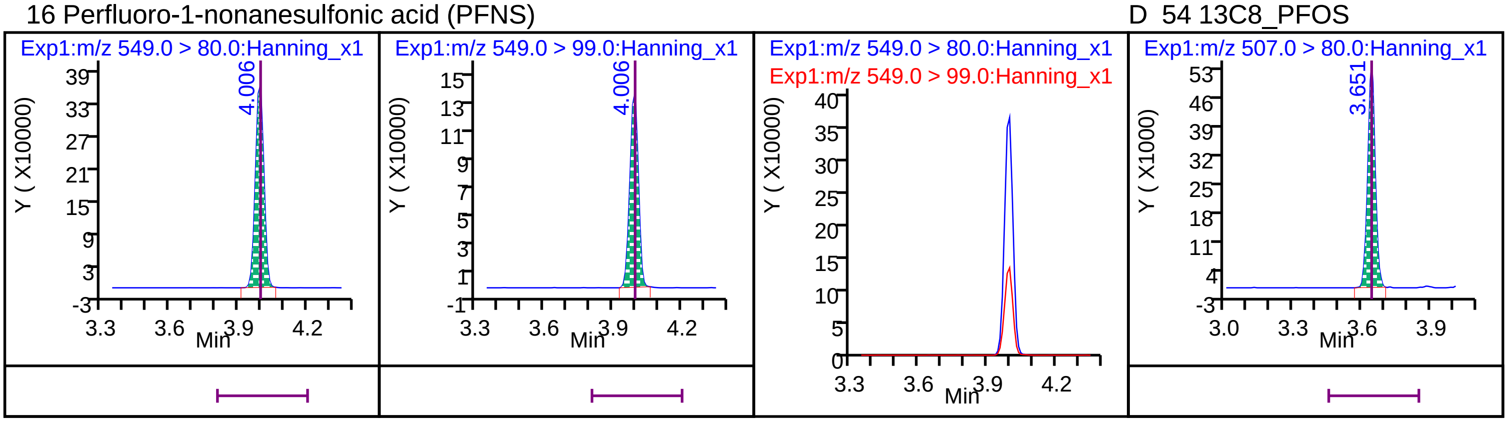




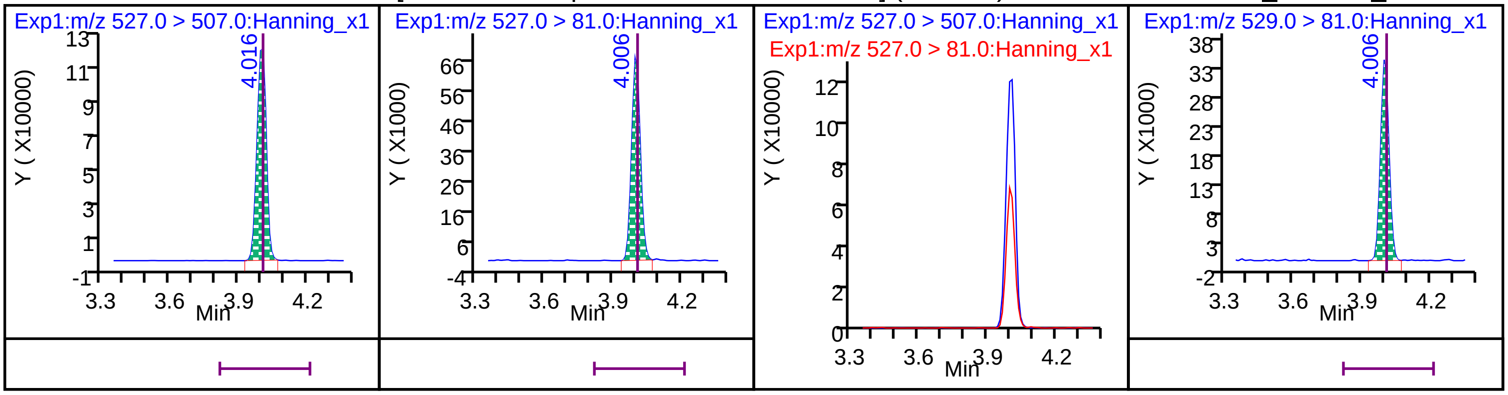
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



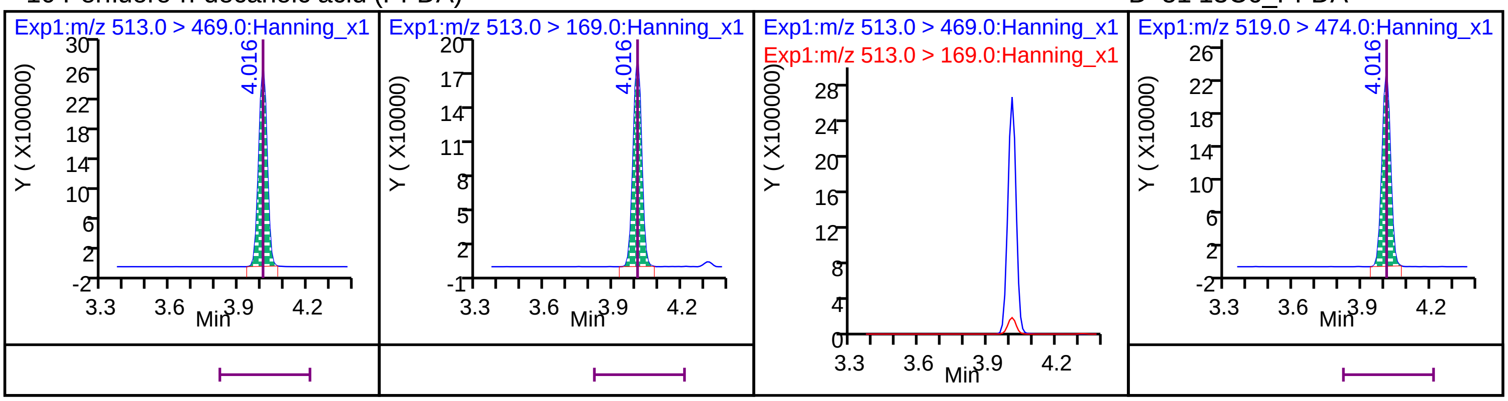
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



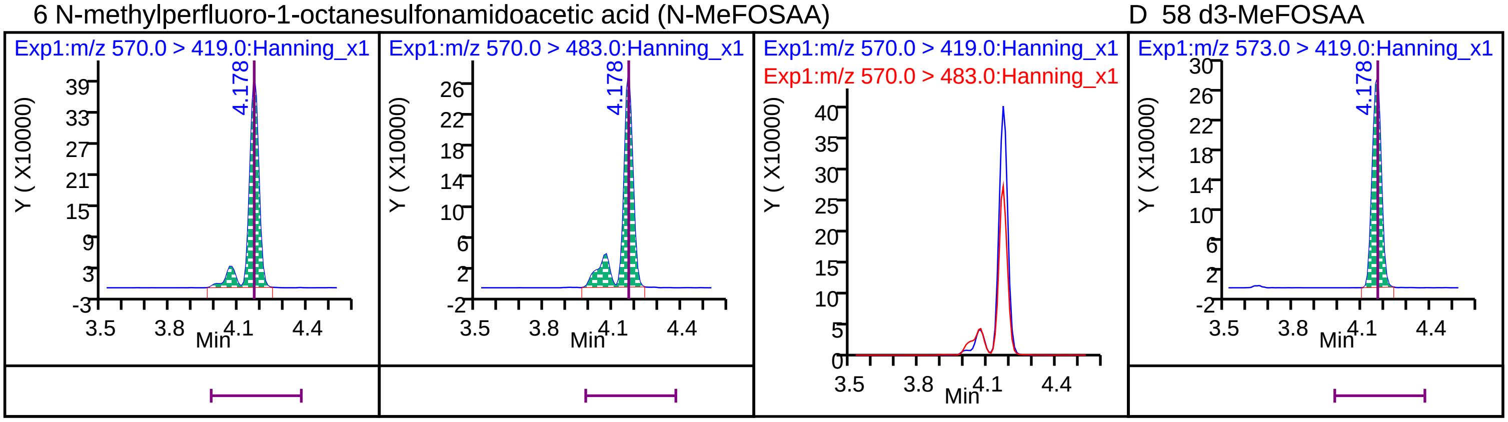
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



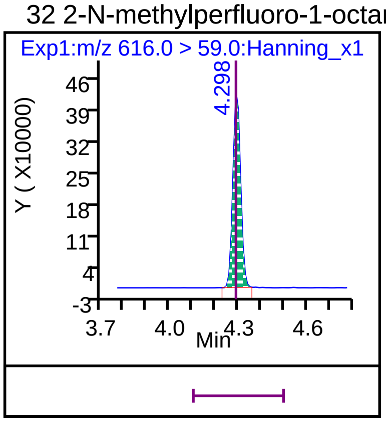
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



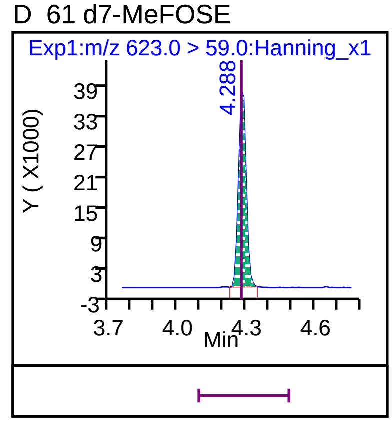
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



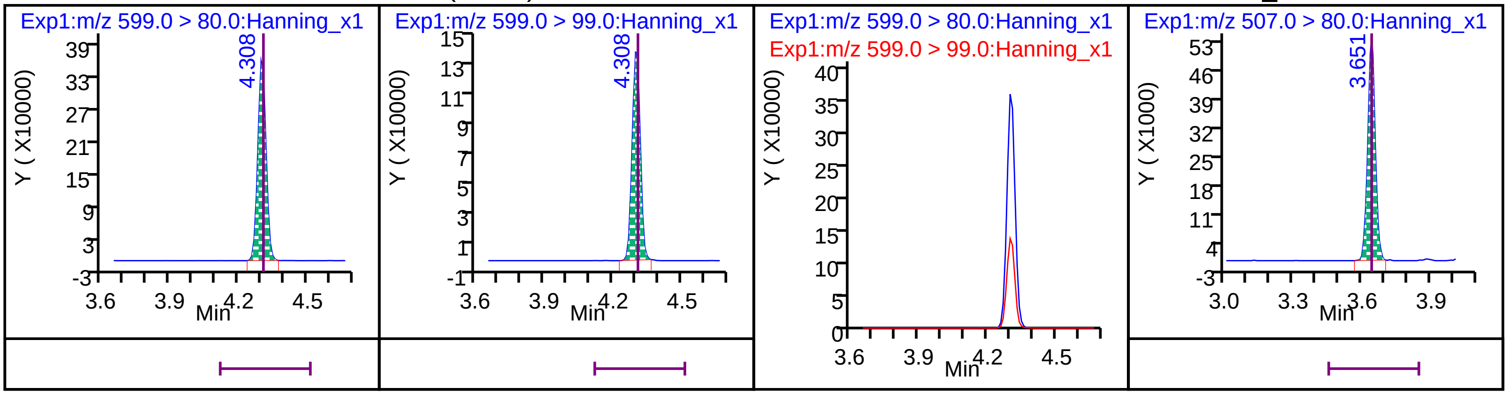
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



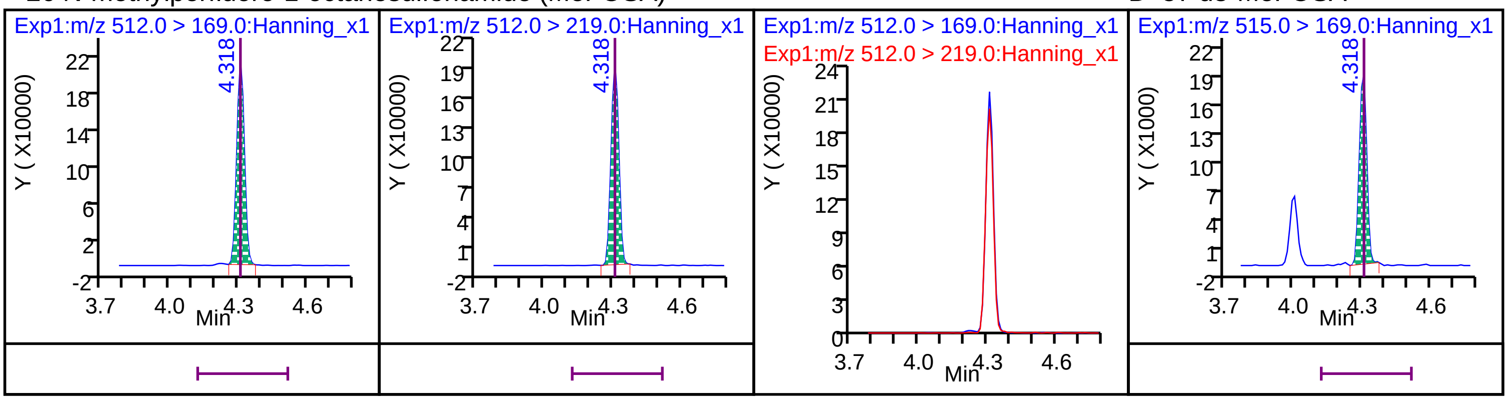
D 61 d7-MeFOSE



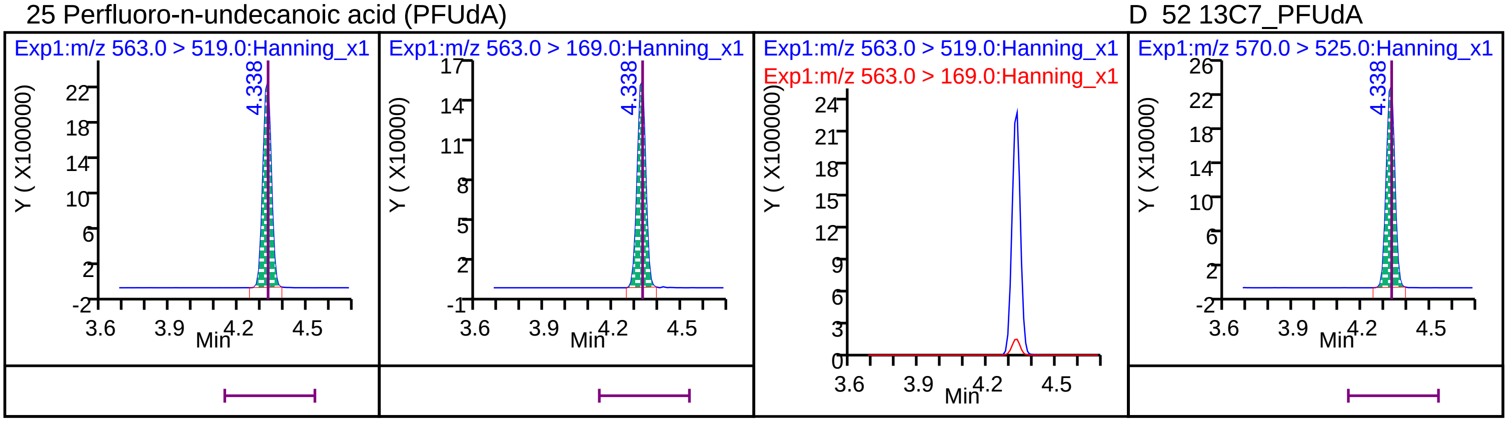
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



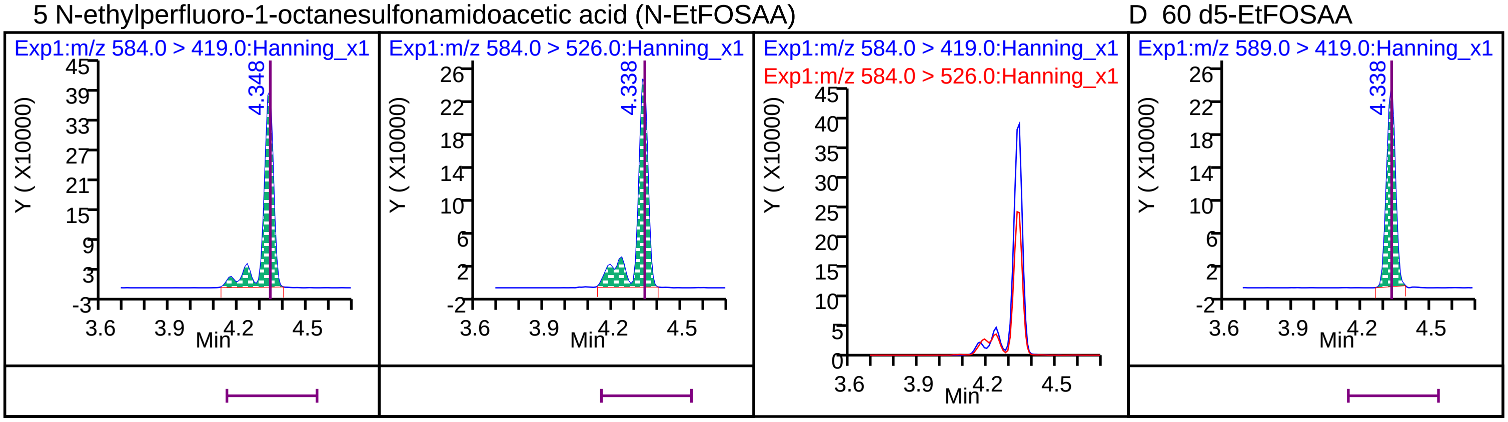
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



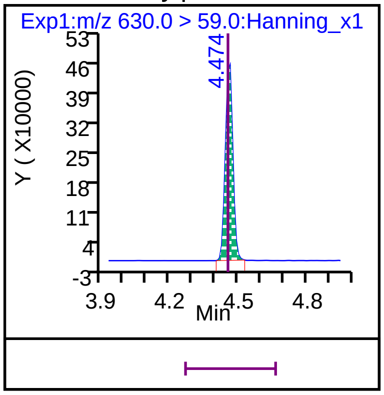
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



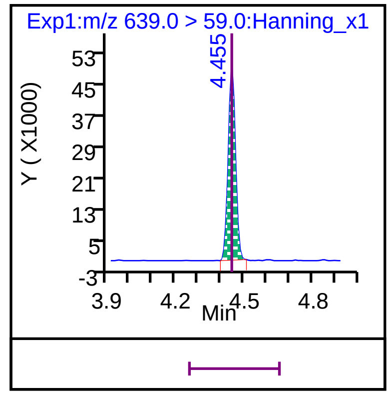
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

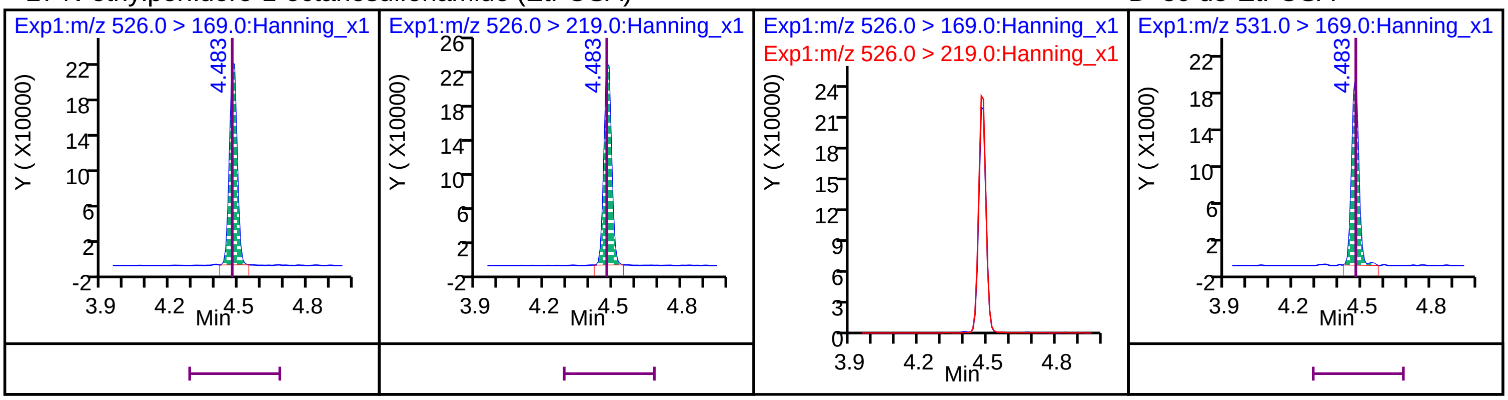


D 62 d9-EtFOSE

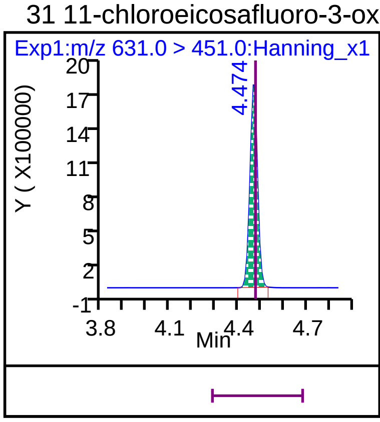


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

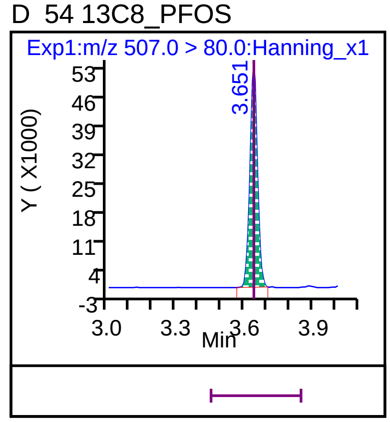
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

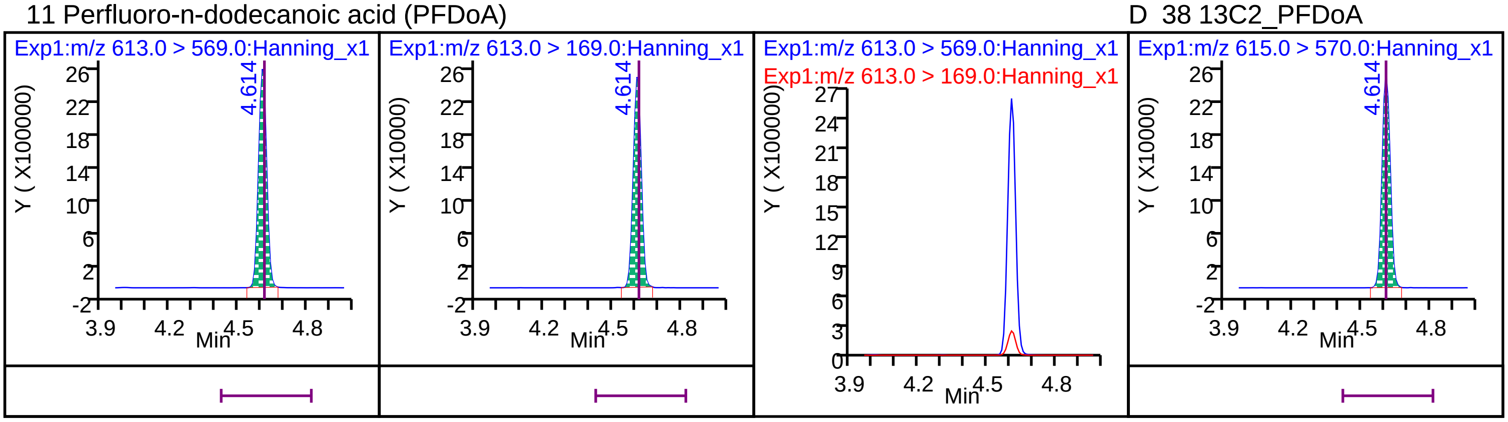


D 54 13C8_PFOS

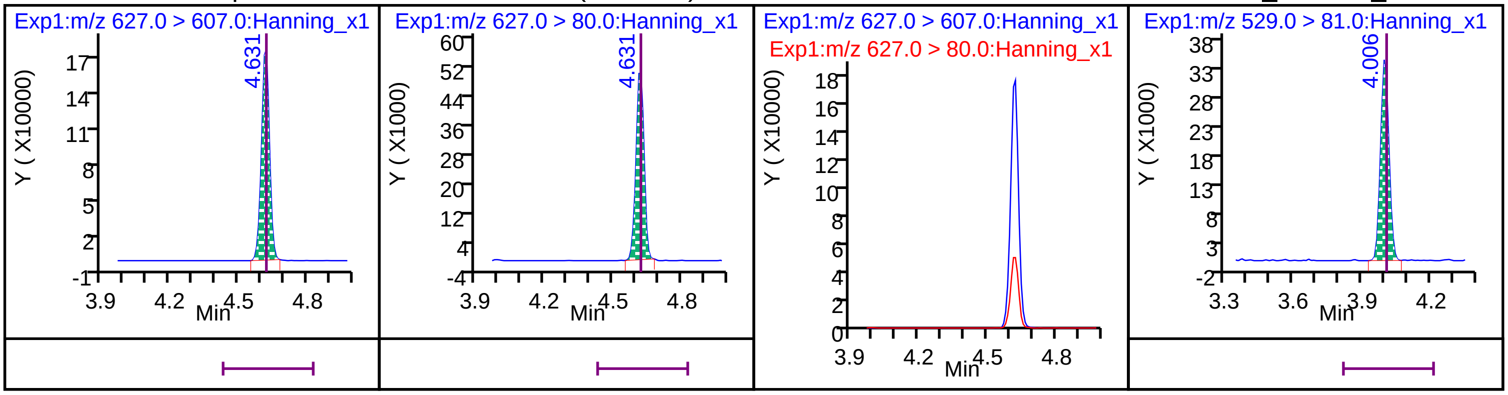


11 Perfluoro-n-dodecanoic acid (PFDoA)

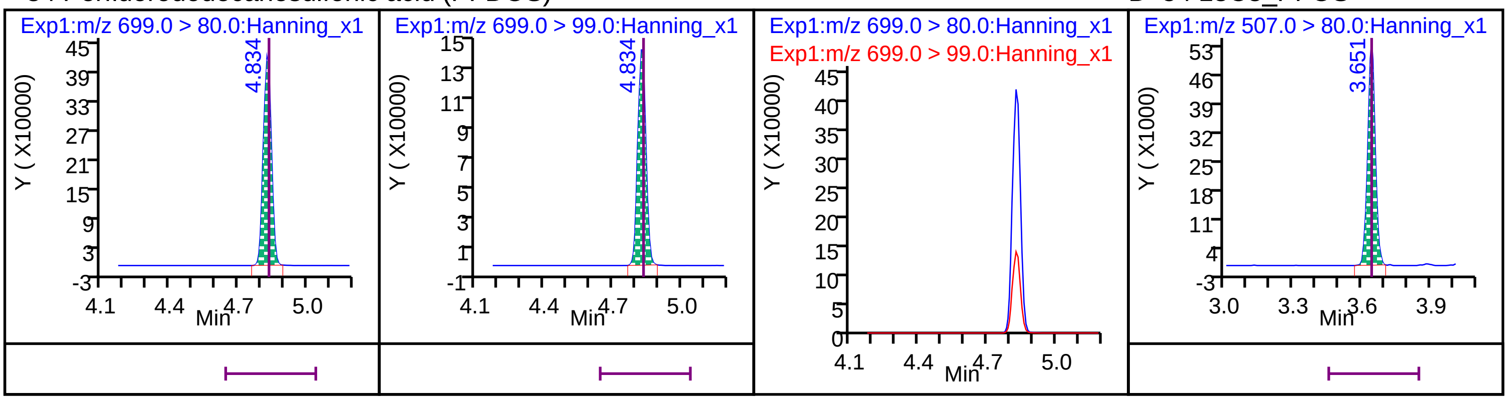
D 38 13C2_PFDoA



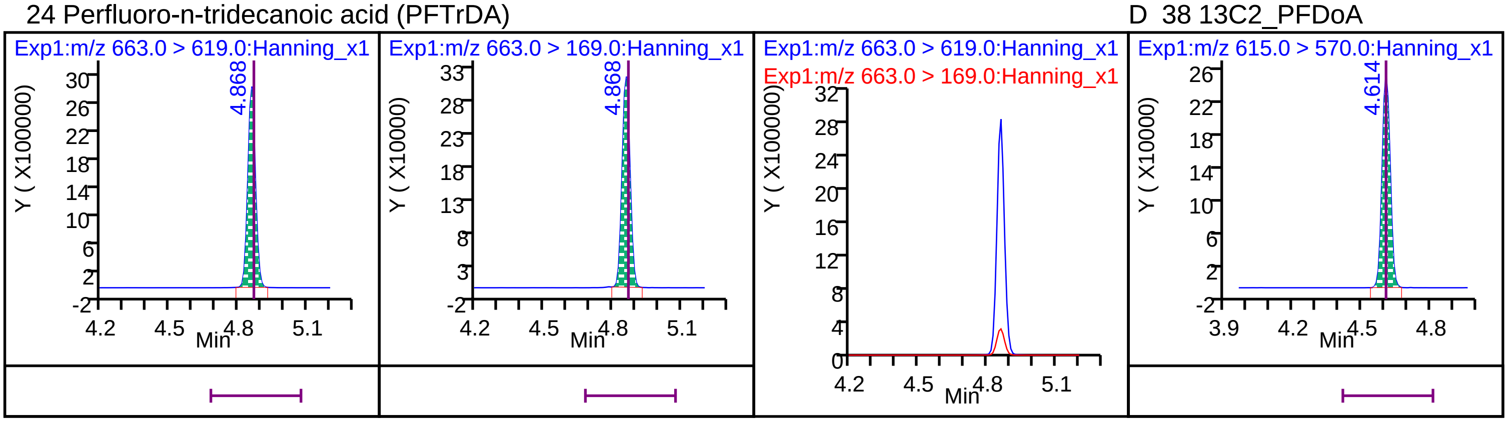
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



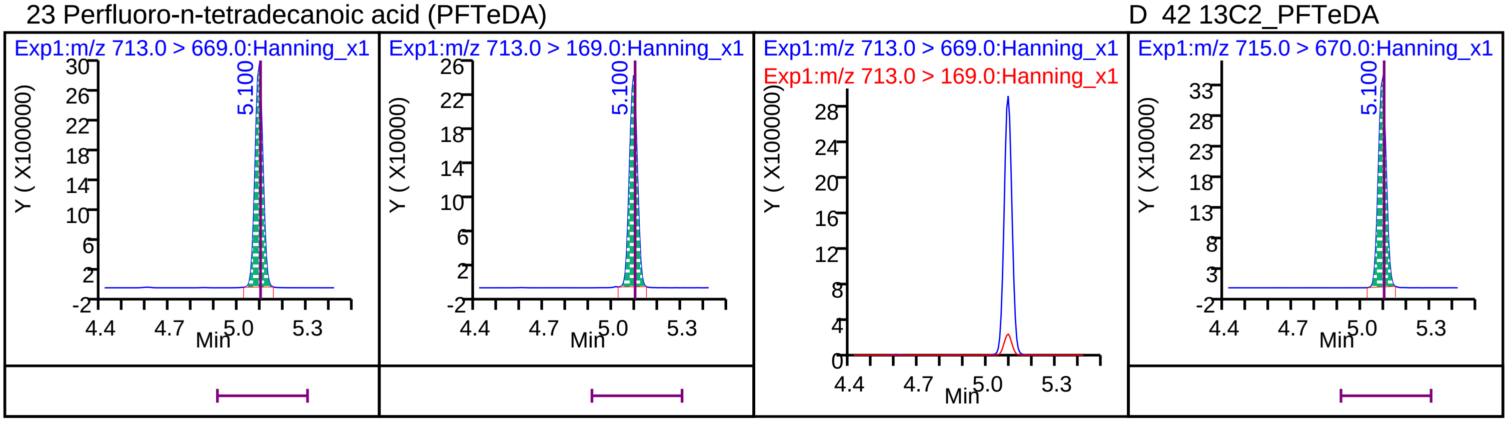
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

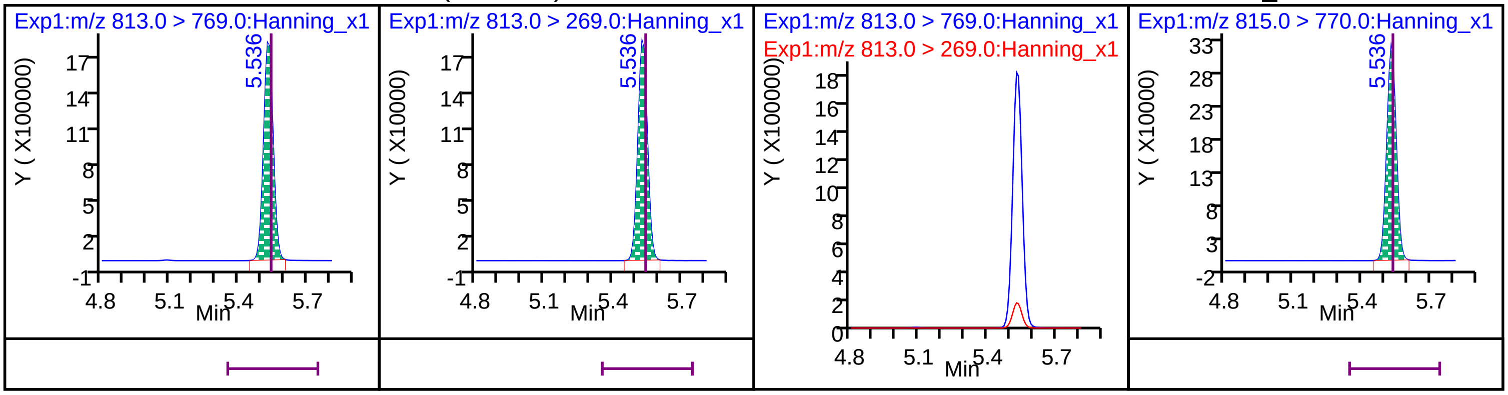


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

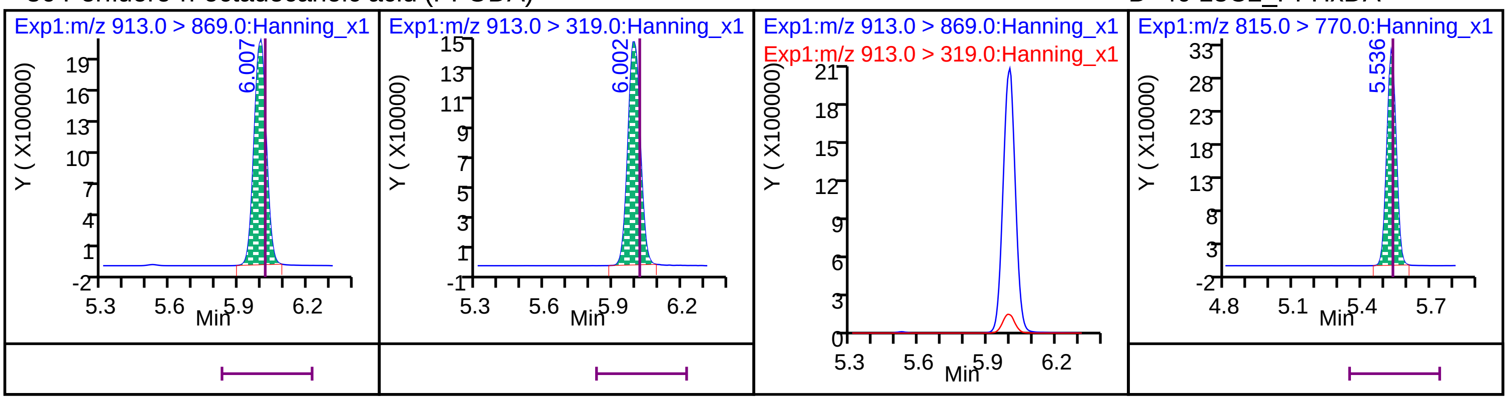


Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d

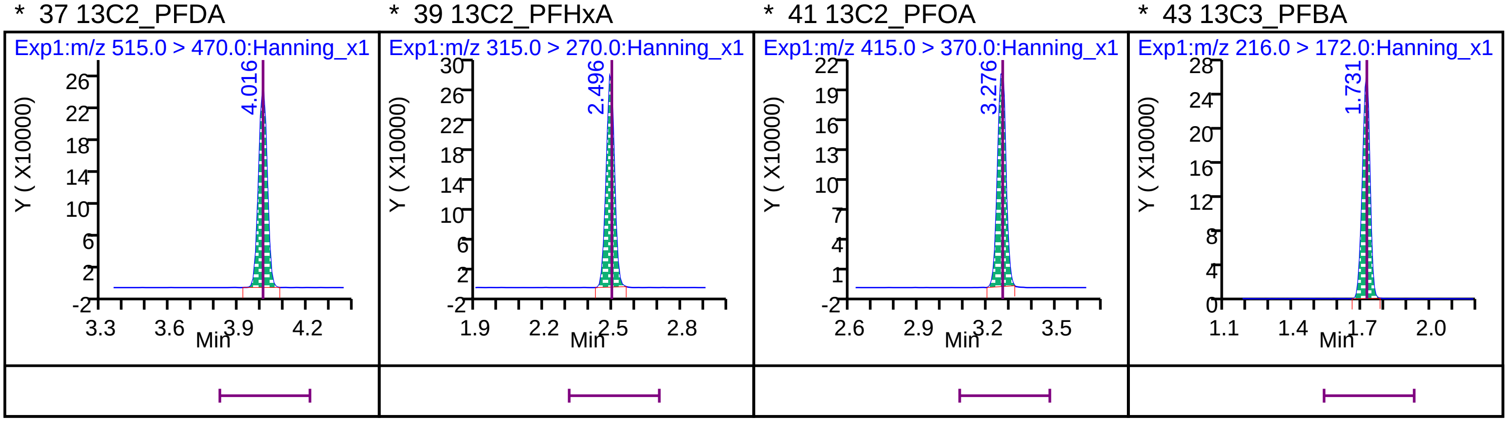
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



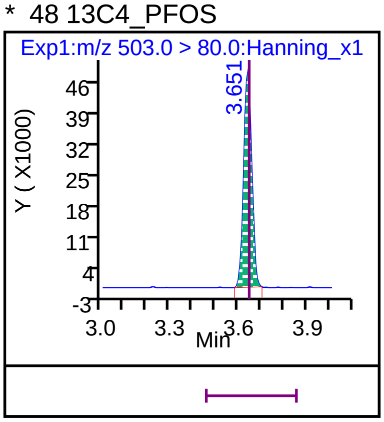
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

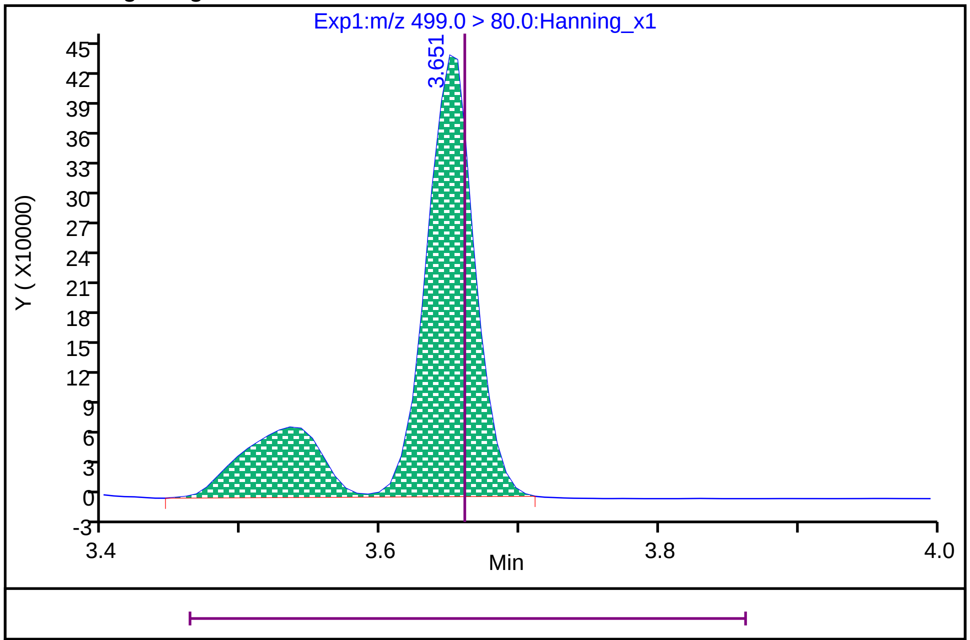
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A19.d		
Injection Date:	07-Nov-2021 20:01:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 10000_SVLC-1747
Sample Info:	ID ICAL 10000_SVLC-1747		
Dil. Factor:	1	Operator:	Justin Gavin

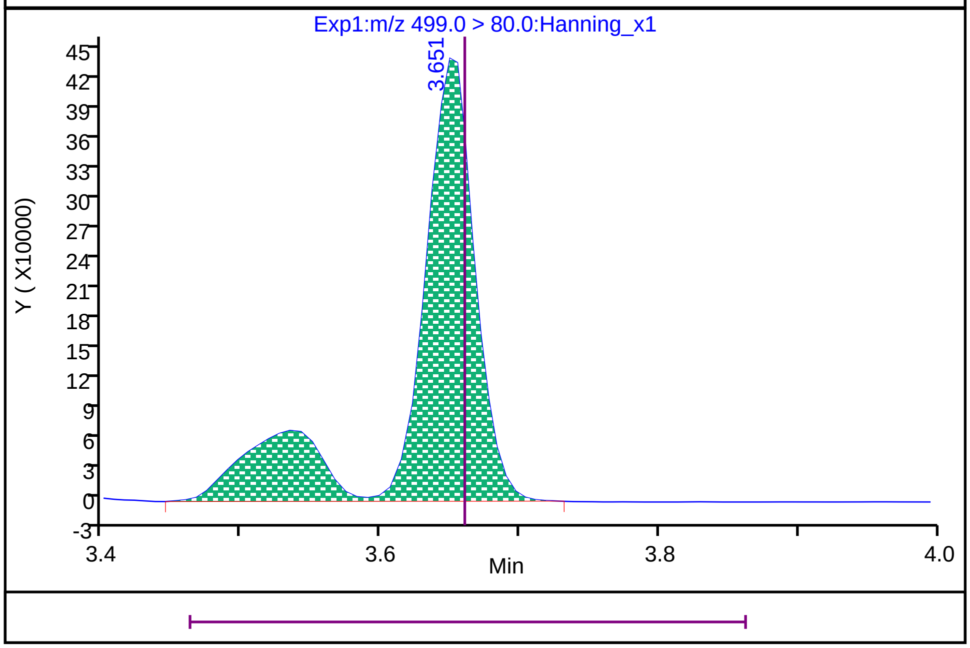
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.651
Area: 1304733
Amount: 9130.74
Amount Units: ng/L



RT: 3.651
Area: 1317144
Amount: 9210.62
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:33
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:26   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 9	Auto Sampler:	83
Sample Info:	ID ICAL 15000_SVLC-1748	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes   Conc. Level: L-9   Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.731	0	589637	21	>100:1			1000.00	948.47	92.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.734	1.731	1/1	9072875	20	>100:1			15000	14590		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.125	2.130	0	542414	16	>100:1			1000.00	948.95	93.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.125	2.130	0/0	9021019	16	>100:1			15000	14777		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.183	0	170122	15	>100:1			1000.00	983.54	95.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.183	0/0	2677106	15	>100:1	Target = 3.53		13260	12619		
298.9 > 99	44	2.178	2.183		753247	16	>100:1	3.55 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.530	2.531	0/0	2166376	17	>100:1	Target = 3.10		14070	13740		
349 > 99	44	2.530	2.531		721632	17	>100:1	3.00 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.460	0	100279	17	>100:1			5000.00	4428.56	89.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.459	2.460	0/0	697417	17	>100:1	Target = 1.75		14010	15775		
327 > 81	63	2.459	2.460		359357	16	>100:1	1.94 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.505	0	633613	16	>100:1			1000.00	972.86	95.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.503	2.505	0/0	9542047	18	>100:1	Target = 18.91		15000	14484		
313 > 119	49	2.503	2.505		513210	17	>100:1	18.59 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.622	0	1096372	18	>100:1			5000.00	4730.71	91	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.613	2.622	0/0	4224675	19	>100:1	Target = 0.79		30000	29749		
285 > 185	66	2.613	2.622		5395278	19	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.880	0	522555	18	>100:1			1000.00	984.21	98	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.880	0/0	7758440	17	>100:1	Target = 3.80		15000	13512		
363 > 169	47	2.879	2.880		2123672	19	>100:1	3.65 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.895	2.896	0	117475	18	>100:1			1000.00	935.02	90.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.895	2.896	0/0	1799881	27	>100:1	Target = 2.89	4.66	13650	13936		
399 > 99	45	2.895	2.896		579076	27	>100:1	3.10 (1.44-4.34)	6.67				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.917	2.919	0/0	12624919	19	>100:1	Target = 3.23		14130	13858		
377 > 85	45	2.917	2.919		4074240	19	>100:1	3.09 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.273	3.276	0/0	1649459	22	>100:1	Target = 3.12		14280	13671		
449 > 99	45	3.273	3.276		556981	22	>100:1	2.96 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.238	3.248	0	84101	23	>100:1			5000.00	4672.29	89.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.245	3.248	0/0	549020	20	>100:1	Target = 1.75		14220	13788		
427 > 81	64	3.245	3.248		307858	21	>100:1	1.78 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.276	0	493065	22	>100:1			1000.00	939.75	90	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.266	3.276	0/0	7287671	23	>100:1	Target = 2.89		15000	14423		
413 > 169	53	3.273	3.276		2494039	21	>100:1	2.92 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.648	3.651	0	122035	21	>100:1			1000.00	985.40	92.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.648	3.662	0/0	1912794	41	>100:1	Target = 3.30	3.62	13920	13164		M
499 > 99	54	3.654	3.662		562324	37	>100:1	3.40 (1.65-4.95)	7.07				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.858	3.863	0/0	6348515	17	>100:1			13980	13737		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.999	4.006	0/0	1321901	16	>100:1	Target = 3.08		14400	13502		
549 > 99	54	3.999	4.006		526265	16	>100:1	2.51 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.310	4.318	0/0	1297701	15	>100:1	Target = 2.72		14460	13589		
599 > 99	54	4.310	4.318		488233	15	>100:1	2.65 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.477	4.483	0/0	5461375	17	>100:1			14130	13072		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.838	4.842	0/0	1434957	18	>100:1	Target = 3.27		14520	13675		
699 > 99	54	4.838	4.842		467758	18	>100:1	3.06 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.659	3.662	0	601225	21	>100:1			1000.00	938.86	94.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.659	3.662	0/0	9619483	21	>100:1	Target = 6.51		15000	14844		
463 > 169	56	3.659	3.662		1462390	22	>100:1	6.57 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.891	3.896	0	255120	17	>100:1			1000.00	951.73	95.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.891	3.896	0/0	4080280	18	>100:1	Target = 41.63		15000	15200		
498>478	55	3.891	3.896		122582	17	>100:1	33.28 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.020	4.016	1	544823	17	>100:1			1000.00	948.08	94.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.010	4.016	0/-1	9034213	16	>100:1	Target = 13.80		15000	14249		
513 > 169	51	4.010	4.016		704248	16	>100:1	12.82 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.999	4.016	-1	76282	17	>100:1			5000.00	4413.32	96.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.010	4.016	0/1	503489	16	>100:1	Target = 1.94		14370	14605		
527 > 81	65	4.010	4.016		264894	16	>100:1	1.90 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.625	4.631	0/1	635374	17	>100:1	Target = 3.54		14460	16418		
627 > 80	65	4.625	4.631		179265	18	>100:1	3.54 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.171	4.178	0	715483	17	>100:1			5000.00	4734.77	92.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.171	4.178	0/0	1678300	31	>100:1	Target = 1.37	7.56	15000	14616		
570 > 483	58	4.171	4.178		1248017	31	>100:1	1.34 (0.68-2.05)	4.21				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.290	4.288	1	88623	14	>100:1			1000.00	982.64	98.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.300	4.298	1/0	1427696	15	>100:1			15000	14741		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.310	4.318	0	44329	19	>100:1			1000.00	942.34	98.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.320	4.318	1/1	699653	14	>100:1	Target = 1.11		15000	14562		
512 > 219	57	4.320	4.318		639310	14	>100:1	1.09 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.330	4.338	0	584720	16	>100:1			5000.00	4514.75	84.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.340	4.348	0/0	1712589	32	>100:1	Target = 1.51	5.92	15000	15019		
584 > 526	60	4.340	4.348		1090338	29	>100:1	1.57 (0.75-2.26)	3.34				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.330	4.338	0	527476	16	>100:1			1000.00	875.84	83.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.330	4.338	0/0	7956538	16	>100:1	Target = 14.52		15000	15567		
563 > 169	52	4.330	4.338		528360	17	>100:1	15.05 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.459	4.455	1	105046	16	>100:1			1000.00	990.28	103.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.468	4.464	1/0	1513895	15	>100:1			15000	14804		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.477	4.483	0	43668	13	>100:1			1000.00	1015.54	101.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.486	4.483	1/1	754628	14	>100:1	Target = 1.06		15000	14599		
526 > 219	59	4.486	4.483		734956	14	>100:1	1.02 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.608	4.614	0	640359	17	>100:1			1000.00	1066.67	106	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.617	4.622	0/0	9303305	17	>100:1	Target = 10.70		15000	13628		
613 > 169	38	4.617	4.622		862017	17	>100:1	10.79 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.864	4.877	0/0	8116160	18	>100:1	Target = 8.31		15000	12058		
663 > 169	38	4.864	4.877		967954	16	>100:1	8.38 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.097	5.106	0	787350	21	>100:1			1000.00	968.46	93.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.097	5.106	0/0	9617011	22	>100:1	Target = 12.17		15000	13992		
713 > 169	42	5.097	5.106		803215	22	>100:1	11.97 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.544	0	870178	22	>100:1			1000.00	1002.47	99.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.552	0/0	7743034	21	>100:1	Target = 10.43		15000	13894		
813 > 269	40	5.539	5.552		749842	22	>100:1	10.32 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.000	6.026	-1/-1	10647394	42	>100:1	Target = 13.67		15000	13440		
913 > 319	40	5.995	6.026		773254	41	>100:1	13.76 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.010	4.016	0	641184	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.503	2.505	0	626878	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.276	0	503361	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.728	1.731	0	532630	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.648	3.657	0	118944	21	>100:1			1000.00			

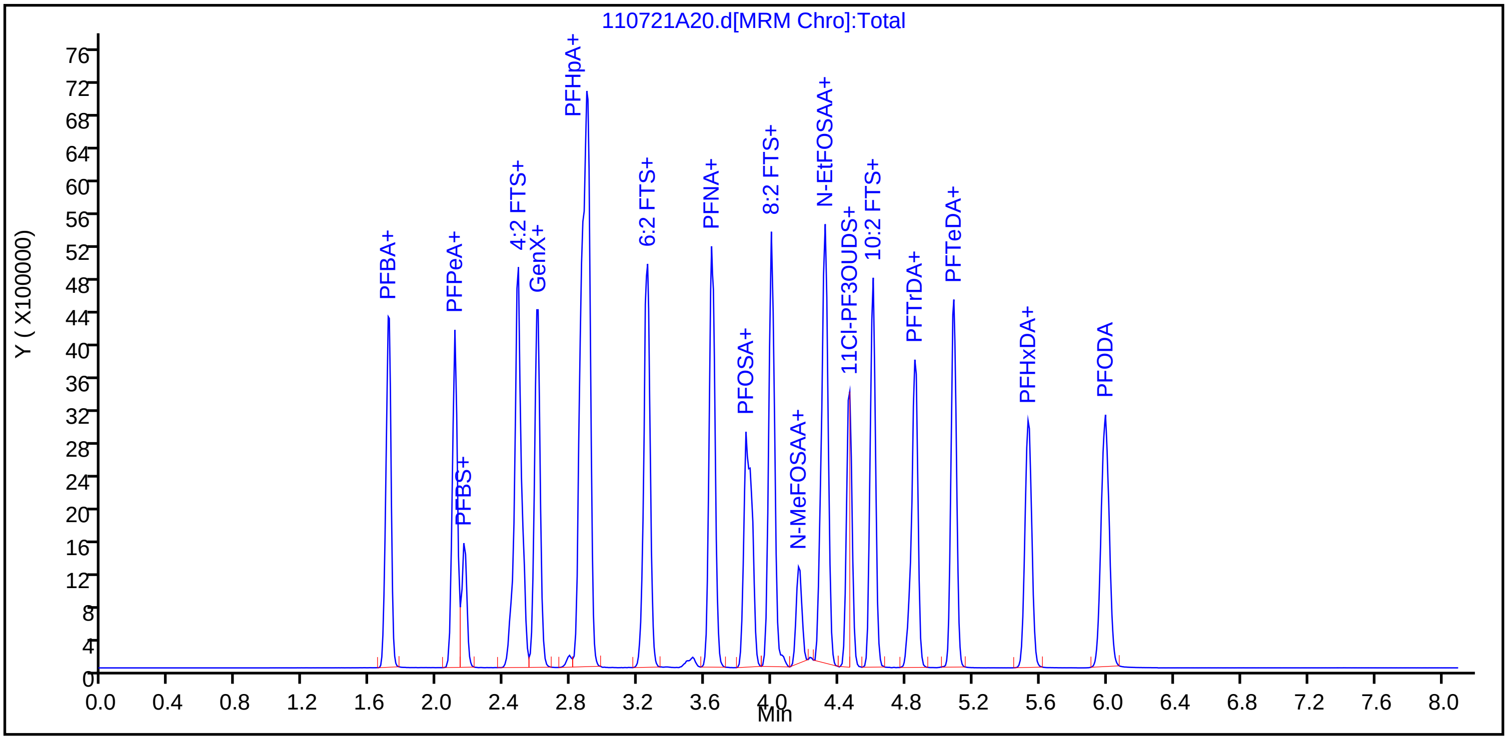
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

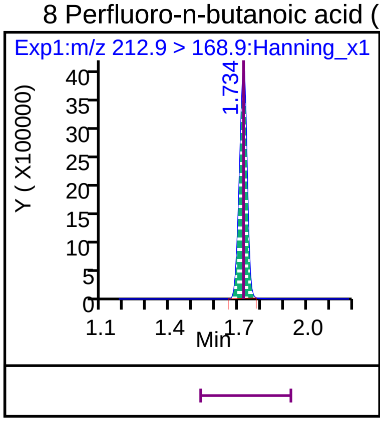
Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

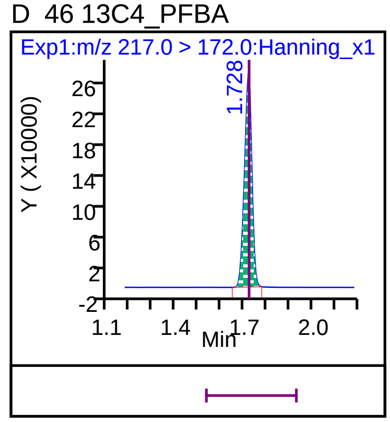
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 15000_SVLC-1748
Sample Info:	ID ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin



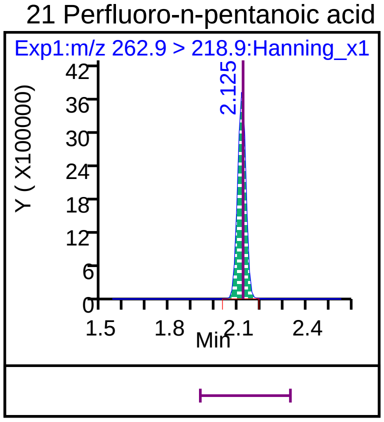
8 Perfluoro-n-butanoic acid (PFBA)



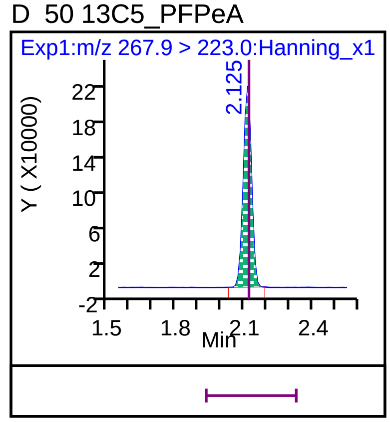
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

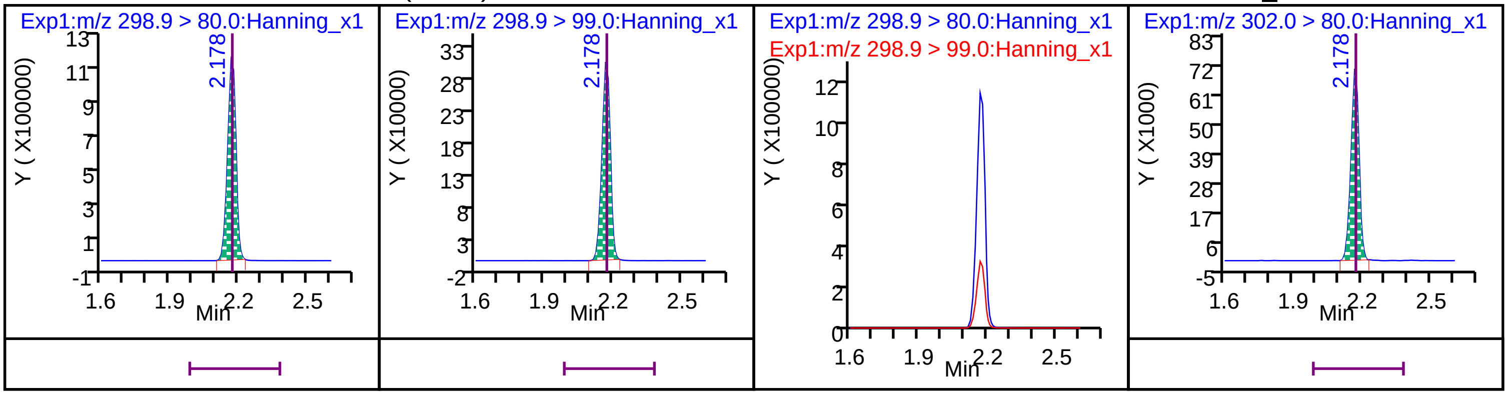


D 50 13C5_PFPeA

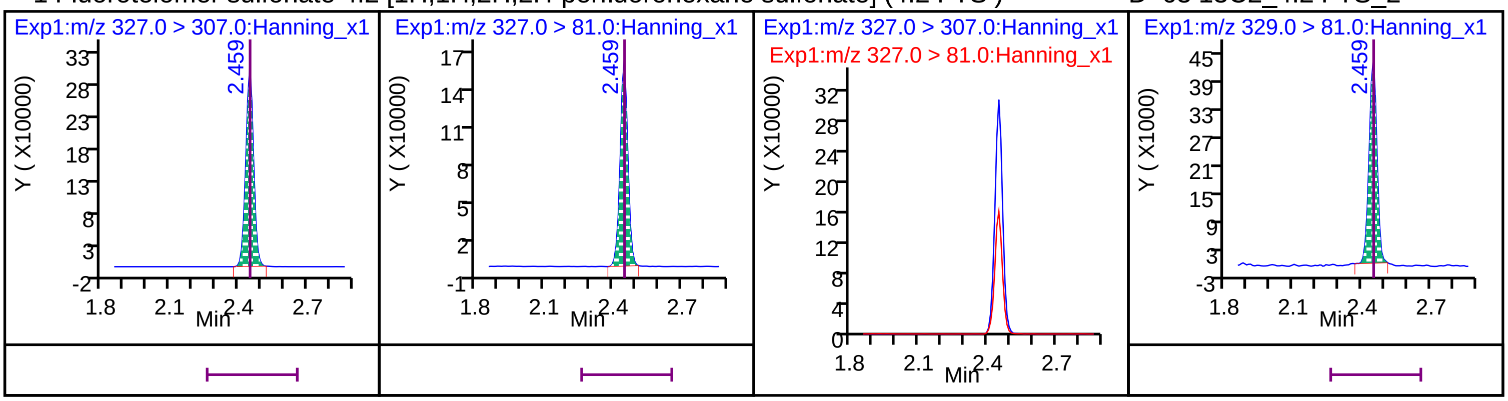


Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d

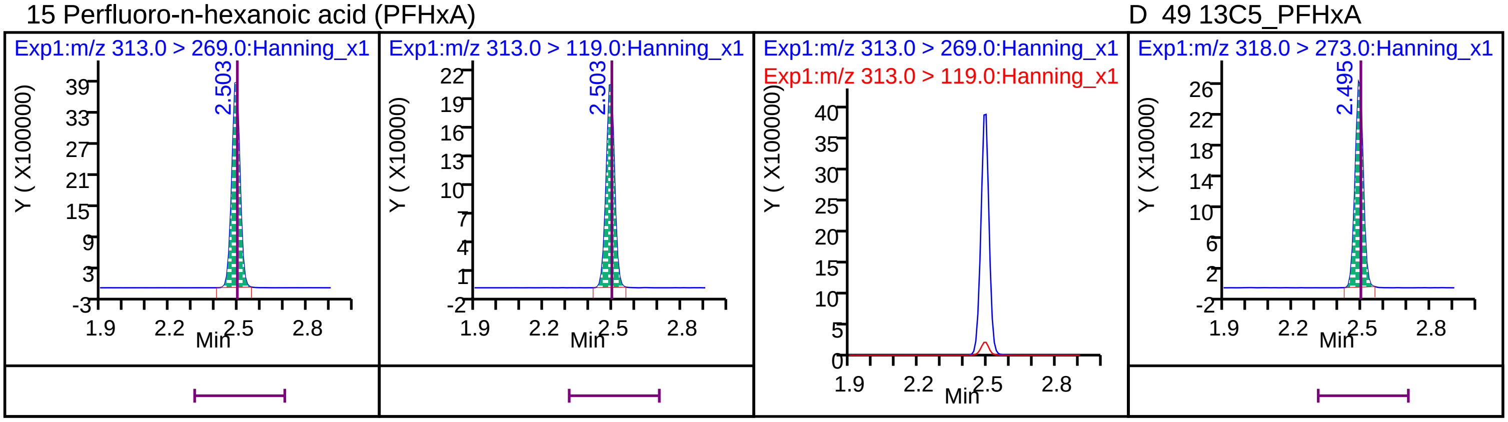
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



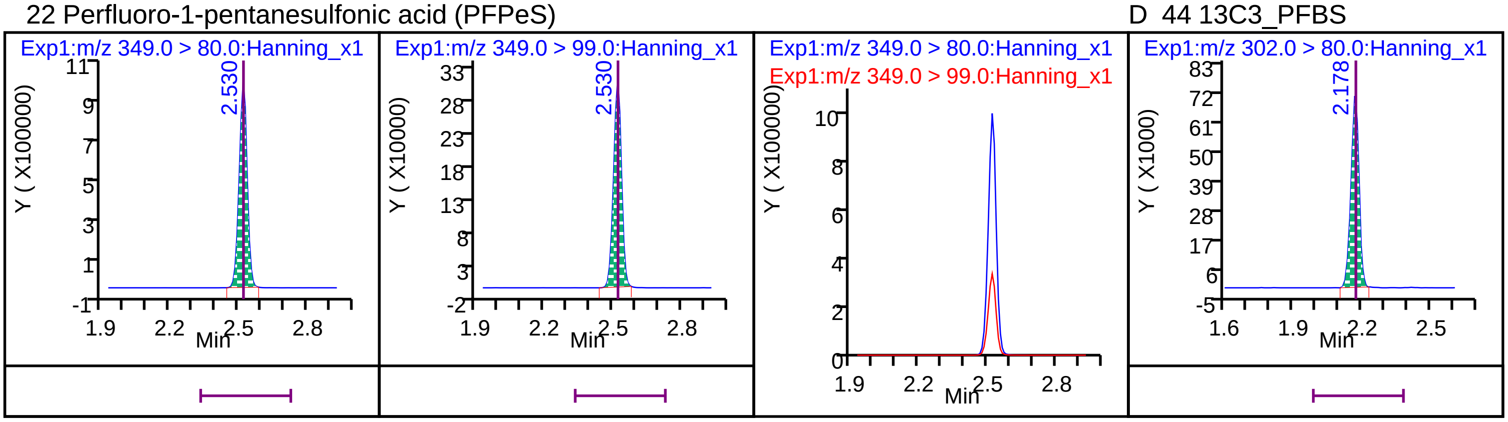
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



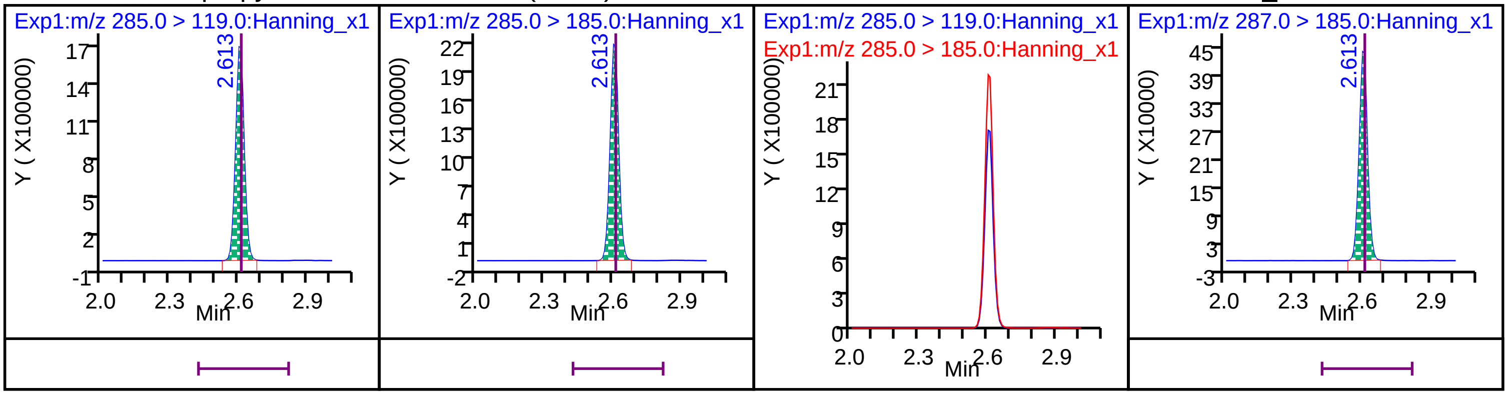
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



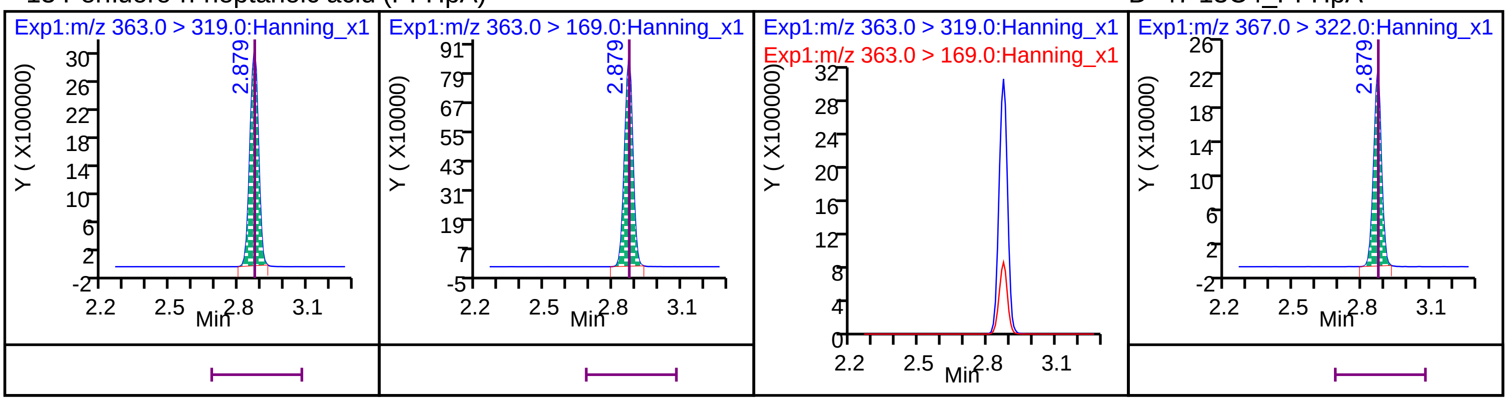
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



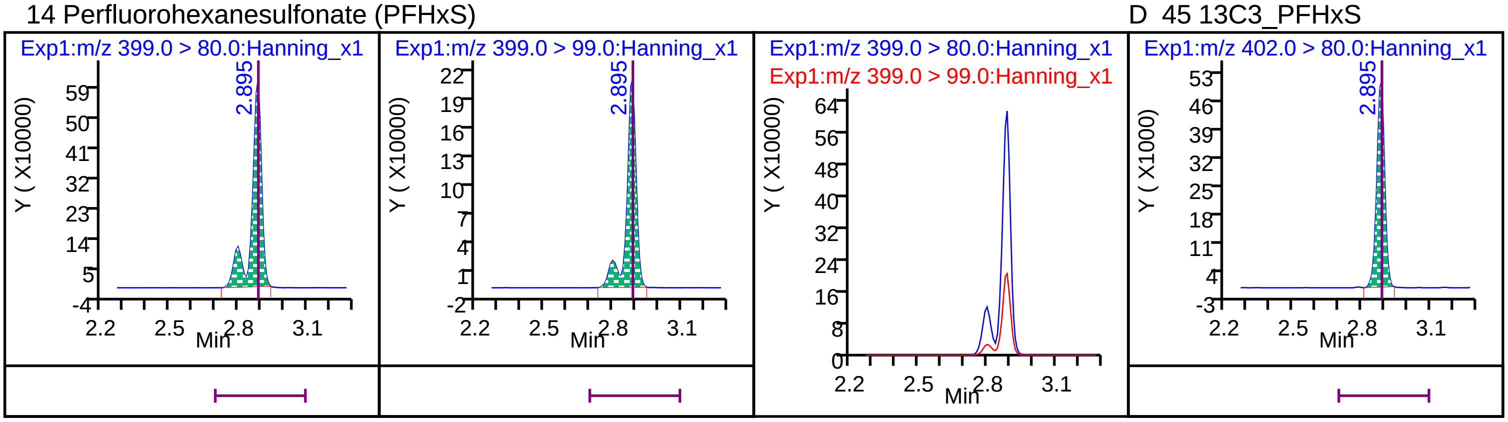
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



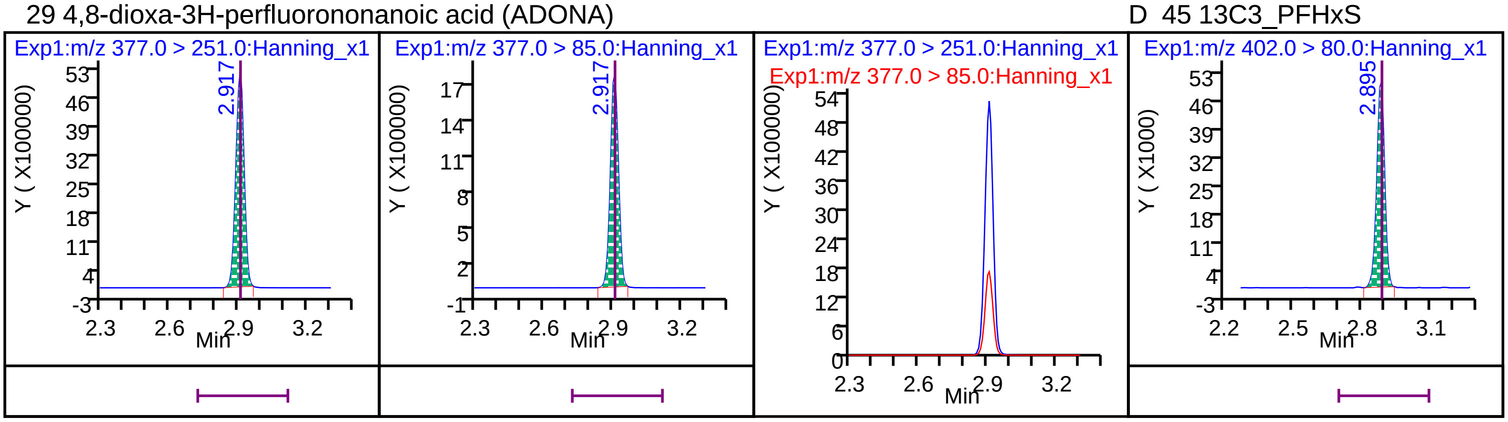
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



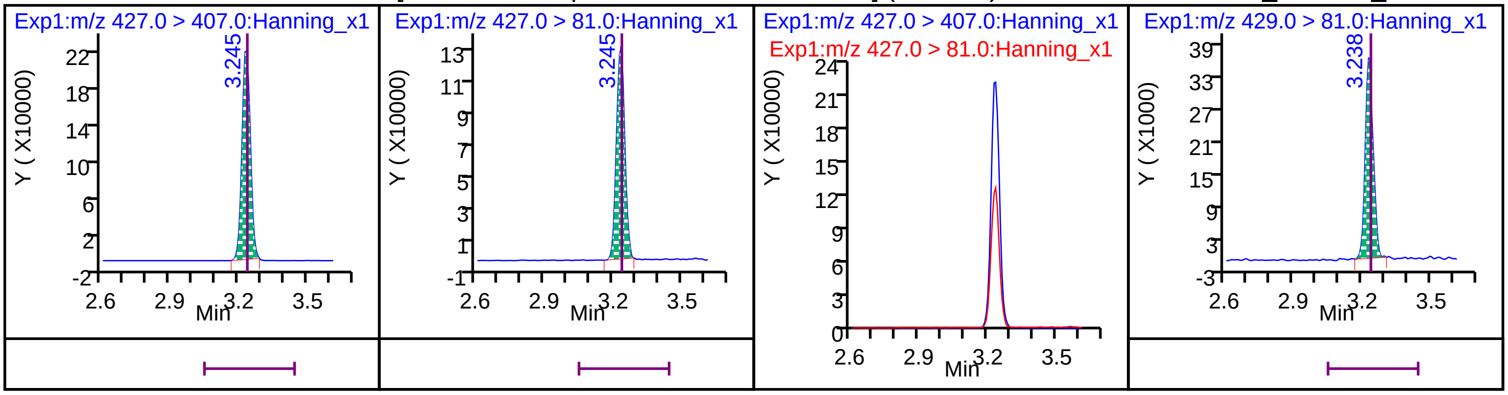
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



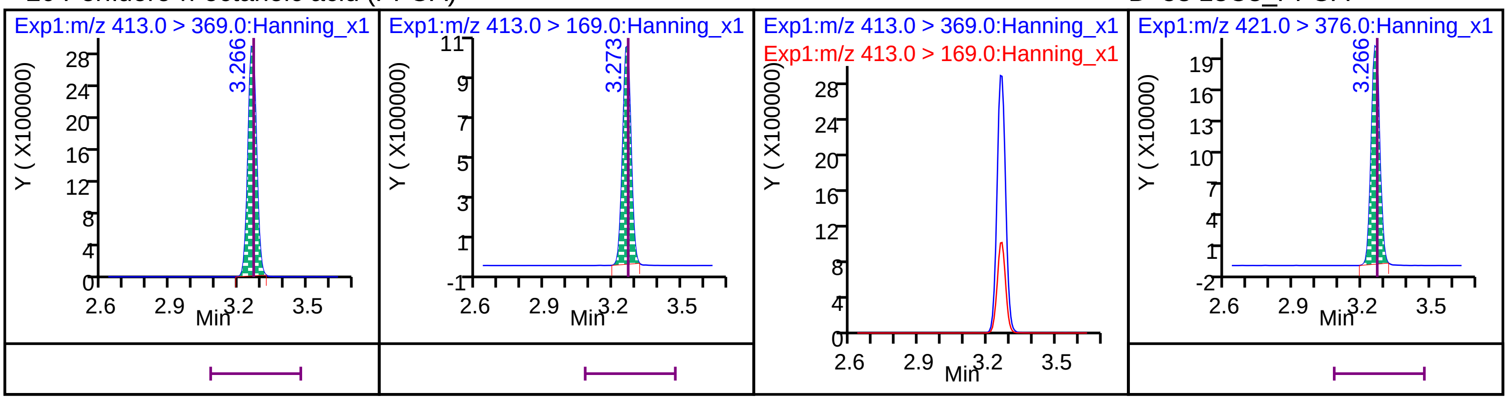
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



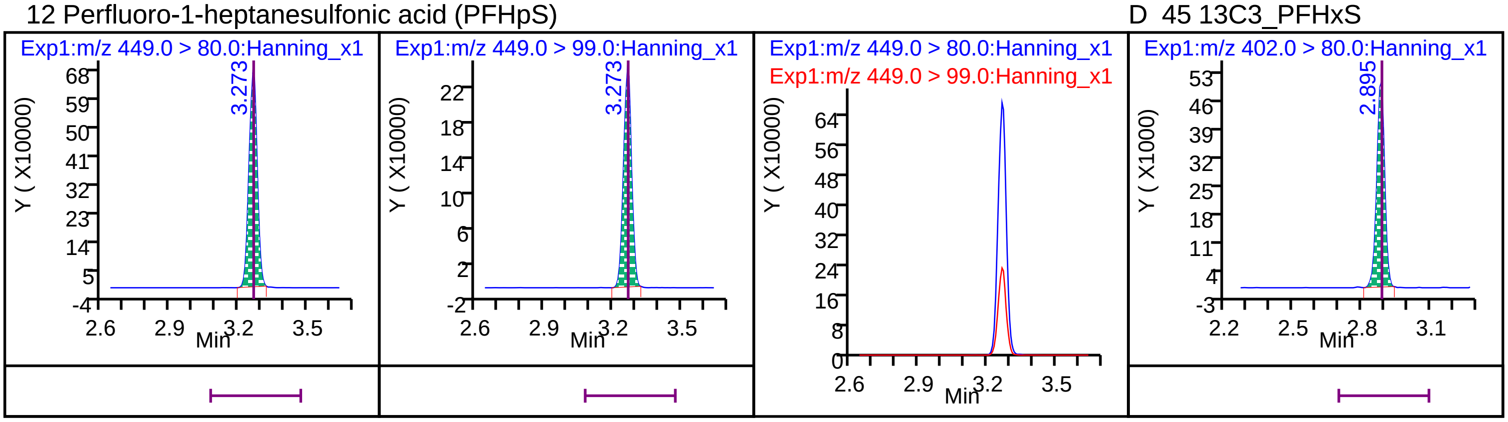
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



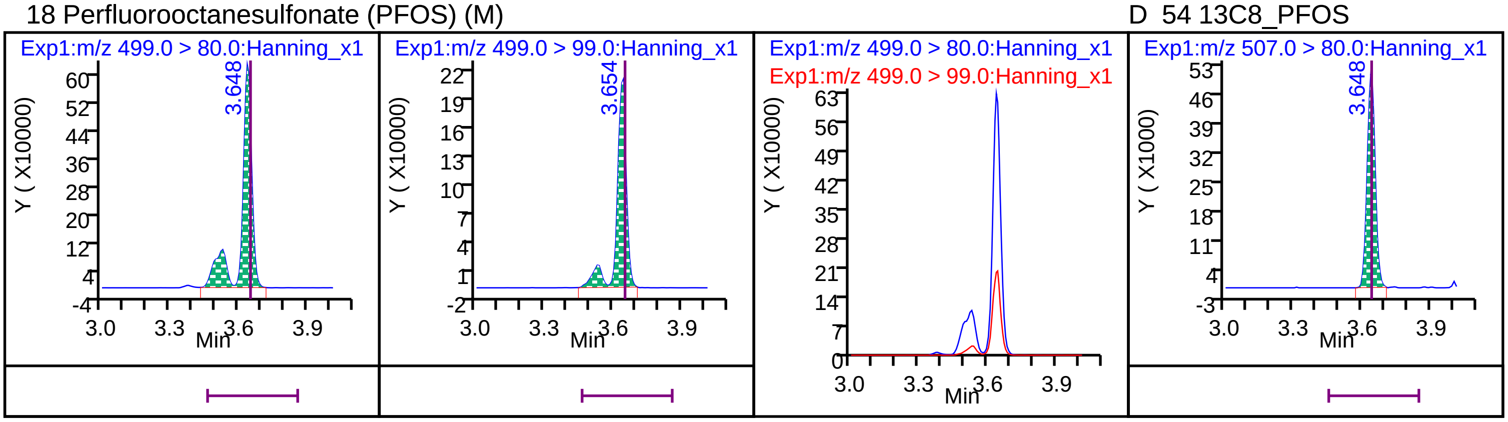
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



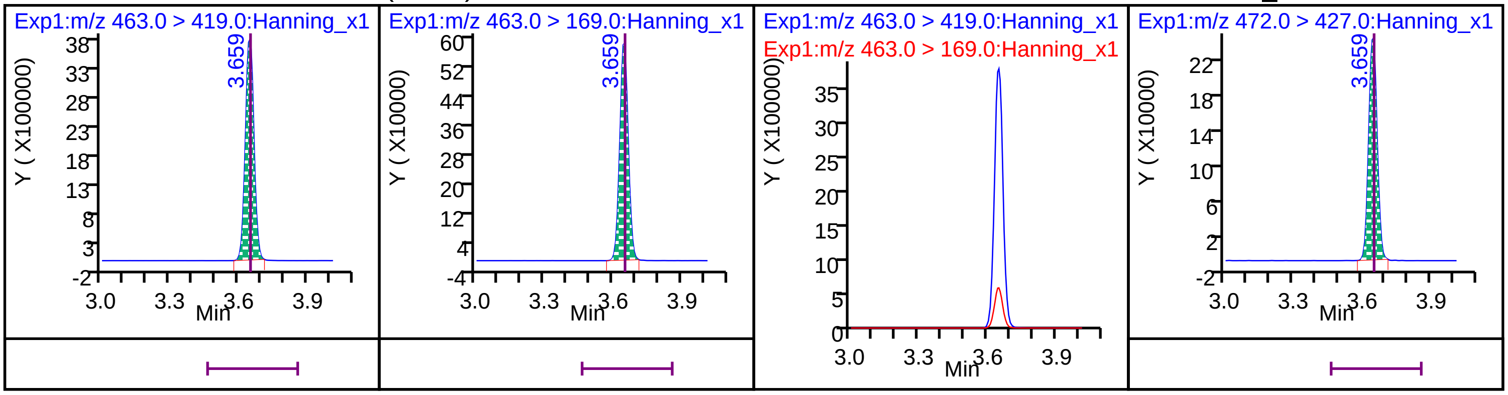
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



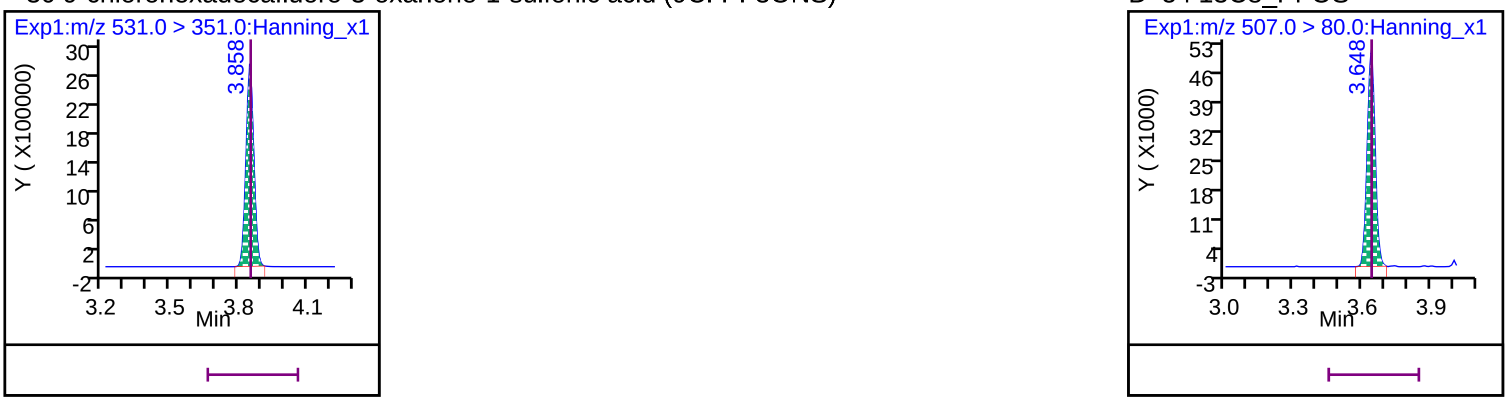
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



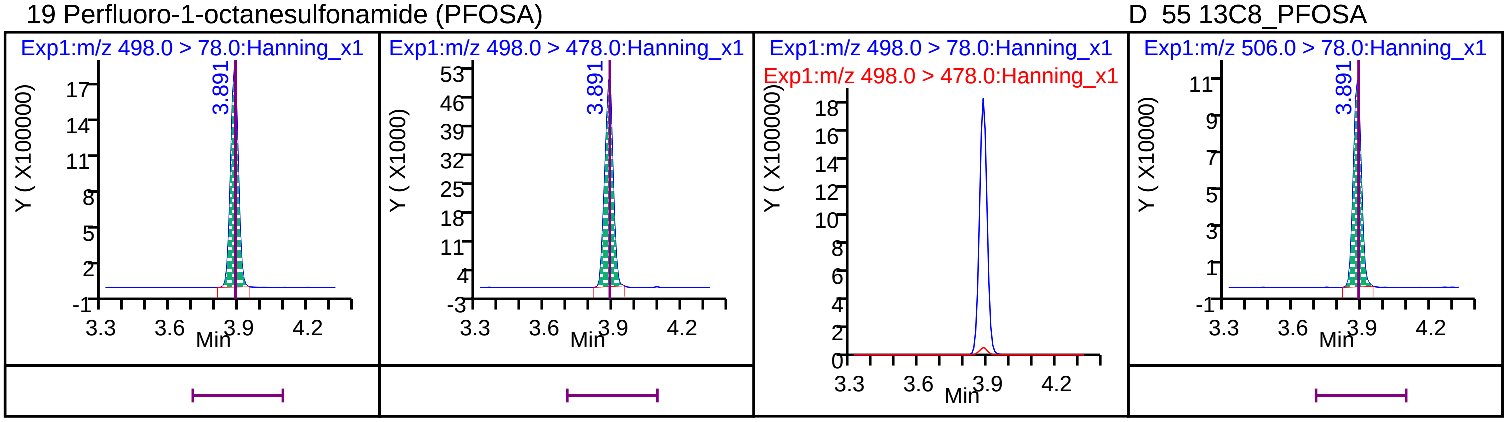
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



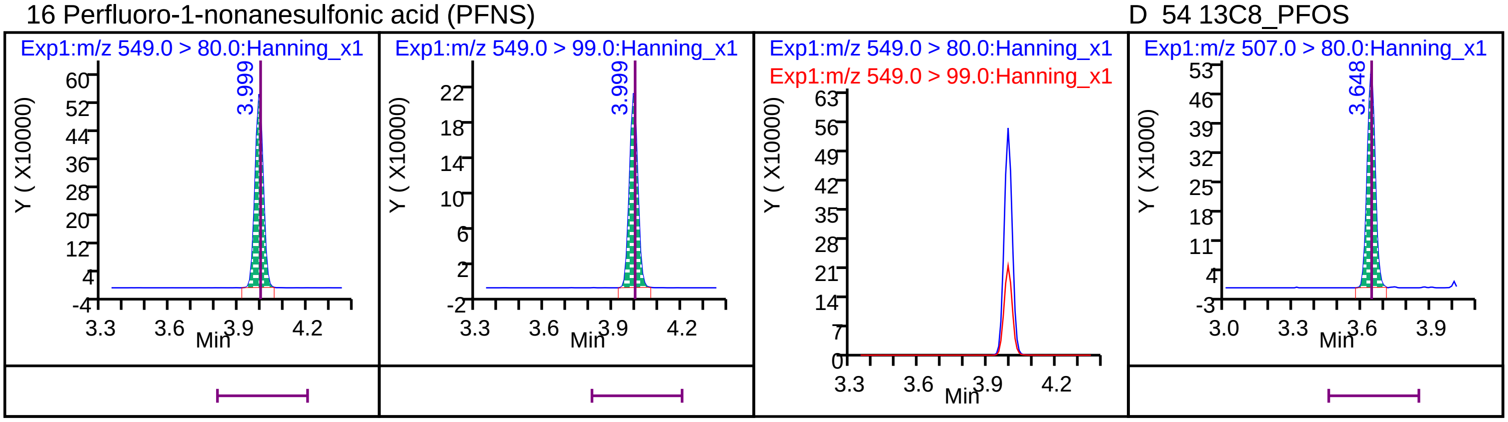
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



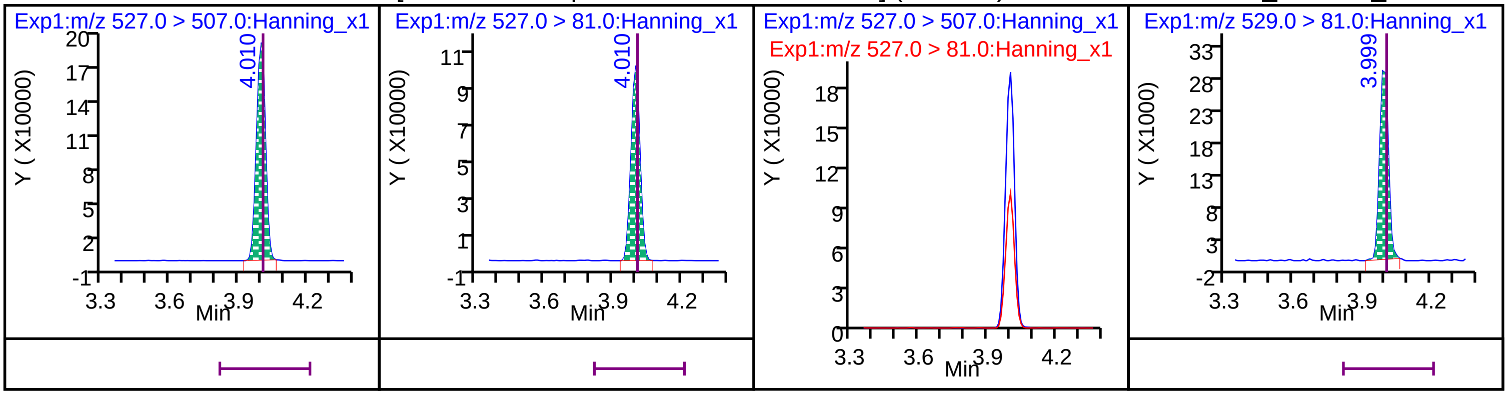
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



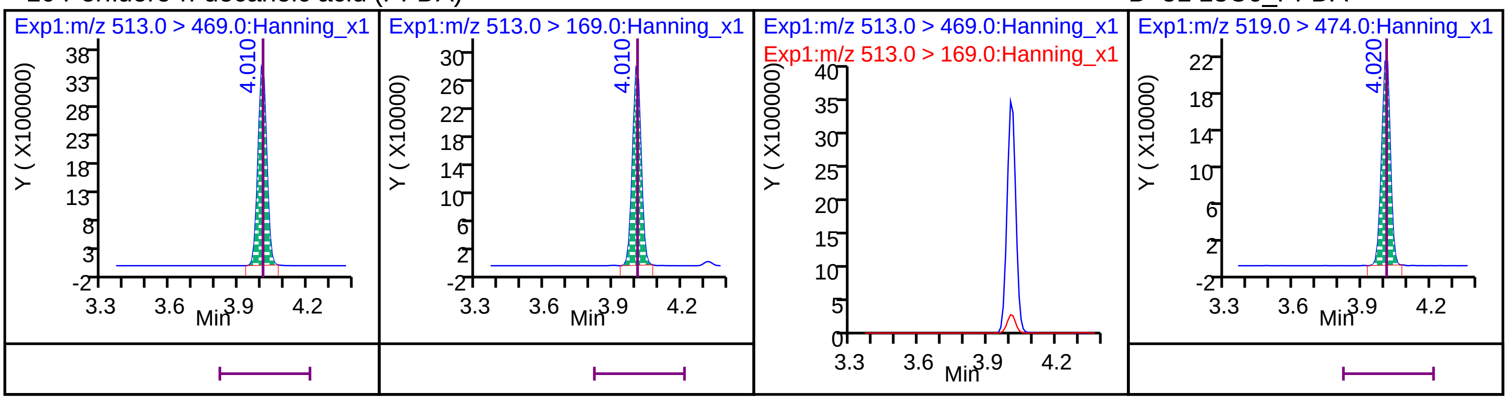
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



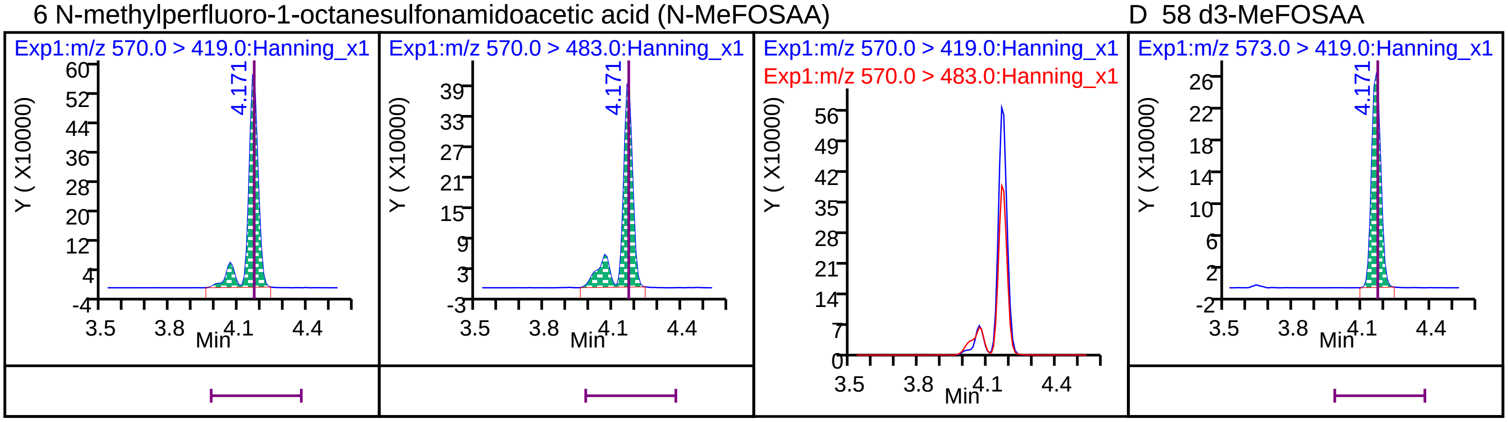
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

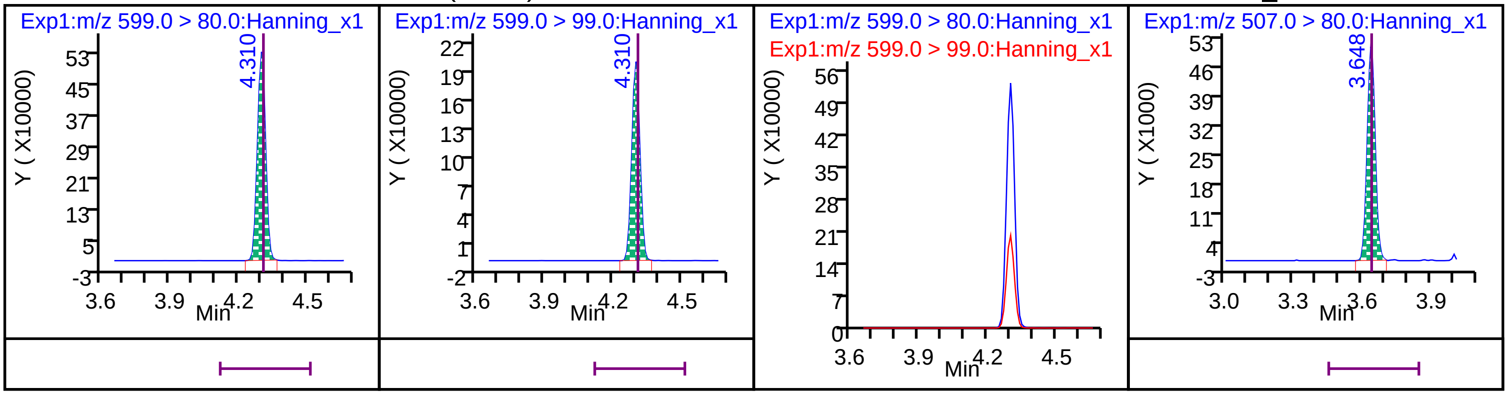


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

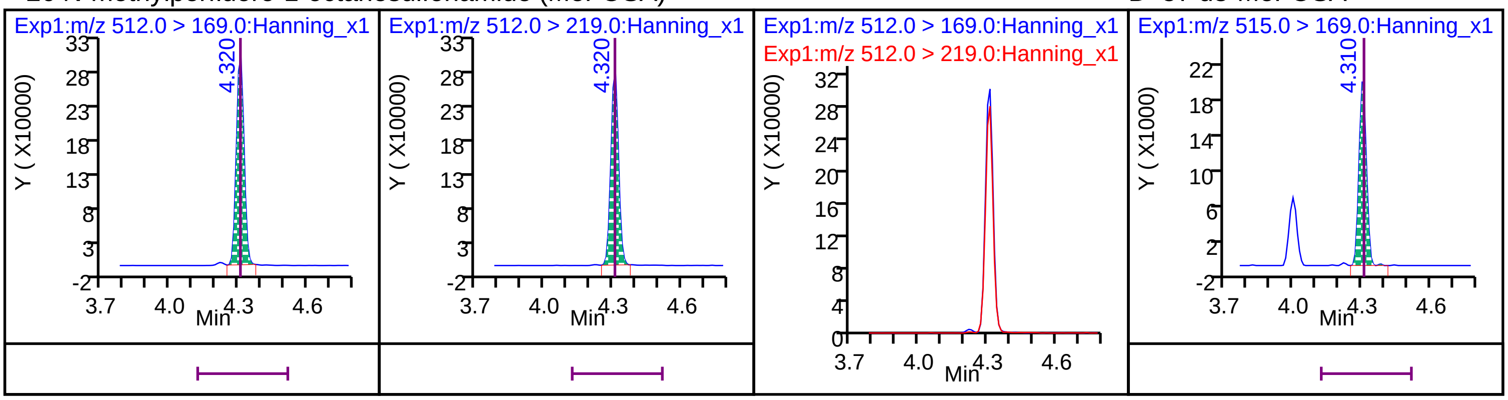
Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d

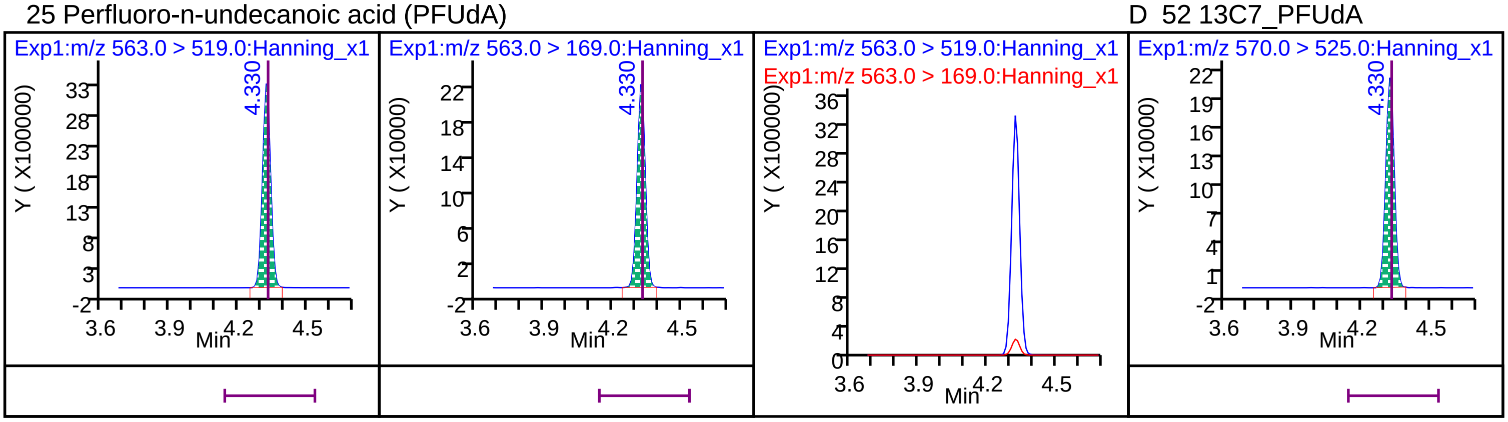
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



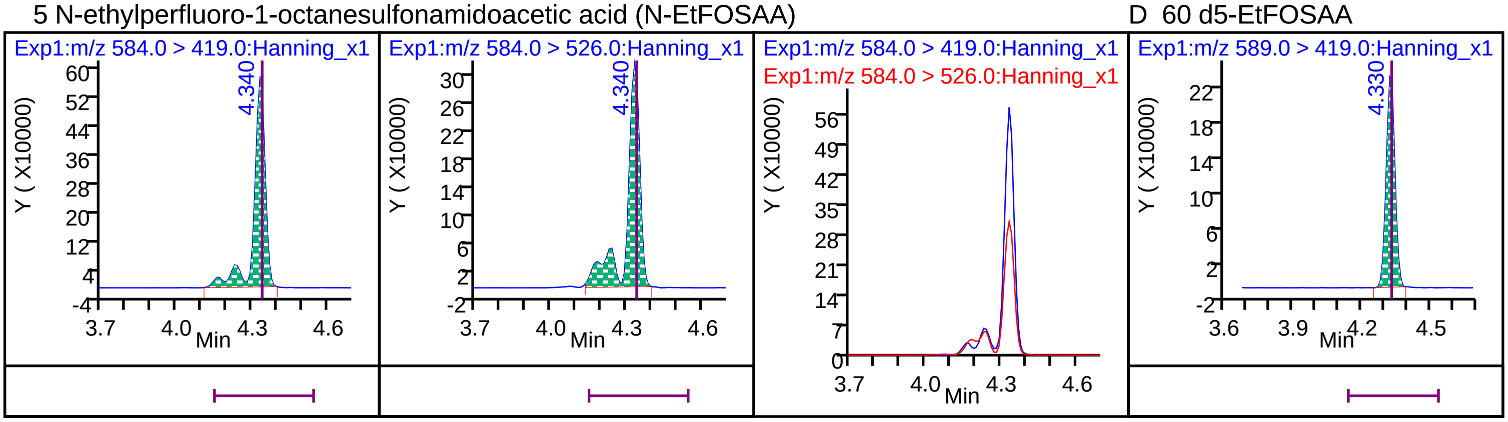
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



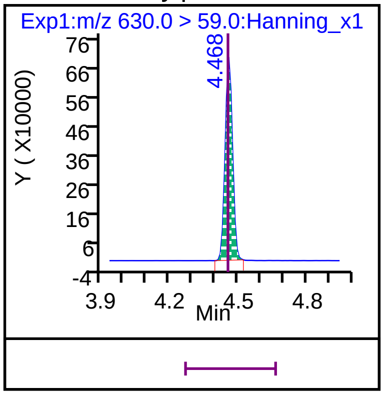
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



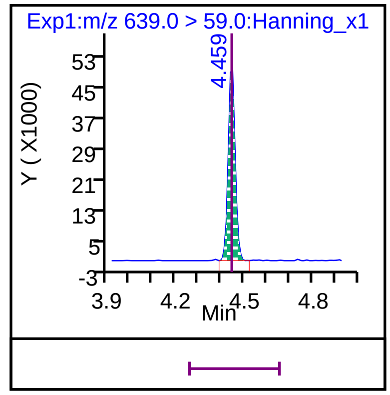
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



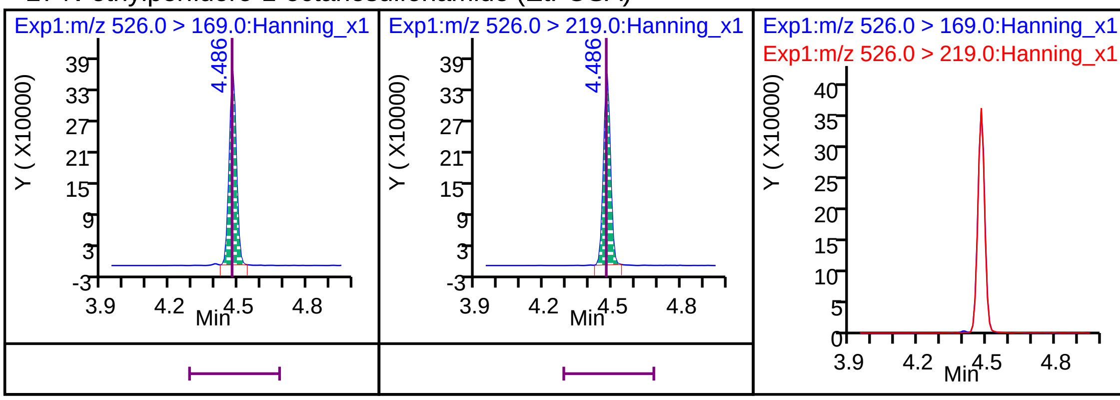
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



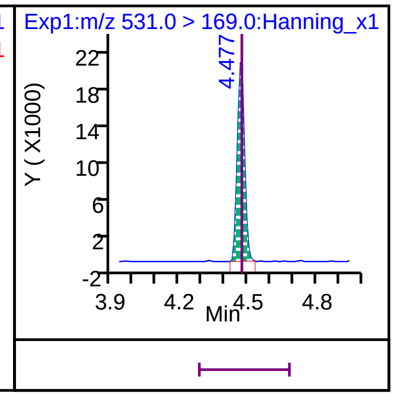
D 62 d9-EtFOSE



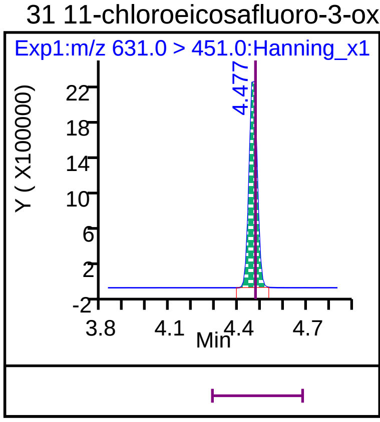
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



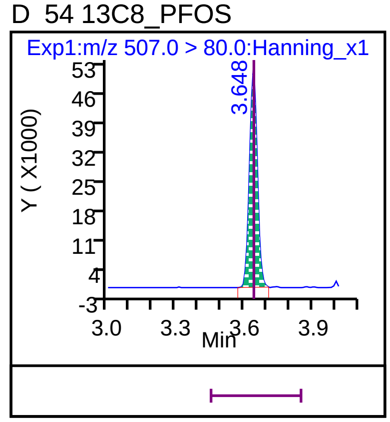
D 59 d5-EtFOSA



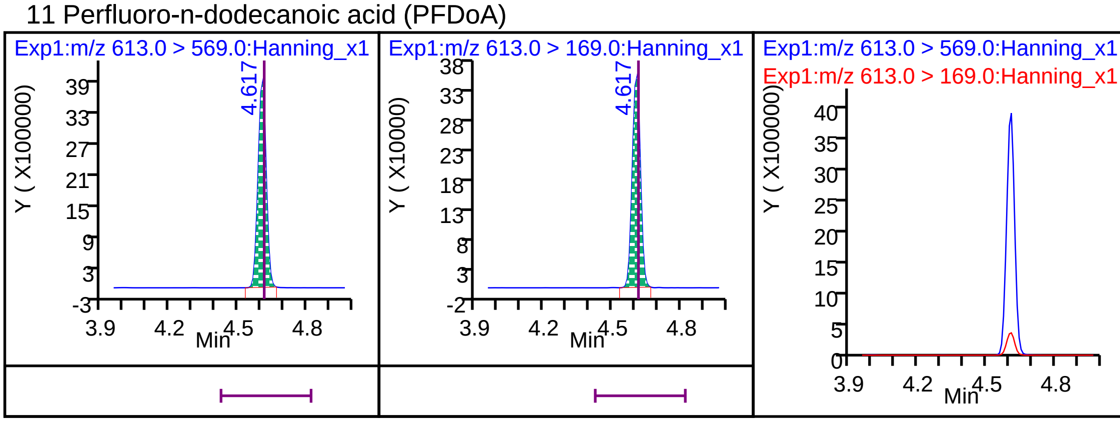
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



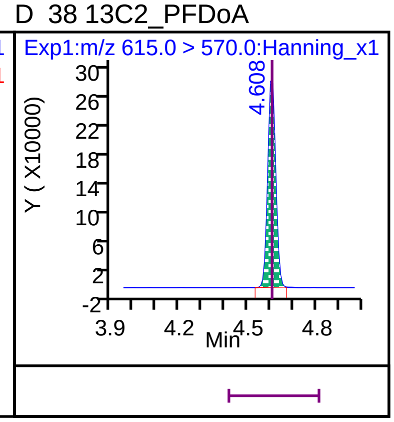
D 54 13C8_PFOS



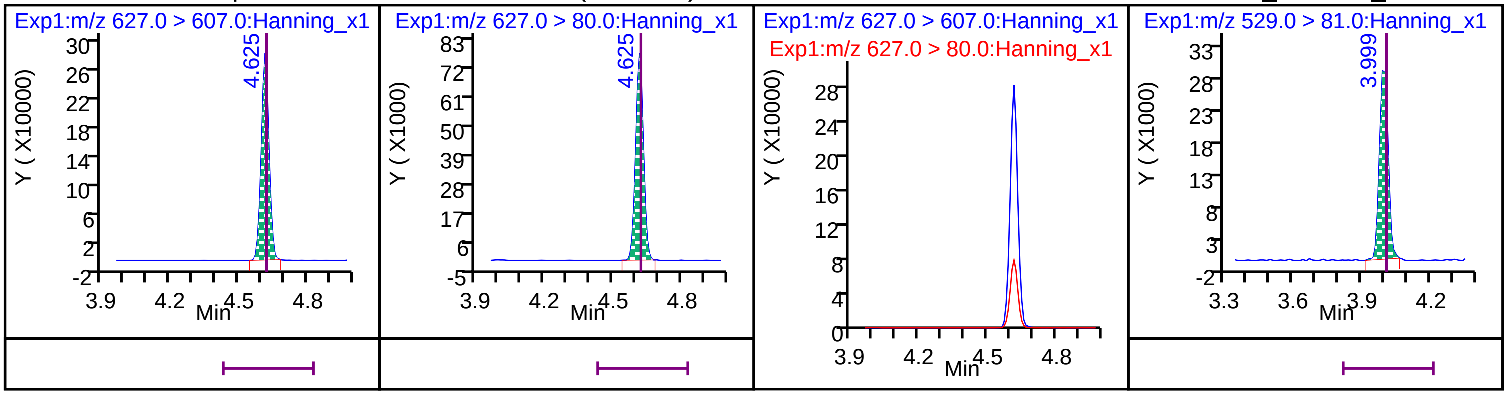
11 Perfluoro-n-dodecanoic acid (PFDoA)



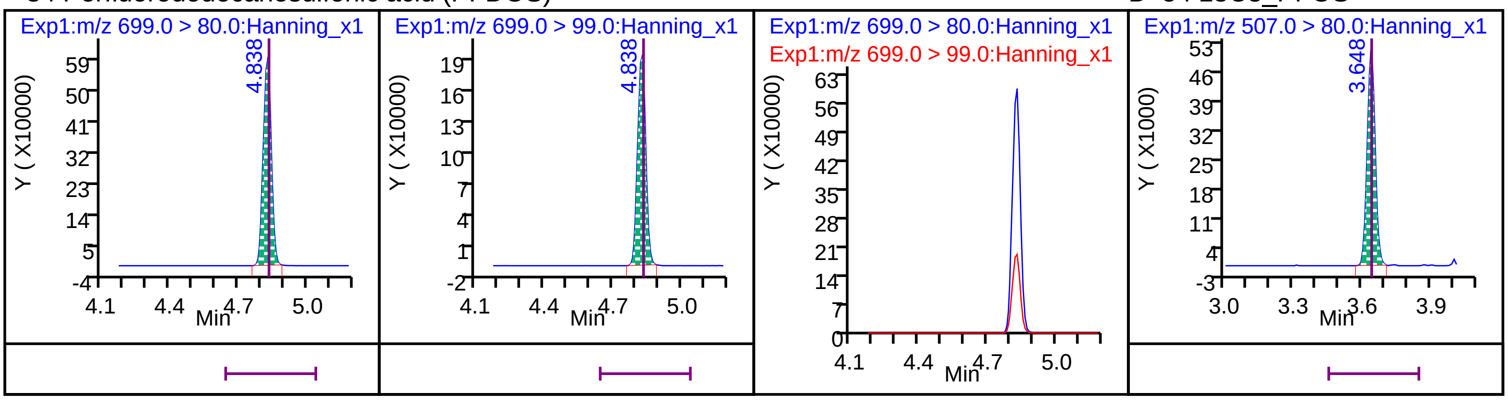
D 38 13C2_PFDoA



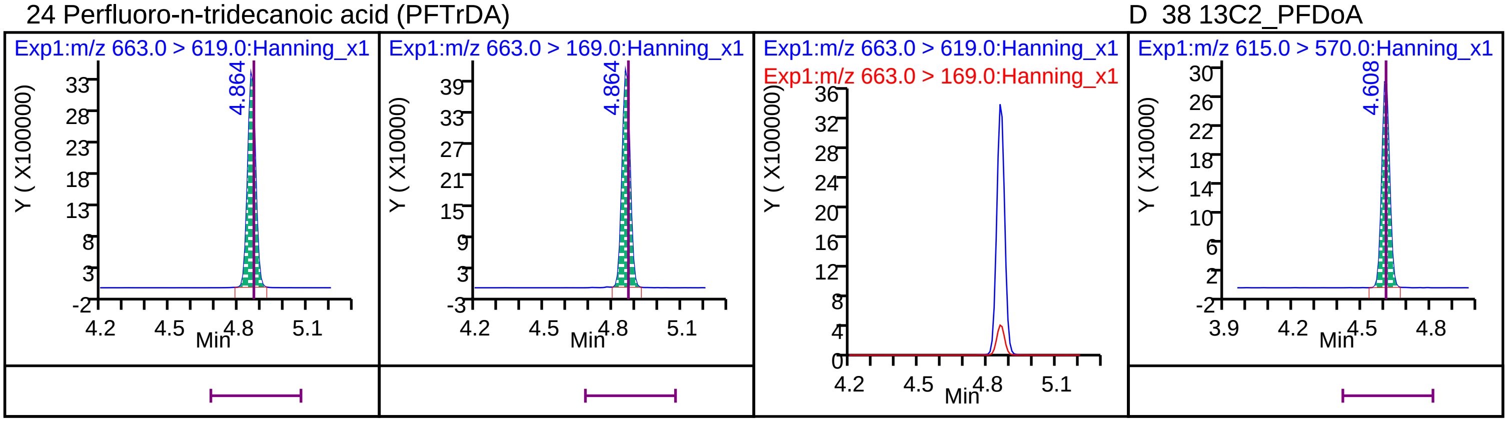
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



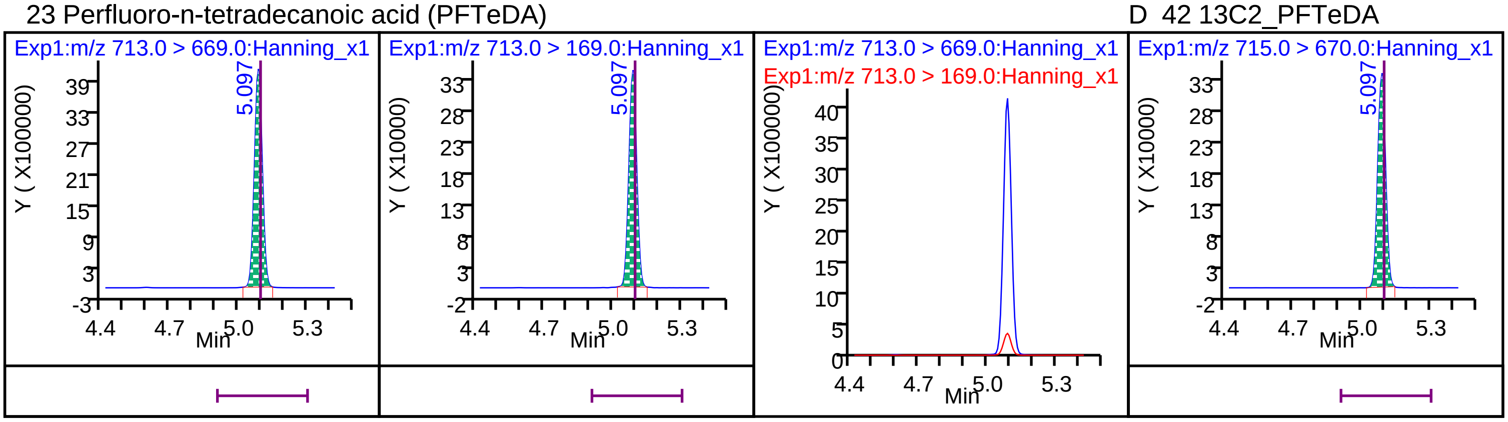
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



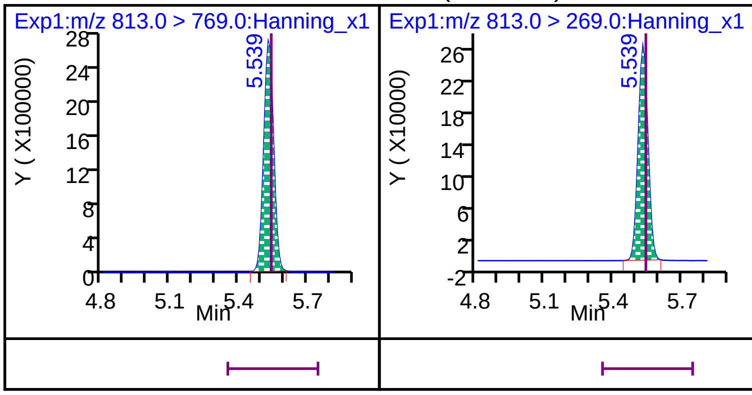
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



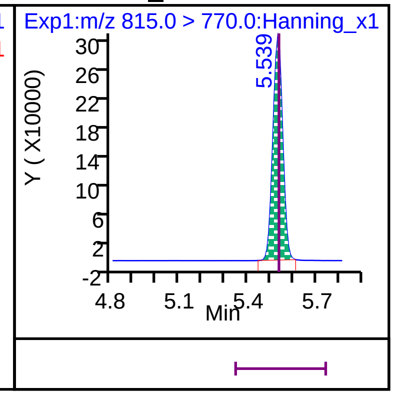
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



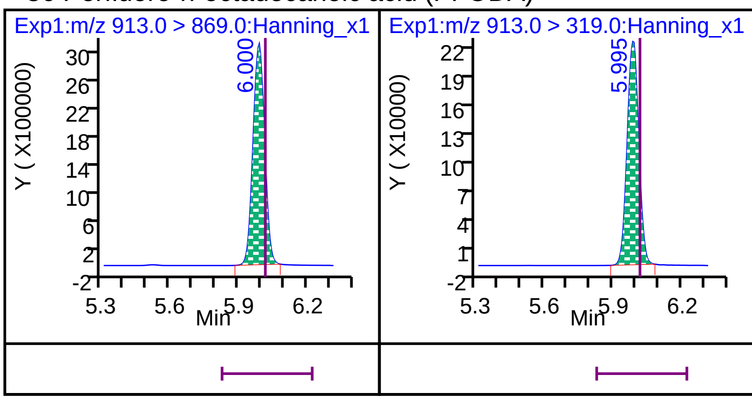
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



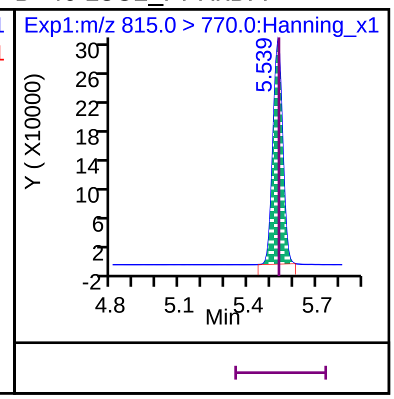
D 40 13C2_PFHxDA



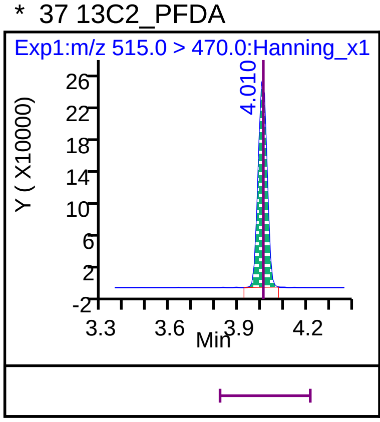
36 Perfluoro-n-octadecanoic acid (PFODA)



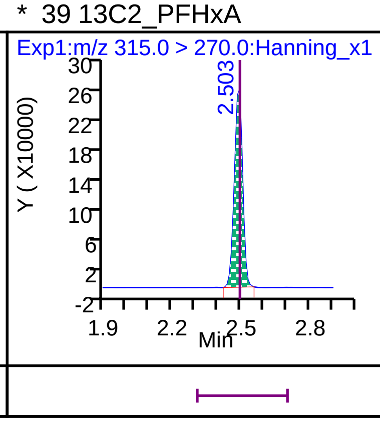
D 40 13C2_PFHxDA



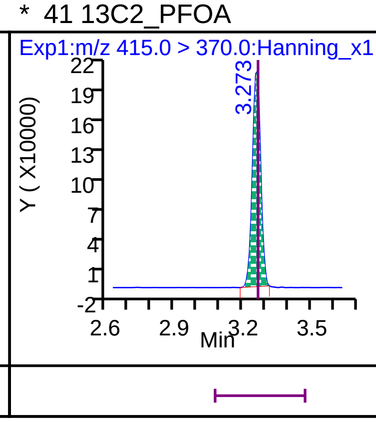
* 37 13C2_PFDA



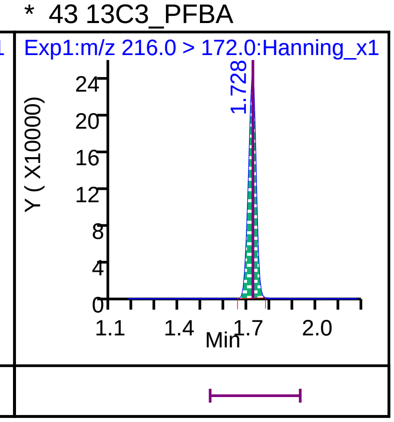
* 39 13C2_PFHxA



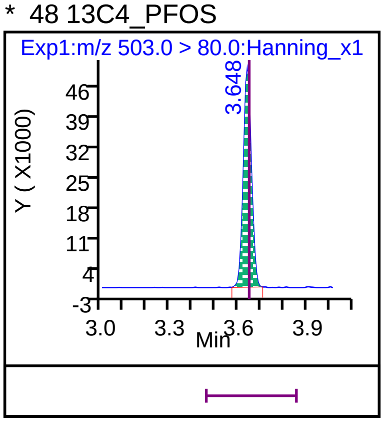
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:26 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

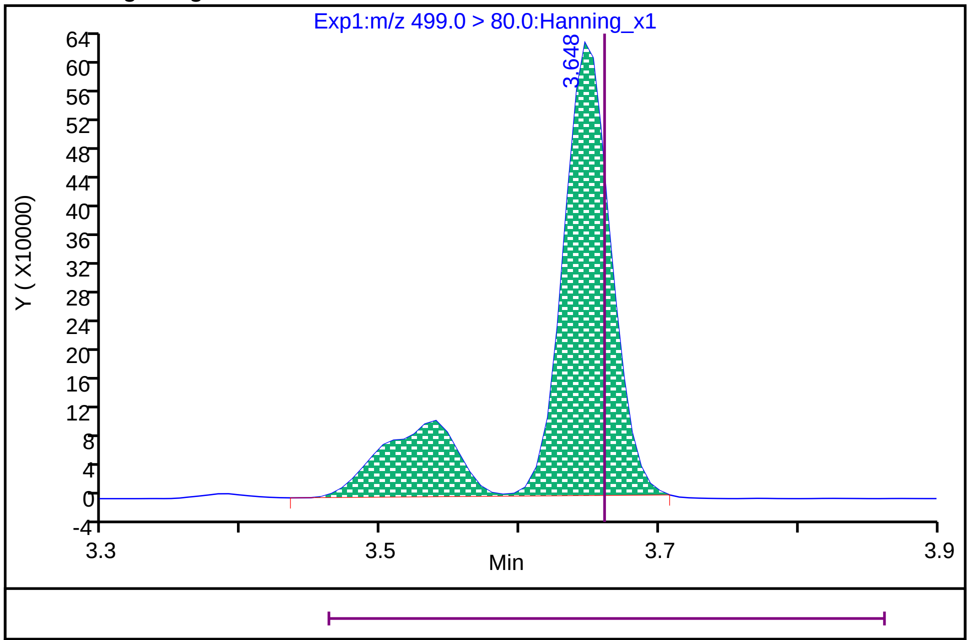
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A20.d		
Injection Date:	07-Nov-2021 20:12:06	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 15000_SVLC-1748
Sample Info:	ID ICAL 15000_SVLC-1748		
Dil. Factor:	1	Operator:	Justin Gavin

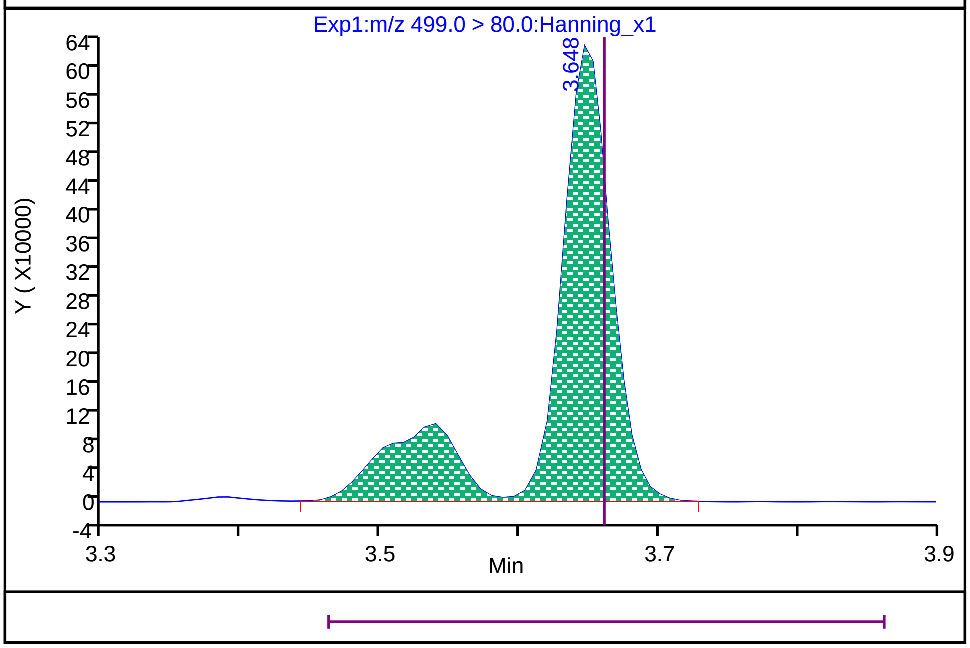
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.648
Area: 1869519
Amount: 12841
Amount Units: ng/L



RT: 3.648
Area: 1912794
Amount: 13164
Amount Units: ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:39
Audit Action: Mint
Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Injection Vol:	10.0 uL
Sample Type:	Ical, Level: 10	Auto Sampler:	84
Sample Info:	ID ICAL 20000_SVLC-1749	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-10 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	601428	20	>100:1			1000.00	967.43	94.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	12271777	20	>100:1			20000	19347		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.130	0	562559	16	>100:1			1000.00	984.20	97	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.130	0/0	12285003	14	>100:1			20000	19403		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	172528	16	>100:1			1000.00	997.45	96.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	3784673	16	>100:1	Target = 3.53		17680	17591		
298.9 > 99	44	2.183	2.183		1060665	16	>100:1	3.56 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	3011449	17	>100:1	Target = 3.10		18760	18834		
349 > 99	44	2.532	2.531		995968	17	>100:1	3.02 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	111342	16	>100:1			5000.00	4917.12	99.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	918635	16	>100:1	Target = 1.75		18680	18714		
327 > 81	63	2.460	2.460		478434	17	>100:1	1.92 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	630351	18	>100:1			1000.00	967.85	94.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	13063789	18	>100:1	Target = 18.91		20000	19932		
313 > 119	49	2.496	2.505		701779	17	>100:1	18.61 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1088480	19	>100:1			5000.00	4696.66	90.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	5757611	19	>100:1	Target = 0.79		40000	40838		
285 > 185	66	2.614	2.622		7184736	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	508162	19	>100:1			1000.00	957.10	95.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/1	10807866	17	>100:1	Target = 3.80		20000	19356		
363 > 169	47	2.881	2.880		2939906	17	>100:1	3.67 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	1	117903	19	>100:1			1000.00	938.42	90.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/-1	2431672	27	>100:1	Target = 2.89	4.58	18200	18760		
399 > 99	45	2.888	2.896		765406	27	>100:1	3.17 (1.44-4.34)	7.97				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.919	2.919	1/0	17168081	19	>100:1	Target = 3.23		18840	18776		
377 > 85	45	2.919	2.919		5499702	19	>100:1	3.12 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	1/0	2273794	21	>100:1	Target = 3.12		19040	18777		
449 > 99	45	3.269	3.276		738084	21	>100:1	3.08 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	91282	19	>100:1			5000.00	5071.23	97.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	732807	20		Target = 1.75		18960	16956		
427 > 81	64	3.241	3.248		396106	19	>100:1	1.85 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.276	0	501453	20	>100:1			1000.00	955.74	91.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	9815646	22	>100:1	Target = 2.89		20000	19102		
413 > 169	53	3.269	3.276		3402320	22	>100:1	2.88 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.646	3.651	0	116988	21	>100:1			1000.00	944.65	88.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.652	3.662	0/0	2656667	41	>100:1	Target = 3.30	3.43	18560	19072		M
499 > 99	54	3.652	3.662		776730	37	>100:1	3.42 (1.65-4.95)	6.81				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.863	3.863	1/1	8707646	19	>100:1			18640	19654		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.006	0/0	1866192	17	>100:1	Target = 3.08		19200	19883		
549 > 99	54	3.995	4.006		704344	17	>100:1	2.64 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/0	1752012	15	>100:1	Target = 2.72		19280	19138		
599 > 99	54	4.308	4.318		640580	16		2.73 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/0	7841206	16	>100:1			18840	19577		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.825	4.842	-1/-1	2176544	19	>100:1	Target = 3.27		19360	21636		
699 > 99	54	4.825	4.842		703356	19	>100:1	3.09 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.657	3.662	0	601551	20	>100:1			1000.00	939.37	94.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.657	3.662	0/0	12848388	22	>100:1	Target = 6.51		20000	19816		
463 > 169	56	3.657	3.662		1974262	22	>100:1	6.50 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	264794	17				1000.00	987.82	99.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.896	1/1	5595676	18	>100:1	Target = 41.63		20000	20084		
498>478	55	3.896	3.896		176532	18		31.69 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.017	4.016	1	531731	16	>100:1			1000.00	925.30	92.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.017	4.016	1/0	12363983	16	>100:1	Target = 13.80		20000	19981		
513 > 169	51	4.017	4.016		876637	15	>100:1	14.10 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.006	4.016	0	86255	15	>100:1			5000.00	4990.31	109.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.016	0/0	699409	17	>100:1	Target = 1.94		19160	17943		
527 > 81	65	4.006	4.016		358178	16	>100:1	1.95 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.623	4.631	0/0	806269	18	>100:1	Target = 3.54		19280	18425		
627 > 80	65	4.623	4.631		249814	17	>100:1	3.22 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.178	0	763092	17	>100:1			5000.00	5049.83	98.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.178	0/0	2384735	30	>100:1	Target = 1.37	8.07	20000	19473		
570 > 483	58	4.169	4.178		1774460	31	>100:1	1.34 (0.68-2.05)	4.20				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	93265	14	>100:1			1000.00	1034.11	103.5	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.298	1/0	1865803	14	>100:1			20000	18306		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	46513	17	>100:1			1000.00	988.77	103.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.318	1/1	934909	14	>100:1	Target = 1.11		20000	18544		
512 > 219	57	4.318	4.318		861239	14	>100:1	1.08 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.338	0	536911	17	>100:1			5000.00	4145.61	77.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.339	4.348	0/0	2309508	31	>100:1	Target = 1.51	5.37	20000	22058		
584 > 526	60	4.339	4.348		1489678	31	>100:1	1.55 (0.75-2.26)	3.35				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.338	0	556328	16				1000.00	923.75	87.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.338	0/0	10184582	16	>100:1	Target = 14.52		20000	18893		
563 > 169	52	4.328	4.338		715241	15	>100:1	14.23 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	107173	16	>100:1			1000.00	1010.33	105.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.465	4.464	1/0	1995842	15	>100:1			20000	19130		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	43319	19	>100:1			1000.00	1007.42	101	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.483	1/1	1036110	14	>100:1	Target = 1.06		20000	20212		
526 > 219	59	4.483	4.483		1001264	15	>100:1	1.03 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.614	0	580173	17	>100:1			1000.00	966.41	96	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.606	4.622	-1/-1	12133384	17	>100:1	Target = 10.70		20000	19617		
613 > 169	38	4.606	4.622		1194541	17	>100:1	10.15 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.860	4.877	-1/-1	11146450	18	>100:1	Target = 8.31		20000	18278		
663 > 169	38	4.860	4.877		1359765	17	>100:1	8.19 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.094	5.106	0	798422	22	>100:1			1000.00	982.08	95.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.094	5.106	0/0	12878458	22	>100:1	Target = 12.17		20000	18478		
713 > 169	42	5.094	5.106		1076381	22	>100:1	11.96 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.529	5.544	0	855945	21	>100:1			1000.00	986.07	97.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.536	5.552	0/0	10035004	21	>100:1	Target = 10.43		20000	18306		
813 > 269	40	5.529	5.552		989488	21	>100:1	10.14 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	6.002	6.026	-1/-1	14977998	44	>100:1	Target = 13.67		20000	19221		
913 > 319	40	6.002	6.026		1101505	44	>100:1	13.59 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.017	4.016	1	627731	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	669431	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	495600	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	550746	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.652	3.657	0	118894	22	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 08-Nov-2021 10:00:27   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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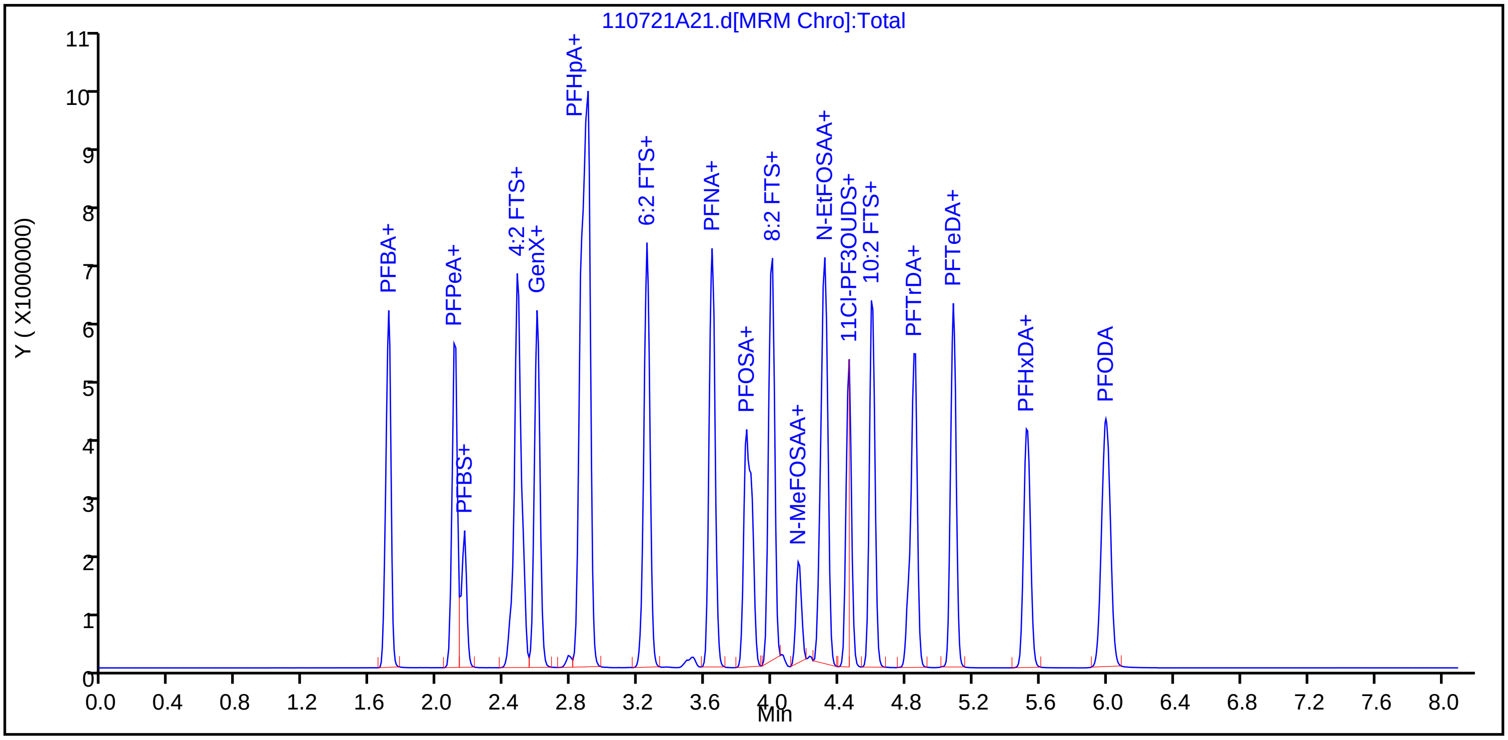
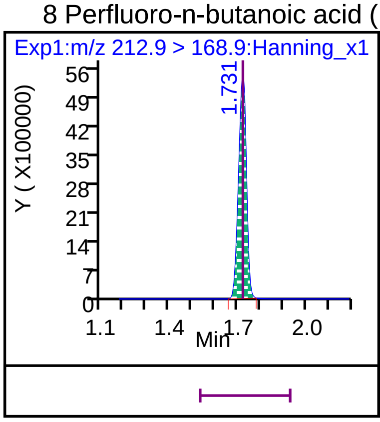
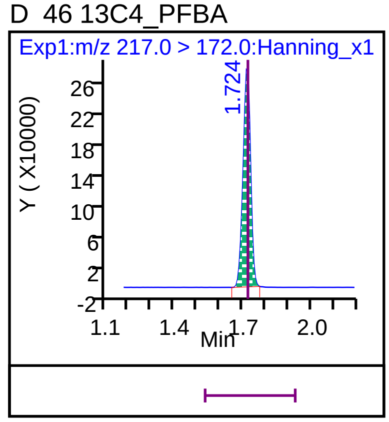
Injection Date:	07-Nov-2021 20:22:32	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 20000_SVLC-1749
Sample Info:	ID ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin



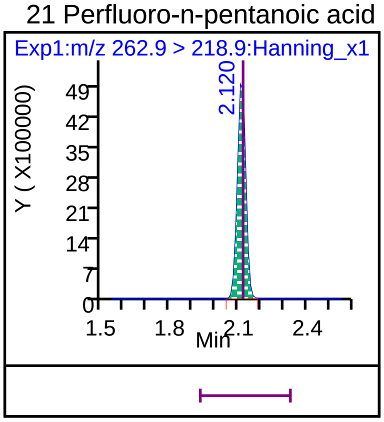
8 Perfluoro-n-butanoic acid (PFBA)



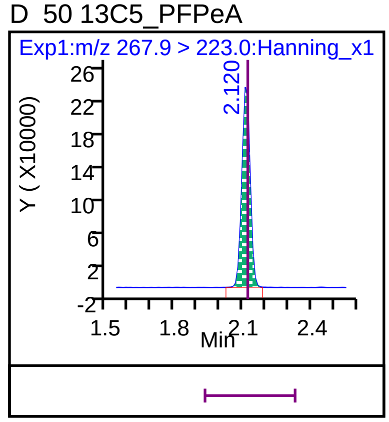
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

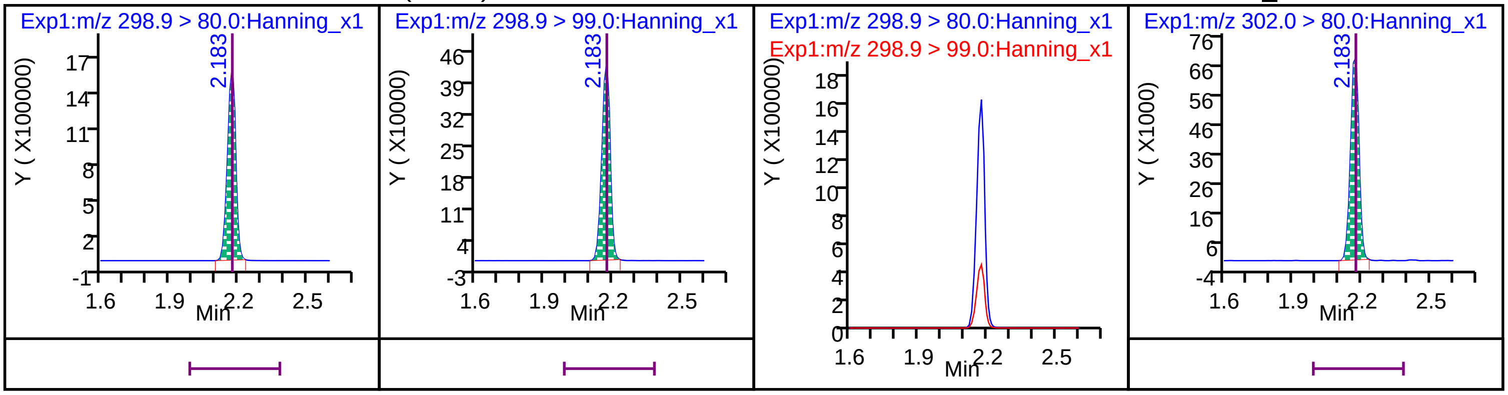


D 50 13C5_PFPeA

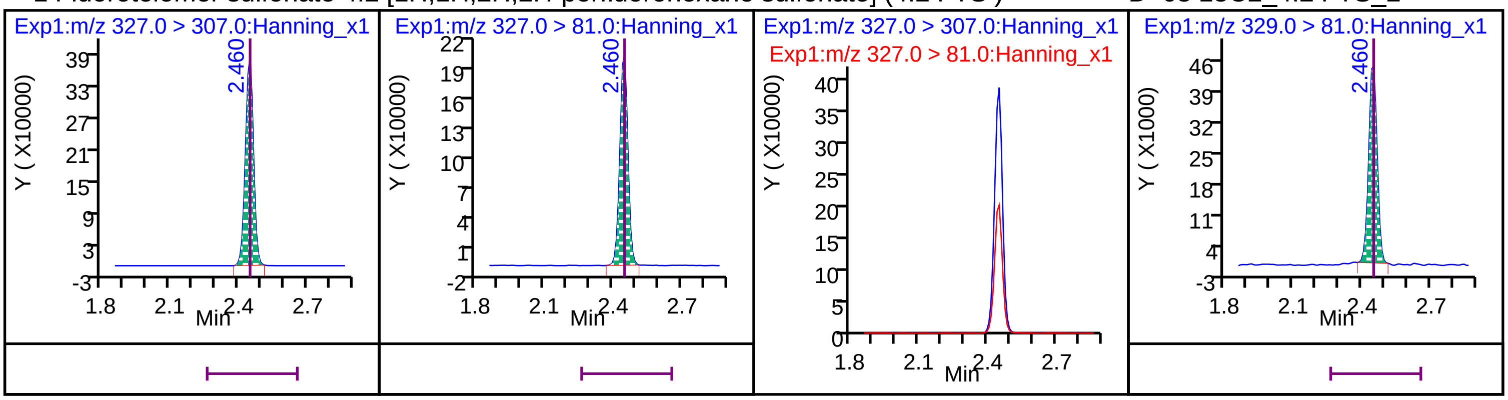


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

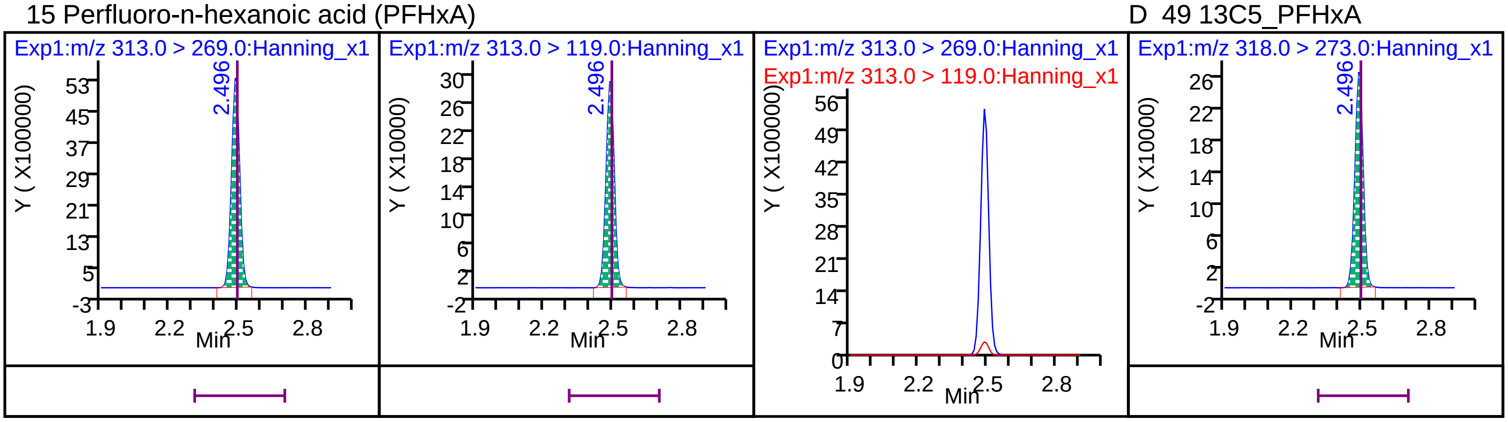
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



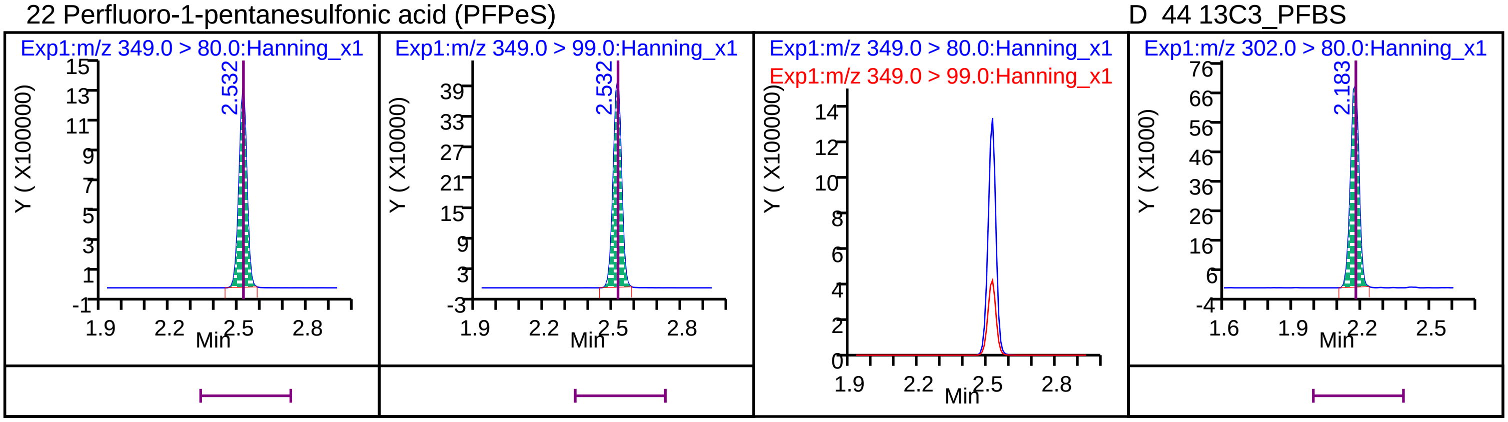
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



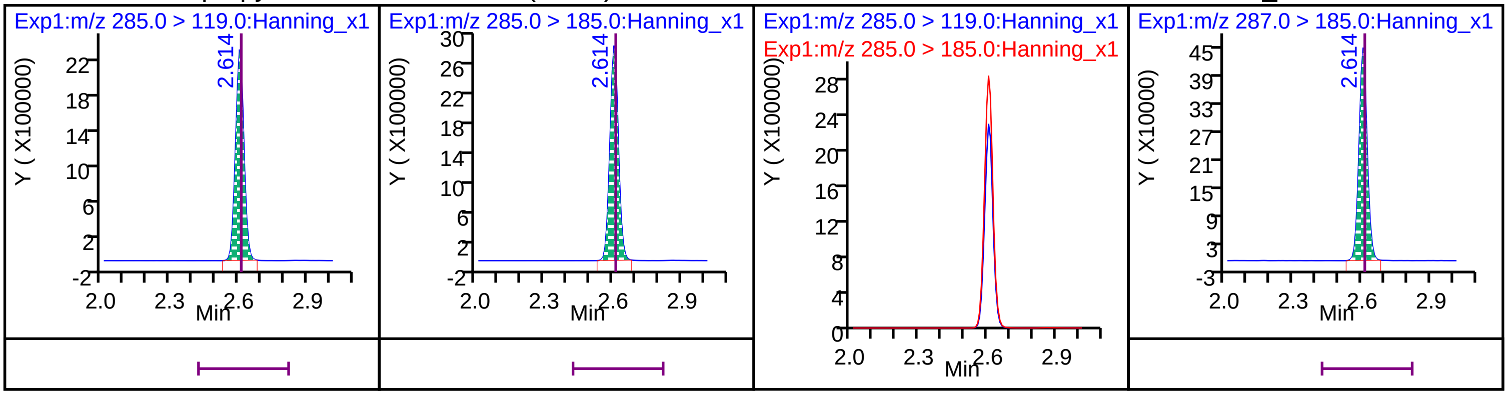
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



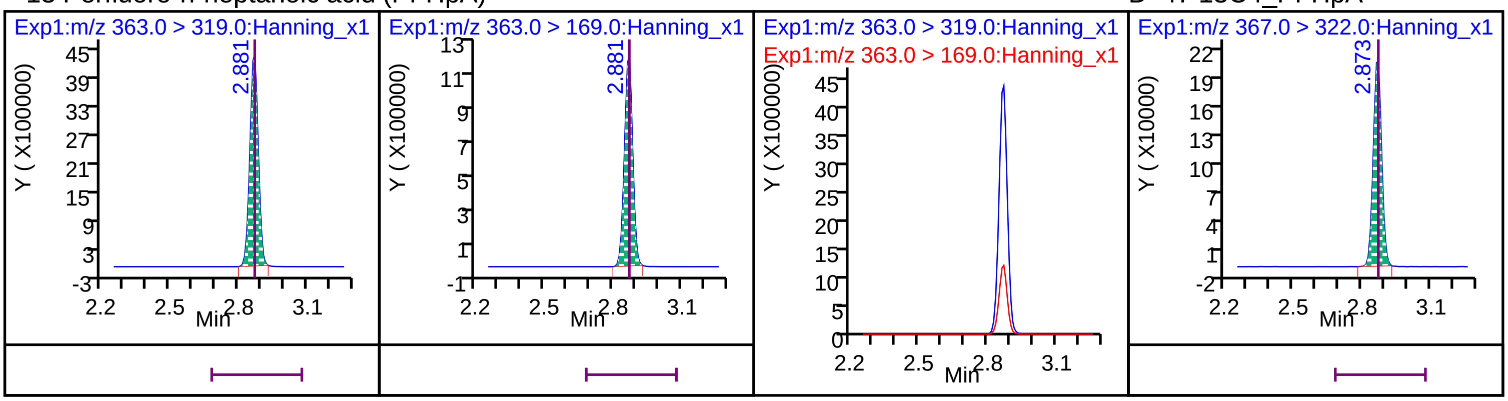
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



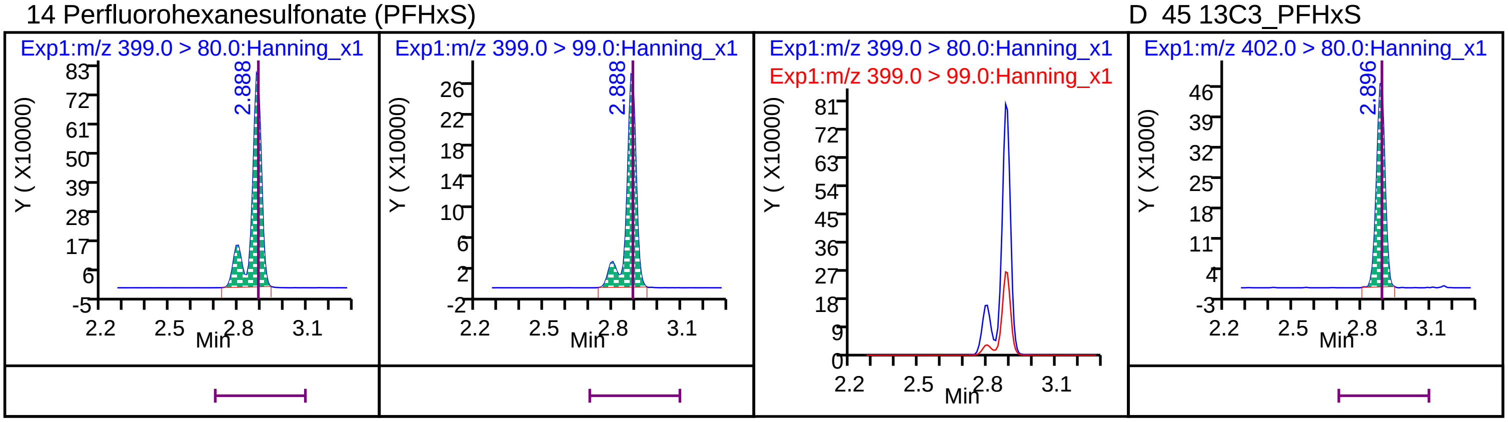
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



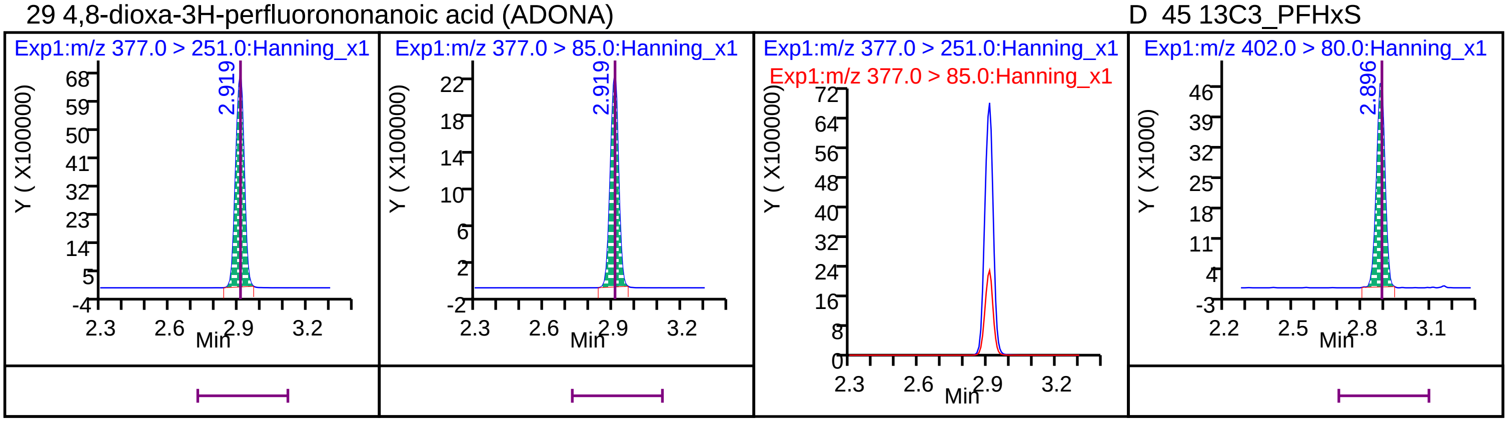
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

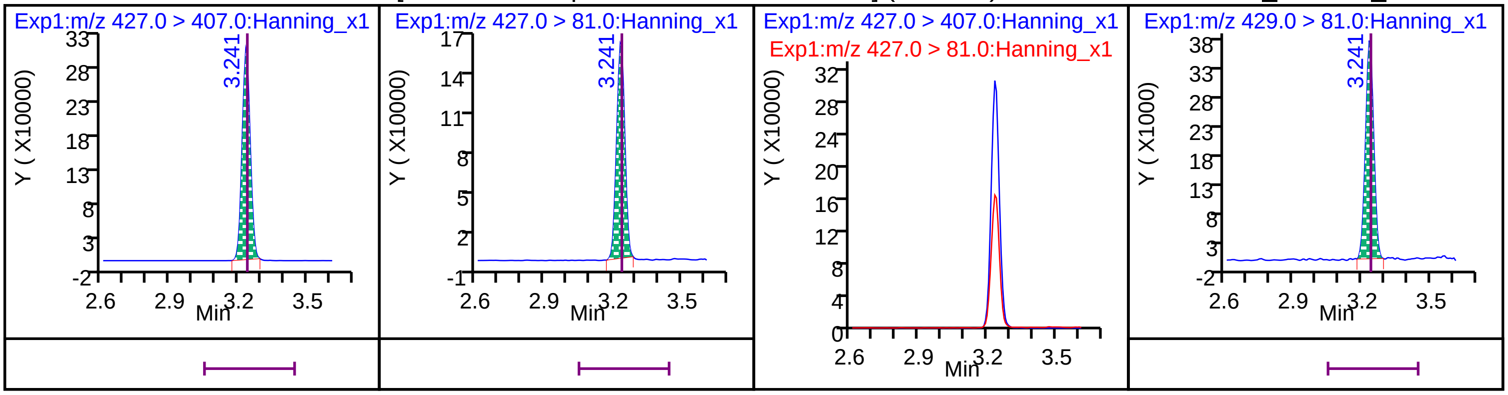


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

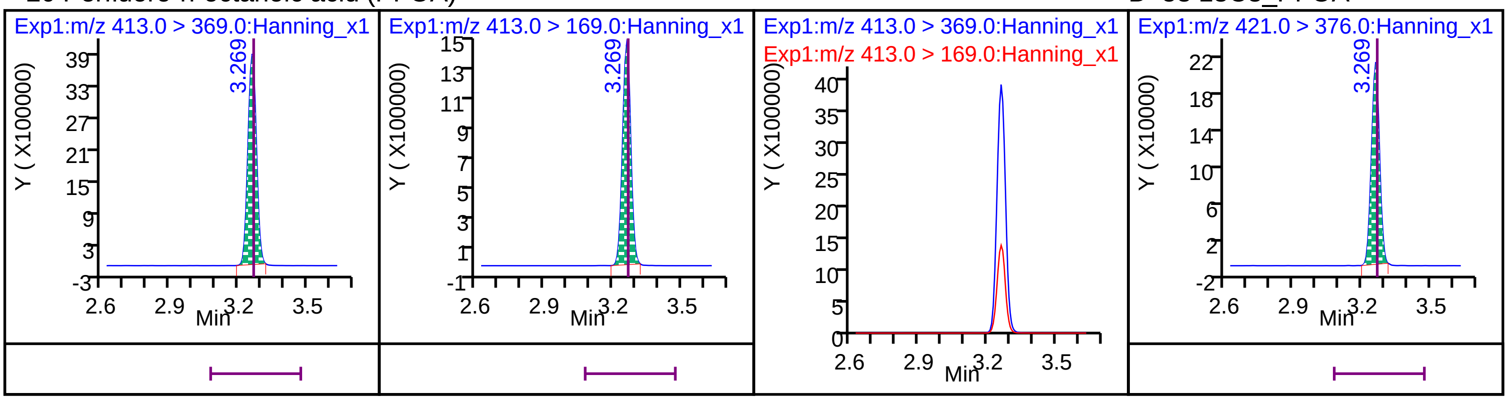


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

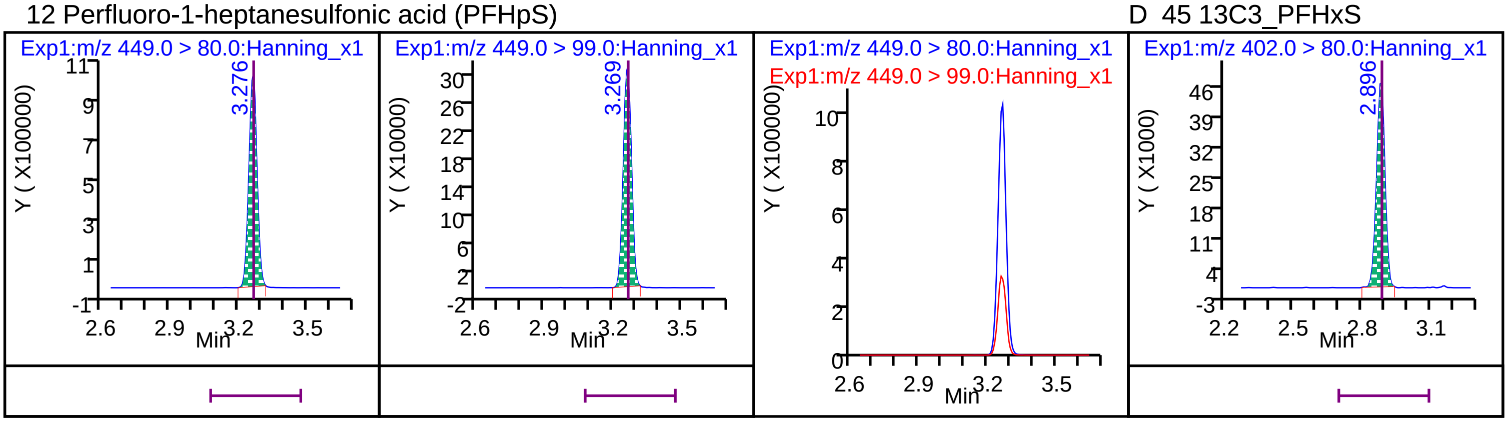
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



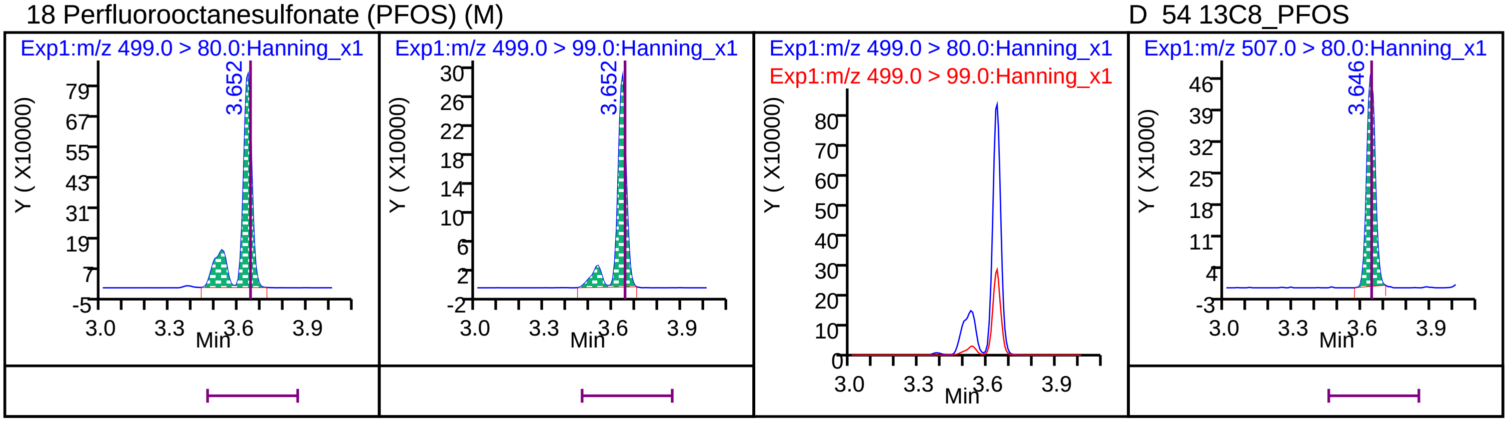
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



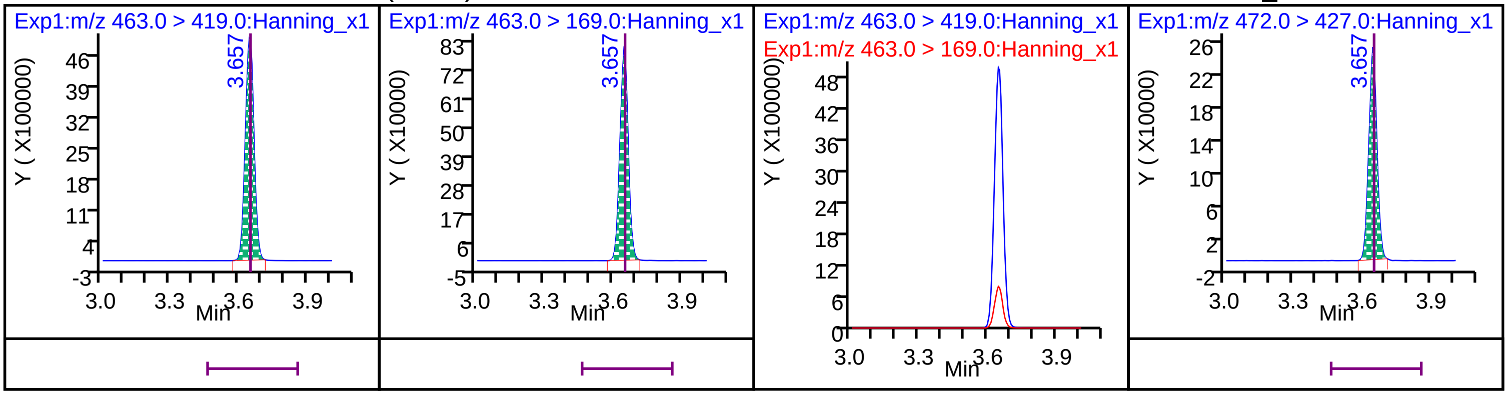
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



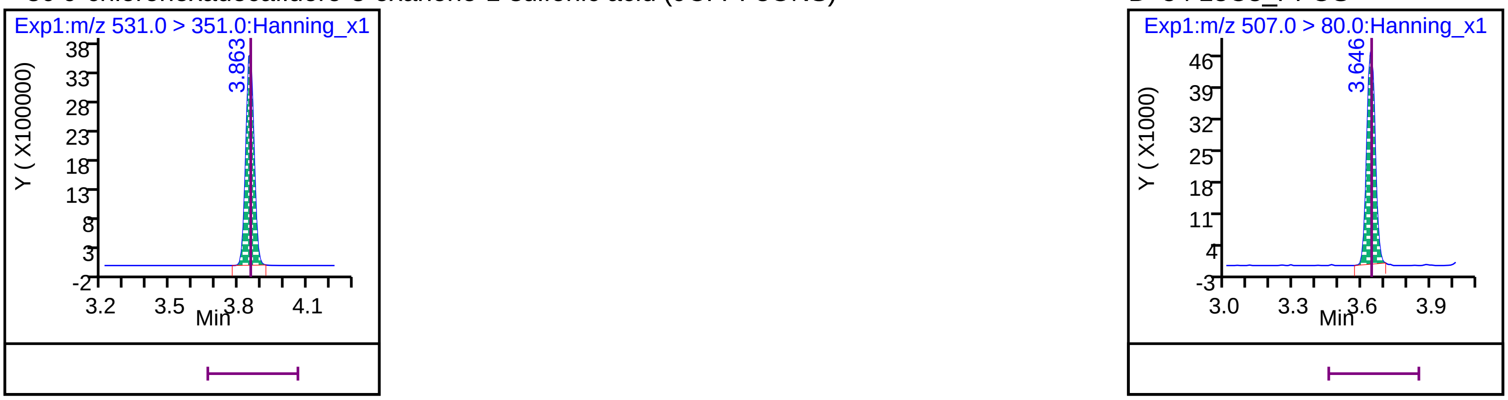
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



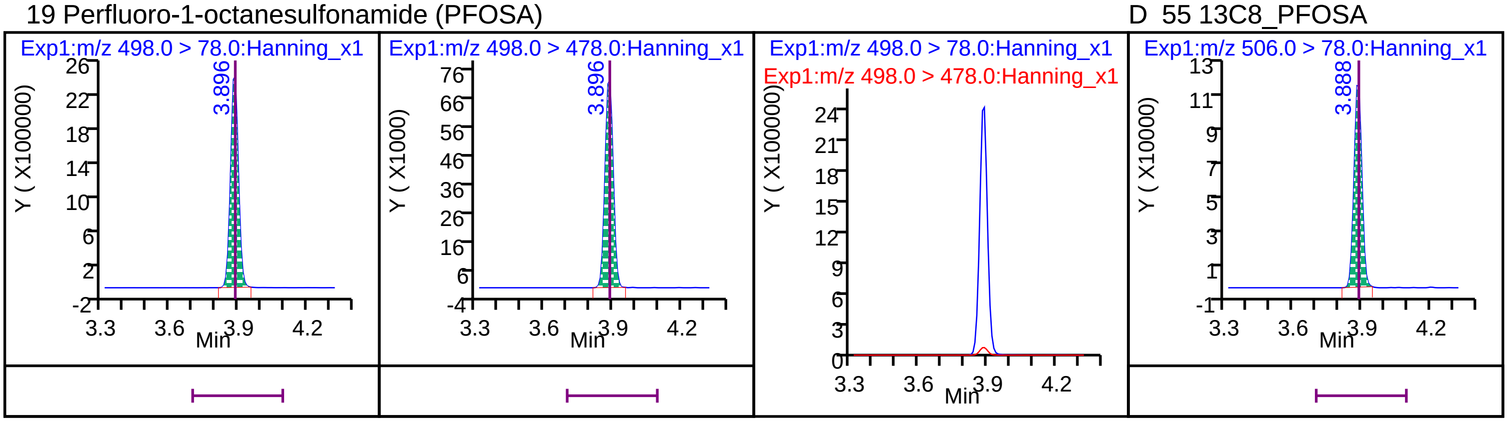
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



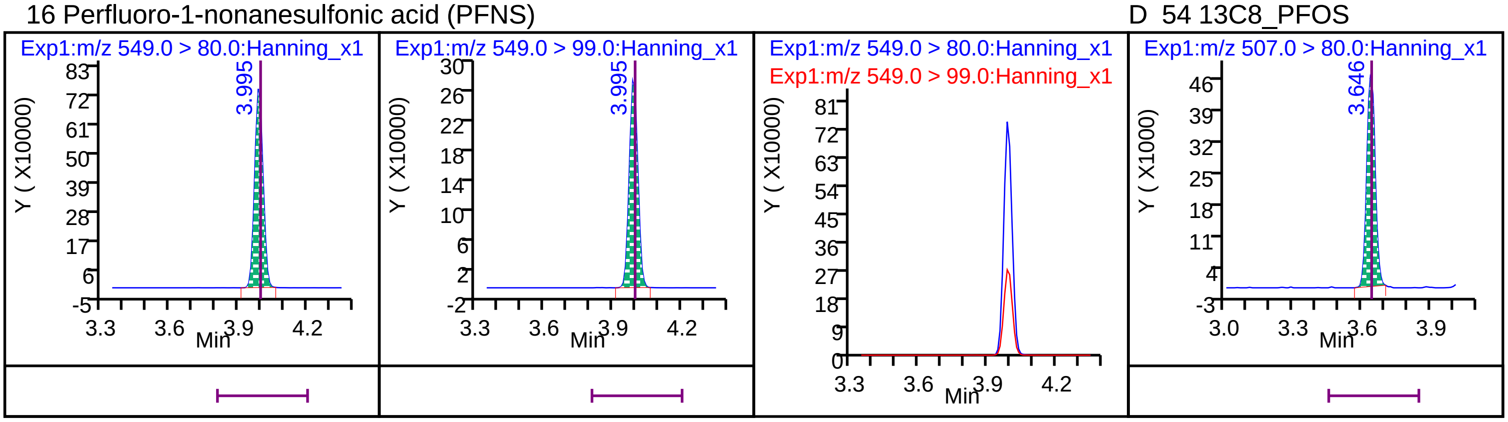
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



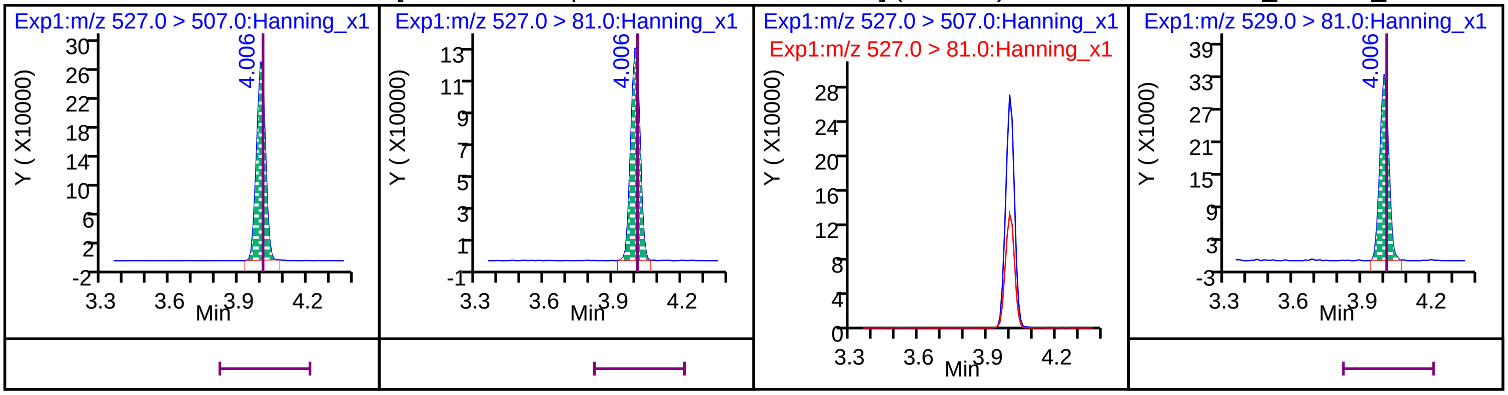
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



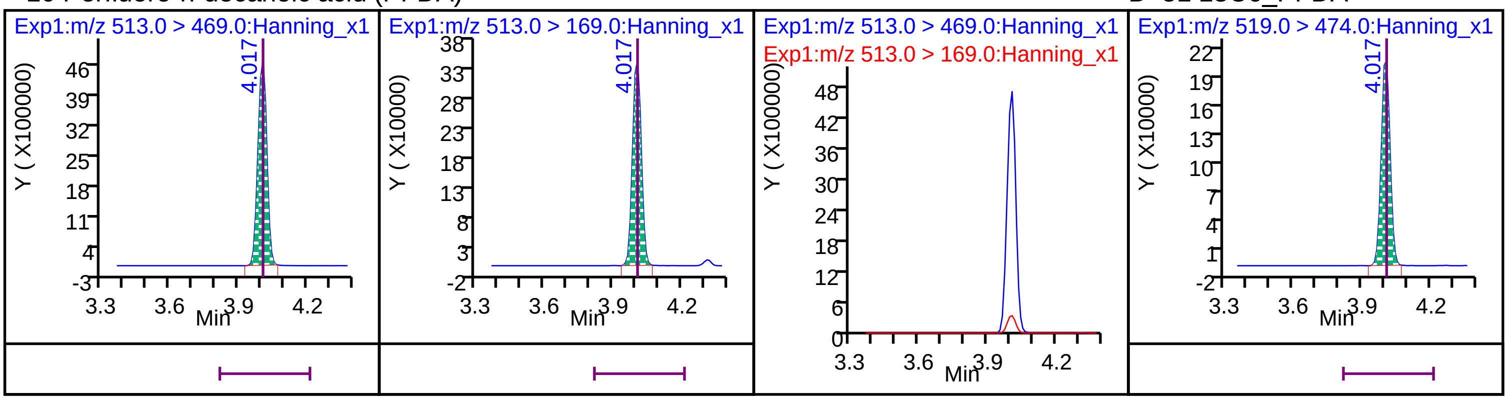
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



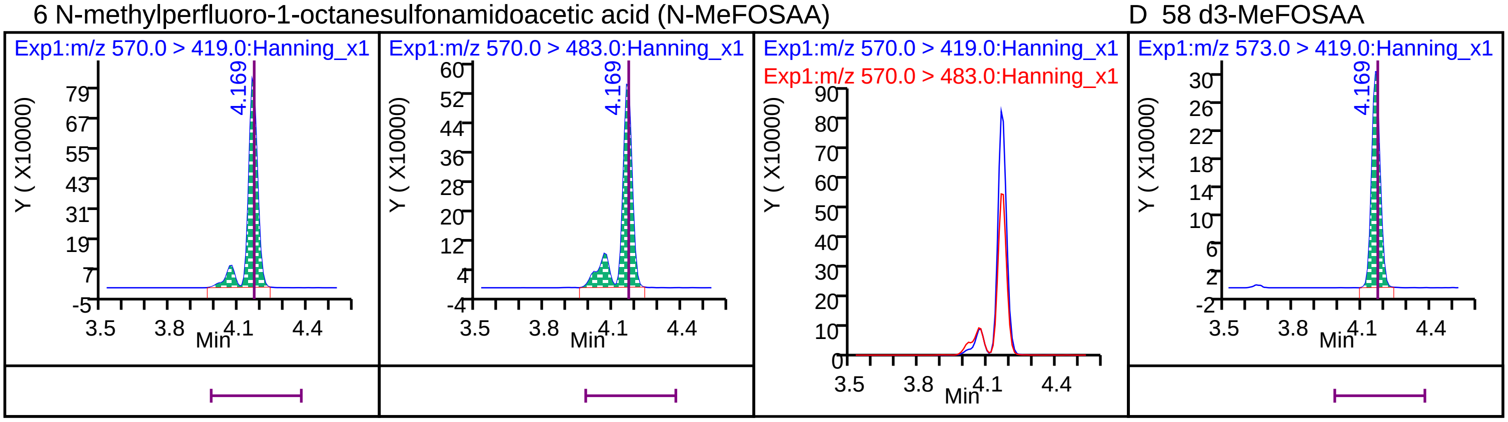
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



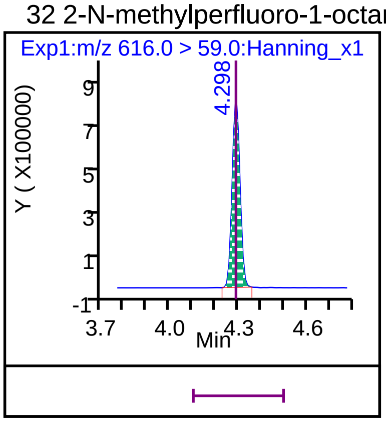
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



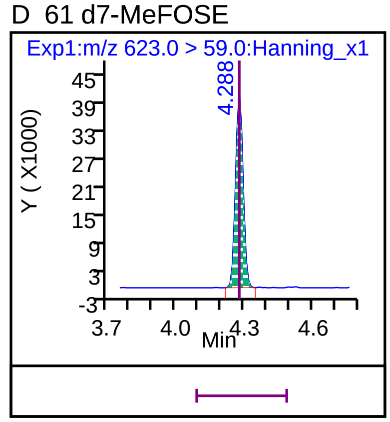
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



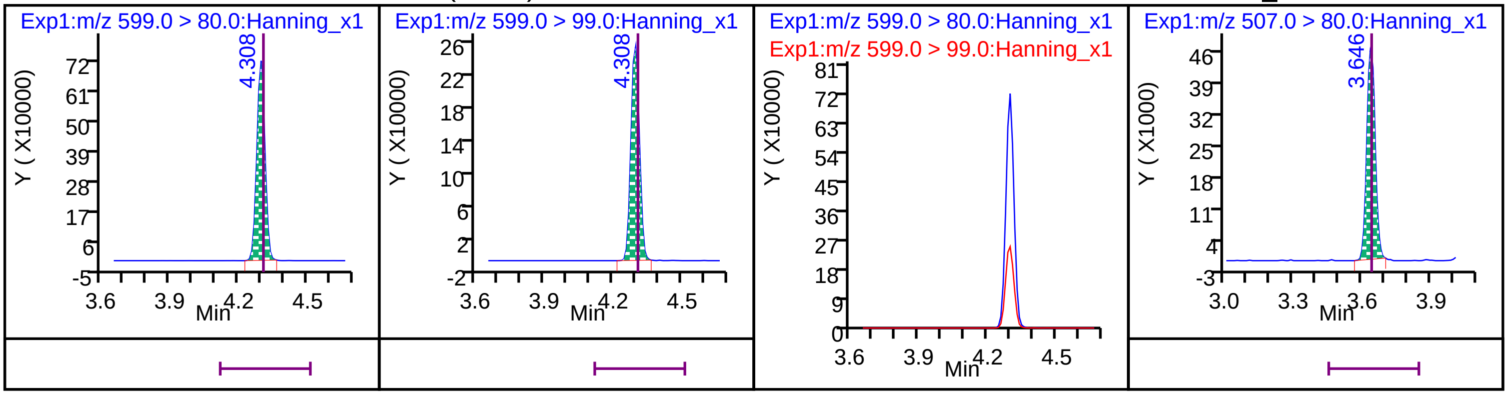
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



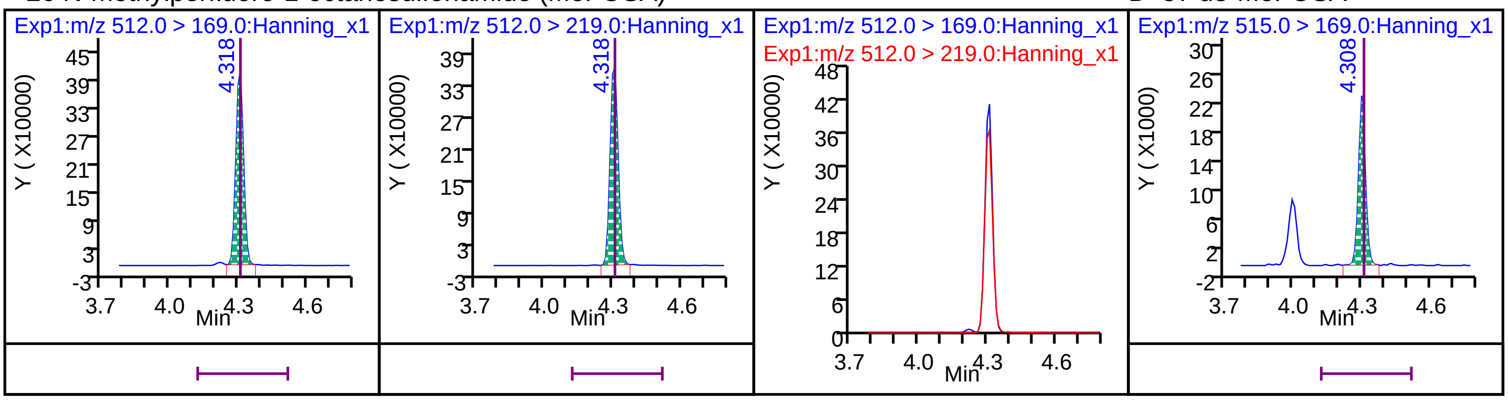
D 61 d7-MeFOSE



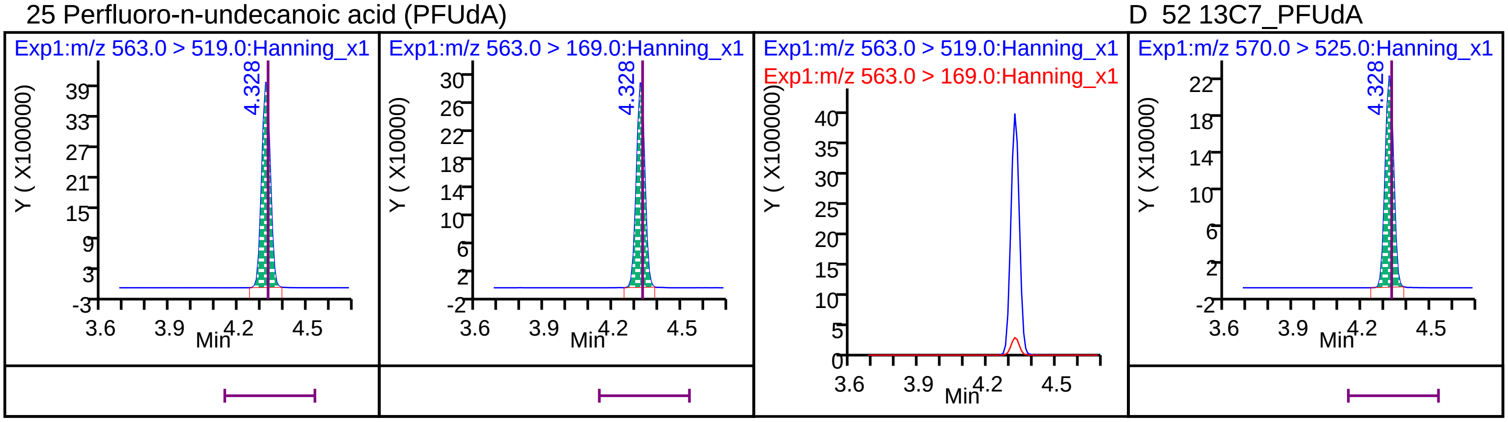
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



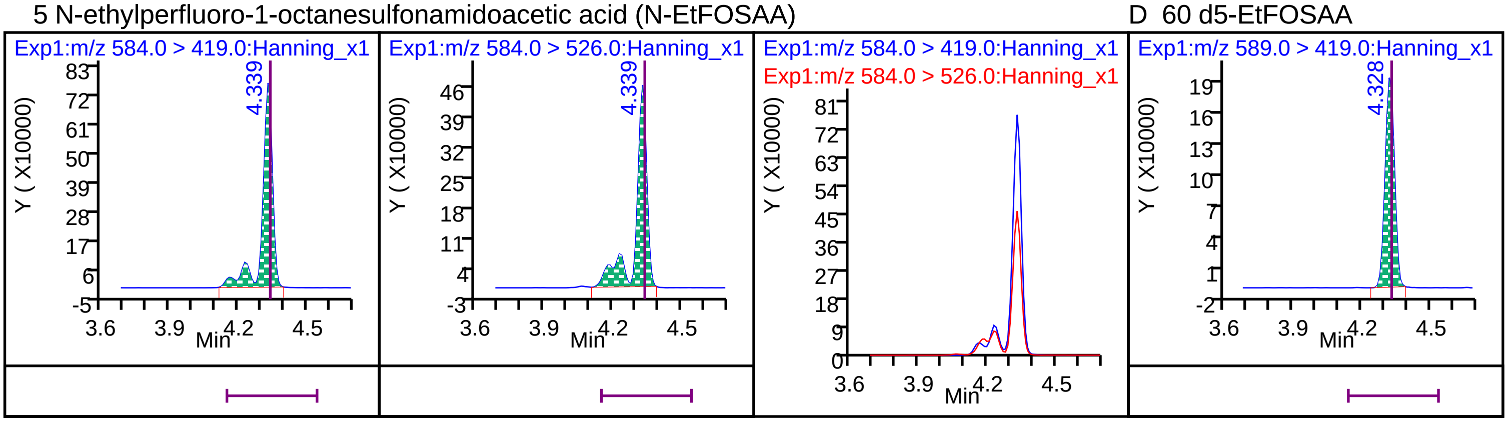
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



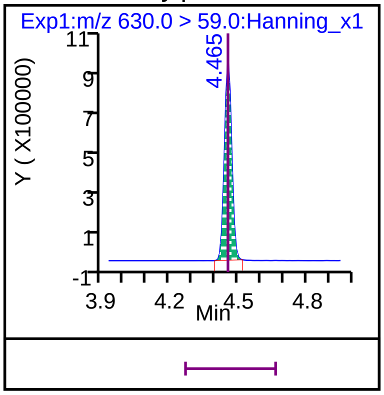
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



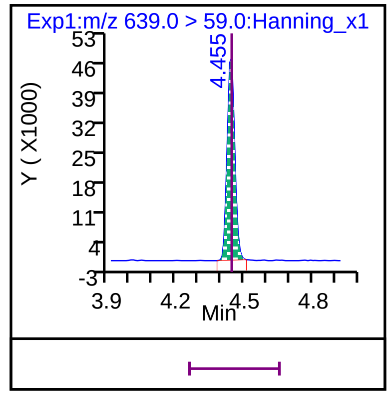
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

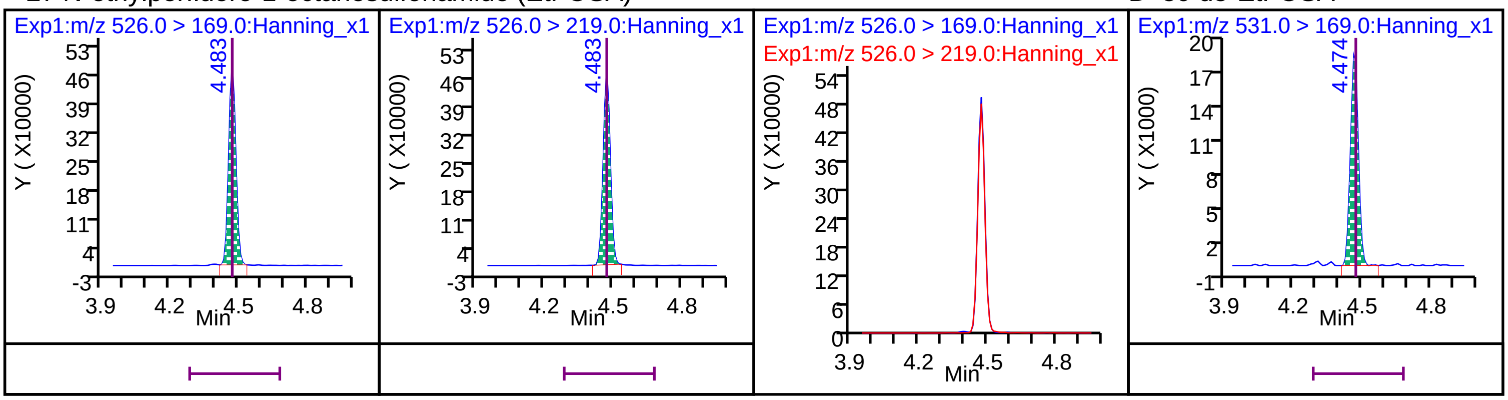


D 62 d9-EtFOSE

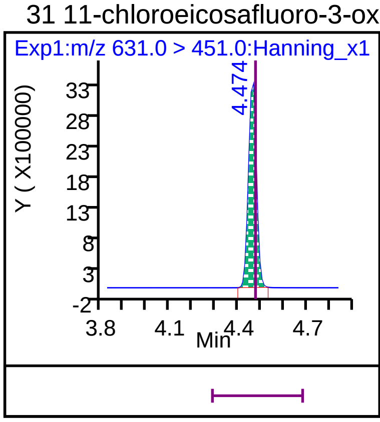


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

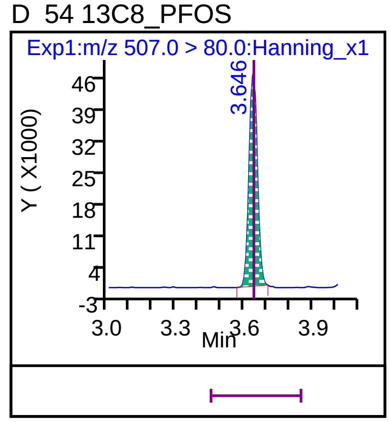
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

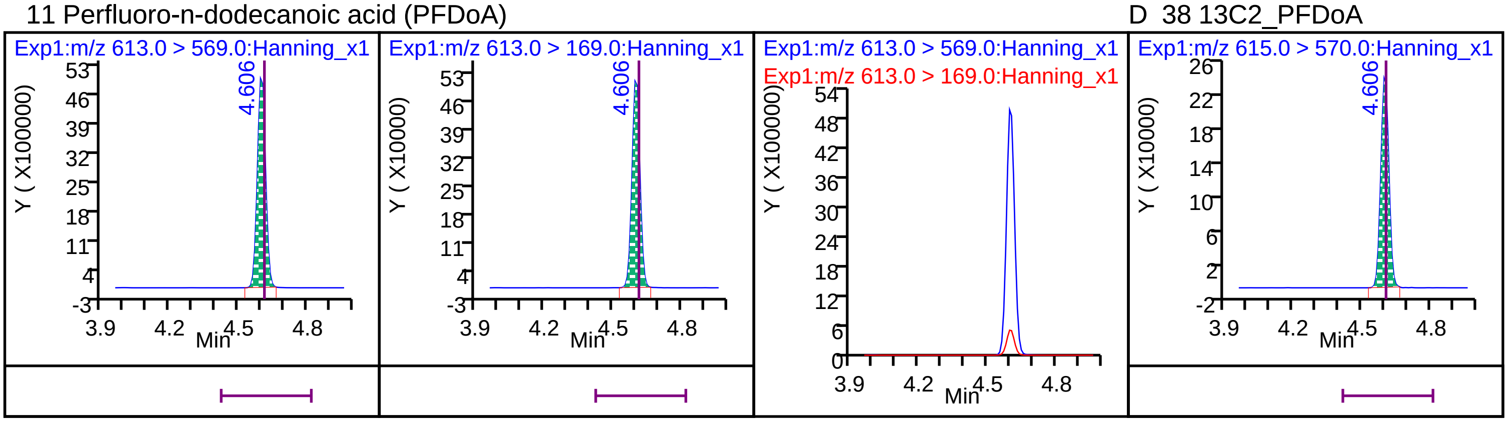


D 54 13C8_PFOS



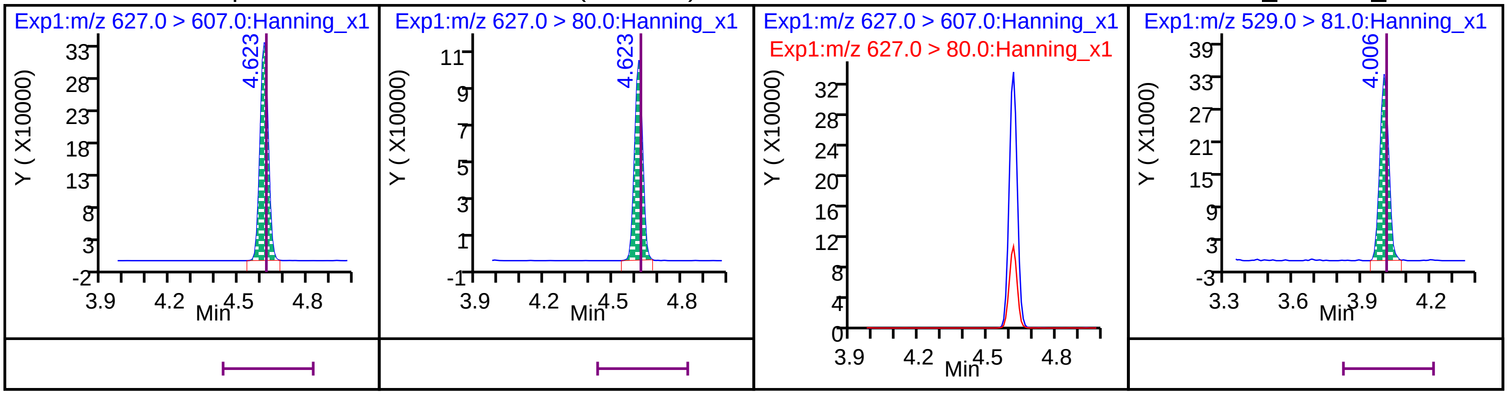
11 Perfluoro-n-dodecanoic acid (PFDoA)

D 38 13C2_PFDoA

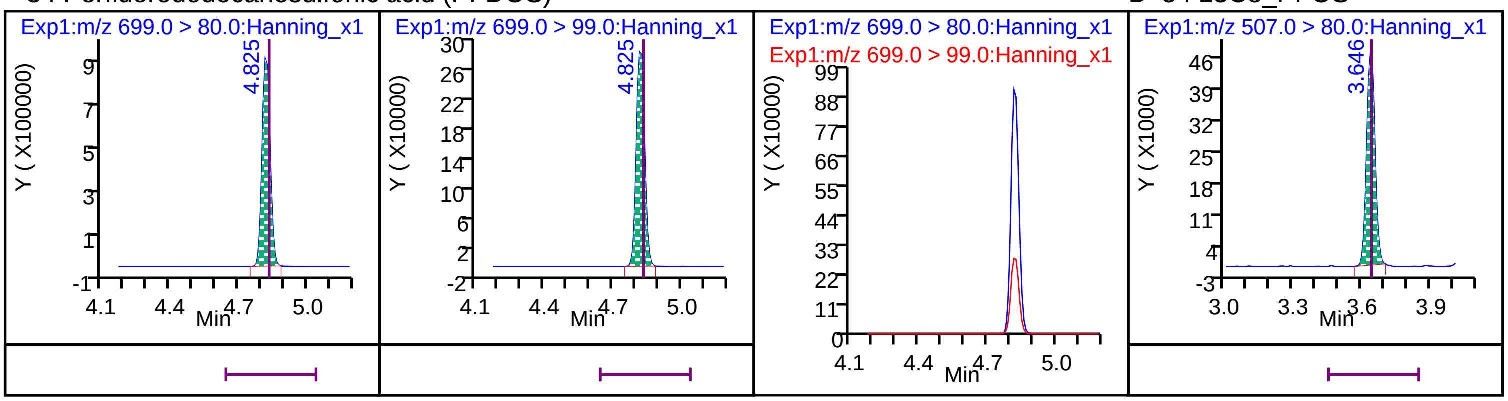


Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

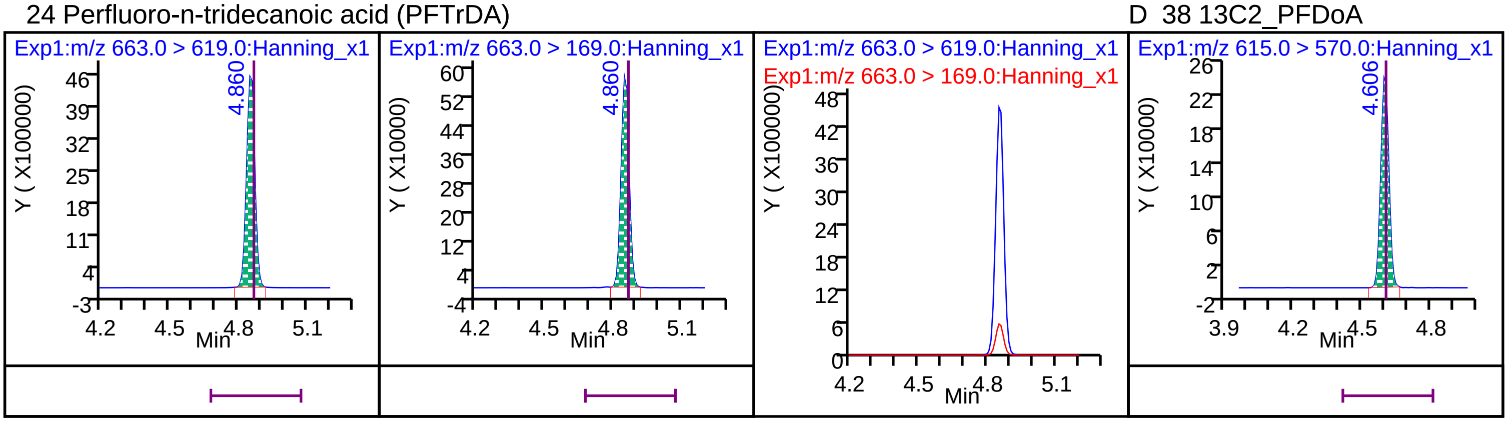
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



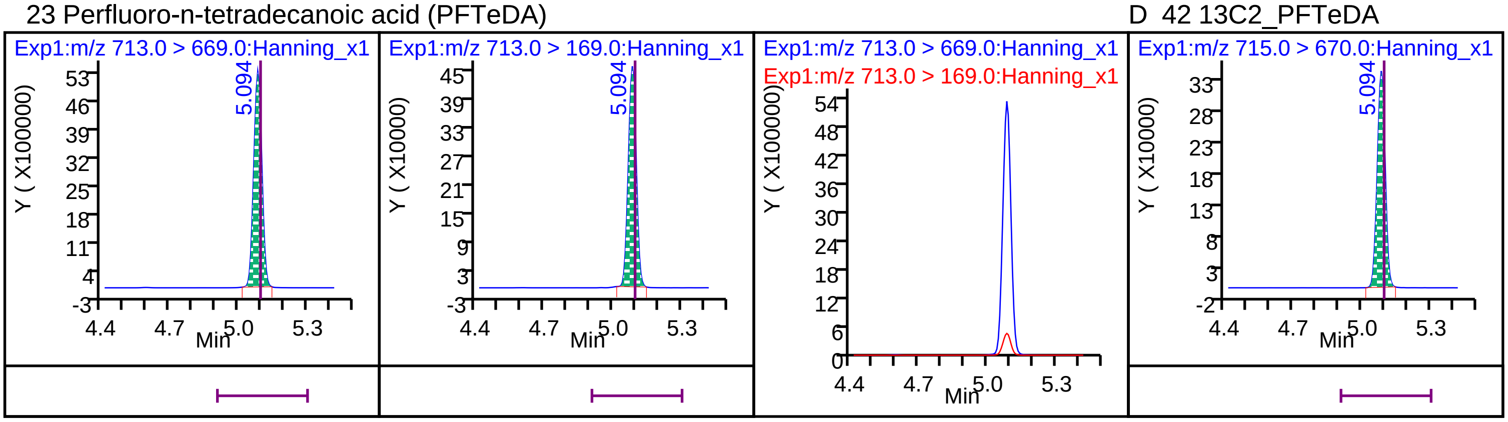
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

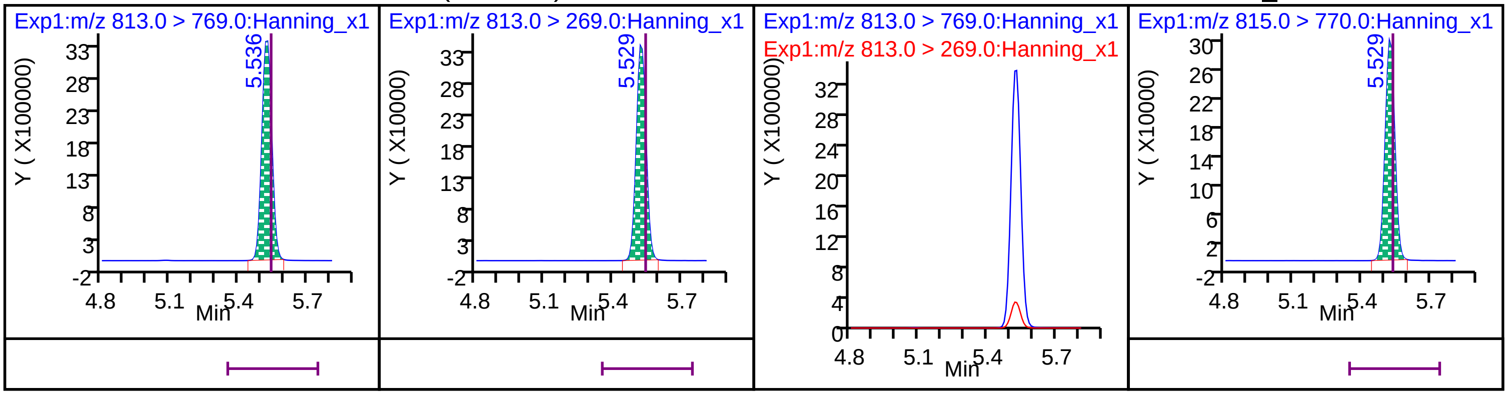


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

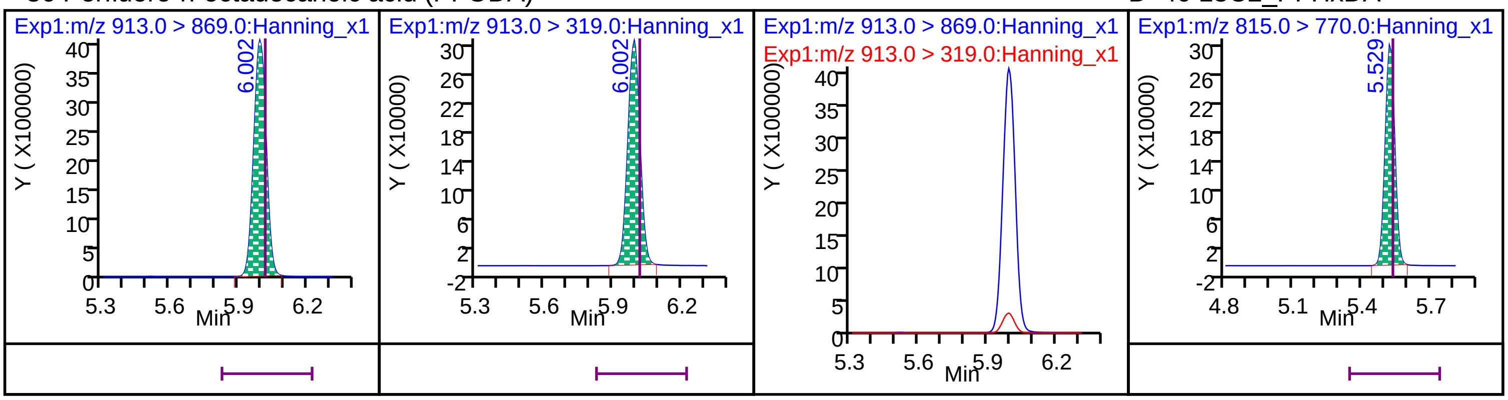


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d

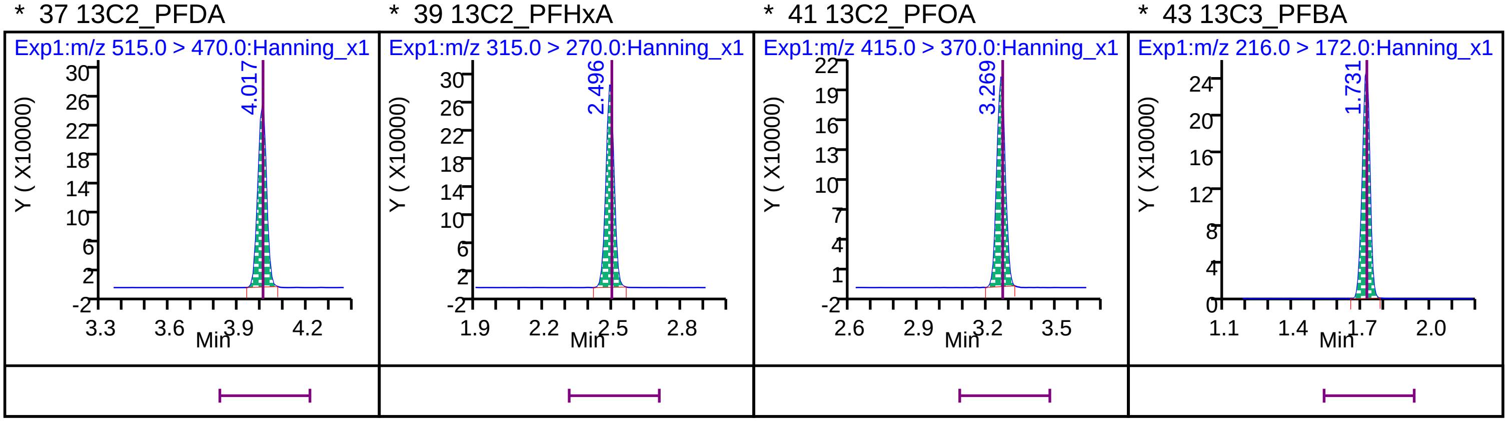
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



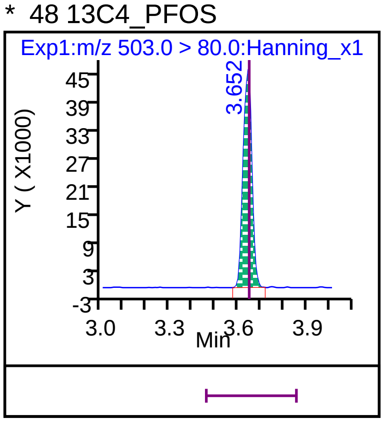
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

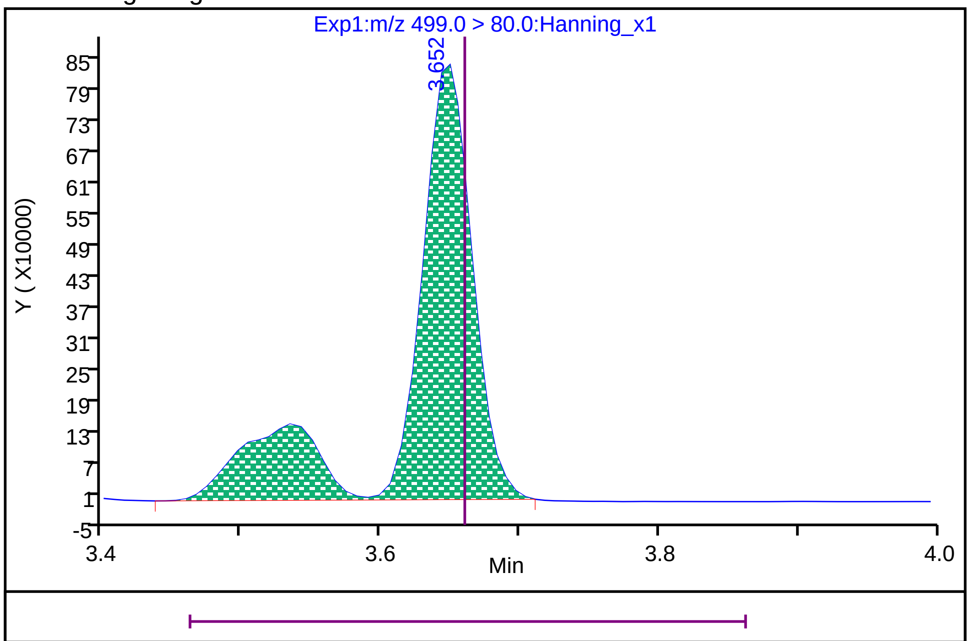
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A21.d		
Injection Date:	07-Nov-2021 20:22:32	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID ICAL 20000_SVLC-1749
Sample Info:	ID ICAL 20000_SVLC-1749		
Dil. Factor:	1	Operator:	Justin Gavin

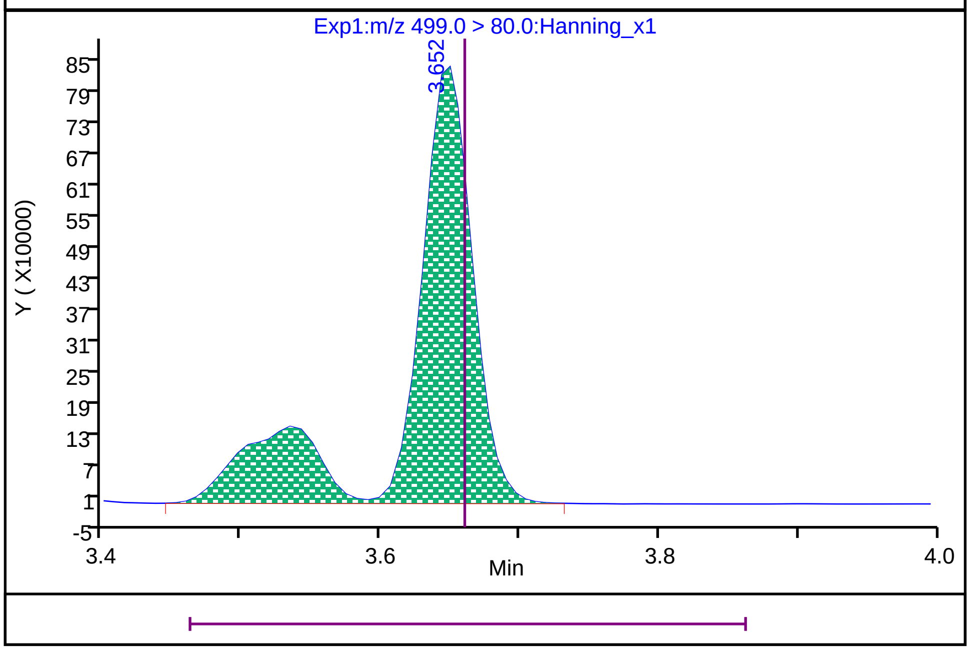
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.652
Area:	2617566
Amount:	18679
Amount Units:	ng/L



RT:	3.652
Area:	2656667
Amount:	19072
Amount Units:	ng/L



Data Editor: justin.gavin, 08-Nov-2021 09:05:46

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d		
Injection Date:	07-Nov-2021 20:32:59	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	85
Lab Sample ID:	ID IBLK B	Lab Prep. Batch:	
Sample Info:	ID IBLK B	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.728	1.731	0	780616	21	>100:1			1001.00	1255.67	122.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.722	1.731	0/0	3055	14	0.928:1			3.7146	3.7146		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.125	2.130	0	735038	15	>100:1			1001.00	1285.95	126.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.130		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.183	0	216130	16	>100:1			1001.00	1249.53	121.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.178	2.183	0/0	641	12	5.4:1	Target = 3.53		2.3807	2.3807		
298.9 > 99	44	2.178	2.183		240	6	3.7:1	2.67 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.531		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.459	2.460	0	132043	16	>100:1			5005.00	5831.33	117.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.460		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.505	0	785191	17	>100:1			1001.00	1205.60	118.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.505		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.622	0	1311060	18	>100:1			5005.00	5657.06	108.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.880	0	641002	17	>100:1			1001.00	1207.30	120.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.853	2.880	-1/-1	2609	13	2.0:1	Target = 3.80		3.7078	3.7078		
363 > 169	47	2.871	2.880		954	18	9.2:1	2.73 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	155014	17	>100:1			1001.00	1233.80	119.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.919		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.259	3.276	0/0	240	11	3.8:1	Target = 3.12		1.5090	1.5090		
449 > 99	45	3.252	3.276		178	10	2.9:1	1.34 (1.56-4.68)					J

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.238	3.248	0	107261	20	>100:1			5005.00	5958.96	114.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.276	0	650366	22	>100:1			1001.00	1239.56	118.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.643	3.651	0	139409	19	>100:1			1001.00	1125.69	105.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.636	3.662	-1/-1	676	80		Target = 3.30	1.80	4.0766	4.0766		
499 > 99	54	3.649	3.662		748	92		0.90 (1.65-4.95)	2.95				J
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.859	3.863	0/0	1227	12	5.9:1			2.3264	2.3264		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.006		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.318		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.450	4.483	-1/-1	931	17	6.3:1			1.9526	1.9526		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.848	4.842	1/1	698	17		Target = 3.27		5.8285	5.8285		
699 > 99	54	4.848	4.842		62	14		11.25 (1.63-4.90)					J
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.654	3.662	0	783085	23	>100:1			1001.00	1222.85	122.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.660	3.662	0/0	1941	12	2.5:1	Target = 6.51		2.3019	2.3019		
463 > 169	56	3.654	3.662		271	12	3.6:1	7.16 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.892	3.896	0	282066	18	>100:1			1001.00	1052.26	105.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.896		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.011	4.016	0	726359	16	>100:1			1001.00	1263.98	126.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.022	4.016	1/1	2915	11	6.1:1	Target = 13.80		3.4519	3.4519		
513 > 169	51	4.022	4.016		247	15	3.0:1	11.80 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.001	4.016	0	108576	23	>100:1			5005.00	6281.70	137.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.016		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.631		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.173	4.178	0	824461	17	>100:1			5005.00	5455.94	106.7	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.173	4.178	0/0	1980	74		Target = 1.37	1.40	14.979	14.979		
570 > 483	58	4.164	4.178		695	15		2.84 (0.68-2.05)					J
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.292	4.288	1	99477	14	>100:1			1001.00	1102.99	110.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.370	4.298	5/4	420	15	3.0:1			3.8673	3.8673		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.312	4.318	0	54230	16	>100:1			1001.00	1152.82	120.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.302	4.318	0/0	852	13	4.9:1	Target = 1.11		14.509	14.509		
512 > 219	57	4.312	4.318		734	15	7.4:1	1.16 (0.55-1.67)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.332	4.338	0	792415	17	>100:1			5005.00	6118.41	114.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.332	4.348	0/0	2622	59	4.4:1	Target = 1.51	4.87	16.985	16.985		
584 > 526	60	4.312	4.348		1883	85		1.39 (0.75-2.26)	3.57				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.332	4.338	0	770416	15	>100:1			1001.00	1279.23	121.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.342	4.338	1/1	2582	12	4.2:1	Target = 14.52		3.4622	3.4622		
563 > 169	52	4.332	4.338		144	13	1.5:1	17.93 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.450	4.455	0	122749	16	>100:1			1001.00	1157.17	120.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.450	4.464	0/0	676	14	1.6:1			5.6629	5.6629		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.483	0	53229	16	>100:1			1001.00	1237.89	124.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.478	4.483	0/0	1613	22	9.6:1	Target = 1.06		12.272	12.272		
526 > 219	59	4.478	4.483		1674	21	6.4:1	0.96 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.609	4.614	0	736032	16	>100:1			1001.00	1226.03	121.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.622		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.856	4.877	-1/-1	3478	15	10:1	Target = 8.31		4.5002	4.5002		
663 > 169	38	4.856	4.877		177	15	3.3:1	19.64 (4.15-12.47)					J
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.091	5.106	0	985961	21	>100:1			1001.00	1212.76	117.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.085	5.106	-1/-1	4054	15	16:1	Target = 12.17		4.7149	4.7149		
713 > 169	42	5.091	5.106		372	14	5.7:1	10.89 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.539	5.544	0	1010915	21	>100:1			1001.00	1164.60	115.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.539	5.552	0/0	9385	22	39:1	Target = 10.43		14.510	14.510		
813 > 269	40	5.539	5.552		1082	19	37:1	8.67 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		6.026		ND								
*** 37 13C2_PFDA**													
515 > 470		4.011	4.016	0	751273	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.495	2.505	0	696038	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.276	0	582163	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.728	1.731	0	634164	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.649	3.657	0	122648	22	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

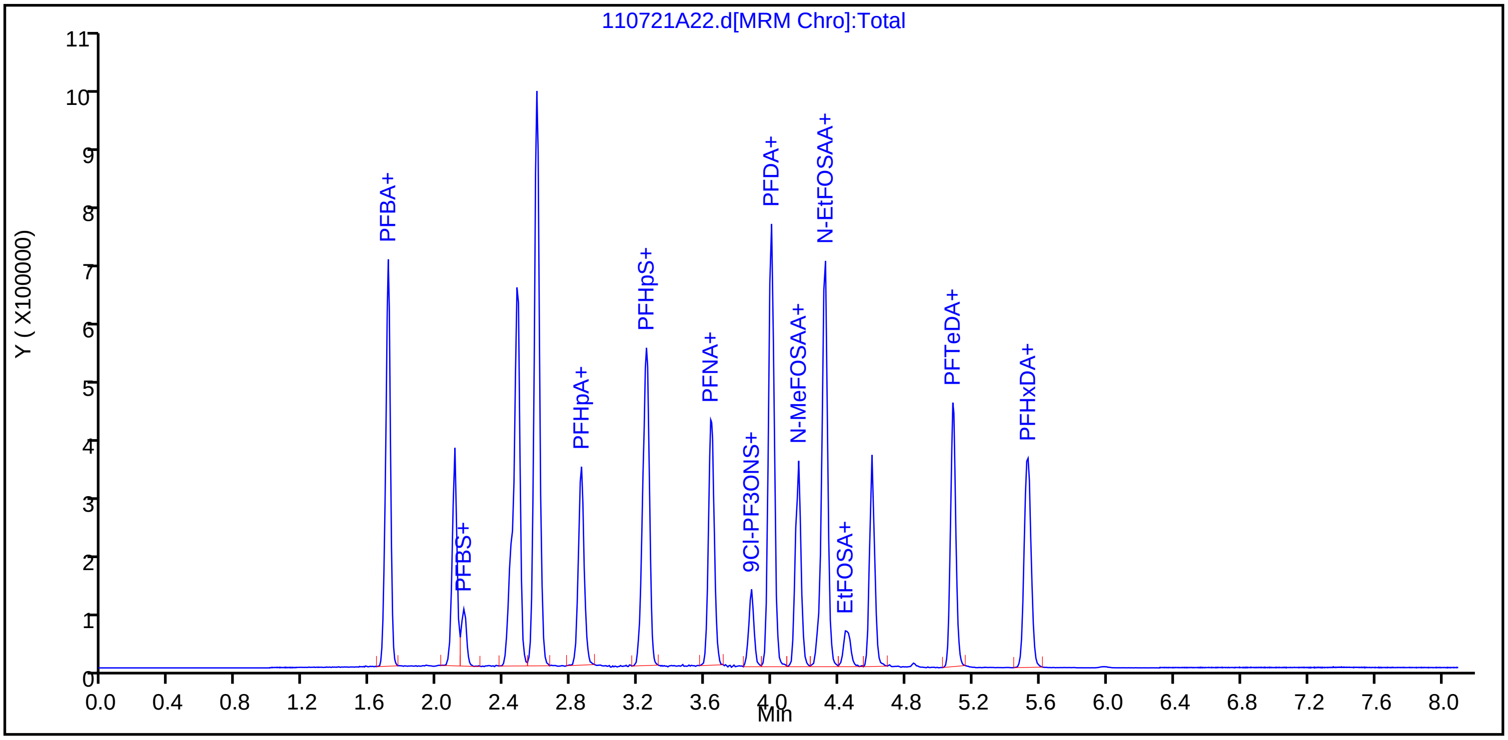
QC Flag Legend

U - Result Less Than Method Detection Limit

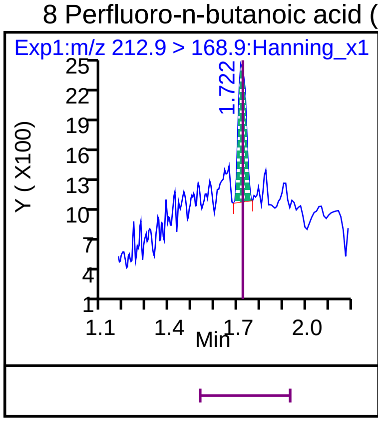
Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

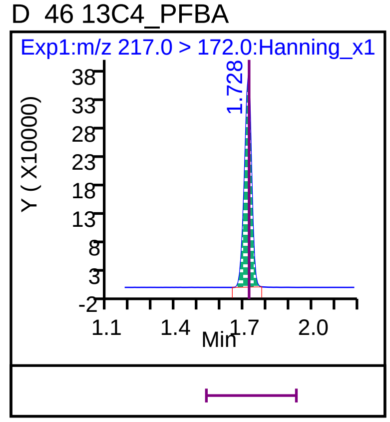
Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d		
Injection Date:	07-Nov-2021 20:32:59	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK B
Sample Info:	ID IBLK B		
Dil. Factor:	1	Operator:	Justin Gavin



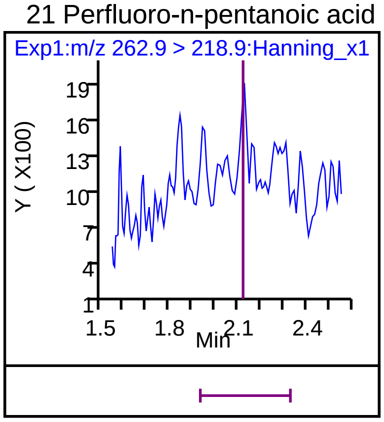
8 Perfluoro-n-butanoic acid (PFBA)



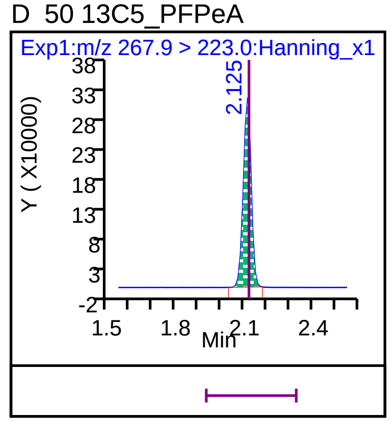
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)

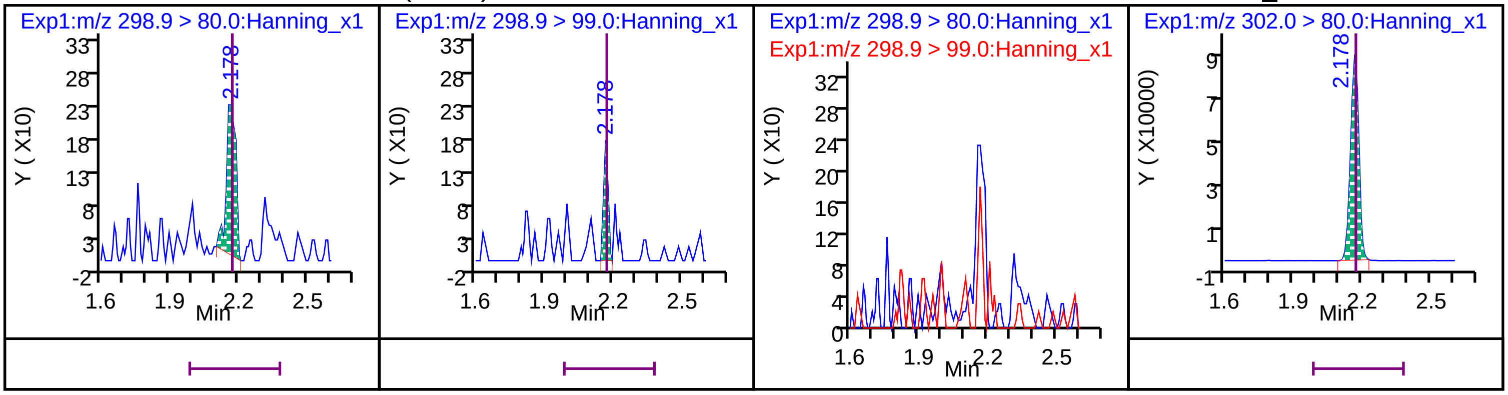


D 50 13C5_PFPeA

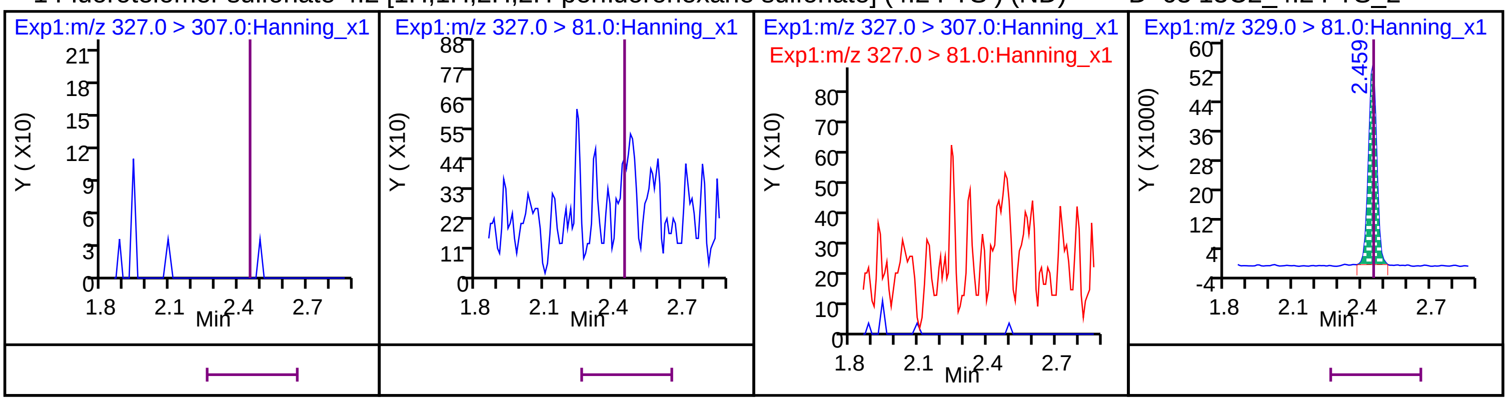


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

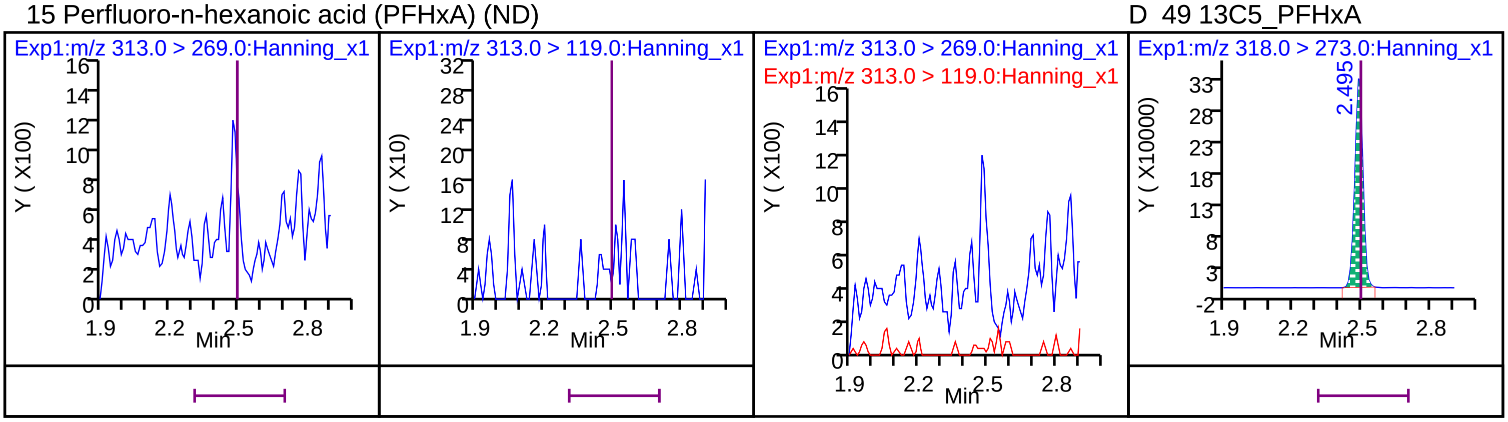
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



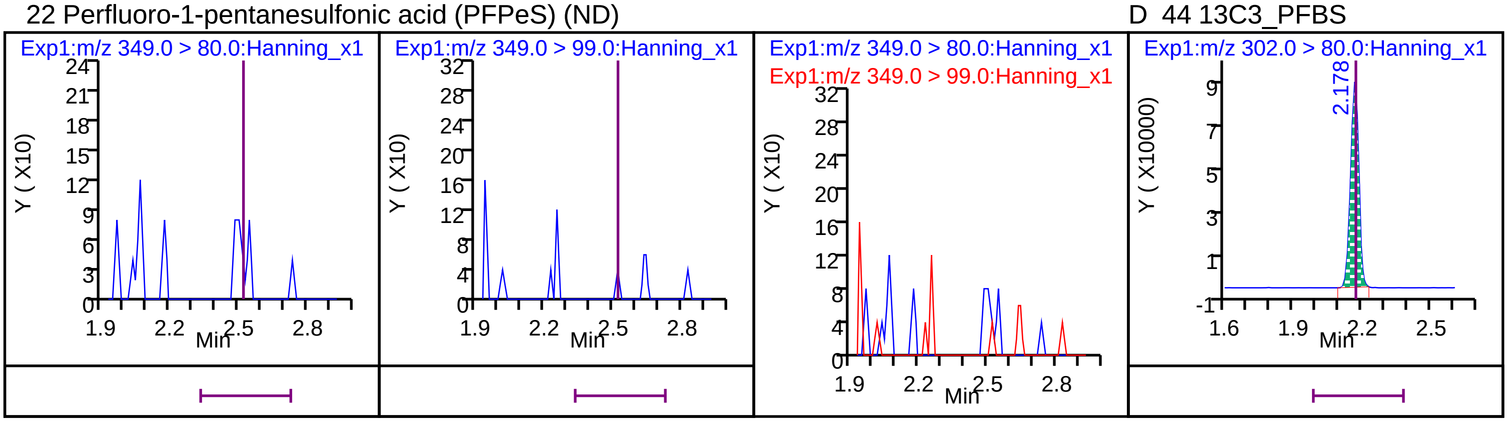
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA

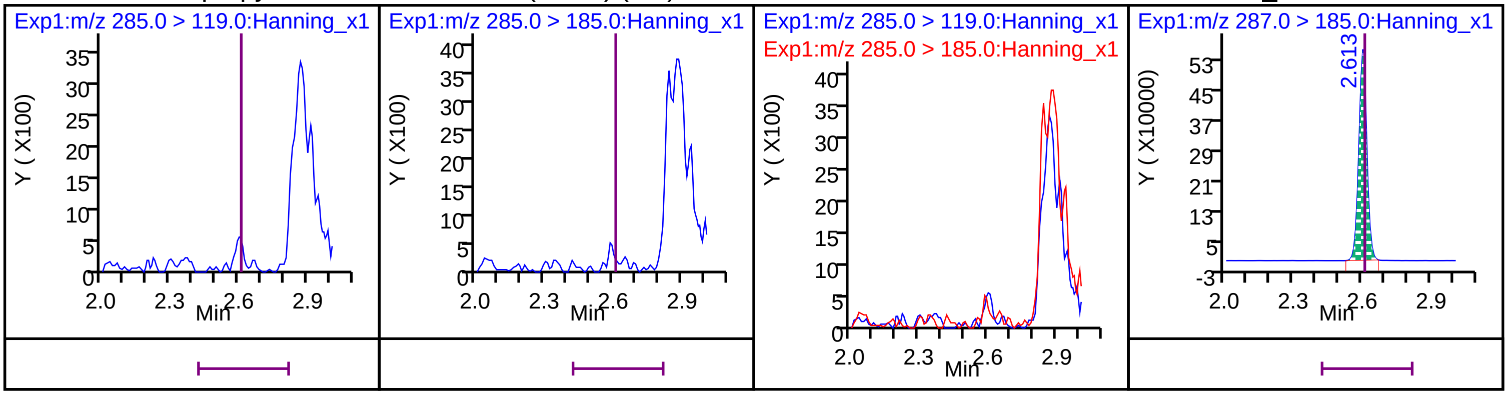


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

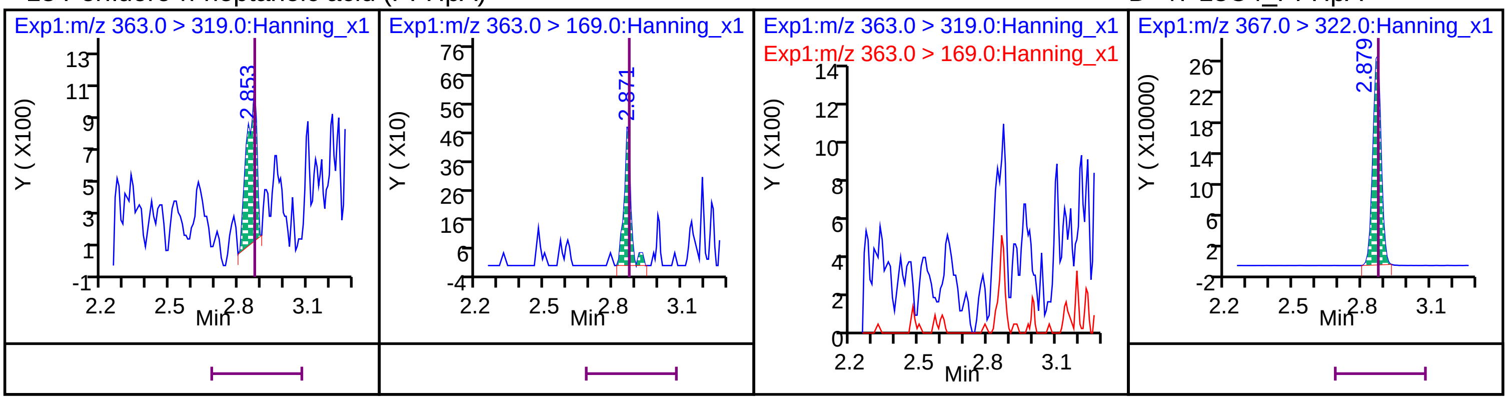


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

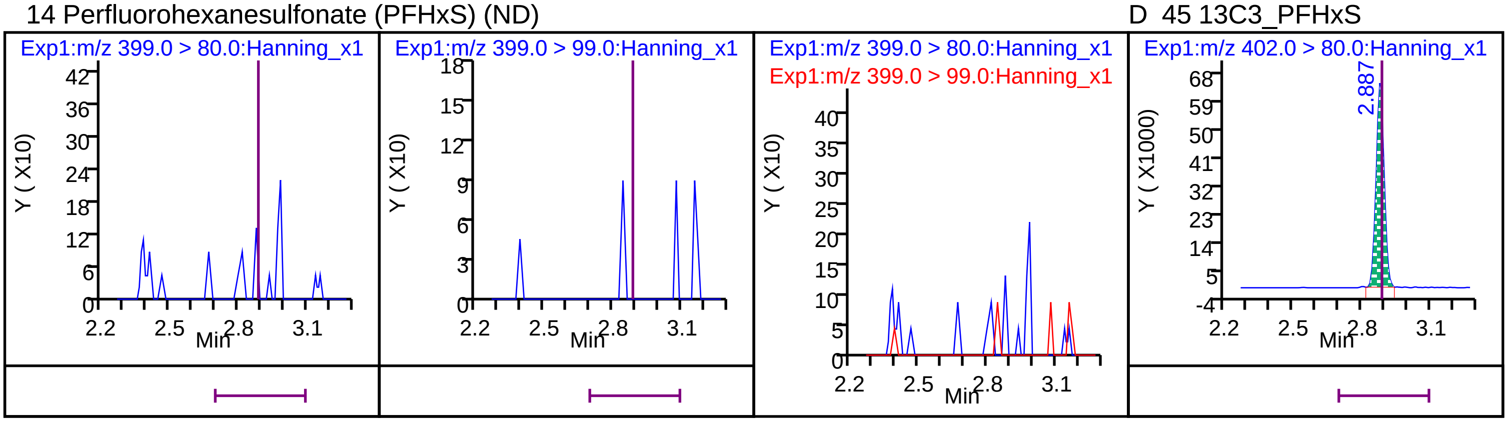
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



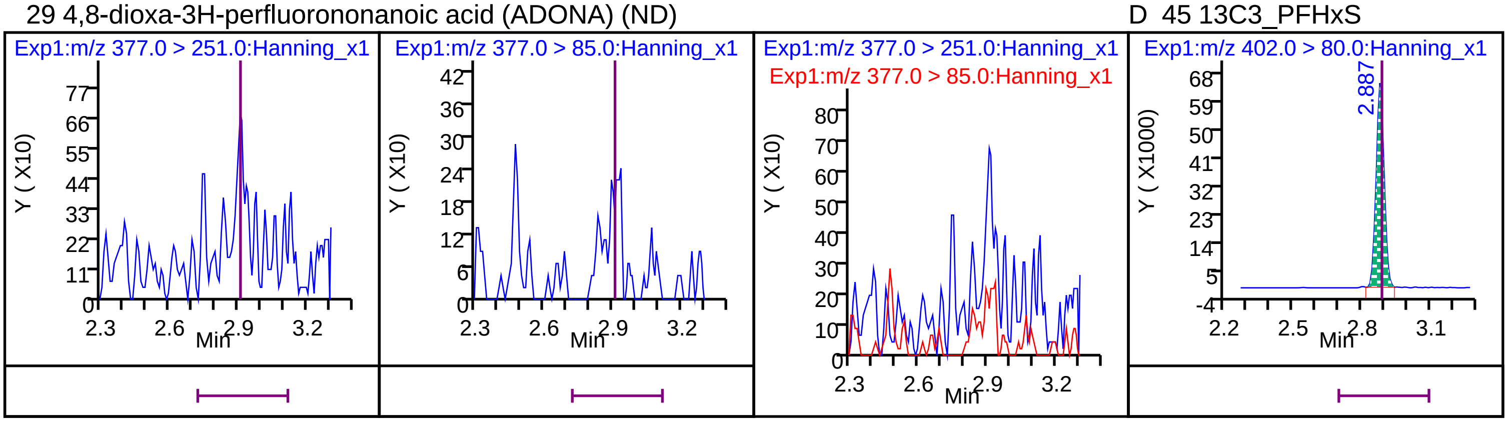
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



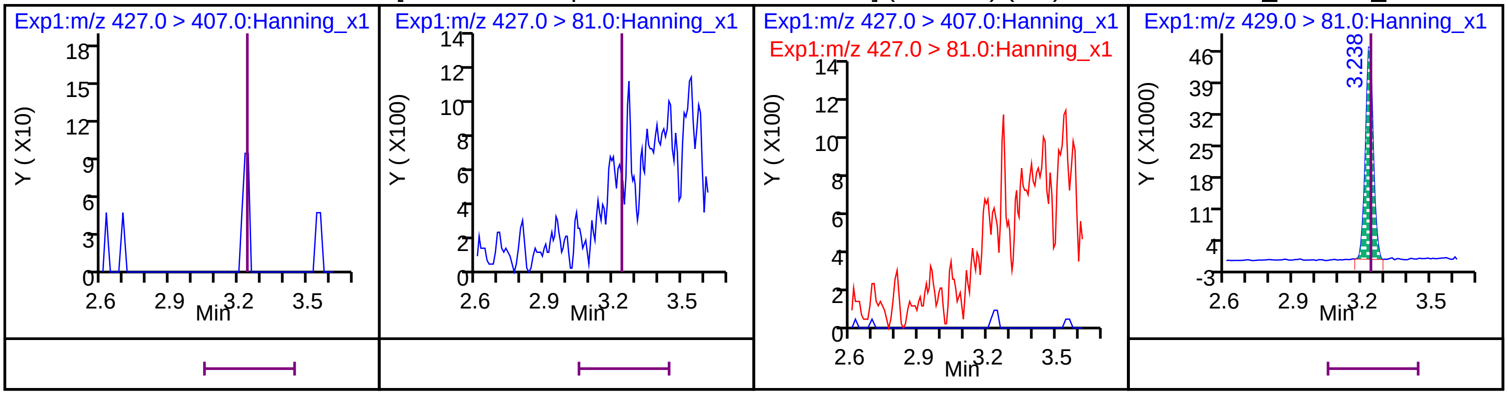
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



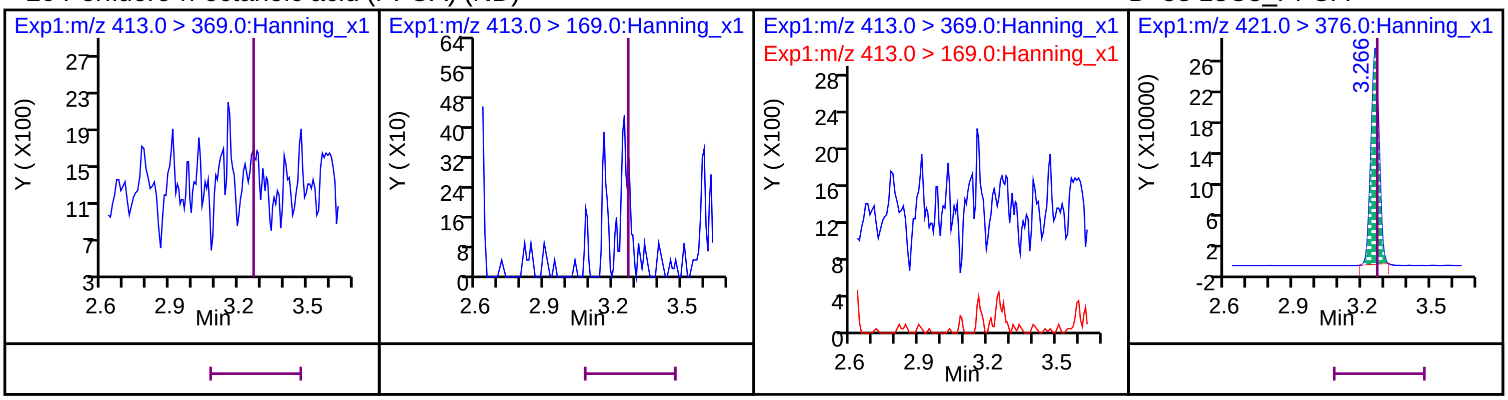
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



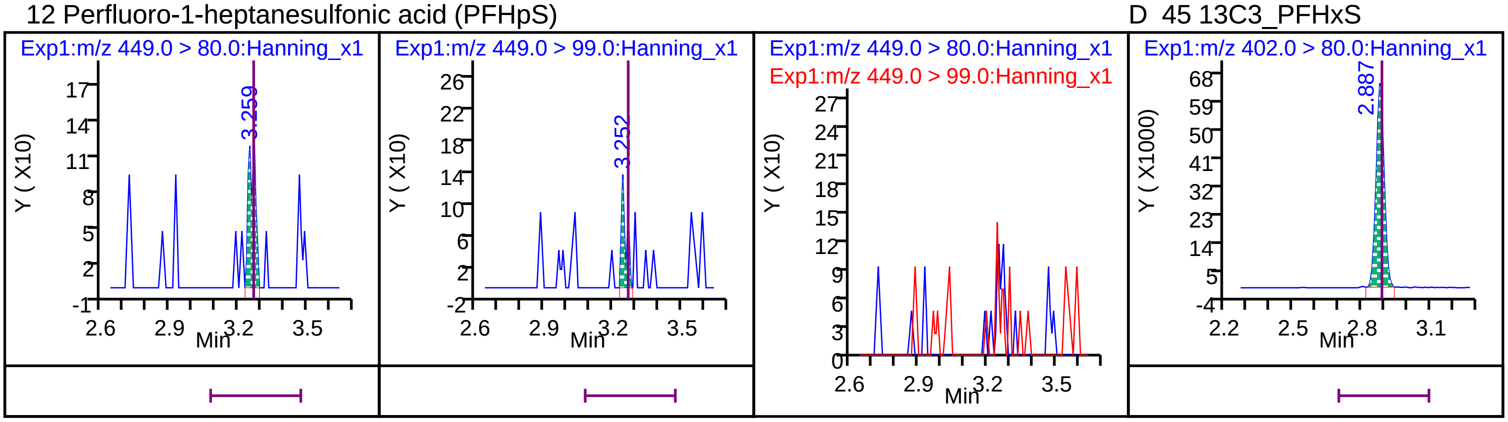
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



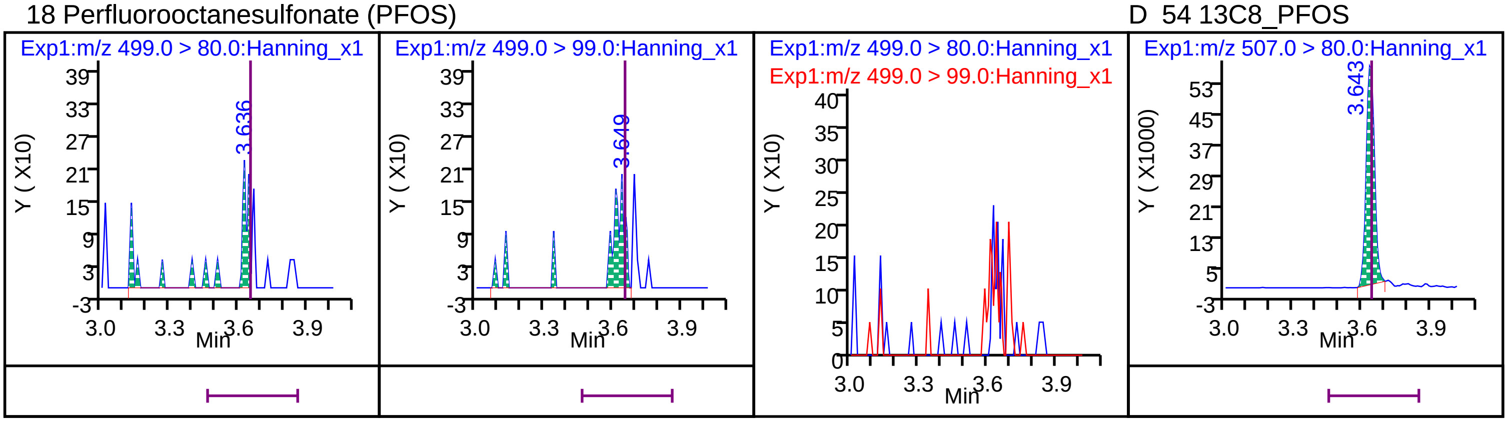
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



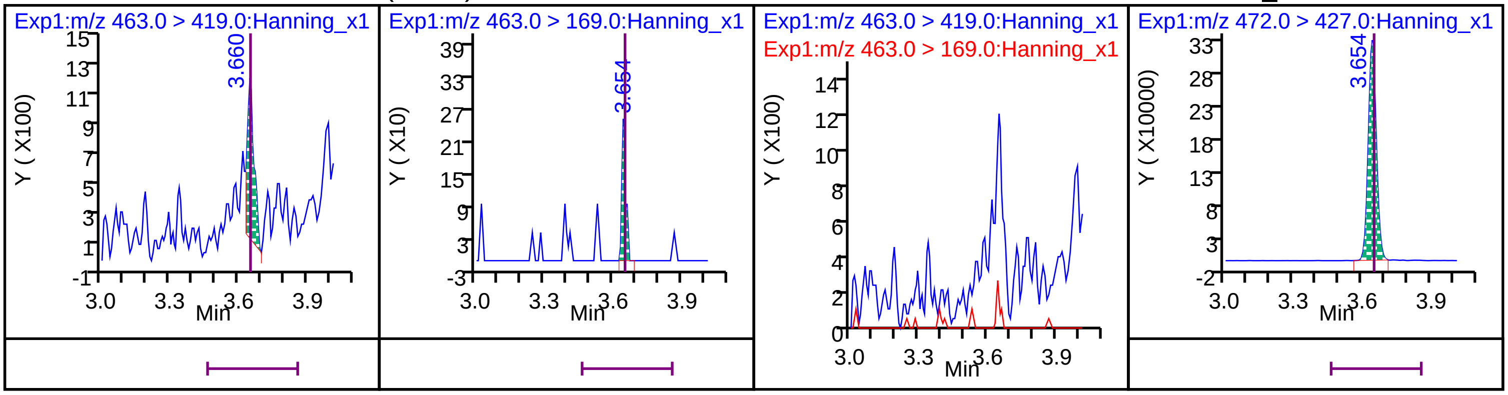
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



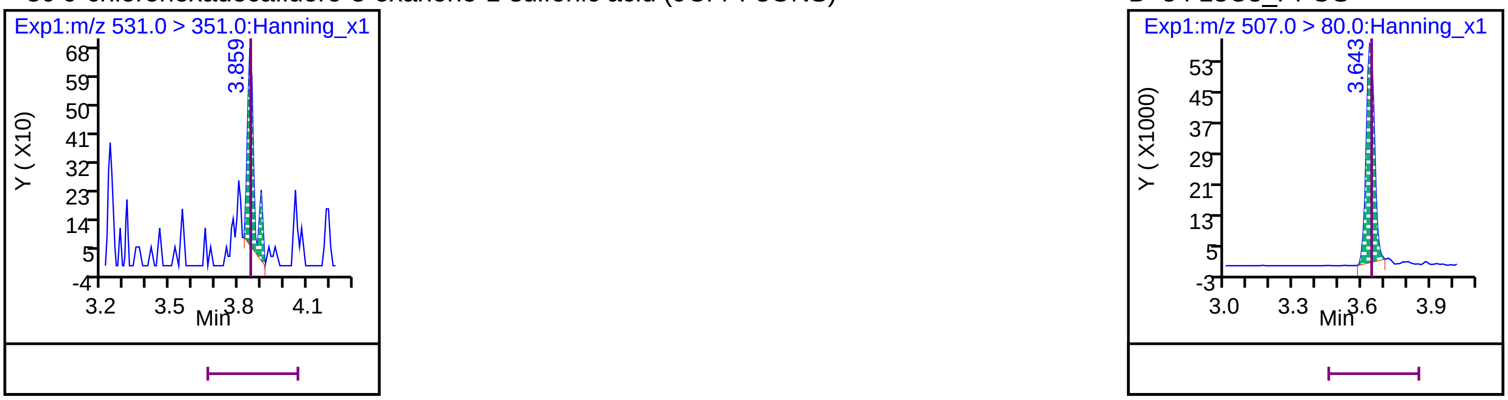
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



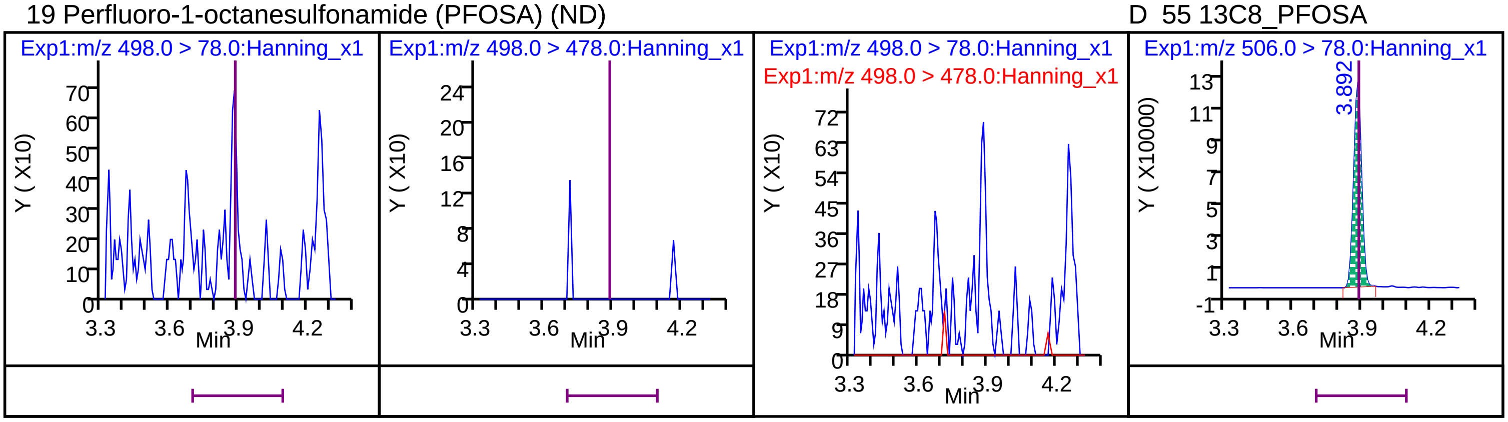
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



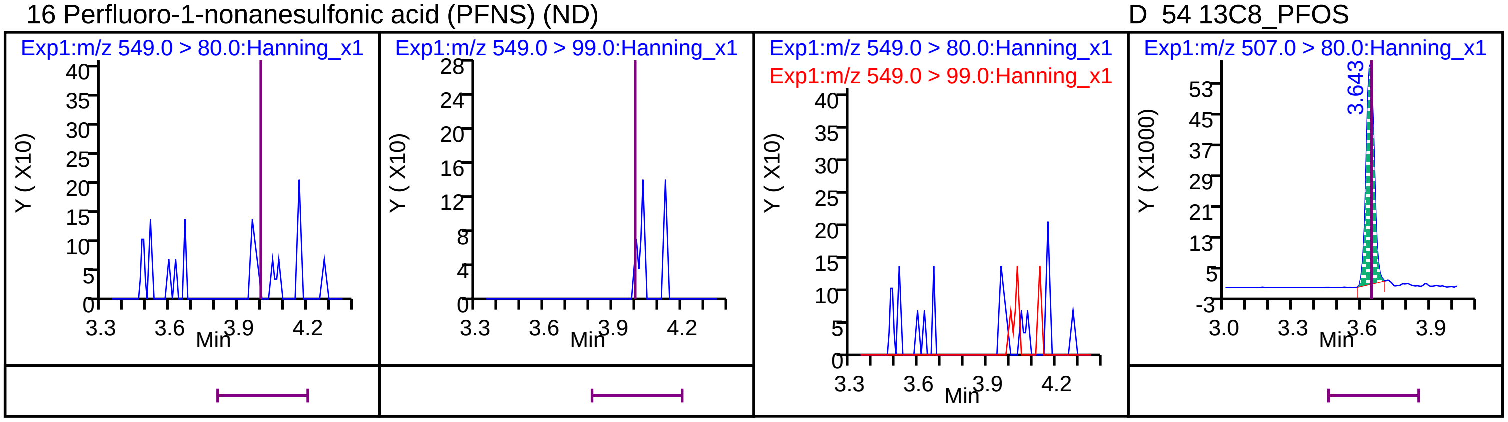
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA

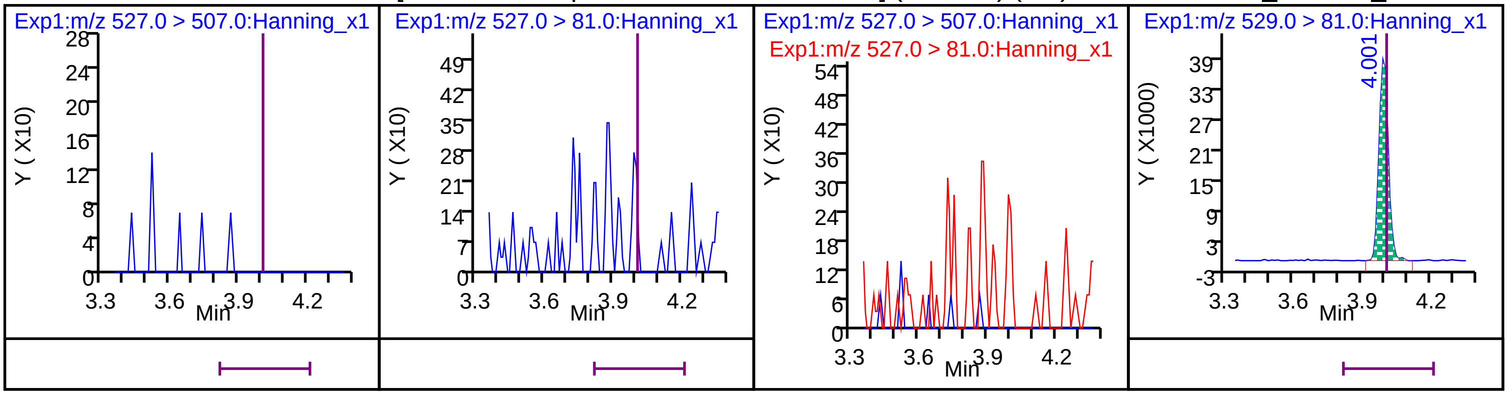


16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

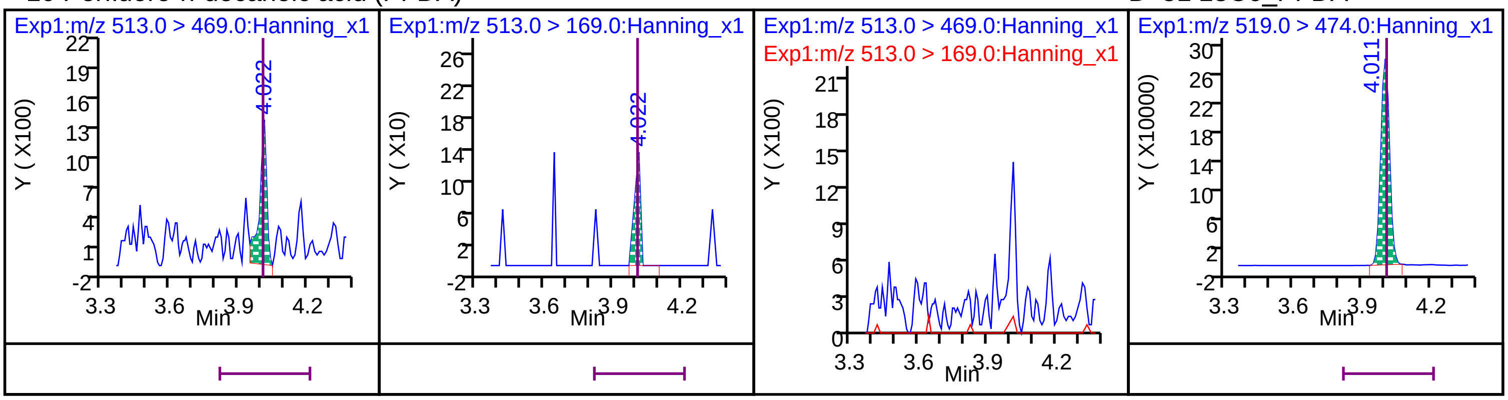


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

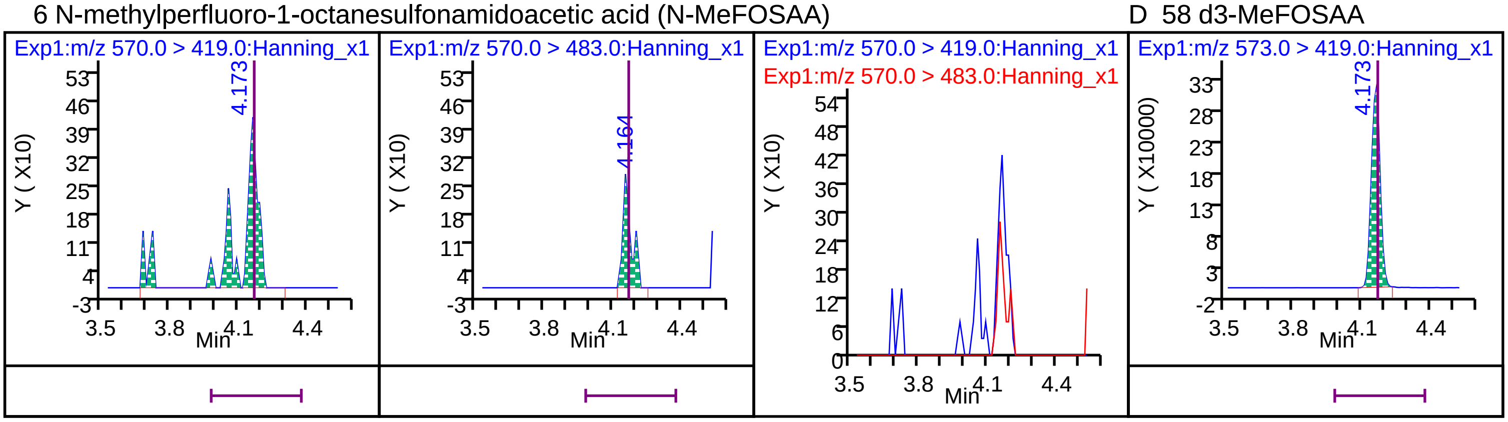
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



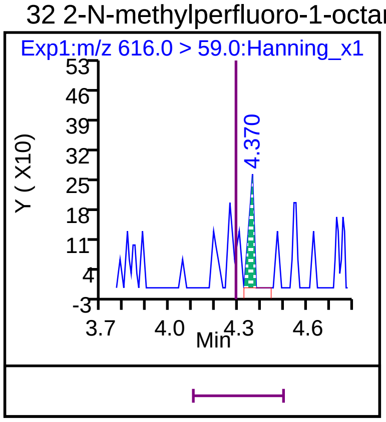
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

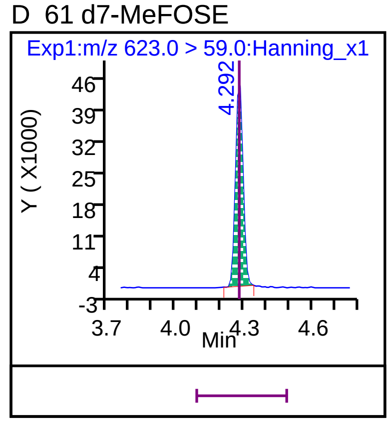


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



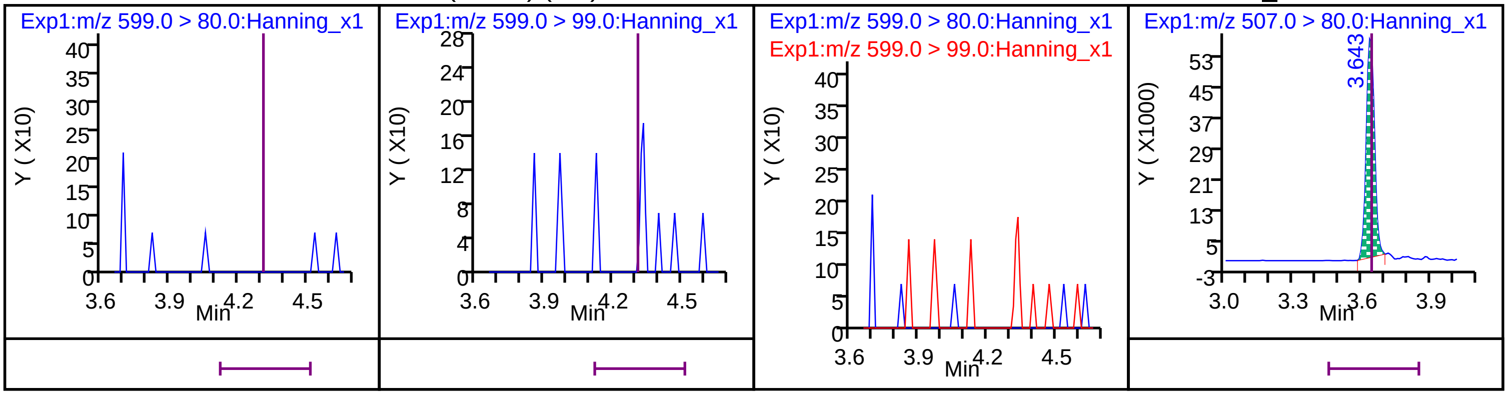
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



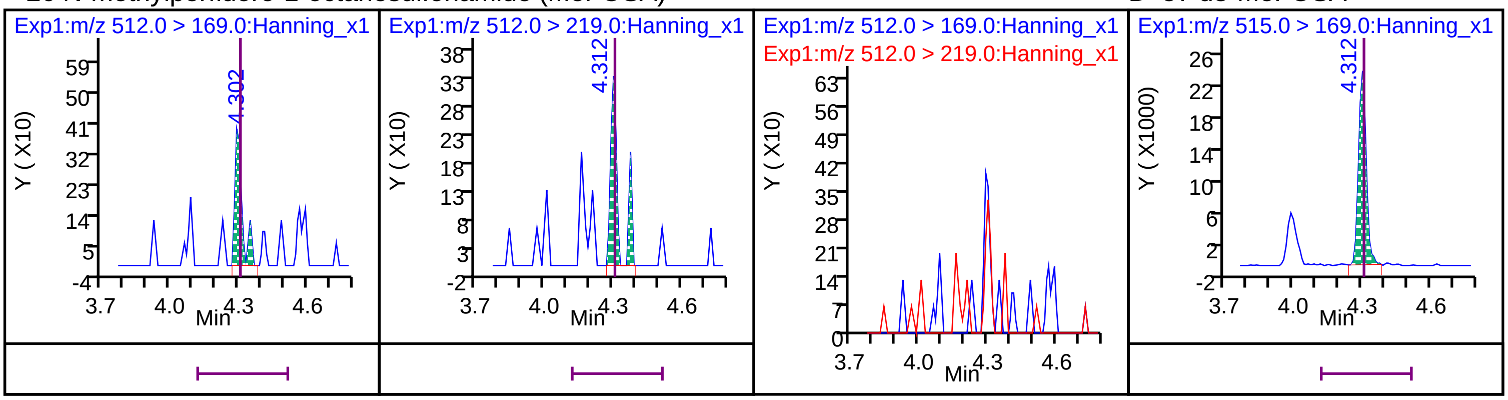


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

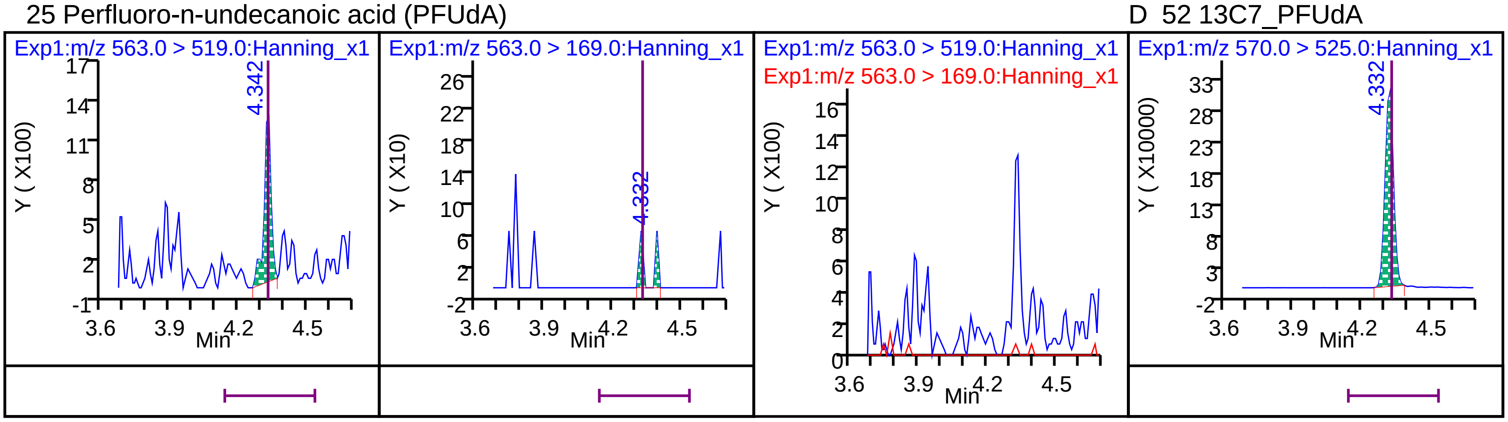
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



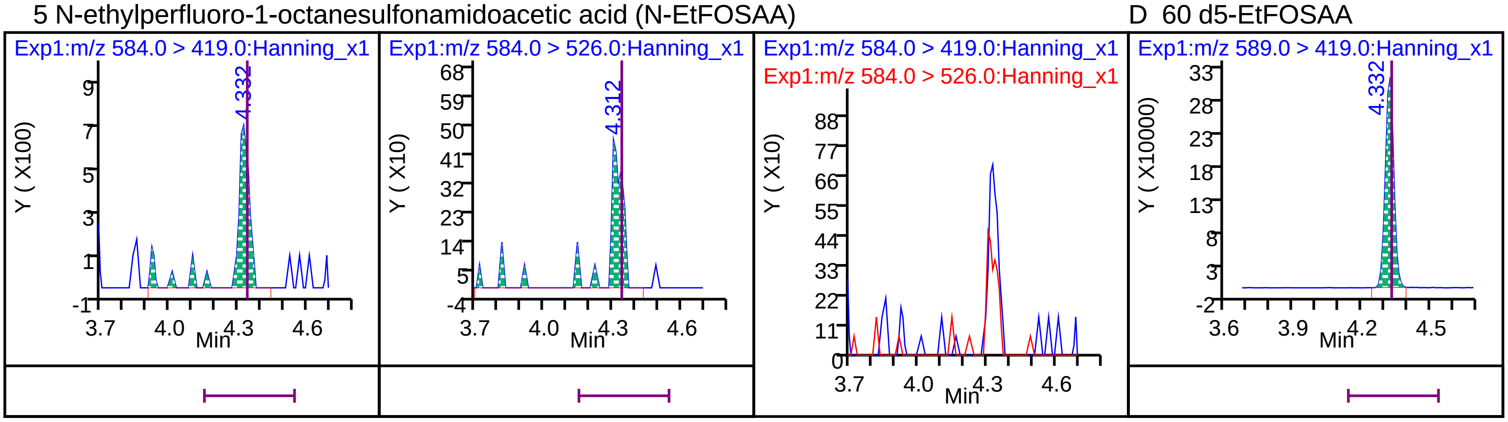
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

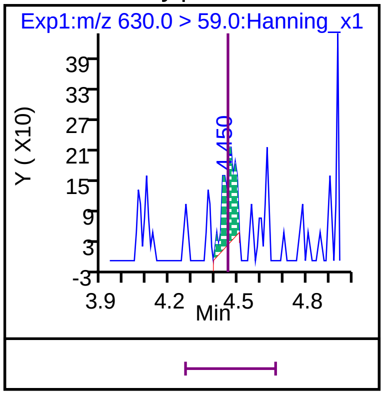


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

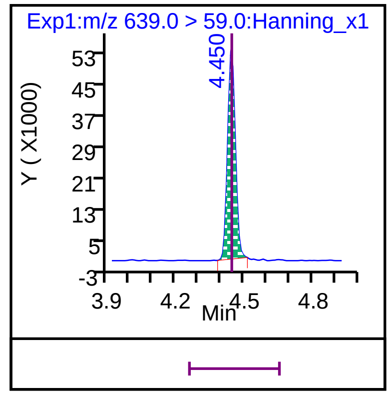


Report Date: 08-Nov-2021 10:00:27 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A22.d

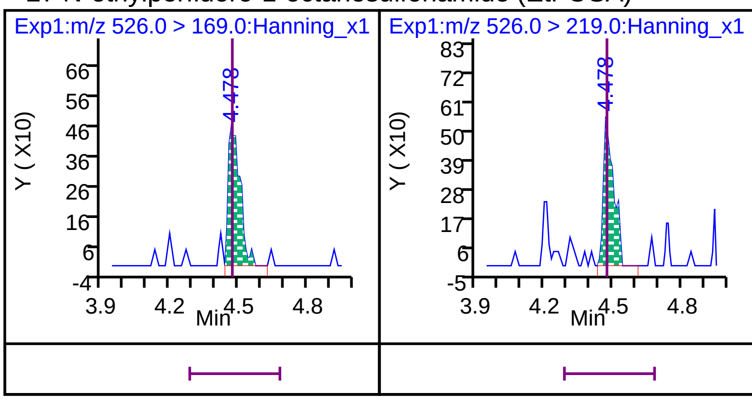
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



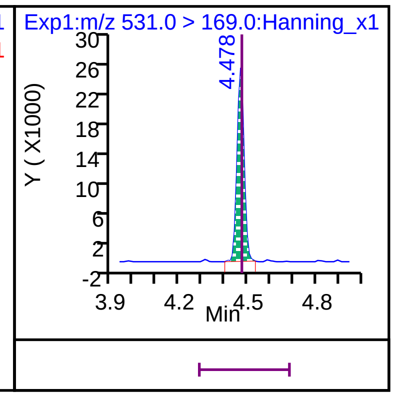
D 62 d9-EtFOSE



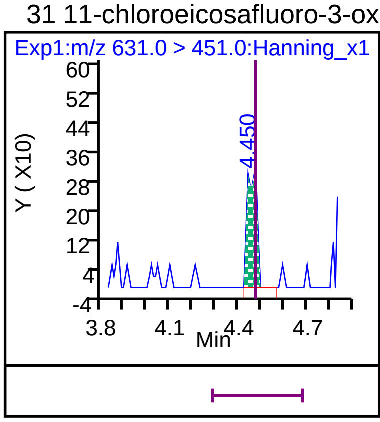
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



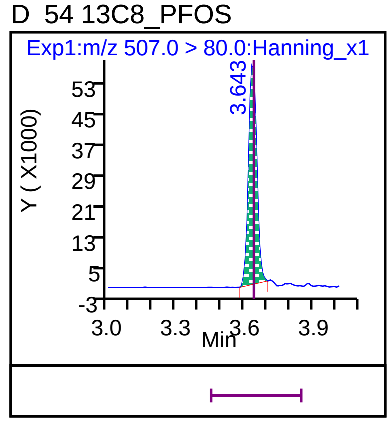
D 59 d5-EtFOSA



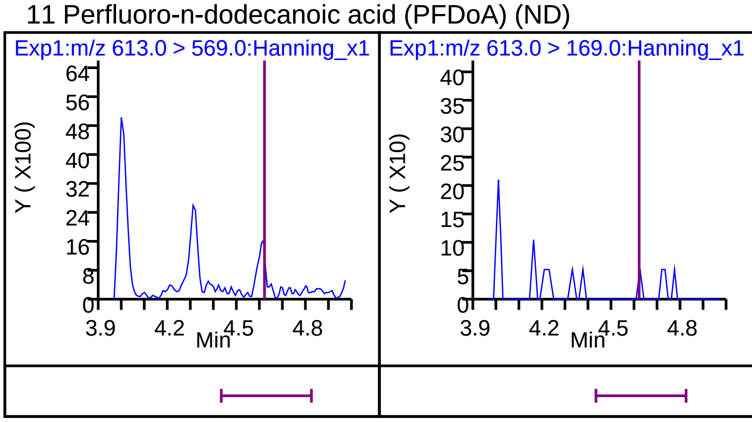
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



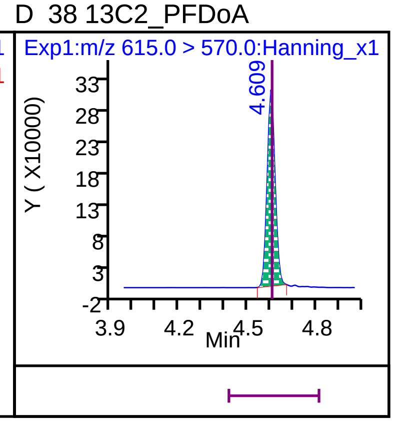
D 54 13C8_PFOS



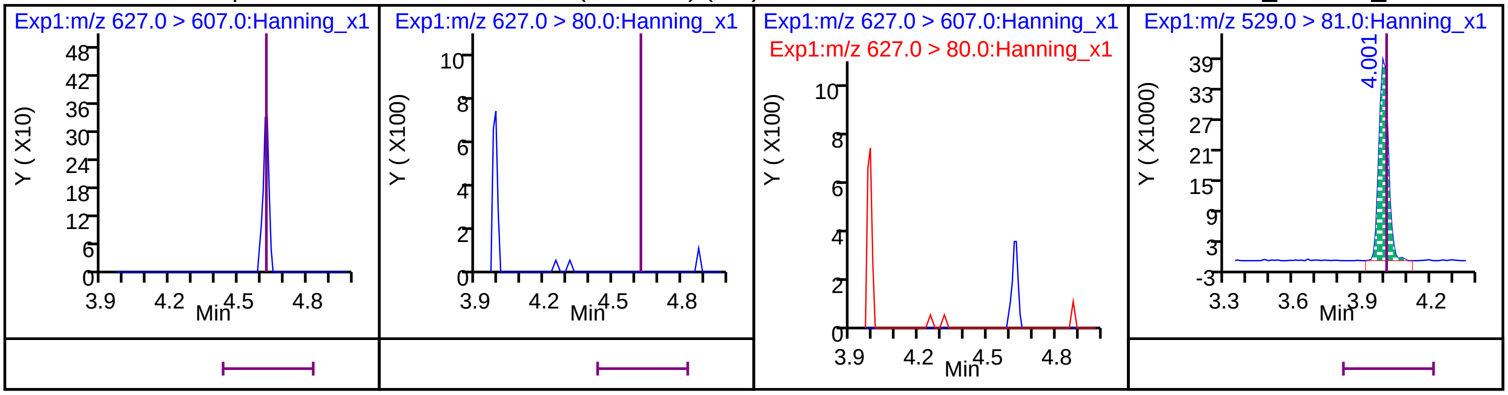
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



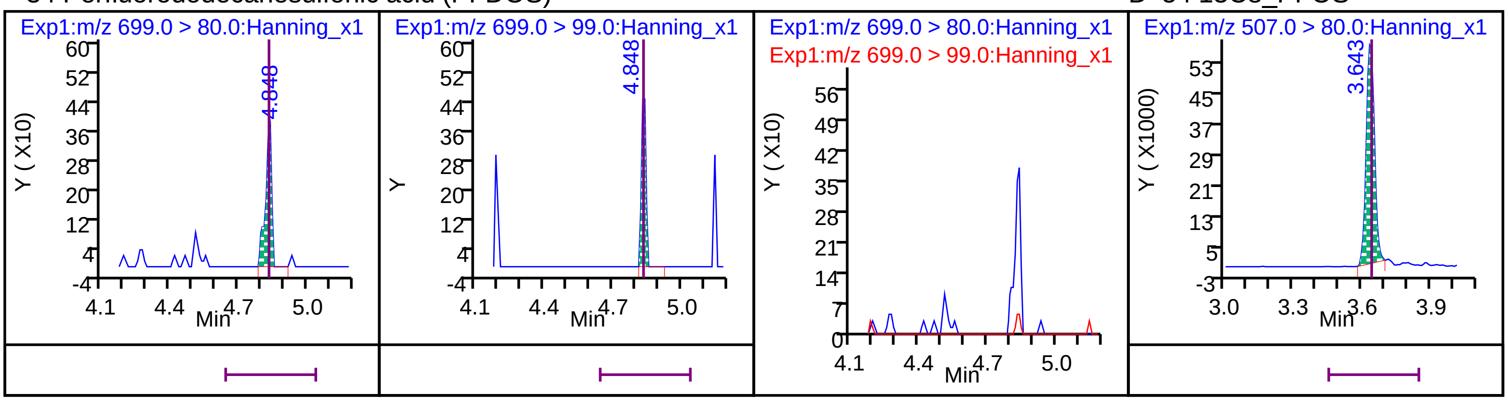
D 38 13C2_PFDoA



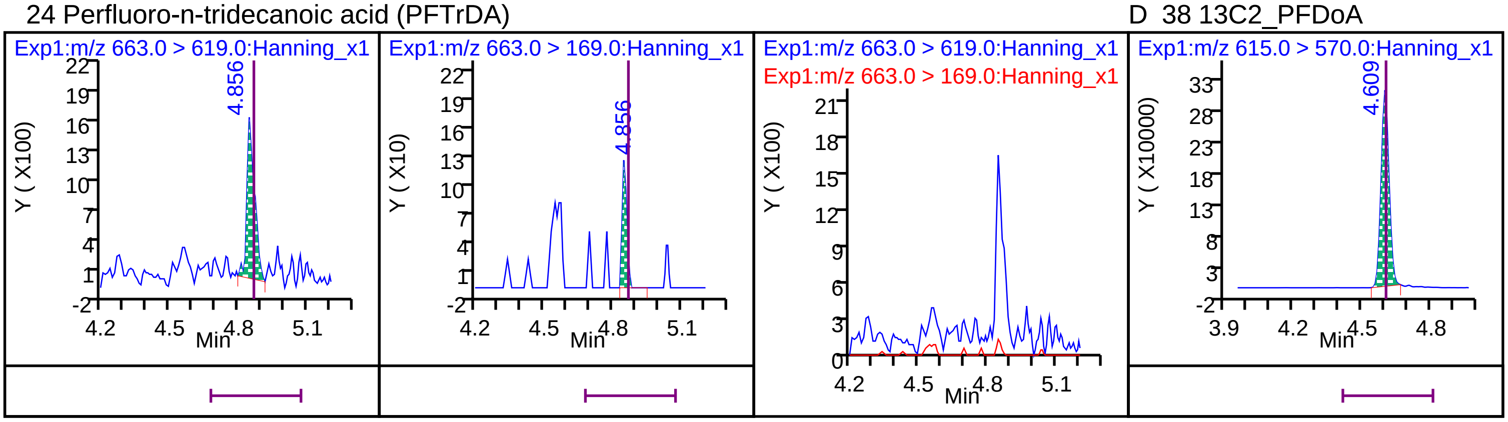
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



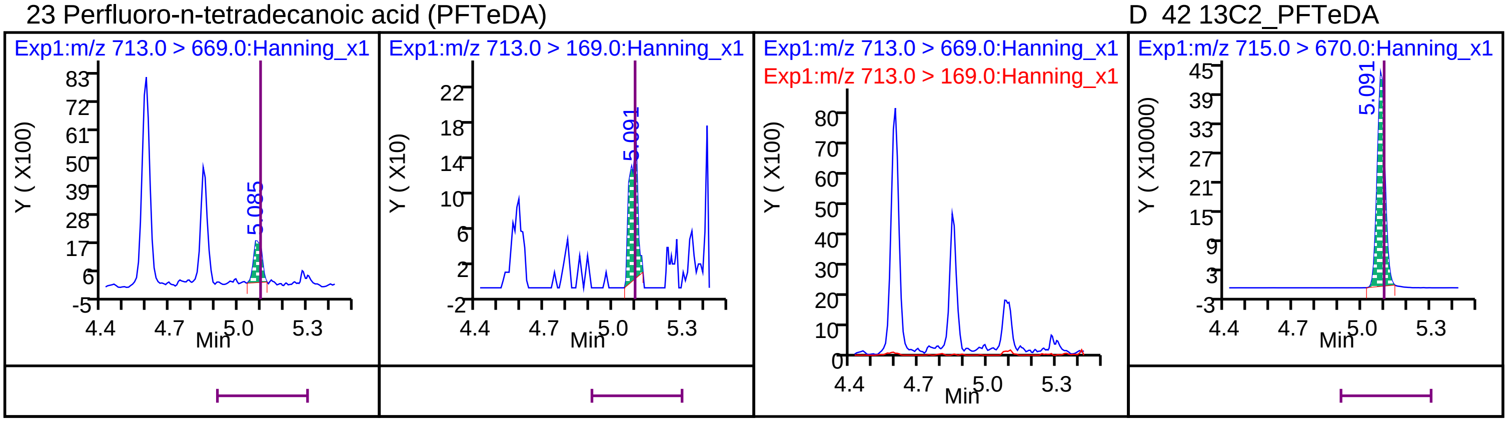
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



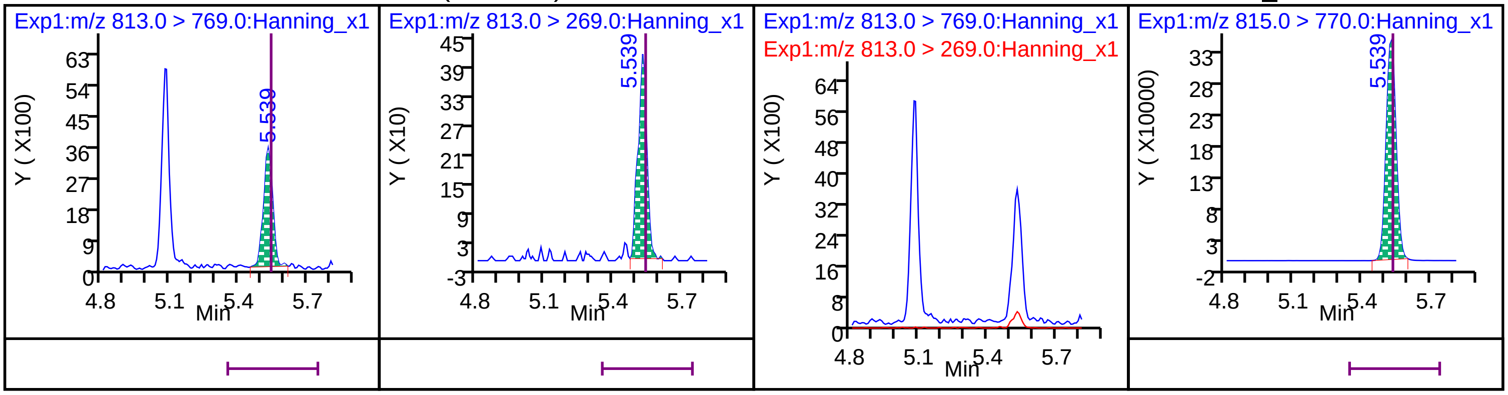
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



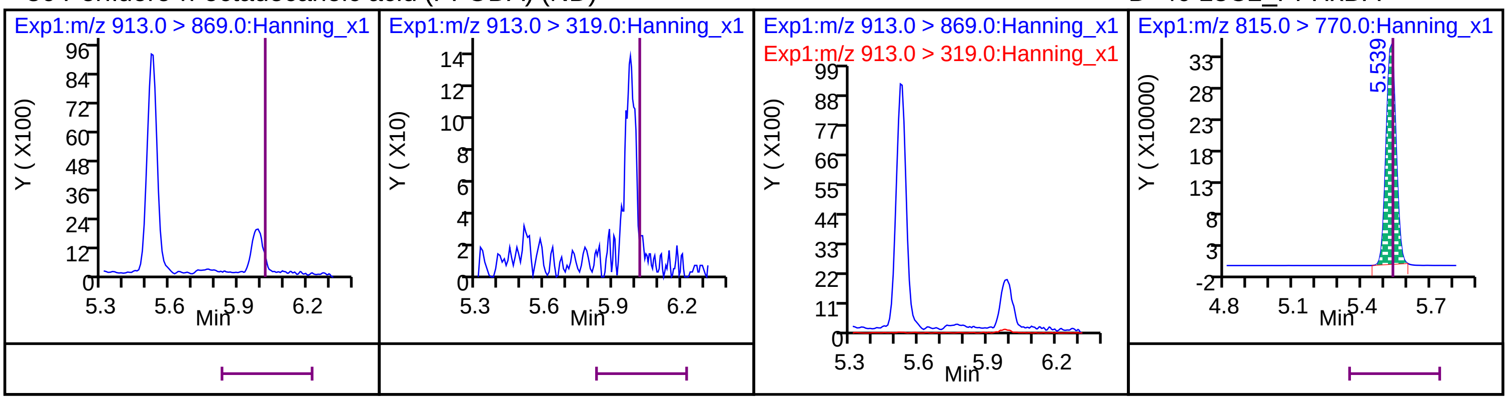
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



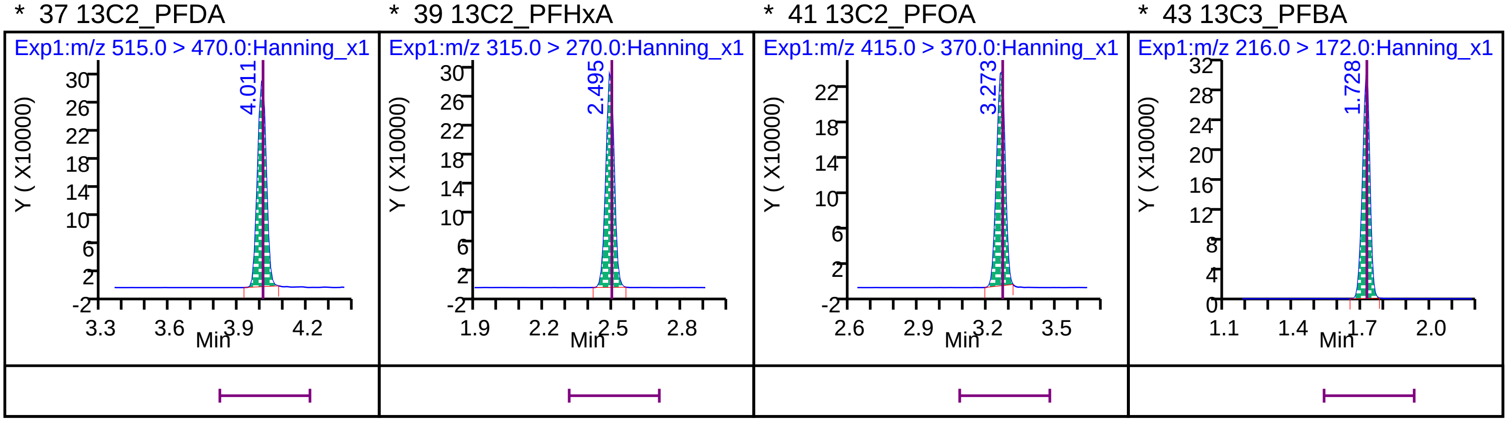
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



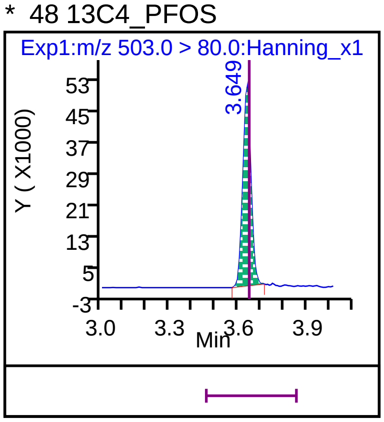
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Initial Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	86
Sample Info:	F.L. ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			500.00	449.86	90	70 - 130
D 46 13C4_PFBA	635753	729867			114.8	50 - 150
21 PFPeA			500.00	441.43	88.3	70 - 130
D 50 13C5_PFPeA	580113	696502			120.1	50 - 150
D 44 13C3_PFBS	178463	199640			111.9	50 - 150
7 PFBS			442.50	406.07	91.8	70 - 130
1 4:2 FTS			467.50	470.53	100.6	70 - 130
D 63 13C2_4:2 FTS_2	112299	123965			110.4	50 - 150
D 49 13C5_PFHxA	664948	758944			114.1	50 - 150
15 PFHxA			500.00	451.84	90.4	70 - 130
22 PFPeS			470.00	419.36	89.2	70 - 130
28 GenX			2500.00	2428.86	97.2	70 - 130
D 66 13C3_GenX	1204882	1252208			103.9	50 - 150
D 47 13C4_PFHpA	532996	637189			119.5	50 - 150
13 PFHpA			500.00	436.71	87.3	70 - 130
D 45 13C3_PFHxS	129716	143485			110.6	50 - 150
14 PFHxS			456.00	419.12	91.9	70 - 130
29 ADONA			2355.00	2144.51	91.1	70 - 130
D 64 13C2_6:2 FTS_2	93946	106963			113.9	50 - 150
2 6:2 FTS			475.00	397.01	83.6	70 - 130
20 PFOA			500.00	439.45	87.9	70 - 130
D 53 13C8_PFOA	547741	648933			118.5	50 - 150
12 PFHpS			475.00	435.51	91.7	70 - 130
D 54 13C8_PFOS	131913	153205			116.1	50 - 150
18 PFOS			462.75	401.15	86.7	70 - 130
17 PFNA			500.00	452.91	90.6	70 - 130
D 56 13C9_PFNA	639032	760846			119.1	50 - 150
30 9Cl-PF3ONS			2330.00	2029.63	87.1	70 - 130
D 55 13C8_PFOSA	266767	278831			104.5	50 - 150
19 PFOSA			500.00	482.21	96.4	70 - 130
16 PFNS			480.00	417.65	87	70 - 130
10 PFDA			500.00	428.86	85.8	70 - 130
3 8:2 FTS			480.00	415.08	86.5	70 - 130
D 51 13C6_PFDA	575846	697987			121.2	50 - 150
D 65 13C2_8:2 FTS_2	78835	103107			130.8	50 - 150
6 N-MeFOSAA			500.00	503.31	100.7	70 - 130

Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	841627			108.9	50 - 150
D 61 d7-MeFOSE	90070	99485			110.5	50 - 150
D 57 d3-MeFOSA	44997	47320			105.2	50 - 150
9 PFDS			482.50	421.43	87.3	70 - 130
D 52 13C7_PFUdA	634567	731568			115.3	50 - 150
D 60 d5-EtFOSAA	689688	705245			102.3	50 - 150
25 PFUdA			500.00	436.06	87.2	70 - 130
5 N-EtFOSAA			500.00	568.52	113.7	70 - 130
D 62 d9-EtFOSE	101585	118584			116.7	50 - 150
D 59 d5-EtFOSA	42895	48893			114	50 - 150
31 11Cl-PF3OUDS			2355.00	1931.80	82	70 - 130
D 38 13C2_PFDoA	604291	818103			135.4	50 - 150
11 PFDoA			500.00	438.42	87.7	70 - 130
4 10:2 FTS			2410.00	2721.03	112.9	70 - 130
24 PFTrDA			500.00	406.02	81.2	70 - 130
D 42 13C2_PFTeDA	838224	982455			117.2	50 - 150
23 PFTeDA			500.00	450.55	90.1	70 - 130
D 40 13C2_PFHxDA	877835	968757			110.4	50 - 150

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d		
Injection Date:	07-Nov-2021 20:43:28	Injection Vol:	10.0 uL
Sample Type:	ICV	Auto Sampler:	86
Sample Info:	F.L. ICV 500_SVLC-1734	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: ICV Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.724	1.731	0	729867	20	>100:1			1000.00	1174.03	114.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.731	1.731	1/1	346276	20	>100:1			500.00	449.86		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.120	2.130	0	696502	15	>100:1			1000.00	1218.53	120.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.130	0/0	346044	14	>100:1			500.00	441.43		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	1	199640	16	>100:1			1000.00	1154.19	111.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.183	2.183	1/0	101094	17	>100:1	Target = 3.53		442.50	406.07		
298.9 > 99	44	2.183	2.183		29039	17	>100:1	3.48 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.531	1/0	77590	16	>100:1	Target = 3.10		470.00	419.36		
349 > 99	44	2.532	2.531		25008	16	>100:1	3.10 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.460	2.460	1	123965	17	>100:1			5000.00	5474.59	110.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.460	2.460	1/0	25716	23	>100:1	Target = 1.75		467.50	470.53		
327 > 81	63	2.460	2.460		14152	18	29:1	1.81 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	758944	17	>100:1			1000.00	1165.30	114.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.505	0/0	356554	17	>100:1	Target = 18.91		500.00	451.84		
313 > 119	49	2.496	2.505		19453	18	>100:1	18.32 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1252208	18	>100:1			5000.00	5403.12	103.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.622	0/0	393946	19	>100:1	Target = 0.79		2500.00	2428.86		
285 > 185	66	2.614	2.622		516736	19	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	637189	18	>100:1			1000.00	1200.12	119.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.881	2.880	1/1	305771	19	>100:1	Target = 3.80		500.00	436.71		
363 > 169	47	2.881	2.880		80052	19	>100:1	3.81 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	143485	18	>100:1			1000.00	1142.04	110.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.888	2.896	0/0	66115	24	>100:1	Target = 2.89	5.51	456.00	419.12		
399 > 99	45	2.888	2.896		24799	27	>100:1	2.66 (1.44-4.34)	8.58				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.919	0/0	2386331	19	>100:1	Target = 3.23		2355.00	2144.51		
377 > 85	45	2.912	2.919		726470	20	>100:1	3.28 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.269	3.276	0/0	64181	20	>100:1	Target = 3.12		475.00	435.51		
449 > 99	45	3.269	3.276		23497	21	>100:1	2.73 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.241	3.248	0	106963	22	>100:1			5000.00	5942.40	113.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.241	3.248	0/0	20105	23	>100:1	Target = 1.75		475.00	397.01		
427 > 81	64	3.241	3.248		13864	19	29:1	1.45 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.262	3.276	0	648933	22	>100:1			1000.00	1236.82	118.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.269	3.276	0/0	292233	22	>100:1	Target = 2.89		500.00	439.45		
413 > 169	53	3.269	3.276		98289	20	>100:1	2.97 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.646	3.651	0	153205	28				1000.00	1237.09	116.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.646	3.662	0/0	73176	37	>100:1	Target = 3.30	3.97	462.75	401.15		
499 > 99	54	3.651	3.662		19553	36	>100:1	3.74 (1.65-4.95)	8.10				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.855	3.863	0/0	1177596	17	>100:1			2330.00	2029.63		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.006	0/0	51335	19	>100:1	Target = 3.08		480.00	417.65		
549 > 99	54	3.995	4.006		17864	19	>100:1	2.87 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.308	4.318	0/0	50524	15	>100:1	Target = 2.72		482.50	421.43		
599 > 99	54	4.308	4.318		18013	18	>100:1	2.80 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.474	4.483	0/0	1013267	17	>100:1			2355.00	1931.80		
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.651	3.662	0	760846	22	>100:1			1000.00	1188.12	119.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.657	3.662	0/0	371431	22	>100:1	Target = 6.51		500.00	452.91		
463 > 169	56	3.657	3.662		56437	20	>100:1	6.58 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.896	0	278831	18	>100:1			1000.00	1040.19	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.888	3.896	0/0	141472	18	>100:1	Target = 41.63		500.00	482.21		
498>478	55	3.888	3.896		4740	21		29.84 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.006	4.016	0	697987	17	>100:1			1000.00	1214.61	121.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.006	4.016	0/0	348352	17	>100:1	Target = 13.80		500.00	428.86		
513 > 169	51	4.006	4.016		25277	15	>100:1	13.78 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.016	-1	103107	23	>100:1			5000.00	5965.29	130.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.016	0/1	19341	15	>100:1	Target = 1.94		480.00	415.08		
527 > 81	65	4.006	4.016		11860	14	49:1	1.63 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.623	4.631	0/1	142333	16		Target = 3.54		2410.00	2721.03		
627 > 80	65	4.623	4.631		39674	16	>100:1	3.58 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.169	4.178	0	841627	17	>100:1			5000.00	5569.54	108.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.169	4.178	0/0	67981	16	>100:1	Target = 1.37		500.00	503.31		
570 > 483	58	4.169	4.178		54282	22	>100:1	1.25 (0.68-2.05)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.288	1	99485	15				1000.00	1103.07	110.5	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.318	0	47320	13	>100:1			1000.00	1005.93	105.2	
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.328	4.338	0	705245	16	>100:1			5000.00	5445.35	102.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.338	4.348	0/0	78189	15	>100:1	Target = 1.51		500.00	568.52		
584 > 526	60	4.328	4.348		48185	15	>100:1	1.62 (0.75-2.26)					
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.328	4.338	0	731568	16	>100:1			1000.00	1214.72	115.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.328	4.338	0/0	309106	15	>100:1	Target = 14.52		500.00	436.06		
563 > 169	52	4.328	4.338		22293	20		13.86 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.455	1	118584	15	>100:1			1000.00	1117.90	116.7	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.483	0	48893	14	>100:1			1000.00	1137.05	114	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.606	4.614	0	818103	16	>100:1			1000.00	1362.74	135.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.622	0/0	382376	17	66:1	Target = 10.70		500.00	438.42		
613 > 169	38	4.614	4.622		35063	16	>100:1	10.90 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.860	4.877	-1/-1	349140	18	>100:1	Target = 8.31		500.00	406.02		
663 > 169	38	4.860	4.877		41116	15	>100:1	8.49 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.087	5.106	-1	982455	21	>100:1			1000.00	1208.45	117.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.087	5.106	-1/0	386398	21	50:1	Target = 12.17		500.00	450.55		
713 > 169	42	5.087	5.106		30868	19	>100:1	12.51 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.528	5.544	0	968757	20	>100:1			1000.00	1116.03	110.4	
*** 37 13C2_PFDA**													
515 > 470		4.006	4.016	0	760545	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	712656	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.276	0	597895	22	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	1	645705	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.646	3.657	0	149411	21	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

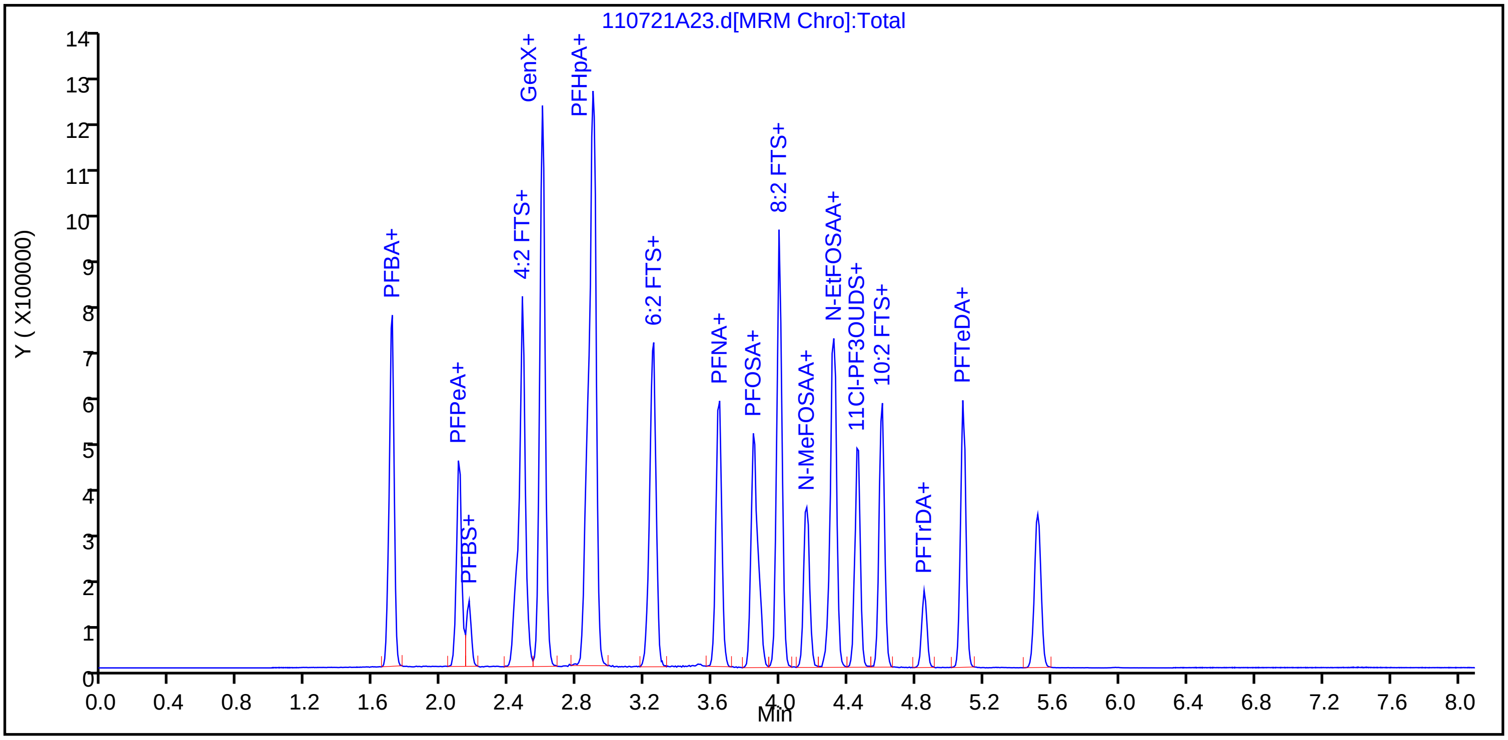
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

Injection Date: 07-Nov-2021 20:43:28 Inst. ID: LCMSMS02.i

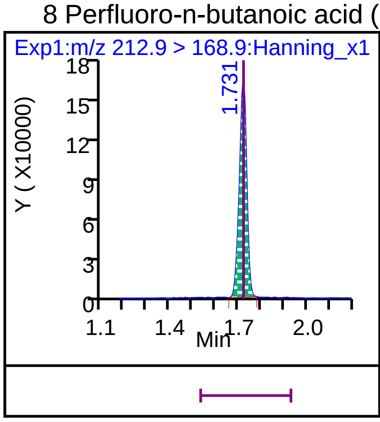
Client ID: Lab ID: F.L. ICV 500_SVLC-1734

Sample Info: F.L. ICV 500_SVLC-1734

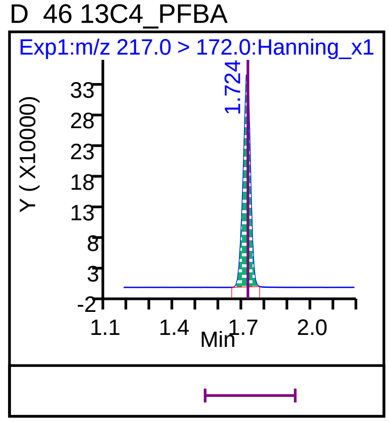
Dil. Factor: 1 Operator: Justin Gavin



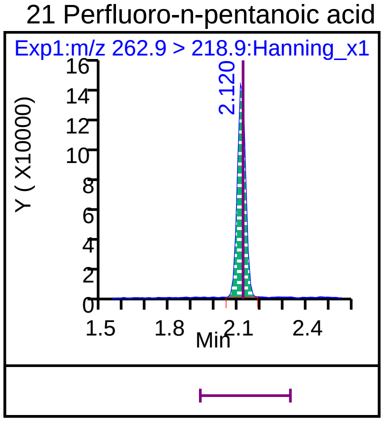
8 Perfluoro-n-butanoic acid (PFBA)



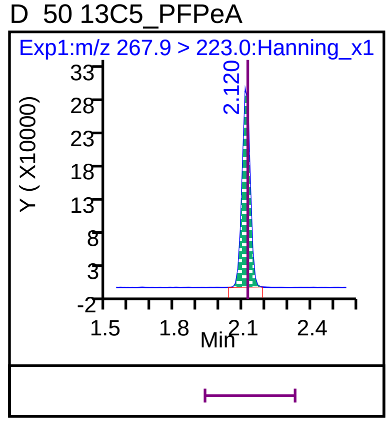
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

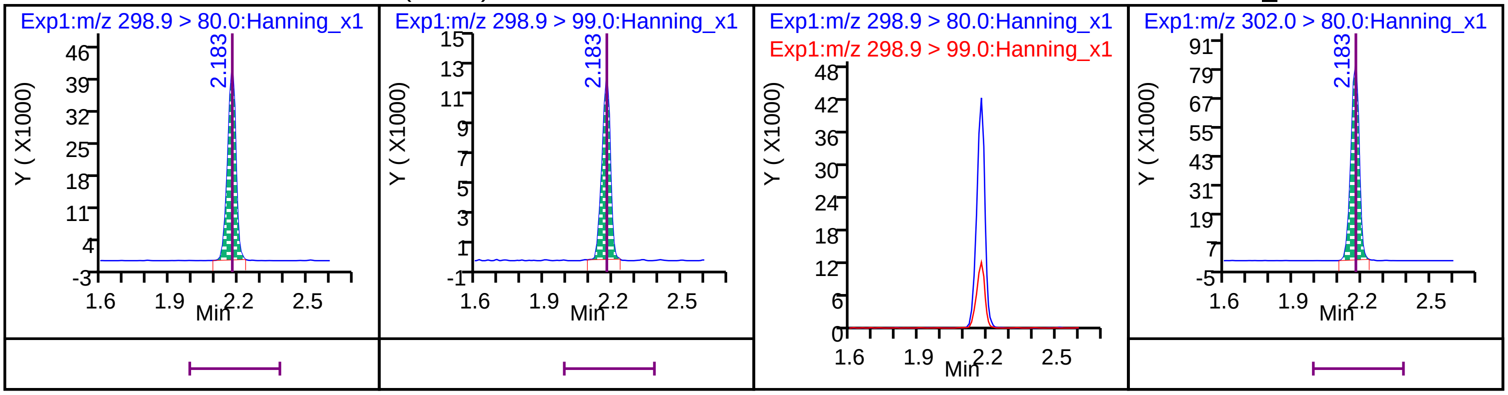


D 50 13C5_PFPeA

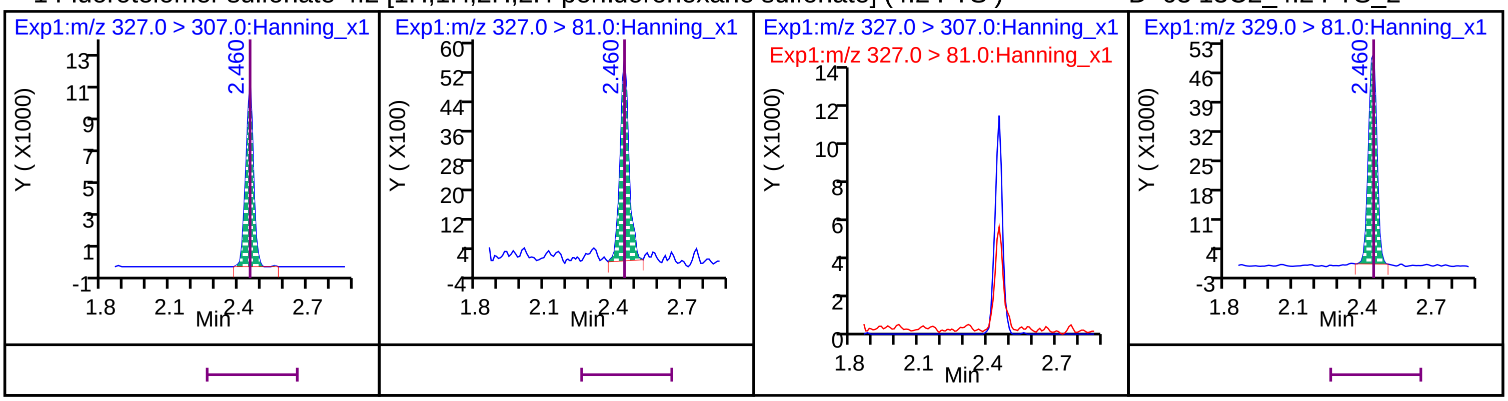


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

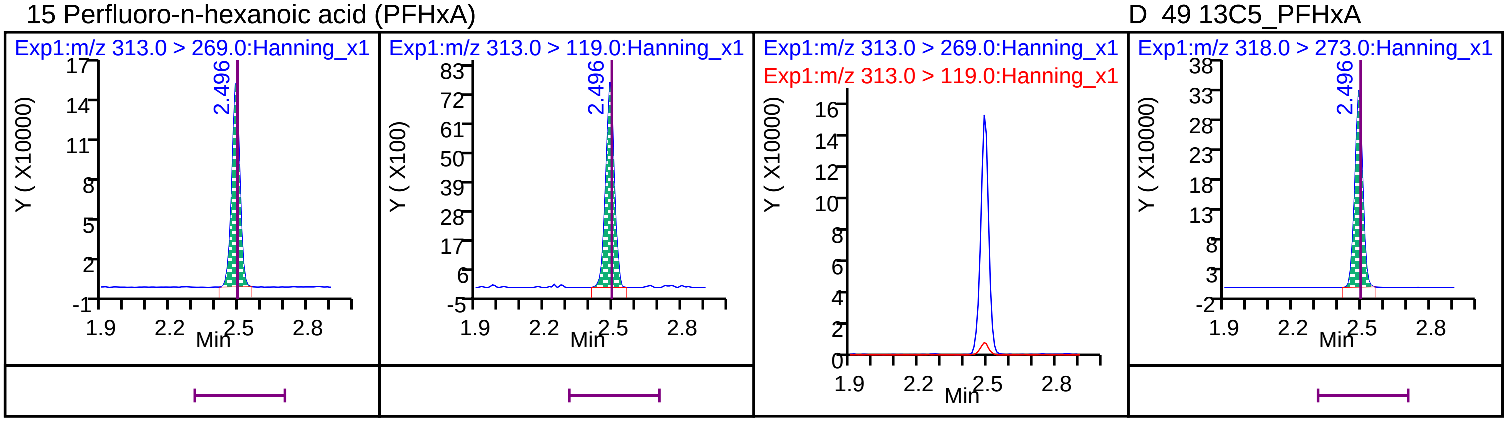
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



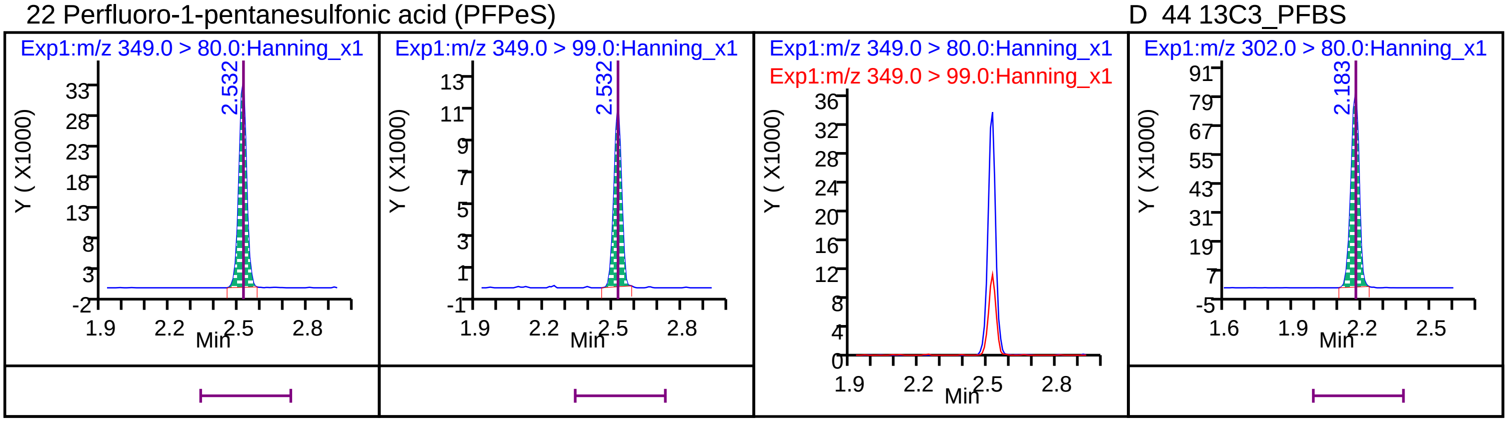
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



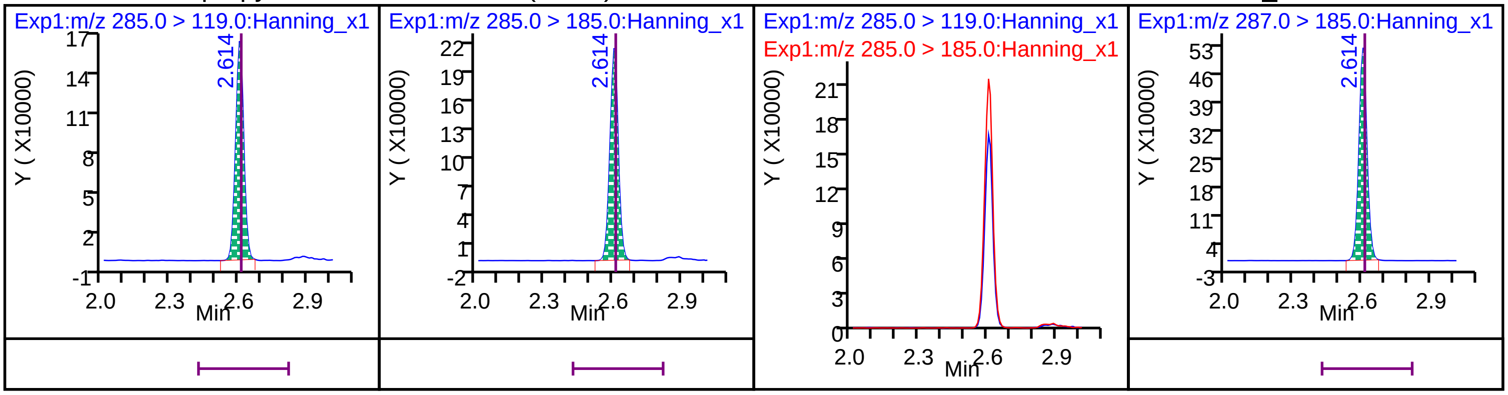
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



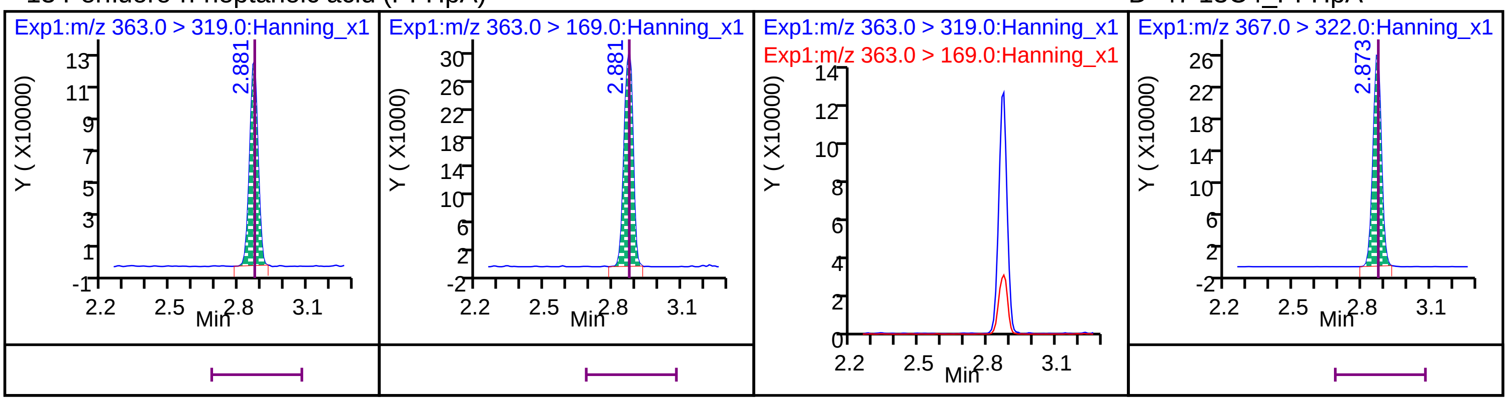
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



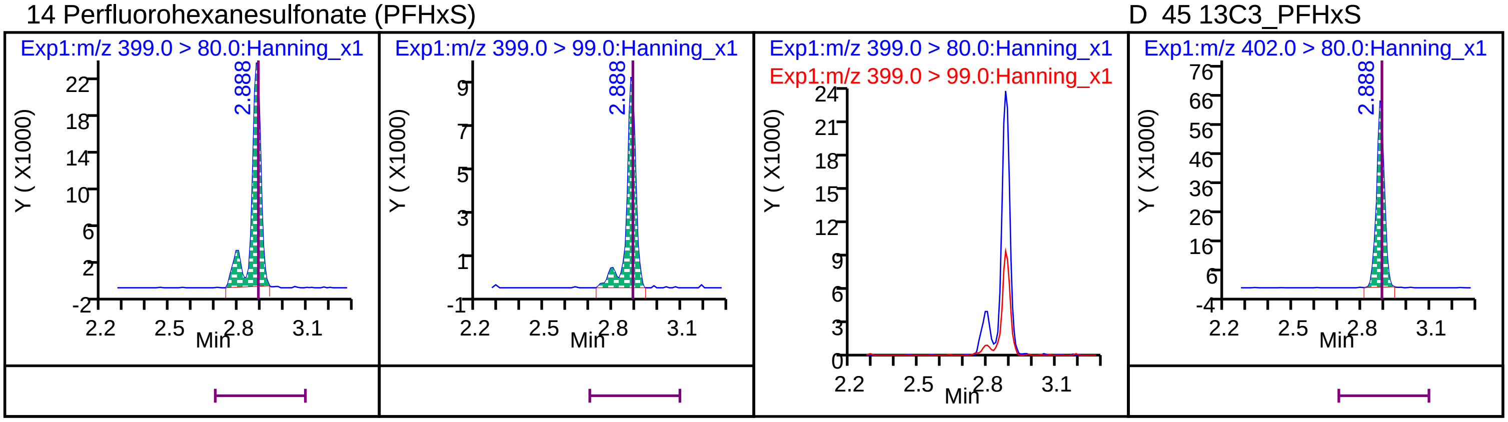
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



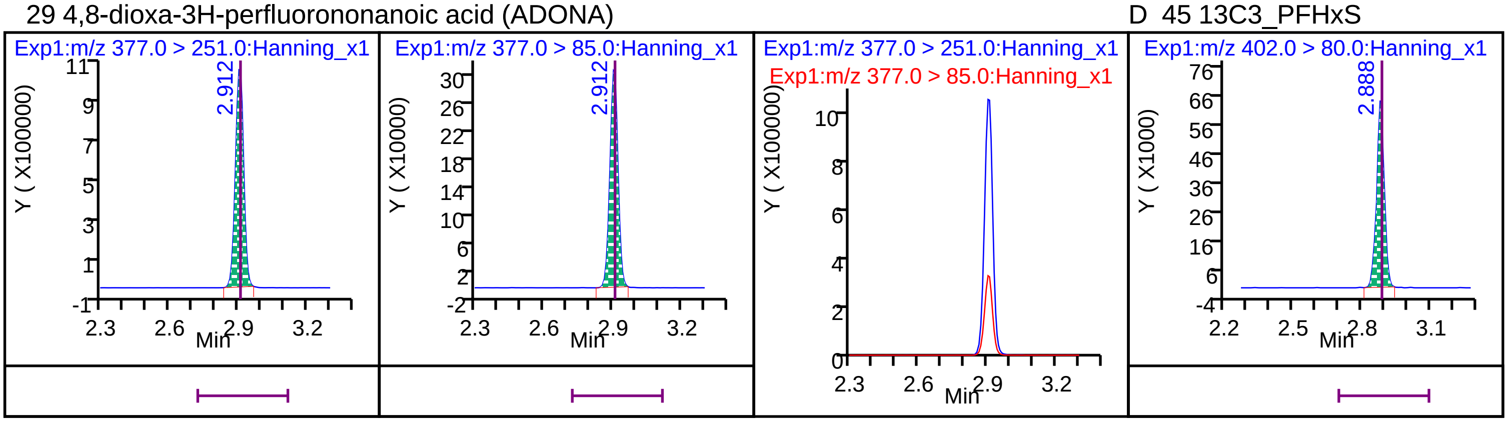
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

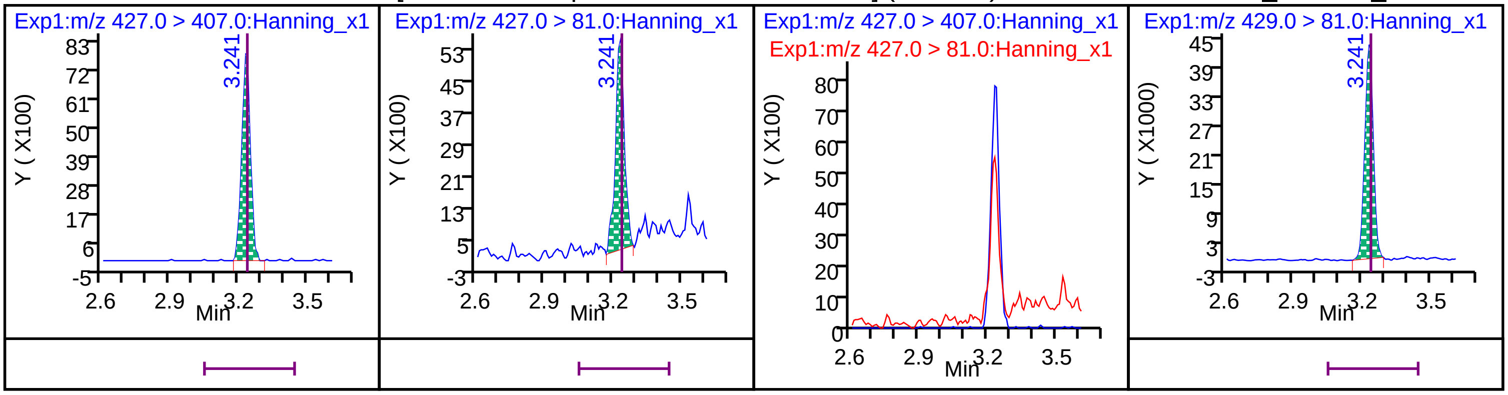


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

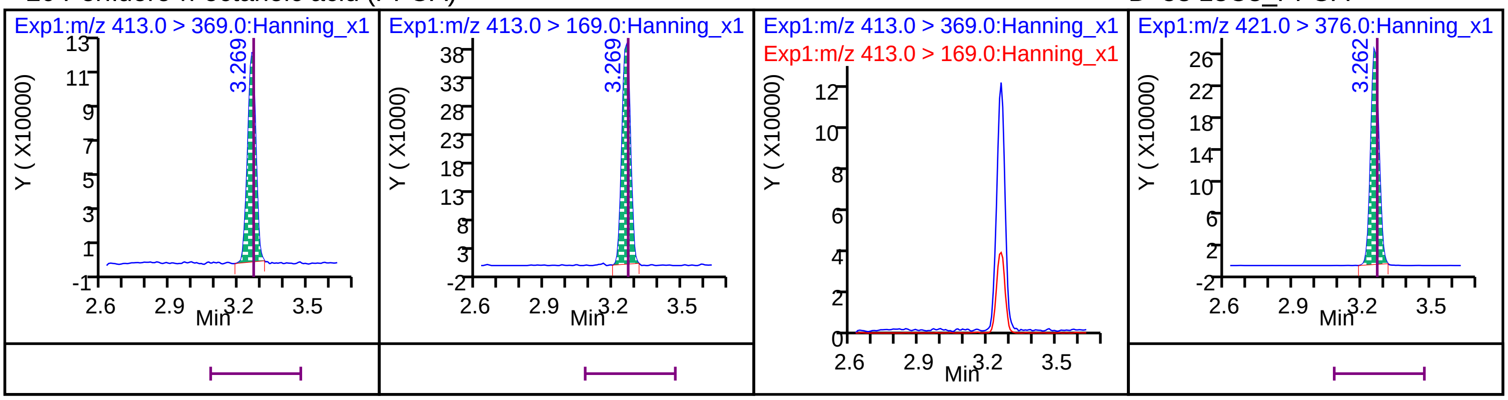


Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

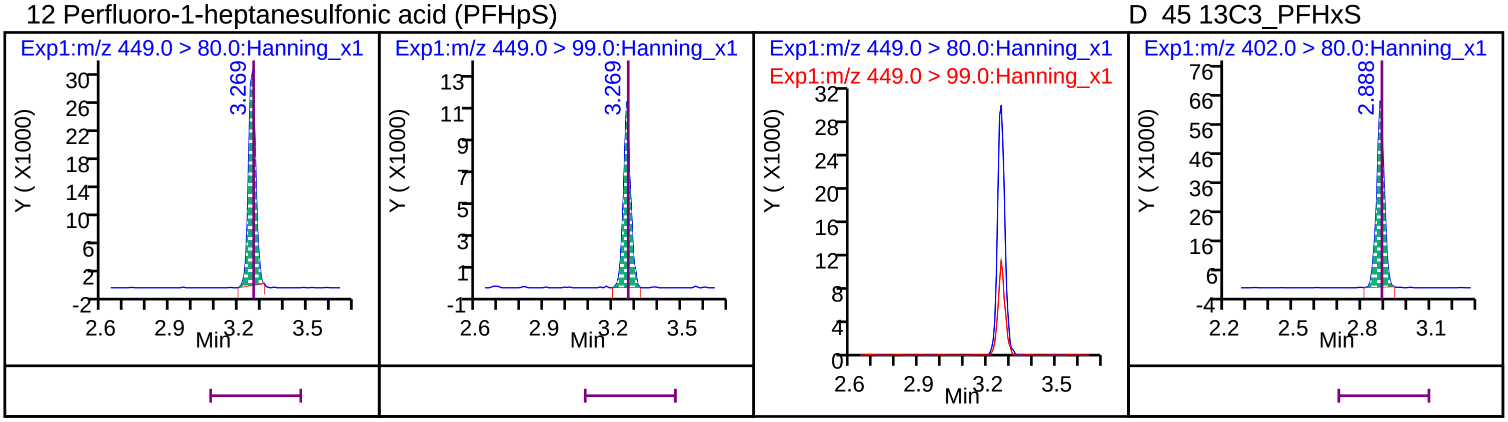
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



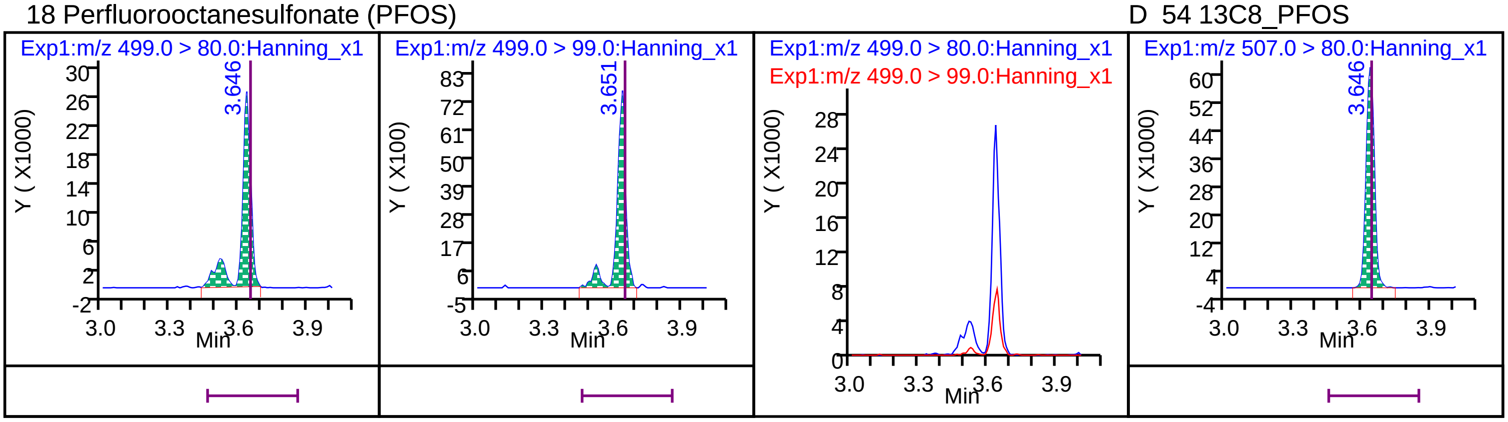
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



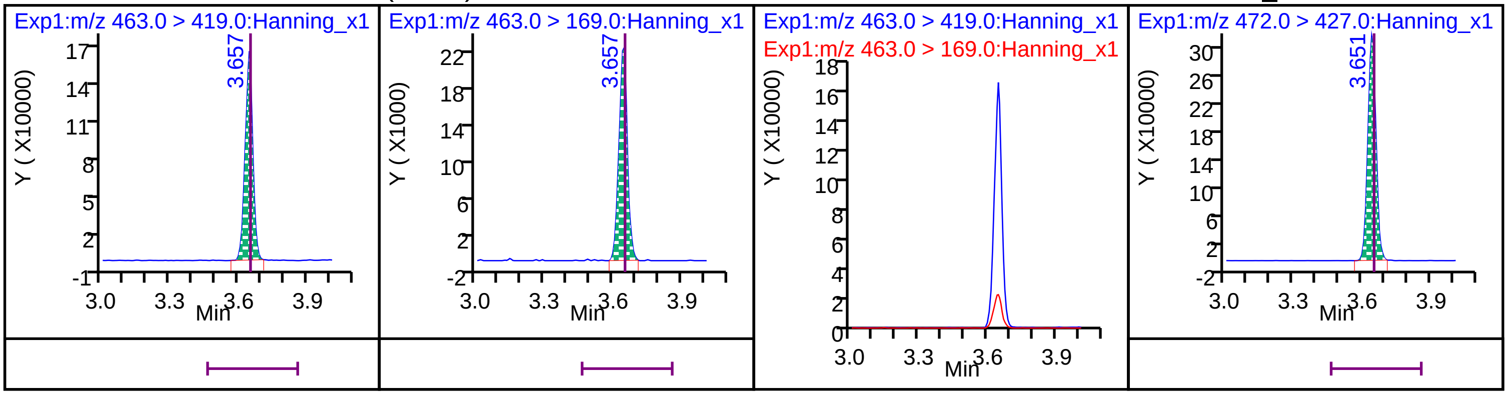
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



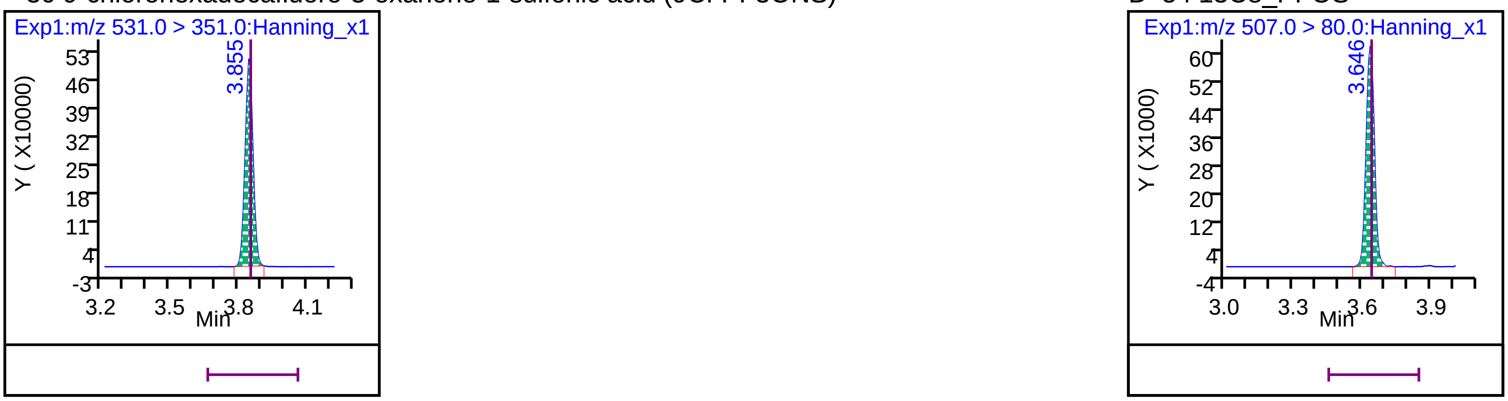
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



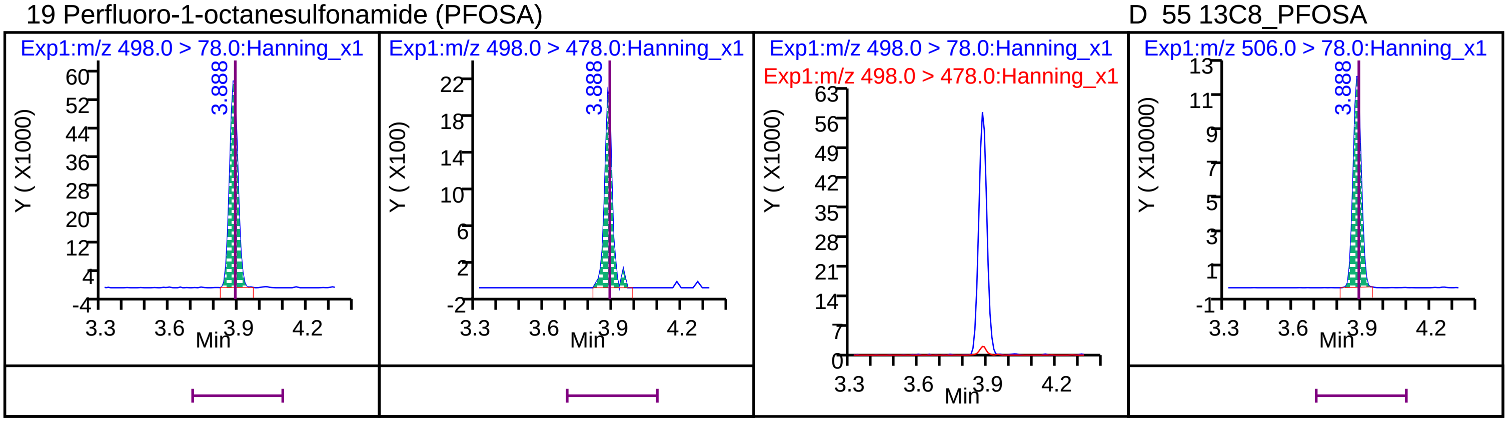
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



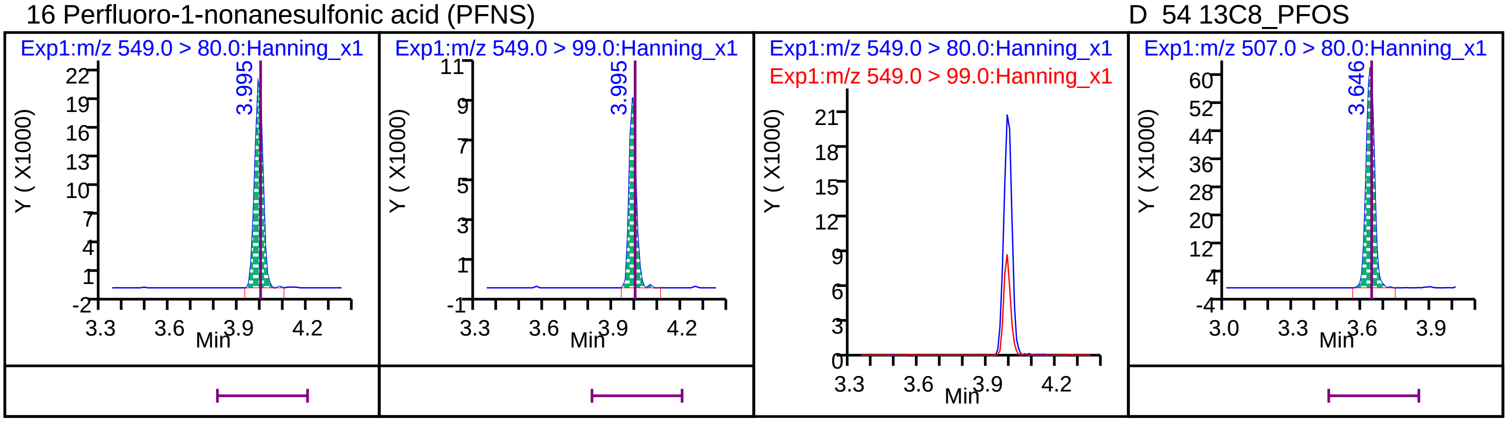
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



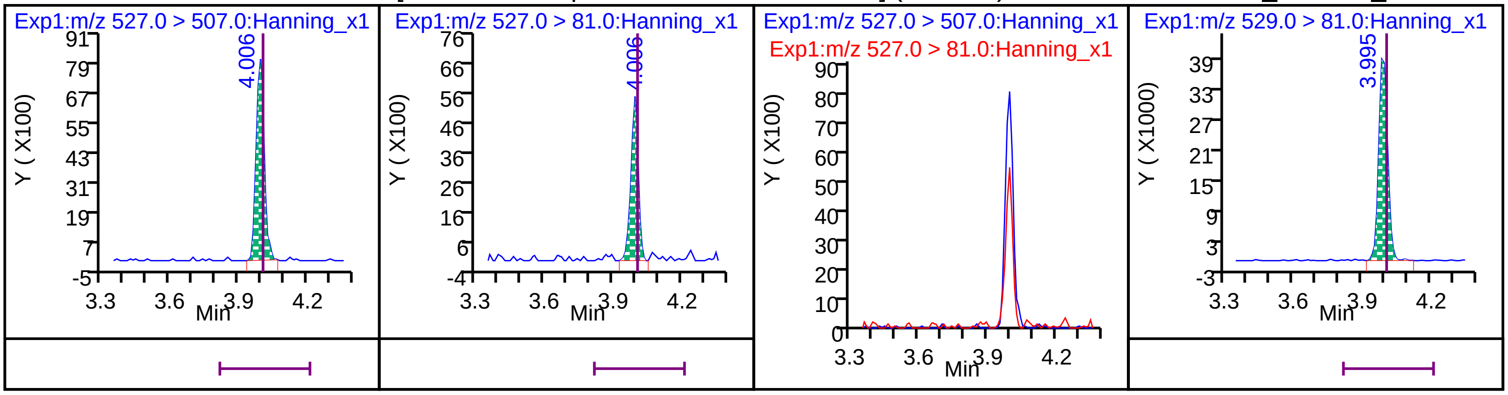
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



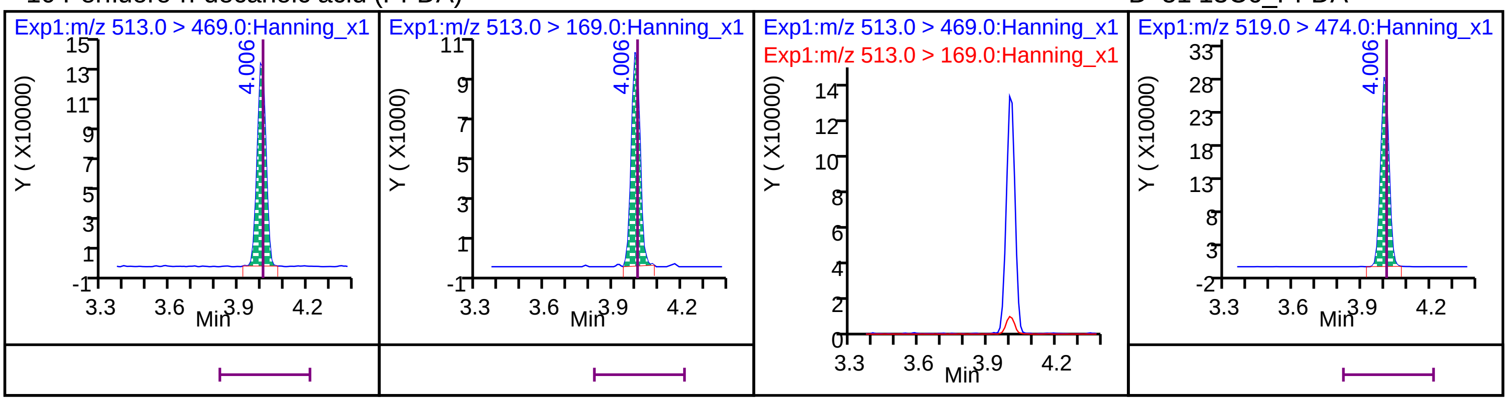
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



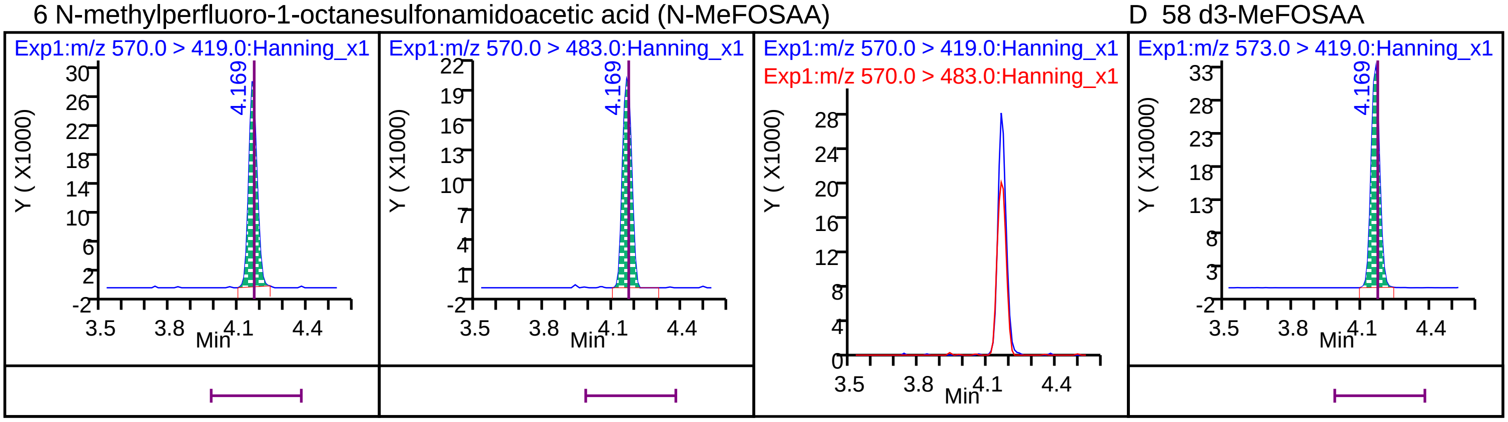
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



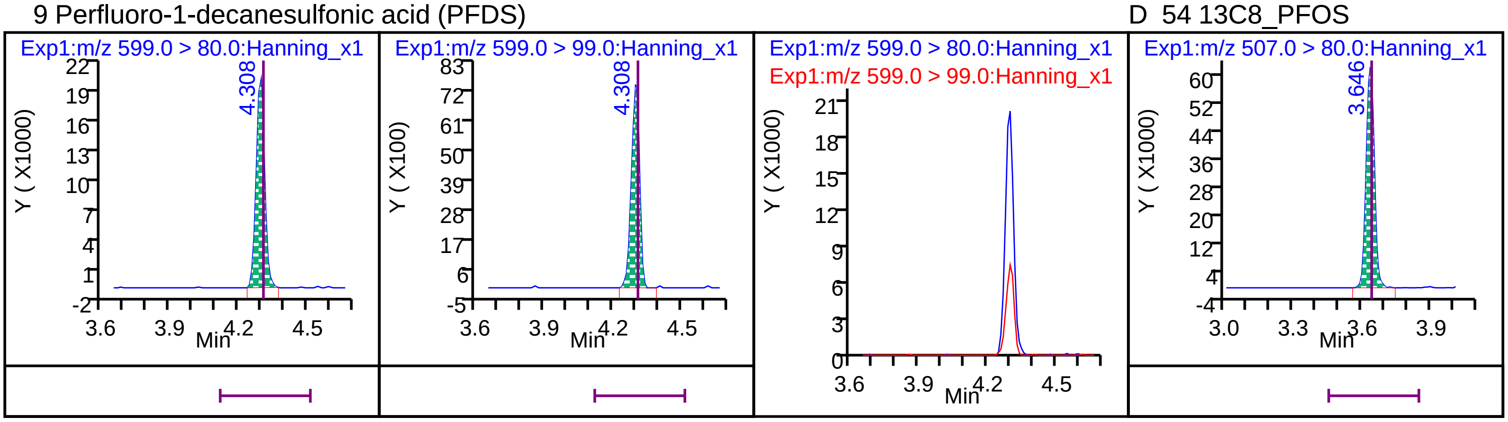
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

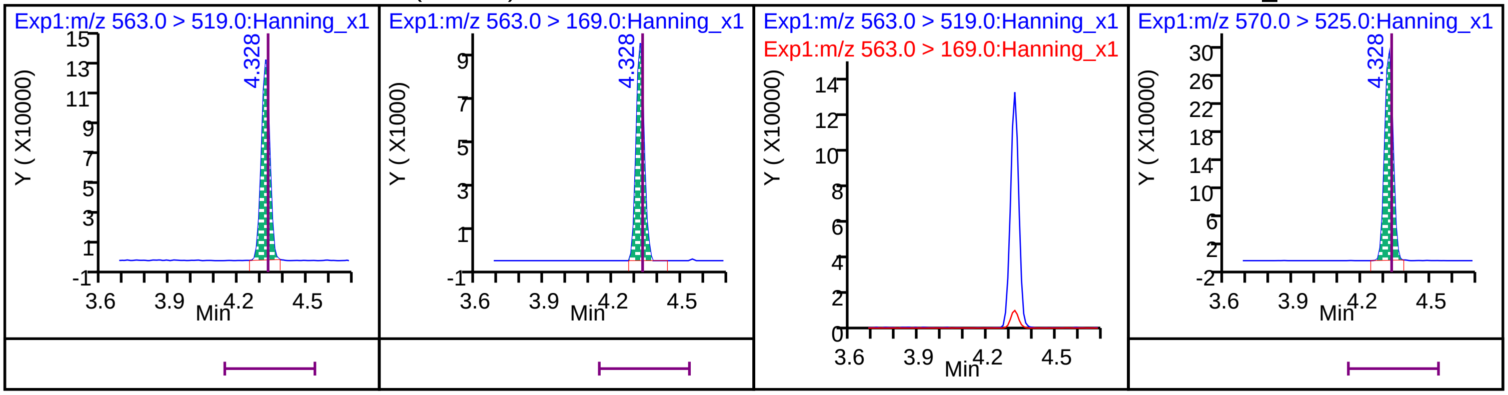


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

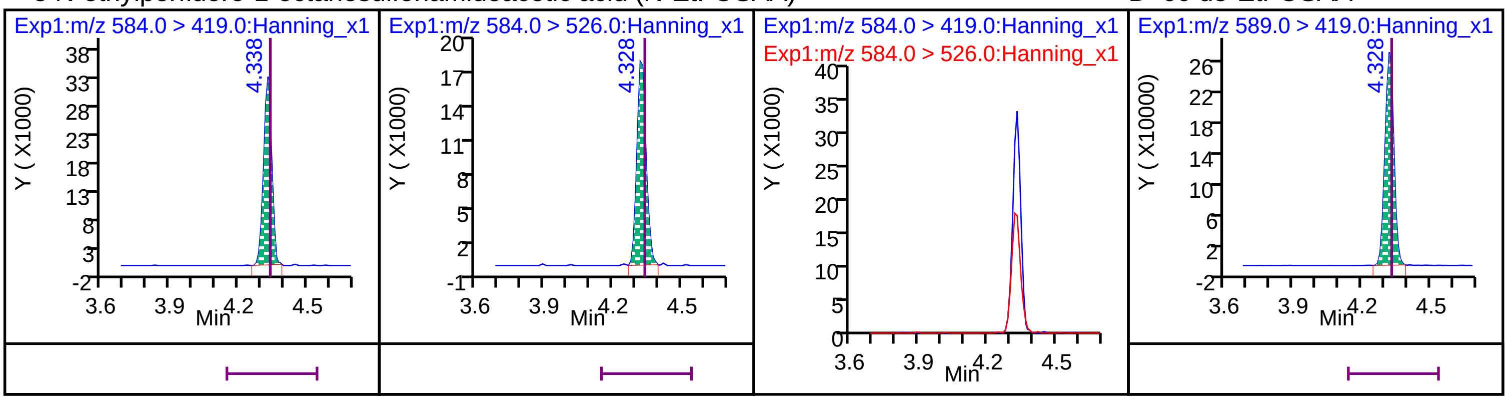


Report Date: 08-Nov-2021 10:00:28 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A23.d

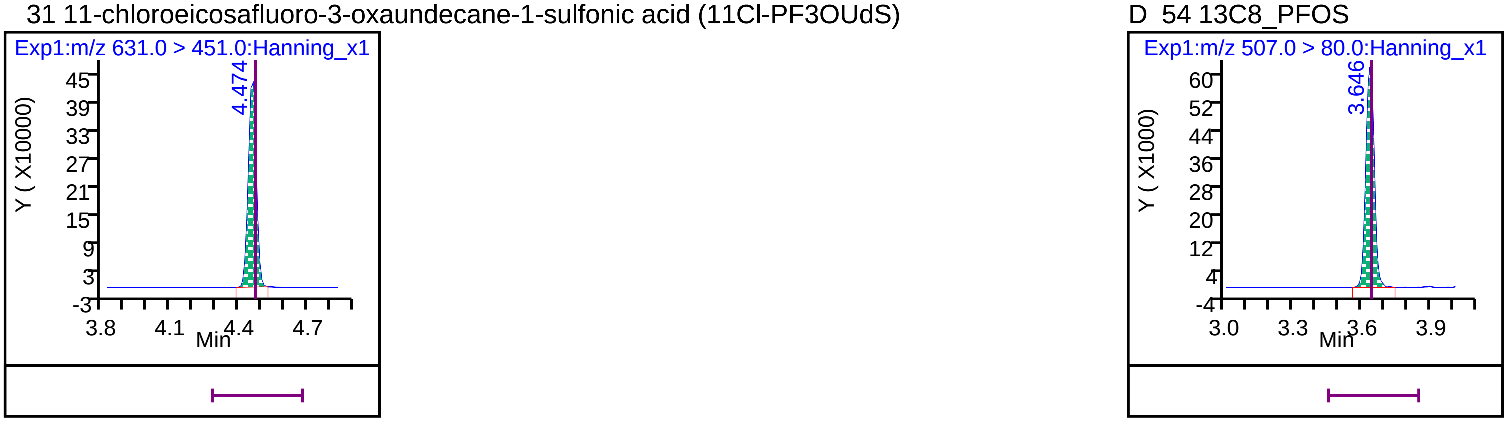
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



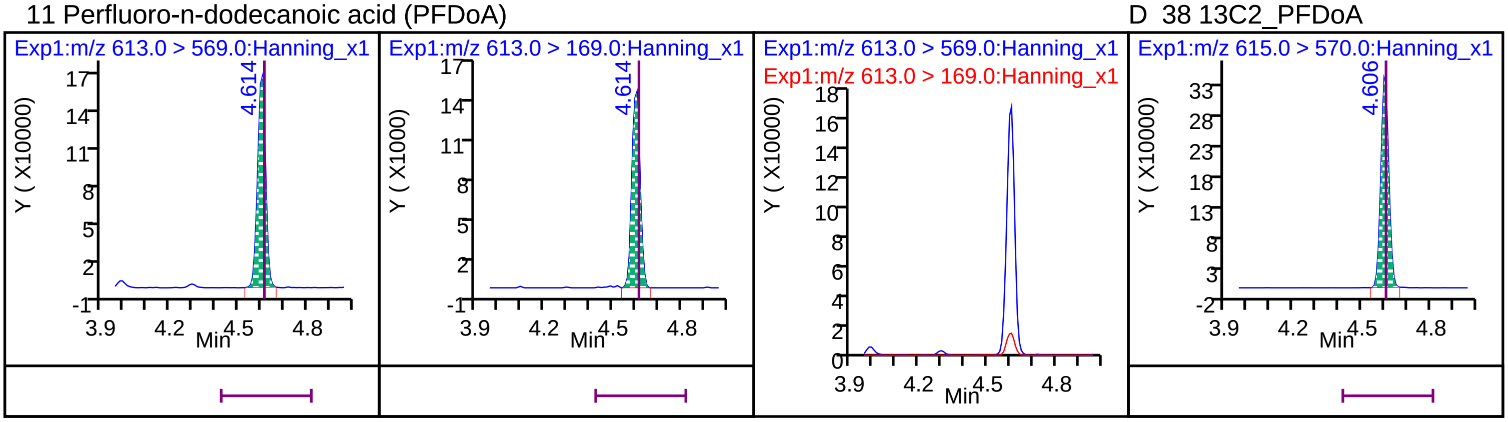
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



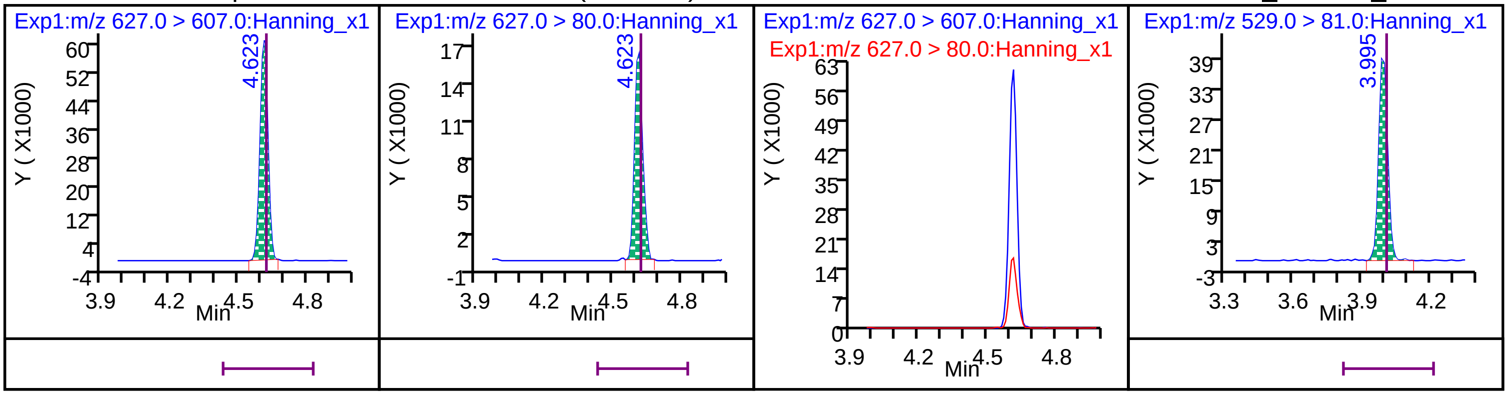
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) D 54 13C8_PFOS



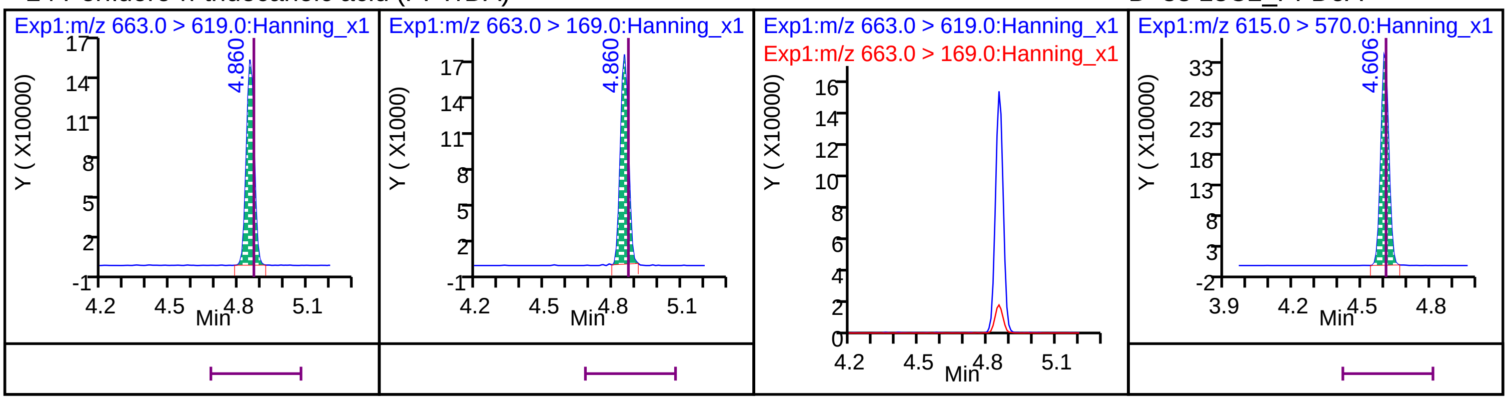
11 Perfluoro-n-dodecanoic acid (PFDoA) D 38 13C2_PFDoA



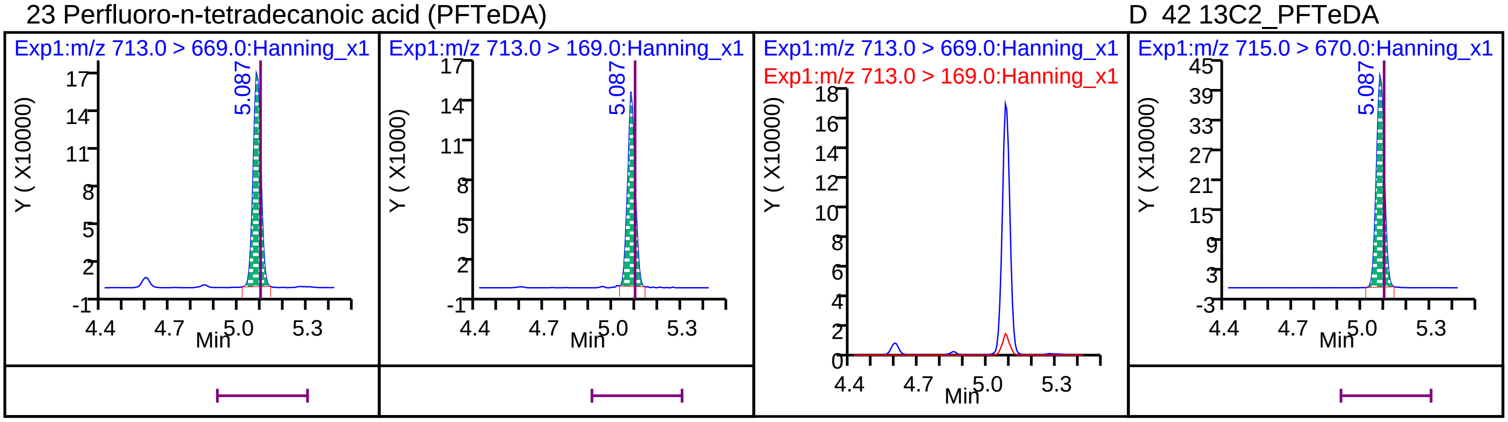
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



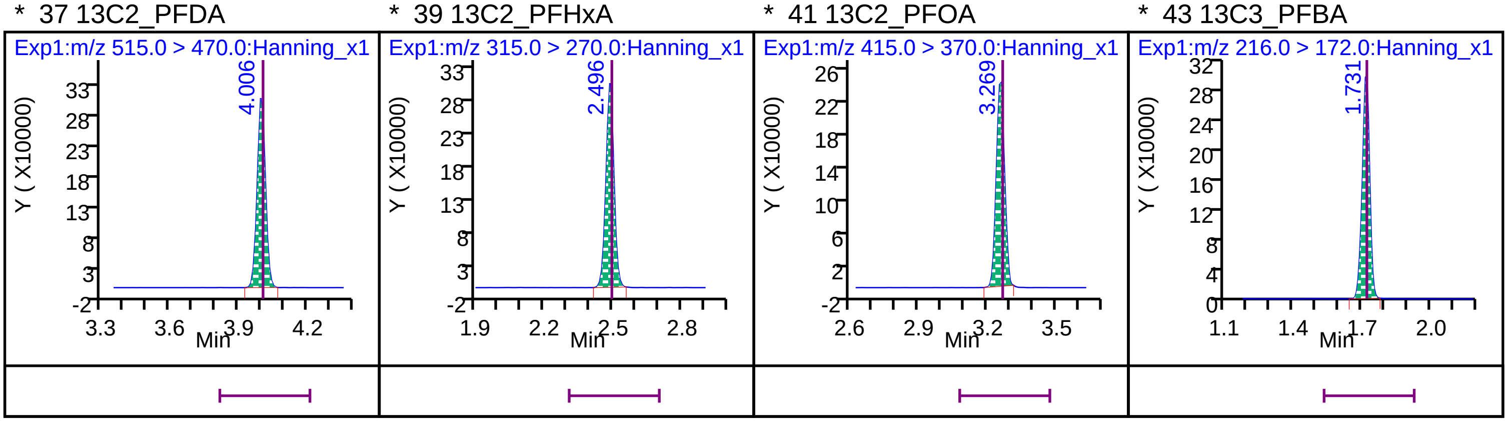
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



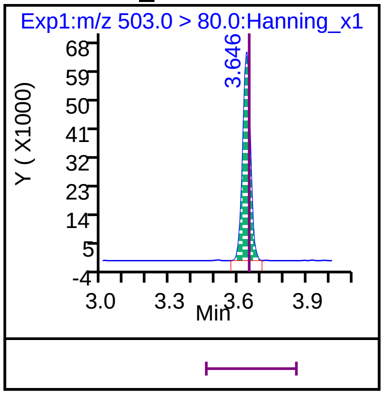
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS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3.646
Y (X1000)
68
59
50
41
32
23
14
5
-4
3.0
3.3
3.6
3.9
Min

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d		
Injection Date:	07-Nov-2021 20:53:57	Injection Vol:	10.0 uL
Sample Type:	CheckStd	Auto Sampler:	87
Sample Info:	ISOMER CHECK_SVLC-1652	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: IsomerCheck Conc. Level: Smp Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.731	1.731	0	832490	19	>100:1			1000.00	1339.11	130.9	
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.119	2.130	0	745225	16	>100:1			1000.00	1303.77	128.5	
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.183	2.183	0	219522	15	>100:1			1000.00	1269.14	123	
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.460	0	146403	16	>100:1			5000.00	6465.50	130.4	
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.505	0	859966	16	>100:1			1000.00	1320.41	129.3	
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.614	2.622	0	1464128	18	>100:1			5000.00	6317.53	121.5	
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.880	0	680709	17	>100:1			1000.00	1282.09	127.7	
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	164983	19	>100:1			1000.00	1313.14	127.2	
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.233	3.248	0	138915	19	>100:1			5000.00	7717.52	147.9	
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.261	3.276	0	659495	22	>100:1			1000.00	1256.96	120.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.261	3.276	0/0	8375944	34	>100:1	Target = 2.89	5.62	10000	12394		
413 > 169	53	3.261	3.276		2966796	35	>100:1	2.82 (1.44-4.34)	4.01				
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.644	3.651	0	157645	20	>100:1			1000.00	1272.94	119.5	
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.650	3.662	0	838923	22	>100:1			1000.00	1310.04	131.3	
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.885	3.896	0	341851	18	>100:1			1000.00	1275.29	128.1	
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.003	4.016	0	883285	16	>100:1			1000.00	1537.06	153.4*	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.003	4.016	0	178958	18	>100:1			5000.00	10354	227*	
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.167	4.178	0	1046130	18	>100:1			5000.00	6922.85	135.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.167	4.178	0/0	2156658	31		Target = 1.37	7.20	10000	12846		
570 > 483	58	4.167	4.178		1644445	29	>100:1	1.31 (0.68-2.05)	3.92				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.285	4.288	0	126915	16	>100:1			1000.00	1407.21	140.9	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.316	4.318	0	67744	14	>100:1			1000.00	1440.10	150.6*	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.326	4.338	0	975094	17	>100:1			5000.00	7528.92	141.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.336	4.348	0/0	2319207	32	>100:1	Target = 1.51	7.07	10000	12197		
584 > 526	60	4.336	4.348		1456264	30	>100:1	1.59 (0.75-2.26)	4.40				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.326	4.338	0	894952	16	>100:1			1000.00	1486.01	141	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.453	4.455	0	136294	17	>100:1			1000.00	1284.86	134.2	
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.471	4.483	0	62069	15	>100:1			1000.00	1443.47	144.7	
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.603	4.614	0	1132705	18	>100:1			1000.00	1886.78	187.4*	
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.080	5.106	-1	1243521	21	>100:1			1000.00	1529.56	148.4	
D 40 13C2_PFHxDA CAS: SESI-0103													U
815 > 770			5.544		ND								
*** 37 13C2_PFDA**													
515 > 470		4.003	4.016	0	976038	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.505	0	815151	16	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.261	3.276	0	646940	21	>100:1			1000.00			
*** 43 13C3_PFBA**													
216 > 172		1.731	1.731	0	707478	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.644	3.657	0	147754	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

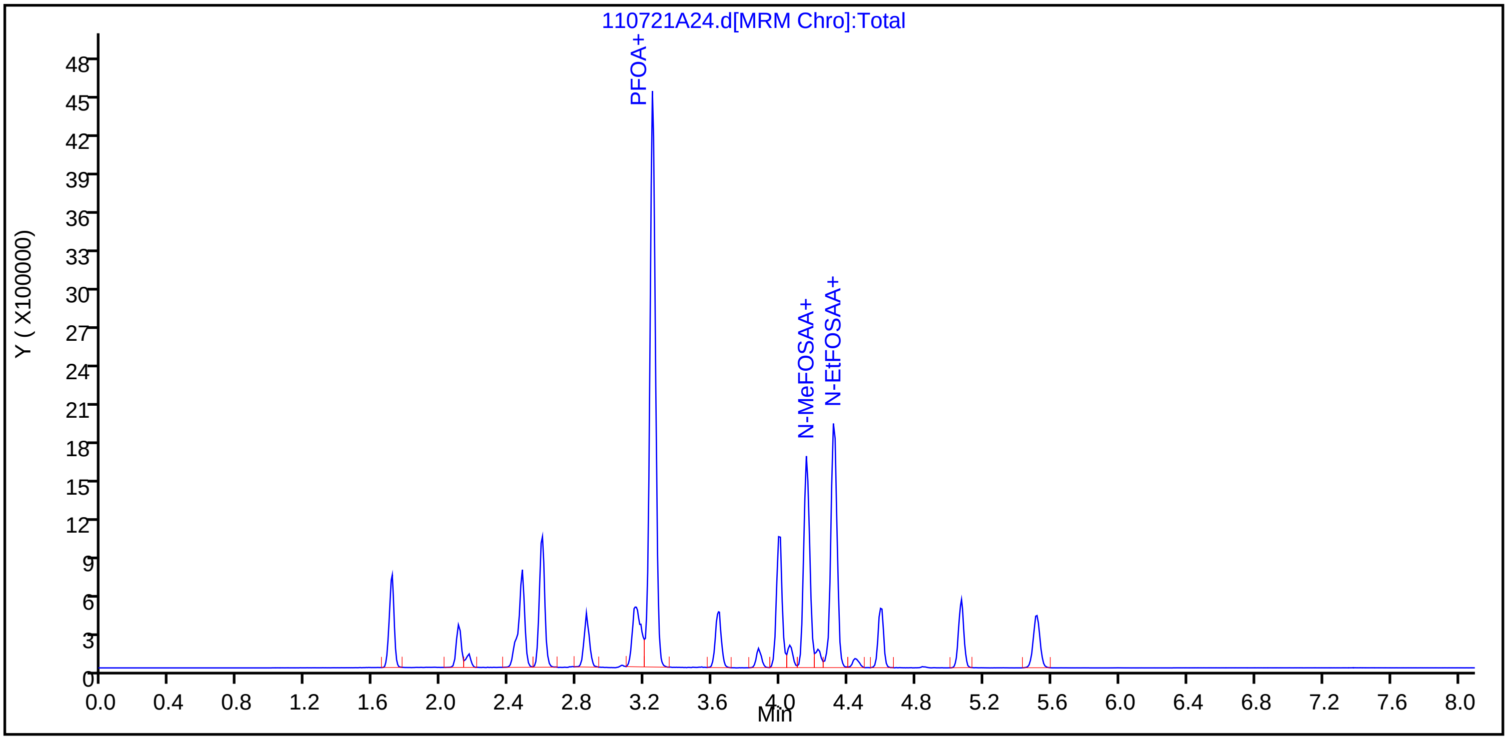
QC Flag Legend

U - Result Less Than Method Detection Limit

Report Date: 08-Nov-2021 10:00:29 AIM Revision: 2.0.2021.0812

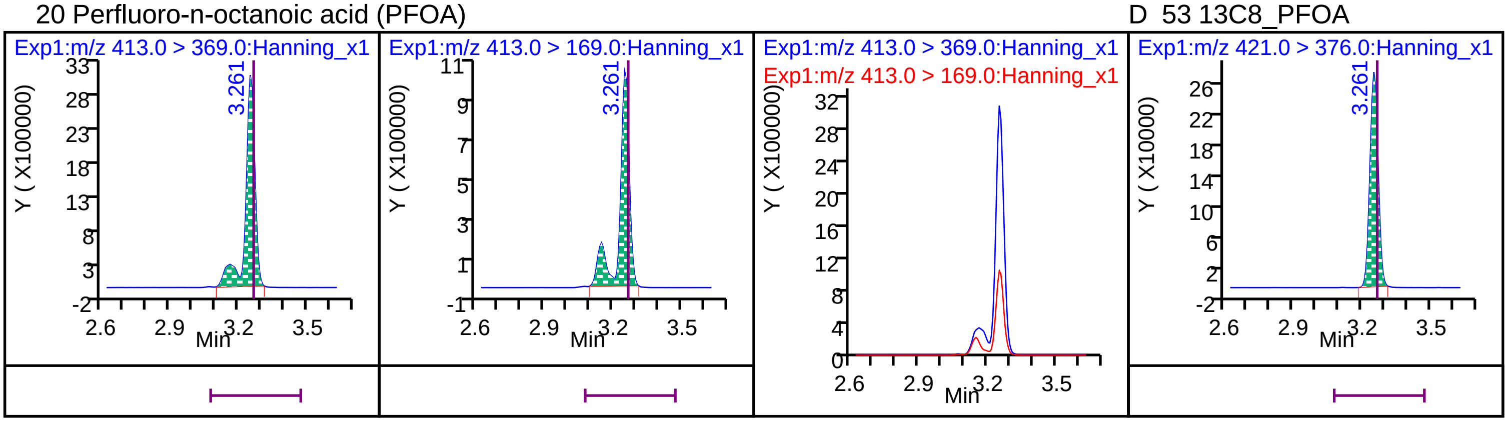
Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d		
Injection Date:	07-Nov-2021 20:53:57	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ISOMER CHECK_SVLC-1652
Sample Info:	ISOMER CHECK_SVLC-1652		
Dil. Factor:	1	Operator:	Justin Gavin



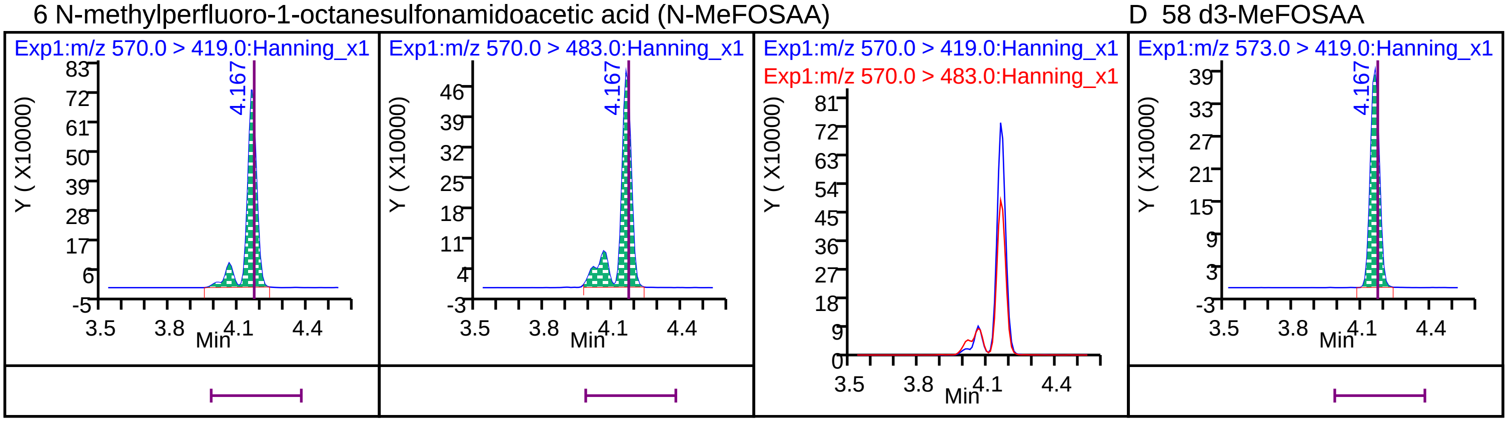
20 Perfluoro-n-octanoic acid (PFOA)

D 53 13C8_PFOA



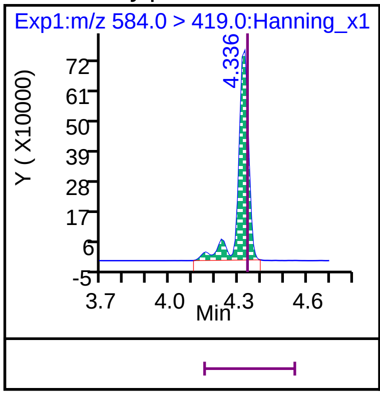
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)

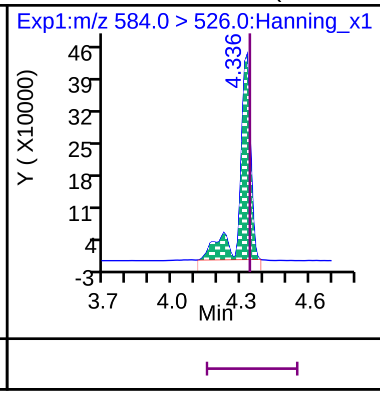
D 58 d3-MeFOSAA

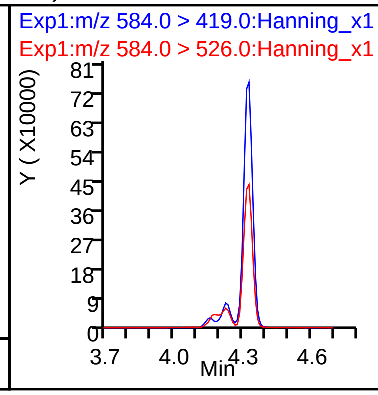


Report Date: 08-Nov-2021 10:00:29 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b\110721A24.d

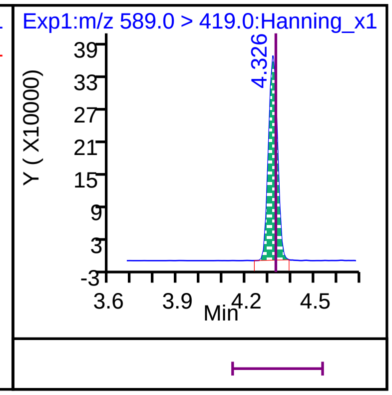
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA)



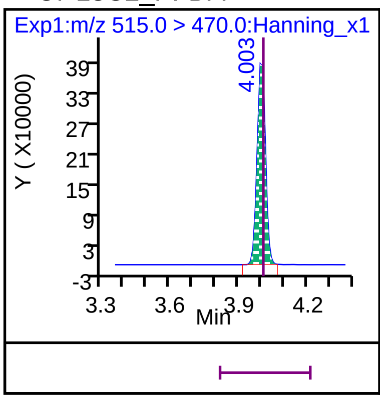




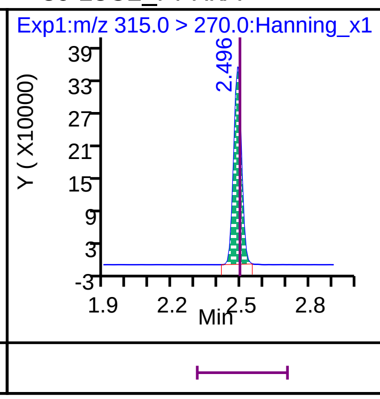
D 60 d5-EtFOSAA



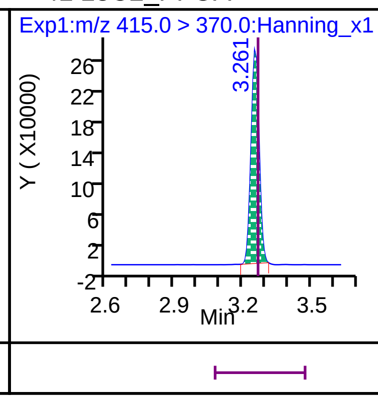
* 37 13C2_PFDA



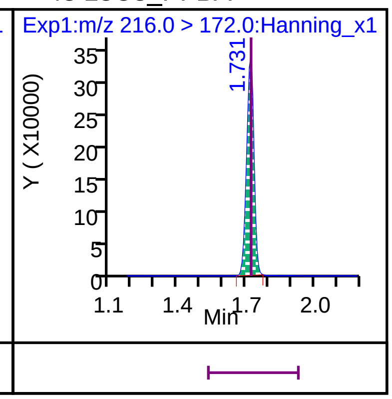
* 39 13C2_PFHxA



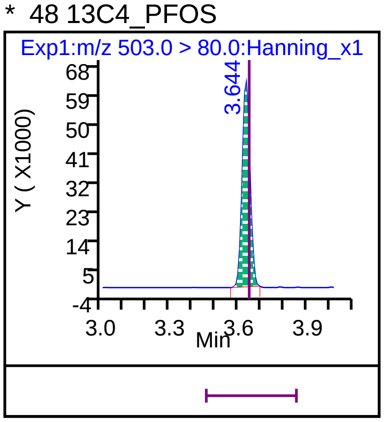
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A072.d		
Injection Date:	05-Nov-2021 01:06:57	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	50
Sample Info:	CCV 1000C_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	943.05	94.3	70 - 130
D 46 13C4_PFBA	1188899	1159804			97.6	50 - 150
D 50 13C5_PFPeA	1090536	1091786			100.1	50 - 150
21 PFPeA			1000.00	964.72	96.5	70 - 130
7 PFBS			884.00	844.62	95.5	70 - 130
D 44 13C3_PFBS	364125	350985			96.4	50 - 150
1 4:2 FTS			934.00	948.11	101.5	70 - 130
D 63 13C2_4:2 FTS_2	216934	217273			100.2	50 - 150
D 49 13C5_PFHxA	1029068	961950			93.5	50 - 150
15 PFHxA			1000.00	954.64	95.5	70 - 130
22 PFPeS			938.00	876.76	93.5	70 - 130
28 GenX			2000.00	2059.38	103	70 - 130
D 66 13C3_GenX	878629	827480			94.2	50 - 150
D 47 13C4_PFHpA	986129	967584			98.1	50 - 150
13 PFHpA			1000.00	1031.99	103.2	70 - 130
D 45 13C3_PFHxS	296861	278858			93.9	50 - 150
14 PFHxS			910.00	903.77	99.3	70 - 130
29 ADONA			942.00	924.19	98.1	70 - 130
D 64 13C2_6:2 FTS_2	194584	195628			100.5	50 - 150
2 6:2 FTS			948.00	1060.98	111.9	70 - 130
D 53 13C8_PFOA	923846	901545			97.6	50 - 150
20 PFOA			1000.00	929.63	93	70 - 130
12 PFHpS			952.00	984.03	103.4	70 - 130
18 PFOS			928.00	919.16	99	70 - 130
17 PFNA			1000.00	872.02	87.2	70 - 130
D 56 13C9_PFNA	999317	904511			90.5	50 - 150
D 54 13C8_PFOS	245640	242865			98.9	50 - 150
30 9Cl-PF3ONS			932.00	920.39	98.8	70 - 130
D 55 13C8_PFOSA	427823	436712			102.1	50 - 150
19 PFOSA			1000.00	1011.04	101.1	70 - 130
16 PFNS			960.00	925.83	96.4	70 - 130
D 65 13C2_8:2 FTS_2	153511	174467			113.7	50 - 150
3 8:2 FTS			958.00	925.31	96.6	70 - 130
10 PFDA			1000.00	910.12	91	70 - 130
D 51 13C6_PFDA	784847	812239			103.5	50 - 150
6 N-MeFOSAA			1000.00	983.28	98.3	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	902679	909324			100.7	50 - 150
9 PFDS			964.00	904.05	93.8	70 - 130
5 N-EtFOSAA			1000.00	1003.28	100.3	70 - 130
25 PFUdA			1000.00	932.53	93.3	70 - 130
D 60 d5-EtFOSAA	779079	825006			105.9	50 - 150
D 52 13C7_PFUdA	732655	757660			103.4	50 - 150
D 61 d7-MeFOSE	133282	147957			111	50 - 150
32 MeFOSE			1000.00	984.11	98.4	70 - 130
26 MeFOSA			1000.00	989.10	98.9	70 - 130
D 57 d3-MeFOSA	72656	79444			109.3	50 - 150
31 11Cl-PF3OUDS			942.00	882.88	93.7	70 - 130
D 62 d9-EtFOSE	129304	124156			96	50 - 150
33 EtFOSE			1000.00	1078.82	107.9	70 - 130
D 59 d5-EtFOSA	65473	67279			102.8	50 - 150
27 EtFOSA			1000.00	1037.53	103.8	70 - 130
11 PFDoA			1000.00	1015.26	101.5	70 - 130
D 38 13C2_PFDoA	746808	707257			94.7	50 - 150
4 10:2 FTS			964.00	820.09	85.1	70 - 130
34 PFDOS			968.00	806.16	83.3	70 - 130
24 PFTrDA			1000.00	1057.19	105.7	70 - 130
23 PFTeDA			1000.00	944.52	94.5	70 - 130
D 42 13C2_PFTeDA	900924	847492			94.1	50 - 150
35 PFHxDA			1000.00	1080.06	108	70 - 130
D 40 13C2_PFHxDA	403292	387942			96.2	50 - 150
36 PFODA			1000.00	979.20	97.9	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A072.d		
Injection Date:	05-Nov-2021 01:06:57	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	50
Sample Info:	CCV 1000C_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1159804	19	>100:1			1000.00	1077.15	97.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	1/0	1202919	18	>100:1			1000.00	943.05		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1091786	15	>100:1			1000.00	1088.62	100.1	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	1128516	14	>100:1			1000.00	964.72		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	350985	15	>100:1			1000.00	1080.72	96.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	423513	15	>100:1	Target = 3.80		884.00	844.62		
298.9 > 99	44	2.141	2.141		105885	17	>100:1	3.99 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	309634	17	>100:1	Target = 3.42		938.00	876.76		
349 > 99	44	2.493	2.493		93639	17	>100:1	3.30 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	217273	18	>100:1			5000.00	5230.84	100.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/0	80409	18	>100:1	Target = 1.54		934.00	948.11		
327 > 81	63	2.415	2.415		49553	21	54:1	1.62 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	961950	18	>100:1			1000.00	1076.93	93.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.467	2.467	1/0	948876	18	>100:1	Target = 17.93		1000.00	954.64		
313 > 119	49	2.459	2.467		54213	17	>100:1	17.50 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	827480	18	>100:1			5000.00	5051.18	94.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.587	0/0	261130	18	>100:1	Target = 0.72		2000.00	2059.38		
285 > 185	66	2.579	2.587		352458	18	>100:1	0.74 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	967584	18	>100:1			1000.00	1104.30	98.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.855	2.846	1/0	961248	18	>100:1	Target = 3.26		1000.00	1031.99		
363 > 169	47	2.846	2.846		264080	18	>100:1	3.63 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	278858	19	>100:1			1000.00	1063.21	93.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	297931	26	>100:1	Target = 3.48	5.20	910.00	903.77		
399 > 99	45	2.863	2.863		86681	27	>100:1	3.43 (1.74-5.22)	7.46				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	1418523	17	>100:1	Target = 2.31		942.00	924.19		
377 > 85	45	2.890	2.890		594261	17	>100:1	2.38 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.229	3.229	1/0	282237	20	>100:1	Target = 3.56		952.00	984.03		
449 > 99	45	3.229	3.229		77293	20	>100:1	3.65 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.204	0	195628	20	>100:1			5000.00	5187.55	100.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	1/1	72179	21		Target = 1.34		948.00	1060.98		
427 > 81	64	3.204	3.204		53544	21	>100:1	1.34 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	1	901545	22	>100:1			1000.00	1090.15	97.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.229	1/0	862342	21	>100:1	Target = 2.50		1000.00	929.63		
413 > 169	53	3.229	3.229		352500	20	>100:1	2.44 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.595	0	242865	19	>100:1			1000.00	1081.90	98.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.588	3.595	0/0	263158	38	>100:1	Target = 4.01	3.61	928.00	919.16		M
499 > 99	54	3.596	3.595		62223	38	>100:1	4.22 (2.00-6.02)	6.46				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.791	3.799	0/0	690820	20	>100:1			932.00	920.39		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.926	3.926	1/1	227104	18	>100:1	Target = 3.78		960.00	925.83		
549 > 99	54	3.926	3.926		62980	16	>100:1	3.60 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.226	1/1	216763	16	>100:1	Target = 3.98		964.00	904.05		
599 > 99	54	4.226	4.226		61724	15	>100:1	3.51 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.377	4.386	0/0	595649	16	>100:1			942.00	882.88		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.727	4.733	0/0	189619	19	>100:1	Target = 3.68		968.00	806.16		
699 > 99	54	4.727	4.733		53416	18	>100:1	3.54 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.595	1	904511	20	>100:1			1000.00	1132.03	90.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.596	3.595	1/0	718240	20	>100:1	Target = 4.69		1000.00	872.02		
463 > 169	56	3.596	3.595		160507	23	>100:1	4.47 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.866	3.873	0	436712	18	>100:1			1000.00	1054.37	102.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.873	1/1	499249	19	>100:1	Target = 40.85		1000.00	1011.04		
498>478	55	3.873	3.873		13068	24	>100:1	38.20 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.934	1	174467	19	>100:1			5000.00	5558.85	113.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.934	3.934	1/0	57362	18	>100:1	Target = 1.58		958.00	925.31		
527 > 81	65	3.926	3.934		37262	19	77:1	1.53 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.521	4.528	0/-1	51032	19		Target = 2.46		964.00	820.09		
627 > 80	65	4.521	4.528		21626	20	>100:1	2.35 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.934	3.942	0	812239	19	>100:1			1000.00	1125.29	103.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.934	3.942	0/0	758533	19	>100:1	Target = 9.77		1000.00	910.12		
513 > 169	51	3.934	3.942		83801	18	>100:1	9.05 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.090	4.098	0	909324	16	>100:1			5000.00	5128.36	100.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.098	4.098	1/1	146209	33		Target = 1.41	8.22	1000.00	983.28		
570 > 483	58	4.098	4.098		102389	32	>100:1	1.42 (0.70-2.11)	4.11				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.253	0	757660	17	>100:1			1000.00	1108.62	103.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.244	4.253	0/0	633847	18	>100:1	Target = 9.19		1000.00	932.53		
563 > 169	52	4.244	4.253		67826	24	>100:1	9.34 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.244	4.253	0	825006	17	>100:1			5000.00	5517.30	105.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.253	1/1	169213	35	>100:1	Target = 1.75	6.58	1000.00	1003.28		
584 > 526	60	4.253	4.253		100048	34	>100:1	1.69 (0.87-2.63)	3.52				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	1	147957	15	>100:1			1000.00	1072.26	111	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.288	1/0	147983	19	>100:1			1000.00	984.11		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.297	4.306	0	79444	21	>100:1			1000.00	1134.58	109.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.297	4.306	0/0	81370	13	>100:1	Target = 1.11		1000.00	989.10		
512 > 219	57	4.297	4.306		76271	20	>100:1	1.06 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.434	4.448	0	124156	15	>100:1			1000.00	965.79	96	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/1	114011	17	>100:1			1000.00	1078.82		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	1	67279	18	>100:1			1000.00	1044.62	102.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.463	4.470	0/-1	81608	16	>100:1	Target = 1.06		1000.00	1037.53		
526 > 219	59	4.463	4.470		71522	17	>100:1	1.14 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.521	0	707257	19	>100:1			1000.00	1028.53	94.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.514	4.521	0/0	705194	17	>100:1	Target = 6.38		1000.00	1015.26		
613 > 169	38	4.514	4.521		103058	16	>100:1	6.84 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.754	4.760	0/0	400694	19	>100:1	Target = 3.23		1000.00	1057.19		
663 > 169	38	4.754	4.760		123758	20	>100:1	3.23 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.969	4.978	0	847492	26	>100:1			1000.00	1084.09	94.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.969	4.978	0/0	703469	26	>100:1	Target = 7.33		1000.00	944.52		
713 > 169	42	4.969	4.978		94644	25	>100:1	7.43 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.360	5.372	0	387942	22	>100:1			1000.00	993.75	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.372	0/0	801491	21	>100:1	Target = 12.31		1000.00	1080.06		
813 > 269	40	5.360	5.372		59071	21	>100:1	13.56 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.753	5.761	0/0	573491	22	>100:1	Target = 165.31		1000.00	979.20		
913 > 319	40	5.761	5.761		3308	20	>100:1	173.36 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.934	3.942	0	721525	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	873990	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.229	3.223	1	815797	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	1005143	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.588	3.595	0	238042	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

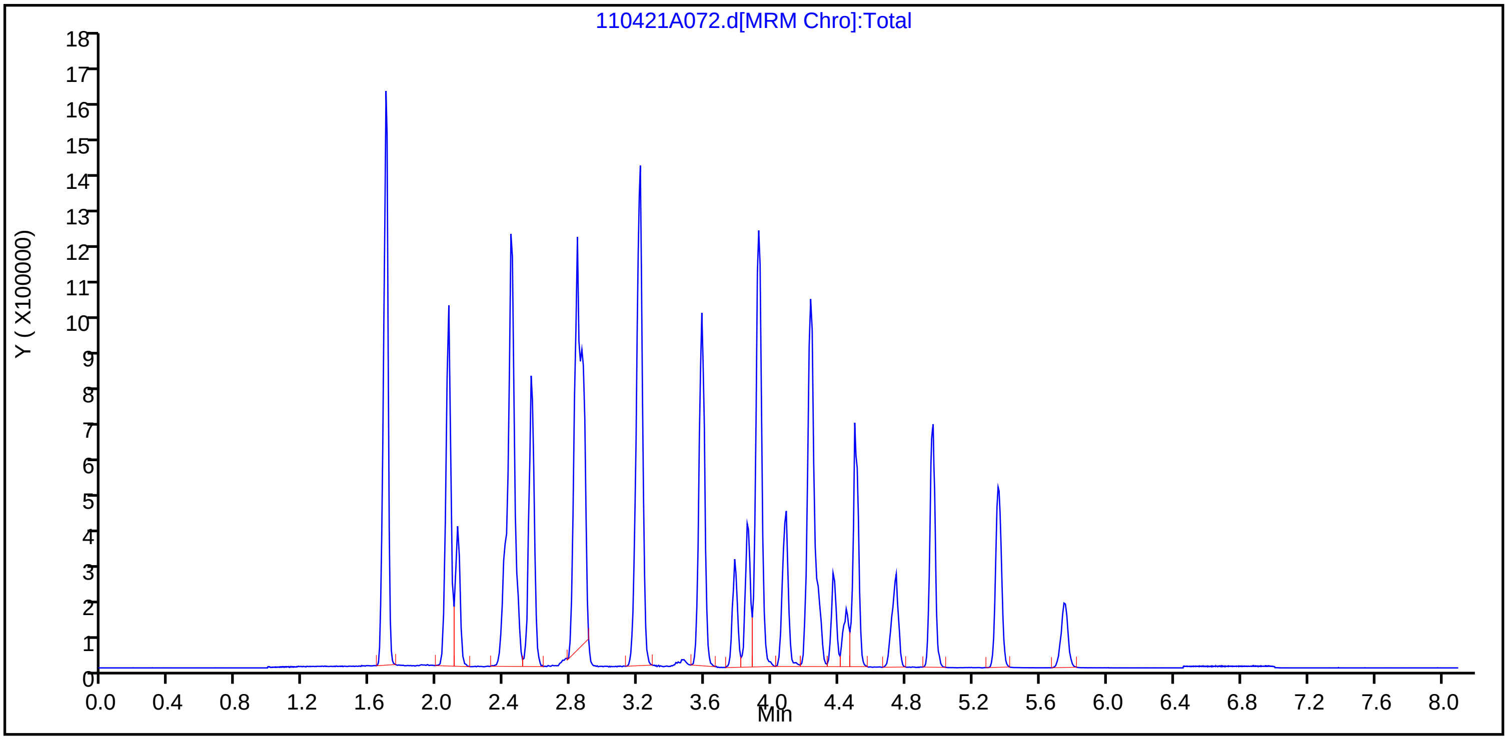
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

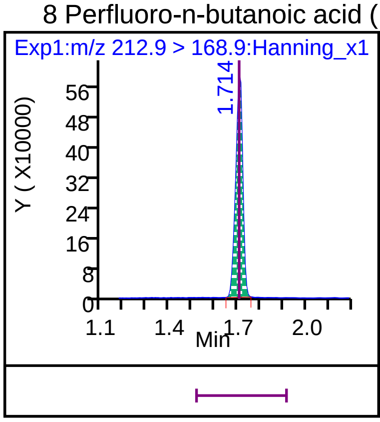
Report Date: 05-Nov-2021 13:58:34 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

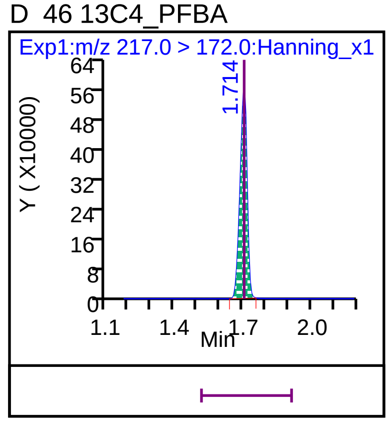
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A072.d		
Injection Date:	05-Nov-2021 01:06:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000C_SVLC-1717
Sample Info:	CCV 1000C_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



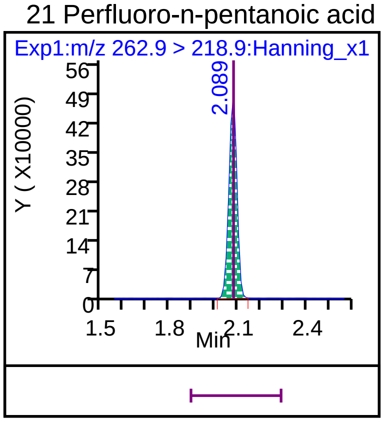
8 Perfluoro-n-butanoic acid (PFBA)



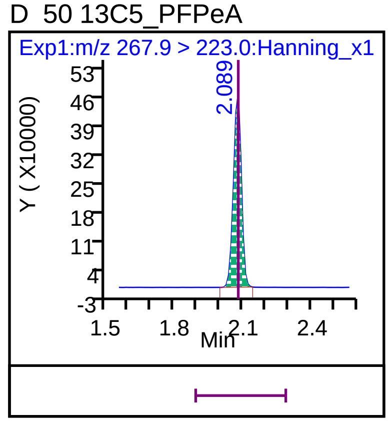
D 46 13C4_PFBA



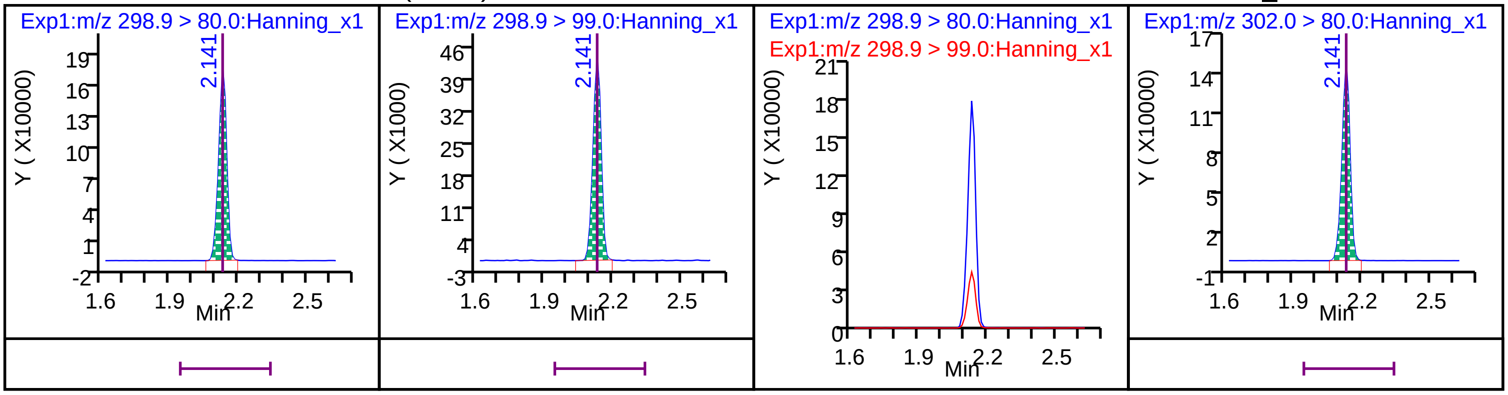
21 Perfluoro-n-pentanoic acid (PFPeA)



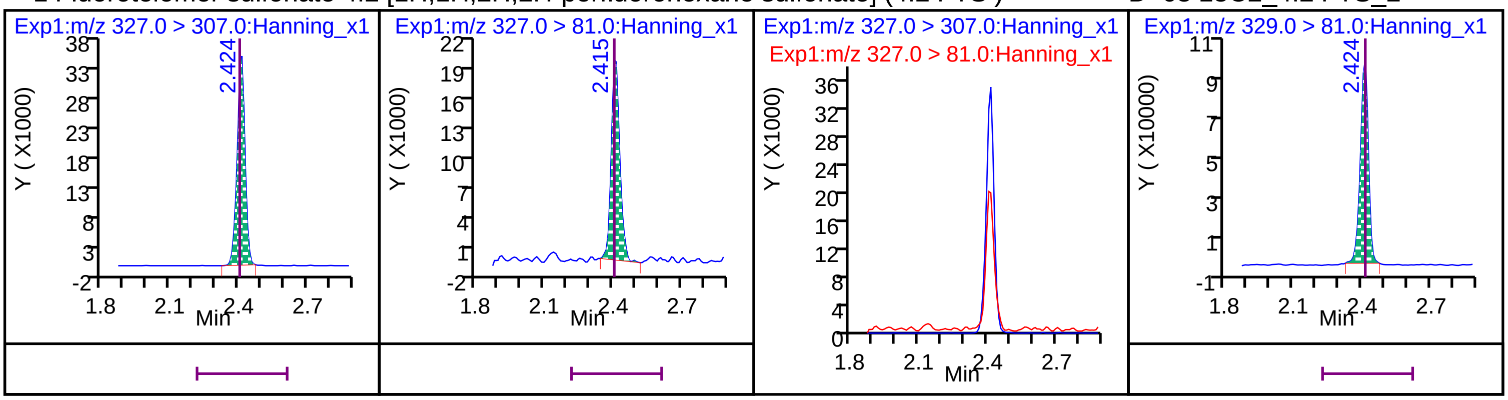
D 50 13C5_PFPeA



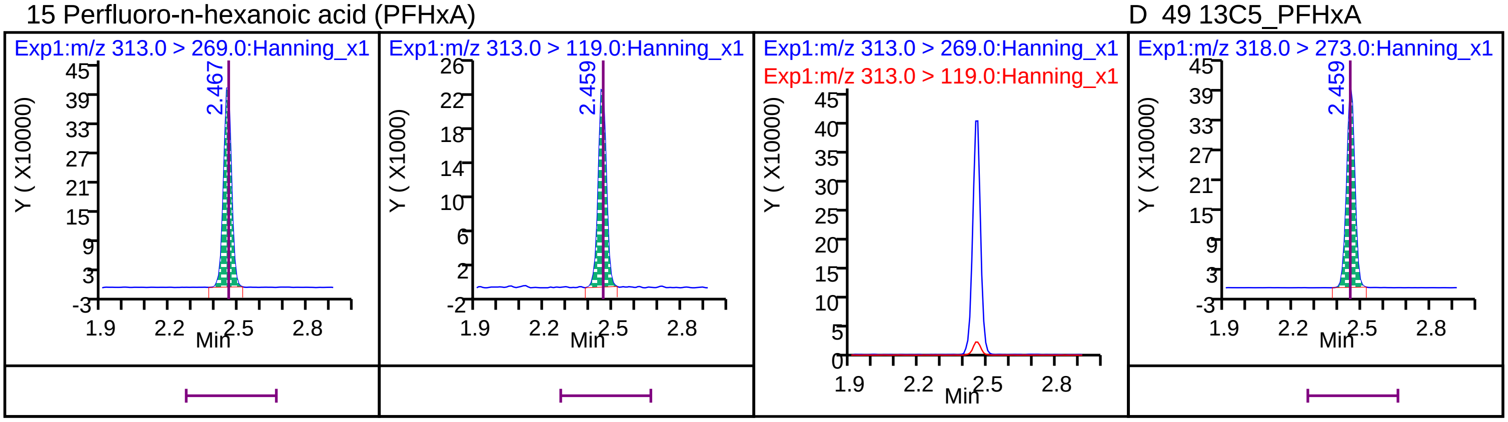
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



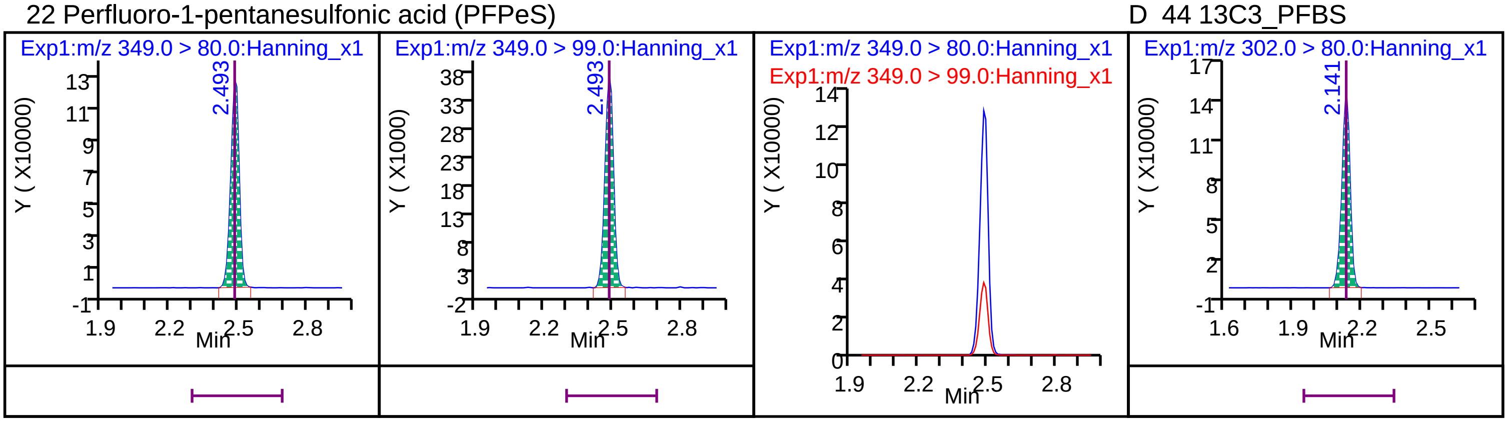
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



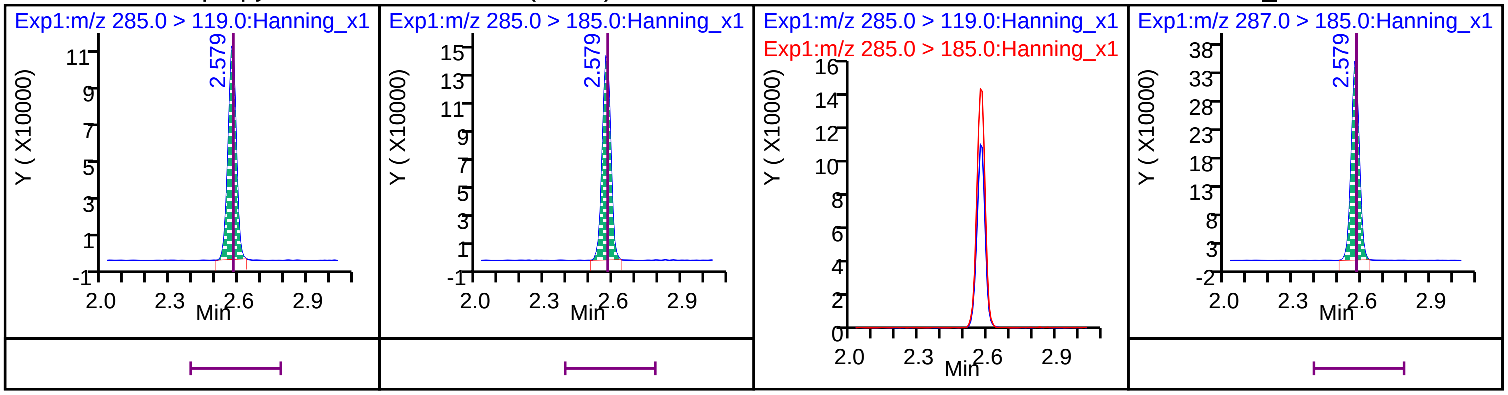
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



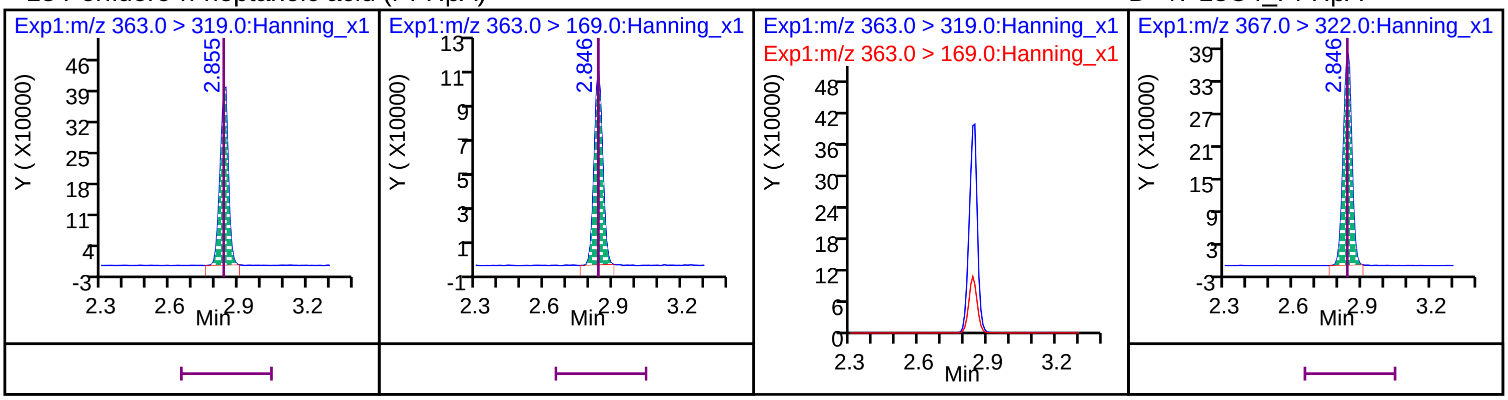
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



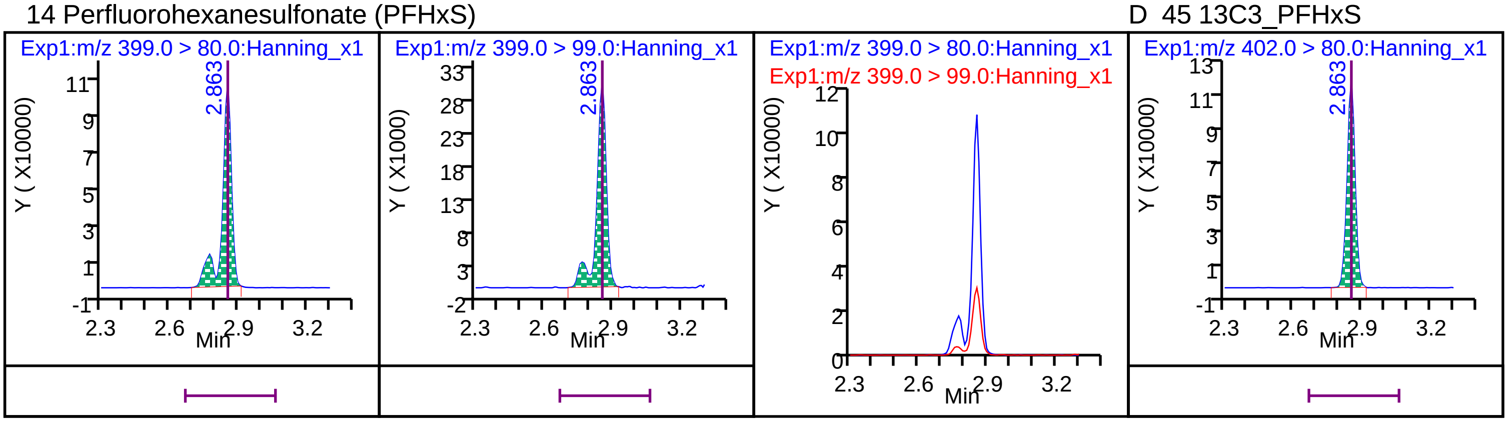
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



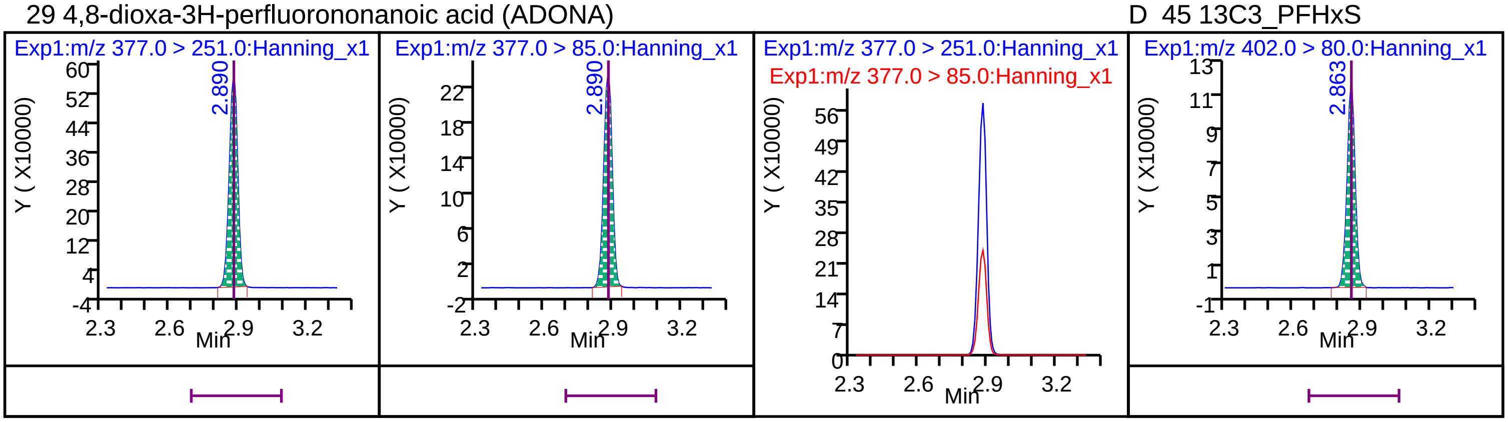
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



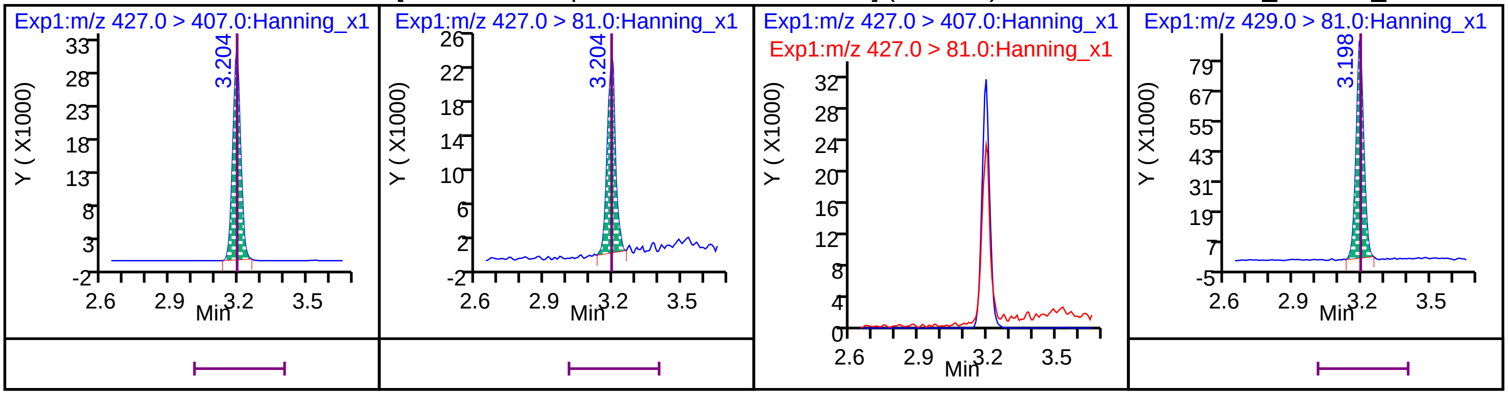
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



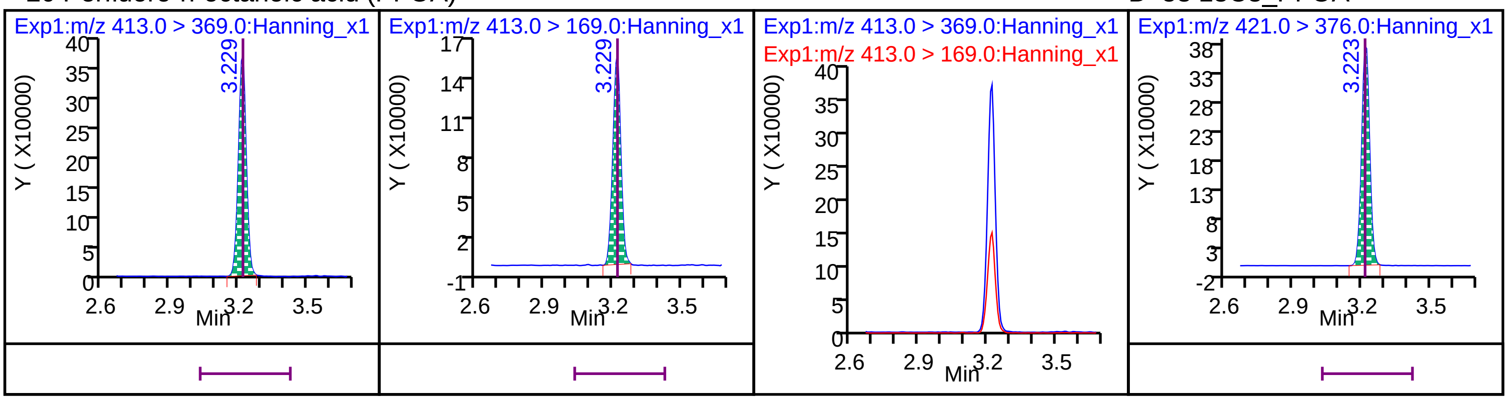
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



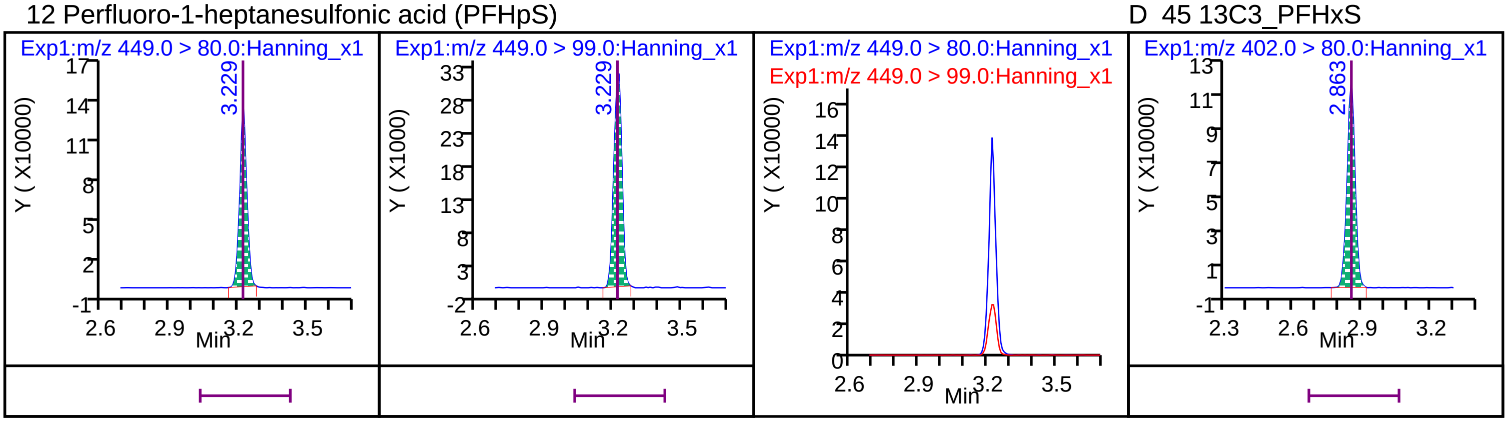
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



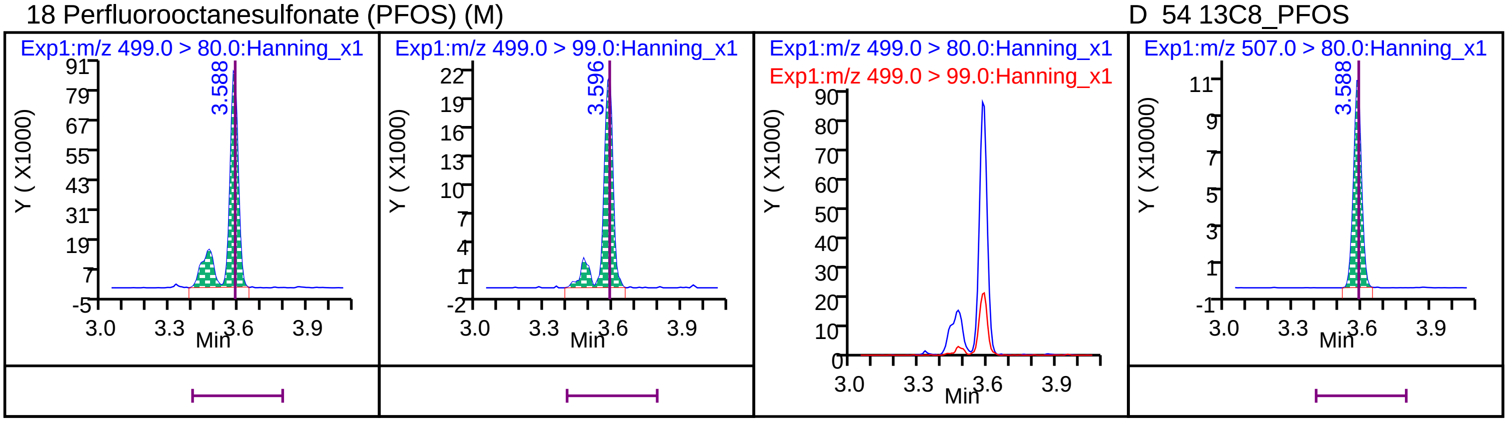
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



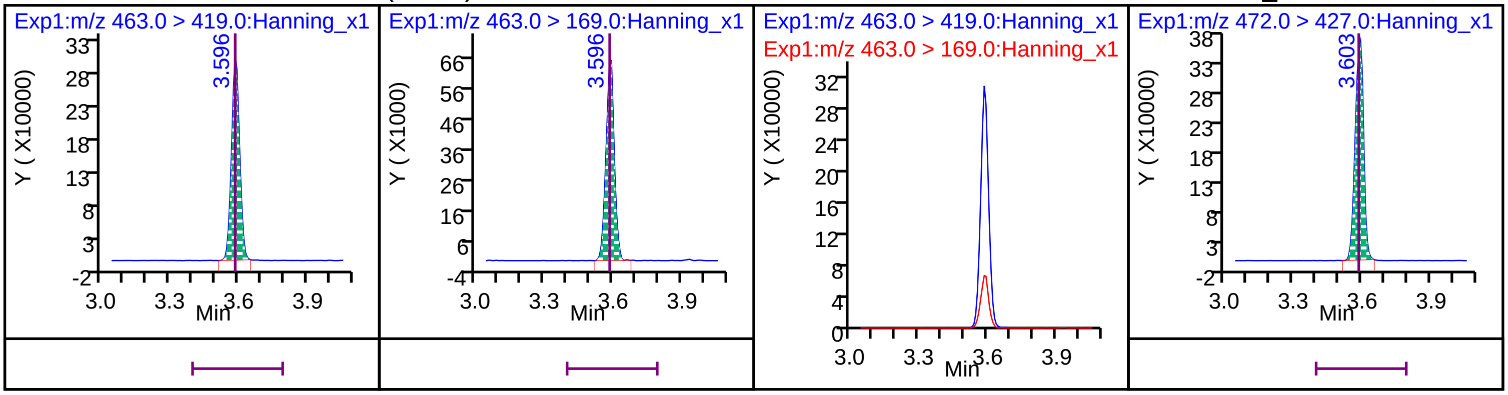
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



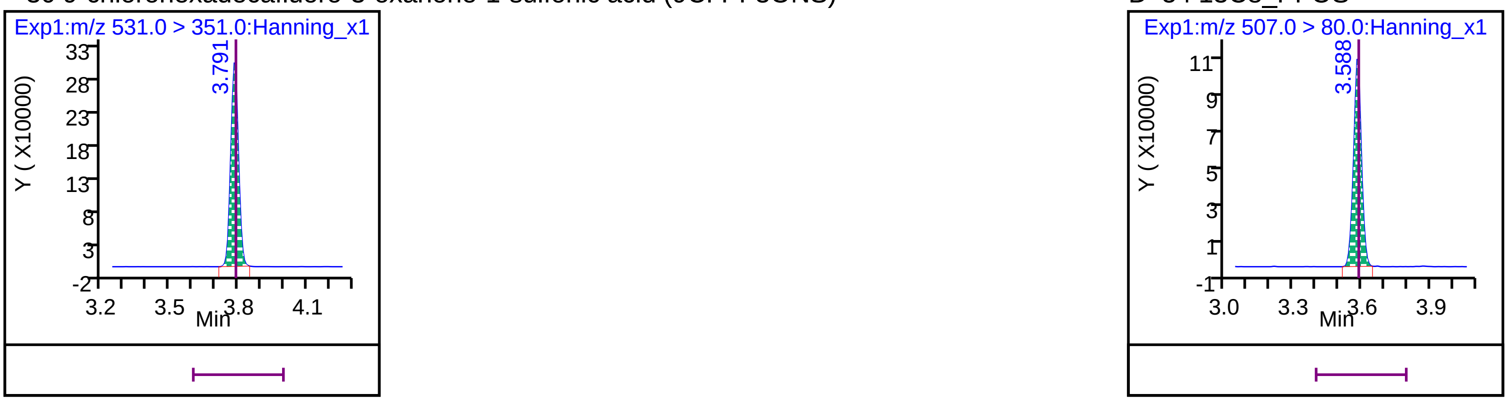
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



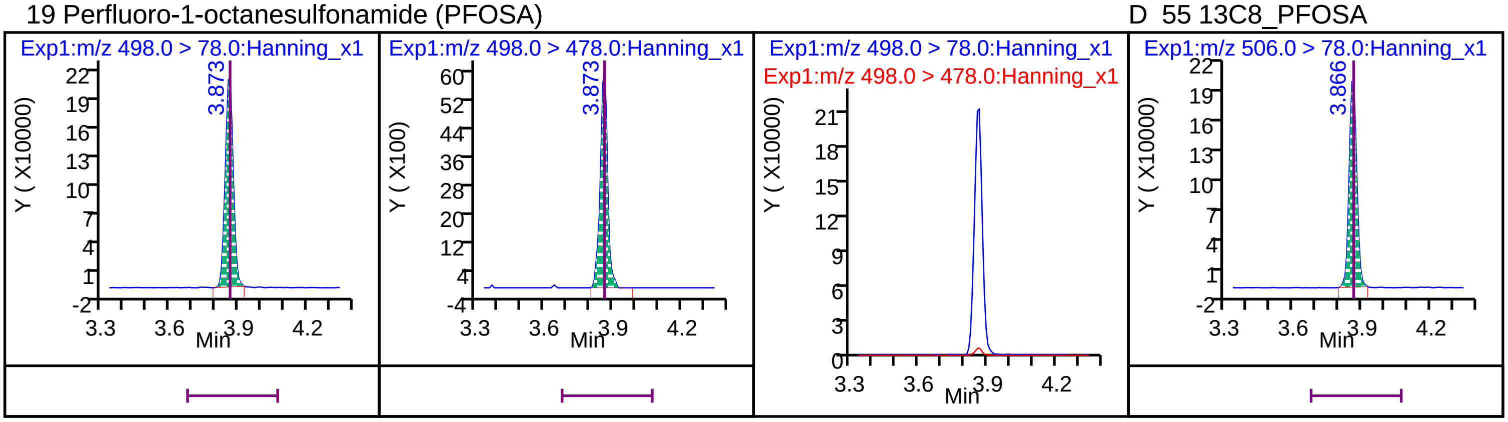
17 Perfluoro-n-nonanoic acid (PFNA)   D 56 13C9_PFNA



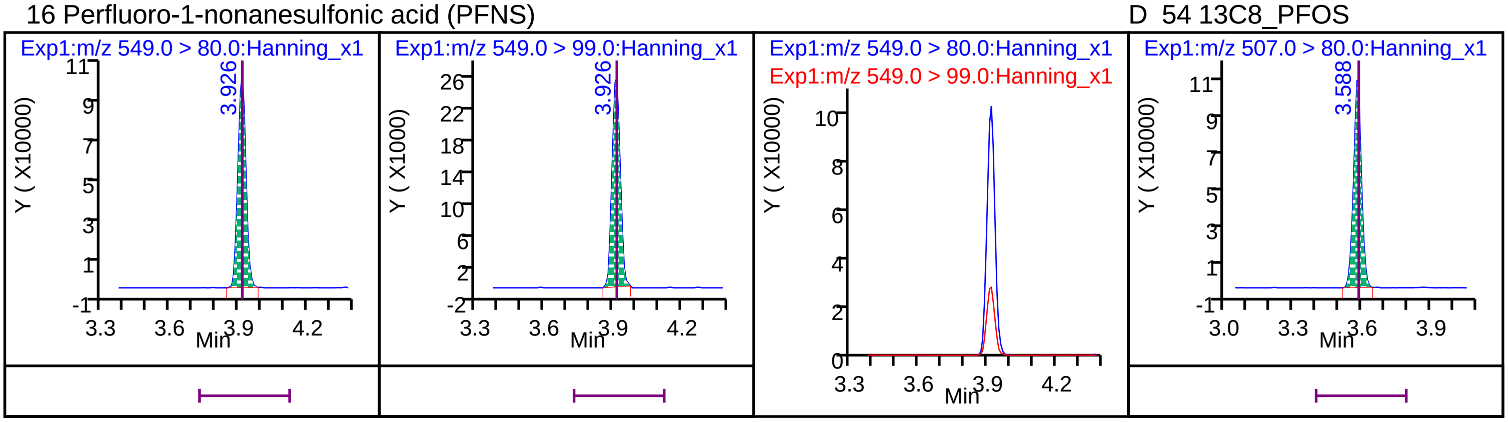
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)   D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA)   D 55 13C8_PFOSA

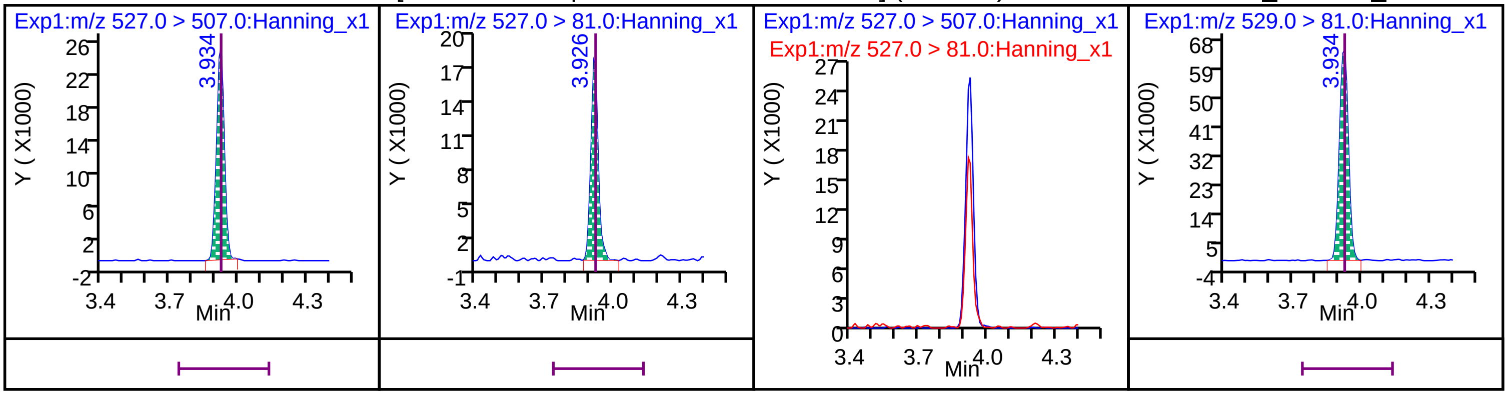


16 Perfluoro-1-nonanesulfonic acid (PFNS)   D 54 13C8_PFOS

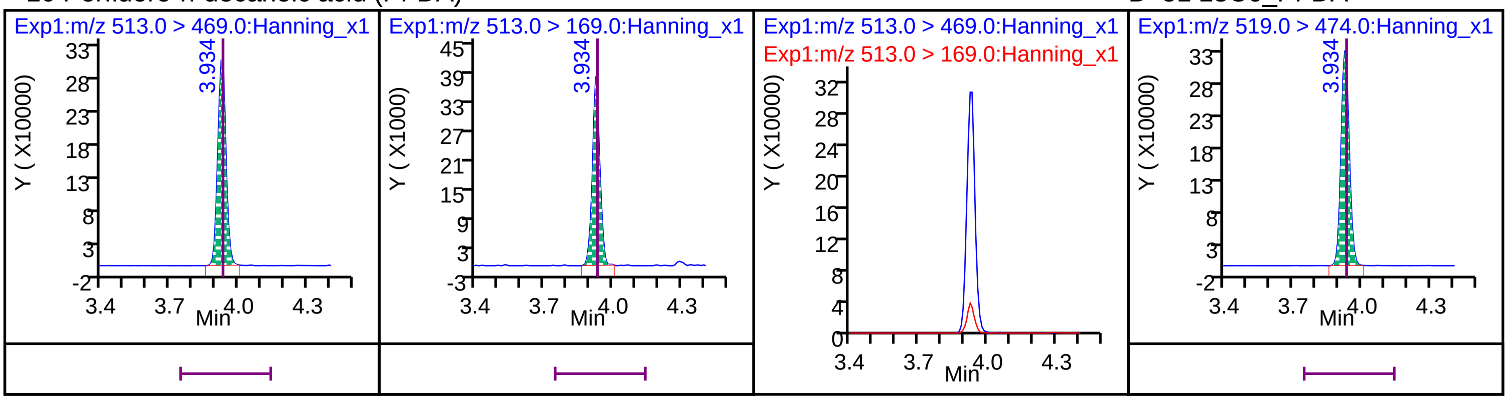


Report Date: 05-Nov-2021 13:58:34 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A072.d

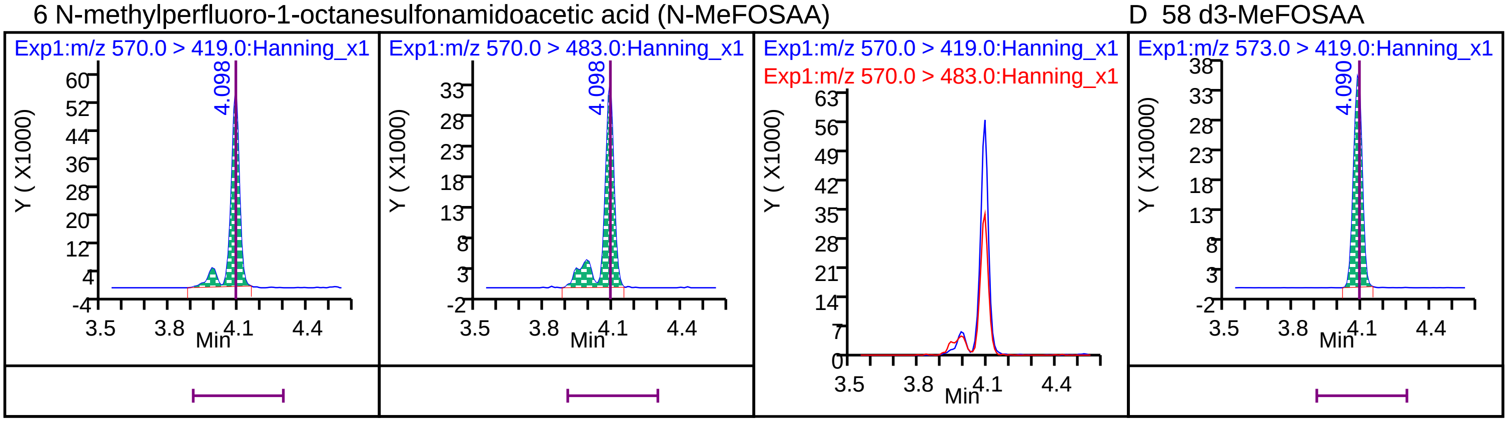
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



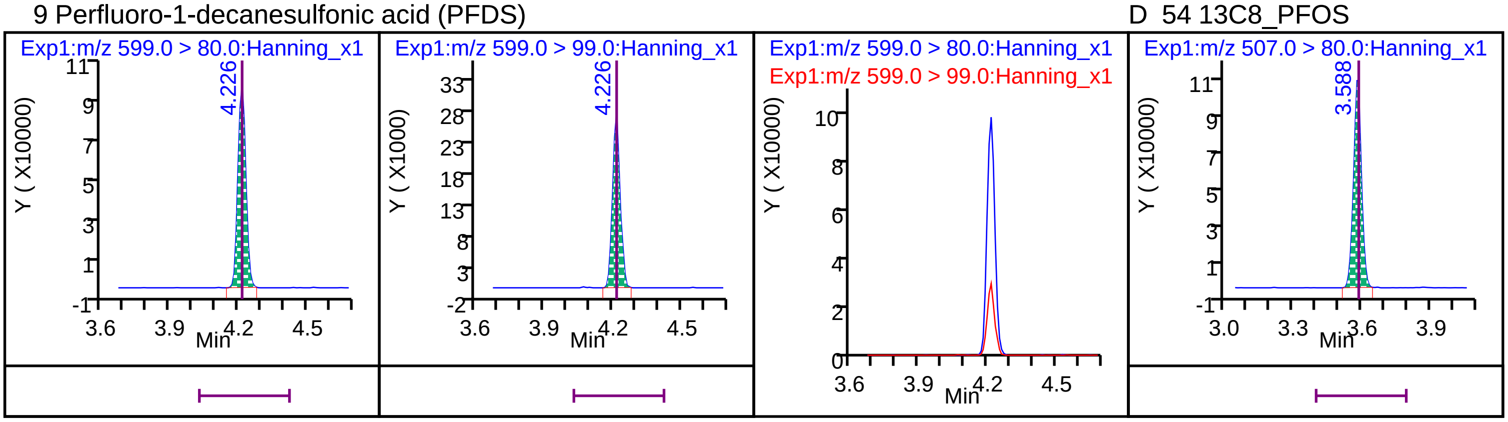
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



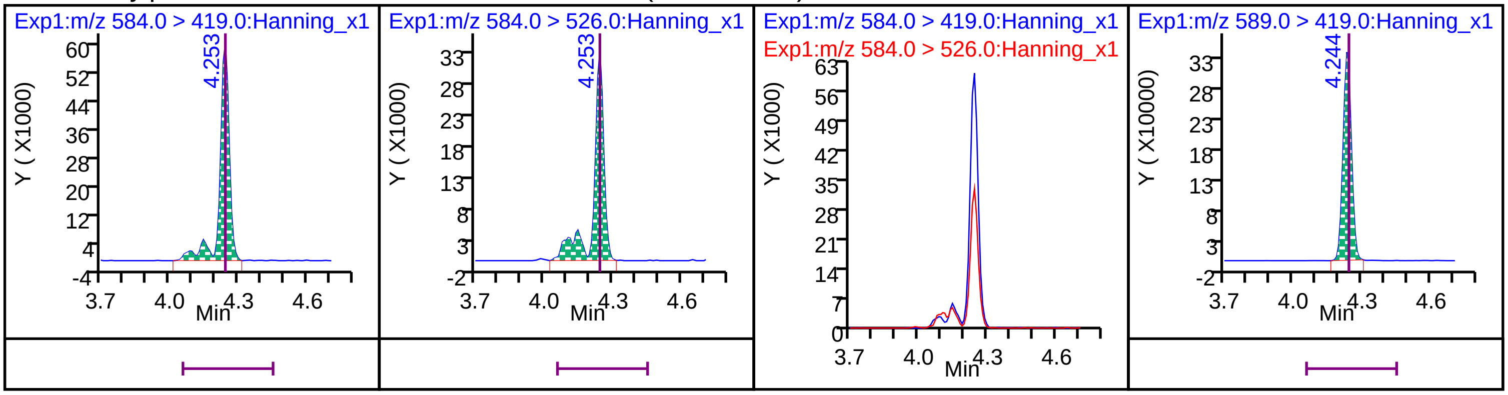
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



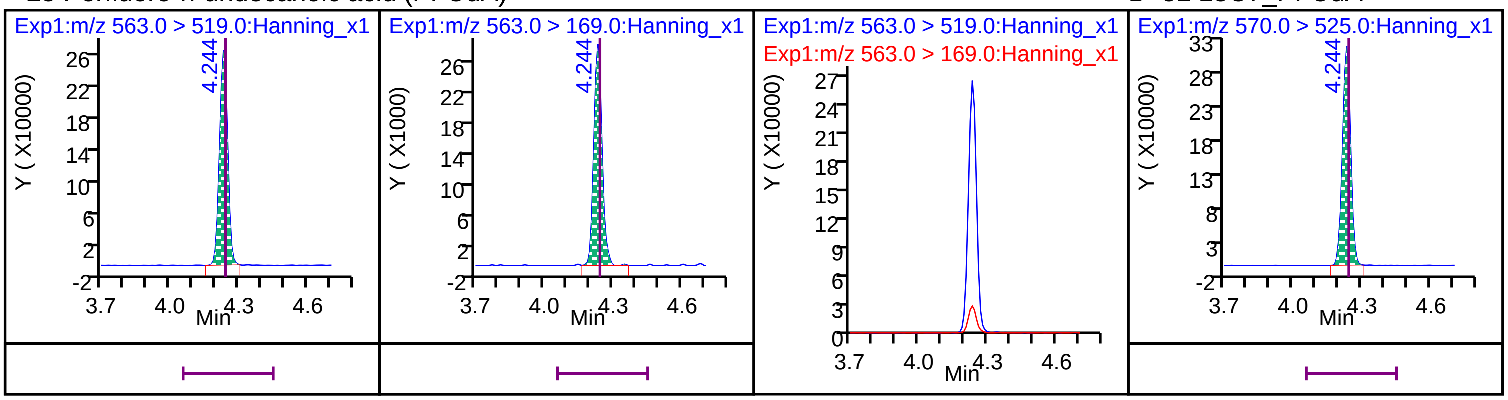
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



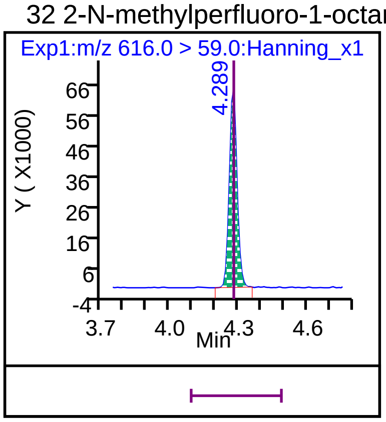
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



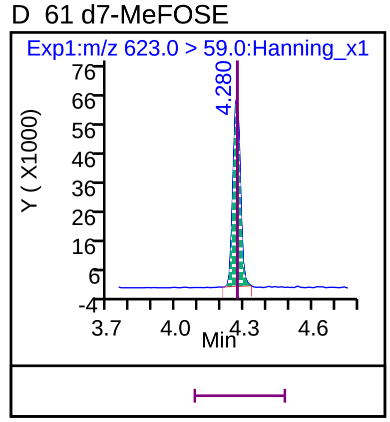
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



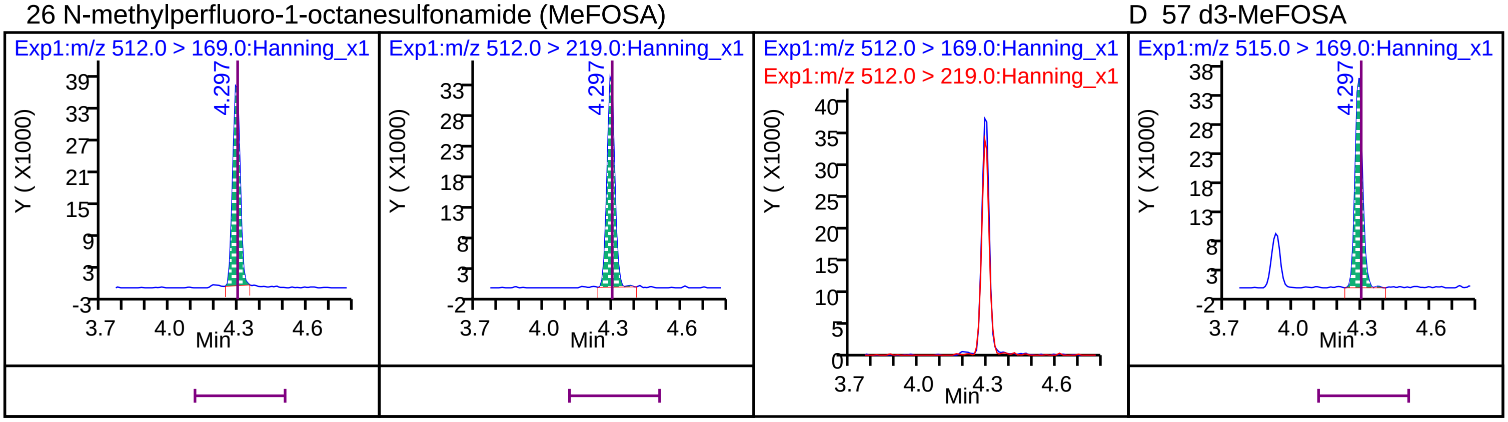
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



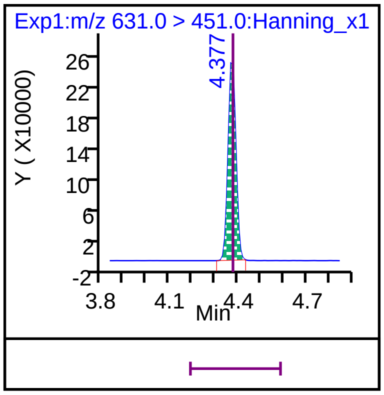
D 61 d7-MeFOSE



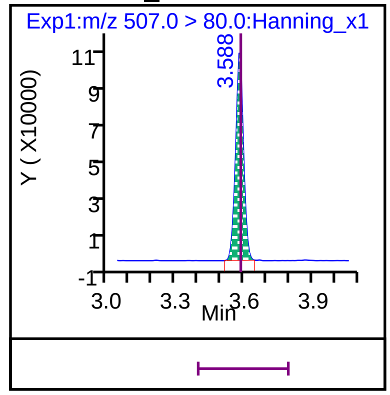
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



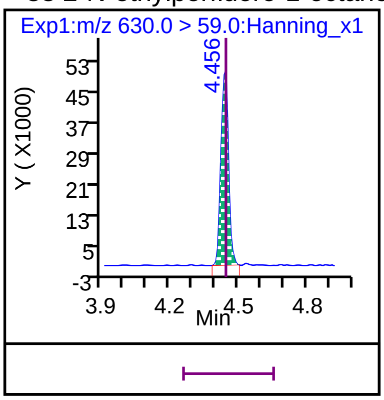
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



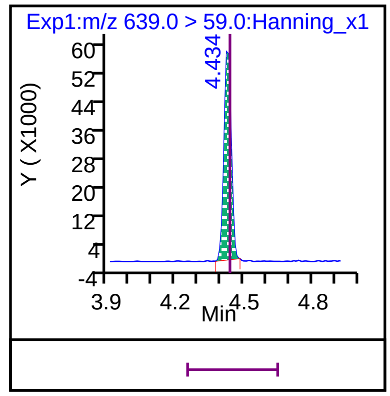
D 54 13C8_PFOS



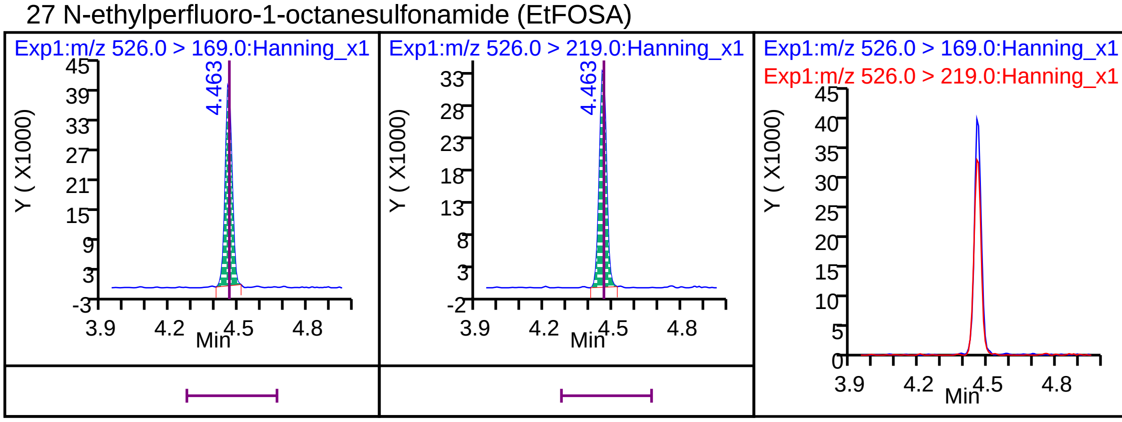
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



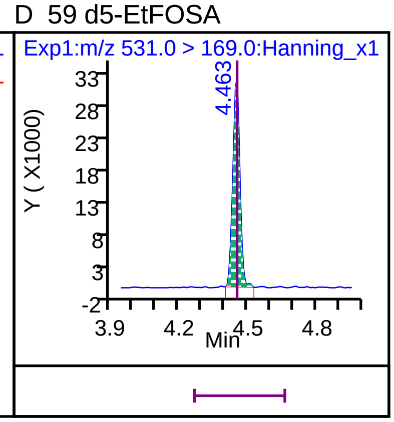
D 62 d9-EtFOSE



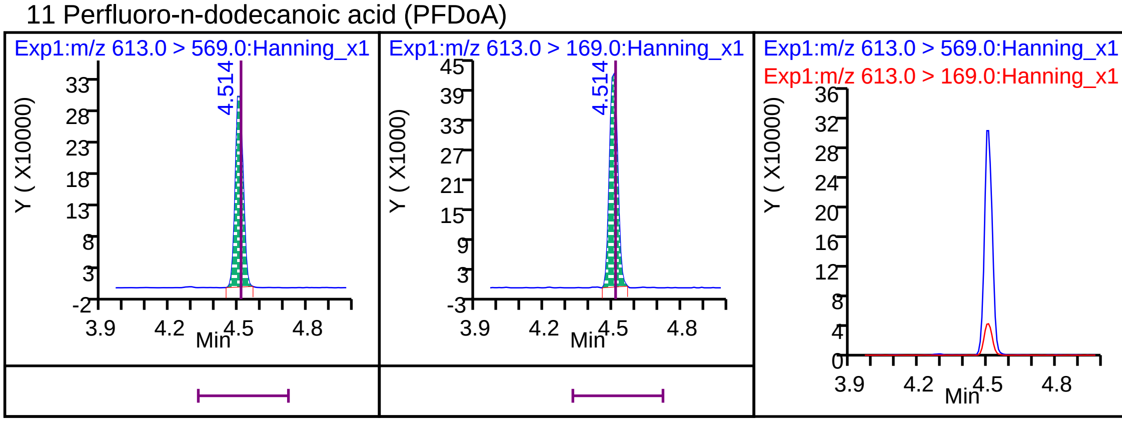
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



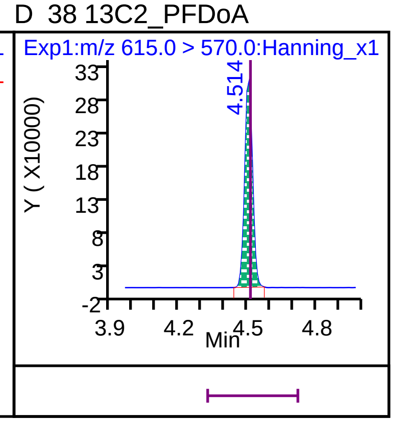
D 59 d5-EtFOSA



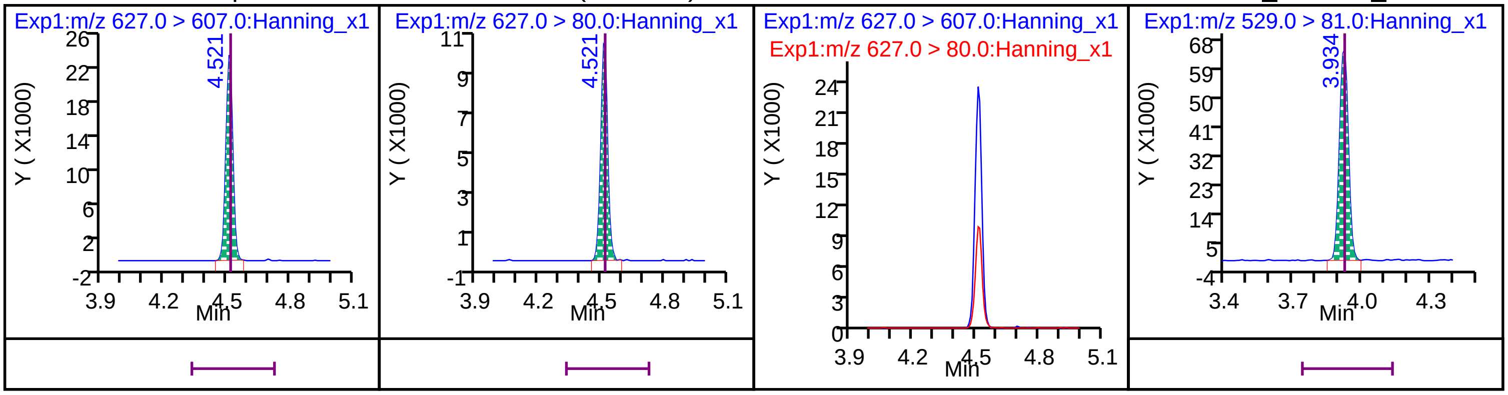
11 Perfluoro-n-dodecanoic acid (PFDoA)



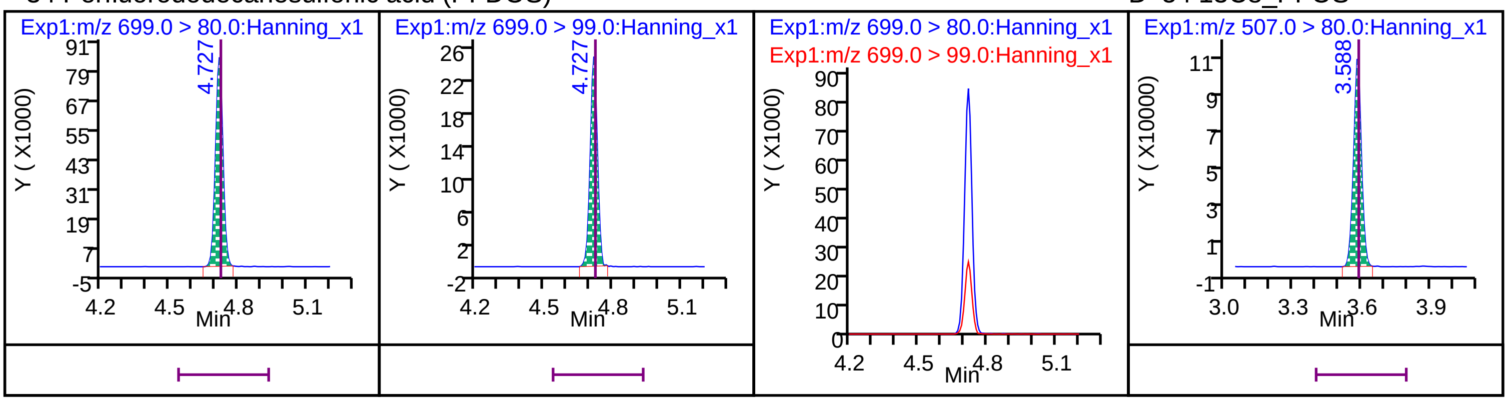
D 38 13C2_PFDoA



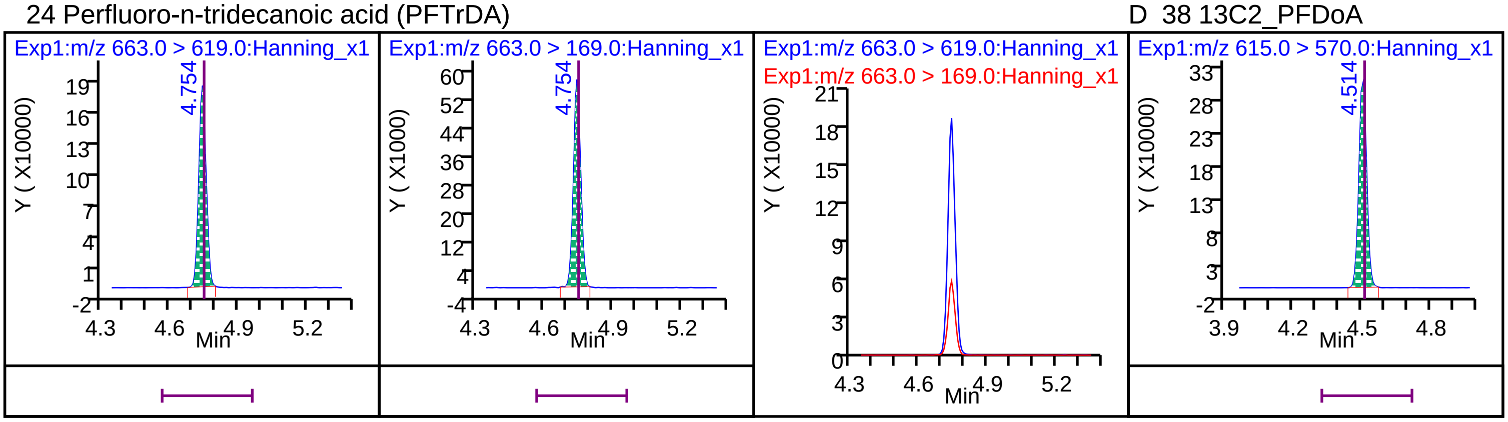
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



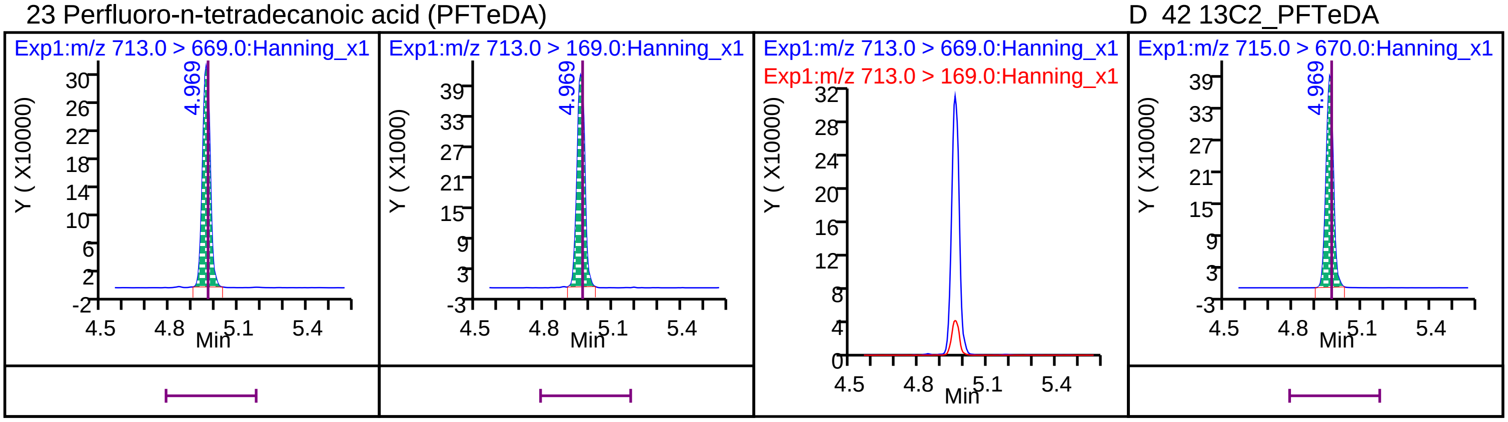
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



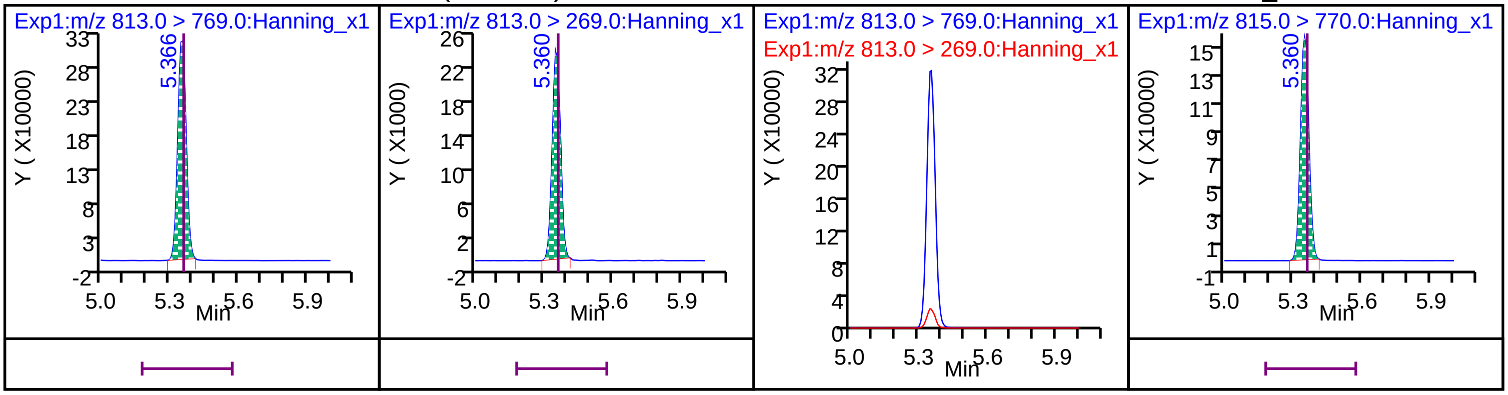
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



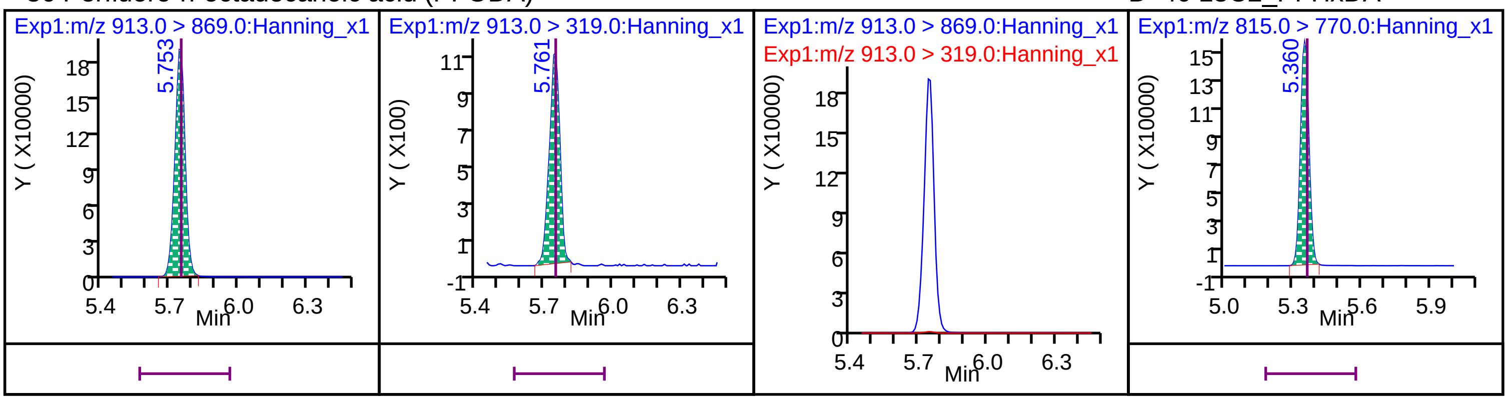
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



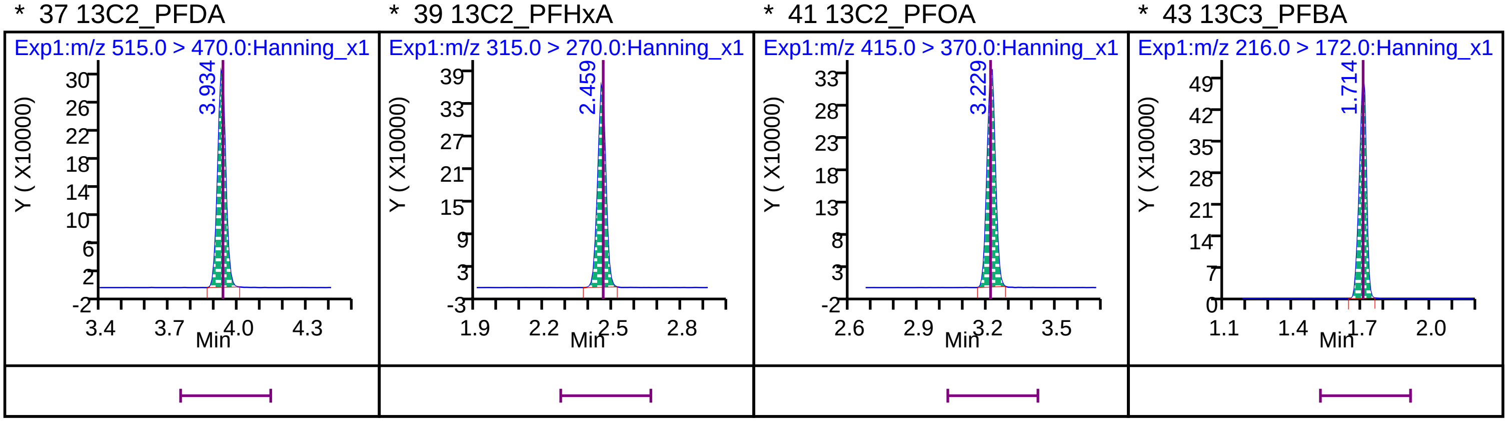
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



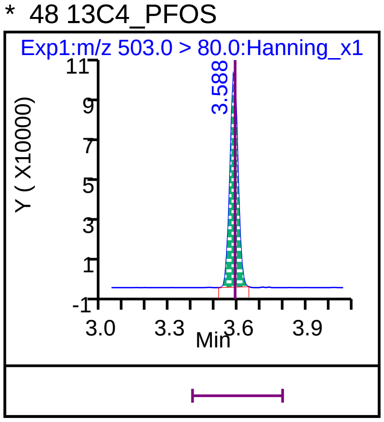
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:34 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

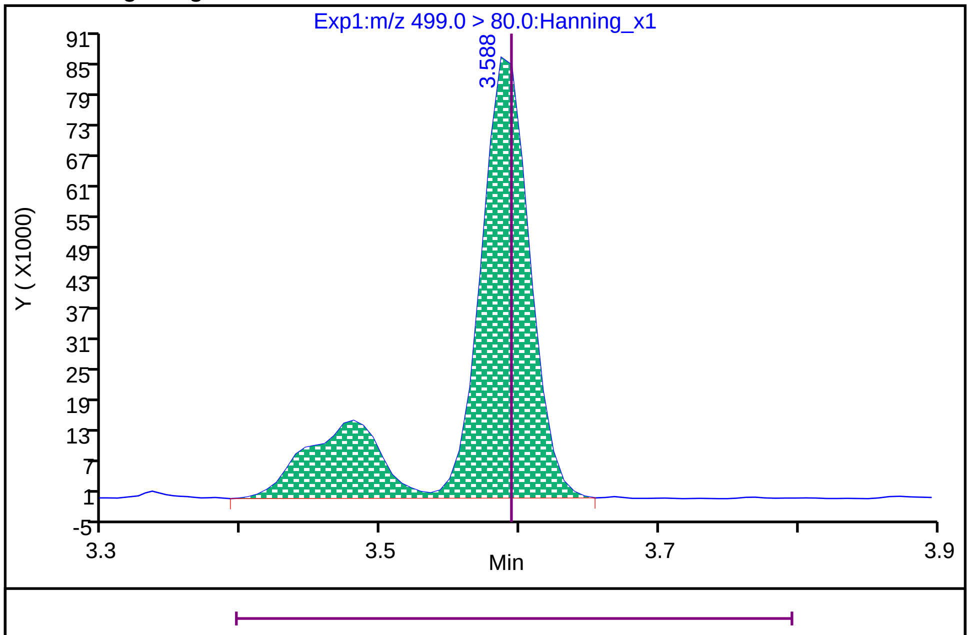
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A072.d		
Injection Date:	05-Nov-2021 01:06:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000C_SVLC-1717
Sample Info:	CCV 1000C_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

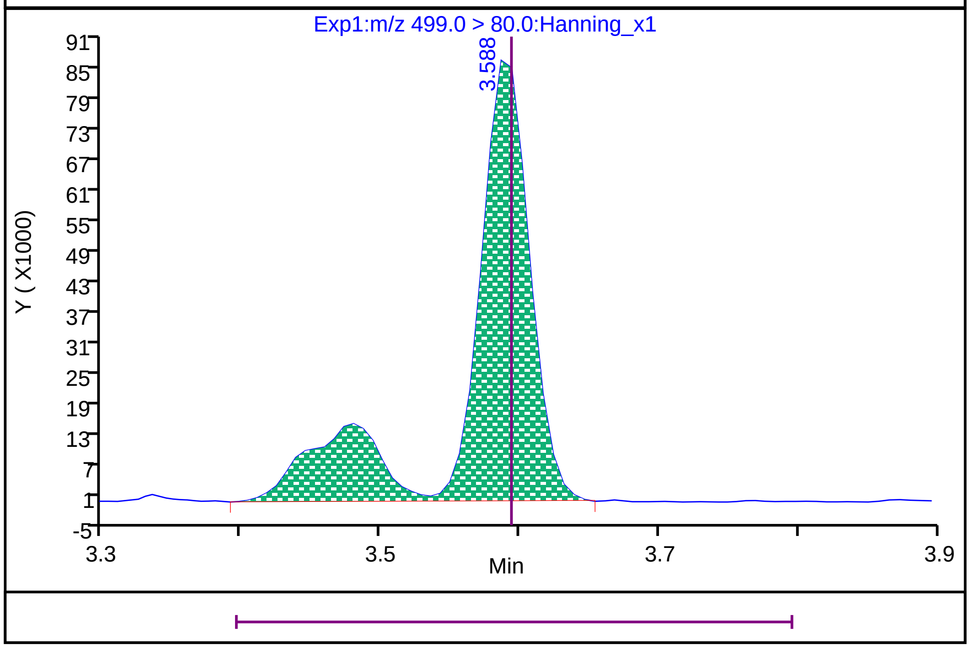
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.588
Area: 264692
Amount: 924.52
Amount Units: ng/L



RT: 3.588
Area: 263158
Amount: 919.16
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:46:23

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d
Injection Date: 05-Nov-2021 03:25:03 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 62
Sample Info: CCV 1000D_SVLC-1717 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	966.32	96.6	70 - 130
D 46 13C4_PFBA	1188899	1455516			122.4	50 - 150
D 50 13C5_PFPeA	1090536	1392938			127.7	50 - 150
21 PFPeA			1000.00	974.39	97.4	70 - 130
7 PFBS			884.00	806.72	91.3	70 - 130
D 44 13C3_PFBS	364125	446048			122.5	50 - 150
1 4:2 FTS			934.00	942.51	100.9	70 - 130
D 63 13C2_4:2 FTS_2	216934	300146			138.4	50 - 150
D 49 13C5_PFHxA	1029068	1263693			122.8	50 - 150
15 PFHxA			1000.00	970.71	97.1	70 - 130
22 PFPeS			938.00	927.39	98.9	70 - 130
28 GenX			2000.00	2162.38	108.1	70 - 130
D 66 13C3_GenX	878629	986519			112.3	50 - 150
D 47 13C4_PFHpA	986129	1232411			125	50 - 150
13 PFHpA			1000.00	969.60	97	70 - 130
D 45 13C3_PFHxS	296861	362812			122.2	50 - 150
14 PFHxS			910.00	887.04	97.5	70 - 130
29 ADONA			942.00	960.31	101.9	70 - 130
D 64 13C2_6:2 FTS_2	194584	243691			125.2	50 - 150
2 6:2 FTS			948.00	1134.84	119.7	70 - 130
D 53 13C8_PFOA	923846	1190008			128.8	50 - 150
20 PFOA			1000.00	942.86	94.3	70 - 130
12 PFHpS			952.00	953.42	100.1	70 - 130
18 PFOS			928.00	840.05	90.5	70 - 130
17 PFNA			1000.00	937.74	93.8	70 - 130
D 56 13C9_PFNA	999317	1072037			107.3	50 - 150
D 54 13C8_PFOS	245640	330313			134.5	50 - 150
30 9Cl-PF3ONS			932.00	989.93	106.2	70 - 130
D 55 13C8_PFOSA	427823	553068			129.3	50 - 150
19 PFOSA			1000.00	1020.62	102.1	70 - 130
16 PFNS			960.00	778.16	81.1	70 - 130
D 65 13C2_8:2 FTS_2	153511	208540			135.8	50 - 150
3 8:2 FTS			958.00	914.10	95.4	70 - 130
10 PFDA			1000.00	946.05	94.6	70 - 130
D 51 13C6_PFDA	784847	1045204			133.2	50 - 150
6 N-MeFOSAA			1000.00	1009.10	100.9	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	902679	1213517			134.4	50 - 150
9 PFDS			964.00	862.39	89.5	70 - 130
5 N-EtFOSAA			1000.00	1000.95	100.1	70 - 130
25 PFUdA			1000.00	974.39	97.4	70 - 130
D 60 d5-EtFOSAA	779079	1052764			135.1	50 - 150
D 52 13C7_PFUdA	732655	927902			126.6	50 - 150
D 61 d7-MeFOSE	133282	158281			118.8	50 - 150
32 MeFOSE			1000.00	923.73	92.4	70 - 130
26 MeFOSA			1000.00	1098.67	109.9	70 - 130
D 57 d3-MeFOSA	72656	85921			118.3	50 - 150
31 11Cl-PF3OUDS			942.00	792.04	84.1	70 - 130
D 62 d9-EtFOSE	129304	162385			125.6	50 - 150
33 EtFOSE			1000.00	1177.13	117.7	70 - 130
D 59 d5-EtFOSA	65473	86581			132.2	50 - 150
27 EtFOSA			1000.00	937.17	93.7	70 - 130
11 PFDoA			1000.00	1000.44	100	70 - 130
D 38 13C2_PFDoA	746808	925614			123.9	50 - 150
4 10:2 FTS			964.00	852.34	88.4	70 - 130
34 PFDOS			968.00	768.87	79.4	70 - 130
24 PFTrDA			1000.00	1004.48	100.4	70 - 130
23 PFTeDA			1000.00	984.41	98.4	70 - 130
D 42 13C2_PFTeDA	900924	1058270			117.5	50 - 150
35 PFHxDA			1000.00	1049.45	104.9	70 - 130
D 40 13C2_PFHxDA	403292	477015			118.3	50 - 150
36 PFODA			1000.00	1001.37	100.1	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d		
Injection Date:	05-Nov-2021 03:25:03	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	62
Sample Info:	CCV 1000D_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.714	0	1455516	18	>100:1			1000.00	1351.79	122.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.714	1/1	1546883	19	>100:1			1000.00	966.32		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	0	1392938	16	>100:1			1000.00	1388.89	127.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/1	1454225	13	>100:1			1000.00	974.39		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	446048	14	>100:1			1000.00	1373.43	122.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	514068	14	>100:1	Target = 3.80		884.00	806.72		
298.9 > 99	44	2.141	2.141		135953	17	>100:1	3.78 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.494	2.493	1/0	416223	16	>100:1	Target = 3.42		938.00	927.39		
349 > 99	44	2.494	2.493		119487	21	>100:1	3.48 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	300146	18	>100:1			5000.00	7226.00	138.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.415	1/1	110423	17	>100:1	Target = 1.54		934.00	942.51		
327 > 81	63	2.415	2.415		68381	17	89:1	1.61 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	1263693	17	>100:1			1000.00	1414.74	122.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	1267502	18	>100:1	Target = 17.93		1000.00	970.71		
313 > 119	49	2.459	2.467		68842	17	>100:1	18.41 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	986519	19	>100:1			5000.00	6021.99	112.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	1/0	326889	18	>100:1	Target = 0.72		2000.00	2162.38		
285 > 185	66	2.579	2.587		460974	19	>100:1	0.70 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	1232411	17	>100:1			1000.00	1406.55	125	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	1150326	17	>100:1	Target = 3.26		1000.00	969.60		
363 > 169	47	2.846	2.846		352842	18	>100:1	3.26 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.863	1	362812	16	>100:1			1000.00	1383.30	122.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.863	1/0	380449	27	>100:1	Target = 3.48	4.73	910.00	887.04		
399 > 99	45	2.864	2.863		108248	24	>100:1	3.51 (1.74-5.22)	7.86				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	1917730	18	>100:1	Target = 2.31		942.00	960.31		
377 > 85	45	2.890	2.890		741779	18	>100:1	2.58 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.230	3.229	1/0	355784	21	>100:1	Target = 3.56		952.00	953.42		
449 > 99	45	3.236	3.229		92291	20	>100:1	3.85 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	1	243691	22	>100:1			5000.00	6462.05	125.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	1/0	96172	22	>100:1	Target = 1.34		948.00	1134.84		
427 > 81	64	3.204	3.204		72464	20	>100:1	1.32 (0.67-2.02)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.230	3.223	1	1190008	22	>100:1			1000.00	1438.96	128.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.230	3.229	1/0	1154460	20	>100:1	Target = 2.50		1000.00	942.86		
413 > 169	53	3.230	3.229		451303	21	>100:1	2.55 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.595	1	330313	20	>100:1			1000.00	1471.46	134.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.595	1/0	327106	36	>100:1	Target = 4.01	4.01	928.00	840.05		
499 > 99	54	3.596	3.595		80034	36	>100:1	4.08 (2.00-6.02)	7.10				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.792	3.799	0/-1	1010560	19	>100:1			932.00	989.93		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.927	3.926	1/0	259612	18	>100:1	Target = 3.78		960.00	778.16		
549 > 99	54	3.927	3.926		81644	19	>100:1	3.17 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.226	1/0	281225	17	>100:1	Target = 3.98		964.00	862.39		
599 > 99	54	4.226	4.226		72323	16	>100:1	3.88 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/0	726768	17	>100:1			942.00	792.04		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.734	4.733	1/0	245964	19	>100:1	Target = 3.68		968.00	768.87		
699 > 99	54	4.734	4.733		67518	20		3.64 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.595	1	1072037	20	>100:1			1000.00	1341.70	107.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.595	1/0	915428	20	>100:1	Target = 4.69		1000.00	937.74		
463 > 169	56	3.603	3.595		205213	18	>100:1	4.46 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.874	3.873	1	553068	19	>100:1			1000.00	1335.30	129.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.874	3.873	1/0	638255	17	>100:1	Target = 40.85		1000.00	1020.62		
498>478	55	3.874	3.873		17258	24	>100:1	36.98 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.935	3.934	1	208540	20	>100:1			5000.00	6644.48	135.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.935	3.934	1/0	67734	20	>100:1	Target = 1.58		958.00	914.10		
527 > 81	65	3.943	3.934		54872	17	>100:1	1.23 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.528	1/0	63397	19	>100:1	Target = 2.46		964.00	852.34		
627 > 80	65	4.528	4.528		23993	20	>100:1	2.64 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.942	1	1045204	19	>100:1			1000.00	1448.05	133.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.943	3.942	1/0	1014628	18	>100:1	Target = 9.77		1000.00	946.05		
513 > 169	51	3.943	3.942		104950	18	>100:1	9.66 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.099	4.098	1	1213517	18	>100:1			5000.00	6843.93	134.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.099	4.098	1/0	200244	32	>100:1	Target = 1.41	9.05	1000.00	1009.10		
570 > 483	58	4.099	4.098		141639	34	>100:1	1.41 (0.70-2.11)	3.85				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.253	0	927902	17	>100:1			1000.00	1357.72	126.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.253	4.253	1/1	811113	16	>100:1	Target = 9.19		1000.00	974.39		
563 > 169	52	4.244	4.253		95791	17	>100:1	8.46 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	1052764	19	>100:1			5000.00	7040.45	135.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.262	4.253	1/0	215426	32	>100:1	Target = 1.75	6.35	1000.00	1000.95		
584 > 526	60	4.253	4.253		133324	34	>100:1	1.61 (0.87-2.63)	3.49				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	1	158281	21	>100:1			1000.00	1147.08	118.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.288	1/0	148596	16	>100:1			1000.00	923.73		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.306	0	85921	14	>100:1			1000.00	1227.08	118.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/1	97753	14	>100:1	Target = 1.11		1000.00	1098.67		
512 > 219	57	4.306	4.306		97246	15	>100:1	1.00 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.448	0	162385	16	>100:1			1000.00	1263.17	125.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/1	162705	17	>100:1			1000.00	1177.13		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	1	86581	16	>100:1			1000.00	1344.32	132.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/0	94862	16	>100:1	Target = 1.06		1000.00	937.17		
526 > 219	59	4.470	4.470		93303	17	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.521	1	925614	19	>100:1			1000.00	1346.07	123.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.521	1/0	909438	18	>100:1	Target = 6.38		1000.00	1000.44		
613 > 169	38	4.521	4.521		139929	18	>100:1	6.49 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.761	4.760	1/0	498261	21	>100:1	Target = 3.23		1000.00	1004.48		
663 > 169	38	4.761	4.760		155459	19	>100:1	3.20 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.978	0	1058270	26	>100:1			1000.00	1353.71	117.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.978	1/1	915527	26	>100:1	Target = 7.33		1000.00	984.41		
713 > 169	42	4.978	4.978		124666	26	>100:1	7.34 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	477015	23	>100:1			1000.00	1221.92	118.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	957591	22	>100:1	Target = 12.31		1000.00	1049.45		
813 > 269	40	5.366	5.372		78668	22	>100:1	12.17 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	1/1	721129	22	>100:1	Target = 165.31		1000.00	1001.37		
913 > 319	40	5.753	5.761		4156	20	>100:1	173.51 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.943	3.942	1	950747	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	1169162	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.230	3.223	1	1089574	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	1246860	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.595	1	338776	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

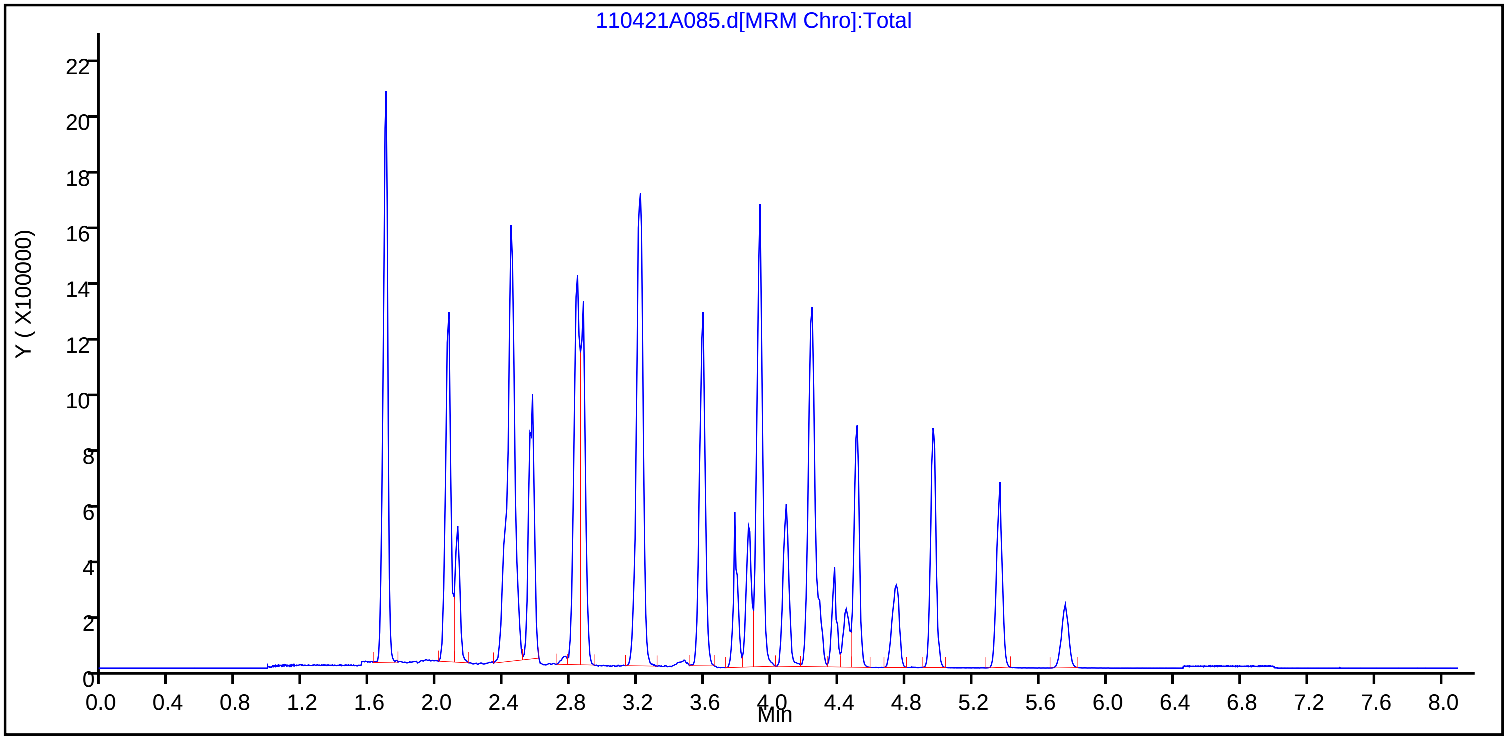
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

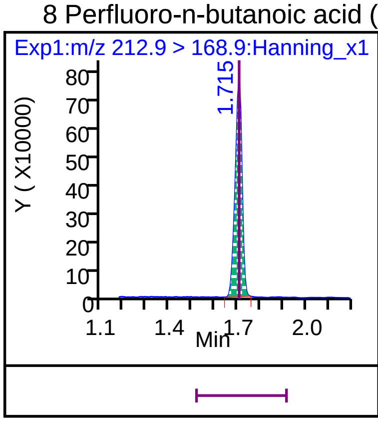
Report Date: 05-Nov-2021 13:58:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

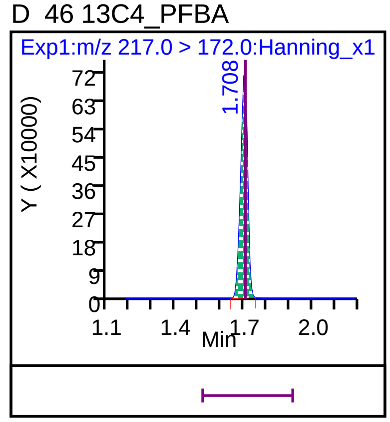
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d		
Injection Date:	05-Nov-2021 03:25:03	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000D_SVLC-1717
Sample Info:	CCV 1000D_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



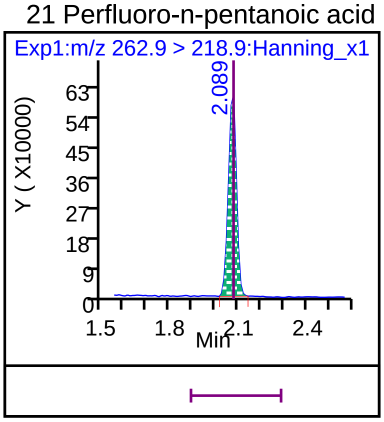
8 Perfluoro-n-butanoic acid (PFBA)



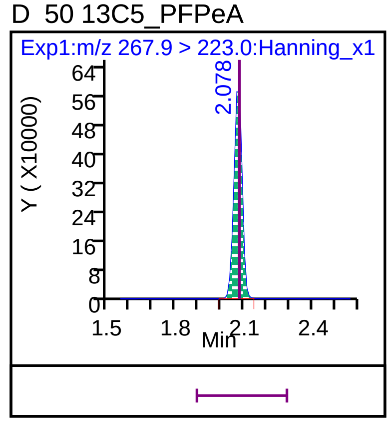
D 46 13C4_PFBA



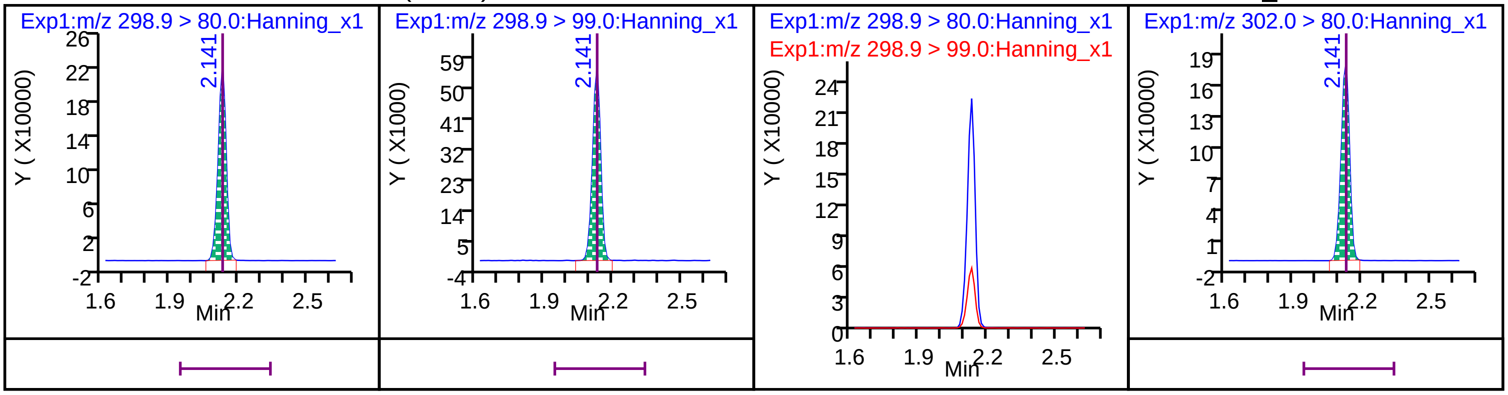
21 Perfluoro-n-pentanoic acid (PFPeA)



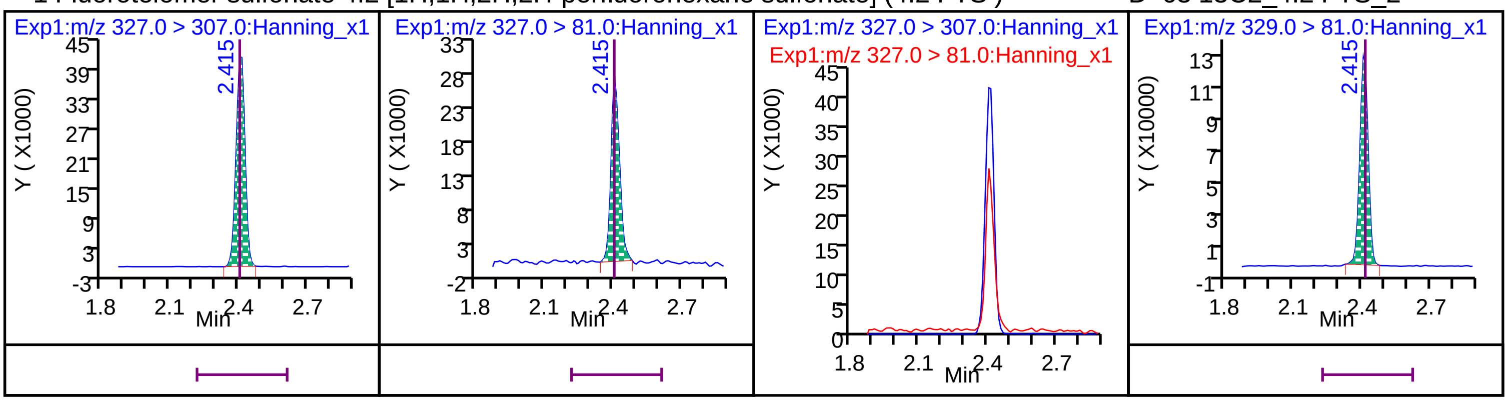
D 50 13C5_PFPeA



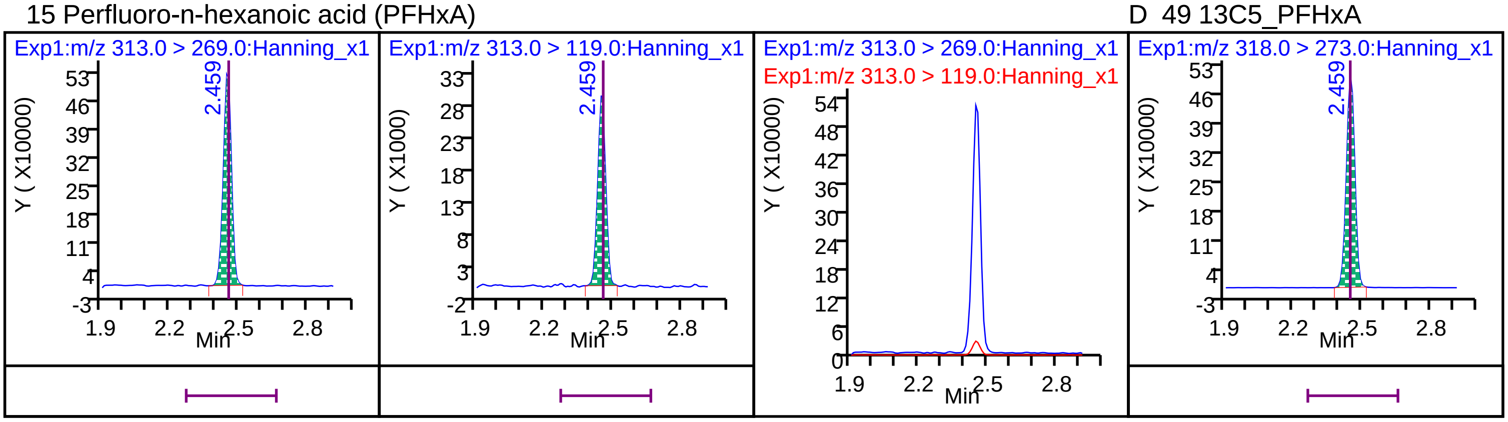
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



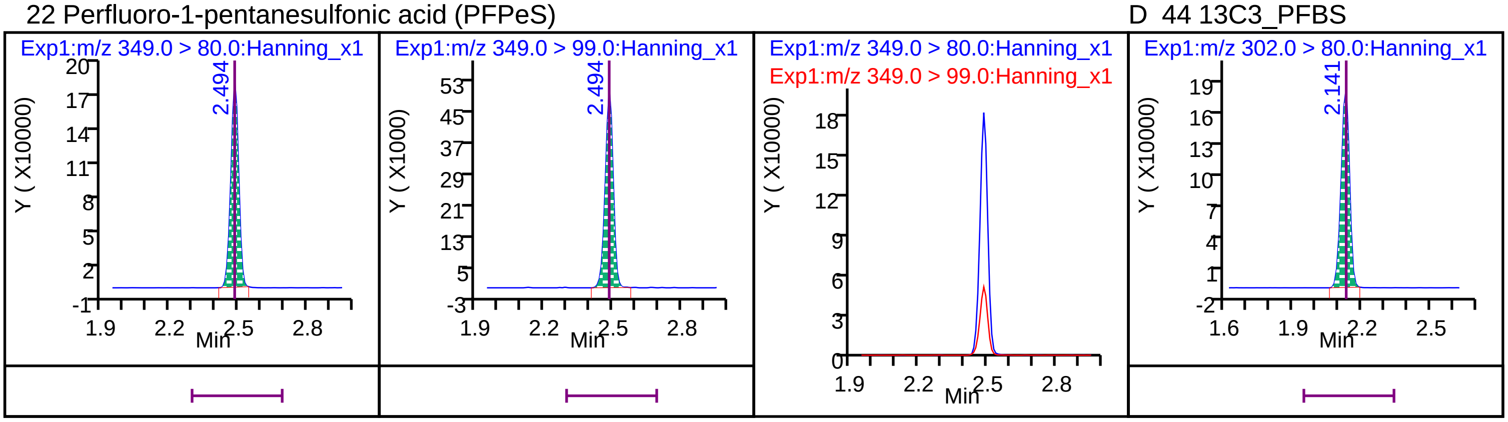
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



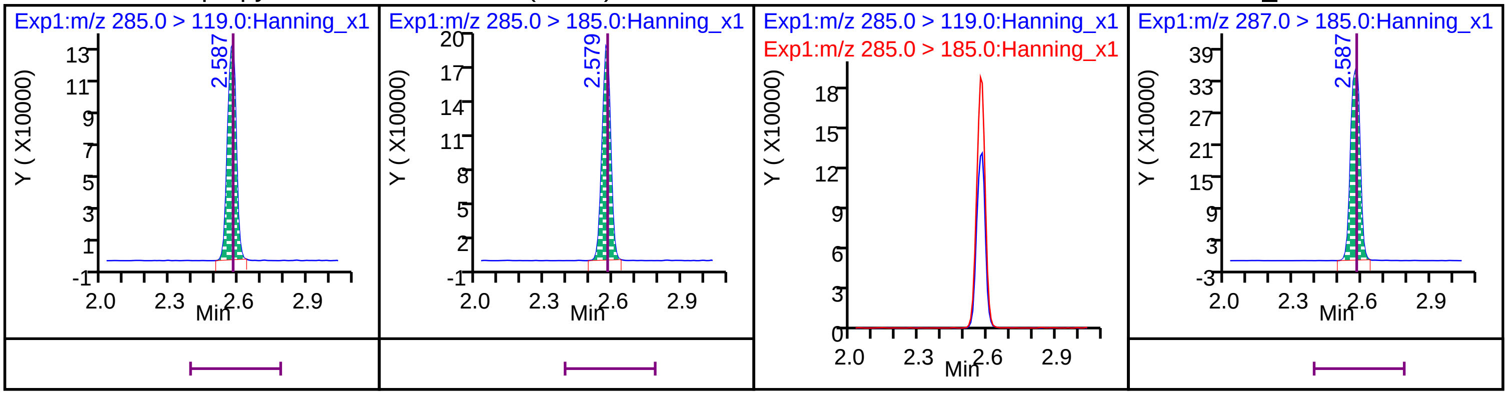
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



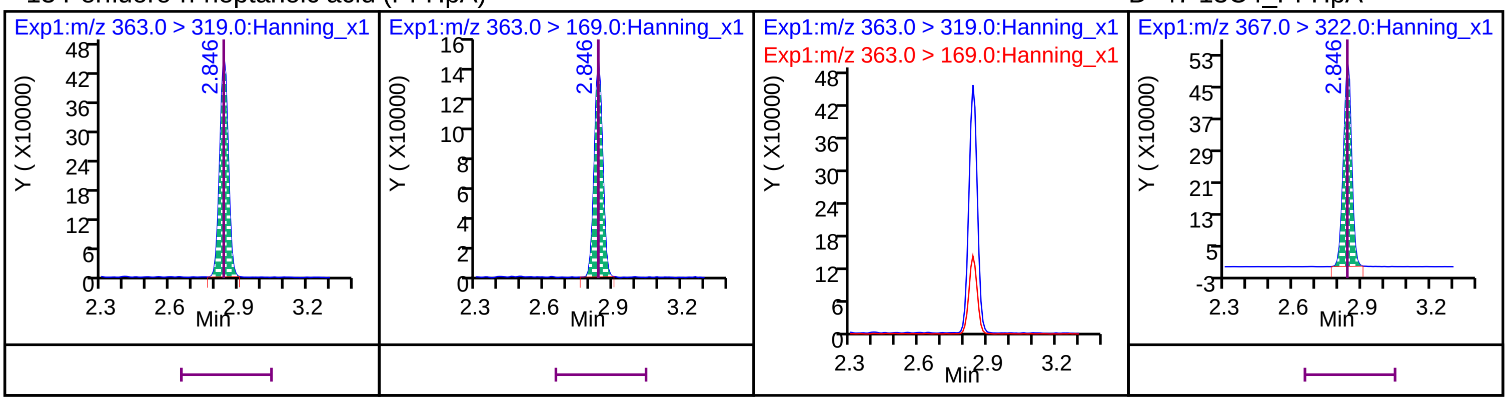
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



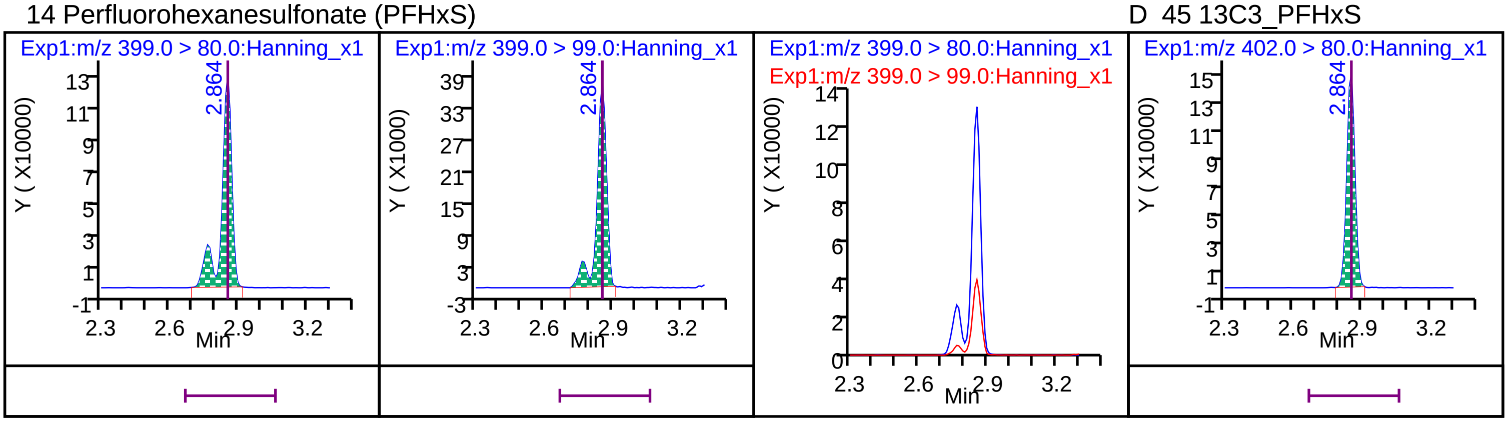
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



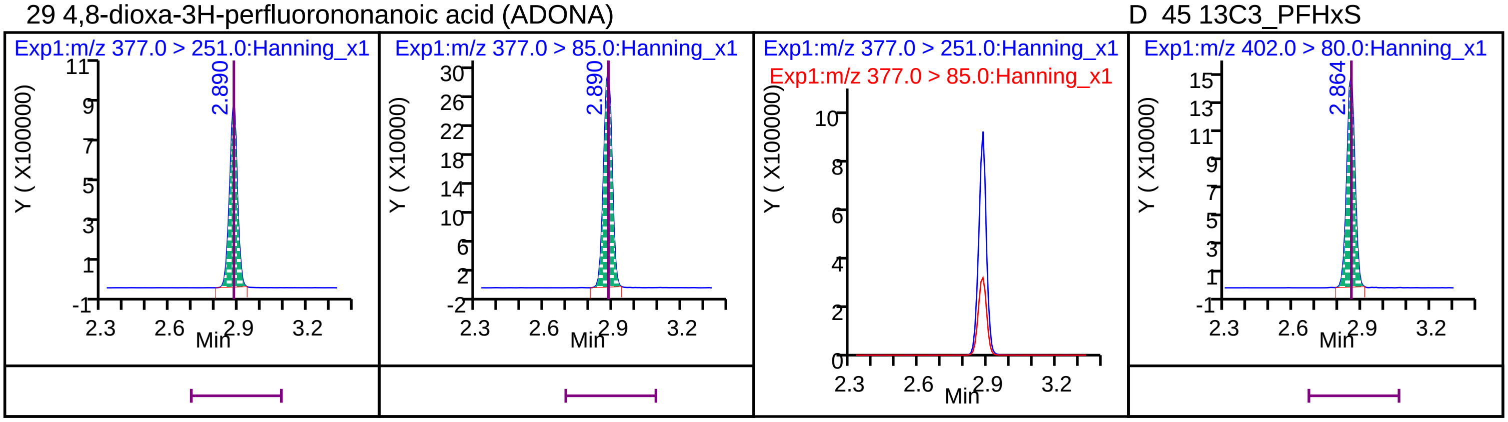
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



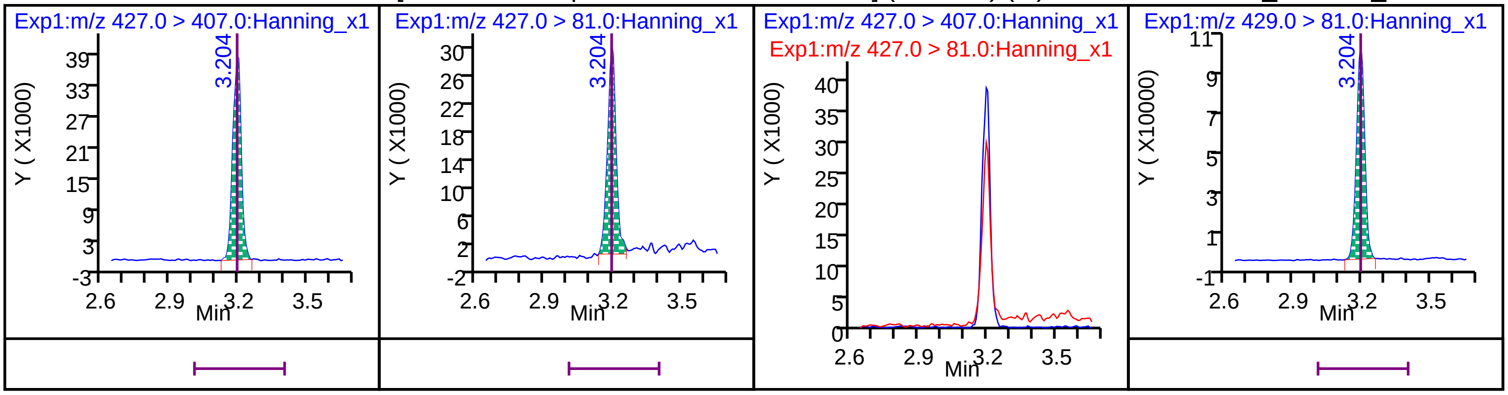
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



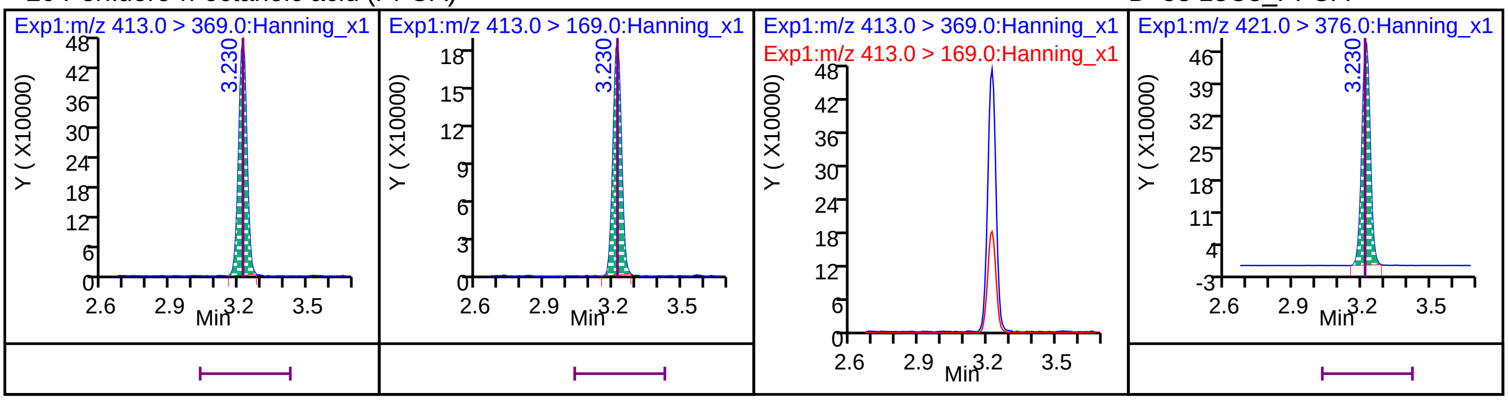
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



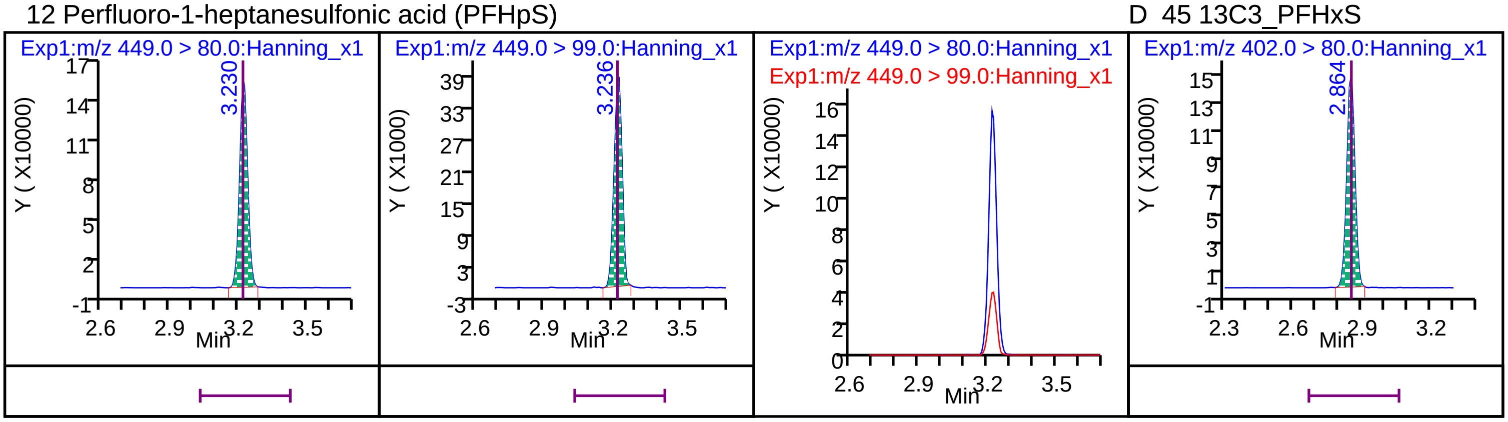
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



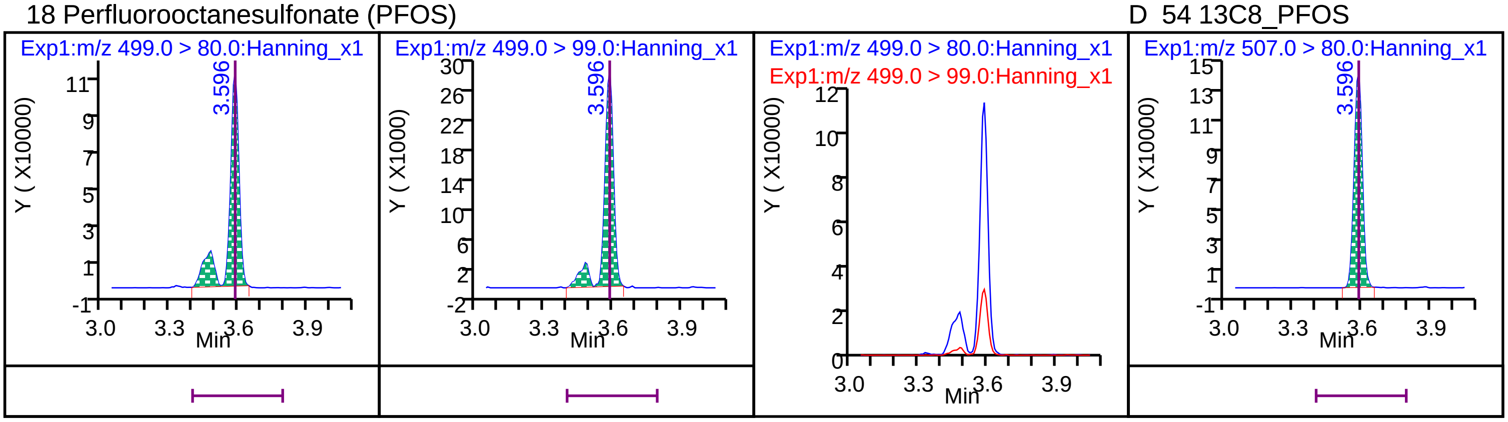
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



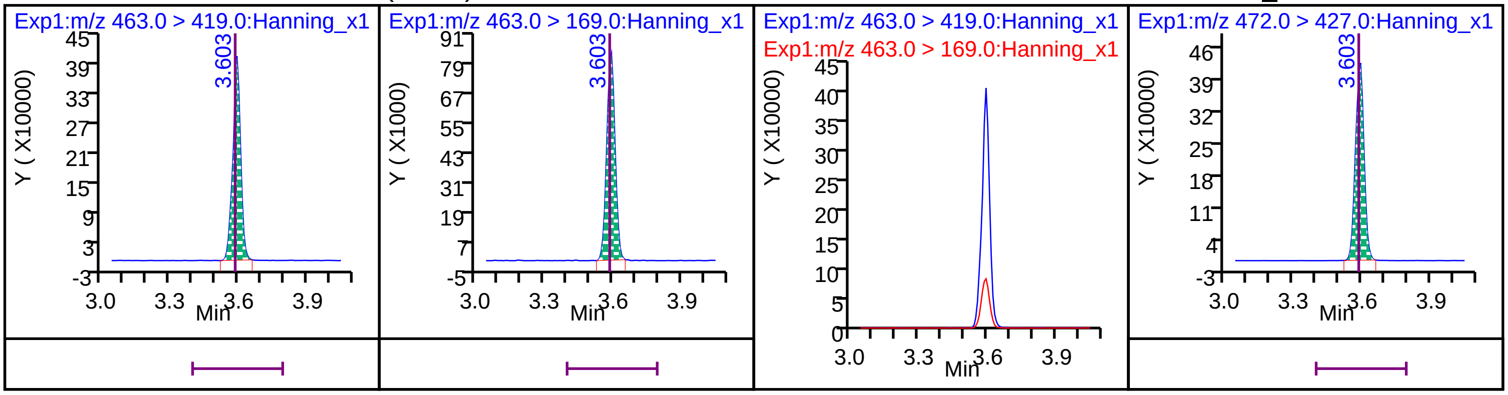
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



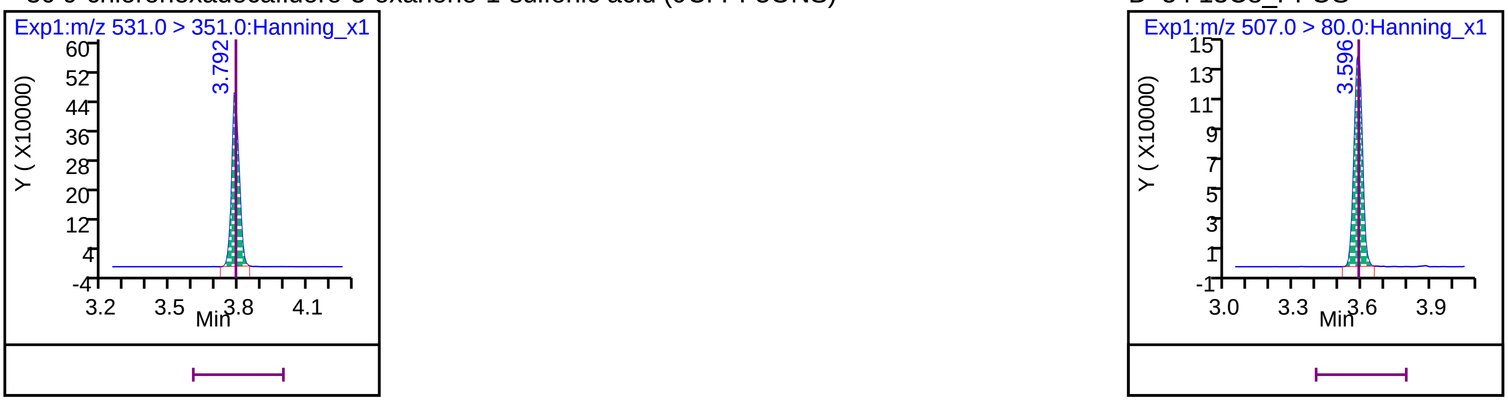
Report Date: 05-Nov-2021 13:58:49 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d

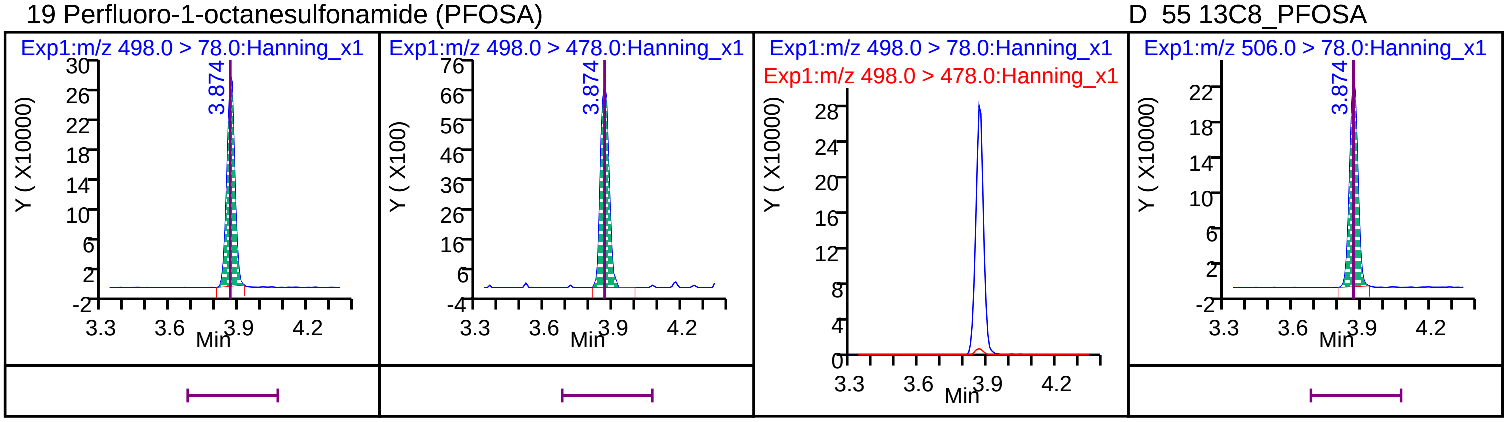
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



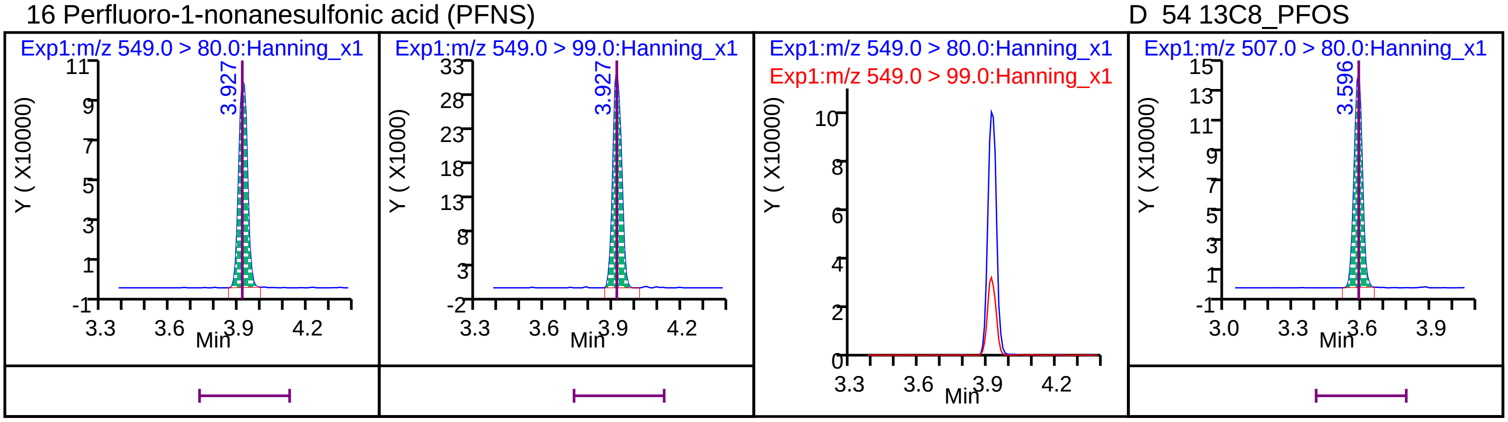
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

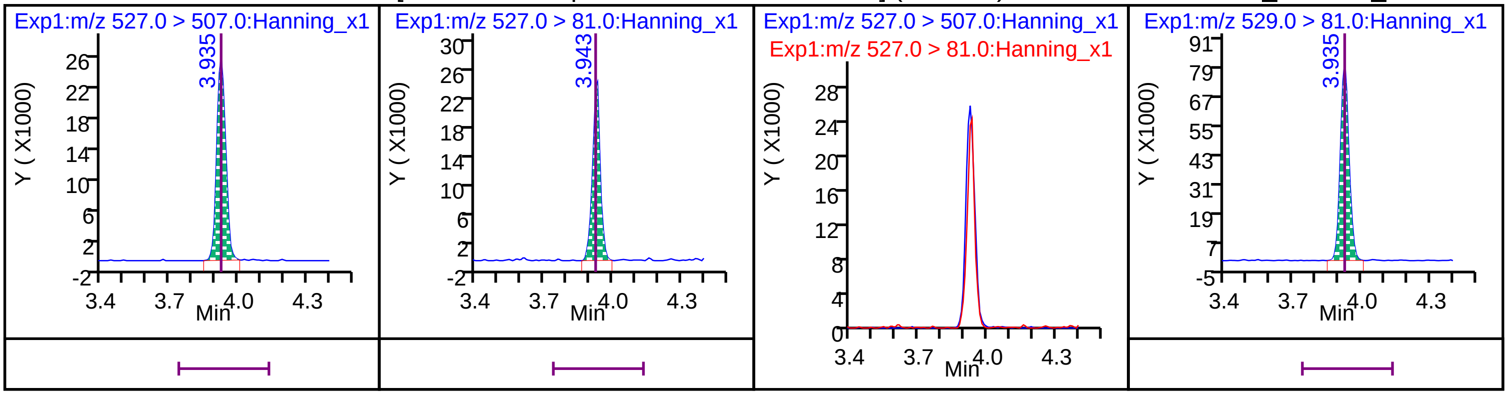


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

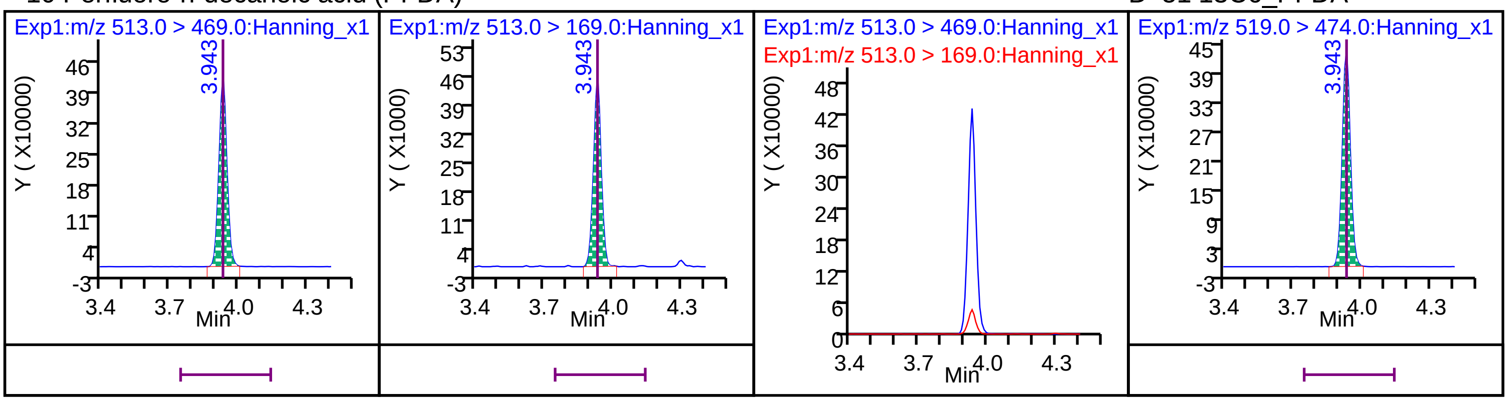


Report Date: 05-Nov-2021 13:58:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d

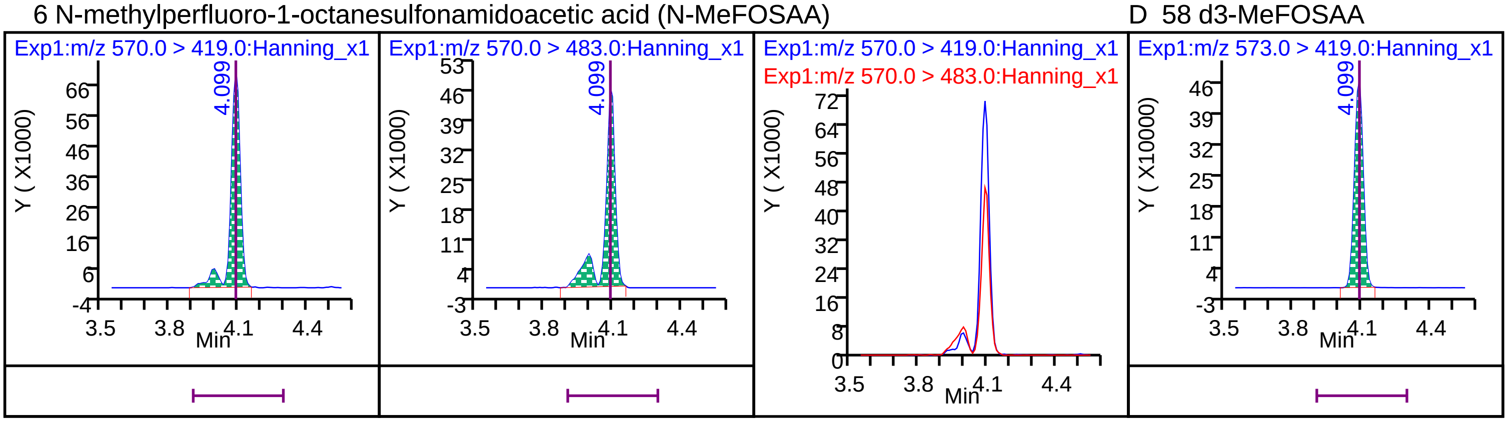
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



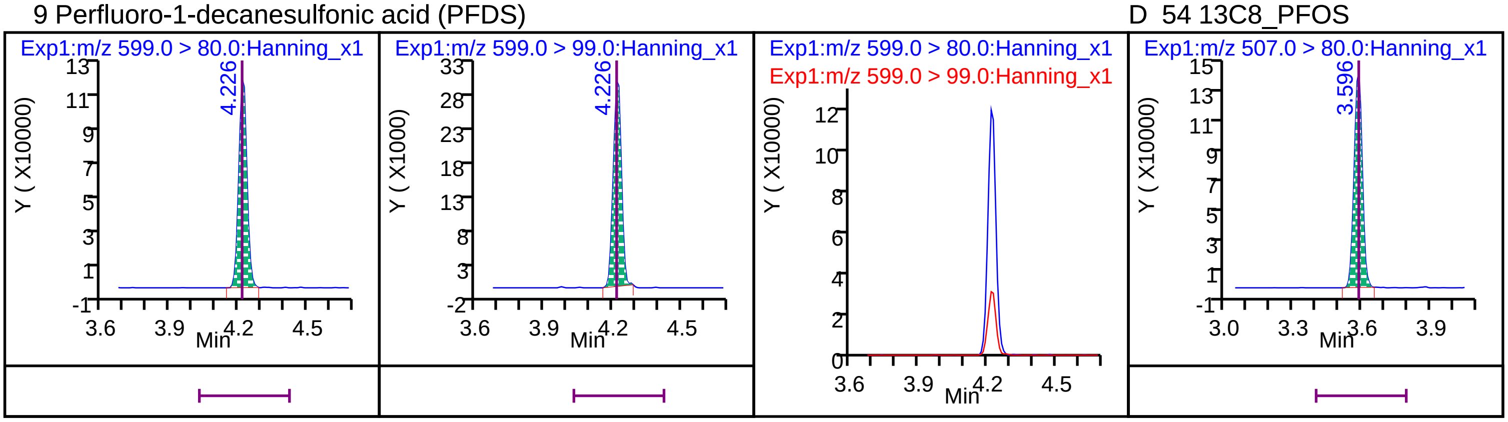
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



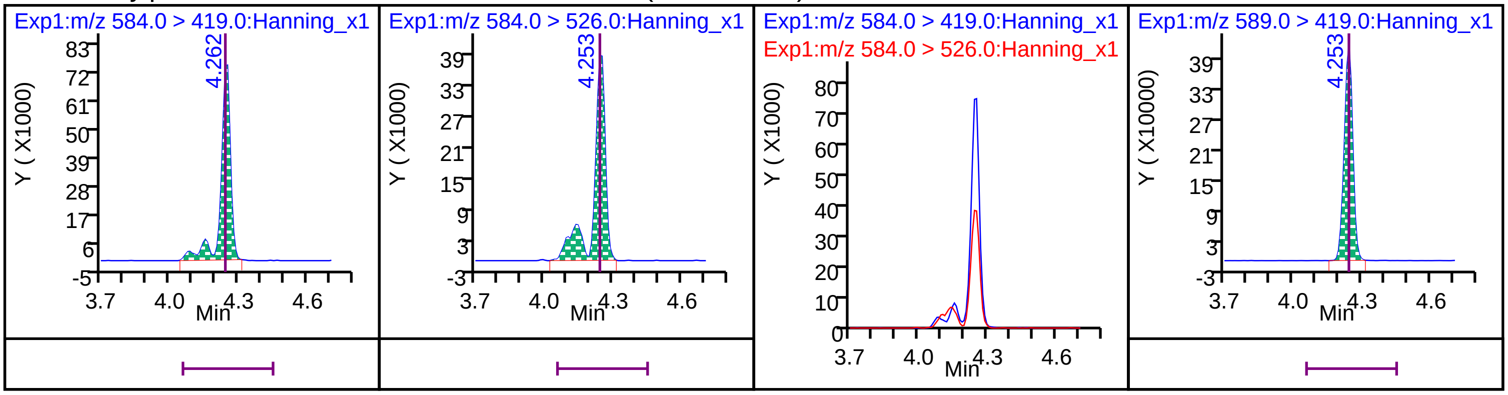
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



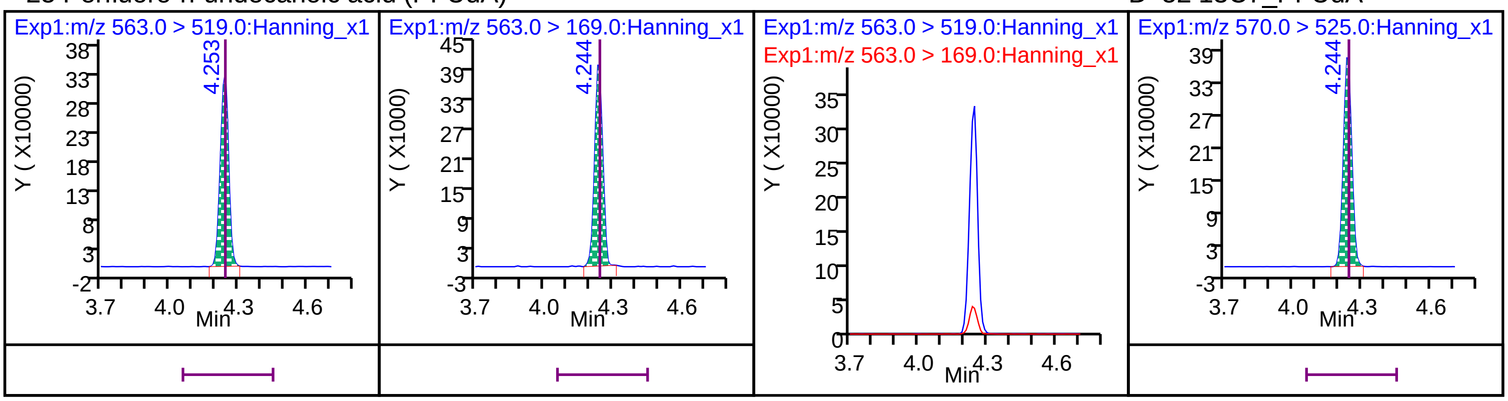
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



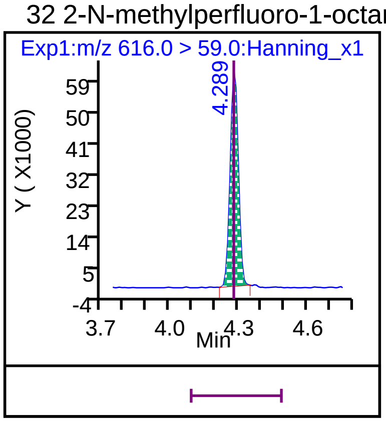
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

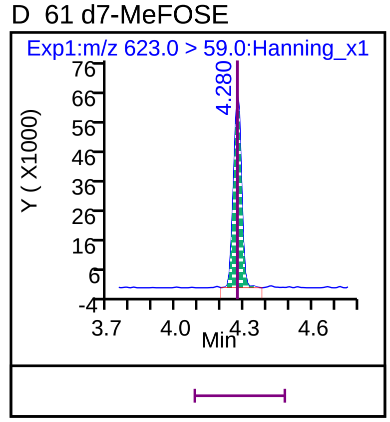


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

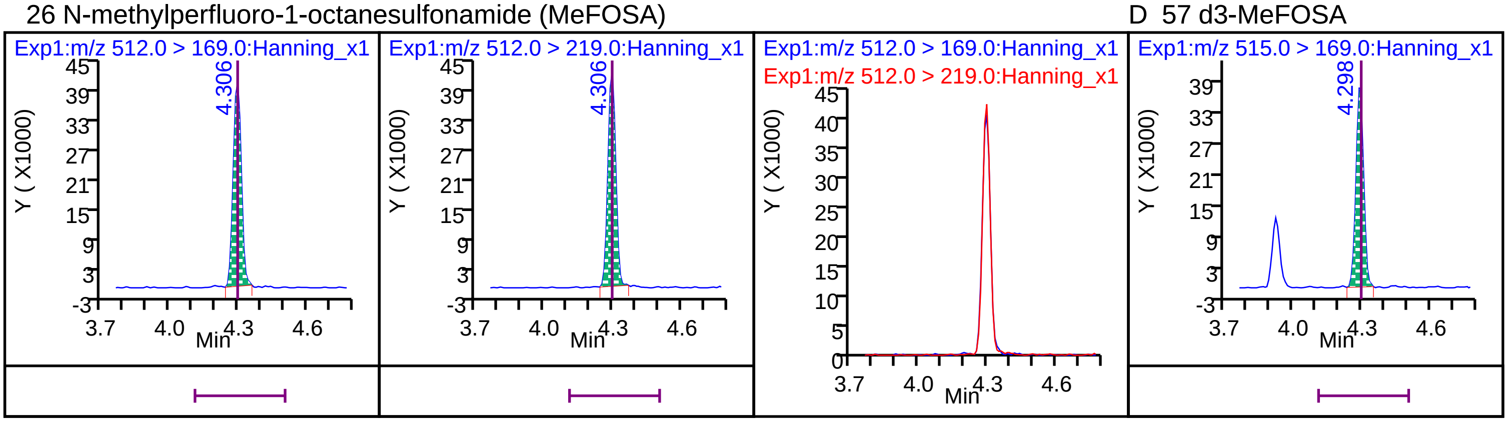


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



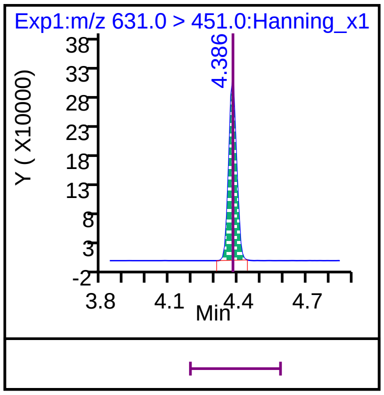


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

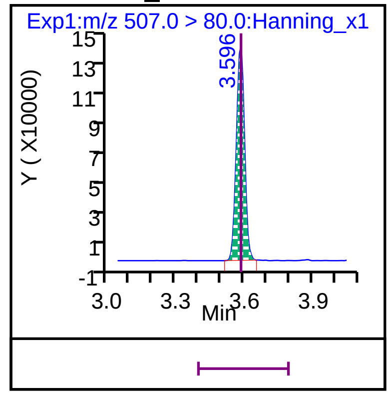


Report Date: 05-Nov-2021 13:58:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d

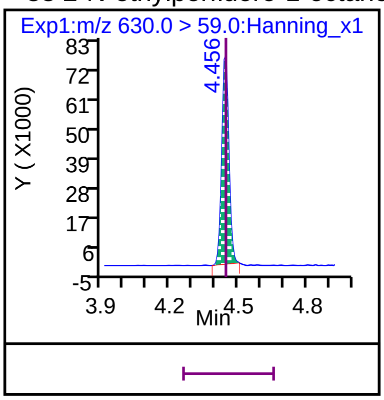
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



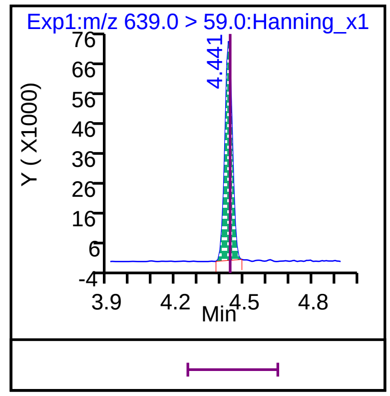
D 54 13C8_PFOS



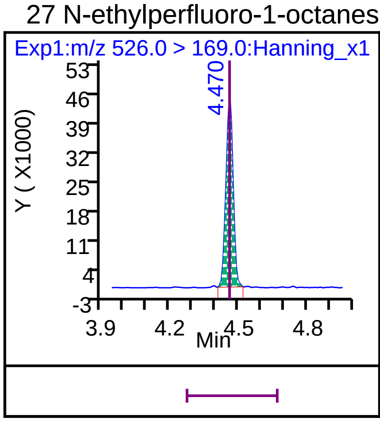
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

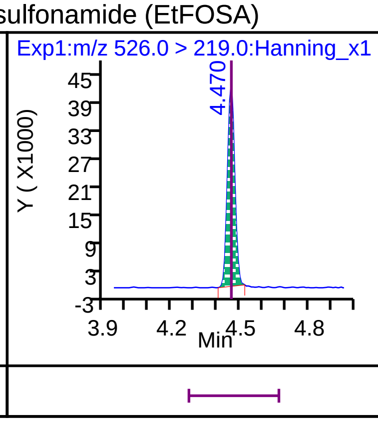


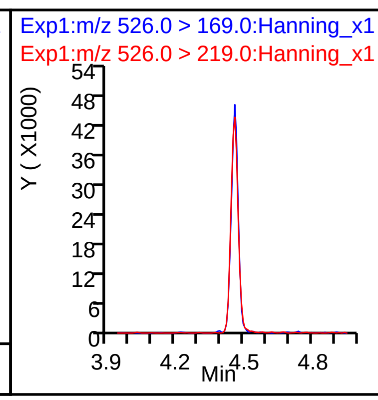
D 62 d9-EtFOSE



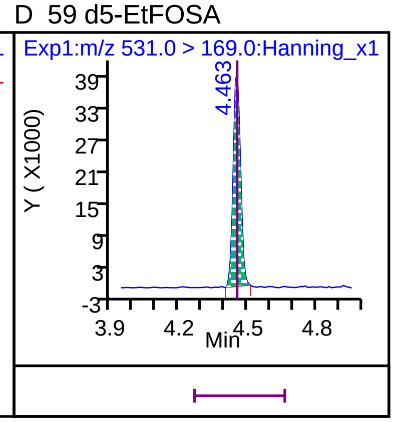
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



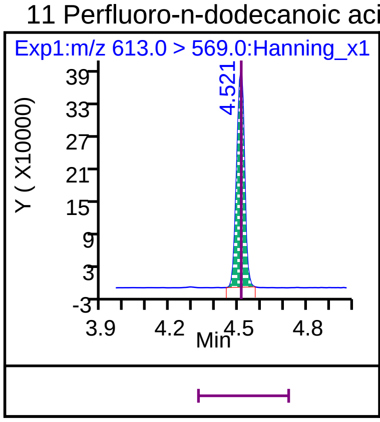


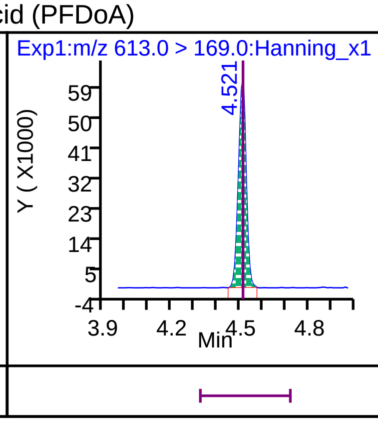


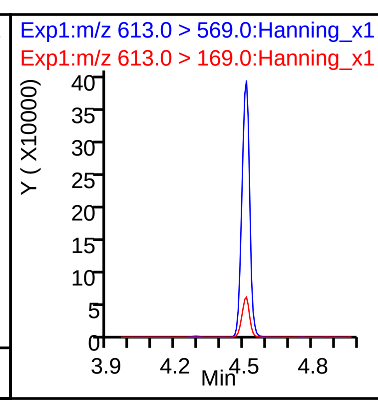
D 59 d5-EtFOSA



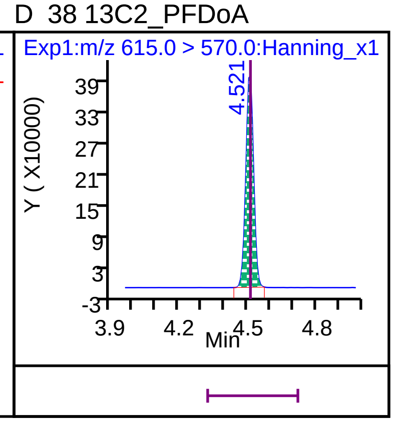
11 Perfluoro-n-dodecanoic acid (PFDoA)



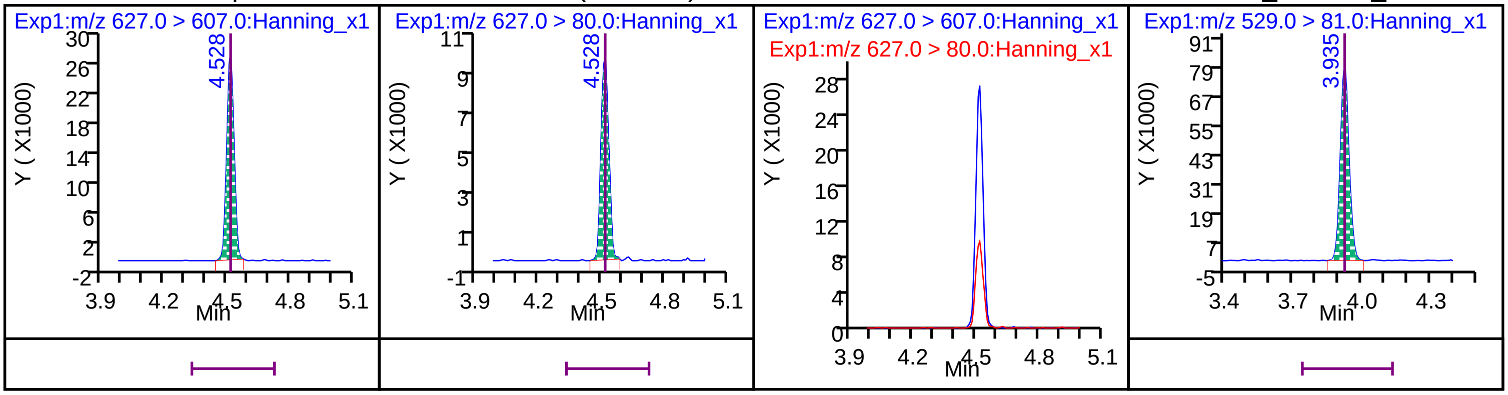




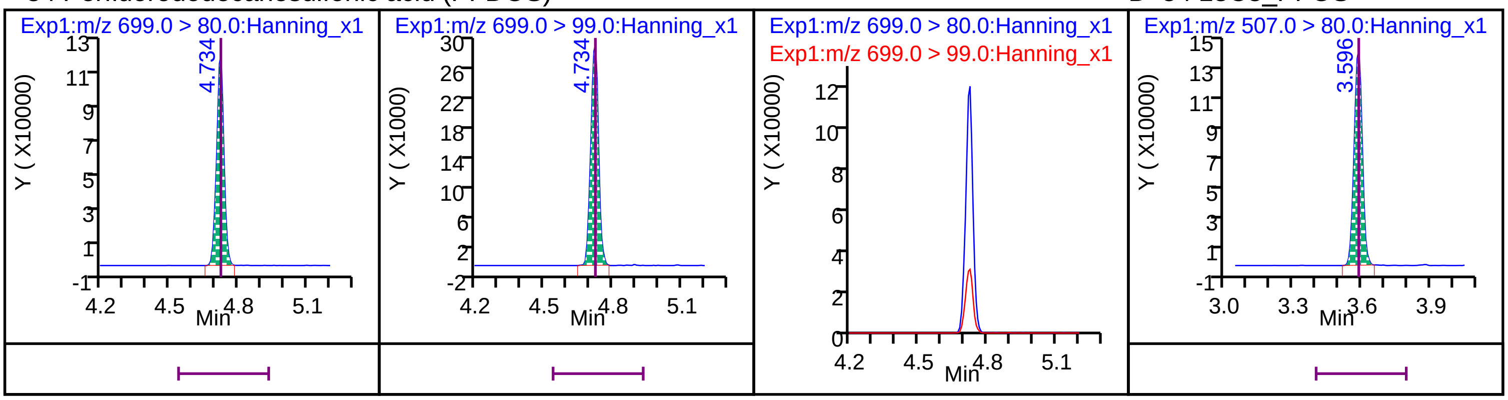
D 38 13C2_PFDoA



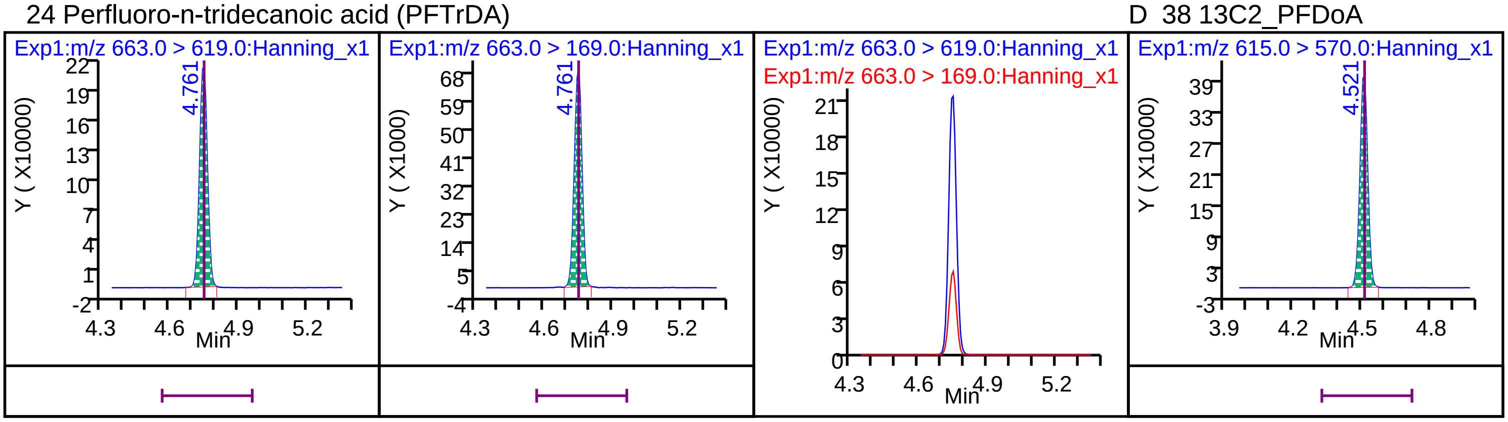
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



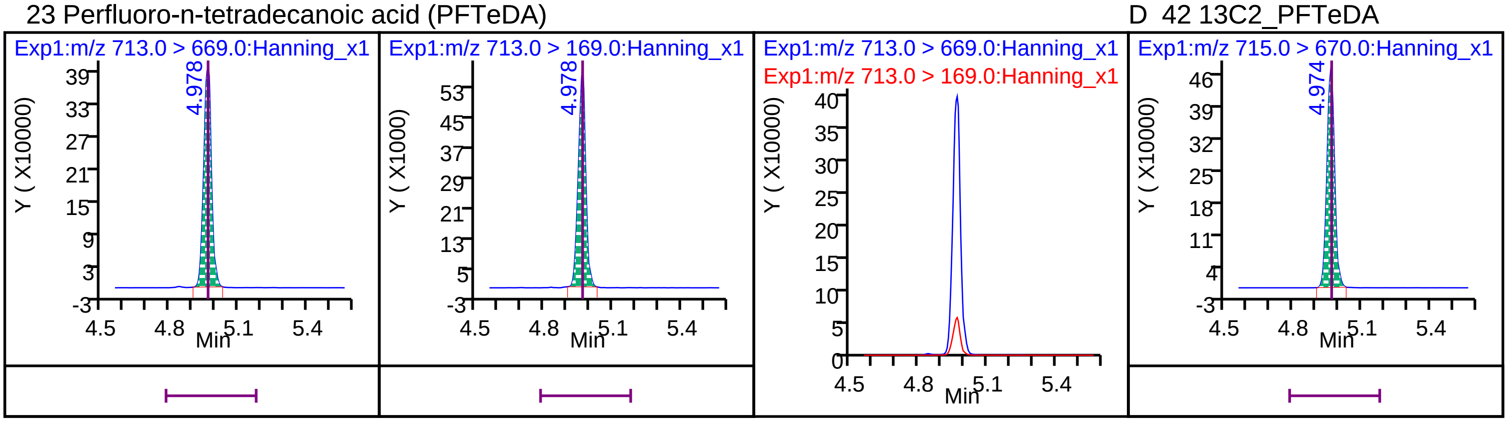
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

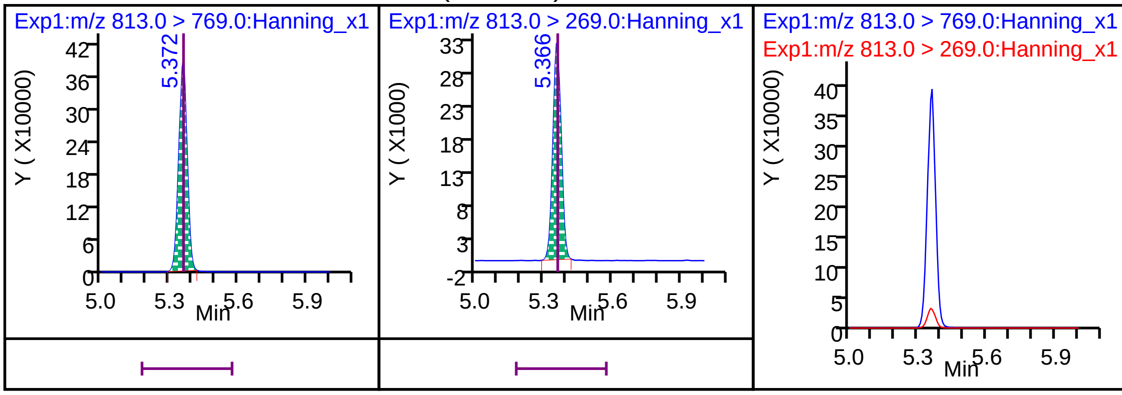


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

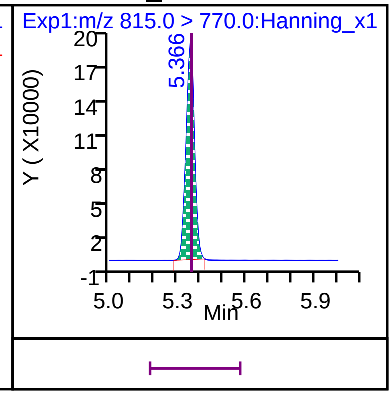


Report Date: 05-Nov-2021 13:58:49 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d

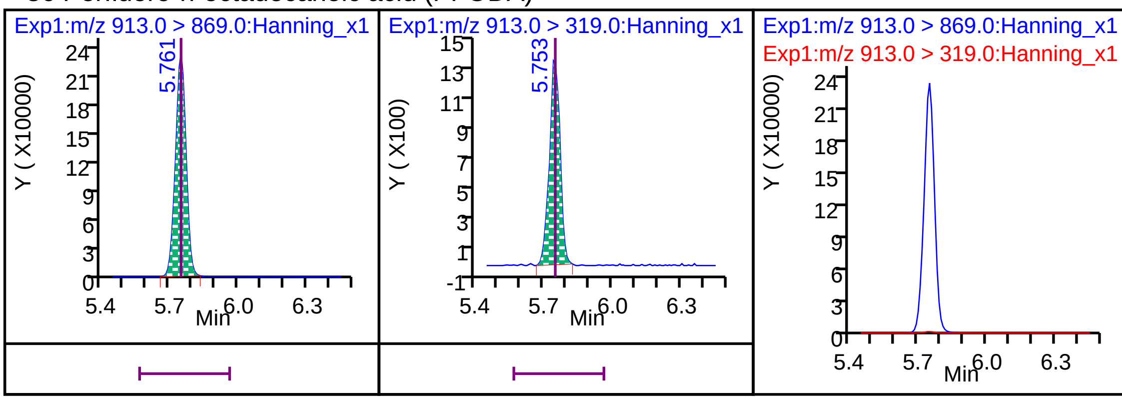
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



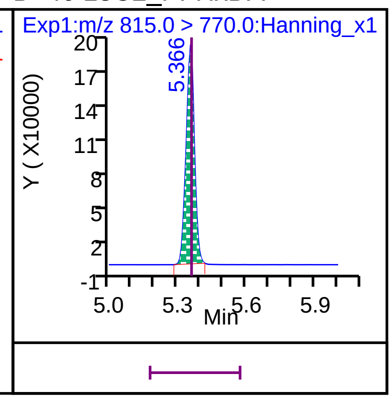
D 40 13C2_PFHxDA



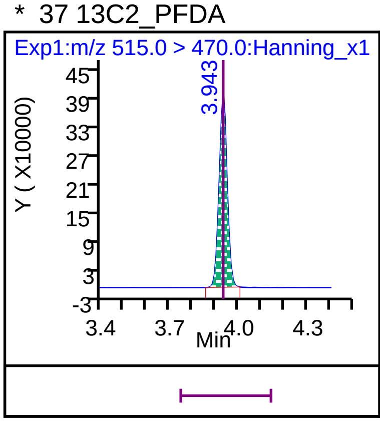
36 Perfluoro-n-octadecanoic acid (PFODA)



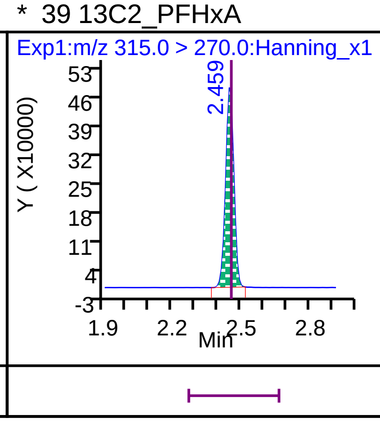
D 40 13C2_PFHxDA



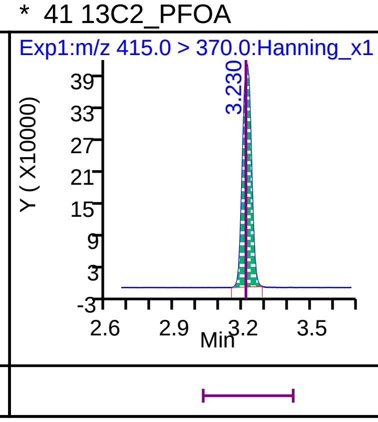
* 37 13C2_PFDA



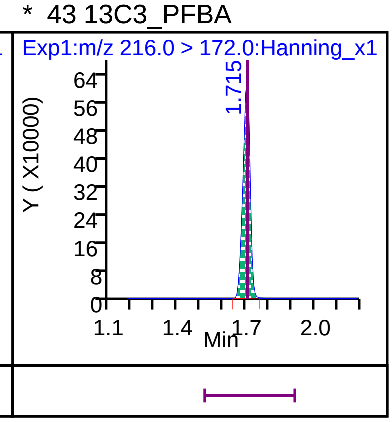
* 39 13C2_PFHxA



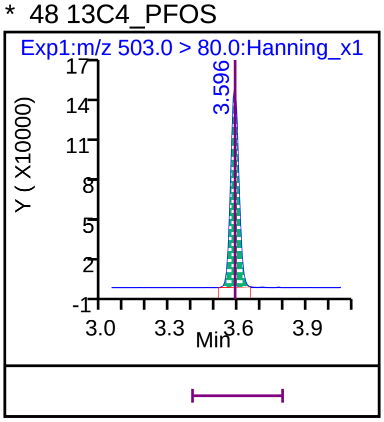
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

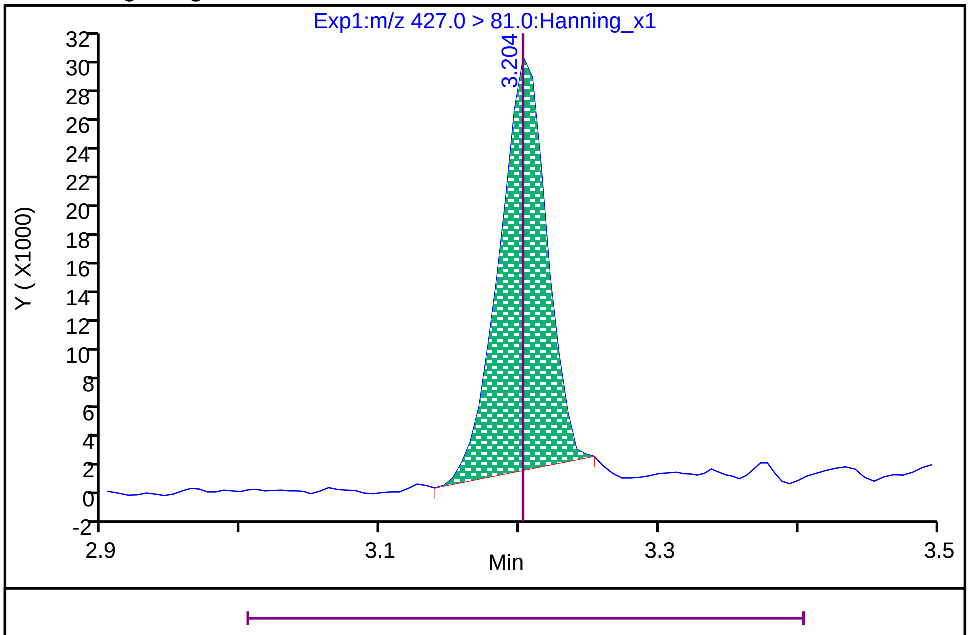
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A085.d		
Injection Date:	05-Nov-2021 03:25:03	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000D_SVLC-1717
Sample Info:	CCV 1000D_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

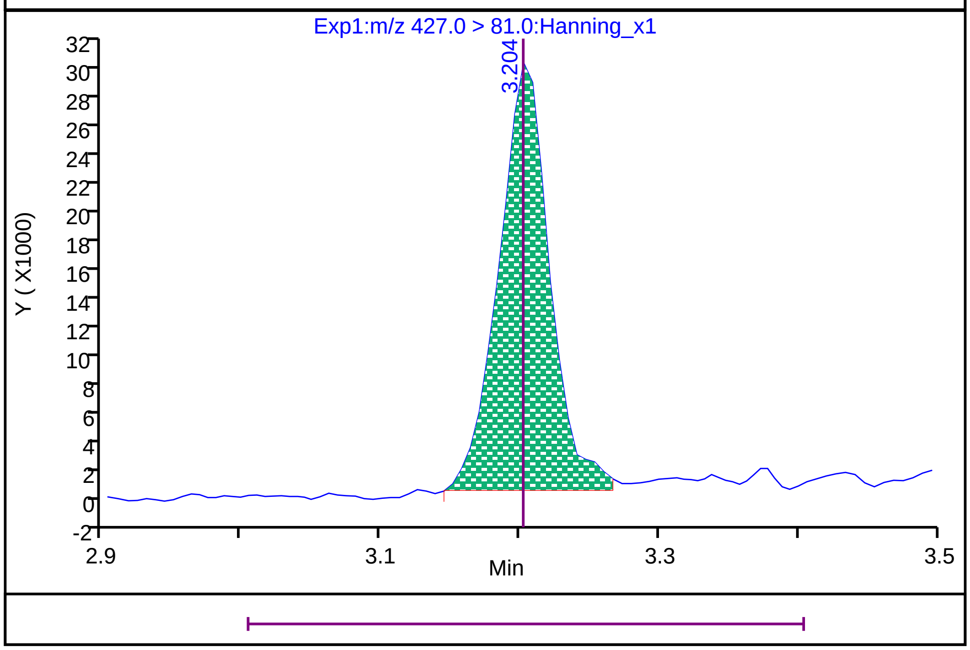
2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

RT: 3.204
Area: 65584
Amount: 1134.84
Amount Units: ng/L



RT: 3.204
Area: 72464
Amount: 1134.84
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:57:03

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d
Injection Date: 05-Nov-2021 03:46:21 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 63
Sample Info: CCV 100A_SVLC-1724 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	114.96	115	70 - 130
D 46 13C4_PFBA	1188899	1139739			95.9	50 - 150
D 50 13C5_PFPeA	1090536	1087851			99.8	50 - 150
21 PFPeA			100.00	107.48	107.5	70 - 130
7 PFBS			88.400	95.296	107.8	70 - 130
D 44 13C3_PFBS	364125	352984			96.9	50 - 150
1 4:2 FTS			93.400	103.03	110.3	70 - 130
D 63 13C2_4:2 FTS_2	216934	231027			106.5	50 - 150
D 49 13C5_PFHxA	1029068	967117			94	50 - 150
15 PFHxA			100.00	110.11	110.1	70 - 130
22 PFPeS			93.800	90.123	96.1	70 - 130
28 GenX			200.00	188.62	94.3	70 - 130
D 66 13C3_GenX	878629	857456			97.6	50 - 150
D 47 13C4_PFHpA	986129	958300			97.2	50 - 150
13 PFHpA			100.00	110.00	110	70 - 130
D 45 13C3_PFHxS	296861	272525			91.8	50 - 150
14 PFHxS			91.000	92.542	101.7	70 - 130
29 ADONA			94.200	92.850	98.6	70 - 130
D 64 13C2_6:2 FTS_2	194584	186972			96.1	50 - 150
2 6:2 FTS			94.800	178.42	188.2	70 - 130
D 53 13C8_PFOA	923846	929811			100.6	50 - 150
20 PFOA			100.00	96.113	96.1	70 - 130
12 PFHpS			95.200	106.27	111.6	70 - 130
18 PFOS			92.800	102.11	110	70 - 130
17 PFNA			100.00	89.473	89.5	70 - 130
D 56 13C9_PFNA	999317	982819			98.3	50 - 150
D 54 13C8_PFOS	245640	248479			101.2	50 - 150
30 9Cl-PF3ONS			93.200	92.332	99.1	70 - 130
D 55 13C8_PFOSA	427823	462556			108.1	50 - 150
19 PFOSA			100.00	102.04	102	70 - 130
16 PFNS			96.000	87.154	90.8	70 - 130
D 65 13C2_8:2 FTS_2	153511	165898			108.1	50 - 150
3 8:2 FTS			95.800	107.76	112.5	70 - 130
10 PFDA			100.00	92.415	92.4	70 - 130
D 51 13C6_PFDA	784847	822896			104.8	50 - 150
6 N-MeFOSAA			100.00	104.19	104.2	70 - 130

Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	902679	900380			99.7	50 - 150
9 PFDS			96.400	90.106	93.5	70 - 130
5 N-EtFOSAA			100.00	106.71	106.7	70 - 130
25 PFUdA			100.00	103.08	103.1	70 - 130
D 60 d5-EtFOSAA	779079	819983			105.3	50 - 150
D 52 13C7_PFUdA	732655	739024			100.9	50 - 150
D 61 d7-MeFOSE	133282	131808			98.9	50 - 150
32 MeFOSE			100.00	114.13	114.1	70 - 130
26 MeFOSA			100.00	108.03	108	70 - 130
D 57 d3-MeFOSA	72656	65142			89.7	50 - 150
31 11Cl-PF3OUDS			94.200	85.173	90.4	70 - 130
D 62 d9-EtFOSE	129304	133637			103.4	50 - 150
33 EtFOSE			100.00	101.17	101.2	70 - 130
D 59 d5-EtFOSA	65473	66694			101.9	50 - 150
27 EtFOSA			100.00	93.533	93.5	70 - 130
11 PFDoA			100.00	100.52	100.5	70 - 130
D 38 13C2_PFDoA	746808	713011			95.5	50 - 150
4 10:2 FTS			96.400	106.10	110.1	70 - 130
34 PFDOS			96.800	86.724	89.6	70 - 130
24 PFTrDA			100.00	104.06	104.1	70 - 130
23 PFTeDA			100.00	96.683	96.7	70 - 130
D 42 13C2_PFTeDA	900924	861693			95.6	50 - 150
35 PFHxDA			100.00	120.83	120.8	70 - 130
D 40 13C2_PFHxDA	403292	379361			94.1	50 - 150
36 PFODA			100.00	107.97	108	70 - 130

Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	63
Sample Info:	CCV 100A_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.708	0	1139739	19	>100:1			1000.00	1058.51	95.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	0/0	144102	17	70:1			100.00	114.96		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.079	2.079	0	1087851	17	>100:1			1000.00	1084.69	99.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	0/0	125276	15	30:1			100.00	107.48		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	352984	15	>100:1			1000.00	1086.87	96.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	48056	15	>100:1	Target = 3.80		88.400	95.296		
298.9 > 99	44	2.141	2.141		13196	16	93:1	3.64 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.494	2.494	0/0	32009	25	>100:1	Target = 3.42		93.800	90.123		
349 > 99	44	2.494	2.494		12458	18	>100:1	2.56 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.416	2.416	0	231027	18	>100:1			5000.00	5561.96	106.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	0/0	9291	16	>100:1	Target = 1.54		93.400	103.03		
327 > 81	63	2.424	2.424		6929	9	7.3:1	1.34 (0.77-2.32)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	967117	19	>100:1			1000.00	1082.72	94	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.459	0/0	110035	17	36:1	Target = 17.93		100.00	110.11		
313 > 119	49	2.459	2.459		8152	21	12:1	13.49 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.579	0	857456	18	>100:1			5000.00	5234.16	97.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.579	0/0	24783	18	>100:1	Target = 0.72		200.00	188.62		
285 > 185	66	2.579	2.579		34992	18	>100:1	0.70 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	0	958300	18	>100:1			1000.00	1093.71	97.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	0/0	101473	16	77:1	Target = 3.26		100.00	110.00		
363 > 169	47	2.846	2.846		32882	15	48:1	3.08 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.855	0	272525	17	>100:1			1000.00	1039.06	91.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.855	0/0	29814	26	>100:1	Target = 3.48	5.01	91.000	92.542		
399 > 99	45	2.864	2.855		9337	28	62:1	3.19 (1.74-5.22)	11.59				M

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	0/0	139277	18	>100:1	Target = 2.31		94.200	92.850		
377 > 85	45	2.890	2.890		60610	18	>100:1	2.29 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.233	0/0	29788	27	>100:1	Target = 3.56		95.200	106.27		
449 > 99	45	3.227	3.233		7439	19	79:1	4.00 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	0	186972	22	>100:1			5000.00	4958.01	96.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.201	3.201	0/0	11601	19	54:1	Target = 1.34		94.800	178.42		
427 > 81	64	3.201	3.201		12558	17	20:1	0.92 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.220	3.220	0	929811	22	>100:1			1000.00	1124.33	100.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.227	0/0	91951	19	51:1	Target = 2.50		100.00	96.113		
413 > 169	53	3.227	3.227		38991	19	48:1	2.35 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.591	3.591	0	248479	20	>100:1			1000.00	1106.91	101.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.591	3.591	0/0	29910	36	>100:1	Target = 4.01	4.53	92.800	102.11		
499 > 99	54	3.591	3.591		8085	34	84:1	3.69 (2.00-6.02)	5.83				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.796	3.796	0/0	70904	18	>100:1			93.200	92.332		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.932	3.932	0/0	21873	15	>100:1	Target = 3.78		96.000	87.154		
549 > 99	54	3.924	3.932		5793	21	42:1	3.77 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.232	4.232	0/0	22104	15	85:1	Target = 3.98		96.400	90.106		
599 > 99	54	4.223	4.232		5414	20	45:1	4.08 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.384	4.384	0/0	58791	18	>100:1			94.200	85.173		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.731	4.731	0/0	20870	17	>100:1	Target = 3.68		96.800	86.724		
699 > 99	54	4.731	4.731		5939	25		3.51 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.606	3.606	0	982819	20	>100:1			1000.00	1230.04	98.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.599	0/0	80075	26	>100:1	Target = 4.69		100.00	89.473		
463 > 169	56	3.599	3.599		17660	23	>100:1	4.53 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.871	0	462556	20	>100:1			1000.00	1116.77	108.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.871	3.871	0/0	53371	19	>100:1	Target = 40.85		100.00	102.04		
498>478	55	3.878	3.871		1478	13	12:1	36.11 (20.42-61.28)					M
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.932	0	165898	19	>100:1			5000.00	5285.82	108.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.940	3.940	0/0	6352	13	43:1	Target = 1.58		95.800	107.76		M
527 > 81	65	3.940	3.940		4833	15	8.7:1	1.31 (0.79-2.37)					M
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.533	4.533	0/0	6278	16		Target = 2.46		96.400	106.10		
627 > 80	65	4.526	4.533		2765	22	29:1	2.27 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.940	0	822896	18	>100:1			1000.00	1140.06	104.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.940	3.940	0/0	78033	19	>100:1	Target = 9.77		100.00	92.415		
513 > 169	51	3.940	3.940		9399	16	54:1	8.30 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.096	0	900380	17	>100:1			5000.00	5077.92	99.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.104	4.104	0/0	15340	26	90:1	Target = 1.41	7.36	100.00	104.19		
570 > 483	58	4.104	4.104		12149	29	72:1	1.26 (0.70-2.11)	3.58				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.241	4.241	0	739024	17	>100:1			1000.00	1081.35	100.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.250	4.250	0/0	68342	16	>100:1	Target = 9.19		100.00	103.08		
563 > 169	52	4.250	4.250		7635	24	43:1	8.95 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.250	0	819983	18	>100:1			5000.00	5483.71	105.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.250	4.250	0/0	17888	34	>100:1	Target = 1.75	6.53	100.00	106.71		M
584 > 526	60	4.259	4.250		9104	30		1.96 (0.87-2.63)	2.74				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.277	0	131808	17	>100:1			1000.00	955.23	98.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.286	4.286	0/0	15289	22	59:1			100.00	114.13		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.295	0	65142	15	>100:1			1000.00	930.32	89.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.304	4.304	0/0	7287	20	21:1	Target = 1.11		100.00	108.03		
512 > 219	57	4.304	4.304		6020	16	18:1	1.21 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.439	4.439	0	133637	17	>100:1			1000.00	1039.54	103.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.454	0/0	11508	17	>100:1			100.00	101.17		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.461	0	66694	16	>100:1			1000.00	1035.54	101.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.468	4.468	0/0	7293	23	42:1	Target = 1.06		100.00	93.533		
526 > 219	59	4.468	4.468		7235	17	54:1	1.00 (0.53-1.59)					M
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.519	0	713011	19	>100:1			1000.00	1036.89	95.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.512	4.512	0/0	70386	23	44:1	Target = 6.38		100.00	100.52		
613 > 169	38	4.512	4.512		11827	17	77:1	5.95 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.758	4.758	0/0	39762	18	>100:1	Target = 3.23		100.00	104.06		
663 > 169	38	4.758	4.758		11783	17	>100:1	3.37 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.968	4.968	0	861693	26	>100:1			1000.00	1102.26	95.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.973	0/0	73215	24	69:1	Target = 7.33		100.00	96.683		
713 > 169	42	4.977	4.973		9613	29	>100:1	7.61 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.366	0	379361	22	>100:1			1000.00	971.77	94.1	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.366	0/0	87681	22	>100:1	Target = 12.31		100.00	120.83		
813 > 269	40	5.366	5.366		6891	20	>100:1	12.72 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	0/0	61835	21	>100:1	Target = 165.31		100.00	107.97		
913 > 319	40	5.769	5.761		369	17		167.57 (82.65-247.97)					M
*** 37 13C2_PFDA**													
515 > 470		3.940	3.940	0	800767	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.459	0	961658	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.227	3.227	0	902038	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	0	1089893	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.591	3.591	0	272737	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

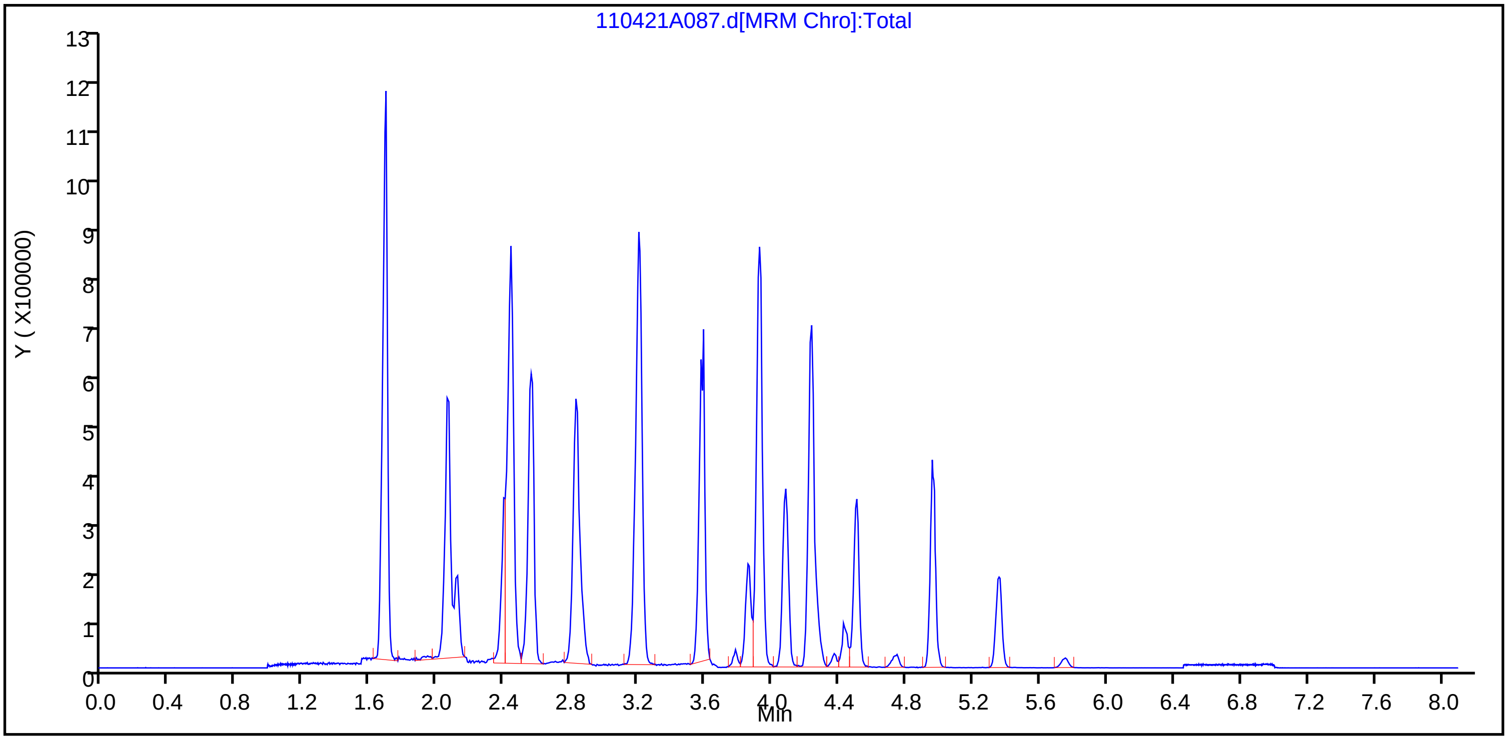
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

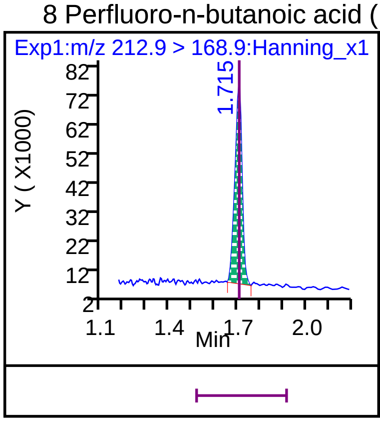
Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

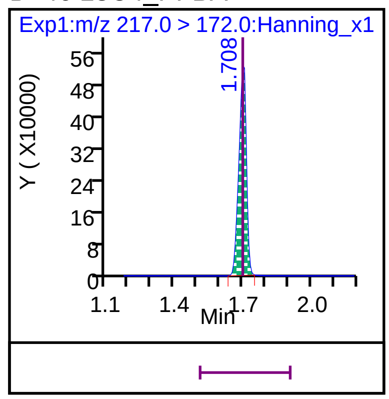
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller



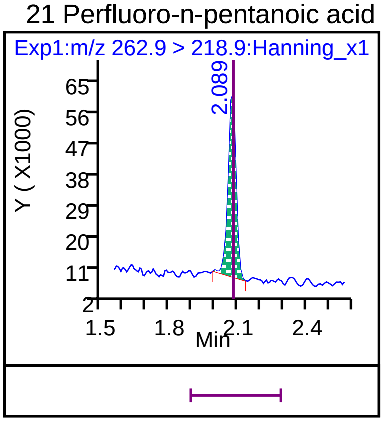
8 Perfluoro-n-butanoic acid (PFBA)



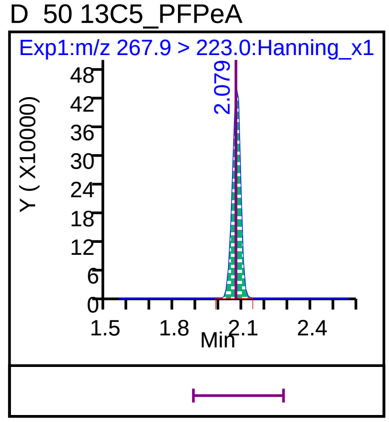
D 46 13C4_PFBA



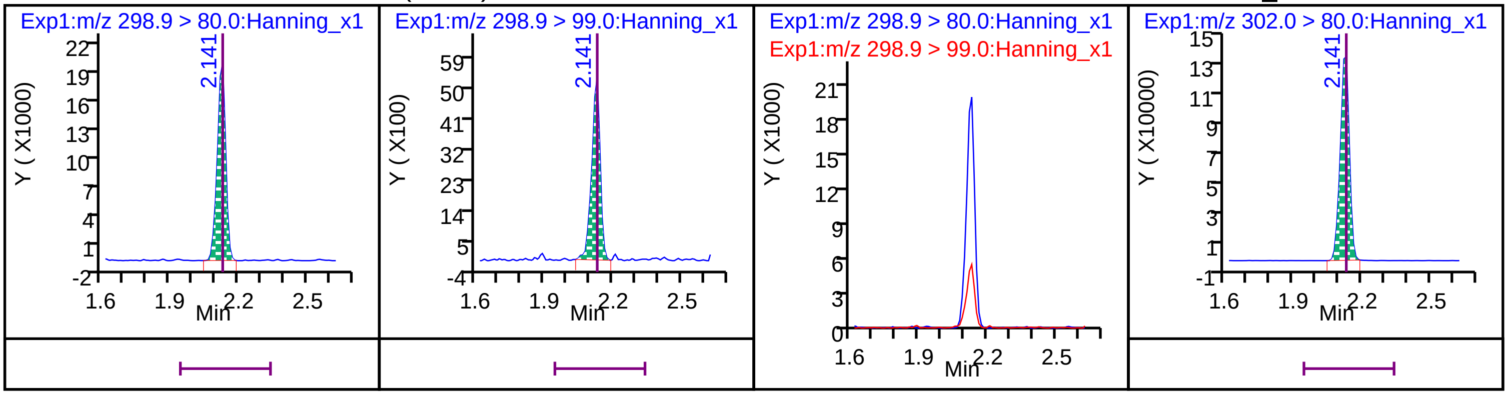
21 Perfluoro-n-pentanoic acid (PFPeA)



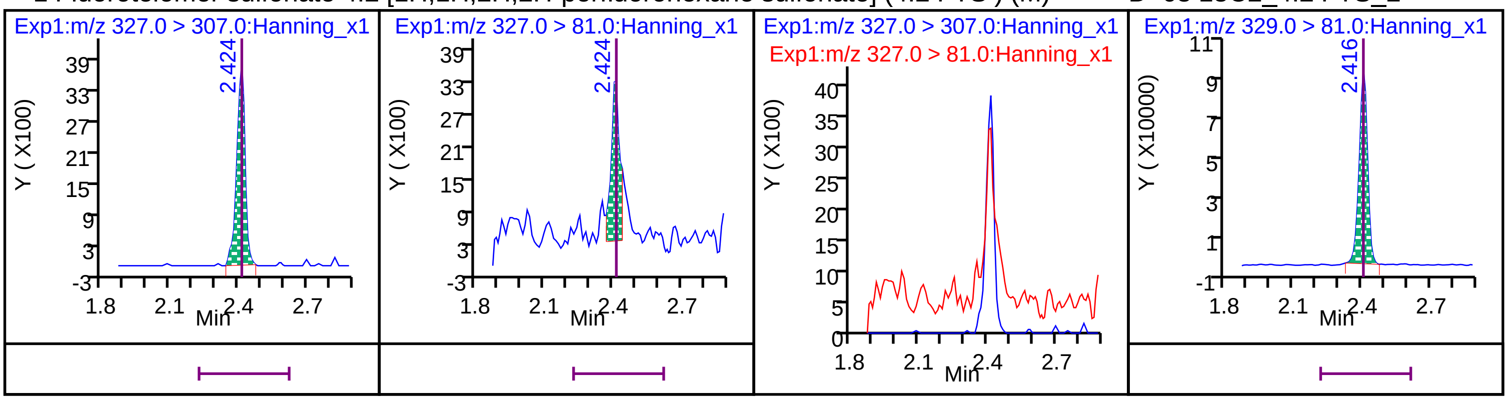
D 50 13C5_PFPeA



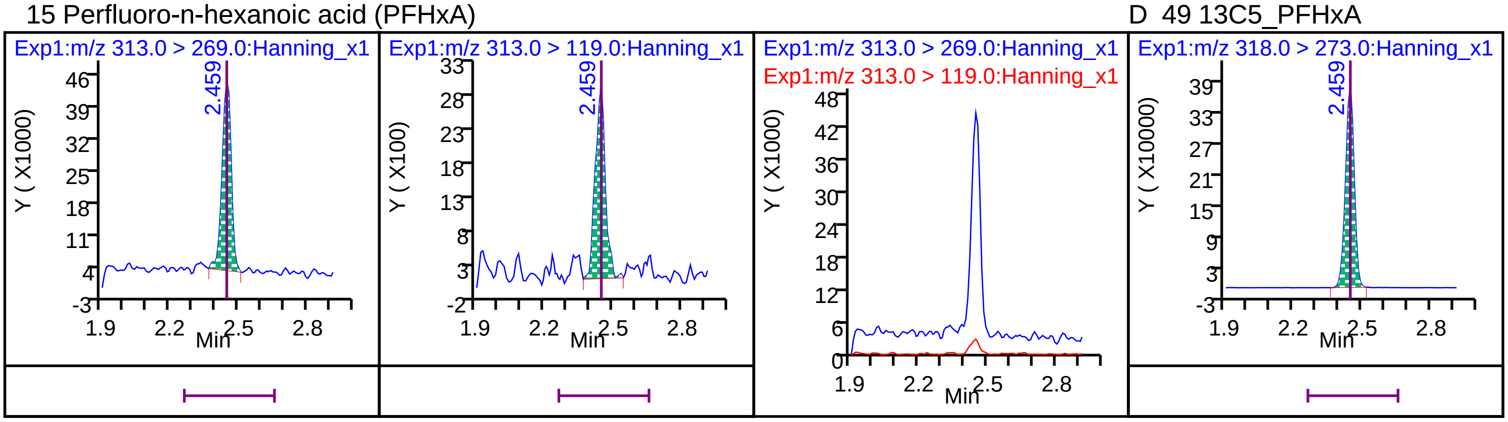
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



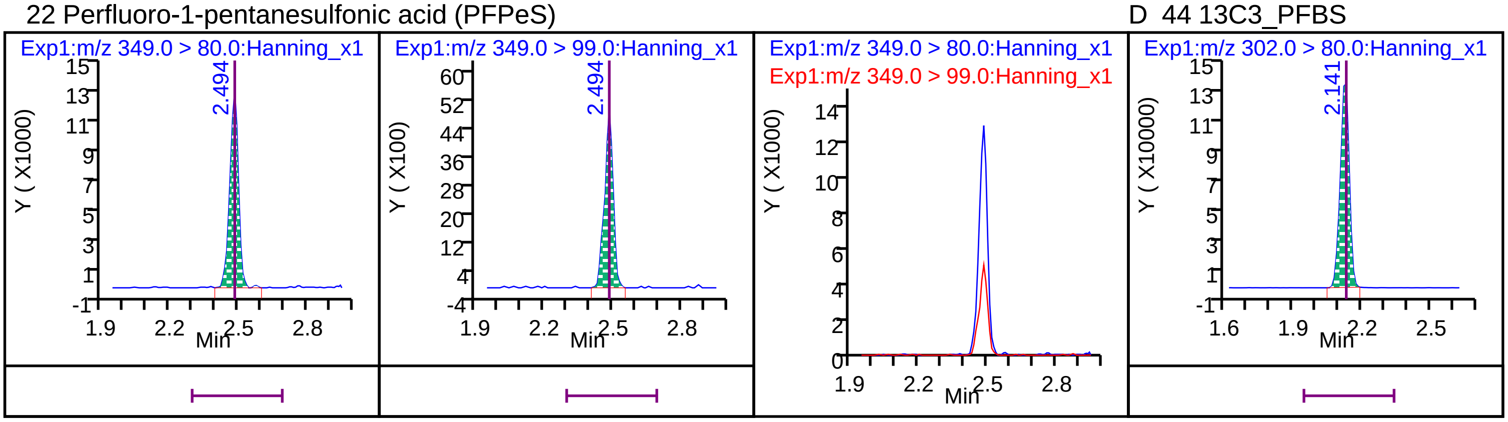
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

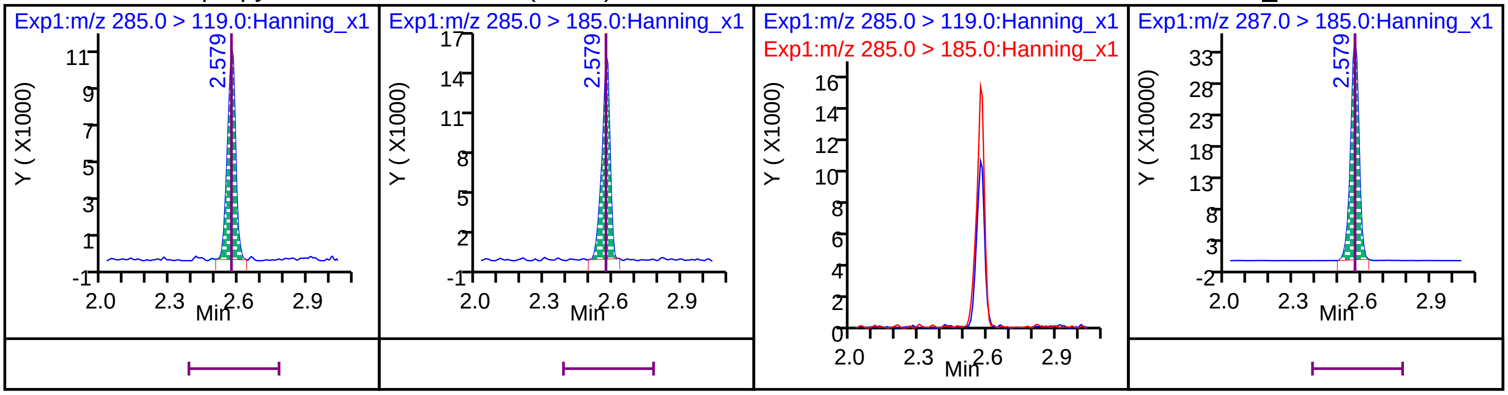


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

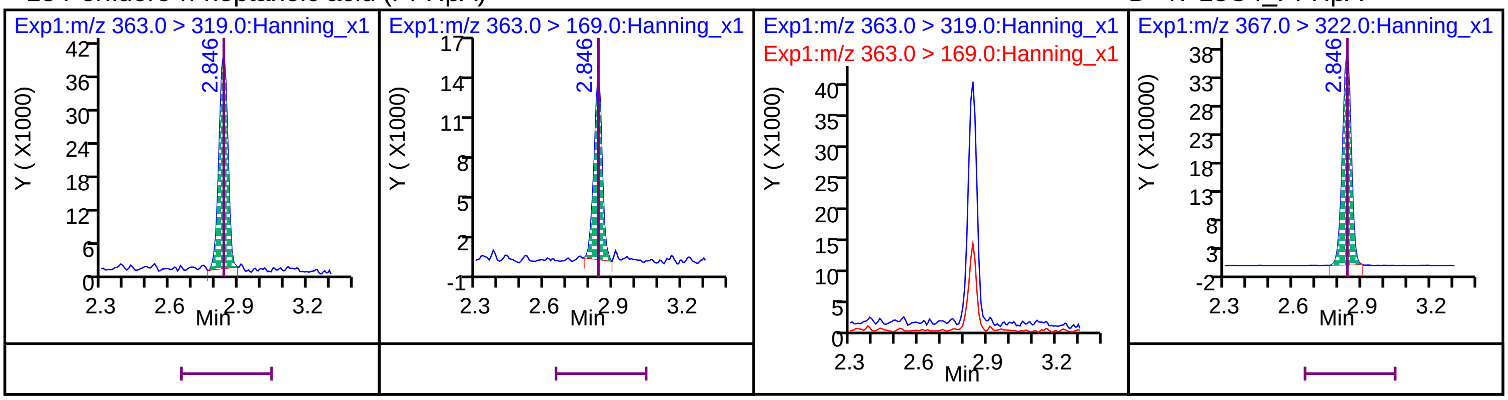


Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

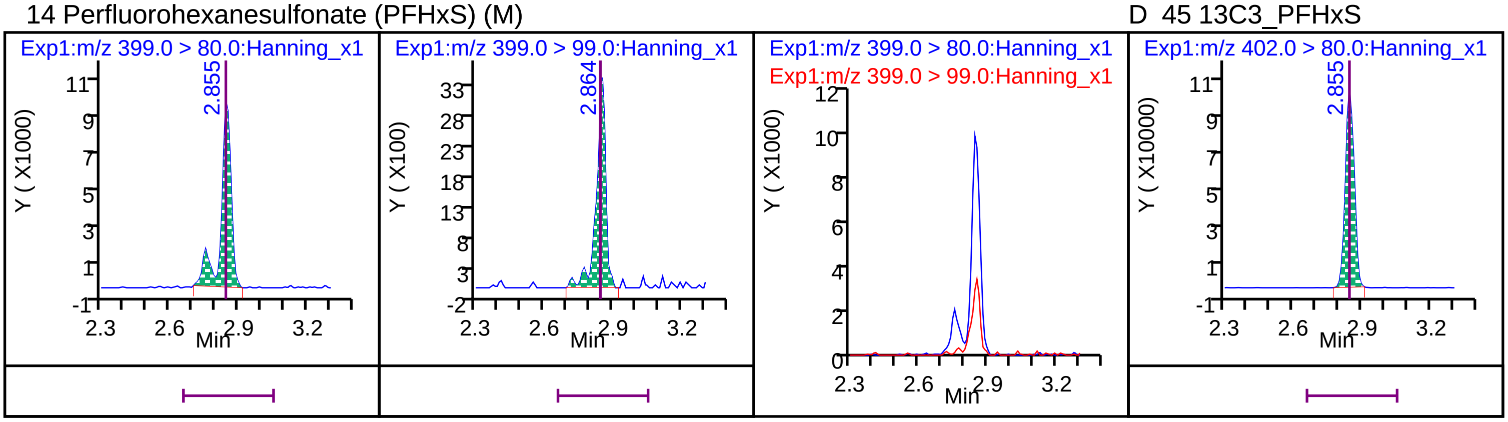
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



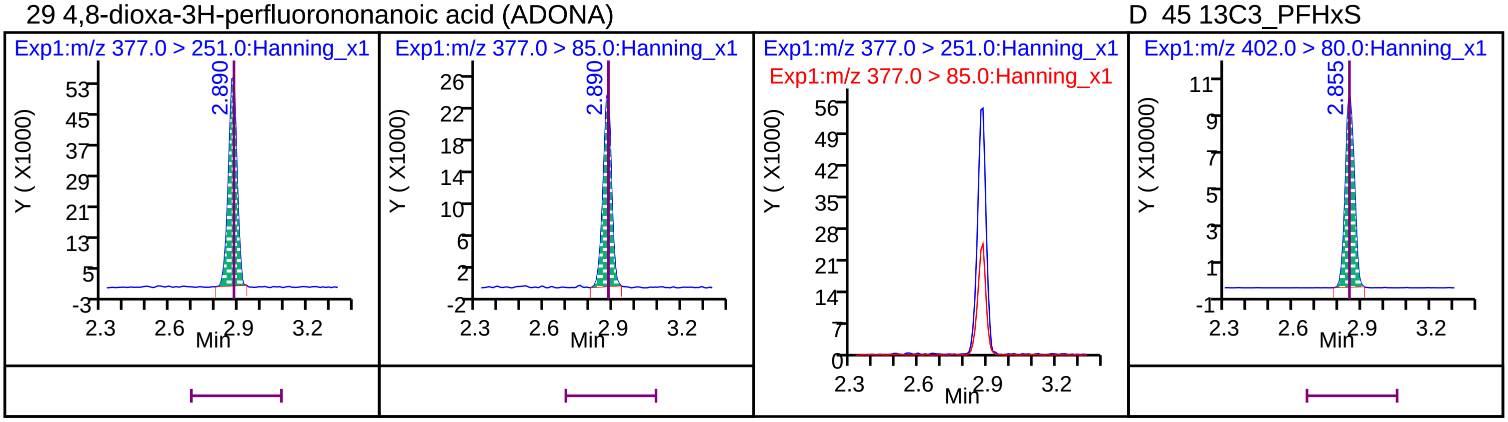
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (M) D 45 13C3_PFHxS

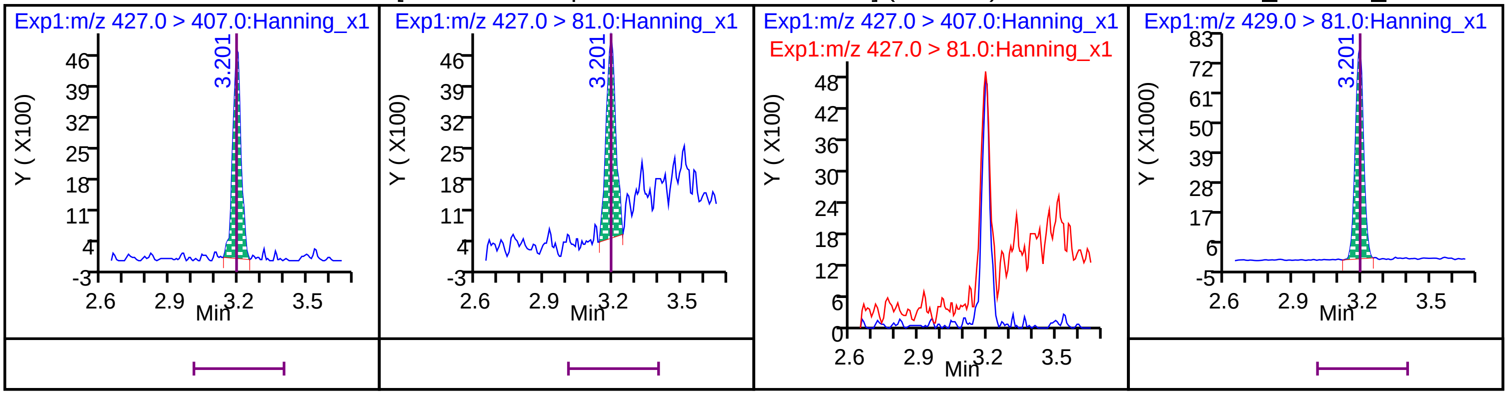


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

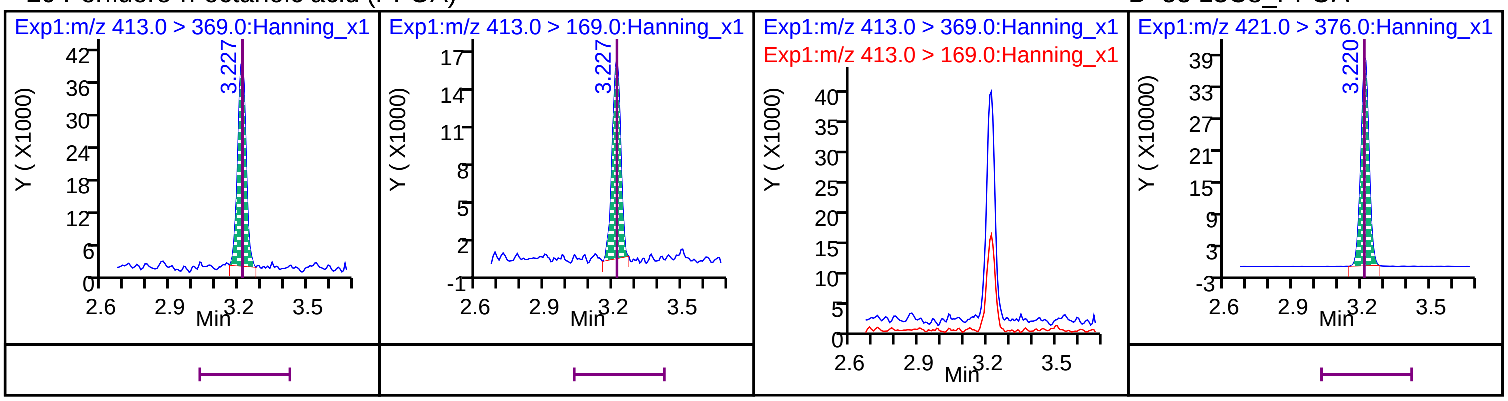


Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

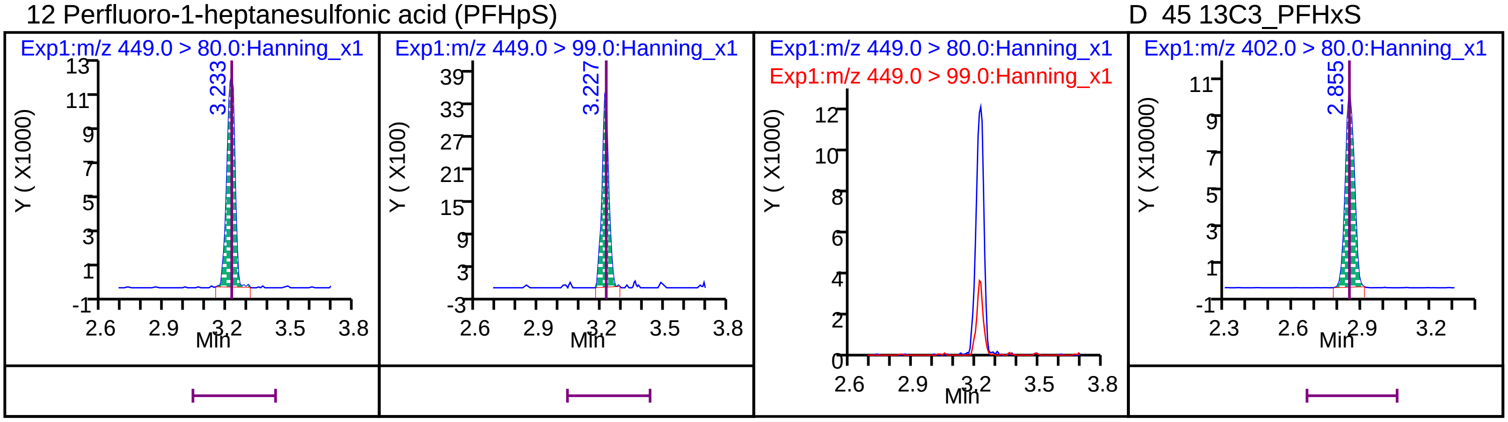
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



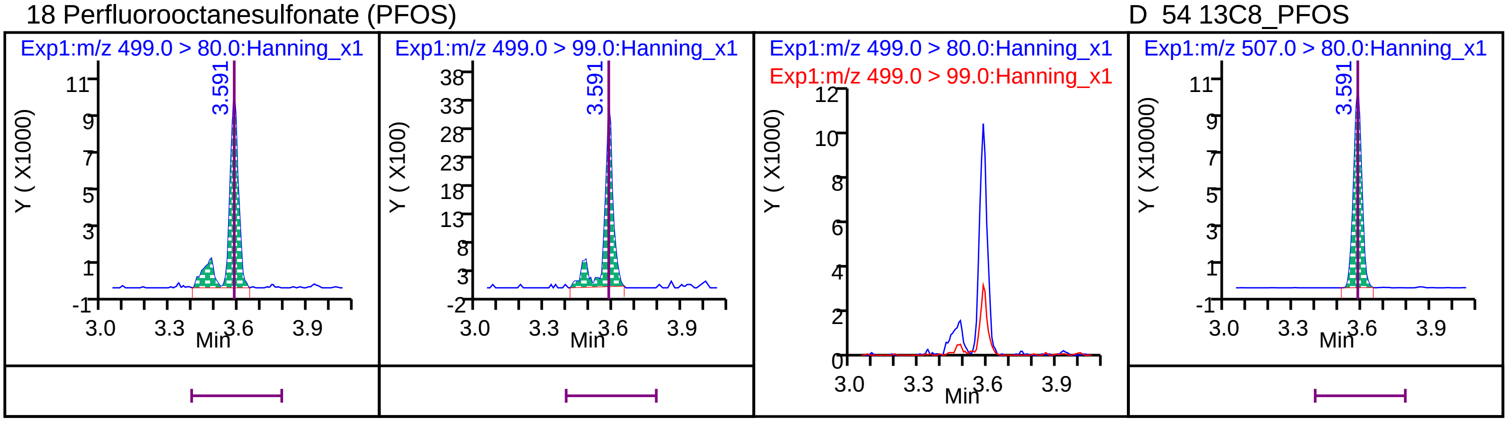
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



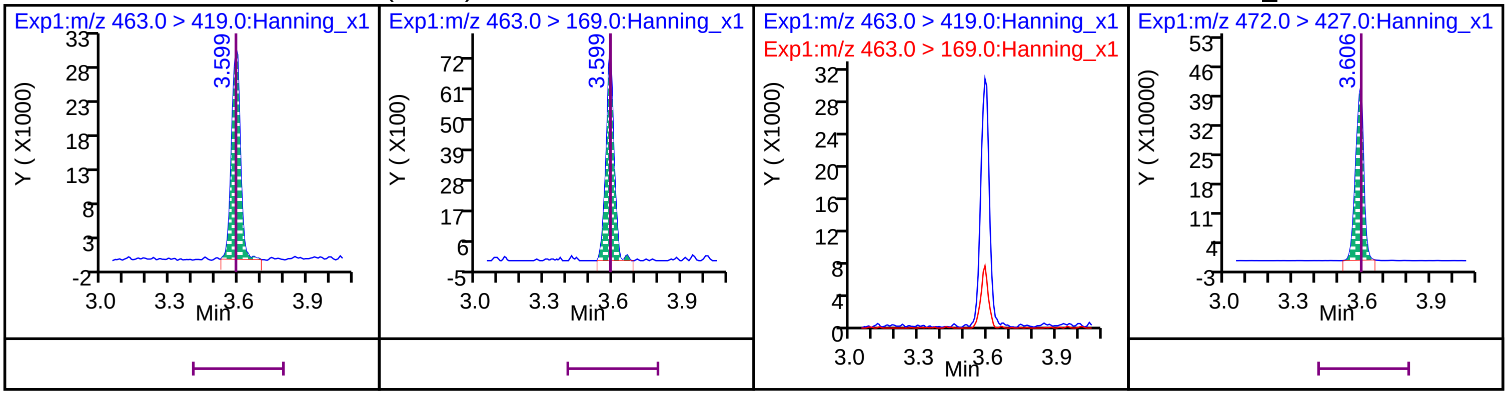
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



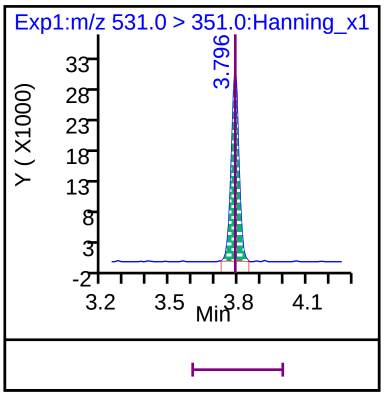
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

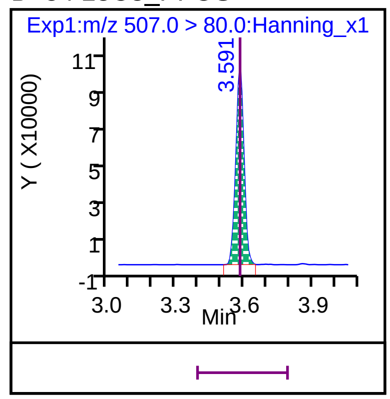


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

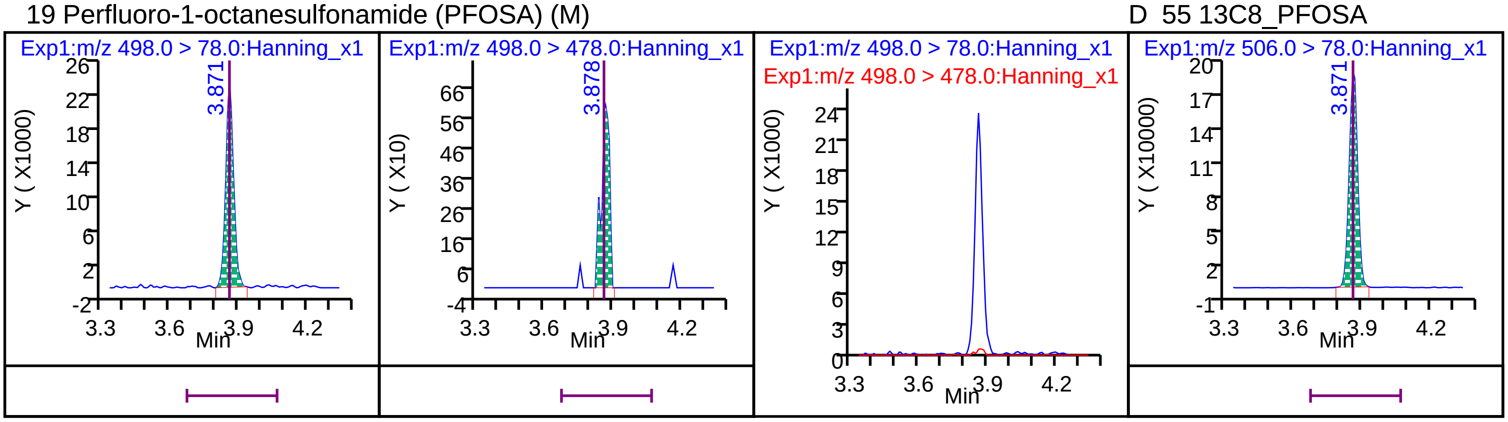


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

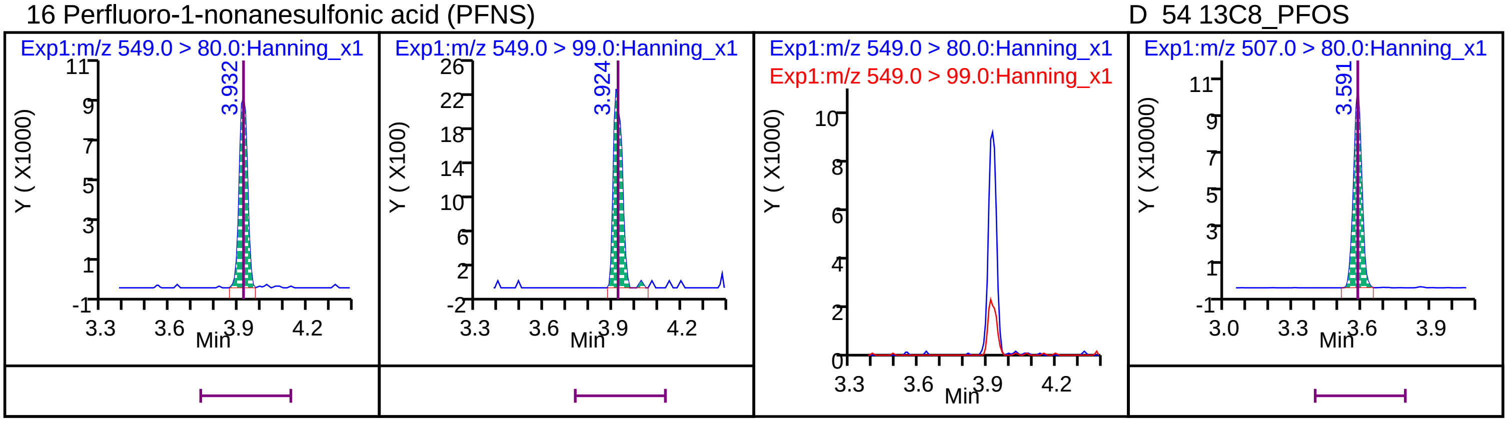




19 Perfluoro-1-octanesulfonamide (PFOSA) (M) D 55 13C8_PFOSA

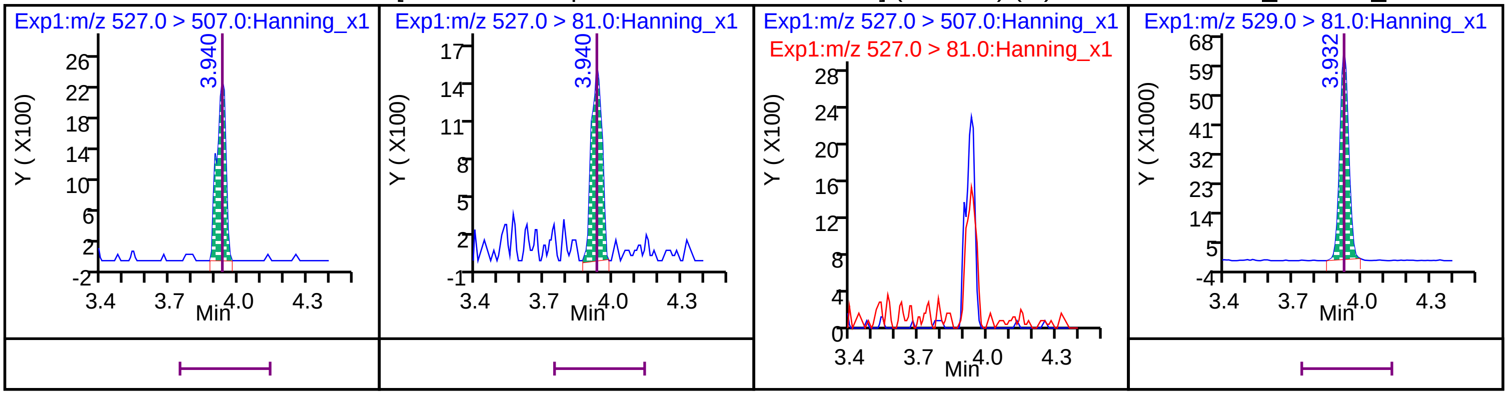


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

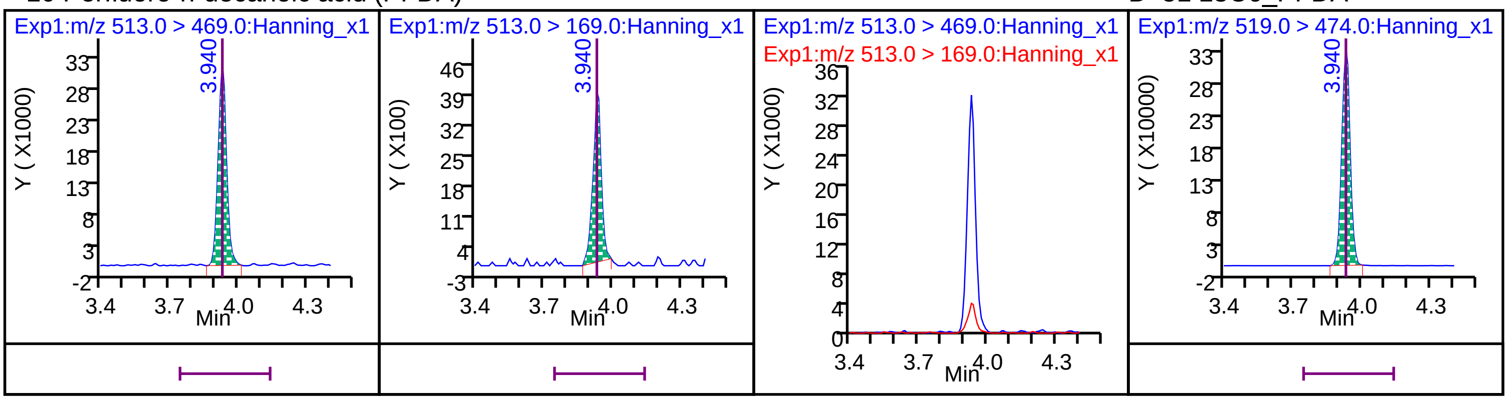


Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

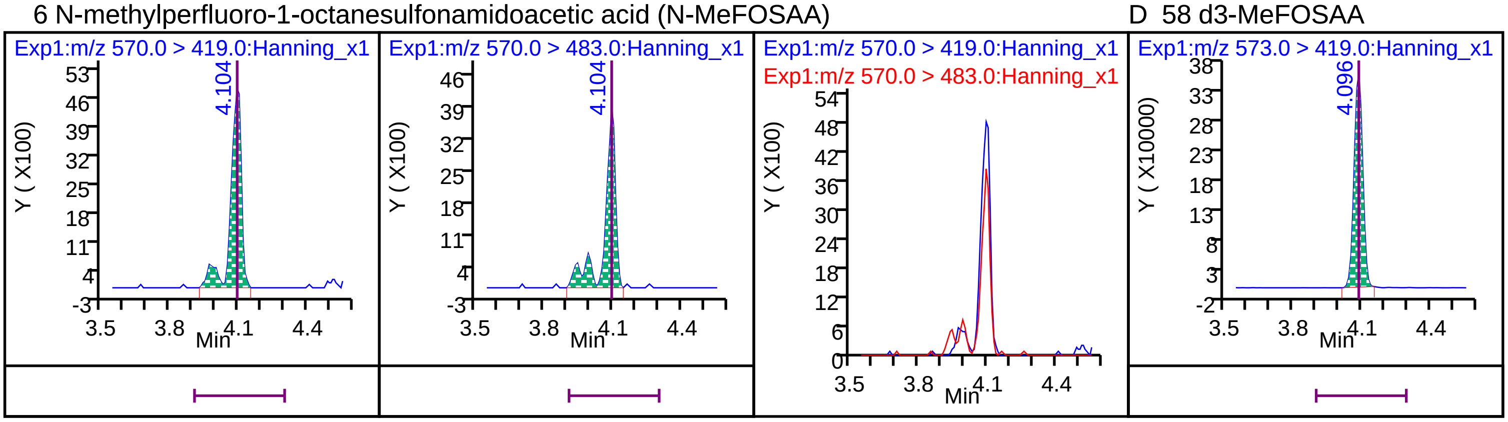
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (M) D 65 13C2_8:2 FTS_2



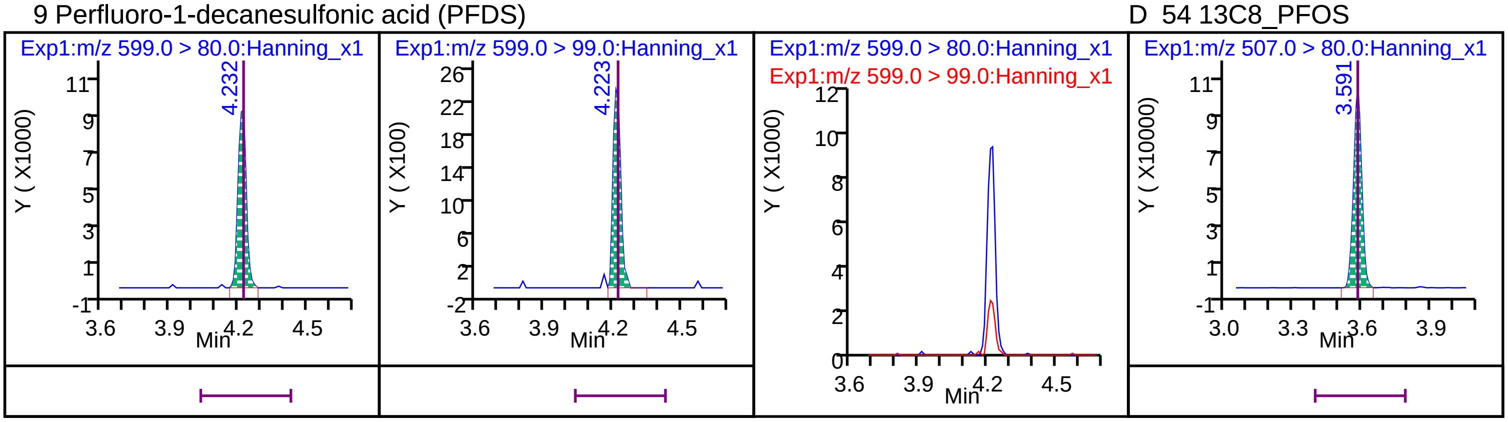
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



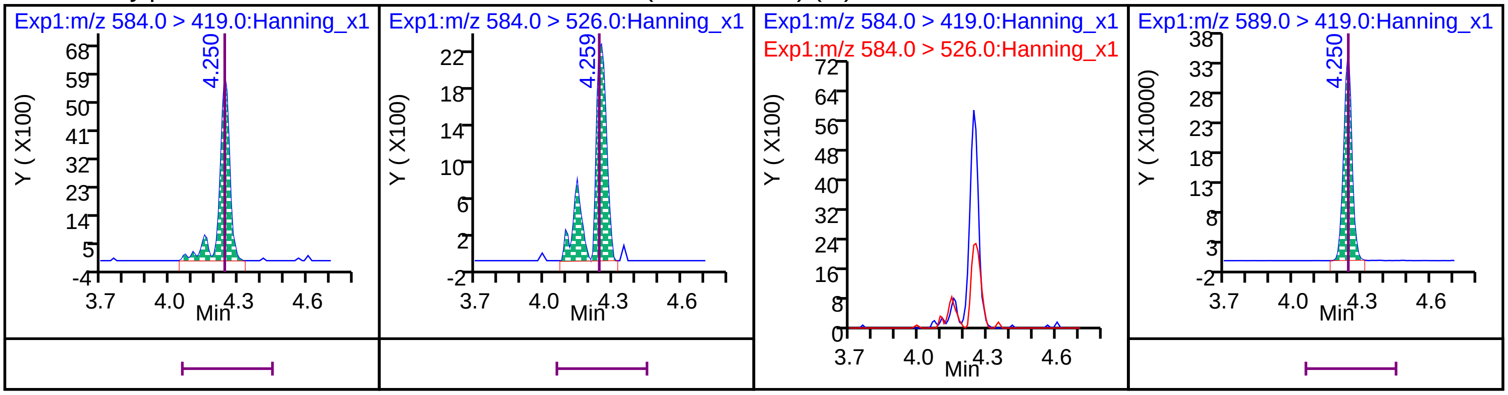
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

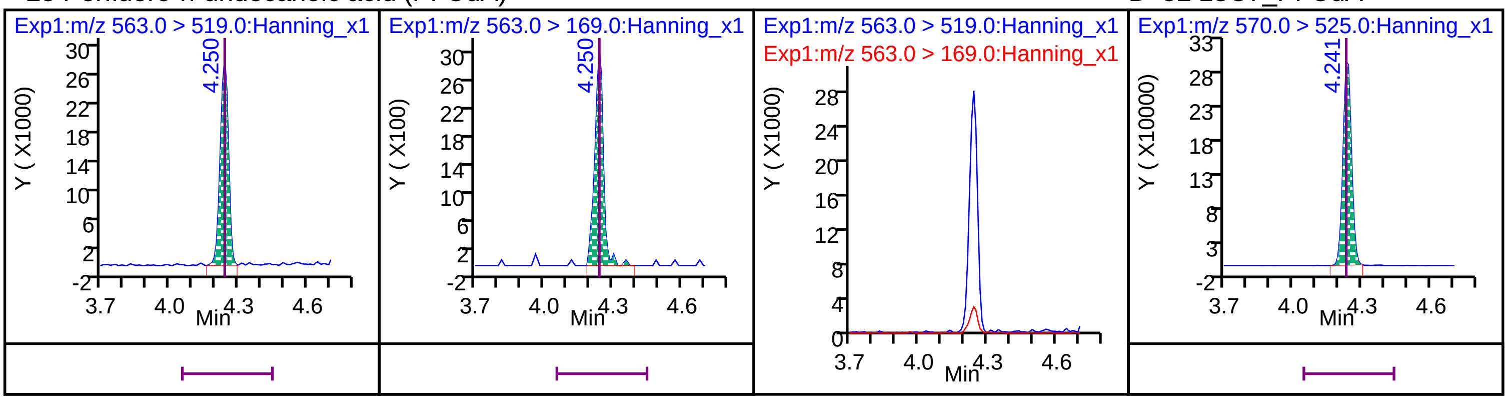
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)

D 60 d5-EtFOSAA



25 Perfluoro-n-undecanoic acid (PFUdA)

D 52 13C7_PFUdA

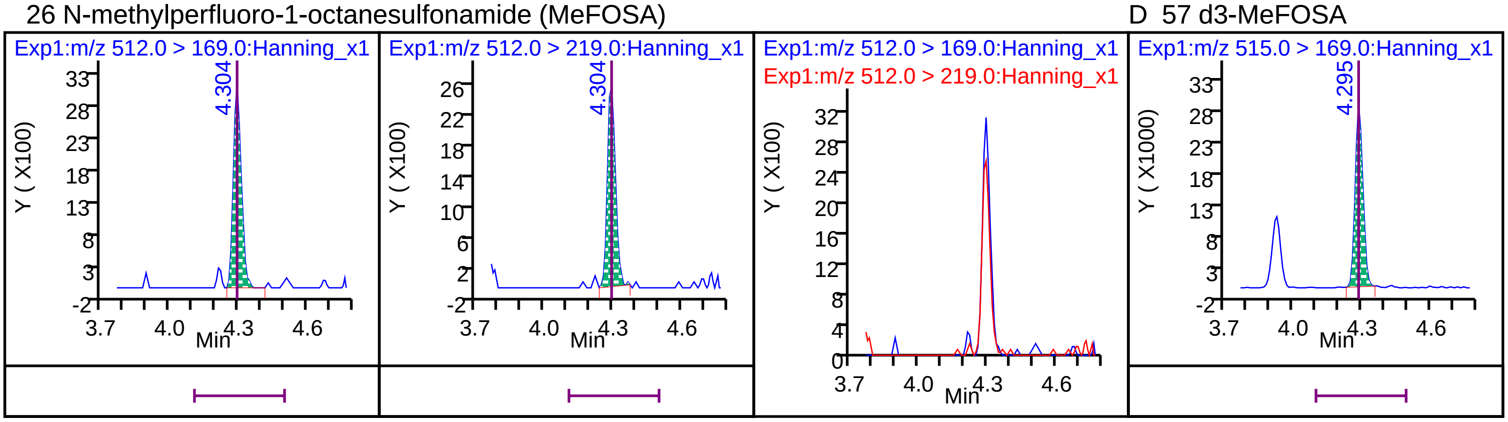


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

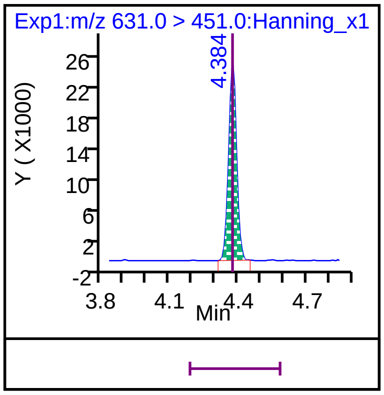
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)

D 57 d3-MeFOSA

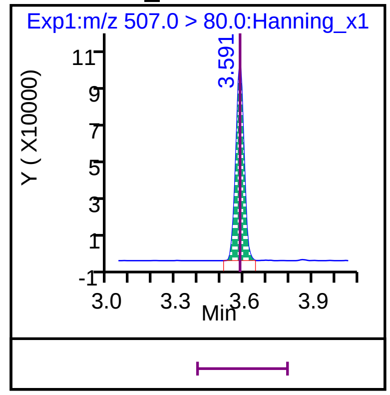


Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

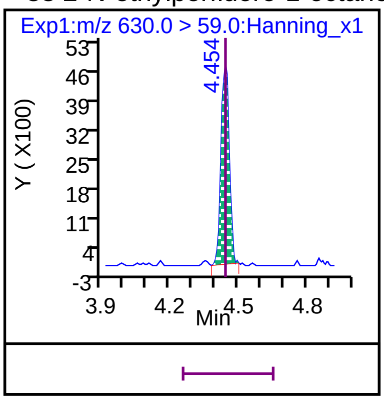
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



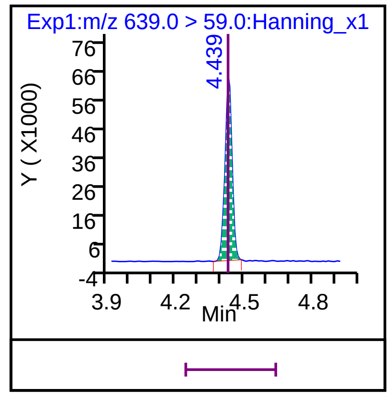
D 54 13C8_PFOS



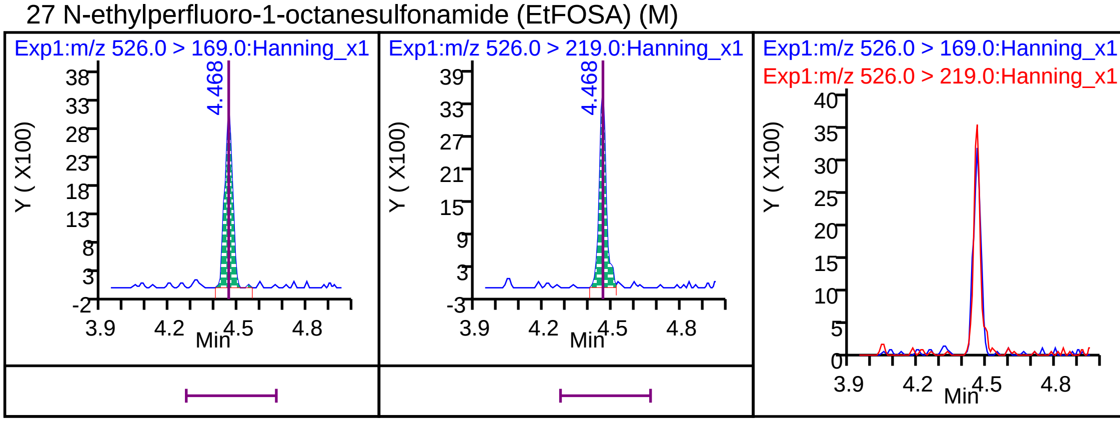
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



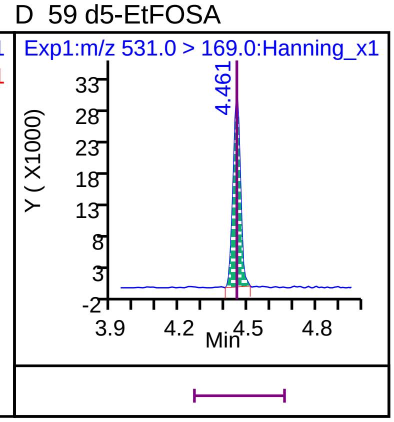
D 62 d9-EtFOSE



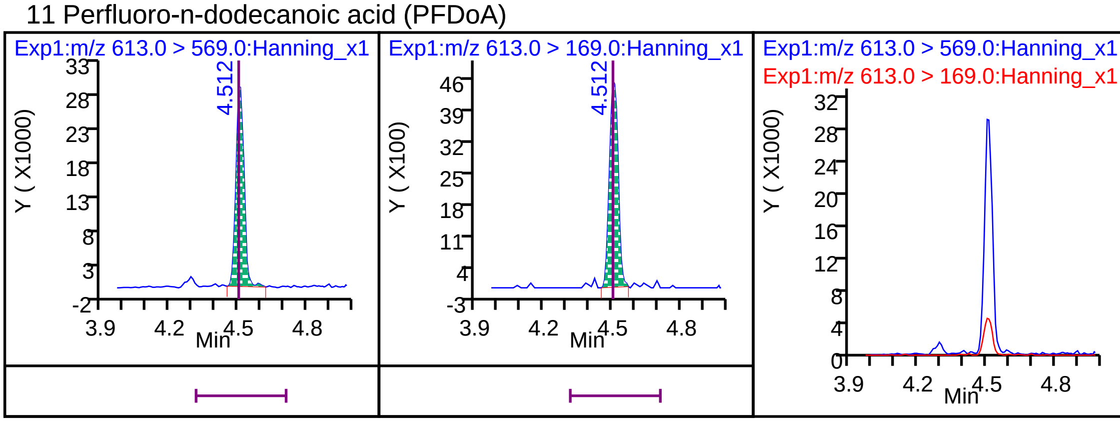
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (M)



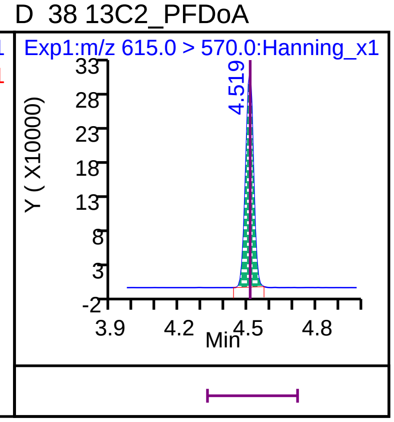
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA)

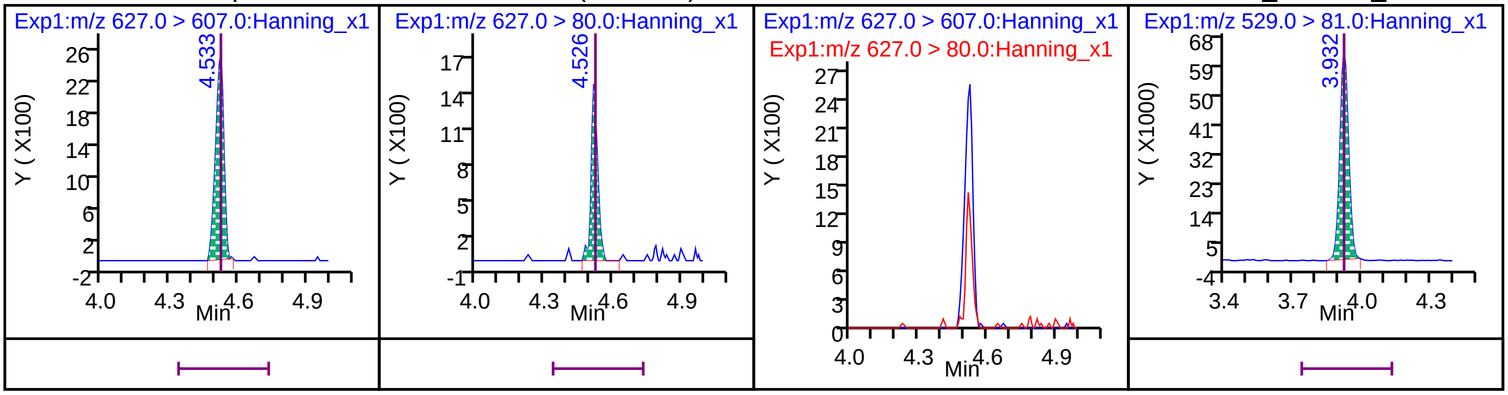


D 38 13C2_PFDoA

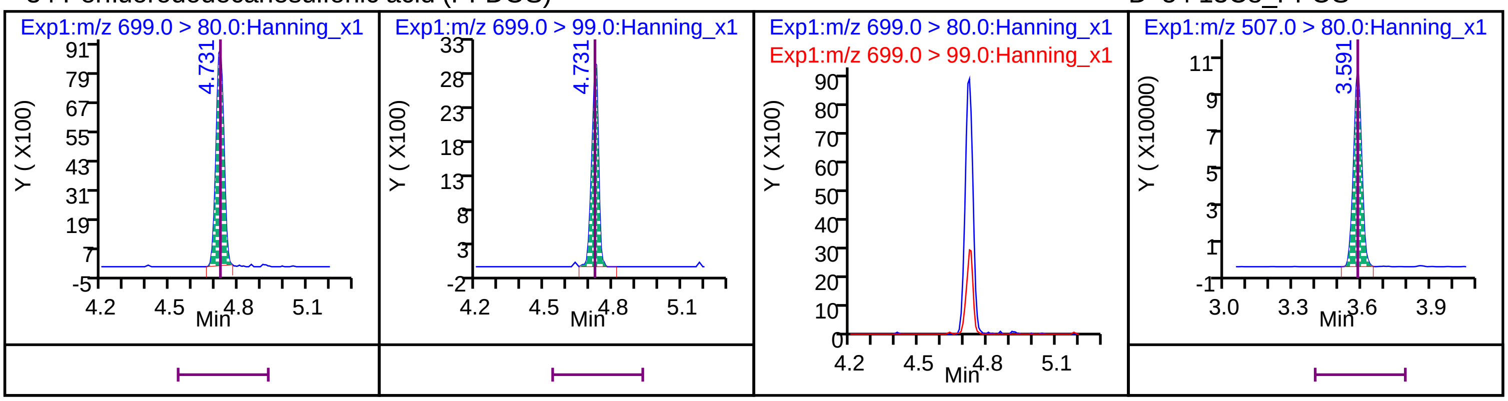


Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

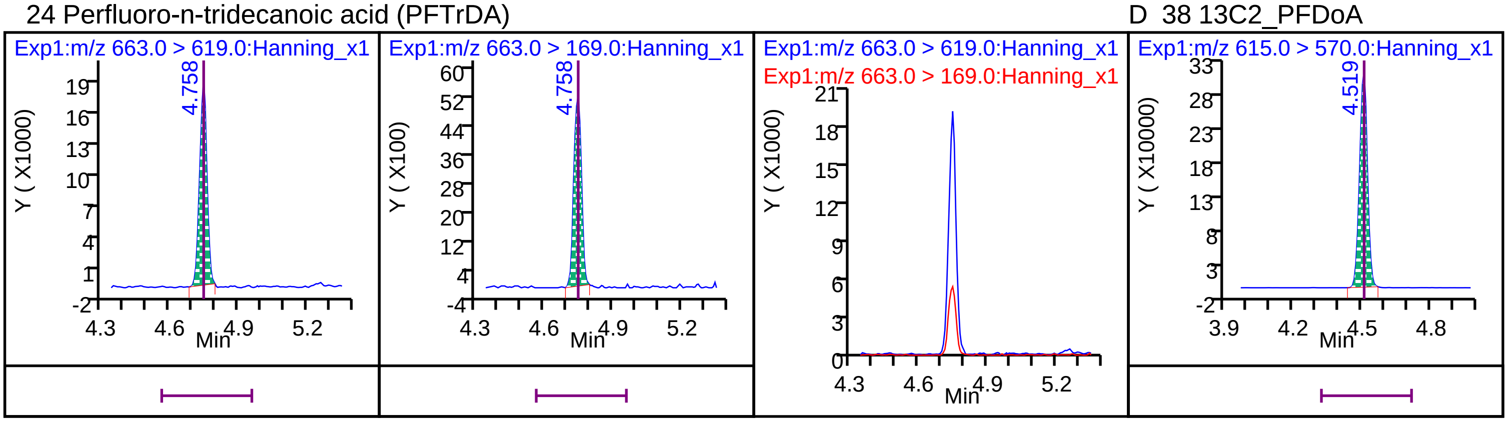
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



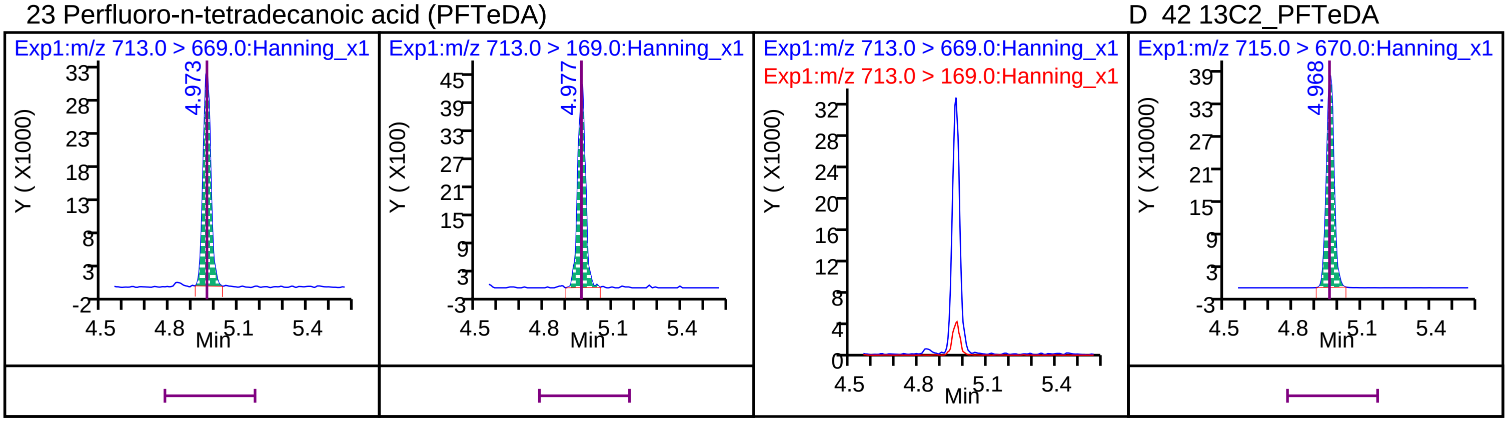
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

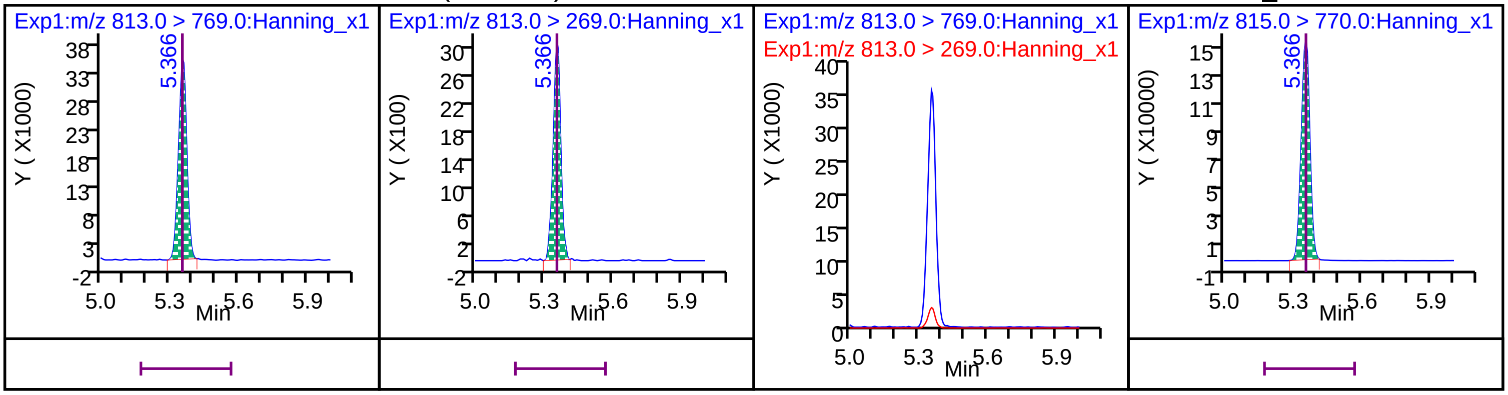


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

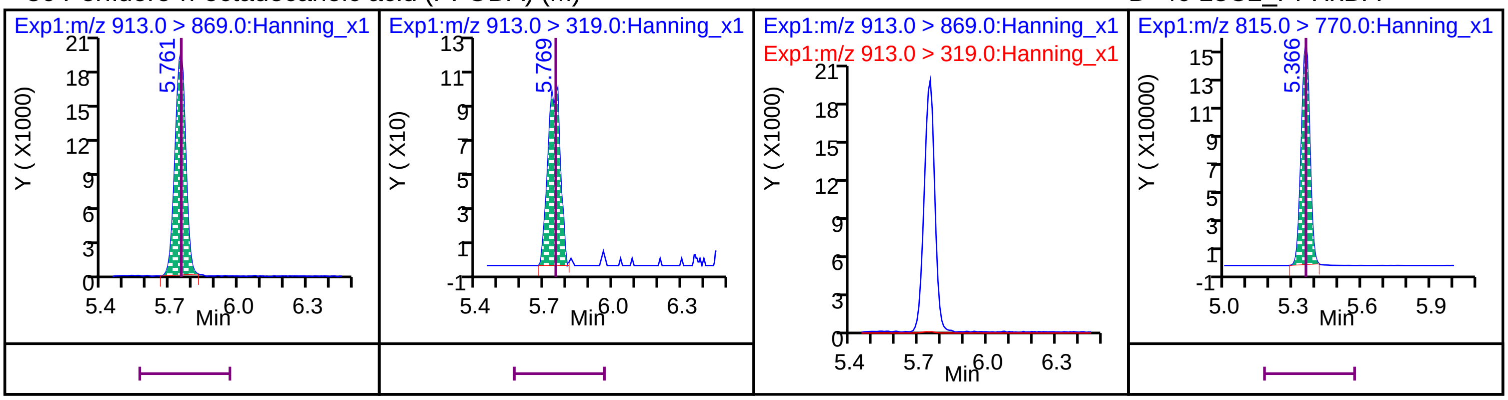


Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

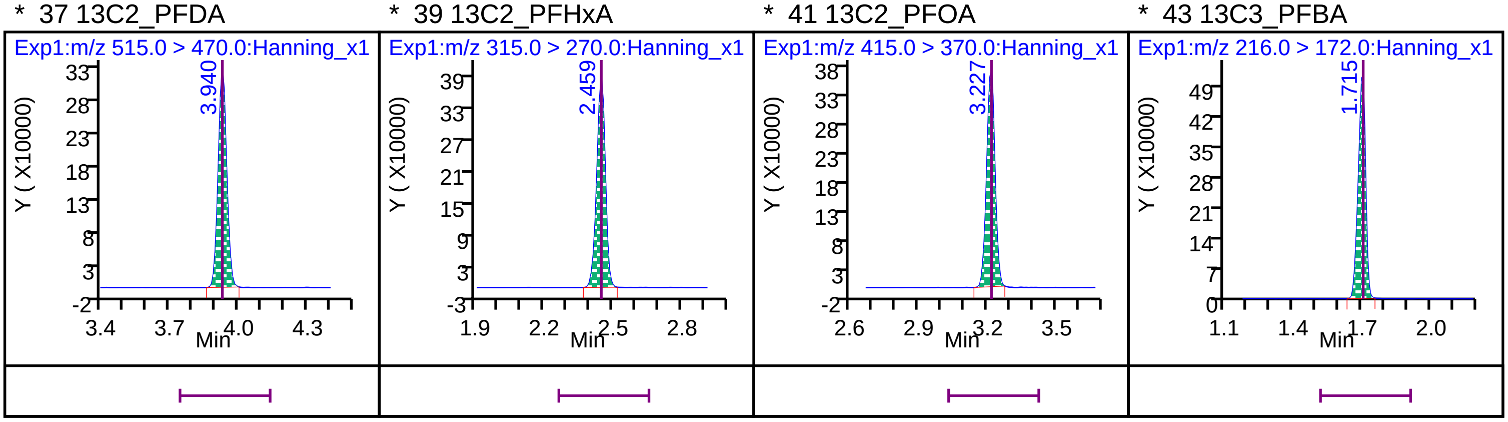
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



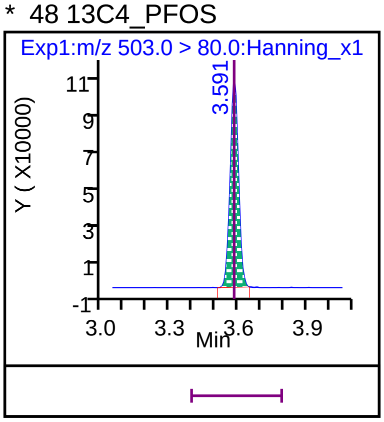
36 Perfluoro-n-octadecanoic acid (PFODA) (M) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 07:56:15 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

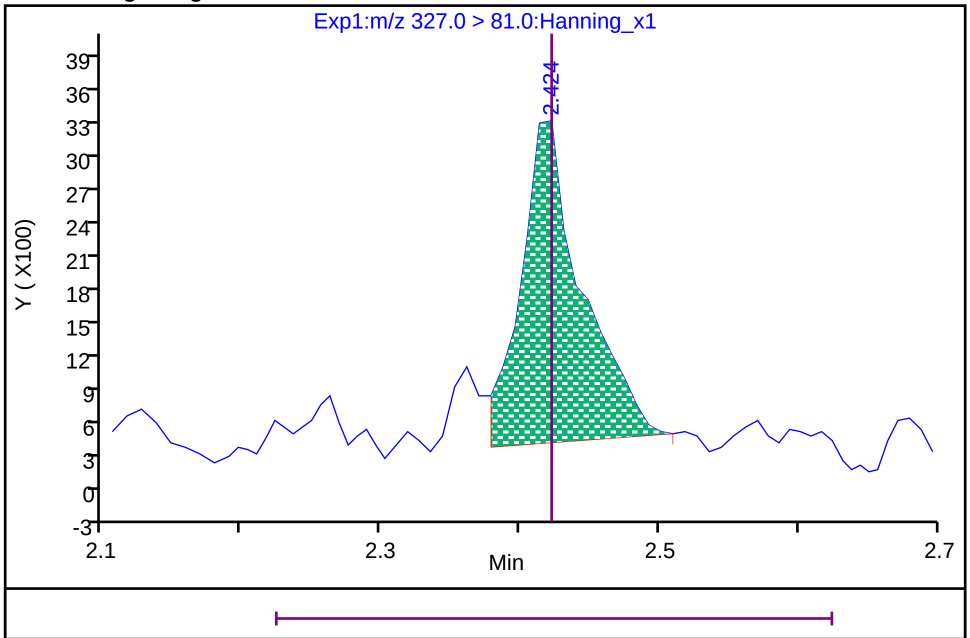
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

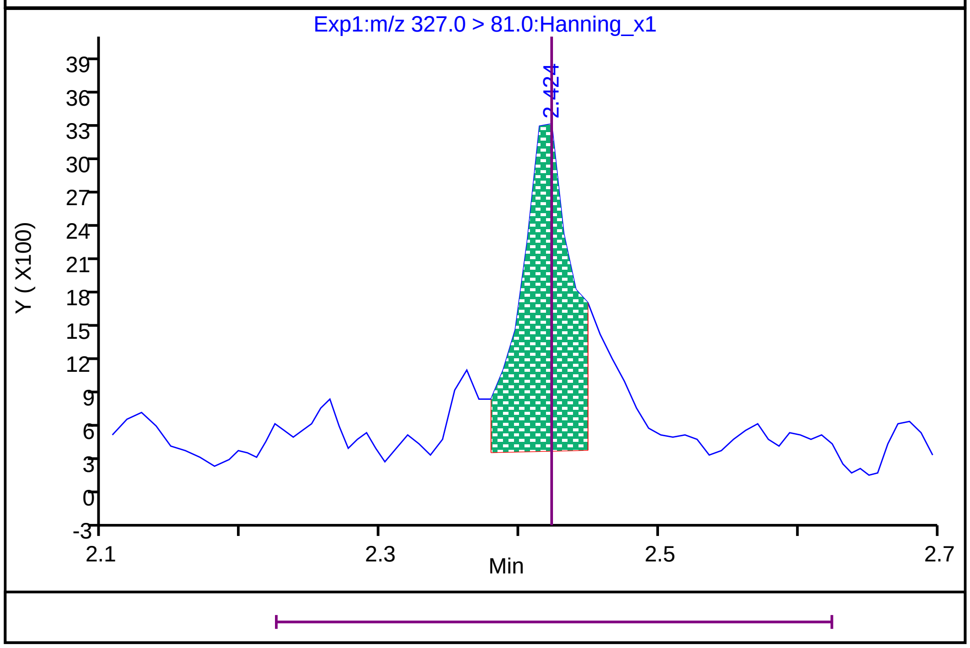
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT: 2.424
Area: 8407
Amount: 103.03
Amount Units: ng/L



RT: 2.424
Area: 6929
Amount: 103.03
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:11:35

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

Injection Date: 05-Nov-2021 03:46:21 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 100A_SVLC-1724

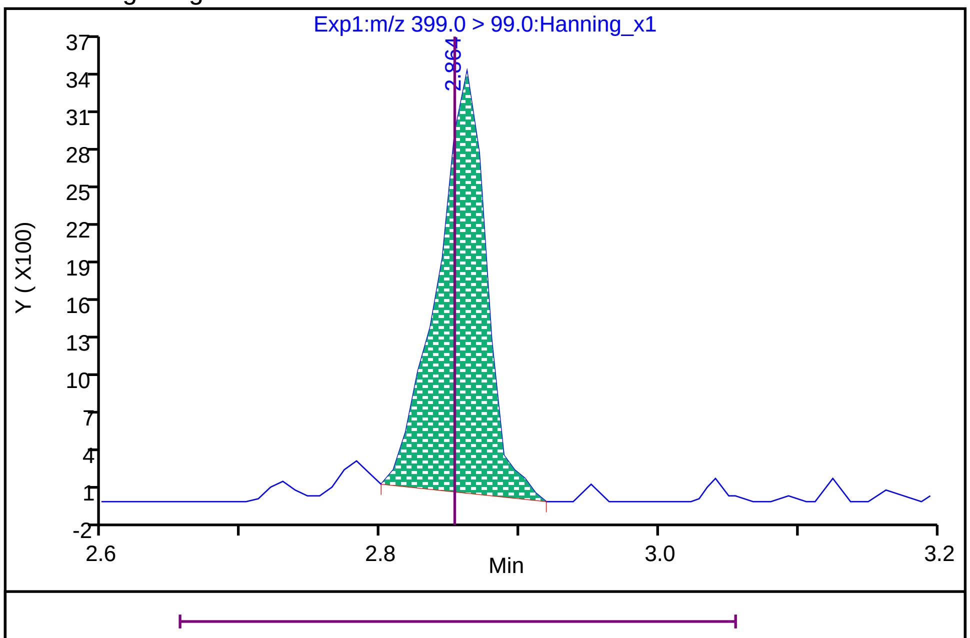
Sample Info: CCV 100A_SVLC-1724

Dil. Factor: 1 Operator: Matthew M. Miller

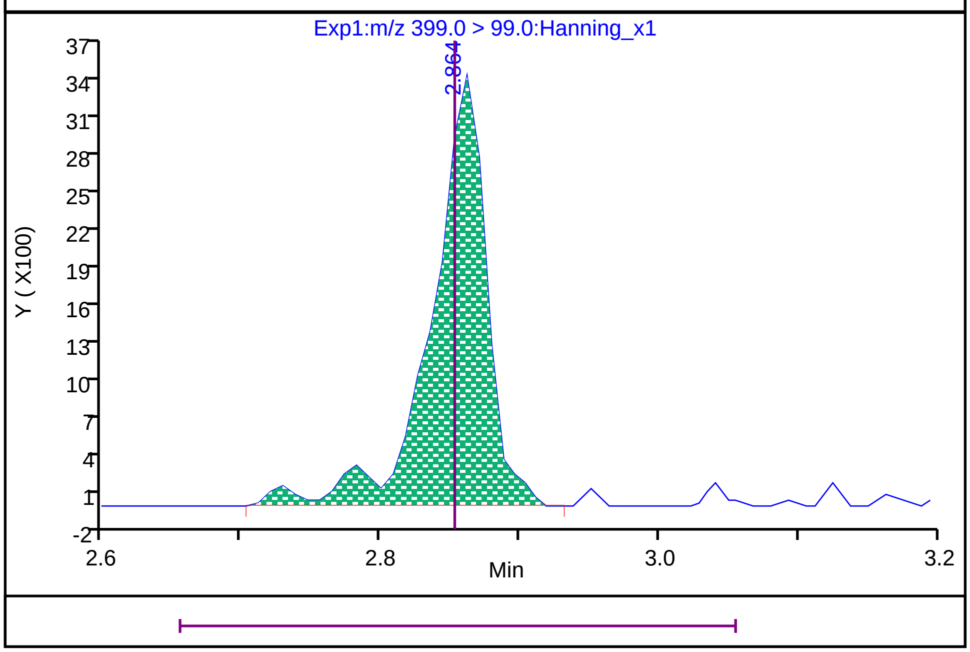
14 PFHxS, CAS: 355-46-4

Processing Integration Results

RT: 2.864
Area: 8153
Amount: 92.542
Amount Units: ng/L



RT: 2.864
Area: 9337
Amount: 92.542
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:10:24

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

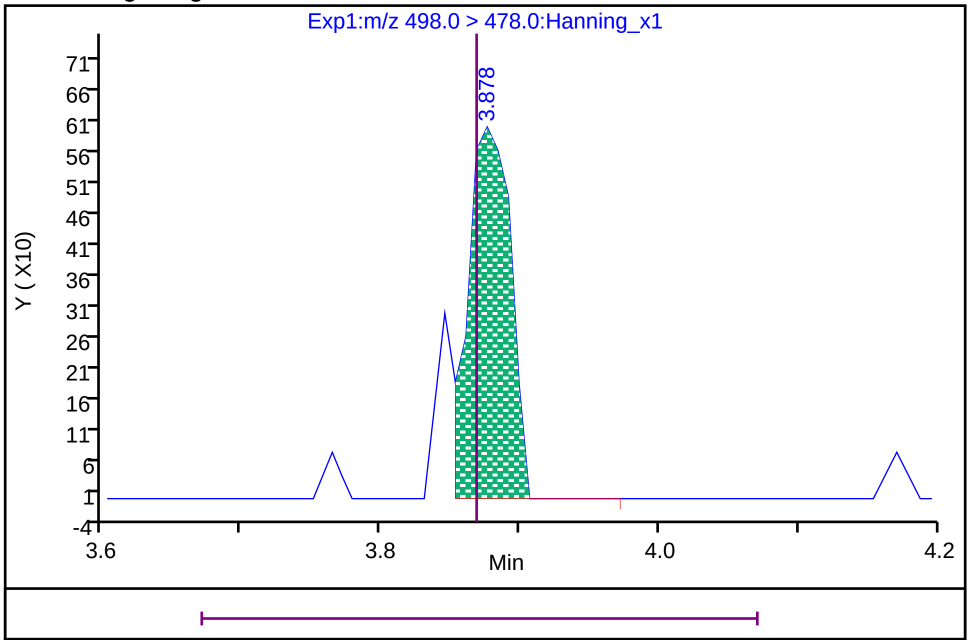
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

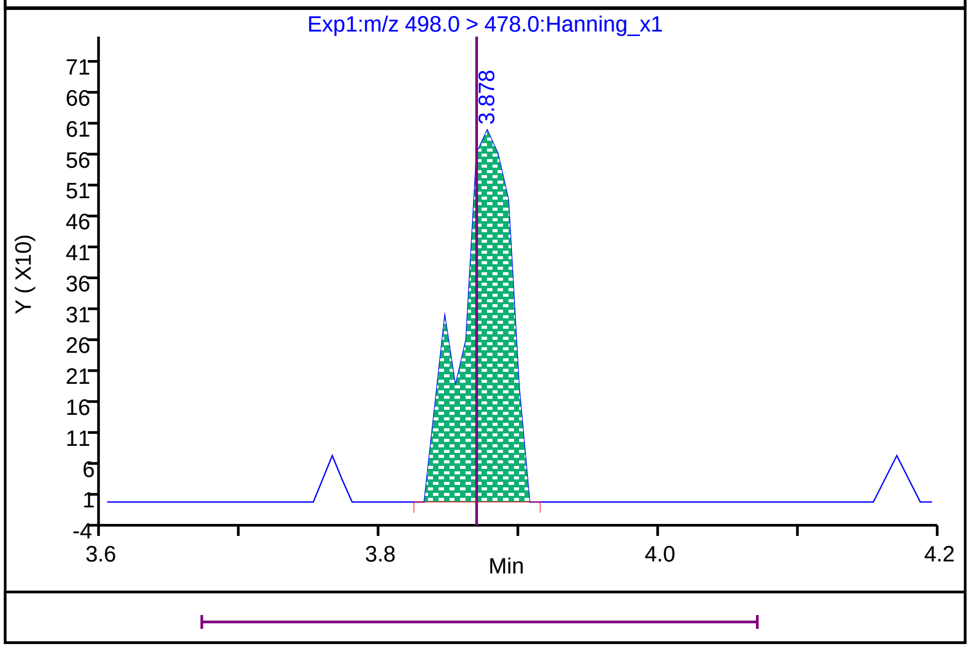
19 PFOSA, CAS: 754-91-6

Processing Integration Results

RT: 3.878
Area: 1238
Amount: 102.04
Amount Units: ng/L



RT: 3.878
Area: 1478
Amount: 102.04
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:10:34

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

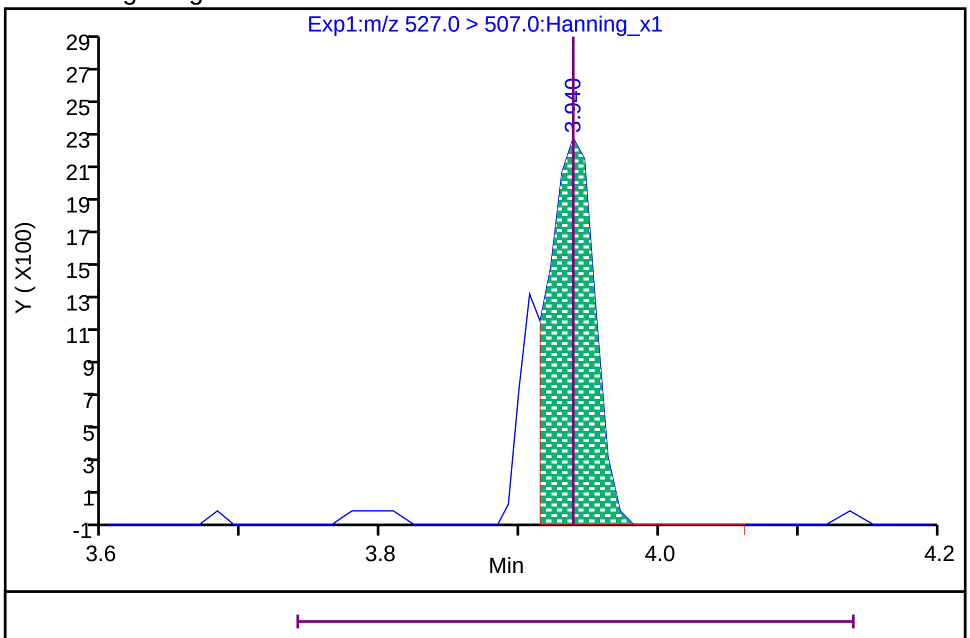
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

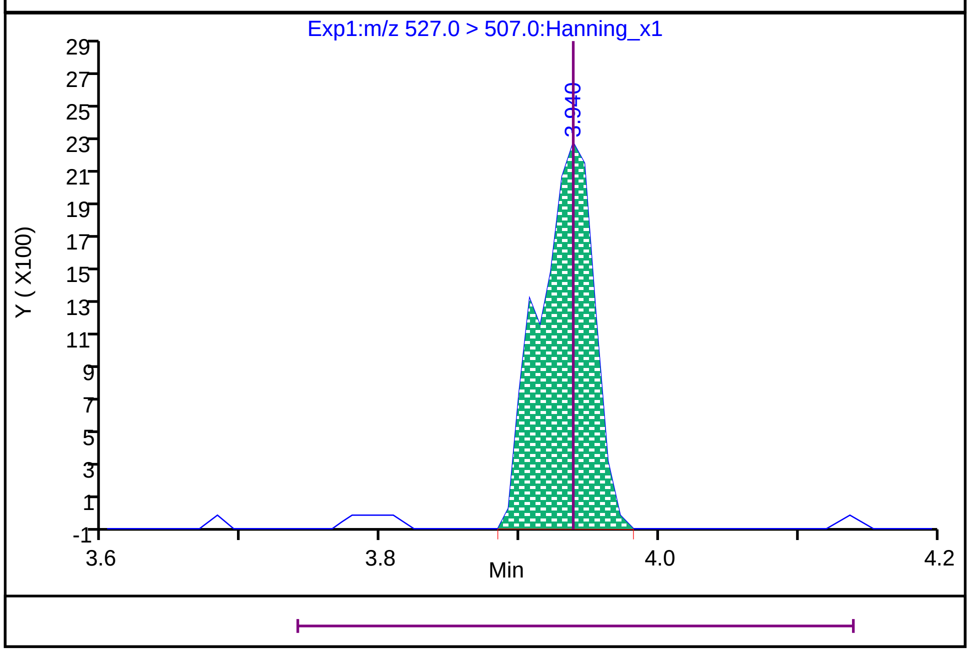
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT:	3.940
Area:	5028
Amount:	85.297
Amount Units:	ng/L



RT:	3.940
Area:	6352
Amount:	107.76
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:10:40

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

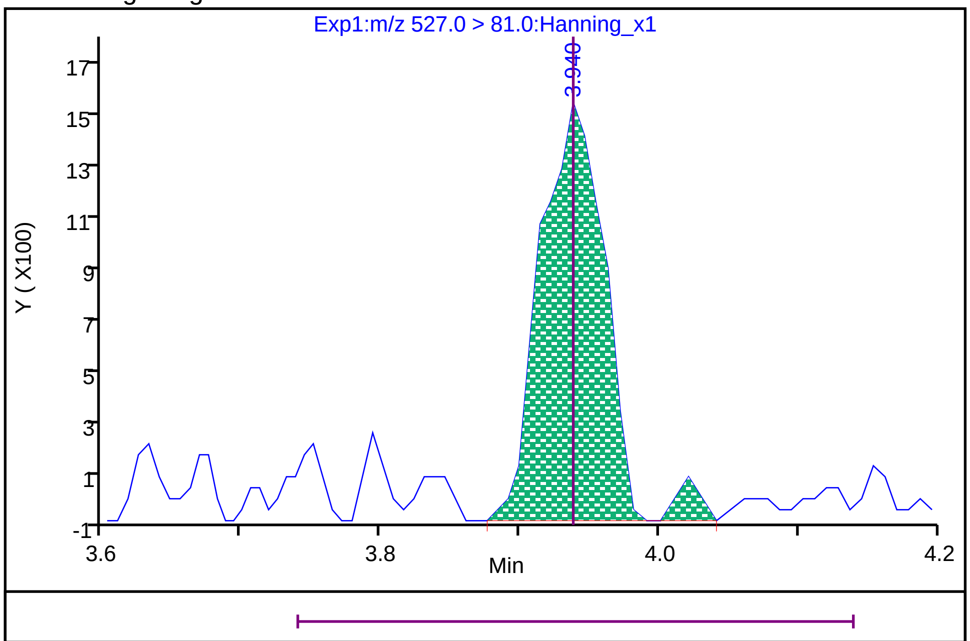
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

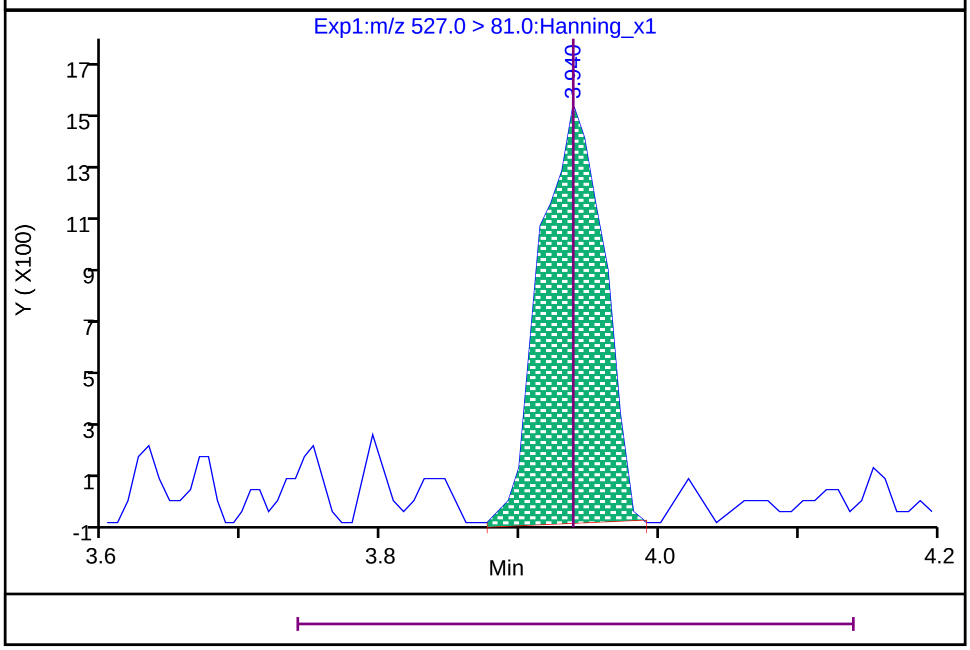
3 8:2 FTS, CAS: 39108-34-4

Processing Integration Results

RT: 3.940
Area: 4998
Amount: 107.76
Amount Units: ng/L



RT: 3.940
Area: 4833
Amount: 107.76
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:10:43
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

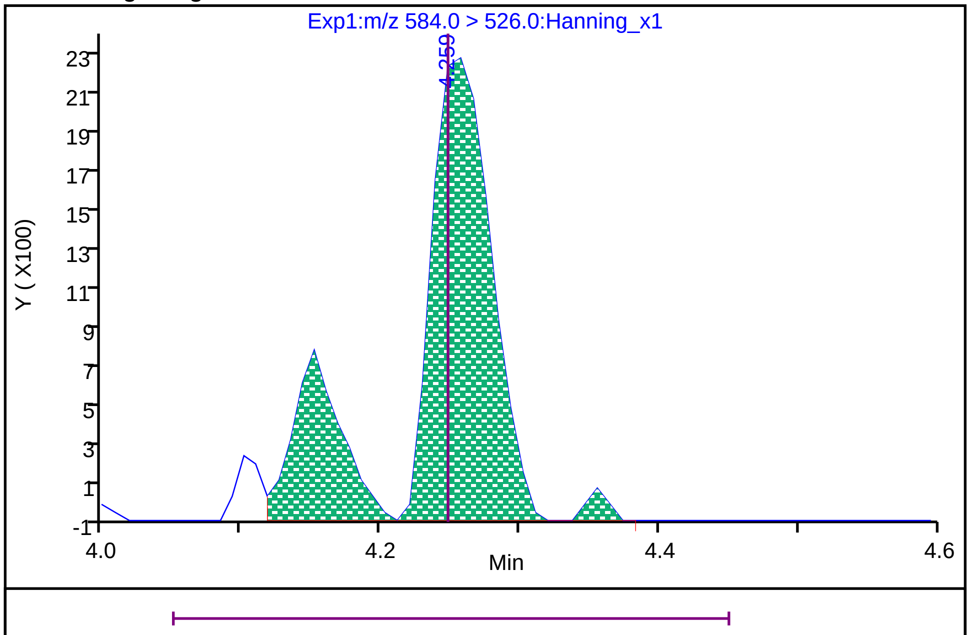
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

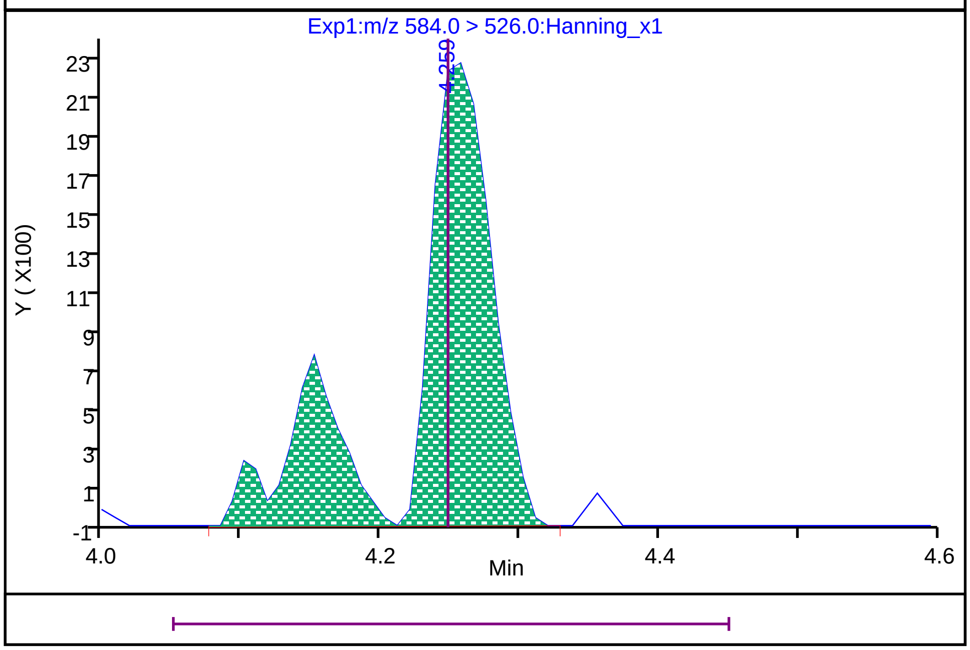
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.259
Area: 8828
Amount: 106.71
Amount Units: ng/L



RT: 4.259
Area: 9104
Amount: 106.71
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:10:50

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

Injection Date: 05-Nov-2021 03:46:21 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 100A_SVLC-1724

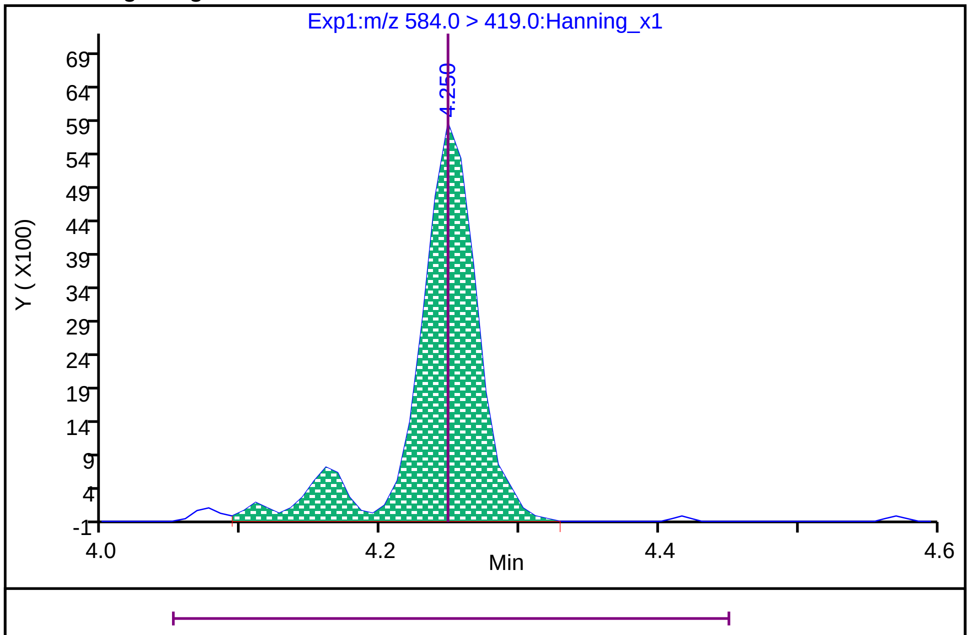
Sample Info: CCV 100A_SVLC-1724

Dil. Factor: 1 Operator: Matthew M. Miller

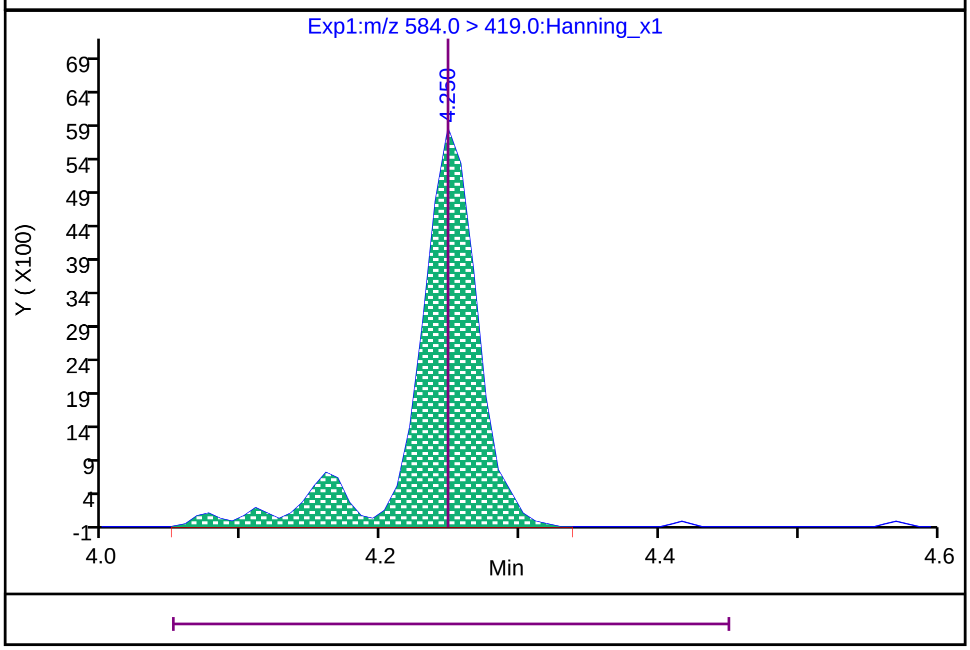
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.250
Area: 17454
Amount: 104.12
Amount Units: ng/L



RT: 4.250
Area: 17888
Amount: 106.71
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:10:53

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

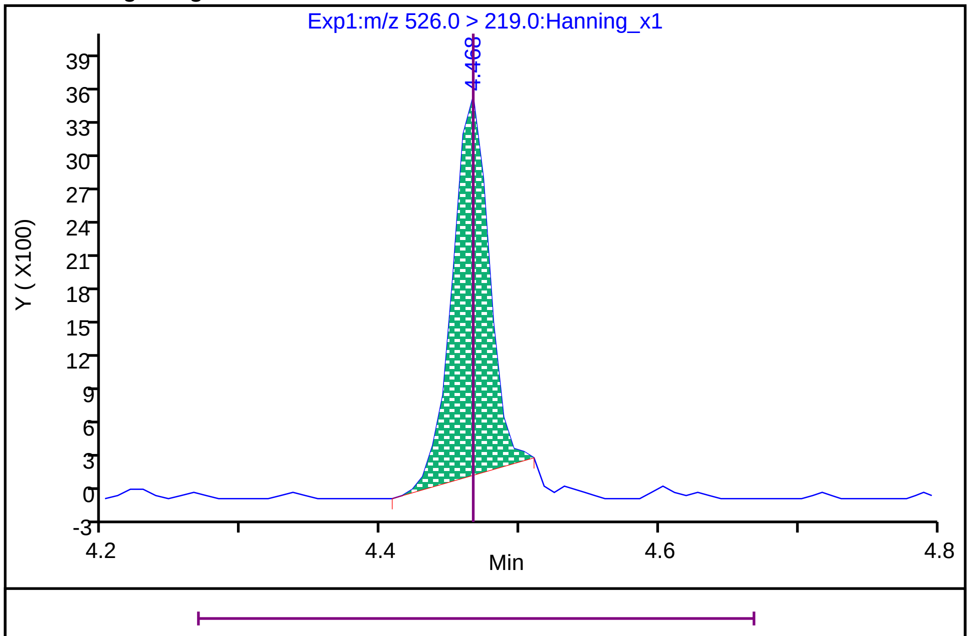
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d

Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

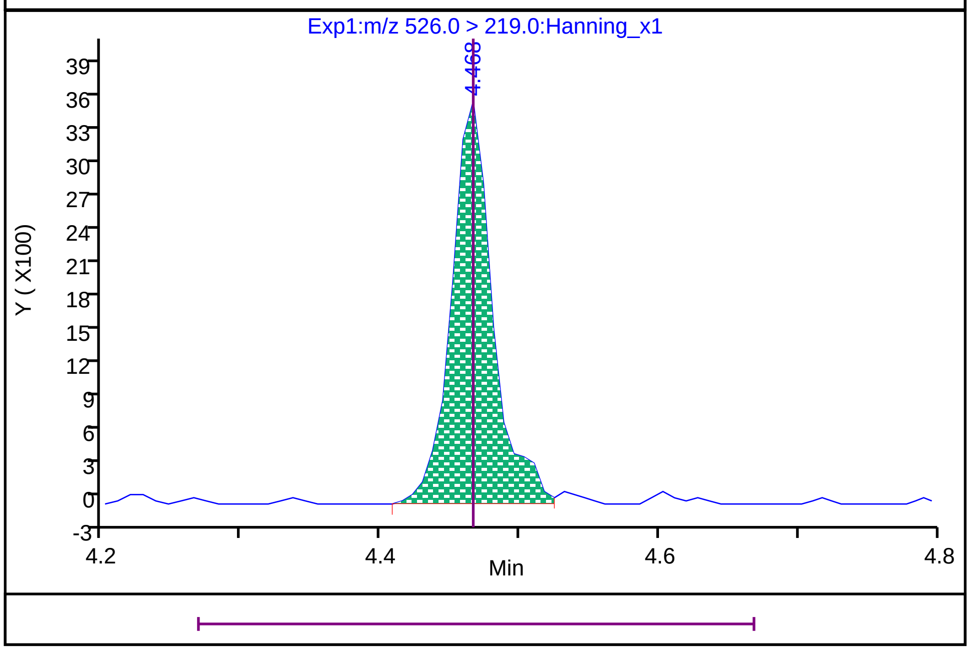
27 EtFOSA, CAS: 4151-50-2

Processing Integration Results

RT:	4.468
Area:	6036
Amount:	93.533
Amount Units:	ng/L



RT:	4.468
Area:	7235
Amount:	93.533
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:11:00

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

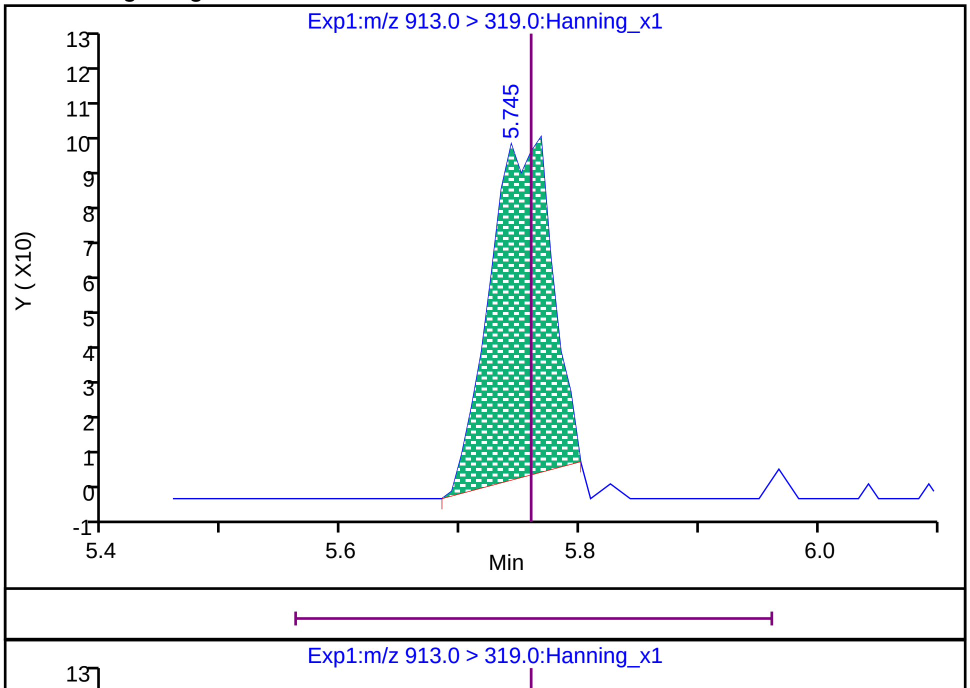
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A087.d		
Injection Date:	05-Nov-2021 03:46:21	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100A_SVLC-1724
Sample Info:	CCV 100A_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

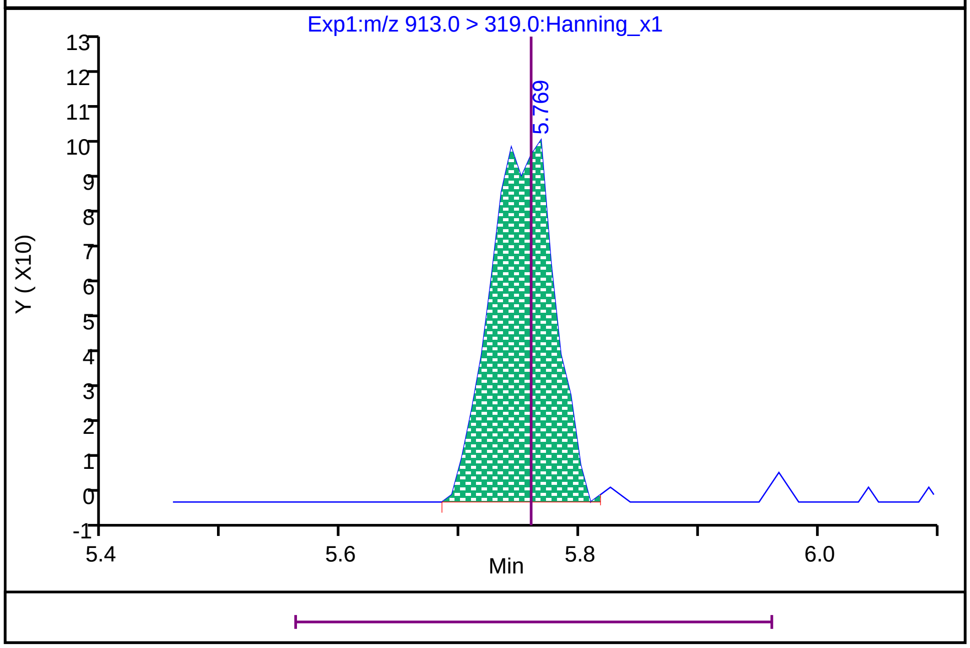
36 PFODA, CAS: 16517-11-6

Processing Integration Results

RT:	5.745
Area:	332
Amount:	107.97
Amount Units:	ng/L



RT:	5.769
Area:	369
Amount:	107.97
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:11:08

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d
Injection Date: 05-Nov-2021 03:56:57 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 64
Sample Info: CCV 200A_SVLC-1725 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	200.95	100.5	70 - 130
D 46 13C4_PFBA	1139739	1307245			114.7	50 - 150
D 50 13C5_PFPeA	1087851	1188498			109.3	50 - 150
21 PFPeA			200.00	206.93	103.5	70 - 130
7 PFBS			176.80	166.59	94.2	70 - 130
D 44 13C3_PFBS	352984	403311			114.3	50 - 150
1 4:2 FTS			186.80	187.73	100.5	70 - 130
D 63 13C2_4:2 FTS_2	231027	259615			112.4	50 - 150
D 49 13C5_PFHxA	967117	1102686			114	50 - 150
15 PFHxA			200.00	197.55	98.8	70 - 130
22 PFPeS			187.60	182.57	97.3	70 - 130
28 GenX			400.00	356.32	89.1	70 - 130
D 66 13C3_GenX	857456	967403			112.8	50 - 150
D 47 13C4_PFHpA	958300	1046990			109.3	50 - 150
13 PFHpA			200.00	197.32	98.7	70 - 130
D 45 13C3_PFHxS	272525	336763			123.6	50 - 150
14 PFHxS			182.00	168.21	92.4	70 - 130
29 ADONA			188.40	182.99	97.1	70 - 130
D 64 13C2_6:2 FTS_2	186972	223653			119.6	50 - 150
2 6:2 FTS			189.60	244.10	128.7	70 - 130
D 53 13C8_PFOA	929811	1033486			111.2	50 - 150
20 PFOA			200.00	196.95	98.5	70 - 130
12 PFHpS			190.40	183.68	96.5	70 - 130
18 PFOS			185.60	180.41	97.2	70 - 130
17 PFNA			200.00	182.95	91.5	70 - 130
D 56 13C9_PFNA	982819	997446			101.5	50 - 150
D 54 13C8_PFOS	248479	276242			111.2	50 - 150
30 9Cl-PF3ONS			186.40	185.24	99.4	70 - 130
D 55 13C8_PFOSA	462556	512564			110.8	50 - 150
19 PFOSA			200.00	189.85	94.9	70 - 130
16 PFNS			192.00	182.94	95.3	70 - 130
D 65 13C2_8:2 FTS_2	165898	190202			114.6	50 - 150
3 8:2 FTS			191.60	177.04	92.4	70 - 130
10 PFDA			200.00	185.62	92.8	70 - 130
D 51 13C6_PFDA	822896	909991			110.6	50 - 150
6 N-MeFOSAA			200.00	188.31	94.2	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	900380	1034486			114.9	50 - 150
9 PFDS			192.80	168.53	87.4	70 - 130
5 N-EtFOSAA			200.00	193.10	96.6	70 - 130
25 PFUdA			200.00	186.01	93	70 - 130
D 60 d5-EtFOSAA	819983	976846			119.1	50 - 150
D 52 13C7_PFUdA	739024	848019			114.7	50 - 150
D 61 d7-MeFOSE	131808	162358			123.2	50 - 150
32 MeFOSE			200.00	220.90	110.4	70 - 130
26 MeFOSA			200.00	182.53	91.3	70 - 130
D 57 d3-MeFOSA	65142	79067			121.4	50 - 150
31 11Cl-PF3OUDS			188.40	170.49	90.5	70 - 130
D 62 d9-EtFOSE	133637	137691			103	50 - 150
33 EtFOSE			200.00	219.99	110	70 - 130
D 59 d5-EtFOSA	66694	72735			109.1	50 - 150
27 EtFOSA			200.00	205.34	102.7	70 - 130
11 PFDoA			200.00	191.28	95.6	70 - 130
D 38 13C2_PFDoA	713011	835654			117.2	50 - 150
4 10:2 FTS			192.80	191.58	99.4	70 - 130
34 PFDOS			193.60	193.42	99.9	70 - 130
24 PFTrDA			200.00	184.12	92.1	70 - 130
23 PFTeDA			200.00	201.45	100.7	70 - 130
D 42 13C2_PFTeDA	861693	928299			107.7	50 - 150
35 PFHxDA			200.00	213.10	106.5	70 - 130
D 40 13C2_PFHxDA	379361	452045			119.2	50 - 150
36 PFODA			200.00	195.16	97.6	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d		
Injection Date:	05-Nov-2021 03:56:57	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	64
Sample Info:	CCV 200A_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.708	1	1307245	20	>100:1			1000.00	1214.08	114.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	0/-1	288912	18	>100:1			200.00	200.95		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.079	0	1188498	15	>100:1			1000.00	1185.05	109.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	0/0	263510	15	92:1			200.00	206.93		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	403311	15	>100:1			1000.00	1241.84	114.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	95988	15	>100:1	Target = 3.80		176.80	166.59		
298.9 > 99	44	2.141	2.141		23725	16	>100:1	4.04 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.494	0/0	74089	17	>100:1	Target = 3.42		187.60	182.57		
349 > 99	44	2.493	2.494		25428	17	>100:1	2.91 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.416	0	259615	18	>100:1			5000.00	6250.22	112.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	0/0	19024	17		Target = 1.54		186.80	187.73		
327 > 81	63	2.415	2.424		10260	10	24:1	1.85 (0.77-2.32)					M
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	1102686	18	>100:1			1000.00	1234.49	114	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.459	0/0	225088	19	78:1	Target = 17.93		200.00	197.55		
313 > 119	49	2.467	2.459		13085	16	35:1	17.20 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.579	0	967403	19	>100:1			5000.00	5905.31	112.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.579	0/0	52821	16	>100:1	Target = 0.72		400.00	356.32		
285 > 185	66	2.579	2.579		84333	16	>100:1	0.62 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.846	0	1046990	18	>100:1			1000.00	1194.93	109.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.846	0/0	198873	18	>100:1	Target = 3.26		200.00	197.32		
363 > 169	47	2.845	2.846		68246	17	>100:1	2.91 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.862	2.855	1	336763	17	>100:1			1000.00	1283.98	123.6	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.862	2.855	1/0	66966	26	>100:1	Target = 3.48	4.80	182.00	168.21		
399 > 99	45	2.862	2.855		18417	25	>100:1	3.63 (1.74-5.22)	8.14				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.889	2.890	0/-1	339188	18	>100:1	Target = 2.31		188.40	182.99		
377 > 85	45	2.889	2.890		139816	19	>100:1	2.42 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.233	0/-1	63622	26	>100:1	Target = 3.56		190.40	183.68		
449 > 99	45	3.233	3.233		16839	20	>100:1	3.77 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	0	223653	21	>100:1			5000.00	5930.70	119.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.201	1/1	18985	26	75:1	Target = 1.34		189.60	244.10		
427 > 81	64	3.208	3.201		17296	24	31:1	1.09 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.227	3.220	1	1033486	22	>100:1			1000.00	1249.69	111.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.227	0/-1	209427	22	>100:1	Target = 2.50		200.00	196.95		
413 > 169	53	3.220	3.227		87853	20	>100:1	2.38 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.591	3.591	0	276242	19	>100:1			1000.00	1230.59	111.2	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.599	3.591	1/1	58751	38	>100:1	Target = 4.01	3.31	185.60	180.41		
499 > 99	54	3.599	3.591		16177	28	70:1	3.63 (2.00-6.02)	7.67				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.796	3.796	0/0	158144	20	>100:1			186.40	185.24		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.931	3.932	0/0	51041	23	>100:1	Target = 3.78		192.00	182.94		
549 > 99	54	3.931	3.932		13738	15	>100:1	3.71 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.232	4.232	0/0	45962	15	>100:1	Target = 3.98		192.80	168.53		
599 > 99	54	4.223	4.232		13651	19	>100:1	3.36 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.384	4.384	0/0	130829	17	>100:1			188.40	170.49		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.731	1/1	51746	20	>100:1	Target = 3.68		193.60	193.42		
699 > 99	54	4.732	4.731		15039	19	>100:1	3.44 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.606	0	997446	20	>100:1			1000.00	1248.35	101.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.599	3.599	0/0	166173	18	>100:1	Target = 4.69		200.00	182.95		
463 > 169	56	3.606	3.599		38577	25	>100:1	4.30 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.870	3.871	0	512564	19	>100:1			1000.00	1237.51	110.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.878	3.871	1/1	110031	16	>100:1	Target = 40.85		200.00	189.85		
498>478	55	3.878	3.871		2023	18	10:1	54.39 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.939	3.932	1	190202	19	>100:1			5000.00	6060.19	114.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.923	3.940	0/-1	11965	24	43:1	Target = 1.58		191.60	177.04		
527 > 81	65	3.939	3.940		8104	18	26:1	1.47 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.534	4.533	1/0	12997	26	57:1	Target = 2.46		192.80	191.58		
627 > 80	65	4.534	4.533		5393	23		2.40 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.939	3.940	0	909991	18	>100:1			1000.00	1260.72	110.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.939	3.940	0/0	173324	19	>100:1	Target = 9.77		200.00	185.62		
513 > 169	51	3.948	3.940		19212	17	>100:1	9.02 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.095	4.096	0	1034486	17	>100:1			5000.00	5834.24	114.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.104	4.104	0/0	31855	29	60:1	Target = 1.41	7.92	200.00	188.31		
570 > 483	58	4.095	4.104		25758	31	>100:1	1.23 (0.70-2.11)	2.72				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.250	4.241	1	848019	16	>100:1			1000.00	1240.84	114.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.250	4.250	0/-1	141514	15	>100:1	Target = 9.19		200.00	186.01		
563 > 169	52	4.250	4.250		12966	14	77:1	10.91 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.250	0	976846	17	>100:1			5000.00	6532.74	119.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.259	4.250	1/1	38563	34	>100:1	Target = 1.75	4.49	200.00	193.10		
584 > 526	60	4.259	4.250		21261	37		1.81 (0.87-2.63)	4.13				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.277	0	162358	17	>100:1			1000.00	1176.63	123.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.295	4.286	1/1	36450	17	>100:1			200.00	220.90		M
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.303	4.295	1	79067	16	>100:1			1000.00	1129.19	121.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.303	4.304	0/-1	14945	15	62:1	Target = 1.11		200.00	182.53		
512 > 219	57	4.303	4.304		13939	11	93:1	1.07 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.440	4.439	1	137691	18	>100:1			1000.00	1071.08	103	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.454	1/0	25784	19	>100:1			200.00	219.99		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.461	1	72735	23	>100:1			1000.00	1129.33	109.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.476	4.468	1/0	17461	18	>100:1	Target = 1.06		200.00	205.34		
526 > 219	59	4.469	4.468		16414	15	93:1	1.06 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.519	1	835654	18	>100:1			1000.00	1215.25	117.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.512	1/0	156982	20	>100:1	Target = 6.38		200.00	191.28		
613 > 169	38	4.512	4.512		24301	24	>100:1	6.45 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.758	1/0	82455	20	>100:1	Target = 3.23		200.00	184.12		
663 > 169	38	4.759	4.758		27448	18	>100:1	3.00 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.978	4.968	1	928299	26	>100:1			1000.00	1187.46	107.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.973	1/0	164343	25	>100:1	Target = 7.33		200.00	201.45		
713 > 169	42	4.978	4.973		21024	24	>100:1	7.81 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.366	0	452045	22	>100:1			1000.00	1157.96	119.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.366	1/1	184267	22	>100:1	Target = 12.31		200.00	213.10		
813 > 269	40	5.372	5.366		14745	21	>100:1	12.49 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.753	5.761	0/0	133184	22	>100:1	Target = 165.31		200.00	195.16		
913 > 319	40	5.761	5.761		777	14	62:1	171.40 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.939	3.940	0	909065	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.459	0	1127610	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.233	3.227	1	986789	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	0	1231087	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.591	3.591	0	304305	20	>100:1			1000.00			

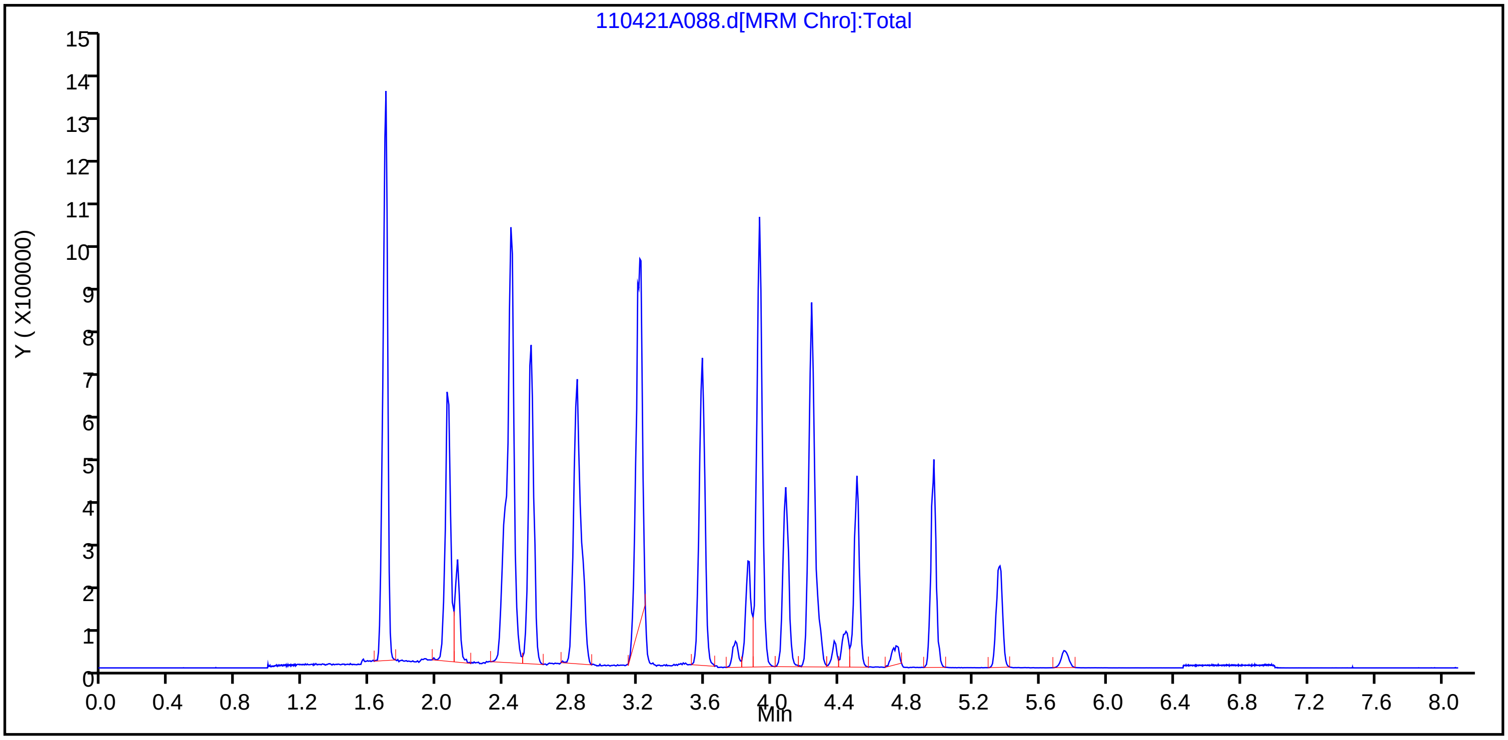
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

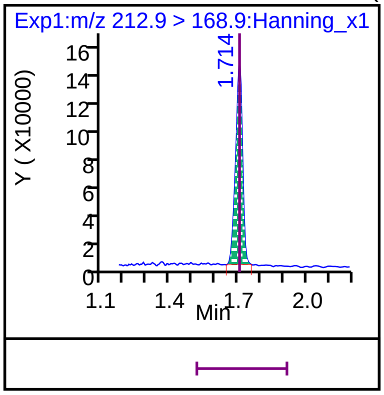
Report Date: 09-Nov-2021 07:56:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

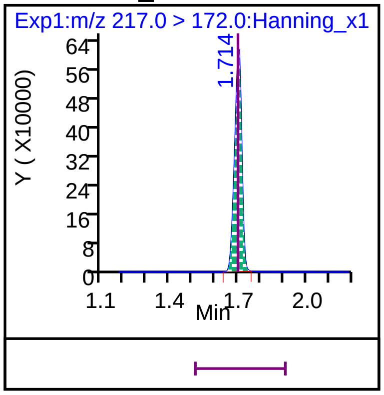
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d		
Injection Date:	05-Nov-2021 03:56:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200A_SVLC-1725
Sample Info:	CCV 200A_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller



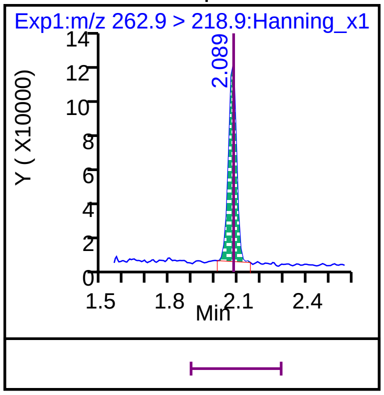
8 Perfluoro-n-butanoic acid (PFBA)



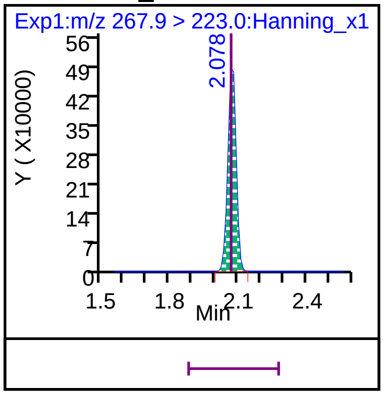
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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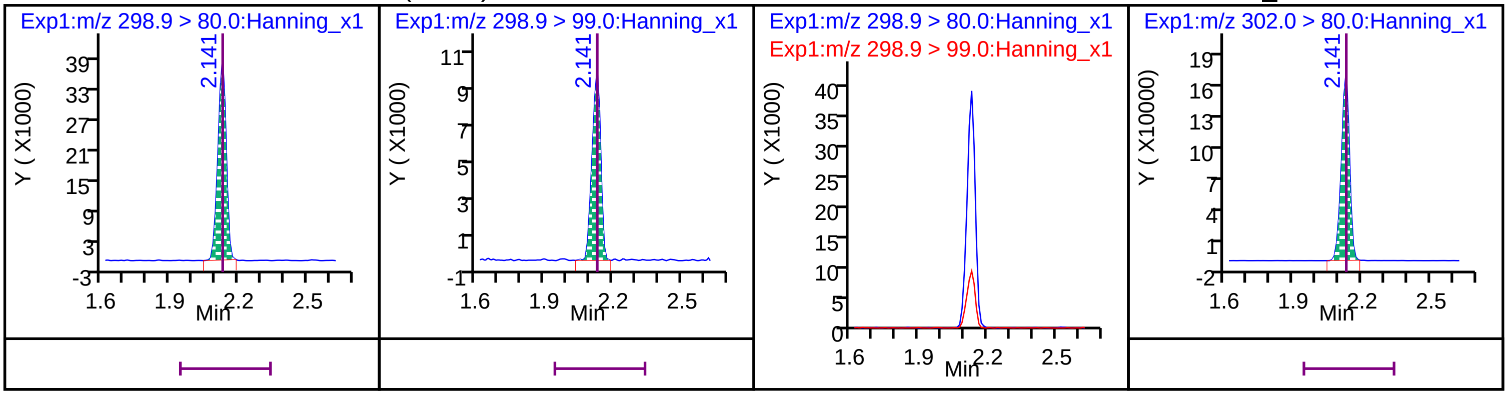
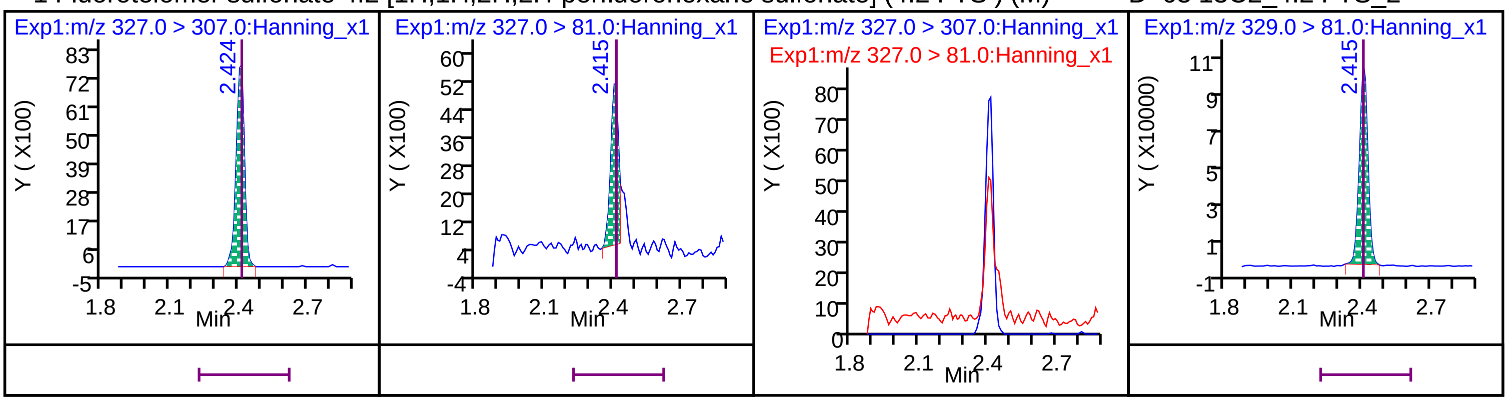
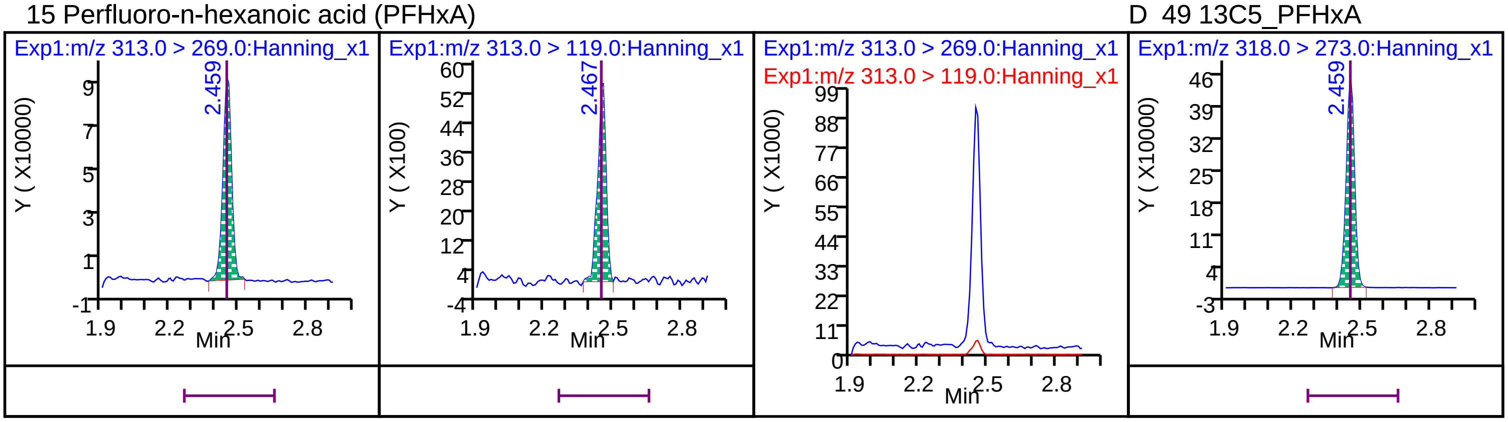
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



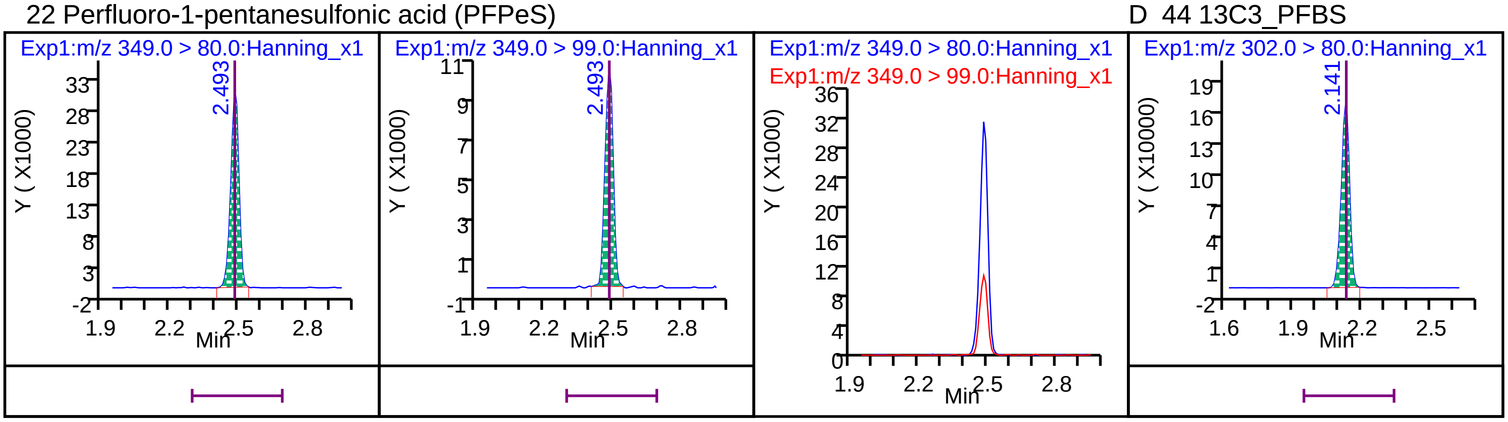
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (M) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



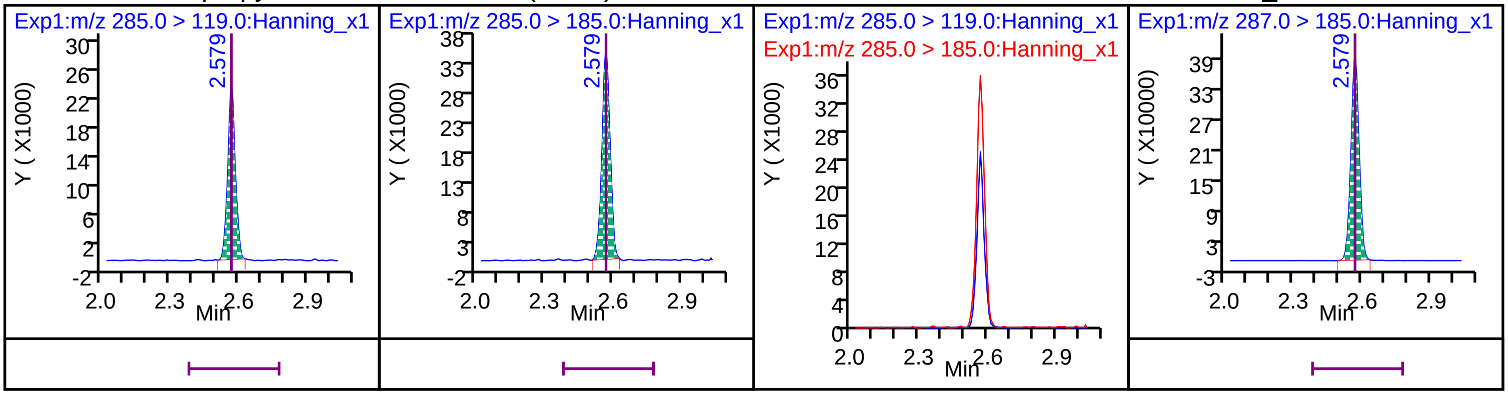
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



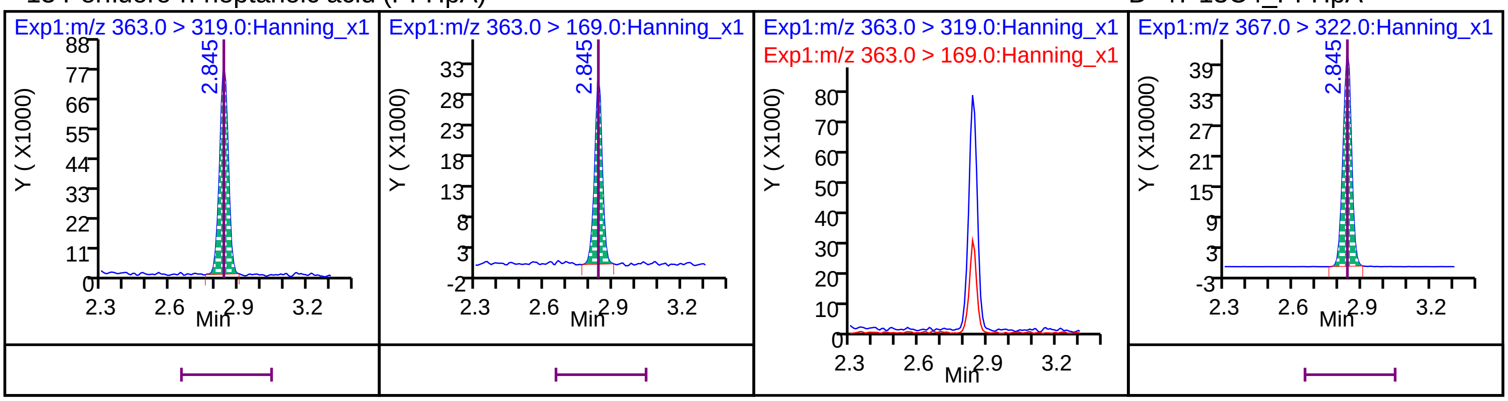
Report Date: 09-Nov-2021 07:56:17 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d

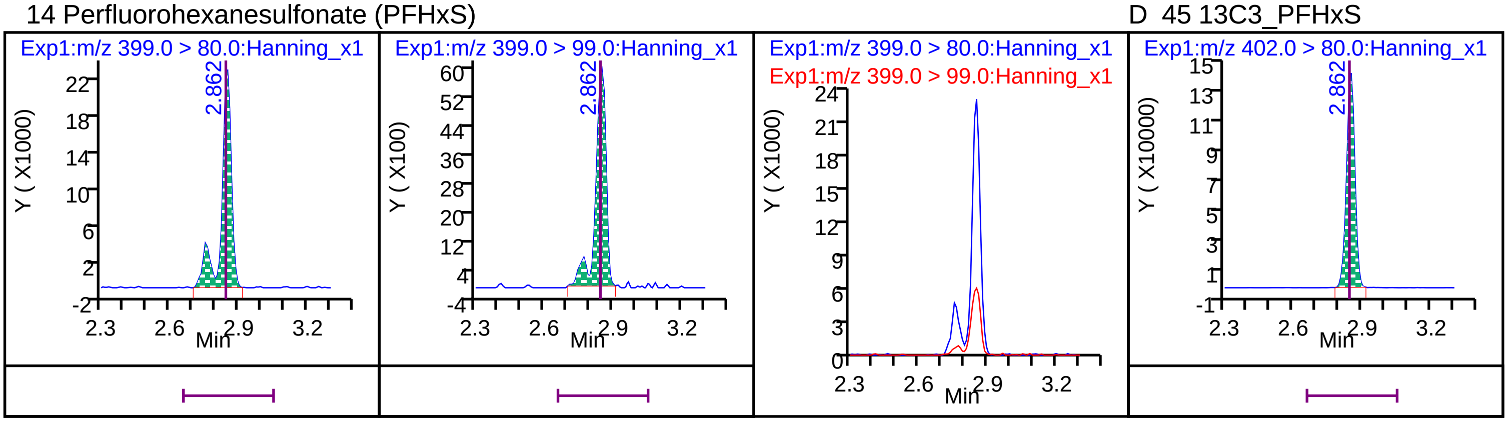
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



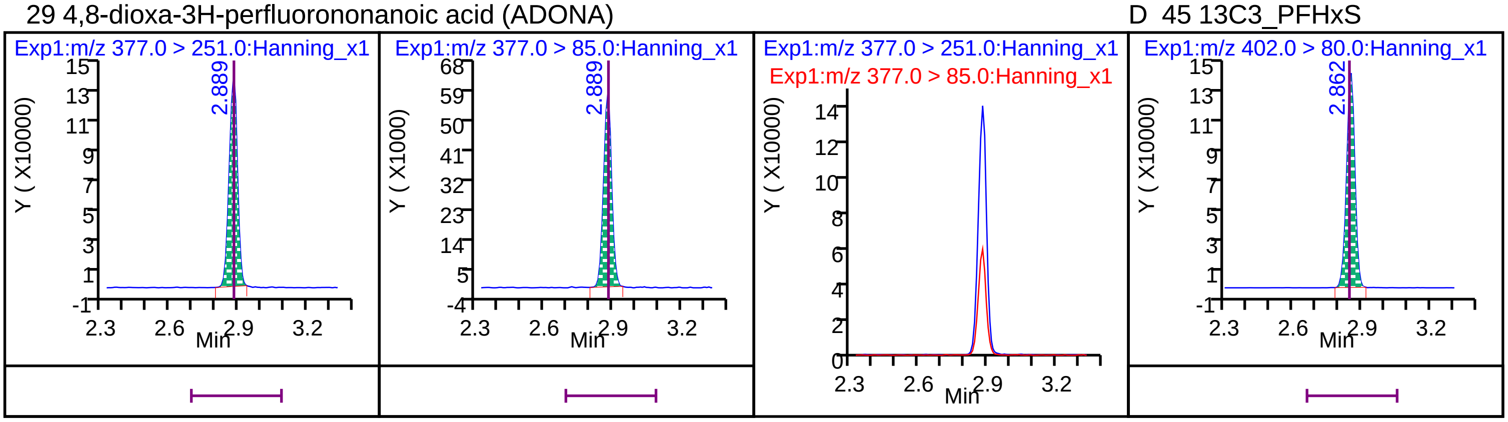
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



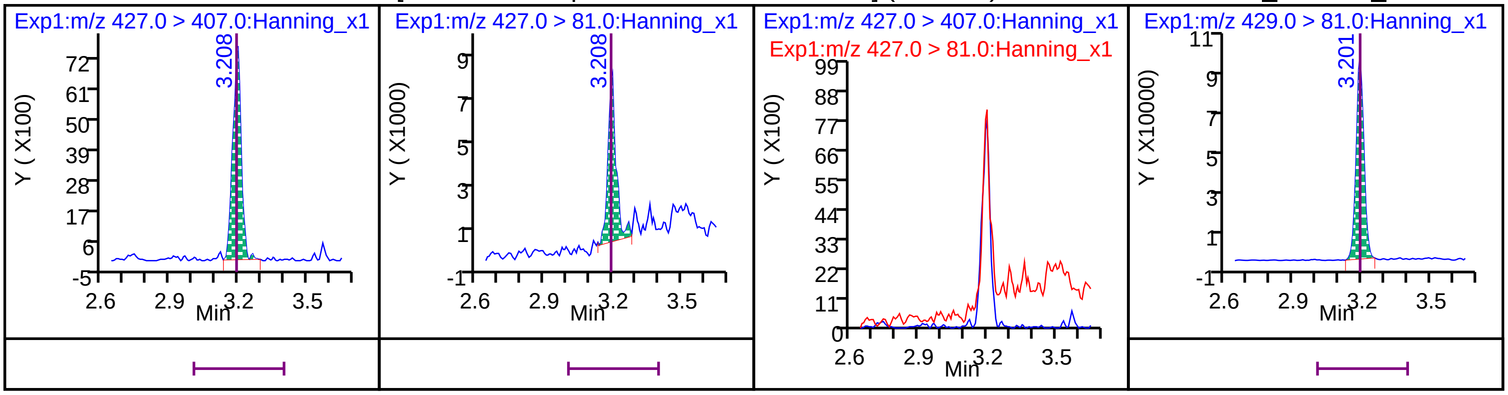
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



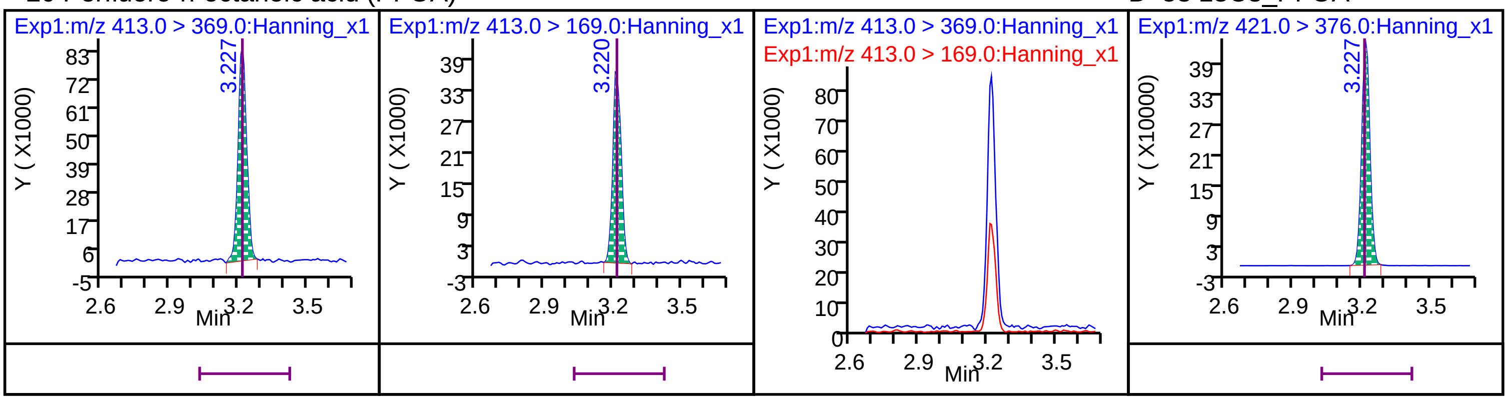
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



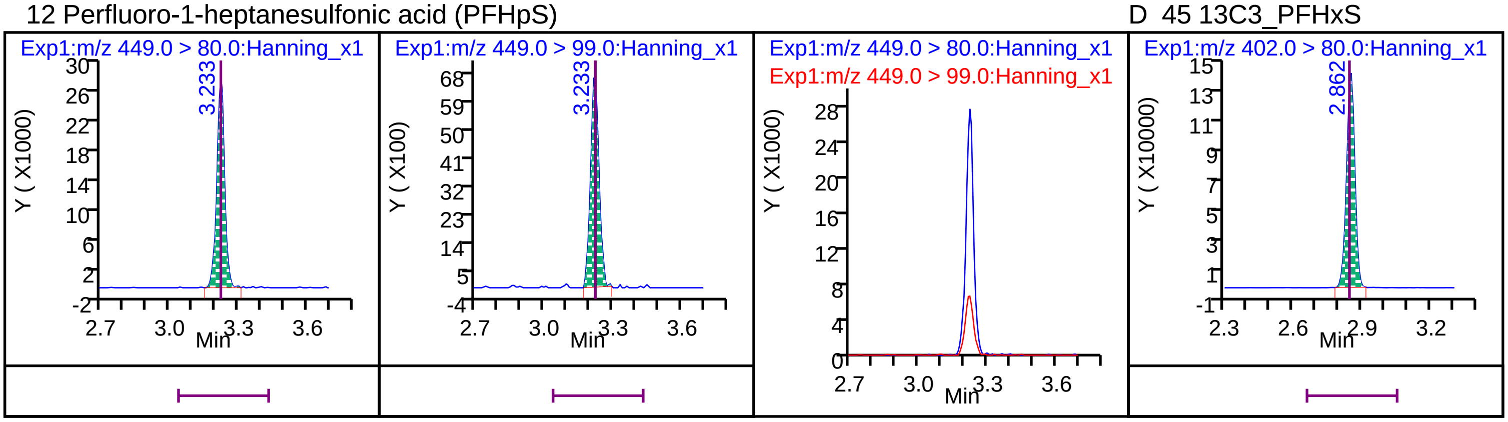
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



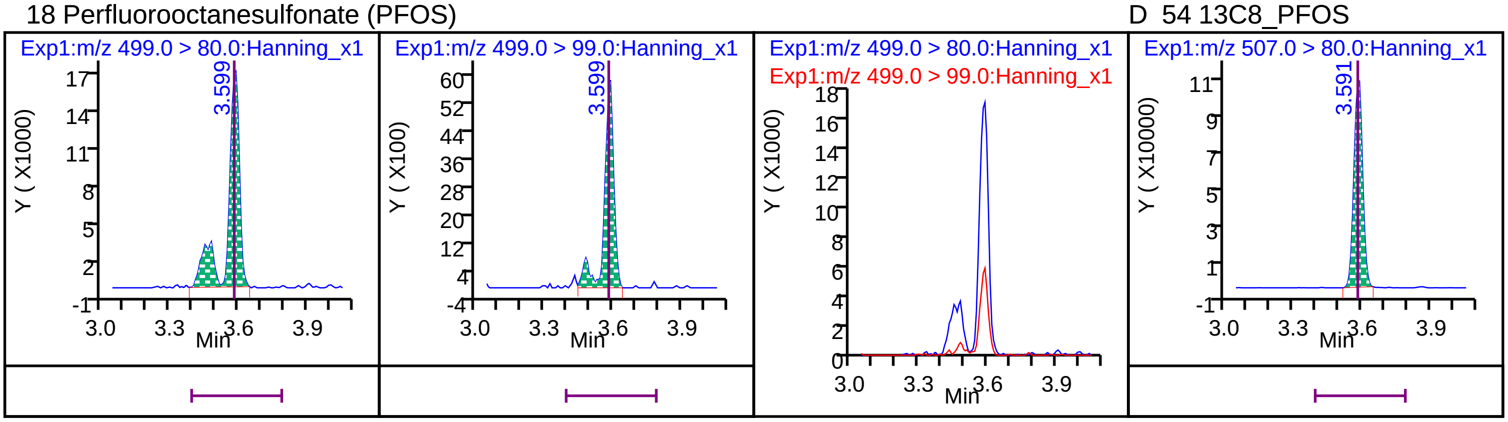
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

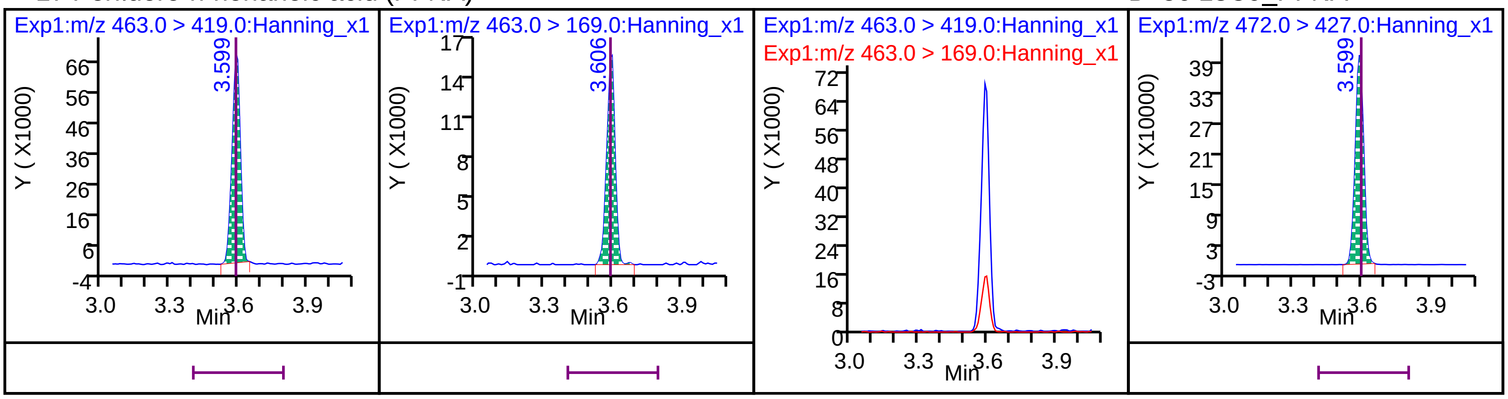


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

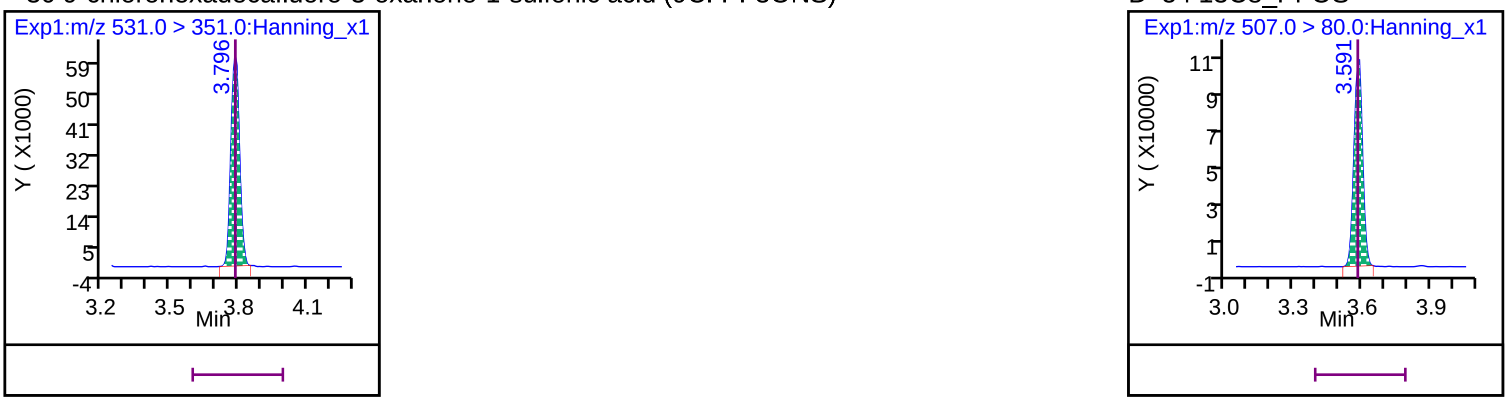


Report Date: 09-Nov-2021 07:56:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d

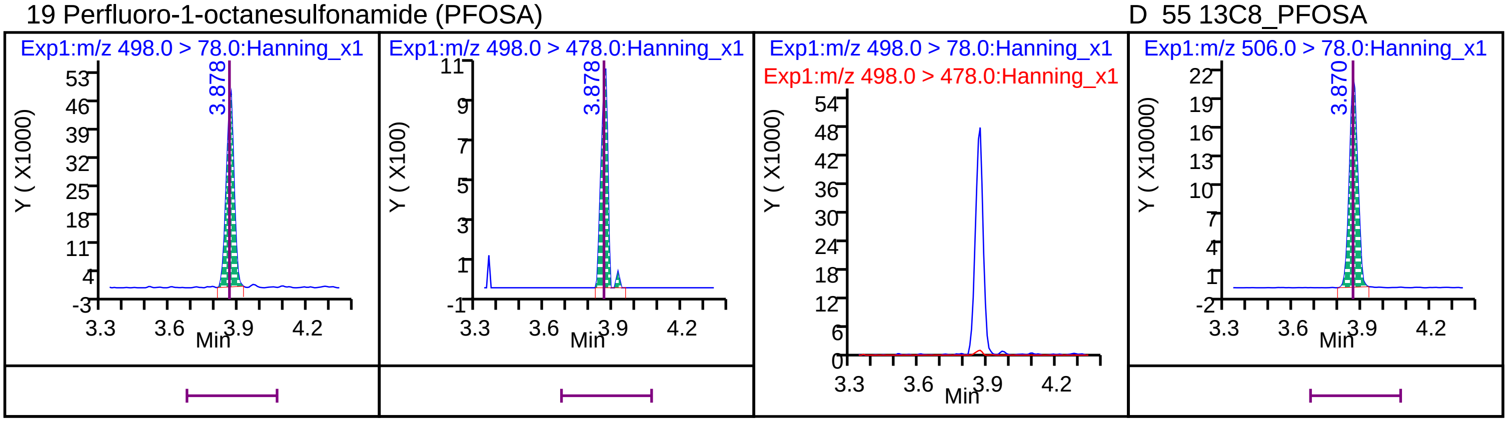
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



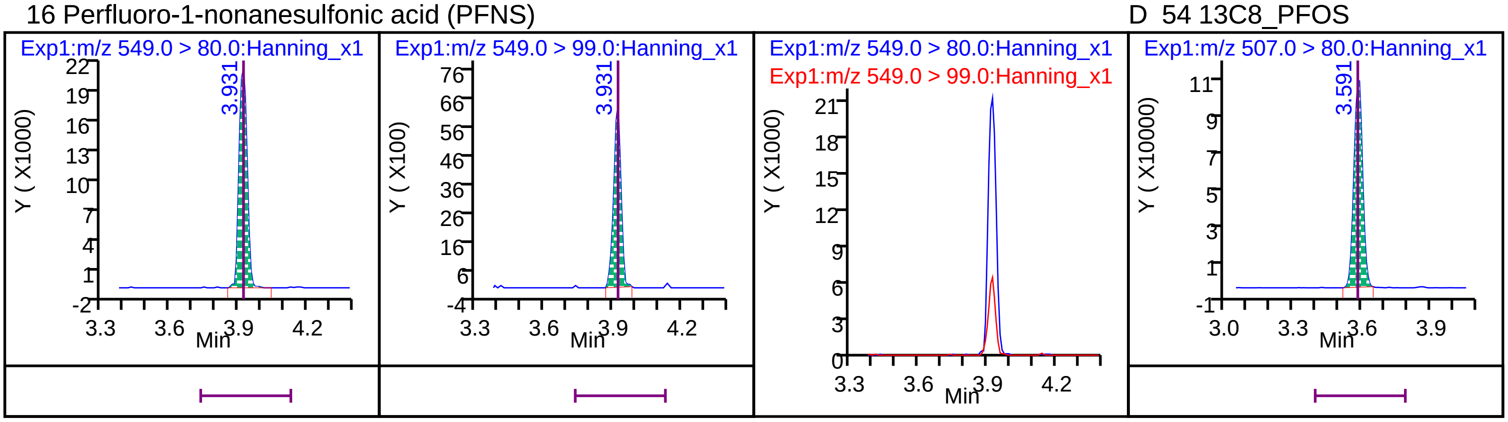
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



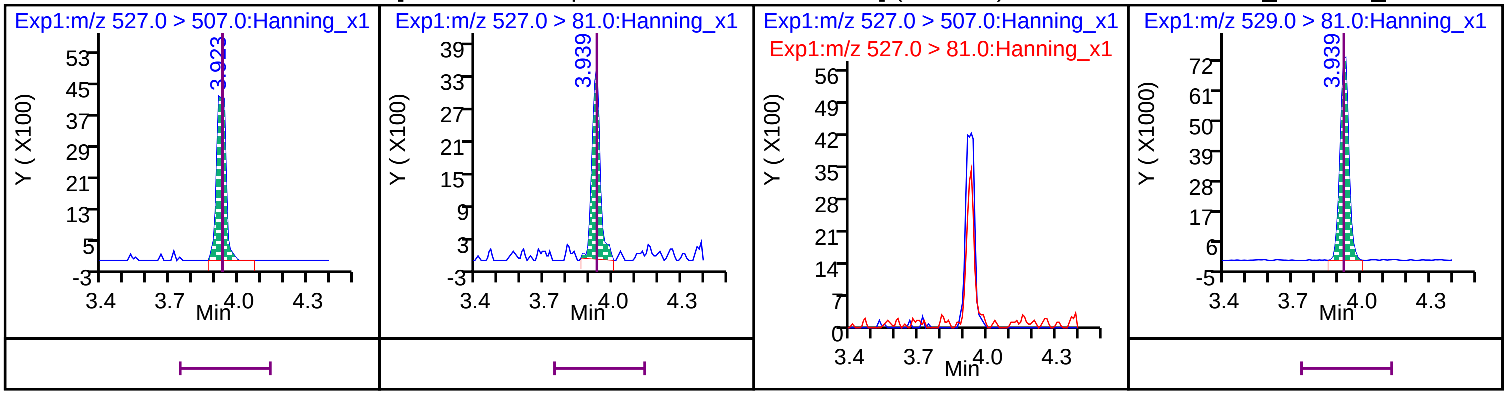
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



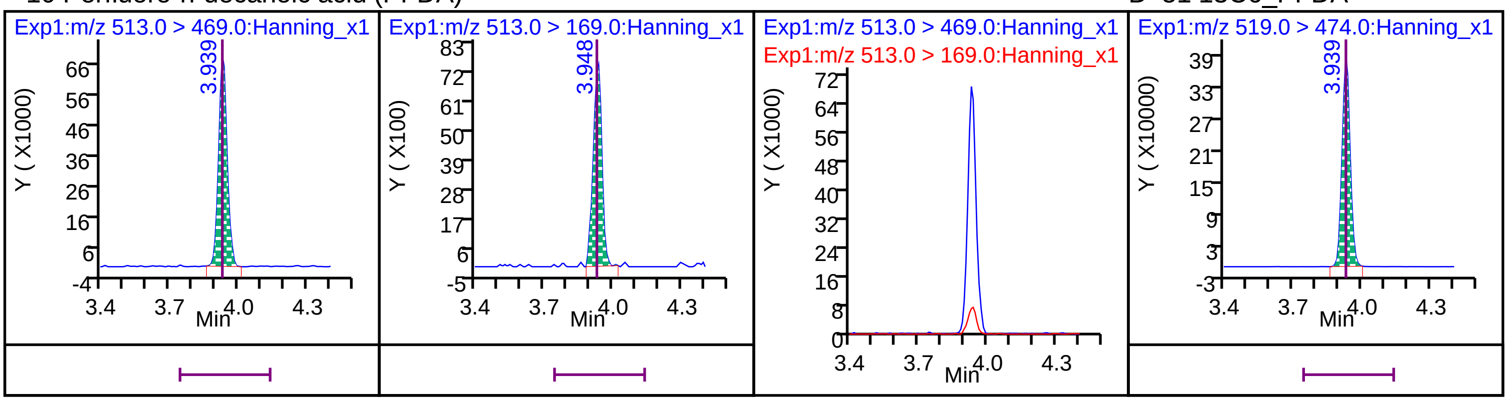
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



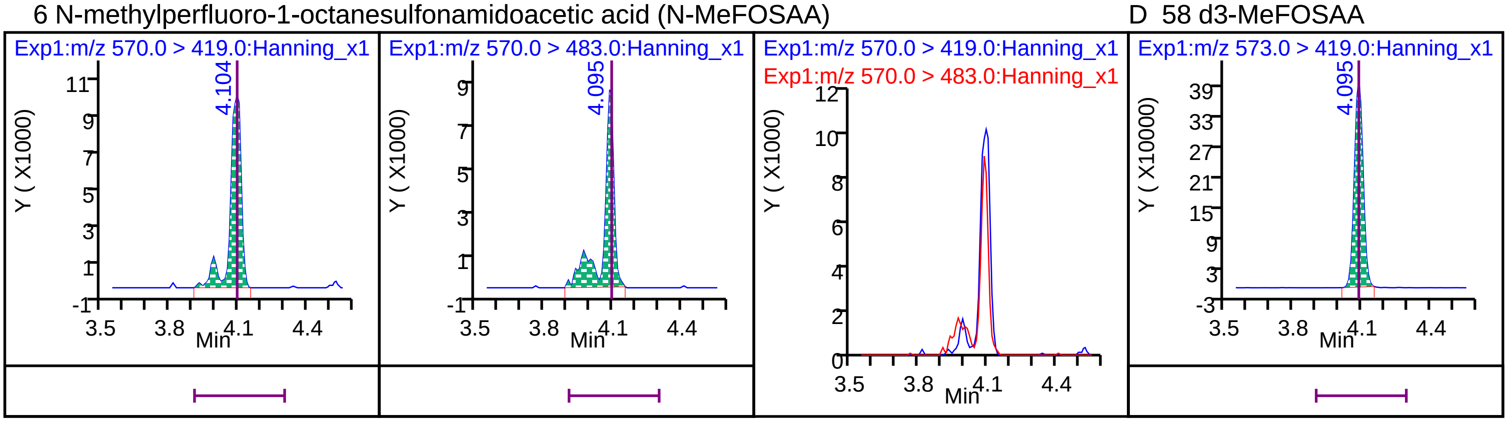
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



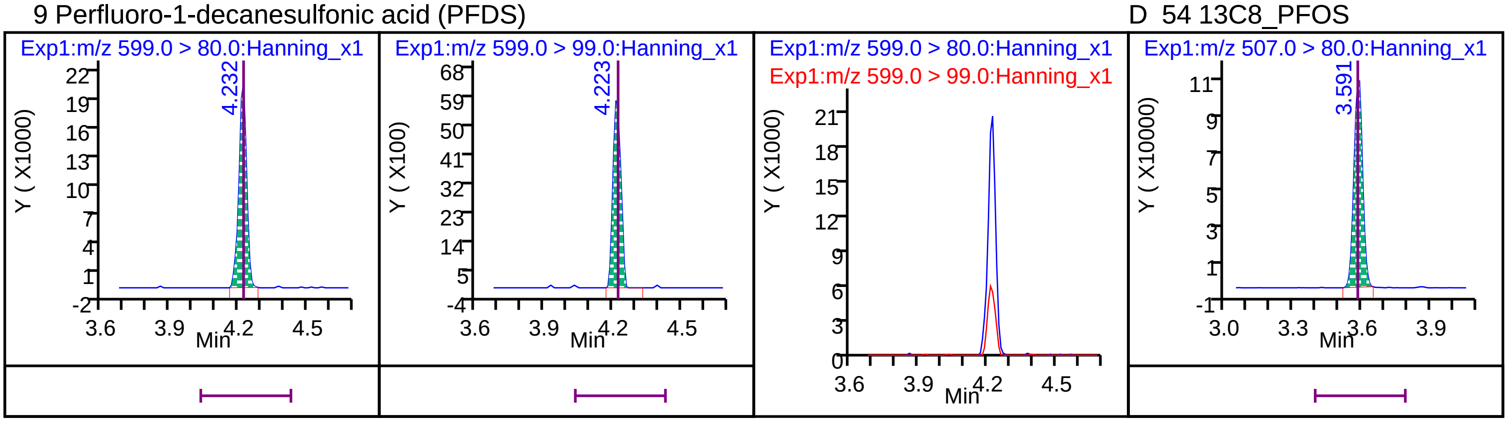
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



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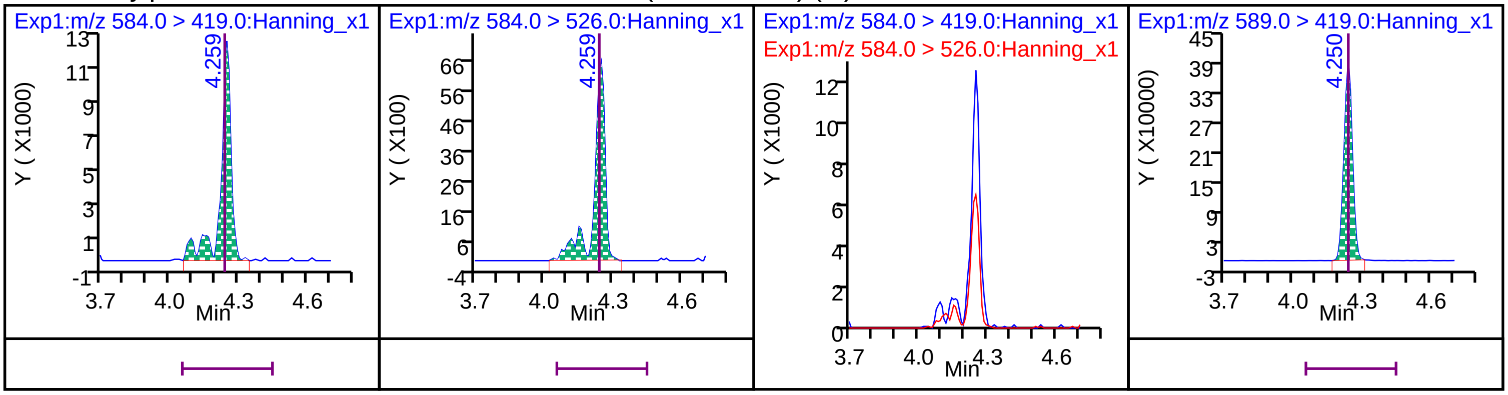
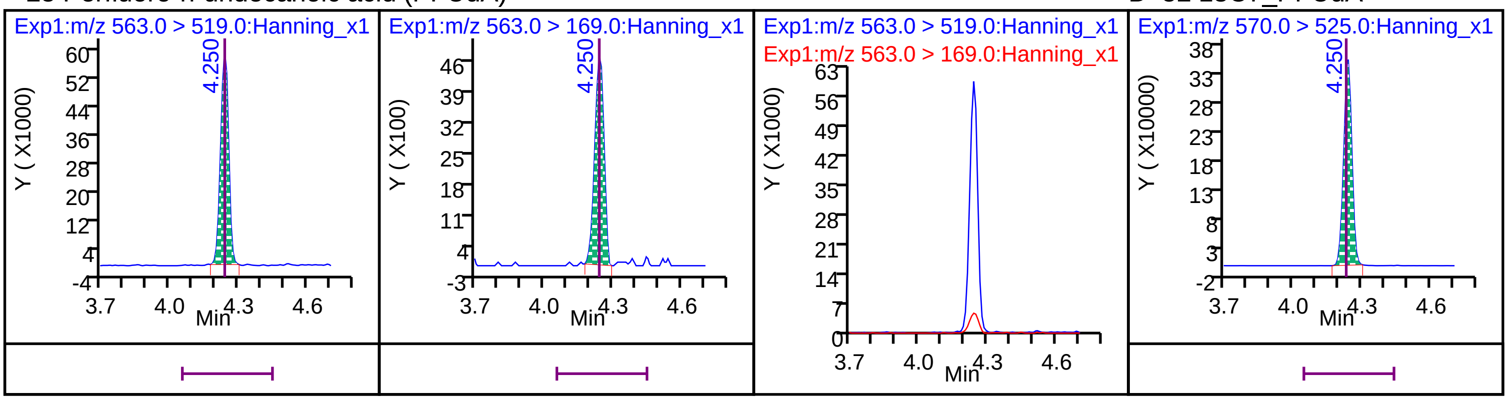
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)

D 60 d5-EtFOSAA



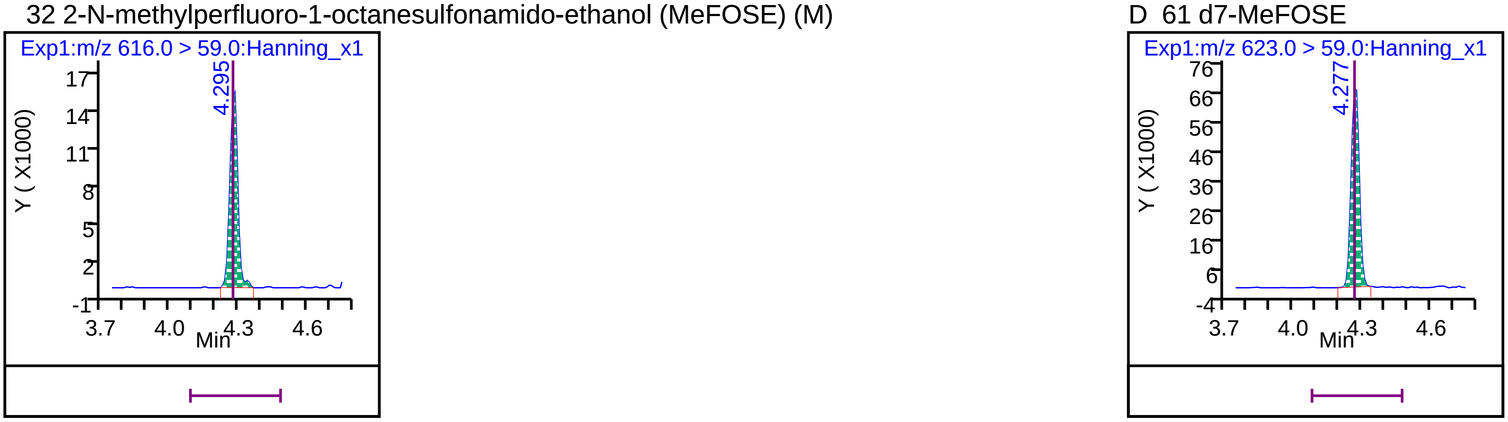
25 Perfluoro-n-undecanoic acid (PFUdA)

D 52 13C7_PFUdA



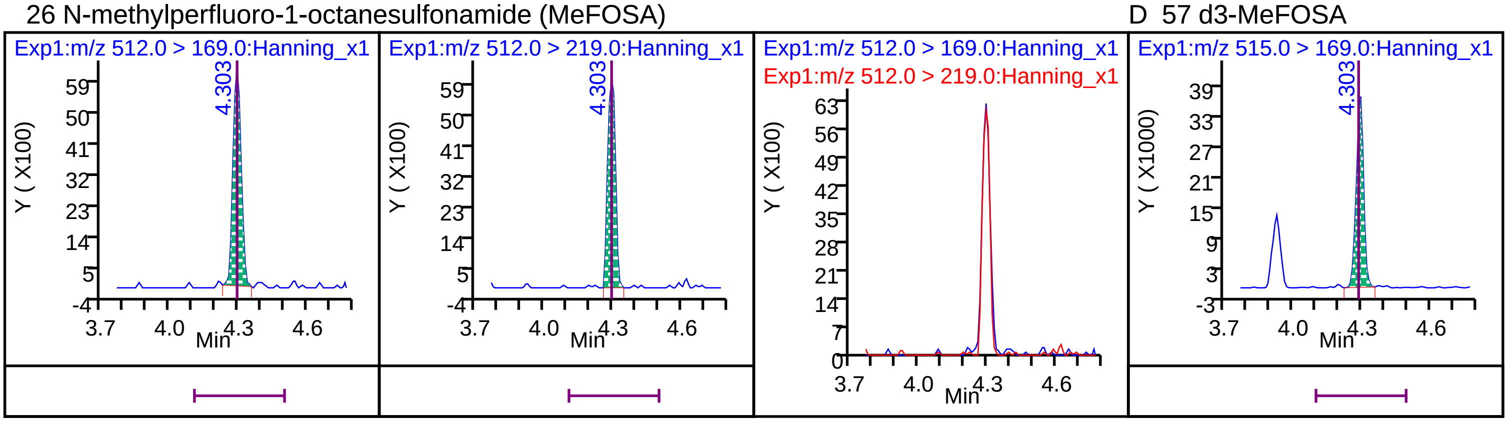
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (M)

D 61 d7-MeFOSE



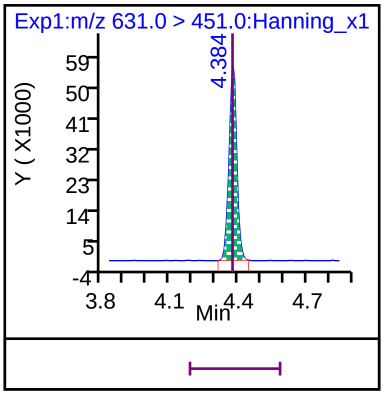
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)

D 57 d3-MeFOSA

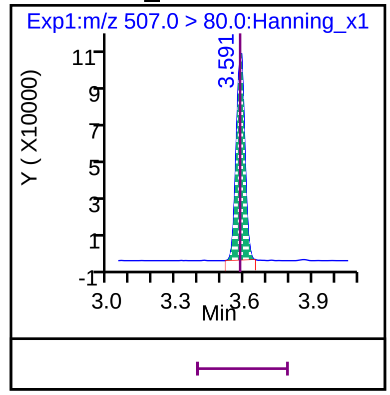


Report Date: 09-Nov-2021 07:56:17 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d

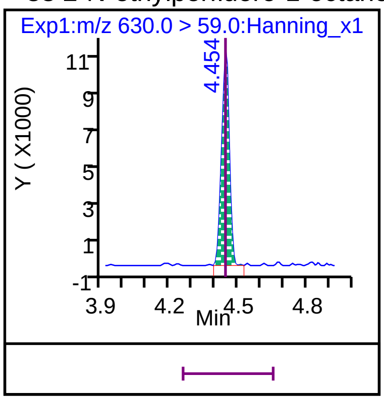
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



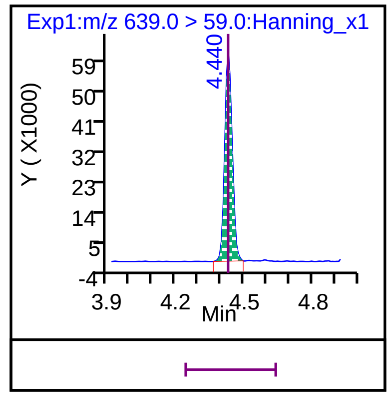
D 54 13C8_PFOS



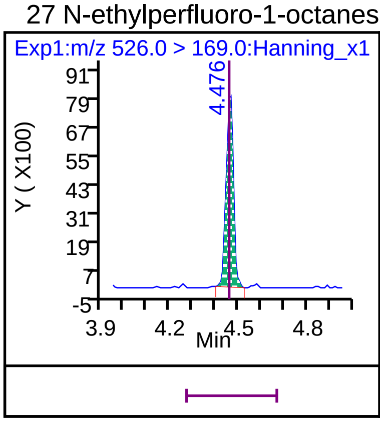
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

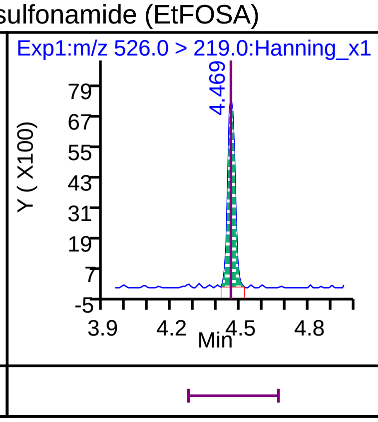


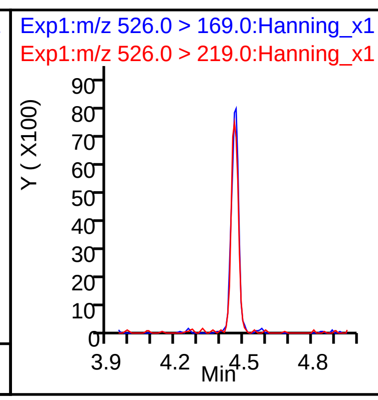
D 62 d9-EtFOSE



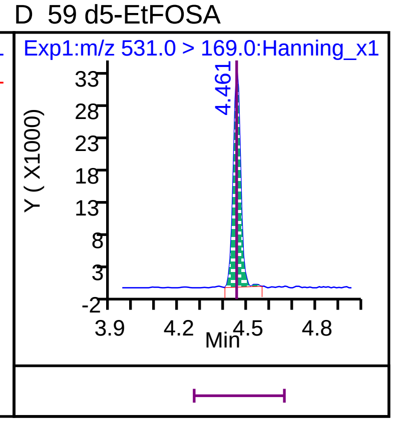
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



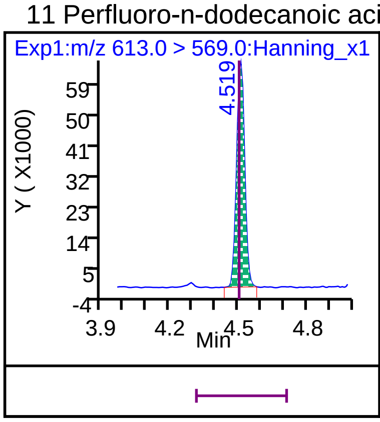


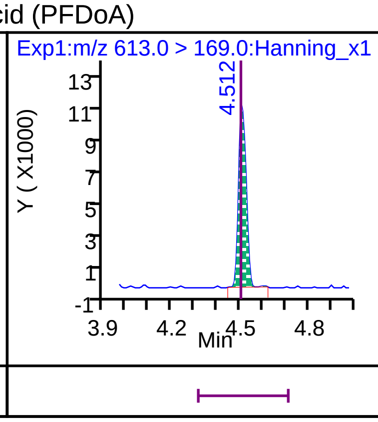


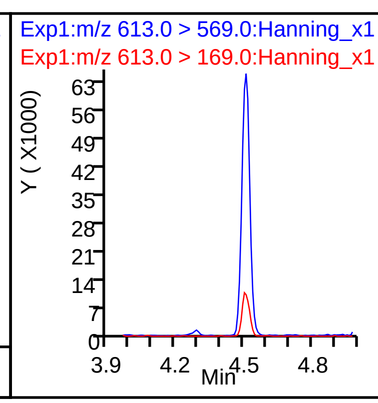
D 59 d5-EtFOSA



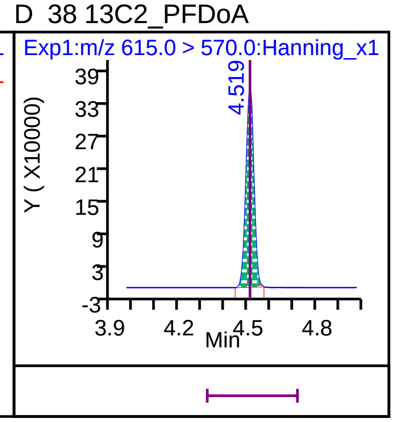
11 Perfluoro-n-dodecanoic acid (PFDoA)



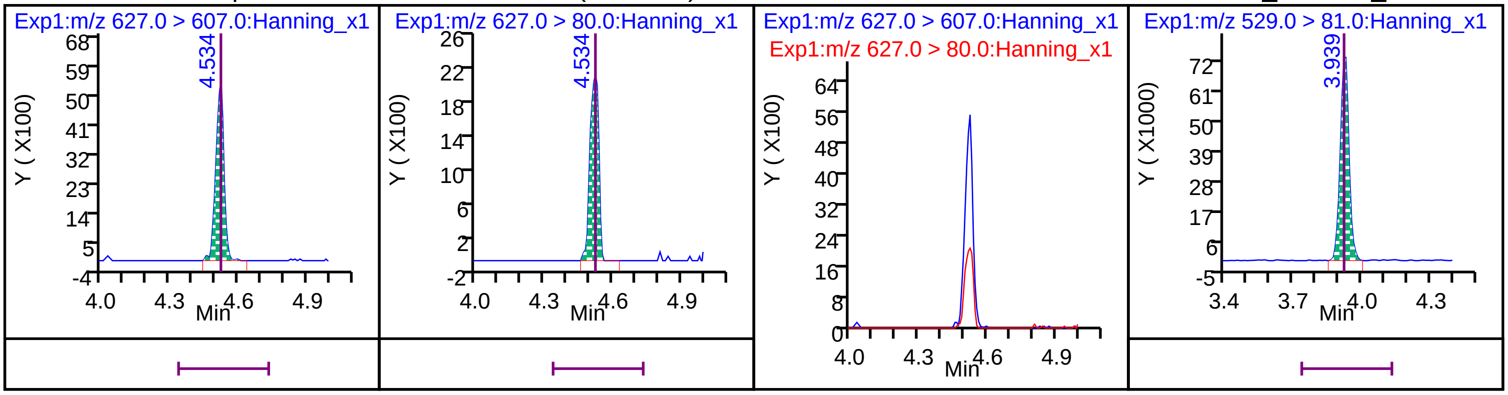




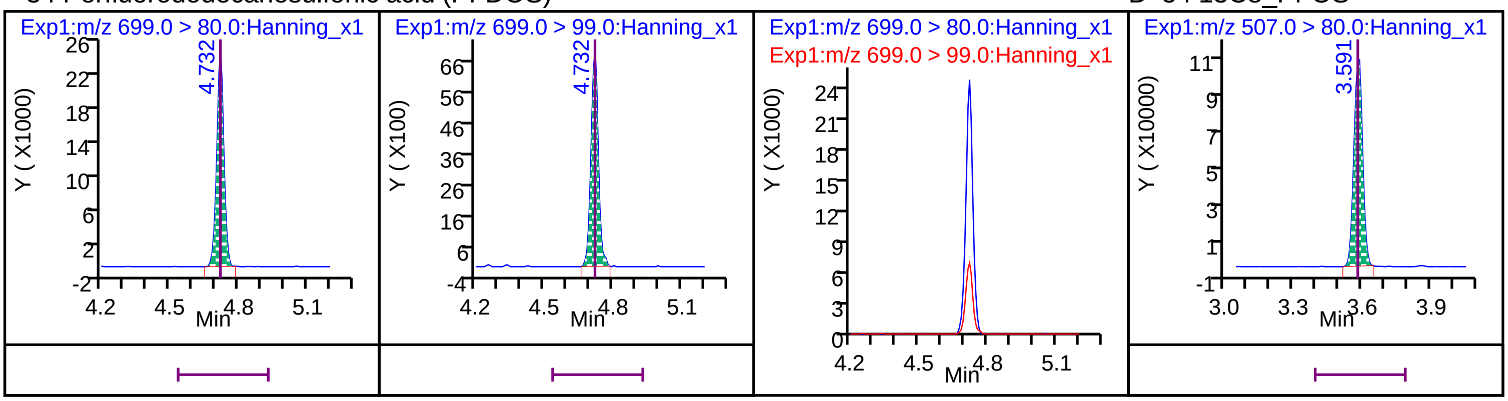
D 38 13C2_PFDoA



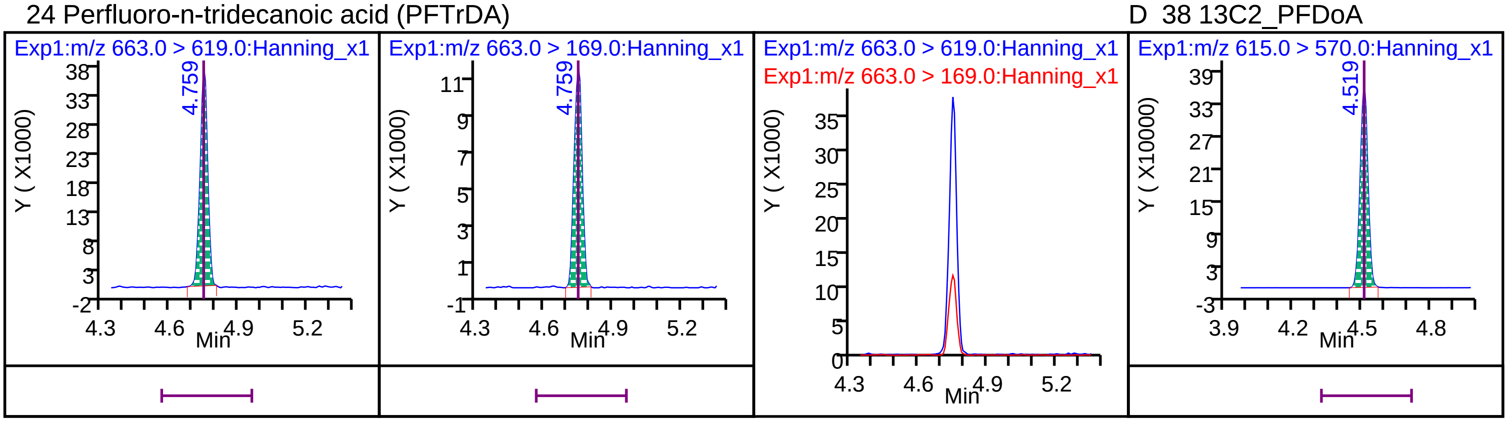
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



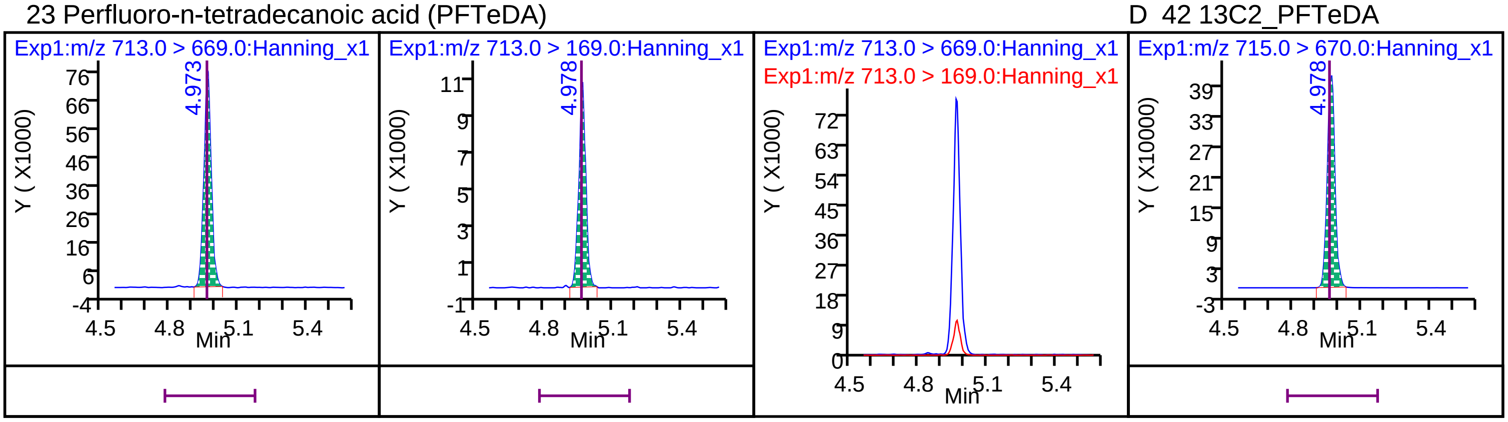
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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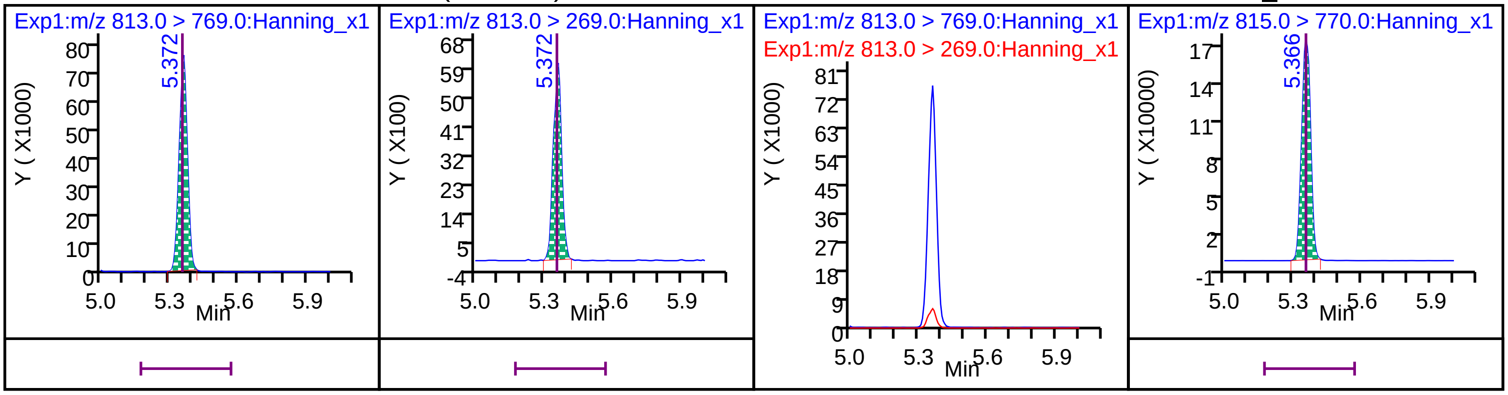
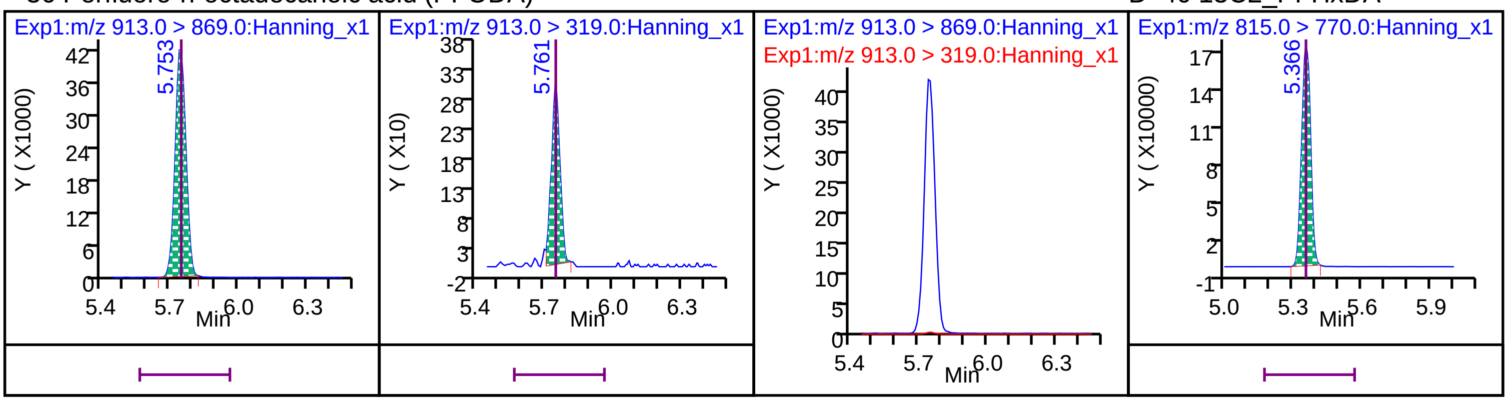
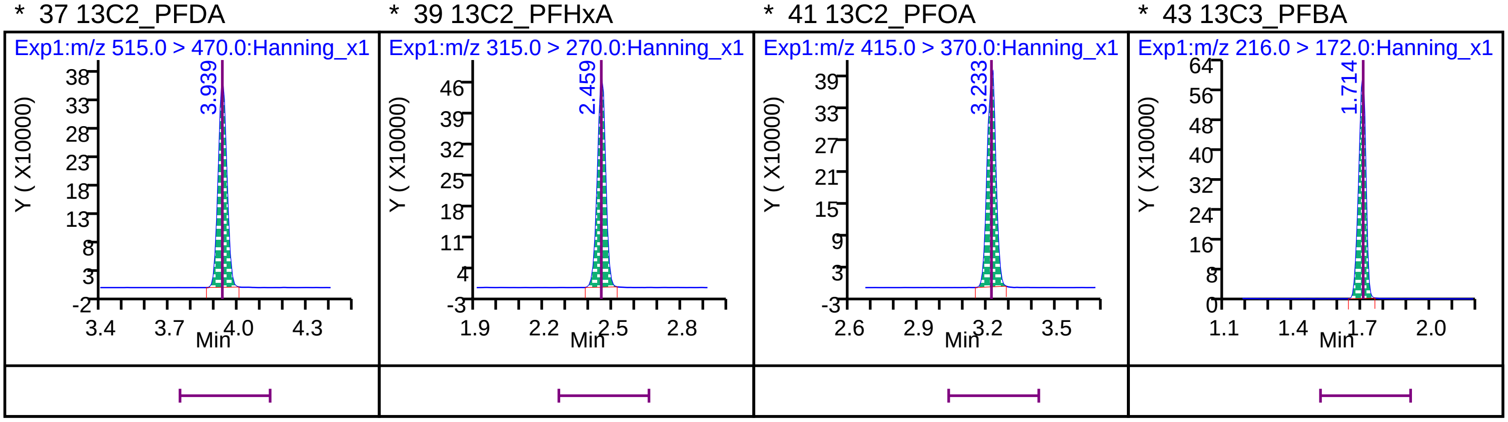
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



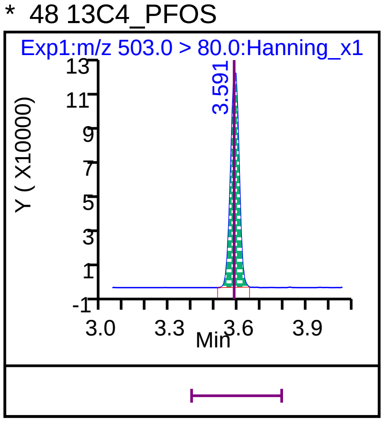
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 07:56:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

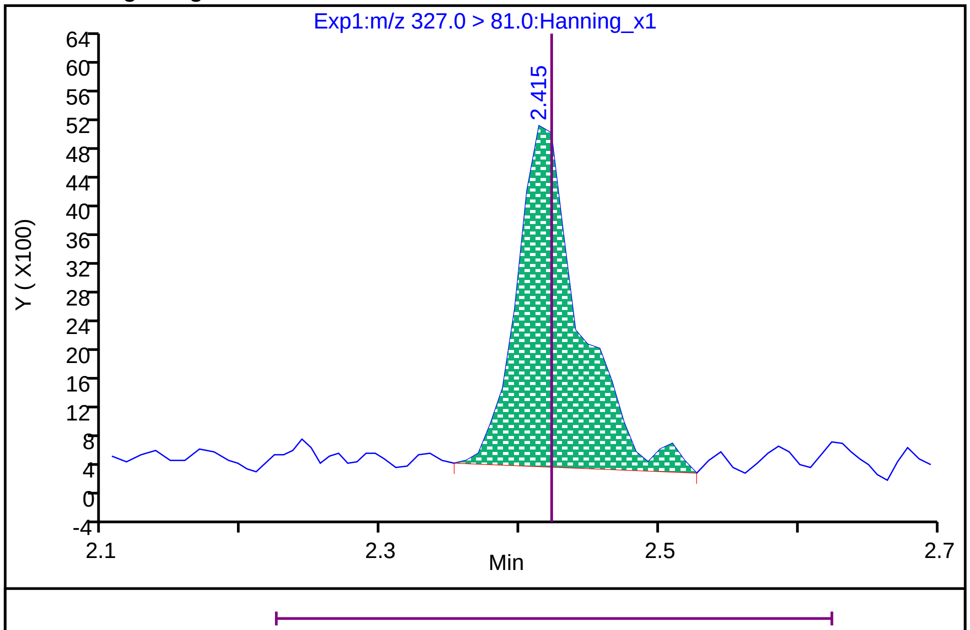
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d		
Injection Date:	05-Nov-2021 03:56:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200A_SVLC-1725
Sample Info:	CCV 200A_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

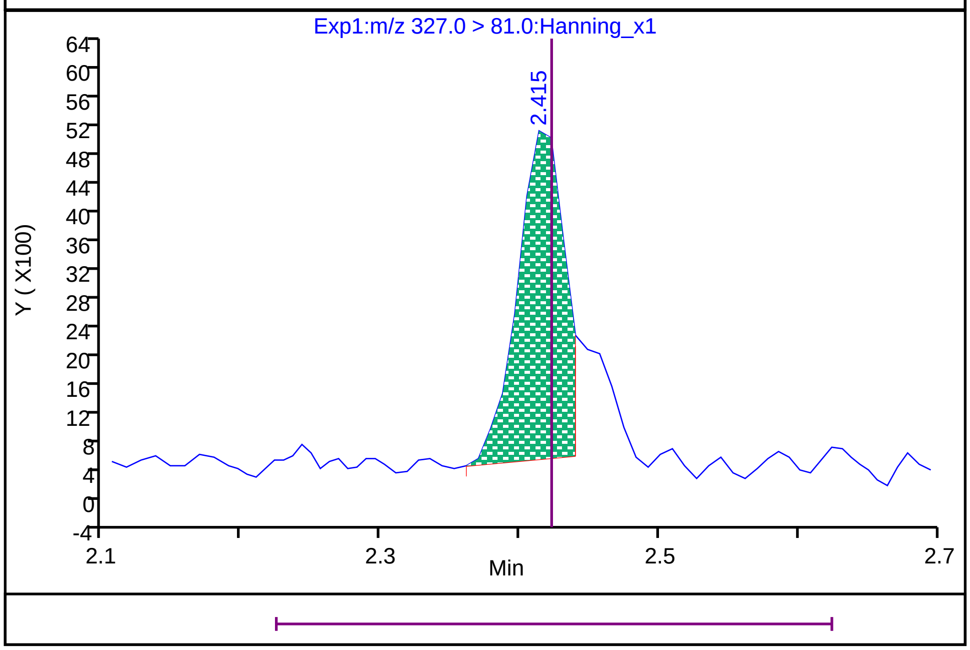
1 4:2 FTS, CAS: 757124-72-4

Processing Integration Results

RT:	2.415
Area:	14734
Amount:	187.73
Amount Units:	ng/L



RT:	2.415
Area:	10260
Amount:	187.73
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:11:40

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

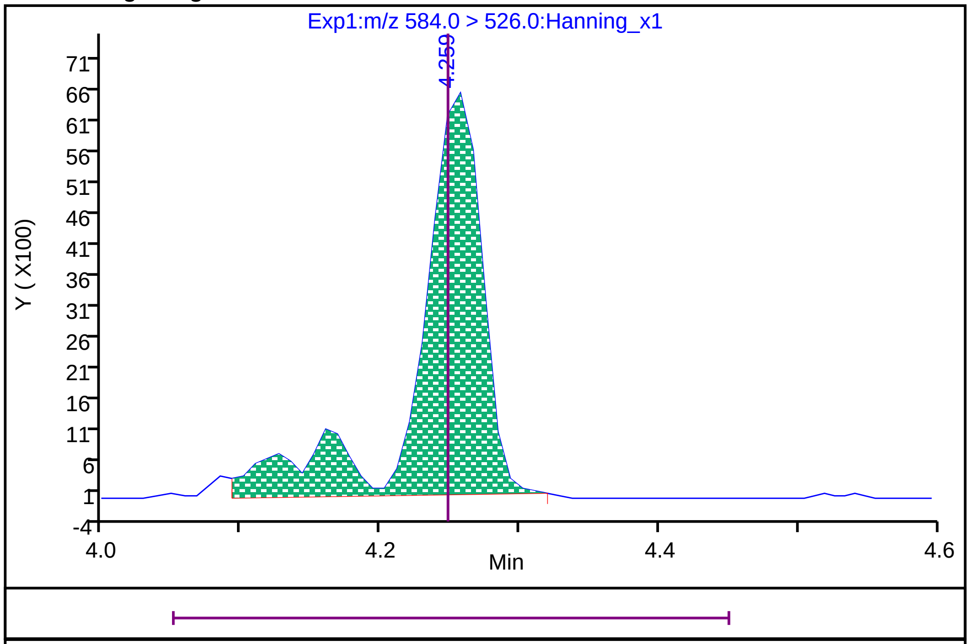
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d		
Injection Date:	05-Nov-2021 03:56:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200A_SVLC-1725
Sample Info:	CCV 200A_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

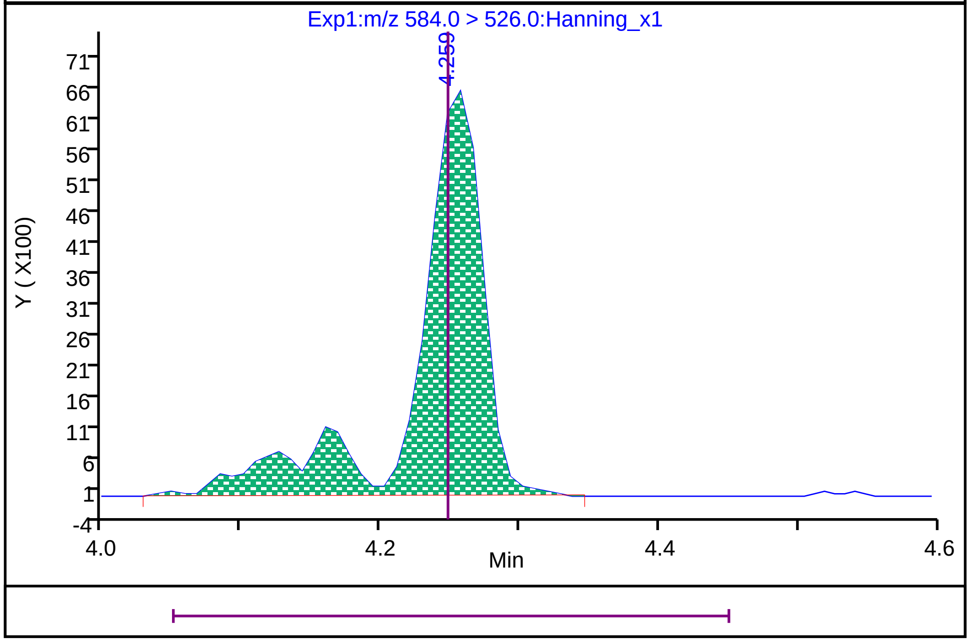
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.259
Area: 20479
Amount: 193.10
Amount Units: ng/L



RT: 4.259
Area: 21261
Amount: 193.10
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:11:58
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:18 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

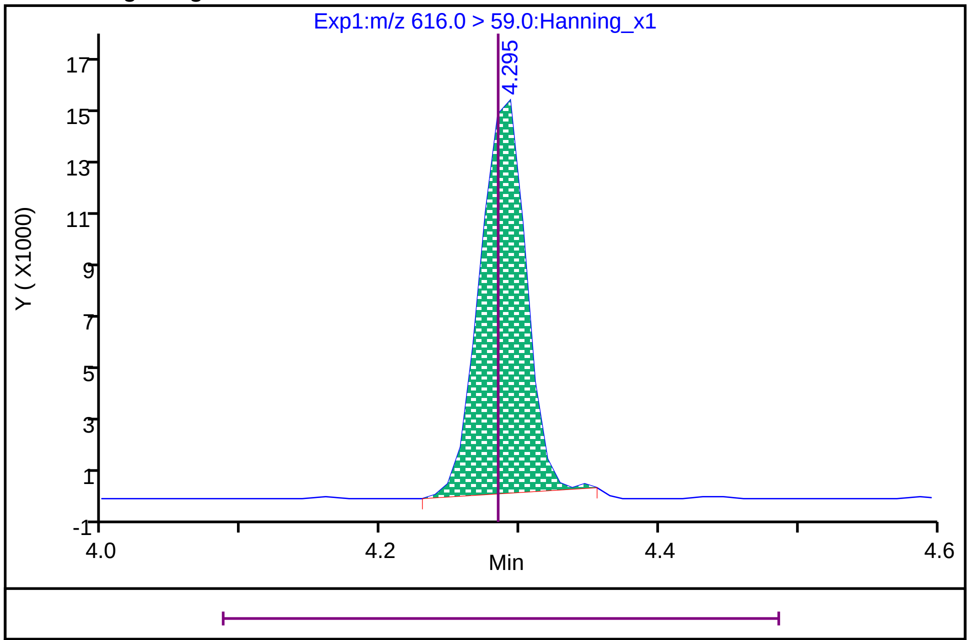
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A088.d		
Injection Date:	05-Nov-2021 03:56:57	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200A_SVLC-1725
Sample Info:	CCV 200A_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

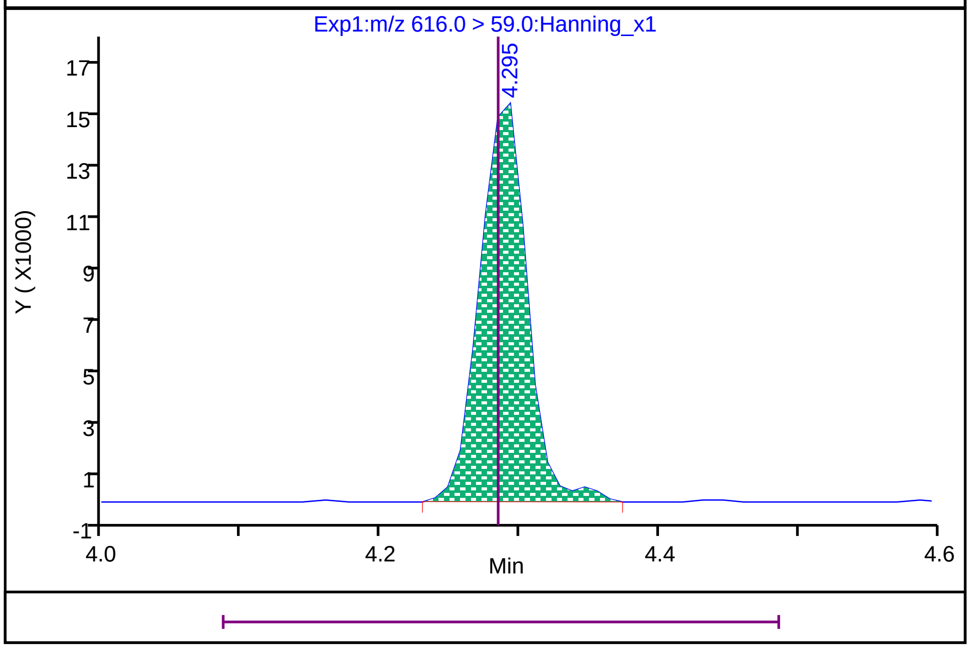
32 MeFOSE, CAS: 24448-09-7

Processing Integration Results

RT:	4.295
Area:	34767
Amount:	210.70
Amount Units:	ng/L



RT:	4.295
Area:	36450
Amount:	220.90
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:12:03

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A100.d
Injection Date: 05-Nov-2021 06:04:09 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 76
Sample Info: CCV 1000E_SVLC-1717 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	946.58	94.7	70 - 130
D 46 13C4_PFBA	1139739	1538543			135	50 - 150
D 50 13C5_PFPeA	1087851	1435338			131.9	50 - 150
21 PFPeA			1000.00	1003.38	100.3	70 - 130
7 PFBS			884.00	825.04	93.3	70 - 130
D 44 13C3_PFBS	352984	452461			128.2	50 - 150
1 4:2 FTS			934.00	1034.32	110.7	70 - 130
D 63 13C2_4:2 FTS_2	231027	305229			132.1	50 - 150
D 49 13C5_PFHxA	967117	1337342			138.3	50 - 150
15 PFHxA			1000.00	893.43	89.3	70 - 130
22 PFPeS			938.00	929.94	99.1	70 - 130
28 GenX			2000.00	2074.55	103.7	70 - 130
D 66 13C3_GenX	857456	1130560			131.9	50 - 150
D 47 13C4_PFHpA	958300	1242870			129.7	50 - 150
13 PFHpA			1000.00	999.21	99.9	70 - 130
D 45 13C3_PFHxS	272525	386382			141.8	50 - 150
14 PFHxS			910.00	854.10	93.9	70 - 130
29 ADONA			942.00	910.88	96.7	70 - 130
D 64 13C2_6:2 FTS_2	186972	275801			147.5	50 - 150
2 6:2 FTS			948.00	1161.74	122.5	70 - 130
D 53 13C8_PFOA	929811	1190157			128	50 - 150
20 PFOA			1000.00	924.98	92.5	70 - 130
12 PFHpS			952.00	954.43	100.3	70 - 130
18 PFOS			928.00	854.70	92.1	70 - 130
17 PFNA			1000.00	939.97	94	70 - 130
D 56 13C9_PFNA	982819	1187638			120.8	50 - 150
D 54 13C8_PFOS	248479	330614			133.1	50 - 150
30 9Cl-PF3ONS			932.00	836.47	89.7	70 - 130
D 55 13C8_PFOSA	462556	598780			129.5	50 - 150
19 PFOSA			1000.00	969.74	97	70 - 130
16 PFNS			960.00	846.16	88.1	70 - 130
D 65 13C2_8:2 FTS_2	165898	221467			133.5	50 - 150
3 8:2 FTS			958.00	974.40	101.7	70 - 130
10 PFDA			1000.00	967.51	96.8	70 - 130
D 51 13C6_PFDA	822896	1025371			124.6	50 - 150
6 N-MeFOSAA			1000.00	1040.22	104	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	900380	1254448			139.3	50 - 150
9 PFDS			964.00	908.78	94.3	70 - 130
5 N-EtFOSAA			1000.00	933.11	93.3	70 - 130
25 PFUdA			1000.00	954.27	95.4	70 - 130
D 60 d5-EtFOSAA	819983	1105283			134.8	50 - 150
D 52 13C7_PFUdA	739024	982345			132.9	50 - 150
D 61 d7-MeFOSE	131808	187237			142.1	50 - 150
32 MeFOSE			1000.00	973.70	97.4	70 - 130
26 MeFOSA			1000.00	1097.11	109.7	70 - 130
D 57 d3-MeFOSA	65142	89490			137.4	50 - 150
31 11Cl-PF3OUDS			942.00	918.08	97.5	70 - 130
D 62 d9-EtFOSE	133637	165263			123.7	50 - 150
33 EtFOSE			1000.00	1155.44	115.5	70 - 130
D 59 d5-EtFOSA	66694	88791			133.1	50 - 150
27 EtFOSA			1000.00	1001.95	100.2	70 - 130
11 PFDoA			1000.00	1010.59	101.1	70 - 130
D 38 13C2_PFDoA	713011	940626			131.9	50 - 150
4 10:2 FTS			964.00	861.17	89.3	70 - 130
34 PFDOS			968.00	787.92	81.4	70 - 130
24 PFTrDA			1000.00	1037.31	103.7	70 - 130
23 PFTeDA			1000.00	1009.06	100.9	70 - 130
D 42 13C2_PFTeDA	861693	1083314			125.7	50 - 150
35 PFHxDA			1000.00	977.92	97.8	70 - 130
D 40 13C2_PFHxDA	379361	516641			136.2	50 - 150
36 PFODA			1000.00	964.44	96.4	70 - 130

Report Date: 09-Nov-2021 07:56:33 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A100.d		
Injection Date:	05-Nov-2021 06:04:09	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	76
Sample Info:	CCV 1000E_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.708	0	1538543	19	>100:1			1000.00	1428.90	135	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	0/0	1601716	18	>100:1			1000.00	946.58		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.079	1	1435338	16	>100:1			1000.00	1431.17	131.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	0/-1	1543082	16	>100:1			1000.00	1003.38		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	452461	15	>100:1			1000.00	1393.17	128.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	533301	16	>100:1	Target = 3.80		884.00	825.04		
298.9 > 99	44	2.141	2.141		133672	17	>100:1	3.98 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.494	0/0	423368	18	>100:1	Target = 3.42		938.00	929.94		
349 > 99	44	2.493	2.494		126294	17	>100:1	3.35 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.416	0	305229	18	>100:1			5000.00	7348.37	132.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	0/0	123231	18	>100:1	Target = 1.54		934.00	1034.32		
327 > 81	63	2.415	2.424		72147	19	100:1	1.70 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	1337342	18	>100:1			1000.00	1497.19	138.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.459	0/0	1234582	18	>100:1	Target = 17.93		1000.00	893.43		
313 > 119	49	2.459	2.459		74980	17	>100:1	16.46 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.579	0	1130560	17	>100:1			5000.00	6901.26	131.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.579	0/0	359403	18	>100:1	Target = 0.72		2000.00	2074.55		
285 > 185	66	2.579	2.579		489080	19	>100:1	0.73 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	0	1242870	17	>100:1			1000.00	1418.49	129.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	0/0	1195518	17	>100:1	Target = 3.26		1000.00	999.21		
363 > 169	47	2.846	2.846		366372	17	>100:1	3.26 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.855	1	386382	17	>100:1			1000.00	1473.17	141.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.855	1/0	390120	27	>100:1	Target = 3.48	4.78	910.00	854.10		
399 > 99	45	2.864	2.855		111595	25	>100:1	3.49 (1.74-5.22)	6.55				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	0/-1	1937186	18	>100:1	Target = 2.31		942.00	910.88		
377 > 85	45	2.890	2.890		807273	18	>100:1	2.39 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.236	3.233	1/0	379299	22	>100:1	Target = 3.56		952.00	954.43		
449 > 99	45	3.229	3.233		99679	27	>100:1	3.80 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.201	1	275801	21	>100:1			5000.00	7313.53	147.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.201	1/0	111424	22	>100:1	Target = 1.34		948.00	1161.74		
427 > 81	64	3.204	3.201		76018	21	>100:1	1.46 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.220	1	1190157	22	>100:1			1000.00	1439.14	128	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.227	1/0	1132702	21	>100:1	Target = 2.50		1000.00	924.98		
413 > 169	53	3.229	3.227		472839	22	>100:1	2.39 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.591	0	330614	19				1000.00	1472.80	133.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.588	3.591	0/0	333115	37	>100:1	Target = 4.01	3.23	928.00	854.70		
499 > 99	54	3.596	3.591		88408	42	>100:1	3.76 (2.00-6.02)	7.27				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.792	3.796	0/0	854674	19	>100:1			932.00	836.47		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.927	3.932	0/0	282555	18	>100:1	Target = 3.78		960.00	846.16		
549 > 99	54	3.927	3.932		81385	16	>100:1	3.47 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.232	0/0	296625	16	>100:1	Target = 3.98		964.00	908.78		
599 > 99	54	4.235	4.232		85038	16	>100:1	3.48 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.387	4.384	1/1	843188	17	>100:1			942.00	918.08		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.727	4.731	0/0	252288	18	>100:1	Target = 3.68		968.00	787.92		
699 > 99	54	4.727	4.731		68280	20		3.69 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.596	3.606	0	1187638	19	>100:1			1000.00	1486.38	120.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.596	3.599	0/0	1016550	20	>100:1	Target = 4.69		1000.00	939.97		
463 > 169	56	3.596	3.599		220423	19	>100:1	4.61 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.871	1	598780	19	>100:1			1000.00	1445.66	129.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.871	1/0	656561	17	>100:1	Target = 40.85		1000.00	969.74		
498>478	55	3.873	3.871		14468	15		45.38 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.935	3.932	1	221467	19	>100:1			5000.00	7056.36	133.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.927	3.940	0/-1	76678	19	>100:1	Target = 1.58		958.00	974.40		
527 > 81	65	3.935	3.940		51498	20	>100:1	1.48 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.533	0/-1	68025	18	>100:1	Target = 2.46		964.00	861.17		
627 > 80	65	4.528	4.533		27365	19	>100:1	2.48 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.940	1	1025371	19	>100:1			1000.00	1420.57	124.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.943	3.940	1/0	1017948	18	>100:1	Target = 9.77		1000.00	967.51		
513 > 169	51	3.943	3.940		105500	18	>100:1	9.64 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.099	4.096	1	1254448	18	>100:1			5000.00	7074.77	139.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.099	4.104	0/-1	213381	34	>100:1	Target = 1.41	6.66	1000.00	1040.22		M
570 > 483	58	4.099	4.104		148985	32	>100:1	1.43 (0.70-2.11)	3.66				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.241	1	982345	17	>100:1			1000.00	1437.39	132.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.253	4.250	1/0	840975	17	>100:1	Target = 9.19		1000.00	954.27		
563 > 169	52	4.244	4.250		101308	18	>100:1	8.30 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.244	4.250	0	1105283	17	>100:1			5000.00	7391.68	134.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.250	1/1	210844	35	>100:1	Target = 1.75	5.95	1000.00	933.11		M
584 > 526	60	4.253	4.250		126840	34	>100:1	1.66 (0.87-2.63)	3.71				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.277	1	187237	16	>100:1			1000.00	1356.93	142.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.286	1/0	185288	17	>100:1			1000.00	973.70		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.295	1	89490	16	>100:1			1000.00	1278.05	137.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.307	4.304	1/0	101669	18	>100:1	Target = 1.11		1000.00	1097.11		
512 > 219	57	4.307	4.304		99738	16	>100:1	1.01 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.439	1	165263	18	>100:1			1000.00	1285.55	123.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.449	4.454	0/-1	162538	18	>100:1			1000.00	1155.44		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.461	1	88791	18	>100:1			1000.00	1378.63	133.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.468	1/0	104008	16	>100:1	Target = 1.06		1000.00	1001.95		
526 > 219	59	4.470	4.468		97766	17	>100:1	1.06 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.519	0	940626	19	>100:1			1000.00	1367.90	131.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.512	1/1	933564	20	>100:1	Target = 6.38		1000.00	1010.59		
613 > 169	38	4.514	4.512		134848	20	>100:1	6.92 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.754	4.758	0/0	522889	20	>100:1	Target = 3.23		1000.00	1037.31		
663 > 169	38	4.761	4.758		159278	21	>100:1	3.28 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.978	4.968	1	1083314	26	>100:1			1000.00	1385.75	125.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.973	1/0	960656	26	>100:1	Target = 7.33		1000.00	1009.06		
713 > 169	42	4.978	4.973		126900	26	>100:1	7.57 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.372	5.366	1	516641	23	>100:1			1000.00	1323.43	136.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.366	1/0	966447	23	>100:1	Target = 12.31		1000.00	977.92		
813 > 269	40	5.372	5.366		81482	22	>100:1	11.86 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	1/0	752231	23	>100:1	Target = 165.31		1000.00	964.44		
913 > 319	40	5.761	5.761		4792	20	>100:1	156.97 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.943	3.940	1	1008969	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.459	0	1201408	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.227	0	1087016	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	0	1315694	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.591	1	321470	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

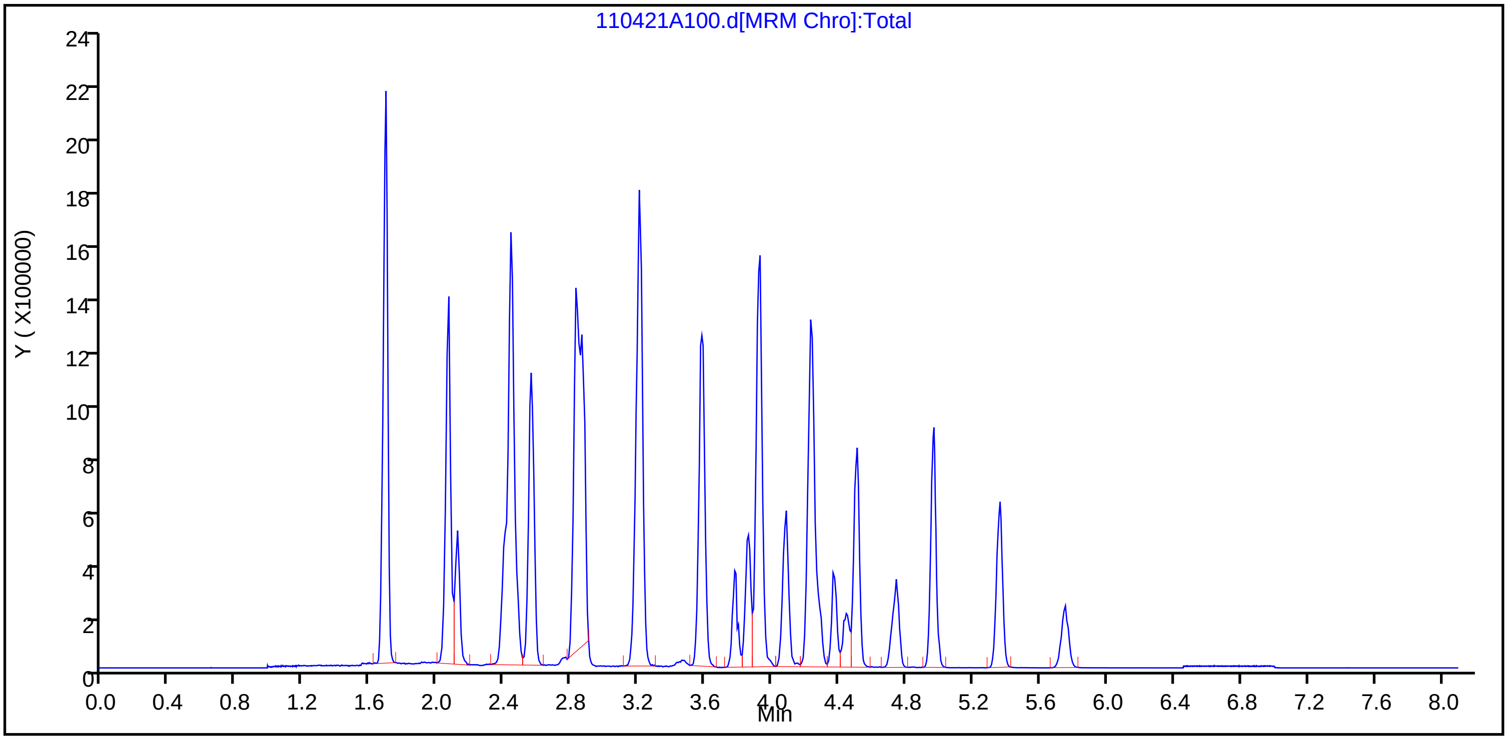
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

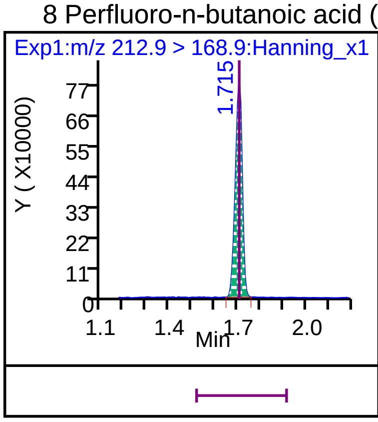
Report Date: 09-Nov-2021 07:56:33　　AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

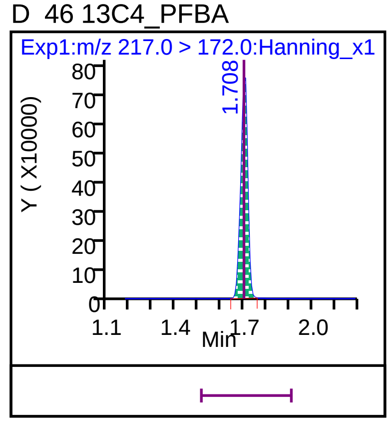
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A100.d		
Injection Date:	05-Nov-2021 06:04:09	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000E_SVLC-1717
Sample Info:	CCV 1000E_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



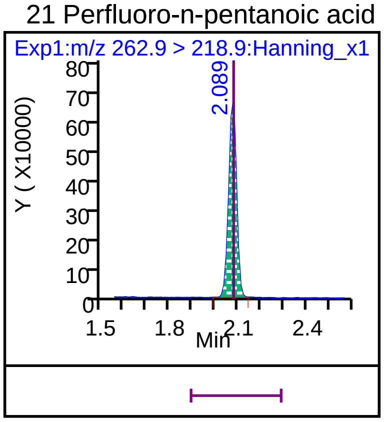
8 Perfluoro-n-butanoic acid (PFBA)



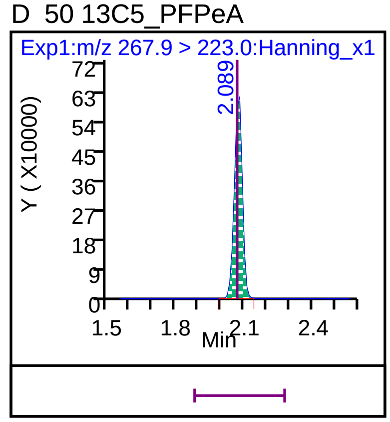
D 46 13C4_PFBA



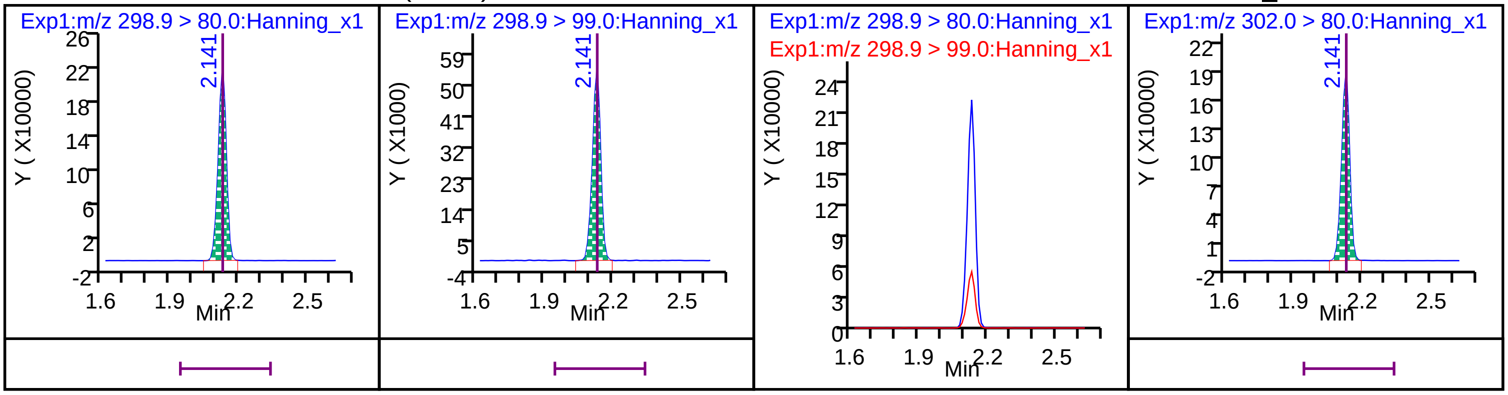
21 Perfluoro-n-pentanoic acid (PFPeA)



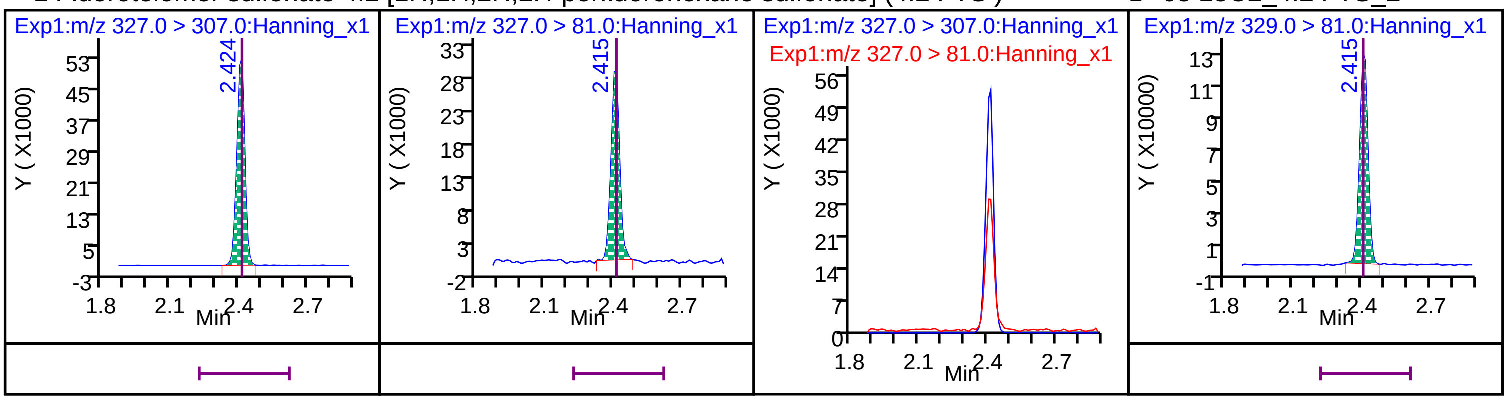
D 50 13C5_PFPeA



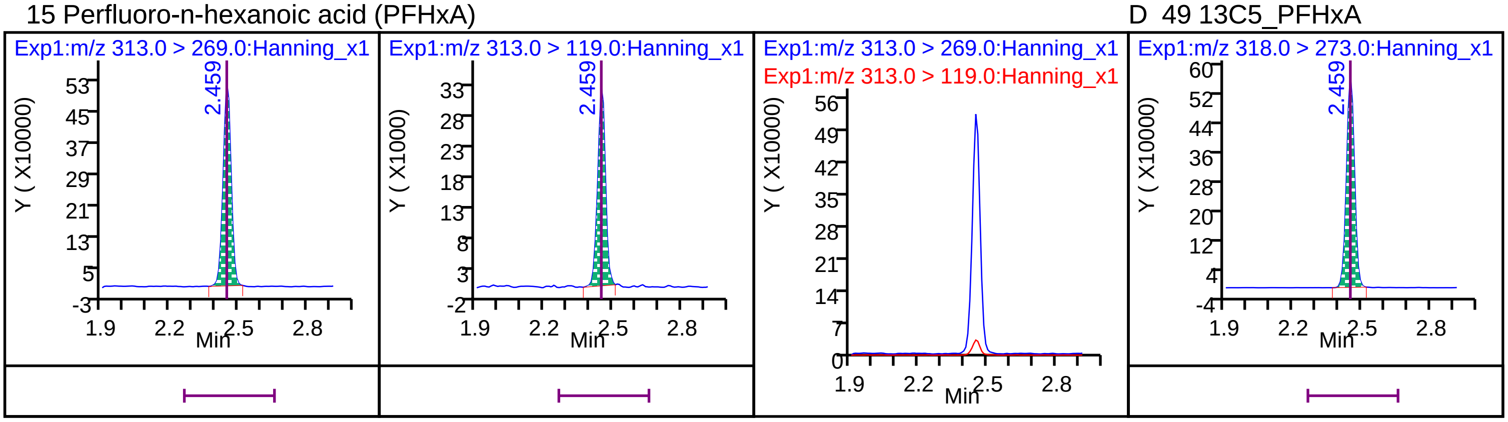
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



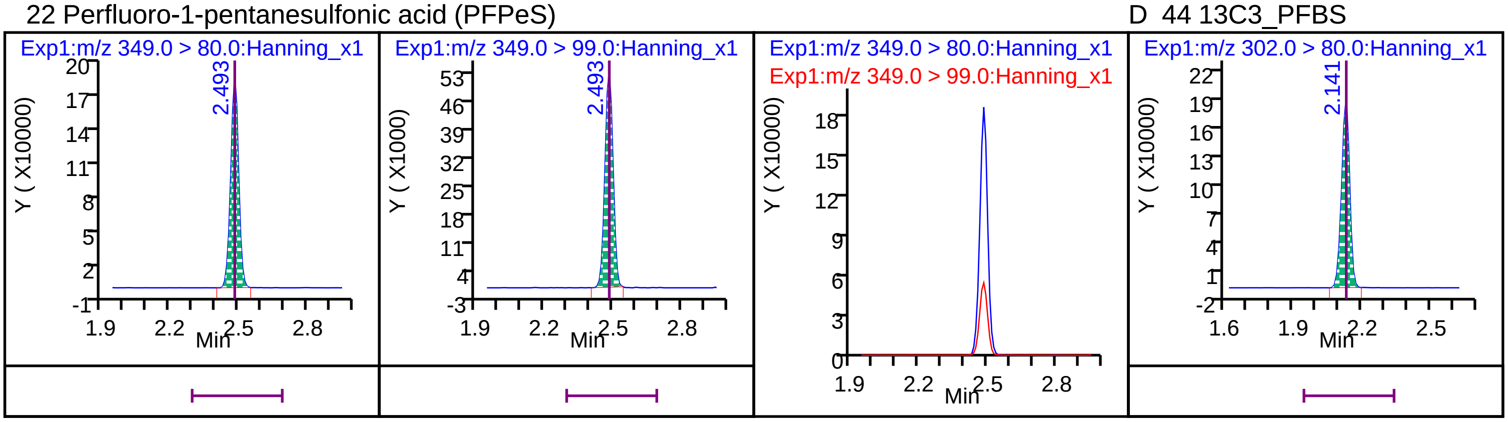
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



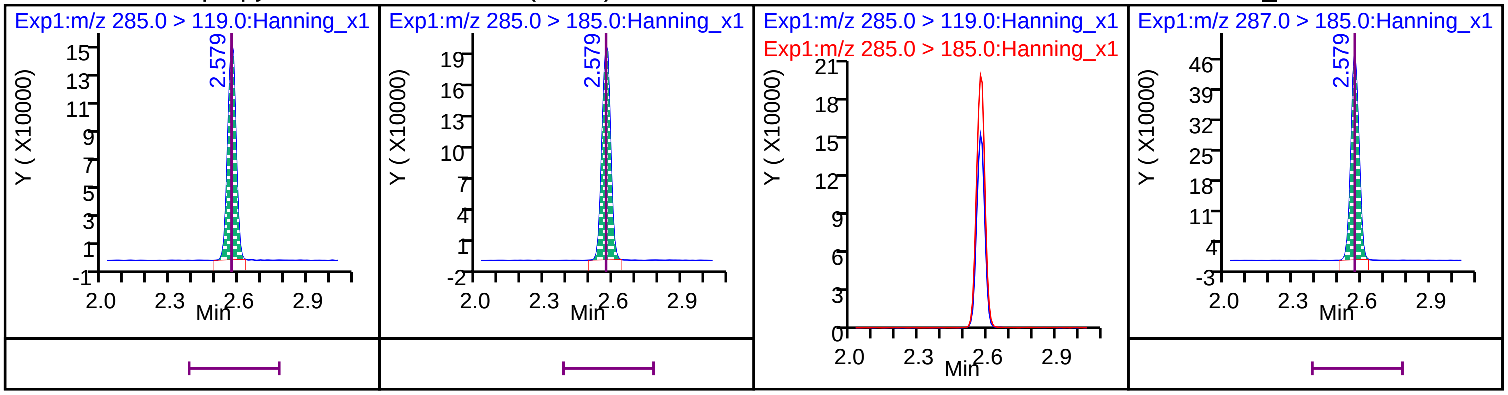
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



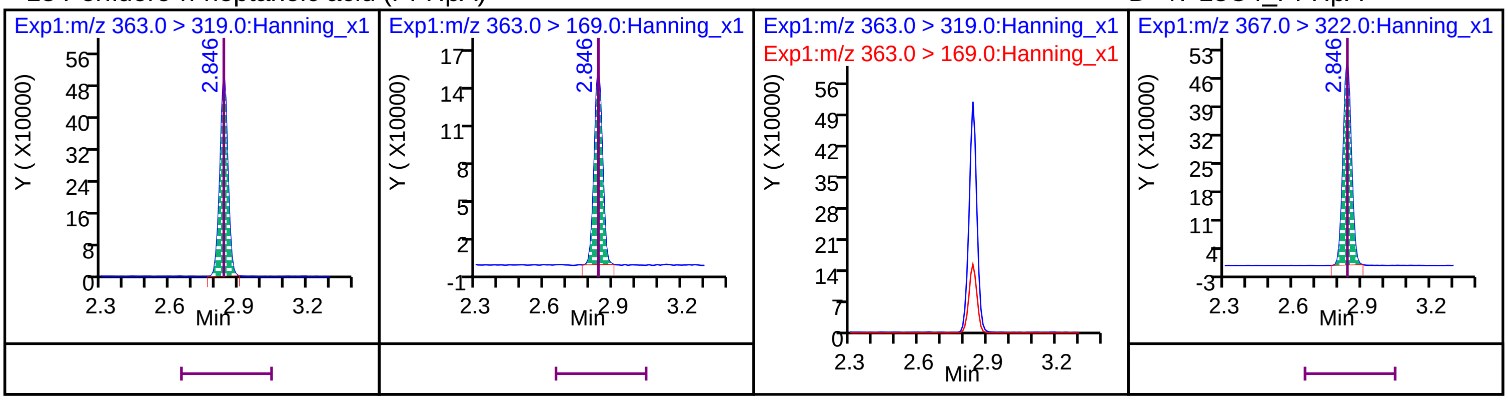
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



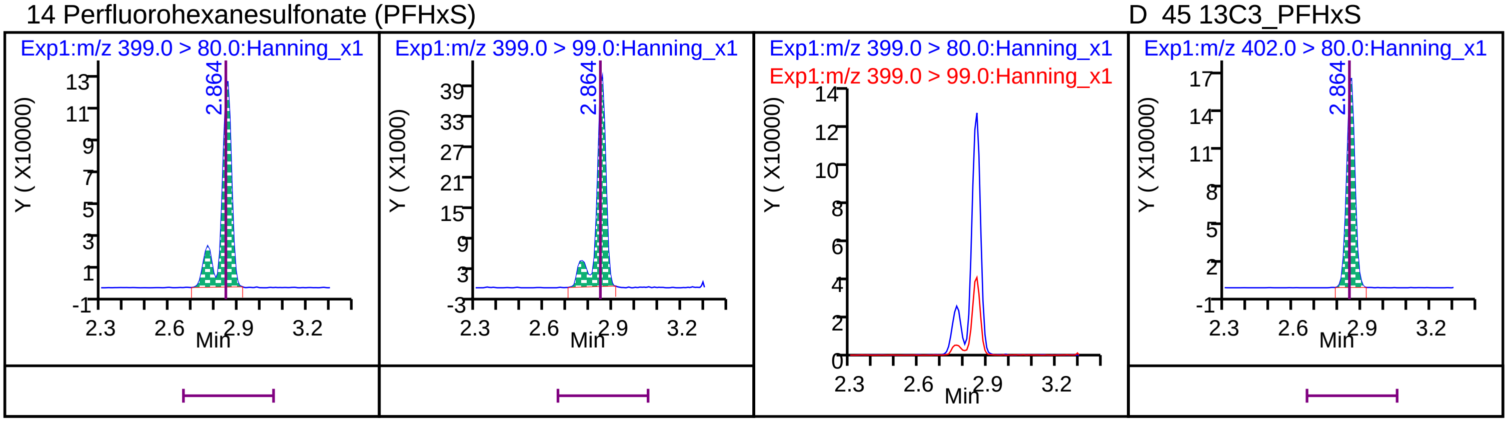
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



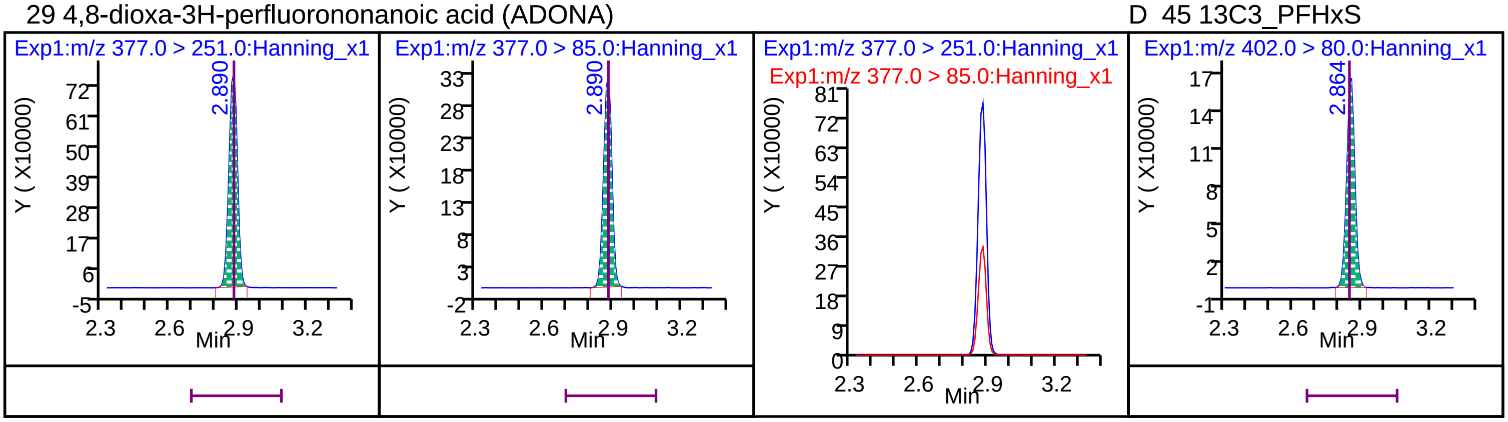
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



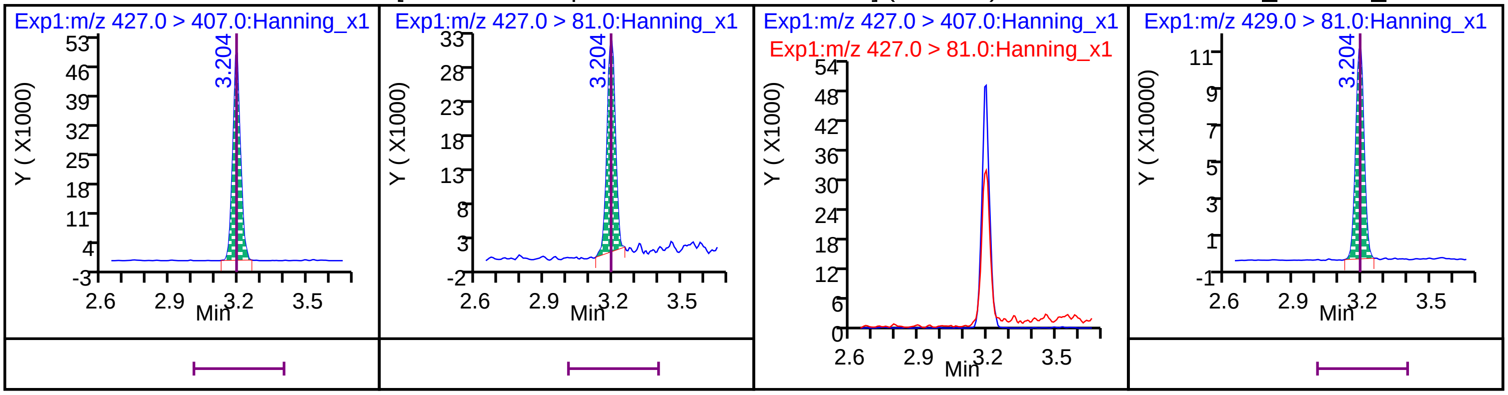
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



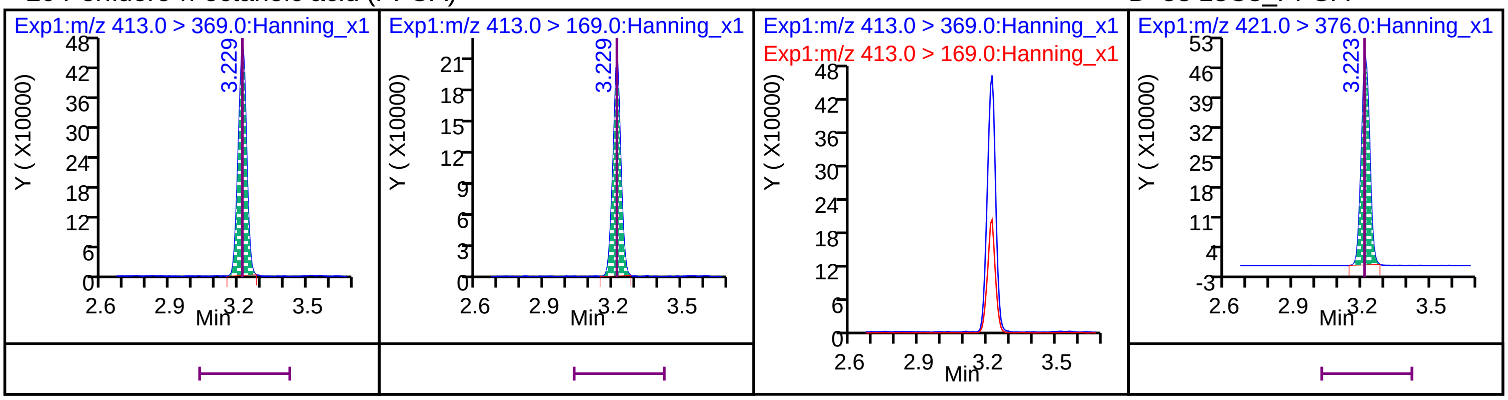
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



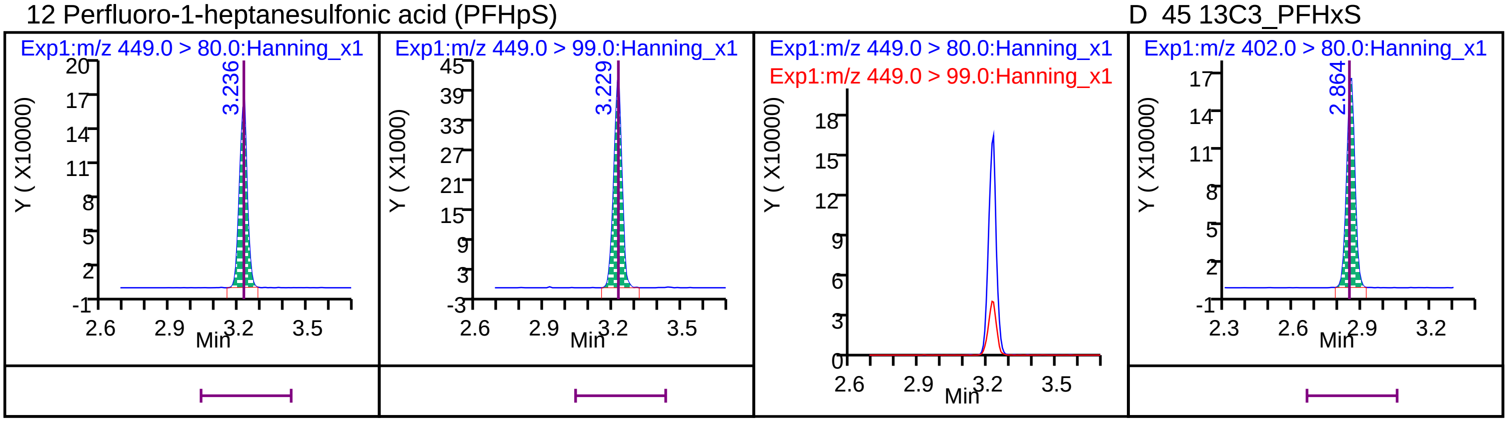
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



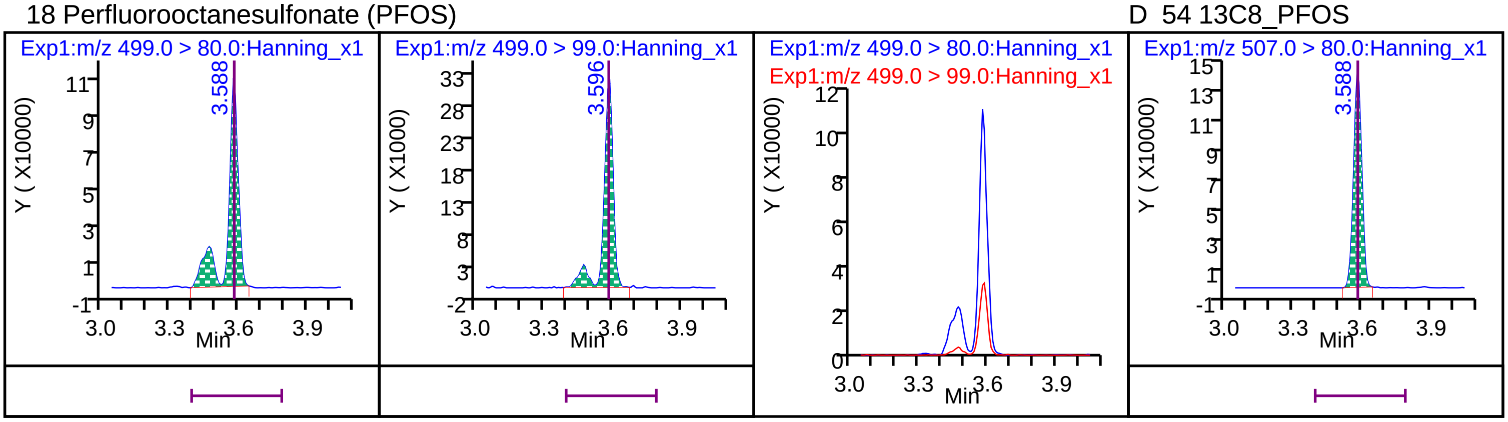
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



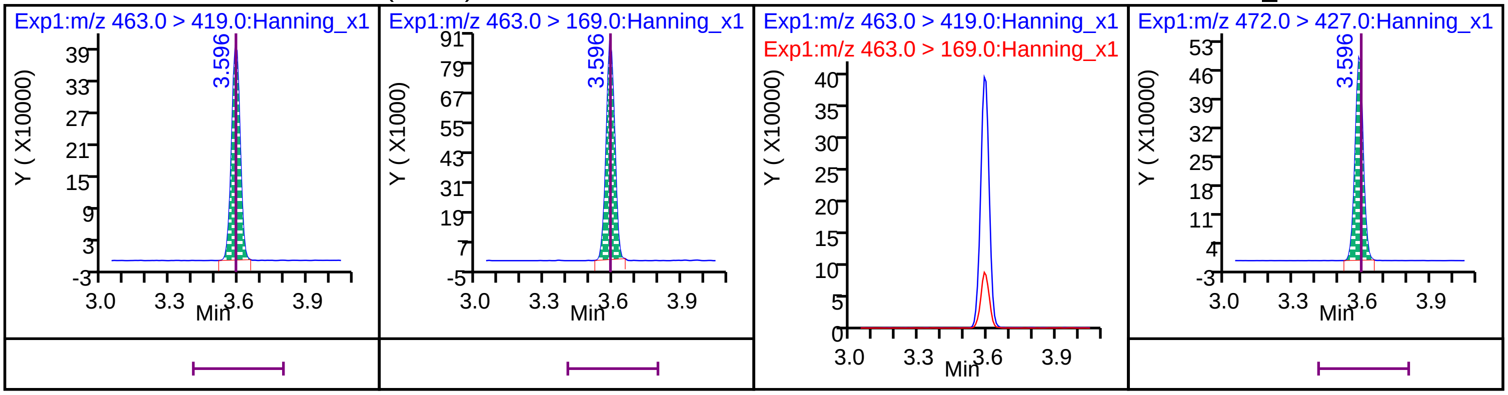
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



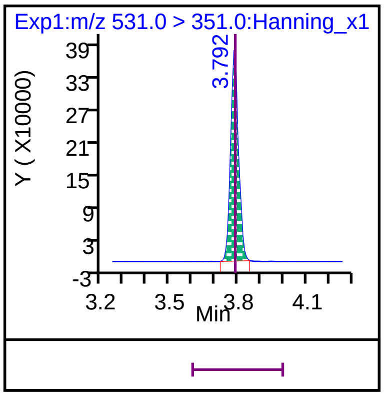
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



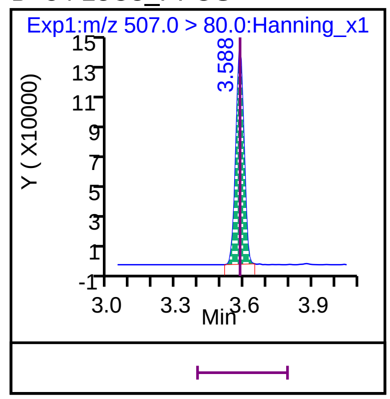
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



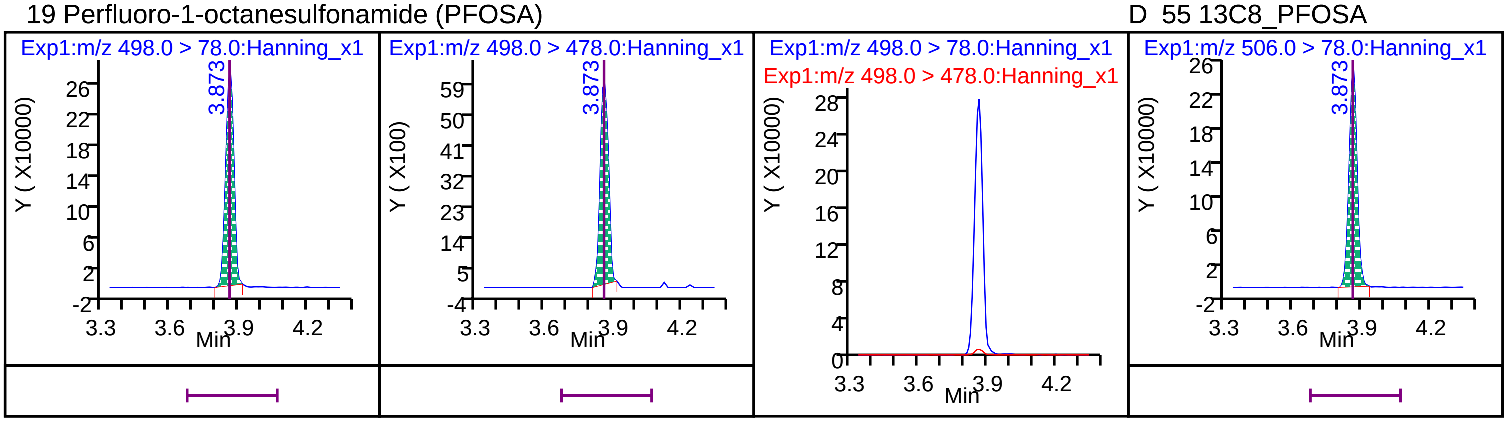
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



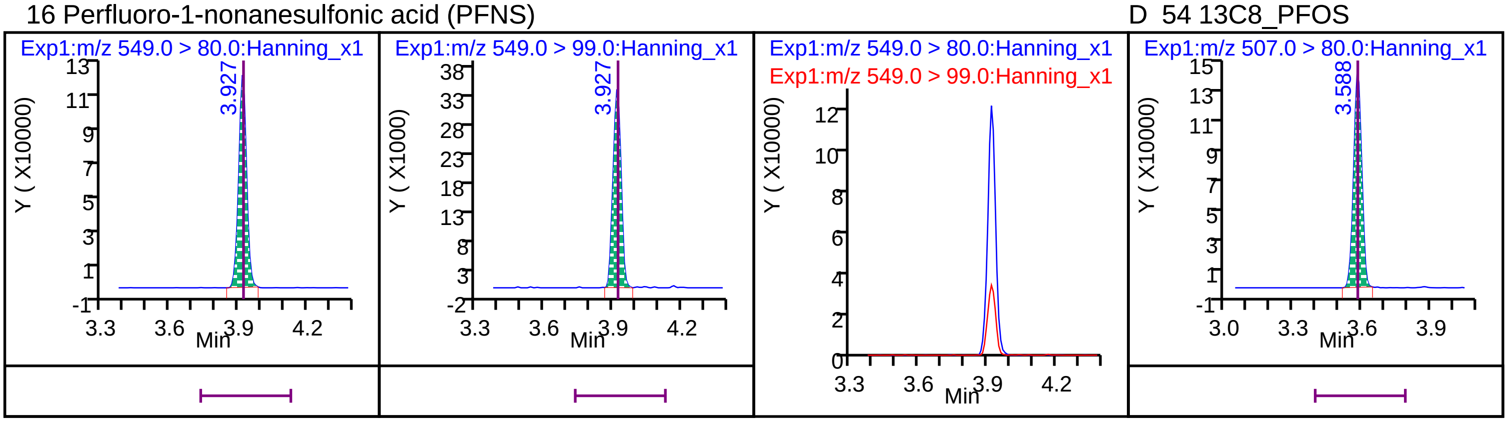
D 54 13C8_PFOS



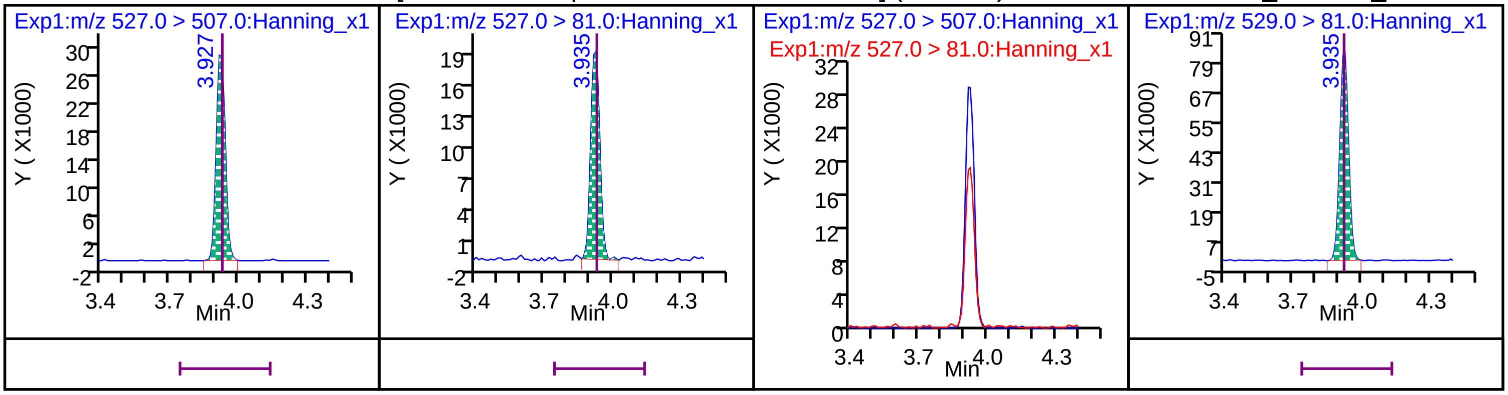
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



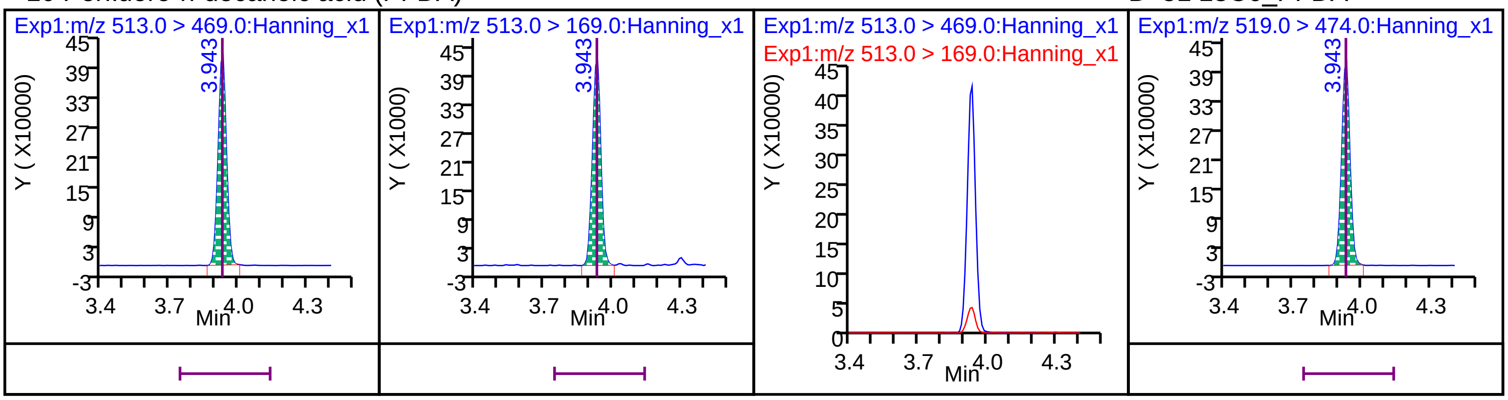
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



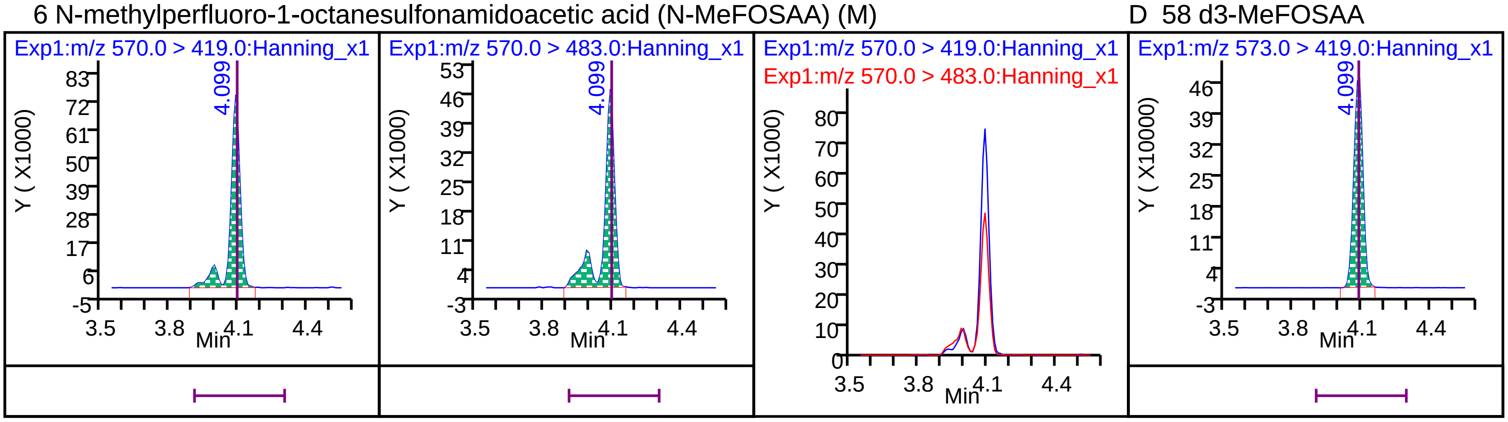
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



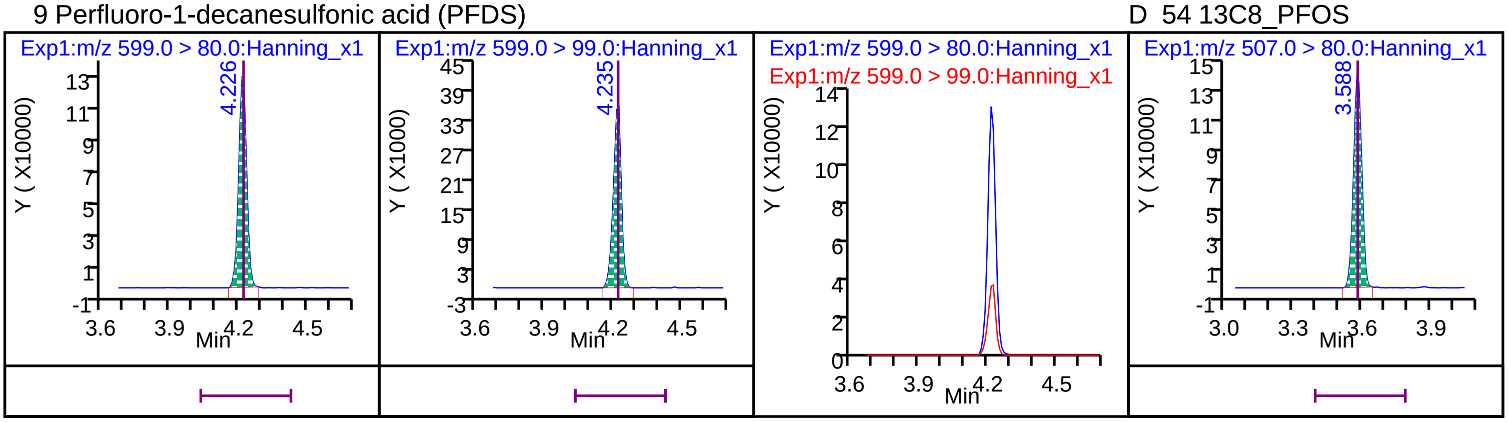
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



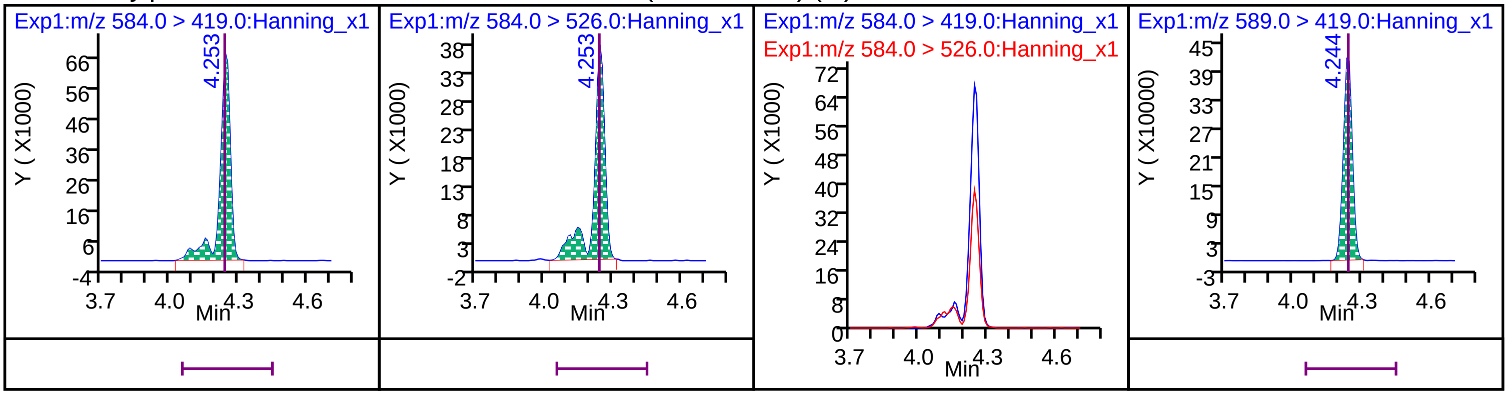
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



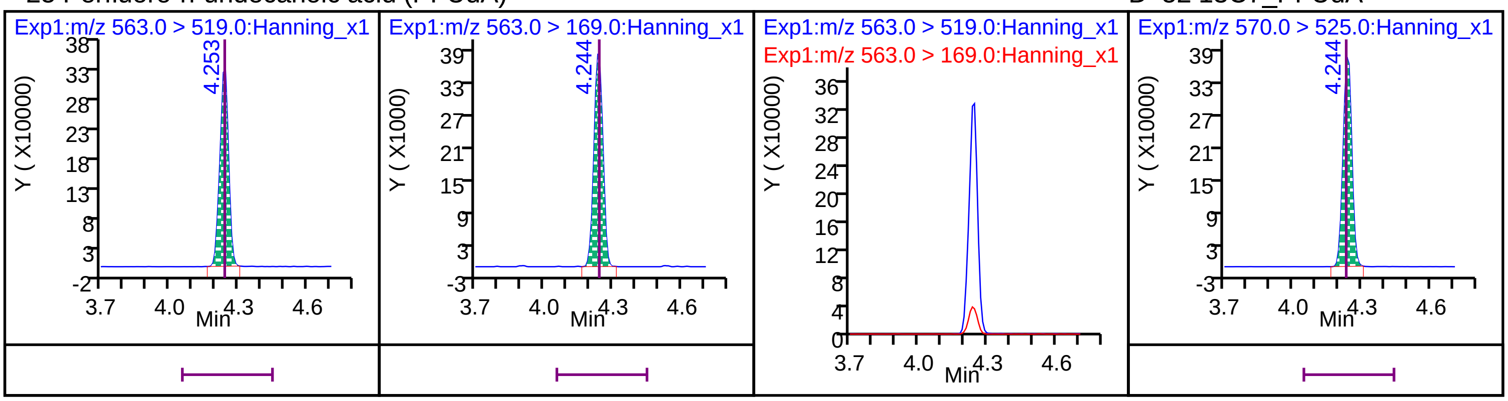
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

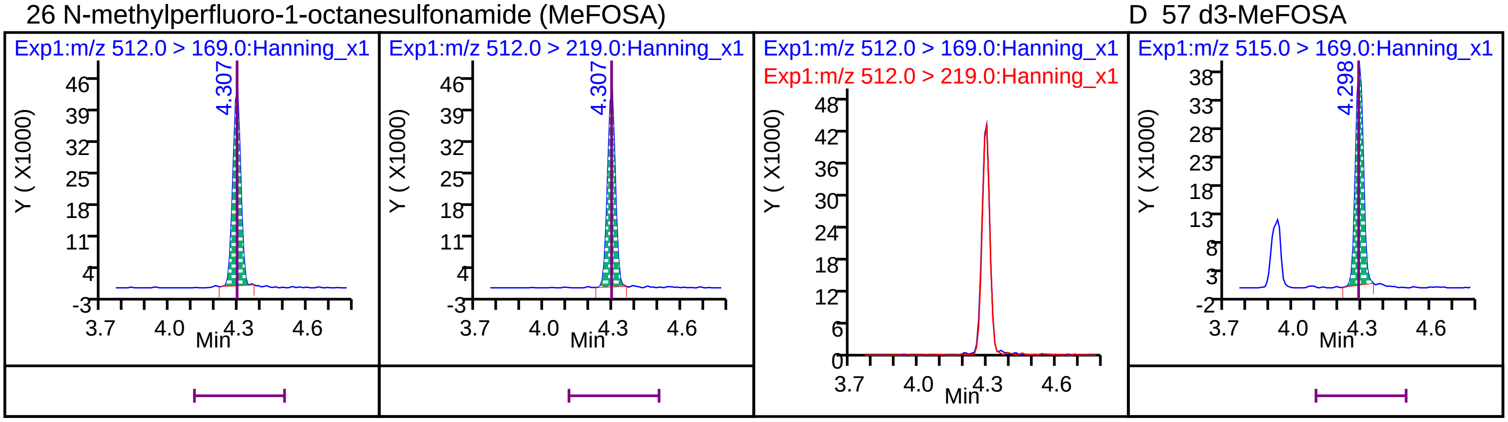


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

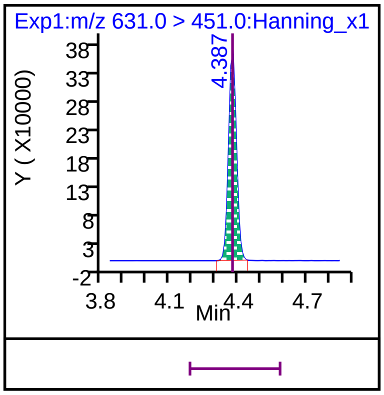


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

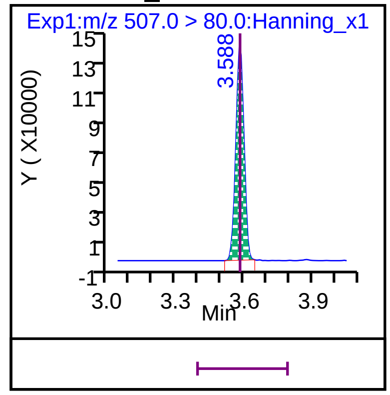
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



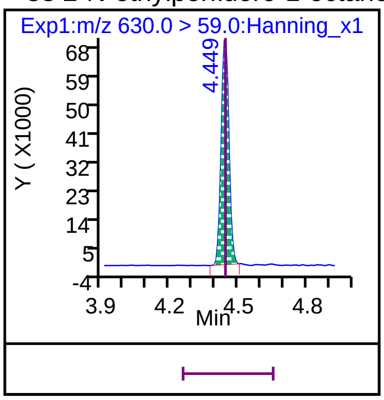
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



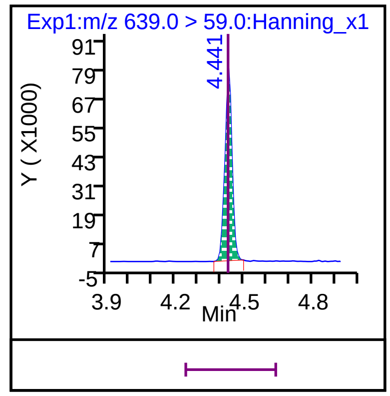
D 54 13C8_PFOS



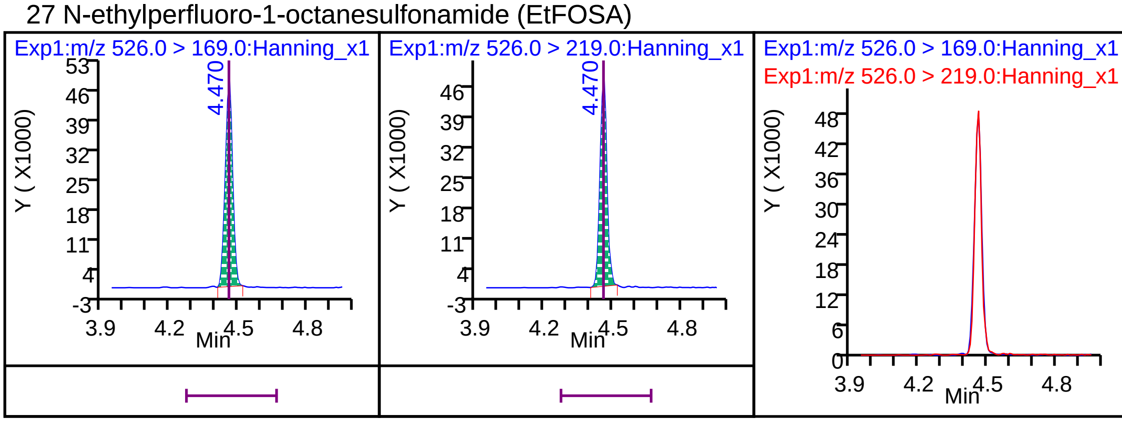
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



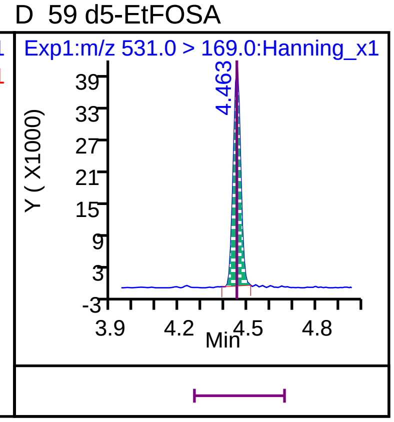
D 62 d9-EtFOSE



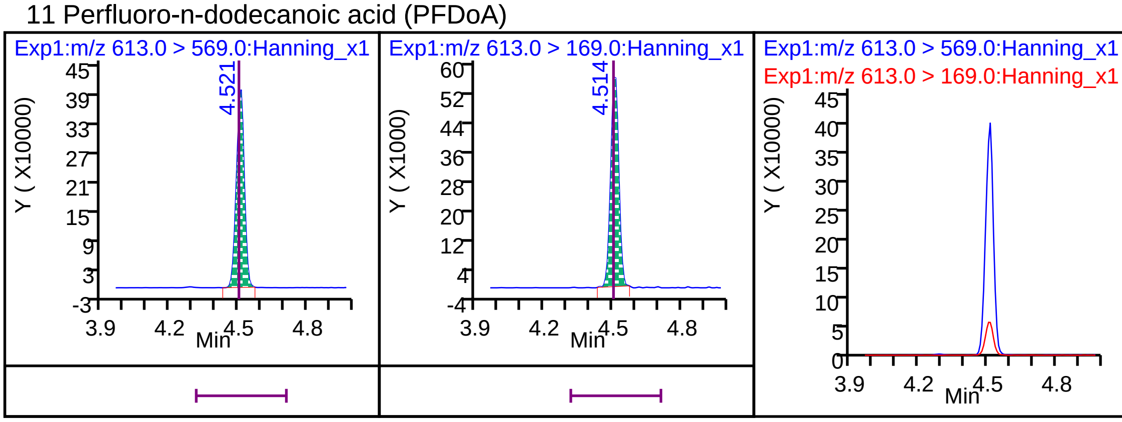
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



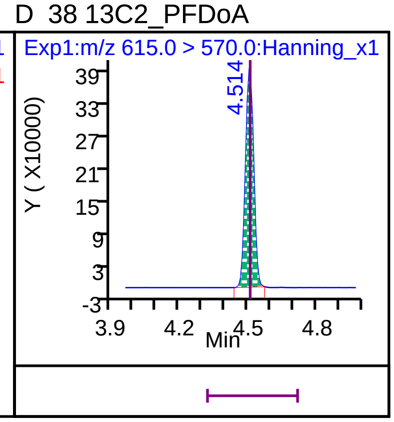
D 59 d5-EtFOSA



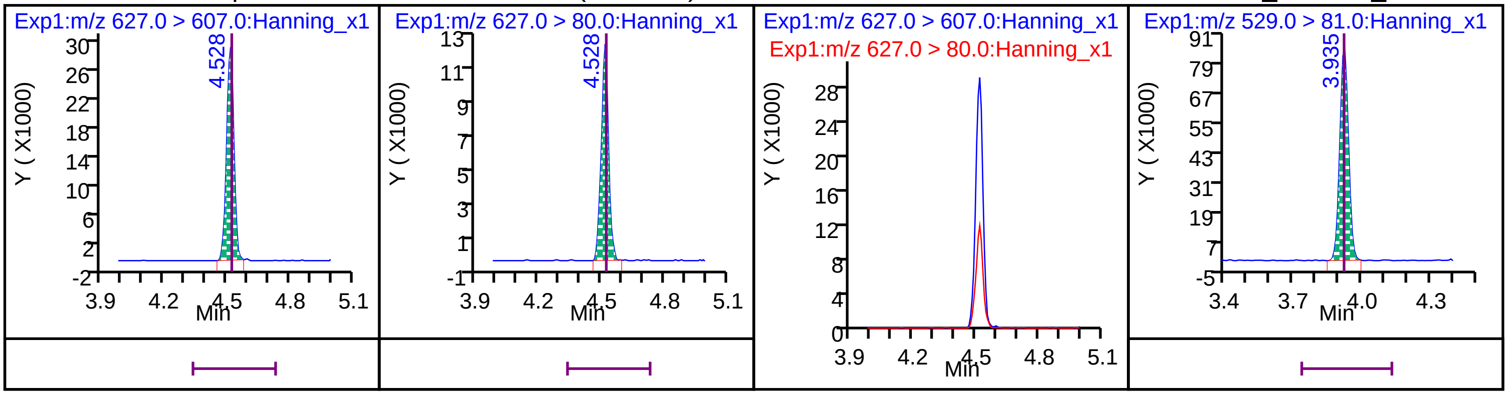
11 Perfluoro-n-dodecanoic acid (PFDoA)



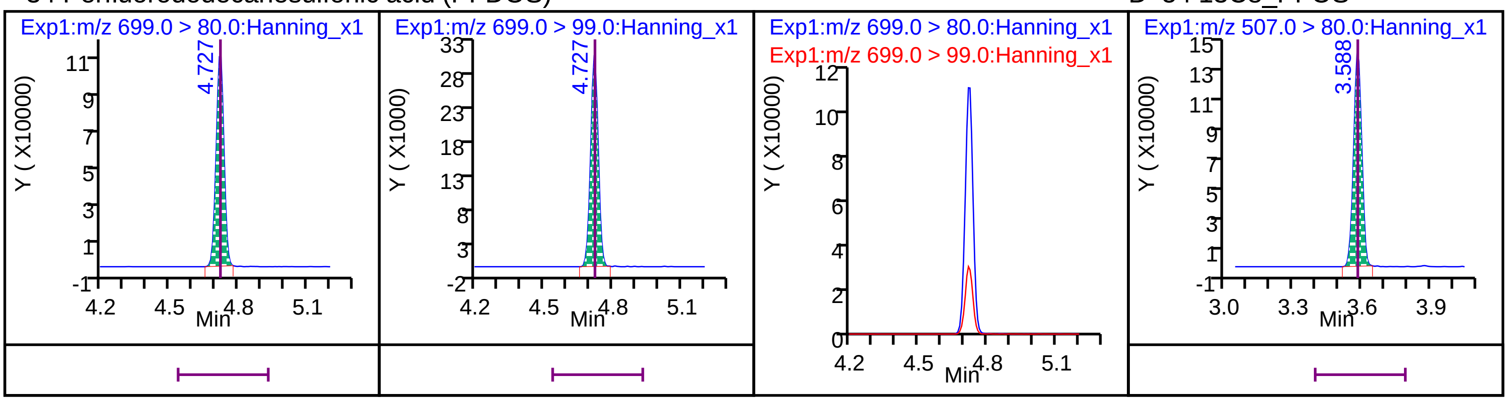
D 38 13C2_PFDoA



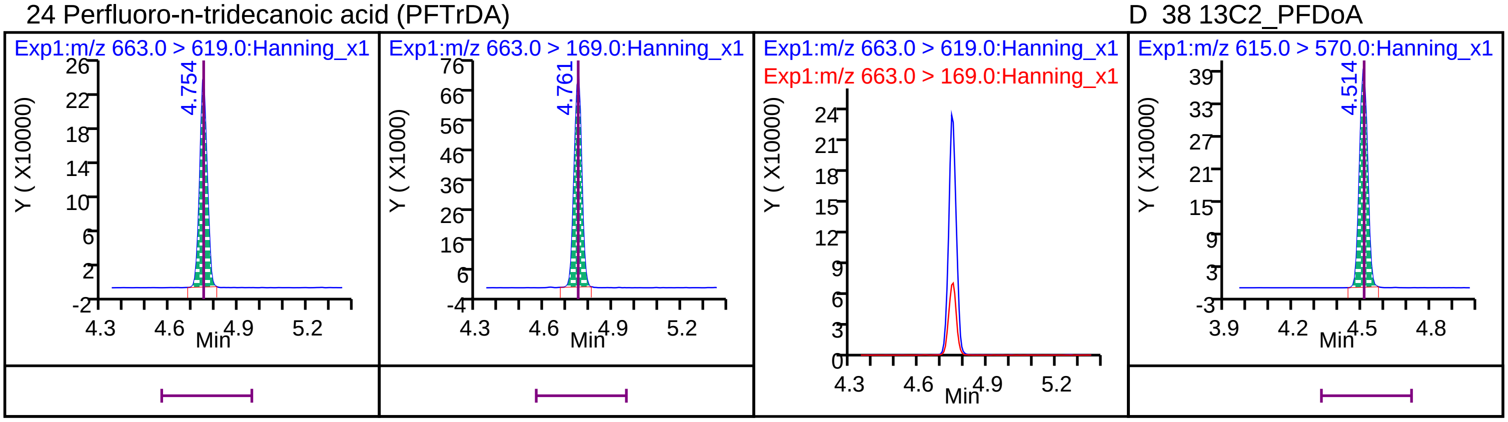
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



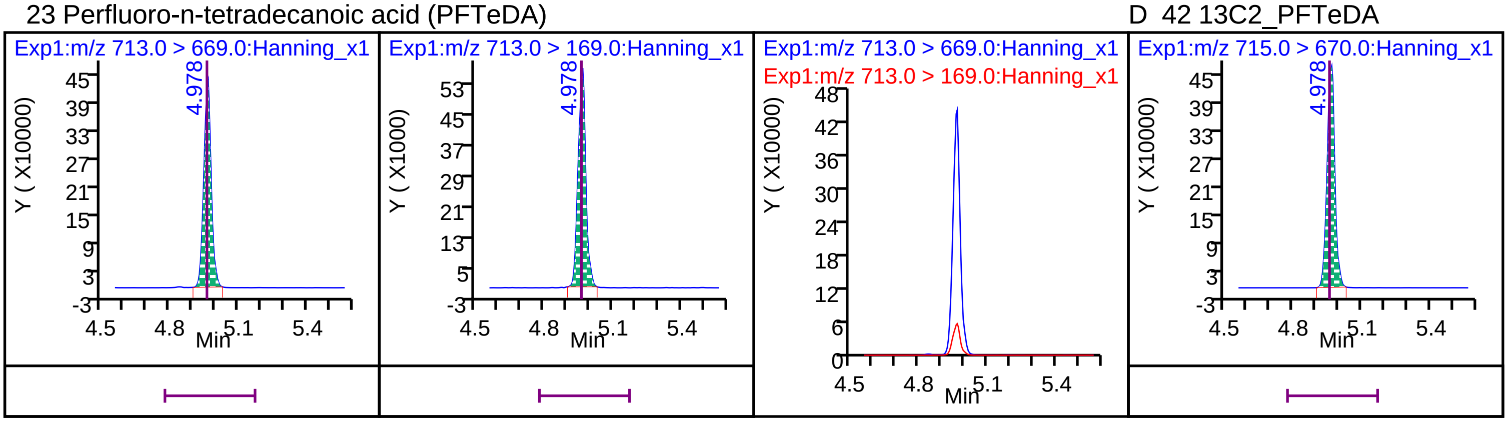
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



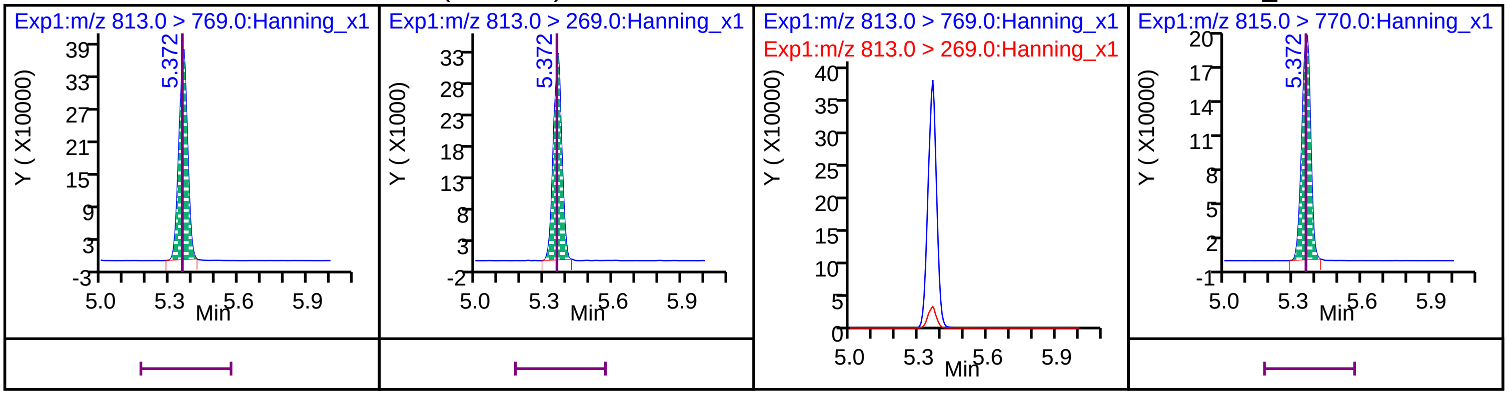
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



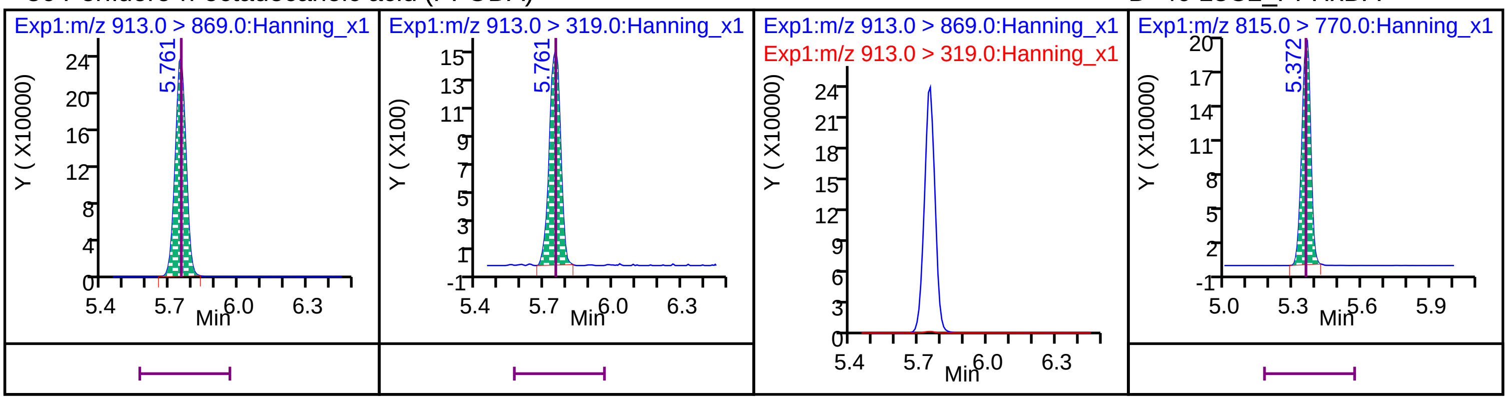
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



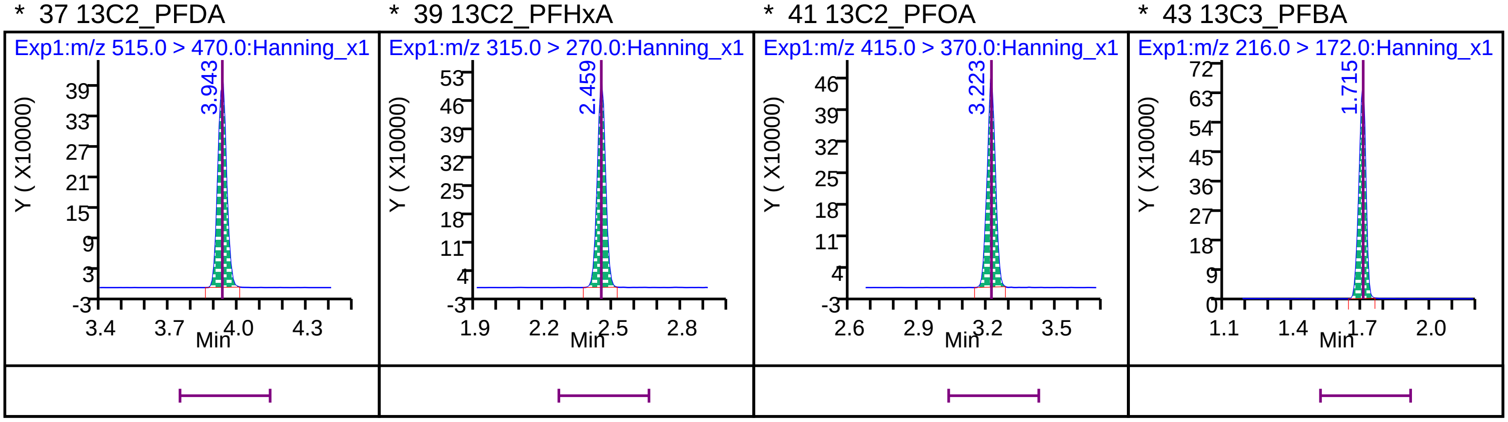
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



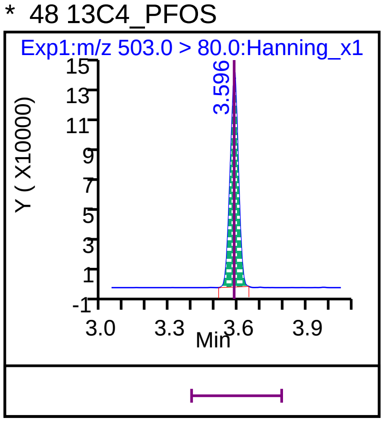
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 07:56:33 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

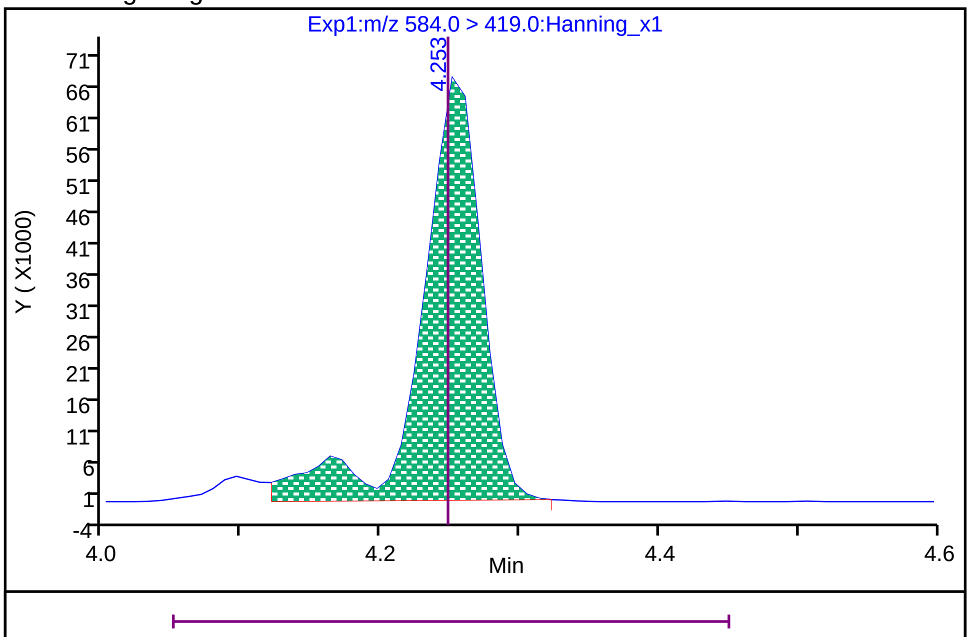
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A100.d		
Injection Date:	05-Nov-2021 06:04:09	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000E_SVLC-1717
Sample Info:	CCV 1000E_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

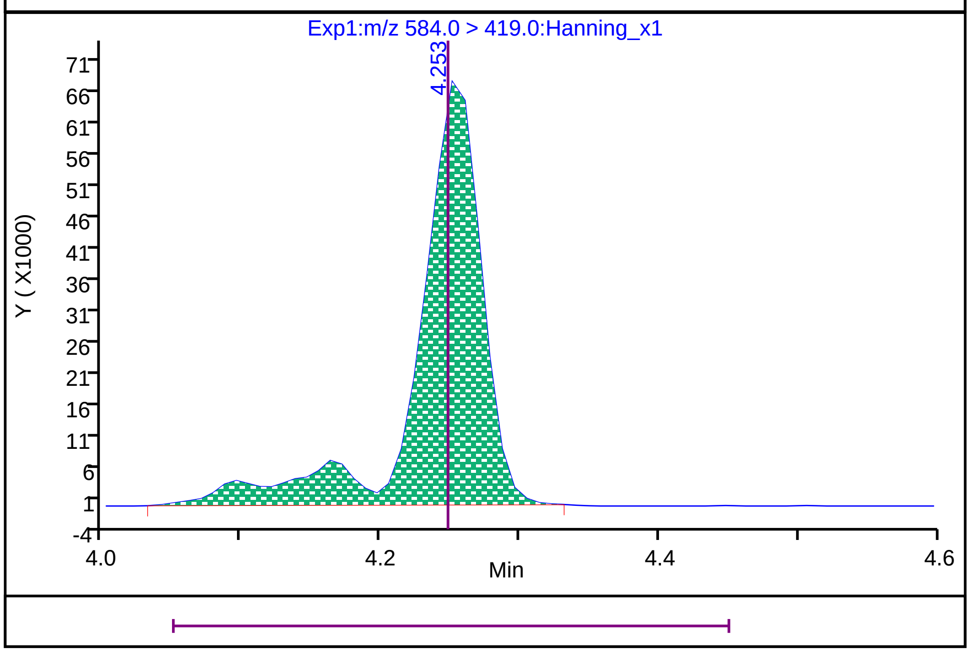
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.253
Area: 200492
Amount: 887.30
Amount Units: ng/L



RT: 4.253
Area: 210844
Amount: 933.11
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:22:21
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:34 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A100.d

Injection Date: 05-Nov-2021 06:04:09 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 1000E_SVLC-1717

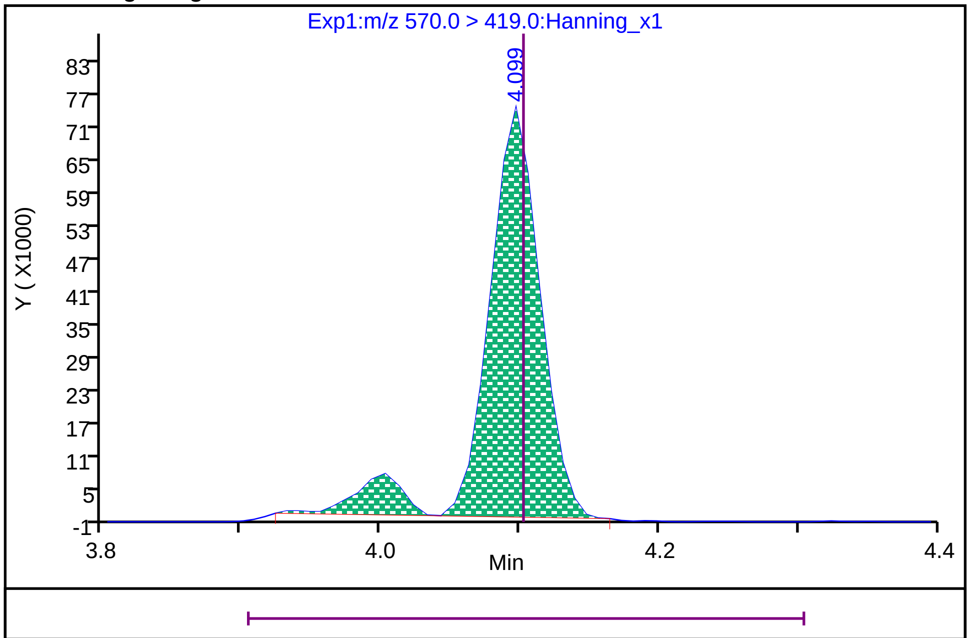
Sample Info: CCV 1000E_SVLC-1717

Dil. Factor: 1 Operator: Matthew M. Miller

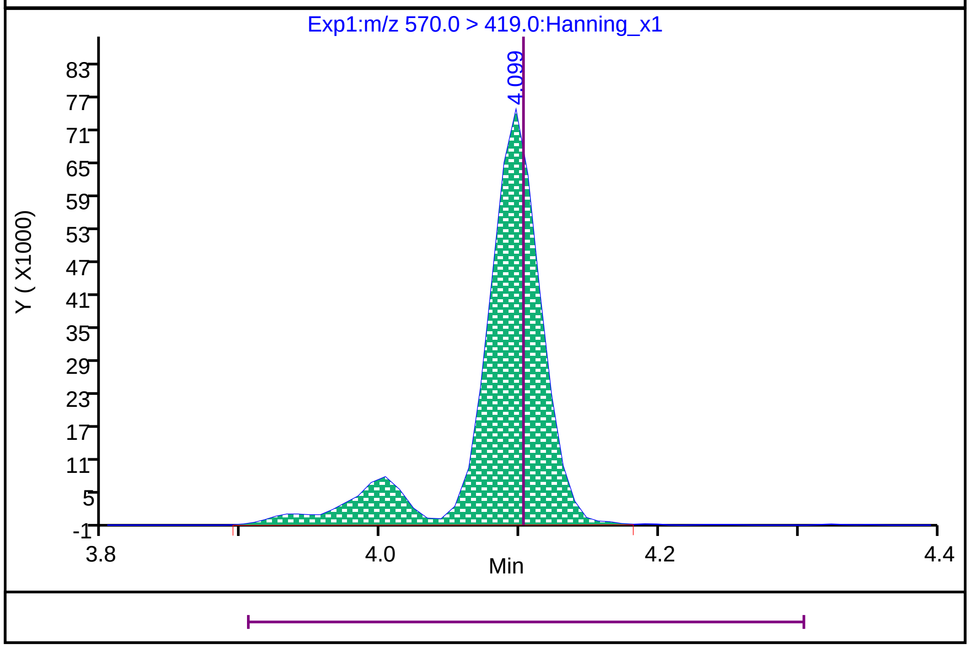
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.099
Area: 197383
Amount: 962.23
Amount Units: ng/L



RT: 4.099
Area: 213381
Amount: 1040.22
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 14:22:13

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 07:56:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A105.d
Injection Date: 05-Nov-2021 06:57:24 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 80
Sample Info: CCV 1000F_SVLC-1717 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	955.76	95.6	70 - 130
D 46 13C4_PFBA	1139739	1545637			135.6	50 - 150
D 50 13C5_PFPeA	1087851	1479590			136	50 - 150
21 PFPeA			1000.00	994.84	99.5	70 - 130
7 PFBS			884.00	770.50	87.2	70 - 130
D 44 13C3_PFBS	352984	499207			141.4	50 - 150
1 4:2 FTS			934.00	955.46	102.3	70 - 130
D 63 13C2_4:2 FTS_2	231027	308612			133.6	50 - 150
D 49 13C5_PFHxA	967117	1392481			144	50 - 150
15 PFHxA			1000.00	910.73	91.1	70 - 130
22 PFPeS			938.00	898.16	95.8	70 - 130
28 GenX			2000.00	1908.69	95.4	70 - 130
D 66 13C3_GenX	857456	1246456			145.4	50 - 150
D 47 13C4_PFHpA	958300	1291252			134.7	50 - 150
13 PFHpA			1000.00	1065.02	106.5	70 - 130
D 45 13C3_PFHxS	272525	425556			156.2	50 - 150
14 PFHxS			910.00	859.17	94.4	70 - 130
29 ADONA			942.00	820.63	87.1	70 - 130
D 64 13C2_6:2 FTS_2	186972	275758			147.5	50 - 150
2 6:2 FTS			948.00	1123.76	118.5	70 - 130
D 53 13C8_PFOA	929811	1292415			139	50 - 150
20 PFOA			1000.00	913.80	91.4	70 - 130
12 PFHpS			952.00	911.03	95.7	70 - 130
18 PFOS			928.00	913.35	98.4	70 - 130
17 PFNA			1000.00	1000.33	100	70 - 130
D 56 13C9_PFNA	982819	1153990			117.4	50 - 150
D 54 13C8_PFOS	248479	332806			133.9	50 - 150
30 9Cl-PF3ONS			932.00	959.98	103	70 - 130
D 55 13C8_PFOSA	462556	624190			134.9	50 - 150
19 PFOSA			1000.00	1002.19	100.2	70 - 130
16 PFNS			960.00	918.48	95.7	70 - 130
D 65 13C2_8:2 FTS_2	165898	231667			139.6	50 - 150
3 8:2 FTS			958.00	1002.87	104.7	70 - 130
10 PFDA			1000.00	982.69	98.3	70 - 130
D 51 13C6_PFDA	822896	1072121			130.3	50 - 150
6 N-MeFOSAA			1000.00	1064.63	106.5	70 - 130

Report Date: 09-Nov-2021 07:56:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A105.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	900380	1297465			144.1	50 - 150
9 PFDS			964.00	897.43	93.1	70 - 130
5 N-EtFOSAA			1000.00	1004.35	100.4	70 - 130
25 PFUdA			1000.00	1051.87	105.2	70 - 130
D 60 d5-EtFOSAA	819983	1138306			138.8	50 - 150
D 52 13C7_PFUdA	739024	977110			132.2	50 - 150
D 61 d7-MeFOSE	131808	204042			154.8	50 - 150
32 MeFOSE			1000.00	956.77	95.7	70 - 130
26 MeFOSA			1000.00	1080.95	108.1	70 - 130
D 57 d3-MeFOSA	65142	98121			150.6	50 - 150
31 11Cl-PF3OUDS			942.00	889.58	94.4	70 - 130
D 62 d9-EtFOSE	133637	185135			138.5	50 - 150
33 EtFOSE			1000.00	1094.86	109.5	70 - 130
D 59 d5-EtFOSA	66694	90854			136.2	50 - 150
27 EtFOSA			1000.00	1062.47	106.2	70 - 130
11 PFDoA			1000.00	1050.60	105.1	70 - 130
D 38 13C2_PFDoA	713011	999049			140.1	50 - 150
4 10:2 FTS			964.00	889.60	92.3	70 - 130
34 PFDOS			968.00	801.70	82.8	70 - 130
24 PFTrDA			1000.00	992.38	99.2	70 - 130
23 PFTeDA			1000.00	1006.60	100.7	70 - 130
D 42 13C2_PFTeDA	861693	1114833			129.4	50 - 150
35 PFHxDA			1000.00	1034.80	103.5	70 - 130
D 40 13C2_PFHxDA	379361	522750			137.8	50 - 150
36 PFODA			1000.00	986.17	98.6	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A105.d		
Injection Date:	05-Nov-2021 06:57:24	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	80
Sample Info:	CCV 1000F_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.708	1	1545637	19	>100:1			1000.00	1435.49	135.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	0/-1	1624717	18	>100:1			1000.00	955.76		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.079	1	1479590	16	>100:1			1000.00	1475.29	136	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	0/-1	1577117	16	>100:1			1000.00	994.84		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	499207	15	>100:1			1000.00	1537.11	141.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	549505	15	>100:1	Target = 3.80		884.00	770.50		
298.9 > 99	44	2.141	2.141		140641	15	>100:1	3.90 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.494	0/0	451143	18	>100:1	Target = 3.42		938.00	898.16		
349 > 99	44	2.493	2.494		131576	17	>100:1	3.42 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.416	1	308612	18	>100:1			5000.00	7429.82	133.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	0/-1	115097	18	>100:1	Target = 1.54		934.00	955.46		
327 > 81	63	2.424	2.424		77361	24	87:1	1.48 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	1392481	17	>100:1			1000.00	1558.92	144	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.459	0/0	1310385	17	>100:1	Target = 17.93		1000.00	910.73		
313 > 119	49	2.459	2.459		73270	17	>100:1	17.88 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.579	0	1246456	19	>100:1			5000.00	7608.72	145.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.579	0/0	364565	16	>100:1	Target = 0.72		2000.00	1908.69		
285 > 185	66	2.587	2.579		523234	19	>100:1	0.69 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	0	1291252	17	>100:1			1000.00	1473.71	134.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	0/0	1323861	17	>100:1	Target = 3.26		1000.00	1065.02		
363 > 169	47	2.846	2.846		381951	18	>100:1	3.46 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.855	1	425556	15	>100:1			1000.00	1622.53	156.2*	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.855	1/0	432227	27	>100:1	Target = 3.48	5.23	910.00	859.17		
399 > 99	45	2.863	2.855		128803	30	>100:1	3.35 (1.74-5.22)	7.51				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	0/-1	1922193	18	>100:1	Target = 2.31		942.00	820.63		
377 > 85	45	2.890	2.890		825245	18	>100:1	2.32 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.236	3.233	1/0	398760	22	>100:1	Target = 3.56		952.00	911.03		
449 > 99	45	3.229	3.233		110507	21	>100:1	3.60 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.201	1	275758	21	>100:1			5000.00	7312.39	147.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.210	3.201	1/0	107764	22	>100:1	Target = 1.34		948.00	1123.76		
427 > 81	64	3.204	3.201		82041	26	>100:1	1.31 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.229	3.220	1	1292415	21	>100:1			1000.00	1562.79	139	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.227	1/0	1215157	21	>100:1	Target = 2.50		1000.00	913.80		
413 > 169	53	3.229	3.227		493426	22	>100:1	2.46 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.591	1	332806	21	>100:1			1000.00	1482.56	133.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.591	1/0	358333	40	>100:1	Target = 4.01	3.64	928.00	913.35		
499 > 99	54	3.596	3.591		90657	37	>100:1	3.95 (2.00-6.02)	6.97				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.796	1/0	987373	20	>100:1			932.00	959.98		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.934	3.932	1/0	308739	18	>100:1	Target = 3.78		960.00	918.48		
549 > 99	54	3.926	3.932		87473	15		3.52 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.232	0/-1	294861	16	>100:1	Target = 3.98		964.00	897.43		
599 > 99	54	4.226	4.232		76208	17		3.86 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.384	1/0	822429	17	>100:1			942.00	889.58		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.733	4.731	1/0	258403	19	>100:1	Target = 3.68		968.00	801.70		
699 > 99	54	4.733	4.731		71788	19		3.59 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.596	3.606	0	1153990	20	>100:1			1000.00	1444.27	117.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.599	1/1	1051177	20	>100:1	Target = 4.69		1000.00	1000.33		
463 > 169	56	3.603	3.599		224289	20	>100:1	4.68 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.871	1	624190	19	>100:1			1000.00	1507.01	134.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.871	1/0	707325	19	>100:1	Target = 40.85		1000.00	1002.19		
498>478	55	3.873	3.871		17165	19	74:1	41.20 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.934	3.932	1	231667	20	>100:1			5000.00	7381.35	139.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.942	3.940	1/0	82553	19	>100:1	Target = 1.58		958.00	1002.87		
527 > 81	65	3.934	3.940		47626	18	>100:1	1.73 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.533	0/-1	73507	20	>100:1	Target = 2.46		964.00	889.60		
627 > 80	65	4.528	4.533		27864	18	>100:1	2.63 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.942	3.940	1	1072121	19	>100:1			1000.00	1485.34	130.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.942	3.940	1/0	1081063	18	>100:1	Target = 9.77		1000.00	982.69		
513 > 169	51	3.942	3.940		111541	19	>100:1	9.69 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.098	4.096	1	1297465	18	>100:1			5000.00	7317.38	144.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.098	4.104	0/-1	225878	32	>100:1	Target = 1.41	7.15	1000.00	1064.63		
570 > 483	58	4.098	4.104		149520	30	>100:1	1.51 (0.70-2.11)	4.34				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.241	1	977110	16	>100:1			1000.00	1429.73	132.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.244	4.250	0/-1	922050	17	>100:1	Target = 9.19		1000.00	1051.87		
563 > 169	52	4.244	4.250		95521	15	>100:1	9.65 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.250	1	1138306	16	>100:1			5000.00	7612.52	138.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.262	4.250	1/0	233721	35	>100:1	Target = 1.75	5.83	1000.00	1004.35		
584 > 526	60	4.253	4.250		132327	42		1.76 (0.87-2.63)	3.41				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.277	1	204042	14	>100:1			1000.00	1478.72	154.8*	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.289	4.286	1/0	198408	15	>100:1			1000.00	956.77		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.297	4.295	1	98121	14	>100:1			1000.00	1401.31	150.6*	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.304	1/0	109832	15	>100:1	Target = 1.11		1000.00	1080.95		
512 > 219	57	4.306	4.304		107630	16	>100:1	1.02 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.439	1	185135	16	>100:1			1000.00	1440.14	138.5	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.454	1/0	172535	17	>100:1			1000.00	1094.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.461	1	90854	16	>100:1			1000.00	1410.66	136.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.468	1/0	112853	16	>100:1	Target = 1.06		1000.00	1062.47		
526 > 219	59	4.470	4.468		101671	17	>100:1	1.10 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.521	4.519	1	999049	19	>100:1			1000.00	1452.86	140.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.521	4.512	1/0	1030809	19	>100:1	Target = 6.38		1000.00	1050.60		
613 > 169	38	4.514	4.512		137111	18	>100:1	7.51 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.761	4.758	1/0	531310	21	>100:1	Target = 3.23		1000.00	992.38		
663 > 169	38	4.761	4.758		168635	20	>100:1	3.15 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.968	1	1114833	27	>100:1			1000.00	1426.07	129.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.973	4.973	1/0	986194	26	>100:1	Target = 7.33		1000.00	1006.60		
713 > 169	42	4.973	4.973		129902	25	>100:1	7.59 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.366	0	522750	22	>100:1			1000.00	1339.08	137.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.366	0/0	1034745	23	>100:1	Target = 12.31		1000.00	1034.80		
813 > 269	40	5.372	5.366		87295	22	>100:1	11.85 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	0/0	778278	23	>100:1	Target = 165.31		1000.00	986.17		
913 > 319	40	5.753	5.761		5111	21	>100:1	152.27 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.942	3.940	1	988628	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.467	2.459	1	1139699	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.229	3.227	1	1159581	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	0	1376632	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.591	1	330454	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

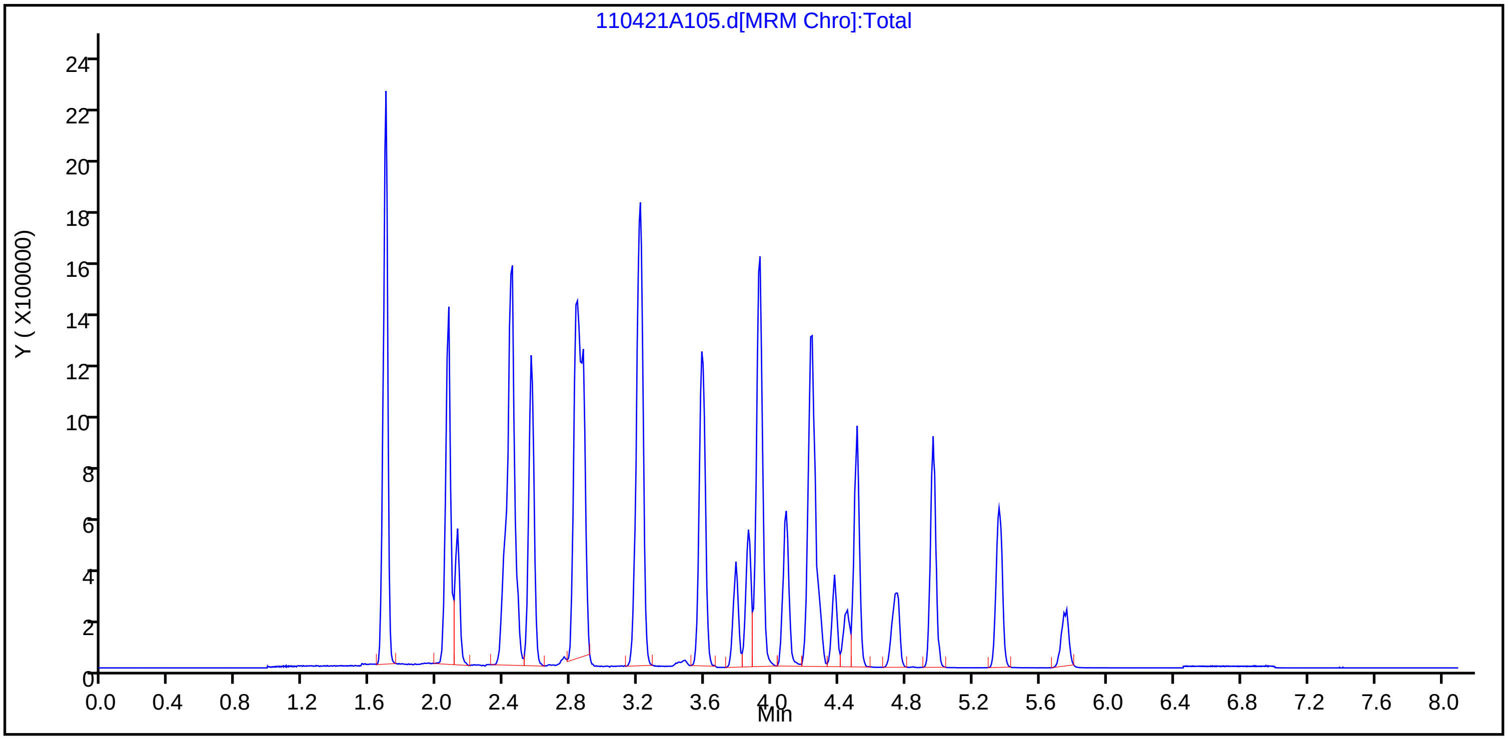
* - ISTD

QC Flag Legend

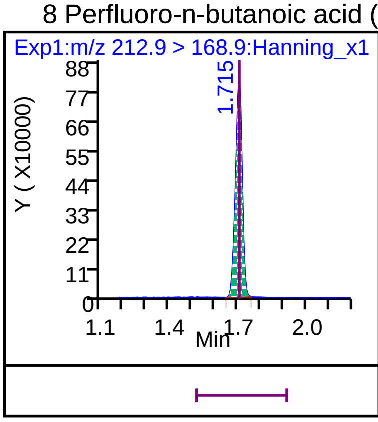
Report Date: 09-Nov-2021 07:56:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

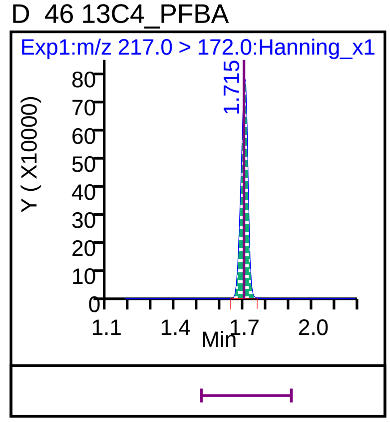
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A105.d		
Injection Date:	05-Nov-2021 06:57:24	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000F_SVLC-1717
Sample Info:	CCV 1000F_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



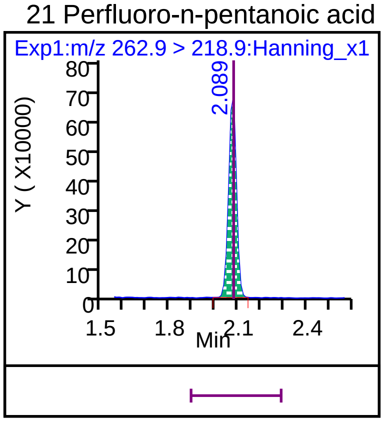
8 Perfluoro-n-butanoic acid (PFBA)



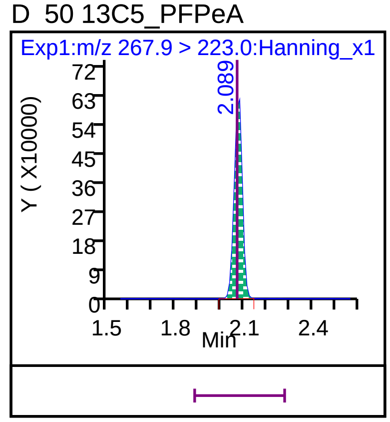
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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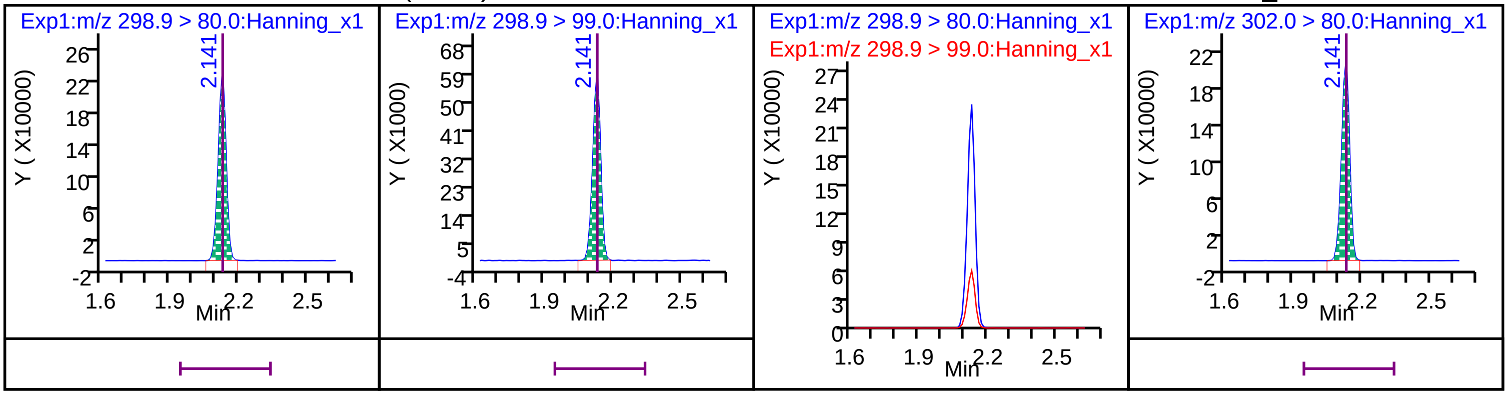
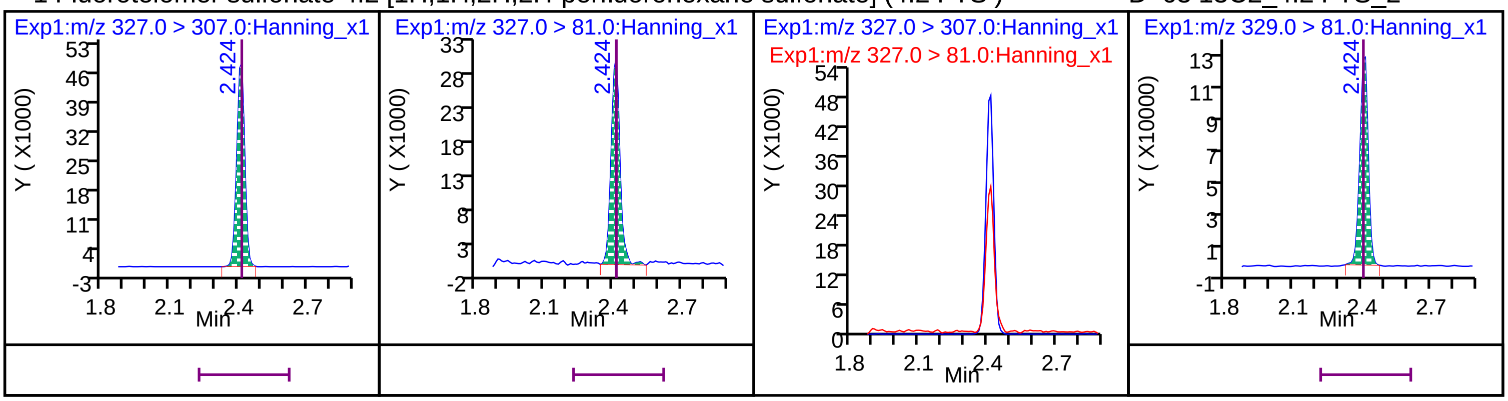
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A105.d

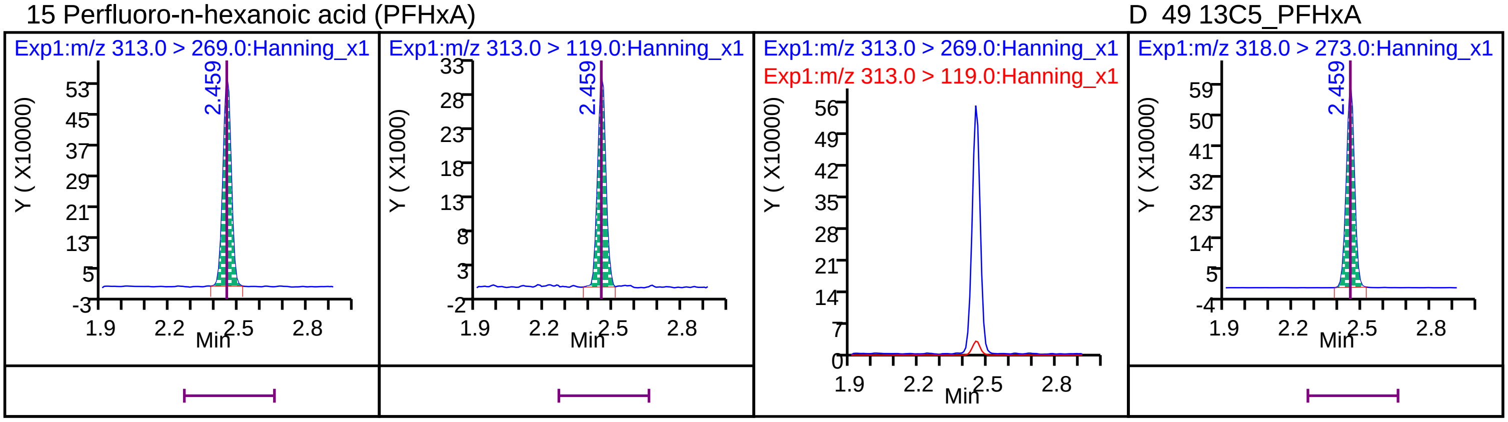
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



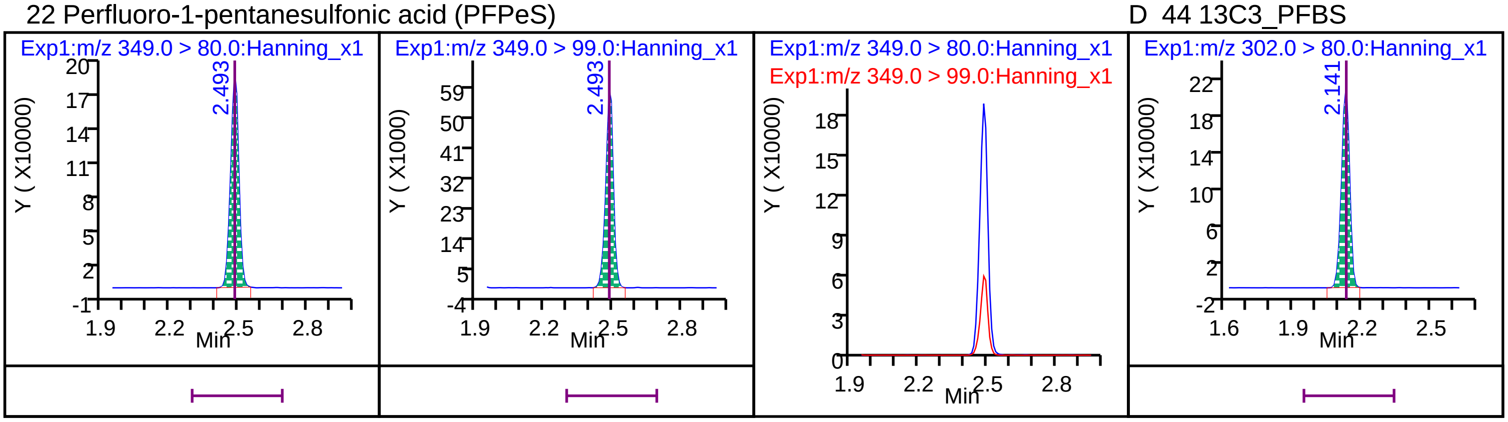
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



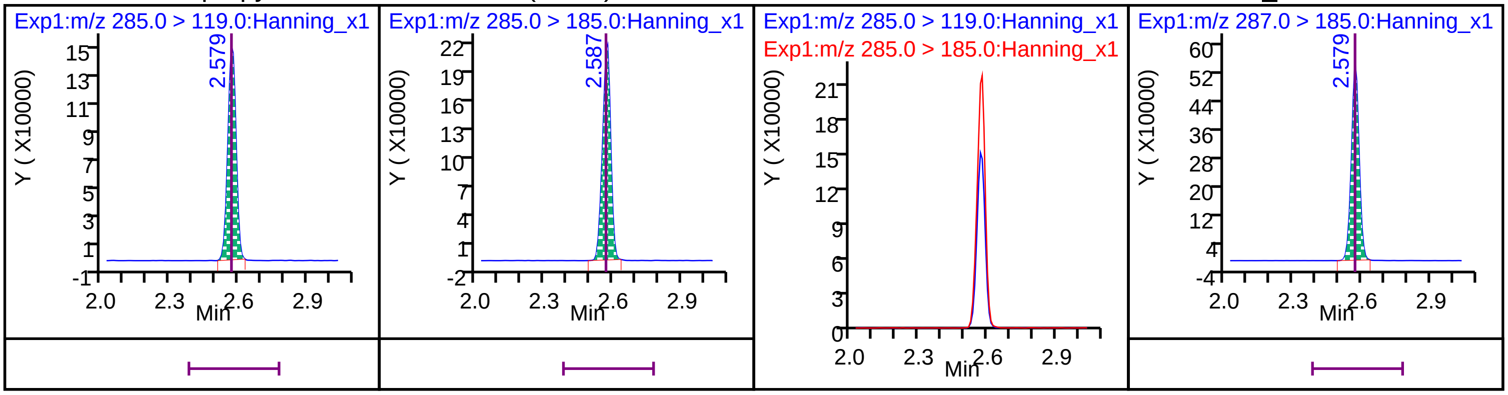
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



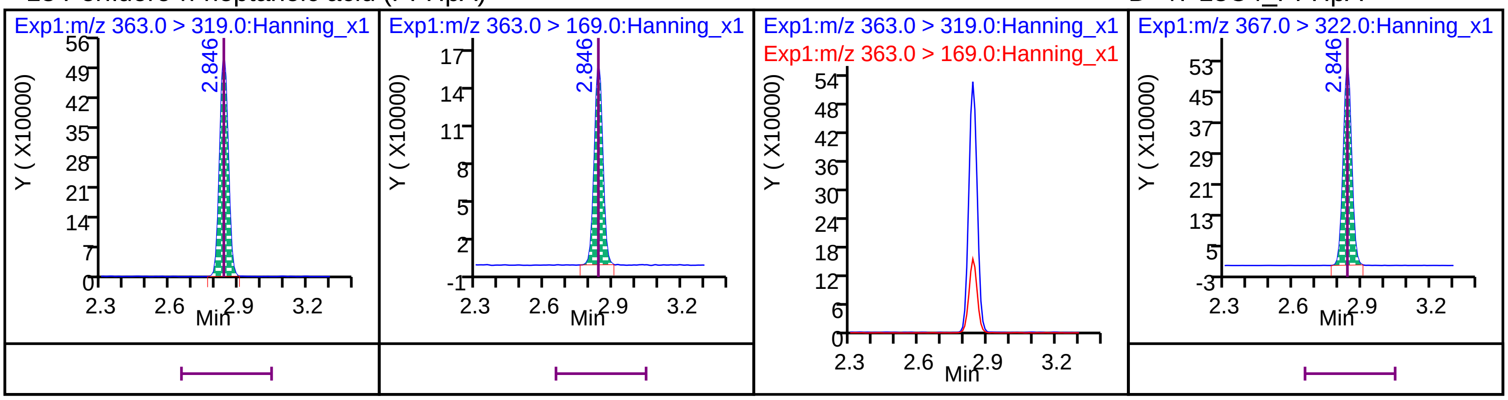
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



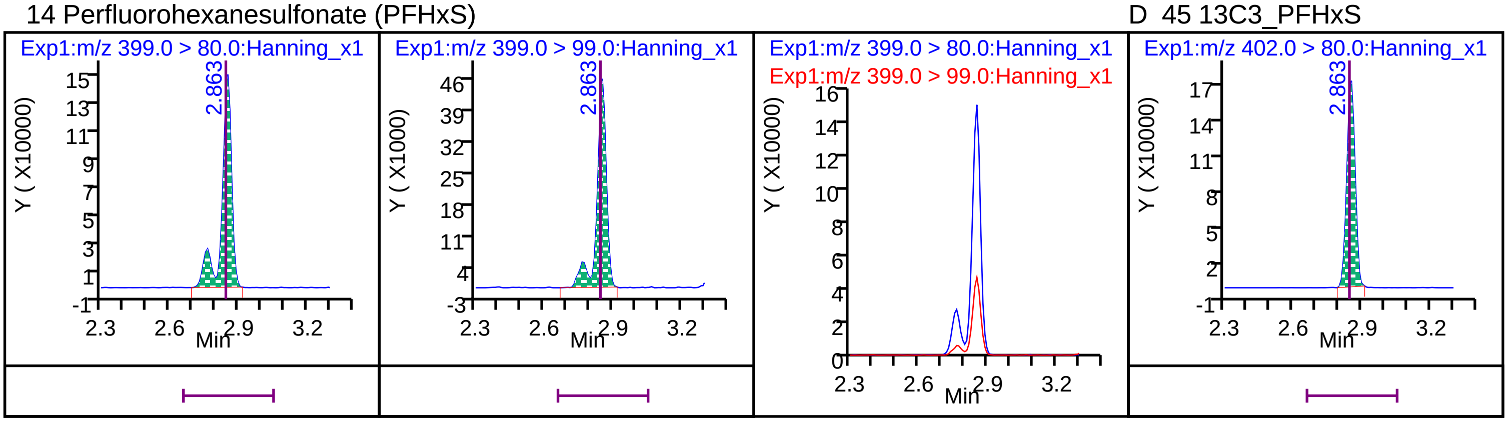
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



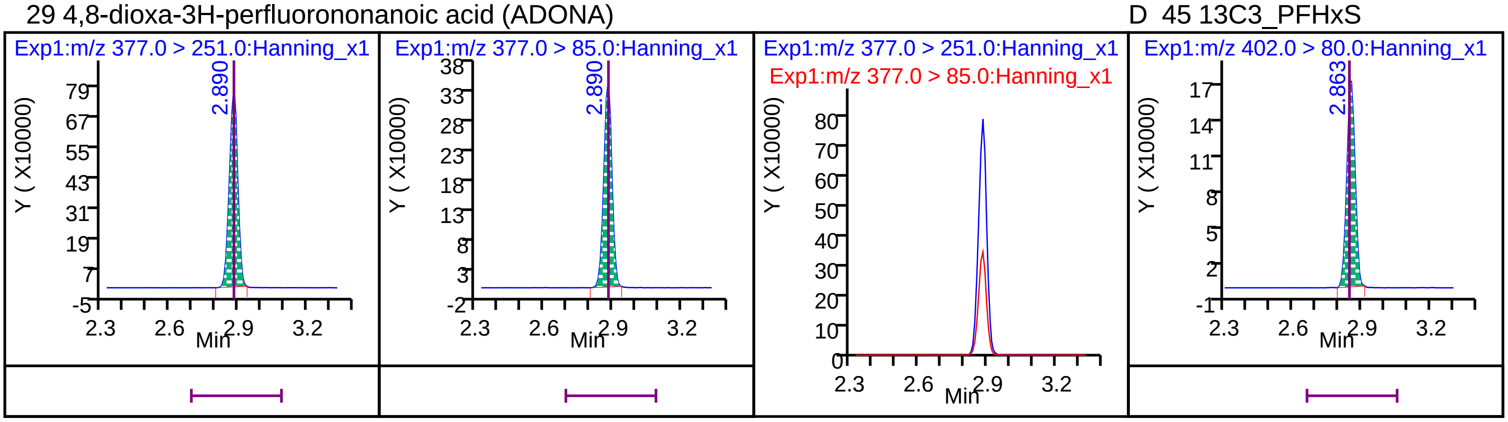
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



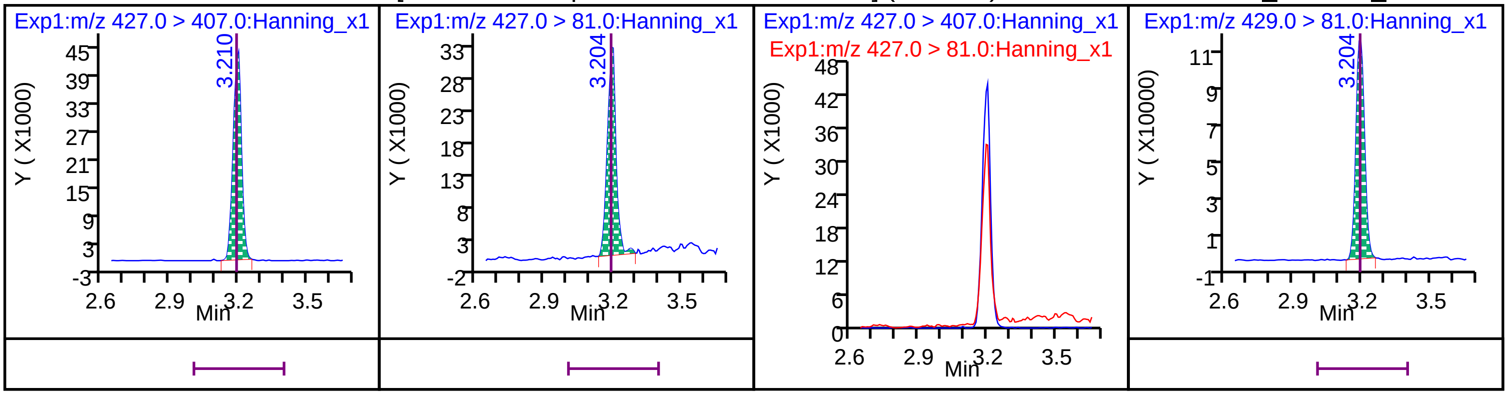
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



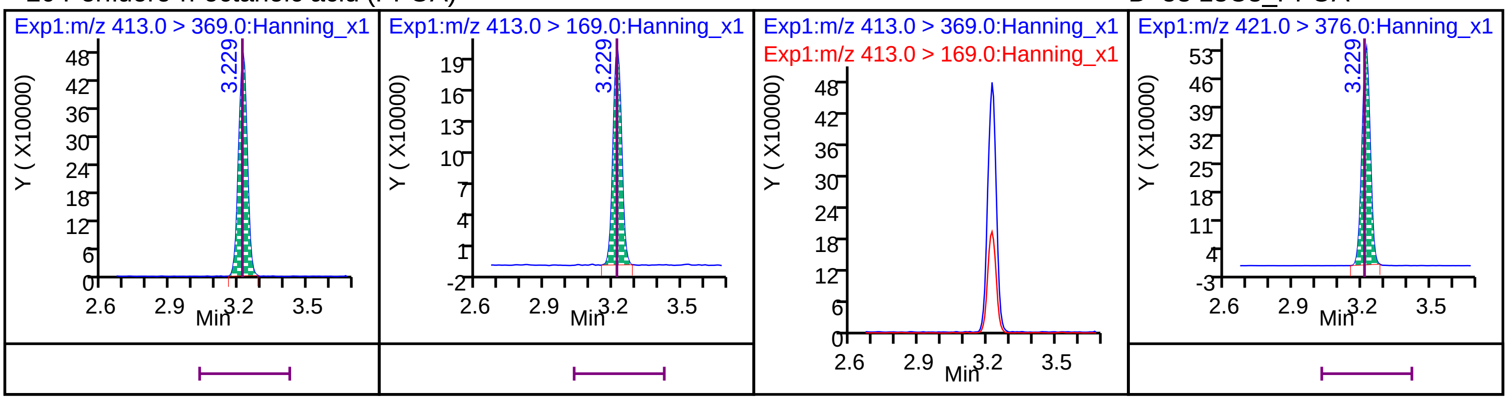
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



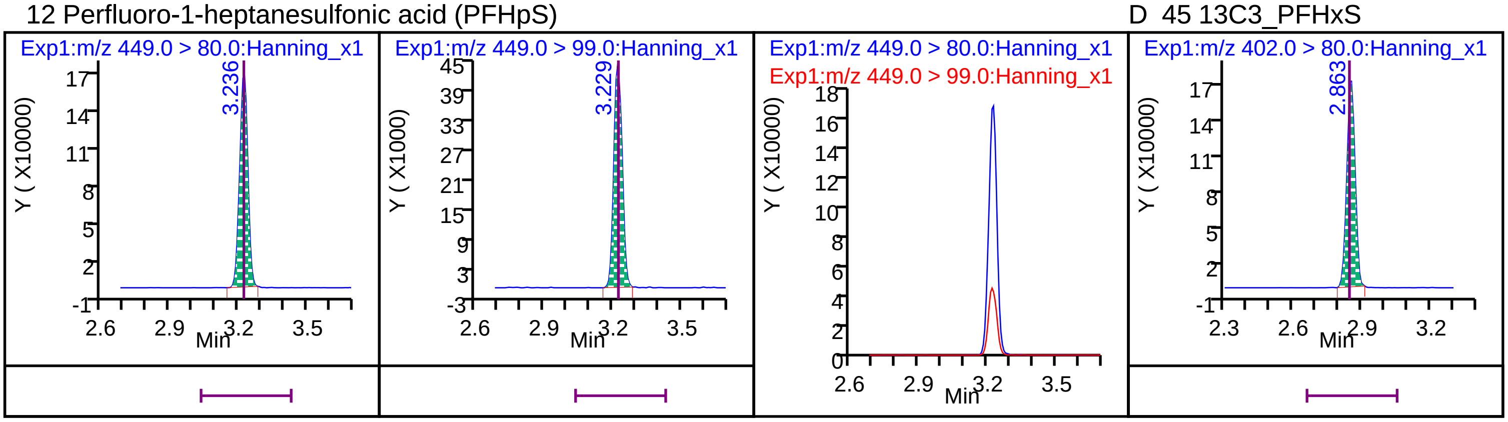
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



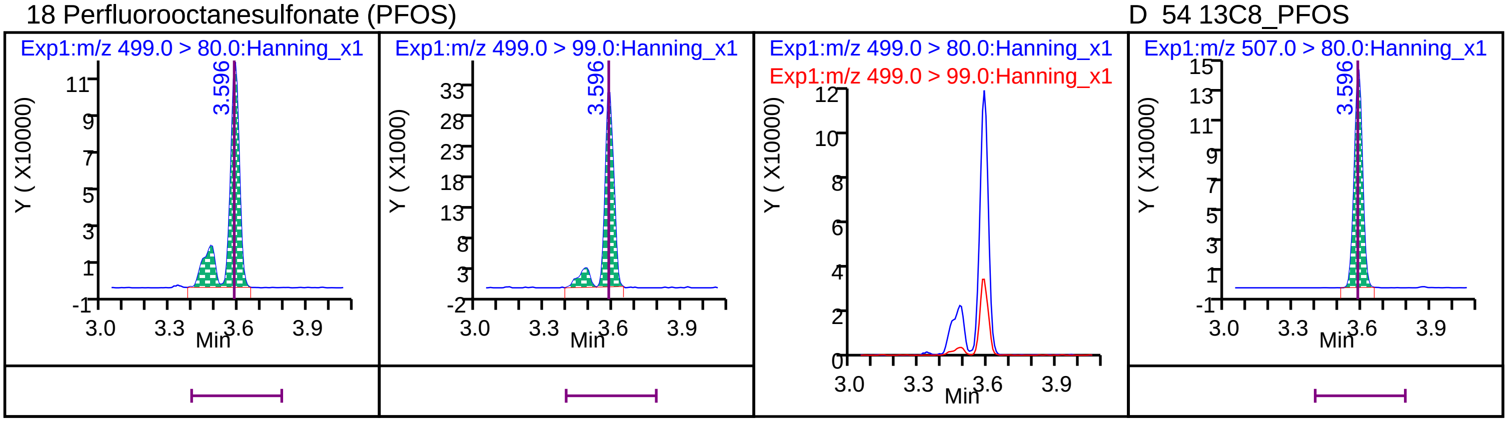
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



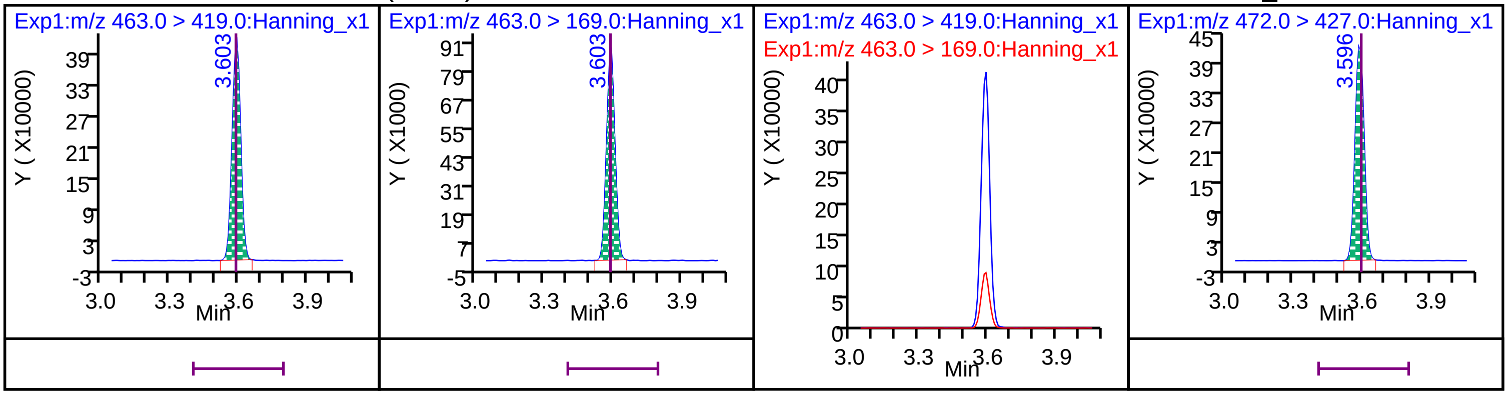
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



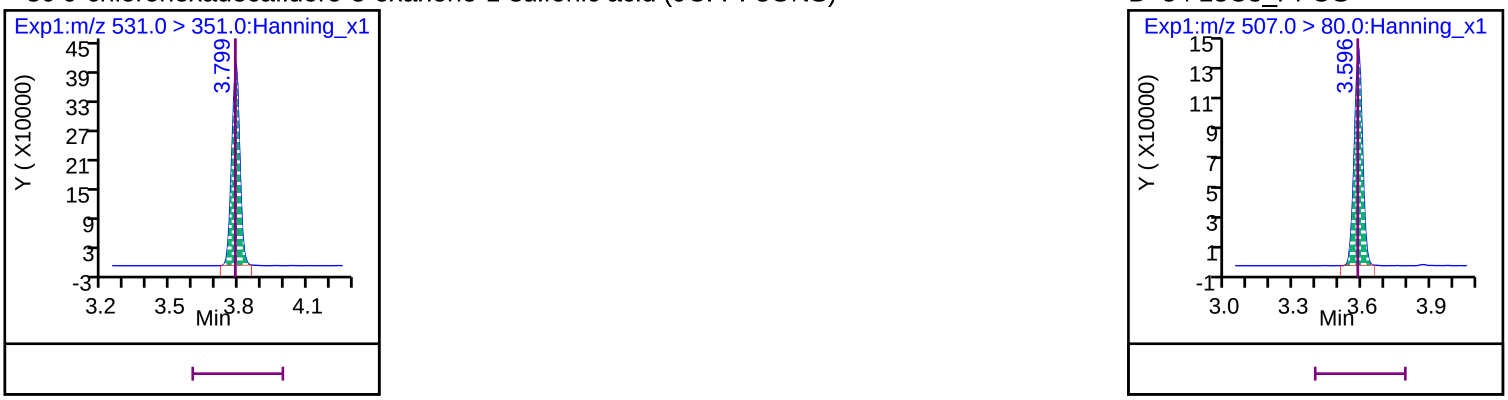
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



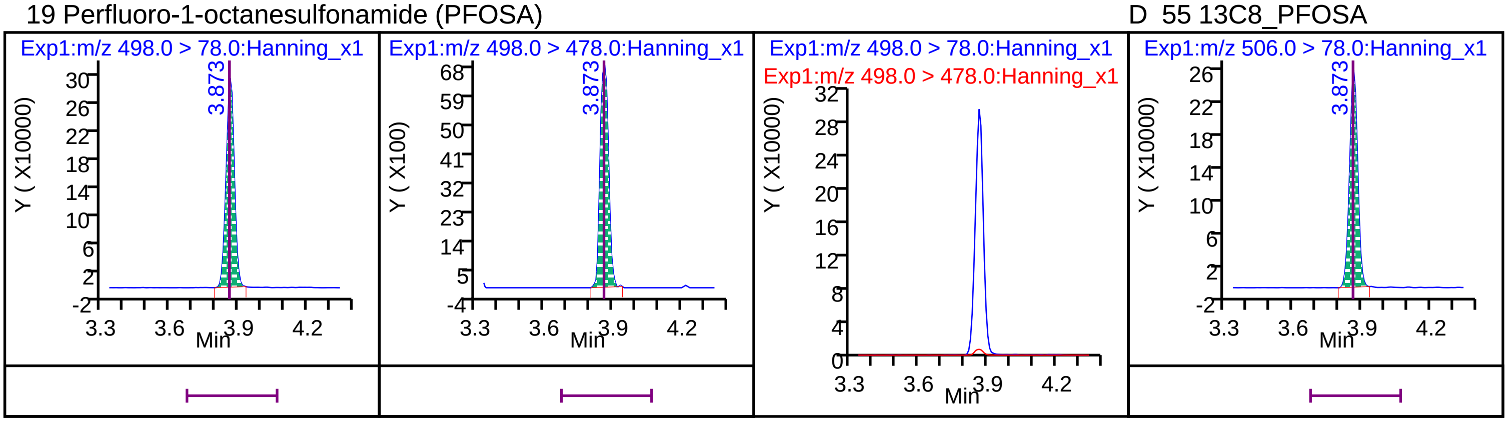
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



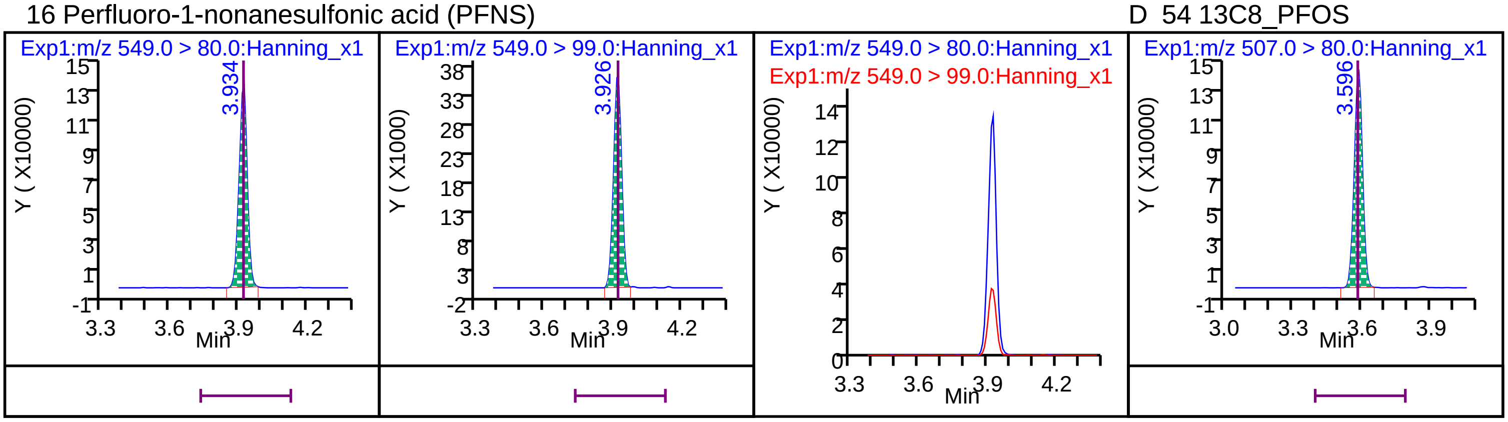
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



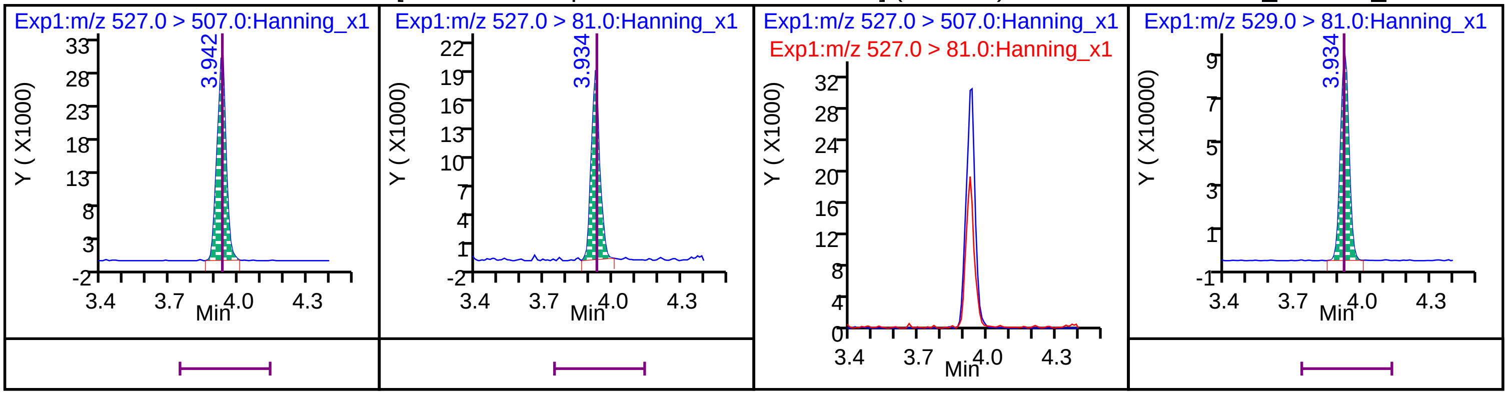
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



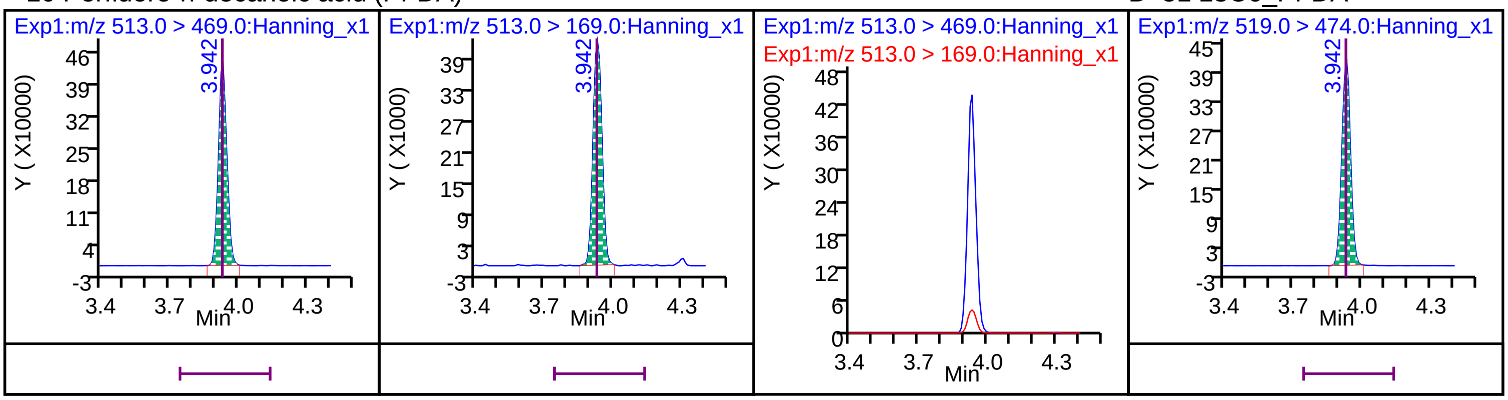
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



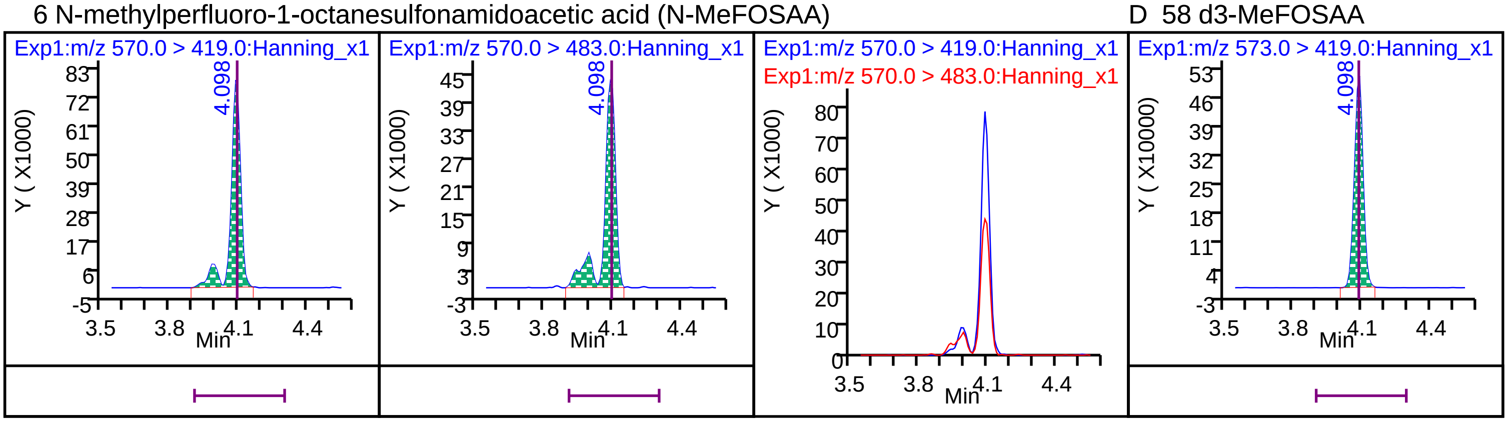
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



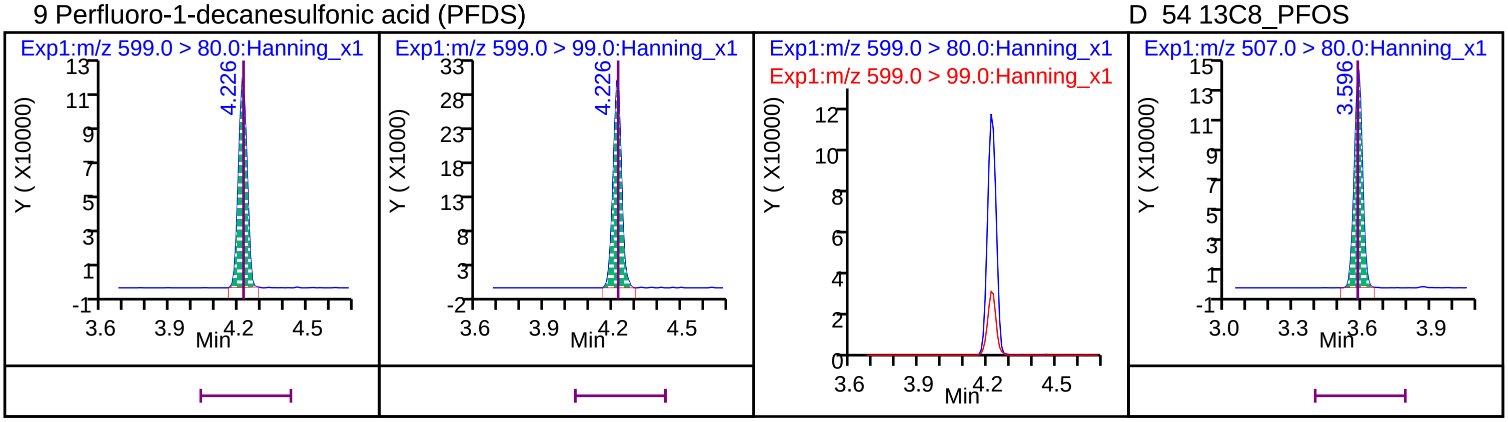
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



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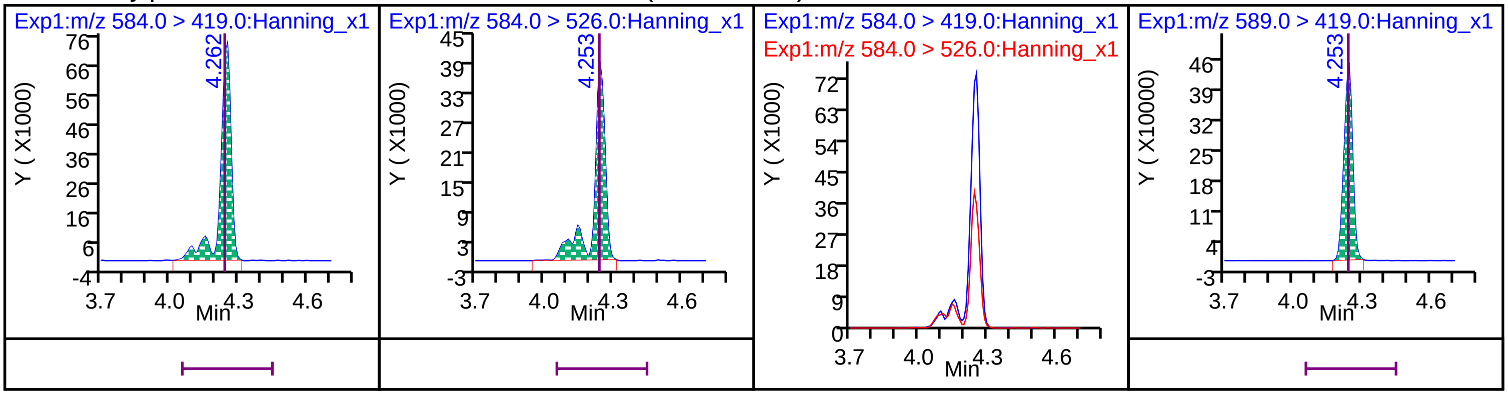
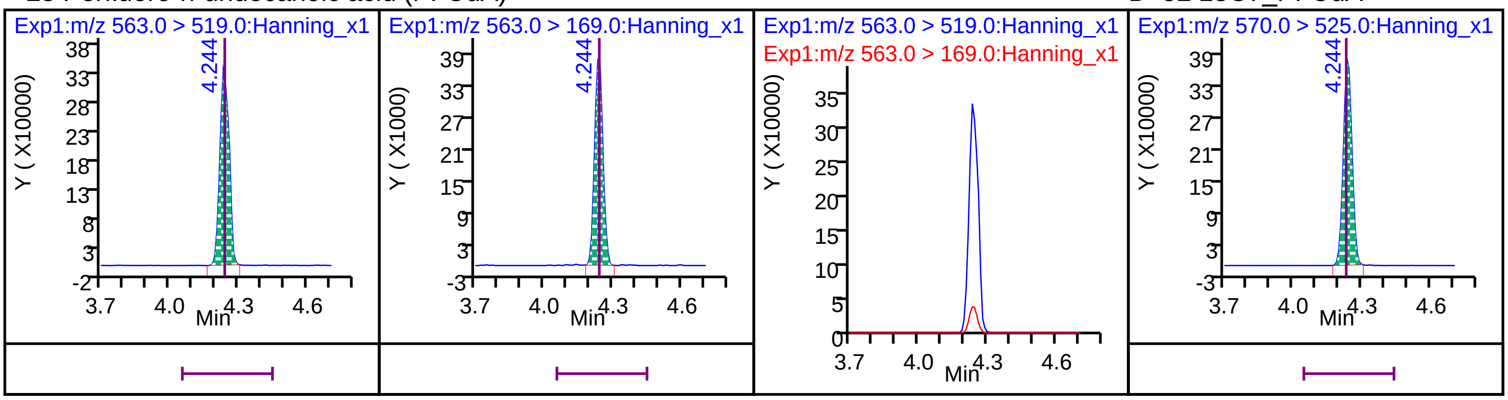
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

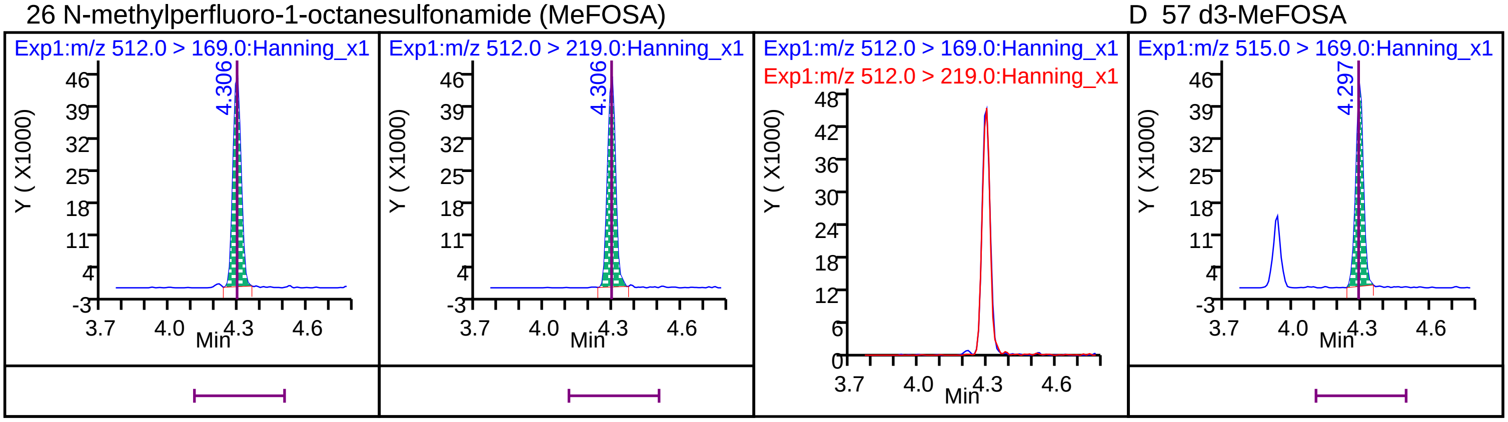


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

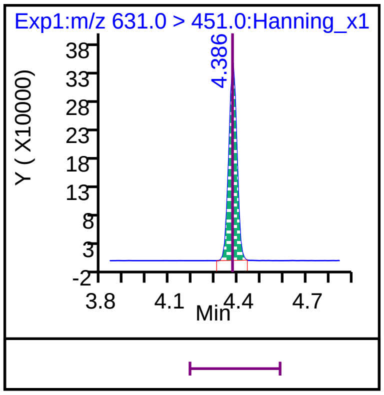


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

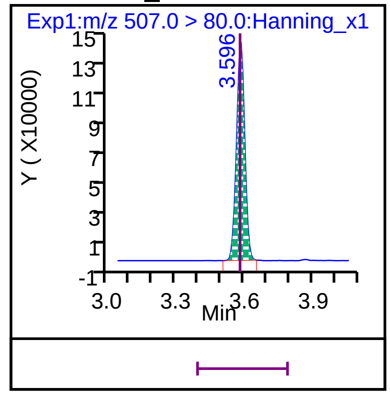
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



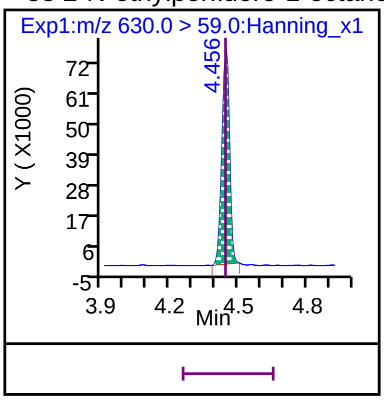
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



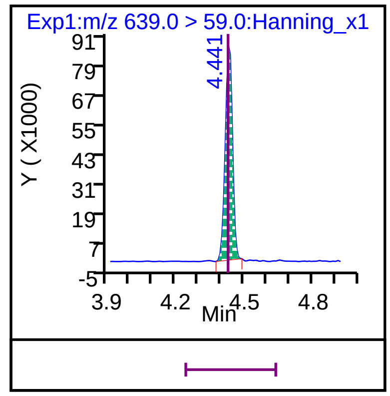
D 54 13C8_PFOS



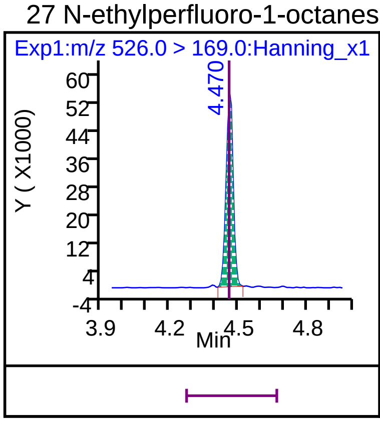
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

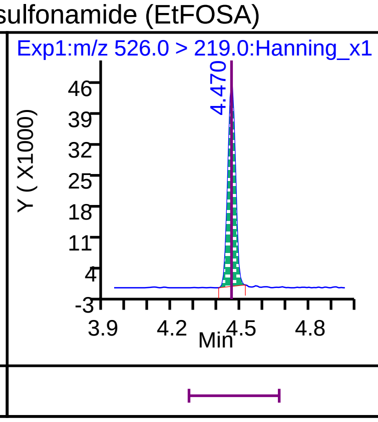


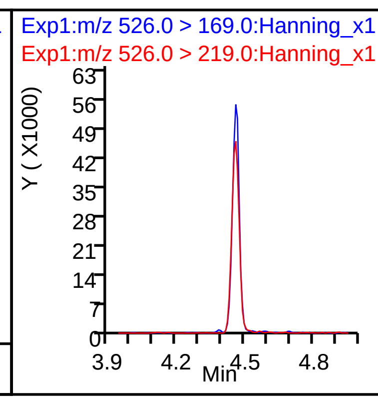
D 62 d9-EtFOSE



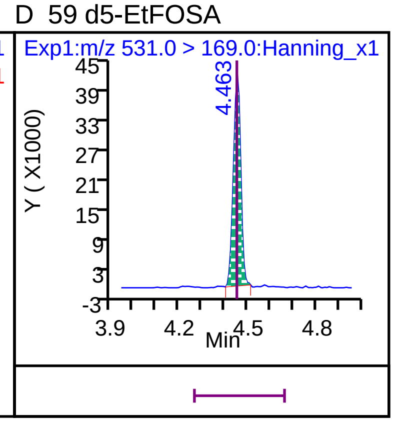
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



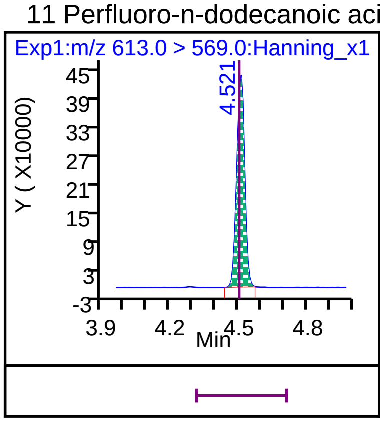


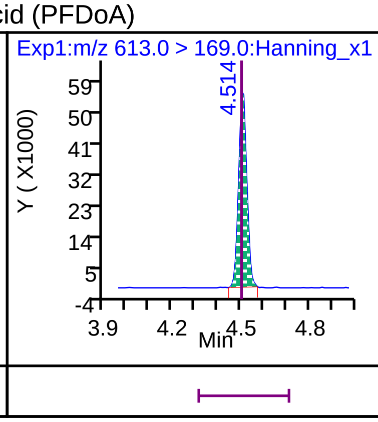


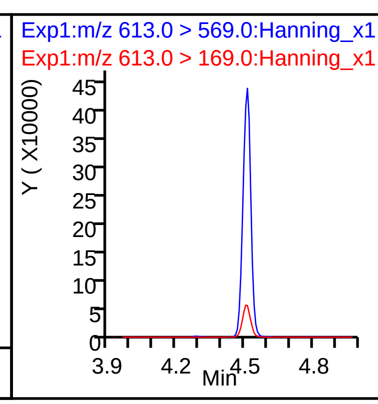
D 59 d5-EtFOSA



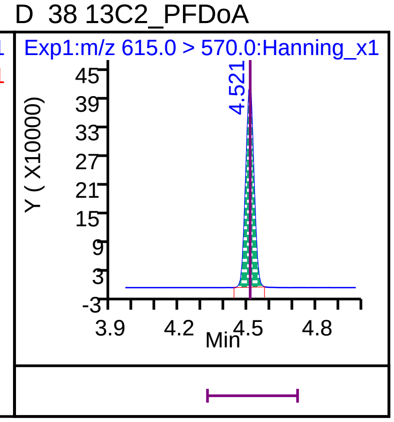
11 Perfluoro-n-dodecanoic acid (PFDoA)







D 38 13C2_PFDoA



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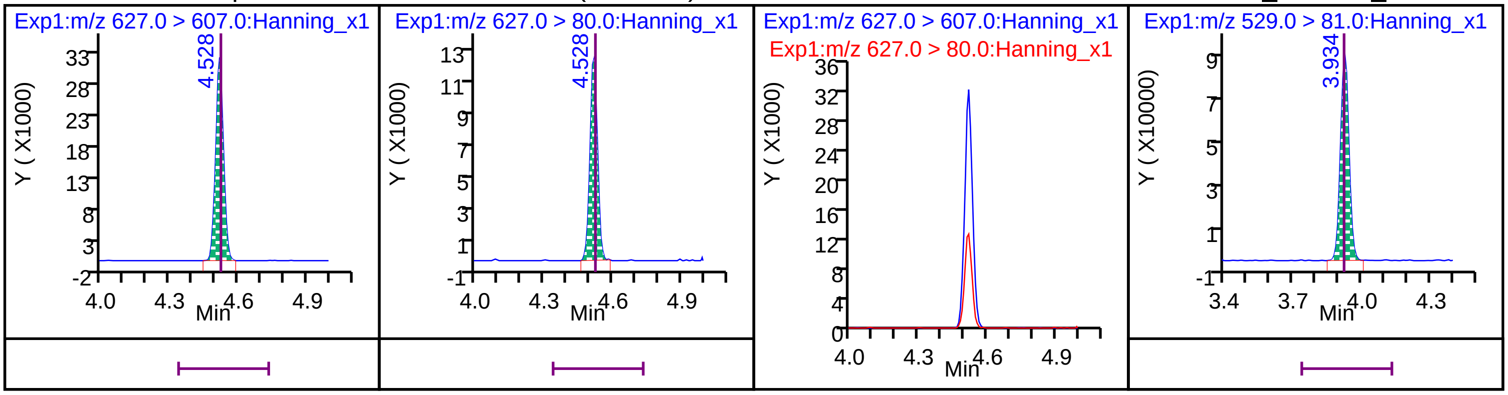
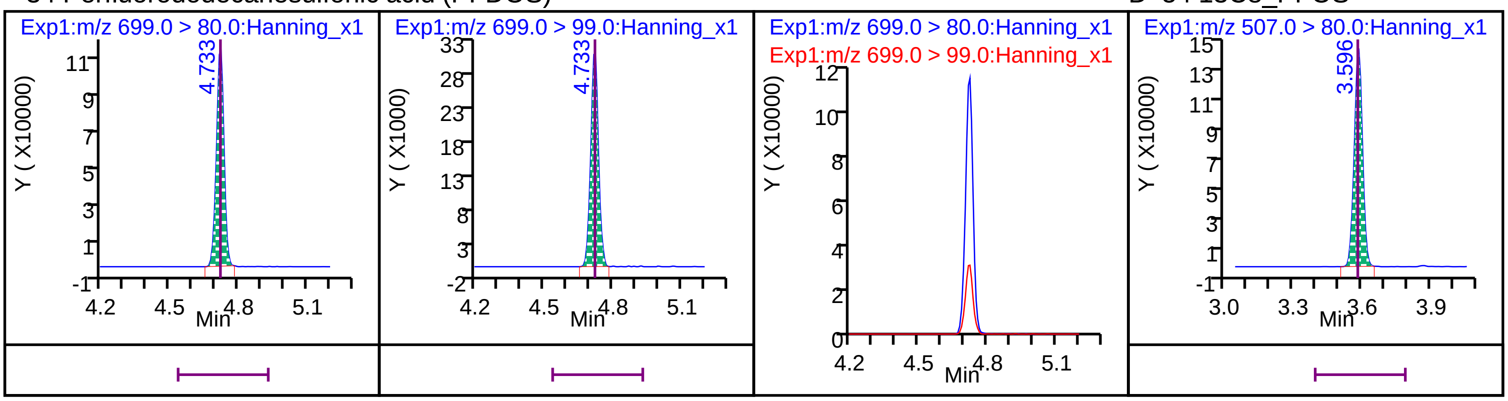
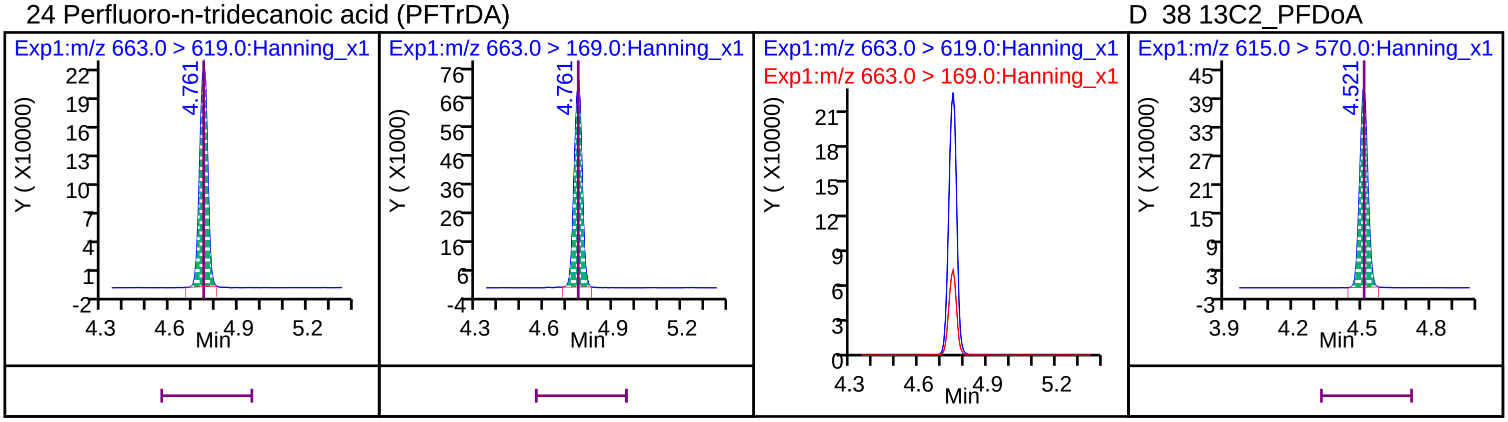
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



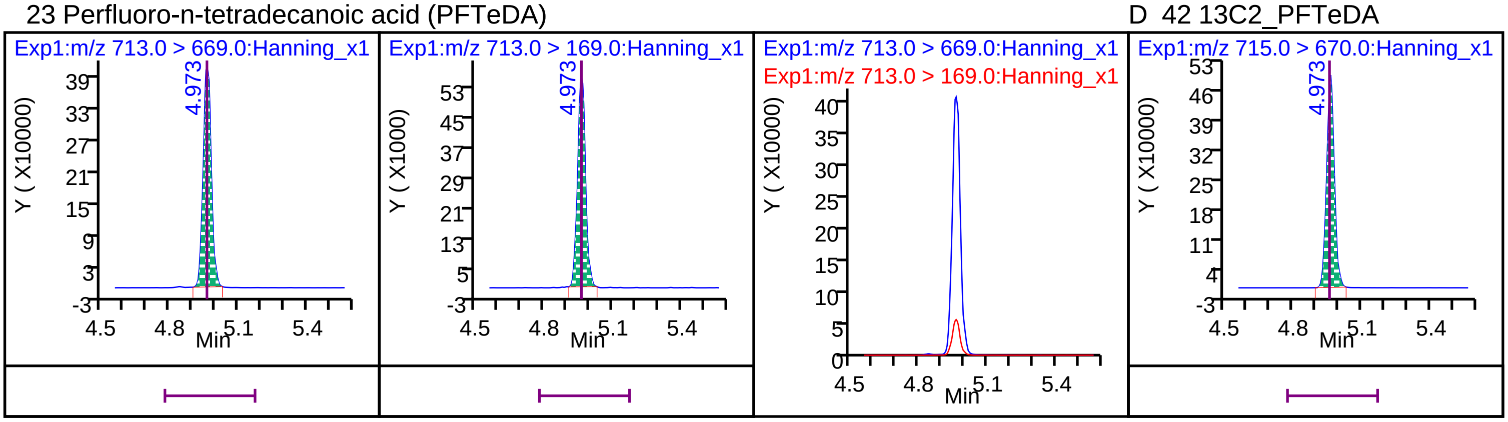
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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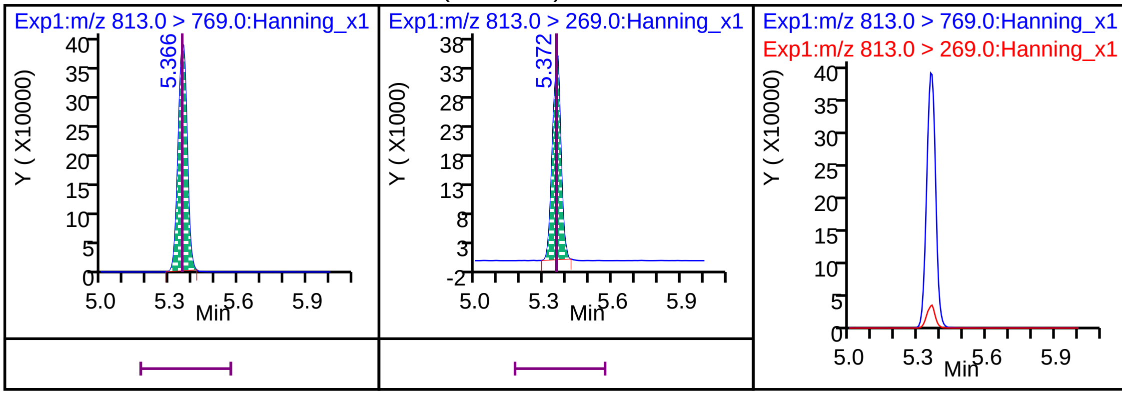
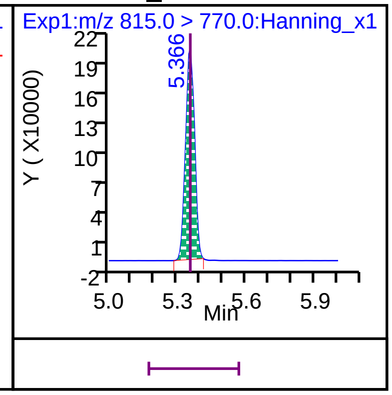
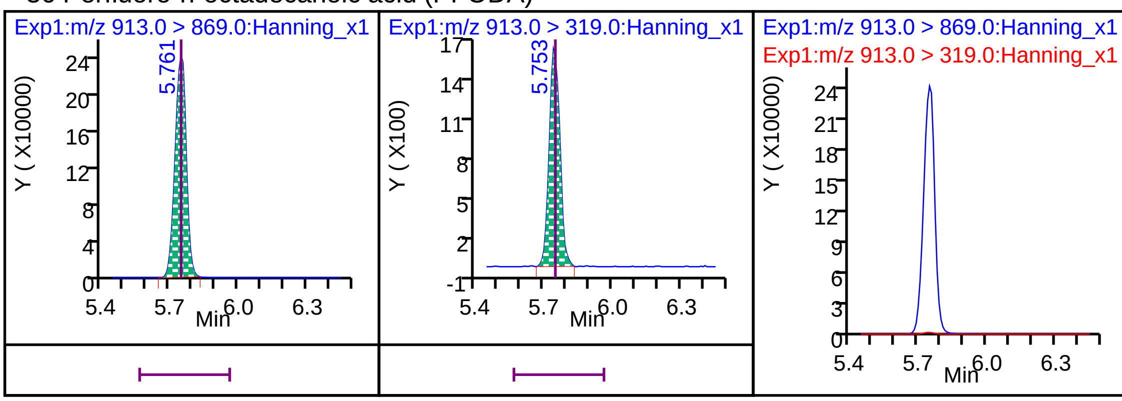
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



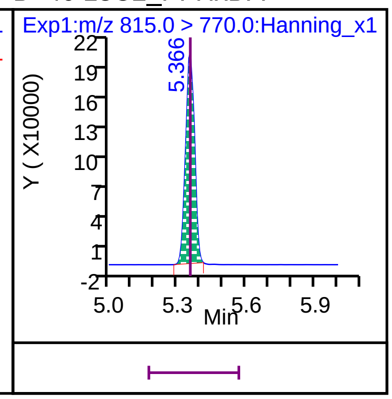
D 40 13C2_PFHxDA



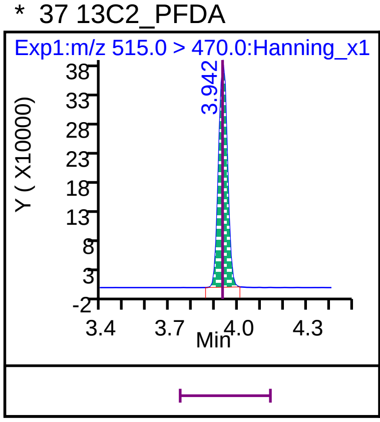
36 Perfluoro-n-octadecanoic acid (PFODA)



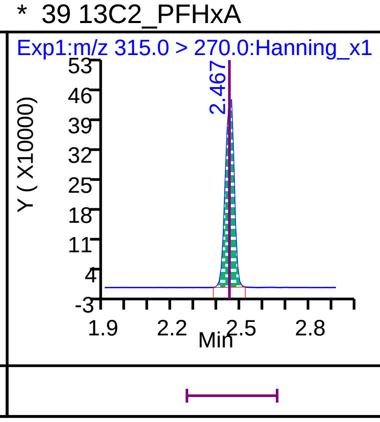
D 40 13C2_PFHxDA



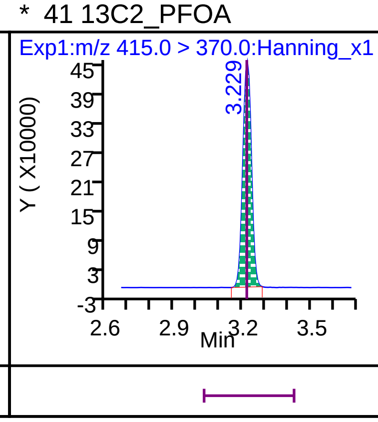
* 37 13C2_PFDA



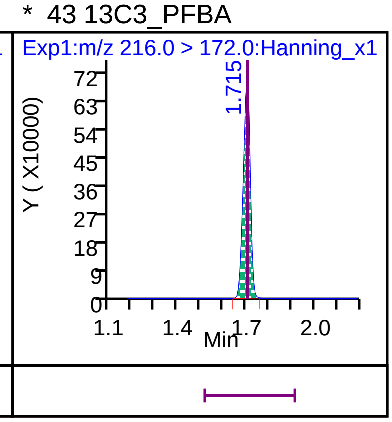
* 39 13C2_PFHxA



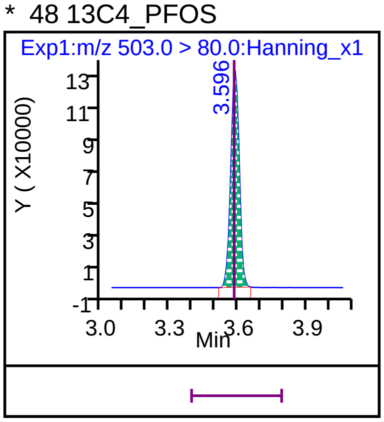
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



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Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d		
Injection Date:	05-Nov-2021 12:13:54	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	CCV 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	99.702	99.7	70 - 130
D 46 13C4_PFBA	1188899	1177138			99	50 - 150
D 50 13C5_PFPeA	1090536	1076384			98.7	50 - 150
21 PFPeA			100.00	105.10	105.1	70 - 130
7 PFBS			88.400	83.286	94.2	70 - 130
D 44 13C3_PFBS	364125	338741			93	50 - 150
1 4:2 FTS			93.400	94.739	101.4	70 - 130
D 63 13C2_4:2 FTS_2	216934	226256			104.3	50 - 150
D 49 13C5_PFHxA	1029068	1008626			98	50 - 150
15 PFHxA			100.00	105.04	105	70 - 130
22 PFPeS			93.800	99.258	105.8	70 - 130
28 GenX			200.00	202.00	101	70 - 130
D 66 13C3_GenX	878629	924257			105.2	50 - 150
D 47 13C4_PFHpA	986129	976651			99	50 - 150
13 PFHpA			100.00	100.70	100.7	70 - 130
D 45 13C3_PFHxS	296861	297909			100.4	50 - 150
14 PFHxS			91.000	91.594	100.7	70 - 130
29 ADONA			94.200	88.367	93.8	70 - 130
D 64 13C2_6:2 FTS_2	194584	209020			107.4	50 - 150
2 6:2 FTS			94.800	139.49	147.1	70 - 130
D 53 13C8_PFOA	923846	914280			99	50 - 150
20 PFOA			100.00	98.276	98.3	70 - 130
12 PFHpS			95.200	92.190	96.8	70 - 130
18 PFOS			92.800	95.483	102.9	70 - 130
17 PFNA			100.00	101.79	101.8	70 - 130
D 56 13C9_PFNA	999317	864448			86.5	50 - 150
D 54 13C8_PFOS	245640	243433			99.1	50 - 150
30 9Cl-PF3ONS			93.200	96.743	103.8	70 - 130
D 55 13C8_PFOSA	427823	466162			109	50 - 150
19 PFOSA			100.00	103.93	103.9	70 - 130
16 PFNS			96.000	94.382	98.3	70 - 130
D 65 13C2_8:2 FTS_2	153511	170823			111.3	50 - 150
3 8:2 FTS			95.800	104.60	109.2	70 - 130
10 PFDA			100.00	107.52	107.5	70 - 130
D 51 13C6_PFDA	784847	796749			101.5	50 - 150
6 N-MeFOSAA			100.00	118.20	118.2	70 - 130

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Data File: \\Organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	902679	881075			97.6	50 - 150
9 PFDS			96.400	91.275	94.7	70 - 130
5 N-EtFOSAA			100.00	81.011	81	70 - 130
25 PFUdA			100.00	100.31	100.3	70 - 130
D 60 d5-EtFOSAA	779079	806334			103.5	50 - 150
D 52 13C7_PFUdA	732655	752112			102.7	50 - 150
D 61 d7-MeFOSE	133282	134219			100.7	50 - 150
32 MeFOSE			100.00	109.30	109.3	70 - 130
26 MeFOSA			100.00	135.20	135.2	70 - 130
D 57 d3-MeFOSA	72656	65225			89.8	50 - 150
31 11Cl-PF3OUDS			94.200	84.483	89.7	70 - 130
D 62 d9-EtFOSE	129304	125062			96.7	50 - 150
33 EtFOSE			100.00	109.22	109.2	70 - 130
D 59 d5-EtFOSA	65473	70105			107.1	50 - 150
27 EtFOSA			100.00	91.069	91.1	70 - 130
11 PFDoA			100.00	107.18	107.2	70 - 130
D 38 13C2_PFDoA	746808	693700			92.9	50 - 150
4 10:2 FTS			96.400	92.684	96.1	70 - 130
34 PFDOS			96.800	90.469	93.5	70 - 130
24 PFTrDA			100.00	104.42	104.4	70 - 130
23 PFTeDA			100.00	99.187	99.2	70 - 130
D 42 13C2_PFTeDA	900924	925125			102.7	50 - 150
35 PFHxDA			100.00	109.33	109.3	70 - 130
D 40 13C2_PFHxDA	403292	400309			99.3	50 - 150
36 PFODA			100.00	92.196	92.2	70 - 130

Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d		
Injection Date:	05-Nov-2021 12:13:54	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	CCV 100_SVLC-1724	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.715	1	1177138	19	>100:1			1000.00	1093.25	99	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	1/0	129077	20	62:1			100.00	99.702		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1076384	17	>100:1			1000.00	1073.26	98.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	121205	16	50:1			100.00	105.10		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	338741	15	>100:1			1000.00	1043.02	93	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	40305	18	>100:1	Target = 3.80		88.400	83.286		
298.9 > 99	44	2.152	2.141		12124	14	79:1	3.32 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.502	2.502	1/0	33831	23	>100:1	Target = 3.42		93.800	99.258		
349 > 99	44	2.502	2.502		8815	18	70:1	3.83 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	226256	19	>100:1			5000.00	5447.10	104.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	1/0	8367	16	>100:1	Target = 1.54		93.400	94.739		
327 > 81	63	2.415	2.424		7909	15	7.0:1	1.05 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.468	2.468	1	1008626	18	>100:1			1000.00	1129.19	98	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.468	2.468	1/0	109467	17	51:1	Target = 17.93		100.00	105.04		
313 > 119	49	2.476	2.468		7495	20	18:1	14.60 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	924257	17	>100:1			5000.00	5641.93	105.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.594	2.594	1/0	28610	19	>100:1	Target = 0.72		200.00	202.00		
285 > 185	66	2.587	2.594		38509	18	>100:1	0.74 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.855	2.855	1	976651	17	>100:1			1000.00	1114.65	99	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.855	2.855	0/-1	94672	17	64:1	Target = 3.26		100.00	100.70		
363 > 169	47	2.855	2.855		29960	19	58:1	3.15 (1.63-4.89)					M
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.872	2.872	1	297909	18	>100:1			1000.00	1135.84	100.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.872	2.872	1/0	32257	27	>100:1	Target = 3.48	7.16	91.000	91.594		
399 > 99	45	2.864	2.872		7224	25	57:1	4.46 (1.74-5.22)	6.07				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.898	2.898	1/0	144900	19	>100:1	Target = 2.31		94.200	88.367		
377 > 85	45	2.898	2.898		59443	18	>100:1	2.43 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.239	3.239	1/0	28248	19	>100:1	Target = 3.56		95.200	92.190		
449 > 99	45	3.246	3.239		6492	19	89:1	4.35 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.214	1	209020	22	>100:1			5000.00	5542.67	107.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.208	1/0	10139	30	>100:1	Target = 1.34		94.800	139.49		
427 > 81	64	3.214	3.208		7153	15	14:1	1.41 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.239	3.239	1	914280	22	>100:1			1000.00	1105.55	99	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.239	3.239	1/0	92450	18	66:1	Target = 2.50		100.00	98.276		
413 > 169	53	3.239	3.239		38272	19	59:1	2.41 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.606	3.606	2	243433	18	>100:1			1000.00	1084.43	99.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.614	3.614	2/0	27401	35	>100:1	Target = 4.01	3.78	92.800	95.483		
499 > 99	54	3.606	3.614		6949	34	49:1	3.94 (2.00-6.02)	7.15				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.811	3.811	2/0	72783	19	>100:1			93.200	96.743		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.948	3.948	2/0	23206	16	>100:1	Target = 3.78		96.000	94.382		
549 > 99	54	3.940	3.948		6455	20	51:1	3.59 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.250	4.250	2/0	21936	14	>100:1	Target = 3.98		96.400	91.275		
599 > 99	54	4.250	4.250		5676	21		3.86 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.402	4.402	2/0	57131	16	>100:1			94.200	84.483		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.752	4.752	2/0	21329	16	>100:1	Target = 3.68		96.800	90.469		
699 > 99	54	4.752	4.752		6097	16	>100:1	3.49 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.614	3.614	1	864448	19	>100:1			1000.00	1081.89	86.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.614	3.614	2/1	80130	18	>100:1	Target = 4.69		100.00	101.79		
463 > 169	56	3.606	3.614		15984	23	75:1	5.01 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.870	3.870	1	466162	19	>100:1			1000.00	1125.48	109	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.870	3.870	0/-1	54779	17	>100:1	Target = 40.85		100.00	103.93		
498>478	55	3.886	3.870		1616	19	16:1	33.89 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.948	3.948	1	170823	17	>100:1			5000.00	5442.74	111.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.948	3.948	1/0	6349	21	30:1	Target = 1.58		95.800	104.60		
527 > 81	65	3.948	3.948		4425	16	7.3:1	1.43 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.541	4.541	2/1	5647	20	46:1	Target = 2.46		96.400	92.684		
627 > 80	65	4.548	4.541		2626	27	36:1	2.15 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.956	3.956	2	796749	16	>100:1			1000.00	1103.83	101.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.964	3.964	2/0	87901	22	>100:1	Target = 9.77		100.00	107.52		
513 > 169	51	3.956	3.964		7614	13	54:1	11.54 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.112	4.112	2	881075	18	>100:1			5000.00	4969.04	97.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.112	4.112	1/-1	17030	28	98:1	Target = 1.41	8.44	100.00	118.20		
570 > 483	58	4.112	4.112		9856	29	59:1	1.72 (0.70-2.11)	5.25				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.268	4.268	2	752112	16	>100:1			1000.00	1100.51	102.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.268	4.268	2/0	67679	18	>100:1	Target = 9.19		100.00	100.31		
563 > 169	52	4.268	4.268		6545	20	56:1	10.34 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.268	4.268	2	806334	16	>100:1			5000.00	5392.43	103.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.277	4.277	0/-2	13354	31	81:1	Target = 1.75	4.96	100.00	81.011		
584 > 526	60	4.277	4.277		9704	30	23:1	1.37 (0.87-2.63)	2.61				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.268	4.268	0	134219	17	>100:1			1000.00	972.70	100.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.277	4.277	0/0	14910	18	50:1			100.00	109.30		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.295	0	65225	15	>100:1			1000.00	931.51	89.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.295	4.295	0/0	9132	14	55:1	Target = 1.11		100.00	135.20		
512 > 219	57	4.295	4.295		8167	16	47:1	1.11 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.432	4.432	0	125062	17	>100:1			1000.00	972.84	96.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.446	4.446	0/0	11627	15	78:1			100.00	109.22		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.454	0	70105	16	>100:1			1000.00	1088.50	107.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.461	4.461	0/0	7464	14	91:1	Target = 1.06		100.00	91.069		M
526 > 219	59	4.461	4.461		6660	16	56:1	1.12 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.541	4.541	2	693700	17	>100:1			1000.00	1008.81	92.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.541	4.541	2/0	73018	22	63:1	Target = 6.38		100.00	107.18		
613 > 169	38	4.541	4.541		10098	24	62:1	7.23 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.784	4.784	2/0	38818	19	>100:1	Target = 3.23		100.00	104.42		
663 > 169	38	4.778	4.784		12013	21	>100:1	3.23 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.000	5.000	2	925125	24	>100:1			1000.00	1183.40	102.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.003	5.003	3/1	80640	25	86:1	Target = 7.33		100.00	99.187		
713 > 169	42	5.003	5.003		10400	21	>100:1	7.75 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.406	5.406	3	400309	23	>100:1			1000.00	1025.43	99.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.406	5.406	3/0	83720	24	9.6:1	Target = 12.31		100.00	109.33		
813 > 269	40	5.406	5.406		6560	24	>100:1	12.76 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.819	5.819	4/1	55718	22	>100:1	Target = 165.31		100.00	92.196		
913 > 319	40	5.811	5.819		400	26	63:1	139.29 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.956	3.956	2	954252	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.468	2.468	1	1010209	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.239	3.239	1	940032	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	1	1117704	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.606	3.606	2	268826	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

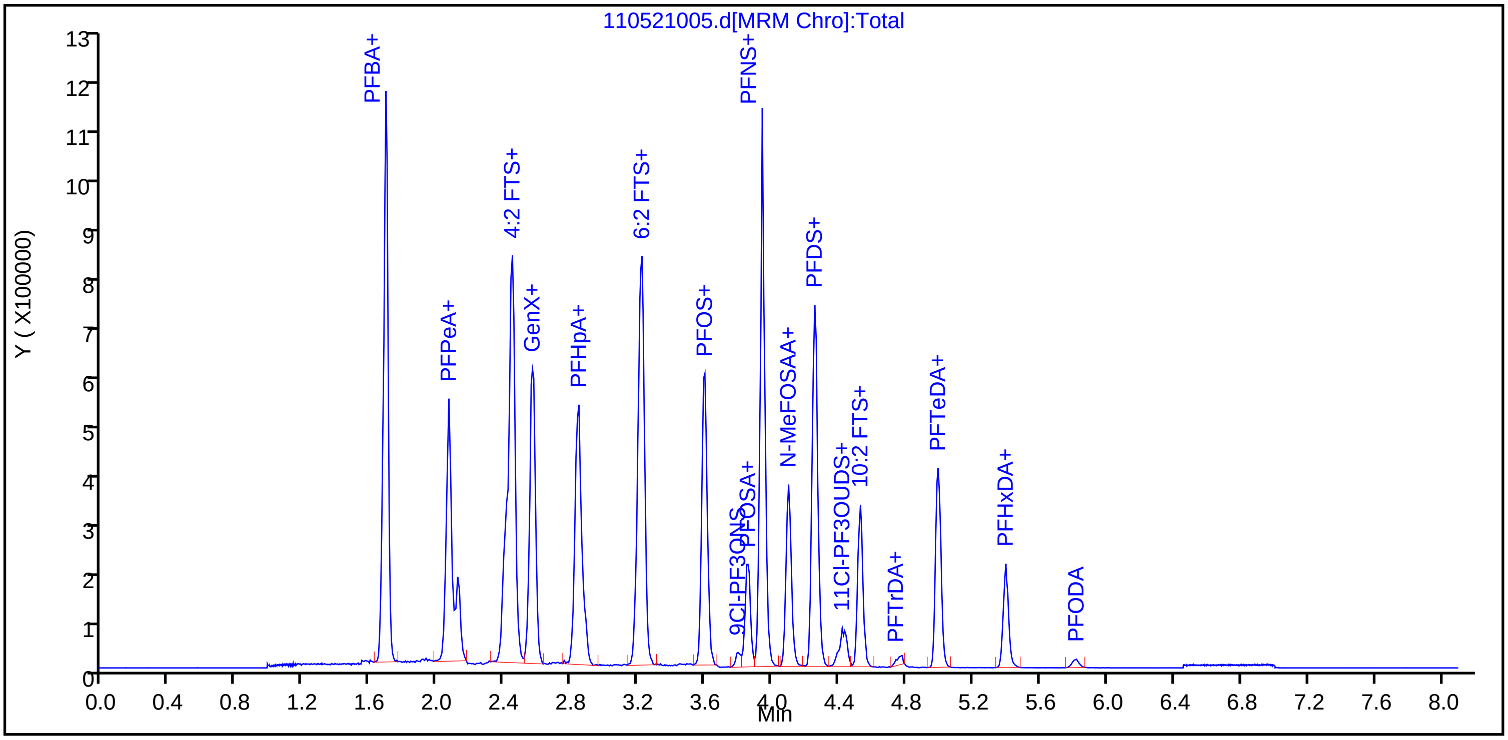
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

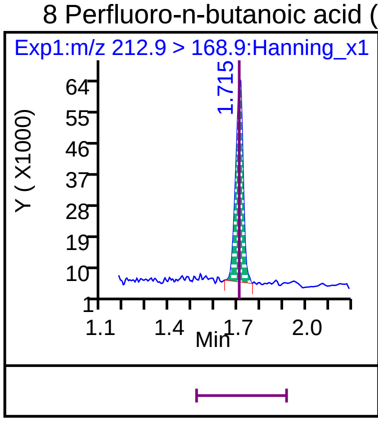
Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

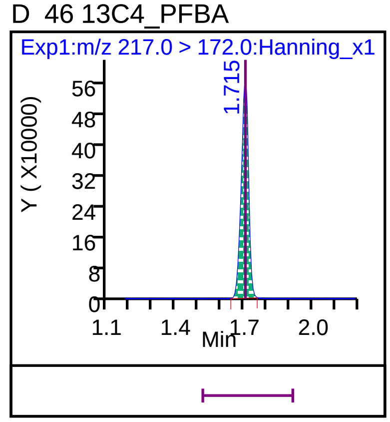
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d		
Injection Date:	05-Nov-2021 12:13:54	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller



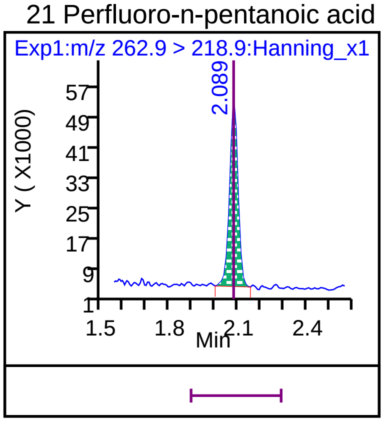
8 Perfluoro-n-butanoic acid (PFBA)



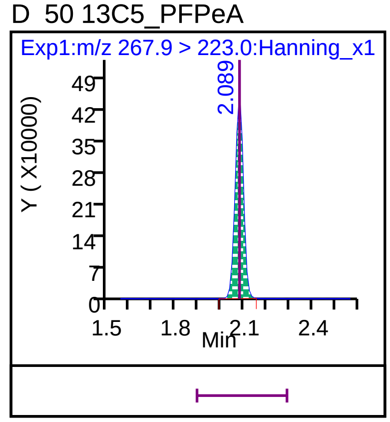
D 46 13C4_PFBA



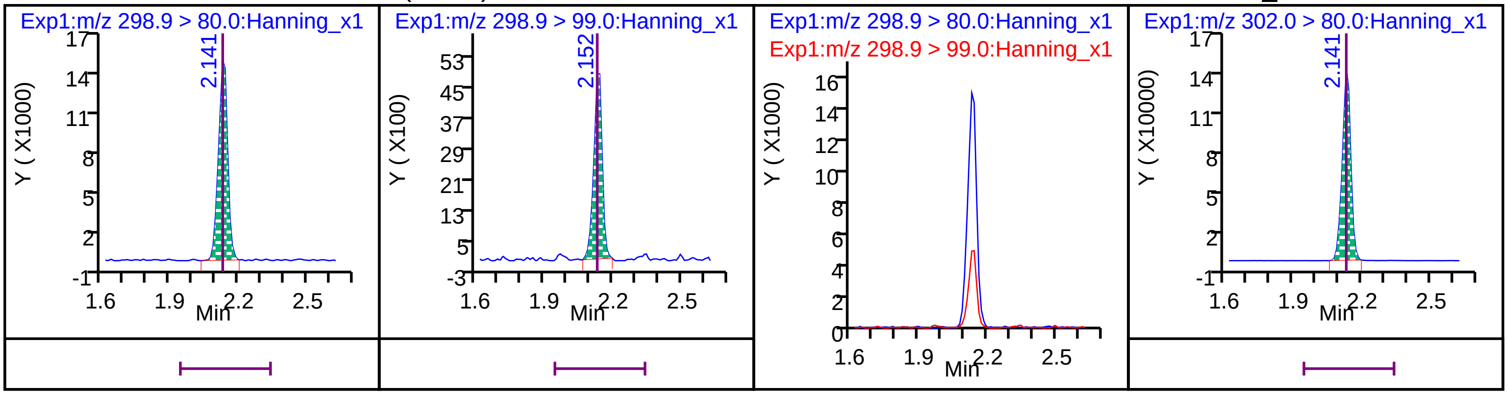
21 Perfluoro-n-pentanoic acid (PFPeA)



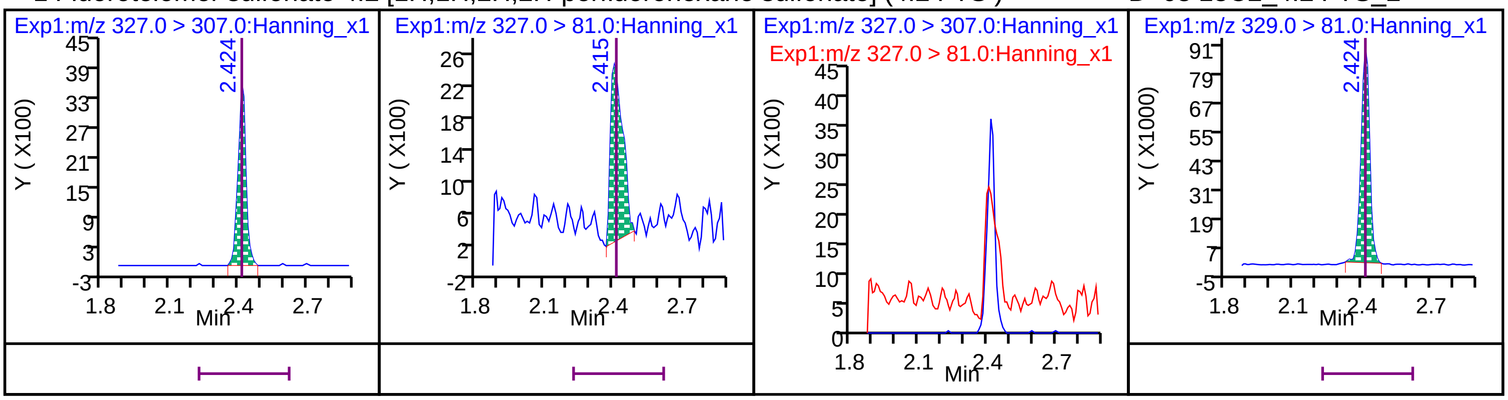
D 50 13C5_PFPeA



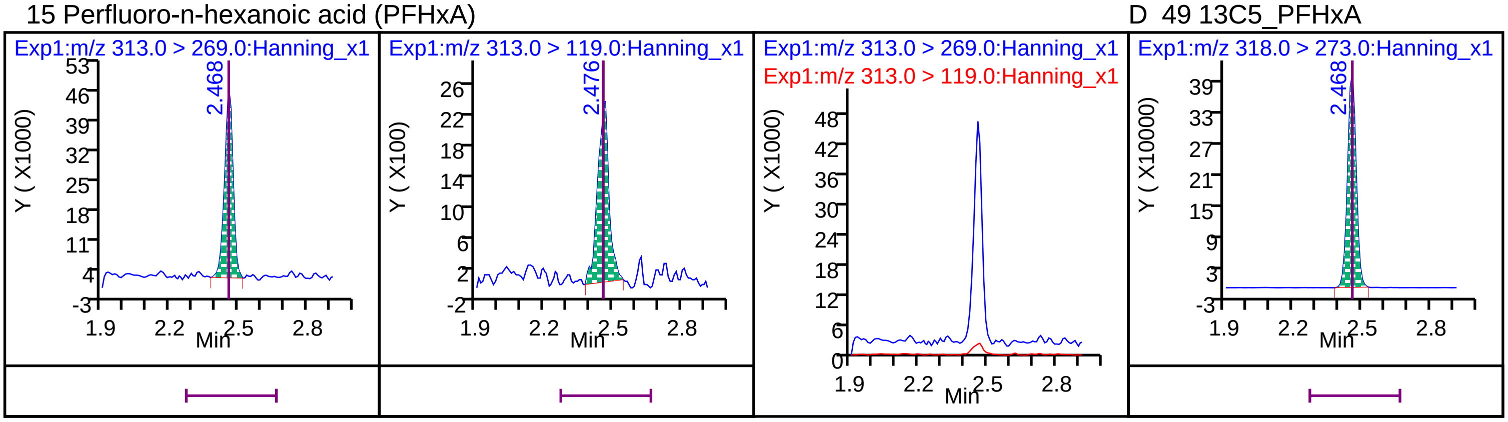
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



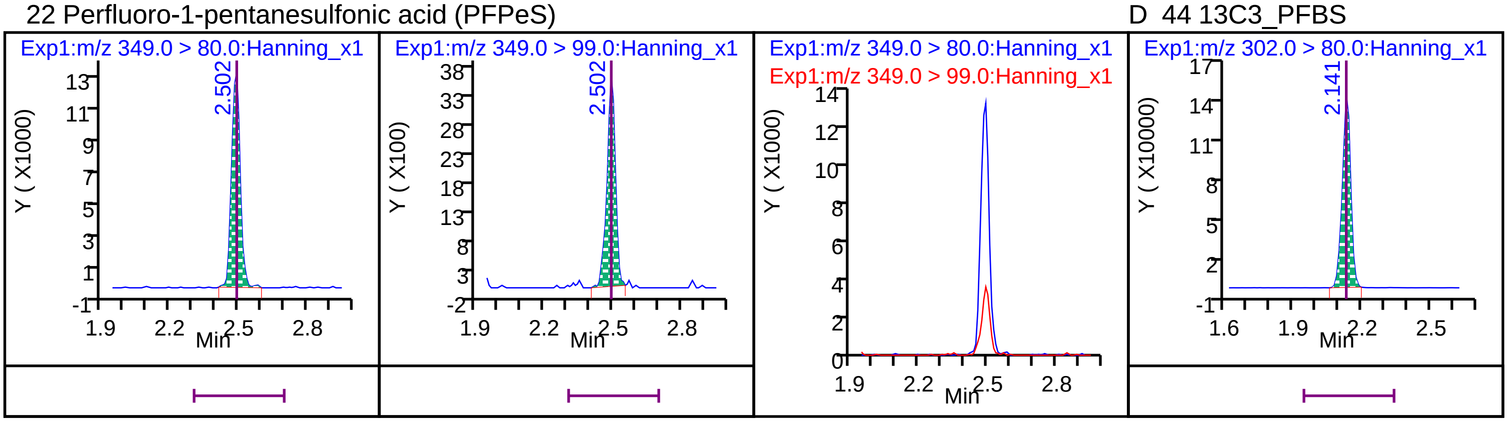
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



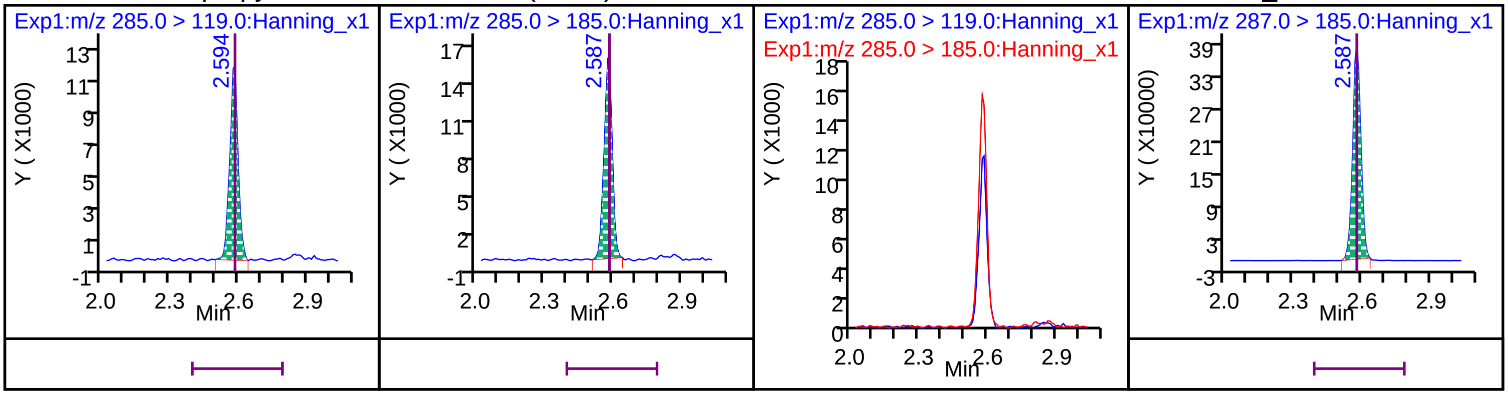
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



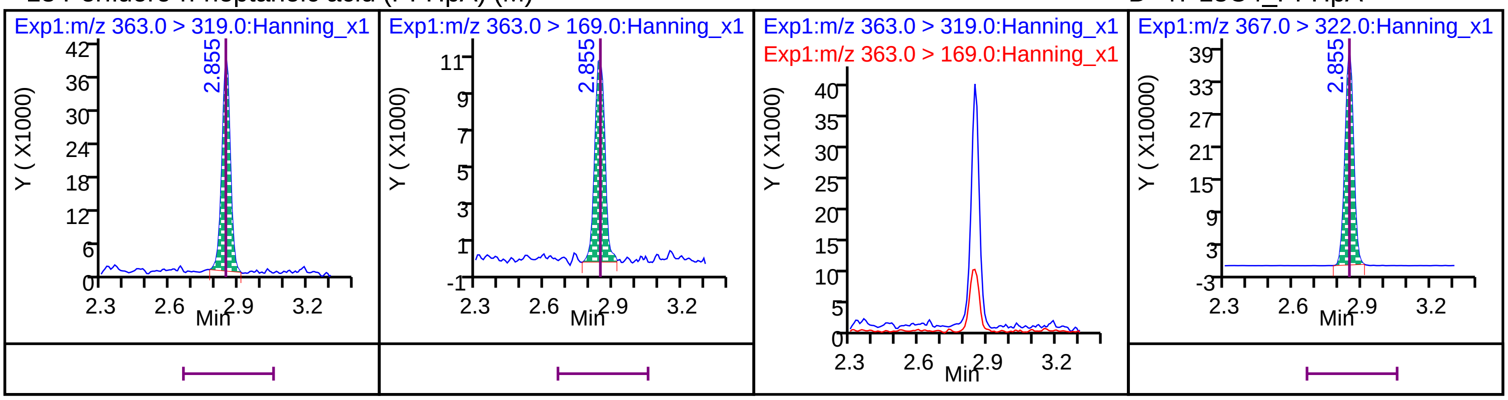
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



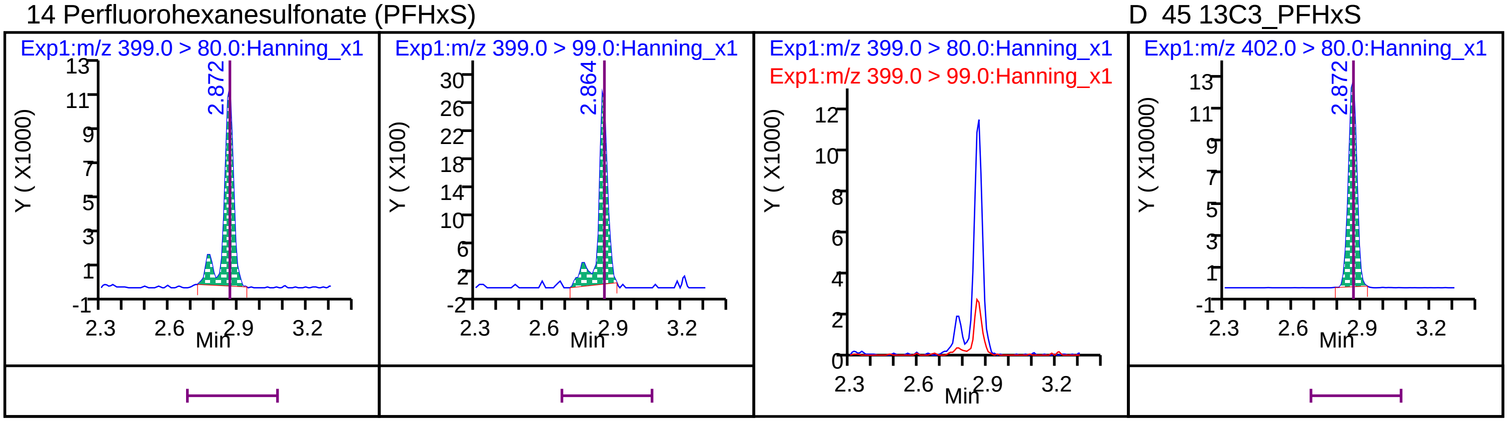
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



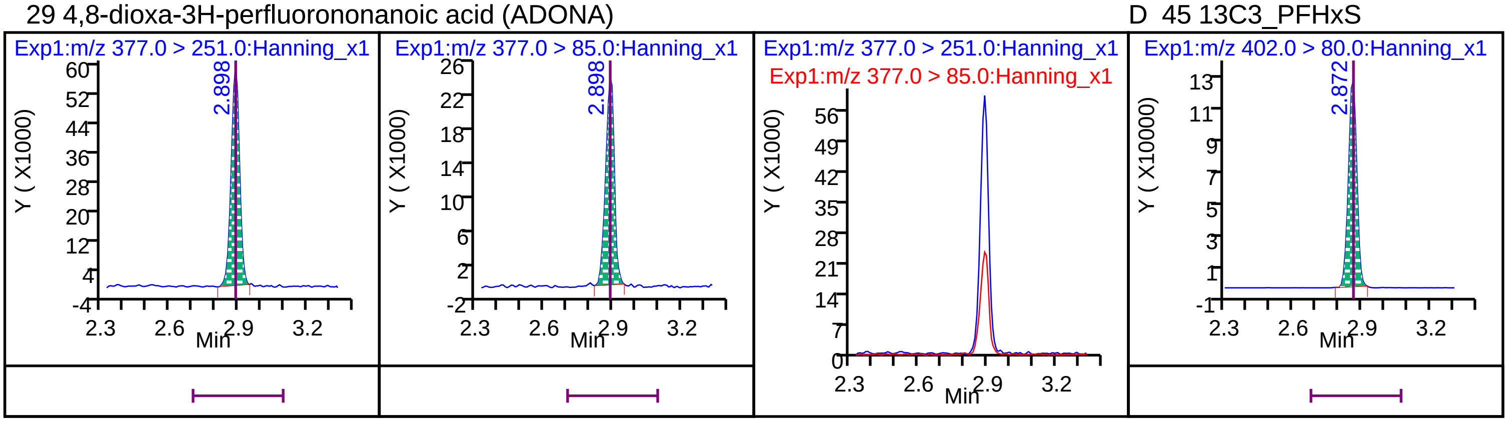
13 Perfluoro-n-heptanoic acid (PFHpA) (M) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

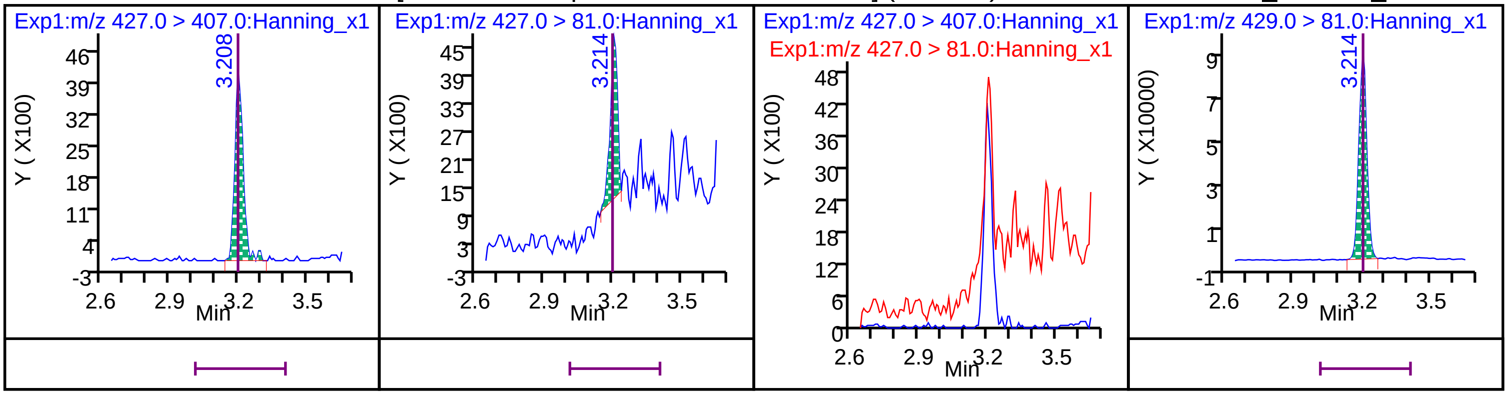


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

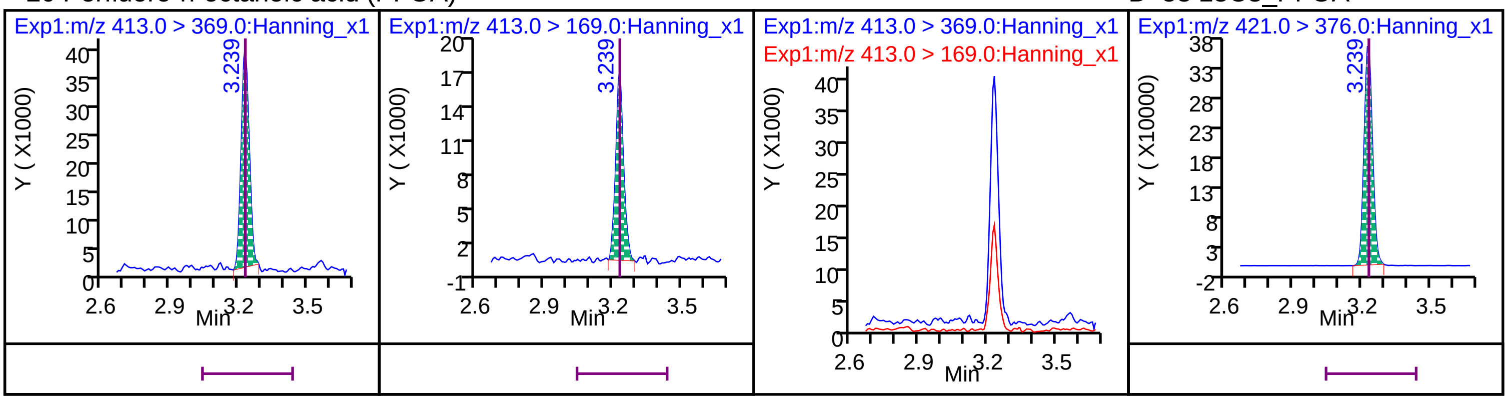


Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d

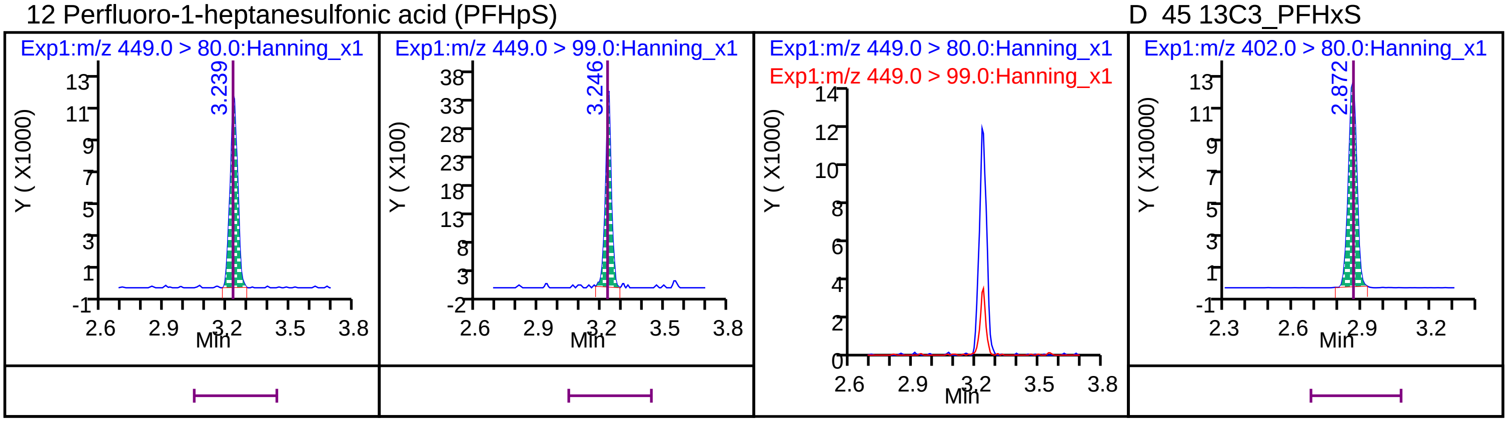
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



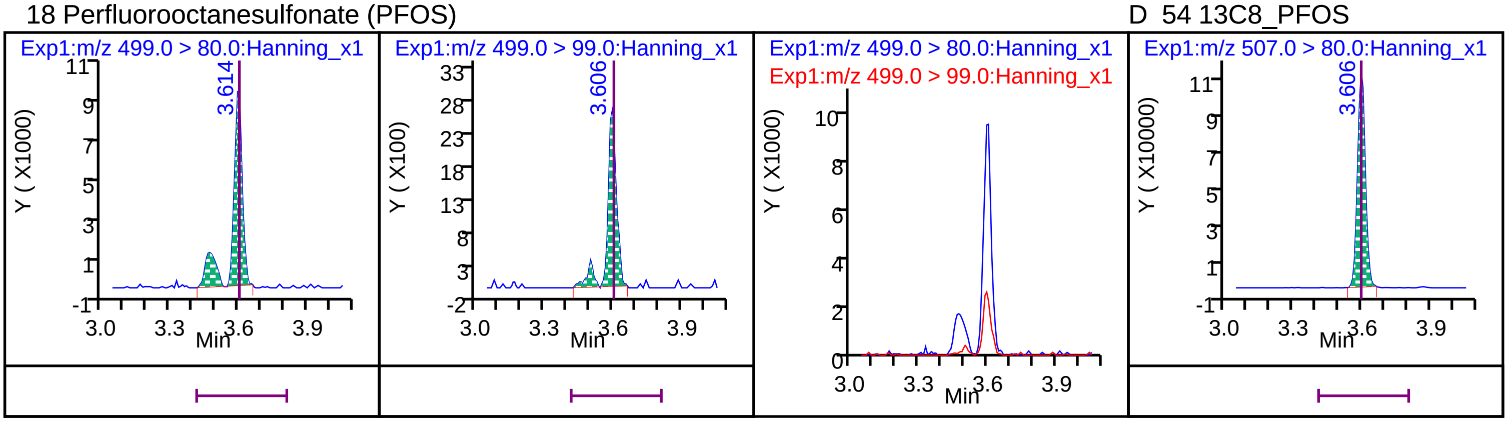
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

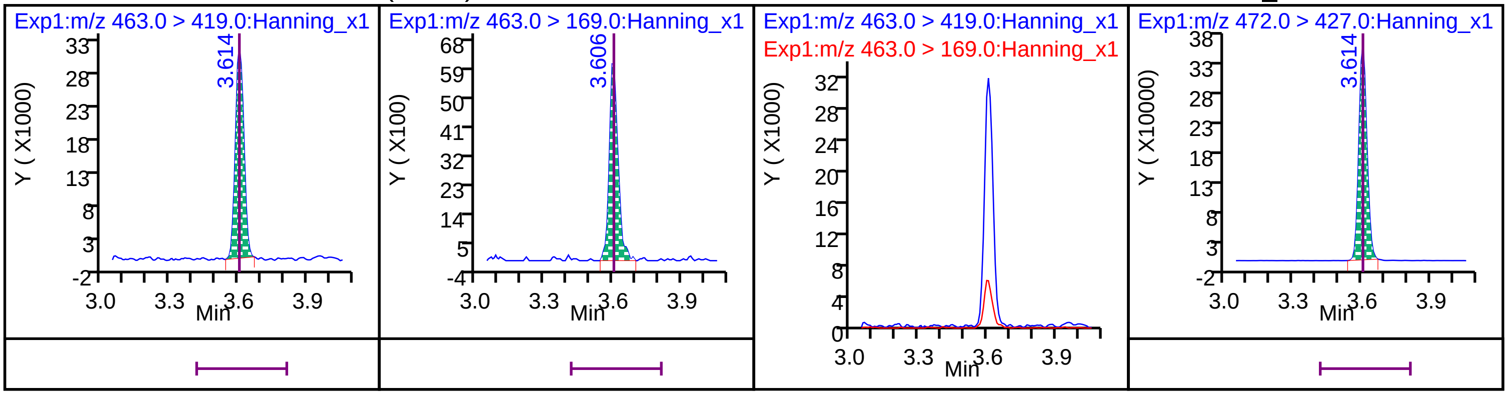


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

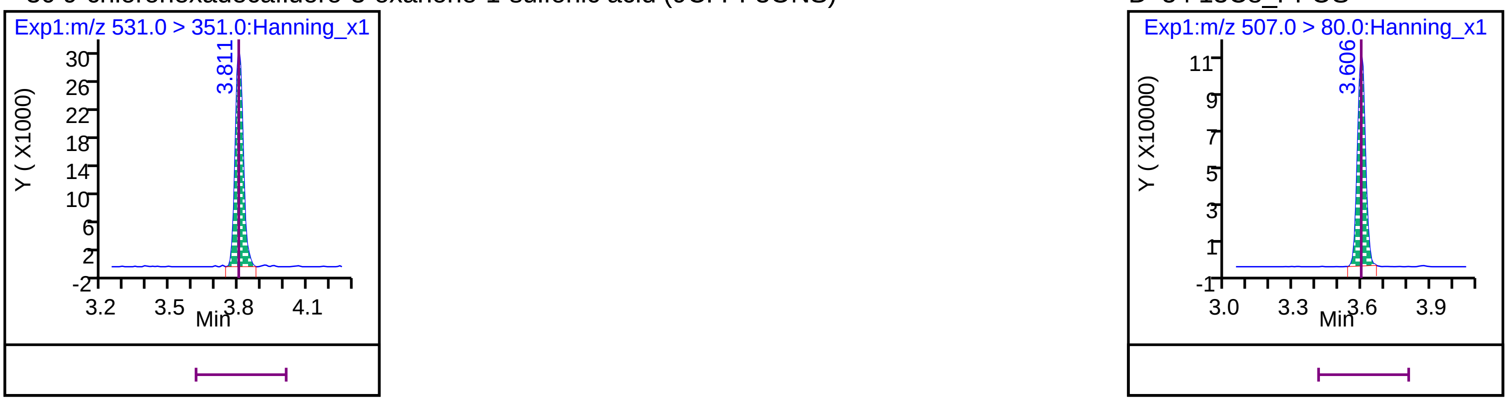


Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d

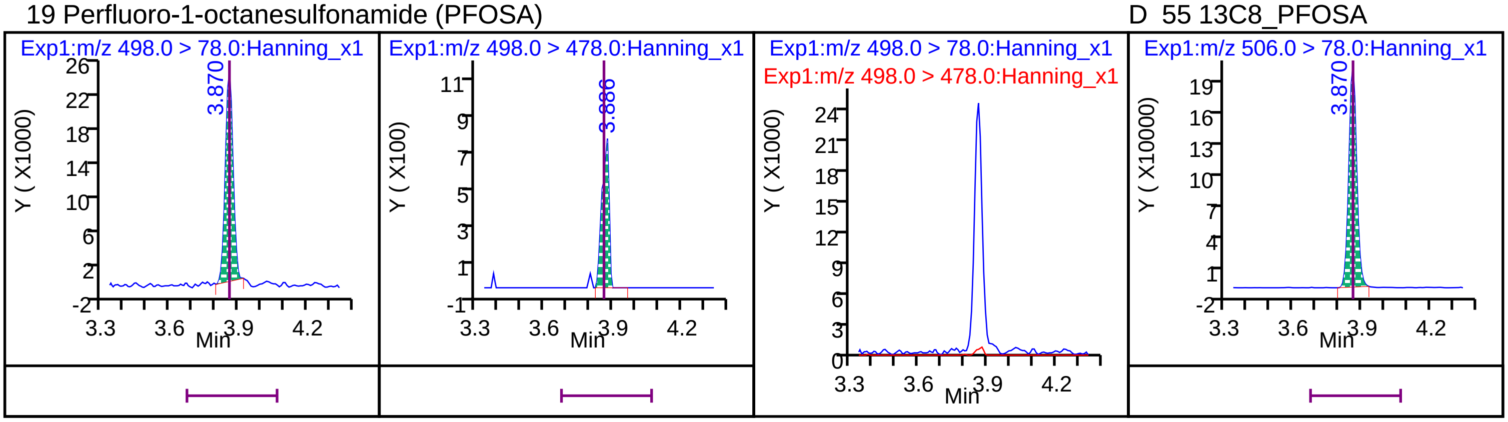
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



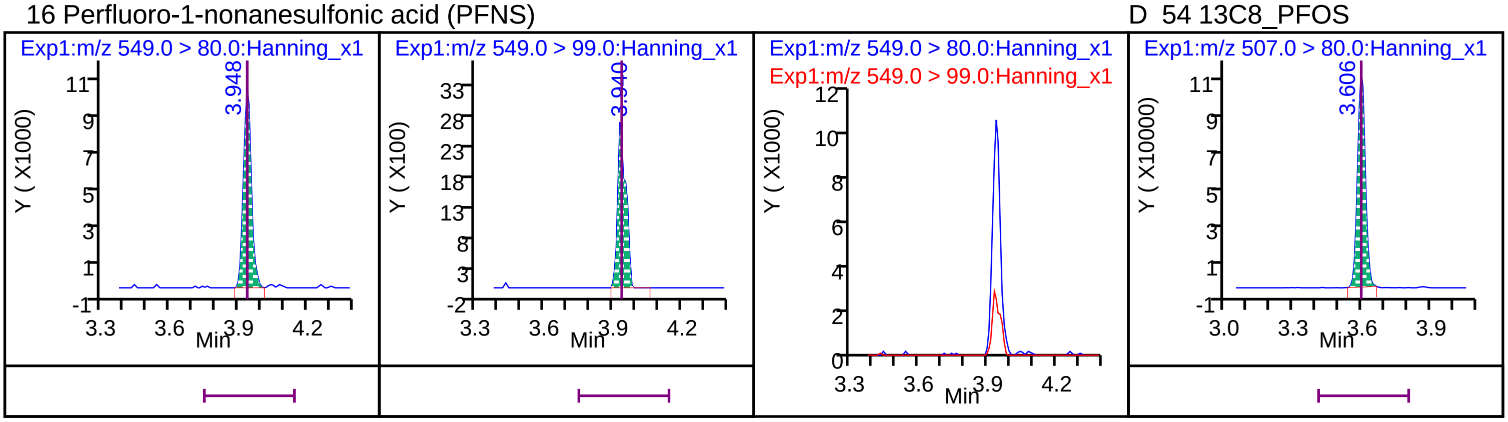
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



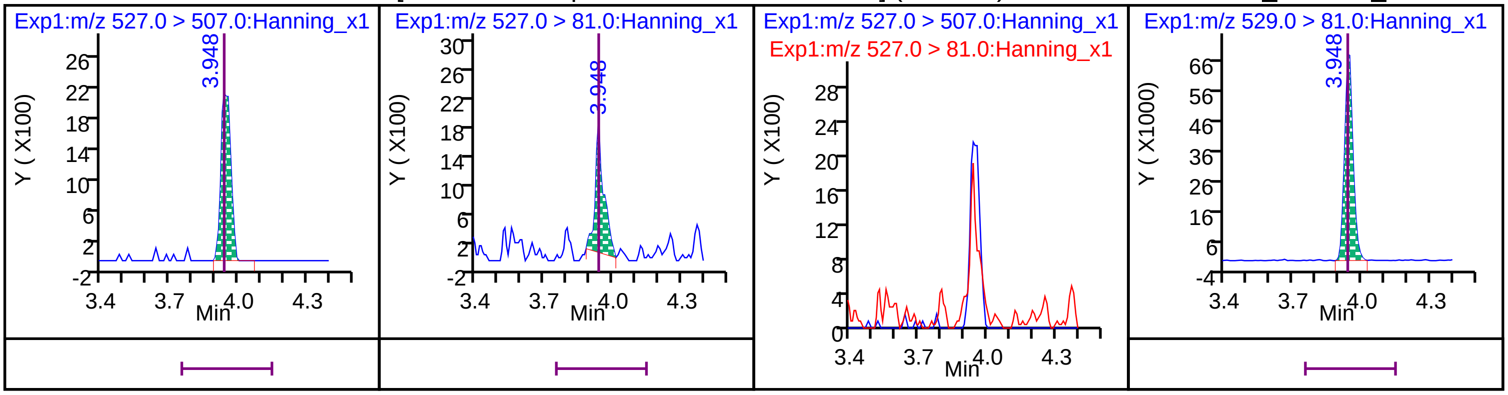
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



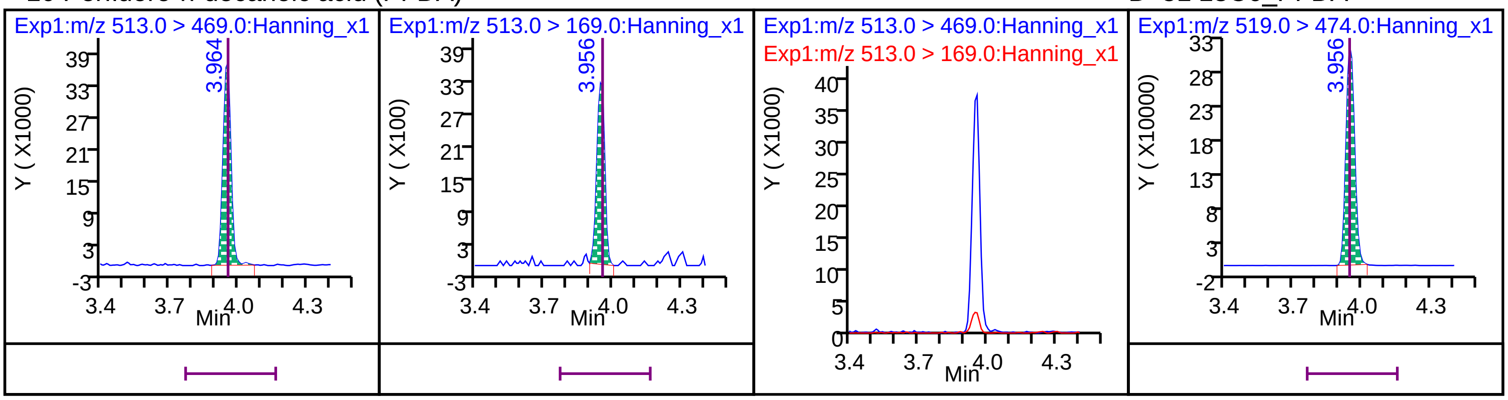
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



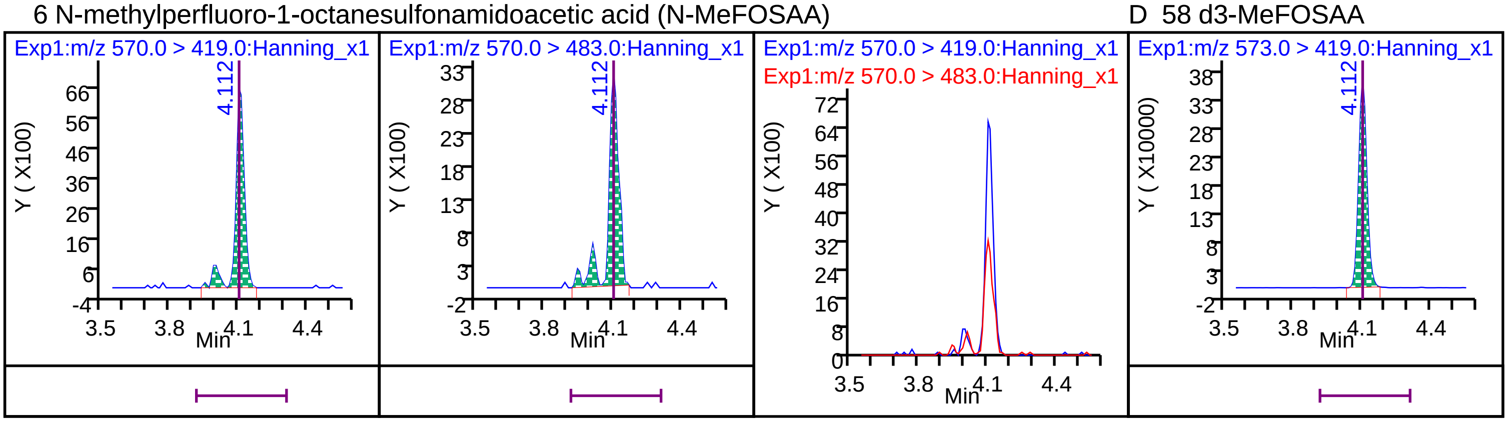
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



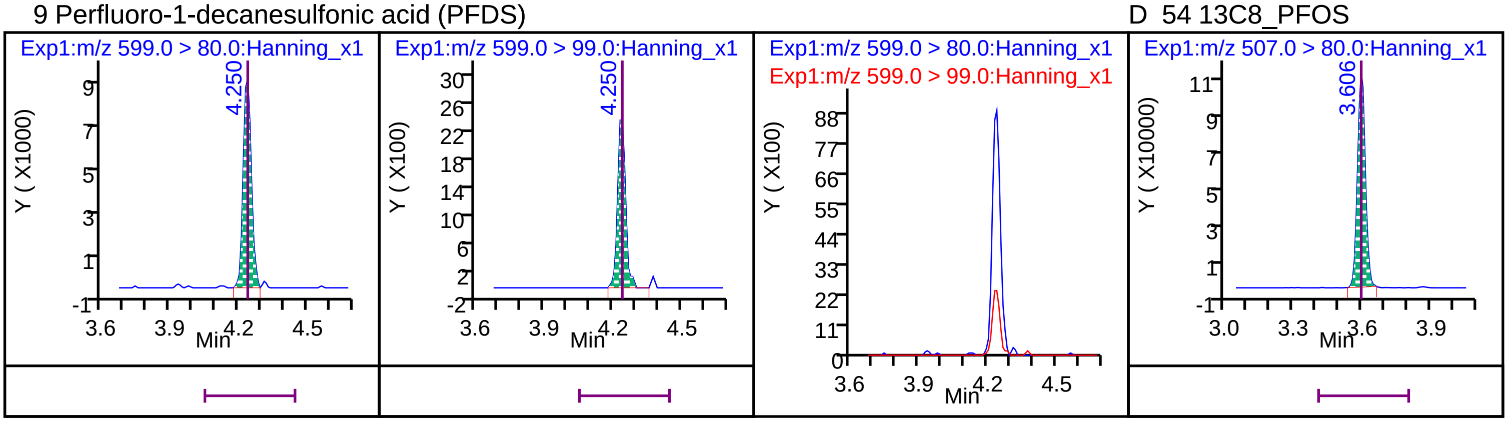
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



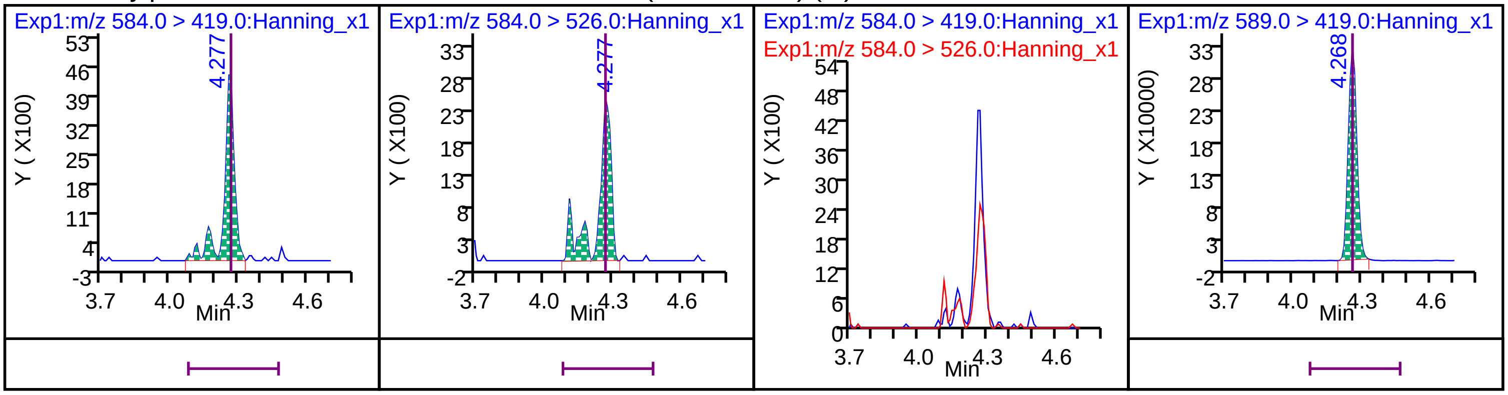
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



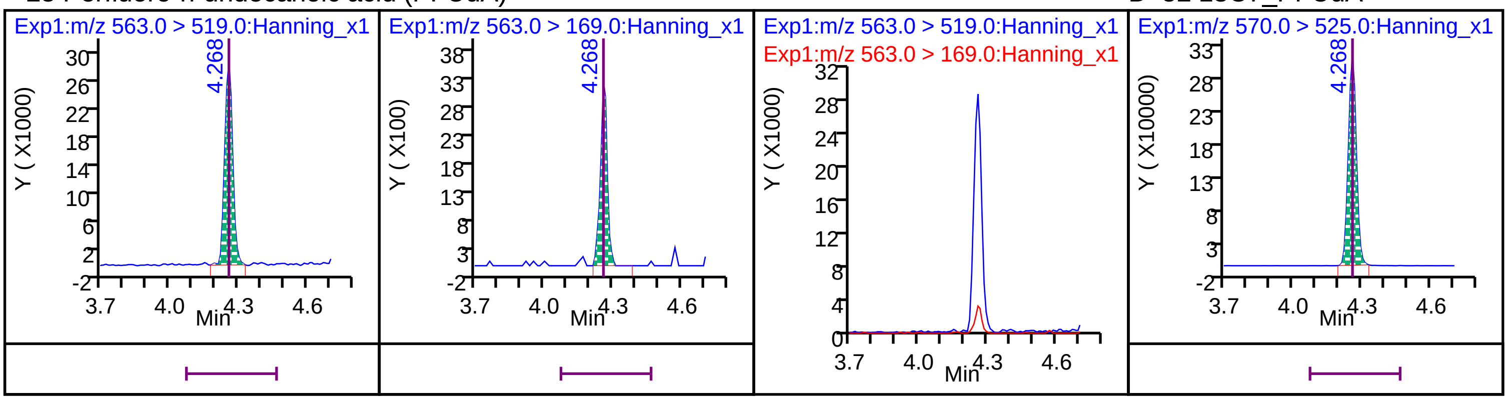
Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d

5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

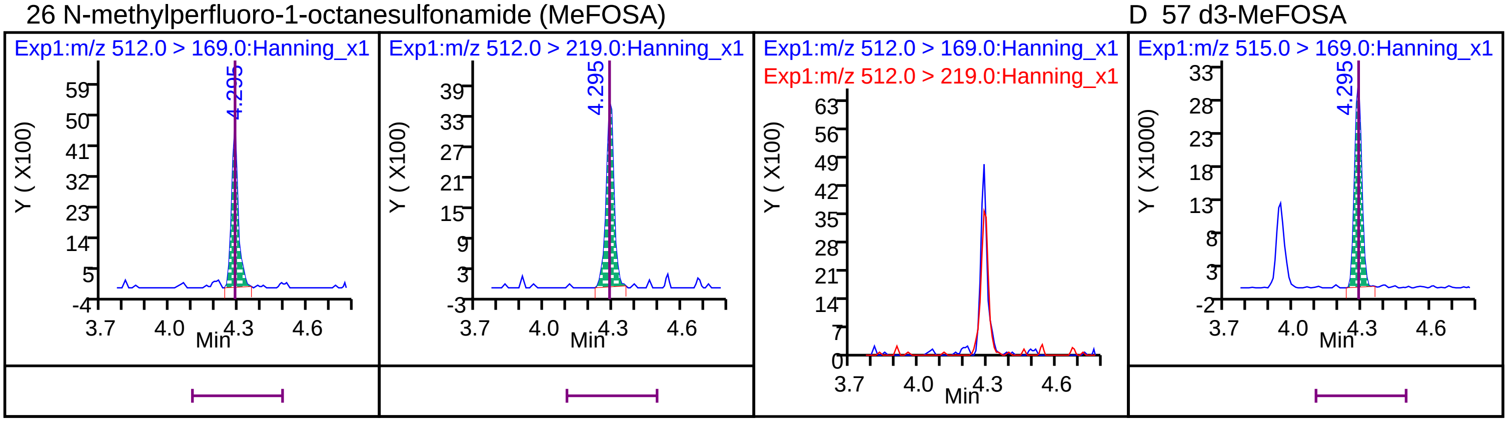


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

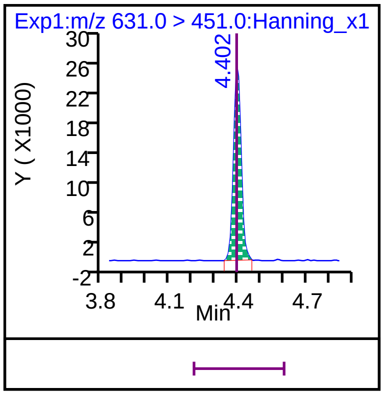


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

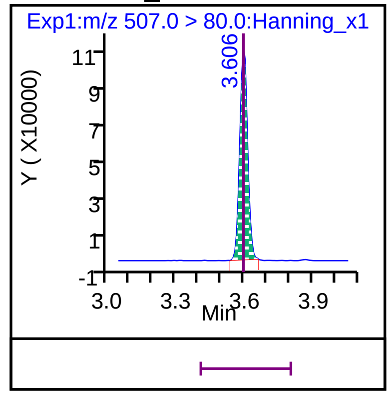
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



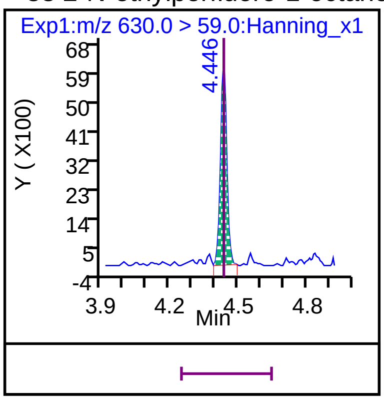
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



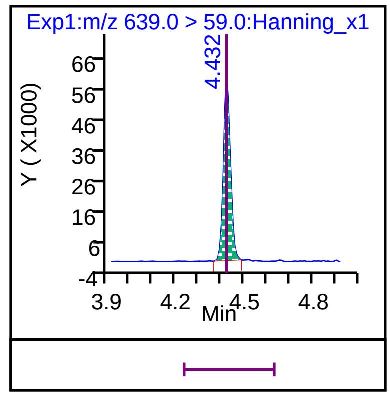
D 54 13C8_PFOS



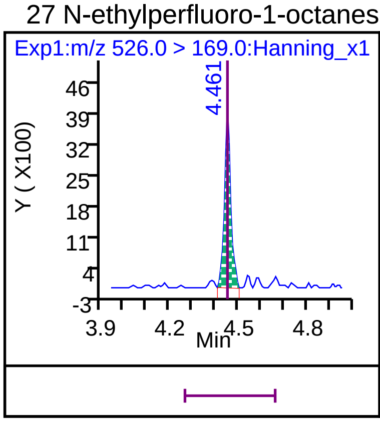
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

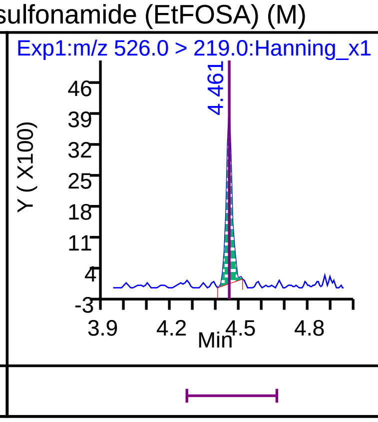


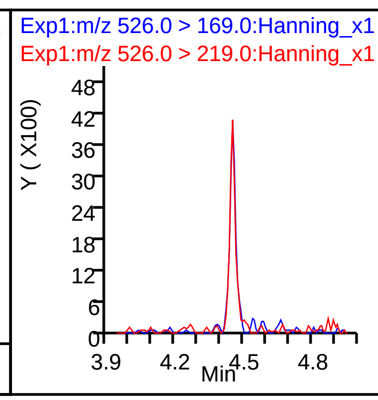
D 62 d9-EtFOSE



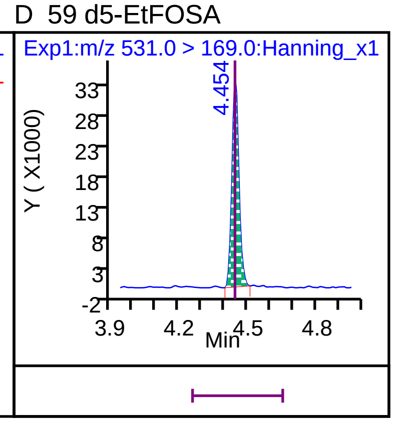
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (M)



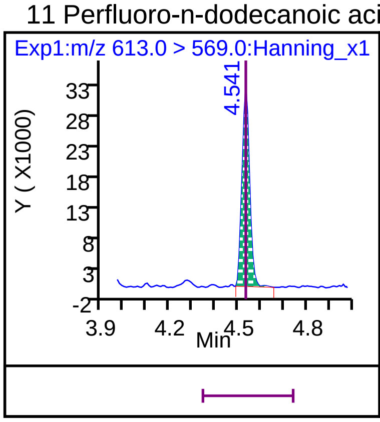


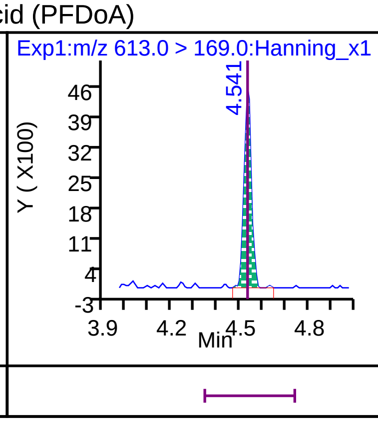


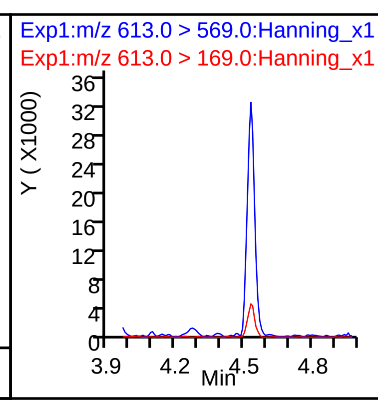
D 59 d5-EtFOSA



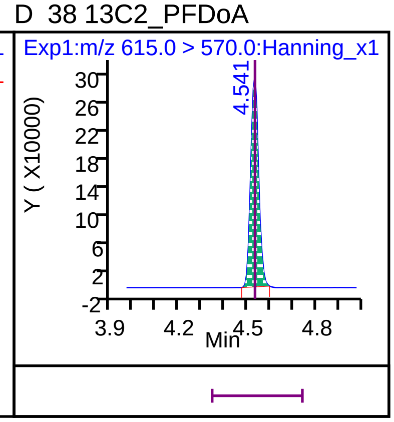
11 Perfluoro-n-dodecanoic acid (PFDoA)



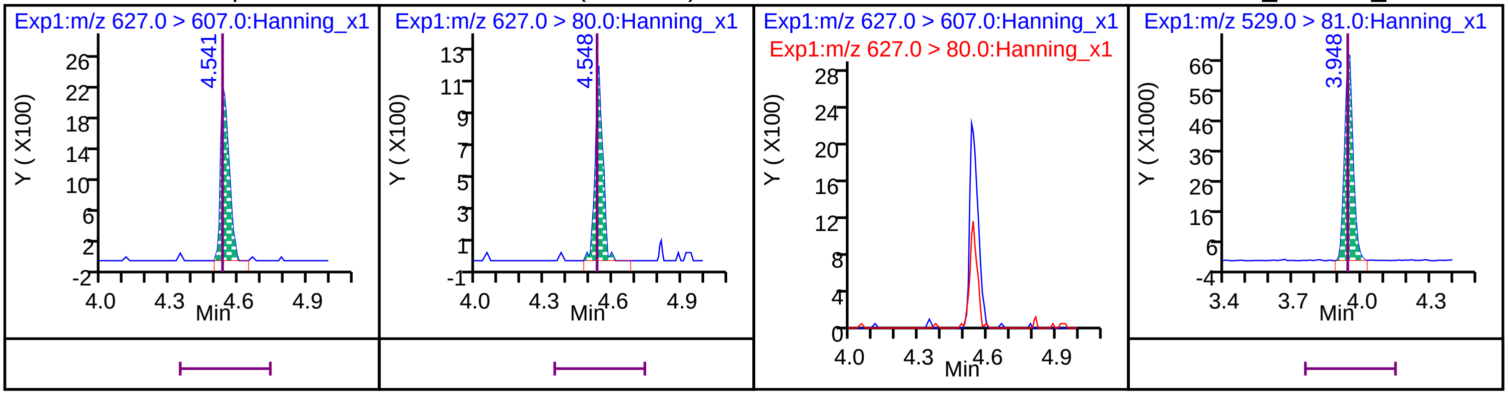




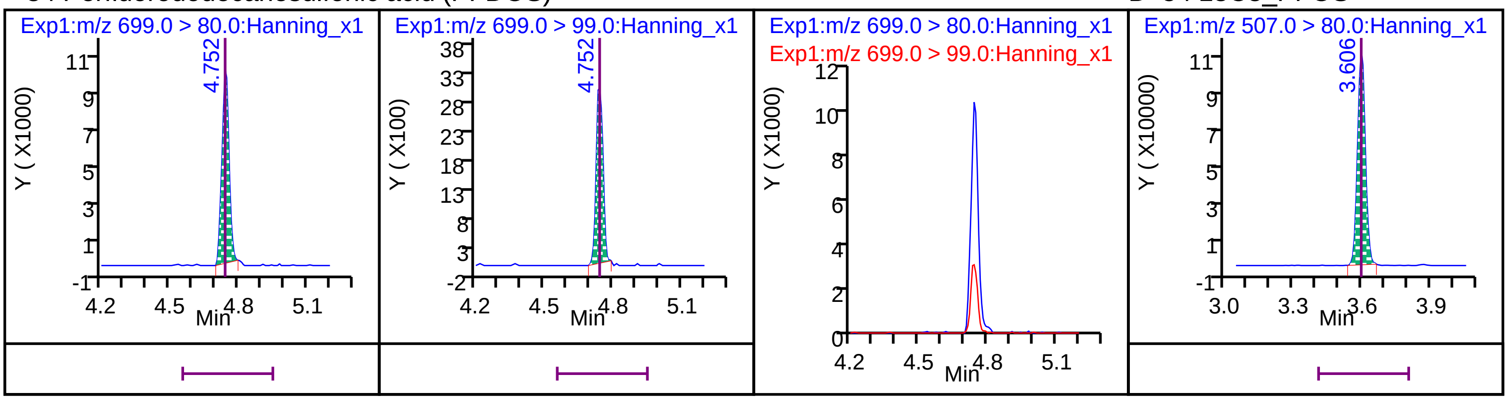
D 38 13C2_PFDoA



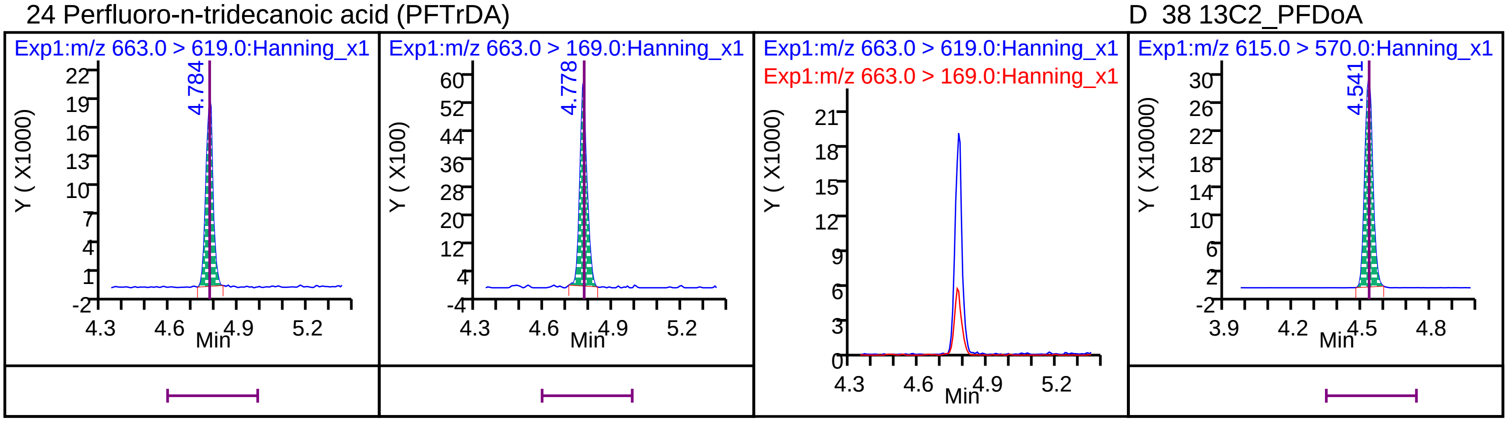
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



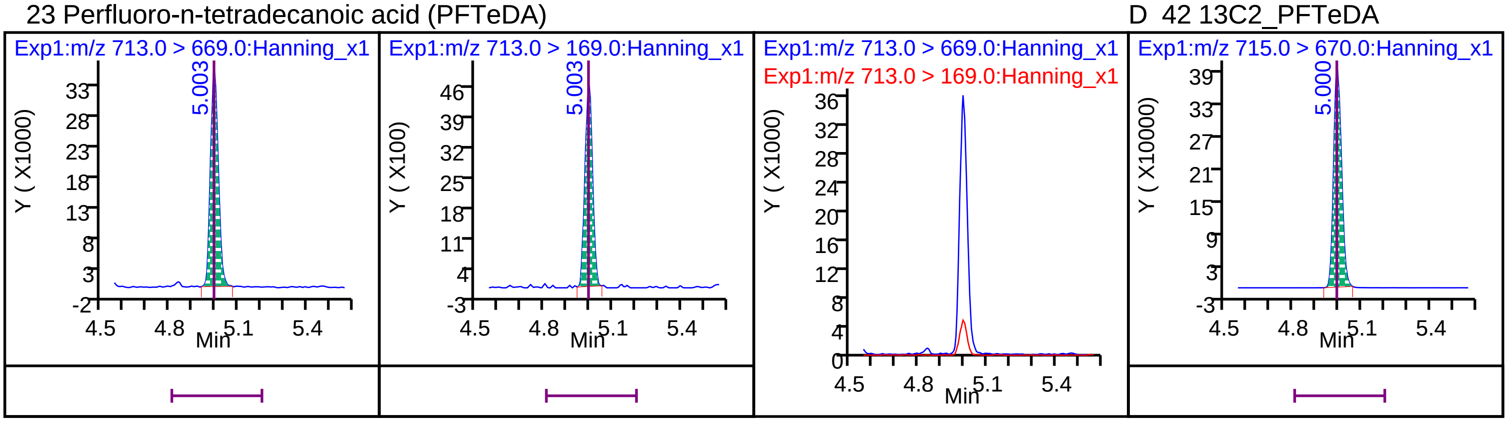
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



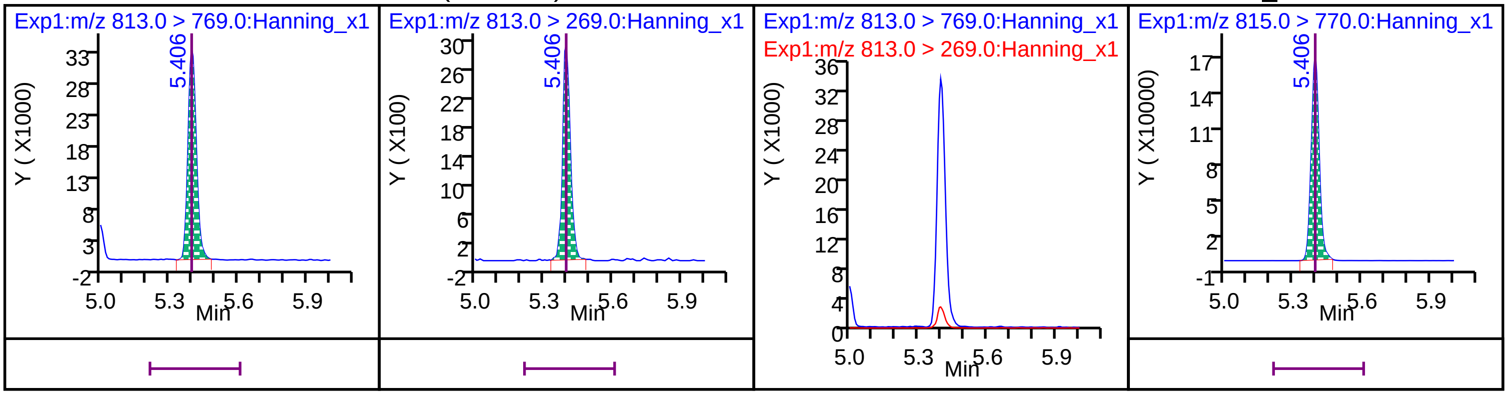
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



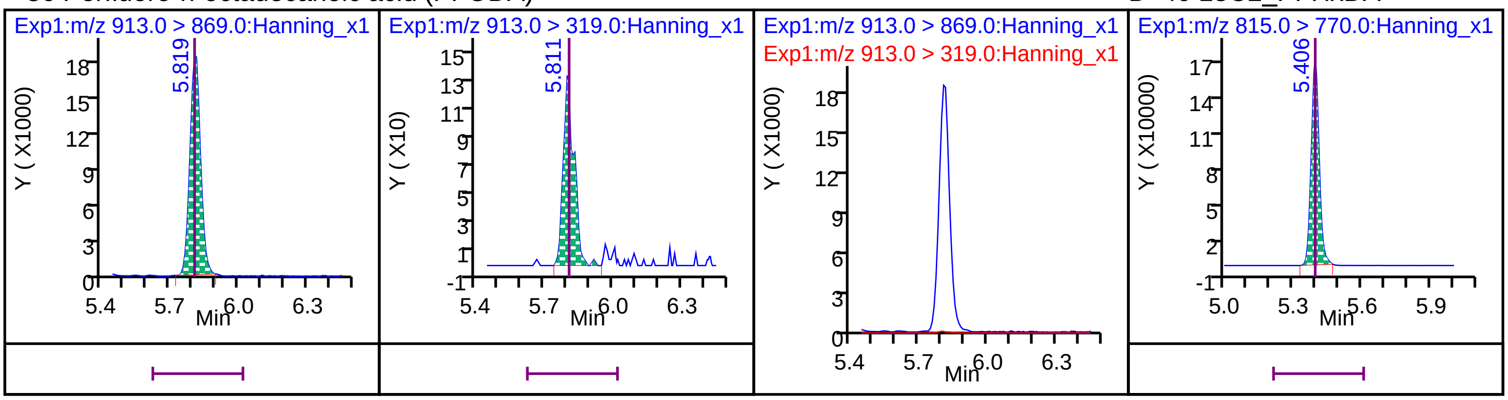
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



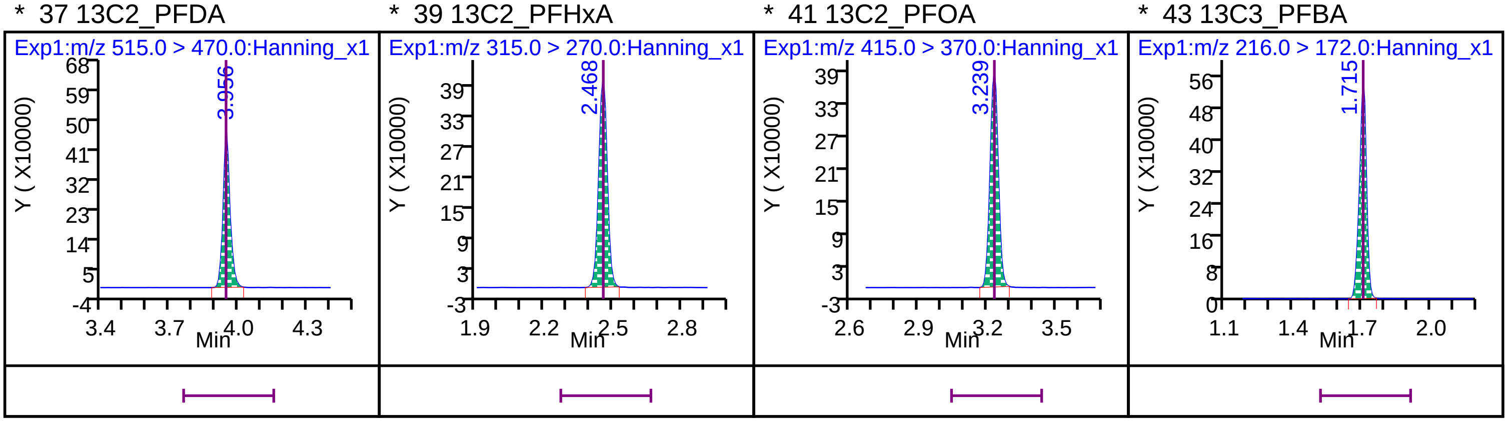
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



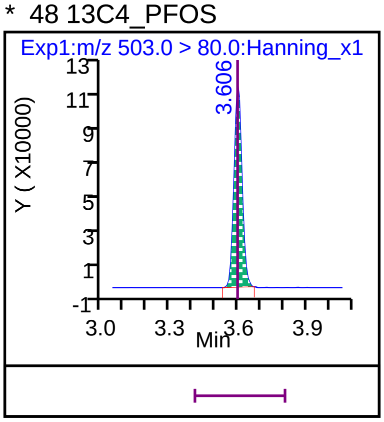
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC

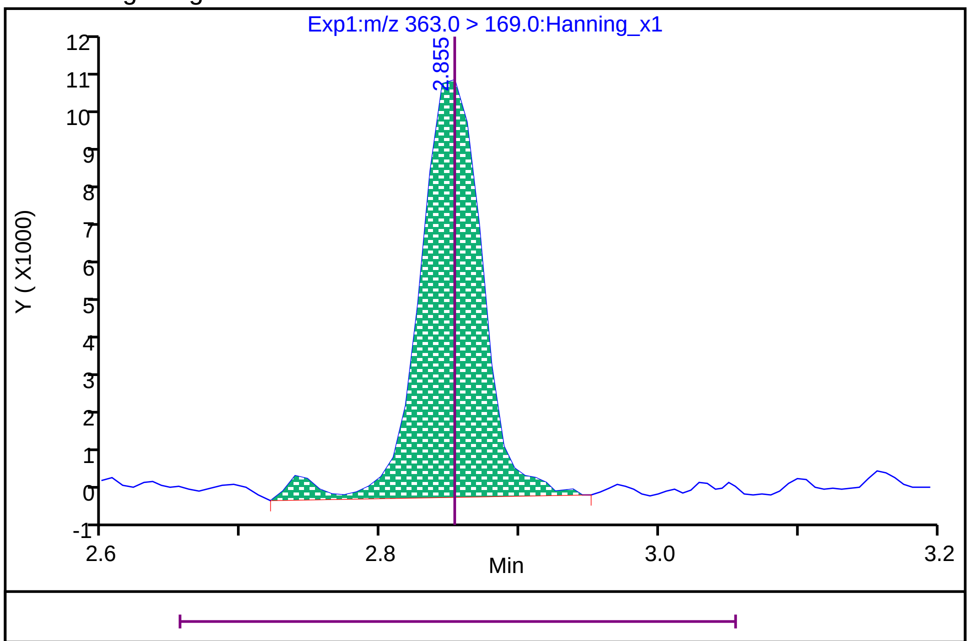
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d		
Injection Date:	05-Nov-2021 12:13:54	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

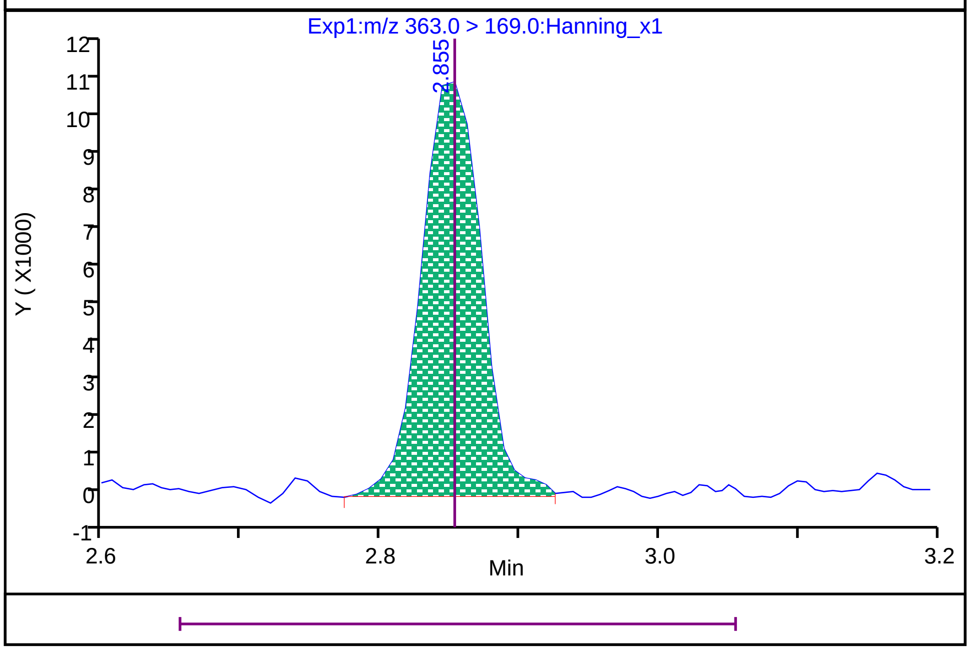
13 PFHpA, CAS: 375-85-9

Processing Integration Results

RT:	2.855
Area:	31734
Amount:	100.70
Amount Units:	ng/L



RT:	2.855
Area:	29960
Amount:	100.70
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 12:30:14

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

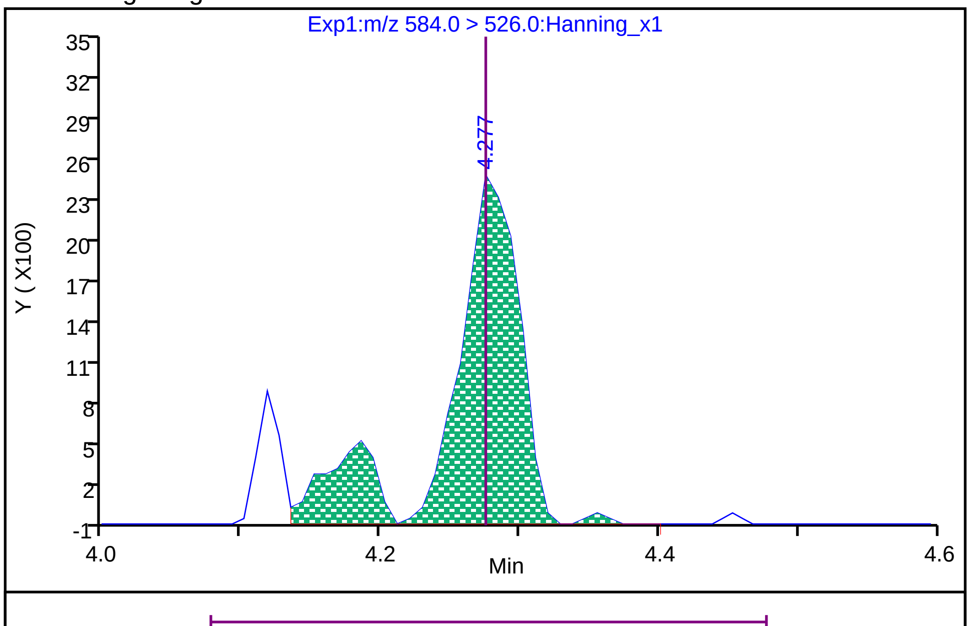
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d		
Injection Date:	05-Nov-2021 12:13:54	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

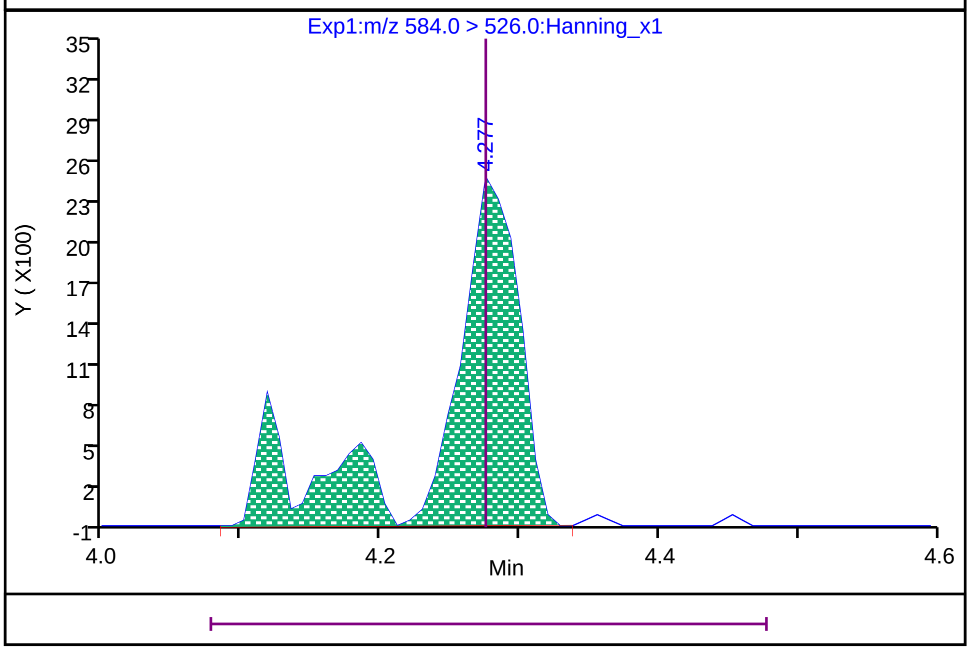
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.277
Area: 8653
Amount: 81.011
Amount Units: ng/L



RT: 4.277
Area: 9704
Amount: 81.011
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 12:30:30

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

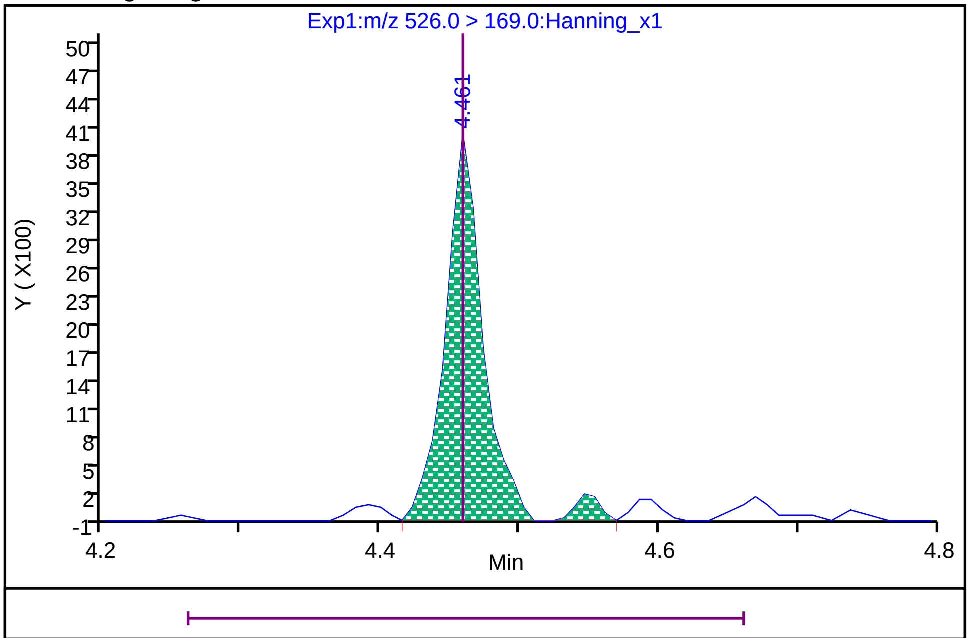
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521005.d		
Injection Date:	05-Nov-2021 12:13:54	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 100_SVLC-1724
Sample Info:	CCV 100_SVLC-1724		
Dil. Factor:	1	Operator:	Matthew M. Miller

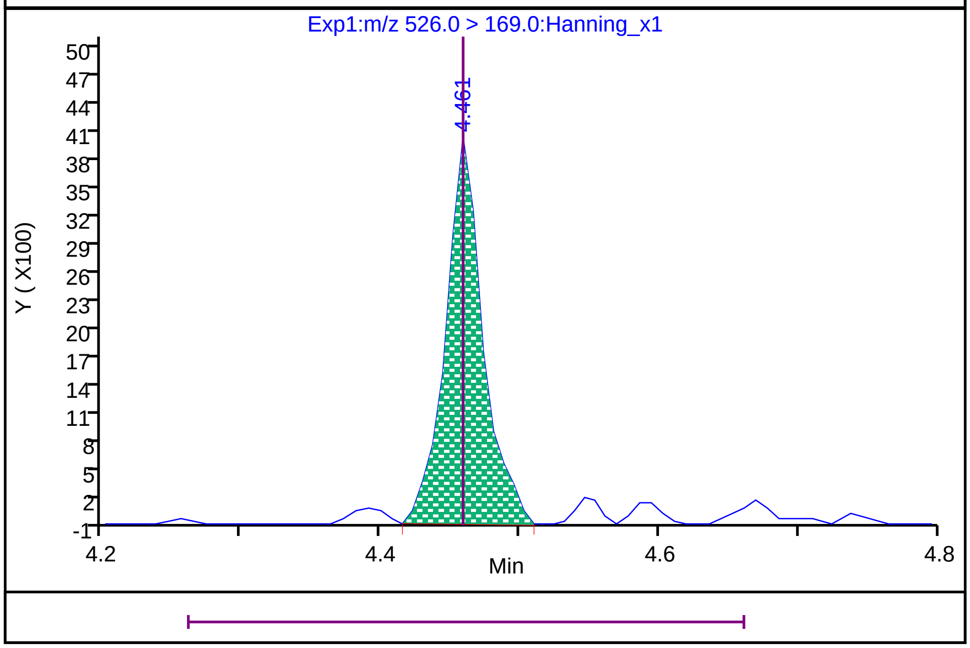
27 EtFOSA, CAS: 4151-50-2

Processing Integration Results

RT:	4.461
Area:	7771
Amount:	94.814
Amount Units:	ng/L



RT:	4.461
Area:	7464
Amount:	91.069
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 12:30:37

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521006.d
Injection Date: 05-Nov-2021 12:24:26 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 96
Sample Info: CCV 200_SVLC-1725 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	196.35	98.2	70 - 130
D 46 13C4_PFBA	1177138	1157480			98.3	50 - 150
D 50 13C5_PFPeA	1076384	1087282			101	50 - 150
21 PFPeA			200.00	198.00	99	70 - 130
7 PFBS			176.80	168.31	95.2	70 - 130
D 44 13C3_PFBS	338741	356386			105.2	50 - 150
1 4:2 FTS			186.80	218.70	117.1	70 - 130
D 63 13C2_4:2 FTS_2	226256	224284			99.1	50 - 150
D 49 13C5_PFHxA	1008626	1013984			100.5	50 - 150
15 PFHxA			200.00	186.83	93.4	70 - 130
22 PFPeS			187.60	178.53	95.2	70 - 130
28 GenX			400.00	393.26	98.3	70 - 130
D 66 13C3_GenX	924257	888522			96.1	50 - 150
D 47 13C4_PFHpA	976651	964349			98.7	50 - 150
13 PFHpA			200.00	198.74	99.4	70 - 130
D 45 13C3_PFHxS	297909	282467			94.8	50 - 150
14 PFHxS			182.00	193.27	106.2	70 - 130
29 ADONA			188.40	187.62	99.6	70 - 130
D 64 13C2_6:2 FTS_2	209020	201354			96.3	50 - 150
2 6:2 FTS			189.60	215.79	113.8	70 - 130
D 53 13C8_PFOA	914280	924355			101.1	50 - 150
20 PFOA			200.00	201.04	100.5	70 - 130
12 PFHpS			190.40	187.14	98.3	70 - 130
18 PFOS			185.60	170.17	91.7	70 - 130
17 PFNA			200.00	193.62	96.8	70 - 130
D 56 13C9_PFNA	864448	834567			96.5	50 - 150
D 54 13C8_PFOS	243433	254639			104.6	50 - 150
30 9Cl-PF3ONS			186.40	179.21	96.1	70 - 130
D 55 13C8_PFOSA	466162	464310			99.6	50 - 150
19 PFOSA			200.00	197.76	98.9	70 - 130
16 PFNS			192.00	164.89	85.9	70 - 130
D 65 13C2_8:2 FTS_2	170823	159714			93.5	50 - 150
3 8:2 FTS			191.60	172.04	89.8	70 - 130
10 PFDA			200.00	195.59	97.8	70 - 130
D 51 13C6_PFDA	796749	776743			97.5	50 - 150
6 N-MeFOSAA			200.00	235.15	117.6	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	881075	856152			97.2	50 - 150
9 PFDS			192.80	181.53	94.2	70 - 130
5 N-EtFOSAA			200.00	192.61	96.3	70 - 130
25 PFUdA			200.00	207.62	103.8	70 - 130
D 60 d5-EtFOSAA	806334	831704			103.1	50 - 150
D 52 13C7_PFUdA	752112	756371			100.6	50 - 150
D 61 d7-MeFOSE	134219	136094			101.4	50 - 150
32 MeFOSE			200.00	227.36	113.7	70 - 130
26 MeFOSA			200.00	158.14	79.1	70 - 130
D 57 d3-MeFOSA	65225	68180			104.5	50 - 150
31 11Cl-PF3OUDS			188.40	173.28	92	70 - 130
D 62 d9-EtFOSE	125062	136571			109.2	50 - 150
33 EtFOSE			200.00	197.93	99	70 - 130
D 59 d5-EtFOSA	70105	62154			88.7	50 - 150
27 EtFOSA			200.00	215.84	107.9	70 - 130
11 PFDoA			200.00	178.63	89.3	70 - 130
D 38 13C2_PFDoA	693700	802865			115.7	50 - 150
4 10:2 FTS			192.80	199.10	103.3	70 - 130
34 PFDOS			193.60	157.78	81.5	70 - 130
24 PFTrDA			200.00	175.53	87.8	70 - 130
23 PFTeDA			200.00	191.04	95.5	70 - 130
D 42 13C2_PFTeDA	925125	945376			102.2	50 - 150
35 PFHxDA			200.00	199.08	99.5	70 - 130
D 40 13C2_PFHxDA	400309	382224			95.5	50 - 150
36 PFODA			200.00	192.37	96.2	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521006.d		
Injection Date:	05-Nov-2021 12:24:26	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	CCV 200_SVLC-1725	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.715	1	1157480	19	>100:1			1000.00	1074.99	98.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	1/0	249950	18	>100:1			200.00	196.35		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1087282	16	>100:1			1000.00	1084.13	101	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	230667	14	>100:1			200.00	198.00		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	356386	17	>100:1			1000.00	1097.35	105.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	85694	19	>100:1	Target = 3.80		176.80	168.31		
298.9 > 99	44	2.141	2.141		24159	15	>100:1	3.54 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.494	2.502	0/-1	64020	16	>100:1	Target = 3.42		187.60	178.53		
349 > 99	44	2.494	2.502		20477	17	>100:1	3.12 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	224284	19	>100:1			5000.00	5399.62	99.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	1/0	19146	16	>100:1	Target = 1.54		186.80	218.70		
327 > 81	63	2.424	2.424		14801	18	12:1	1.29 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.468	2.468	1	1013984	18	>100:1			1000.00	1135.19	100.5	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.468	2.468	1/0	195750	16	93:1	Target = 17.93		200.00	186.83		
313 > 119	49	2.468	2.468		10956	15	35:1	17.86 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	888522	18	>100:1			5000.00	5423.79	96.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.594	0/-1	53544	19	>100:1	Target = 0.72		400.00	393.26		
285 > 185	66	2.587	2.594		71814	18	>100:1	0.74 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.855	2.855	1	964349	18	>100:1			1000.00	1100.61	98.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.855	2.855	1/0	184495	19	>100:1	Target = 3.26		200.00	198.74		
363 > 169	47	2.855	2.855		55855	18	91:1	3.30 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.872	0	282467	17	>100:1			1000.00	1076.97	94.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.872	0/0	64537	26	>100:1	Target = 3.48	5.20	182.00	193.27		
399 > 99	45	2.864	2.872		18368	28	100:1	3.51 (1.74-5.22)	7.90				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.899	2.898	1/1	291709	18	>100:1	Target = 2.31		188.40	187.62		
377 > 85	45	2.890	2.898		114143	17	>100:1	2.55 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.242	3.239	1/1	54371	21	>100:1	Target = 3.56		190.40	187.14		
449 > 99	45	3.235	3.239		14187	16	100:1	3.83 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.210	3.214	0	201354	20	>100:1			5000.00	5339.39	96.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.210	3.208	1/1	15110	21	50:1	Target = 1.34		189.60	215.79		
427 > 81	64	3.216	3.208		11654	18	23:1	1.29 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.235	3.239	0	924355	22	>100:1			1000.00	1117.73	101.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.235	3.239	0/0	191204	21	>100:1	Target = 2.50		200.00	201.04		
413 > 169	53	3.235	3.239		76240	20	>100:1	2.50 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.603	3.606	0	254639	21	>100:1			1000.00	1134.35	104.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.603	3.614	0/0	51083	36	>100:1	Target = 4.01	3.70	185.60	170.17		
499 > 99	54	3.603	3.614		14284	39	88:1	3.57 (2.00-6.02)	4.53				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.806	3.811	0/0	141030	24	>100:1			186.40	179.21		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.942	3.948	0/0	42408	17	>100:1	Target = 3.78		192.00	164.89		
549 > 99	54	3.942	3.948		11625	22	64:1	3.64 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.243	4.250	0/0	45634	14	>100:1	Target = 3.98		192.80	181.53		
599 > 99	54	4.243	4.250		11527	20		3.95 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.404	4.402	1/1	122575	15	>100:1			188.40	173.28		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.753	4.752	1/1	38912	17	>100:1	Target = 3.68		193.60	157.78		
699 > 99	54	4.753	4.752		10404	17		3.74 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.610	3.614	0	834567	19	>100:1			1000.00	1044.50	96.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.610	3.614	0/0	147147	22	>100:1	Target = 4.69		200.00	193.62		
463 > 169	56	3.610	3.614		34248	19	>100:1	4.29 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.865	3.870	0	464310	18	>100:1			1000.00	1121.01	99.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.870	1/1	103823	18	>100:1	Target = 40.85		200.00	197.76		
498>478	55	3.873	3.870		3435	21	29:1	30.22 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.950	3.948	1	159714	19	>100:1			5000.00	5088.79	93.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.942	3.948	0/-1	9763	18	59:1	Target = 1.58		191.60	172.04		
527 > 81	65	3.958	3.948		8354	24	19:1	1.16 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.549	4.541	1/0	11342	17		Target = 2.46		192.80	199.10		
627 > 80	65	4.549	4.541		3329	22	52:1	3.40 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.950	3.956	0	776743	18	>100:1			1000.00	1076.12	97.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.950	3.964	0/0	155890	17	>100:1	Target = 9.77		200.00	195.59		
513 > 169	51	3.958	3.964		14738	16	71:1	10.57 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.106	4.112	0	856152	17	>100:1			5000.00	4828.48	97.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.115	4.112	1/1	32921	29	>100:1	Target = 1.41	15.22	200.00	235.15		
570 > 483	58	4.115	4.112		22308	34	86:1	1.47 (0.70-2.11)	4.40				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.261	4.268	0	756371	17	>100:1			1000.00	1106.74	100.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.261	4.268	0/0	140878	15	>100:1	Target = 9.19		200.00	207.62		
563 > 169	52	4.261	4.268		14350	23	85:1	9.81 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.261	4.268	0	831704	17	>100:1			5000.00	5562.09	103.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.270	4.277	0/0	32750	36	>100:1	Target = 1.75	7.27	200.00	192.61		M
584 > 526	60	4.270	4.277		16398	31	>100:1	1.99 (0.87-2.63)	3.89				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.279	4.268	1	136094	15	>100:1			1000.00	986.29	101.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.279	4.277	1/0	31447	14	>100:1			200.00	227.36		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.297	4.295	1	68180	15	>100:1			1000.00	973.71	104.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.295	1/0	11165	23	73:1	Target = 1.11		200.00	158.14		
512 > 219	57	4.297	4.295		12095	13	66:1	0.92 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.433	4.432	1	136571	16	>100:1			1000.00	1062.36	109.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.448	4.446	1/0	23009	16	>100:1			200.00	197.93		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.462	4.454	1	62154	16	>100:1			1000.00	965.05	88.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.462	4.461	1/0	15684	21	89:1	Target = 1.06		200.00	215.84		
526 > 219	59	4.469	4.461		14280	18	69:1	1.09 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.535	4.541	0	802865	18	>100:1			1000.00	1167.56	115.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.542	4.541	1/1	140849	19	>100:1	Target = 6.38		200.00	178.63		
613 > 169	38	4.535	4.541		19535	25	>100:1	7.21 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.779	4.784	0/0	75524	20	>100:1	Target = 3.23		200.00	175.53		
663 > 169	38	4.779	4.784		23330	18	>100:1	3.23 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.997	5.000	0	945376	24	>100:1			1000.00	1209.30	102.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.001	5.003	0/0	158720	24	>100:1	Target = 7.33		200.00	191.04		
713 > 169	42	4.997	5.003		20162	22	>100:1	7.87 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.400	5.406	0	382224	21	>100:1			1000.00	979.11	95.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.406	5.406	0/0	145556	23	31:1	Target = 12.31		200.00	199.08		
813 > 269	40	5.400	5.406		12908	22	>100:1	11.27 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.811	5.819	0/0	111004	22	>100:1	Target = 165.31		200.00	192.37		
913 > 319	40	5.811	5.819		688	18	44:1	161.34 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.958	3.956	1	850656	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.468	2.468	1	953910	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.235	3.239	0	904252	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	1	1105224	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.603	3.606	0	271257	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

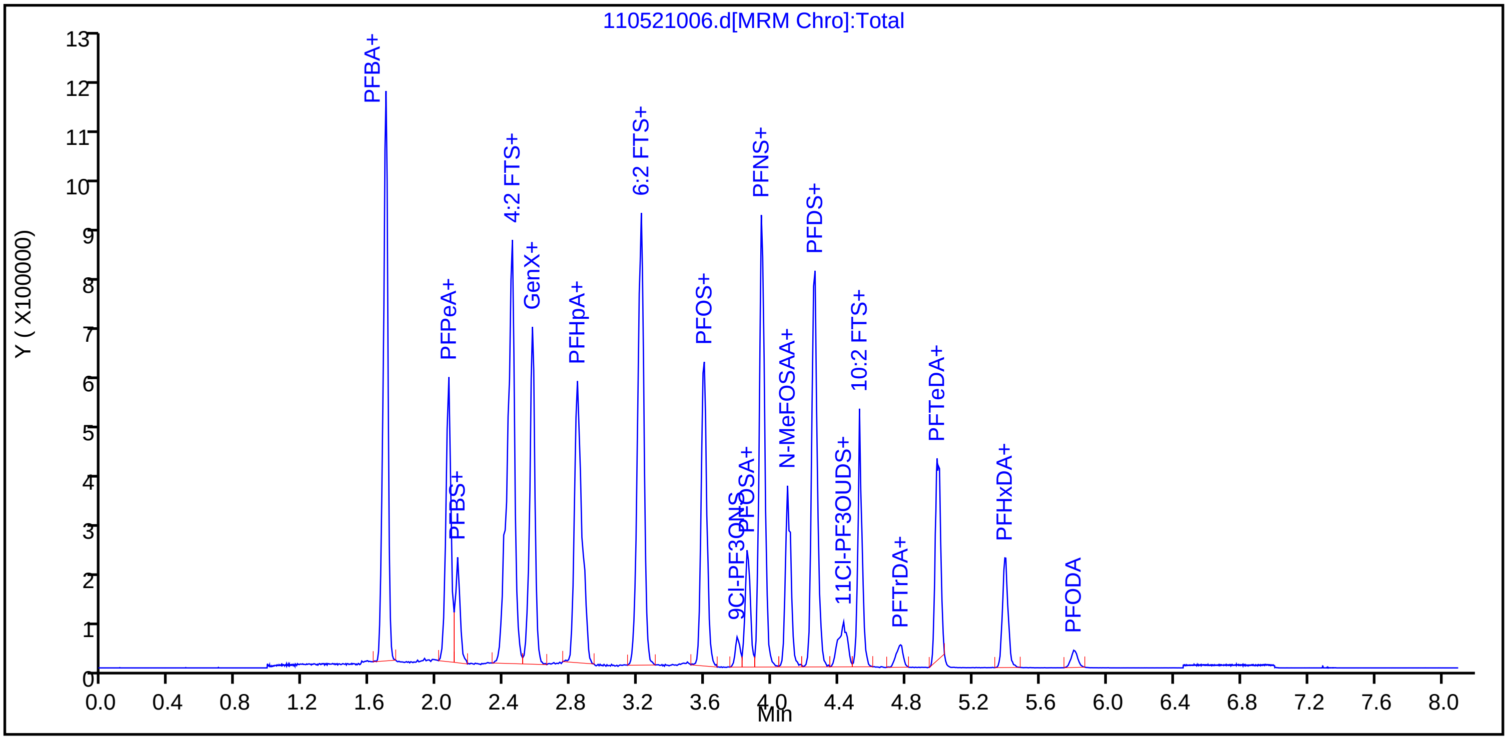
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

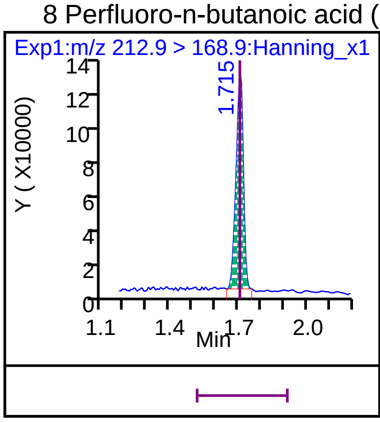
Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

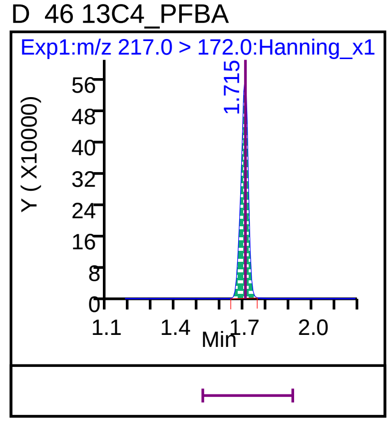
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521006.d		
Injection Date:	05-Nov-2021 12:24:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200_SVLC-1725
Sample Info:	CCV 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller



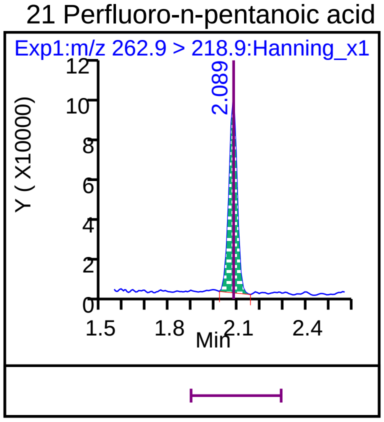
8 Perfluoro-n-butanoic acid (PFBA)



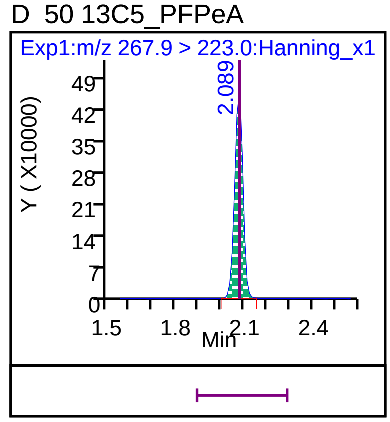
D 46 13C4_PFBA



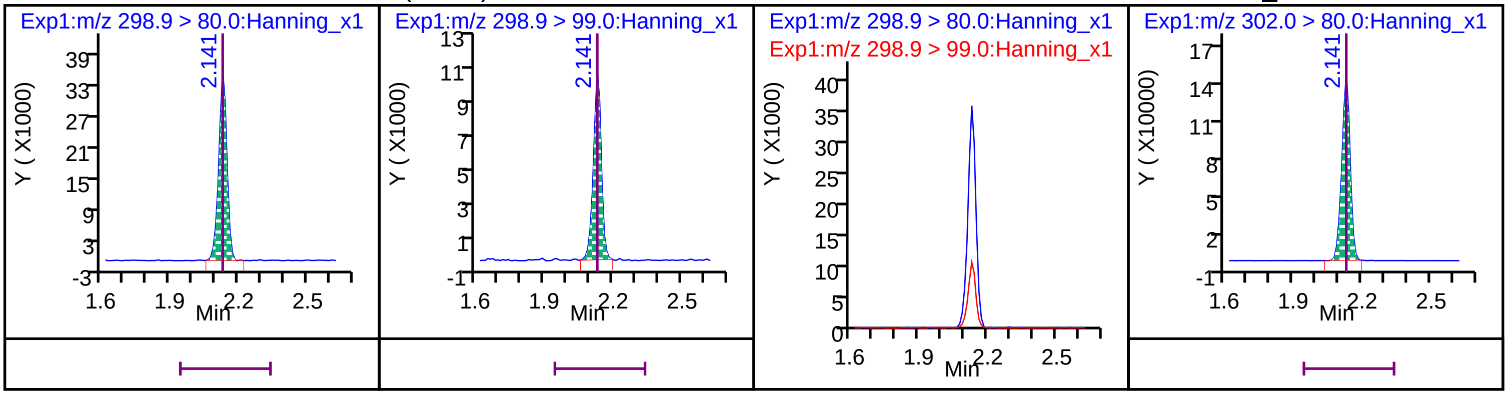
21 Perfluoro-n-pentanoic acid (PFPeA)



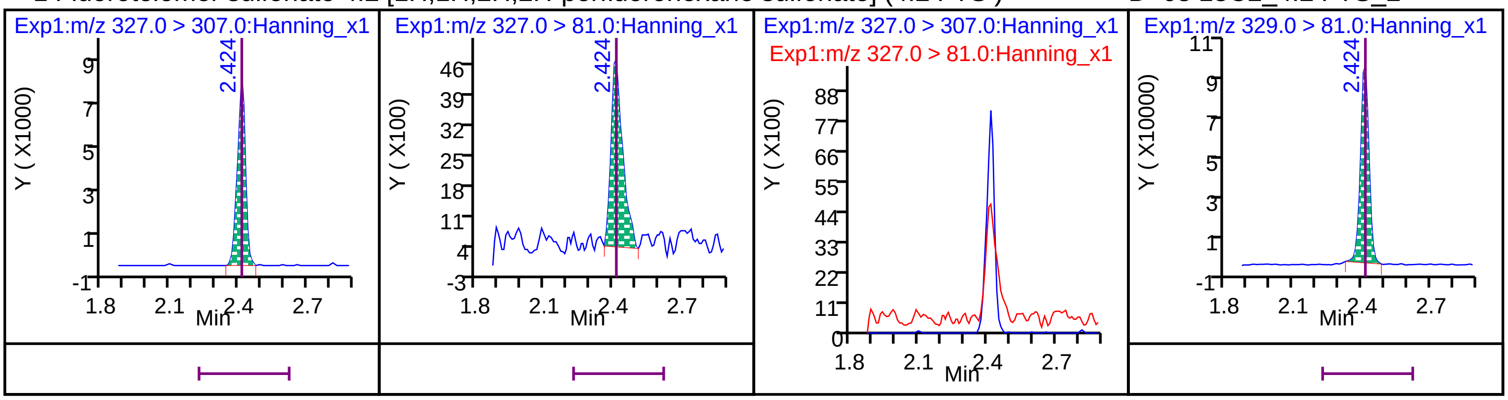
D 50 13C5_PFPeA



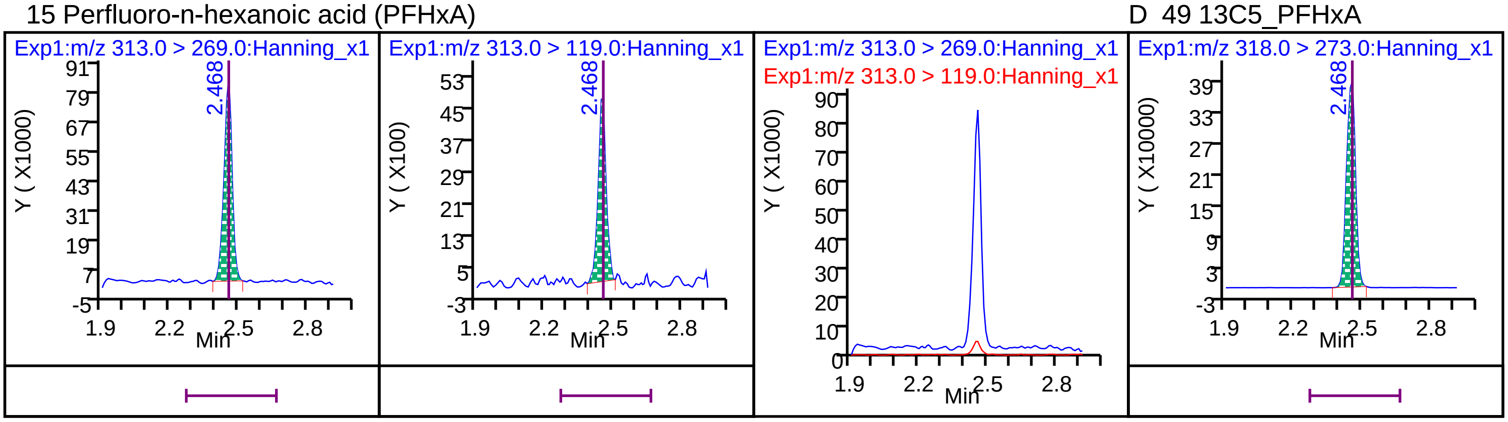
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



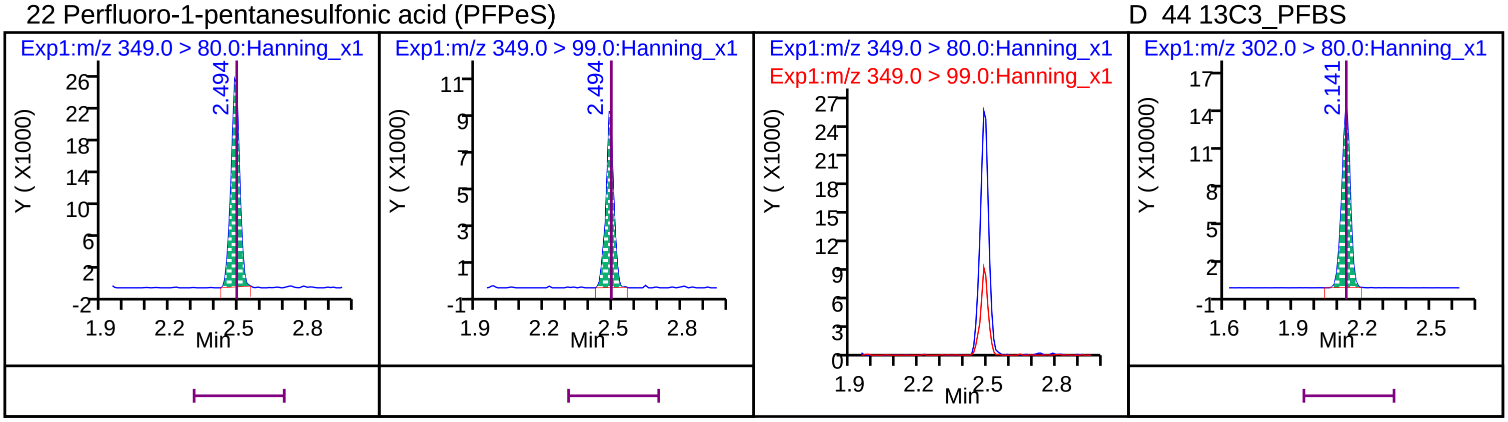
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



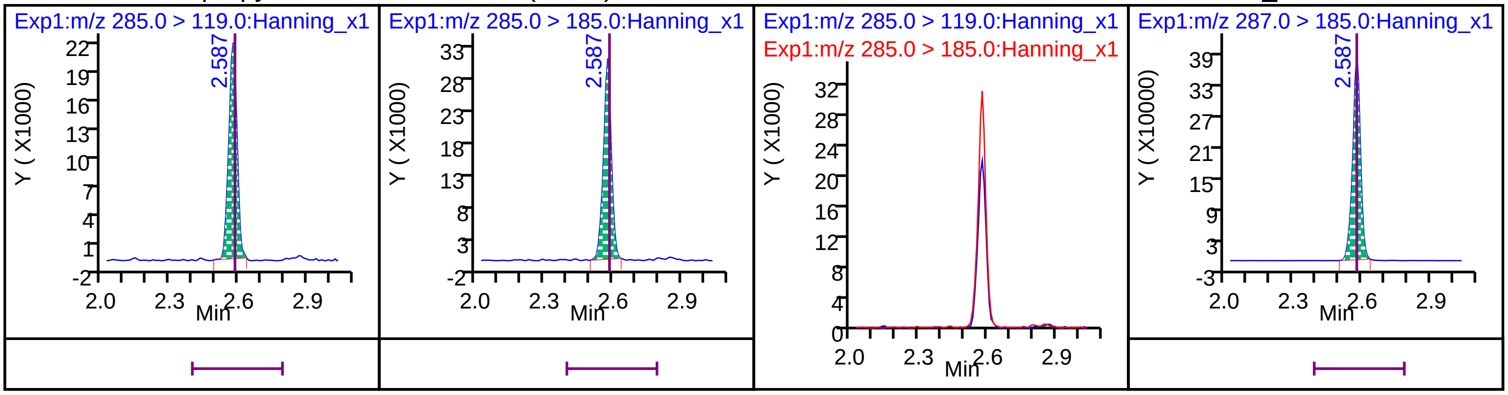
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



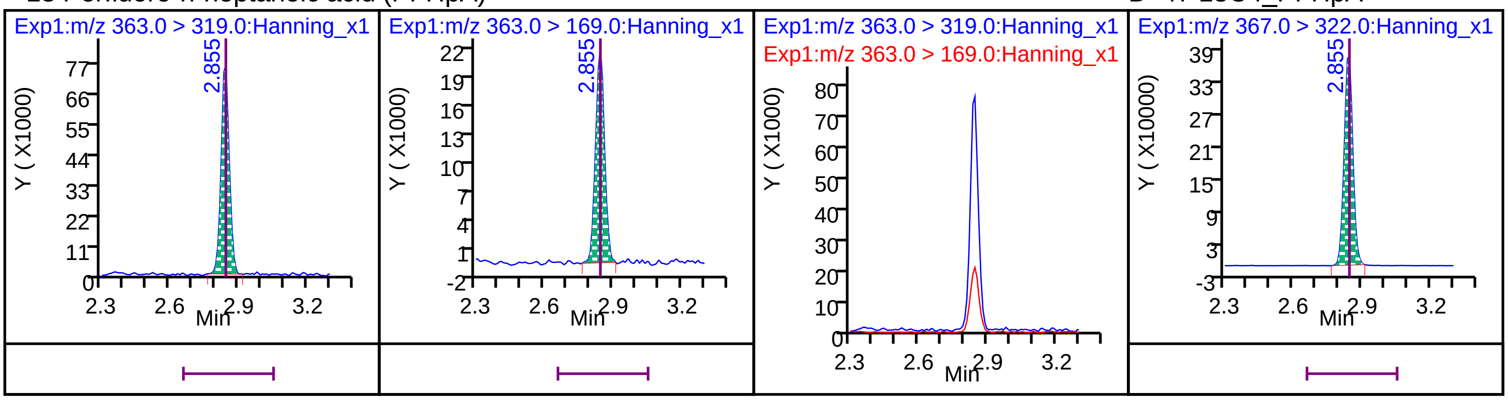
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



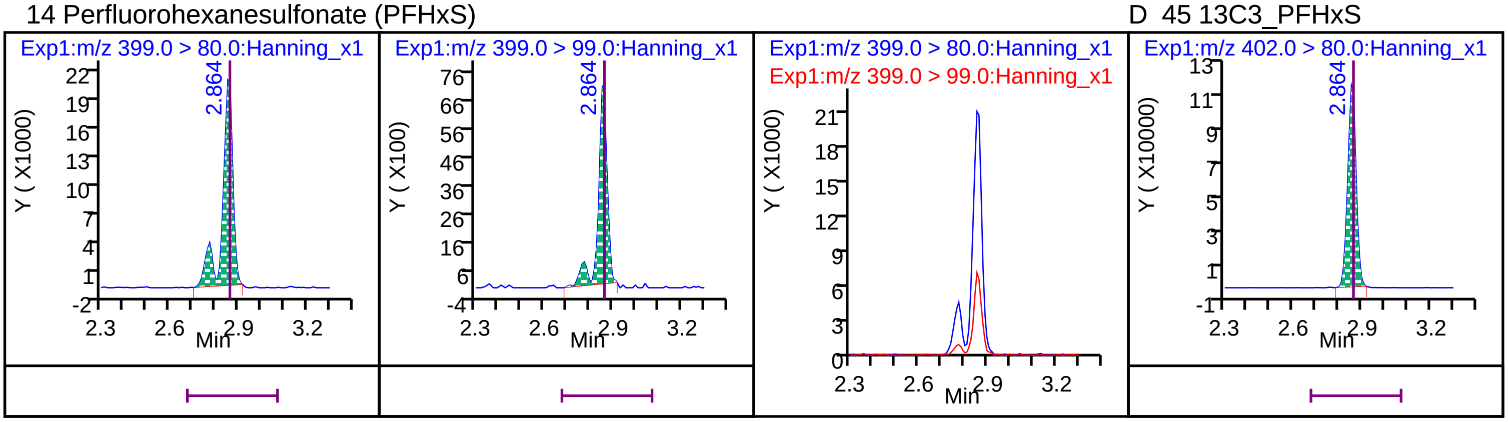
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



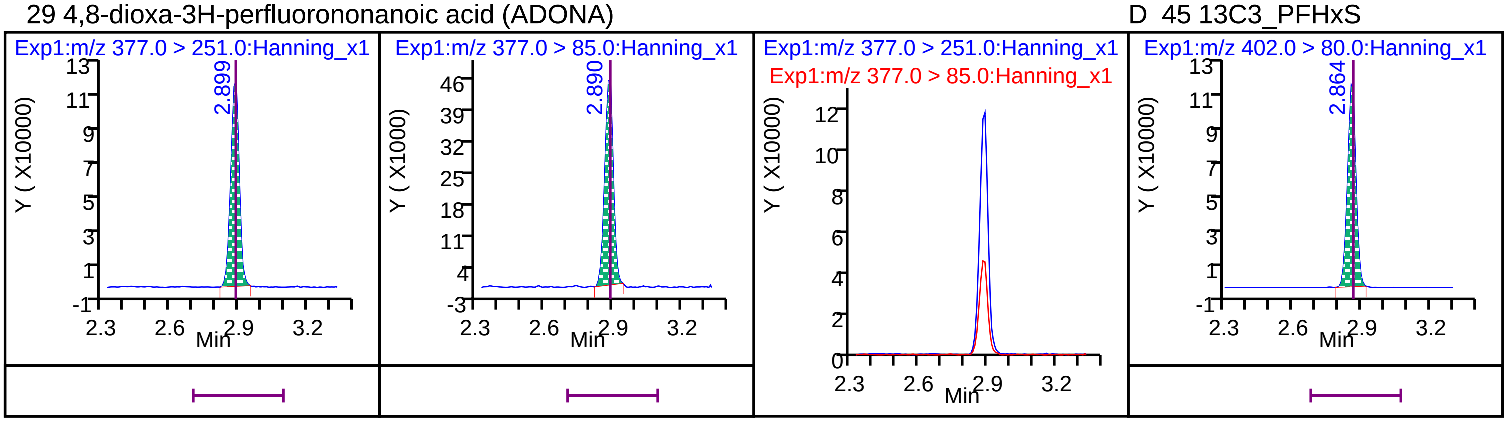
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



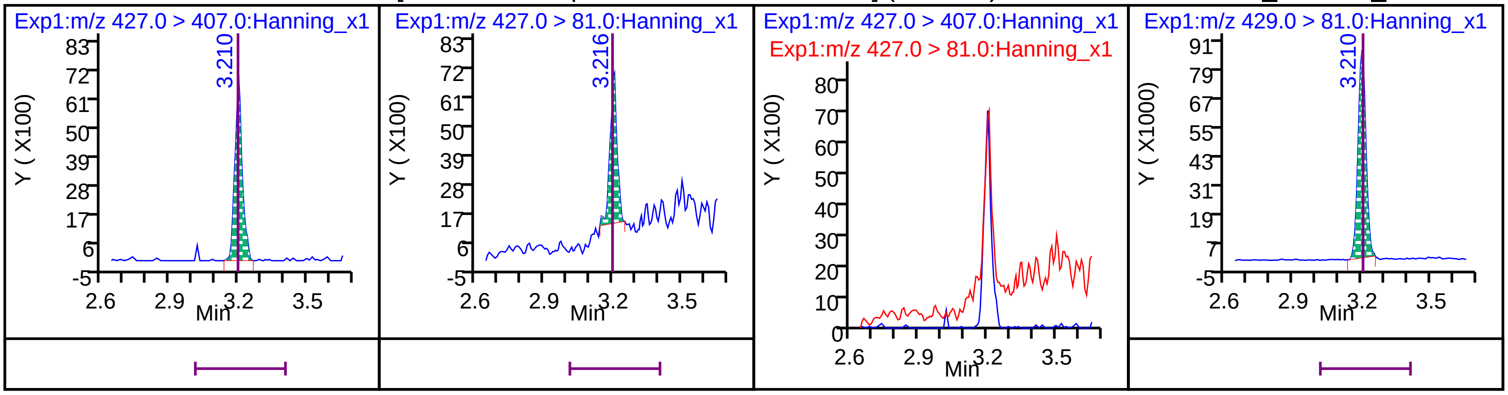
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



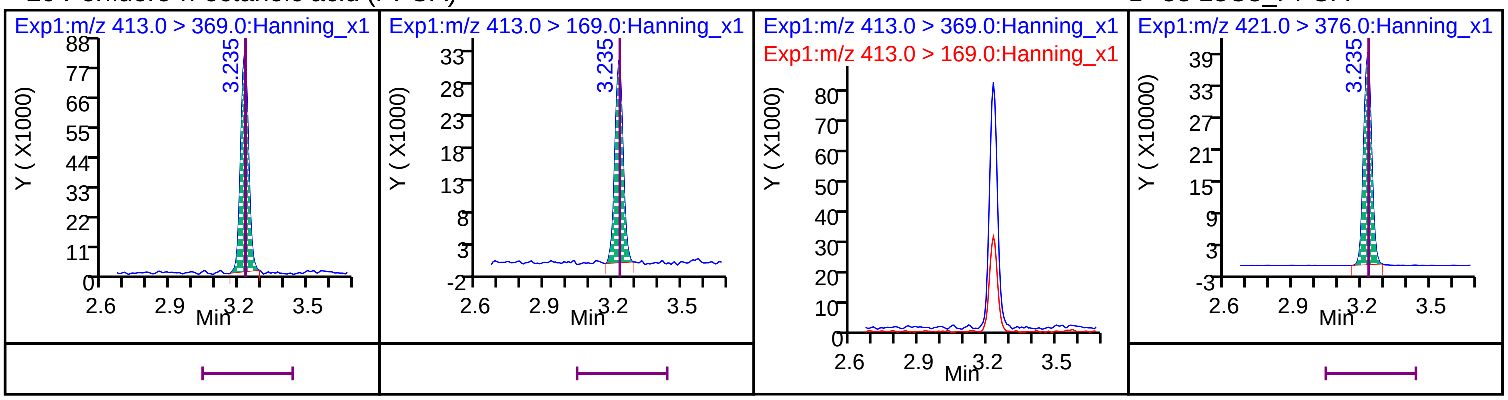
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



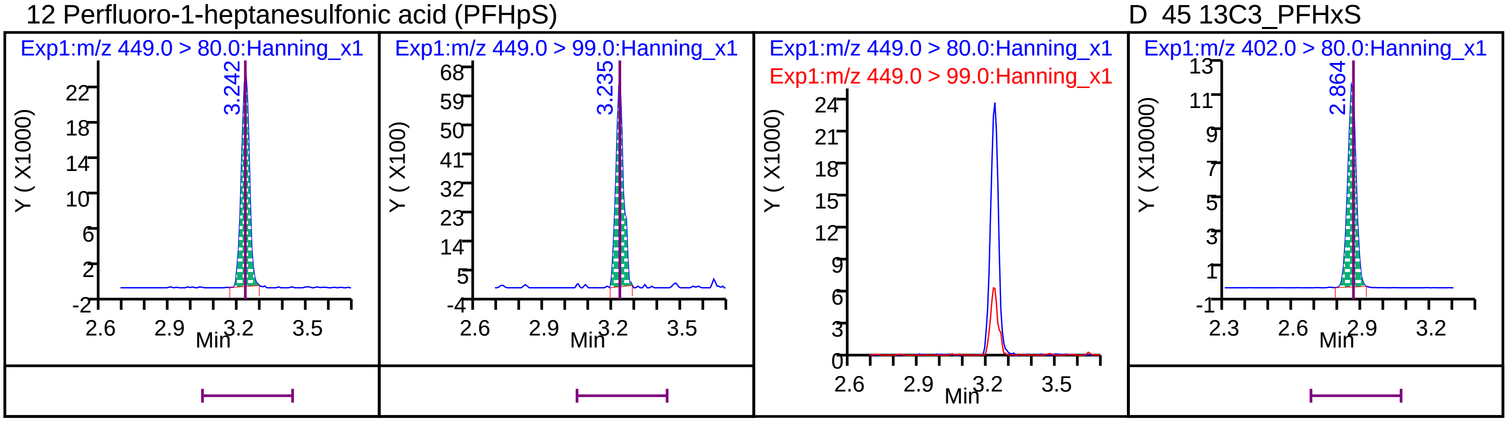
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



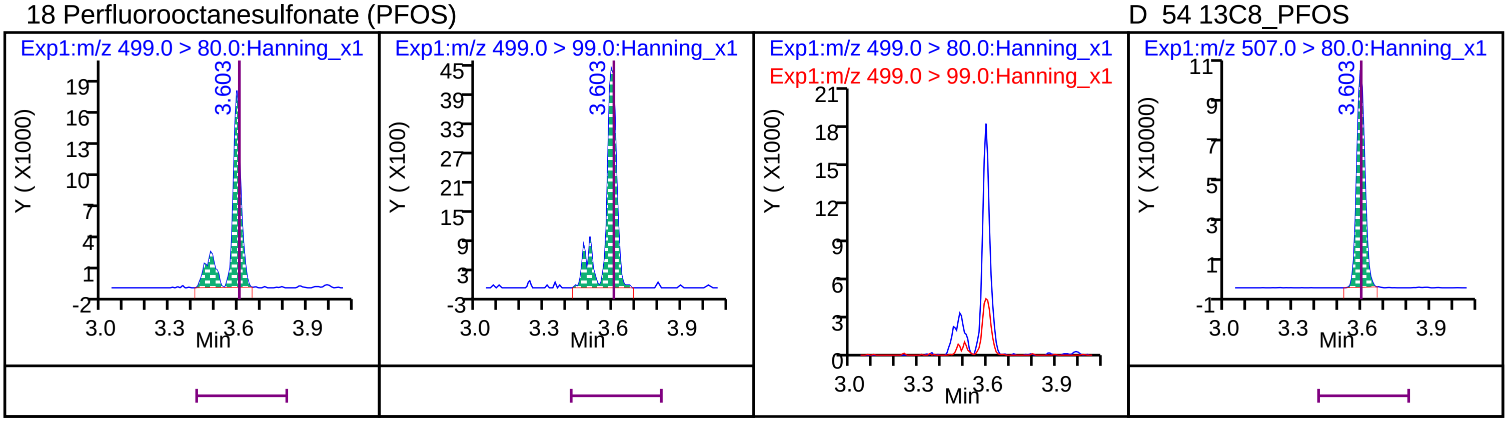
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



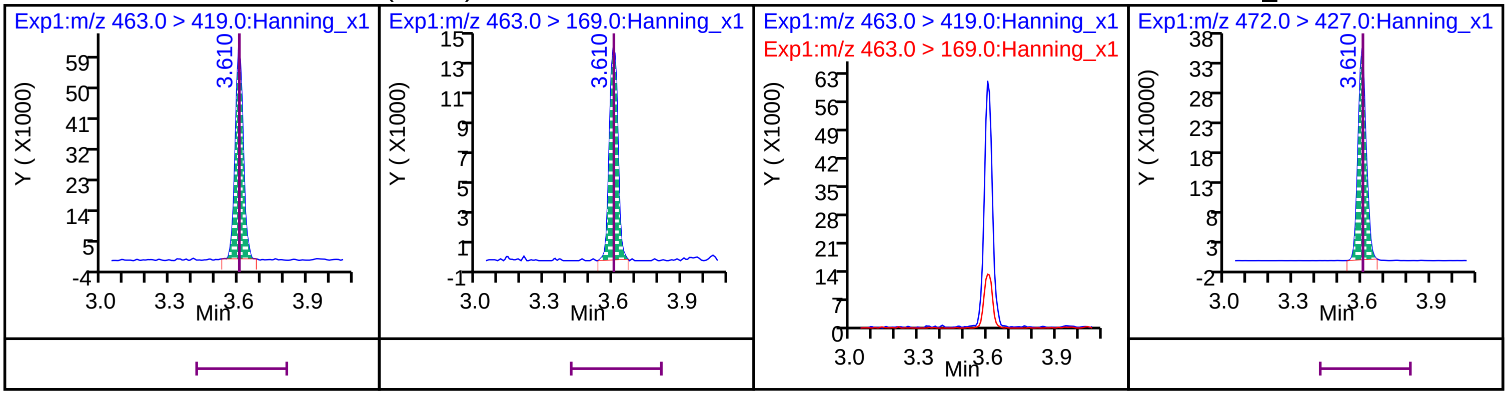
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



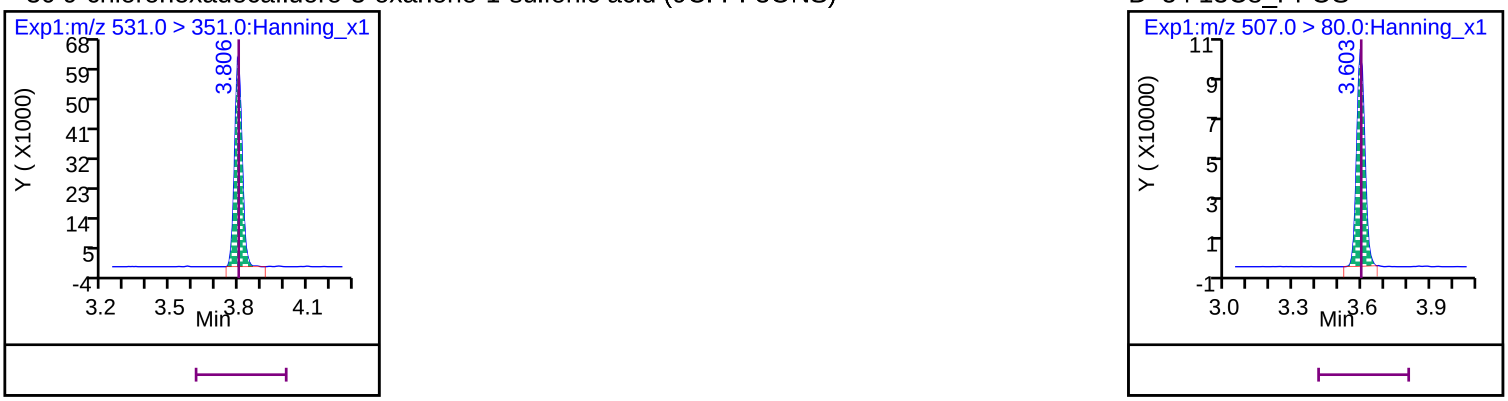
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



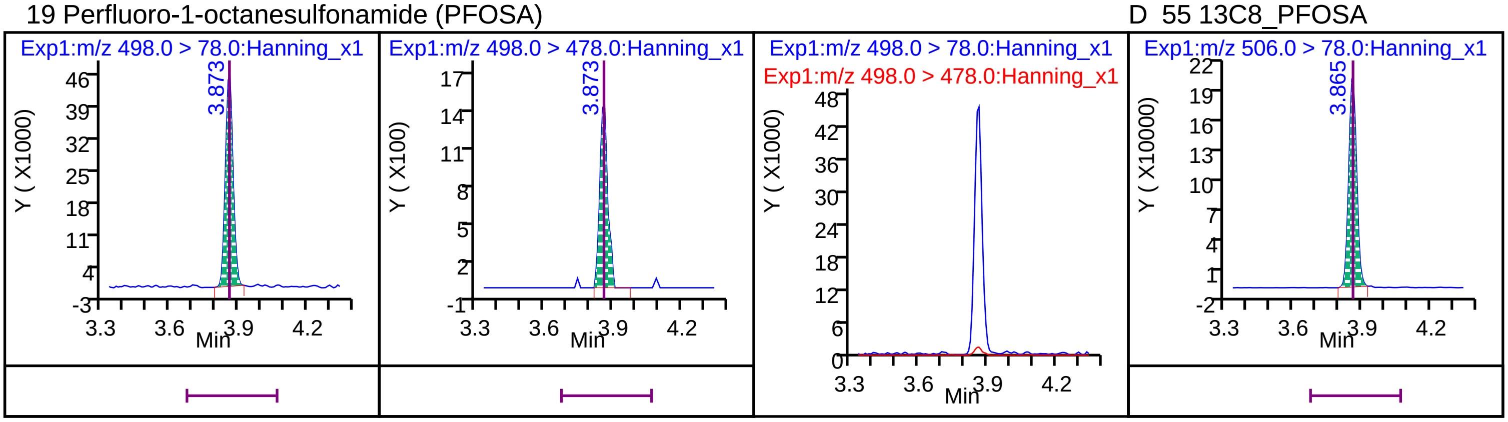
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



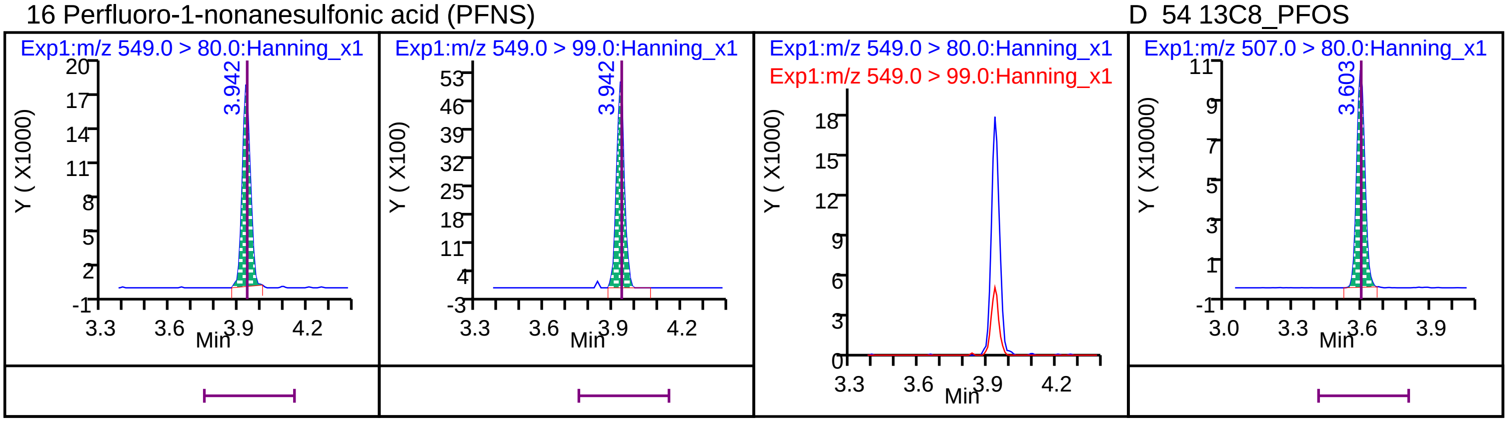
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

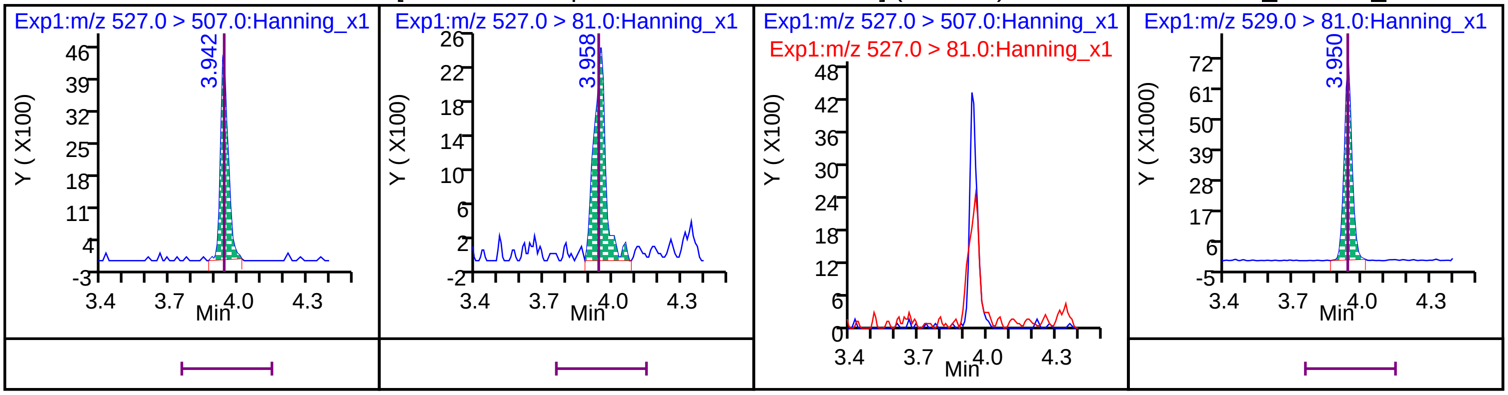


Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521006.d

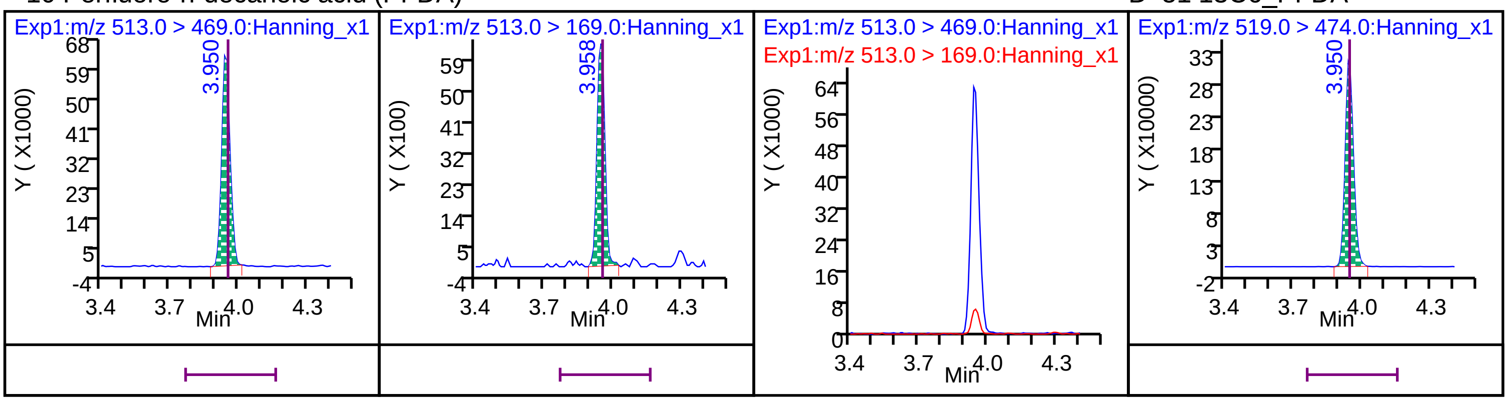
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



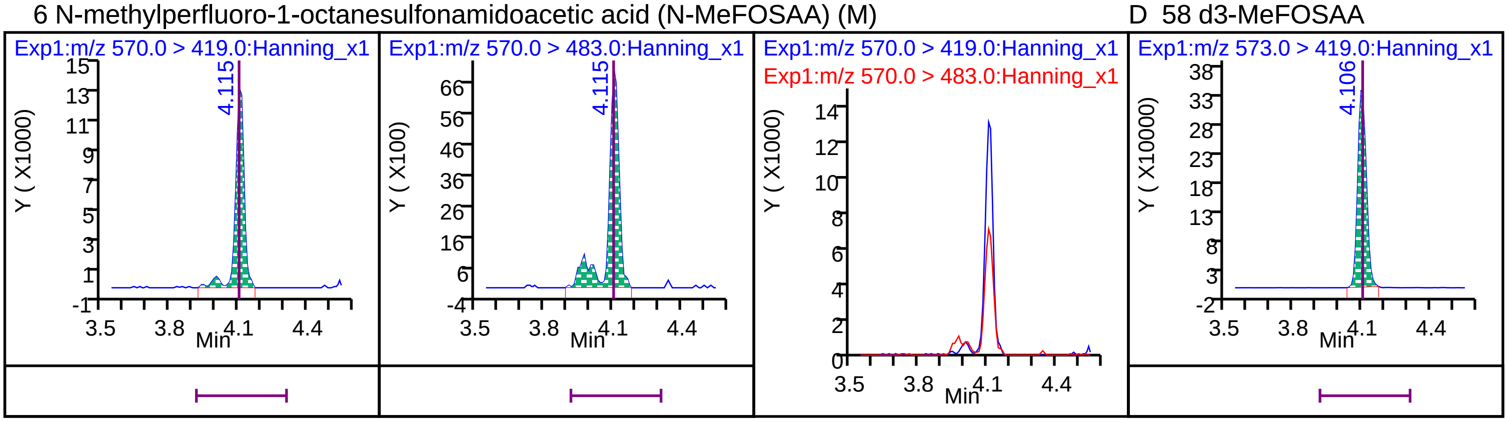
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



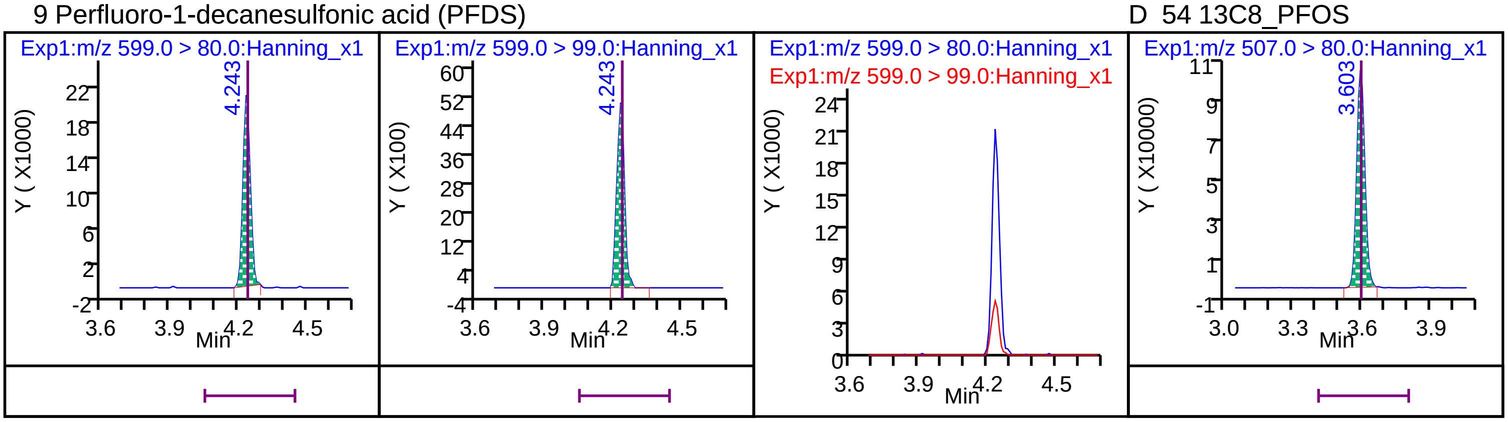
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)

D 58 d3-MeFOSAA

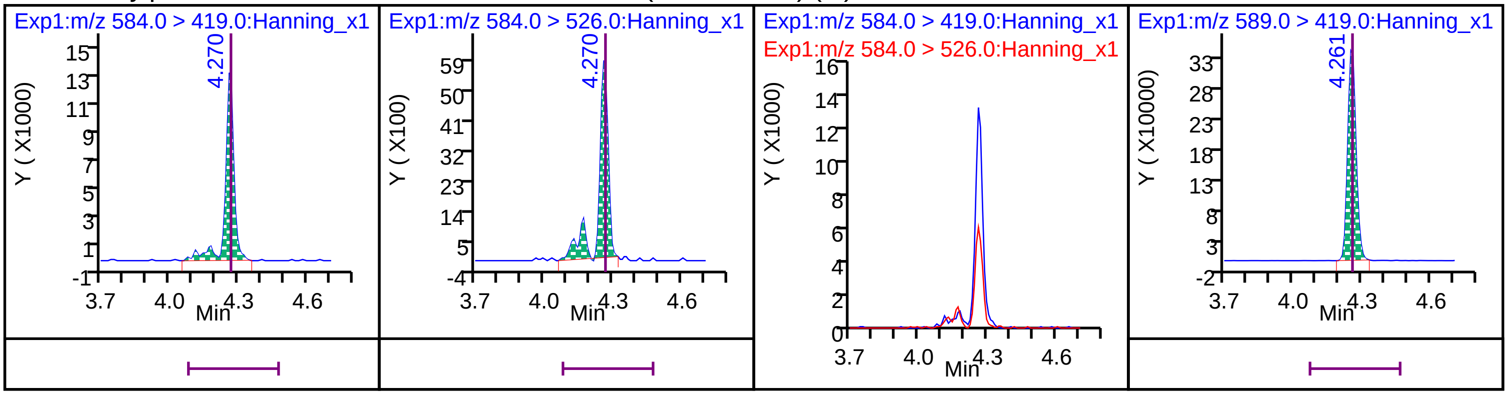


9 Perfluoro-1-decanesulfonic acid (PFDS)

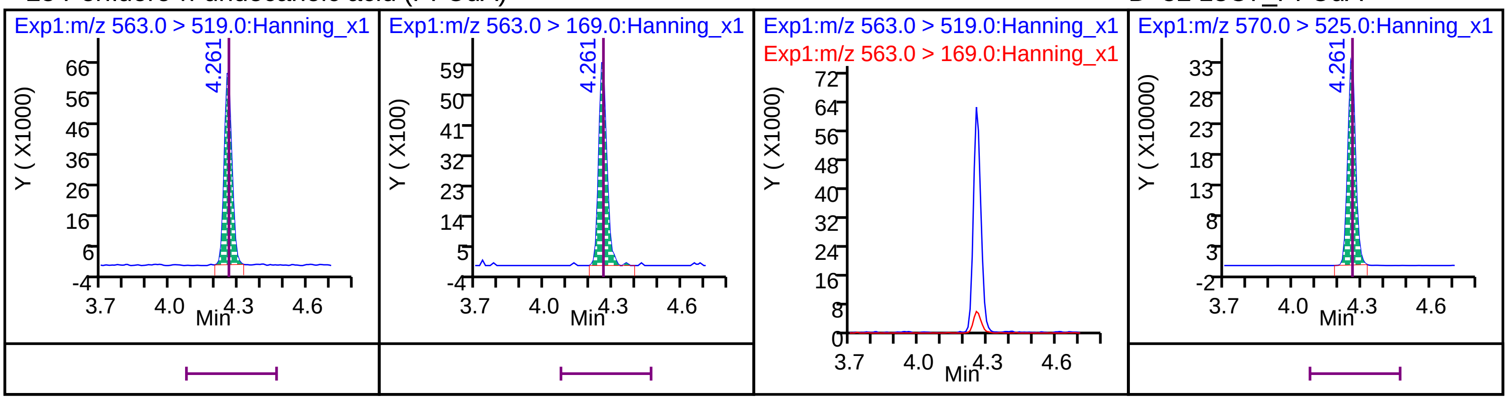
D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

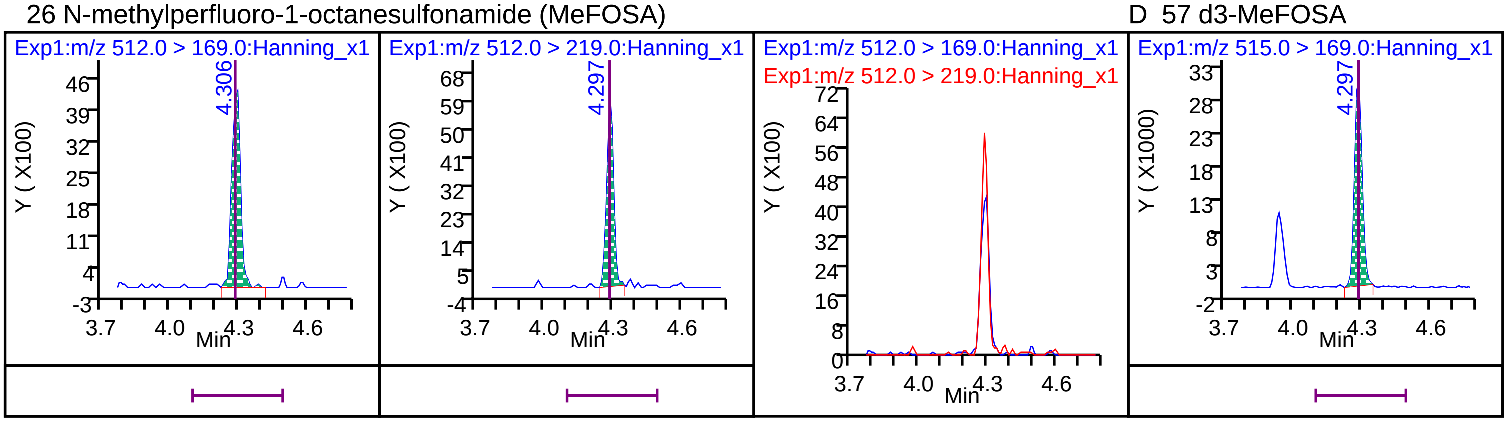


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

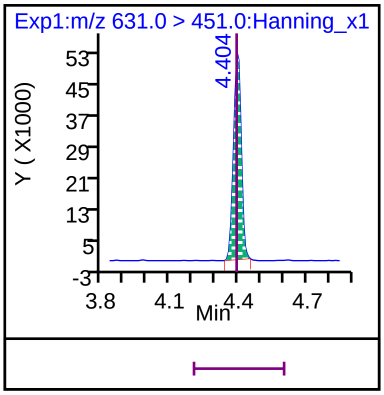


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

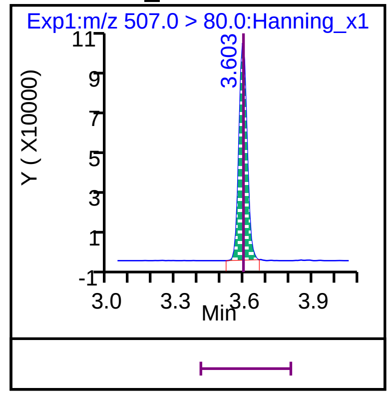
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



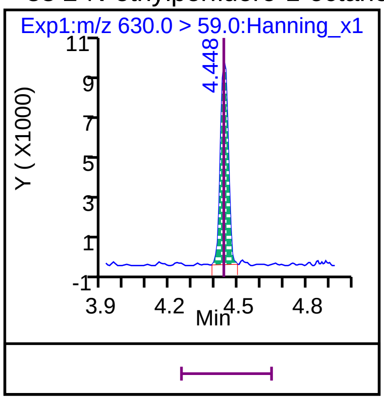
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



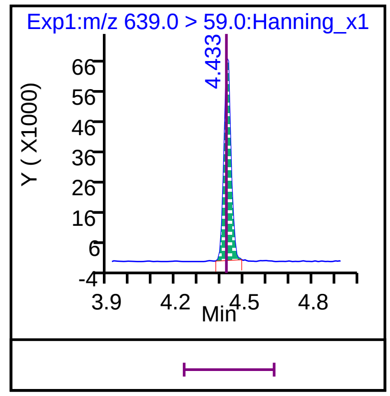
D 54 13C8_PFOS



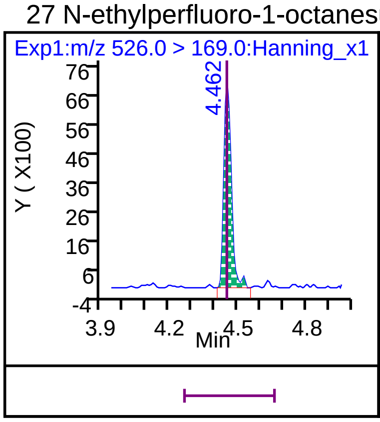
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

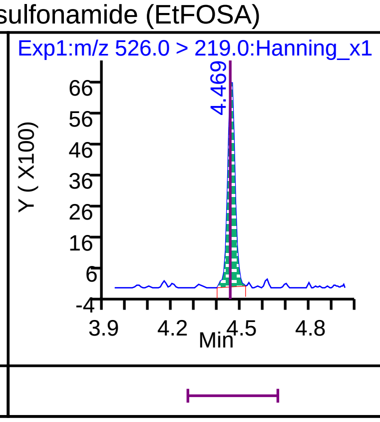


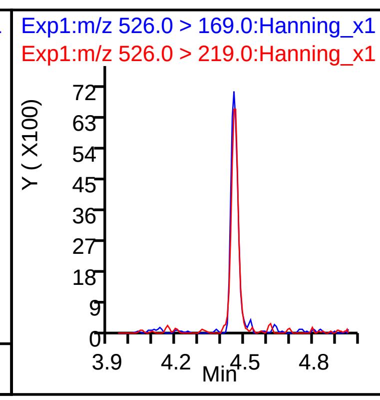
D 62 d9-EtFOSE



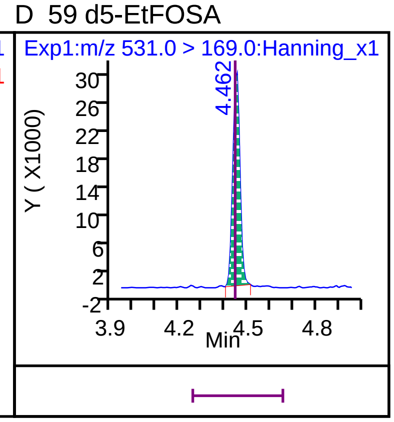
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



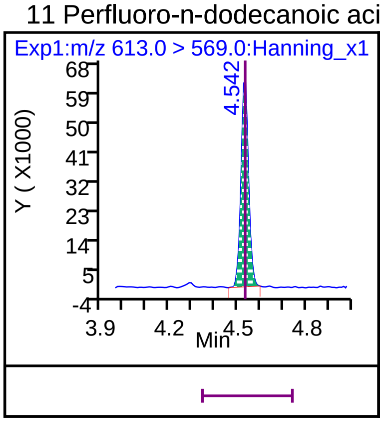


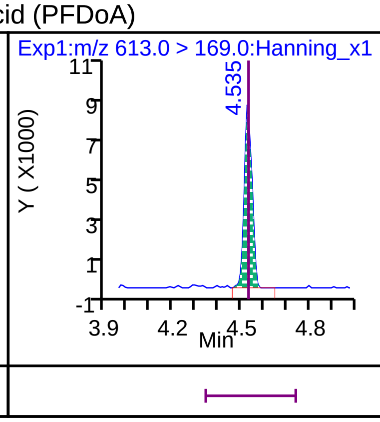


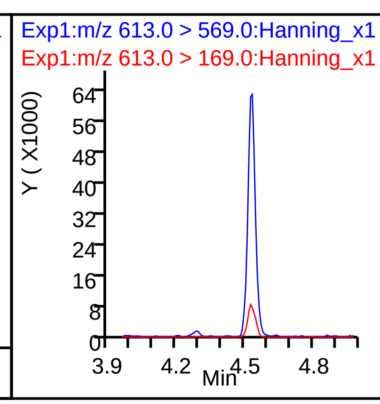
D 59 d5-EtFOSA



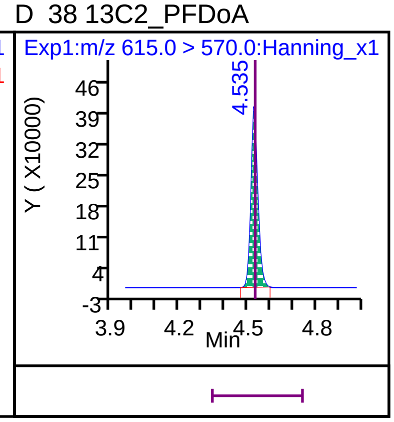
11 Perfluoro-n-dodecanoic acid (PFDoA)



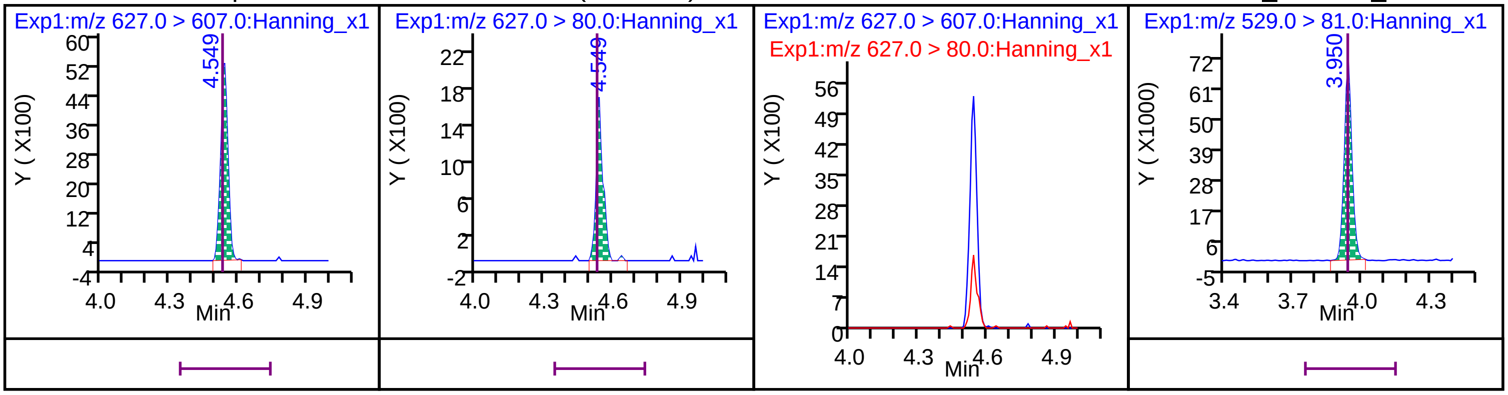




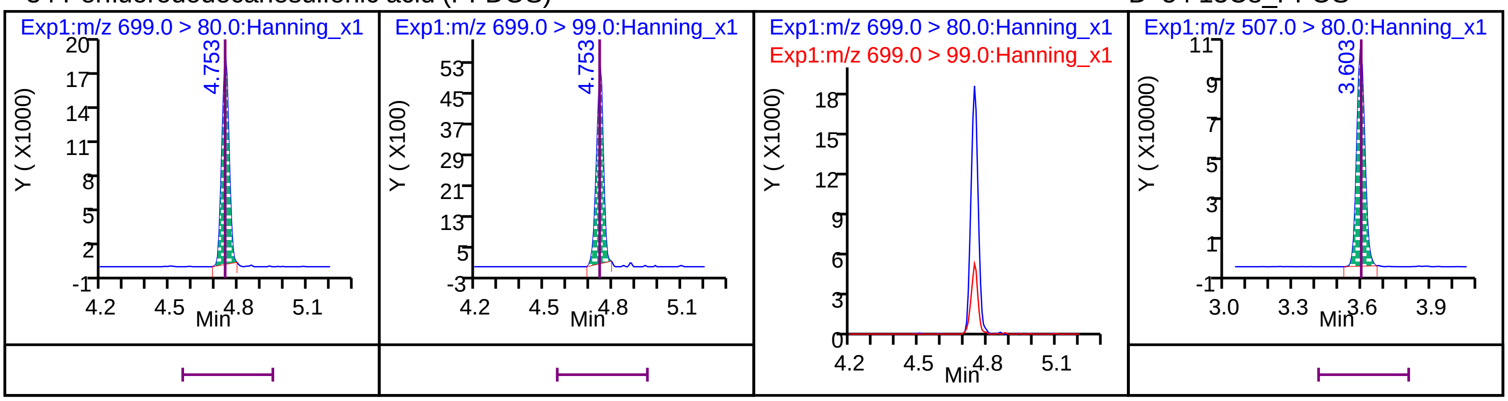
D 38 13C2_PFDoA



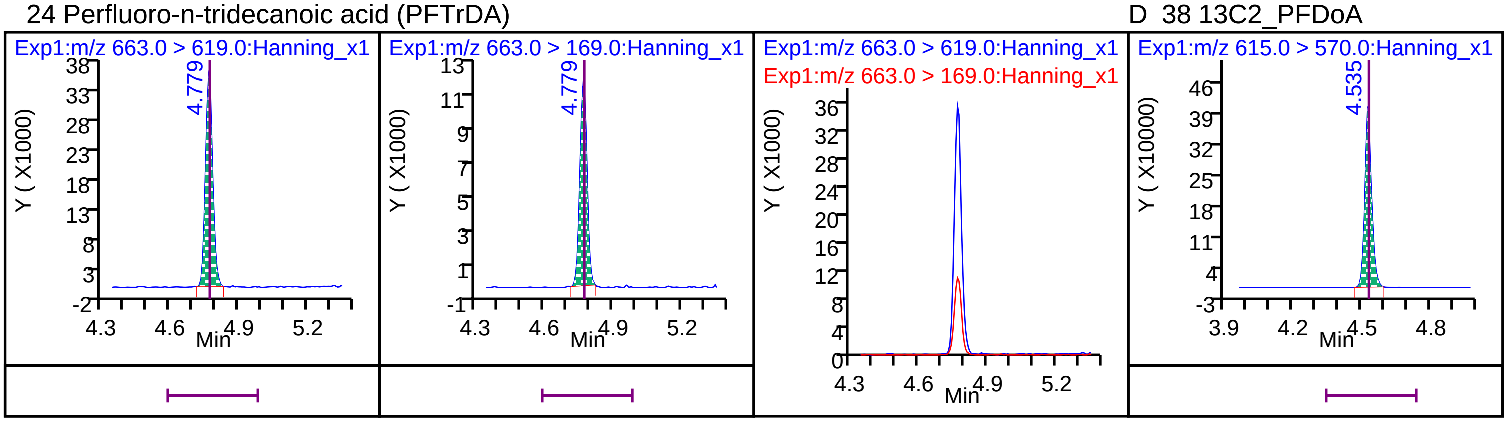
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



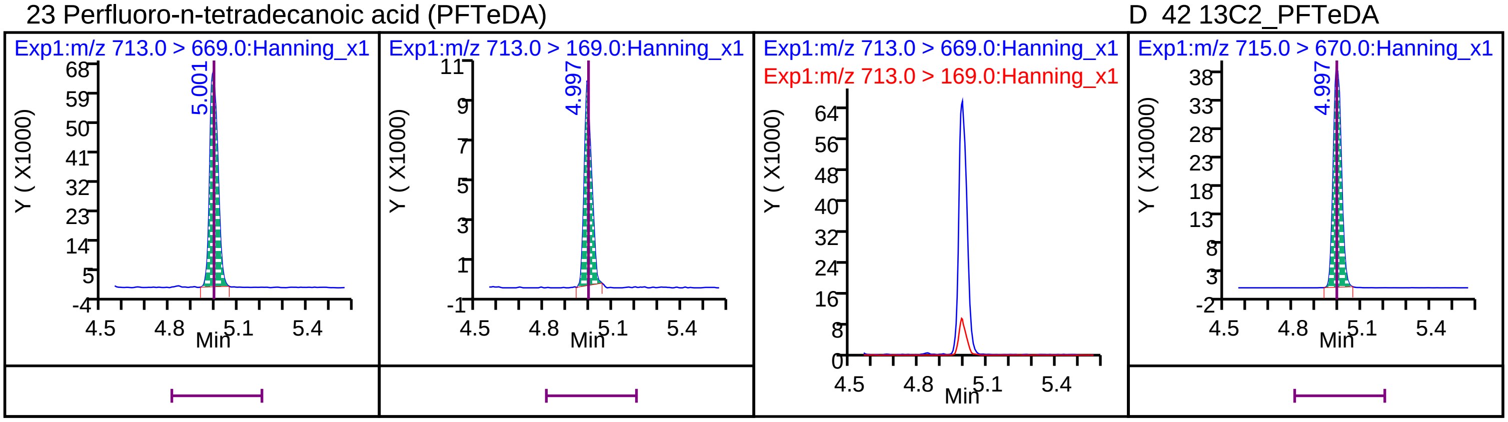
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



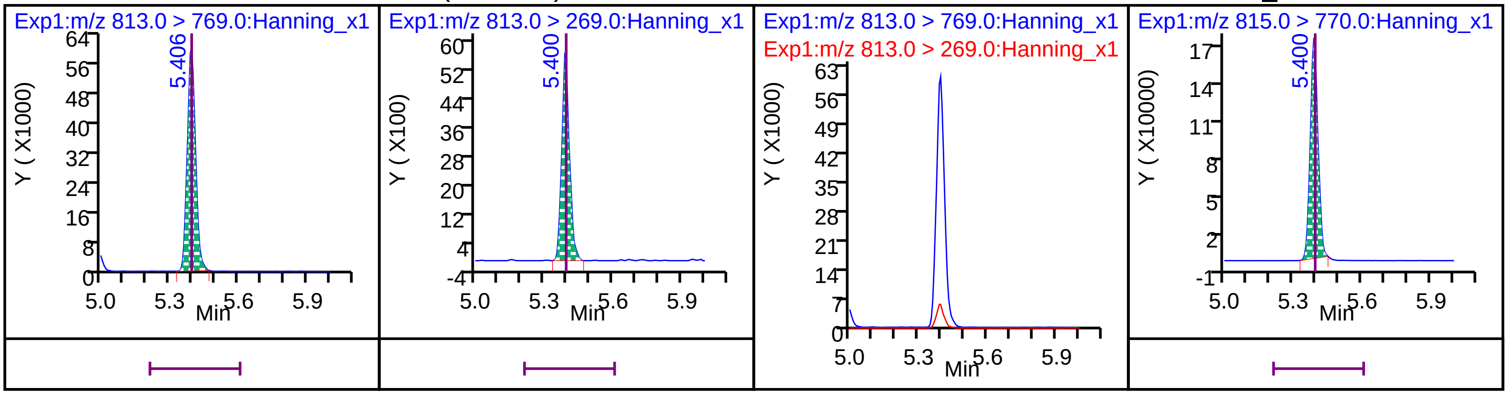
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



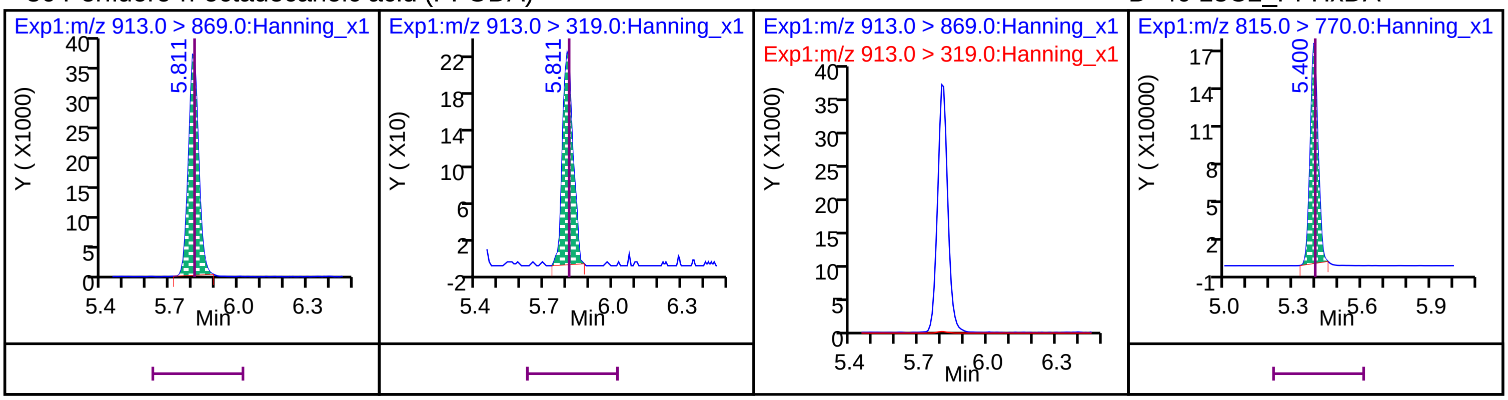
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



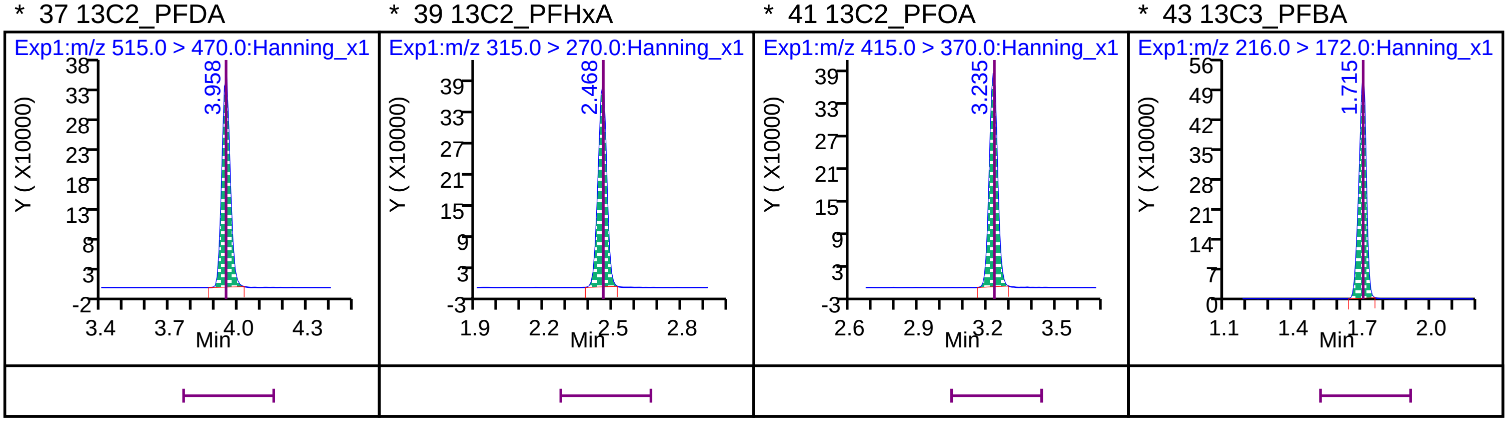
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



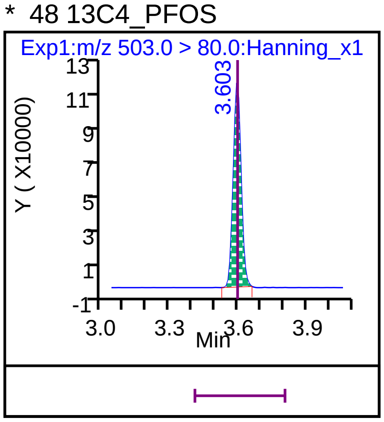
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521006.d

Injection Date: 05-Nov-2021 12:24:26 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 200_SVLC-1725

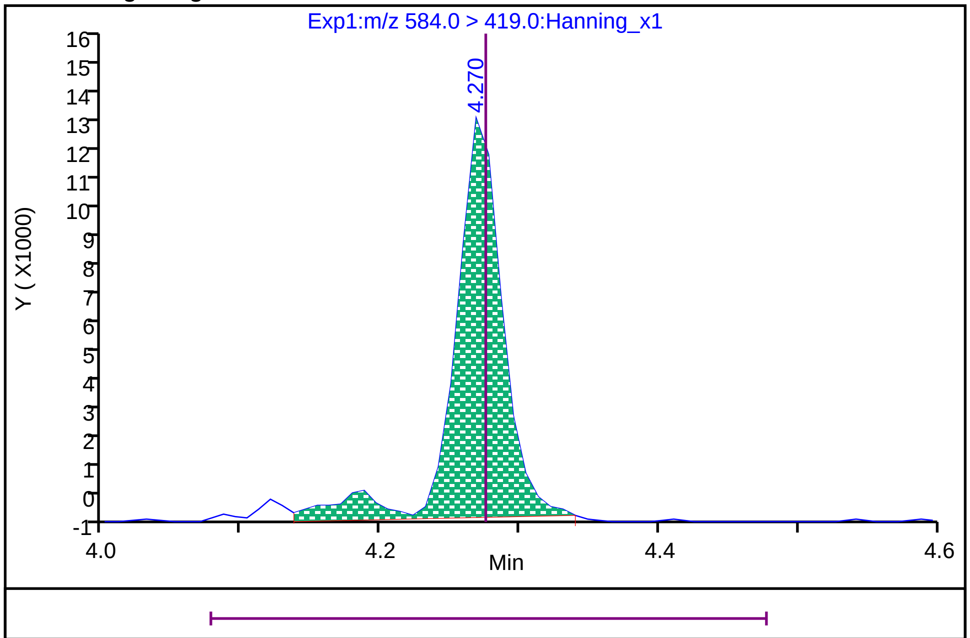
Sample Info: CCV 200_SVLC-1725

Dil. Factor: 1 Operator: Matthew M. Miller

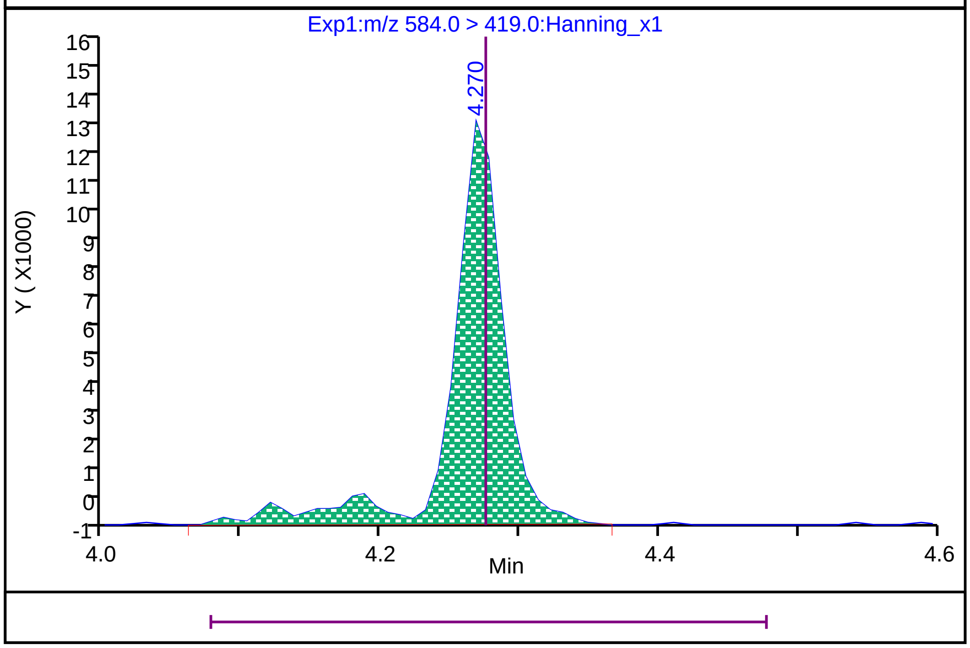
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.270
Area: 30417
Amount: 178.89
Amount Units: ng/L



RT: 4.270
Area: 32750
Amount: 192.61
Amount Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 12:40:33

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

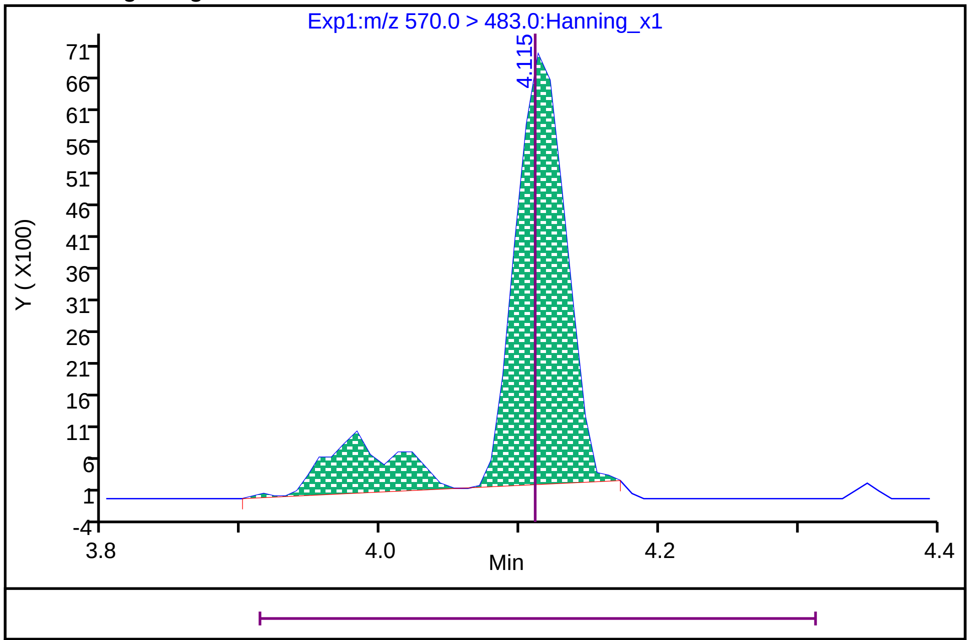
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521006.d		
Injection Date:	05-Nov-2021 12:24:26	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 200_SVLC-1725
Sample Info:	CCV 200_SVLC-1725		
Dil. Factor:	1	Operator:	Matthew M. Miller

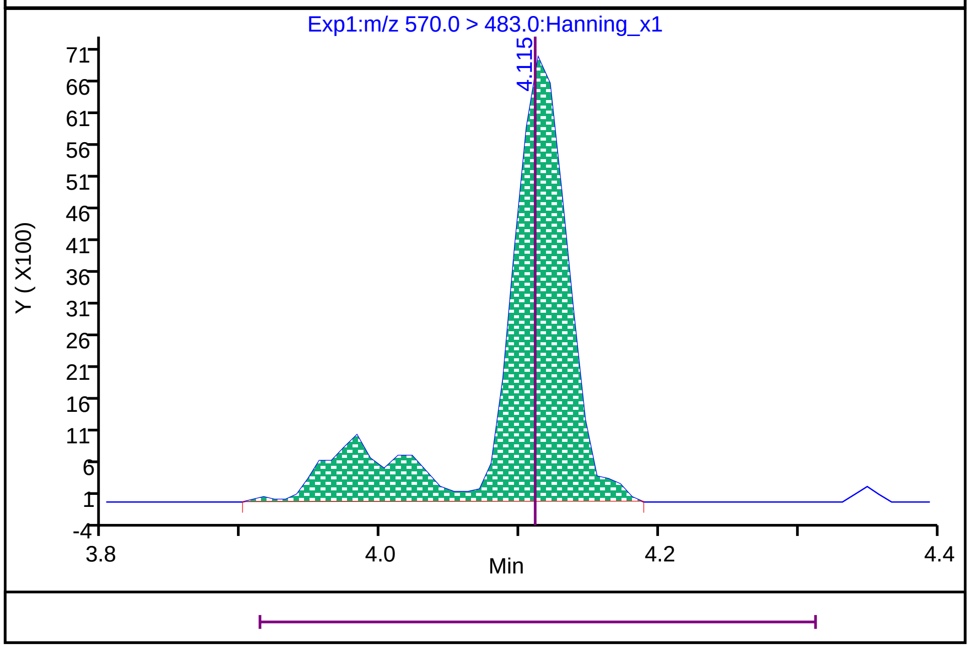
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.115
Area:	20073
Amount:	235.15
Amount Units:	ng/L



RT:	4.115
Area:	22308
Amount:	235.15
Amount Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 12:40:25

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d		
Injection Date:	05-Nov-2021 14:10:04	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	7
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	945.70	94.6	70 - 130
D 46 13C4_PFBA	1177138	1208582			102.7	50 - 150
D 50 13C5_PFPeA	1076384	1114454			103.5	50 - 150
21 PFPeA			1000.00	959.33	95.9	70 - 130
7 PFBS			884.00	759.87	86	70 - 130
D 44 13C3_PFBS	338741	375043			110.7	50 - 150
1 4:2 FTS			934.00	910.19	97.5	70 - 130
D 63 13C2_4:2 FTS_2	226256	238078			105.2	50 - 150
D 49 13C5_PFHxA	1008626	960352			95.2	50 - 150
15 PFHxA			1000.00	994.80	99.5	70 - 130
22 PFPeS			938.00	851.20	90.7	70 - 130
28 GenX			2000.00	1903.17	95.2	70 - 130
D 66 13C3_GenX	924257	862782			93.3	50 - 150
D 47 13C4_PFHpA	976651	956544			97.9	50 - 150
13 PFHpA			1000.00	1035.97	103.6	70 - 130
D 45 13C3_PFHxS	297909	301964			101.4	50 - 150
14 PFHxS			910.00	816.58	89.7	70 - 130
29 ADONA			942.00	900.49	95.6	70 - 130
D 64 13C2_6:2 FTS_2	209020	239322			114.5	50 - 150
2 6:2 FTS			948.00	1219.09	128.6	70 - 130
D 53 13C8_PFOA	914280	960147			105	50 - 150
20 PFOA			1000.00	964.15	96.4	70 - 130
12 PFHpS			952.00	947.77	99.6	70 - 130
18 PFOS			928.00	868.19	93.6	70 - 130
17 PFNA			1000.00	868.22	86.8	70 - 130
D 56 13C9_PFNA	864448	941992			109	50 - 150
D 54 13C8_PFOS	243433	264446			108.6	50 - 150
30 9Cl-PF3ONS			932.00	853.38	91.6	70 - 130
D 55 13C8_PFOSA	466162	460025			98.7	50 - 150
19 PFOSA			1000.00	1017.49	101.7	70 - 130
16 PFNS			960.00	833.57	86.8	70 - 130
D 65 13C2_8:2 FTS_2	170823	171713			100.5	50 - 150
3 8:2 FTS			958.00	934.45	97.5	70 - 130
10 PFDA			1000.00	910.16	91	70 - 130
D 51 13C6_PFDA	796749	850740			106.8	50 - 150
6 N-MeFOSAA			1000.00	939.79	94	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	881075	924875			105	50 - 150
9 PFDS			964.00	866.61	89.9	70 - 130
5 N-EtFOSAA			1000.00	986.92	98.7	70 - 130
25 PFUdA			1000.00	1034.18	103.4	70 - 130
D 60 d5-EtFOSAA	806334	816526			101.3	50 - 150
D 52 13C7_PFUdA	752112	767996			102.1	50 - 150
D 61 d7-MeFOSE	134219	133033			99.1	50 - 150
32 MeFOSE			1000.00	927.83	92.8	70 - 130
26 MeFOSA			1000.00	1177.46	117.7	70 - 130
D 57 d3-MeFOSA	65225	69209			106.1	50 - 150
31 11Cl-PF3OUDS			942.00	857.35	91	70 - 130
D 62 d9-EtFOSE	125062	129681			103.7	50 - 150
33 EtFOSE			1000.00	1193.39	119.3	70 - 130
D 59 d5-EtFOSA	70105	65202			93	50 - 150
27 EtFOSA			1000.00	1032.31	103.2	70 - 130
11 PFDoA			1000.00	1034.59	103.5	70 - 130
D 38 13C2_PFDoA	693700	734205			105.8	50 - 150
4 10:2 FTS			964.00	845.98	87.8	70 - 130
34 PFDOS			968.00	759.93	78.5	70 - 130
24 PFTrDA			1000.00	1014.16	101.4	70 - 130
23 PFTeDA			1000.00	966.20	96.6	70 - 130
D 42 13C2_PFTeDA	925125	876548			94.7	50 - 150
35 PFHxDA			1000.00	1043.93	104.4	70 - 130
D 40 13C2_PFHxDA	400309	398893			99.6	50 - 150
36 PFODA			1000.00	965.69	96.6	70 - 130

Report Date: 09-Nov-2021 21:16:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d		
Injection Date:	05-Nov-2021 14:10:04	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	7
Sample Info:	CCV 1000_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.715	1	1208582	20	>100:1			1000.00	1122.45	102.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	0/-1	1257037	19	>100:1			1000.00	945.70		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	0	1114454	17	>100:1			1000.00	1111.22	103.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	0/0	1145506	16	>100:1			1000.00	959.33		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	375043	15	>100:1			1000.00	1154.80	110.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	407138	14	>100:1	Target = 3.80		884.00	759.87		
298.9 > 99	44	2.141	2.141		114912	15	>100:1	3.54 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.502	0/0	321215	19	>100:1	Target = 3.42		938.00	851.20		
349 > 99	44	2.485	2.502		96221	18	>100:1	3.33 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	238078	17	>100:1			5000.00	5731.71	105.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.424	0/0	84585	18		Target = 1.54		934.00	910.19		
327 > 81	63	2.415	2.424		56871	19	75:1	1.48 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.468	0	960352	19	>100:1			1000.00	1075.14	95.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.468	0/0	987156	18	>100:1	Target = 17.93		1000.00	994.80		
313 > 119	49	2.459	2.468		51736	17	>100:1	19.08 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	862782	19	>100:1			5000.00	5266.67	93.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.594	0/0	251618	18	>100:1	Target = 0.72		2000.00	1903.17		
285 > 185	66	2.579	2.594		393615	18	>100:1	0.63 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	0	956544	19	>100:1			1000.00	1091.70	97.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	0/0	953946	17	>100:1	Target = 3.26		1000.00	1035.97		
363 > 169	47	2.837	2.855		284755	18	>100:1	3.35 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	0	301964	17	>100:1			1000.00	1151.30	101.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	0/0	291491	26	>100:1	Target = 3.48	5.49	910.00	816.58		
399 > 99	45	2.855	2.872		88497	26	>100:1	3.29 (1.74-5.22)	9.03				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.898	0/0	1496681	19	>100:1	Target = 2.31		942.00	900.49		
377 > 85	45	2.881	2.898		596198	19	>100:1	2.51 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.221	3.239	0/0	294361	21	>100:1	Target = 3.56		952.00	947.77		
449 > 99	45	3.227	3.239		79669	21	>100:1	3.69 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.195	3.214	-1	239322	24	>100:1			5000.00	6346.20	114.5	M
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.195	3.208	0/0	101459	21	>100:1	Target = 1.34		948.00	1219.09		
427 > 81	64	3.202	3.208		75224	20	88:1	1.34 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.221	3.239	0	960147	22	>100:1			1000.00	1161.01	105	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.221	3.239	0/0	952499	22	>100:1	Target = 2.50		1000.00	964.15		
413 > 169	53	3.221	3.239		366007	21	>100:1	2.60 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.584	3.606	0	264446	20	>100:1			1000.00	1178.04	108.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.584	3.614	0/0	270652	38	>100:1	Target = 4.01	3.64	928.00	868.19		
499 > 99	54	3.584	3.614		65366	28	46:1	4.14 (2.00-6.02)	9.59				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.789	3.811	0/0	697440	20	>100:1			932.00	853.38		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.924	3.948	0/0	222644	19	>100:1	Target = 3.78		960.00	833.57		
549 > 99	54	3.924	3.948		68462	17	>100:1	3.25 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.223	4.250	0/0	226249	17	>100:1	Target = 3.98		964.00	866.61		
599 > 99	54	4.223	4.250		56816	19	>100:1	3.98 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.385	4.402	0/0	629819	16	>100:1			942.00	857.35		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.725	4.752	0/0	194626	19		Target = 3.68		968.00	759.93		
699 > 99	54	4.725	4.752		55417	17		3.51 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.592	3.614	0	941992	20	>100:1			1000.00	1178.94	109	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.592	3.614	0/0	744748	20	>100:1	Target = 4.69		1000.00	868.22		
463 > 169	56	3.592	3.614		169890	19	>100:1	4.38 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.856	3.870	-1	460025	20	>100:1			1000.00	1110.66	98.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.856	3.870	-1/0	529255	18	>100:1	Target = 40.85		1000.00	1017.49		
498>478	55	3.856	3.870		10669	24	65:1	49.60 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.924	3.948	0	171713	19	>100:1			5000.00	5471.10	100.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.932	3.948	0/0	57014	24	>100:1	Target = 1.58		958.00	934.45		
527 > 81	65	3.932	3.948		42067	22	>100:1	1.35 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.519	4.541	0/0	51812	25	>100:1	Target = 2.46		964.00	845.98		
627 > 80	65	4.519	4.541		20599	17	>100:1	2.51 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.932	3.956	0	850740	17	>100:1			1000.00	1178.64	106.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.932	3.964	0/0	794519	19	>100:1	Target = 9.77		1000.00	910.16		
513 > 169	51	3.932	3.964		82787	18	>100:1	9.59 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.088	4.112	0	924875	17	>100:1			5000.00	5216.06	105	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.096	4.112	0/0	142133	34		Target = 1.41	8.49	1000.00	939.79		
570 > 483	58	4.088	4.112		116460	37		1.22 (0.70-2.11)	4.52				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.241	4.268	0	767996	16	>100:1			1000.00	1123.75	102.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.241	4.268	0/0	712527	16	>100:1	Target = 9.19		1000.00	1034.18		
563 > 169	52	4.241	4.268		70045	16	>100:1	10.17 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.241	4.268	0	816526	17	>100:1			5000.00	5460.59	101.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.250	4.277	-1/-1	164743	37	>100:1	Target = 1.75	5.33	1000.00	986.92		M
584 > 526	60	4.250	4.277		97285	31	>100:1	1.69 (0.87-2.63)	3.44				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.269	4.268	0	133033	16	>100:1			1000.00	964.11	99.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.278	4.277	0/0	125447	14	>100:1			1000.00	927.83		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.286	4.295	0	69209	14	>100:1			1000.00	988.40	106.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.295	4.295	0/0	84386	18	>100:1	Target = 1.11		1000.00	1177.46		
512 > 219	57	4.286	4.295		66385	14	>100:1	1.27 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.425	4.432	0	129681	17	>100:1			1000.00	1008.77	103.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.440	4.446	0/0	131732	16	>100:1			1000.00	1193.39		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.447	4.454	0	65202	15	>100:1			1000.00	1012.37	93	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.454	4.461	0/0	78691	16	>100:1	Target = 1.06		1000.00	1032.31		
526 > 219	59	4.454	4.461		70819	16	>100:1	1.11 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.512	4.541	0	734205	20	>100:1			1000.00	1067.71	105.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.512	4.541	0/0	745997	19	>100:1	Target = 6.38		1000.00	1034.59		
613 > 169	38	4.512	4.541		105505	19	>100:1	7.07 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.752	4.784	0/0	399031	18	>100:1	Target = 3.23		1000.00	1014.16		
663 > 169	38	4.752	4.784		122477	18	>100:1	3.25 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.969	5.000	0	876548	26	>100:1			1000.00	1121.26	94.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.969	5.003	0/0	744283	26	>100:1	Target = 7.33		1000.00	966.20		
713 > 169	42	4.969	5.003		99858	24	>100:1	7.45 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.406	1	398893	21	>100:1			1000.00	1021.81	99.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.406	0/-1	796547	21	>100:1	Target = 12.31		1000.00	1043.93		
813 > 269	40	5.366	5.406		65697	21	>100:1	12.12 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.762	5.819	1/0	581546	22	>100:1	Target = 165.31		1000.00	965.69		
913 > 319	40	5.762	5.819		3437	21	>100:1	169.20 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.932	3.956	0	810671	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	0	994241	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.221	3.239	0	888634	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	0	1043023	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.592	3.606	0	241754	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

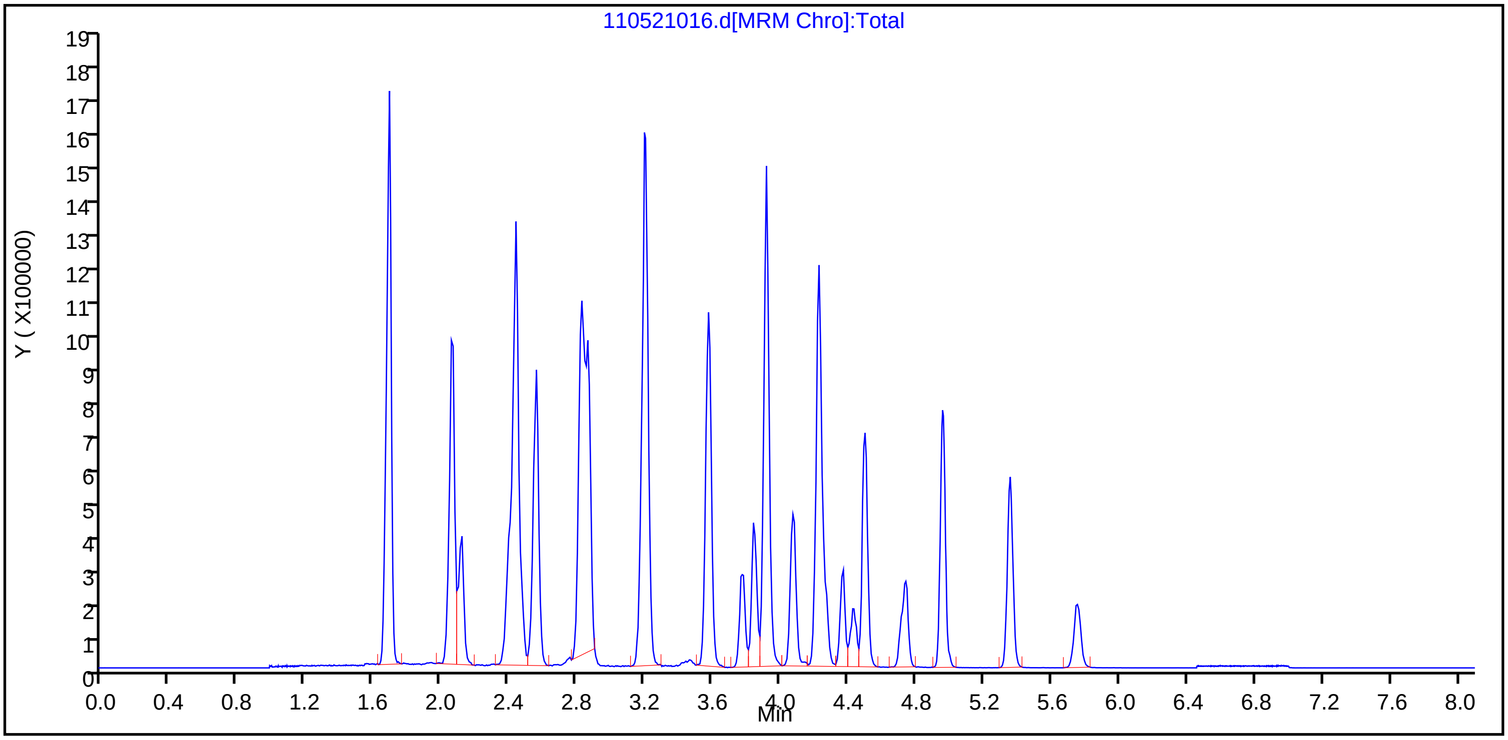
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

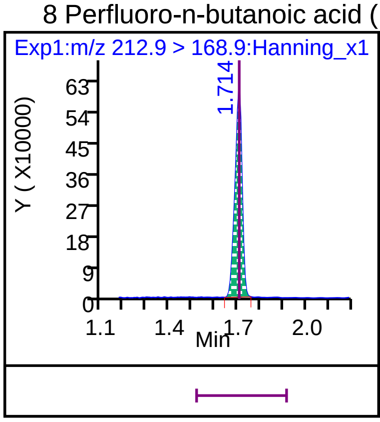
Report Date: 09-Nov-2021 21:16:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

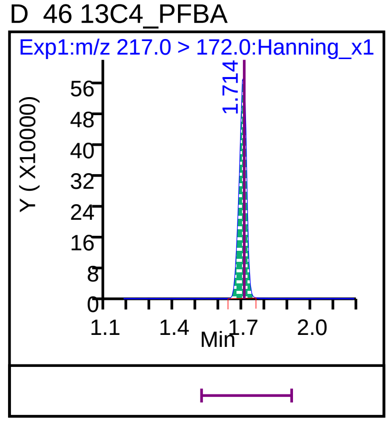
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d		
Injection Date:	05-Nov-2021 14:10:04	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



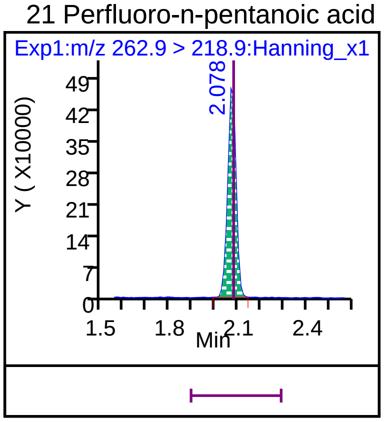
8 Perfluoro-n-butanoic acid (PFBA)



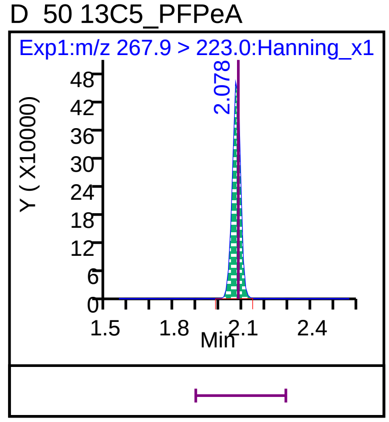
D 46 13C4_PFBA



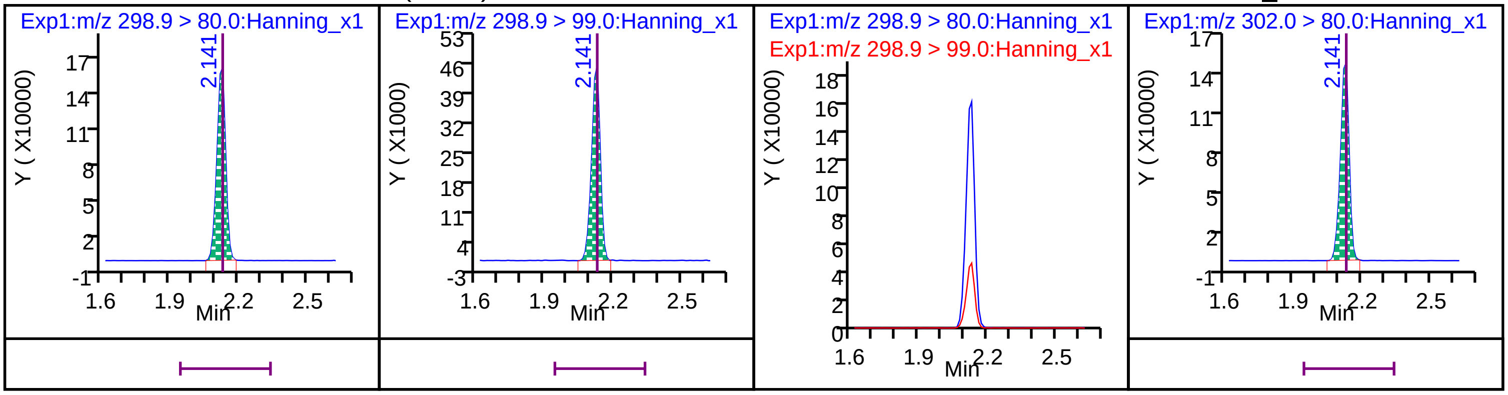
21 Perfluoro-n-pentanoic acid (PFPeA)



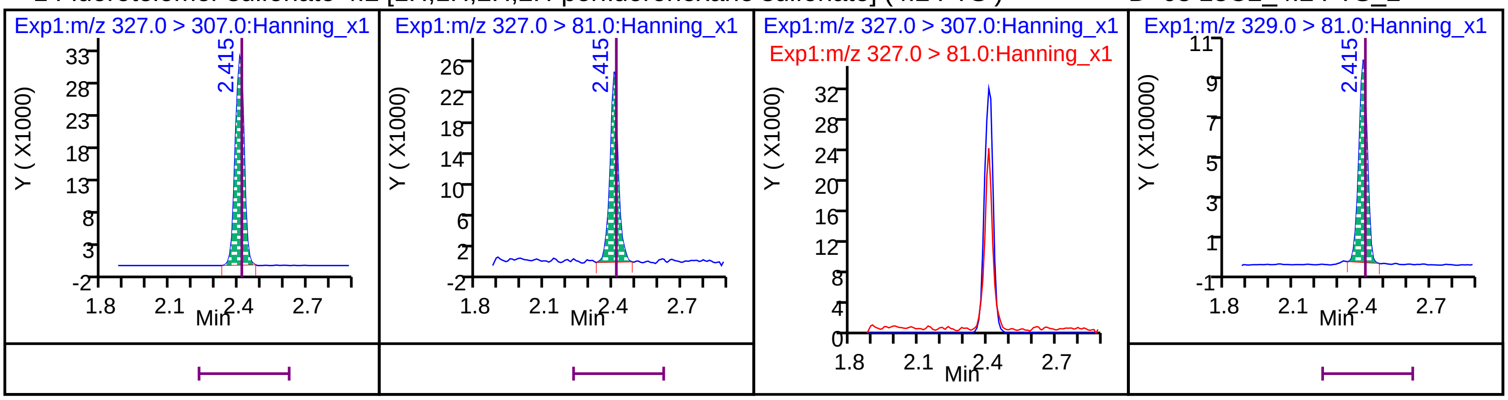
D 50 13C5_PFPeA



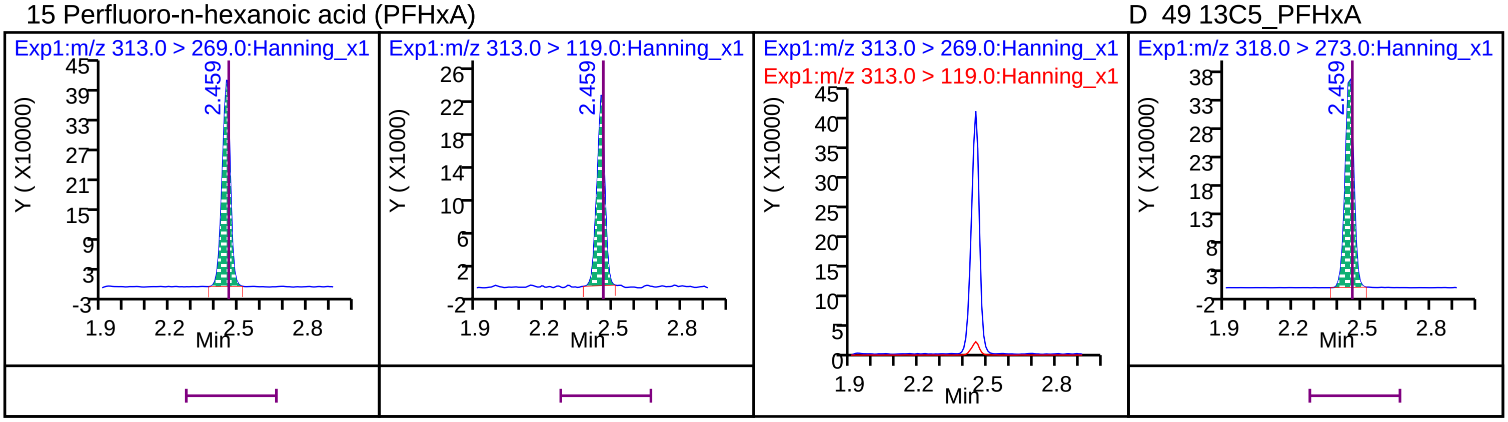
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



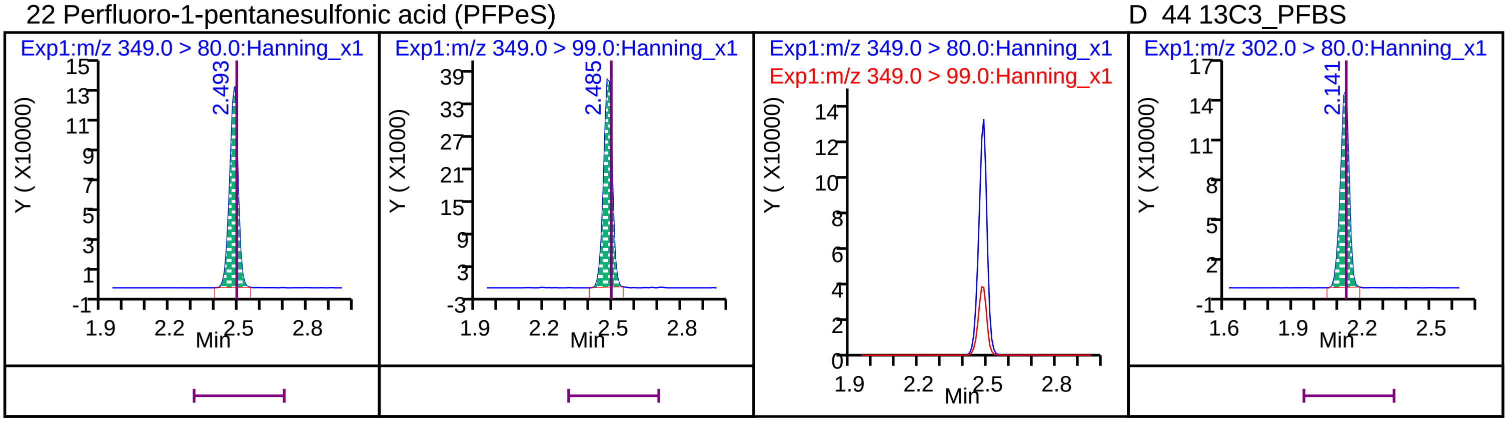
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



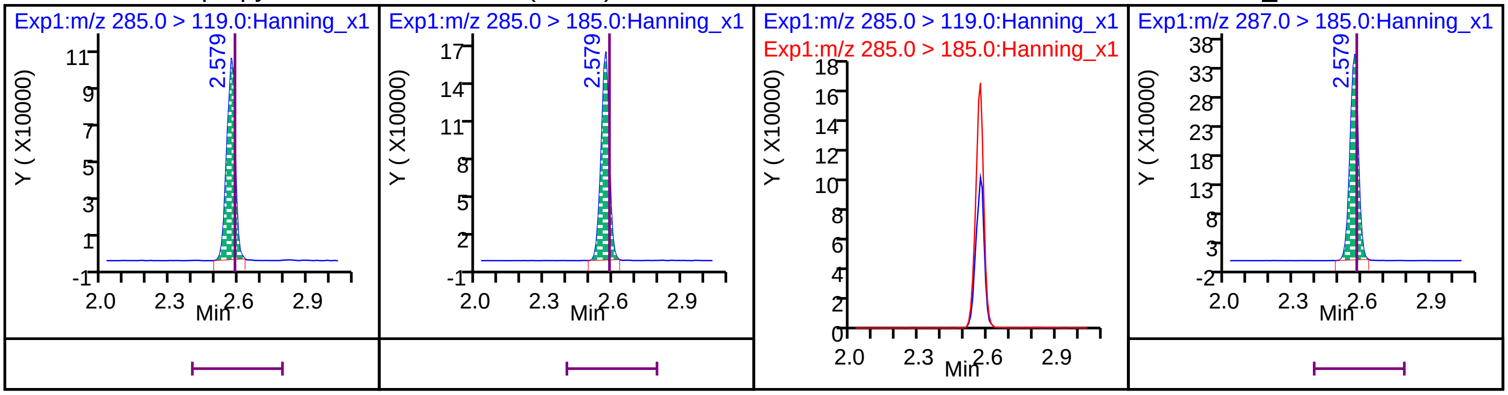
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



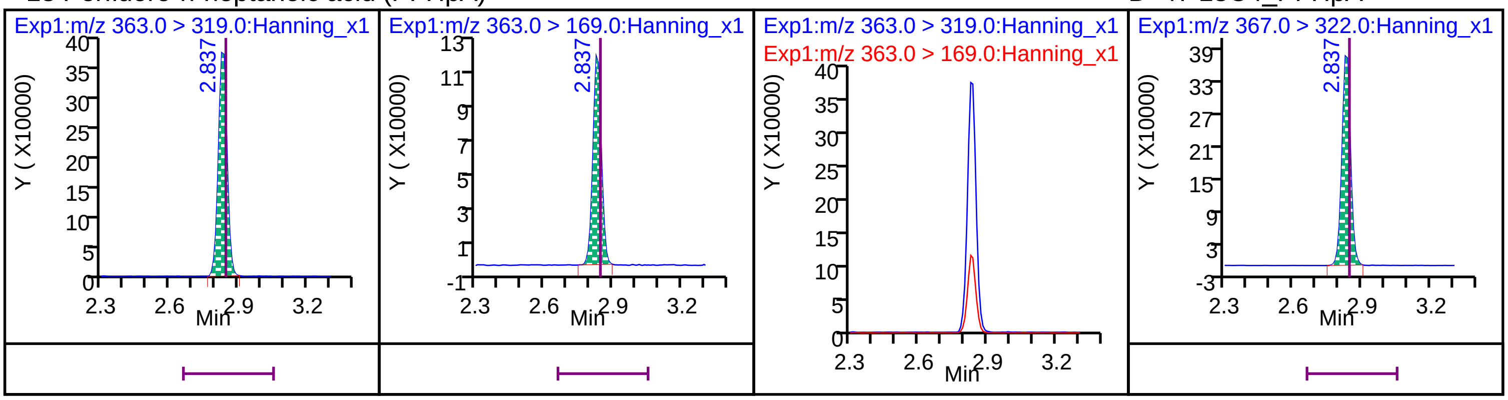
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



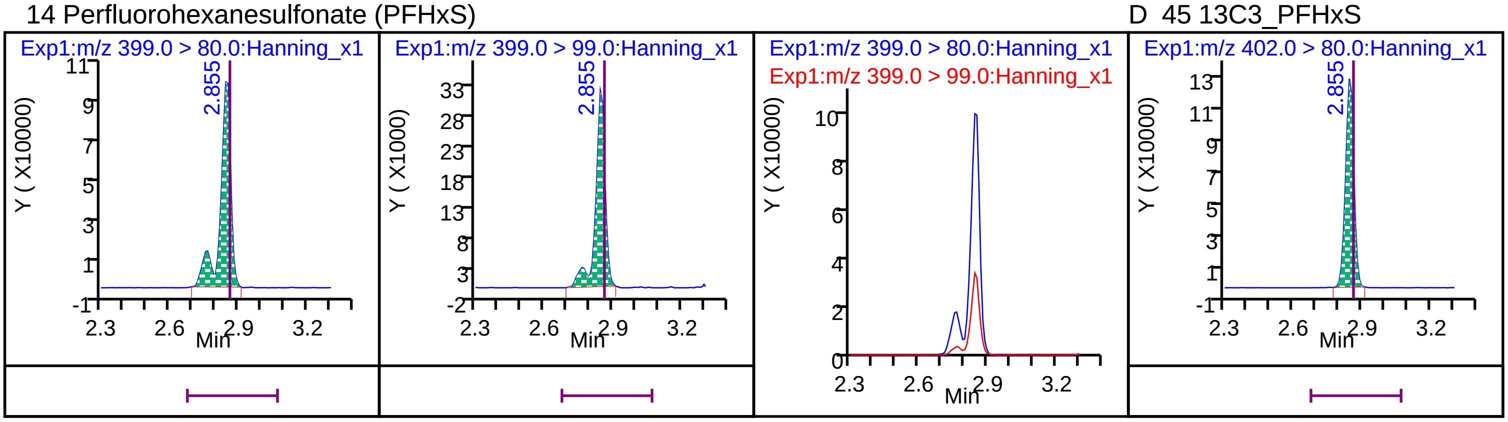
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



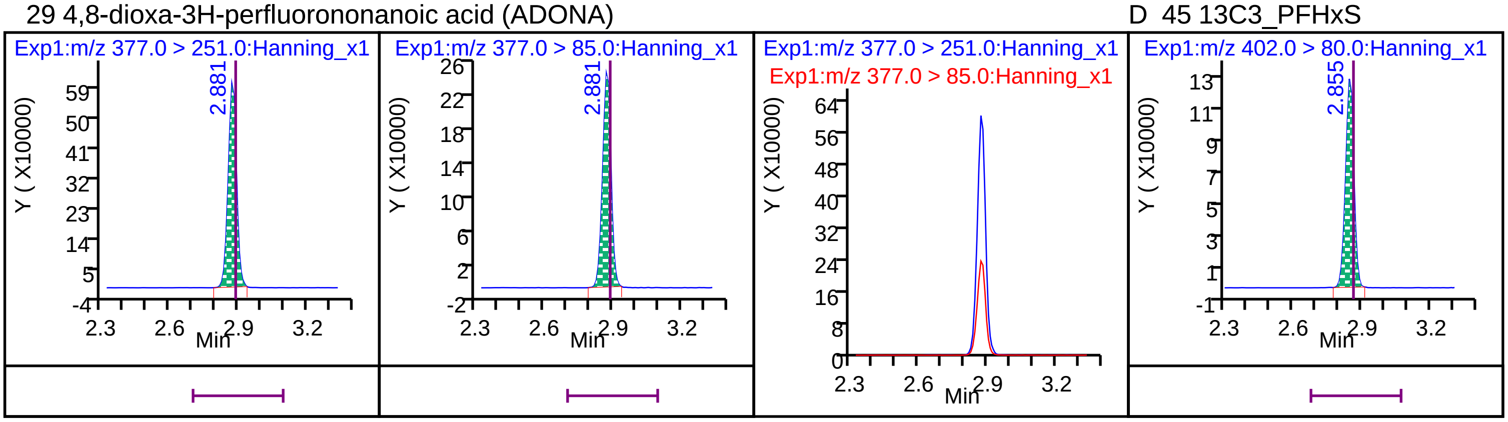
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



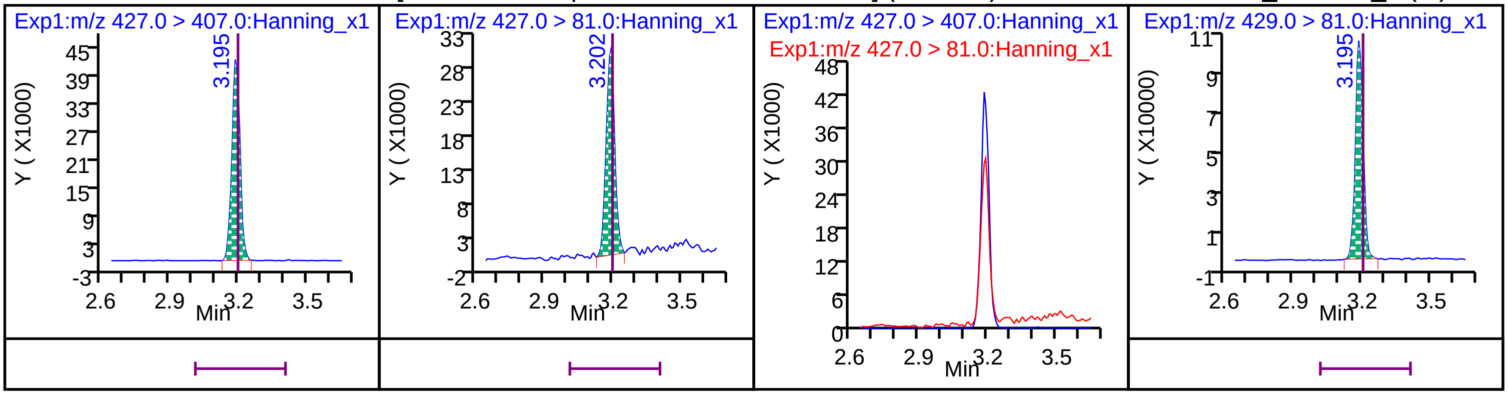
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



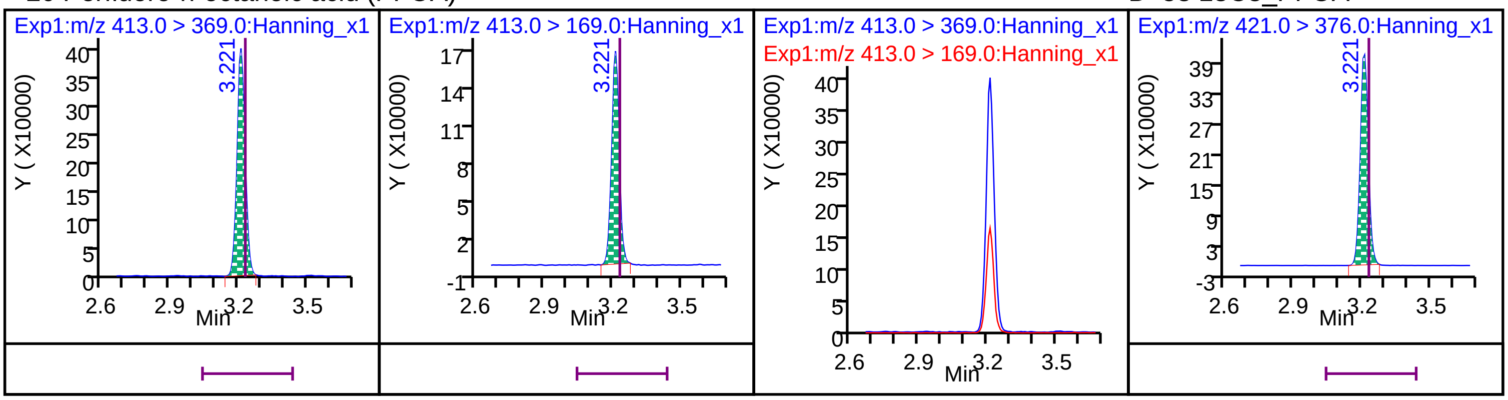
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



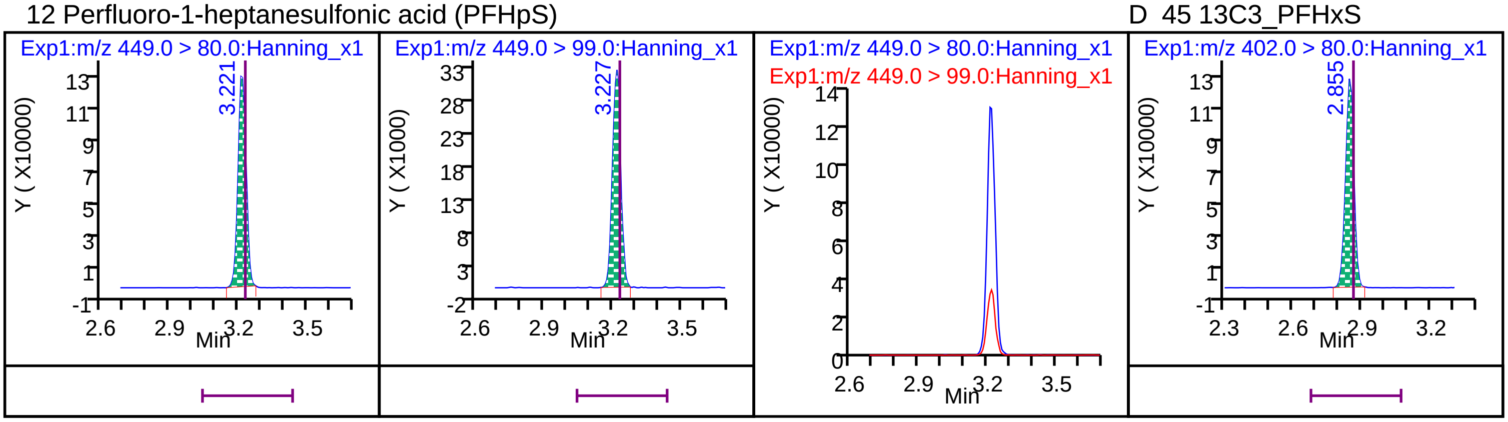
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2 (M)



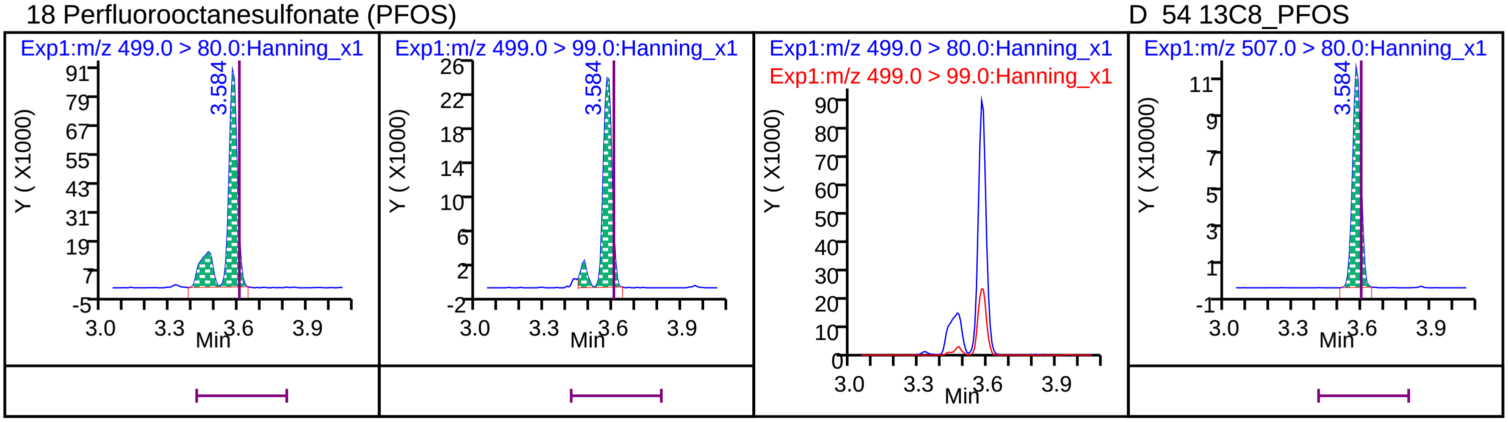
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



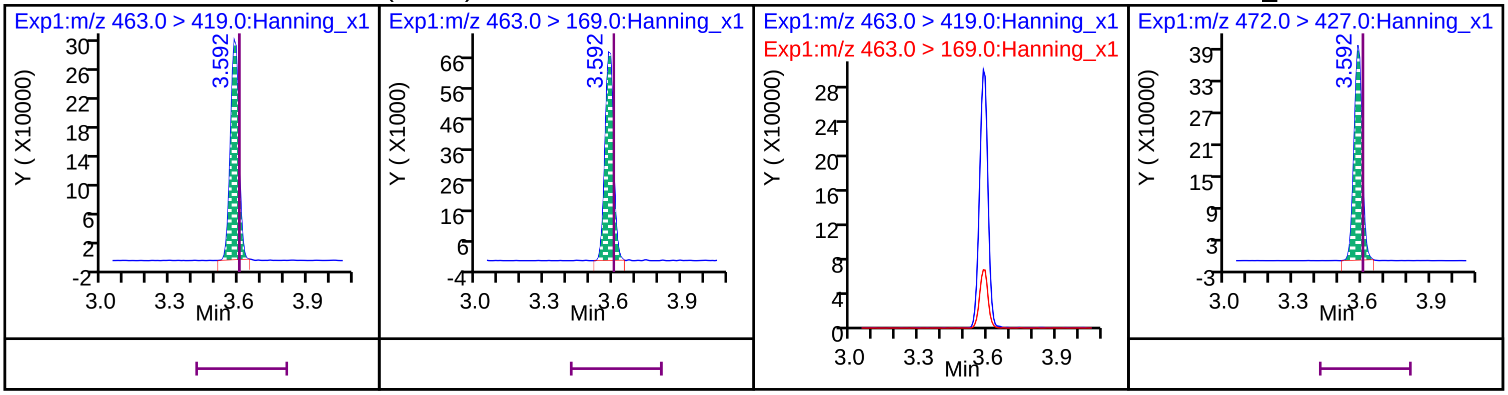
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



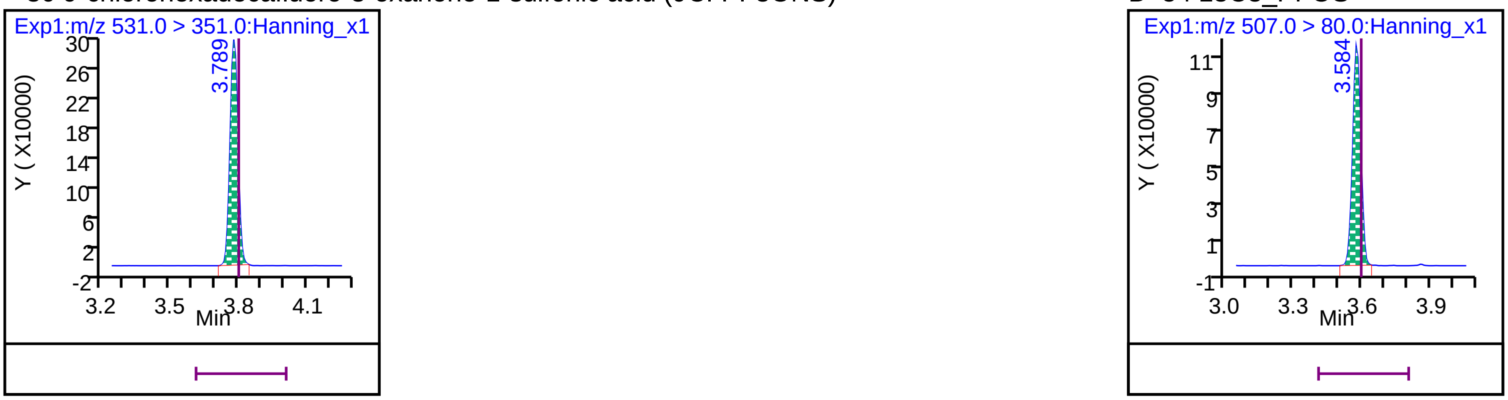
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



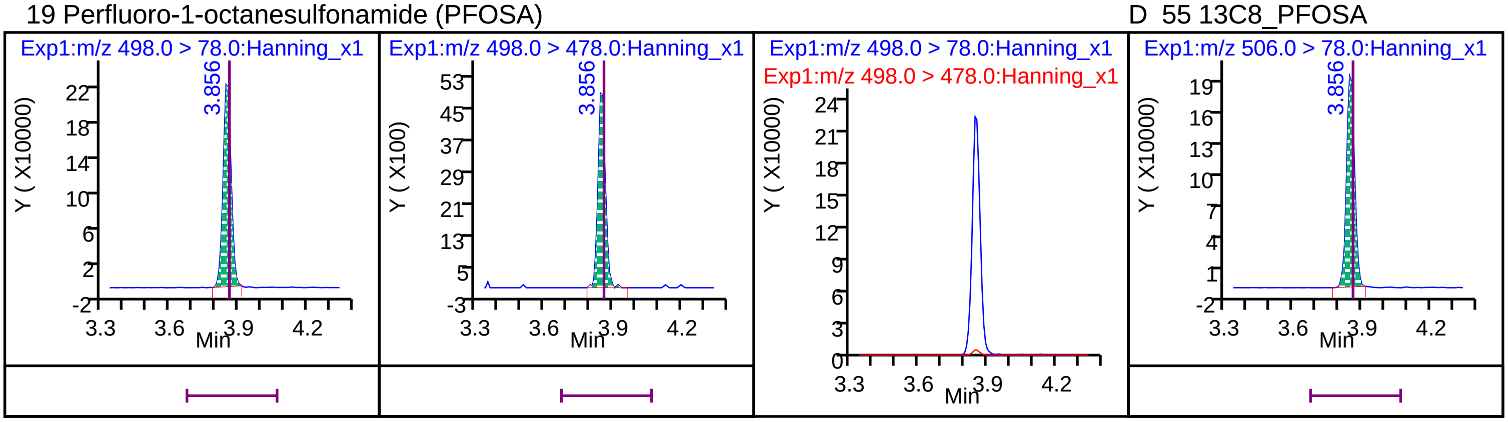
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



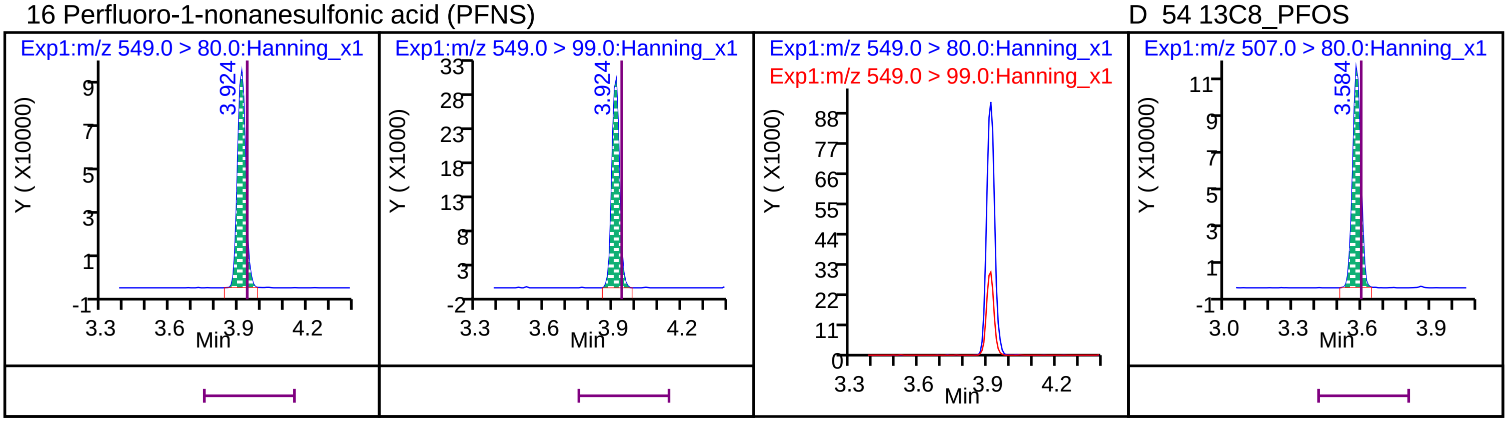
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

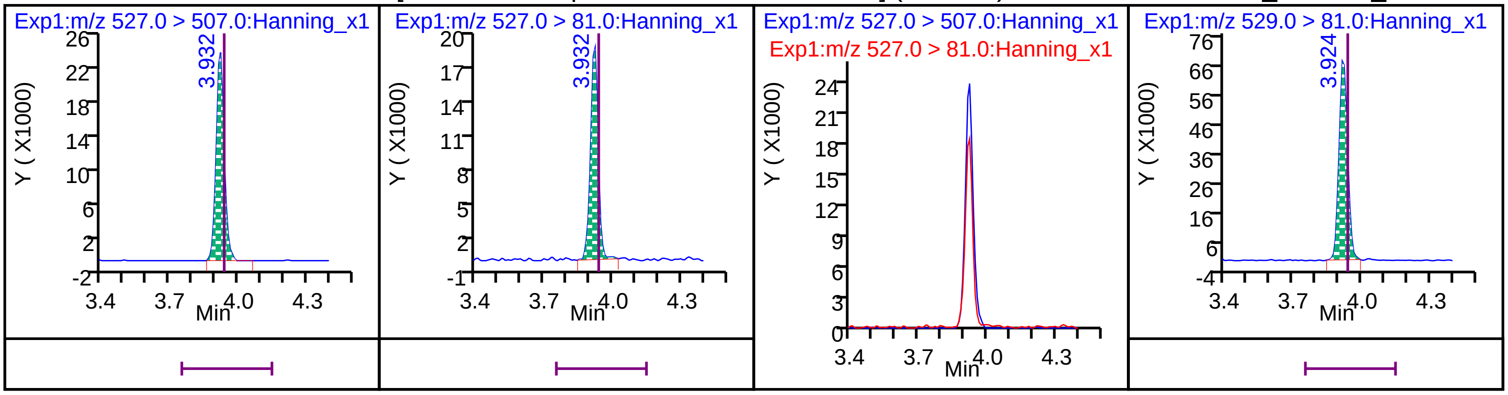


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

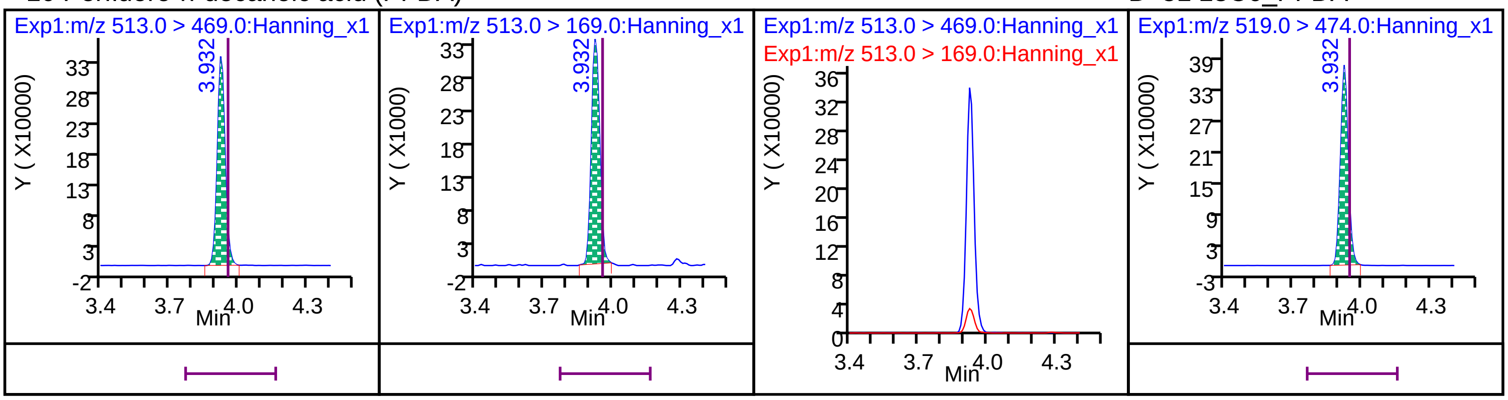


Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d

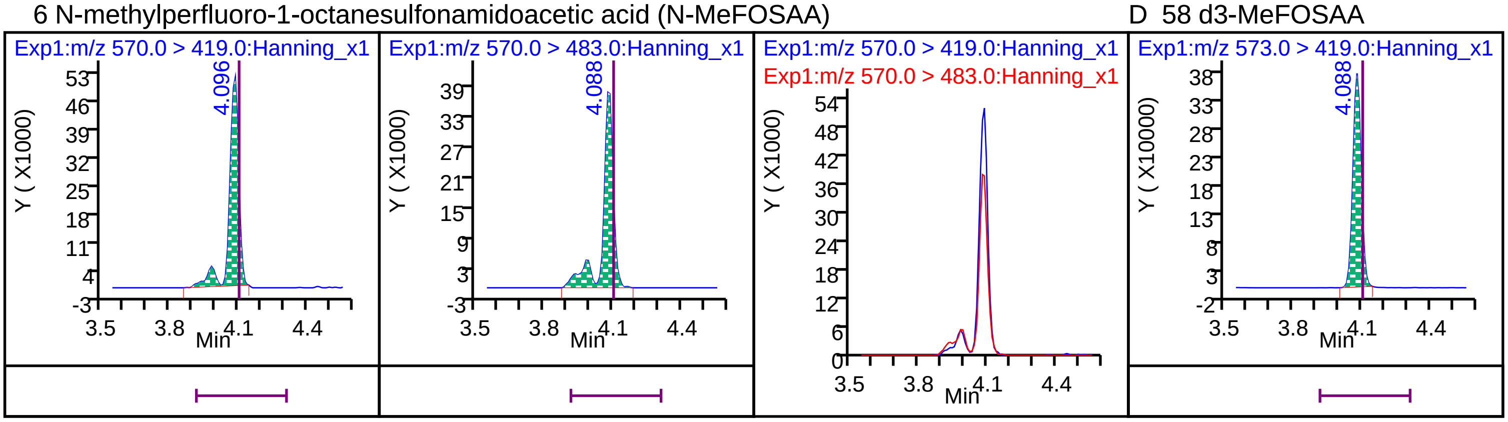
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



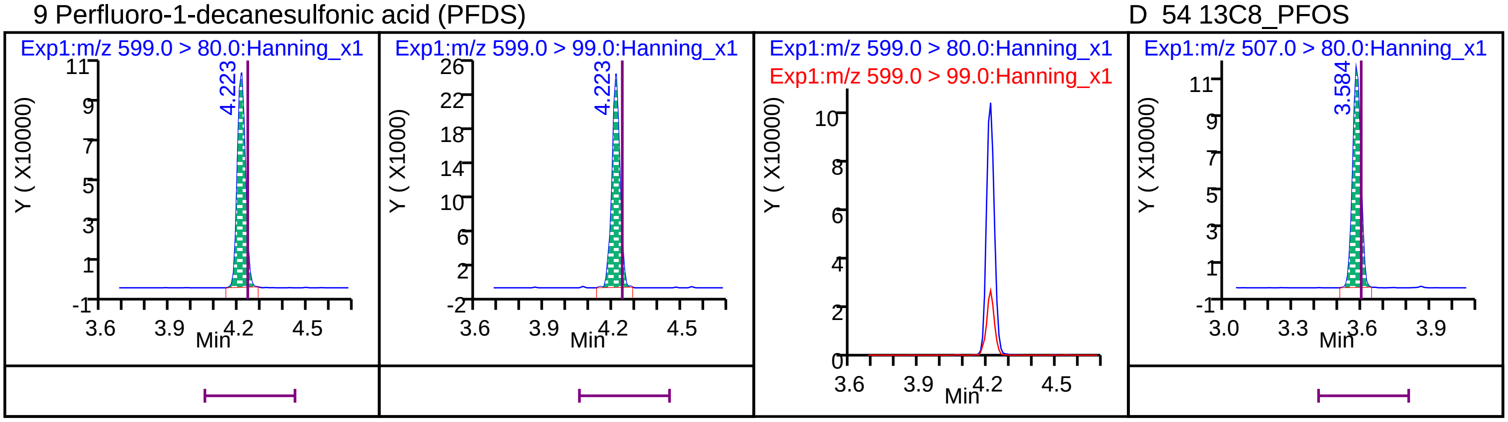
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

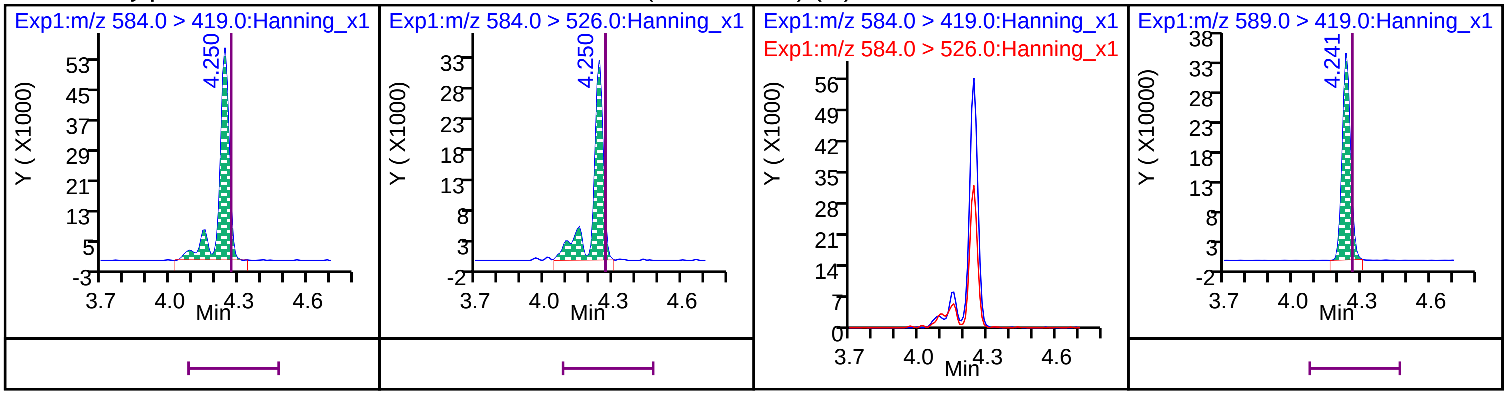


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

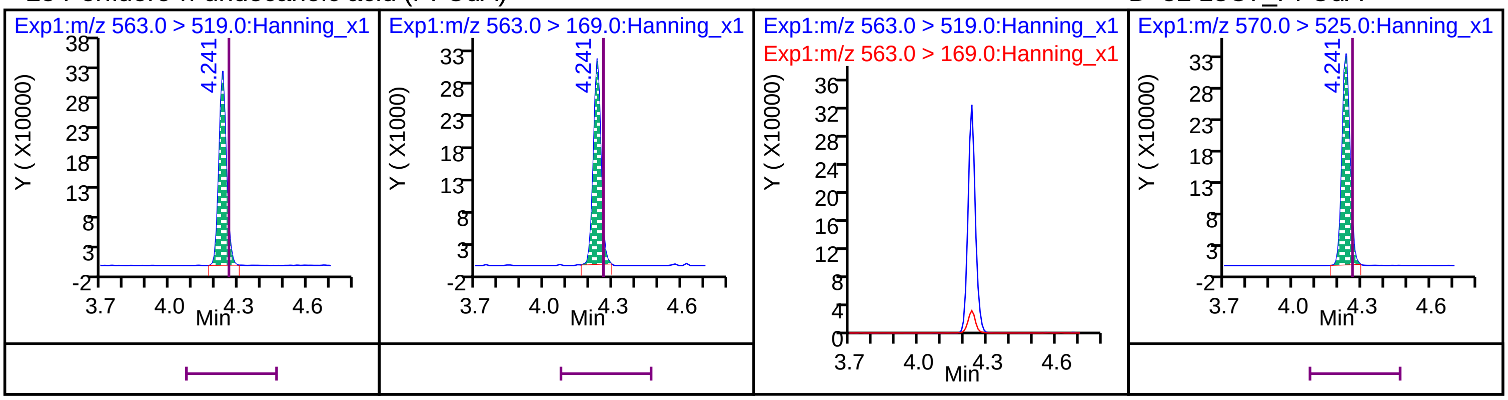


Report Date: 09-Nov-2021 21:16:54 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d

5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

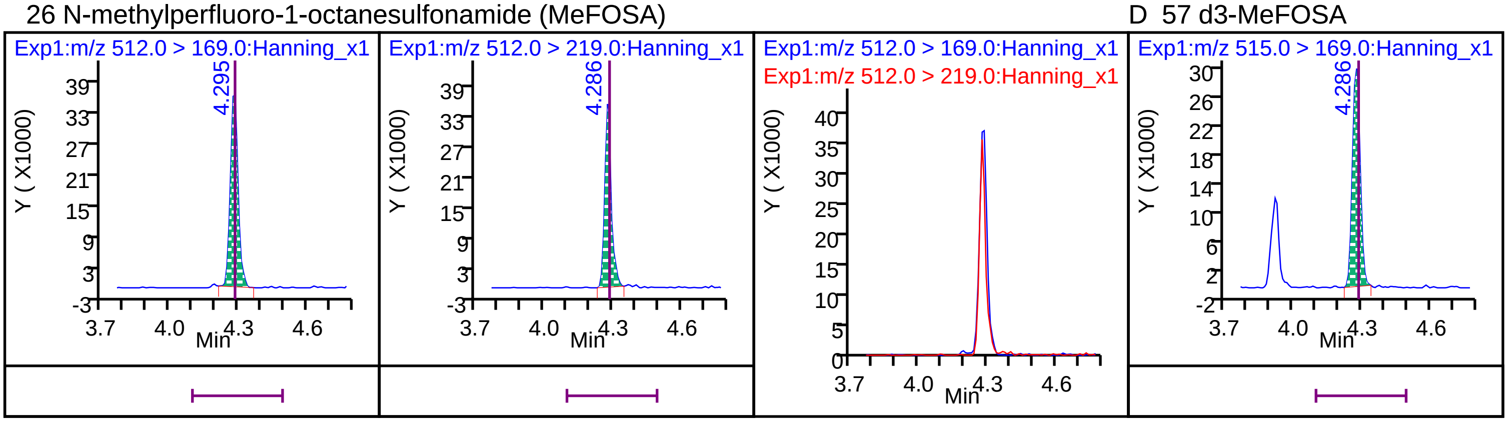


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

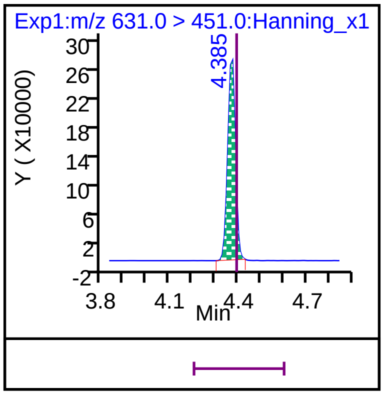


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

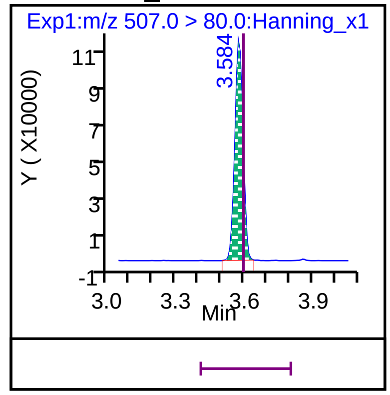
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



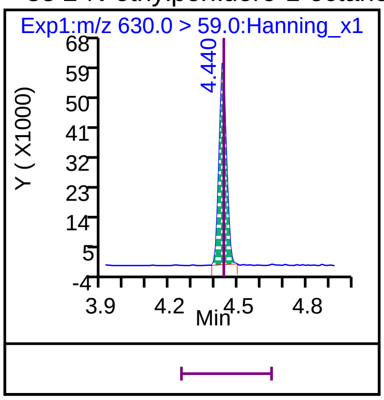
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



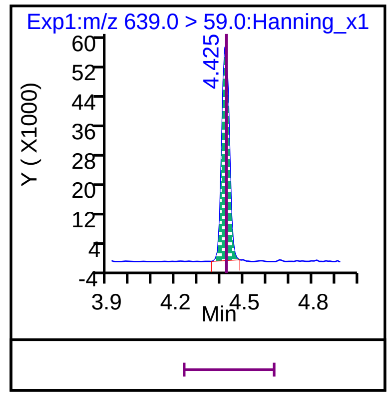
D 54 13C8_PFOS



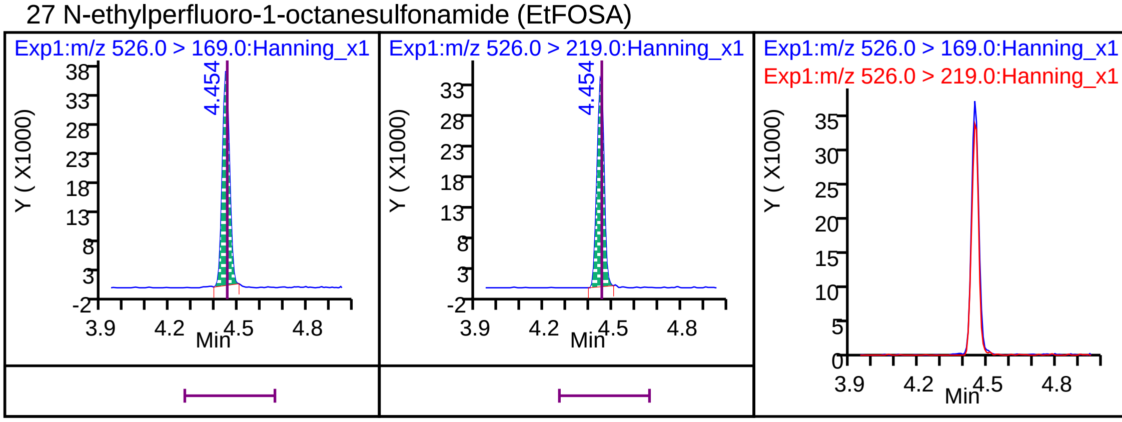
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



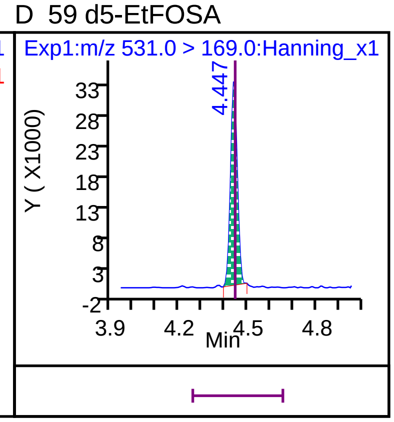
D 62 d9-EtFOSE



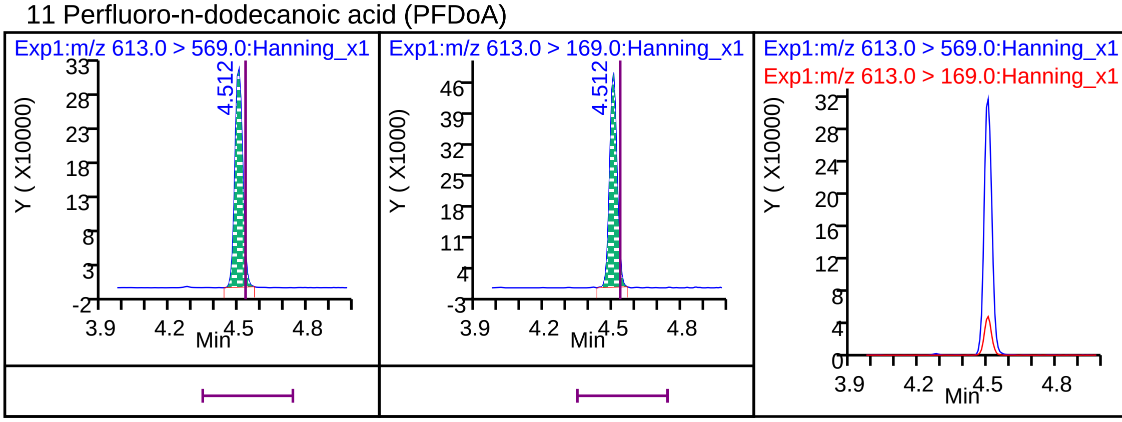
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



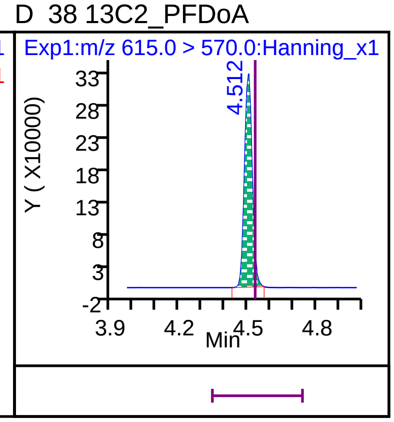
D 59 d5-EtFOSA



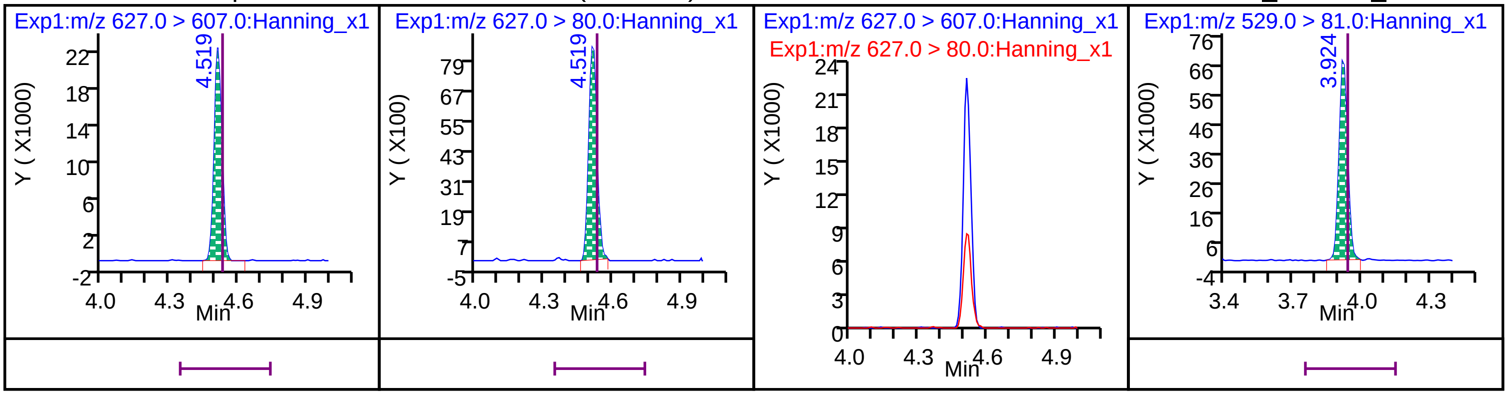
11 Perfluoro-n-dodecanoic acid (PFDoA)



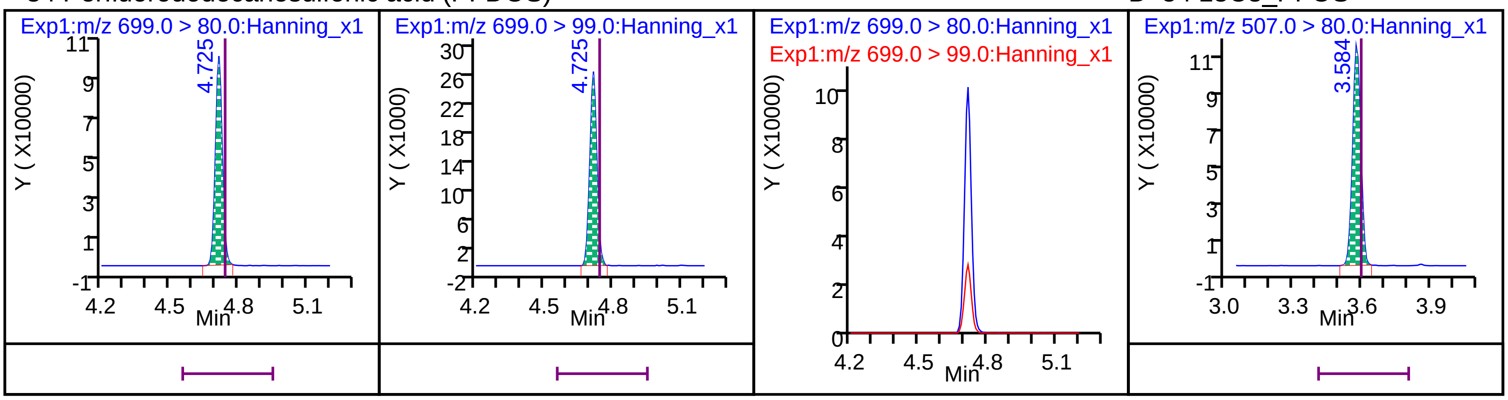
D 38 13C2_PFDoA



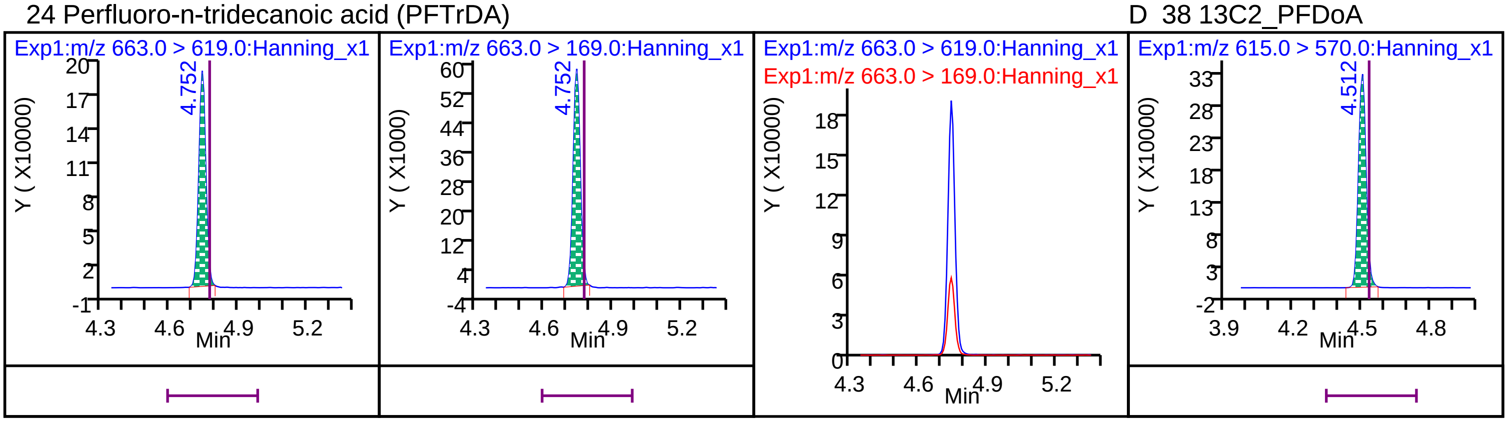
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



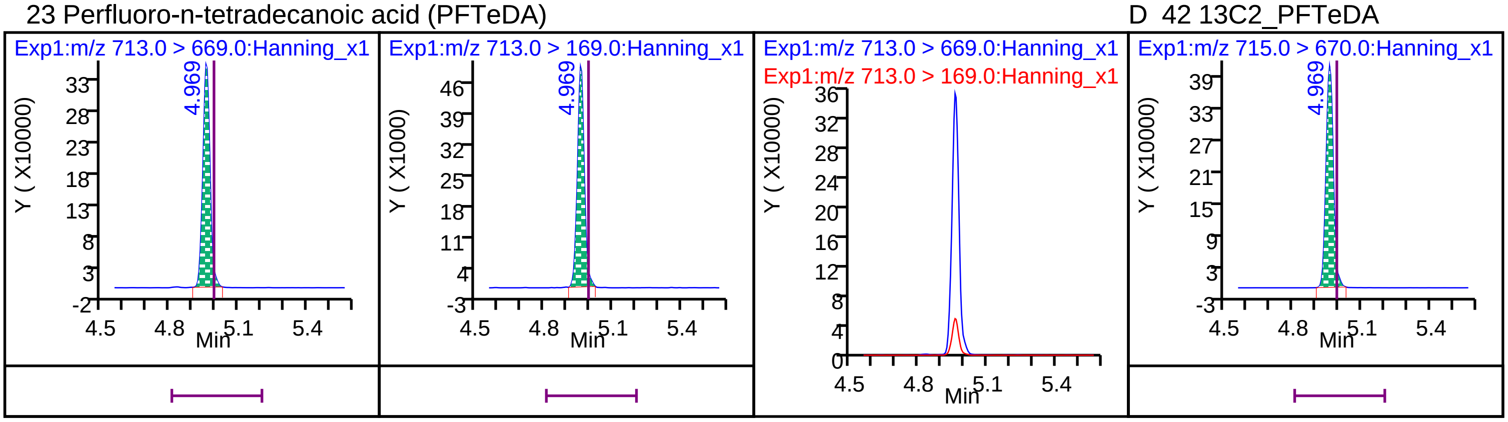
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



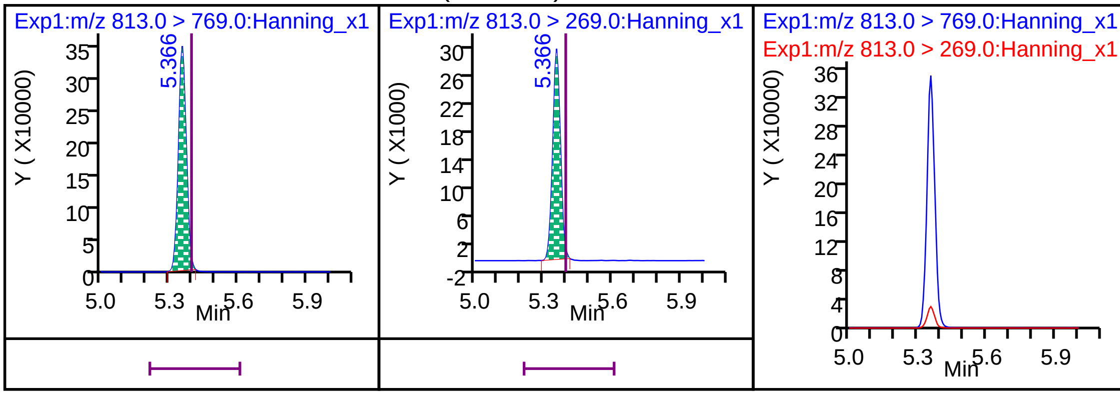
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



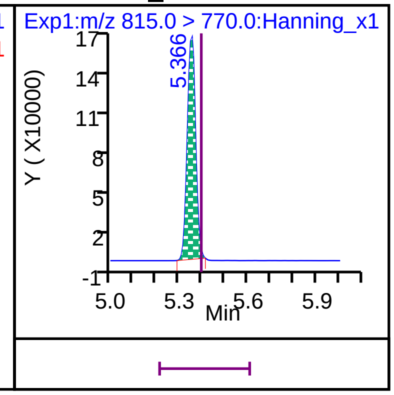
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



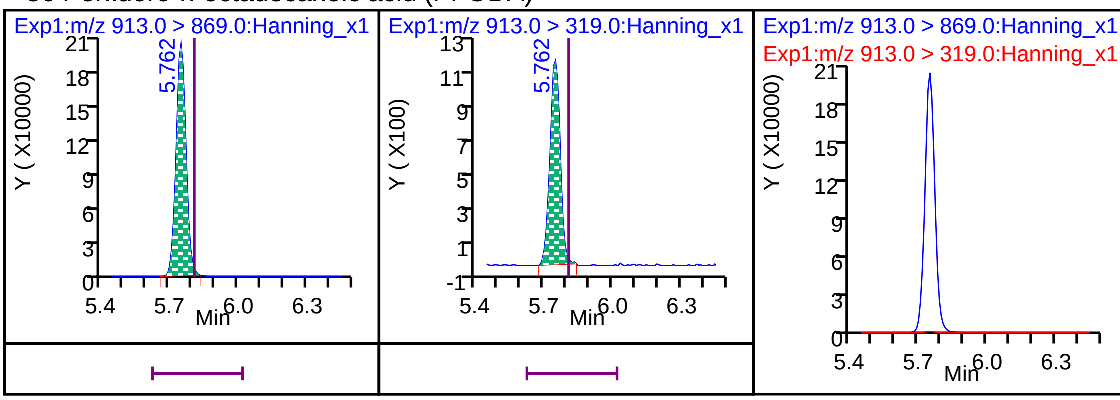
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



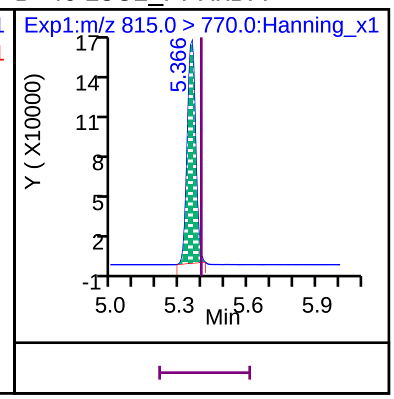
D 40 13C2_PFHxDA



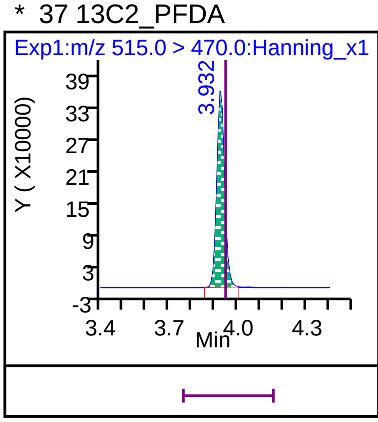
36 Perfluoro-n-octadecanoic acid (PFODA)



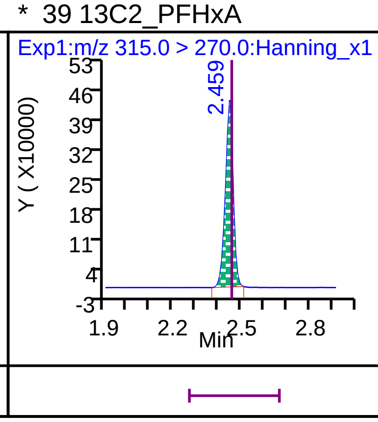
D 40 13C2_PFHxDA



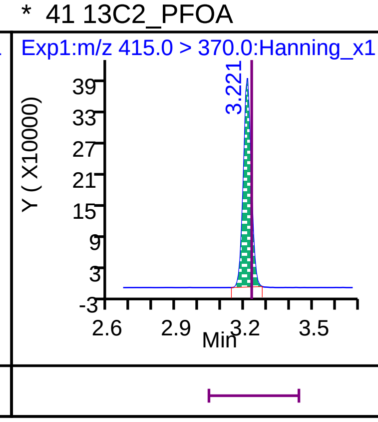
* 37 13C2_PFDA



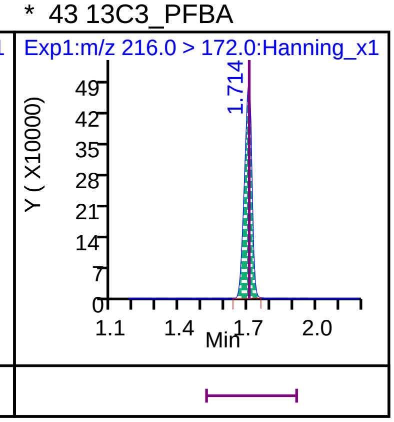
* 39 13C2_PFHxA



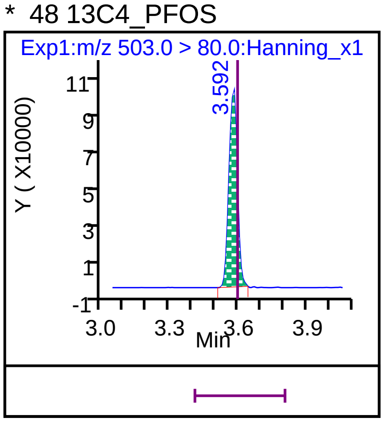
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:16:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

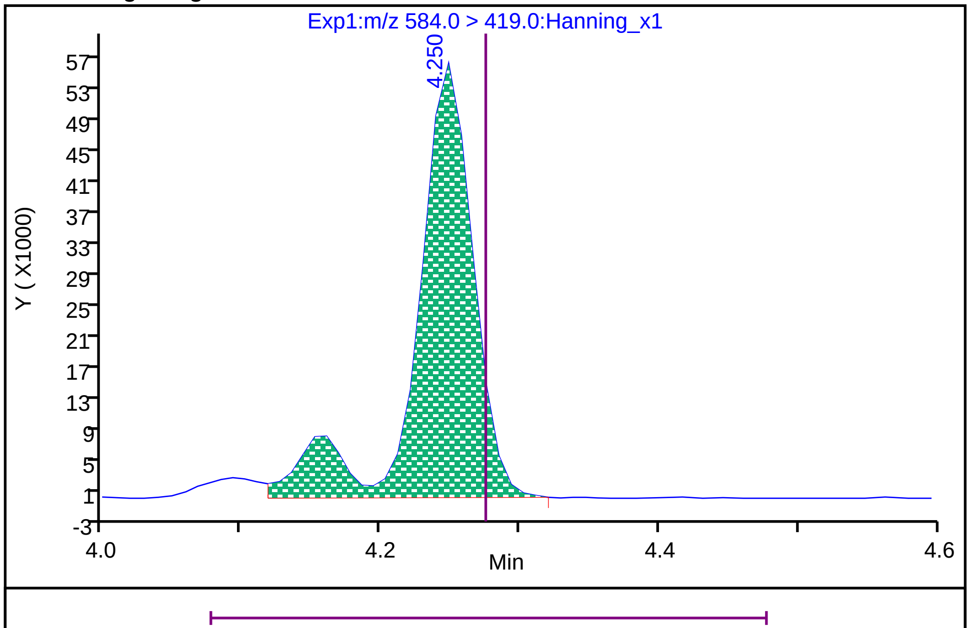
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d
Injection Date:	05-Nov-2021 14:10:04
Inst. ID:	LCMSMS01.i
Client ID:	
Lab ID:	CCV 1000_SVLC-1717
Sample Info:	CCV 1000_SVLC-1717
Dil. Factor:	1
Operator:	Matthew M. Miller

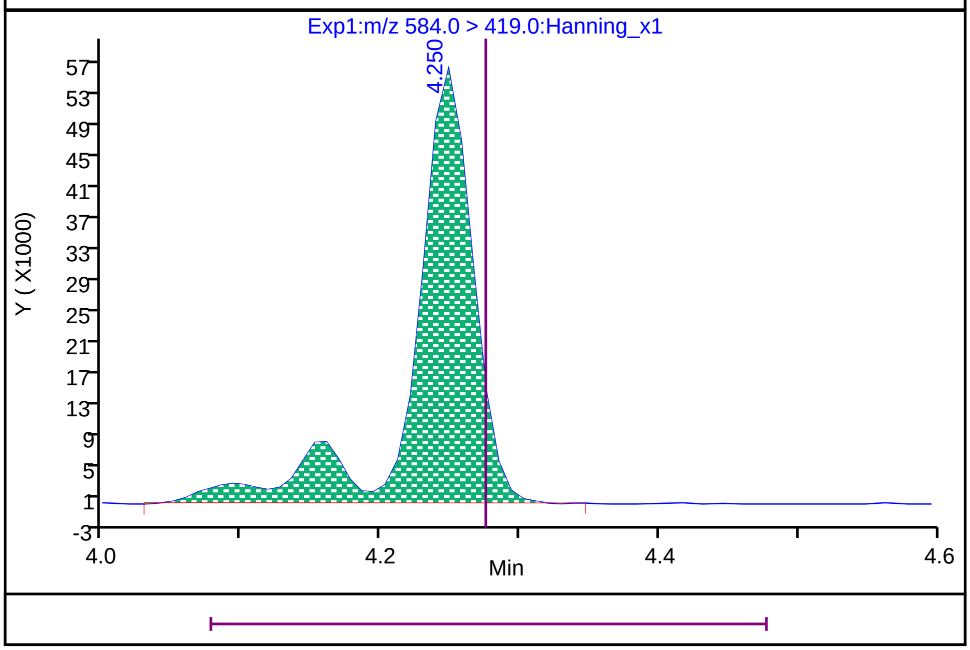
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.250
Area: 158975
Amount: 952.37
Amount Units: ng/L



RT: 4.250
Area: 164743
Amount: 986.92
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:31:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:16:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521016.d

Injection Date: 05-Nov-2021 14:10:04 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 1000_SVLC-1717

Sample Info: CCV 1000_SVLC-1717

Dil. Factor: 1 Operator: Matthew M. Miller

D 64 13C2_6:2 FTS_2, CAS: SESI-0105

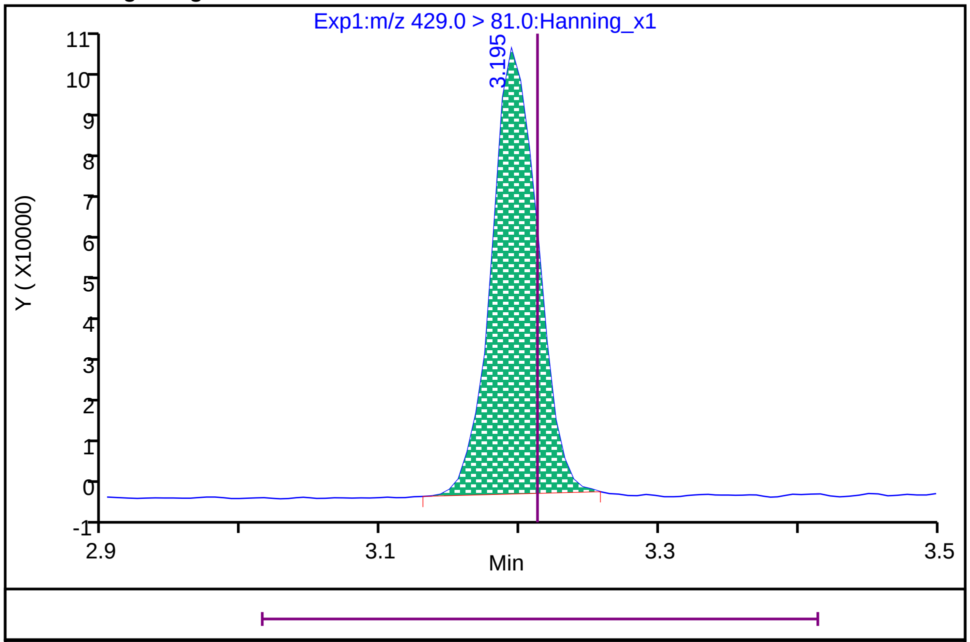
Processing Integration Results

RT: 3.195

Area: 236071

Amount: 6259.99

Amount Units: ng/L

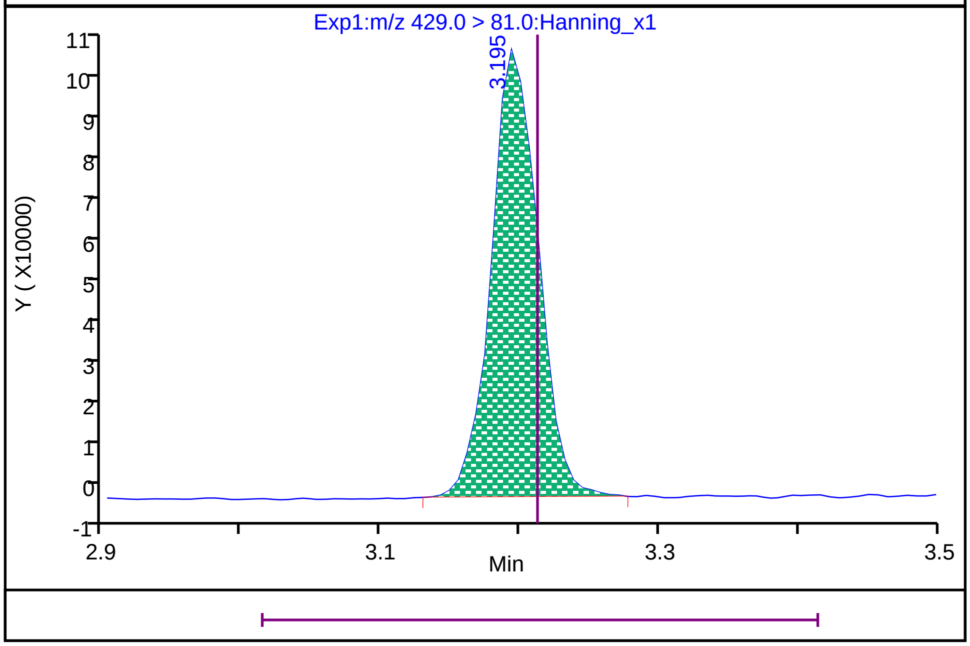


RT: 3.195

Area: 239322

Amount: 6346.20

Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 09:09:24

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d		
Injection Date:	05-Nov-2021 16:27:50	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	19
Sample Info:	CCV 1000A_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	946.91	94.7	70 - 130
D 46 13C4_PFBA	1177138	1230833			104.6	50 - 150
D 50 13C5_PFPeA	1076384	1156164			107.4	50 - 150
21 PFPeA			1000.00	918.34	91.8	70 - 130
7 PFBS			884.00	738.80	83.6	70 - 130
D 44 13C3_PFBS	338741	411747			121.6	50 - 150
1 4:2 FTS			934.00	944.78	101.2	70 - 130
D 63 13C2_4:2 FTS_2	226256	260128			115	50 - 150
D 49 13C5_PFHxA	1008626	1133698			112.4	50 - 150
15 PFHxA			1000.00	1001.09	100.1	70 - 130
22 PFPeS			938.00	924.62	98.6	70 - 130
28 GenX			2000.00	1970.07	98.5	70 - 130
D 66 13C3_GenX	924257	901029			97.5	50 - 150
D 47 13C4_PFHpA	976651	1036195			106.1	50 - 150
13 PFHpA			1000.00	951.36	95.1	70 - 130
D 45 13C3_PFHxS	297909	330372			110.9	50 - 150
14 PFHxS			910.00	839.32	92.2	70 - 130
29 ADONA			942.00	854.11	90.7	70 - 130
D 64 13C2_6:2 FTS_2	209020	262320			125.5	50 - 150
2 6:2 FTS			948.00	1022.44	107.9	70 - 130
D 53 13C8_PFOA	914280	1029583			112.6	50 - 150
20 PFOA			1000.00	926.74	92.7	70 - 130
12 PFHpS			952.00	891.71	93.7	70 - 130
18 PFOS			928.00	830.08	89.4	70 - 130
17 PFNA			1000.00	886.59	88.7	70 - 130
D 56 13C9_PFNA	864448	1003570			116.1	50 - 150
D 54 13C8_PFOS	243433	277175			113.9	50 - 150
30 9Cl-PF3ONS			932.00	952.77	102.2	70 - 130
D 55 13C8_PFOSA	466162	491048			105.3	50 - 150
19 PFOSA			1000.00	1003.08	100.3	70 - 130
16 PFNS			960.00	806.88	84	70 - 130
D 65 13C2_8:2 FTS_2	170823	178046			104.2	50 - 150
3 8:2 FTS			958.00	977.46	102	70 - 130
10 PFDA			1000.00	956.65	95.7	70 - 130
D 51 13C6_PFDA	796749	847282			106.3	50 - 150
6 N-MeFOSAA			1000.00	1078.65	107.9	70 - 130

Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	881075	979715			111.2	50 - 150
9 PFDS			964.00	826.44	85.7	70 - 130
5 N-EtFOSAA			1000.00	963.47	96.3	70 - 130
25 PFUdA			1000.00	897.78	89.8	70 - 130
D 60 d5-EtFOSAA	806334	890464			110.4	50 - 150
D 52 13C7_PFUdA	752112	824795			109.7	50 - 150
D 61 d7-MeFOSE	134219	162470			121	50 - 150
32 MeFOSE			1000.00	893.43	89.3	70 - 130
26 MeFOSA			1000.00	990.83	99.1	70 - 130
D 57 d3-MeFOSA	65225	84587			129.7	50 - 150
31 11Cl-PF3OUDS			942.00	783.52	83.2	70 - 130
D 62 d9-EtFOSE	125062	136136			108.9	50 - 150
33 EtFOSE			1000.00	1168.28	116.8	70 - 130
D 59 d5-EtFOSA	70105	74320			106	50 - 150
27 EtFOSA			1000.00	958.56	95.9	70 - 130
11 PFDoA			1000.00	1057.47	105.7	70 - 130
D 38 13C2_PFDoA	693700	743960			107.2	50 - 150
4 10:2 FTS			964.00	851.18	88.3	70 - 130
34 PFDOS			968.00	750.14	77.5	70 - 130
24 PFTrDA			1000.00	960.44	96	70 - 130
23 PFTeDA			1000.00	968.83	96.9	70 - 130
D 42 13C2_PFTeDA	925125	863959			93.4	50 - 150
35 PFHxDA			1000.00	1038.49	103.8	70 - 130
D 40 13C2_PFHxDA	400309	407598			101.8	50 - 150
36 PFODA			1000.00	961.46	96.1	70 - 130

Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d		
Injection Date:	05-Nov-2021 16:27:50	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	19
Sample Info:	CCV 1000A_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.715	1	1230833	20	>100:1			1000.00	1143.12	104.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	1/0	1281823	19	>100:1			1000.00	946.91		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	1	1156164	17	>100:1			1000.00	1152.81	107.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	1/0	1137607	16	>100:1			1000.00	918.34		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.141	0	411747	16	>100:1			1000.00	1267.81	121.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/1	434588	15	>100:1	Target = 3.80		884.00	738.80		
298.9 > 99	44	2.141	2.141		118615	15	>100:1	3.66 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.485	2.502	0/0	383068	18	>100:1	Target = 3.42		938.00	924.62		
349 > 99	44	2.485	2.502		100421	17	>100:1	3.81 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	1	260128	17	>100:1			5000.00	6262.57	115	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.424	1/0	95931	17	>100:1	Target = 1.54		934.00	944.78		
327 > 81	63	2.415	2.424		52040	18	92:1	1.84 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.468	0	1133698	18	>100:1			1000.00	1269.21	112.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.468	0/0	1172710	17	>100:1	Target = 17.93		1000.00	1001.09		
313 > 119	49	2.459	2.468		54084	18	>100:1	21.68 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.571	2.587	0	901029	19	>100:1			5000.00	5500.14	97.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.594	1/1	272009	19	>100:1	Target = 0.72		2000.00	1970.07		
285 > 185	66	2.579	2.594		406405	18	>100:1	0.66 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	1	1036195	18	>100:1			1000.00	1182.61	106.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	1/0	948983	18	>100:1	Target = 3.26		1000.00	951.36		
363 > 169	47	2.837	2.855		300551	16	>100:1	3.15 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	1	330372	18	>100:1			1000.00	1259.62	110.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	1/0	327796	26	>100:1	Target = 3.48	5.18	910.00	839.32		
399 > 99	45	2.855	2.872		99535	26	>100:1	3.29 (1.74-5.22)	7.48				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.898	1/0	1553135	18	>100:1	Target = 2.31		942.00	854.11		
377 > 85	45	2.881	2.898		635513	17	>100:1	2.44 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.217	3.239	0/-1	303004	22	>100:1	Target = 3.56		952.00	891.71		
449 > 99	45	3.223	3.239		83515	22	>100:1	3.62 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.214	1	262320	21	>100:1			5000.00	6956.05	125.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.198	3.208	1/0	93270	21	>100:1	Target = 1.34		948.00	1022.44		
427 > 81	64	3.198	3.208		78147	26	>100:1	1.19 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.217	3.239	0	1029583	22	>100:1			1000.00	1244.97	112.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.217	3.239	0/0	981743	21	>100:1	Target = 2.50		1000.00	926.74		
413 > 169	53	3.217	3.239		410381	22	>100:1	2.39 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.606	0	277175	20	>100:1			1000.00	1234.74	113.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.581	3.614	0/0	271228	37	>100:1	Target = 4.01	3.47	928.00	830.08		
499 > 99	54	3.581	3.614		72749	38	>100:1	3.72 (2.00-6.02)	7.76				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.784	3.811	0/0	816158	18	>100:1			932.00	952.77		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.919	3.948	0/0	225887	18	>100:1	Target = 3.78		960.00	806.88		
549 > 99	54	3.919	3.948		63353	25		3.56 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.217	4.250	0/0	226147	17		Target = 3.98		964.00	826.44		
599 > 99	54	4.217	4.250		58197	15	>100:1	3.88 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.377	4.402	0/0	603293	16	>100:1			942.00	783.52		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.713	4.752	0/0	201368	17	>100:1	Target = 3.68		968.00	750.14		
699 > 99	54	4.720	4.752		51106	17	>100:1	3.94 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	1003570	20	>100:1			1000.00	1256.01	116.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.614	0/0	810218	20	>100:1	Target = 4.69		1000.00	886.59		
463 > 169	56	3.588	3.614		182385	20	>100:1	4.44 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.858	3.870	1	491048	19	>100:1			1000.00	1185.56	105.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.858	3.870	1/0	556945	18	>100:1	Target = 40.85		1000.00	1003.08		
498>478	55	3.858	3.870		14219	25		39.16 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.919	3.948	0	178046	19	>100:1			5000.00	5672.88	104.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.919	3.948	0/0	61838	20	>100:1	Target = 1.58		958.00	977.46		
527 > 81	65	3.919	3.948		40876	19	>100:1	1.51 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.514	4.541	0/0	54053	18	>100:1	Target = 2.46		964.00	851.18		
627 > 80	65	4.514	4.541		23323	19	>100:1	2.31 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.956	0	847282	18	>100:1			1000.00	1173.84	106.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.926	3.964	0/0	831714	20	>100:1	Target = 9.77		1000.00	956.65		
513 > 169	51	3.926	3.964		90438	18	>100:1	9.19 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	979715	16	>100:1			5000.00	5525.35	111.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.090	4.112	-1/-1	172807	31	>100:1	Target = 1.41	7.96	1000.00	1078.65		
570 > 483	58	4.090	4.112		122896	30	>100:1	1.40 (0.70-2.11)	4.15				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	824795	18	>100:1			1000.00	1206.86	109.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.235	4.268	0/0	664297	17	>100:1	Target = 9.19		1000.00	897.78		
563 > 169	52	4.235	4.268		91369	18	>100:1	7.27 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.268	0	890464	17	>100:1			5000.00	5955.05	110.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.244	4.277	0/0	175392	33	>100:1	Target = 1.75	5.41	1000.00	963.47		
584 > 526	60	4.244	4.277		100075	39	>100:1	1.75 (0.87-2.63)	3.32				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.262	4.268	0	162470	15	>100:1			1000.00	1177.44	121	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.271	4.277	0/0	147524	15	>100:1			1000.00	893.43		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.289	4.295	1	84587	14	>100:1			1000.00	1208.03	129.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.289	4.295	0/-1	86789	14	>100:1	Target = 1.11		1000.00	990.83		
512 > 219	57	4.289	4.295		76353	16	>100:1	1.13 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.427	4.432	1	136136	16	>100:1			1000.00	1058.98	108.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.434	4.446	0/-1	135379	16	>100:1			1000.00	1168.28		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.449	4.454	1	74320	16	>100:1			1000.00	1153.94	106	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.456	4.461	1/0	83287	17	>100:1	Target = 1.06		1000.00	958.56		
526 > 219	59	4.449	4.461		72484	16	>100:1	1.14 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.507	4.541	0	743960	18	>100:1			1000.00	1081.90	107.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.507	4.541	0/0	772628	18	>100:1	Target = 6.38		1000.00	1057.47		
613 > 169	38	4.507	4.541		115598	17	>100:1	6.68 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.747	4.784	0/0	382915	19	>100:1	Target = 3.23		1000.00	960.44		
663 > 169	38	4.747	4.784		122595	17	>100:1	3.12 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.965	5.000	0	863959	23	>100:1			1000.00	1105.15	93.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.960	5.003	0/0	735591	23	>100:1	Target = 7.33		1000.00	968.83		
713 > 169	42	4.965	5.003		105094	23	>100:1	6.99 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.354	5.406	0	407598	21	>100:1			1000.00	1044.11	101.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.360	5.406	0/0	809692	22	>100:1	Target = 12.31		1000.00	1038.49		
813 > 269	40	5.360	5.406		68286	22	>100:1	11.85 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.753	5.819	0/0	591632	22	>100:1	Target = 165.31		1000.00	961.46		
913 > 319	40	5.753	5.819		3613	21	>100:1	163.75 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.926	3.956	0	854742	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	1	944487	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.239	0	938594	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	1	1072720	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	265453	18	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

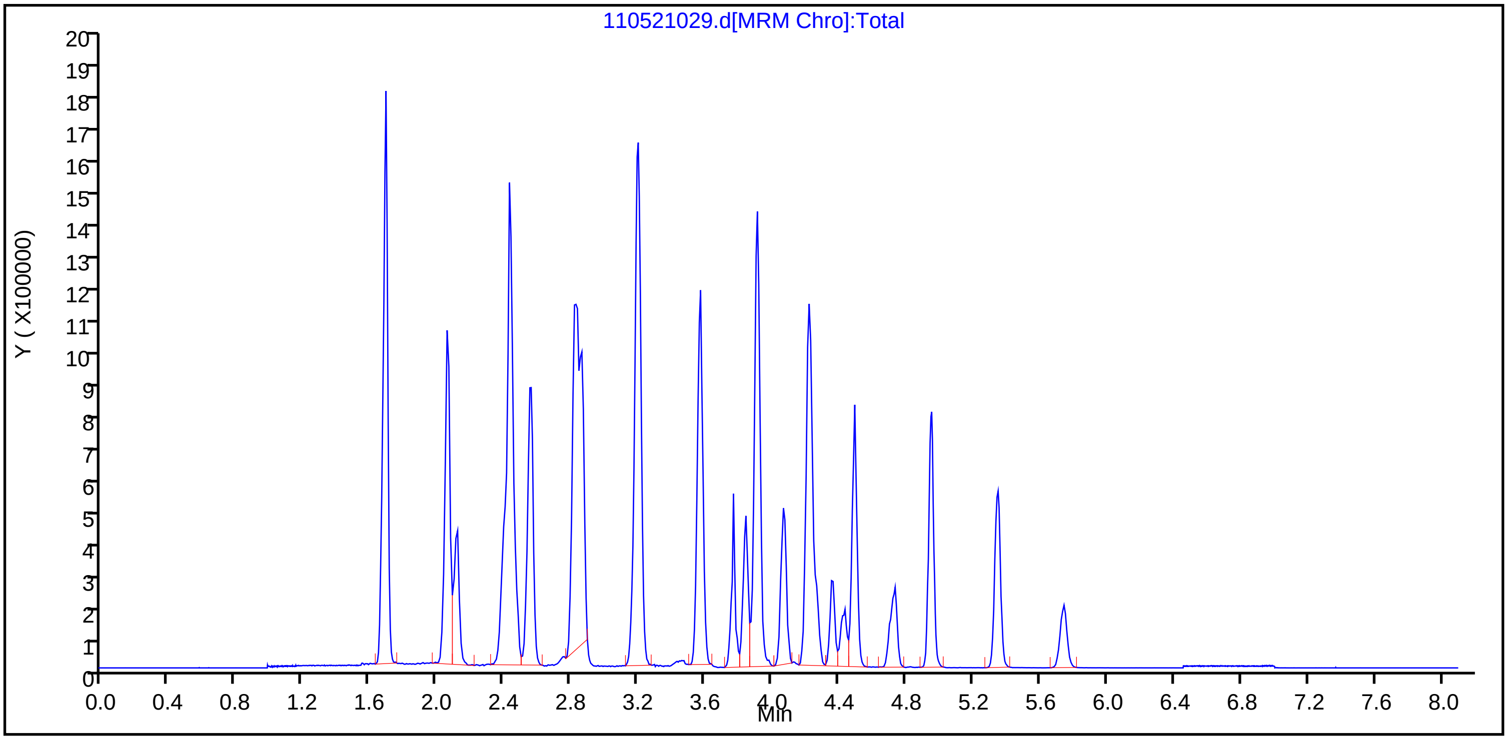
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

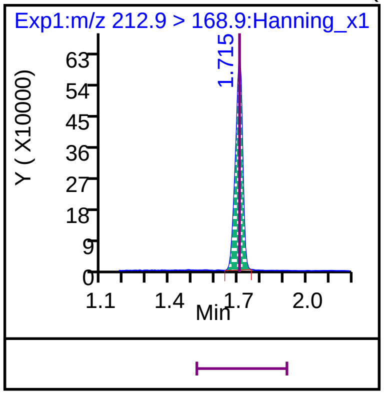
Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

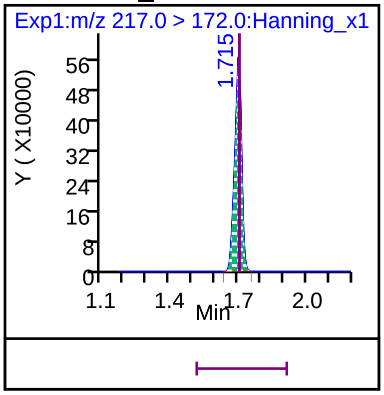
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d		
Injection Date:	05-Nov-2021 16:27:50	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000A_SVLC-1717
Sample Info:	CCV 1000A_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



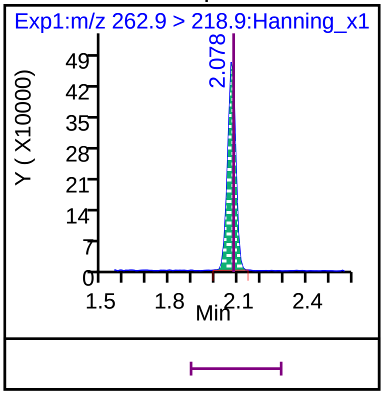
8 Perfluoro-n-butanoic acid (PFBA)



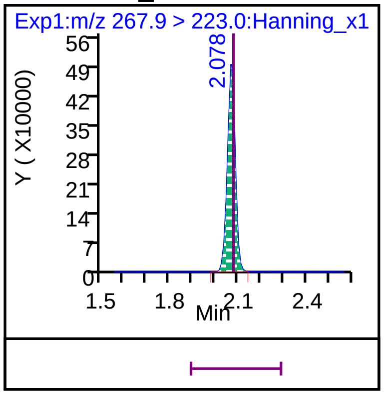
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

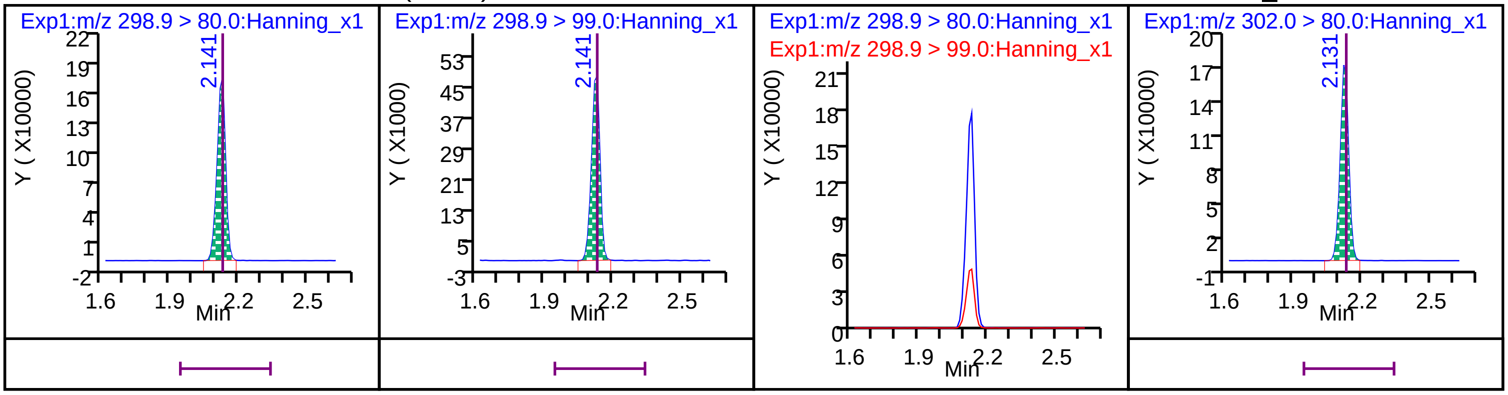


D 50 13C5_PFPeA

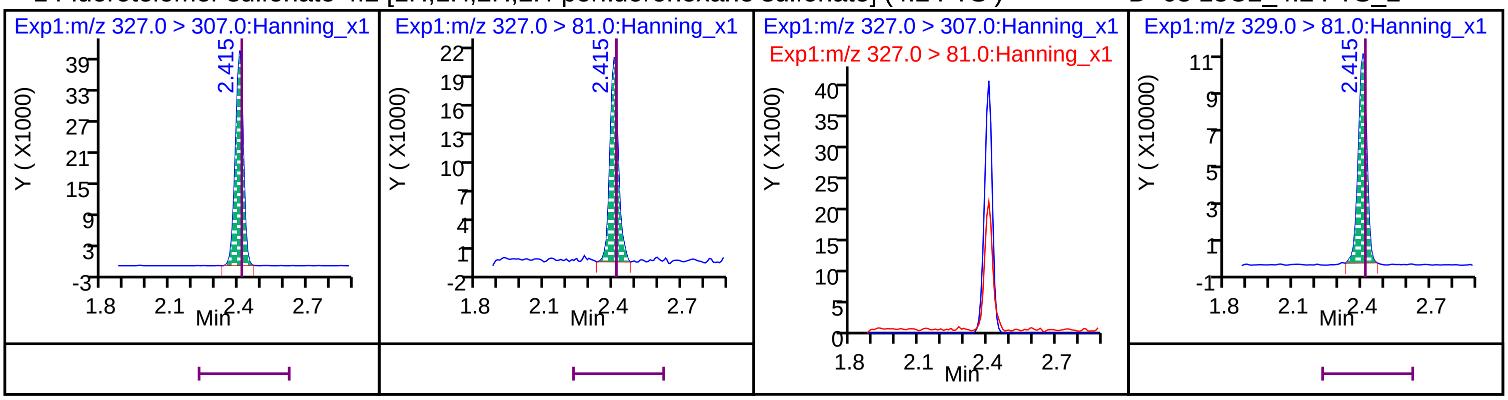


Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

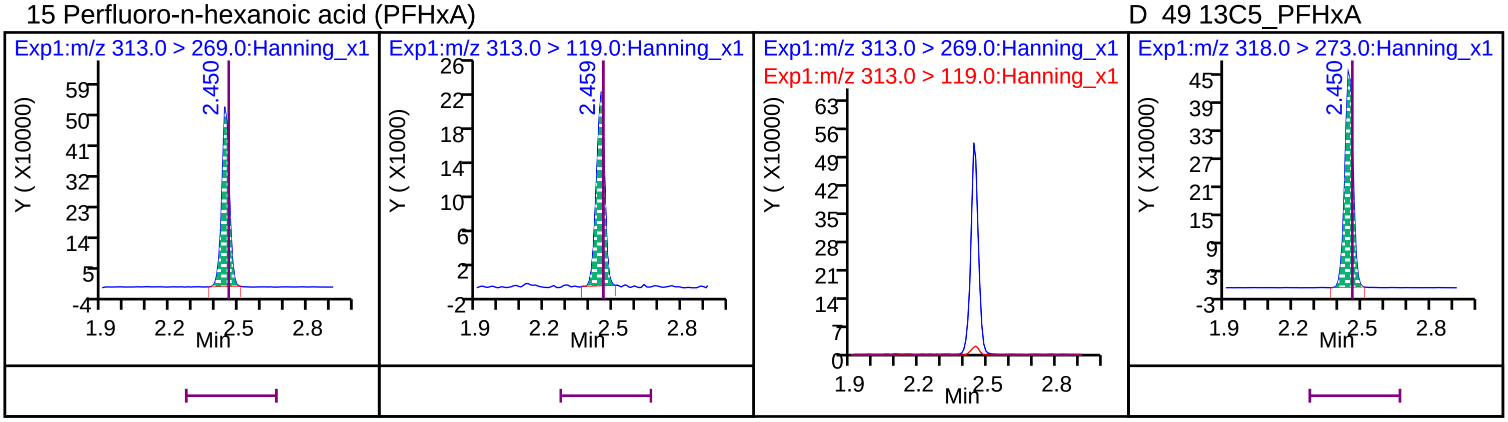
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



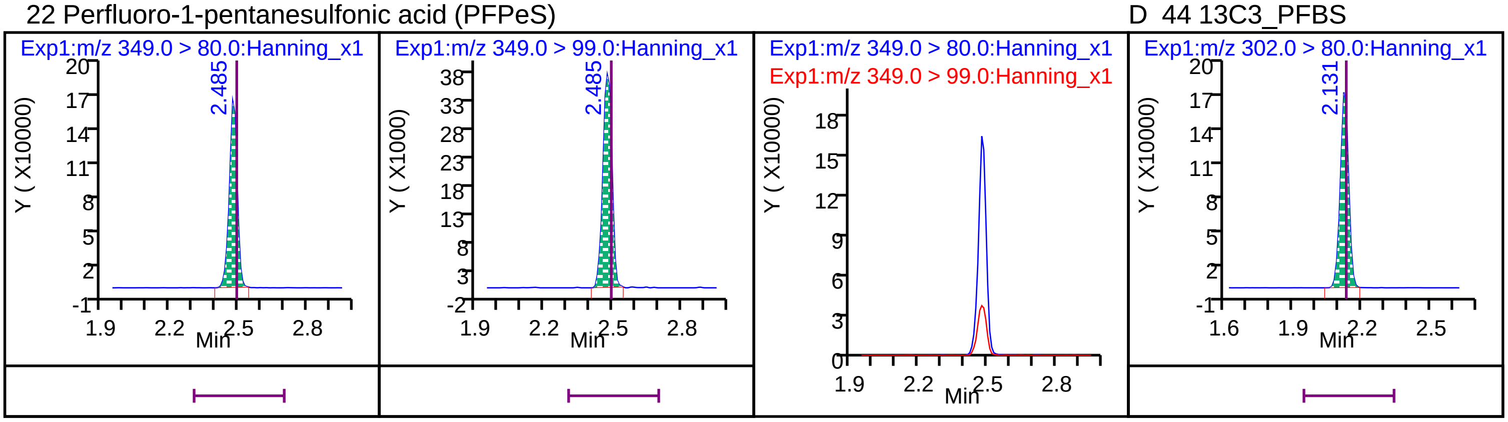
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

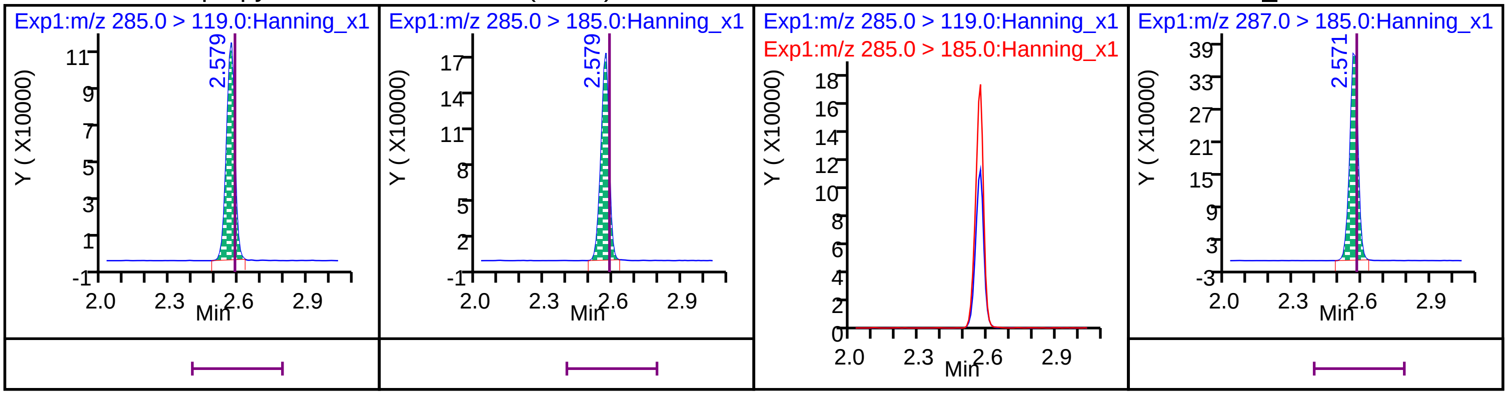


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

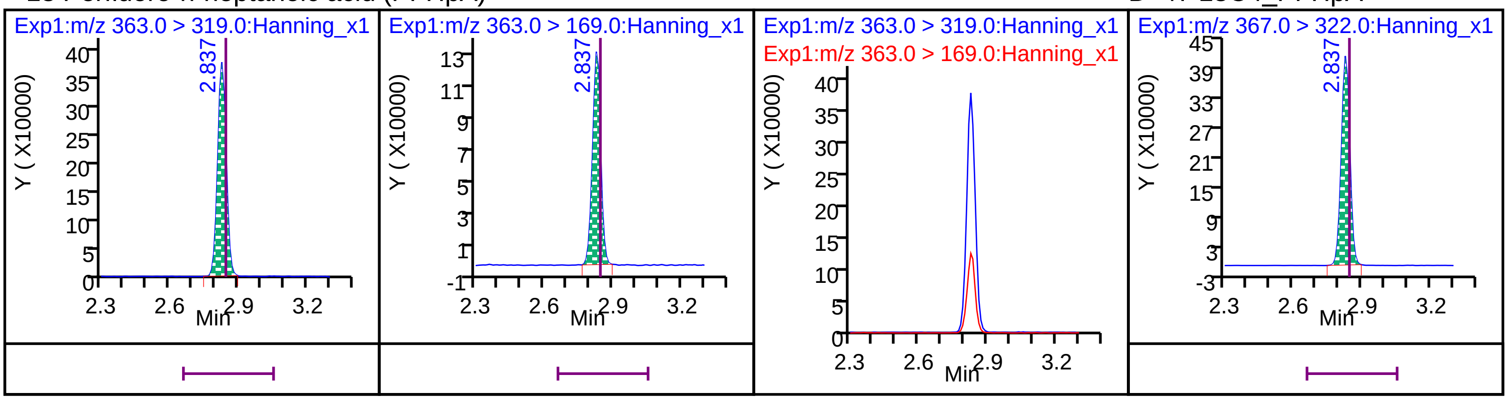


Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

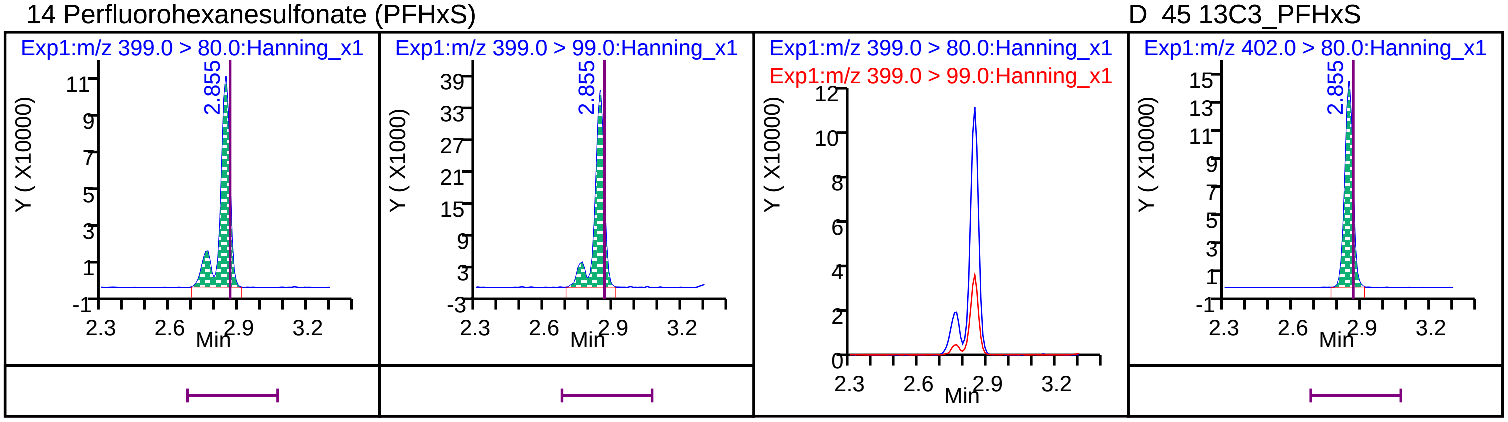
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



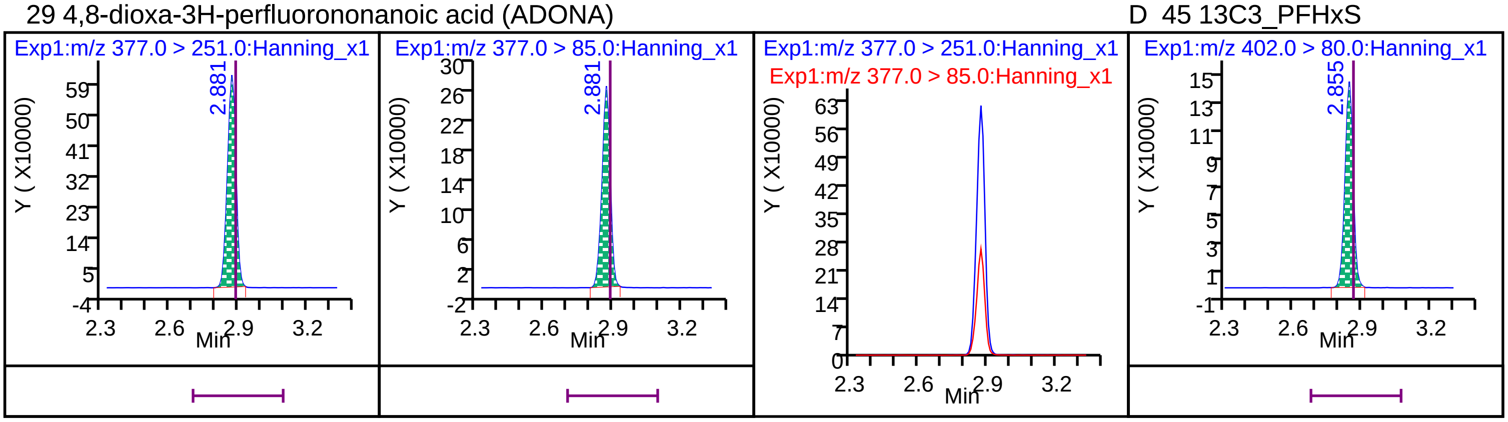
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



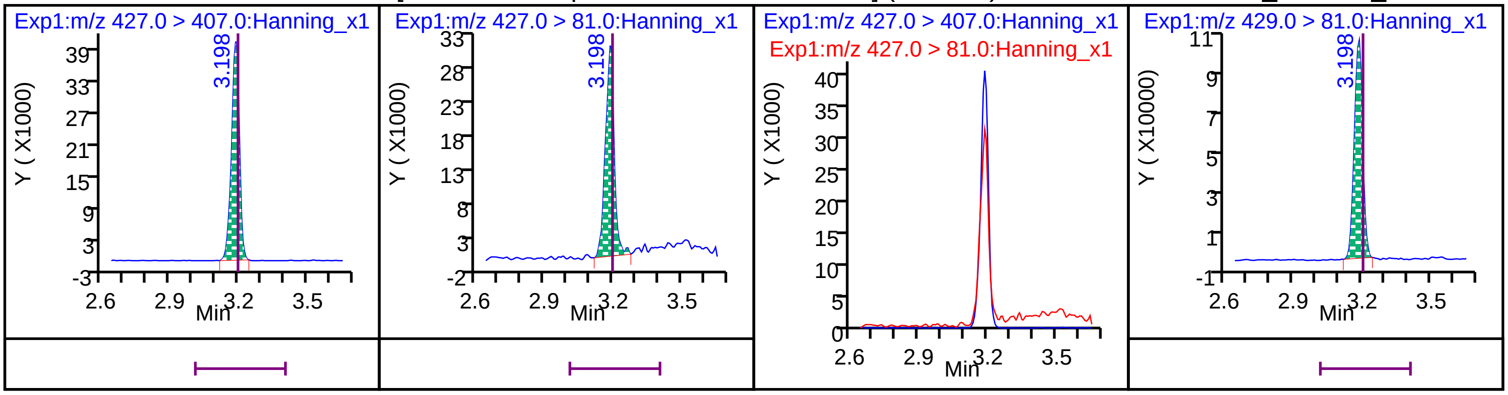
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



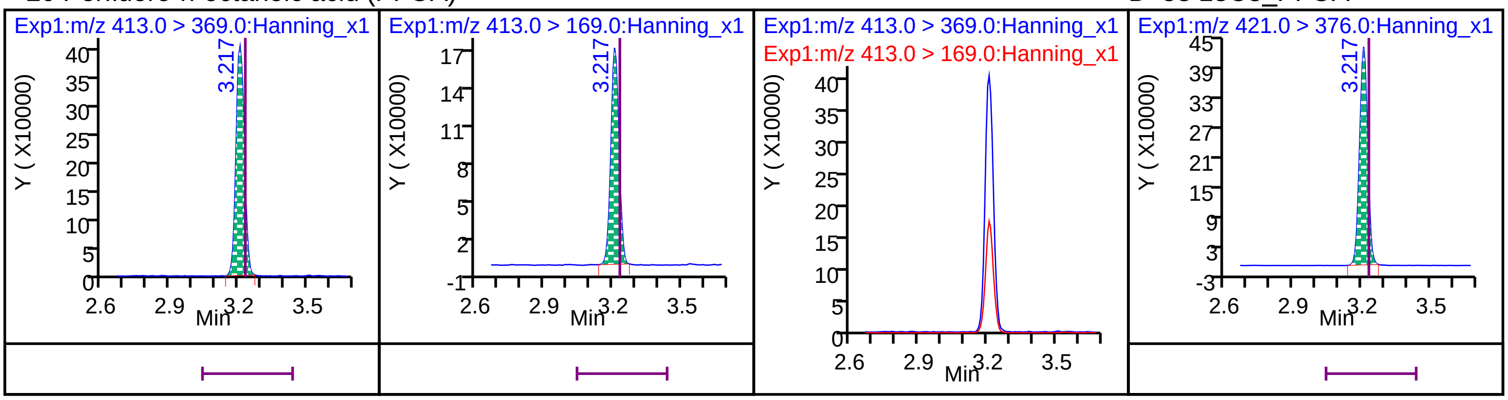
Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

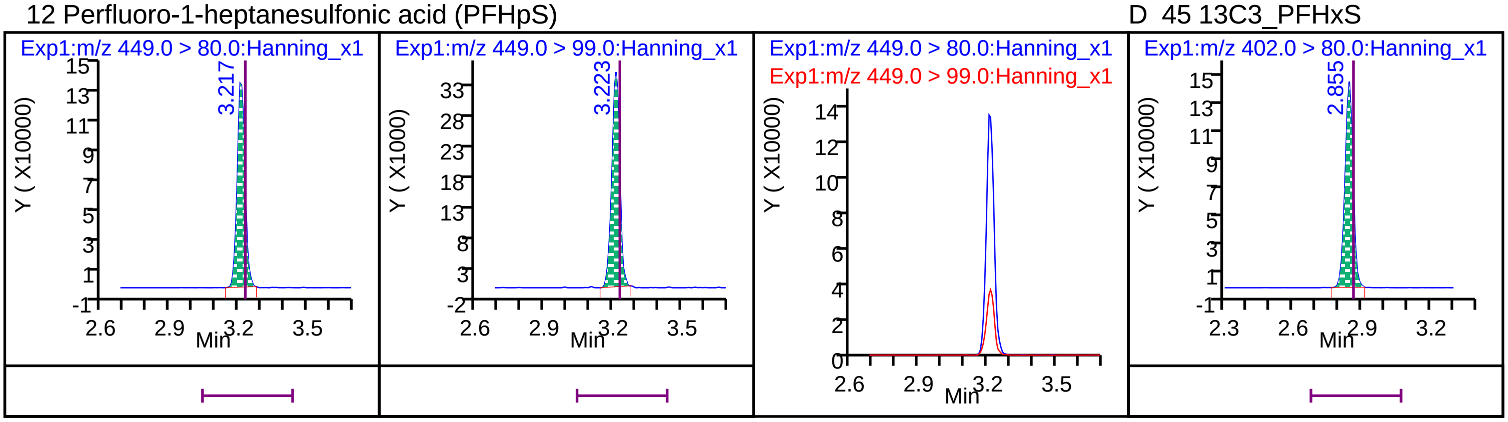
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



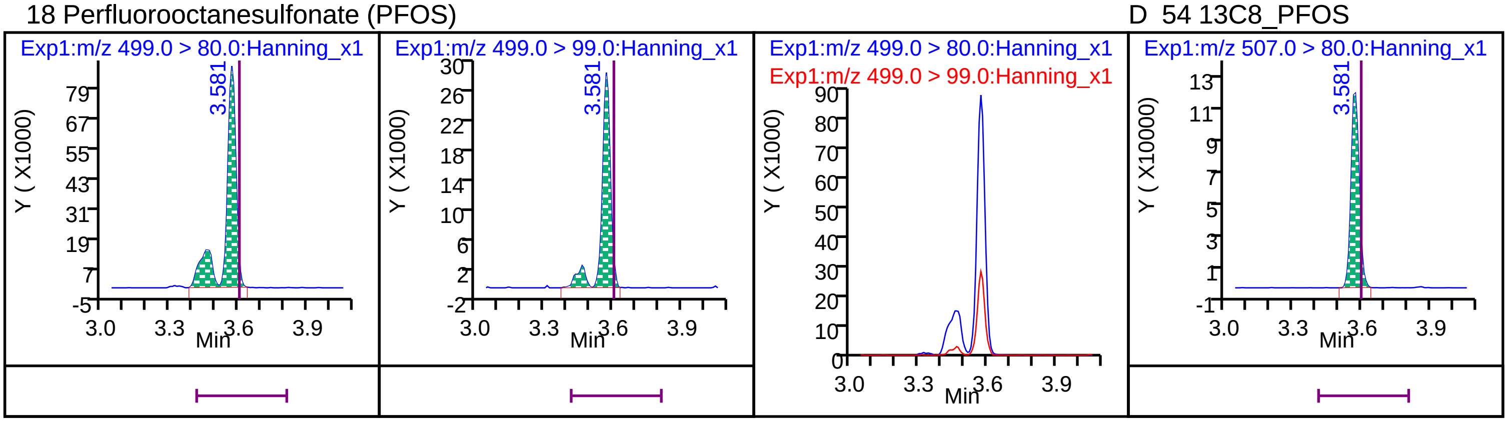
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

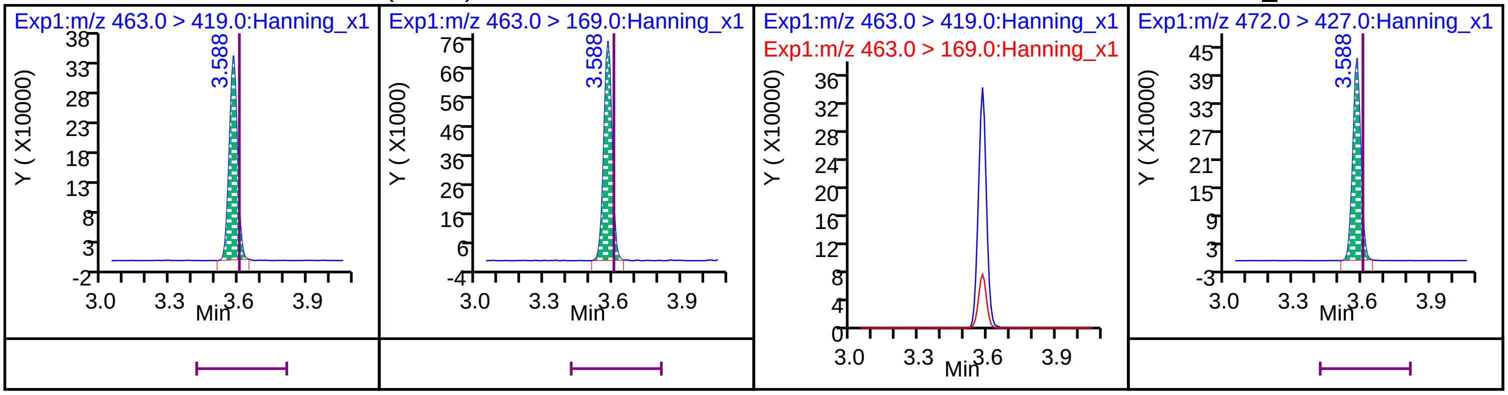


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

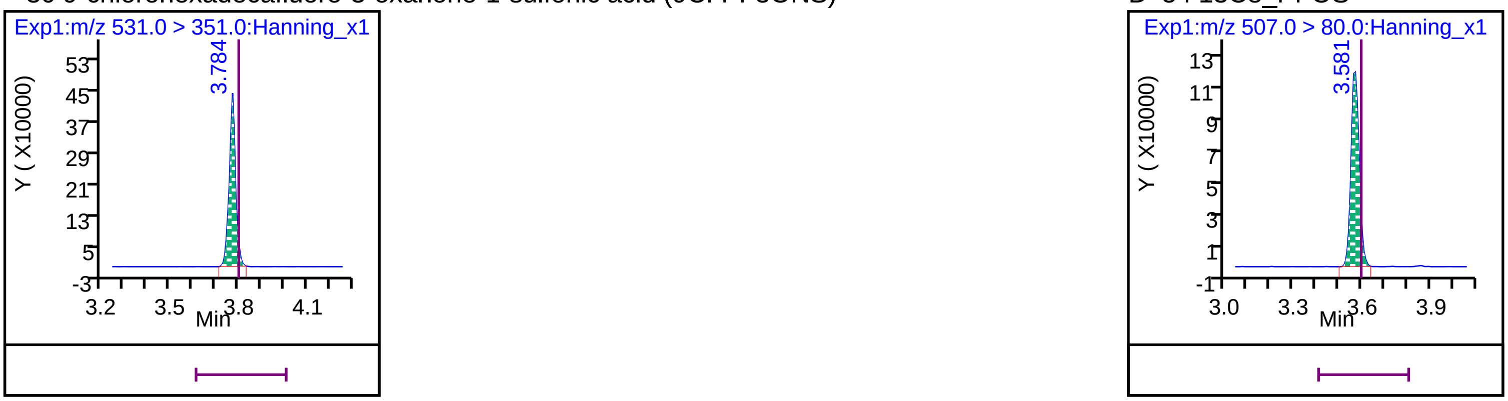


Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

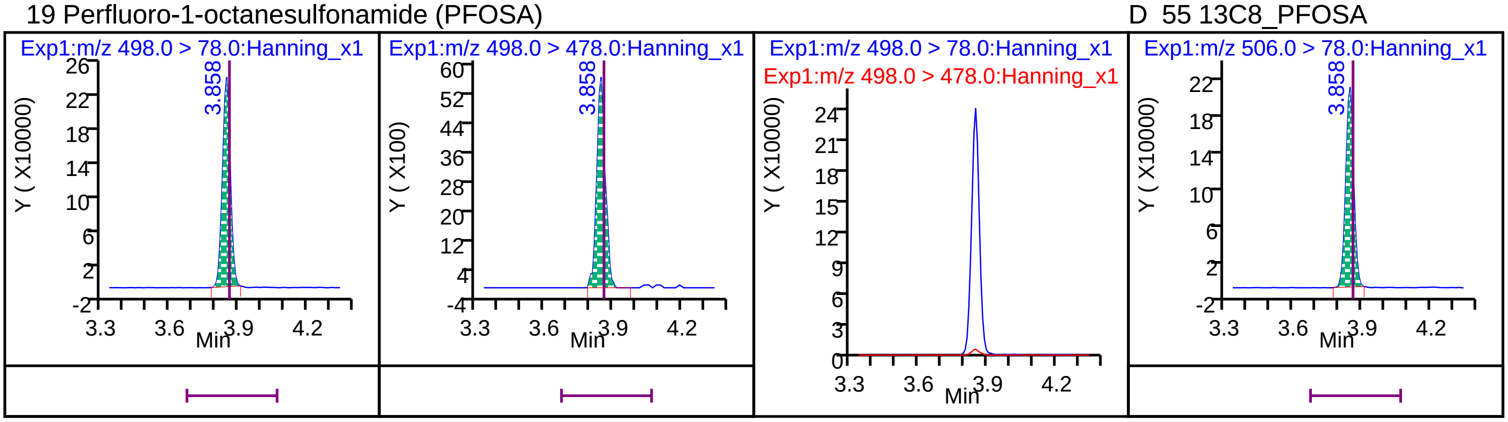
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



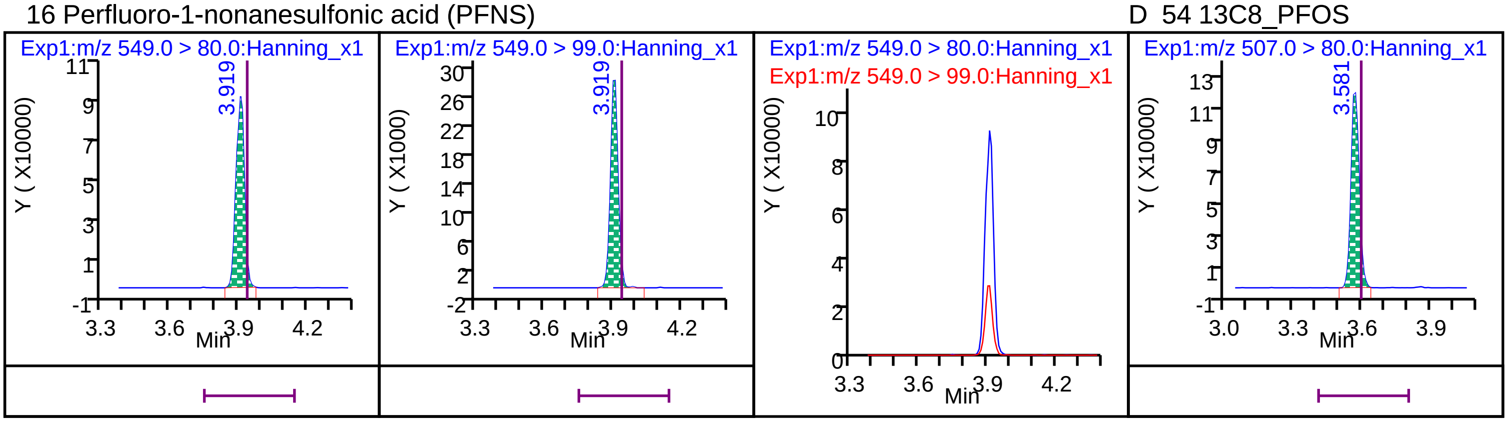
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

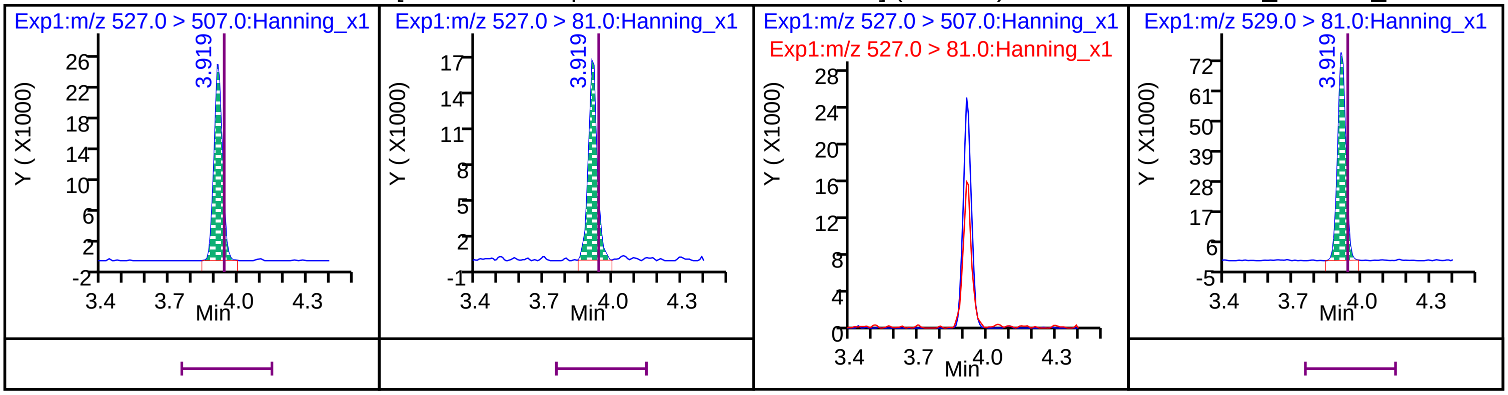


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

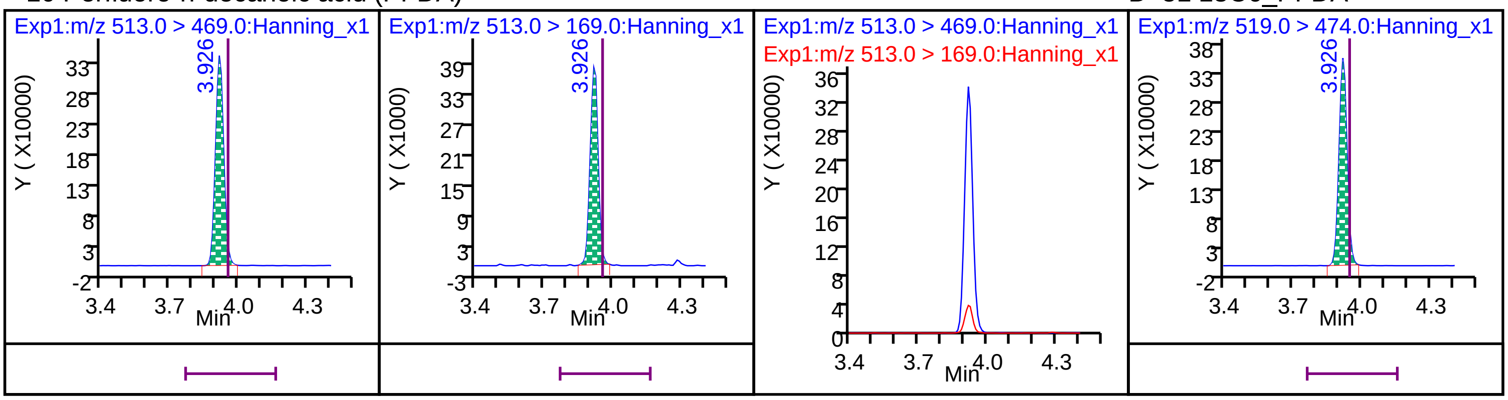


Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

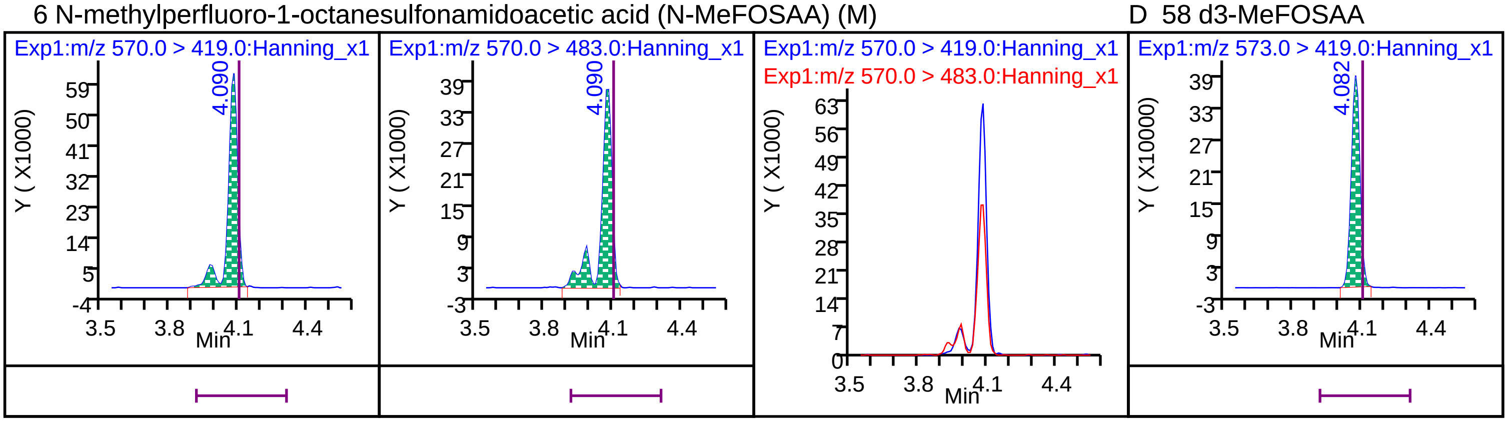
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



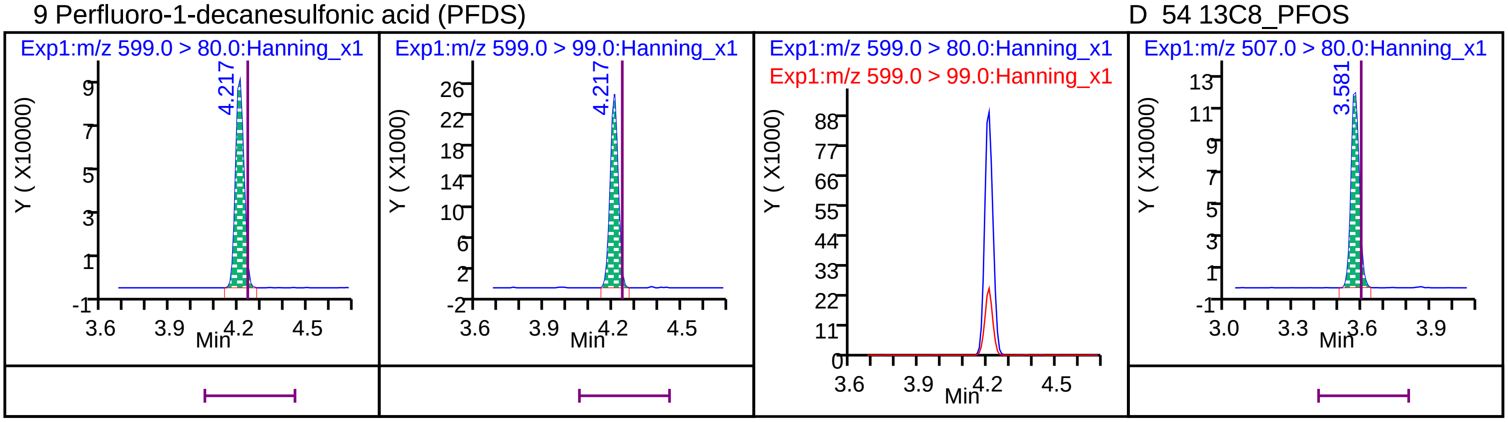
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



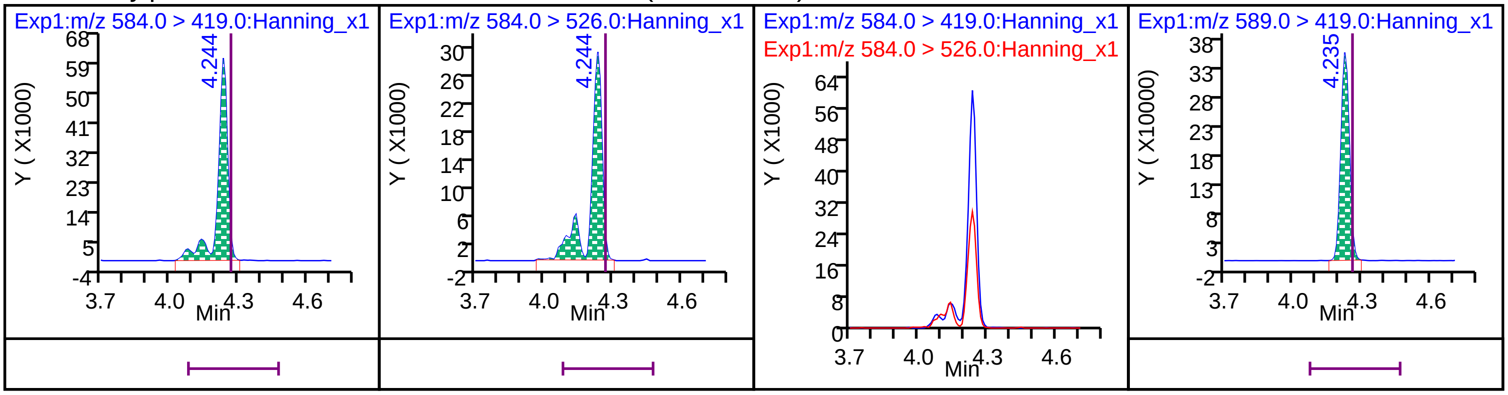
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



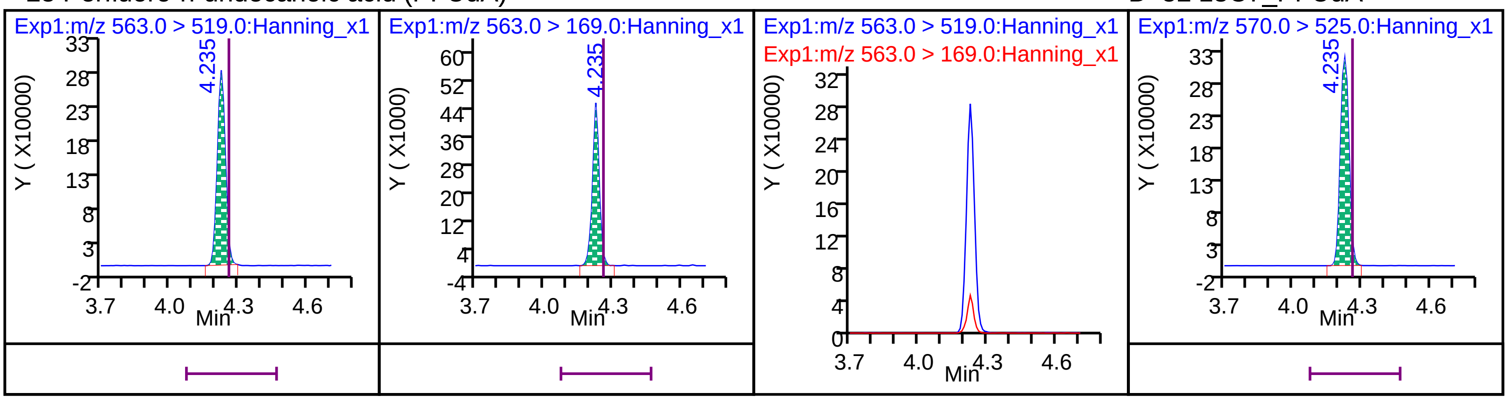
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

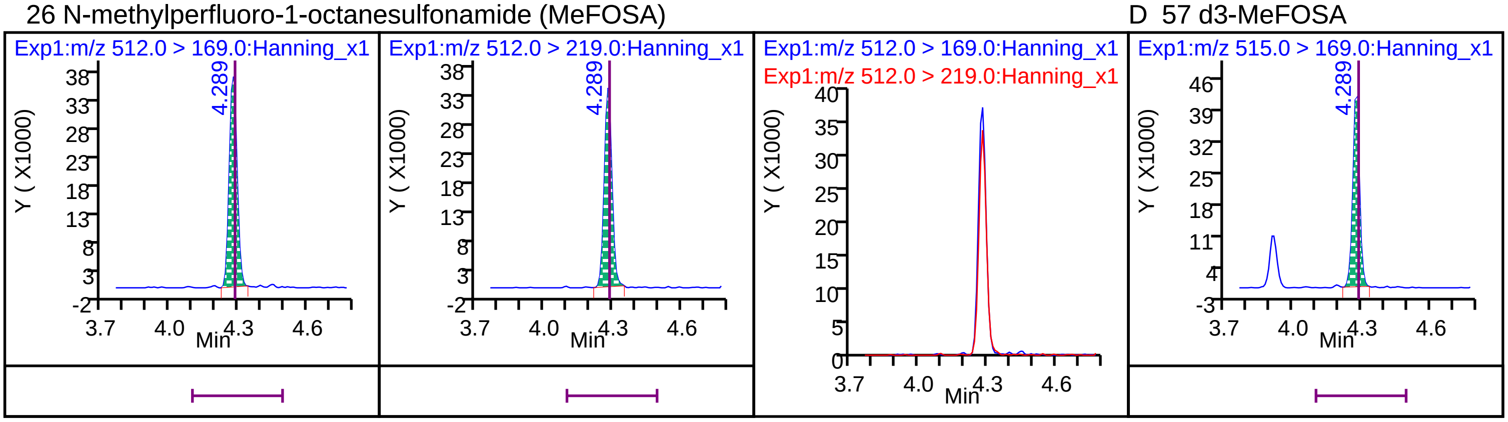


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



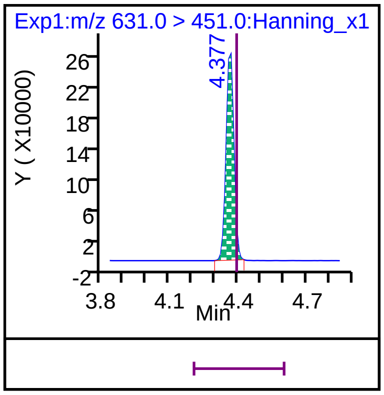
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

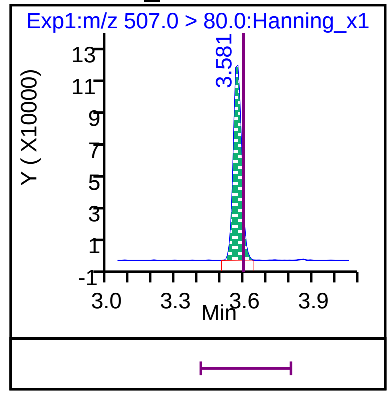


Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

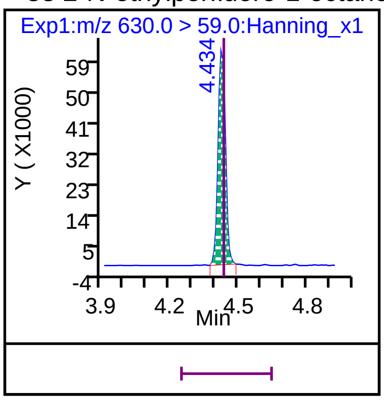
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



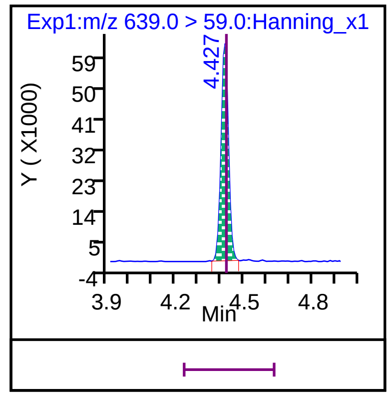
D 54 13C8_PFOS



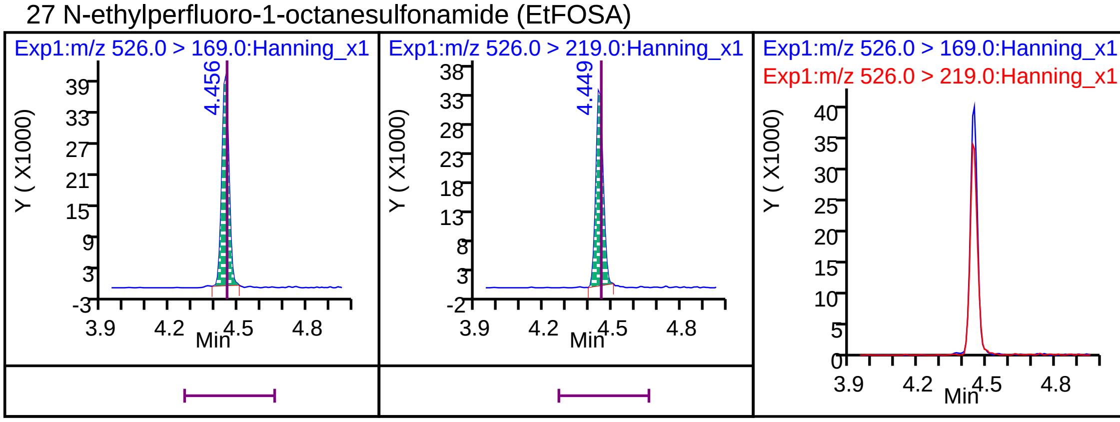
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



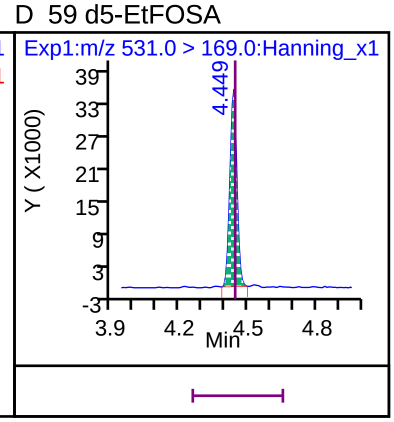
D 62 d9-EtFOSE



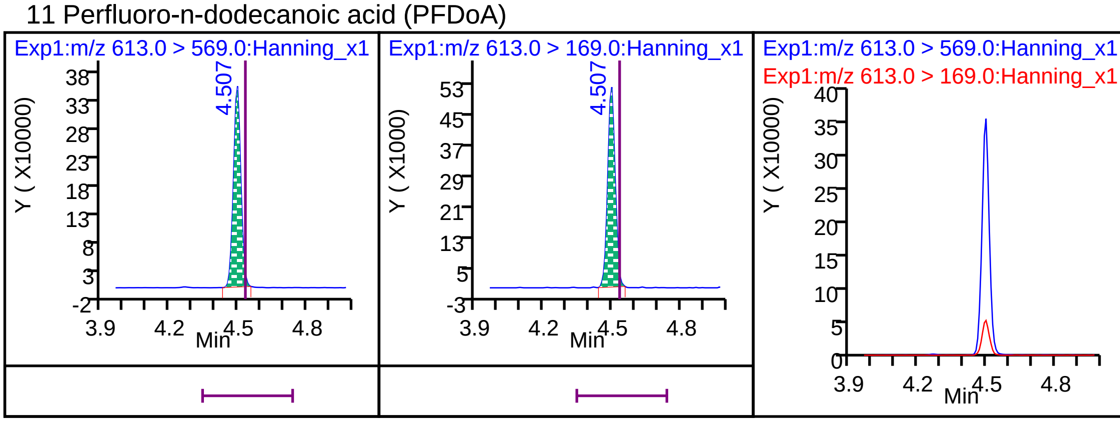
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



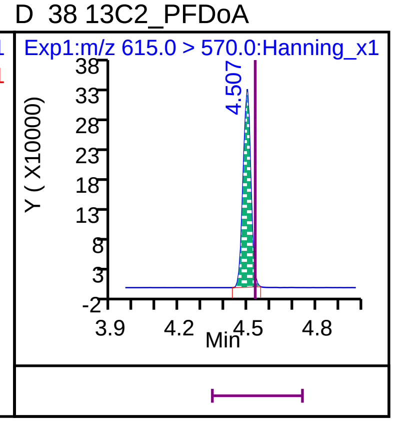
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA)



D 38 13C2_PFDoA

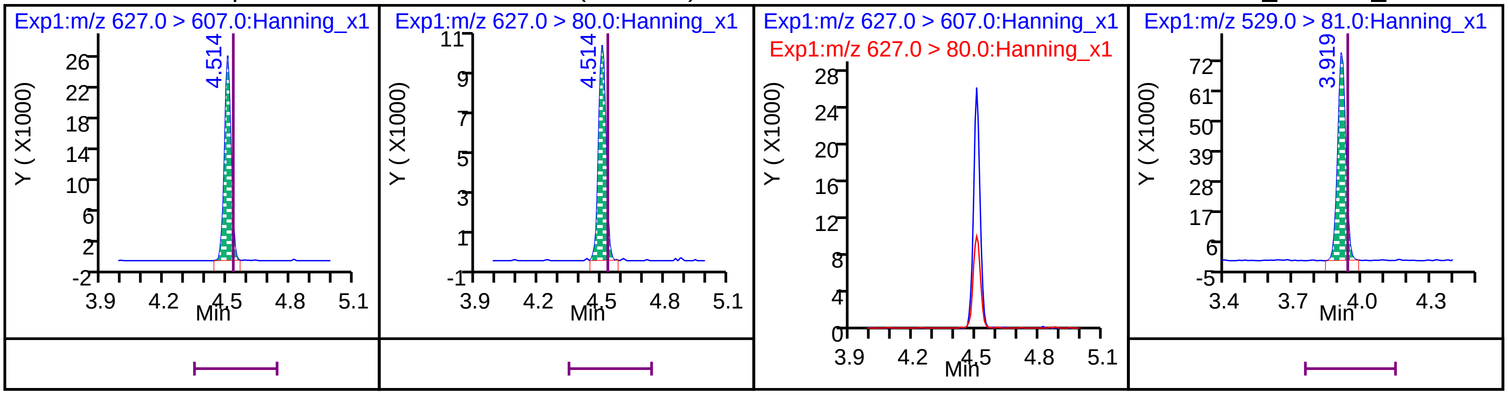


Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

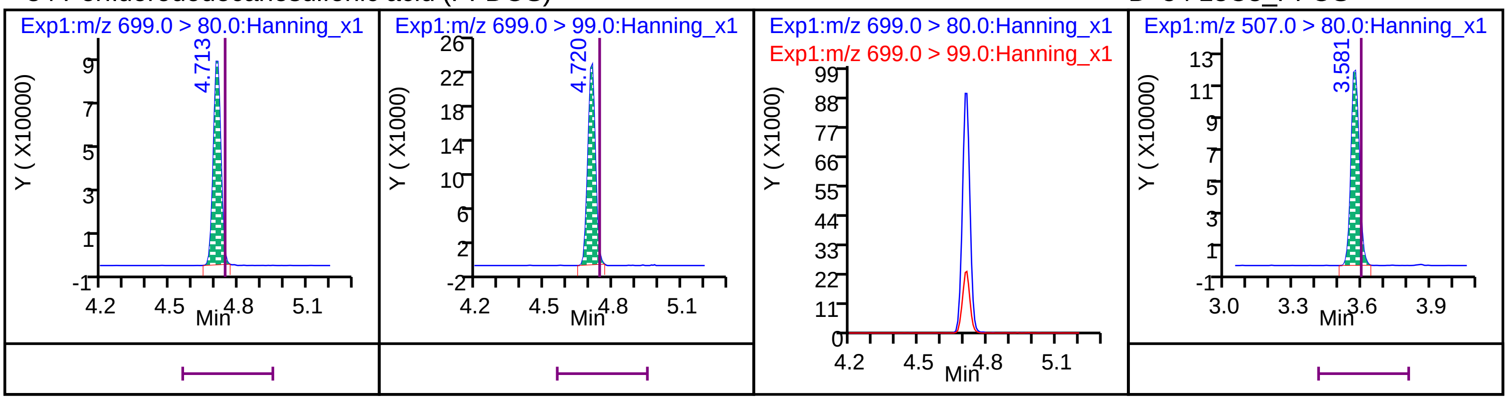
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS)

D 65 13C2_8:2 FTS_2



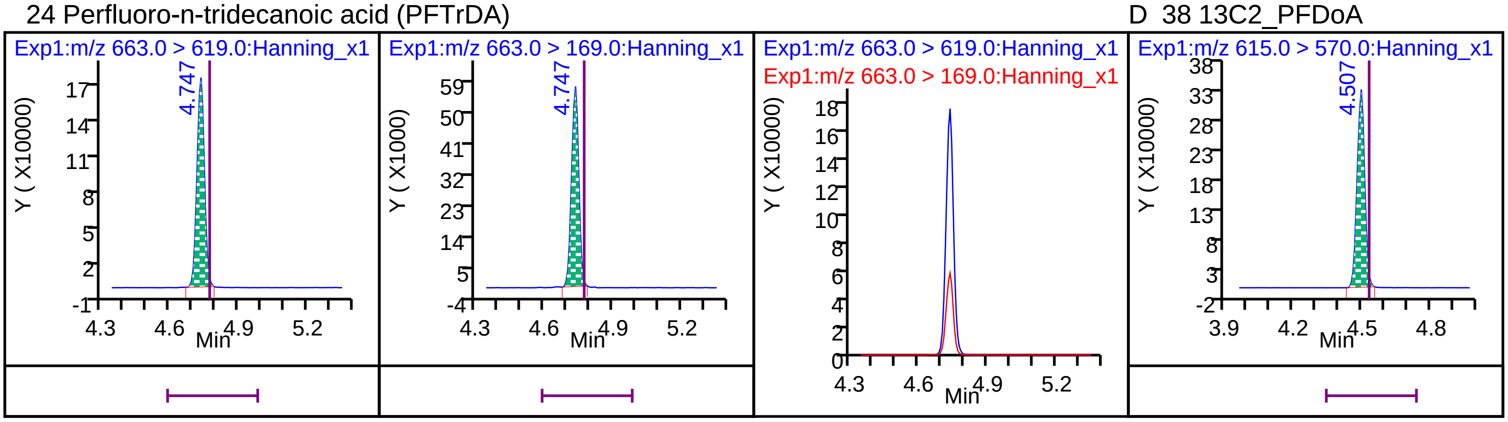
34 Perfluorododecanesulfonic acid (PFDOS)

D 54 13C8_PFOS



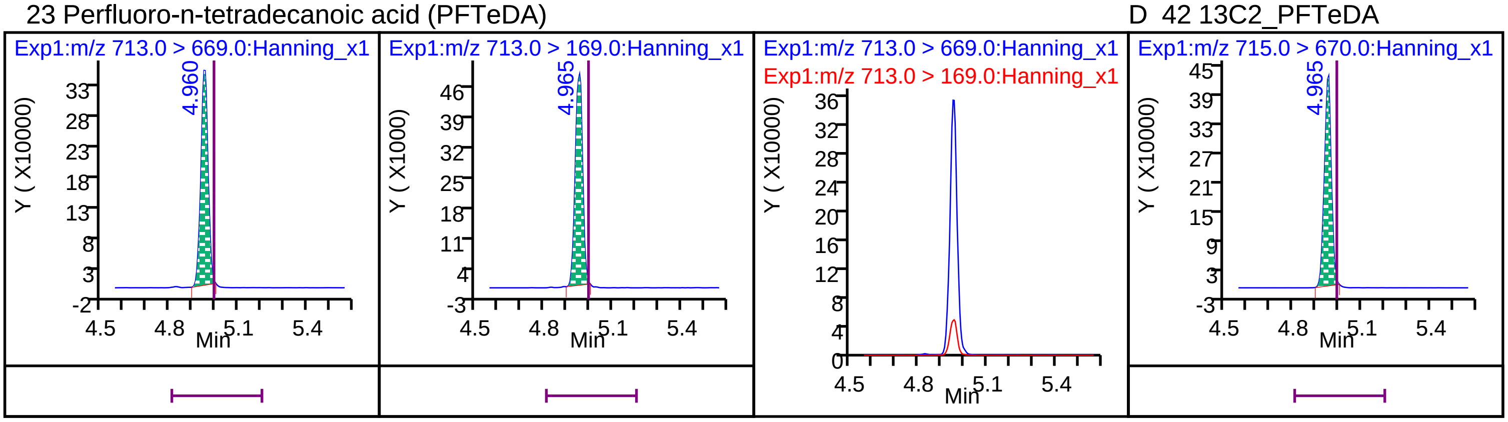
24 Perfluoro-n-tridecanoic acid (PFTrDA)

D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA)

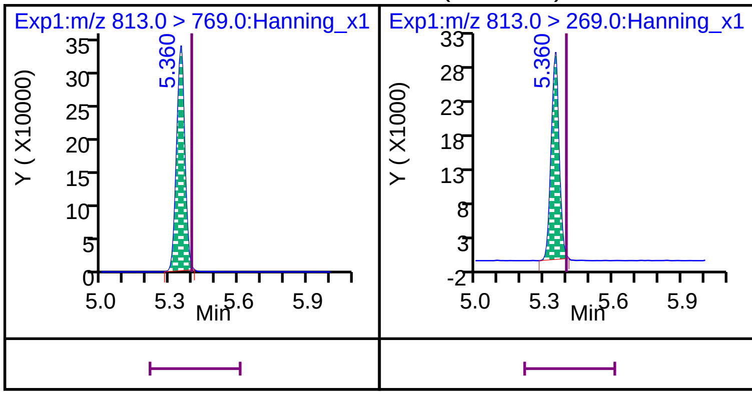
D 42 13C2_PFTeDA



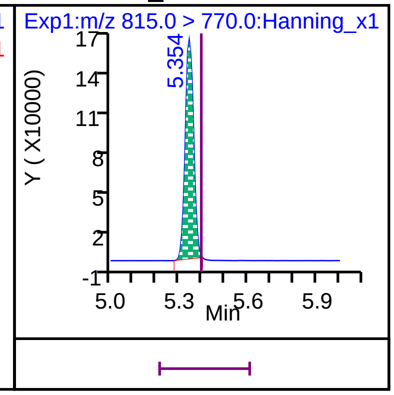
Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d

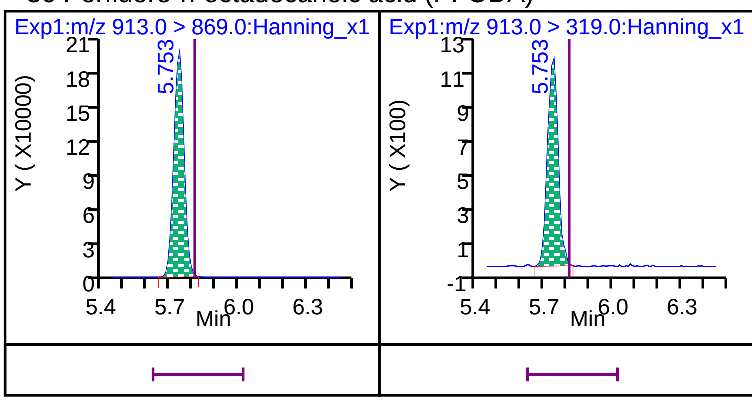
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



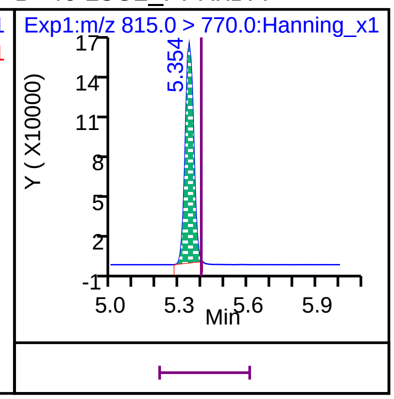
D 40 13C2_PFHxDA



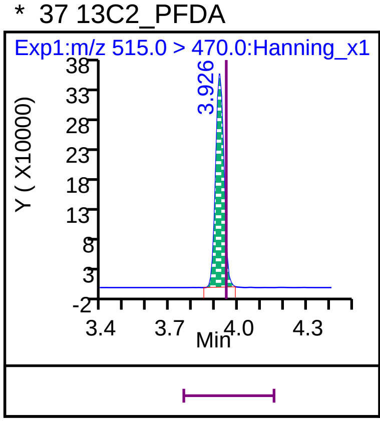
36 Perfluoro-n-octadecanoic acid (PFODA)



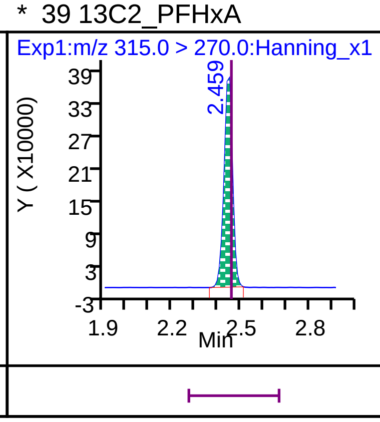
D 40 13C2_PFHxDA



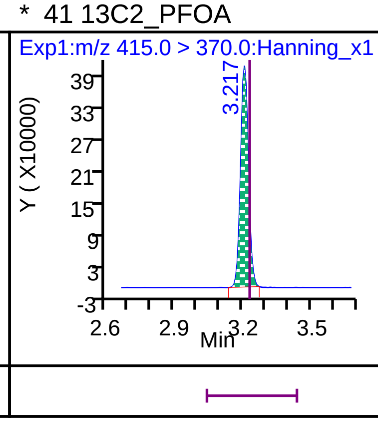
* 37 13C2_PFDA



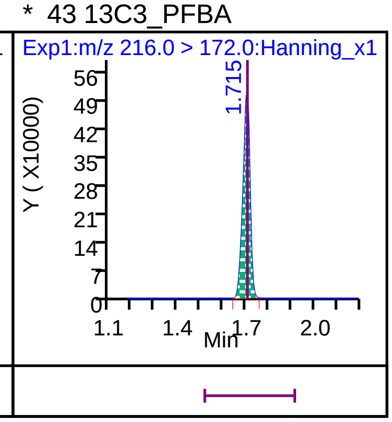
* 39 13C2_PFHxA



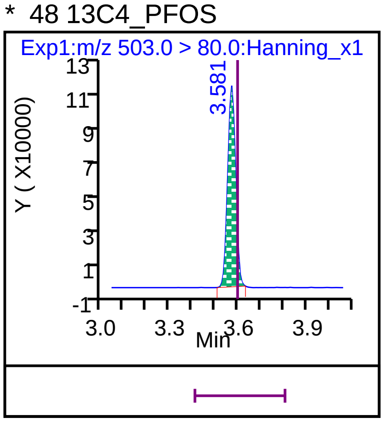
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:17:01 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

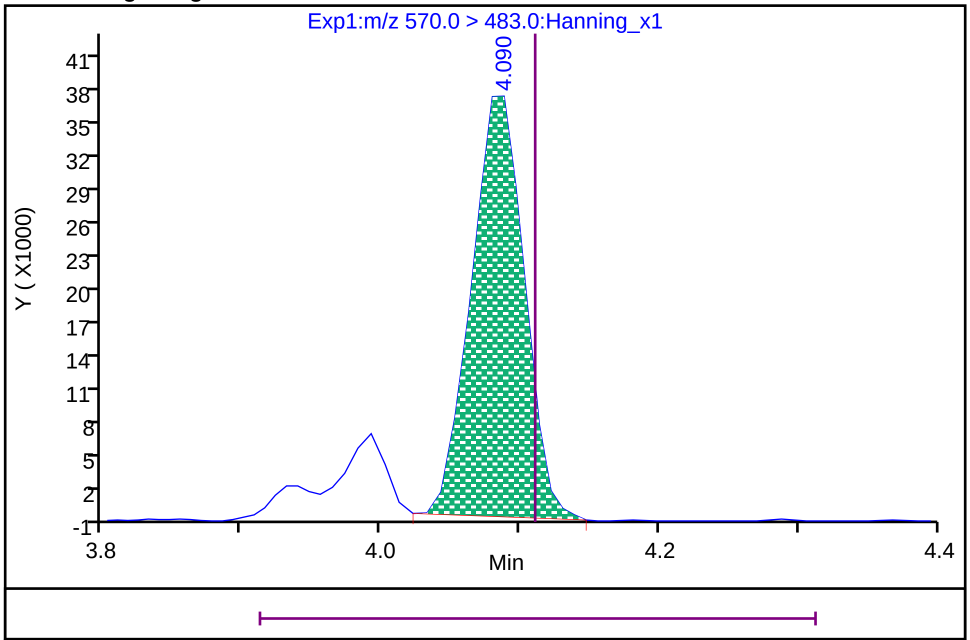
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521029.d		
Injection Date:	05-Nov-2021 16:27:50	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000A_SVLC-1717
Sample Info:	CCV 1000A_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

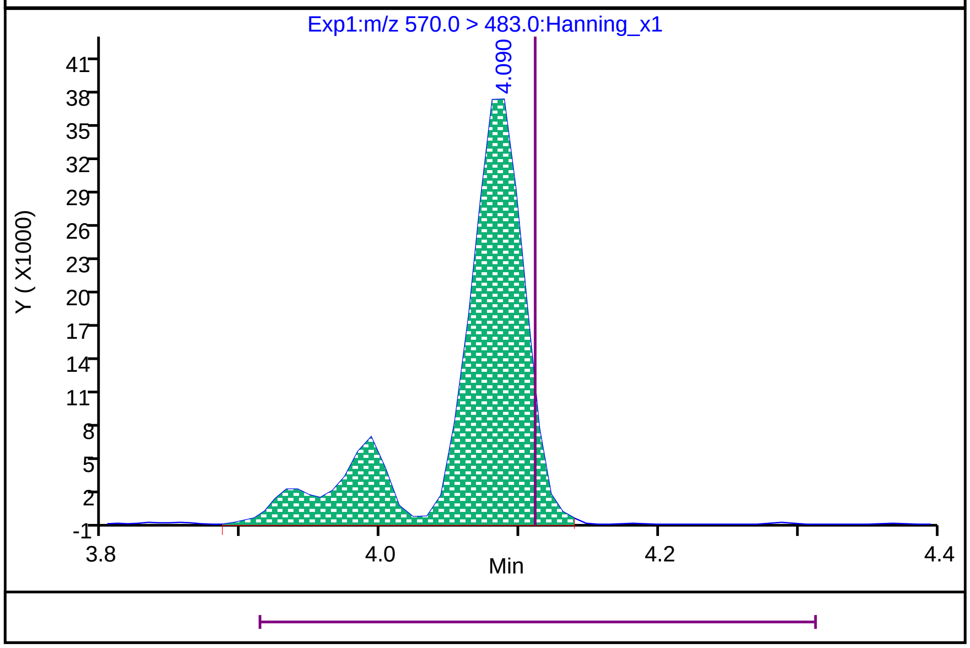
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.090
Area:	95886
Amount:	1078.65
Amount Units:	ng/L



RT:	4.090
Area:	122896
Amount:	1078.65
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:37:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:17:09 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d		
Injection Date:	05-Nov-2021 19:28:02	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	35
Sample Info:	CCV 1000B_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	924.90	92.5	70 - 130
D 46 13C4_PFBA	1177138	1240999			105.4	50 - 150
D 50 13C5_PFPeA	1076384	1107532			102.9	50 - 150
21 PFPeA			1000.00	975.20	97.5	70 - 130
7 PFBS			884.00	841.66	95.2	70 - 130
D 44 13C3_PFBS	338741	365283			107.8	50 - 150
1 4:2 FTS			934.00	876.51	93.8	70 - 130
D 63 13C2_4:2 FTS_2	226256	256019			113.2	50 - 150
D 49 13C5_PFHxA	1008626	1032319			102.3	50 - 150
15 PFHxA			1000.00	944.75	94.5	70 - 130
22 PFPeS			938.00	952.08	101.5	70 - 130
28 GenX			2000.00	1926.64	96.3	70 - 130
D 66 13C3_GenX	924257	948445			102.6	50 - 150
D 47 13C4_PFHpA	976651	1064442			109	50 - 150
13 PFHpA			1000.00	878.65	87.9	70 - 130
D 45 13C3_PFHxS	297909	325044			109.1	50 - 150
14 PFHxS			910.00	819.07	90	70 - 130
29 ADONA			942.00	889.89	94.5	70 - 130
D 64 13C2_6:2 FTS_2	209020	244127			116.8	50 - 150
2 6:2 FTS			948.00	1041.54	109.9	70 - 130
D 53 13C8_PFOA	914280	1068583			116.9	50 - 150
20 PFOA			1000.00	949.40	94.9	70 - 130
12 PFHpS			952.00	911.23	95.7	70 - 130
18 PFOS			928.00	849.52	91.5	70 - 130
17 PFNA			1000.00	980.62	98.1	70 - 130
D 56 13C9_PFNA	864448	896415			103.7	50 - 150
D 54 13C8_PFOS	243433	271239			111.4	50 - 150
30 9Cl-PF3ONS			932.00	873.29	93.7	70 - 130
D 55 13C8_PFOSA	466162	476800			102.3	50 - 150
19 PFOSA			1000.00	962.40	96.2	70 - 130
16 PFNS			960.00	859.46	89.5	70 - 130
D 65 13C2_8:2 FTS_2	170823	171033			100.1	50 - 150
3 8:2 FTS			958.00	921.58	96.2	70 - 130
10 PFDA			1000.00	982.12	98.2	70 - 130
D 51 13C6_PFDA	796749	828076			103.9	50 - 150
6 N-MeFOSAA			1000.00	960.28	96	70 - 130

Report Date: 09-Nov-2021 21:17:09 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	881075	1035993			117.6	50 - 150
9 PFDS			964.00	834.84	86.6	70 - 130
5 N-EtFOSAA			1000.00	934.39	93.4	70 - 130
25 PFUdA			1000.00	1000.95	100.1	70 - 130
D 60 d5-EtFOSAA	806334	888899			110.2	50 - 150
D 52 13C7_PFUdA	752112	786228			104.5	50 - 150
D 61 d7-MeFOSE	134219	147757			110.1	50 - 150
32 MeFOSE			1000.00	939.40	93.9	70 - 130
26 MeFOSA			1000.00	1145.59	114.6	70 - 130
D 57 d3-MeFOSA	65225	68351			104.8	50 - 150
31 11Cl-PF3OUDS			942.00	869.55	92.3	70 - 130
D 62 d9-EtFOSE	125062	139323			111.4	50 - 150
33 EtFOSE			1000.00	1104.21	110.4	70 - 130
D 59 d5-EtFOSA	70105	75655			107.9	50 - 150
27 EtFOSA			1000.00	908.92	90.9	70 - 130
11 PFDoA			1000.00	977.55	97.8	70 - 130
D 38 13C2_PFDoA	693700	750430			108.2	50 - 150
4 10:2 FTS			964.00	895.75	92.9	70 - 130
34 PFDOS			968.00	741.18	76.6	70 - 130
24 PFTrDA			1000.00	971.08	97.1	70 - 130
23 PFTeDA			1000.00	981.77	98.2	70 - 130
D 42 13C2_PFTeDA	925125	858873			92.8	50 - 150
35 PFHxDA			1000.00	1044.88	104.5	70 - 130
D 40 13C2_PFHxDA	400309	401586			100.3	50 - 150
36 PFODA			1000.00	954.95	95.5	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d		
Injection Date:	05-Nov-2021 19:28:02	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	35
Sample Info:	CCV 1000B_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	1240999	19	>100:1			1000.00	1152.56	105.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.708	1.715	0/0	1262362	18	>100:1			1000.00	924.90		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.079	2.089	1	1107532	17	>100:1			1000.00	1104.32	102.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.079	2.089	1/0	1157221	15	>100:1			1000.00	975.20		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.141	0	365283	15	>100:1			1000.00	1124.74	107.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.131	2.141	0/0	439221	16	>100:1	Target = 3.80		884.00	841.66		
298.9 > 99	44	2.131	2.141		109640	16	>100:1	4.00 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.485	2.502	0/0	349934	18	>100:1	Target = 3.42		938.00	952.08		
349 > 99	44	2.485	2.502		101668	18	>100:1	3.44 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.407	2.424	0	256019	18	>100:1			5000.00	6163.64	113.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.416	2.424	1/1	87593	18	>100:1	Target = 1.54		934.00	876.51		
327 > 81	63	2.416	2.424		54578	18	74:1	1.60 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.468	0	1032319	19	>100:1			1000.00	1155.71	102.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.450	2.468	0/0	1007745	18	>100:1	Target = 17.93		1000.00	944.75		
313 > 119	49	2.459	2.468		59207	17	>100:1	17.02 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.572	2.587	0	948445	19	>100:1			5000.00	5789.58	102.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.572	2.594	0/0	280012	19	>100:1	Target = 0.72		2000.00	1926.64		
285 > 185	66	2.572	2.594		407721	19	>100:1	0.68 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	1	1064442	17	>100:1			1000.00	1214.85	109	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	1/0	900346	17	>100:1	Target = 3.26		1000.00	878.65		
363 > 169	47	2.837	2.855		298260	18	>100:1	3.01 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	1	325044	18	>100:1			1000.00	1239.30	109.1	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	1/0	314731	26	>100:1	Target = 3.48	5.17	910.00	819.07		
399 > 99	45	2.855	2.872		92821	23	>100:1	3.39 (1.74-5.22)	7.14				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.898	1/0	1592098	19	>100:1	Target = 2.31		942.00	889.89		
377 > 85	45	2.881	2.898		642013	19	>100:1	2.47 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.221	3.239	0/-1	304645	22	>100:1	Target = 3.56		952.00	911.23		
449 > 99	45	3.221	3.239		87052	20	>100:1	3.49 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.214	1	244127	22	>100:1			5000.00	6473.61	116.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.195	3.208	0/-1	88423	22	>100:1	Target = 1.34		948.00	1041.54		
427 > 81	64	3.195	3.208		66592	19	>100:1	1.32 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.214	3.239	0	1068583	22	>100:1			1000.00	1292.13	116.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.221	3.239	0/0	1043854	21	>100:1	Target = 2.50		1000.00	949.40		
413 > 169	53	3.221	3.239		405998	22	>100:1	2.57 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.584	3.606	0	271239	21	>100:1			1000.00	1208.30	111.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.584	3.614	0/0	271635	38	>100:1	Target = 4.01	3.95	928.00	849.52		
499 > 99	54	3.584	3.614		70428	37	>100:1	3.85 (2.00-6.02)	8.46				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.781	3.811	0/0	732047	20	>100:1			932.00	873.29		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.916	3.948	0/0	235455	18	>100:1	Target = 3.78		960.00	859.46		
549 > 99	54	3.924	3.948		66454	23	>100:1	3.54 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.214	4.250	0/0	223553	17	>100:1	Target = 3.98		964.00	834.84		
599 > 99	54	4.214	4.250		63474	17	>100:1	3.52 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.375	4.402	0/0	655192	15	>100:1			942.00	869.55		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.718	4.752	0/0	194701	19	>100:1	Target = 3.68		968.00	741.18		
699 > 99	54	4.718	4.752		53378	17	>100:1	3.64 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.584	3.614	0	896415	20	>100:1			1000.00	1121.90	103.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.591	3.614	0/0	800460	21	>100:1	Target = 4.69		1000.00	980.62		
463 > 169	56	3.591	3.614		172440	21	>100:1	4.64 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.863	3.870	1	476800	19	>100:1			1000.00	1151.16	102.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.863	3.870	1/0	518856	19	>100:1	Target = 40.85		1000.00	962.40		
498>478	55	3.863	3.870		13270	26	>100:1	39.09 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.924	3.948	0	171033	19	>100:1			5000.00	5449.43	100.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.916	3.948	0/0	56006	24	>100:1	Target = 1.58		958.00	921.58		
527 > 81	65	3.924	3.948		37068	19	67:1	1.51 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.519	4.541	0/0	54643	18	>100:1	Target = 2.46		964.00	895.75		
627 > 80	65	4.512	4.541		22001	17	>100:1	2.48 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.924	3.956	0	828076	18	>100:1			1000.00	1147.24	103.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.932	3.964	0/0	834500	19	>100:1	Target = 9.77		1000.00	982.12		
513 > 169	51	3.932	3.964		81085	18	>100:1	10.29 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.088	4.112	0	1035993	17	>100:1			5000.00	5842.74	117.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.088	4.112	-1/-1	162680	32	>100:1	Target = 1.41	7.50	1000.00	960.28		M
570 > 483	58	4.088	4.112		124741	34	>100:1	1.30 (0.70-2.11)	4.67				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.232	4.268	0	786228	17	>100:1			1000.00	1150.42	104.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.232	4.268	0/0	706008	16	>100:1	Target = 9.19		1000.00	1000.95		
563 > 169	52	4.232	4.268		78213	16	>100:1	9.02 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.241	4.268	0	888899	16	>100:1			5000.00	5944.59	110.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.241	4.277	-2/-2	169799	35	>100:1	Target = 1.75	6.75	1000.00	934.39		M
584 > 526	60	4.241	4.277		103966	35	>100:1	1.63 (0.87-2.63)	4.01				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.268	4.268	0	147757	16	>100:1			1000.00	1070.81	110.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.277	4.277	0/0	141068	17	>100:1			1000.00	939.40		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.286	4.295	0	68351	16	>100:1			1000.00	976.15	104.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.295	4.295	0/0	81084	16	>100:1	Target = 1.11		1000.00	1145.59		
512 > 219	57	4.295	4.295		77635	15	>100:1	1.04 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.425	4.432	0	139323	16	>100:1			1000.00	1083.77	111.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.439	4.446	0/0	130950	19	>100:1			1000.00	1104.21		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.454	1	75655	17	>100:1			1000.00	1174.67	107.9	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.454	4.461	0/-1	80393	16	>100:1	Target = 1.06		1000.00	908.92		
526 > 219	59	4.454	4.461		76077	19	>100:1	1.05 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.505	4.541	0	750430	19	>100:1			1000.00	1091.31	108.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.505	4.541	0/0	720447	19	>100:1	Target = 6.38		1000.00	977.55		
613 > 169	38	4.505	4.541		110730	18	>100:1	6.50 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.745	4.784	0/0	390525	20	>100:1	Target = 3.23		1000.00	971.08		
663 > 169	38	4.745	4.784		115507	18	>100:1	3.38 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.959	5.000	0	858873	25	>100:1			1000.00	1098.65	92.8	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.964	5.003	0/0	741027	24	>100:1	Target = 7.33		1000.00	981.77		
713 > 169	42	4.964	5.003		98026	24	>100:1	7.55 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.353	5.406	0	401586	22	>100:1			1000.00	1028.71	100.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.353	5.406	0/0	802658	22	>100:1	Target = 12.31		1000.00	1044.88		
813 > 269	40	5.353	5.406		65478	21	>100:1	12.25 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.745	5.819	-1/-1	578958	22	>100:1	Target = 165.31		1000.00	954.95		
913 > 319	40	5.745	5.819		4011	22	>100:1	144.34 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.932	3.956	0	790921	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.450	2.468	0	934671	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.214	3.239	0	954541	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.708	1.715	0	1073273	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.584	3.606	0	256883	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

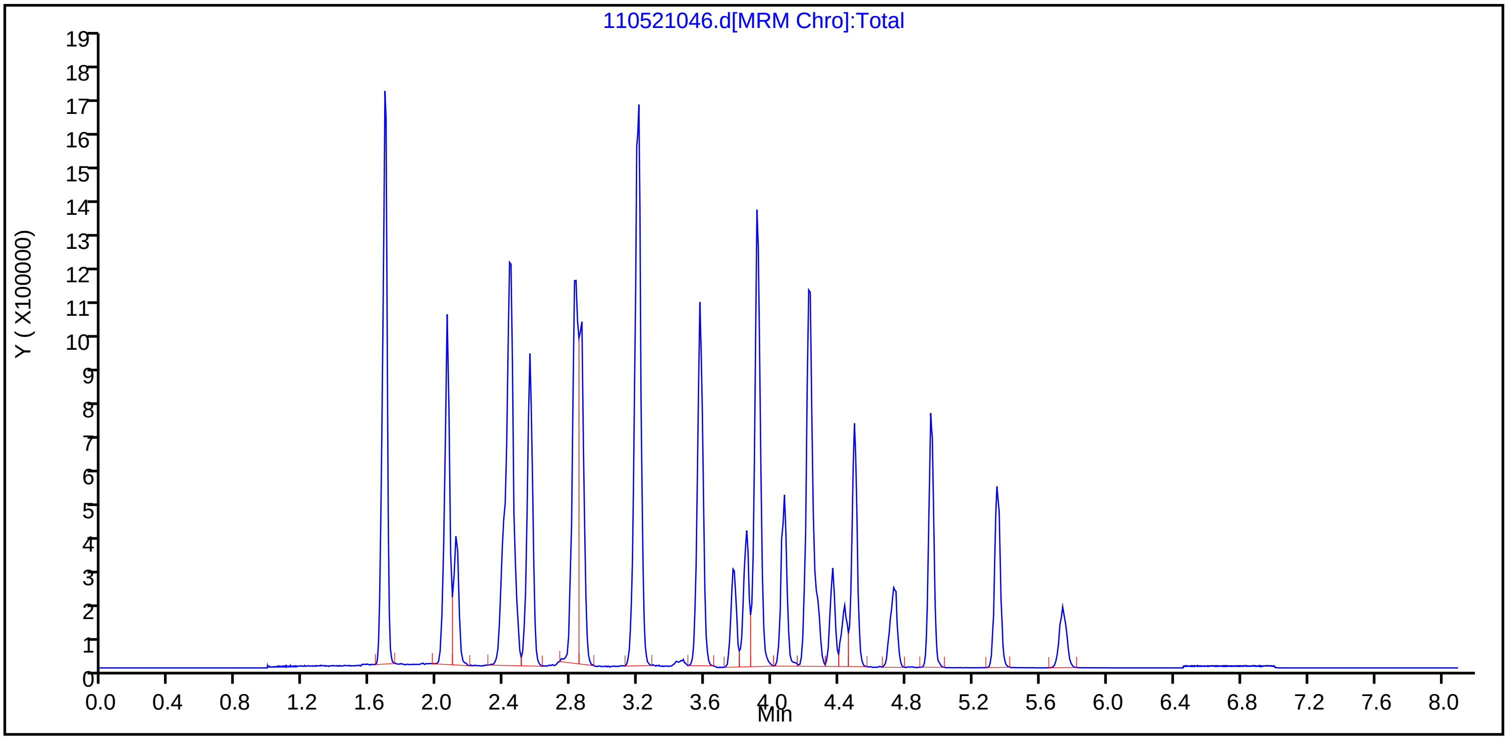
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

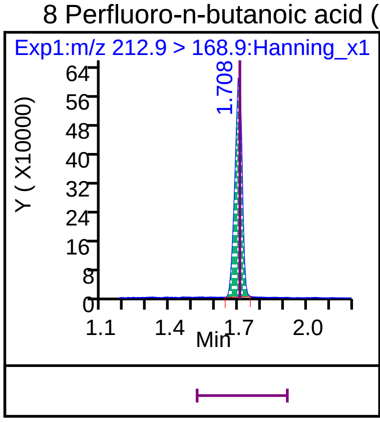
Report Date: 09-Nov-2021 21:17:09 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

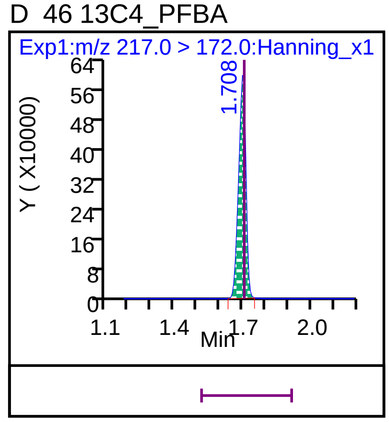
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d		
Injection Date:	05-Nov-2021 19:28:02	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000B_SVLC-1717
Sample Info:	CCV 1000B_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller



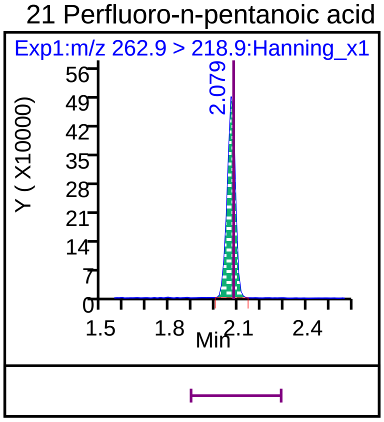
8 Perfluoro-n-butanoic acid (PFBA)



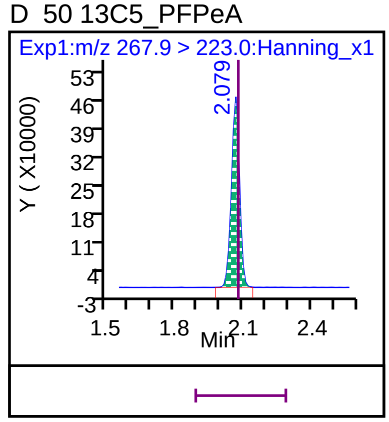
D 46 13C4_PFBA



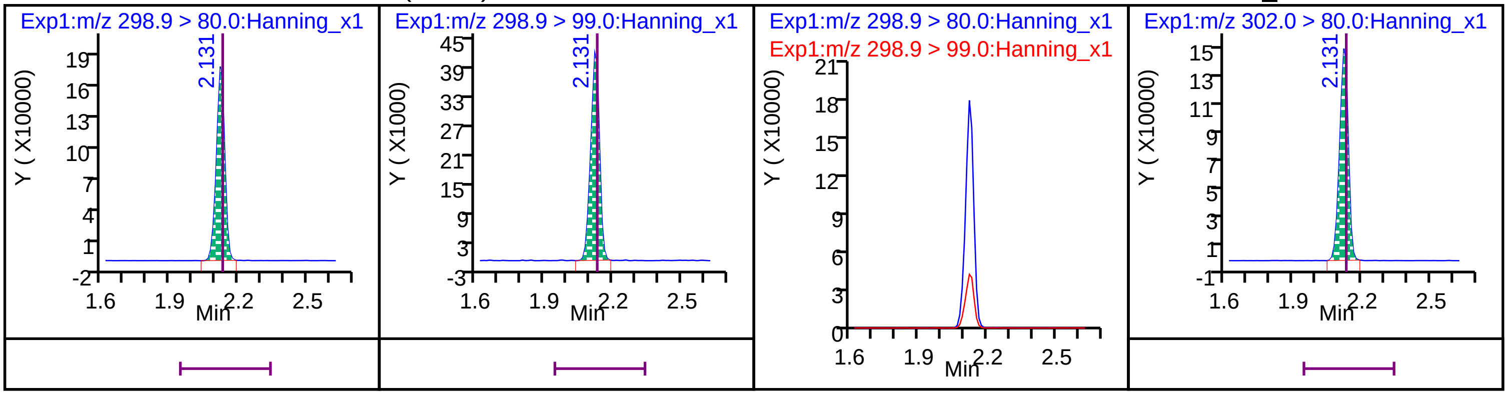
21 Perfluoro-n-pentanoic acid (PFPeA)



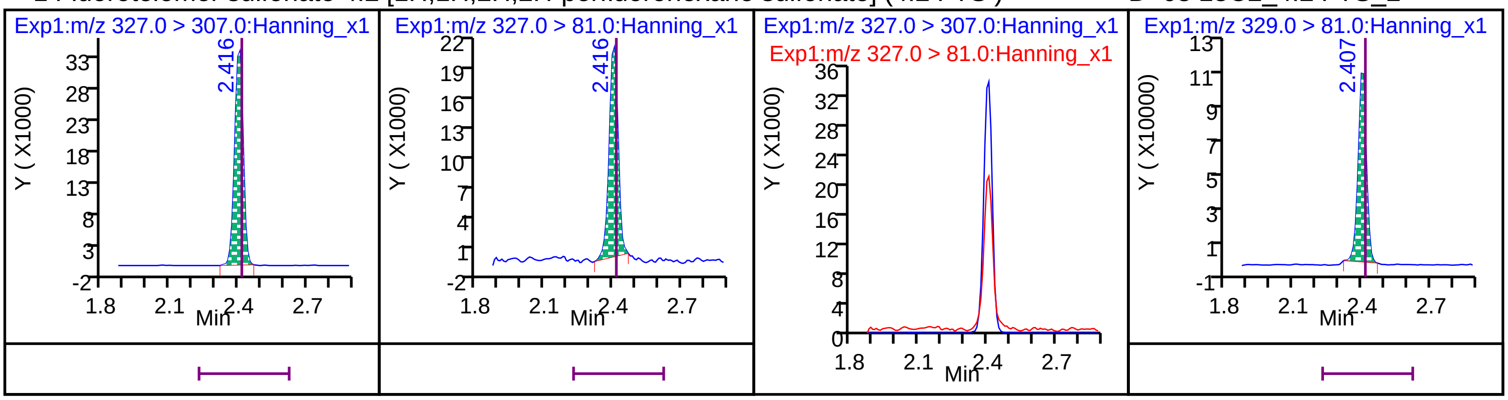
D 50 13C5_PFPeA



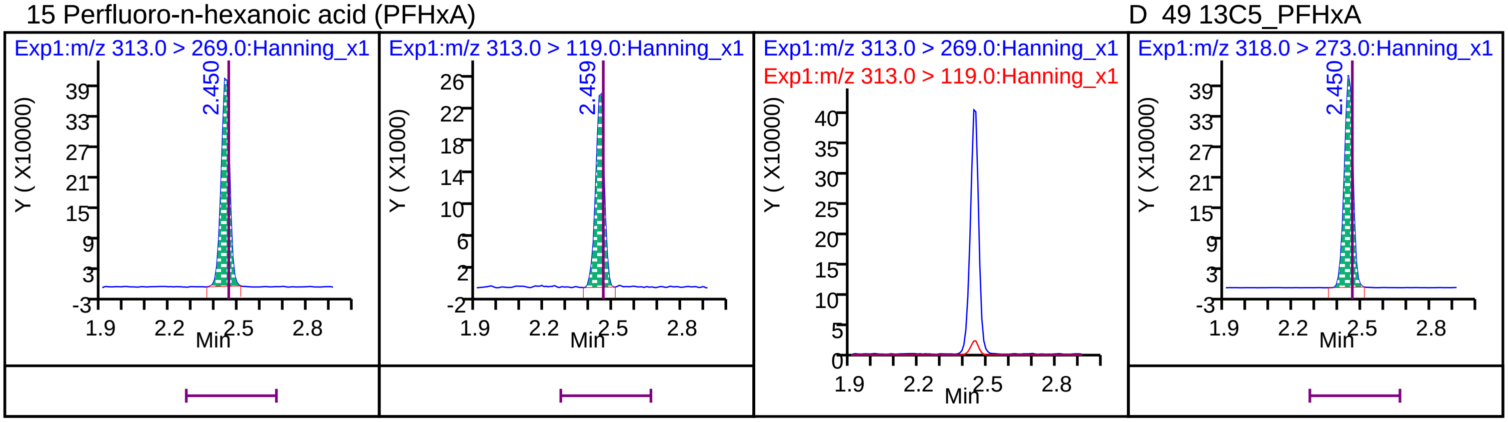
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



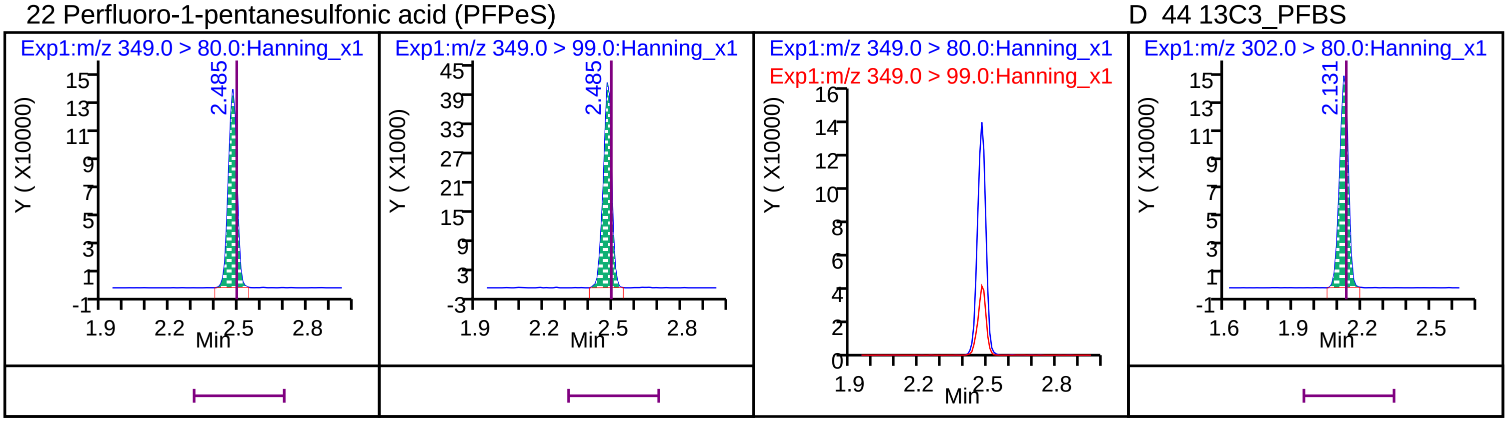
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

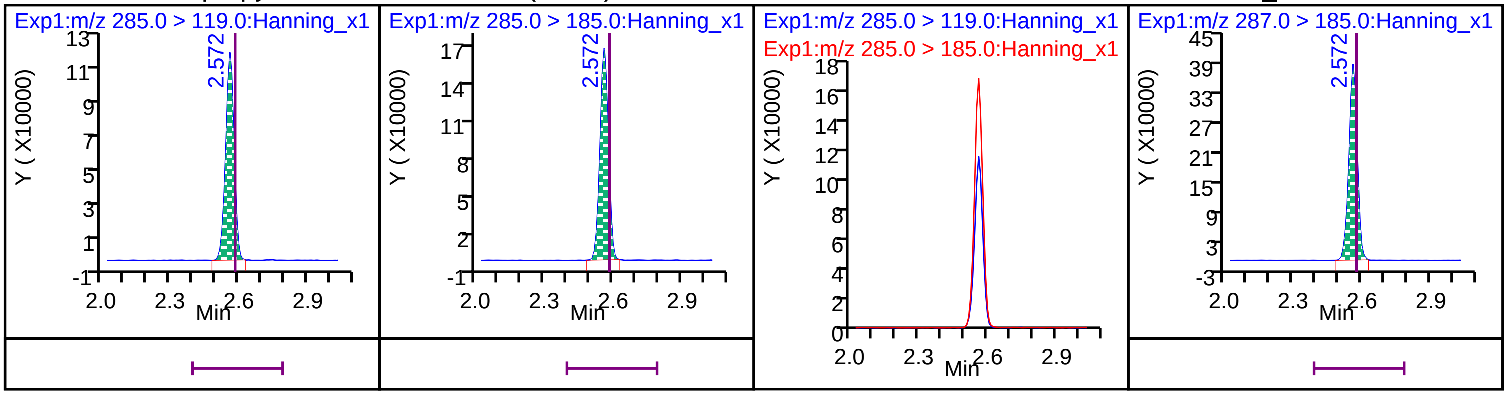


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

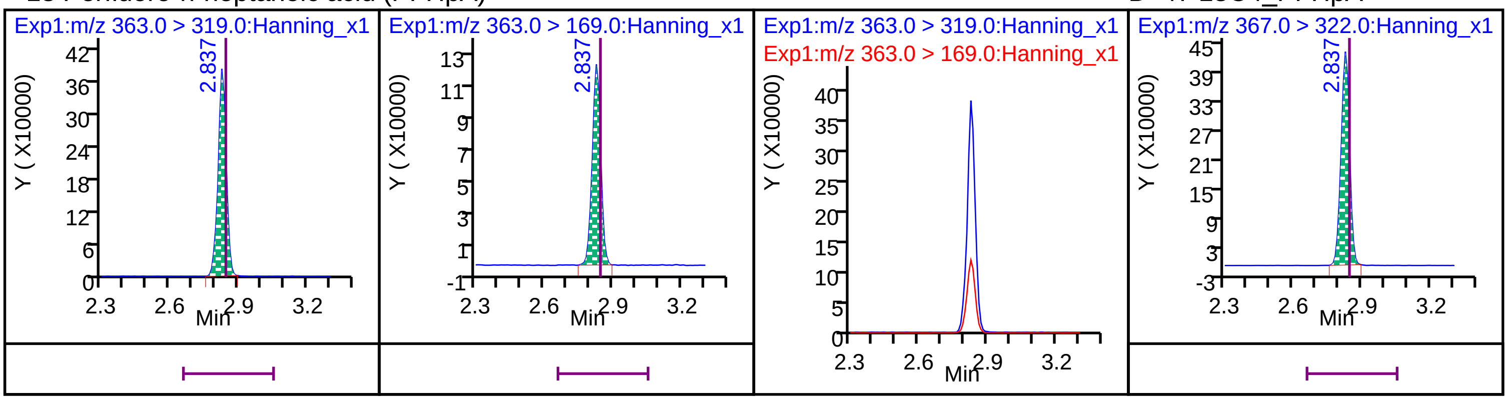


Report Date: 09-Nov-2021 21:17:09 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d

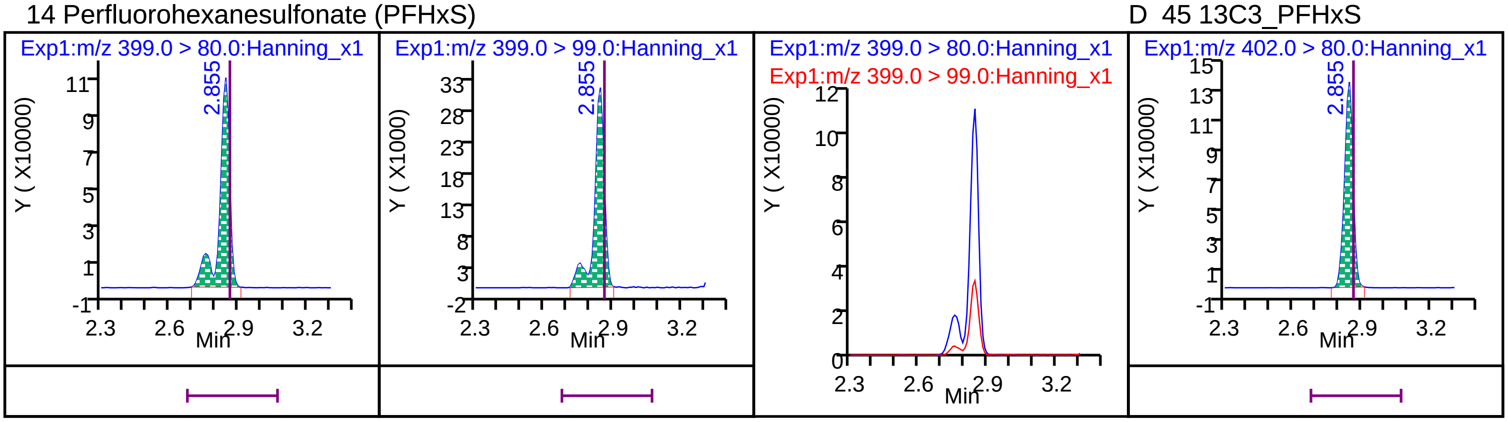
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



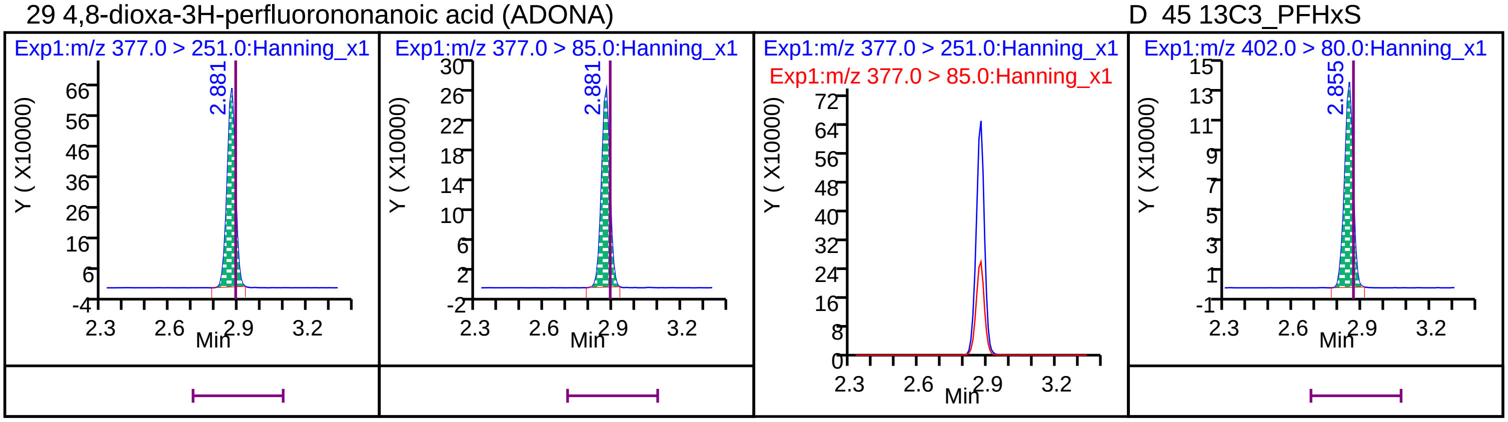
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



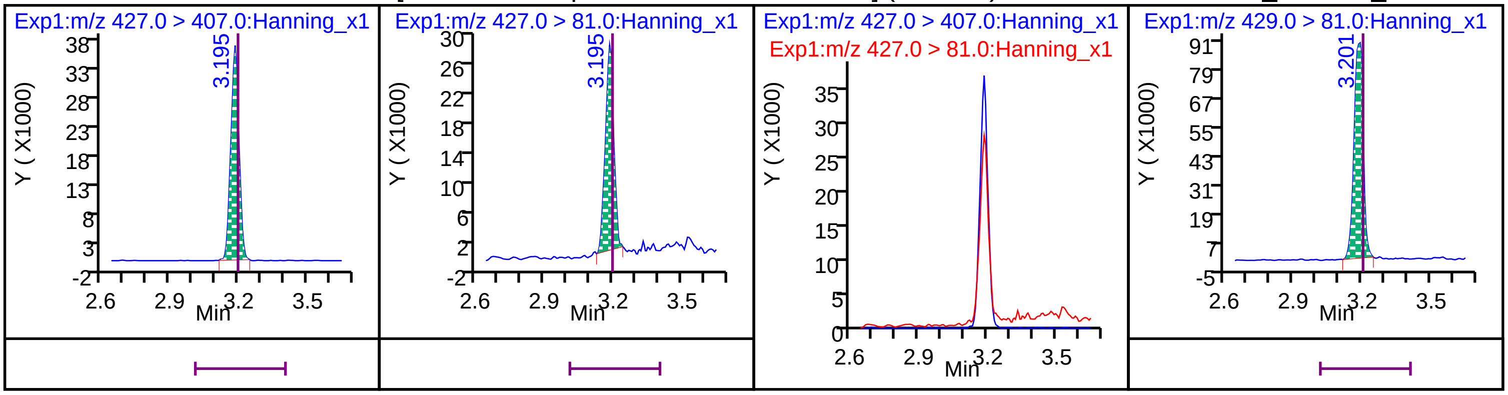
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



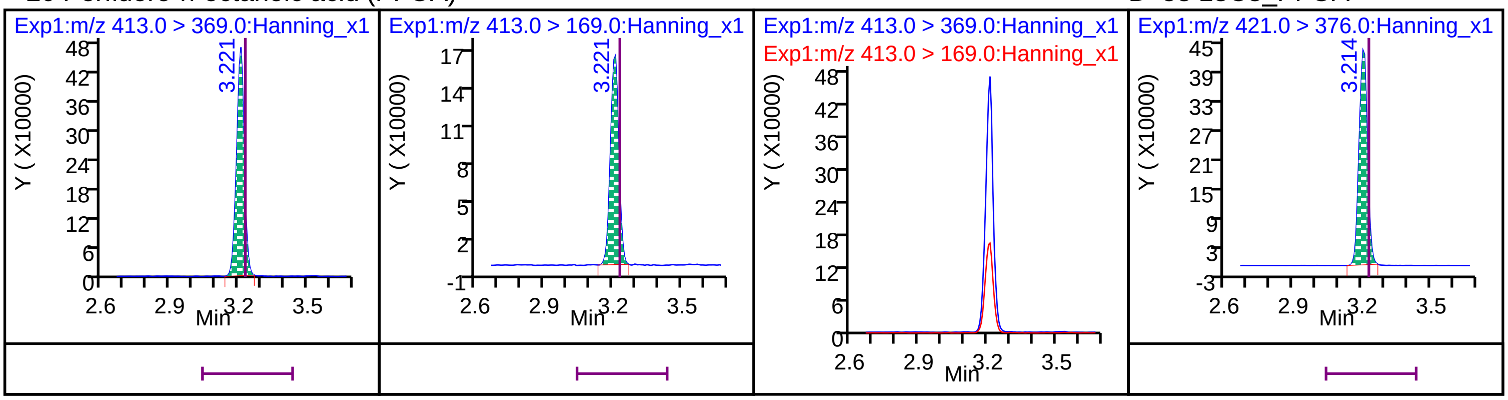
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



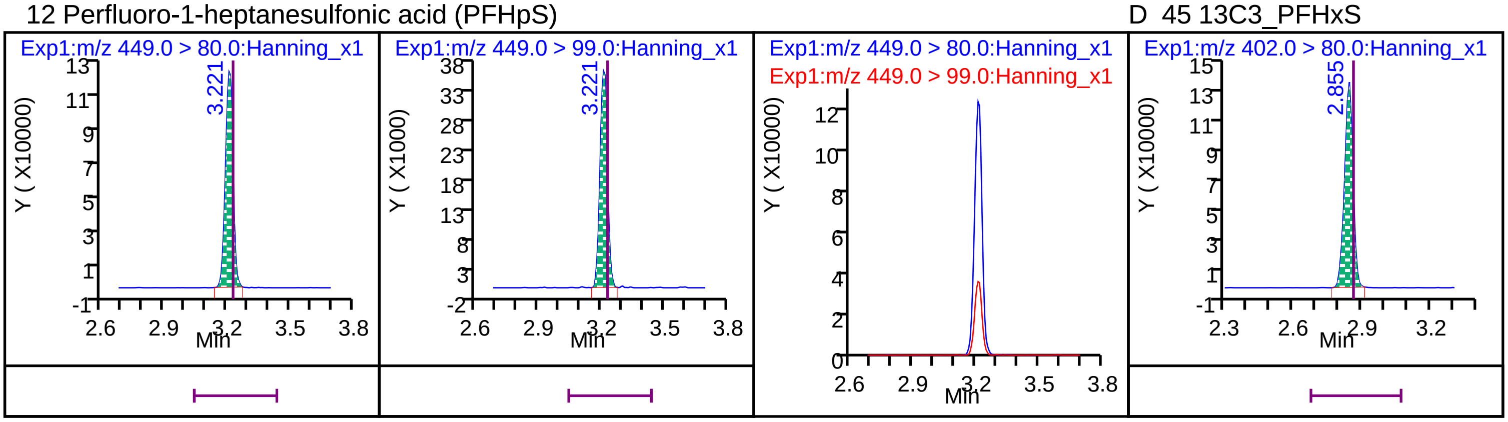
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



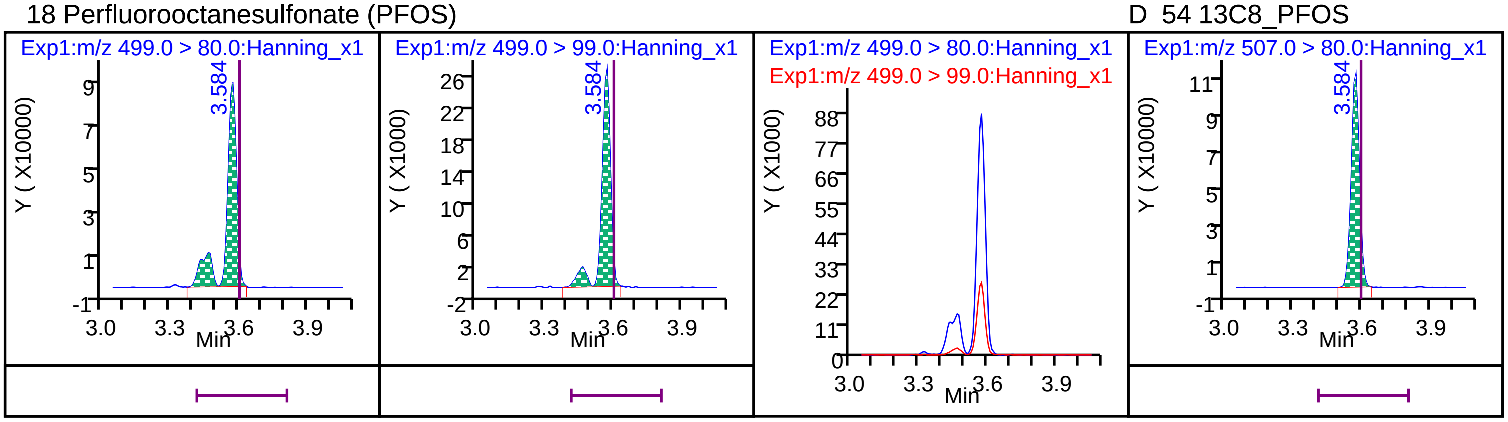
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



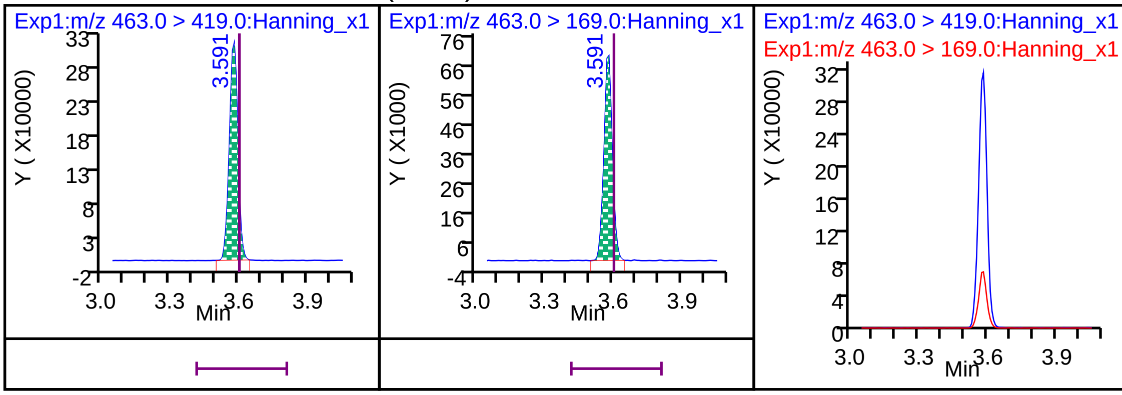
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



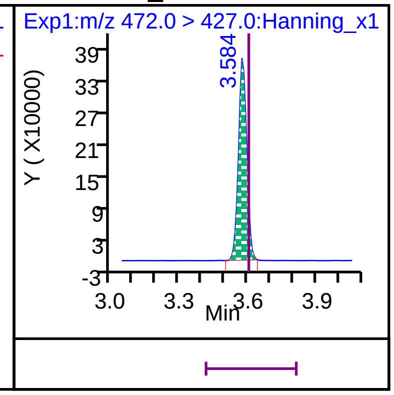
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



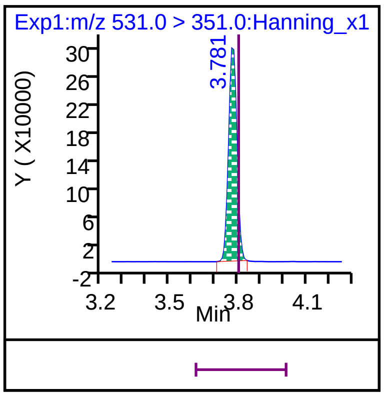
17 Perfluoro-n-nonanoic acid (PFNA)



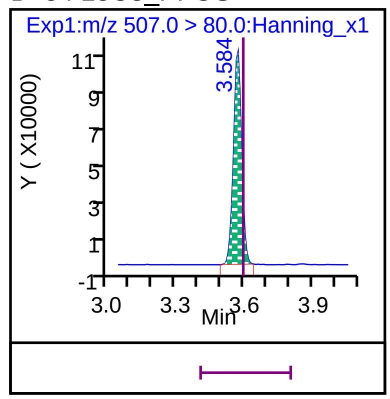
D 56 13C9_PFNA



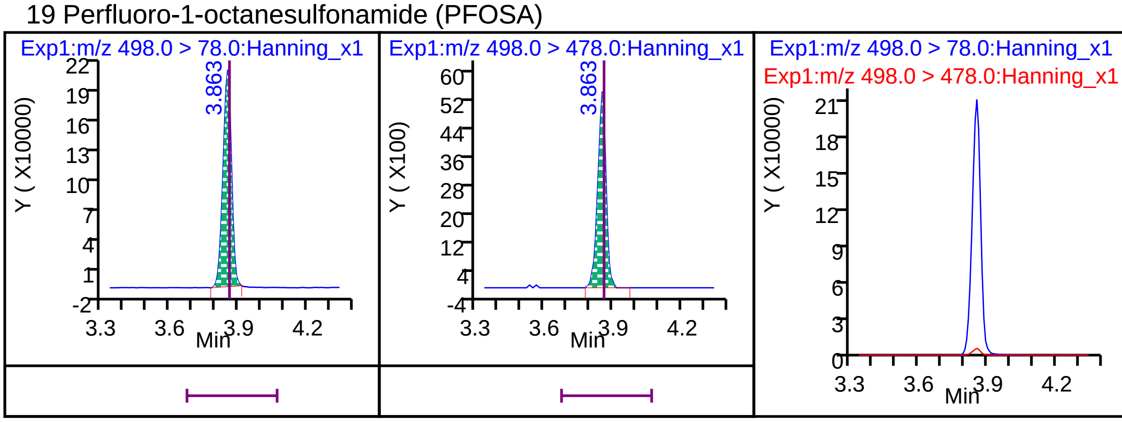
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



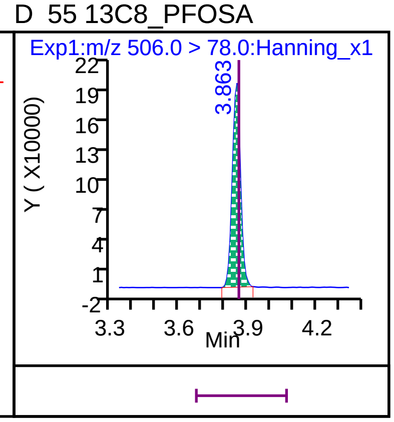
D 54 13C8_PFOS



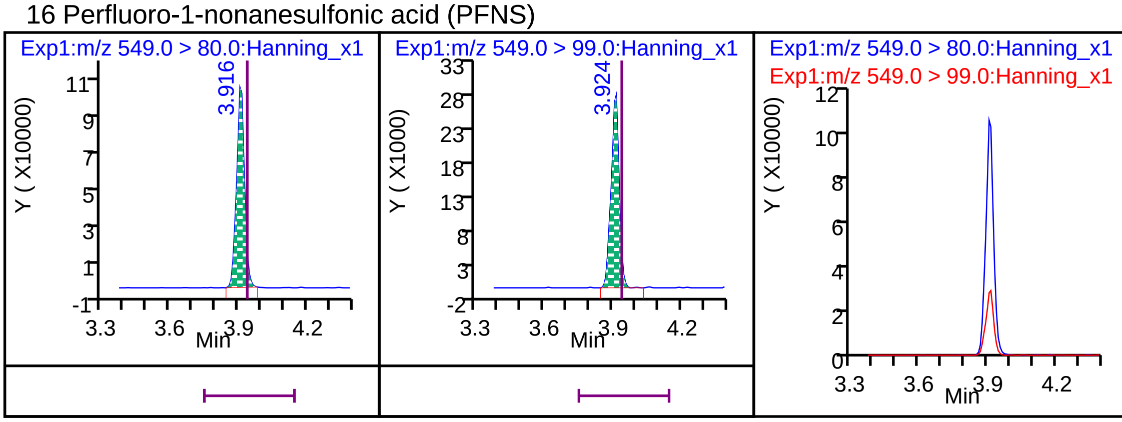
19 Perfluoro-1-octanesulfonamide (PFOSA)



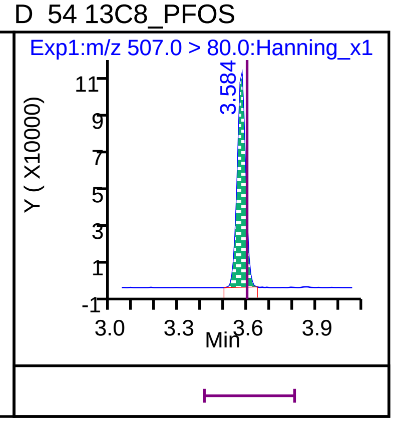
D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS)

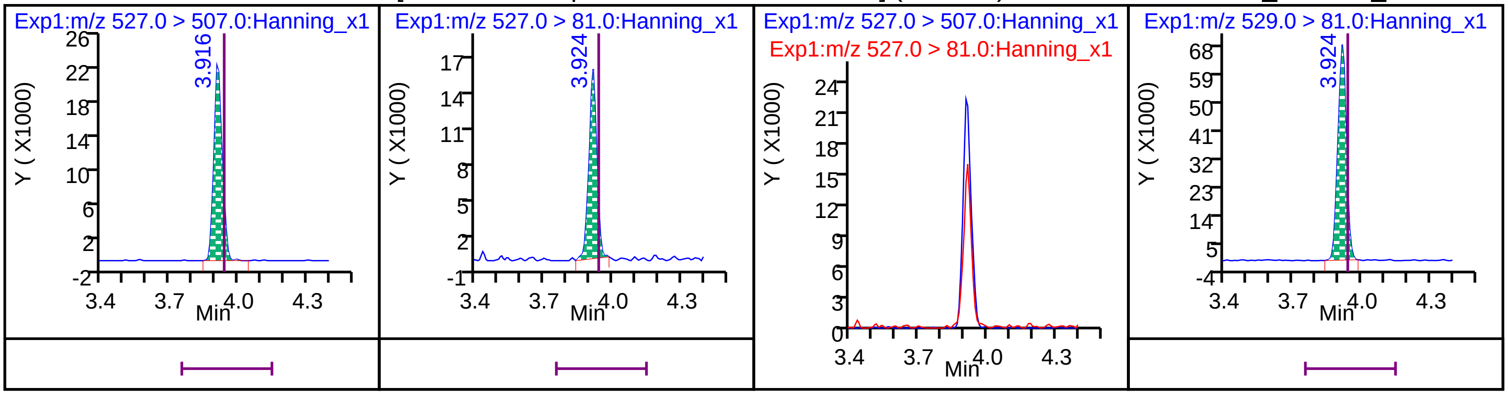


D 54 13C8_PFOS

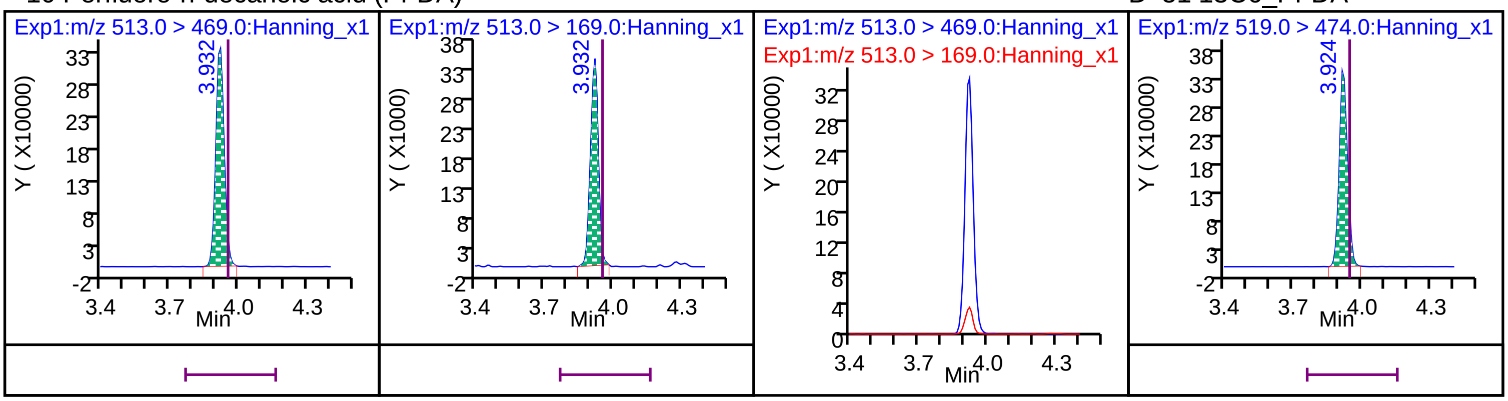


Report Date: 09-Nov-2021 21:17:09 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d

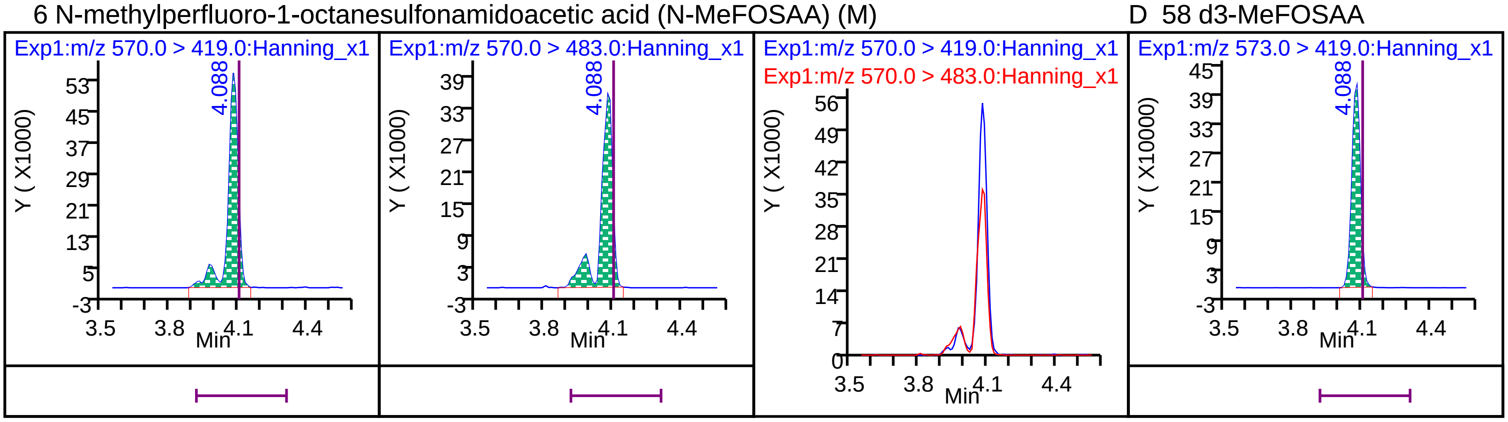
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



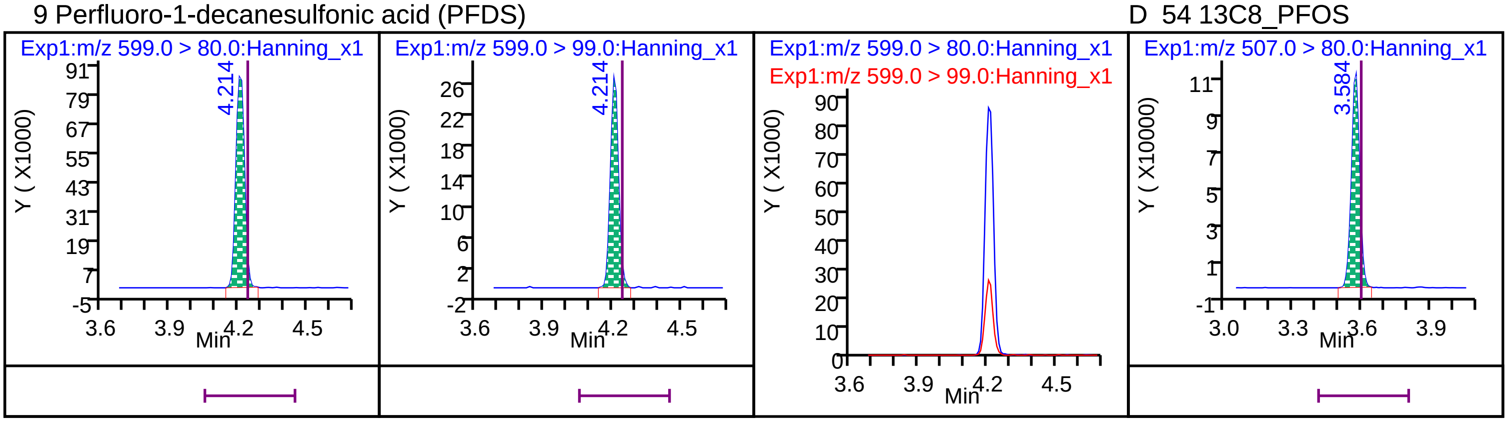
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



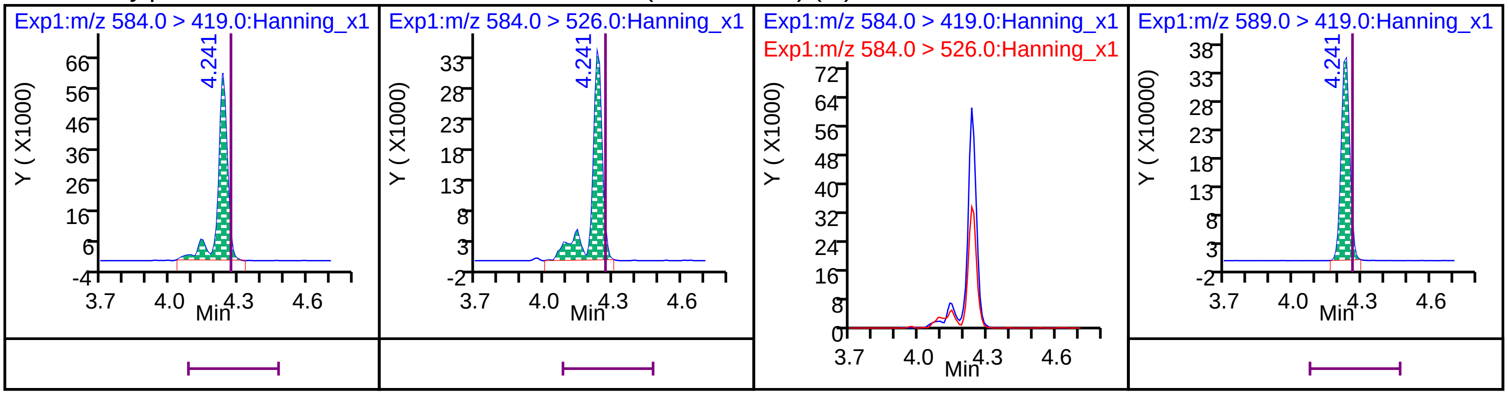
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



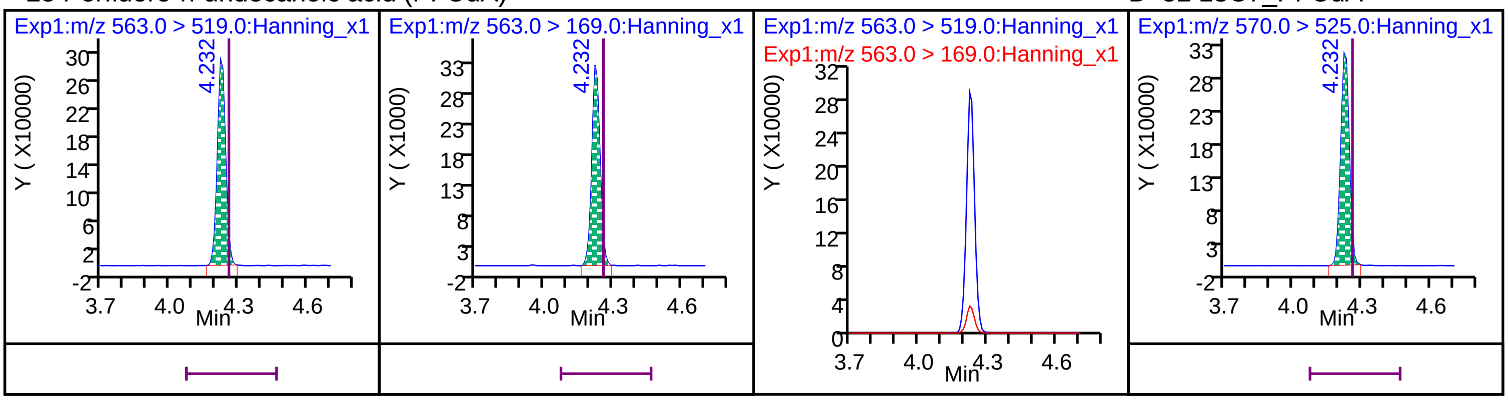
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

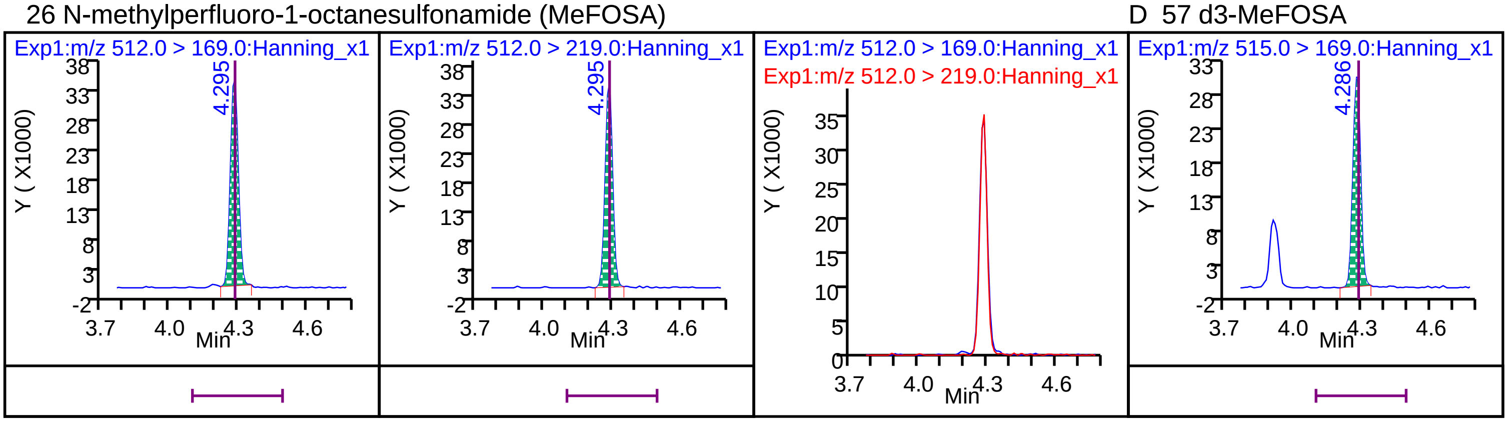


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

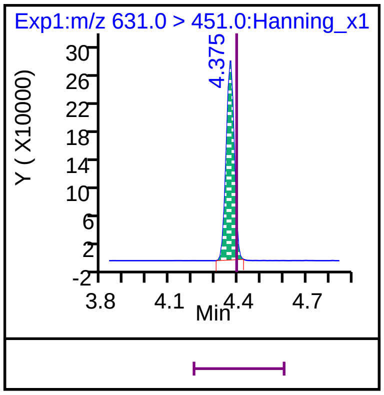


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

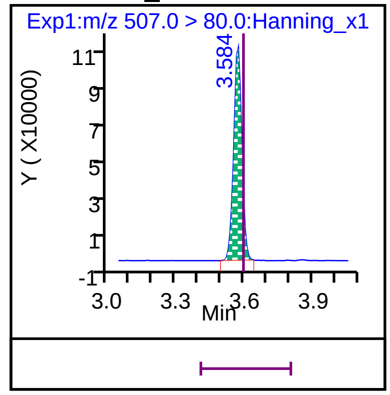
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



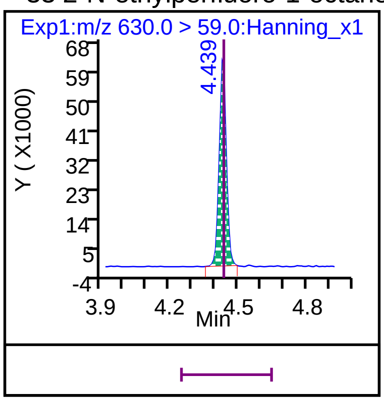
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



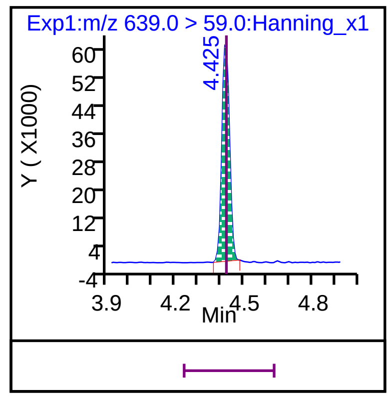
D 54 13C8_PFOS



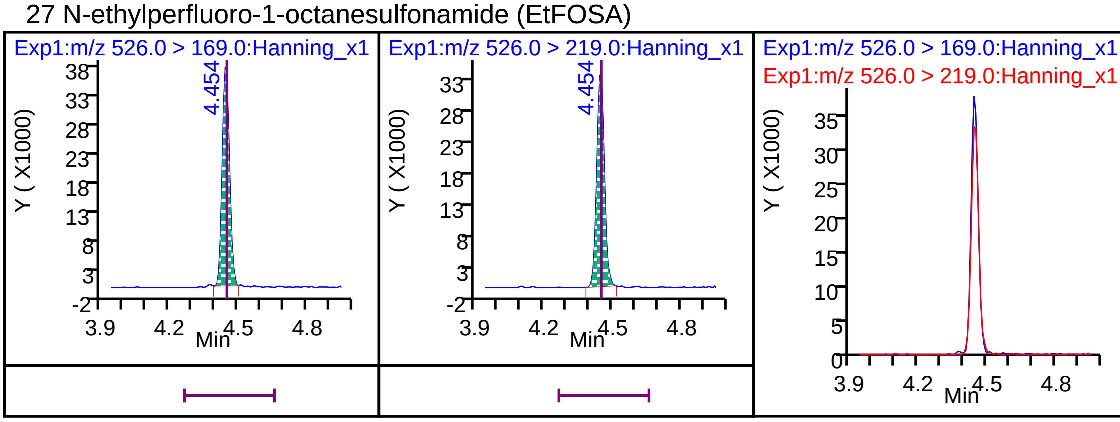
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



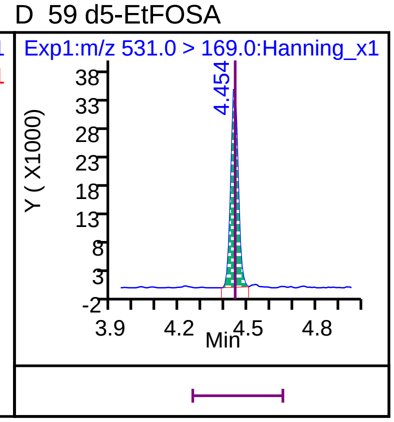
D 62 d9-EtFOSE



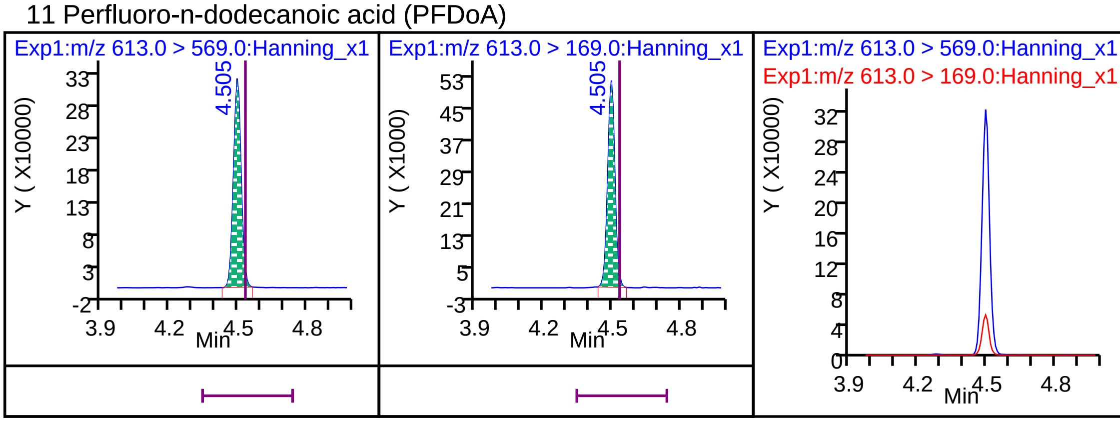
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



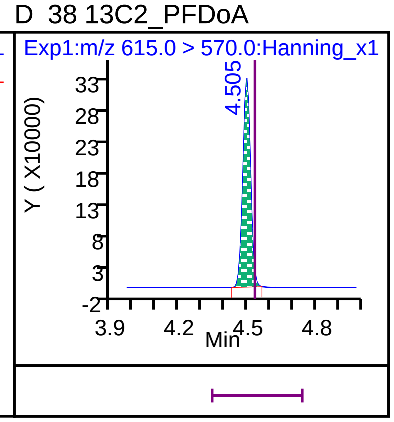
D 59 d5-EtFOSA



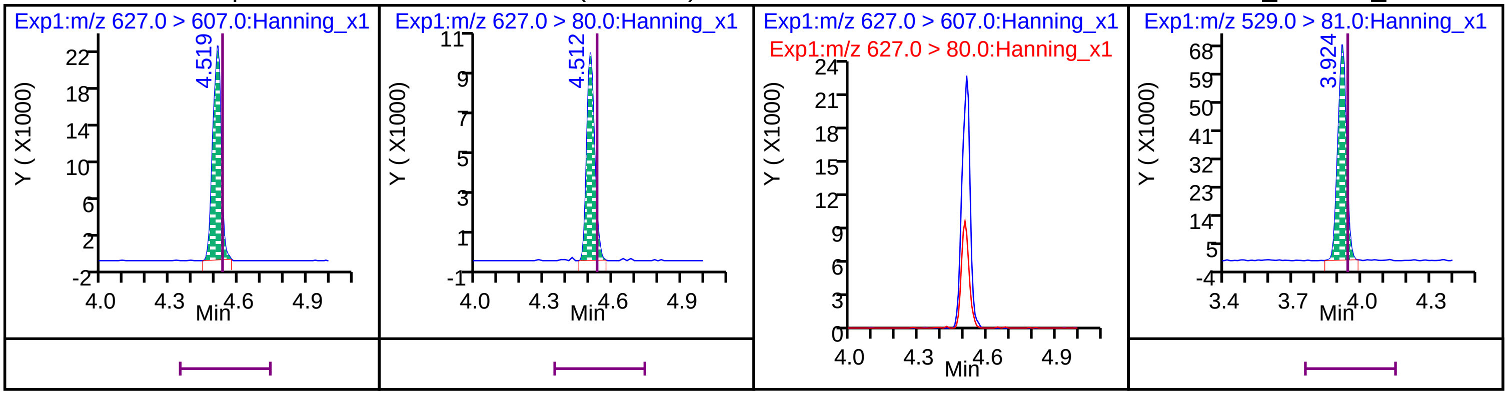
11 Perfluoro-n-dodecanoic acid (PFDoA)



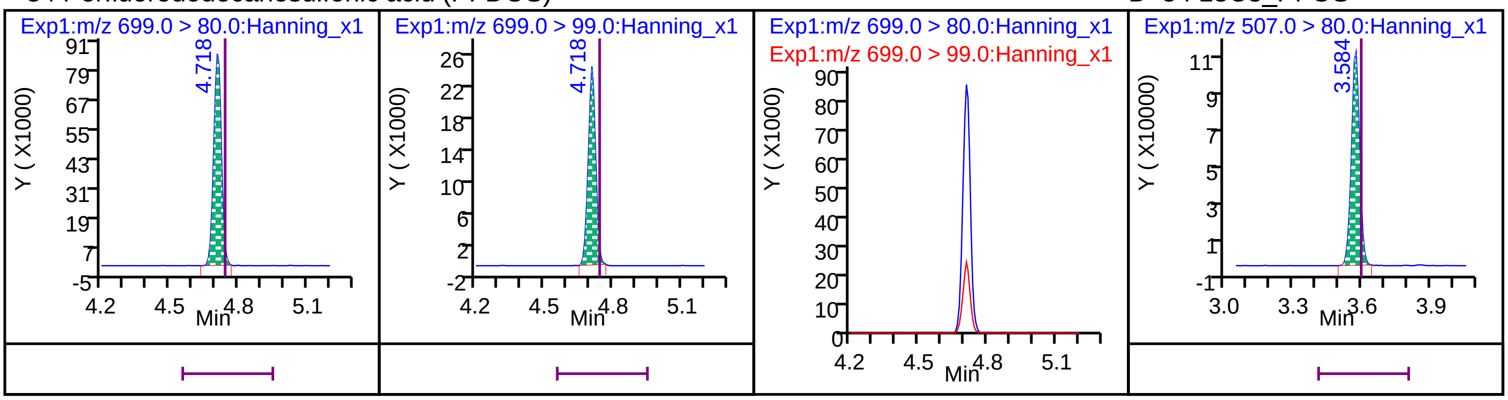
D 38 13C2_PFDoA



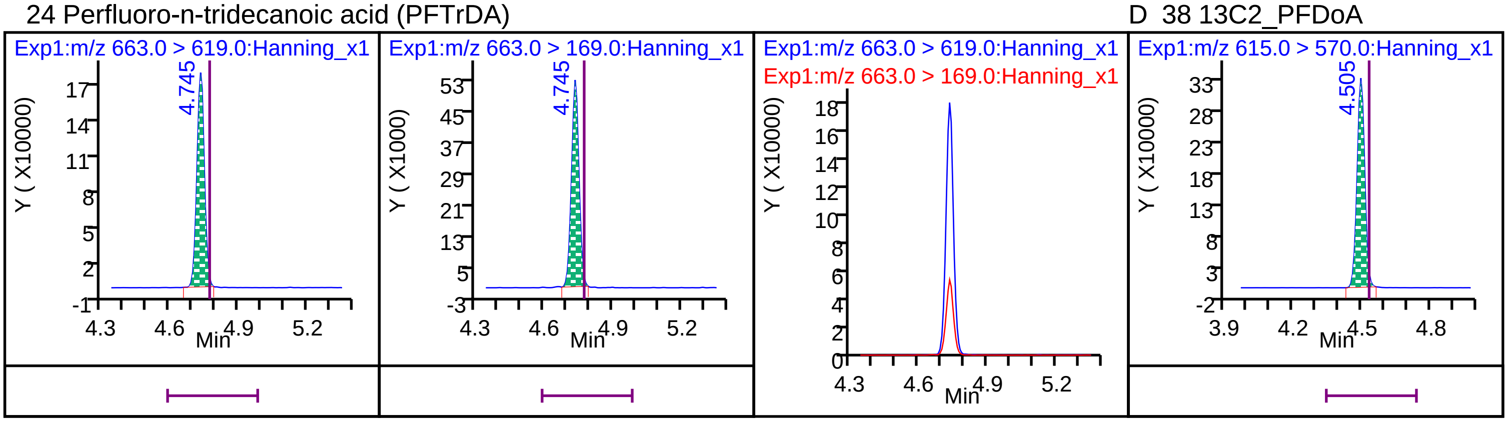
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



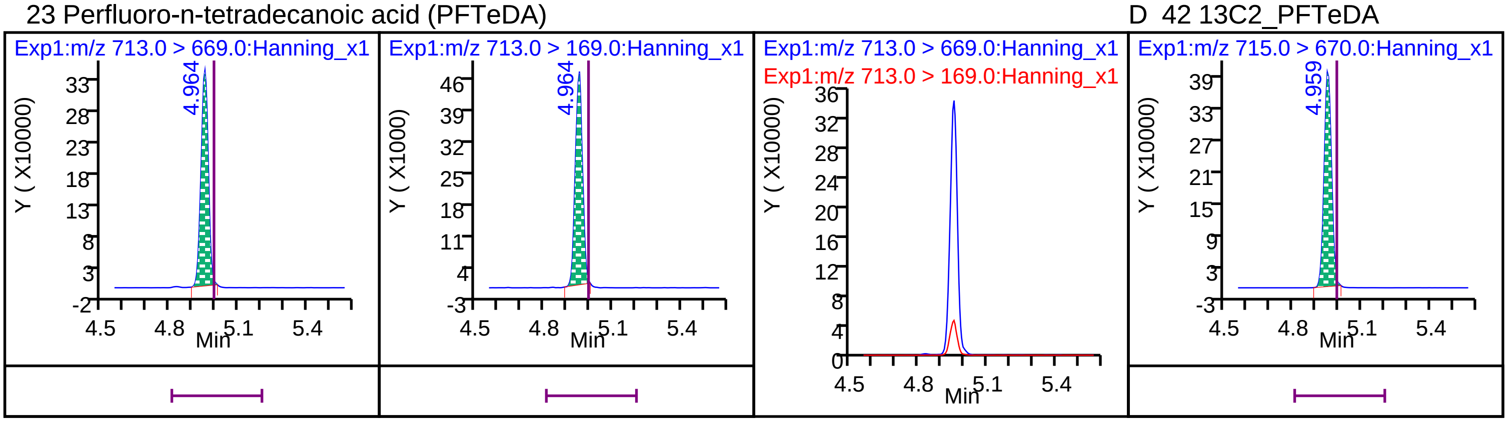
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



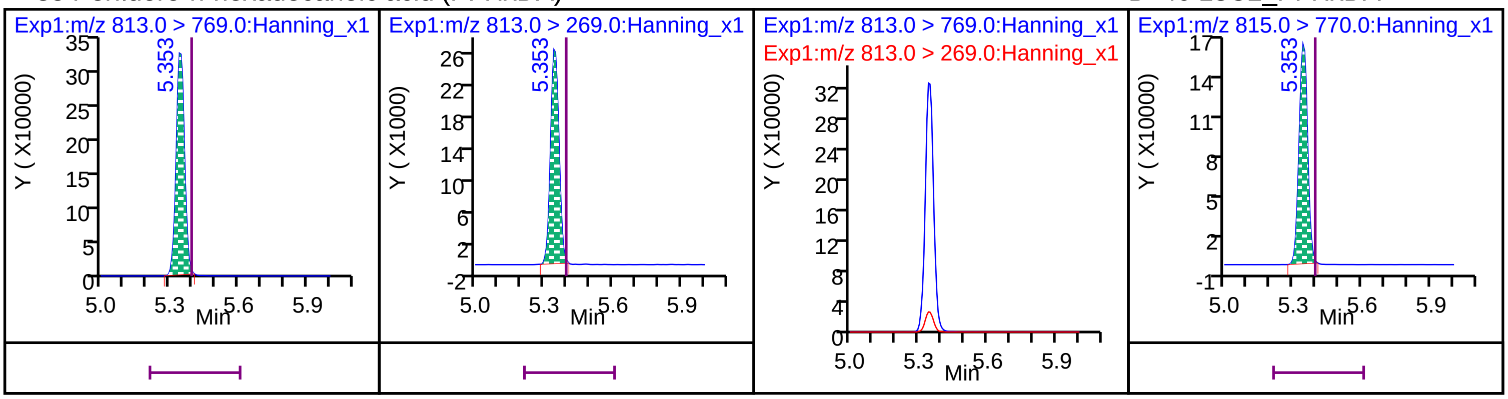
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



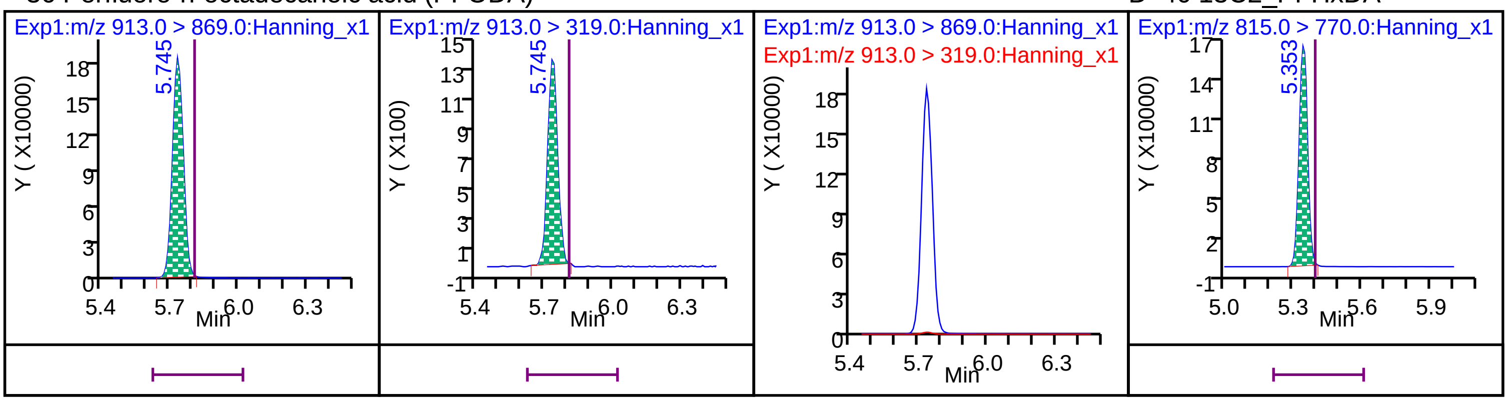
Report Date: 09-Nov-2021 21:17:09 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d

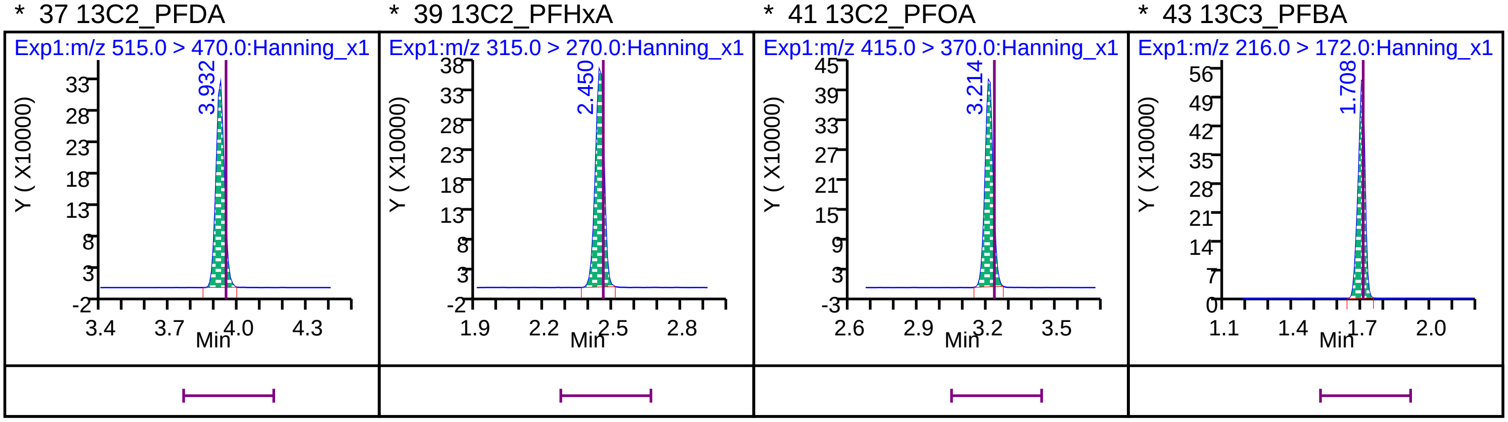
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



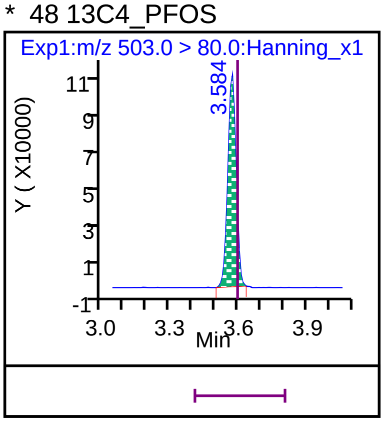
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:17:10 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

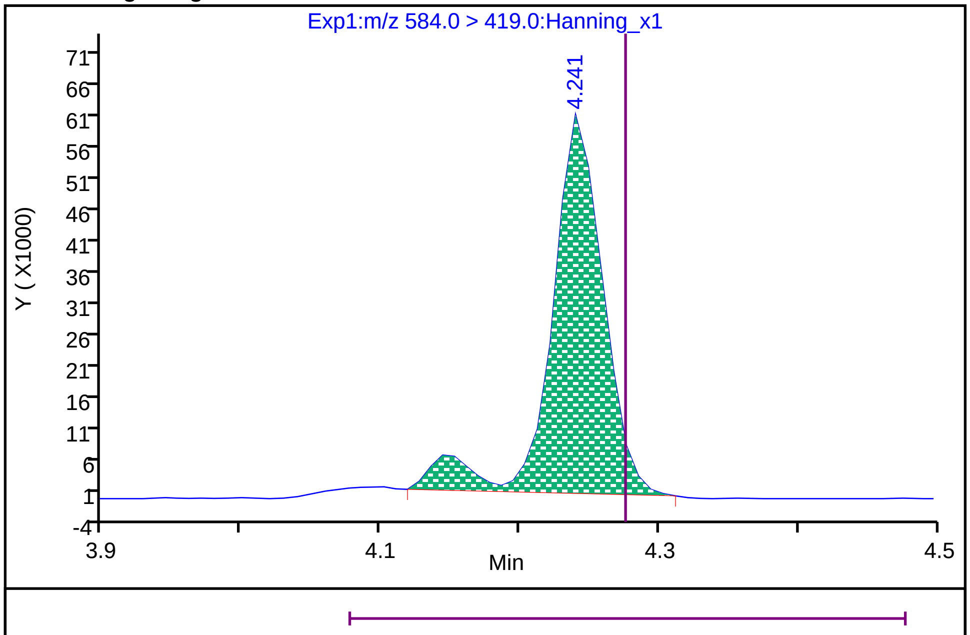
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d
Injection Date:	05-Nov-2021 19:28:02
Inst. ID:	LCMSMS01.i
Client ID:	
Lab ID:	CCV 1000B_SVLC-1717
Sample Info:	CCV 1000B_SVLC-1717
Dil. Factor:	1
Operator:	Matthew M. Miller

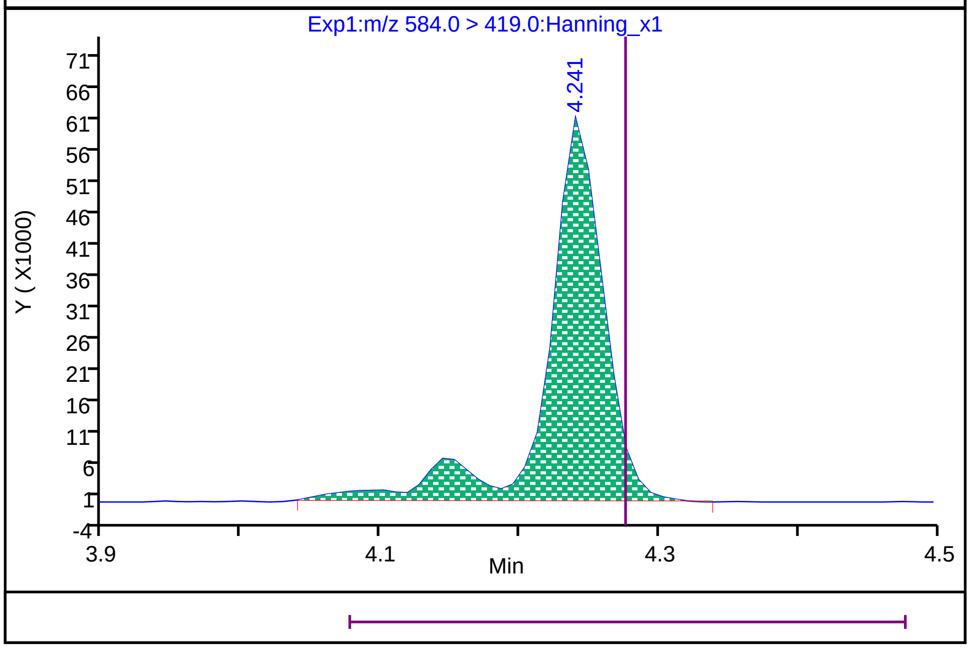
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.241
Area: 155680
Amount: 856.69
Amount Units: ng/L



RT: 4.241
Area: 169799
Amount: 934.39
Amount Units: ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:47:00

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:17:10 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

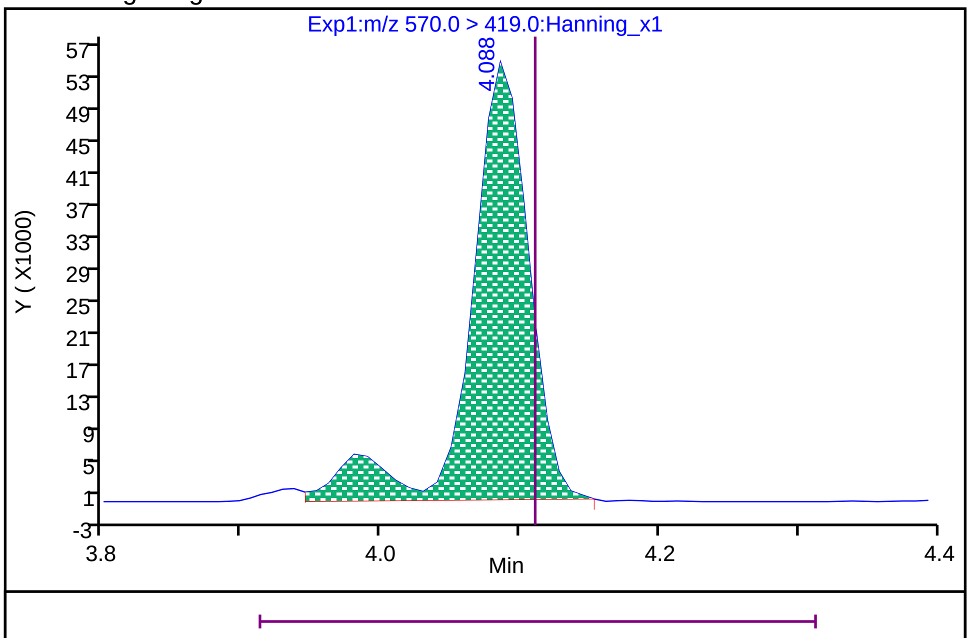
Manual Integration Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521046.d		
Injection Date:	05-Nov-2021 19:28:02	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000B_SVLC-1717
Sample Info:	CCV 1000B_SVLC-1717		
Dil. Factor:	1	Operator:	Matthew M. Miller

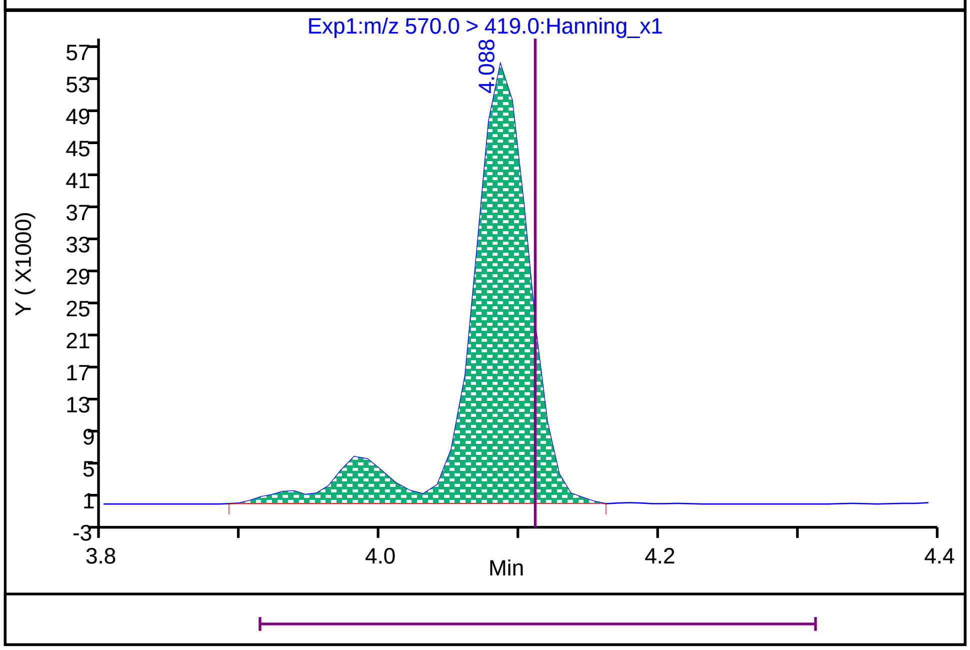
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.088
Area:	158308
Amount:	934.47
Amount Units:	ng/L



RT:	4.088
Area:	162680
Amount:	960.28
Amount Units:	ng/L



Data Editor: matthew.miller, 06-Nov-2021 14:46:55

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d
Injection Date: 05-Nov-2021 21:35:18 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 46
Sample Info: CCV 1000C_SVLC-1717 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	963.91	96.4	70 - 130
D 46 13C4_PFBA	1177138	1163380			98.8	50 - 150
D 50 13C5_PFPeA	1076384	1112110			103.3	50 - 150
21 PFPeA			1000.00	919.94	92	70 - 130
7 PFBS			884.00	794.25	89.8	70 - 130
D 44 13C3_PFBS	338741	360856			106.5	50 - 150
1 4:2 FTS			934.00	946.56	101.3	70 - 130
D 63 13C2_4:2 FTS_2	226256	230196			101.7	50 - 150
D 49 13C5_PFHxA	1008626	991203			98.3	50 - 150
15 PFHxA			1000.00	916.97	91.7	70 - 130
22 PFPeS			938.00	931.57	99.3	70 - 130
28 GenX			2000.00	2040.59	102	70 - 130
D 66 13C3_GenX	924257	882190			95.4	50 - 150
D 47 13C4_PFHpA	976651	1007774			103.2	50 - 150
13 PFHpA			1000.00	996.32	99.6	70 - 130
D 45 13C3_PFHxS	297909	317724			106.7	50 - 150
14 PFHxS			910.00	826.18	90.8	70 - 130
29 ADONA			942.00	891.46	94.6	70 - 130
D 64 13C2_6:2 FTS_2	209020	264662			126.6	50 - 150
2 6:2 FTS			948.00	1092.86	115.3	70 - 130
D 53 13C8_PFOA	914280	968335			105.9	50 - 150
20 PFOA			1000.00	968.34	96.8	70 - 130
12 PFHpS			952.00	913.76	96	70 - 130
18 PFOS			928.00	869.90	93.7	70 - 130
17 PFNA			1000.00	929.05	92.9	70 - 130
D 56 13C9_PFNA	864448	887958			102.7	50 - 150
D 54 13C8_PFOS	243433	262262			107.7	50 - 150
30 9Cl-PF3ONS			932.00	902.86	96.9	70 - 130
D 55 13C8_PFOSA	466162	460723			98.8	50 - 150
19 PFOSA			1000.00	987.50	98.7	70 - 130
16 PFNS			960.00	859.16	89.5	70 - 130
D 65 13C2_8:2 FTS_2	170823	171190			100.2	50 - 150
3 8:2 FTS			958.00	952.94	99.5	70 - 130
10 PFDA			1000.00	928.21	92.8	70 - 130
D 51 13C6_PFDA	796749	809871			101.6	50 - 150
6 N-MeFOSAA			1000.00	1039.61	104	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	881075	977261			110.9	50 - 150
9 PFDS			964.00	880.94	91.4	70 - 130
5 N-EtFOSAA			1000.00	855.03	85.5	70 - 130
25 PFUdA			1000.00	994.75	99.5	70 - 130
D 60 d5-EtFOSAA	806334	878490			108.9	50 - 150
D 52 13C7_PFUdA	752112	749884			99.7	50 - 150
D 61 d7-MeFOSE	134219	136615			101.8	50 - 150
32 MeFOSE			1000.00	977.54	97.8	70 - 130
26 MeFOSA			1000.00	1282.55	128.3	70 - 130
D 57 d3-MeFOSA	65225	65489			100.4	50 - 150
31 11Cl-PF3OUDS			942.00	863.62	91.7	70 - 130
D 62 d9-EtFOSE	125062	137205			109.7	50 - 150
33 EtFOSE			1000.00	1102.99	110.3	70 - 130
D 59 d5-EtFOSA	70105	67280			96	50 - 150
27 EtFOSA			1000.00	968.15	96.8	70 - 130
11 PFDoA			1000.00	1023.95	102.4	70 - 130
D 38 13C2_PFDoA	693700	712722			102.7	50 - 150
4 10:2 FTS			964.00	859.75	89.2	70 - 130
34 PFDOS			968.00	758.81	78.4	70 - 130
24 PFTrDA			1000.00	978.00	97.8	70 - 130
23 PFTeDA			1000.00	979.11	97.9	70 - 130
D 42 13C2_PFTeDA	925125	819891			88.6	50 - 150
35 PFHxDA			1000.00	1001.03	100.1	70 - 130
D 40 13C2_PFHxDA	400309	395854			98.9	50 - 150
36 PFODA			1000.00	973.45	97.3	70 - 130

Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d		
Injection Date:	05-Nov-2021 21:35:18	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	46
Sample Info:	CCV 1000C_SVLC-1717	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.715	0	1163380	21	>100:1			1000.00	1080.47	98.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.715	1/1	1233330	20	>100:1			1000.00	963.91		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	1	1112110	17	>100:1			1000.00	1108.88	103.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.078	2.089	1/0	1096162	15	>100:1			1000.00	919.94		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.131	2.141	0	360856	15	>100:1			1000.00	1111.11	106.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/1	409458	14	>100:1	Target = 3.80		884.00	794.25		
298.9 > 99	44	2.141	2.141		111029	14	>100:1	3.68 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.502	1/1	338243	18	>100:1	Target = 3.42		938.00	931.57		
349 > 99	44	2.485	2.502		99379	18	>100:1	3.40 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	1	230196	19	>100:1			5000.00	5541.96	101.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.415	2.424	1/0	85052	16		Target = 1.54		934.00	946.56		
327 > 81	63	2.415	2.424		57387	20	>100:1	1.48 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.450	2.468	0	991203	17	>100:1			1000.00	1109.68	98.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.468	1/1	939158	19	>100:1	Target = 17.93		1000.00	916.97		
313 > 119	49	2.450	2.468		57546	16	>100:1	16.32 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	1	882190	19	>100:1			5000.00	5385.14	95.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.594	1/0	275855	17	>100:1	Target = 0.72		2000.00	2040.59		
285 > 185	66	2.579	2.594		398275	19	>100:1	0.69 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.855	1	1007774	18	>100:1			1000.00	1150.17	103.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.837	2.855	1/0	966574	17	>100:1	Target = 3.26		1000.00	996.32		
363 > 169	47	2.846	2.855		289686	18	>100:1	3.33 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.872	1	317724	18	>100:1			1000.00	1211.39	106.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.872	1/0	310311	26	>100:1	Target = 3.48	5.49	910.00	826.18		
399 > 99	45	2.855	2.872		91866	27	>100:1	3.37 (1.74-5.22)	7.82				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.898	1/0	1558998	18	>100:1	Target = 2.31		942.00	891.46		
377 > 85	45	2.881	2.898		549432	19	>100:1	2.83 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.223	3.239	1/0	298611	22	>100:1	Target = 3.56		952.00	913.76		
449 > 99	45	3.223	3.239		79860	22	>100:1	3.73 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.214	1	264662	21	>100:1			5000.00	7018.15	126.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.198	3.208	1/0	100584	21	>100:1	Target = 1.34		948.00	1092.86		
427 > 81	64	3.204	3.208		71250	20	>100:1	1.41 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.217	3.239	0	968335	22	>100:1			1000.00	1170.91	105.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.217	3.239	0/0	964790	22	>100:1	Target = 2.50		1000.00	968.34		
413 > 169	53	3.217	3.239		381233	22	>100:1	2.53 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.606	0	262262	19	>100:1			1000.00	1168.31	107.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.581	3.614	0/0	268944	40	>100:1	Target = 4.01	3.65	928.00	869.90		
499 > 99	54	3.581	3.614		67648	36	>100:1	3.97 (2.00-6.02)	8.24				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.784	3.811	0/0	731786	20	>100:1			932.00	902.86		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.911	3.948	0/0	227584	18	>100:1	Target = 3.78		960.00	859.16		
549 > 99	54	3.919	3.948		60793	17	>100:1	3.74 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.217	4.250	0/0	228091	17	>100:1	Target = 3.98		964.00	880.94		
599 > 99	54	4.217	4.250		59277	16	>100:1	3.84 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.368	4.402	0/0	629189	16	>100:1			942.00	863.62		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.720	4.752	0/0	192736	19	>100:1	Target = 3.68		968.00	758.81		
699 > 99	54	4.720	4.752		55043	20	>100:1	3.50 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.614	0	887958	20	>100:1			1000.00	1111.32	102.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.588	3.614	0/0	751216	20	>100:1	Target = 4.69		1000.00	929.05		
463 > 169	56	3.588	3.614		173366	20	>100:1	4.33 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.858	3.870	1	460723	19	>100:1			1000.00	1112.34	98.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.858	3.870	1/0	514432	18	>100:1	Target = 40.85		1000.00	987.50		
498>478	55	3.858	3.870		12280	25	51:1	41.89 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.926	3.948	1	171190	18	>100:1			5000.00	5454.44	100.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.926	3.948	0/-1	57965	17	>100:1	Target = 1.58		958.00	952.94		
527 > 81	65	3.919	3.948		38623	17	81:1	1.50 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.514	4.541	0/-1	52495	19	>100:1	Target = 2.46		964.00	859.75		
627 > 80	65	4.514	4.541		23051	19	>100:1	2.27 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.926	3.956	0	809871	19	>100:1			1000.00	1122.01	101.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.926	3.964	0/0	771357	20	>100:1	Target = 9.77		1000.00	928.21		
513 > 169	51	3.926	3.964		81410	17	>100:1	9.47 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.112	0	977261	18	>100:1			5000.00	5511.51	110.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.082	4.112	0/0	166135	30	>100:1	Target = 1.41	8.07	1000.00	1039.61		
570 > 483	58	4.090	4.112		118570	32	>100:1	1.40 (0.70-2.11)	4.42				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.268	0	749884	18	>100:1			1000.00	1097.24	99.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.235	4.268	0/0	669202	18	>100:1	Target = 9.19		1000.00	994.75		
563 > 169	52	4.226	4.268		66645	17	>100:1	10.04 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.268	0	878490	17	>100:1			5000.00	5874.98	108.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.244	4.277	0/0	153559	35	>100:1	Target = 1.75	6.19	1000.00	855.03		
584 > 526	60	4.244	4.277		96927	32	>100:1	1.58 (0.87-2.63)	3.80				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.271	4.268	1	136615	16	>100:1			1000.00	990.06	101.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.280	4.277	1/0	135727	15	>100:1			1000.00	977.54		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.289	4.295	1	65489	17	>100:1			1000.00	935.28	100.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.289	4.295	0/-1	86977	15	>100:1	Target = 1.11		1000.00	1282.55		
512 > 219	57	4.289	4.295		76516	15	>100:1	1.13 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.427	4.432	1	137205	17	>100:1			1000.00	1067.30	109.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.441	4.446	1/0	128817	17	>100:1			1000.00	1102.99		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.448	4.454	1	67280	18	>100:1			1000.00	1044.64	96	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.456	4.461	1/0	76152	16	>100:1	Target = 1.06		1000.00	968.15		
526 > 219	59	4.456	4.461		73337	18	>100:1	1.03 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.506	4.541	0	712722	18	>100:1			1000.00	1036.47	102.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.506	4.541	0/0	716728	18	>100:1	Target = 6.38		1000.00	1023.95		
613 > 169	38	4.499	4.541		104229	19	>100:1	6.87 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.740	4.784	0/0	373543	21	>100:1	Target = 3.23		1000.00	978.00		
663 > 169	38	4.747	4.784		115947	21	>100:1	3.22 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.960	5.000	0	819891	24	>100:1			1000.00	1048.78	88.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.960	5.003	0/0	705480	25	>100:1	Target = 7.33		1000.00	979.11		
713 > 169	42	4.960	5.003		98052	25	>100:1	7.19 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.354	5.406	0	395854	22	>100:1			1000.00	1014.02	98.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.354	5.406	0/0	757999	21	>100:1	Target = 12.31		1000.00	1001.03		
813 > 269	40	5.354	5.406		62975	23	>100:1	12.03 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.744	5.819	-1/-1	581752	22	>100:1	Target = 165.31		1000.00	973.45		
913 > 319	40	5.744	5.819		3660	21		158.94 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.926	3.956	0	740696	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	1	917638	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.239	0	878277	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.714	1.715	1	1003250	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.606	0	254394	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

QC Flag Legend

Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

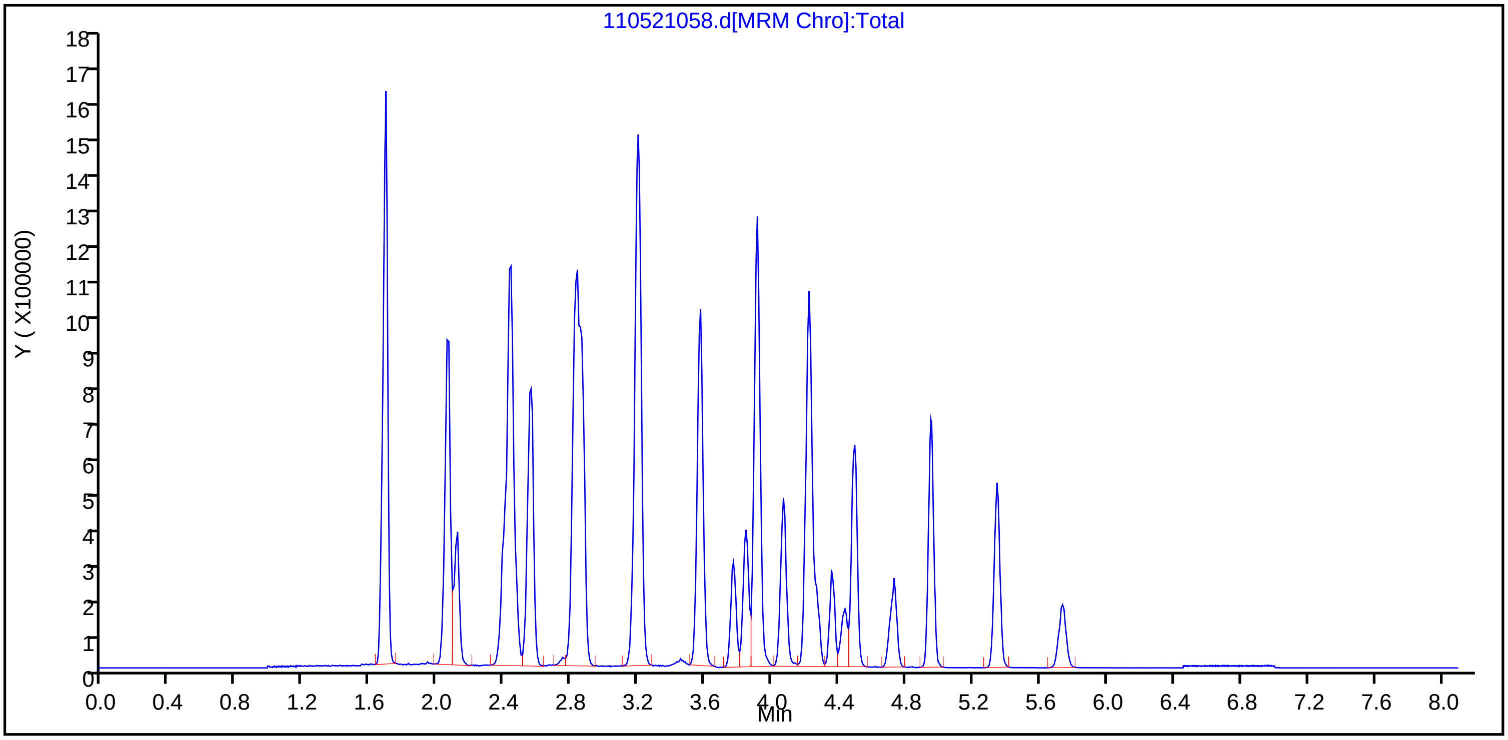
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d

Injection Date: 05-Nov-2021 21:35:18 Inst. ID: LCMSMS01.i

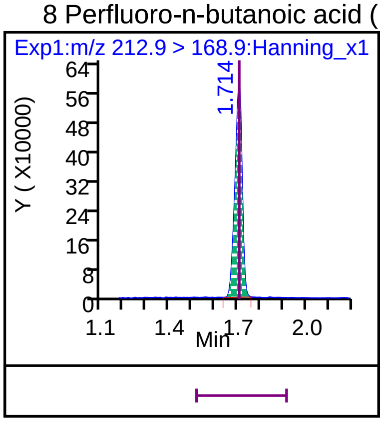
Client ID: Lab ID: CCV 1000C_SVLC-1717

Sample Info: CCV 1000C_SVLC-1717

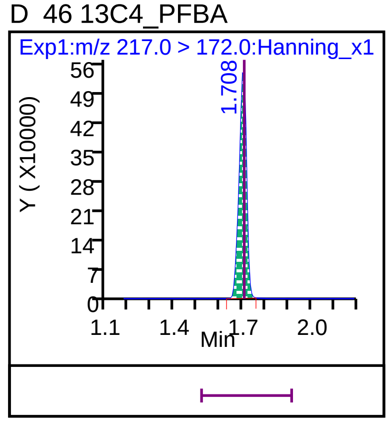
Dil. Factor: 1 Operator: Matthew M. Miller



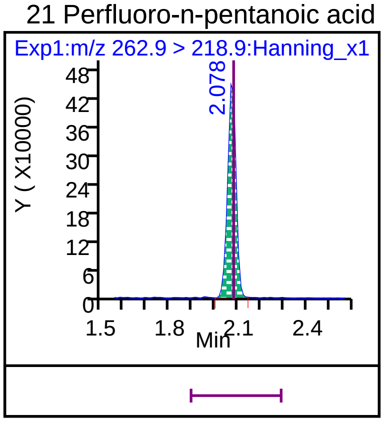
8 Perfluoro-n-butanoic acid (PFBA)



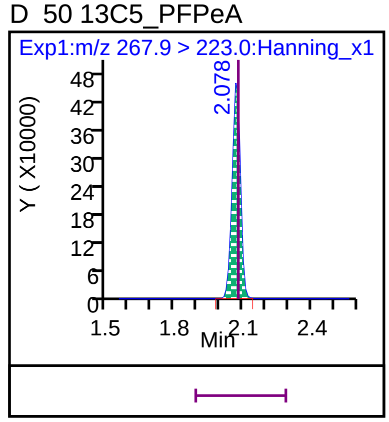
D 46 13C4_PFBA



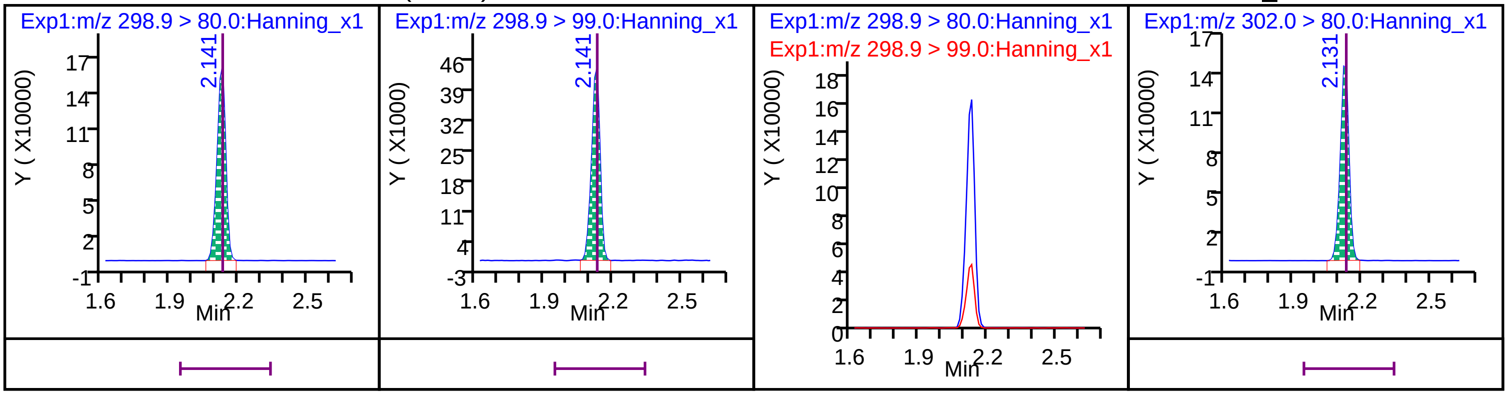
21 Perfluoro-n-pentanoic acid (PFPeA)



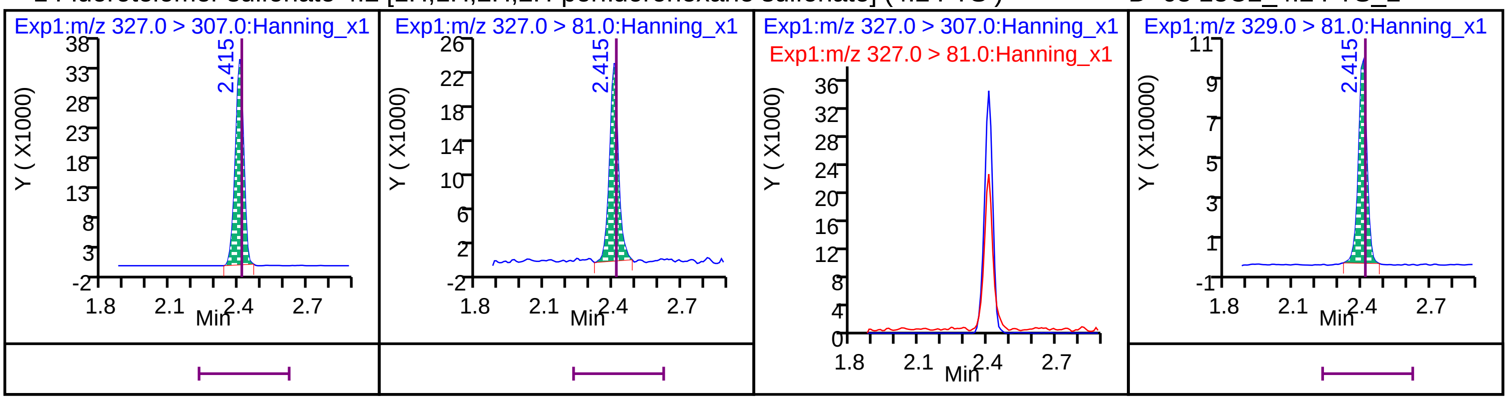
D 50 13C5_PFPeA



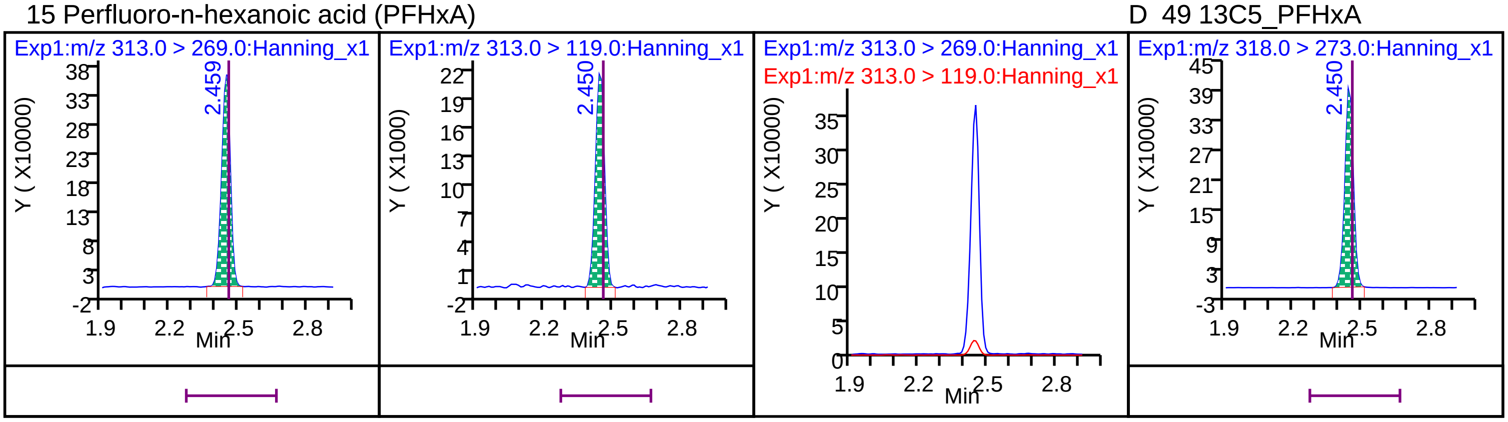
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



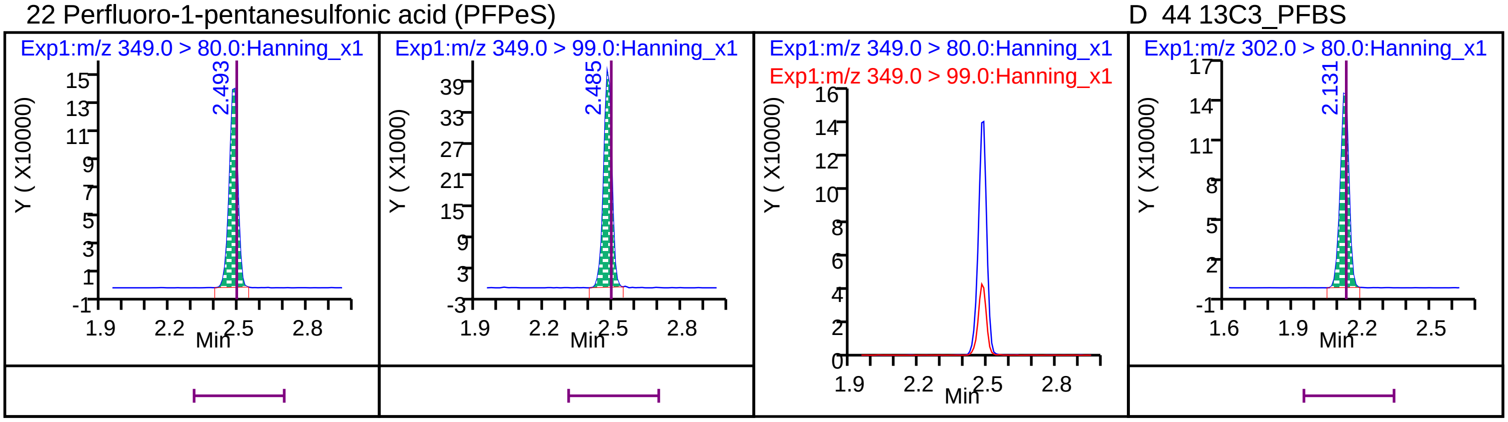
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

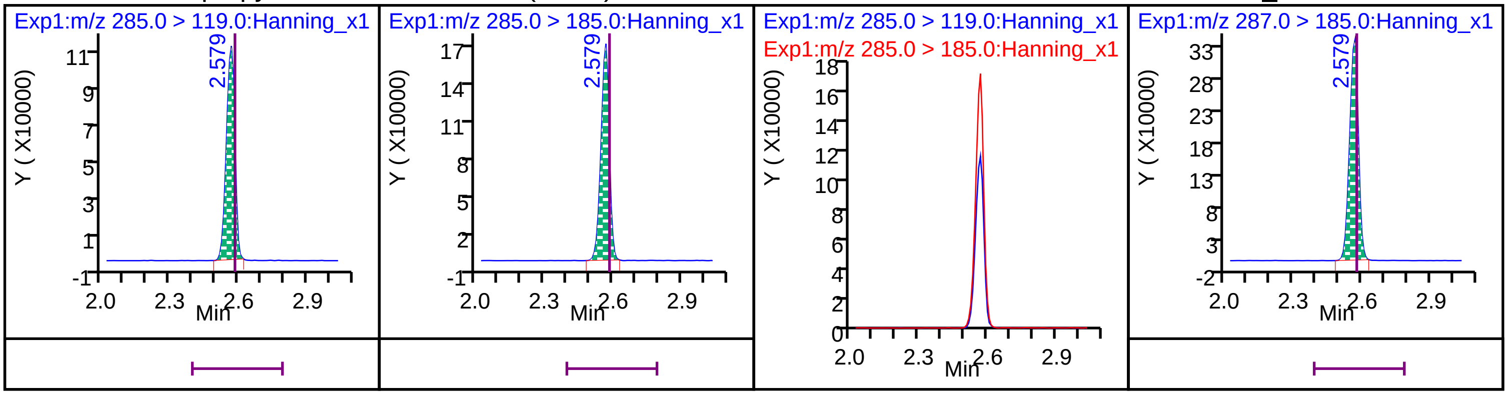


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

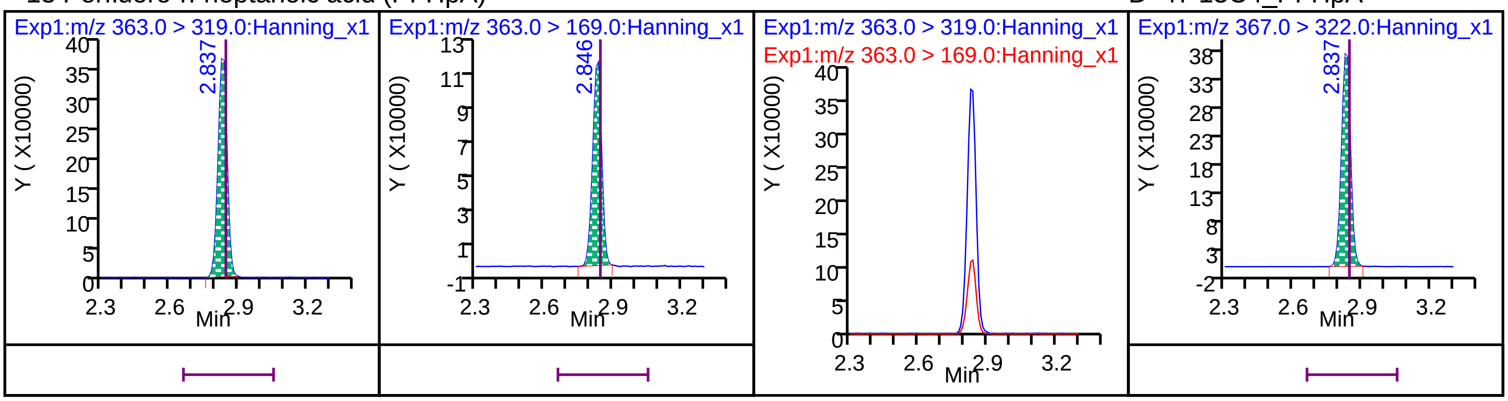


Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d

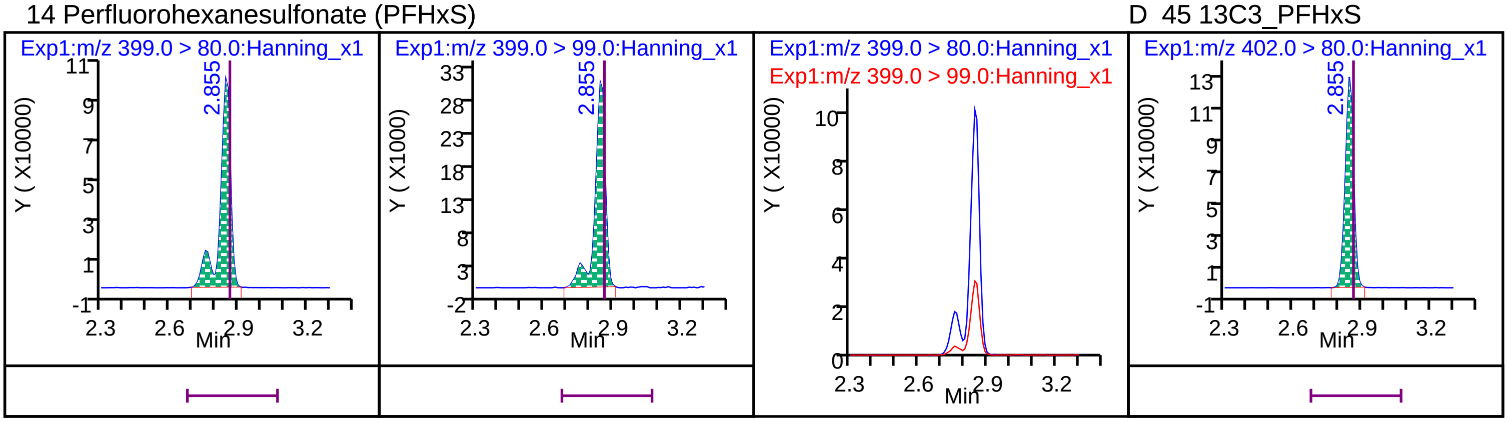
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



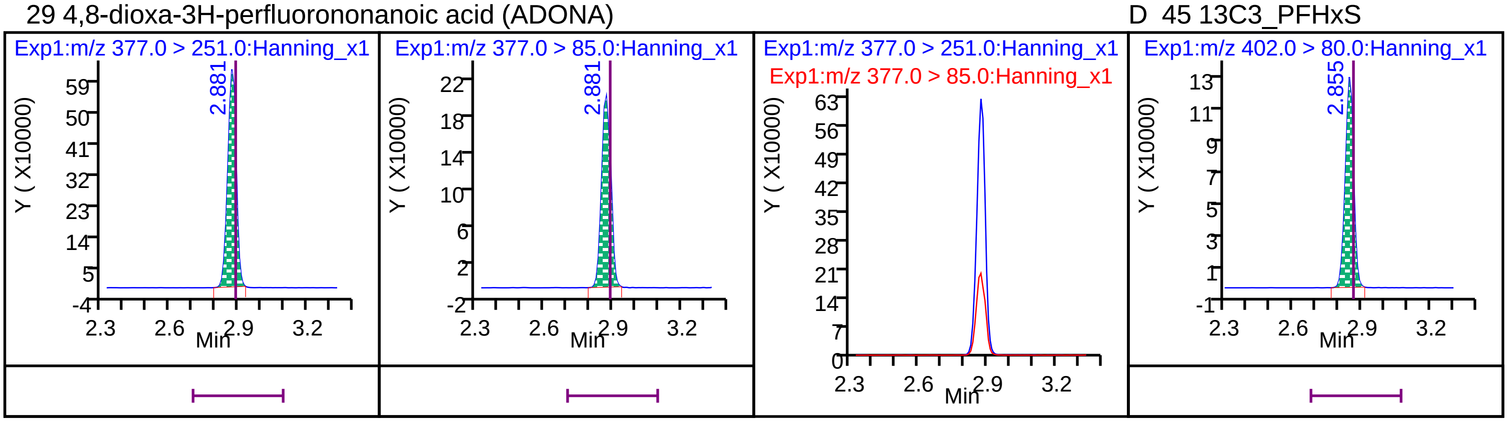
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



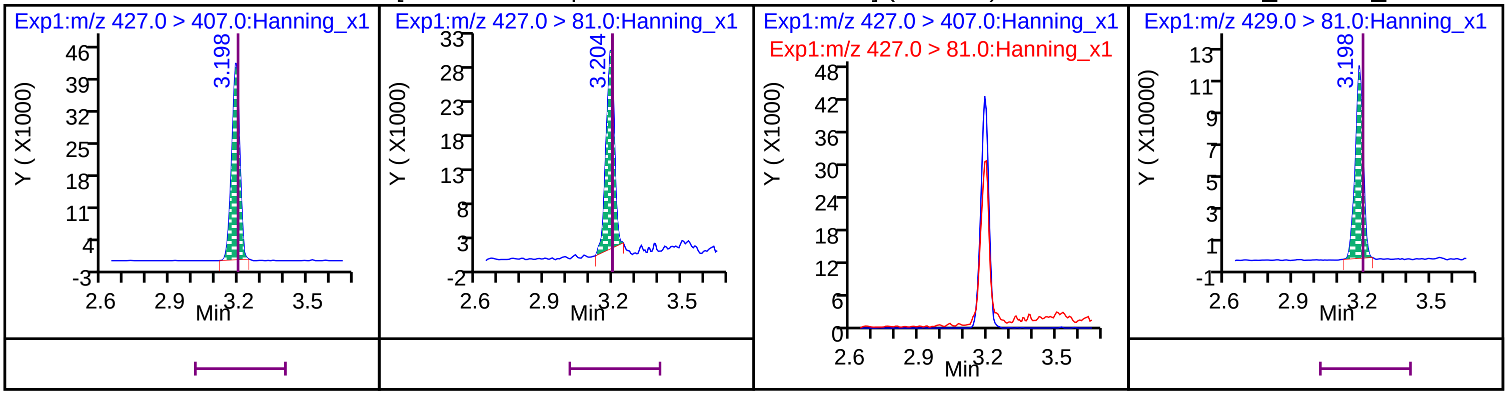
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



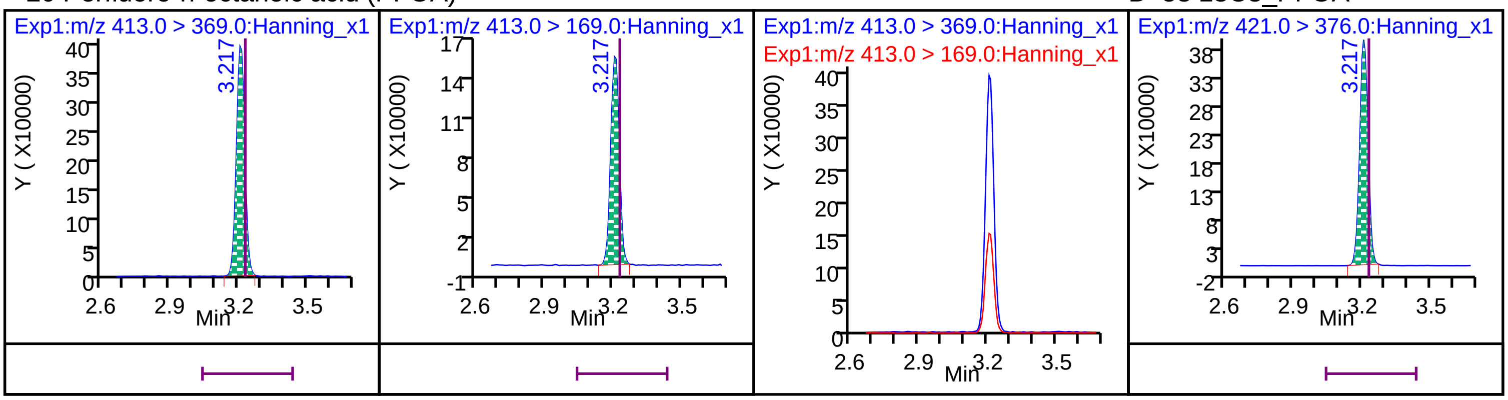
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



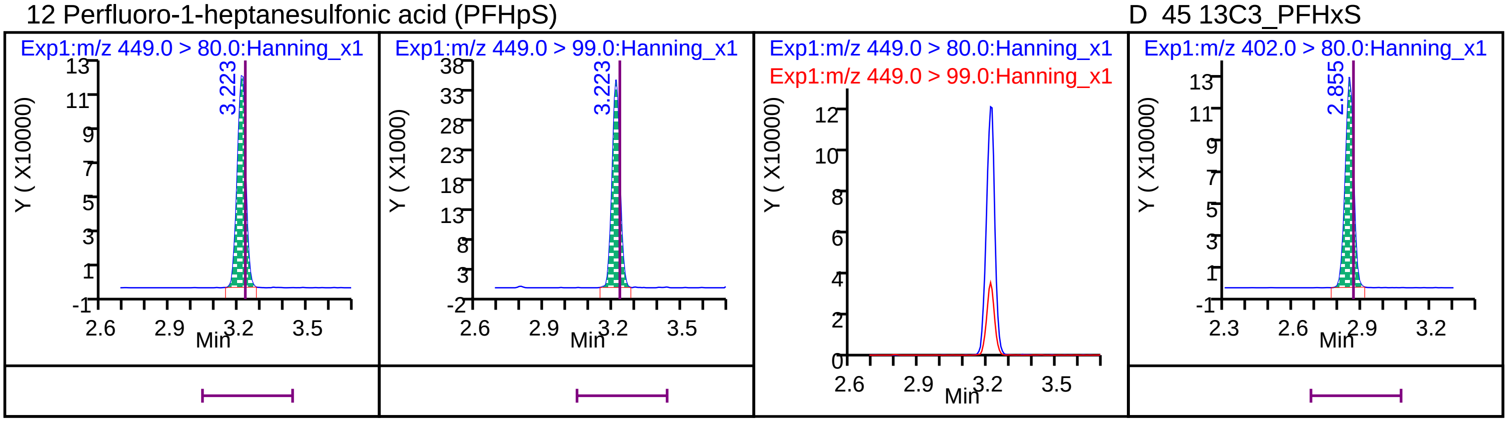
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



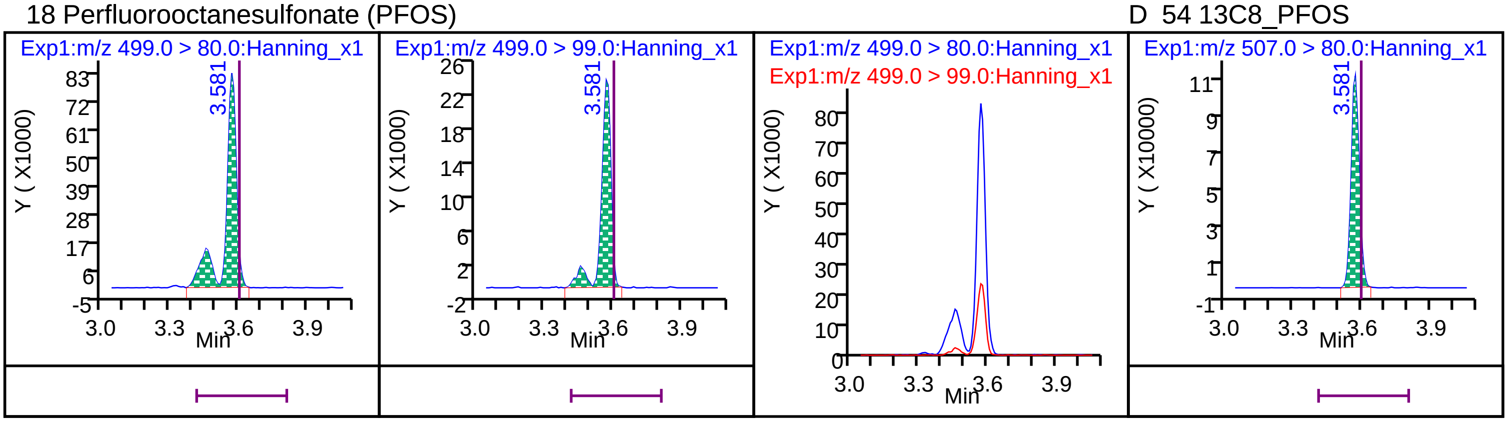
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



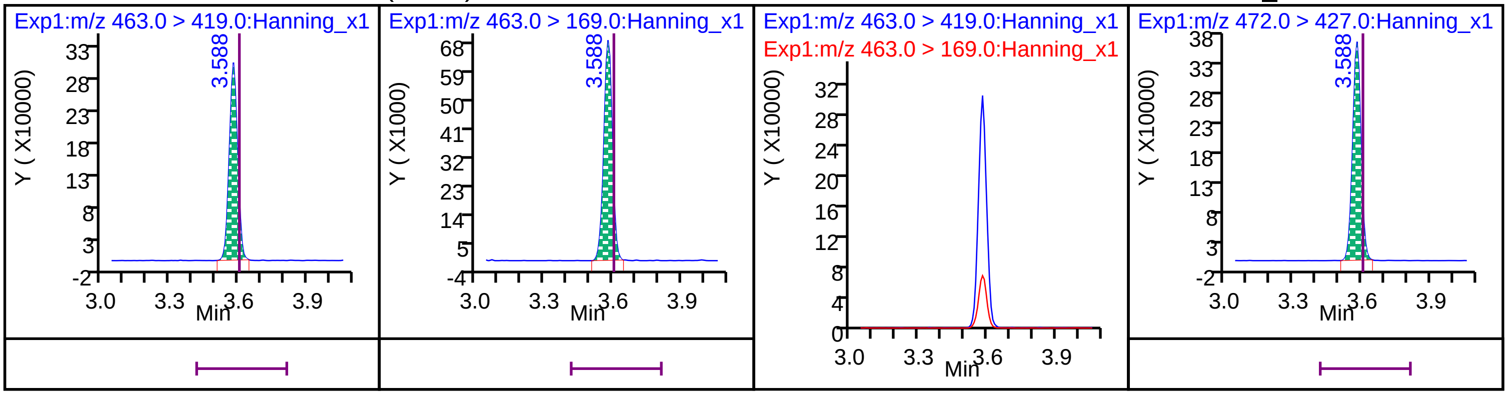
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



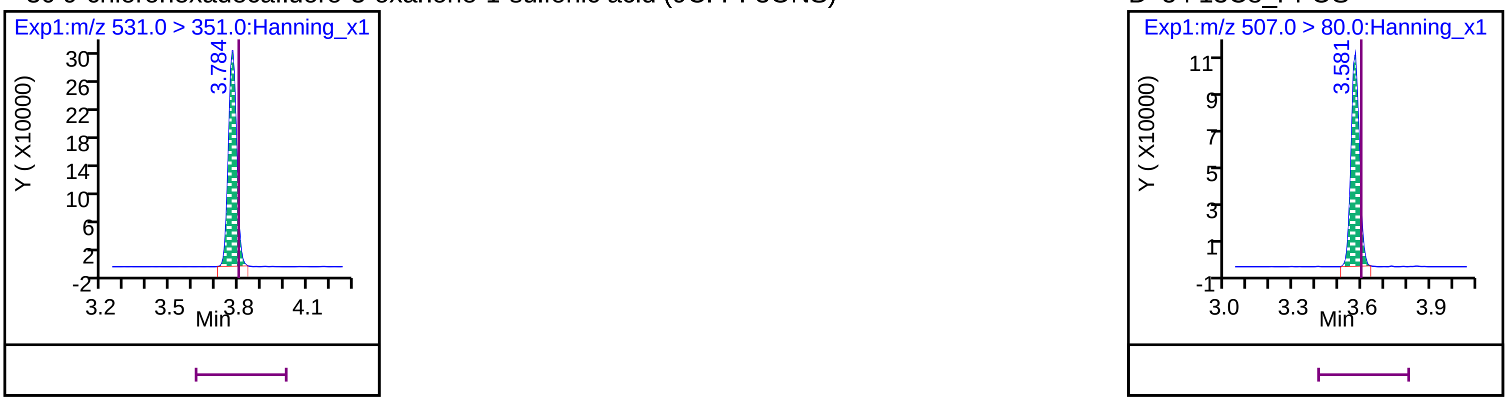
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



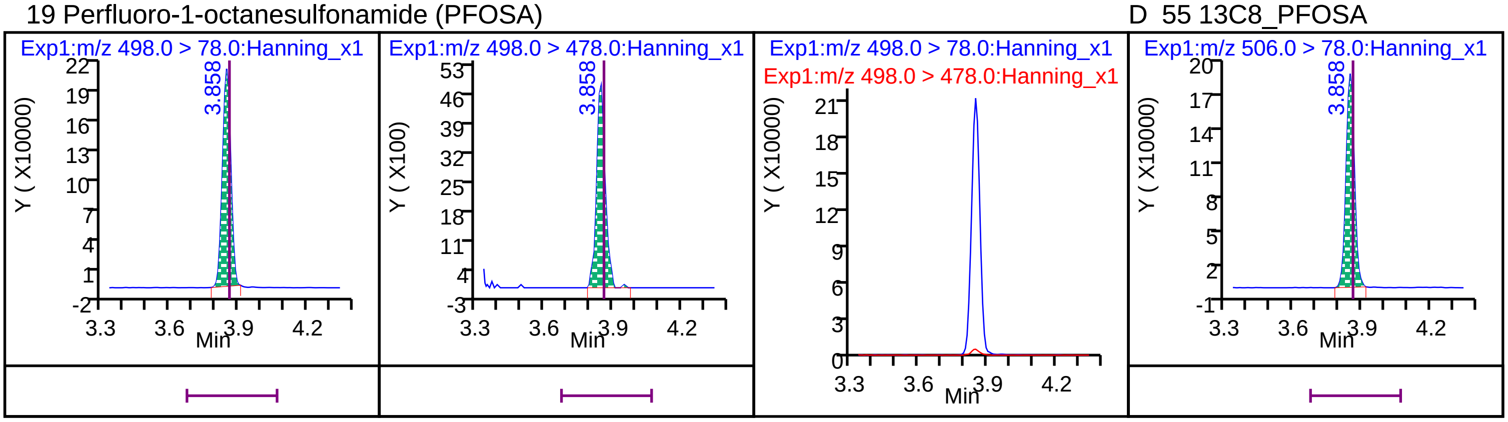
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



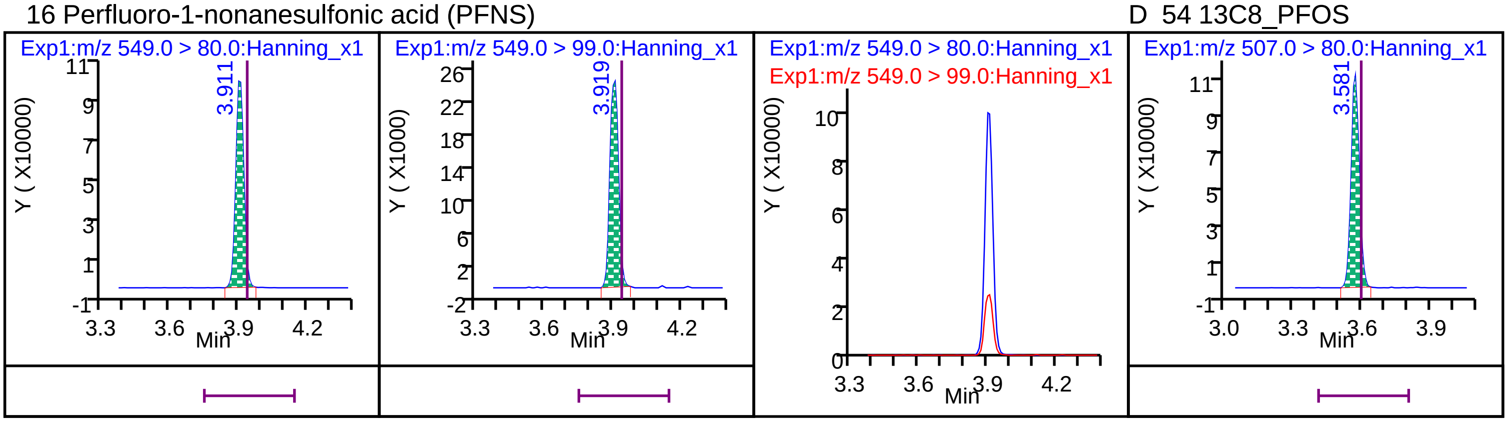
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



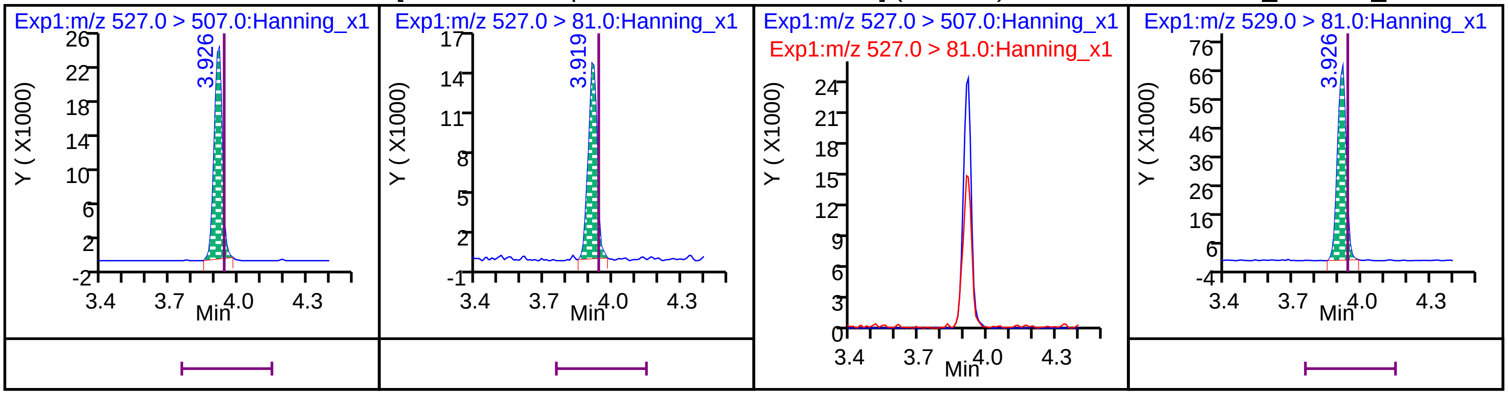
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



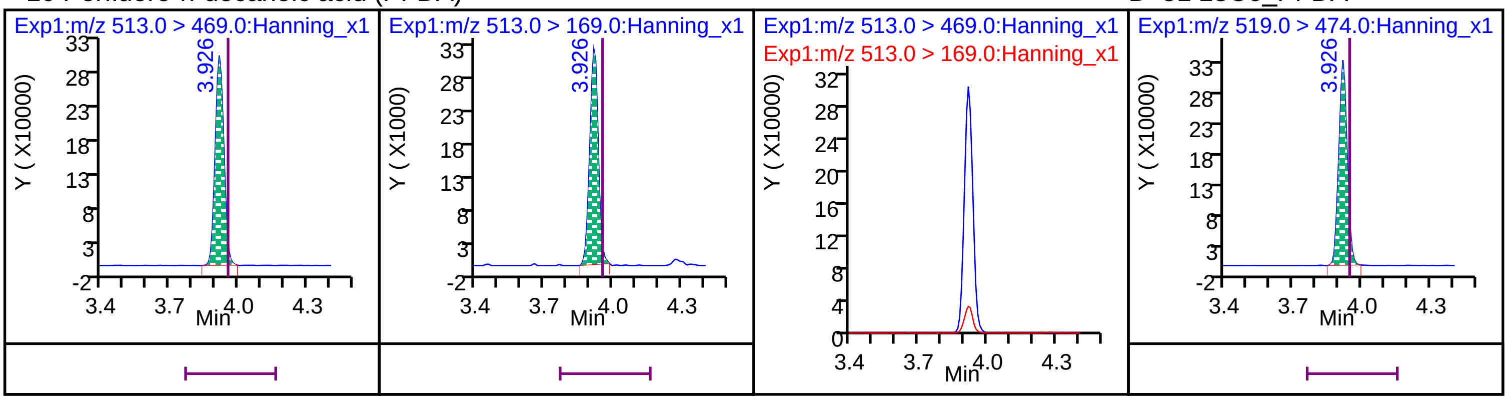
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



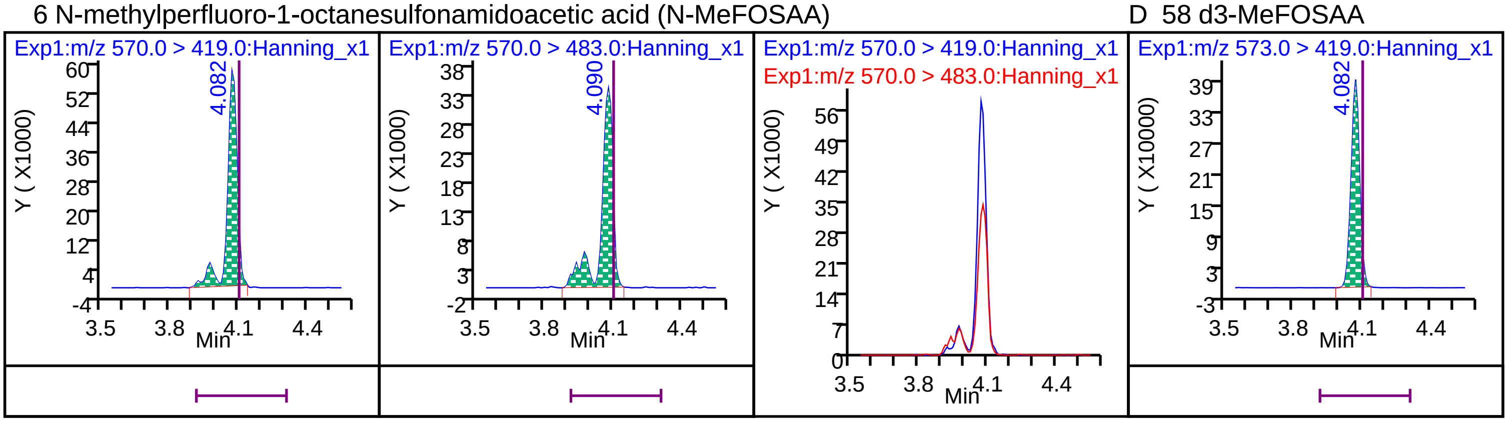
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



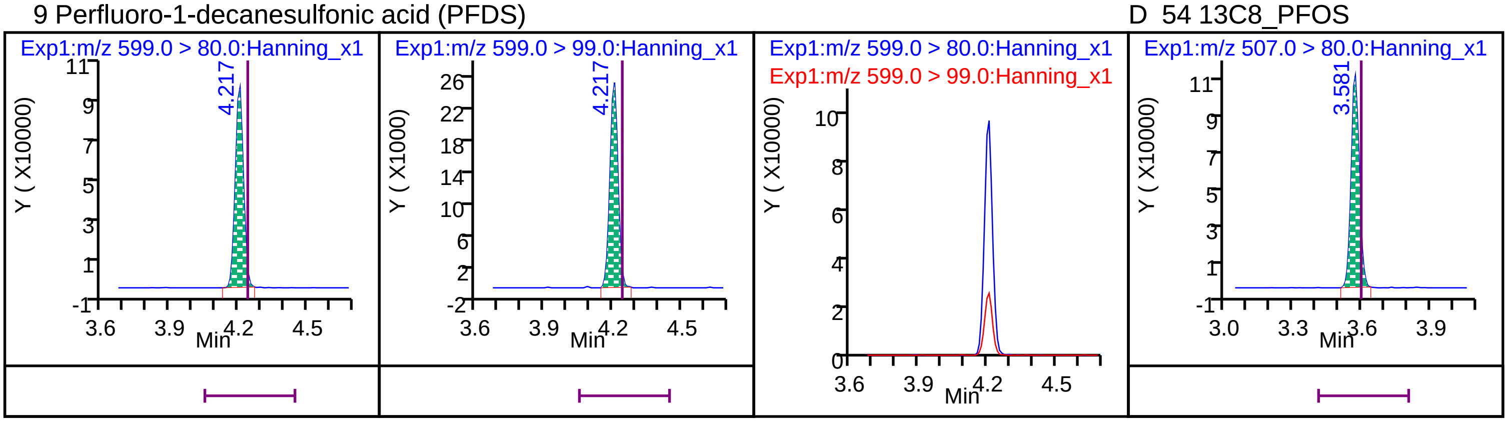
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



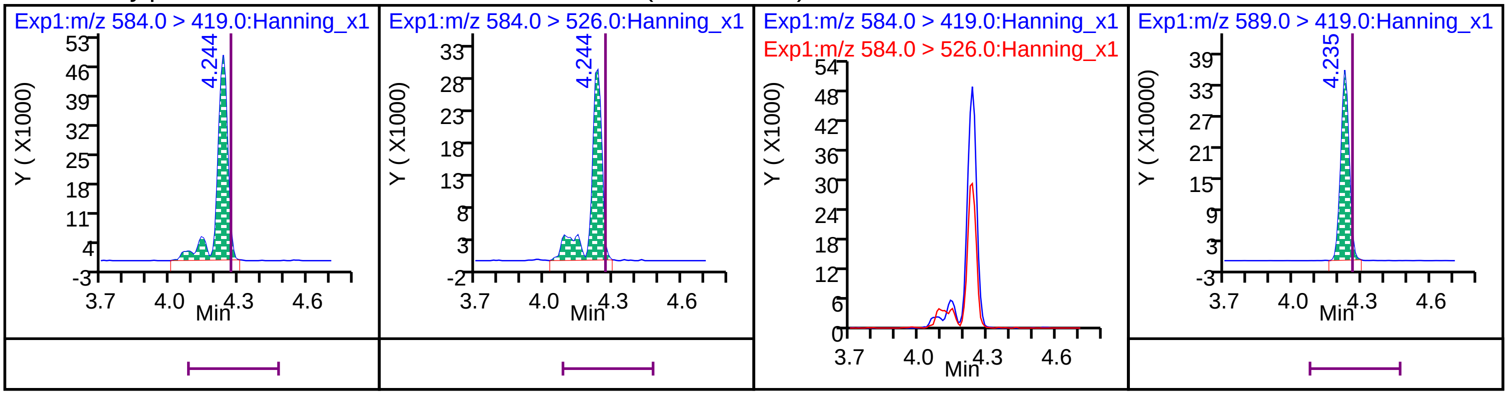
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



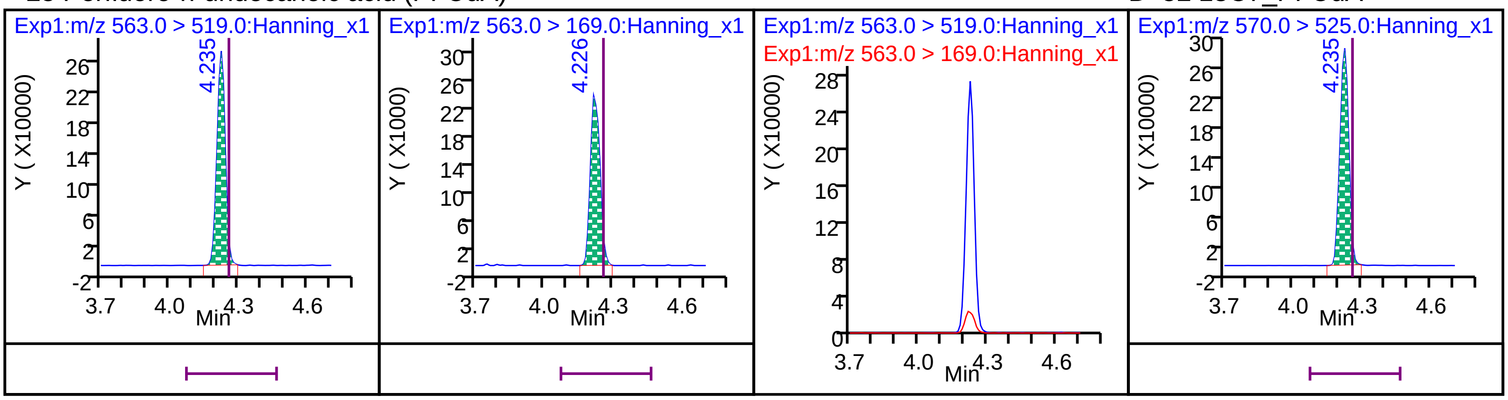
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



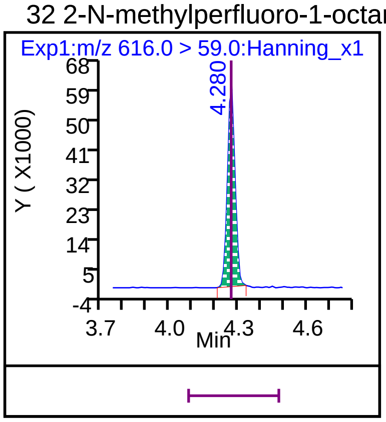
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



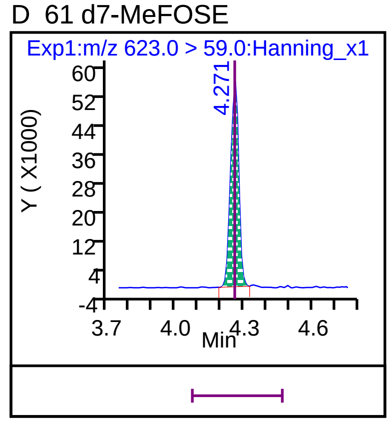
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



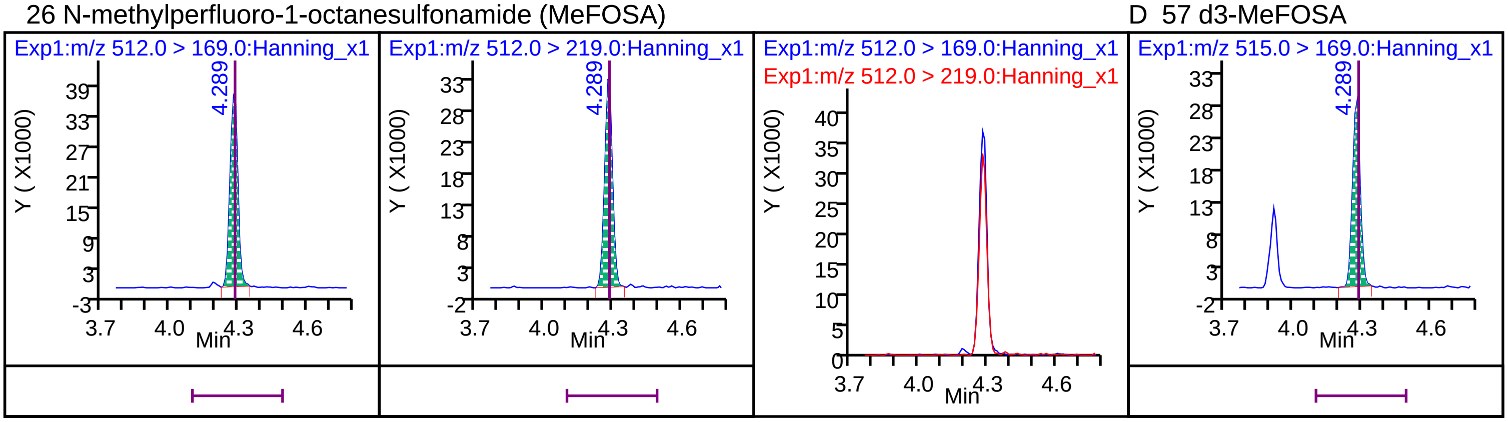
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



D 61 d7-MeFOSE

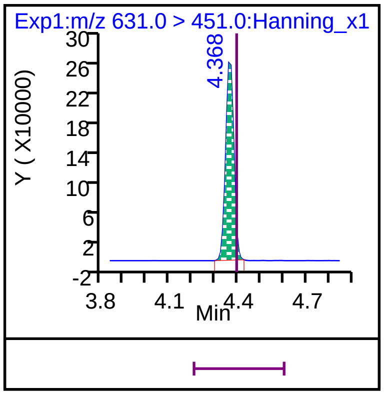


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

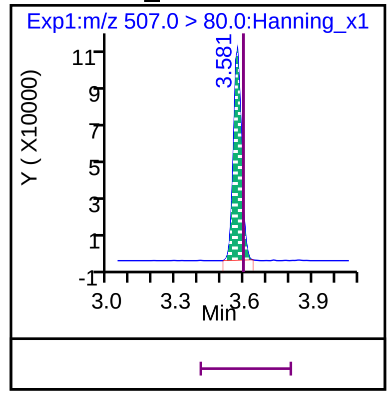


Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d

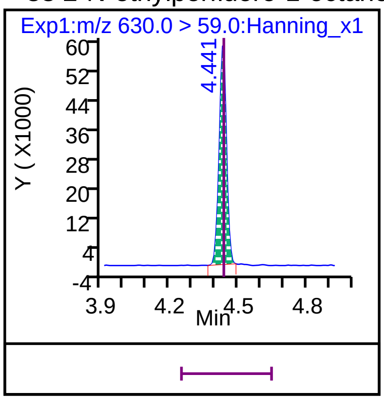
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



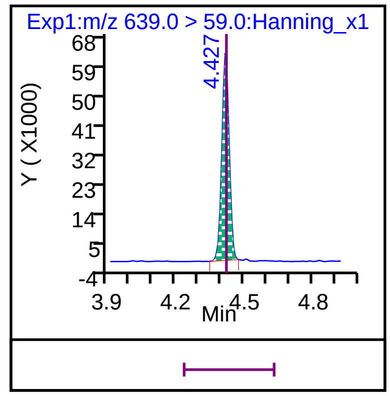
D 54 13C8_PFOS



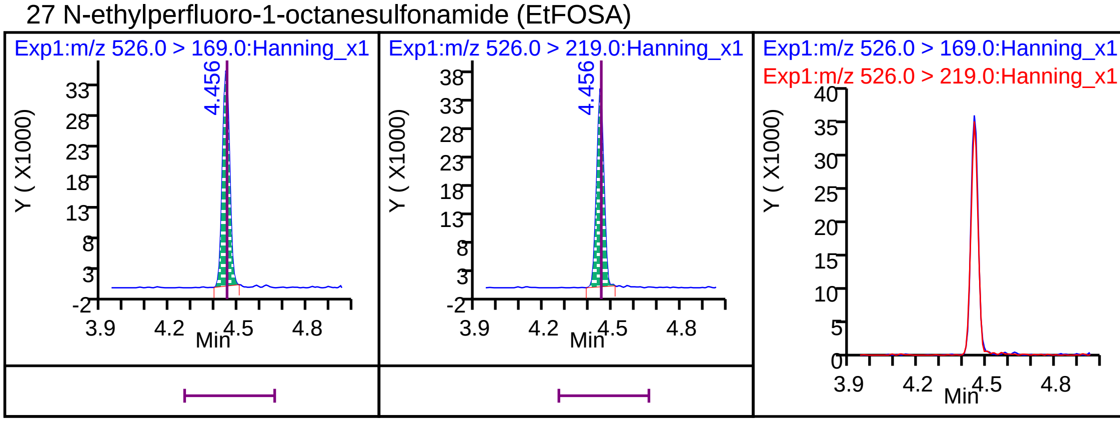
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



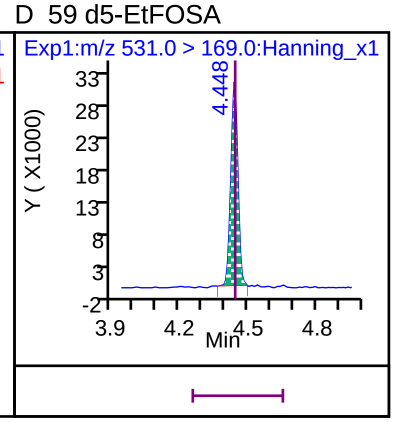
D 62 d9-EtFOSE



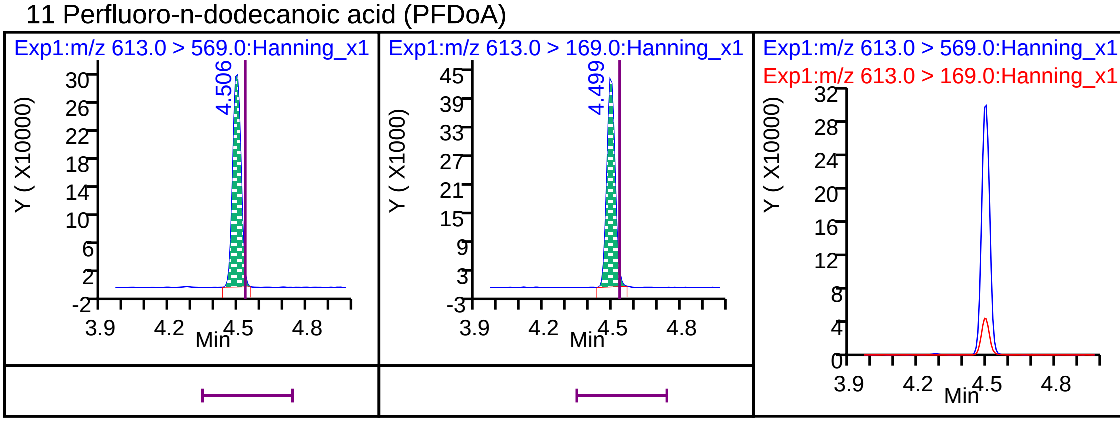
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



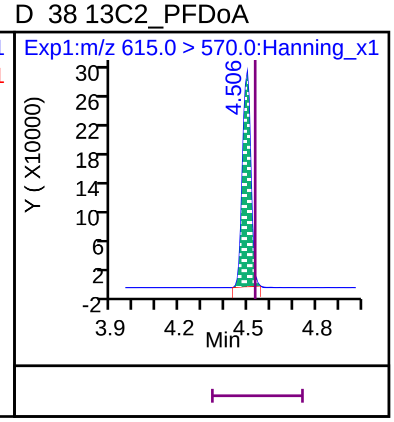
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA)

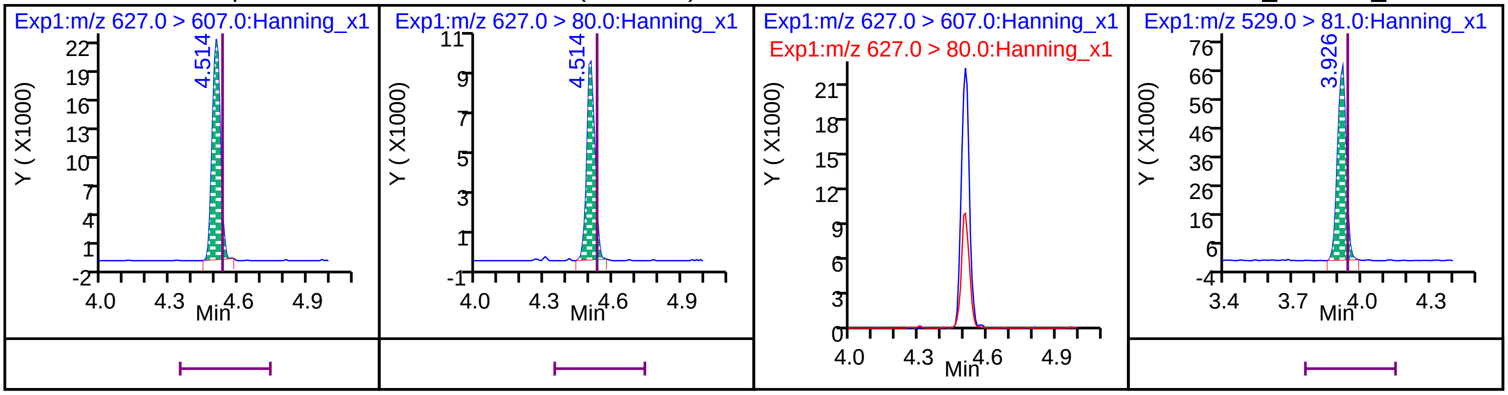


D 38 13C2_PFDoA

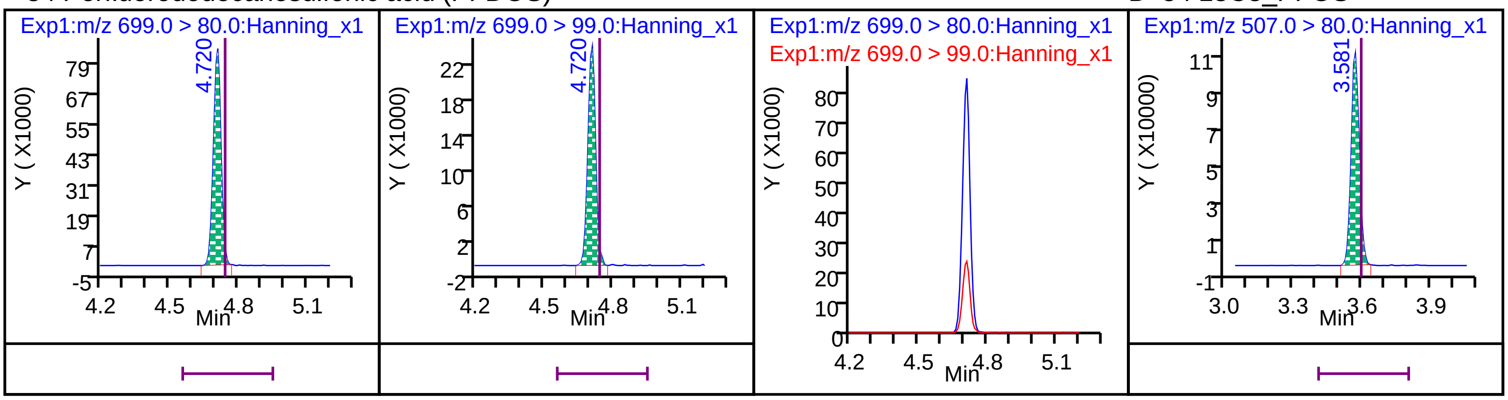


Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d

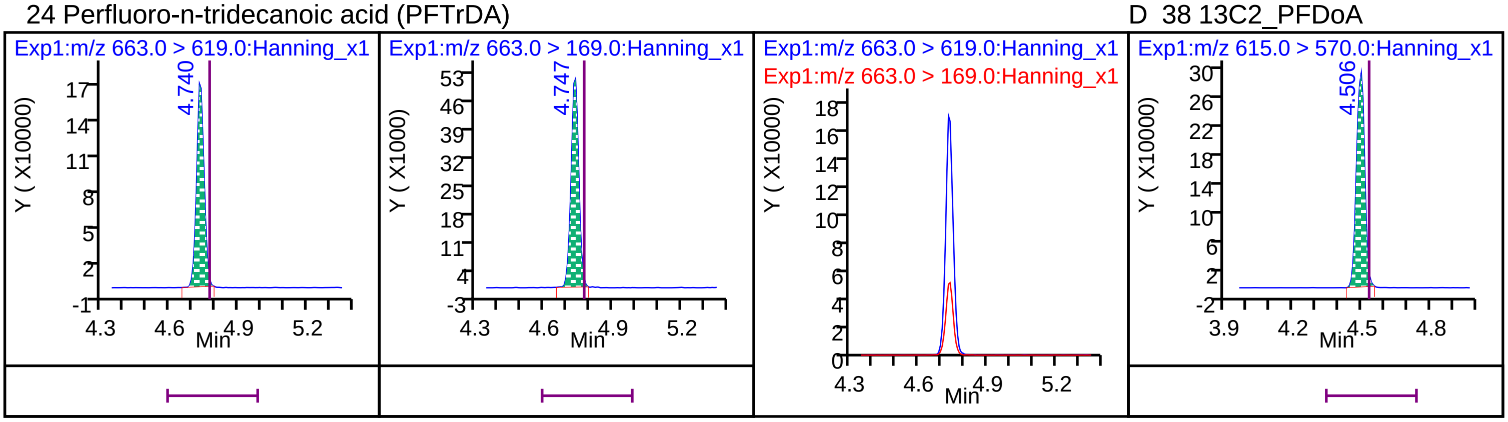
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



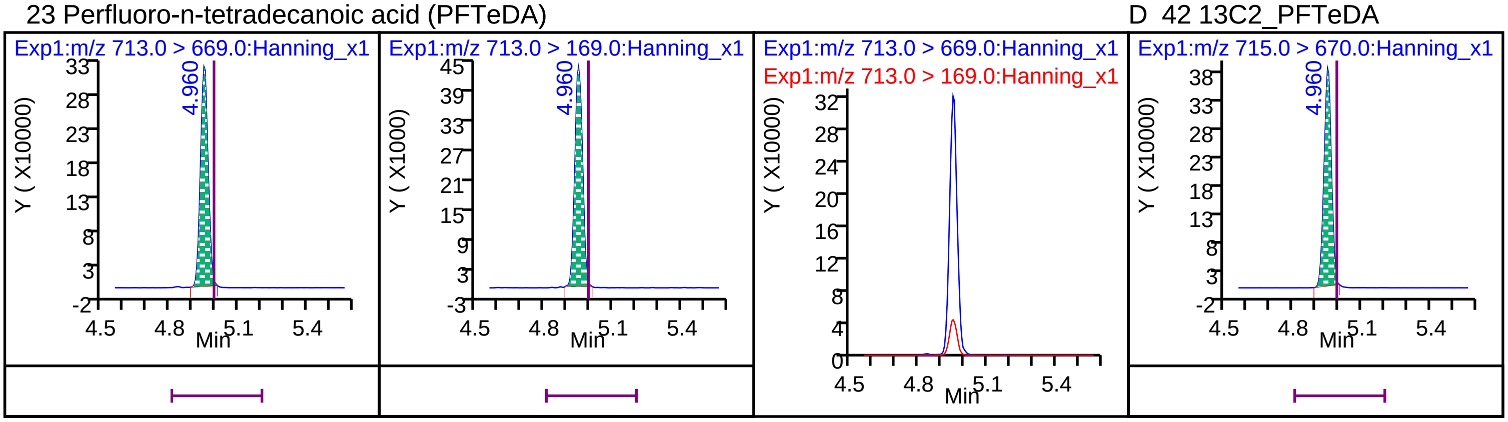
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



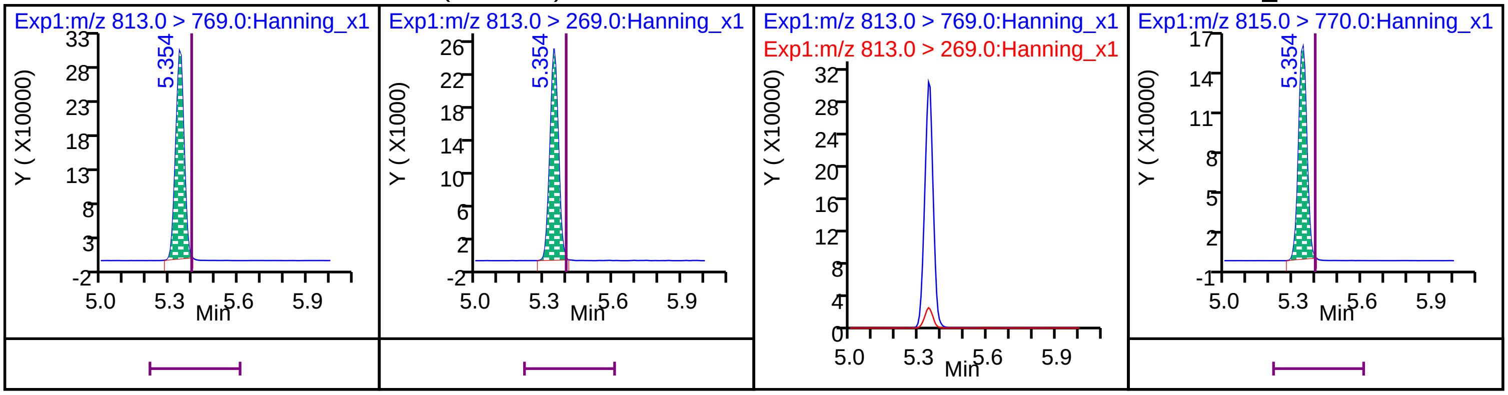
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



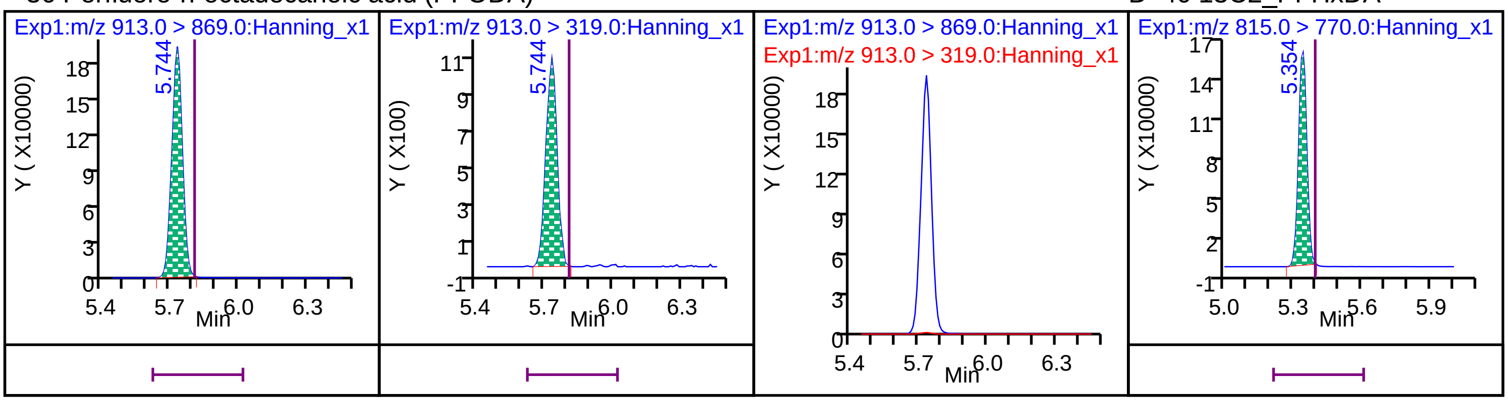
Report Date: 09-Nov-2021 21:17:16 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521058.d

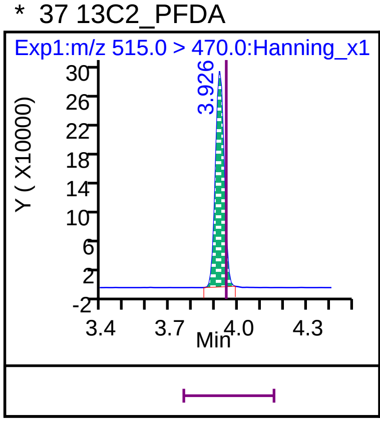
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



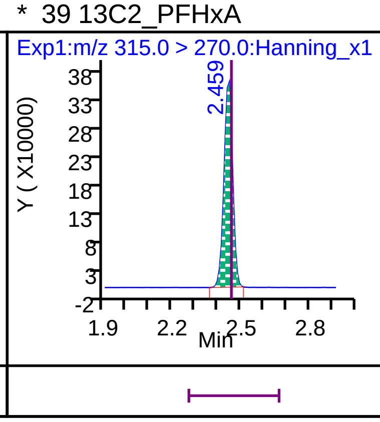
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



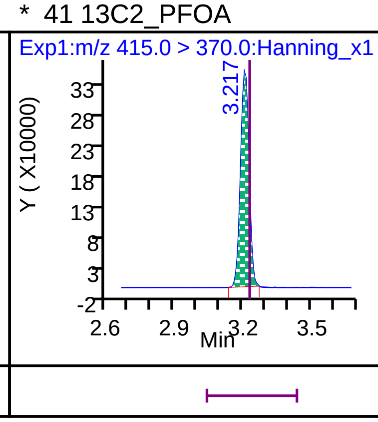
* 37 13C2_PFDA



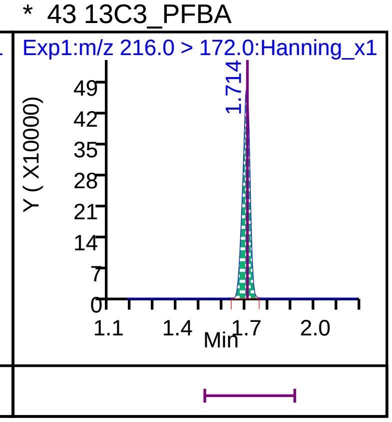
* 39 13C2_PFHxA



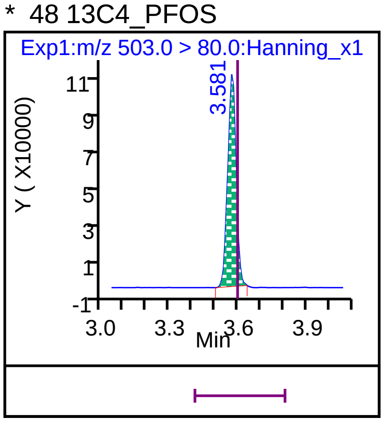
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d		
Injection Date:	06-Nov-2021 19:14:38	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 46 13C4_PFBA	1102554	1060516			96.2	50 - 150
8 PFBA			1000.00	991.42	99.1	70 - 130
D 50 13C5_PFPeA	1031391	988490			95.8	50 - 150
21 PFPeA			1000.00	989.16	98.9	70 - 130
7 PFBS			884.00	815.12	92.2	70 - 130
D 44 13C3_PFBS	340591	326703			95.9	50 - 150
1 4:2 FTS			934.00	858.93	92	70 - 130
D 63 13C2_4:2 FTS_2	231446	233480			100.9	50 - 150
D 49 13C5_PFHxA	914193	874645			95.7	50 - 150
15 PFHxA			1000.00	979.96	98	70 - 130
22 PFPeS			938.00	928.09	98.9	70 - 130
D 66 13C3_GenX	686066	756126			110.2	50 - 150
28 GenX			2000.00	1802.40	90.1	70 - 130
D 47 13C4_PFHpA	904828	846562			93.6	50 - 150
13 PFHpA			1000.00	940.07	94	70 - 130
D 45 13C3_PFHxS	275799	254888			92.4	50 - 150
14 PFHxS			910.00	972.89	106.9	70 - 130
29 ADONA			942.00	973.48	103.3	70 - 130
D 64 13C2_6:2 FTS_2	216911	199354			91.9	50 - 150
2 6:2 FTS			948.00	909.49	95.9	70 - 130
D 53 13C8_PFOA	844338	839224			99.4	50 - 150
20 PFOA			1000.00	998.39	99.8	70 - 130
12 PFHpS			952.00	954.39	100.3	70 - 130
18 PFOS			928.00	913.49	98.4	70 - 130
D 54 13C8_PFOS	238349	240543			100.9	50 - 150
17 PFNA			1000.00	986.40	98.6	70 - 130
D 56 13C9_PFNA	847911	800476			94.4	50 - 150
30 9Cl-PF3ONS			932.00	848.81	91.1	70 - 130
D 55 13C8_PFOSA	426468	412847			96.8	50 - 150
19 PFOSA			1000.00	1014.94	101.5	70 - 130
16 PFNS			960.00	869.06	90.5	70 - 130
D 65 13C2_8:2 FTS_2	178798	174903			97.8	50 - 150
3 8:2 FTS			958.00	863.26	90.1	70 - 130
10 PFDA			1000.00	989.60	99	70 - 130
D 51 13C6_PFDA	770724	697603			90.5	50 - 150
D 58 d3-MeFOSAA	791294	806535			101.9	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1020.77	102.1	70 - 130
9 PFDS			964.00	910.30	94.4	70 - 130
25 PFUdA			1000.00	961.72	96.2	70 - 130
D 60 d5-EtFOSAA	749456	805523			107.5	50 - 150
D 52 13C7_PFUdA	720189	695087			96.5	50 - 150
5 N-EtFOSAA			1000.00	1034.74	103.5	70 - 130
D 61 d7-MeFOSE	124281	124691			100.3	50 - 150
32 MeFOSE			1000.00	918.34	91.8	70 - 130
D 57 d3-MeFOSA	63457	62953			99.2	50 - 150
26 MeFOSA			1000.00	958.00	95.8	70 - 130
31 11Cl-PF3OUDS			942.00	876.88	93.1	70 - 130
D 62 d9-EtFOSE	110687	111359			100.6	50 - 150
33 EtFOSE			1000.00	932.47	93.2	70 - 130
D 59 d5-EtFOSA	64404	58040			90.1	50 - 150
11 PFDoA			1000.00	924.91	92.5	70 - 130
D 38 13C2_PFDoA	689160	704289			102.2	50 - 150
4 10:2 FTS			964.00	972.02	100.8	70 - 130
27 EtFOSA			1000.00	1046.85	104.7	70 - 130
34 PFDOS			968.00	952.26	98.4	70 - 130
24 PFTrDA			1000.00	979.18	97.9	70 - 130
23 PFTeDA			1000.00	1058.88	105.9	70 - 130
D 42 13C2_PFTeDA	752016	717006			95.3	50 - 150
D 40 13C2_PFHxDA	343727	339922			98.9	50 - 150
35 PFHxDA			1000.00	1033.25	103.3	70 - 130
36 PFODA			1000.00	1024.96	102.5	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d		
Injection Date:	06-Nov-2021 19:14:38	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.719	1.725	0	1060516	19	>100:1			1000.00	967.47	96.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.725	1.732	0/0	1120486	19	96:1			1000.00	991.42		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.095	2.105	0	988490	16	>100:1			1000.00	969.02	95.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.095	2.105	0/0	1049529	16	>100:1			1000.00	989.16		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.147	2.169	-1	326703	15	>100:1			1000.00	968.19	95.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.147	2.169	-1/0	376969	17	>100:1	Target = 3.83		884.00	815.12		
298.9 > 99	44	2.147	2.169		96539	15	>100:1	3.90 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.511	2.529	-1/0	303492	17	>100:1	Target = 3.47		938.00	928.09		
349 > 99	44	2.511	2.529		92071	18	>100:1	3.29 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.431	2.449	-1	233480	18	>100:1			5000.00	4999.91	100.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.431	2.449	-1/0	74575	16	>100:1	Target = 1.39		934.00	858.93		
327 > 81	63	2.431	2.449		49485	16	57:1	1.50 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.475	2.493	-1	874645	17	>100:1			1000.00	959.04	95.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.475	2.493	-1/0	871147	16	>100:1	Target = 17.15		1000.00	979.96		
313 > 119	49	2.475	2.493		52066	16	100:1	16.73 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.598	2.614	0	756126	18	>100:1			5000.00	5136.94	110.2	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.598	2.622	-1/-1	203313	18	>100:1	Target = 0.72		2000.00	1802.40		
285 > 185	66	2.598	2.622		287547	19	>100:1	0.70 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.869	2.878	0	846562	18	>100:1			1000.00	956.71	93.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.869	2.878	0/0	760290	19	>100:1	Target = 3.21		1000.00	940.07		
363 > 169	47	2.869	2.878		245671	17	>100:1	3.09 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	254888	16	>100:1			1000.00	921.57	92.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.887	2.896	0/0	285854	26	>100:1	Target = 3.35	5.07	910.00	972.89		
399 > 99	45	2.887	2.896		81624	25	>100:1	3.50 (1.67-5.04)	7.27				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.914	2.923	0/0	1315579	19	>100:1	Target = 2.38		942.00	973.48		
377 > 85	45	2.914	2.923		580673	18	>100:1	2.26 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.258	3.226	2/2	258895	21	>100:1	Target = 3.87		952.00	954.39		
449 > 99	45	3.258	3.226		73853	19	>100:1	3.50 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.226	3.201	2	199354	21	>100:1			5000.00	4836.88	91.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.226	3.201	2/0	60232	22	>100:1	Target = 1.26		948.00	909.49		
427 > 81	64	3.226	3.201		51477	19	69:1	1.17 (0.63-1.89)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	839224	21	>100:1			1000.00	996.20	99.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	837885	20	>100:1	Target = 2.46		1000.00	998.39		
413 > 169	53	3.252	3.226		346209	21	>100:1	2.42 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.613	3.558	4	240543	19	>100:1			1000.00	1015.26	100.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.613	3.558	4/0	255645	38	>100:1	Target = 3.98	3.42	928.00	913.49		
499 > 99	54	3.613	3.558		66529	37	>100:1	3.84 (1.99-5.97)	5.49				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.812	3.755	4/0	617036	20	>100:1			932.00	848.81		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.946	3.886	4/0	199060	18	>100:1	Target = 3.57		960.00	869.06		
549 > 99	54	3.939	3.886		58027	17	>100:1	3.43 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.240	4.191	3/-1	205243	15	>100:1	Target = 3.73		964.00	910.30		
599 > 99	54	4.240	4.191		62929	14	>100:1	3.26 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.394	4.349	3/-1	508360	16	>100:1			942.00	876.88		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.734	4.698	3/-1	184976	16	>100:1	Target = 3.44		968.00	952.26		
699 > 99	54	4.734	4.698		49171	17	>100:1	3.76 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.621	3.565	4	800476	20	>100:1			1000.00	986.61	94.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.613	3.565	3/-1	704243	19	>100:1	Target = 4.45		1000.00	986.40		
463 > 169	56	3.621	3.565		157222	18	>100:1	4.47 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.924	3.872	4	412847	19	>100:1			1000.00	993.88	96.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.924	3.872	4/0	456557	18	>100:1	Target = 47.73		1000.00	1014.94		
498>478	55	3.916	3.872		9714	18	60:1	46.99 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.946	3.894	4	174903	17	>100:1			5000.00	5022.75	97.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.946	3.894	4/0	49827	17	>100:1	Target = 1.41		958.00	863.26		
527 > 81	65	3.954	3.894		34802	17	67:1	1.43 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.533	4.494	3/-1	72126	16		Target = 2.81		964.00	972.02		
627 > 80	65	4.541	4.494		27644	16	>100:1	2.60 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.954	3.901	4	697603	17	>100:1			1000.00	975.07	90.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.954	3.901	4/0	705091	19	>100:1	Target = 9.36		1000.00	989.60		
513 > 169	51	3.954	3.901		78575	18	>100:1	8.97 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.109	4.053	4	806535	16	>100:1			5000.00	4988.20	101.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.109	4.062	3/-1	132886	31	>100:1	Target = 1.42	8.75	1000.00	1020.77		
570 > 483	58	4.118	4.062		100657	33	>100:1	1.32 (0.71-2.13)	4.09				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.257	4.207	4	805523	17	>100:1			5000.00	5571.03	107.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.267	4.223	3/-1	164442	35	>100:1	Target = 1.80	7.17	1000.00	1034.74		
584 > 526	60	4.267	4.223		87764	33	>100:1	1.87 (0.90-2.70)	3.89				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.257	4.207	4	695087	16	>100:1			1000.00	989.83	96.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.257	4.207	4/0	602006	17	>100:1	Target = 8.65		1000.00	961.72		
563 > 169	52	4.257	4.207		67919	22	>100:1	8.86 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.331	4.295	3	124691	14	>100:1			1000.00	1016.06	100.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.340	4.304	3/0	116771	14	>100:1			1000.00	918.34		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.349	4.313	3	62953	14	>100:1			1000.00	979.82	99.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.358	4.322	3/0	65334	14	>100:1	Target = 1.09		1000.00	958.00		
512 > 219	57	4.358	4.322		62920	20	>100:1	1.03 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.494	4.463	2	111359	17	>100:1			1000.00	979.99	100.6	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.502	4.479	2/0	85942	16	>100:1			1000.00	932.47		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.525	4.486	3	704289	18	>100:1			1000.00	1011.81	102.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.525	4.486	3/0	654288	16	>100:1	Target = 6.94		1000.00	924.91		
613 > 169	38	4.525	4.486		104904	17	>100:1	6.23 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.762	4.727	3/0	304419	18	>100:1	Target = 2.82		1000.00	979.18		
663 > 169	38	4.762	4.727		115284	17	>100:1	2.64 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.517	4.486	2	58040	16	>100:1			1000.00	962.09	90.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.525	4.494	2/0	72570	20	>100:1	Target = 1.11		1000.00	1046.85		
526 > 219	59	4.525	4.494		68435	16	>100:1	1.06 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.942	2	717006	16	>100:1			1000.00	960.98	95.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.974	4.942	2/0	655079	18	>100:1	Target = 7.23		1000.00	1058.88		
713 > 169	42	4.974	4.942		84109	18	>100:1	7.78 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.348	5.323	2	339922	18	>100:1			1000.00	977.08	98.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.348	5.331	1/-1	645829	17	>100:1	Target = 12.24		1000.00	1033.25		
813 > 269	40	5.348	5.331		51716	15	>100:1	12.48 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.706	5.678	2/0	470801	22	>100:1	Target = 148.06		1000.00	1024.96		
913 > 319	40	5.699	5.678		3730	26	>100:1	126.22 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.954	3.901	4	711458	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.475	2.493	-1	884017	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.226	2	799721	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1017450	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.613	3.558	4	245539	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

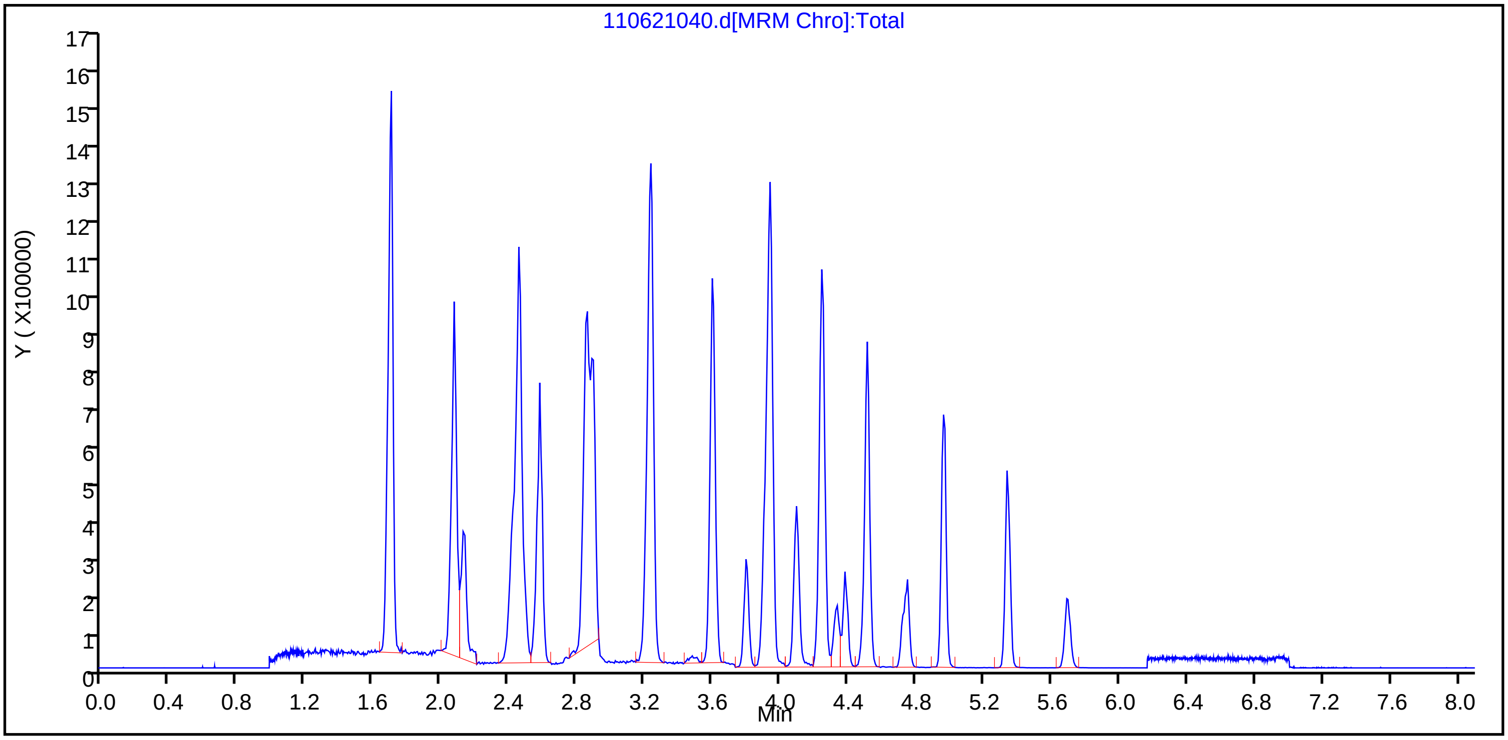
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

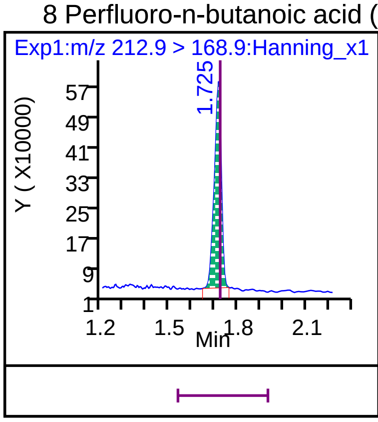
Report Date: 09-Nov-2021 13:30:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

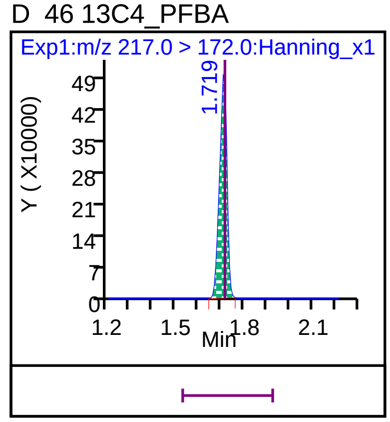
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d		
Injection Date:	06-Nov-2021 19:14:38	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000_SVLC-1744
Sample Info:	CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller



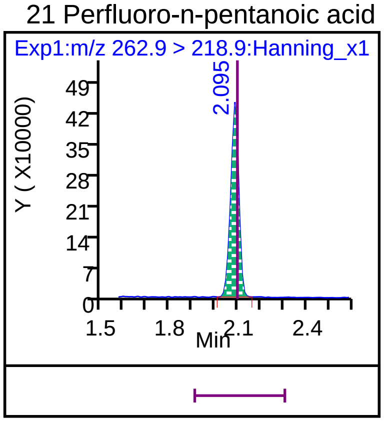
8 Perfluoro-n-butanoic acid (PFBA)



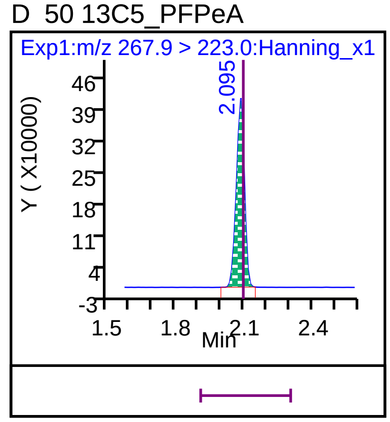
D 46 13C4_PFBA



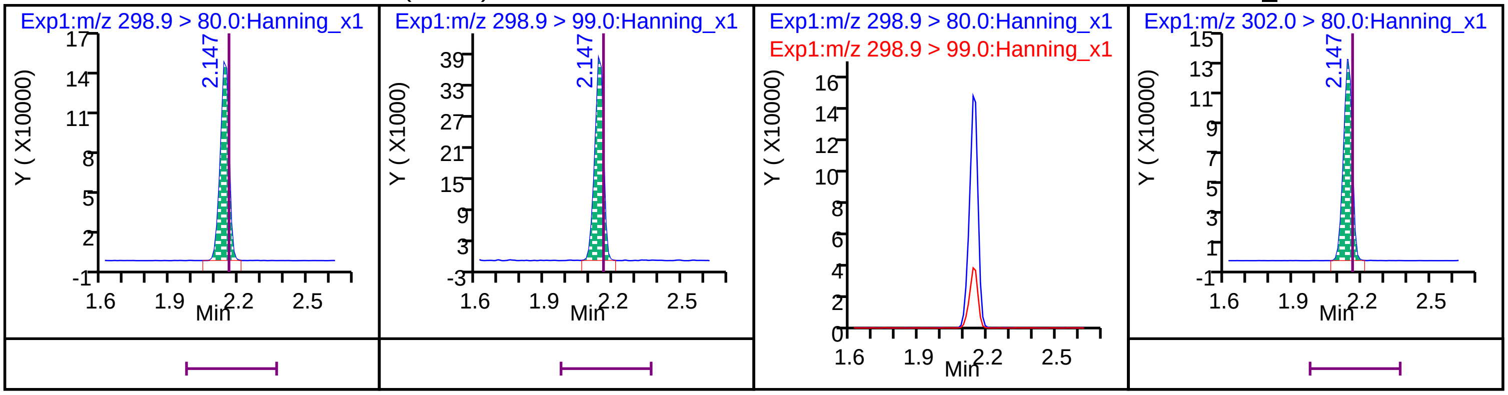
21 Perfluoro-n-pentanoic acid (PFPeA)



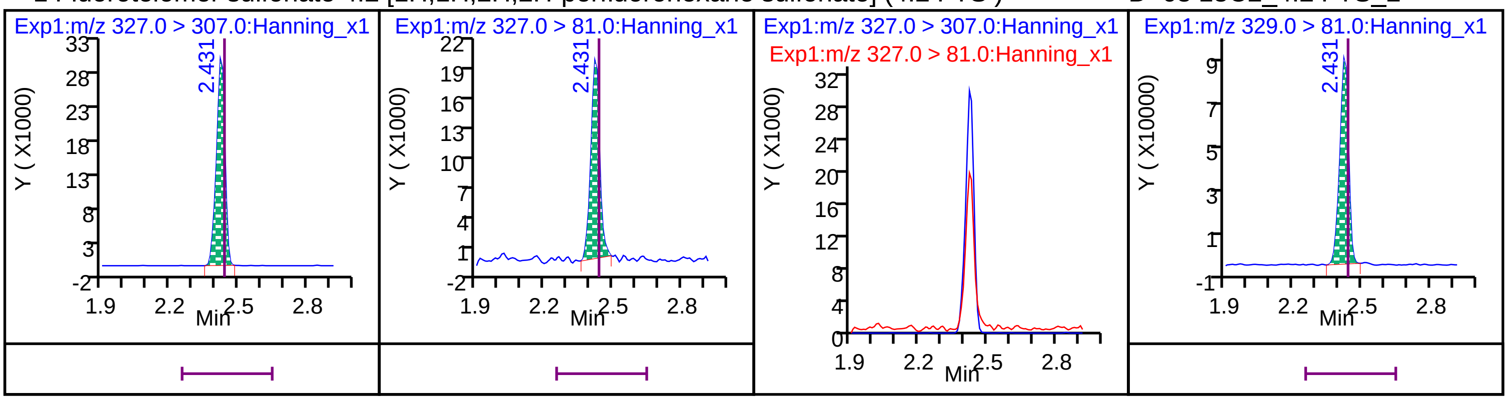
D 50 13C5_PFPeA



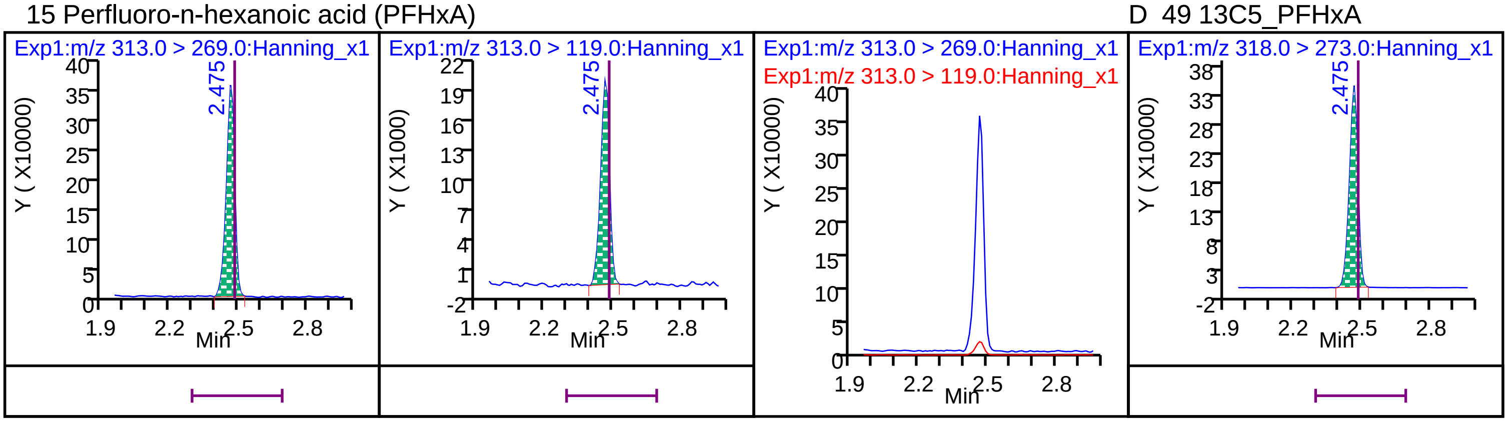
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



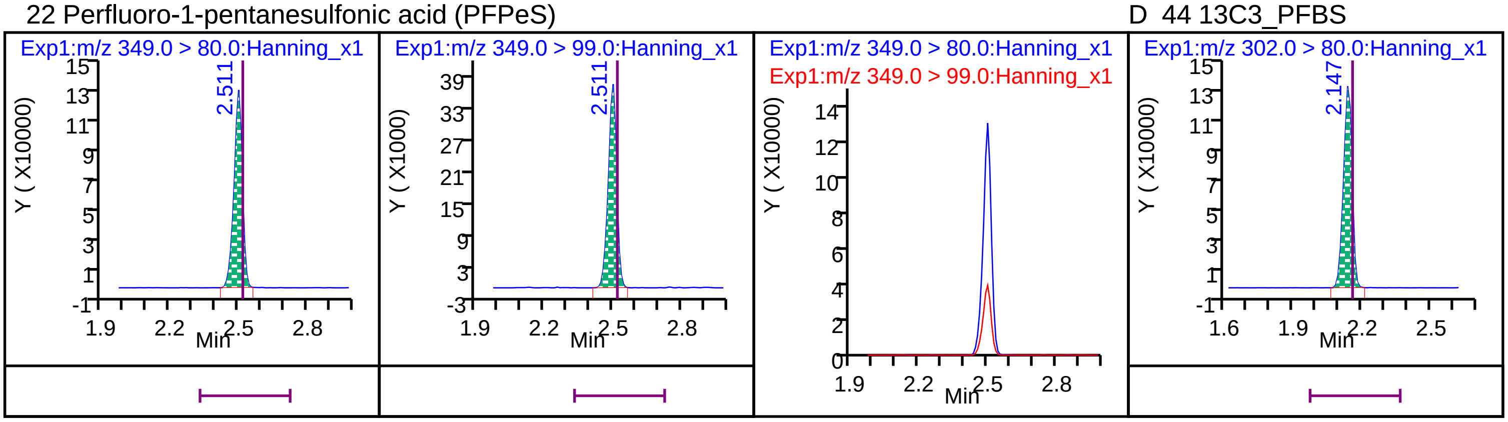
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

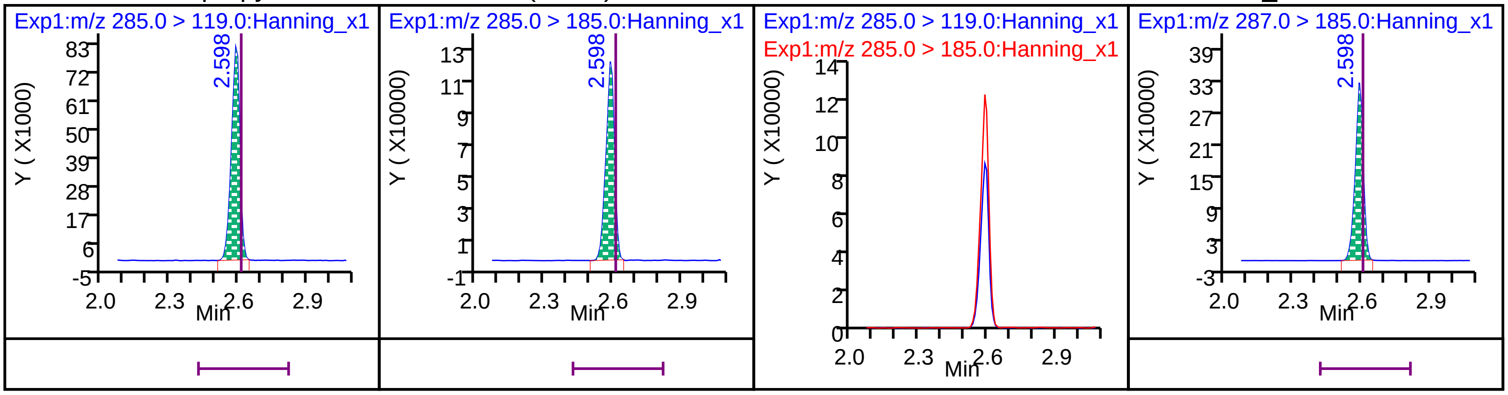


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

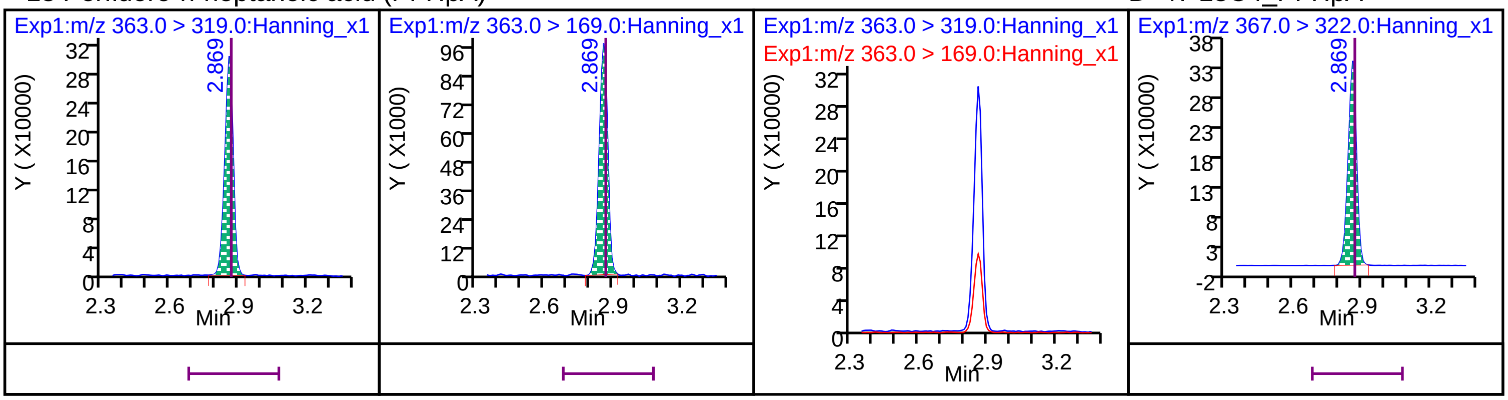


Report Date: 09-Nov-2021 13:30:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d

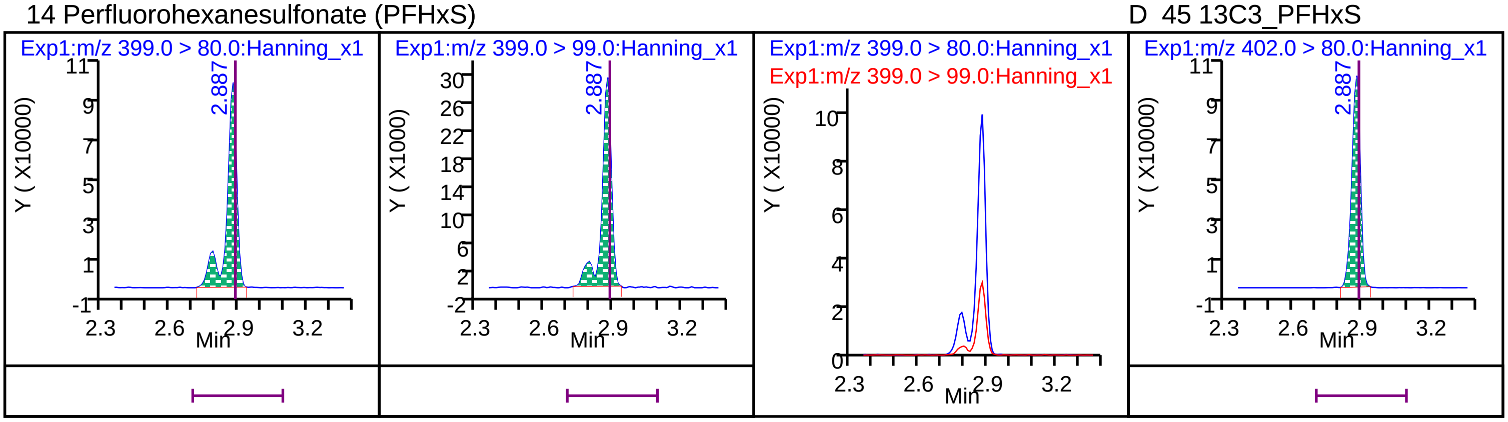
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



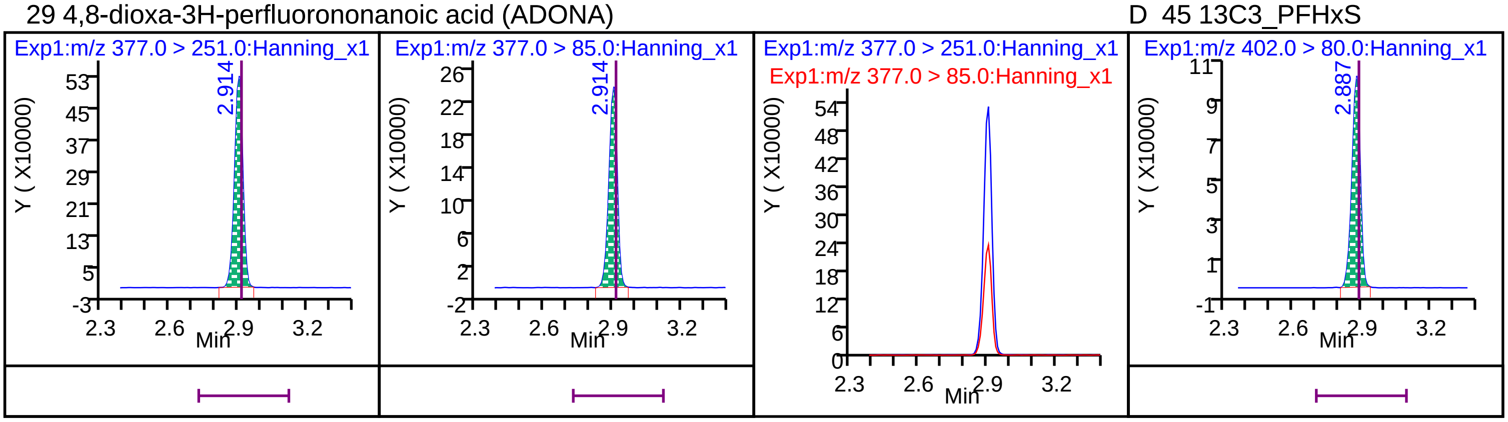
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

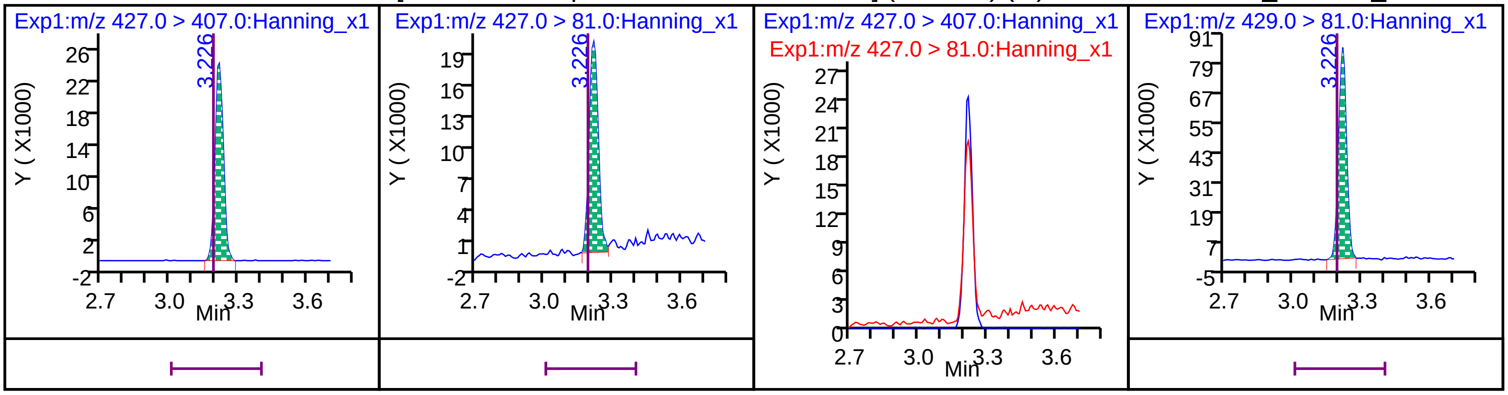


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

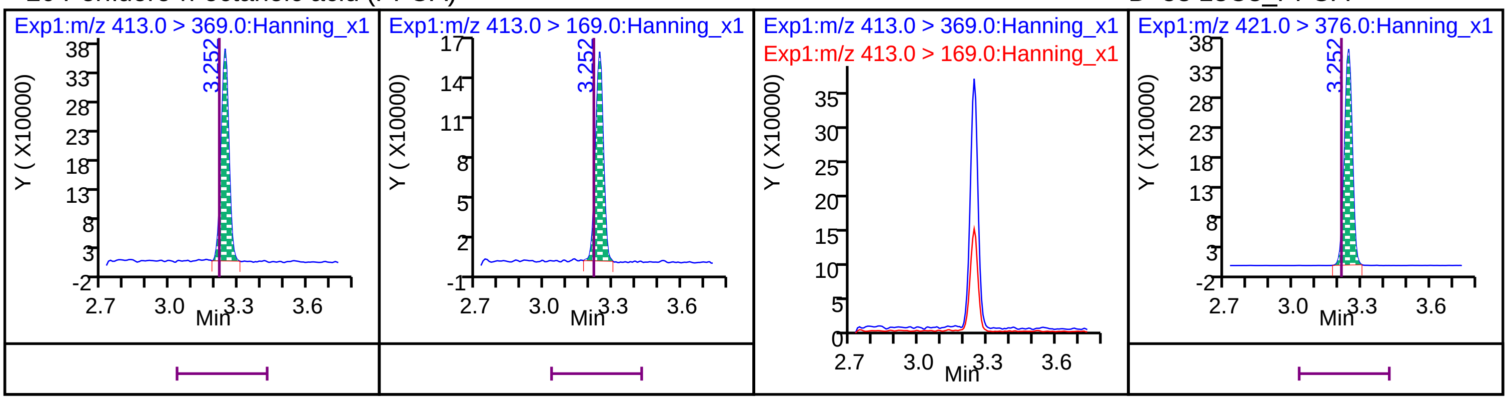


Report Date: 09-Nov-2021 13:30:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d

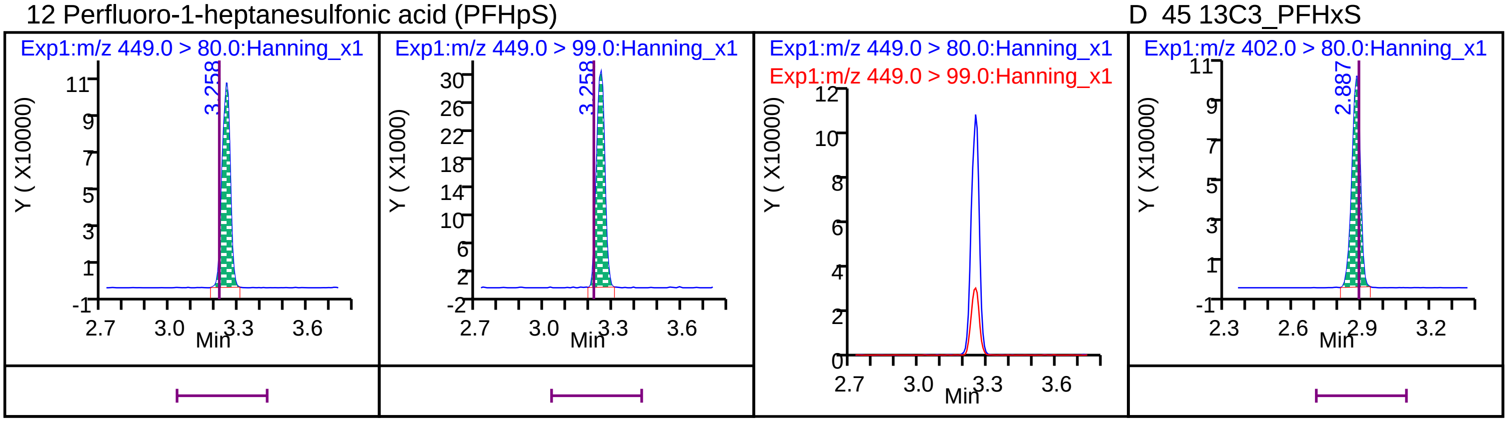
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



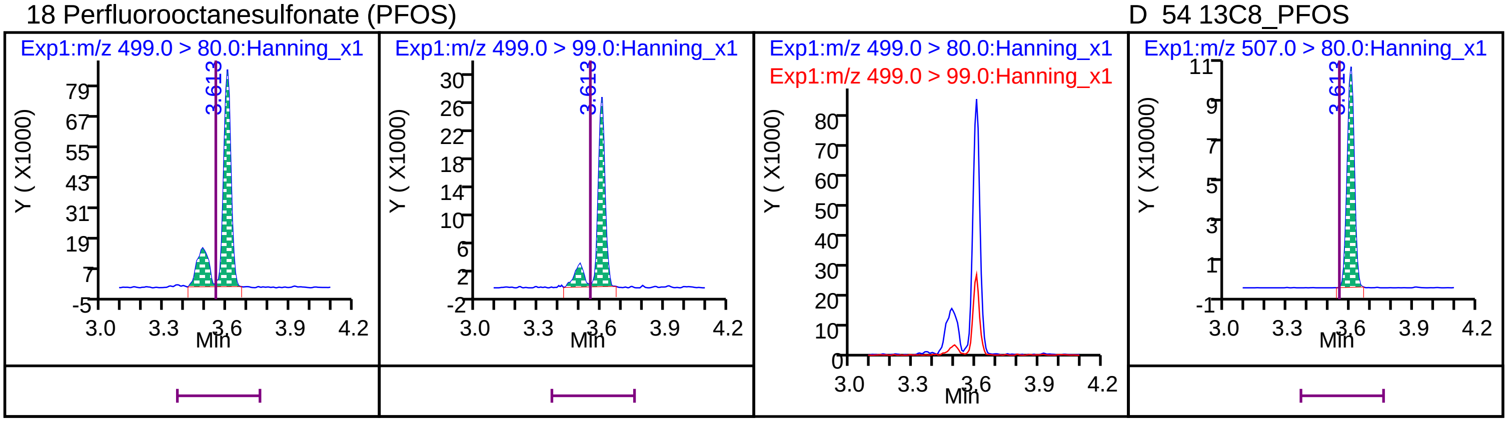
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



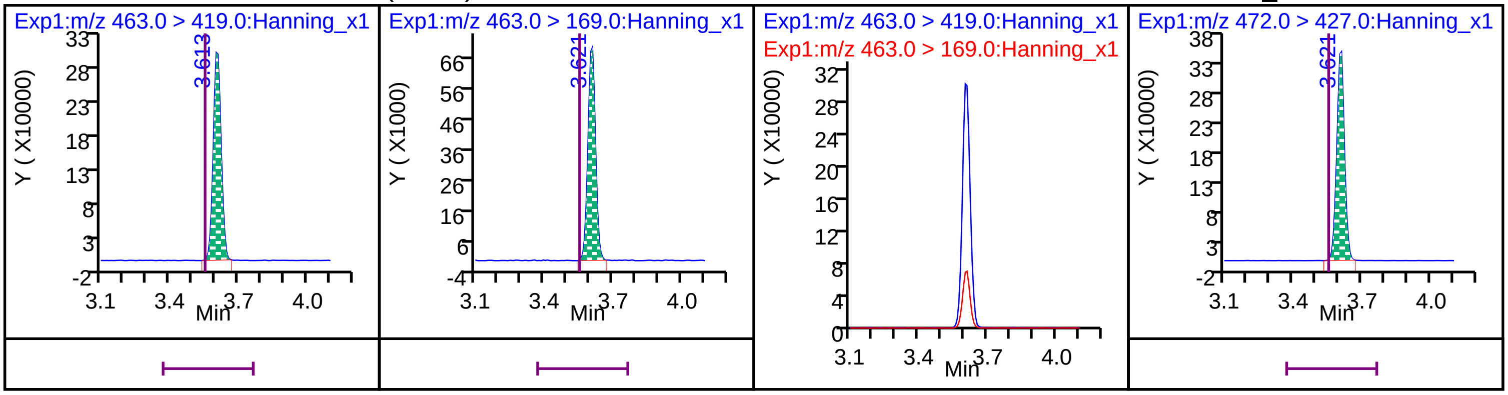
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



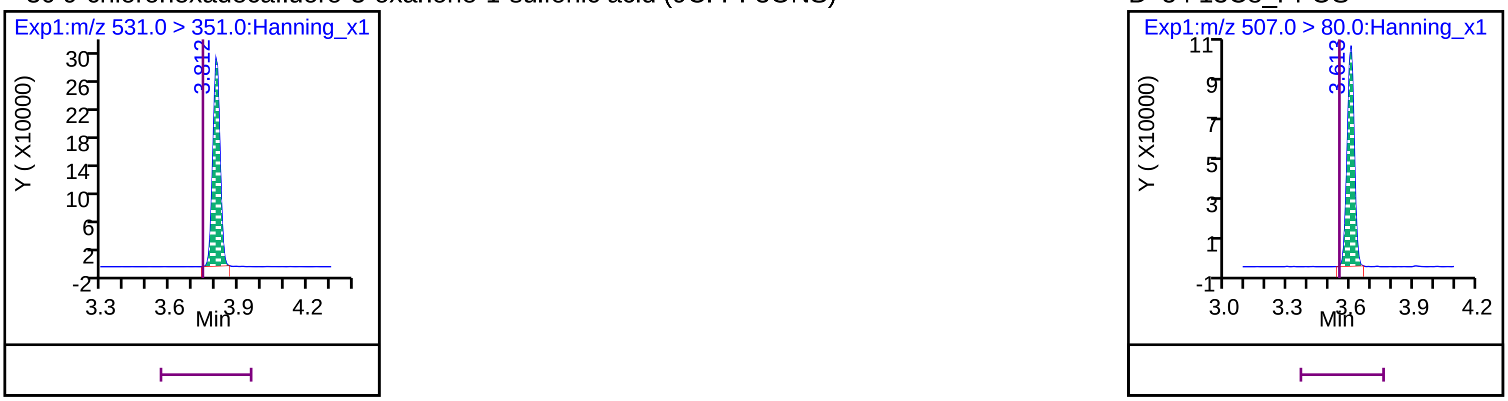
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



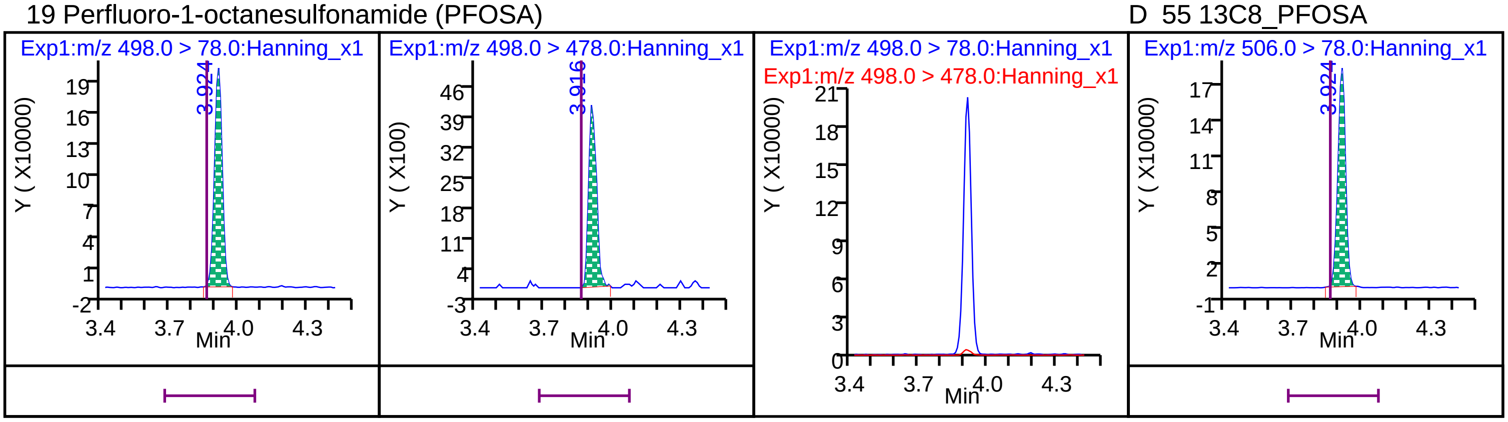
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



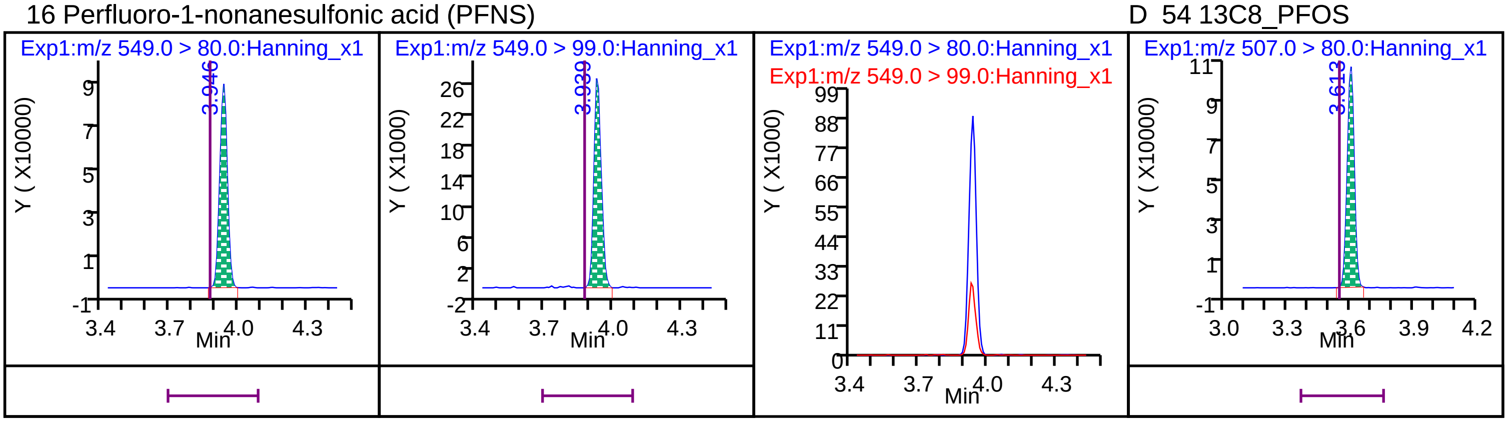
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



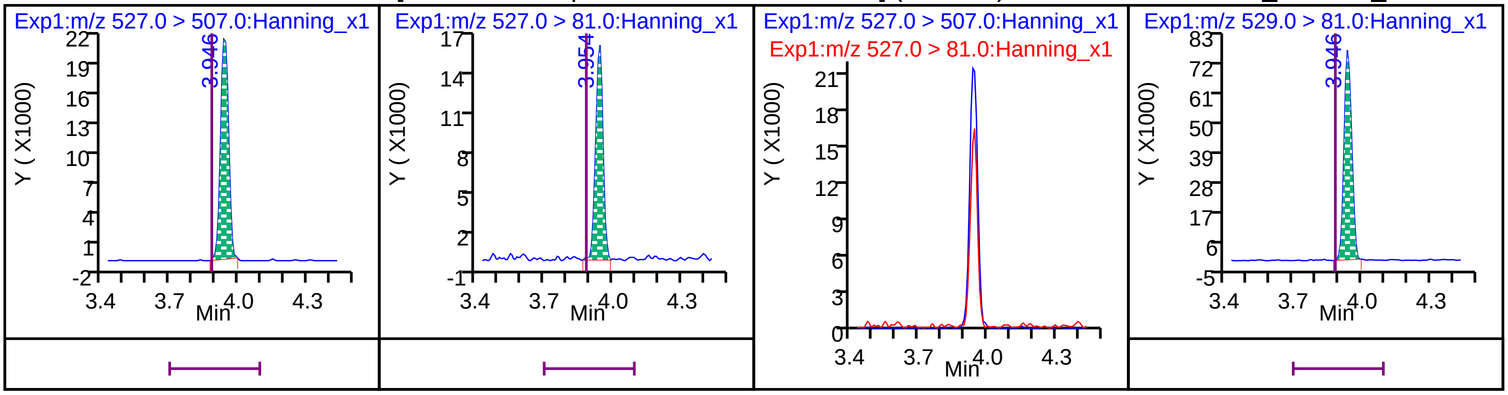
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



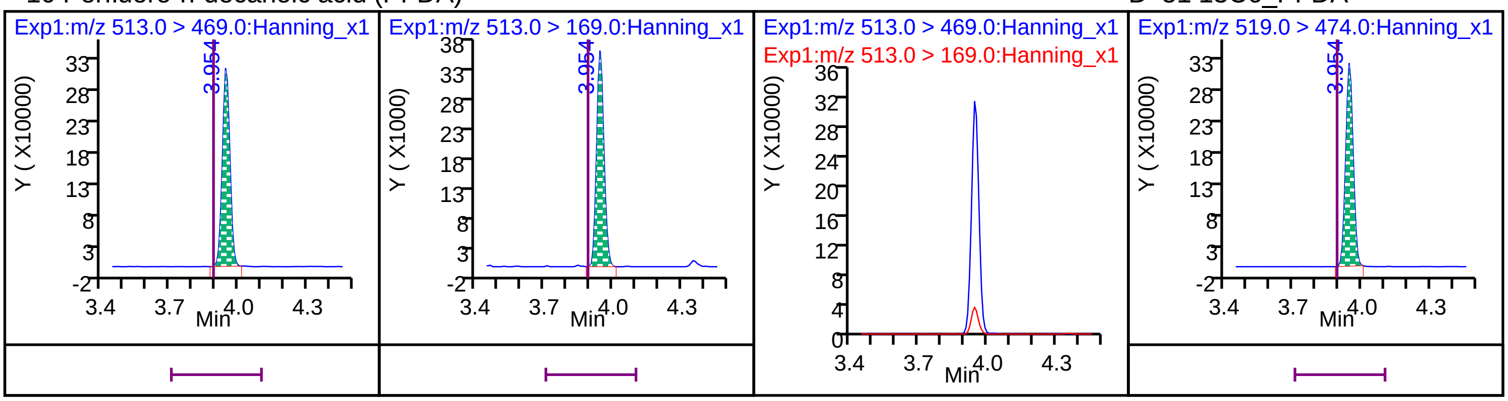
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



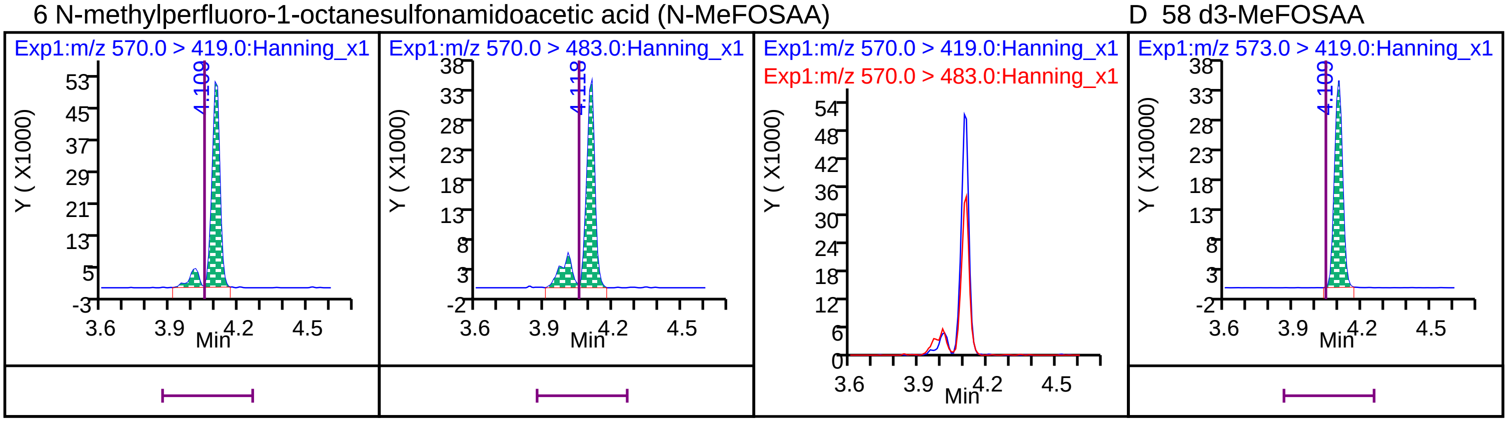
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



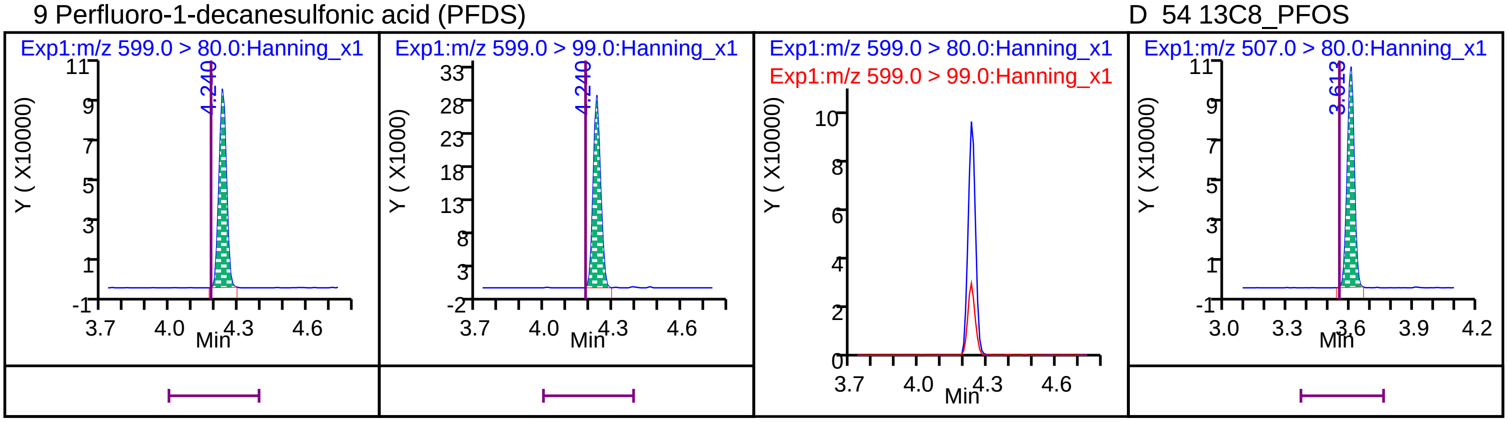
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



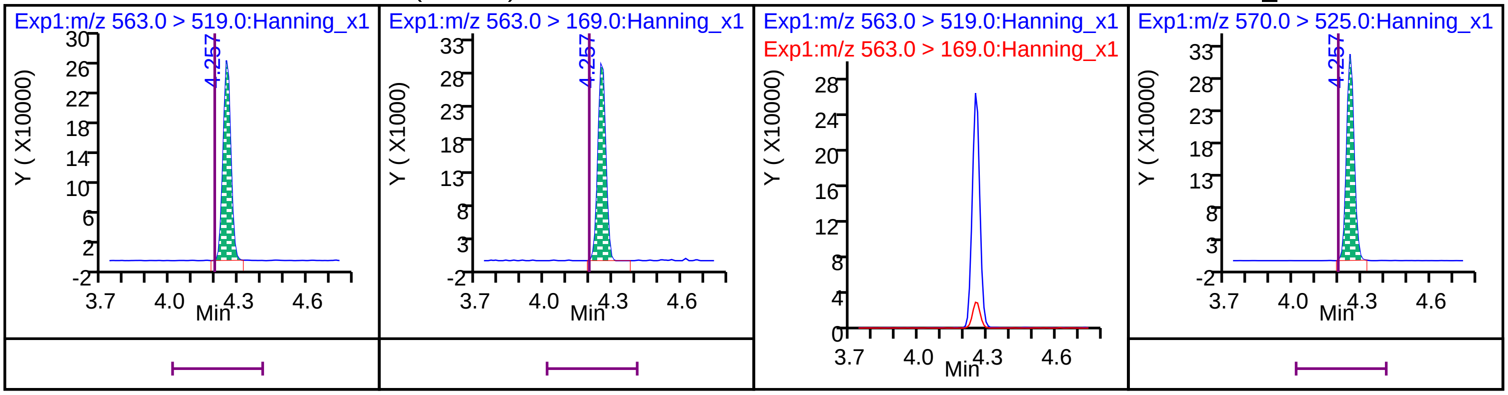
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



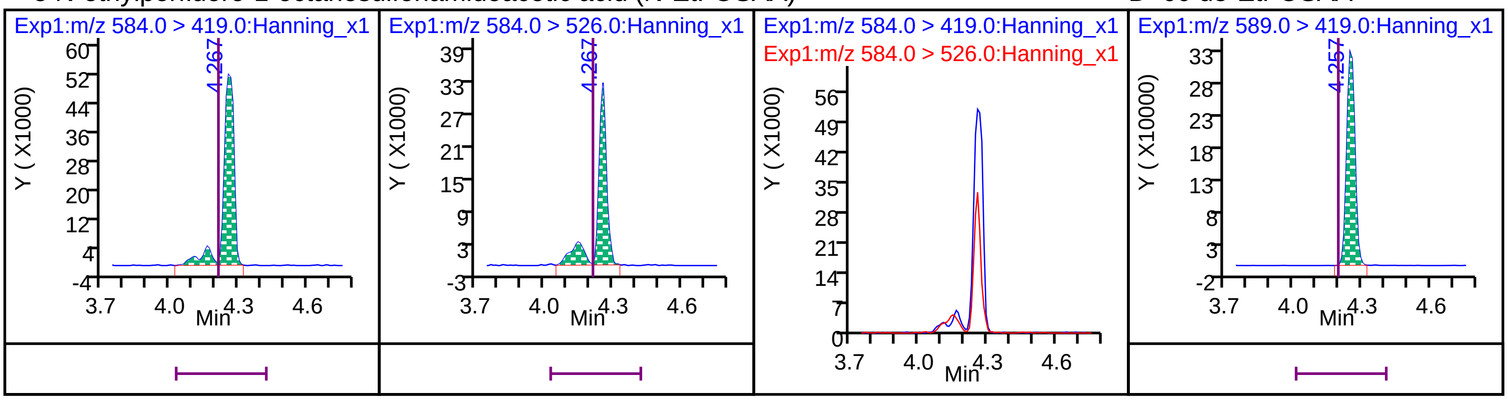
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



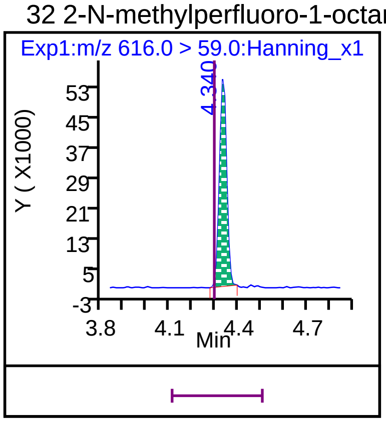
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

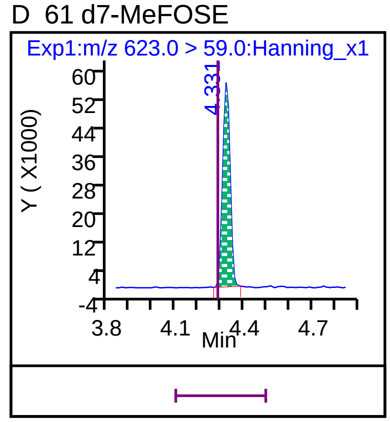


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

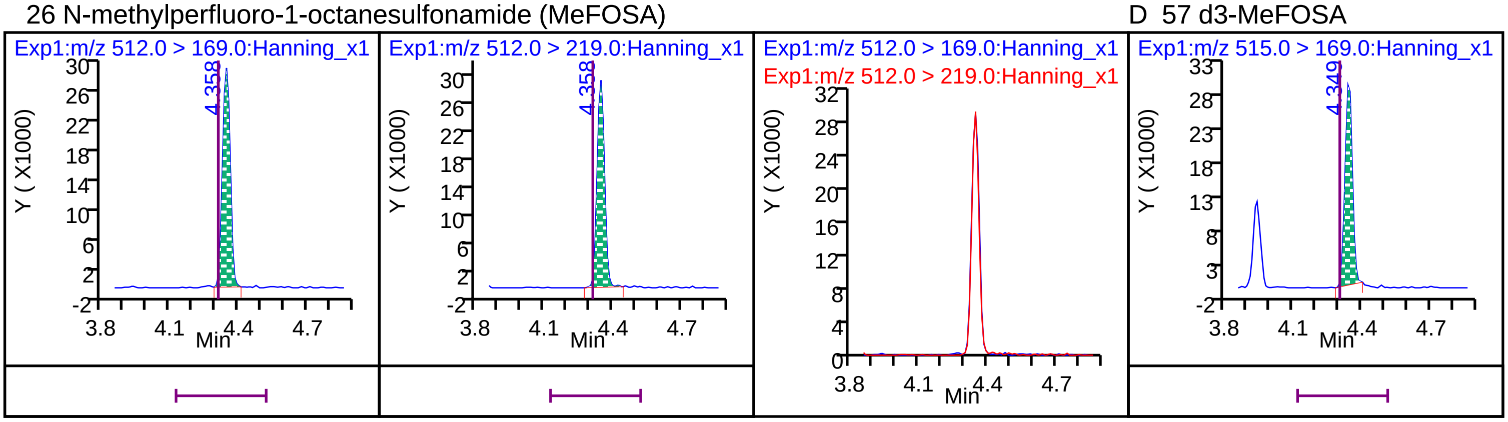


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



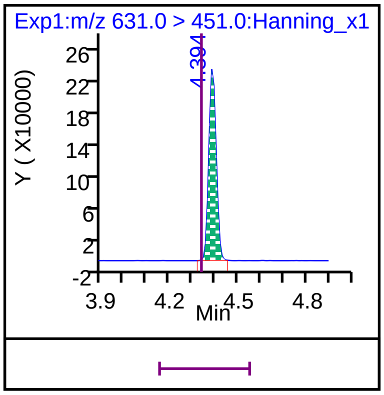


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

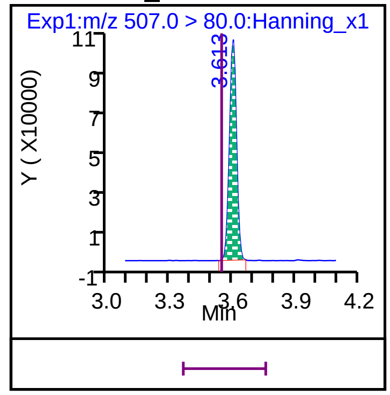


Report Date: 09-Nov-2021 13:30:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d

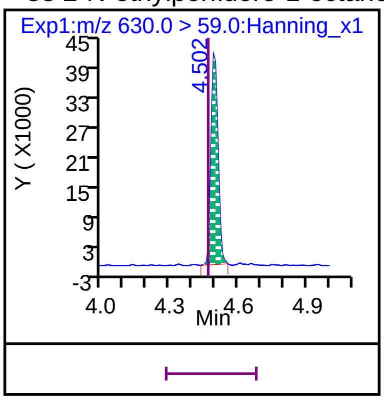
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



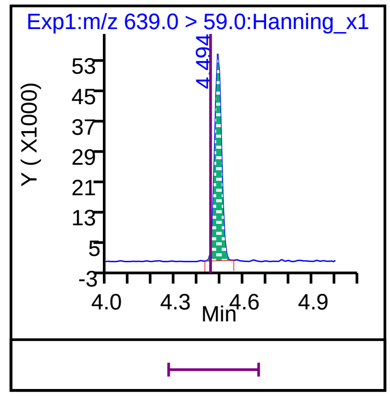
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

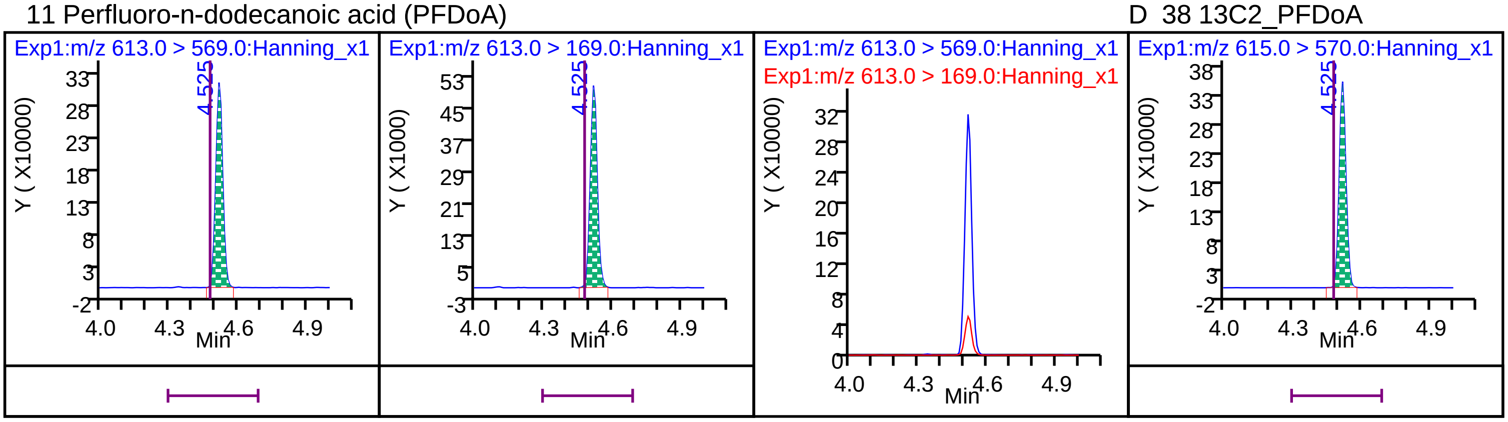


D 62 d9-EtFOSE



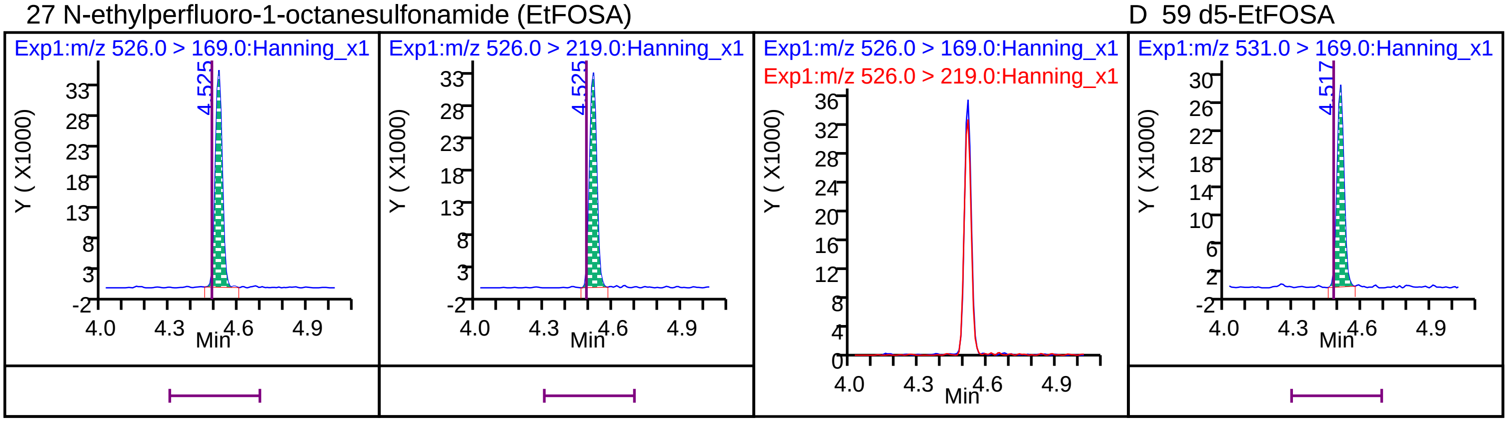
11 Perfluoro-n-dodecanoic acid (PFDoA)

D 38 13C2_PFDoA



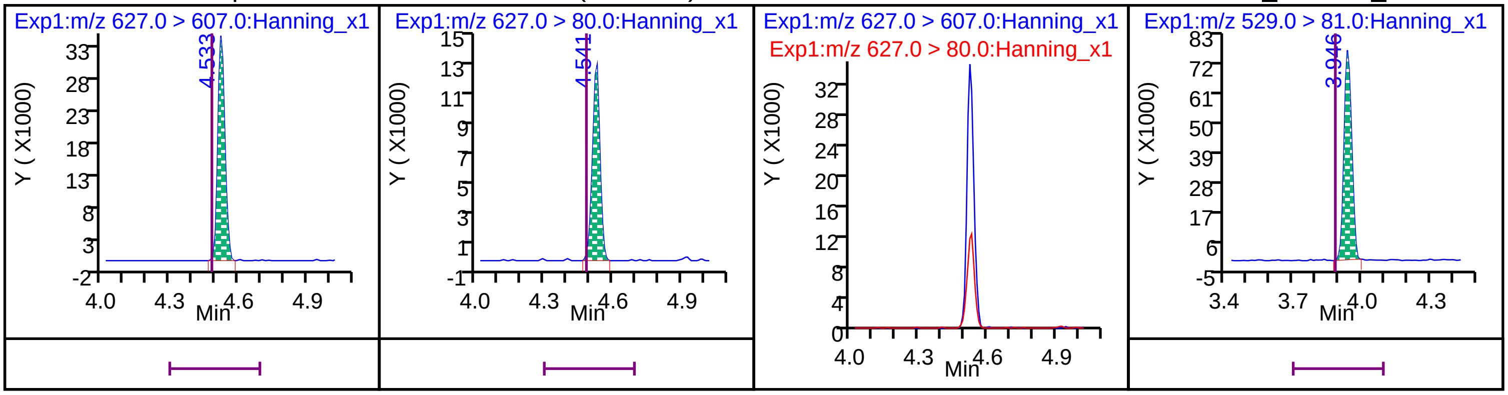
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

D 59 d5-EtFOSA

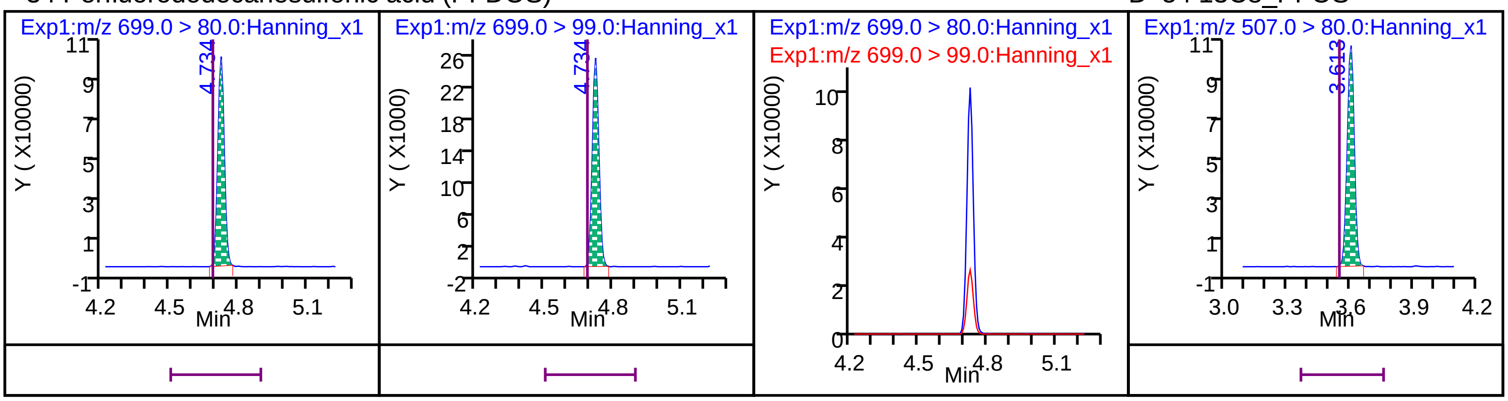


Report Date: 09-Nov-2021 13:30:53 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d

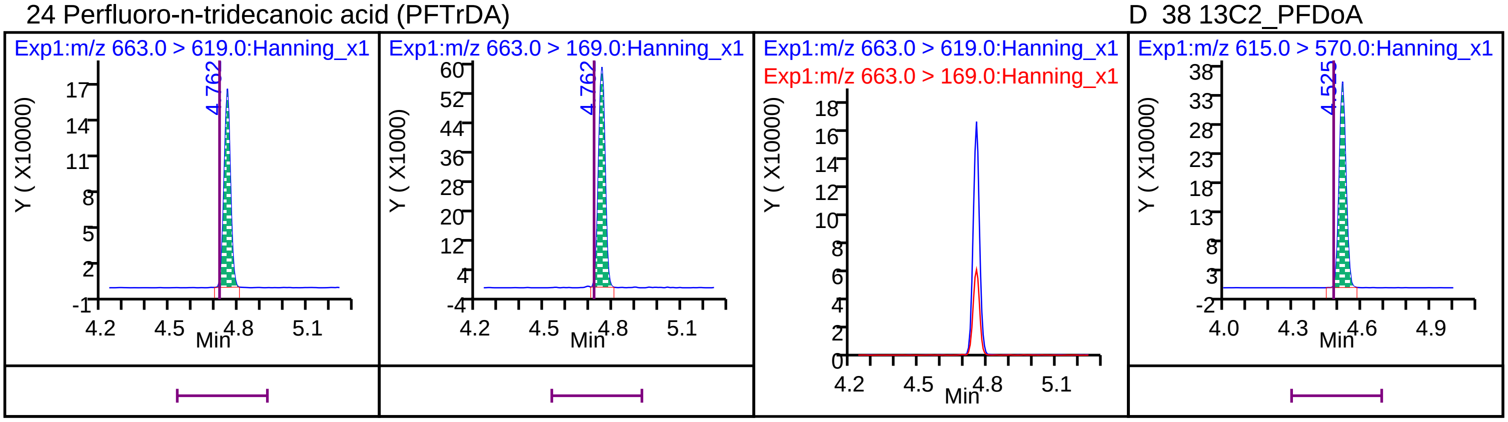
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



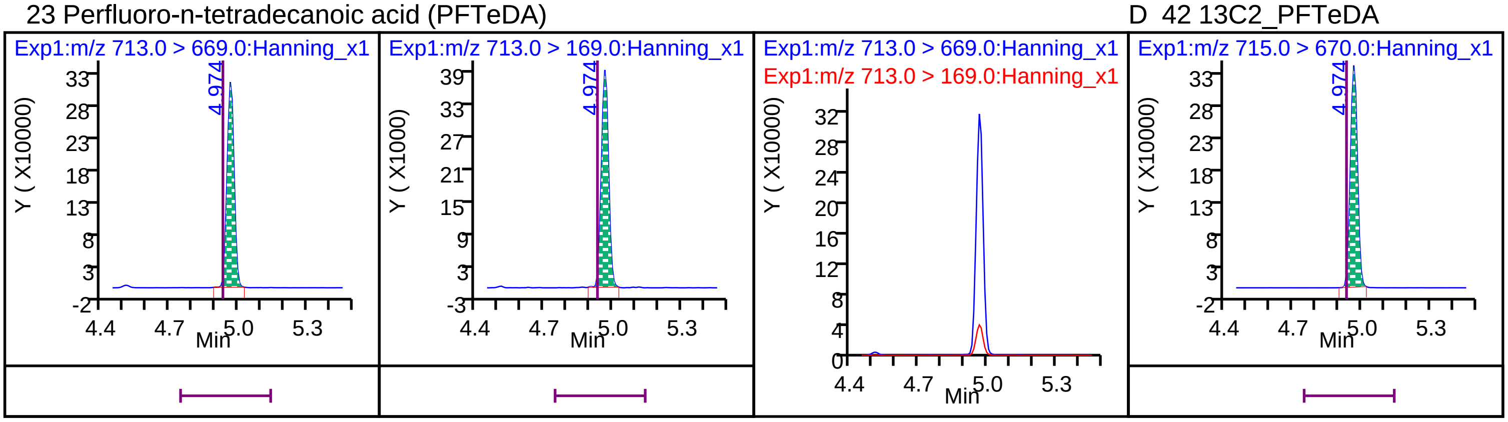
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



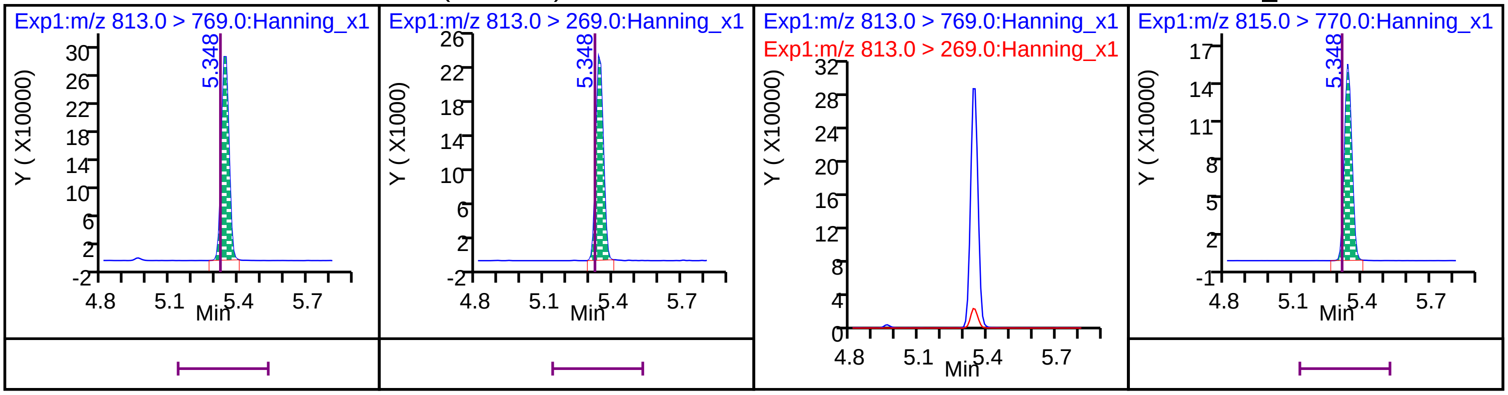
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



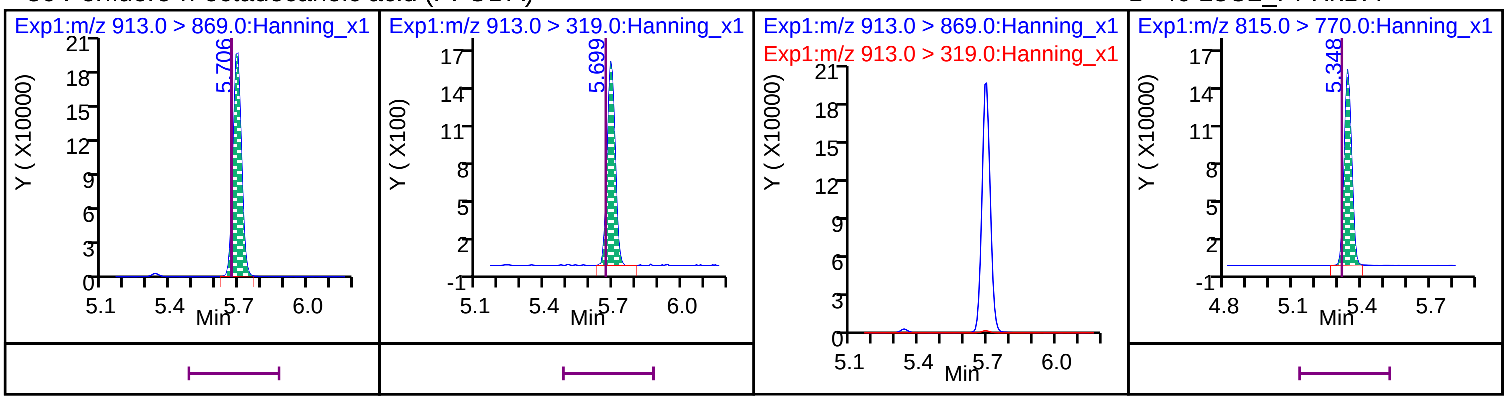
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



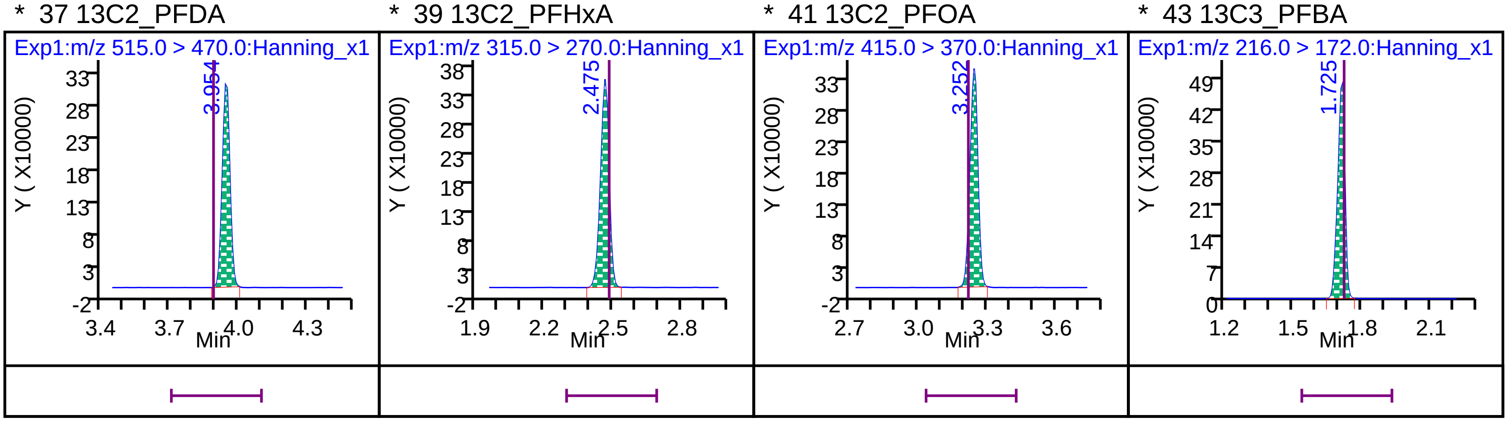
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



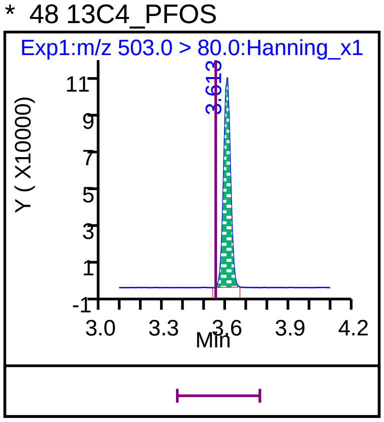
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621040.d

Injection Date: 06-Nov-2021 19:14:38 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 1000_SVLC-1744

Sample Info: CCV 1000_SVLC-1744

Dil. Factor: 1 Operator: Matthew M. Miller

2 6:2 FTS, CAS: 27619-97-2

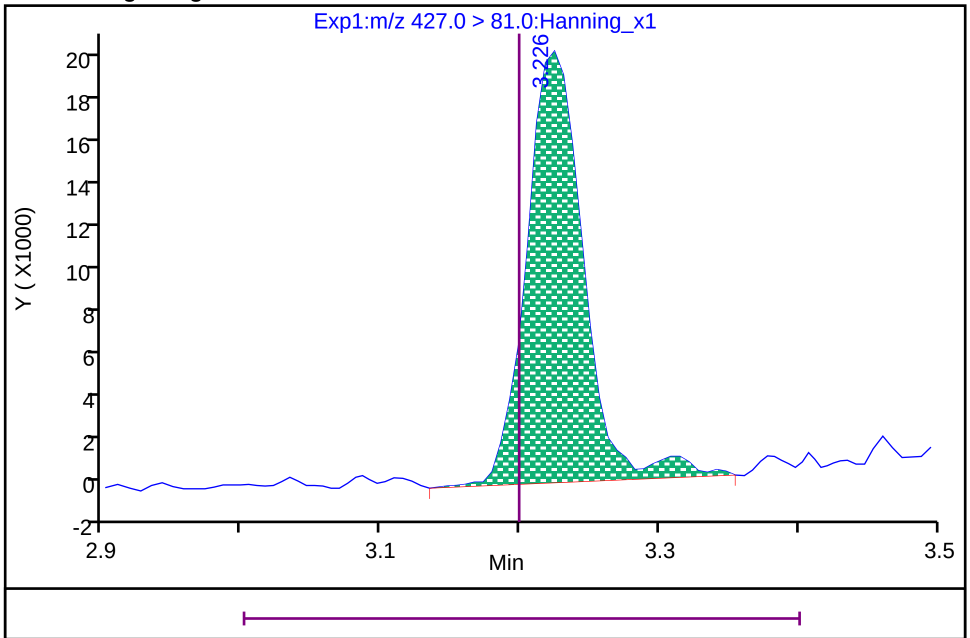
Processing Integration Results

RT: 3.226

Area: 53830

Amount: 909.49

Amount Units: ng/L

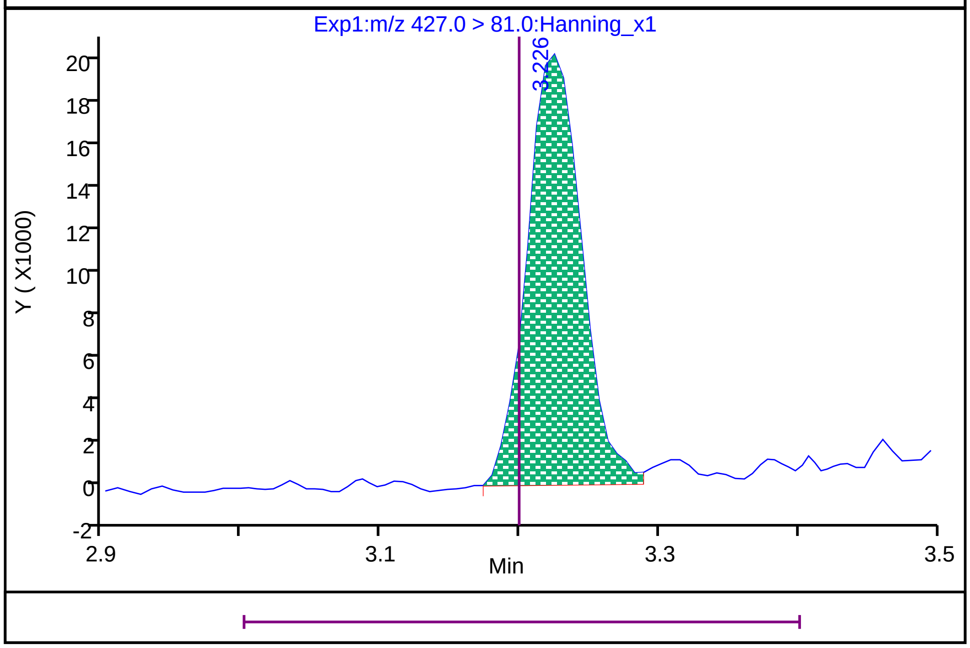


RT: 3.226

Area: 51477

Amount: 909.49

Amount Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:03:45

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:10 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621053.d		
Injection Date:	06-Nov-2021 21:32:32	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	38
Sample Info:	CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 46 13C4_PFBA	1102554	1062135			96.3	50 - 150
8 PFBA			1000.00	1008.94	100.9	70 - 130
D 50 13C5_PFPeA	1031391	995431			96.5	50 - 150
21 PFPeA			1000.00	1002.52	100.3	70 - 130
7 PFBS			884.00	835.36	94.5	70 - 130
D 44 13C3_PFBS	340591	325945			95.7	50 - 150
1 4:2 FTS			934.00	767.60	82.2	70 - 130
D 63 13C2_4:2 FTS_2	231446	241759			104.5	50 - 150
D 49 13C5_PFHxA	914193	915135			100.1	50 - 150
15 PFHxA			1000.00	969.56	97	70 - 130
22 PFPeS			938.00	920.82	98.2	70 - 130
D 66 13C3_GenX	686066	821082			119.7	50 - 150
28 GenX			2000.00	1799.87	90	70 - 130
D 47 13C4_PFHpA	904828	890809			98.5	50 - 150
13 PFHpA			1000.00	961.62	96.2	70 - 130
D 45 13C3_PFHxS	275799	287262			104.2	50 - 150
14 PFHxS			910.00	817.77	89.9	70 - 130
29 ADONA			942.00	891.45	94.6	70 - 130
D 64 13C2_6:2 FTS_2	216911	198803			91.7	50 - 150
2 6:2 FTS			948.00	930.92	98.2	70 - 130
D 53 13C8_PFOA	844338	830964			98.4	50 - 150
20 PFOA			1000.00	1022.83	102.3	70 - 130
12 PFHpS			952.00	902.50	94.8	70 - 130
18 PFOS			928.00	933.54	100.6	70 - 130
D 54 13C8_PFOS	238349	246168			103.3	50 - 150
17 PFNA			1000.00	981.52	98.2	70 - 130
D 56 13C9_PFNA	847911	789994			93.2	50 - 150
30 9Cl-PF3ONS			932.00	860.36	92.3	70 - 130
D 55 13C8_PFOSA	426468	424478			99.5	50 - 150
19 PFOSA			1000.00	978.72	97.9	70 - 130
16 PFNS			960.00	887.22	92.4	70 - 130
D 65 13C2_8:2 FTS_2	178798	153267			85.7	50 - 150
3 8:2 FTS			958.00	1038.05	108.4	70 - 130
10 PFDA			1000.00	1041.73	104.2	70 - 130
D 51 13C6_PFDA	770724	724485			94	50 - 150
D 58 d3-MeFOSAA	791294	899420			113.7	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	909.66	91	70 - 130
9 PFDS			964.00	930.40	96.5	70 - 130
25 PFUdA			1000.00	976.26	97.6	70 - 130
D 60 d5-EtFOSAA	749456	758170			101.2	50 - 150
D 52 13C7_PFUdA	720189	715582			99.4	50 - 150
5 N-EtFOSAA			1000.00	946.09	94.6	70 - 130
D 61 d7-MeFOSE	124281	111559			89.8	50 - 150
32 MeFOSE			1000.00	997.54	99.8	70 - 130
D 57 d3-MeFOSA	63457	63936			100.8	50 - 150
26 MeFOSA			1000.00	946.46	94.6	70 - 130
31 11Cl-PF3OUDS			942.00	892.83	94.8	70 - 130
D 62 d9-EtFOSE	110687	118519			107.1	50 - 150
33 EtFOSE			1000.00	972.15	97.2	70 - 130
D 59 d5-EtFOSA	64404	64296			99.8	50 - 150
11 PFDoA			1000.00	1030.15	103	70 - 130
D 38 13C2_PFDoA	689160	685748			99.5	50 - 150
4 10:2 FTS			964.00	1061.15	110.1	70 - 130
27 EtFOSA			1000.00	956.08	95.6	70 - 130
34 PFDOS			968.00	973.37	100.6	70 - 130
24 PFTrDA			1000.00	947.49	94.7	70 - 130
23 PFTeDA			1000.00	1008.63	100.9	70 - 130
D 42 13C2_PFTeDA	752016	725792			96.5	50 - 150
D 40 13C2_PFHxDA	343727	367422			106.9	50 - 150
35 PFHxDA			1000.00	950.22	95	70 - 130
36 PFODA			1000.00	975.34	97.5	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621053.d		
Injection Date:	06-Nov-2021 21:32:32	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	38
Sample Info:	CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.732	1.725	1	1062135	20	>100:1			1000.00	968.95	96.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/-1	1142026	19	>100:1			1000.00	1008.94		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	995431	15	>100:1			1000.00	975.82	96.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	1071171	16	>100:1			1000.00	1002.52		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	325945	15	>100:1			1000.00	965.94	95.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.158	2.169	0/0	385433	17	>100:1	Target = 3.83		884.00	835.36		
298.9 > 99	44	2.158	2.169		103505	16	>100:1	3.72 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.519	2.529	0/0	300414	16	>100:1	Target = 3.47		938.00	920.82		
349 > 99	44	2.519	2.529		93003	17	>100:1	3.23 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.440	2.449	0	241759	17	>100:1			5000.00	5177.20	104.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.440	2.449	0/0	69009	18	>100:1	Target = 1.39		934.00	767.60		
327 > 81	63	2.440	2.449		45014	16	66:1	1.53 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.484	2.493	0	915135	18	>100:1			1000.00	1003.44	100.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.484	2.493	0/0	901802	19	>100:1	Target = 17.15		1000.00	969.56		
313 > 119	49	2.484	2.493		53870	17	>100:1	16.74 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.614	0	821082	19	>100:1			5000.00	5578.24	119.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.622	0/0	220469	18	>100:1	Target = 0.72		2000.00	1799.87		
285 > 185	66	2.606	2.622		291163	20	>100:1	0.75 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.878	2.878	0	890809	17	>100:1			1000.00	1006.71	98.5	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.878	2.878	0/0	818367	17	>100:1	Target = 3.21		1000.00	961.62		
363 > 169	47	2.878	2.878		245292	17	>100:1	3.33 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.896	2.896	0	287262	17	>100:1			1000.00	1038.62	104.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.896	2.896	0/0	270796	26	>100:1	Target = 3.35	5.13	910.00	817.77		
399 > 99	45	2.896	2.896		83490	26	>100:1	3.24 (1.67-5.04)	8.06				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.923	2.923	0/0	1357744	18	>100:1	Target = 2.38		942.00	891.45		
377 > 85	45	2.923	2.923		581113	19	>100:1	2.33 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.258	3.226	2/2	275914	21	>100:1	Target = 3.87		952.00	902.50		
449 > 99	45	3.258	3.226		76529	22	>100:1	3.60 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.226	3.201	2	198803	22	>100:1			5000.00	4823.51	91.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.226	3.201	2/0	61481	22	>100:1	Target = 1.26		948.00	930.92		
427 > 81	64	3.226	3.201		46413	21	77:1	1.32 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	830964	21	>100:1			1000.00	986.40	98.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	849953	19	>100:1	Target = 2.46		1000.00	1022.83		
413 > 169	53	3.258	3.226		330730	19	>100:1	2.56 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.606	3.558	3	246168	18	>100:1			1000.00	1039.01	103.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.606	3.558	3/0	267366	45	>100:1	Target = 3.98	3.50	928.00	933.54		
499 > 99	54	3.606	3.558		66701	36	>100:1	4.00 (1.99-5.97)	7.24				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.806	3.755	4/1	640054	20	>100:1			932.00	860.36		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.939	3.886	4/1	207972	17	>100:1	Target = 3.57		960.00	887.22		
549 > 99	54	3.939	3.886		57216	18	>100:1	3.63 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.231	4.191	3/0	214679	15		Target = 3.73		964.00	930.40		
599 > 99	54	4.231	4.191		55622	19	>100:1	3.85 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.394	4.349	3/0	529713	15	>100:1			942.00	892.83		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.735	4.698	3/0	193497	17	>100:1	Target = 3.44		968.00	973.37		
699 > 99	54	4.735	4.698		49203	15	>100:1	3.93 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.613	3.565	3	789994	19	>100:1			1000.00	973.69	93.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.613	3.565	3/0	691581	19	>100:1	Target = 4.45		1000.00	981.52		
463 > 169	56	3.613	3.565		159964	19	>100:1	4.32 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.916	3.872	3	424478	19	>100:1			1000.00	1021.88	99.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.916	3.872	3/0	452664	18	>100:1	Target = 47.73		1000.00	978.72		
498>478	55	3.916	3.872		12895	20	51:1	35.10 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.946	3.894	4	153267	23	>100:1			5000.00	4401.42	85.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.939	3.894	3/-1	52504	17	>100:1	Target = 1.41		958.00	1038.05		
527 > 81	65	3.946	3.894		37142	18	>100:1	1.41 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.533	4.494	3/-1	68999	17	>100:1	Target = 2.81		964.00	1061.15		
627 > 80	65	4.533	4.494		28434	16	>100:1	2.42 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.946	3.901	3	724485	17	>100:1			1000.00	1012.64	94	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.946	3.901	3/0	770836	18	>100:1	Target = 9.36		1000.00	1041.73		
513 > 169	51	3.946	3.901		67881	17	>100:1	11.35 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.101	4.053	3	899420	16	>100:1			5000.00	5562.67	113.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.109	4.062	3/0	132059	31	>100:1	Target = 1.42	9.01	1000.00	909.66		
570 > 483	58	4.109	4.062		98877	31	>100:1	1.33 (0.71-2.13)	4.37				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.258	4.207	4	758170	16	>100:1			5000.00	5243.53	101.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.267	4.223	3/-1	141516	33	>100:1	Target = 1.80	6.78	1000.00	946.09		M
584 > 526	60	4.267	4.223		89166	31	>100:1	1.58 (0.90-2.70)	4.29				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.258	4.207	4	715582	17	>100:1			1000.00	1019.02	99.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.258	4.207	4/0	629128	15	>100:1	Target = 8.65		1000.00	976.26		
563 > 169	52	4.258	4.207		74903	16	>100:1	8.39 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.322	4.295	2	111559	14	>100:1			1000.00	909.05	89.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.340	4.304	3/1	113483	15	>100:1			1000.00	997.54		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.349	4.313	3	63936	17	>100:1			1000.00	995.12	100.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.349	4.322	2/-1	65555	14	>100:1	Target = 1.09		1000.00	946.46		
512 > 219	57	4.349	4.322		64084	14	>100:1	1.02 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.494	4.463	2	118519	23	>100:1			1000.00	1043.00	107.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.502	4.479	2/0	95360	15	>100:1			1000.00	972.15		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.525	4.486	3	685748	15	>100:1			1000.00	985.17	99.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.525	4.486	3/0	709546	16	>100:1	Target = 6.94		1000.00	1030.15		
613 > 169	38	4.525	4.486		106675	17	>100:1	6.65 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.762	4.727	3/0	286814	19	>100:1	Target = 2.82		1000.00	947.49		
663 > 169	38	4.762	4.727		103248	20	>100:1	2.77 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.486	2	64296	13	>100:1			1000.00	1065.79	99.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.517	4.494	2/0	73422	15	>100:1	Target = 1.11		1000.00	956.08		
526 > 219	59	4.517	4.494		67407	16	>100:1	1.08 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.942	2	725792	16	>100:1			1000.00	972.75	96.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.974	4.942	2/0	631639	18	>100:1	Target = 7.23		1000.00	1008.63		
713 > 169	42	4.974	4.942		93161	17	>100:1	6.78 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.348	5.323	2	367422	17	>100:1			1000.00	1056.12	106.9	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.356	5.331	2/0	641980	18	>100:1	Target = 12.24		1000.00	950.22		
813 > 269	40	5.356	5.331		52803	18	>100:1	12.15 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.706	5.678	2/0	484254	21	>100:1	Target = 148.06		1000.00	975.34		
913 > 319	40	5.706	5.678		3361	20	>100:1	144.08 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.946	3.901	3	682228	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.484	2.493	0	913404	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.226	2	825663	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	993773	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.606	3.558	3	252264	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

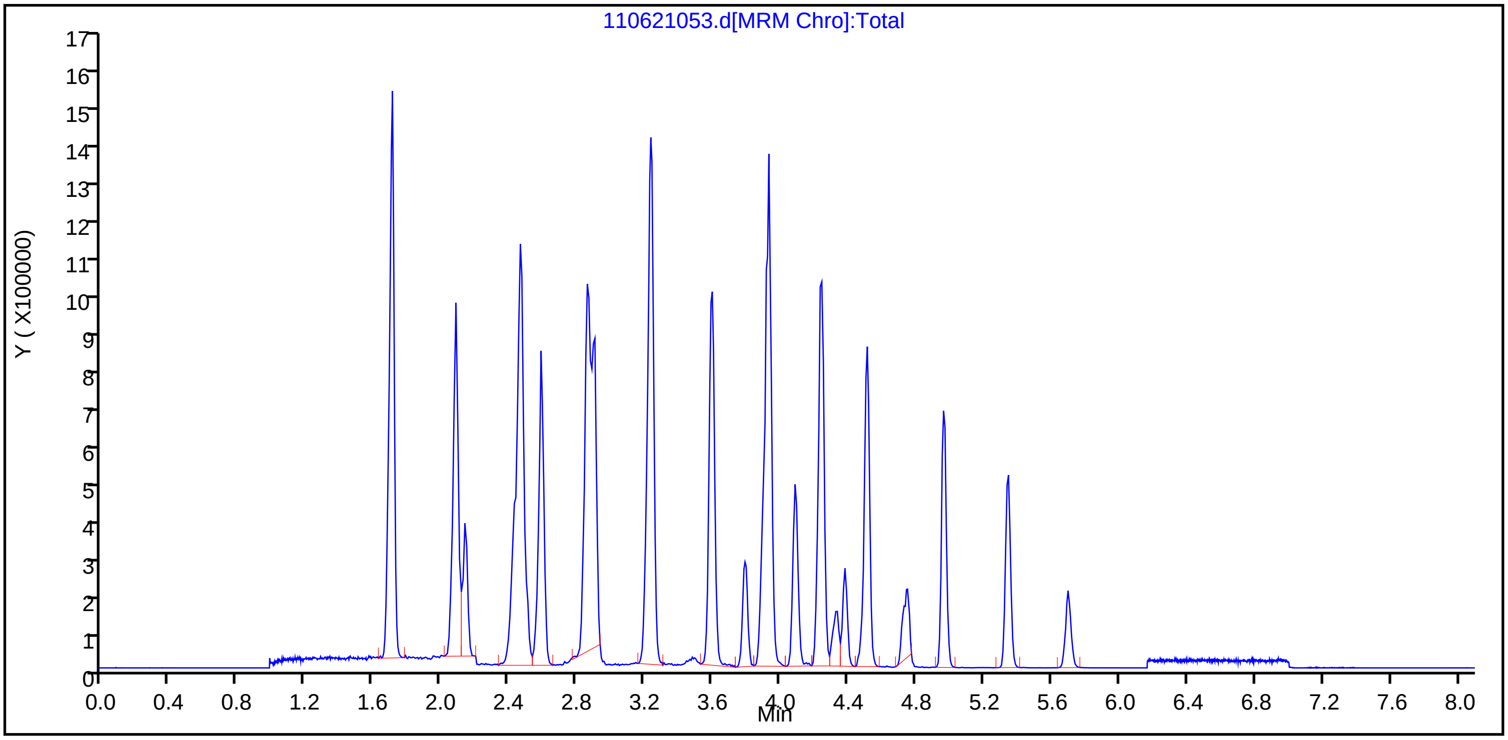
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

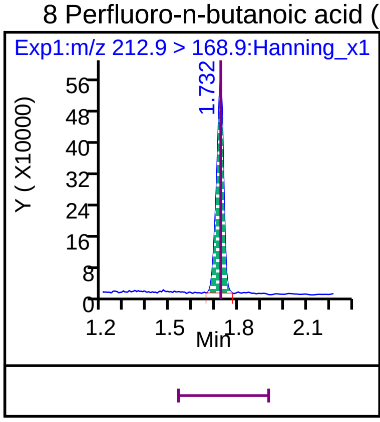
Report Date: 09-Nov-2021 13:31:10 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

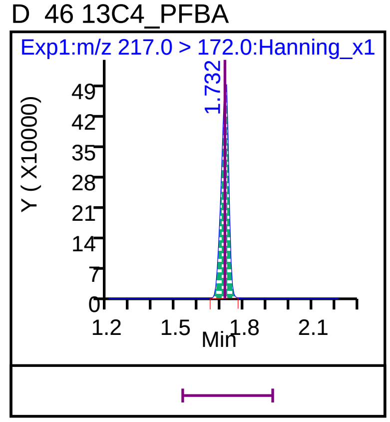
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621053.d		
Injection Date:	06-Nov-2021 21:32:32	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000A_SVLC-1744
Sample Info:	CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller



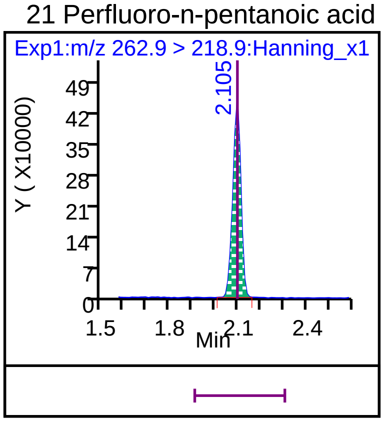
8 Perfluoro-n-butanoic acid (PFBA)



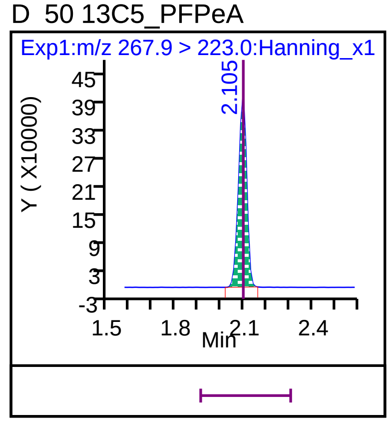
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

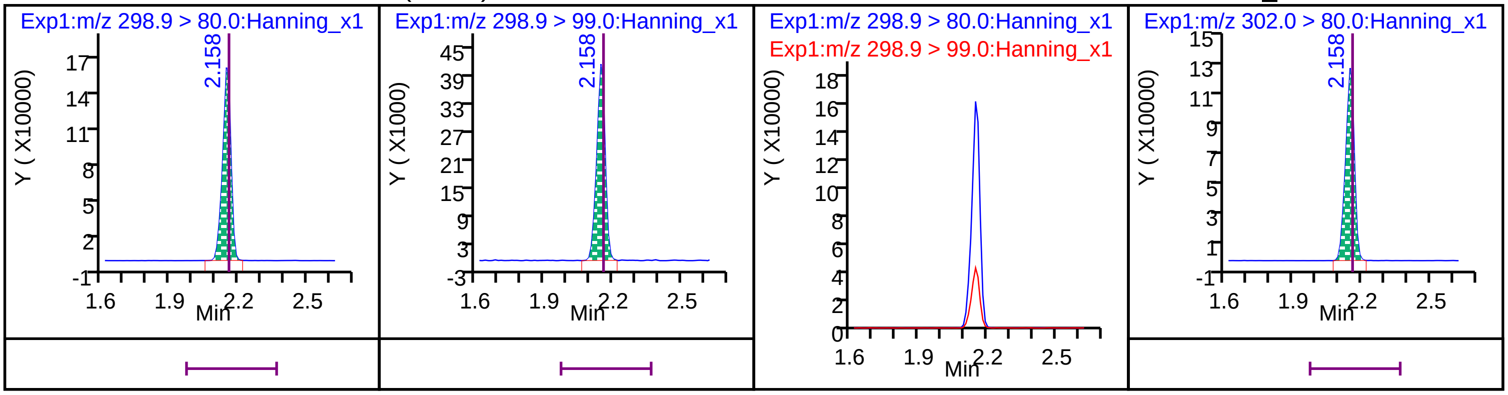


D 50 13C5_PFPeA

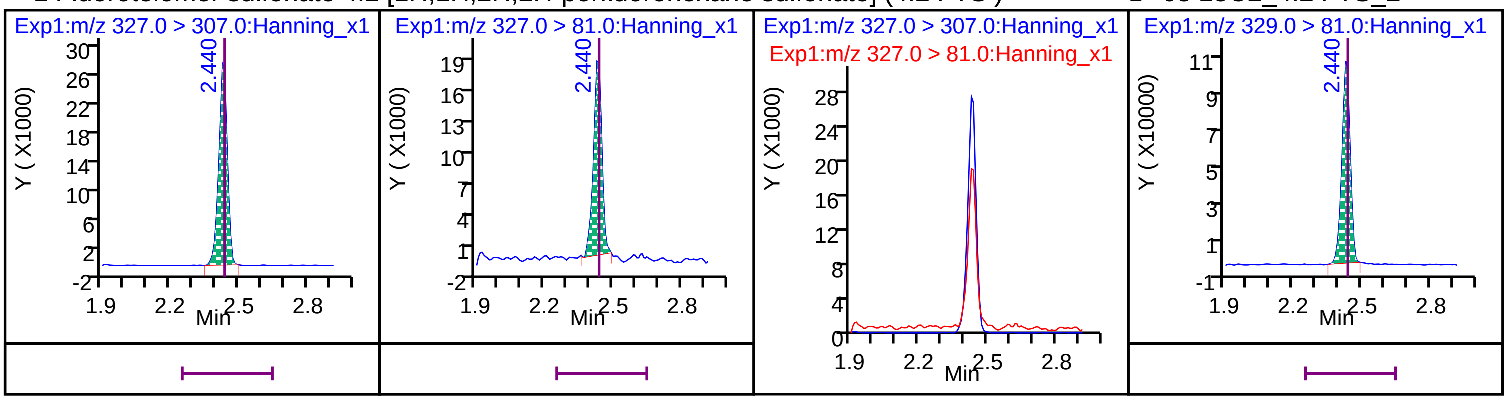


Report Date: 09-Nov-2021 13:31:10 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621053.d

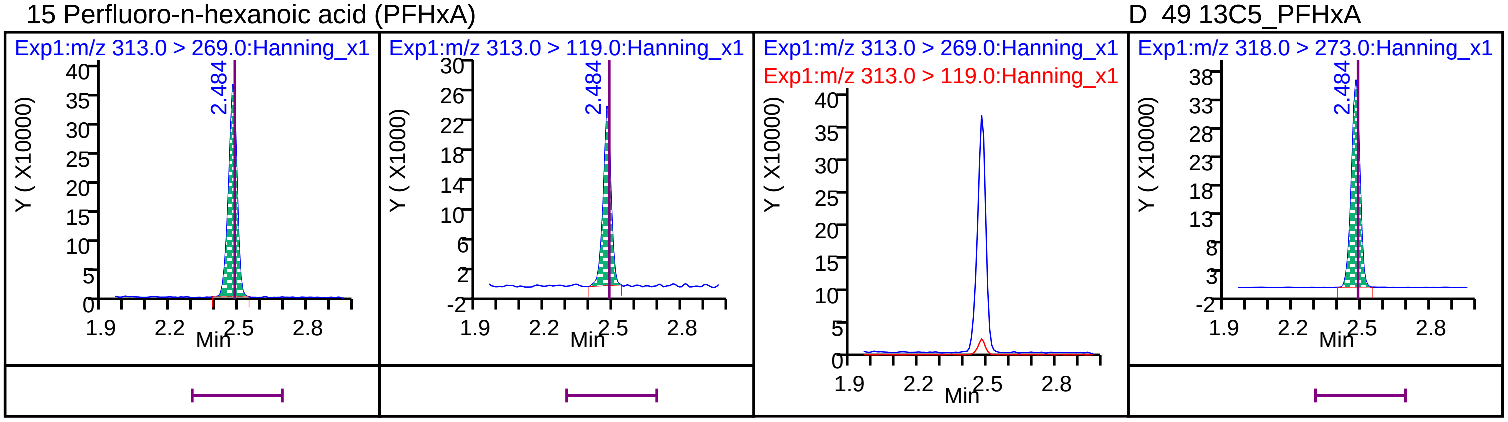
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



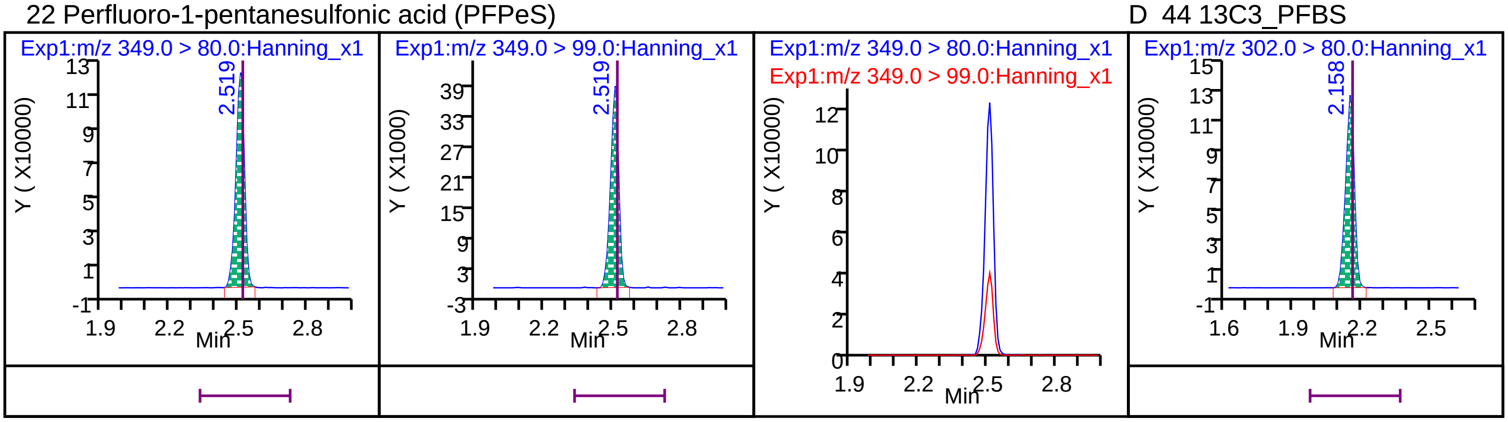
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



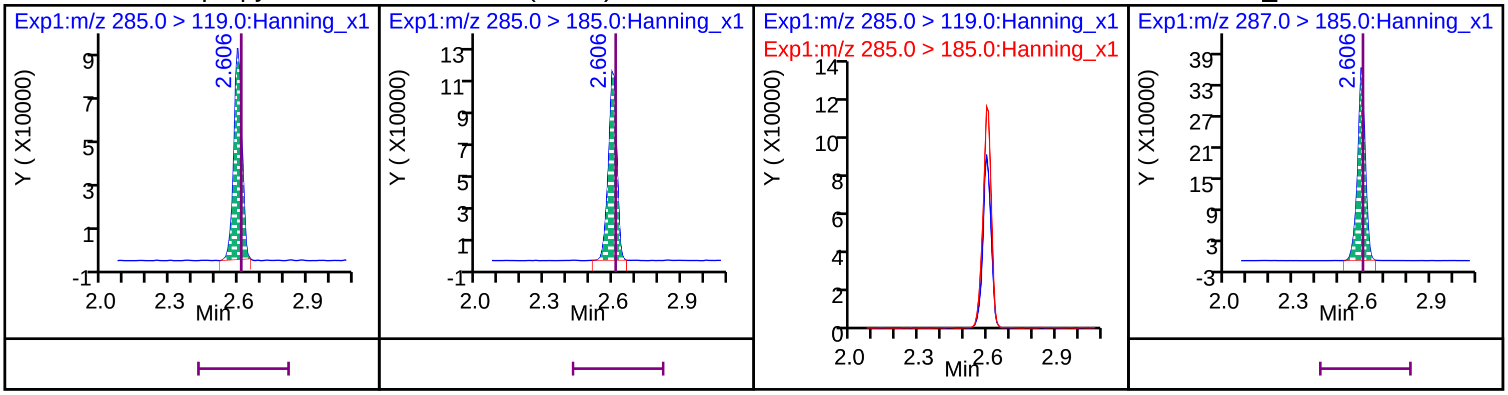
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



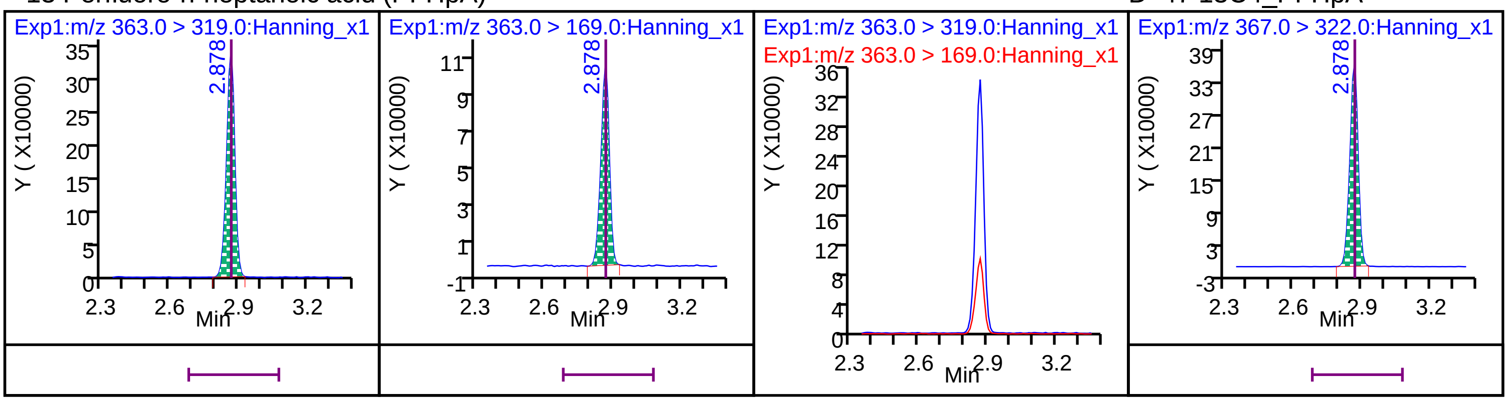
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



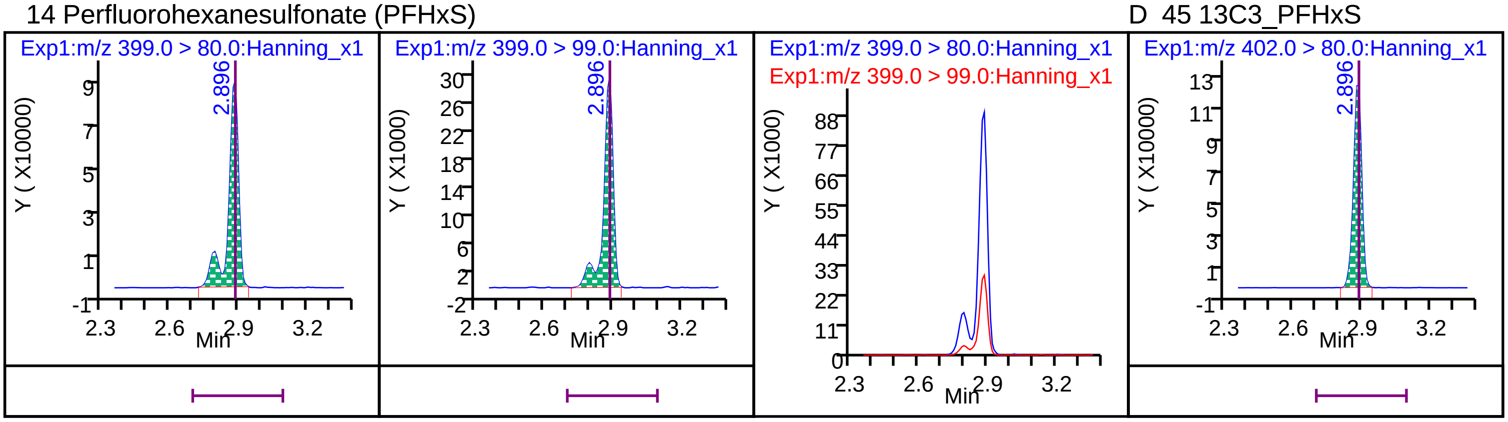
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



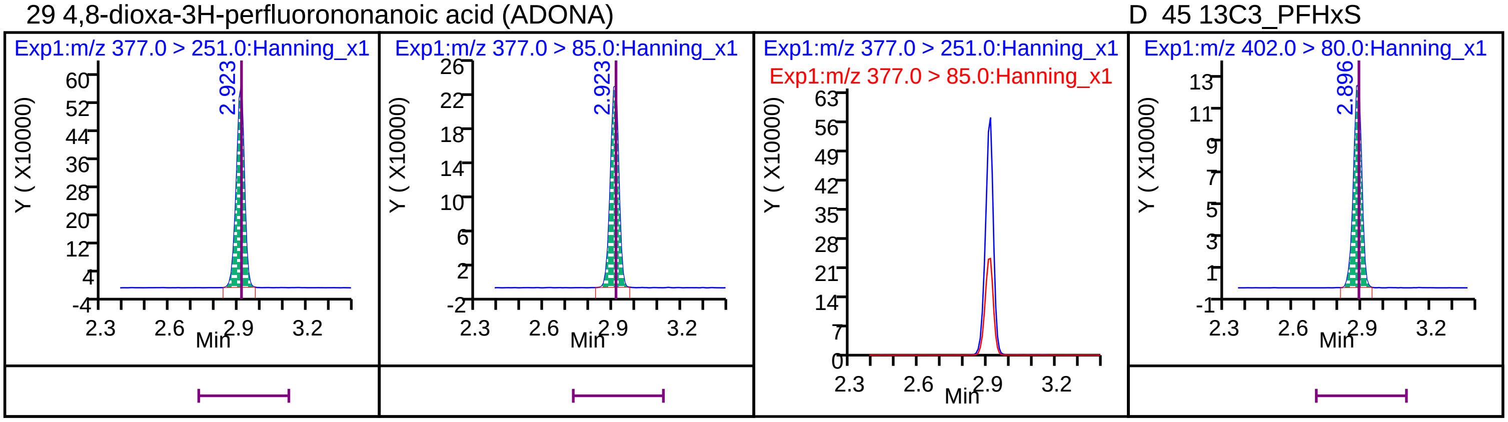
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



Report Date: 09-Nov-2021 13:31:10 AIM Revision: 2.0.2021.0812
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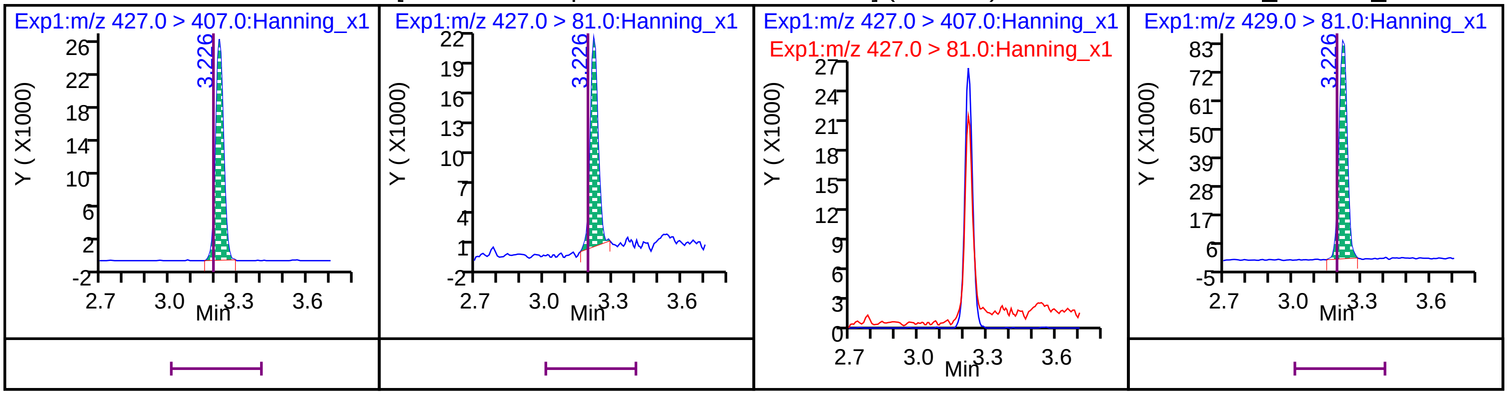
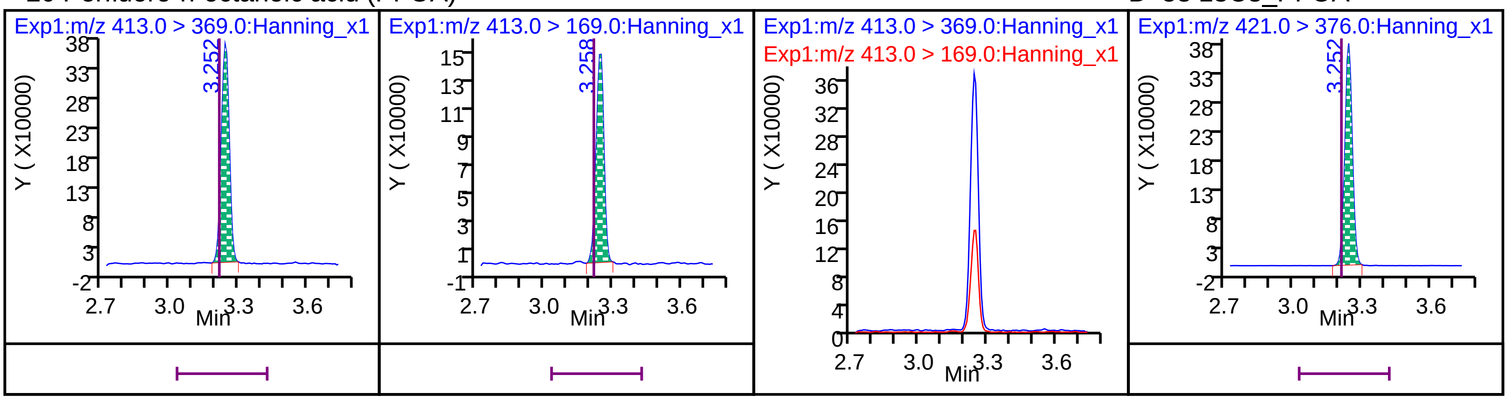
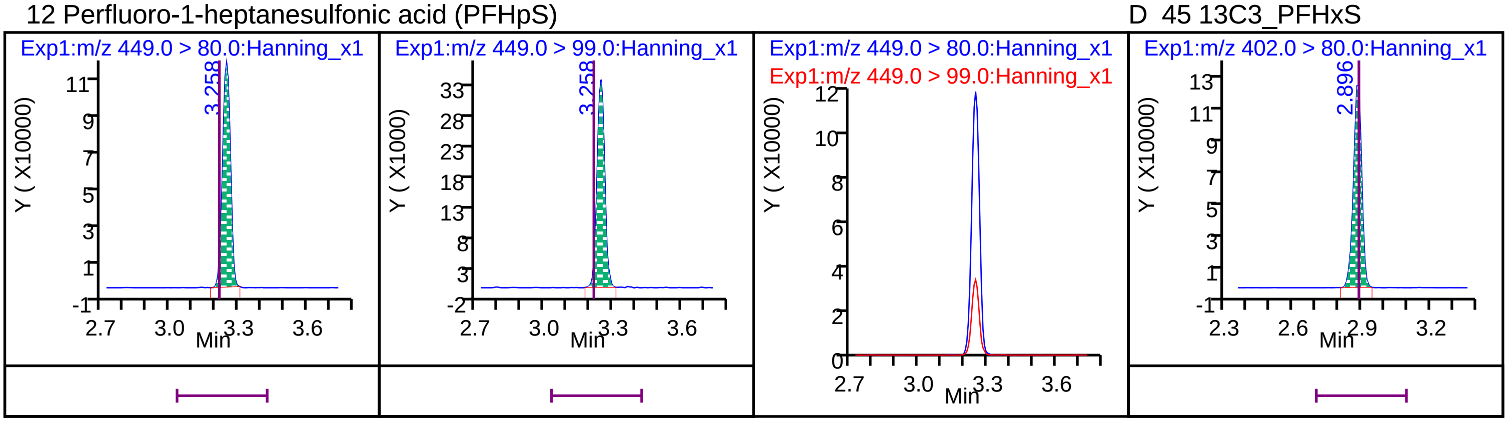
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



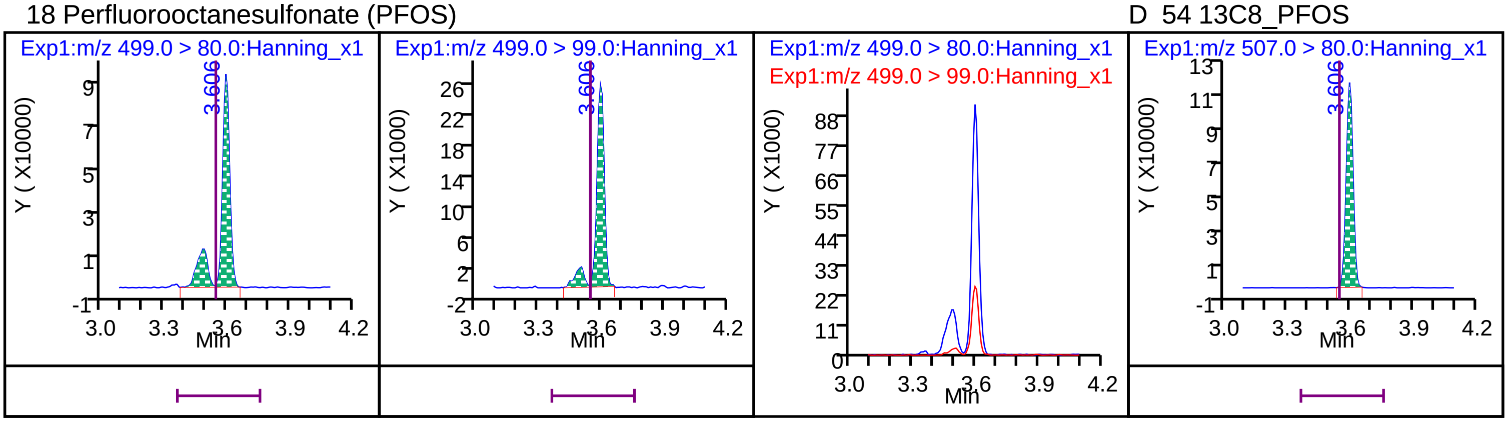
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



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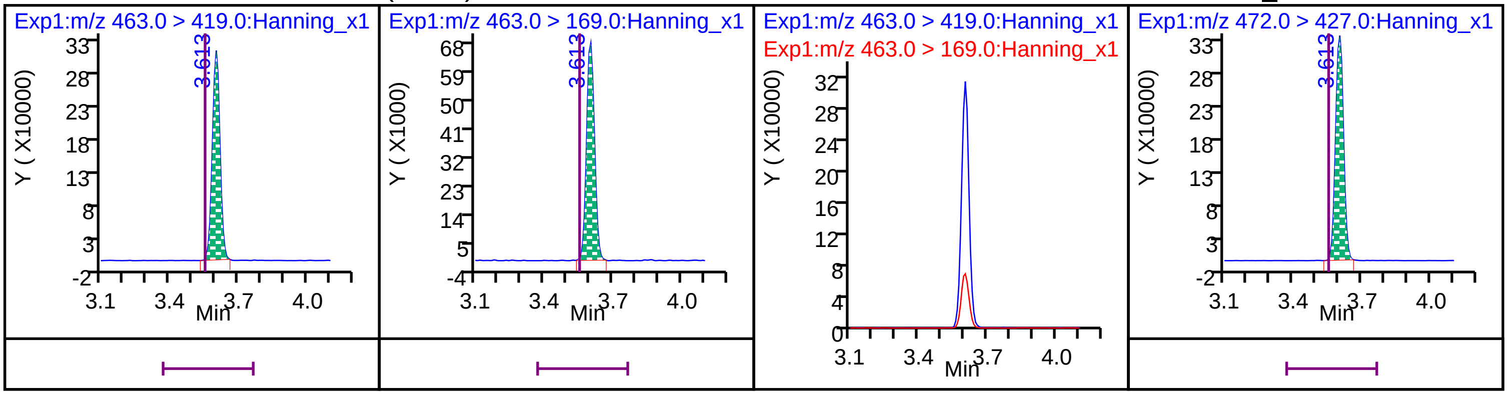
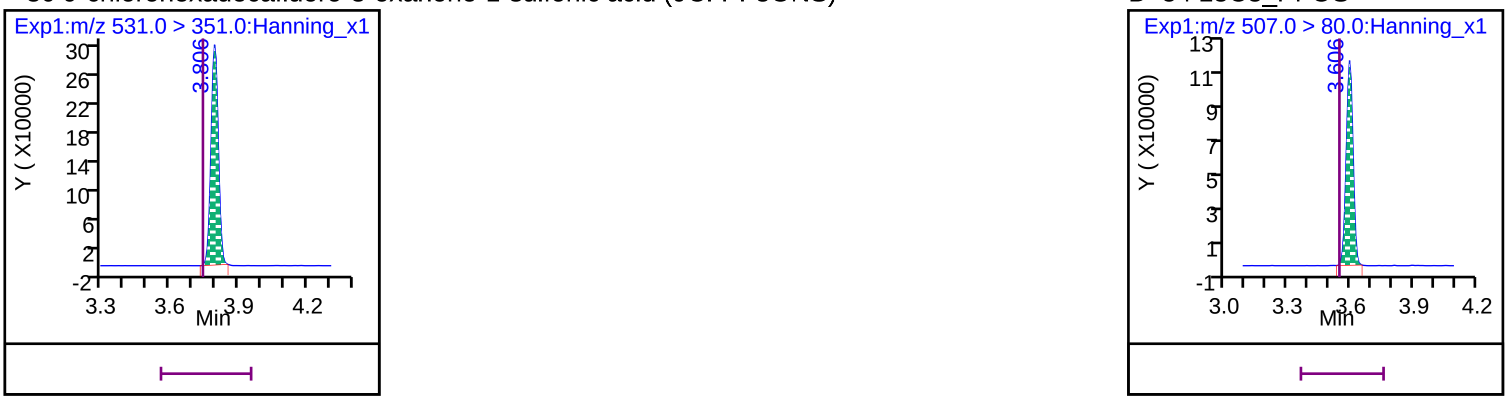
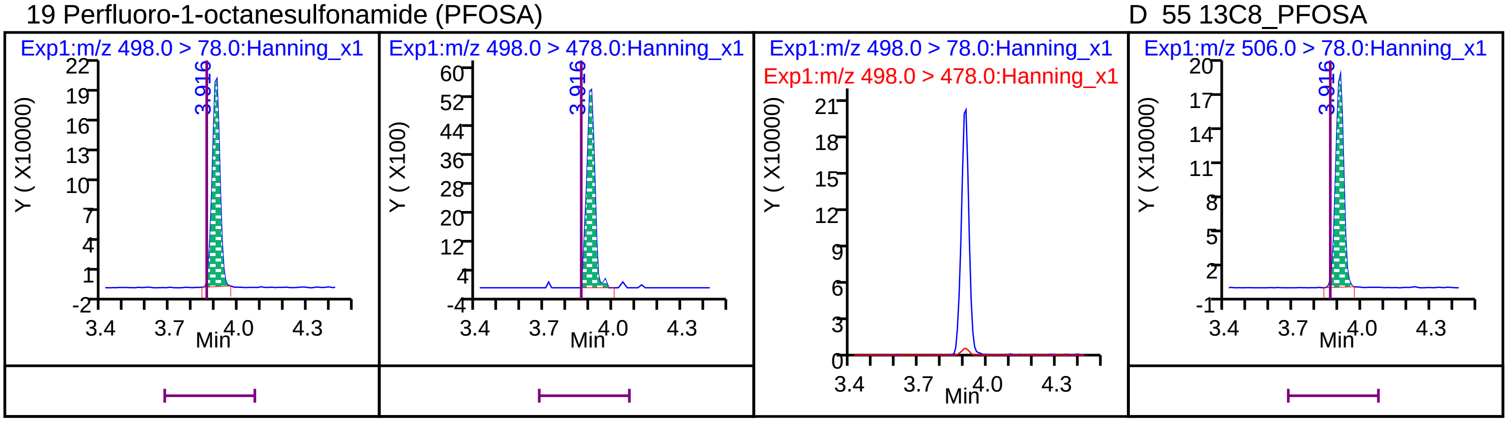
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



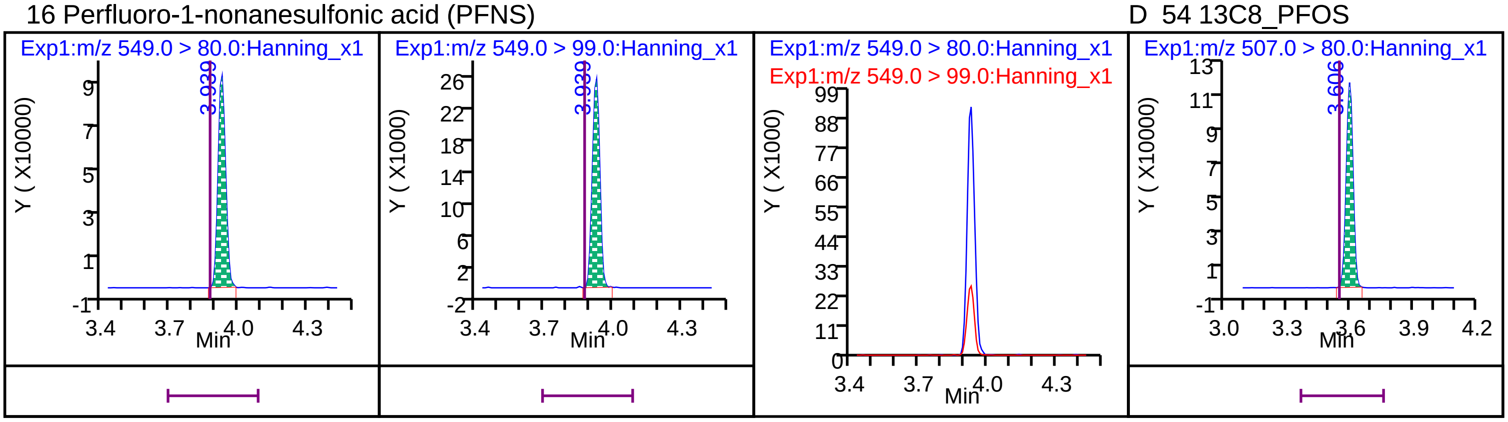
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



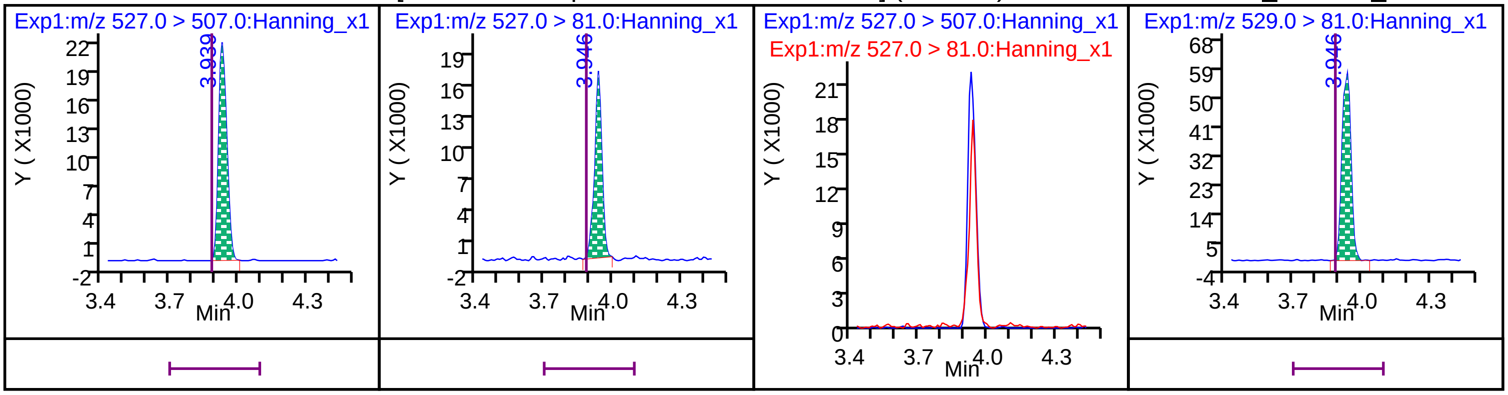
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



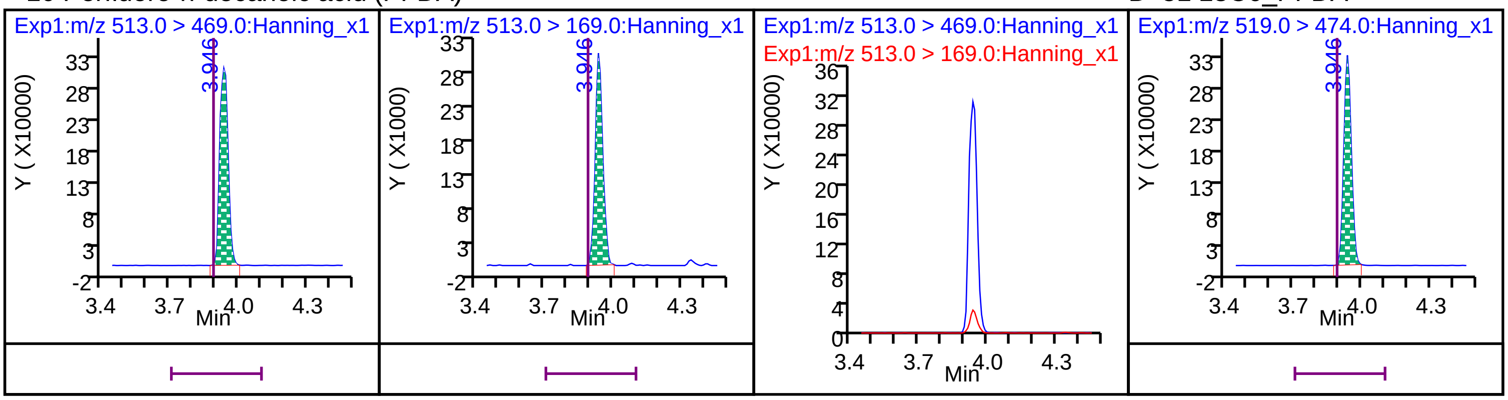
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



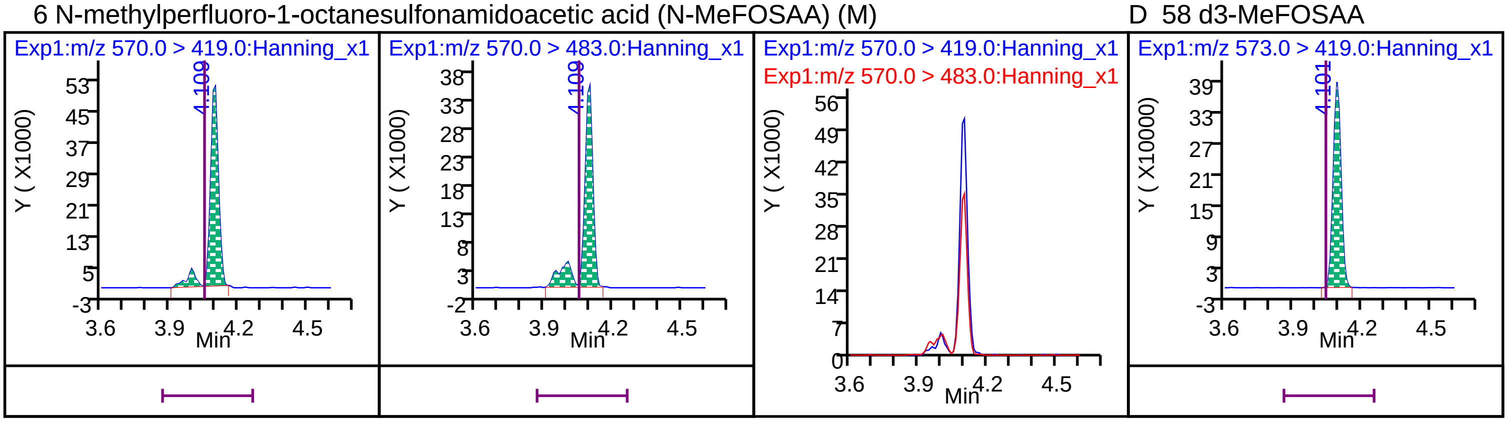
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



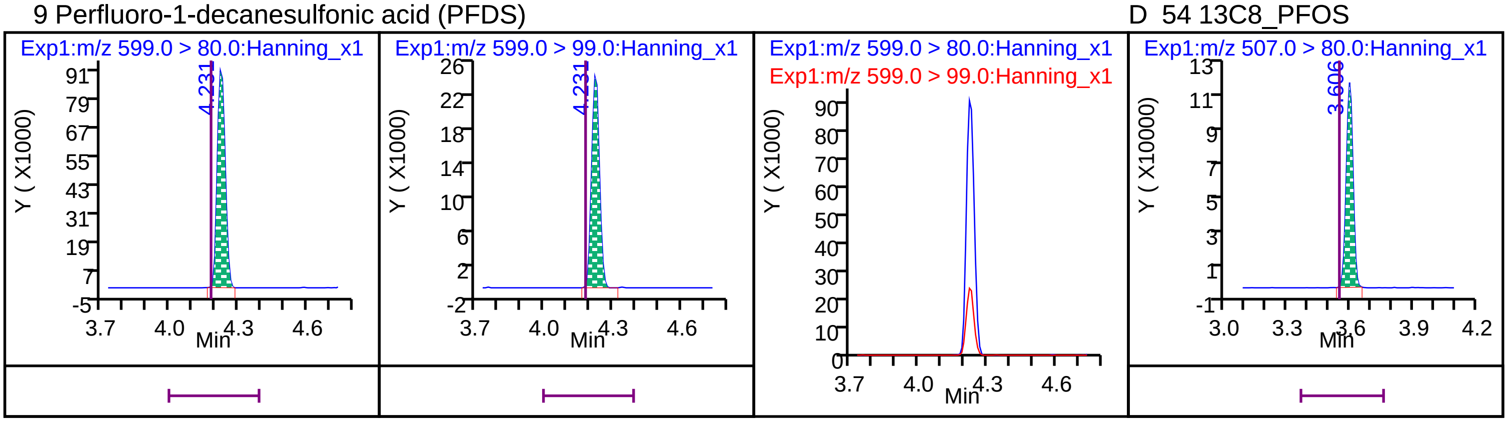
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



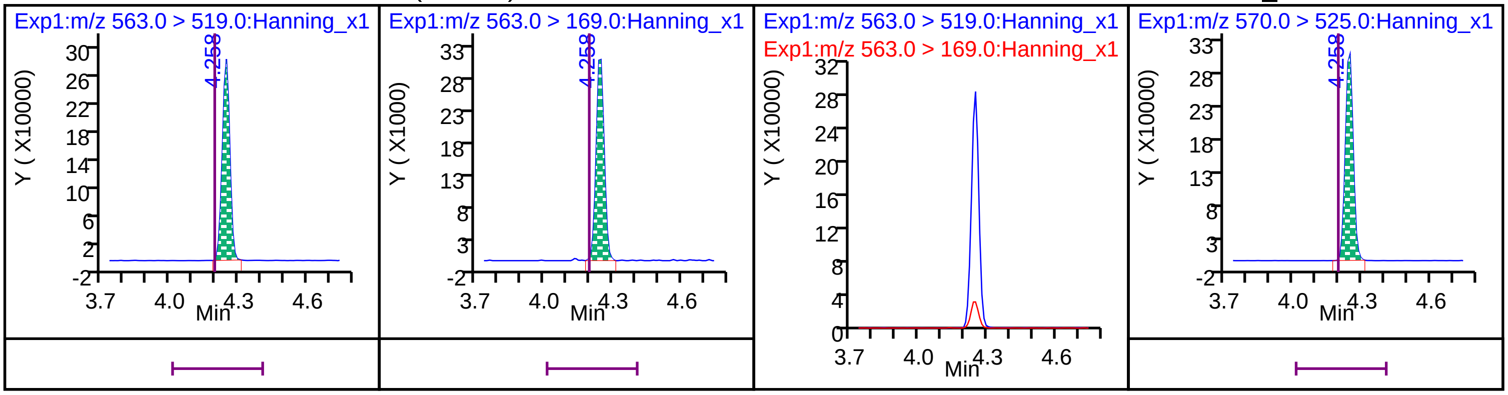
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



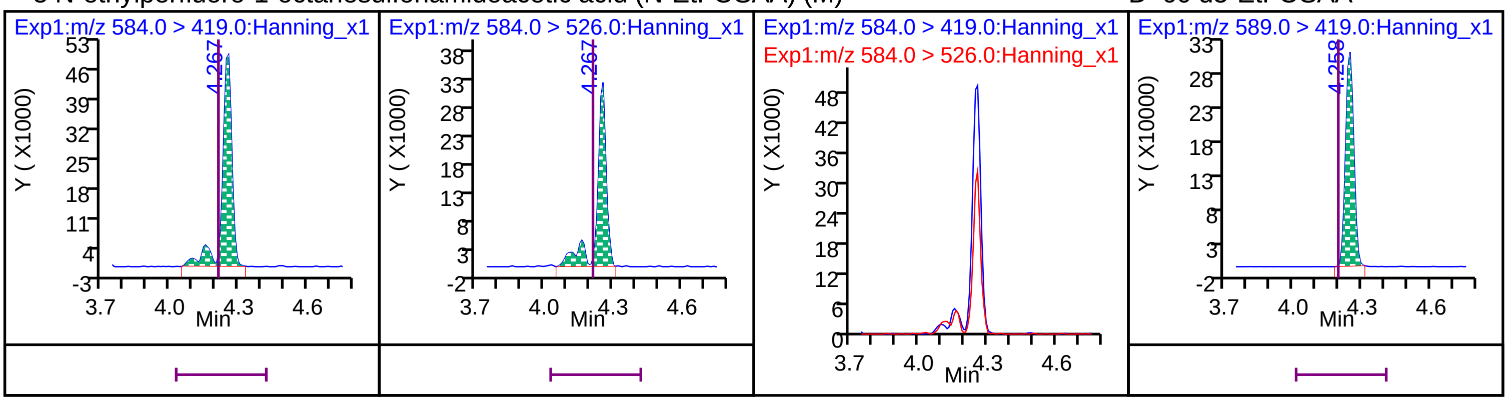
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



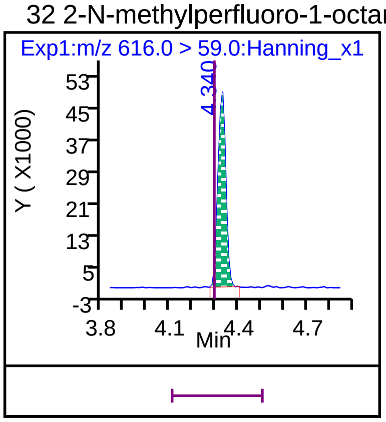
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

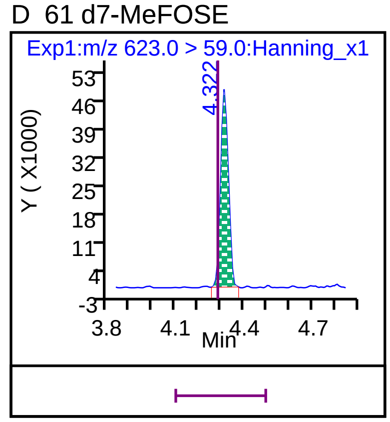


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA

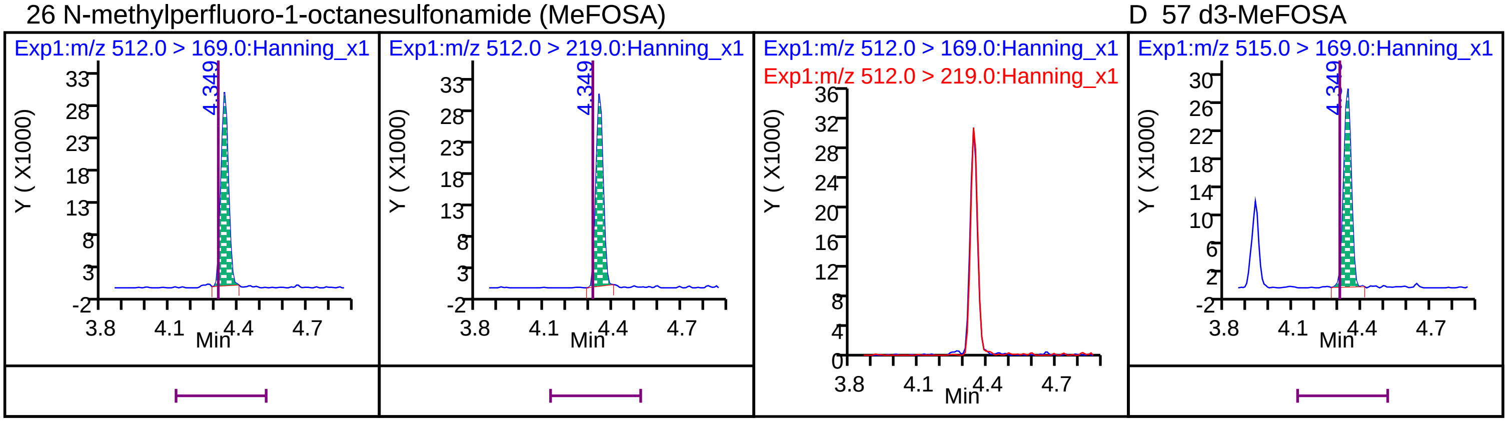


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

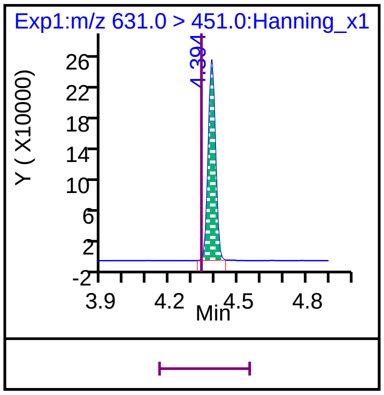




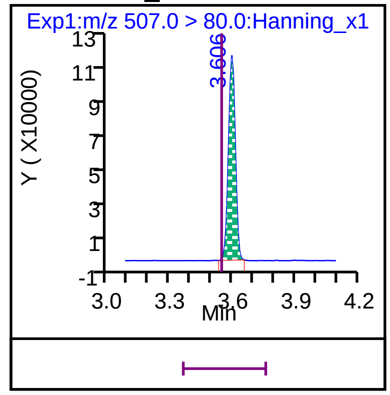
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



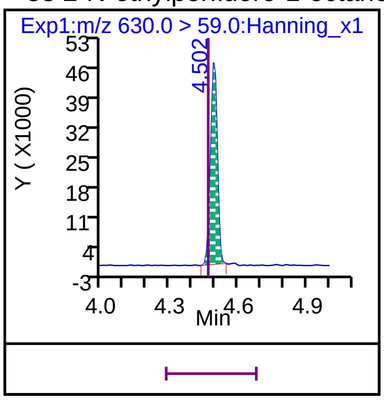
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



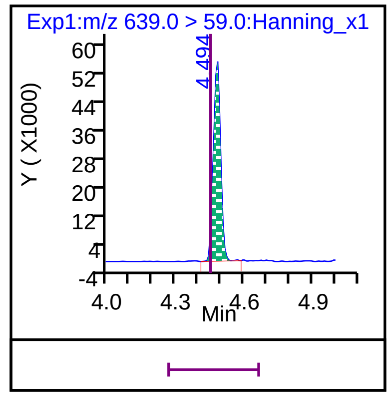
D 54 13C8_PFOS



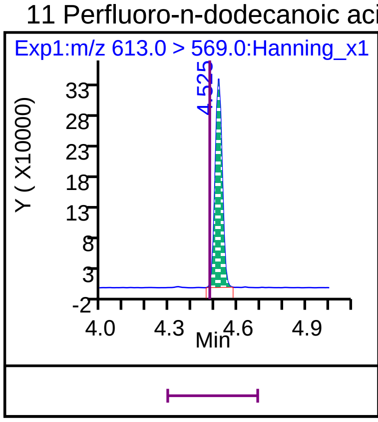
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

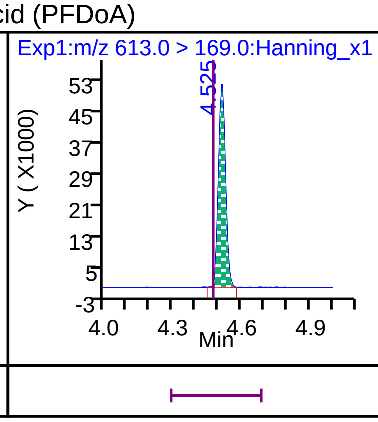


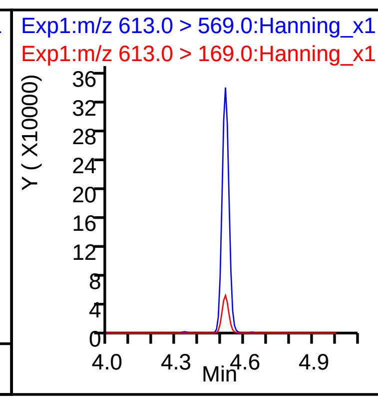
D 62 d9-EtFOSE



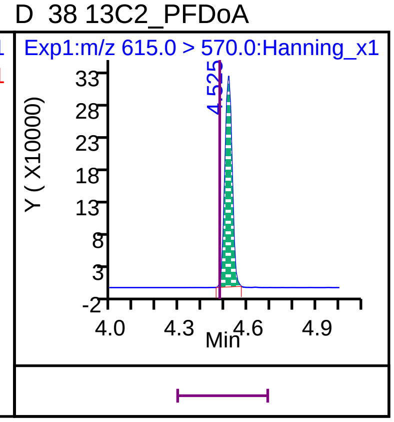
11 Perfluoro-n-dodecanoic acid (PFDoA)



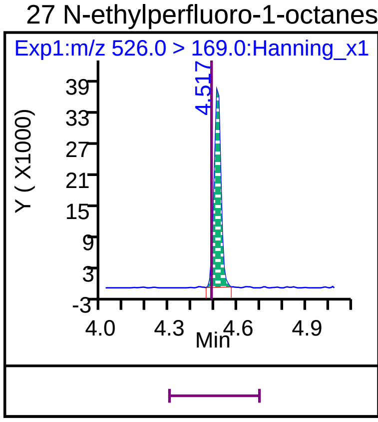


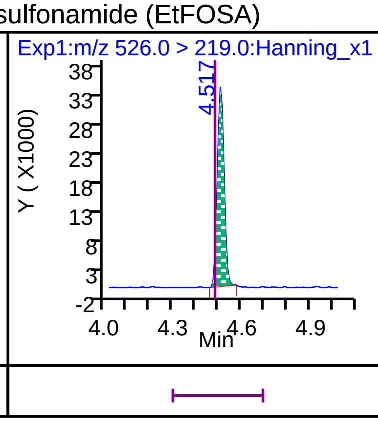


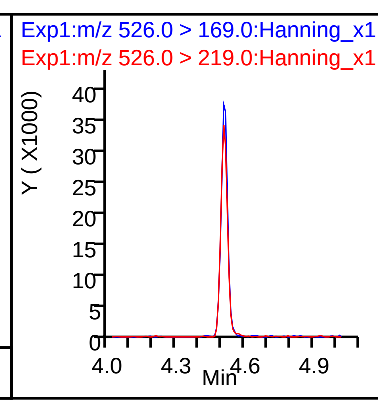
D 38 13C2_PFDoA



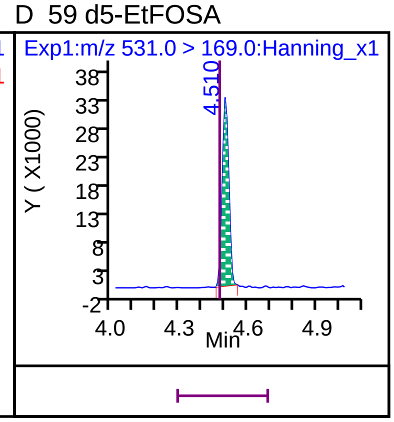
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



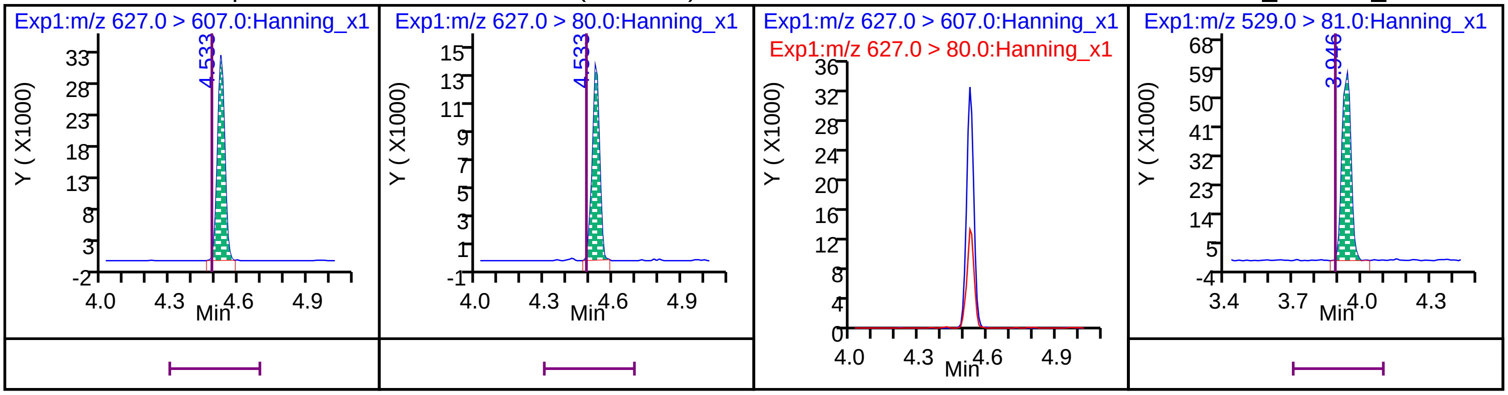




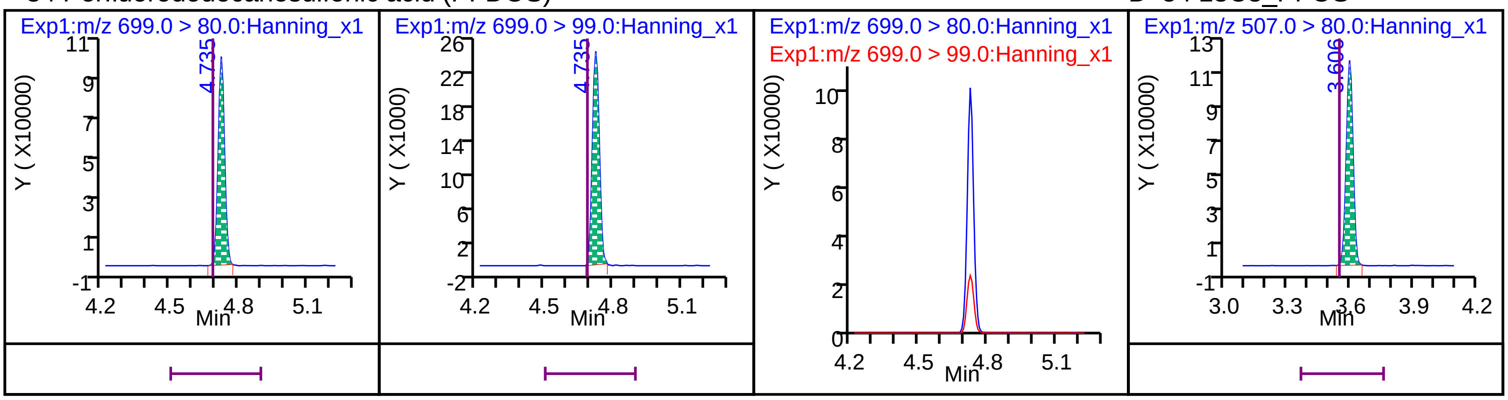
D 59 d5-EtFOSA



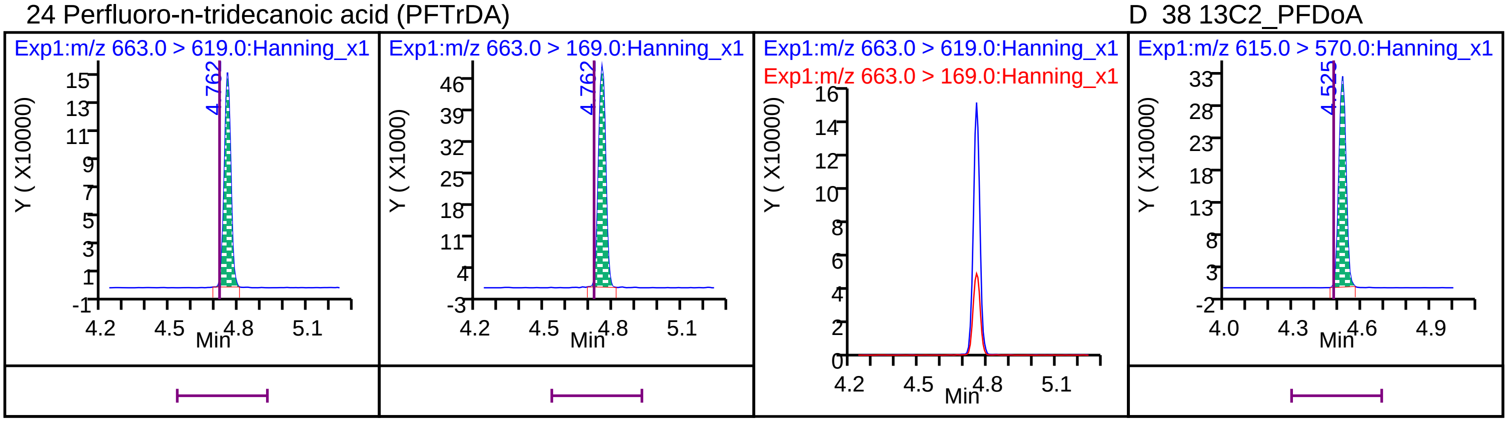
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



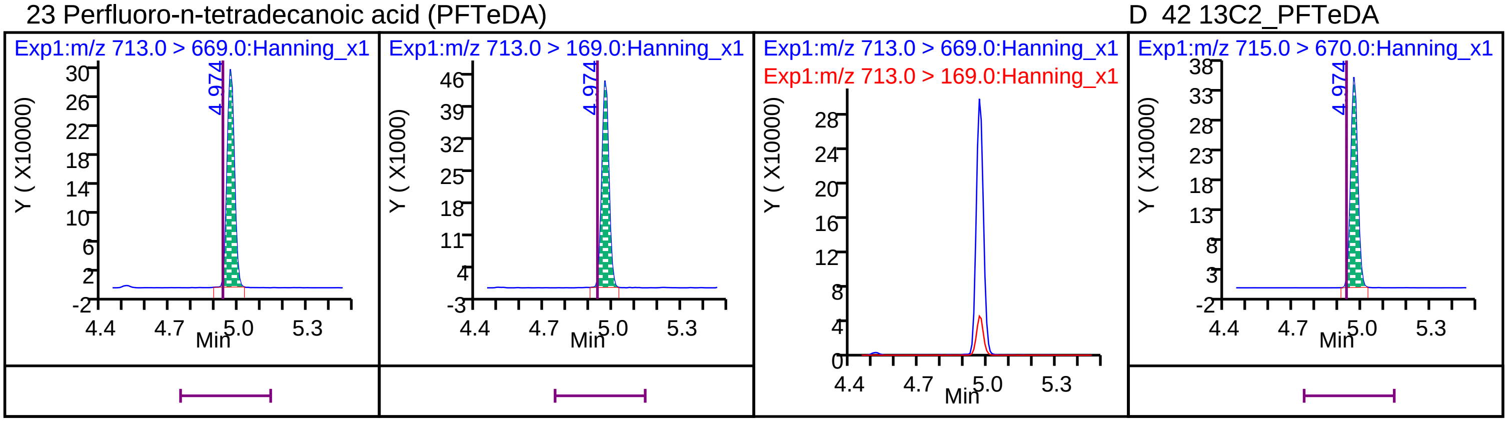
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



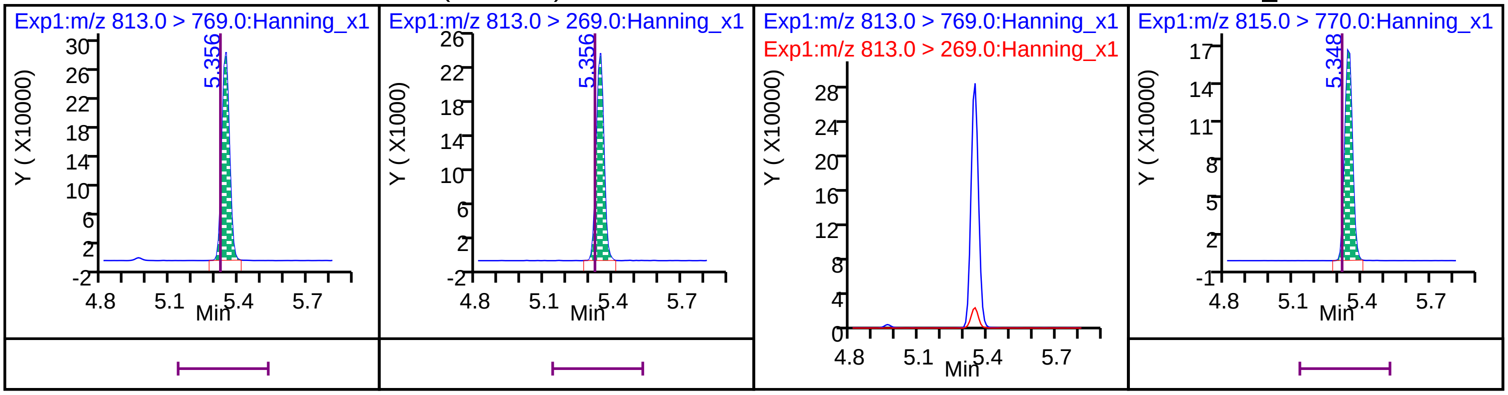
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



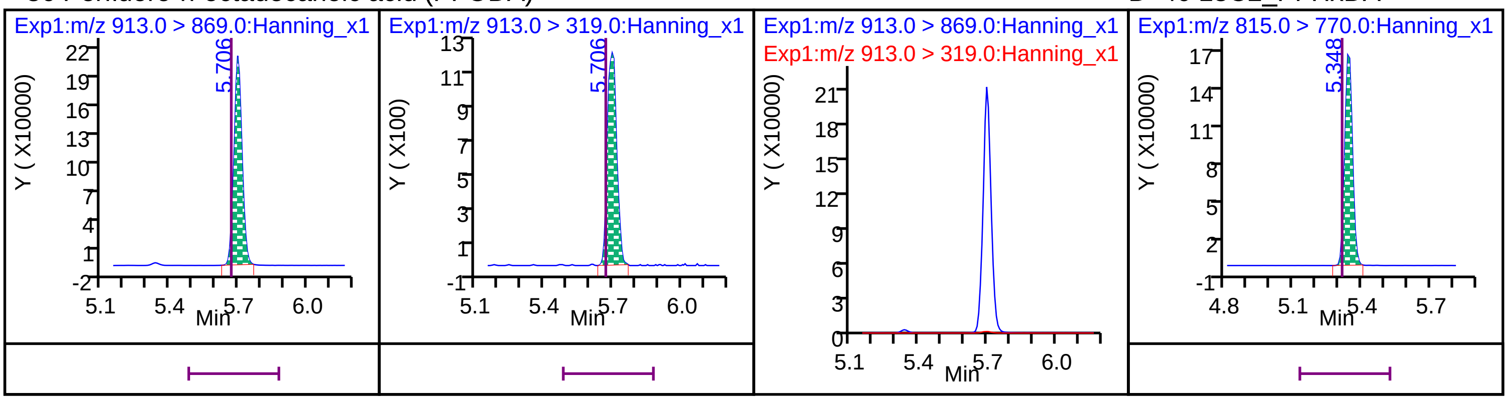
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



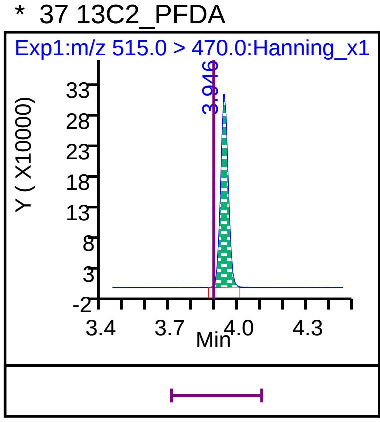
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



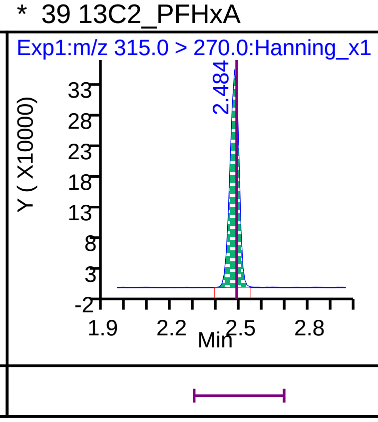
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



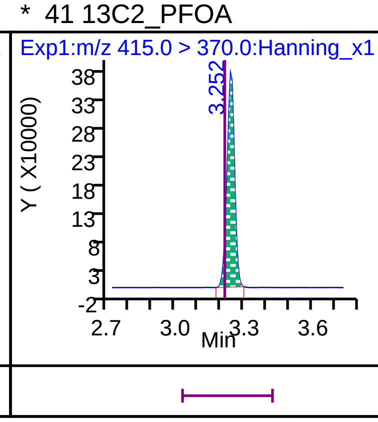
* 37 13C2_PFDA



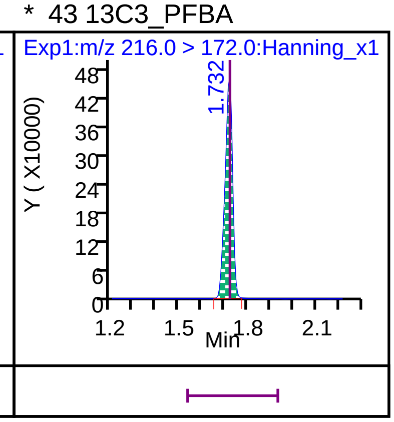
* 39 13C2_PFHxA



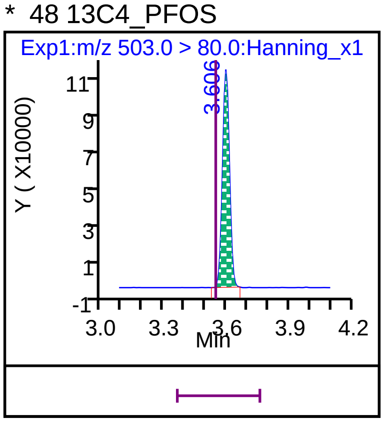
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:11 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

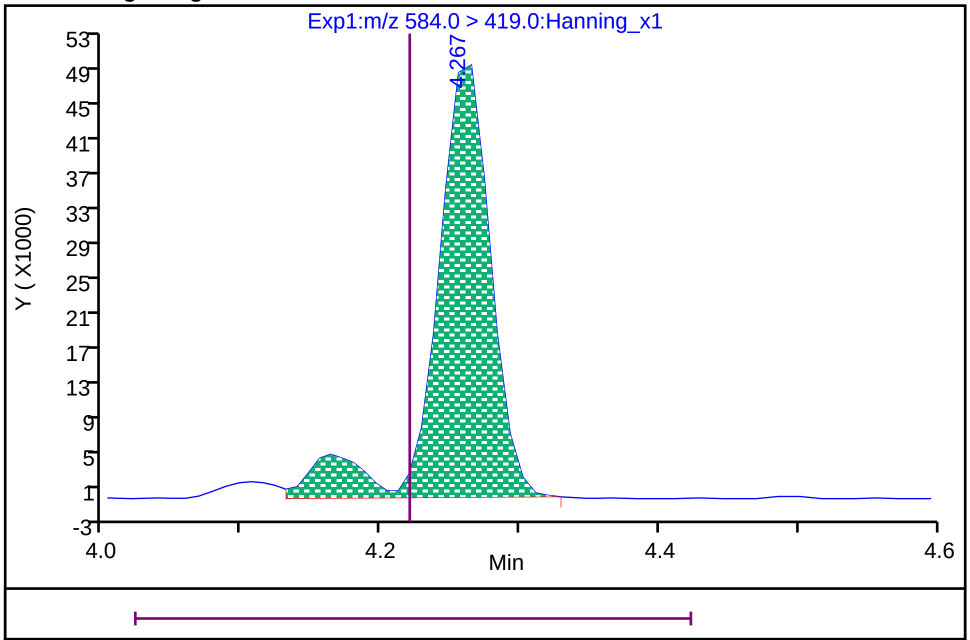
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621053.d		
Injection Date:	06-Nov-2021 21:32:32	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000A_SVLC-1744
Sample Info:	CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller

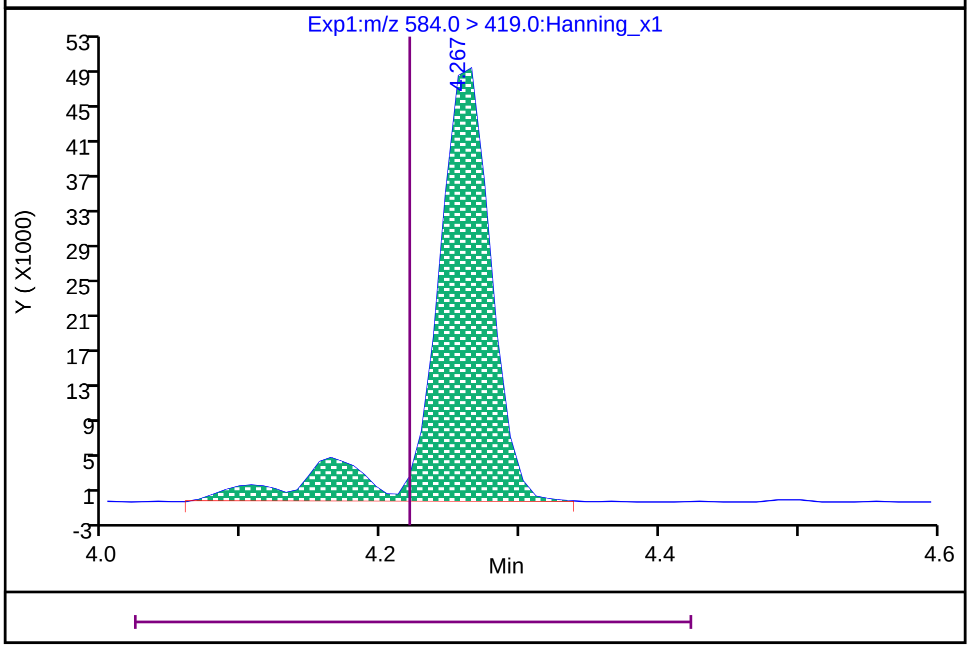
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.267
Area: 136644
Amount: 913.52
Amount Units: ng/L



RT: 4.267
Area: 141516
Amount: 946.09
Amount Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:13:56

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:11 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

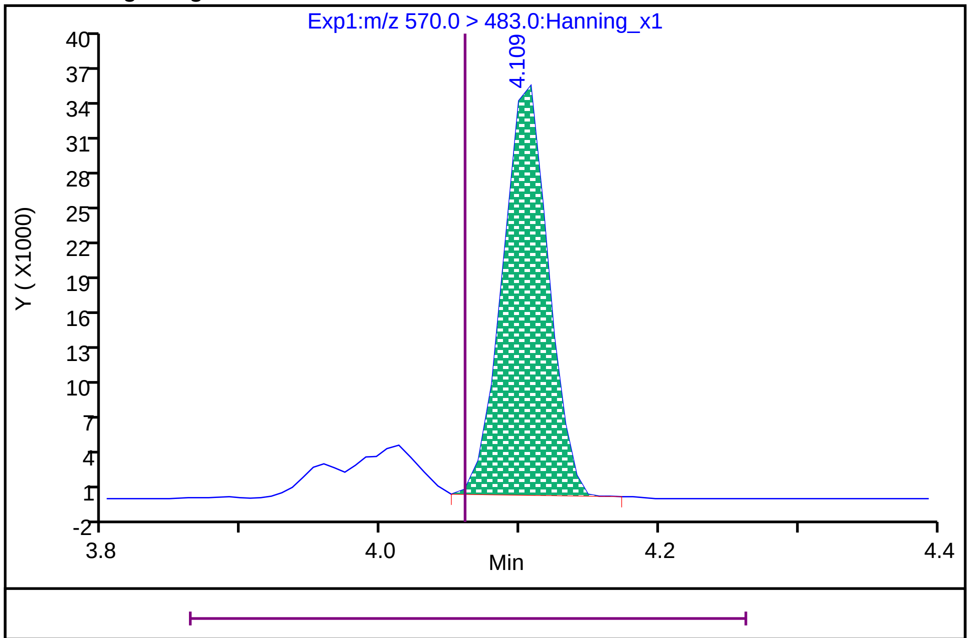
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621053.d		
Injection Date:	06-Nov-2021 21:32:32	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000A_SVLC-1744
Sample Info:	CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller

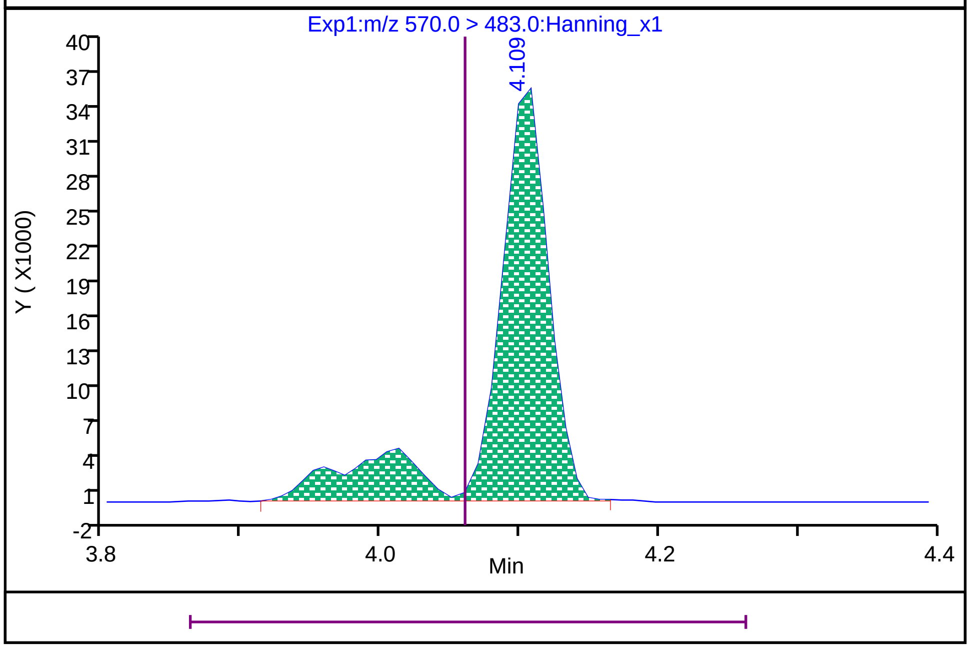
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.109
Area: 79212
Amount: 909.66
Amount Units: ng/L



RT: 4.109
Area: 98877
Amount: 909.66
Amount Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:13:49

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d
Injection Date: 06-Nov-2021 23:08:09 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 46
Sample Info: CCV 1000B_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 46 13C4_PFBA	1102554	1102843			100	50 - 150
8 PFBA			1000.00	974.94	97.5	70 - 130
D 50 13C5_PFPeA	1031391	1018989			98.8	50 - 150
21 PFPeA			1000.00	987.57	98.8	70 - 130
7 PFBS			884.00	875.51	99	70 - 130
D 44 13C3_PFBS	340591	329276			96.7	50 - 150
1 4:2 FTS			934.00	891.01	95.4	70 - 130
D 63 13C2_4:2 FTS_2	231446	234582			101.4	50 - 150
D 49 13C5_PFHxA	914193	915369			100.1	50 - 150
15 PFHxA			1000.00	1069.75	107	70 - 130
22 PFPeS			938.00	982.42	104.7	70 - 130
D 66 13C3_GenX	686066	831029			121.1	50 - 150
28 GenX			2000.00	1673.16	83.7	70 - 130
D 47 13C4_PFHpA	904828	885685			97.9	50 - 150
13 PFHpA			1000.00	962.56	96.3	70 - 130
D 45 13C3_PFHxS	275799	264771			96	50 - 150
14 PFHxS			910.00	912.89	100.3	70 - 130
29 ADONA			942.00	979.67	104	70 - 130
D 64 13C2_6:2 FTS_2	216911	204135			94.1	50 - 150
2 6:2 FTS			948.00	912.53	96.3	70 - 130
D 53 13C8_PFOA	844338	866977			102.7	50 - 150
20 PFOA			1000.00	988.90	98.9	70 - 130
12 PFHpS			952.00	955.55	100.4	70 - 130
18 PFOS			928.00	920.91	99.2	70 - 130
D 54 13C8_PFOS	238349	247604			103.9	50 - 150
17 PFNA			1000.00	975.41	97.5	70 - 130
D 56 13C9_PFNA	847911	846551			99.8	50 - 150
30 9Cl-PF3ONS			932.00	892.36	95.7	70 - 130
D 55 13C8_PFOSA	426468	423845			99.4	50 - 150
19 PFOSA			1000.00	1044.26	104.4	70 - 130
16 PFNS			960.00	936.52	97.6	70 - 130
D 65 13C2_8:2 FTS_2	178798	166565			93.2	50 - 150
3 8:2 FTS			958.00	943.42	98.5	70 - 130
10 PFDA			1000.00	981.79	98.2	70 - 130
D 51 13C6_PFDA	770724	740215			96	50 - 150
D 58 d3-MeFOSAA	791294	860034			108.7	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	967.95	96.8	70 - 130
9 PFDS			964.00	883.69	91.7	70 - 130
25 PFUdA			1000.00	926.74	92.7	70 - 130
D 60 d5-EtFOSAA	749456	846372			112.9	50 - 150
D 52 13C7_PFUdA	720189	766475			106.4	50 - 150
5 N-EtFOSAA			1000.00	848.29	84.8	70 - 130
D 61 d7-MeFOSE	124281	112300			90.4	50 - 150
32 MeFOSE			1000.00	1023.28	102.3	70 - 130
D 57 d3-MeFOSA	63457	69519			109.6	50 - 150
26 MeFOSA			1000.00	971.79	97.2	70 - 130
31 11Cl-PF3OUDS			942.00	941.63	100	70 - 130
D 62 d9-EtFOSE	110687	113059			102.1	50 - 150
33 EtFOSE			1000.00	978.43	97.8	70 - 130
D 59 d5-EtFOSA	64404	61465			95.4	50 - 150
11 PFDoA			1000.00	977.22	97.7	70 - 130
D 38 13C2_PFDoA	689160	699745			101.5	50 - 150
4 10:2 FTS			964.00	955.47	99.1	70 - 130
27 EtFOSA			1000.00	1047.77	104.8	70 - 130
34 PFDOS			968.00	977.69	101	70 - 130
24 PFTrDA			1000.00	1023.31	102.3	70 - 130
23 PFTeDA			1000.00	1003.53	100.4	70 - 130
D 42 13C2_PFTeDA	752016	743462			98.9	50 - 150
D 40 13C2_PFHxDA	343727	385032			112	50 - 150
35 PFHxDA			1000.00	971.46	97.1	70 - 130
36 PFODA			1000.00	967.35	96.7	70 - 130

Report Date: 09-Nov-2021 13:31:20 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d		
Injection Date:	06-Nov-2021 23:08:09	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	46
Sample Info:	CCV 1000B_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1102843	20	>100:1			1000.00	1006.08	100	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.732	1.732	0/0	1145839	20	>100:1			1000.00	974.94		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.105	2.105	0	1018989	17	>100:1			1000.00	998.92	98.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.105	2.105	0/0	1080171	16	>100:1			1000.00	987.57		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.158	2.169	0	329276	15	>100:1			1000.00	975.81	96.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.158	2.169	0/0	408083	15	>100:1	Target = 3.83		884.00	875.51		
298.9 > 99	44	2.158	2.169		96108	18	>100:1	4.24 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.510	2.529	-1/-1	323788	19	>100:1	Target = 3.47		938.00	982.42		
349 > 99	44	2.510	2.529		93172	19	>100:1	3.47 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.440	2.449	0	234582	19	>100:1			5000.00	5023.51	101.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.440	2.449	0/0	77726	18	>100:1	Target = 1.39		934.00	891.01		
327 > 81	63	2.440	2.449		45014	18	54:1	1.72 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.475	2.493	-1	915369	17	>100:1			1000.00	1003.70	100.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.484	2.493	0/1	995242	17	>100:1	Target = 17.15		1000.00	1069.75		
313 > 119	49	2.484	2.493		53652	16	>100:1	18.54 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.606	2.614	0	831029	18	>100:1			5000.00	5645.81	121.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.606	2.622	0/0	207431	18	>100:1	Target = 0.72		2000.00	1673.16		
285 > 185	66	2.606	2.622		285690	18	>100:1	0.72 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.869	2.878	0	885685	18	>100:1			1000.00	1000.92	97.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.869	2.878	0/0	814457	18	>100:1	Target = 3.21		1000.00	962.56		
363 > 169	47	2.869	2.878		254586	18	>100:1	3.19 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.896	0	264771	19	>100:1			1000.00	957.30	96	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.887	2.896	0/0	278624	25	>100:1	Target = 3.35	5.20	910.00	912.89		
399 > 99	45	2.887	2.896		86450	25	>100:1	3.22 (1.67-5.04)	8.36				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.914	2.923	0/0	1375288	18	>100:1	Target = 2.38		942.00	979.67		
377 > 85	45	2.914	2.923		578551	18	>100:1	2.37 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.252	3.226	2/2	269260	21	>100:1	Target = 3.87		952.00	955.55		
449 > 99	45	3.258	3.226		73430	21	>100:1	3.66 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.226	3.201	2	204135	21	>100:1			5000.00	4952.88	94.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.226	3.201	2/0	61883	21	>100:1	Target = 1.26		948.00	912.53		
427 > 81	64	3.226	3.201		49946	25	48:1	1.23 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	866977	20	>100:1			1000.00	1029.15	102.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	857370	21	>100:1	Target = 2.46		1000.00	988.90		
413 > 169	53	3.252	3.226		346317	20	>100:1	2.47 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.606	3.558	3	247604	19	>100:1			1000.00	1045.07	103.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.606	3.558	3/0	265288	43	>100:1	Target = 3.98	3.66	928.00	920.91		
499 > 99	54	3.606	3.558		68041	42	>100:1	3.89 (1.99-5.97)	8.22				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.806	3.755	4/1	667733	20	>100:1			932.00	892.36		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.938	3.886	4/1	220810	17	>100:1	Target = 3.57		960.00	936.52		
549 > 99	54	3.938	3.886		59773	16	>100:1	3.69 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.239	4.191	3/0	205091	16	>100:1	Target = 3.73		964.00	883.69		
599 > 99	54	4.239	4.191		55111	15		3.72 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.394	4.349	3/0	561919	15	>100:1			942.00	941.63		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.735	4.698	3/0	195490	16		Target = 3.44		968.00	977.69		
699 > 99	54	4.735	4.698		53152	17	>100:1	3.67 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.613	3.565	3	846551	20	>100:1			1000.00	1043.40	99.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.613	3.565	3/0	736481	19	>100:1	Target = 4.45		1000.00	975.41		
463 > 169	56	3.613	3.565		162748	18	>100:1	4.52 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.908	3.872	3	423845	19	>100:1			1000.00	1020.36	99.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.908	3.872	3/0	482257	18	>100:1	Target = 47.73		1000.00	1044.26		
498>478	55	3.908	3.872		12403	23	>100:1	38.88 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.946	3.894	4	166565	18	>100:1			5000.00	4783.30	93.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.946	3.894	4/0	51858	17		Target = 1.41		958.00	943.42		
527 > 81	65	3.946	3.894		37376	16	93:1	1.38 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.533	4.494	3/-1	67518	22	>100:1	Target = 2.81		964.00	955.47		
627 > 80	65	4.533	4.494		26874	21	>100:1	2.51 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.946	3.901	3	740215	19	>100:1			1000.00	1034.63	96	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.953	3.901	4/1	742257	18	>100:1	Target = 9.36		1000.00	981.79		
513 > 169	51	3.953	3.901		70118	19	>100:1	10.58 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.100	4.053	3	860034	15	>100:1			5000.00	5319.08	108.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.109	4.062	3/0	134368	37		Target = 1.42	5.73	1000.00	967.95		M
570 > 483	58	4.109	4.062		94395	25	27:1	1.42 (0.71-2.13)	4.34				
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.257	4.207	4	846372	16	>100:1			5000.00	5853.54	112.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.267	4.223	3/-1	141648	23	39:1	Target = 1.80	8.58	1000.00	848.29		
584 > 526	60	4.267	4.223		94631	35	>100:1	1.49 (0.90-2.70)	3.30				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.257	4.207	4	766475	16	>100:1			1000.00	1091.49	106.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.257	4.207	4/0	639689	14	>100:1	Target = 8.65		1000.00	926.74		
563 > 169	52	4.257	4.207		69746	15	>100:1	9.17 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.322	4.295	2	112300	16	>100:1			1000.00	915.09	90.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.340	4.304	3/1	117184	15	>100:1			1000.00	1023.28		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.349	4.313	3	69519	16	>100:1			1000.00	1082.02	109.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.349	4.322	2/-1	73187	15	>100:1	Target = 1.09		1000.00	971.79		
512 > 219	57	4.349	4.322		64839	14	>100:1	1.12 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.487	4.463	2	113059	17	>100:1			1000.00	994.95	102.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.494	4.479	1/-1	91554	15	>100:1			1000.00	978.43		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.526	4.486	3	699745	18	>100:1			1000.00	1005.28	101.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.526	4.486	3/0	686826	17	>100:1	Target = 6.94		1000.00	977.22		
613 > 169	38	4.526	4.486		104371	18	>100:1	6.58 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.762	4.727	3/0	316088	18	>100:1	Target = 2.82		1000.00	1023.31		
663 > 169	38	4.756	4.727		113375	17	>100:1	2.78 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.486	2	61465	14	>100:1			1000.00	1018.87	95.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.518	4.494	2/0	76920	15	>100:1	Target = 1.11		1000.00	1047.77		
526 > 219	59	4.518	4.494		68958	15	>100:1	1.11 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.942	2	743462	18	>100:1			1000.00	996.43	98.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.974	4.942	2/0	643749	18	>100:1	Target = 7.23		1000.00	1003.53		
713 > 169	42	4.974	4.942		91467	16	>100:1	7.03 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.356	5.323	2	385032	17	>100:1			1000.00	1106.74	112	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.356	5.331	2/0	687786	18	>100:1	Target = 12.24		1000.00	971.46		
813 > 269	40	5.356	5.331		54373	16	>100:1	12.64 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.714	5.678	3/1	503304	22	>100:1	Target = 148.06		1000.00	967.35		
913 > 319	40	5.707	5.678		3847	24	>100:1	130.83 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.953	3.901	4	765735	18	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.475	2.493	-1	902885	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.226	2	818673	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1018369	19	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.606	3.558	3	255265	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

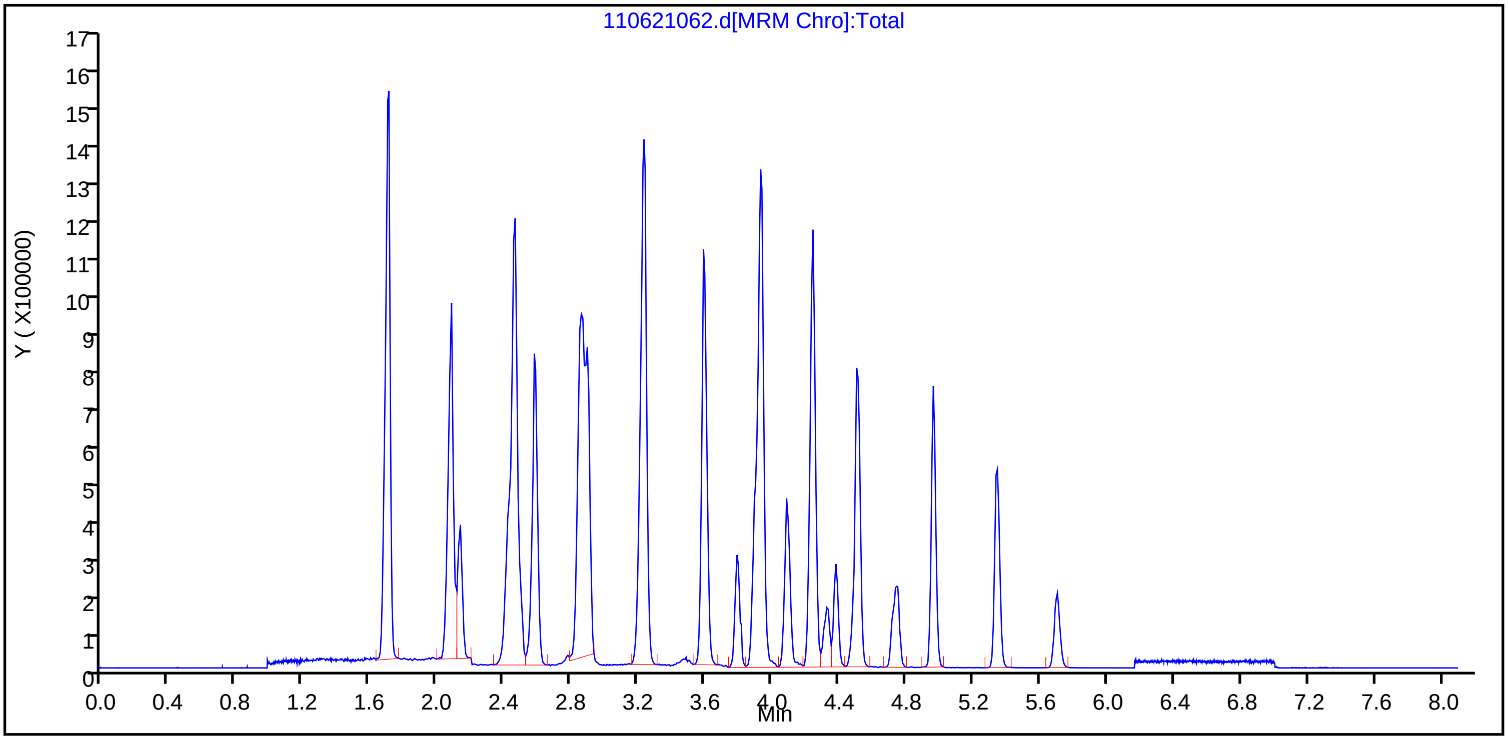
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

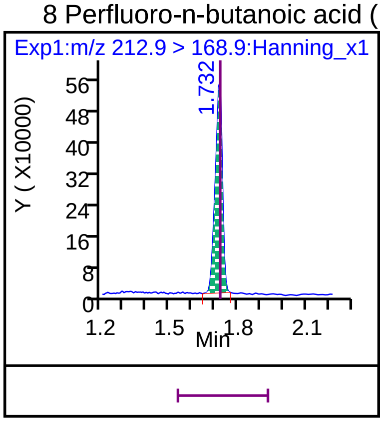
Report Date: 09-Nov-2021 13:31:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

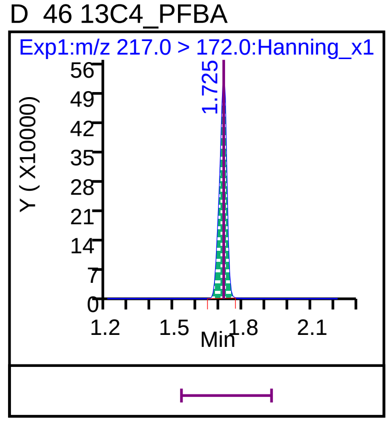
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d		
Injection Date:	06-Nov-2021 23:08:09	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000B_SVLC-1744
Sample Info:	CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller



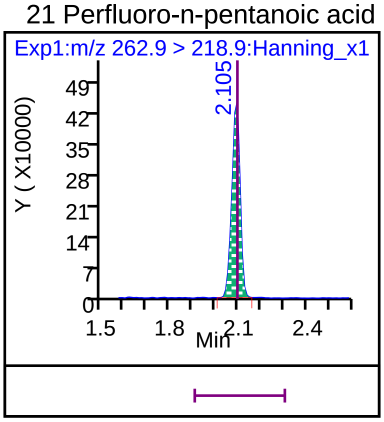
8 Perfluoro-n-butanoic acid (PFBA)



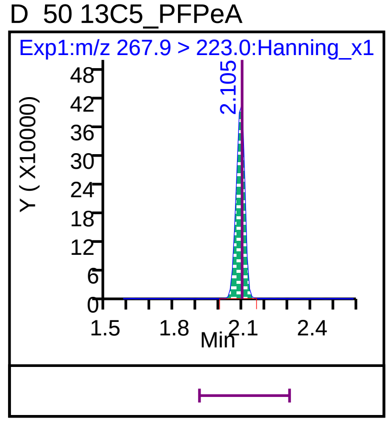
D 46 13C4_PFBA



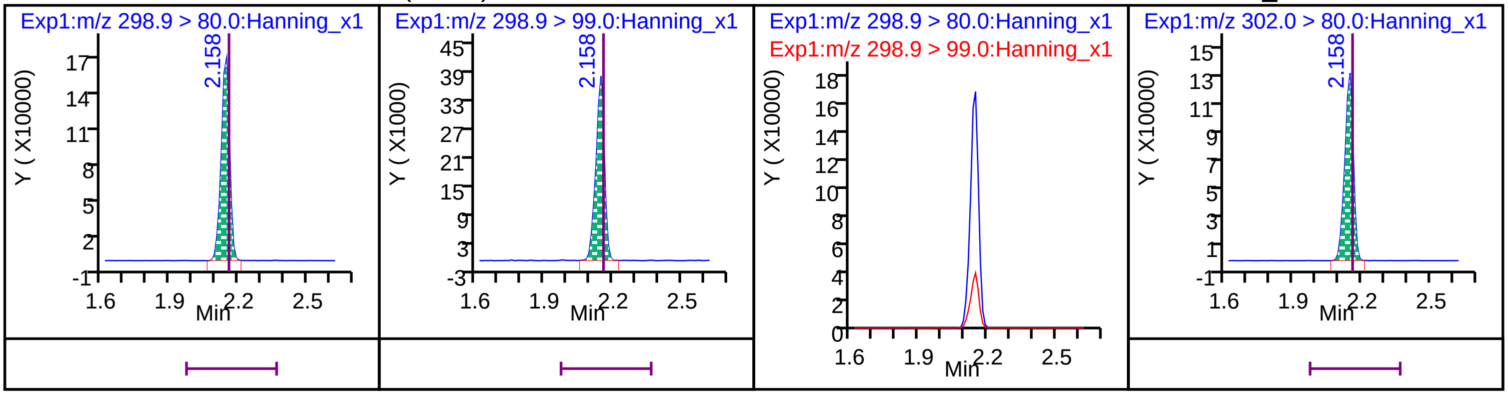
21 Perfluoro-n-pentanoic acid (PFPeA)



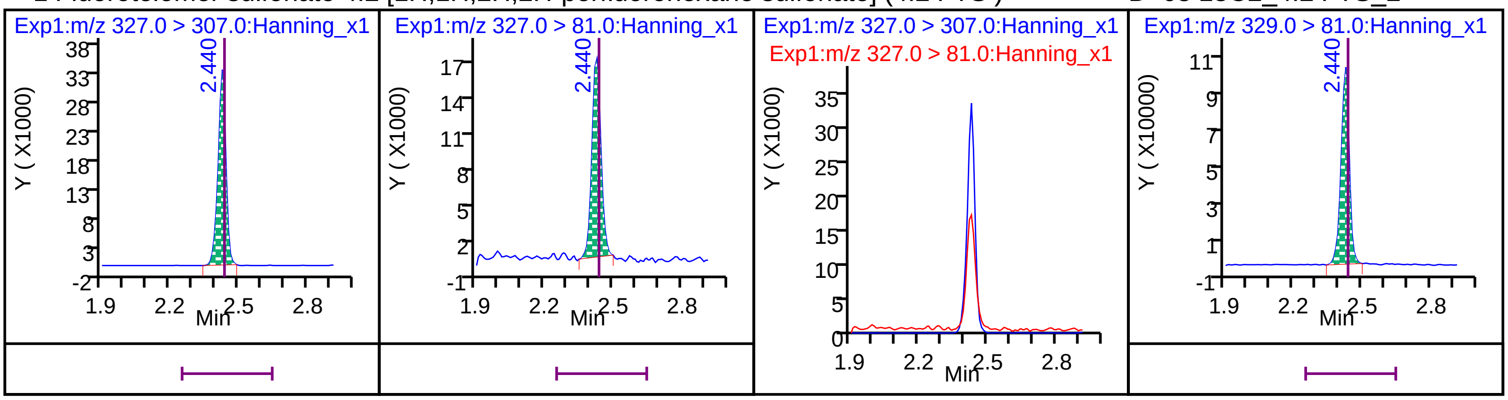
D 50 13C5_PFPeA



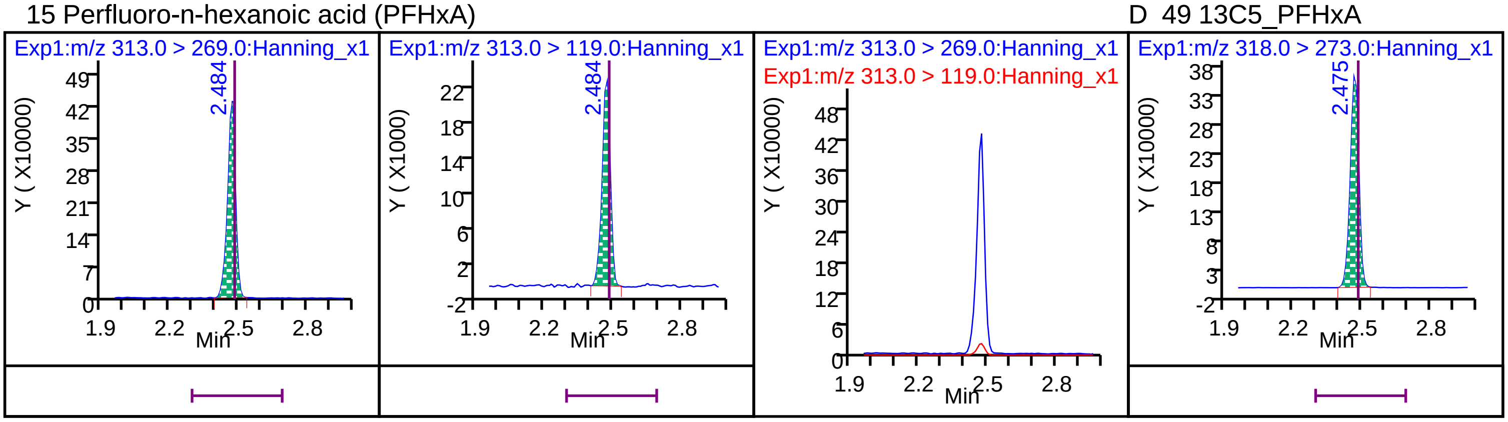
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



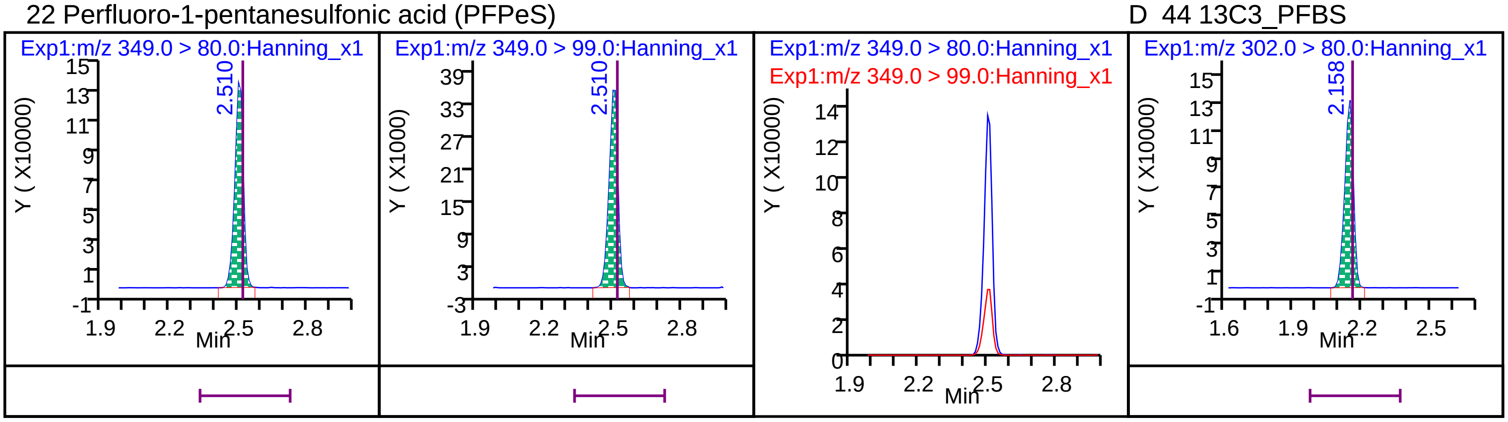
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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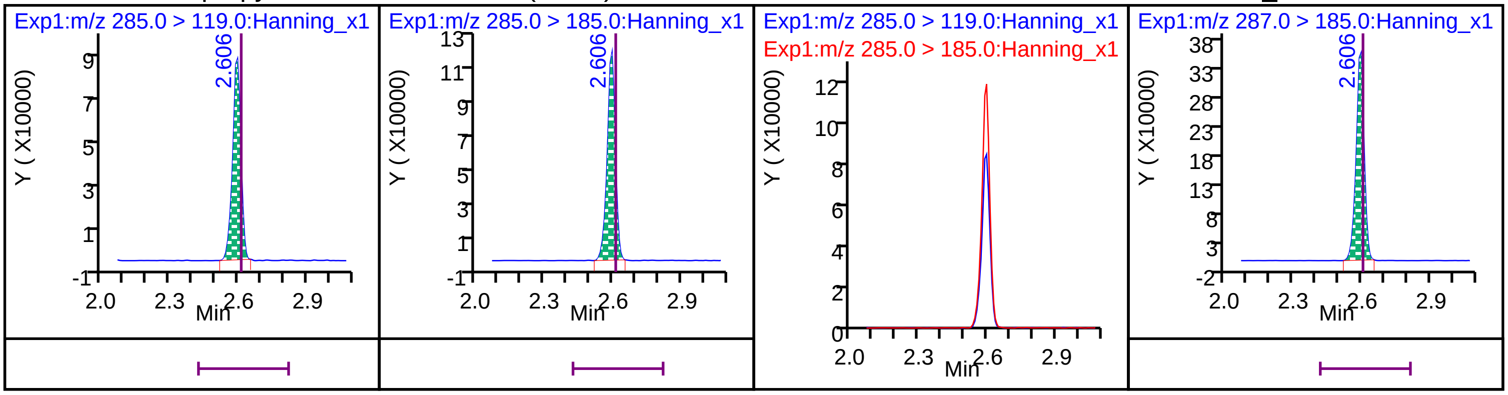
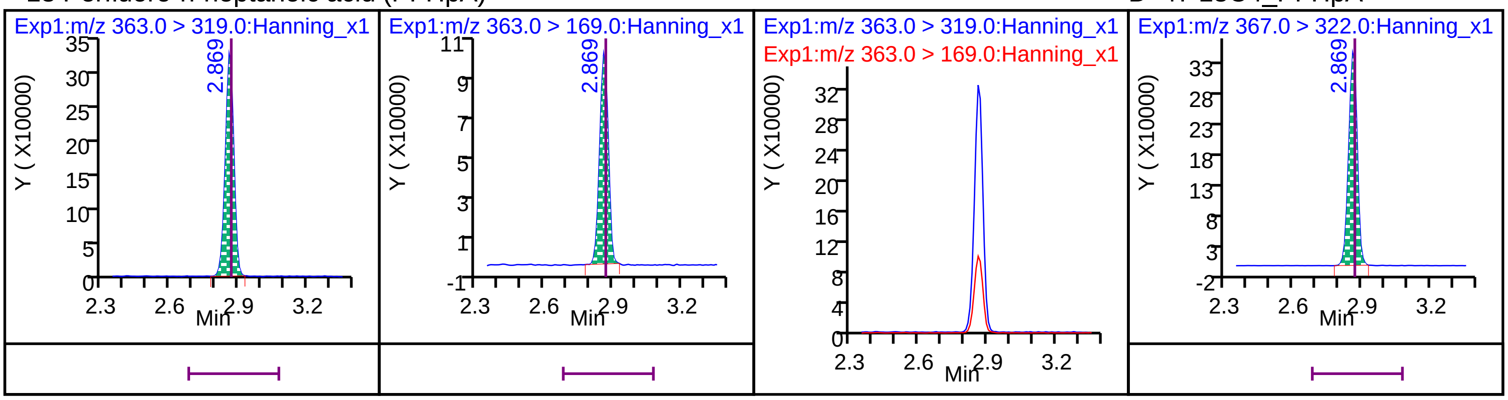
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d

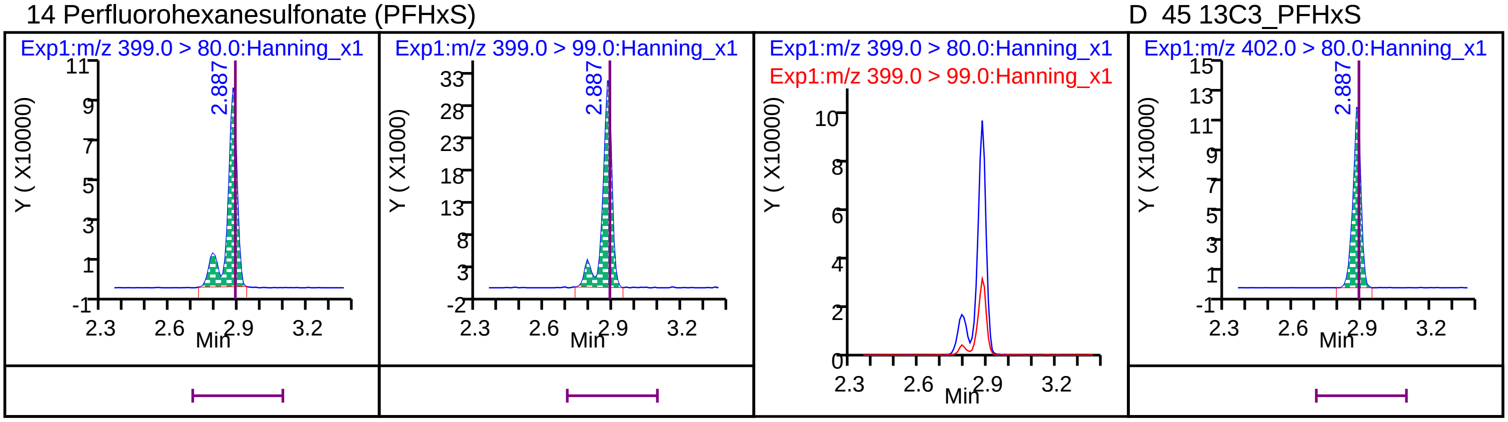
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



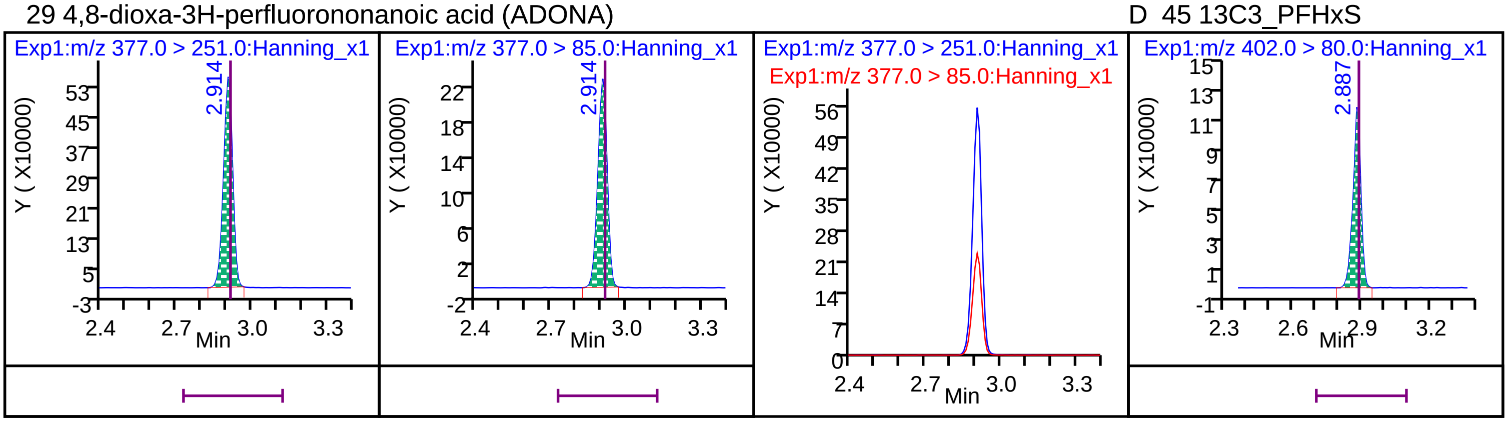
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

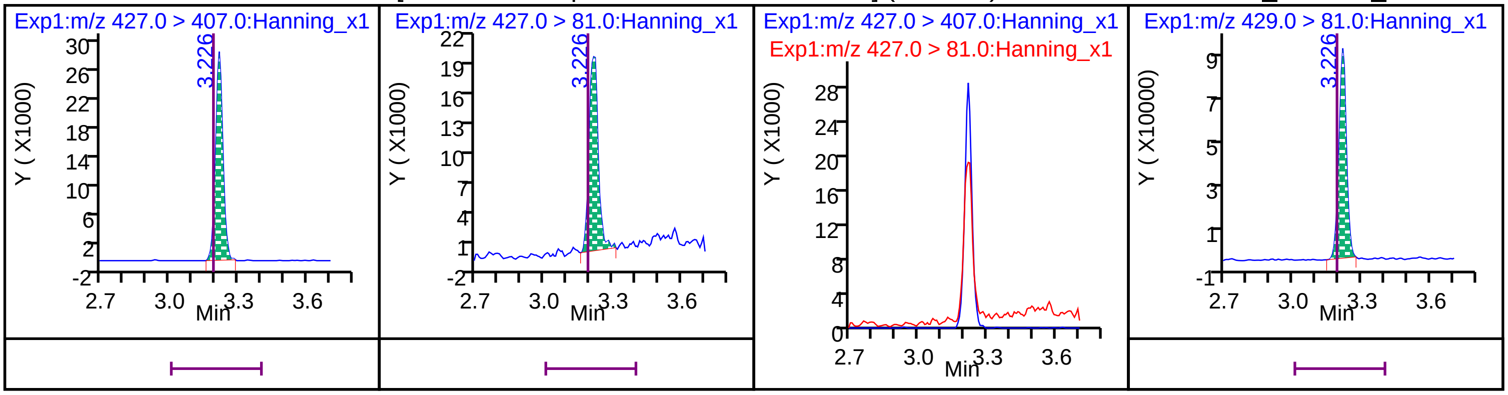


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

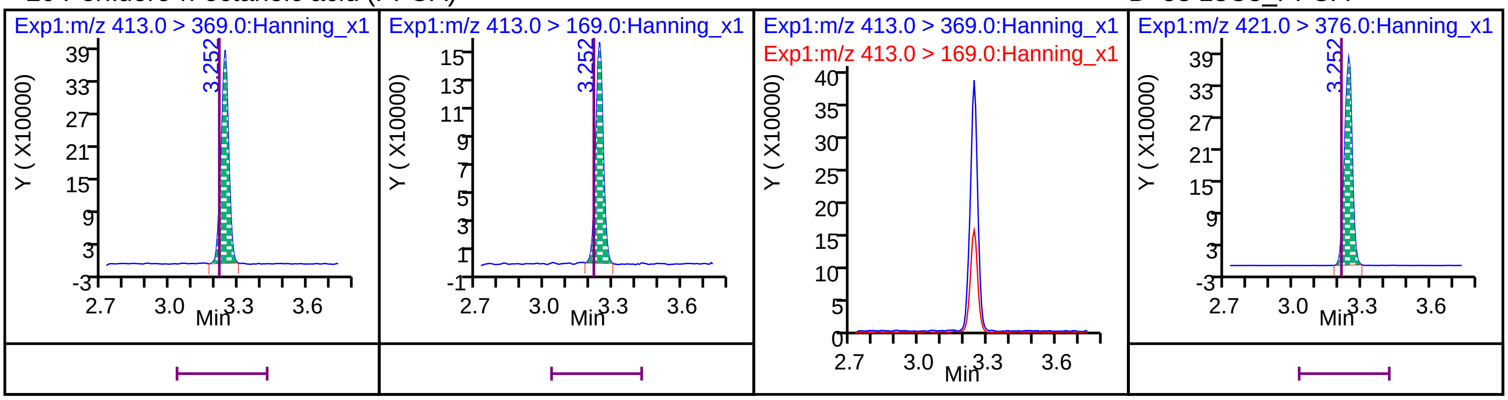


Report Date: 09-Nov-2021 13:31:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d

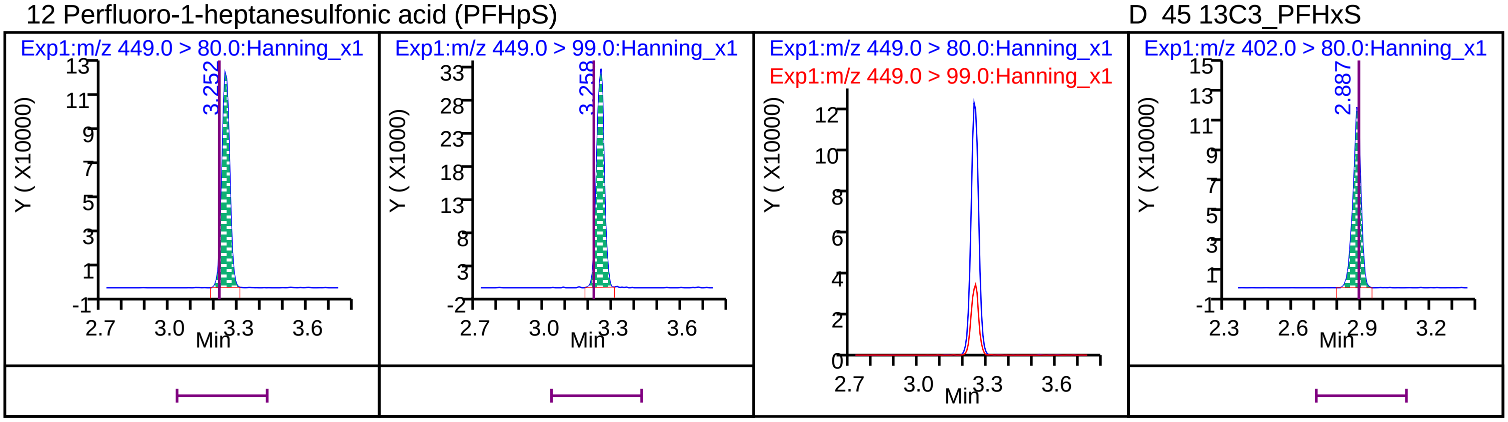
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



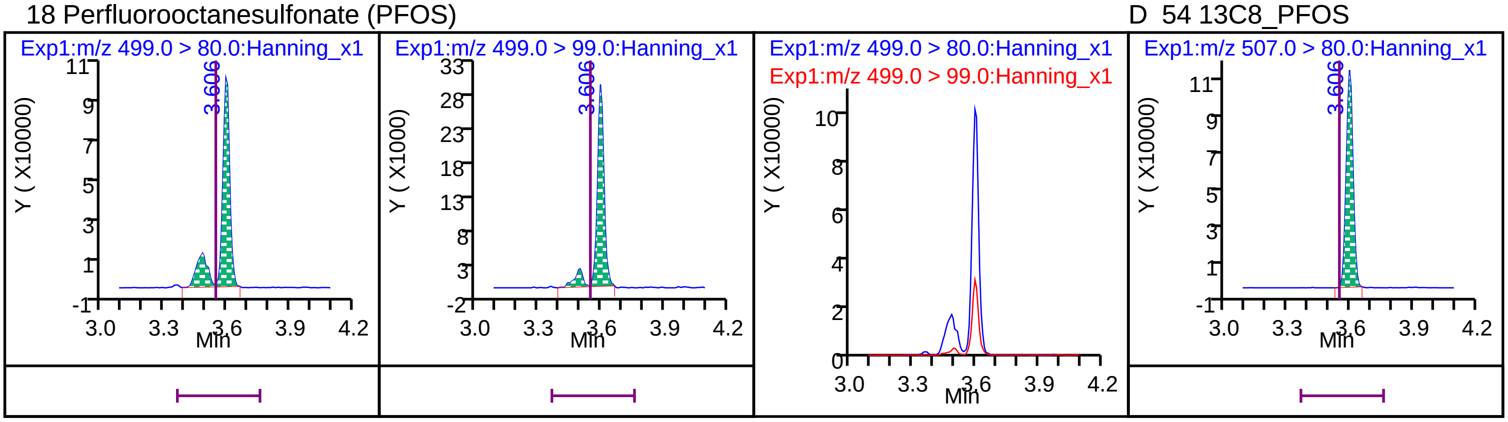
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

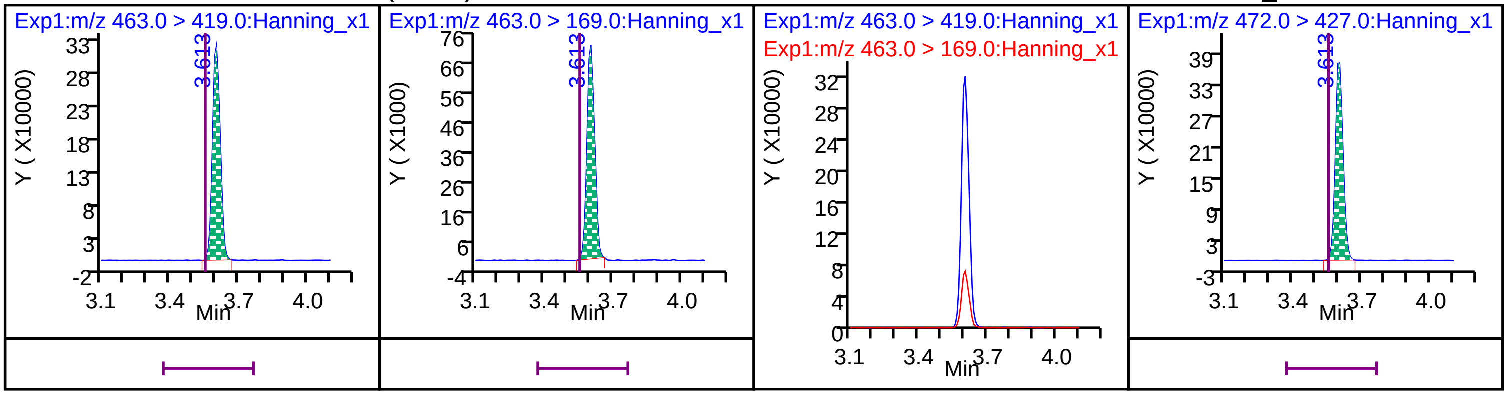


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

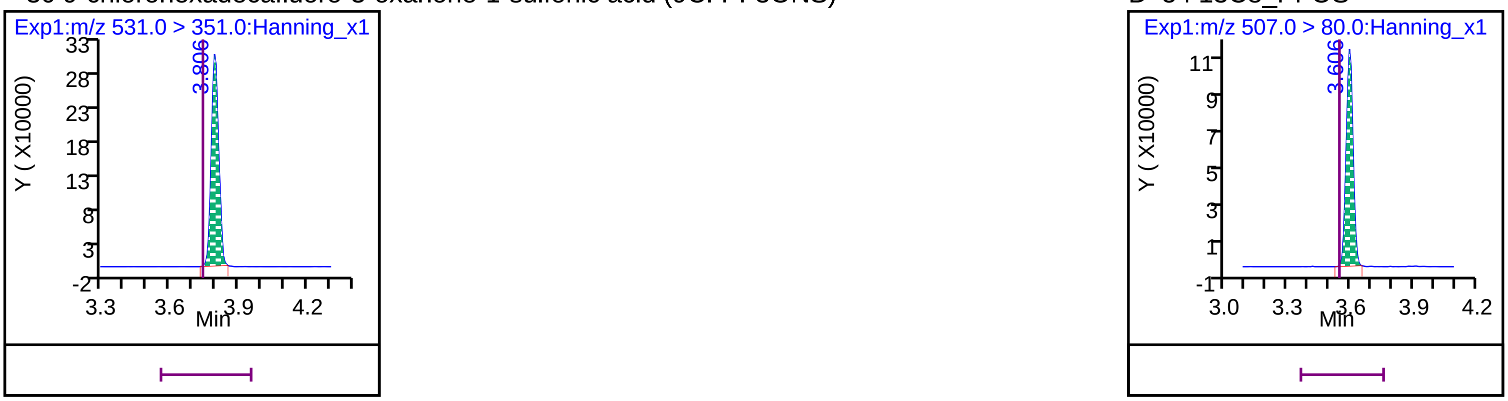


Report Date: 09-Nov-2021 13:31:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d

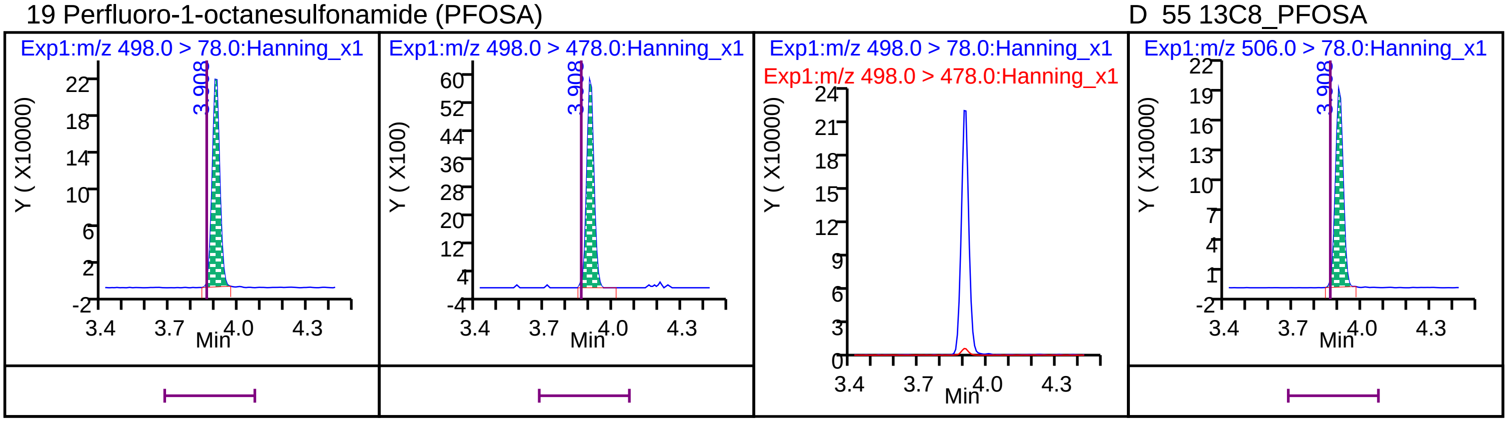
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



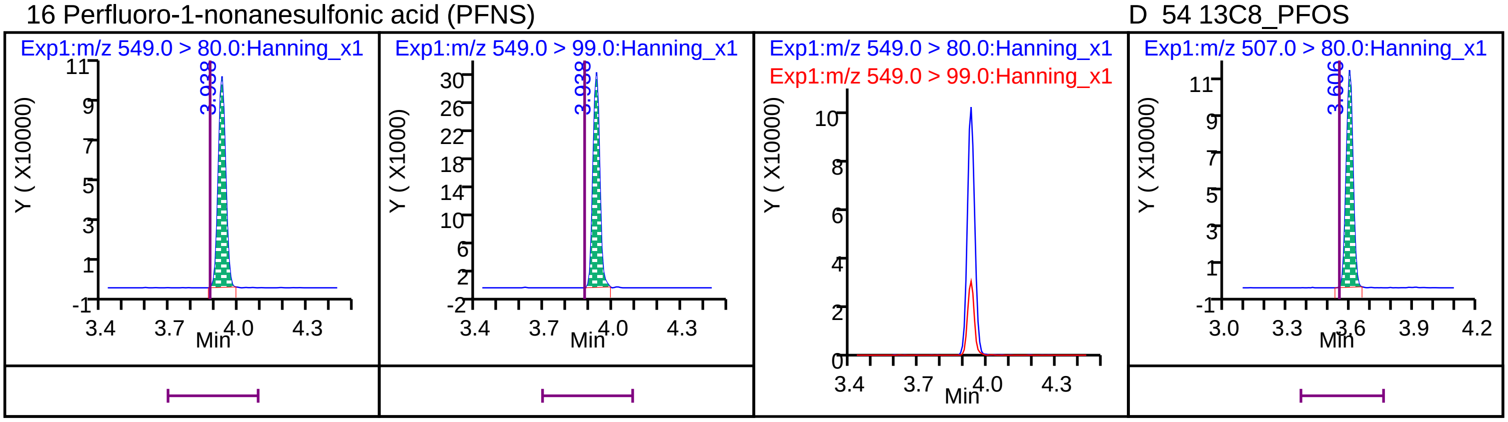
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

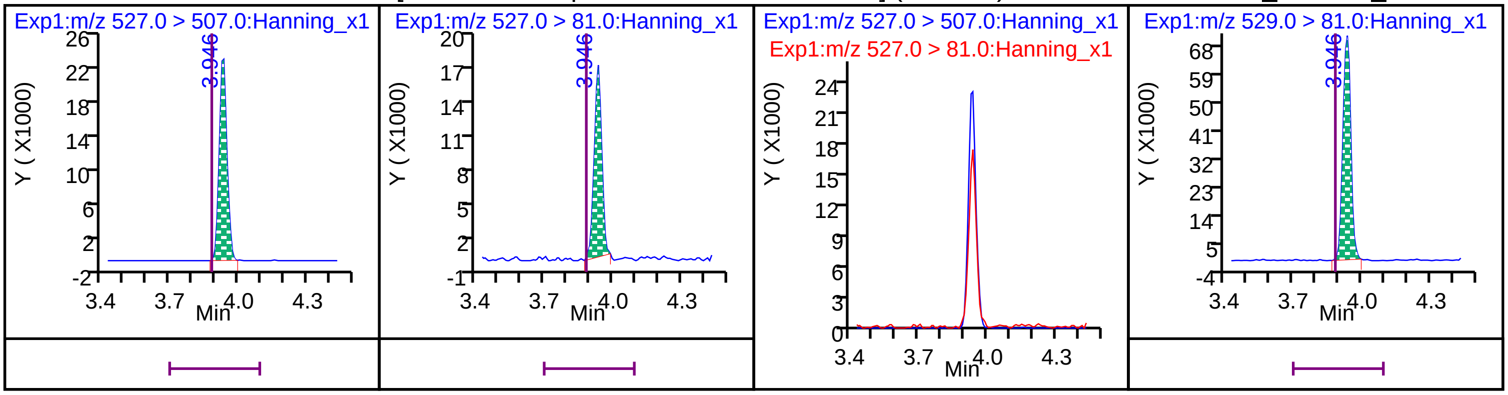


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

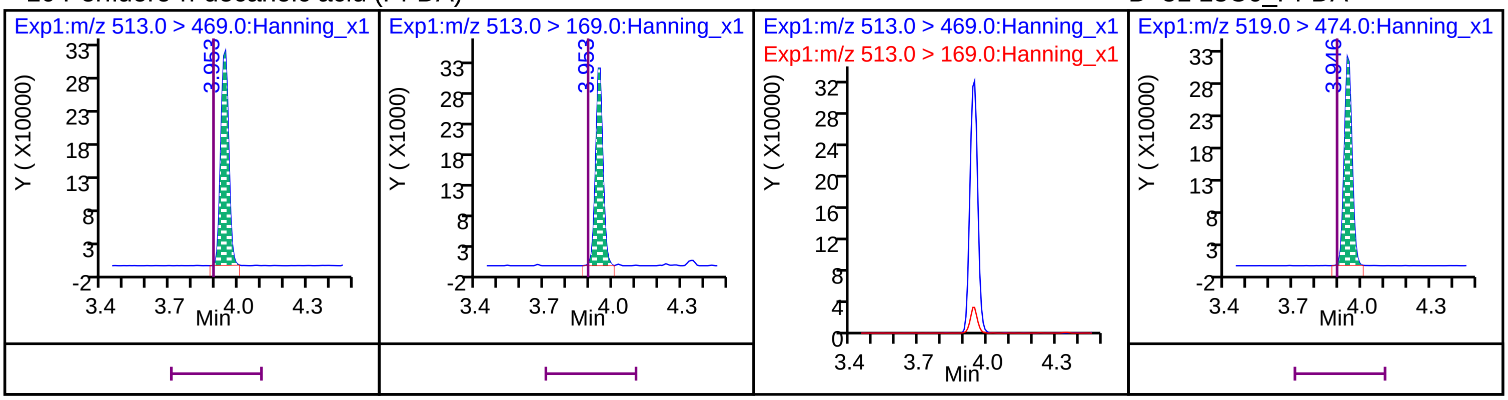


Report Date: 09-Nov-2021 13:31:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d

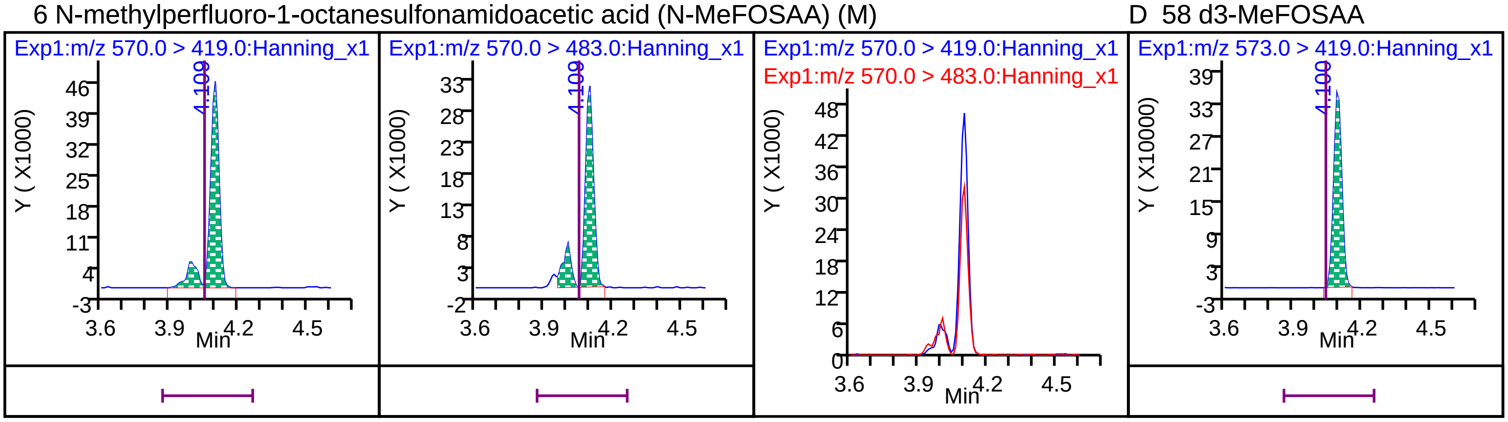
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



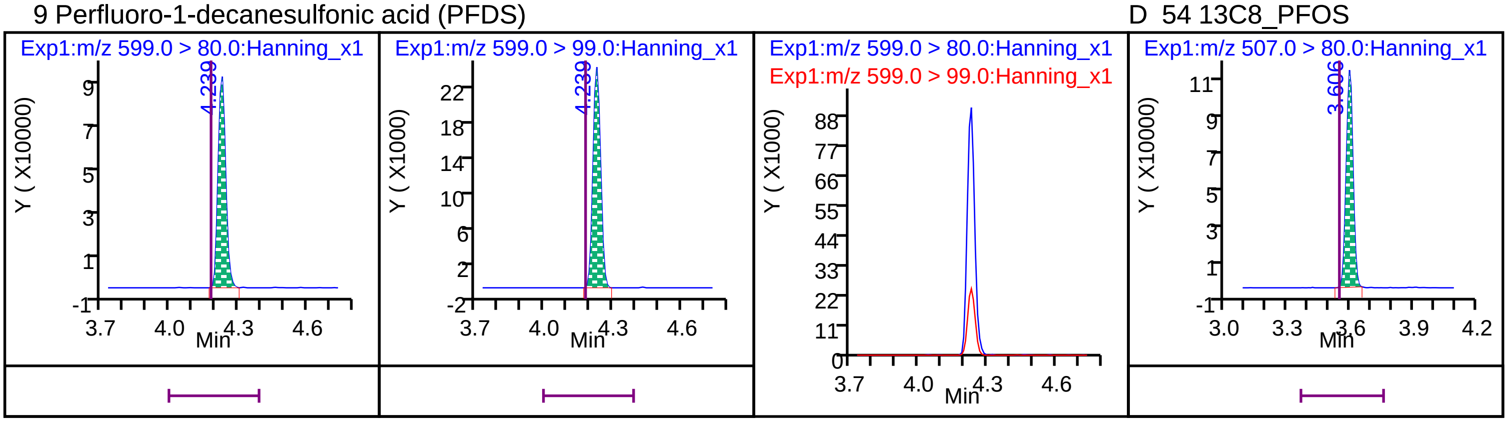
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

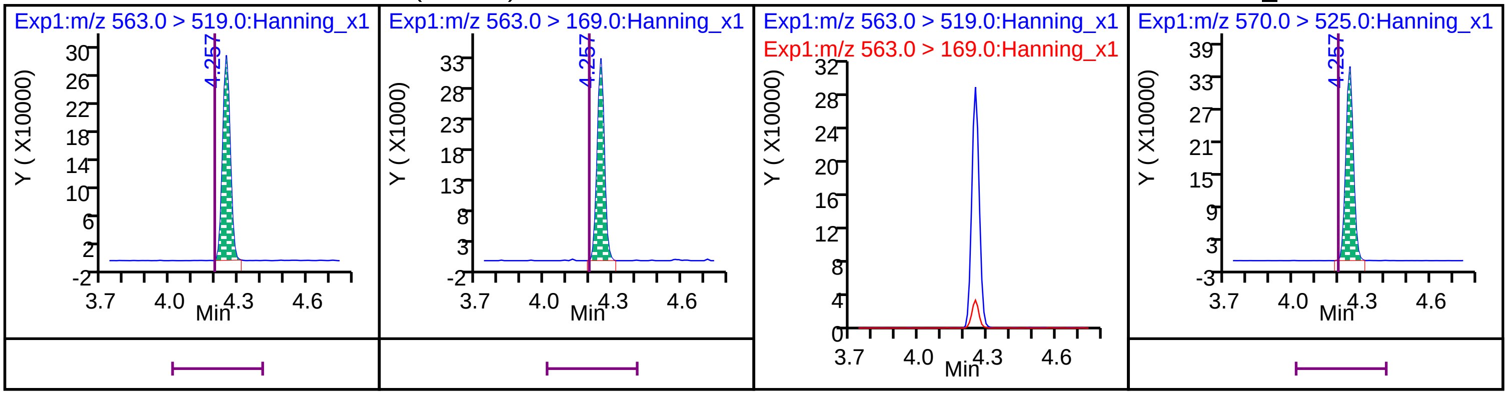


9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS

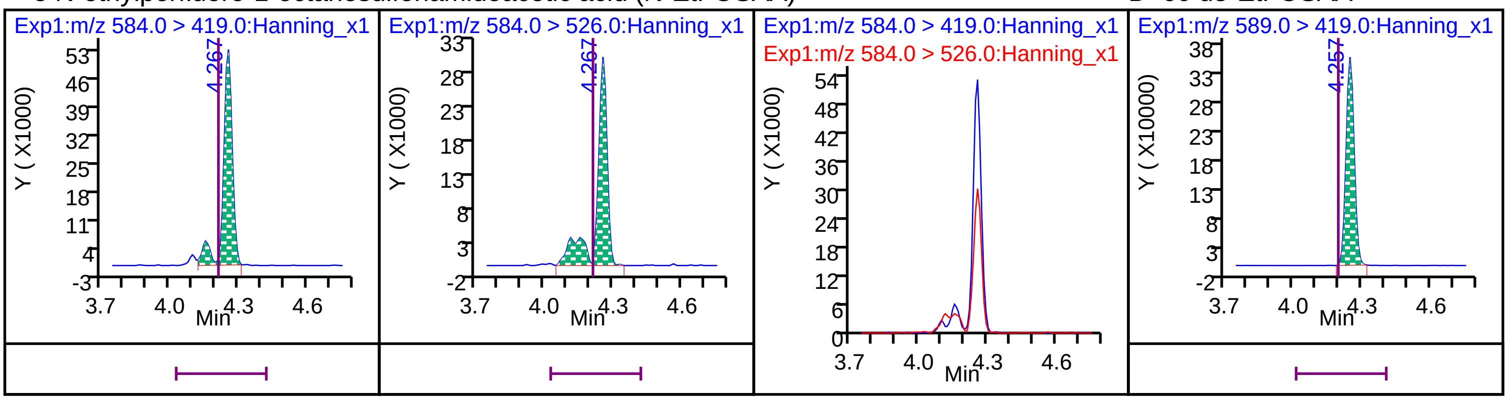


Report Date: 09-Nov-2021 13:31:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d

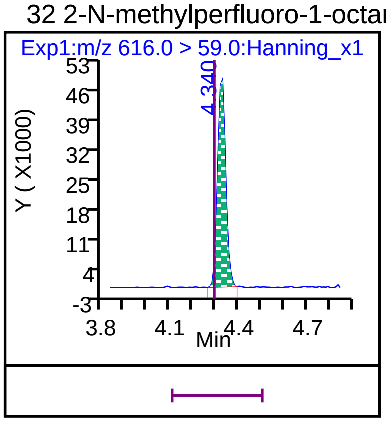
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

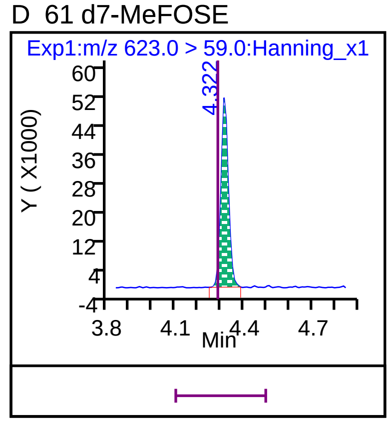


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

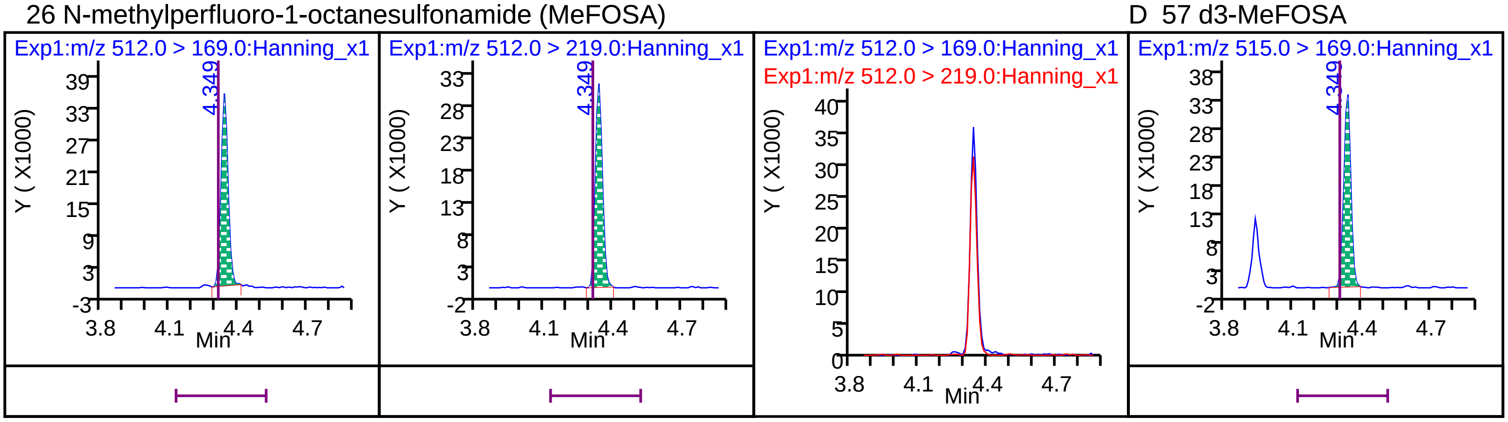


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

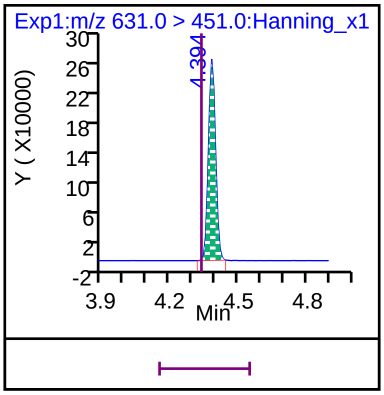




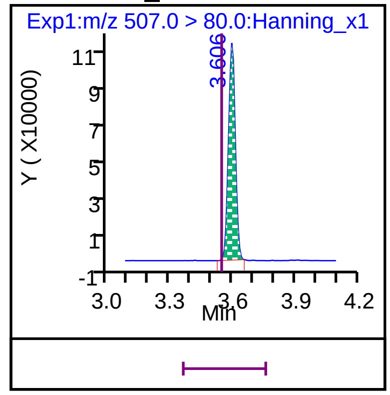
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



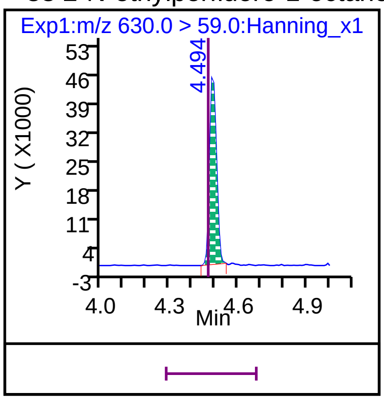
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



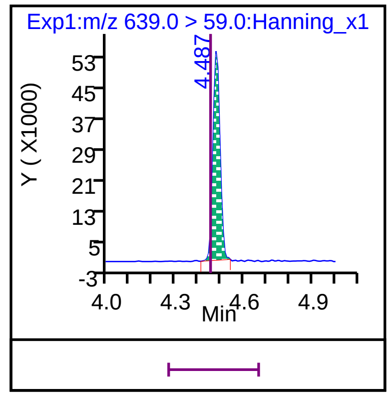
D 54 13C8_PFOS



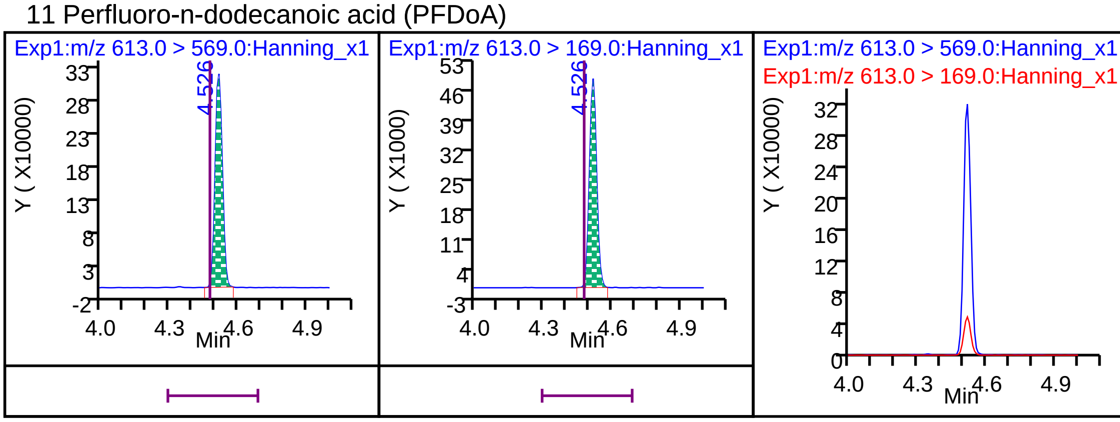
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



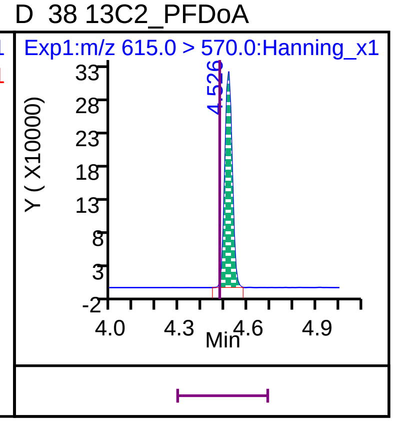
D 62 d9-EtFOSE



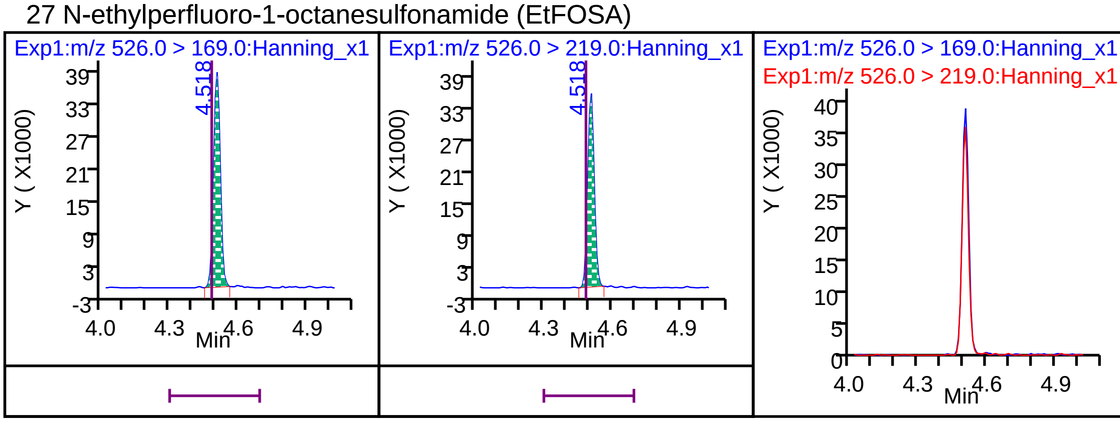
11 Perfluoro-n-dodecanoic acid (PFDoA)



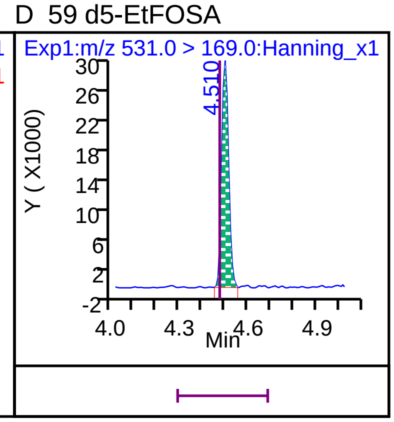
D 38 13C2_PFDoA



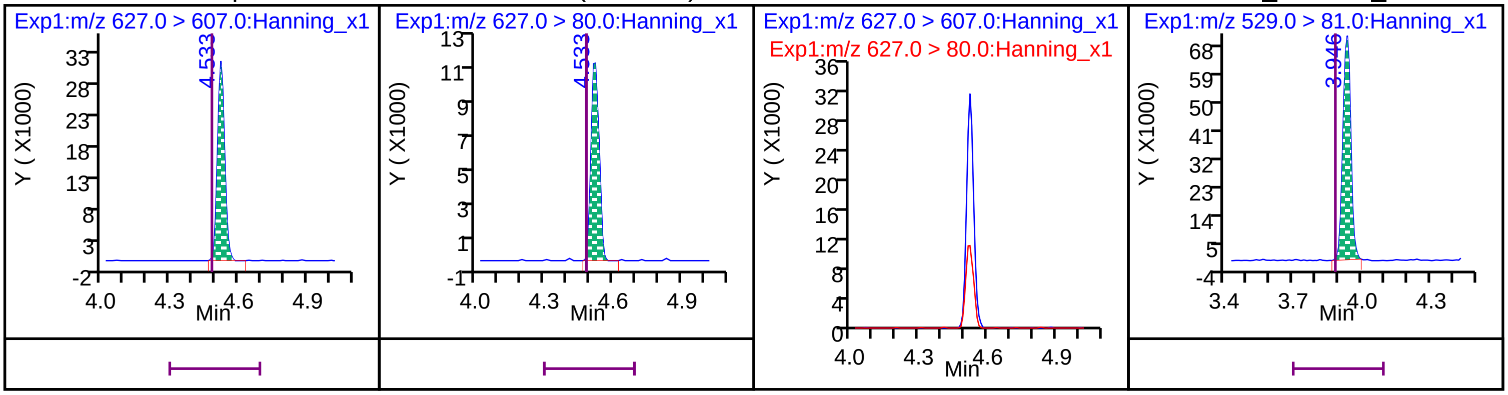
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



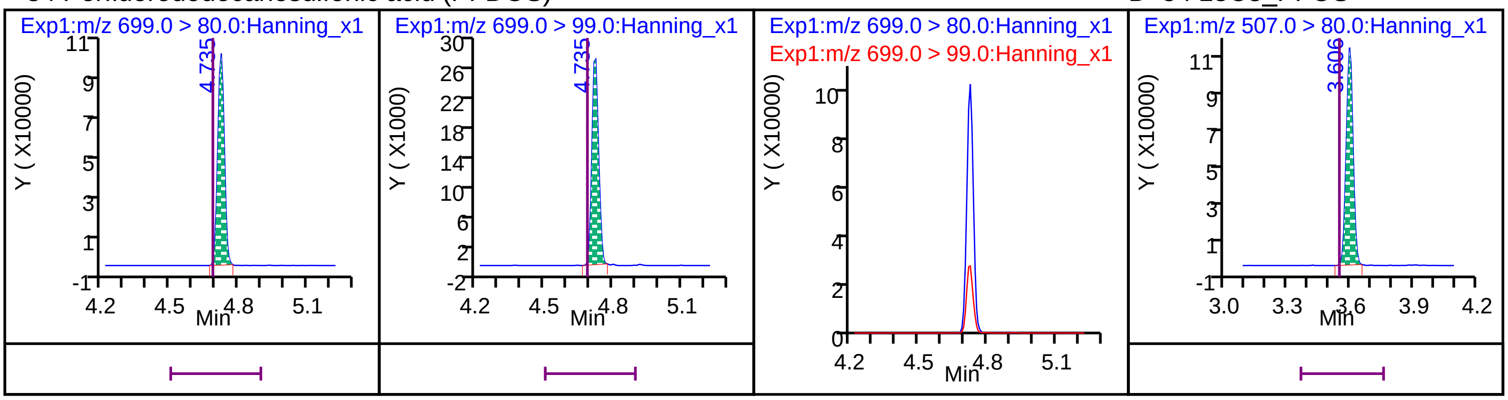
D 59 d5-EtFOSA



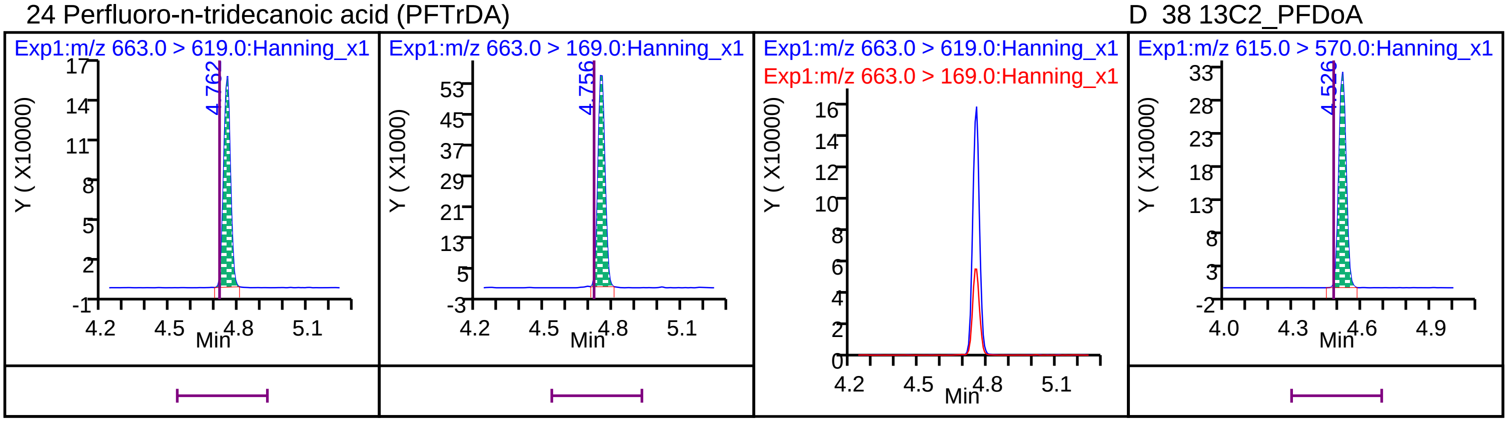
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



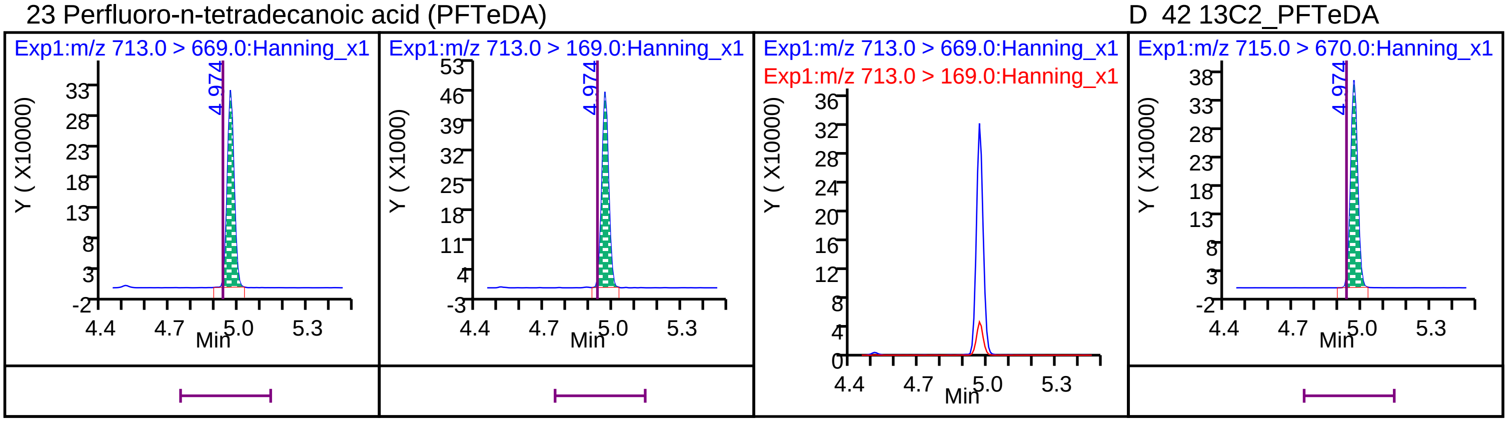
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



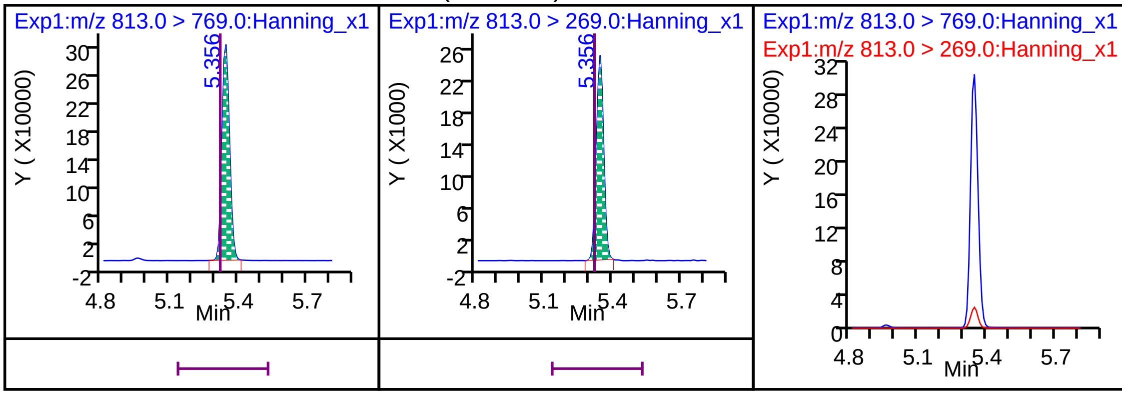
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



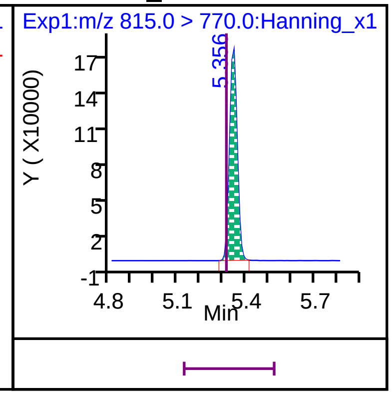
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



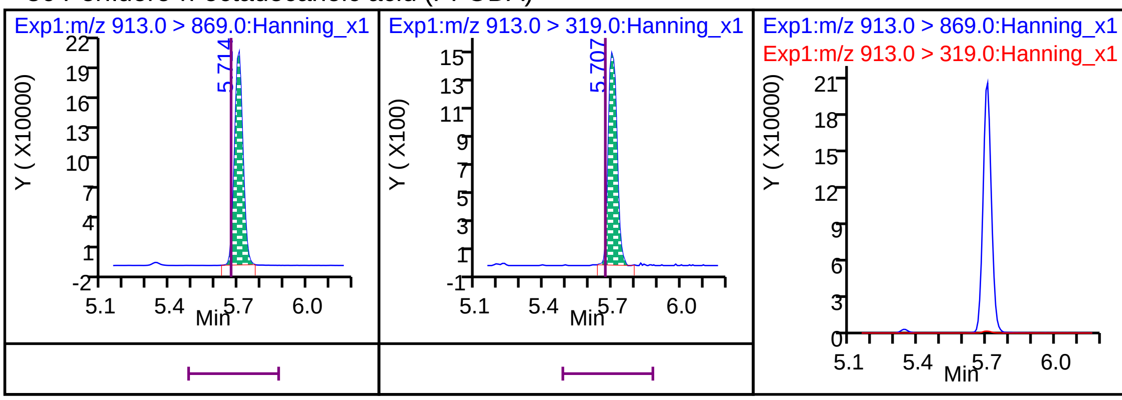
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



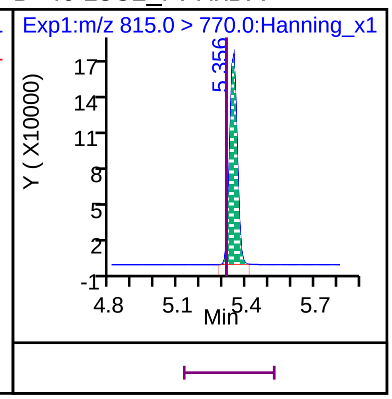
D 40 13C2_PFHxDA



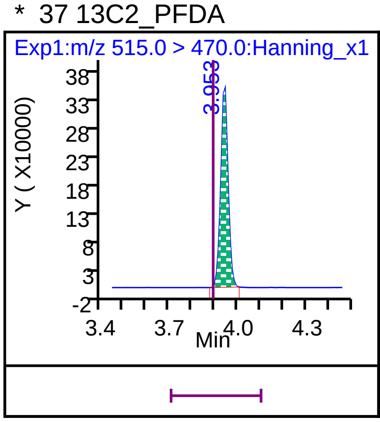
36 Perfluoro-n-octadecanoic acid (PFODA)



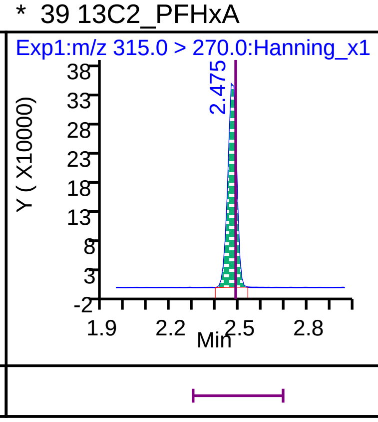
D 40 13C2_PFHxDA



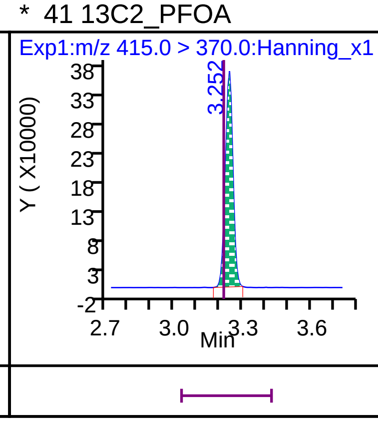
* 37 13C2_PFDA



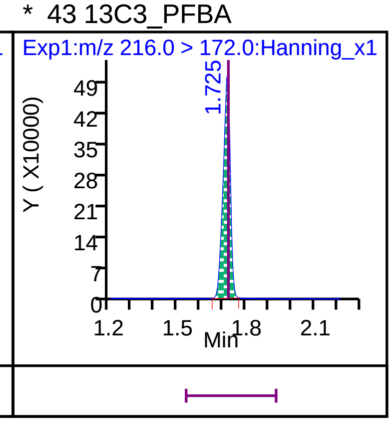
* 39 13C2_PFHxA



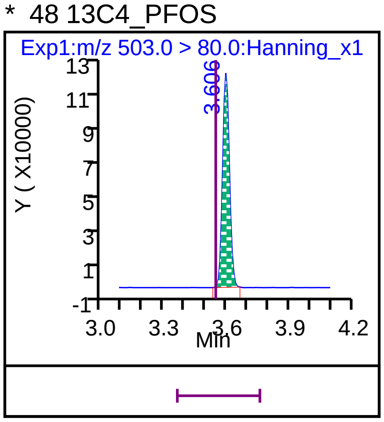
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621062.d

Injection Date: 06-Nov-2021 23:08:09 Inst. ID: LCMSMS01.i

Client ID: Lab ID: CCV 1000B_SVLC-1744

Sample Info: CCV 1000B_SVLC-1744

Dil. Factor: 1 Operator: Matthew M. Miller

6 N-MeFOSAA, CAS: 2355-31-9

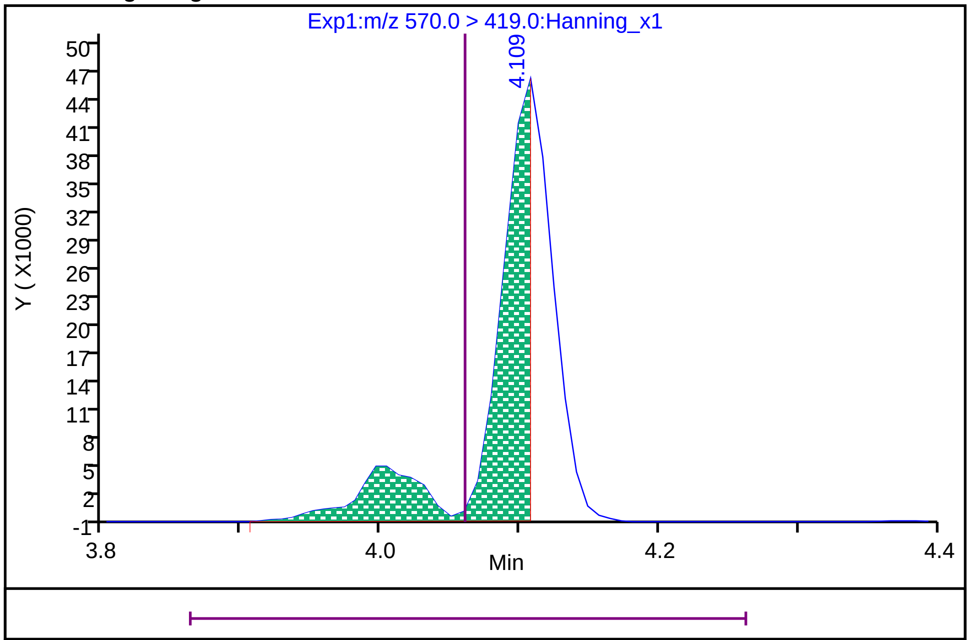
Processing Integration Results

RT: 4.109

Area: 80674

Amount: 581.15

Amount Units: ng/L

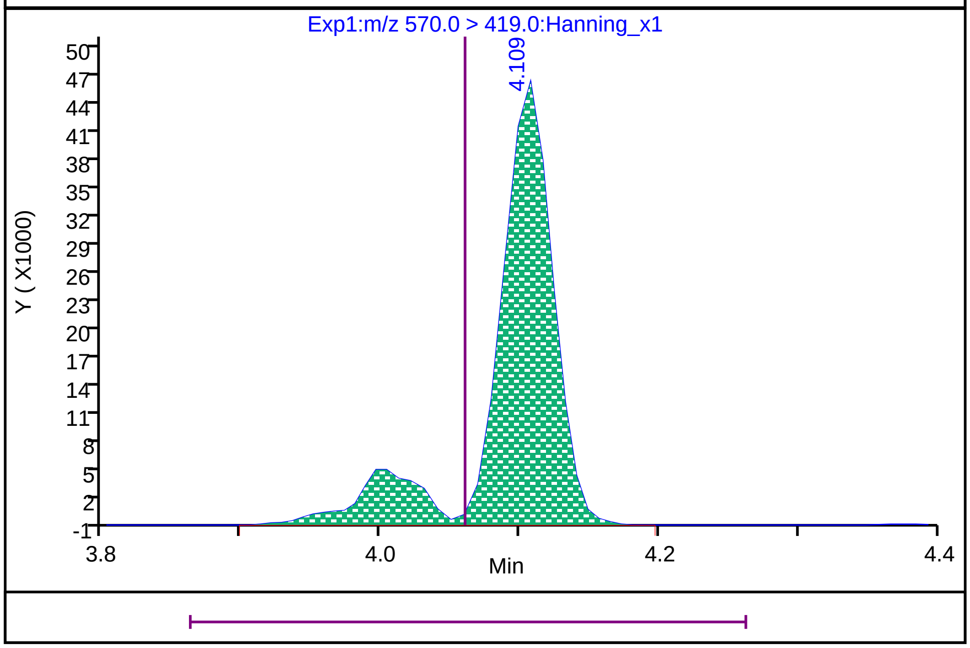


RT: 4.109

Area: 134368

Amount: 967.95

Amount Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 09:21:39

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621076.d
Injection Date: 07-Nov-2021 01:36:51 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 59
Sample Info: CCV 1000C_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS01.i Operator: Matthew M. Miller

Method: LCMSMS01_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 46 13C4_PFBA	1102554	1121687			101.7	50 - 150
8 PFBA			1000.00	1010.75	101.1	70 - 130
D 50 13C5_PFPeA	1031391	1030749			99.9	50 - 150
21 PFPeA			1000.00	1021.19	102.1	70 - 130
7 PFBS			884.00	728.95	82.5	70 - 130
D 44 13C3_PFBS	340591	380054			111.6	50 - 150
1 4:2 FTS			934.00	937.07	100.3	70 - 130
D 63 13C2_4:2 FTS_2	231446	237591			102.7	50 - 150
D 49 13C5_PFHxA	914193	1024225			112	50 - 150
15 PFHxA			1000.00	866.10	86.6	70 - 130
22 PFPeS			938.00	819.34	87.3	70 - 130
D 66 13C3_GenX	686066	852472			124.3	50 - 150
28 GenX			2000.00	1943.99	97.2	70 - 130
D 47 13C4_PFHpA	904828	928437			102.6	50 - 150
13 PFHpA			1000.00	1047.32	104.7	70 - 130
D 45 13C3_PFHxS	275799	308559			111.9	50 - 150
14 PFHxS			910.00	869.17	95.5	70 - 130
29 ADONA			942.00	887.33	94.2	70 - 130
D 64 13C2_6:2 FTS_2	216911	205480			94.7	50 - 150
2 6:2 FTS			948.00	935.51	98.7	70 - 130
D 53 13C8_PFOA	844338	898964			106.5	50 - 150
20 PFOA			1000.00	986.38	98.6	70 - 130
12 PFHpS			952.00	877.92	92.2	70 - 130
18 PFOS			928.00	868.36	93.6	70 - 130
D 54 13C8_PFOS	238349	271417			113.9	50 - 150
17 PFNA			1000.00	1053.22	105.3	70 - 130
D 56 13C9_PFNA	847911	905329			106.8	50 - 150
30 9Cl-PF3ONS			932.00	855.10	91.7	70 - 130
D 55 13C8_PFOSA	426468	463659			108.7	50 - 150
19 PFOSA			1000.00	1055.37	105.5	70 - 130
16 PFNS			960.00	879.02	91.6	70 - 130
D 65 13C2_8:2 FTS_2	178798	184004			102.9	50 - 150
3 8:2 FTS			958.00	884.56	92.3	70 - 130
10 PFDA			1000.00	990.44	99	70 - 130
D 51 13C6_PFDA	770724	753149			97.7	50 - 150
D 58 d3-MeFOSAA	791294	888400			112.3	50 - 150

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
6 N-MeFOSAA			1000.00	1094.96	109.5	70 - 130
9 PFDS			964.00	849.12	88.1	70 - 130
25 PFUdA			1000.00	998.66	99.9	70 - 130
D 60 d5-EtFOSAA	749456	894038			119.3	50 - 150
D 52 13C7_PFUdA	720189	717265			99.6	50 - 150
5 N-EtFOSAA			1000.00	946.48	94.6	70 - 130
D 61 d7-MeFOSE	124281	140656			113.2	50 - 150
32 MeFOSE			1000.00	978.19	97.8	70 - 130
D 57 d3-MeFOSA	63457	72602			114.4	50 - 150
26 MeFOSA			1000.00	1024.28	102.4	70 - 130
31 11Cl-PF3OUDS			942.00	877.57	93.2	70 - 130
D 62 d9-EtFOSE	110687	126918			114.7	50 - 150
33 EtFOSE			1000.00	974.81	97.5	70 - 130
D 59 d5-EtFOSA	64404	70185			109	50 - 150
11 PFDoA			1000.00	981.61	98.2	70 - 130
D 38 13C2_PFDoA	689160	723309			105	50 - 150
4 10:2 FTS			964.00	844.30	87.6	70 - 130
27 EtFOSA			1000.00	908.15	90.8	70 - 130
34 PFDOS			968.00	922.55	95.3	70 - 130
24 PFTrDA			1000.00	931.99	93.2	70 - 130
23 PFTeDA			1000.00	969.81	97	70 - 130
D 42 13C2_PFTeDA	752016	789782			105	50 - 150
D 40 13C2_PFHxDA	343727	396535			115.4	50 - 150
35 PFHxDA			1000.00	992.71	99.3	70 - 130
36 PFODA			1000.00	1014.01	101.4	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621076.d		
Injection Date:	07-Nov-2021 01:36:51	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	59
Sample Info:	CCV 1000C_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.732	1.725	1	1121687	19	>100:1			1000.00	1023.27	101.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.738	1.732	1/0	1208223	21	>100:1			1000.00	1010.75		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.116	2.105	1	1030749	16	>100:1			1000.00	1010.45	99.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.116	2.105	1/0	1129839	17	>100:1			1000.00	1021.19		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.179	2.169	1	380054	16	>100:1			1000.00	1126.30	111.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.179	2.169	1/0	392170	16	>100:1	Target = 3.83		884.00	728.95		
298.9 > 99	44	2.179	2.169		103517	15	>100:1	3.78 (1.91-5.75)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.546	2.529	2/1	311683	16	>100:1	Target = 3.47		938.00	819.34		
349 > 99	44	2.546	2.529		95712	18	>100:1	3.25 (1.73-5.21)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.466	2.449	2	237591	24	>100:1			5000.00	5087.95	102.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.466	2.449	2/0	82792	17	>100:1	Target = 1.39		934.00	937.07		
327 > 81	63	2.466	2.449		50941	19	59:1	1.62 (0.69-2.08)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.511	2.493	2	1024225	17	>100:1			1000.00	1123.06	112	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.511	2.493	2/0	901606	18	>100:1	Target = 17.15		1000.00	866.10		
313 > 119	49	2.511	2.493		53001	17	>100:1	17.01 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.637	2.614	2	852472	21	>100:1			5000.00	5791.49	124.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.637	2.622	1/-1	247226	20	>100:1	Target = 0.72		2000.00	1943.99		
285 > 185	66	2.637	2.622		318937	20	>100:1	0.77 (0.36-1.09)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.896	2.878	2	928437	17	>100:1			1000.00	1049.24	102.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.905	2.878	2/0	928950	17	>100:1	Target = 3.21		1000.00	1047.32		
363 > 169	47	2.896	2.878		257778	18	>100:1	3.60 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.914	2.896	2	308559	17	>100:1			1000.00	1115.62	111.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.914	2.896	2/0	309152	25	>100:1	Target = 3.35	5.13	910.00	869.17		
399 > 99	45	2.923	2.896		92547	23	>100:1	3.34 (1.67-5.04)	9.53				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.938	2.923	1/-1	1451656	17	>100:1	Target = 2.38		942.00	887.33		
377 > 85	45	2.938	2.923		616308	18	>100:1	2.35 (1.19-3.58)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.252	3.226	2/0	288296	19	>100:1	Target = 3.87		952.00	877.92		
449 > 99	45	3.258	3.226		77005	24	>100:1	3.74 (1.93-5.80)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.226	3.201	2	205480	19	>100:1			5000.00	4985.51	94.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.226	3.201	2/0	63859	19	>100:1	Target = 1.26		948.00	935.51		
427 > 81	64	3.226	3.201		46766	22	79:1	1.36 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.245	3.220	2	898964	21	>100:1			1000.00	1067.12	106.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	886731	21	>100:1	Target = 2.46		1000.00	986.38		
413 > 169	53	3.245	3.226		345991	20	>100:1	2.56 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.592	3.558	3	271417	18	>100:1			1000.00	1145.57	113.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.592	3.558	3/0	274206	39	>100:1	Target = 3.98	3.25	928.00	868.36		
499 > 99	54	3.592	3.558		73107	41	>100:1	3.75 (1.99-5.97)	8.39				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.793	3.755	3/0	701386	20	>100:1			932.00	855.10		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.931	3.886	3/0	227185	17	>100:1	Target = 3.57		960.00	879.02		
549 > 99	54	3.931	3.886		60324	24	>100:1	3.76 (1.78-5.35)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.231	4.191	3/0	216020	16	>100:1	Target = 3.73		964.00	849.12		
599 > 99	54	4.240	4.191		52918	21	>100:1	4.08 (1.86-5.60)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.394	4.349	3/0	574059	14	>100:1			942.00	877.57		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.749	4.698	4/1	202206	18	>100:1	Target = 3.44		968.00	922.55		
699 > 99	54	4.742	4.698		56603	18		3.57 (1.72-5.16)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.565	3	905329	19	>100:1			1000.00	1115.85	106.8	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.592	3.565	2/-1	850444	19	>100:1	Target = 4.45		1000.00	1053.22		
463 > 169	56	3.606	3.565		157649	18	>100:1	5.39 (2.22-6.68)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.901	3.872	2	463659	20	>100:1			1000.00	1116.20	108.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.901	3.872	2/0	533175	18	>100:1	Target = 47.73		1000.00	1055.37		
498>478	55	3.901	3.872		10774	23	68:1	49.48 (23.86-71.60)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.939	3.894	3	184004	25	>100:1			5000.00	5284.10	102.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.939	3.894	3/0	53713	20	>100:1	Target = 1.41		958.00	884.56		
527 > 81	65	3.931	3.894		37786	18	90:1	1.42 (0.70-2.12)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.541	4.494	3/0	65909	18		Target = 2.81		964.00	844.30		
627 > 80	65	4.533	4.494		29354	18	>100:1	2.24 (1.40-4.21)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.939	3.901	3	753149	17	>100:1			1000.00	1052.71	97.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.946	3.901	3/0	761878	19	>100:1	Target = 9.36		1000.00	990.44		
513 > 169	51	3.939	3.901		82673	20	>100:1	9.21 (4.68-14.04)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.101	4.053	3	888400	16	>100:1			5000.00	5494.52	112.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.101	4.062	3/0	157012	32	>100:1	Target = 1.42	6.62	1000.00	1094.96		M
570 > 483	58	4.101	4.062		106442	32		1.47 (0.71-2.13)	3.62				M
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.258	4.207	4	894038	18	>100:1			5000.00	6183.20	119.3	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.267	4.223	3/-1	166945	33	>100:1	Target = 1.80	6.60	1000.00	946.48		
584 > 526	60	4.267	4.223		93416	32	>100:1	1.78 (0.90-2.70)	3.48				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.248	4.207	3	717265	16	>100:1			1000.00	1021.41	99.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.258	4.207	4/1	645073	17	>100:1	Target = 8.65		1000.00	998.66		
563 > 169	52	4.258	4.207		68176	15	>100:1	9.46 (4.32-12.98)					
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.322	4.295	2	140656	14	>100:1			1000.00	1146.15	113.2	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.331	4.304	2/0	140307	14	>100:1			1000.00	978.19		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.340	4.313	2	72602	15	>100:1			1000.00	1130.00	114.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.349	4.322	2/0	80561	14	>100:1	Target = 1.09		1000.00	1024.28		
512 > 219	57	4.349	4.322		72796	13	>100:1	1.10 (0.54-1.64)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.486	4.463	2	126918	15	>100:1			1000.00	1116.92	114.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.502	4.479	2/0	102397	16	>100:1			1000.00	974.81		
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.533	4.486	3	723309	18	>100:1			1000.00	1039.13	105	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.533	4.486	3/0	713150	17	>100:1	Target = 6.94		1000.00	981.61		
613 > 169	38	4.533	4.486		93573	16	>100:1	7.62 (3.47-10.42)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.768	4.727	3/0	297574	18	>100:1	Target = 2.82		1000.00	931.99		
663 > 169	38	4.773	4.727		114123	18	>100:1	2.60 (1.41-4.23)					
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.486	2	70185	15	>100:1			1000.00	1163.41	109	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.517	4.494	2/0	76129	16	>100:1	Target = 1.11		1000.00	908.15		
526 > 219	59	4.517	4.494		75813	21	>100:1	1.00 (0.55-1.67)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.990	4.942	3	789782	16	>100:1			1000.00	1058.51	105	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.990	4.942	3/0	660876	18	>100:1	Target = 7.23		1000.00	969.81		
713 > 169	42	4.990	4.942		94739	15	>100:1	6.97 (3.61-10.85)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.372	5.323	3	396535	16	>100:1			1000.00	1139.81	115.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.380	5.331	3/0	723830	18	>100:1	Target = 12.24		1000.00	992.71		
813 > 269	40	5.380	5.331		56134	18	>100:1	12.89 (6.12-18.37)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.741	5.678	4/1	543343	22	>100:1	Target = 148.06		1000.00	1014.01		
913 > 319	40	5.741	5.678		3786	20	>100:1	143.51 (74.03-222.09)					
*** 37 13C2_PFDA**													
515 > 470		3.939	3.901	3	773643	19	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.511	2.493	2	912627	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.245	3.226	2	887679	20	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.732	1.732	0	1065133	20	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.592	3.558	3	270457	19	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

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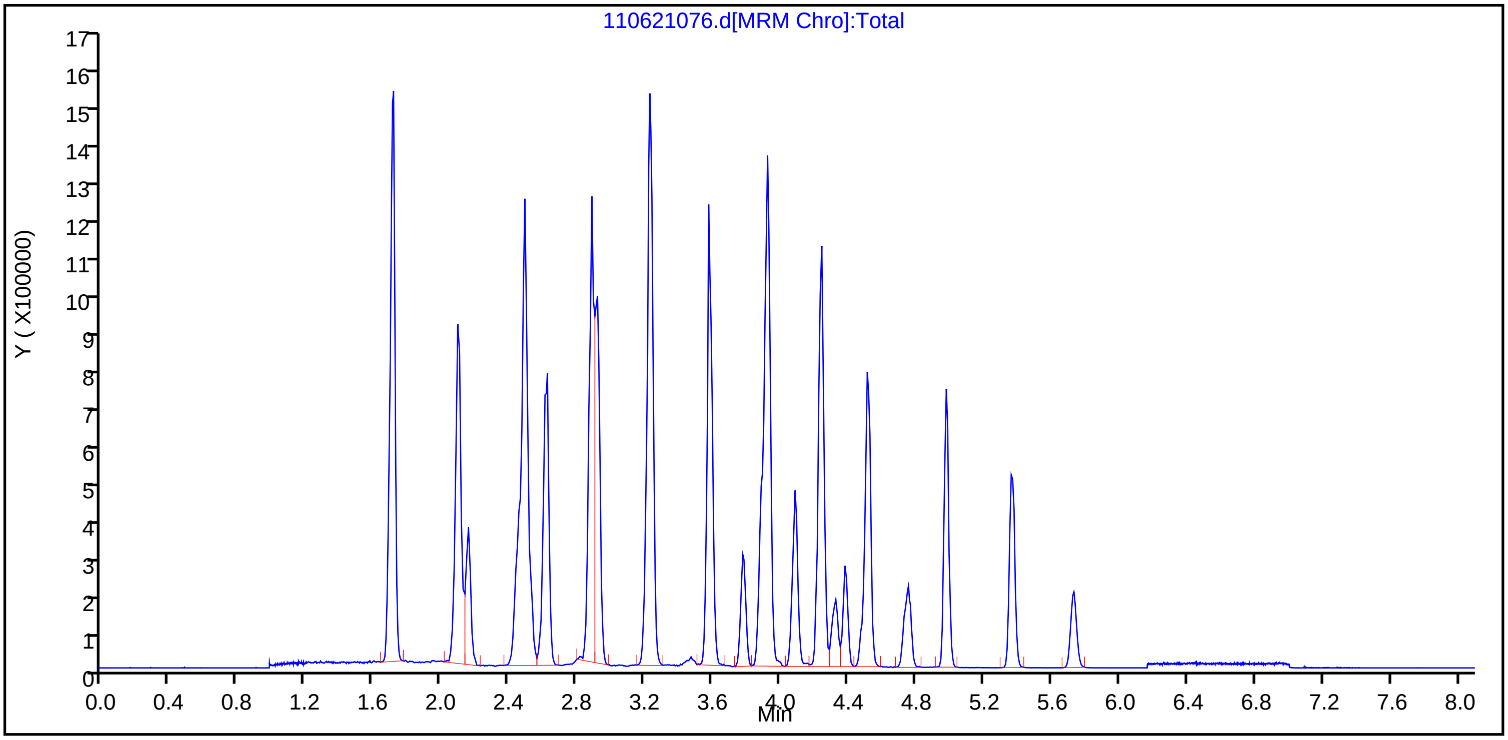
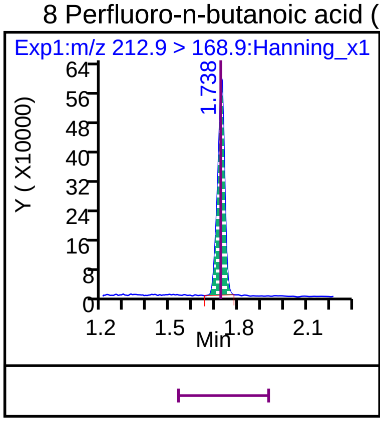
Pace Environmental Services, LLC

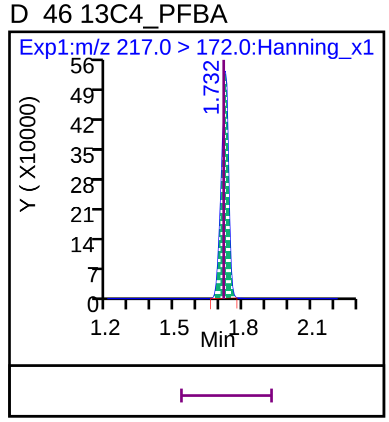
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621076.d		
Injection Date:	07-Nov-2021 01:36:51	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000C_SVLC-1744
Sample Info:	CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller



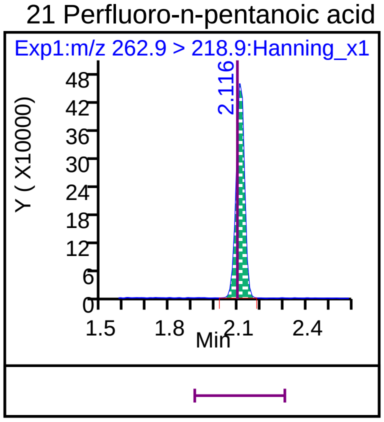
8 Perfluoro-n-butanoic acid (PFBA)



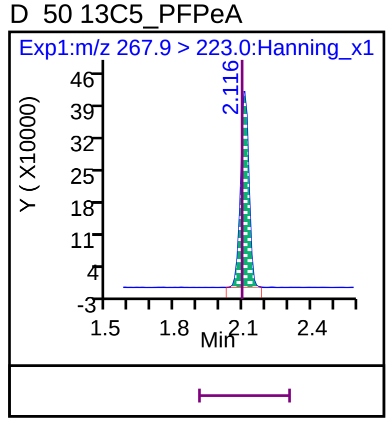
D 46 13C4_PFBA



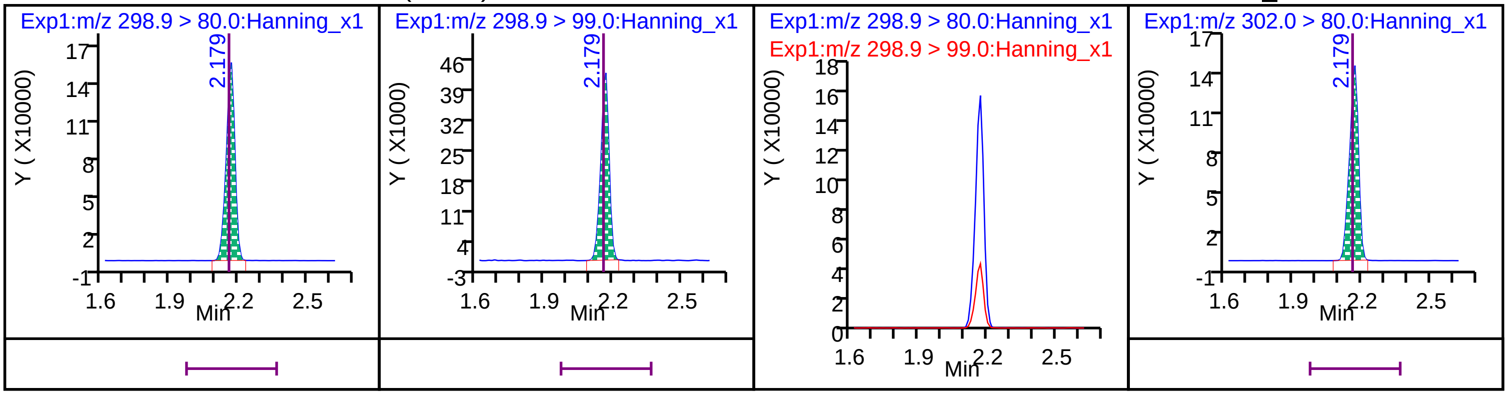
21 Perfluoro-n-pentanoic acid (PFPeA)



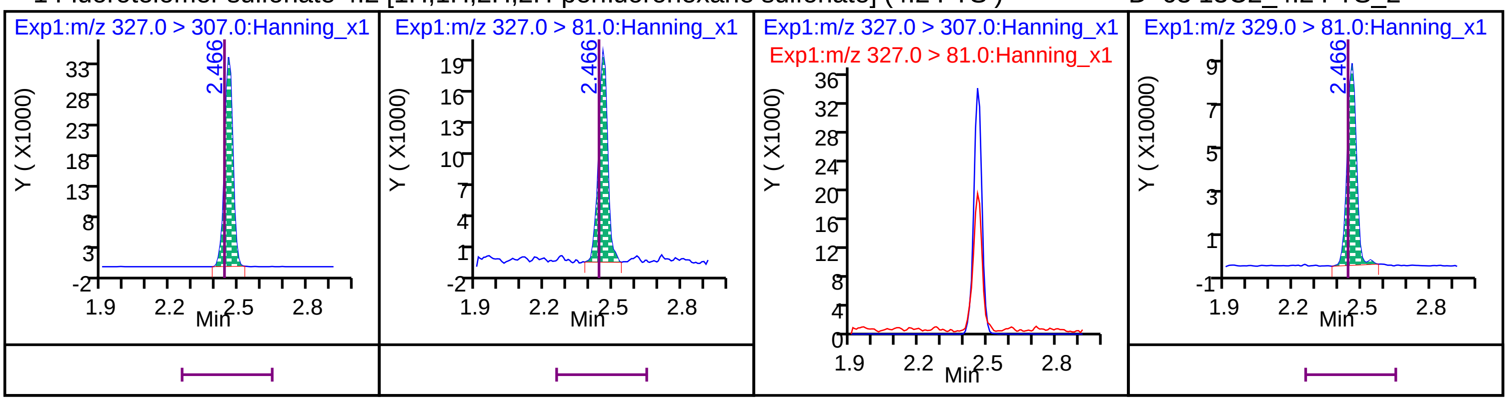
D 50 13C5_PFPeA



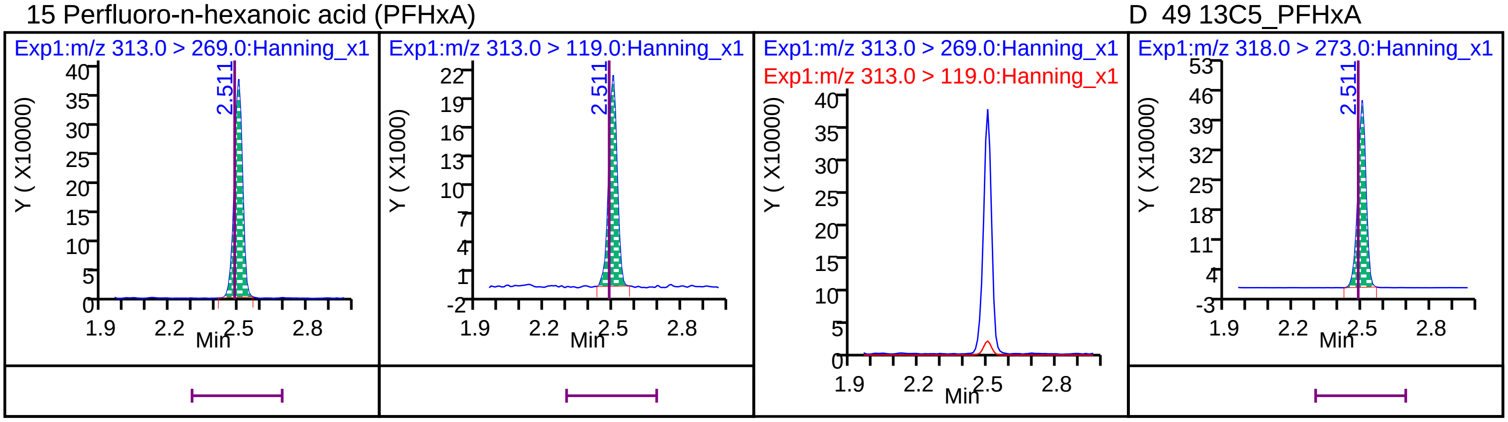
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



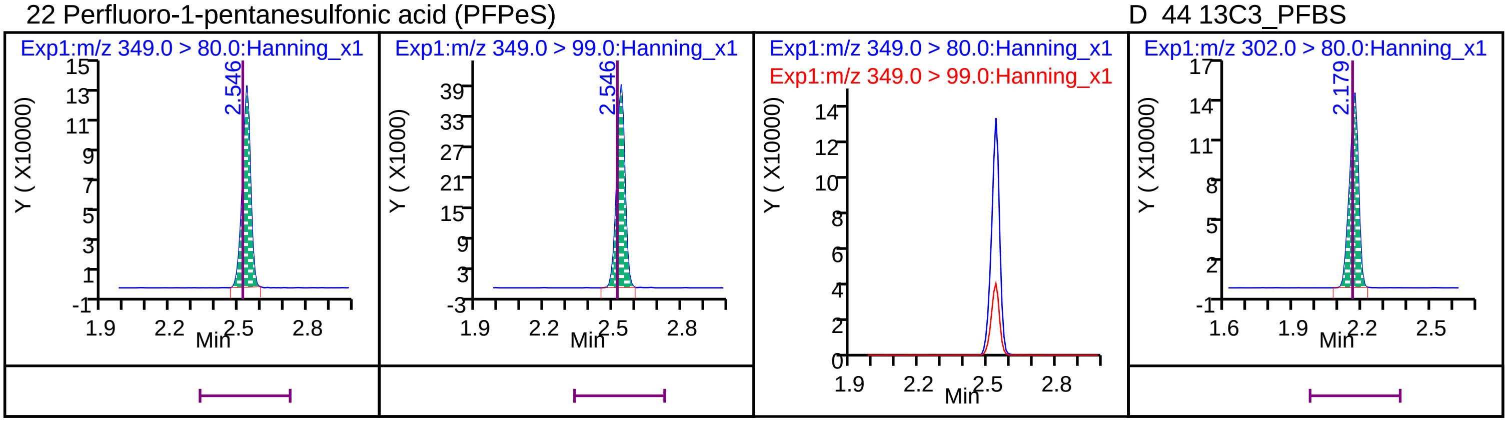
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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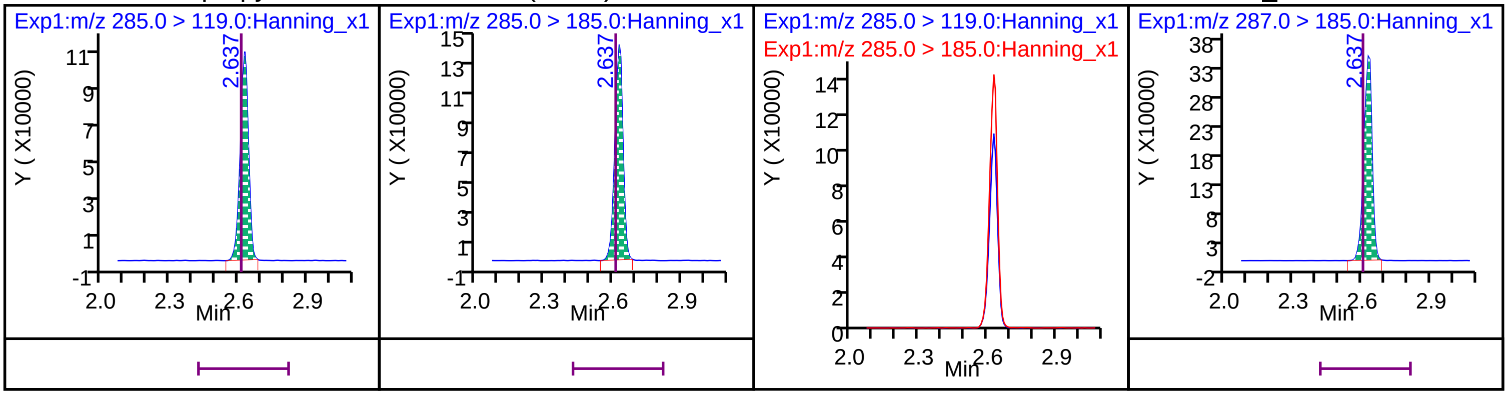
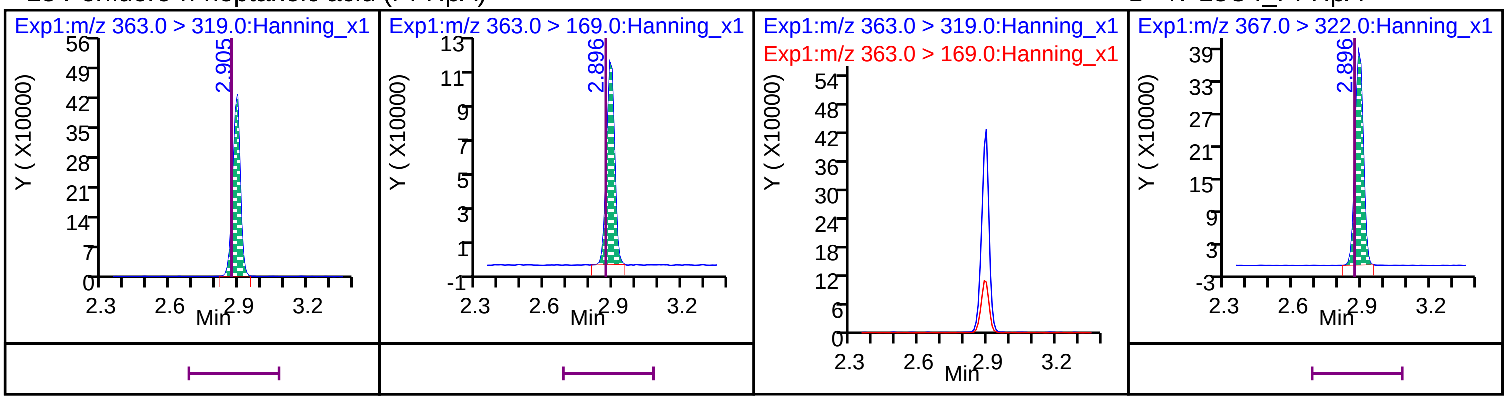
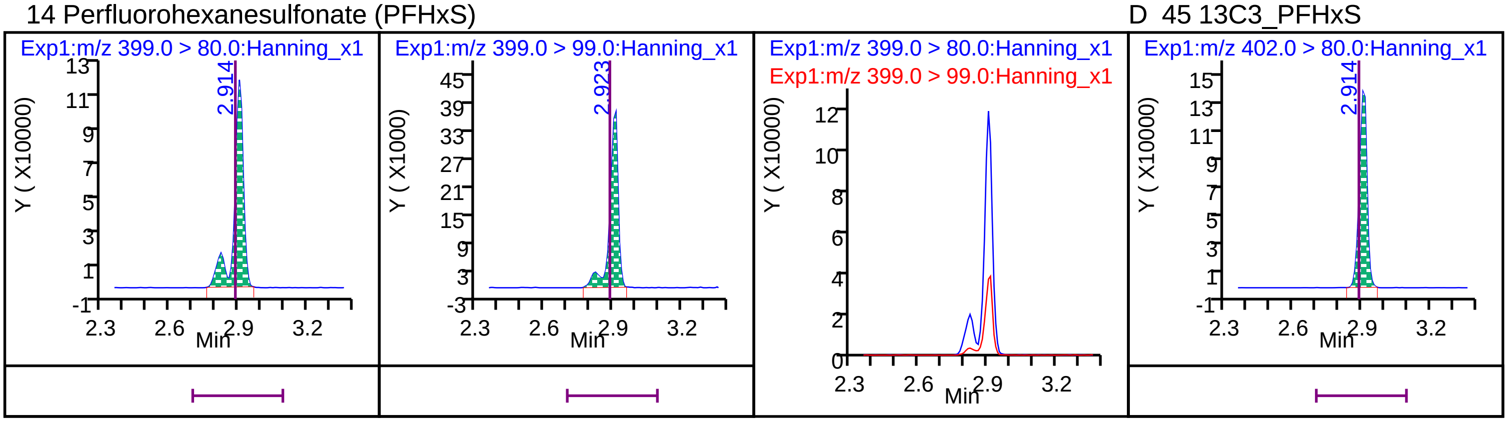
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



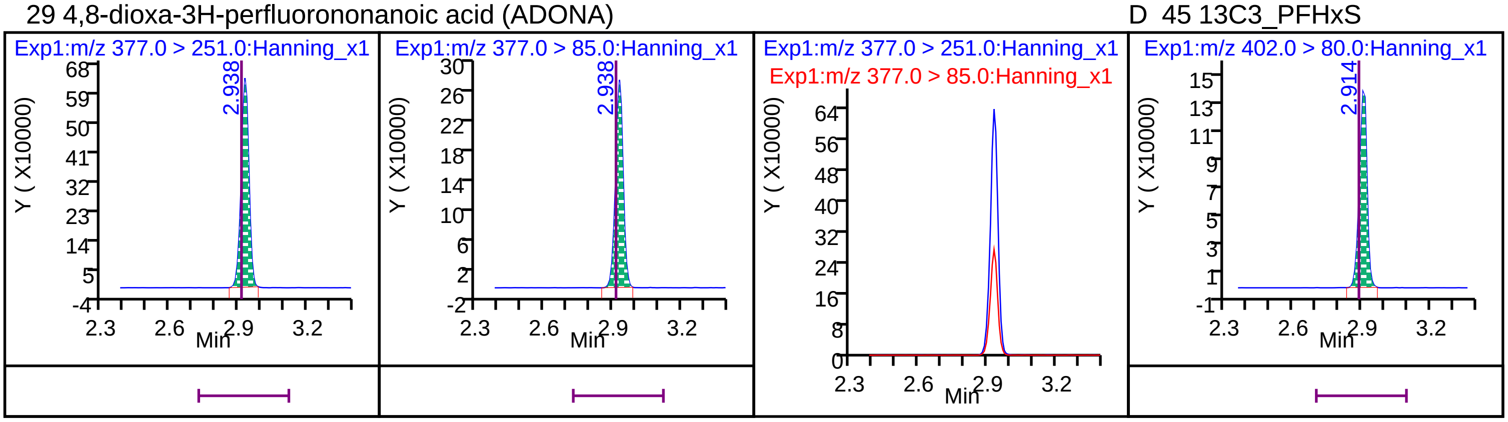
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



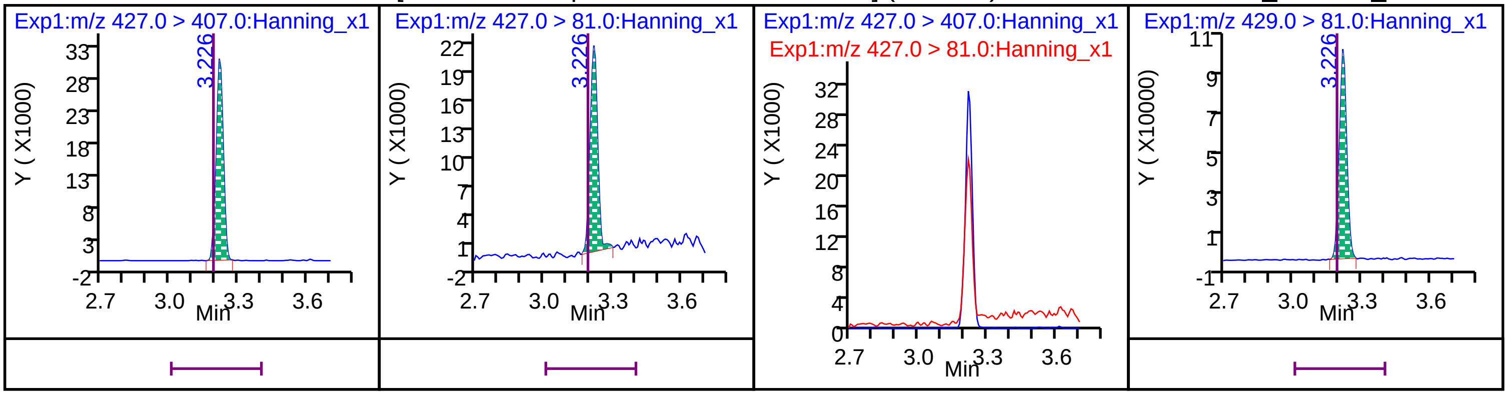
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



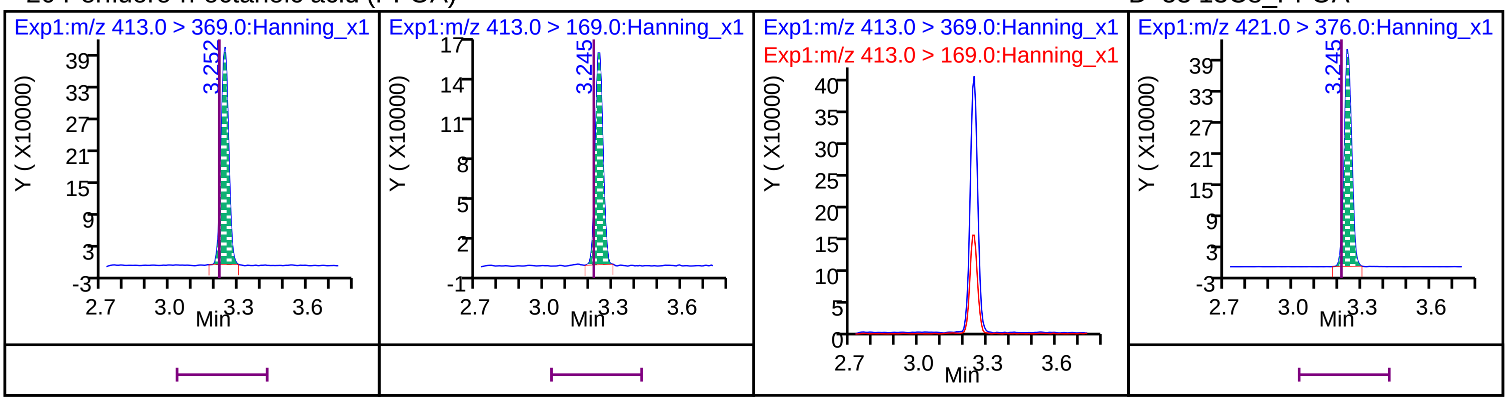
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



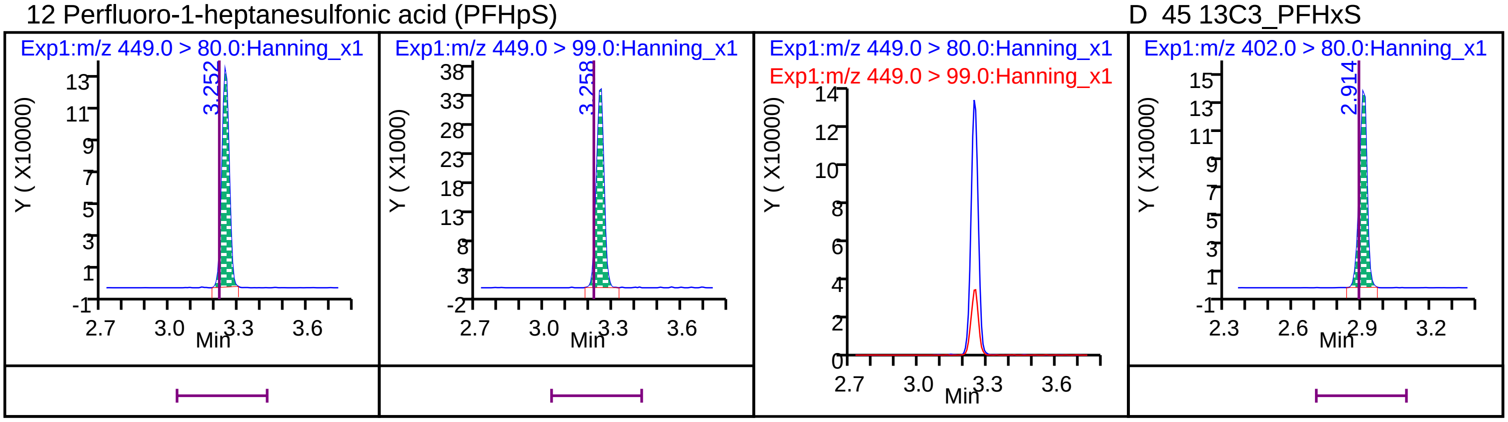
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



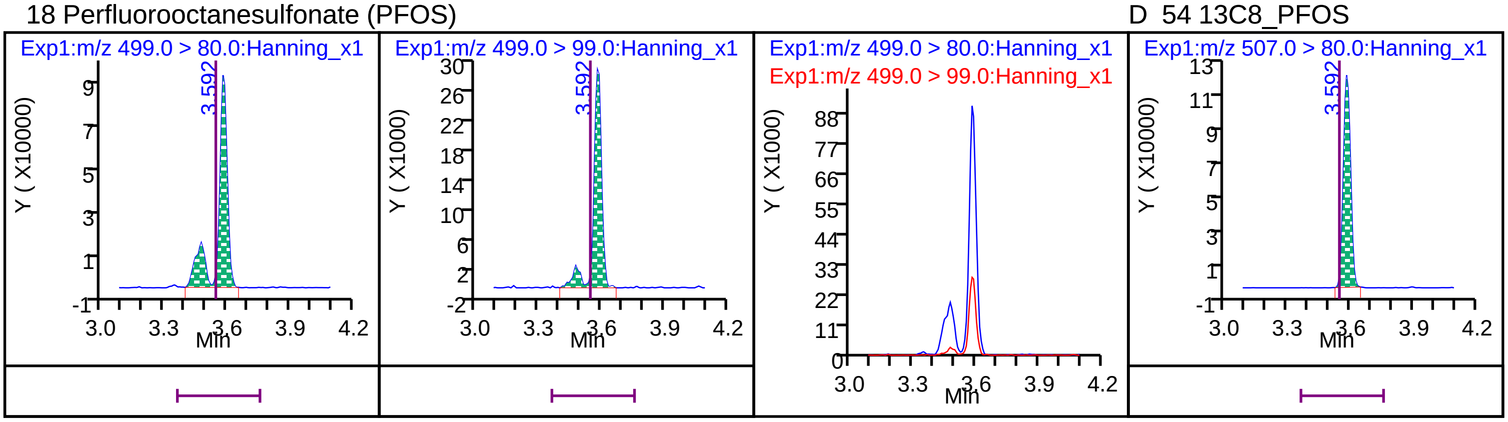
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



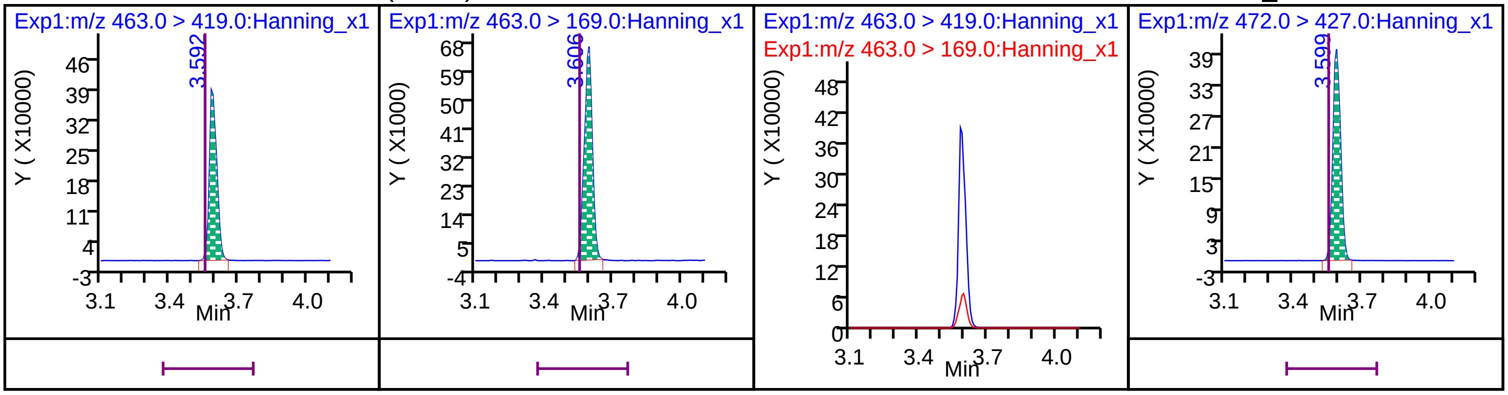
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



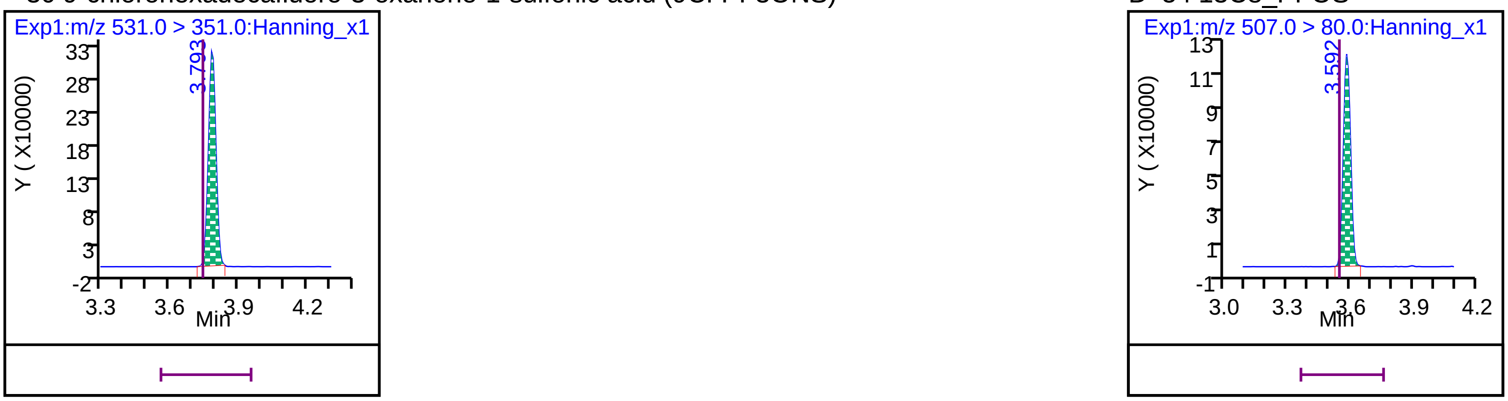
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



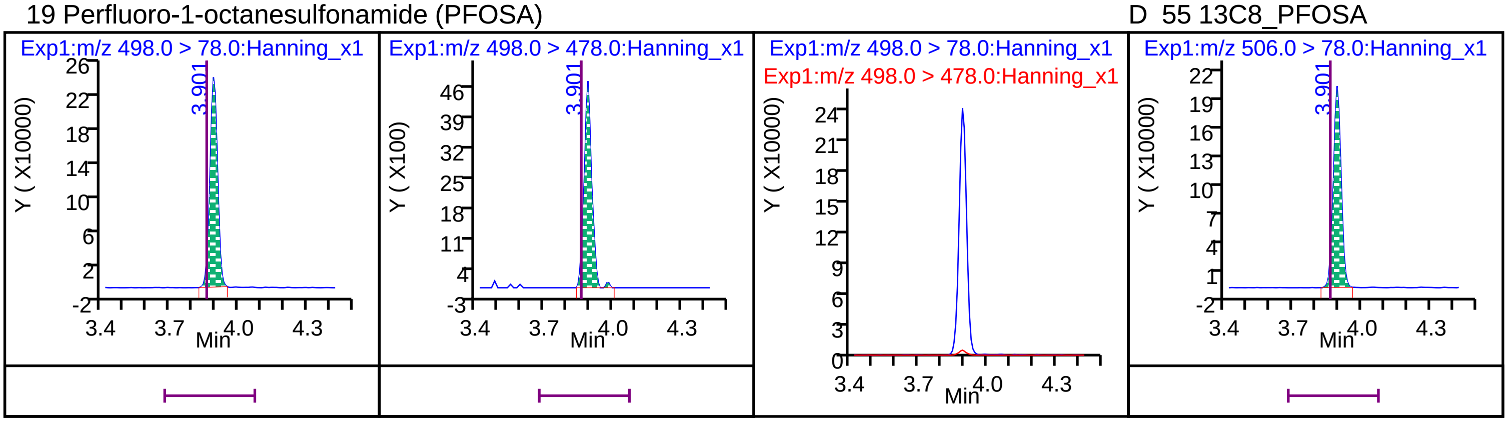
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



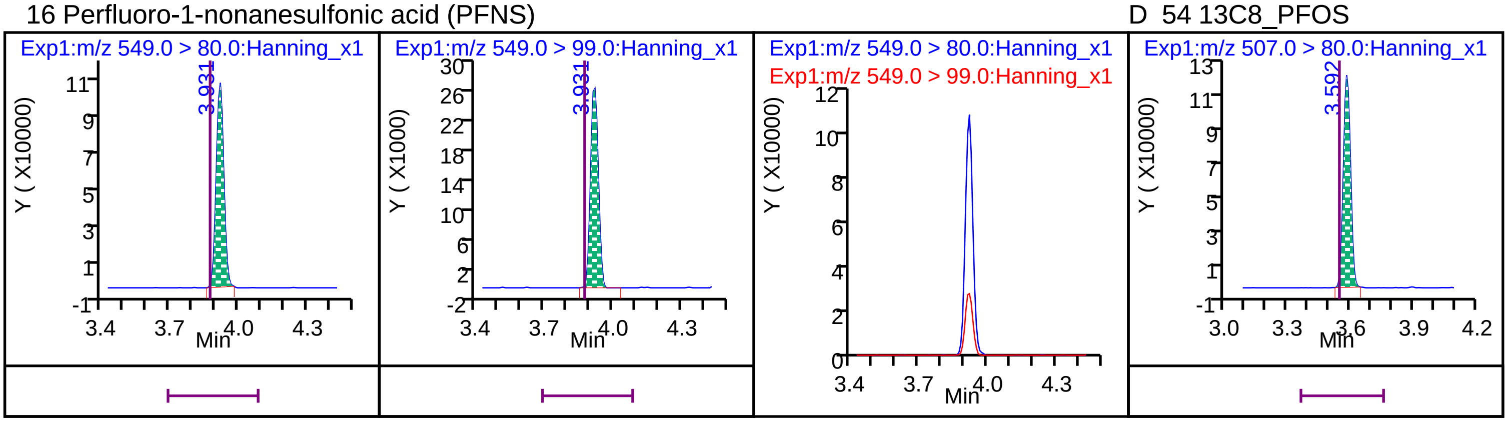
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



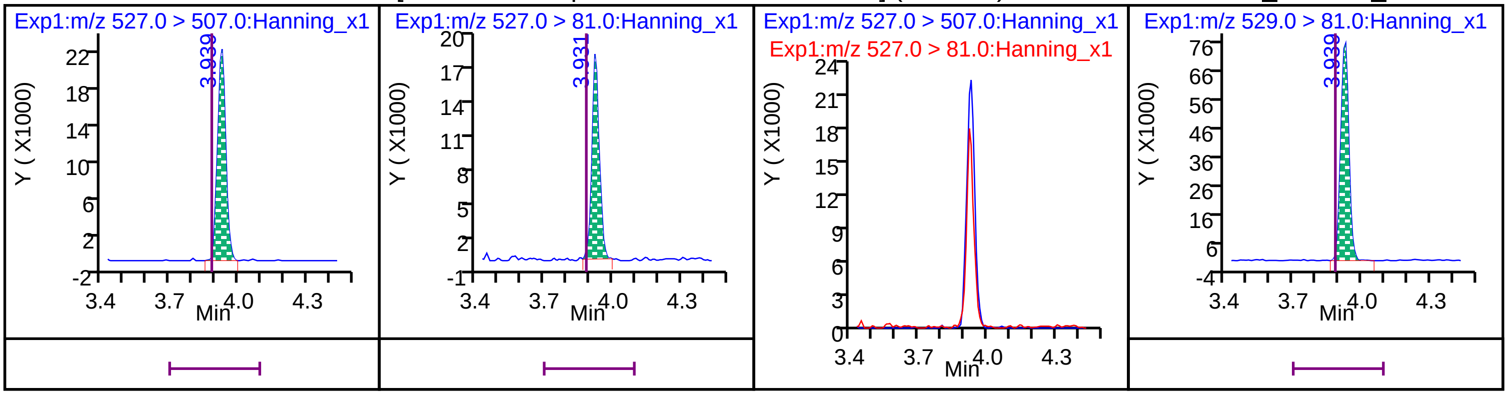
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



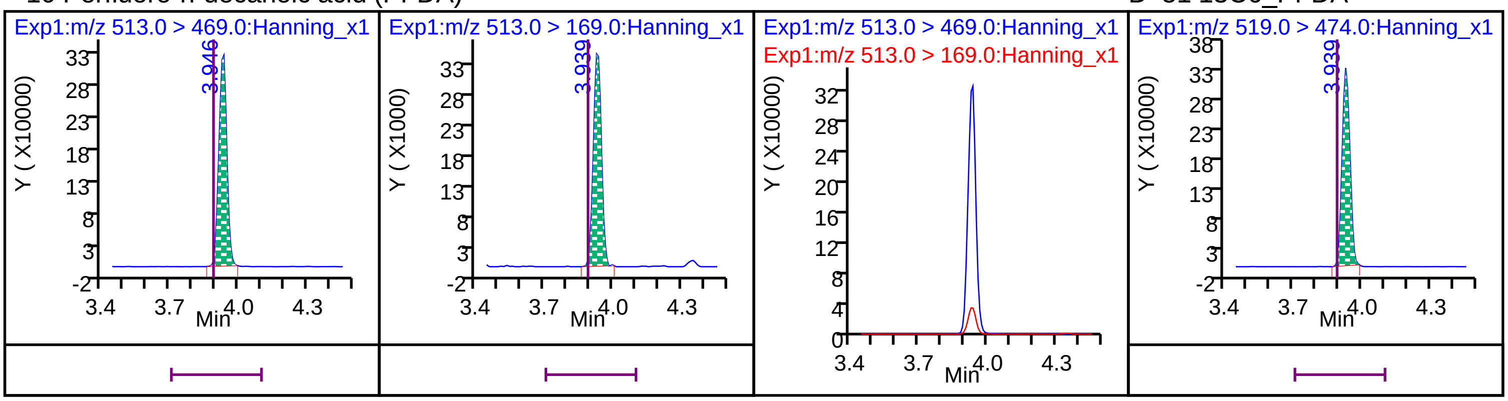
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



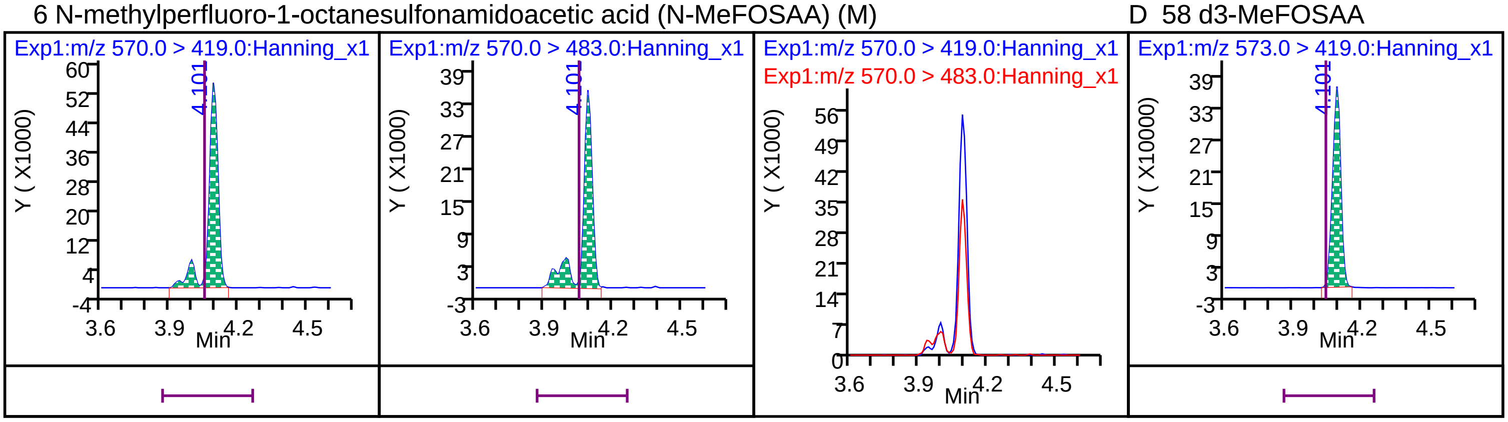
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



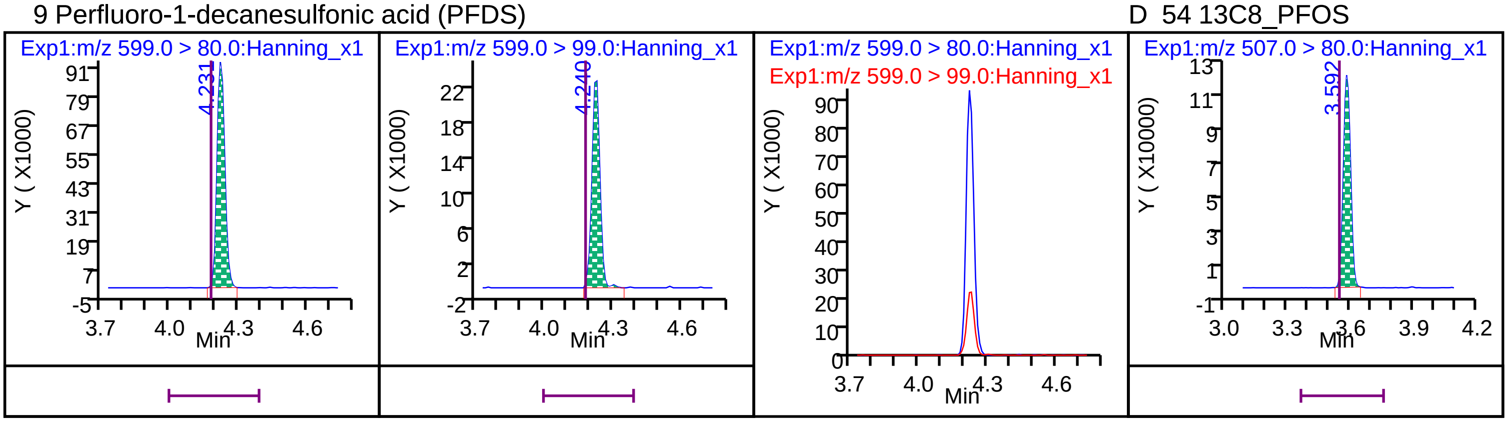
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



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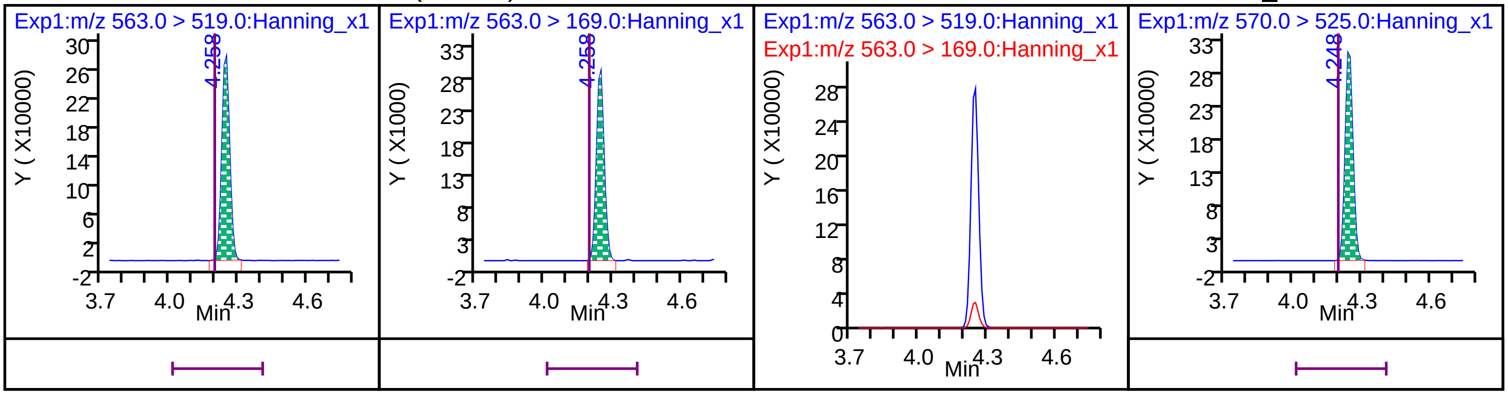
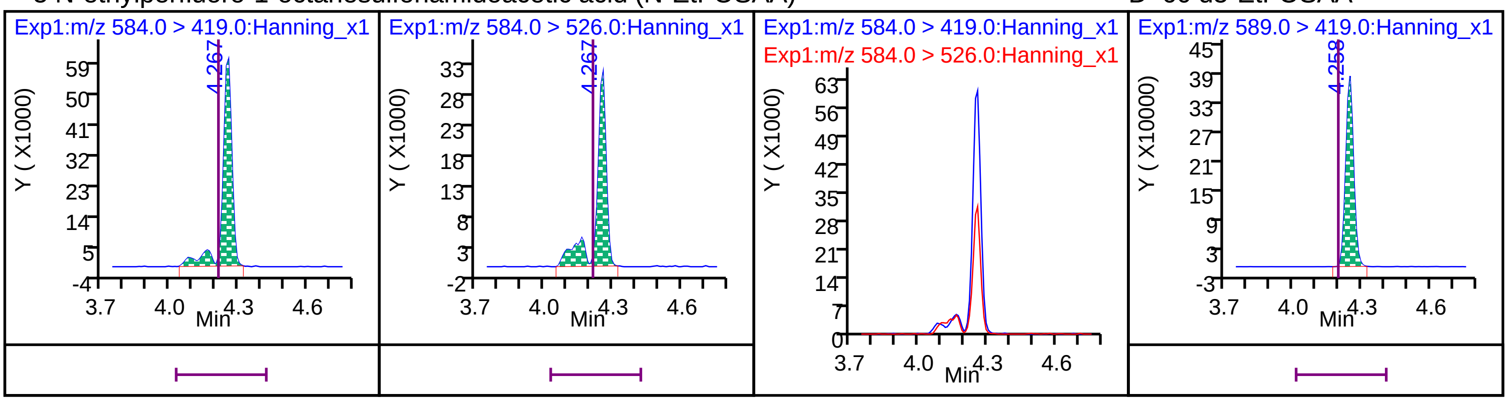
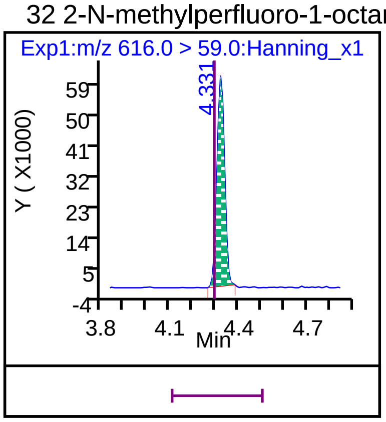
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

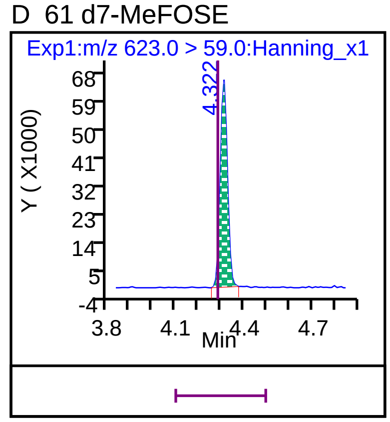


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

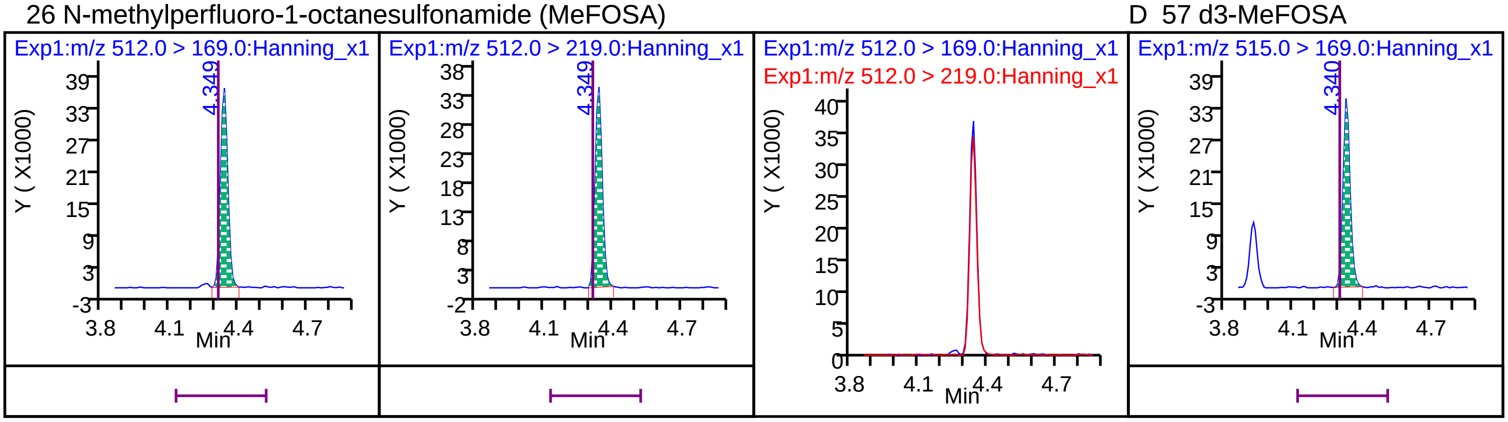


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE





26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



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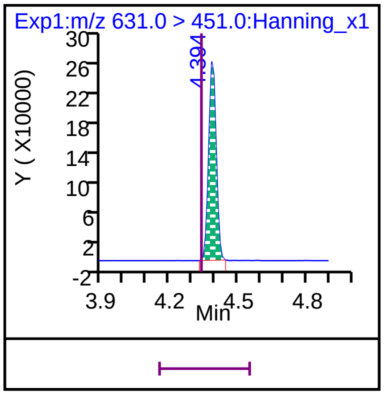
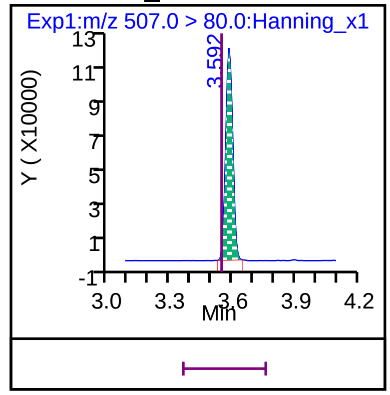
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621076.d

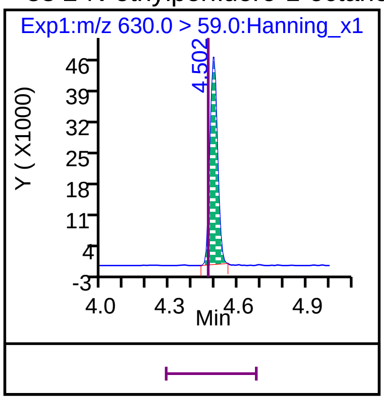
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



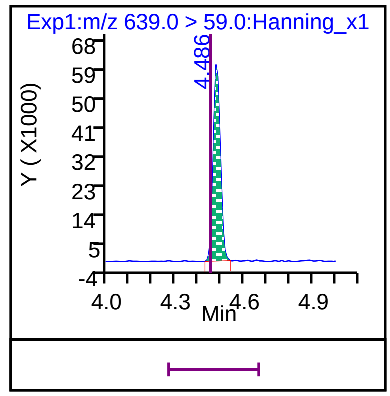
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

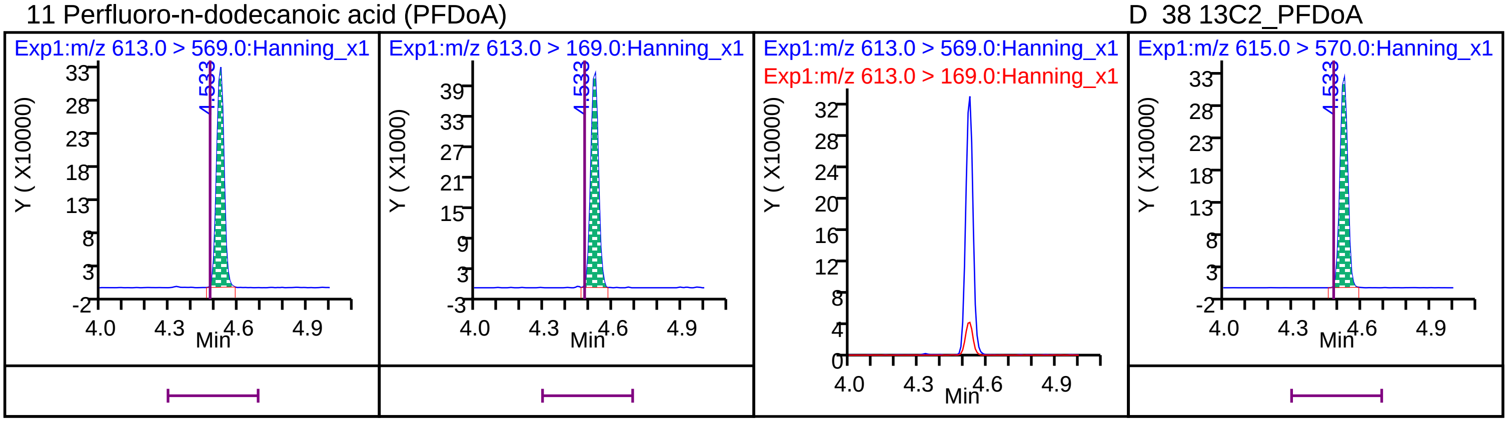


D 62 d9-EtFOSE



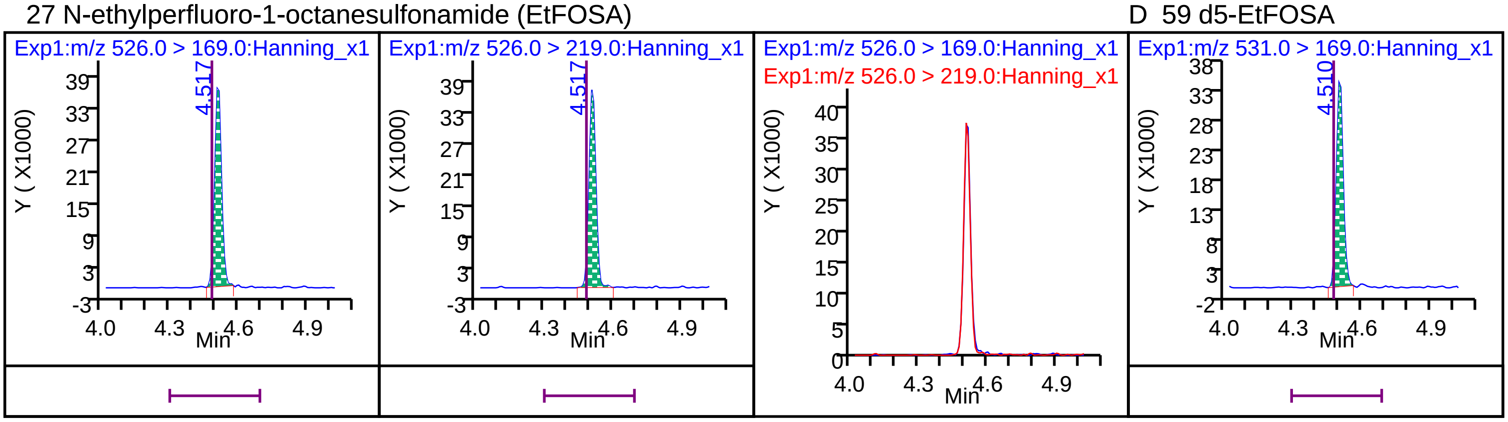
11 Perfluoro-n-dodecanoic acid (PFDoA)

D 38 13C2_PFDoA

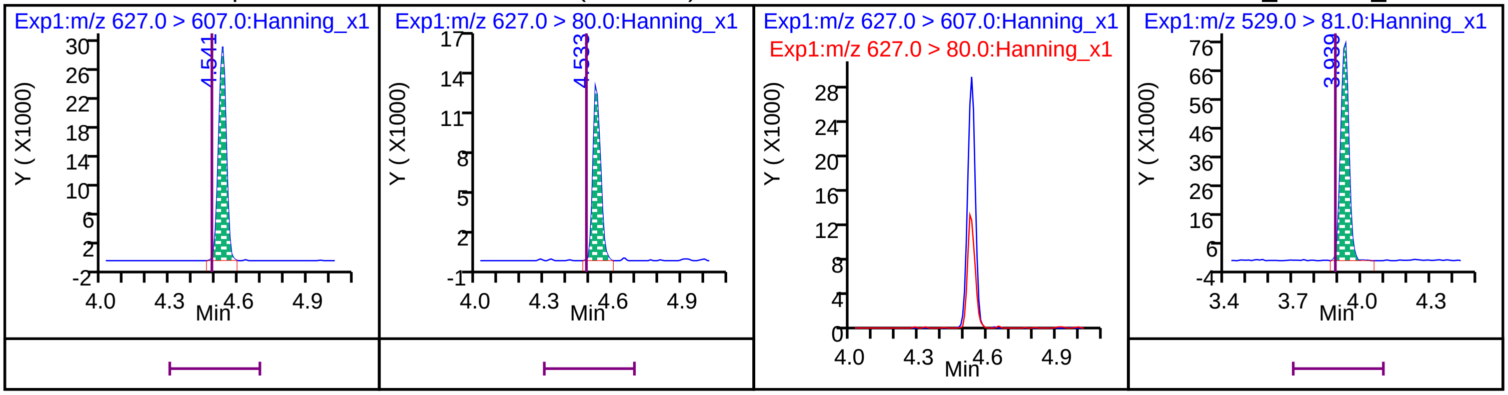


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

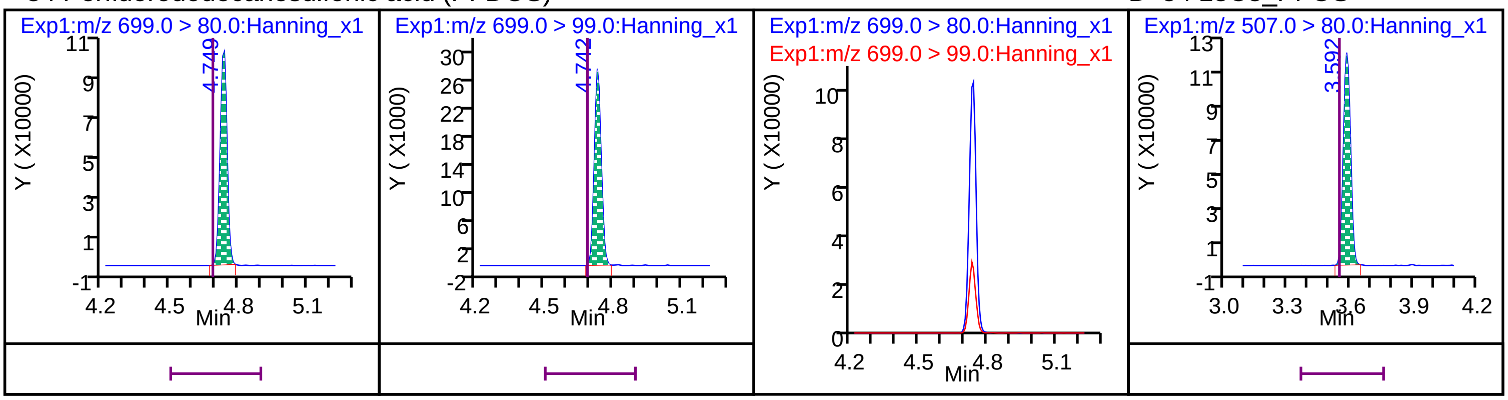
D 59 d5-EtFOSA



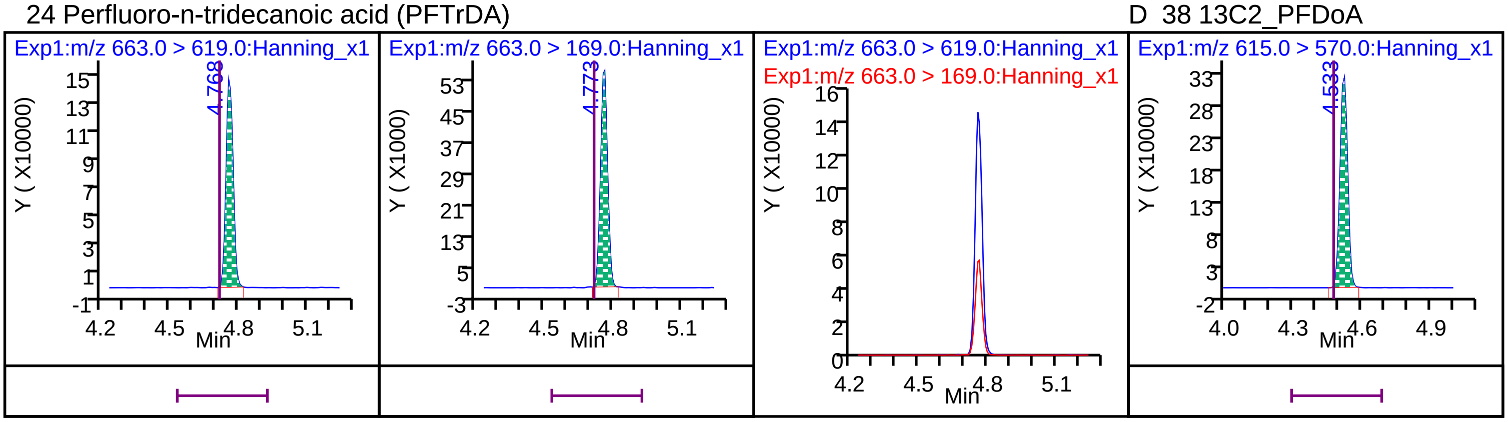
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



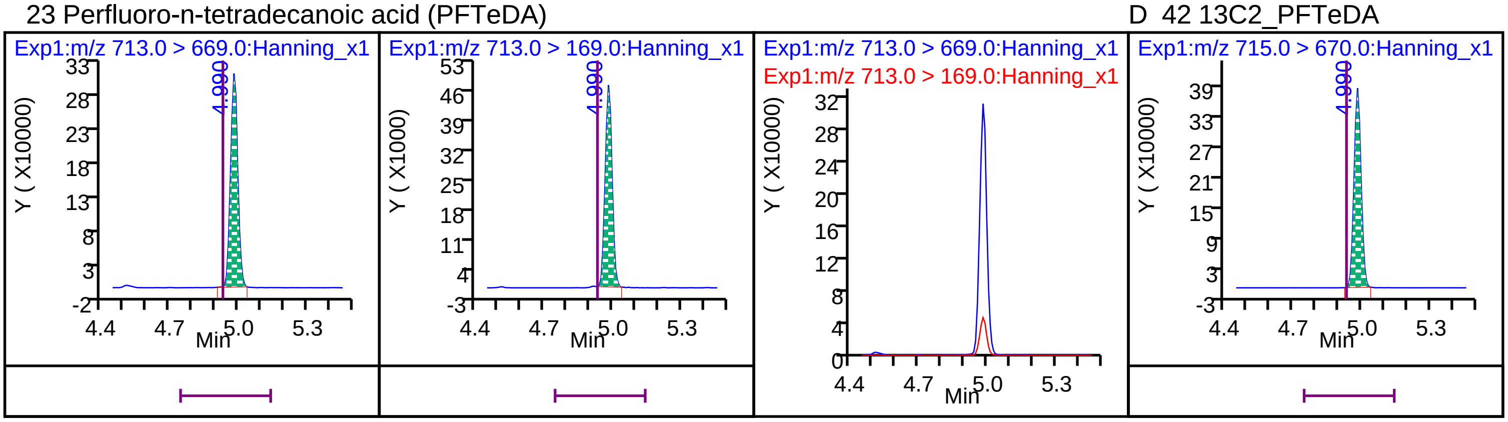
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



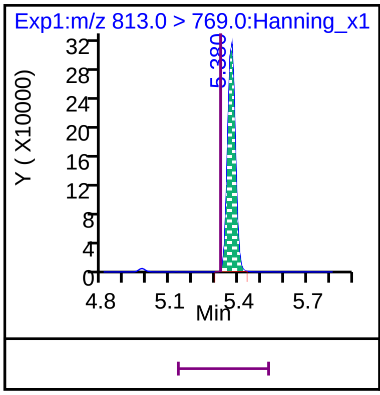
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

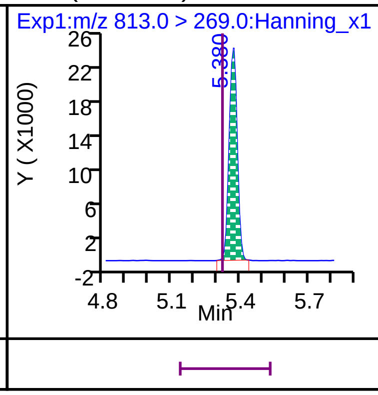


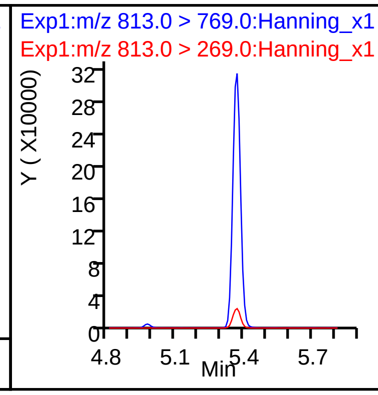
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



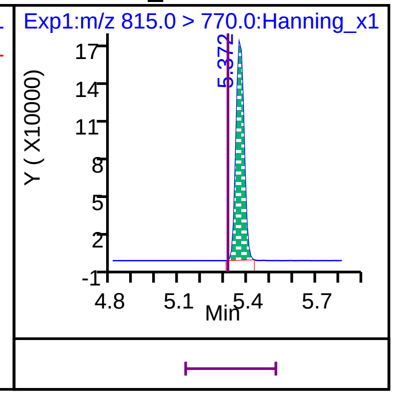
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



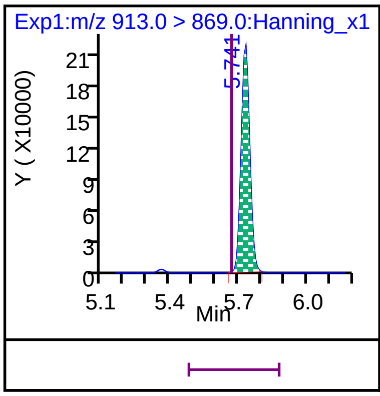


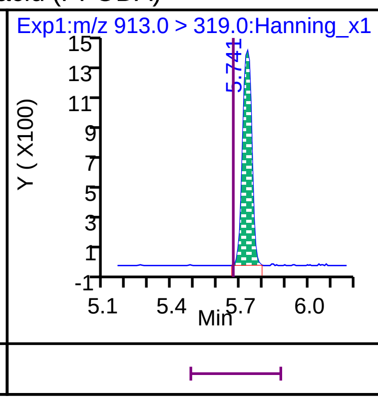


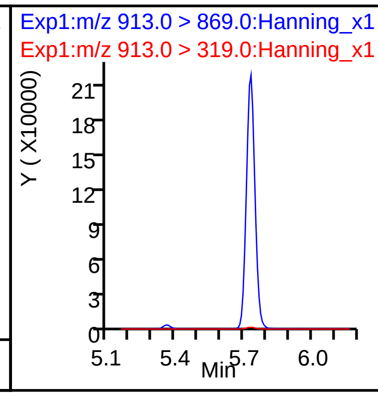
D 40 13C2_PFHxDA



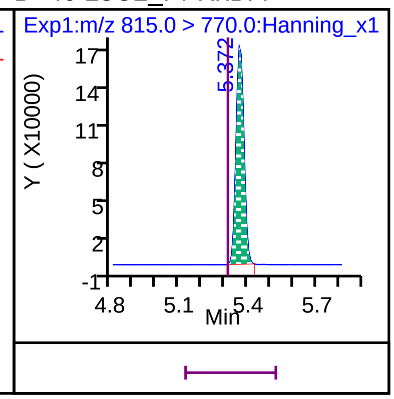
36 Perfluoro-n-octadecanoic acid (PFODA)



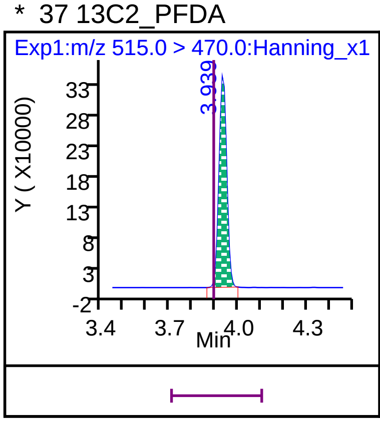




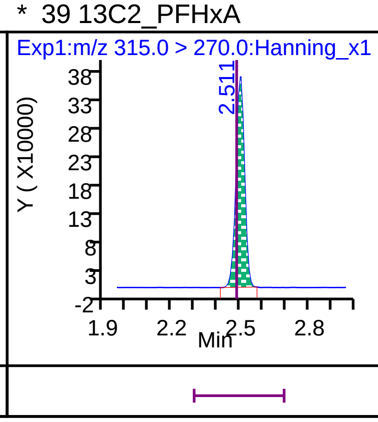
D 40 13C2_PFHxDA



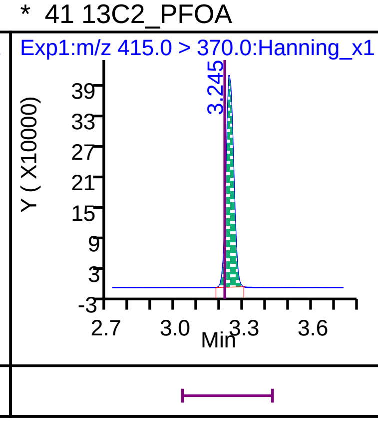
* 37 13C2_PFDA



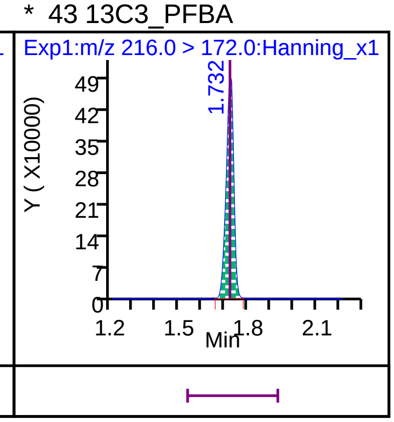
* 39 13C2_PFHxA



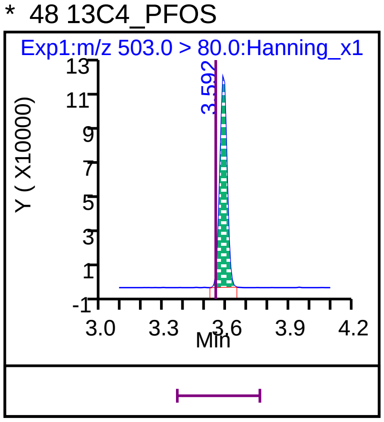
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:38   AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

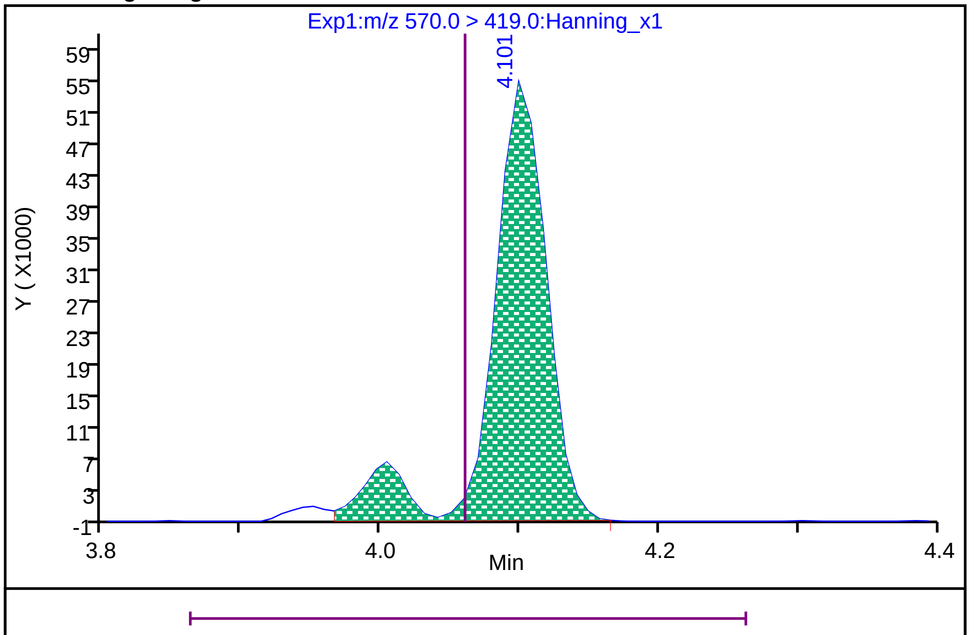
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621076.d		
Injection Date:	07-Nov-2021 01:36:51	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000C_SVLC-1744
Sample Info:	CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller

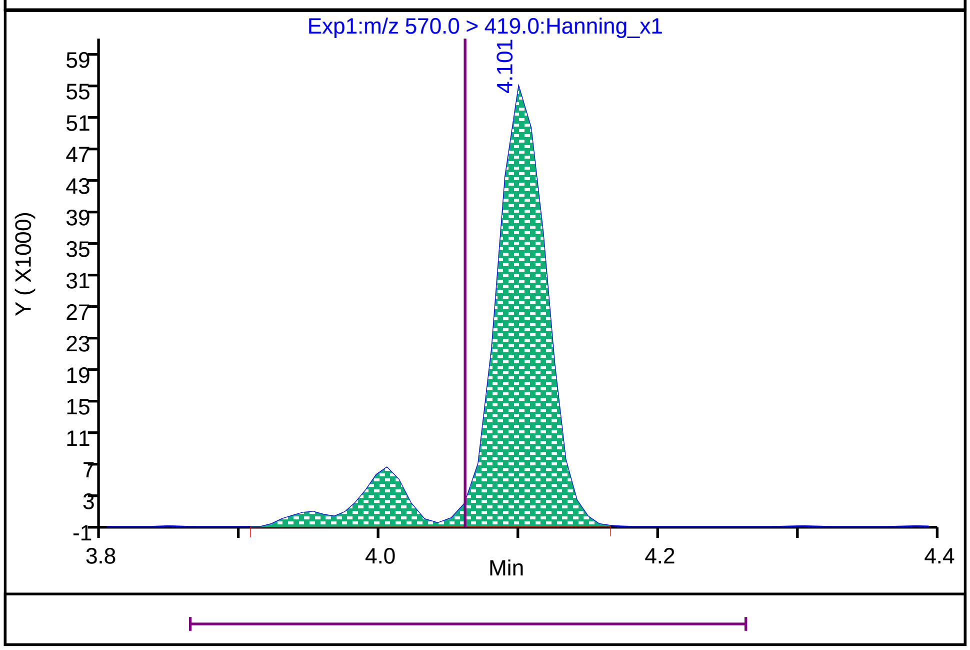
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.101
Area: 152030
Amount: 1060.21
Amount Units: ng/L



RT: 4.101
Area: 157012
Amount: 1094.96
Amount Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:29:46
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 09-Nov-2021 13:31:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

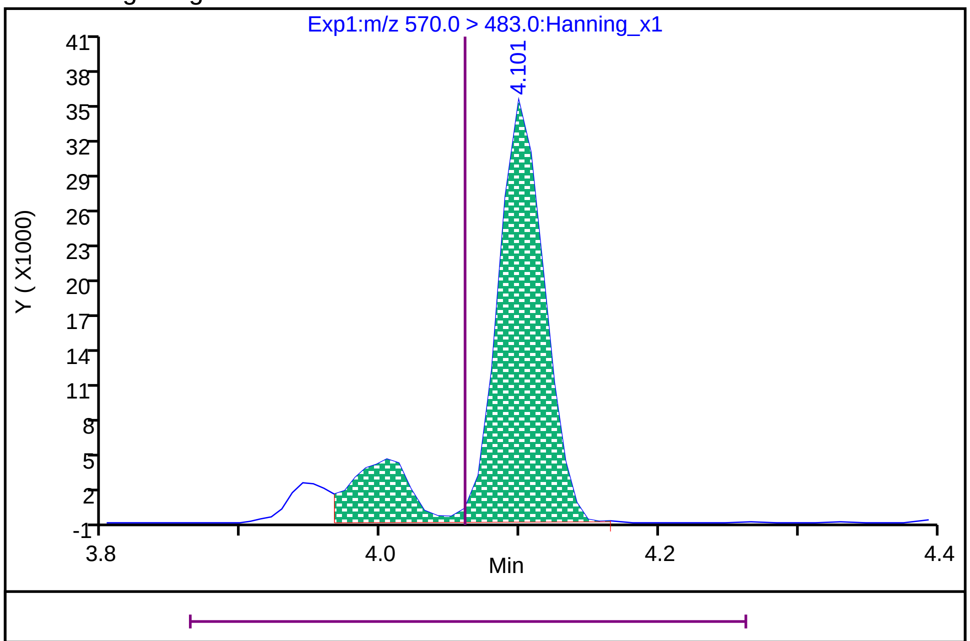
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621076.d		
Injection Date:	07-Nov-2021 01:36:51	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	CCV 1000C_SVLC-1744
Sample Info:	CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Matthew M. Miller

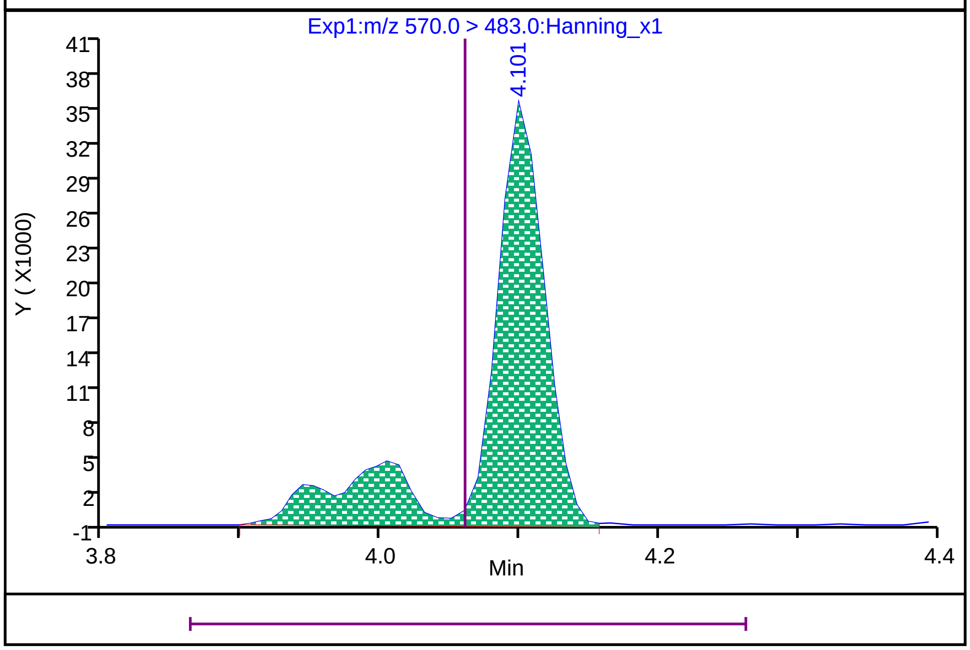
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.101
Area:	97659
Amount:	1094.96
Amount Units:	ng/L



RT:	4.101
Area:	106442
Amount:	1094.96
Amount Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:29:50

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d		
Injection Date:	09-Nov-2021 16:00:05	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	98.944	98.9	70 - 130
D 46 13C4_PFBA	635753	645349			101.5	50 - 150
21 PFPeA			100.00	98.096	98.1	70 - 130
D 50 13C5_PFPeA	580113	572798			98.7	50 - 150
D 44 13C3_PFBS	178463	172627			96.7	50 - 150
7 PFBS			88.400	85.683	96.9	70 - 130
1 4:2 FTS			93.400	125.27	134.1	70 - 130
D 63 13C2_4:2 FTS_2	112299	103302			92	50 - 150
D 49 13C5_PFHxA	664948	672414			101.1	50 - 150
15 PFHxA			100.00	99.382	99.4	70 - 130
22 PFPeS			93.800	90.671	96.7	70 - 130
28 GenX			200.00	192.13	96.1	70 - 130
D 66 13C3_GenX	1204882	1178163			97.8	50 - 150
D 47 13C4_PFHpA	532996	536896			100.7	50 - 150
13 PFHpA			100.00	104.66	104.7	70 - 130
D 45 13C3_PFHxS	129716	113881			87.8	50 - 150
14 PFHxS			91.000	83.954	92.3	70 - 130
29 ADONA			94.200	111.26	118.1	70 - 130
D 64 13C2_6:2 FTS_2	93946	103876			110.6	50 - 150
2 6:2 FTS			94.800	97.032	102.4	70 - 130
20 PFOA			100.00	109.96	110	70 - 130
D 53 13C8_PFOA	547741	548937			100.2	50 - 150
12 PFHpS			95.200	109.83	115.4	70 - 130
D 54 13C8_PFOS	131913	112760			85.5	50 - 150
18 PFOS			92.800	104.25	112.3	70 - 130
17 PFNA			100.00	107.88	107.9	70 - 130
D 56 13C9_PFNA	639032	649289			101.6	50 - 150
30 9Cl-PF3ONS			93.200	116.64	125.2	70 - 130
D 55 13C8_PFOSA	266767	246131			92.3	50 - 150
19 PFOSA			100.00	106.90	106.9	70 - 130
16 PFNS			96.000	113.19	117.9	70 - 130
10 PFDA			100.00	100.98	101	70 - 130
3 8:2 FTS			95.800	94.585	98.7	70 - 130
D 51 13C6_PFDA	575846	631293			109.6	50 - 150
D 65 13C2_8:2 FTS_2	78835	92479			117.3	50 - 150
6 N-MeFOSAA			100.00	96.082	96.1	70 - 130

Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	710191			91.9	50 - 150
D 61 d7-MeFOSE	90070	83560			92.8	50 - 150
32 MeFOSE			100.00	115.05	115	70 - 130
26 MeFOSA			100.00	116.90	116.9	70 - 130
D 57 d3-MeFOSA	44997	43685			97.1	50 - 150
9 PFDS			96.400	120.62	125.1	70 - 130
D 52 13C7_PFUdA	634567	693518			109.3	50 - 150
D 60 d5-EtFOSAA	689688	684113			99.2	50 - 150
25 PFUdA			100.00	96.435	96.4	70 - 130
5 N-EtFOSAA			100.00	89.342	89.3	70 - 130
D 62 d9-EtFOSE	101585	94206			92.7	50 - 150
33 EtFOSE			100.00	128.39	128.4	70 - 130
D 59 d5-EtFOSA	42895	42530			99.1	50 - 150
31 11Cl-PF3OUDS			94.200	109.26	116	70 - 130
27 EtFOSA			100.00	83.847	83.8	70 - 130
D 38 13C2_PFDoA	604291	704128			116.5	50 - 150
11 PFDoA			100.00	101.11	101.1	70 - 130
4 10:2 FTS			96.400	114.20	118.5	70 - 130
34 PFDOS			96.800	103.63	107.1	70 - 130
24 PFTrDA			100.00	99.127	99.1	70 - 130
D 42 13C2_PFTeDA	838224	946932			113	50 - 150
23 PFTeDA			100.00	99.043	99	70 - 130
D 40 13C2_PFHxDA	877835	912699			104	50 - 150
35 PFHxDA			100.00	106.41	106.4	70 - 130
36 PFODA			100.00	106.45	106.5	70 - 130

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d		
Injection Date:	09-Nov-2021 16:00:05	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	-5	645349	21	>100:1			1000.00	1038.08	101.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/5	67342	21	74:1			100.00	98.944		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.098	0	572798	15	>100:1			1000.00	1002.11	98.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.098	1/1	63241	17	65:1			100.00	98.096		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	0	172627	17	>100:1			1000.00	998.02	96.7	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.162	0/0	18445	21	>100:1	Target = 3.53		88.400	85.683		
298.9 > 99	44	2.162	2.162		5134	12	40:1	3.59 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.505	2.505	0/0	14506	18	93:1	Target = 3.10		93.800	90.671		
349 > 99	44	2.505	2.505		4517	17	39:1	3.21 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	-1	103302	16	>100:1			5000.00	4562.06	92	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	0/1	5705	17	63:1	Target = 1.75		93.400	125.27		
327 > 81	63	2.424	2.424		3571	23	3.3:1	1.59 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.469	8	672414	18	>100:1			1000.00	1032.44	101.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	0/-8	69483	19	76:1	Target = 18.91		100.00	99.382		
313 > 119	49	2.469	2.469		2735	13	15:1	25.40 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1178163	19	>100:1			5000.00	5083.63	97.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	0/0	29320	15	>100:1	Target = 0.79		200.00	192.13		
285 > 185	66	2.583	2.583		38332	20	>100:1	0.76 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	-9	536896	18	>100:1			1000.00	1011.22	100.7	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/9	61745	16	89:1	Target = 3.80		100.00	104.66		
363 > 169	47	2.854	2.845		13818	17	48:1	4.46 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	0	113881	18	>100:1			1000.00	906.41	87.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	0/0	10511	25	58:1	Target = 2.89	4.50	91.000	83.954		
399 > 99	45	2.864	2.864		3952	46	44:1	2.65 (1.44-4.34)	31.13				

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.888	2.888	0/0	98264	17	>100:1	Target = 3.23		94.200	111.26		
377 > 85	45	2.888	2.888		27577	16	>100:1	3.56 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													a
449 > 80	45	3.247	3.247	1/1	12846	19	>100:1	Target = 3.12		95.200	109.83		
449 > 99	45	3.226	3.247		3319	11	30:1	3.87 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.213	3.213	0	103876	21	>100:1			5000.00	5770.90	110.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.213	3.213	0/0	4772	20	42:1	Target = 1.75		94.800	97.032		
427 > 81	64	3.213	3.213		3459	18	3.8:1	1.37 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.240	3.240	0	548937	21	>100:1			1000.00	1046.24	100.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.240	3.240	0/0	61858	20	54:1	Target = 2.89		100.00	109.96		
413 > 169	53	3.240	3.240		19954	18	85:1	3.10 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.623	3.623	0	112760	19	>100:1			1000.00	910.51	85.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.623	3.623	0/0	13997	36	53:1	Target = 3.30	3.31	92.800	104.25		
499 > 99	54	3.623	3.623		4014	29	48:1	3.48 (1.65-4.95)	6.77				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.828	3.828	8/8	49811	19	>100:1			93.200	116.64		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.971	3.971	0/0	10240	11	84:1	Target = 3.08		96.000	113.19		
549 > 99	54	3.971	3.971		4436	15	41:1	2.30 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.274	4.274	0/0	10643	17	69:1	Target = 2.72		96.400	120.62		
599 > 99	54	4.274	4.274		4317	21	35:1	2.46 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.443	4.443	0/0	42178	19	>100:1			94.200	109.26		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.796	4.796	0/0	10048	24	>100:1	Target = 3.27		96.800	103.63		
699 > 99	54	4.790	4.796		3559	23	52:1	2.82 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.623	3.623	2	649289	21	>100:1			1000.00	1013.92	101.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.623	3.623	0/-2	75501	21	>100:1	Target = 6.51		100.00	107.88		
463 > 169	56	3.630	3.623		7677	15	56:1	9.83 (3.25-9.76)					J
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.893	3.893	-11	246131	17	>100:1			1000.00	918.20	92.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.893	3.893	1/12	27685	17	81:1	Target = 41.63		100.00	106.90		
498>478	55	3.901	3.893		630	10	6.9:1	43.94 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.981	3.981	0	631293	15	>100:1			1000.00	1098.55	109.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.981	3.981	0/0	74187	15	>100:1	Target = 13.80		100.00	100.98		
513 > 169	51	3.981	3.981		4186	11	18:1	17.72 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.981	3.981	0	92479	17	>100:1			5000.00	5350.40	117.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.981	3.981	0/0	3953	15	17:1	Target = 1.94		95.800	94.585		
527 > 81	65	3.981	3.981		2911	10	15:1	1.35 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.577	4.577	-1/-1	5358	21	33:1	Target = 3.54		96.400	114.20		
627 > 80	65	4.594	4.577		1903	12	23:1	2.81 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.139	4.139	0	710191	16	>100:1			5000.00	4699.75	91.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.148	4.148	0/0	10951	27	54:1	Target = 1.37	6.50	100.00	96.082		
570 > 483	58	4.139	4.148		8187	33	43:1	1.33 (0.68-2.05)	9.03				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.304	4.304	1	83560	14	>100:1			1000.00	926.50	92.8	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.314	4.314	1/0	10506	14	66:1			100.00	115.05		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.325	4.325	1	43685	13	>100:1			1000.00	928.65	97.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.335	4.335	2/1	5535	16	46:1	Target = 1.11		100.00	116.90		
512 > 219	57	4.325	4.335		5635	12	53:1	0.98 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.294	4.294	2	684113	16	>100:1			5000.00	5282.19	99.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.304	4.304	0/-2	11919	22	46:1	Target = 1.51	6.13	100.00	89.342		M
584 > 526	60	4.314	4.304		10279	26	52:1	1.15 (0.75-2.26)	2.52				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.294	4.294	0	693518	15	>100:1			1000.00	1151.54	109.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.294	4.294	0/0	64804	15	>100:1	Target = 14.52		100.00	96.435		
563 > 169	52	4.294	4.294		4669	12	15:1	13.87 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.470	4.470	2	94206	17	>100:1			1000.00	888.09	92.7	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													a
630 > 59	62	4.479	4.479	13/11	11774	11	92:1			100.00	128.39		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.488	4.488	1	42530	15	>100:1			1000.00	989.07	99.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.497	4.497	2/1	4890	26	30:1	Target = 1.06		100.00	83.847		
526 > 219	59	4.497	4.497		5435	15	50:1	0.89 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.577	4.577	-3	704128	17	>100:1			1000.00	1172.89	116.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.577	4.577	0/3	75895	24	17:1	Target = 10.70		100.00	101.11		
613 > 169	38	4.577	4.577		6605	15	87:1	11.49 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.822	4.822	-1/2	73364	17	>100:1	Target = 8.31		100.00	99.127		
663 > 169	38	4.813	4.822		8185	18	>100:1	8.96 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.042	5.042	-1	946932	21	>100:1			1000.00	1164.75	113	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.048	5.048	-1/0	81870	20	13:1	Target = 12.17		100.00	99.043		
713 > 169	42	5.048	5.048		6026	17	53:1	13.58 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.454	5.454	-2	912699	19	>100:1			1000.00	1051.45	104	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.461	5.461	-2/0	62202	20	11:1	Target = 10.43		100.00	106.41		
813 > 269	40	5.461	5.461		5151	16	>100:1	12.07 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.875	5.875	-4/-2	88451	27	>100:1	Target = 13.67		100.00	106.45		
913 > 319	40	5.871	5.875		5578	32	>100:1	15.85 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.981	3.981	0	724526	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	0	681818	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.240	3.240	1	559725	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	-5	578190	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.623	3.623	0	110672	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

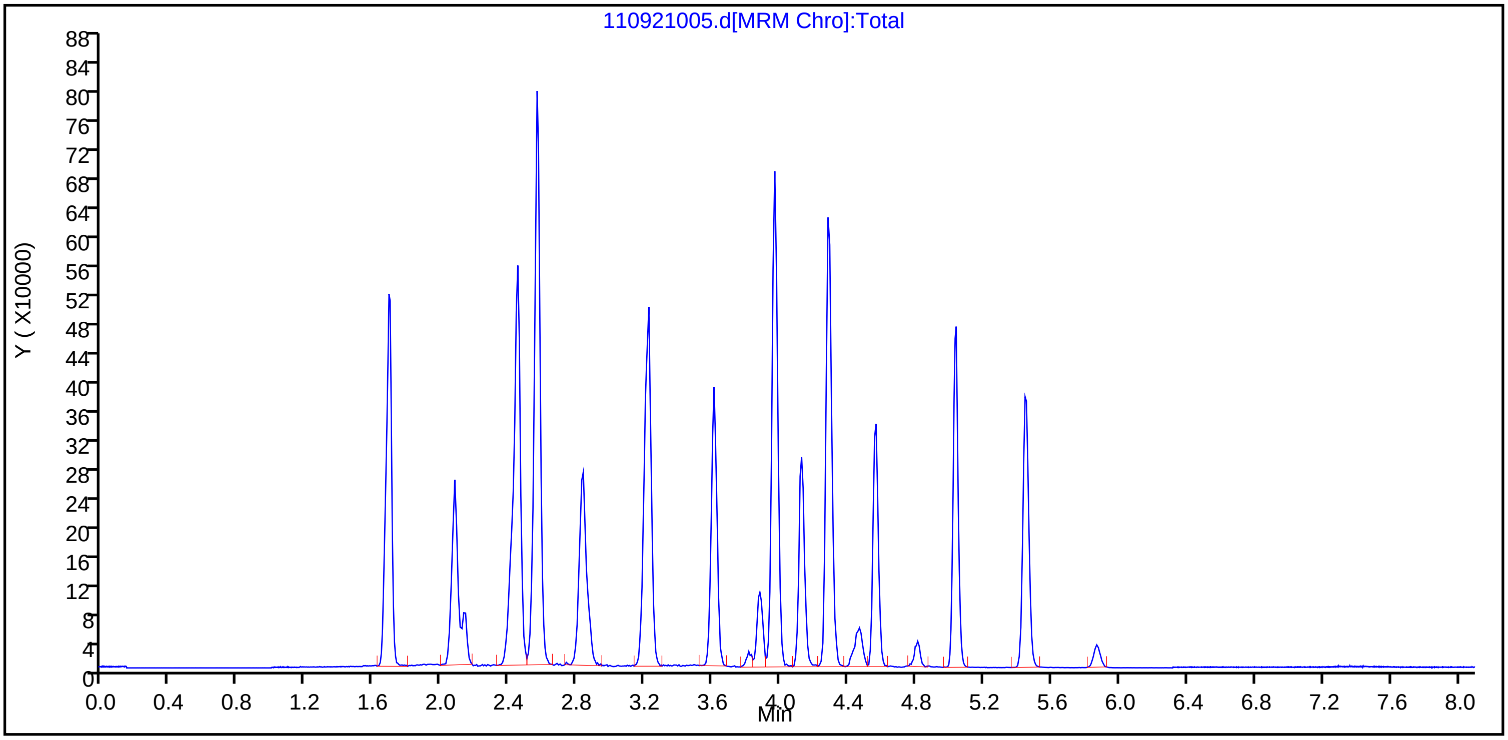
QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

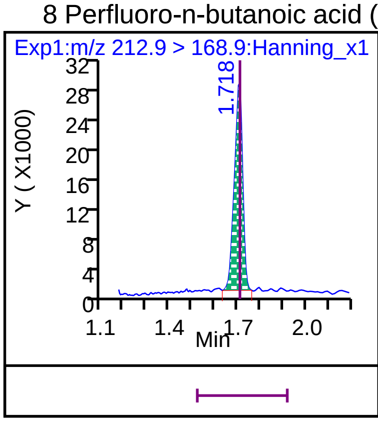
Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

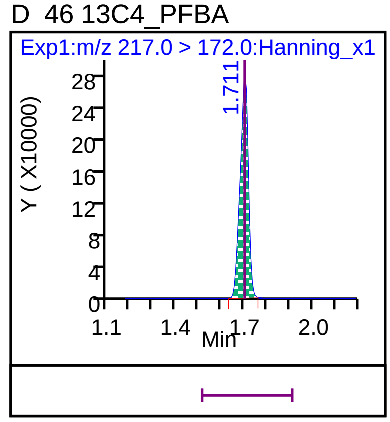
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d		
Injection Date:	09-Nov-2021 16:00:05	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



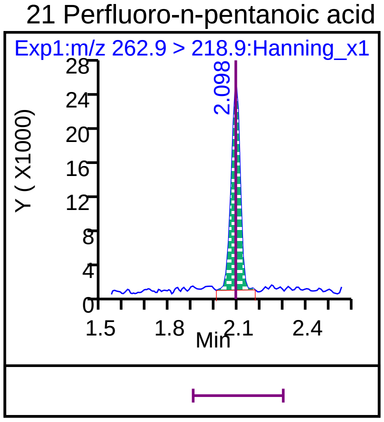
8 Perfluoro-n-butanoic acid (PFBA)



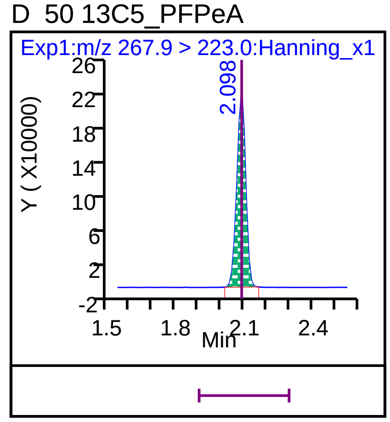
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

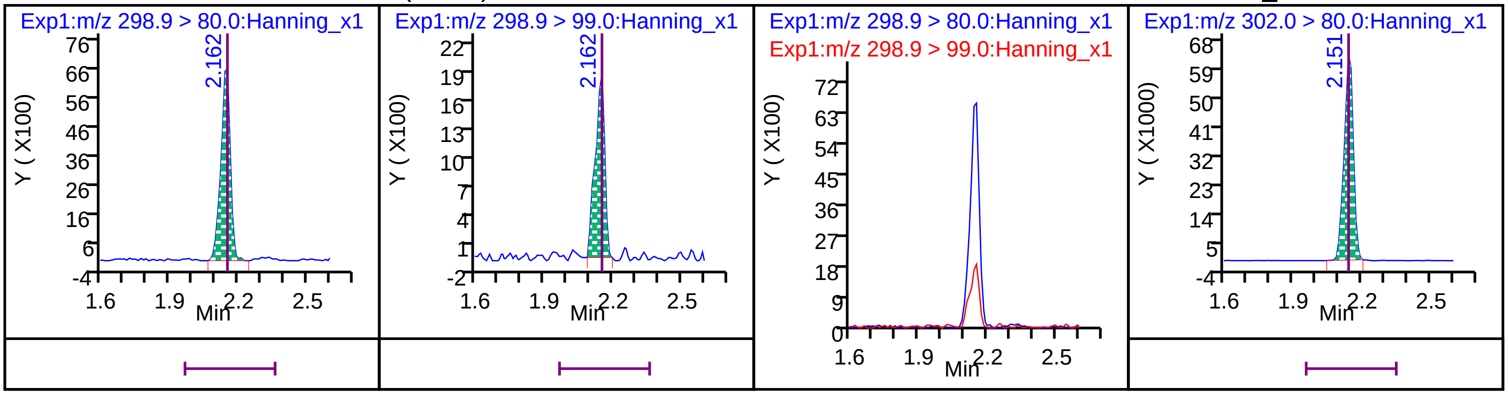


D 50 13C5_PFPeA

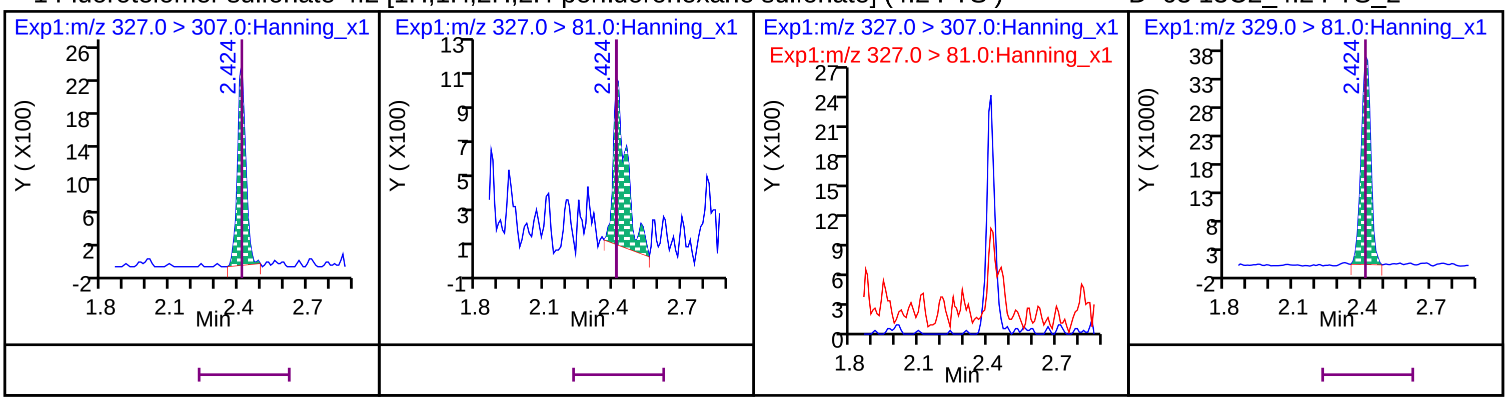


Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d

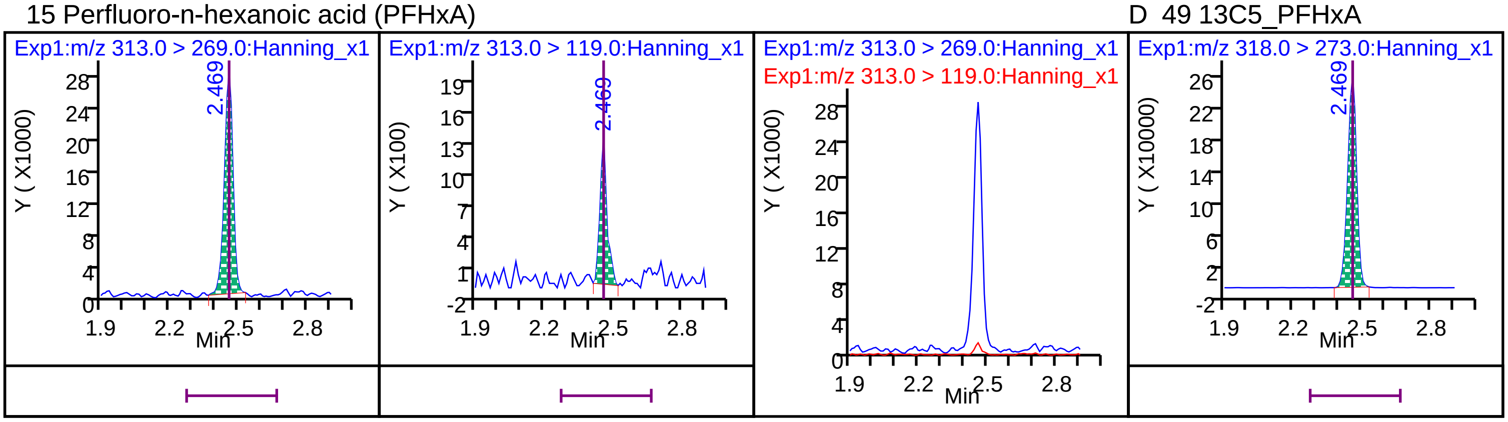
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



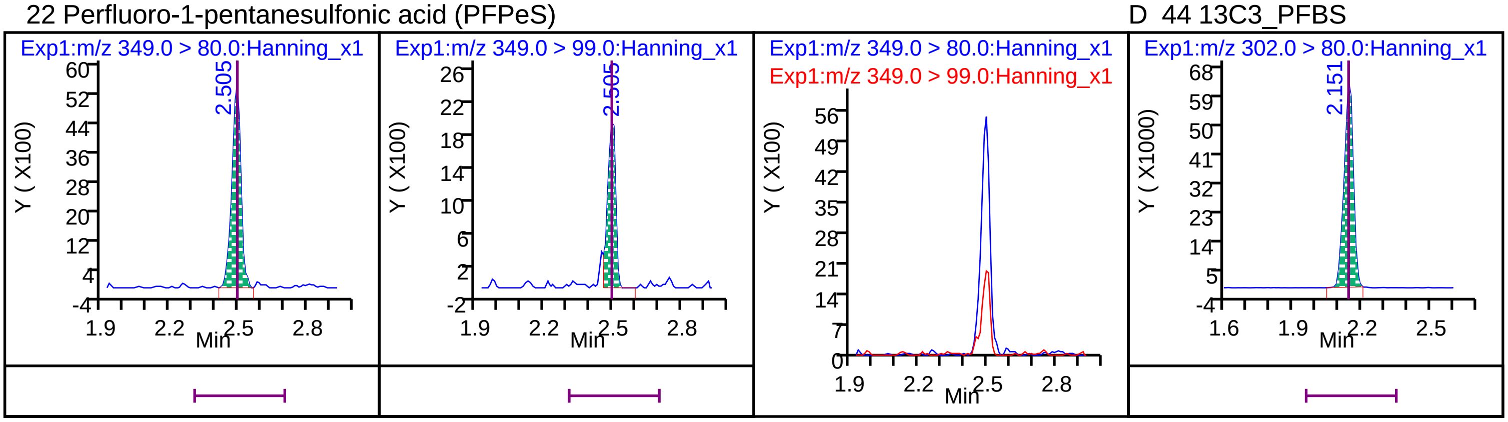
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

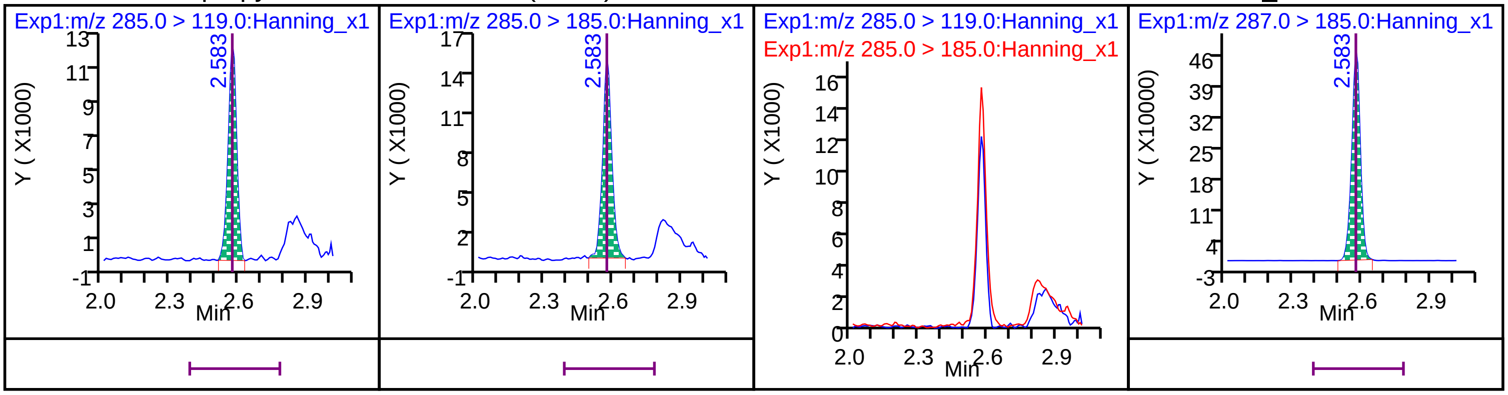


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

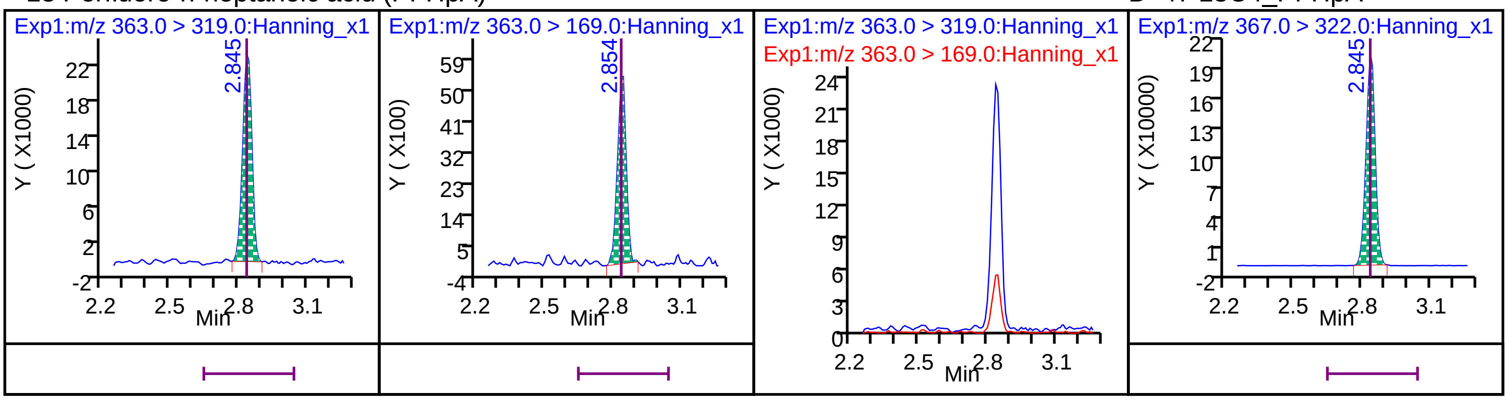


Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d

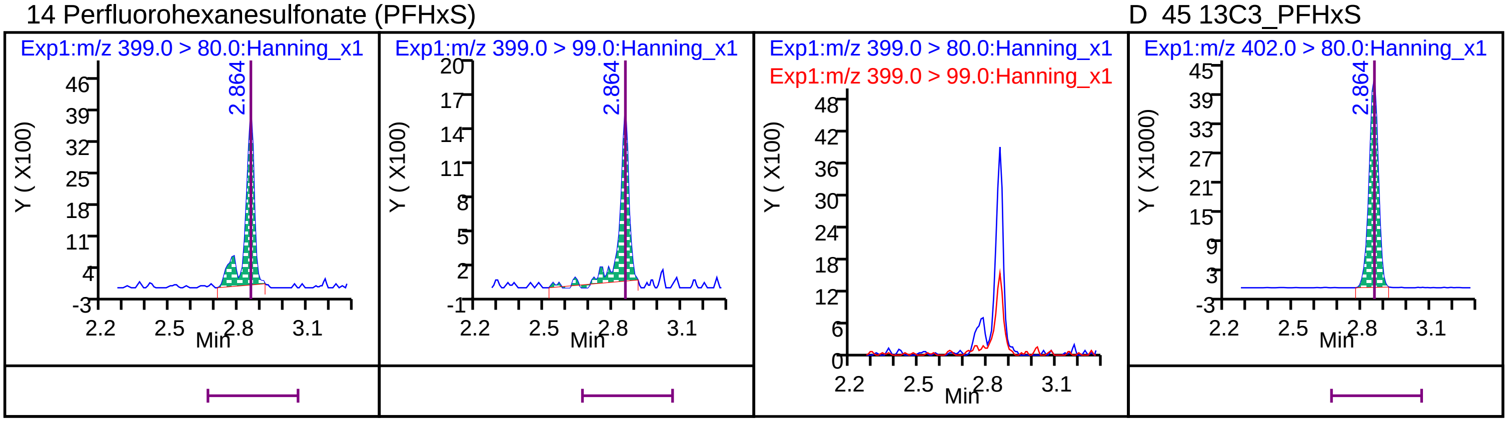
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



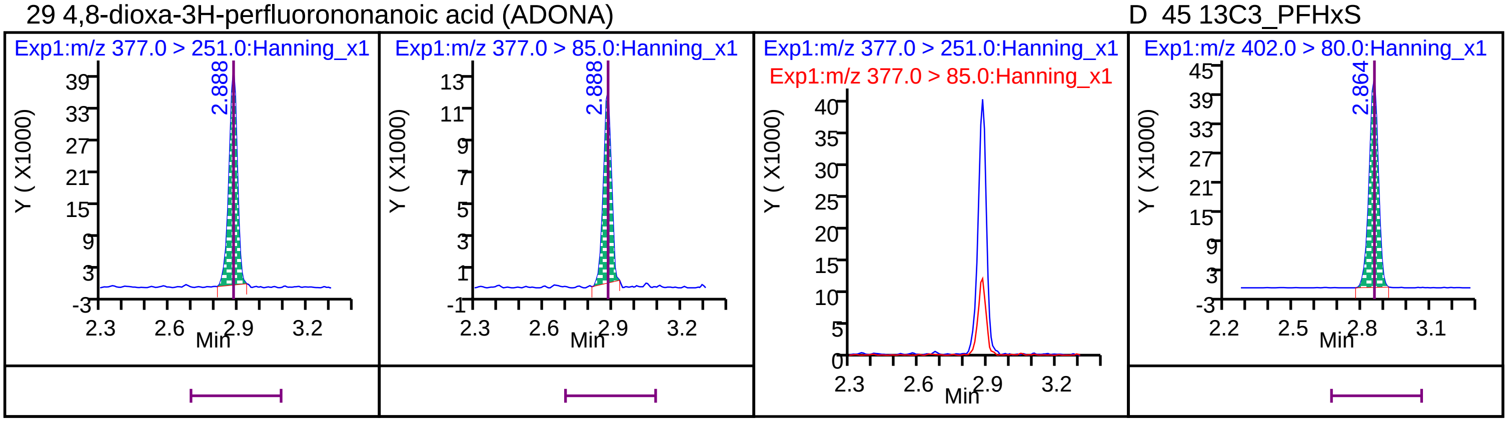
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



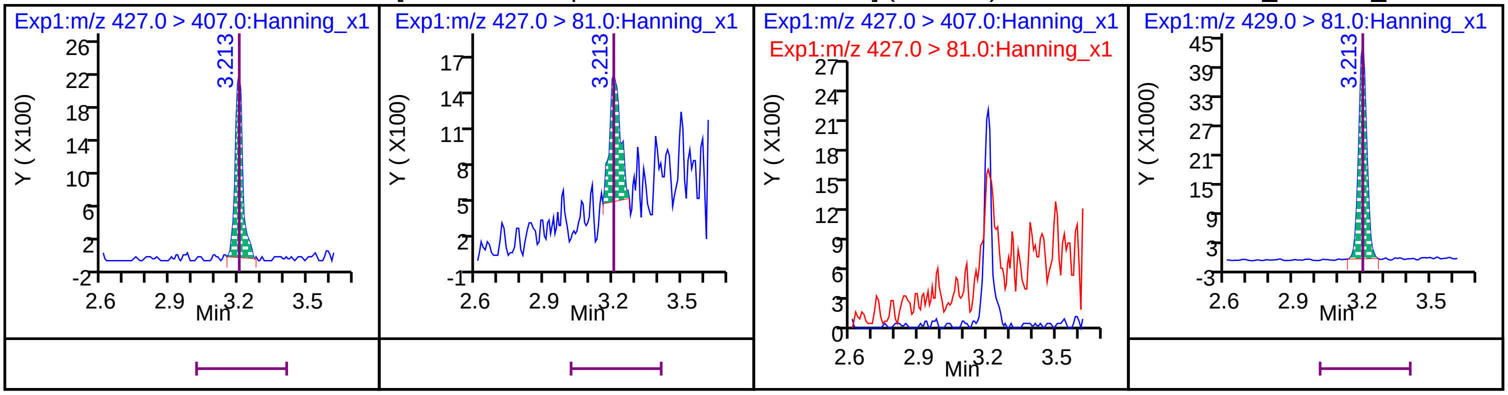
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



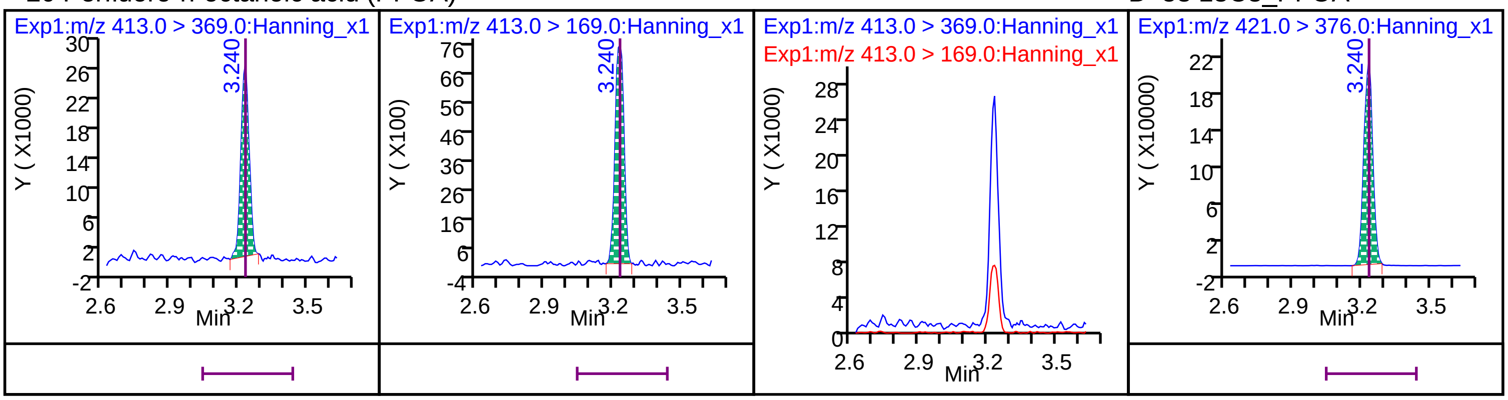
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



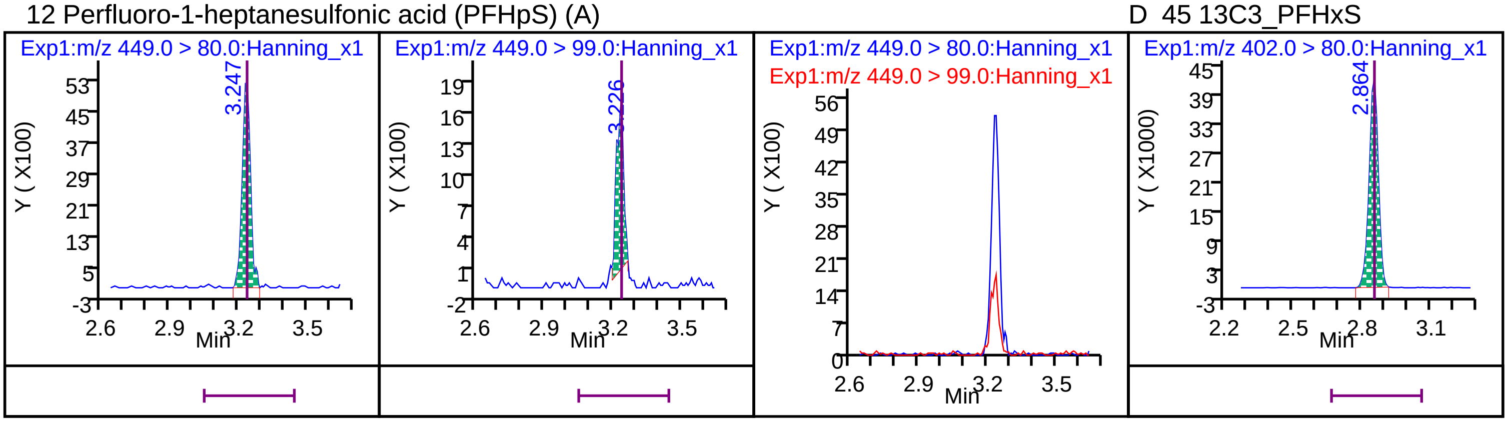
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



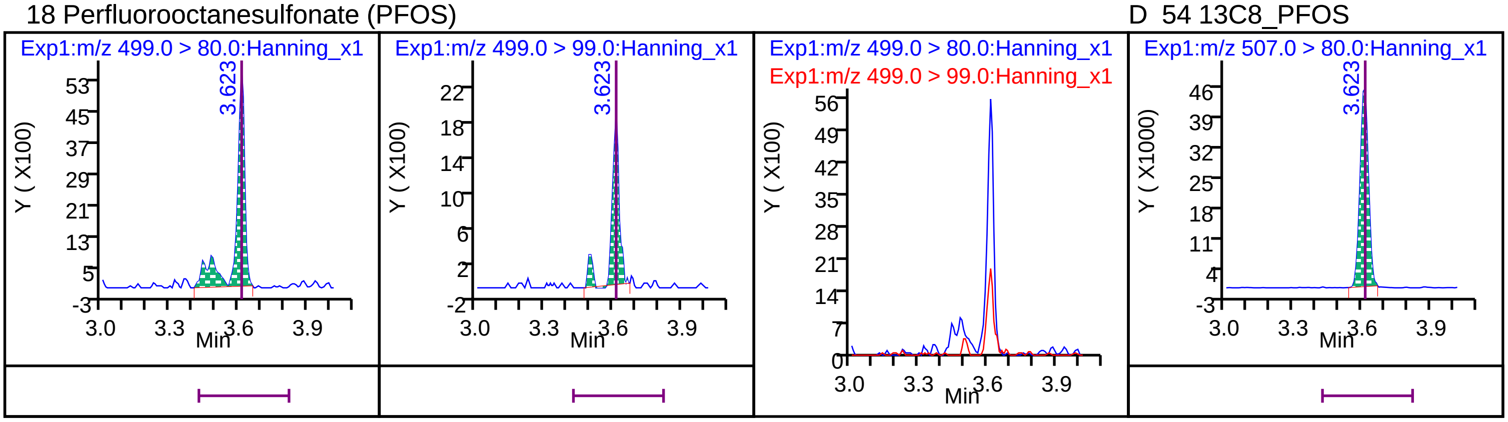
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



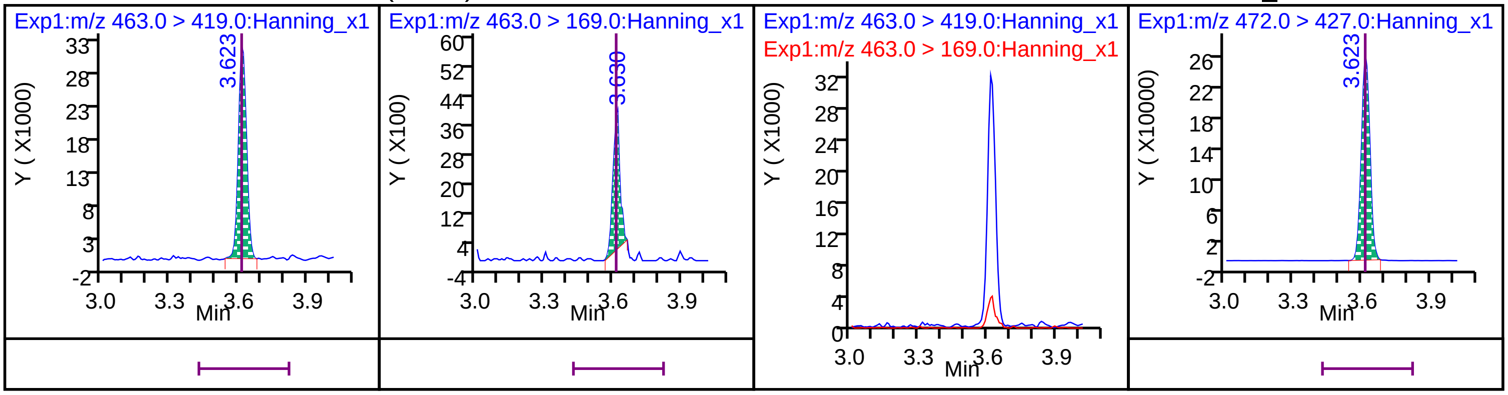
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (A) D 45 13C3_PFHxS



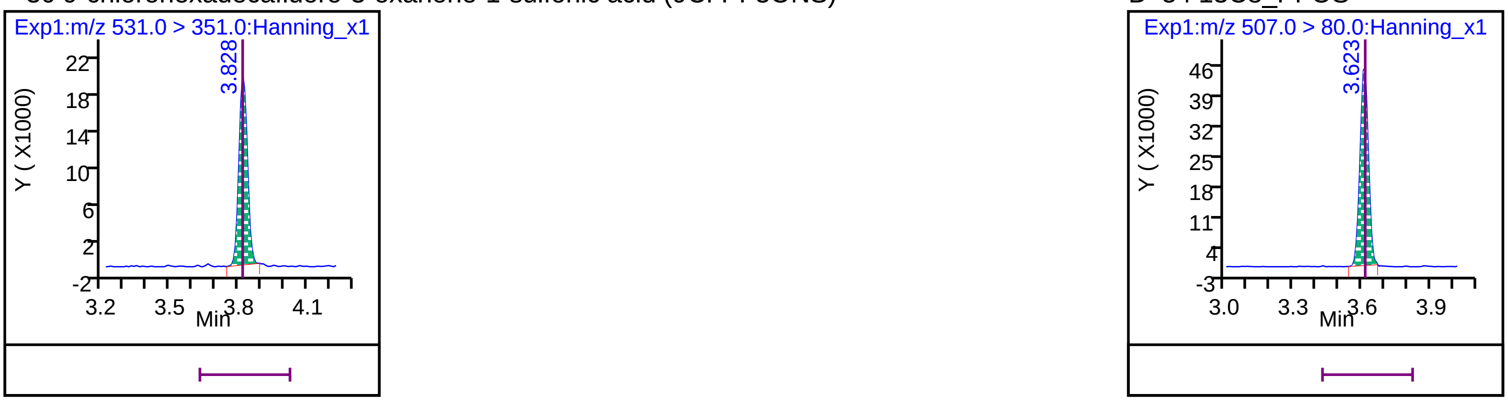
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



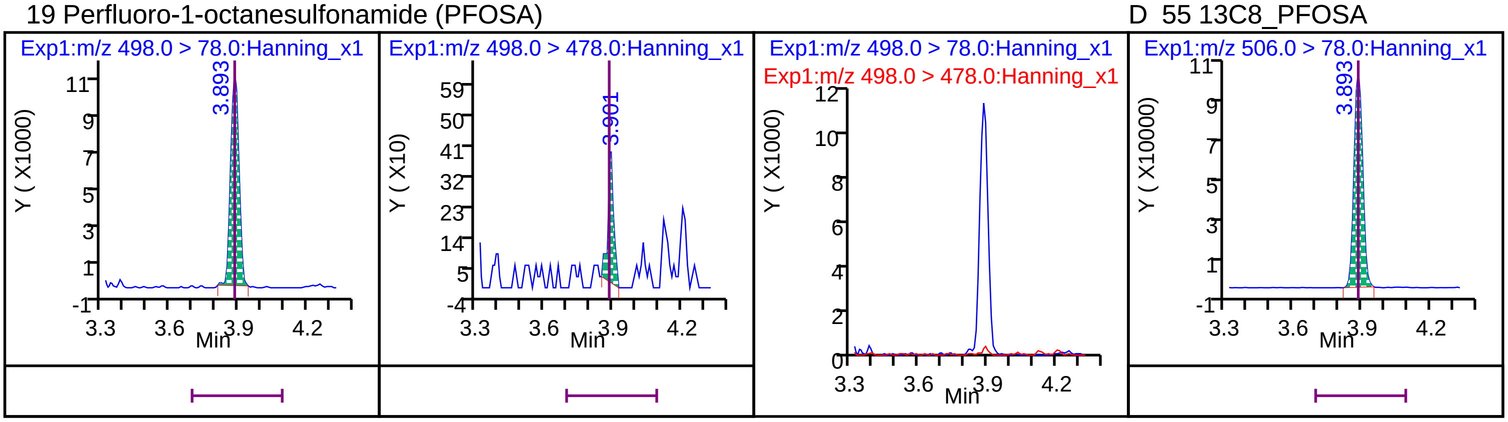
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



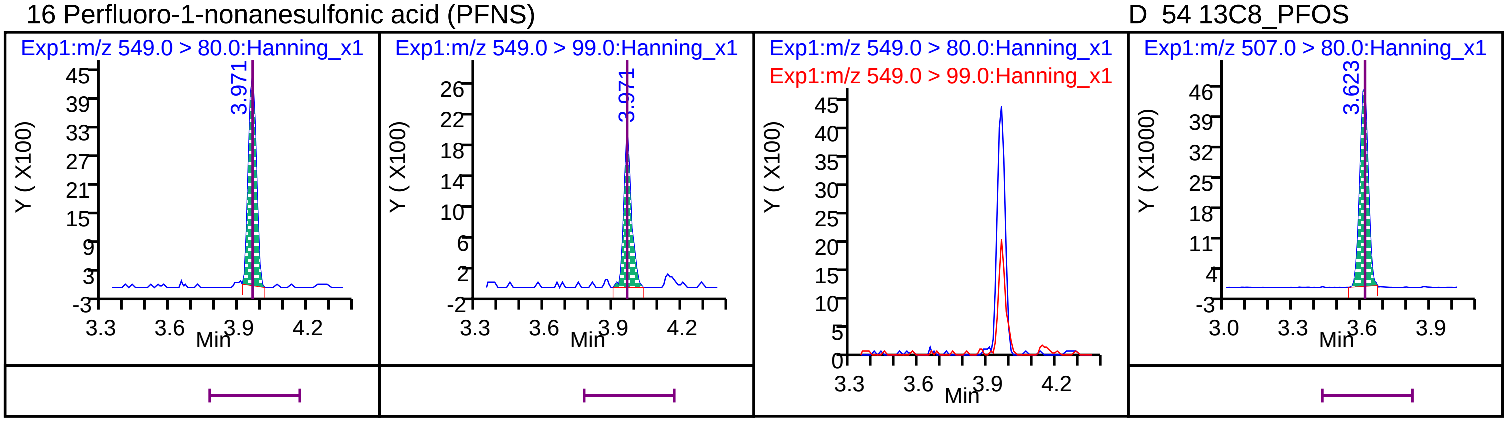
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



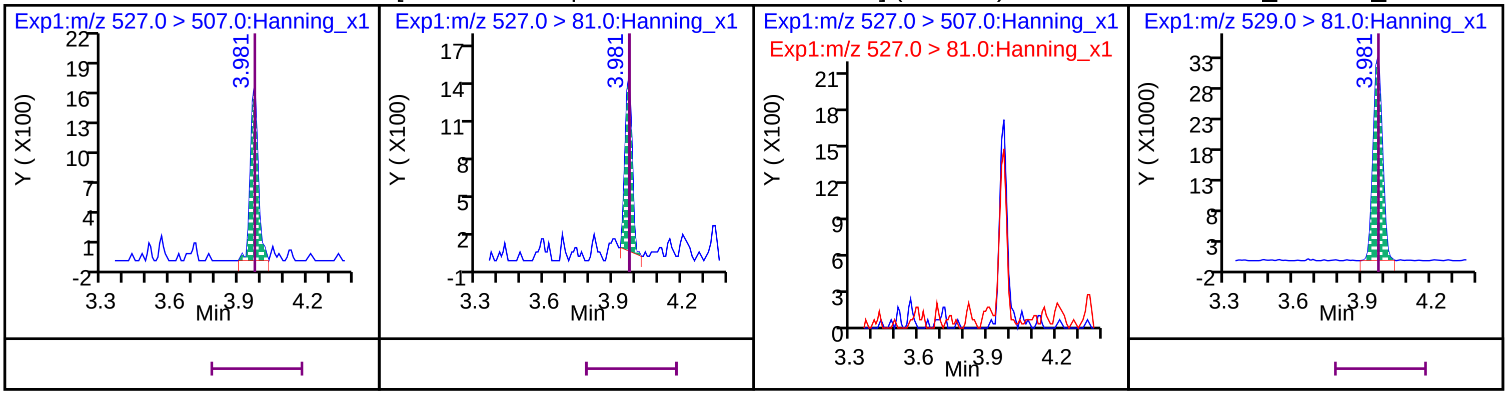
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



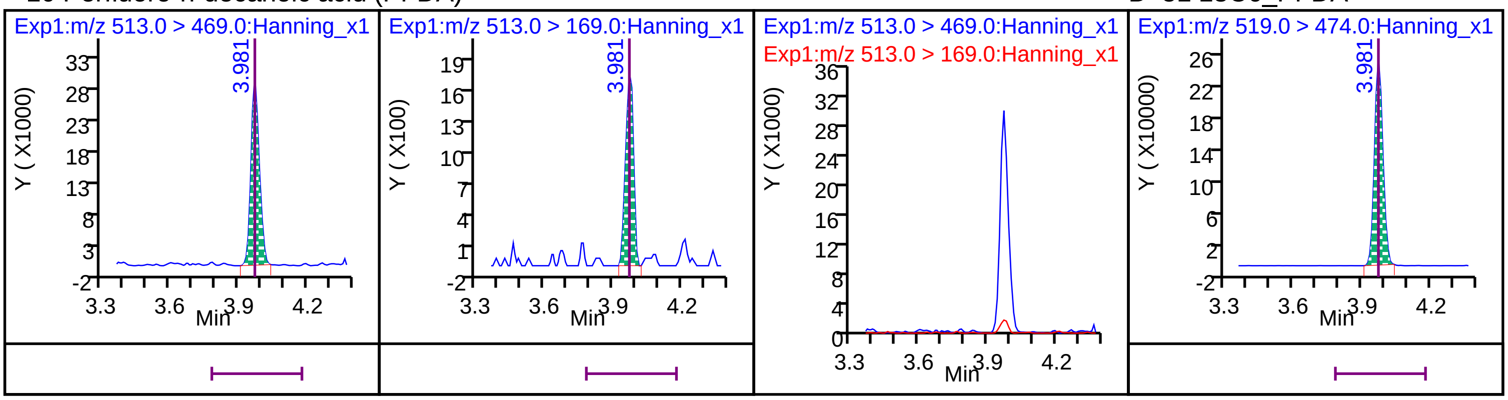
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



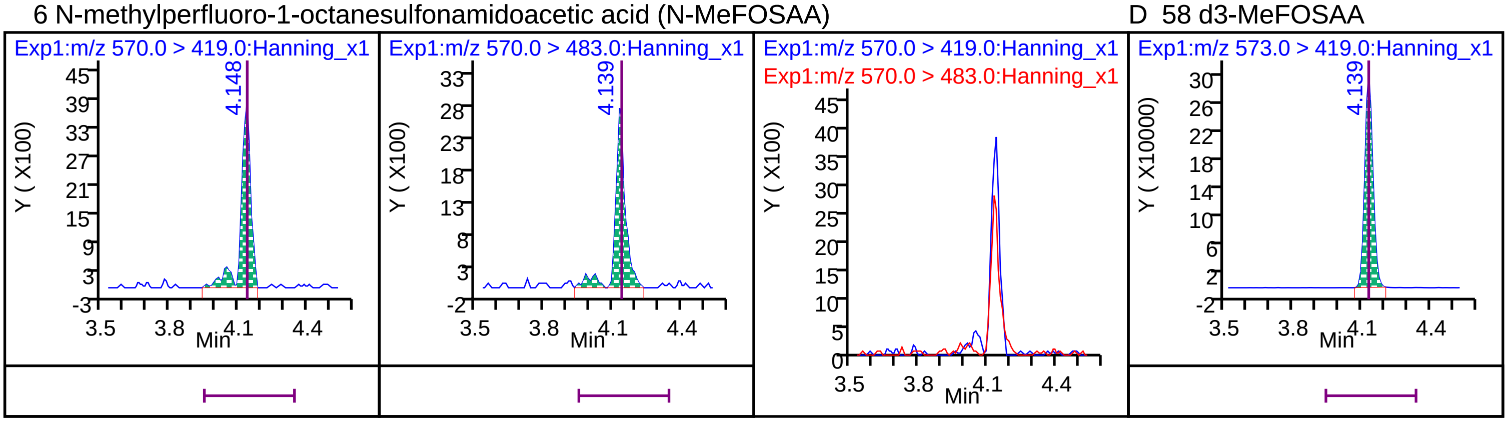
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



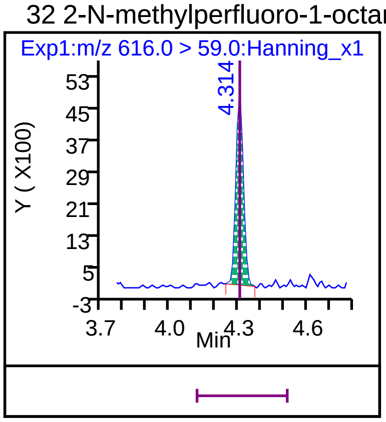
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

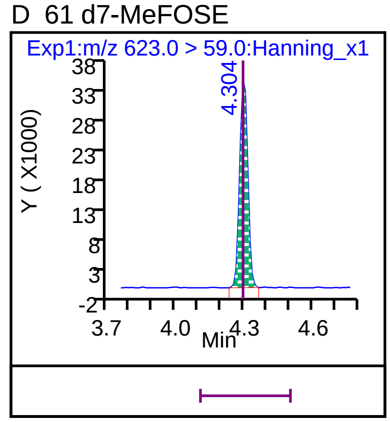


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

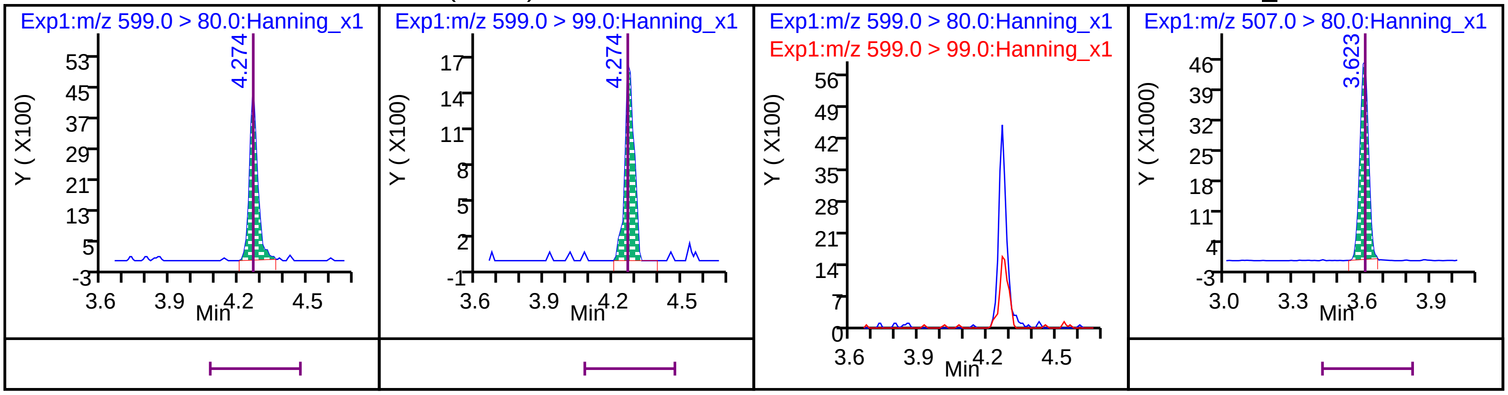


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

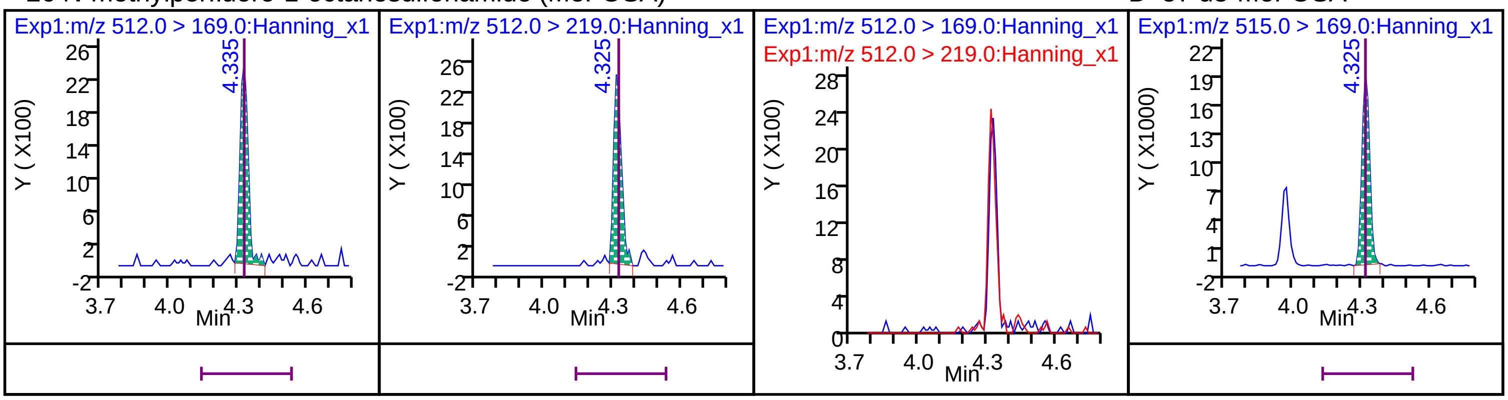




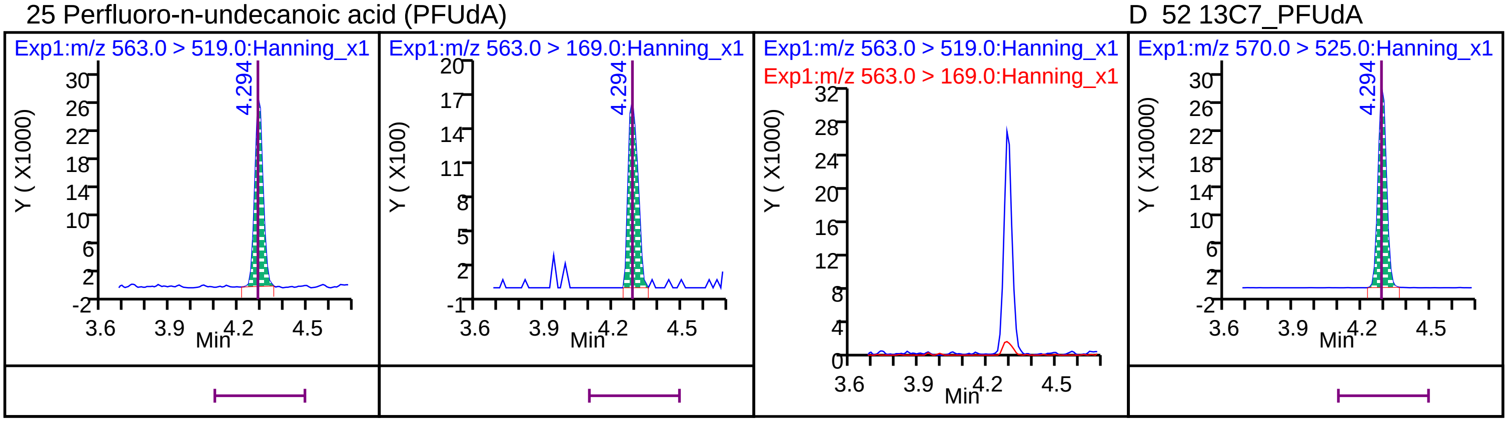
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



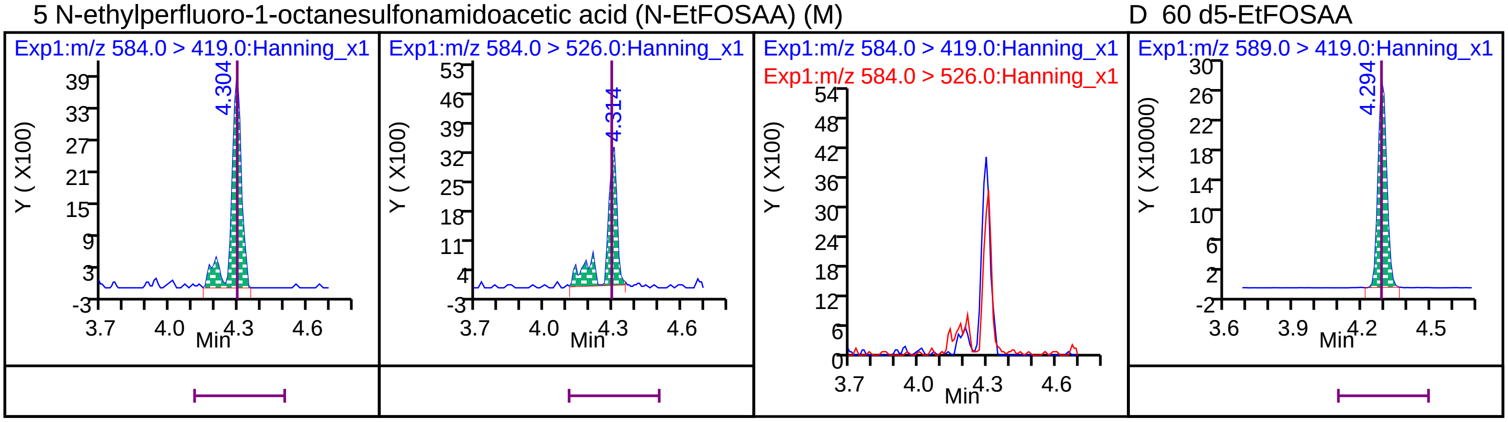
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



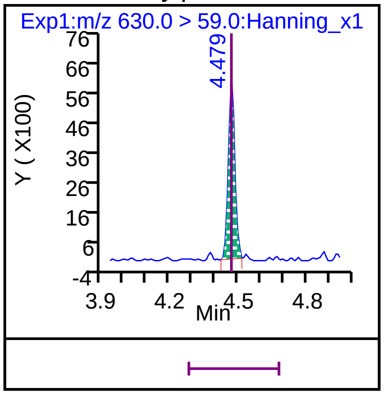
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



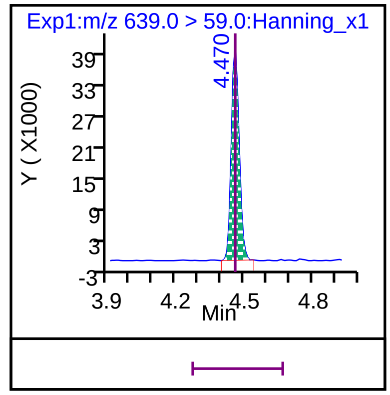
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



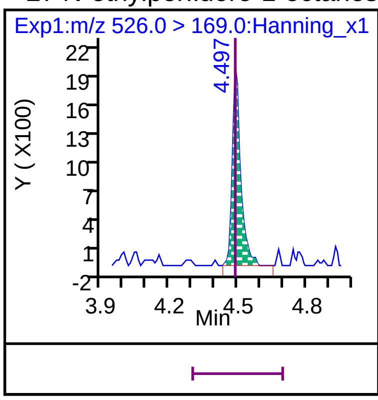
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (A)

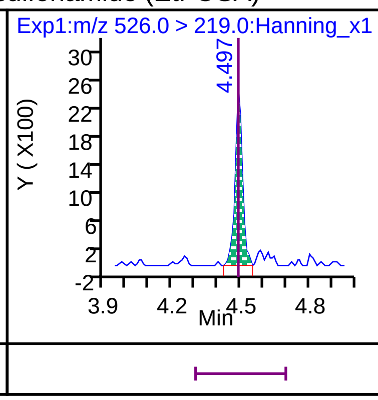


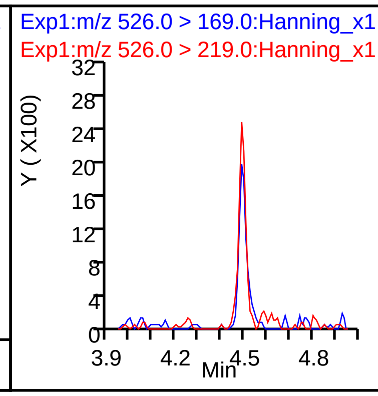
D 62 d9-EtFOSE



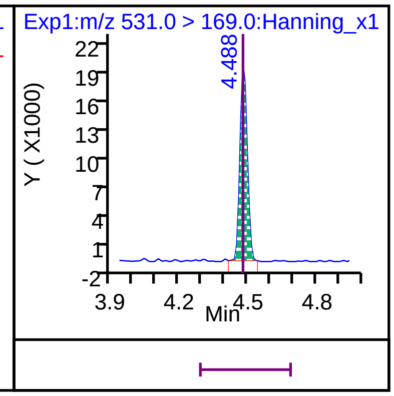
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



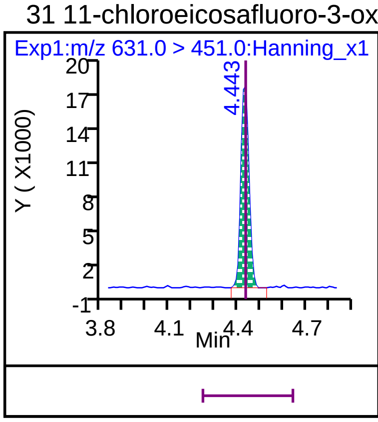




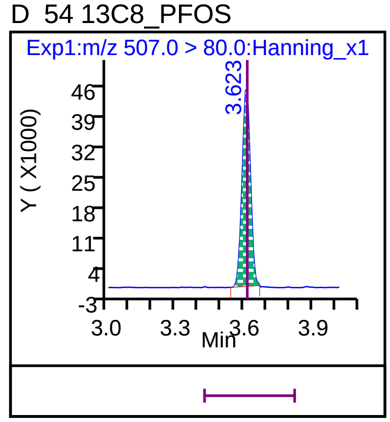
D 59 d5-EtFOSA



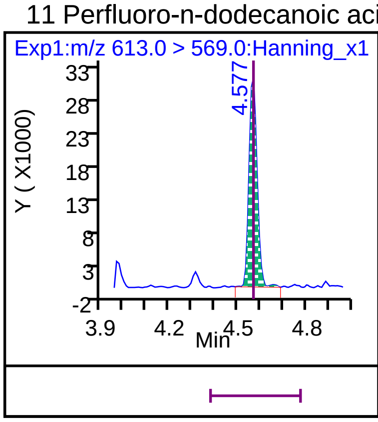
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

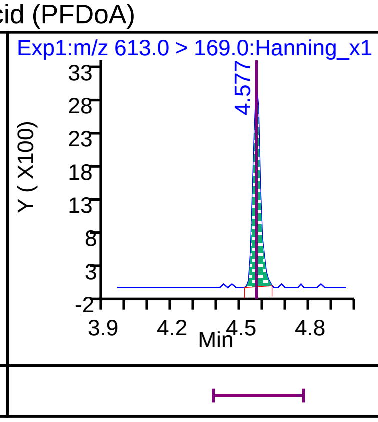


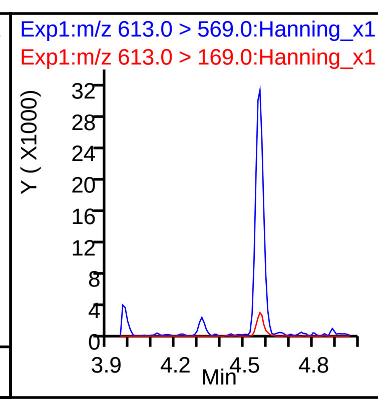
D 54 13C8_PFOS



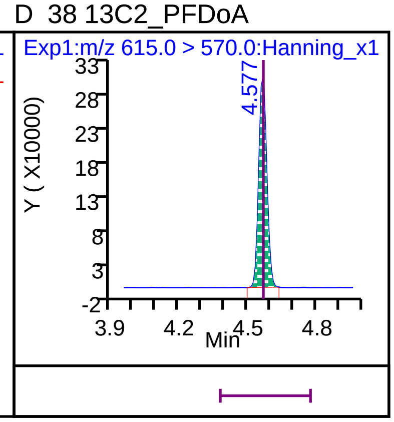
11 Perfluoro-n-dodecanoic acid (PFDoA)





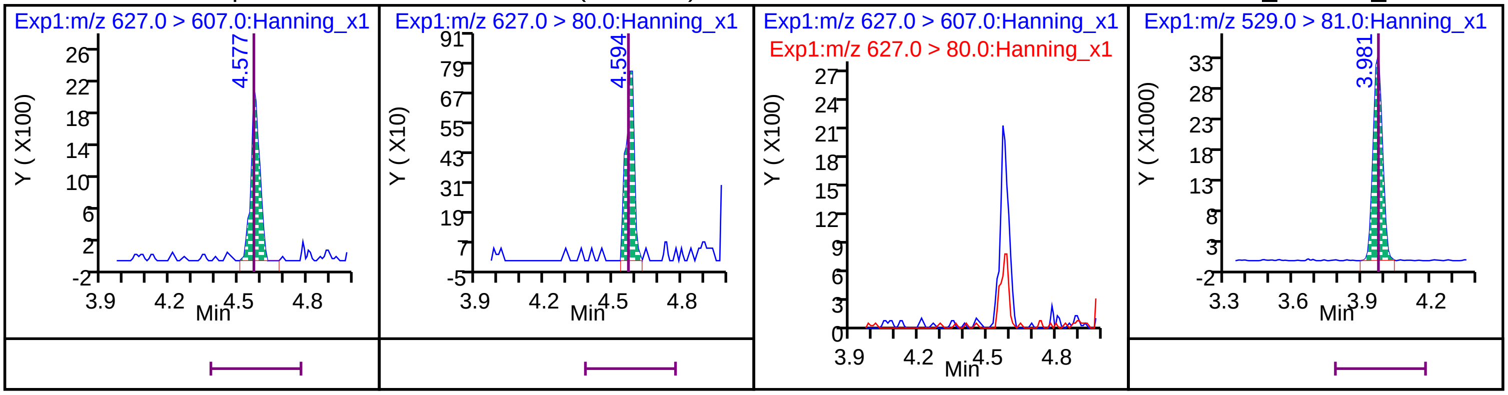


D 38 13C2_PFDoA

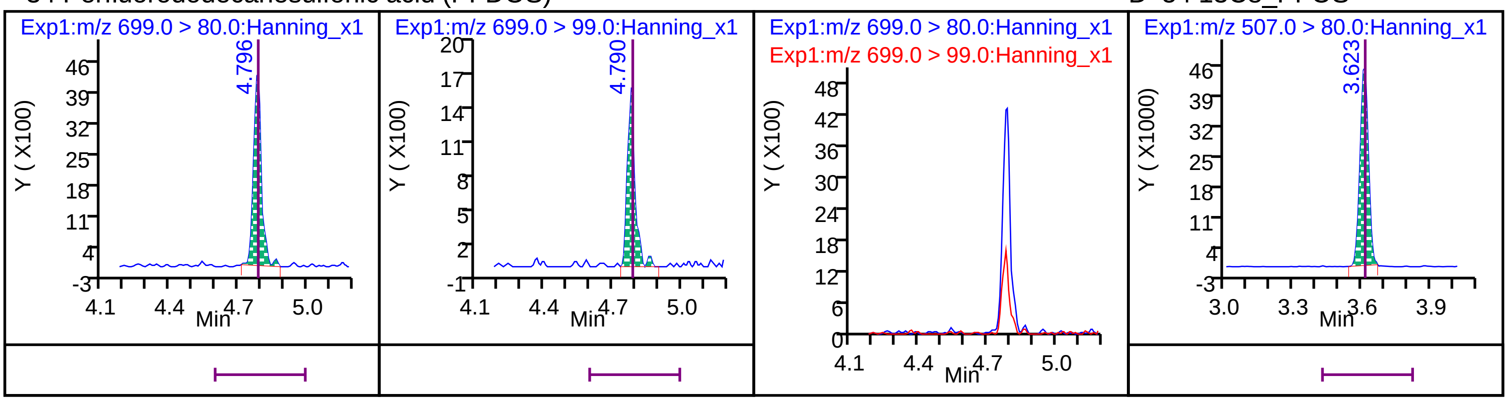


Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d

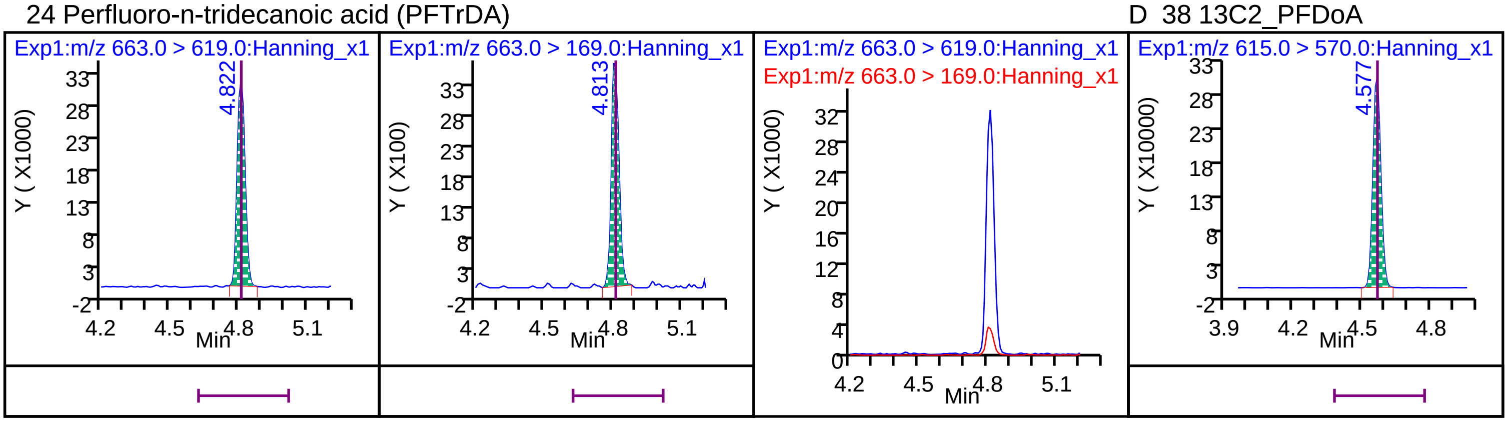
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



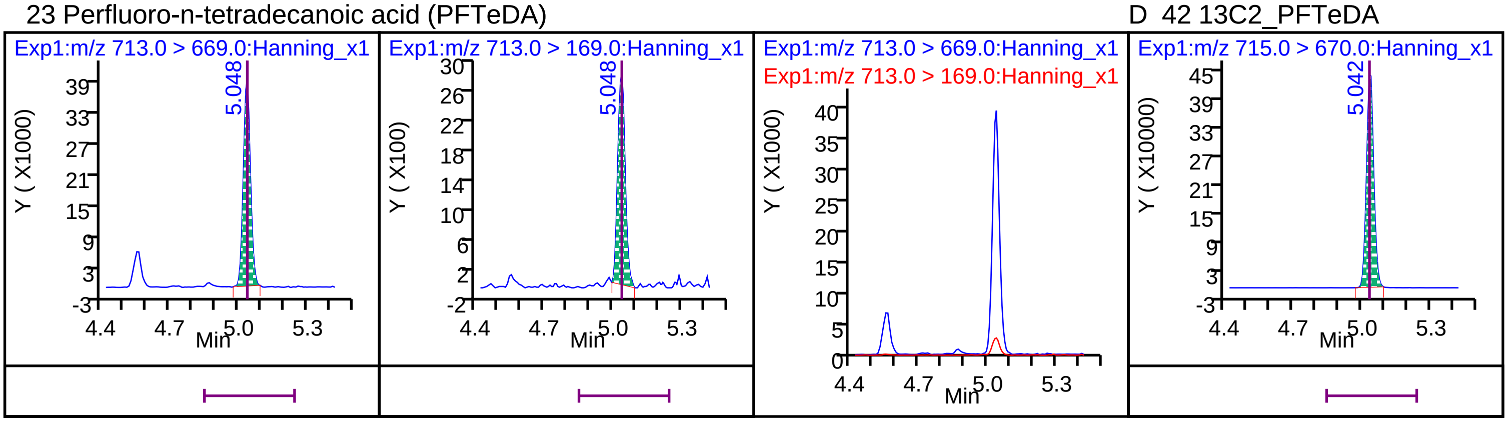
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



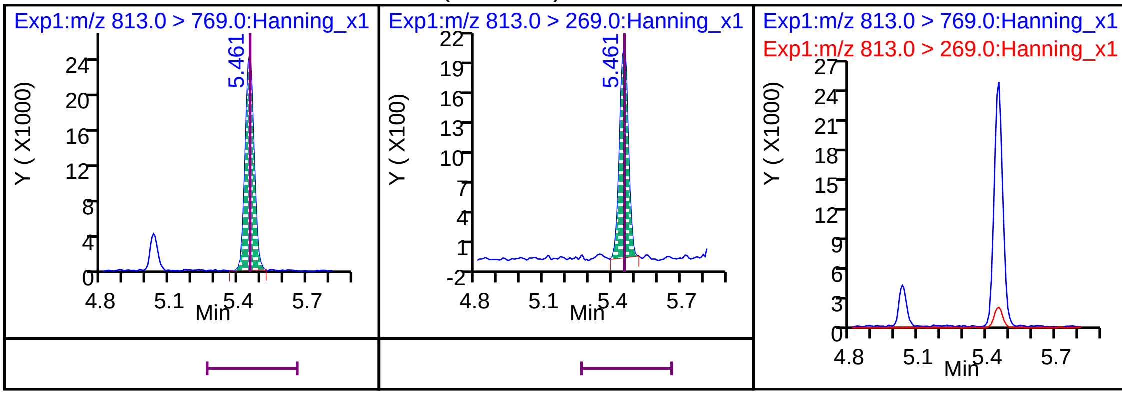
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



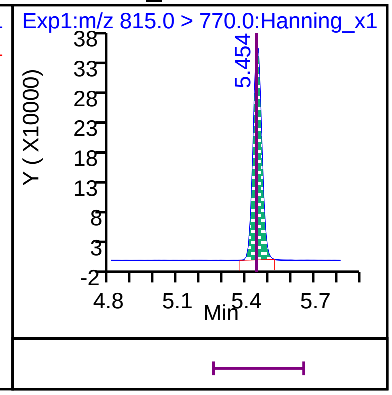
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



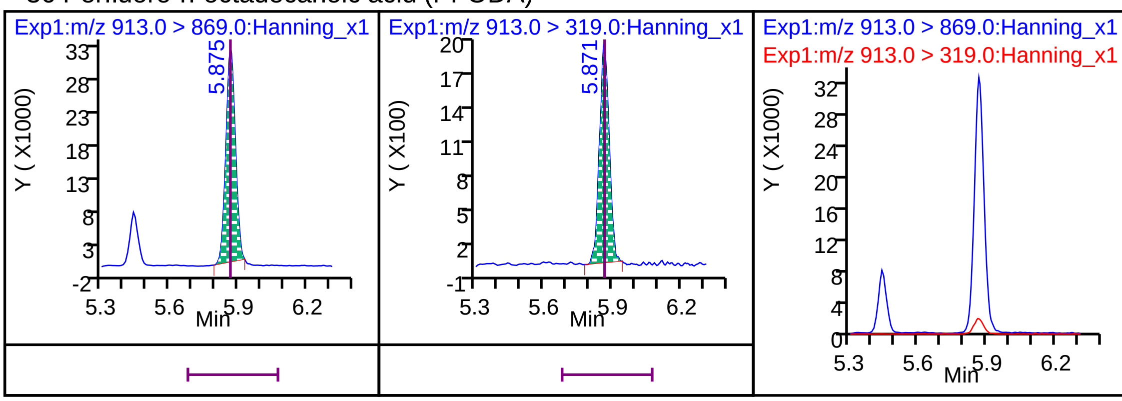
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



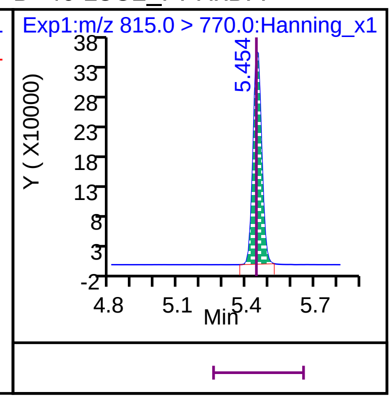
D 40 13C2_PFHxDA



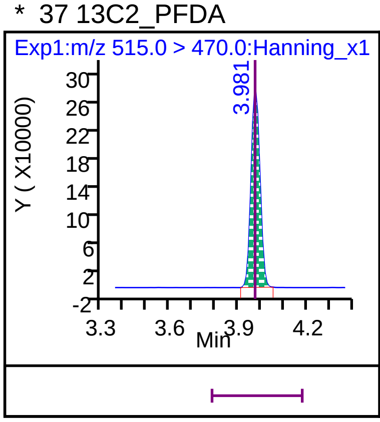
36 Perfluoro-n-octadecanoic acid (PFODA)



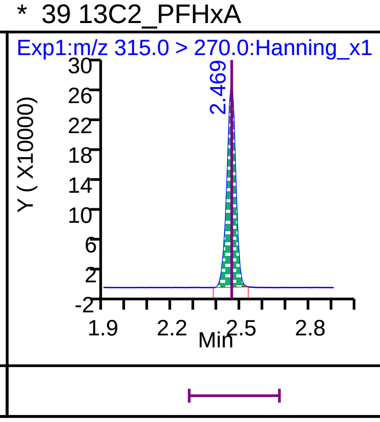
D 40 13C2_PFHxDA



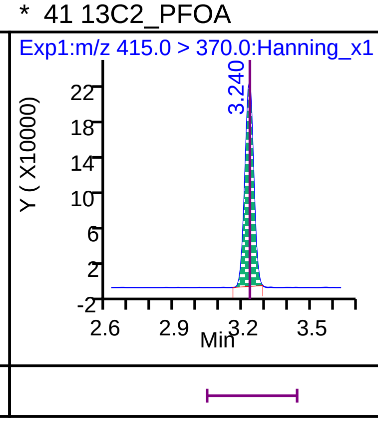
* 37 13C2_PFDA



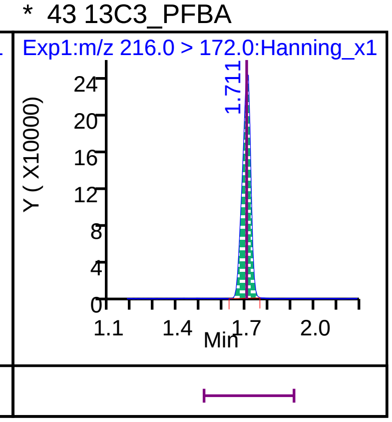
* 39 13C2_PFHxA



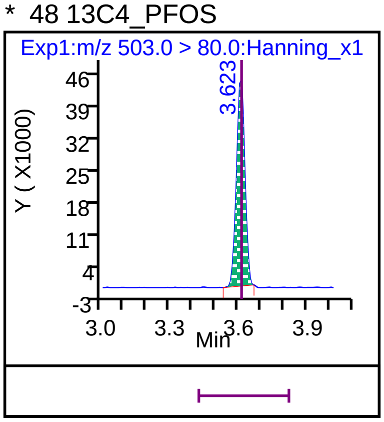
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

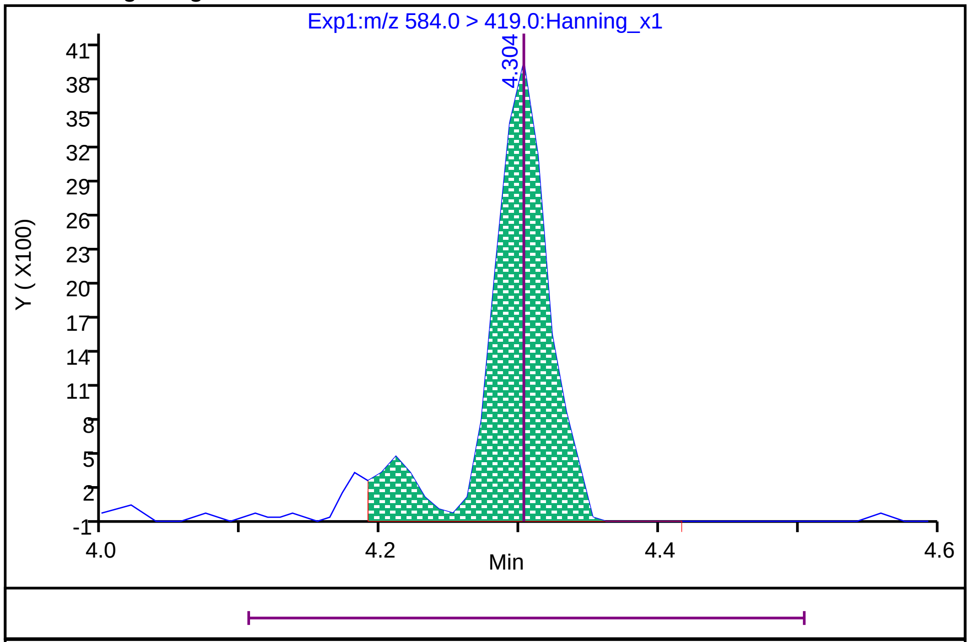
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d		
Injection Date:	09-Nov-2021 16:00:05	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

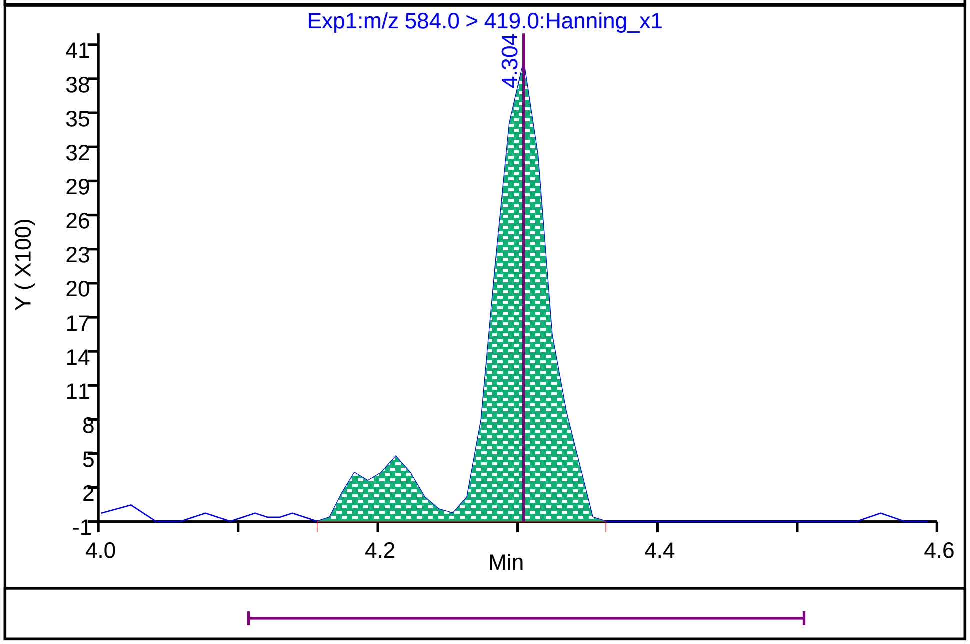
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.304
Area:	11401
Amount:	85.459
Amount Units:	ng/L



RT:	4.304
Area:	11919
Amount:	89.342
Amount Units:	ng/L



Data Editor: justin.gavin, 09-Nov-2021 16:33:20

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921005.d

Injection Date: 09-Nov-2021 16:00:05 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 100_SVLC-1741

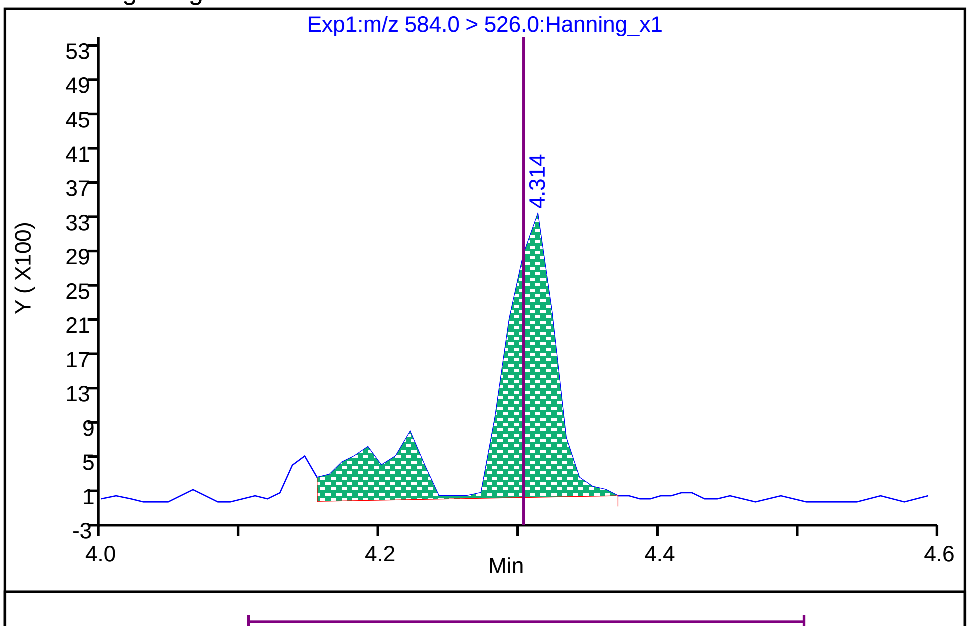
Sample Info: ID CCV 100_SVLC-1741

Dil. Factor: 1 Operator: Justin Gavin

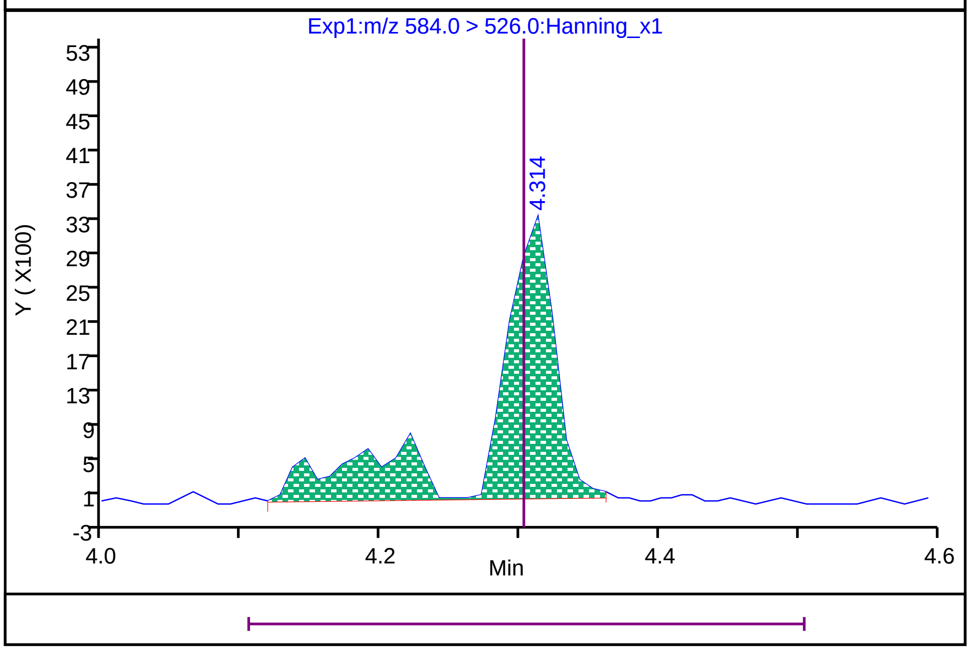
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.314
Area: 9848
Amount: 89.342
Amount Units: ng/L



RT: 4.314
Area: 10279
Amount: 89.342
Amount Units: ng/L



Data Editor: justin.gavin, 09-Nov-2021 16:33:24

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921006.d
Injection Date: 09-Nov-2021 16:10:34 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 96
Sample Info: ID CCV 100_SVLC-1742 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	195.11	97.6	70 - 130
D 46 13C4_PFBA	645349	655819			101.6	50 - 150
21 PFPeA			200.00	200.38	100.2	70 - 130
D 50 13C5_PFPeA	572798	571562			99.8	50 - 150
D 44 13C3_PFBS	172627	169390			98.1	50 - 150
7 PFBS			176.80	177.03	100.1	70 - 130
1 4:2 FTS			186.80	216.22	115.7	70 - 130
D 63 13C2_4:2 FTS_2	103302	99261			96.1	50 - 150
D 49 13C5_PFHxA	672414	647451			96.3	50 - 150
15 PFHxA			200.00	223.21	111.6	70 - 130
22 PFPeS			187.60	183.89	98	70 - 130
28 GenX			400.00	399.68	99.9	70 - 130
D 66 13C3_GenX	1178163	1162029			98.6	50 - 150
D 47 13C4_PFHpA	536896	548395			102.1	50 - 150
13 PFHpA			200.00	200.86	100.4	70 - 130
D 45 13C3_PFHxS	113881	123881			108.8	50 - 150
14 PFHxS			182.00	183.15	100.6	70 - 130
29 ADONA			188.40	204.24	108.4	70 - 130
D 64 13C2_6:2 FTS_2	103876	101234			97.5	50 - 150
2 6:2 FTS			189.60	199.52	105.2	70 - 130
20 PFOA			200.00	204.53	102.3	70 - 130
D 53 13C8_PFOA	548937	564370			102.8	50 - 150
12 PFHpS			190.40	204.88	107.6	70 - 130
D 54 13C8_PFOS	112760	112285			99.6	50 - 150
18 PFOS			185.60	208.06	112.1	70 - 130
17 PFNA			200.00	211.00	105.5	70 - 130
D 56 13C9_PFNA	649289	653668			100.7	50 - 150
30 9Cl-PF3ONS			186.40	214.97	115.3	70 - 130
D 55 13C8_PFOSA	246131	256275			104.1	50 - 150
19 PFOSA			200.00	204.56	102.3	70 - 130
16 PFNS			192.00	229.86	119.7	70 - 130
10 PFDA			200.00	217.60	108.8	70 - 130
3 8:2 FTS			191.60	158.70	82.8	70 - 130
D 51 13C6_PFDA	631293	634407			100.5	50 - 150
D 65 13C2_8:2 FTS_2	92479	94853			102.6	50 - 150
6 N-MeFOSAA			200.00	174.82	87.4	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	710191	744652			104.9	50 - 150
D 61 d7-MeFOSE	83560	85738			102.6	50 - 150
32 MeFOSE			200.00	225.62	112.8	70 - 130
26 MeFOSA			200.00	212.75	106.4	70 - 130
D 57 d3-MeFOSA	43685	39033			89.4	50 - 150
9 PFDS			192.80	226.51	117.5	70 - 130
D 52 13C7_PFUdA	693518	695173			100.2	50 - 150
D 60 d5-EtFOSAA	684113	686580			100.4	50 - 150
25 PFUdA			200.00	192.74	96.4	70 - 130
5 N-EtFOSAA			200.00	181.92	91	70 - 130
D 62 d9-EtFOSE	94206	94124			99.9	50 - 150
33 EtFOSE			200.00	260.08	130	70 - 130
D 59 d5-EtFOSA	42530	41530			97.6	50 - 150
31 11Cl-PF3OUDS			188.40	237.15	125.9	70 - 130
27 EtFOSA			200.00	173.96	87	70 - 130
D 38 13C2_PFDoA	704128	697979			99.1	50 - 150
11 PFDoA			200.00	220.68	110.3	70 - 130
4 10:2 FTS			192.80	245.09	127.1	70 - 130
34 PFDOS			193.60	198.95	102.8	70 - 130
24 PFTrDA			200.00	210.17	105.1	70 - 130
D 42 13C2_PFTeDA	946932	876386			92.6	50 - 150
23 PFTeDA			200.00	212.49	106.2	70 - 130
D 40 13C2_PFHxDA	912699	898764			98.5	50 - 150
35 PFHxDA			200.00	209.33	104.7	70 - 130
36 PFODA			200.00	217.58	108.8	70 - 130

Report Date: 11-Nov-2021 18:39:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921006.d		
Injection Date:	09-Nov-2021 16:10:34	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 100_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	655819	22	>100:1			1000.00	1054.92	101.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	1/0	134946	20	>100:1			200.00	195.11		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.098	1	571562	17	>100:1			1000.00	999.95	99.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.098	1/0	128903	13	>100:1			200.00	200.38		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	169390	15	>100:1			1000.00	979.30	98.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.162	1/0	37394	15	>100:1	Target = 3.53		176.80	177.03		
298.9 > 99	44	2.151	2.162		10437	16	71:1	3.58 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.505	2.505	1/0	28868	18	>100:1	Target = 3.10		187.60	183.89		
349 > 99	44	2.496	2.505		11074	17	86:1	2.60 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.424	1	99261	16	>100:1			5000.00	4383.60	96.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.433	2.424	1/0	9462	15	97:1	Target = 1.75		186.80	216.22		
327 > 81	63	2.433	2.424		5234	20	8.5:1	1.80 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.469	1	647451	18	>100:1			1000.00	994.11	96.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.469	2.469	1/0	150266	22	>100:1	Target = 18.91		200.00	223.21		
313 > 119	49	2.469	2.469		7211	17	31:1	20.83 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1162029	19	>100:1			5000.00	5014.01	98.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.591	2.583	1/1	60157	21	>100:1	Target = 0.79		400.00	399.68		
285 > 185	66	2.591	2.583		75131	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	548395	19	>100:1			1000.00	1032.88	102.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	121040	18	>100:1	Target = 3.80		200.00	200.86		
363 > 169	47	2.845	2.845		33213	16	>100:1	3.64 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	0	123881	20	>100:1			1000.00	986.00	108.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.864	2.864	0/0	24944	25	>100:1	Target = 2.89	5.52	182.00	183.15		
399 > 99	45	2.864	2.864		7869	24	47:1	3.16 (1.44-4.34)	8.76				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.888	2.888	0/0	196221	20	>100:1	Target = 3.23		188.40	204.24		
377 > 85	45	2.888	2.888		54034	18	>100:1	3.63 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.241	3.247	0/0	26068	19	>100:1	Target = 3.12		190.40	204.88		
449 > 99	45	3.241	3.247		8628	22	67:1	3.02 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	101234	20	>100:1			5000.00	5624.12	97.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.214	3.213	1/1	9563	19	>100:1	Target = 1.75		189.60	199.52		
427 > 81	64	3.208	3.213		7393	21	10:1	1.29 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.234	3.240	0	564370	22	>100:1			1000.00	1075.65	102.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.241	3.240	1/1	118289	19	91:1	Target = 2.89		200.00	204.53		
413 > 169	53	3.241	3.240		37509	18	>100:1	3.15 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.617	3.623	0	112285	19	>100:1			1000.00	906.67	99.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.617	3.623	0/0	27816	42	>100:1	Target = 3.30	3.59	185.60	208.06		
499 > 99	54	3.617	3.623		8463	33	96:1	3.28 (1.65-4.95)	10.64				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.830	3.828	1/1	91414	23	>100:1			186.40	214.97		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.964	3.971	0/0	20707	16	>100:1	Target = 3.08		192.00	229.86		
549 > 99	54	3.964	3.971		8065	19	80:1	2.56 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.278	4.274	1/1	19903	18	>100:1	Target = 2.72		192.80	226.51		
599 > 99	54	4.268	4.274		6842	16	56:1	2.90 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.437	4.443	0/0	91167	16	>100:1			188.40	237.15		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.787	4.796	0/0	19209	22	>100:1	Target = 3.27		193.60	198.95		
699 > 99	54	4.793	4.796		6041	17	82:1	3.17 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.625	3.623	1	653668	20	>100:1			1000.00	1020.75	100.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.625	3.623	1/0	148664	18	>100:1	Target = 6.51		200.00	211.00		
463 > 169	56	3.625	3.623		24505	21	>100:1	6.06 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.893	0	256275	19	>100:1			1000.00	956.04	104.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.896	3.893	1/1	55159	15	>100:1	Target = 41.63		200.00	204.56		
498>478	55	3.888	3.893		1802	17	20:1	30.60 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	634407	16	>100:1			1000.00	1103.97	100.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.985	3.981	1/1	160650	15	>100:1	Target = 13.80		200.00	217.60		
513 > 169	51	3.985	3.981		10568	16	46:1	15.20 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.974	3.981	0	94853	18	>100:1			5000.00	5487.75	102.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.974	3.981	0/0	6803	19	31:1	Target = 1.94		191.60	158.70		
527 > 81	65	3.954	3.981		4677	22	9.1:1	1.45 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.580	4.577	1/1	11794	17	87:1	Target = 3.54		192.80	245.09		
627 > 80	65	4.580	4.577		2933	19	37:1	4.02 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.134	4.139	0	744652	19	>100:1			5000.00	4927.80	104.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.143	4.148	0/0	20892	26	91:1	Target = 1.37	13.38	200.00	174.82		
570 > 483	58	4.143	4.148		19299	33	>100:1	1.08 (0.68-2.05)	4.00				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.308	4.304	1	85738	14	>100:1			1000.00	950.65	102.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.314	0/-1	21140	15	49:1			200.00	225.62		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.328	4.325	1	39033	14	>100:1			1000.00	829.76	89.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.328	4.335	0/-1	9001	15	86:1	Target = 1.11		200.00	212.75		
512 > 219	57	4.328	4.335		10161	18	58:1	0.88 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.298	4.294	1	686580	15	>100:1			5000.00	5301.24	100.4	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.298	4.304	0/-1	24357	23	80:1	Target = 1.51	6.23	200.00	181.92		
584 > 526	60	4.298	4.304		17899	30	44:1	1.36 (0.75-2.26)	2.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.298	4.294	1	695173	15	>100:1			1000.00	1154.29	100.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.298	4.294	1/0	129832	14	>100:1	Target = 14.52		200.00	192.74		
563 > 169	52	4.298	4.294		9401	17	81:1	13.81 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.464	4.470	0	94124	16	>100:1			1000.00	887.32	99.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													a
630 > 59	62	4.483	4.479	1/1	23831	13	>100:1			200.00	260.08		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.492	4.488	1	41530	15	94:1			1000.00	965.82	97.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.501	4.497	1/0	9201	22	77:1	Target = 1.06		200.00	173.96		
526 > 219	59	4.492	4.497		10467	16	51:1	0.87 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.572	4.577	0	697979	16	>100:1			1000.00	1162.65	99.1	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.572	4.577	0/0	164204	15	38:1	Target = 10.70		200.00	220.68		
613 > 169	38	4.572	4.577		12533	15	>100:1	13.10 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.816	4.822	0/0	154185	19	>100:1	Target = 8.31		200.00	210.17		
663 > 169	38	4.816	4.822		15475	19	>100:1	9.96 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.044	5.042	1	876386	21	>100:1			1000.00	1077.98	92.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.044	5.048	0/-1	162557	19	29:1	Target = 12.17		200.00	212.49		
713 > 169	42	5.038	5.048		11736	20	>100:1	13.85 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.458	5.454	1	898764	19	>100:1			1000.00	1035.40	98.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.458	5.461	0/-1	120495	19	23:1	Target = 10.43		200.00	209.33		
813 > 269	40	5.458	5.461		10004	23	>100:1	12.04 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.877	5.875	1/0	178029	29	13:1	Target = 13.67		200.00	217.58		
913 > 319	40	5.872	5.875		10823	27	>100:1	16.44 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.985	3.981	1	743070	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	1	695520	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.234	3.240	0	586473	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	1	588460	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.617	3.623	0	124542	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

a - User Assigned Peak/Hit

Report Date: 11-Nov-2021 18:39:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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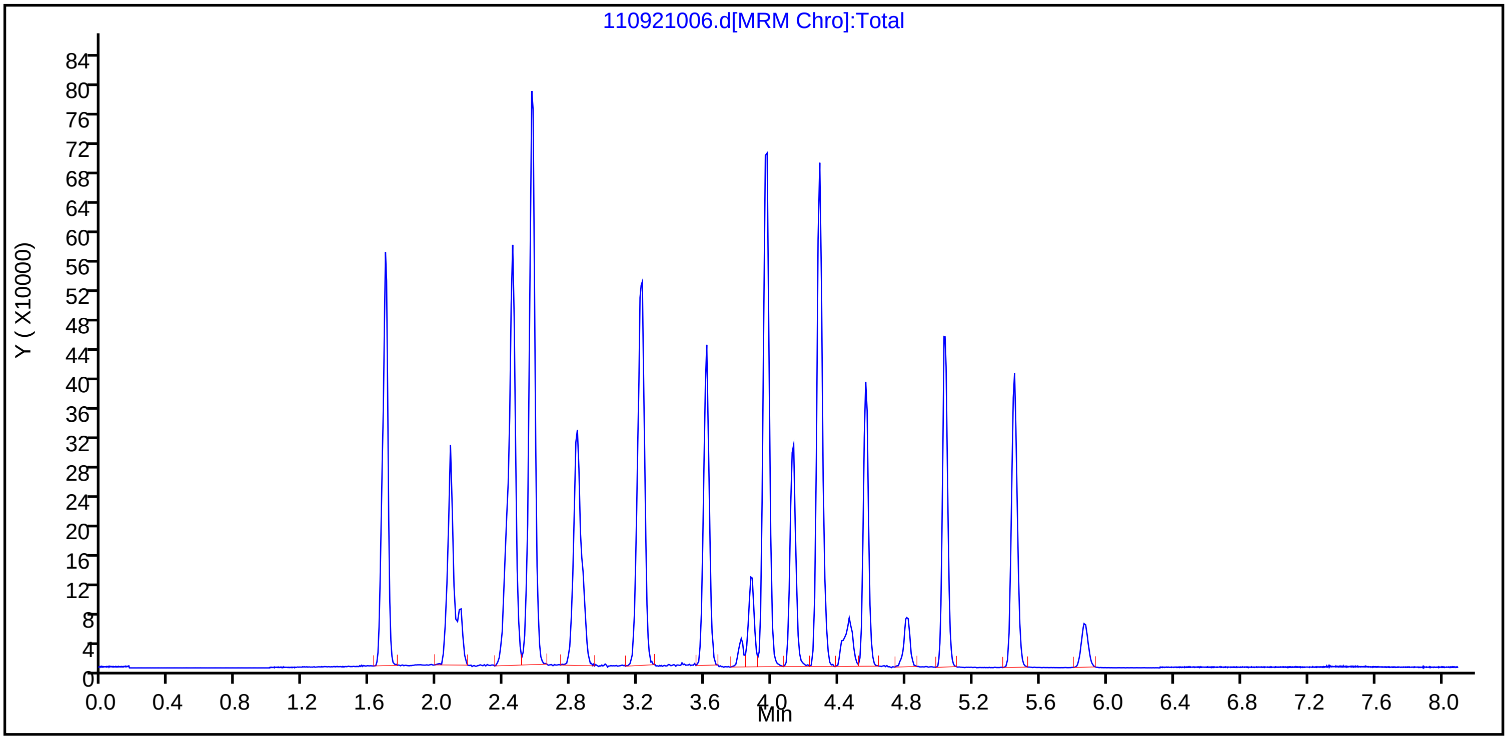
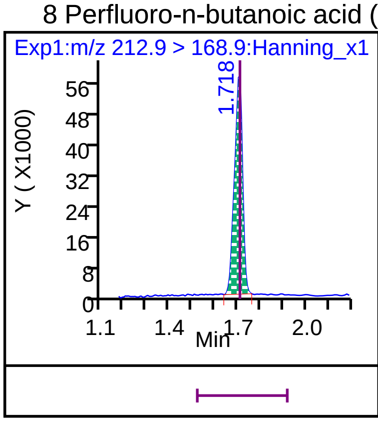
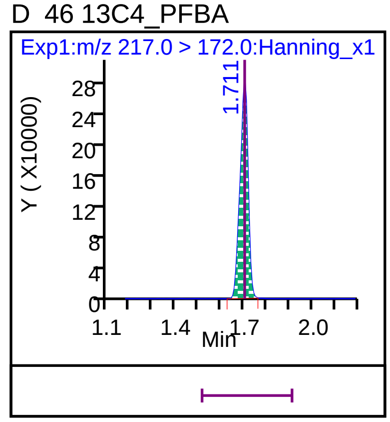
Sample Info:	ID CCV 100_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin



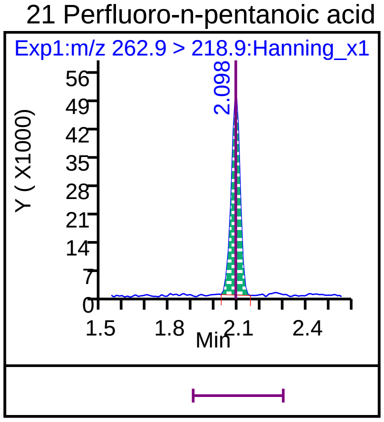
8 Perfluoro-n-butanoic acid (PFBA)



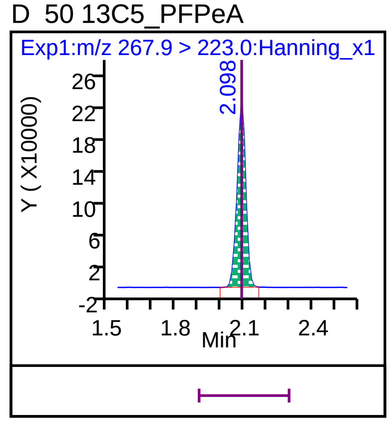
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)



D 50 13C5_PFPeA



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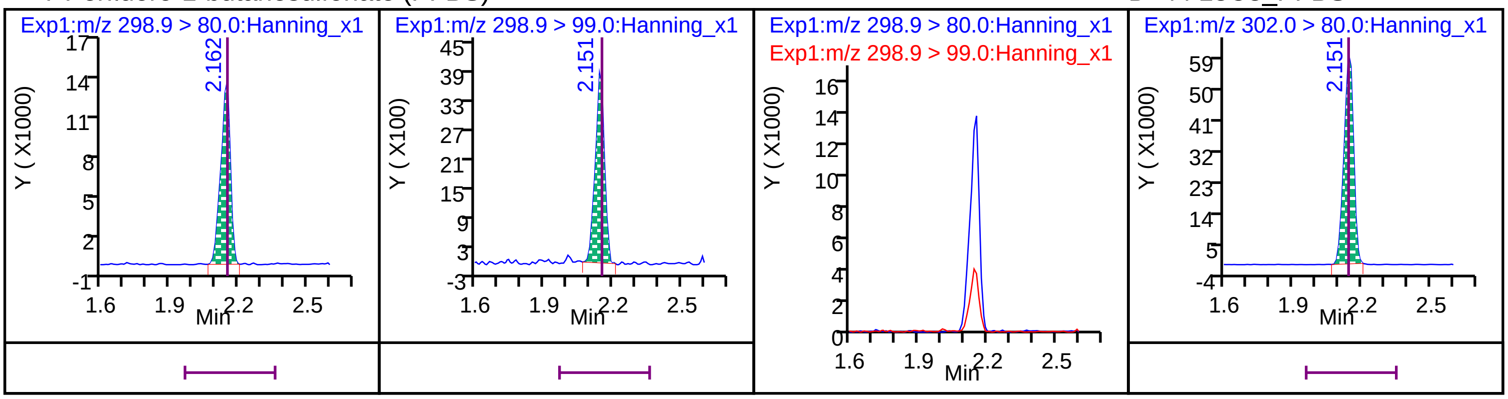
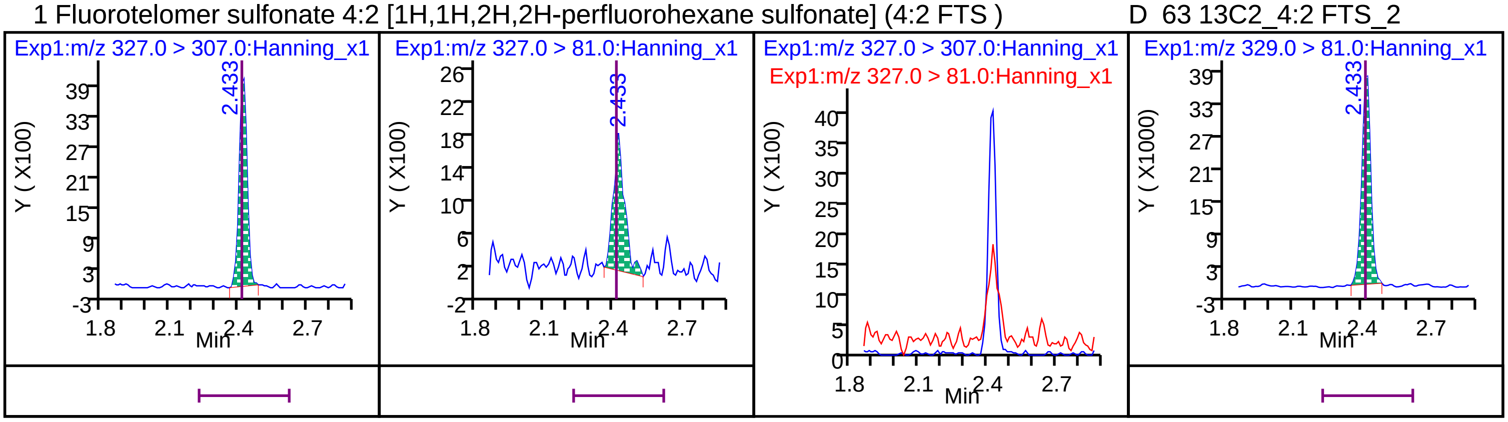
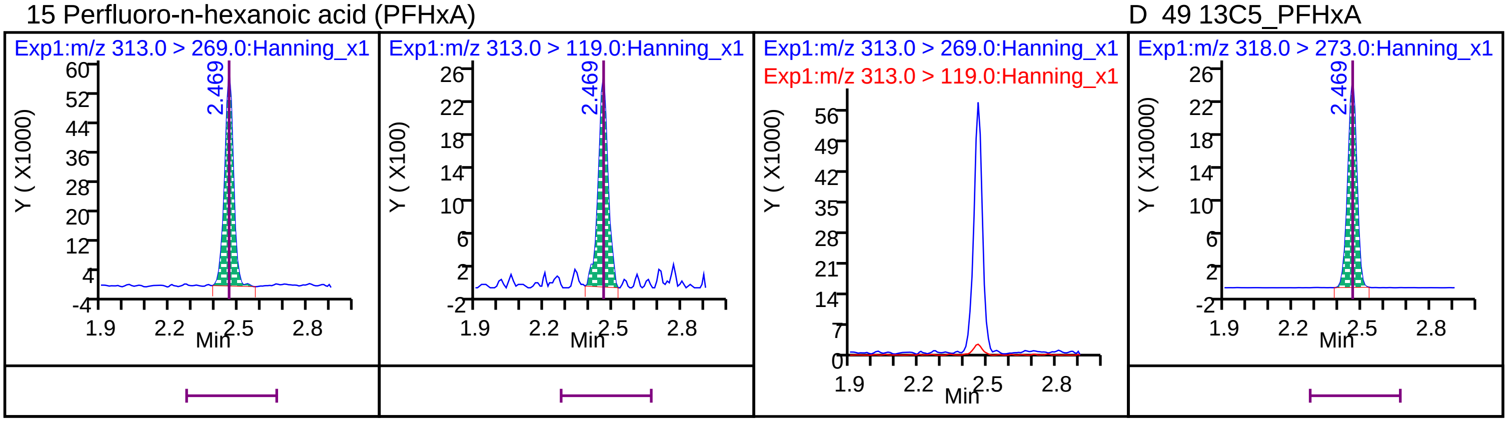
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



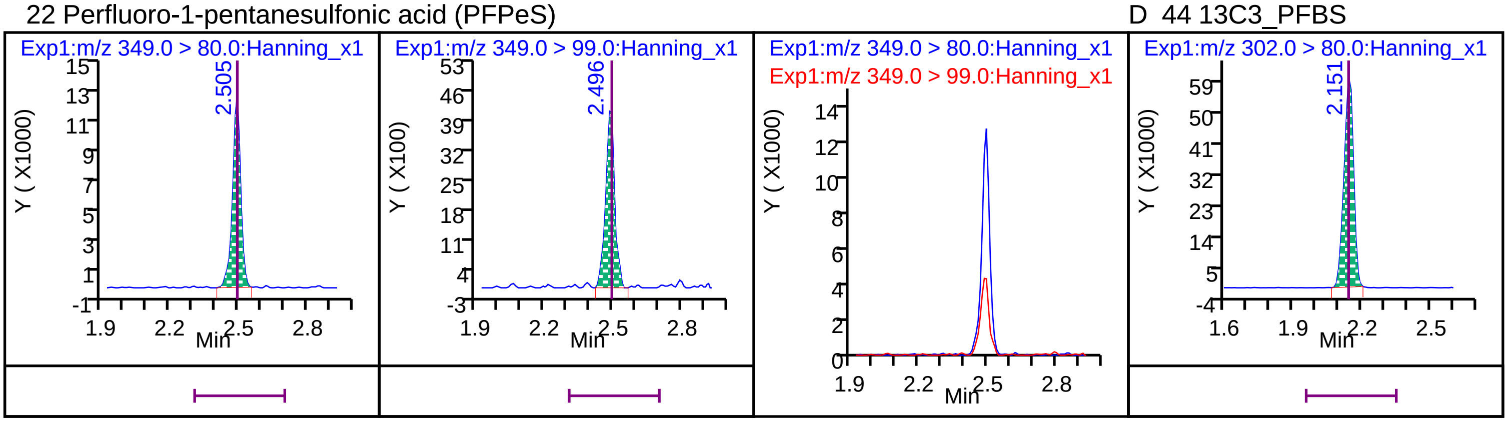
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



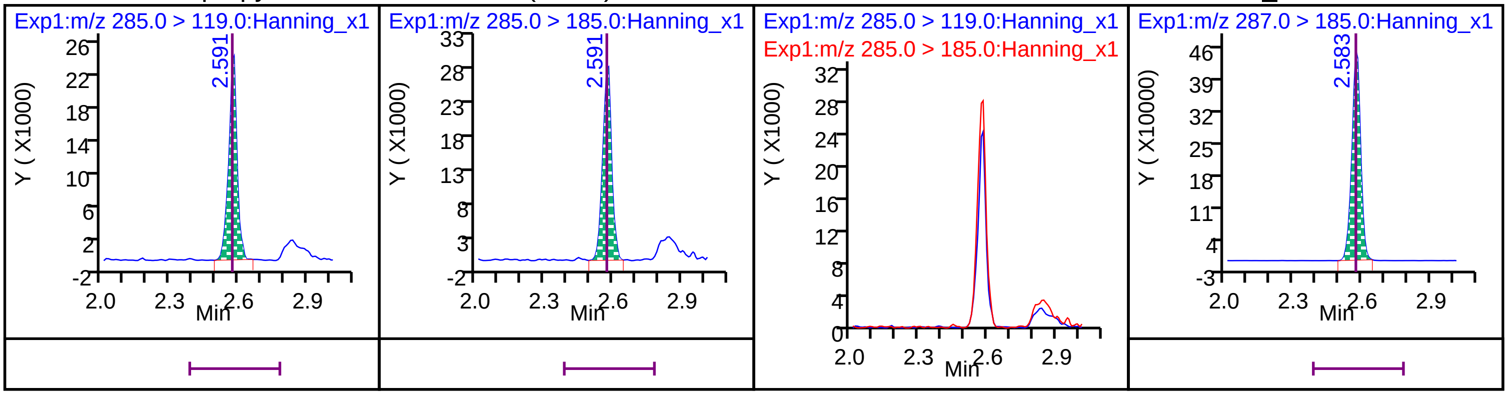
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



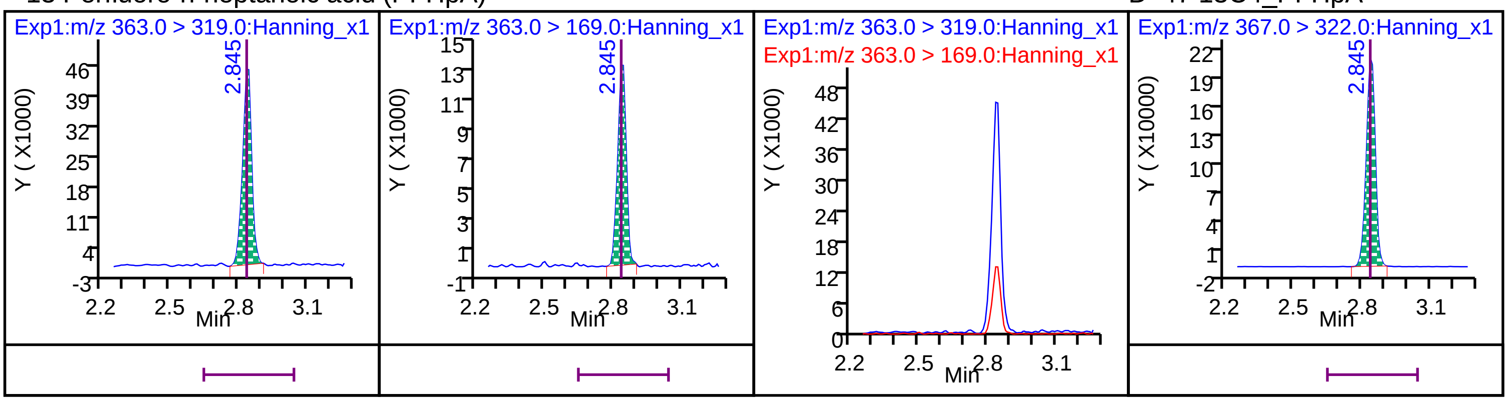
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



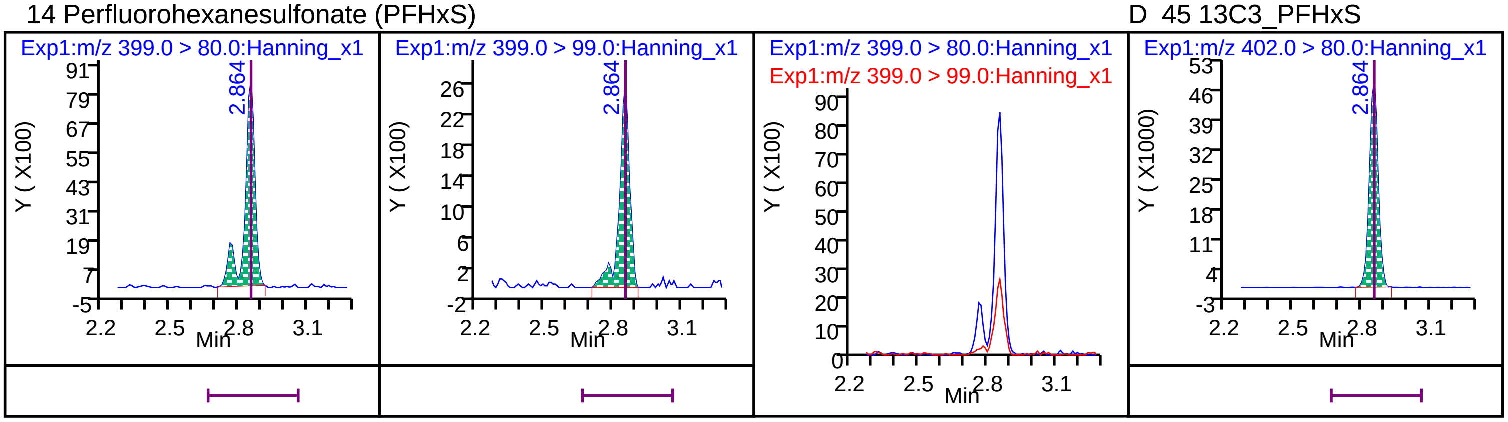
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



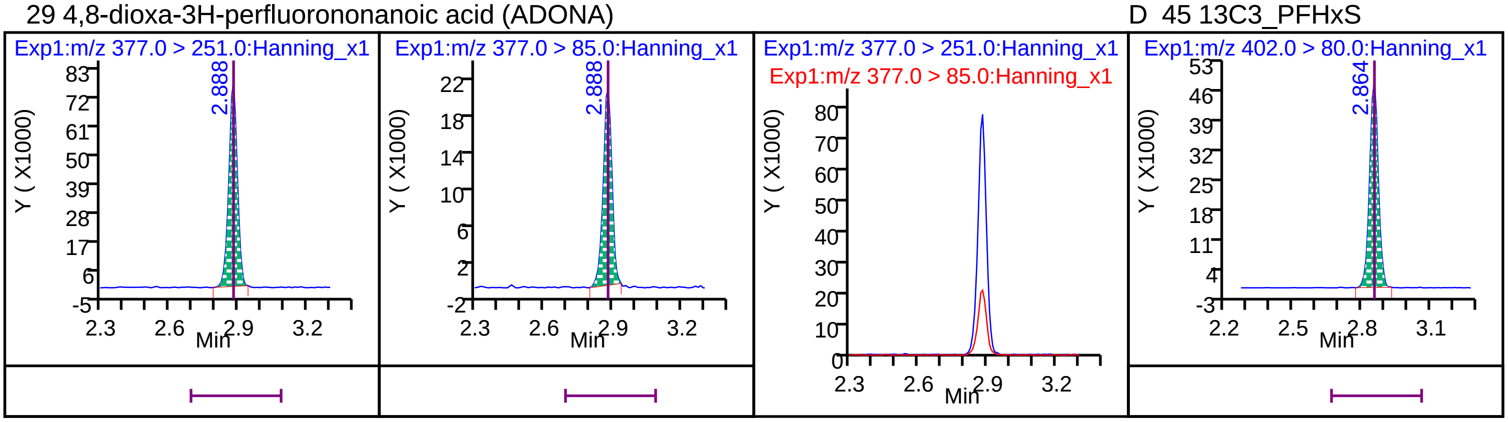
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



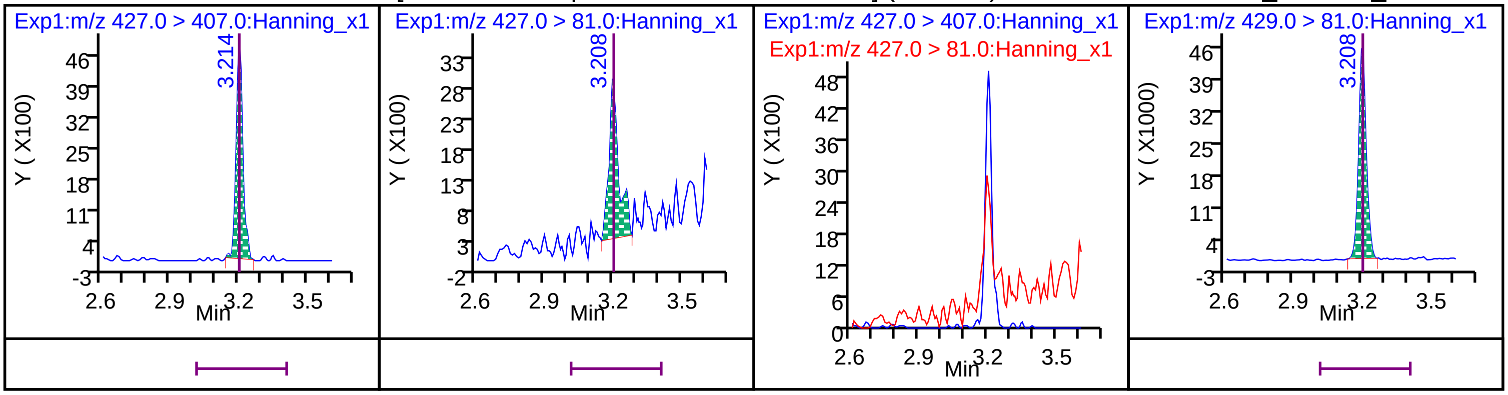
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



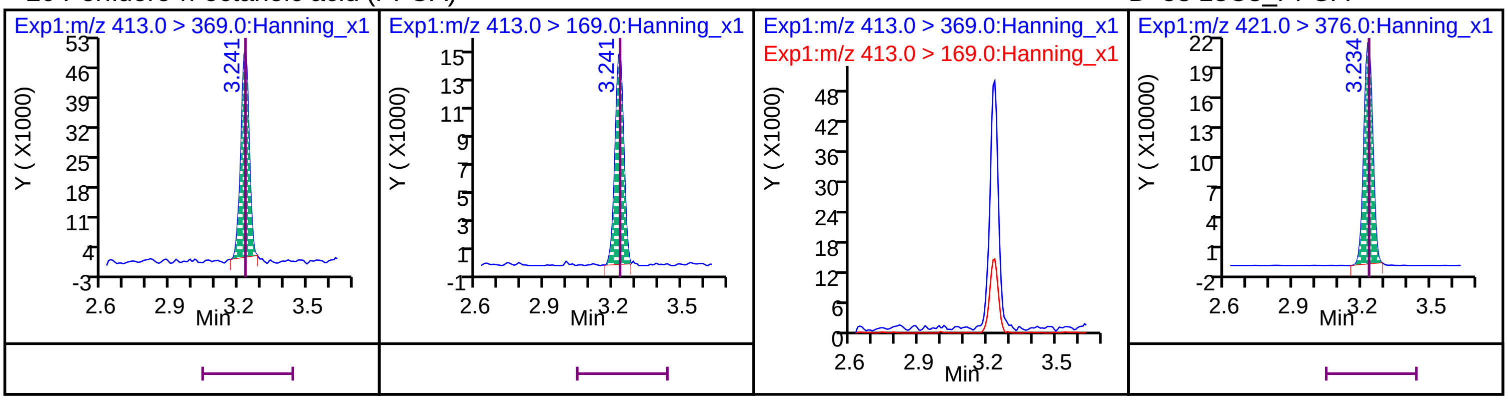
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



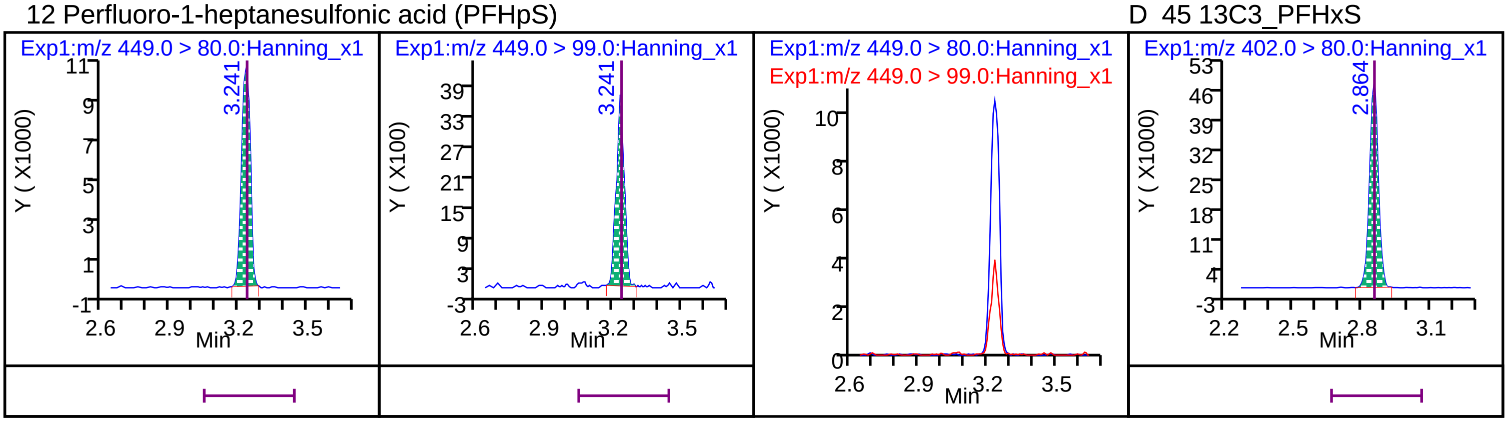
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



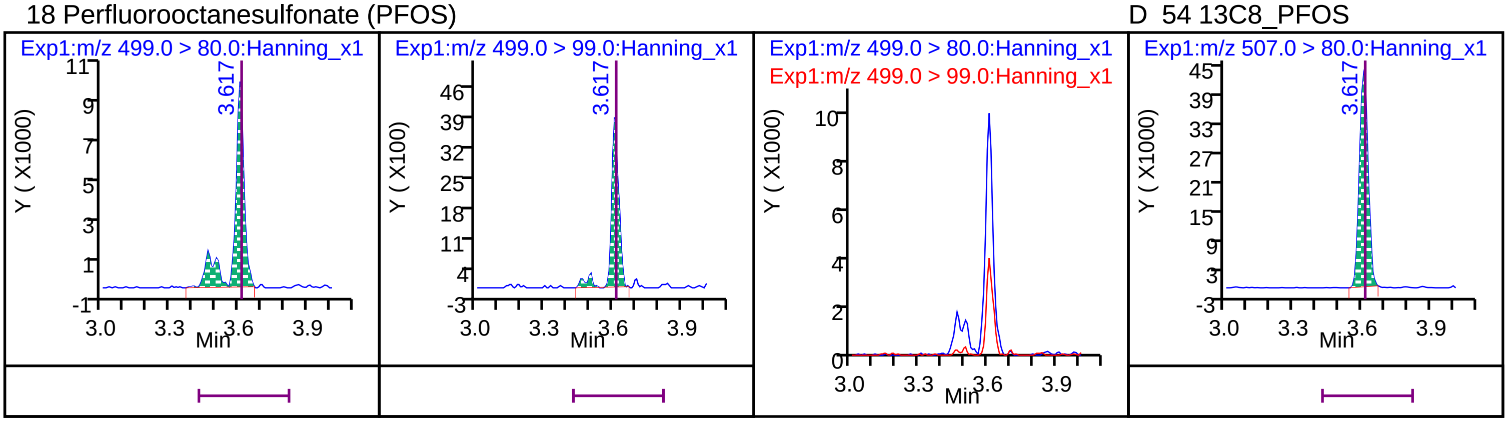
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



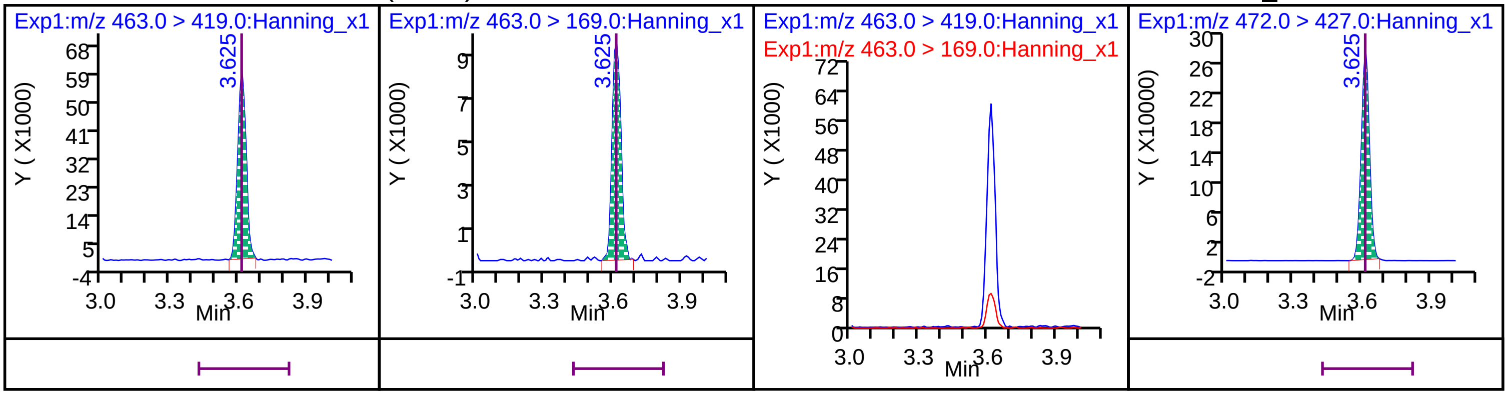
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



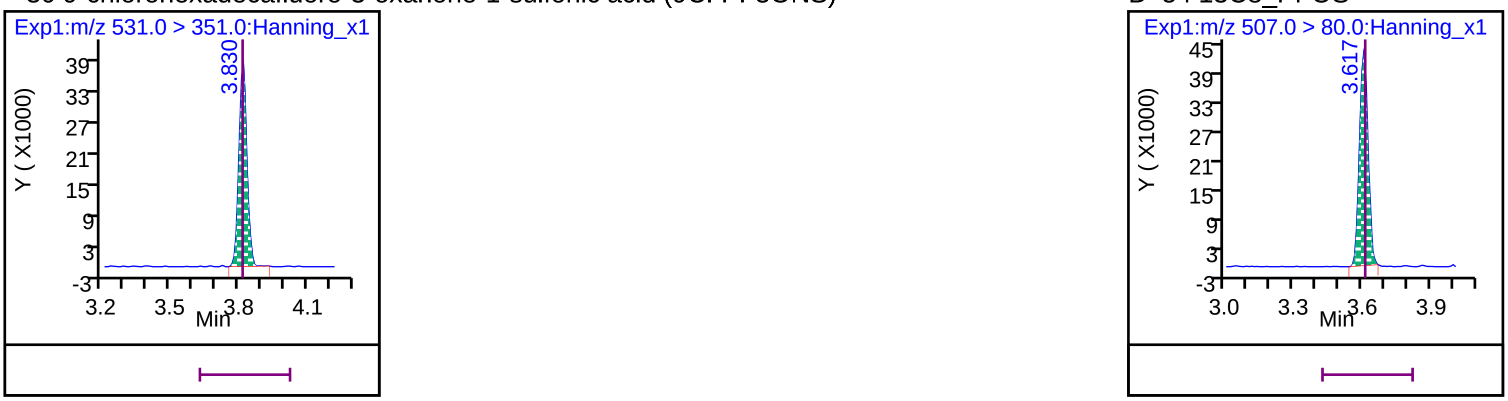
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



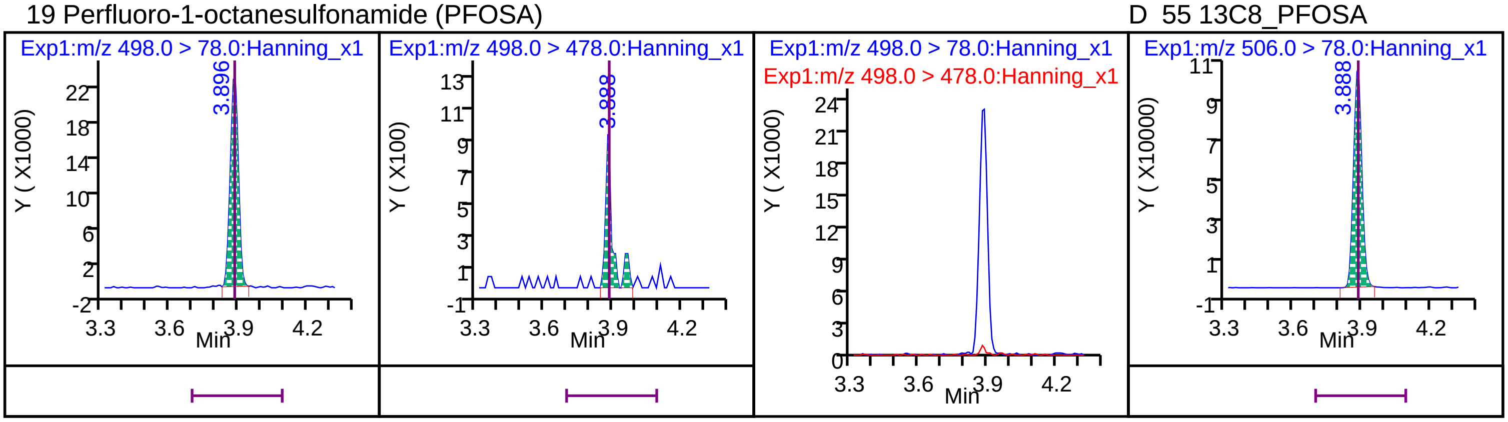
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



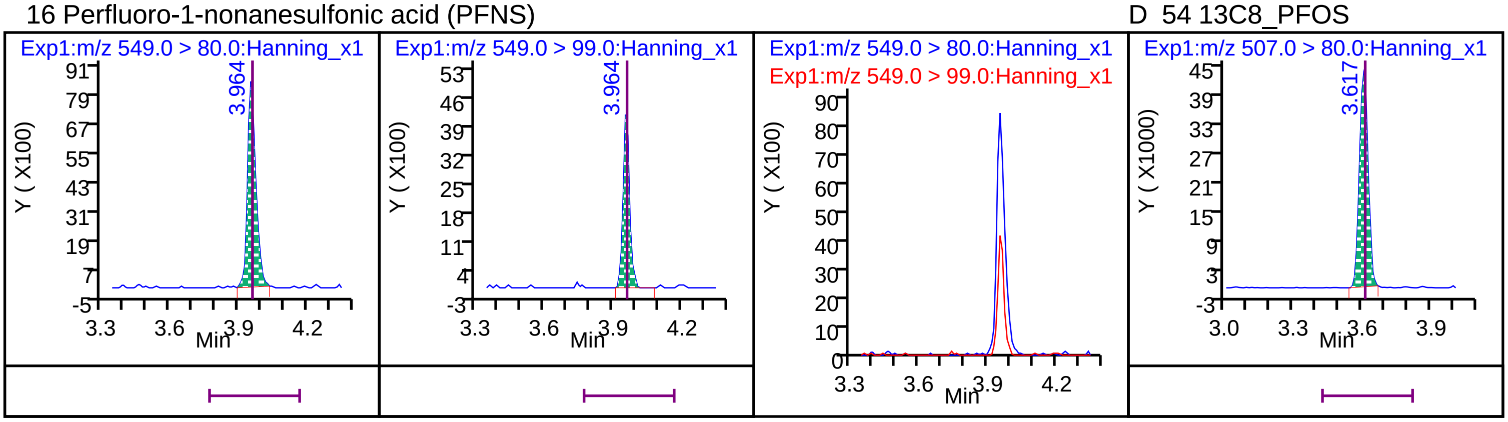
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



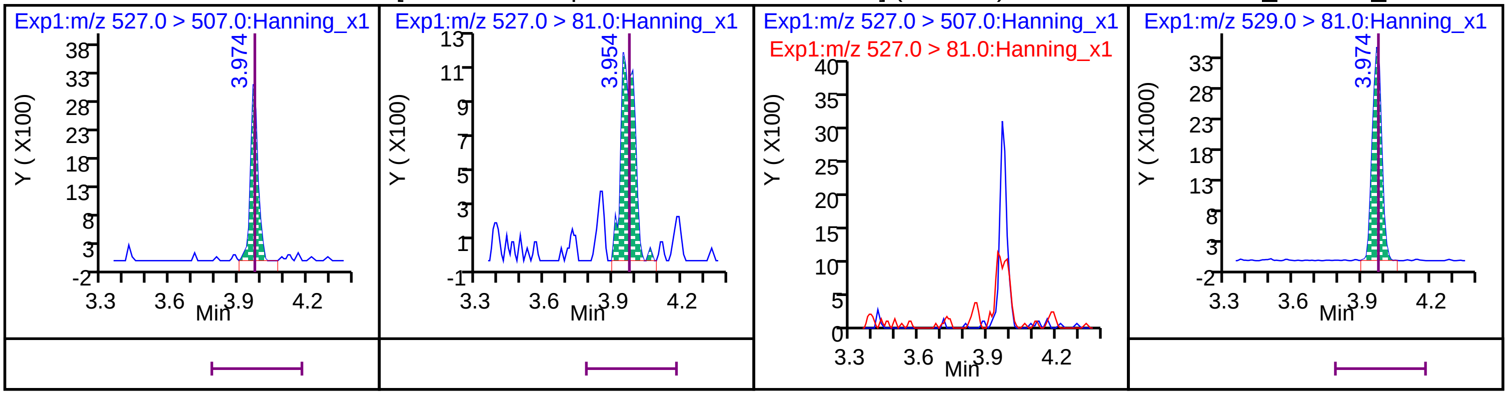
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



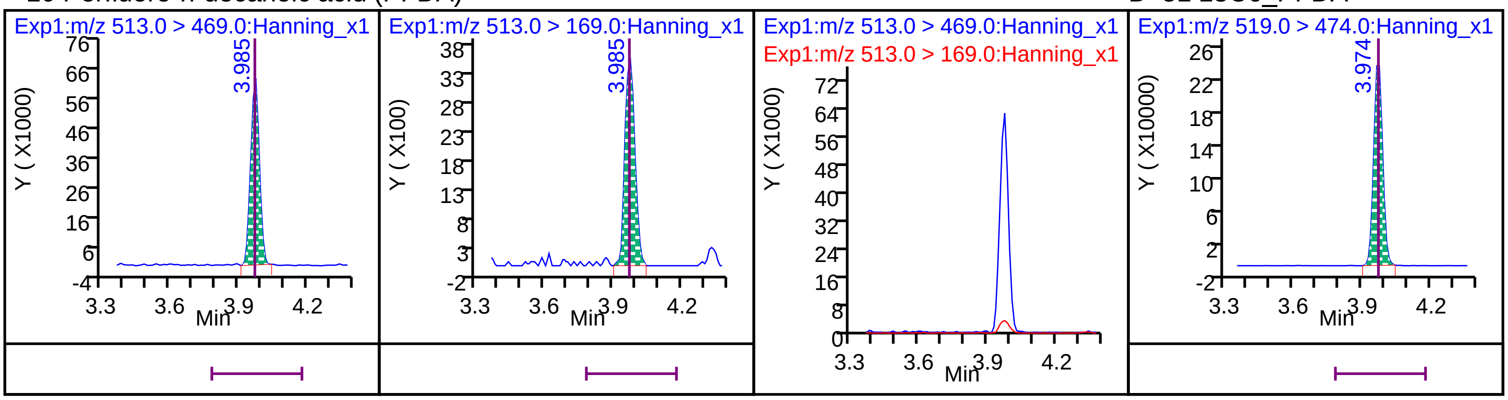
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



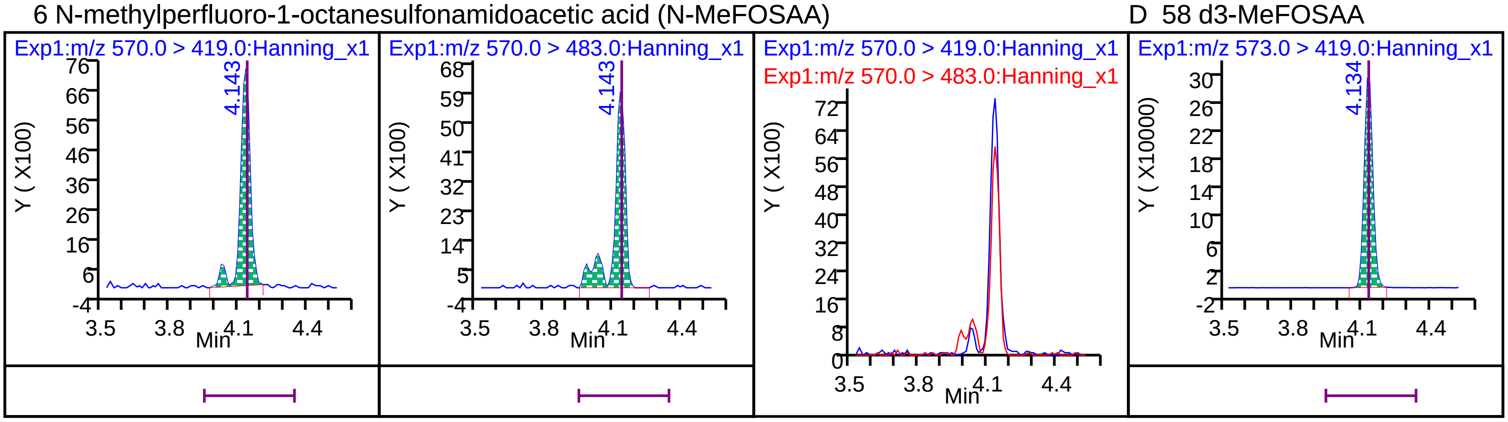
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



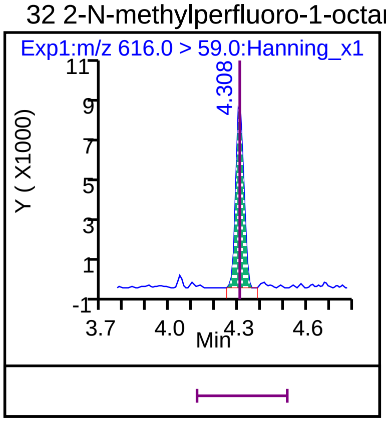
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

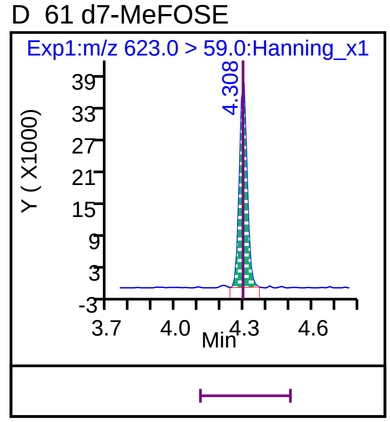


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

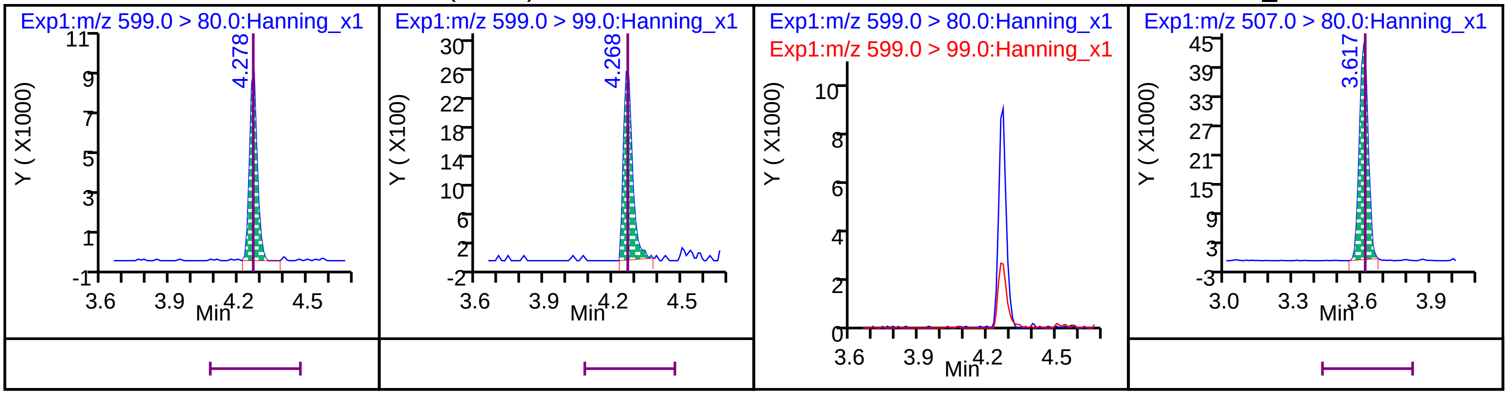


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

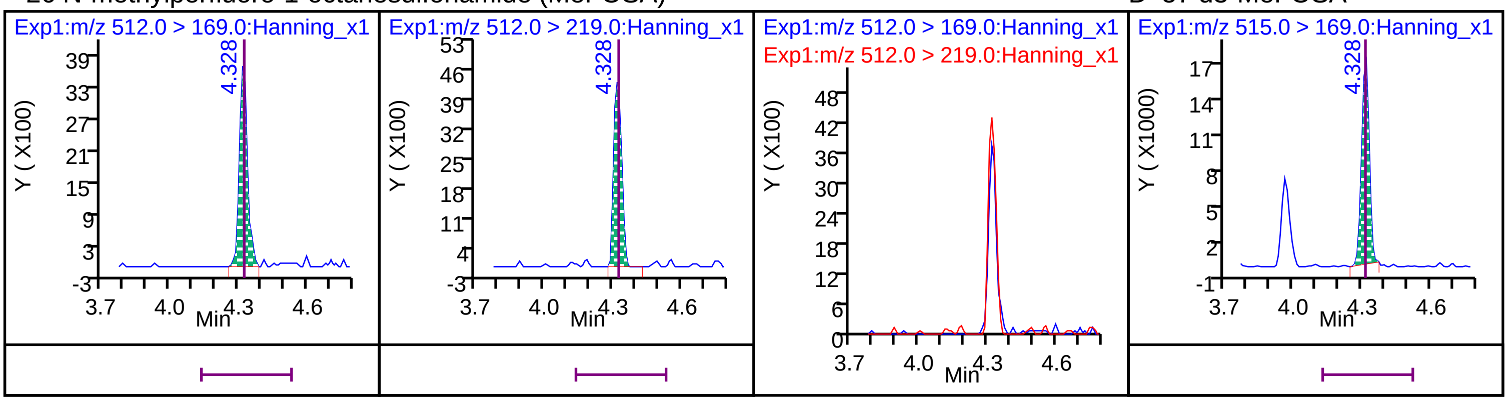




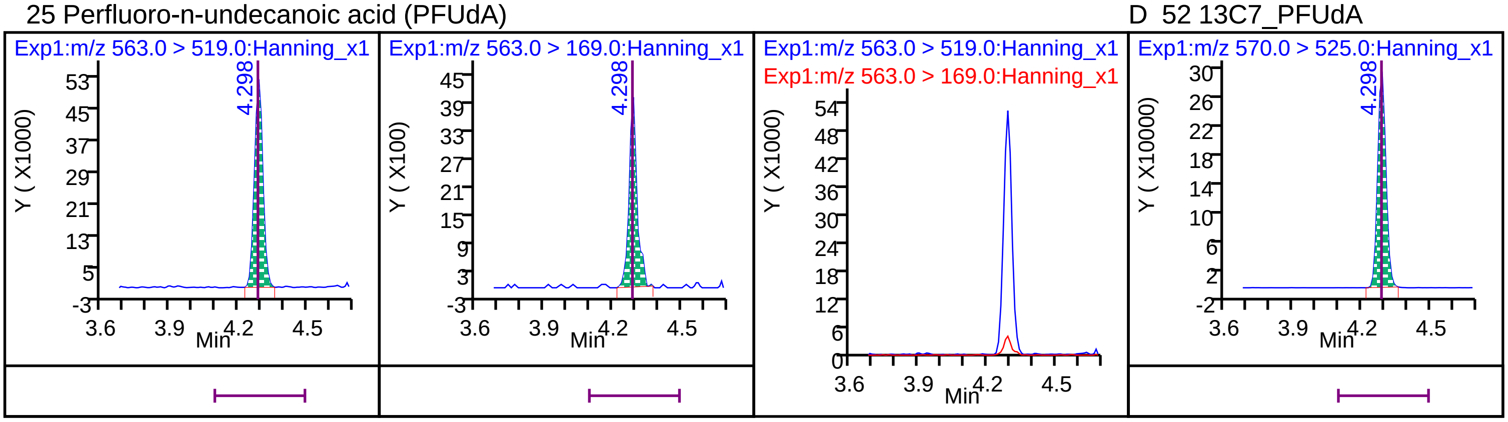
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



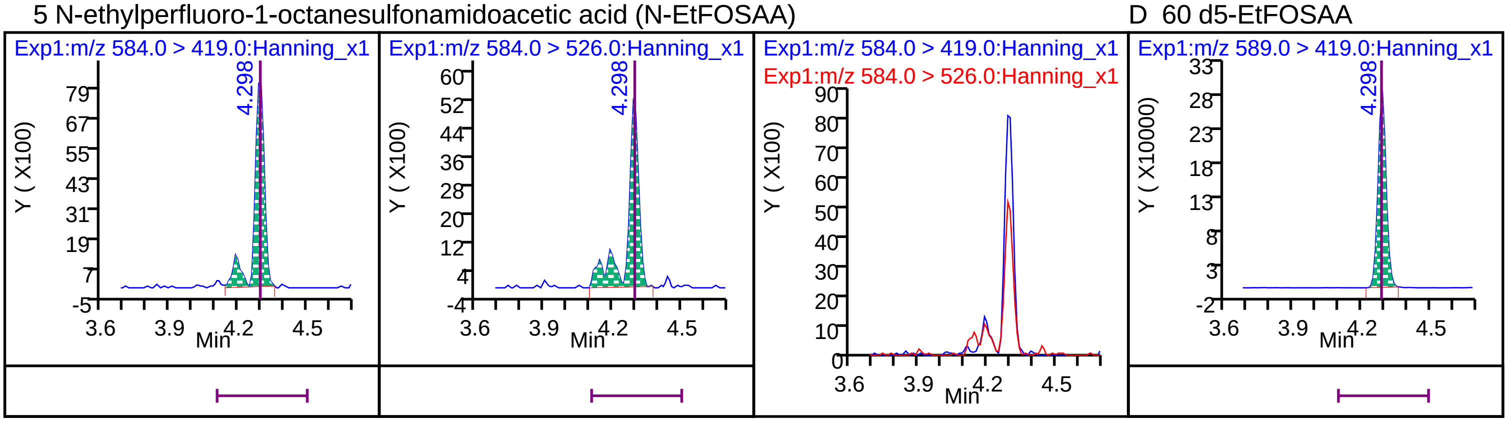
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



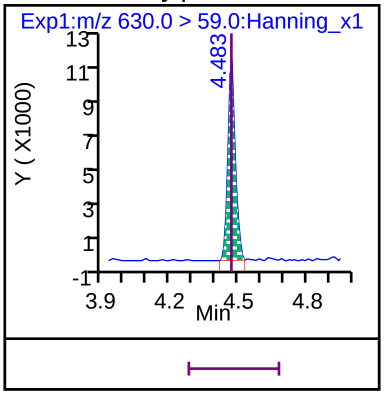
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



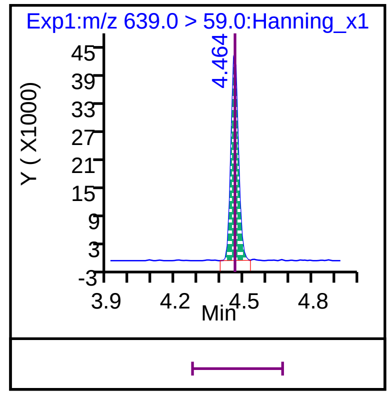
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



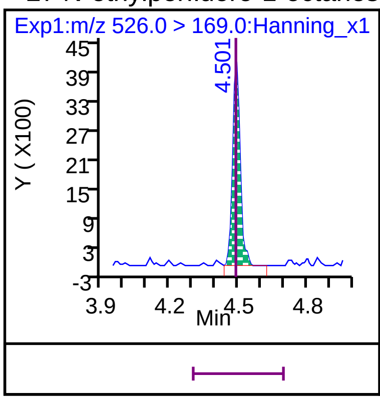
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (A)

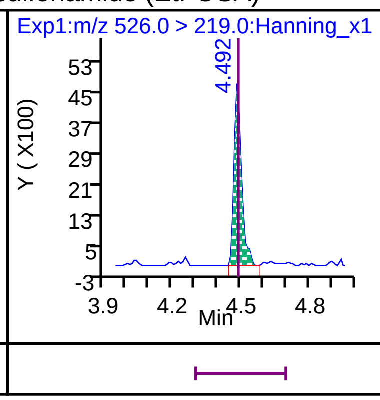


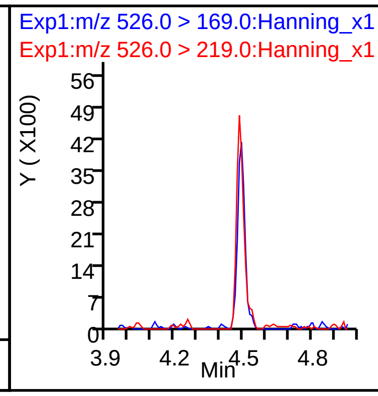
D 62 d9-EtFOSE



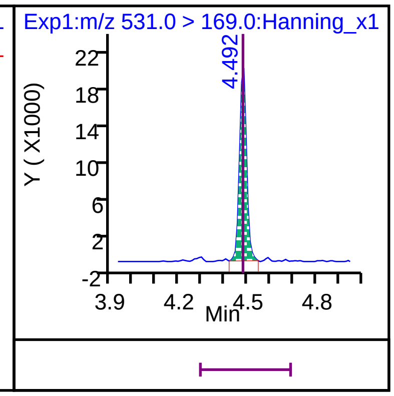
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



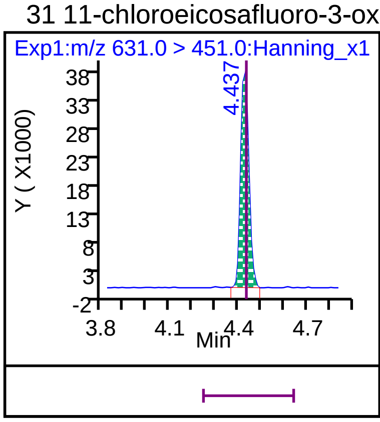




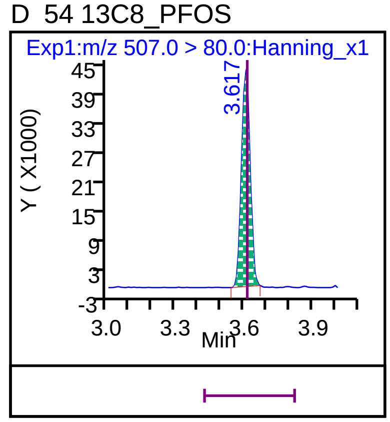
D 59 d5-EtFOSA



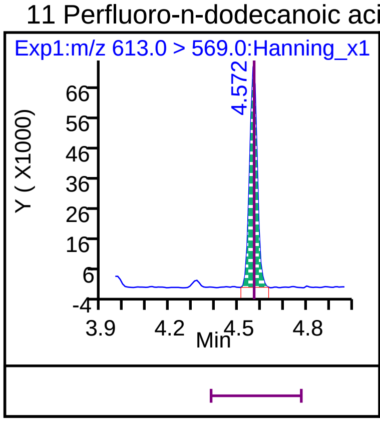
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

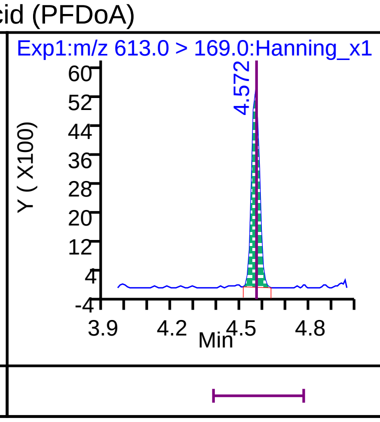


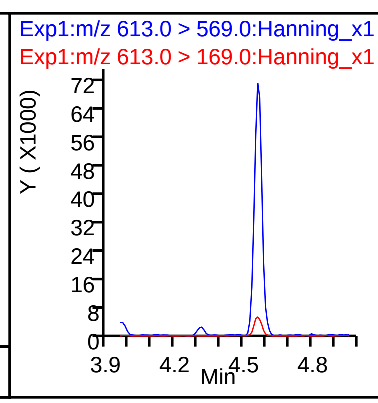
D 54 13C8_PFOS



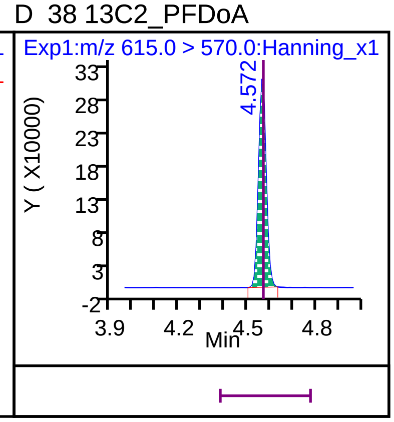
11 Perfluoro-n-dodecanoic acid (PFDoA)



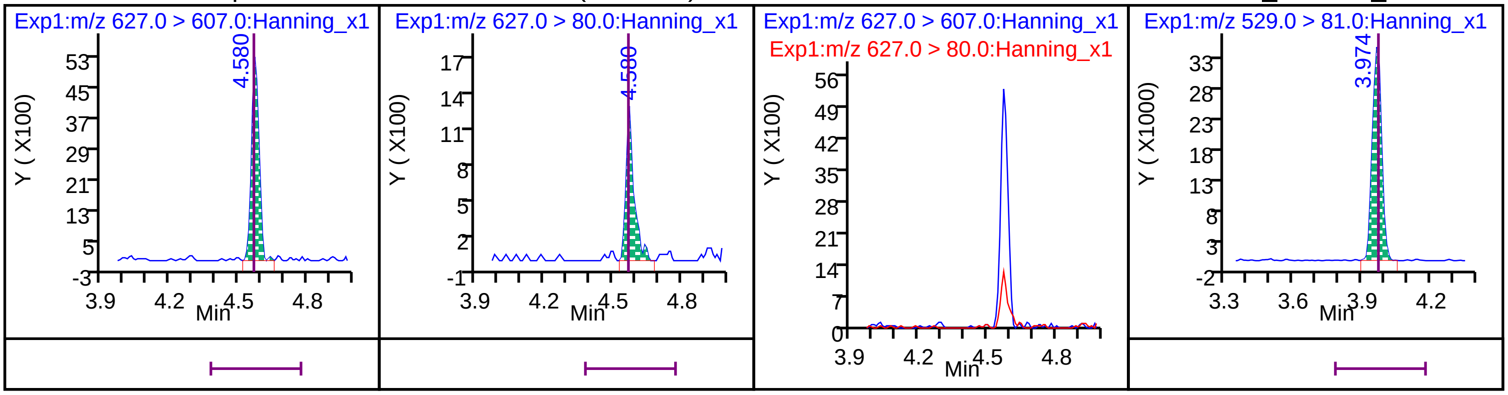




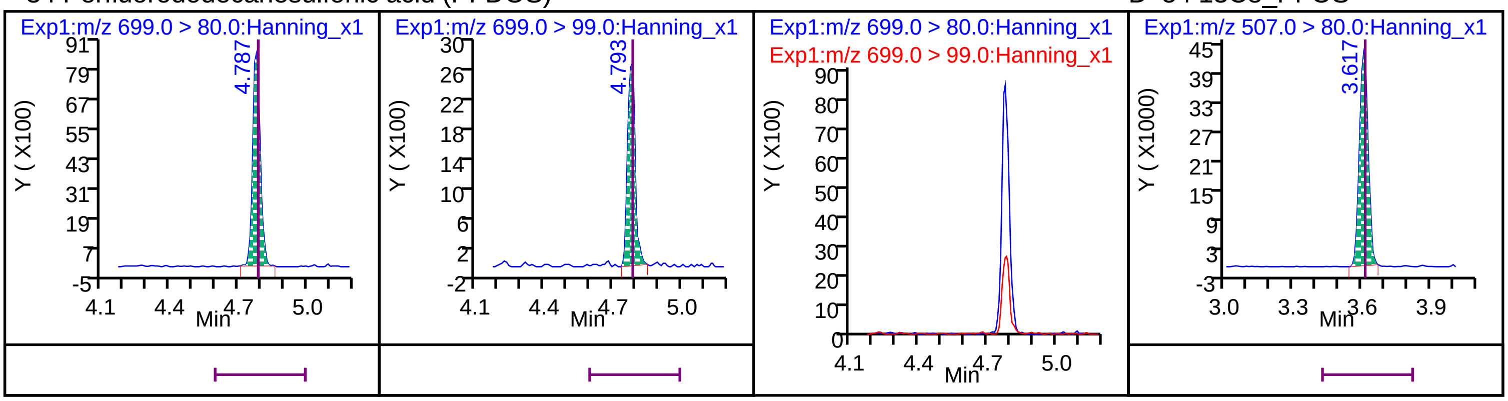
D 38 13C2_PFDoA



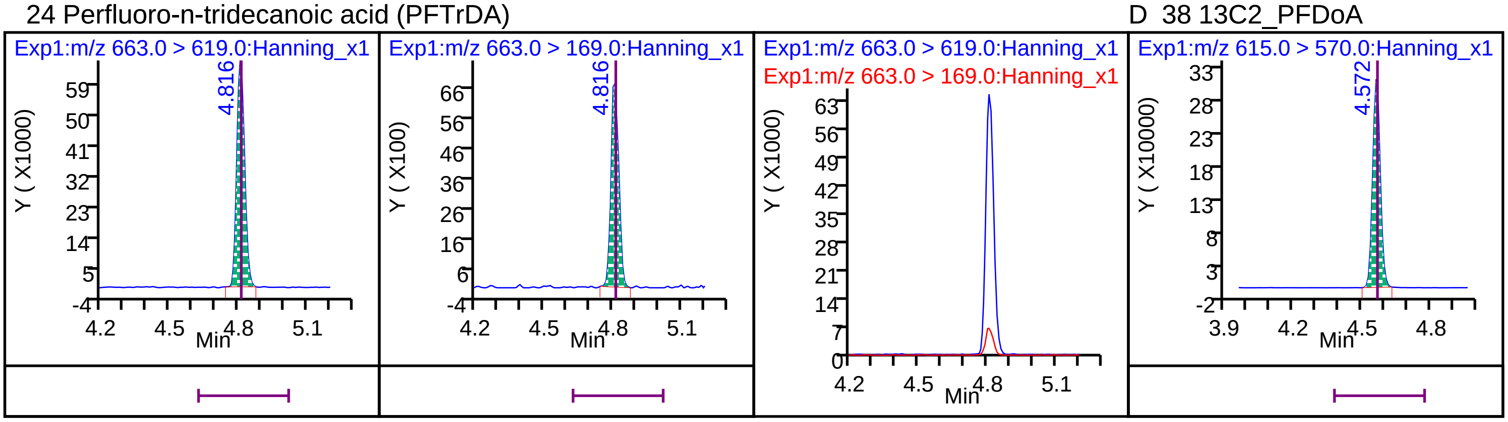
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



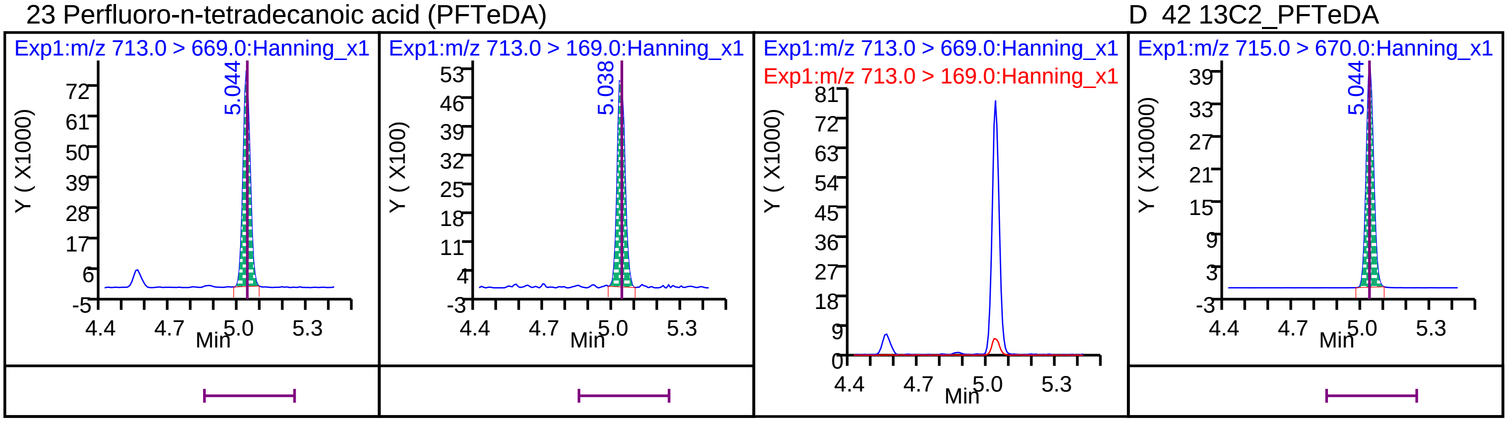
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

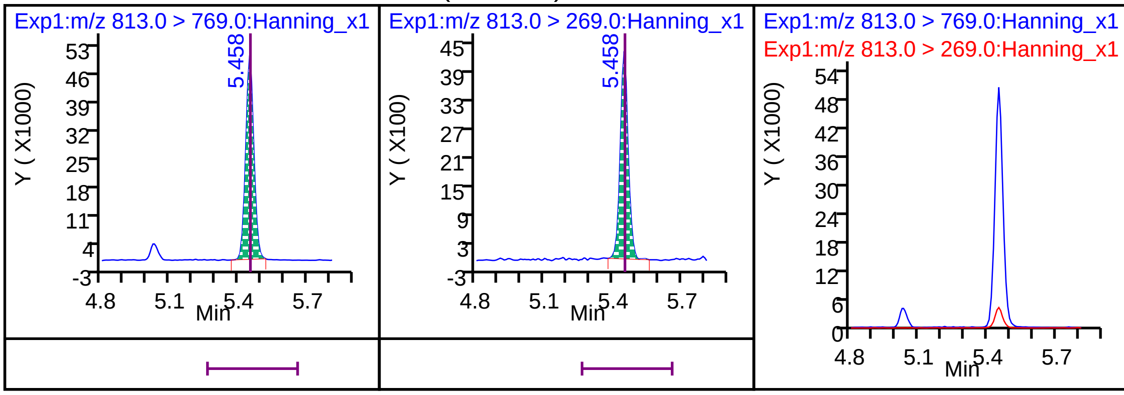


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

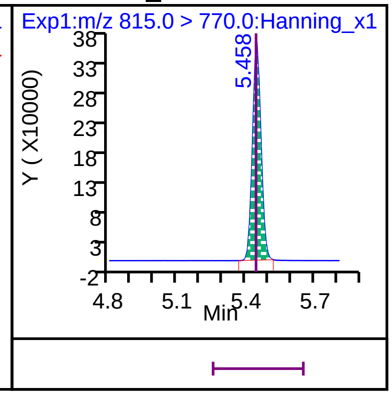


Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921006.d

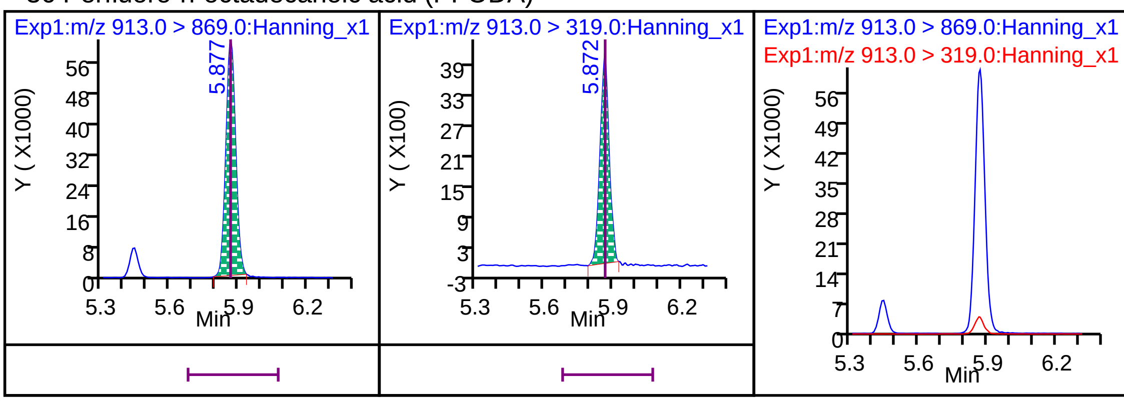
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



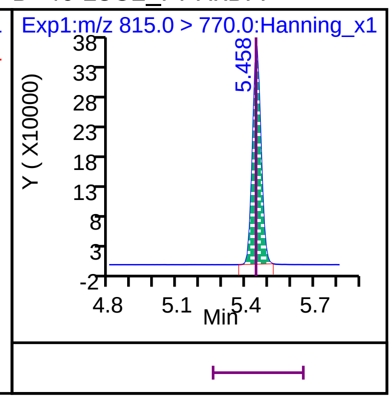
D 40 13C2_PFHxDA



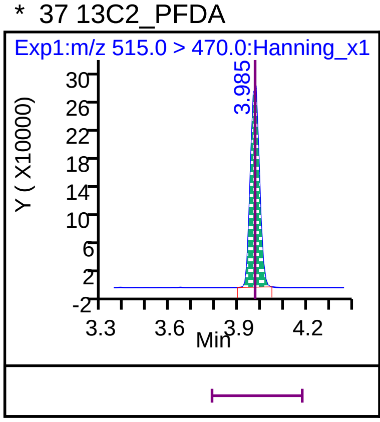
36 Perfluoro-n-octadecanoic acid (PFODA)



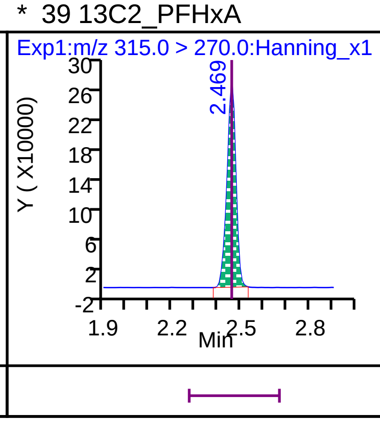
D 40 13C2_PFHxDA



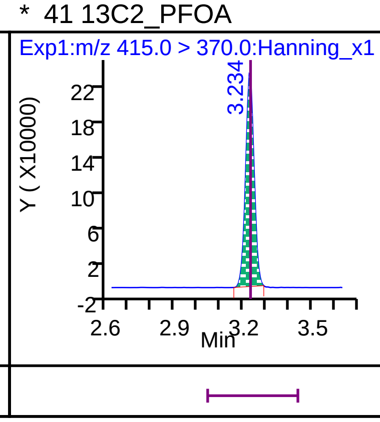
* 37 13C2_PFDA



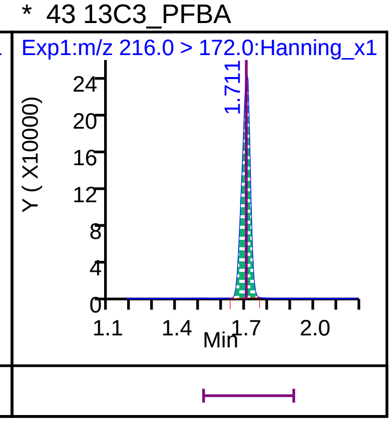
* 39 13C2_PFHxA



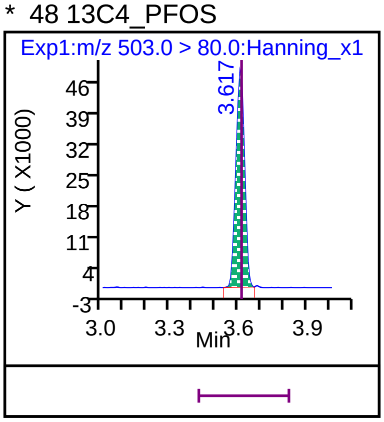
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921020.d
Injection Date: 09-Nov-2021 18:42:02 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 13
Sample Info: ID CCV 1000_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	953.91	95.4	70 - 130
D 46 13C4_PFBA	645349	630309			97.7	50 - 150
21 PFPeA			1000.00	957.37	95.7	70 - 130
D 50 13C5_PFPeA	572798	549963			96	50 - 150
D 44 13C3_PFBS	172627	161998			93.8	50 - 150
7 PFBS			884.00	882.31	99.8	70 - 130
1 4:2 FTS			934.00	1053.27	112.8	70 - 130
D 63 13C2_4:2 FTS_2	103302	97769			94.6	50 - 150
D 49 13C5_PFHxA	672414	623058			92.7	50 - 150
15 PFHxA			1000.00	1003.07	100.3	70 - 130
22 PFPeS			938.00	867.65	92.5	70 - 130
28 GenX			2000.00	1869.79	93.5	70 - 130
D 66 13C3_GenX	1178163	1158582			98.3	50 - 150
D 47 13C4_PFHpA	536896	541682			100.9	50 - 150
13 PFHpA			1000.00	932.13	93.2	70 - 130
D 45 13C3_PFHxS	113881	124641			109.4	50 - 150
14 PFHxS			910.00	894.20	98.3	70 - 130
29 ADONA			942.00	957.85	101.7	70 - 130
D 64 13C2_6:2 FTS_2	103876	89424			86.1	50 - 150
2 6:2 FTS			948.00	1069.69	112.8	70 - 130
20 PFOA			1000.00	998.58	99.9	70 - 130
D 53 13C8_PFOA	548937	542034			98.7	50 - 150
12 PFHpS			952.00	914.74	96.1	70 - 130
D 54 13C8_PFOS	112760	113379			100.5	50 - 150
18 PFOS			928.00	874.51	94.2	70 - 130
17 PFNA			1000.00	1023.57	102.4	70 - 130
D 56 13C9_PFNA	649289	611960			94.3	50 - 150
30 9Cl-PF3ONS			932.00	1021.17	109.6	70 - 130
D 55 13C8_PFOSA	246131	257030			104.4	50 - 150
19 PFOSA			1000.00	966.73	96.7	70 - 130
16 PFNS			960.00	994.90	103.6	70 - 130
10 PFDA			1000.00	1019.95	102	70 - 130
3 8:2 FTS			958.00	881.28	92	70 - 130
D 51 13C6_PFDA	631293	604405			95.7	50 - 150
D 65 13C2_8:2 FTS_2	92479	90723			98.1	50 - 150
6 N-MeFOSAA			1000.00	970.15	97	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	710191	675236			95.1	50 - 150
D 61 d7-MeFOSE	83560	87412			104.6	50 - 150
32 MeFOSE			1000.00	1007.19	100.7	70 - 130
26 MeFOSA			1000.00	1005.45	100.5	70 - 130
D 57 d3-MeFOSA	43685	42475			97.2	50 - 150
9 PFDS			964.00	1059.27	109.9	70 - 130
D 52 13C7_PFUdA	693518	647671			93.4	50 - 150
D 60 d5-EtFOSAA	684113	637680			93.2	50 - 150
25 PFUdA			1000.00	1002.01	100.2	70 - 130
5 N-EtFOSAA			1000.00	920.60	92.1	70 - 130
D 62 d9-EtFOSE	94206	96939			102.9	50 - 150
33 EtFOSE			1000.00	1081.92	108.2	70 - 130
D 59 d5-EtFOSA	42530	41612			97.8	50 - 150
31 11Cl-PF3OUDS			942.00	972.71	103.3	70 - 130
27 EtFOSA			1000.00	934.25	93.4	70 - 130
D 38 13C2_PFDoA	704128	643349			91.4	50 - 150
11 PFDoA			1000.00	995.83	99.6	70 - 130
4 10:2 FTS			964.00	1069.84	111	70 - 130
34 PFDOS			968.00	1003.66	103.7	70 - 130
24 PFTrDA			1000.00	1006.64	100.7	70 - 130
D 42 13C2_PFTeDA	946932	862391			91.1	50 - 150
23 PFTeDA			1000.00	977.76	97.8	70 - 130
D 40 13C2_PFHxDA	912699	922188			101	50 - 150
35 PFHxDA			1000.00	963.81	96.4	70 - 130
36 PFODA			1000.00	1051.18	105.1	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921020.d		
Injection Date:	09-Nov-2021 18:42:02	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	13
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	0	630309	22	>100:1			1000.00	1013.89	97.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.717	1.718	0/0	634109	20	>100:1			1000.00	953.91		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.098	0	549963	15	>100:1			1000.00	962.16	96	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.098	0/0	592595	16	>100:1			1000.00	957.37		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.161	2.151	1	161998	16	>100:1			1000.00	936.57	93.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.161	2.162	0/-1	178241	16	>100:1	Target = 3.53		884.00	882.31		
298.9 > 99	44	2.161	2.162		51918	16	>100:1	3.43 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.504	2.505	0/-1	130265	19	>100:1	Target = 3.10		938.00	867.65		
349 > 99	44	2.504	2.505		43588	18	>100:1	2.98 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.433	2.424	1	97769	19	>100:1			5000.00	4317.71	94.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.433	2.424	1/0	45400	16	>100:1	Target = 1.75		934.00	1053.27		
327 > 81	63	2.441	2.424		21017	18	38:1	2.16 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.477	2.469	1	623058	17	>100:1			1000.00	956.66	92.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.477	2.469	1/0	649818	17	>100:1	Target = 18.91		1000.00	1003.07		
313 > 119	49	2.468	2.469		34650	15	>100:1	18.75 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.590	2.583	1	1158582	19	>100:1			5000.00	4999.14	98.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.590	2.583	1/0	280593	19	>100:1	Target = 0.79		2000.00	1869.79		
285 > 185	66	2.590	2.583		363809	20	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.854	2.845	1	541682	17	>100:1			1000.00	1020.24	100.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.854	2.845	1/0	554822	18	>100:1	Target = 3.80		1000.00	932.13		
363 > 169	47	2.854	2.845		148432	23	>100:1	3.73 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.872	2.864	1	124641	19	>100:1			1000.00	992.05	109.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.872	2.864	1/0	122531	26	>100:1	Target = 2.89	5.75	910.00	894.20		
399 > 99	45	2.872	2.864		38636	26	>100:1	3.17 (1.44-4.34)	9.03				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.896	2.888	1/0	925878	19	>100:1	Target = 3.23		942.00	957.85		
377 > 85	45	2.896	2.888		265897	20	>100:1	3.48 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.250	3.247	1/0	117100	21	>100:1	Target = 3.12		952.00	914.74		
449 > 99	45	3.250	3.247		39101	20	>100:1	2.99 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.223	3.213	1	89424	20	>100:1			5000.00	4968.01	86.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.223	3.213	1/0	45288	19	>100:1	Target = 1.75		948.00	1069.69		
427 > 81	64	3.216	3.213		24362	18	71:1	1.85 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.244	3.240	1	542034	22	>100:1			1000.00	1033.08	98.7	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.250	3.240	1/0	554665	21	>100:1	Target = 2.89		1000.00	998.58		
413 > 169	53	3.250	3.240		174480	22	>100:1	3.17 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.627	3.623	1	113379	20	>100:1			1000.00	915.51	100.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.627	3.623	1/0	118057	41	>100:1	Target = 3.30	3.92	928.00	874.51		M
499 > 99	54	3.627	3.623		38632	37	>100:1	3.05 (1.65-4.95)	5.49				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.840	3.828	1/0	438470	17	>100:1			932.00	1021.17		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.976	3.971	1/0	90499	15	>100:1	Target = 3.08		960.00	994.90		
549 > 99	54	3.976	3.971		38002	17	>100:1	2.38 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.290	4.274	1/0	93982	15	>100:1	Target = 2.72		964.00	1059.27		
599 > 99	54	4.290	4.274		33928	13	>100:1	2.77 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.449	4.443	1/0	377575	15	>100:1			942.00	972.71		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.800	4.796	1/0	97850	21	>100:1	Target = 3.27		968.00	1003.66		
699 > 99	54	4.800	4.796		32163	18	>100:1	3.04 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.634	3.623	1	611960	20	>100:1			1000.00	955.62	94.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.634	3.623	1/0	675163	20	>100:1	Target = 6.51		1000.00	1023.57		
463 > 169	56	3.641	3.623		96035	22	>100:1	7.03 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.906	3.893	1	257030	19	>100:1			1000.00	958.86	104.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.897	3.893	1/0	261445	17	>100:1	Target = 41.63		1000.00	966.73		
498>478	55	3.906	3.893		8565	18	54:1	30.52 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.986	3.981	1	604405	16	>100:1			1000.00	1051.76	95.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.986	3.981	1/0	717407	17	>100:1	Target = 13.80		1000.00	1019.95		
513 > 169	51	3.997	3.981		45199	17	>100:1	15.87 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.986	3.981	1	90723	15	>100:1			5000.00	5248.81	98.1	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.986	3.981	1/0	36132	15	>100:1	Target = 1.94		958.00	881.28		
527 > 81	65	3.986	3.981		18939	15	75:1	1.90 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.591	4.577	1/0	49240	16	>100:1	Target = 3.54		964.00	1069.84		
627 > 80	65	4.591	4.577		11982	18	66:1	4.10 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.153	4.139	1	675236	21	>100:1			5000.00	4468.43	95.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.153	4.148	1/0	105131	30	>100:1	Target = 1.37	7.73	1000.00	970.15		
570 > 483	58	4.153	4.148		80603	32	>100:1	1.30 (0.68-2.05)	4.54				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.310	4.304	1	87412	16	>100:1			1000.00	969.21	104.6	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.320	4.314	1/0	96214	14	>100:1			1000.00	1007.19		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.330	4.325	1	42475	13	>100:1			1000.00	902.93	97.2	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.340	4.335	1/0	46289	13	>100:1	Target = 1.11		1000.00	1005.45		
512 > 219	57	4.340	4.335		44341	14	>100:1	1.04 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.310	4.294	1	637680	15	>100:1			5000.00	4923.67	93.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.320	4.304	1/0	114480	31	>100:1	Target = 1.51	5.47	1000.00	920.60		
584 > 526	60	4.320	4.304		85380	29	>100:1	1.34 (0.75-2.26)	4.17				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.310	4.294	1	647671	14	>100:1			1000.00	1075.42	93.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.310	4.294	1/0	628831	15	>100:1	Target = 14.52		1000.00	1002.01		
563 > 169	52	4.310	4.294		41200	20	>100:1	15.26 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.476	4.470	1	96939	16	>100:1			1000.00	913.86	102.9	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.495	4.479	1/0	102099	15	>100:1			1000.00	1081.92		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.504	4.488	1	41612	13	>100:1			1000.00	967.72	97.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.504	4.497	1/0	46633	14	>100:1	Target = 1.06		1000.00	934.25		
526 > 219	59	4.504	4.497		47629	13	>100:1	0.97 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.583	4.577	1	643349	16	>100:1			1000.00	1071.65	91.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.583	4.577	1/0	682998	17	>100:1	Target = 10.70		1000.00	995.83		
613 > 169	38	4.583	4.577		60226	16	>100:1	11.34 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.830	4.822	1/0	680704	18	>100:1	Target = 8.31		1000.00	1006.64		
663 > 169	38	4.830	4.822		71034	16	>100:1	9.58 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.054	5.042	1	862391	21	>100:1			1000.00	1060.76	91.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.054	5.048	1/0	736064	21	>100:1	Target = 12.17		1000.00	977.76		
713 > 169	42	5.054	5.048		55349	19	>100:1	13.29 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.469	5.454	1	922188	18	>100:1			1000.00	1062.38	101	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.476	5.461	1/0	569241	19	86:1	Target = 10.43		1000.00	963.81		
813 > 269	40	5.476	5.461		50048	20	>100:1	11.37 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.894	5.875	2/1	882514	39	67:1	Target = 13.67		1000.00	1051.18		
913 > 319	40	5.884	5.875		56247	38	>100:1	15.68 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.997	3.981	1	673838	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.477	2.469	1	690923	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.250	3.240	1	576789	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	0	572964	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.634	3.623	1	117625	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 11-Nov-2021 18:39:27		AIM Revision: 2.0.2021.0812	

Pace Environmental Services, LLC

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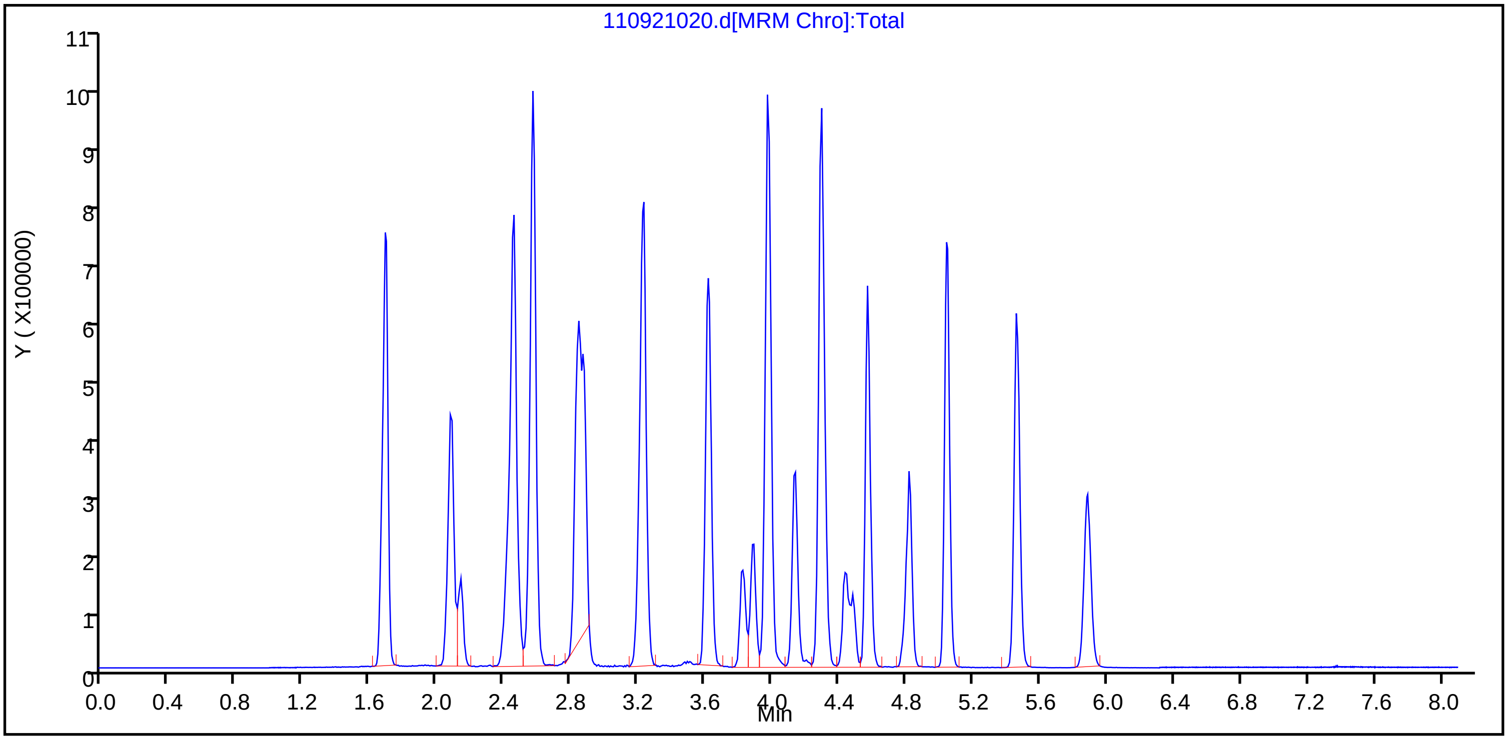
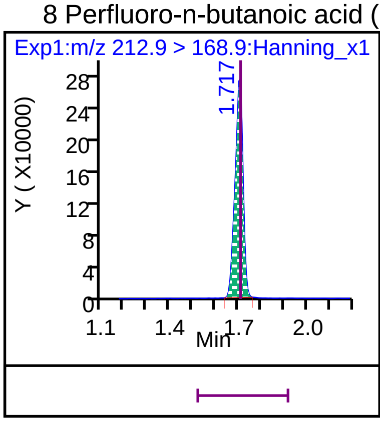
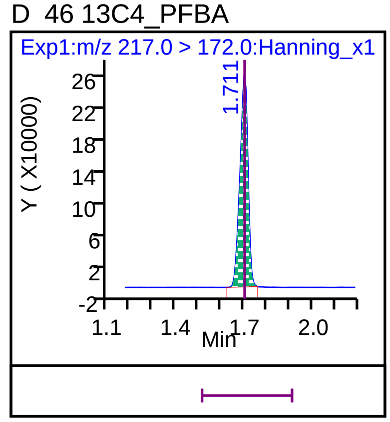
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



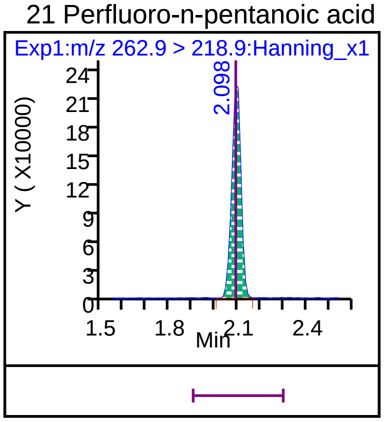
8 Perfluoro-n-butanoic acid (PFBA)



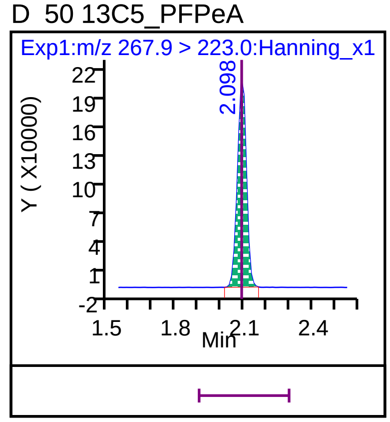
D 46 13C4_PFBA



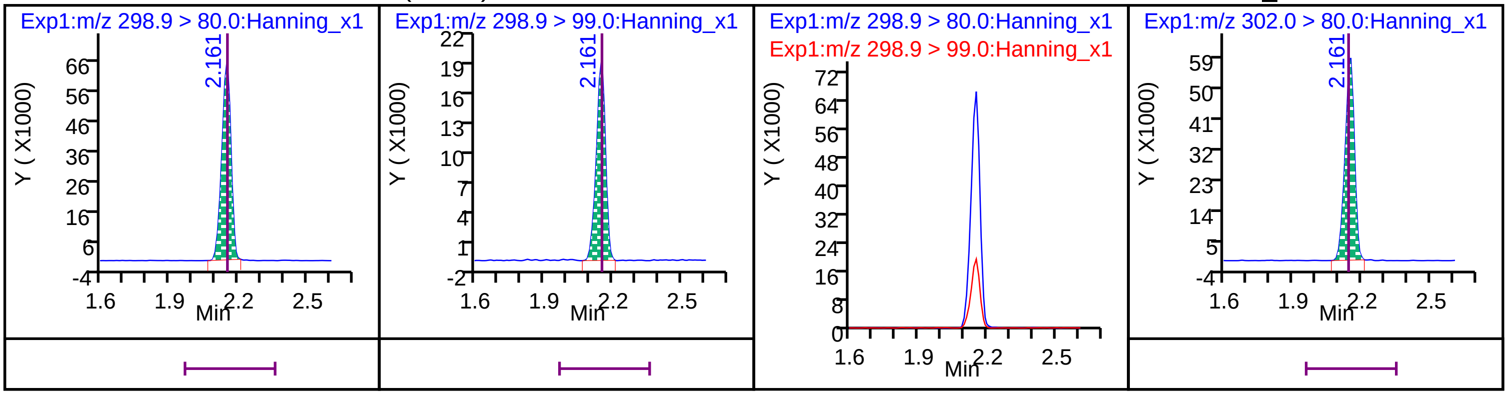
21 Perfluoro-n-pentanoic acid (PFPeA)



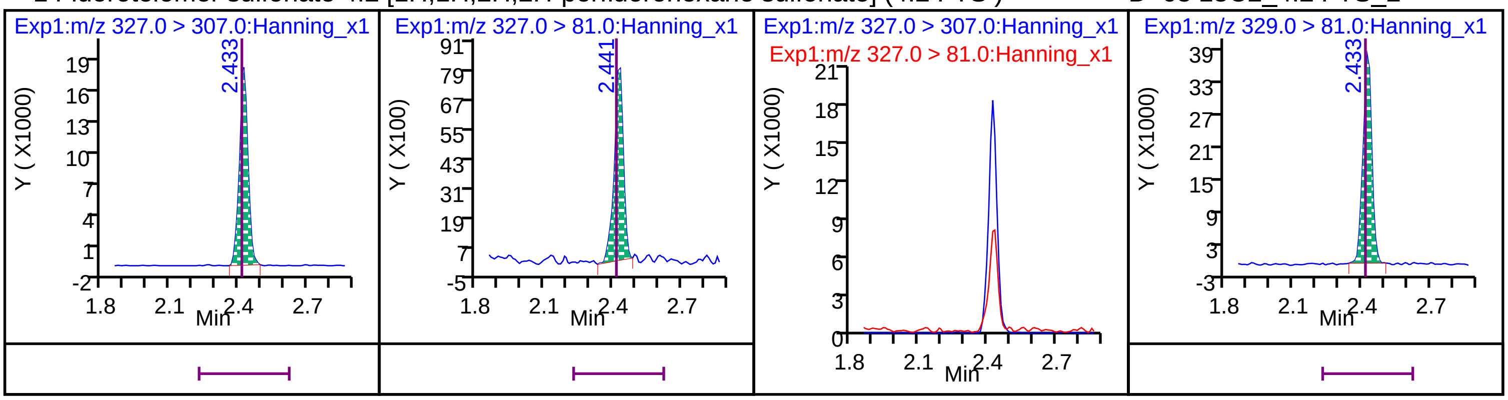
D 50 13C5_PFPeA



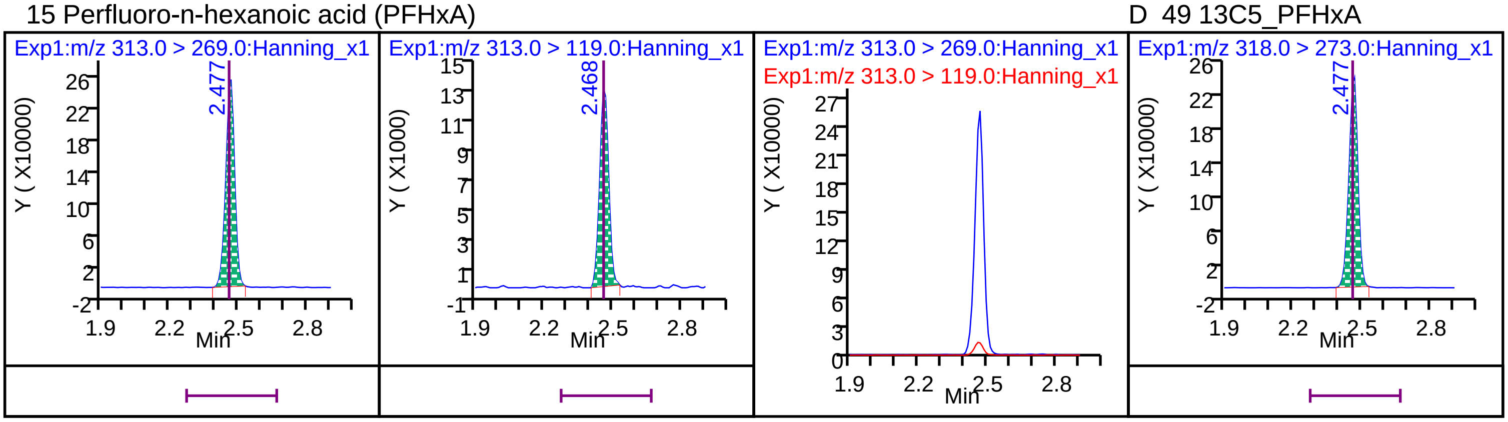
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



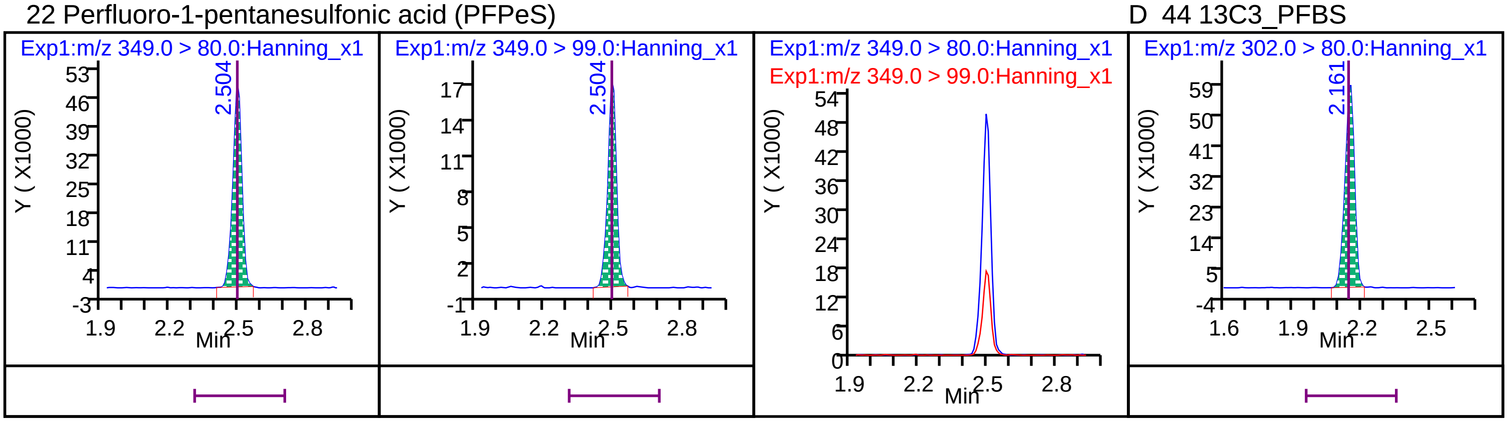
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



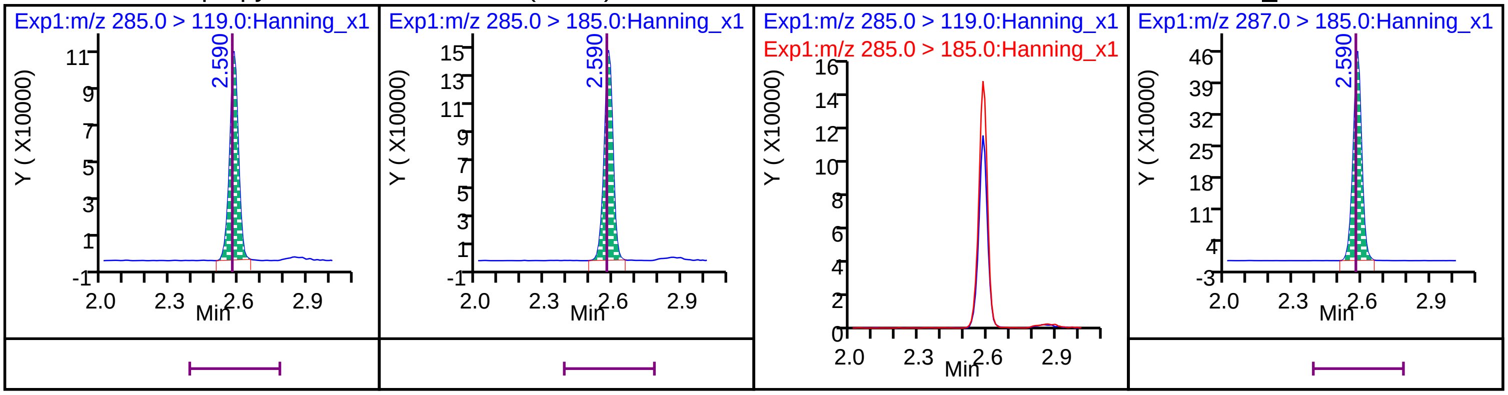
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



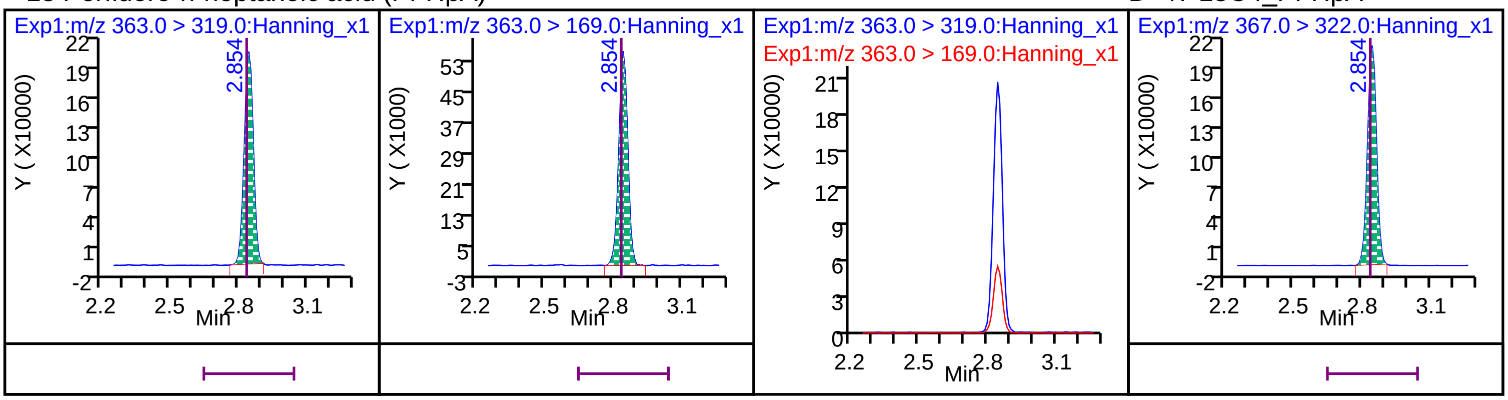
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



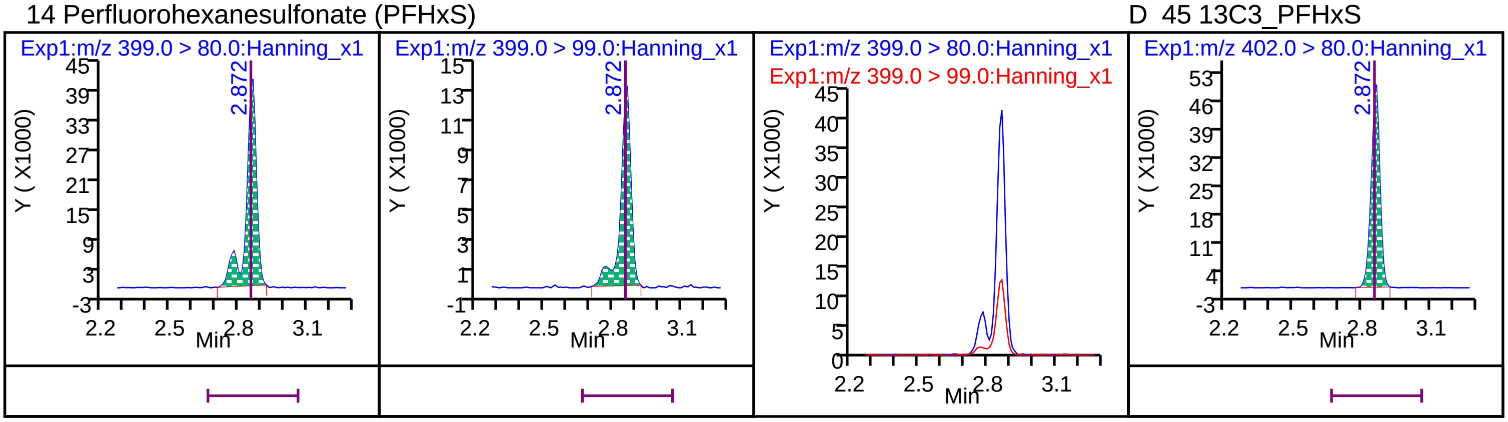
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



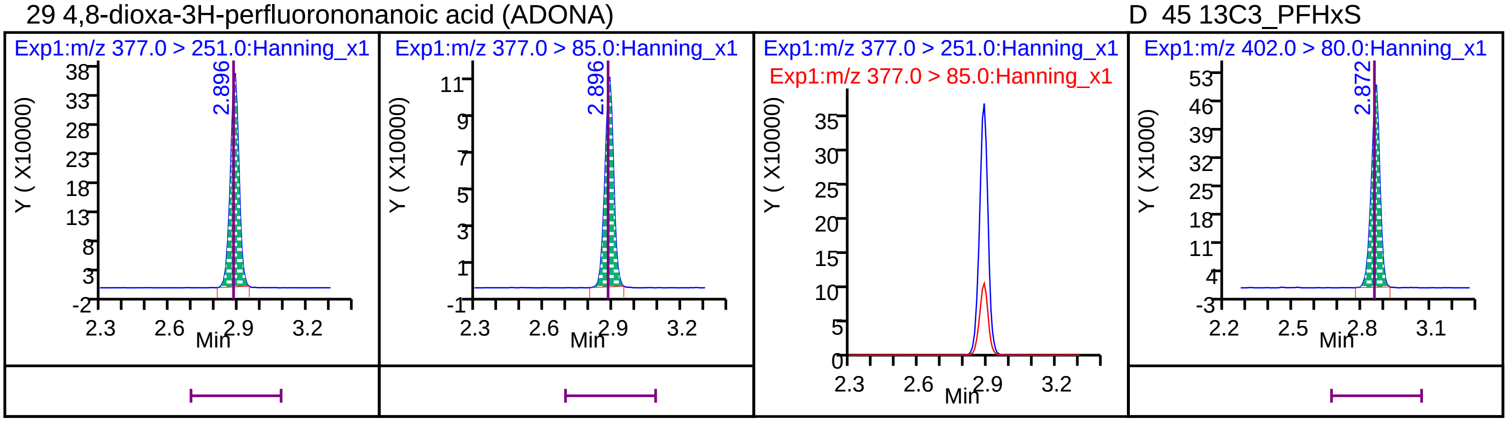
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



Report Date: 11-Nov-2021 18:39:27 AIM Revision: 2.0.2021.0812
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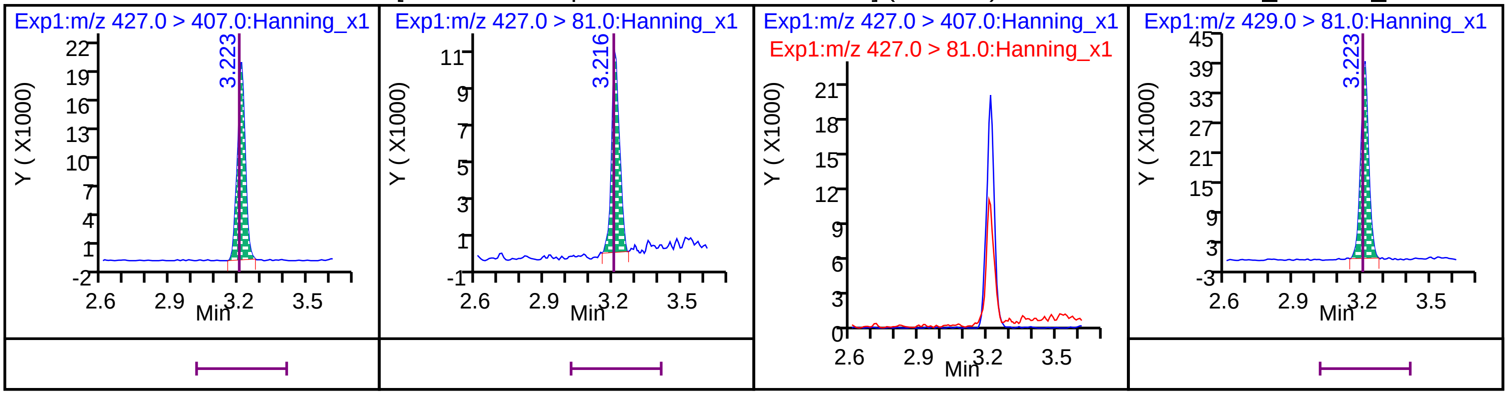
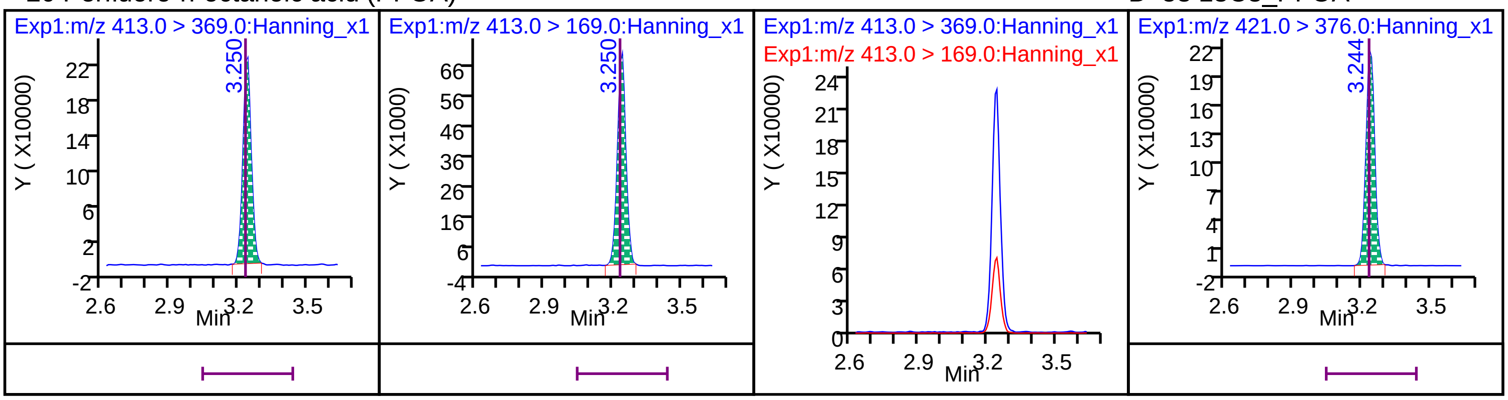
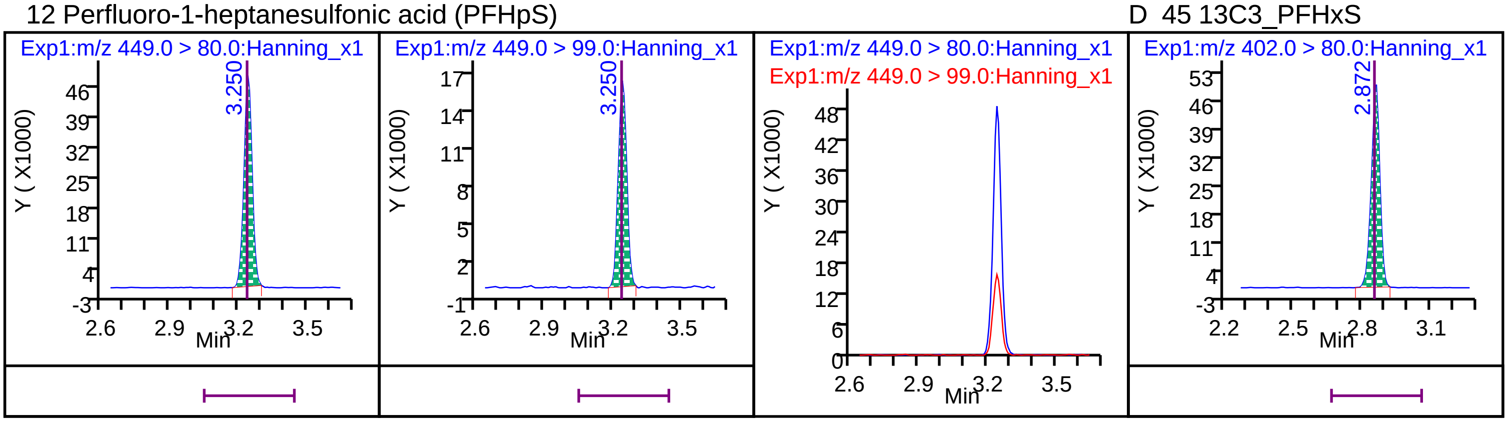
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



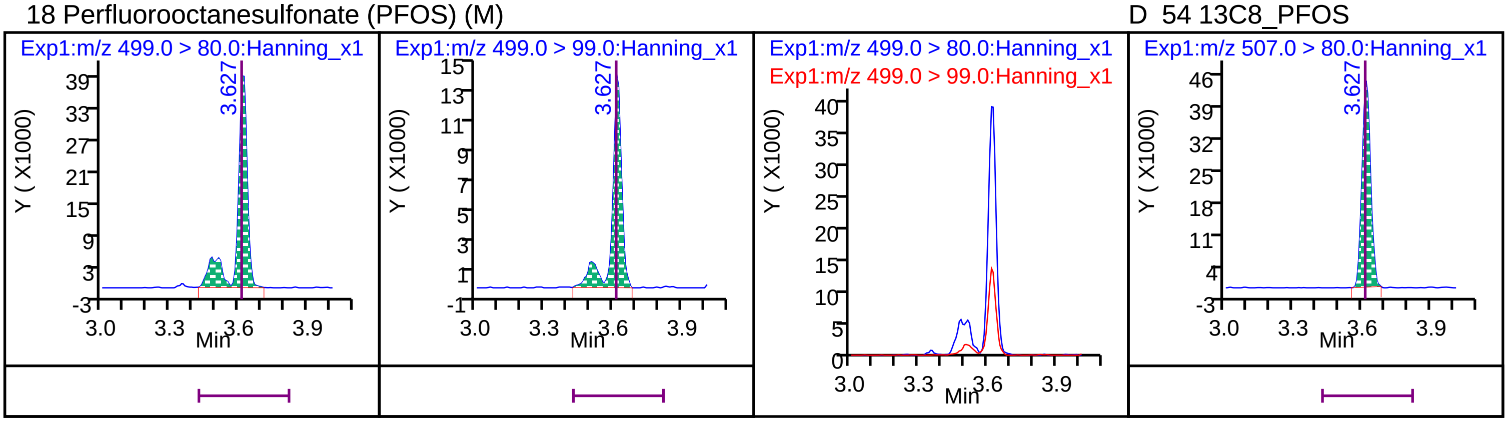
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



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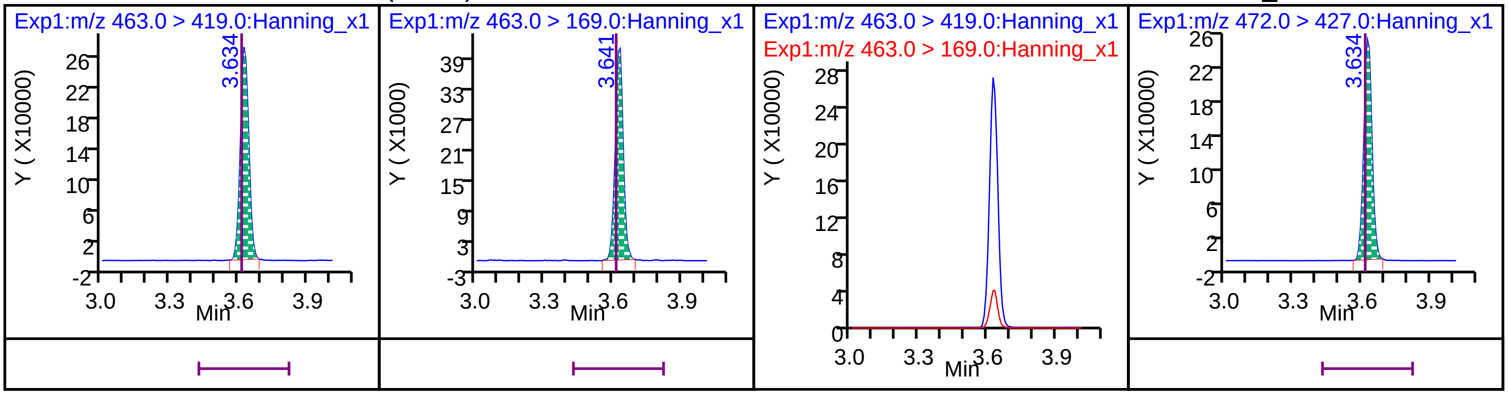
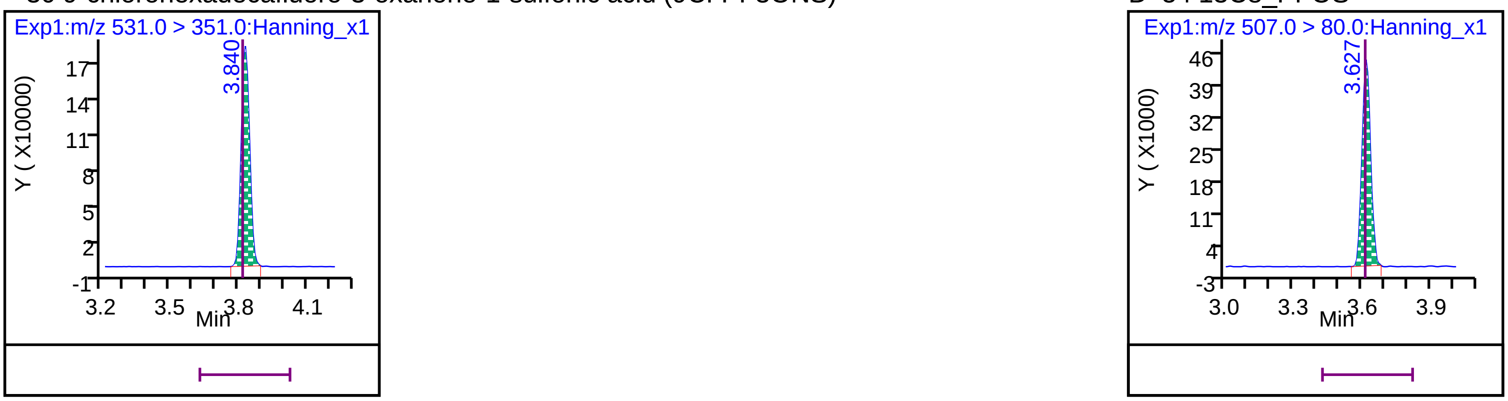
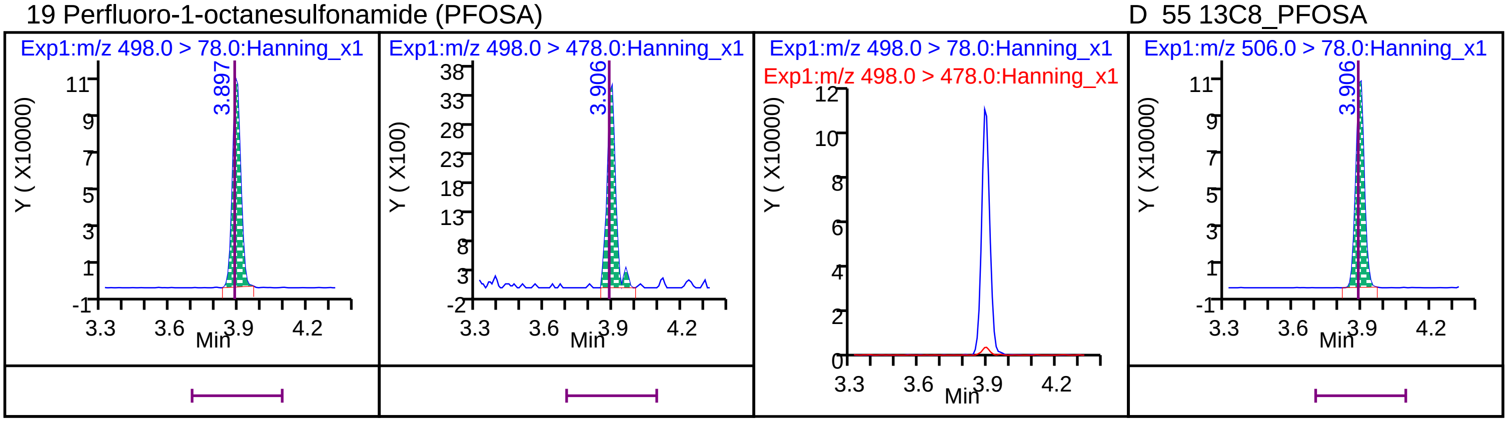
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



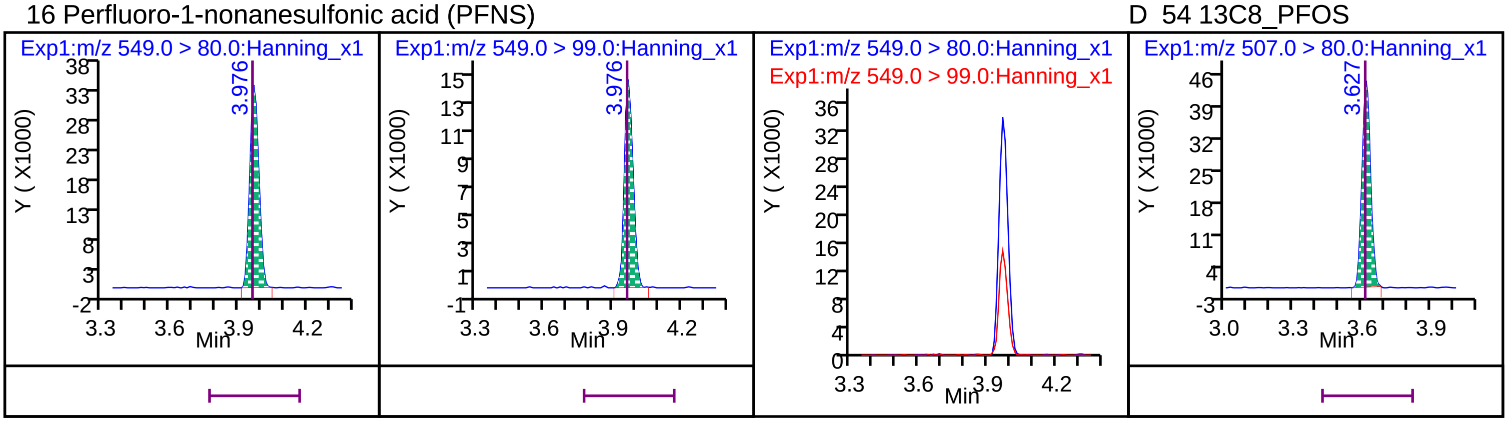
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



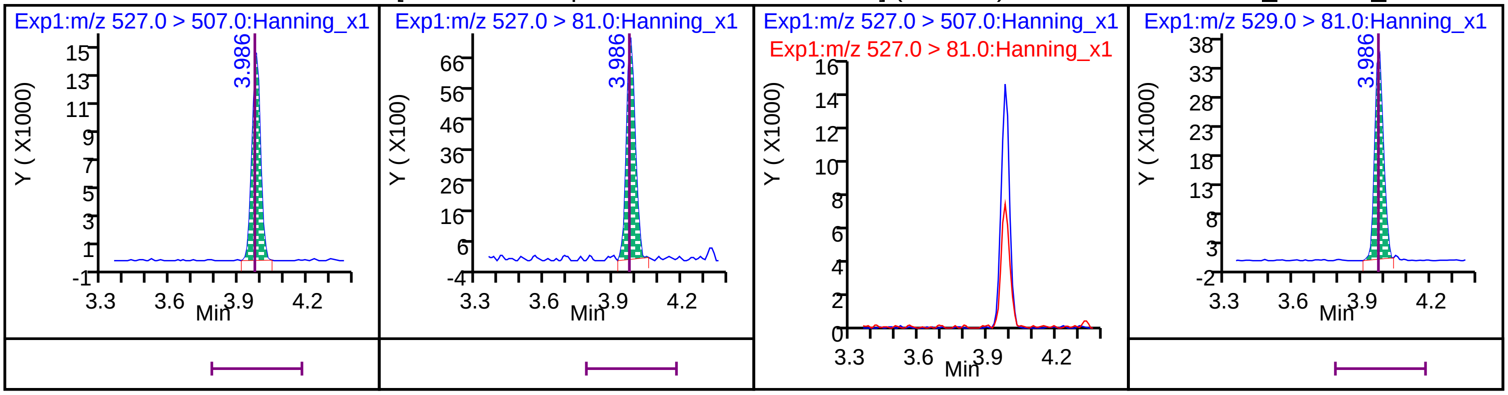
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



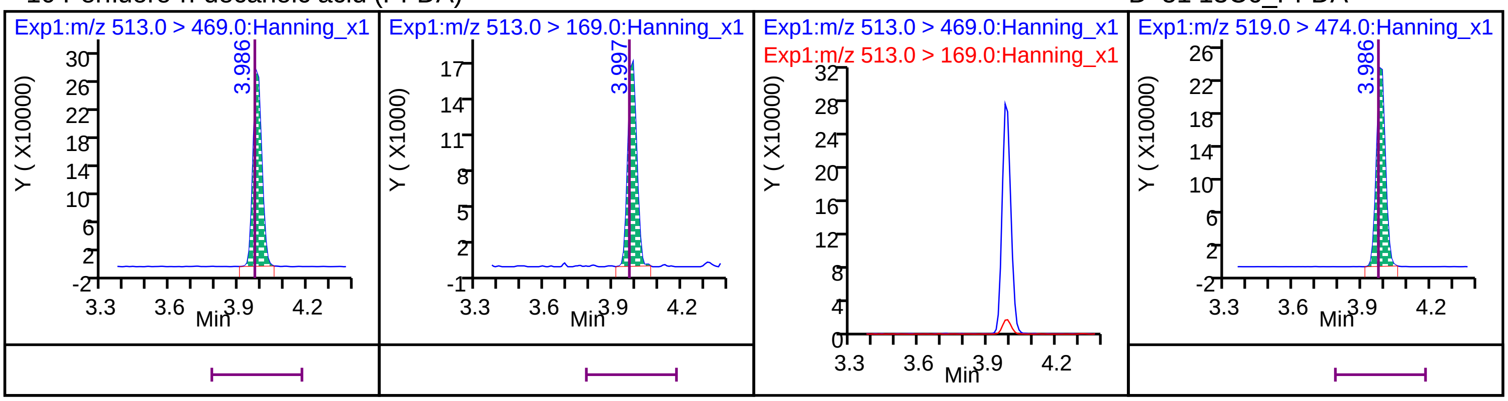
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



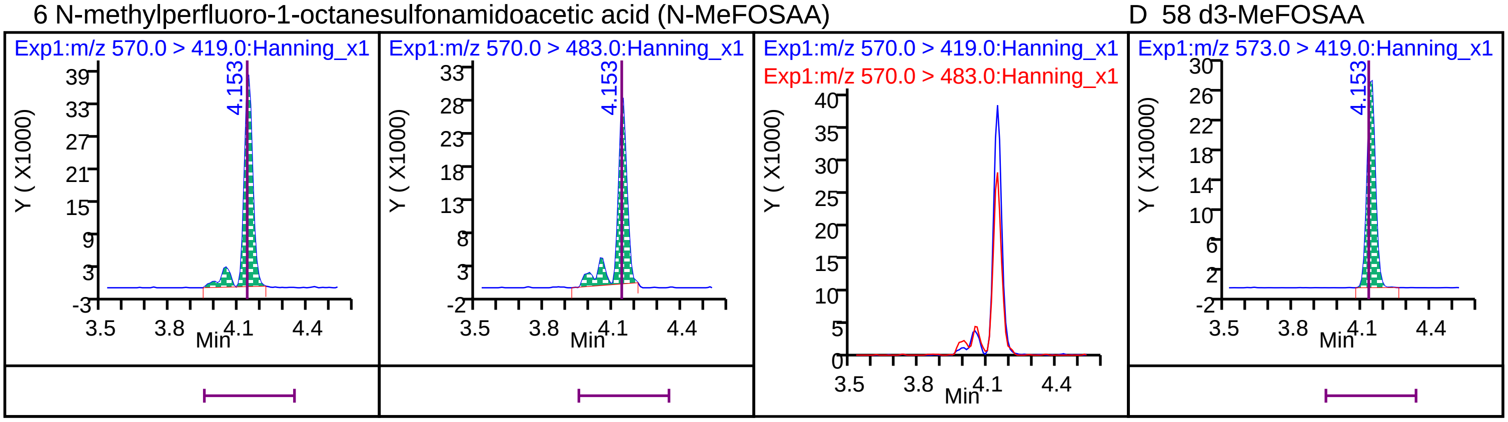
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

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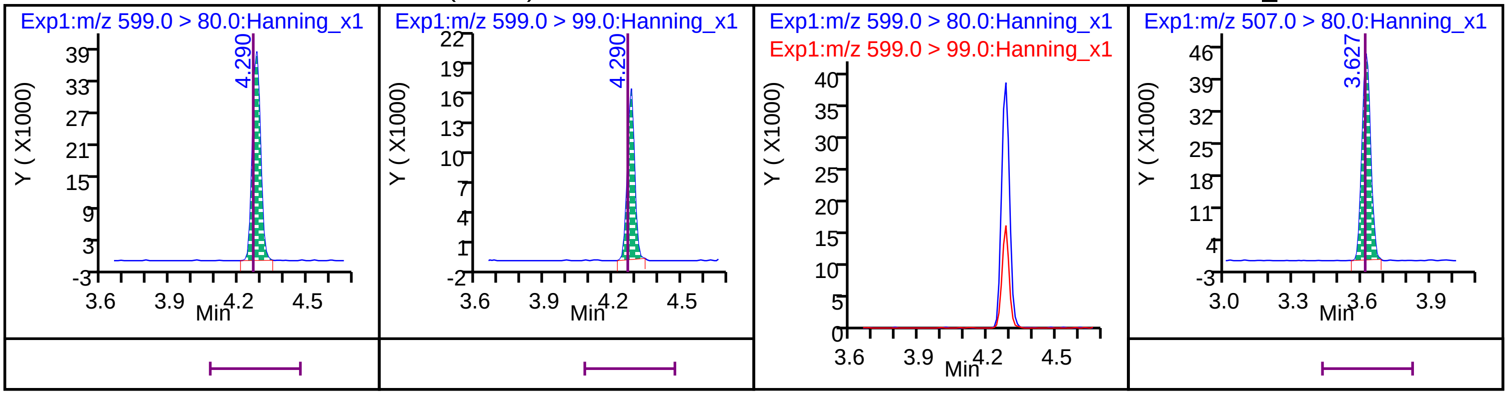
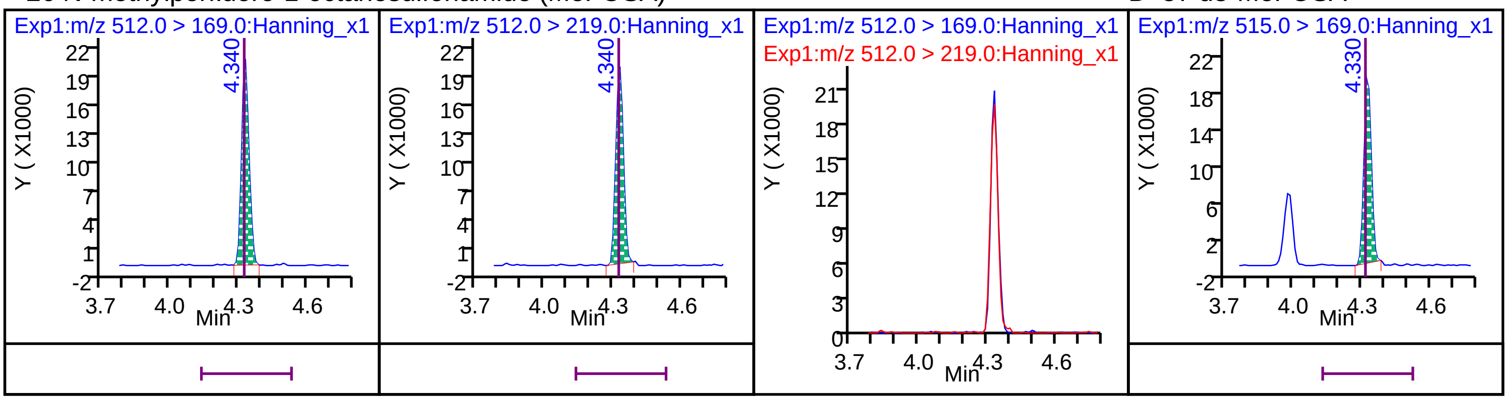
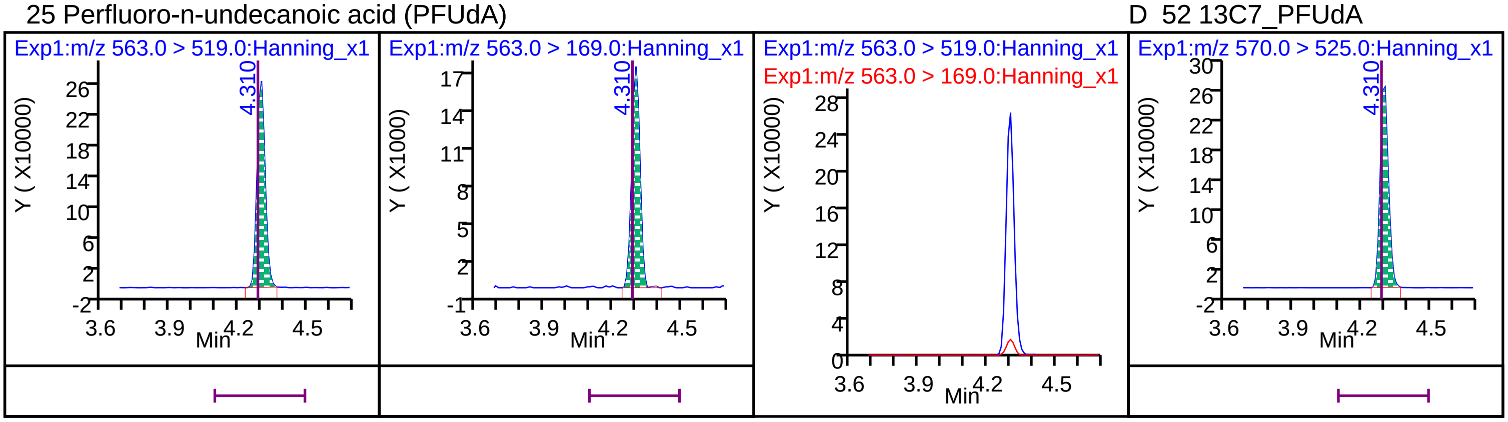
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



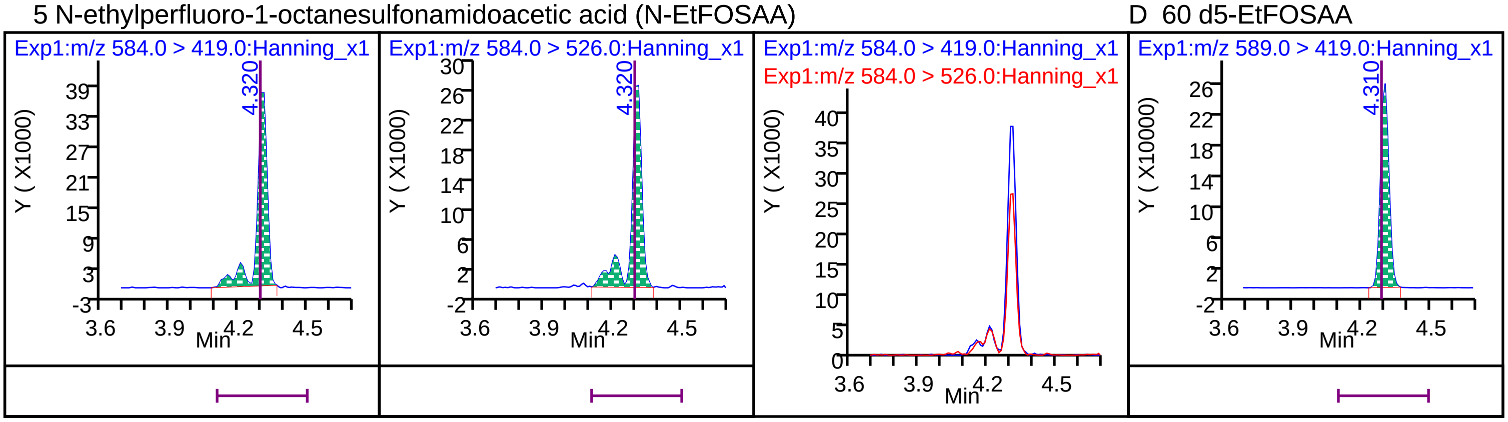
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



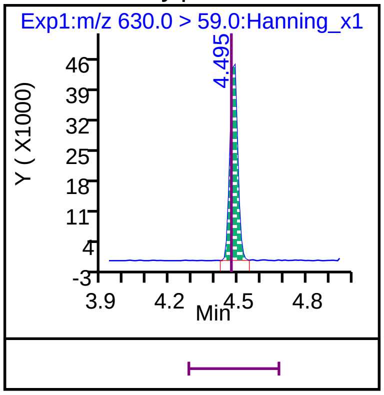
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



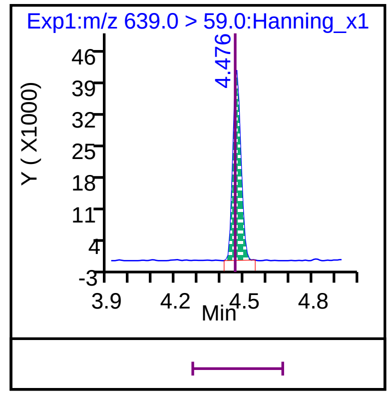
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



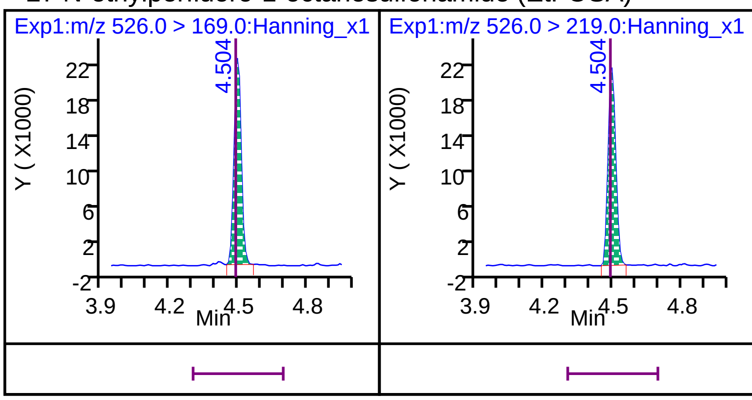
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



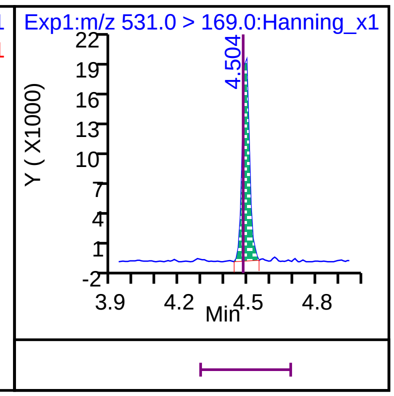
D 62 d9-EtFOSE



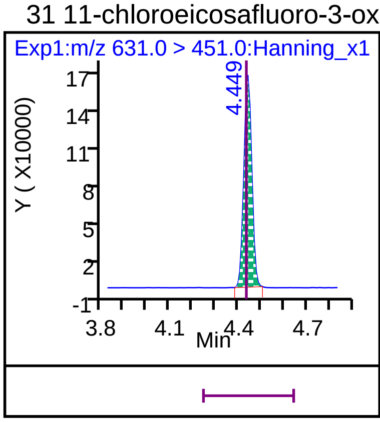
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



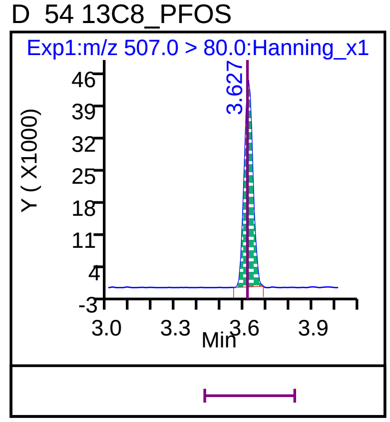
D 59 d5-EtFOSA



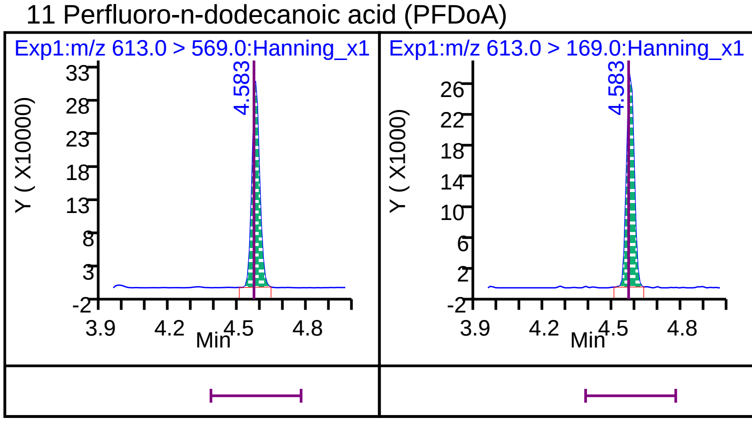
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



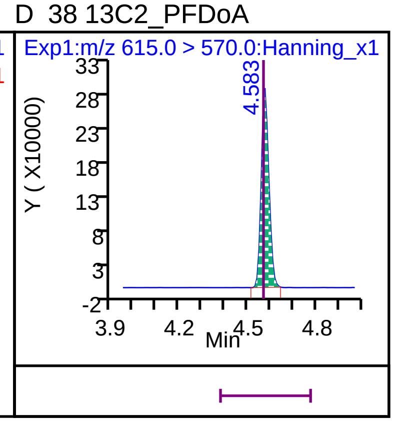
D 54 13C8_PFOS



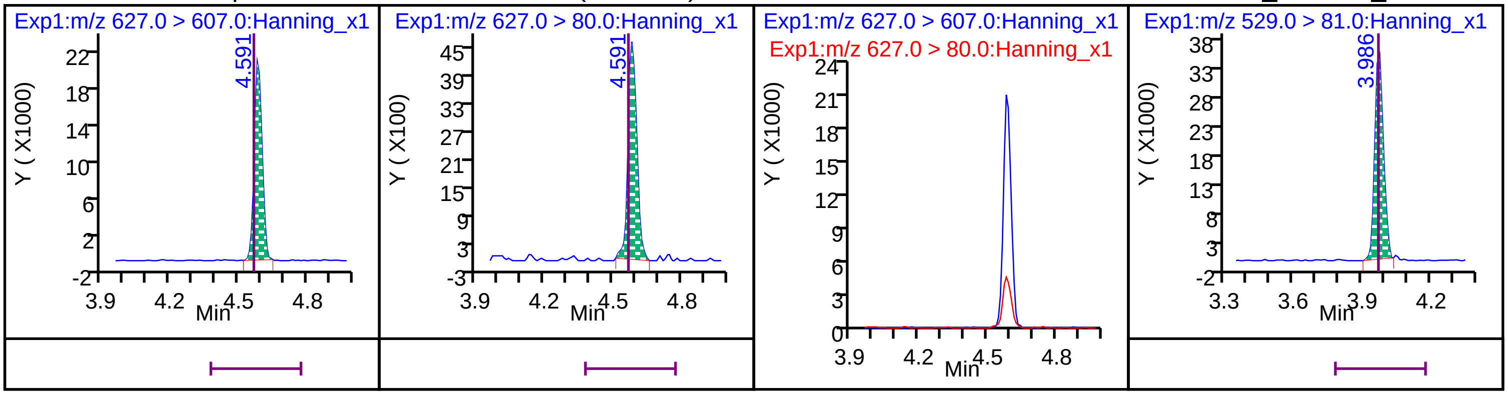
11 Perfluoro-n-dodecanoic acid (PFDoA)



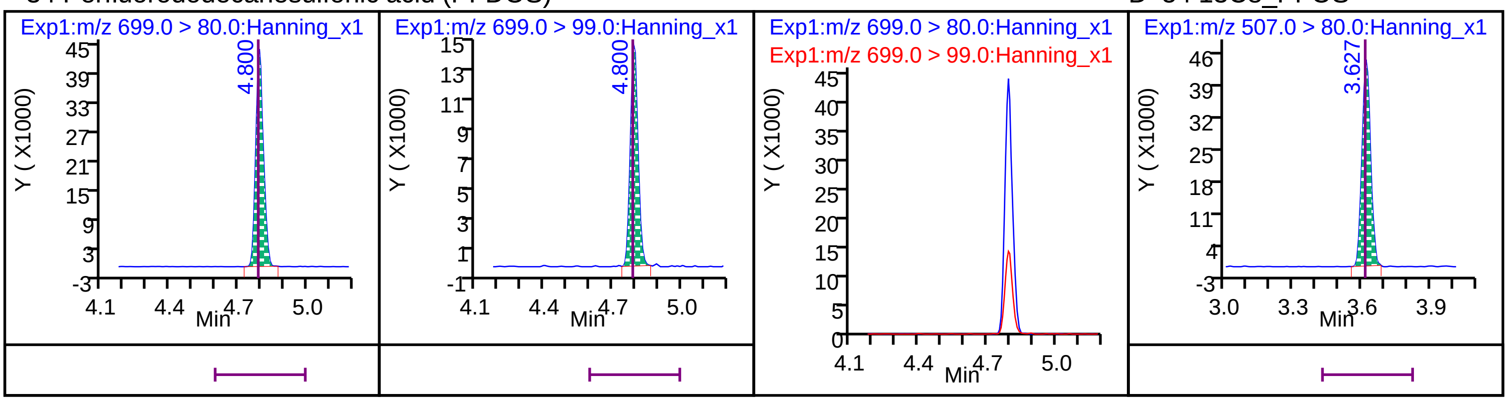
D 38 13C2_PFDoA



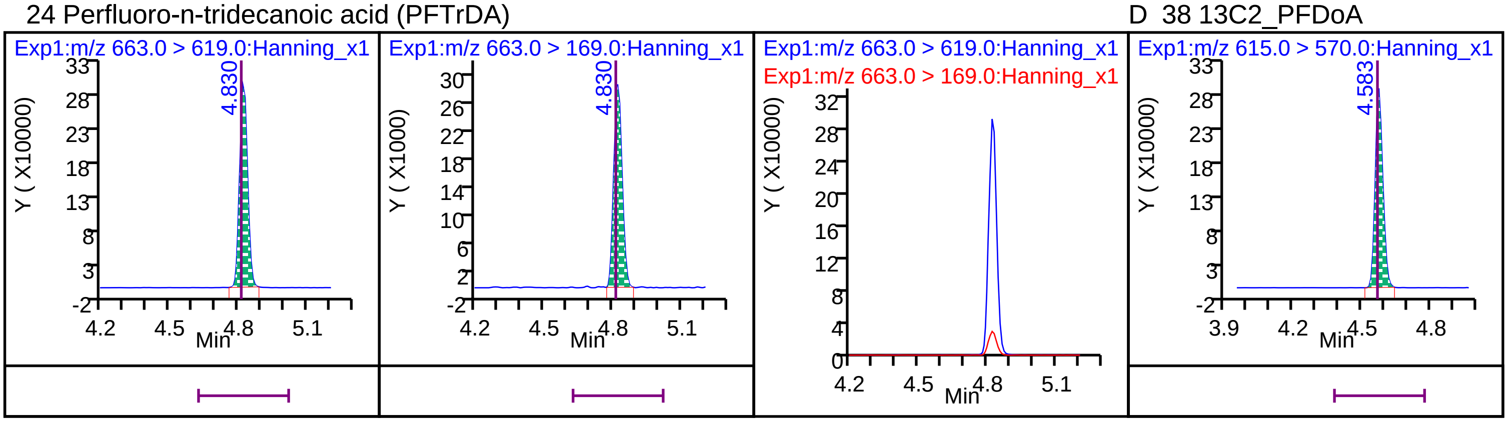
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



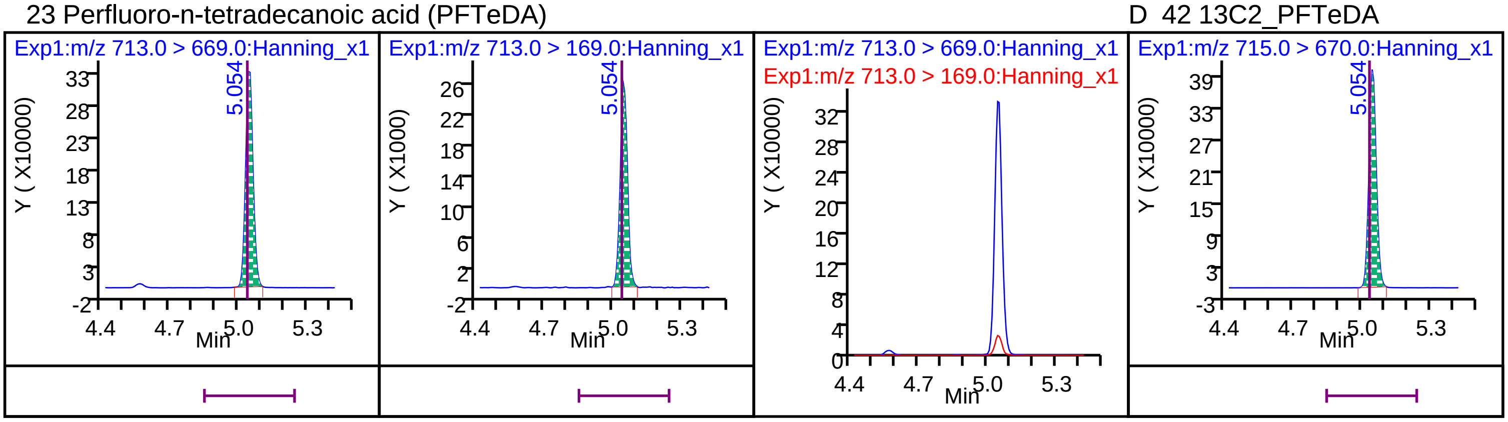
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



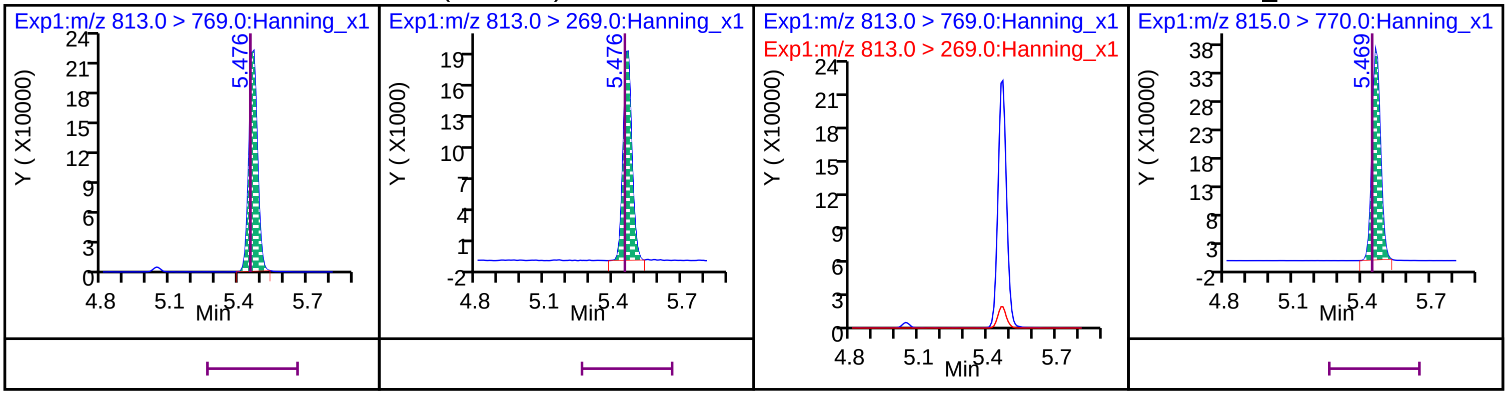
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



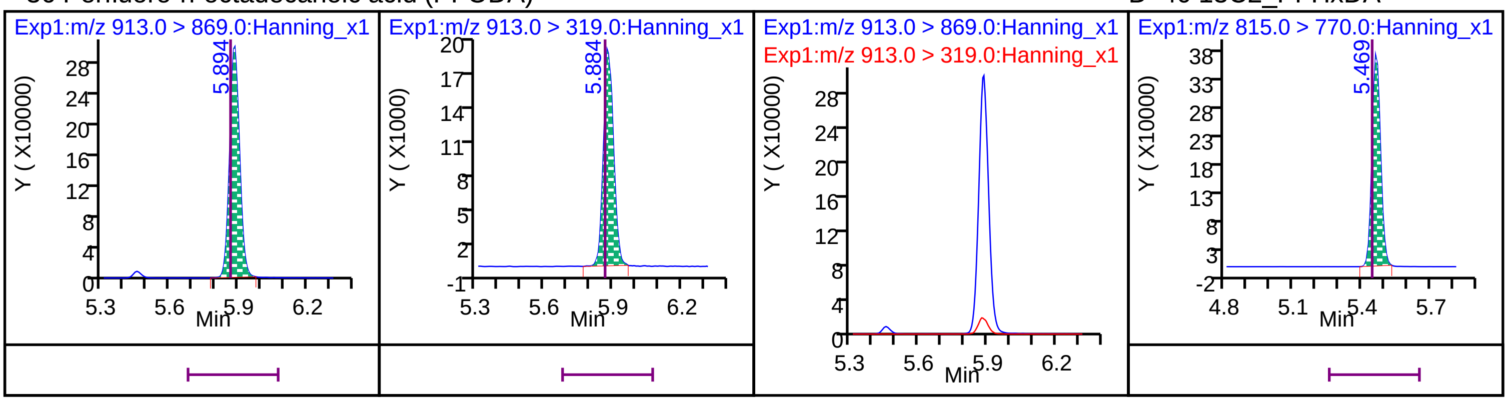
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



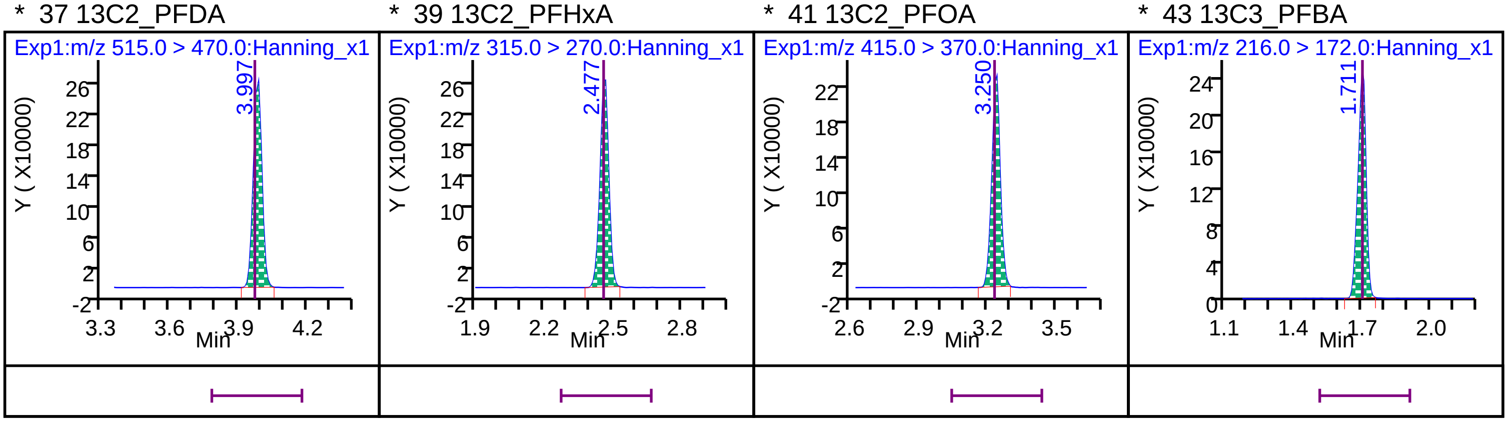
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



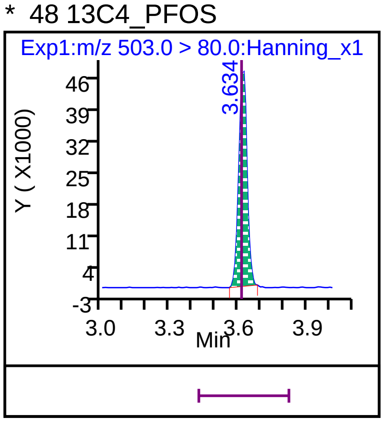
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:27 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

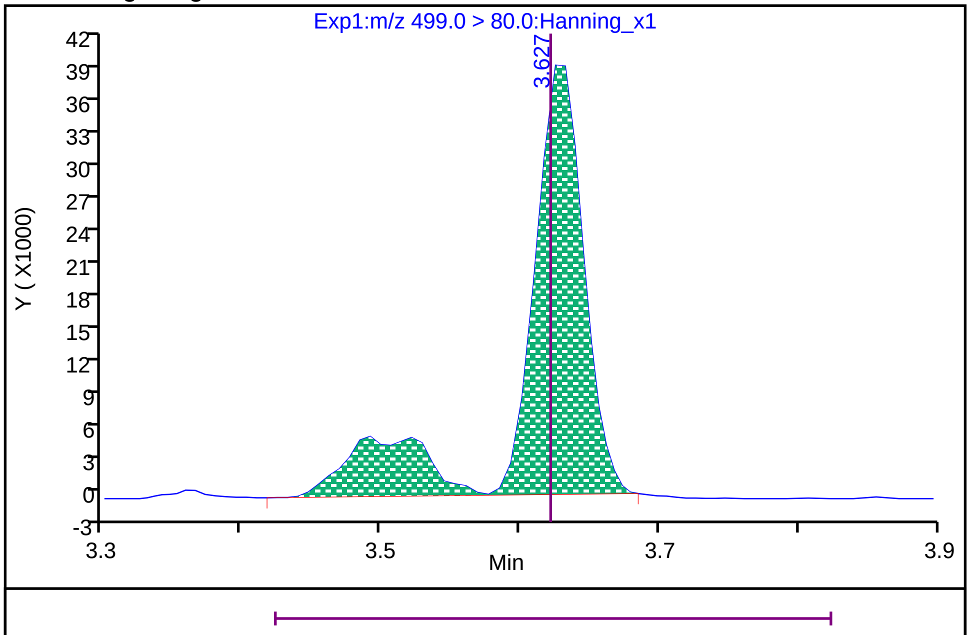
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921020.d		
Injection Date:	09-Nov-2021 18:42:02	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

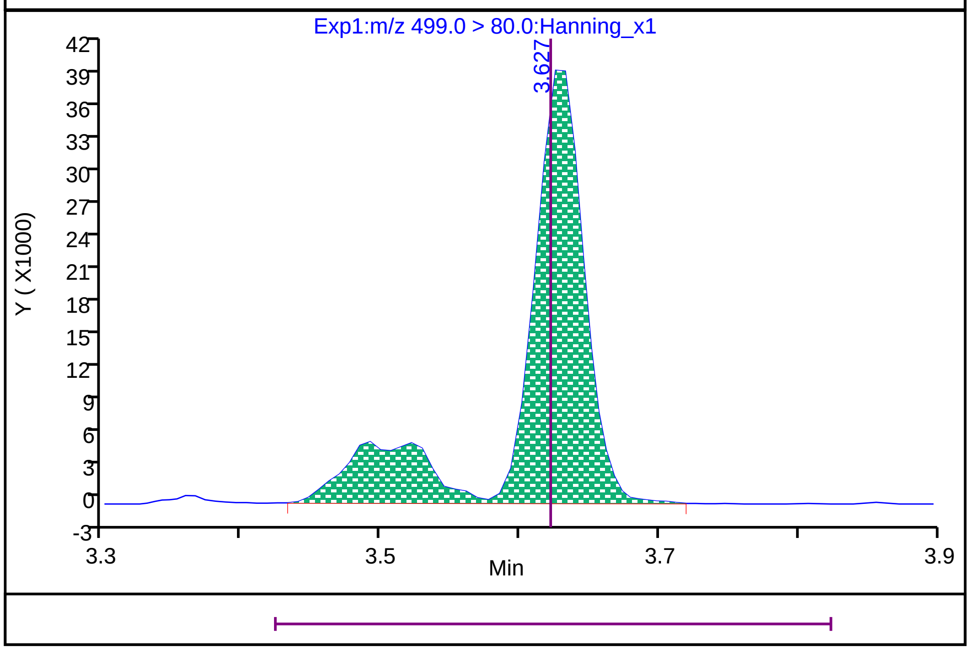
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.627
Area:	113971
Amount:	844.24
Amount Units:	ng/L



RT:	3.627
Area:	118057
Amount:	874.51
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:18:43

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921032.d		
Injection Date:	09-Nov-2021 20:48:27	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	25
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	943.46	94.3	70 - 130
D 46 13C4_PFBA	645349	672284			104.2	50 - 150
21 PFPeA			1000.00	966.33	96.6	70 - 130
D 50 13C5_PFPeA	572798	588912			102.8	50 - 150
D 44 13C3_PFBS	172627	175353			101.6	50 - 150
7 PFBS			884.00	841.85	95.2	70 - 130
1 4:2 FTS			934.00	962.36	103	70 - 130
D 63 13C2_4:2 FTS_2	103302	110792			107.3	50 - 150
D 49 13C5_PFHxA	672414	705465			104.9	50 - 150
15 PFHxA			1000.00	978.27	97.8	70 - 130
22 PFPeS			938.00	911.85	97.2	70 - 130
28 GenX			2000.00	2021.53	101.1	70 - 130
D 66 13C3_GenX	1178163	1138676			96.6	50 - 150
D 47 13C4_PFHpA	536896	570026			106.2	50 - 150
13 PFHpA			1000.00	966.13	96.6	70 - 130
D 45 13C3_PFHxS	113881	127175			111.7	50 - 150
14 PFHxS			910.00	885.20	97.3	70 - 130
29 ADONA			942.00	943.07	100.1	70 - 130
D 64 13C2_6:2 FTS_2	103876	105786			101.8	50 - 150
2 6:2 FTS			948.00	947.59	100	70 - 130
20 PFOA			1000.00	1053.30	105.3	70 - 130
D 53 13C8_PFOA	548937	537610			97.9	50 - 150
12 PFHpS			952.00	908.40	95.4	70 - 130
D 54 13C8_PFOS	112760	117189			103.9	50 - 150
18 PFOS			928.00	962.08	103.7	70 - 130
17 PFNA			1000.00	1019.46	101.9	70 - 130
D 56 13C9_PFNA	649289	657969			101.3	50 - 150
30 9Cl-PF3ONS			932.00	1045.25	112.2	70 - 130
D 55 13C8_PFOSA	246131	250539			101.8	50 - 150
19 PFOSA			1000.00	1023.44	102.3	70 - 130
16 PFNS			960.00	1082.14	112.7	70 - 130
10 PFDA			1000.00	939.23	93.9	70 - 130
3 8:2 FTS			958.00	1184.84	123.7	70 - 130
D 51 13C6_PFDA	631293	676765			107.2	50 - 150
D 65 13C2_8:2 FTS_2	92479	89307			96.6	50 - 150
6 N-MeFOSAA			1000.00	887.38	88.7	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	710191	733407			103.3	50 - 150
D 61 d7-MeFOSE	83560	95979			114.9	50 - 150
32 MeFOSE			1000.00	909.18	90.9	70 - 130
26 MeFOSA			1000.00	910.37	91	70 - 130
D 57 d3-MeFOSA	43685	45001			103	50 - 150
9 PFDS			964.00	1078.27	111.9	70 - 130
D 52 13C7_PFUdA	693518	681175			98.2	50 - 150
D 60 d5-EtFOSAA	684113	671092			98.1	50 - 150
25 PFUdA			1000.00	994.35	99.4	70 - 130
5 N-EtFOSAA			1000.00	1029.21	102.9	70 - 130
D 62 d9-EtFOSE	94206	100592			106.8	50 - 150
33 EtFOSE			1000.00	1068.65	106.9	70 - 130
D 59 d5-EtFOSA	42530	39626			93.2	50 - 150
31 11Cl-PF3OUDS			942.00	1102.10	117	70 - 130
27 EtFOSA			1000.00	1089.78	109	70 - 130
D 38 13C2_PFDoA	704128	715953			101.7	50 - 150
11 PFDoA			1000.00	972.12	97.2	70 - 130
4 10:2 FTS			964.00	1204.26	124.9	70 - 130
34 PFDOS			968.00	924.20	95.5	70 - 130
24 PFTrDA			1000.00	962.59	96.3	70 - 130
D 42 13C2_PFTeDA	946932	920463			97.2	50 - 150
23 PFTeDA			1000.00	973.75	97.4	70 - 130
D 40 13C2_PFHxDA	912699	911254			99.8	50 - 150
35 PFHxDA			1000.00	968.56	96.9	70 - 130
36 PFODA			1000.00	1049.74	105	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921032.d		
Injection Date:	09-Nov-2021 20:48:27	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	25
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	0	672284	20	>100:1			1000.00	1081.41	104.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.711	1.718	0/0	668924	21	>100:1			1000.00	943.46		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	588912	15	>100:1			1000.00	1030.30	102.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.098	1/1	640503	17	>100:1			1000.00	966.33		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	175353	16	>100:1			1000.00	1013.78	101.6	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.162	0/-1	184087	16	>100:1	Target = 3.53		884.00	841.85		
298.9 > 99	44	2.151	2.162		52876	17	>100:1	3.48 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/-1	148187	18	>100:1	Target = 3.10		938.00	911.85		
349 > 99	44	2.496	2.505		45784	19	>100:1	3.23 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	0	110792	18	>100:1			5000.00	4892.84	107.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	0/0	47007	19	>100:1	Target = 1.75		934.00	962.36		
327 > 81	63	2.424	2.424		24003	19	41:1	1.95 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	705465	17	>100:1			1000.00	1083.19	104.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	717572	18	>100:1	Target = 18.91		1000.00	978.27		
313 > 119	49	2.460	2.469		36292	16	>100:1	19.77 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1138676	18	>100:1			5000.00	4913.25	96.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	0/0	298152	20	>100:1	Target = 0.79		2000.00	2021.53		
285 > 185	66	2.583	2.583		368152	19	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	570026	18	>100:1			1000.00	1073.62	106.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	605146	18	>100:1	Target = 3.80		1000.00	966.13		
363 > 169	47	2.845	2.845		157388	19	>100:1	3.84 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.854	2.864	0	127175	18	>100:1			1000.00	1012.22	111.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.854	2.864	0/0	123764	27	>100:1	Target = 2.89	6.57	910.00	885.20		
399 > 99	45	2.854	2.864		36078	26	>100:1	3.43 (1.44-4.34)	9.67				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΤRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.880	2.888	0/0	930123	18	>100:1	Target = 3.23		942.00	943.07		
377 > 85	45	2.880	2.888		275264	19	>100:1	3.37 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.247	0/0	118653	20	>100:1	Target = 3.12		952.00	908.40		
449 > 99	45	3.241	3.247		40307	21	>100:1	2.94 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	105786	23	>100:1			5000.00	5877.01	101.8	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.213	0/0	47459	18	>100:1	Target = 1.75		948.00	947.59		
427 > 81	64	3.201	3.213		27709	24	53:1	1.71 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.228	3.240	0	537610	21	>100:1			1000.00	1024.65	97.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.240	0/0	580284	21	>100:1	Target = 2.89		1000.00	1053.30		
413 > 169	53	3.234	3.240		187959	22	>100:1	3.08 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.609	3.623	0	117189	18	>100:1			1000.00	946.27	103.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.617	3.623	0/0	134243	40	>100:1	Target = 3.30	3.83	928.00	962.08		
499 > 99	54	3.617	3.623		37712	38	>100:1	3.55 (1.65-4.95)	7.31				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.822	3.828	0/0	463891	19	>100:1			932.00	1045.25		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.964	3.971	0/0	101742	15	>100:1	Target = 3.08		960.00	1082.14		
549 > 99	54	3.964	3.971		40901	15	>100:1	2.48 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.267	4.274	0/0	98882	16	>100:1	Target = 2.72		964.00	1078.27		
599 > 99	54	4.278	4.274		32451	16	>100:1	3.04 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.437	4.443	0/0	442177	17	>100:1			942.00	1102.10		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.786	4.796	0/0	93131	20	>100:1	Target = 3.27		968.00	924.20		
699 > 99	54	4.786	4.796		31570	20	>100:1	2.94 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	657969	20	>100:1			1000.00	1027.47	101.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.617	3.623	0/0	723009	19	>100:1	Target = 6.51		1000.00	1019.46		
463 > 169	56	3.617	3.623		108360	21	>100:1	6.67 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.879	3.893	0	250539	19	>100:1			1000.00	934.65	101.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.879	3.893	0/0	269793	18	>100:1	Target = 41.63		1000.00	1023.44		
498>478	55	3.879	3.893		8273	18	35:1	32.61 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	676765	16	>100:1			1000.00	1177.68	107.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.974	3.981	0/0	739718	15	>100:1	Target = 13.80		1000.00	939.23		
513 > 169	51	3.974	3.981		48982	14	>100:1	15.10 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	89307	17	>100:1			5000.00	5166.88	96.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.964	3.981	-1/0	47820	13	>100:1	Target = 1.94		958.00	1184.84		
527 > 81	65	3.964	3.981		20561	17	89:1	2.32 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.580	4.577	1/2	54562	15	>100:1	Target = 3.54		964.00	1204.26		
627 > 80	65	4.580	4.577		17417	21	>100:1	3.13 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.133	4.139	0	733407	16	>100:1			5000.00	4853.38	103.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.142	4.148	0/0	104445	34	>100:1	Target = 1.37	7.42	1000.00	887.38		M
570 > 483	58	4.133	4.148		86470	31	>100:1	1.20 (0.68-2.05)	4.94				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.298	4.304	0	95979	20	>100:1			1000.00	1064.20	114.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.314	0/0	95364	14	>100:1			1000.00	909.18		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.325	0	45001	14	>100:1			1000.00	956.63	103	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.335	0/0	44404	13	>100:1	Target = 1.11		1000.00	910.37		
512 > 219	57	4.318	4.335		42525	15	>100:1	1.04 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.288	4.294	0	671092	15	>100:1			5000.00	5181.65	98.1	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.298	4.304	0/0	134693	29	>100:1	Target = 1.51	8.52	1000.00	1029.21		M
584 > 526	60	4.298	4.304		85522	31	>100:1	1.57 (0.75-2.26)	4.92				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.288	4.294	0	681175	14	>100:1			1000.00	1131.05	98.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.288	4.294	0/0	656305	15	>100:1	Target = 14.52		1000.00	994.35		
563 > 169	52	4.288	4.294		41542	13	>100:1	15.79 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.464	4.470	0	100592	17	>100:1			1000.00	948.29	106.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.473	4.479	0/0	104647	15	>100:1			1000.00	1068.65		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.482	4.488	0	39626	14	>100:1			1000.00	921.54	93.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.492	4.497	0/0	51696	18	>100:1	Target = 1.06		1000.00	1089.78		
526 > 219	59	4.492	4.497		48733	19	>100:1	1.06 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.571	4.577	0	715953	17	>100:1			1000.00	1192.59	101.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.571	4.577	0/0	741980	17	>100:1	Target = 10.70		1000.00	972.12		
613 > 169	38	4.571	4.577		68926	16	>100:1	10.76 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.816	4.822	0/0	724376	19	>100:1	Target = 8.31		1000.00	962.59		
663 > 169	38	4.816	4.822		78547	17	>100:1	9.22 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.038	5.042	0	920463	20	>100:1			1000.00	1132.19	97.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.038	5.048	0/0	782409	21	99:1	Target = 12.17		1000.00	973.75		
713 > 169	42	5.038	5.048		61395	21	>100:1	12.74 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.458	5.454	1	911254	19	>100:1			1000.00	1049.79	99.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.458	5.461	0/-1	565265	19	92:1	Target = 10.43		1000.00	968.56		
813 > 269	40	5.458	5.461		49222	18	>100:1	11.48 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.872	5.875	0/-1	870861	37	69:1	Target = 13.67		1000.00	1049.74		
913 > 319	40	5.872	5.875		56096	37	>100:1	15.52 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	720722	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	707042	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.228	3.240	0	558049	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	0	609287	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.617	3.623	0	117199	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.

* - ISTD

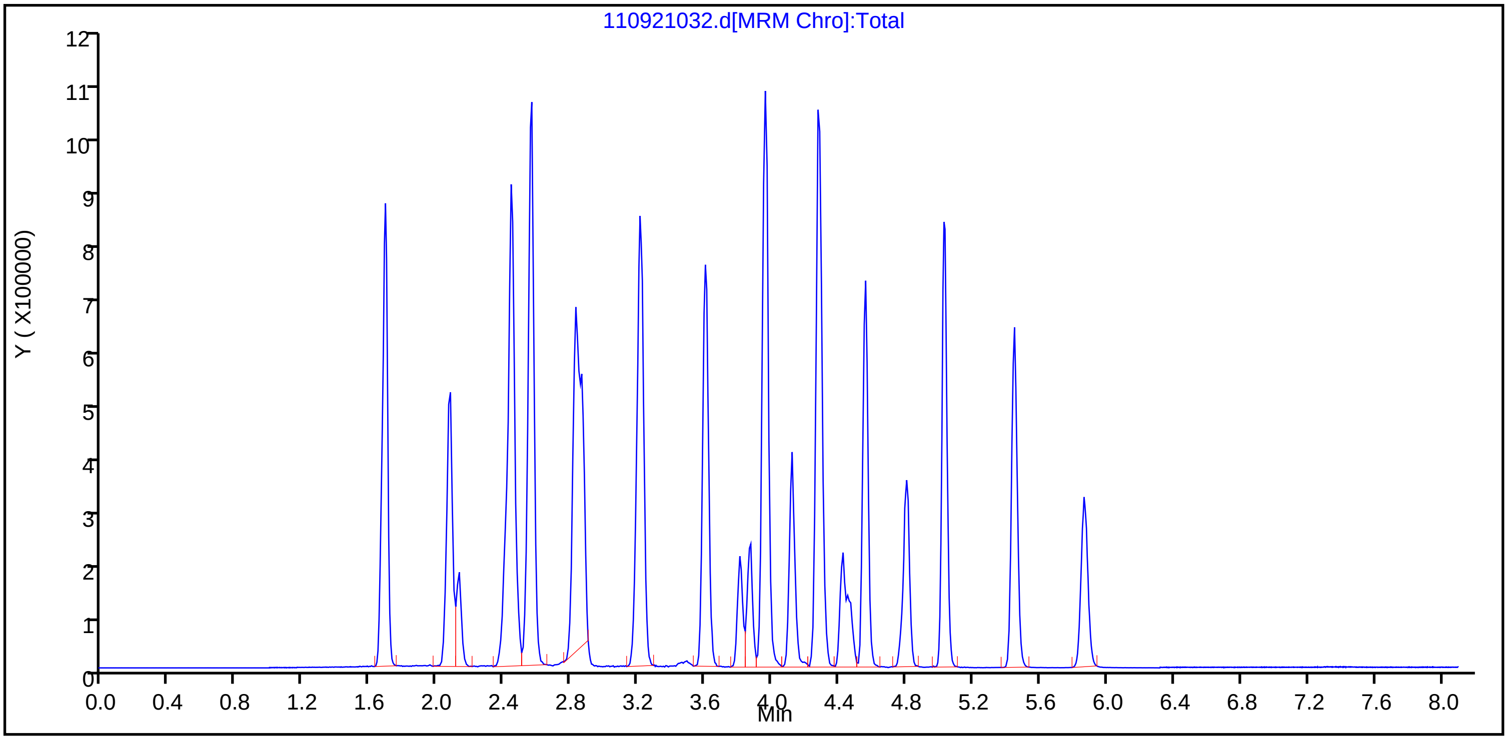
QC Flag Legend

M - Compound Hit/Peak Manually Integrated

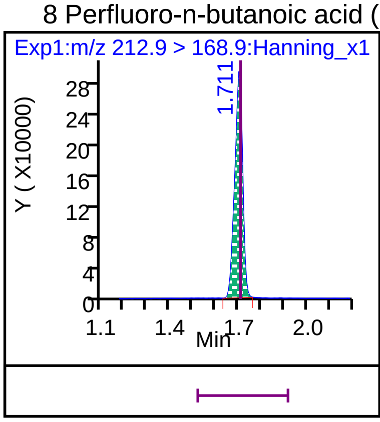
Report Date: 11-Nov-2021 18:39:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

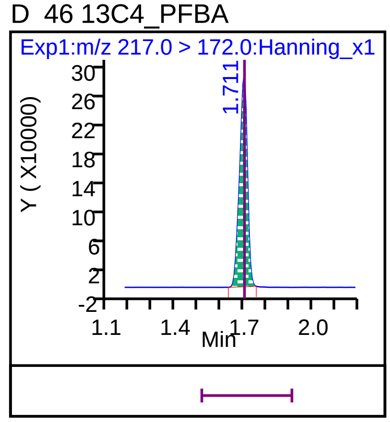
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921032.d		
Injection Date:	09-Nov-2021 20:48:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



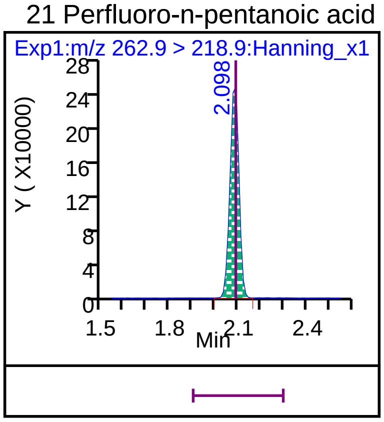
8 Perfluoro-n-butanoic acid (PFBA)



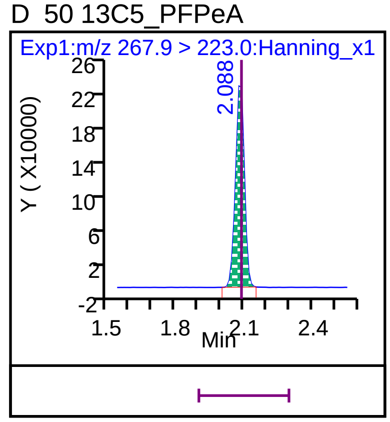
D 46 13C4_PFBA



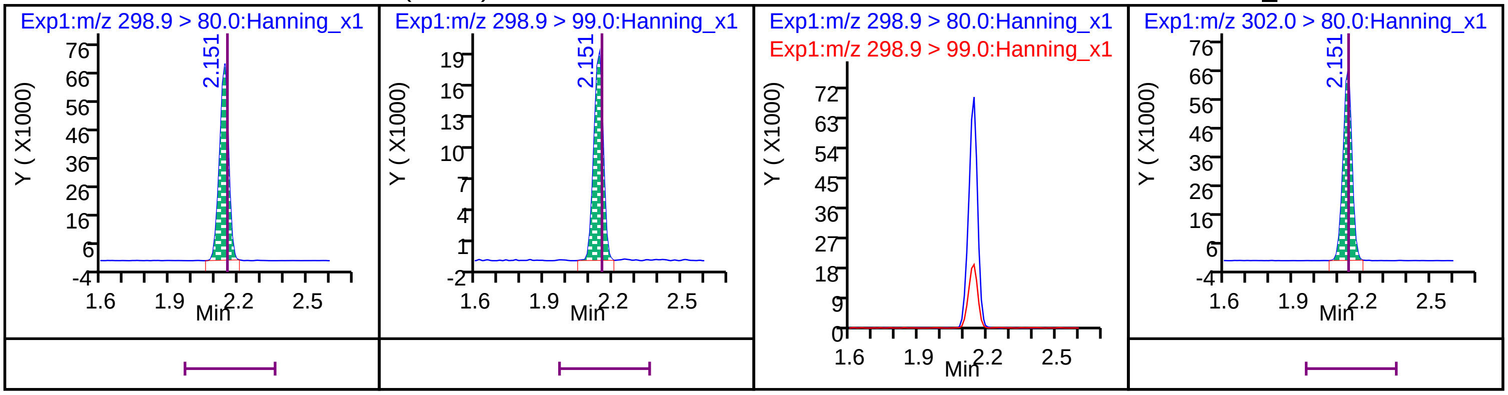
21 Perfluoro-n-pentanoic acid (PFPeA)



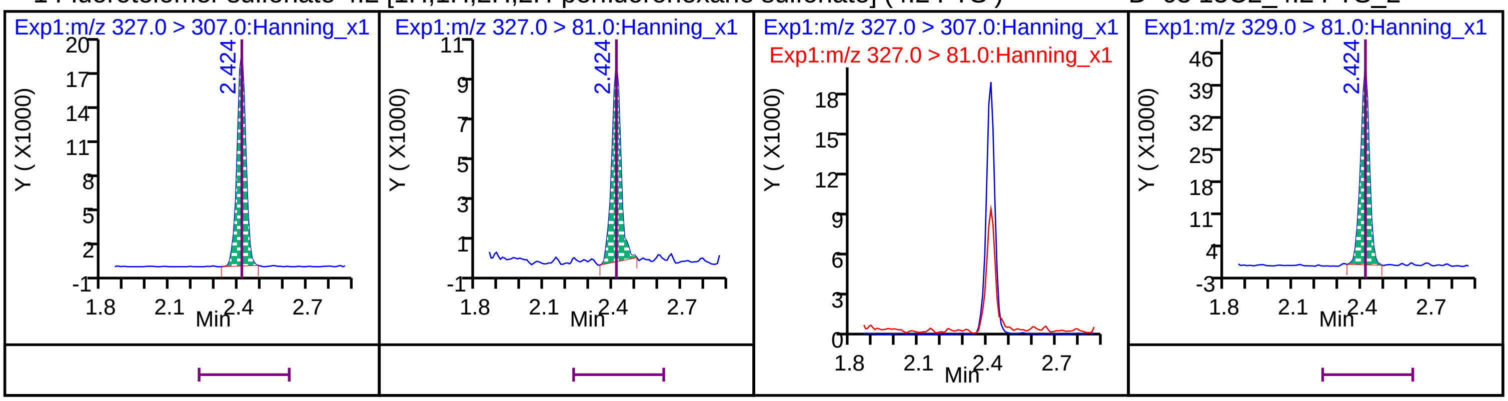
D 50 13C5_PFPeA



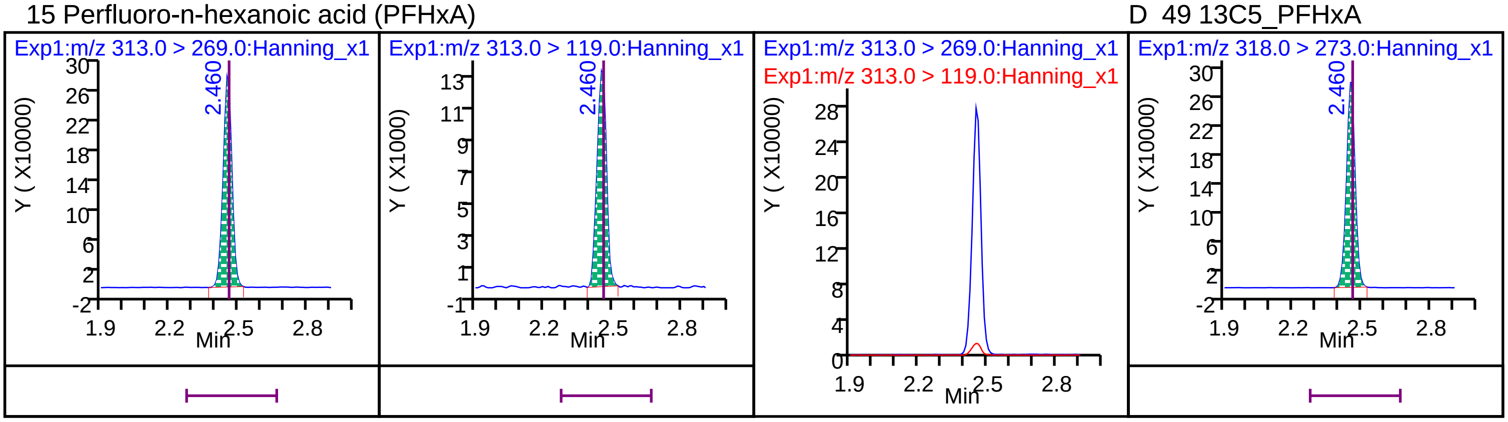
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



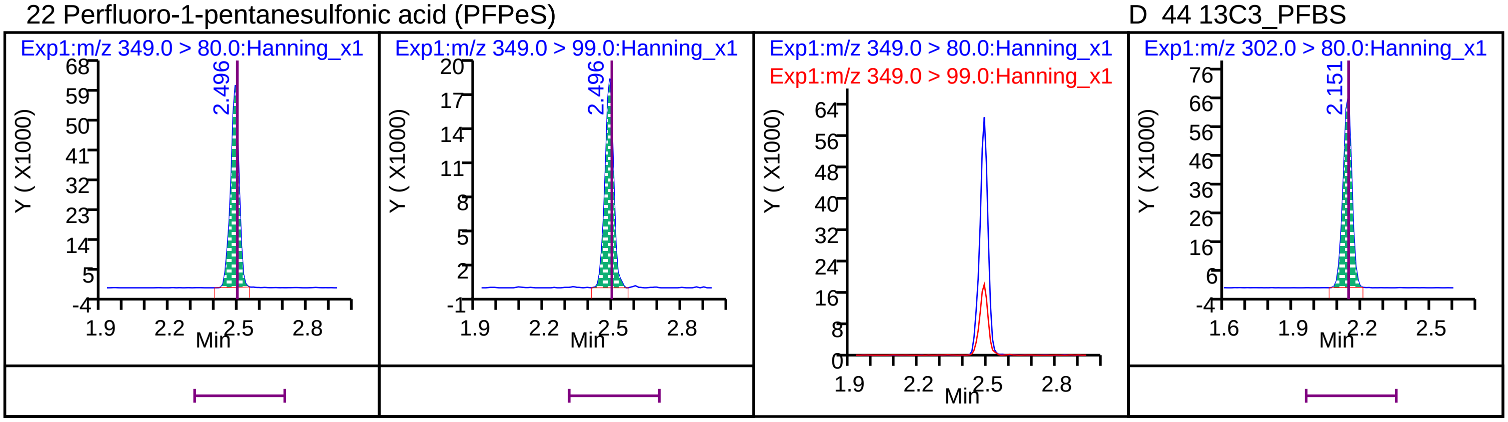
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

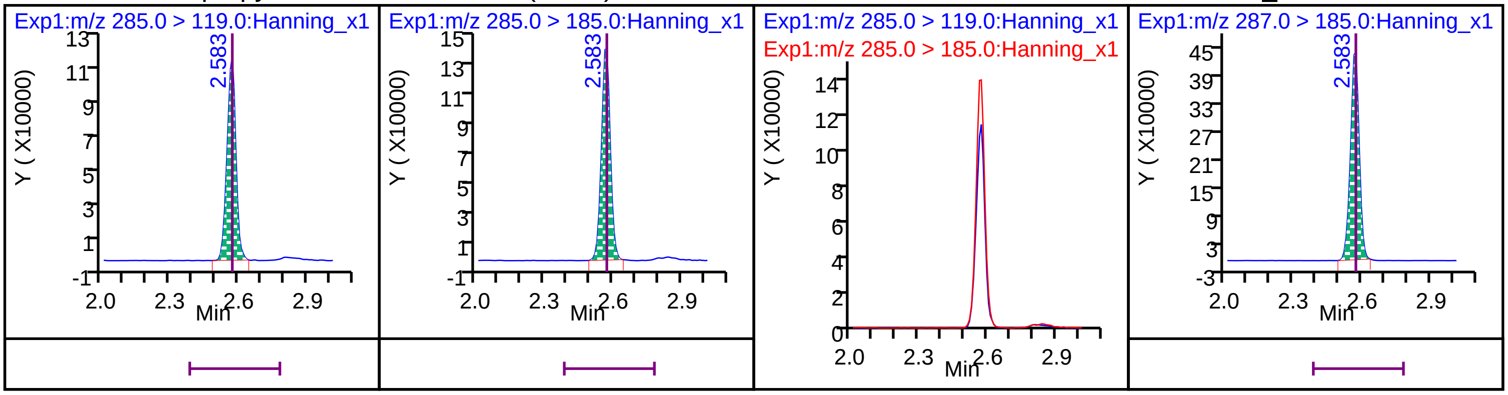


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

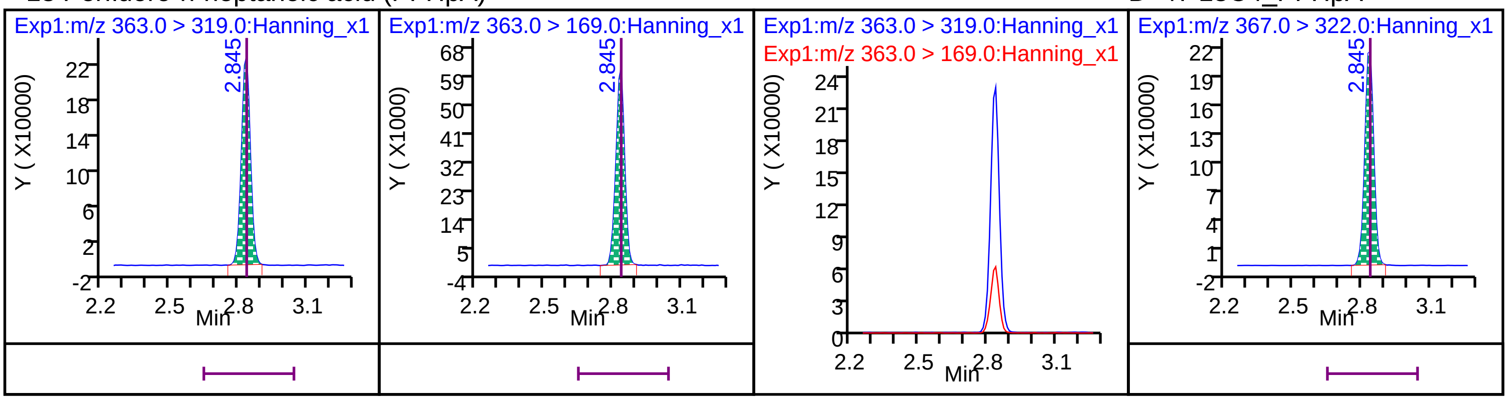


Report Date: 11-Nov-2021 18:39:30 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921032.d

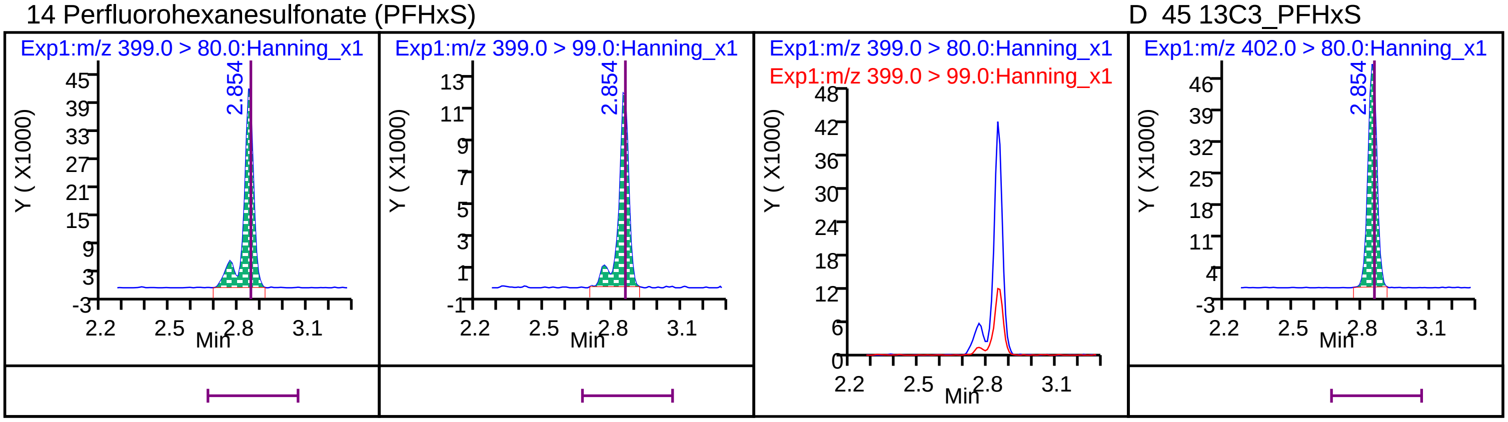
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



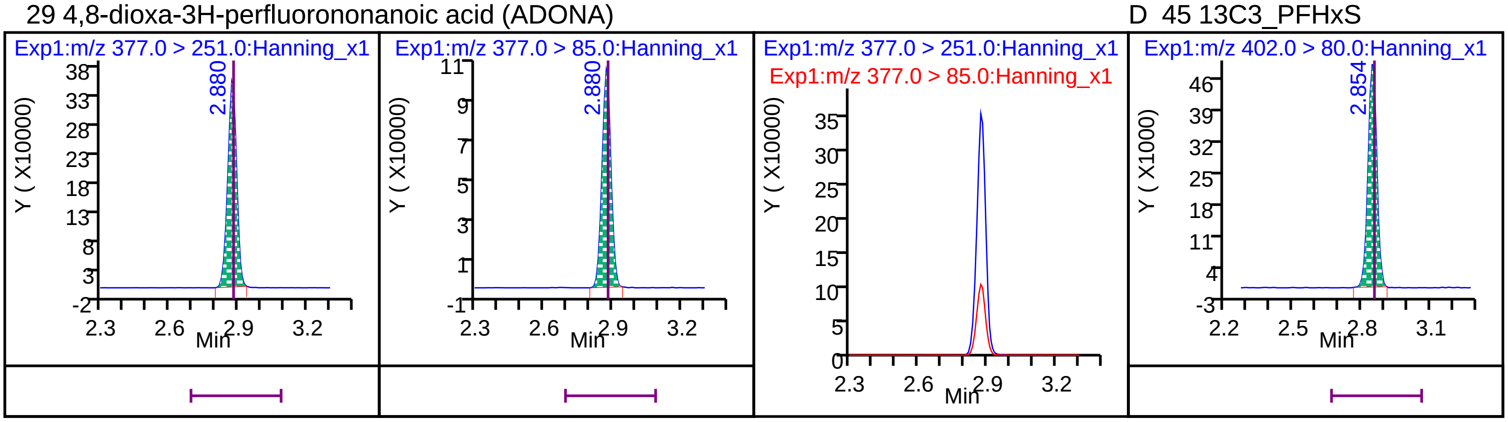
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



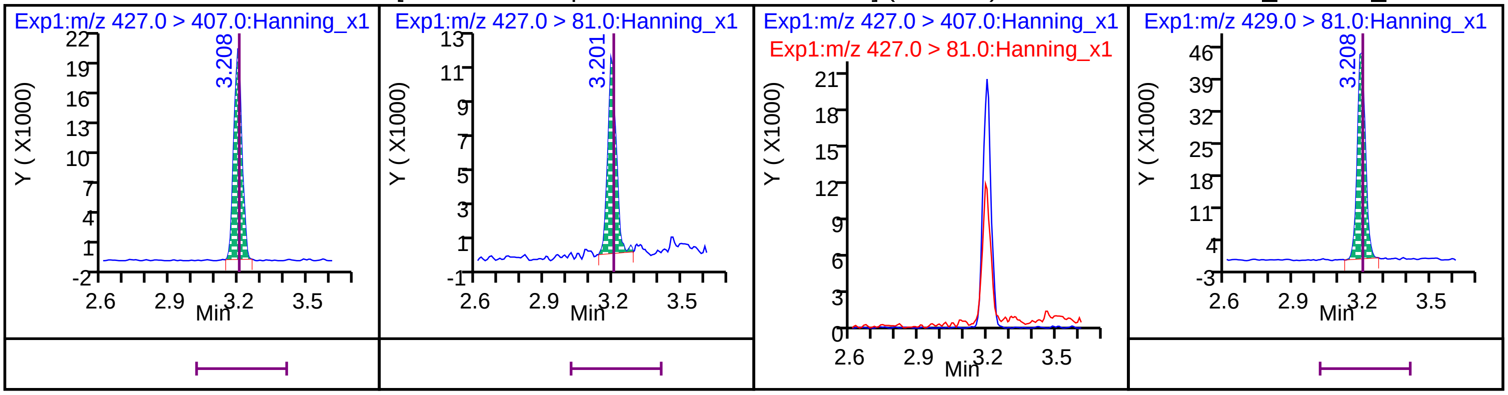
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



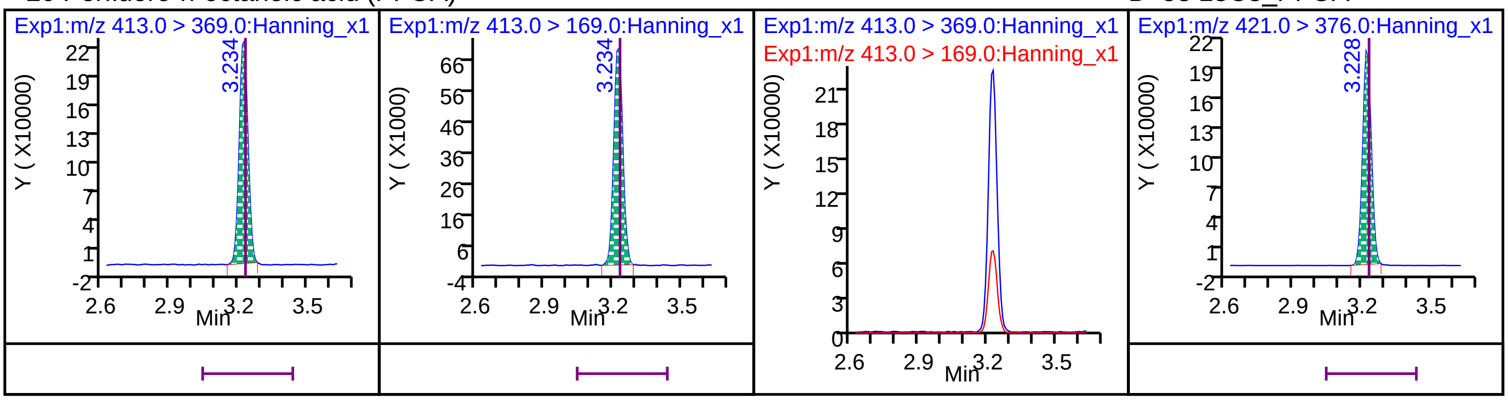
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



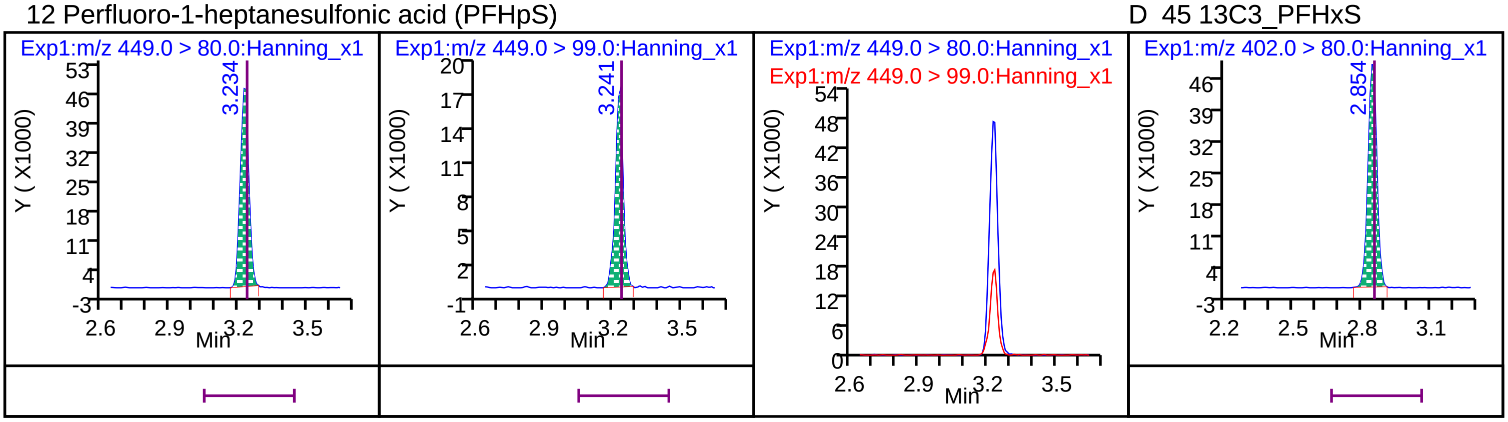
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



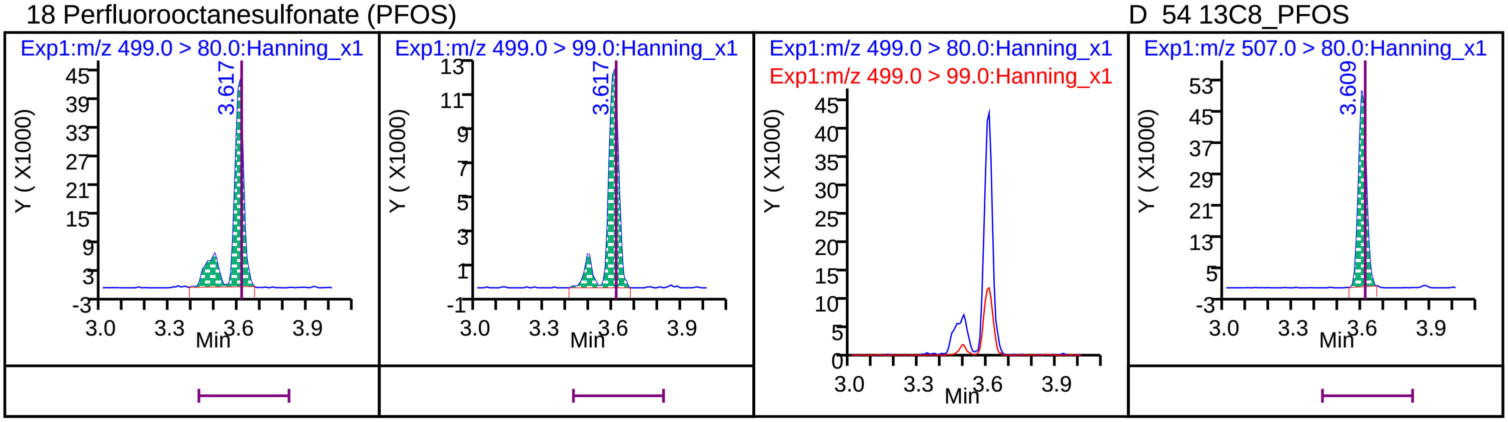
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



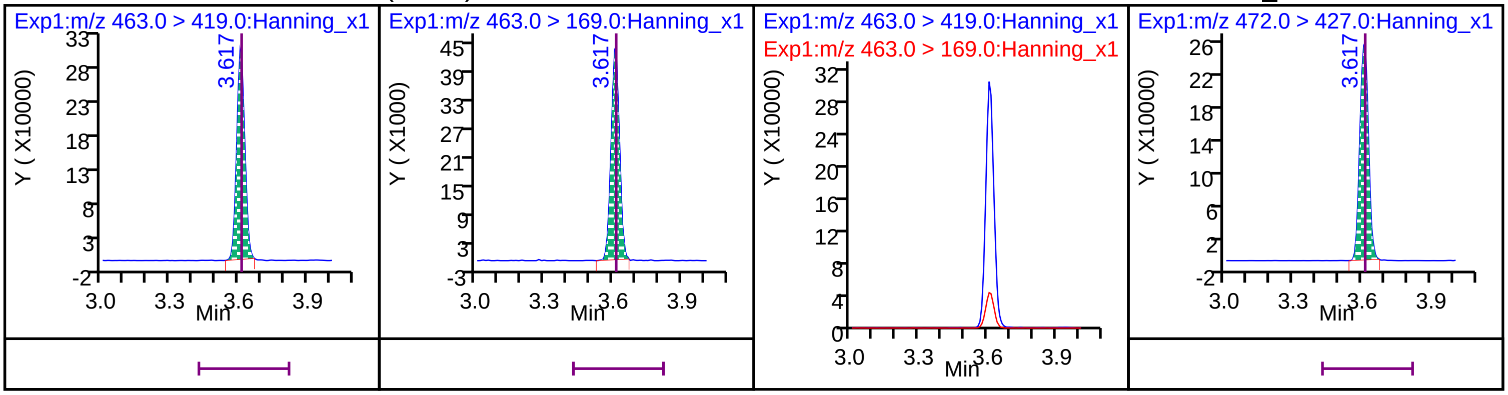
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



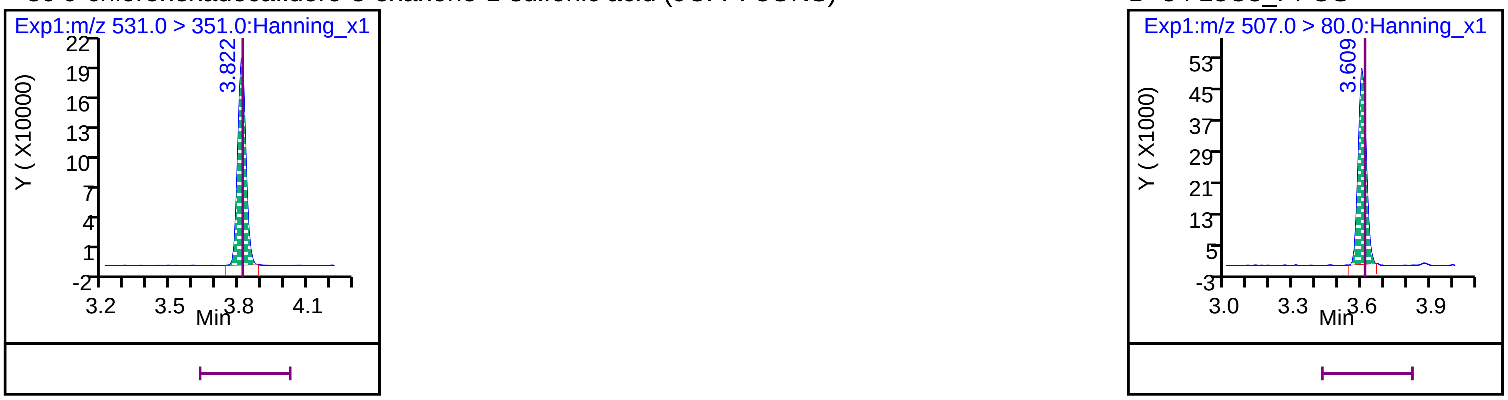
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



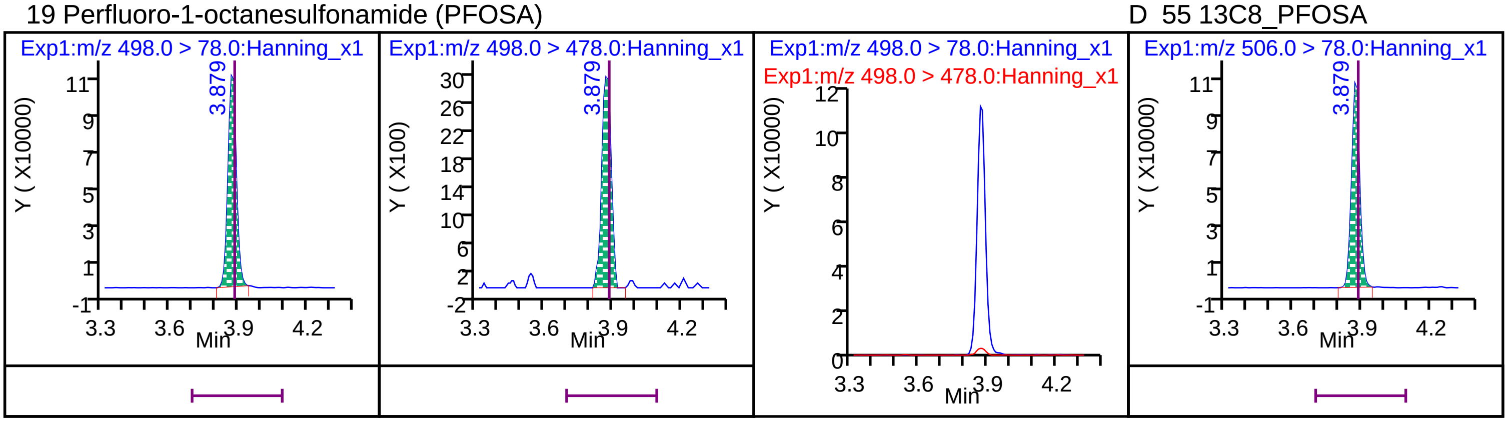
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



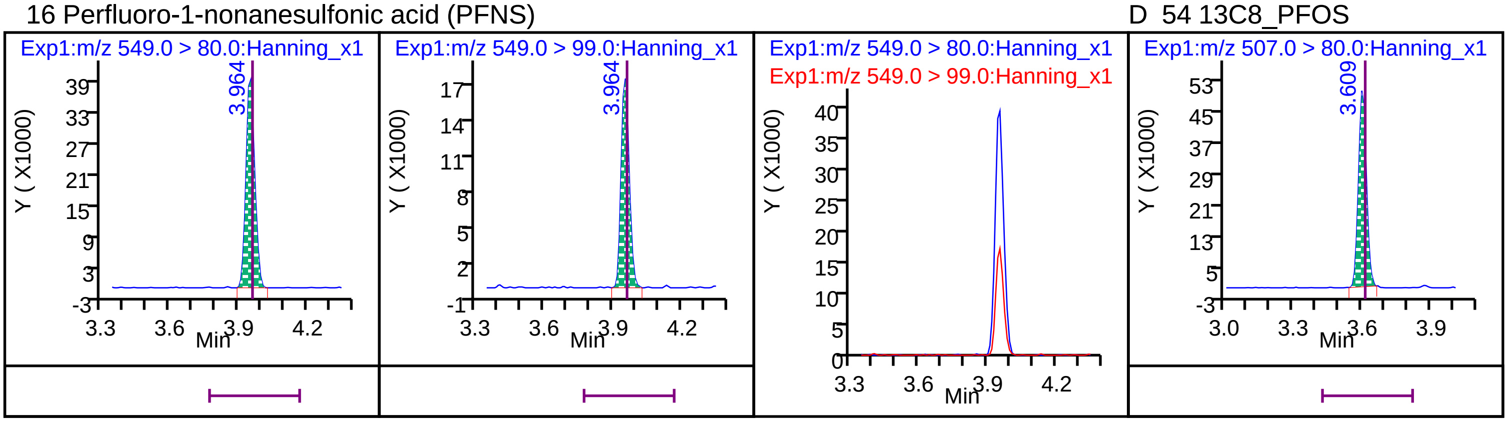
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

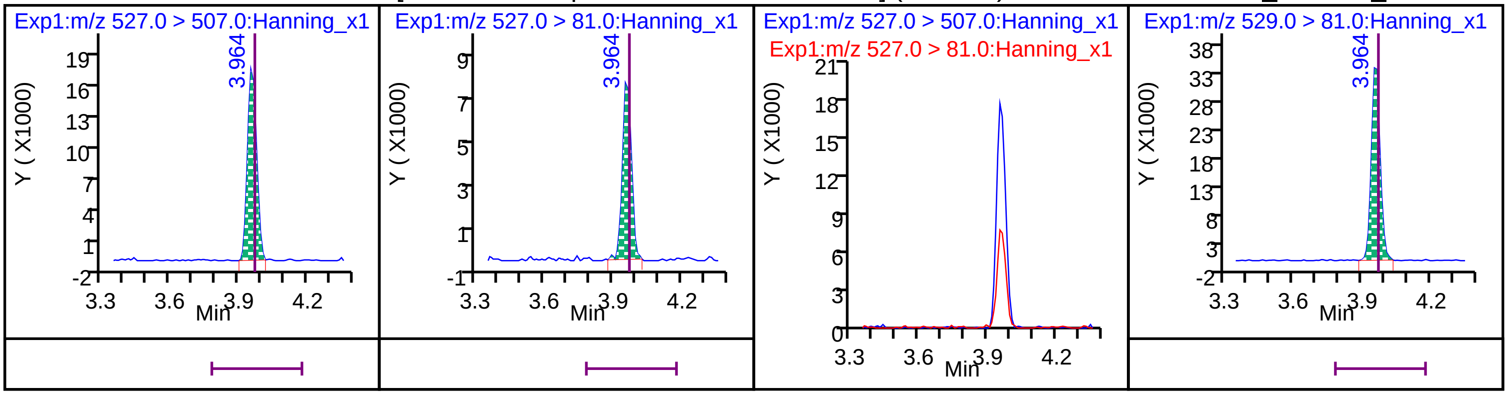


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



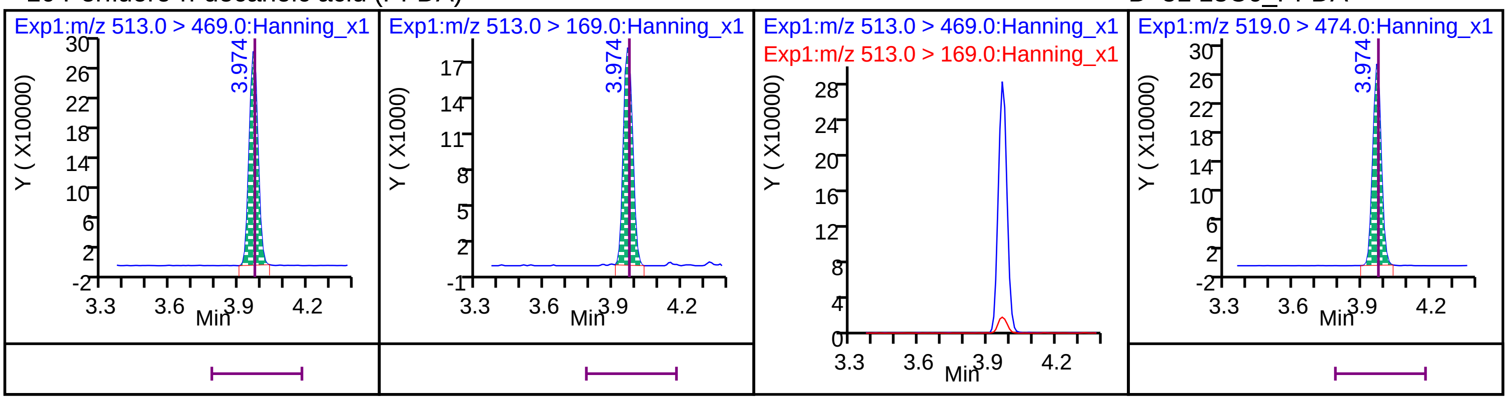
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



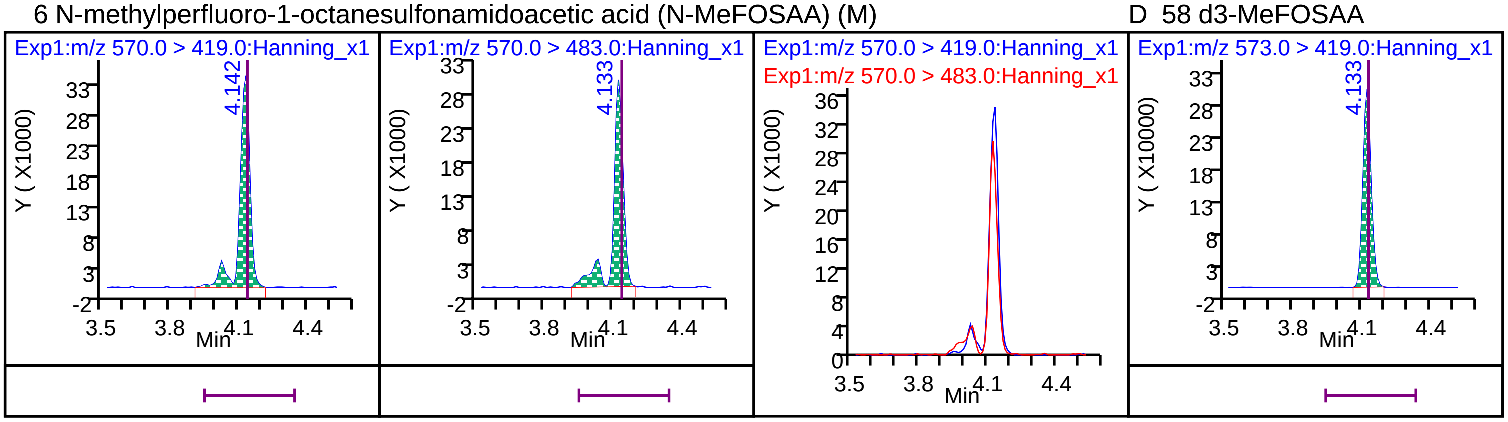
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)

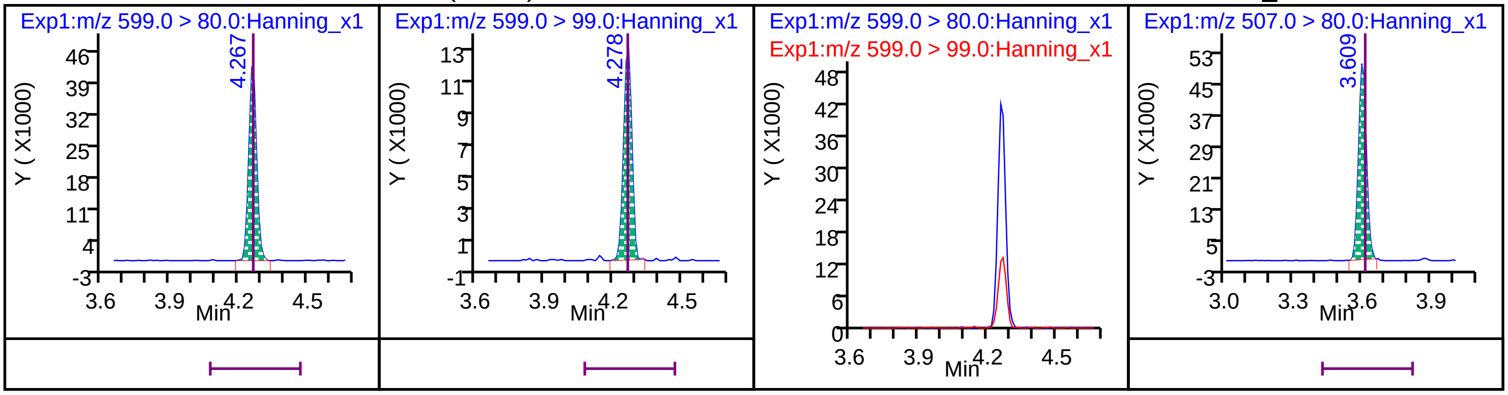
D 58 d3-MeFOSAA



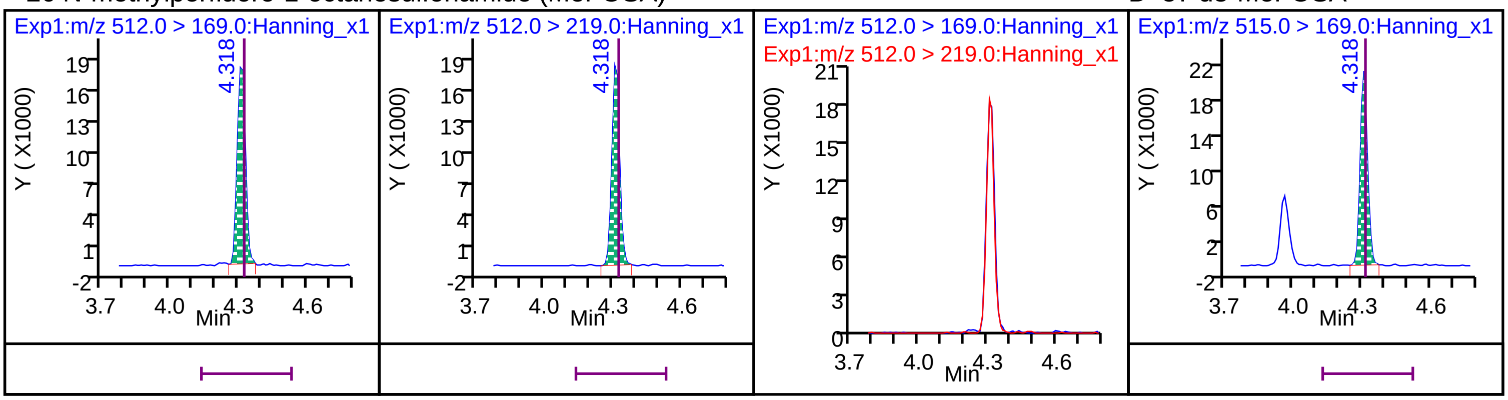
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

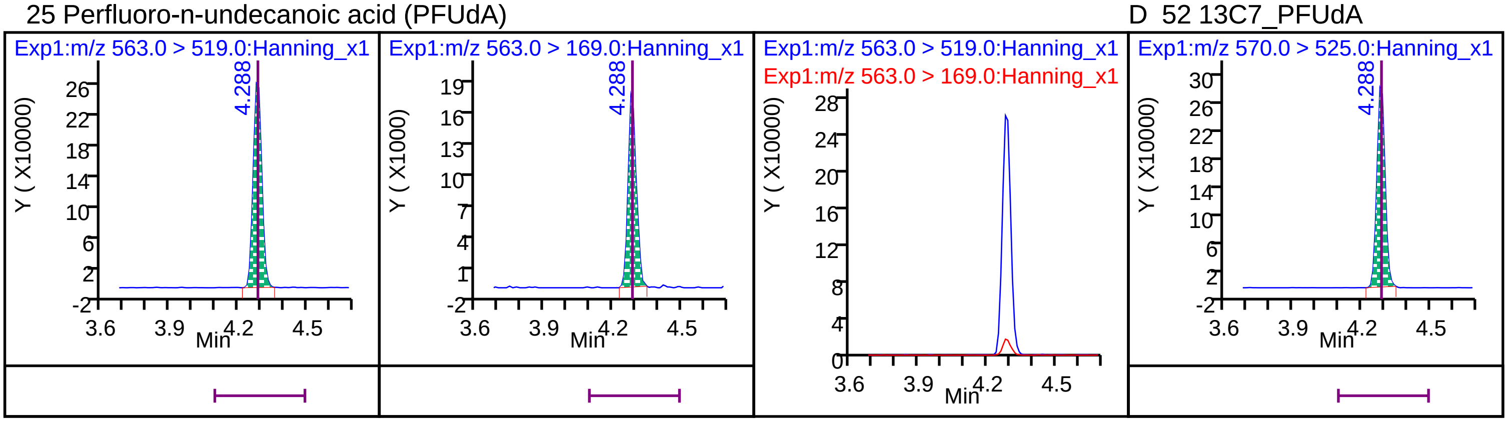
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



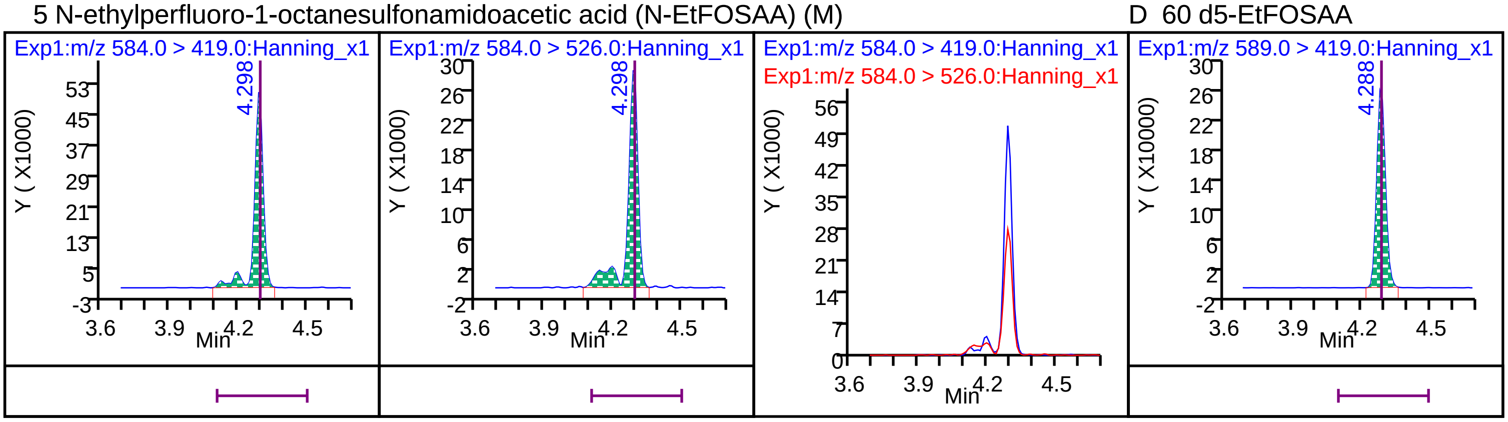
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



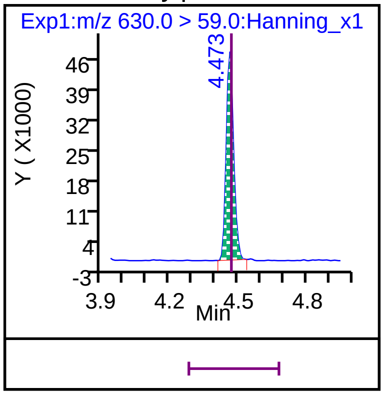
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



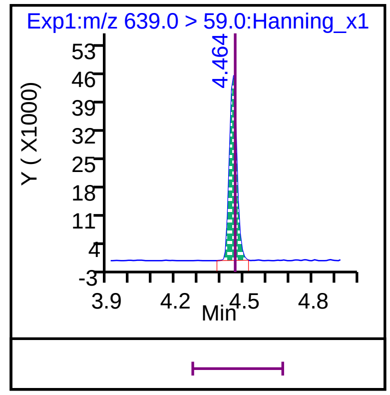
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

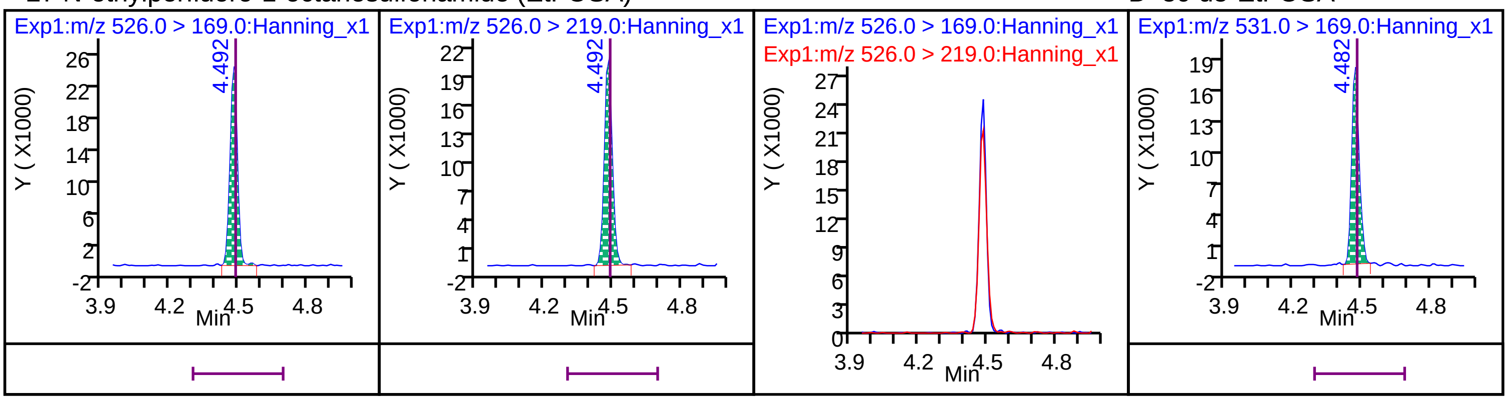


D 62 d9-EtFOSE

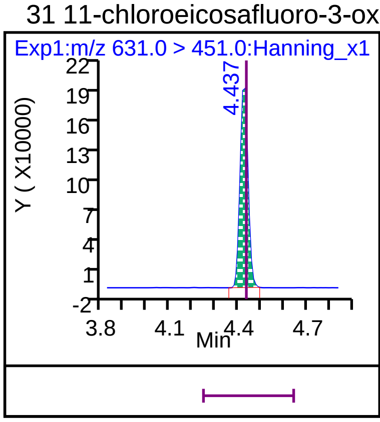


27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

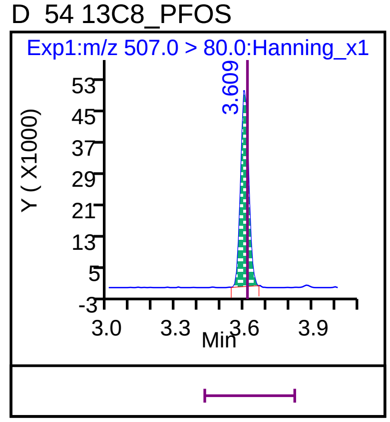
D 59 d5-EtFOSA



31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

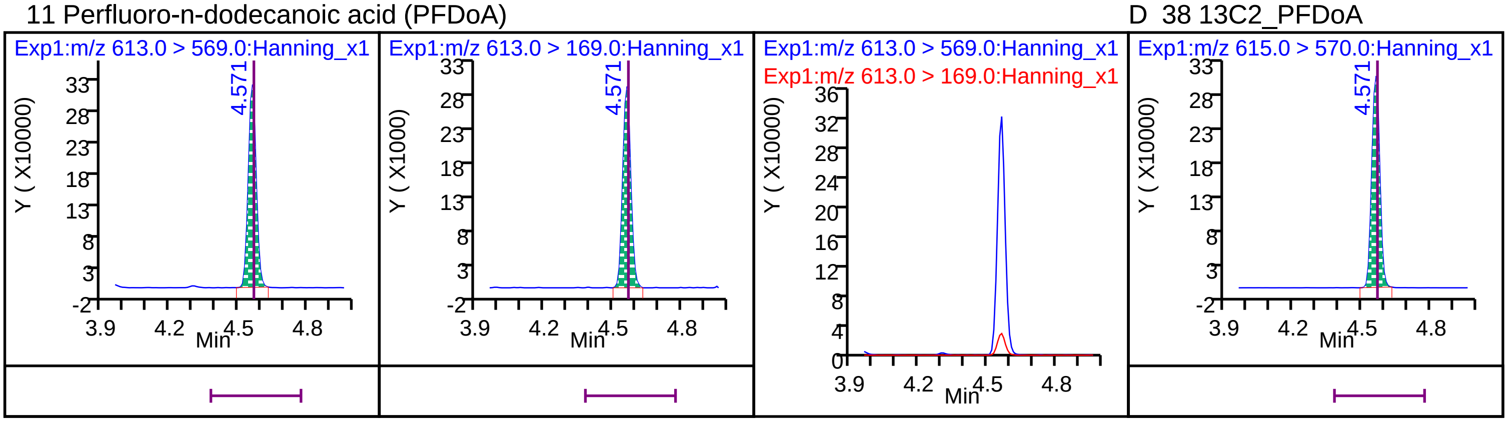


D 54 13C8_PFOS

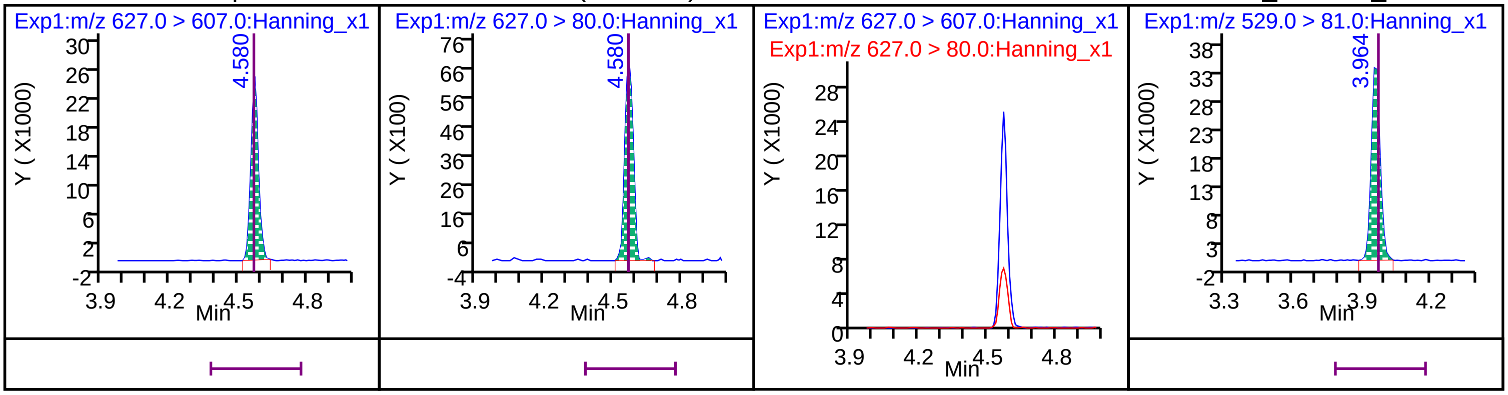


11 Perfluoro-n-dodecanoic acid (PFDoA)

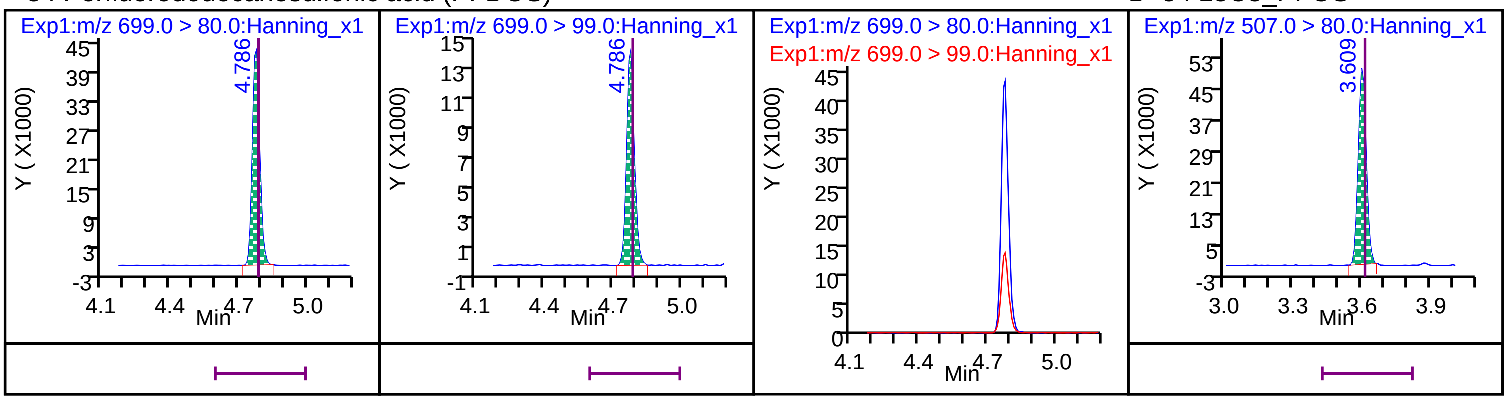
D 38 13C2_PFDoA



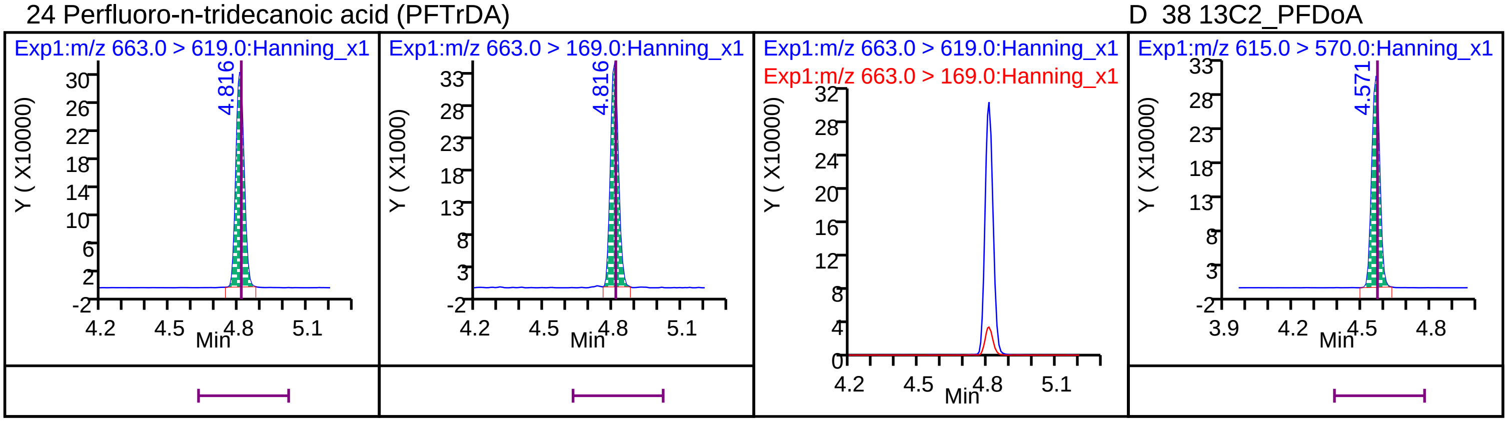
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



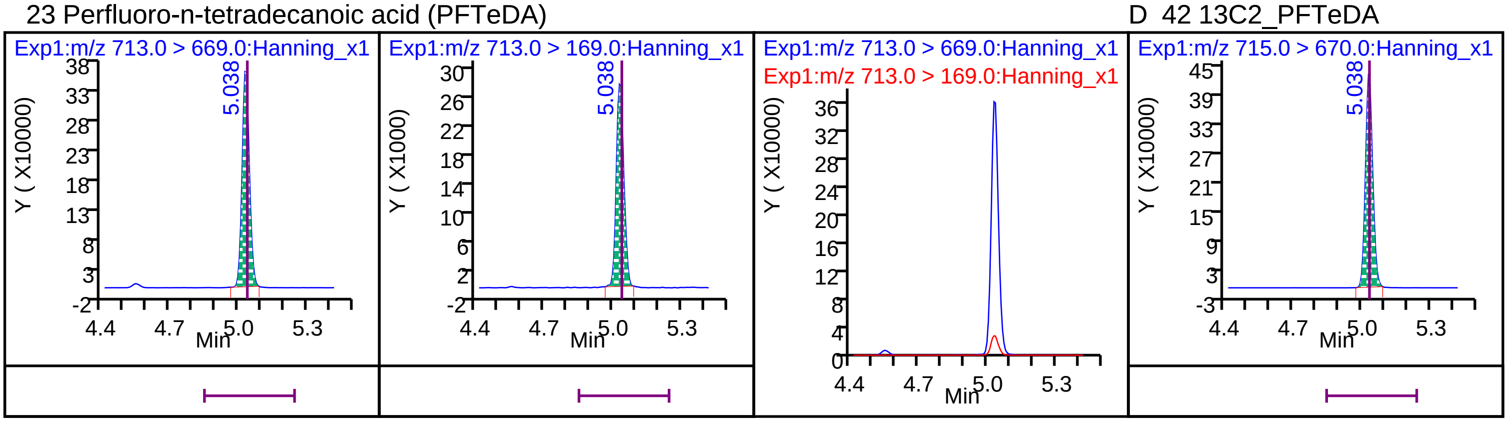
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

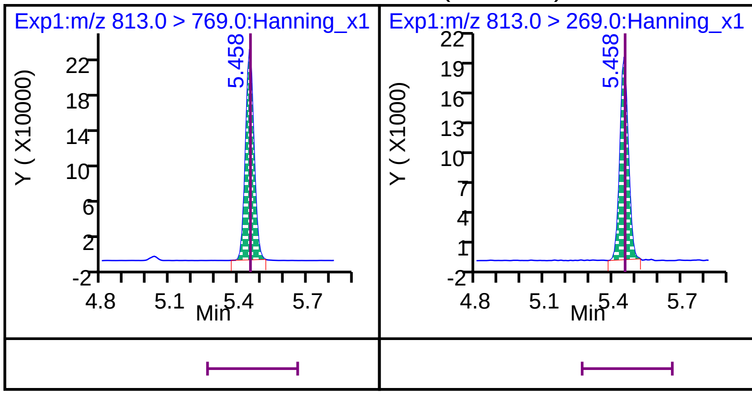


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

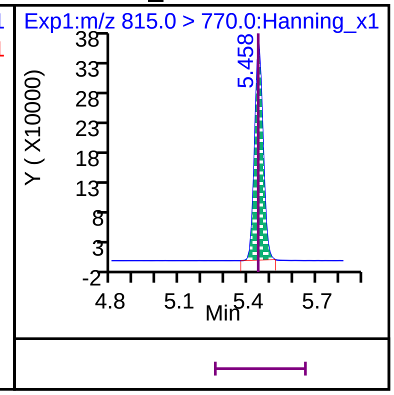


Report Date: 11-Nov-2021 18:39:30 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921032.d

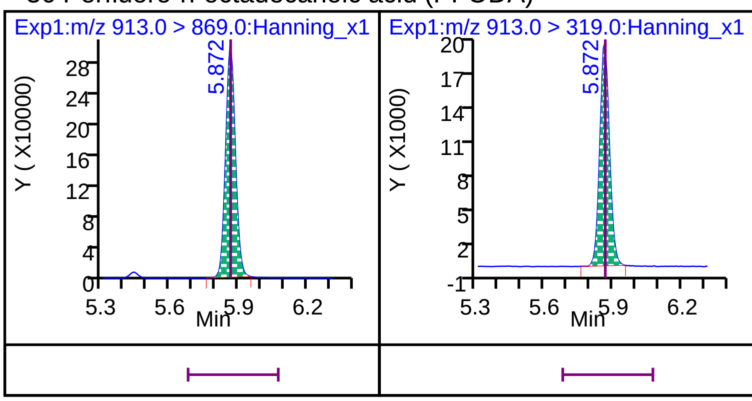
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



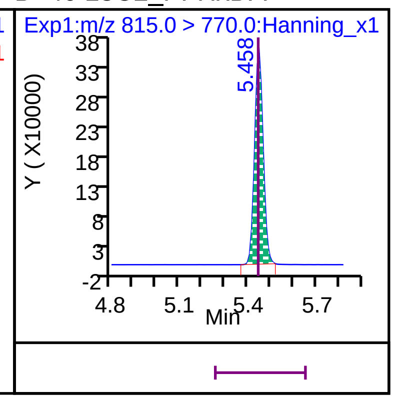
D 40 13C2_PFHxDA



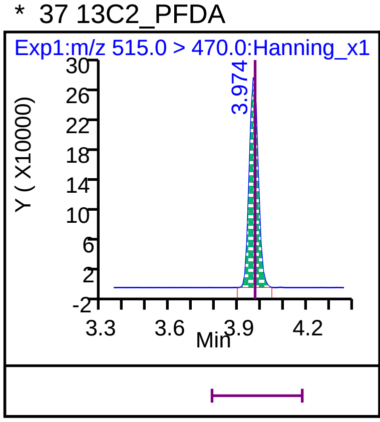
36 Perfluoro-n-octadecanoic acid (PFODA)



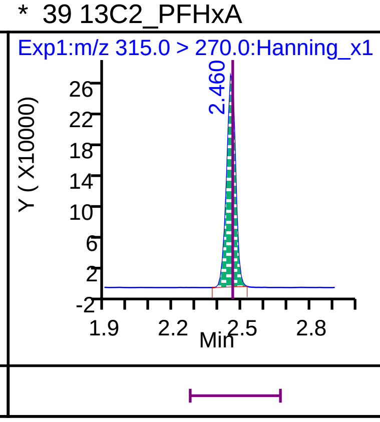
D 40 13C2_PFHxDA



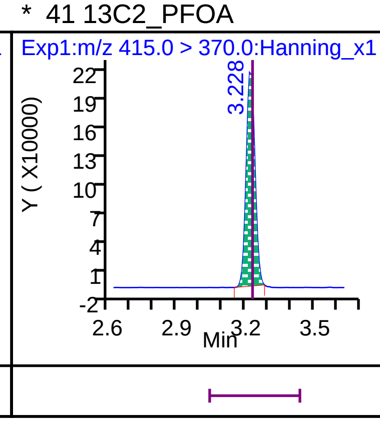
* 37 13C2_PFDA



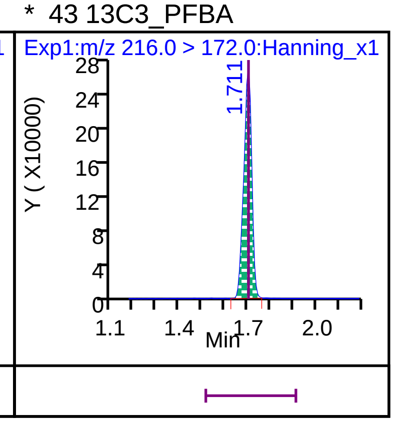
* 39 13C2_PFHxA



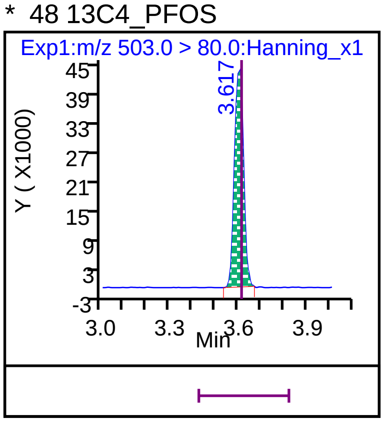
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

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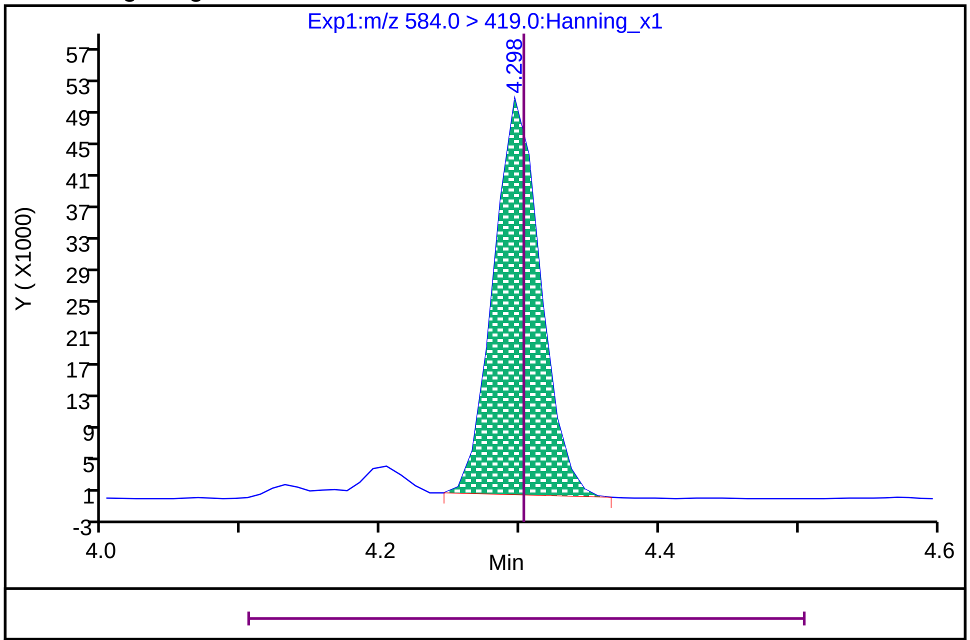
Injection Date:	09-Nov-2021 20:48:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

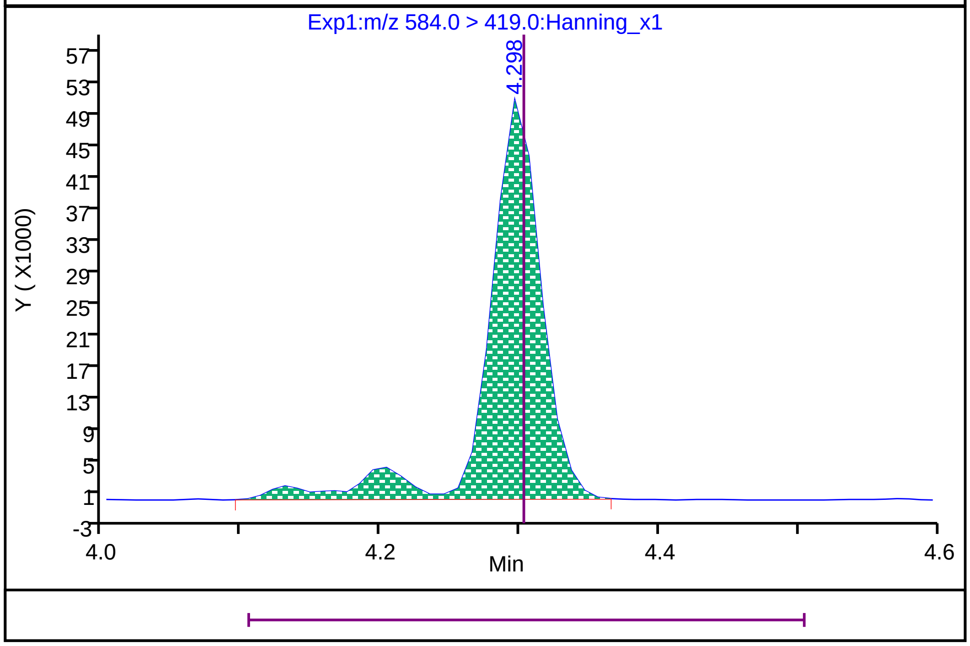
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.298
Area: 117868
Amount: 900.65
Amount Units: ng/L



RT: 4.298
Area: 134693
Amount: 1029.21
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:23:40

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:30 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

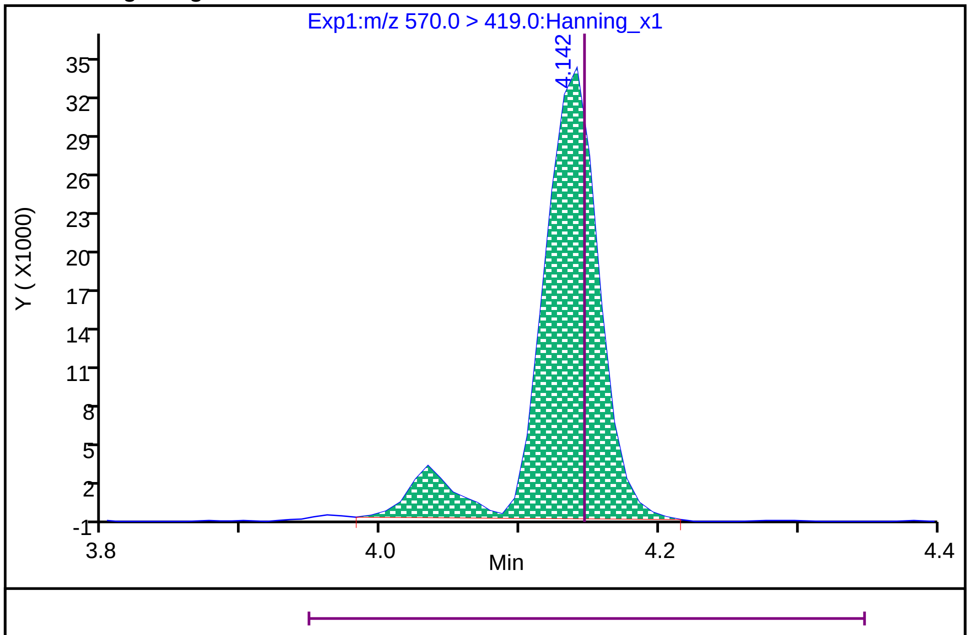
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921032.d		
Injection Date:	09-Nov-2021 20:48:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

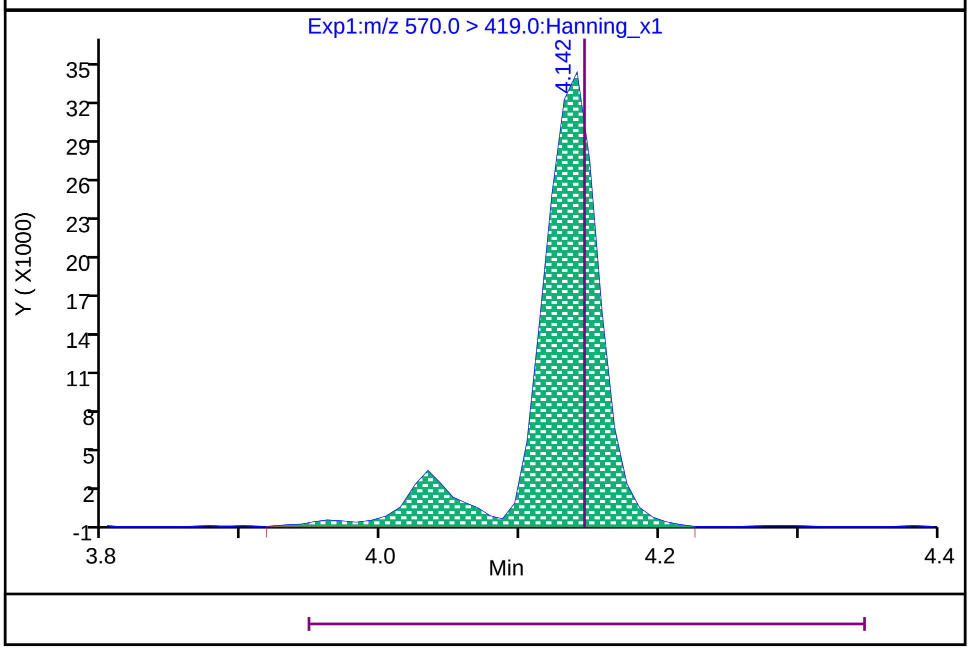
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.142
Area: 99643
Amount: 846.58
Amount Units: ng/L



RT: 4.142
Area: 104445
Amount: 887.38
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:23:33

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d
Injection Date: 09-Nov-2021 23:05:36 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 38
Sample Info: ID CCV 1000B_SVLC-1744 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	967.81	96.8	70 - 130
D 46 13C4_PFBA	645349	668788			103.6	50 - 150
21 PFPeA			1000.00	958.43	95.8	70 - 130
D 50 13C5_PFPeA	572798	582834			101.8	50 - 150
D 44 13C3_PFBS	172627	177446			102.8	50 - 150
7 PFBS			884.00	840.05	95	70 - 130
1 4:2 FTS			934.00	919.30	98.4	70 - 130
D 63 13C2_4:2 FTS_2	103302	113309			109.7	50 - 150
D 49 13C5_PFHxA	672414	671869			99.9	50 - 150
15 PFHxA			1000.00	1013.52	101.4	70 - 130
22 PFPeS			938.00	906.08	96.6	70 - 130
28 GenX			2000.00	1915.98	95.8	70 - 130
D 66 13C3_GenX	1178163	1154716			98	50 - 150
D 47 13C4_PFHpA	536896	545722			101.6	50 - 150
13 PFHpA			1000.00	1016.77	101.7	70 - 130
D 45 13C3_PFHxS	113881	131975			115.9	50 - 150
14 PFHxS			910.00	875.14	96.2	70 - 130
29 ADONA			942.00	913.06	96.9	70 - 130
D 64 13C2_6:2 FTS_2	103876	100395			96.6	50 - 150
2 6:2 FTS			948.00	1026.96	108.3	70 - 130
20 PFOA			1000.00	966.67	96.7	70 - 130
D 53 13C8_PFOA	548937	566276			103.2	50 - 150
12 PFHpS			952.00	859.64	90.3	70 - 130
D 54 13C8_PFOS	112760	125095			110.9	50 - 150
18 PFOS			928.00	855.89	92.2	70 - 130
17 PFNA			1000.00	993.11	99.3	70 - 130
D 56 13C9_PFNA	649289	650924			100.3	50 - 150
30 9Cl-PF3ONS			932.00	974.63	104.6	70 - 130
D 55 13C8_PFOSA	246131	256692			104.3	50 - 150
19 PFOSA			1000.00	1019.16	101.9	70 - 130
16 PFNS			960.00	982.37	102.3	70 - 130
10 PFDA			1000.00	1013.50	101.3	70 - 130
3 8:2 FTS			958.00	1008.09	105.2	70 - 130
D 51 13C6_PFDA	631293	650056			103	50 - 150
D 65 13C2_8:2 FTS_2	92479	97356			105.3	50 - 150
6 N-MeFOSAA			1000.00	959.16	95.9	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	710191	697041			98.1	50 - 150
D 61 d7-MeFOSE	83560	72737			87	50 - 150
32 MeFOSE			1000.00	1202.65	120.3	70 - 130
26 MeFOSA			1000.00	966.54	96.7	70 - 130
D 57 d3-MeFOSA	43685	42125			96.4	50 - 150
9 PFDS			964.00	1018.62	105.7	70 - 130
D 52 13C7_PFUdA	693518	700686			101	50 - 150
D 60 d5-EtFOSAA	684113	649007			94.9	50 - 150
25 PFUdA			1000.00	958.19	95.8	70 - 130
5 N-EtFOSAA			1000.00	980.18	98	70 - 130
D 62 d9-EtFOSE	94206	96872			102.8	50 - 150
33 EtFOSE			1000.00	1150.86	115.1	70 - 130
D 59 d5-EtFOSA	42530	35464			83.4	50 - 150
31 11Cl-PF3OUDS			942.00	1022.06	108.5	70 - 130
27 EtFOSA			1000.00	1195.09	119.5	70 - 130
D 38 13C2_PFDoA	704128	734263			104.3	50 - 150
11 PFDoA			1000.00	967.65	96.8	70 - 130
4 10:2 FTS			964.00	1112.11	115.4	70 - 130
34 PFDOS			968.00	869.65	89.8	70 - 130
24 PFTrDA			1000.00	948.37	94.8	70 - 130
D 42 13C2_PFTeDA	946932	905970			95.7	50 - 150
23 PFTeDA			1000.00	966.92	96.7	70 - 130
D 40 13C2_PFHxDA	912699	891801			97.7	50 - 150
35 PFHxDA			1000.00	987.31	98.7	70 - 130
36 PFODA			1000.00	1072.65	107.3	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d		
Injection Date:	09-Nov-2021 23:05:36	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	38
Sample Info:	ID CCV 1000B_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	668788	20	>100:1			1000.00	1075.78	103.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.711	1.718	0/-1	682619	22	>100:1			1000.00	967.81		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	582834	17	>100:1			1000.00	1019.67	101.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.088	2.098	0/0	628707	16	>100:1			1000.00	958.43		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.151	0	177446	14	>100:1			1000.00	1025.88	102.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.162	0/0	185887	15	>100:1	Target = 3.53		884.00	840.05		
298.9 > 99	44	2.151	2.162		53795	16	>100:1	3.45 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/0	149007	17	>100:1	Target = 3.10		938.00	906.08		
349 > 99	44	2.496	2.505		44142	19	>100:1	3.37 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	113309	17	>100:1			5000.00	5003.99	109.7	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.424	1/0	45924	21	>100:1	Target = 1.75		934.00	919.30		
327 > 81	63	2.424	2.424		24941	18	61:1	1.84 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	671869	17	>100:1			1000.00	1031.60	99.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	708024	18	>100:1	Target = 18.91		1000.00	1013.52		
313 > 119	49	2.460	2.469		37991	16	>100:1	18.63 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.575	2.583	0	1154716	19	>100:1			5000.00	4982.46	98	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	0/0	286565	18	>100:1	Target = 0.79		2000.00	1915.98		
285 > 185	66	2.575	2.583		361482	18	>100:1	0.79 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	545722	18	>100:1			1000.00	1027.84	101.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	609715	19	>100:1	Target = 3.80		1000.00	1016.77		
363 > 169	47	2.845	2.845		157122	18	>100:1	3.88 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.854	2.864	0	131975	19	>100:1			1000.00	1050.43	115.9	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.854	2.864	0/0	126975	26	>100:1	Target = 2.89	4.82	910.00	875.14		
399 > 99	45	2.854	2.864		41776	27	>100:1	3.03 (1.44-4.34)	8.35				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.880	2.888	0/0	934516	19	>100:1	Target = 3.23		942.00	913.06		
377 > 85	45	2.880	2.888		267340	19	>100:1	3.49 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.247	0/0	116522	19	>100:1	Target = 3.12		952.00	859.64		
449 > 99	45	3.234	3.247		39885	20	>100:1	2.92 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.213	0	100395	20	>100:1			5000.00	5577.51	96.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.213	0/0	48813	20	>100:1	Target = 1.75		948.00	1026.96		
427 > 81	64	3.208	3.213		22888	19	37:1	2.13 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.228	3.240	0	566276	21	>100:1			1000.00	1079.29	103.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.228	3.240	0/0	560955	21	>100:1	Target = 2.89		1000.00	966.67		
413 > 169	53	3.234	3.240		183390	20	>100:1	3.05 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.609	3.623	0	125095	20	>100:1			1000.00	1010.11	110.9	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.609	3.623	0/0	127483	37	>100:1	Target = 3.30	3.49	928.00	855.89		
499 > 99	54	3.609	3.623		41116	37	>100:1	3.10 (1.65-4.95)	8.61				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.822	3.828	0/0	461730	19	>100:1			932.00	974.63		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.954	3.971	0/0	98593	17	>100:1	Target = 3.08		960.00	982.37		
549 > 99	54	3.954	3.971		37418	18	>100:1	2.63 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.268	4.274	0/0	99714	15	>100:1	Target = 2.72		964.00	1018.62		
599 > 99	54	4.268	4.274		34451	14	>100:1	2.89 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.428	4.443	0/0	437728	17	>100:1			942.00	1022.06		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.780	4.796	0/0	93546	19	>100:1	Target = 3.27		968.00	869.65		
699 > 99	54	4.780	4.796		30312	20	>100:1	3.08 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	650924	19	>100:1			1000.00	1016.47	100.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.617	3.623	0/0	696780	19	>100:1	Target = 6.51		1000.00	993.11		
463 > 169	56	3.617	3.623		107551	18	>100:1	6.47 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.879	3.893	0	256692	17	>100:1			1000.00	957.60	104.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.879	3.893	0/0	275262	19	>100:1	Target = 41.63		1000.00	1019.16		
498>478	55	3.879	3.893		9772	22	71:1	28.16 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	650056	17	>100:1			1000.00	1131.20	103	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.974	3.981	0/0	766710	17	>100:1	Target = 13.80		1000.00	1013.50		
513 > 169	51	3.974	3.981		50123	18	>100:1	15.29 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	97356	17	>100:1			5000.00	5632.56	105.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.964	3.981	-1/0	44353	15	>100:1	Target = 1.94		958.00	1008.09		
527 > 81	65	3.964	3.981		21651	18	65:1	2.04 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.572	4.577	0/1	54928	16	>100:1	Target = 3.54		964.00	1112.11		
627 > 80	65	4.572	4.577		18374	15	>100:1	2.98 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.125	4.139	0	697041	16	>100:1			5000.00	4612.73	98.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.134	4.148	0/0	107296	33	>100:1	Target = 1.37	6.61	1000.00	959.16		M
570 > 483	58	4.134	4.148		89656	31	>100:1	1.19 (0.68-2.05)	4.22				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.288	4.304	0	72737	13	>100:1			1000.00	806.50	87	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.314	0/0	95599	15	>100:1			1000.00	1202.65		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.308	4.325	0	42125	17	>100:1			1000.00	895.49	96.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.308	4.335	-1/-1	44131	14	>100:1	Target = 1.11		1000.00	966.54		
512 > 219	57	4.308	4.335		37542	14	>100:1	1.17 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.288	4.294	0	649007	16	>100:1			5000.00	5011.13	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.288	4.304	0/0	124054	31	>100:1	Target = 1.51	6.45	1000.00	980.18		M
584 > 526	60	4.288	4.304		82463	29	>100:1	1.50 (0.75-2.26)	4.10				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.288	4.294	0	700686	15	>100:1			1000.00	1163.45	101	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.288	4.294	0/0	650553	15	>100:1	Target = 14.52		1000.00	958.19		
563 > 169	52	4.288	4.294		45453	14	>100:1	14.31 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.470	0	96872	15	>100:1			1000.00	913.22	102.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.464	4.479	0/0	108530	15	>100:1			1000.00	1150.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.488	0	35464	15	>100:1			1000.00	824.75	83.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.483	4.497	0/0	50683	17	>100:1	Target = 1.06		1000.00	1195.09		
526 > 219	59	4.483	4.497		44715	16	>100:1	1.13 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	734263	16	>100:1			1000.00	1223.09	104.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.563	4.577	0/0	757457	17	>100:1	Target = 10.70		1000.00	967.65		
613 > 169	38	4.563	4.577		71207	20	>100:1	10.63 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.810	4.822	0/0	731927	19	>100:1	Target = 8.31		1000.00	948.37		
663 > 169	38	4.804	4.822		76986	19	>100:1	9.50 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.032	5.042	0	905970	21	>100:1			1000.00	1114.37	95.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.032	5.048	0/0	764689	21	>100:1	Target = 12.17		1000.00	966.92		
713 > 169	42	5.032	5.048		57747	21	>100:1	13.24 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.451	5.454	0	891801	18	>100:1			1000.00	1027.38	97.7	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.451	5.461	0/0	563905	19	98:1	Target = 10.43		1000.00	987.31		
813 > 269	40	5.451	5.461		47397	17	>100:1	11.89 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.872	5.875	0/0	870865	38	70:1	Target = 13.67		1000.00	1072.65		
913 > 319	40	5.867	5.875		53211	35	>100:1	16.36 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	757892	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	741722	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.228	3.240	0	567301	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	1	607939	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.609	3.623	0	114160	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

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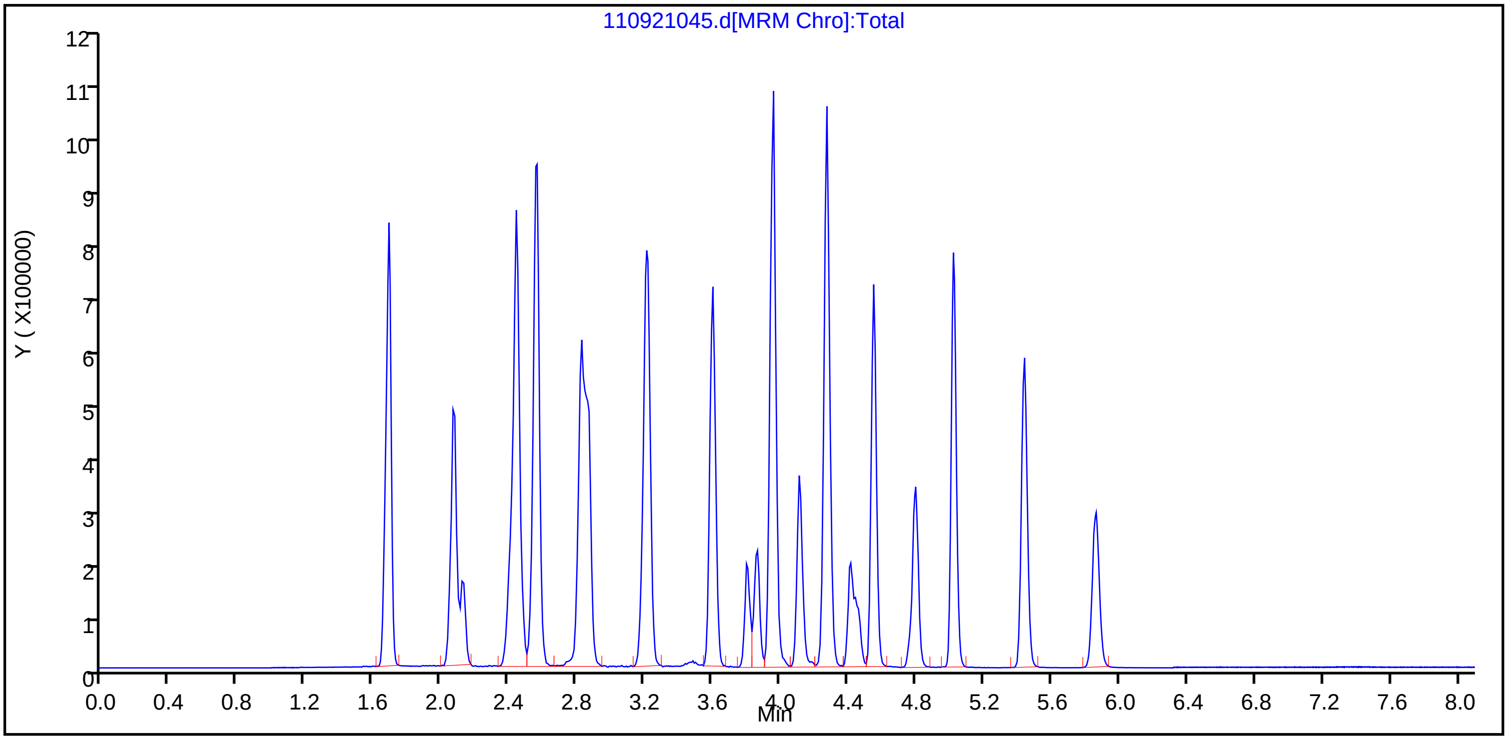
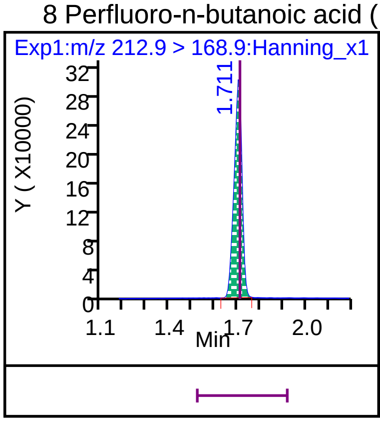
Pace Environmental Services, LLC

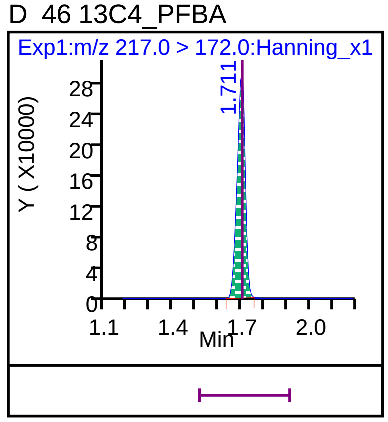
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d		
Injection Date:	09-Nov-2021 23:05:36	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



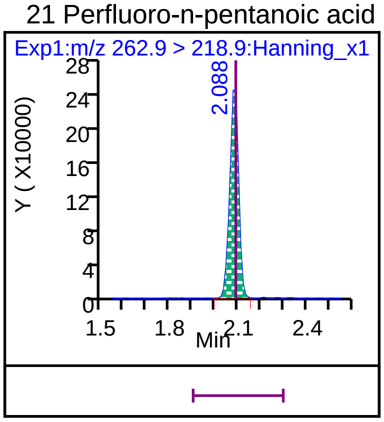
8 Perfluoro-n-butanoic acid (PFBA)



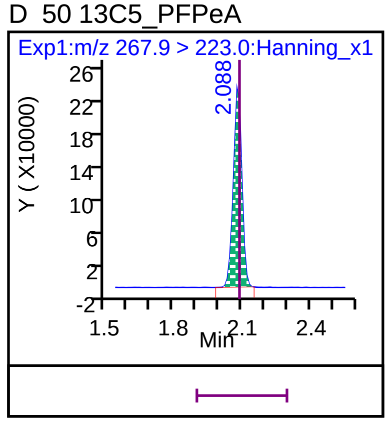
D 46 13C4_PFBA



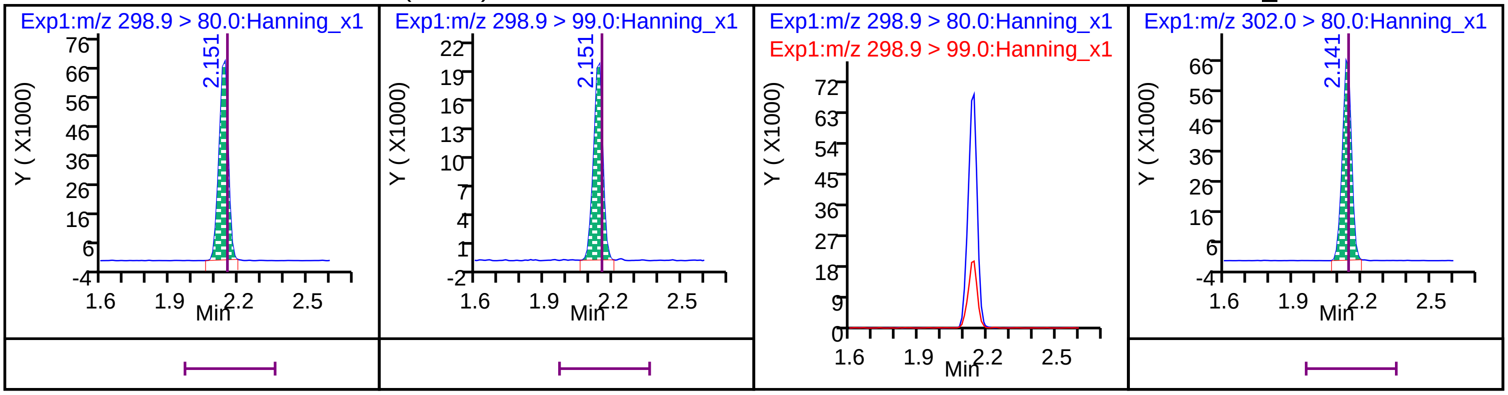
21 Perfluoro-n-pentanoic acid (PFPeA)



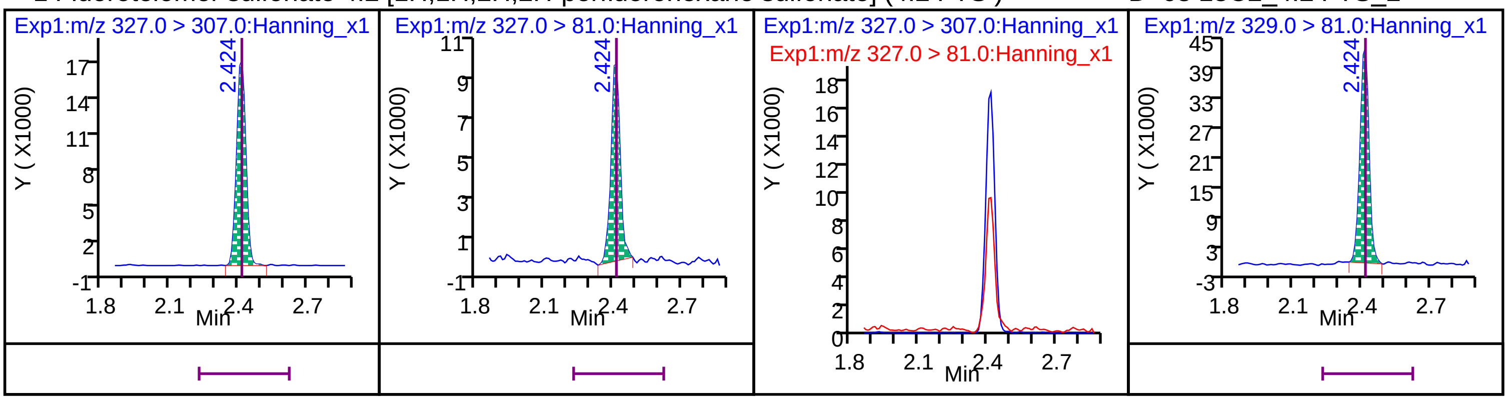
D 50 13C5_PFPeA



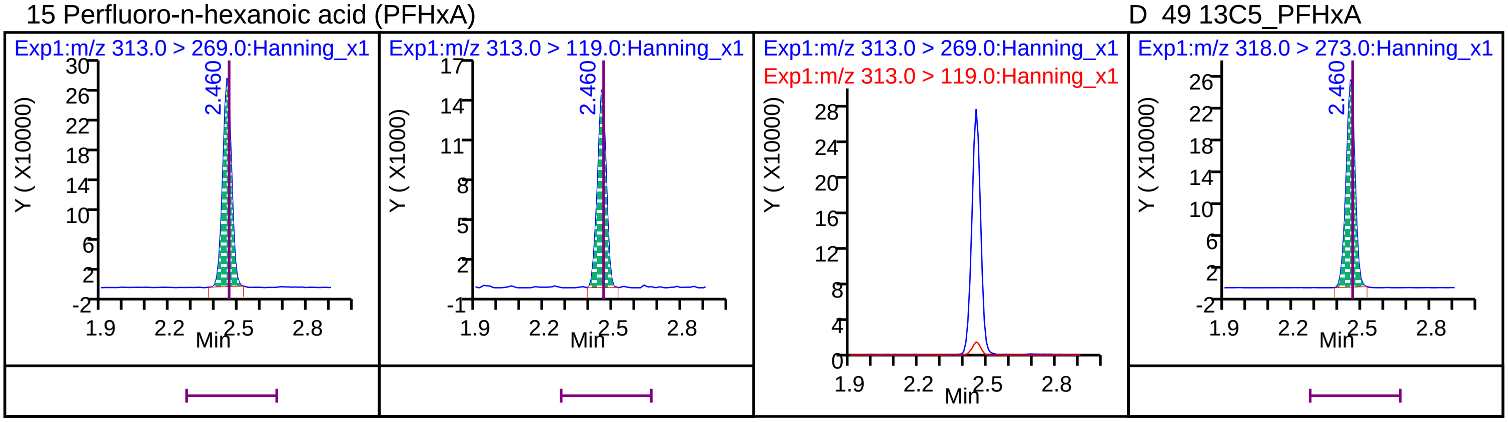
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



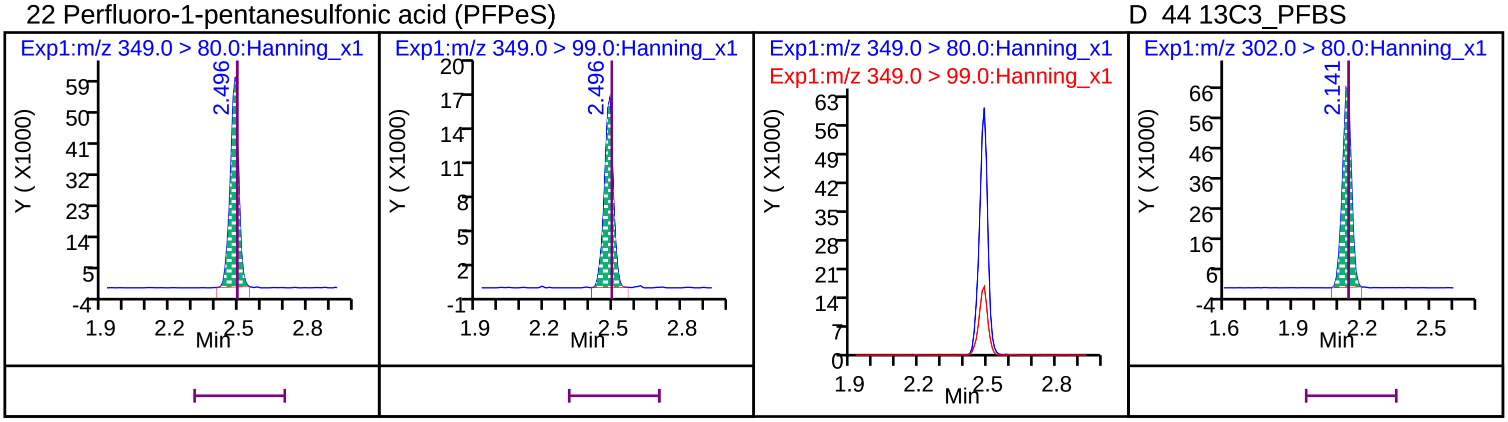
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

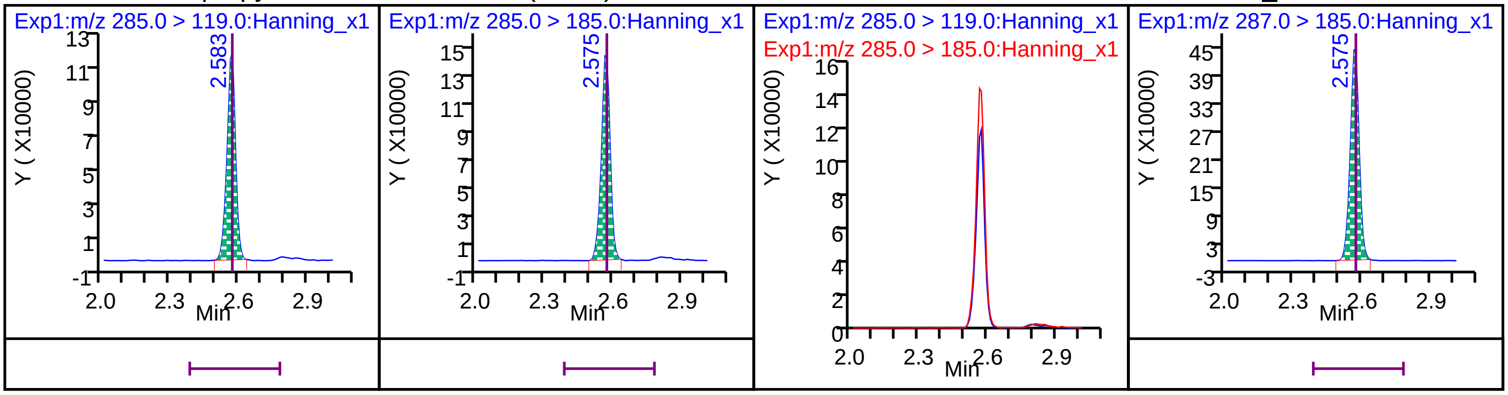


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

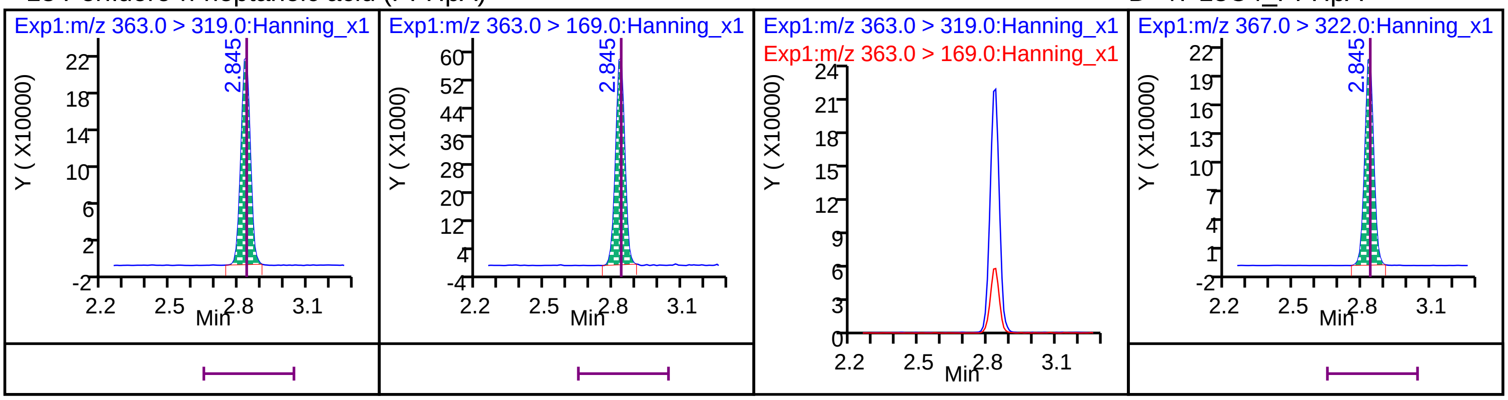


Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d

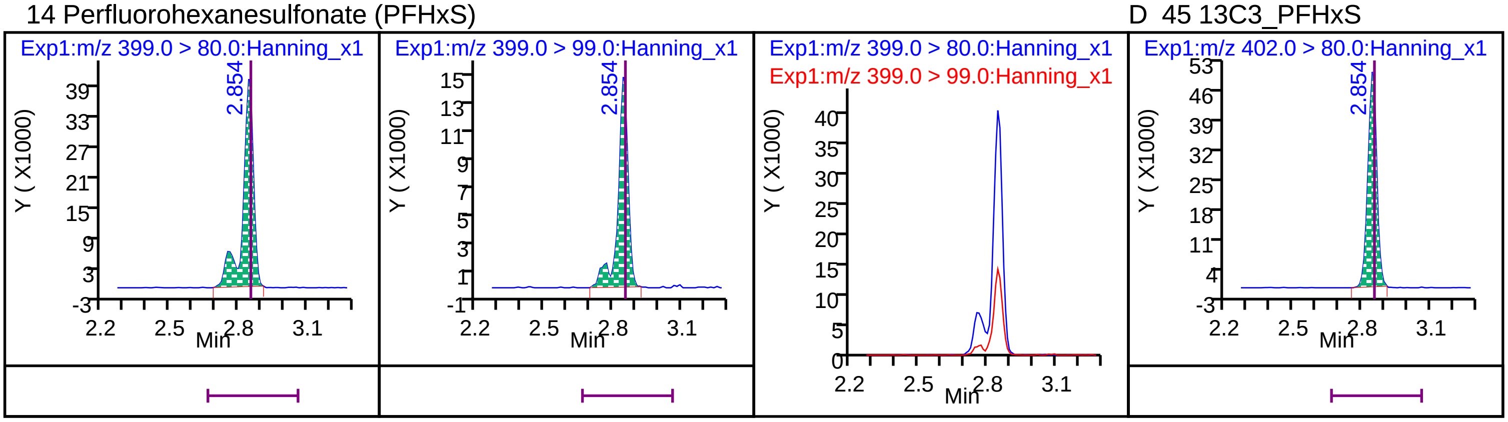
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



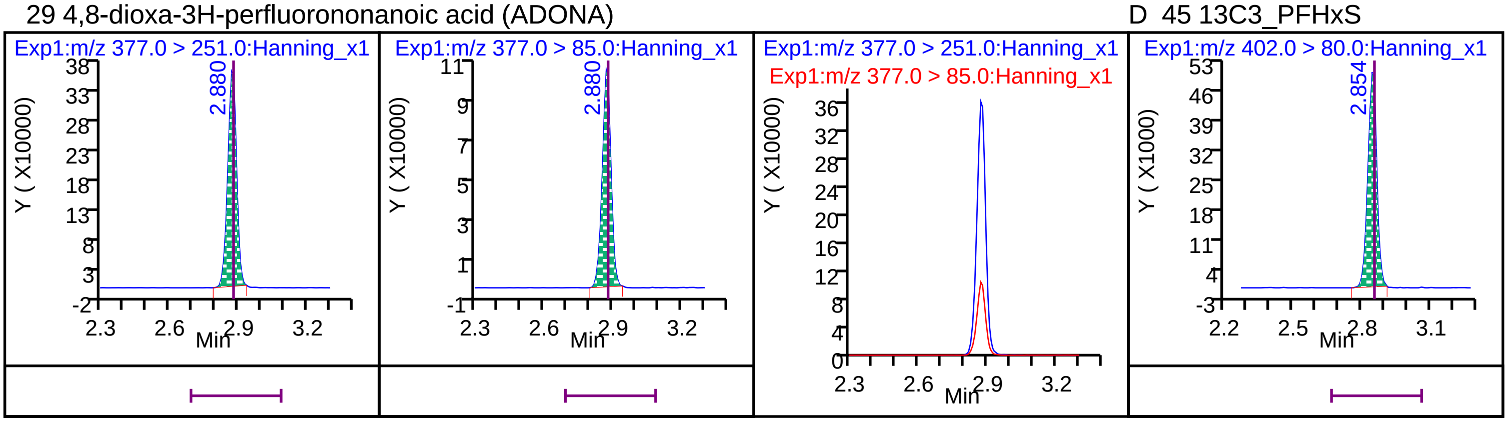
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

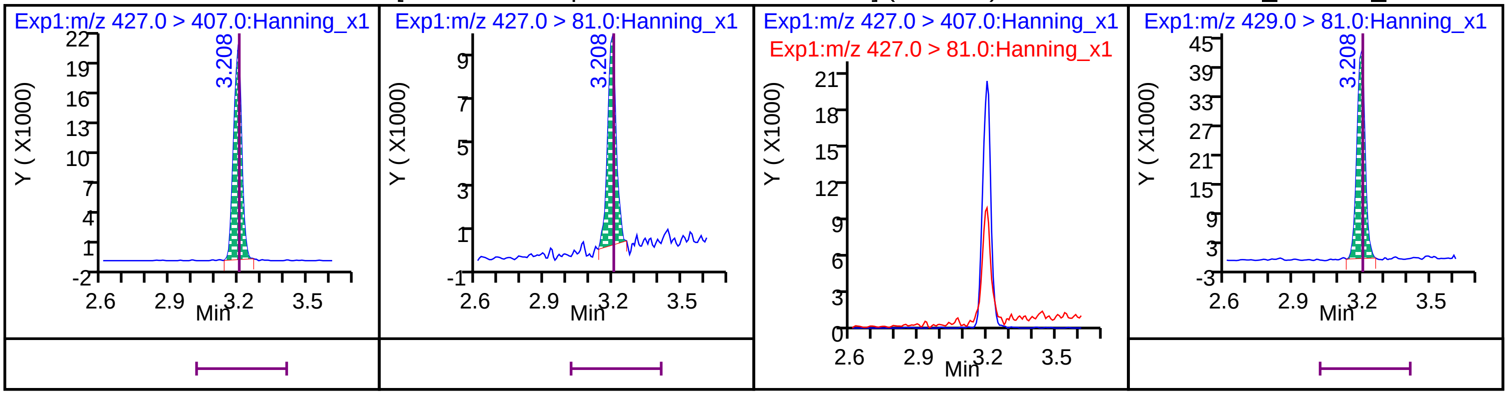


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

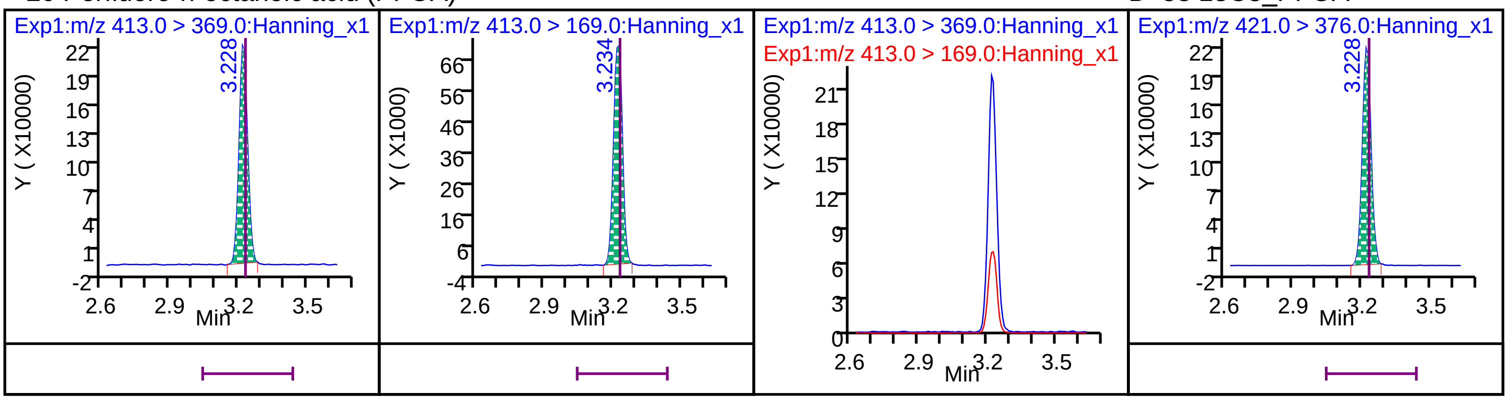


Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d

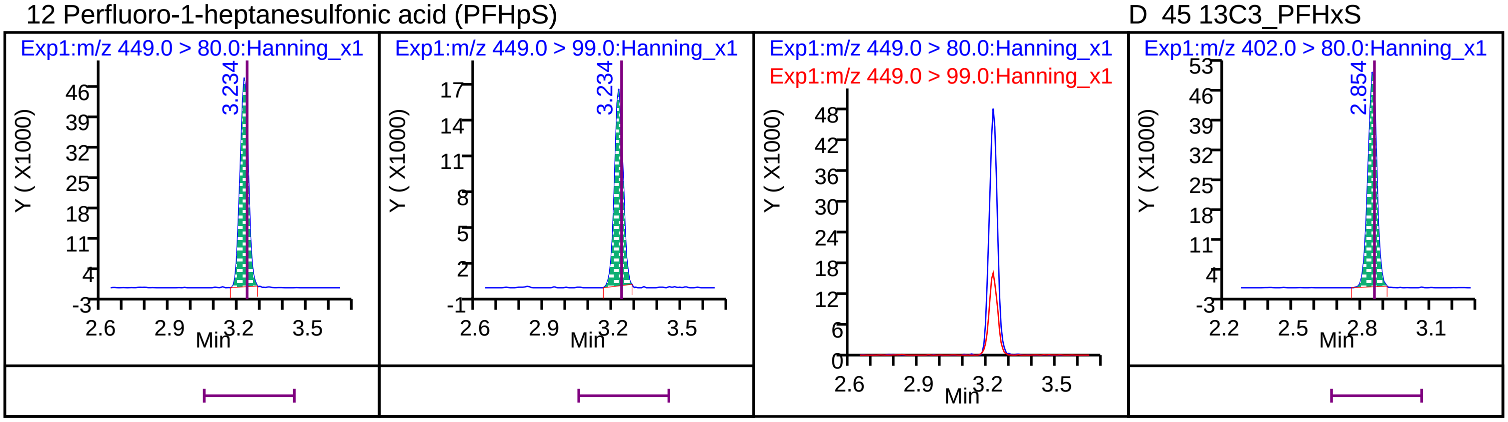
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



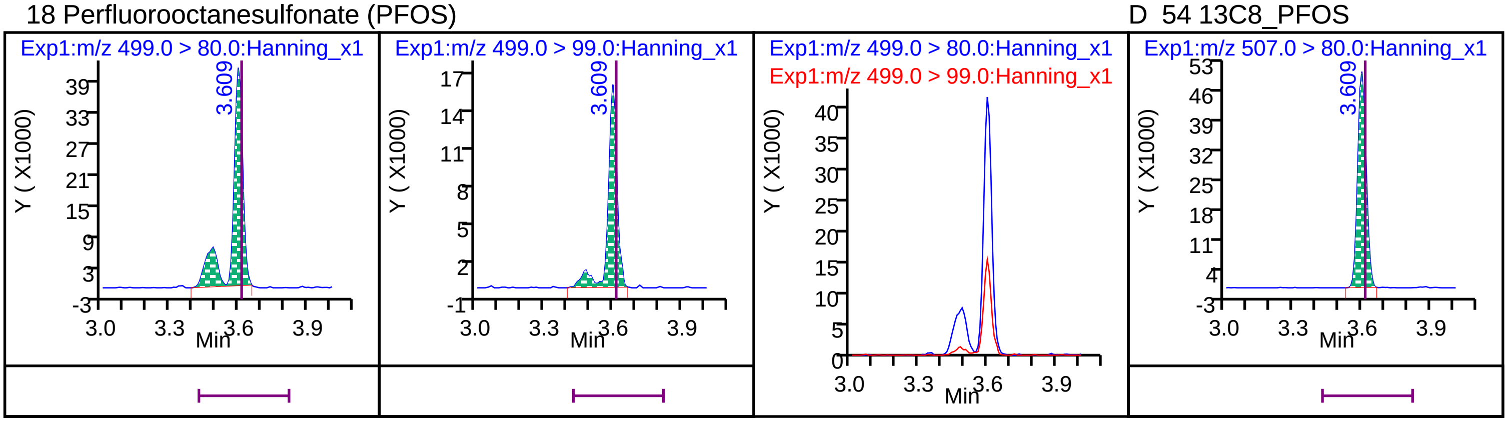
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



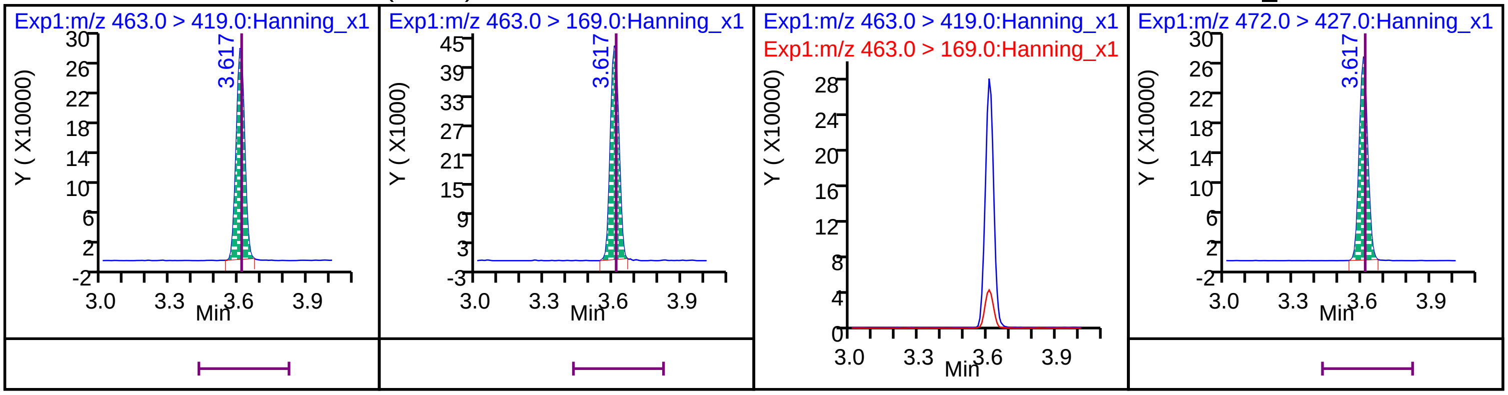
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



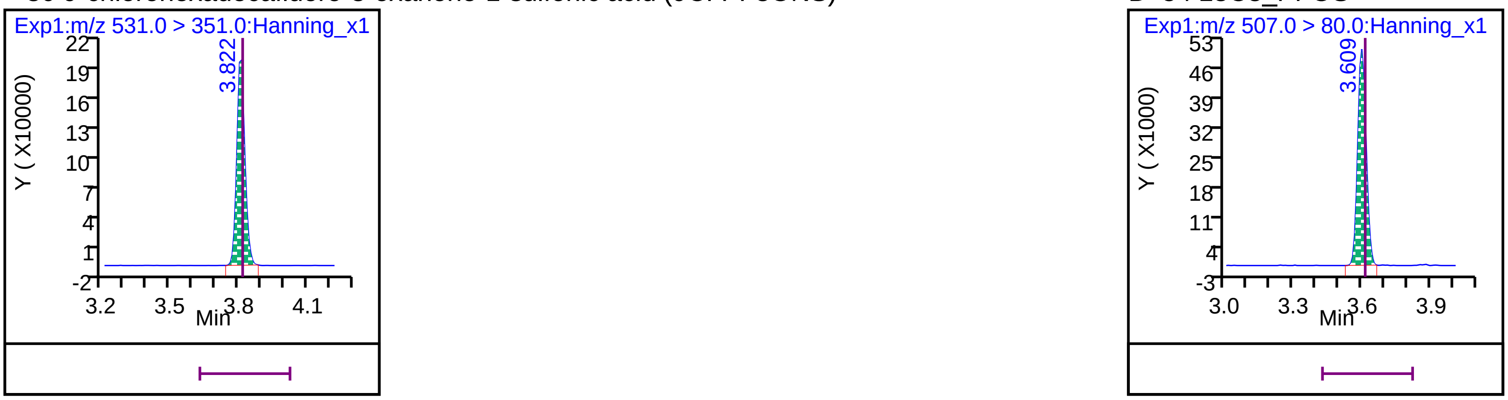
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



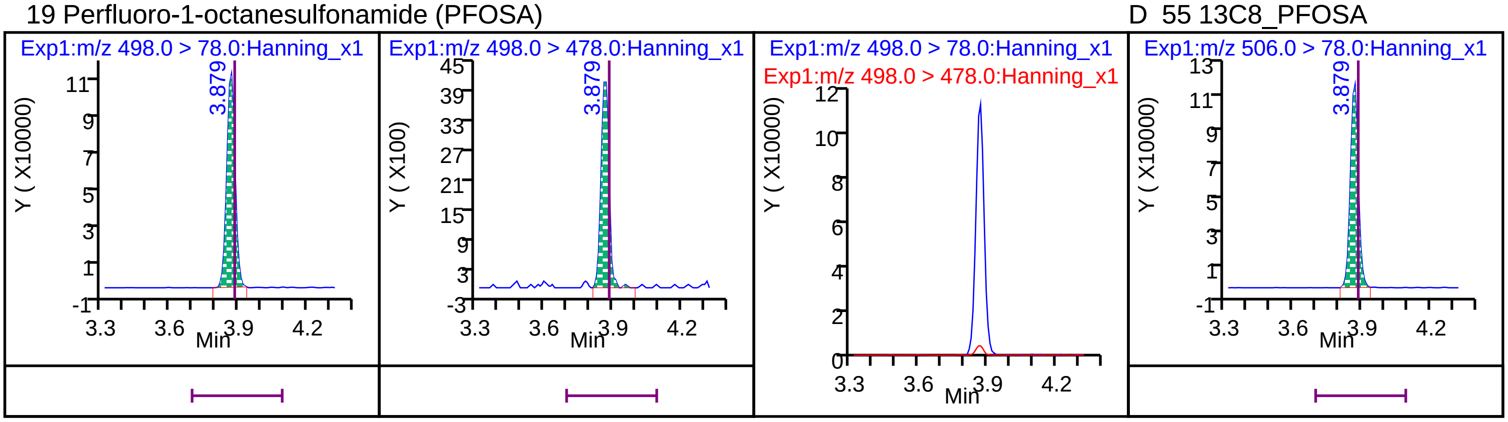
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



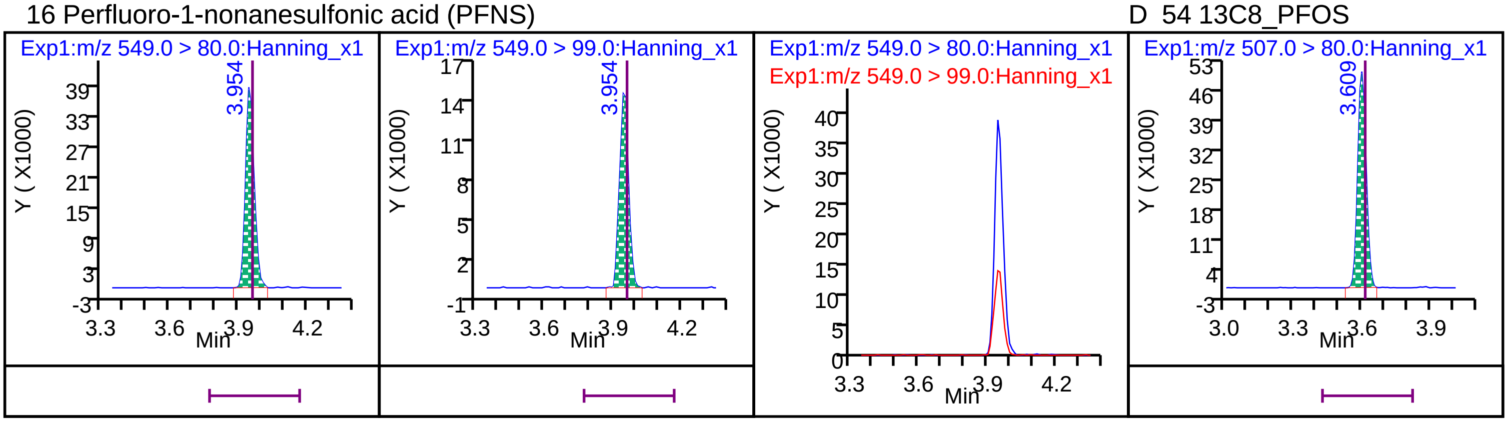
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



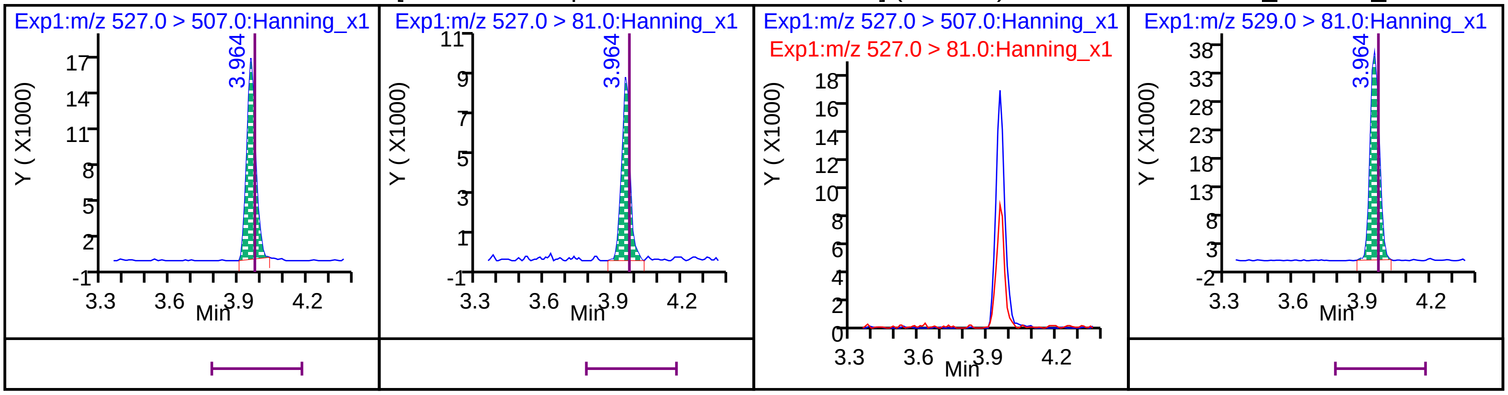
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



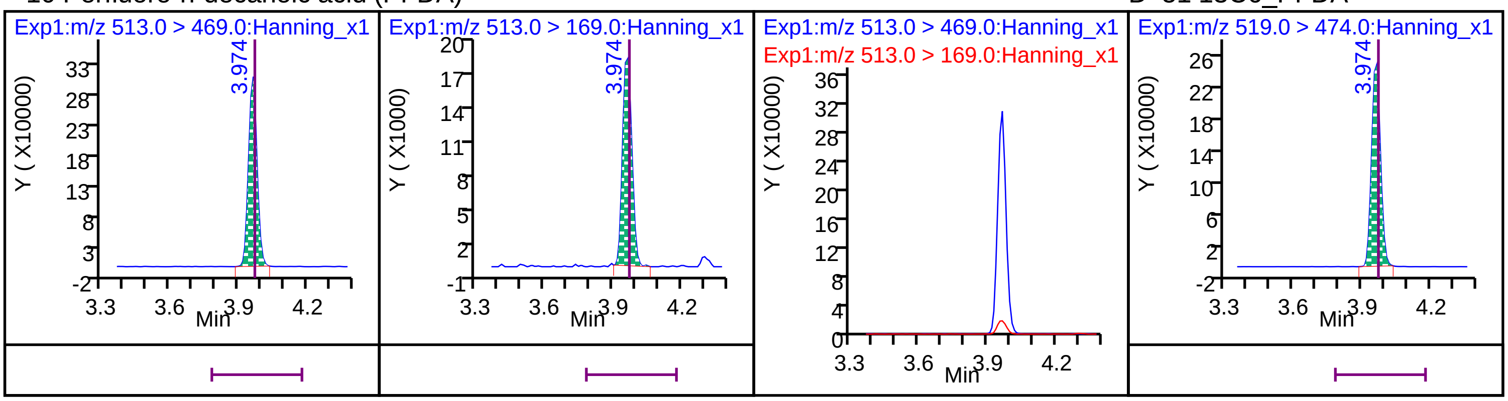
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



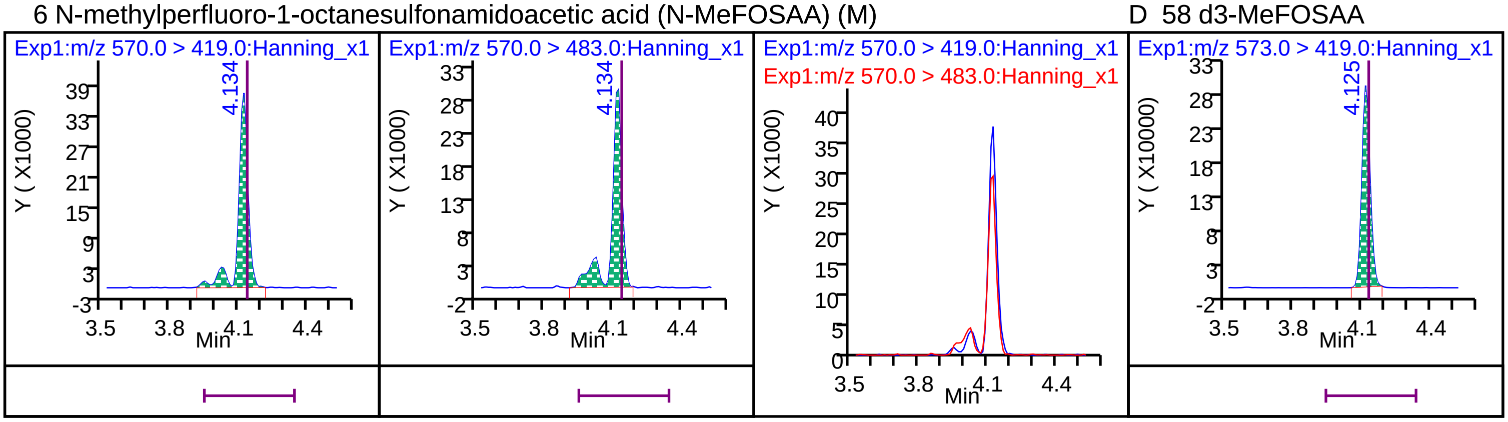
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

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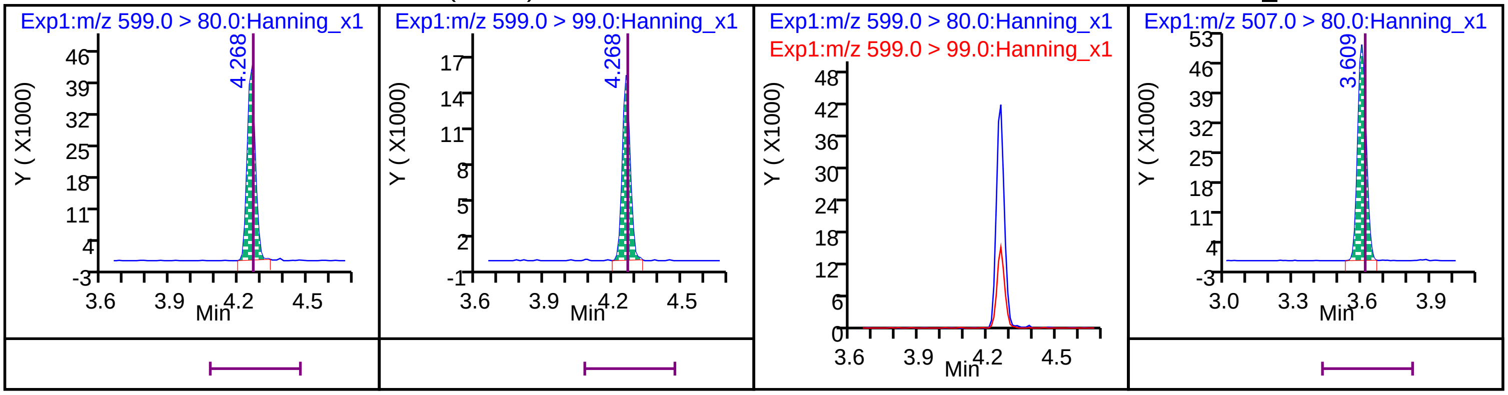
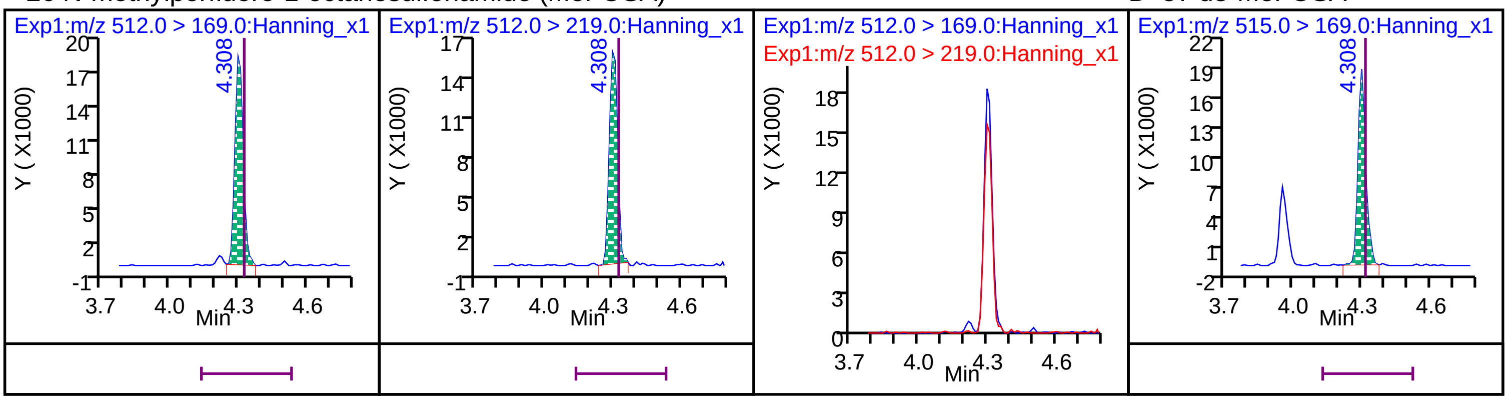
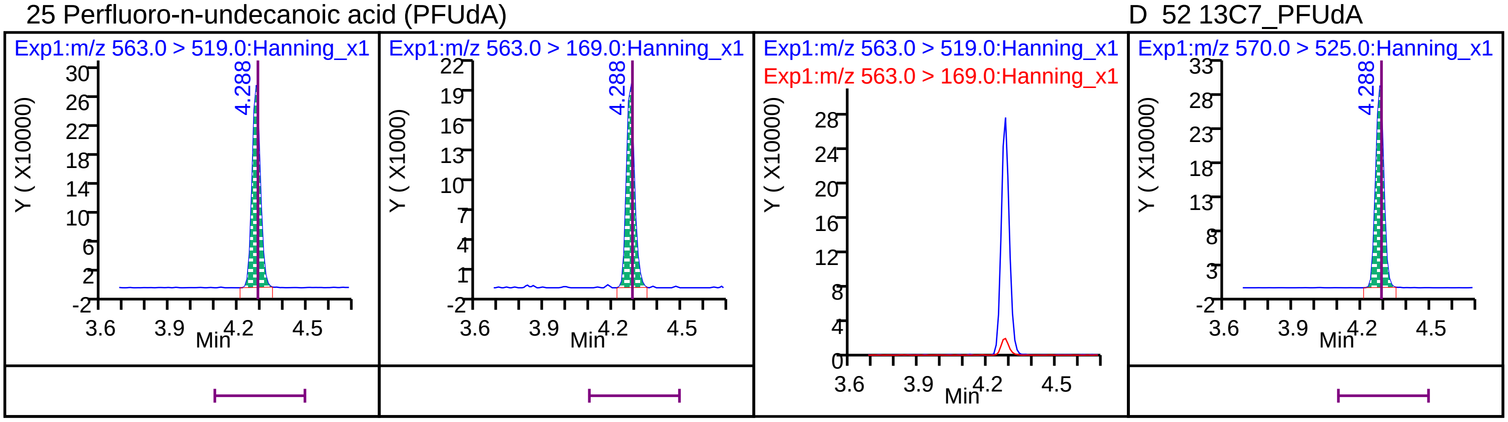
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



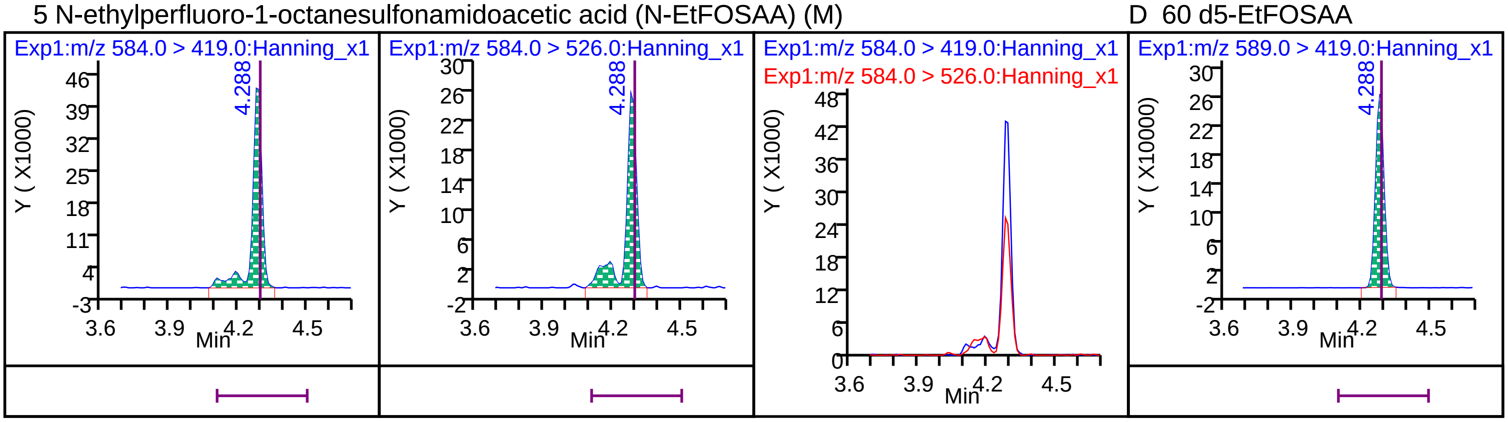
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



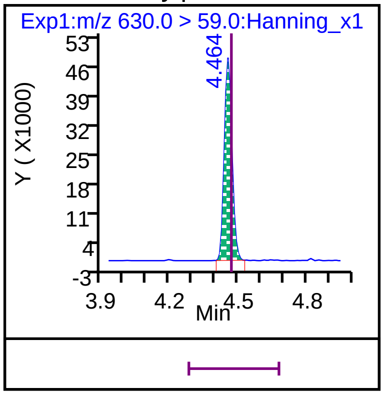
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



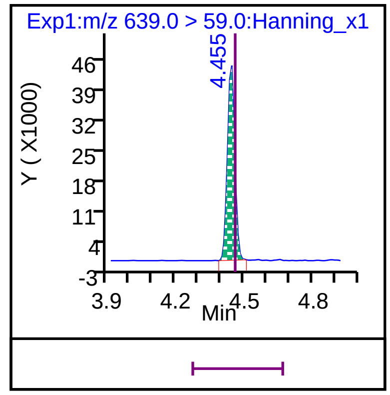
Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d

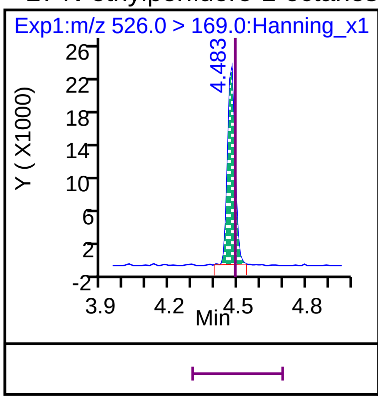
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

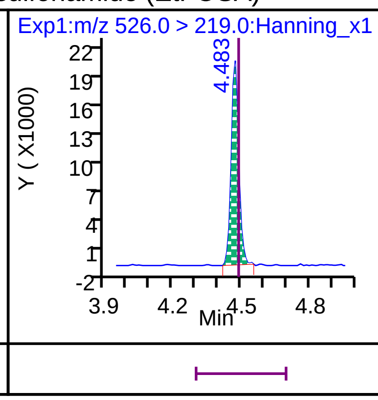


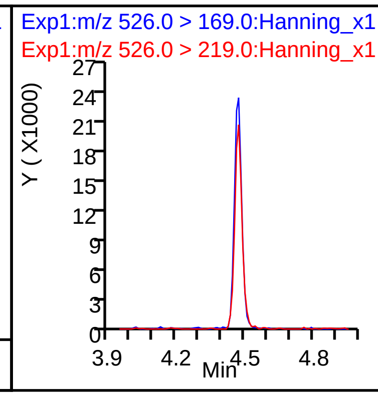
D 62 d9-EtFOSE



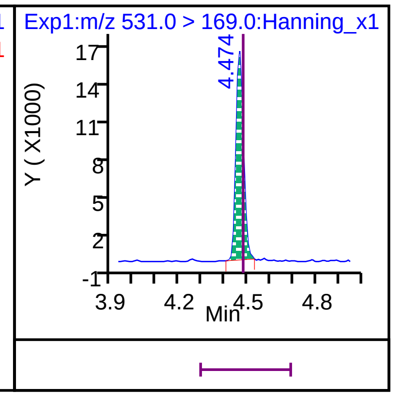
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



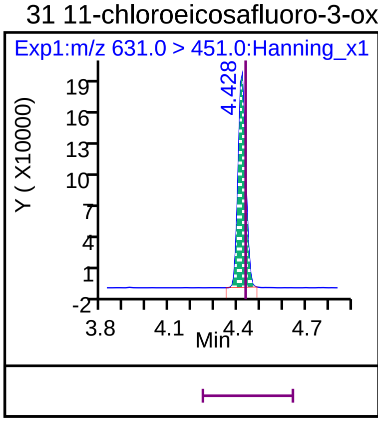




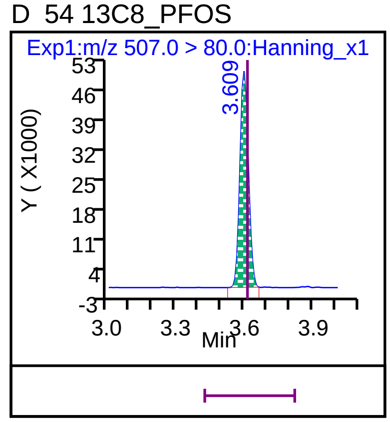
D 59 d5-EtFOSA



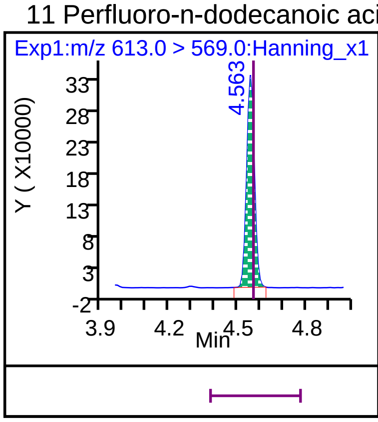
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

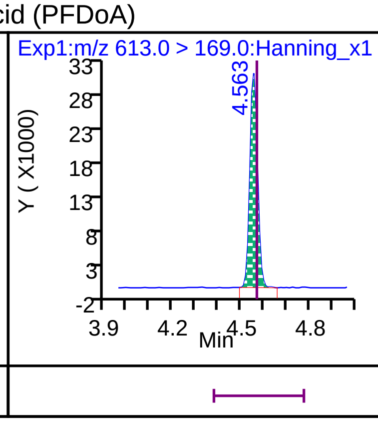


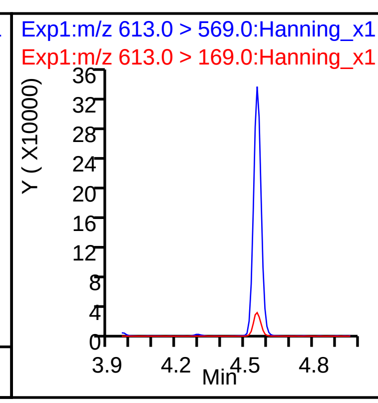
D 54 13C8_PFOS



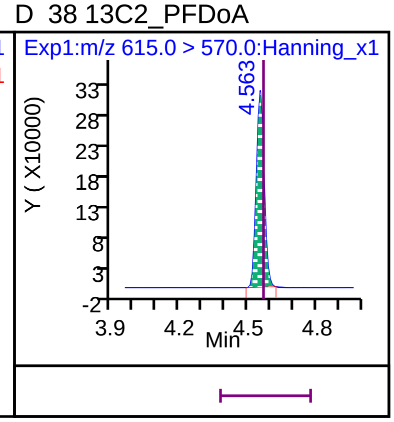
11 Perfluoro-n-dodecanoic acid (PFDoA)







D 38 13C2_PFDoA



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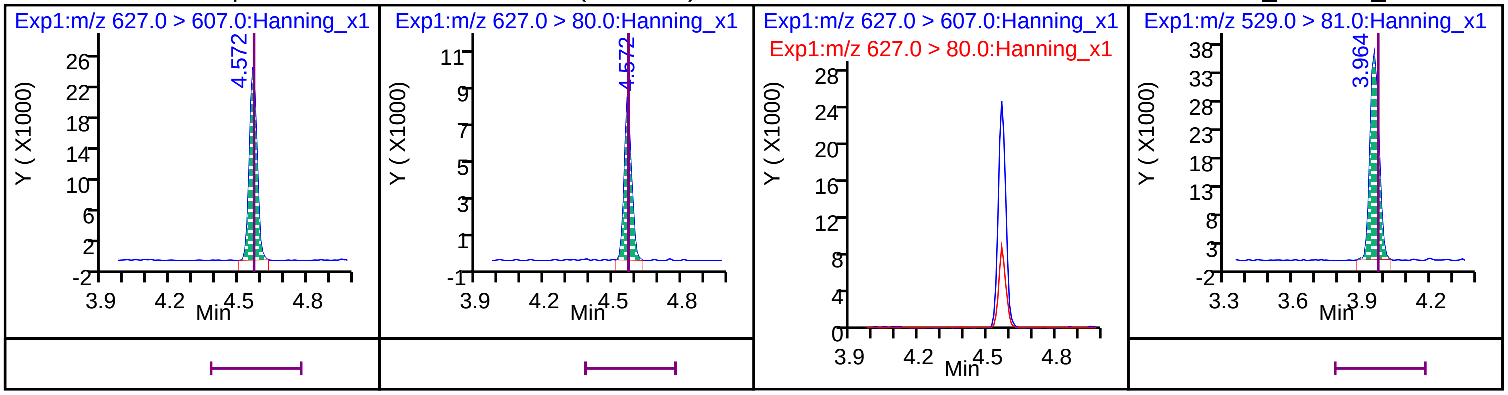
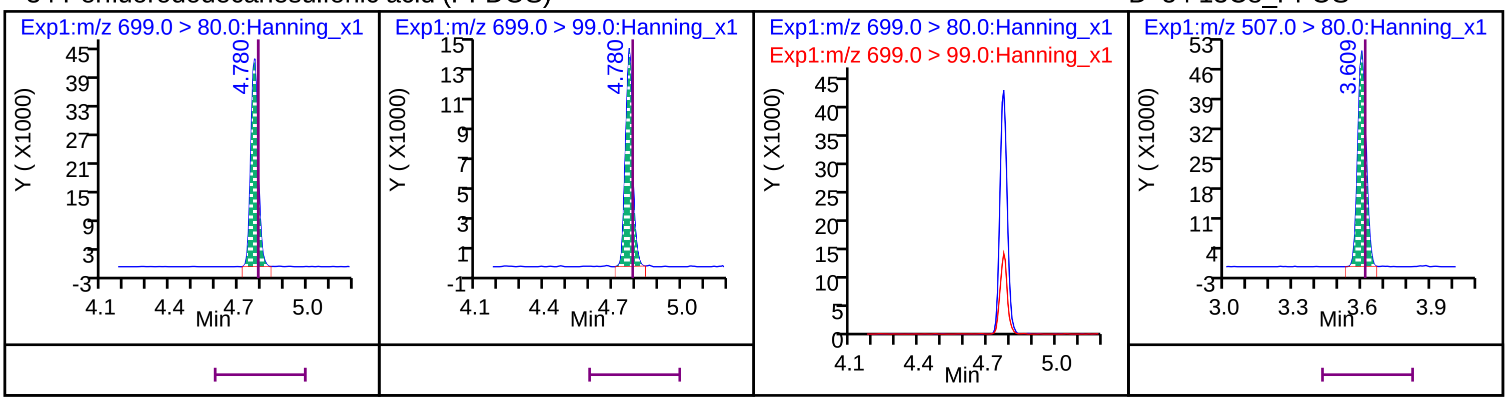
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d

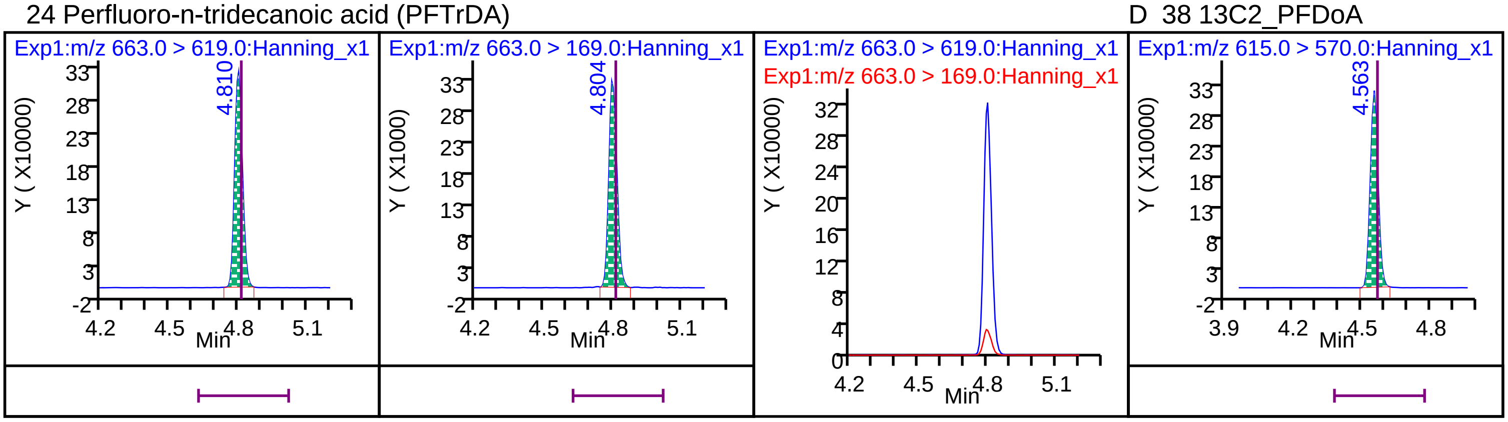
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



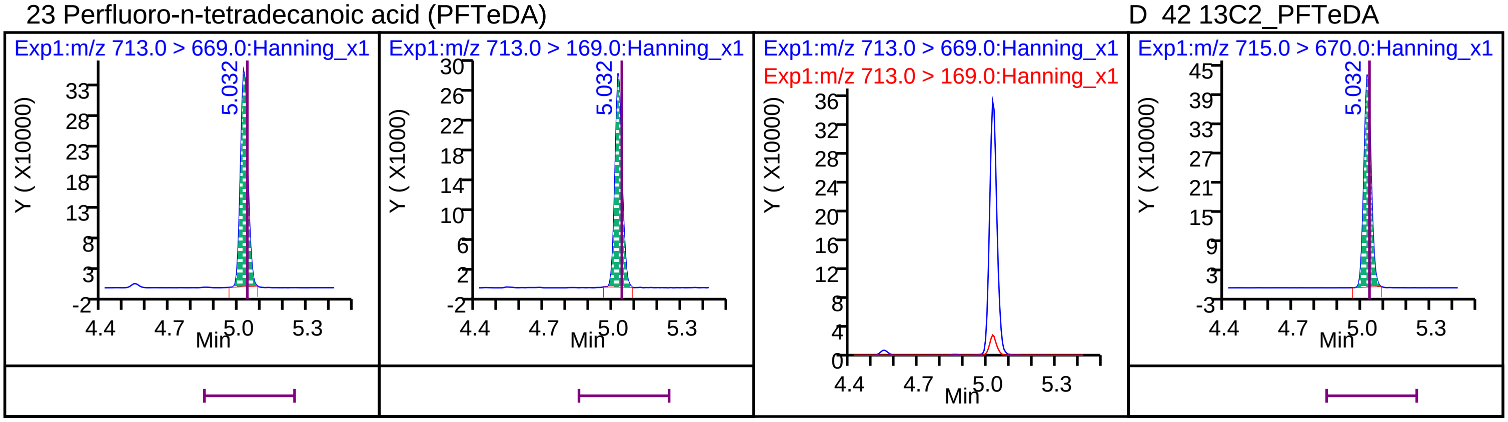
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



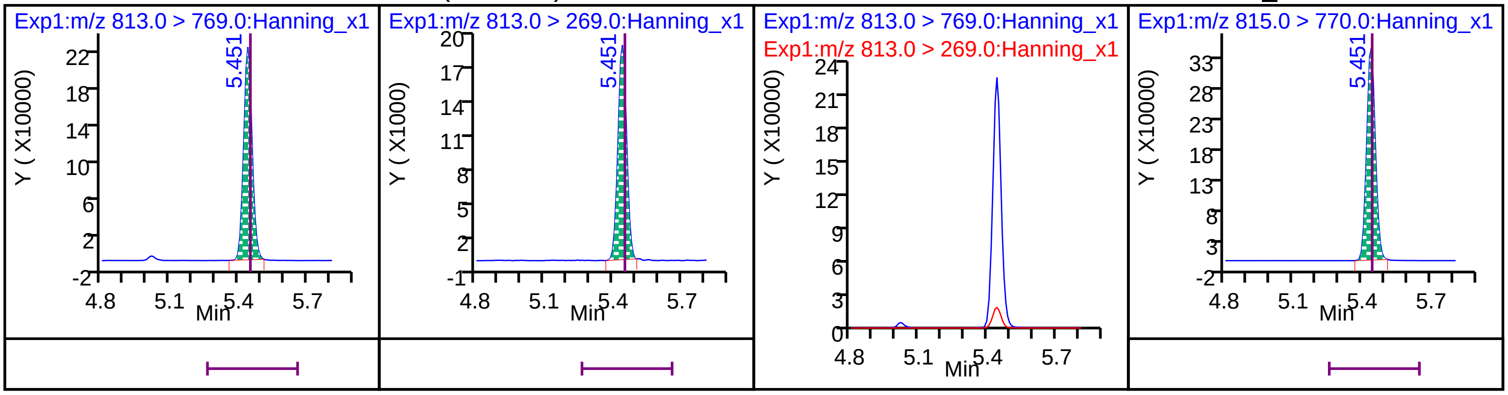
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



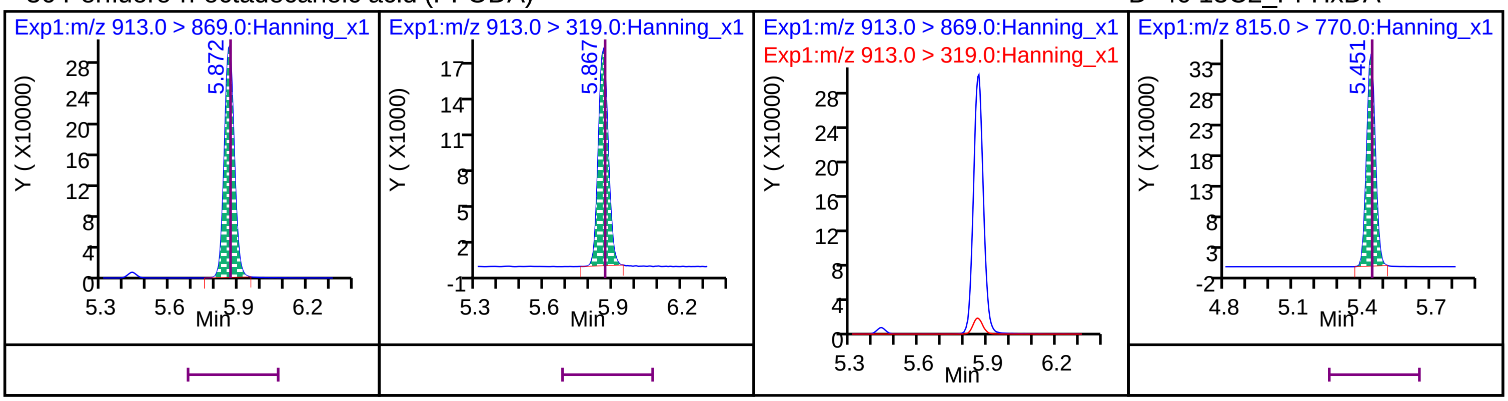
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



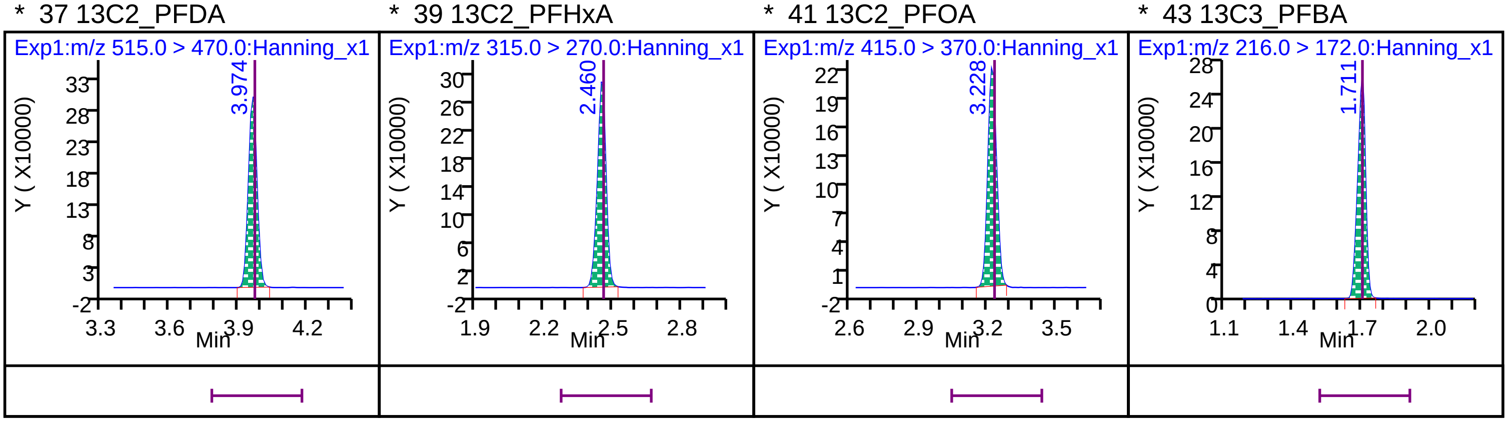
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



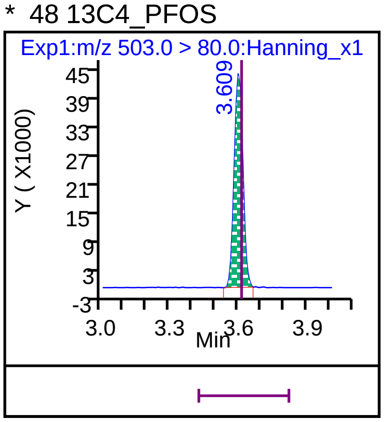
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d

Injection Date: 09-Nov-2021 23:05:36 Inst. ID: LCMSMS02.i

Client ID: Lab ID: ID CCV 1000B_SVLC-1744

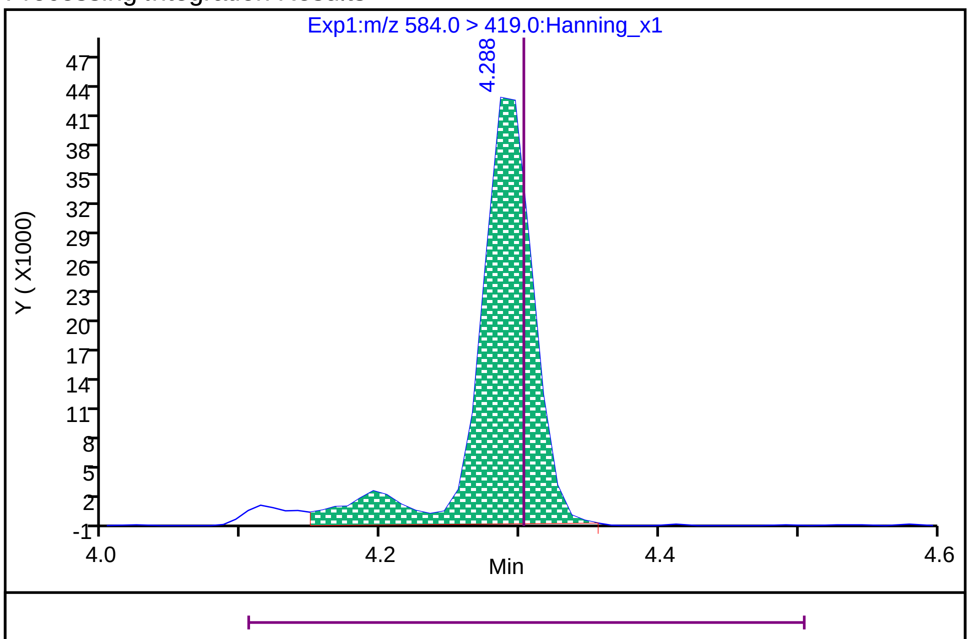
Sample Info: ID CCV 1000B_SVLC-1744

Dil. Factor: 1 Operator: Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.288
Area: 116838
Amount: 923.16
Amount Units: ng/L



RT: 4.288
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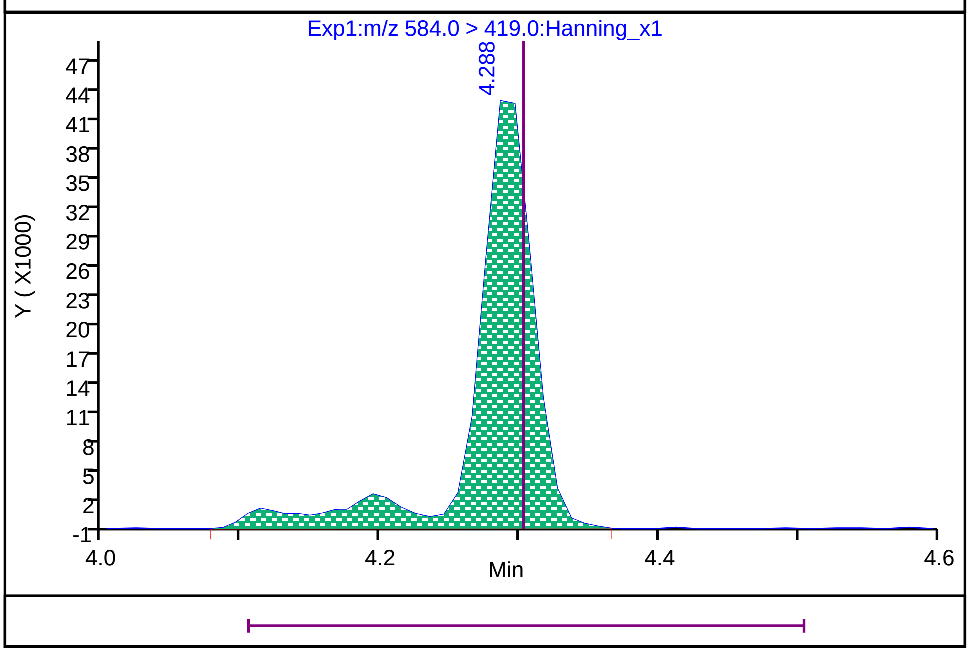
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:32:12

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

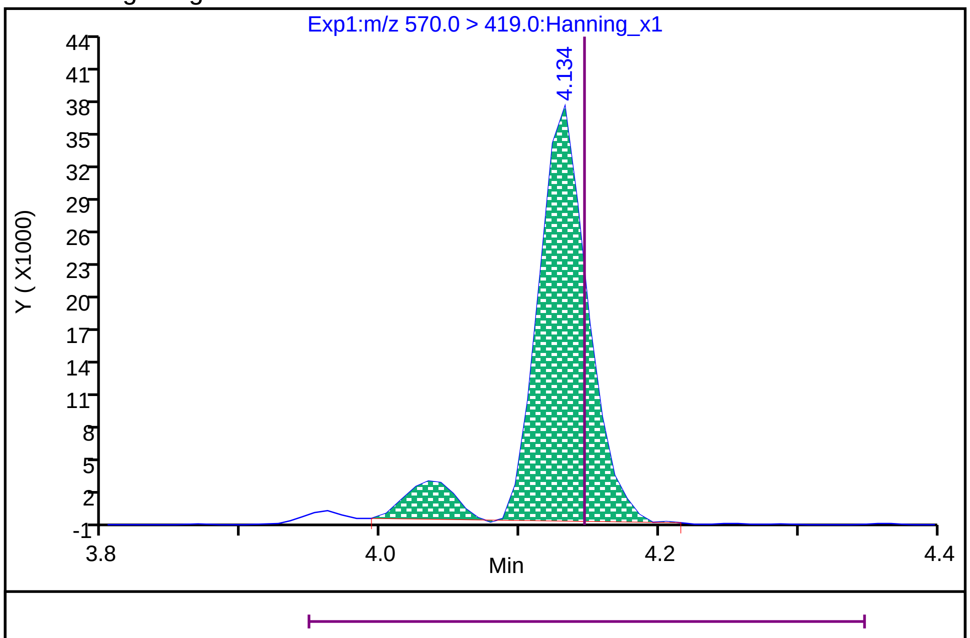
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921045.d		
Injection Date:	09-Nov-2021 23:05:36	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000B_SVLC-1744
Sample Info:	ID CCV 1000B_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

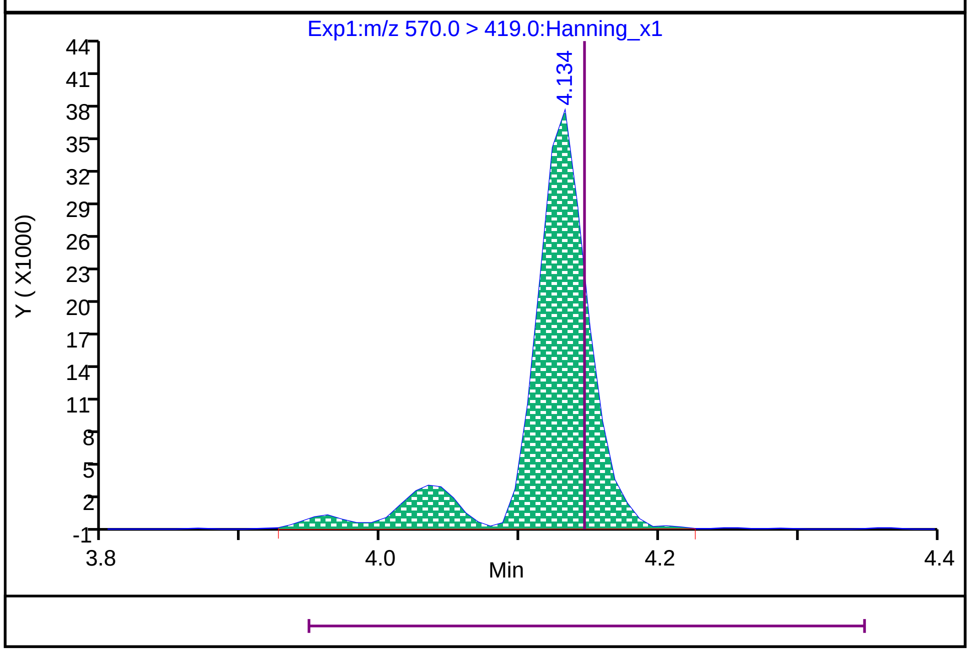
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.134
Area:	99429
Amount:	888.83
Amount Units:	ng/L



RT:	4.134
Area:	107296
Amount:	959.16
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:32:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d		
Injection Date:	10-Nov-2021 01:43:54	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	53
Sample Info:	ID CCV 1000C_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	950.05	95	70 - 130
D 46 13C4_PFBA	645349	740996			114.8	50 - 150
21 PFPeA			1000.00	962.89	96.3	70 - 130
D 50 13C5_PFPeA	572798	644453			112.5	50 - 150
D 44 13C3_PFBS	172627	196500			113.8	50 - 150
7 PFBS			884.00	847.41	95.9	70 - 130
1 4:2 FTS			934.00	949.54	101.7	70 - 130
D 63 13C2_4:2 FTS_2	103302	122020			118.1	50 - 150
D 49 13C5_PFHxA	672414	743376			110.6	50 - 150
15 PFHxA			1000.00	1020.10	102	70 - 130
22 PFPeS			938.00	835.19	89	70 - 130
28 GenX			2000.00	1944.60	97.2	70 - 130
D 66 13C3_GenX	1178163	1293895			109.8	50 - 150
D 47 13C4_PFHpA	536896	635813			118.4	50 - 150
13 PFHpA			1000.00	925.40	92.5	70 - 130
D 45 13C3_PFHxS	113881	142884			125.5	50 - 150
14 PFHxS			910.00	890.54	97.9	70 - 130
29 ADONA			942.00	997.66	105.9	70 - 130
D 64 13C2_6:2 FTS_2	103876	110211			106.1	50 - 150
2 6:2 FTS			948.00	987.18	104.1	70 - 130
20 PFOA			1000.00	958.79	95.9	70 - 130
D 53 13C8_PFOA	548937	646814			117.8	50 - 150
12 PFHpS			952.00	877.69	92.2	70 - 130
D 54 13C8_PFOS	112760	139783			124	50 - 150
18 PFOS			928.00	880.74	94.9	70 - 130
17 PFNA			1000.00	1021.08	102.1	70 - 130
D 56 13C9_PFNA	649289	722187			111.2	50 - 150
30 9Cl-PF3ONS			932.00	917.08	98.4	70 - 130
D 55 13C8_PFOSA	246131	274329			111.5	50 - 150
19 PFOSA			1000.00	1039.02	103.9	70 - 130
16 PFNS			960.00	998.65	104	70 - 130
10 PFDA			1000.00	1035.21	103.5	70 - 130
3 8:2 FTS			958.00	936.37	97.7	70 - 130
D 51 13C6_PFDA	631293	708651			112.3	50 - 150
D 65 13C2_8:2 FTS_2	92479	112263			121.4	50 - 150
6 N-MeFOSAA			1000.00	942.77	94.3	70 - 130

Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	710191	800386			112.7	50 - 150
D 61 d7-MeFOSE	83560	95039			113.7	50 - 150
32 MeFOSE			1000.00	975.21	97.5	70 - 130
26 MeFOSA			1000.00	973.10	97.3	70 - 130
D 57 d3-MeFOSA	43685	48692			111.5	50 - 150
9 PFDS			964.00	970.36	100.7	70 - 130
D 52 13C7_PFUdA	693518	840758			121.2	50 - 150
D 60 d5-EtFOSAA	684113	742399			108.5	50 - 150
25 PFUdA			1000.00	959.90	96	70 - 130
5 N-EtFOSAA			1000.00	975.17	97.5	70 - 130
D 62 d9-EtFOSE	94206	110589			117.4	50 - 150
33 EtFOSE			1000.00	1079.54	108	70 - 130
D 59 d5-EtFOSA	42530	44135			103.8	50 - 150
31 11Cl-PF3OUDS			942.00	1036.46	110	70 - 130
27 EtFOSA			1000.00	1009.02	100.9	70 - 130
D 38 13C2_PFDoA	704128	820528			116.5	50 - 150
11 PFDoA			1000.00	1012.68	101.3	70 - 130
4 10:2 FTS			964.00	1142.44	118.5	70 - 130
34 PFDOS			968.00	900.13	93	70 - 130
24 PFTrDA			1000.00	985.34	98.5	70 - 130
D 42 13C2_PFTeDA	946932	1021353			107.9	50 - 150
23 PFTeDA			1000.00	982.10	98.2	70 - 130
D 40 13C2_PFHxDA	912699	1035575			113.5	50 - 150
35 PFHxDA			1000.00	964.92	96.5	70 - 130
36 PFODA			1000.00	1045.59	104.6	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d		
Injection Date:	10-Nov-2021 01:43:54	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	53
Sample Info:	ID CCV 1000C_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	740996	22	>100:1			1000.00	1191.94	114.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.718	0/-1	742447	20	>100:1			1000.00	950.05		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	644453	15	>100:1			1000.00	1127.47	112.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.098	2.098	1/1	698411	17	>100:1			1000.00	962.89		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	196500	15	>100:1			1000.00	1136.04	113.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.162	0/-1	207650	16	>100:1	Target = 3.53		884.00	847.41		
298.9 > 99	44	2.151	2.162		57887	15	>100:1	3.58 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/-1	152096	18	>100:1	Target = 3.10		938.00	835.19		
349 > 99	44	2.496	2.505		54078	17	>100:1	2.81 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	122020	17	>100:1			5000.00	5388.69	118.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.425	2.424	1/0	51081	18	>100:1	Target = 1.75		934.00	949.54		
327 > 81	63	2.425	2.424		29474	23	46:1	1.73 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	743376	17	>100:1			1000.00	1141.40	110.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	788466	18	>100:1	Target = 18.91		1000.00	1020.10		
313 > 119	49	2.460	2.469		41528	17	>100:1	18.98 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	1	1293895	19	>100:1			5000.00	5583.00	109.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	1/0	325902	19	>100:1	Target = 0.79		2000.00	1944.60		
285 > 185	66	2.583	2.583		400582	18	>100:1	0.81 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	635813	17	>100:1			1000.00	1197.53	118.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	0/0	646532	18	>100:1	Target = 3.80		1000.00	925.40		
363 > 169	47	2.845	2.845		172060	17	>100:1	3.75 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.854	2.864	0	142884	19	>100:1			1000.00	1137.25	125.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.854	2.864	0/0	139890	26	>100:1	Target = 2.89	5.48	910.00	890.54		
399 > 99	45	2.864	2.864		40181	28	>100:1	3.48 (1.44-4.34)	8.24				

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.888	2.888	1/1	1105503	18	>100:1	Target = 3.23		942.00	997.66		
377 > 85	45	2.888	2.888		325713	18	>100:1	3.39 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.233	3.247	0/0	128802	20	>100:1	Target = 3.12		952.00	877.69		
449 > 99	45	3.240	3.247		39691	20	>100:1	3.24 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.206	3.213	0	110211	20	>100:1			5000.00	6122.85	106.1	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.206	3.213	0/0	51510	20	>100:1	Target = 1.75		948.00	987.18		
427 > 81	64	3.206	3.213		29721	19	72:1	1.73 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.240	0	646814	21	>100:1			1000.00	1232.79	117.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.233	3.240	0/0	635514	21	>100:1	Target = 2.89		1000.00	958.79		
413 > 169	53	3.233	3.240		198501	20	>100:1	3.20 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.615	3.623	0	139783	20	>100:1			1000.00	1128.71	124	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.615	3.623	0/0	146588	37	>100:1	Target = 3.30	3.52	928.00	880.74		
499 > 99	54	3.615	3.623		40136	28	73:1	3.65 (1.65-4.95)	7.47				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.828	3.828	0/0	485475	17	>100:1			932.00	917.08		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.961	3.971	0/0	111995	14	>100:1	Target = 3.08		960.00	998.65		
549 > 99	54	3.961	3.971		42468	14	>100:1	2.63 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.275	4.274	1/1	106143	15	>100:1	Target = 2.72		964.00	970.36		
599 > 99	54	4.265	4.274		37438	14	>100:1	2.83 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.435	4.443	0/0	496017	18	>100:1			942.00	1036.46		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.784	4.796	0/0	108194	19	>100:1	Target = 3.27		968.00	900.13		
699 > 99	54	4.784	4.796		33002	19	>100:1	3.27 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.623	3.623	0	722187	19	>100:1			1000.00	1127.75	111.2	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.623	3.623	0/0	794834	20	>100:1	Target = 6.51		1000.00	1021.08		
463 > 169	56	3.623	3.623		122117	19	>100:1	6.50 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.877	3.893	0	274329	18	>100:1			1000.00	1023.39	111.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.877	3.893	0/0	299907	17	>100:1	Target = 41.63		1000.00	1039.02		
498>478	55	3.885	3.893		10934	21	65:1	27.42 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.982	3.981	1	708651	16	>100:1			1000.00	1233.17	112.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.982	3.981	1/0	853730	17	>100:1	Target = 13.80		1000.00	1035.21		
513 > 169	51	3.982	3.981		59646	16	>100:1	14.31 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.971	3.981	0	112263	16	>100:1			5000.00	6495.01	121.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.971	3.981	0/0	47506	16	>100:1	Target = 1.94		958.00	936.37		
527 > 81	65	3.971	3.981		27516	15	95:1	1.72 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.578	4.577	1/1	65066	16	>100:1	Target = 3.54		964.00	1142.44		
627 > 80	65	4.578	4.577		19151	17	>100:1	3.39 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.131	4.139	0	800386	17	>100:1			5000.00	5296.62	112.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.140	4.148	0/0	121099	29	>100:1	Target = 1.37	7.29	1000.00	942.77		M
570 > 483	58	4.140	4.148		96647	29	>100:1	1.25 (0.68-2.05)	5.16				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.295	4.304	0	95039	13	>100:1			1000.00	1053.78	113.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.306	4.314	0/0	101288	15	>100:1			1000.00	975.21		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.316	4.325	0	48692	14	>100:1			1000.00	1035.09	111.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.316	4.335	-1/-1	51357	15	>100:1	Target = 1.11		1000.00	973.10		
512 > 219	57	4.316	4.335		48018	14	>100:1	1.06 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.295	4.294	1	742399	16	>100:1			5000.00	5732.23	108.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.306	4.304	1/0	141180	30	>100:1	Target = 1.51	6.03	1000.00	975.17		
584 > 526	60	4.306	4.304		92645	26	51:1	1.52 (0.75-2.26)	4.11				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.295	4.294	1	840758	16	>100:1			1000.00	1396.03	121.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.295	4.294	1/0	782001	15	>100:1	Target = 14.52		1000.00	959.90		
563 > 169	52	4.295	4.294		49133	15	>100:1	15.91 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.462	4.470	0	110589	14	>100:1			1000.00	1042.54	117.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.471	4.479	0/0	116219	17	>100:1			1000.00	1079.54		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.480	4.488	0	44135	18	>100:1			1000.00	1026.40	103.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.480	4.497	-1/-1	53363	14	>100:1	Target = 1.06		1000.00	1009.02		
526 > 219	59	4.480	4.497		54355	17	>100:1	0.98 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.569	4.577	0	820528	17	>100:1			1000.00	1366.78	116.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.569	4.577	0/0	885833	17	>100:1	Target = 10.70		1000.00	1012.68		
613 > 169	38	4.569	4.577		74551	18	>100:1	11.88 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.814	4.822	0/0	849801	19	>100:1	Target = 8.31		1000.00	985.34		
663 > 169	38	4.814	4.822		92044	17	>100:1	9.23 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.043	5.042	1	1021353	20	>100:1			1000.00	1256.29	107.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.043	5.048	0/-1	875612	19	>100:1	Target = 12.17		1000.00	982.10		
713 > 169	42	5.043	5.048		66387	20	>100:1	13.18 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.454	5.454	0	1035575	19	>100:1			1000.00	1193.01	113.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.461	5.461	0/0	639967	19	>100:1	Target = 10.43		1000.00	964.92		
813 > 269	40	5.461	5.461		54655	18	>100:1	11.70 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.875	5.875	0/0	985756	37	65:1	Target = 13.67		1000.00	1045.59		
913 > 319	40	5.871	5.875		61828	37	>100:1	15.94 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.982	3.981	1	843173	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	1	791454	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.233	3.240	0	653735	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.712	1.711	1	671464	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.615	3.623	0	133975	19	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812

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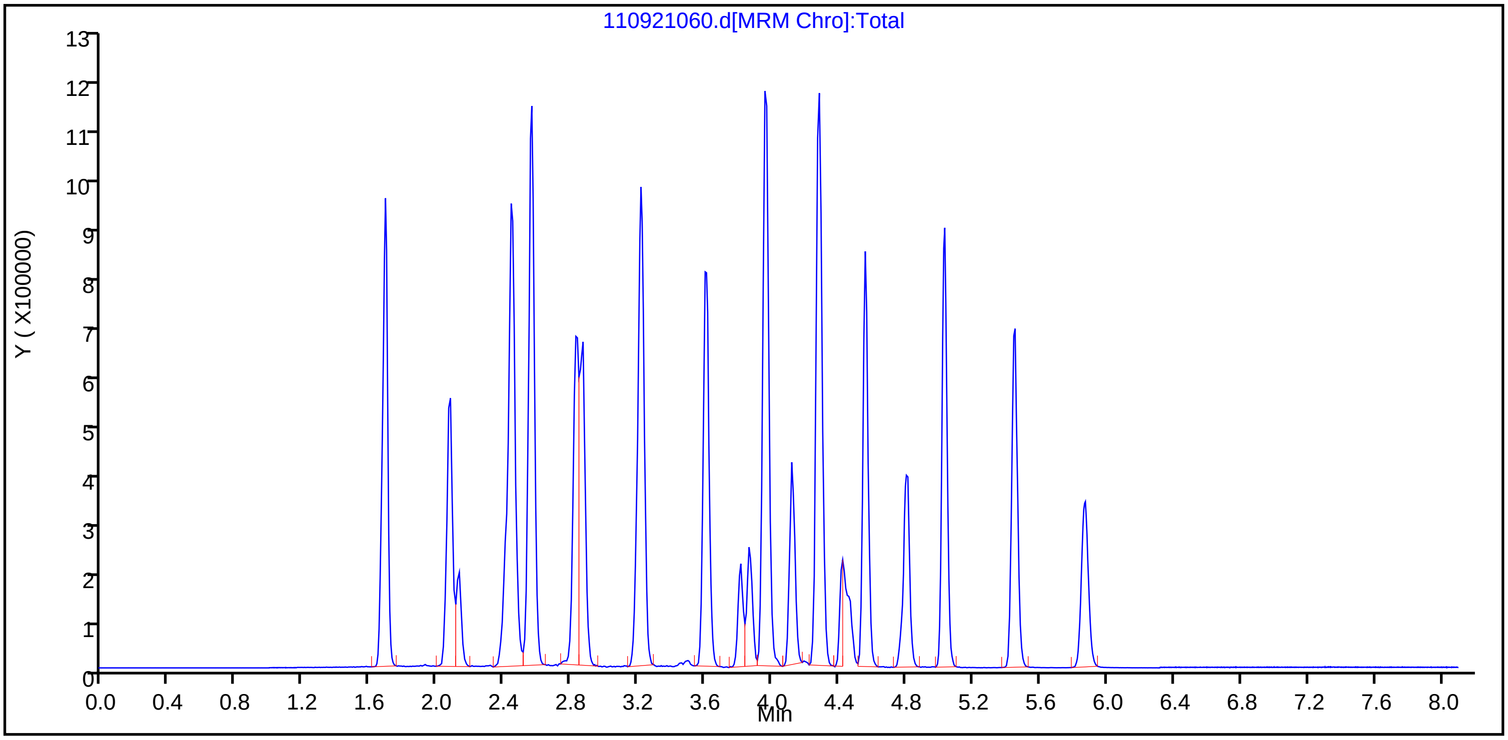
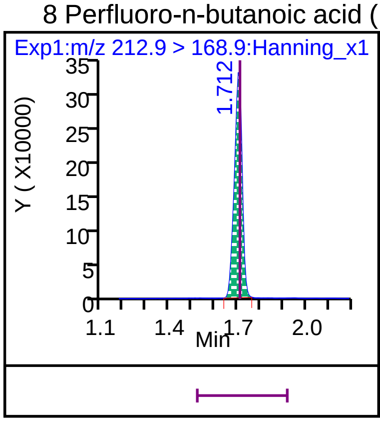
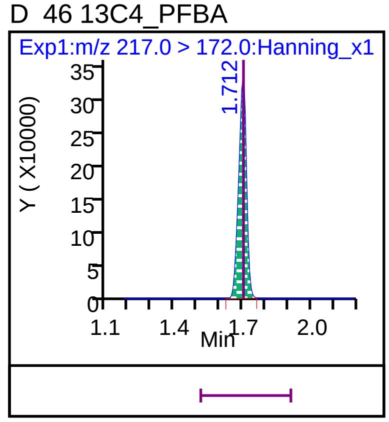
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d		
Injection Date:	10-Nov-2021 01:43:54	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000C_SVLC-1744
Sample Info:	ID CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



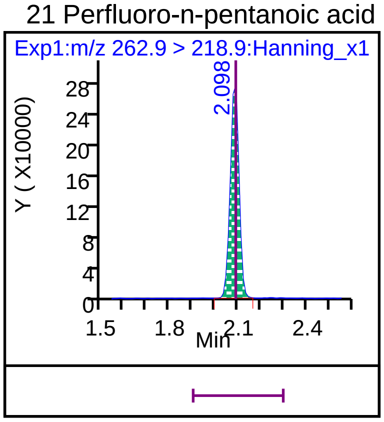
8 Perfluoro-n-butanoic acid (PFBA)



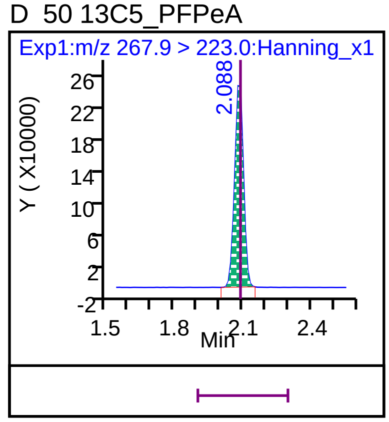
D 46 13C4_PFBA



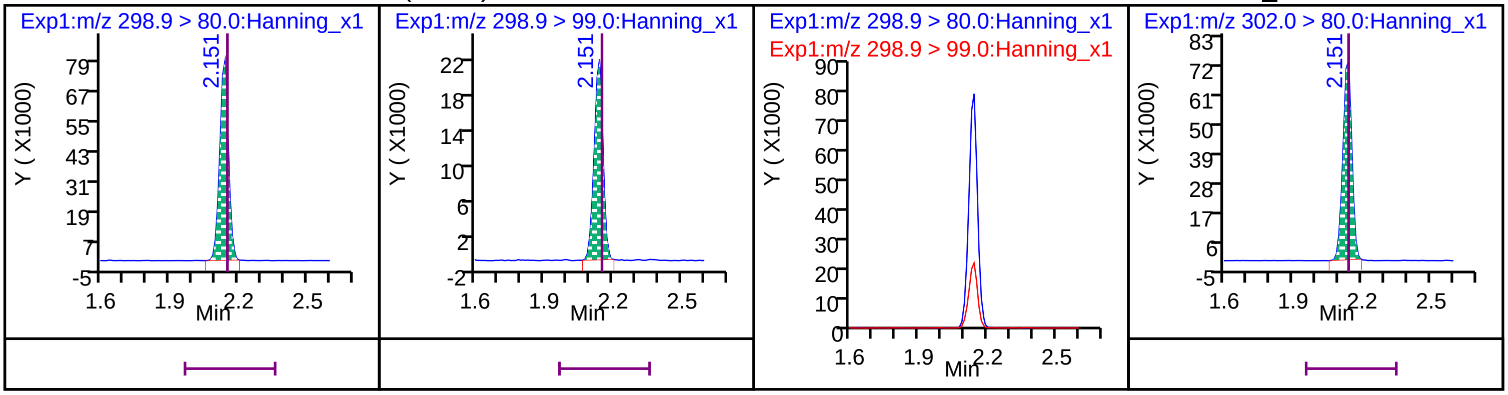
21 Perfluoro-n-pentanoic acid (PFPeA)



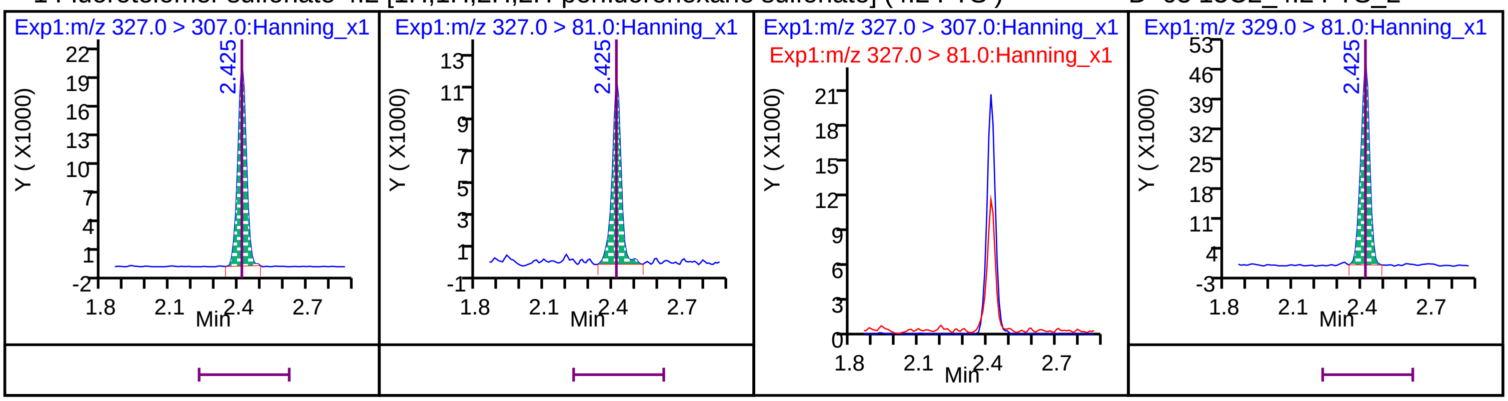
D 50 13C5_PFPeA



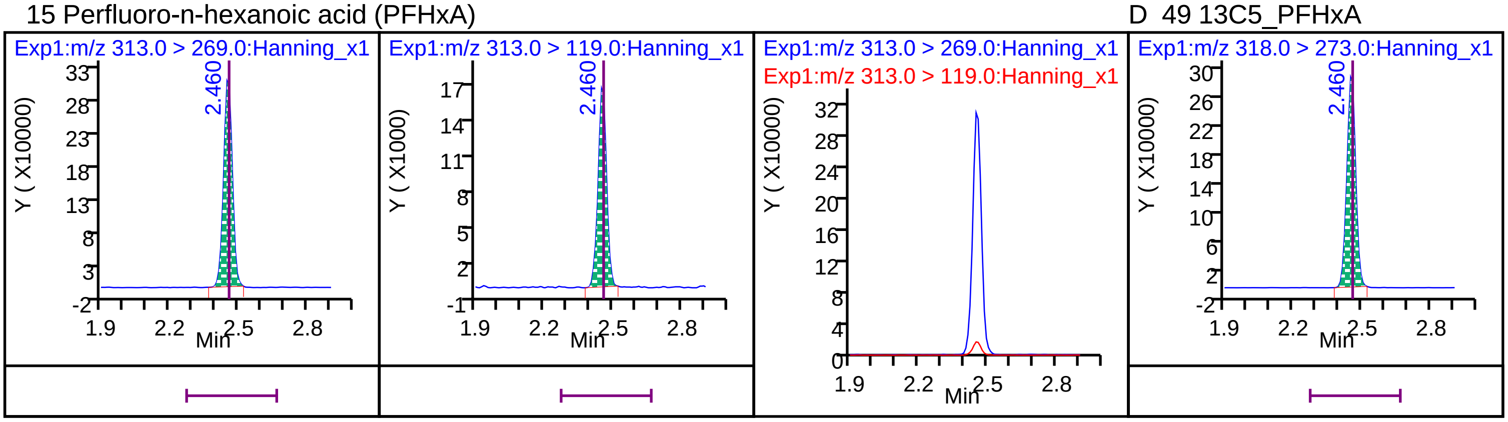
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



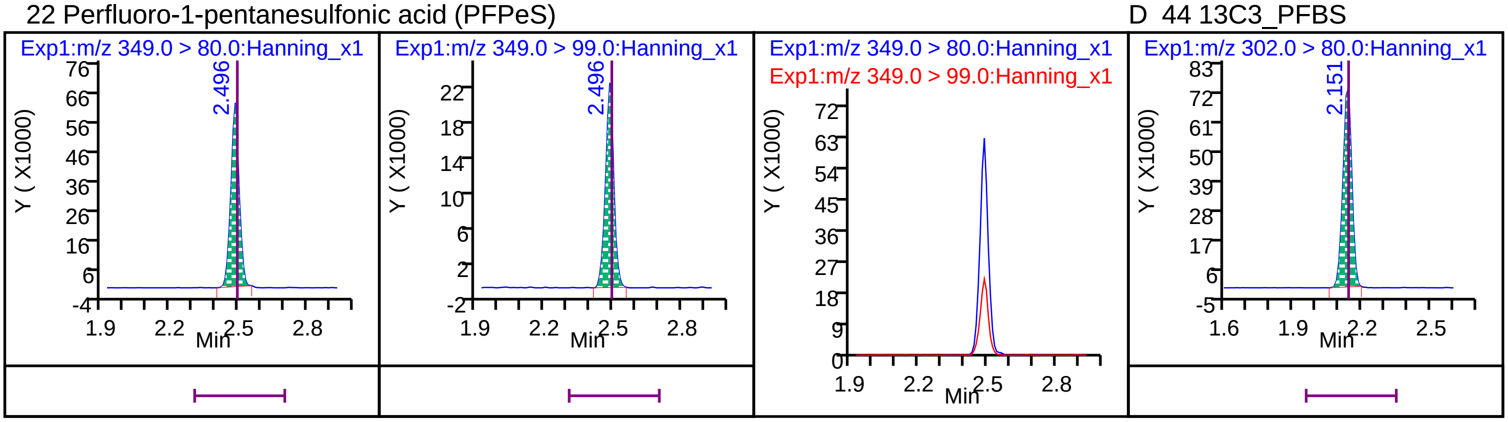
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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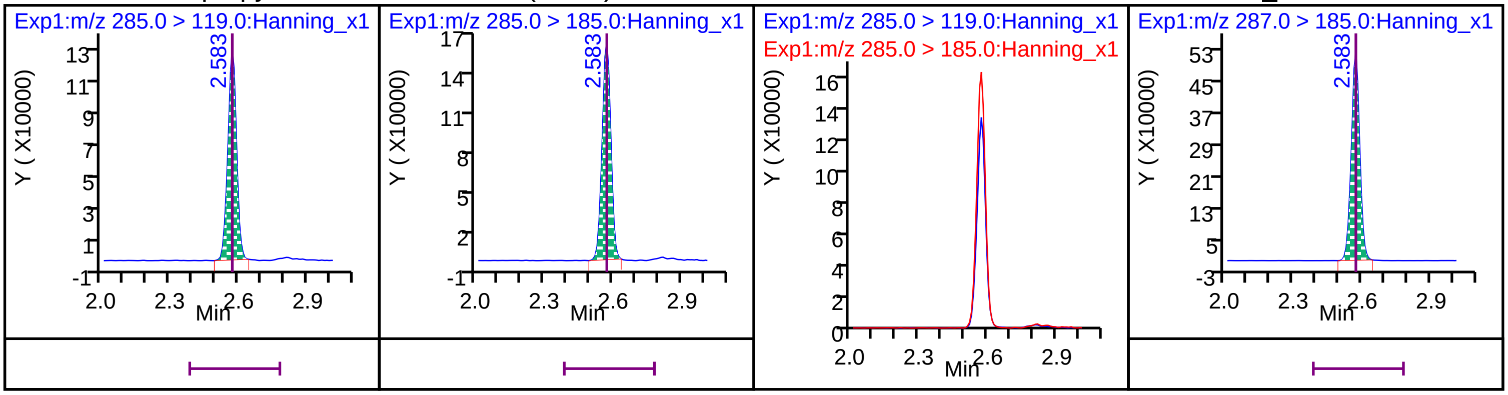
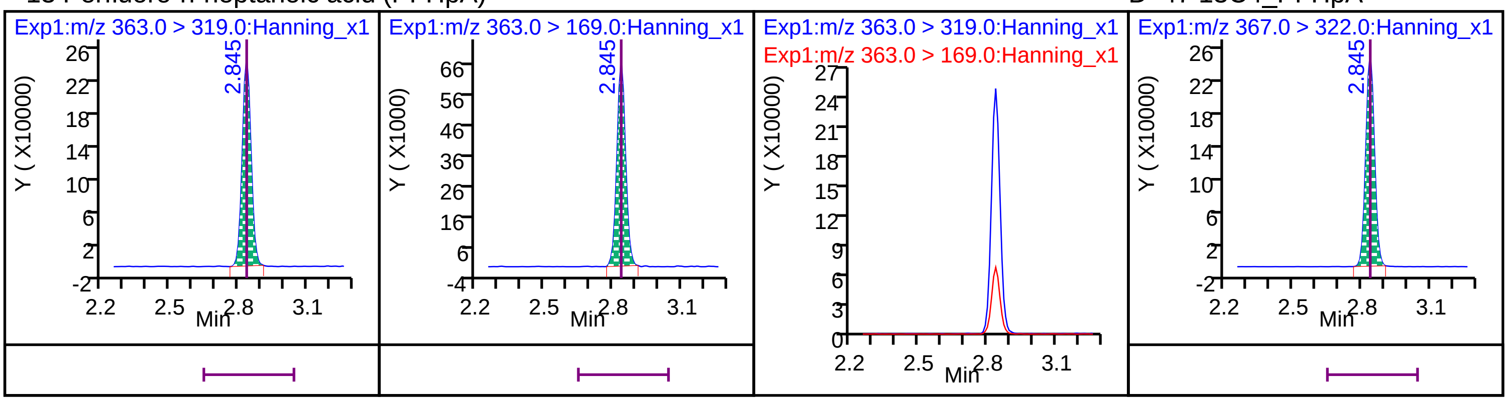
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d

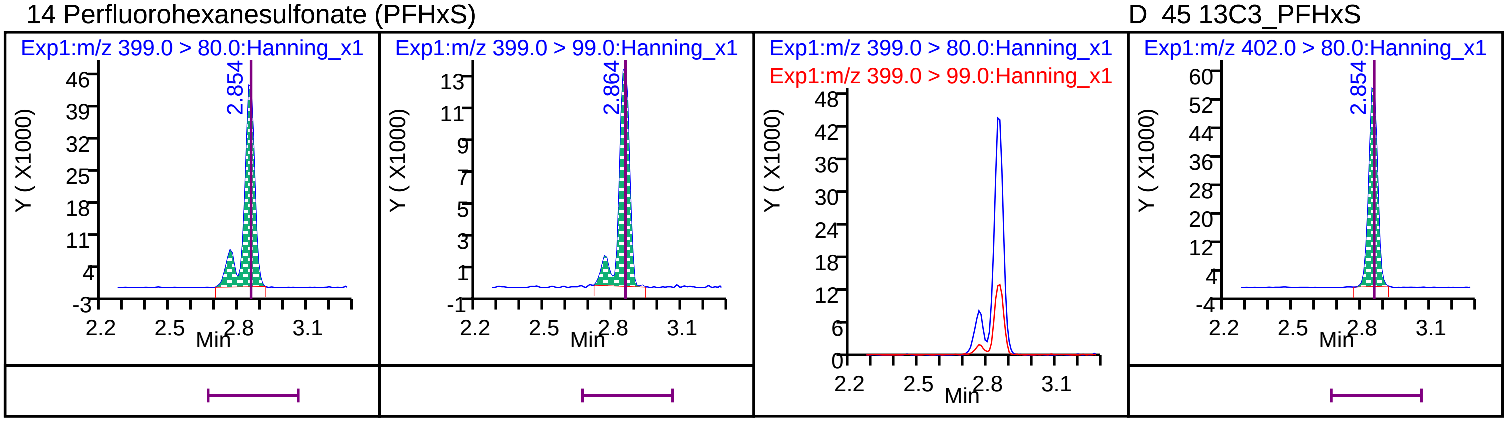
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



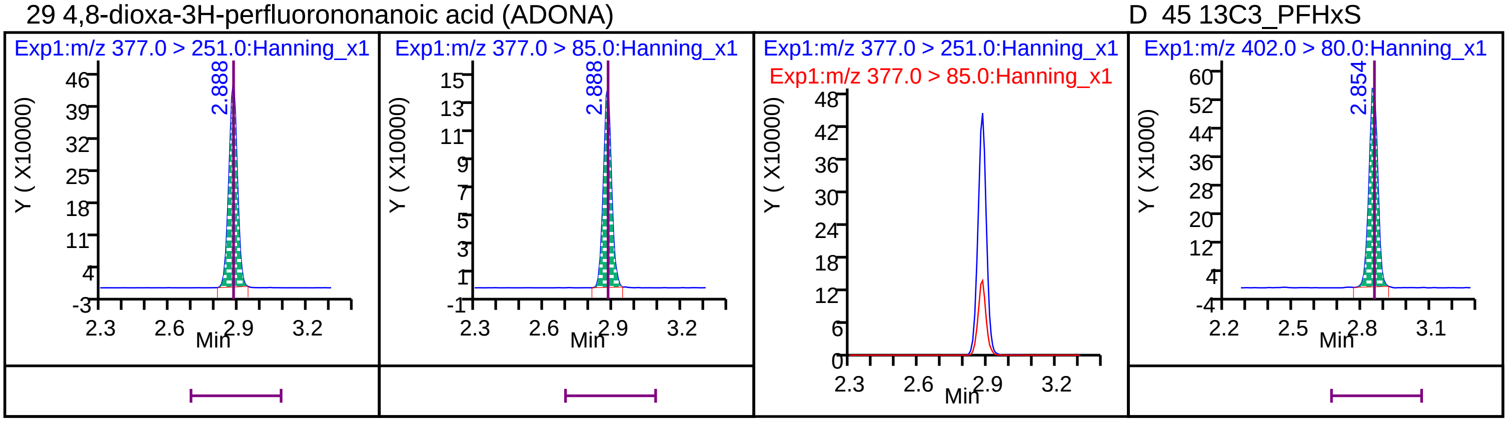
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

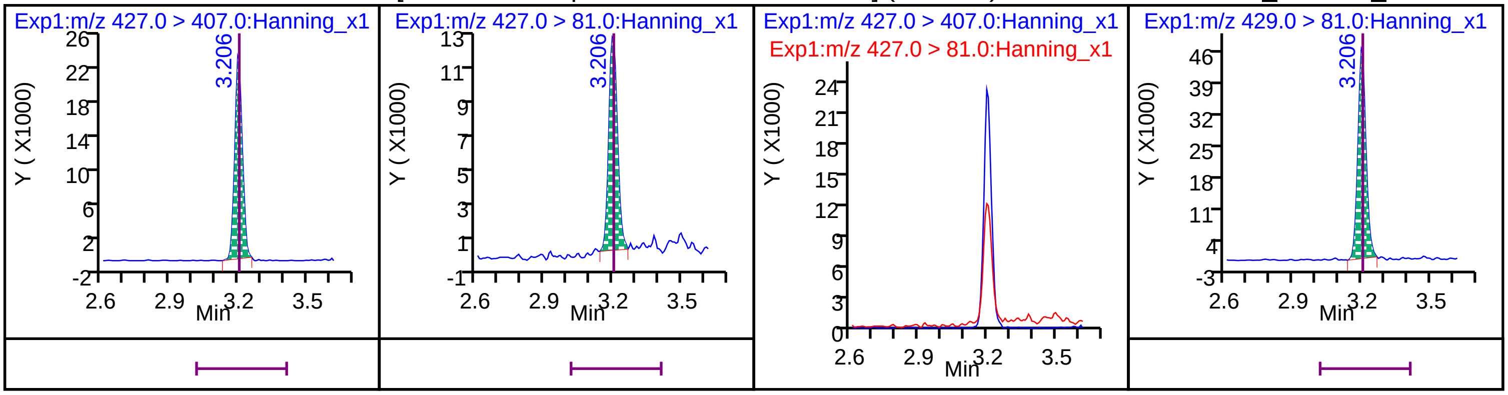


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

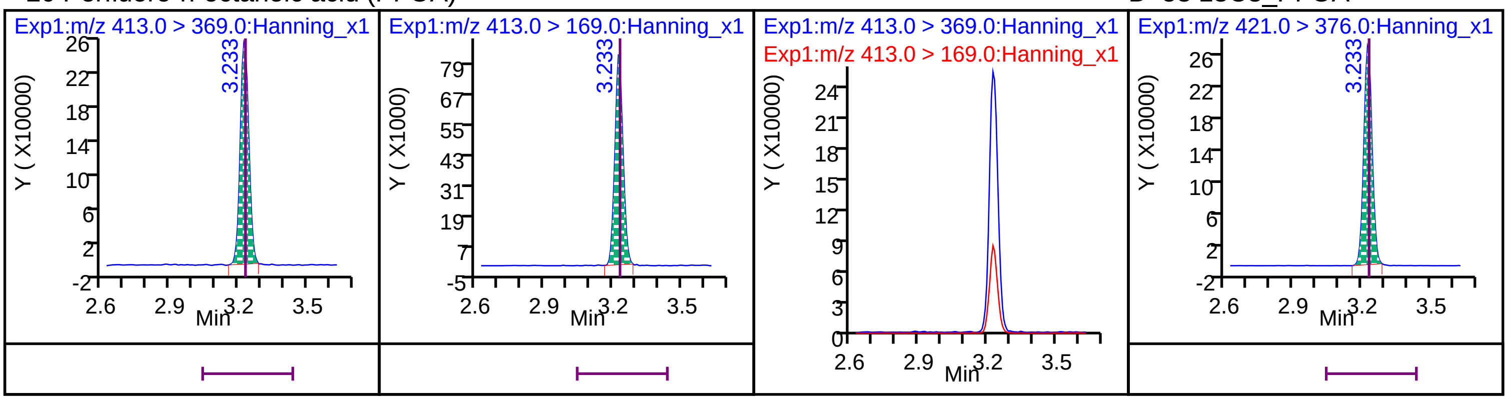


Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d

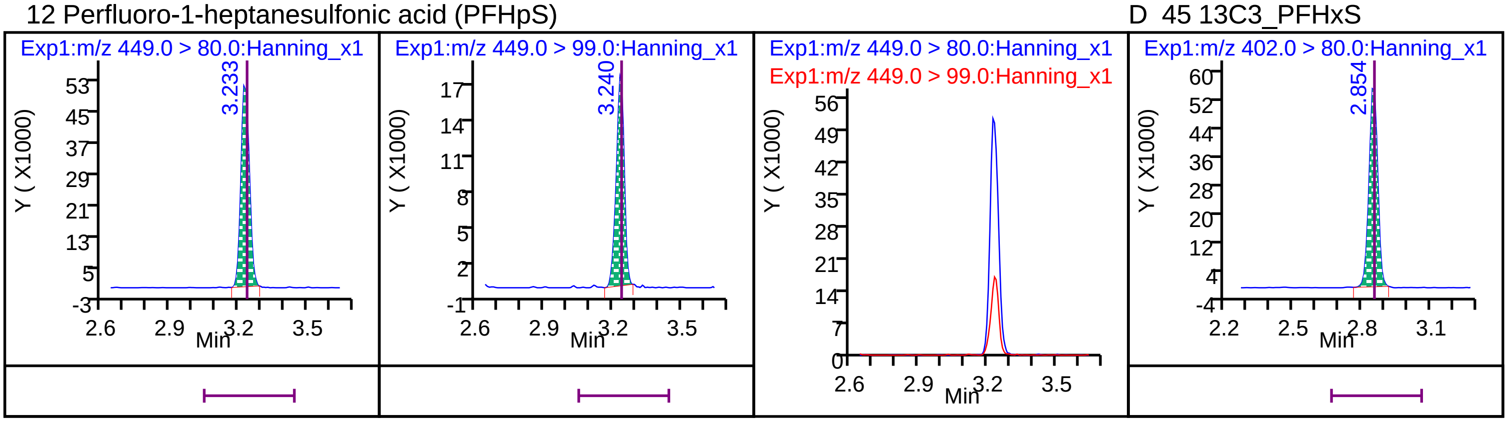
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



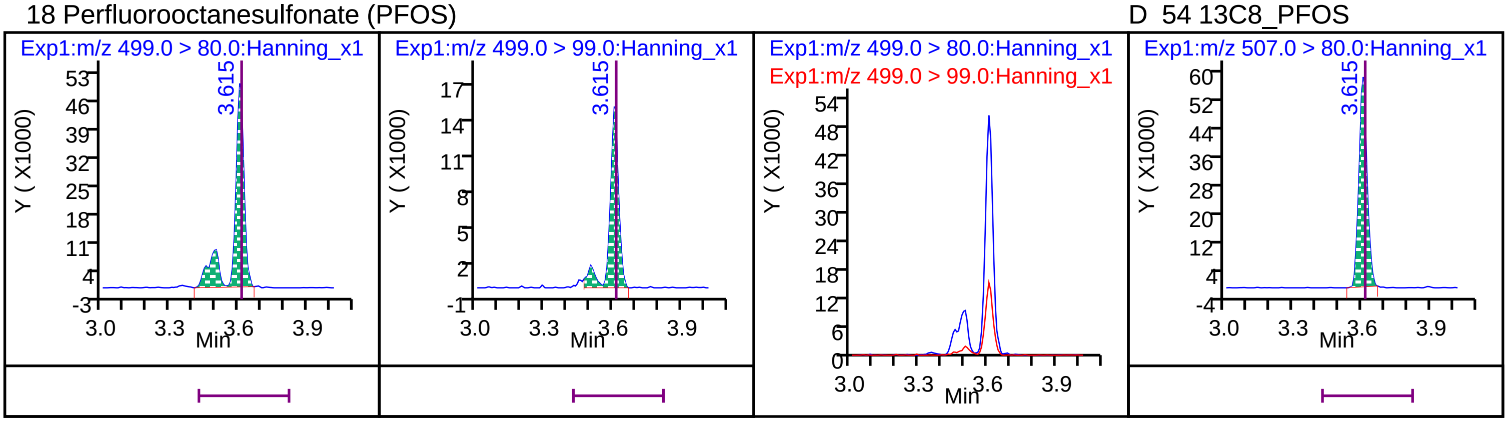
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



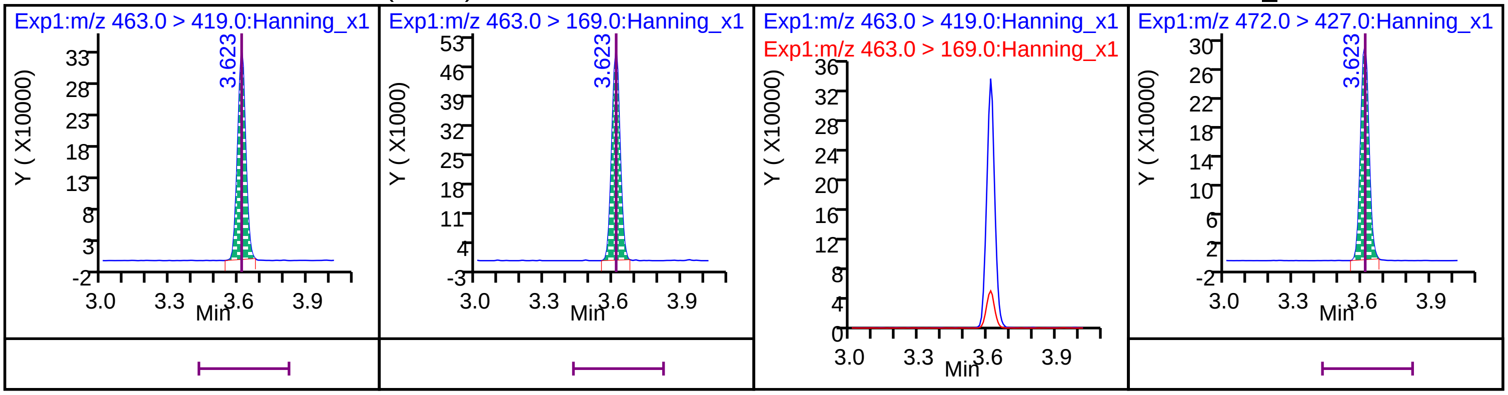
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



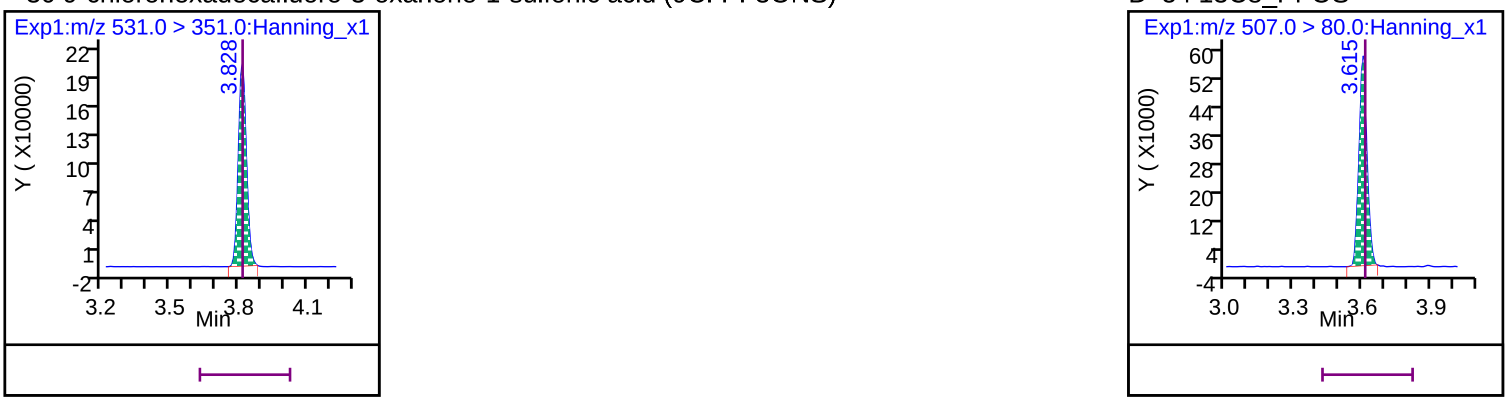
Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d

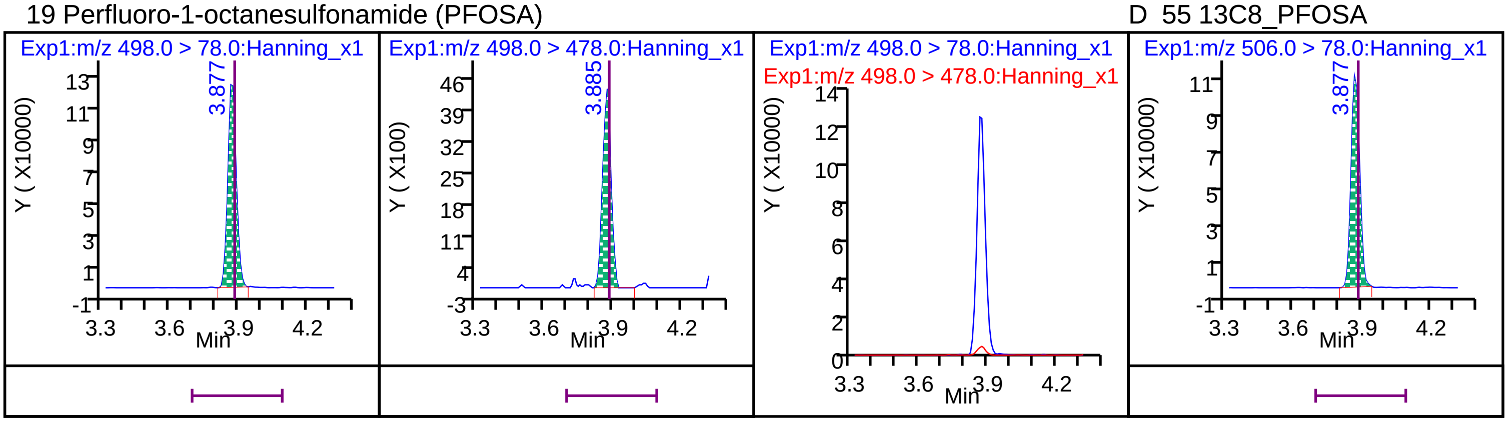
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



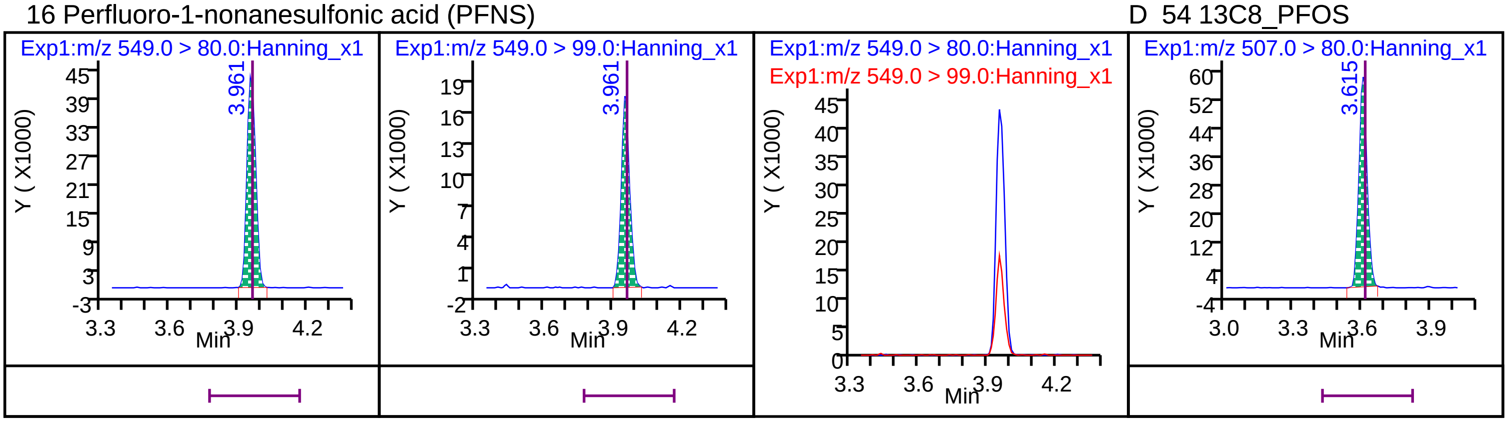
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



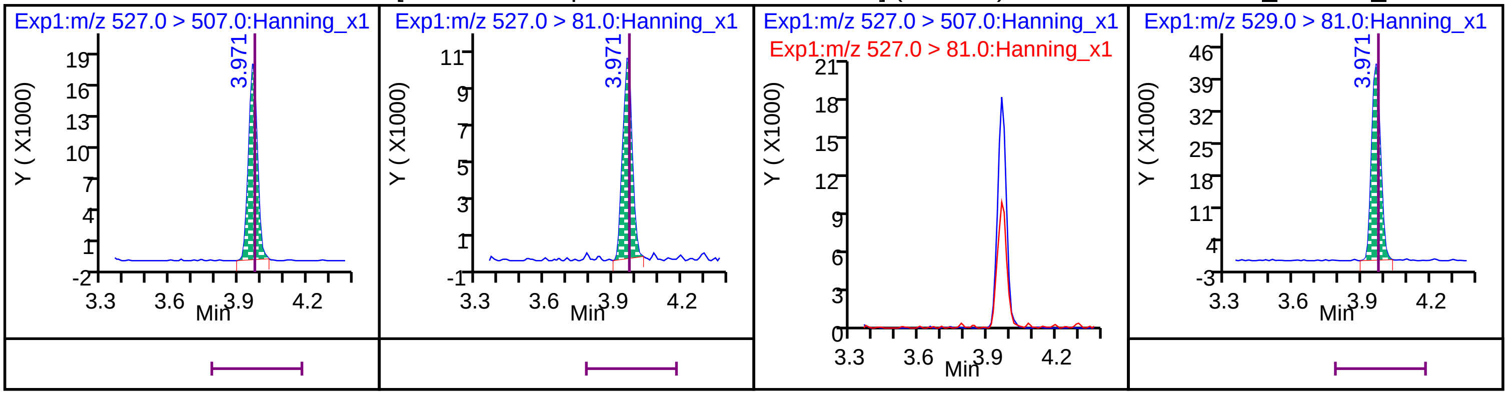
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



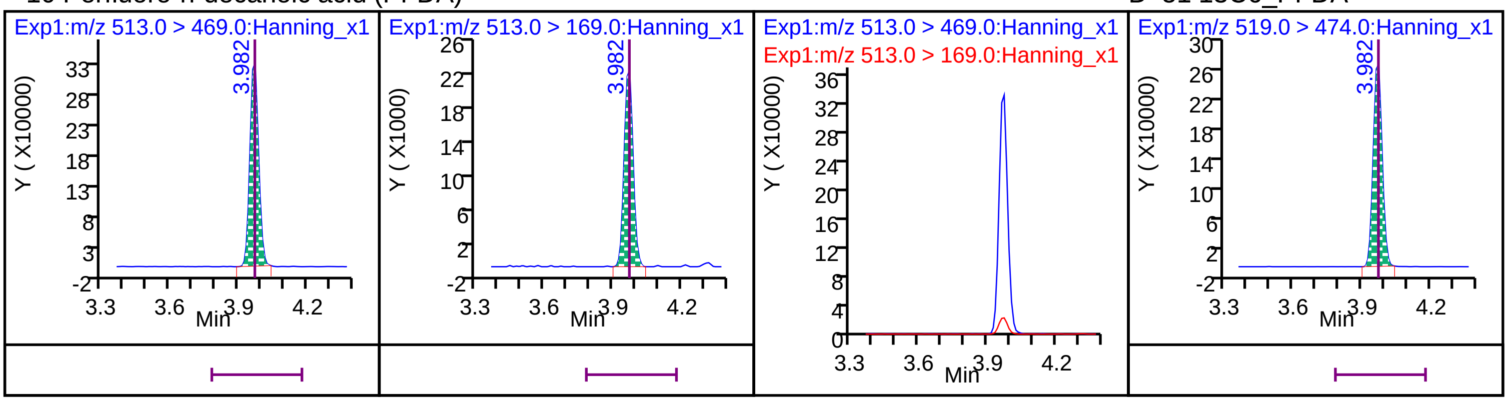
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



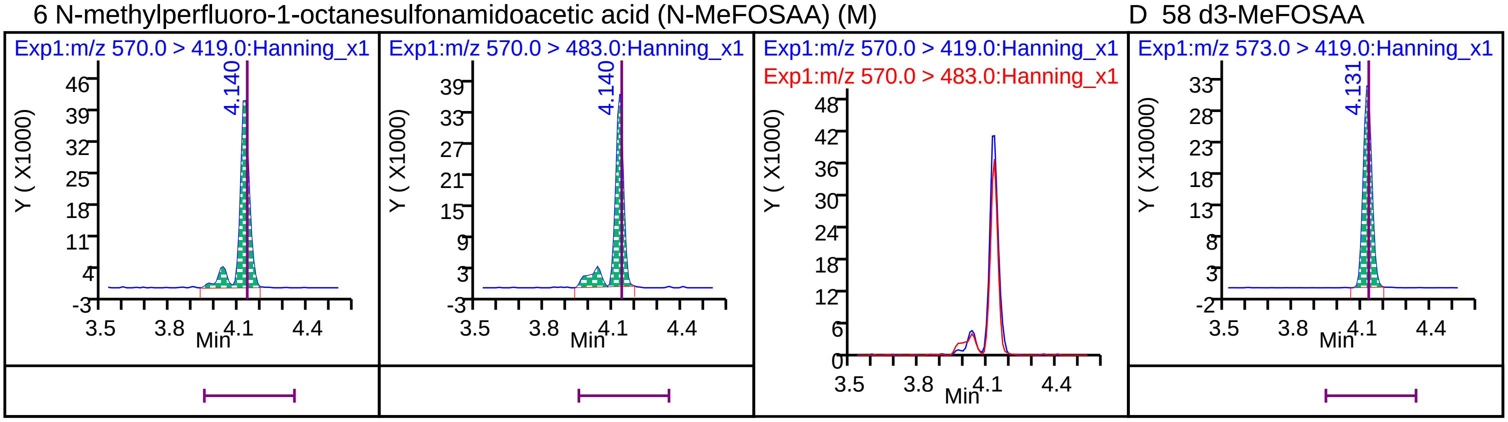
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



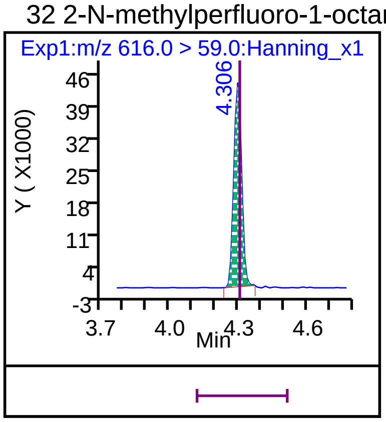
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

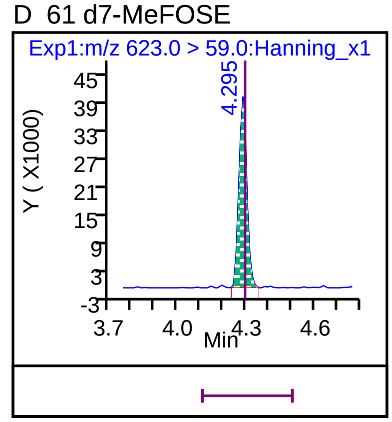


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



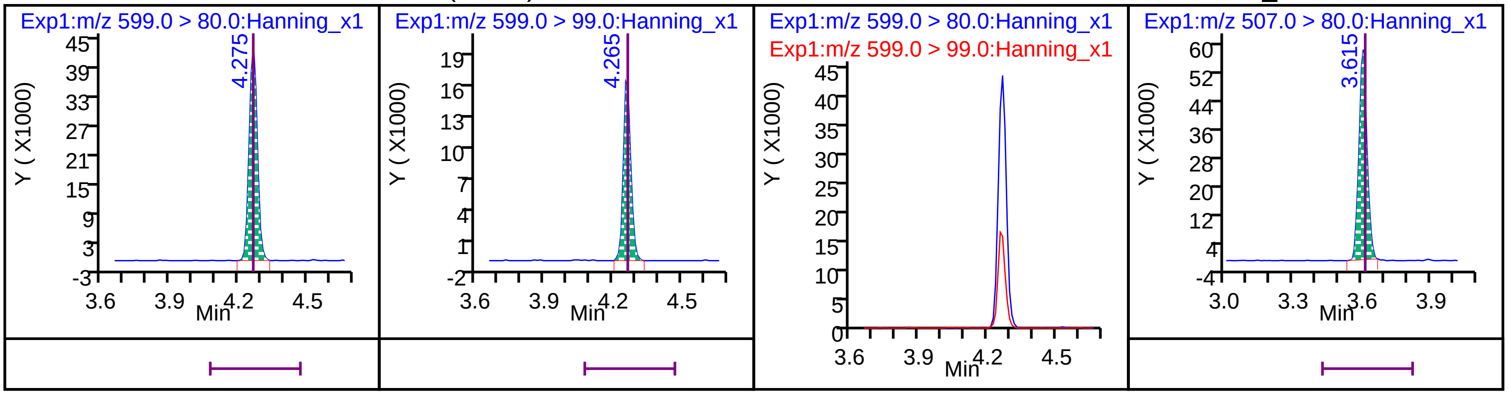
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



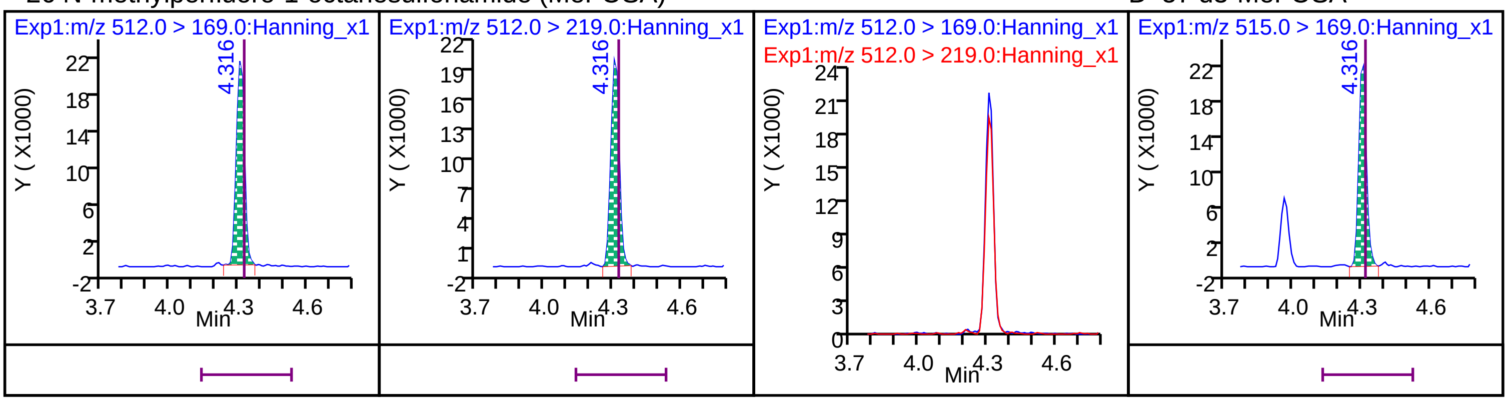


Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d

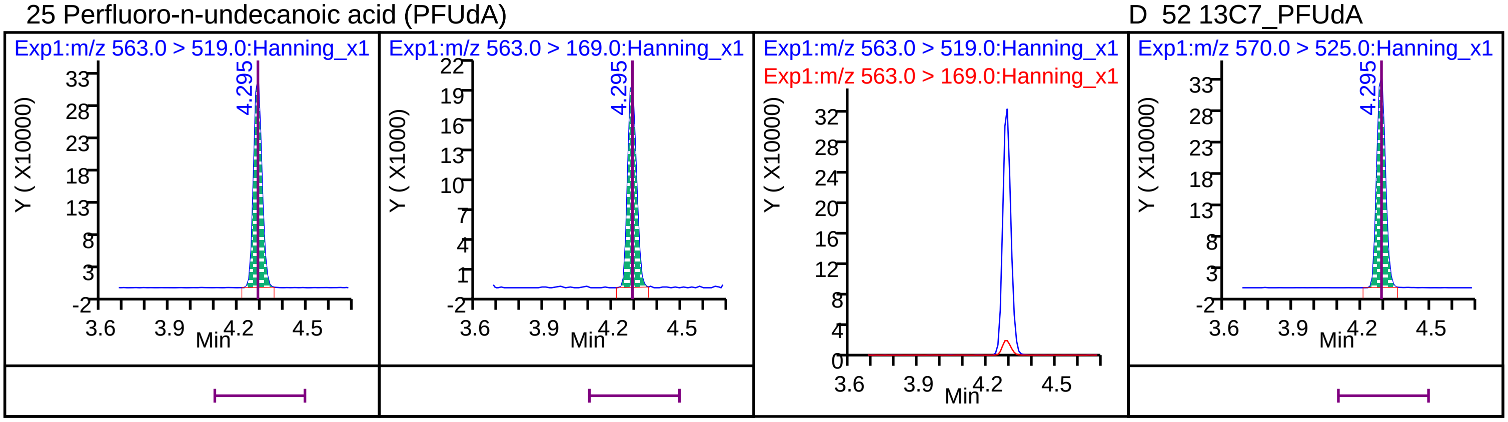
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



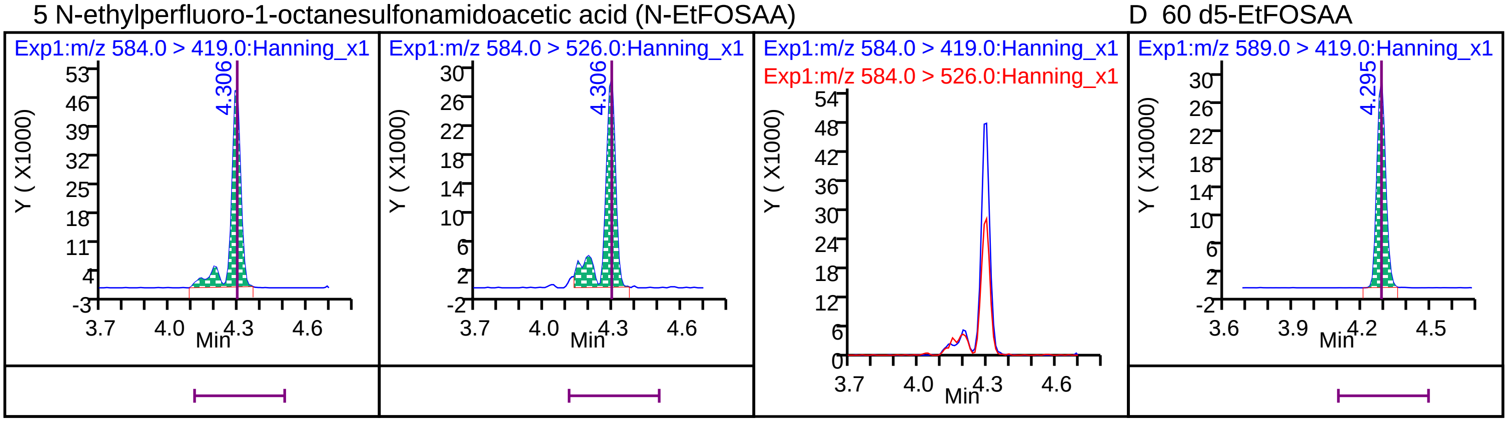
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



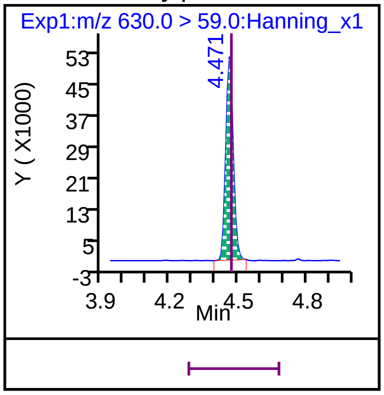
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



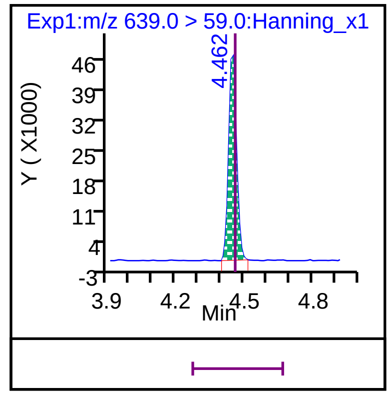
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



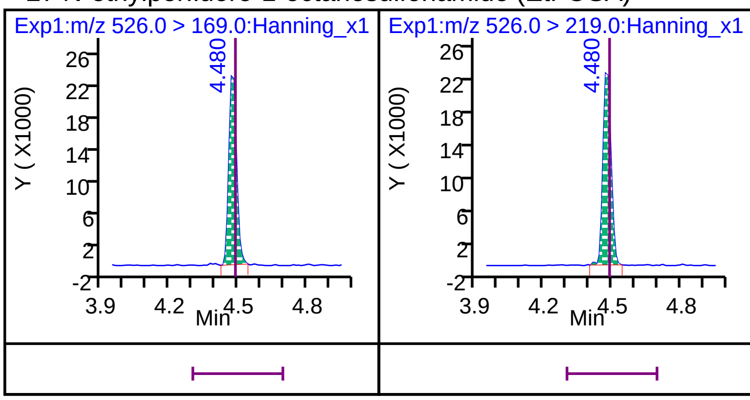
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



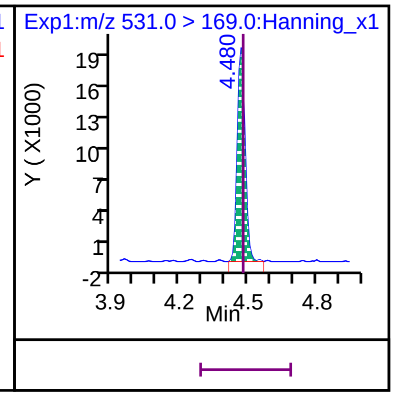
D 62 d9-EtFOSE



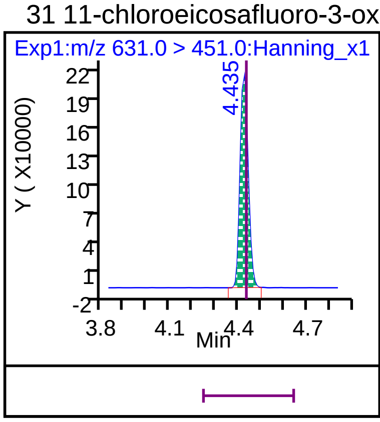
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



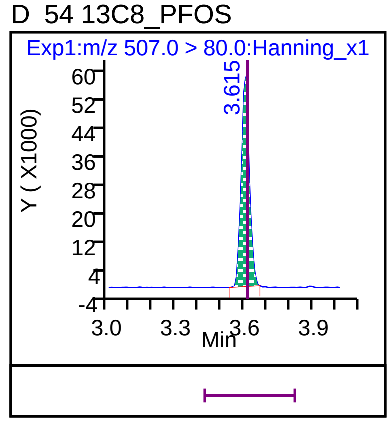
D 59 d5-EtFOSA



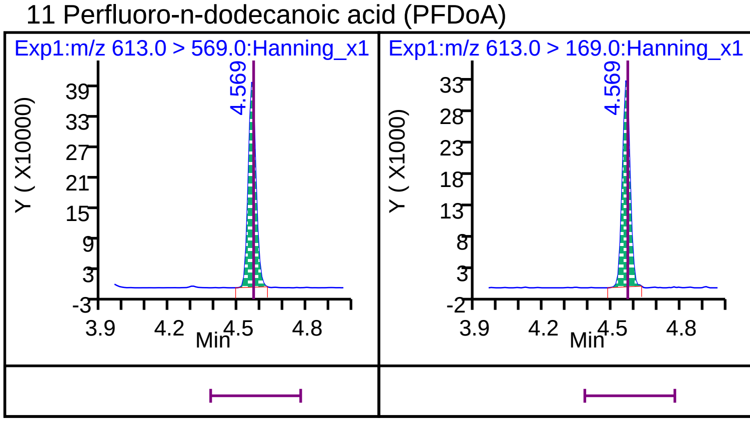
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



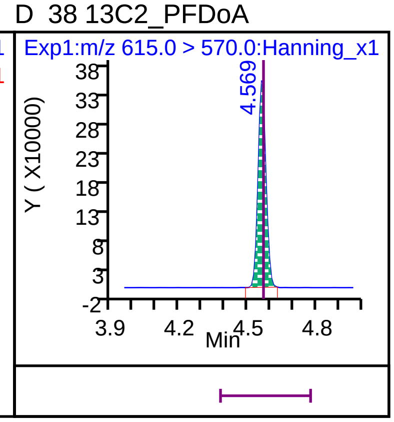
D 54 13C8_PFOS



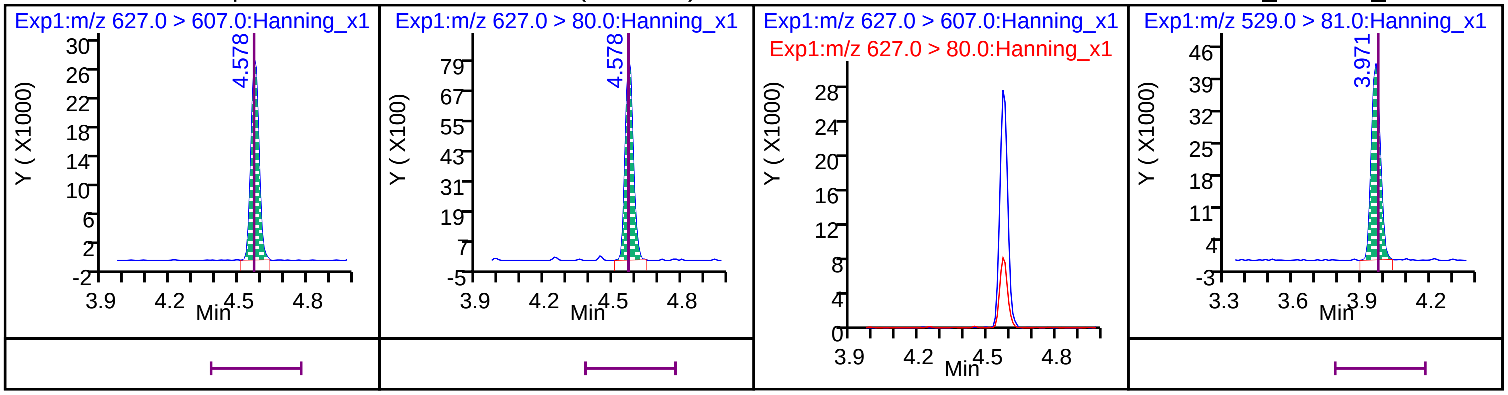
11 Perfluoro-n-dodecanoic acid (PFDoA)



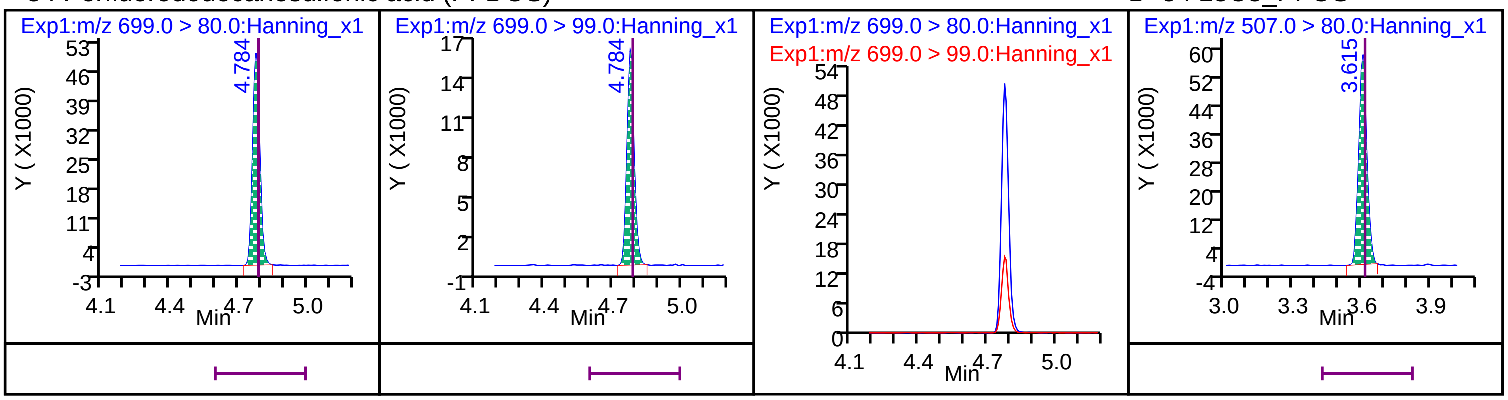
D 38 13C2_PFDoA



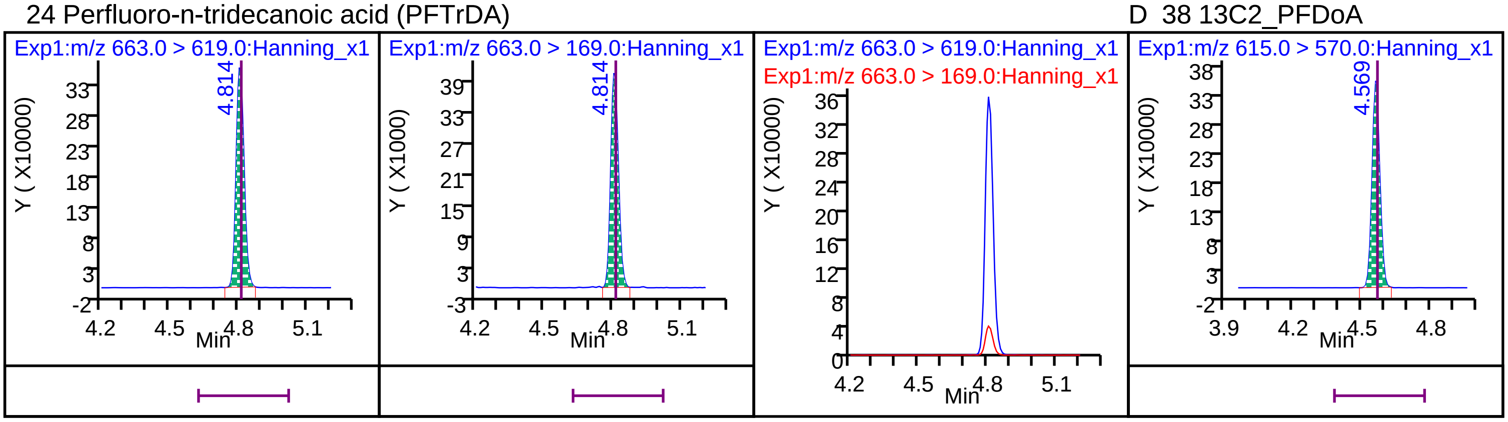
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



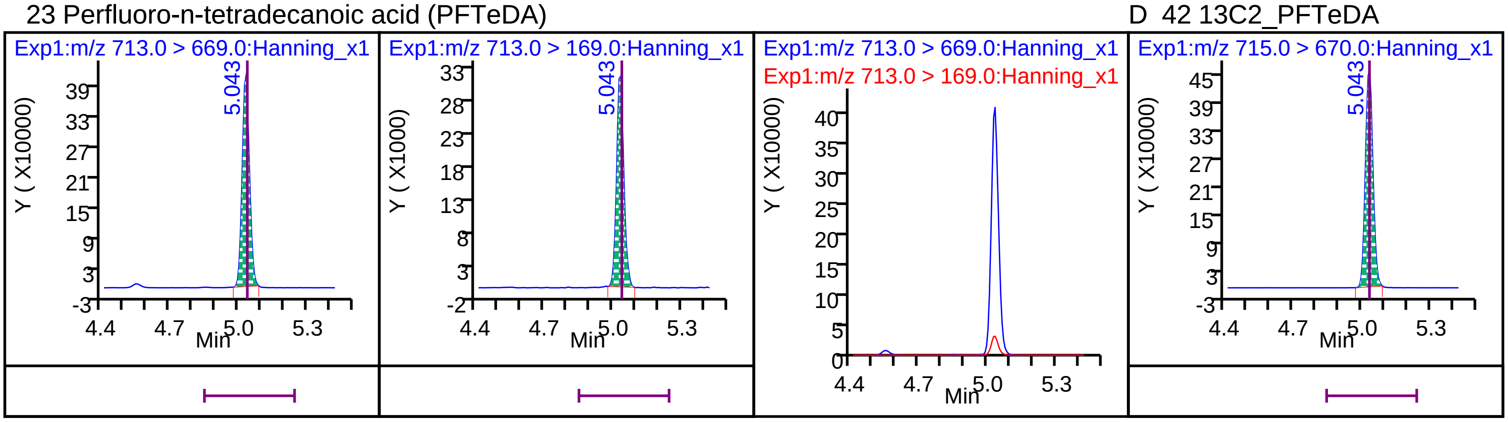
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



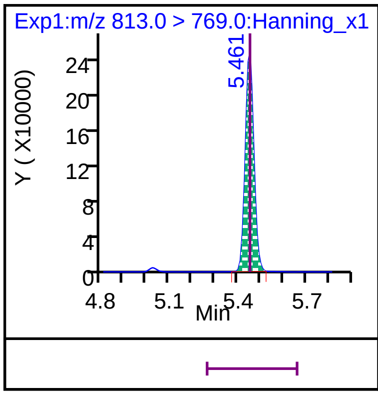
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

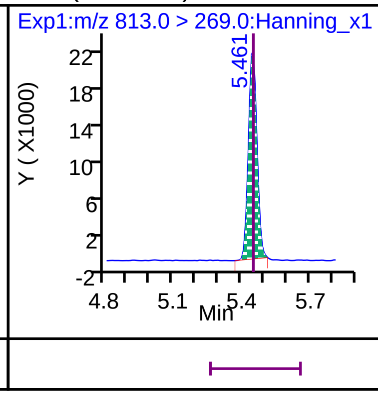


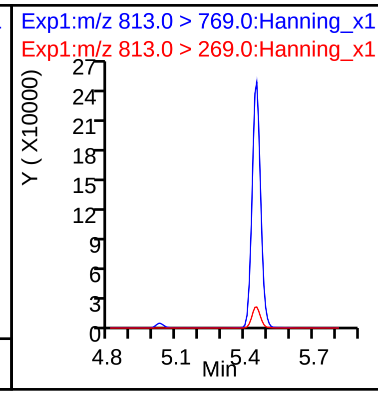
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



35 Perfluoro-n-hexadecanoic acid (PFHxDA)







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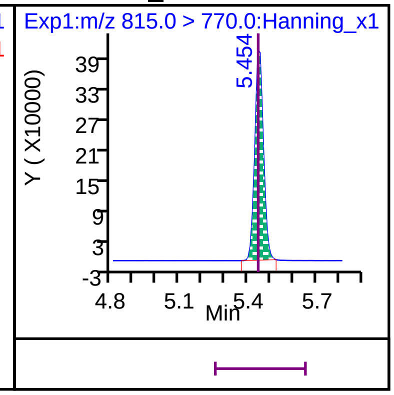
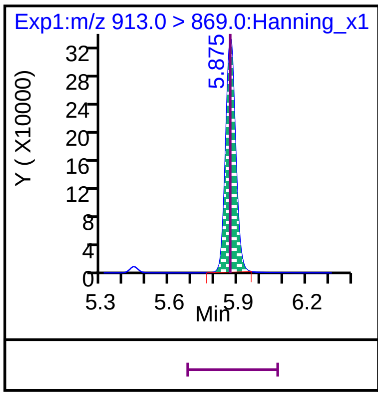
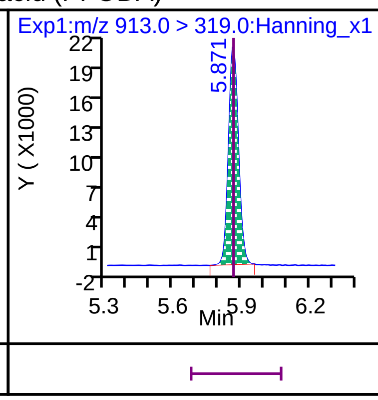
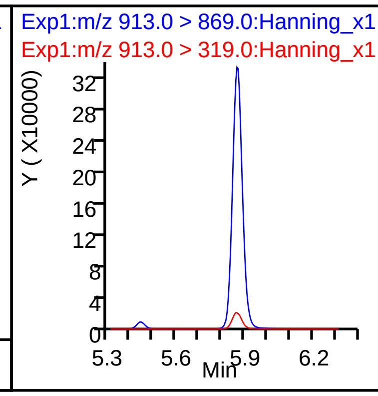


36 Perfluoro-n-octadecanoic acid (PFODA)







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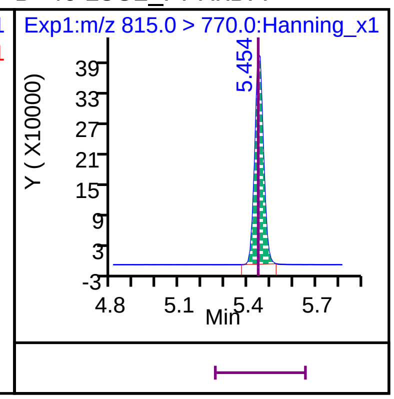

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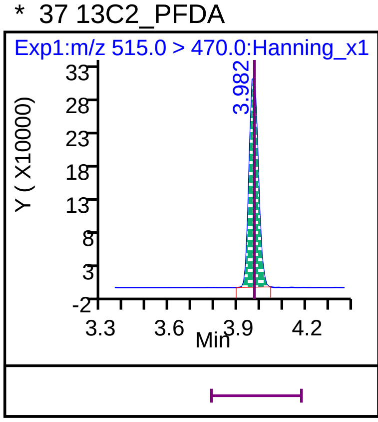
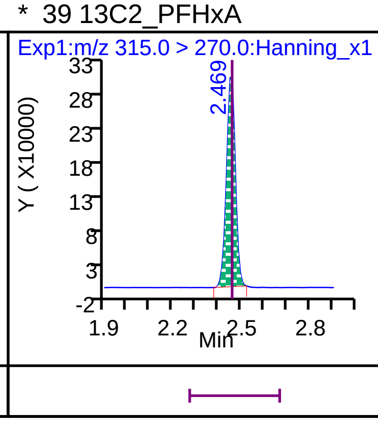


* 39 13C2_PFHxA



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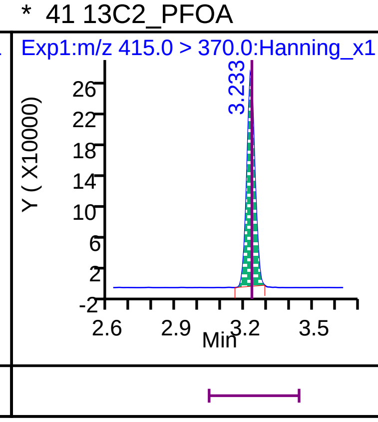

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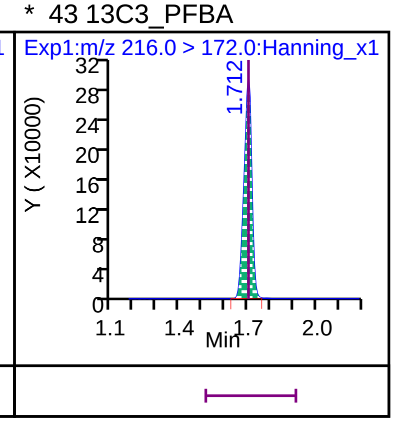
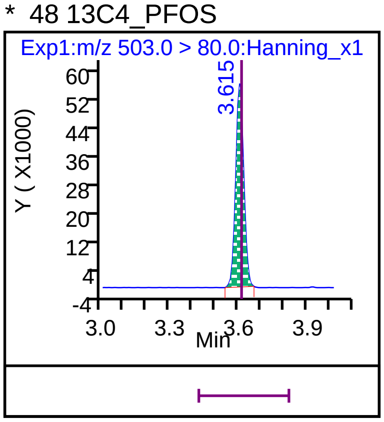


* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:46 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921060.d		
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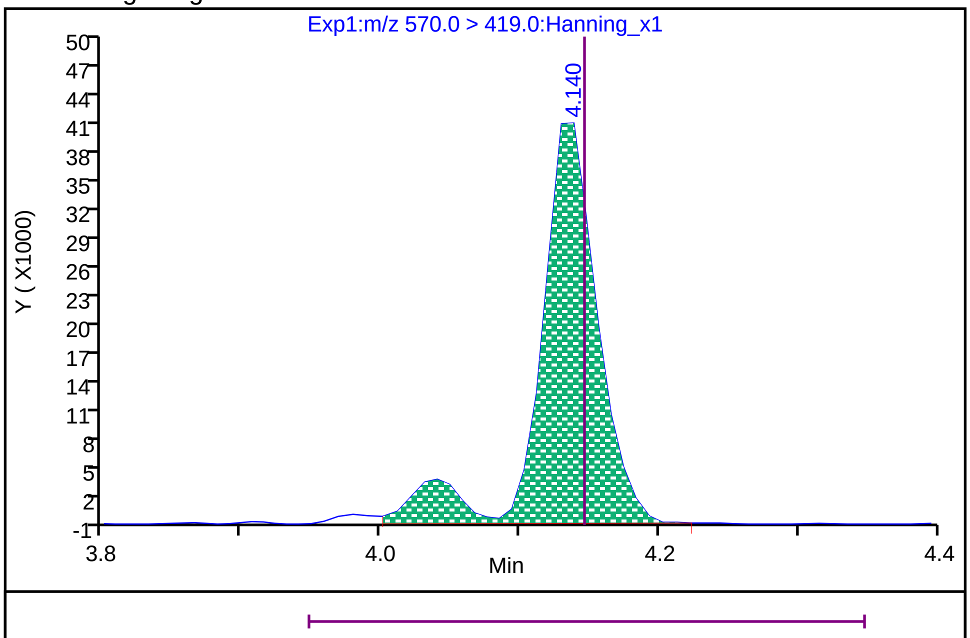
Client ID:		Lab ID:	ID CCV 1000C_SVLC-1744
Sample Info:	ID CCV 1000C_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

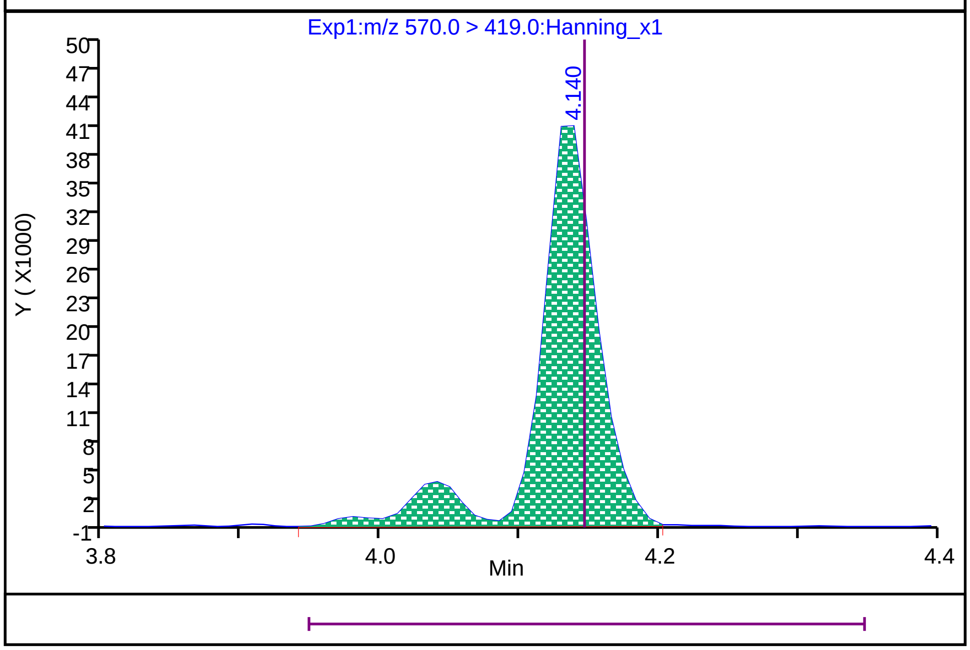
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.140
Area: 117726
Amount: 916.51
Amount Units: ng/L



RT: 4.140
Area: 121099
Amount: 942.77
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:45:21

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d		
Injection Date:	10-Nov-2021 02:26:08	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	57
Sample Info:	ID CCV 1000D_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	940.20	94	70 - 130
D 46 13C4_PFBA	645349	694182			107.6	50 - 150
21 PFPeA			1000.00	990.89	99.1	70 - 130
D 50 13C5_PFPeA	572798	598566			104.5	50 - 150
D 44 13C3_PFBS	172627	182113			105.5	50 - 150
7 PFBS			884.00	846.00	95.7	70 - 130
1 4:2 FTS			934.00	957.56	102.5	70 - 130
D 63 13C2_4:2 FTS_2	103302	115263			111.6	50 - 150
D 49 13C5_PFHxA	672414	689967			102.6	50 - 150
15 PFHxA			1000.00	1038.16	103.8	70 - 130
22 PFPeS			938.00	876.59	93.5	70 - 130
28 GenX			2000.00	1883.07	94.2	70 - 130
D 66 13C3_GenX	1178163	1194346			101.4	50 - 150
D 47 13C4_PFHpA	536896	597622			111.3	50 - 150
13 PFHpA			1000.00	987.62	98.8	70 - 130
D 45 13C3_PFHxS	113881	126887			111.4	50 - 150
14 PFHxS			910.00	911.15	100.1	70 - 130
29 ADONA			942.00	993.48	105.5	70 - 130
D 64 13C2_6:2 FTS_2	103876	105679			101.7	50 - 150
2 6:2 FTS			948.00	926.24	97.7	70 - 130
20 PFOA			1000.00	1018.41	101.8	70 - 130
D 53 13C8_PFOA	548937	579292			105.5	50 - 150
12 PFHpS			952.00	935.86	98.3	70 - 130
D 54 13C8_PFOS	112760	117961			104.6	50 - 150
18 PFOS			928.00	987.24	106.4	70 - 130
17 PFNA			1000.00	1022.86	102.3	70 - 130
D 56 13C9_PFNA	649289	655132			100.9	50 - 150
30 9Cl-PF3ONS			932.00	1083.27	116.2	70 - 130
D 55 13C8_PFOSA	246131	262018			106.5	50 - 150
19 PFOSA			1000.00	1000.23	100	70 - 130
16 PFNS			960.00	1110.36	115.7	70 - 130
10 PFDA			1000.00	988.16	98.8	70 - 130
3 8:2 FTS			958.00	1156.74	120.7	70 - 130
D 51 13C6_PFDA	631293	664219			105.2	50 - 150
D 65 13C2_8:2 FTS_2	92479	95469			103.2	50 - 150
6 N-MeFOSAA			1000.00	932.76	93.3	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	710191	737357			103.8	50 - 150
D 61 d7-MeFOSE	83560	84331			100.9	50 - 150
32 MeFOSE			1000.00	1000.70	100.1	70 - 130
26 MeFOSA			1000.00	1002.53	100.3	70 - 130
D 57 d3-MeFOSA	43685	43518			99.6	50 - 150
9 PFDS			964.00	1061.13	110.1	70 - 130
D 52 13C7_PFUdA	693518	748414			107.9	50 - 150
D 60 d5-EtFOSAA	684113	649853			95	50 - 150
25 PFUdA			1000.00	936.64	93.7	70 - 130
5 N-EtFOSAA			1000.00	937.99	93.8	70 - 130
D 62 d9-EtFOSE	94206	98272			104.3	50 - 150
33 EtFOSE			1000.00	1144.72	114.5	70 - 130
D 59 d5-EtFOSA	42530	42802			100.6	50 - 150
31 11Cl-PF3OUDS			942.00	1128.44	119.8	70 - 130
27 EtFOSA			1000.00	880.97	88.1	70 - 130
D 38 13C2_PFDoA	704128	773958			109.9	50 - 150
11 PFDoA			1000.00	961.39	96.1	70 - 130
4 10:2 FTS			964.00	1254.03	130.1	70 - 130
34 PFDOS			968.00	991.59	102.4	70 - 130
24 PFTrDA			1000.00	922.80	92.3	70 - 130
D 42 13C2_PFTeDA	946932	924788			97.7	50 - 150
23 PFTeDA			1000.00	999.16	99.9	70 - 130
D 40 13C2_PFHxDA	912699	943556			103.4	50 - 150
35 PFHxDA			1000.00	979.52	98	70 - 130
36 PFODA			1000.00	1069.42	106.9	70 - 130

Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d		
Injection Date:	10-Nov-2021 02:26:08	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	57
Sample Info:	ID CCV 1000D_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	694182	21	>100:1			1000.00	1116.63	107.6	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.718	0/-1	688330	20	>100:1			1000.00	940.20		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	598566	16	>100:1			1000.00	1047.19	104.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.099	2.098	1/1	667546	17	>100:1			1000.00	990.89		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	182113	15	>100:1			1000.00	1052.86	105.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.162	0/-1	192127	16	>100:1	Target = 3.53		884.00	846.00		
298.9 > 99	44	2.151	2.162		54509	17	>100:1	3.52 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/-1	147948	16	>100:1	Target = 3.10		938.00	876.59		
349 > 99	44	2.496	2.505		49943	17	>100:1	2.96 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	115263	17	>100:1			5000.00	5090.29	111.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.425	2.424	1/0	48660	19	>100:1	Target = 1.75		934.00	957.56		
327 > 81	63	2.425	2.424		26282	15	63:1	1.85 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	689967	18	>100:1			1000.00	1059.39	102.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	744775	18	>100:1	Target = 18.91		1000.00	1038.16		
313 > 119	49	2.460	2.469		37151	17	>100:1	20.04 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.575	2.583	0	1194346	19	>100:1			5000.00	5153.46	101.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	1/1	291309	17	>100:1	Target = 0.79		2000.00	1883.07		
285 > 185	66	2.583	2.583		372375	18	>100:1	0.78 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.836	2.845	0	597622	18	>100:1			1000.00	1125.60	111.3	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.836	2.845	0/0	648555	19	>100:1	Target = 3.80		1000.00	987.62		
363 > 169	47	2.836	2.845		161905	18	>100:1	4.00 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.864	0	126887	18	>100:1			1000.00	1009.93	111.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.864	0/0	127104	27	>100:1	Target = 2.89	5.92	910.00	911.15		
399 > 99	45	2.855	2.864		43560	33	>100:1	2.91 (1.44-4.34)	8.73				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.888	0/0	977621	19	>100:1	Target = 3.23		942.00	993.48		
377 > 85	45	2.881	2.888		275035	20	>100:1	3.55 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.247	0/0	121962	22	>100:1	Target = 3.12		952.00	935.86		
449 > 99	45	3.234	3.247		41986	22	>100:1	2.90 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.213	0	105679	20	>100:1			5000.00	5871.07	101.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.201	3.213	0/0	46343	22	>100:1	Target = 1.75		948.00	926.24		
427 > 81	64	3.201	3.213		27983	20	42:1	1.65 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.228	3.240	0	579292	22	>100:1			1000.00	1104.09	105.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.228	3.240	0/0	604562	21	>100:1	Target = 2.89		1000.00	1018.41		
413 > 169	53	3.228	3.240		194124	20	>100:1	3.11 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.609	3.623	0	117961	19	>100:1			1000.00	952.51	104.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.609	3.623	0/0	138661	38	>100:1	Target = 3.30	3.70	928.00	987.24		M
499 > 99	54	3.609	3.623		40224	32	>100:1	3.44 (1.65-4.95)	6.32				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.814	3.828	0/0	483931	18	>100:1			932.00	1083.27		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.954	3.971	0/0	105083	22	>100:1	Target = 3.08		960.00	1110.36		
549 > 99	54	3.954	3.971		45121	15	>100:1	2.32 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.257	4.274	-1/-1	97952	15	>100:1	Target = 2.72		964.00	1061.13		
599 > 99	54	4.257	4.274		38091	19	>100:1	2.57 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.420	4.443	-1/-1	455728	17	>100:1			942.00	1128.44		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.773	4.796	-1/-1	100580	20	>100:1	Target = 3.27		968.00	991.59		
699 > 99	54	4.773	4.796		32620	21	>100:1	3.08 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	655132	20	>100:1			1000.00	1023.04	100.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.617	3.623	0/0	722293	18	>100:1	Target = 6.51		1000.00	1022.86		
463 > 169	56	3.617	3.623		113238	19	>100:1	6.37 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.893	-1	262018	19	>100:1			1000.00	977.47	106.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.871	3.893	-1/0	275755	18	>100:1	Target = 41.63		1000.00	1000.23		
498>478	55	3.871	3.893		10469	23	90:1	26.34 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.964	3.981	-1	664219	17	>100:1			1000.00	1155.85	105.2	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.964	3.981	-1/0	763828	17	>100:1	Target = 13.80		1000.00	988.16		
513 > 169	51	3.964	3.981		53709	17	>100:1	14.22 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.954	3.981	-1	95469	17	>100:1			5000.00	5523.39	103.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.964	3.981	-1/0	49907	15	>100:1	Target = 1.94		958.00	1156.74		
527 > 81	65	3.964	3.981		23208	15	55:1	2.15 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.563	4.577	0/1	60737	21	>100:1	Target = 3.54		964.00	1254.03		
627 > 80	65	4.563	4.577		15710	15	>100:1	3.86 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.124	4.139	0	737357	17	>100:1			5000.00	4879.52	103.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.124	4.148	-1/-1	110378	30	>100:1	Target = 1.37	8.48	1000.00	932.76		
570 > 483	58	4.124	4.148		92598	35	>100:1	1.19 (0.68-2.05)	3.94				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.304	-1	84331	14	>100:1			1000.00	935.05	100.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.287	4.314	-1/0	92225	14	>100:1			1000.00	1000.70		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.325	-1	43518	13	>100:1			1000.00	925.10	99.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.308	4.335	-1/0	47288	18	>100:1	Target = 1.11		1000.00	1002.53		
512 > 219	57	4.308	4.335		46163	13	>100:1	1.02 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.277	4.294	-1	649853	16	>100:1			5000.00	5017.66	95	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.287	4.304	-1/0	118870	30	>100:1	Target = 1.51	5.27	1000.00	937.99		M
584 > 526	60	4.287	4.304		86772	31	>100:1	1.36 (0.75-2.26)	3.78				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.277	4.294	-1	748414	15	>100:1			1000.00	1242.70	107.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.277	4.294	-1/0	679241	15	>100:1	Target = 14.52		1000.00	936.64		
563 > 169	52	4.277	4.294		48551	14	>100:1	13.99 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.446	4.470	-1	98272	17	>100:1			1000.00	926.42	104.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.455	4.479	-1/0	109511	15	>100:1			1000.00	1144.72		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.464	4.488	-1	42802	16	>100:1			1000.00	995.40	100.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.473	4.497	-1/0	45270	16	>100:1	Target = 1.06		1000.00	880.97		
526 > 219	59	4.473	4.497		51346	15	>100:1	0.88 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.554	4.577	-1	773958	16	>100:1			1000.00	1289.21	109.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.554	4.577	-1/0	793243	15	>100:1	Target = 10.70		1000.00	961.39		
613 > 169	38	4.554	4.577		66039	16	>100:1	12.01 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.804	4.822	-1/0	750695	20	>100:1	Target = 8.31		1000.00	922.80		
663 > 169	38	4.804	4.822		83134	18	>100:1	9.02 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.032	5.042	0	924788	20	>100:1			1000.00	1137.51	97.7	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.032	5.048	0/0	806602	21	>100:1	Target = 12.17		1000.00	999.16		
713 > 169	42	5.032	5.048		62322	19	>100:1	12.94 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.450	5.454	0	943556	18	>100:1			1000.00	1087.00	103.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.450	5.461	0/0	591925	18	83:1	Target = 10.43		1000.00	979.52		
813 > 269	40	5.450	5.461		48907	18	>100:1	12.10 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.872	5.875	0/0	918632	37	69:1	Target = 13.67		1000.00	1069.42		
913 > 319	40	5.867	5.875		58178	40	>100:1	15.79 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.964	3.981	-1	778303	15	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	728372	17	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.228	3.240	0	599574	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.712	1.711	1	640556	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.601	3.623	-1	124139	19	>100:1			1000.00			

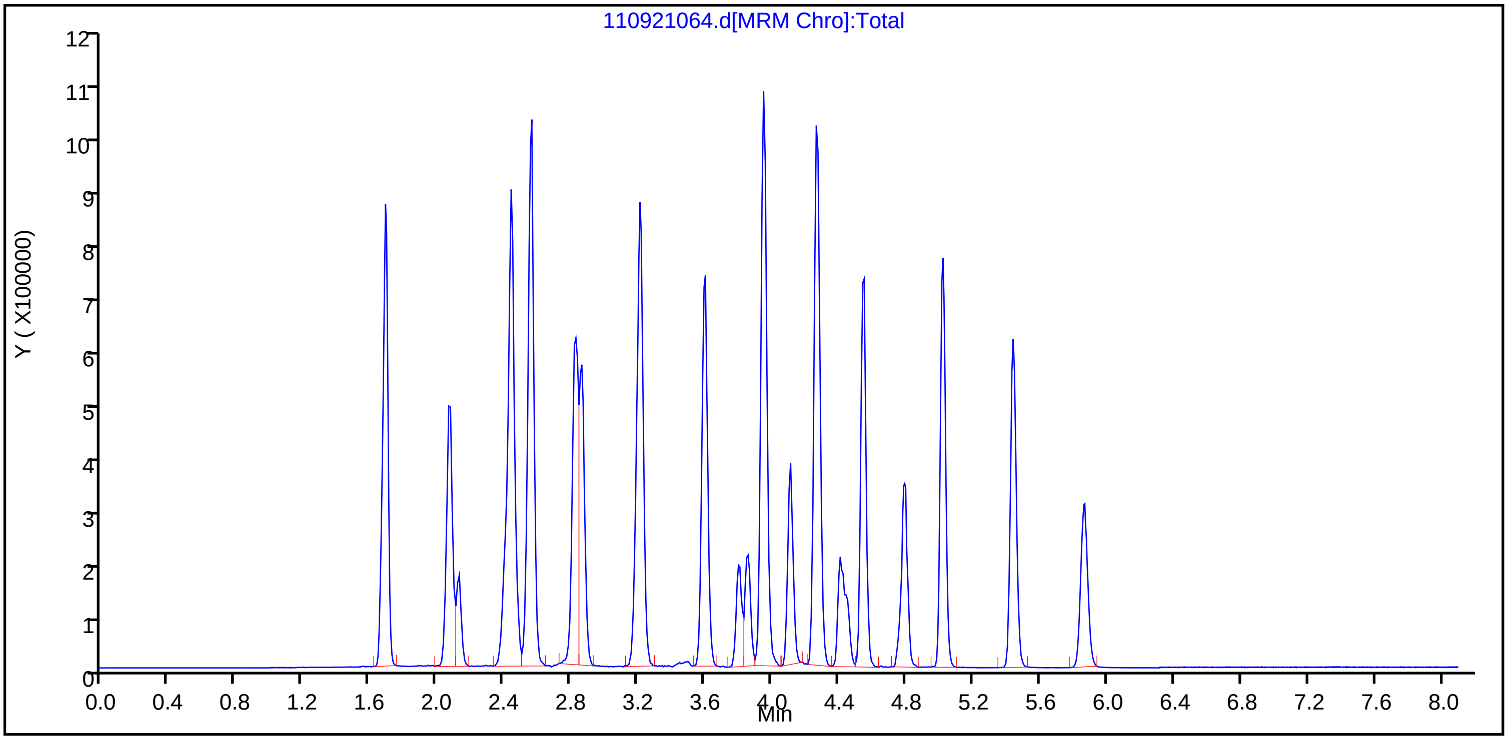
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

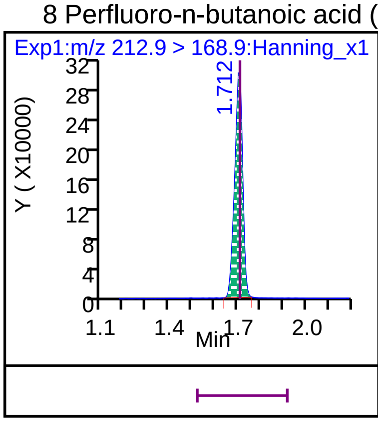
Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

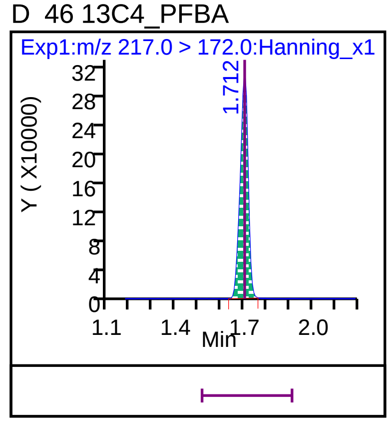
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d		
Injection Date:	10-Nov-2021 02:26:08	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000D_SVLC-1744
Sample Info:	ID CCV 1000D_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



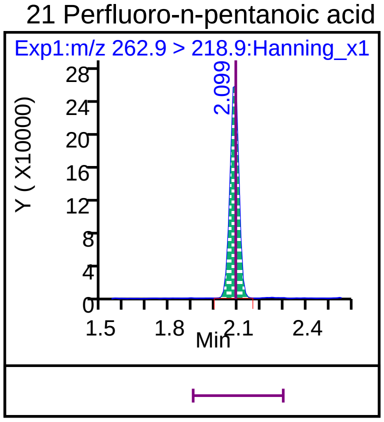
8 Perfluoro-n-butanoic acid (PFBA)



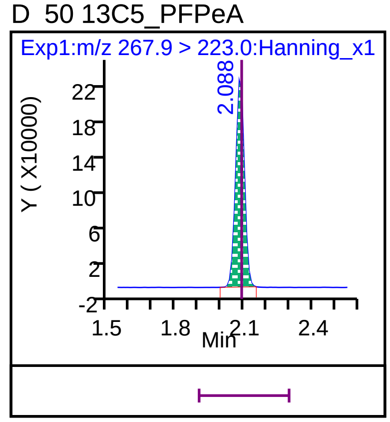
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

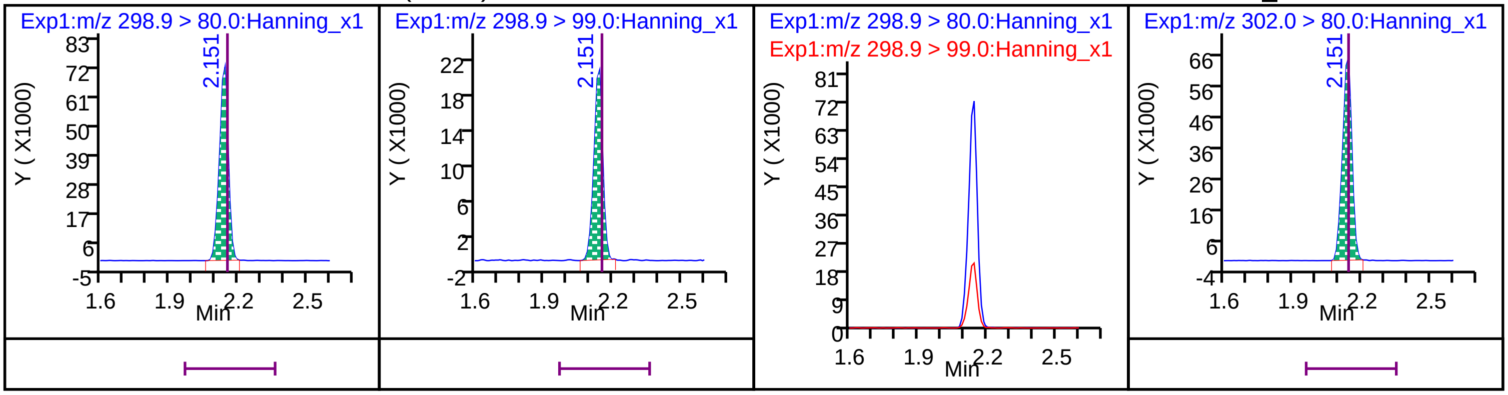


D 50 13C5_PFPeA

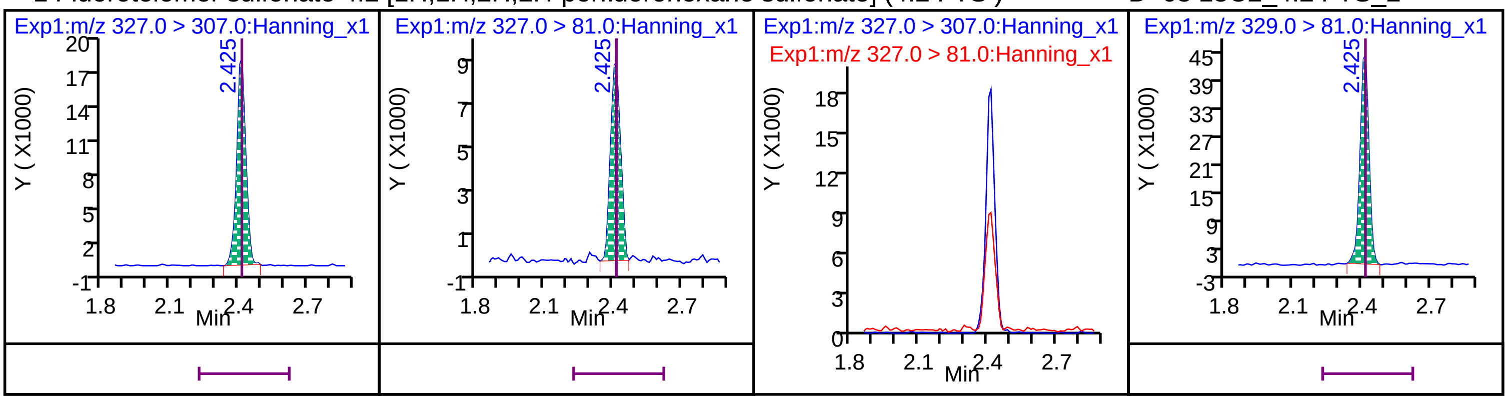


Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d

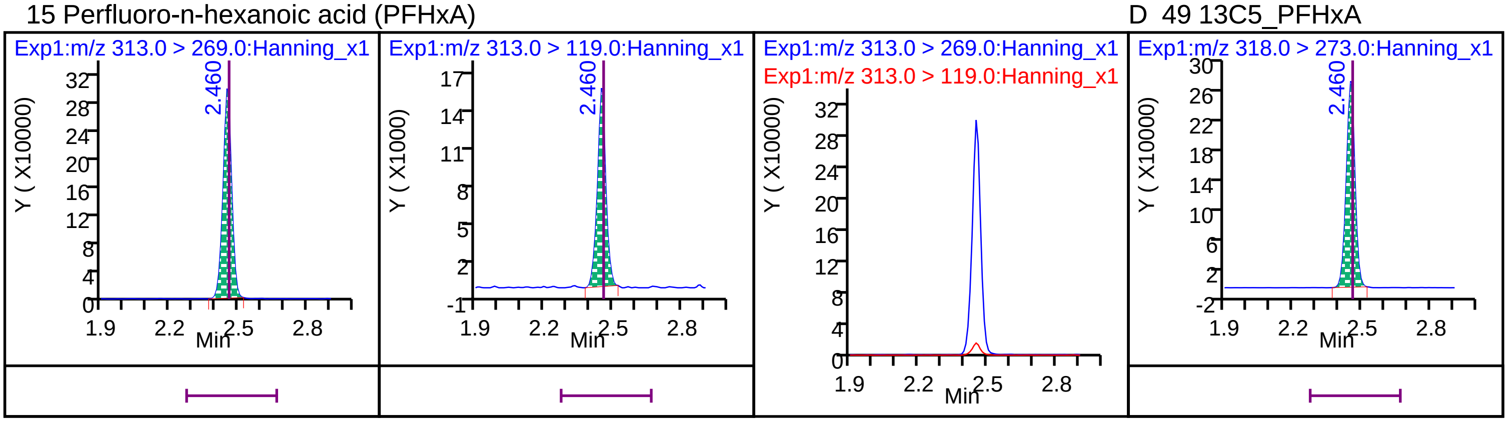
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



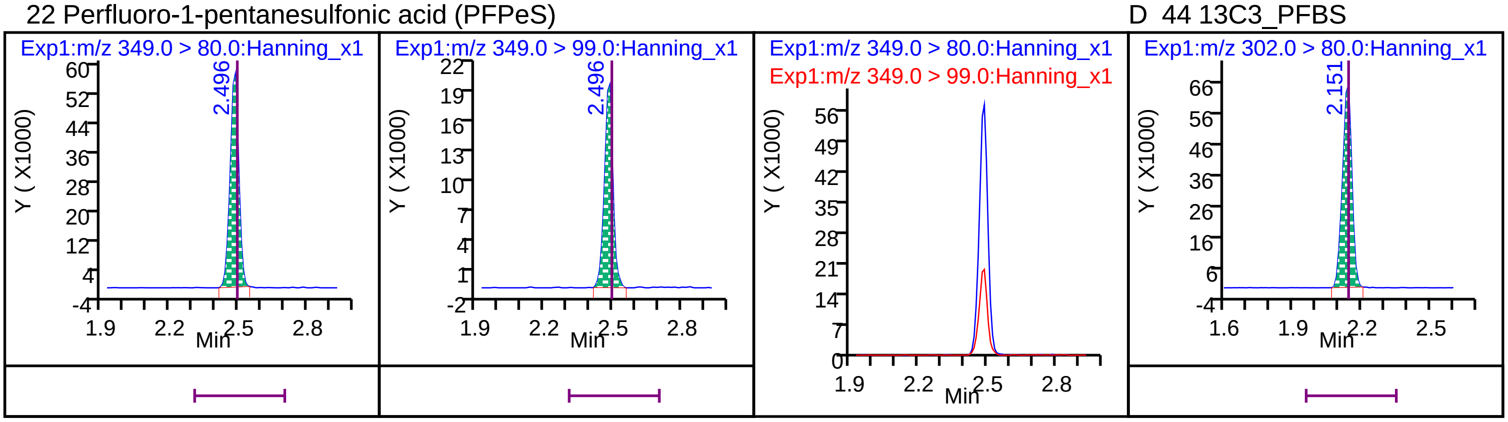
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

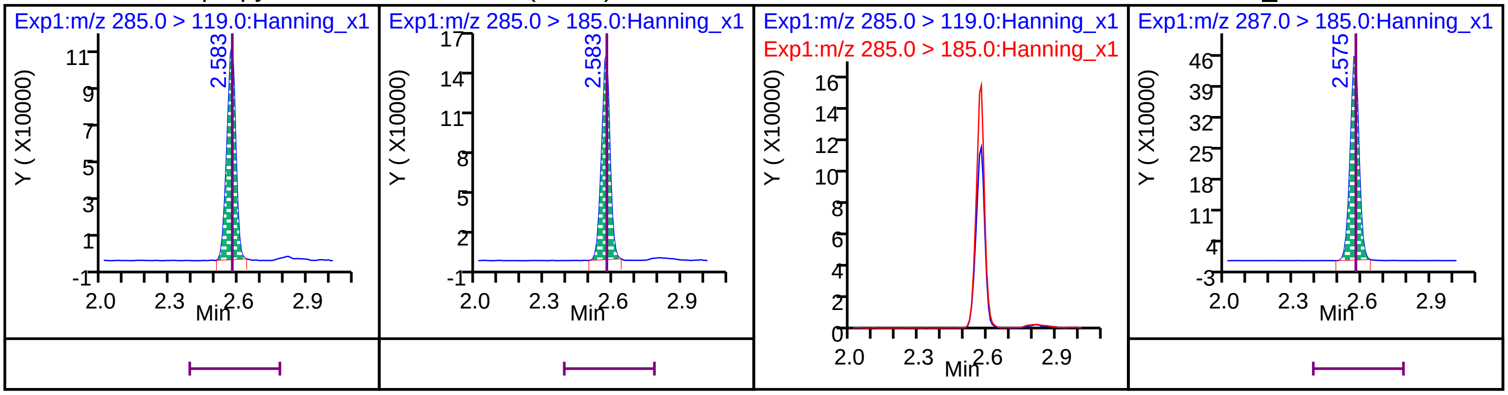


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

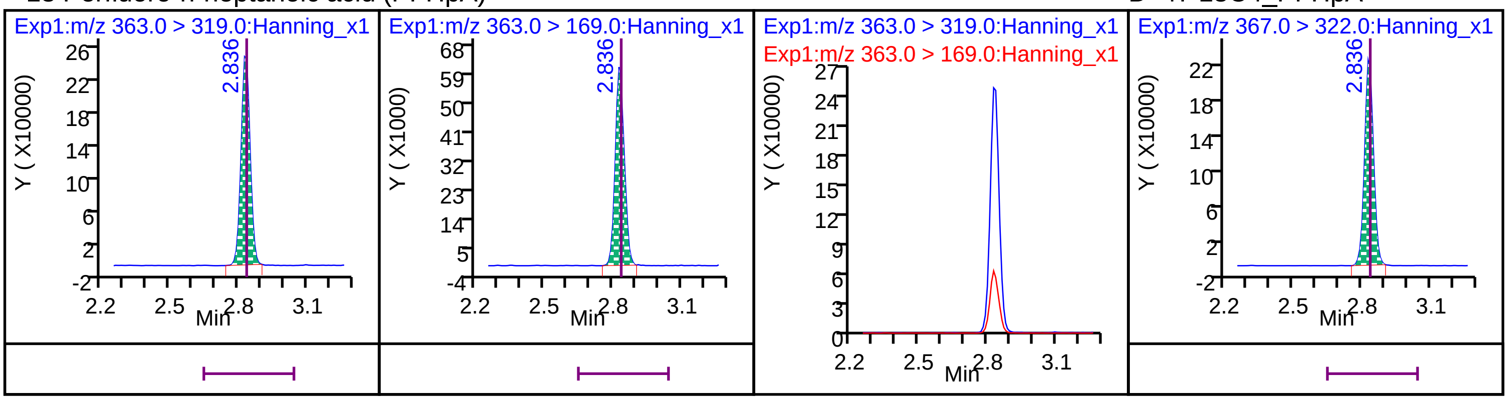


Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d

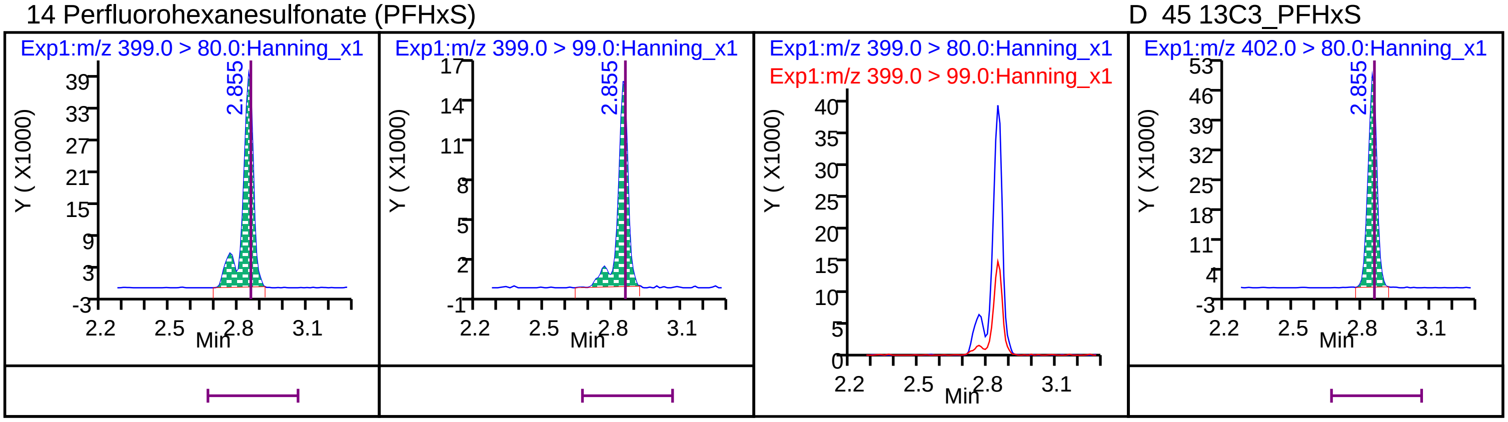
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



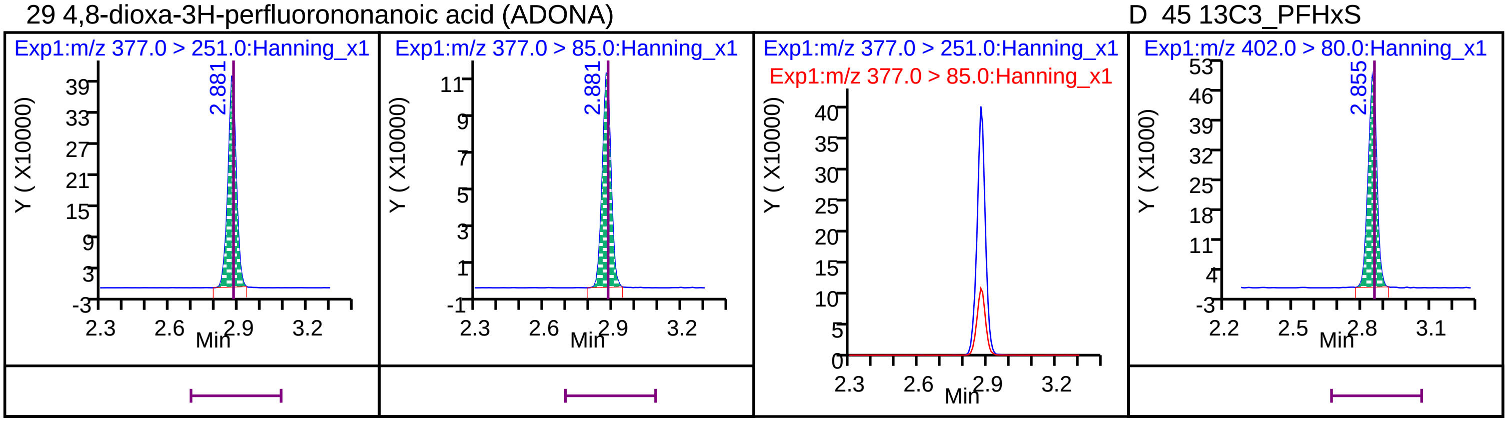
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



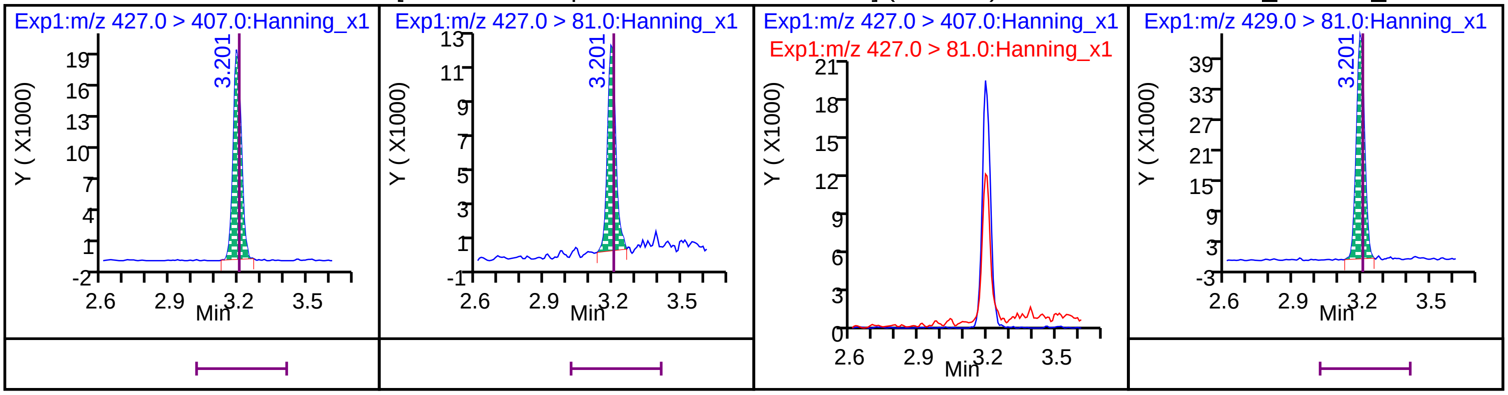
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



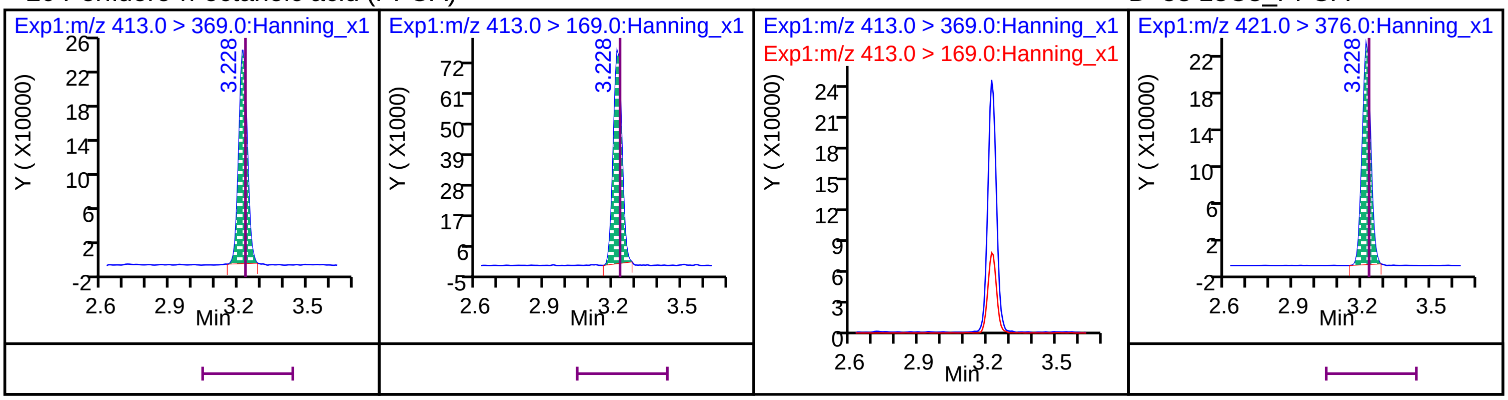
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



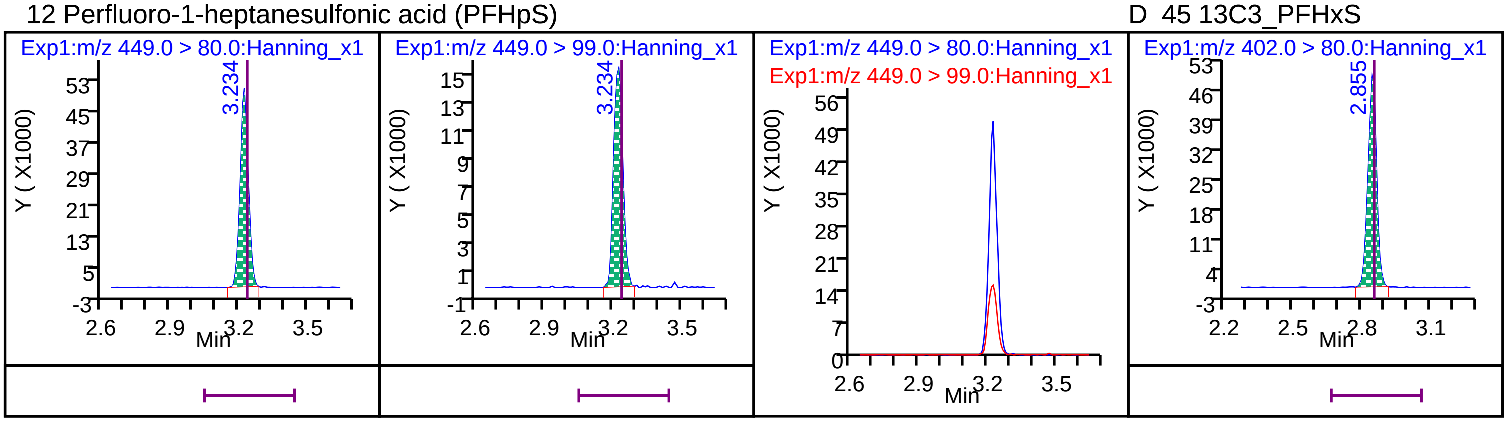
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS)   D 64 13C2_6:2 FTS_2



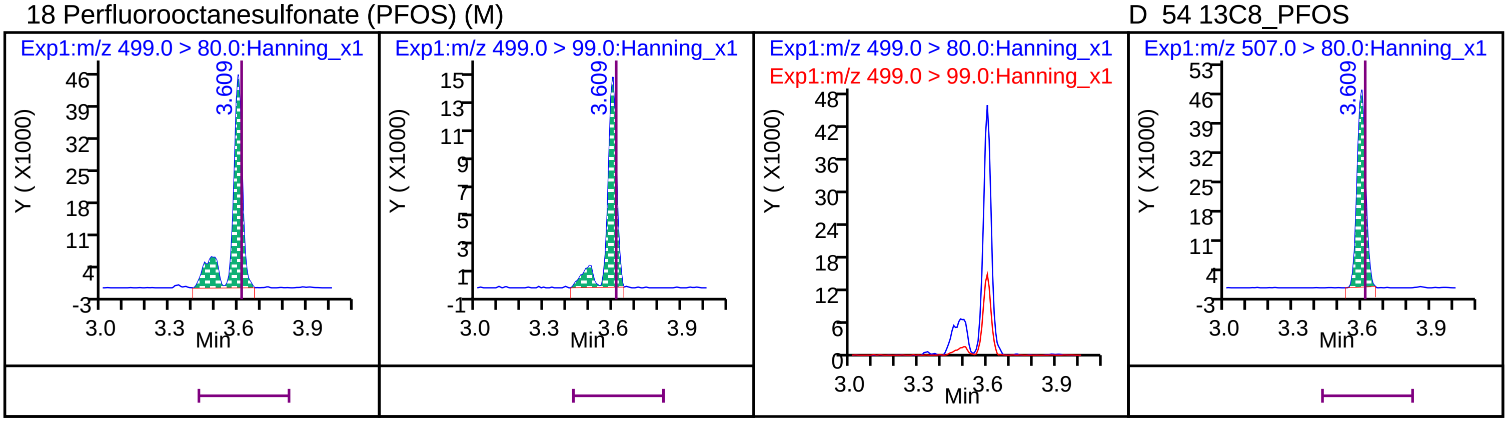
20 Perfluoro-n-octanoic acid (PFOA)   D 53 13C8_PFOA



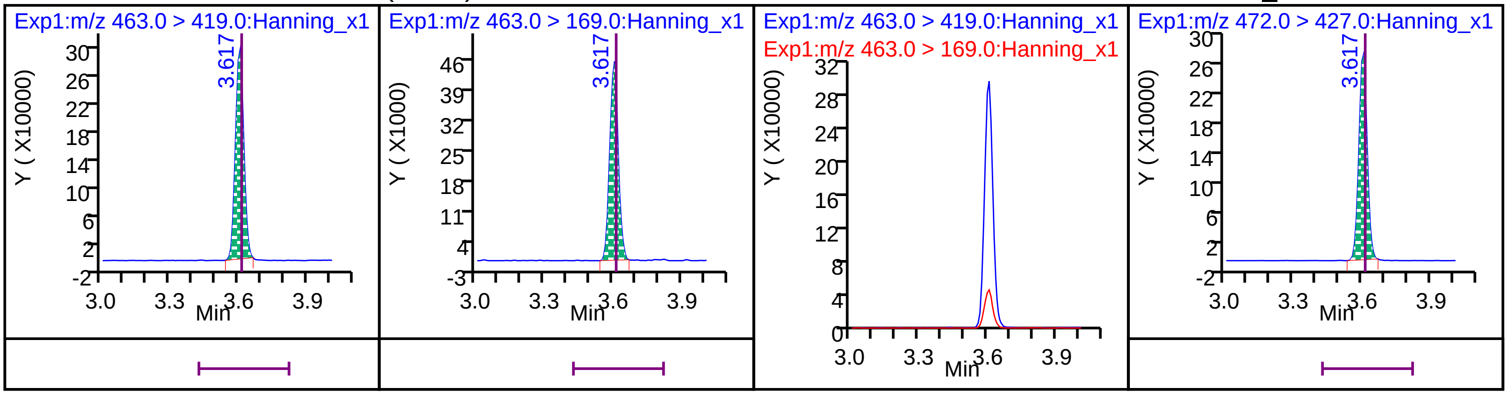
12 Perfluoro-1-heptanesulfonic acid (PFHpS)   D 45 13C3_PFHxS



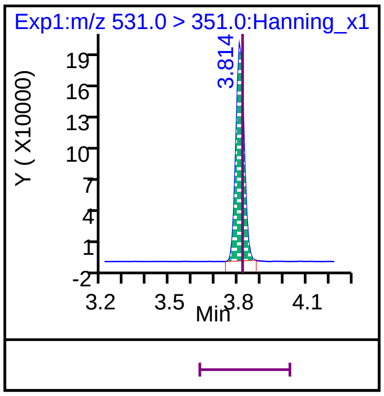
18 Perfluorooctanesulfonate (PFOS) (M)   D 54 13C8_PFOS

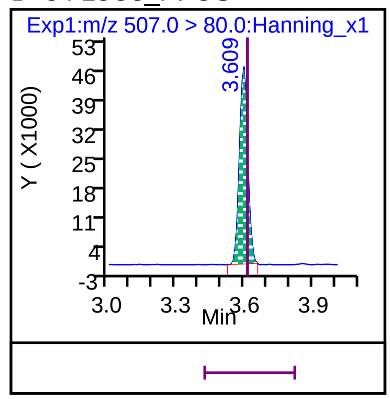


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

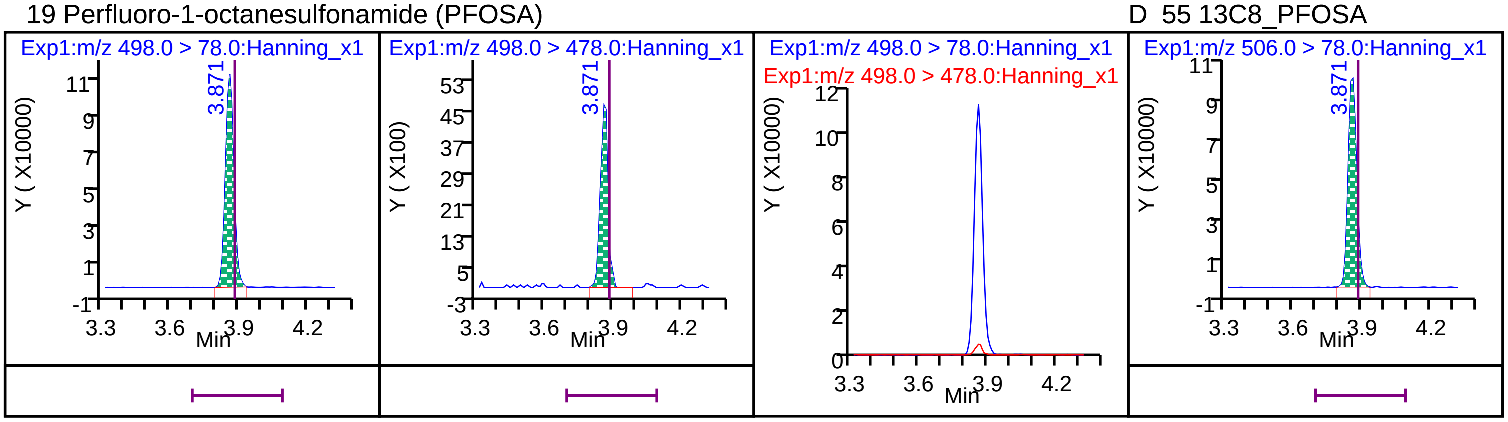


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

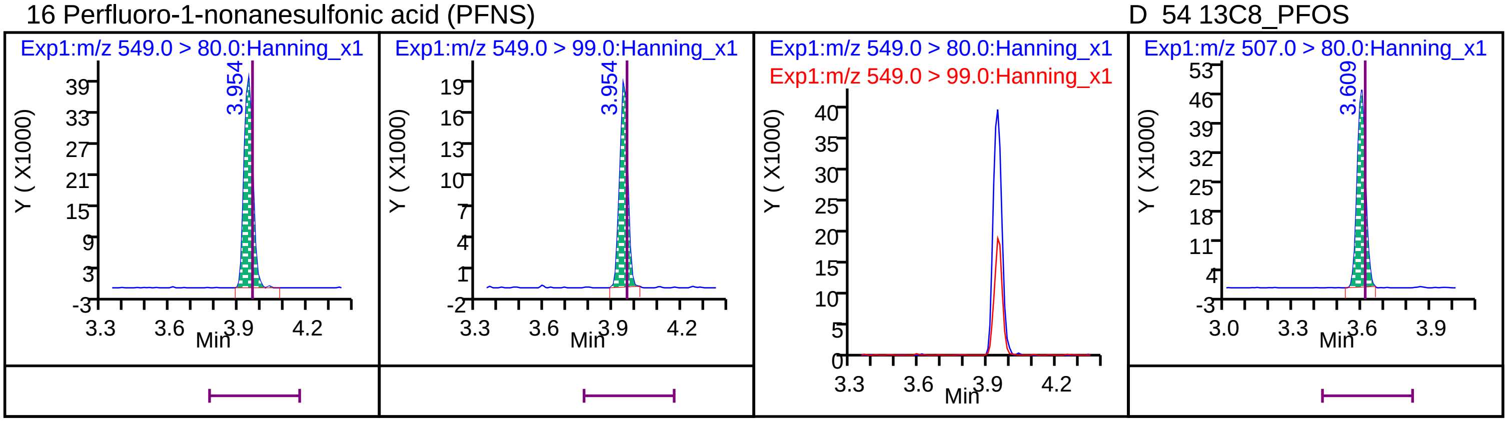




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

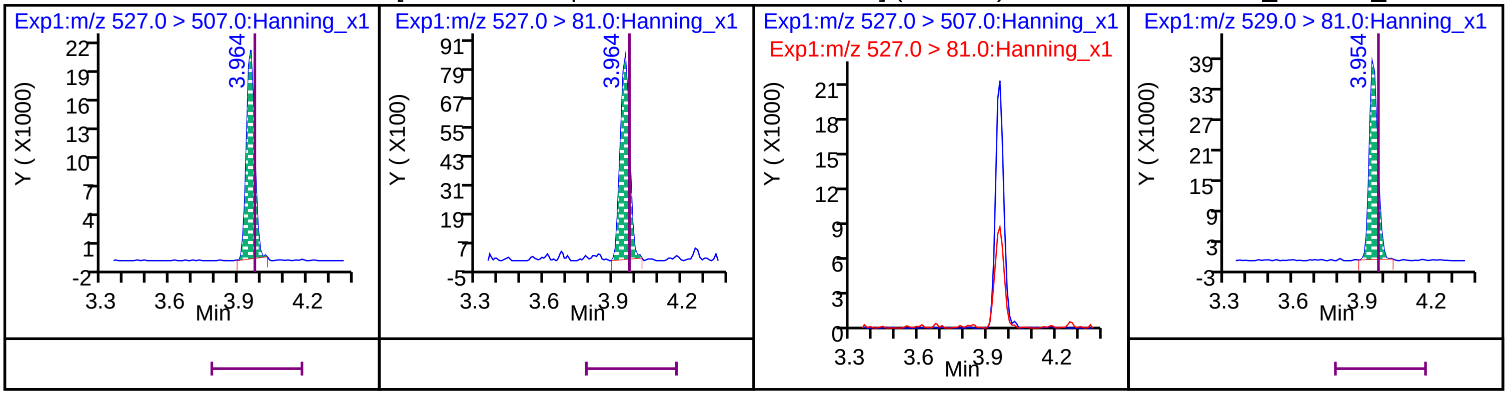


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

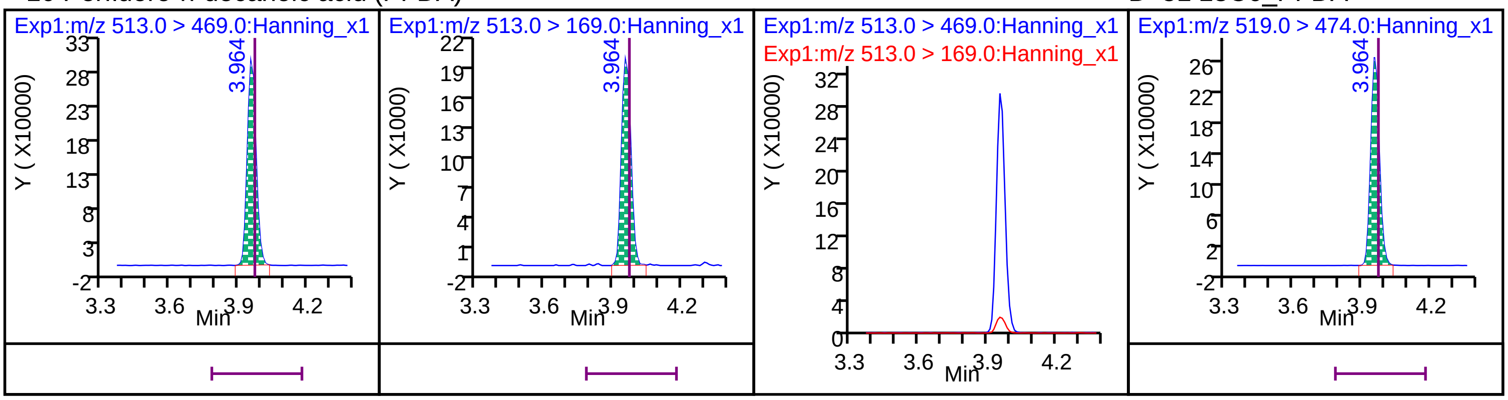


Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d

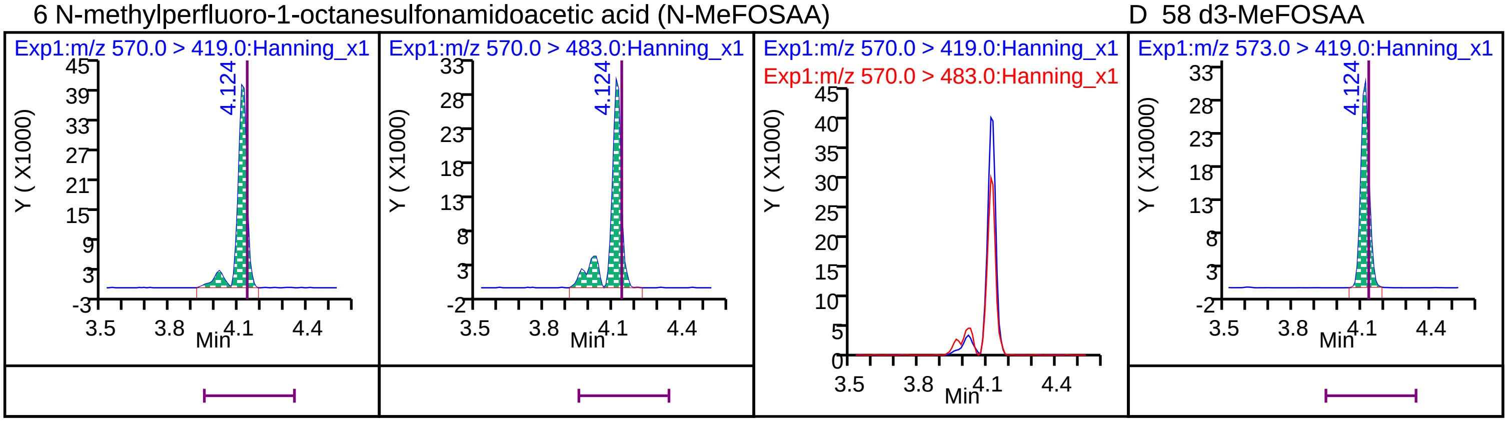
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



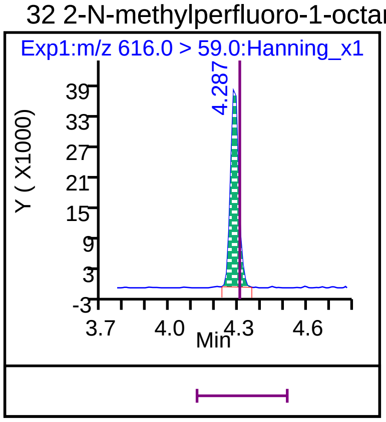
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

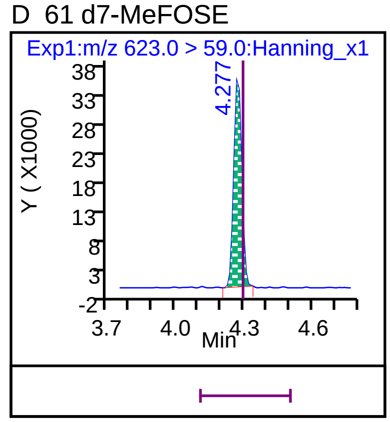


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



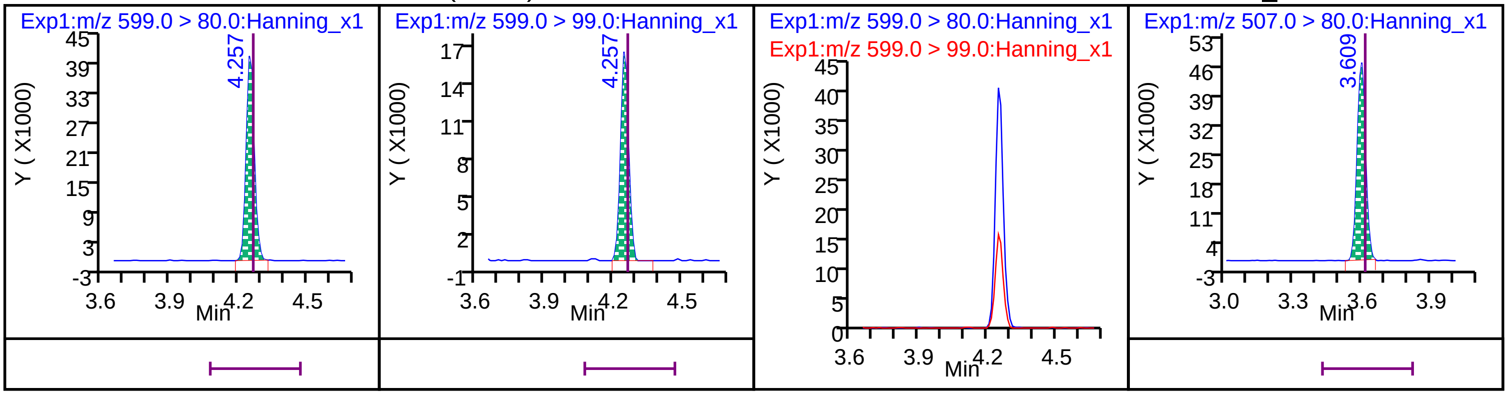
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



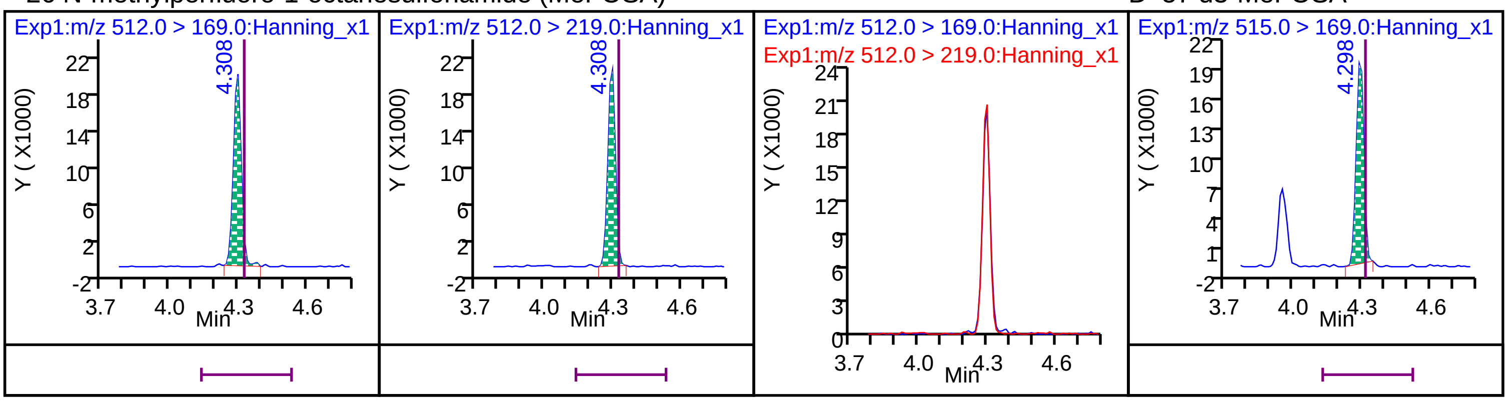


Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d

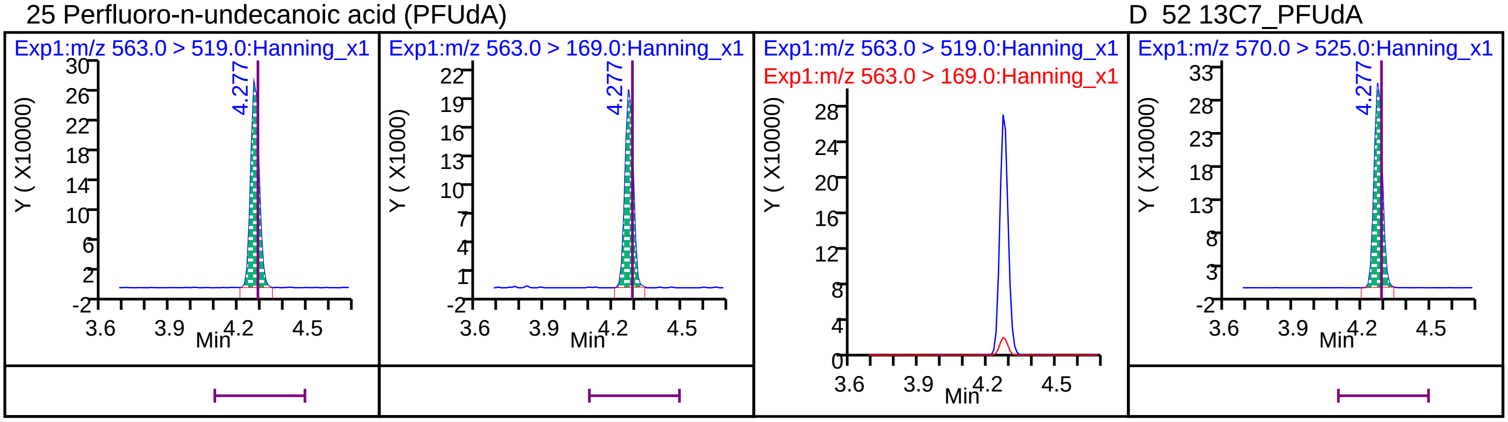
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



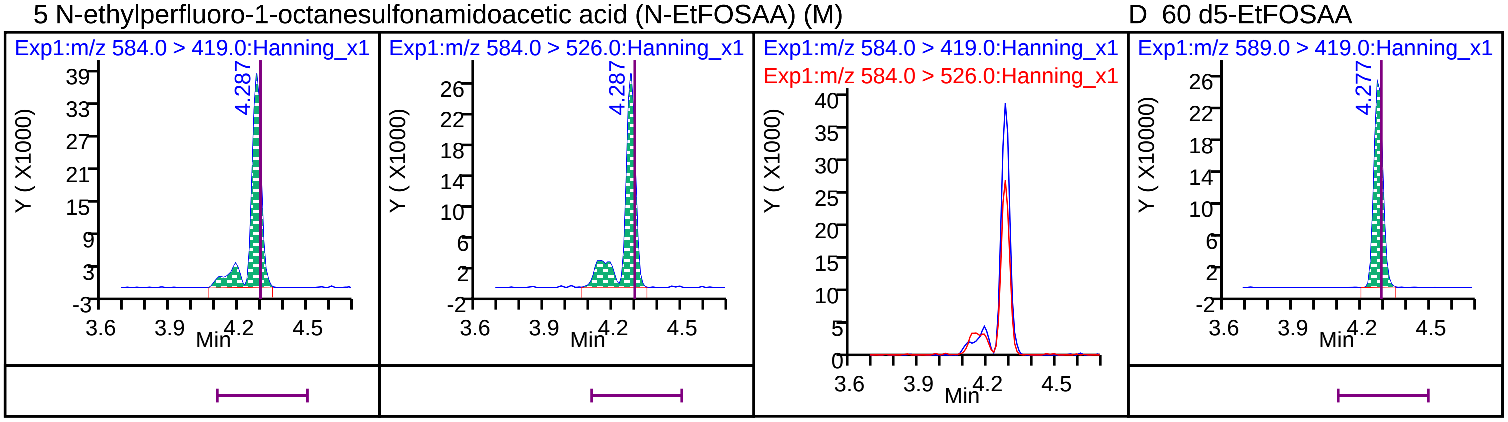
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



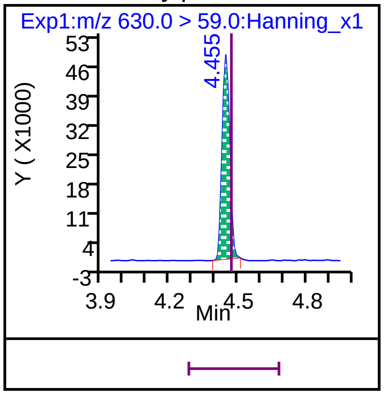
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



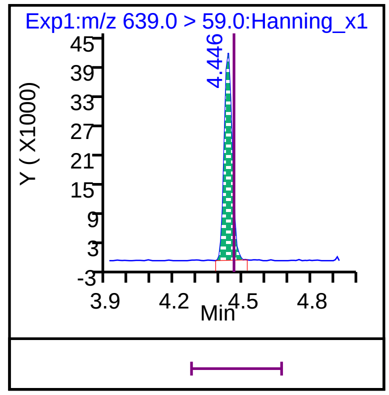
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



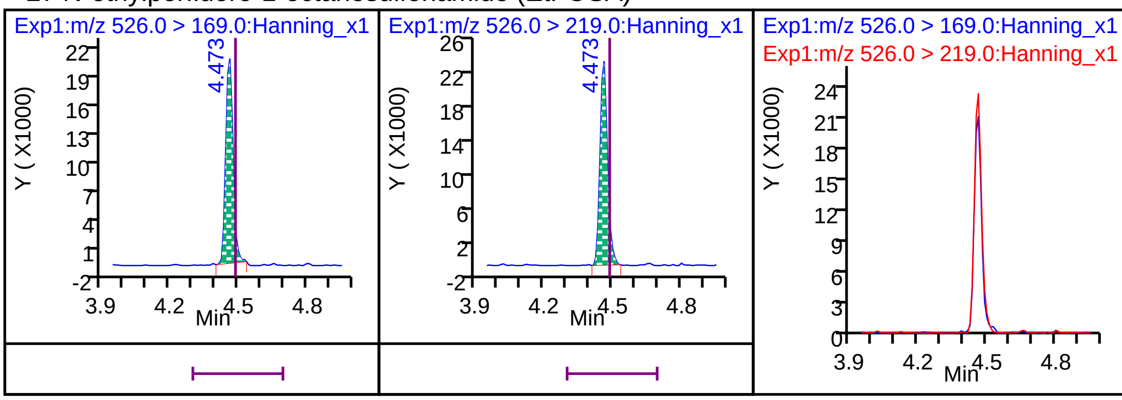
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



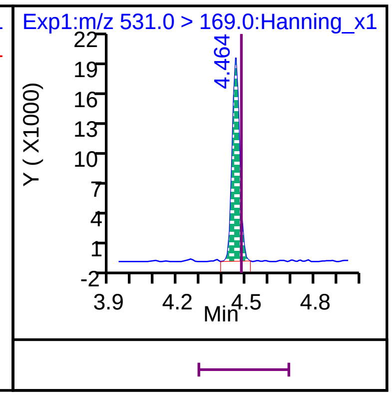
D 62 d9-EtFOSE



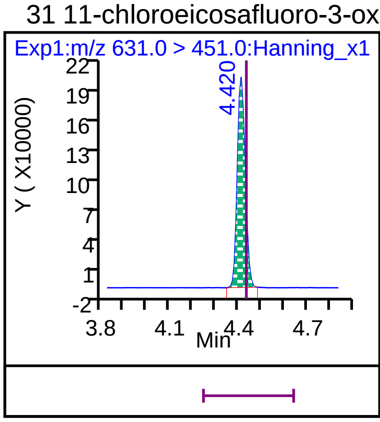
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



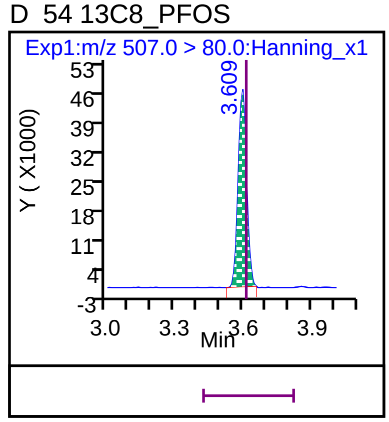
D 59 d5-EtFOSA



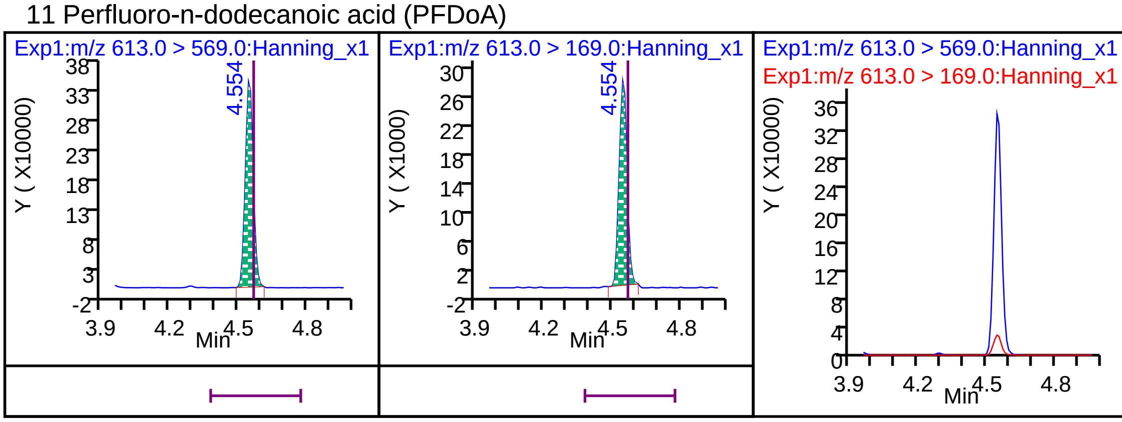
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



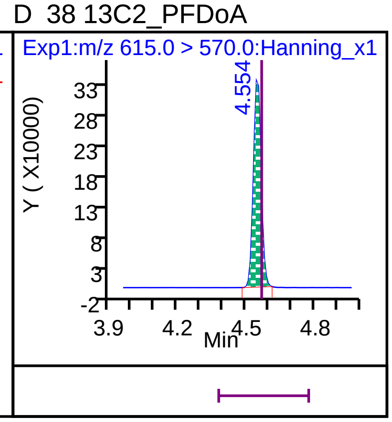
D 54 13C8_PFOS



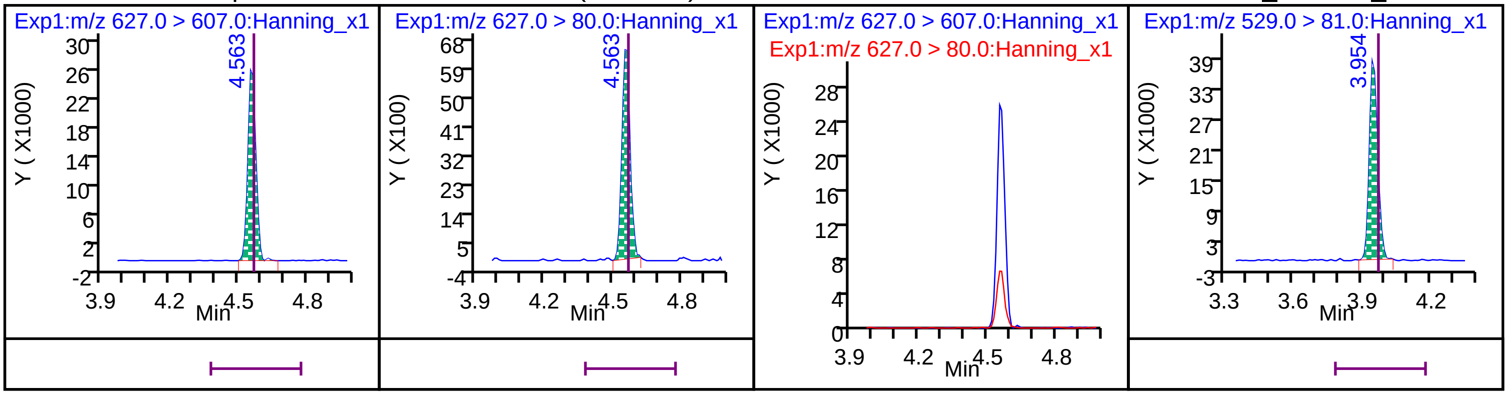
11 Perfluoro-n-dodecanoic acid (PFDoA)



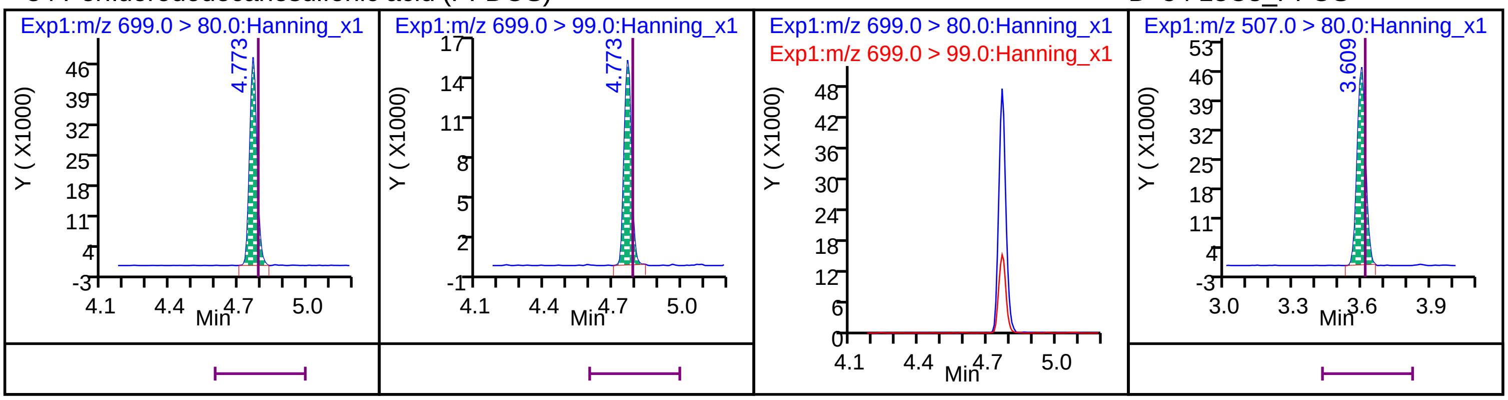
D 38 13C2_PFDoA



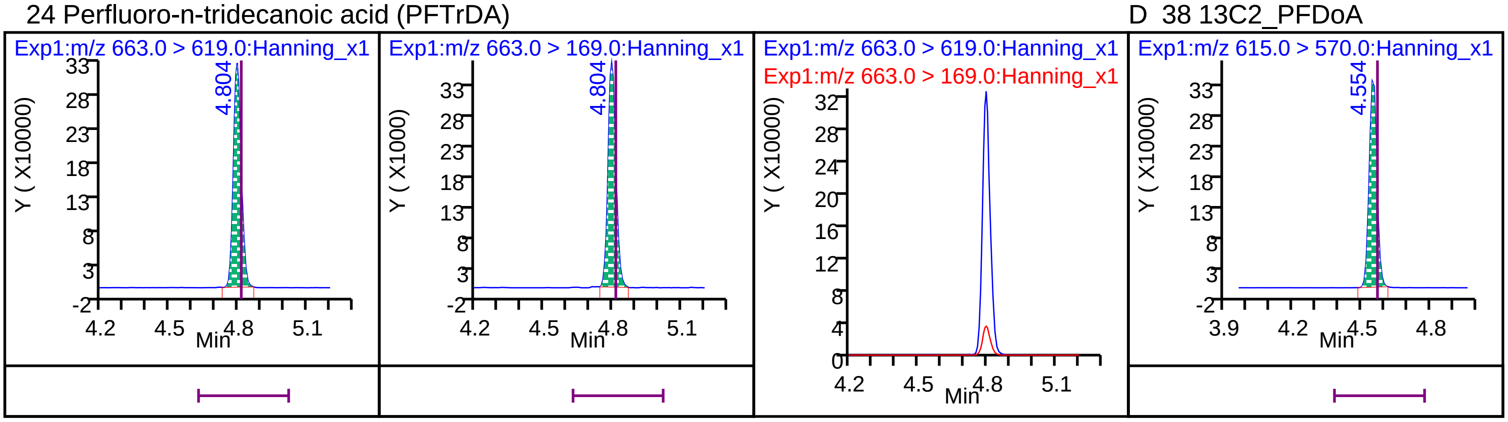
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



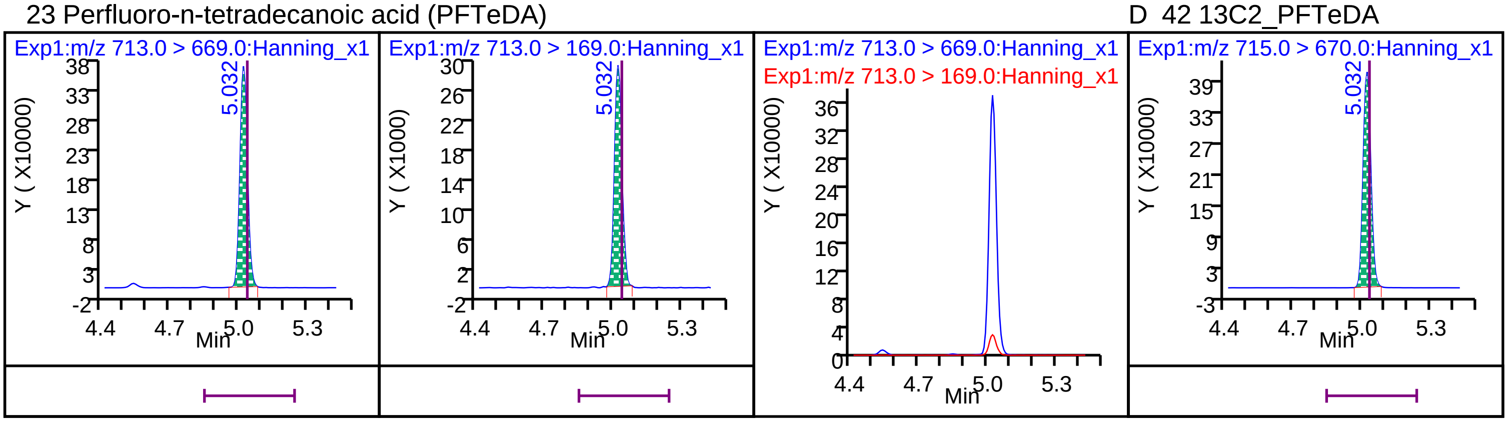
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



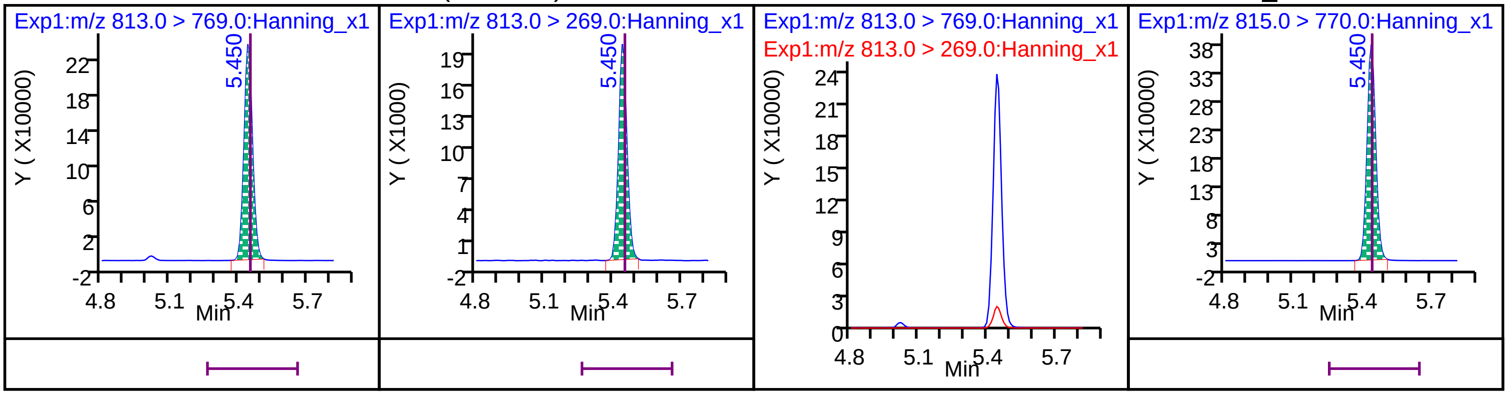
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



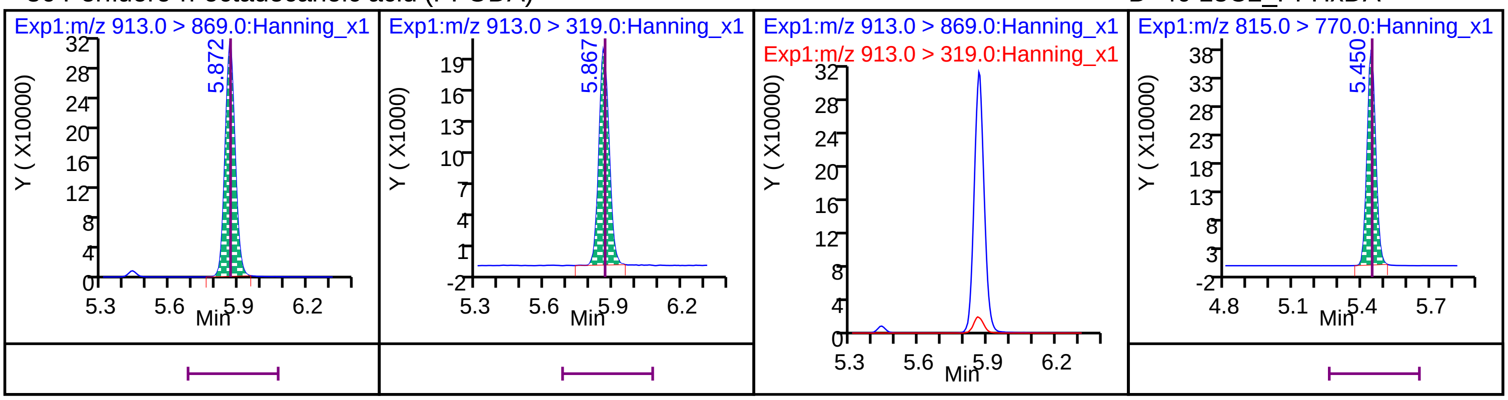
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



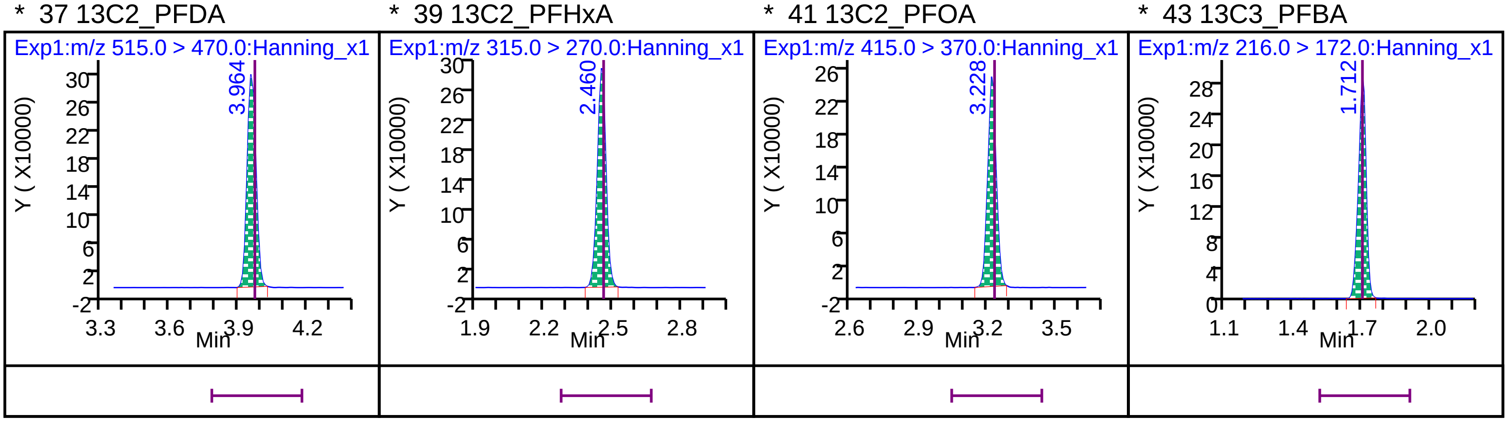
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



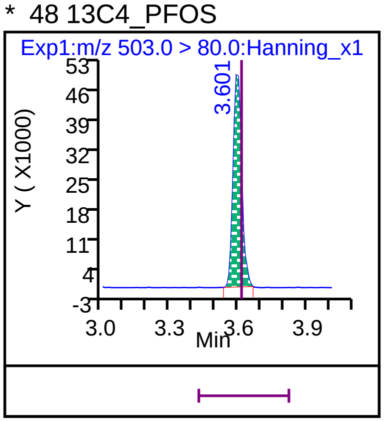
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d		
Injection Date:	10-Nov-2021 02:26:08	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000D_SVLC-1744
Sample Info:	ID CCV 1000D_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

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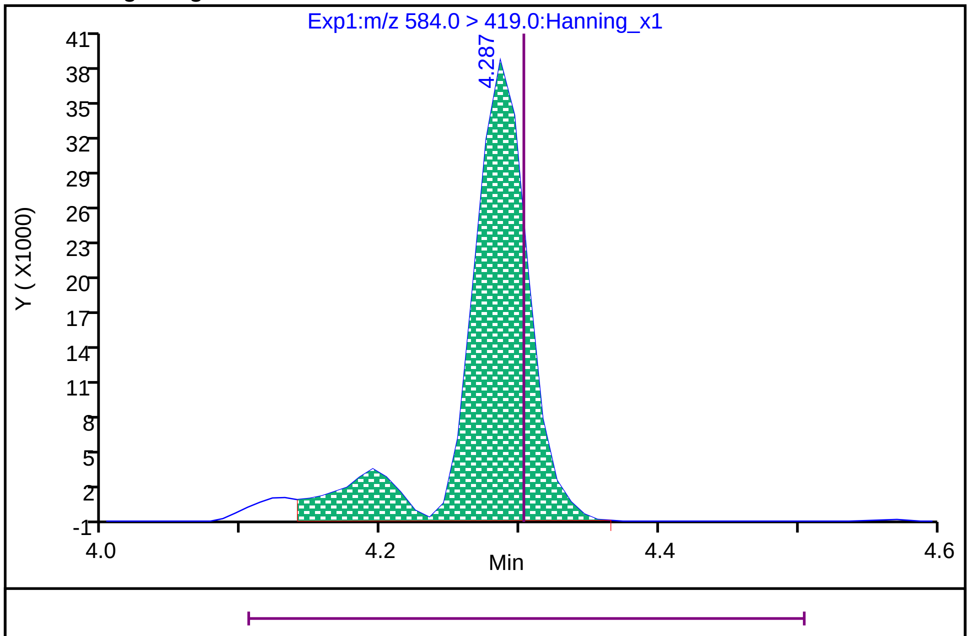
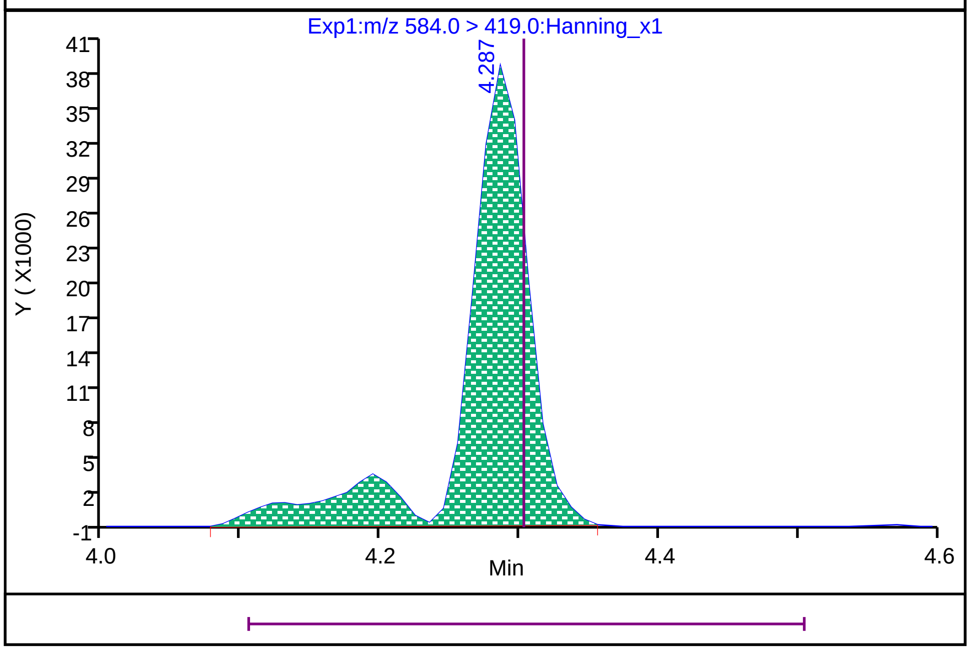
Area:	114157
Amount:	900.80
Amount Units:	ng/L



RT:	4.287
Area:	118870
Amount:	937.99
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:47:02

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:48 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921064.d		
Injection Date:	10-Nov-2021 02:26:08	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000D_SVLC-1744
Sample Info:	ID CCV 1000D_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.609
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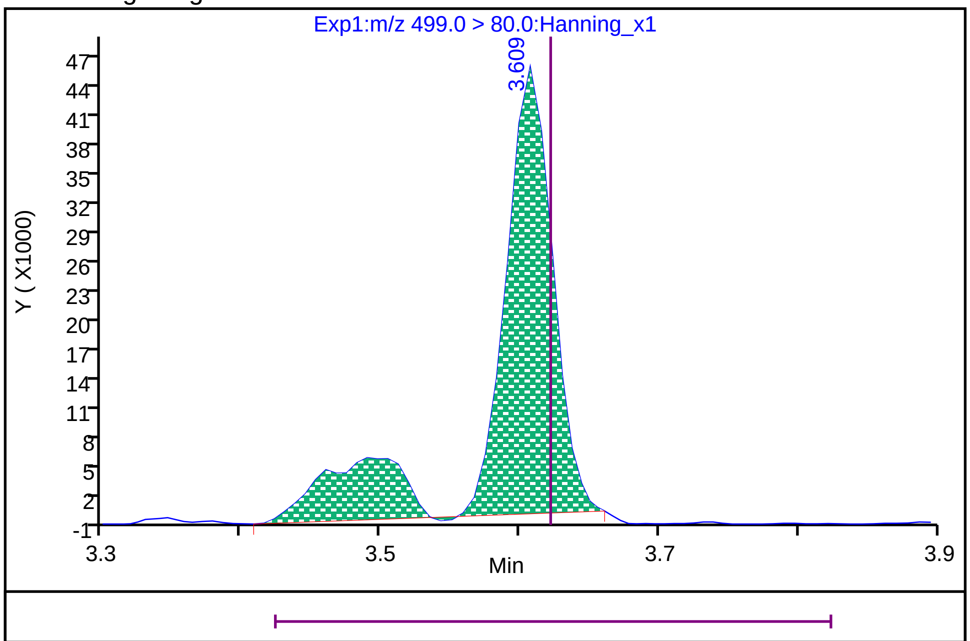
Amount:	908.71
Amount Units:	ng/L



RT:	3.609
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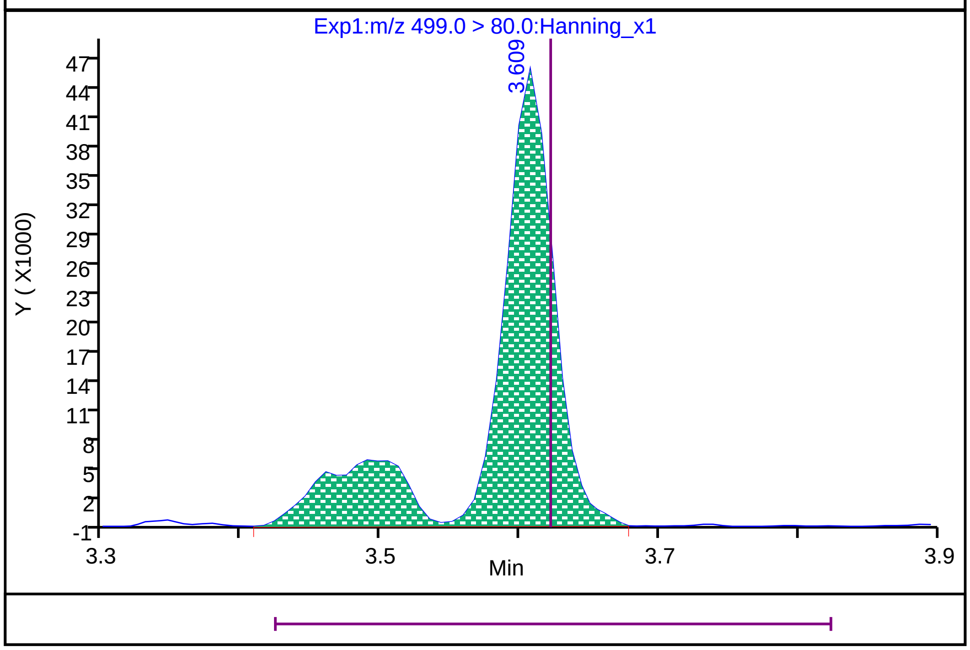


Data Editor: justin.gavin, 10-Nov-2021 12:46:54

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			100.00	97.233	97.2	70 - 130
D 46 13C4_PFBA	635753	659044			103.7	50 - 150
21 PFPeA			100.00	102.12	102.1	70 - 130
D 50 13C5_PFPeA	580113	581857			100.3	50 - 150
D 44 13C3_PFBS	178463	164288			92.1	50 - 150
7 PFBS			88.400	96.436	109.1	70 - 130
1 4:2 FTS			93.400	113.56	121.6	70 - 130
D 63 13C2_4:2 FTS_2	112299	113327			100.9	50 - 150
D 49 13C5_PFHxA	664948	667779			100.4	50 - 150
15 PFHxA			100.00	110.83	110.8	70 - 130
22 PFPeS			93.800	98.531	105	70 - 130
28 GenX			200.00	198.75	99.4	70 - 130
D 66 13C3_GenX	1204882	1212655			100.6	50 - 150
D 47 13C4_PFHpA	532996	545849			102.4	50 - 150
13 PFHpA			100.00	108.76	108.8	70 - 130
D 45 13C3_PFHxS	129716	123814			95.5	50 - 150
14 PFHxS			91.000	96.665	106.2	70 - 130
29 ADONA			94.200	100.97	107.2	70 - 130
D 64 13C2_6:2 FTS_2	93946	97903			104.2	50 - 150
2 6:2 FTS			94.800	106.02	111.8	70 - 130
20 PFOA			100.00	105.95	105.9	70 - 130
D 53 13C8_PFOA	547741	574828			104.9	50 - 150
12 PFHpS			95.200	94.216	99	70 - 130
D 54 13C8_PFOS	131913	125685			95.3	50 - 150
18 PFOS			92.800	105.41	113.6	70 - 130
17 PFNA			100.00	103.15	103.2	70 - 130
D 56 13C9_PFNA	639032	690339			108	50 - 150
30 9Cl-PF3ONS			93.200	101.81	109.2	70 - 130
D 55 13C8_PFOSA	266767	270667			101.5	50 - 150
19 PFOSA			100.00	110.58	110.6	70 - 130
16 PFNS			96.000	82.441	85.9	70 - 130
10 PFDA			100.00	101.95	101.9	70 - 130
3 8:2 FTS			95.800	115.82	120.9	70 - 130
D 51 13C6_PFDA	575846	638513			110.9	50 - 150
D 65 13C2_8:2 FTS_2	78835	97932			124.2	50 - 150
6 N-MeFOSAA			100.00	122.07	122.1	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	772780	734264			95	50 - 150
D 61 d7-MeFOSE	90070	82771			91.9	50 - 150
32 MeFOSE			100.00	114.31	114.3	70 - 130
26 MeFOSA			100.00	112.30	112.3	70 - 130
D 57 d3-MeFOSA	44997	48290			107.3	50 - 150
9 PFDS			96.400	103.24	107.1	70 - 130
D 52 13C7_PFUdA	634567	658476			103.8	50 - 150
D 60 d5-EtFOSAA	689688	654482			94.9	50 - 150
25 PFUdA			100.00	98.589	98.6	70 - 130
5 N-EtFOSAA			100.00	113.85	113.9	70 - 130
D 62 d9-EtFOSE	101585	100538			99	50 - 150
33 EtFOSE			100.00	117.29	117.3	70 - 130
D 59 d5-EtFOSA	42895	38708			90.2	50 - 150
31 11Cl-PF3OUDS			94.200	103.35	109.7	70 - 130
27 EtFOSA			100.00	129.19	129.2	70 - 130
D 38 13C2_PFDoA	604291	739968			122.5	50 - 150
11 PFDoA			100.00	99.99	100	70 - 130
4 10:2 FTS			96.400	113.92	118.2	70 - 130
34 PFDOS			96.800	91.196	94.2	70 - 130
24 PFTrDA			100.00	85.489	85.5	70 - 130
D 42 13C2_PFTeDA	838224	881166			105.1	50 - 150
23 PFTeDA			100.00	104.39	104.4	70 - 130
D 40 13C2_PFHxDA	877835	942416			107.4	50 - 150
35 PFHxDA			100.00	111.39	111.4	70 - 130
36 PFODA			100.00	104.56	104.6	70 - 130

Report Date: 11-Nov-2021 20:41:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	95
Sample Info:	ID CCV 100_SVLC-1741	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-2 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.718	1.718	1	659044	21	>100:1			1000.00	1060.11	103.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/-1	67582	19	73:1			100.00	97.233		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.109	2.109	1	581857	17	>100:1			1000.00	1017.96	100.3	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.120	2.120	1/0	66877	21	56:1			100.00	102.12		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.173	2.173	1	164288	17	>100:1			1000.00	949.81	92.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.173	2.173	1/0	19757	15	>100:1	Target = 3.53		88.400	96.436		
298.9 > 99	44	2.173	2.173		5322	16	60:1	3.71 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.532	2.532	2/1	15002	16	>100:1	Target = 3.10		93.800	98.531		
349 > 99	44	2.523	2.532		5082	17	30:1	2.95 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.451	2.451	2	113327	20	>100:1			5000.00	5004.79	100.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.451	2.451	2/0	5674	22		Target = 1.75		93.400	113.56		
327 > 81	63	2.443	2.451		4690	16	4.1:1	1.20 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.496	2.496	2	667779	18	>100:1			1000.00	1025.32	100.4	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.496	2.496	2/0	76953	17	>100:1	Target = 18.91		100.00	110.83		
313 > 119	49	2.496	2.496		4352	14	25:1	17.68 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.607	2.607	1	1212655	19	>100:1			5000.00	5232.46	100.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.614	2.614	2/1	31217	17	>100:1	Target = 0.79		200.00	198.75		
285 > 185	66	2.614	2.614		41819	18	>100:1	0.74 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.873	2.873	2	545849	19	>100:1			1000.00	1028.08	102.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.873	2.873	2/0	65234	18	>100:1	Target = 3.80		100.00	108.76		
363 > 169	47	2.881	2.873		14879	15	80:1	4.38 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.889	2.889	2	123814	18	>100:1			1000.00	985.47	95.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.889	2.889	1/-1	13158	27	>100:1	Target = 2.89	5.19	91.000	96.665		
399 > 99	45	2.881	2.889		3983	23	27:1	3.30 (1.44-4.34)	10.06				

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.912	2.912	1/-1	96953	37	>100:1	Target = 3.23		94.200	100.97		
377 > 85	45	2.912	2.912		27617	18	>100:1	3.51 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.276	3.276	2/0	11981	23	>100:1	Target = 3.12		95.200	94.216		
449 > 99	45	3.282	3.276		3630	26	24:1	3.30 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.242	3.242	2	97903	19	>100:1			5000.00	5439.07	104.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													a
427 > 407	64	3.248	3.248	0/-2	4914	22	55:1	Target = 1.75		94.800	106.02		
427 > 81	64	3.228	3.248		3896	13	5.2:1	1.26 (0.87-2.62)					M
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.269	3.269	2	574828	23	>100:1			1000.00	1095.59	104.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.276	3.276	3/1	62409	20	50:1	Target = 2.89		100.00	105.95		
413 > 169	53	3.276	3.276		18154	21	68:1	3.43 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.657	3.657	2	125685	20	>100:1			1000.00	1014.87	95.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.652	3.652	0/-2	15774	42	>100:1	Target = 3.30	4.76	92.800	105.41		
499 > 99	54	3.657	3.652		4206	35	31:1	3.75 (1.65-4.95)	8.87				M
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.872	3.872	3/1	48461	16	>100:1			93.200	101.81		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.017	4.017	4/2	8313	12	55:1	Target = 3.08		96.000	82.441		
549 > 99	54	4.006	4.017		2463	16	25:1	3.37 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.319	4.319	3/1	10154	20	100:1	Target = 2.72		96.400	103.24		
599 > 99	54	4.319	4.319		5137	17	26:1	1.97 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.483	4.483	3/1	44470	20	>100:1			94.200	103.35		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.842	4.842	3/1	9856	22	98:1	Target = 3.27		96.800	91.196		
699 > 99	54	4.842	4.842		3438	20	76:1	2.86 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.662	3.662	2	690339	22	>100:1			1000.00	1078.02	108	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.662	3.662	2/0	76755	20	>100:1	Target = 6.51		100.00	103.15		
463 > 169	56	3.668	3.662		11190	25	97:1	6.85 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.921	3.921	3	270667	18	>100:1			1000.00	1009.73	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.921	3.921	3/0	31491	18	>100:1	Target = 41.63		100.00	110.58		
498>478	55	3.921	3.921		784	16	11:1	40.16 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.027	4.027	3	638513	17	>100:1			1000.00	1111.11	110.9	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.027	4.027	3/0	75753	18	>100:1	Target = 13.80		100.00	101.95		
513 > 169	51	4.017	4.027		4614	10	36:1	16.41 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.017	4.017	3	97932	16	>100:1			5000.00	5665.89	124.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.006	4.006	2/-1	5126	21	23:1	Target = 1.94		95.800	115.82		
527 > 81	65	4.017	4.006		1398	10	7.9:1	3.66 (0.97-2.91)					J
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.631	4.631	3/0	5660	21	67:1	Target = 3.54		96.400	113.92		
627 > 80	65	4.631	4.631		1026	19	4.7:1	5.51 (1.77-5.31)					J
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.178	4.178	3	734264	17	>100:1			5000.00	4859.05	95	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.187	4.187	0/-3	14385	29	70:1	Target = 1.37	7.43	100.00	122.07		M
570 > 483	58	4.187	4.187		7318	27		1.96 (0.68-2.05)	3.59				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.329	4.329	4	82771	15	>100:1			1000.00	917.75	91.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.348	4.348	4/0	10340	19	57:1			100.00	114.31		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.348	4.348	4	48290	14	>100:1			1000.00	1026.55	107.3	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.367	4.367	4/0	5878	19	34:1	Target = 1.11		100.00	112.30		
512 > 219	57	4.358	4.367		4369	18	31:1	1.34 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.339	4.339	3	654482	15	>100:1			5000.00	5053.40	94.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.348	4.348	0/-3	14531	24	71:1	Target = 1.51	5.56	100.00	113.85		M
584 > 526	60	4.348	4.348		7526	28		1.93 (0.75-2.26)	3.50				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.339	4.339	3	658476	16	>100:1			1000.00	1093.36	103.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.339	4.339	3/0	62904	16	>100:1	Target = 14.52		100.00	98.589		
563 > 169	52	4.339	4.339		4278	20	19:1	14.70 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.501	4.501	4	100538	17	>100:1			1000.00	947.78	99	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.510	4.510	4/0	11479	13	87:1			100.00	117.29		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.519	4.519	4	38708	15	>100:1			1000.00	900.19	90.2	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.528	4.528	4/0	6526	19	23:1	Target = 1.06		100.00	129.19		
526 > 219	59	4.528	4.528		5703	13	37:1	1.14 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.614	4.614	3	739968	17	>100:1			1000.00	1232.59	122.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.614	4.614	3/0	78880	14	18:1	Target = 10.70		100.00	99.99		
613 > 169	38	4.614	4.614		6543	14	40:1	12.05 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.868	4.868	3/0	66491	18	>100:1	Target = 8.31		100.00	85.489		
663 > 169	38	4.868	4.868		7842	22	>100:1	8.47 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.087	5.087	3	881166	20	>100:1			1000.00	1083.86	105.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.093	5.093	3/0	80294	25	>100:1	Target = 12.17		100.00	104.39		
713 > 169	42	5.087	5.093		6202	25	89:1	12.94 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.512	5.512	2	942416	19	>100:1			1000.00	1085.69	107.4	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.512	5.512	2/0	67229	19	11:1	Target = 10.43		100.00	111.39		
813 > 269	40	5.512	5.512		5950	18	>100:1	11.29 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.944	5.944	2/0	89705	30	>100:1	Target = 13.67		100.00	104.56		
913 > 319	40	5.939	5.944		5969	38	>100:1	15.02 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.027	4.027	3	709700	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.496	2.496	2	706954	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.269	3.269	2	570039	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	1	588925	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.657	3.657	2	119235	21	>100:1			1000.00			

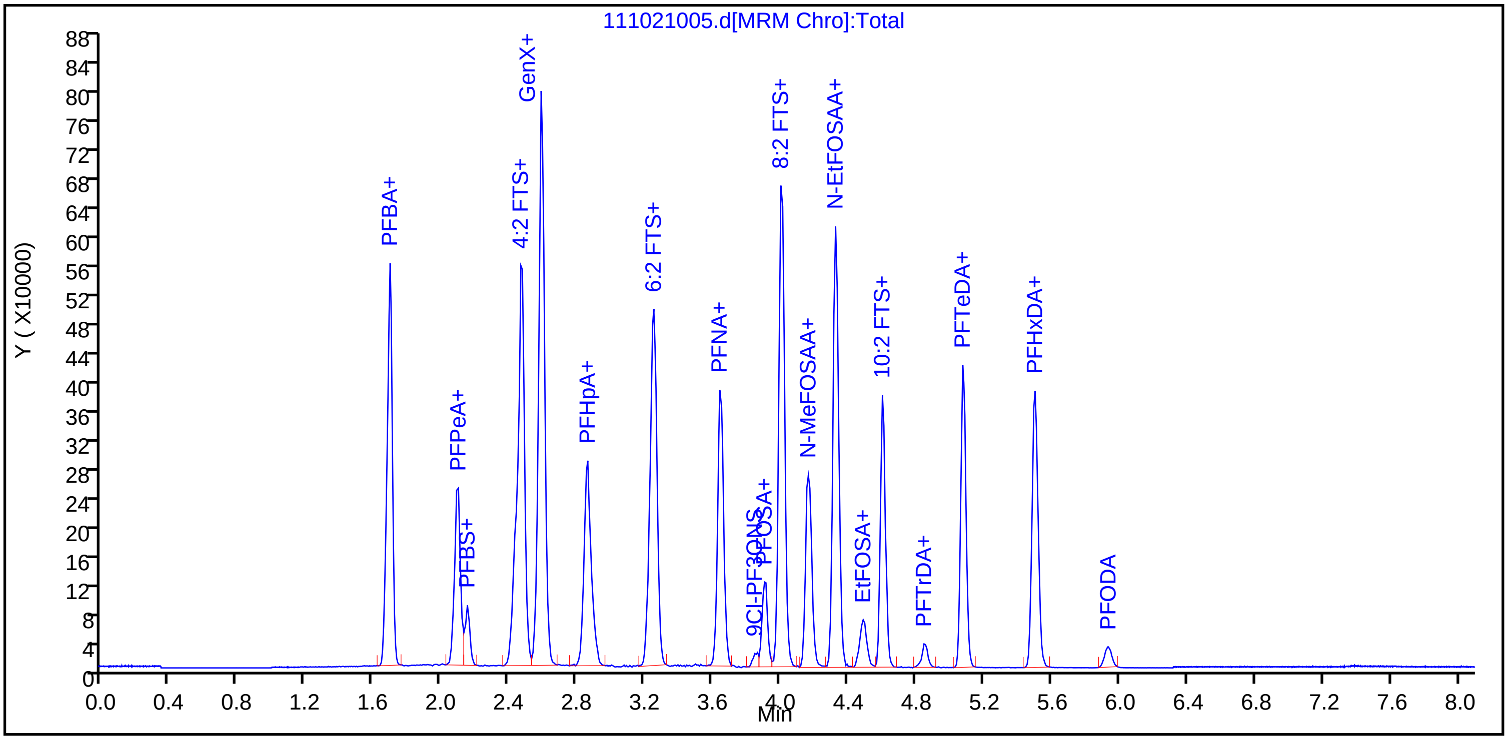
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

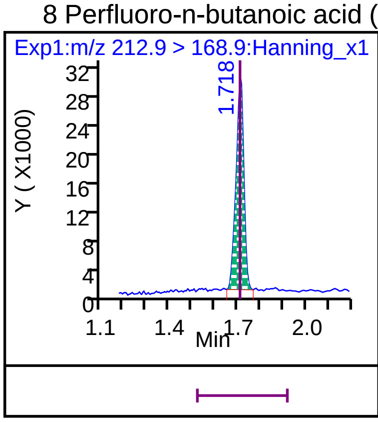
Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

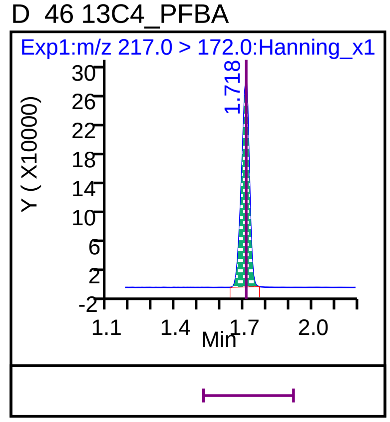
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin



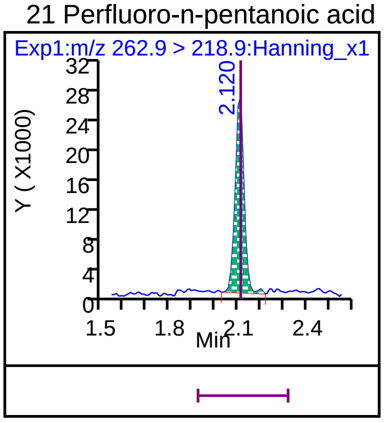
8 Perfluoro-n-butanoic acid (PFBA)



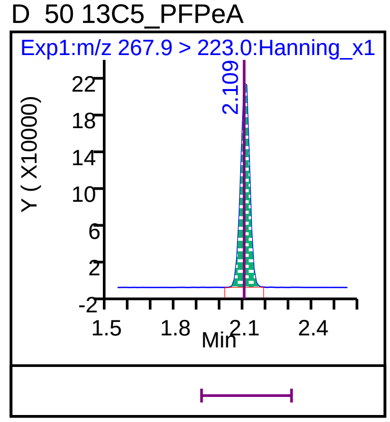
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

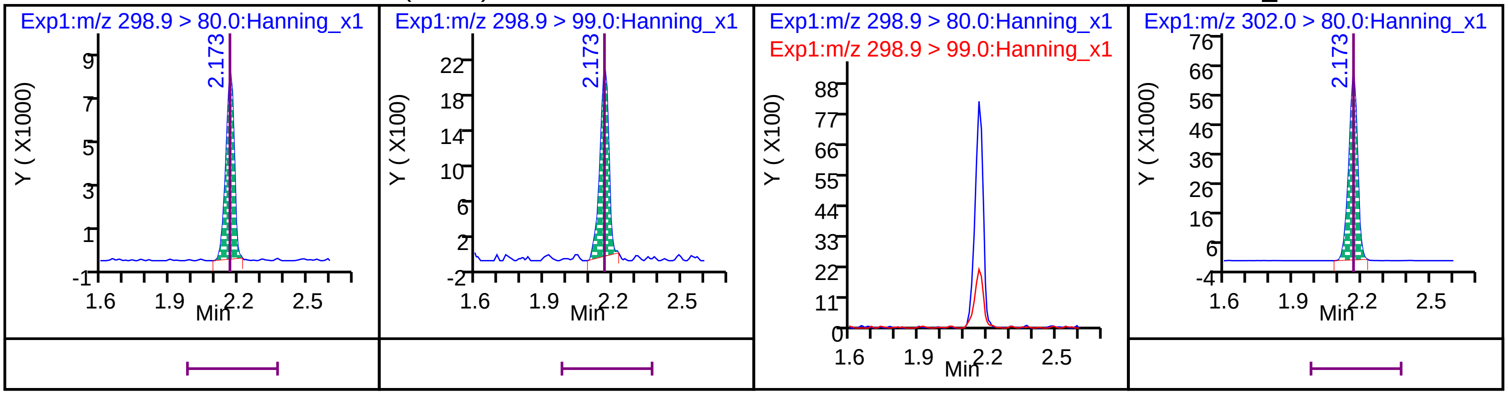


D 50 13C5_PFPeA

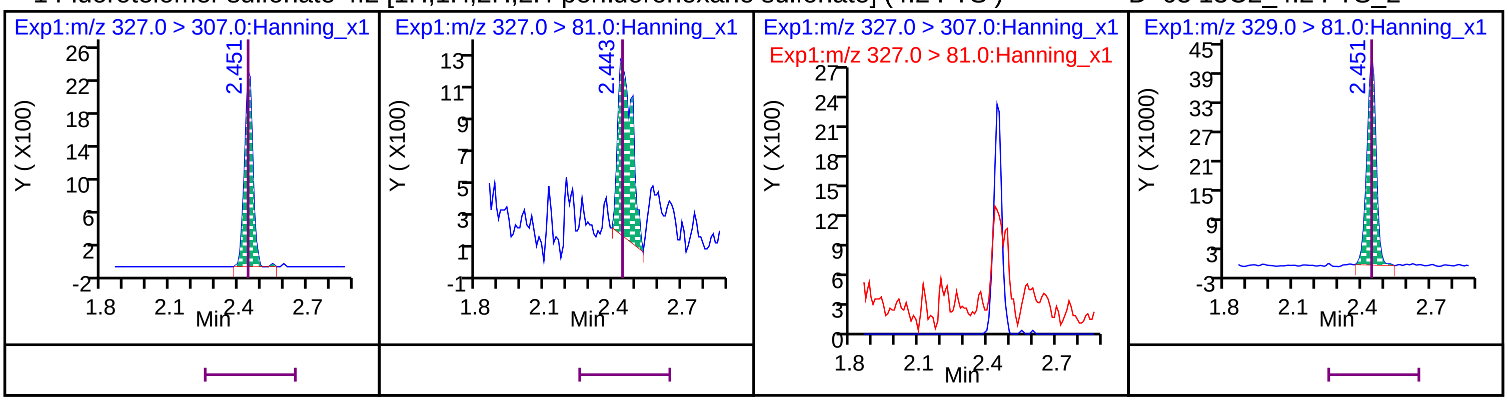


Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

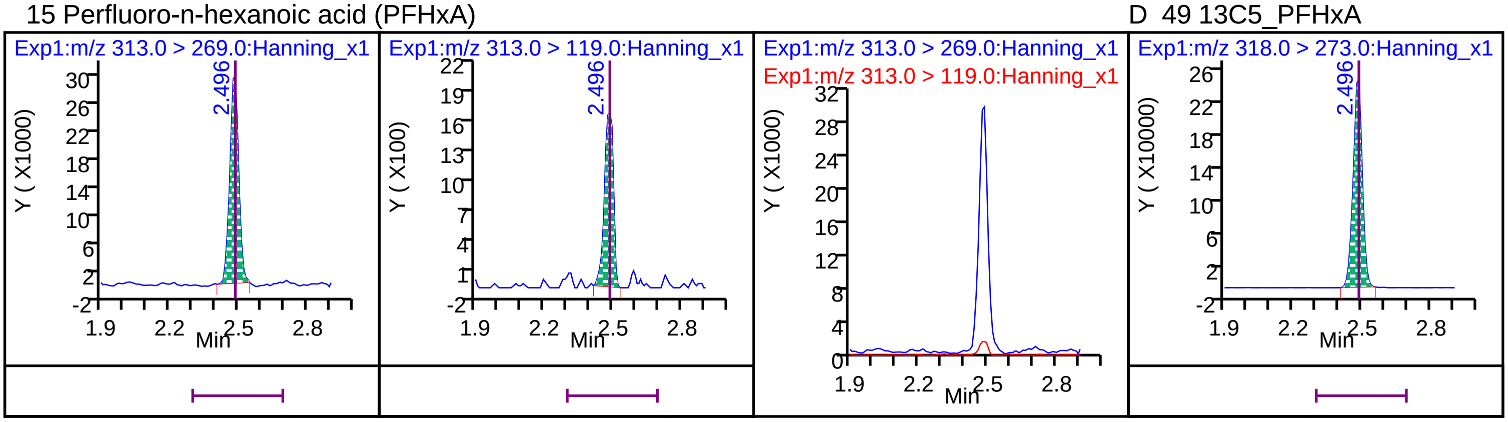
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



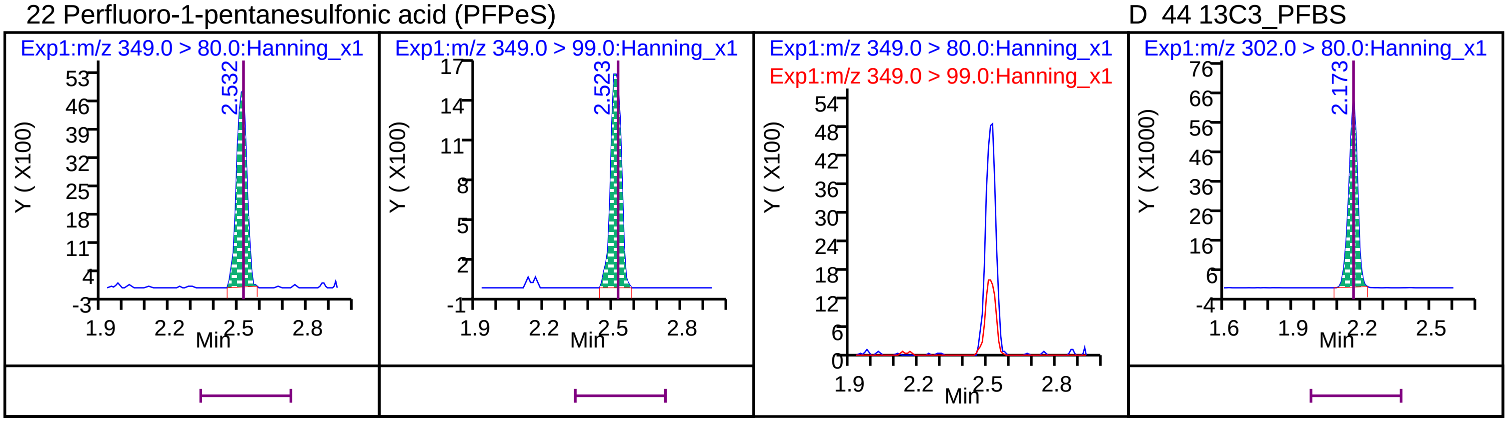
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



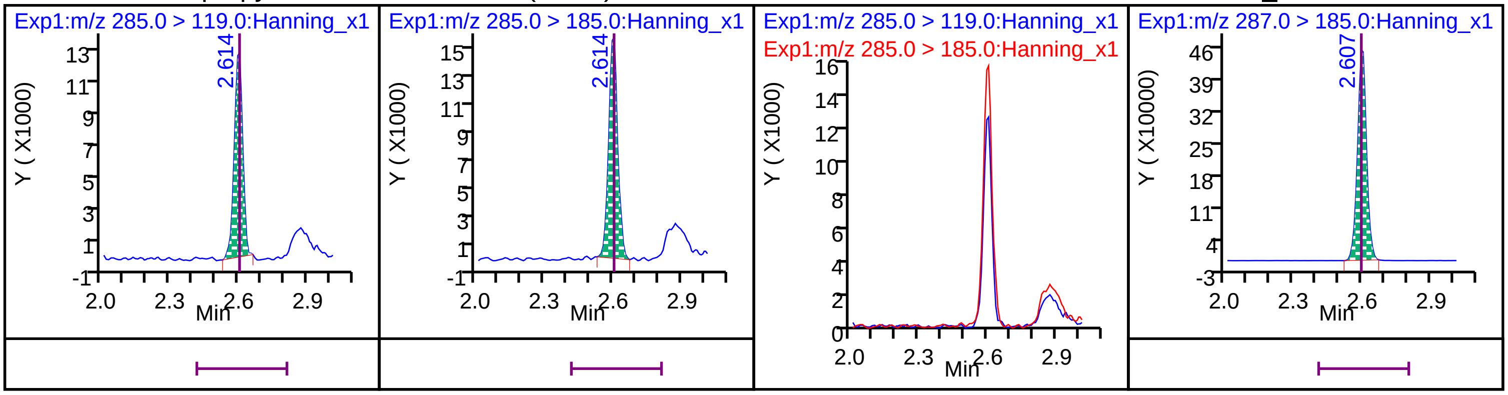
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



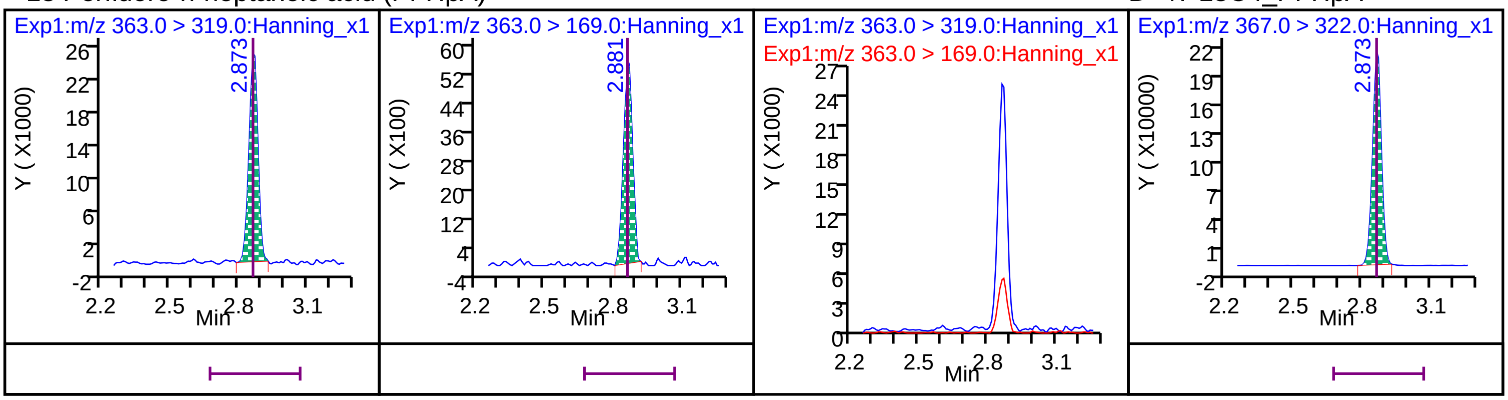
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



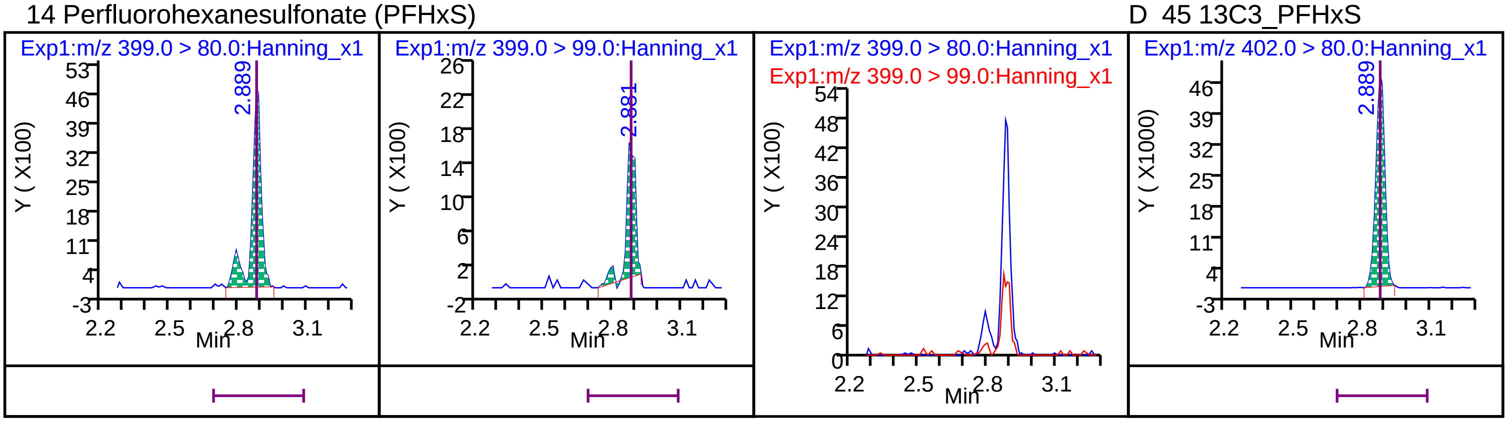
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



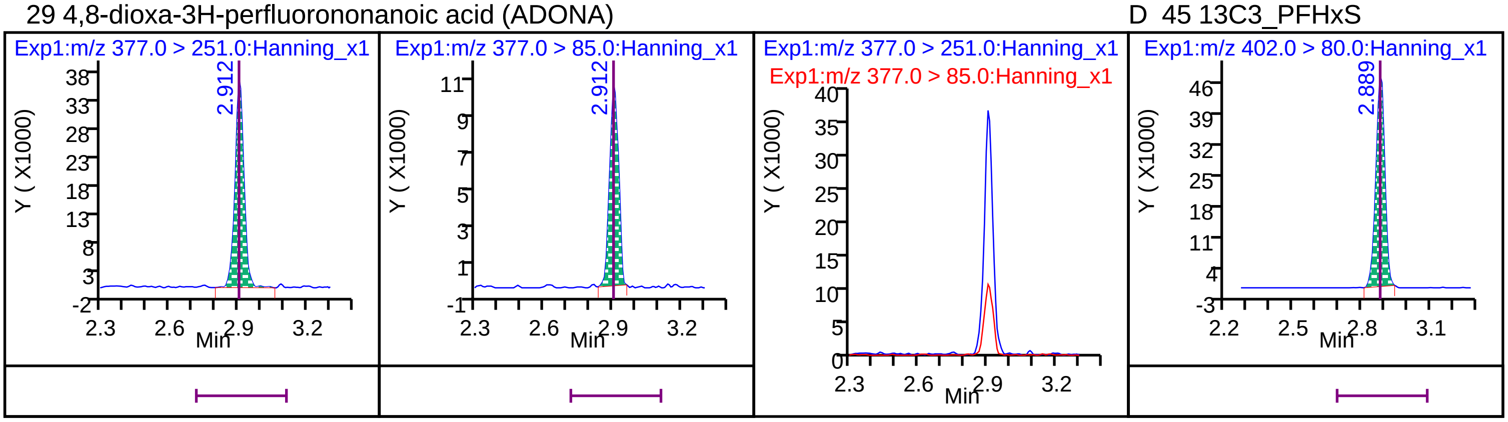
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

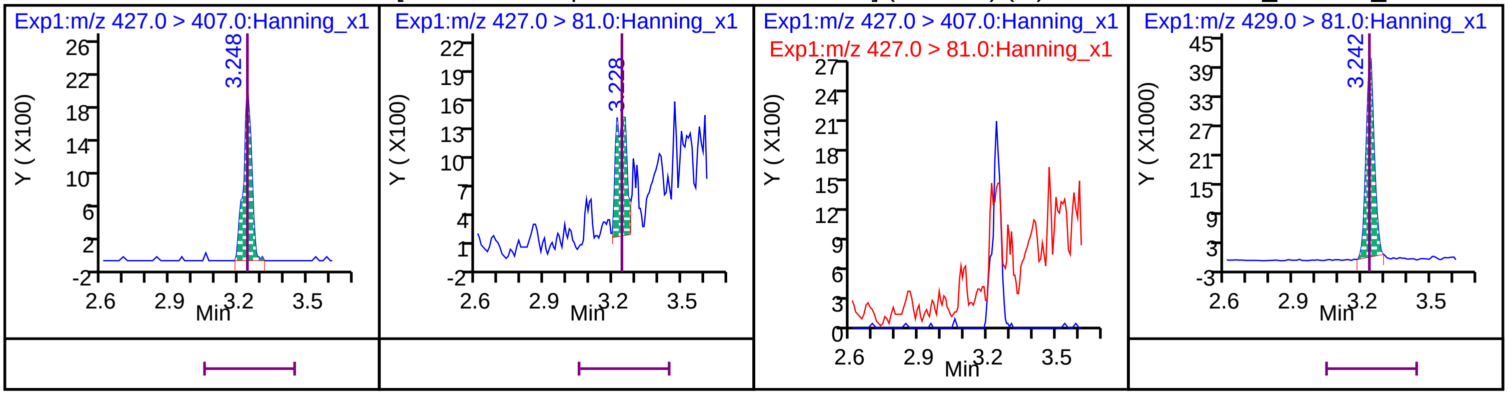


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

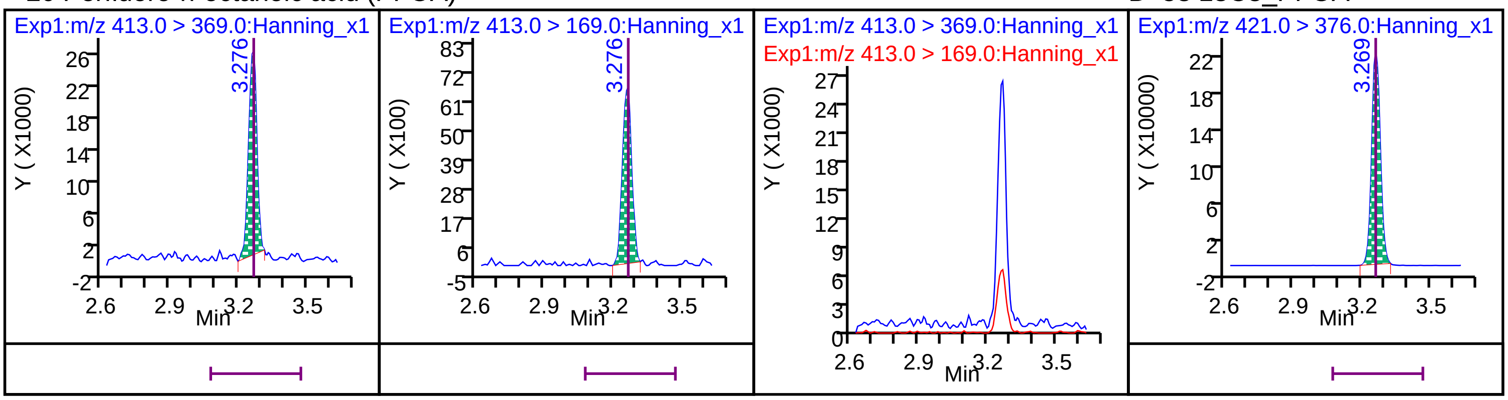


Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

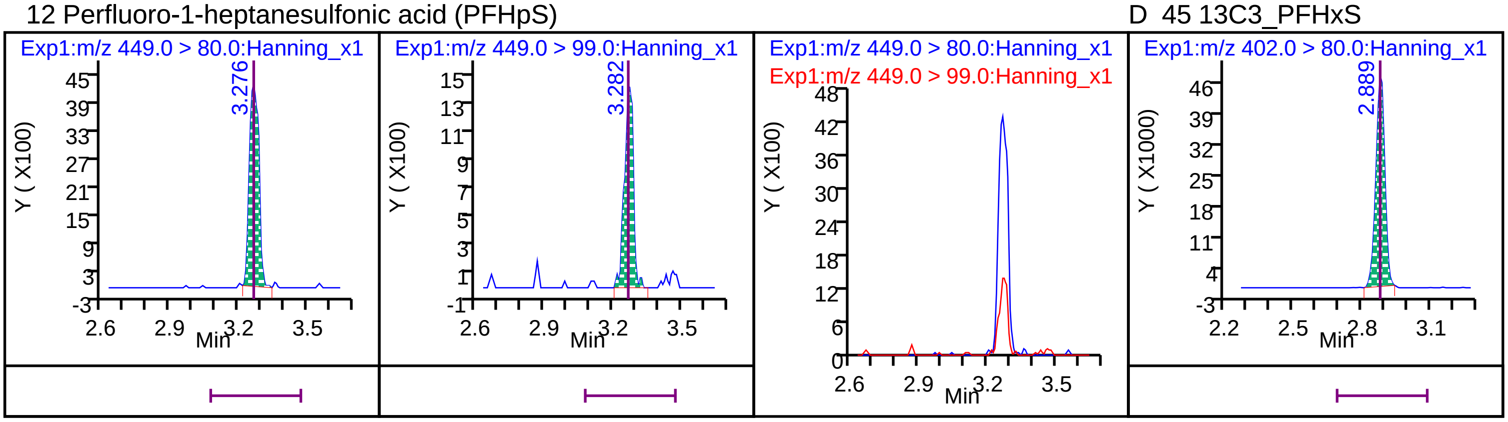
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (M) D 64 13C2_6:2 FTS_2



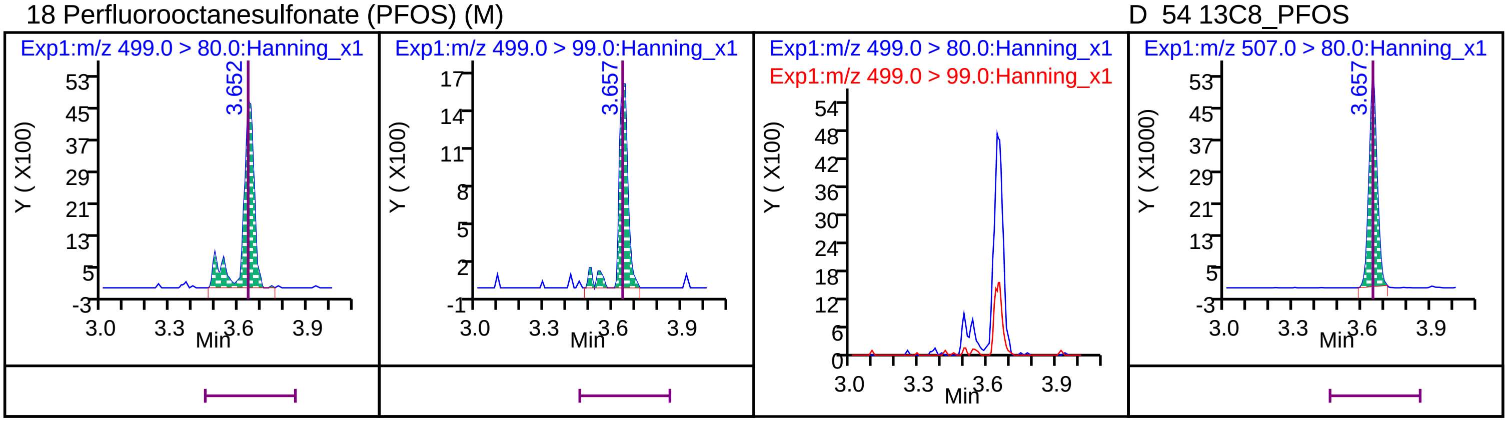
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



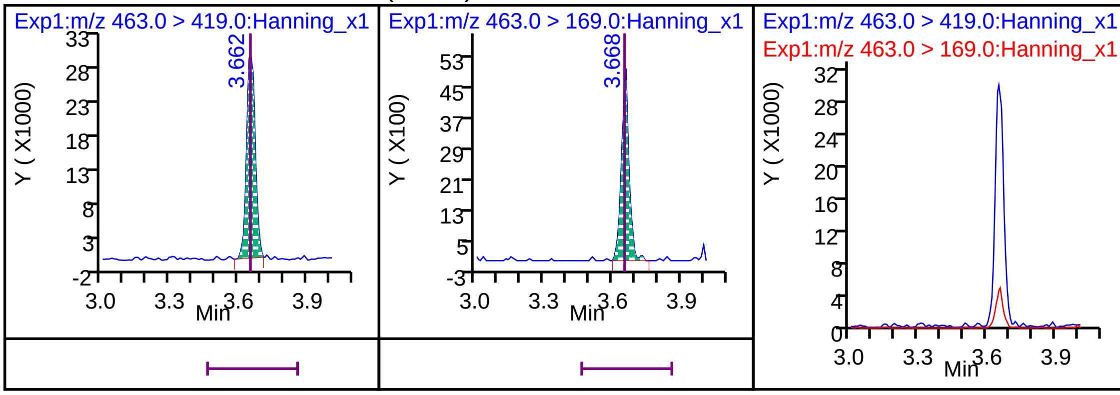
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



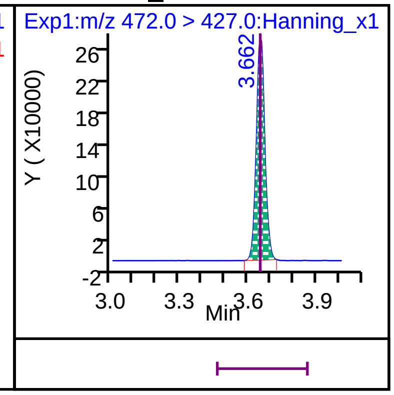
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



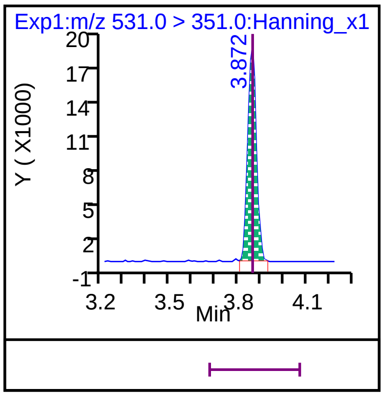
17 Perfluoro-n-nonanoic acid (PFNA)



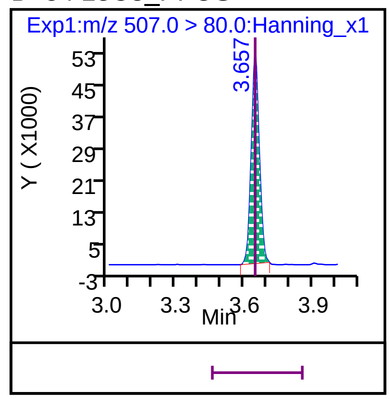
D 56 13C9_PFNA



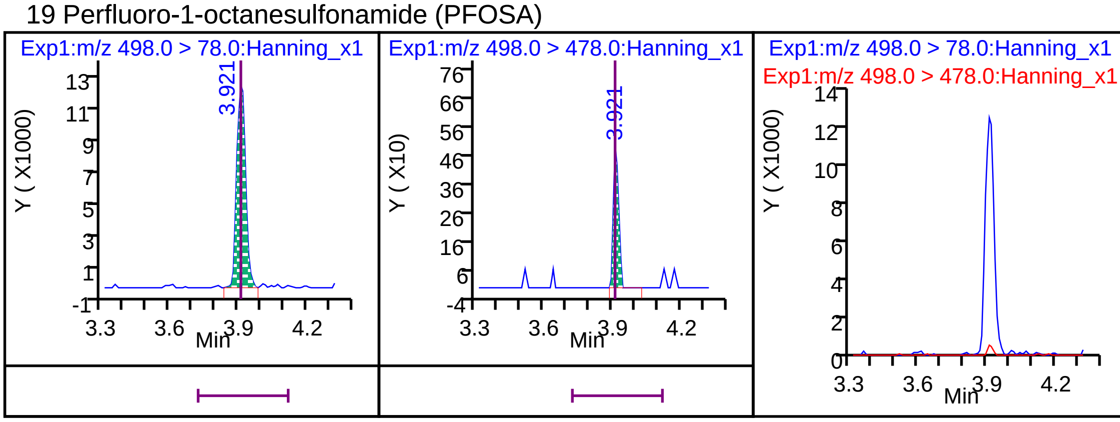
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



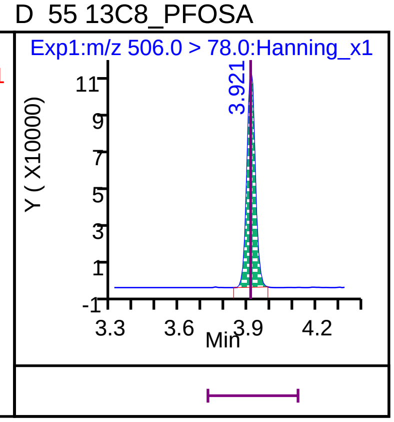
D 54 13C8_PFOS



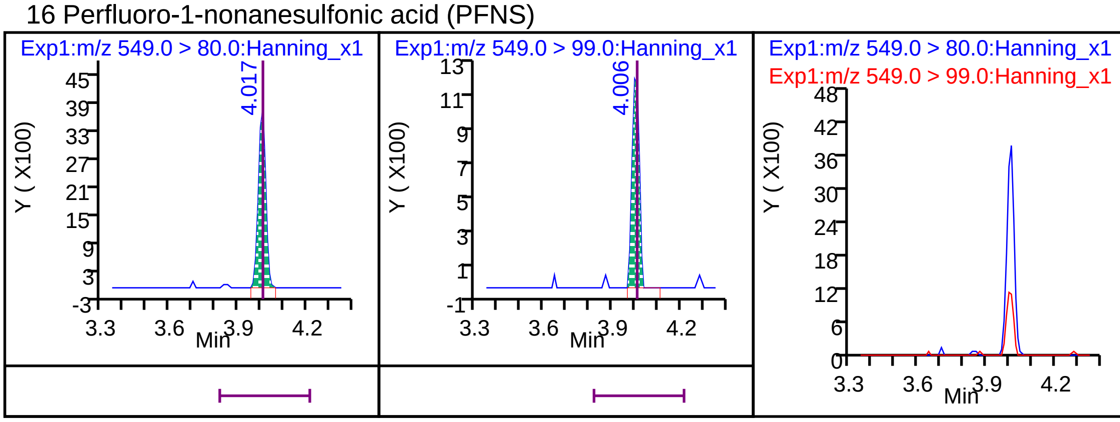
19 Perfluoro-1-octanesulfonamide (PFOSA)



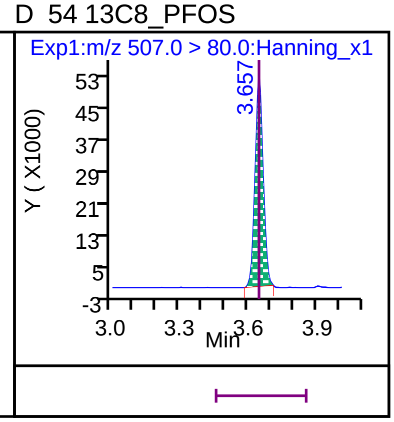
D 55 13C8_PFOSA



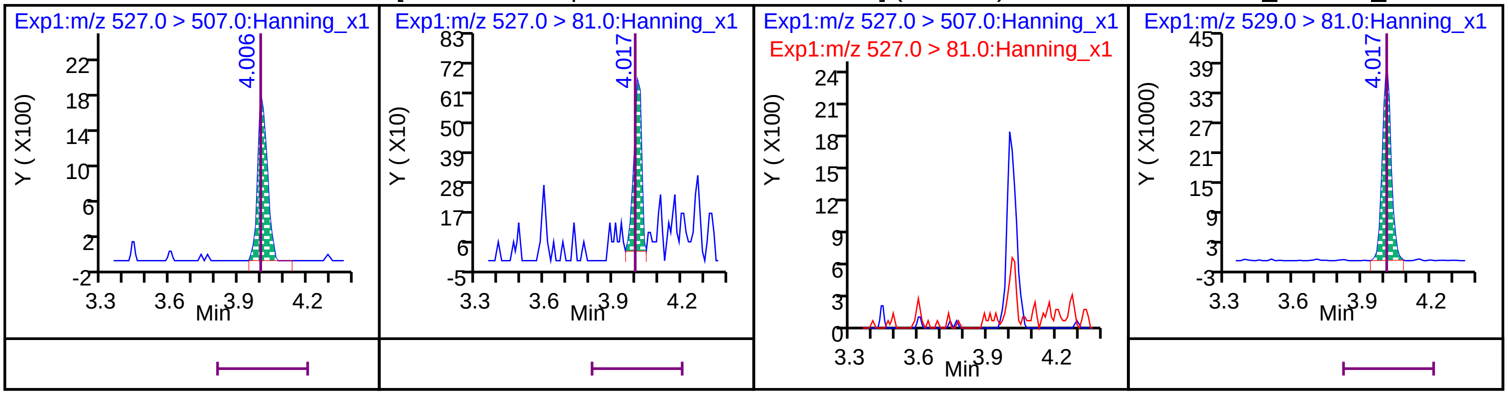
16 Perfluoro-1-nonanesulfonic acid (PFNS)



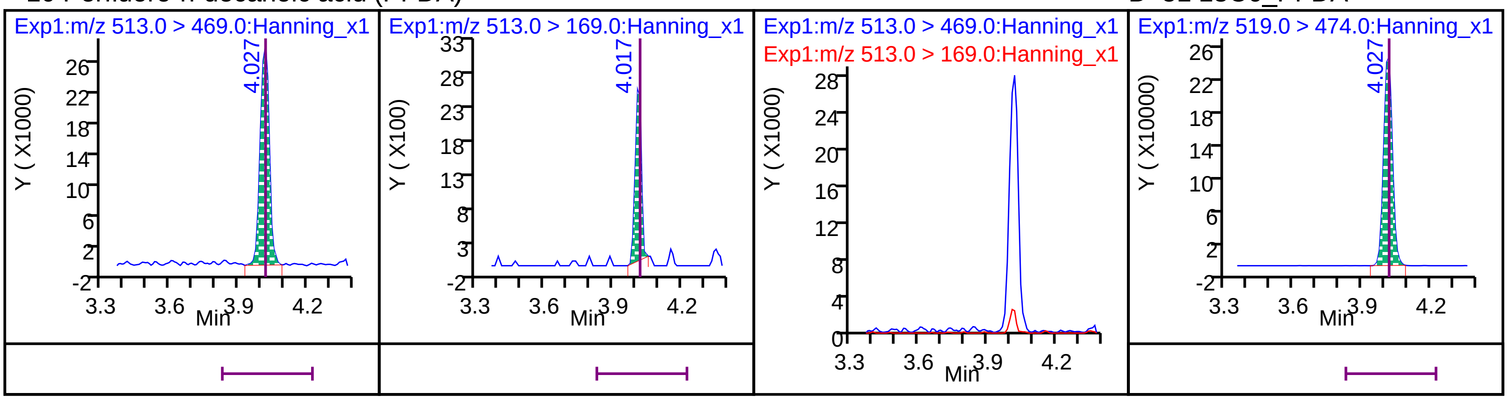
D 54 13C8_PFOS



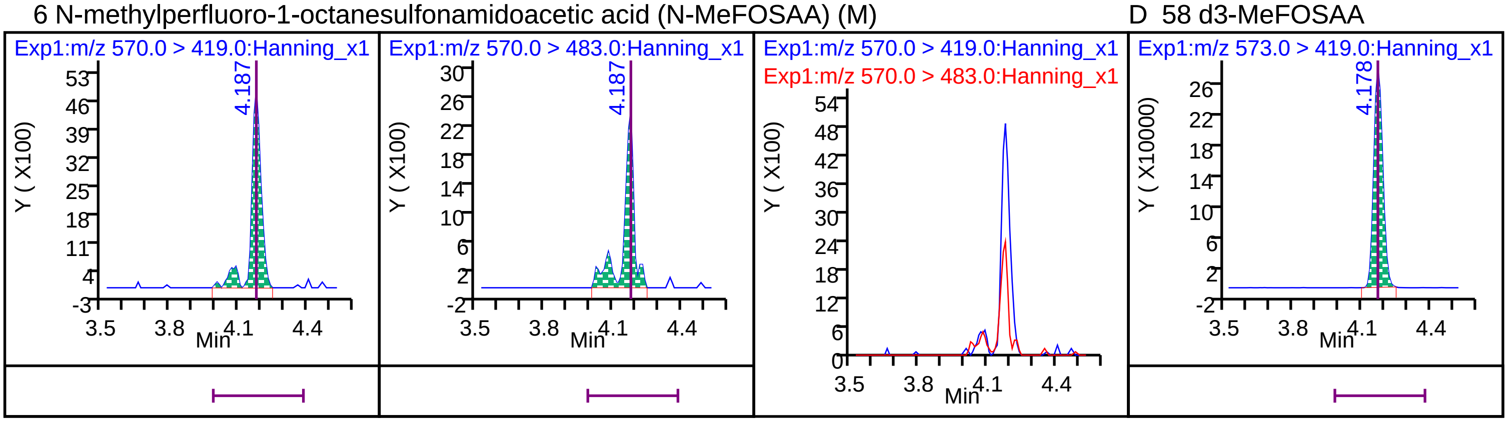
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)   D 65 13C2_8:2 FTS_2



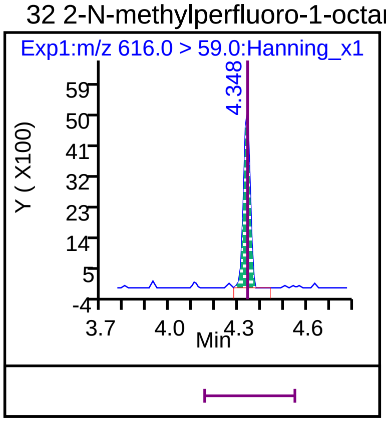
10 Perfluoro-n-decanoic acid (PFDA)   D 51 13C6_PFDA



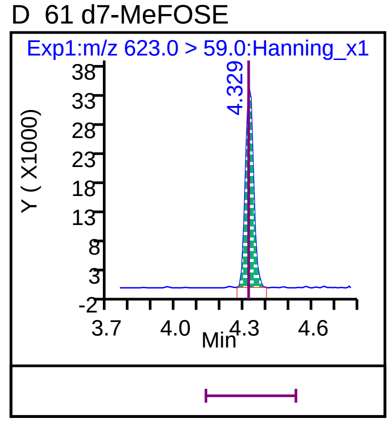
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)   D 58 d3-MeFOSAA



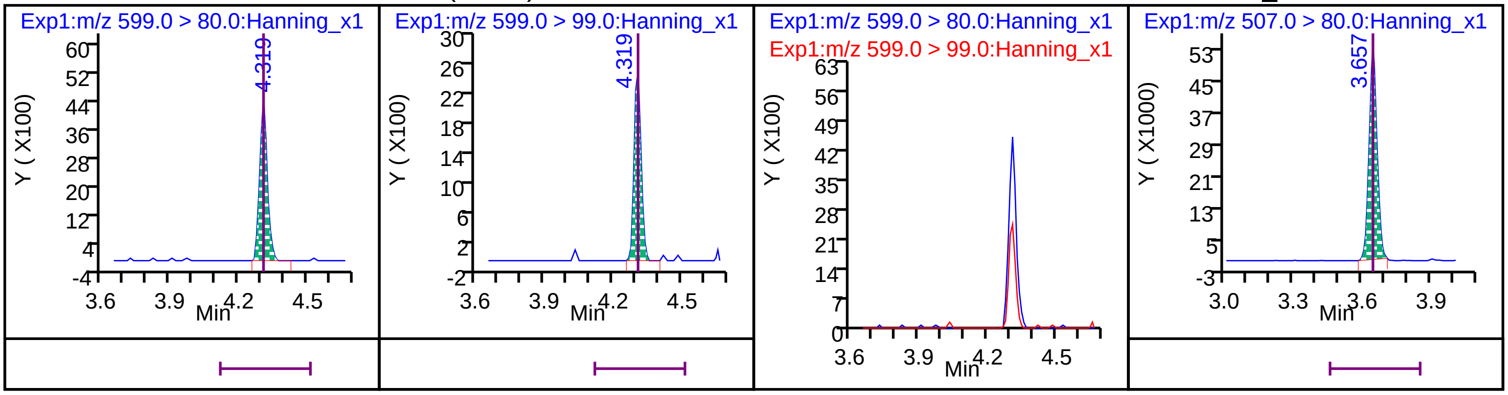
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



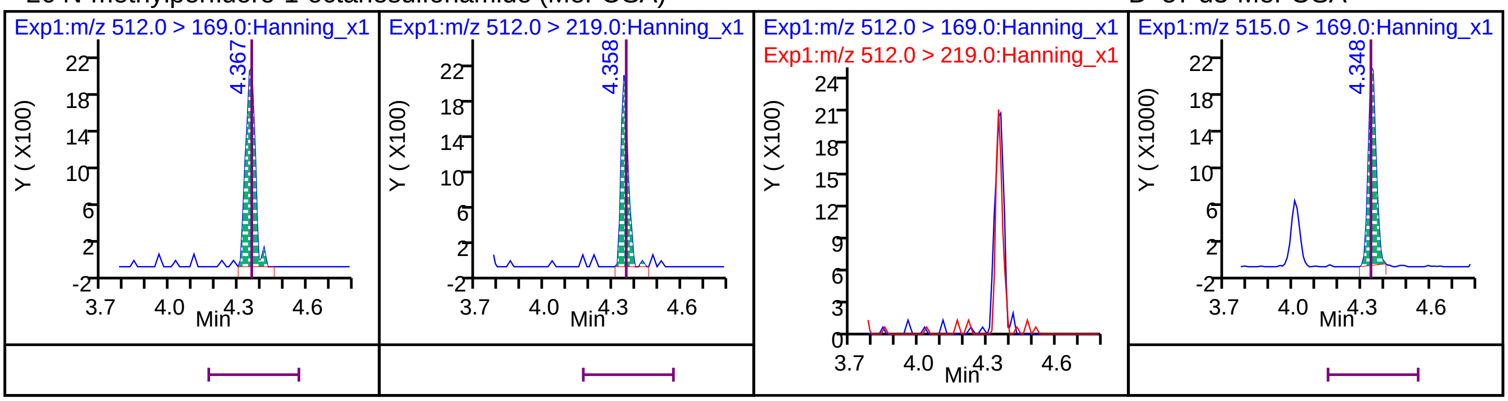
D 61 d7-MeFOSE



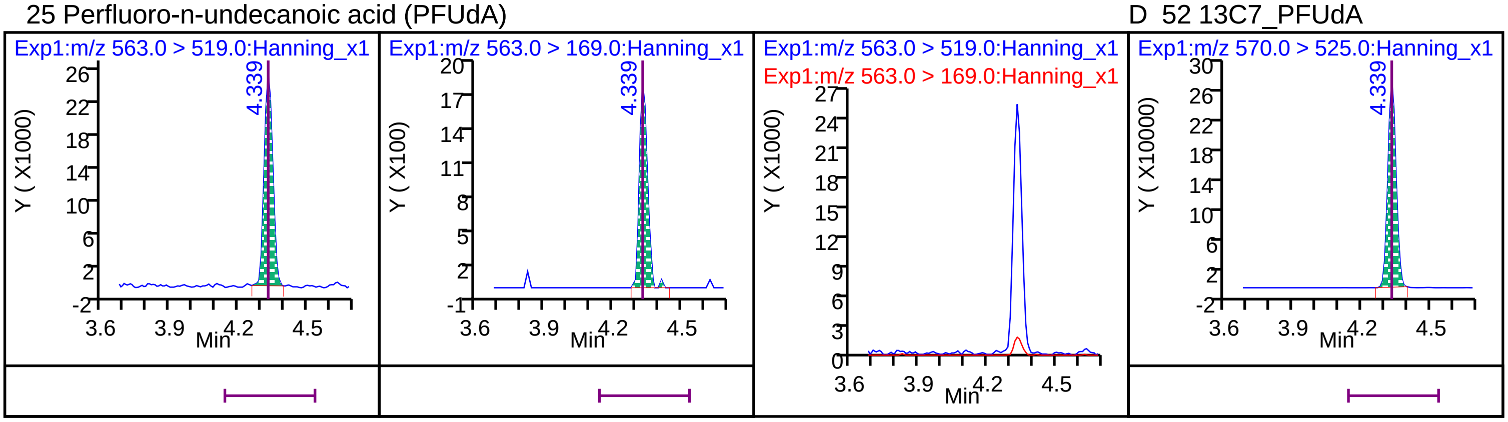
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



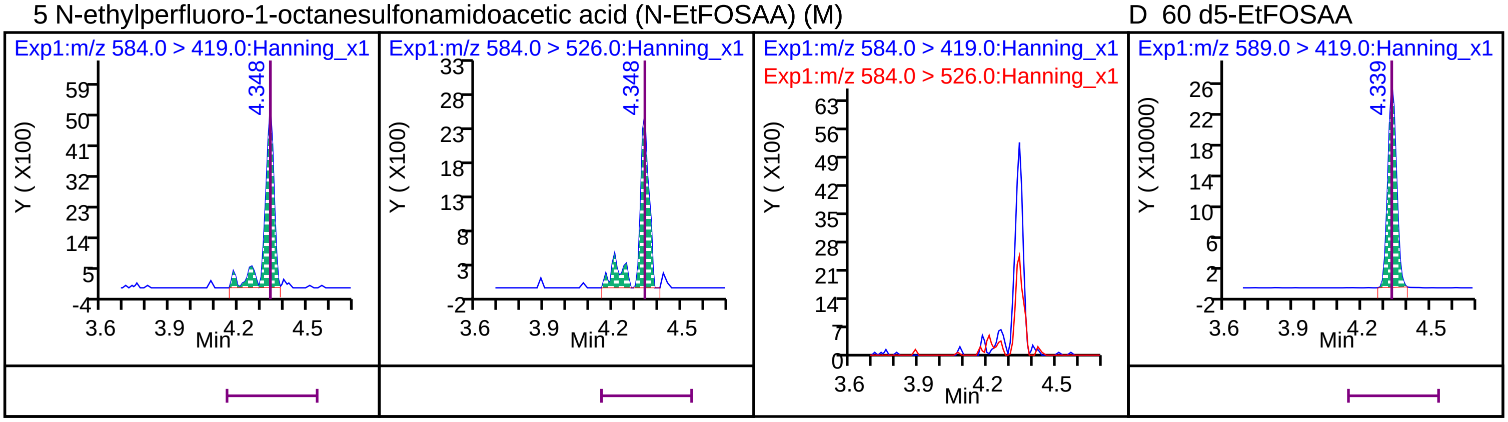
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



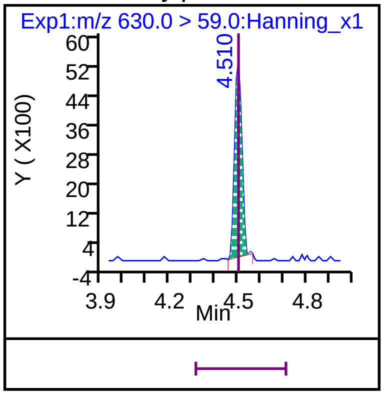
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



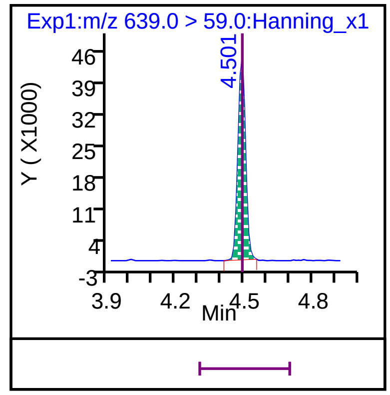
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



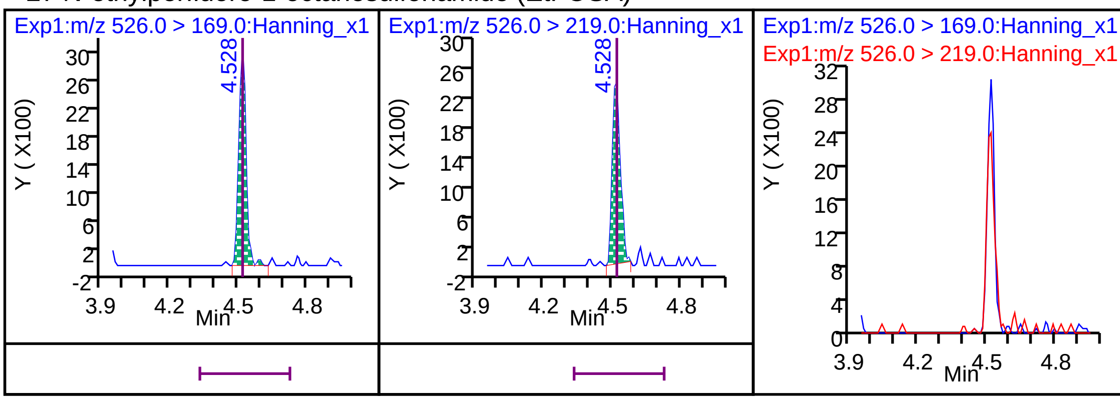
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



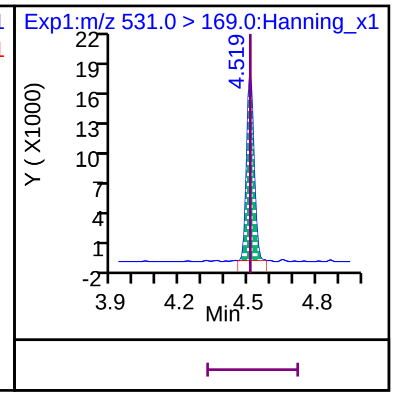
D 62 d9-EtFOSE



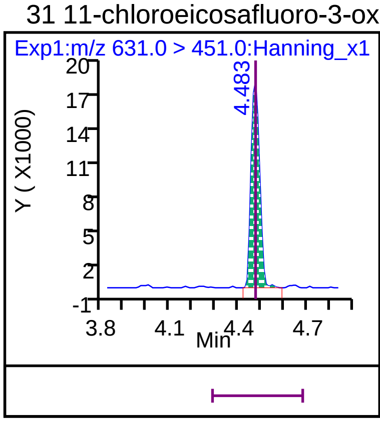
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



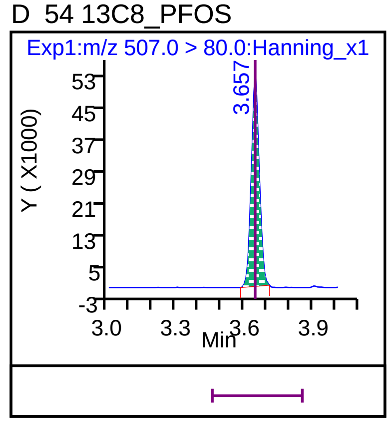
D 59 d5-EtFOSA



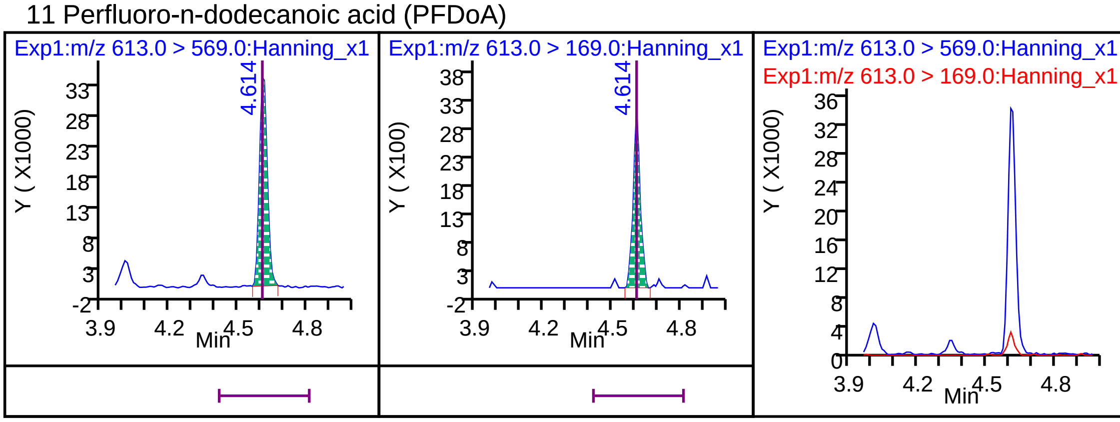
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



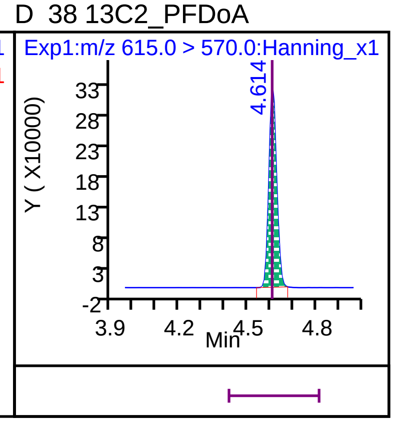
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)

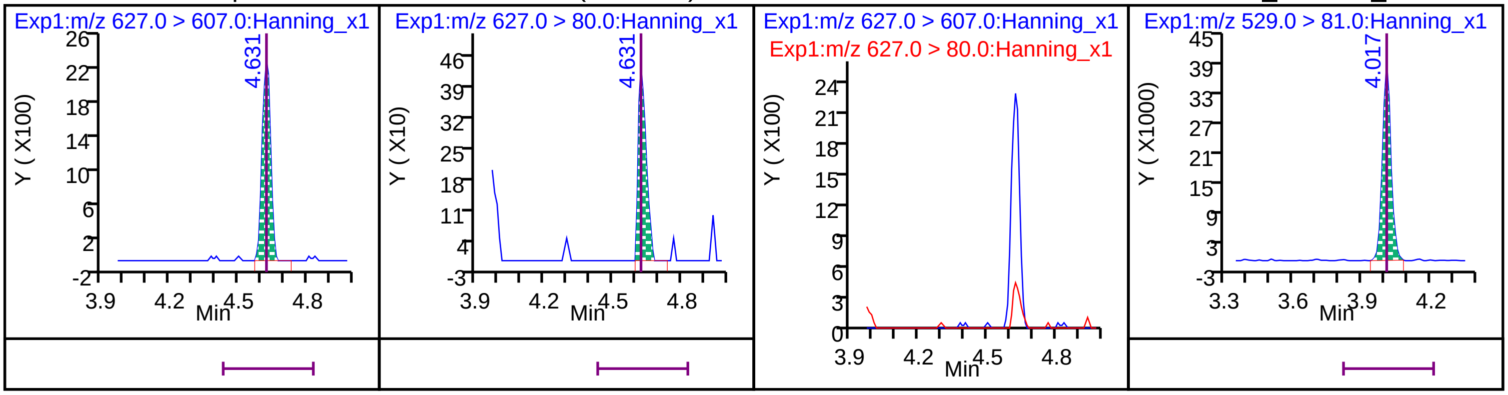


D 38 13C2_PFDoA

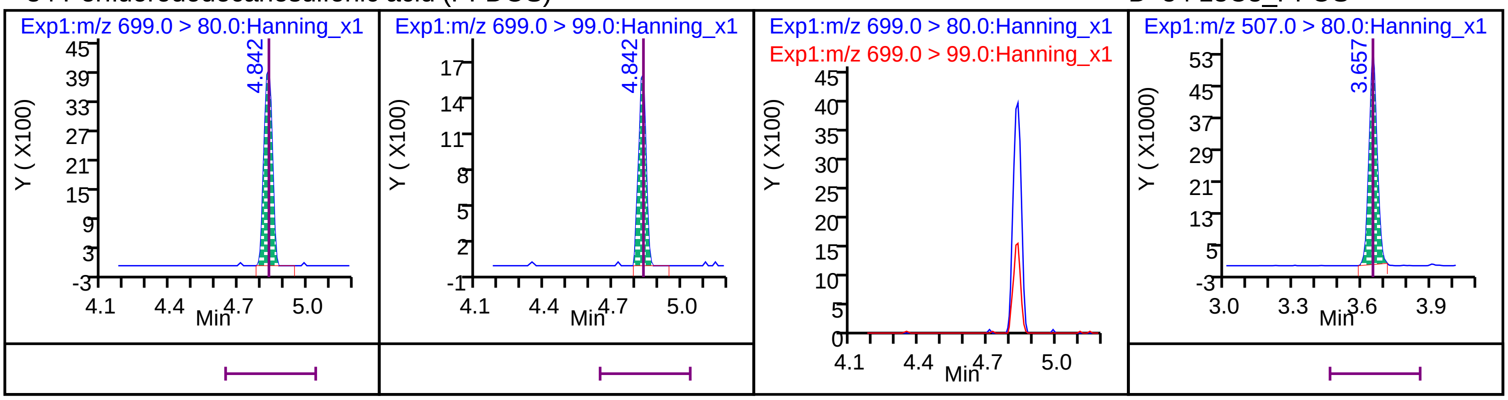


Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d

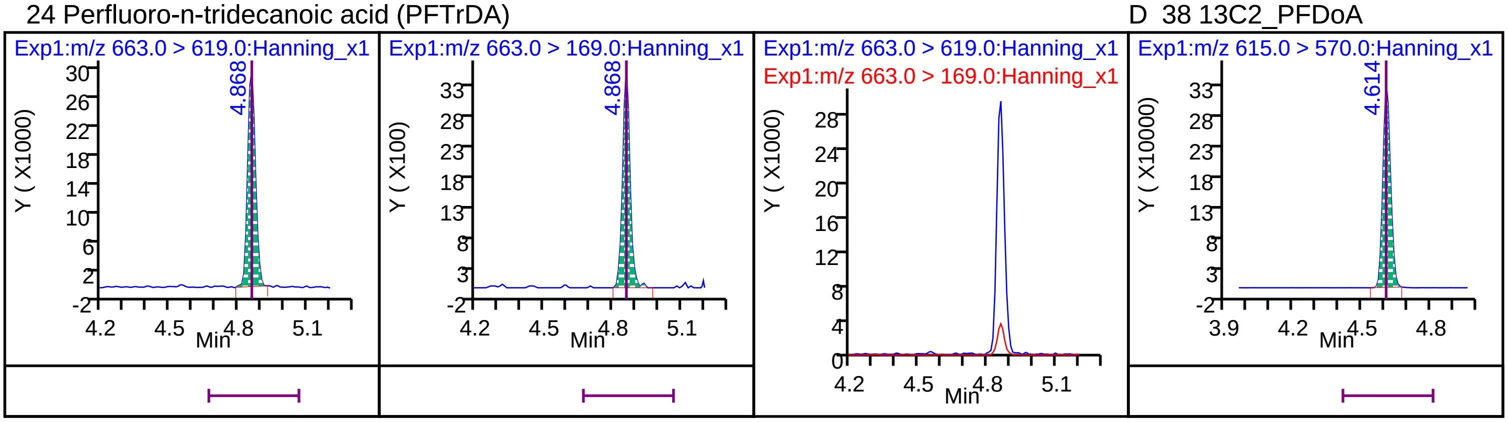
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



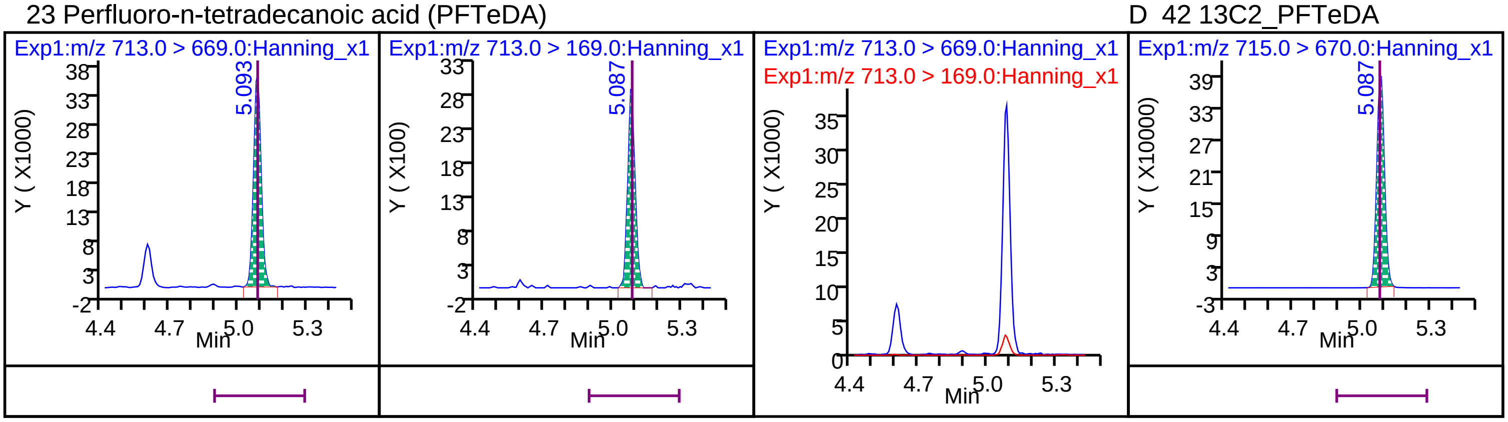
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



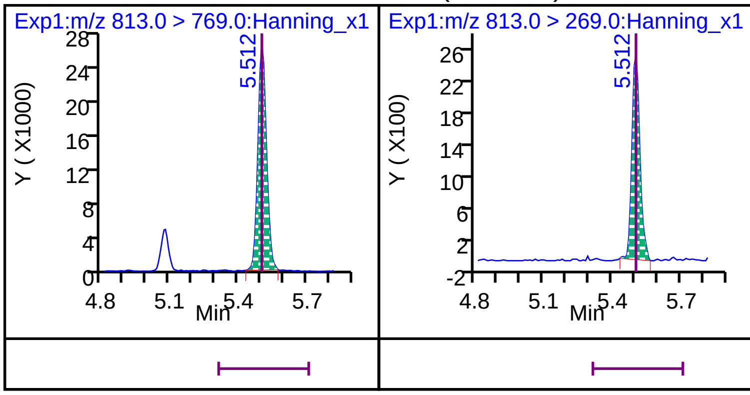
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



35 Perfluoro-n-hexadecanoic acid (PFHxDA)



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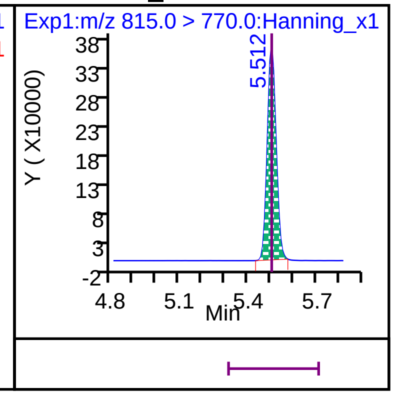
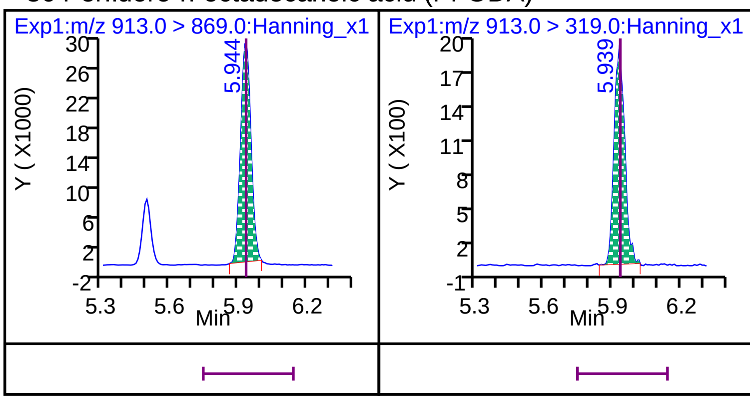
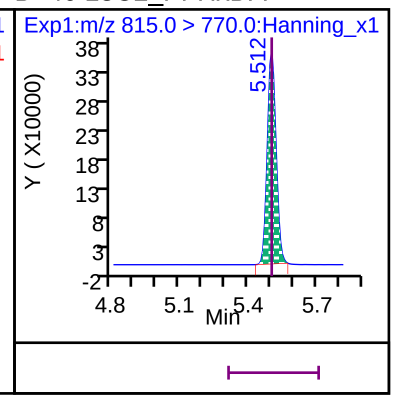


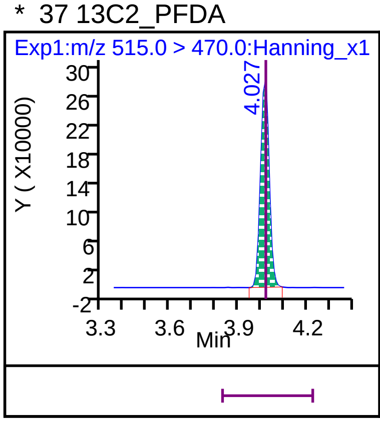
36 Perfluoro-n-octadecanoic acid (PFODA)



D 40 13C2_PFHxDA



* 37 13C2_PFDA



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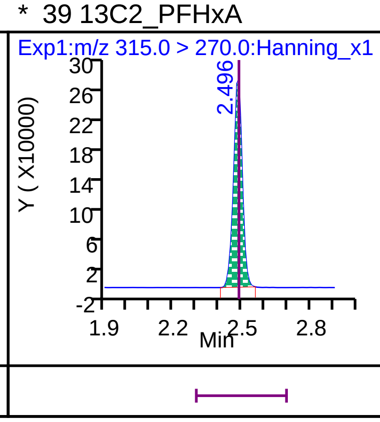
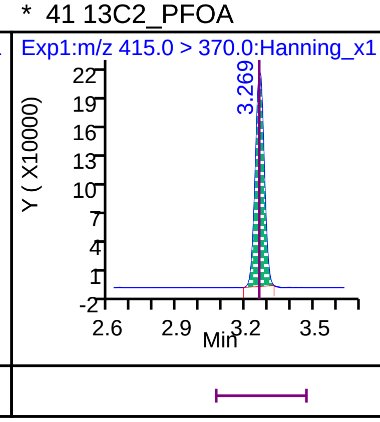


* 41 13C2_PFOA



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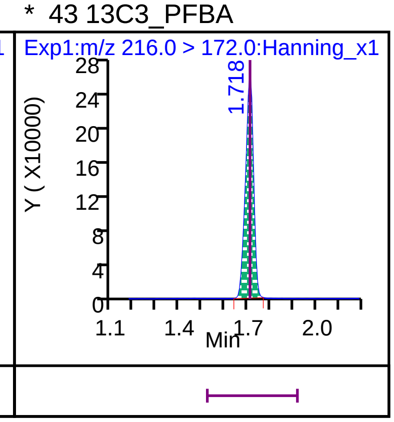

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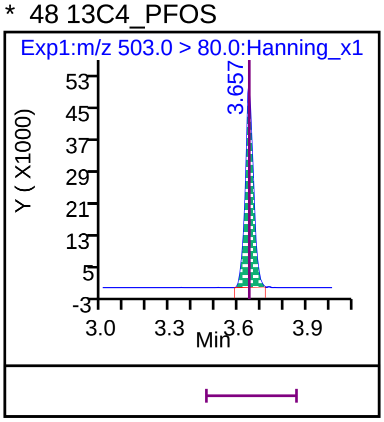

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

2 6:2 FTS, CAS: 27619-97-2

Processing Integration Results

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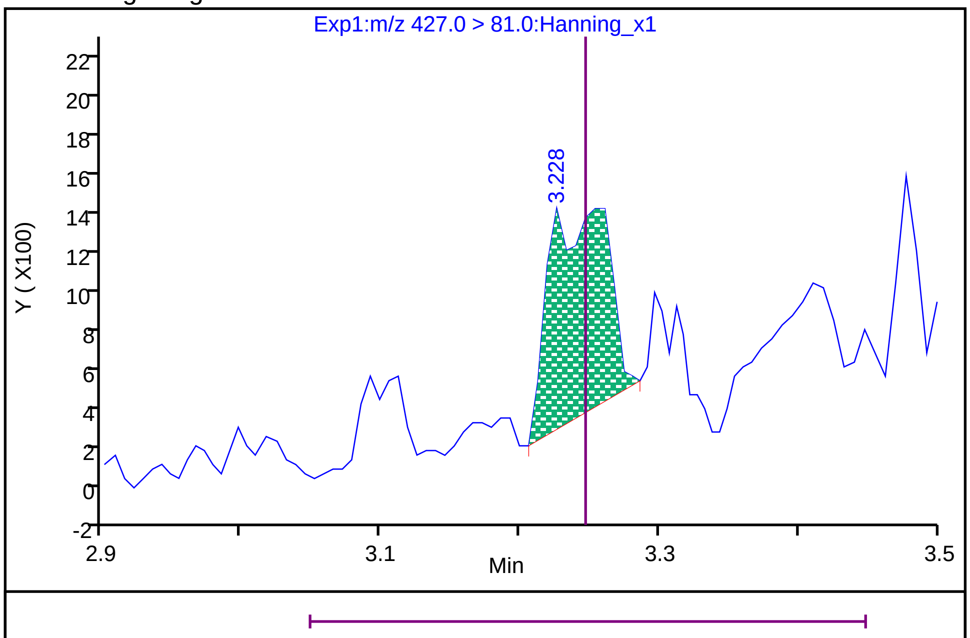
Amount Units:	ng/L



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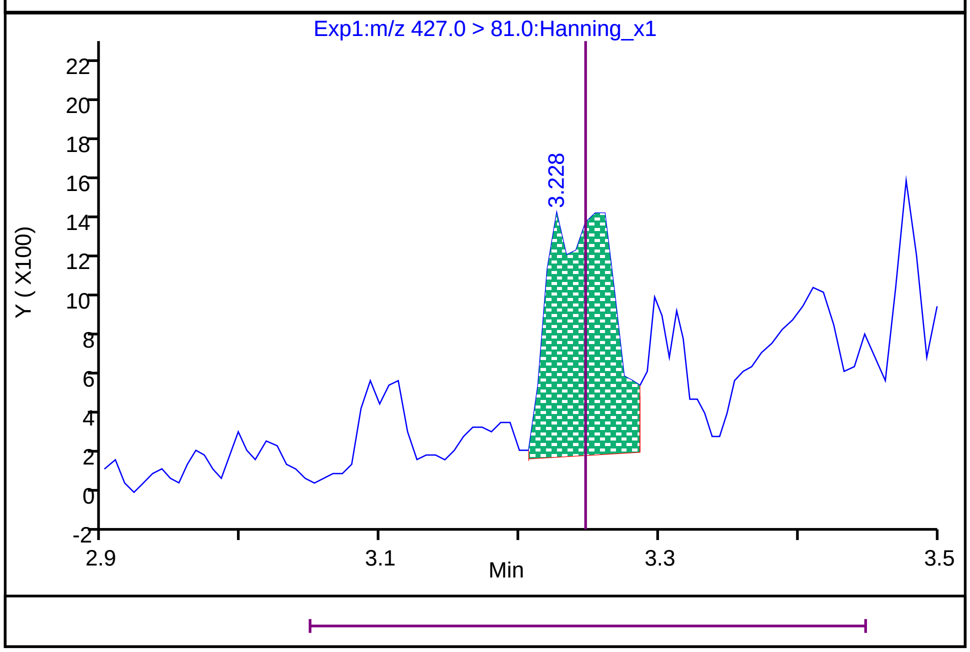

Data Editor: justin.gavin, 10-Nov-2021 14:32:34

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

18 PFOS, CAS: 1763-23-1

Processing Integration Results

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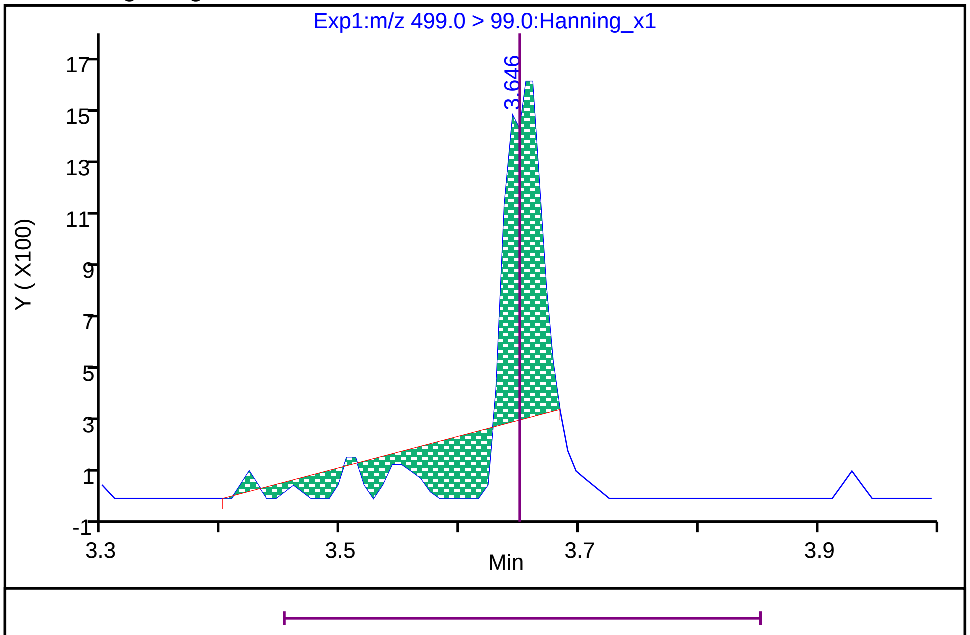

RT:	3.657
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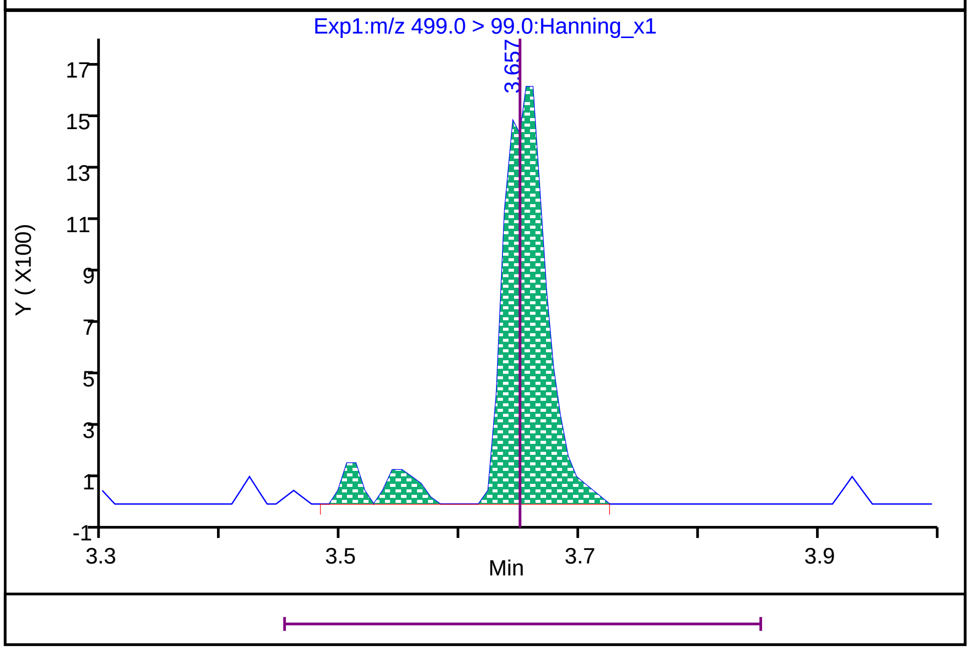
Amount:	105.41
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:32:47

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

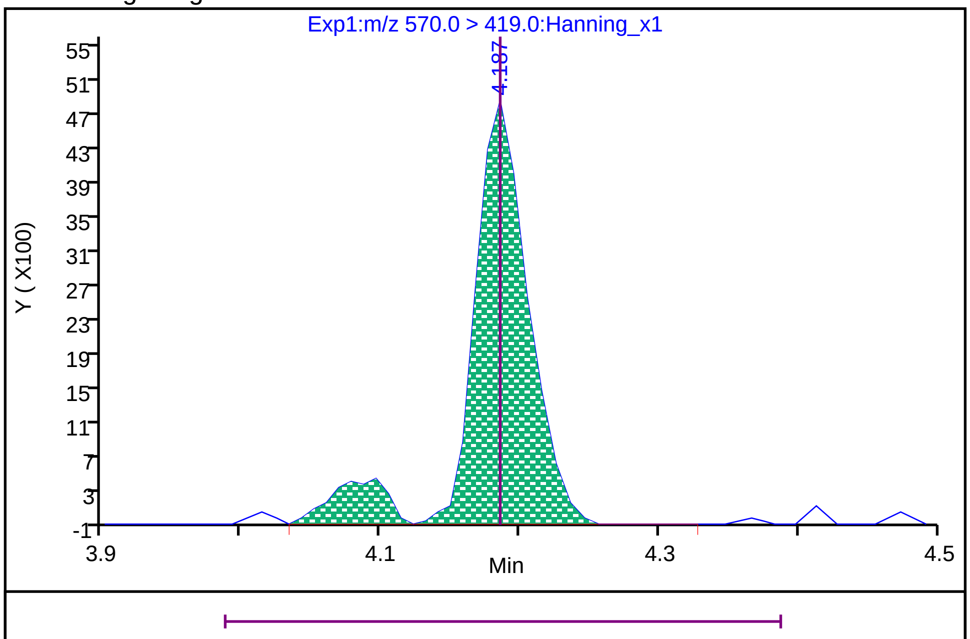
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

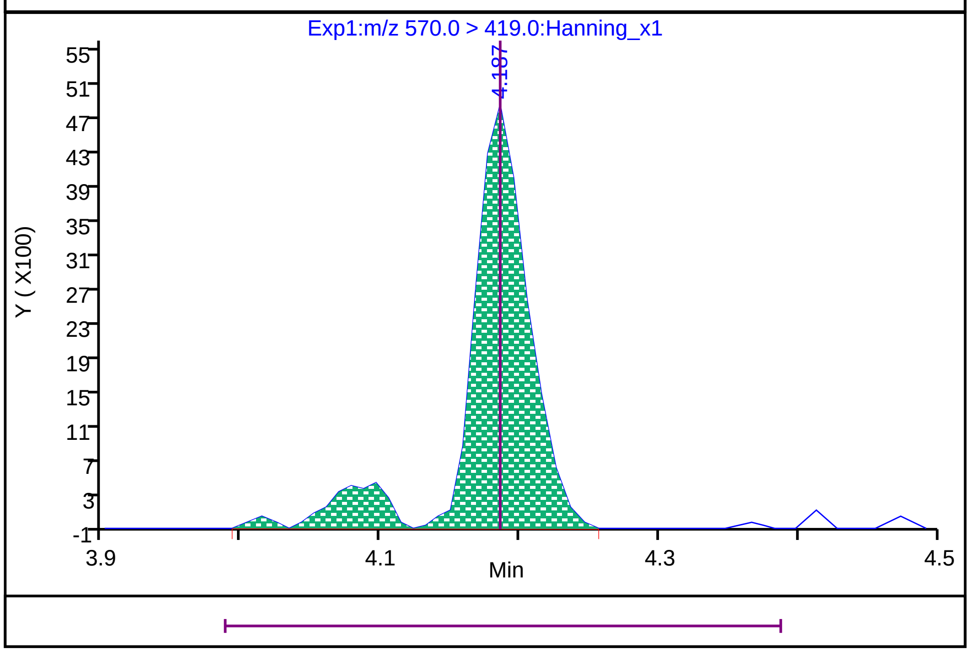
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.187
Area:	14100
Amount:	119.66
Amount Units:	ng/L



RT:	4.187
Area:	14385
Amount:	122.07
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:32:55

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

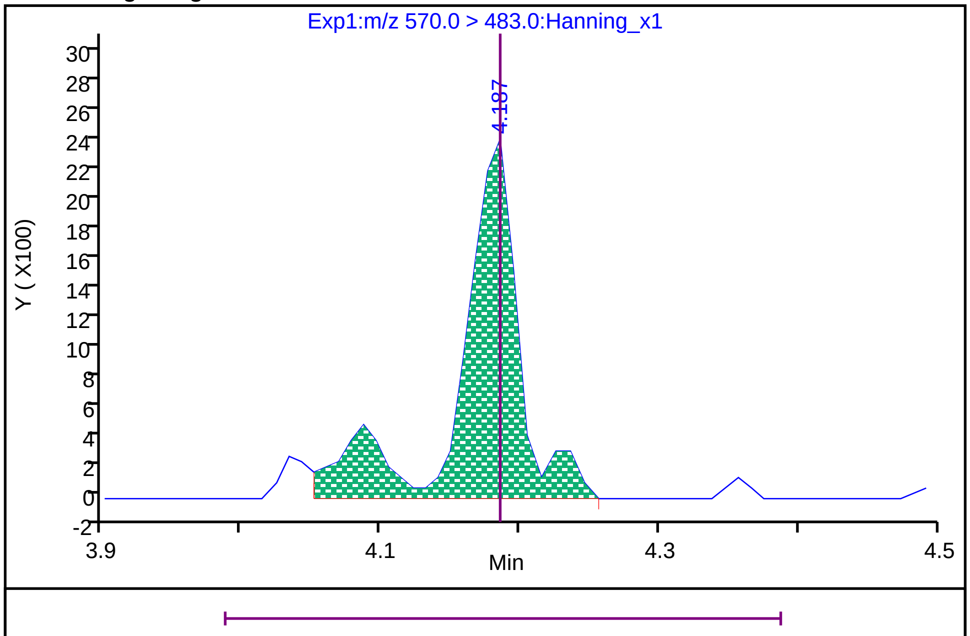
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

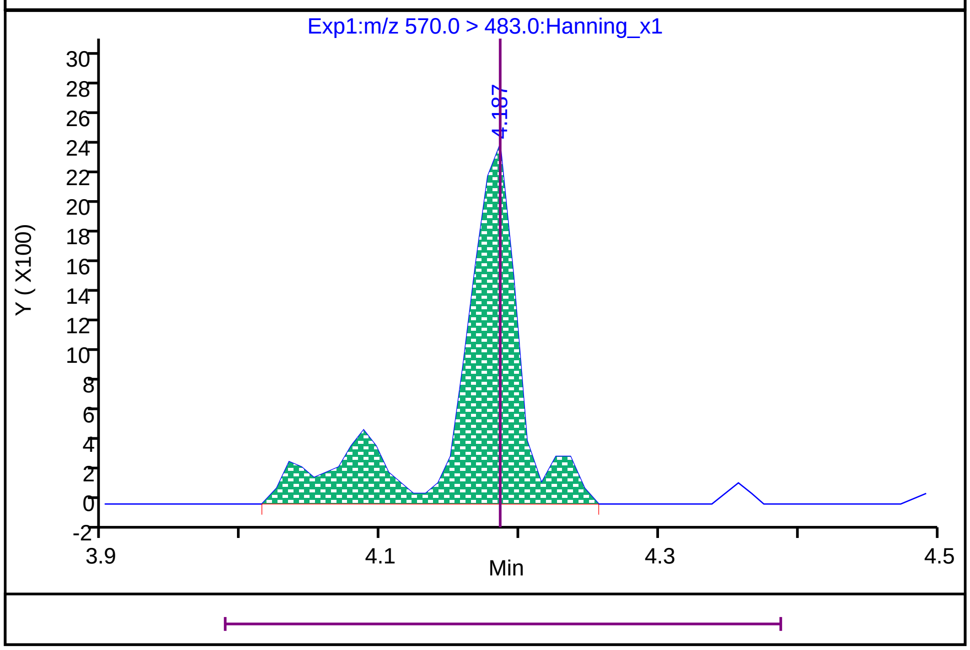
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.187
Area: 6922
Amount: 122.07
Amount Units: ng/L



RT: 4.187
Area: 7318
Amount: 122.07
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:00
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

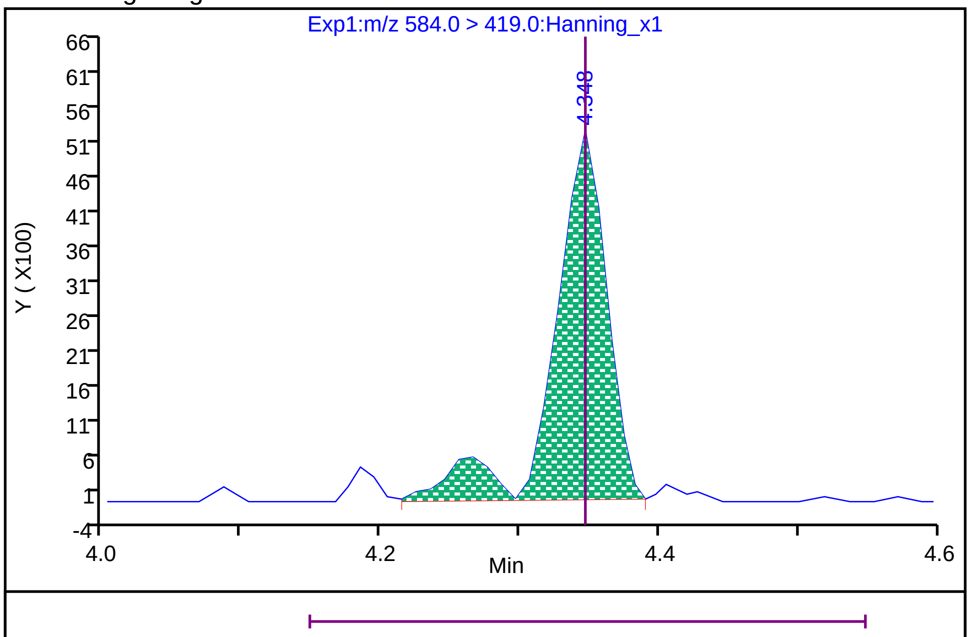
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021005.d		
Injection Date:	10-Nov-2021 13:49:27	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 100_SVLC-1741
Sample Info:	ID CCV 100_SVLC-1741		
Dil. Factor:	1	Operator:	Justin Gavin

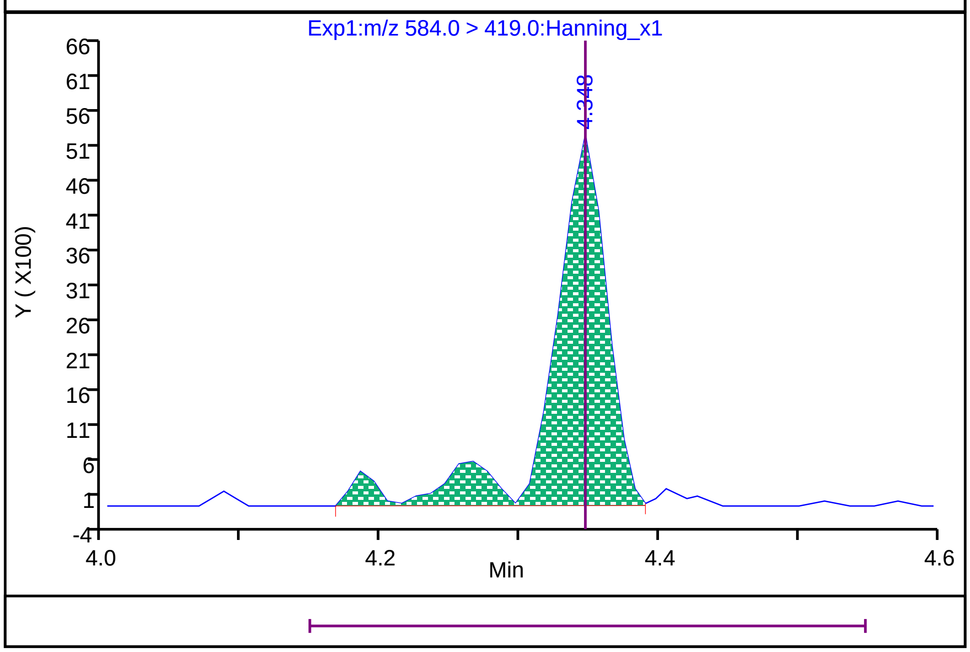
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.348
Area:	13759
Amount:	107.80
Amount Units:	ng/L



RT:	4.348
Area:	14531
Amount:	113.85
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:10

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d
Injection Date: 10-Nov-2021 13:59:56 Injection Vol: 10.0 uL
Sample Type: CCV Auto Sampler: 96
Sample Info: ID CCV 200_SVLC-1742 Misc. Info:
Inst. ID: LCMSMS02.i Operator: Justin Gavin

Method: LCMSMS02_PFAS-ID Version: V17 16-Sep-2021 08:57:04
Calib Method: PFAS-ID Lock State: Unlocked
Quant Method: IsoDil Integrator: picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			200.00	197.74	98.9	70 - 130
D 46 13C4_PFBA	659044	646905			98.2	50 - 150
21 PFPeA			200.00	200.50	100.3	70 - 130
D 50 13C5_PFPeA	581857	586269			100.8	50 - 150
D 44 13C3_PFBS	164288	176549			107.5	50 - 150
7 PFBS			176.80	175.08	99	70 - 130
1 4:2 FTS			186.80	195.11	104.4	70 - 130
D 63 13C2_4:2 FTS_2	113327	112405			99.2	50 - 150
D 49 13C5_PFHxA	667779	692627			103.7	50 - 150
15 PFHxA			200.00	207.18	103.6	70 - 130
22 PFPeS			187.60	171.48	91.4	70 - 130
28 GenX			400.00	423.23	105.8	70 - 130
D 66 13C3_GenX	1212655	1205806			99.4	50 - 150
D 47 13C4_PFHpA	545849	542530			99.4	50 - 150
13 PFHpA			200.00	211.69	105.8	70 - 130
D 45 13C3_PFHxS	123814	126528			102.2	50 - 150
14 PFHxS			182.00	187.64	103.1	70 - 130
29 ADONA			188.40	202.46	107.5	70 - 130
D 64 13C2_6:2 FTS_2	97903	96806			98.9	50 - 150
2 6:2 FTS			189.60	220.56	116.3	70 - 130
20 PFOA			200.00	197.42	98.7	70 - 130
D 53 13C8_PFOA	574828	569327			99	50 - 150
12 PFHpS			190.40	195.91	102.9	70 - 130
D 54 13C8_PFOS	125685	118313			94.1	50 - 150
18 PFOS			185.60	200.89	108.2	70 - 130
17 PFNA			200.00	214.72	107.4	70 - 130
D 56 13C9_PFNA	690339	657736			95.3	50 - 150
30 9Cl-PF3ONS			186.40	209.43	112.4	70 - 130
D 55 13C8_PFOSA	270667	255377			94.4	50 - 150
19 PFOSA			200.00	209.68	104.8	70 - 130
16 PFNS			192.00	199.18	103.7	70 - 130
10 PFDA			200.00	203.32	101.7	70 - 130
3 8:2 FTS			191.60	185.28	96.7	70 - 130
D 51 13C6_PFDA	638513	624093			97.7	50 - 150
D 65 13C2_8:2 FTS_2	97932	98636			100.7	50 - 150
6 N-MeFOSAA			200.00	205.13	102.6	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	734264	701199			95.5	50 - 150
D 61 d7-MeFOSE	82771	93450			112.9	50 - 150
32 MeFOSE			200.00	198.99	99.5	70 - 130
26 MeFOSA			200.00	185.37	92.7	70 - 130
D 57 d3-MeFOSA	48290	48686			100.8	50 - 150
9 PFDS			192.80	190.14	98.6	70 - 130
D 52 13C7_PFUdA	658476	639746			97.2	50 - 150
D 60 d5-EtFOSAA	654482	657946			100.5	50 - 150
25 PFUdA			200.00	213.06	106.5	70 - 130
5 N-EtFOSAA			200.00	194.99	97.5	70 - 130
D 62 d9-EtFOSE	100538	107860			107.3	50 - 150
33 EtFOSE			200.00	210.86	105.4	70 - 130
D 59 d5-EtFOSA	38708	44616			115.3	50 - 150
31 11Cl-PF3OUDS			188.40	236.22	125.4	70 - 130
27 EtFOSA			200.00	215.49	107.7	70 - 130
D 38 13C2_PFDoA	739968	668534			90.3	50 - 150
11 PFDoA			200.00	210.87	105.4	70 - 130
4 10:2 FTS			192.80	200.60	104	70 - 130
34 PFDOS			193.60	213.14	110.1	70 - 130
24 PFTrDA			200.00	197.66	98.8	70 - 130
D 42 13C2_PFTeDA	881166	866291			98.3	50 - 150
23 PFTeDA			200.00	204.48	102.2	70 - 130
D 40 13C2_PFHxDA	942416	946765			100.5	50 - 150
35 PFHxDA			200.00	201.04	100.5	70 - 130
36 PFODA			200.00	203.61	101.8	70 - 130

Report Date: 11-Nov-2021 20:41:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	96
Sample Info:	ID CCV 200_SVLC-1742	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-3 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.718	0	646905	21	>100:1			1000.00	1040.58	98.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.722	1.718	1/1	134907	20	>100:1			200.00	197.74		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.115	2.109	1	586269	17	>100:1			1000.00	1025.68	100.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.115	2.120	0/-1	132300	15	>100:1			200.00	200.50		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.178	2.173	1	176549	17	>100:1			1000.00	1020.69	107.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.167	2.173	0/-1	38547	15	>100:1	Target = 3.53		176.80	175.08		
298.9 > 99	44	2.178	2.173		10842	15	76:1	3.55 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.530	2.532	0/-1	28058	18	>100:1	Target = 3.10		187.60	171.48		
349 > 99	44	2.521	2.532		9823	17	>100:1	2.85 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.450	2.451	0	112405	18	>100:1			5000.00	4964.07	99.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.459	2.451	1/1	9669	23	>100:1	Target = 1.75		186.80	195.11		
327 > 81	63	2.450	2.451		7393	22	12:1	1.30 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.495	2.496	0	692627	18	>100:1			1000.00	1063.47	103.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.495	2.496	0/0	149207	17	>100:1	Target = 18.91		200.00	207.18		
313 > 119	49	2.495	2.496		8354	22	44:1	17.86 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.613	2.607	1	1205806	19	>100:1			5000.00	5202.90	99.4	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.605	2.614	0/-1	66101	19	>100:1	Target = 0.79		400.00	423.23		
285 > 185	66	2.613	2.614		77341	20	>100:1	0.85 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.873	1	542530	18	>100:1			1000.00	1021.83	99.4	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.879	2.873	1/0	126197	19	>100:1	Target = 3.80		200.00	211.69		
363 > 169	47	2.872	2.873		35223	20	>100:1	3.58 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.889	0	126528	19	>100:1			1000.00	1007.07	102.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.887	2.889	0/0	26101	24	>100:1	Target = 2.89	4.15	182.00	187.64		
399 > 99	45	2.895	2.889		8334	26	27:1	3.13 (1.44-4.34)	4.14				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.917	2.912	1/1	198666	22	>100:1	Target = 3.23		188.40	202.46		
377 > 85	45	2.917	2.912		55864	20	>100:1	3.55 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.279	3.276	1/1	25459	20	>100:1	Target = 3.12		190.40	195.91		
449 > 99	45	3.279	3.276		8384	32	87:1	3.03 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.245	3.242	1	96806	19	>100:1			5000.00	5378.12	98.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													a
427 > 407	64	3.238	3.248	0/-1	10109	27		Target = 1.75		189.60	220.56		
427 > 81	64	3.259	3.248		6118	20	9.1:1	1.65 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.273	3.269	1	569327	23	>100:1			1000.00	1085.10	99	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.273	3.276	0/-1	115178	22	91:1	Target = 2.89		200.00	197.42		
413 > 169	53	3.273	3.276		39720	23	>100:1	2.89 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.654	3.657	0	118313	20				1000.00	955.35	94.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.659	3.652	1/1	28300	39	>100:1	Target = 3.30	3.30	185.60	200.89		
499 > 99	54	3.665	3.652		7780	33	49:1	3.63 (1.65-4.95)	13.01				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.867	3.872	0/0	93838	17	>100:1			186.40	209.43		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	4.010	4.017	0/0	18906	16	>100:1	Target = 3.08		192.00	199.18		
549 > 99	54	4.010	4.017		7825	18	40:1	2.41 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.320	4.319	1/1	17604	21		Target = 2.72		192.80	190.14		
599 > 99	54	4.320	4.319		8552	21	39:1	2.05 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.477	4.483	0/0	95682	15	>100:1			188.40	236.22		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.830	4.842	0/0	21684	17	>100:1	Target = 3.27		193.60	213.14		
699 > 99	54	4.830	4.842		6604	23	86:1	3.28 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.665	3.662	1	657736	21	>100:1			1000.00	1027.11	95.3	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.665	3.662	1/0	152227	39	>100:1	Target = 6.51		200.00	214.72		
463 > 169	56	3.665	3.662		22792	20	>100:1	6.67 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.924	3.921	1	255377	19	>100:1			1000.00	952.69	94.4	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.933	3.921	1/0	56341	17	>100:1	Target = 41.63		200.00	209.68		
498>478	55	3.924	3.921		1853	17	21:1	30.40 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.021	4.027	0	624093	16	>100:1			1000.00	1086.02	97.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.029	4.027	1/1	147670	17	>100:1	Target = 13.80		200.00	203.32		
513 > 169	51	4.021	4.027		7788	14	39:1	18.96 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.021	4.017	1	98636	16	>100:1			5000.00	5706.62	100.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	4.029	4.006	2/1	8259	21	64:1	Target = 1.94		191.60	185.28		
527 > 81	65	4.010	4.006		5482	16	18:1	1.50 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.617	4.631	0/-1	10038	17		Target = 3.54		192.80	200.60		
627 > 80	65	4.634	4.631		3138	20	16:1	3.19 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.180	4.178	1	701199	17	>100:1			5000.00	4640.24	95.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.180	4.187	0/-1	23084	30	>100:1	Target = 1.37	7.18	200.00	205.13		M
570 > 483	58	4.180	4.187		16372	28		1.40 (0.68-2.05)	2.76				M
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.331	4.329	1	93450	13	>100:1			1000.00	1036.16	112.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.340	4.348	0/-1	20322	15	>100:1			200.00	198.99		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.359	4.348	1	48686	15	>100:1			1000.00	1034.97	100.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.359	4.367	0/-1	9782	14	73:1	Target = 1.11		200.00	185.37		
512 > 219	57	4.359	4.367		8913	14	95:1	1.09 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.340	4.339	1	657946	18	>100:1			5000.00	5080.15	100.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.350	4.348	1/0	25018	28	83:1	Target = 1.51	5.58	200.00	194.99		M
584 > 526	60	4.350	4.348		19490	29		1.28 (0.75-2.26)	3.02				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.340	4.339	1	639746	17	>100:1			1000.00	1062.26	97.2	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.340	4.339	1/0	132074	17	>100:1	Target = 14.52		200.00	213.06		
563 > 169	52	4.331	4.339		7664	20	37:1	17.23 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.495	4.501	0	107860	23	>100:1			1000.00	1016.81	107.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.513	4.510	1/1	22140	16	>100:1			200.00	210.86		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.513	4.519	0	44616	14	>100:1			1000.00	1037.58	115.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.522	4.528	0/0	12076	22	63:1	Target = 1.06		200.00	215.49		
526 > 219	59	4.531	4.528		10213	19	98:1	1.18 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.617	4.614	1	668534	17	>100:1			1000.00	1113.60	90.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.617	4.614	1/0	150292	19	33:1	Target = 10.70		200.00	210.87		
613 > 169	38	4.617	4.614		14470	22	>100:1	10.38 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.864	4.868	0/-1	138896	18	>100:1	Target = 8.31		200.00	197.66		
663 > 169	38	4.856	4.868		14674	14	>100:1	9.46 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.087	0	866291	21	>100:1			1000.00	1065.56	98.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.085	5.093	0/0	154631	21	24:1	Target = 12.17		200.00	204.48		
713 > 169	42	5.091	5.093		11476	22	>100:1	13.47 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.508	5.512	0	946765	19	>100:1			1000.00	1090.70	100.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.508	5.512	0/0	121903	20	19:1	Target = 10.43		200.00	201.04		
813 > 269	40	5.508	5.512		9917	17	>100:1	12.29 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.933	5.944	0/0	175492	30	12:1	Target = 13.67		200.00	203.61		
913 > 319	40	5.933	5.944		11177	34	>100:1	15.70 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.021	4.027	0	693082	16	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.495	2.496	0	707810	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.266	3.269	0	579972	23	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	600474	21	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.659	3.657	1	130672	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated
a - User Assigned Peak/Hit

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

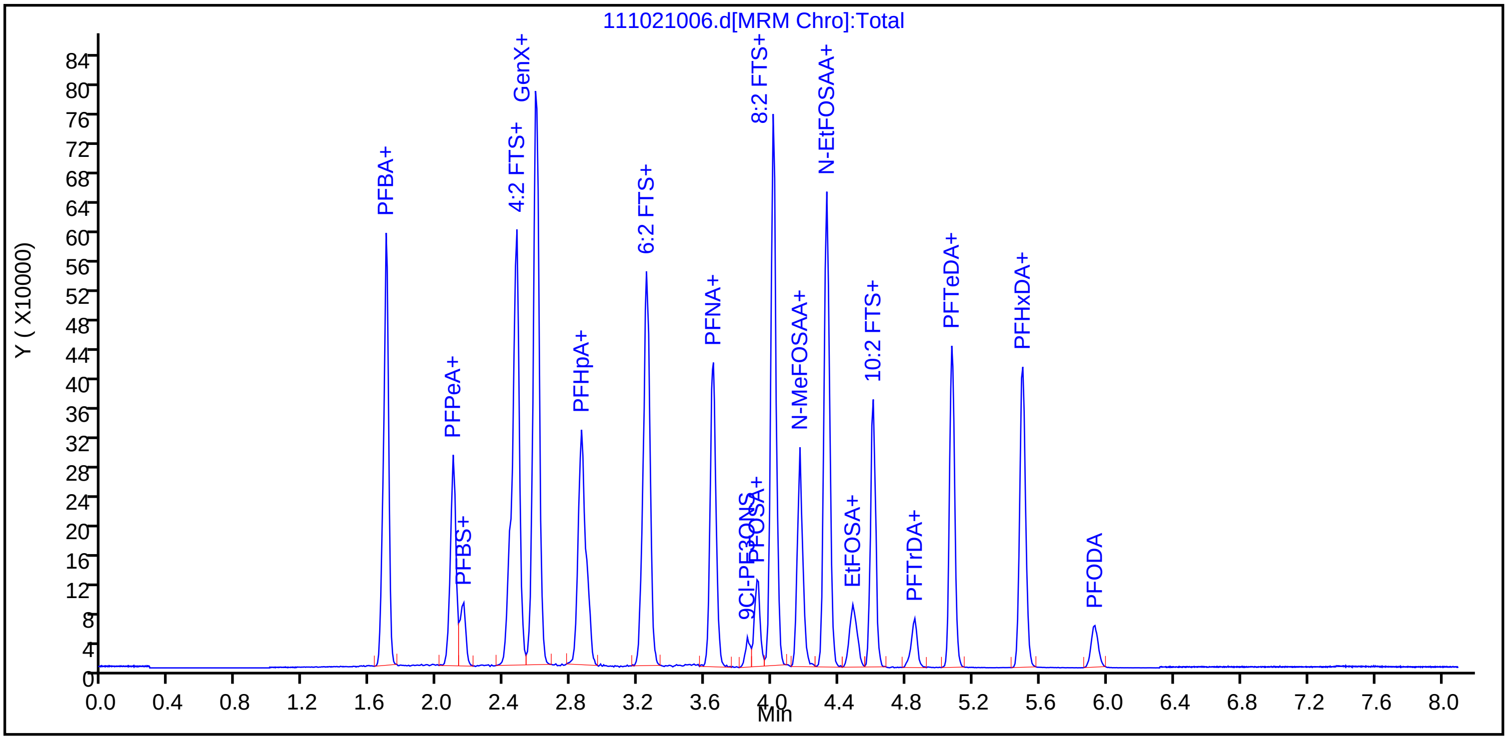
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

Injection Date: 10-Nov-2021 13:59:56 Inst. ID: LCMSMS02.i

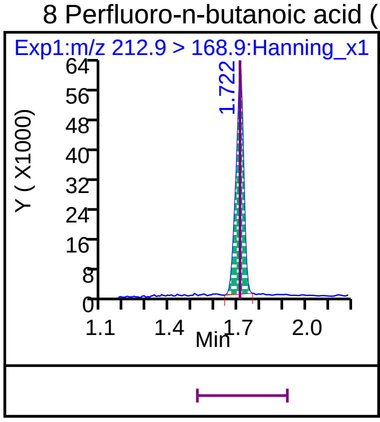
Client ID: Lab ID: ID CCV 200_SVLC-1742

Sample Info: ID CCV 200_SVLC-1742

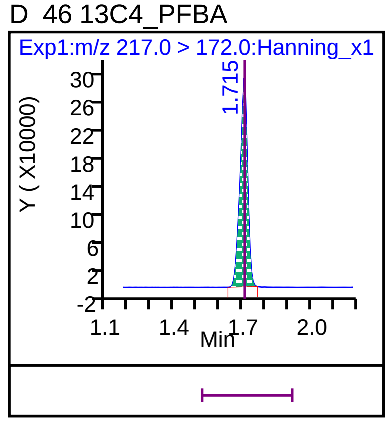
Dil. Factor: 1 Operator: Justin Gavin



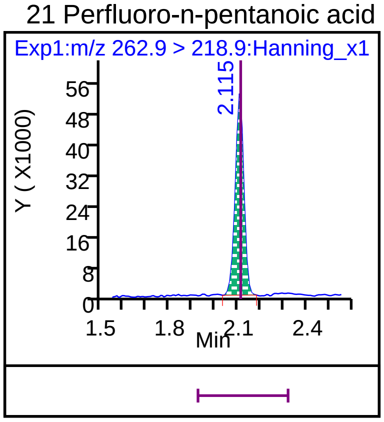
8 Perfluoro-n-butanoic acid (PFBA)



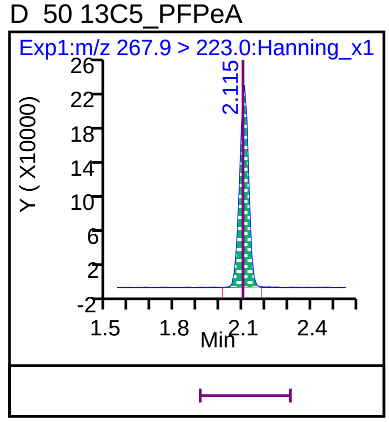
D 46 13C4_PFBA



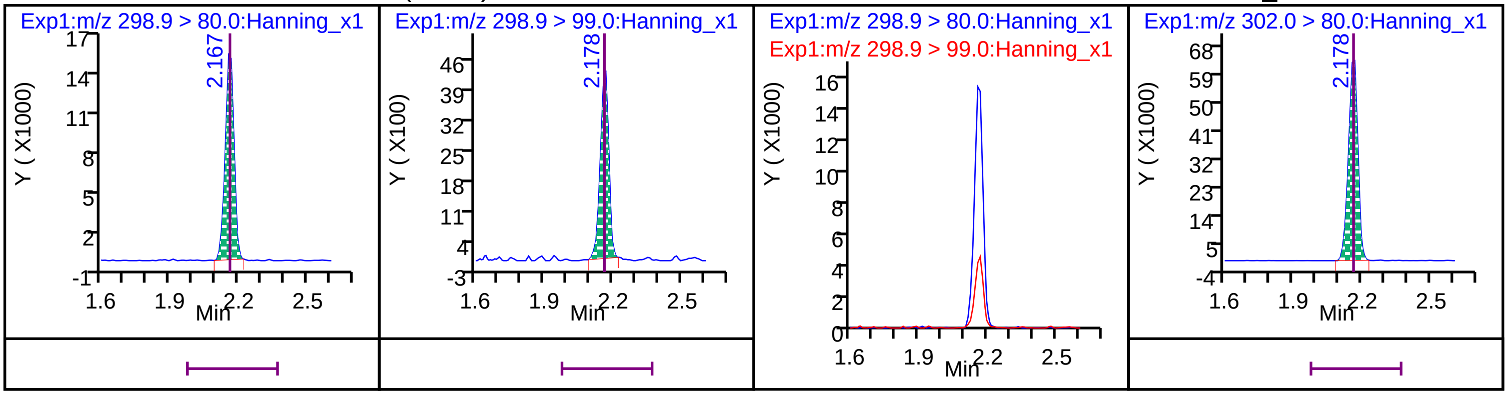
21 Perfluoro-n-pentanoic acid (PFPeA)



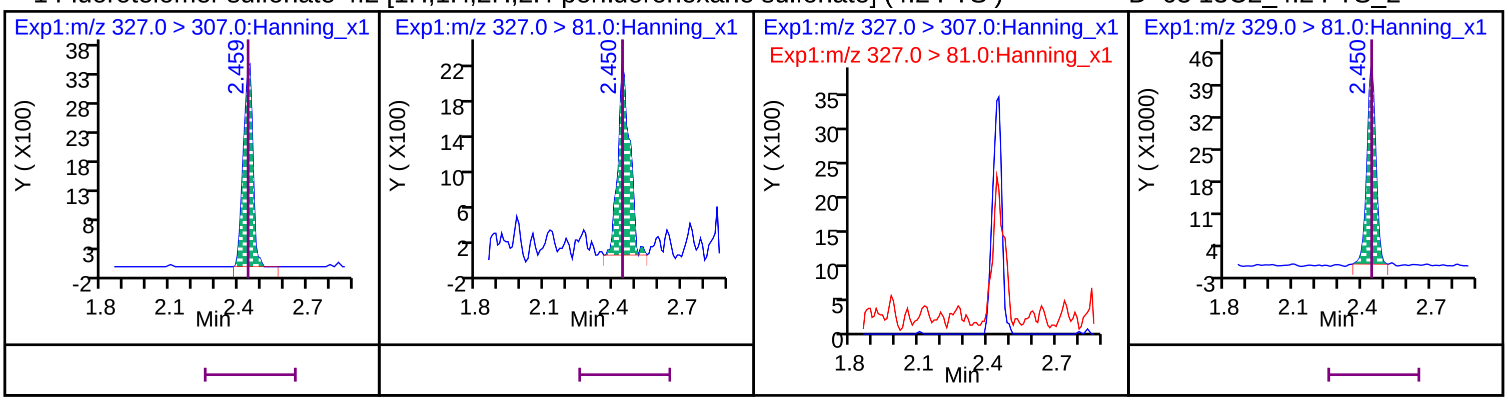
D 50 13C5_PFPeA



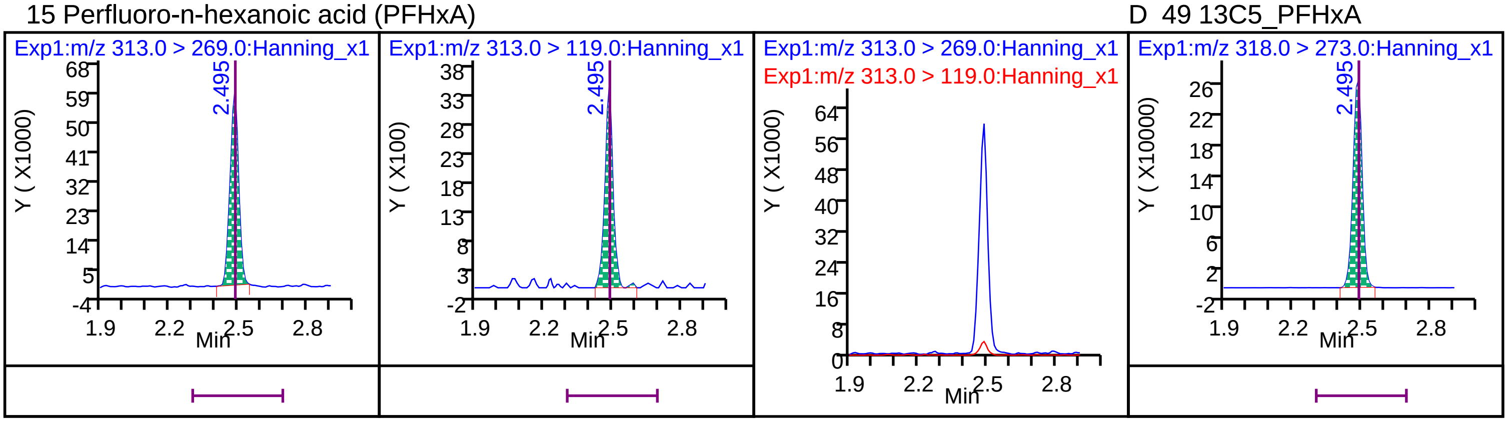
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



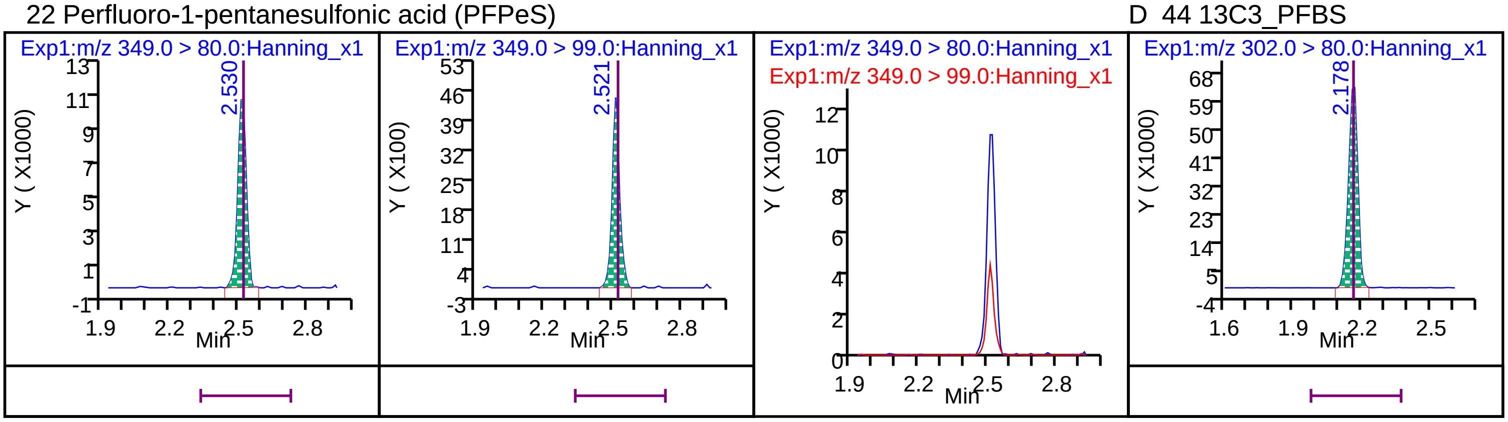
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

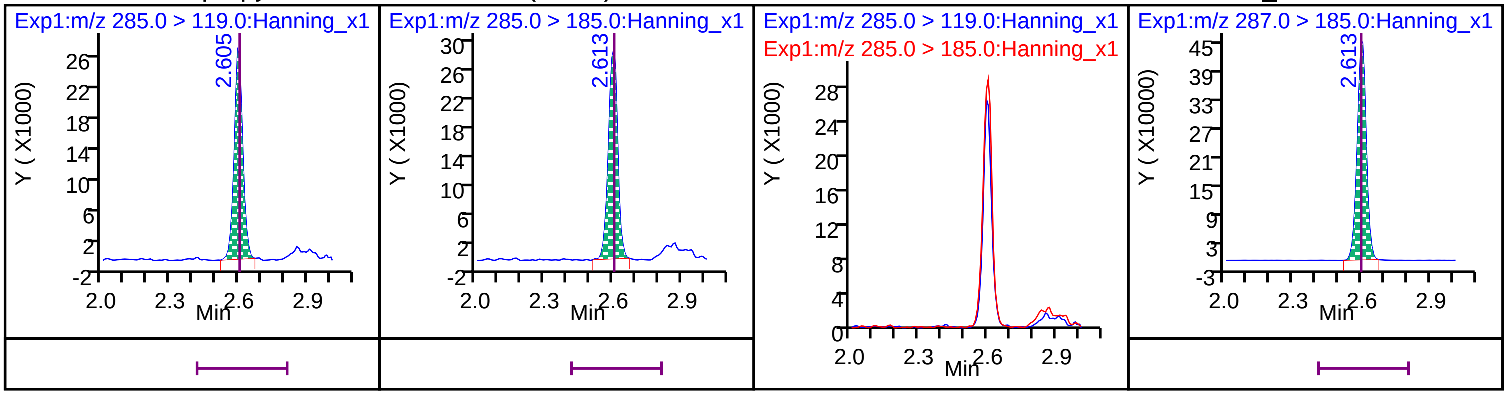


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

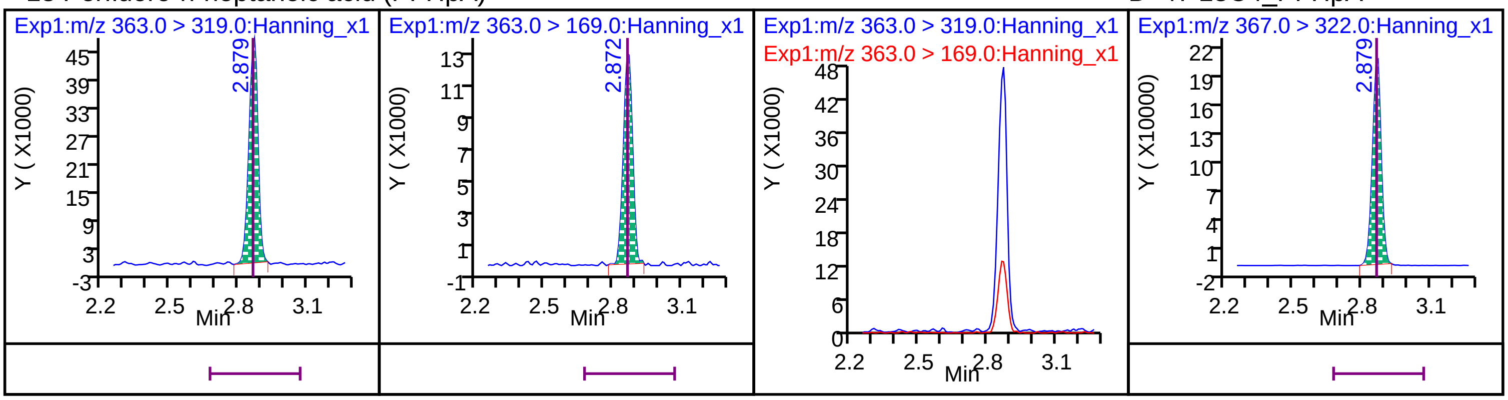


Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

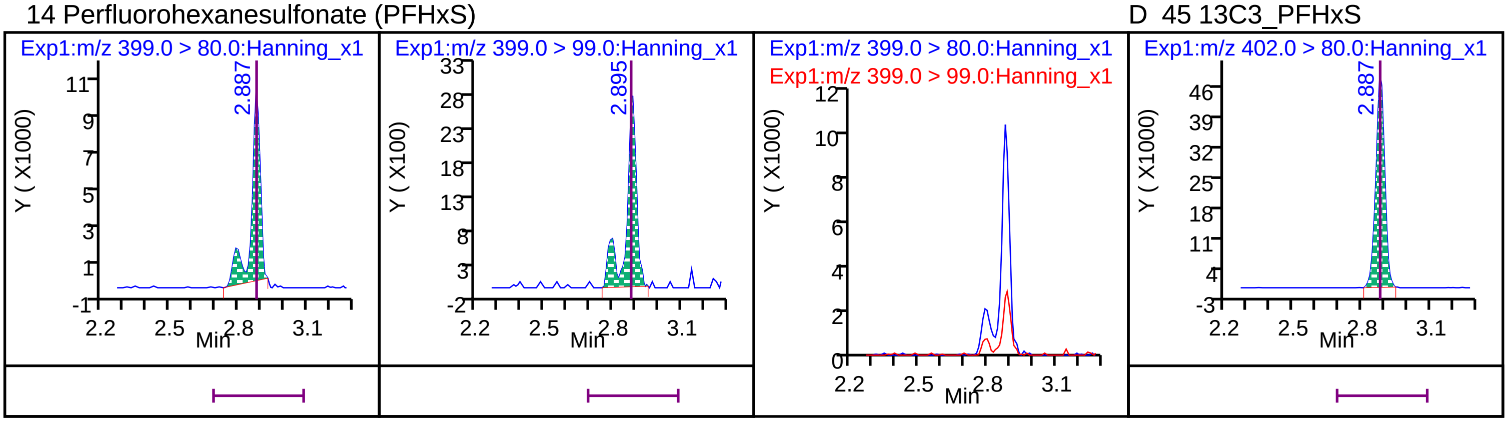
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



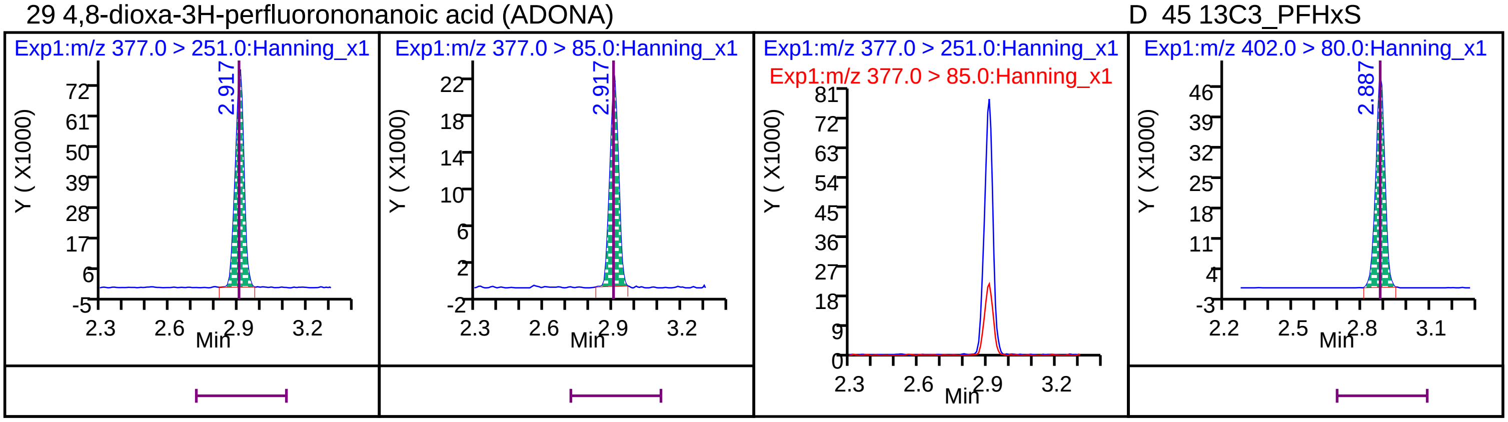
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

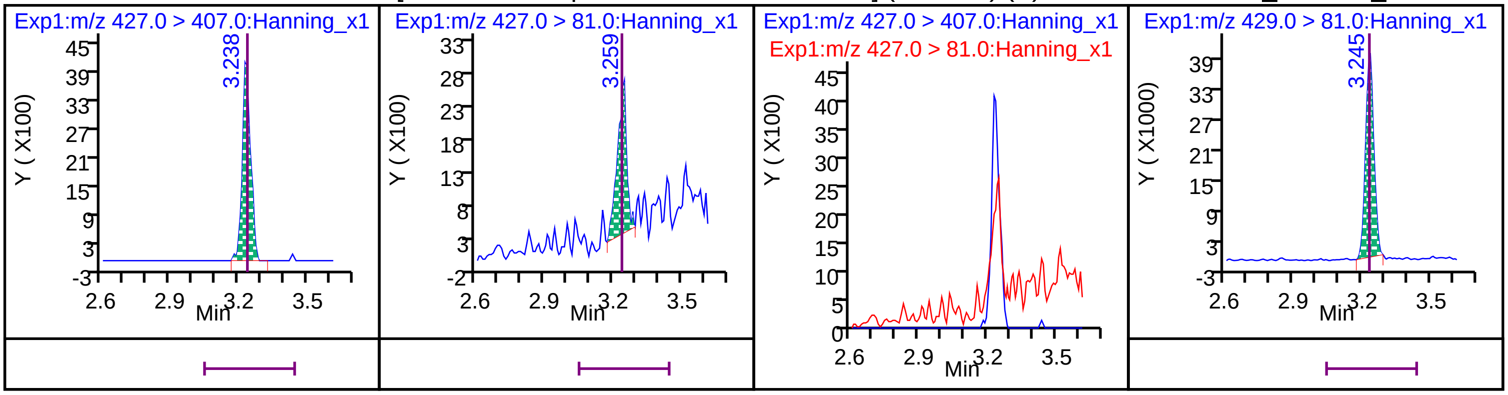


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

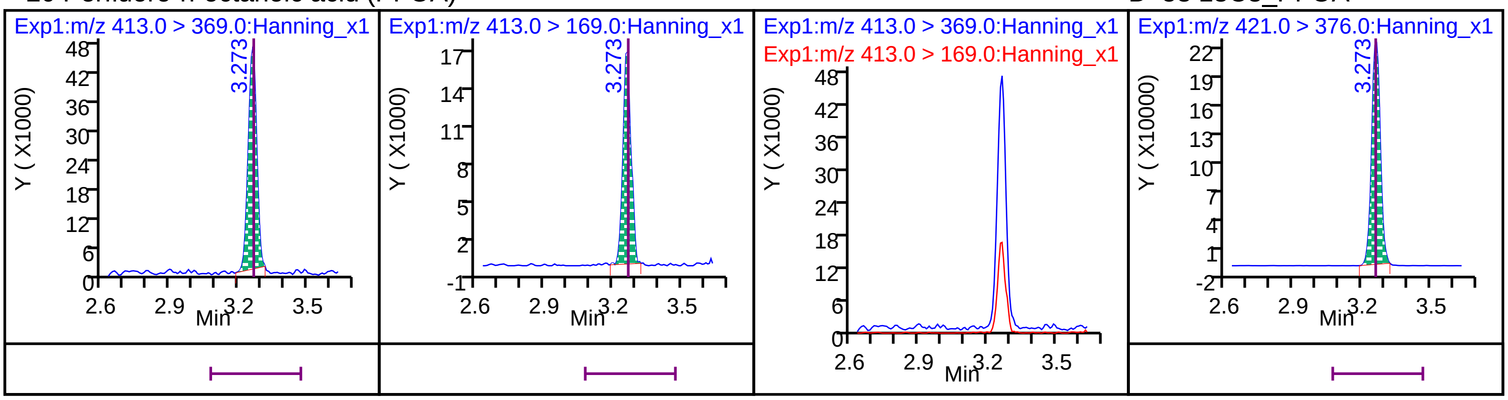


Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

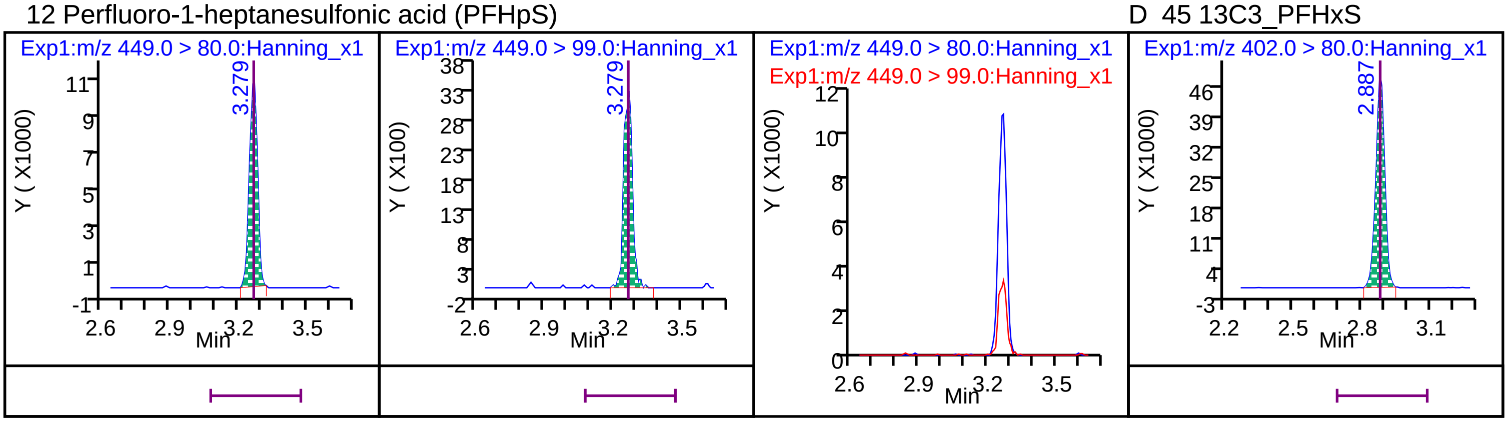
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (A) D 64 13C2_6:2 FTS_2



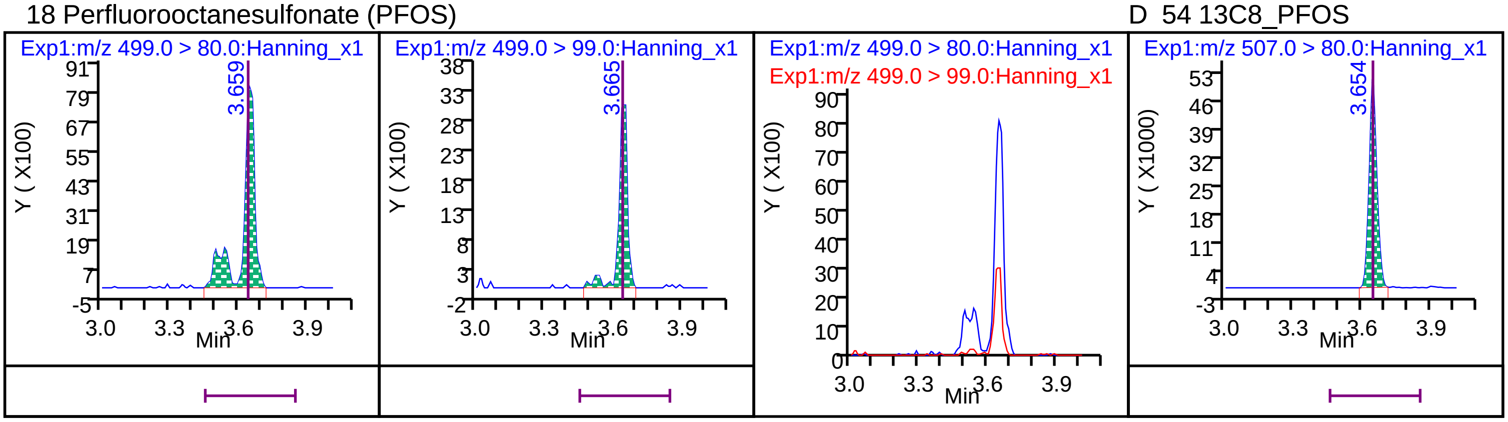
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



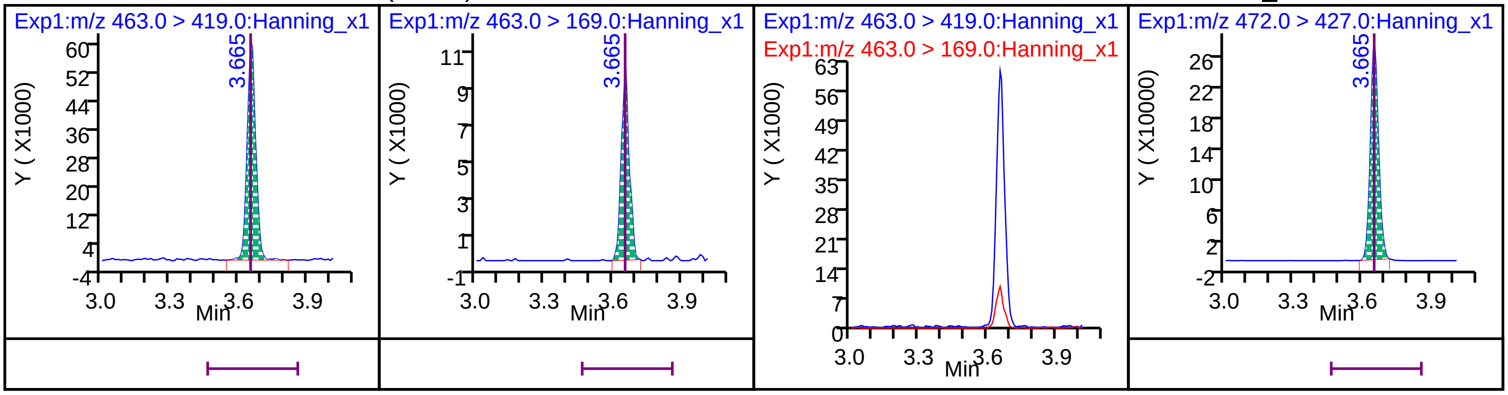
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



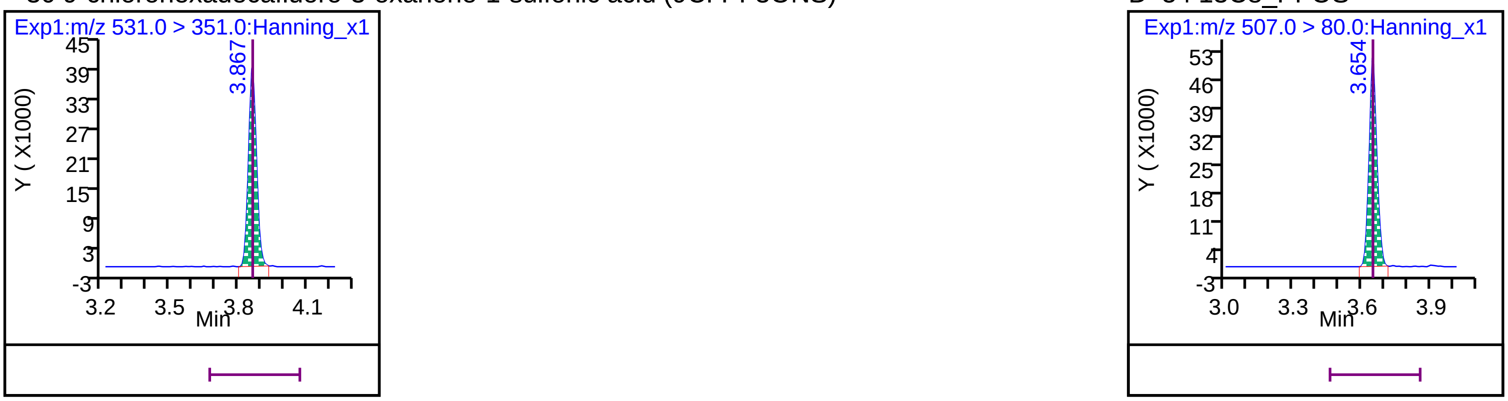
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



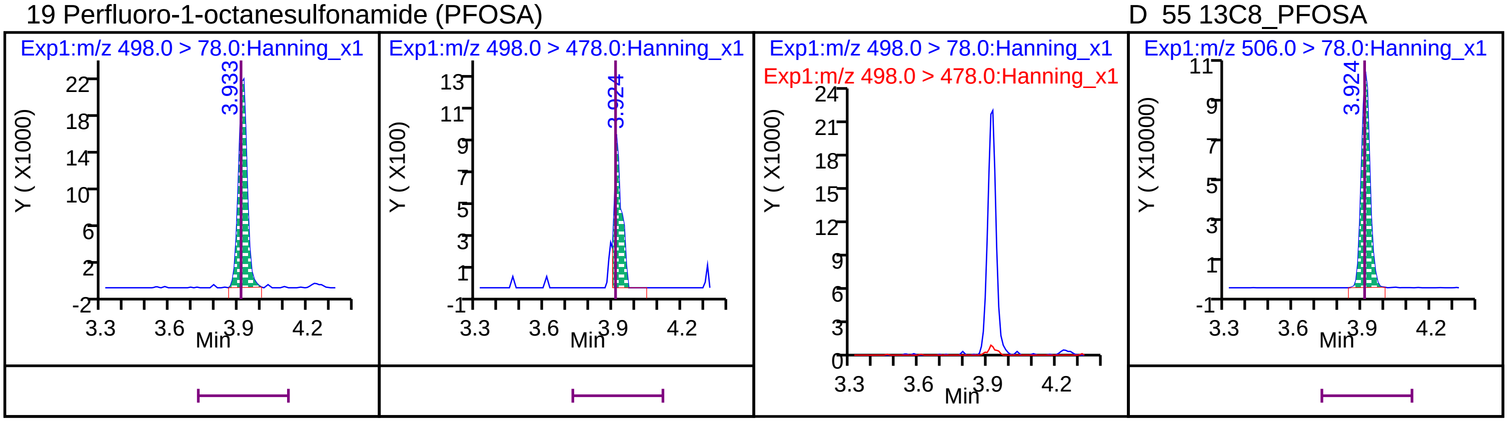
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



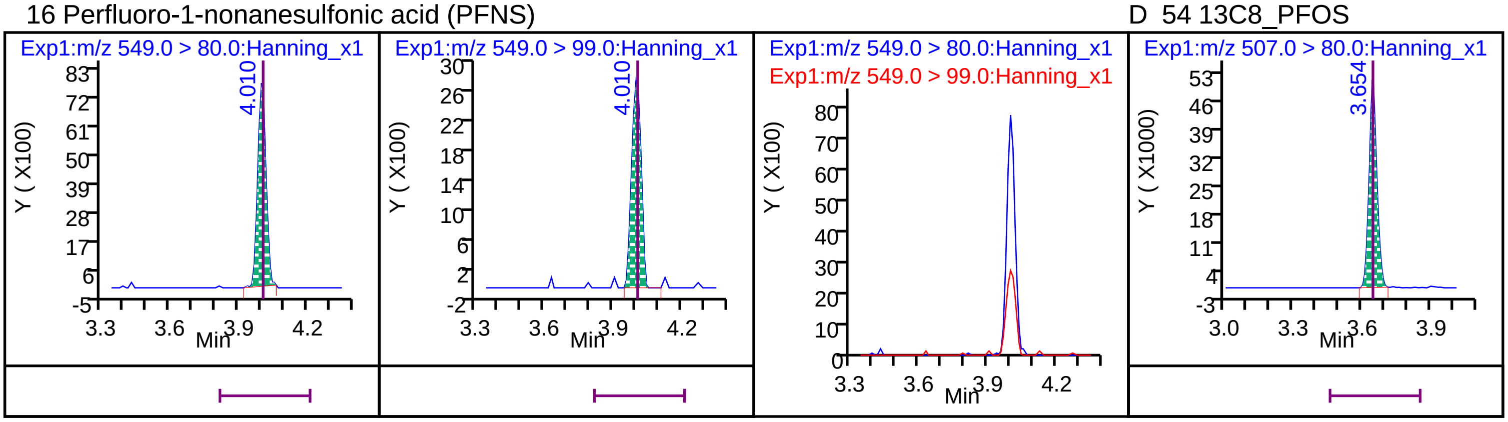
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

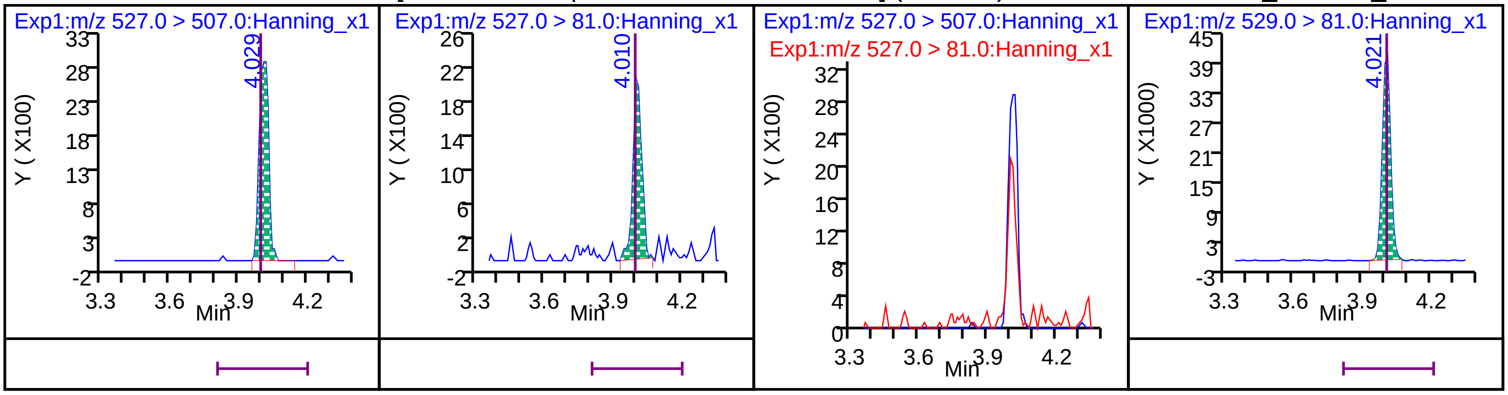


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



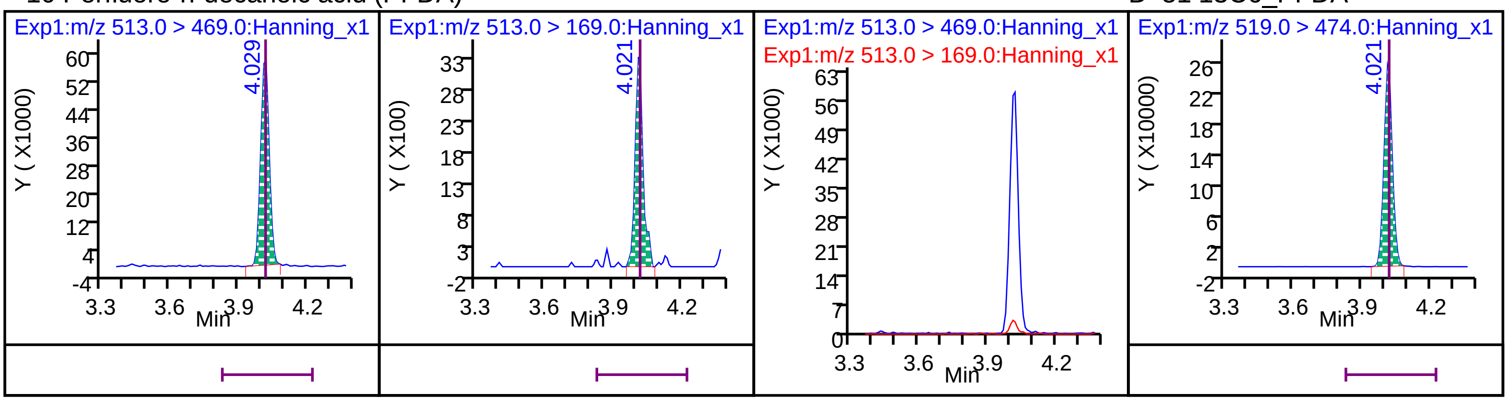
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS)

D 65 13C2_8:2 FTS_2



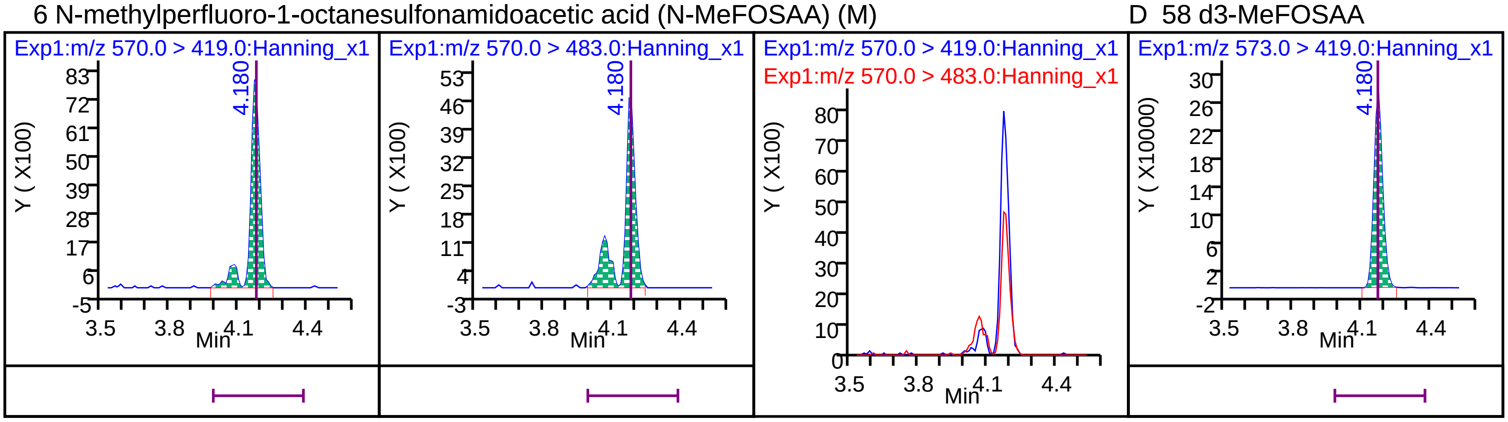
10 Perfluoro-n-decanoic acid (PFDA)

D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M)

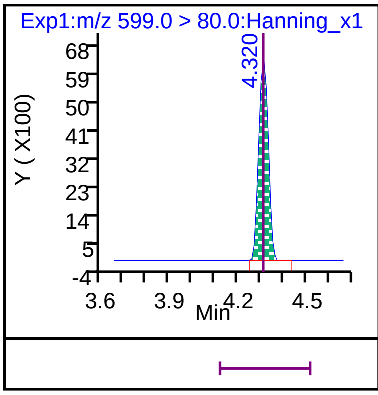
D 58 d3-MeFOSAA

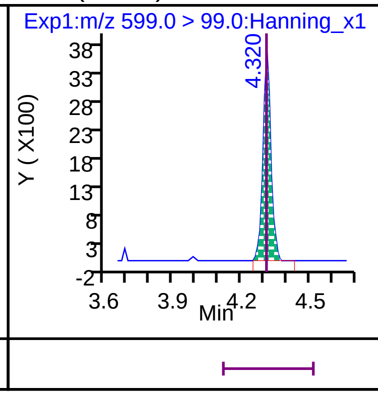


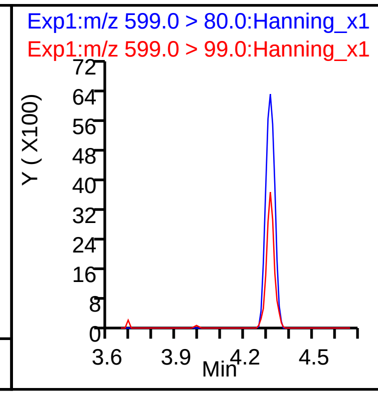
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)

D 61 d7-MeFOSE

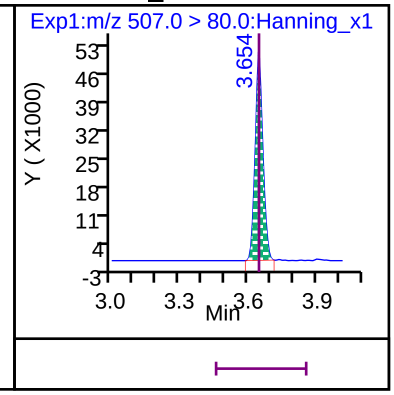
9 Perfluoro-1-decanesulfonic acid (PFDS)



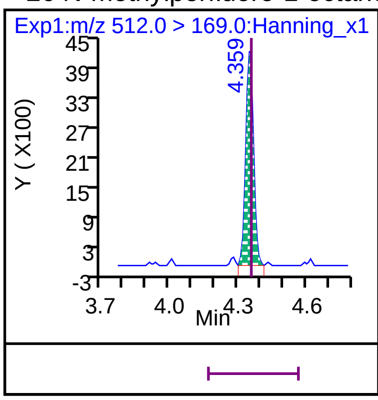


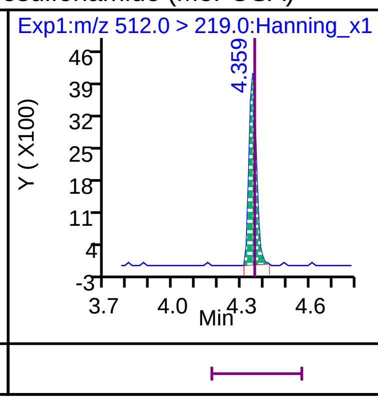


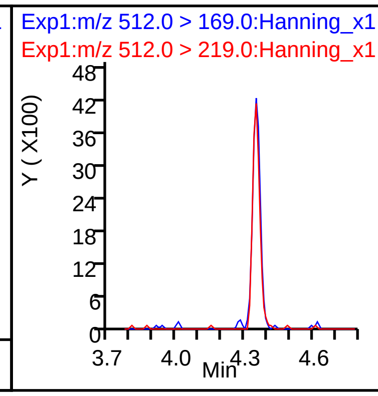
D 54 13C8_PFOS



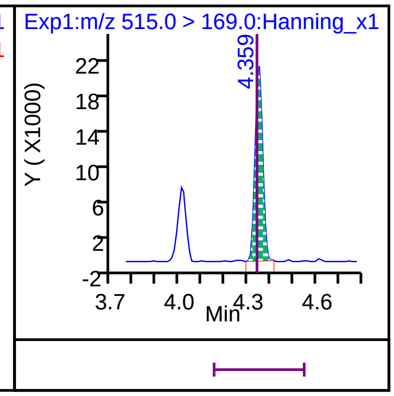
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA)



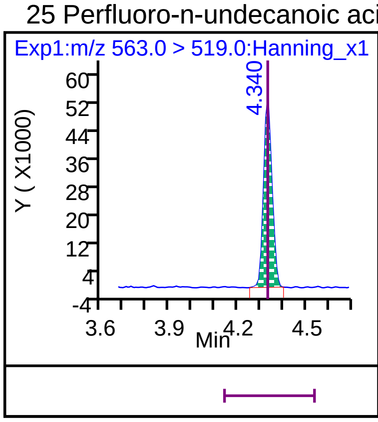


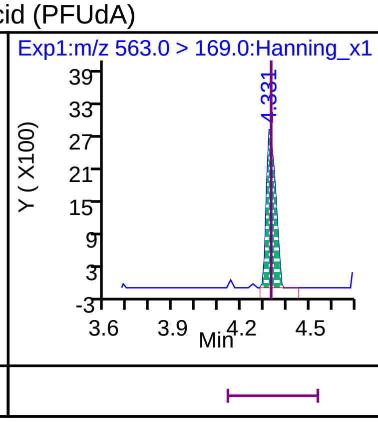


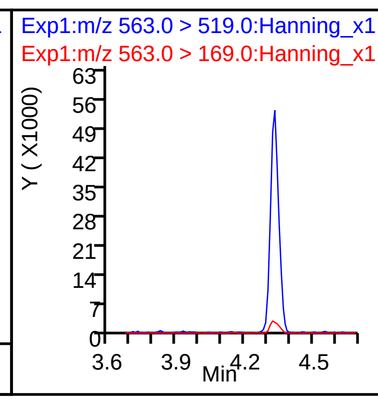
D 57 d3-MeFOSA



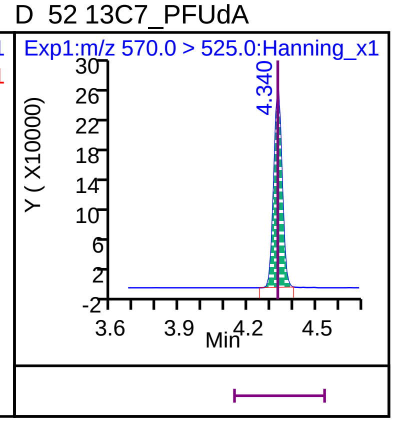
25 Perfluoro-n-undecanoic acid (PFUdA)



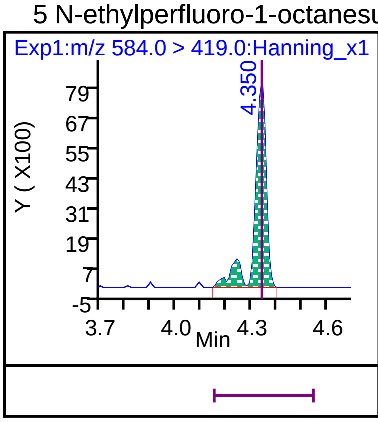


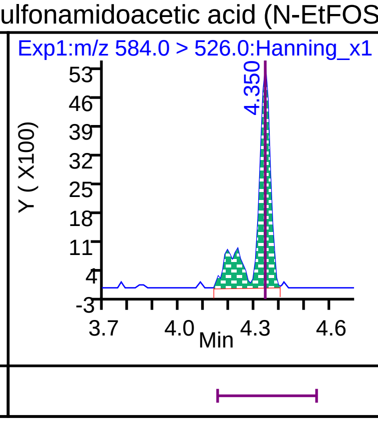


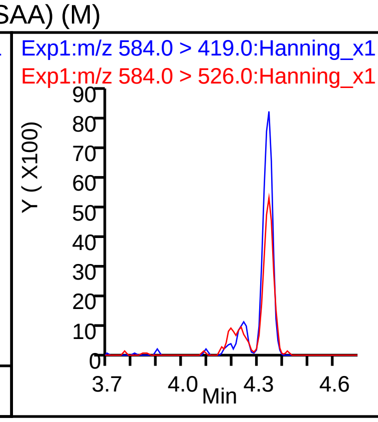
D 52 13C7_PFUdA



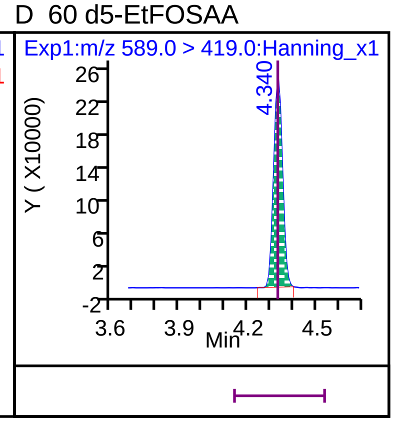
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M)







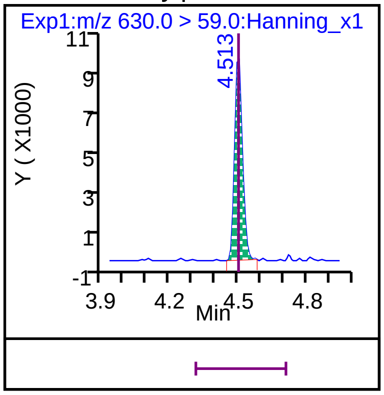
D 60 d5-EtFOSAA



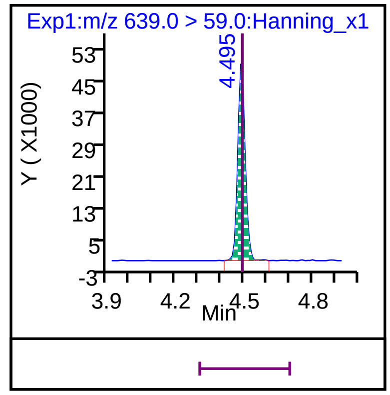
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

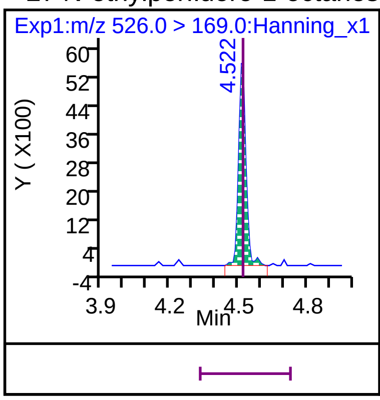
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

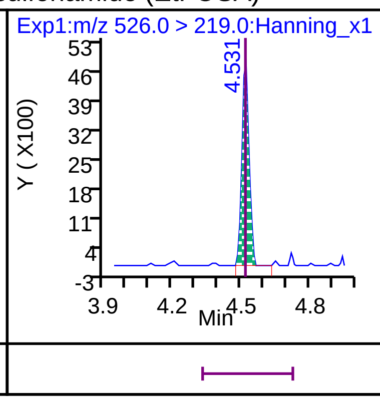


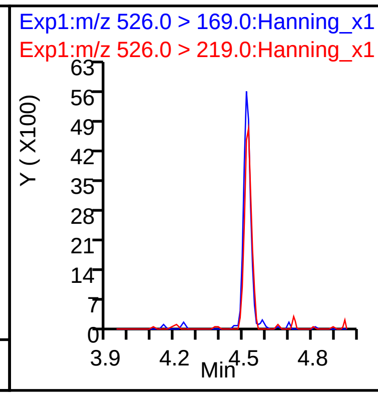
D 62 d9-EtFOSE



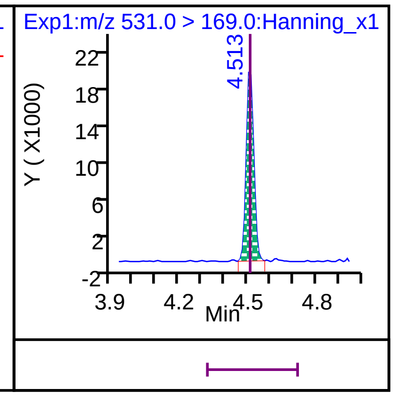
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



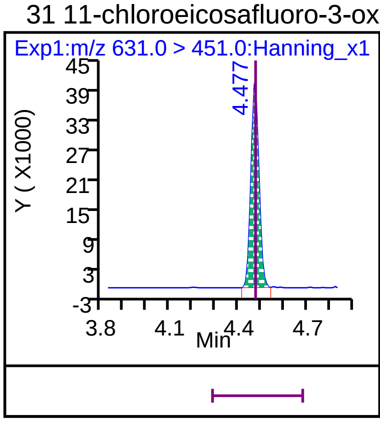




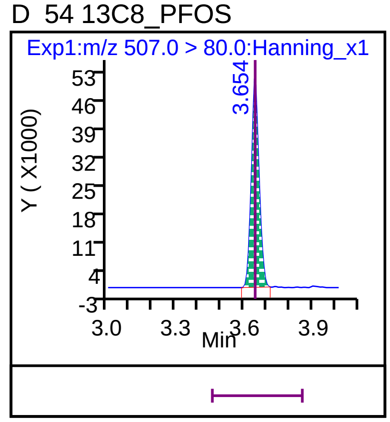
D 59 d5-EtFOSA



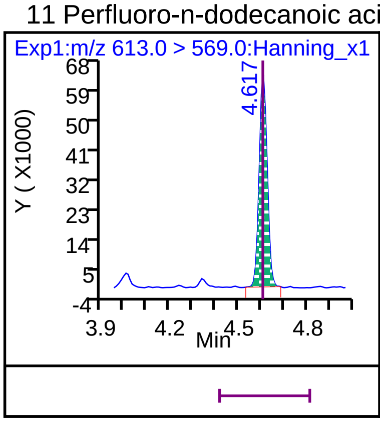
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

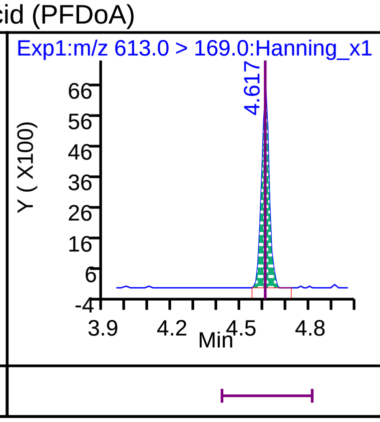


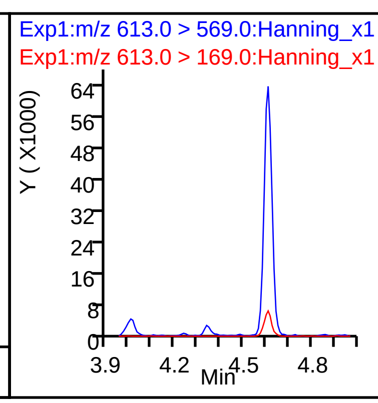
D 54 13C8_PFOS



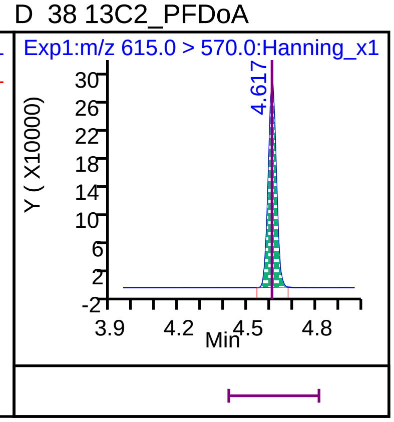
11 Perfluoro-n-dodecanoic acid (PFDoA)







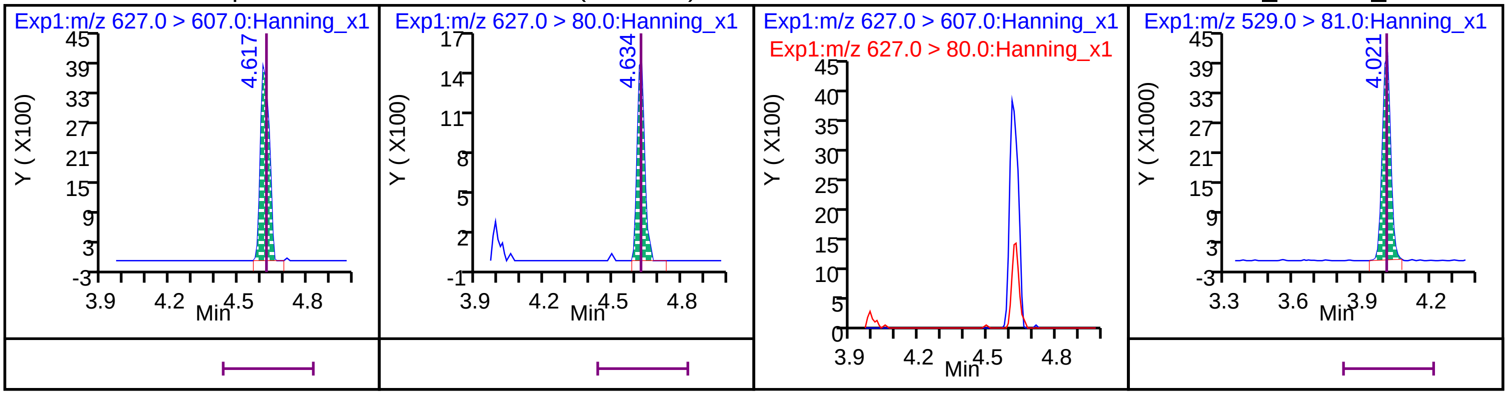
D 38 13C2_PFDoA



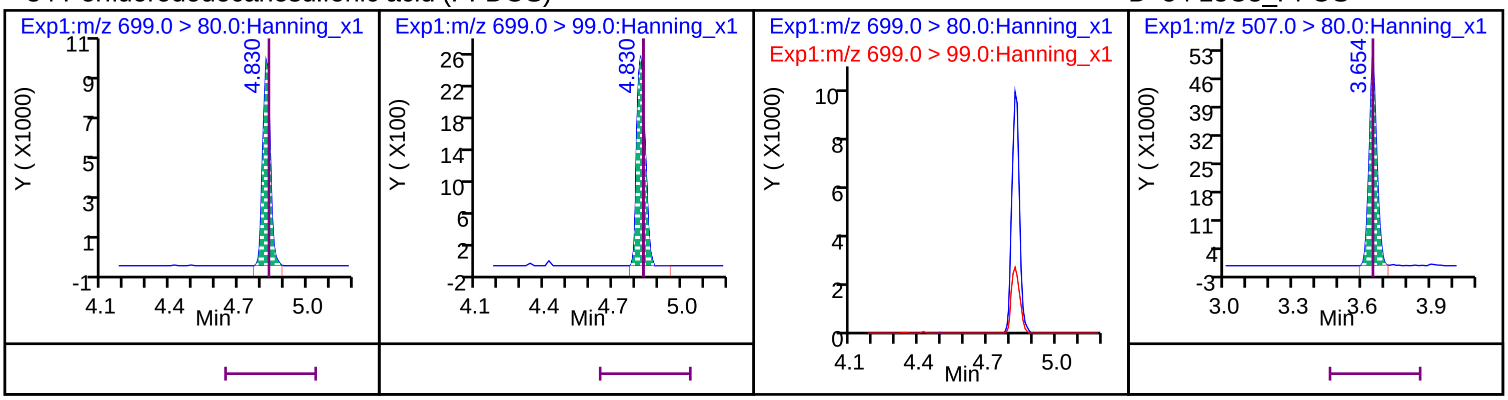
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

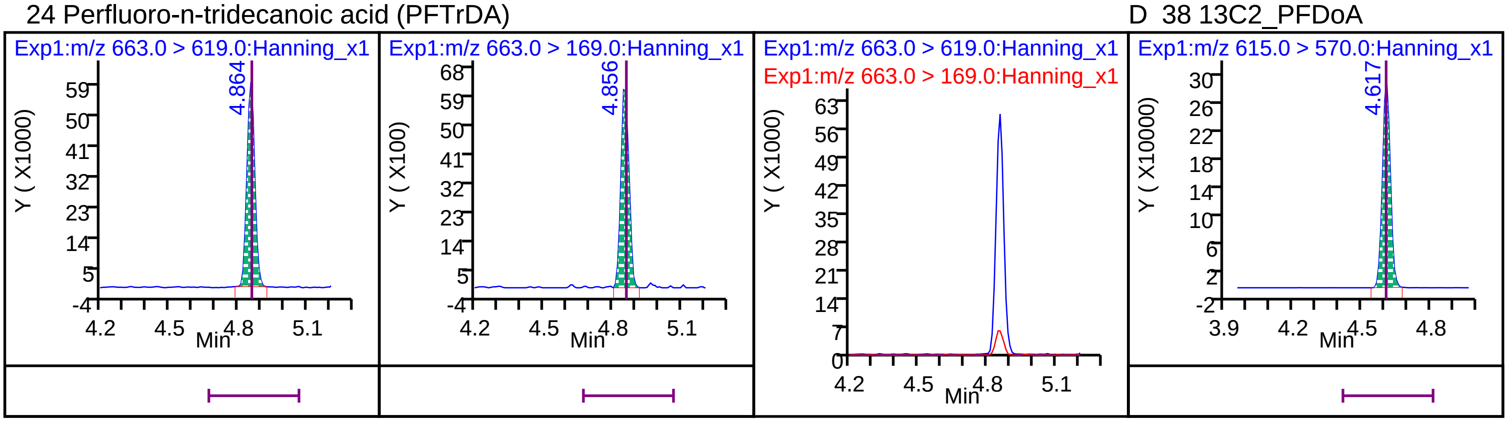
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



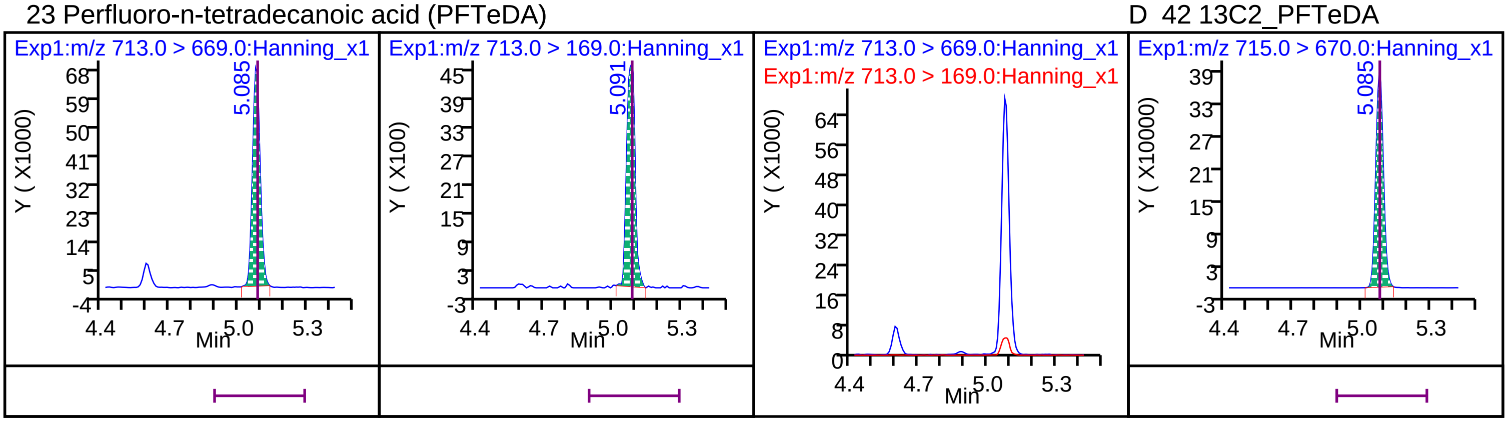
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



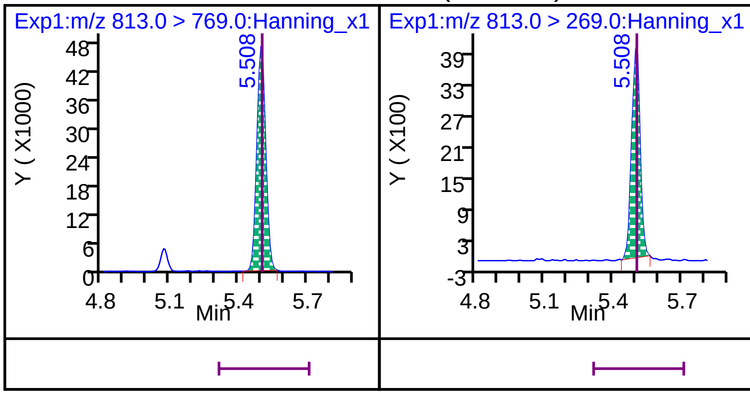
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



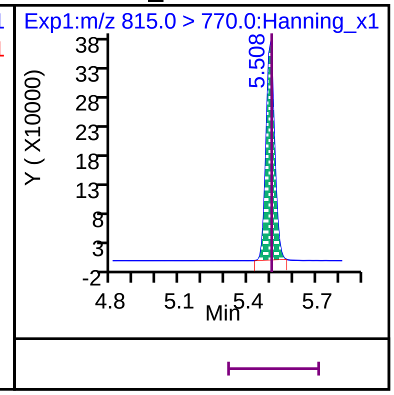
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d

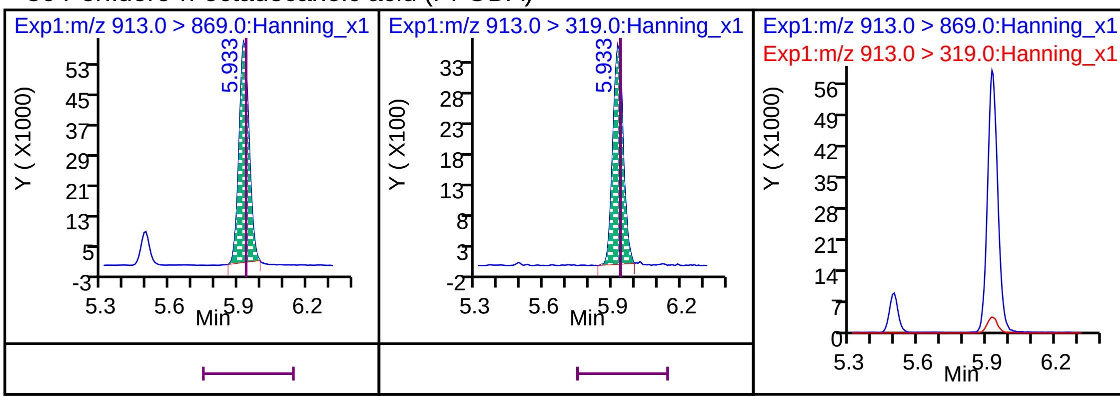
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



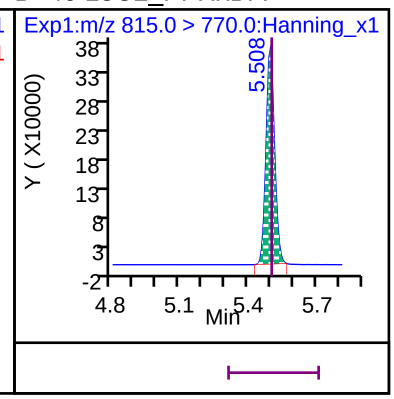
D 40 13C2_PFHxDA



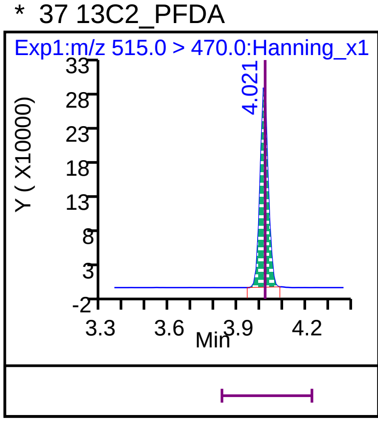
36 Perfluoro-n-octadecanoic acid (PFODA)



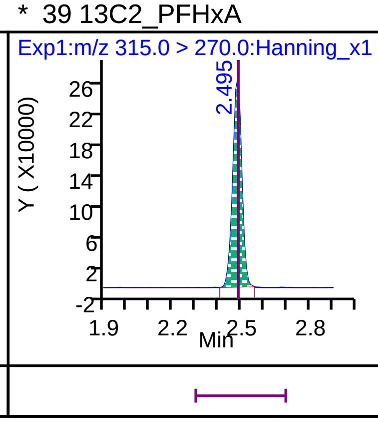
D 40 13C2_PFHxDA



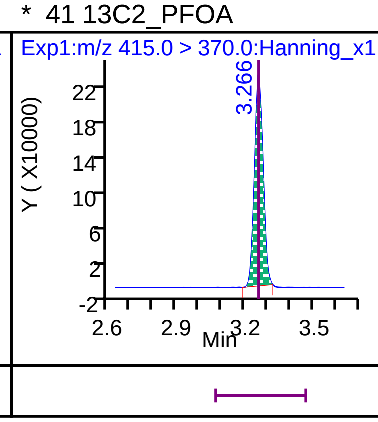
* 37 13C2_PFDA



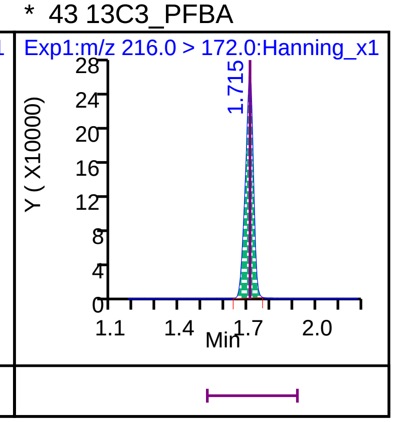
* 39 13C2_PFHxA



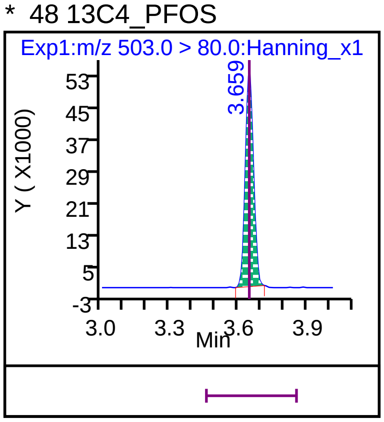
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

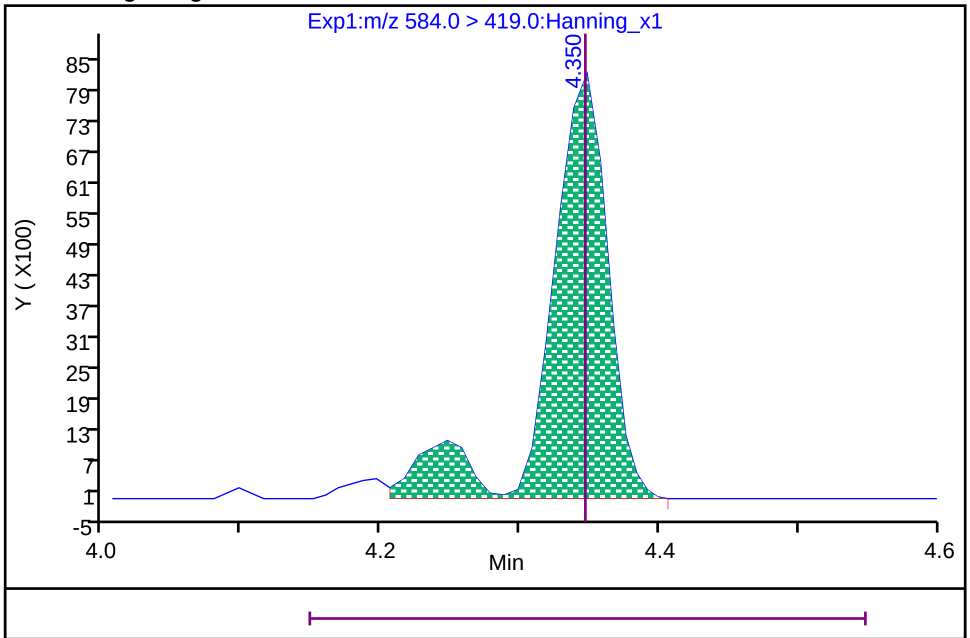
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

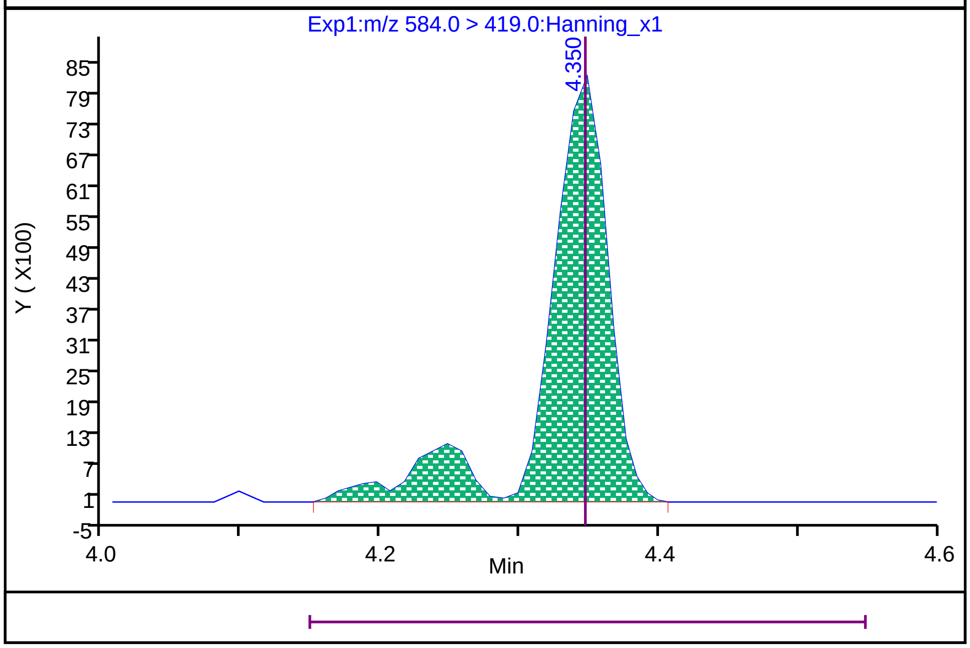
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.350
Area:	24258
Amount:	189.06
Amount Units:	ng/L



RT:	4.350
Area:	25018
Amount:	194.99
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:52

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

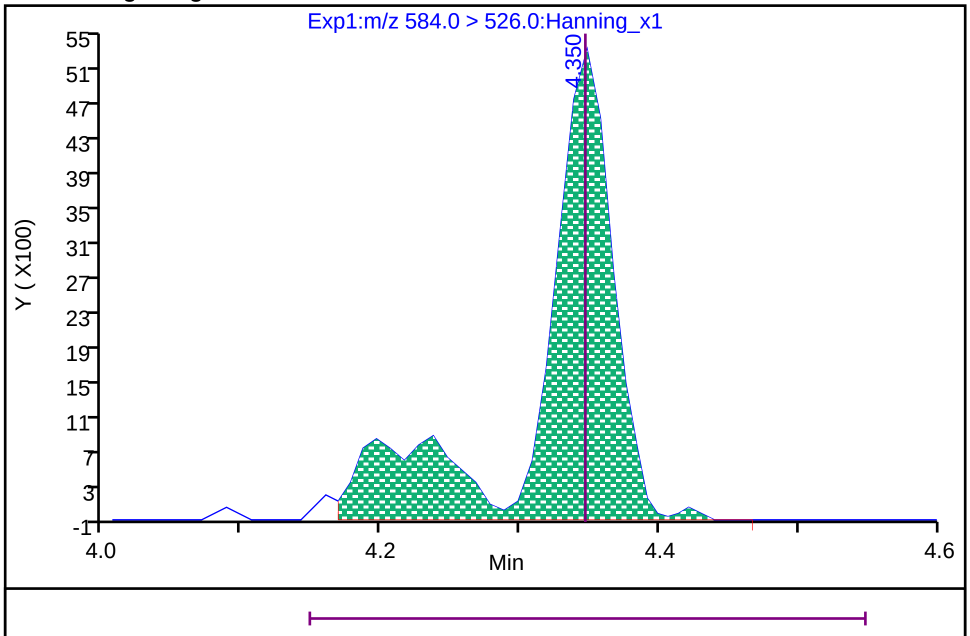
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

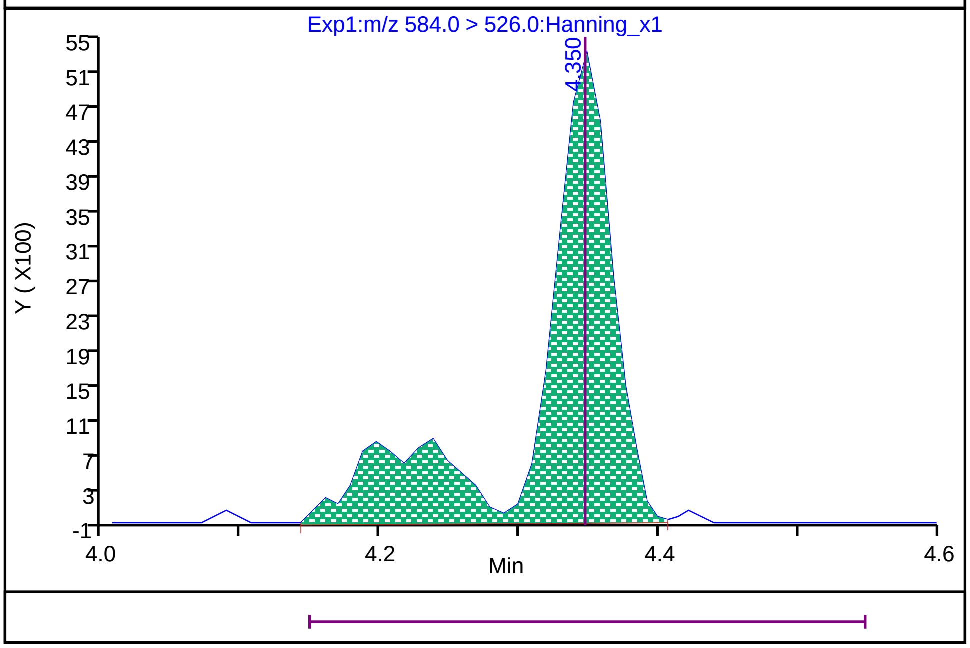
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.350
Area:	19130
Amount:	194.99
Amount Units:	ng/L



RT:	4.350
Area:	19490
Amount:	194.99
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:57

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

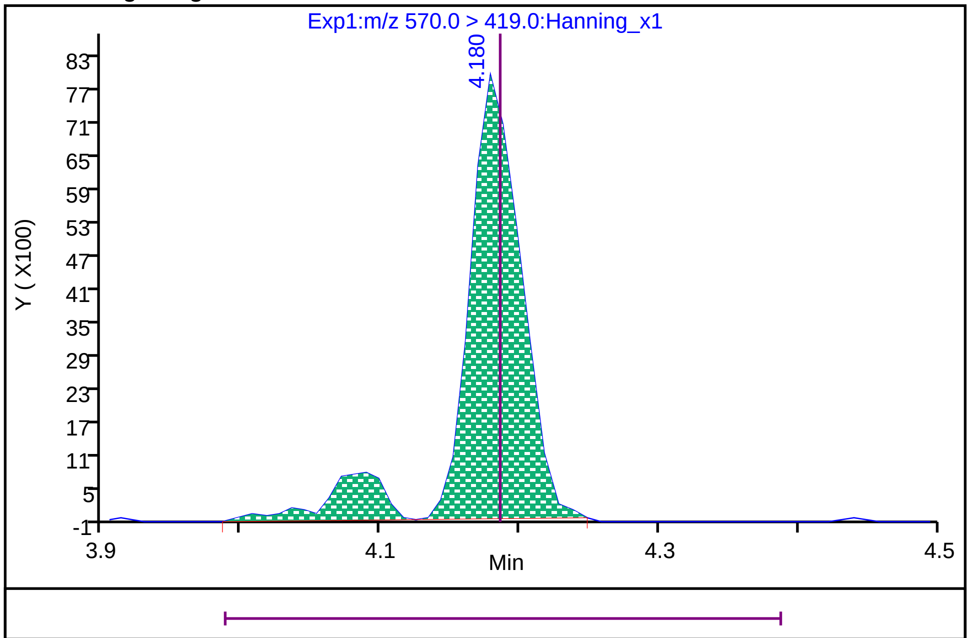
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

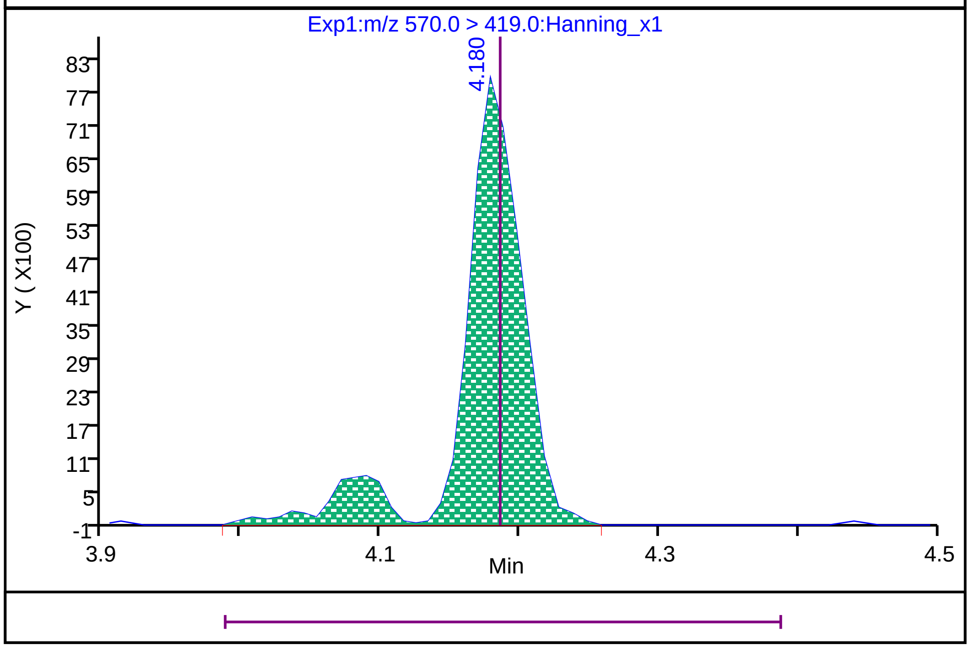
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.180
Area: 22433
Amount: 199.35
Amount Units: ng/L



RT: 4.180
Area: 23084
Amount: 205.13
Amount Units: ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:40

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

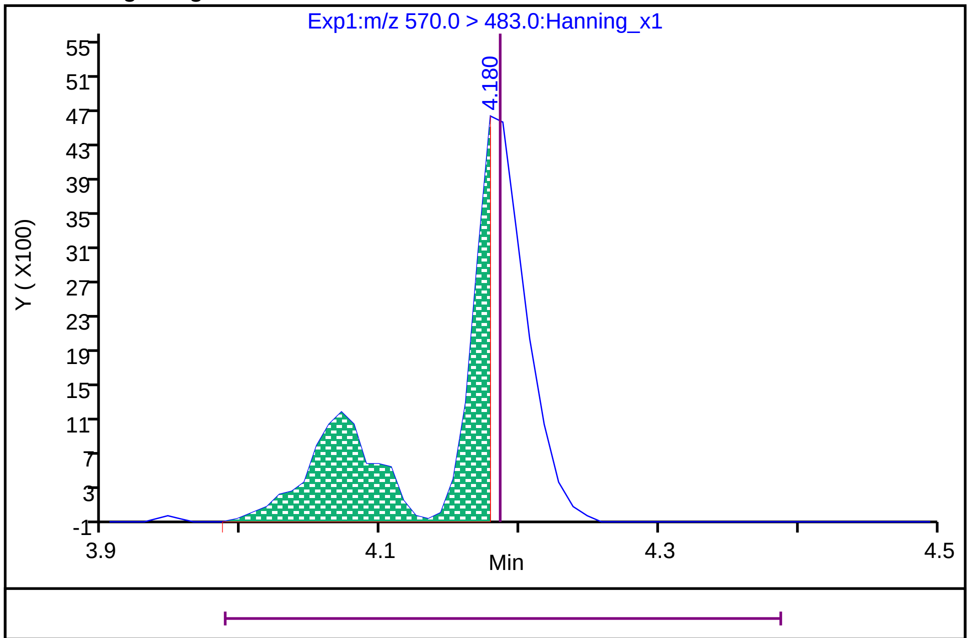
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021006.d		
Injection Date:	10-Nov-2021 13:59:56	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 200_SVLC-1742
Sample Info:	ID CCV 200_SVLC-1742		
Dil. Factor:	1	Operator:	Justin Gavin

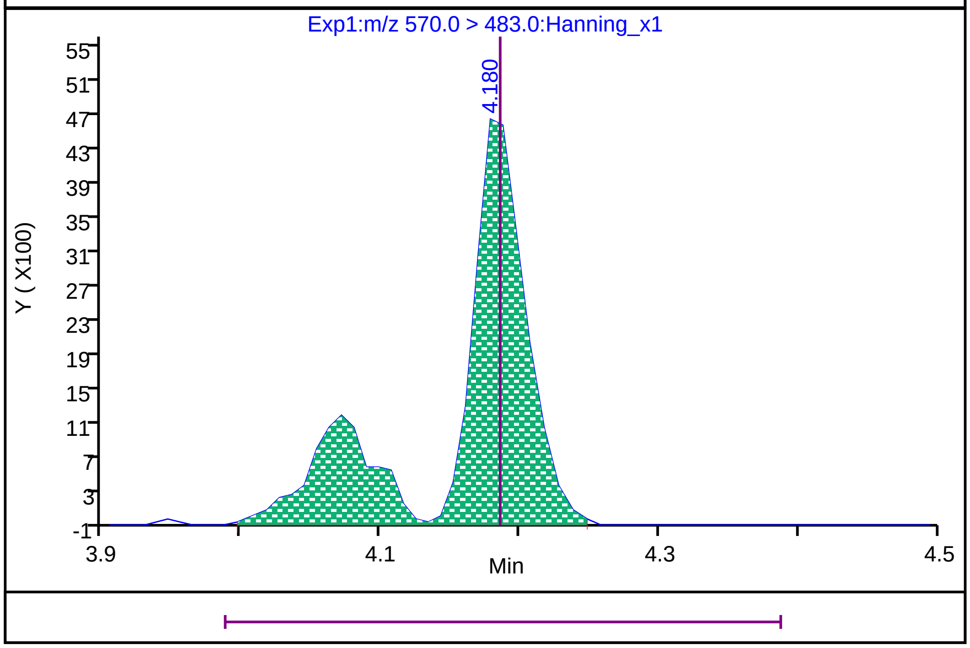
6 N-MeFOSAA, CAS: 2355-31-9

RT:	4.180
Area:	8274
Amount:	205.13
Amount Units:	ng/L

Processing Integration Results



RT:	4.180
Area:	16372
Amount:	205.13
Amount Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 14:33:44

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	14
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	966.63	96.7	70 - 130
D 46 13C4_PFBA	659044	642719			97.5	50 - 150
21 PFPeA			1000.00	1000.63	100.1	70 - 130
D 50 13C5_PFPeA	581857	593333			102	50 - 150
D 44 13C3_PFBS	164288	172780			105.2	50 - 150
7 PFBS			884.00	836.35	94.6	70 - 130
1 4:2 FTS			934.00	879.50	94.2	70 - 130
D 63 13C2_4:2 FTS_2	113327	106659			94.1	50 - 150
D 49 13C5_PFHxA	667779	669033			100.2	50 - 150
15 PFHxA			1000.00	980.22	98	70 - 130
22 PFPeS			938.00	881.07	93.9	70 - 130
28 GenX			2000.00	1951.07	97.6	70 - 130
D 66 13C3_GenX	1212655	1146454			94.5	50 - 150
D 47 13C4_PFHpA	545849	546721			100.2	50 - 150
13 PFHpA			1000.00	1024.32	102.4	70 - 130
D 45 13C3_PFHxS	123814	129306			104.4	50 - 150
14 PFHxS			910.00	833.98	91.6	70 - 130
29 ADONA			942.00	923.30	98	70 - 130
D 64 13C2_6:2 FTS_2	97903	101701			103.9	50 - 150
2 6:2 FTS			948.00	978.79	103.2	70 - 130
20 PFOA			1000.00	952.11	95.2	70 - 130
D 53 13C8_PFOA	574828	573754			99.8	50 - 150
12 PFHpS			952.00	886.87	93.2	70 - 130
D 54 13C8_PFOS	125685	127490			101.4	50 - 150
18 PFOS			928.00	867.55	93.5	70 - 130
17 PFNA			1000.00	1056.00	105.6	70 - 130
D 56 13C9_PFNA	690339	620354			89.9	50 - 150
30 9Cl-PF3ONS			932.00	912.60	97.9	70 - 130
D 55 13C8_PFOSA	270667	267247			98.7	50 - 150
19 PFOSA			1000.00	967.46	96.7	70 - 130
16 PFNS			960.00	906.37	94.4	70 - 130
10 PFDA			1000.00	1047.48	104.7	70 - 130
3 8:2 FTS			958.00	1092.72	114.1	70 - 130
D 51 13C6_PFDA	638513	598826			93.8	50 - 150
D 65 13C2_8:2 FTS_2	97932	92438			94.4	50 - 150
6 N-MeFOSAA			1000.00	892.43	89.2	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	734264	723743			98.6	50 - 150
D 61 d7-MeFOSE	82771	91112			110.1	50 - 150
32 MeFOSE			1000.00	1034.35	103.4	70 - 130
26 MeFOSA			1000.00	1040.08	104	70 - 130
D 57 d3-MeFOSA	48290	43273			89.6	50 - 150
9 PFDS			964.00	931.89	96.7	70 - 130
D 52 13C7_PFUdA	658476	657505			99.9	50 - 150
D 60 d5-EtFOSAA	654482	637989			97.5	50 - 150
25 PFUdA			1000.00	996.06	99.6	70 - 130
5 N-EtFOSAA			1000.00	888.46	88.8	70 - 130
D 62 d9-EtFOSE	100538	97727			97.2	50 - 150
33 EtFOSE			1000.00	1070.98	107.1	70 - 130
D 59 d5-EtFOSA	38708	42512			109.8	50 - 150
31 11Cl-PF3OUDS			942.00	937.15	99.5	70 - 130
27 EtFOSA			1000.00	972.34	97.2	70 - 130
D 38 13C2_PFDoA	739968	658851			89	50 - 150
11 PFDoA			1000.00	1016.69	101.7	70 - 130
4 10:2 FTS			964.00	1092.76	113.4	70 - 130
34 PFDOS			968.00	946.62	97.8	70 - 130
24 PFTrDA			1000.00	973.23	97.3	70 - 130
D 42 13C2_PFTeDA	881166	855577			97.1	50 - 150
23 PFTeDA			1000.00	982.62	98.3	70 - 130
D 40 13C2_PFHxDA	942416	912422			96.8	50 - 150
35 PFHxDA			1000.00	970.89	97.1	70 - 130
36 PFODA			1000.00	1019.34	101.9	70 - 130

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	14
Sample Info:	ID CCV 1000_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.709	1.718	0	642719	21	>100:1			1000.00	1033.85	97.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.718	0/0	655211	21	>100:1			1000.00	966.63		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.104	2.109	0	593333	16	>100:1			1000.00	1038.04	102	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.104	2.120	0/0	668219	15	>100:1			1000.00	1000.63		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.157	2.173	0	172780	16	>100:1			1000.00	998.90	105.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.157	2.173	0/0	180201	16	>100:1	Target = 3.53		884.00	836.35		
298.9 > 99	44	2.157	2.173		55145	17	>100:1	3.26 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.513	2.532	-1/-1	141084	17	>100:1	Target = 3.10		938.00	881.07		
349 > 99	44	2.513	2.532		48338	17	>100:1	2.91 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.441	2.451	0	106659	18	>100:1			5000.00	4710.31	94.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.441	2.451	0/0	41357	19	>100:1	Target = 1.75		934.00	879.50		
327 > 81	63	2.441	2.451		22674	17	49:1	1.82 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.477	2.496	-1	669033	19	>100:1			1000.00	1027.25	100.2	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.477	2.496	-1/0	681873	18	>100:1	Target = 18.91		1000.00	980.22		
313 > 119	49	2.477	2.496		34498	23	>100:1	19.76 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.590	2.607	-1	1146454	19	>100:1			5000.00	4946.81	94.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.597	2.614	-1/0	289726	19	>100:1	Target = 0.79		2000.00	1951.07		
285 > 185	66	2.590	2.614		374434	20	>100:1	0.77 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.853	2.873	-1	546721	18	>100:1			1000.00	1029.73	100.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.853	2.873	-1/0	615367	19	>100:1	Target = 3.80		1000.00	1024.32		
363 > 169	47	2.853	2.873		149134	18	>100:1	4.12 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.872	2.889	-1	129306	19	>100:1			1000.00	1029.18	104.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.872	2.889	-1/0	118557	27	>100:1	Target = 2.89	5.77	910.00	833.98		
399 > 99	45	2.872	2.889		39213	24	>100:1	3.02 (1.44-4.34)	7.41				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.895	2.912	-1/0	925889	21	>100:1	Target = 3.23		942.00	923.30		
377 > 85	45	2.895	2.912		270196	19	>100:1	3.42 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.252	3.276	-1/0	117781	22	>100:1	Target = 3.12		952.00	886.87		
449 > 99	45	3.259	3.276		37920	22	>100:1	3.10 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.225	3.242	-1	101701	23	>100:1			5000.00	5650.07	103.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.225	3.248	-1/0	47129	19	>100:1	Target = 1.75		948.00	978.79		
427 > 81	64	3.218	3.248		25874	19	68:1	1.82 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.245	3.269	-1	573754	20	>100:1			1000.00	1093.54	99.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.276	-1/0	559803	20	>100:1	Target = 2.89		1000.00	952.11		
413 > 169	53	3.252	3.276		195445	21	>100:1	2.86 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.635	3.657	-1	127490	21	>100:1			1000.00	1029.45	101.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.635	3.652	0/1	131694	39	>100:1	Target = 3.30	3.85	928.00	867.55		
499 > 99	54	3.635	3.652		35066	38		3.75 (1.65-4.95)	5.65				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.850	3.872	-1/0	440618	18	>100:1			932.00	912.60		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.989	4.017	-1/0	92707	16	>100:1	Target = 3.08		960.00	906.37		
549 > 99	54	3.989	4.017		34849	20	>100:1	2.66 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.300	4.319	-1/0	92970	14		Target = 2.72		964.00	931.89		
599 > 99	54	4.290	4.319		35783	15	>100:1	2.59 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.459	4.483	-1/0	409047	15	>100:1			942.00	937.15		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.812	4.842	-1/0	103775	20	>100:1	Target = 3.27		968.00	946.62		
699 > 99	54	4.806	4.842		34293	25		3.02 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.635	3.662	-1	620354	21	>100:1			1000.00	968.73	89.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.642	3.662	-1/0	706105	22	>100:1	Target = 6.51		1000.00	1056.00		
463 > 169	56	3.642	3.662		105343	21	>100:1	6.70 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.908	3.921	0	267247	18	>100:1			1000.00	996.97	98.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.908	3.921	0/0	272044	17	>100:1	Target = 41.63		1000.00	967.46		
498>478	55	3.908	3.921		8450	24		32.19 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.999	4.027	-1	598826	17	>100:1			1000.00	1042.05	93.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.999	4.027	-1/0	729967	16	>100:1	Target = 13.80		1000.00	1047.48		
513 > 169	51	3.999	4.027		48014	14	>100:1	15.20 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.989	4.017	-1	92438	23	>100:1			5000.00	5348.03	94.4	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.999	4.006	0/1	45648	15	>100:1	Target = 1.94		958.00	1092.72		
527 > 81	65	3.999	4.006		16932	15	65:1	2.69 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.608	4.631	-1/0	51246	16		Target = 3.54		964.00	1092.76		
627 > 80	65	4.608	4.631		15239	22	58:1	3.36 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.154	4.178	-1	723743	17	>100:1			5000.00	4789.43	98.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.163	4.187	-1/0	103656	30	>100:1	Target = 1.37	8.04	1000.00	892.43		M
570 > 483	58	4.163	4.187		86843	31	>100:1	1.19 (0.68-2.05)	4.34				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.321	4.329	0	91112	15	>100:1			1000.00	1010.24	110.1	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.331	4.348	-1/-1	102991	15	>100:1			1000.00	1034.35		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.340	4.348	0	43273	12	>100:1			1000.00	919.90	89.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.340	4.367	-1/-1	48783	20	>100:1	Target = 1.11		1000.00	1040.08		
512 > 219	57	4.340	4.367		41627	13	>100:1	1.17 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.321	4.339	-1	637989	15	>100:1			5000.00	4926.06	97.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.321	4.348	-1/0	110537	31	>100:1	Target = 1.51	6.41	1000.00	888.46		
584 > 526	60	4.321	4.348		76974	31	>100:1	1.43 (0.75-2.26)	3.73				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.321	4.339	-1	657505	15	>100:1			1000.00	1091.75	99.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.321	4.339	-1/0	634586	17	>100:1	Target = 14.52		1000.00	996.06		
563 > 169	52	4.321	4.339		38219	15	>100:1	16.60 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.486	4.501	0	97727	14	>100:1			1000.00	921.28	97.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.495	4.510	0/0	101888	17	>100:1			1000.00	1070.98		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.504	4.519	0	42512	13	>100:1			1000.00	988.65	109.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.513	4.528	0/0	49557	15	>100:1	Target = 1.06		1000.00	972.34		
526 > 219	59	4.513	4.528		48970	14	>100:1	1.01 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.591	4.614	-1	658851	16	>100:1			1000.00	1097.47	89	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.591	4.614	-1/0	714105	17	>100:1	Target = 10.70		1000.00	1016.69		
613 > 169	38	4.591	4.614		63623	17	>100:1	11.22 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.839	4.868	-1/0	673971	18	>100:1	Target = 8.31		1000.00	973.23		
663 > 169	38	4.847	4.868		69686	18	>100:1	9.67 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.066	5.087	-1	855577	21	>100:1			1000.00	1052.38	97.1	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.066	5.093	-1/0	733878	21	>100:1	Target = 12.17		1000.00	982.62		
713 > 169	42	5.066	5.093		57108	21	>100:1	12.85 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.484	5.512	-1	912422	19	>100:1			1000.00	1051.13	96.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.484	5.512	-1/0	567353	19	>100:1	Target = 10.43		1000.00	970.89		
813 > 269	40	5.484	5.512		50951	19	>100:1	11.13 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.904	5.944	-2/-1	846723	39	62:1	Target = 13.67		1000.00	1019.34		
913 > 319	40	5.904	5.944		54673	33	>100:1	15.48 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.999	4.027	-1	699437	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.477	2.496	-1	685102	19	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.269	-1	582308	21	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	∆ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	595265	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.628	3.657	-1	125951	21	>100:1			1000.00			

Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
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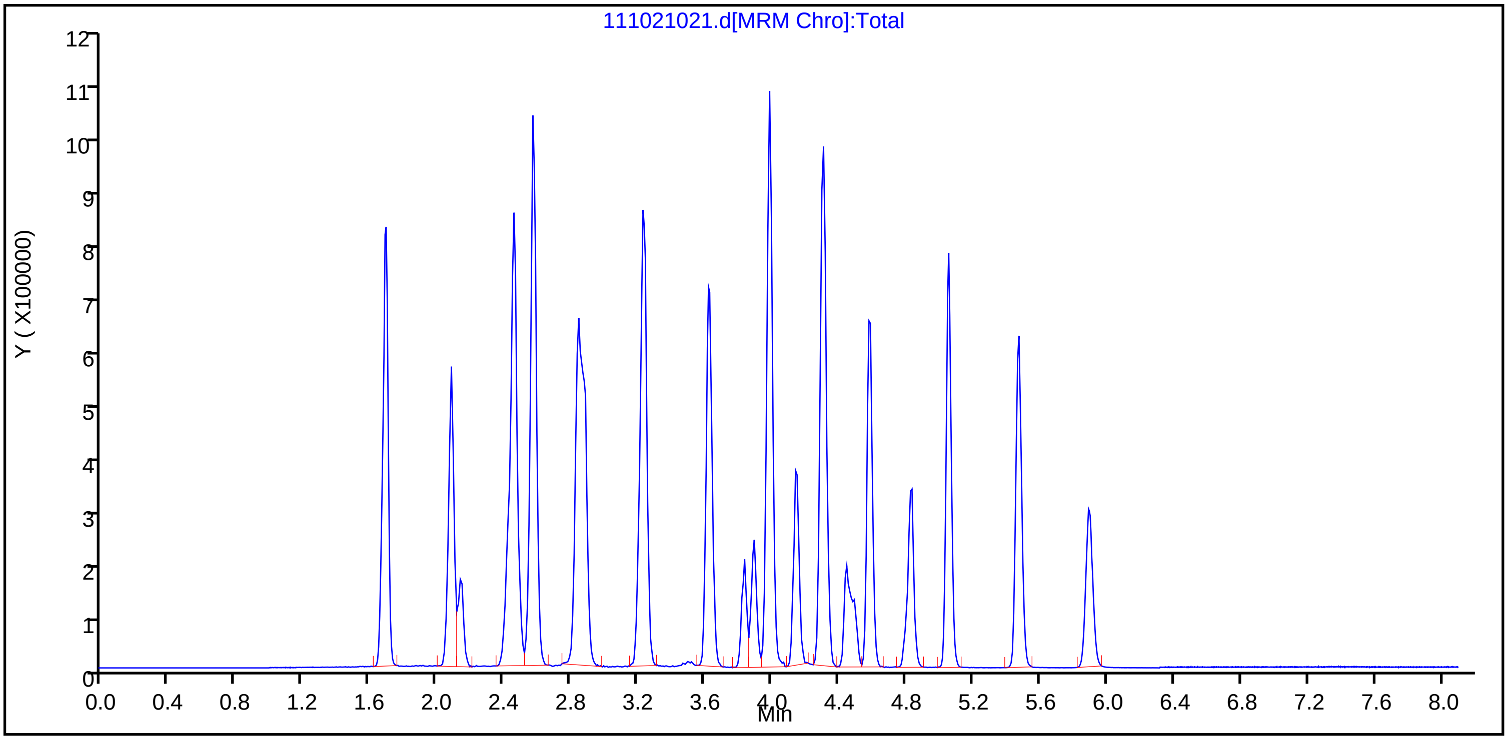
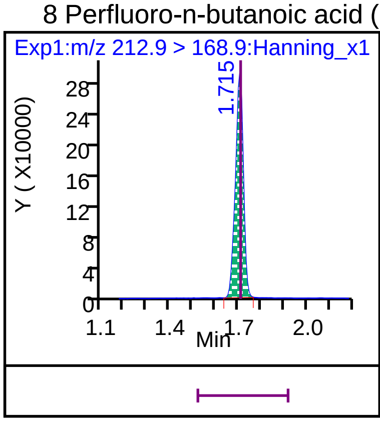
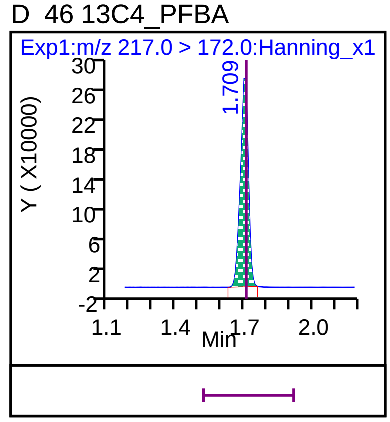
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



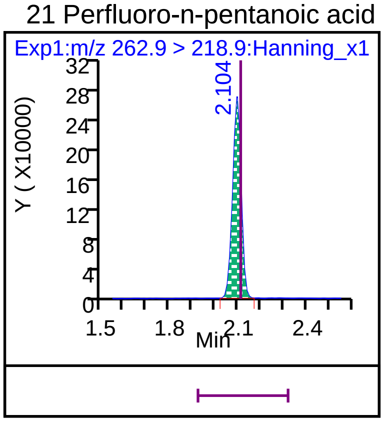
8 Perfluoro-n-butanoic acid (PFBA)



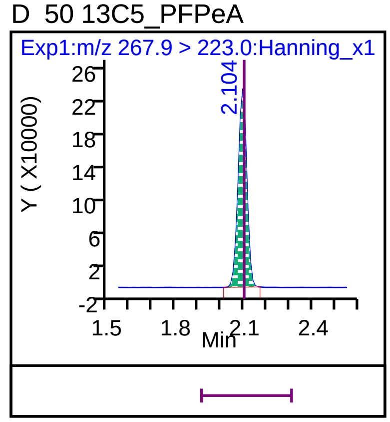
D 46 13C4_PFBA



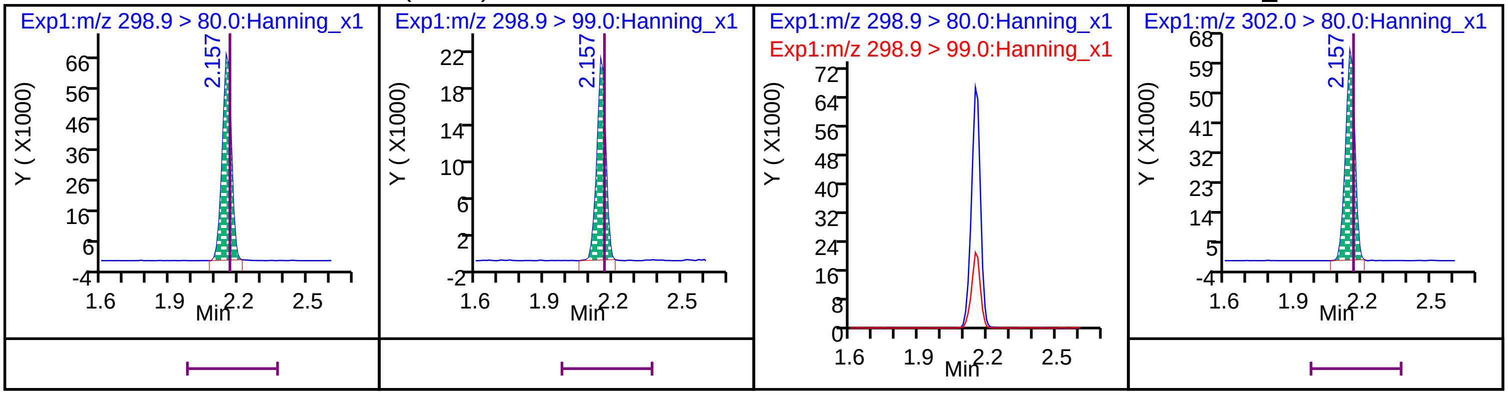
21 Perfluoro-n-pentanoic acid (PFPeA)



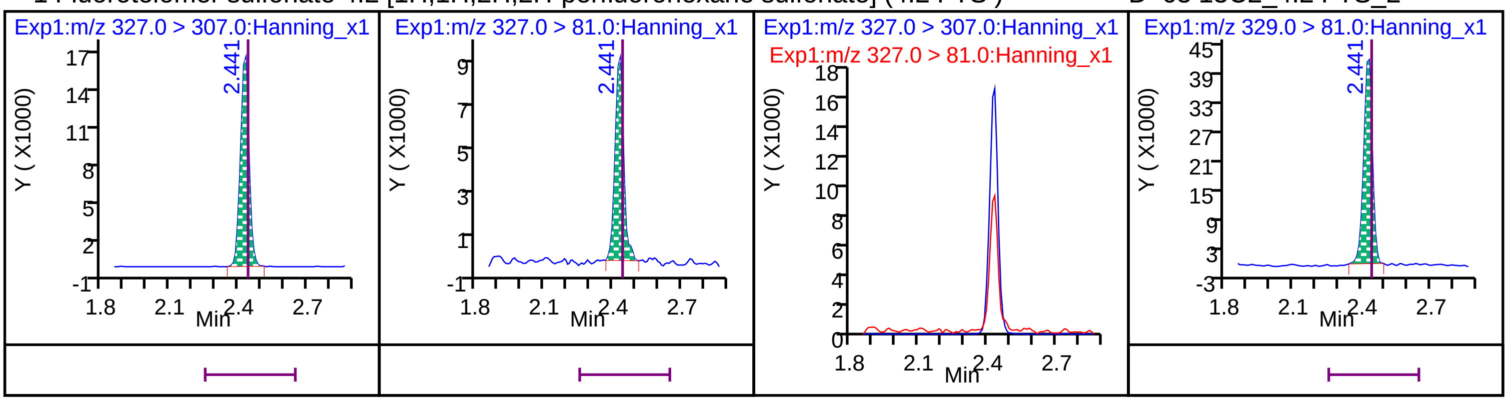
D 50 13C5_PFPeA



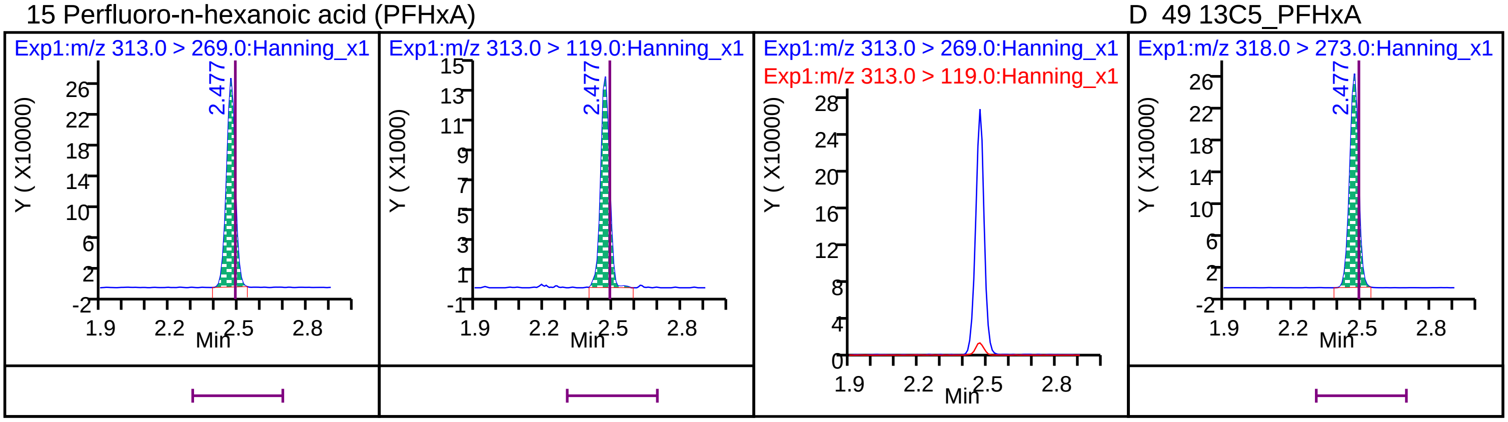
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



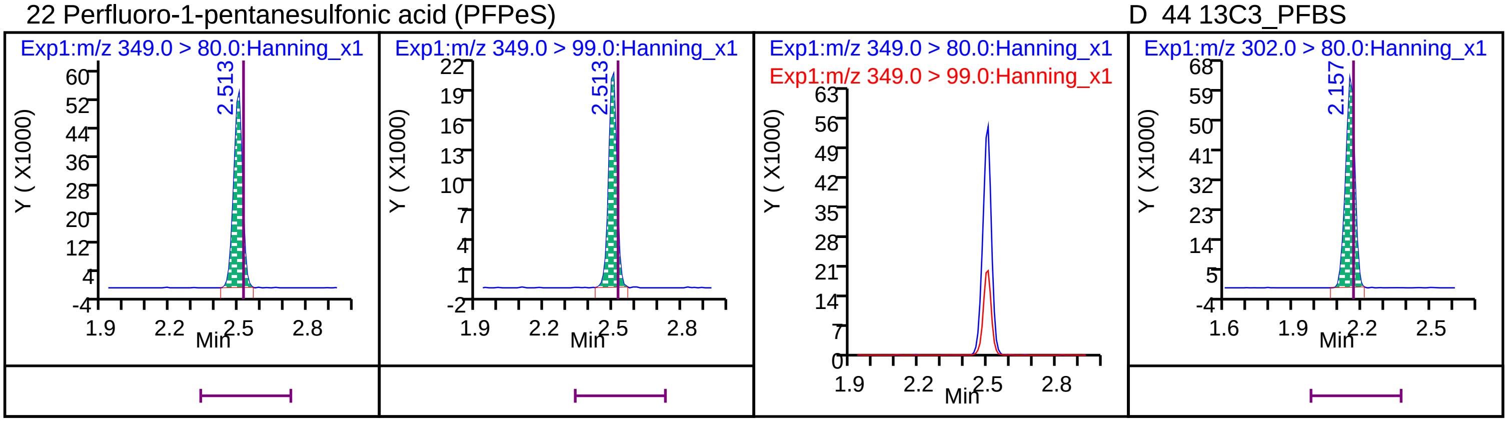
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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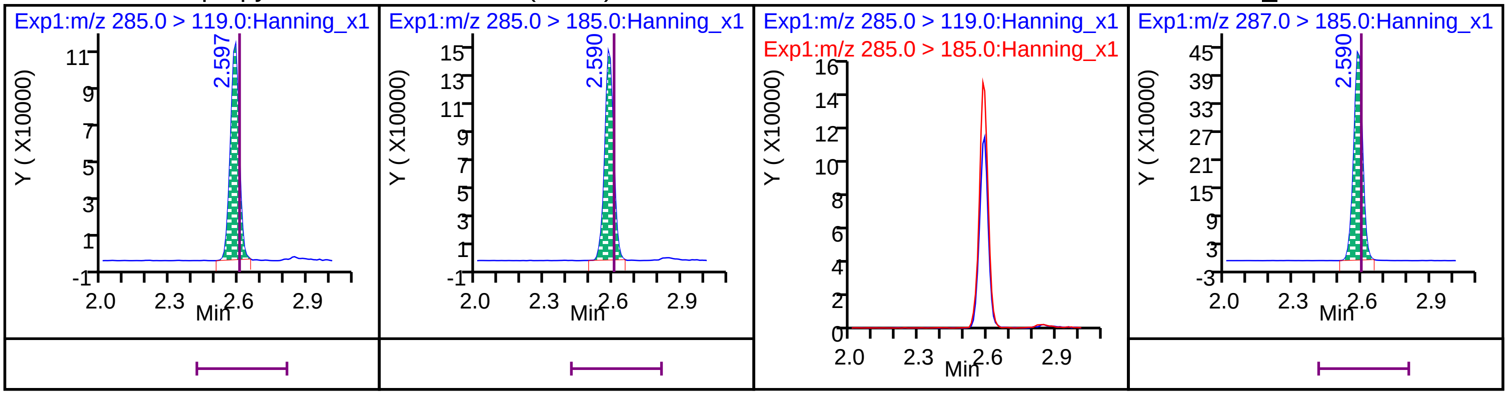
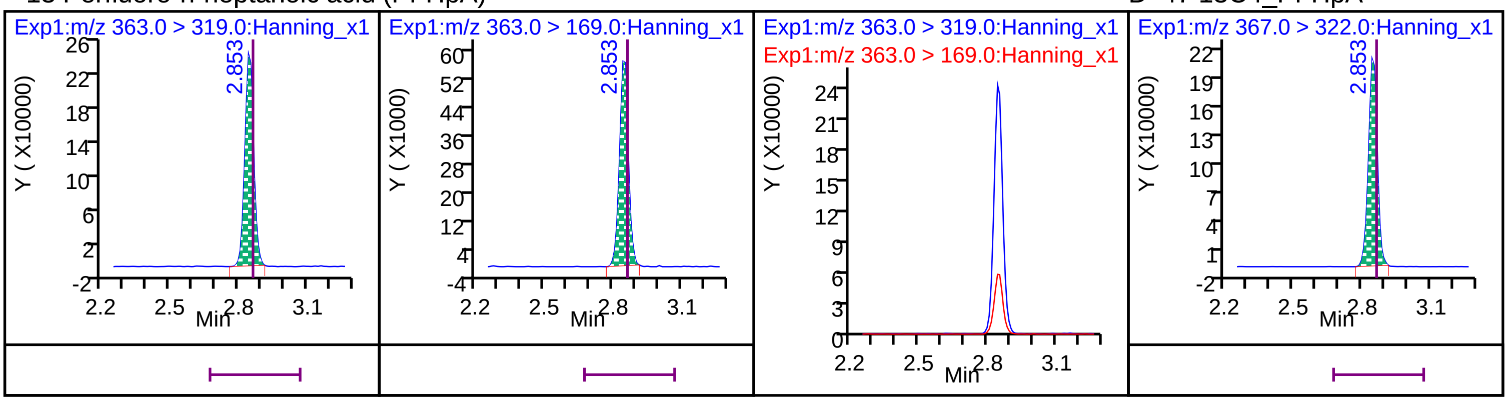
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

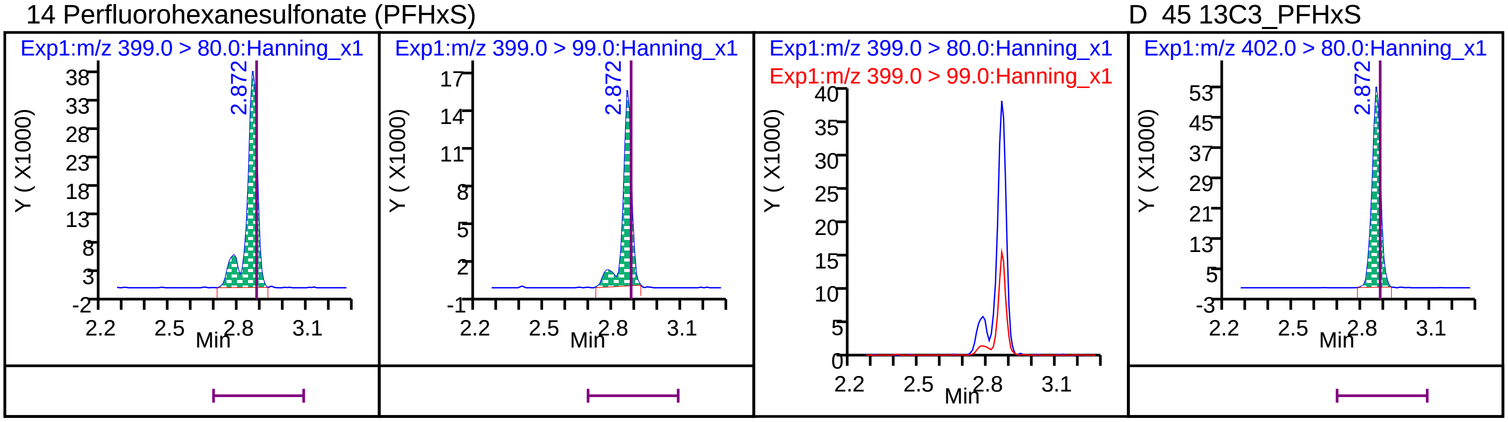
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



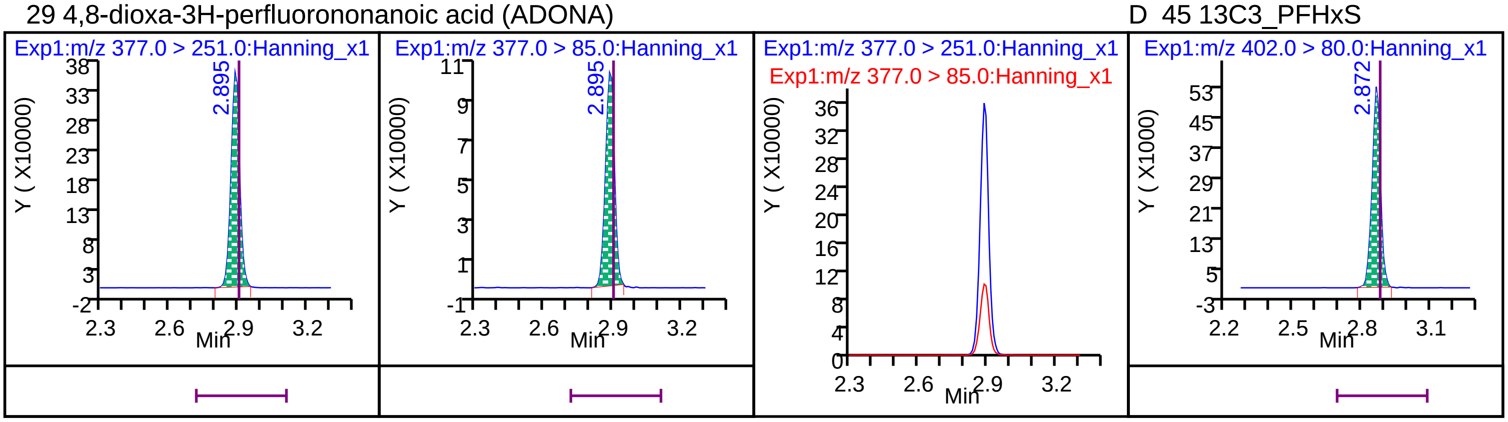
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

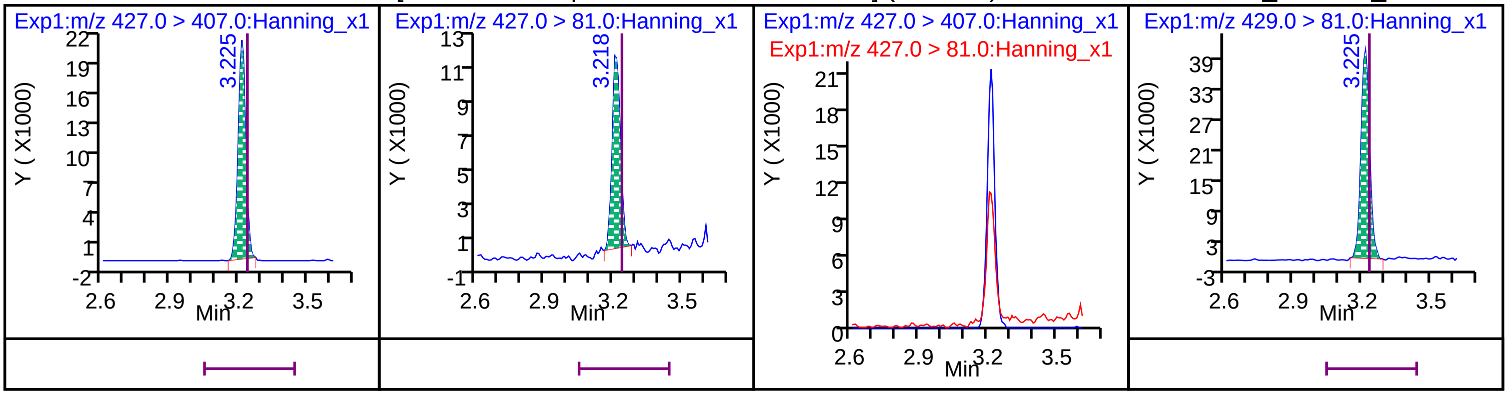


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

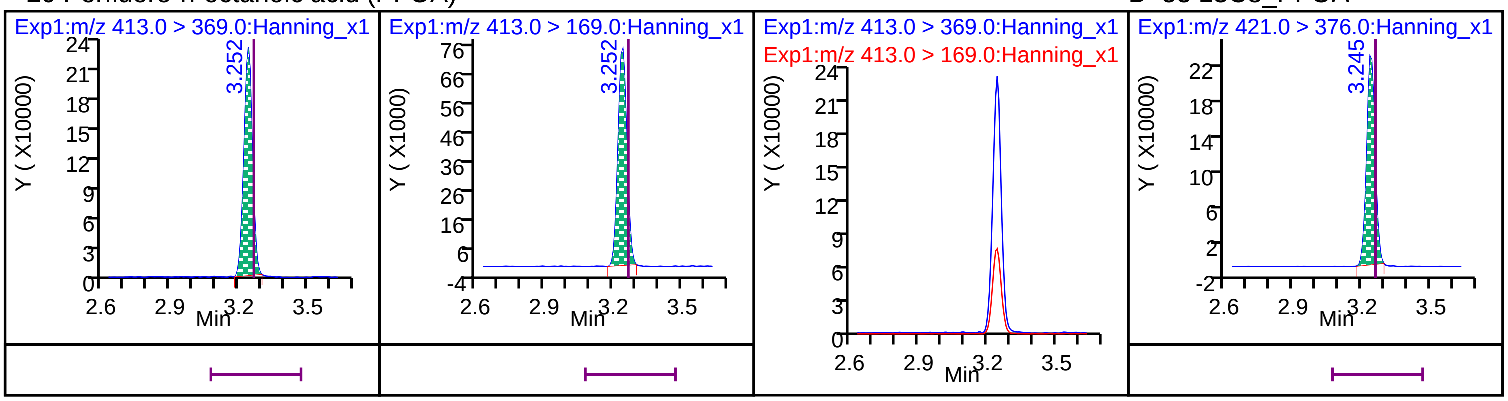


Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

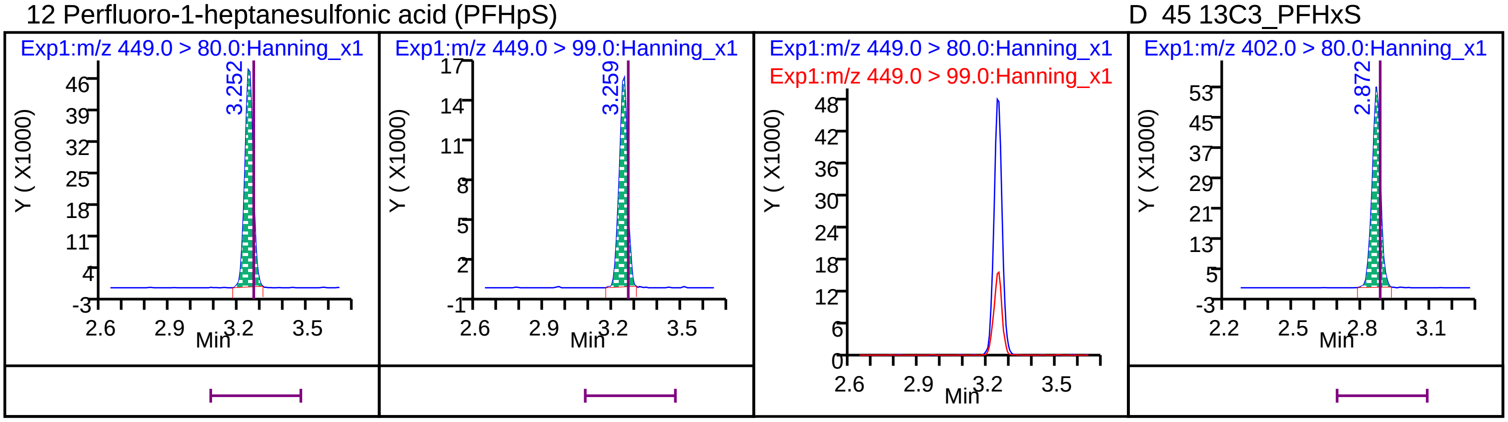
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



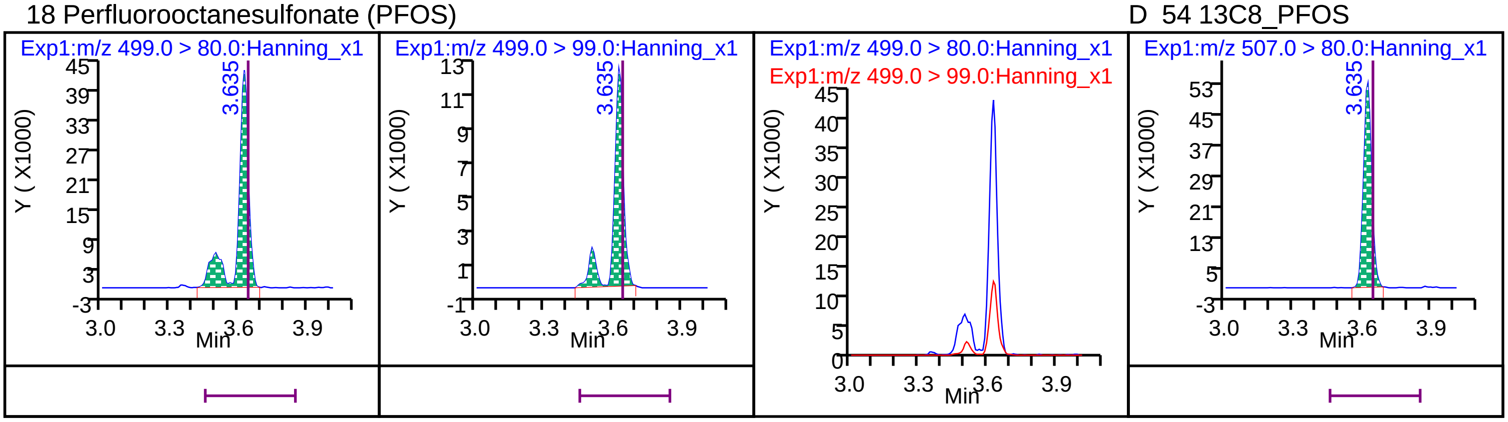
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



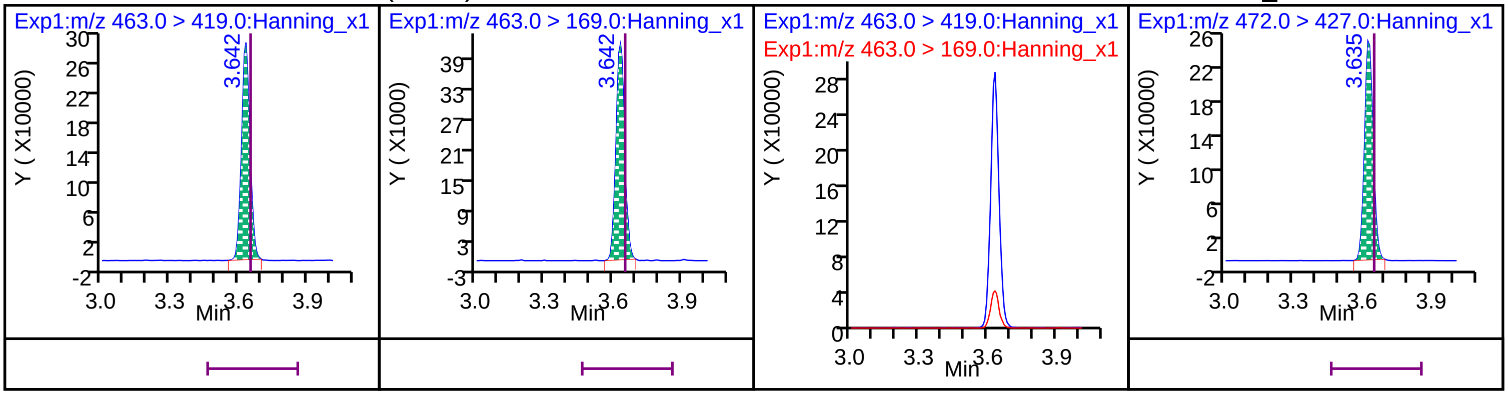
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



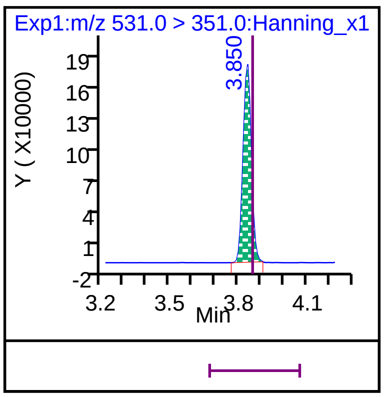
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

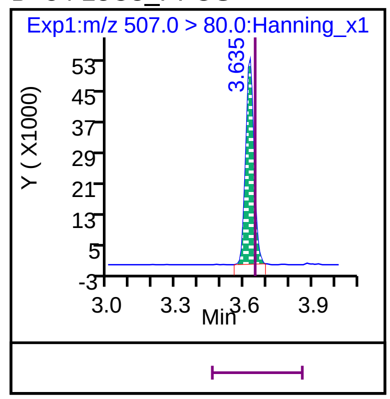


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

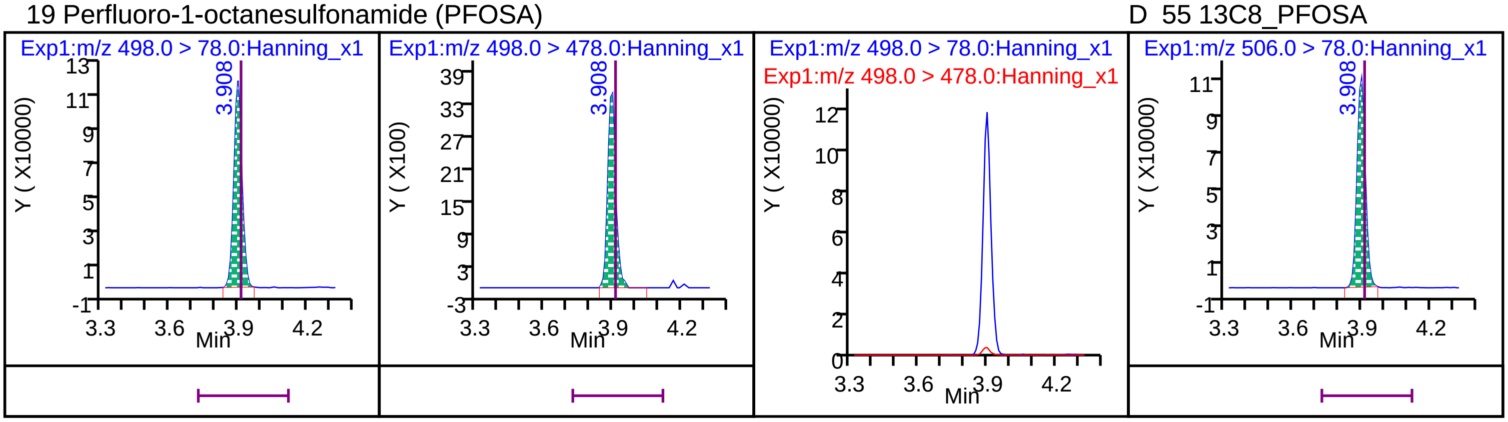


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

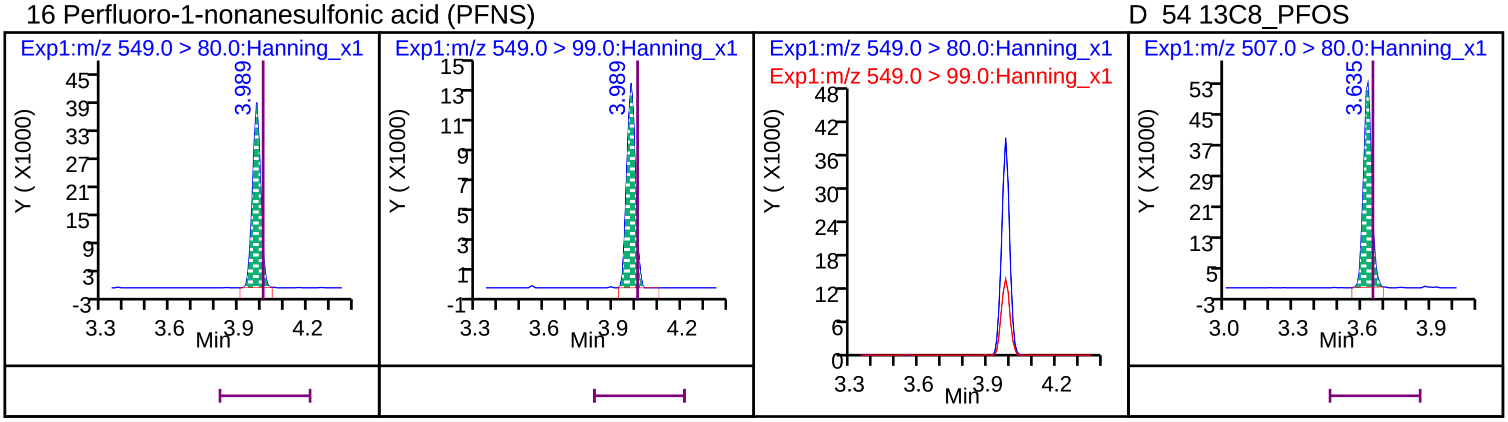




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

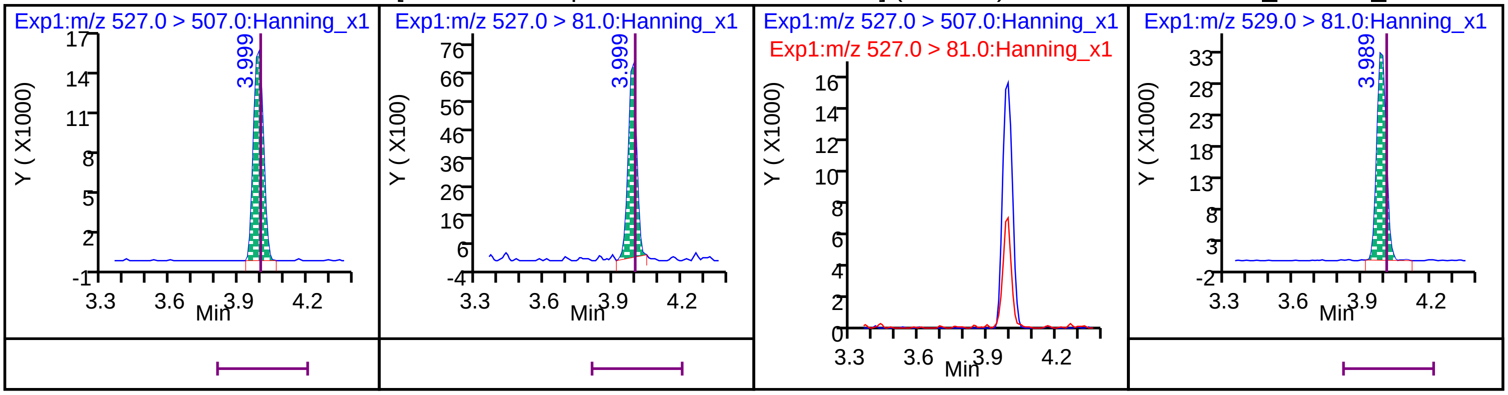


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

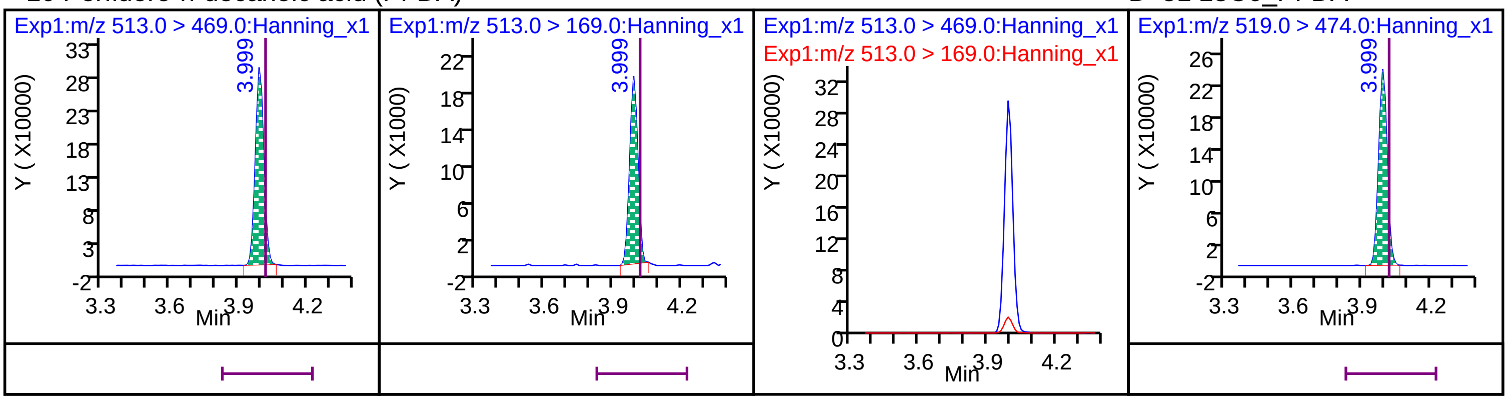


Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

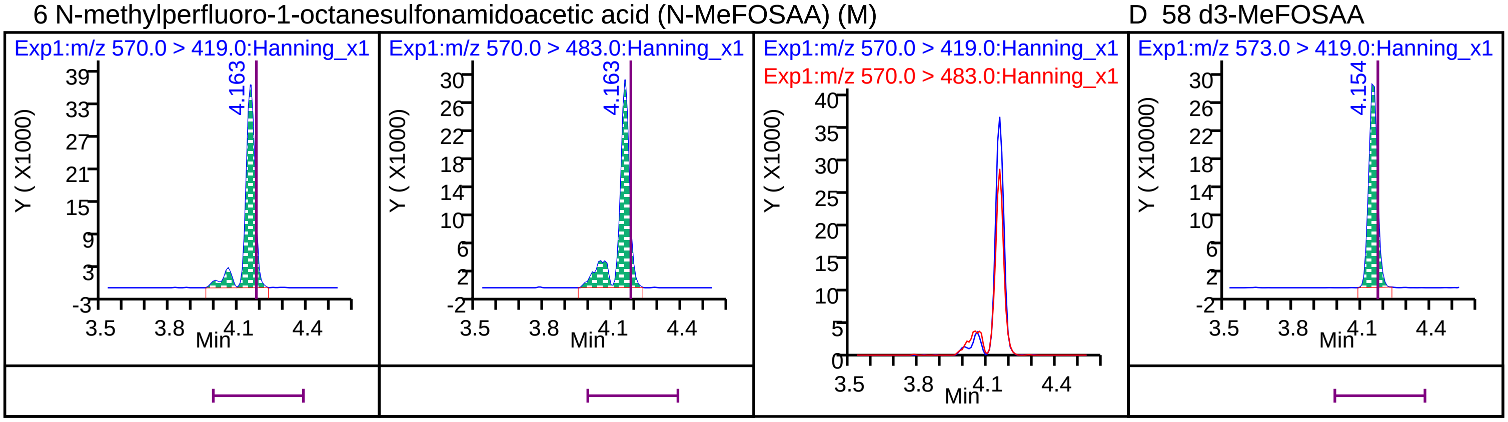
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



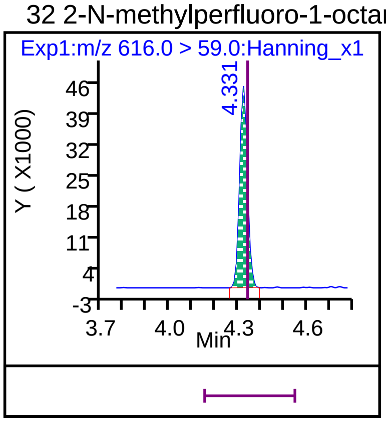
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

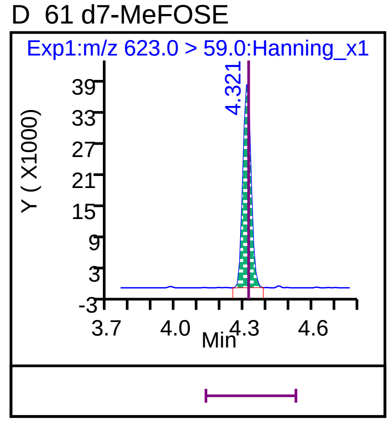


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

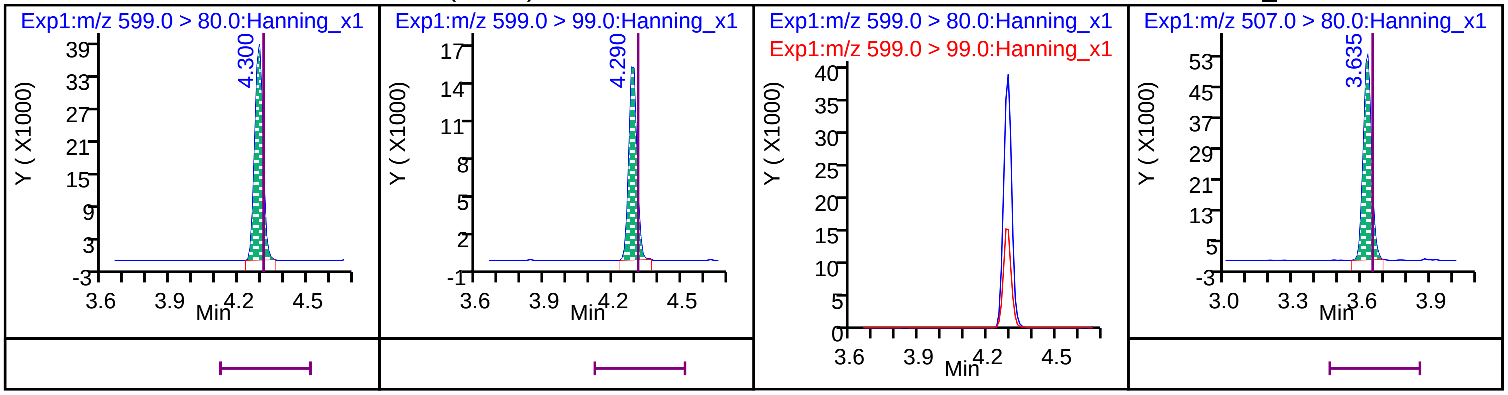


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

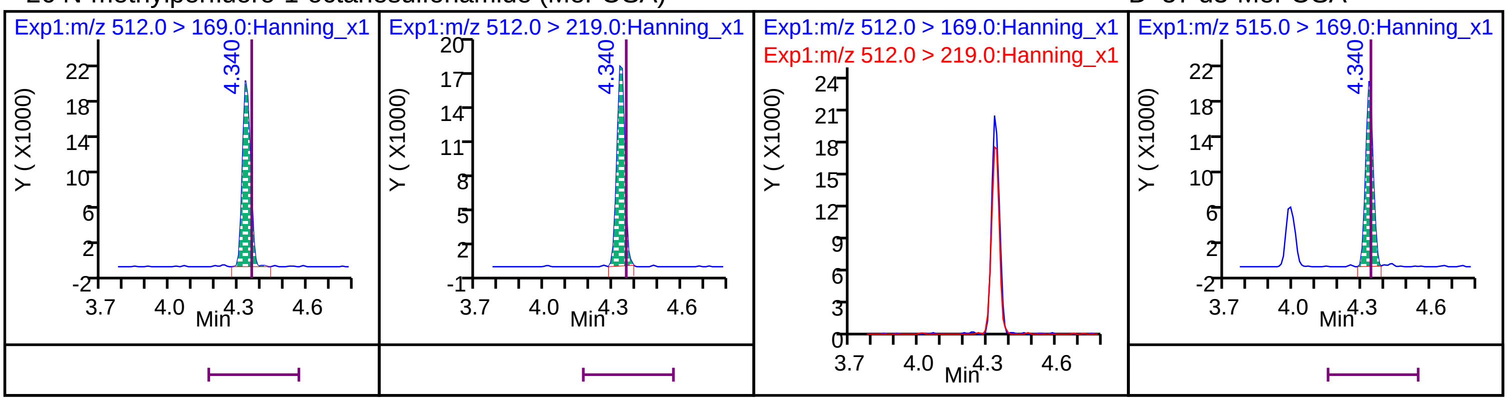




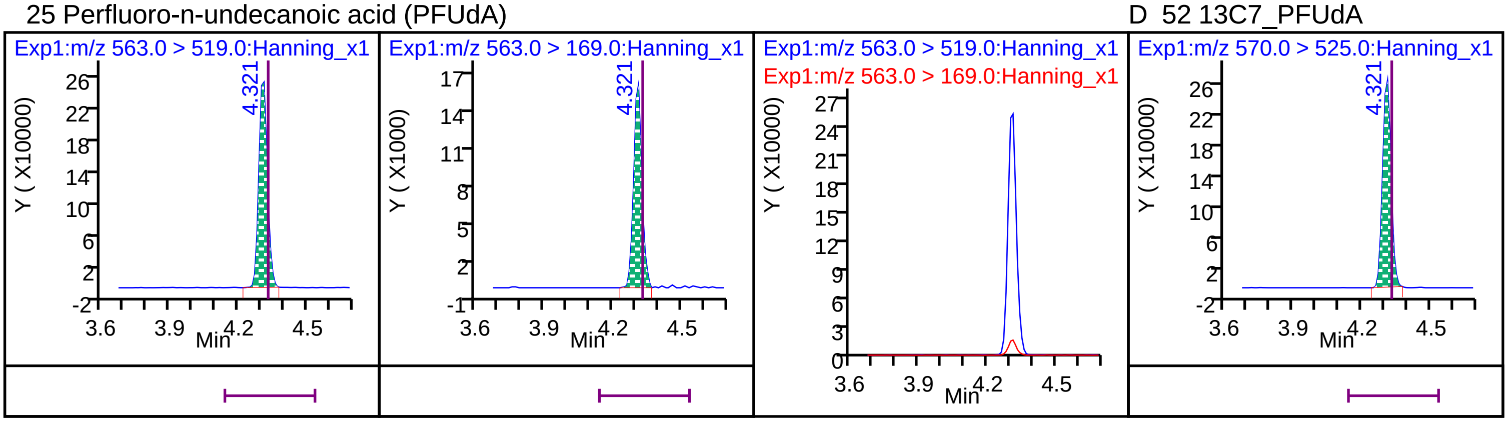
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



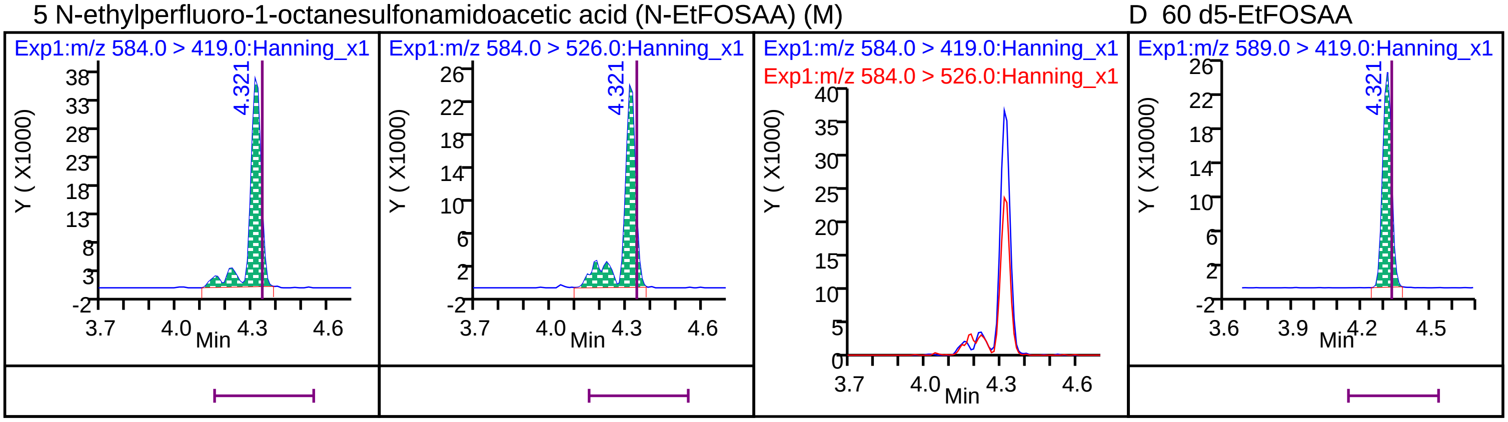
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



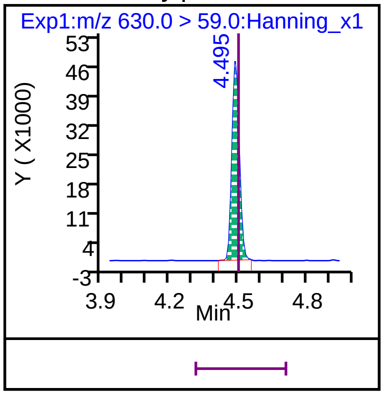
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



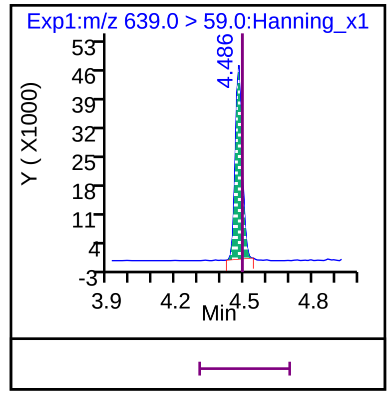
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



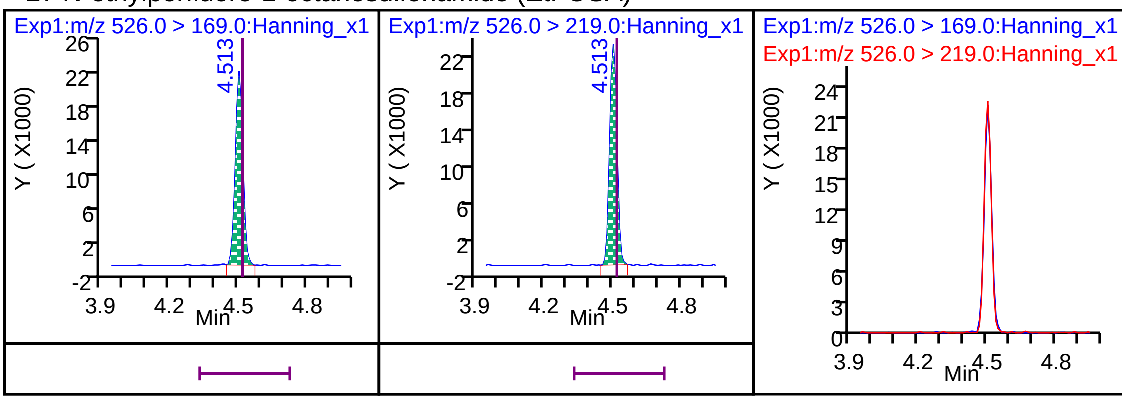
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



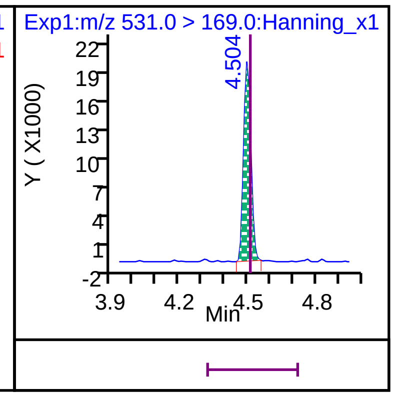
D 62 d9-EtFOSE



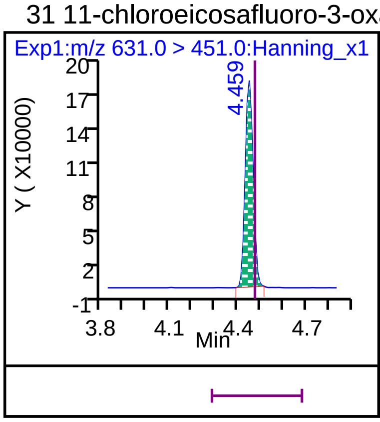
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



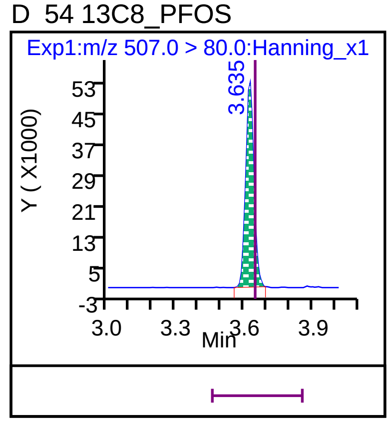
D 59 d5-EtFOSA



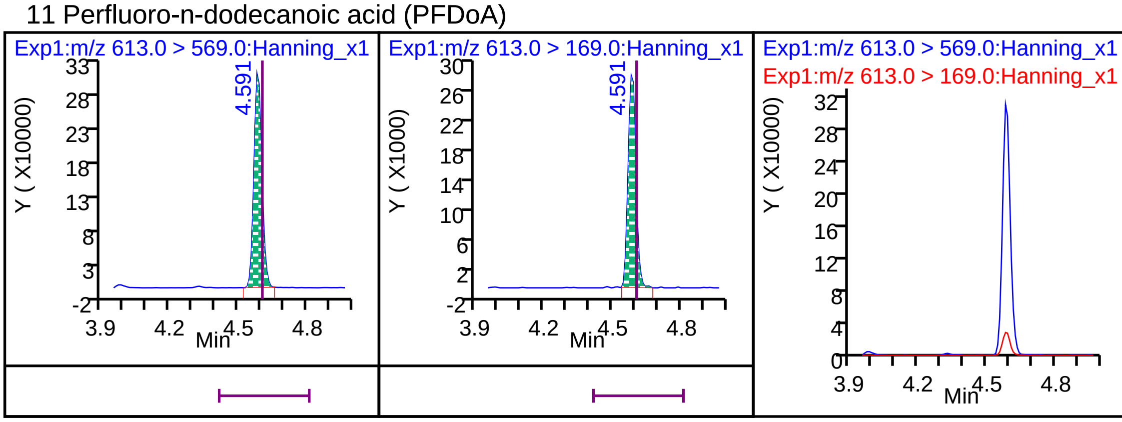
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



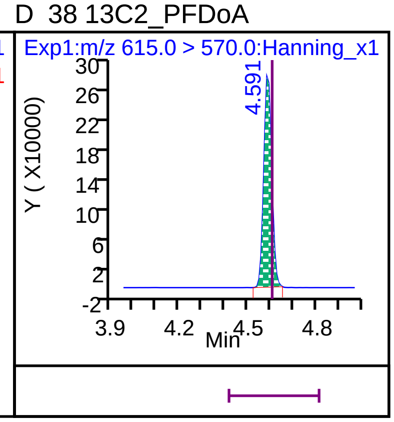
D 54 13C8_PFOS



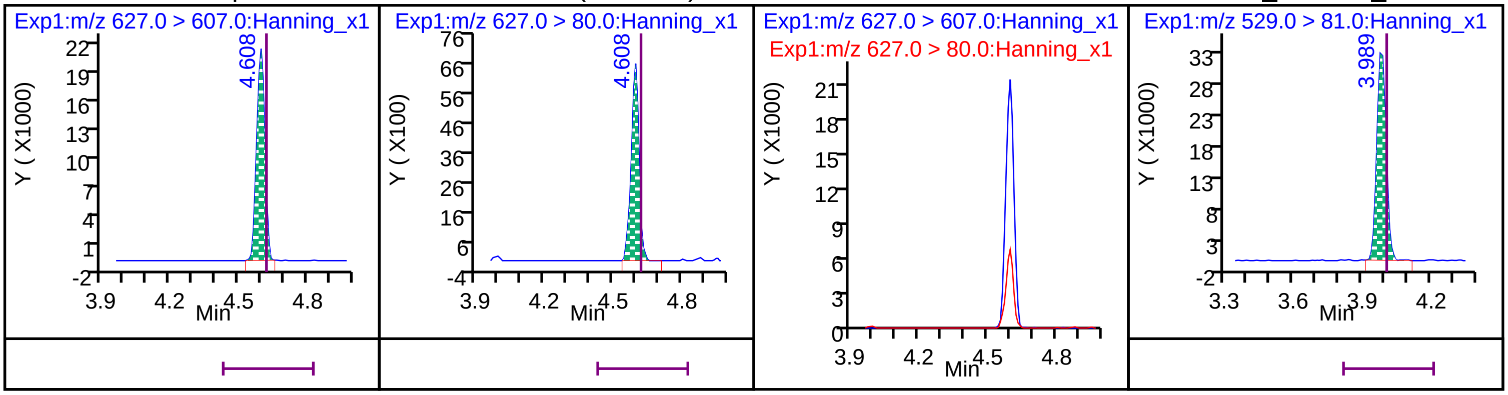
11 Perfluoro-n-dodecanoic acid (PFDoA)



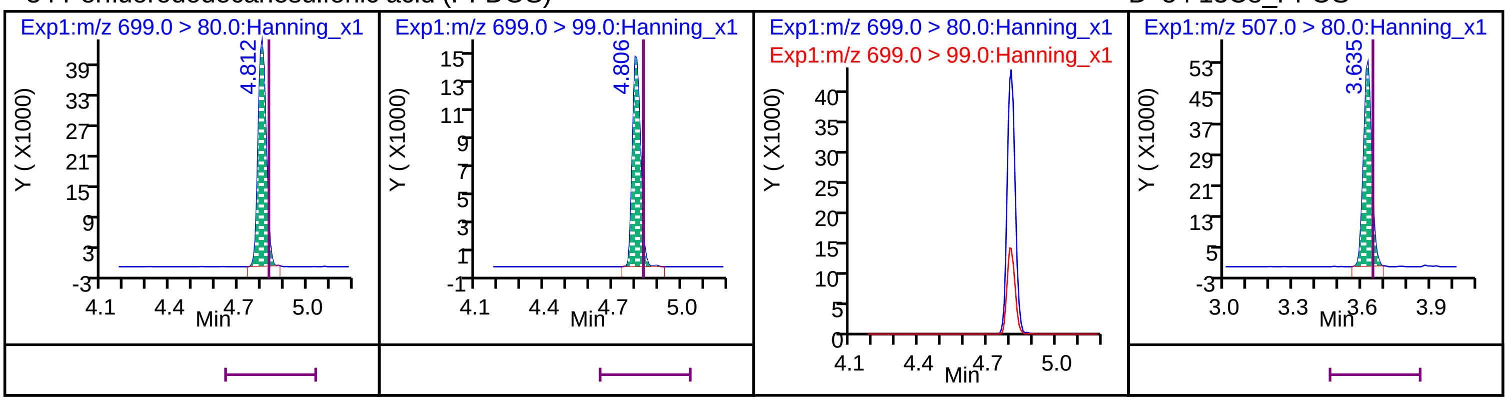
D 38 13C2_PFDoA



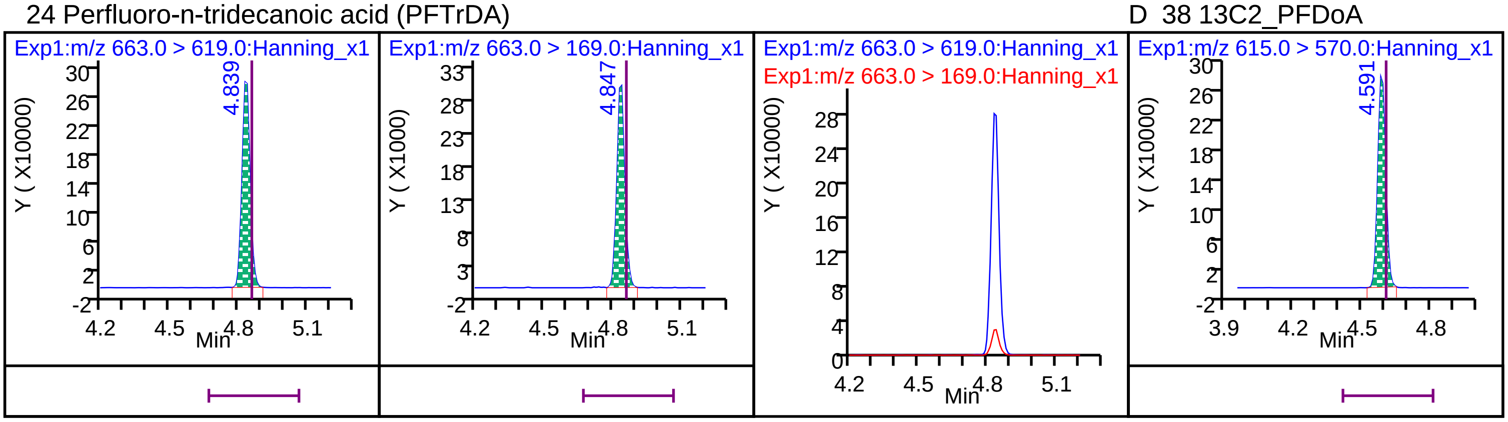
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



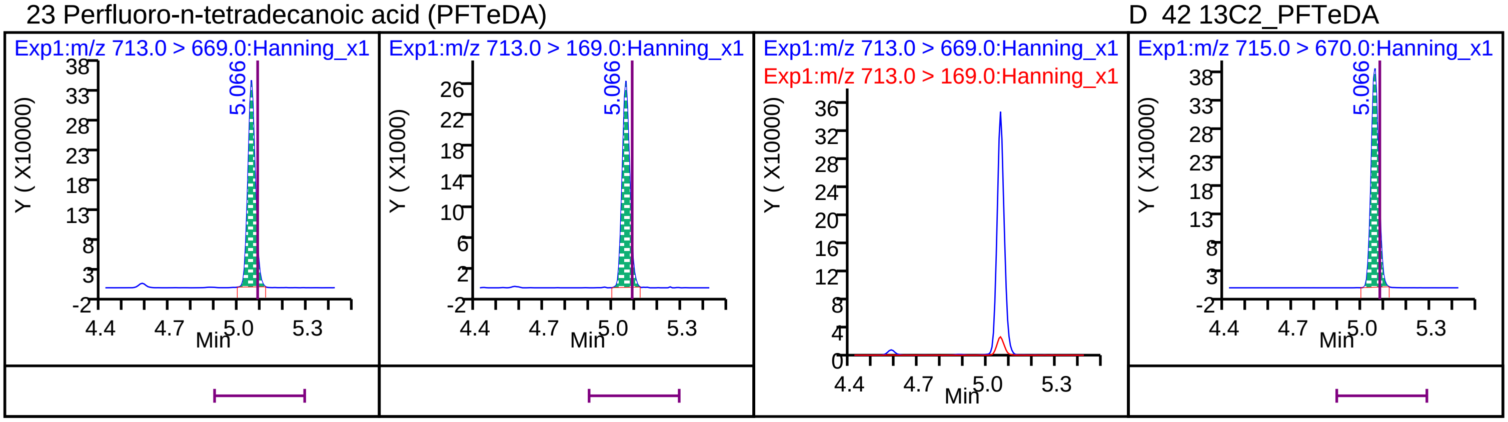
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



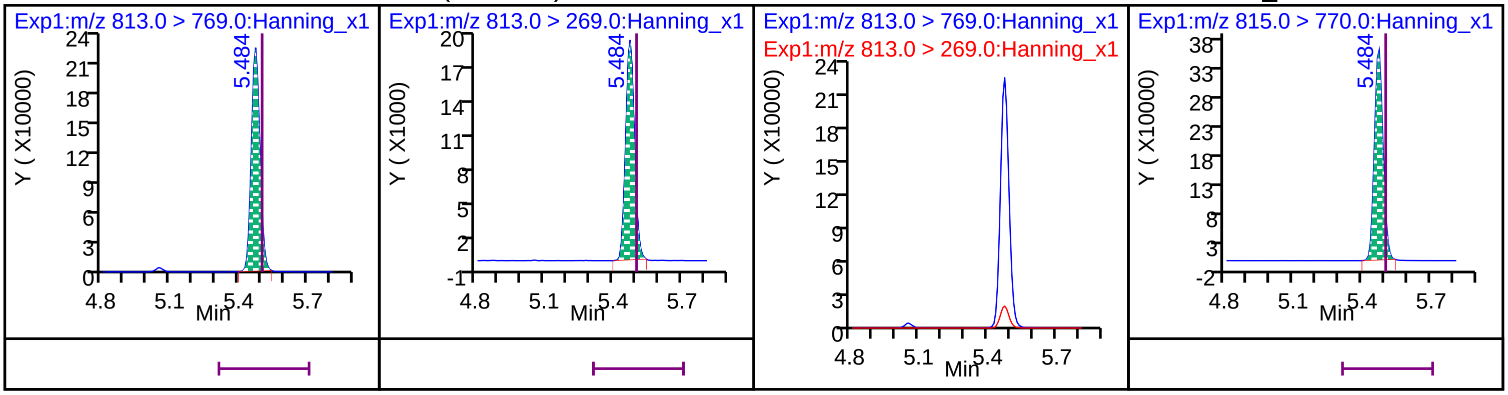
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



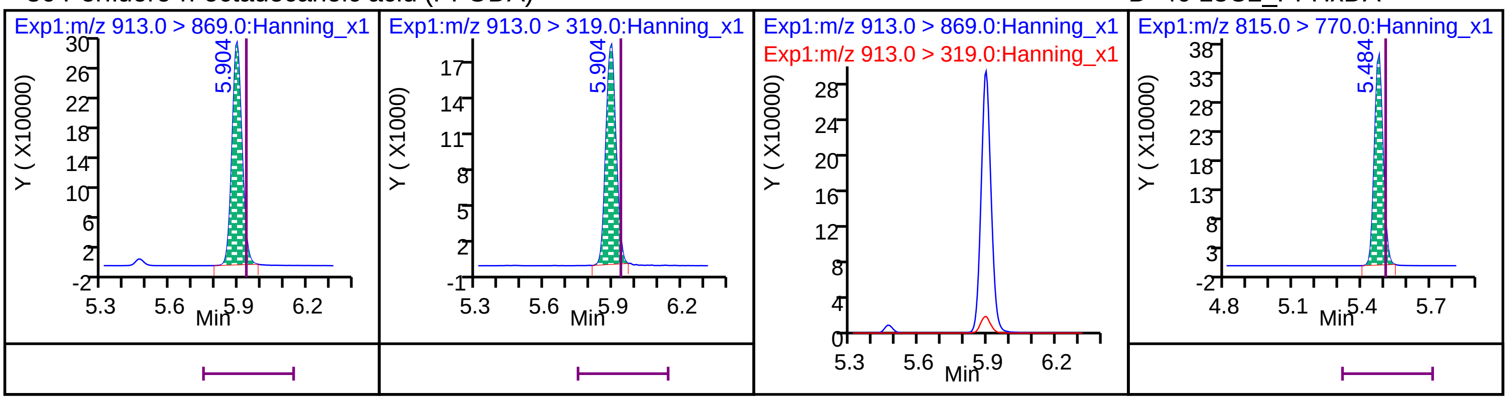
Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d

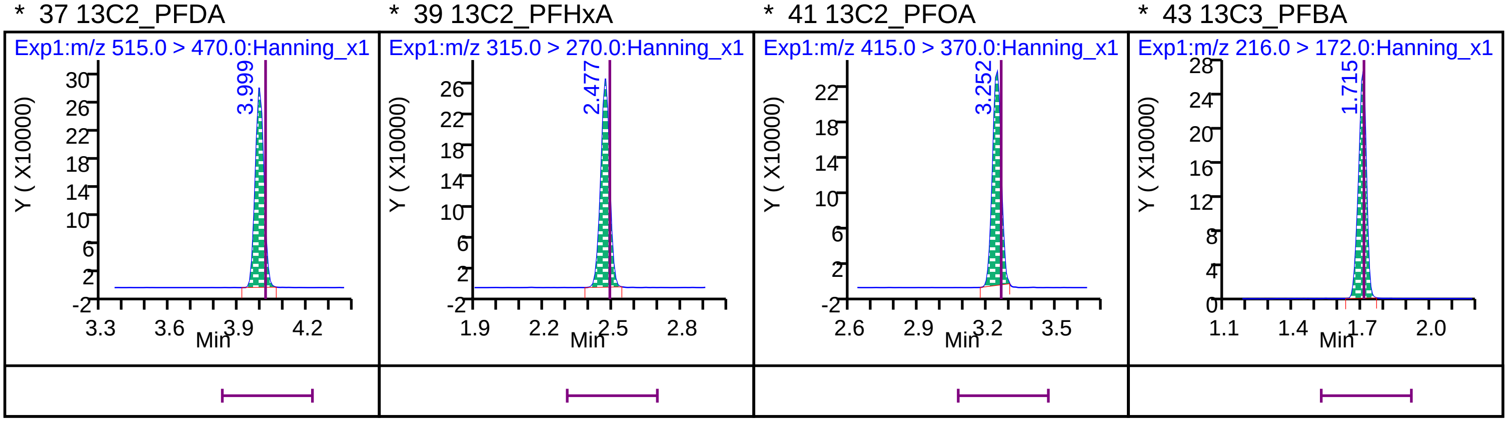
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



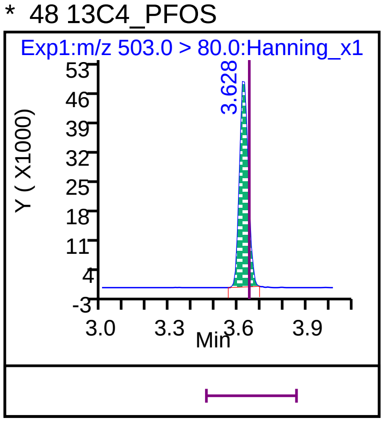
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

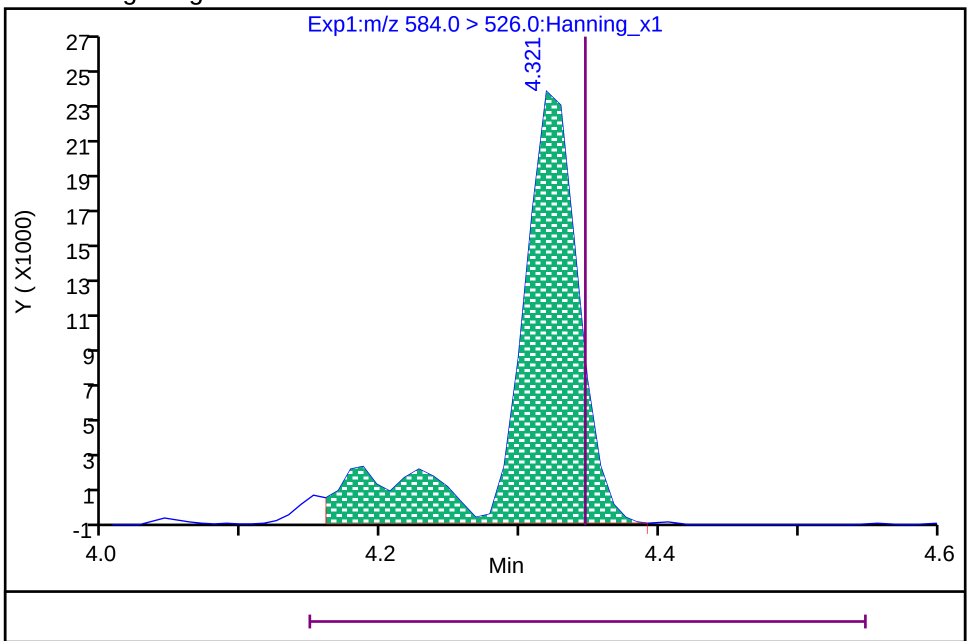
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

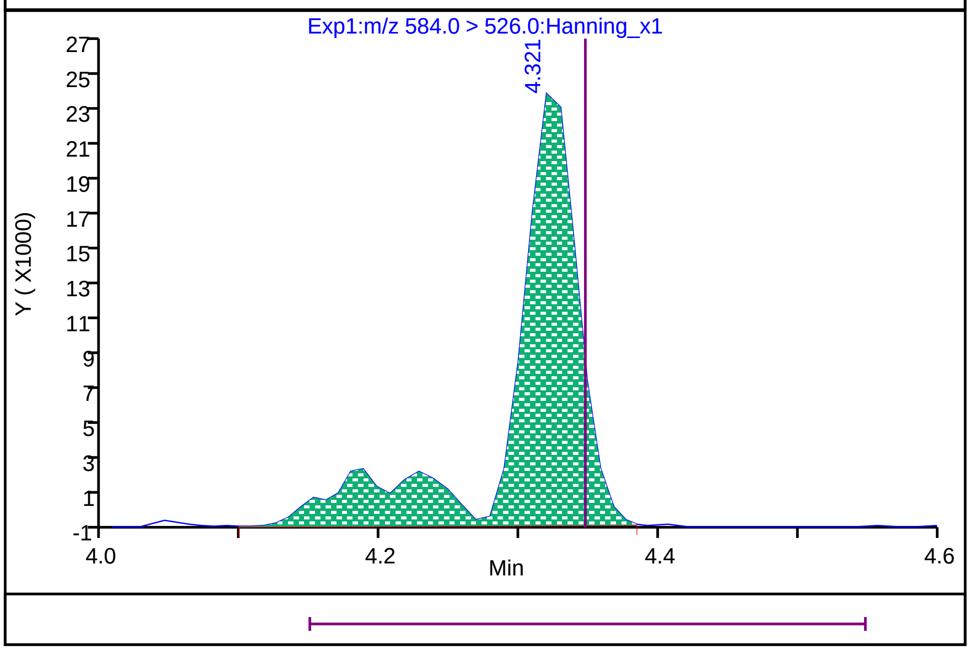
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT: 4.321
Area: 74462
Amount: 888.46
Amount Units: ng/L



RT: 4.321
Area: 76974
Amount: 888.46
Amount Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 09:46:56
Audit Action: Mint
Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:45 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

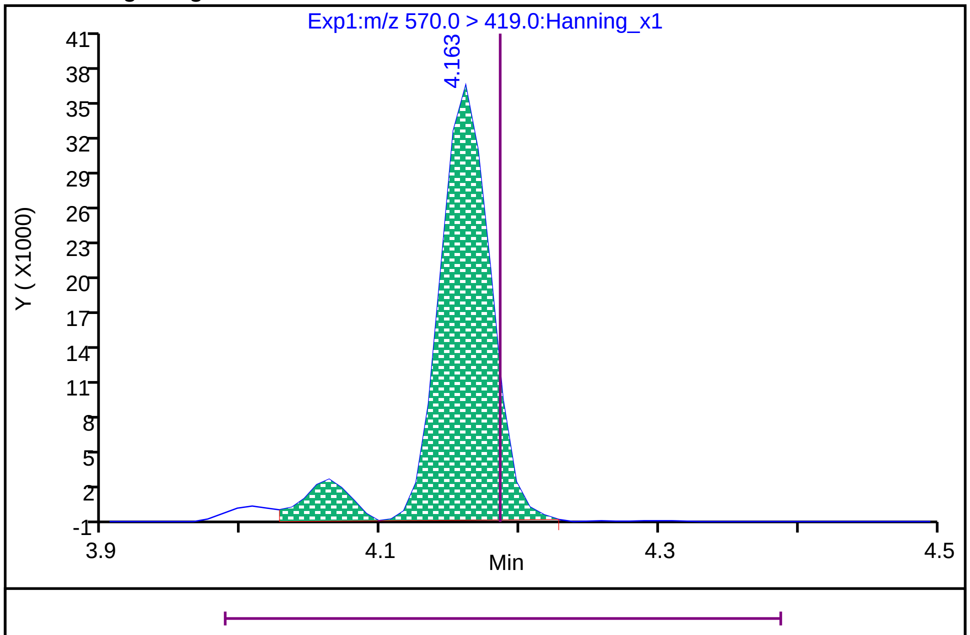
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021021.d		
Injection Date:	10-Nov-2021 16:37:42	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000_SVLC-1744
Sample Info:	ID CCV 1000_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

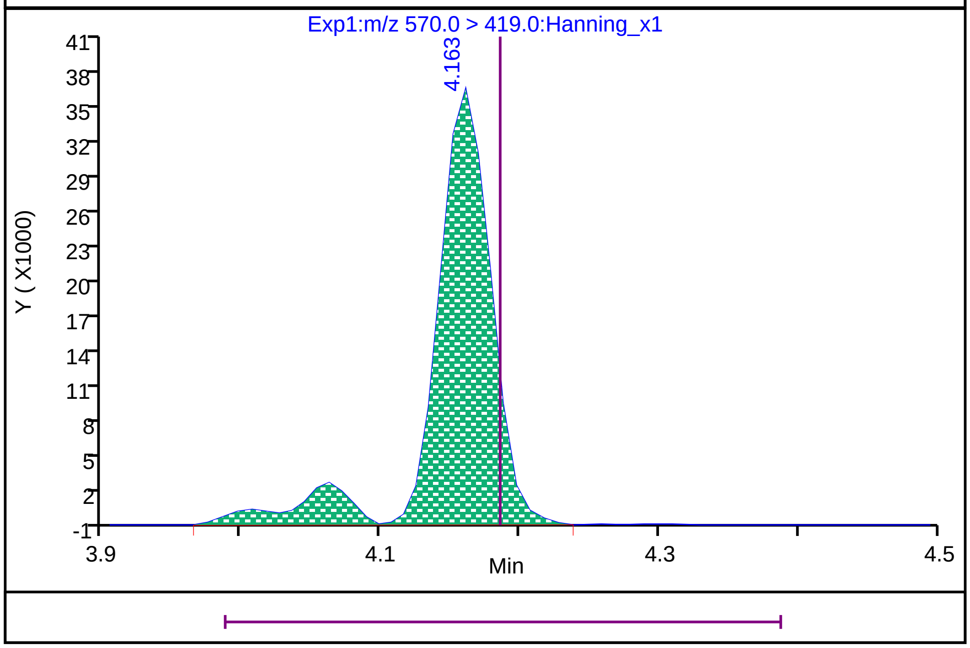
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.163
Area: 99364
Amount: 855.48
Amount Units: ng/L



RT: 4.163
Area: 103656
Amount: 892.43
Amount Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 09:46:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Continuing Calibration Verification Report

Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

Injection Date:	10-Nov-2021 18:44:01	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
8 PFBA			1000.00	978.30	97.8	70 - 130
D 46 13C4_PFBA	659044	644591			97.8	50 - 150
21 PFPeA			1000.00	959.89	96	70 - 130
D 50 13C5_PFPeA	581857	592470			101.8	50 - 150
D 44 13C3_PFBS	164288	180699			110	50 - 150
7 PFBS			884.00	817.74	92.5	70 - 130
1 4:2 FTS			934.00	969.30	103.8	70 - 130
D 63 13C2_4:2 FTS_2	113327	112481			99.3	50 - 150
D 49 13C5_PFHxA	667779	679812			101.8	50 - 150
15 PFHxA			1000.00	1010.76	101.1	70 - 130
22 PFPeS			938.00	894.82	95.4	70 - 130
28 GenX			2000.00	2027.69	101.4	70 - 130
D 66 13C3_GenX	1212655	1171070			96.6	50 - 150
D 47 13C4_PFHpA	545849	560964			102.8	50 - 150
13 PFHpA			1000.00	1000.08	100	70 - 130
D 45 13C3_PFHxS	123814	129173			104.3	50 - 150
14 PFHxS			910.00	891.67	98	70 - 130
29 ADONA			942.00	935.36	99.3	70 - 130
D 64 13C2_6:2 FTS_2	97903	110519			112.9	50 - 150
2 6:2 FTS			948.00	988.23	104.2	70 - 130
20 PFOA			1000.00	1032.06	103.2	70 - 130
D 53 13C8_PFOA	574828	556846			96.9	50 - 150
12 PFHpS			952.00	921.59	96.8	70 - 130
D 54 13C8_PFOS	125685	128828			102.5	50 - 150
18 PFOS			928.00	875.32	94.3	70 - 130
17 PFNA			1000.00	1001.64	100.2	70 - 130
D 56 13C9_PFNA	690339	655714			95	50 - 150
30 9Cl-PF3ONS			932.00	904.13	97	70 - 130
D 55 13C8_PFOSA	270667	268528			99.2	50 - 150
19 PFOSA			1000.00	984.44	98.4	70 - 130
16 PFNS			960.00	921.51	96	70 - 130
10 PFDA			1000.00	1018.85	101.9	70 - 130
3 8:2 FTS			958.00	853.19	89.1	70 - 130
D 51 13C6_PFDA	638513	603572			94.5	50 - 150
D 65 13C2_8:2 FTS_2	97932	99516			101.6	50 - 150
6 N-MeFOSAA			1000.00	867.70	86.8	70 - 130

Compound	Std Area	CCV Area	Exp. Conc ng/L	Conc ng/L	%Rec	%Rec Limits
D 58 d3-MeFOSAA	734264	712589			97	50 - 150
D 61 d7-MeFOSE	82771	85288			103	50 - 150
32 MeFOSE			1000.00	1056.66	105.7	70 - 130
26 MeFOSA			1000.00	1173.94	117.4	70 - 130
D 57 d3-MeFOSA	48290	43374			89.8	50 - 150
9 PFDS			964.00	952.17	98.8	70 - 130
D 52 13C7_PFUdA	658476	696207			105.7	50 - 150
D 60 d5-EtFOSAA	654482	639916			97.8	50 - 150
25 PFUdA			1000.00	881.04	88.1	70 - 130
5 N-EtFOSAA			1000.00	930.27	93	70 - 130
D 62 d9-EtFOSE	100538	95556			95	50 - 150
33 EtFOSE			1000.00	1169.40	116.9	70 - 130
D 59 d5-EtFOSA	38708	46260			119.5	50 - 150
31 11Cl-PF3OUDS			942.00	907.46	96.3	70 - 130
27 EtFOSA			1000.00	886.78	88.7	70 - 130
D 38 13C2_PFDoA	739968	678758			91.7	50 - 150
11 PFDoA			1000.00	1005.04	100.5	70 - 130
4 10:2 FTS			964.00	961.58	99.7	70 - 130
34 PFDOS			968.00	953.72	98.5	70 - 130
24 PFTrDA			1000.00	968.70	96.9	70 - 130
D 42 13C2_PFTeDA	881166	859674			97.6	50 - 150
23 PFTeDA			1000.00	989.74	99	70 - 130
D 40 13C2_PFHxDA	942416	906562			96.2	50 - 150
35 PFHxDA			1000.00	952.16	95.2	70 - 130
36 PFODA			1000.00	1039.61	104	70 - 130

Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
Injection Date:	10-Nov-2021 18:44:01	Injection Vol:	10.0 uL
Sample Type:	CCV	Auto Sampler:	26
Sample Info:	ID CCV 1000A_SVLC-1744	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent: Analytes Conc. Level: L-5 Vol. Added: 1.00 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.718	0	644591	20	>100:1			1000.00	1036.86	97.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.718	1.718	0/0	665056	22	>100:1			1000.00	978.30		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.109	0	592470	17	>100:1			1000.00	1036.53	101.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.109	2.120	0/0	640081	16	>100:1			1000.00	959.89		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.162	2.173	0	180699	17	>100:1			1000.00	1044.69	110	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.162	2.173	0/0	184267	15	>100:1	Target = 3.53		884.00	817.74		
298.9 > 99	44	2.162	2.173		51330	15	>100:1	3.58 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.514	2.532	-1/-1	149852	19	>100:1	Target = 3.10		938.00	894.82		
349 > 99	44	2.514	2.532		50478	17	>100:1	2.96 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.442	2.451	0	112481	17	>100:1			5000.00	4967.43	99.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.442	2.451	0/0	48068	15	>100:1	Target = 1.75		934.00	969.30		
327 > 81	63	2.442	2.451		25706	17	76:1	1.86 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.478	2.496	-1	679812	19	>100:1			1000.00	1043.80	101.8	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.478	2.496	-1/0	714449	18	>100:1	Target = 18.91		1000.00	1010.76		
313 > 119	49	2.478	2.496		37125	15	>100:1	19.24 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.599	2.607	0	1171070	19	>100:1			5000.00	5053.02	96.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.599	2.614	0/0	307568	19	>100:1	Target = 0.79		2000.00	2027.69		
285 > 185	66	2.599	2.614		384358	20	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.864	2.873	0	560964	18	>100:1			1000.00	1056.55	102.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.864	2.873	0/0	616453	17	>100:1	Target = 3.80		1000.00	1000.08		
363 > 169	47	2.864	2.873		158886	19	>100:1	3.87 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.881	2.889	0	129173	19	>100:1			1000.00	1028.12	104.3	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.873	2.889	0/0	126627	25	>100:1	Target = 2.89	5.08	910.00	891.67		
399 > 99	45	2.881	2.889		39357	29	>100:1	3.21 (1.44-4.34)	7.45				

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.896	2.912	0/0	937018	19	>100:1	Target = 3.23		942.00	935.36		
377 > 85	45	2.904	2.912		282677	24	>100:1	3.31 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.262	3.276	0/0	122267	30	>100:1	Target = 3.12		952.00	921.59		
449 > 99	45	3.255	3.276		37403	21	>100:1	3.26 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.228	3.242	0	110519	19	>100:1			5000.00	6139.96	112.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.228	3.248	-1/-1	51709	20		Target = 1.75		948.00	988.23		
427 > 81	64	3.235	3.248		26851	21	52:1	1.92 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.255	3.269	0	556846	23	>100:1			1000.00	1061.31	96.9	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.255	3.276	-1/-1	588923	21	>100:1	Target = 2.89		1000.00	1032.06		
413 > 169	53	3.255	3.276		191196	21	>100:1	3.08 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.639	3.657	-1	128828	22	>100:1			1000.00	1040.25	102.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.639	3.652	0/1	134267	38	>100:1	Target = 3.30	3.50	928.00	875.32		M
499 > 99	54	3.639	3.652		39533	36	>100:1	3.39 (1.65-4.95)	8.75				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.846	3.872	-1/0	441113	18	>100:1			932.00	904.13		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.995	4.017	-1/0	95245	22	>100:1	Target = 3.08		960.00	921.51		
549 > 99	54	3.984	4.017		33685	21	>100:1	2.82 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.298	4.319	-1/0	95991	14	>100:1	Target = 2.72		964.00	952.17		
599 > 99	54	4.298	4.319		35404	14	>100:1	2.71 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.455	4.483	-1/0	400243	16	>100:1			942.00	907.46		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.810	4.842	-1/0	105651	17	>100:1	Target = 3.27		968.00	953.72		
699 > 99	54	4.810	4.842		32990	18		3.20 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.639	3.662	-1	655714	22	>100:1			1000.00	1023.95	95	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.639	3.662	-1/0	707938	22	>100:1	Target = 6.51		1000.00	1001.64		
463 > 169	56	3.639	3.662		105292	20	>100:1	6.72 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.904	3.921	-1	268528	18	>100:1			1000.00	1001.75	99.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.912	3.921	0/1	278143	18	>100:1	Target = 41.63		1000.00	984.44		
498>478	55	3.904	3.921		11002	15		25.28 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.995	4.027	-1	603572	15	>100:1			1000.00	1050.31	94.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	4.006	4.027	-1/0	715647	16	>100:1	Target = 13.80		1000.00	1018.85		
513 > 169	51	4.006	4.027		50572	13	>100:1	14.15 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.995	4.017	-1	99516	18	>100:1			5000.00	5757.53	101.6	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.995	4.006	0/1	38371	18	>100:1	Target = 1.94		958.00	853.19		
527 > 81	65	3.995	4.006		21401	16	75:1	1.79 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.605	4.631	-1/0	48547	16		Target = 3.54		964.00	961.58		
627 > 80	65	4.605	4.631		16266	15	62:1	2.98 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.160	4.178	-1	712589	17	>100:1			5000.00	4715.62	97	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.160	4.187	-1/0	99230	31	>100:1	Target = 1.37	7.74	1000.00	867.70		
570 > 483	58	4.160	4.187		94856	32	>100:1	1.04 (0.68-2.05)	5.27				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.318	4.329	0	85288	13	>100:1			1000.00	945.66	103	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.328	4.348	-1/-1	98487	15	>100:1			1000.00	1056.66		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.338	4.348	0	43374	20	>100:1			1000.00	922.04	89.8	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.348	4.367	-1/-1	55190	14	>100:1	Target = 1.11		1000.00	1173.94		
512 > 219	57	4.348	4.367		43394	14	>100:1	1.27 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.318	4.339	-1	639916	16	>100:1			5000.00	4940.93	97.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.318	4.348	-1/0	116089	31	>100:1	Target = 1.51	6.77	1000.00	930.27		
584 > 526	60	4.318	4.348		76514	29	>100:1	1.51 (0.75-2.26)	3.95				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.318	4.339	-1	696207	15	>100:1			1000.00	1156.01	105.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.318	4.339	-1/0	594353	15	>100:1	Target = 14.52		1000.00	881.04		
563 > 169	52	4.318	4.339		42742	21	>100:1	13.90 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.482	4.501	-1	95556	14	>100:1			1000.00	900.82	95	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.492	4.510	-1/0	108780	15	>100:1			1000.00	1169.40		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.501	4.519	-1	46260	16	>100:1			1000.00	1075.82	119.5	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.510	4.528	-1/0	49245	14	>100:1	Target = 1.06		1000.00	886.78		
526 > 219	59	4.510	4.528		49925	17	>100:1	0.98 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.588	4.614	-1	678758	17	>100:1			1000.00	1130.63	91.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.597	4.614	-1/0	727254	17	>100:1	Target = 10.70		1000.00	1005.04		
613 > 169	38	4.588	4.614		63485	16	>100:1	11.45 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.842	4.868	-1/0	691107	18	>100:1	Target = 8.31		1000.00	968.70		
663 > 169	38	4.842	4.868		73881	16	>100:1	9.35 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.062	5.087	-1	859674	20	>100:1			1000.00	1057.42	97.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.069	5.093	-1/0	742741	21	>100:1	Target = 12.17		1000.00	989.74		
713 > 169	42	5.062	5.093		53564	19	>100:1	13.86 (6.08-18.25)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.481	5.512	-1	906562	19	>100:1			1000.00	1044.38	96.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.481	5.512	-1/0	552829	20	84:1	Target = 10.43		1000.00	952.16		
813 > 269	40	5.481	5.512		49799	20	>100:1	11.10 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.901	5.944	-2/-1	858016	38	54:1	Target = 13.67		1000.00	1039.61		
913 > 319	40	5.901	5.944		55892	36	>100:1	15.35 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		4.006	4.027	-1	714565	17	>100:1			1000.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.478	2.496	-1	686843	18	>100:1			1000.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.255	3.269	0	568702	22	>100:1			1000.00			

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Drift/ %Rec	Flags
*** 43 13C3_PFBA**													
216 > 172		1.718	1.718	0	595555	22	>100:1			1000.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.639	3.657	-1	121074	20	>100:1			1000.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
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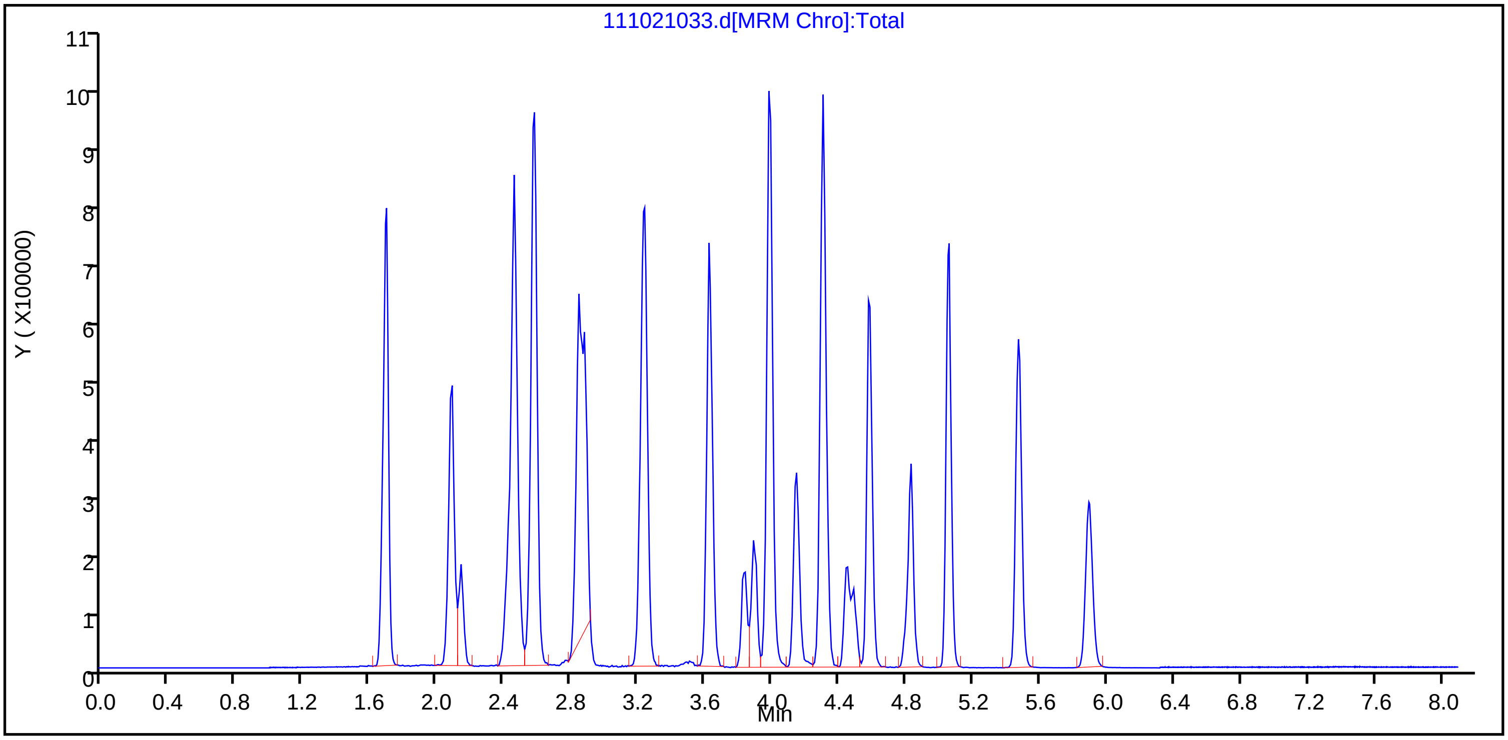
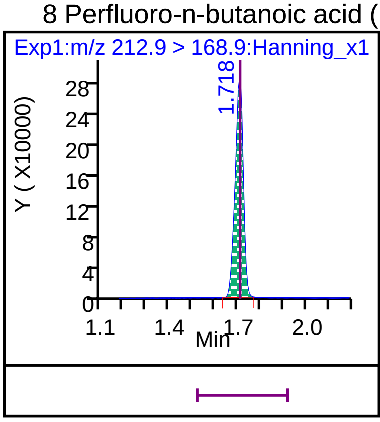
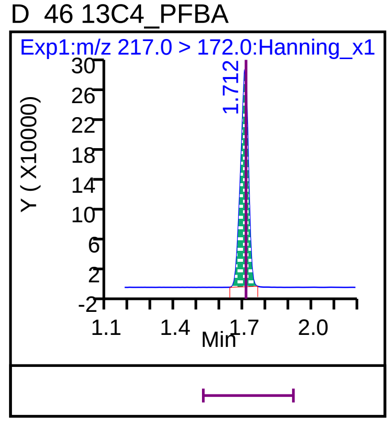
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin



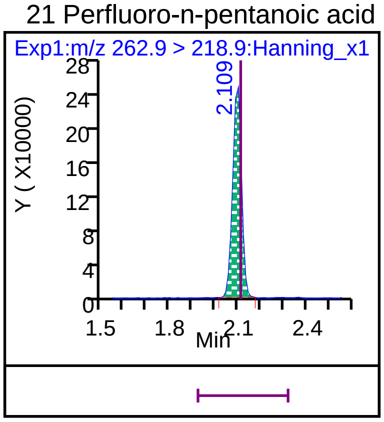
8 Perfluoro-n-butanoic acid (PFBA)



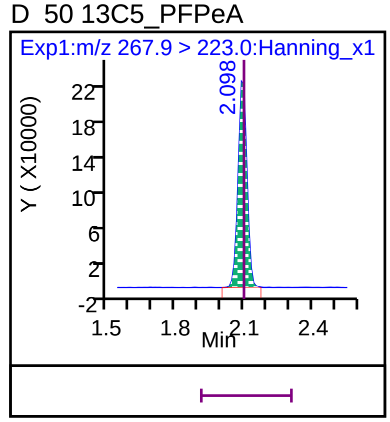
D 46 13C4_PFBA



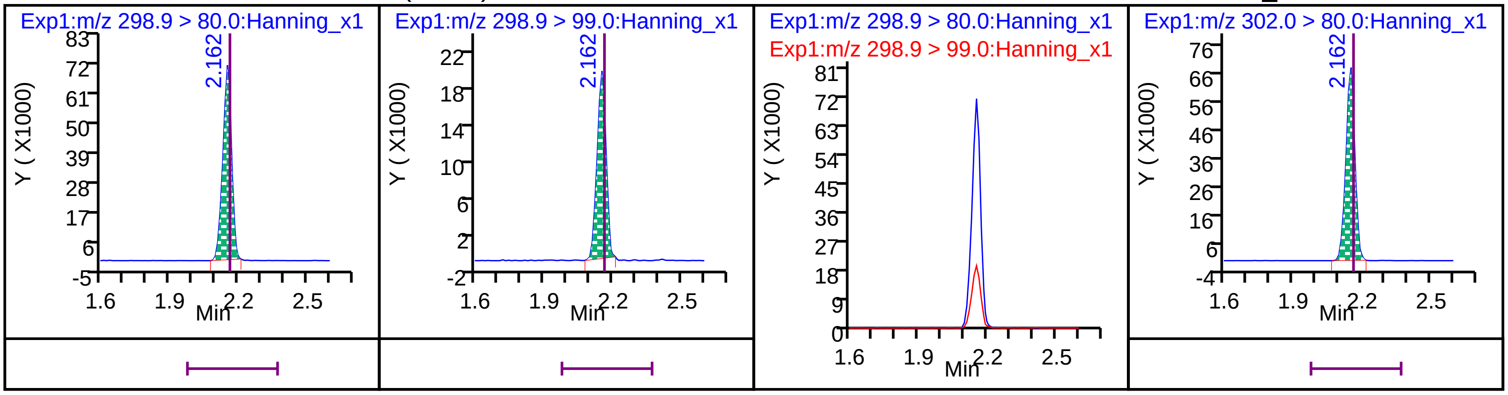
21 Perfluoro-n-pentanoic acid (PFPeA)



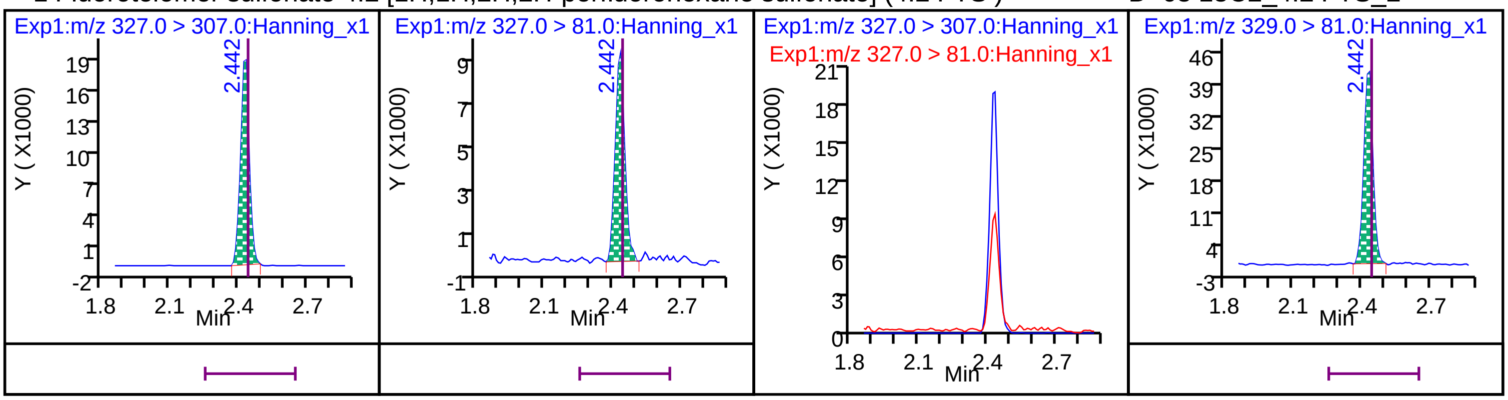
D 50 13C5_PFPeA



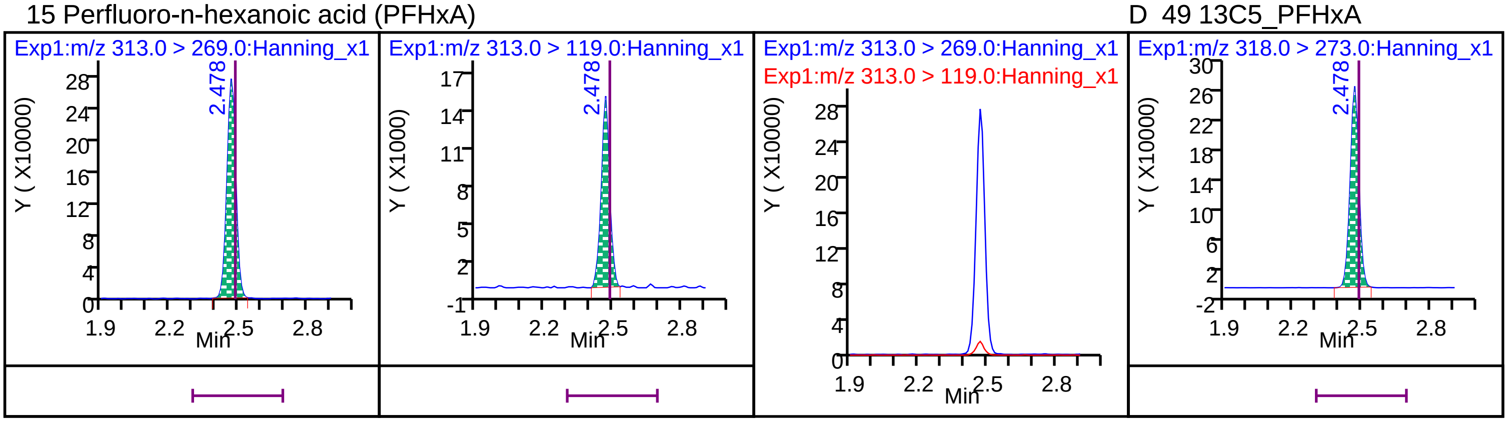
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



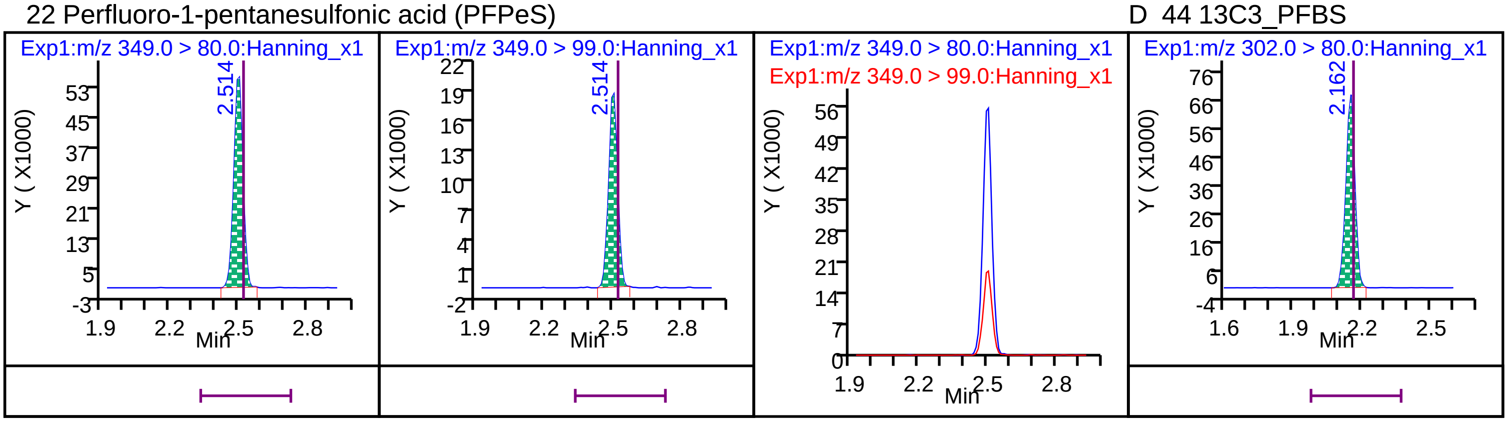
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



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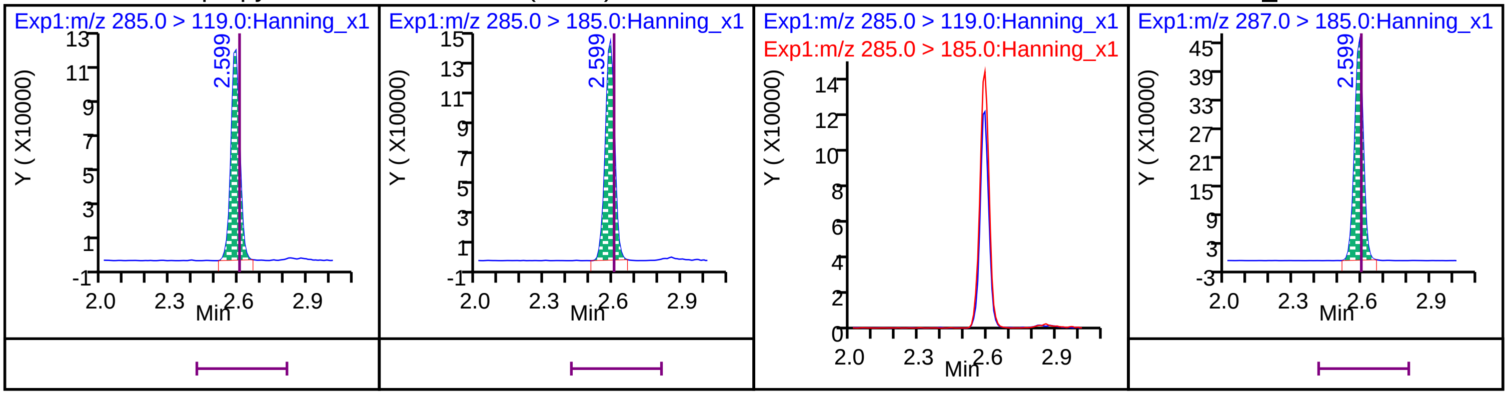
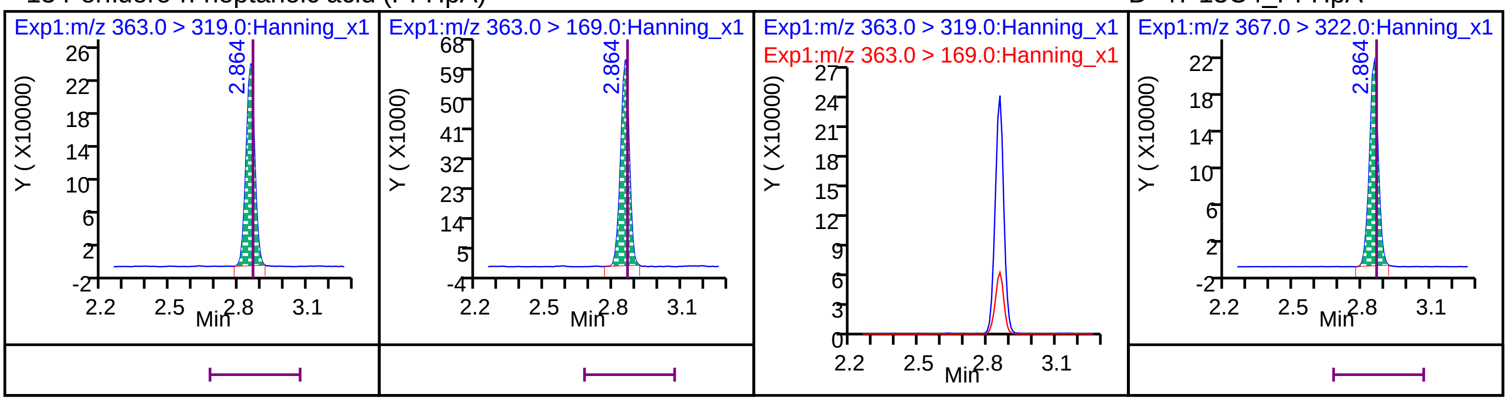
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

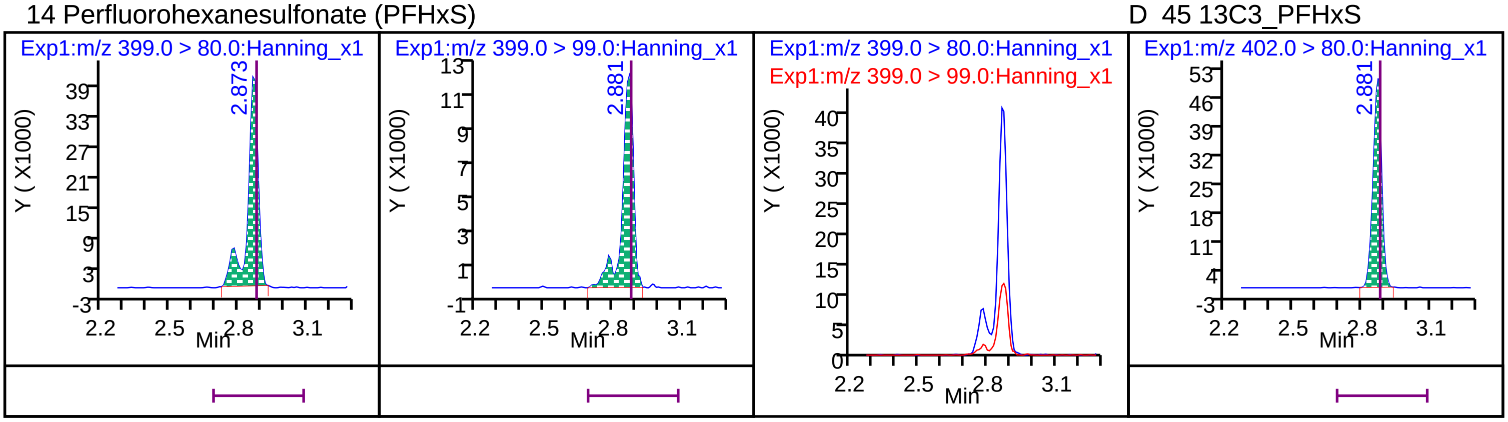
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



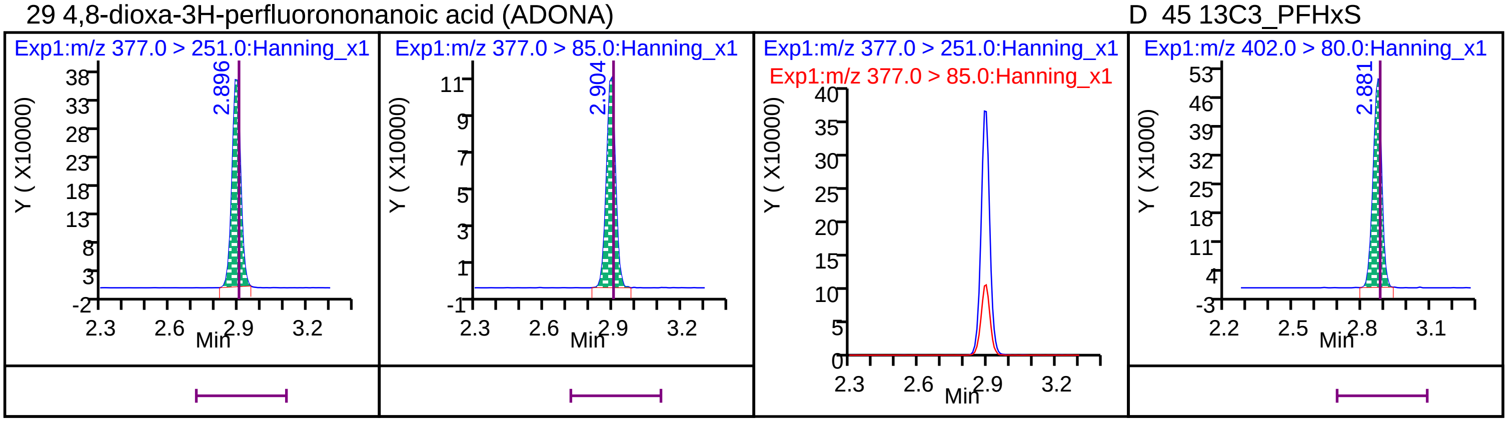
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS

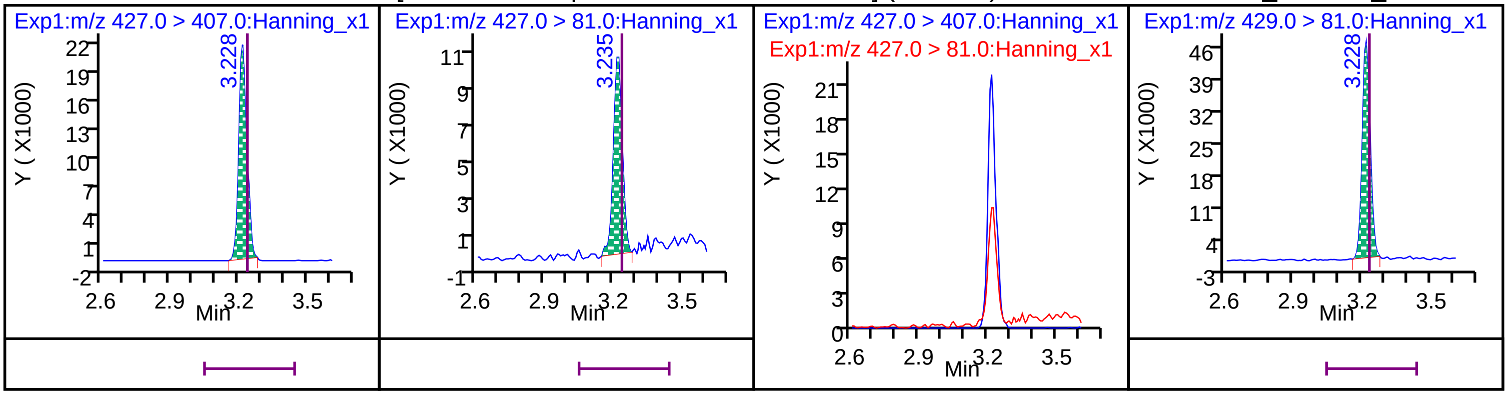


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS

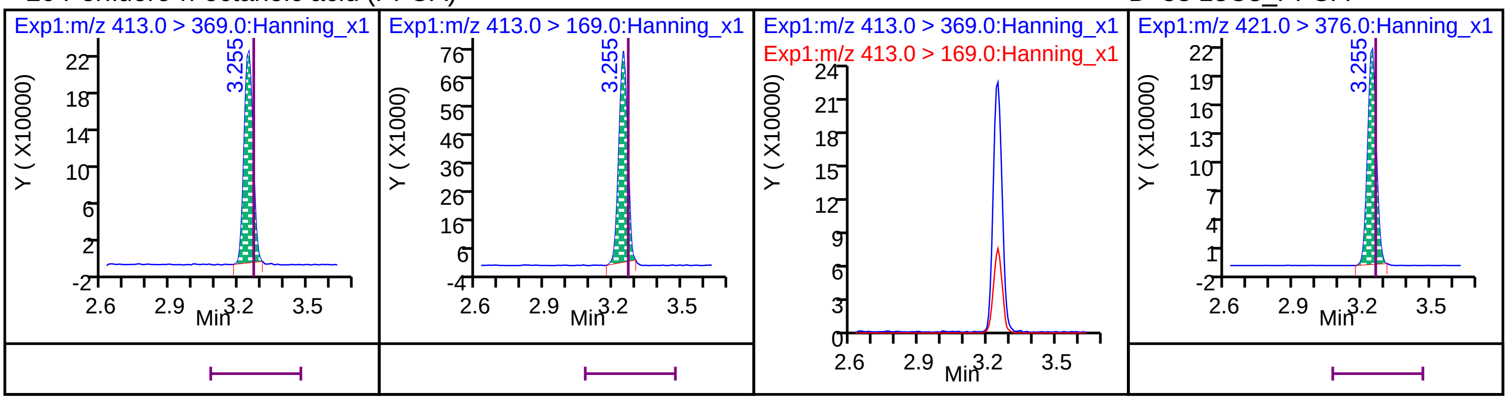


Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

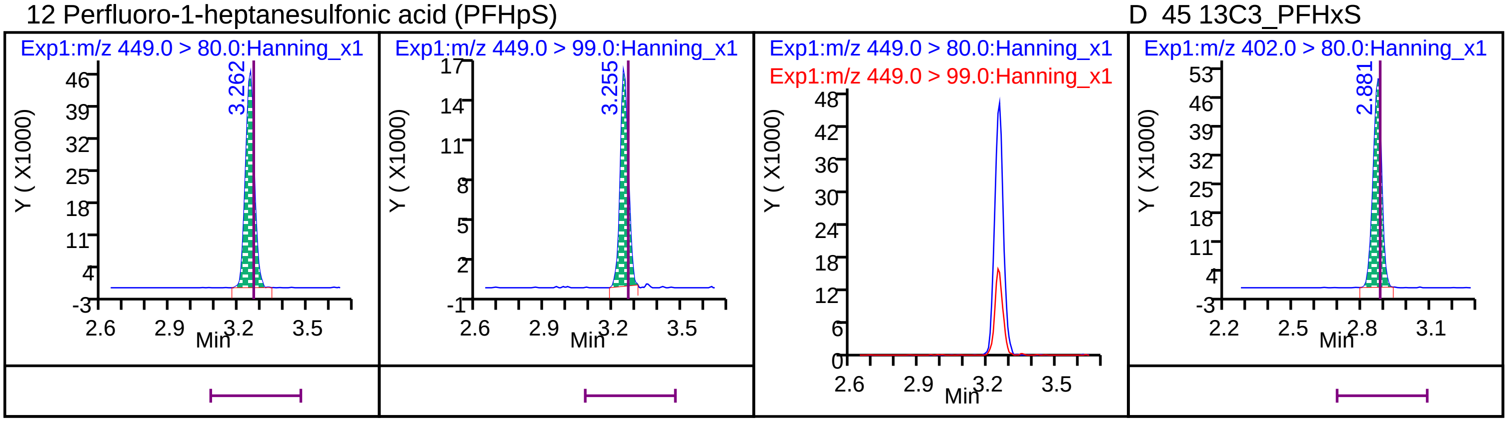
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



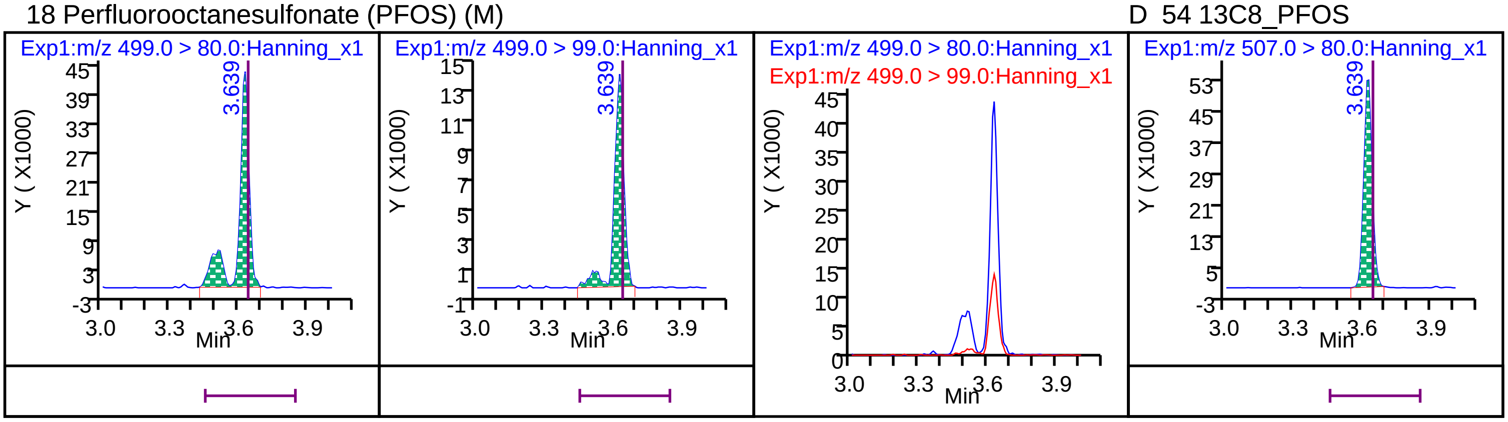
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



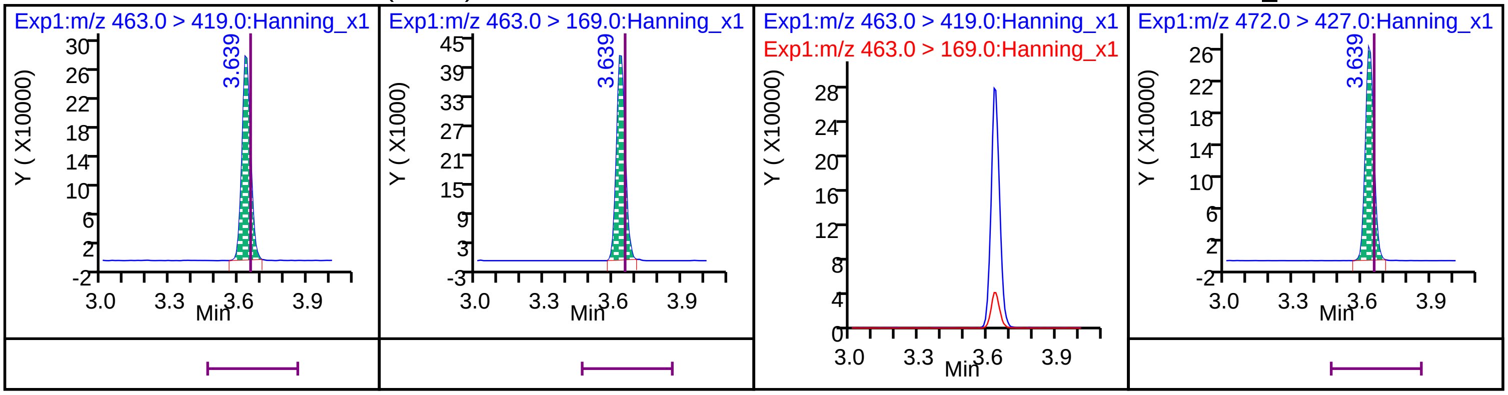
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

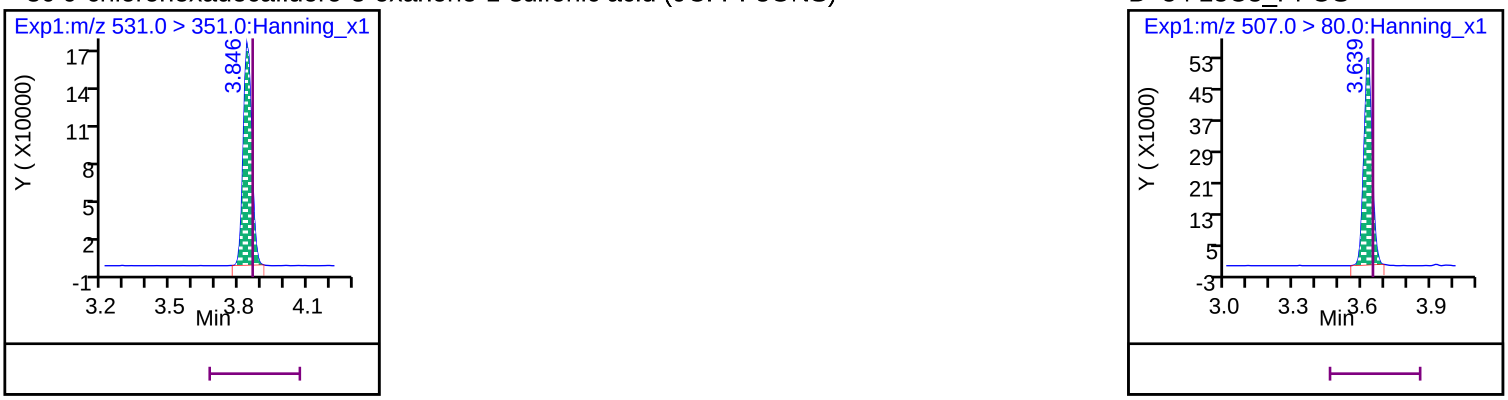
17 Perfluoro-n-nonanoic acid (PFNA)

D 56 13C9_PFNA



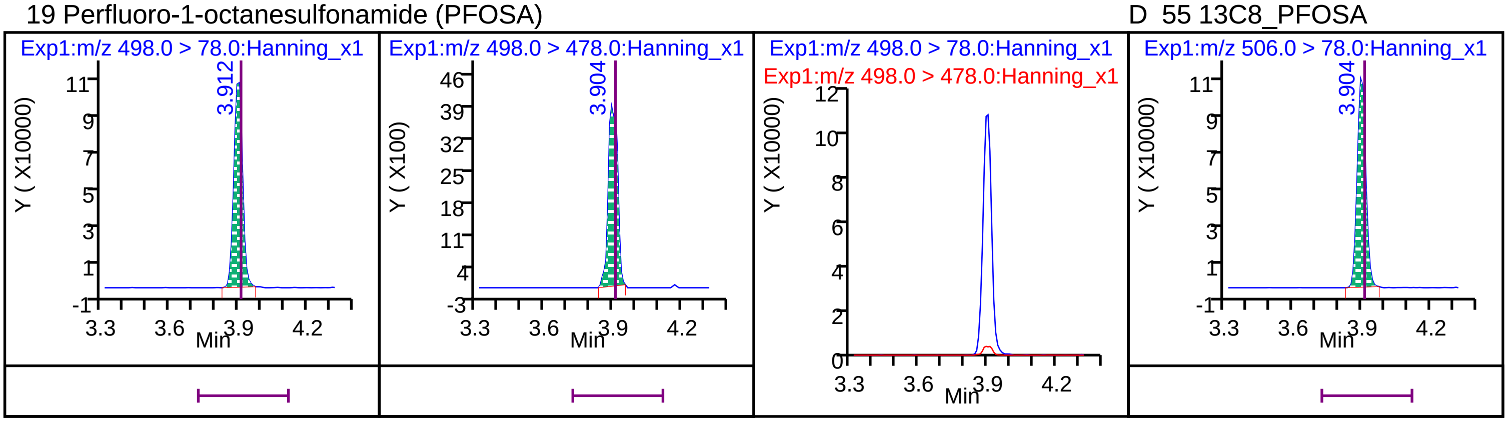
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)

D 54 13C8_PFOS



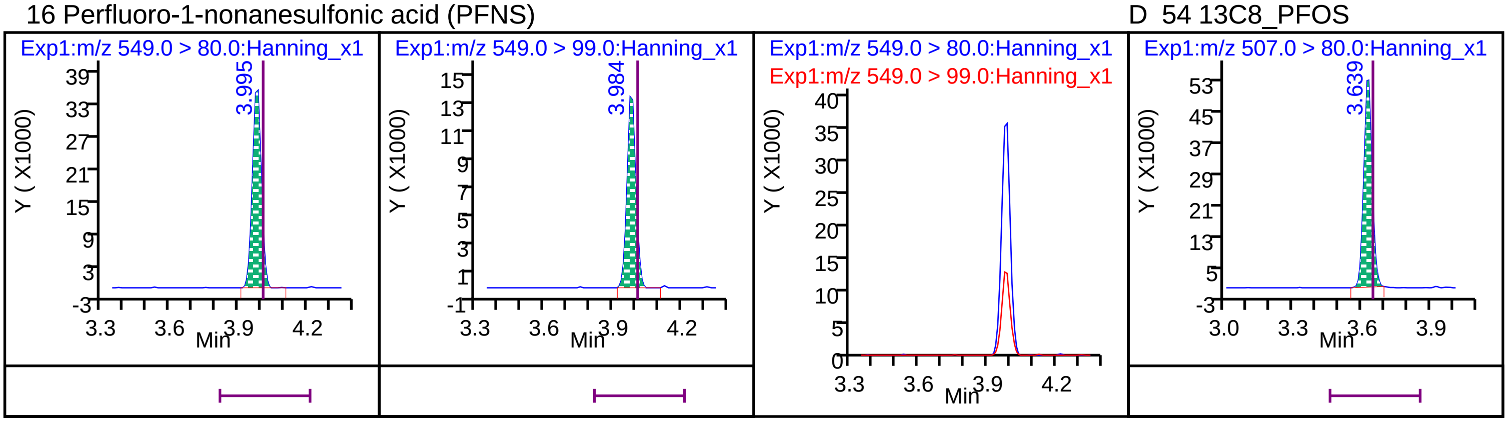
19 Perfluoro-1-octanesulfonamide (PFOSA)

D 55 13C8_PFOSA

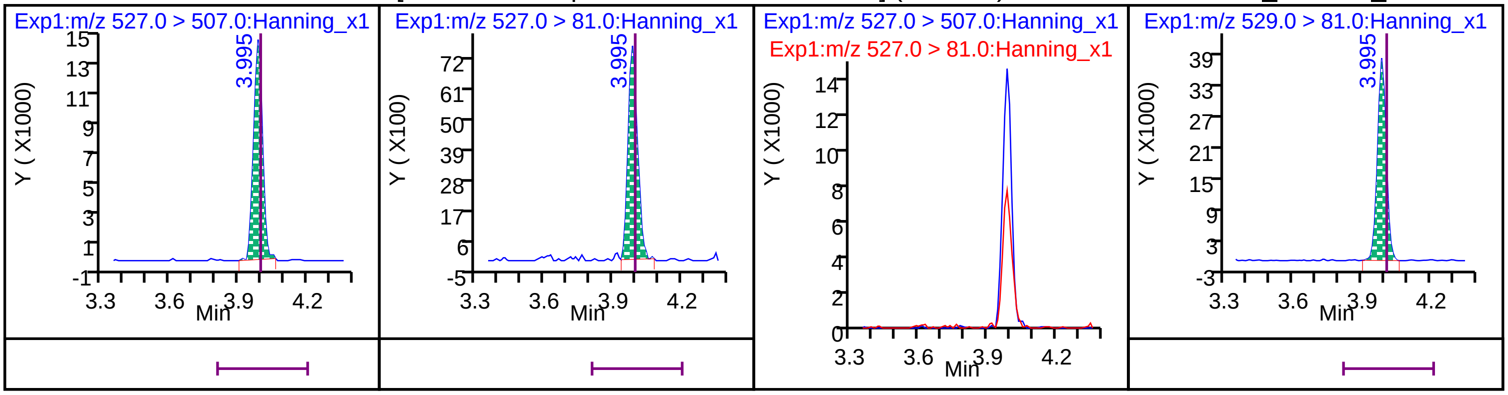


16 Perfluoro-1-nonanesulfonic acid (PFNS)

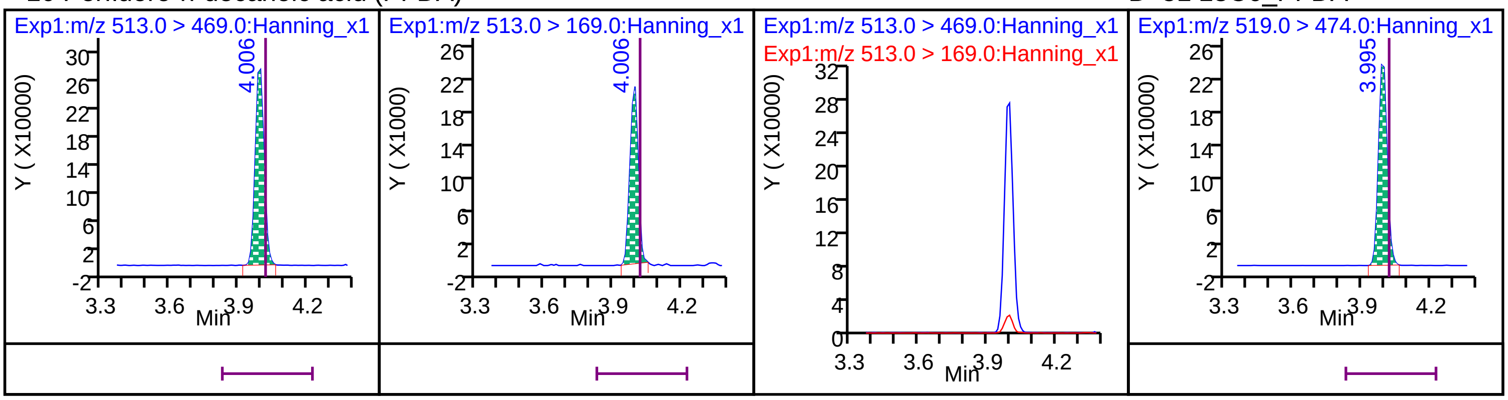
D 54 13C8_PFOS



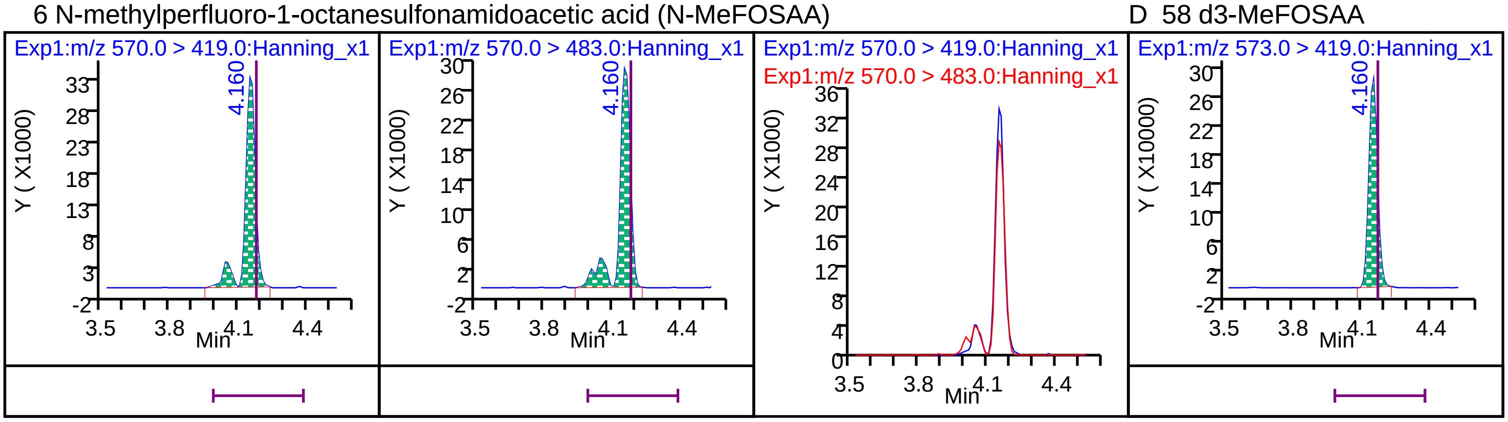
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

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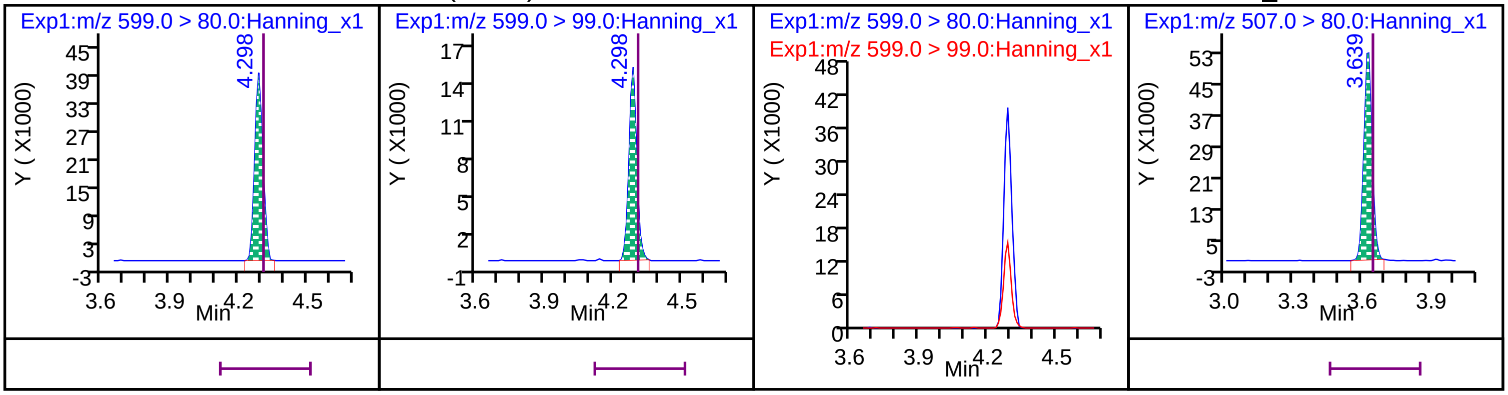
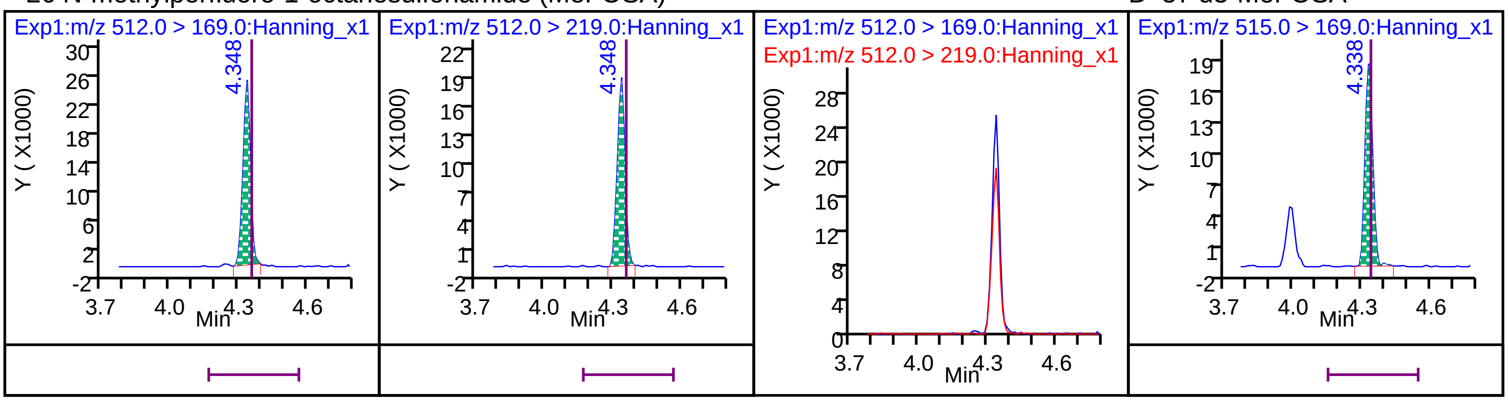
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

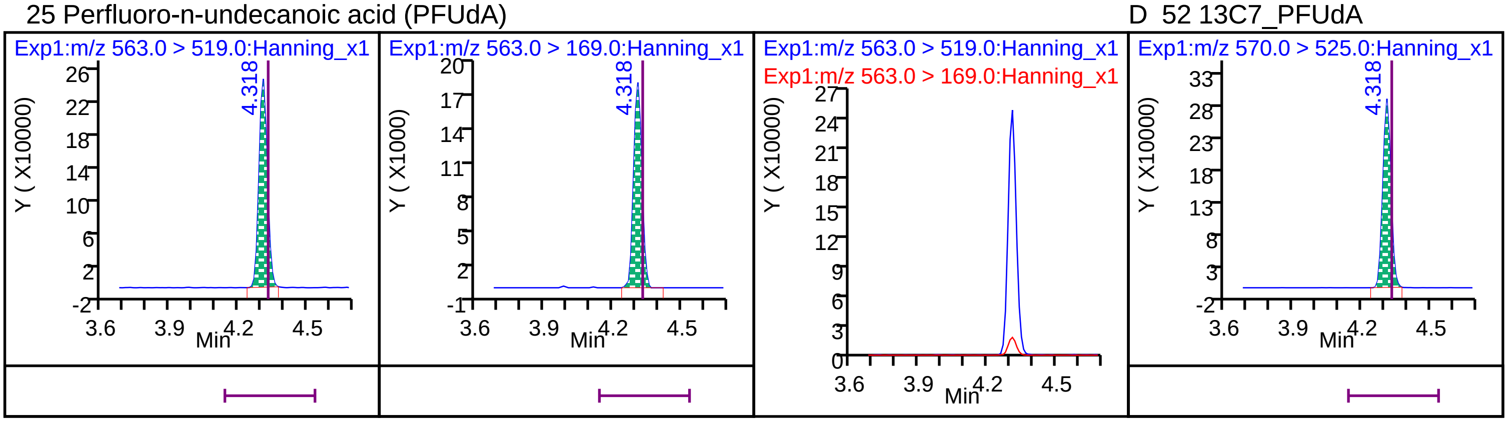
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



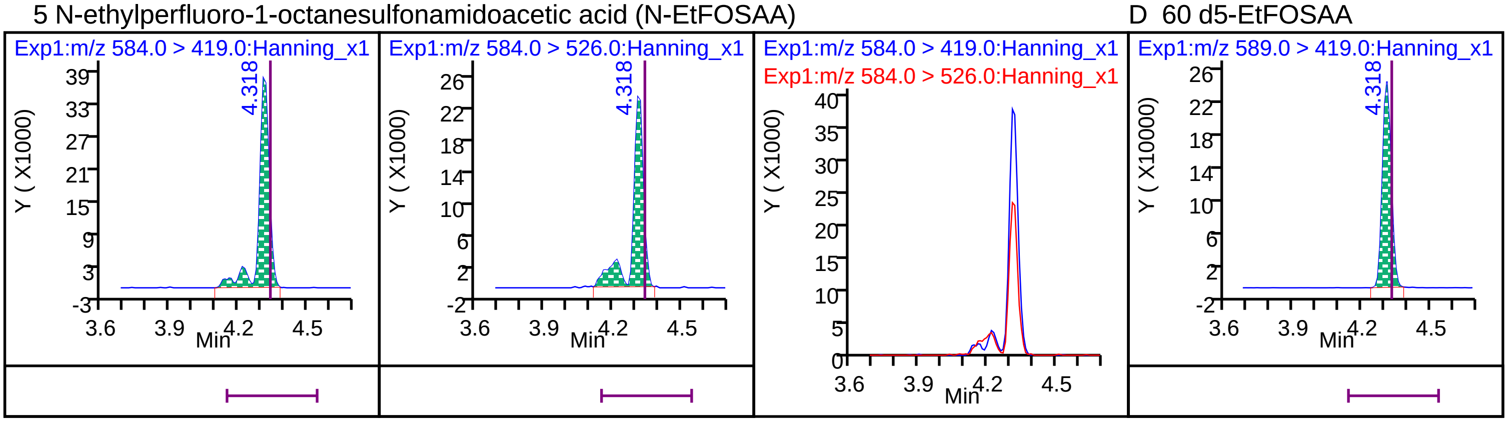
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



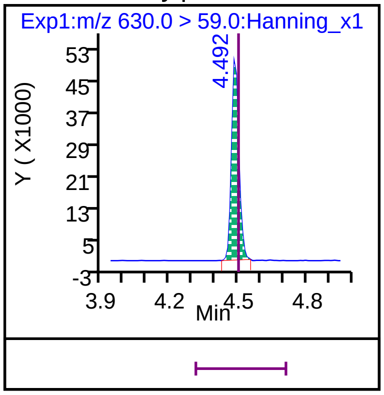
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



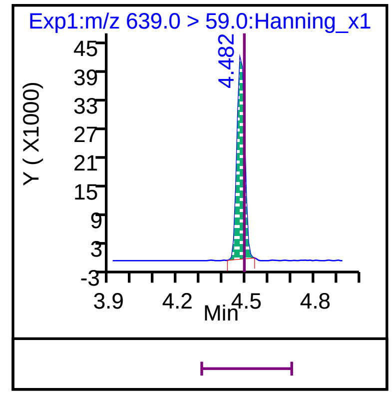
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



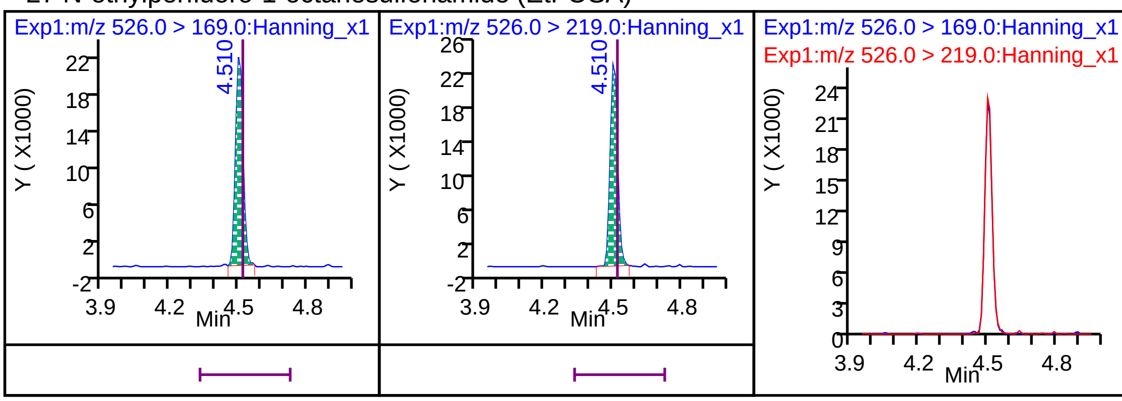
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



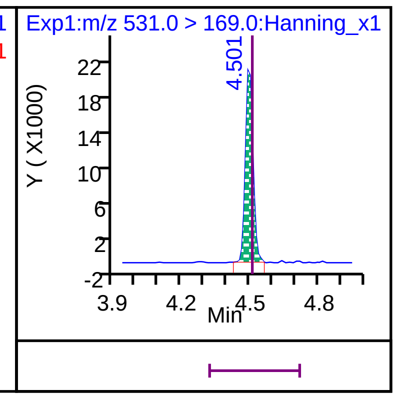
D 62 d9-EtFOSE



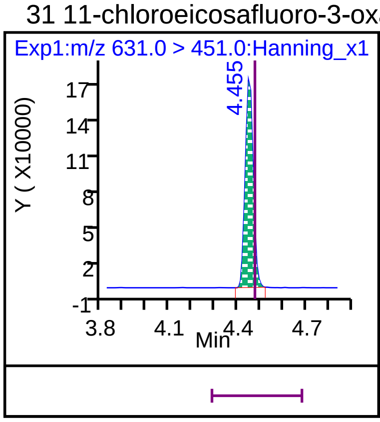
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



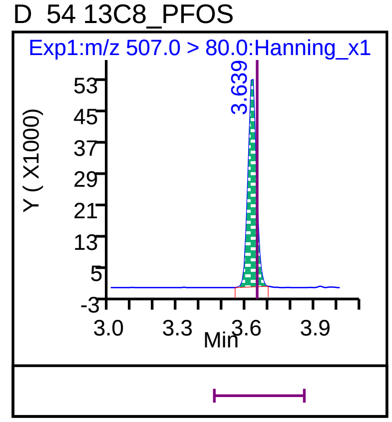
D 59 d5-EtFOSA



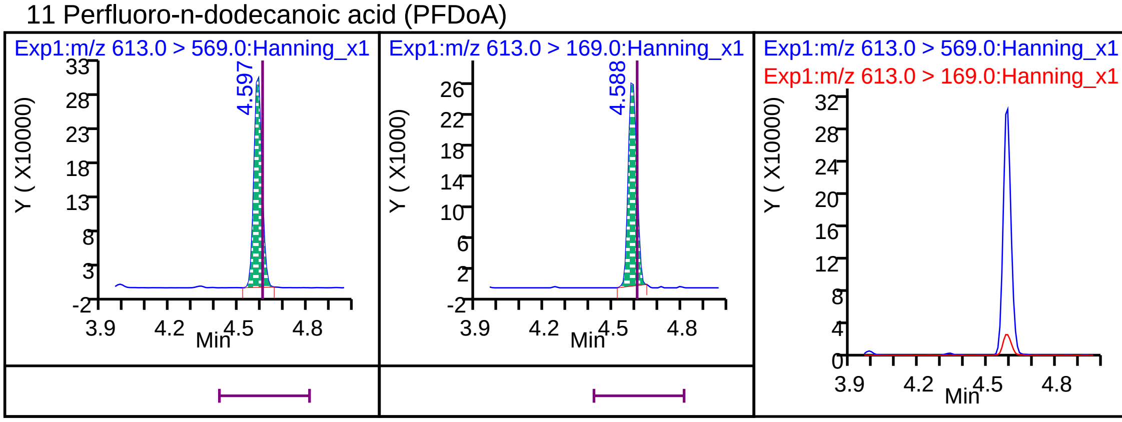
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



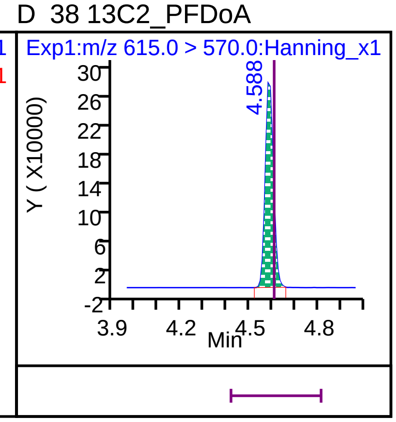
D 54 13C8_PFOS



11 Perfluoro-n-dodecanoic acid (PFDoA)

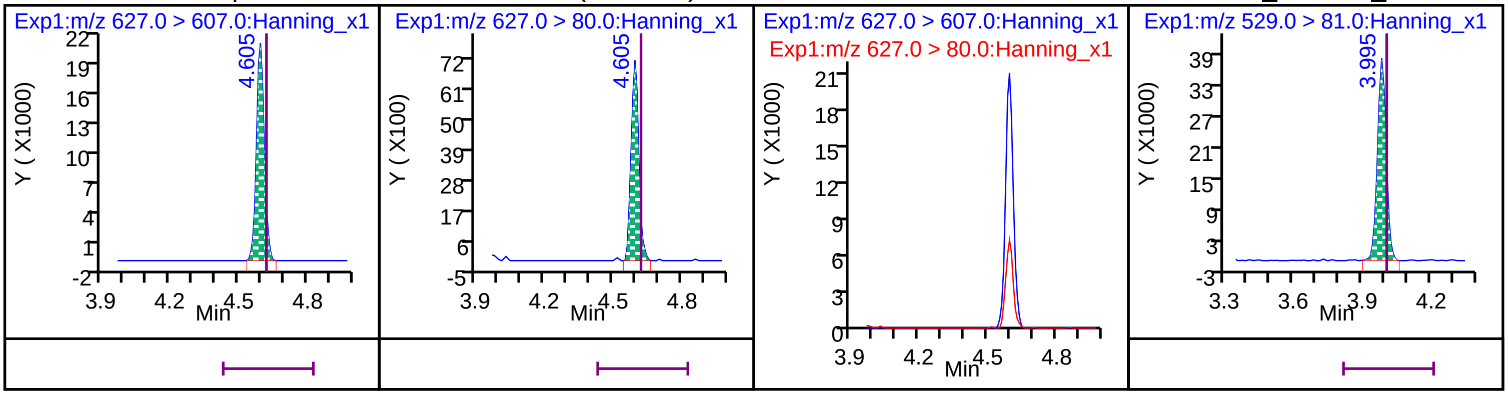


D 38 13C2_PFDoA

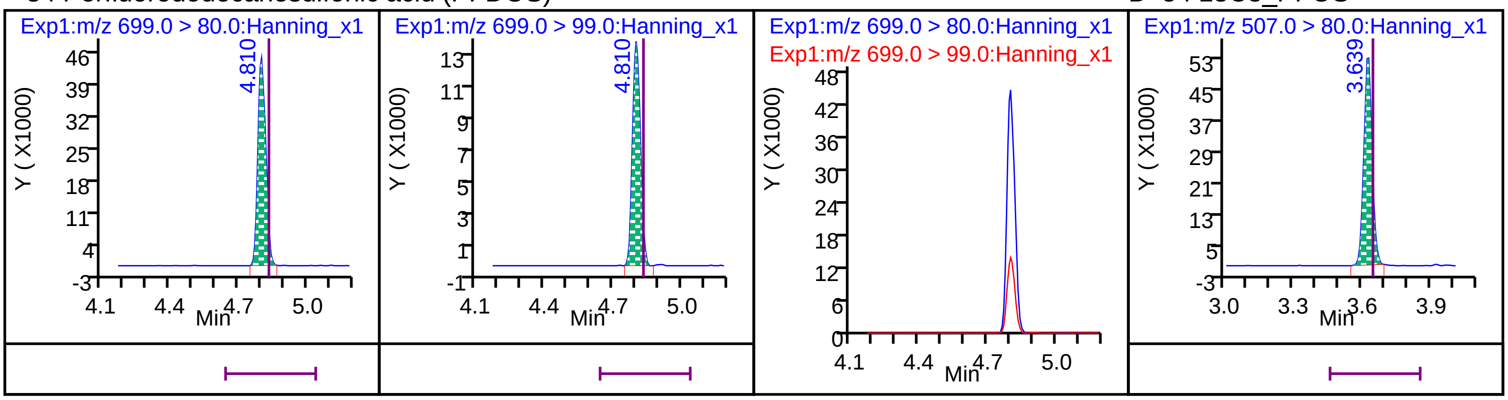


Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d

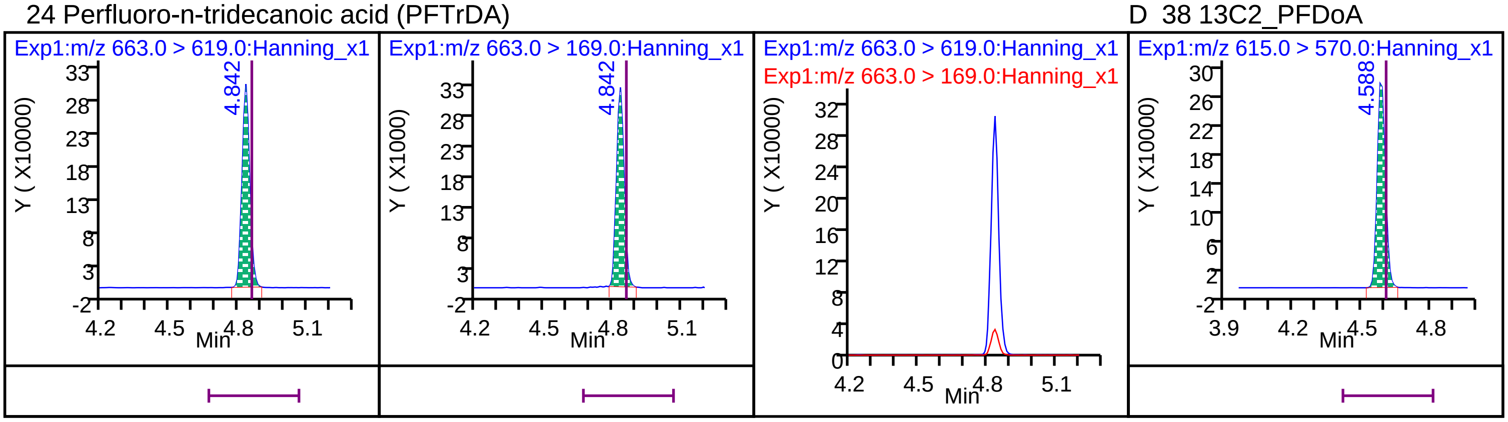
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



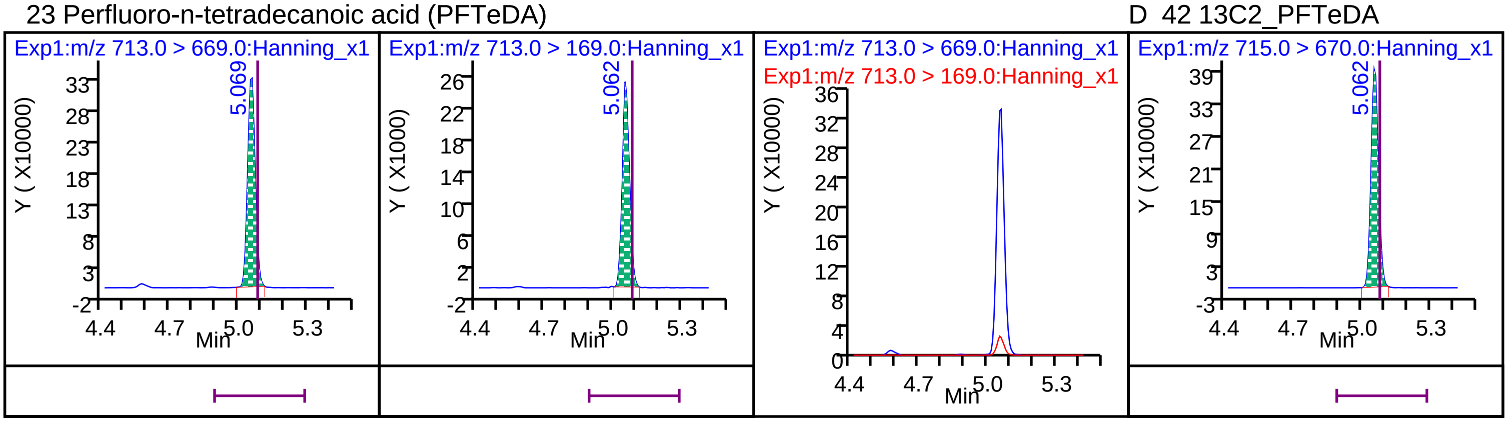
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



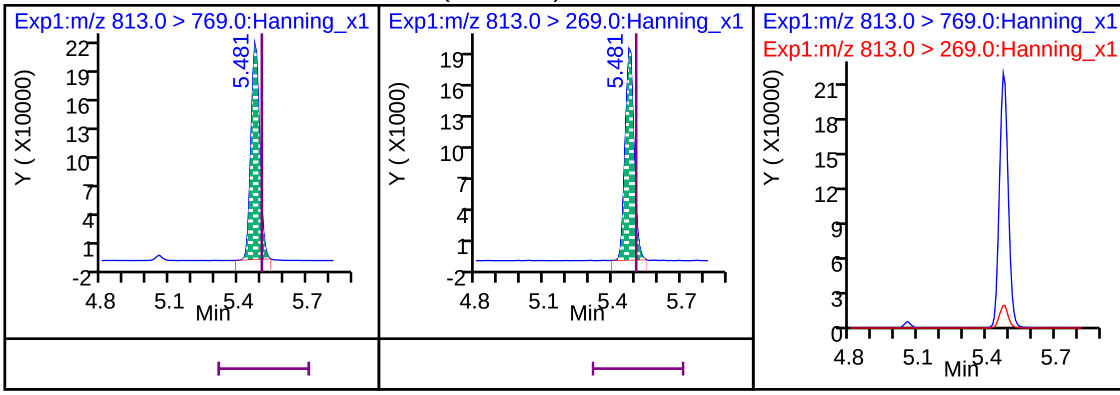
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



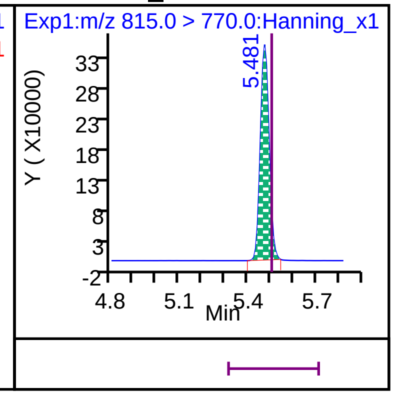
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



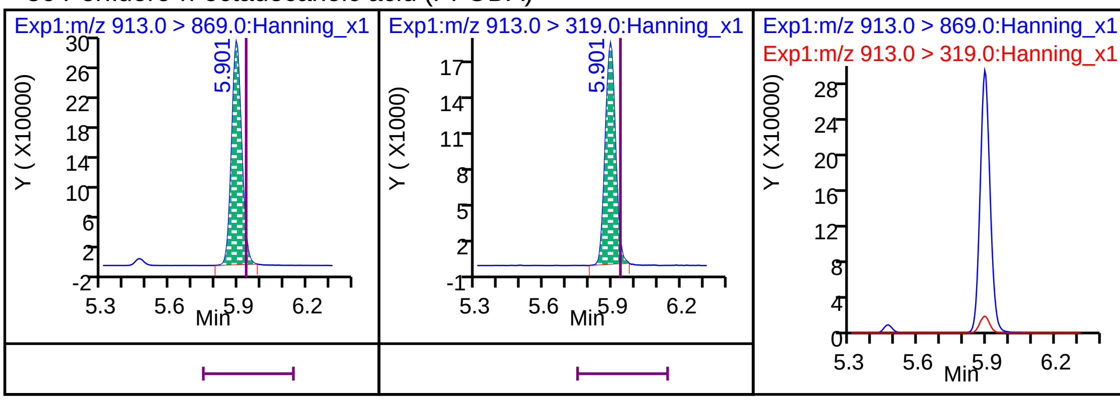
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



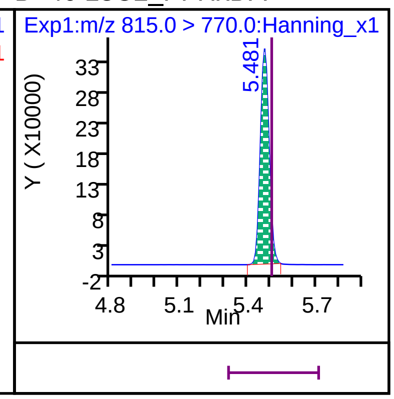
D 40 13C2_PFHxDA



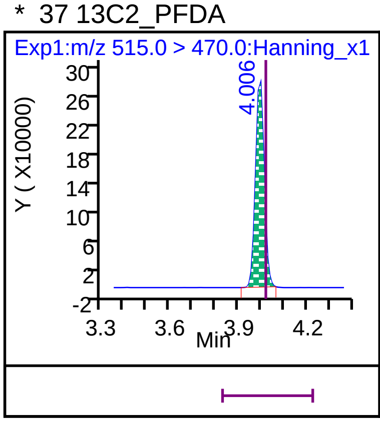
36 Perfluoro-n-octadecanoic acid (PFODA)



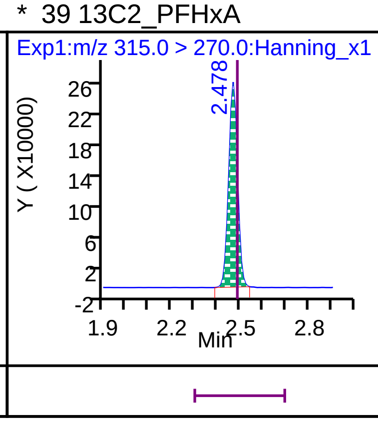
D 40 13C2_PFHxDA



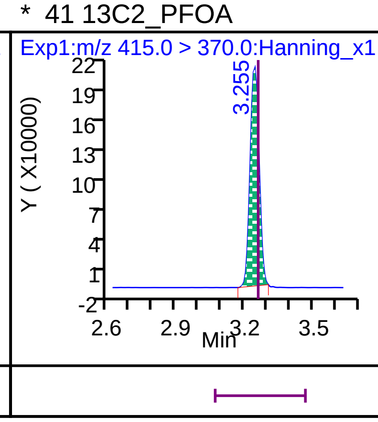
* 37 13C2_PFDA



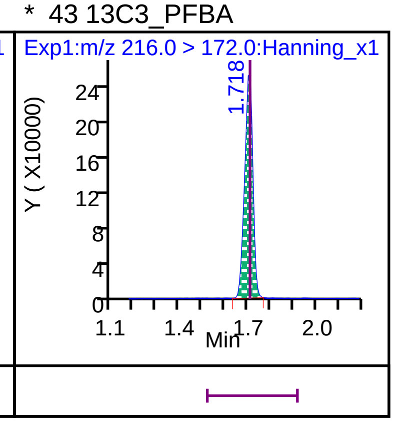
* 39 13C2_PFHxA



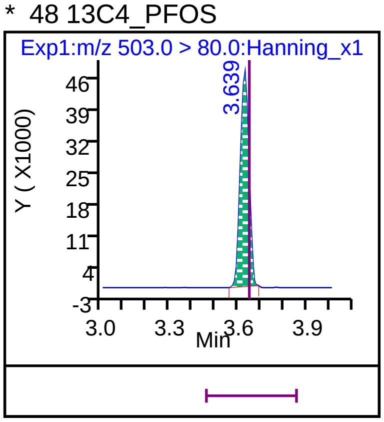
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 20:41:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

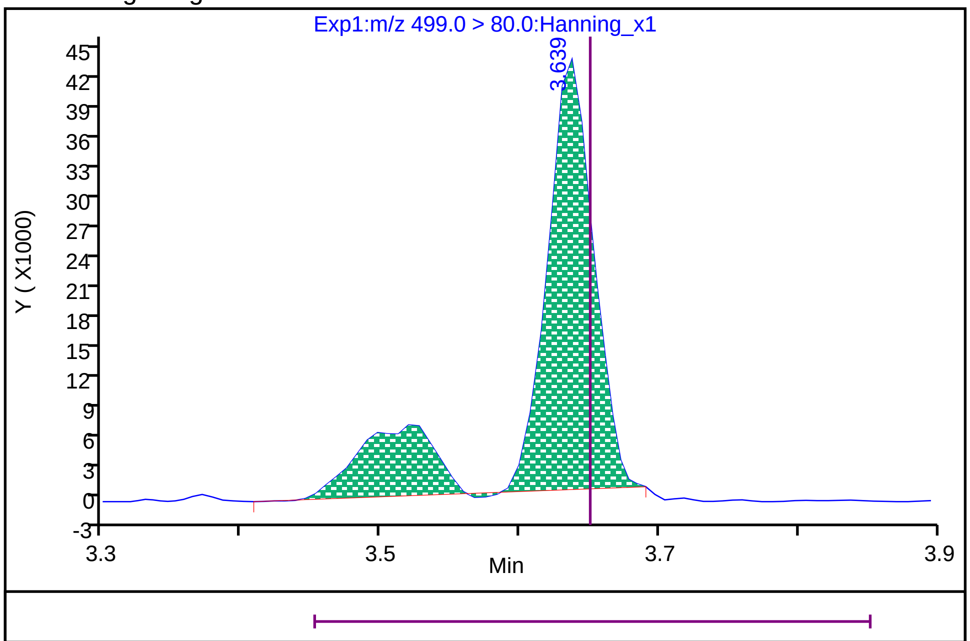
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021033.d		
Injection Date:	10-Nov-2021 18:44:01	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID CCV 1000A_SVLC-1744
Sample Info:	ID CCV 1000A_SVLC-1744		
Dil. Factor:	1	Operator:	Justin Gavin

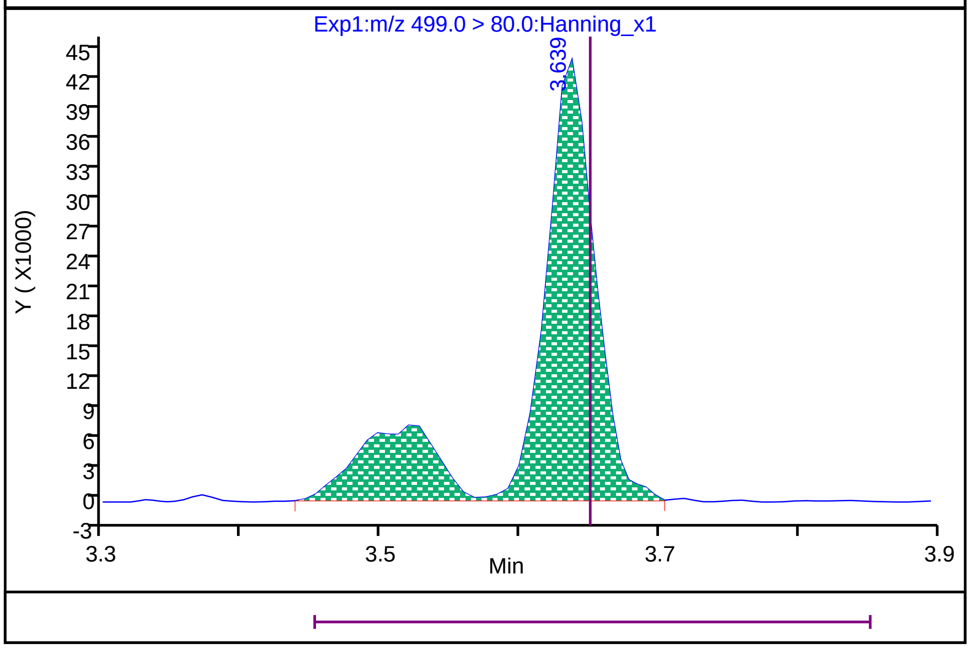
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.639
Area: 123166
Amount: 802.95
Amount Units: ng/L



RT: 3.639
Area: 134267
Amount: 875.32
Amount Units: ng/L



Data Editor: justin.gavin, 11-Nov-2021 09:56:10
Audit Action: Mint
Audit Reason: Invalid Integration

RAW QC DATA

SCIEX Triple Quad™ 4500/4500MD Systems

Planned Maintenance Procedure

GEN-IDV-08-6710-E

October 2020

EC REP

AB Sciex UK Limited
Phoenix House
Lakeside Drive, Centre Park
Warrington Cheshire
WA1 1RX, UK

AB Sciex Pte. Ltd.
Blk33, #04-06 Marsiling Industrial Estate Road 3
Woodlands Central Industrial Estate, Singapore 739256

Contents

Introduction 1

Note: For regulatory and safety information for the mass spectrometer, refer to the *System User Guide*.

The planned maintenance (PM) procedure is designed to help maintain overall system performance.

The PM is not intended to take the place of an Operational Qualification (OQ) nor is it intended to verify the instrument specifications. Separate Installation Qualification (IQ) and OQ services are available. Contact a SCIEX representative.

The procedure must be performed by a trained SCIEX Field Service Employee (FSE).

The procedure has been developed for the SCIEX Triple Quad™ 4500/4500MD System with the Turbo V™ Ion Source. It does not apply to any other products or processes.

The procedure does not address any customer-specific analytical protocol (performance qualification) or method validation.

Note: If an issue is identified and the system requires repair, then the customer is responsible for the repair at the expense of the customer, except to the extent that the system and the required repairs are covered by a SCIEX warranty or service contract. A separate repair service call must be opened and the repair hours must not be charged against this procedure.

Planned Maintenance Tasks 2

Note: Perform all procedures using the Turbo V™ Ion Source, unless otherwise specified.

Pre-Planned Maintenance

Note: Guideline values are for reference only. The pre-PM test results are not required to meet or exceed these values.

Pre-PM Tasks

Task	Complete	N/A
Ask the customer about system performance since the last visit and record comments.	✓	—
If the customer maintains a log for the system, then review it.	○	◉
Review the work to be performed with the customer.	✓	—

PC Health Check

Task	Complete	N/A
Inspect the status of the RAID 1 hard drives.	✓	—

Vacuum System Tests

<table>
<tr><th colspan="3">Task</th><th>Complete</th></tr>
<tr><td colspan="3">Record the turbo pump operational values.
<table>
<tr><th>Parameter</th><th>Results</th></tr>
<tr><td>Temperature (ºC)</td><td>45</td></tr>
<tr><td>Current (A)</td><td>3.9</td></tr>
<tr><td>Voltage (V)</td><td>23</td></tr>
<tr><td>Power (W)</td><td>87</td></tr>
<tr><td>Driving frequency (Hz)</td><td>800</td></tr>
</table></td><td>✓</td></tr>
<tr><td rowspan="2">Inspect the vacuum gauge filament using the Analyst® Service Diagnostics (ASD) Software and identify the filament position. If the mass spectrometer is using filament 2, then order a replacement vacuum gauge as a separate service call.</td><td>1</td><td>◉</td><td rowspan="2">✓</td></tr>
<tr><td>2</td><td>○</td></tr>
</table>

Pre-PM Pressure Test

Pre-PM Pressure Test is Complete	✓

Test	Guideline	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.4e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.3e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Pre-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	3.1e7	0.6 to 0.8	0.93
500.380	$\geq 8.0 \times 10^6$	3.7e7	0.6 to 0.8	0.71
906.673	$\geq 2.0 \times 10^7$	6.2e7	0.6 to 0.8	0.75
1,952.427	$\geq 8.8 \times 10^5$	8.0e6	0.6 to 0.8	0.71

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	4.1e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^6$	3.6e7	0.6 to 0.8	0.75
906.673	$\geq 2.0 \times 10^7$	6.2e7	0.6 to 0.8	0.59
1,952.427	$\geq 8.8 \times 10^5$	1.3e7	0.6 to 0.8	0.65

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	3.0e7	0.6 to 0.8	0.65
1,863.306	$\geq 1.4 \times 10^6$	4.1e6	0.6 to 0.8	0.68

Q3 Negative MS Test is Complete	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	3.0e7	0.6 to 0.8	0.65
1,863.306	$\geq 2.0 \times 10^6$	4.1e6	0.6 to 0.8	0.68

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Guideline	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	14%

Planned Maintenance

Mass Spectrometer Maintenance

Task	Complete	N/A
Shut down the system and then disconnect the mains supply power cable.	✓	—
If required, replace the roughing pump oil. The recommended interval is every 3 years. **Note:** If an oil change is not required, then inspect the oil level and top up, if necessary. **CAUTION: Potential System Damage. Do not mix different types of oil. Mixing mineral oil with synthetic oil can cause pump failure.**	✓	—
If required, replace the roughing pump oil exhaust filter. The recommended interval is every 3 years.	○	◉
Confirm that there is no excessive roughing pump oil leakage. Clean up any oil.	✓	—
Make sure that the roughing pump exhaust is properly routed to the ventilation system.	✓	—

Task	Complete	N/A
Inspect the exhaust system: • Make sure that all of the gas fittings at the rear bulkhead are tight. • Make sure that all of the exhaust hoses are free of kinks. • Make sure that all of the hoses at the waste bottle are secure, and there are no signs of leaks. • Make sure that the waste bottle is in an upright position. • Make sure that the exhaust hose is secured to the lab ventilation system. • Confirm that no liquid is trapped in the exhaust lines.	✓	—
Clean or replace the four air filters in the base of the mass spectrometer chassis.	✓	—
(If applicable) Clean the turbo pump filter screen.	○	◉
(If applicable) Verify the operation of the SCIEX-supplied bench cooling fans.	◉	○
Clean the curtain plate.	✓	—
Clean the orifice plate.	✓	—
Clean the QJet® Ion Guide and IQ0 lens.	✓	—
(If contamination is detected) Clean the Q0 region and the IQ1 lens.	○	◉
Inspect the cable connections: • Make sure that the power cables for the mass spectrometer, LC system, roughing pump, syringe pump, gas generator, and UPS are securely connected. • Make sure that the communications cables for the GPIB/Ethernet ports, LC connections, and roughing pump are securely connected.	✓	—

Task	Complete	N/A
Verify system support functions — gas: • Confirm the input gas pressures at the regulators are within specifications. • Confirm that there is no liquid present in the gas lines.	✓	—
Verify the expiry date on the battery system for the UPS (sold by SCIEX), and then recommend replacement of the battery tray, if required.	○	◉
Start up the system.	✓	—

Turbo V™ Ion Source Maintenance

Task	Complete	N/A
If necessary, replace the electrode in the TurboIonSpray® and APCI Probes.	◉	○
With the TurboIonSpray® probe installed, verify that the temperature (TEM) reaches the recommended set point of 500 °C.	✓	—
(If applicable) With the APCI probe installed, verify that the temperature (TEM) reaches the recommended set point of 400 °C.	○	◉
Inspect the ion source and, if visible signs of contamination are present, clean the inner surfaces using lint-free wipes and a 50:50 methanol:water solution. **Note:** Remove the corona discharge needle before cleaning.	○	◉

Software Maintenance

Note: This task is not applicable to MD systems.

Task	Complete	N/A
(Obtain customer approval first) Install any applicable Analyst® Software HotFixes. **Note:** Make sure that the compatible instrument firmware is installed.	○	◉

Post-Planned Maintenance

Voltage Tests

Task		Complete
Inspect the RF tuning voltages at the QPS amplifier module and then, if required, tune the coil boxes.		✓
Inspect the detector voltage. Optimize, if required.		✓
Detector voltage	1800	

Post-PM Pressure Test

Post-PM Pressure Test is Complete	✓

Test	Specification	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.6e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.3e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Post-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^{6}$	2.9e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^{6}$	3.2e7	0.6 to 0.8	0.72
906.673	$\geq 2.0 \times 10^{7}$	4.8e7	0.6 to 0.8	0.72
1,952.427	$\geq 8.8 \times 10^{5}$	5.5e6	0.6 to 0.8	0.60

Q1 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	3.5e7	0.6 to 0.8	0.75
500.380	$\geq 8.0 \times 10^6$	2.9e7	0.6 to 0.8	0.75
906.673	$\geq 2.0 \times 10^7$	5.0e7	0.6 to 0.8	0.62
1,952.427	$\geq 8.8 \times 10^5$	9.6e6	0.6 to 0.8	0.64

Q3 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	2.9e7	0.6 to 0.8	0.64
1,863.306	$\geq 1.4 \times 10^6$	5.3e6	0.6 to 0.8	0.70

Q1 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	3.6e7	0.6 to 0.8	0.69
1,863.306	$\geq 2.0 \times 10^6$	5.4e6	0.6 to 0.8	0.73

Q3 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Specification	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100 \geq 10\%$	11.8%

Post-PM Tasks

Task	Complete	N/A
Delete any unnecessary files.	✓	—
Back up the Analyst Data folder.	✓	—
(If applicable) Defragment the hard drive.	○	◉
(Not applicable for MD instrument families) If the customer has a Software Support Plan, then perform the Software Health Check: • (Obtain customer approval first) Install any compatible HotFixes and updates for SCIEX add-on software.	○	◉

StatusScope® Remote Monitoring Service Tasks

The StatusScope® Remote Monitoring Service is not applicable for MD systems.

Task	Complete	N/A
Note: Installation of the StatusScope® Remote Monitoring Service is available only to warranty and eligible contract customers. Refer to sciex.com/instrument-service-and-support/statusscope-remote-monitoring for a list of eligible contracts. If the StatusScope® Remote Monitoring Service is not installed, then perform these tasks: • If the customer does not want the StatusScope® Remote Monitoring Service installed, then skip the remaining steps in this section. • If the customer wants the StatusScope® Remote Monitoring Service installed, then complete the steps in this section.	○	●
Verify the connection to the server for the StatusScope® Remote Monitoring Service. **Note:** Use the **StatusScopePortCheck.exe**. The utility is included with the StatusScope® installer.	○	●
Install the agent for the StatusScope® Remote Monitoring Service.	○	●
Ask the customer to log on to SCIEX Now™ to verify that the instrument is connected to the server for the StatusScope® Remote Monitoring Service. **Note:** The instrument is shown under the account of the Primary Contact.	○	●

Wrap-up

Task	Complete	N/A
Review the work performed with the customer.	✓	—
Record the test results in this document and then attach all of the test data.	✓	—
Review the routine maintenance schedule and the procedures with the customer.	✓	—
Complete this document: • Review the test results with the customer. • Provide the customer with the completed document and the test data. • If an electronic copy of the document is supplied to the customer, then save a copy on the Service drive.	✓	—

Signoff 3

Organization	Pace South Carolina		
Mass spectrometer serial number	BJ29321608	Service request number	
FSE name	Lynne Russell	Date (yyyy-mm-dd)	2021-03-17
FSE signature	Lynne Russell		

Comments and Exceptions

Inspect for Contamination

A

Perform a Q1 and Q3 charging test to determine whether front end contamination is present.

1. Run the **Pos PPG** method for 10 minutes, monitoring the Total Ion Count (TIC) for degradation of the signal or a decrease in sensitivity.
2. Change the polarity to Negative, and then scan for one minute.
3. Change the polarity to Positive, and then make sure that the **IS** parameter returns to the original value.
4. Run the method.

   If the signal sensitivity is restored temporarily but the Total Ion Count (TIC) again degrades by more than 5% over a 10 minute run, then a possible front-end contamination is indicated.
5. Repeat the test in Negative polarity using the Q1 Neg PPG method.

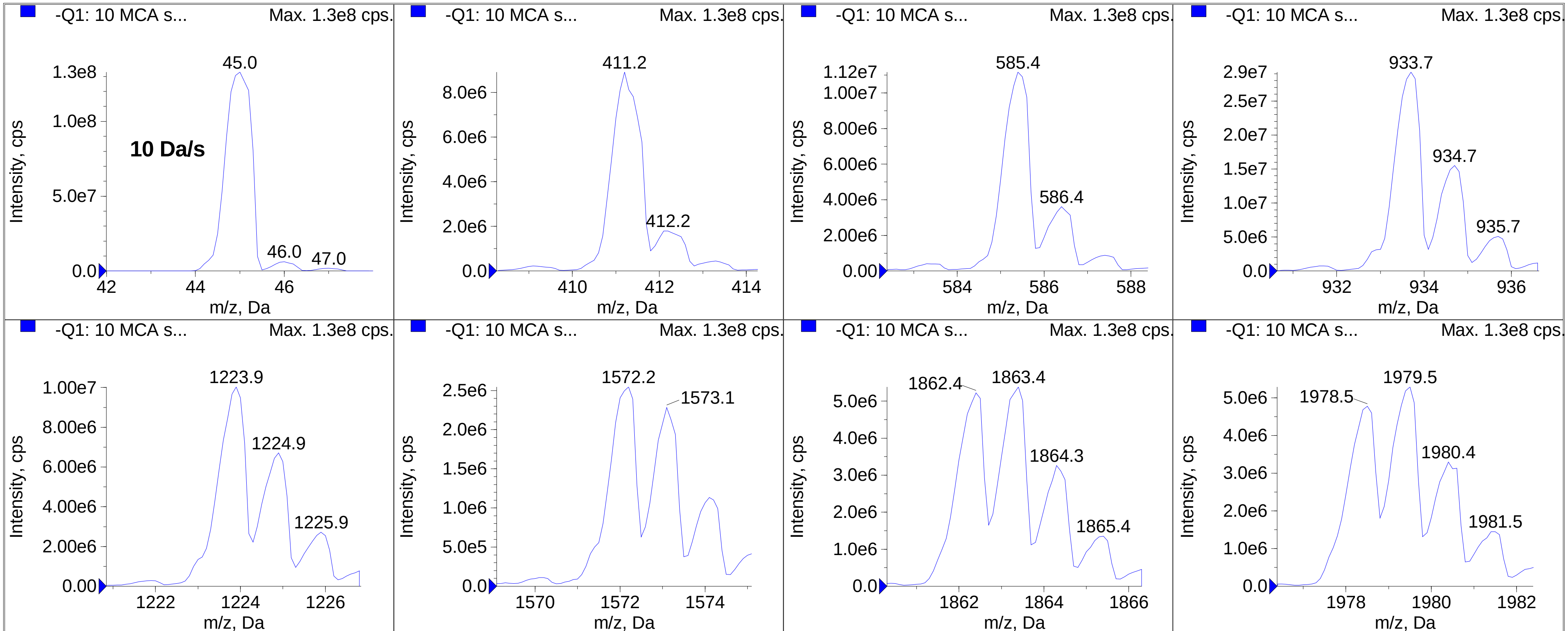
Guidelines for Cleaning the Front End

If charging tests indicate that cleaning is necessary, then clean the front-end components, including the QJet® Ion Guide, IQ0 lens, Q0 quadrupole, and IQ1 lens.

Removing the ion optics is considered a repair activity. FSEs must open a separate service repair call.

Note: This procedure does not provide troubleshooting for all technical root causes of signal degradation or charging effect. Signal degradation might also result from a contaminated TurboIonSpray® Probe or electrode, method parameters that are not optimized, or other factors.

```
Printing Time: 3:29:09 PM                         Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS
```

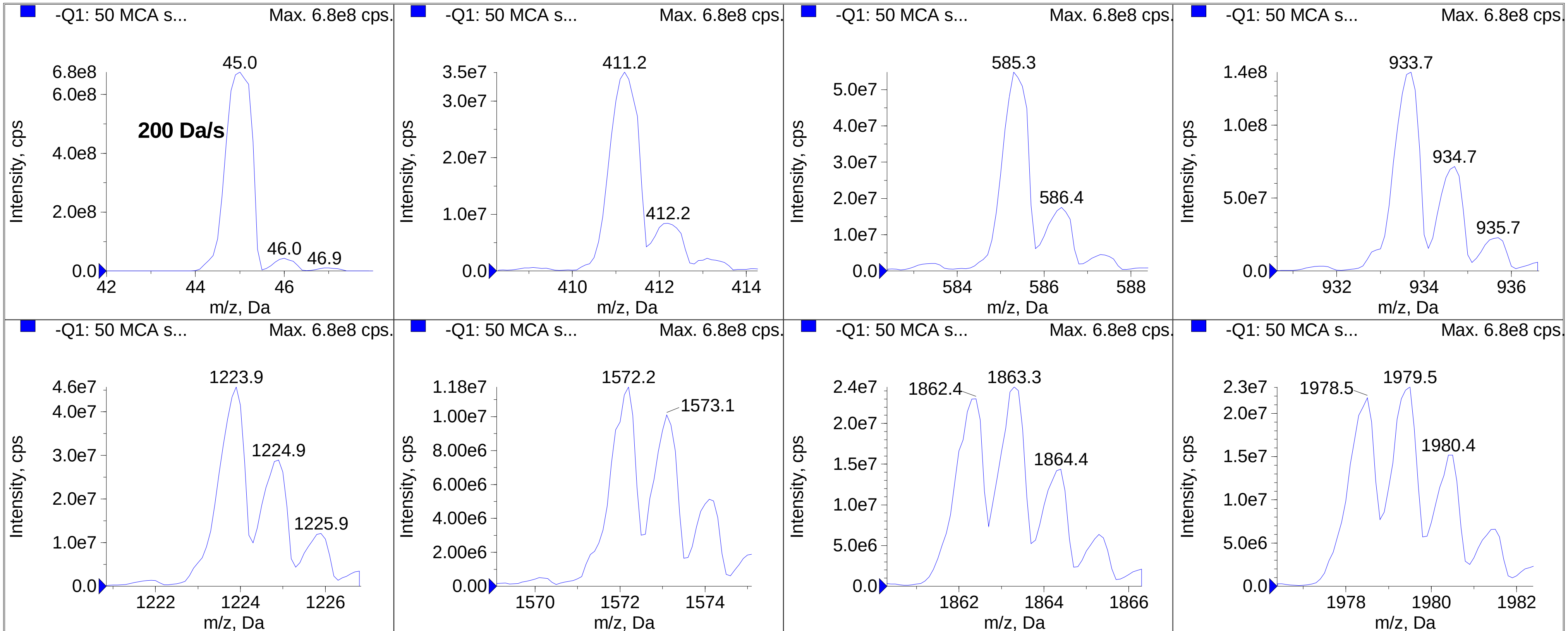


Peak List for " -Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210317152713.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9910	1.3290e8	0.6836	7.0007e-3
2	411.2590	411.2600	8.9124e6	0.7661	-9.6571e-4
3	585.3850	585.3845	1.1169e7	0.6575	5.1864e-4
4	933.6360	933.6541	2.9242e7	0.6466	-0.0181
5	1223.8450	1223.8432	1.0028e7	0.7023	1.8422e-3
6	1572.0970	1572.0954	2.5458e6	0.6844	1.6427e-3
7	1863.3060	1863.3201	5.3832e6	0.7092	-0.0141
8	1979.3890	1979.4185	5.2880e6	0.7333	-0.0295

* FSE Lynne Russell
*Post-PM Results

```
Printing Time: 3:36:43 PM                    Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS
```

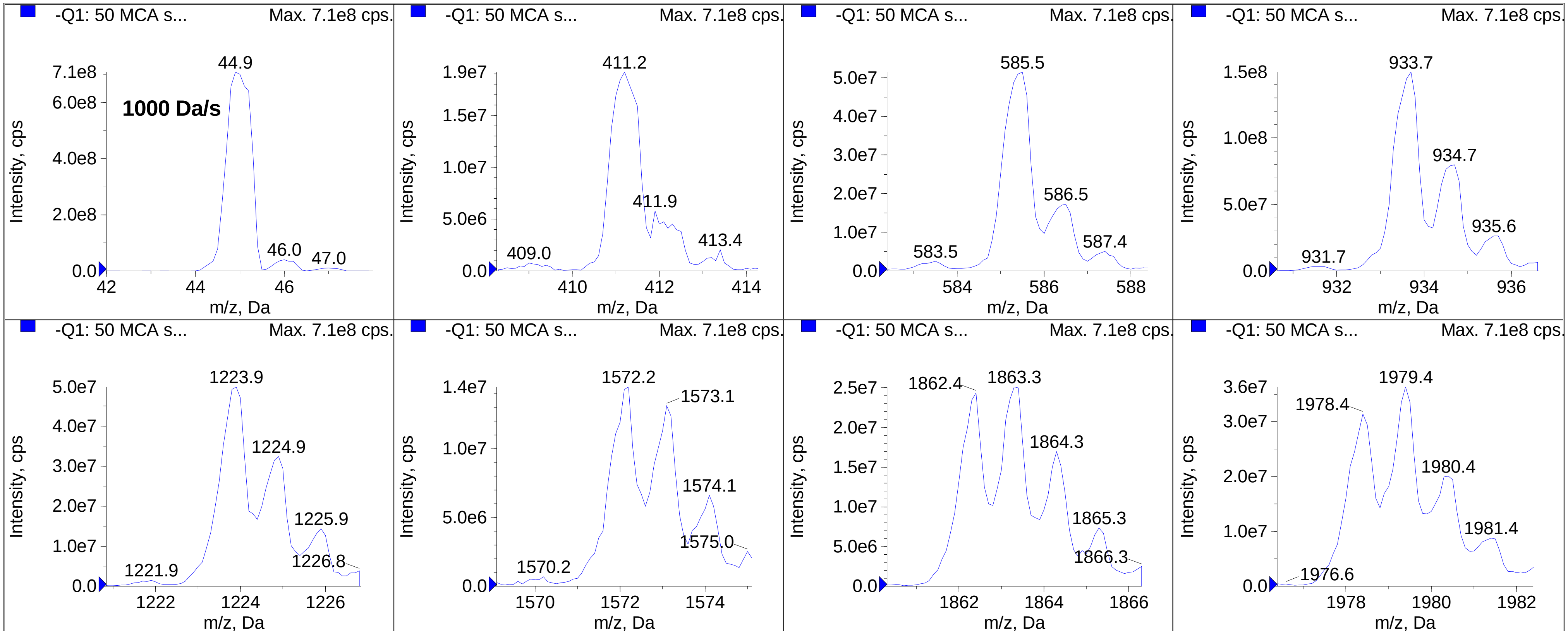


Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317153519.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0002	6.7591e8	0.6846	-2.2026e-3
2	411.2590	411.2119	3.5092e7	0.7649	0.0471
3	585.3850	585.3644	5.4822e7	0.6584	0.0206
4	933.6360	933.6302	1.3625e8	0.6481	5.8471e-3
5	1223.8450	1223.8348	4.5702e7	0.6769	0.0102
6	1572.0970	1572.1166	1.1750e7	0.6539	-0.0196
7	1863.3060	1863.2690	2.4476e7	0.7185	0.0370
8	1979.3890	1979.3986	2.3062e7	0.6946	-9.5928e-3

* FSE Lynne Russell
*Post-PM Results

Printing Time: 3:40:22 PM   Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS

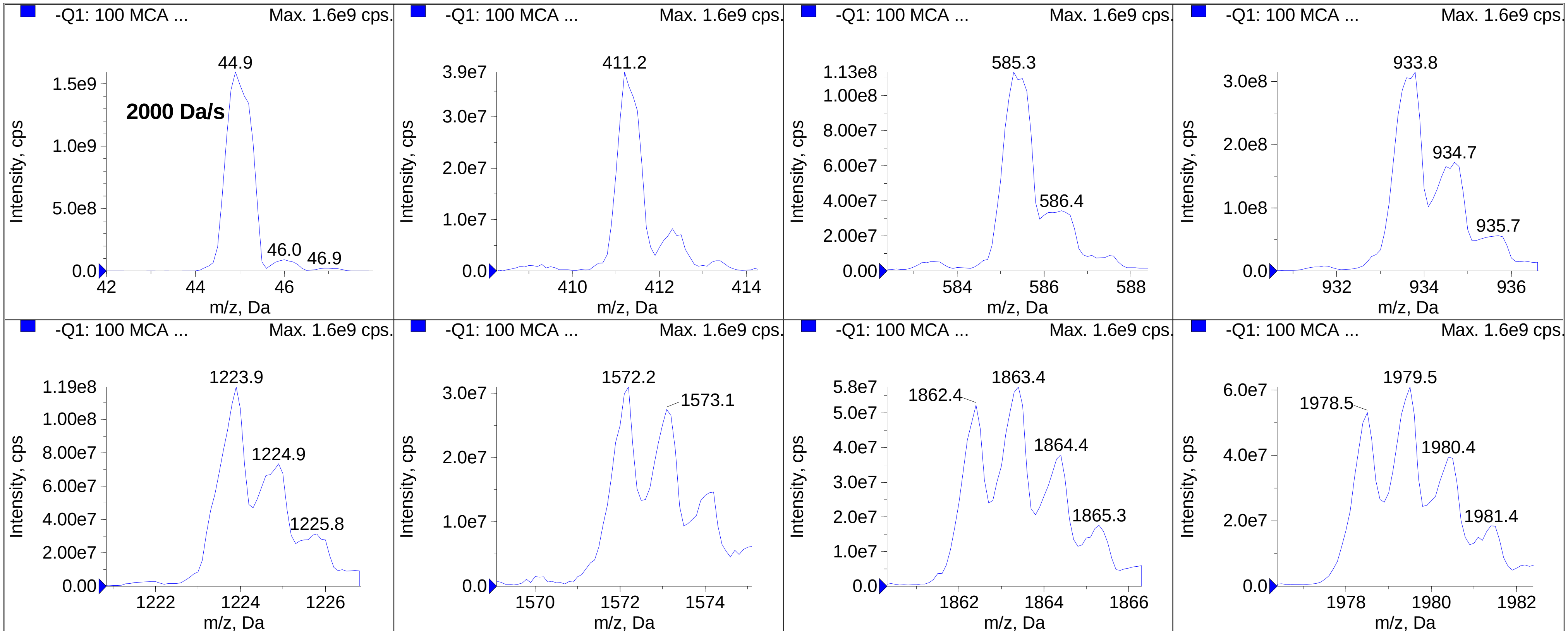


Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317153943.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9913	7.0792e8	0.6591	6.7120e-3
2	411.2590	411.2118	1.9170e7	0.7642	0.0472
3	585.3850	585.3843	5.1430e7	0.7072	7.2076e-4
4	933.6360	933.5972	1.4940e8	0.6413	0.0388
5	1223.8450	1223.8463	4.9780e7	0.6712	-1.2888e-3
6	1572.0970	1572.0804	1.4490e7	0.7157	0.0166
7	1863.3060	1863.2792	2.5100e7	0.6722	0.0268
8	1979.3890	1979.3756	3.6330e7	0.6677	0.0134

* FSE Lynne Russell
*Post-PM Results

```
Printing Time: 3:47:26 PM                         Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q1 MS
```

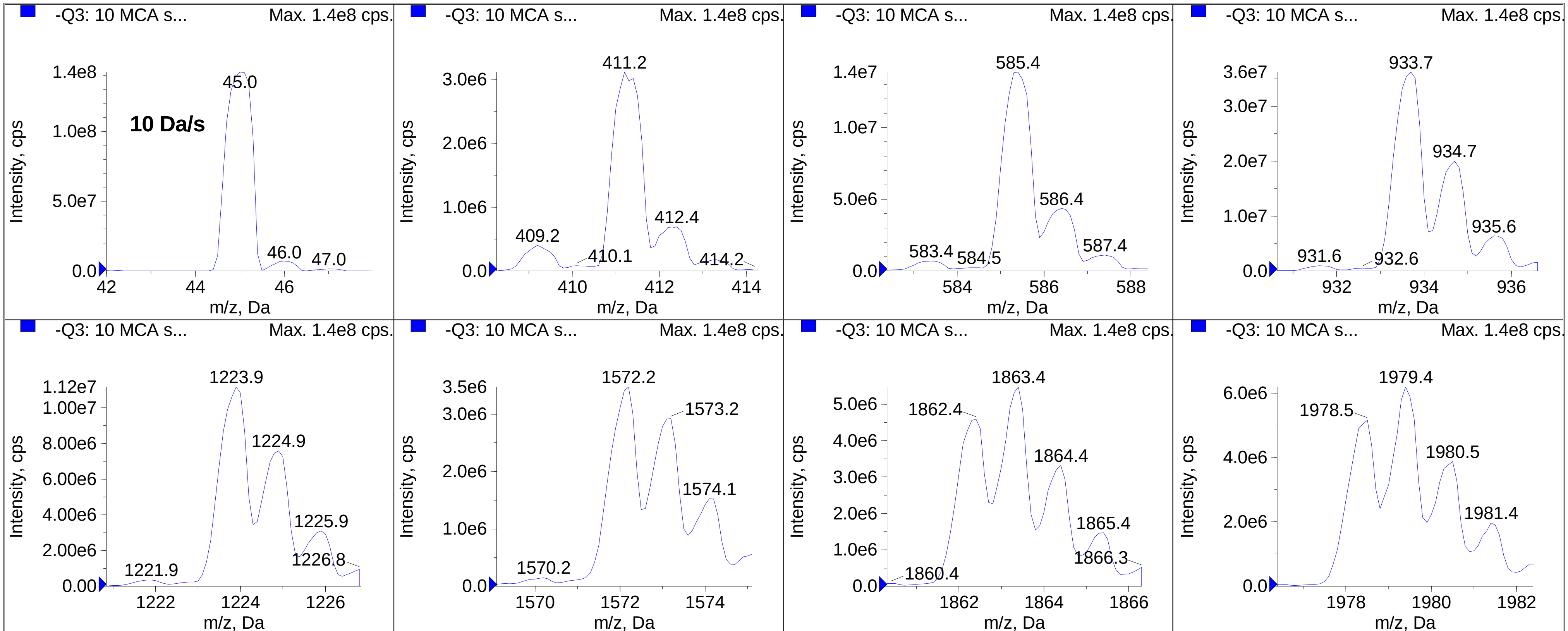


Peak List for " -Q1: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210317154650.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9869	1.5936e9	0.7014	0.0111
2	411.2590	411.3034	3.8680e7	0.6054	-0.0444
3	585.3850	585.3982	1.1334e8	0.7377	-0.0132
4	933.6360	933.6884	3.1468e8	0.7010	-0.0524
5	1223.8450	1223.8385	1.1948e8	0.7184	6.4595e-3
6	1572.0970	1572.1098	3.0940e7	0.6286	-0.0128
7	1863.3060	1863.3157	5.7500e7	0.7703	-9.6587e-3
8	1979.3890	1979.4295	6.0920e7	0.7023	-0.0405

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 3:55:05 PM                         Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
```

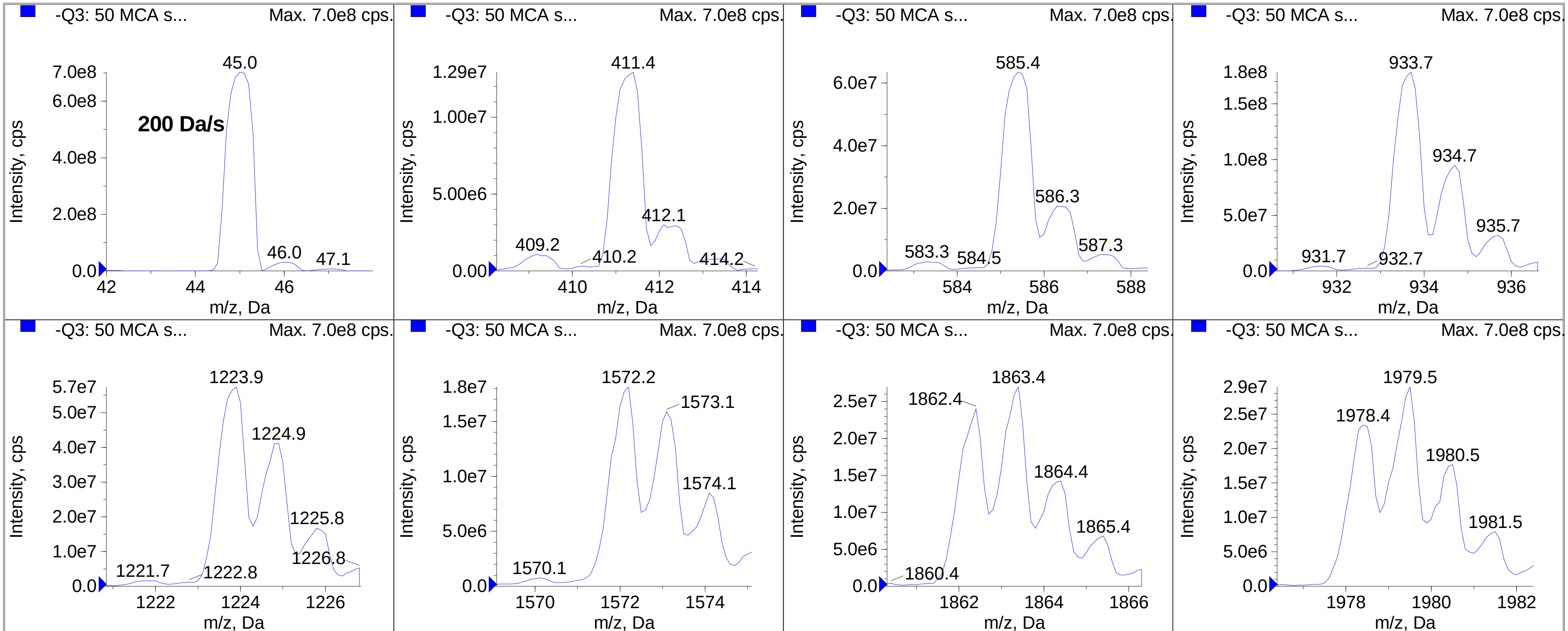


Peak List for " -Q3: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210317155339.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9954	1.4235e8	0.6998	2.5868e-3
2	411.2590	411.2663	3.1136e6	0.7653	-7.2991e-3
3	585.3850	585.3824	1.3857e7	0.7426	2.5787e-3
4	933.6360	933.6394	3.6194e7	0.6976	-3.3971e-3
5	1223.8450	1223.8414	1.1169e7	0.7388	3.6285e-3
6	1572.0970	1572.1229	3.4731e6	0.7534	-0.0259
7	1863.3060	1863.3178	5.4742e6	0.7396	-0.0118
8	1979.3890	1979.3917	6.1874e6	0.7353	-2.6787e-3

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 3:58:35 PM                           Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
```

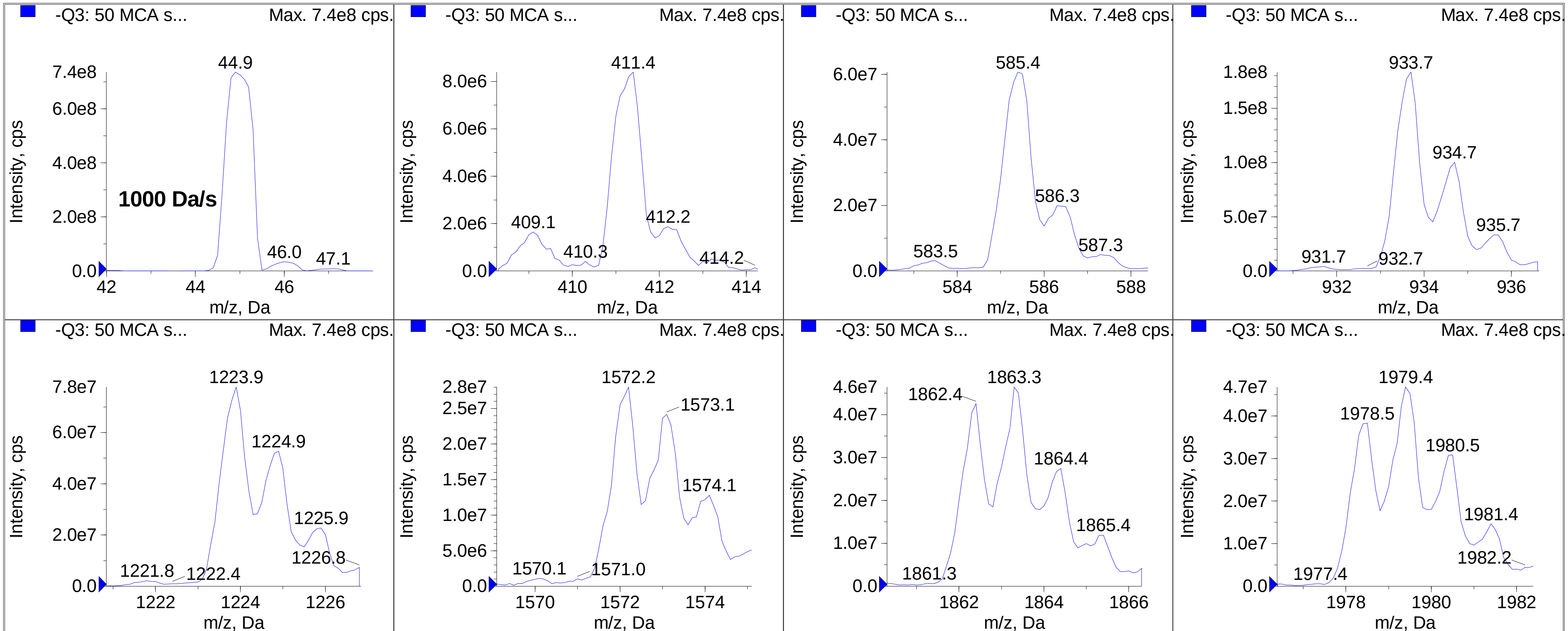


Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317155802.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0019	7.0237e8	0.6857	-3.8623e-3
2	411.2590	411.2741	1.2928e7	0.7451	-0.0151
3	585.3850	585.3839	6.3484e7	0.7331	1.0568e-3
4	933.6360	933.6315	1.7846e8	0.6712	4.4876e-3
5	1223.8450	1223.8069	5.7376e7	0.7239	0.0381
6	1572.0970	1572.1172	1.8126e7	0.7008	-0.0202
7	1863.3060	1863.3002	2.6982e7	0.6833	5.8385e-3
8	1979.3890	1979.4115	2.8940e7	0.7337	-0.0225

```
* FSE Lynne Russell
*Post-PM Results
```

```
Printing Time: 4:00:09 PM                         Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS
```

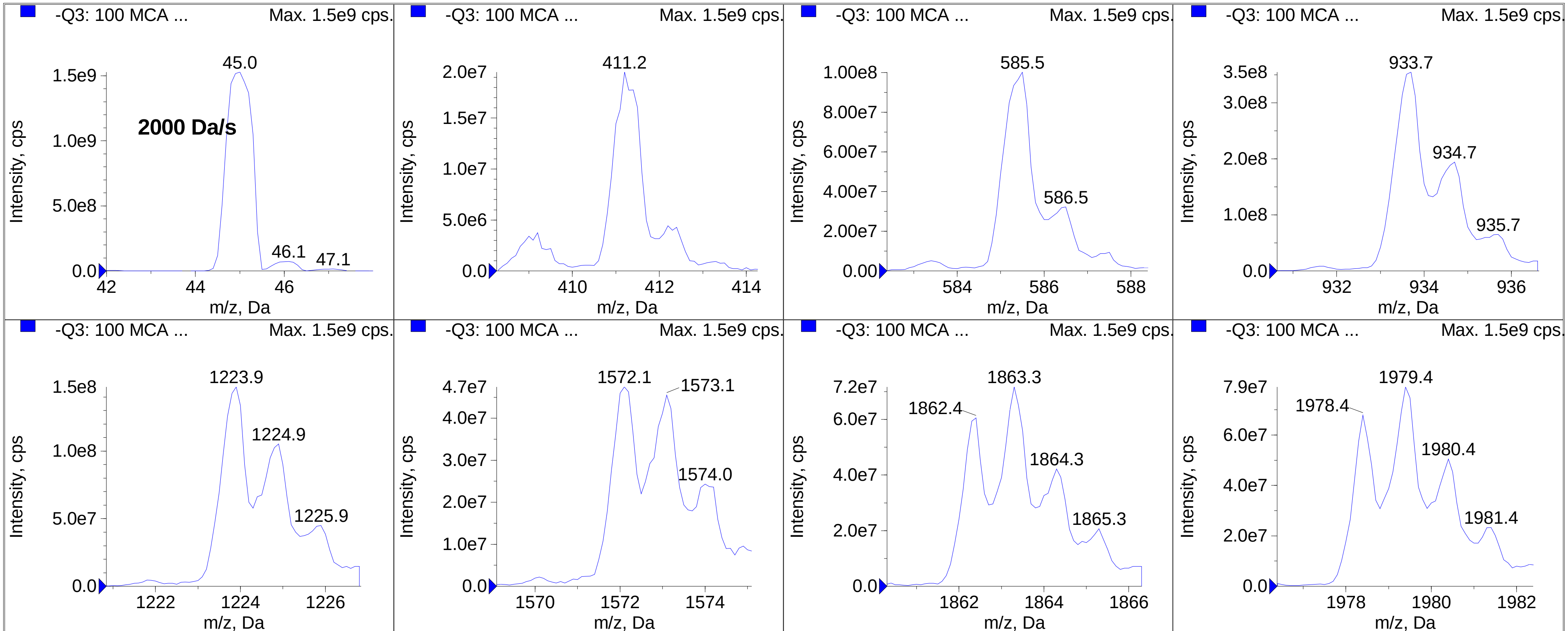


Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210317155932.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9917	7.3590e8	0.7074	6.3058e-3
2	411.2590	411.2608	8.3900e6	0.7490	-1.7510e-3
3	585.3850	585.3889	6.0630e7	0.7130	-3.9447e-3
4	933.6360	933.6286	1.8323e8	0.6162	7.3699e-3
5	1223.8450	1223.8474	7.7780e7	0.6951	-2.4002e-3
6	1572.0970	1572.1198	2.8030e7	0.6475	-0.0228
7	1863.3060	1863.3085	4.6450e7	0.7545	-2.4862e-3
8	1979.3890	1979.4002	4.6780e7	0.7318	-0.0112

```
* FSE Lynne Russell
*Post-PM Results
```

Printing Time: 4:04:35 PM Analyst Version: 1.6.3
Printing Date: Wednesday, March 17, 2021
Polarity/Scan Type: Negative Q3 MS



Peak List for " -Q3: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210317160355.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9952	1.5280e9	0.6901	2.7593e-3
2	411.2590	411.2640	1.9500e7	0.6899	-5.0124e-3
3	585.3850	585.3826	1.0024e8	0.7067	2.4475e-3
4	933.6360	933.6321	3.5464e8	0.6833	3.8616e-3
5	1223.8450	1223.8477	1.4746e8	0.6418	-2.6653e-3
6	1572.0970	1572.0994	4.7440e7	0.7027	-2.3818e-3
7	1863.3060	1863.3089	7.1680e7	0.6977	-2.8502e-3
8	1979.3890	1979.3915	7.9080e7	0.6872	-2.4992e-3

* FSE Lynne Russell
*Post-PM Results

SCIEX Triple Quad™ 4500/4500MD Systems

Planned Maintenance Procedure

GEN-IDV-08-6710-E

October 2020

EC REP

AB Sciex UK Limited
Phoenix House
Lakeside Drive, Centre Park
Warrington Cheshire
WA1 1RX, UK

AB Sciex Pte. Ltd.
Blk33, #04-06 Marsiling Industrial Estate Road 3
Woodlands Central Industrial Estate, Singapore 739256

Contents

Introduction 1

Note: For regulatory and safety information for the mass spectrometer, refer to the *System User Guide*.

The planned maintenance (PM) procedure is designed to help maintain overall system performance.

The PM is not intended to take the place of an Operational Qualification (OQ) nor is it intended to verify the instrument specifications. Separate Installation Qualification (IQ) and OQ services are available. Contact a SCIEX representative.

The procedure must be performed by a trained SCIEX Field Service Employee (FSE).

The procedure has been developed for the SCIEX Triple Quad™ 4500/4500MD System with the Turbo V™ Ion Source. It does not apply to any other products or processes.

The procedure does not address any customer-specific analytical protocol (performance qualification) or method validation.

Note: If an issue is identified and the system requires repair, then the customer is responsible for the repair at the expense of the customer, except to the extent that the system and the required repairs are covered by a SCIEX warranty or service contract. A separate repair service call must be opened and the repair hours must not be charged against this procedure.

Planned Maintenance Tasks 2

Note: Perform all procedures using the Turbo V™ Ion Source, unless otherwise specified.

Pre-Planned Maintenance

Note: Guideline values are for reference only. The pre-PM test results are not required to meet or exceed these values.

Pre-PM Tasks

Task	Complete	N/A
Ask the customer about system performance since the last visit and record comments.	✓	—
If the customer maintains a log for the system, then review it.	○	◉
Review the work to be performed with the customer.	✓	—

PC Health Check

Task	Complete	N/A
Inspect the status of the RAID 1 hard drives.		—

Vacuum System Tests

Task	Complete
Record the turbo pump operational values.	

Parameter	Results
Temperature (ºC)	see notes
Current (A)	see notes
Voltage (V)	see notes
Power (W)	see notes
Driving frequency (Hz)	see notes

Inspect the vacuum gauge filament using the Analyst® Service Diagnostics (ASD) Software and identify the filament position. If the mass spectrometer is using filament 2, then order a replacement vacuum gauge as a separate service call.	1	○	
	2	○	

Pre-PM Pressure Test

Pre-PM Pressure Test is Complete	✓

Test	Guideline	Result
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.4e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.1e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Pre-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^6$	2.5e7	0.6 to 0.8	0.87
500.380	$\geq 8.0 \times 10^6$	2.4e7	0.6 to 0.8	0.81
906.673	$\geq 2.0 \times 10^7$	3.9e7	0.6 to 0.8	0.79
1,952.427	$\geq 8.8 \times 10^5$	7.7e6	0.6 to 0.8	1.1

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
175.133	$\geq 8.0 \times 10^{6}$	3.0e7	0.6 to 0.8	0.75
500.380	$\geq 8.0 \times 10^{6}$	2.7e7	0.6 to 0.8	0.81
906.673	$\geq 2.0 \times 10^{7}$	4.7e7	0.6 to 0.8	0.78
1,952.427	$\geq 8.8 \times 10^{5}$	7.8e6	0.6 to 0.8	0.85

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^7$	2.4e7	0.6 to 0.8	0.65
1,863.306	$\geq 1.4 \times 10^6$	3.7e6	0.6 to 0.8	0.73

Q3 Negative MS Test is Complete	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Guideline	Result	Guideline	Result
933.636	$\geq 1.8 \times 10^{7}$	3.1e7	0.6 to 0.8	0.79
1,863.306	$\geq 2.0 \times 10^{6}$	6.2e6	0.6 to 0.8	0.76

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Guideline	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	6.6%

Planned Maintenance

Mass Spectrometer Maintenance

Task	Complete	N/A
Shut down the system and then disconnect the mains supply power cable.	✓	—
If required, replace the roughing pump oil. The recommended interval is every 3 years. **Note:** If an oil change is not required, then inspect the oil level and top up, if necessary. **CAUTION: Potential System Damage. Do not mix different types of oil. Mixing mineral oil with synthetic oil can cause pump failure.**	✓	—
If required, replace the roughing pump oil exhaust filter. The recommended interval is every 3 years.	◉	○
Confirm that there is no excessive roughing pump oil leakage. Clean up any oil.		—
Make sure that the roughing pump exhaust is properly routed to the ventilation system.	✓	—

Task	Complete	N/A
Inspect the exhaust system: • Make sure that all of the gas fittings at the rear bulkhead are tight. • Make sure that all of the exhaust hoses are free of kinks. • Make sure that all of the hoses at the waste bottle are secure, and there are no signs of leaks. • Make sure that the waste bottle is in an upright position. • Make sure that the exhaust hose is secured to the lab ventilation system. • Confirm that no liquid is trapped in the exhaust lines.	✓	—
Clean or replace the four air filters in the base of the mass spectrometer chassis.	✓	—
(If applicable) Clean the turbo pump filter screen.	○	◉
(If applicable) Verify the operation of the SCIEX-supplied bench cooling fans.	◉	○
Clean the curtain plate.	✓	—
Clean the orifice plate.	✓	—
Clean the QJet® Ion Guide and IQ0 lens.	✓	—
(If contamination is detected) Clean the Q0 region and the IQ1 lens.	◉	○
Inspect the cable connections: • Make sure that the power cables for the mass spectrometer, LC system, roughing pump, syringe pump, gas generator, and UPS are securely connected. • Make sure that the communications cables for the GPIB/Ethernet ports, LC connections, and roughing pump are securely connected.	✓	—

Task	Complete	N/A
Verify system support functions — gas: • Confirm the input gas pressures at the regulators are within specifications. • Confirm that there is no liquid present in the gas lines.	✓	—
Verify the expiry date on the battery system for the UPS (sold by SCIEX), and then recommend replacement of the battery tray, if required.	○	◉
Start up the system.	✓	—

Turbo V™ Ion Source Maintenance

Task	Complete	N/A
If necessary, replace the electrode in the TurboIonSpray® and APCI Probes.	◉	○
With the TurboIonSpray® probe installed, verify that the temperature (TEM) reaches the recommended set point of 500 °C.	✓	—
(If applicable) With the APCI probe installed, verify that the temperature (TEM) reaches the recommended set point of 400 °C.	○	◉
Inspect the ion source and, if visible signs of contamination are present, clean the inner surfaces using lint-free wipes and a 50:50 methanol:water solution. **Note:** Remove the corona discharge needle before cleaning.	◉	○

Software Maintenance

Note: This task is not applicable to MD systems.

Task	Complete	N/A
(Obtain customer approval first) Install any applicable Analyst® Software HotFixes. **Note:** Make sure that the compatible instrument firmware is installed.	○	◉

Post-Planned Maintenance

Voltage Tests

<table>
<tr><th>Task</th><th>Complete</th></tr>
<tr><td>Inspect the RF tuning voltages at the QPS amplifier module and then, if required, tune the coil boxes.</td><td>✓</td></tr>
<tr><td>Inspect the detector voltage. Optimize, if required.<table><tr><td>Detector voltage</td><td>2100</td></tr></table></td><td>✓</td></tr>
</table>

Post-PM Pressure Test

Post-PM Pressure Test is Complete	✓

Test	**Specification**	**Result**
Vacuum chamber pressure with CAD gas off	0.4×10^{-5} torr $\leq P_{CAD\ 0} \leq 1.1 \times 10^{-5}$ torr	0.8e-5
Pressure difference (CAD_{12} minus CAD_0)	1.8×10^{-5} torr $\leq (P_{CAD\ 12} - P_{CAD\ 0}) \leq 2.8 \times 10^{-5}$ torr	2.5e-5

Inspect for Contamination

Task	Complete	N/A
Inspect for front-end contamination. Refer to Inspect for Contamination.	✓	—

Post-PM System Tests

Q1 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^6$	2.1e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^6$	2.8e7	0.6 to 0.8	0.70
906.673	$\geq 2.0 \times 10^7$	3.8e7	0.6 to 0.8	0.73
1,952.427	$\geq 8.8 \times 10^5$	6.0e6	0.6 to 0.8	0.69

Q1 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Positive MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
175.133	$\geq 8.0 \times 10^{6}$	2.8e7	0.6 to 0.8	0.73
500.380	$\geq 8.0 \times 10^{6}$	3.1e7	0.6 to 0.8	0.70
906.673	$\geq 2.0 \times 10^{7}$	4.6e7	0.6 to 0.8	0.69
1,952.427	$\geq 8.8 \times 10^{5}$	5.5e6	0.6 to 0.8	0.69

Q3 Positive MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** POS PPG, 2e-6 M
- **Flow rate:** 5 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
59.050, 175.133, 500.380, 616.464, 906.673, 1,254.925, 1,545.134, 1,952.427	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q1 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	$\geq 1.8 \times 10^7$	2.6e7	0.6 to 0.8	0.70
1,863.306	$\geq 1.4 \times 10^6$	4.3e6	0.6 to 0.8	0.71

Q1 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Q3 Negative MS Test is Complete: Intensity and Peak Width	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **Scan rate**: 10 Da/s
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Intensity (cps)		Peak Width (Da)	
	Specification	Result	Specification	Result
933.636	≥ 1.8×10^{7}	3.4e7	0.6 to 0.8	0.77
1,863.306	≥ 2.0×10^{6}	5.6e6	0.6 to 0.8	0.72

Q3 Negative MS Test is Complete: Peak Width for Identified Masses	✓

- **Test solution:** NEG PPG, 3e-4 M
- **Flow rate:** 10 µL/min
- **MCA:** On
- **Printouts required:** Spectra for masses 44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389, with peak intensities, peak width, and mass shift results, complete with method file information.

Note: After calibration, the mass shift result must be within 0.1 Da for all assigned masses.

Mass (Da)	Scan Rate (Da/s)	Cycles	Specification (Da)	Result (Passed)
44.998, 411.259, 585.385, 933.636, 1,223.845, 1,572.097, 1,863.306, 1,979.389	10	10	0.6 to 0.8	✓
	200	50	0.6 to 0.8	
	1,000	50	0.6 to 0.8	
	2,000	100	0.6 to 0.8	

Reserpine MS/MS Transmission Test is Complete	✓

- **Test solution:** Reserpine solution 0.167 pmol/µL
- **Flow rate:** 5 µL/min
- **Scan rate:** 10 Da/s (both MS and MS/MS)
- **Scan mode:** Product Ion (MS2)
- **Product Of:** 609.3 (or as calibrated)
- **Product Ion:** 195.1
- **Cycles:** 10
- **MCA:** On
- **Printouts required:** Spectra for masses 609.3 and 195.1, with peak intensities, peak width, and mass shift results, complete with method file information.

Specification	Result
Transmission efficiency $\frac{Intensity\ for\ ion\ at\ m/z\ 195.1}{Intensity\ for\ ion\ at\ m/z\ 609.3\ (or\ as\ calibrated)} \times 100\ \geq 10\%$	11%

Post-PM Tasks

Task	Complete	N/A
Delete any unnecessary files.	✓	—
Back up the Analyst Data folder.	✓	—
(If applicable) Defragment the hard drive.	○	◉
(Not applicable for MD instrument families) If the customer has a Software Support Plan, then perform the Software Health Check: • (Obtain customer approval first) Install any compatible HotFixes and updates for SCIEX add-on software.	○	◉

StatusScope® Remote Monitoring Service Tasks

The StatusScope® Remote Monitoring Service is not applicable for MD systems.

Planned Maintenance Tasks

Task	Complete	N/A
Note: Installation of the StatusScope® Remote Monitoring Service is available only to warranty and eligible contract customers. Refer to sciex.com/instrument-service-and-support/statusscope-remote-monitoring for a list of eligible contracts. If the StatusScope® Remote Monitoring Service is not installed, then perform these tasks: • If the customer does not want the StatusScope® Remote Monitoring Service installed, then skip the remaining steps in this section. • If the customer wants the StatusScope® Remote Monitoring Service installed, then complete the steps in this section.	○	◉
Verify the connection to the server for the StatusScope® Remote Monitoring Service. **Note:** Use the **StatusScopePortCheck.exe**. The utility is included with the StatusScope® installer.	○	◉
Install the agent for the StatusScope® Remote Monitoring Service.	○	◉
Ask the customer to log on to SCIEX Now™ to verify that the instrument is connected to the server for the StatusScope® Remote Monitoring Service. **Note:** The instrument is shown under the account of the Primary Contact.	○	◉

Wrap-up

Task	Complete	N/A
Review the work performed with the customer.	✓	—
Record the test results in this document and then attach all of the test data.	✓	—
Review the routine maintenance schedule and the procedures with the customer.	✓	—
Complete this document: • Review the test results with the customer. • Provide the customer with the completed document and the test data. • If an electronic copy of the document is supplied to the customer, then save a copy on the Service drive.	✓	—

Signoff 3

Organization	Pace South Carolina		
Mass spectrometer serial number	EB250231807	Service request number	5030888
FSE name	Lynne Russell	Date (yyyy-mm-dd)	2021-03-25
FSE signature			

Comments and Exceptions

Unable to check RAID and perform vacuum system test because I did not have admin privileges on the customer computer. LER 25MAR2021

Inspect for Contamination A

Perform a Q1 and Q3 charging test to determine whether front end contamination is present.

1. Run the **Pos PPG** method for 10 minutes, monitoring the Total Ion Count (TIC) for degradation of the signal or a decrease in sensitivity.
2. Change the polarity to Negative, and then scan for one minute.
3. Change the polarity to Positive, and then make sure that the **IS** parameter returns to the original value.
4. Run the method.

   If the signal sensitivity is restored temporarily but the Total Ion Count (TIC) again degrades by more than 5% over a 10 minute run, then a possible front-end contamination is indicated.
5. Repeat the test in Negative polarity using the Q1 Neg PPG method.

Guidelines for Cleaning the Front End

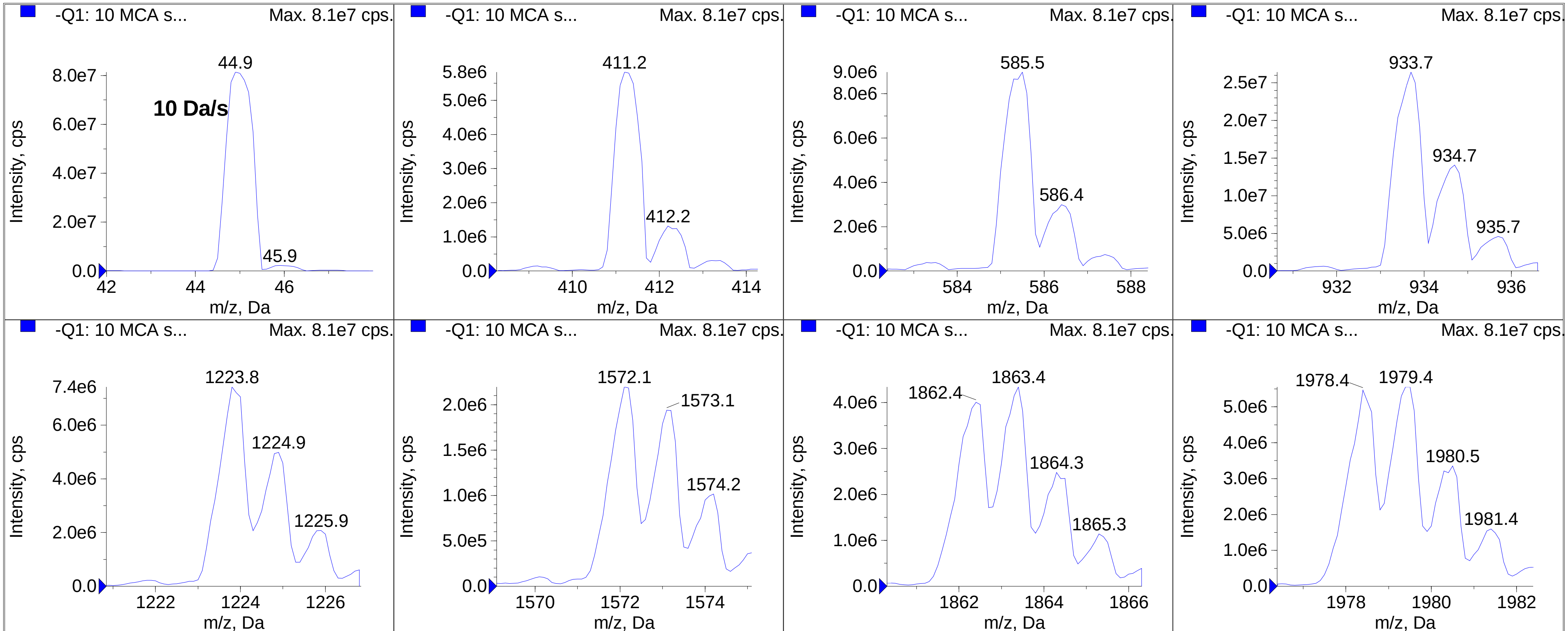
If charging tests indicate that cleaning is necessary, then clean the front-end components, including the QJet® Ion Guide, IQ0 lens, Q0 quadrupole, and IQ1 lens.

Removing the ion optics is considered a repair activity. FSEs must open a separate service repair call.

Note: This procedure does not provide troubleshooting for all technical root causes of signal degradation or charging effect. Signal degradation might also result from a contaminated TurboIonSpray® Probe or electrode, method parameters that are not optimized, or other factors.

Acq. Time: 15:30
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



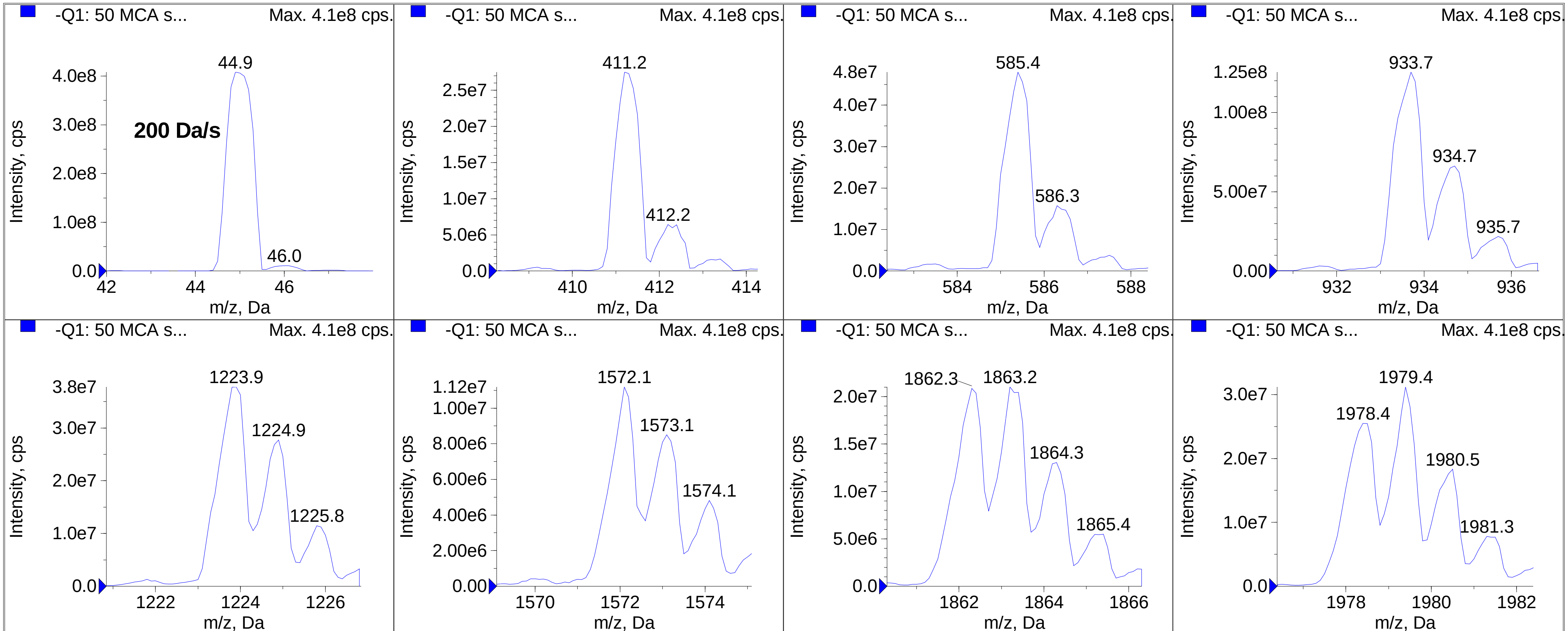
Peak List for " -Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325153056.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9982	8.1378e7	0.6996	-1.8169e-4
2	411.2590	411.2637	5.8256e6	0.6783	-4.6770e-3
3	585.3850	585.3916	8.9716e6	0.7217	-6.5574e-3
4	933.6360	933.6386	2.6418e7	0.7048	-2.5651e-3
5	1223.8450	1223.8346	7.4223e6	0.6965	0.0104
6	1572.0970	1572.0866	2.1958e6	0.7080	0.0104
7	1863.3060	1863.3085	4.3403e6	0.7132	-2.4789e-3
8	1979.3890	1979.3775	5.5539e6	0.7610	0.0115

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:40
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



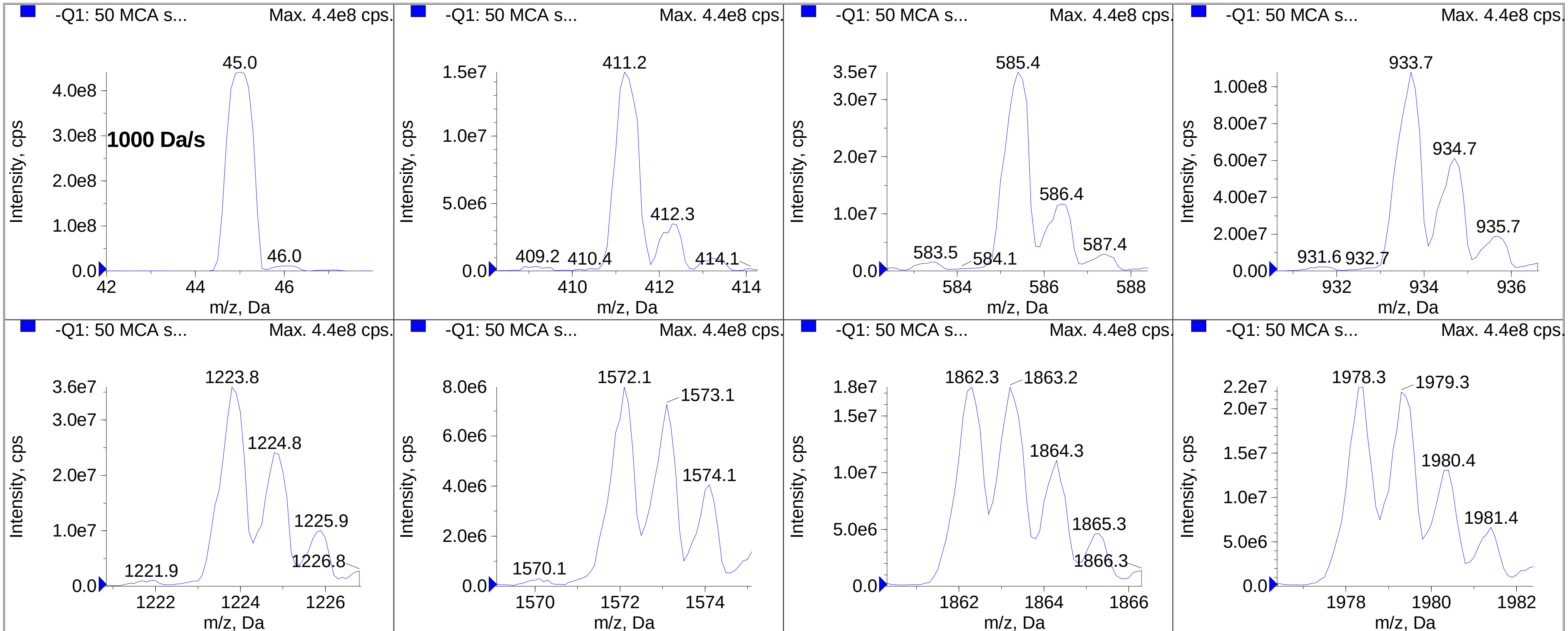
Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325154041.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0052	4.0797e8	0.6918	-7.1801e-3
2	411.2590	411.2692	2.7506e7	0.6518	-0.0102
3	585.3850	585.3988	4.7952e7	0.6984	-0.0138
4	933.6360	933.6373	1.2546e8	0.7143	-1.2816e-3
5	1223.8450	1223.8305	3.7770e7	0.7208	0.0145
6	1572.0970	1572.0944	1.1188e7	0.6425	2.5631e-3
7	1863.3060	1863.2675	2.1018e7	0.7283	0.0385
8	1979.3890	1979.3876	3.1194e7	0.6386	1.4045e-3

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:43
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



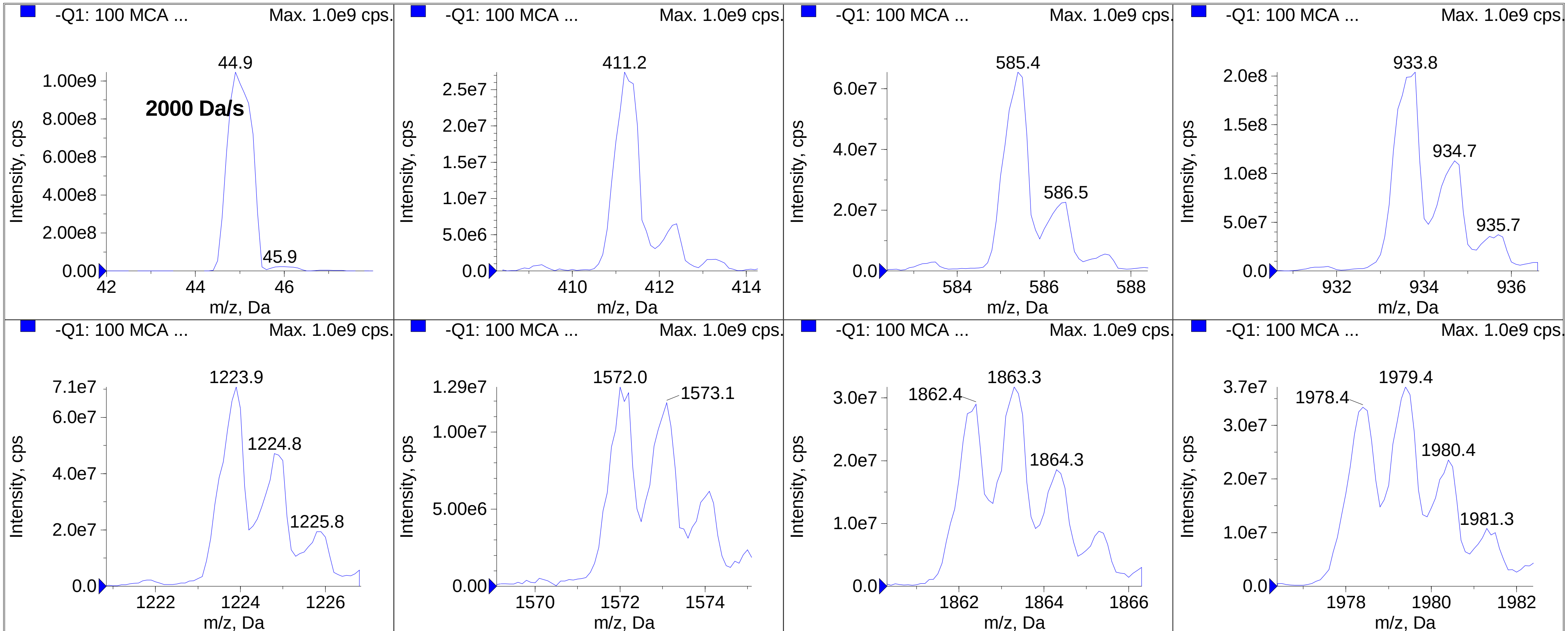
Peak List for " -Q1: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325154310.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0055	4.4107e8	0.6916	-7.5381e-3
2	411.2590	411.2622	1.4730e7	0.6031	-3.2201e-3
3	585.3850	585.3923	3.4800e7	0.6373	-7.3251e-3
4	933.6360	933.6730	1.0796e8	0.6246	-0.0370
5	1223.8450	1223.8482	3.5950e7	0.6244	-3.2403e-3
6	1572.0970	1572.0829	7.9600e6	0.6014	0.0141
7	1863.3060	1863.2333	1.7520e7	0.7148	0.0727
8	1979.3890	1979.3550	2.1880e7	0.6567	0.0340

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:45
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " -Q1: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210325154503.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0053	1.0460e9	0.6770	-7.2773e-3
2	411.2590	411.2682	2.7420e7	0.6195	-9.2040e-3
3	585.3850	585.3714	6.5440e7	0.6325	0.0136
4	933.6360	933.6142	2.0390e8	0.6583	0.0218
5	1223.8450	1223.8436	7.0800e7	0.6346	1.3792e-3
6	1572.0970	1572.0493	1.2920e7	0.6333	0.0477
7	1863.3060	1863.2900	3.1740e7	0.7335	0.0160
8	1979.3890	1979.3666	3.7140e7	0.7032	0.0224

*Post-PM
*FSE: Lynne Russell

```
Acq. Time: 15:51                                      Analyst Version: 1.7.0
Acq. Date: Thursday, March 25, 2021                   *SN: EB250231807
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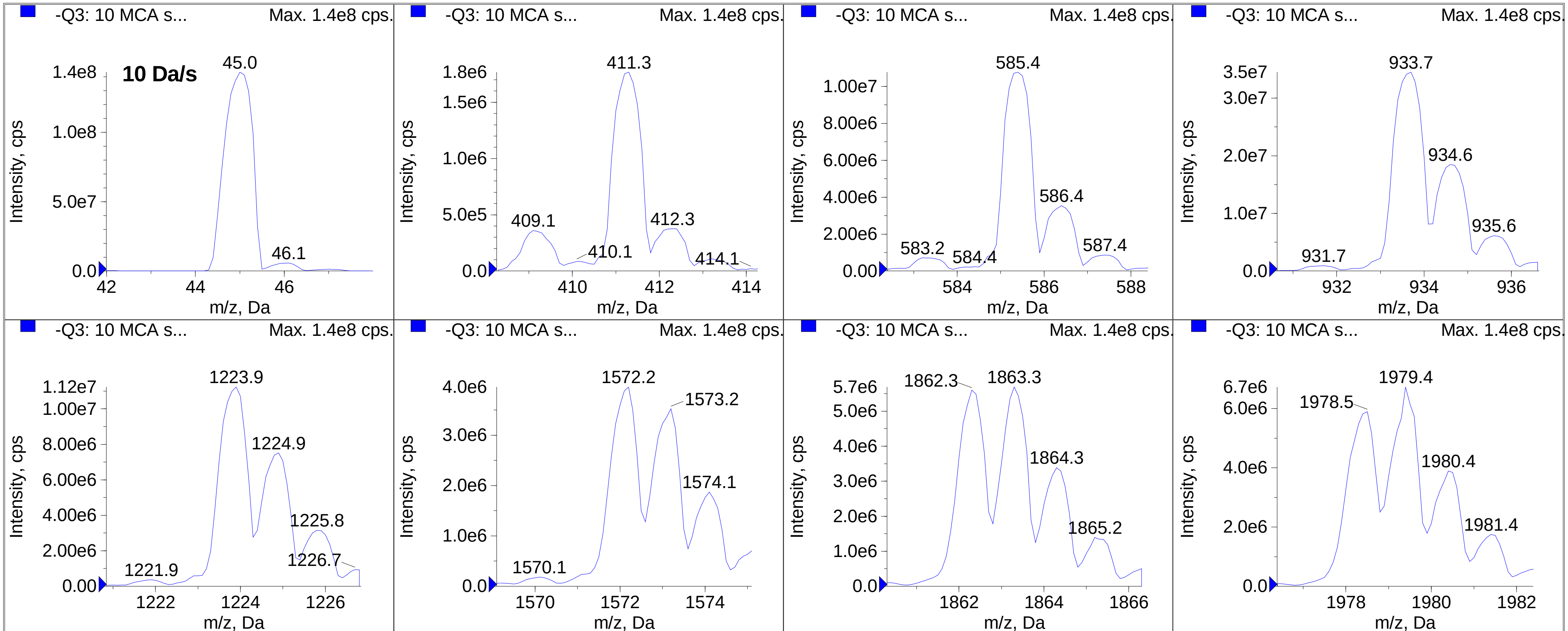
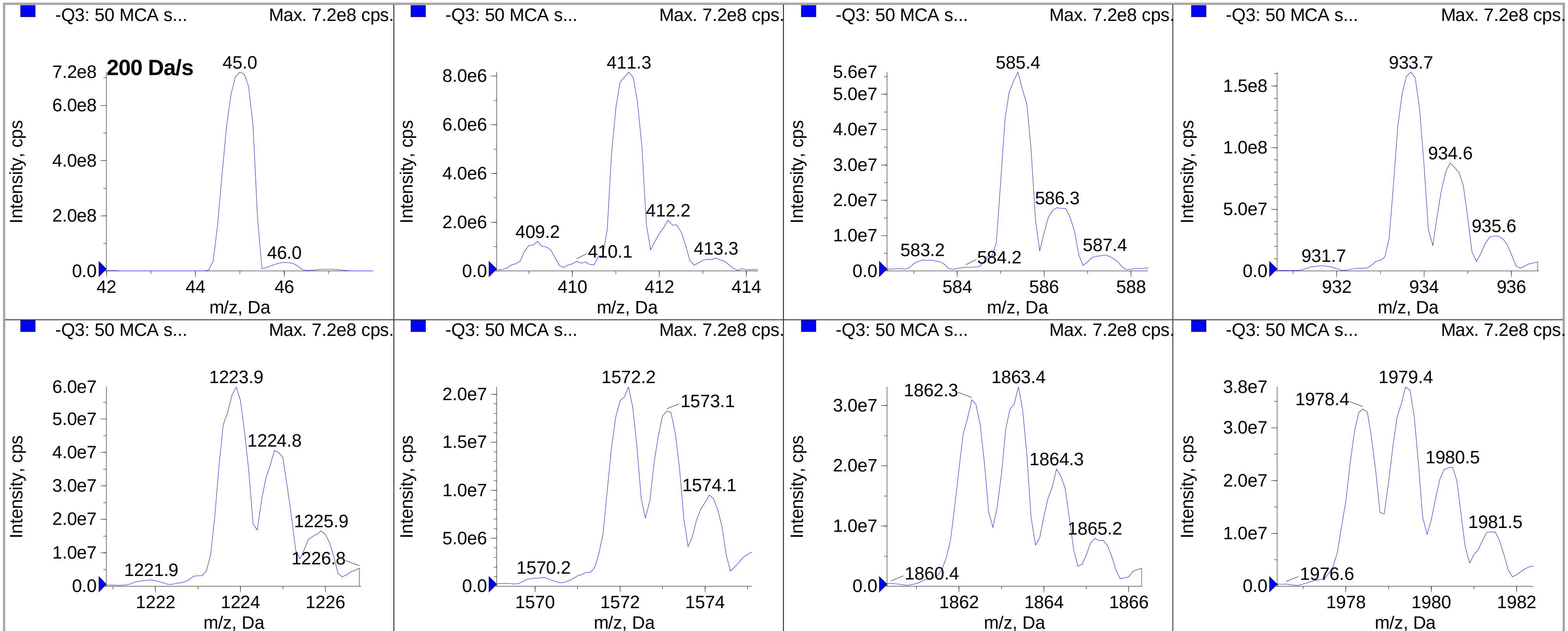


Peak List for " -Q3: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325155103.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9928	1.4333e8	0.7518	5.2161e-3
2	411.2590	411.2614	1.7681e6	0.7448	-2.4303e-3
3	585.3850	585.3870	1.0776e7	0.7128	-2.0136e-3
4	933.6360	933.6360	3.4515e7	0.7726	-4.7548e-5
5	1223.8450	1223.8332	1.1233e7	0.7640	0.0118
6	1572.0970	1572.1103	3.9565e6	0.7359	-0.0133
7	1863.3060	1863.3122	5.6912e6	0.7229	-6.2488e-3
8	1979.3890	1979.3896	6.7287e6	0.7704	-5.7240e-4

```
*Post-PM
*FSE: Lynne Russell
```



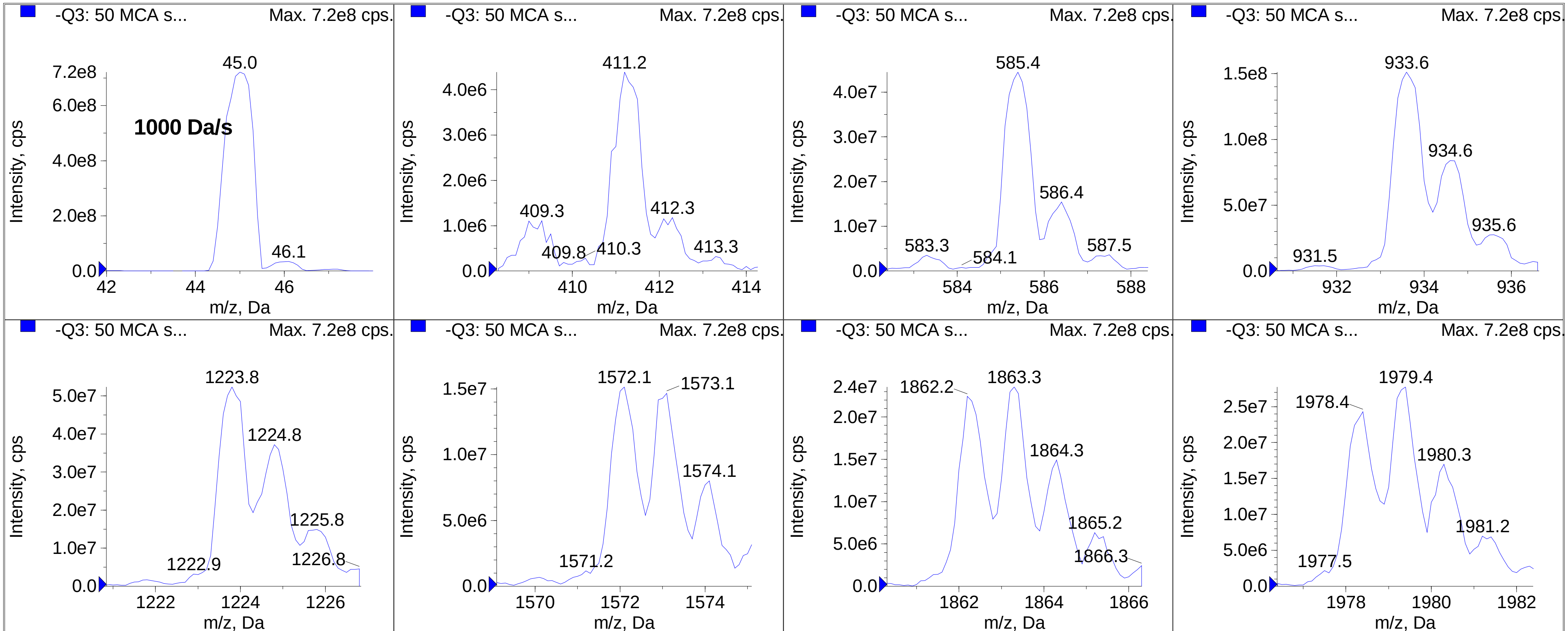
Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325155632.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	45.0036	7.2093e8	0.7442	-5.6313e-3
2	411.2590	411.2597	8.1560e6	0.7536	-6.7665e-4
3	585.3850	585.3754	5.6260e7	0.7135	9.6286e-3
4	933.6360	933.6677	1.6115e8	0.6857	-0.0317
5	1223.8450	1223.8456	5.9576e7	0.7722	-6.3307e-4
6	1572.0970	1572.1074	2.0762e7	0.7675	-0.0104
7	1863.3060	1863.3270	3.3080e7	0.6901	-0.0210
8	1979.3890	1979.3887	3.7714e7	0.7590	3.3123e-4

*Post-PM
*FSE: Lynne Russell

Acq. Time: 15:59
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



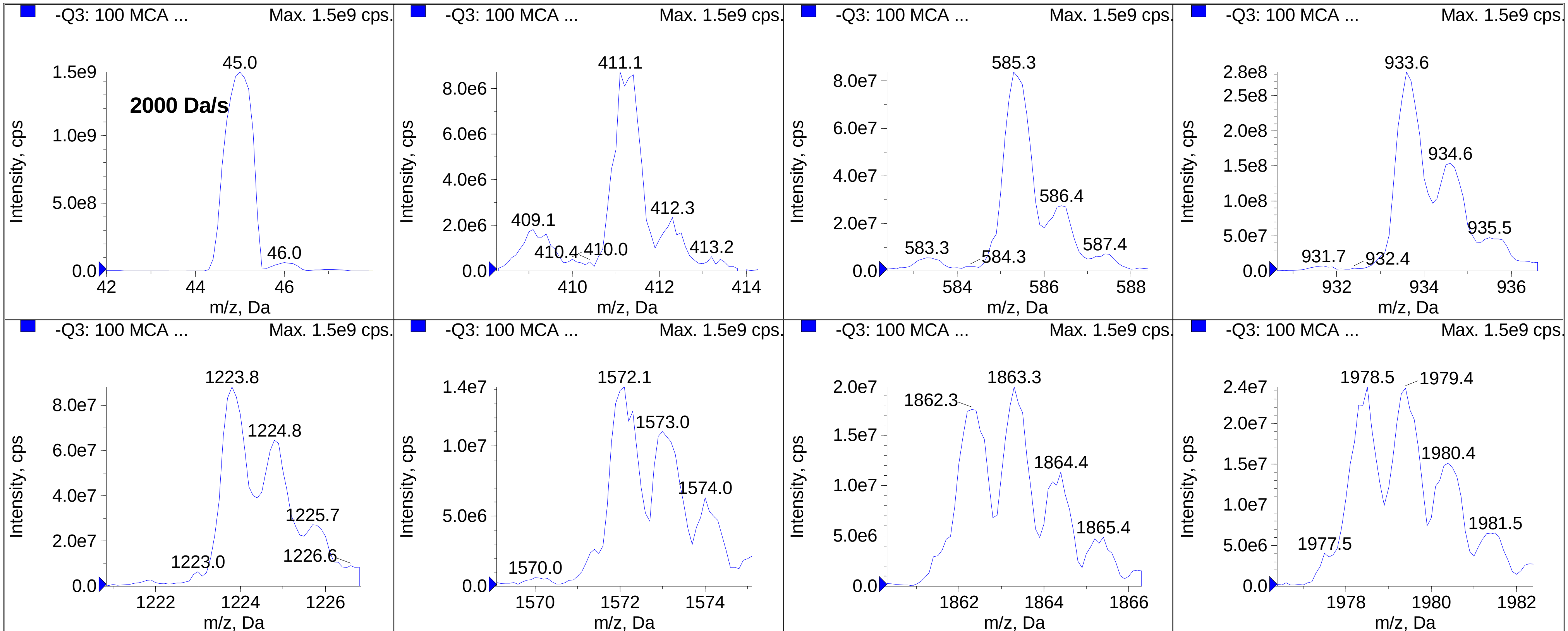
Peak List for " -Q3: 50 MCA scans from Sample 1 (TuneSampleID) of MT20210325155913.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9973	7.2143e8	0.7496	7.4490e-4
2	411.2590	411.2659	4.3900e6	0.7407	-6.8936e-3
3	585.3850	585.3767	4.4490e7	0.6952	8.2998e-3
4	933.6360	933.6150	1.5117e8	0.7331	0.0210
5	1223.8450	1223.8054	5.2360e7	0.7233	0.0396
6	1572.0970	1572.0802	1.5140e7	0.7208	0.0168
7	1863.3060	1863.2985	2.3550e7	0.6589	7.4811e-3
8	1979.3890	1979.3342	2.7740e7	0.7048	0.0548

*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:06
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



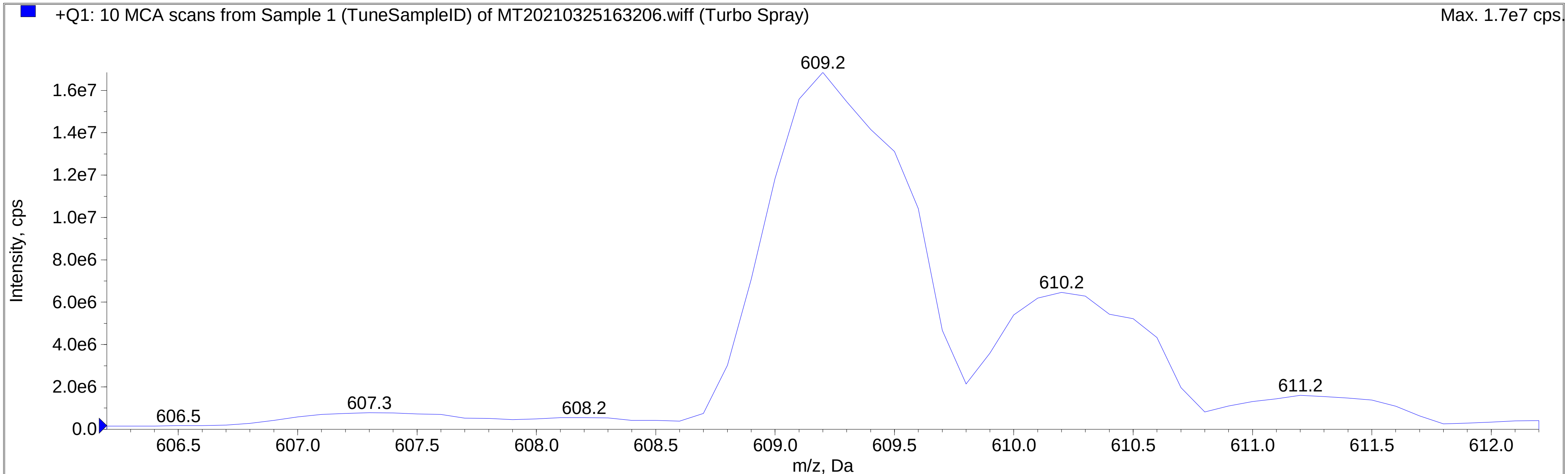
Peak List for " -Q3: 100 MCA scans from Sample 1 (TuneSampleID) of MT20210325160625.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	44.9980	44.9931	1.4679e9	0.7570	4.8703e-3
2	411.2590	411.2696	8.7200e6	0.7171	-0.0106
3	585.3850	585.3799	8.3660e7	0.6993	5.0522e-3
4	933.6360	933.6423	2.8370e8	0.6606	-6.3190e-3
5	1223.8450	1223.8362	8.8060e7	0.6786	8.7632e-3
6	1572.0970	1572.0860	1.4200e7	0.7660	0.0110
7	1863.3060	1863.3234	1.9800e7	0.7225	-0.0174
8	1979.3890	1979.4044	2.4340e7	0.7994	-0.0154

*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:32
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807



Peak List for " +Q1: 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163206.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	174.1000	n/a	n/a	n/a	n/a
2	195.1000	n/a	n/a	n/a	n/a
3	397.2000	n/a	n/a	n/a	n/a
4	448.1000	n/a	n/a	n/a	n/a
5	609.2810	609.2691	1.6853e7	0.7063	0.0119

*Post-PM
*FSE: Lynne Russell

Acq. Time: N/A
Acq. Date: N/A

Analyst Version: 1.7.0
*SN: EB250231807

State Parameter Editor

Ion Source: Turbo Spray
Ion Source Temperature Reached
Curtain Gas (CUR): 30.0
IonSpray Voltage (IS): 3800.0
Temperature (TEM): 0.0
Ion Source Gas 1 (GS1): 25.0
Ion Source Gas 2 (GS2): 0.0

Entrance Potential (EP): 10.0

Q1 Resolution: Unit
Ion Energy 1 (IE1): 1.0

Deflector (DF): -200.0
CEM (CEM): 2100.0

Mass Spectrometer Method Properties

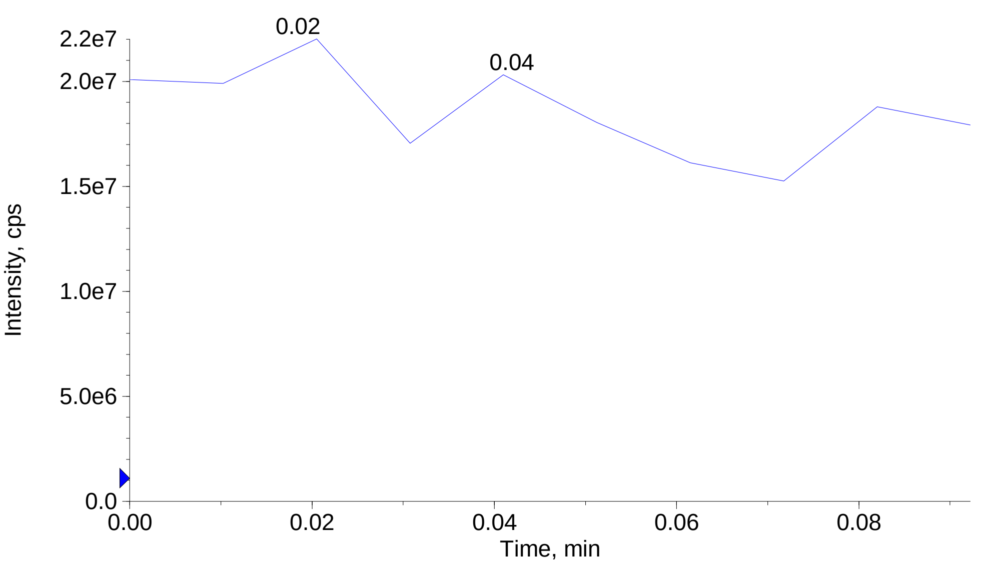
Period 1:

Scans in Period: 10
Relative Start Time: 0.00 msec
Scheduled Ionization: Off
Experiments in Period: 1

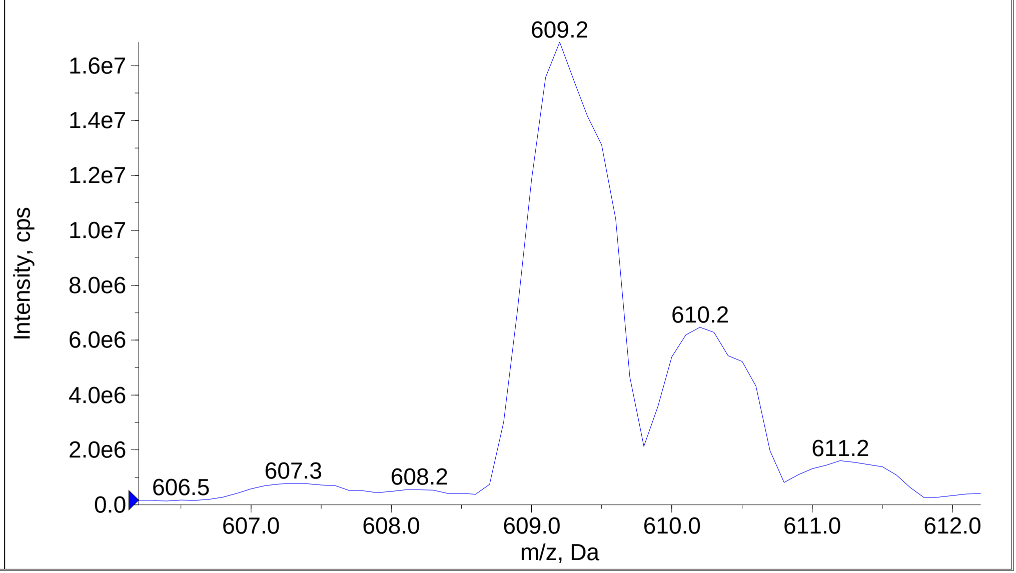
Period 1 Experiment 1:

Scan Type: Q1 MS (Q1)
Polarity: Positive
Scan Mode: Profile
Ion Source: Turbo Spray
Scans to Sum: 1

TIC of +Q1: from Sample 1 (TuneSampleID) of MT202... Max. 2.2e7 cps.



+Q1: 10 MCA scans from Sample 1 (TuneSampleID) o... Max. 1.7e7 cps.



*Post-PM
*FSE: Lynne Russell

Acq. Time: N/A
Acq. Date: N/A

Analyst Version: 1.7.0
*SN: EB250231807

State Parameter Editor

Ion Source: Turbo Spray
Ion Source Temperature Reached
Curtain Gas (CUR): 30.0
Collision Gas (CAD): 8
IonSpray Voltage (IS): 3800.0
Temperature (TEM): 0.0
Ion Source Gas 1 (GS1): 25.0
Ion Source Gas 2 (GS2): 0.0

Entrance Potential (EP): 10.0
Collision Energy (CE): 44.0
Collision Cell Exit Potential (CXP): 7.0

Q1 Resolution: UnitQ3 Resolution: Unit
Ion Energy 1 (IE1): 1.0

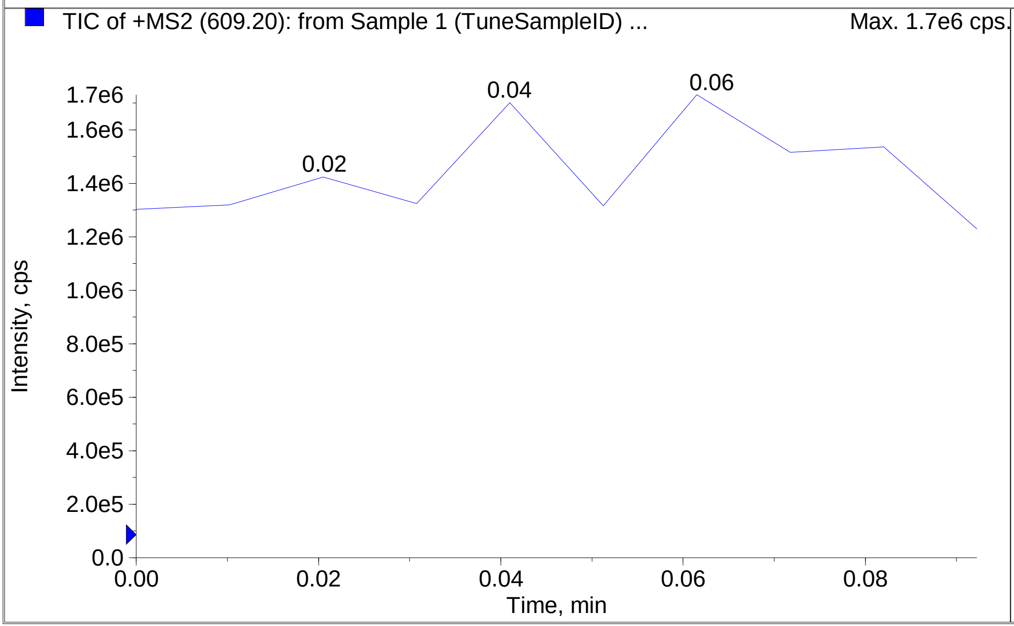
Mass Spectrometer Method Properties

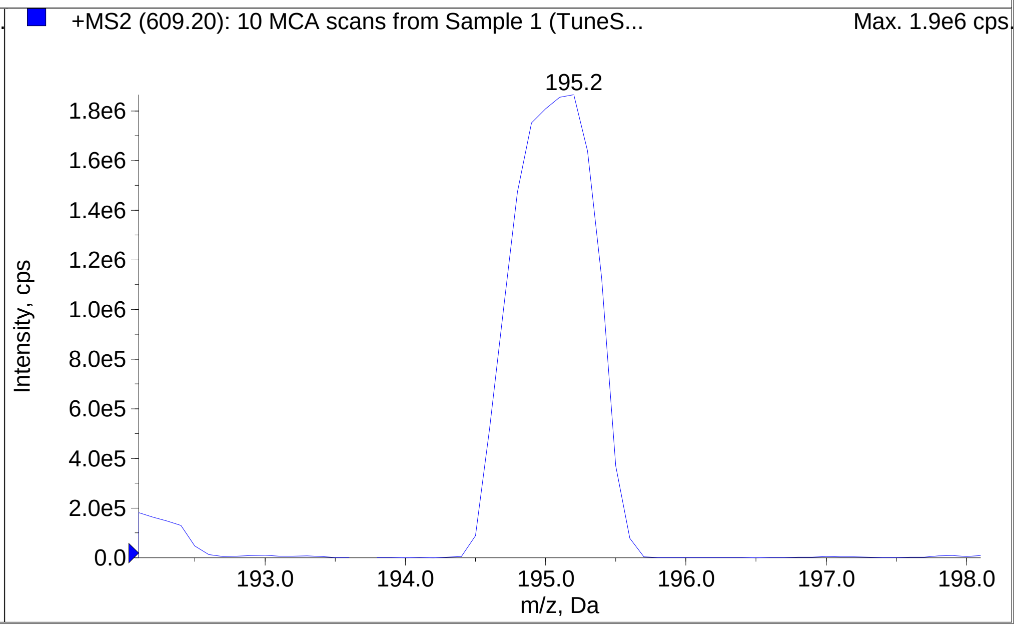
Period 1:

Scans in Period: 10
Relative Start Time: 0.00 msec
Scheduled Ionization: Off
Experiments in Period: 1

Period 1 Experiment 1:

Scan Type: Product Ion (MS2)
Polarity: Positive
Scan Mode: Profile
Ion Source: Turbo Spray
Scans to Sum: 1





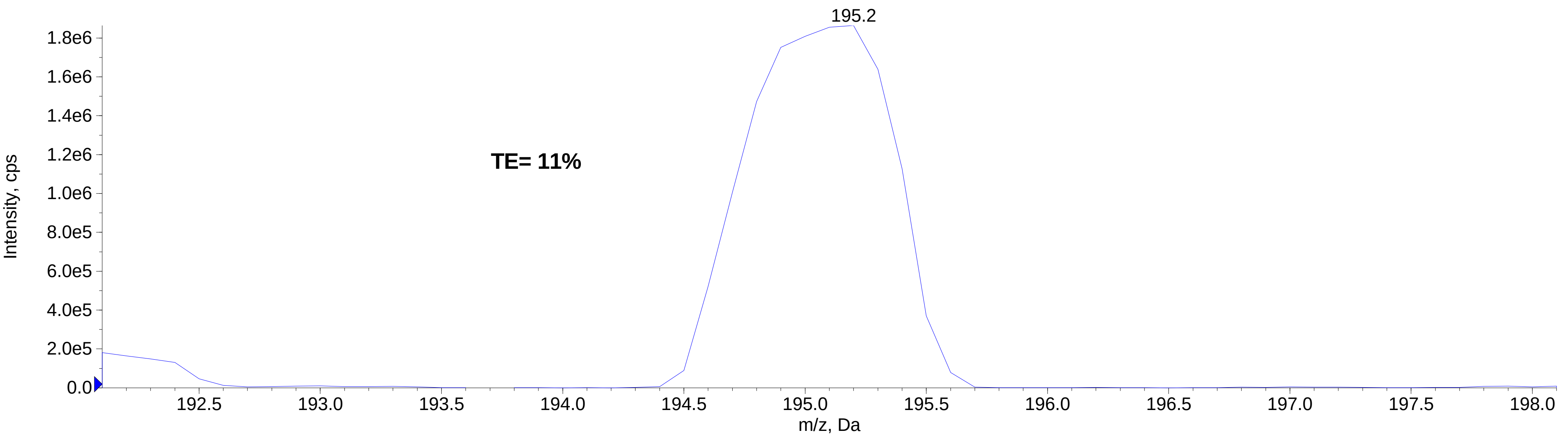
*Post-PM
*FSE: Lynne Russell

Acq. Time: 16:33
Acq. Date: Thursday, March 25, 2021

Analyst Version: 1.7.0
*SN: EB250231807

+MS2 (609.20): 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163348.wiff (Turbo Spray)

Max. 1.9e6 cps.



Peak List for " +MS2 (609.20): 10 MCA scans from Sample 1 (TuneSampleID) of MT20210325163348.wiff (Turbo Spray)"

	Target Mass (Da)	Found At (Da)	Intensity (cps)	Width (Da)	Mass Shift (Da)
1	174.1000	n/a	n/a	n/a	n/a
2	195.1000	195.0703	1.8646e6	0.7410	0.0297
3	397.2000	n/a	n/a	n/a	n/a
4	448.1000	n/a	n/a	n/a	n/a
5	609.2810	n/a	n/a	n/a	n/a

*Post-PM
*FSE: Lynne Russell

Report Date: 05-Nov-2021 13:58:33 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A021.d		
Injection Date:	04-Nov-2021 16:05:48	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	89
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	1170377	20	>100:1			1001.00	1086.97	98.4	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.714		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.078	2.089	0	1080071	17	>100:1			1001.00	1076.94	99	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.089		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	356794	15	>100:1			1001.00	1098.61	98	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.493		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.415	2.424	0	208412	19	>100:1			5005.00	5017.51	96.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.415		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	937734	18	>100:1			1001.00	1049.82	91.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.467		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	810801	18	>100:1			5005.00	4949.36	92.3	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.587		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.837	2.846	0	913612	17	>100:1			1001.00	1042.71	92.6	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.846		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.863	0	279550	19	>100:1			1001.00	1065.85	94.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.863		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.229		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.198	3.204	0	183766	21	>100:1			5005.00	4873.00	94.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.204		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.217	3.223	0	875407	22	>100:1			1001.00	1058.54	94.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.229		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.581	3.595	0	225401	18	>100:1			1001.00	1004.10	91.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.595		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/1	888	20	6.7:1			1.2760	1.2760		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.926		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.226		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.386		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.733		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.588	3.595	0	869336	19	>100:1			1001.00	1088.01	87	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.595		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.866	3.873	0	427441	19	>100:1			1001.00	1031.99	99.9	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.873		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.927	3.934	0	186015	18	>100:1			5005.00	5926.79	121.2	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.934		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.528		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.935	3.942	0	782750	17	>100:1			1001.00	1084.44	99.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.942		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.082	4.098	0	1052711	18	>100:1			5005.00	5937.03	116.6	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.098		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.235	4.253	-1	826681	17	>100:1			1001.00	1209.62	112.8	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.253		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.235	4.253	-1	1002289	16	>100:1			5005.00	6702.89	128.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.253		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.271	4.280	0	143008	14	>100:1			1001.00	1036.40	107.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.288		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.289	4.306	-1	65831	14	>100:1			1001.00	940.16	90.6	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.306		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.434	4.448	0	130299	15	>100:1			1001.00	1013.57	100.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.456		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.449	4.463	0	67671	17	>100:1			1001.00	1050.71	103.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.470		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.507	4.521	0	817722	18	>100:1			1001.00	1189.17	109.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.521		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.747	4.760	0/0	1010	22	3.7:1	Target = 3.23		2.3071	2.3071		
663 > 169	38	4.754	4.760		213	10	5.6:1	4.74 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.965	4.978	0	923436	25	>100:1			1001.00	1181.24	102.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.960	4.978	-1/-1	1413	19	4.9:1	Target = 7.33		1.7429	1.7429		
713 > 169	42	4.960	4.978		289	18	4.1:1	4.88 (3.66-11.00)					
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.354	5.372	-1	395874	20	>100:1			1001.00	1014.07	98.2	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.360	5.372	0/1	7272	18	44:1	Target = 12.31		9.6127	9.6127		
813 > 269	40	5.354	5.372		594	22	34:1	12.24 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.761		ND								
*** 37 13C2_PFDA**													
515 > 470		3.935	3.942	0	708672	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	786965	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.217	3.223	0	777529	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	960839	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.581	3.595	0	212765	18	>100:1			200.00			

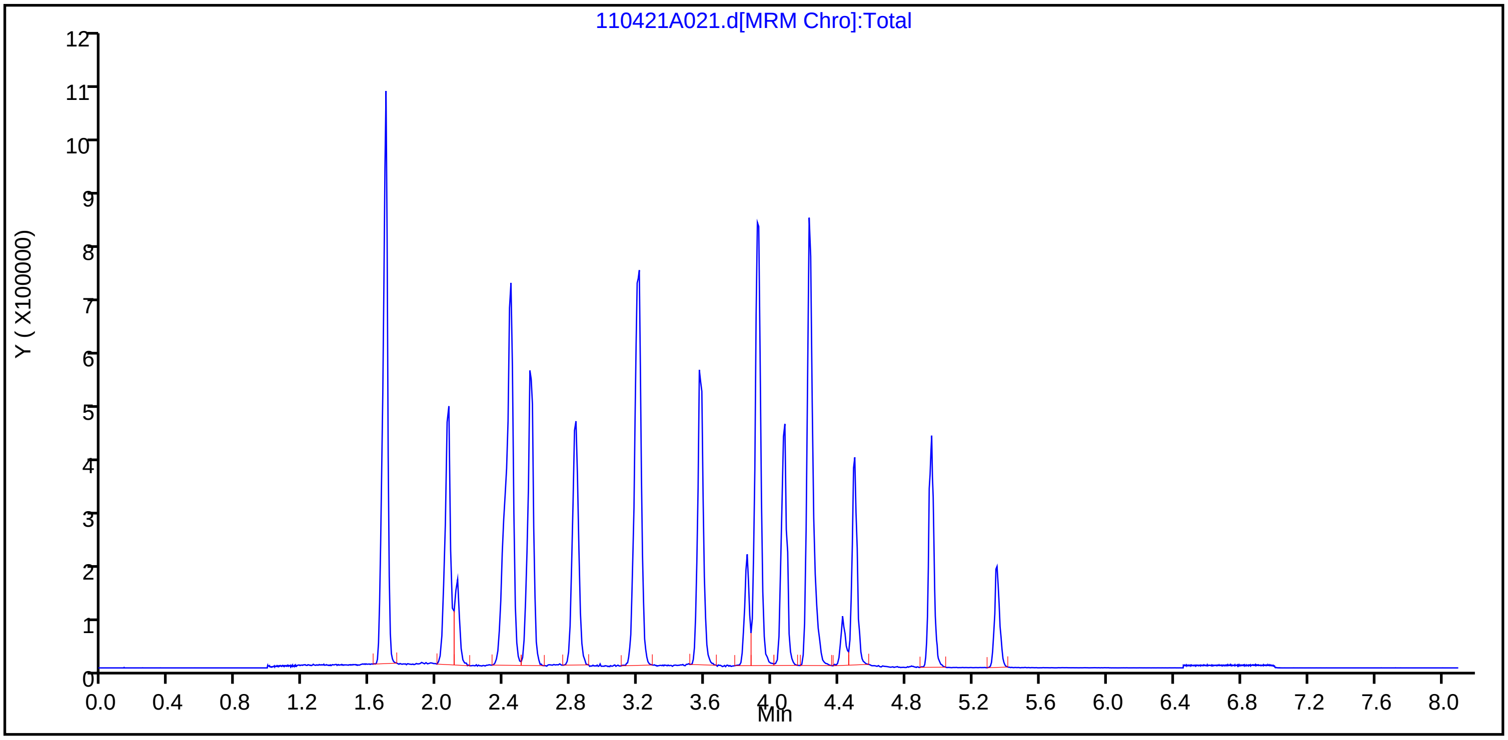
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

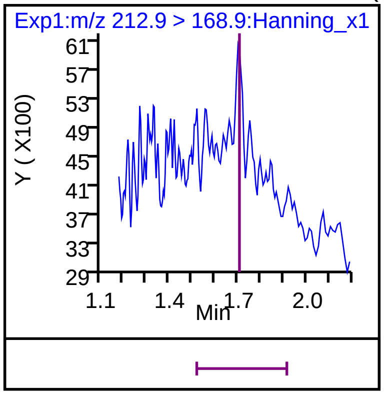
Report Date: 05-Nov-2021 13:58:33 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

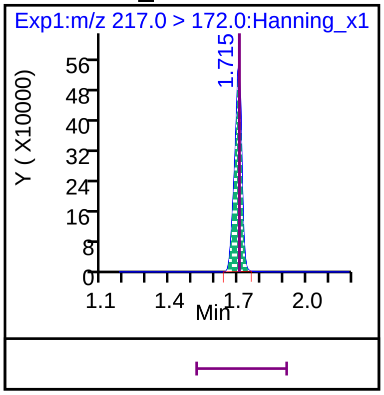
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A021.d		
Injection Date:	04-Nov-2021 16:05:48	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Matthew M. Miller



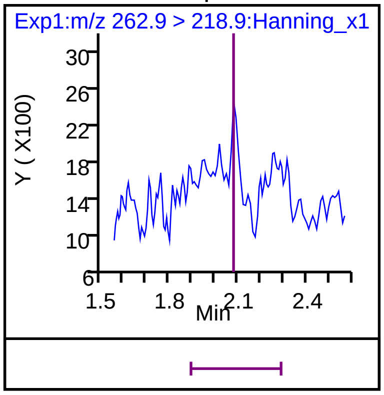
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



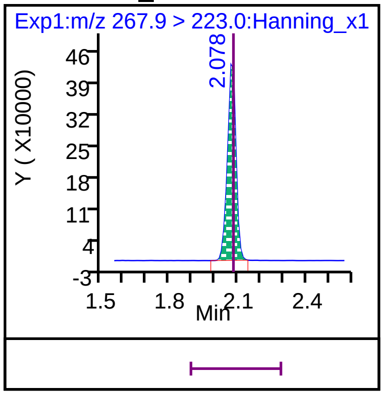
D 46 13C4_PFBA



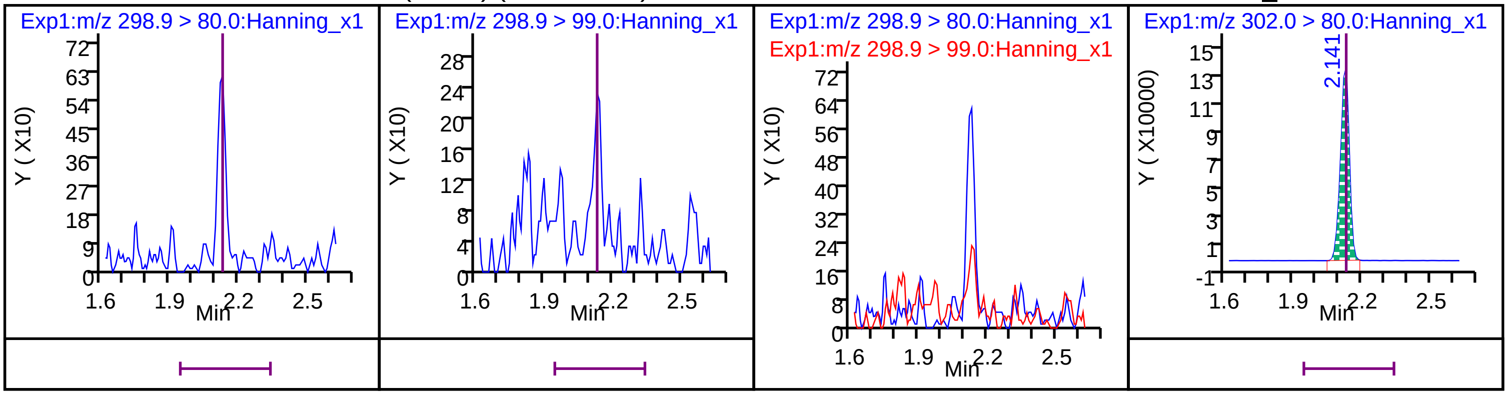
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



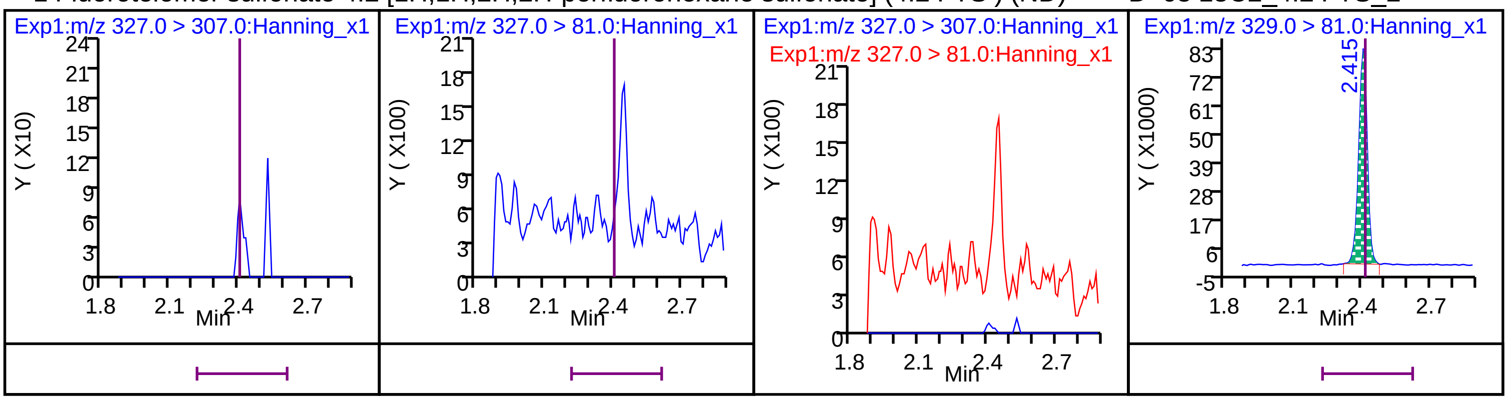
D 50 13C5_PFPeA



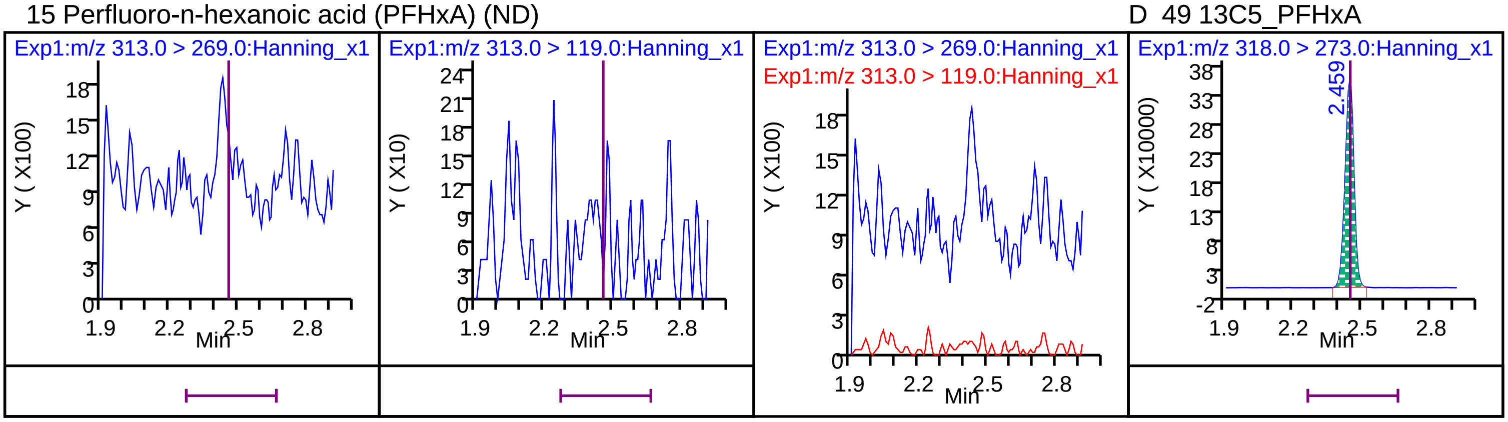
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



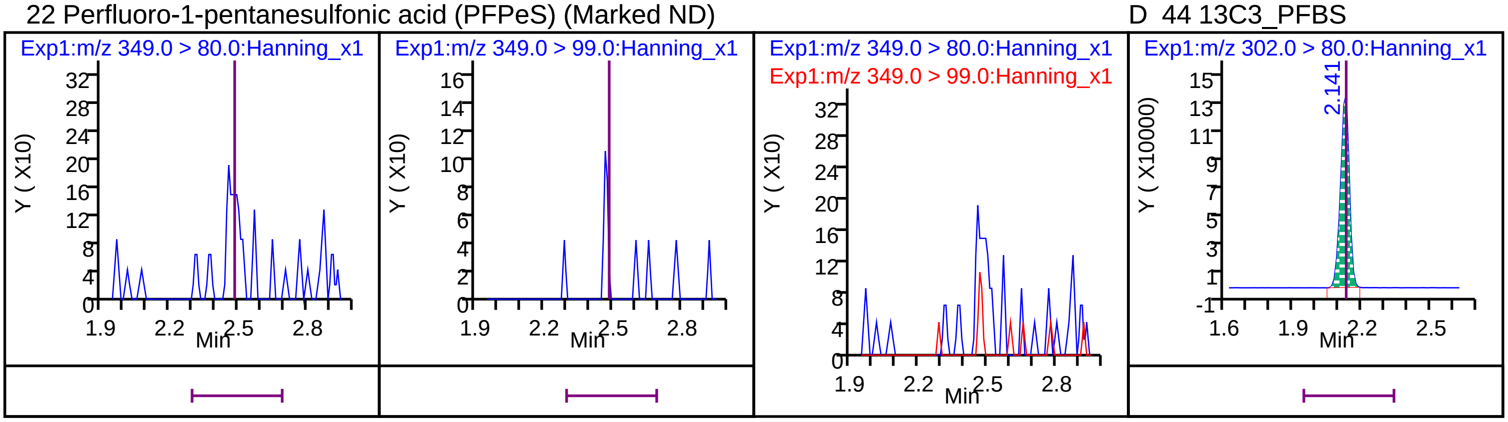
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



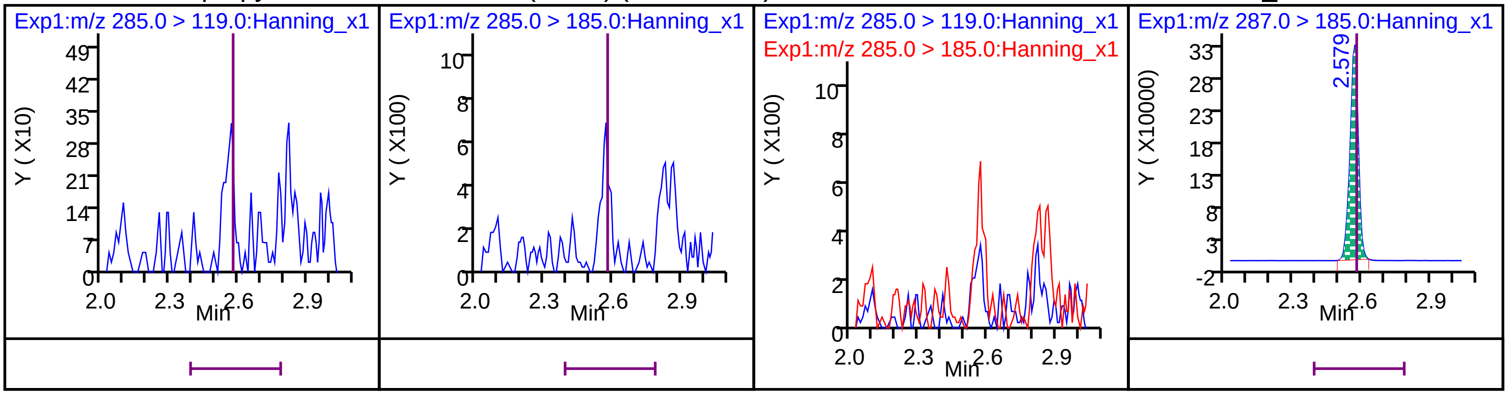
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



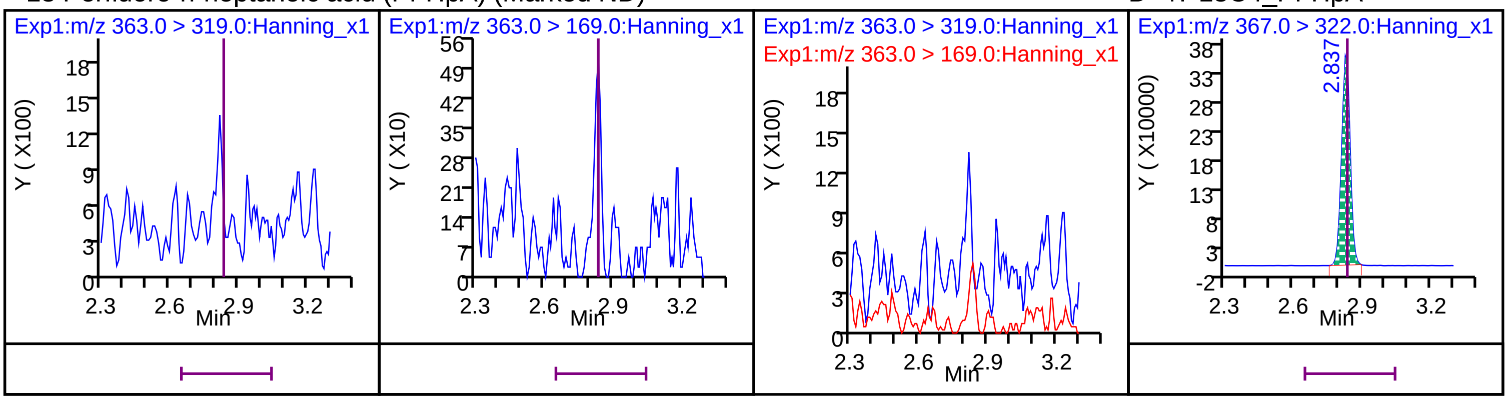
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



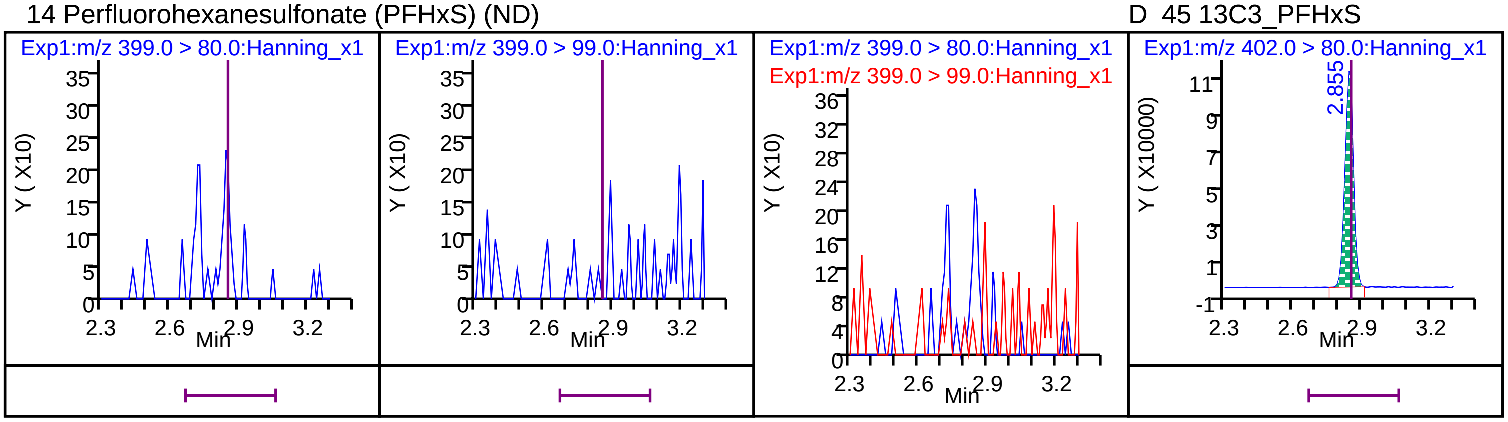
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



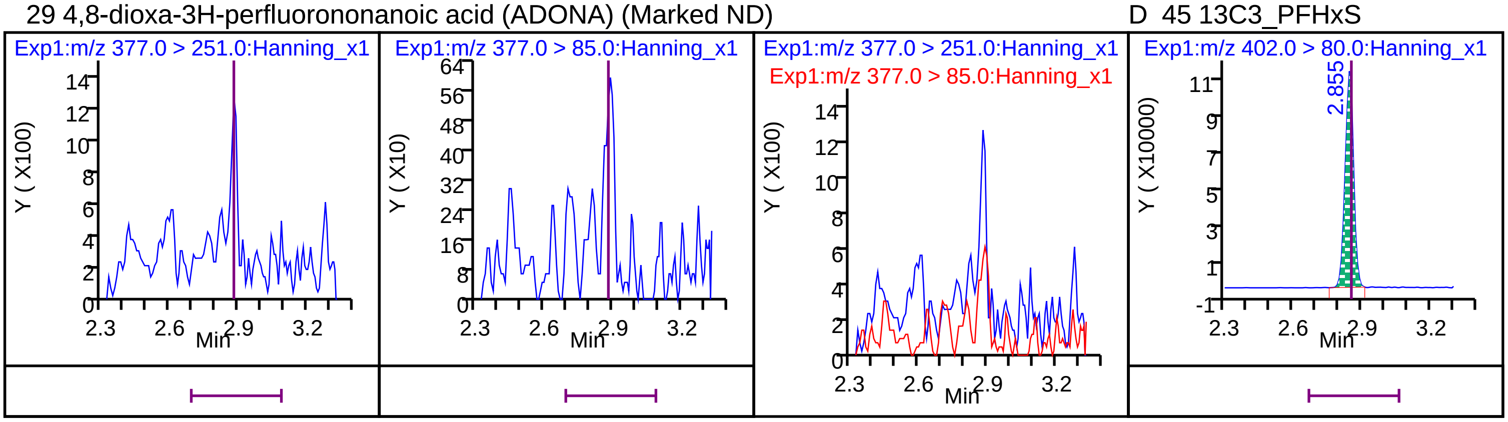
13 Perfluoro-n-heptanoic acid (PFHpA) (Marked ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (Marked ND) D 45 13C3_PFHxS



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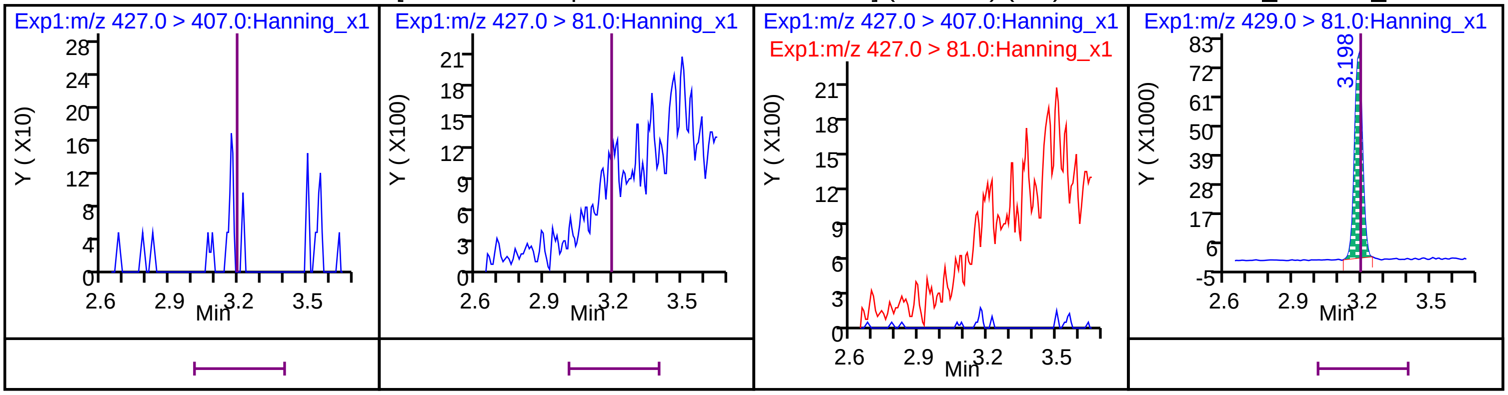
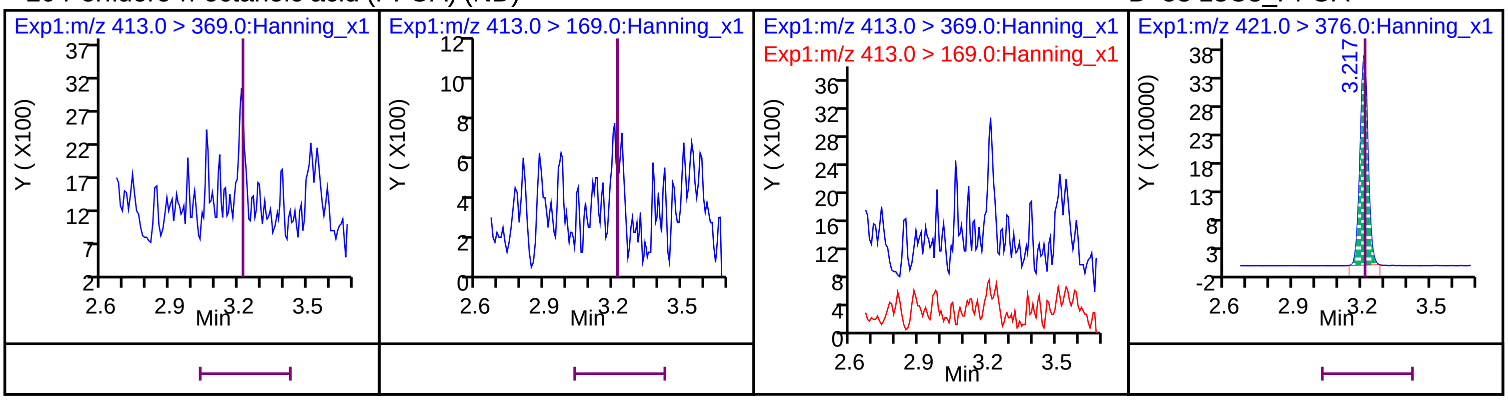
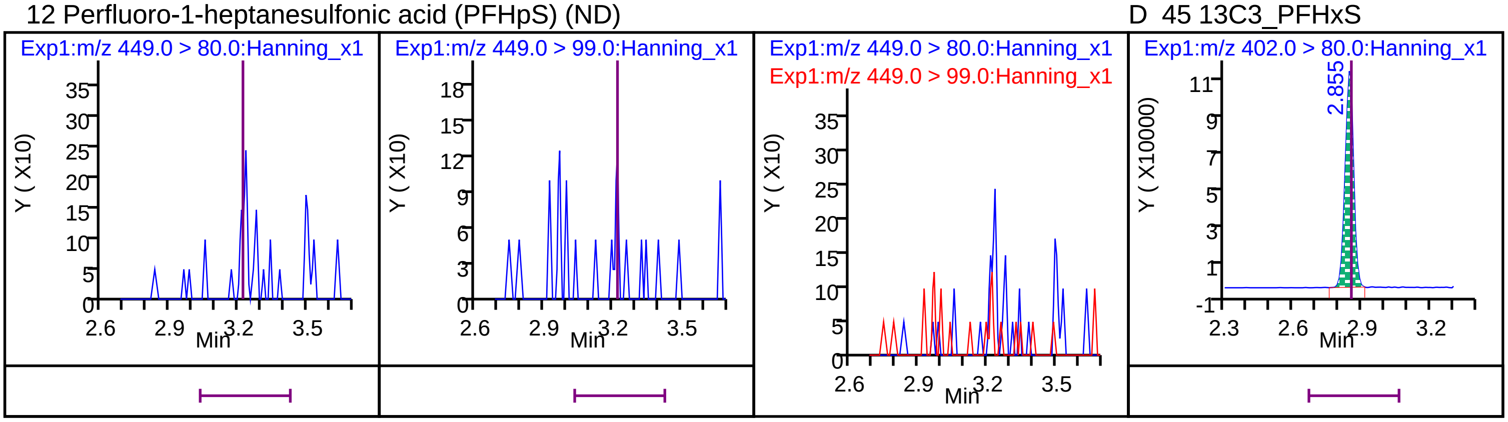
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



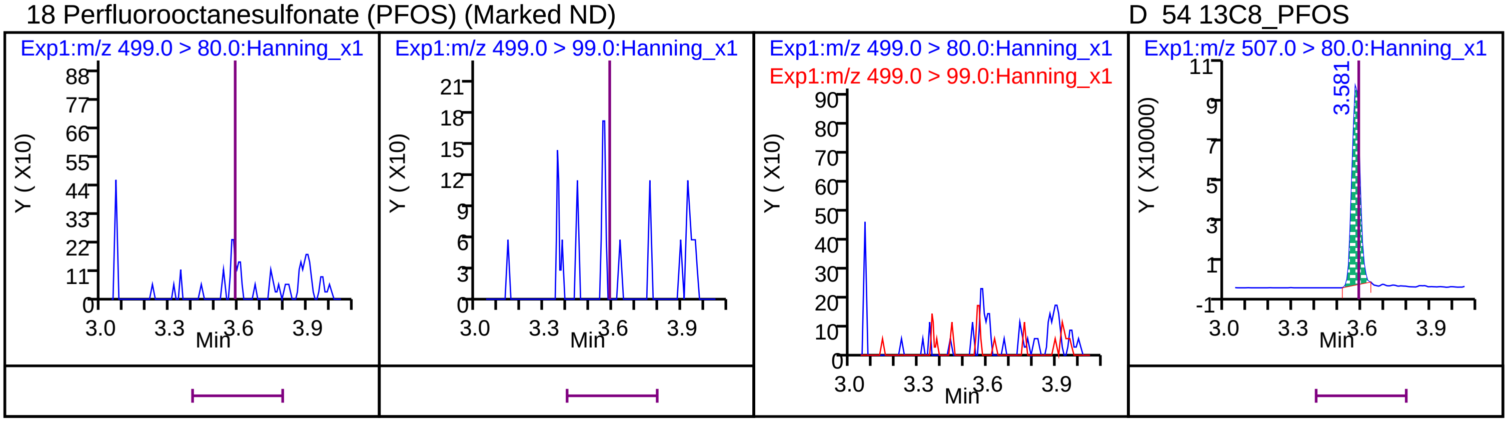
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



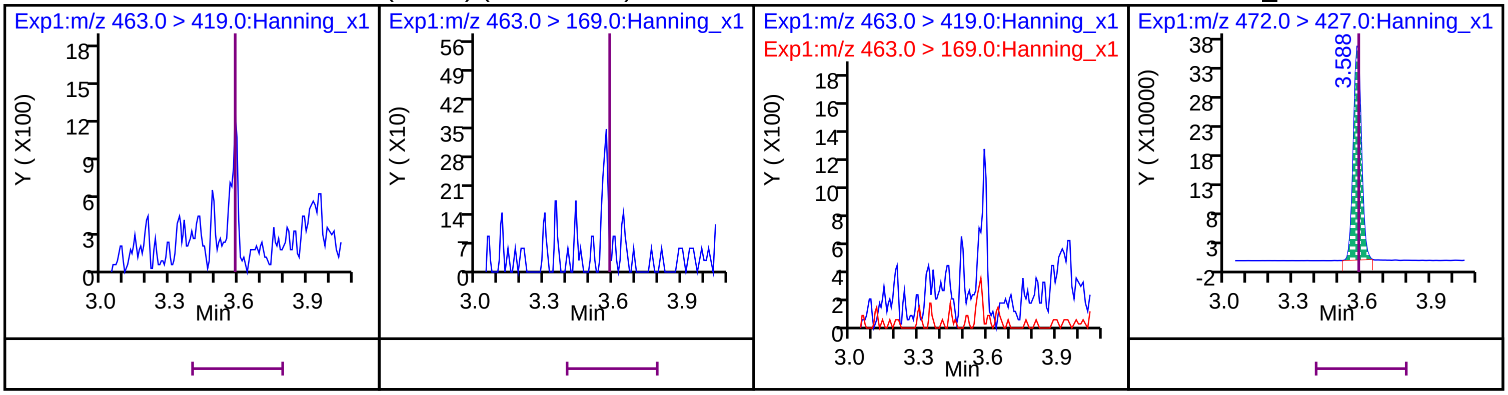
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



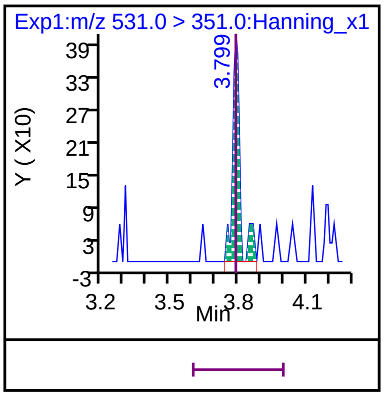
18 Perfluorooctanesulfonate (PFOS) (Marked ND) D 54 13C8_PFOS

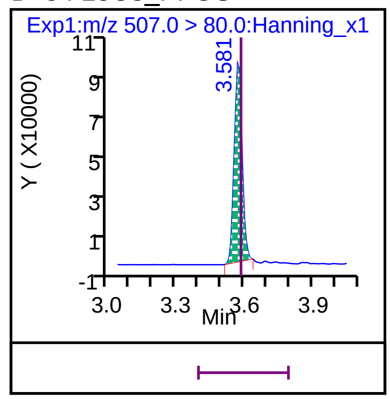


17 Perfluoro-n-nonanoic acid (PFNA) (Marked ND) D 56 13C9_PFNA

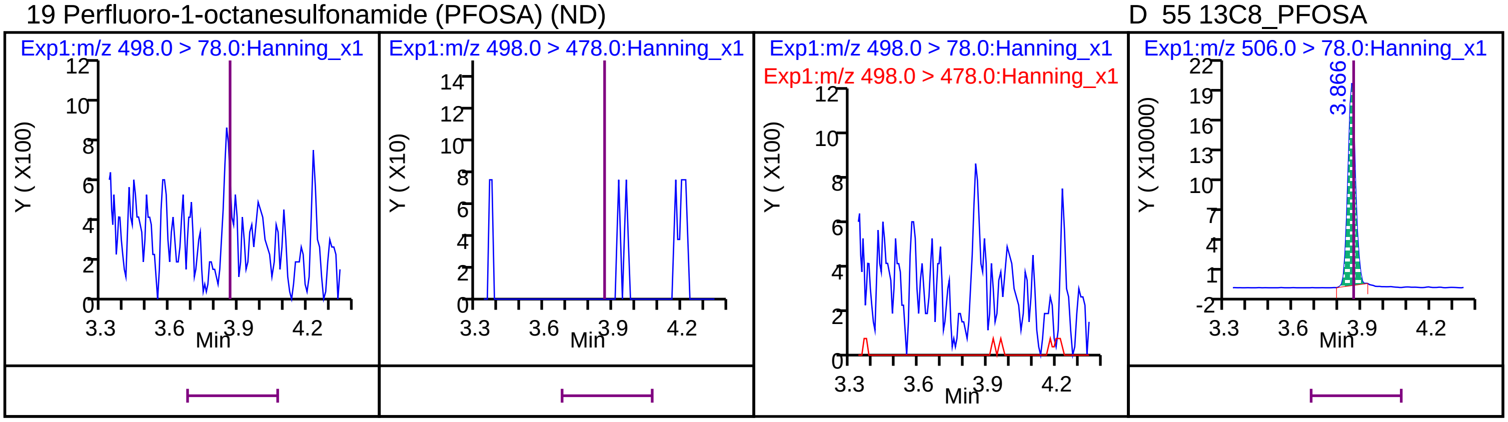


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

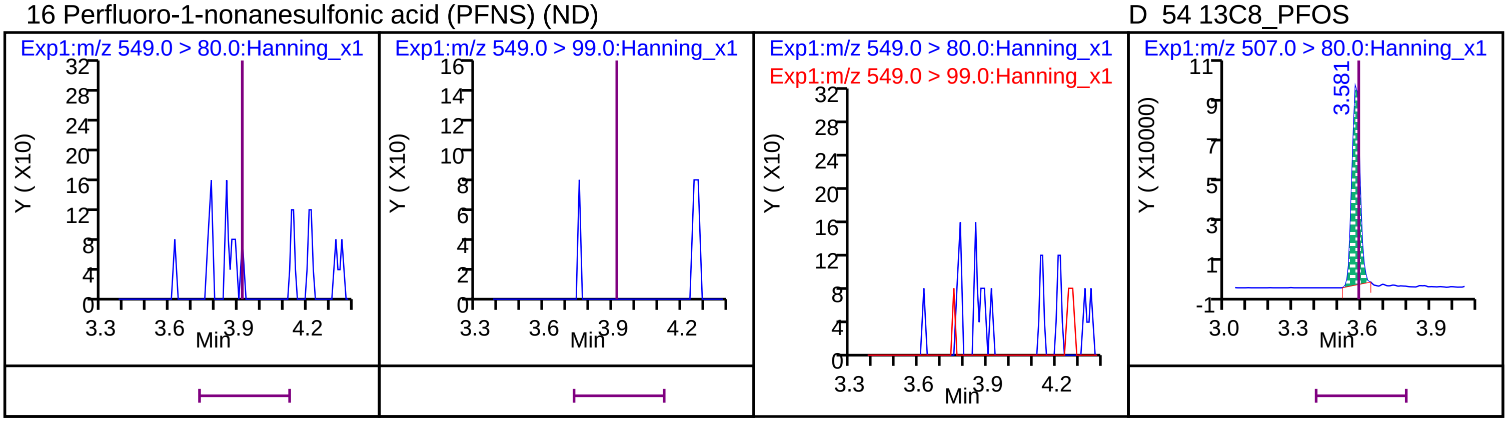




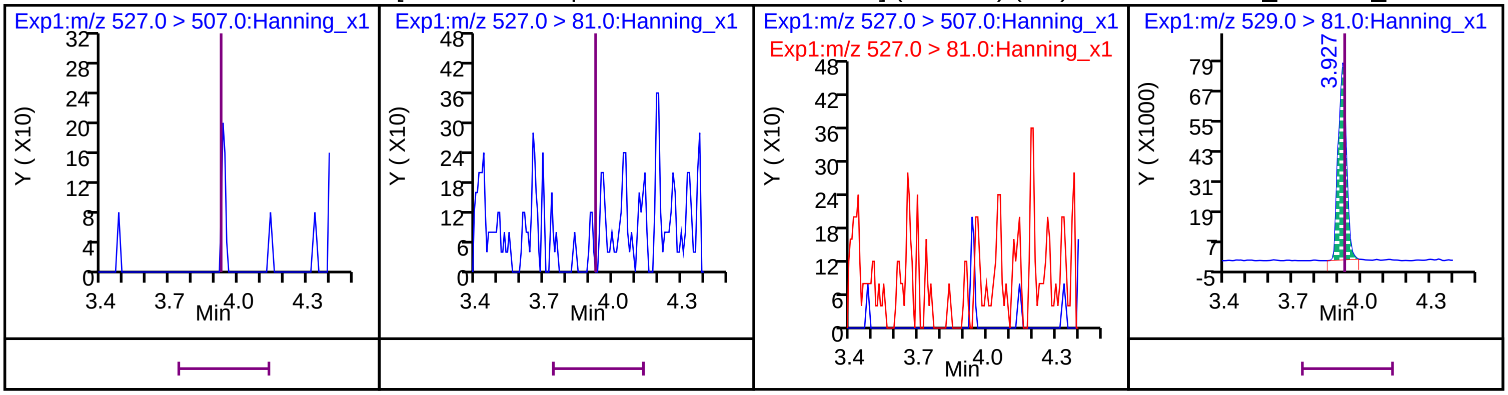
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



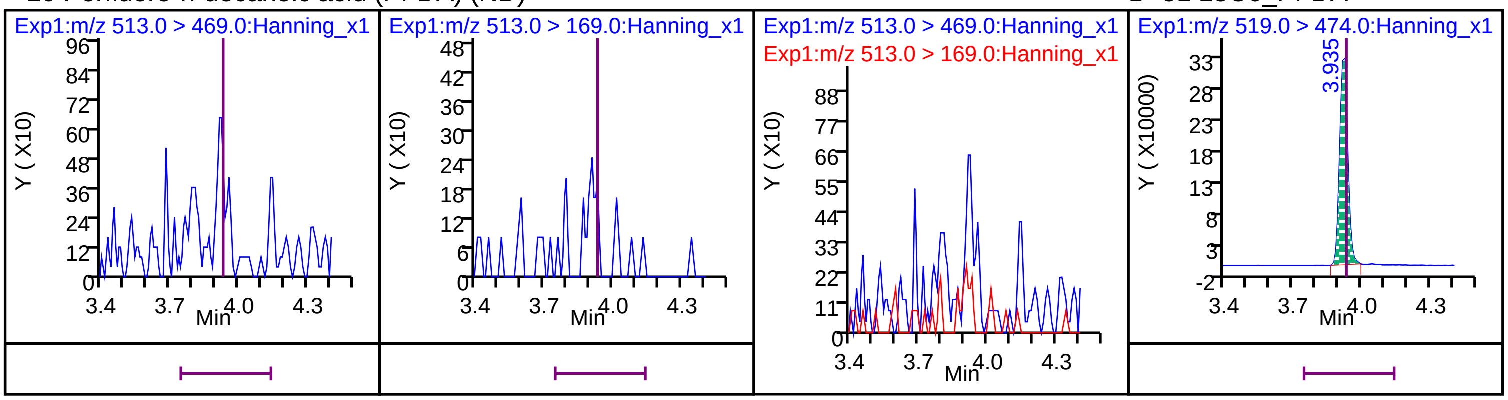
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



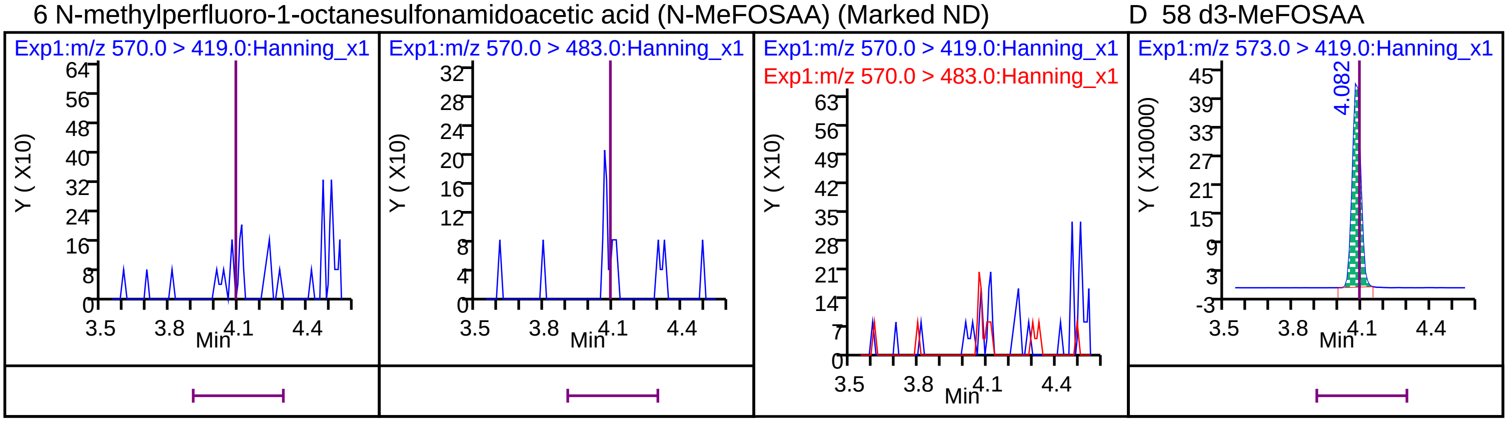
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



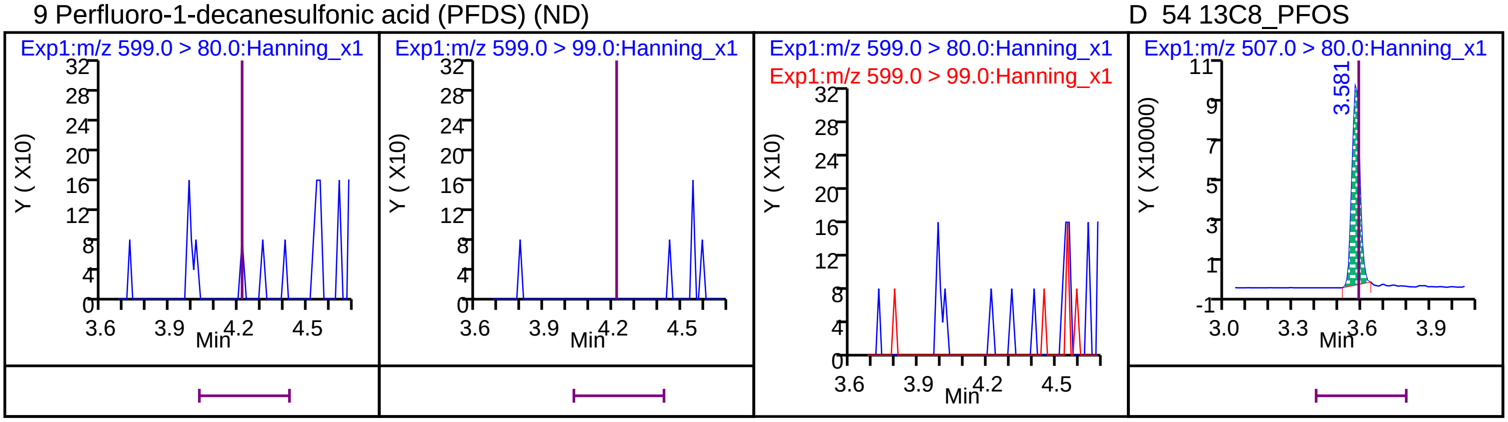
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



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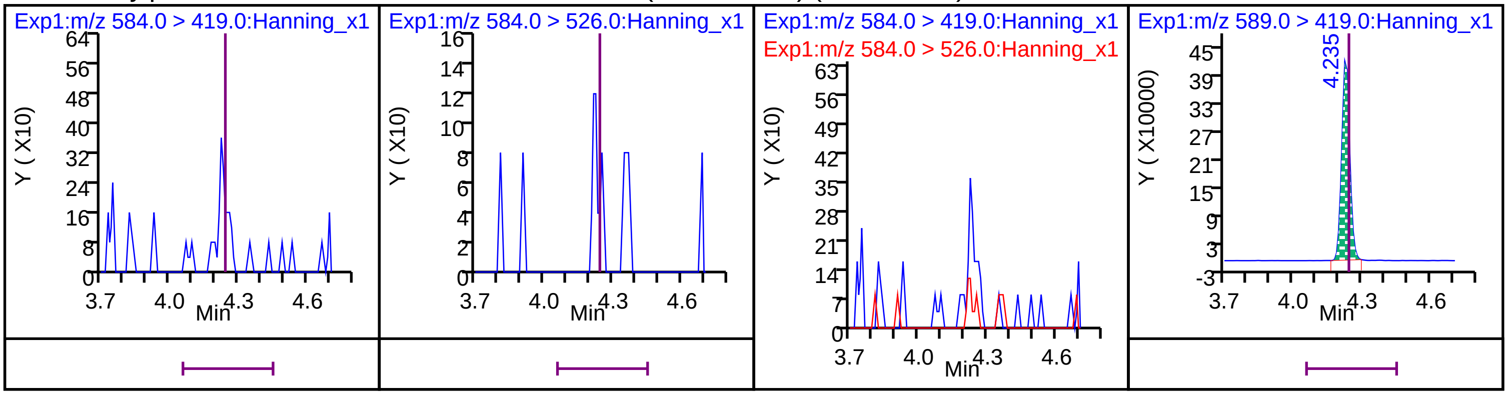
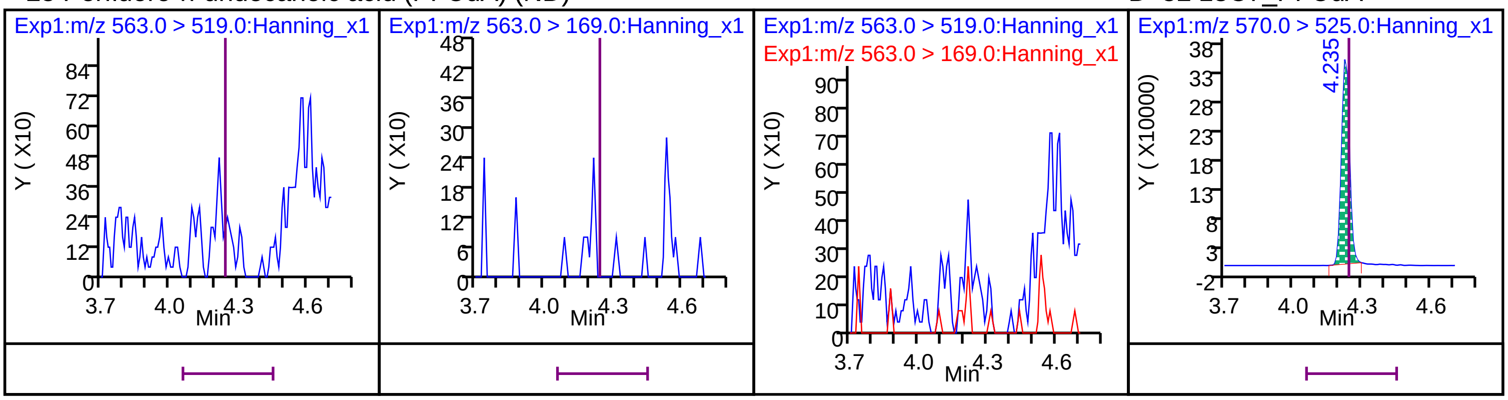
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND)

D 60 d5-EtFOSAA

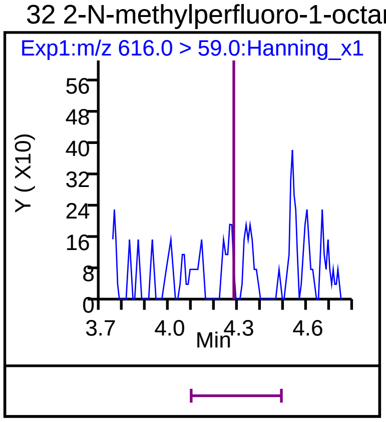


25 Perfluoro-n-undecanoic acid (PFUdA) (ND)

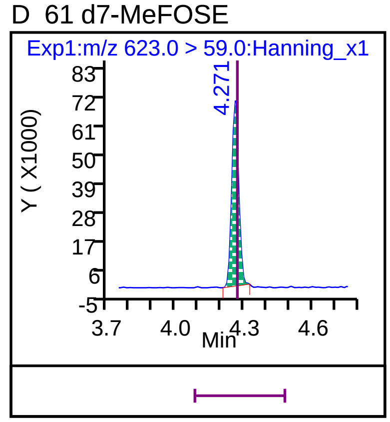
D 52 13C7_PFUdA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (ND)

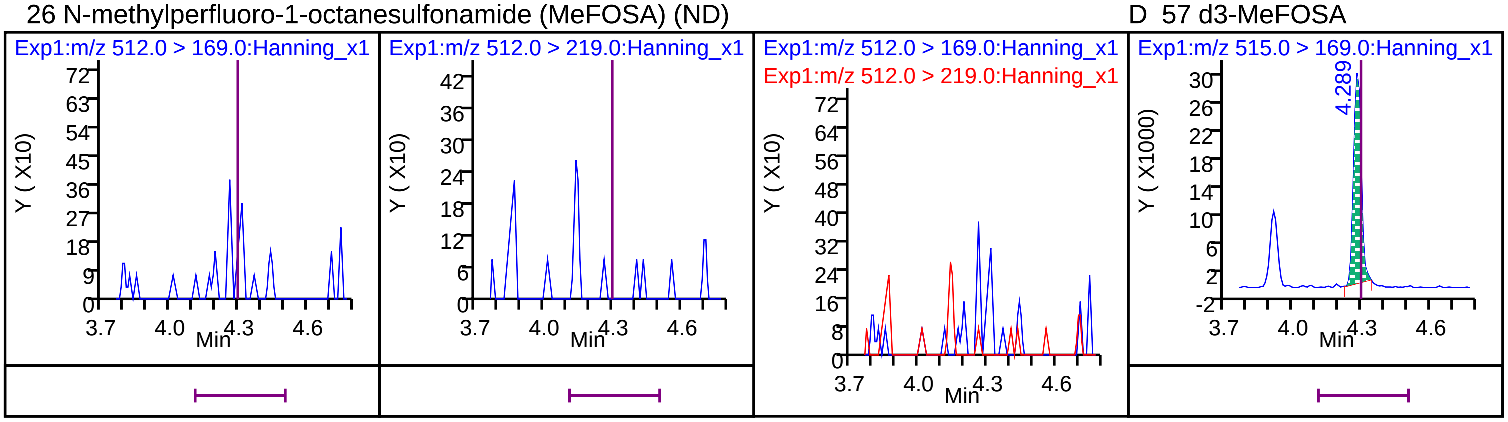


D 61 d7-MeFOSE

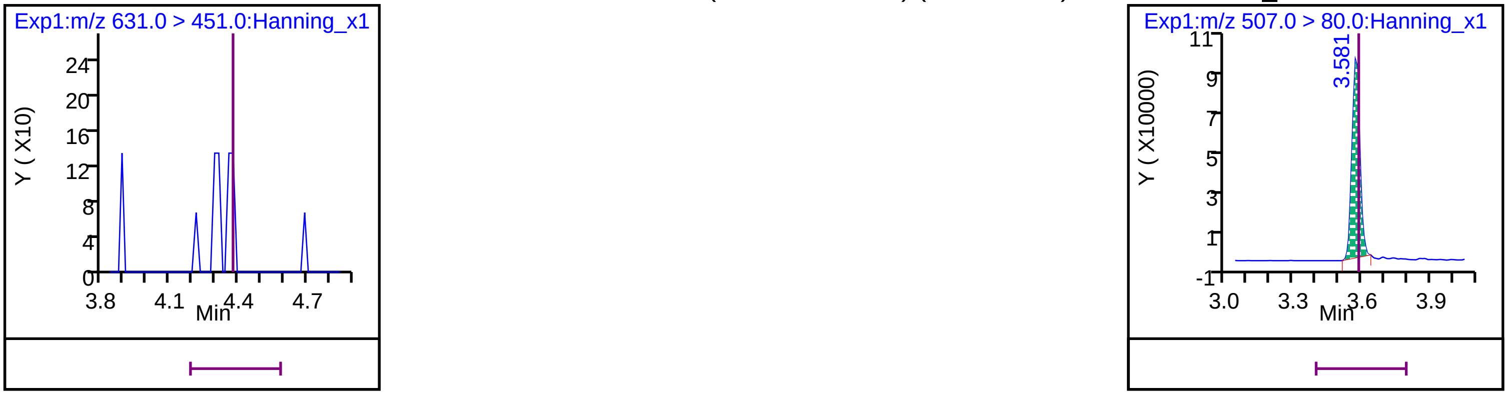


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND)

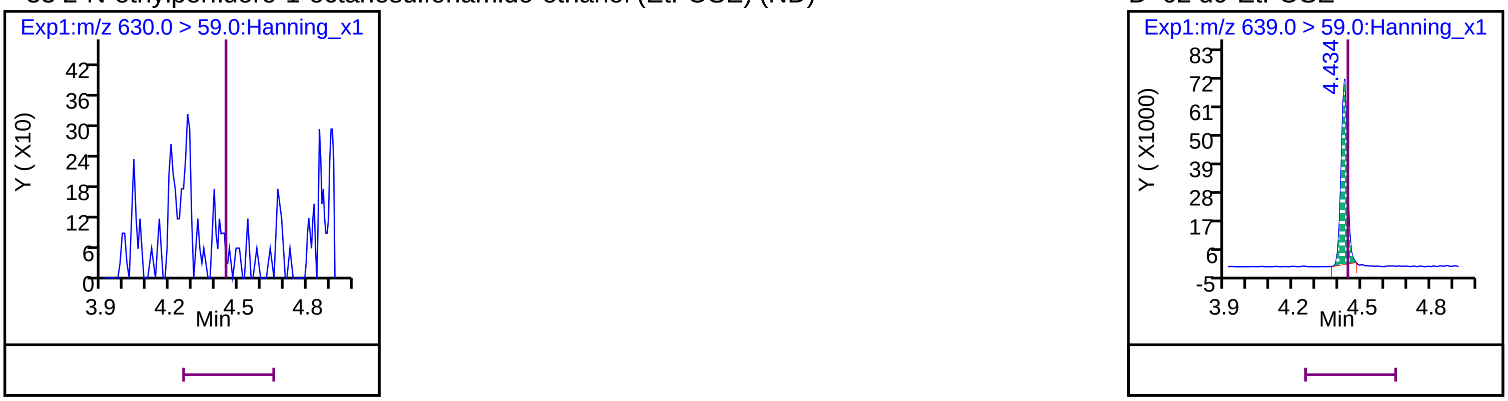
D 57 d3-MeFOSA



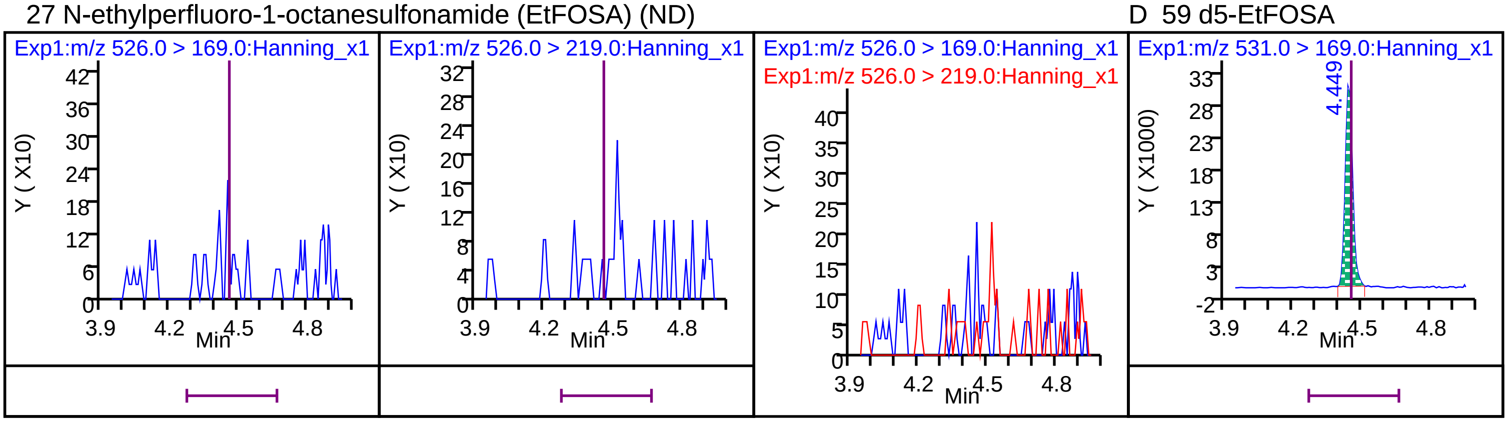
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND) D 54 13C8_PFOS



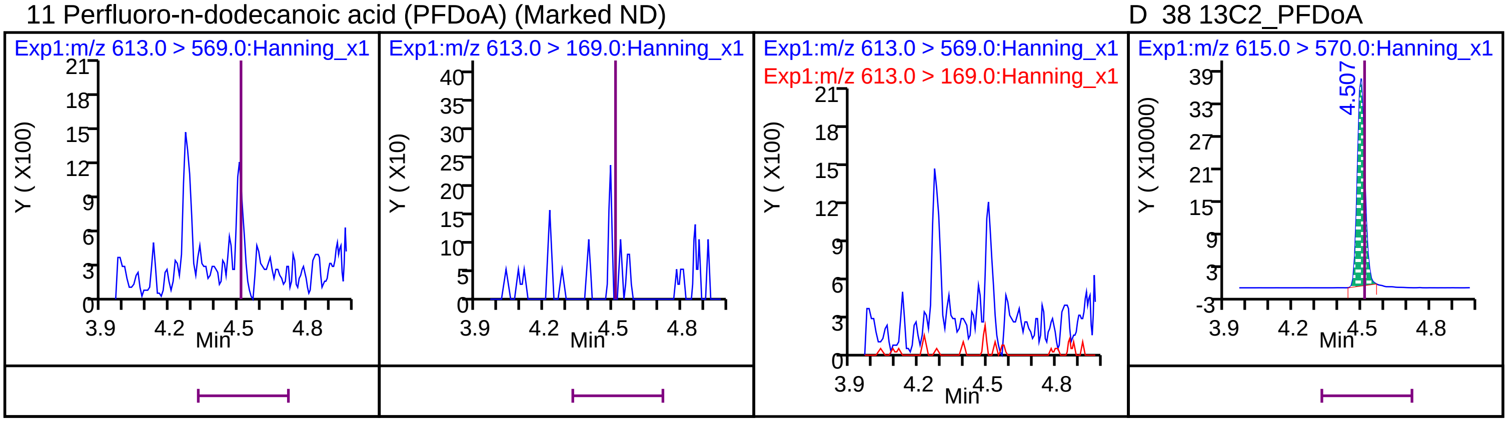
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (ND) D 62 d9-EtFOSE



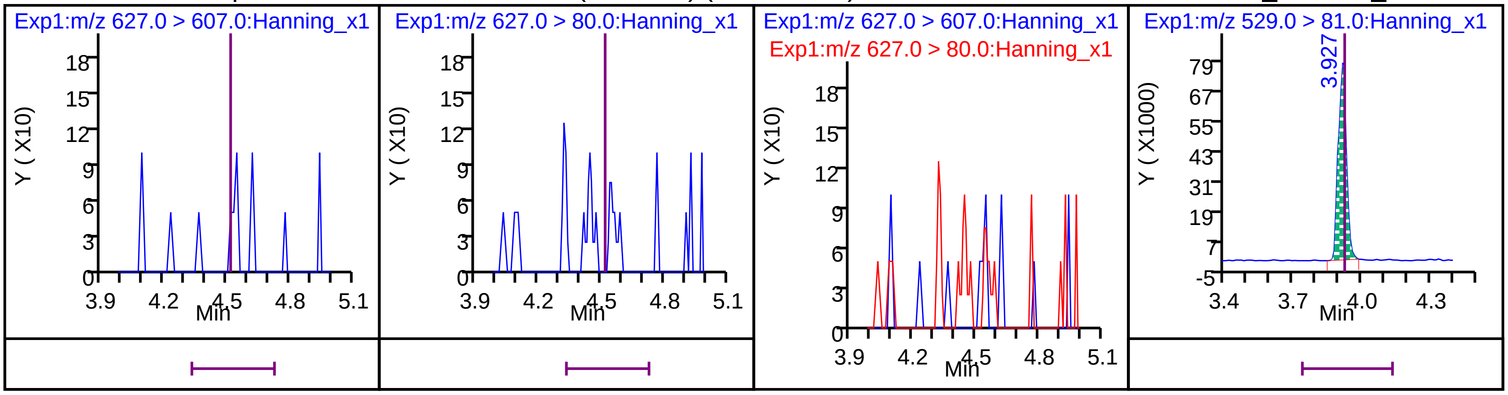
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



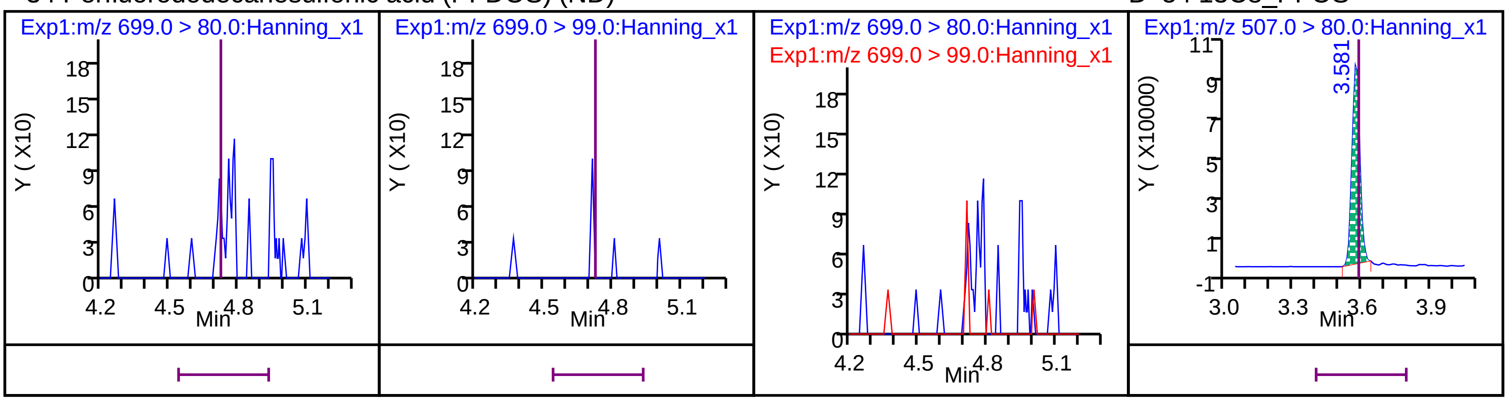
11 Perfluoro-n-dodecanoic acid (PFDoA) (Marked ND) D 38 13C2_PFDoA



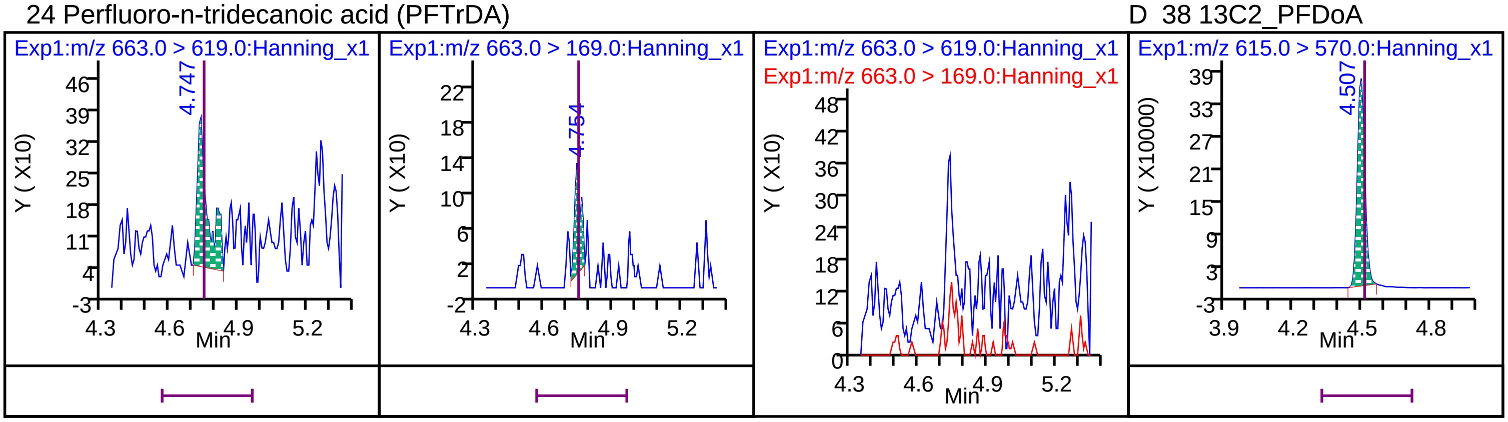
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (Marked ND) D 65 13C2_8:2 FTS_2



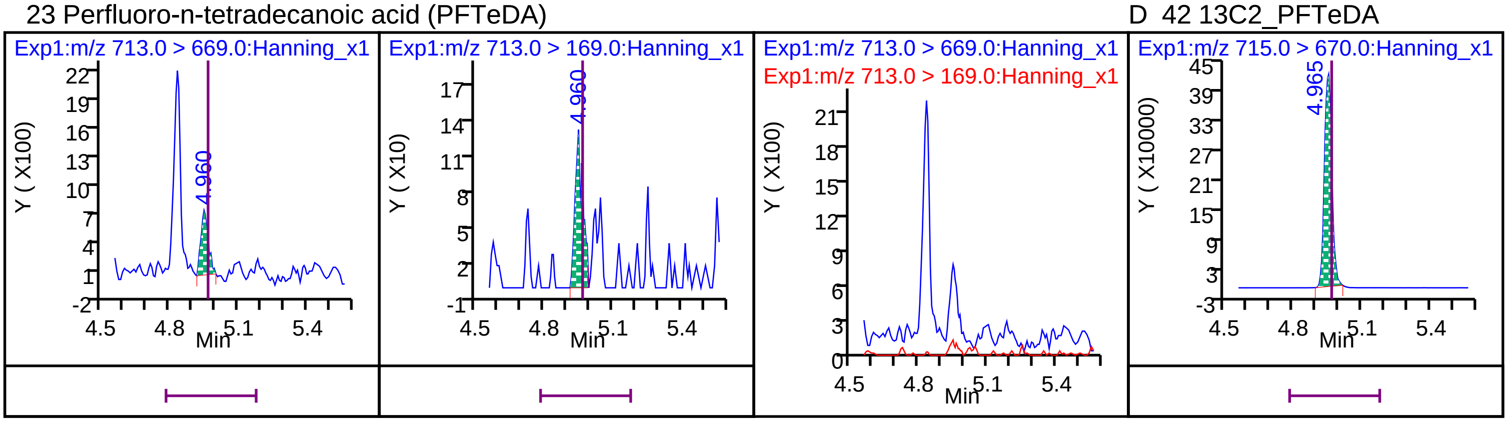
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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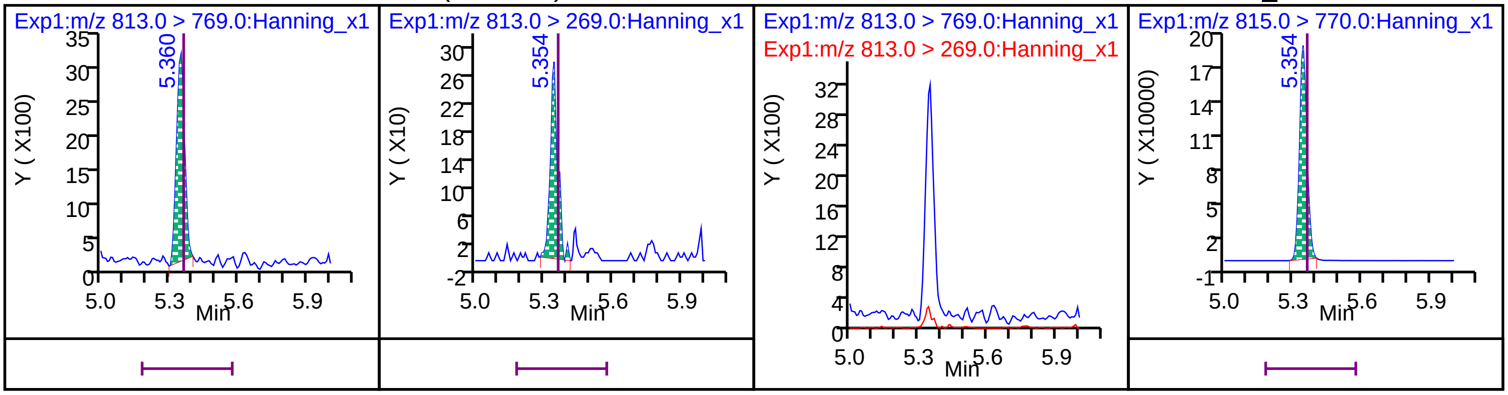
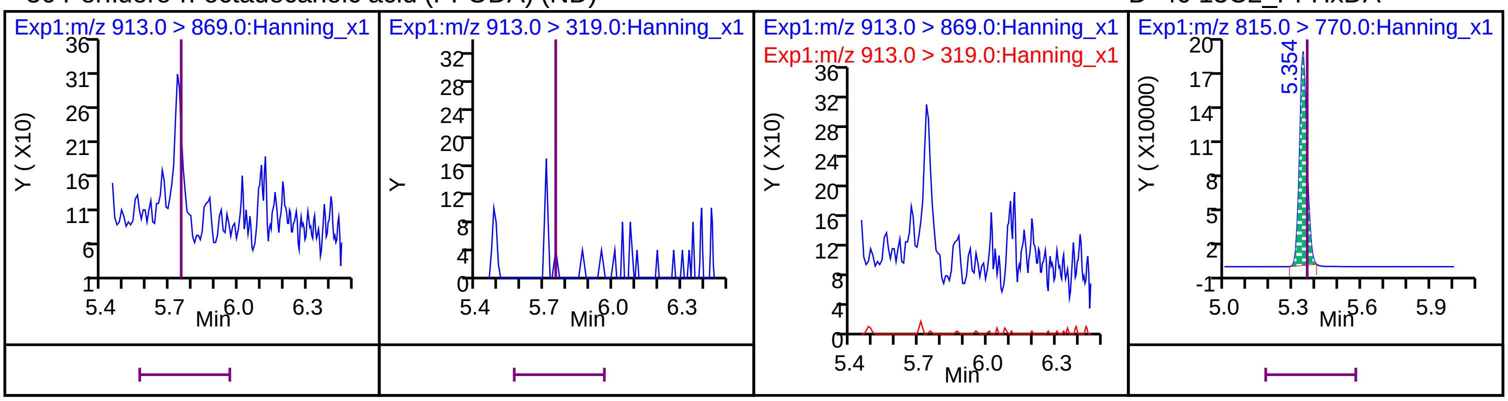
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A021.d

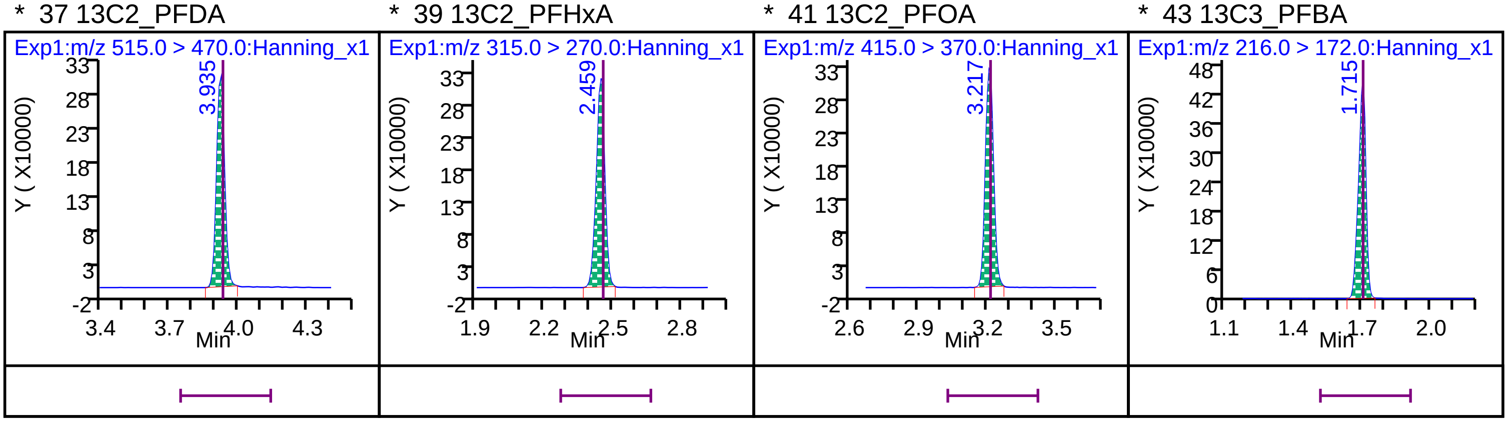
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



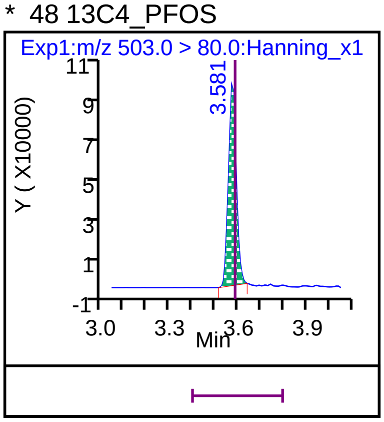
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 07:56:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A089.d		
Injection Date:	05-Nov-2021 04:07:33	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	65
Lab Sample ID:	ID IBLK A2	Lab Prep. Batch:	
Sample Info:	ID IBLK A2	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.708	1.708	0	1187117	20	>100:1			1001.00	1102.52	104.2	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.715	1.715	0/0	16071	21	-0.900:1			12.322	12.322		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.079	1	1159801	16	>100:1			1001.00	1156.43	106.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	0/-1	20486	12	2.0:1			16.502	16.502		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	380527	16	>100:1			1001.00	1171.68	107.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	3733	17	27:1	Target = 3.80		6.8737	6.8737		
298.9 > 99	44	2.131	2.141		832	10	6.9:1	4.48 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.494		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.416	1	245031	18	>100:1			5005.00	5899.11	106.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	0	1074827	18	>100:1			1001.00	1203.30	111.1	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.459		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.579	1	921979	19	>100:1			5005.00	5628.02	107.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.579		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	0	1004521	18	>100:1			1001.00	1146.46	104.8	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.846		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.855	1	301984	17	>100:1			1001.00	1151.38	110.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.855		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.233		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.201	1	194502	21	>100:1			5005.00	5157.69	104	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.210	3.201	1/0	6080	21	32:1	Target = 1.34		89.979	89.979		
427 > 81	64	3.204	3.201		6865	19	8.7:1	0.88 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.229	3.220	1	933313	22	>100:1			1001.00	1128.56	100.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.227		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.596	3.591	1	237131	20	>100:1			1001.00	1056.36	95.4	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.591		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.796		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.932		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.232		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.384		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.731		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.606	0	879375	20	>100:1			1001.00	1100.57	89.5	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.599		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.874	3.871	1	460407	19	>100:1			1001.00	1111.58	99.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.871		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.935	3.932	1	163830	19	>100:1			5005.00	5219.93	98.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.940		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.533		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.940	1	812605	18	>100:1			1001.00	1125.80	98.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.940		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.099	4.096	1	952118	18	>100:1			5005.00	5369.71	105.7	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.104		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.241	1	742594	17	>100:1			1001.00	1086.58	100.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.250		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.244	4.250	0	998730	16	>100:1			5005.00	6679.09	121.8	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.250		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.277	1	144642	16	>100:1			1001.00	1048.24	109.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.286		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.298	4.295	1	68281	16	>100:1			1001.00	975.15	104.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.304		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.439	1	135986	19	>100:1			1001.00	1057.81	101.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.454		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.461	1	66262	18	>100:1			1001.00	1028.83	99.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.468		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.519	0	725979	19	>100:1			1001.00	1055.75	101.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.512		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.758		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.968	1	866157	26	>100:1			1001.00	1107.97	100.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.973		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.366	1	405250	22	>100:1			1001.00	1038.09	106.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.366	5.366	1/0	7502	26	21:1	Target = 12.31		9.6873	9.6873		
813 > 269	40	5.360	5.366		528	15	24:1	14.20 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.761		ND								
*** 37 13C2_PFDA**													
515 > 470		3.943	3.940	1	692071	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.459	0	893640	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.229	3.227	1	793533	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	0	983406	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.591	1	211165	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

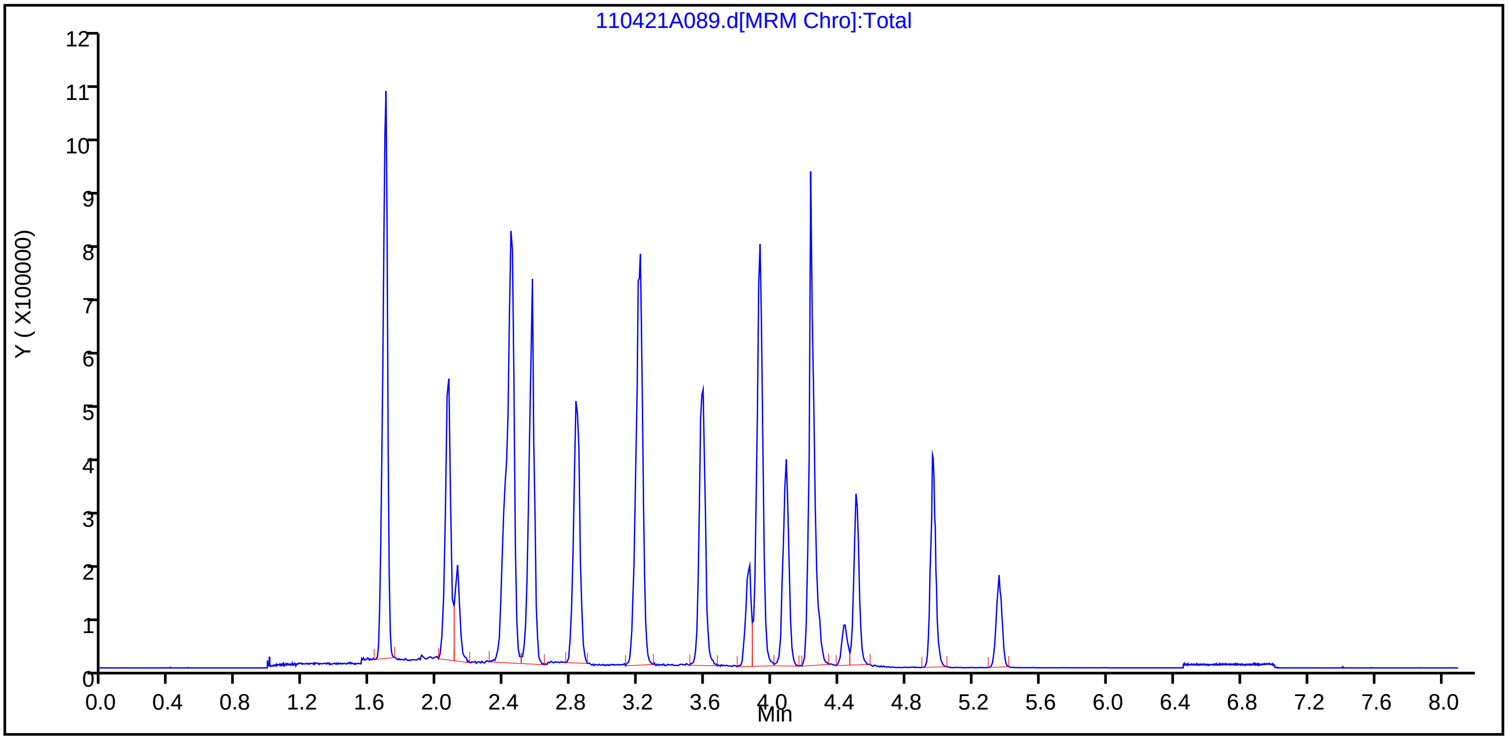
QC Flag Legend

U - Result Less Than Method Detection Limit

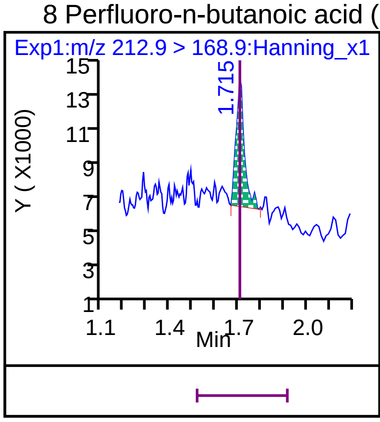
Report Date: 09-Nov-2021 07:56:19 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

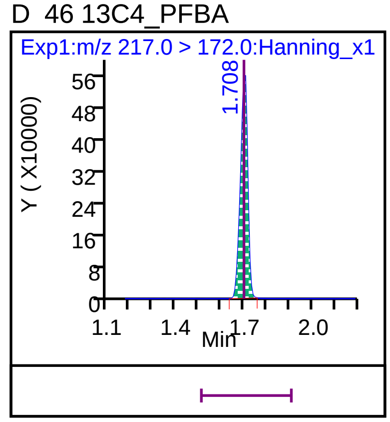
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A089.d		
Injection Date:	05-Nov-2021 04:07:33	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A2
Sample Info:	ID IBLK A2		
Dil. Factor:	1	Operator:	Matthew M. Miller



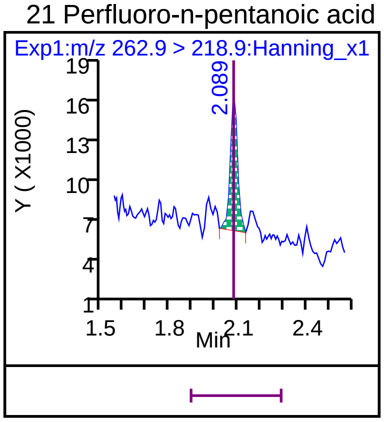
8 Perfluoro-n-butanoic acid (PFBA)



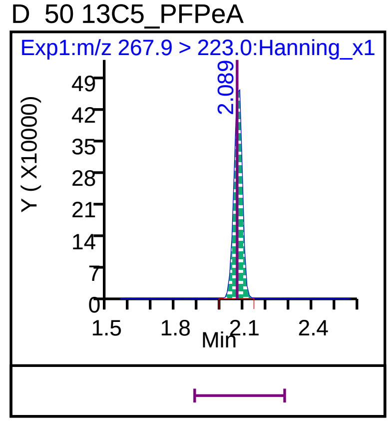
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

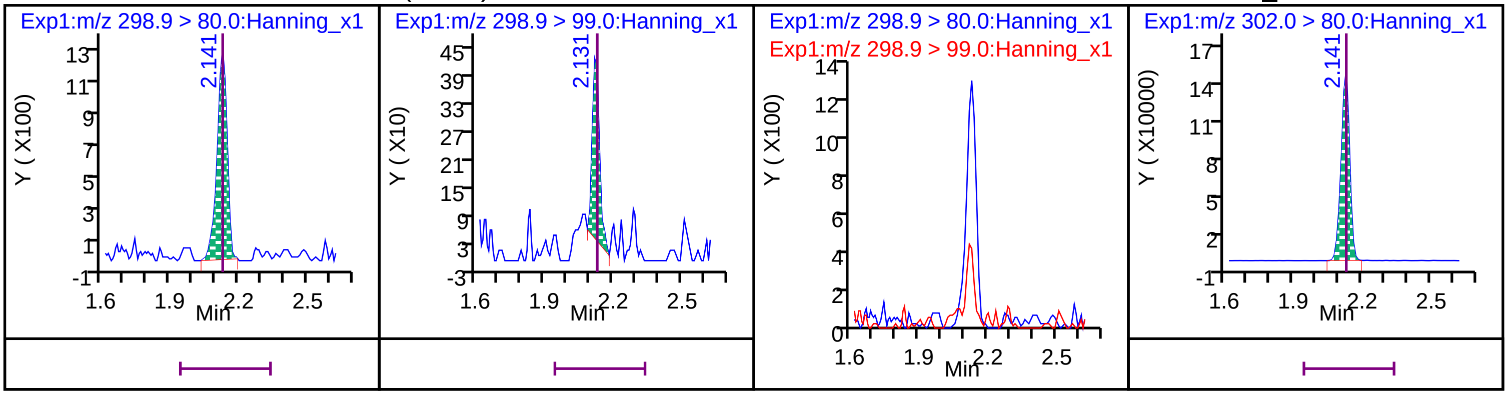


D 50 13C5_PFPeA

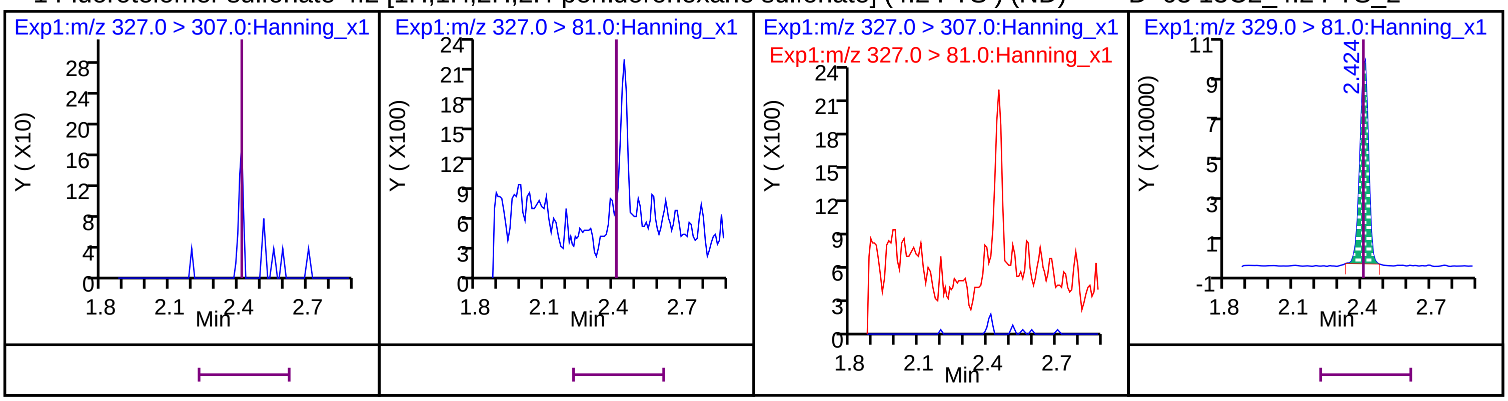


Report Date: 09-Nov-2021 07:56:19 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A089.d

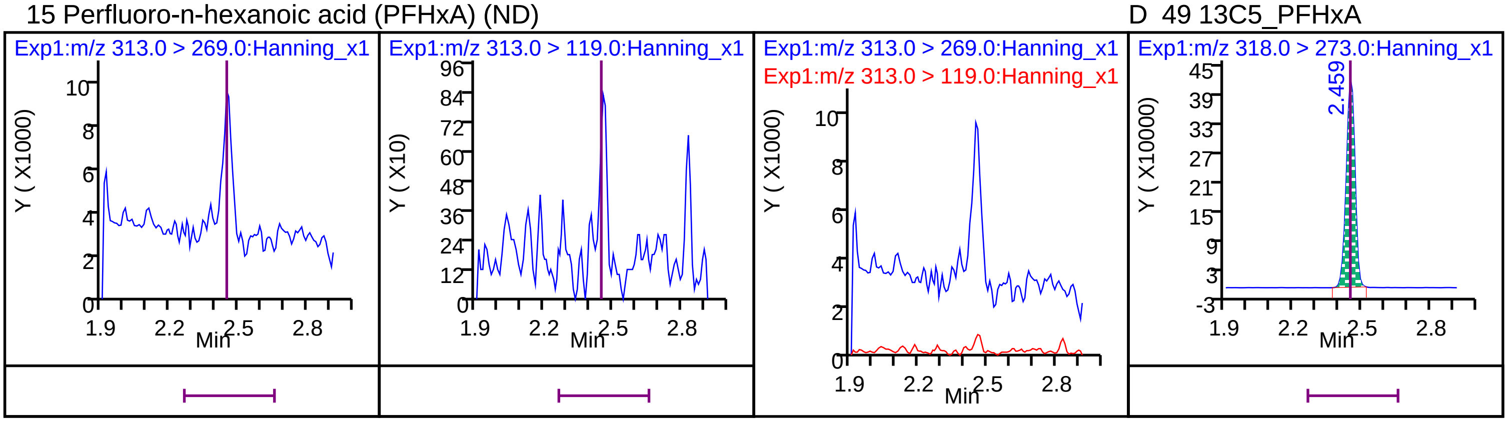
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



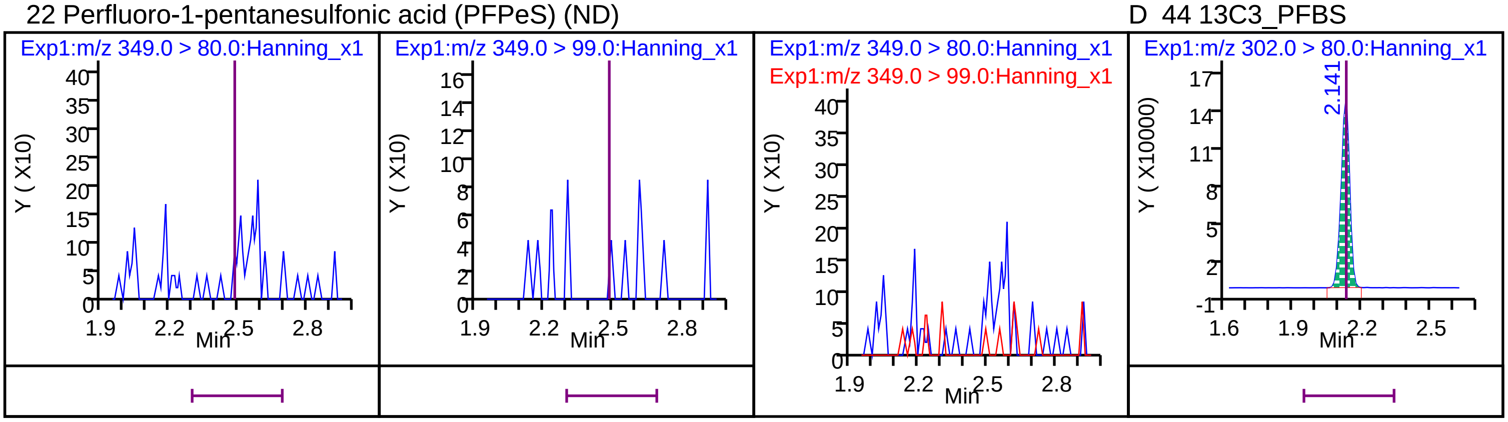
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



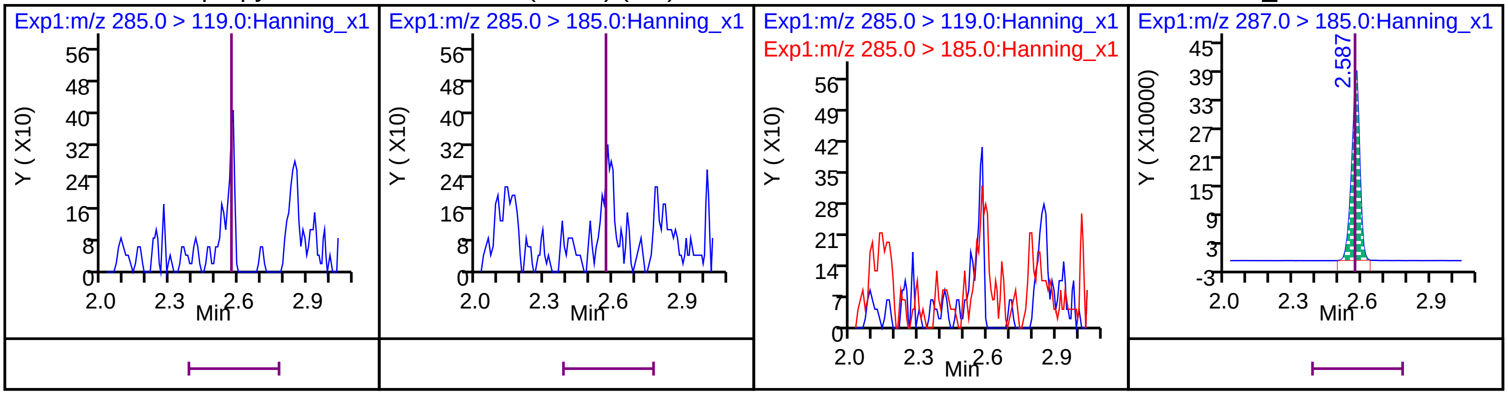
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



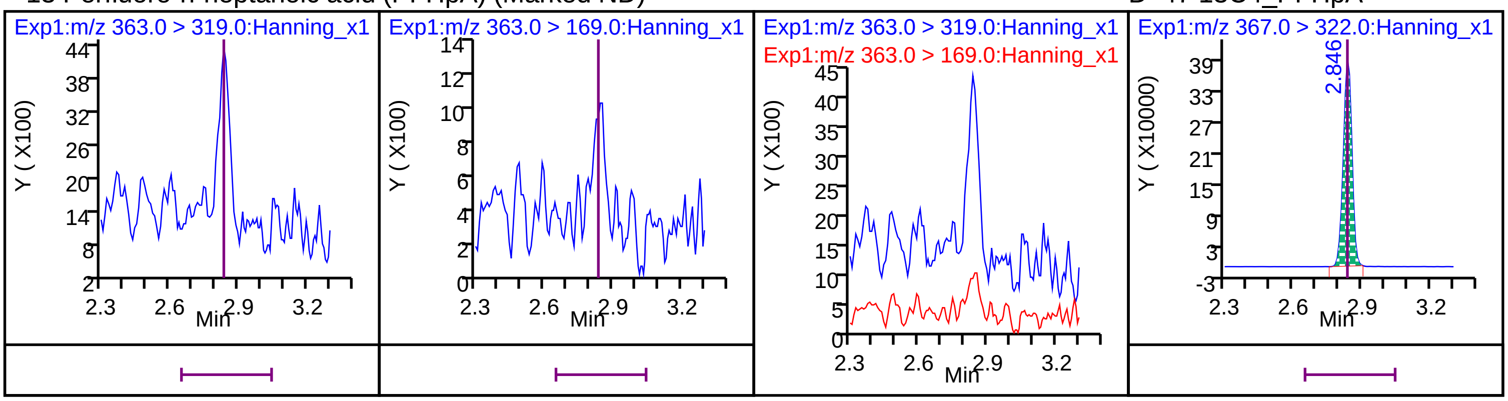
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



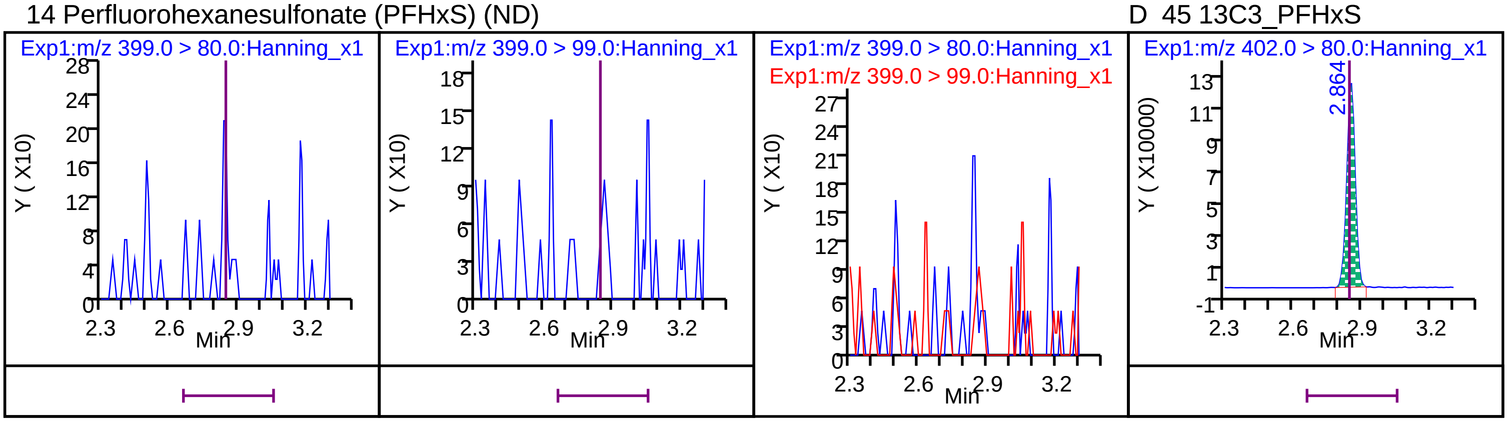
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



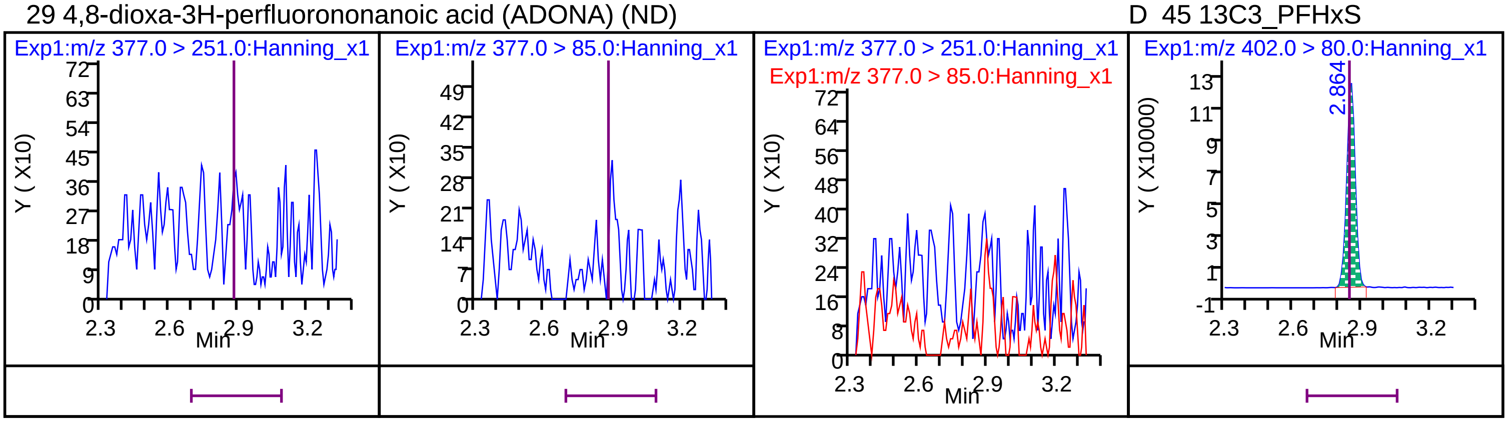
13 Perfluoro-n-heptanoic acid (PFHpA) (Marked ND) D 47 13C4_PFHpA



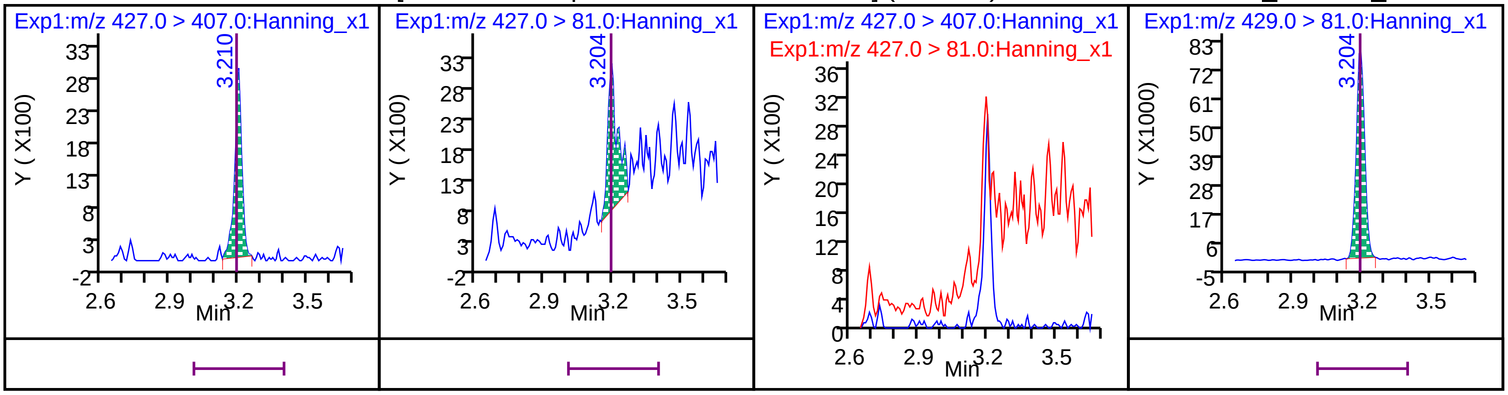
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



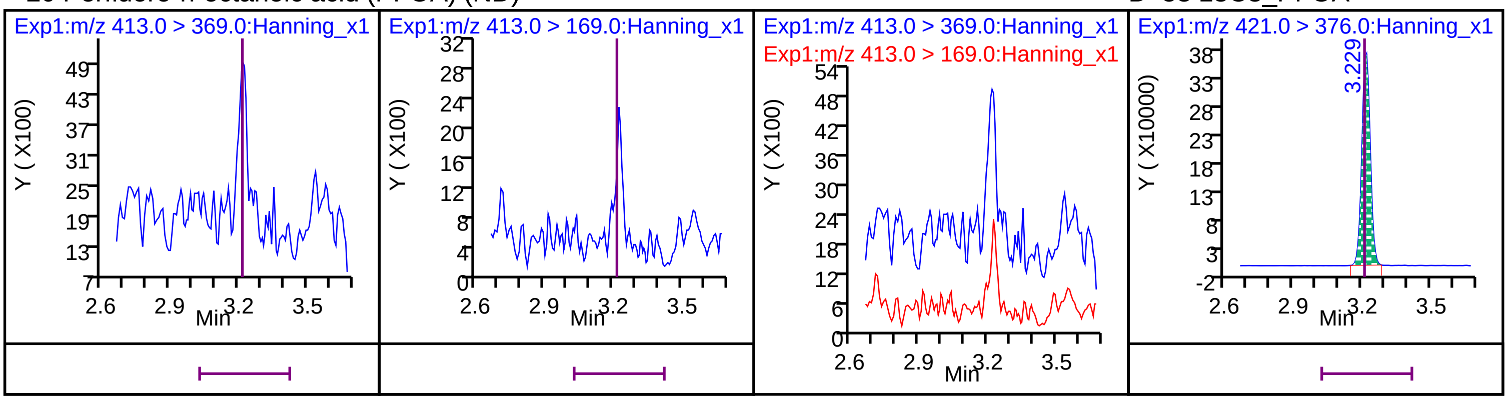
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



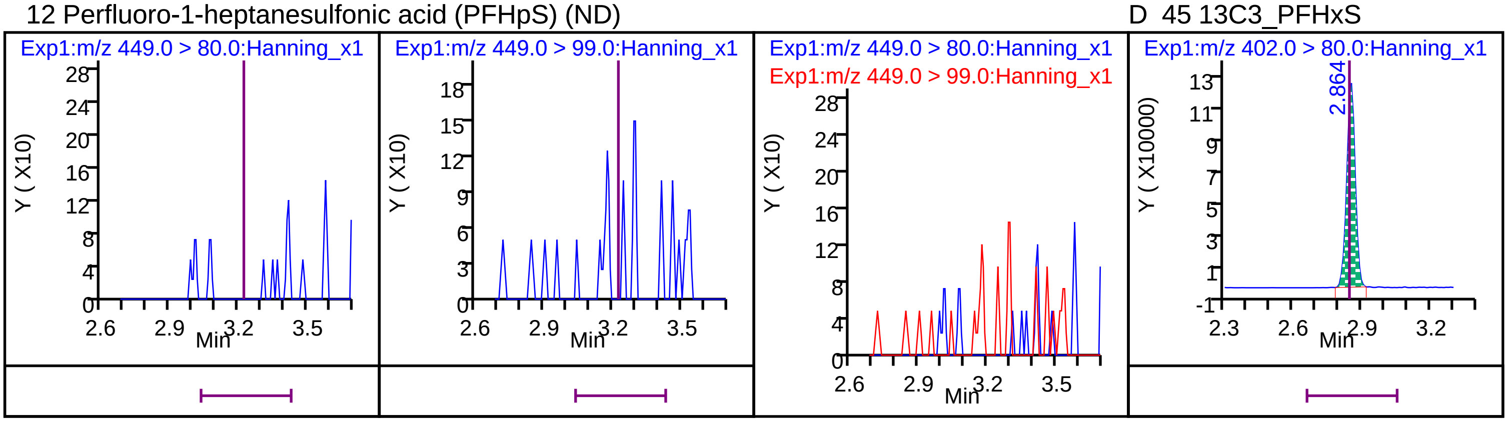
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



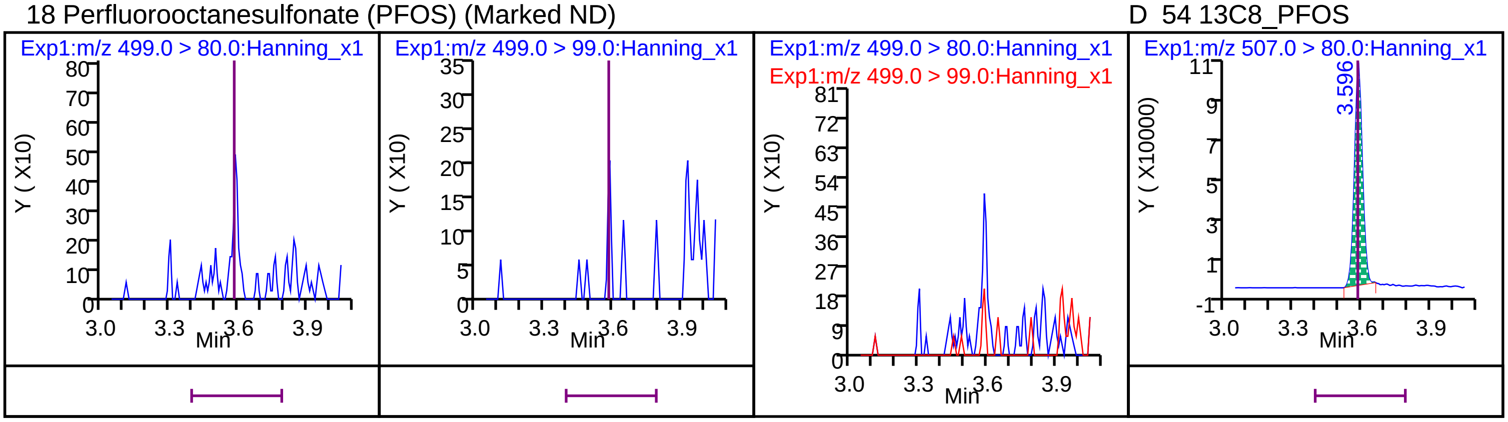
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS

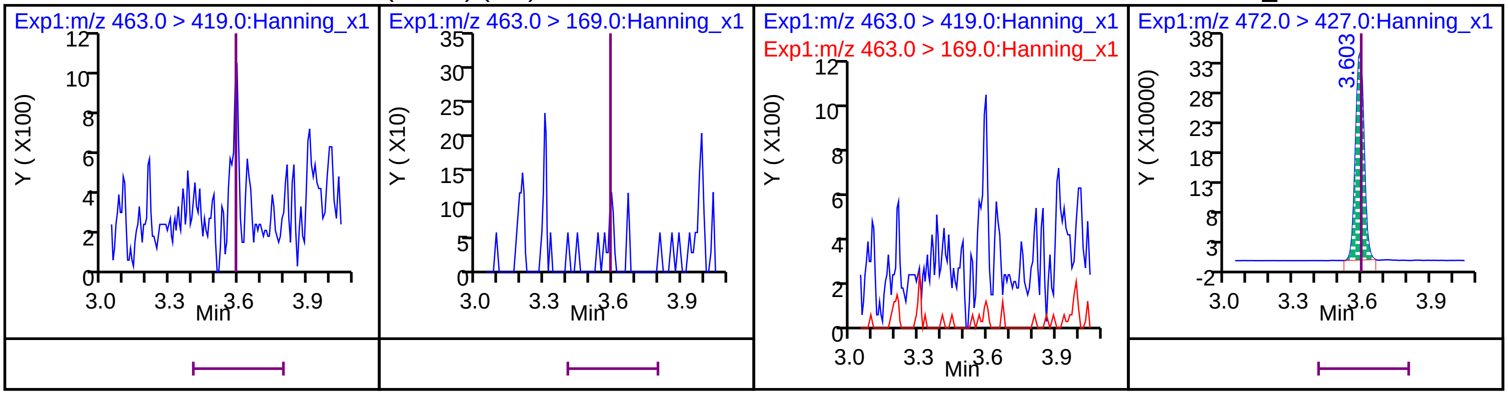


18 Perfluorooctanesulfonate (PFOS) (Marked ND) D 54 13C8_PFOS



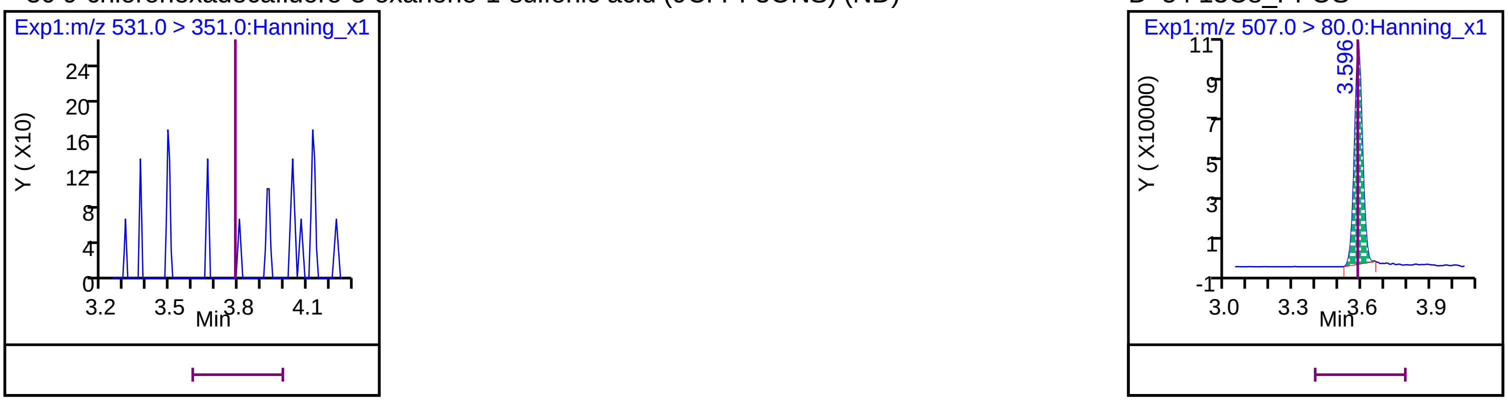
17 Perfluoro-n-nonanoic acid (PFNA) (ND)

D 56 13C9_PFNA



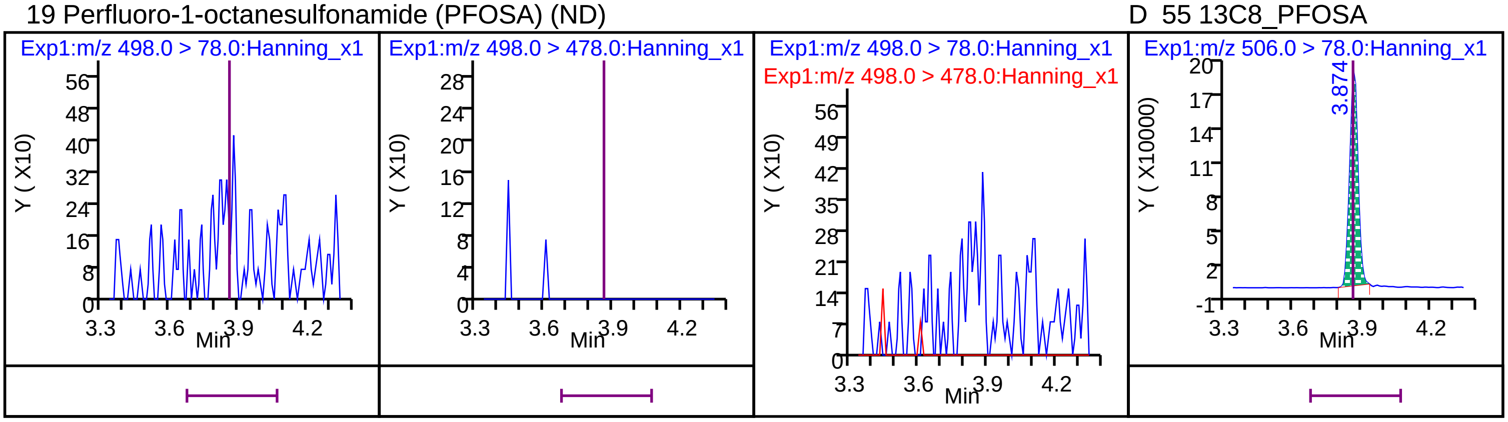
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (ND)

D 54 13C8_PFOS



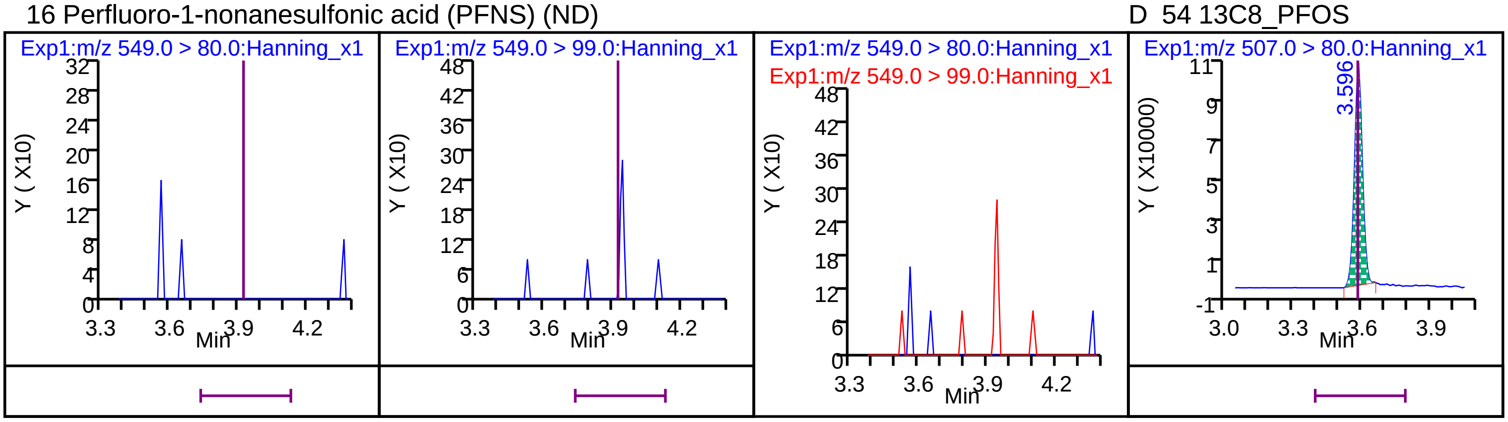
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND)

D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND)

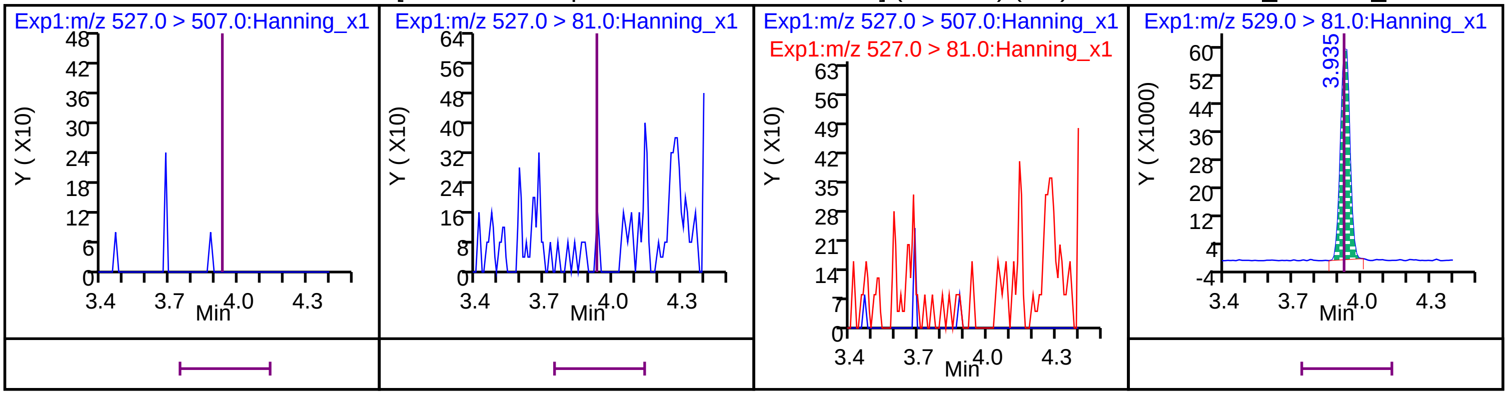
D 54 13C8_PFOS



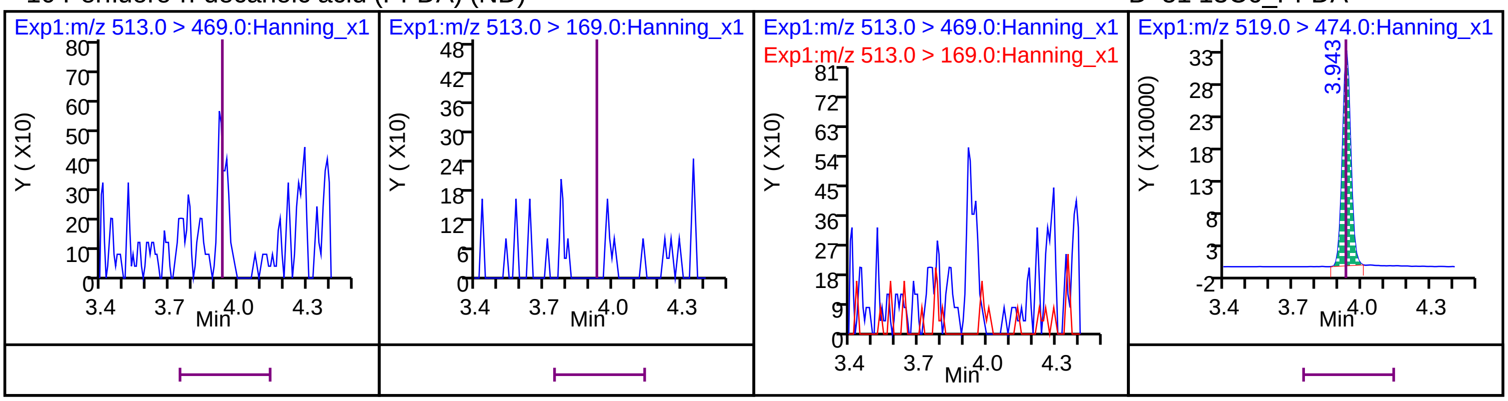
Report Date: 09-Nov-2021 07:56:19 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b\110421A089.d

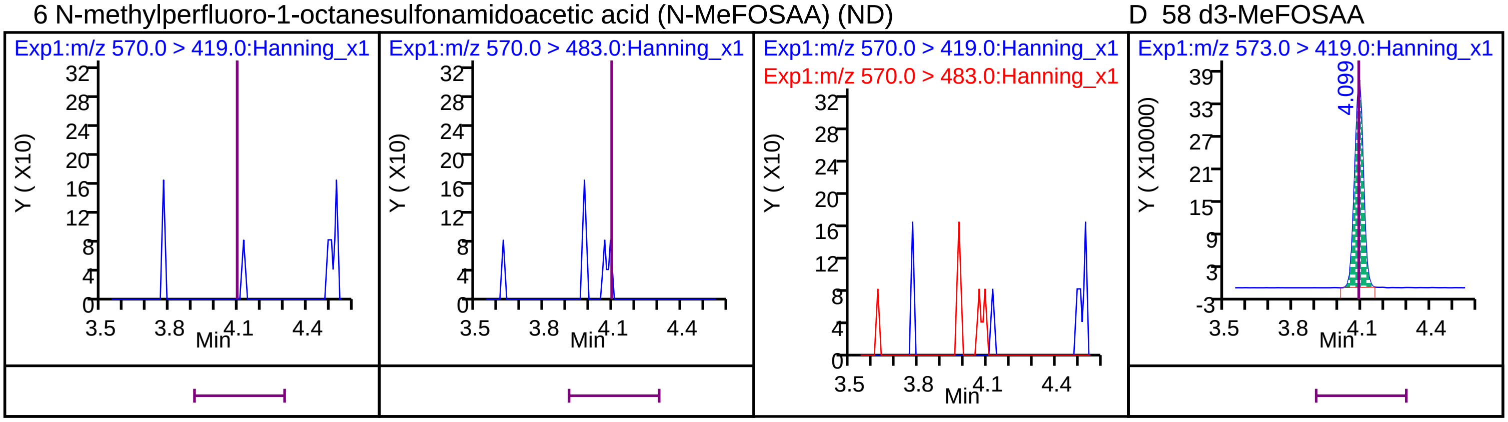
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



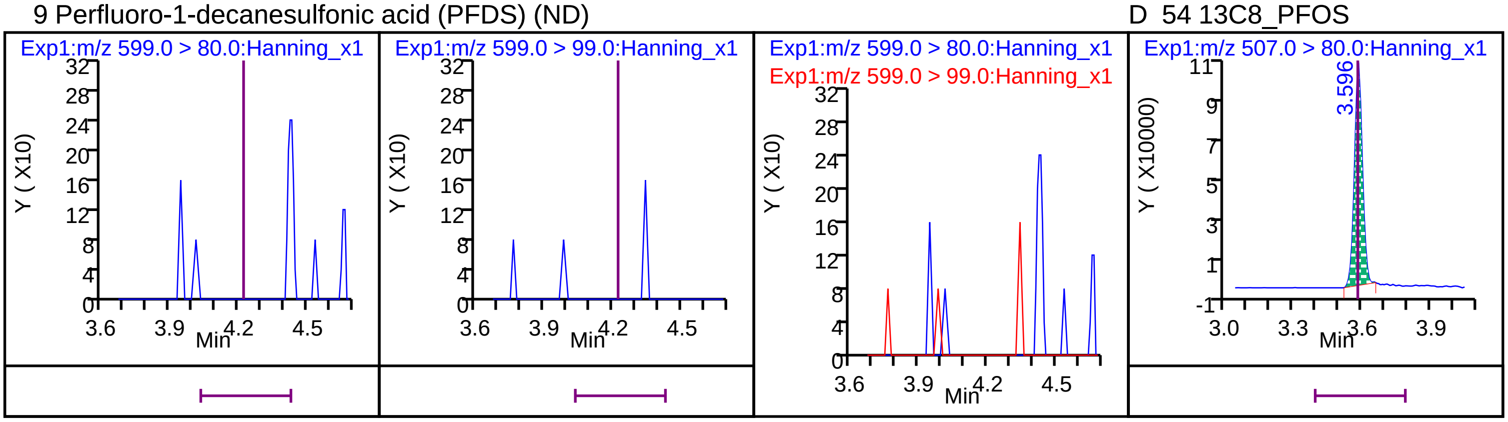
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



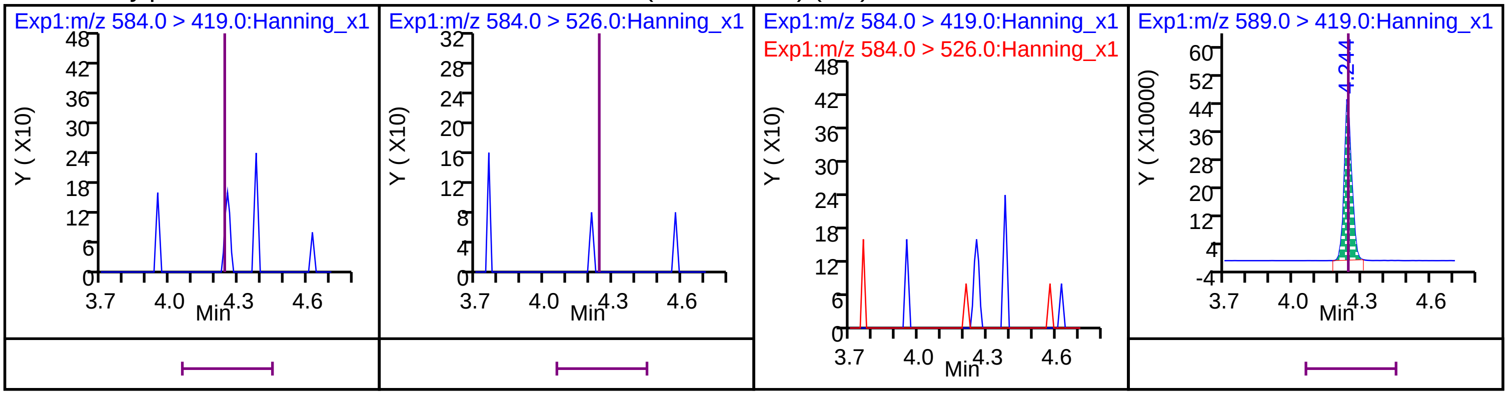
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



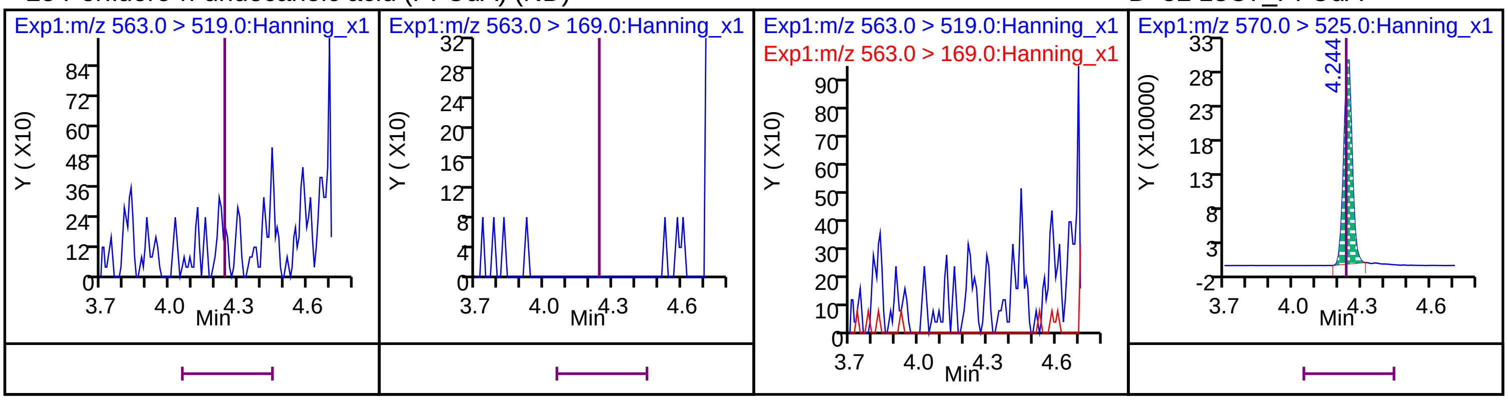
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA

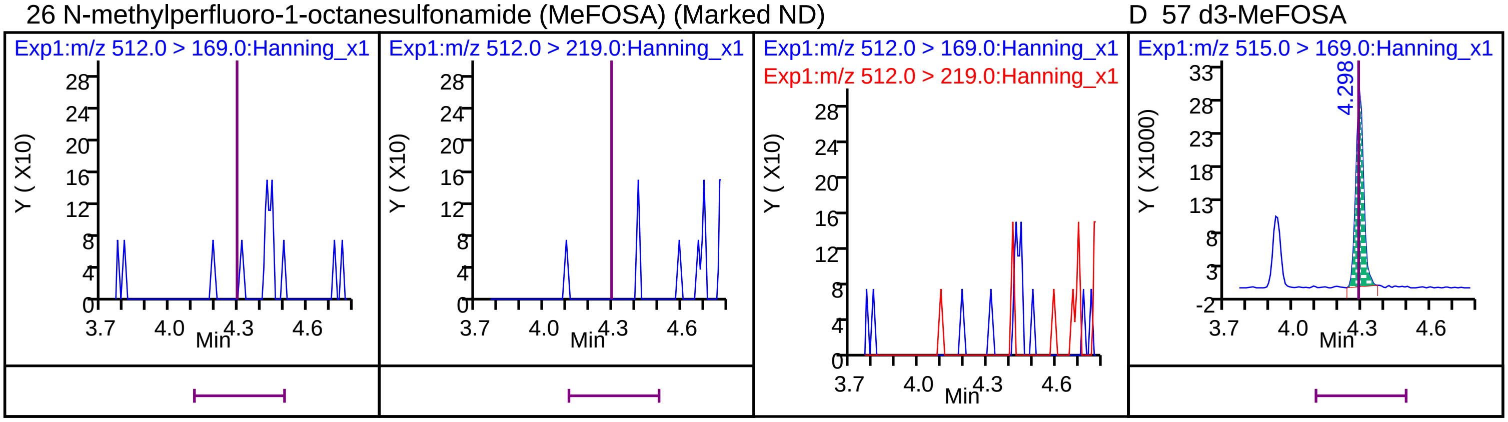


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

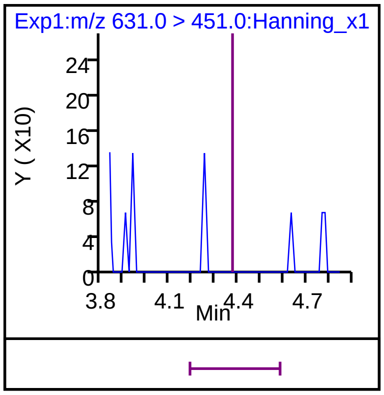


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

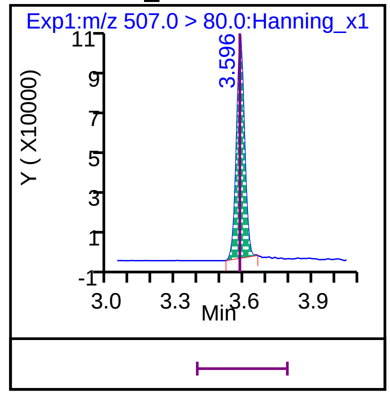
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (Marked ND) D 57 d3-MeFOSA



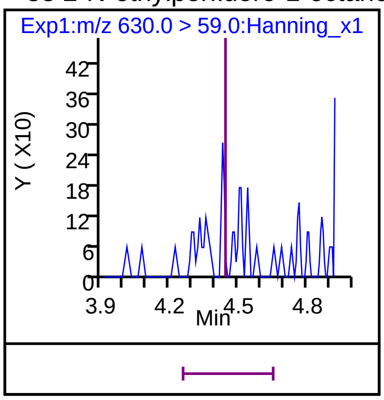
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



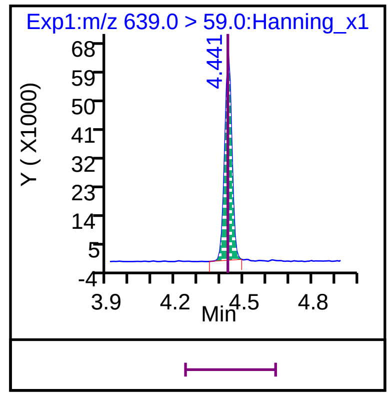
D 54 13C8_PFOS



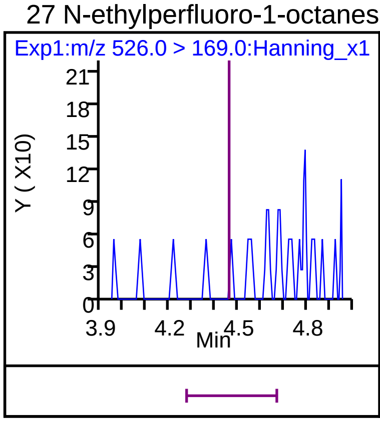
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (ND)

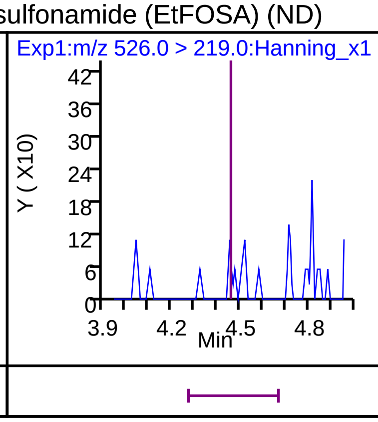


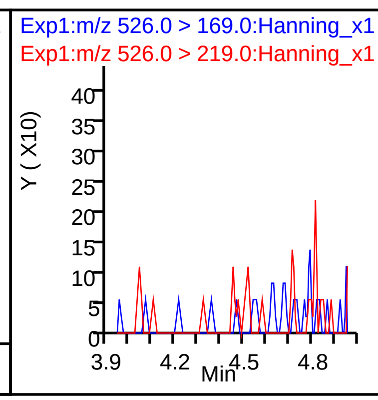
D 62 d9-EtFOSE



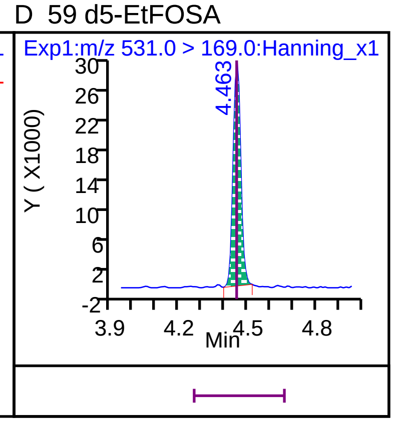
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



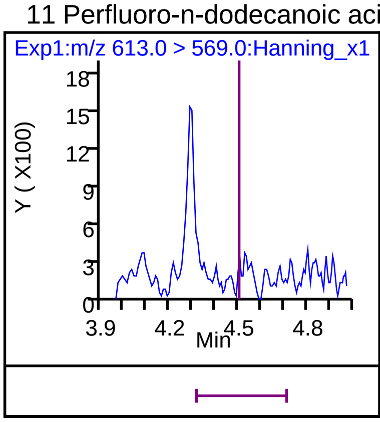


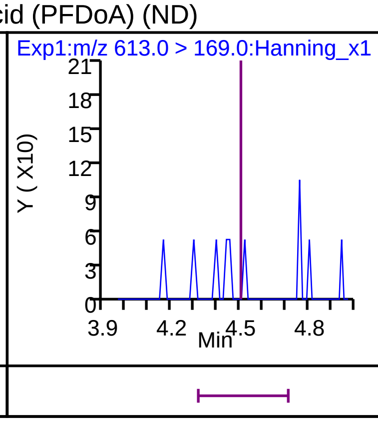


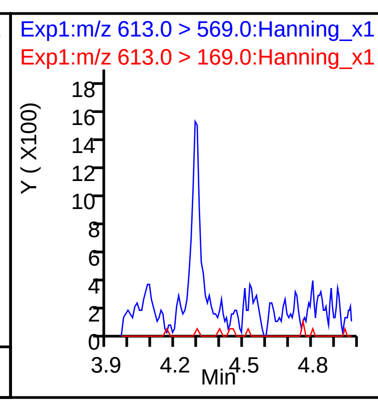
D 59 d5-EtFOSA



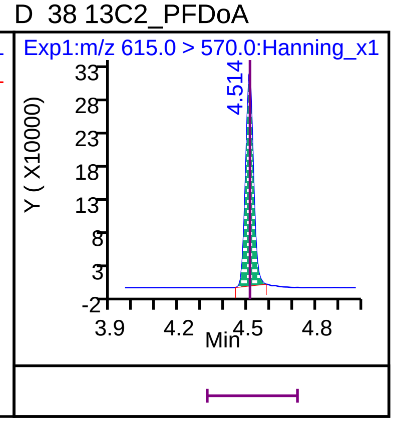
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



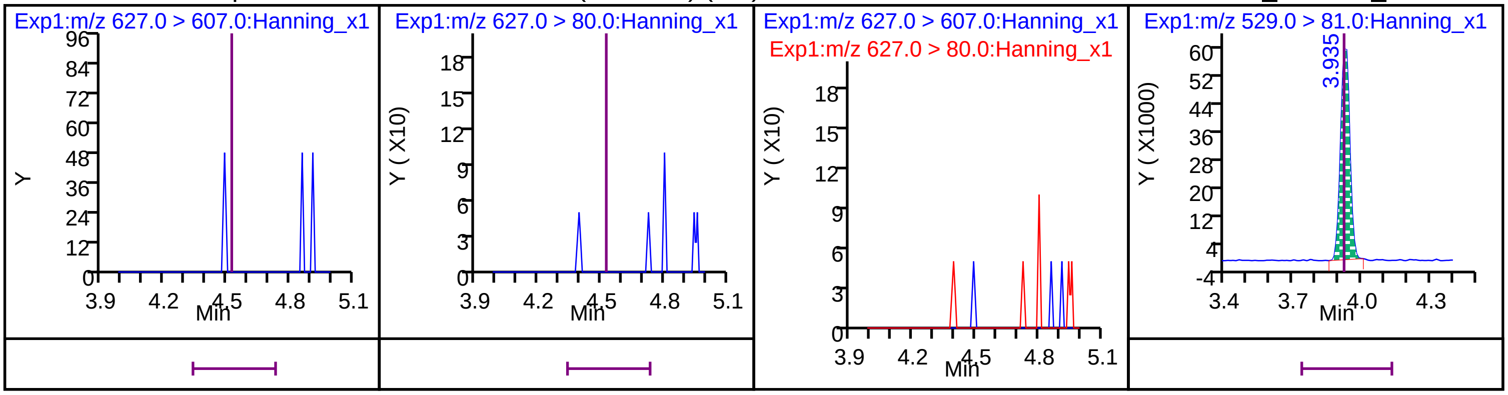




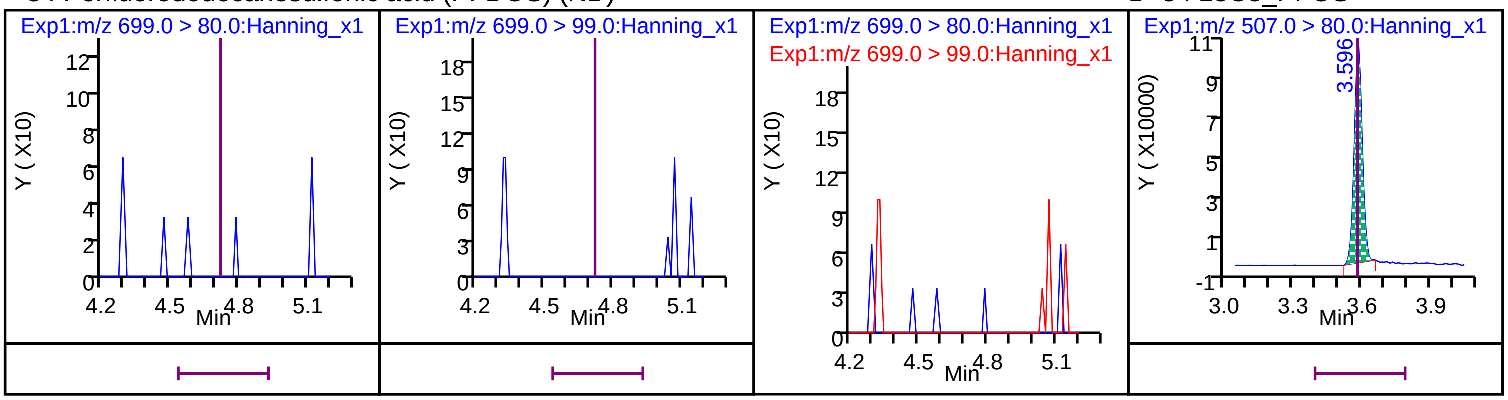
D 38 13C2_PFDoA



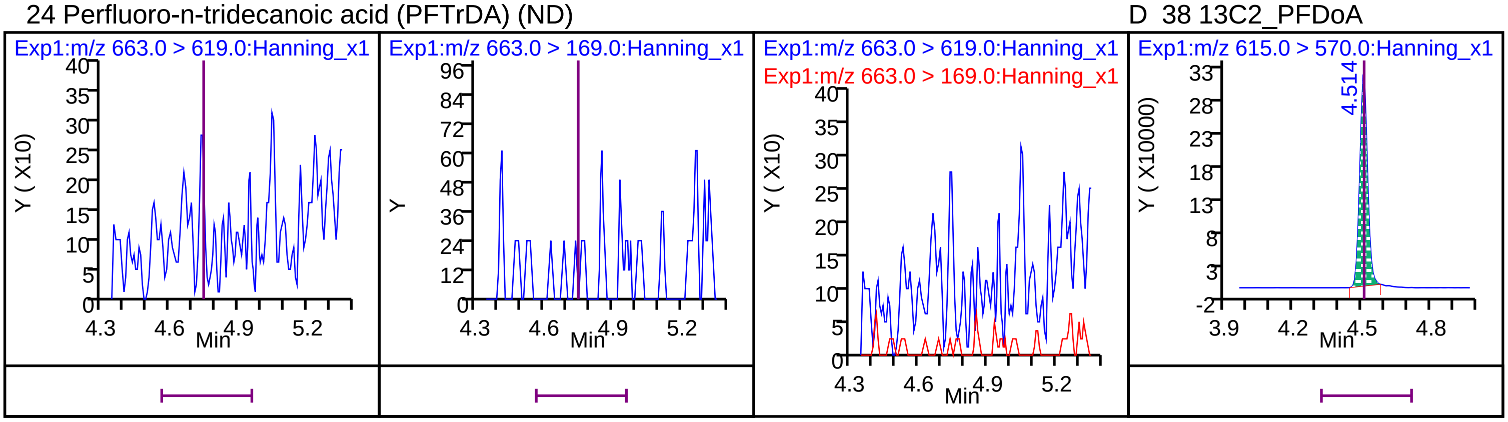
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



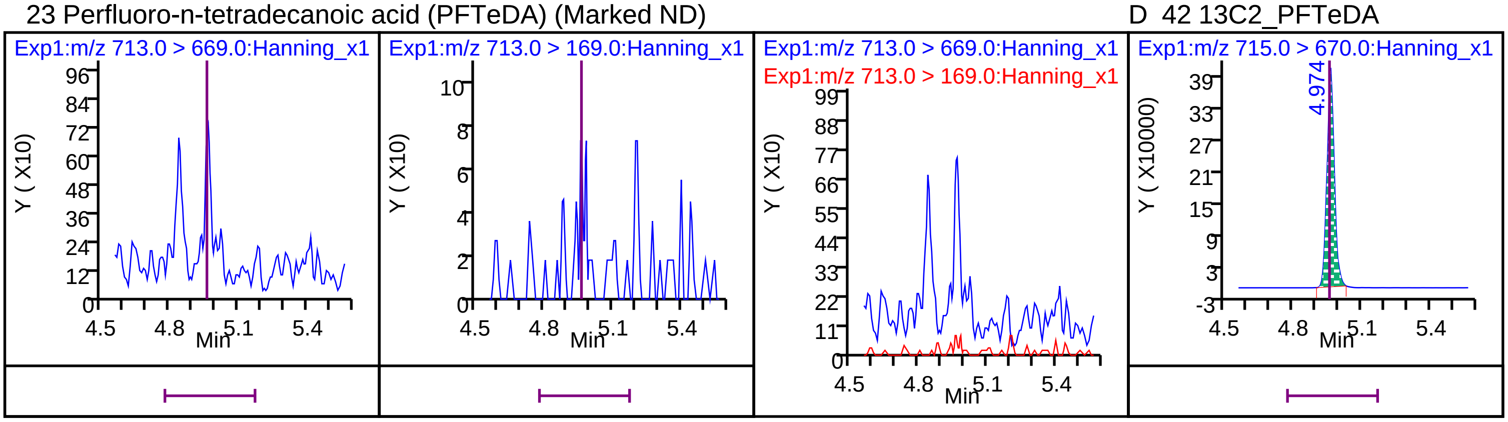
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



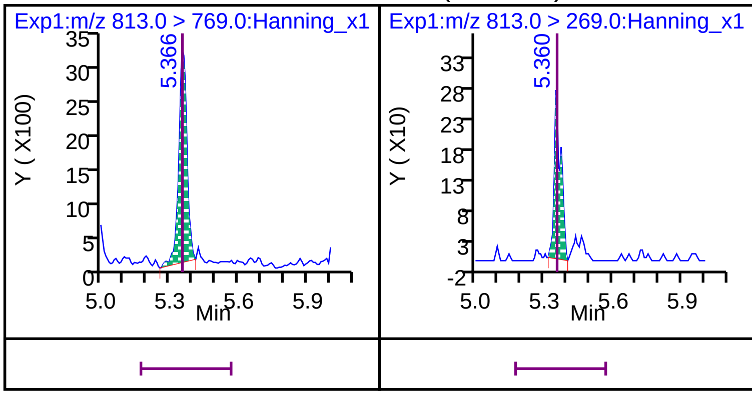
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



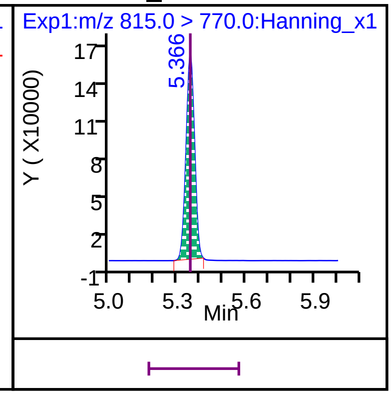
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) D 42 13C2_PFTeDA



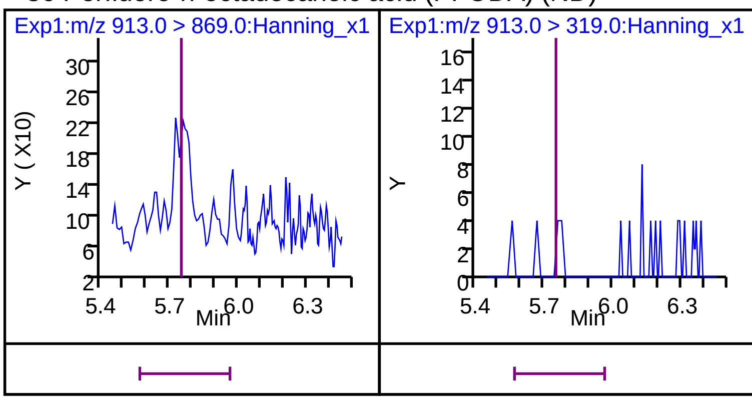
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



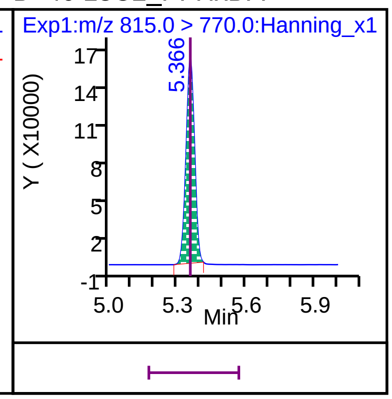
D 40 13C2_PFHxDA



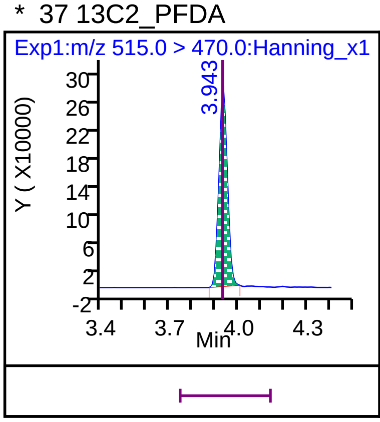
36 Perfluoro-n-octadecanoic acid (PFODA) (ND)



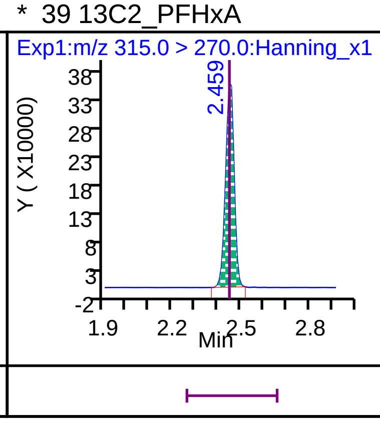
D 40 13C2_PFHxDA



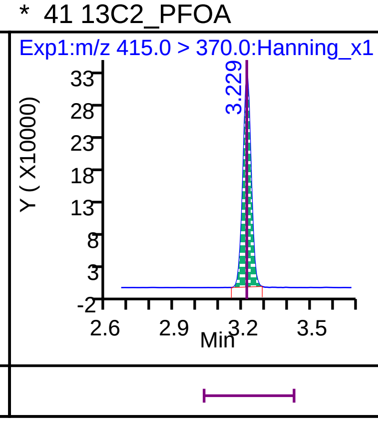
* 37 13C2_PFDA



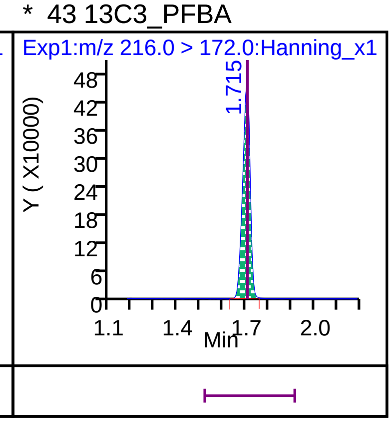
* 39 13C2_PFHxA



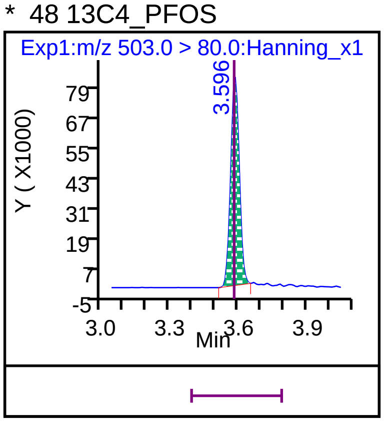
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521007.d		
Injection Date:	05-Nov-2021 12:34:58	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	⊤ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.715	0	1023069	19	>100:1			1001.00	950.16	86.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.715		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	0	897779	17	>100:1			1001.00	895.17	83.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.089		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	326641	15	>100:1			1001.00	1005.76	96.4	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.502		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	0	190609	19	>100:1			5005.00	4588.90	84.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.468	0	866798	17	>100:1			1001.00	970.41	85.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.468		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	0	766032	18	>100:1			5005.00	4676.08	82.9	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.594		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.855	2.855	0	851069	19	>100:1			1001.00	971.33	87.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.855		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.872	0	256896	16	>100:1			1001.00	979.47	86.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.872		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.898		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.239		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.214	0	166496	22	>100:1			5005.00	4415.04	79.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.208		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.239	0	777117	22	>100:1			1001.00	939.69	85	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.239		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.599	3.606	0	210546	17	>100:1			1001.00	937.93	86.5	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.614		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.826	3.811	1/1	475	15	5.8:1			0.73072	0.73072		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.948		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.250		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.402		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.752		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.606	3.614	0	708838	21	>100:1			1001.00	887.14	82	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.614		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.870	3.870	0	389792	18	>100:1			1001.00	941.09	83.6	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.870		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.948	3.948	1	136562	18	>100:1			5005.00	4351.12	79.9	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.948		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.541		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.948	3.956	0	699895	16	>100:1			1001.00	969.65	87.8	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.964		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.104	4.112	0	805620	17	>100:1			5005.00	4543.50	91.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.112		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.259	4.268	0	642584	16	>100:1			1001.00	940.24	85.4	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.268		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.259	4.268	0	709265	16	>100:1			5005.00	4743.27	88	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.277		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.268	4.268	0	113930	18	>100:1			1001.00	825.66	84.9	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.277		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.295	0	58538	14	>100:1			1001.00	836.01	89.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.295		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	Τ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.432	4.432	1	111854	15	>100:1			1001.00	870.09	89.4	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.446		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.454	4.454	0	58178	24	>100:1			1001.00	903.31	83	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.461		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.533	4.541	0	584837	18	>100:1			1001.00	850.50	84.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.541		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.784		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.993	5.000	0	791325	24	>100:1			1001.00	1012.24	85.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.003		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.395	5.406	0	359403	22	>100:1			1001.00	920.65	89.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.400	5.406	0/0	6129	19	2.1:1	Target = 12.31		8.9240	8.9240		
813 > 269	40	5.395	5.406		677	31	23:1	9.05 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.819		ND								
*** 37 13C2_PFDA**													
515 > 470		3.948	3.956	0	635423	19	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.468	0	722231	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.233	3.239	0	752573	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.715	0	890706	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.599	3.606	0	186319	17	>100:1			200.00			

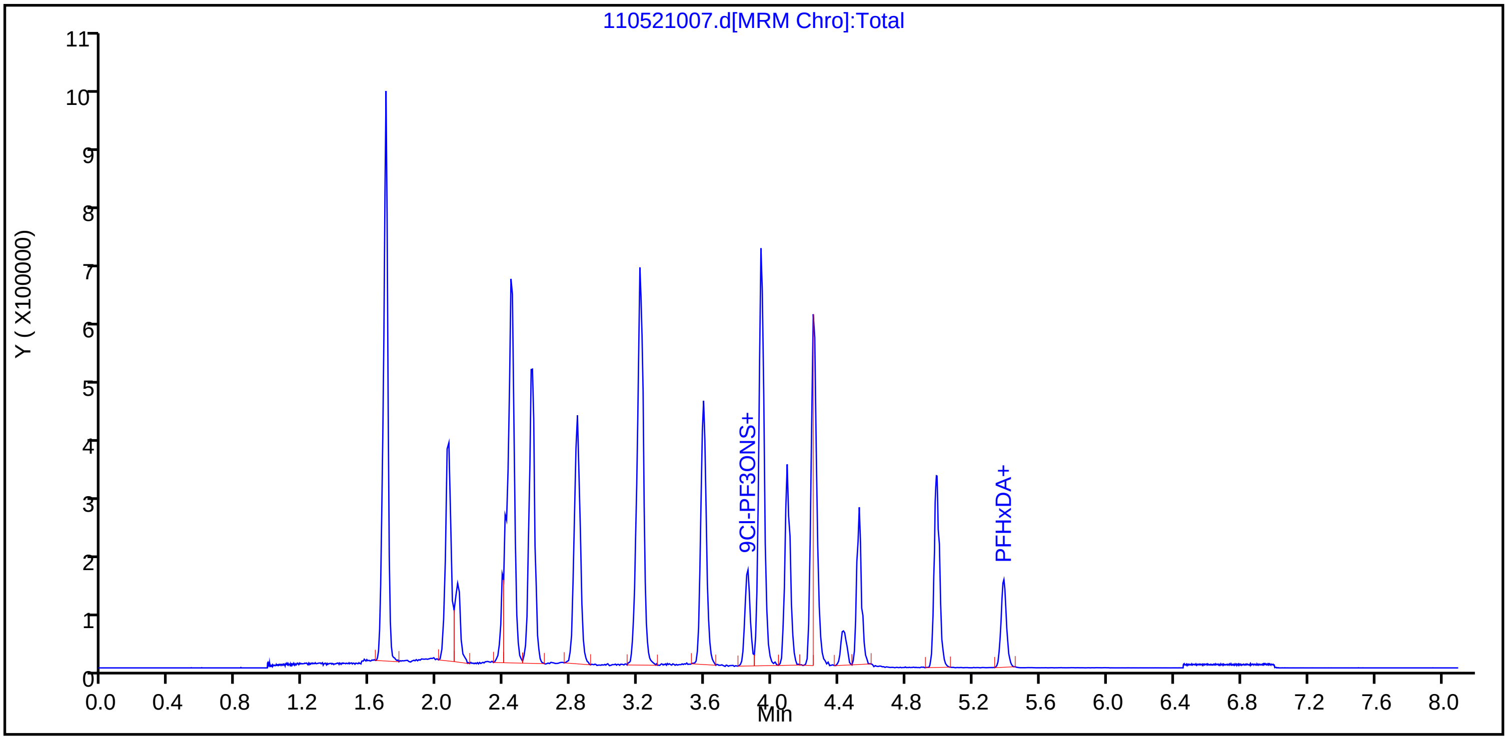
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

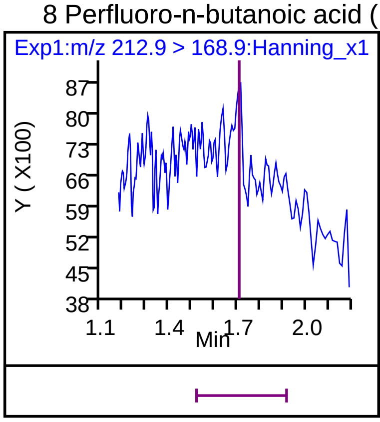
Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

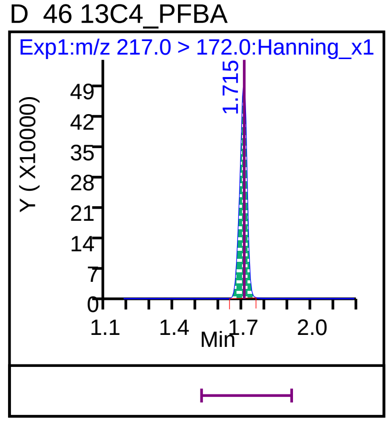
Data File:	\\organics\LL\LCMSMS01.i\110521-DOD.b\110521007.d		
Injection Date:	05-Nov-2021 12:34:58	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Matthew M. Miller



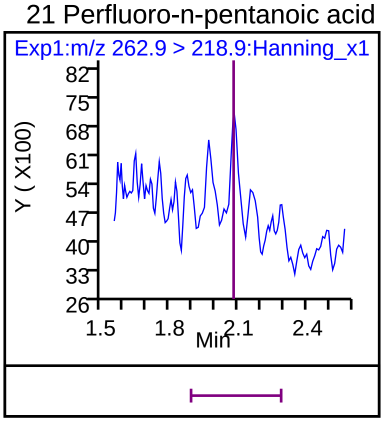
8 Perfluoro-n-butanoic acid (PFBA) (ND)



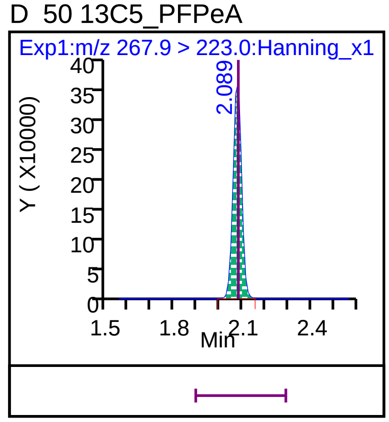
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)

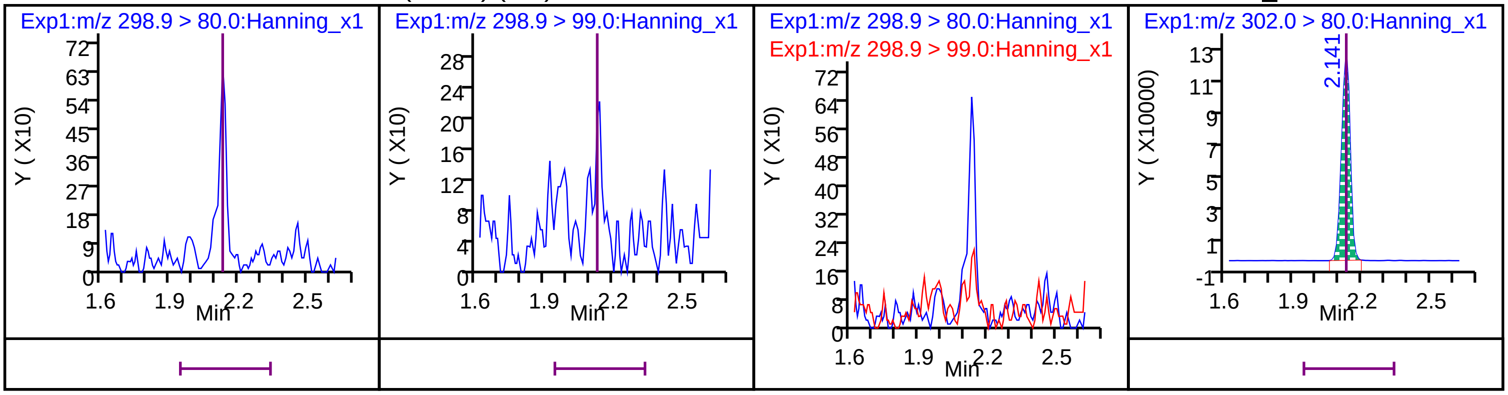


D 50 13C5_PFPeA

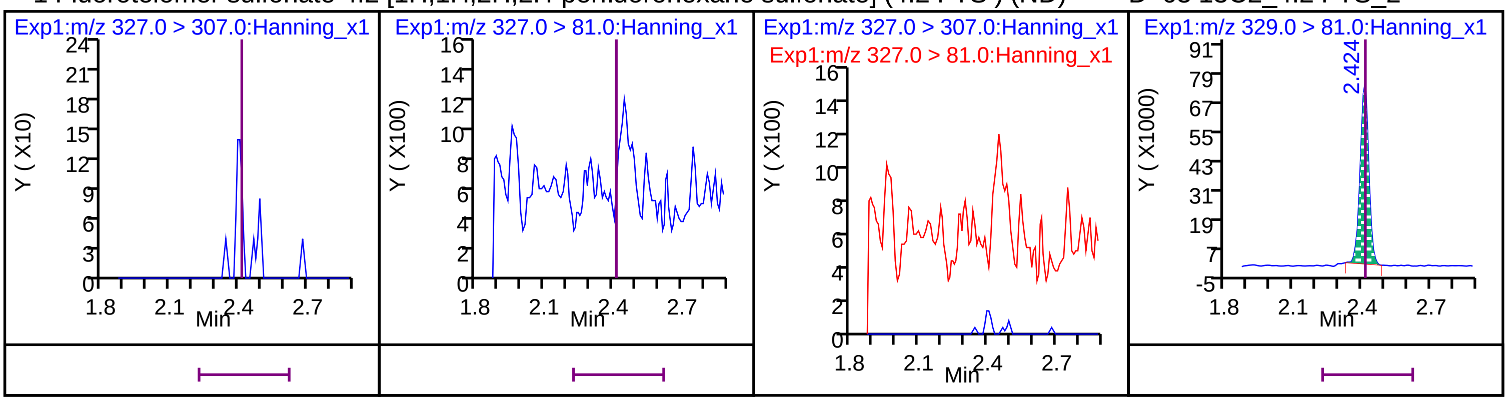


Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812
Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521007.d

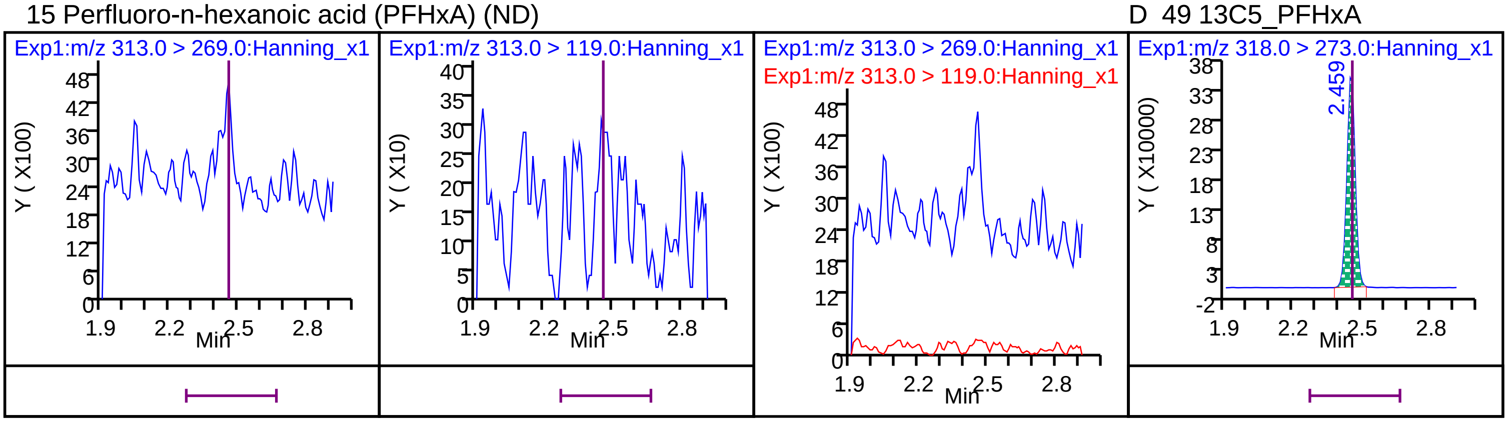
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



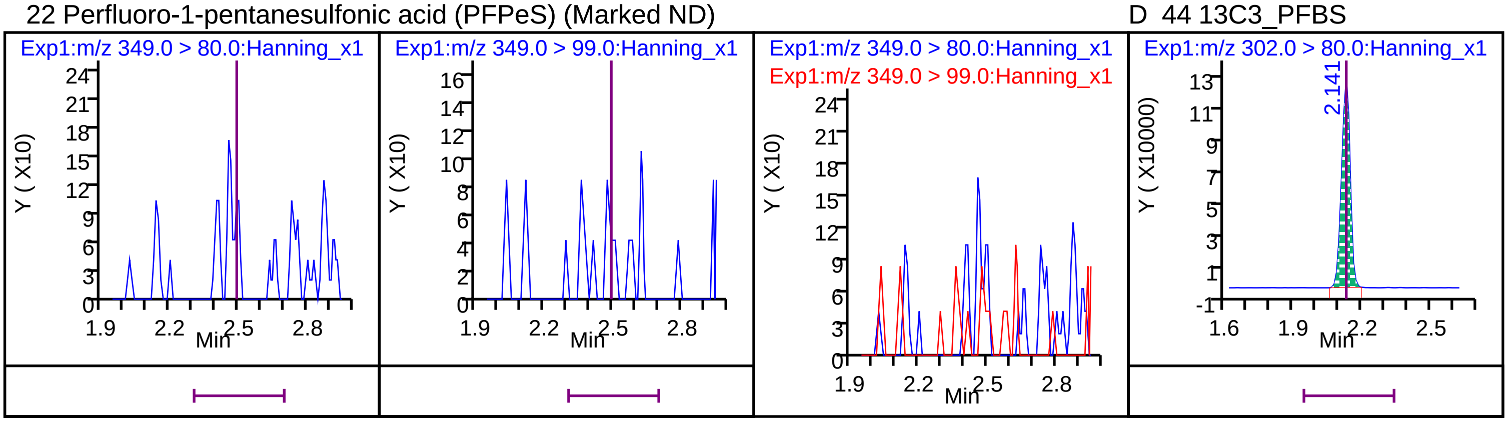
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



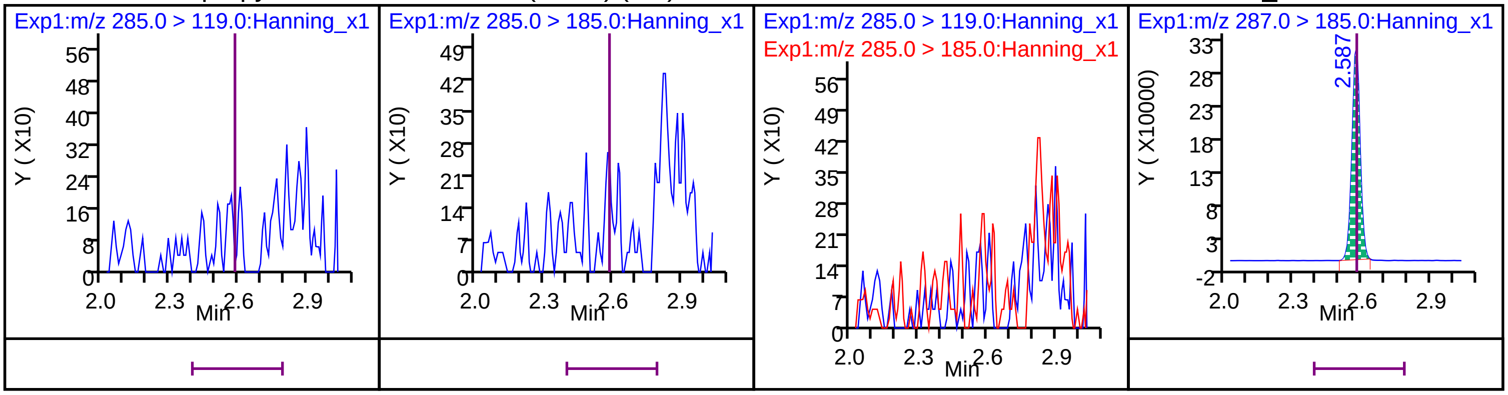
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



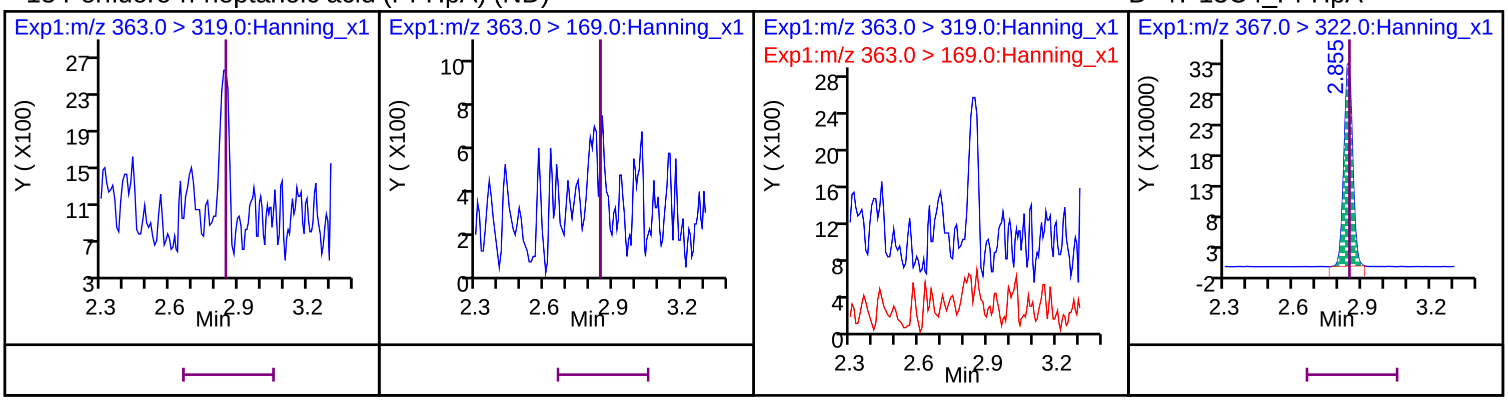
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (Marked ND) D 44 13C3_PFBS



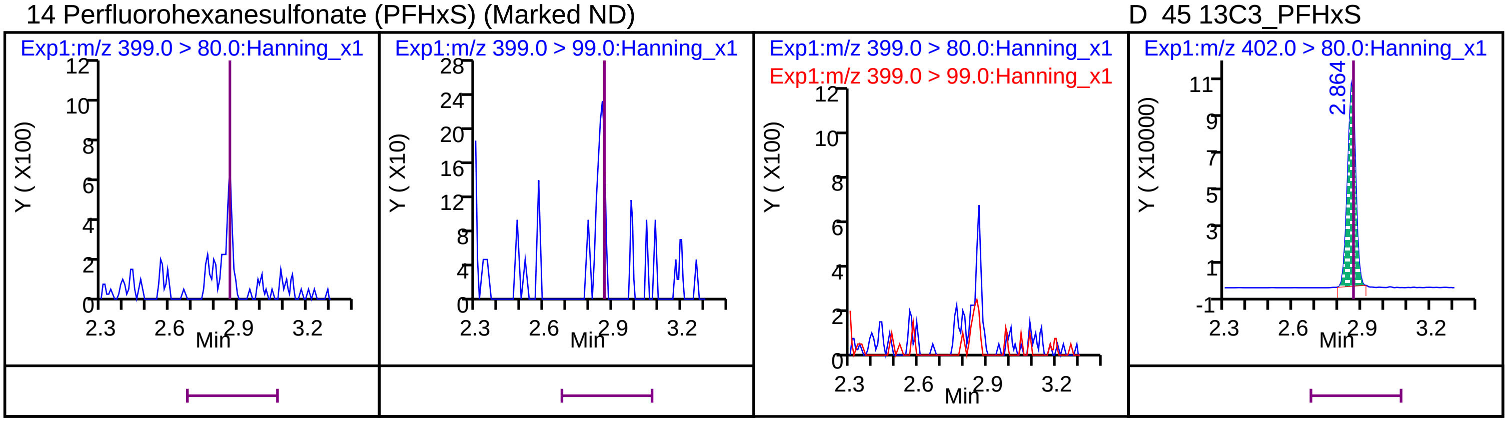
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



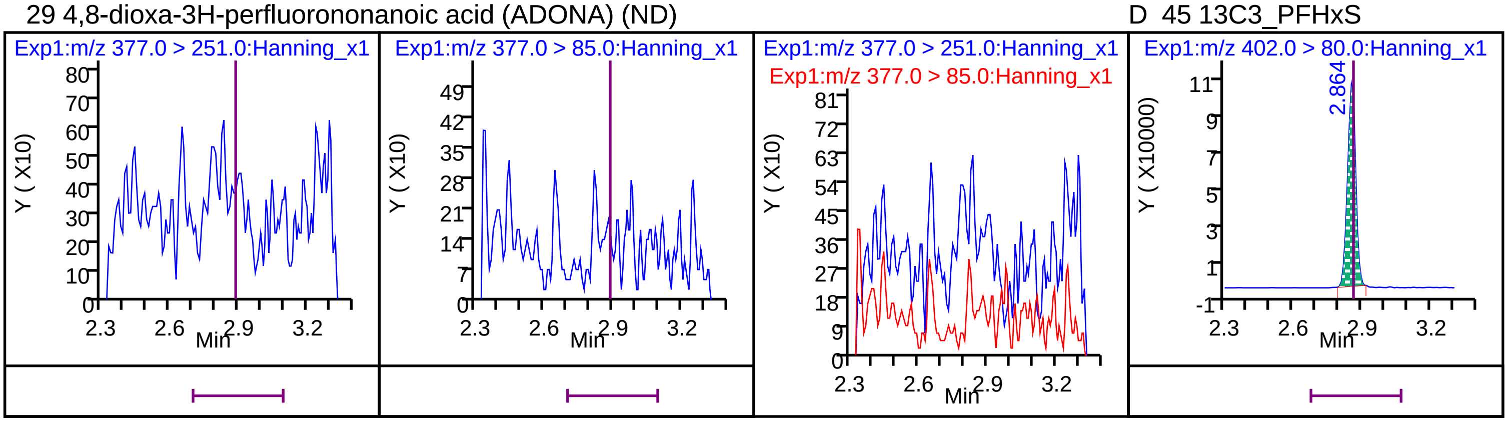
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (Marked ND) D 45 13C3_PFHxS



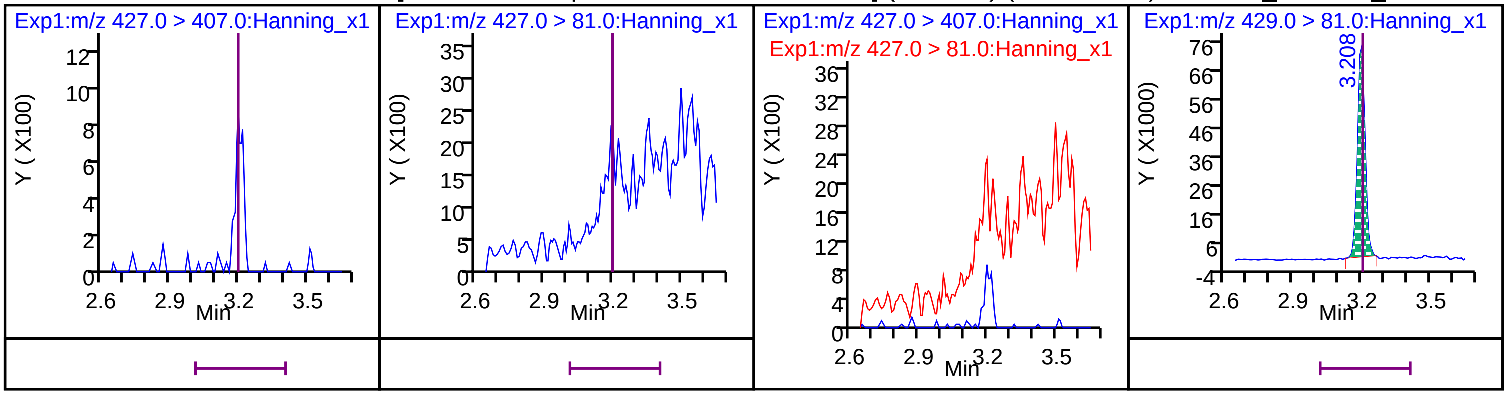
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



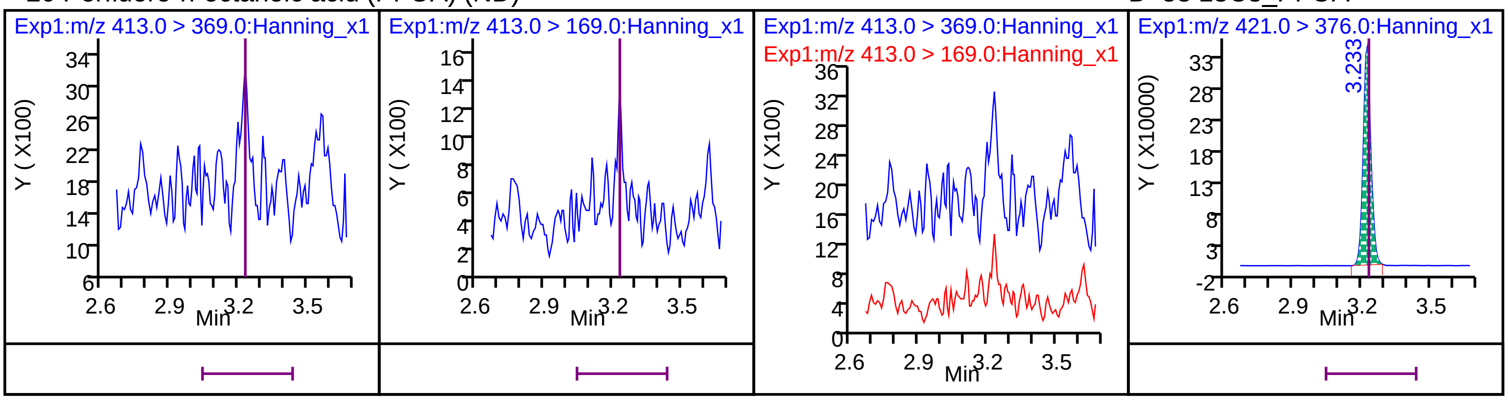
Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521007.d

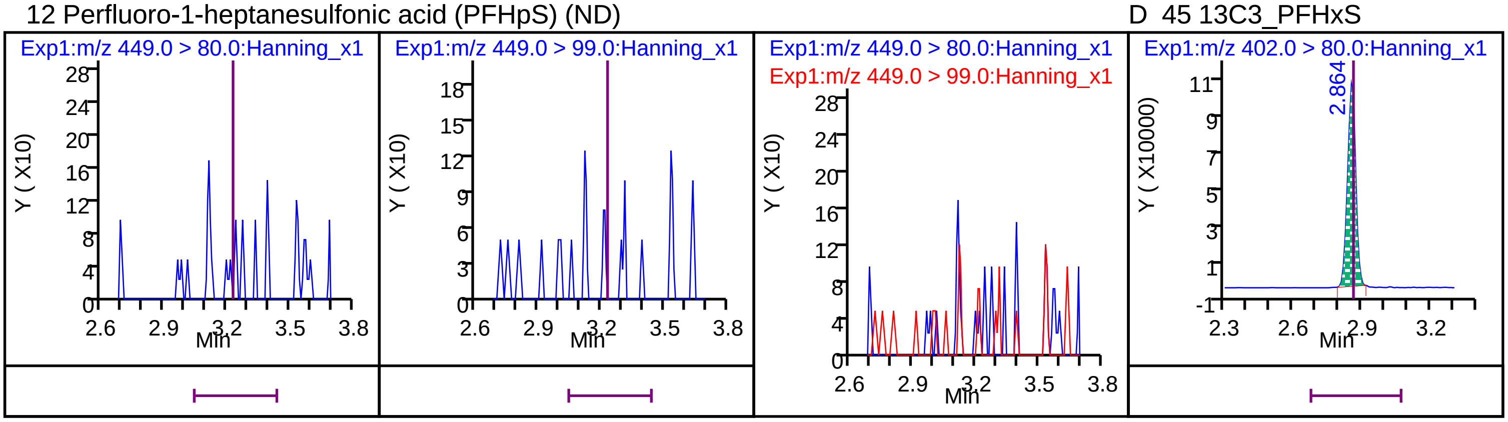
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (Marked ND) D 64 13C2_6:2 FTS_2



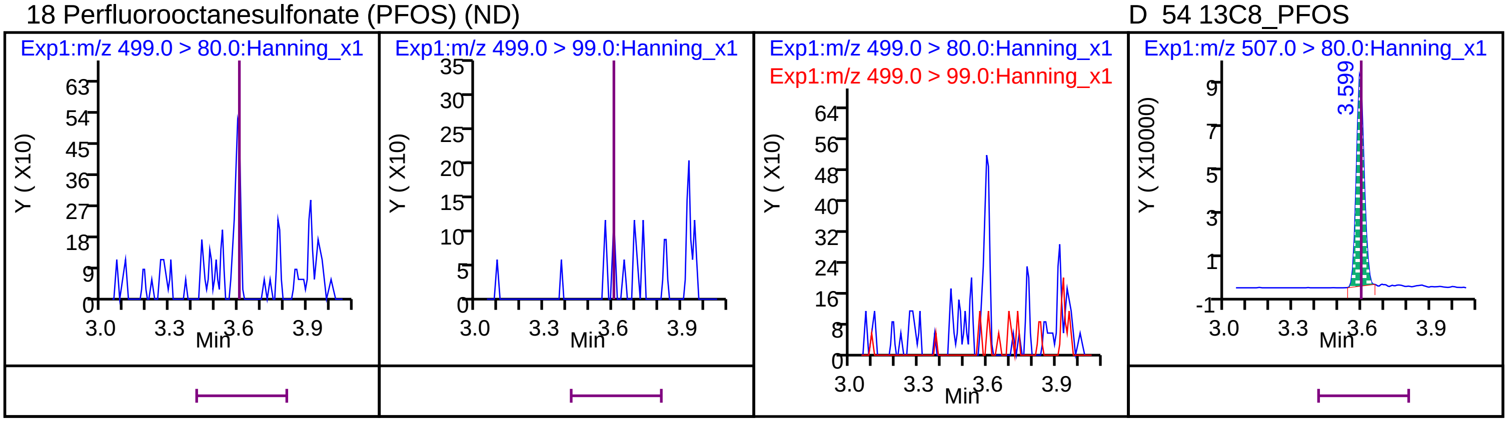
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



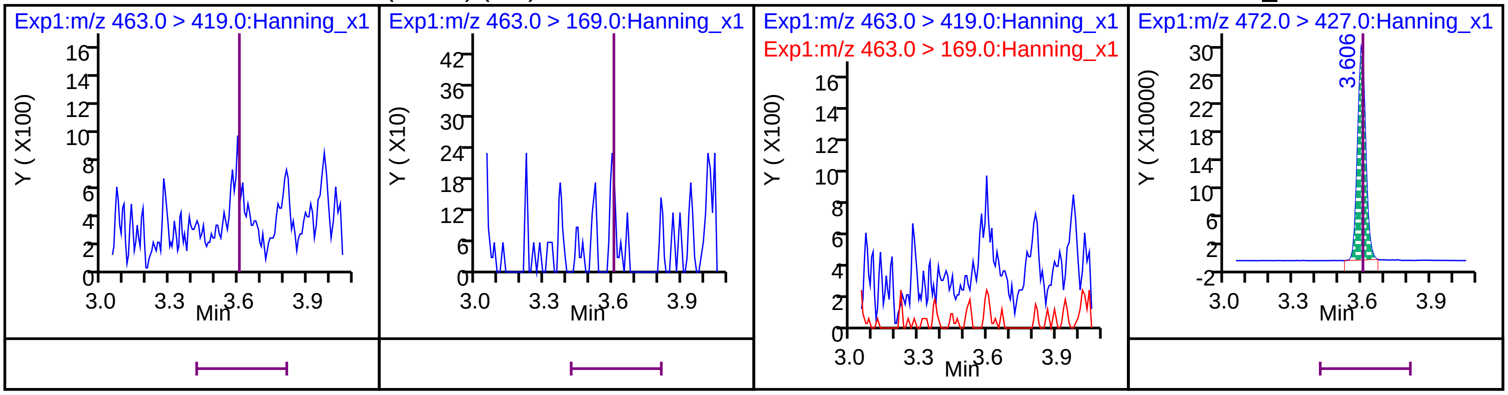
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



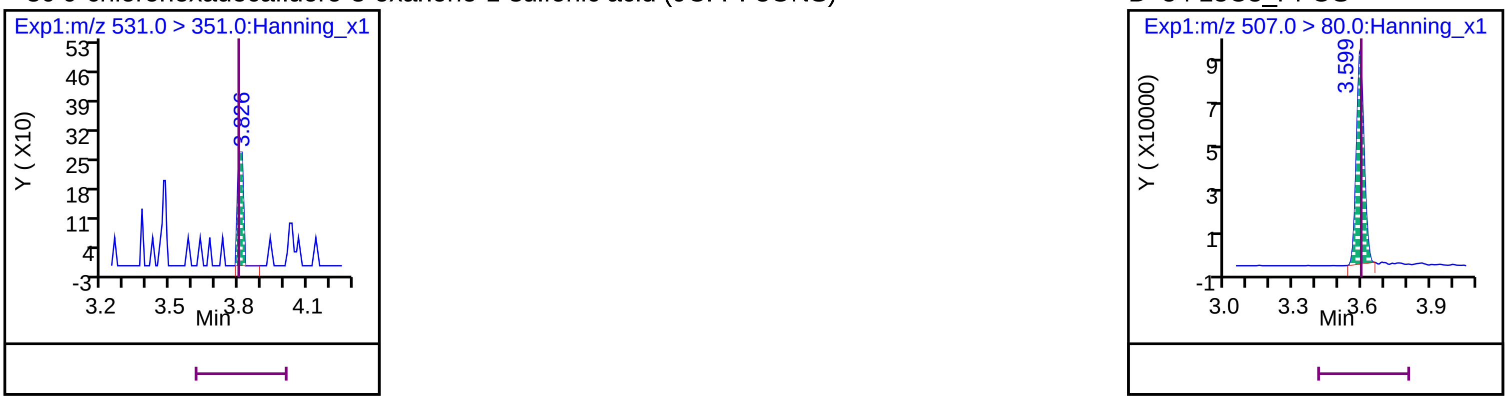
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



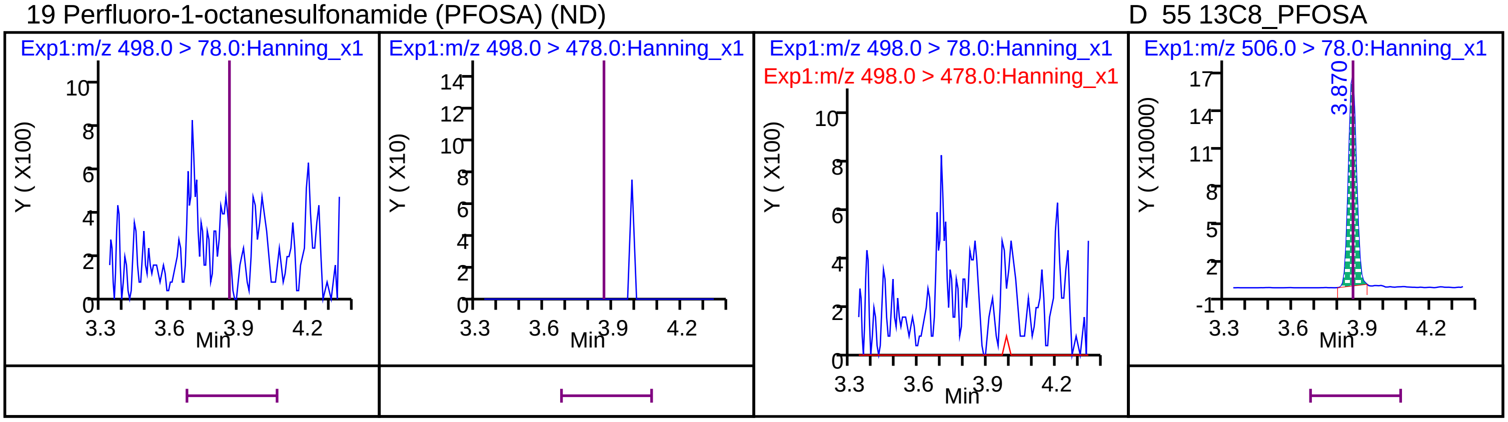
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



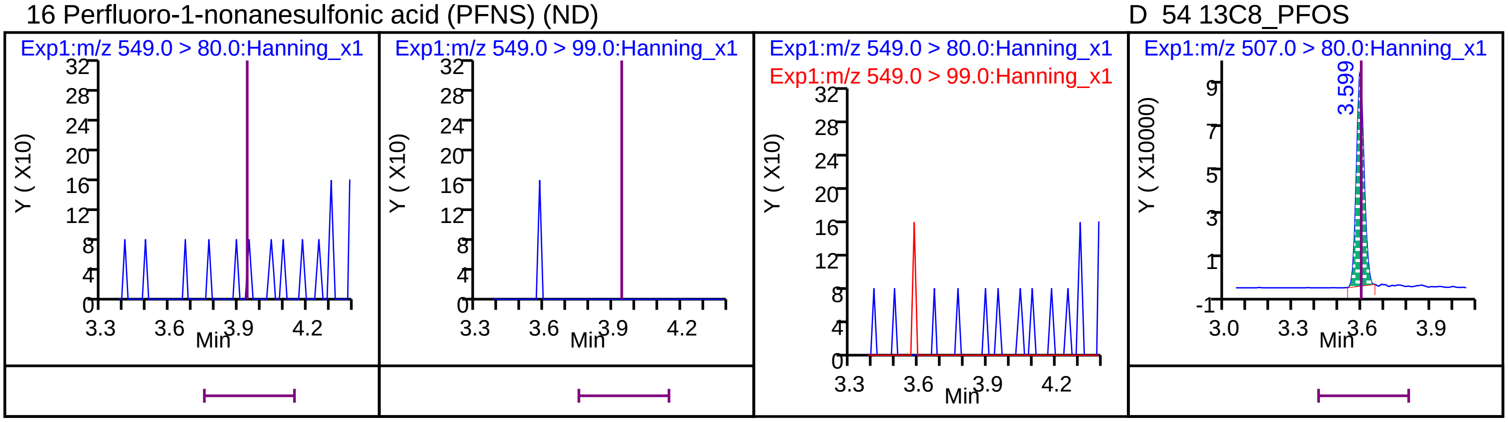
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



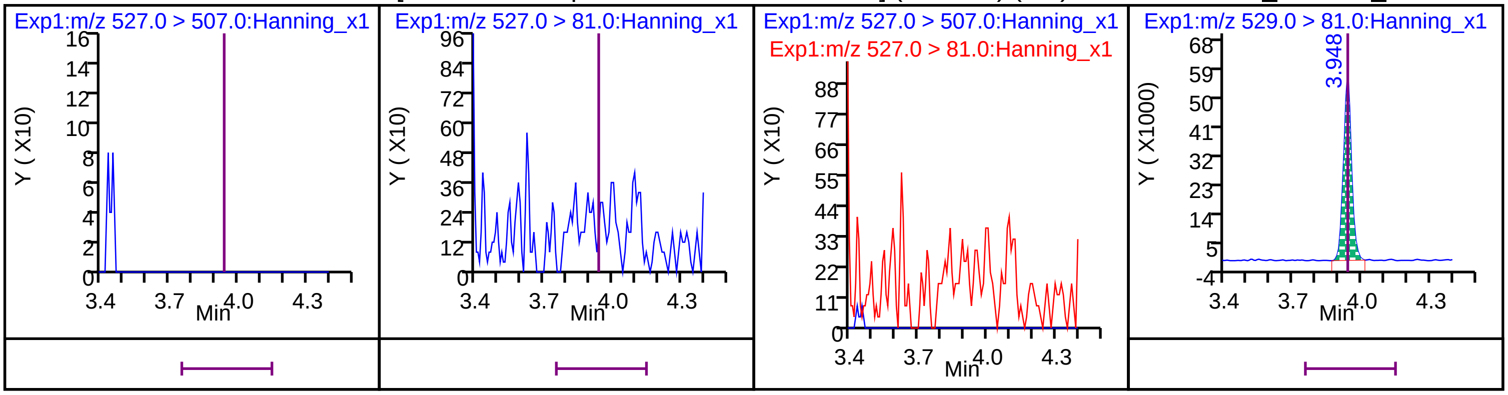
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



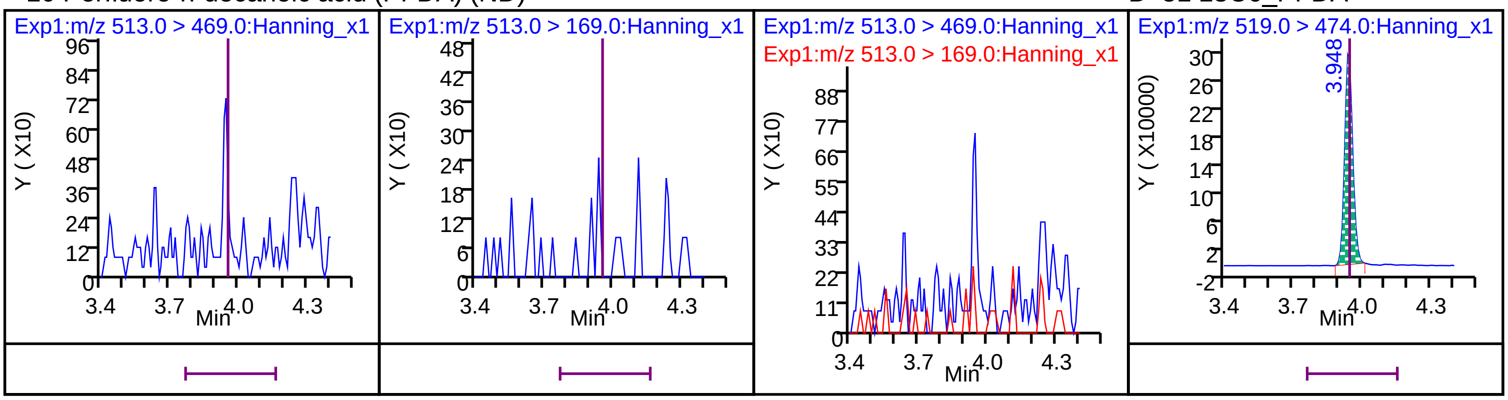
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



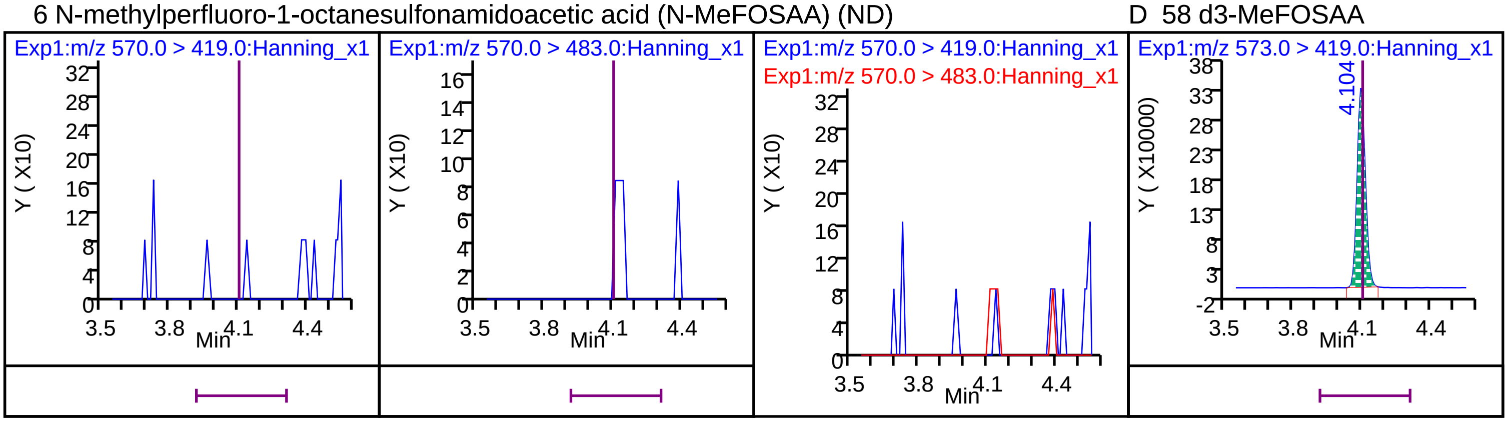
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



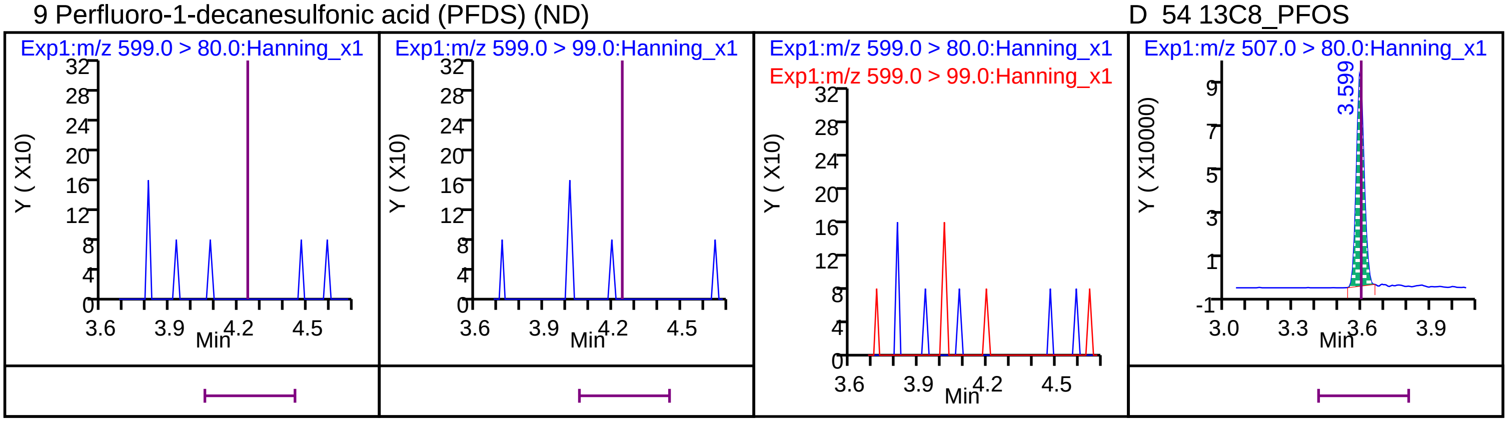
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA

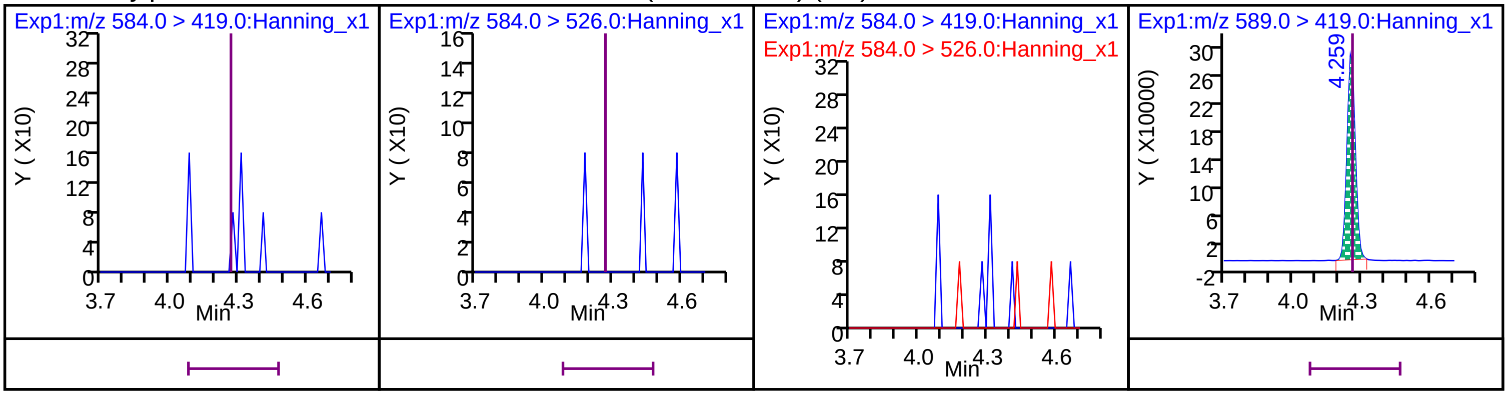


9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



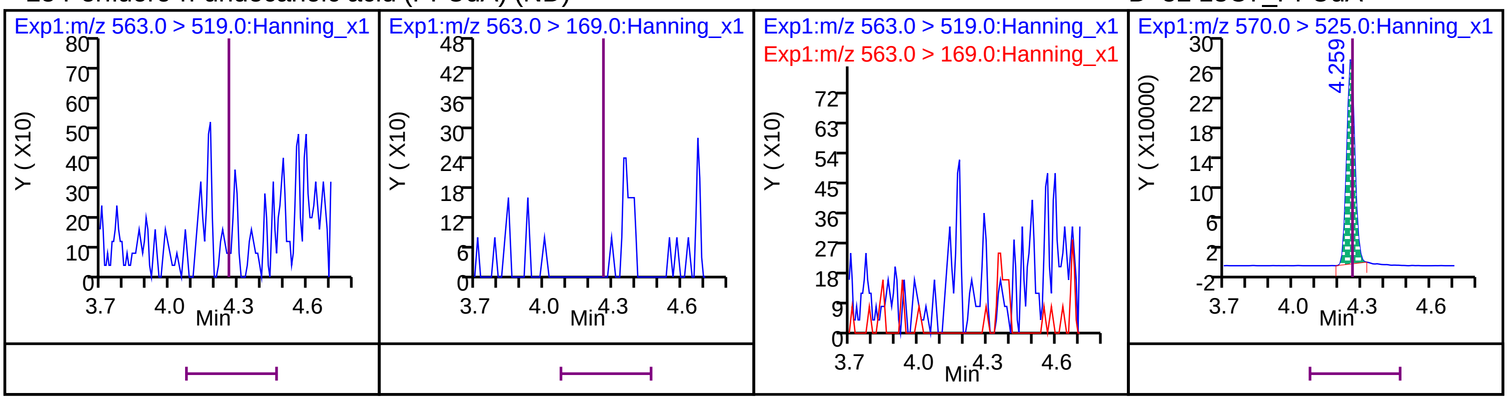
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND)

D 60 d5-EtFOSAA

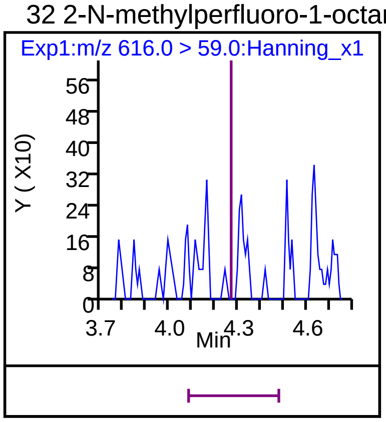


25 Perfluoro-n-undecanoic acid (PFUdA) (ND)

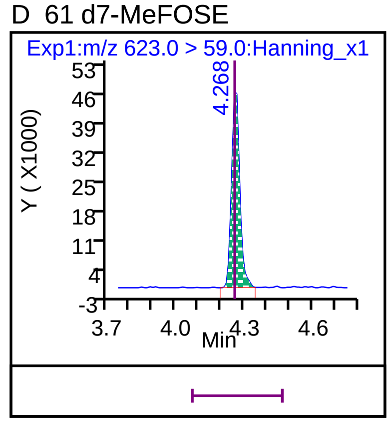
D 52 13C7_PFUdA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND)

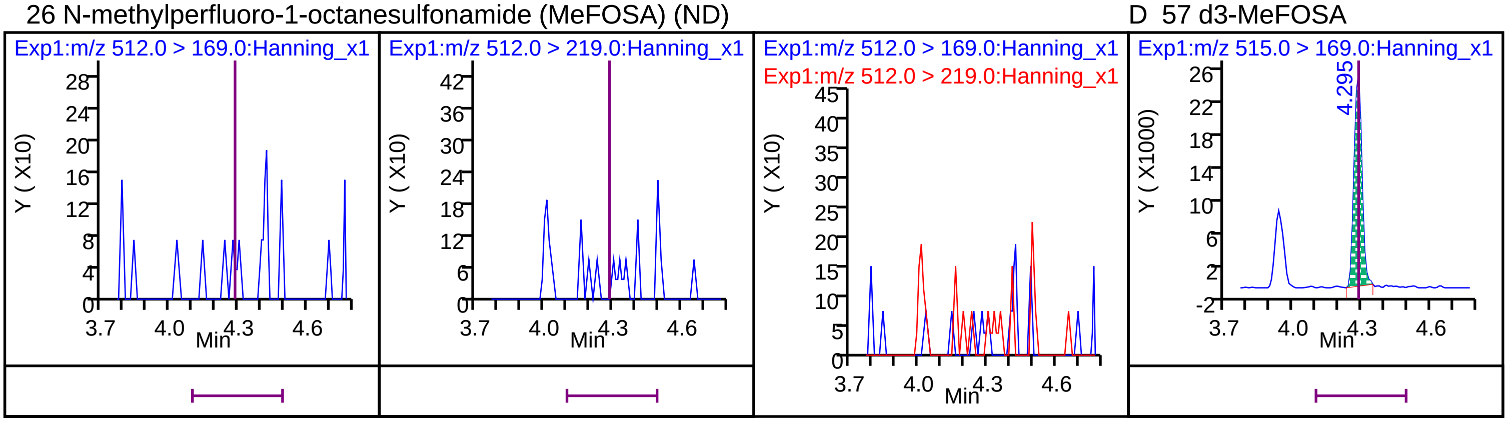


D 61 d7-MeFOSE

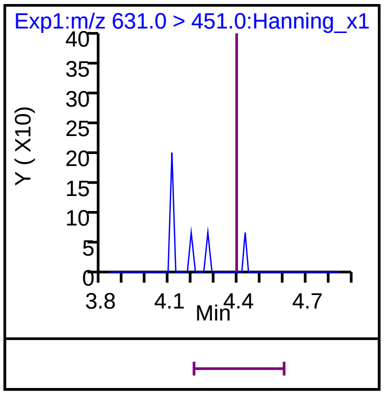


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND)

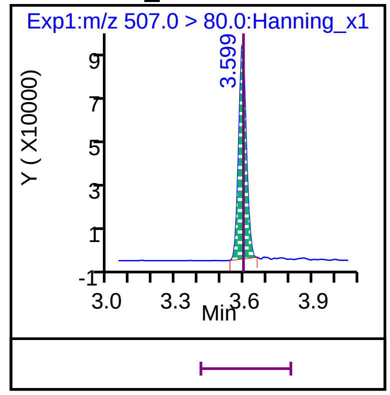
D 57 d3-MeFOSA



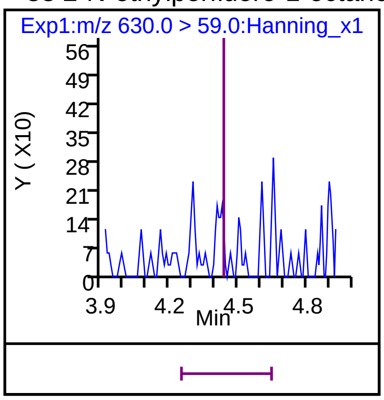
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



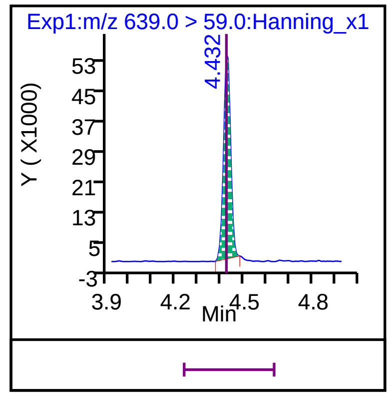
D 54 13C8_PFOS



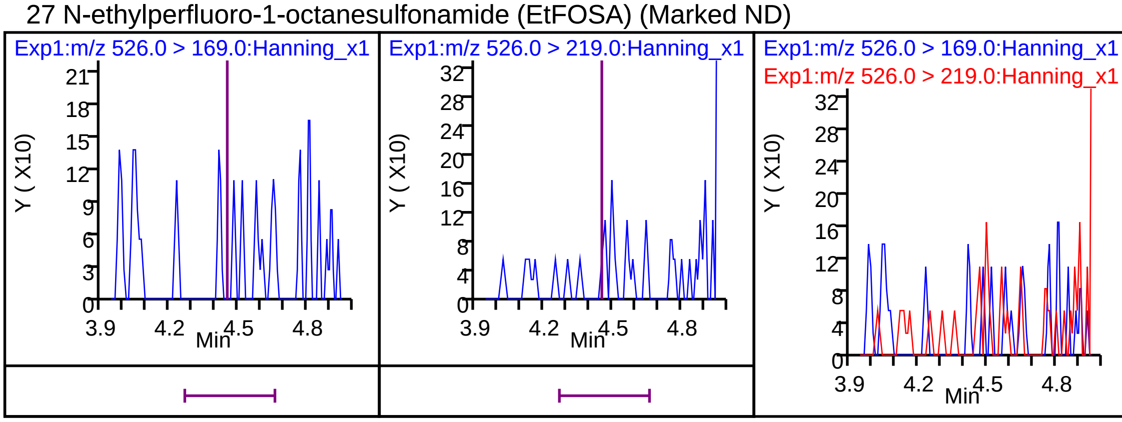
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)



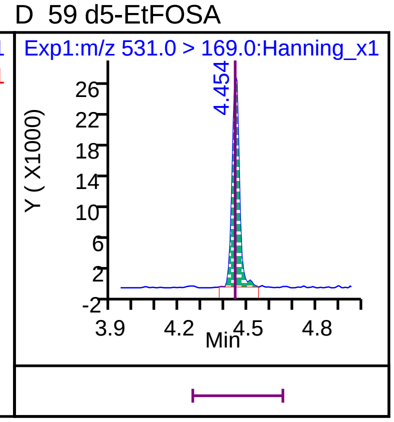
D 62 d9-EtFOSE



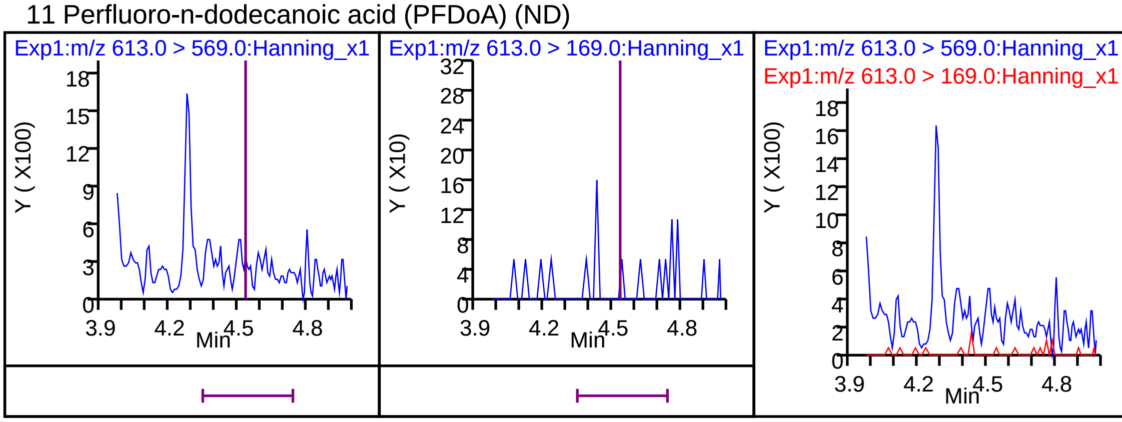
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND)



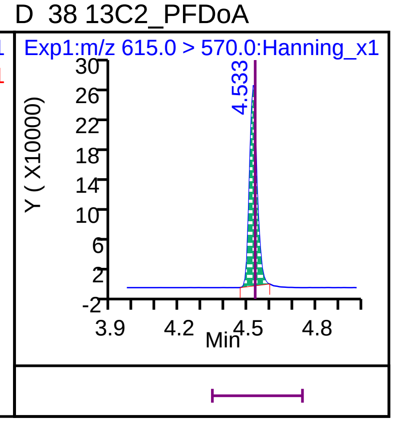
D 59 d5-EtFOSA



11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



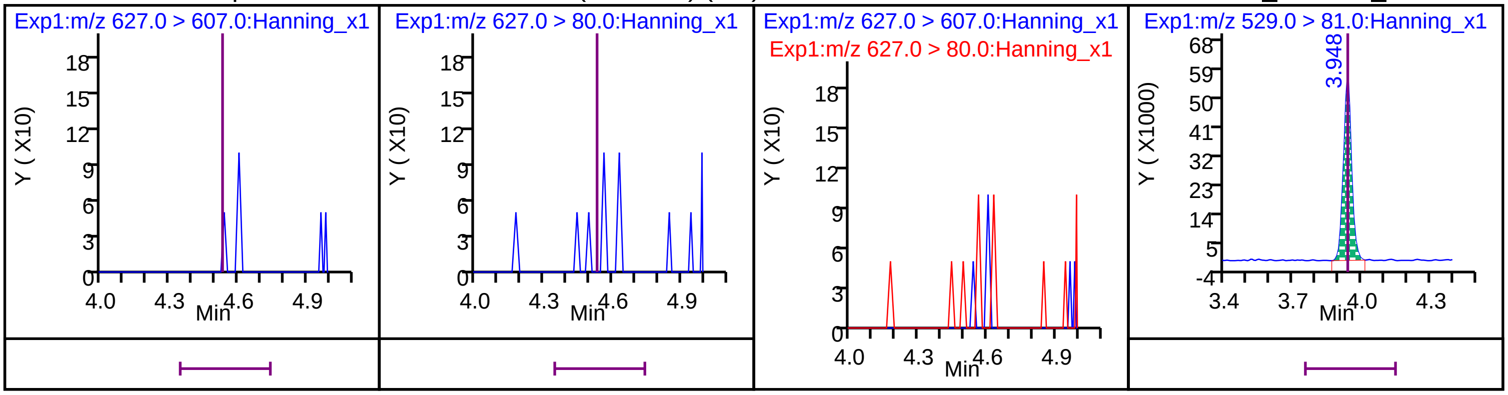
D 38 13C2_PFDoA



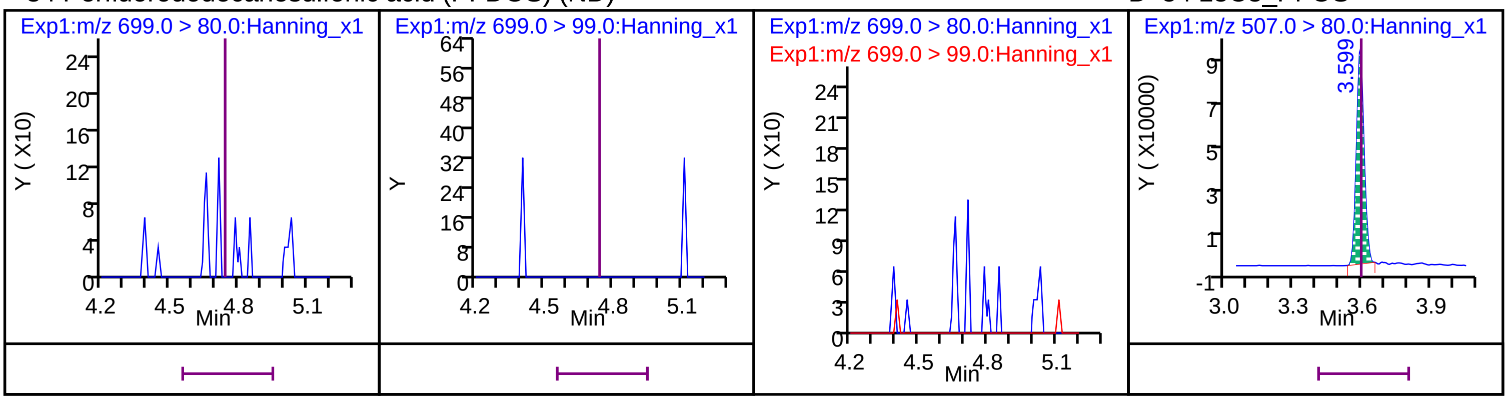
Report Date: 09-Nov-2021 21:16:53 AIM Revision: 2.0.2021.0812

Data File: \\organics\LL\LCMSMS01.i\110521-DOD.b\110521007.d

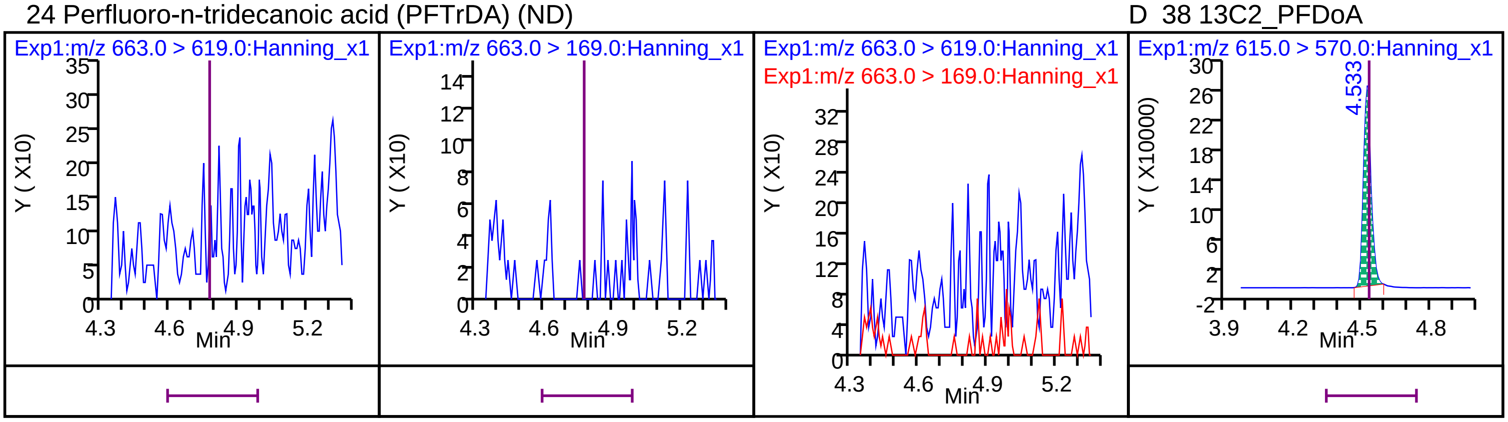
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



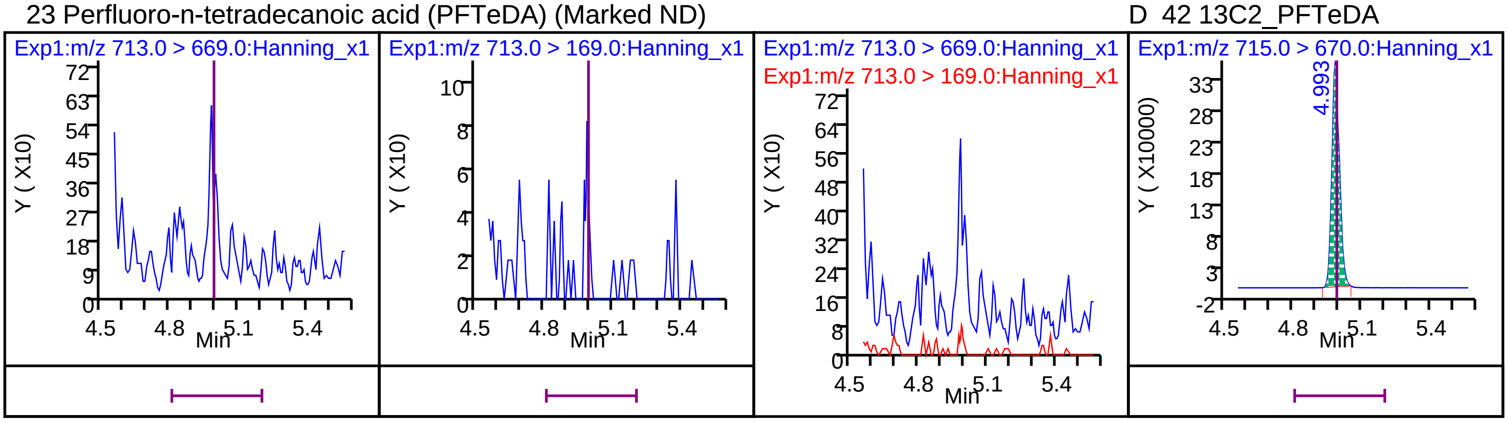
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



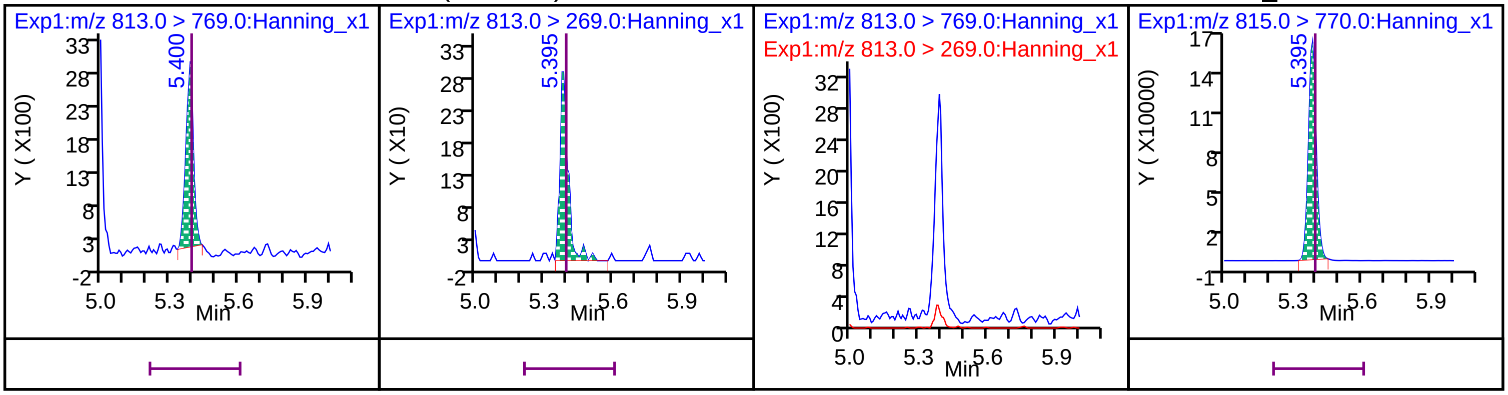
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



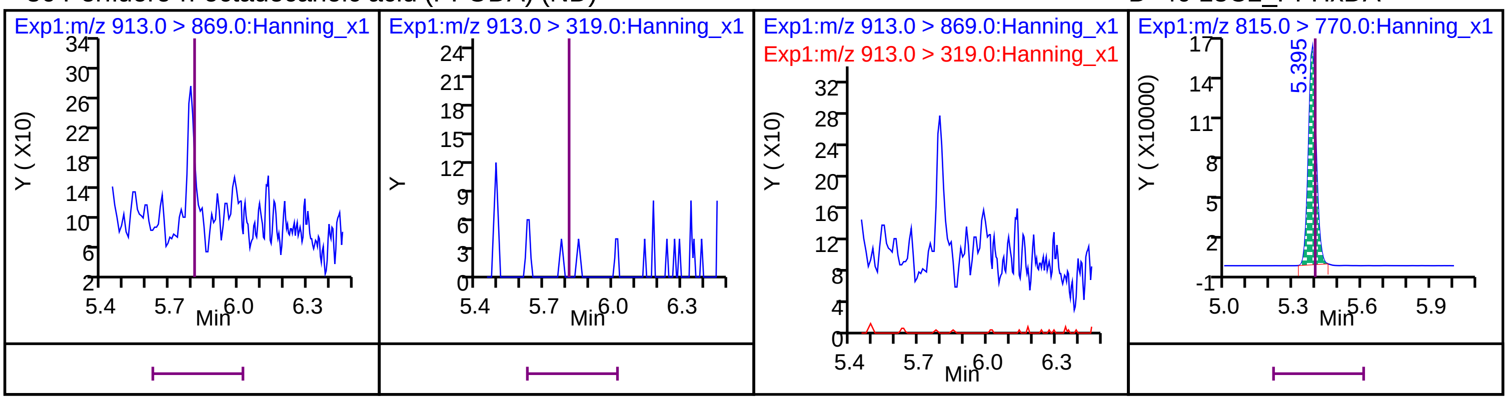
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) D 42 13C2_PFTeDA



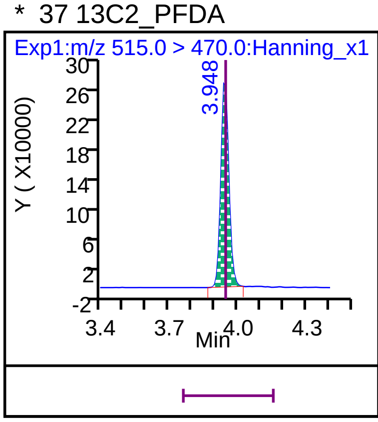
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



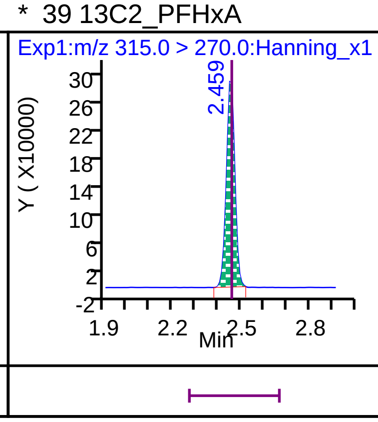
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



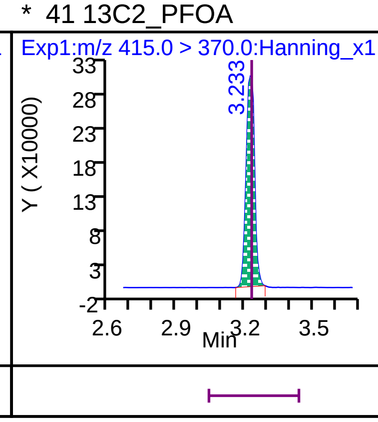
* 37 13C2_PFDA



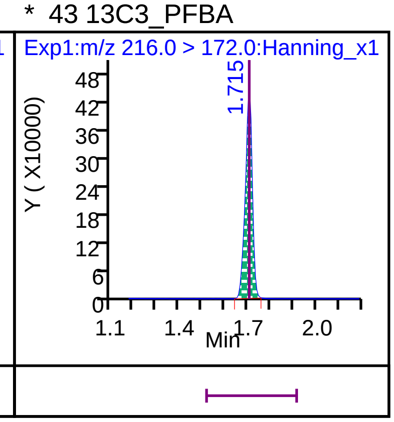
* 39 13C2_PFHxA



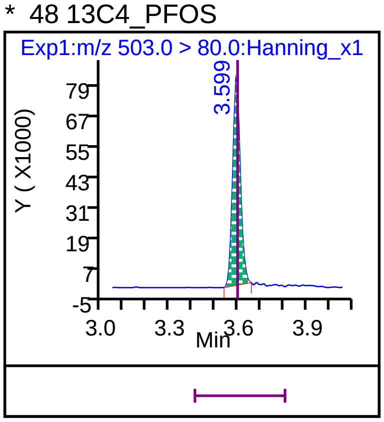
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d		
Injection Date:	06-Nov-2021 16:57:05	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	13
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	T RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.726	1.725	1	1116605	19	>100:1			1001.00	1018.64	101.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.732		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.106	2.105	1	1071776	16	>100:1			1001.00	1050.67	103.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.105		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.169	2.169	1	348528	14	>100:1			1001.00	1032.87	102.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.169		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.529		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.449	2.449	1	231267	17	>100:1			5005.00	4952.52	99.9	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.449		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.494	2.493	1	921036	18	>100:1			1001.00	1009.91	100.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.493		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.622	2.614	1	782508	19	>100:1			5005.00	5316.17	114.1	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.879	2.878	1	867683	16	>100:1			1001.00	980.58	95.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.878		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.888	2.896	0	263949	17	>100:1			1001.00	954.33	95.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.896		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.201	0	200625	18	>100:1			5005.00	4867.71	92.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.201		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.220	3.220	0	861337	21	>100:1			1001.00	1022.45	102	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.226		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.551	3.558	0	223339	19	>100:1			1001.00	942.65	93.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.558		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.748	3.755	0/0	1661	16	10:1			2.4634	2.4634		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.698		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.558	3.565	0	833922	19	>100:1			1001.00	1027.84	98.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.565		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.857	3.872	0	417780	20	>100:1			1001.00	1005.76	98	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.872		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.885	3.894	0	174033	21	>100:1			5005.00	4997.76	97.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.894		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.494		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.893	3.901	0	735795	18	>100:1			1001.00	1028.45	95.5	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.042	4.053	0	805845	17	>100:1			5005.00	4983.94	101.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.206	4.207	0	749826	17	>100:1			5005.00	5185.82	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.206	4.207	0	674091	16	>100:1			1001.00	959.93	93.6	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.285	4.295	0	125840	15	>100:1			1001.00	1025.42	101.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.304		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.304	4.313	0	60848	17	3.6:1			1001.00	947.06	95.9	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.322		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.454	4.463	0	119719	15	>100:1			1001.00	1053.56	108.2	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.479		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.478	4.486	0	697446	16	>100:1			1001.00	1001.98	101.2	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.486	0	61239	14	>100:1			1001.00	1015.12	95.1	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.950	4.942	1	771908	17	>100:1			1001.00	1034.56	102.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.331	5.323	1	331892	17	>100:1			1001.00	954.00	96.6	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.331	5.331	0/-1	6021	15	36:1	Target = 12.24		9.8758	9.8758		
813 > 269	40	5.331	5.331		363	9	12:1	16.58 (6.12-18.37)					M
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.678		ND								
*** 37 13C2_PFDA**													
515 > 470		3.893	3.901	0	709426	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.494	2.493	1	974135	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.220	3.226	0	866300	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.726	1.732	0	1030661	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.551	3.558	0	223299	19	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

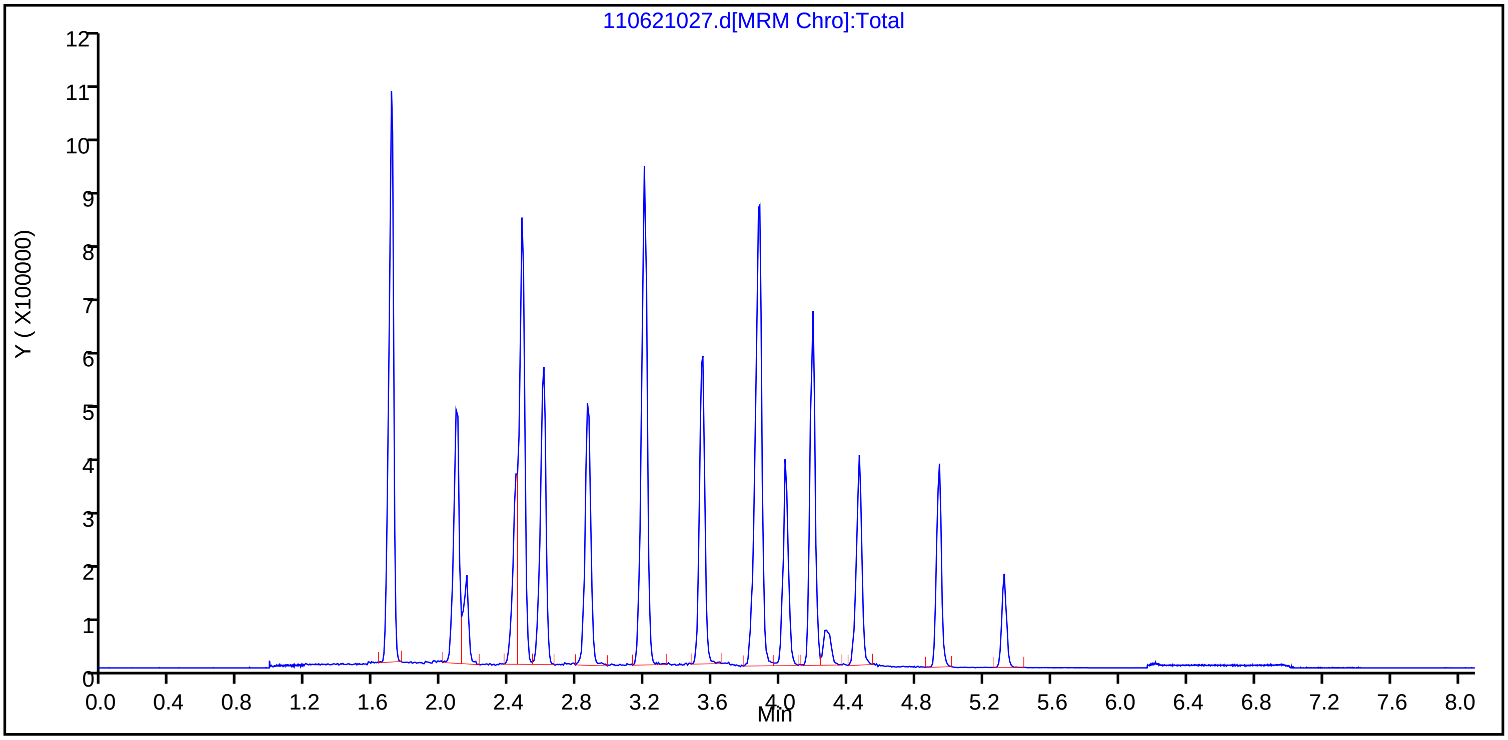
QC Flag Legend

U - Result Less Than Method Detection Limit
M - Compound Hit/Peak Manually Integrated

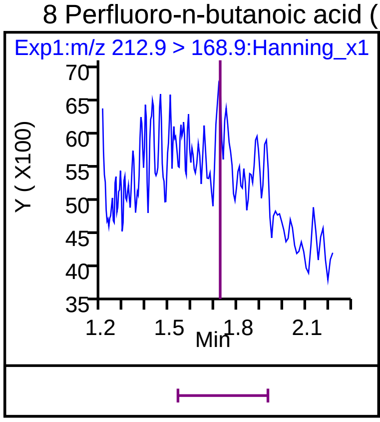
Report Date: 09-Nov-2021 13:30:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

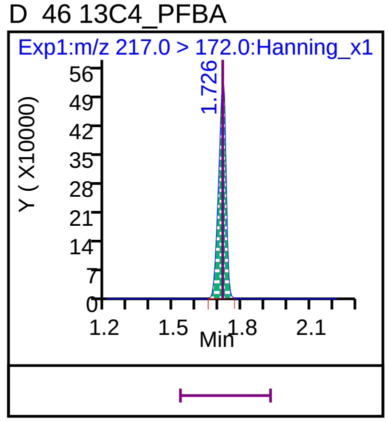
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d		
Injection Date:	06-Nov-2021 16:57:05	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Matthew M. Miller



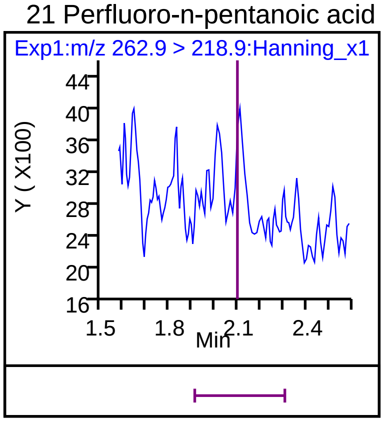
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



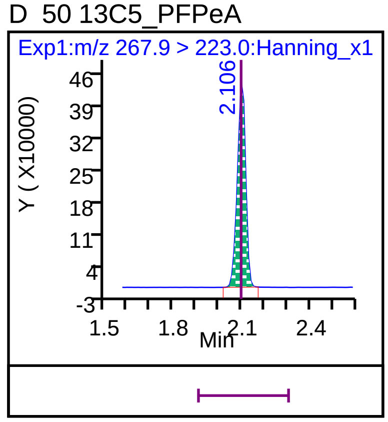
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (Marked ND)



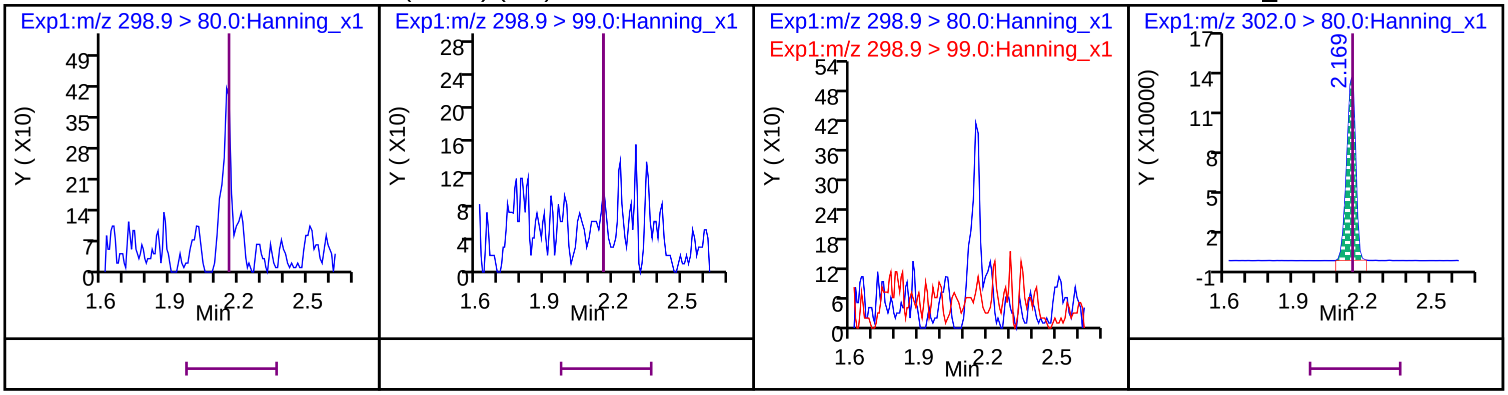
D 50 13C5_PFPeA



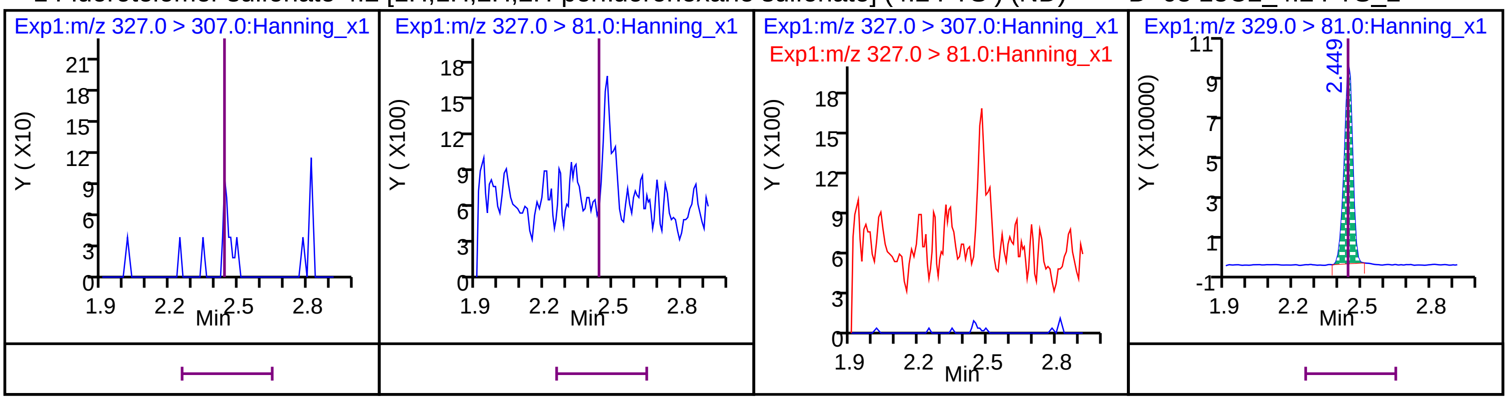
Report Date: 09-Nov-2021 13:30:52 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d

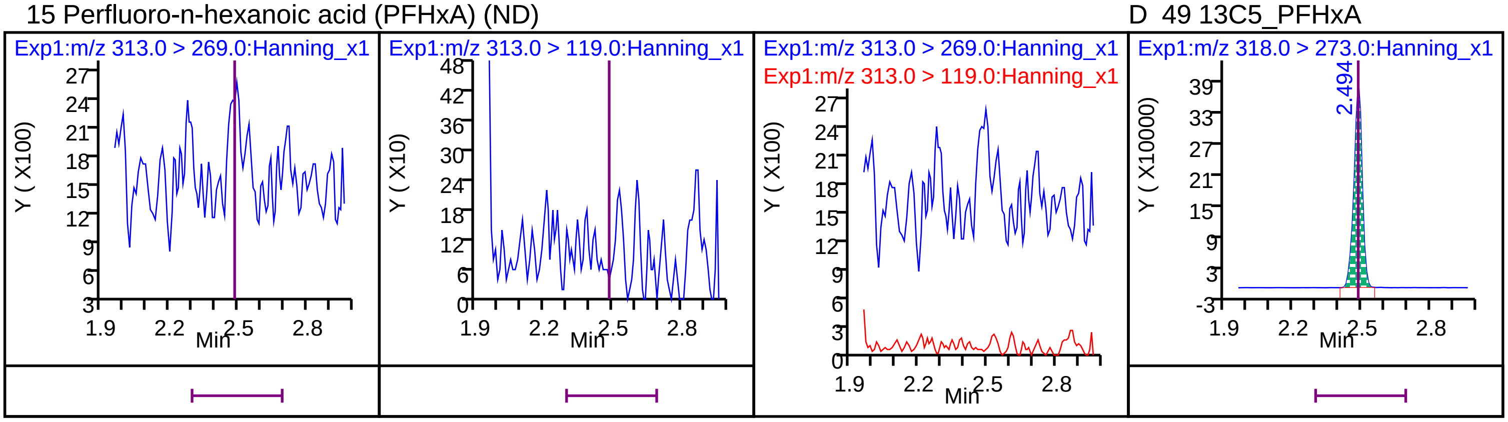
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



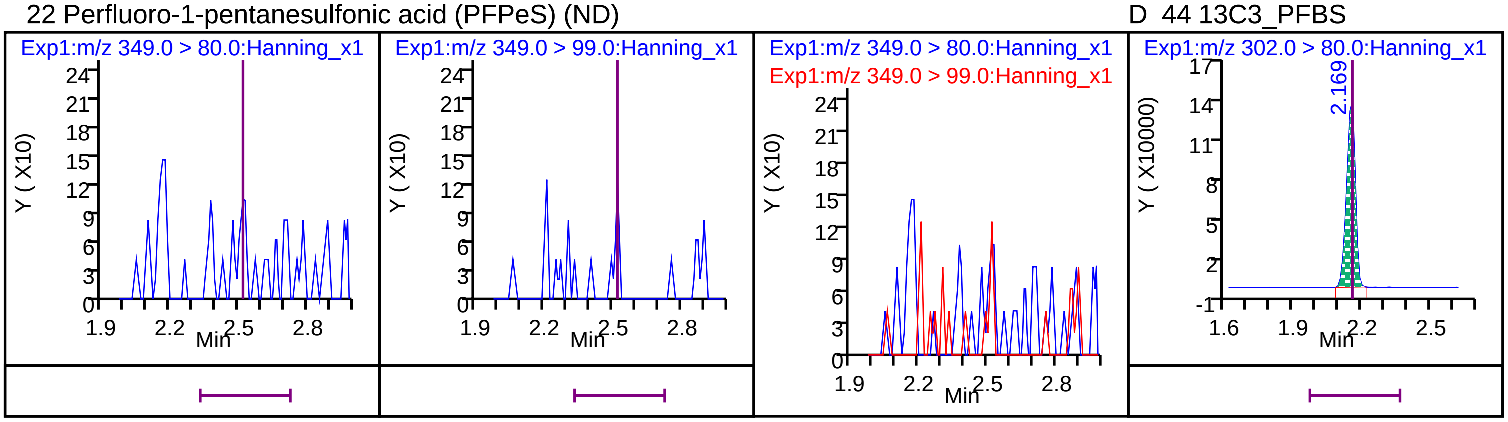
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



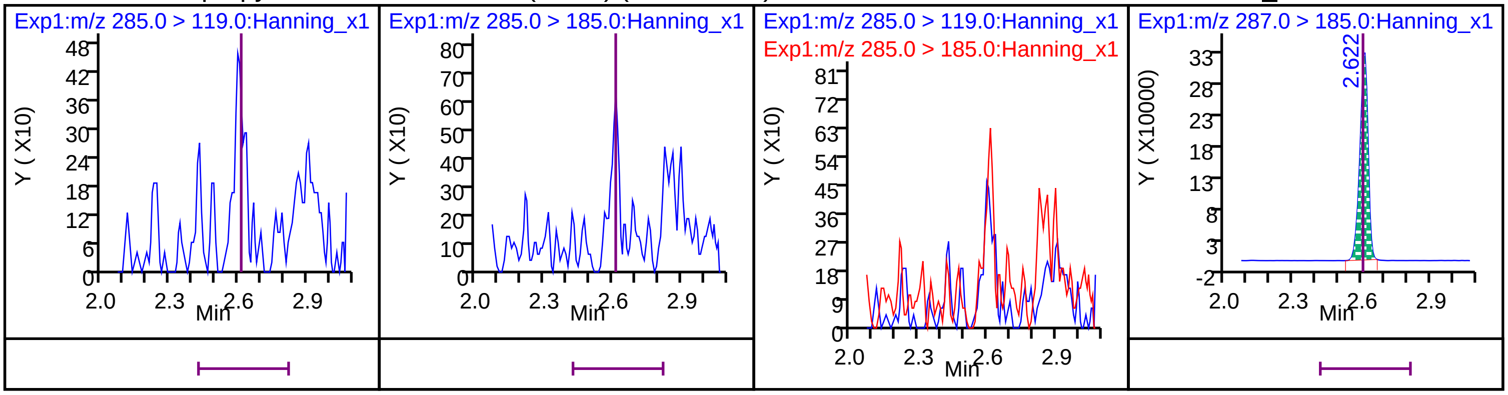
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



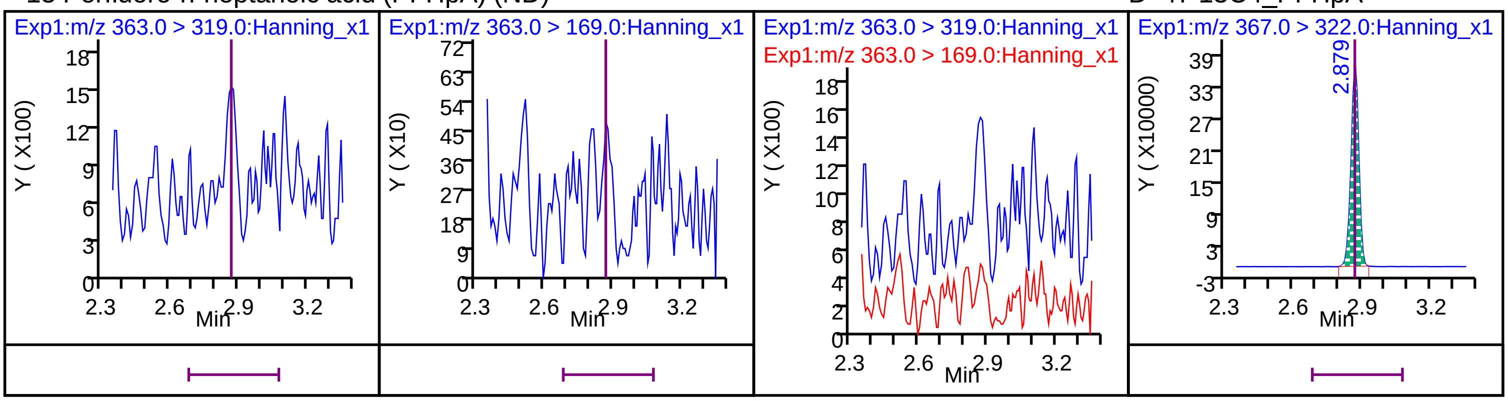
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



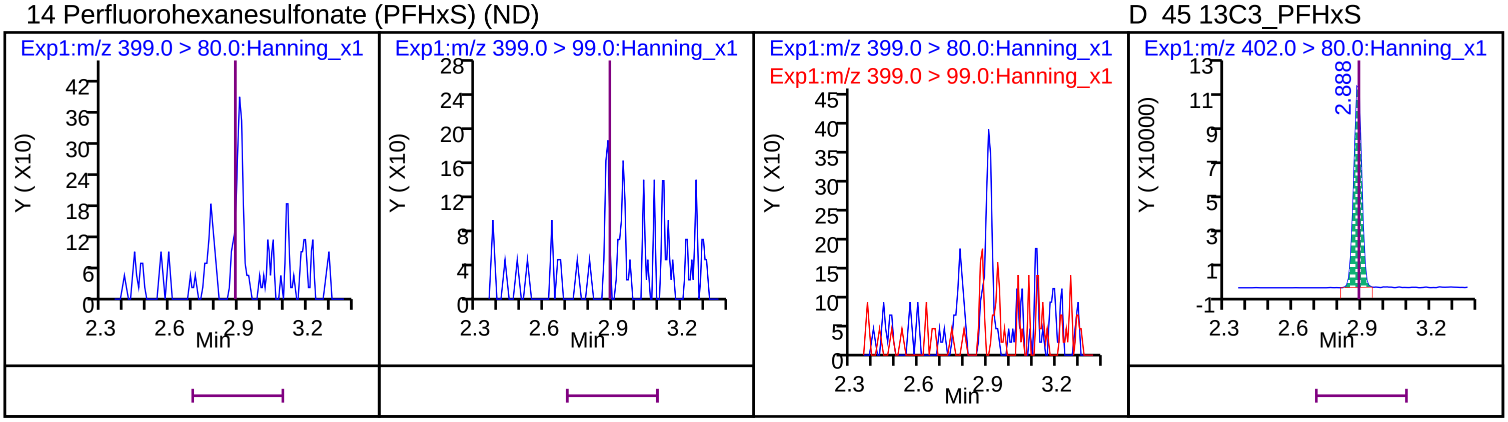
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



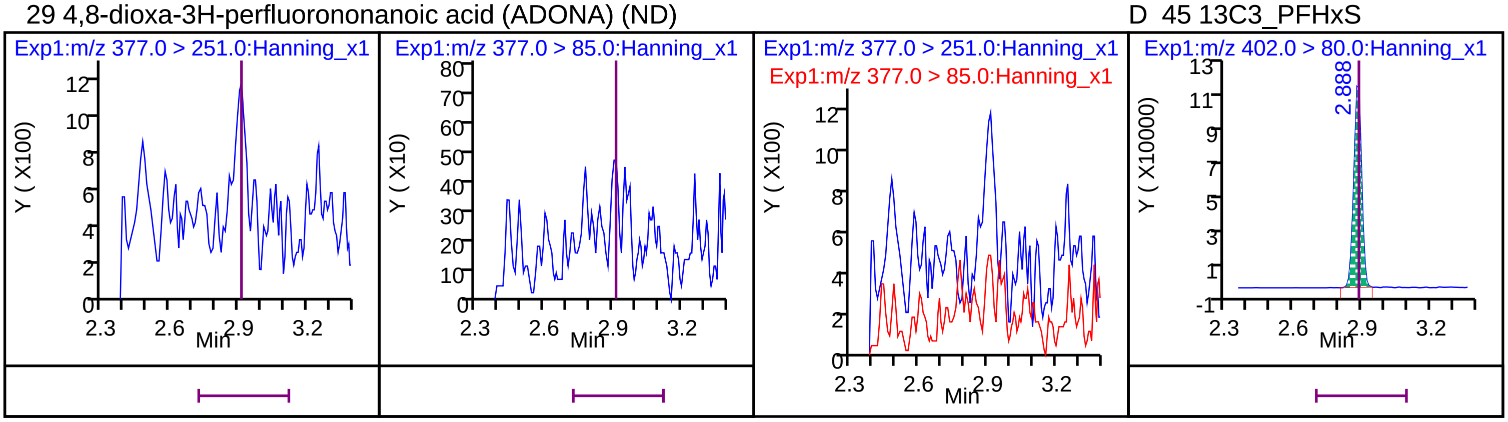
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



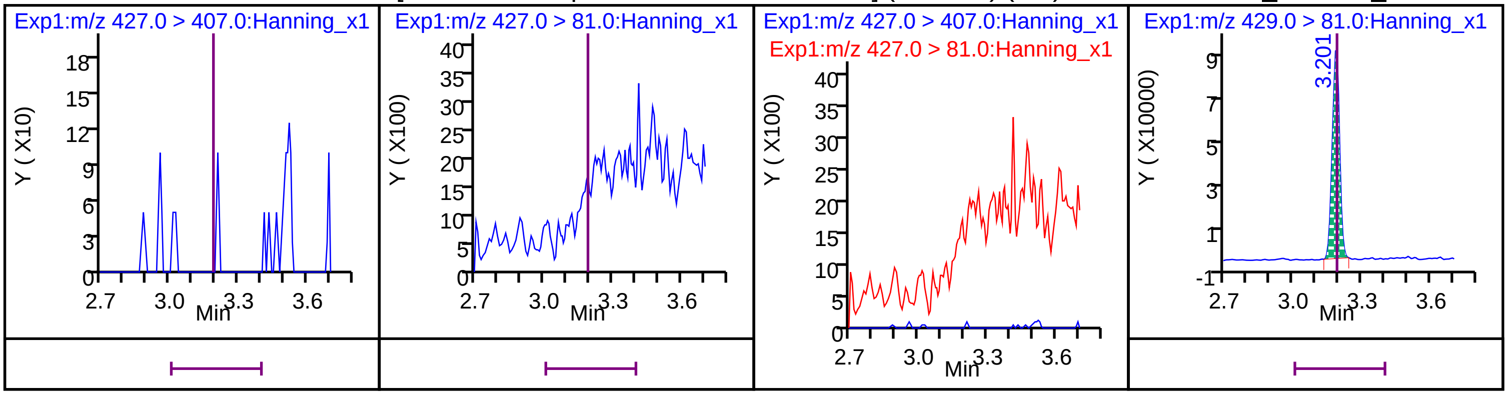
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



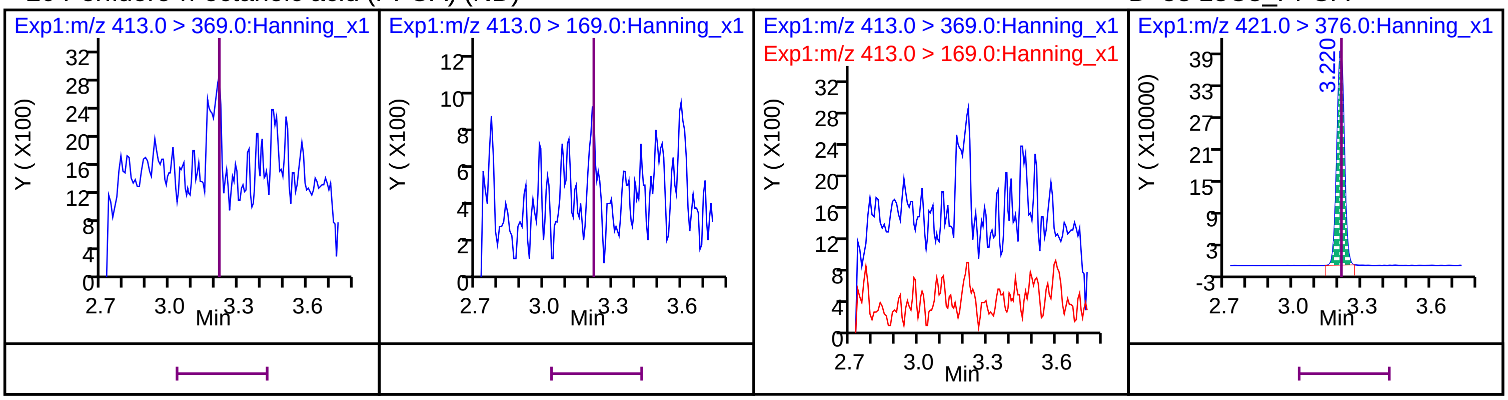
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



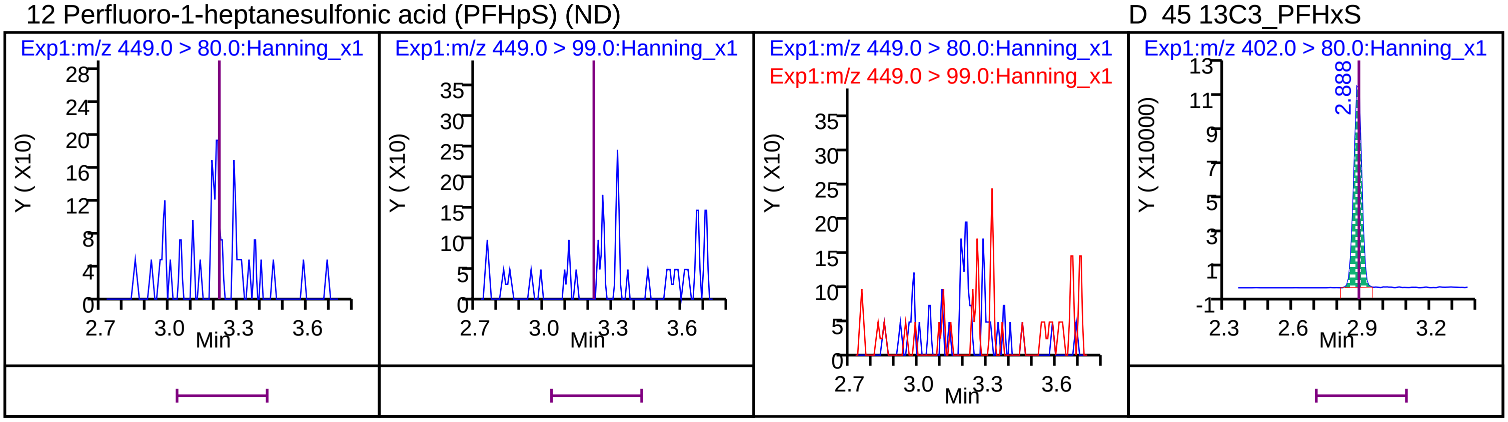
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



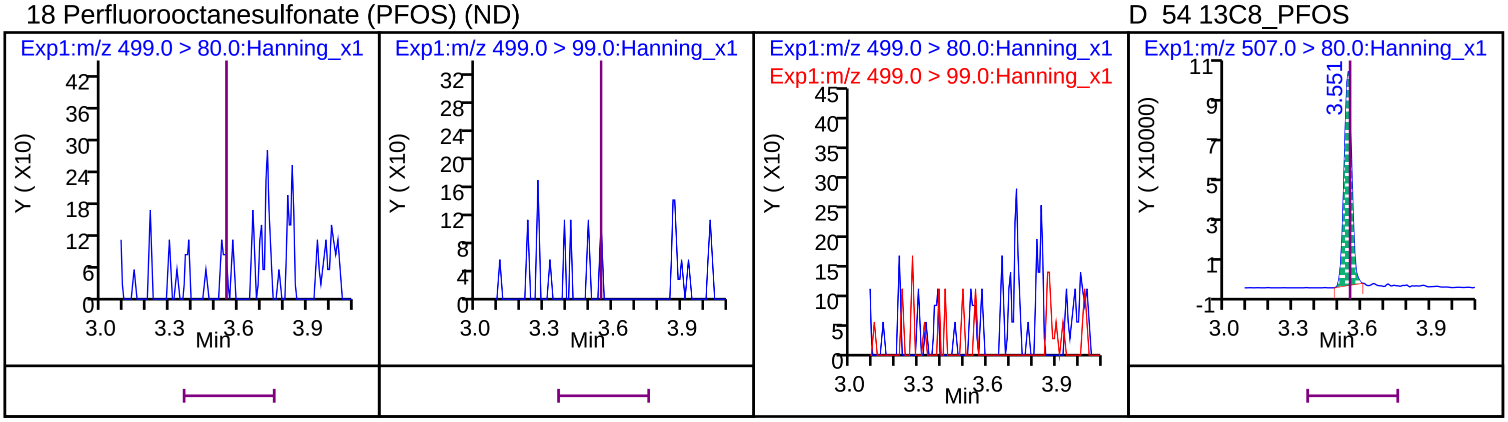
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



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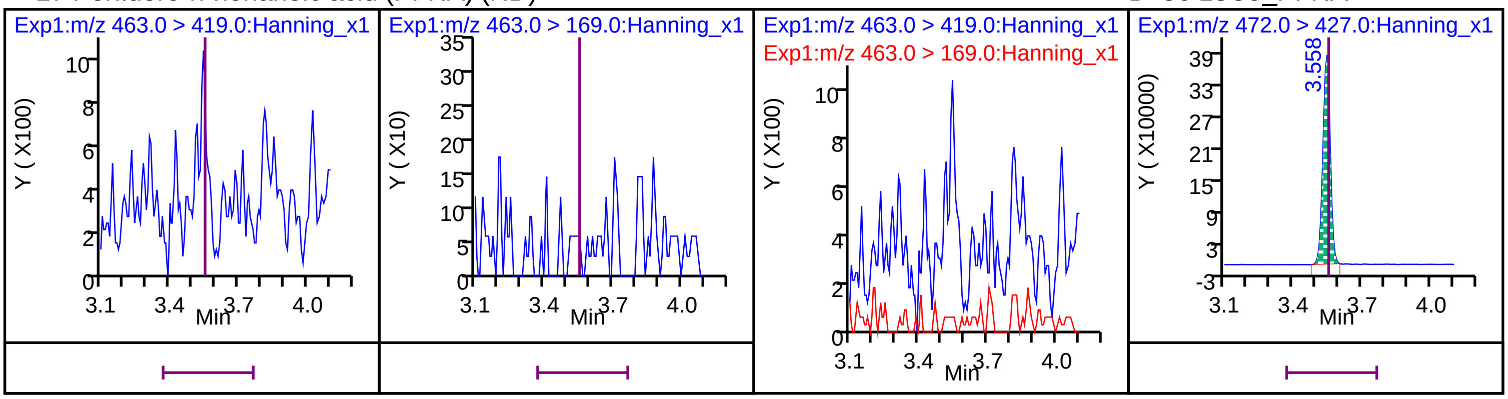
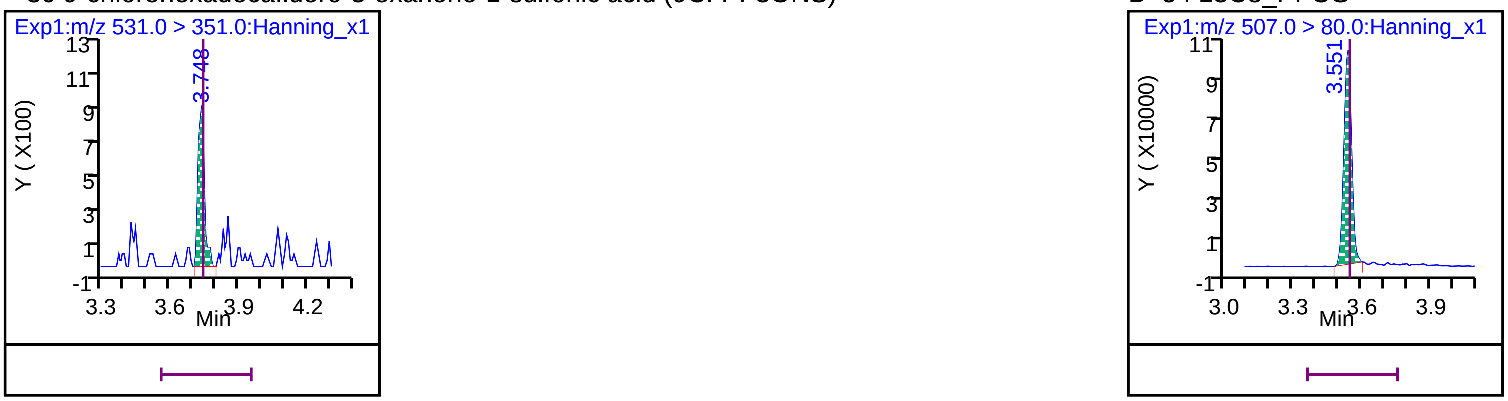
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d

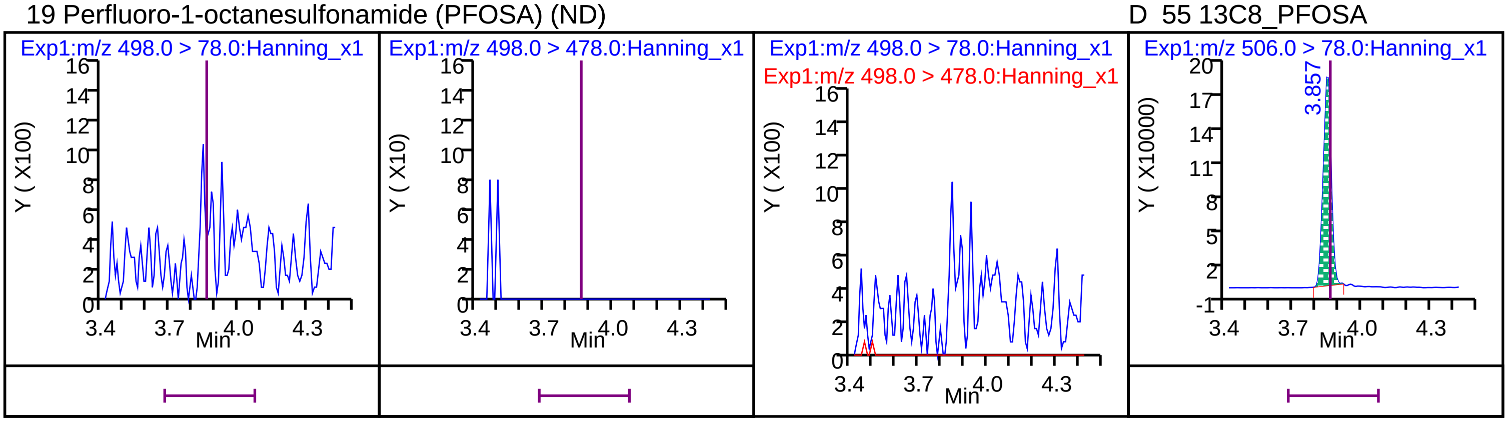
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



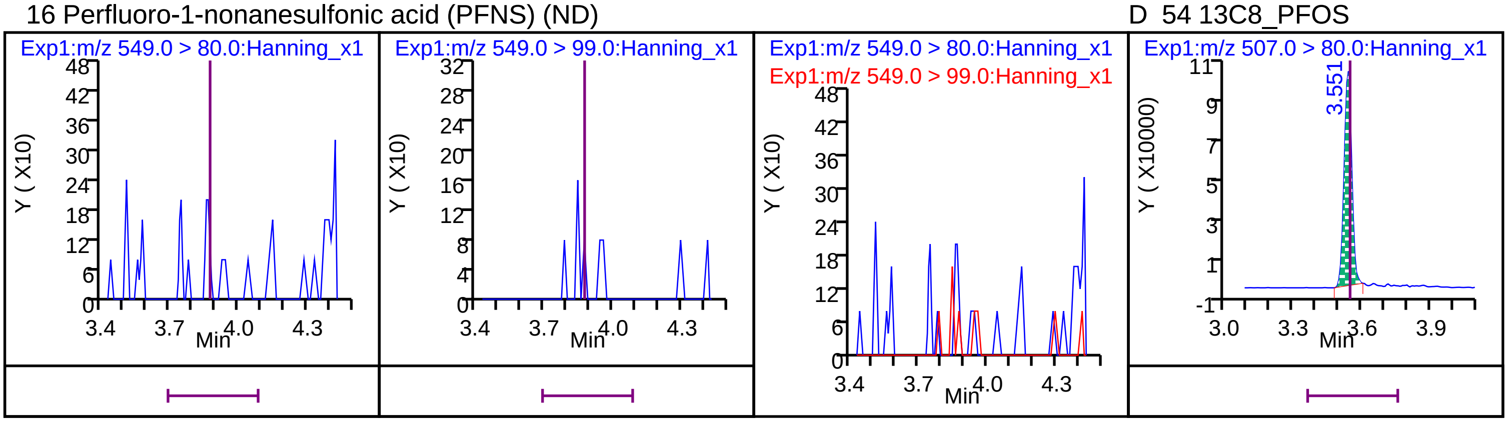
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA

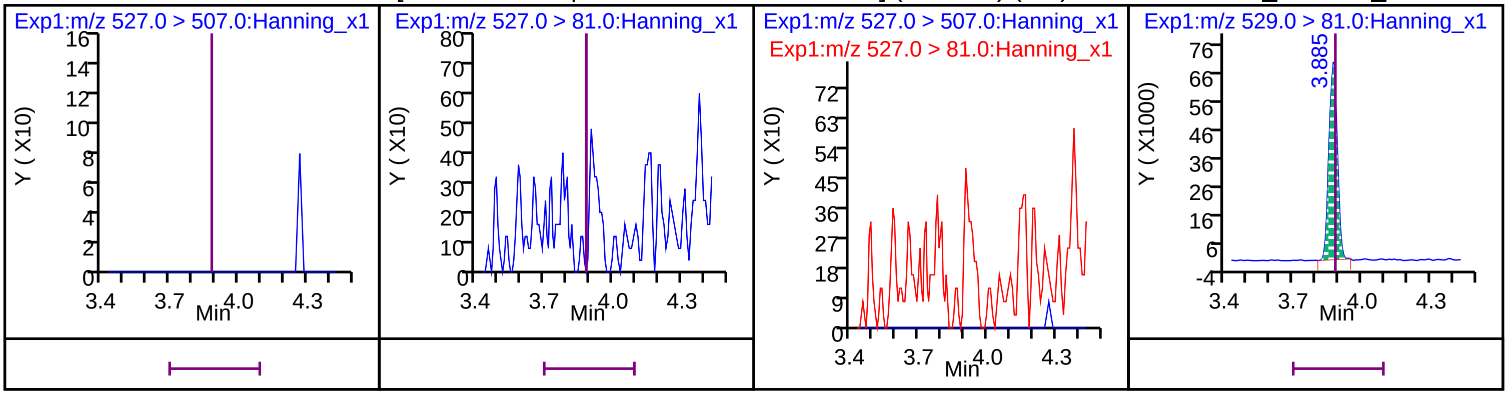


16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS

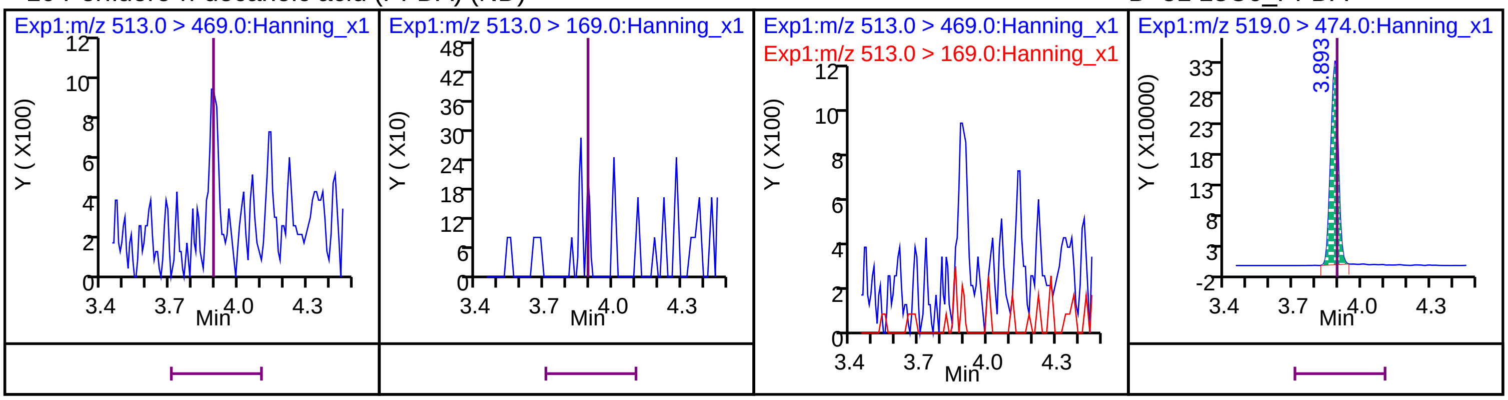


Report Date: 09-Nov-2021 13:30:52 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d

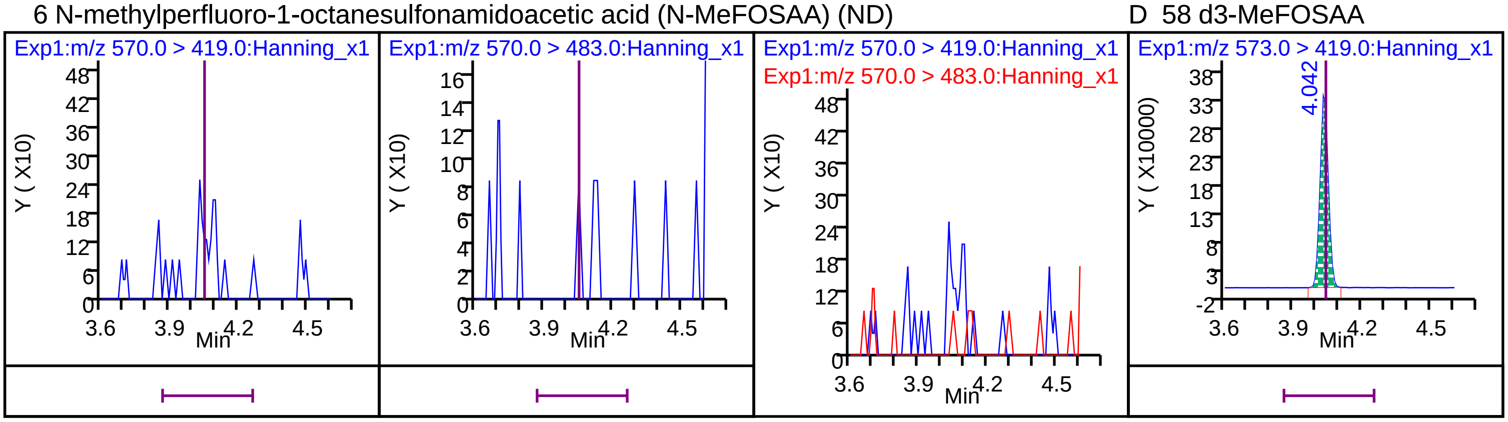
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



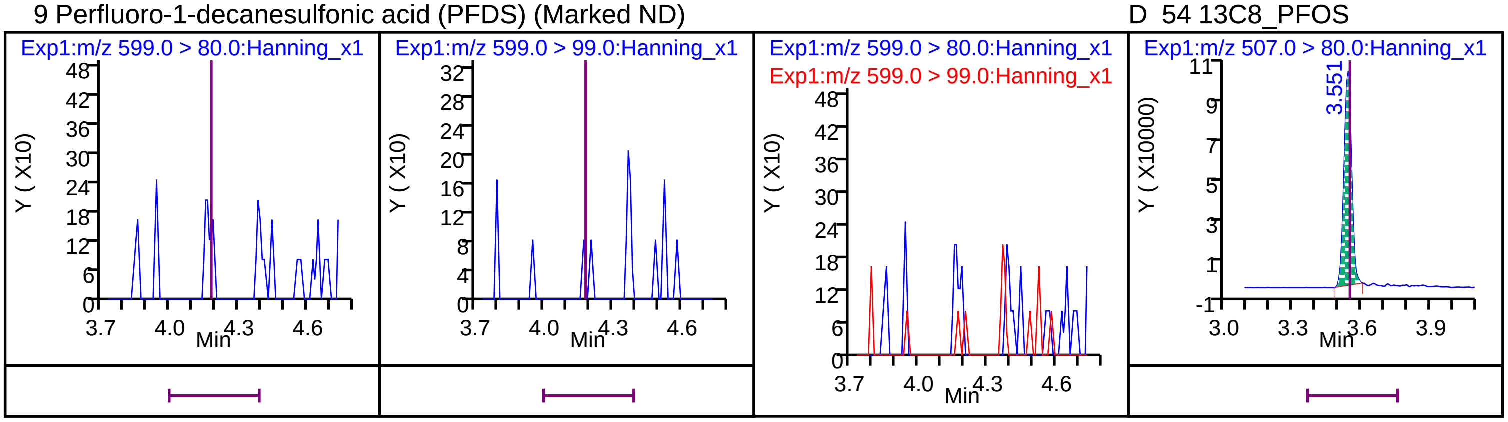
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



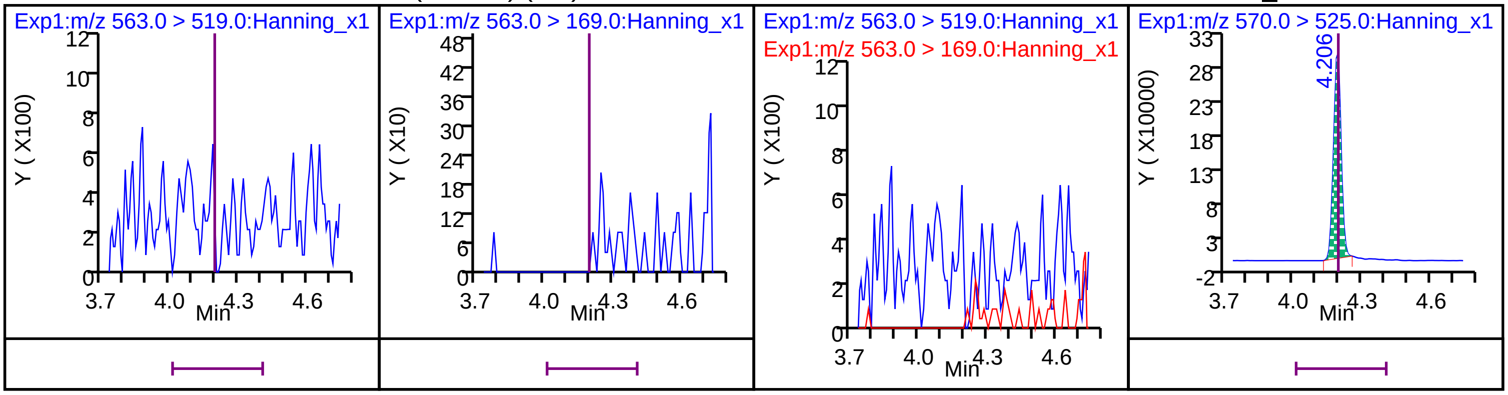
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



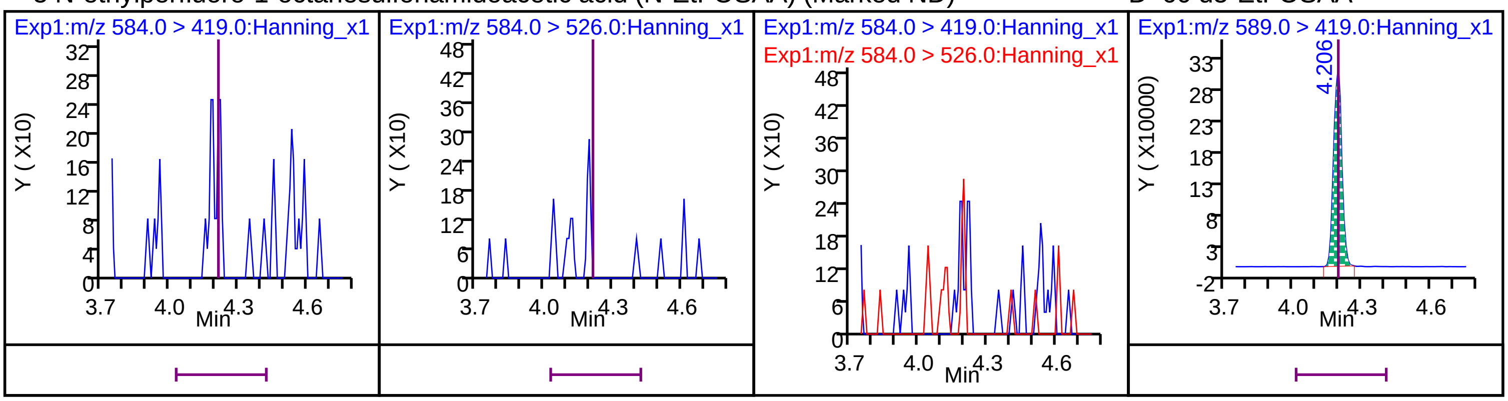
9 Perfluoro-1-decanesulfonic acid (PFDS) (Marked ND) D 54 13C8_PFOS



25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

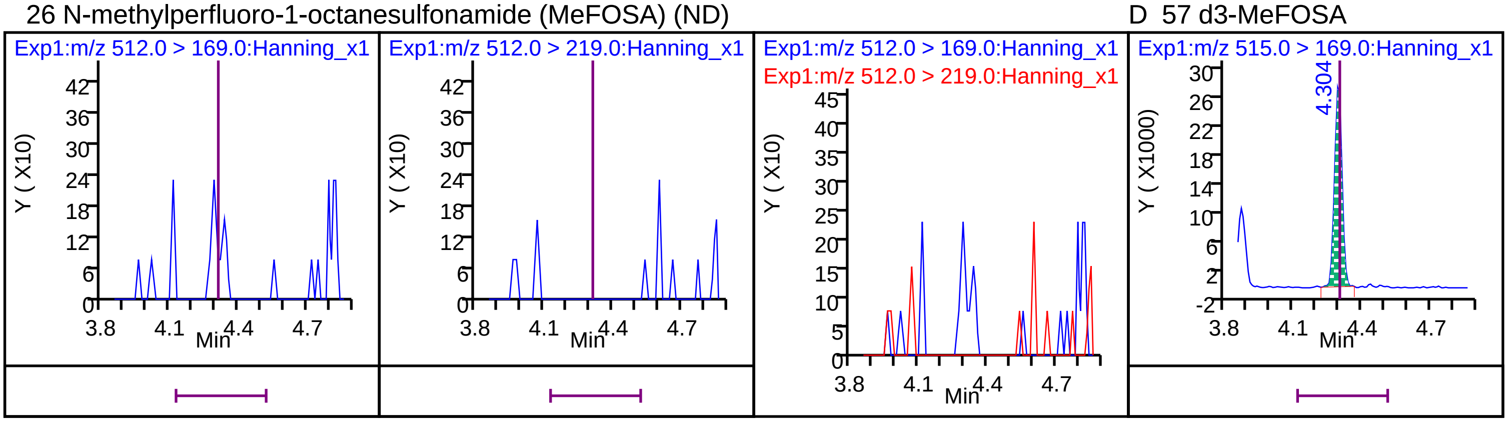


5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



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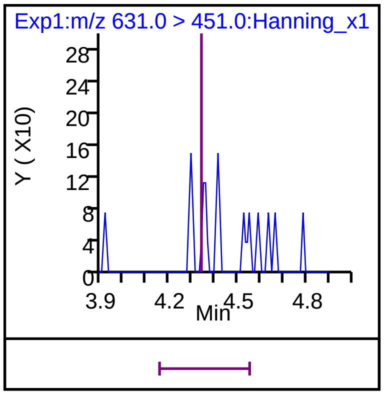
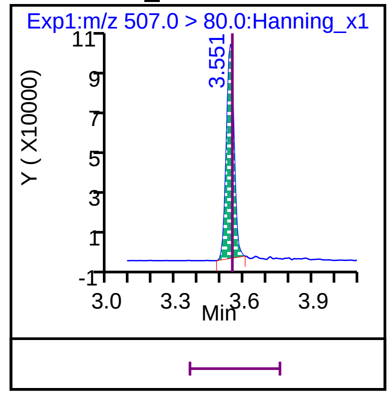
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d

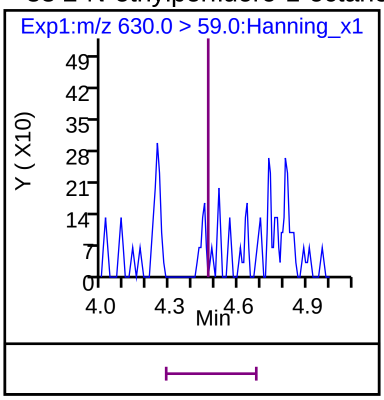
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



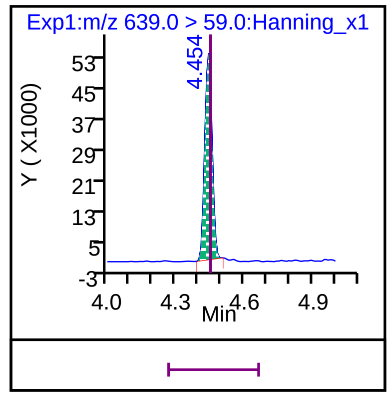
D 54 13C8_PFOS



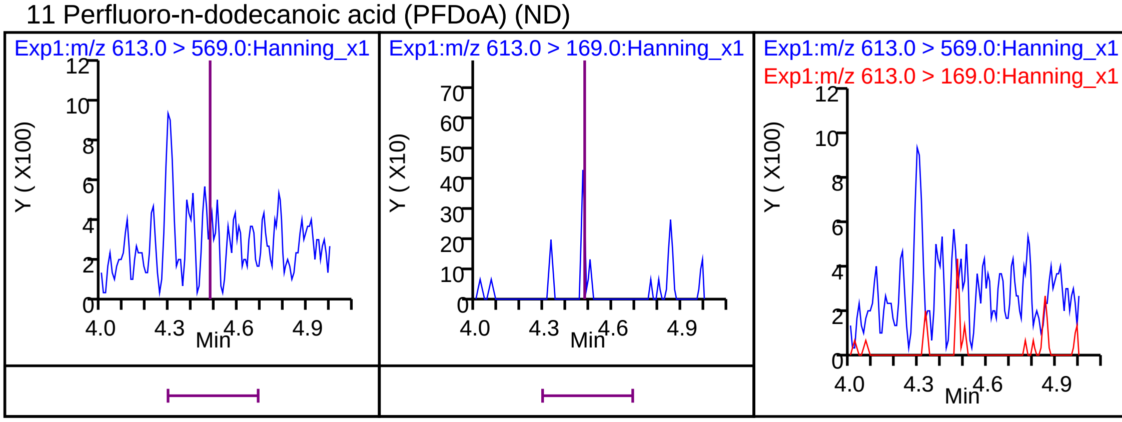
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)



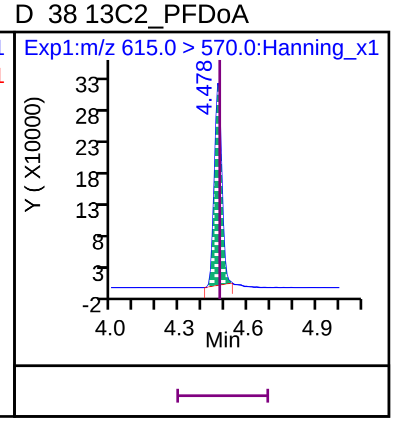
D 62 d9-EtFOSE



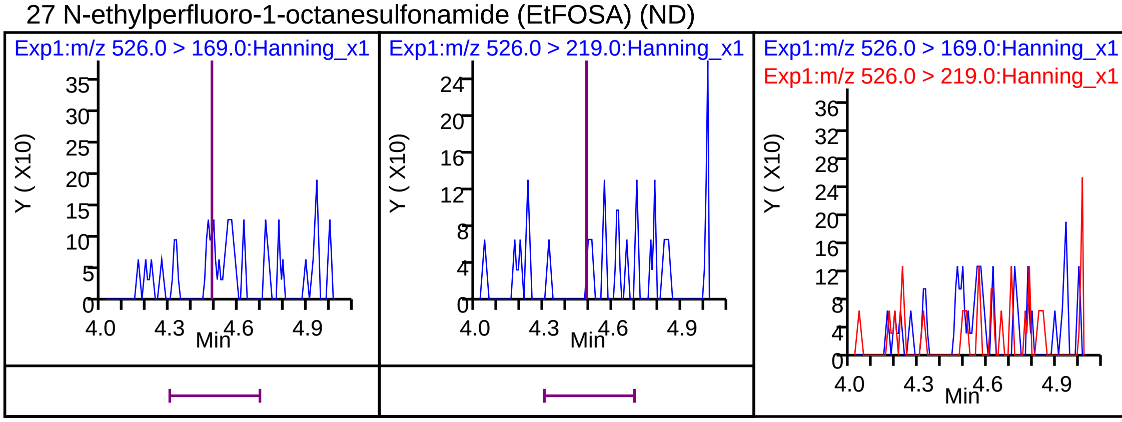
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



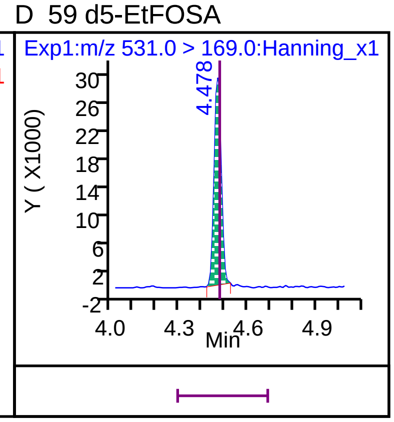
D 38 13C2_PFDoA



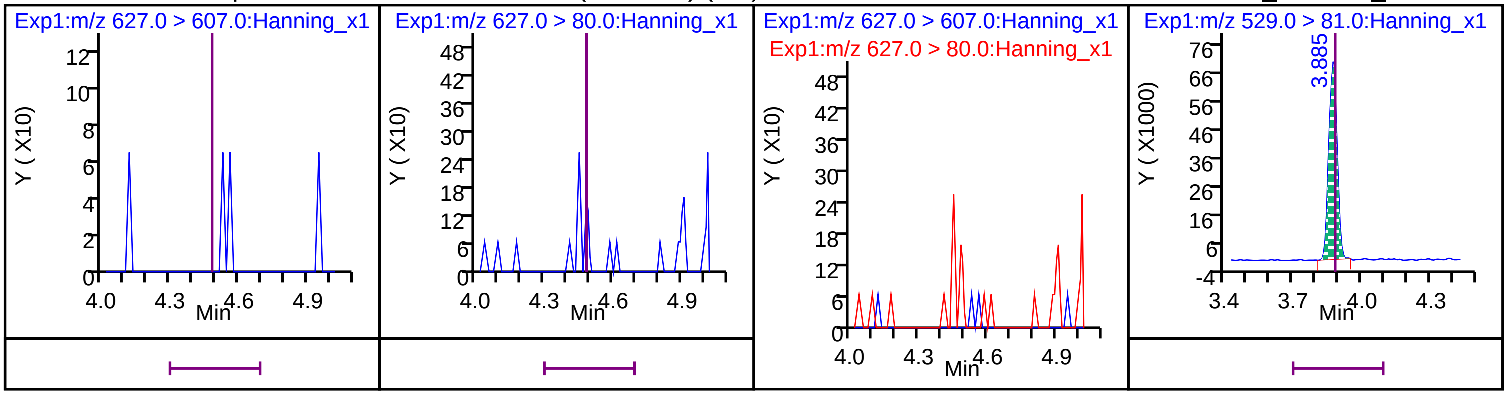
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



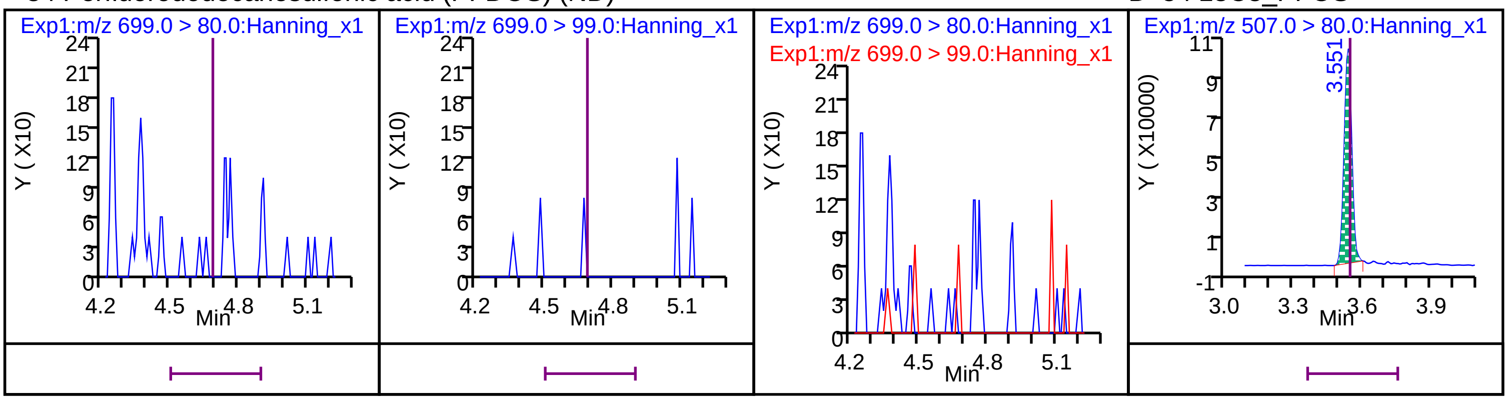
D 59 d5-EtFOSA



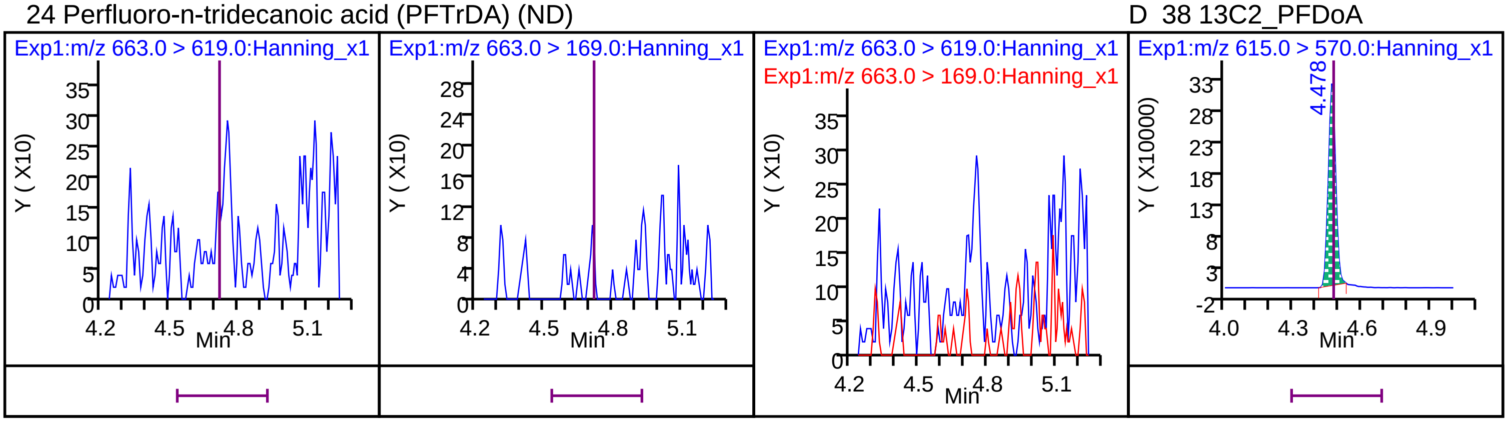
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



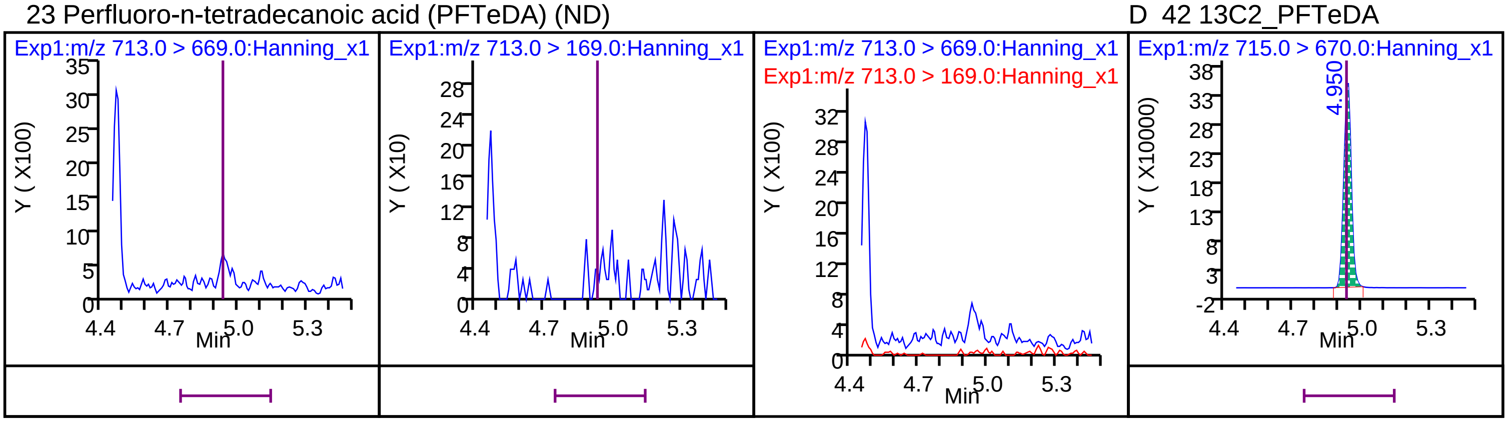
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



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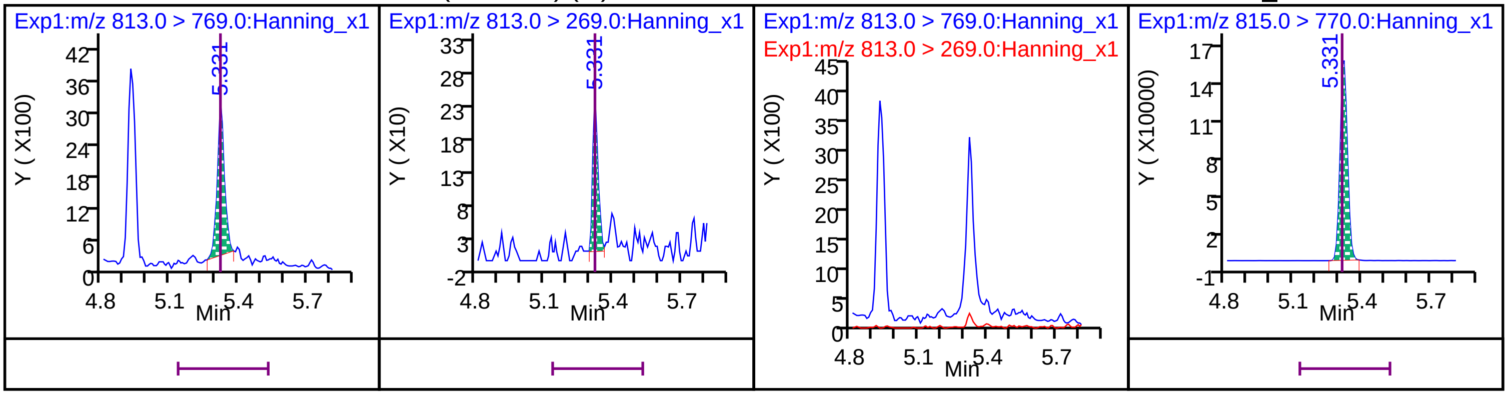
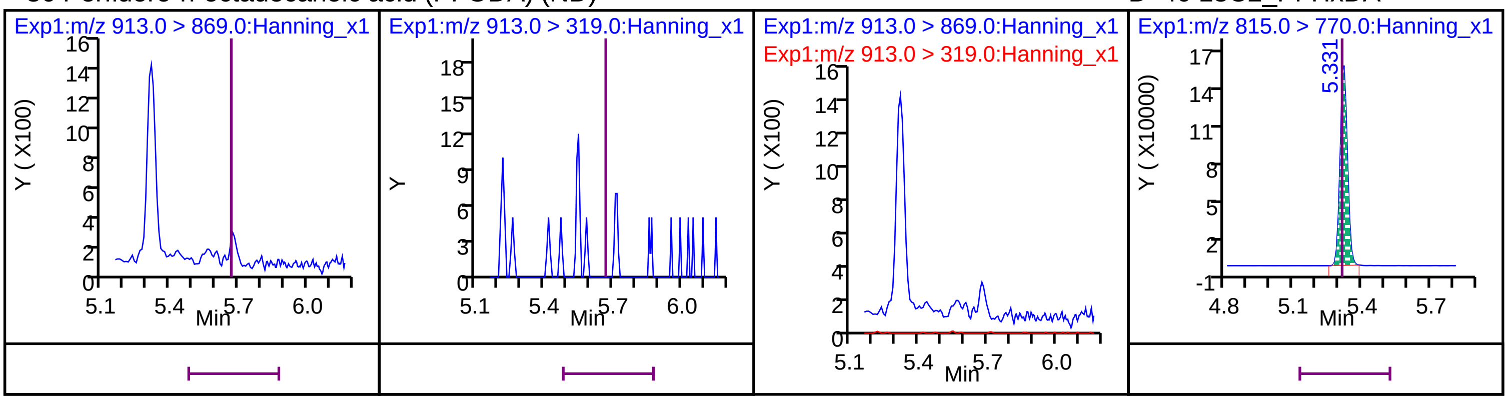
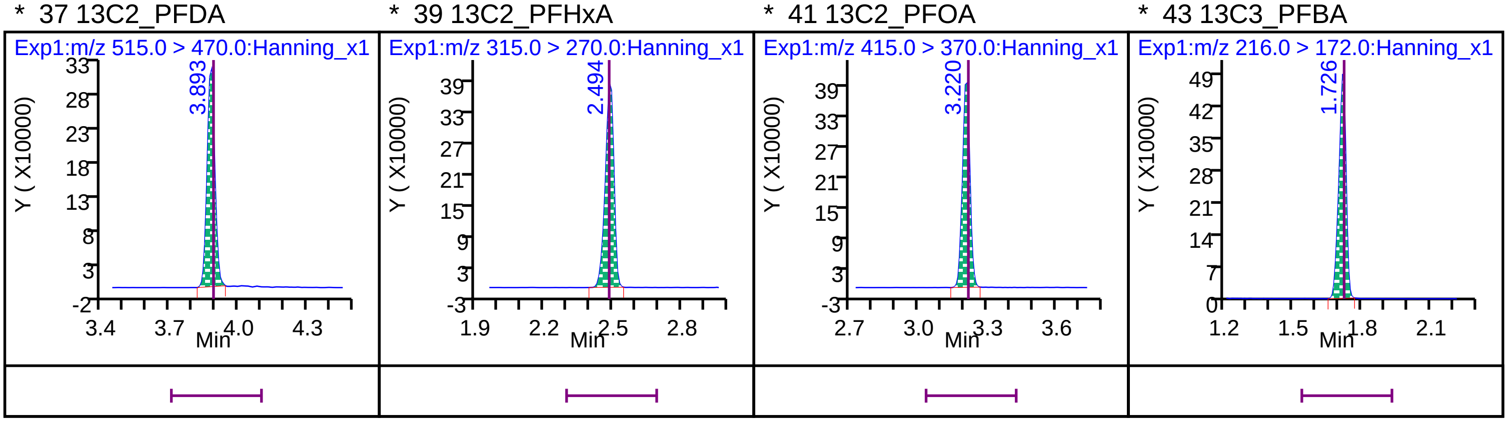
35 Perfluoro-n-hexadecanoic acid (PFHxDA) (M) D 40 13C2_PFHxDA



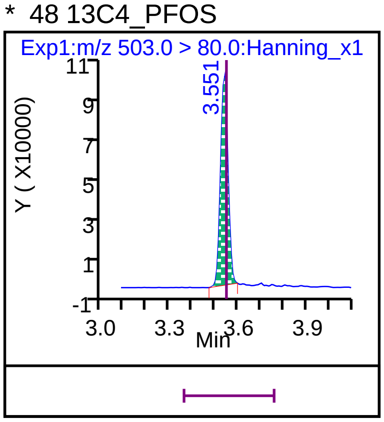
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:30:52 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

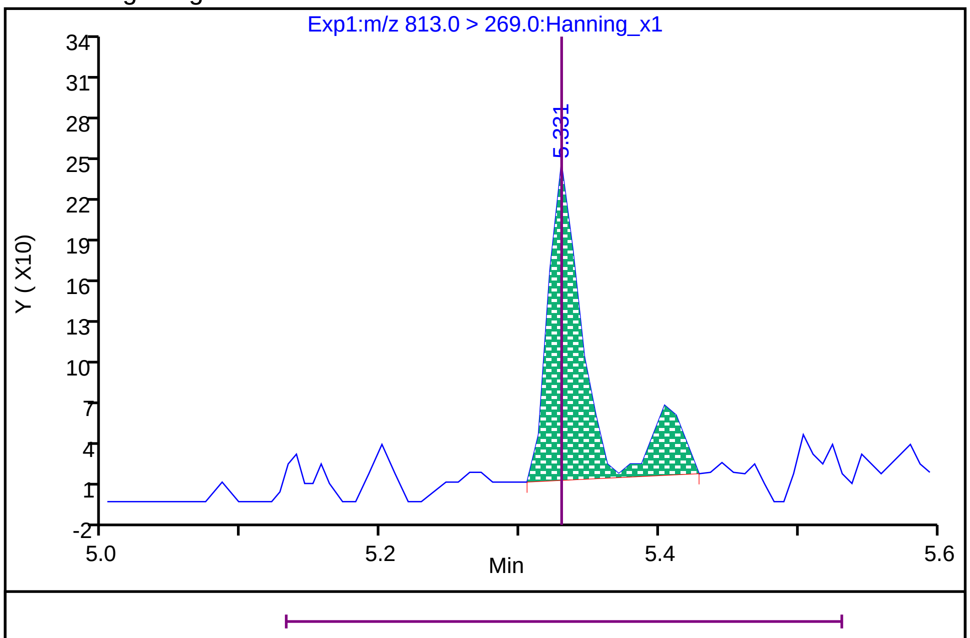
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621027.d		
Injection Date:	06-Nov-2021 16:57:05	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Matthew M. Miller

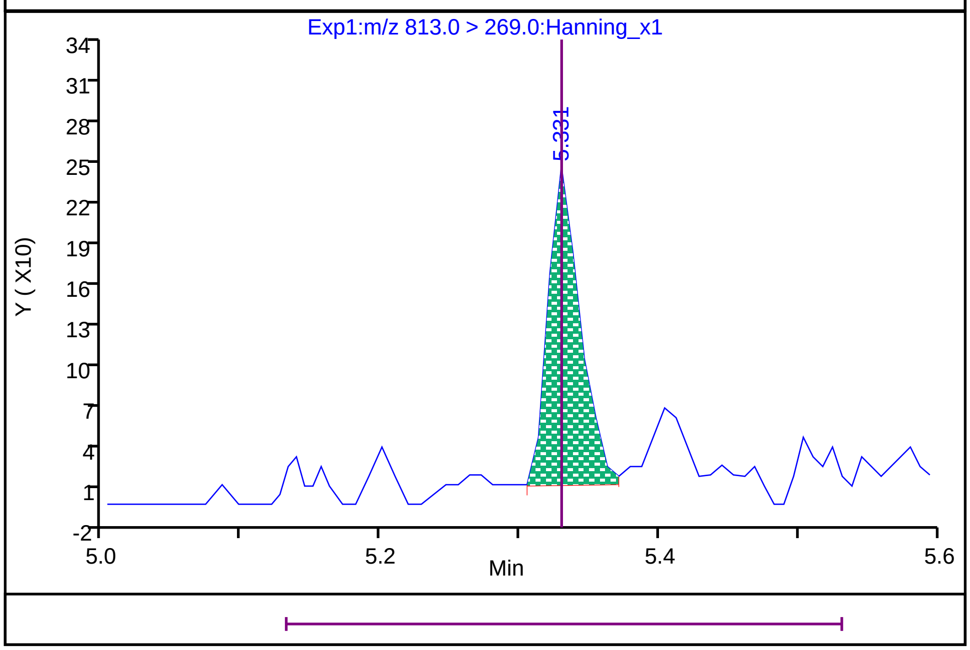
35 PFHxDA, CAS: 67905-19-5

Processing Integration Results

RT: 5.331
Area: 435
Amount: 9.8758
Amount Units: ng/L



RT: 5.331
Area: 363
Amount: 9.8758
Amount Units: ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:00:25

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921007.d		
Injection Date:	09-Nov-2021 16:21:04	Injection Vol:	10.0 uL
Sample Type:	MBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	663859	22	>100:1			1001.00	1067.86	102.9	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.098	2.098	1	617976	17	>100:1			1001.00	1081.15	107.9	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.098		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	175825	17	>100:1			1001.00	1016.51	101.9	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	104938	18	>100:1			5005.00	4634.31	101.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.469	2.469	1	689840	18	>100:1			1001.00	1059.20	102.6	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.469		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.583	2.583	0	1223034	19	>100:1			5005.00	5277.24	103.8	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	0	564784	18	>100:1			1001.00	1063.75	105.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.845		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.864	2.864	0	122050	18	>100:1			1001.00	971.43	107.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.864		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.247		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.214	3.213	1	103207	23	>100:1			5005.00	5733.73	99.4	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.213		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.234	3.240	0	590237	21	>100:1			1001.00	1124.95	107.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.240		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.617	3.623	0	112528	18	>100:1			1001.00	908.64	99.8	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.623		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.796		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.625	3.623	1	646925	21	>100:1			1001.00	1010.22	99.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.623		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.888	3.893	0	249939	17	>100:1			1001.00	932.41	101.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.893		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	663034	16	>100:1			1001.00	1153.78	105	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.974	3.981	0	98040	20	>100:1			5005.00	5672.13	106	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.981		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.577		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.134	4.139	0	715585	17	>100:1			5005.00	4735.44	100.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.308	4.304	1	88111	16	>100:1			1001.00	976.96	105.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.314		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.328	4.325	1	45612	22	>100:1			1001.00	969.62	104.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.335		ND								

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.298	4.294	1	692433	15	>100:1			5005.00	5346.43	101.2	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.298	4.294	1	637134	15	>100:1			1001.00	1057.92	91.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.474	4.470	1	98883	15	>100:1			1001.00	932.18	105	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.479		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.492	4.488	1	41415	15	>100:1			1001.00	963.14	97.4	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.572	4.577	0	707786	15	>100:1			1001.00	1178.98	100.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.044	5.042	1	885631	21	>100:1			1001.00	1089.35	93.5	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.458	5.454	1	942928	19	>100:1			1001.00	1086.28	103.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													U
813 > 769	40		5.461		ND								
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.875		ND								
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	813394	15	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.469	2.469	1	770800	19	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.241	3.240	1	644654	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	1	683750	22	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.617	3.623	0	124680	21	>100:1			200.00			

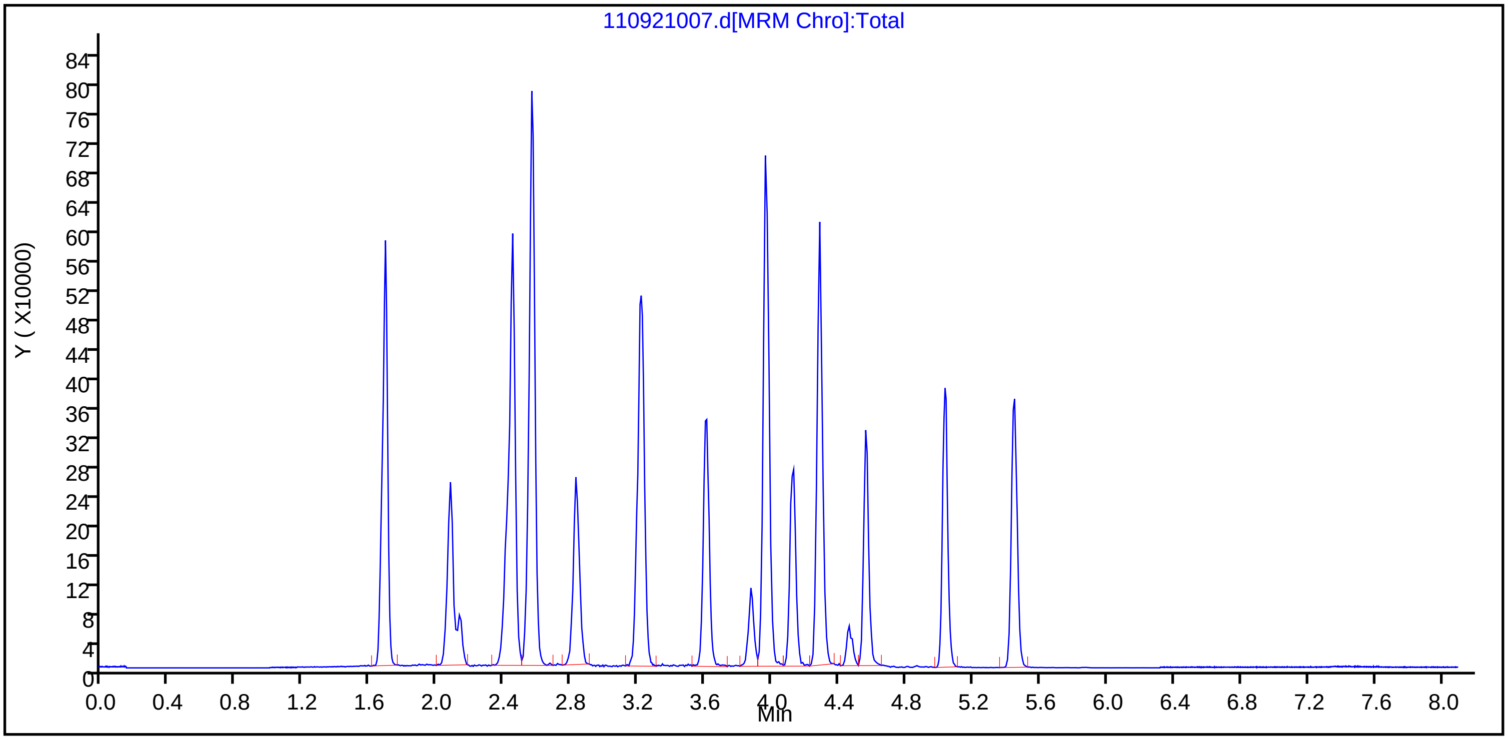
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

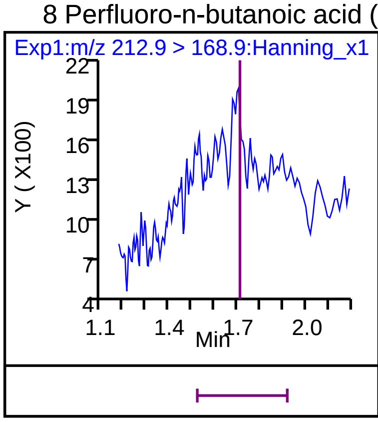
Report Date: 11-Nov-2021 18:39:22 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

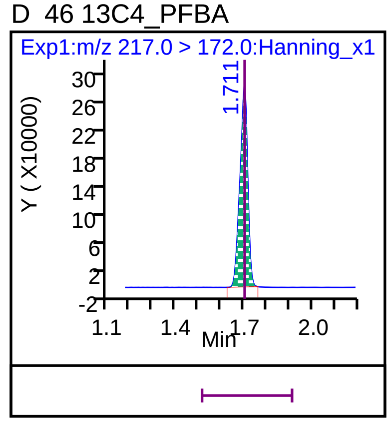
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921007.d		
Injection Date:	09-Nov-2021 16:21:04	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Justin Gavin



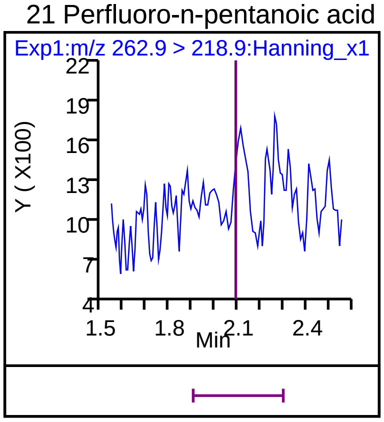
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



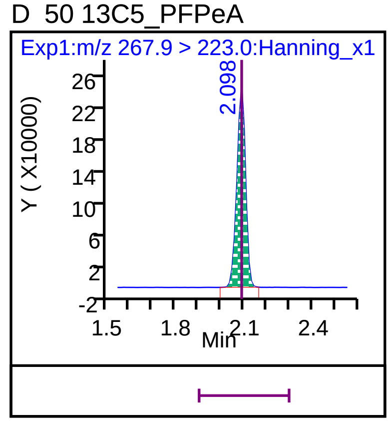
D 46 13C4_PFBA



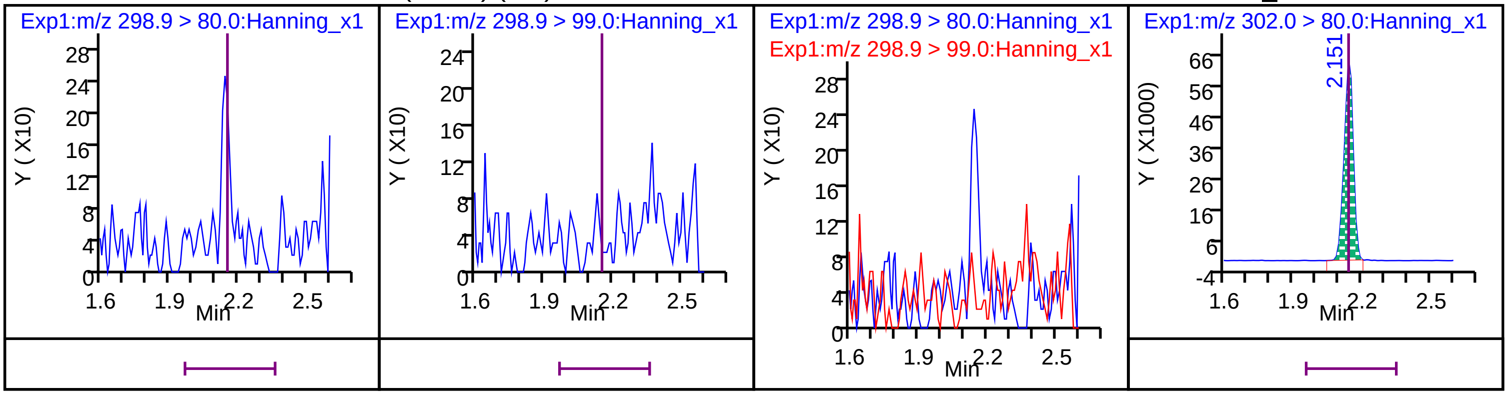
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



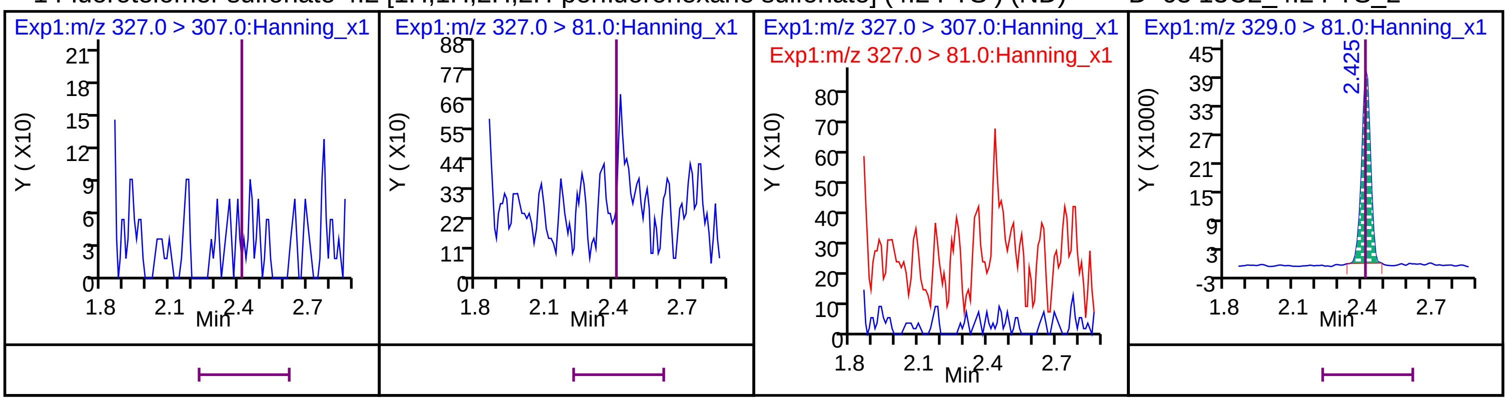
D 50 13C5_PFPeA



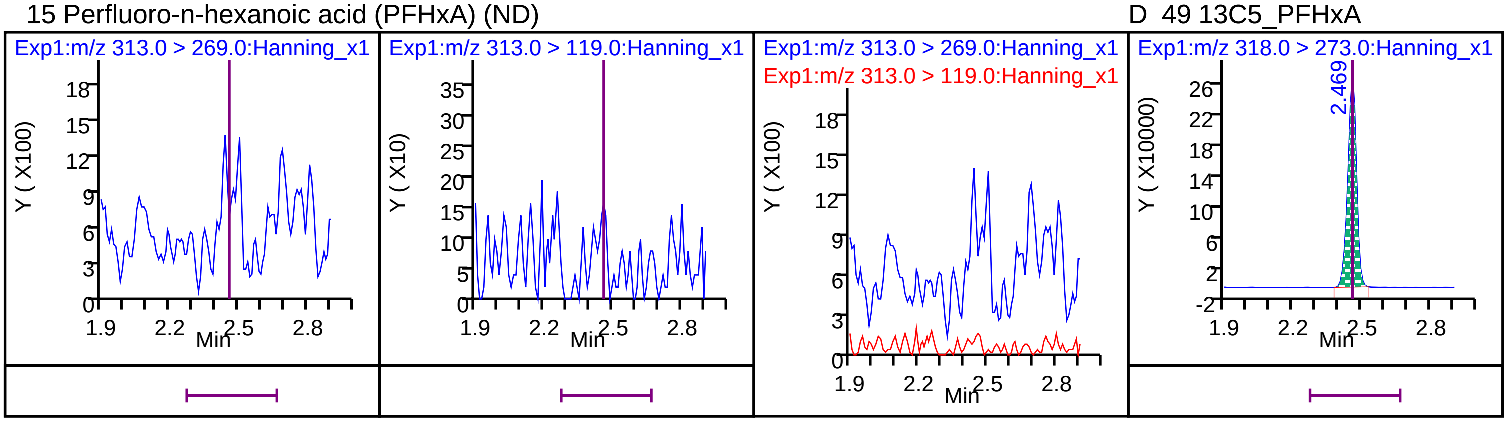
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



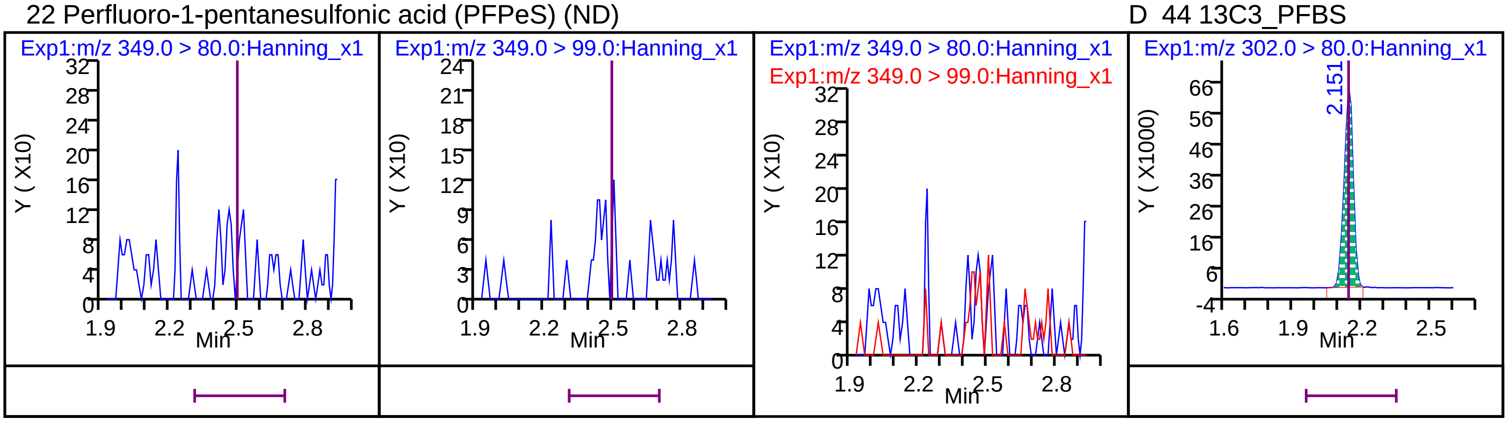
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



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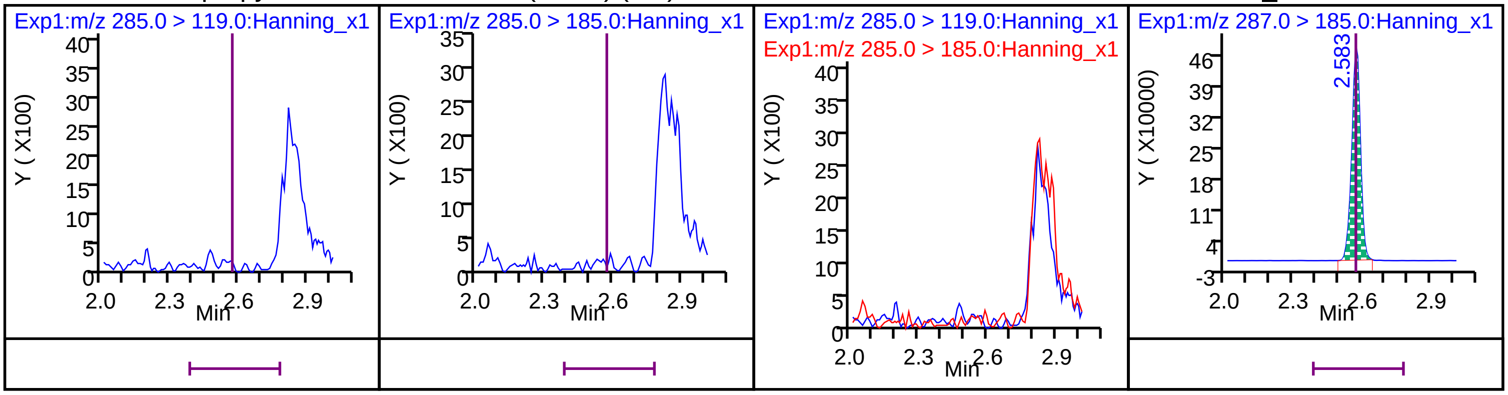
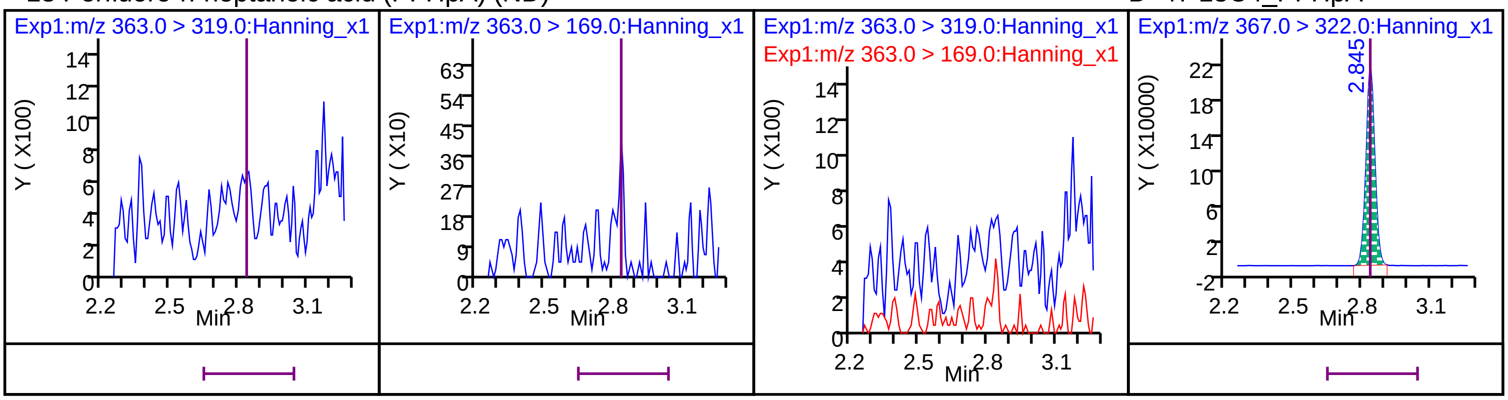
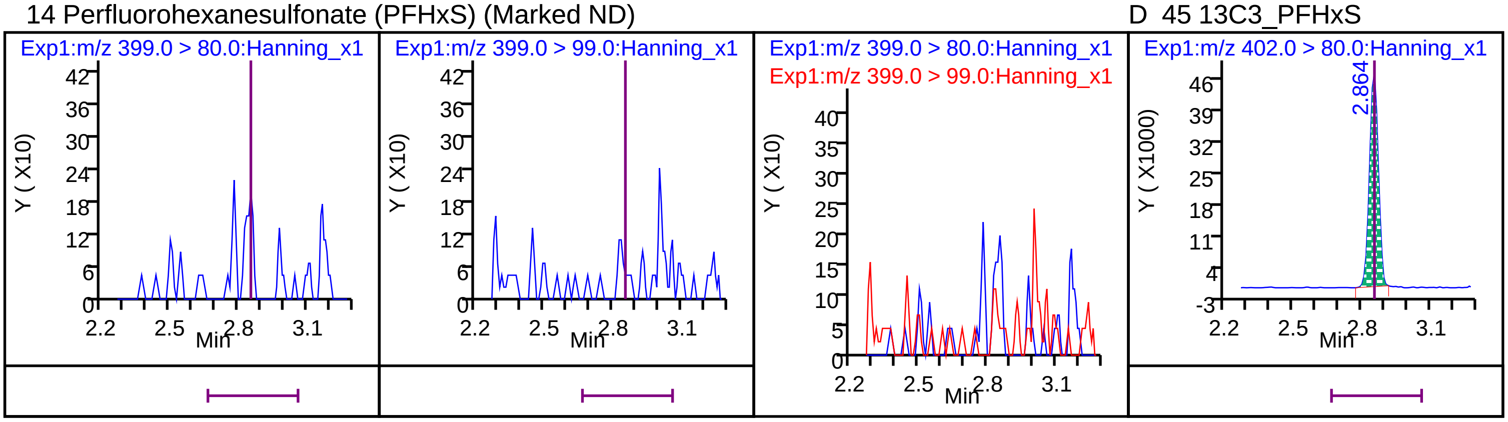
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



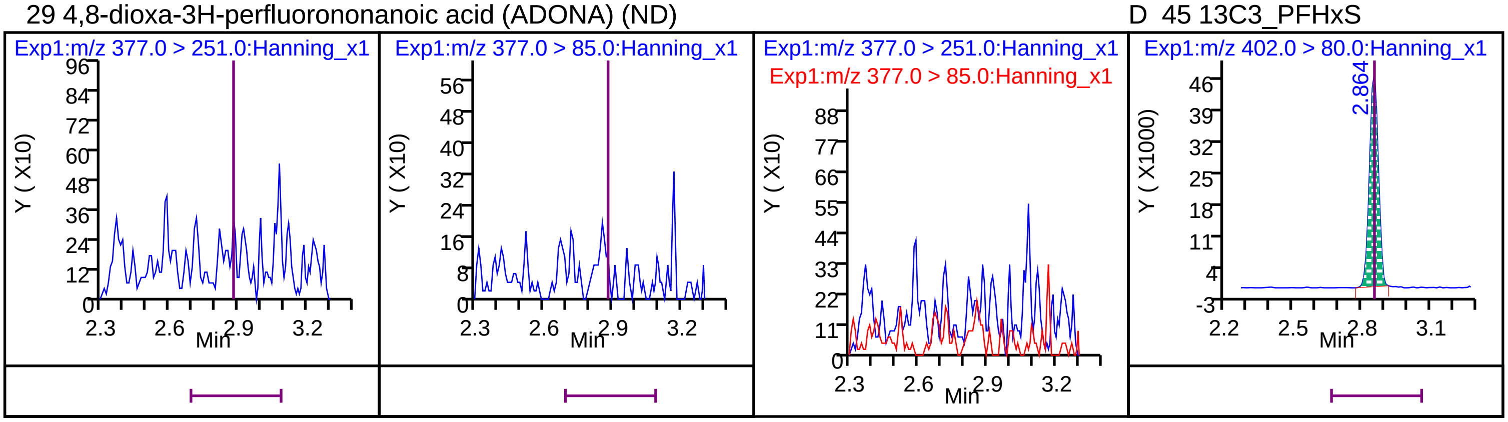
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (Marked ND) D 45 13C3_PFHxS



29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



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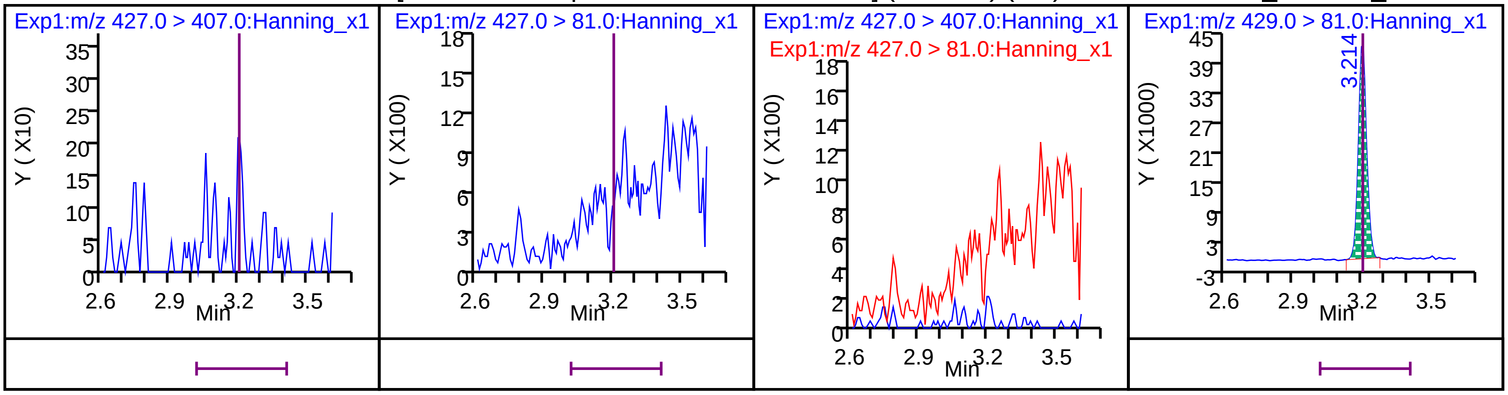
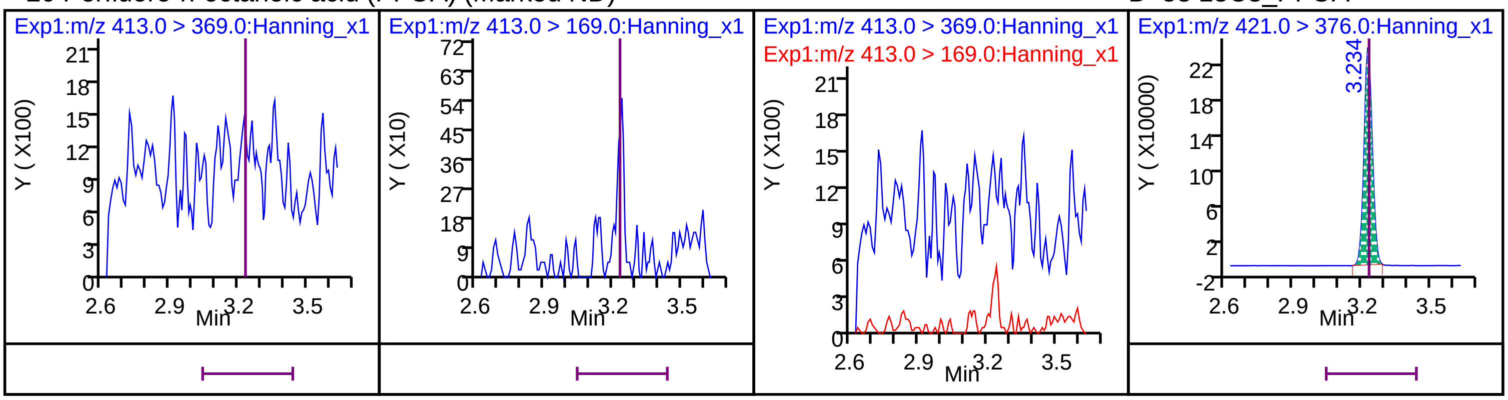
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921007.d

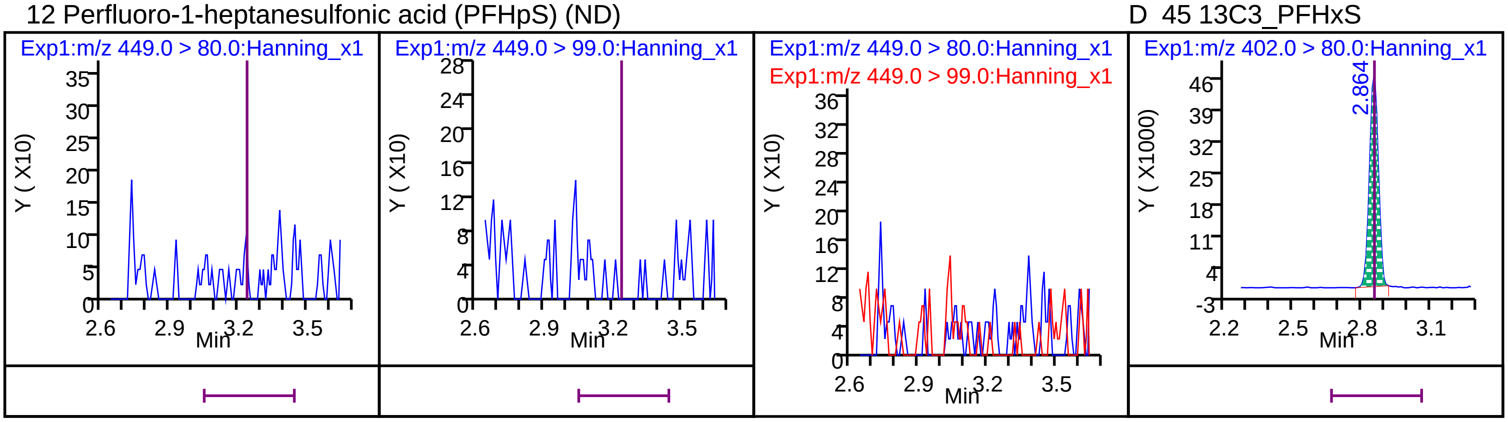
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



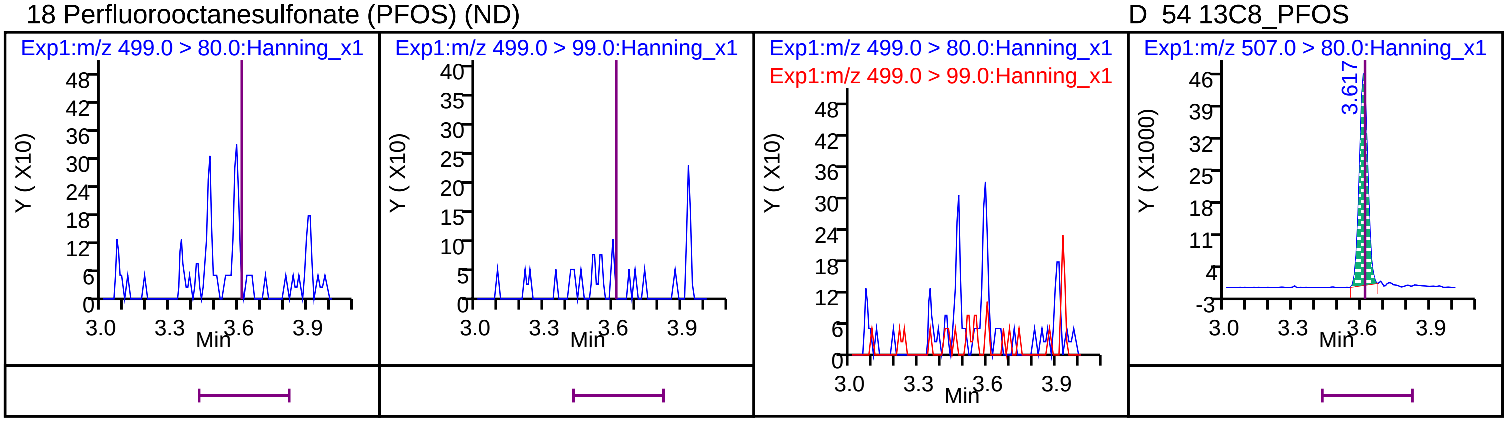
20 Perfluoro-n-octanoic acid (PFOA) (Marked ND) D 53 13C8_PFOA



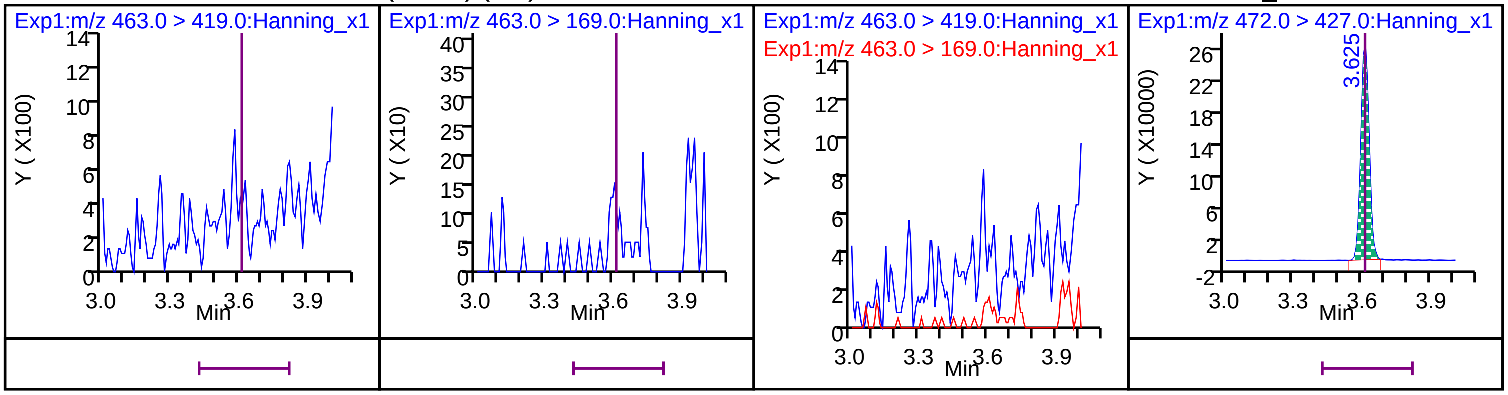
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



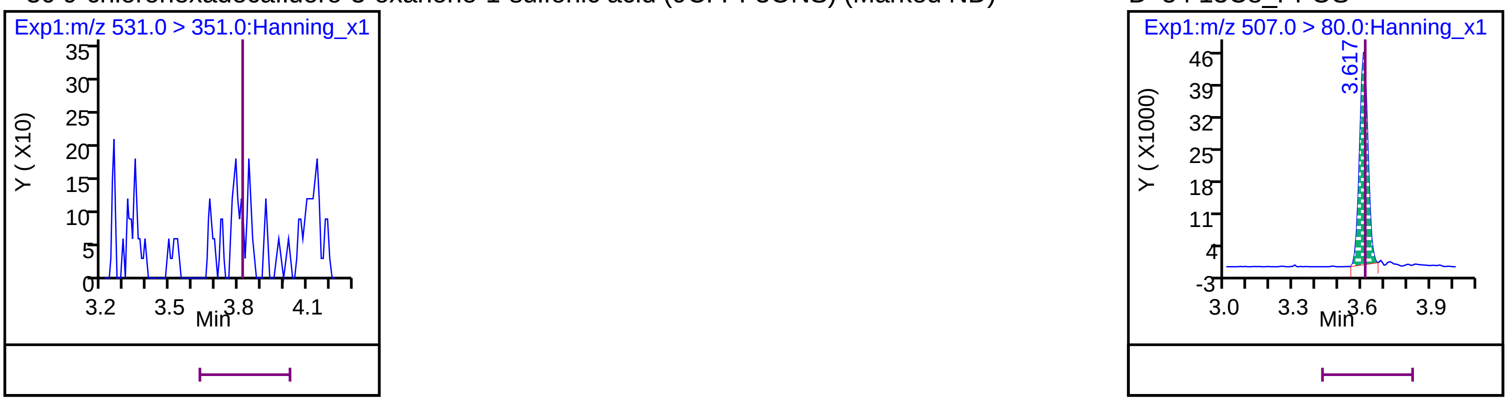
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



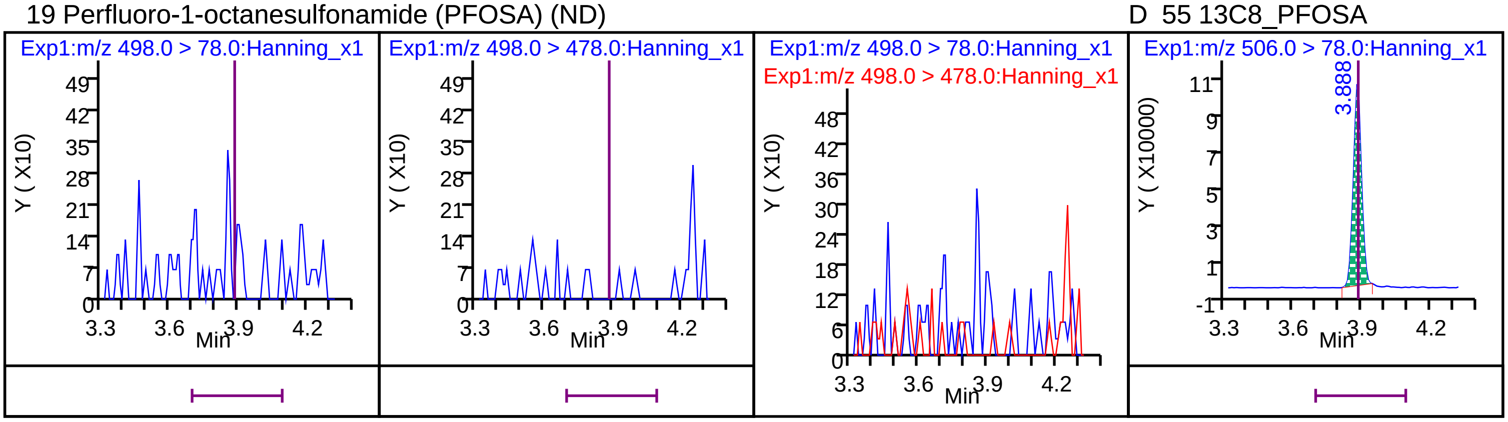
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



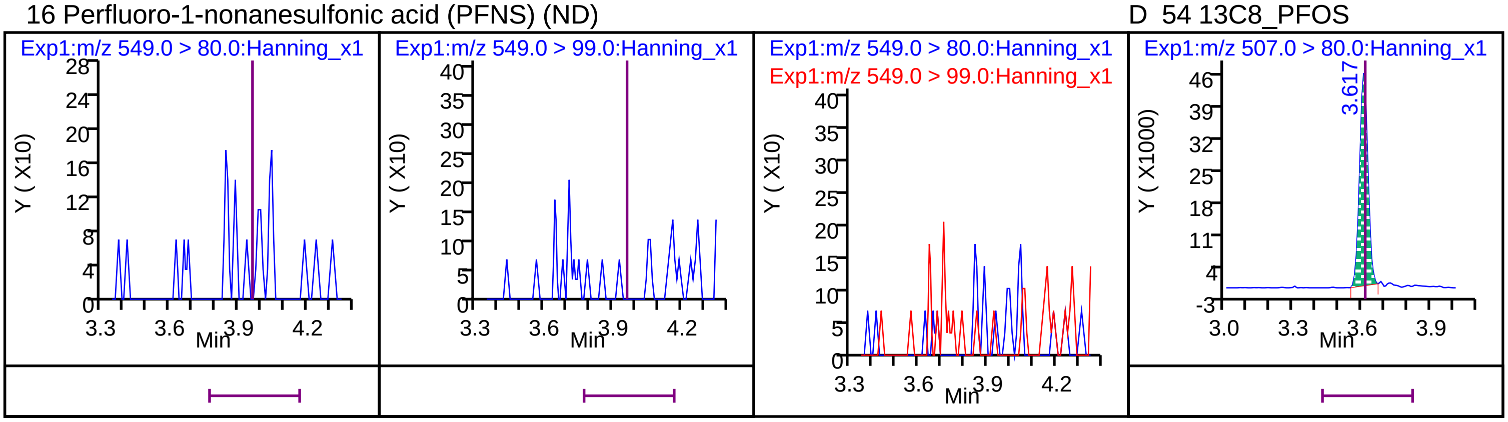
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



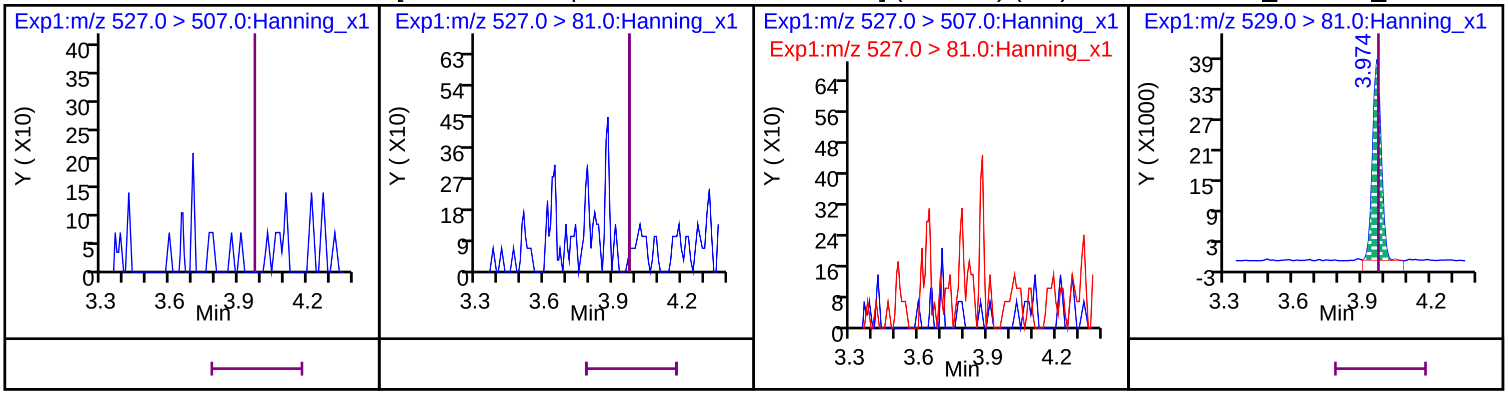
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



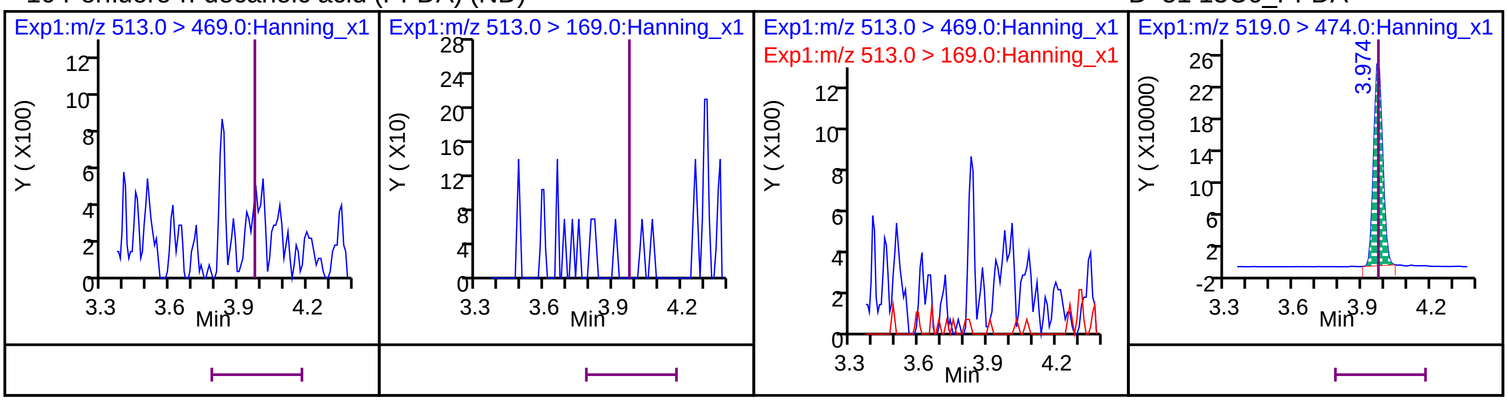
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



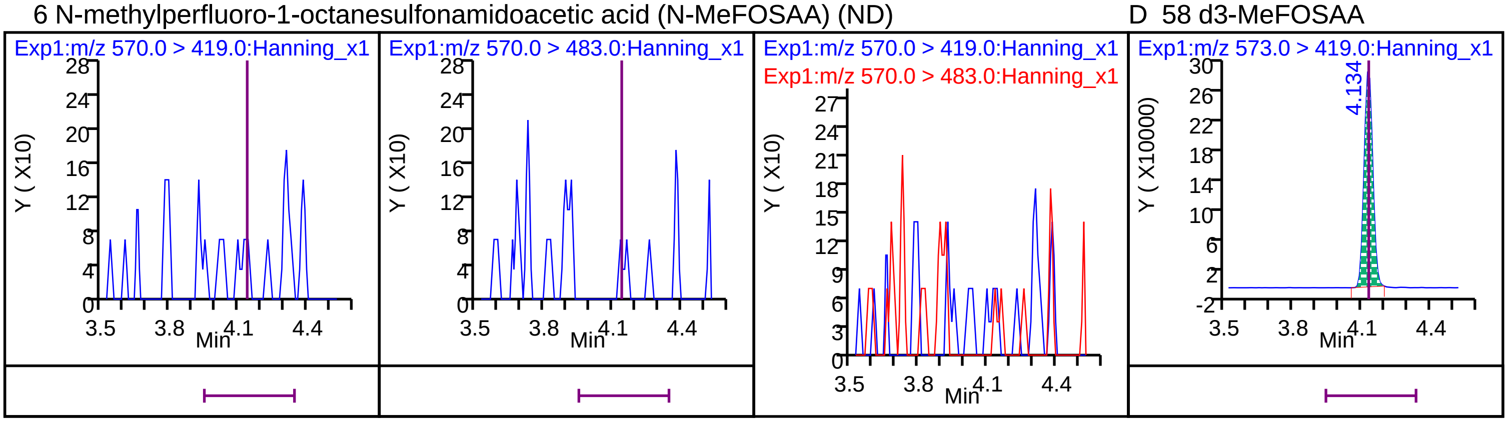
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



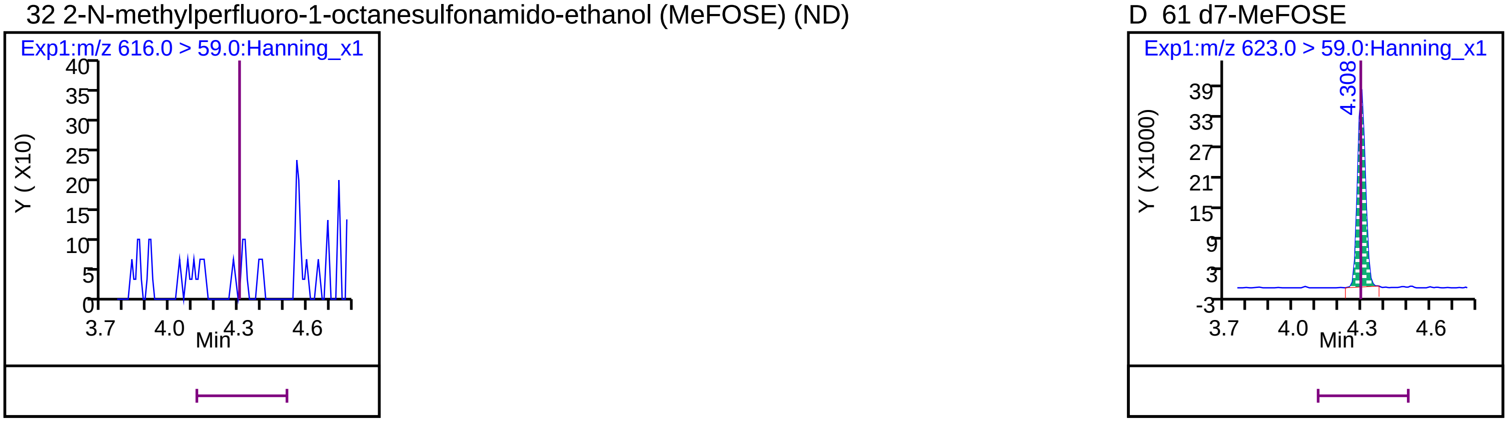
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



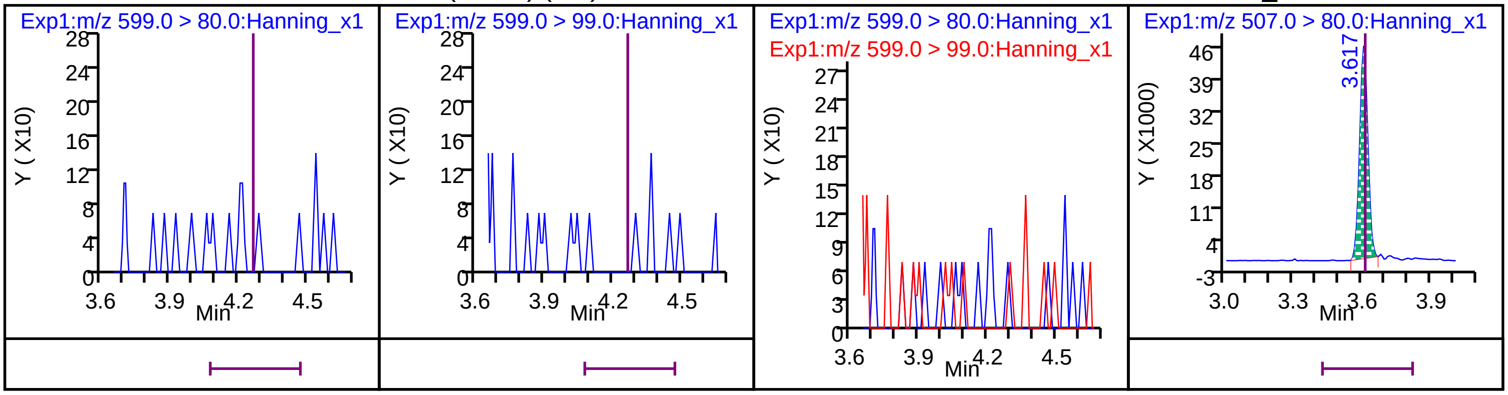
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



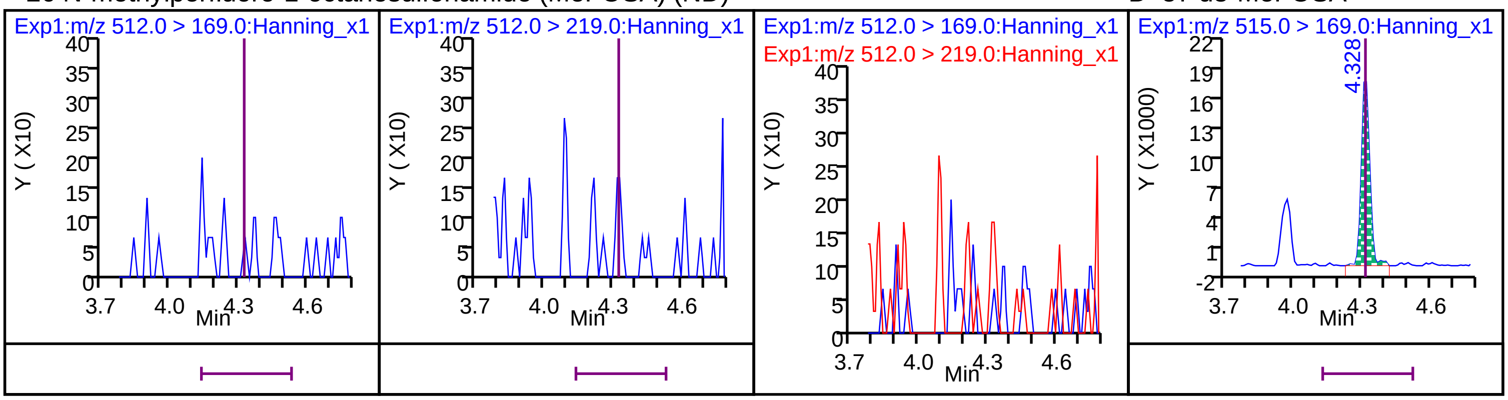
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (ND) D 61 d7-MeFOSE



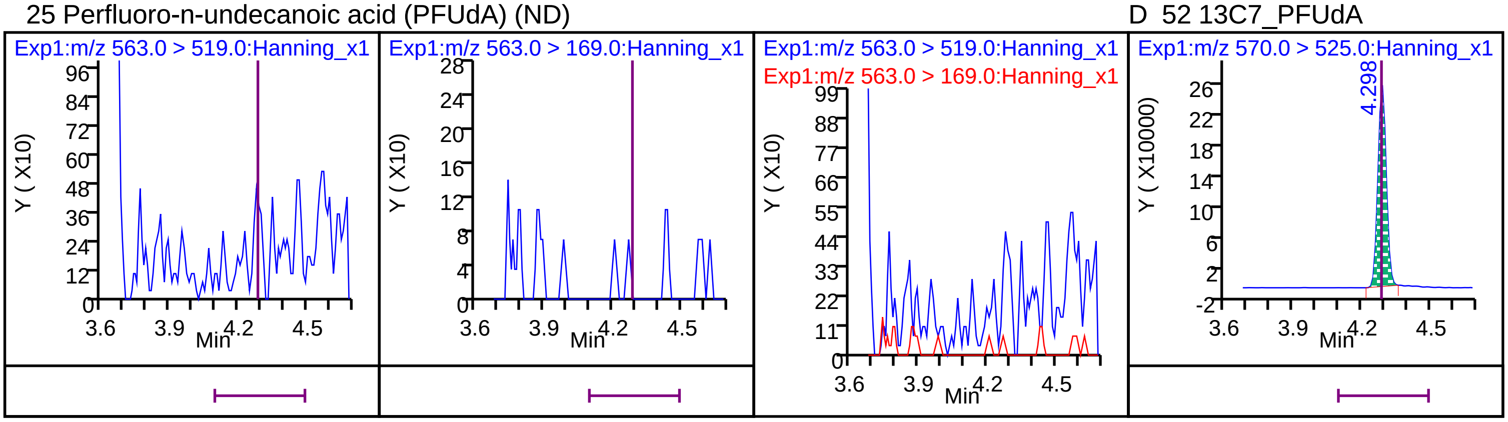
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



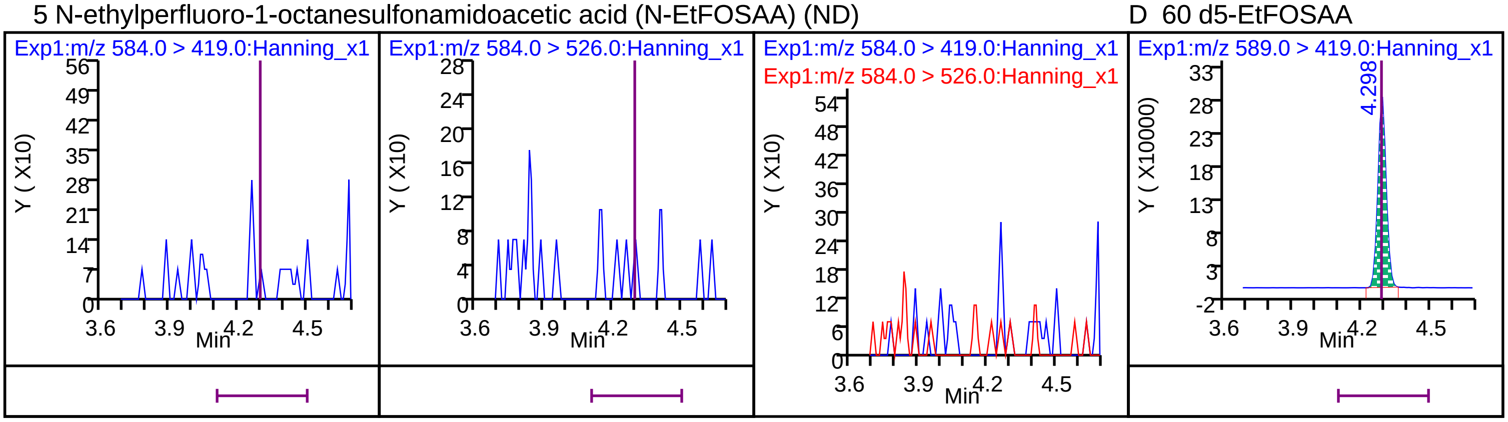
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



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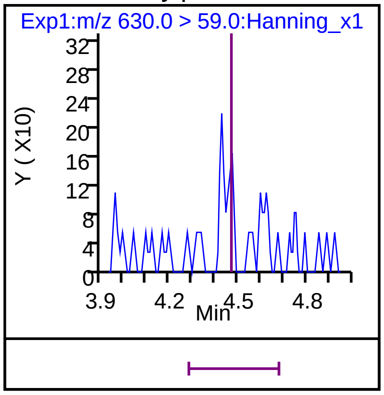
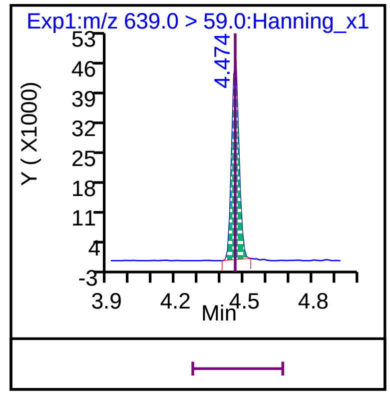
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921007.d

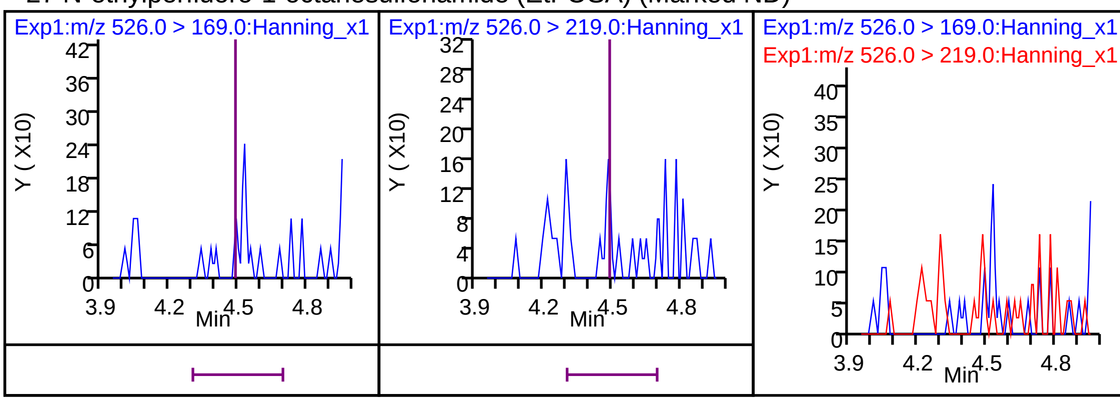
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)



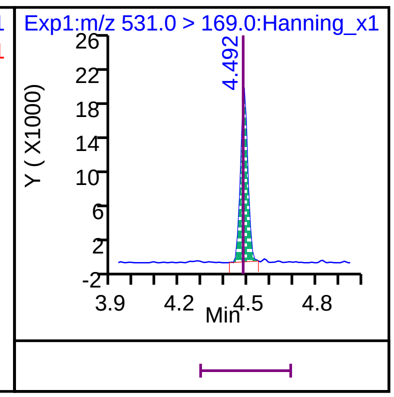
D 62 d9-EtFOSE



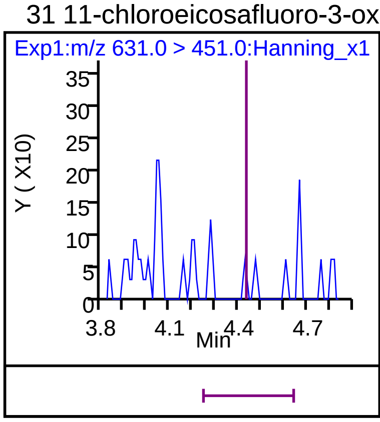
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (Marked ND)



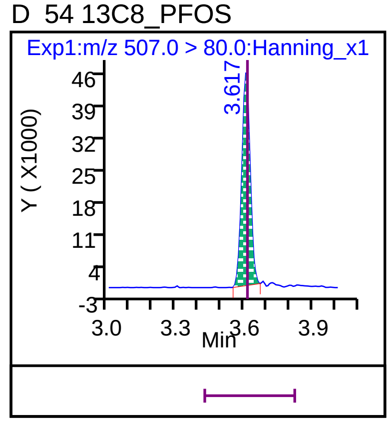
D 59 d5-EtFOSA



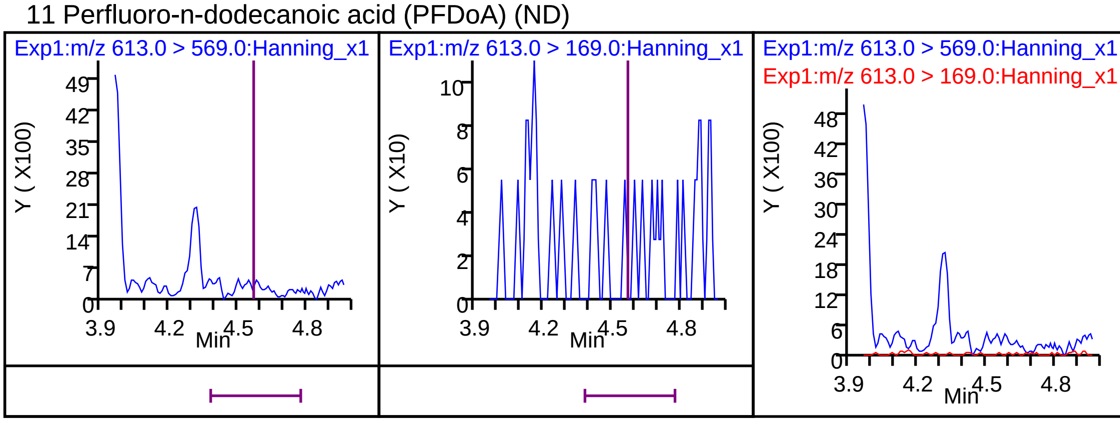
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (ND)



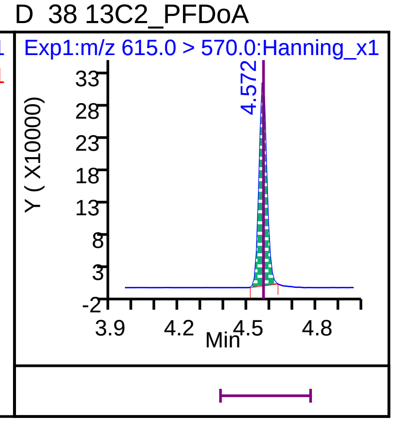
D 54 13C8_PFOS



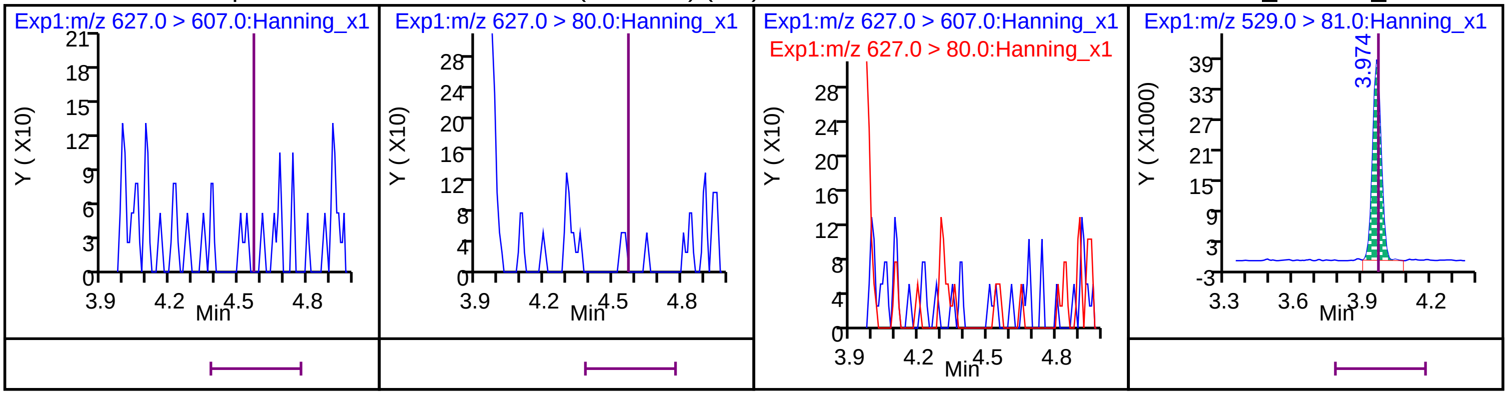
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



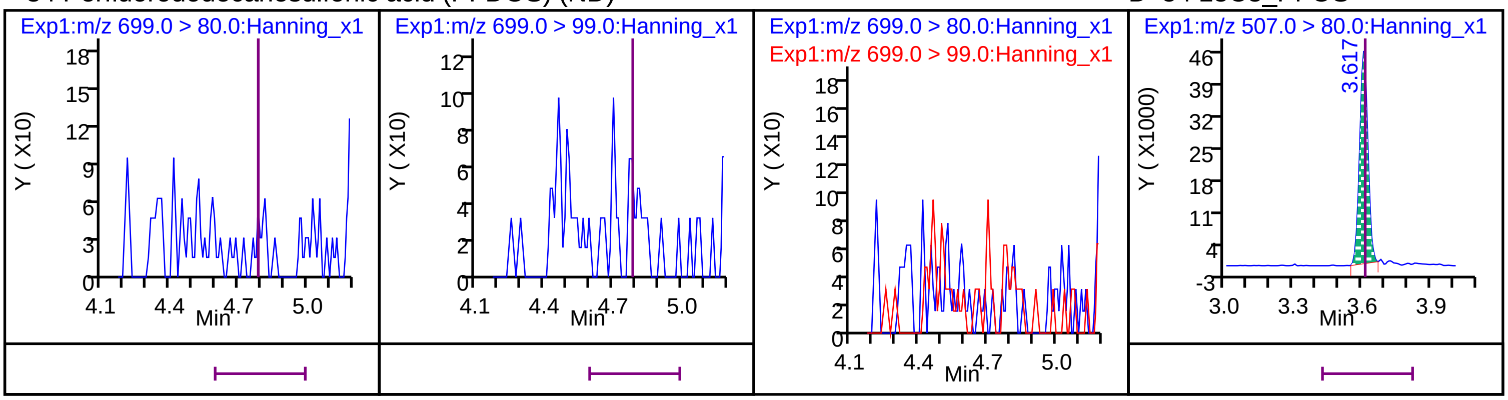
D 38 13C2_PFDoA



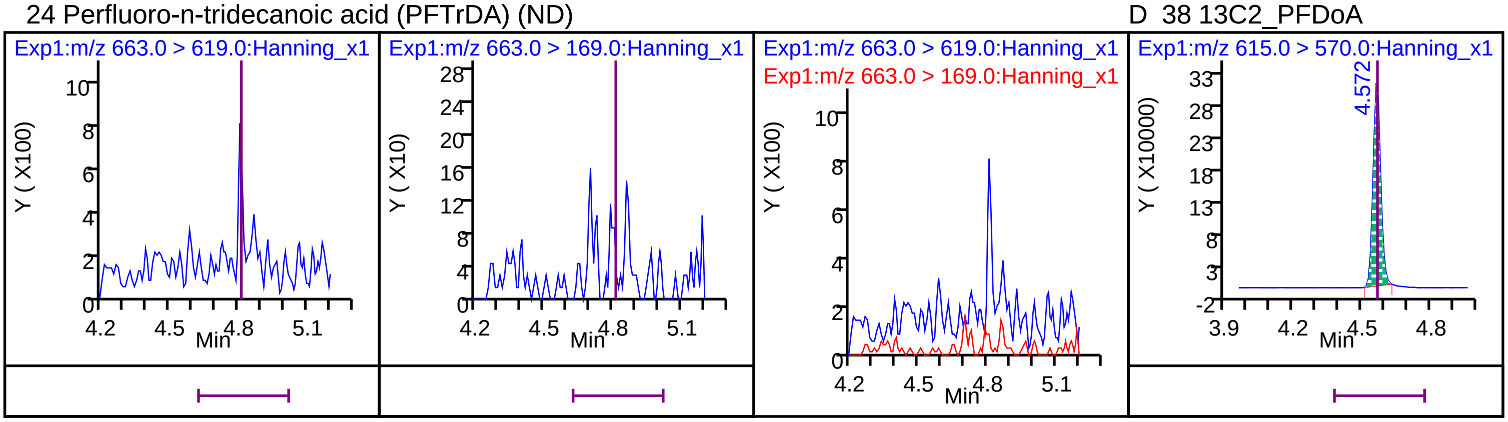
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



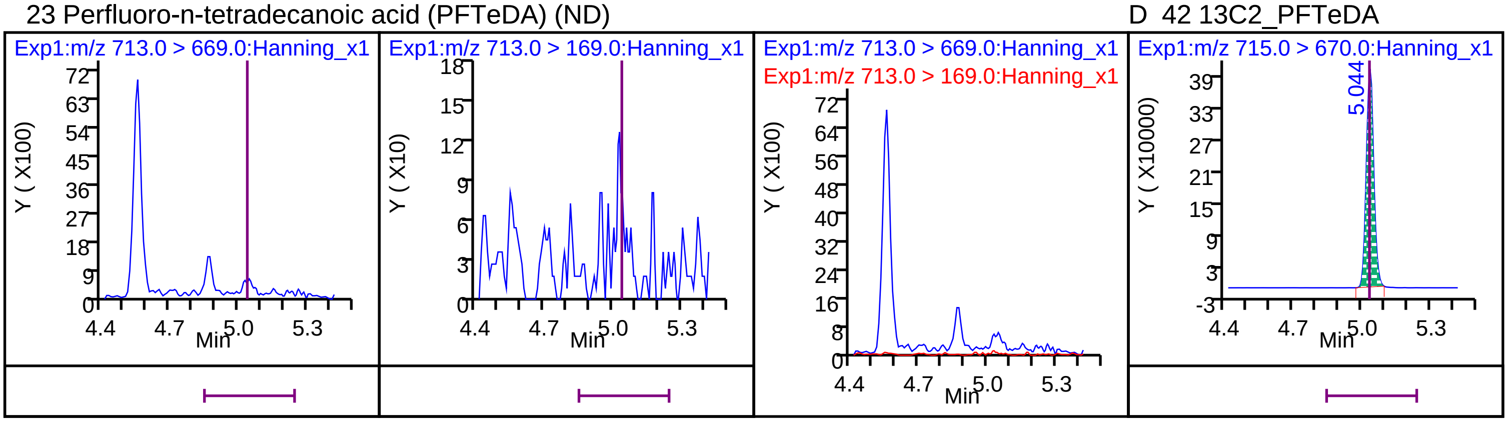
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



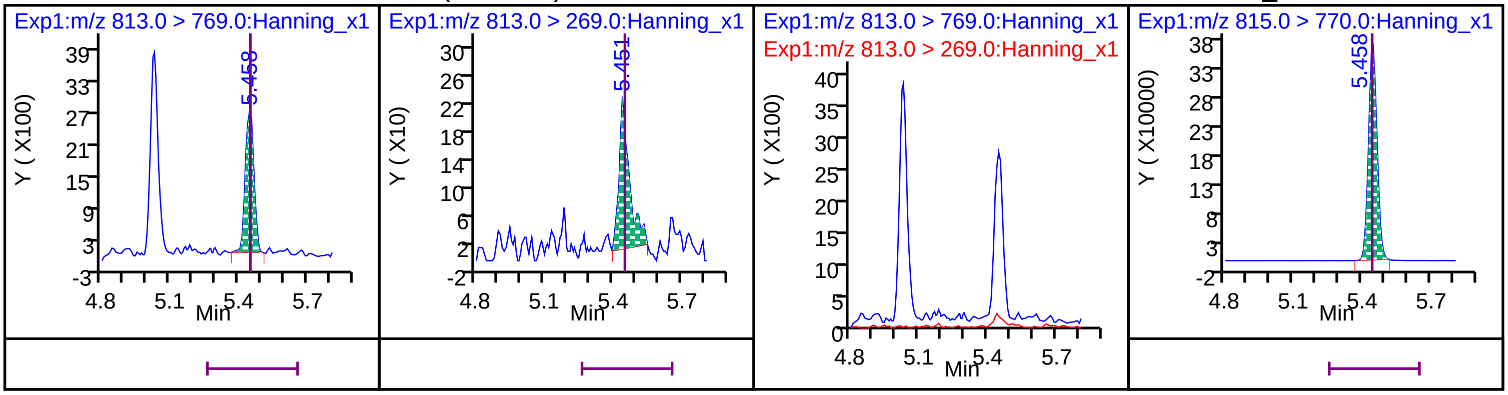
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



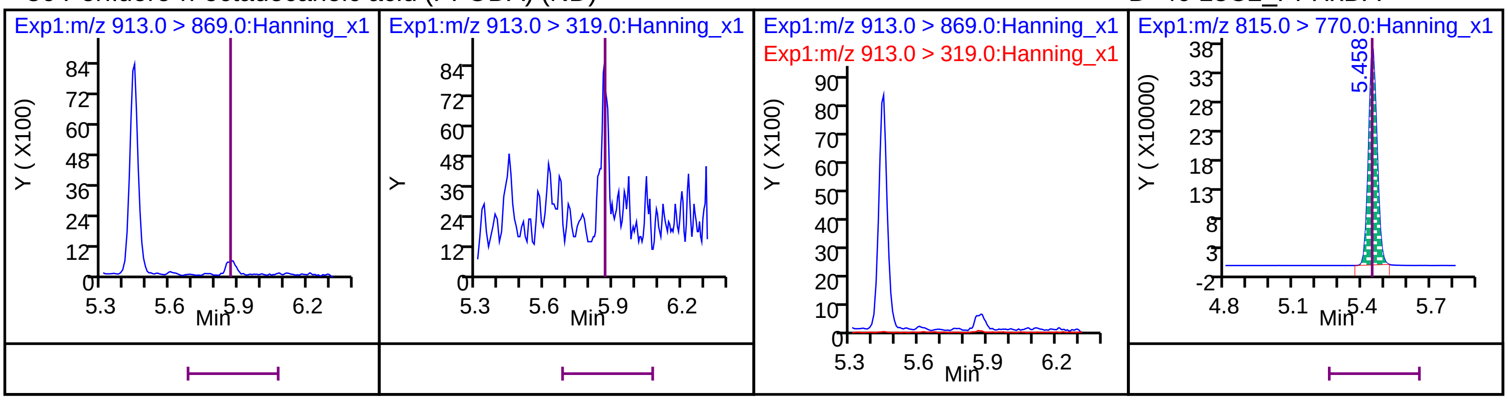
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



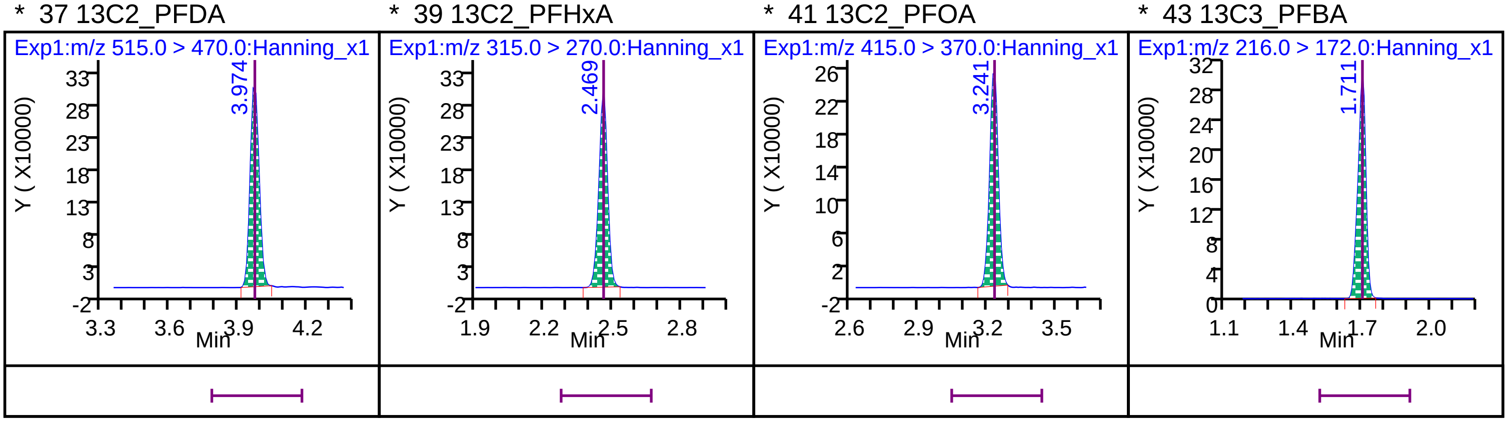
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



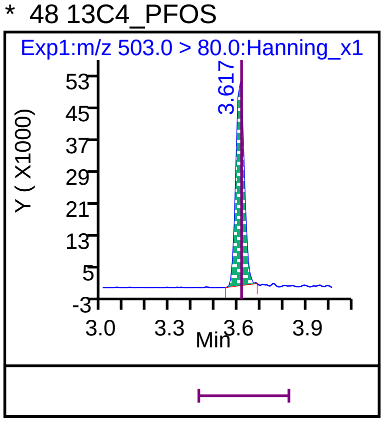
36 Perfluoro-n-octadecanoic acid (PFODA) (ND) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d		
Injection Date:	10-Nov-2021 14:10:25	Injection Vol:	10.0 uL
Sample Type:	InstBlk	Auto Sampler:	97
Lab Sample ID:	ID IBLK A	Lab Prep. Batch:	
Sample Info:	ID IBLK A	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.718	0	705461	22	>100:1			1001.00	1134.78	107	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.115	2.109	1	626847	16	>100:1			1001.00	1096.67	107.7	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.120		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.168	2.173	0	180920	15	>100:1			1001.00	1045.96	110.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.173		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.532		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.450	2.451	0	117349	18	>100:1			5005.00	5182.41	103.5	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.451		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.486	2.496	0	721066	17	>100:1			1001.00	1107.14	108	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.496		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.605	2.607	0	1269384	20	>100:1			5005.00	5477.23	104.7	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.614		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.872	2.873	0	584233	19	>100:1			1001.00	1100.38	107	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.873		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.887	2.889	0	139116	21	>100:1			1001.00	1107.26	112.4	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.903	2.889	1/1	544	27	8.2:1	Target = 2.89	4.78	3.5605	3.5605		
399 > 99	45	2.918	2.889		284	44		1.91 (1.44-4.34)	2.15				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.912		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.276		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.239	3.242	0	113088	22	>100:1			5005.00	6282.68	115.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	ΔRT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.248		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.266	3.269	0	623371	23	>100:1			1001.00	1188.11	108.4	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.276		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.654	3.657	0	113990	19	>100:1			1001.00	920.44	90.7	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.652		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.859	3.872	0/0	1383	17	10:1			3.2069	3.2069		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		4.017		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.319		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.495	4.483	1/1	465	11	6.7:1			1.1927	1.1927		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													U
699 > 80	54		4.842		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.659	3.662	0	728937	23	>100:1			1001.00	1138.29	105.6	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.662		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.924	3.921	1	276295	17	>100:1			1001.00	1030.73	102.1	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.921		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		4.021	4.027	0	649304	16	>100:1			1001.00	1129.89	101.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		4.027		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		4.010	4.017	0	99355	23	>100:1			5005.00	5748.21	101.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		4.006		ND								
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													U
627 > 607	65		4.631		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.180	4.178	1	765304	18	>100:1			5005.00	5064.46	104.2	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.187		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.331	4.329	1	95192	15	>100:1			1001.00	1055.47	115	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													U
616 > 59	61		4.348		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.350	4.348	1	49475	13	>100:1			1001.00	1051.74	102.5	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.367		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.340	4.339	1	704612	17	>100:1			5005.00	5440.47	107.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.348		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.340	4.339	1	669087	15	>100:1			1001.00	1110.98	101.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	Δ RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	Cal Conc ng/L	OnCol Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.339		ND								
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.495	4.501	0	108865	16	>100:1			1001.00	1026.28	108.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													U
630 > 59	62		4.510		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.522	4.519	1	38247	14	>100:1			1001.00	889.47	98.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.528		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.617	4.614	1	702102	16	>100:1			1001.00	1169.51	94.9	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.614		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.868		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.085	5.087	0	944607	20	>100:1			1001.00	1161.89	107.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.093		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.508	5.512	0	996635	19	>100:1			1001.00	1148.15	105.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.508	5.512	0/0	6475	16	26:1	Target = 10.43		10.154	10.154		
813 > 269	40	5.515	5.512		522	16	7.4:1	12.40 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													U
913 > 869	40		5.944		ND								
*** 37 13C2_PFDA**													
515 > 470		4.021	4.027	0	785529	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.486	2.496	0	769540	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.273	3.269	1	654144	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.718	0	682893	22	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.654	3.657	0	134774	29	>100:1			200.00			

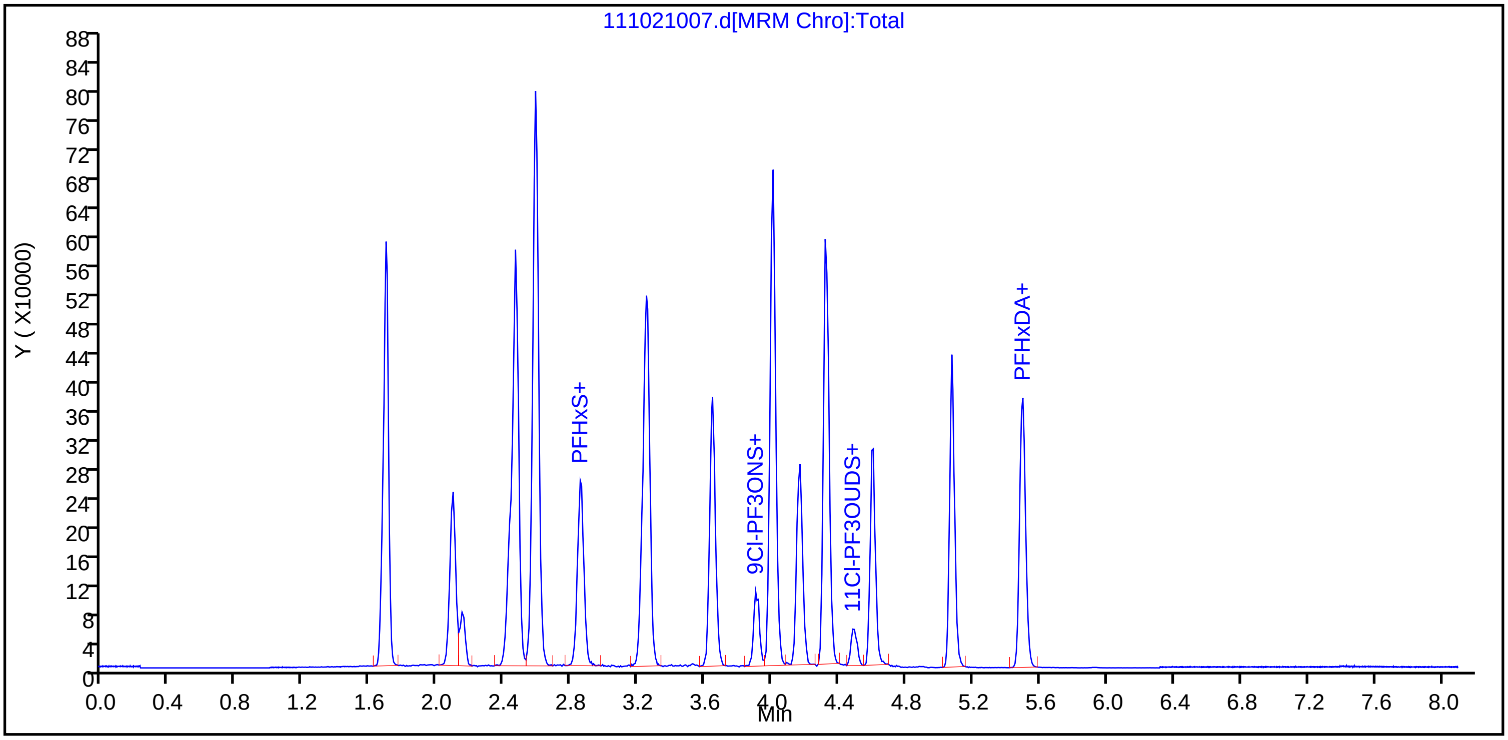
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
U - Result Less Than Method Detection Limit

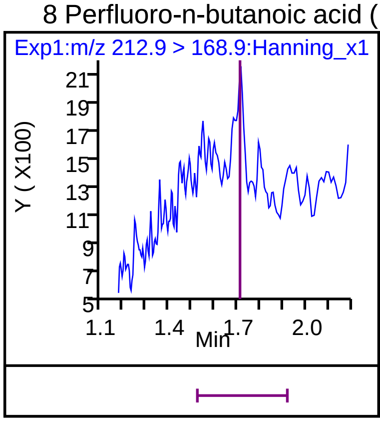
Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

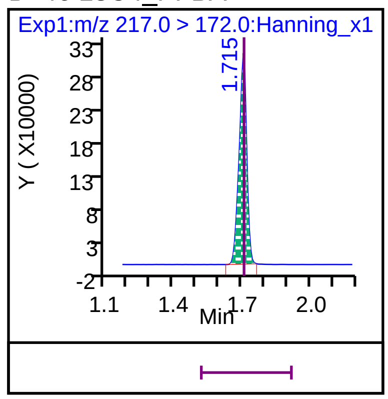
Data File:	\\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d		
Injection Date:	10-Nov-2021 14:10:25	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	ID IBLK A
Sample Info:	ID IBLK A		
Dil. Factor:	1	Operator:	Justin Gavin



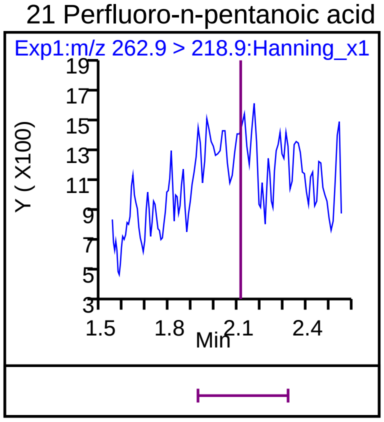
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



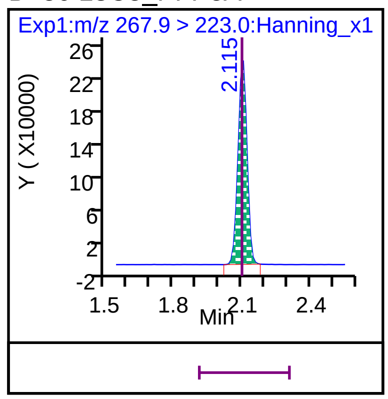
D 46 13C4_PFBA



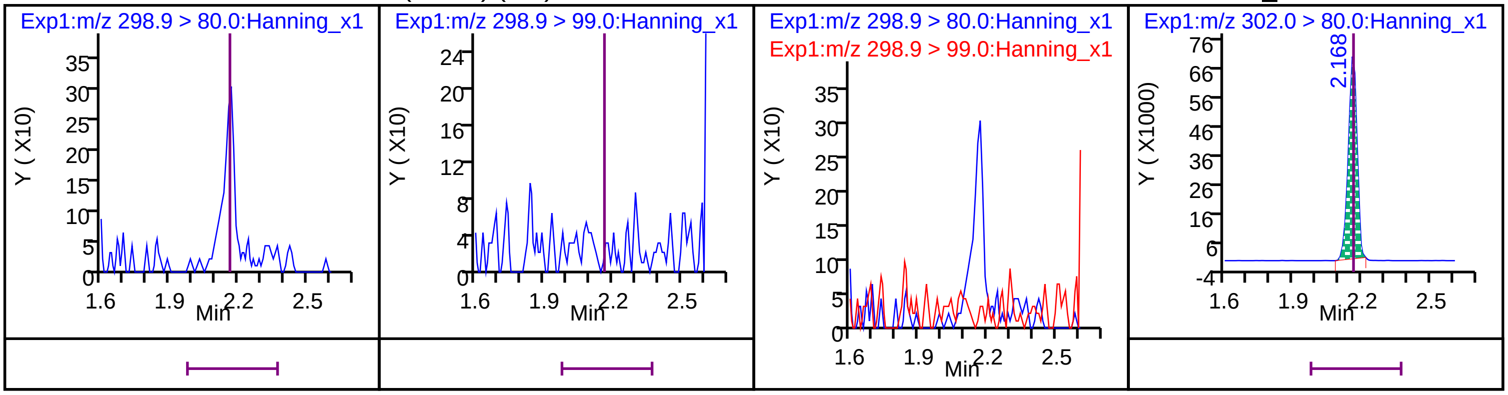
21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



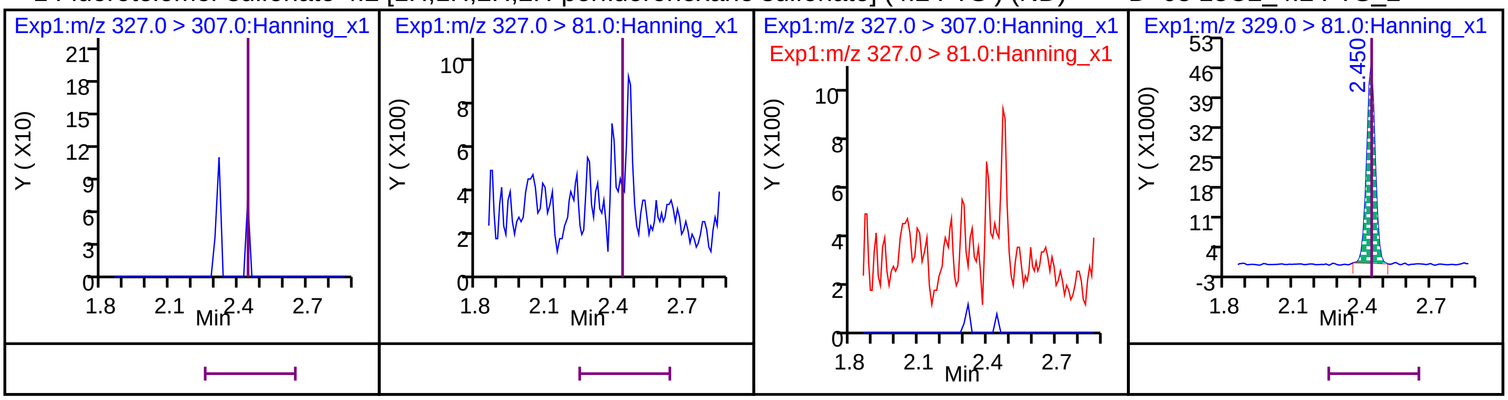
D 50 13C5_PFPeA



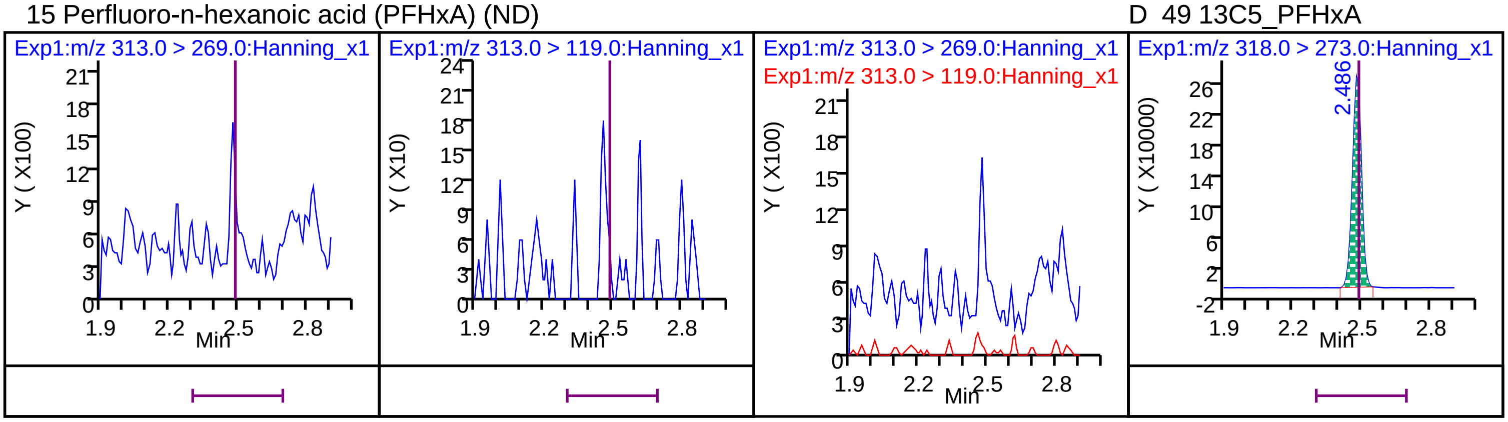
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



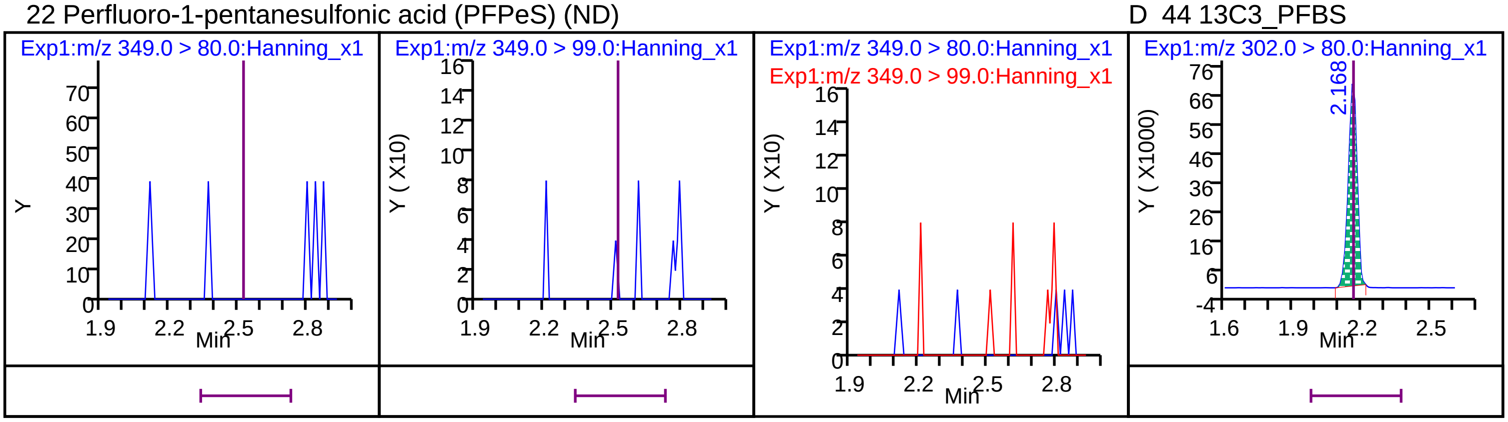
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA

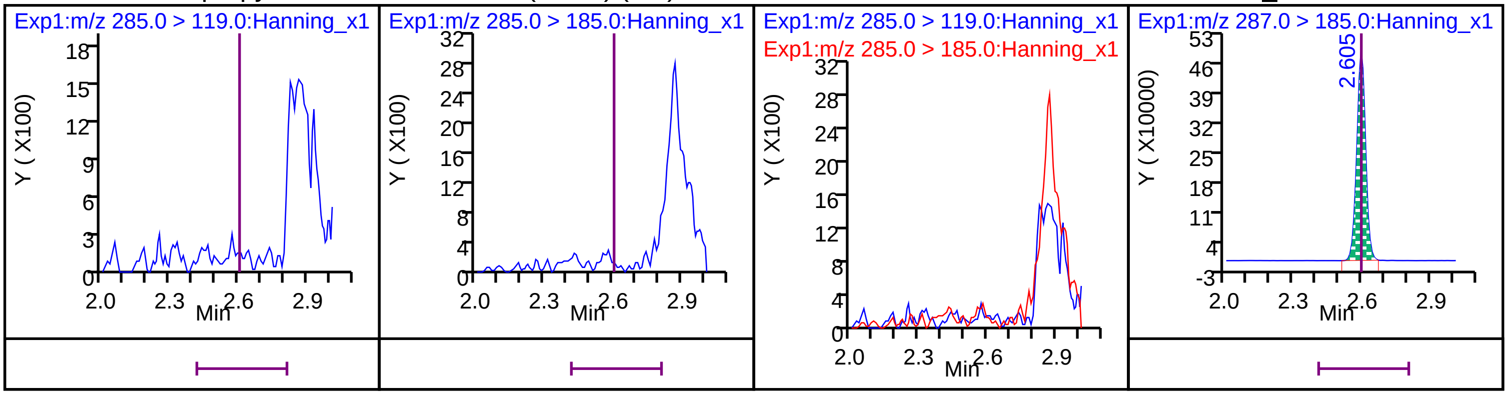


22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS

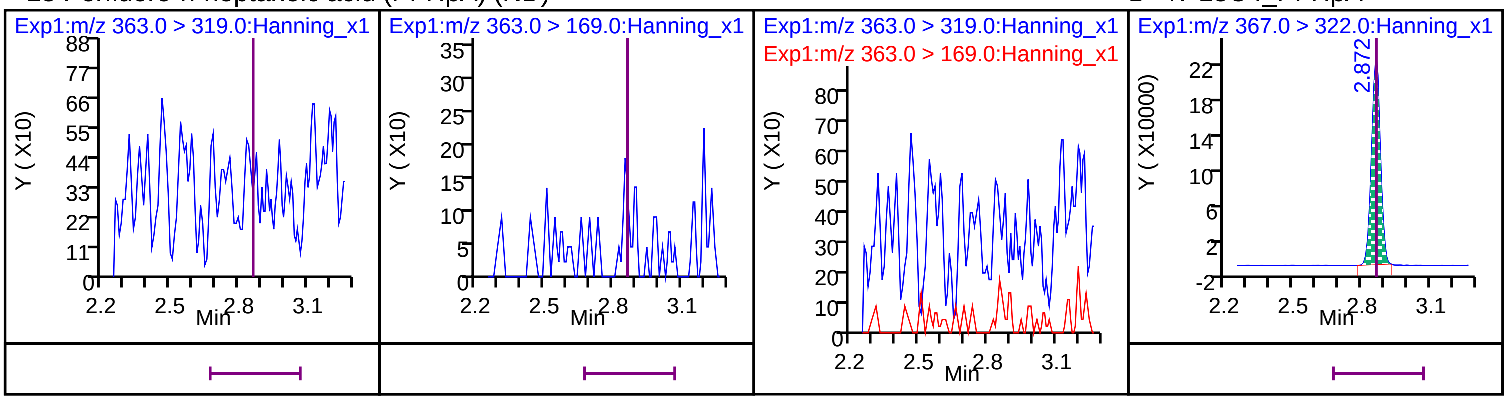


Report Date: 11-Nov-2021 20:41:38 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\111021-DOD.b\111021007.d

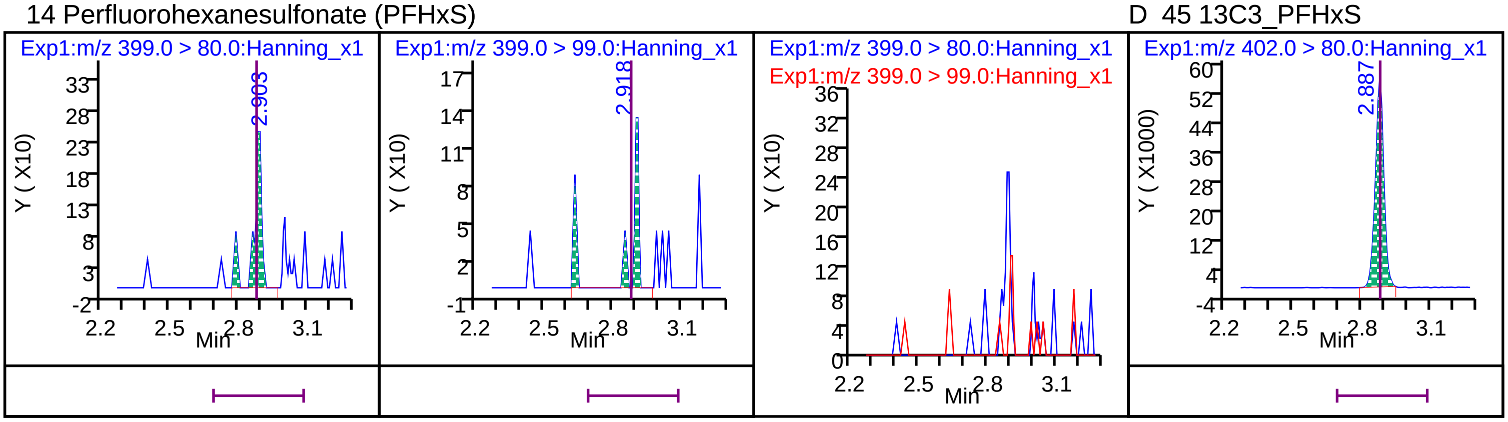
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



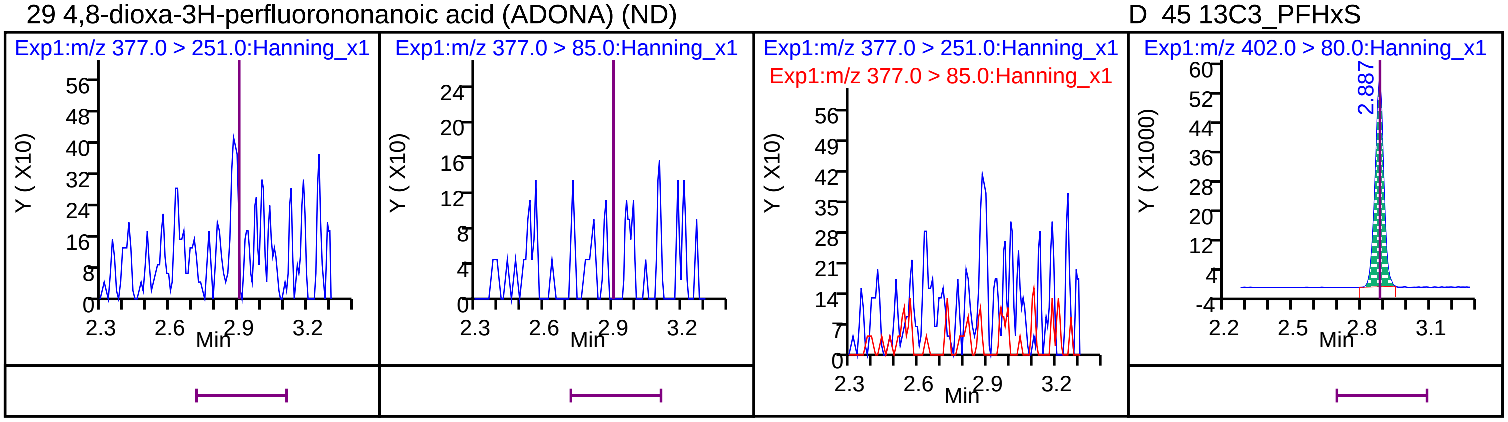
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



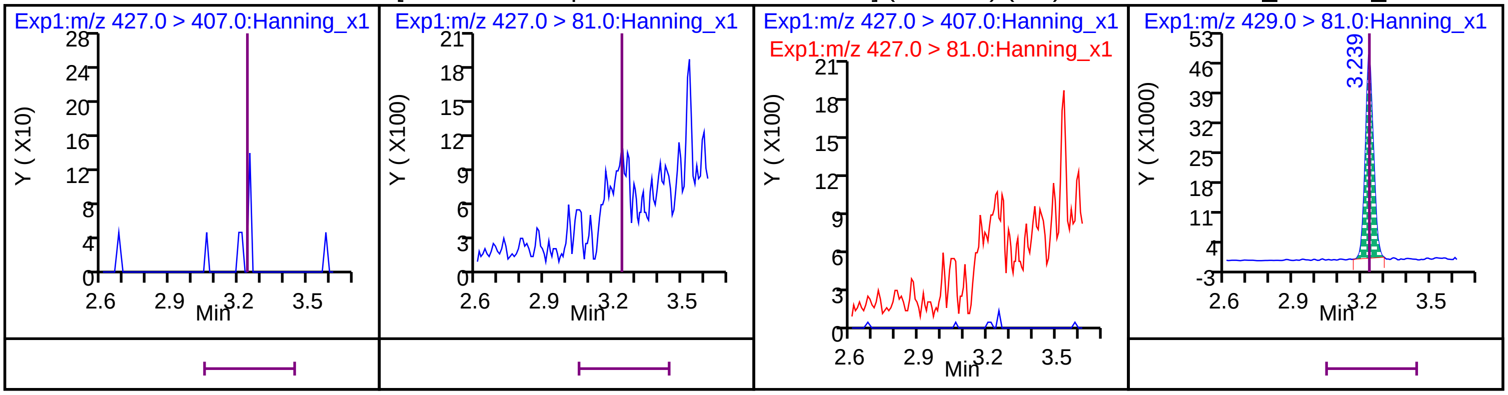
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



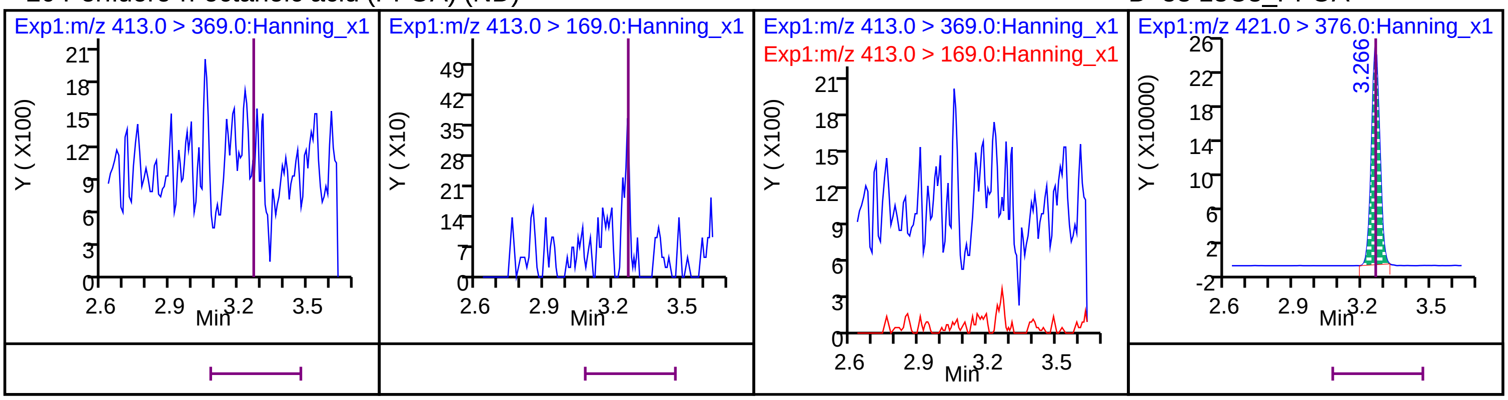
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



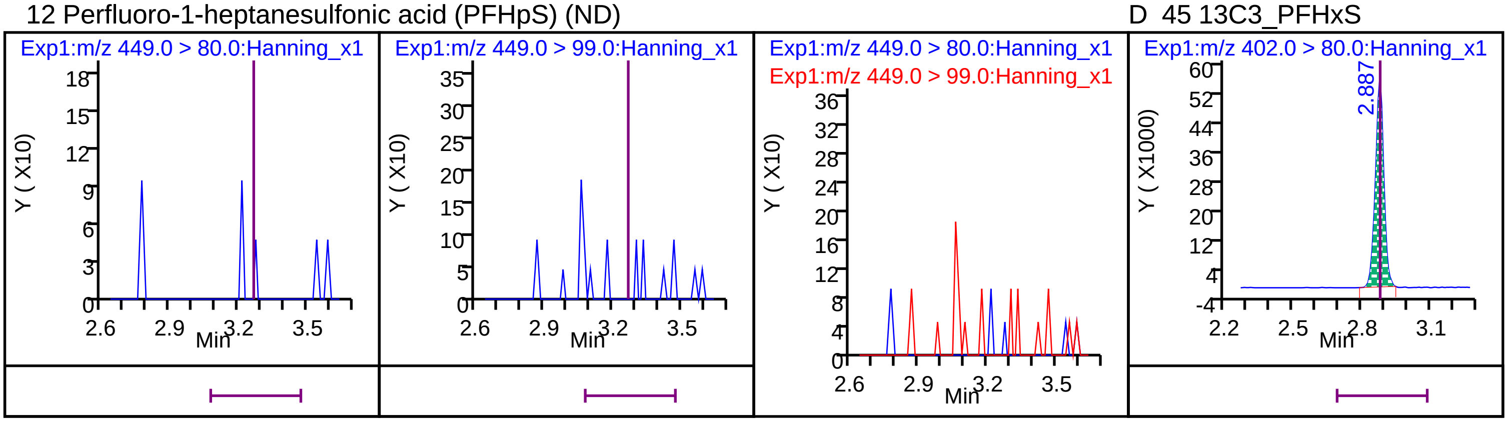
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



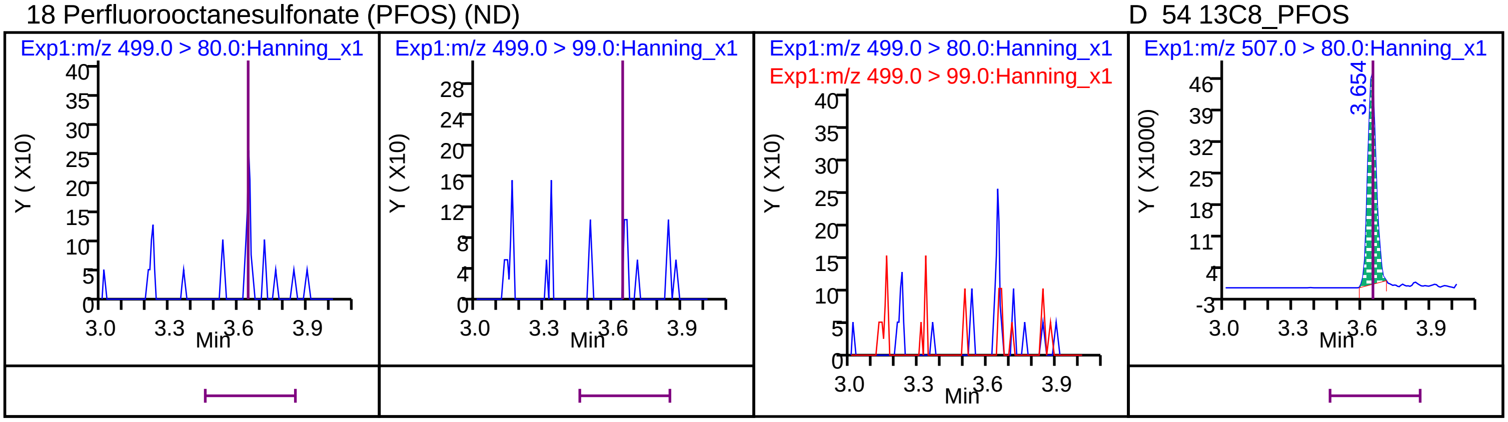
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



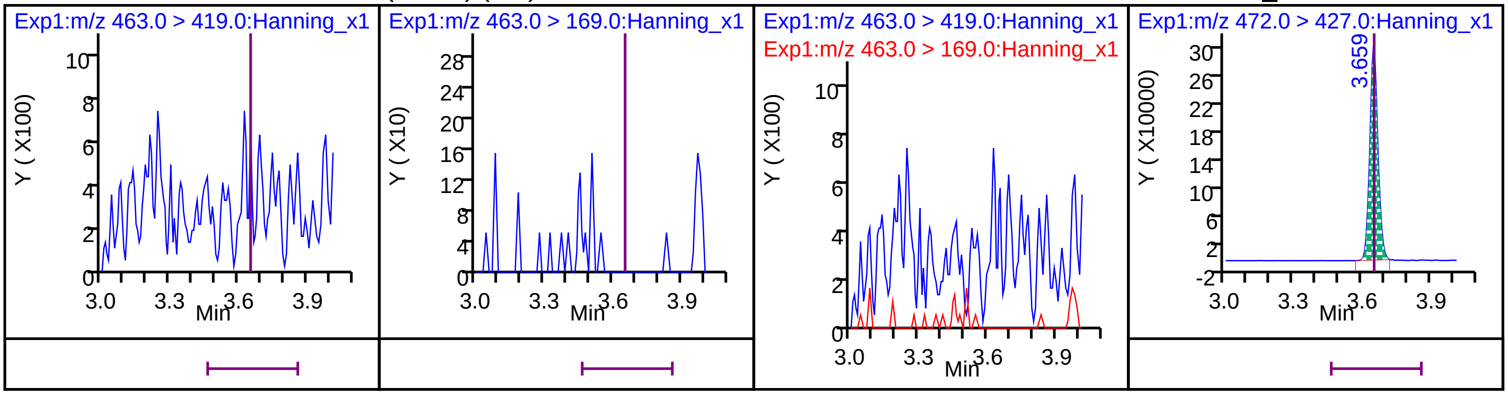
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



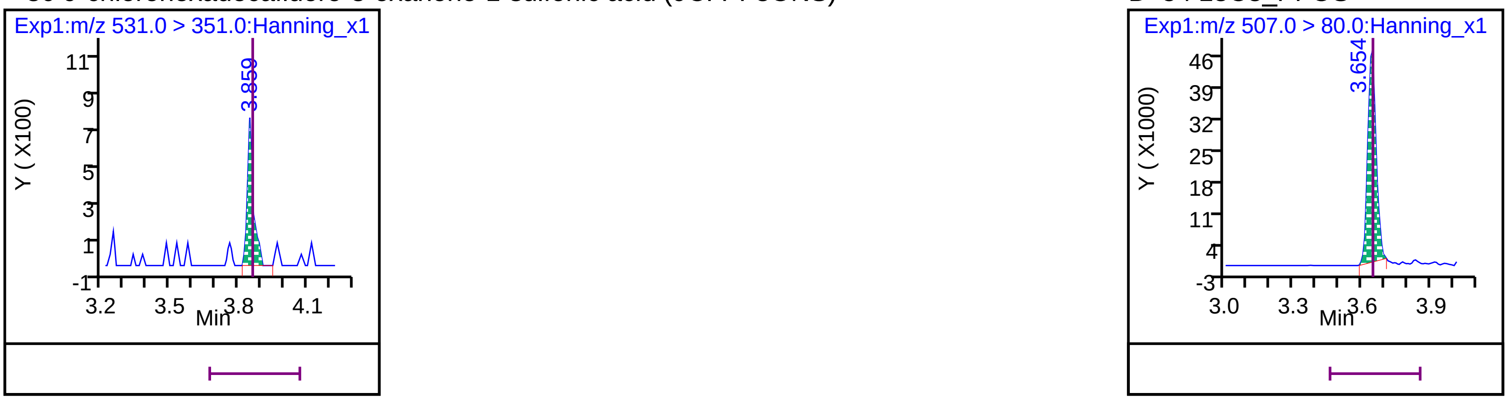
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



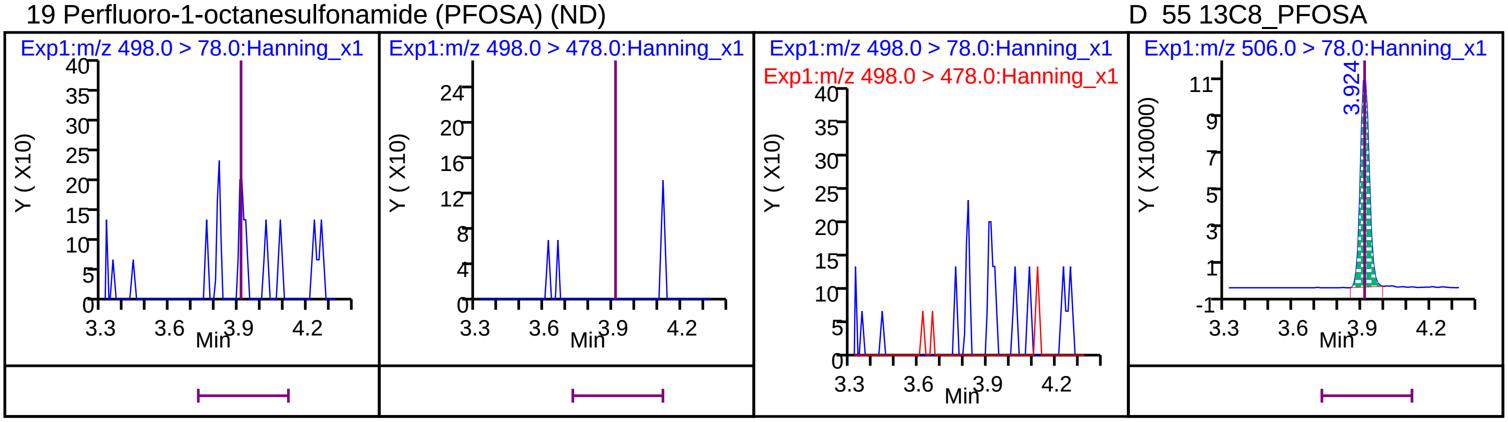
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



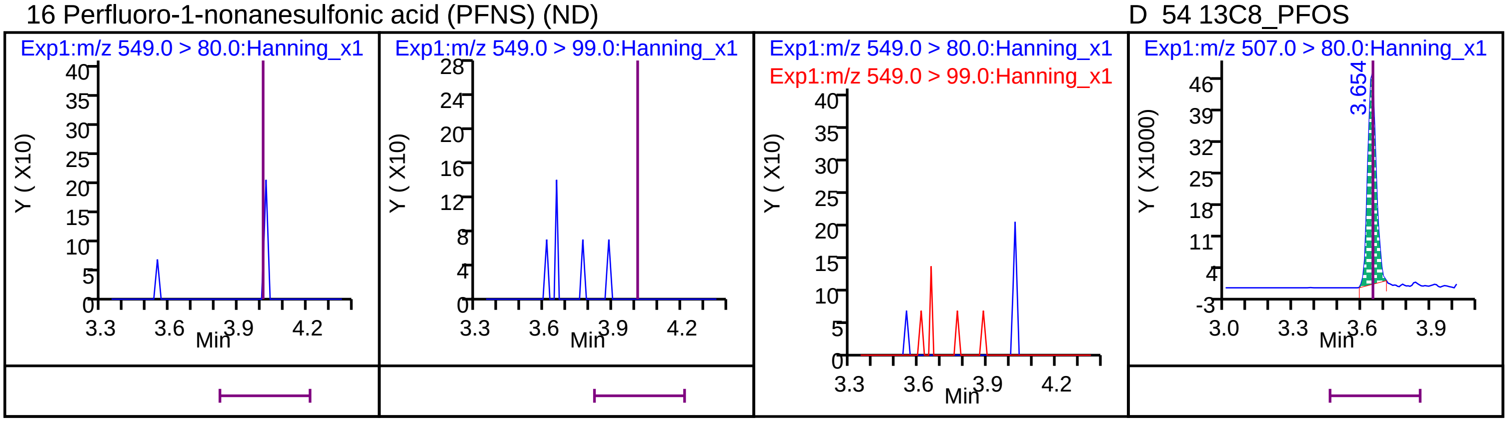
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



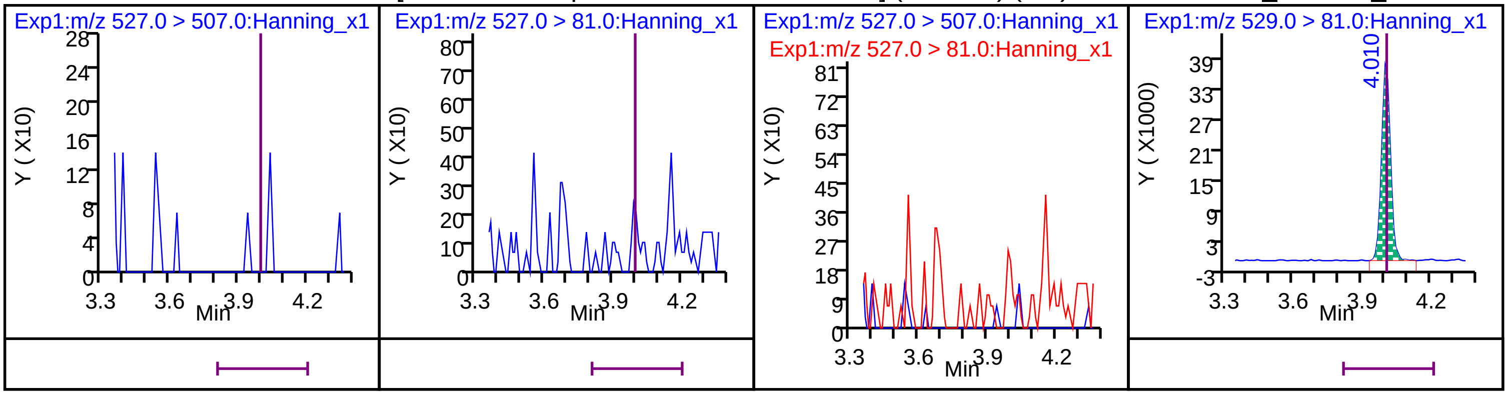
19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



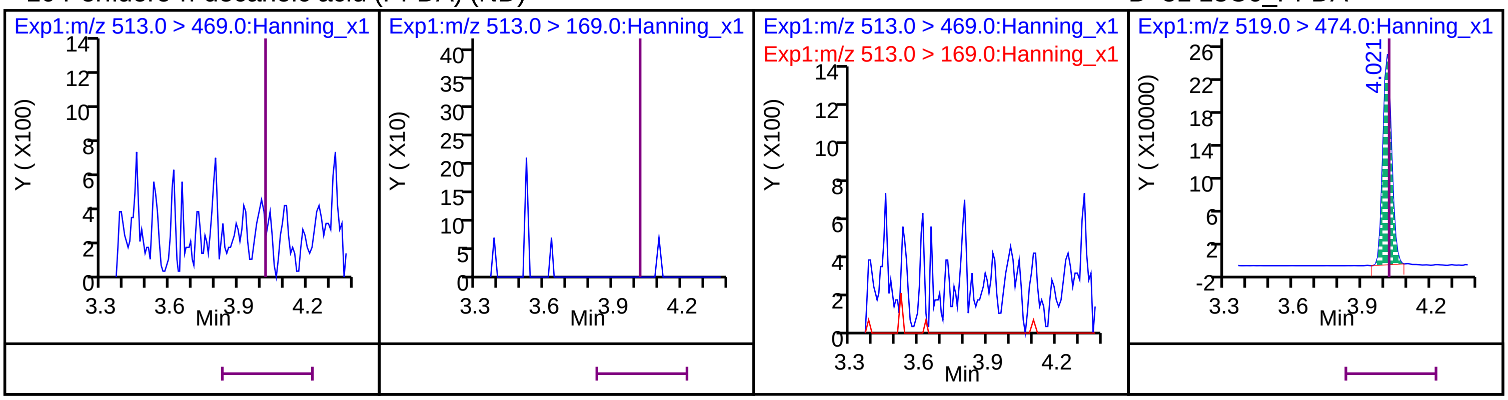
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



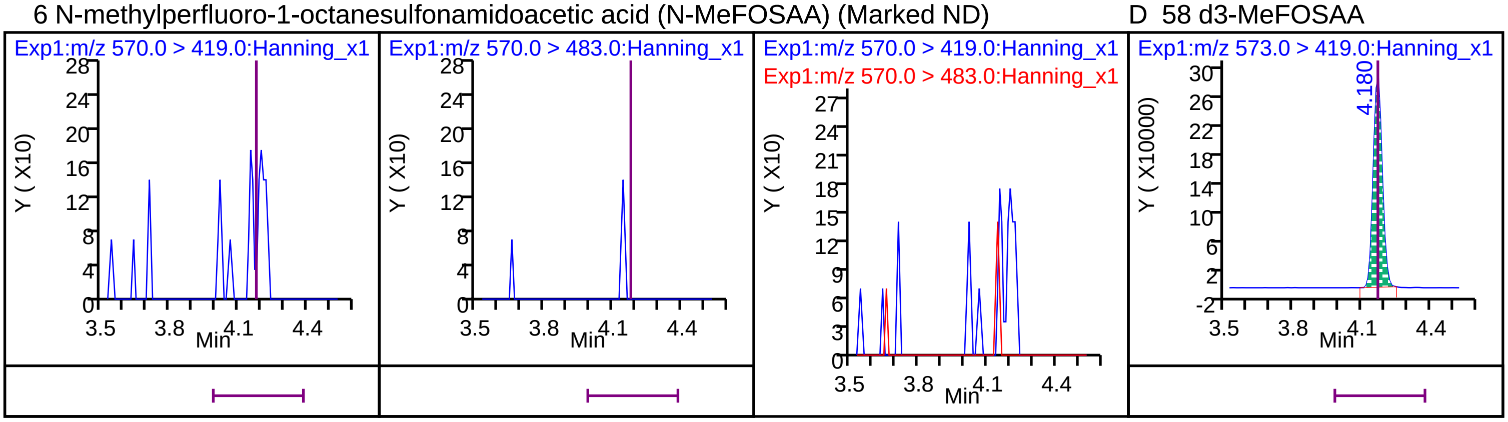
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



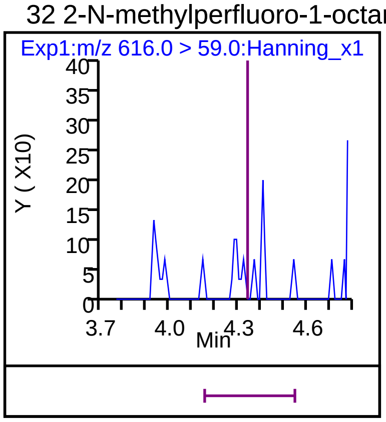
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA

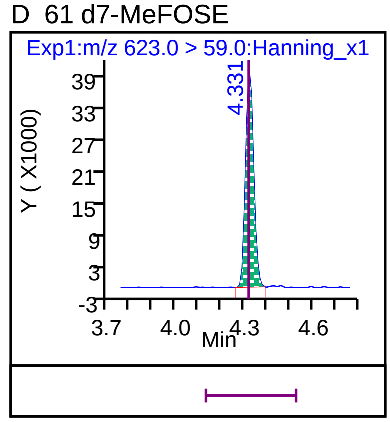


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (Marked ND) D 58 d3-MeFOSAA

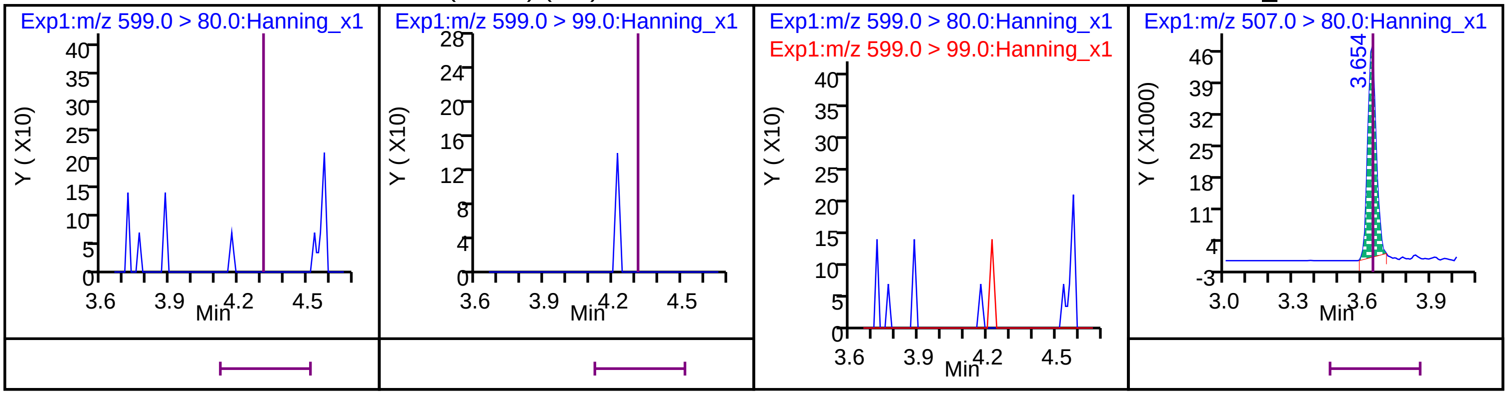


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) (Marked ND) D 61 d7-MeFOSE

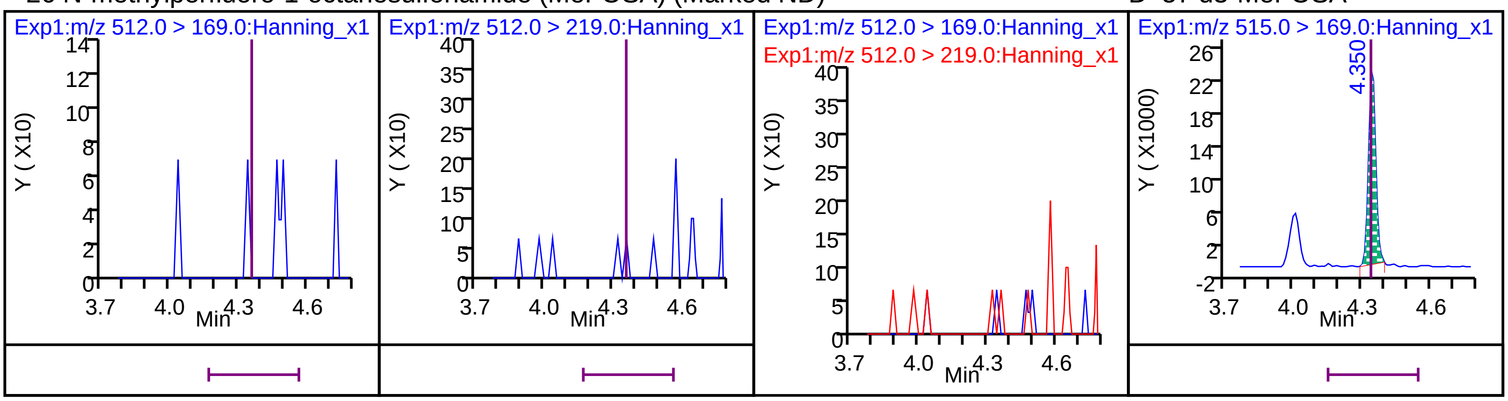




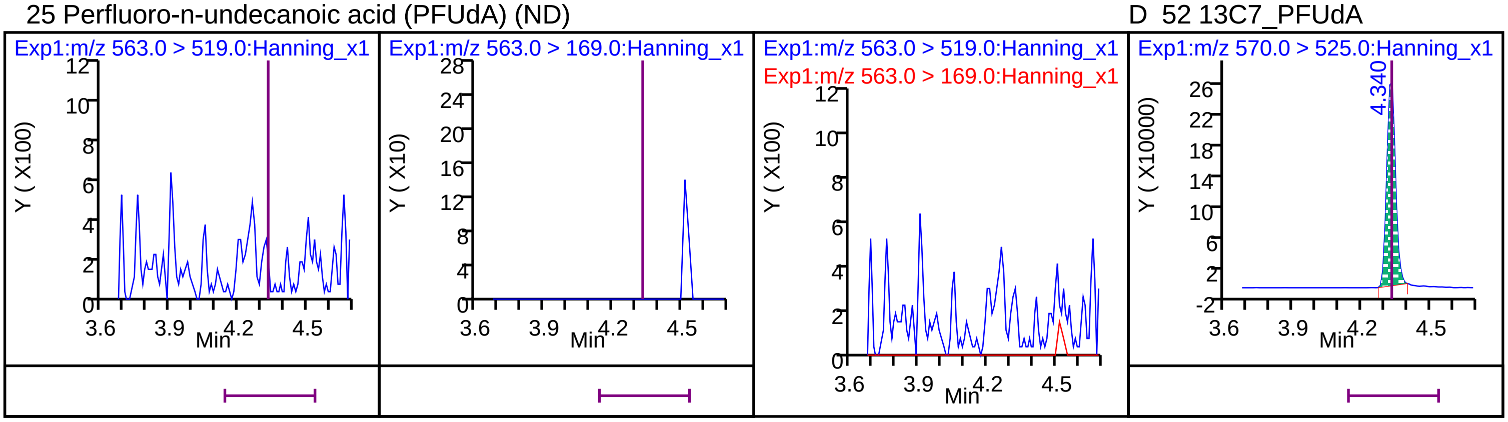
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



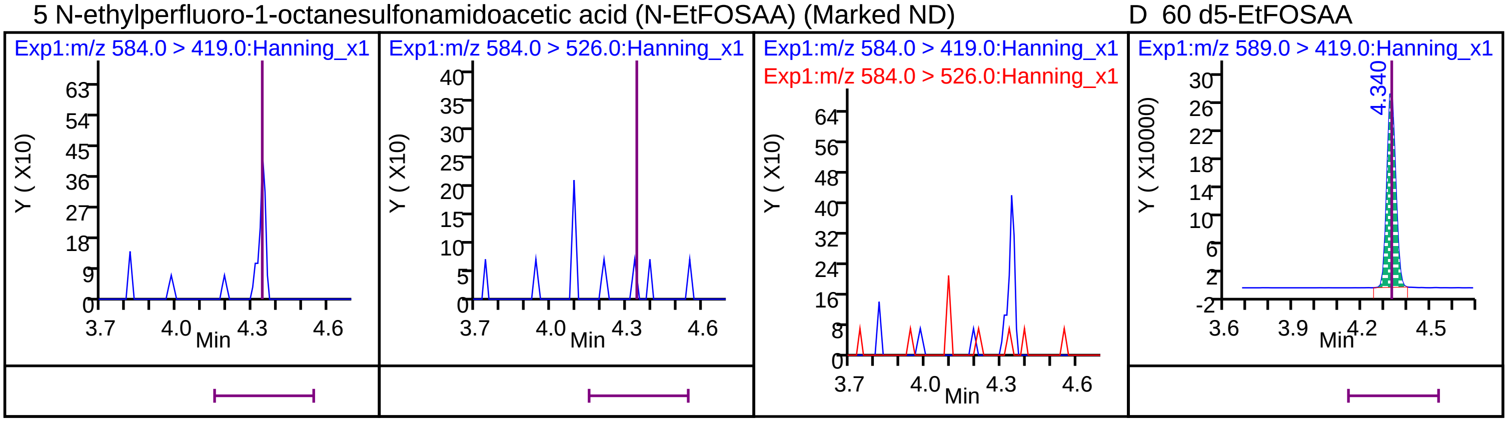
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (Marked ND) D 57 d3-MeFOSA



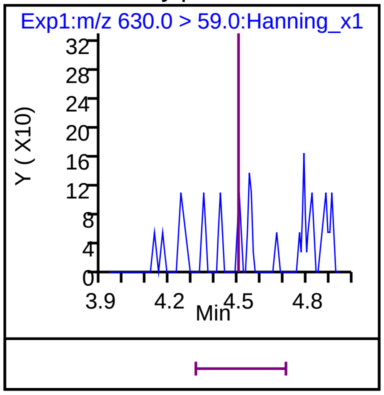
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



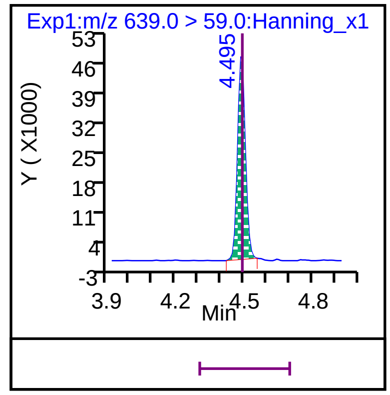
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND) D 60 d5-EtFOSAA



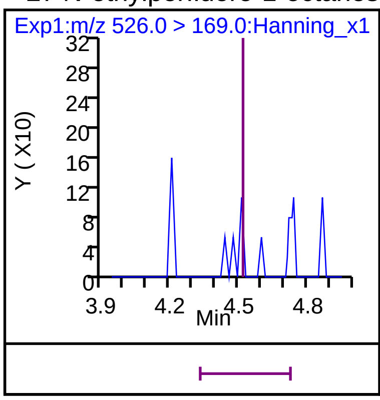
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) (Marked ND)

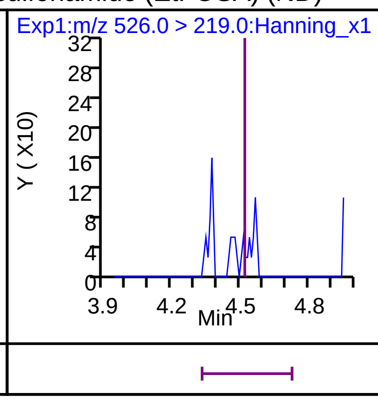


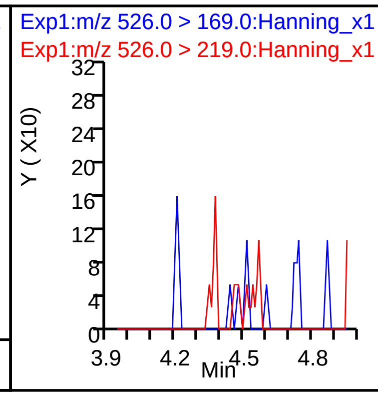
D 62 d9-EtFOSE



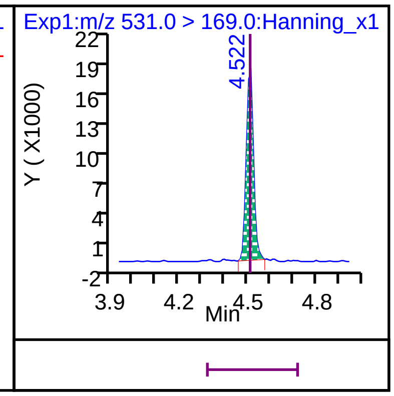
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)



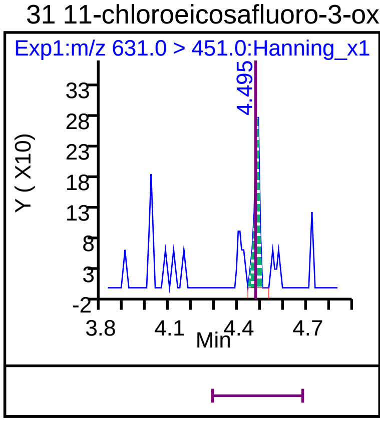




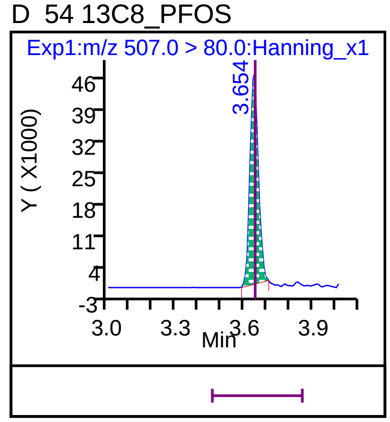
D 59 d5-EtFOSA



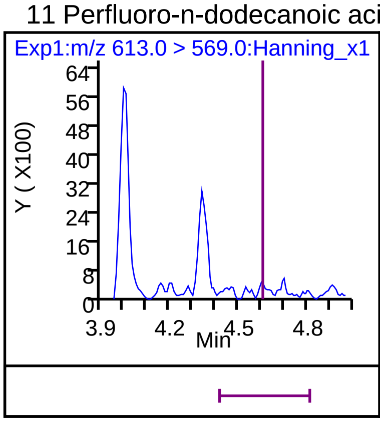
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

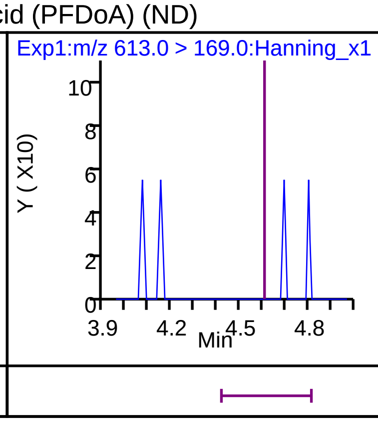


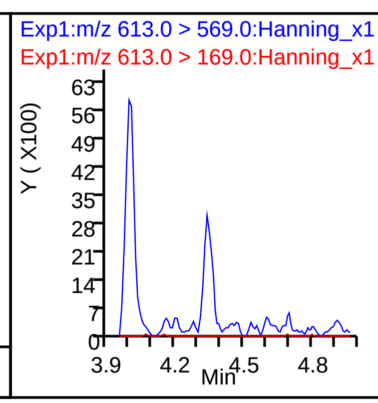
D 54 13C8_PFOS



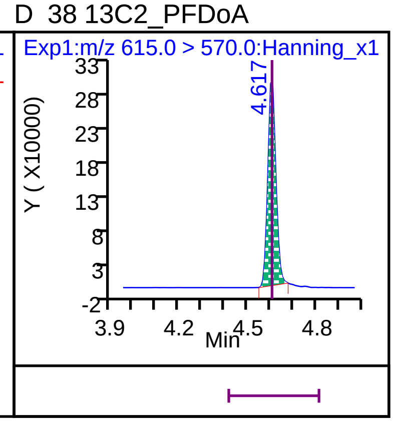
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



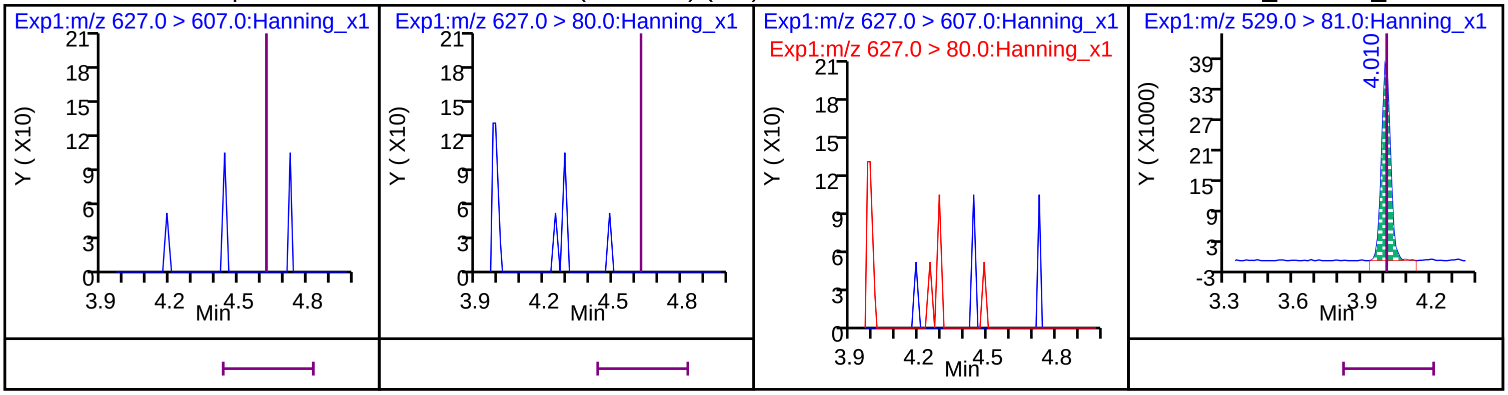




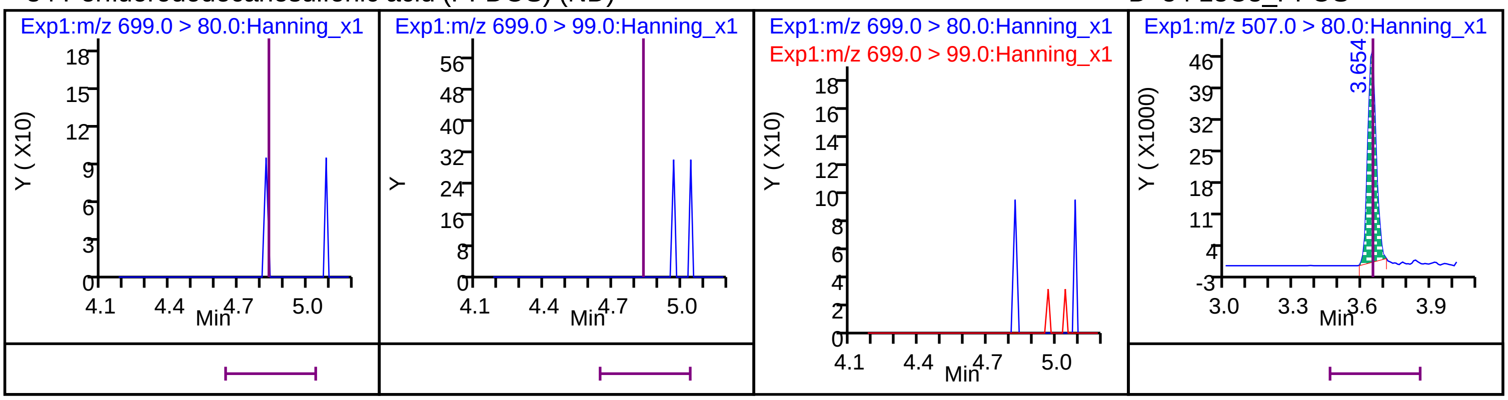
D 38 13C2_PFDoA



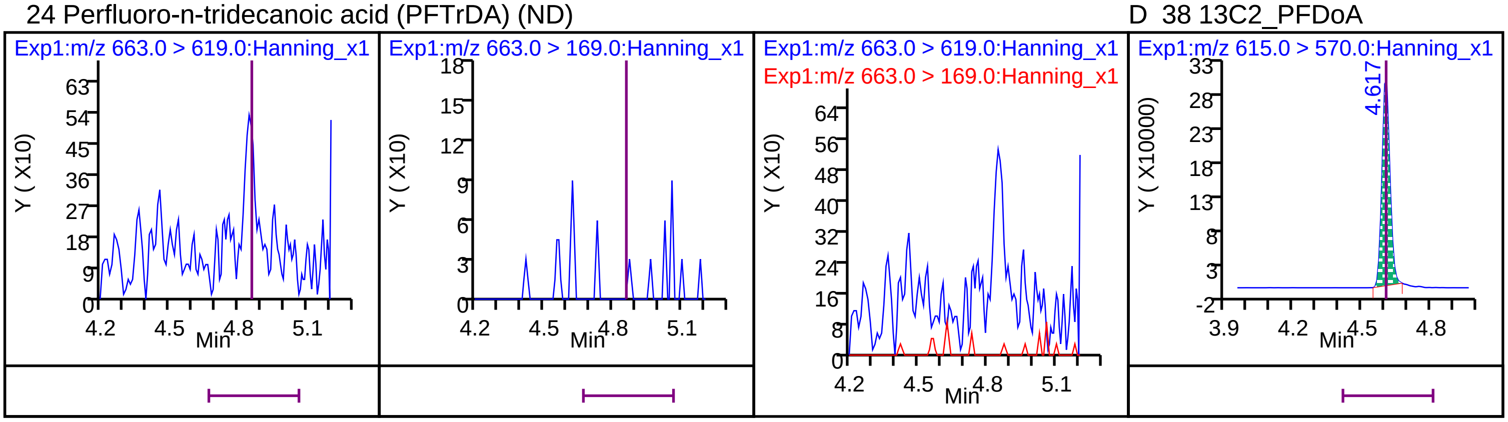
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) (ND) D 65 13C2_8:2 FTS_2



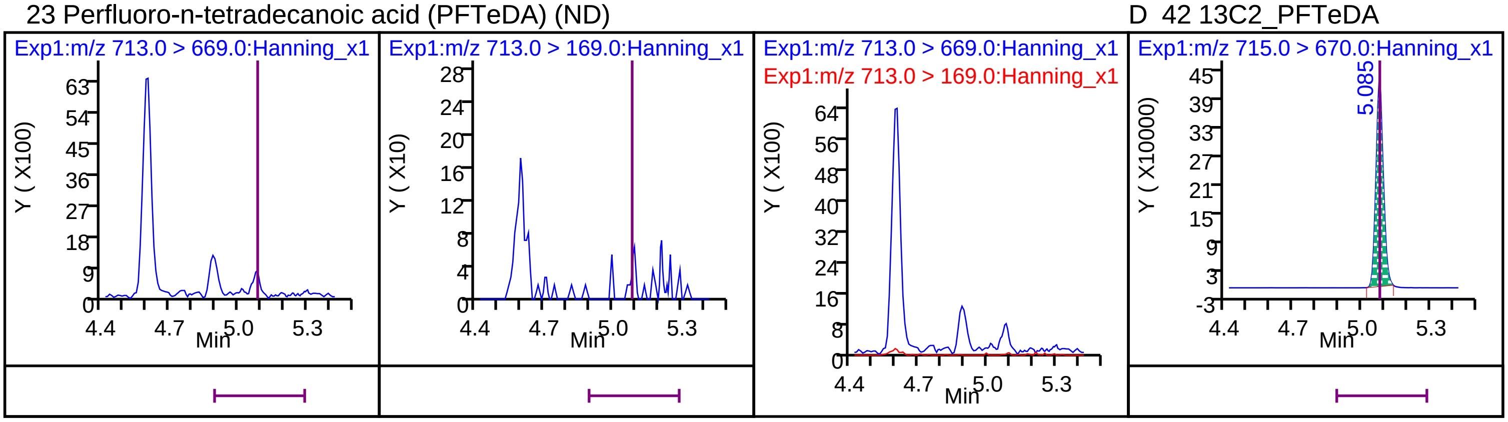
34 Perfluorododecanesulfonic acid (PFDOS) (ND) D 54 13C8_PFOS



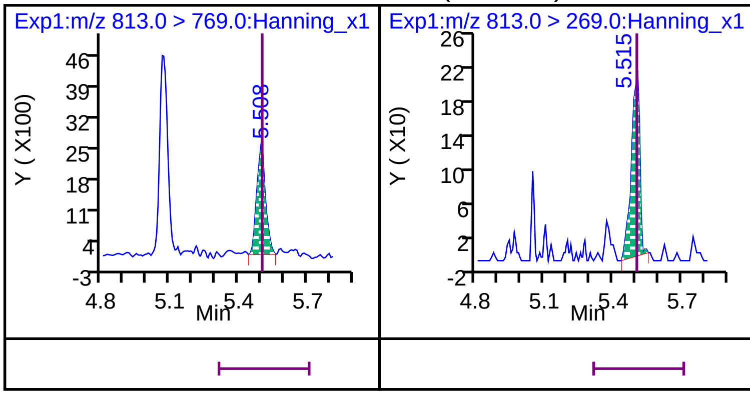
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) D 38 13C2_PFDoA



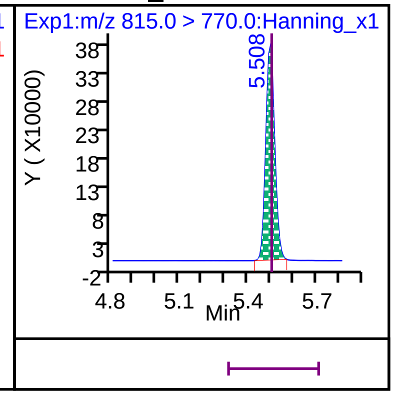
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND) D 42 13C2_PFTeDA



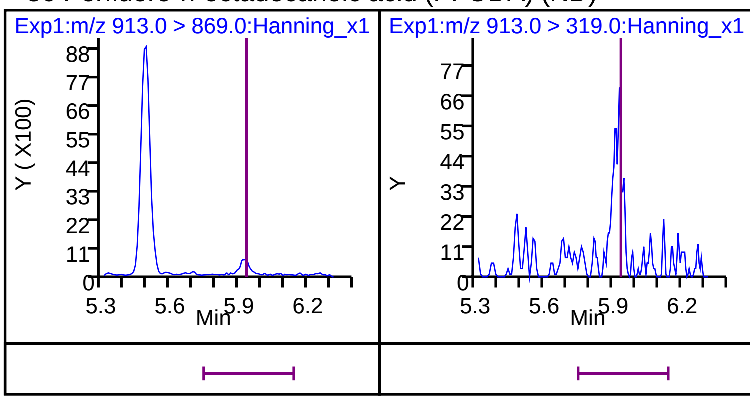
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



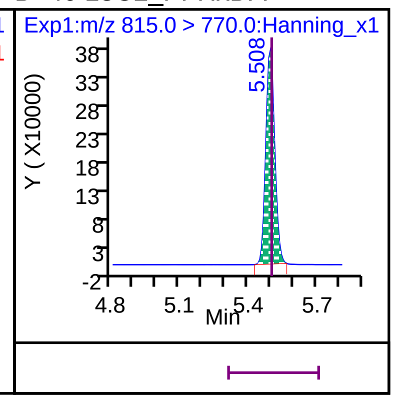
D 40 13C2_PFHxDA



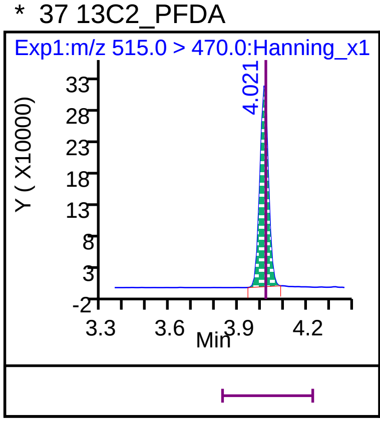
36 Perfluoro-n-octadecanoic acid (PFODA) (ND)



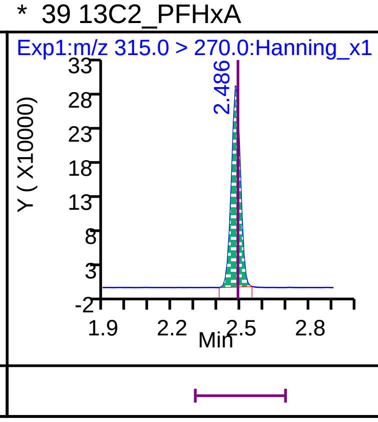
D 40 13C2_PFHxDA



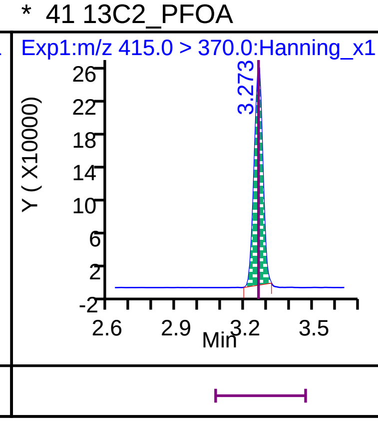
* 37 13C2_PFDA



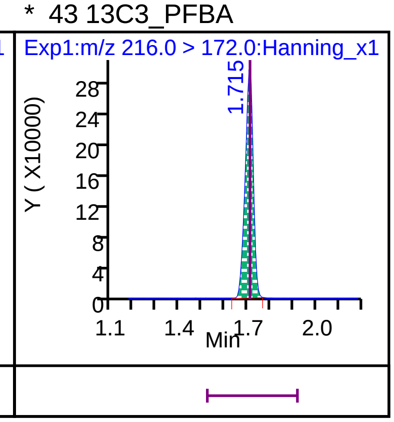
* 39 13C2_PFHxA



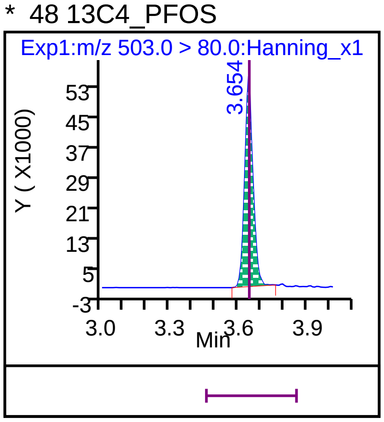
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - MB

Sample ID:	WQ21177-001	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	11/05/2021 0128
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	11/05/2021 0128

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		108	50-150
13C2_PFDoA		90	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		84	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		97	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ21177-001	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		97	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		99	50-150
13C8_PFOS		90	50-150
13C9_PFNA		80	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Report Date: 05-Nov-2021 13:58:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A074.d		
Injection Date:	05-Nov-2021 01:28:20	Injection Vol:	10.0 uL
Sample Type:	MBlk	Auto Sampler:	51
Lab Sample ID:	WQ21177-001	Lab Prep. Batch:	21177
Sample Info:	WQ21177-001	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.715	1.714	1	1111916	20	>100:1			1001.00	1032.67	93.5	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.714		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1056017	16	>100:1			1001.00	1052.95	96.8	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.089		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	317116	16	>100:1			1001.00	976.43	87.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.141		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.493		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	221485	18	>100:1			5005.00	5332.24	102.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.415		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.468	2.459	1	919087	18	>100:1			1001.00	1028.95	89.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.467		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	1	875417	19	>100:1			5005.00	5343.80	99.6	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.587		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.855	2.846	1	847548	16	>100:1			1001.00	967.31	85.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.846		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.873	2.863	1	248969	17	>100:1			1001.00	949.25	83.9	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.863		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.890		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.229		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.204	1	220405	20	>100:1			5005.00	5844.57	113.3	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													U
427 > 407	64		3.204		ND								
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.223	1	916261	21	>100:1			1001.00	1107.94	99.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.229		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.591	3.595	0	220996	19	>100:1			1001.00	984.48	90	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.595		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.799		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.926		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.226		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.386		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	799394	19	>100:1			1001.00	1000.48	80	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.595		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.871	3.873	0	440967	18	>100:1			1001.00	1064.65	103.1	
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.932	3.934	0	165554	19	>100:1			5005.00	5274.86	107.8	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.934		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.940	3.942	0	762139	17	>100:1			1001.00	1055.89	97.1	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.942		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.096	4.098	0	928935	17	>100:1			5005.00	5238.96	102.9	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.098		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.241	4.253	0	696999	15	>100:1			1001.00	1019.86	95.1	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.253		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.253	0	809504	16	>100:1			5005.00	5413.63	103.9	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.253		ND								
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.277	4.280	0	139838	15	>100:1			1001.00	1013.42	104.9	
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.295	4.306	0	60716	14	>100:1			1001.00	867.11	83.6	
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.439	4.448	0	126032	17	>100:1			1001.00	980.38	97.5	

Report Date: 05-Nov-2021 13:58:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A074.d

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.461	4.463	0	55201	23	>100:1			1001.00	857.09	84.3	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.470		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	669887	19	>100:1			1001.00	974.18	89.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.521		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.760		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	720813	26	>100:1			1001.00	922.05	80	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.978		ND								
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	367884	22	>100:1			1001.00	942.37	91.2	
*** 37 13C2_PFDA**													
515 > 470		3.940	3.942	0	709844	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.468	2.467	1	808768	16	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.233	3.223	1	824198	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.715	1.714	1	951845	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.591	3.595	0	209627	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

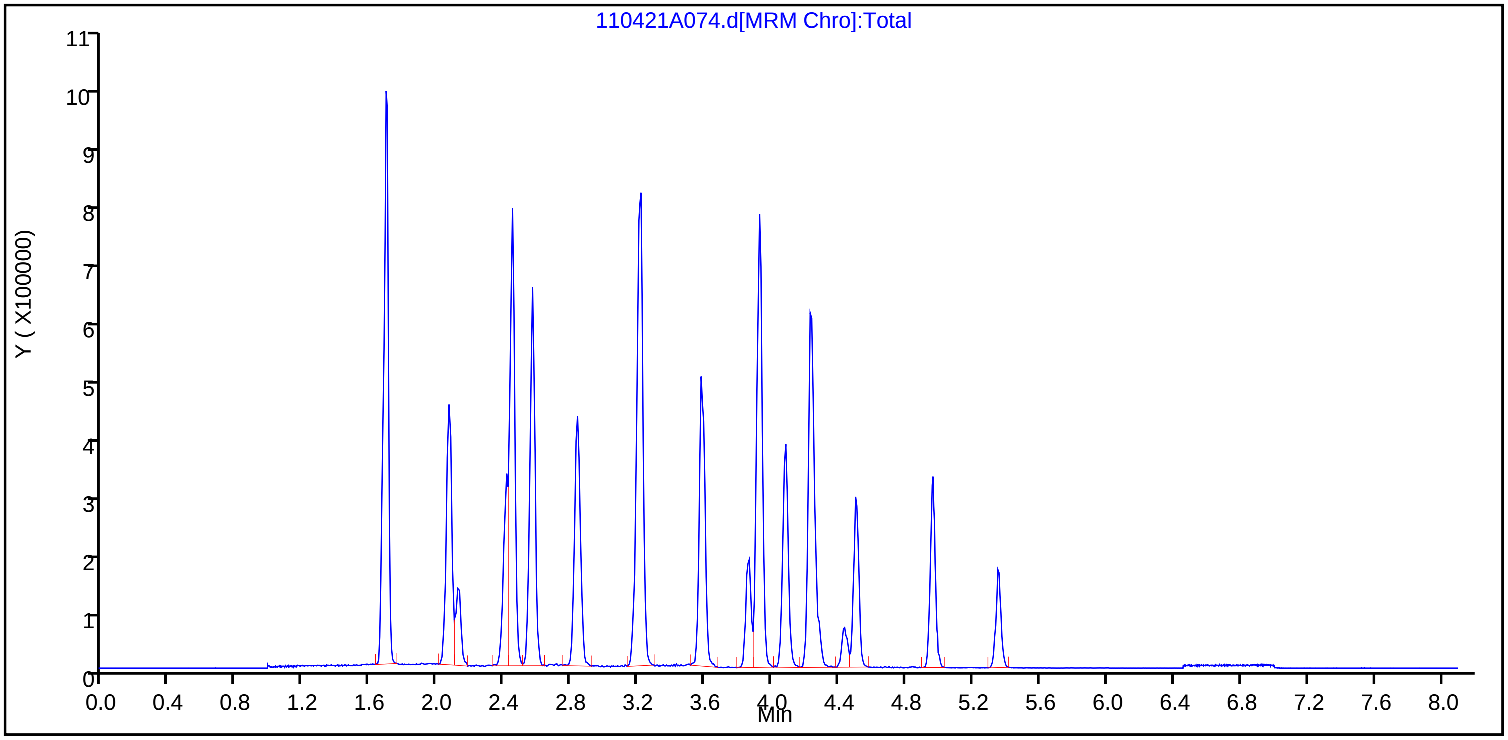
QC Flag Legend

U - Result Less Than Method Detection Limit

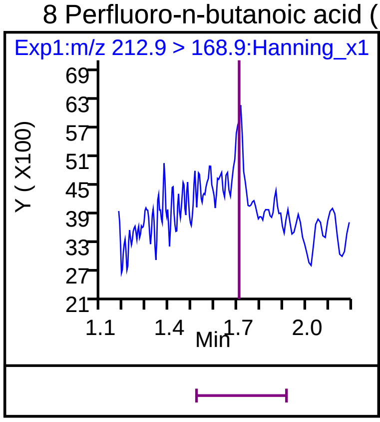
Report Date: 05-Nov-2021 13:58:36 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

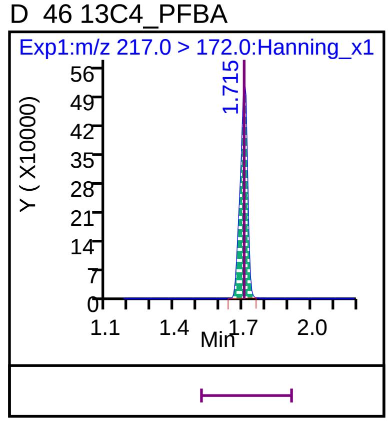
Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A074.d		
Injection Date:	05-Nov-2021 01:28:20	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WQ21177-001
Sample Info:	WQ21177-001		
Dil. Factor:	1	Operator:	Matthew M. Miller



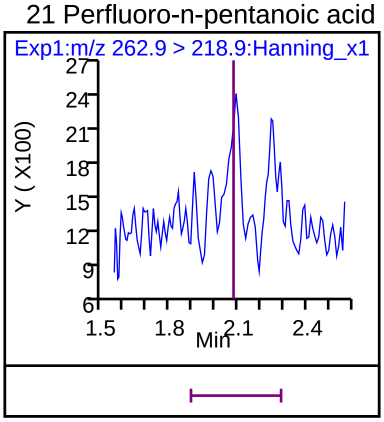
8 Perfluoro-n-butanoic acid (PFBA) (Marked ND)



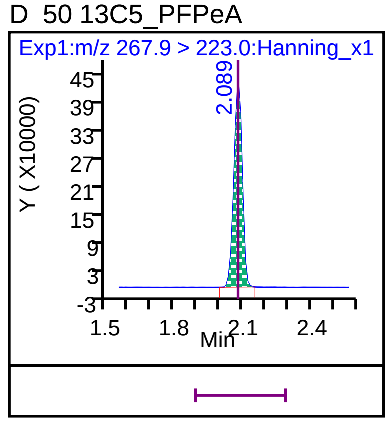
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



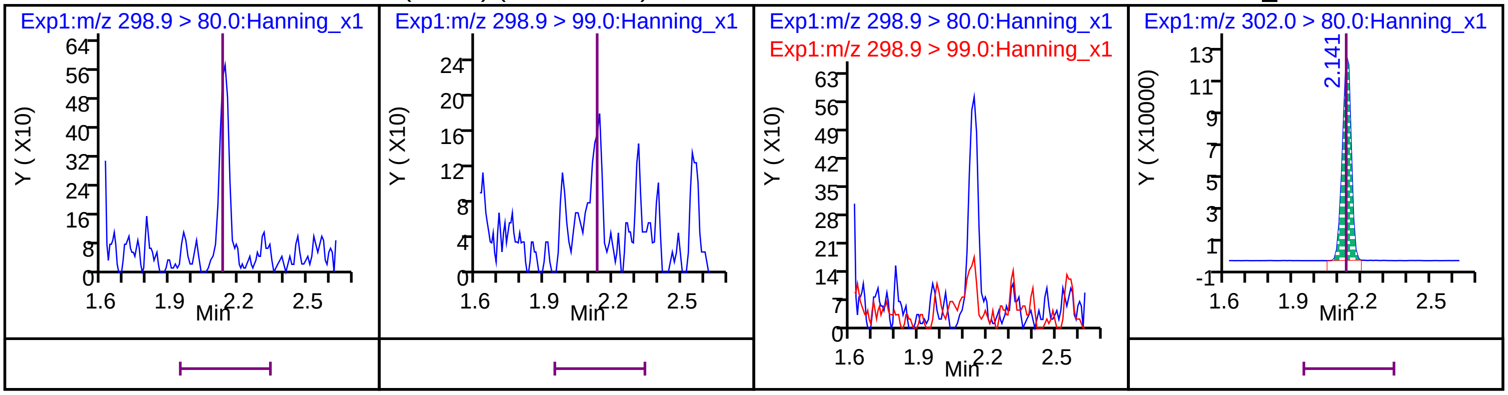
D 50 13C5_PFPeA



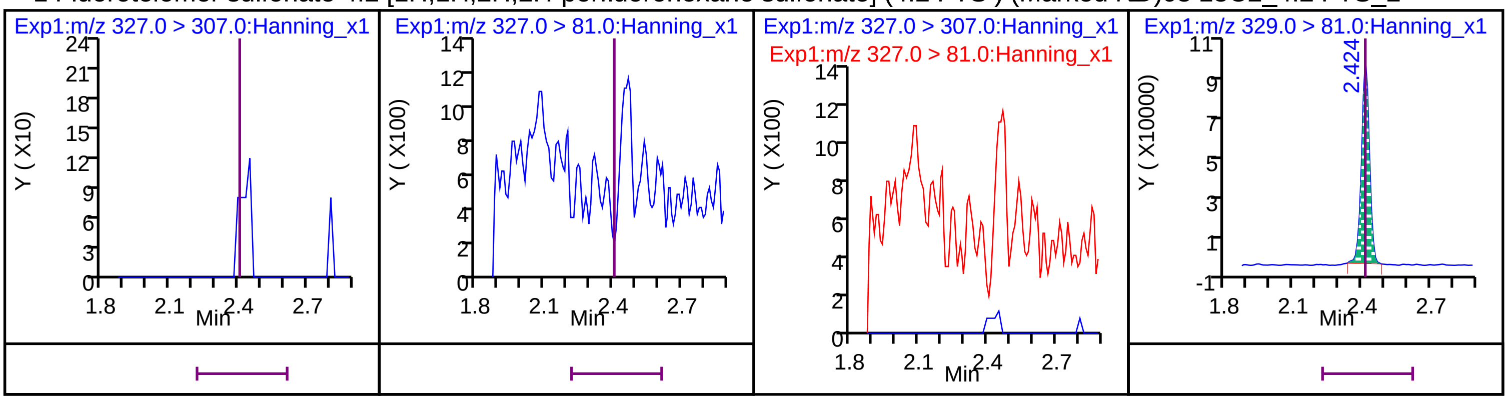
Report Date: 05-Nov-2021 13:58:36 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A074.d

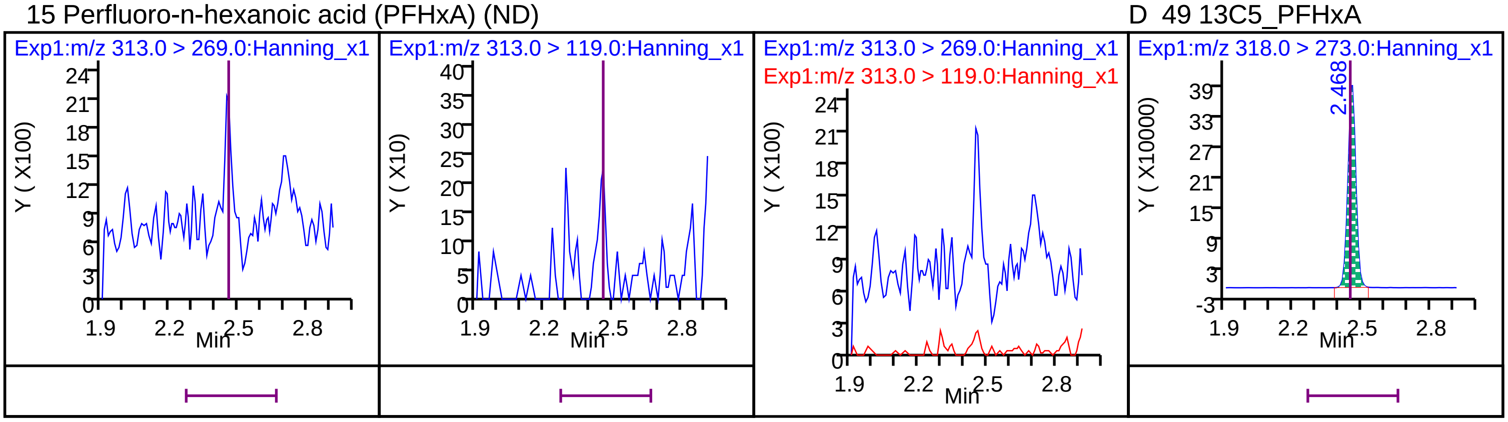
7 Perfluoro-1-butanesulfonate (PFBS) (Marked ND) D 44 13C3_PFBS



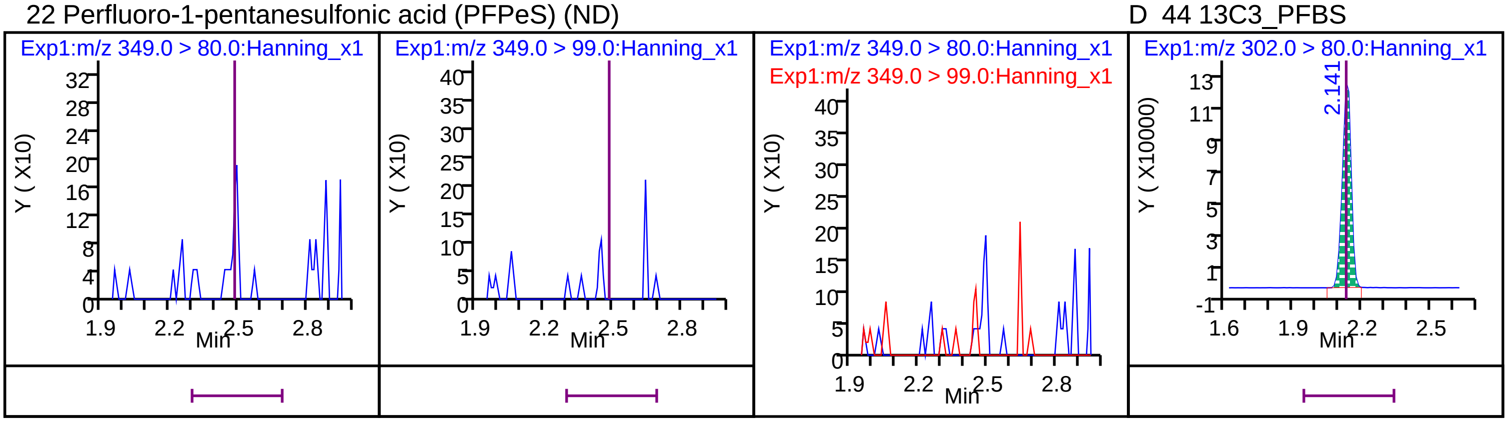
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (Marked ND) D 63 13C2_4:2 FTS_2



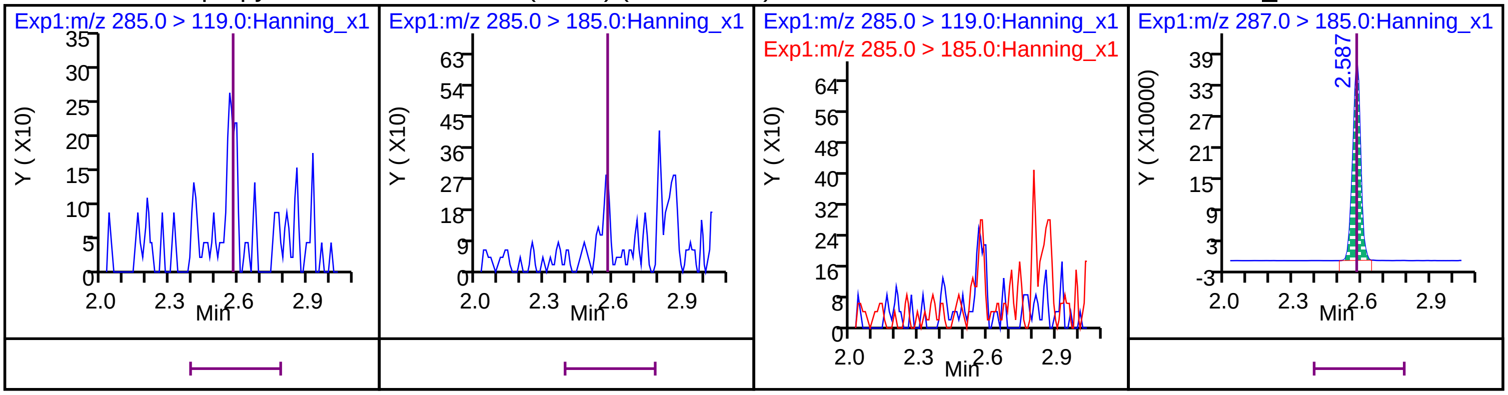
15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



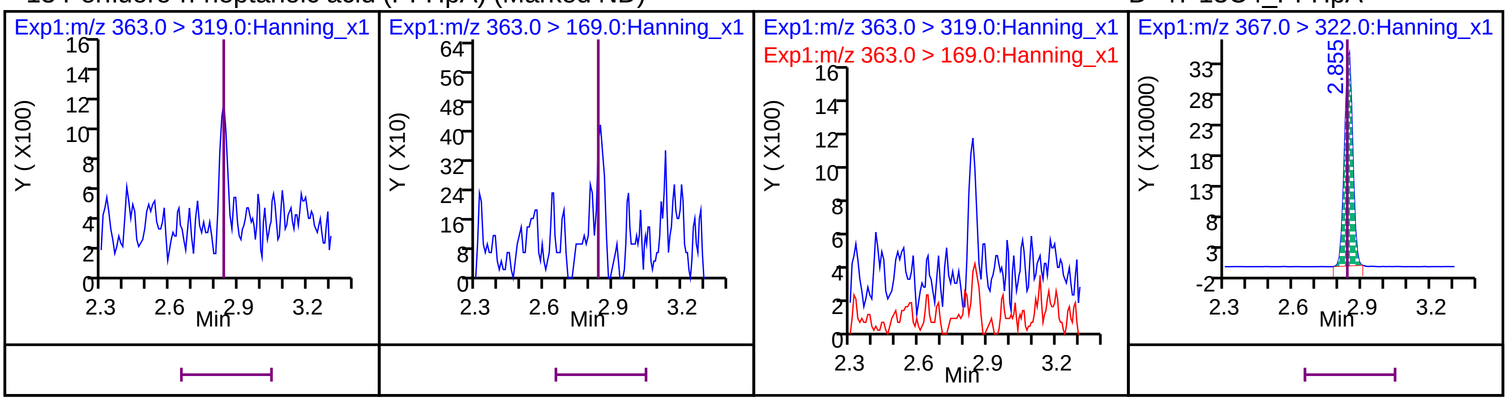
22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



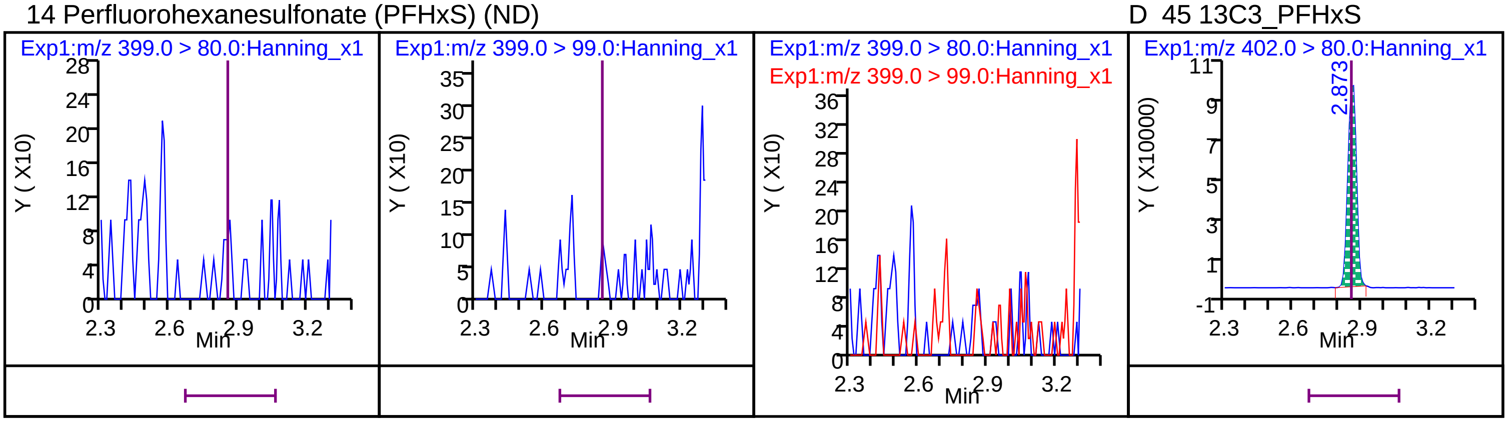
28 Hexafluoropropylene oxide dimer acid (GenX) (Marked ND) D 66 13C3_GenX



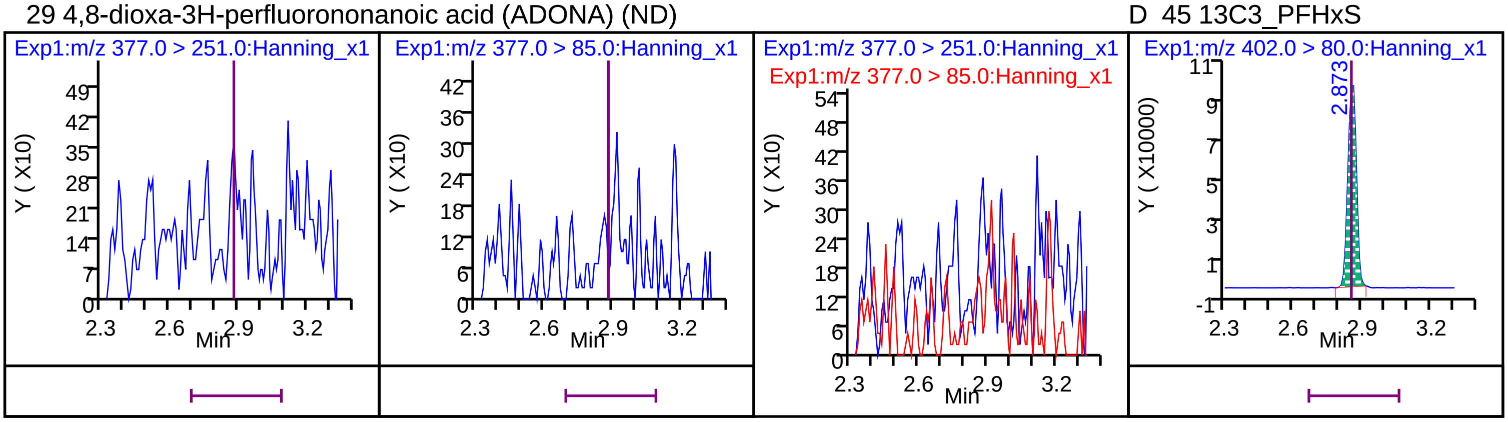
13 Perfluoro-n-heptanoic acid (PFHpA) (Marked ND) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS

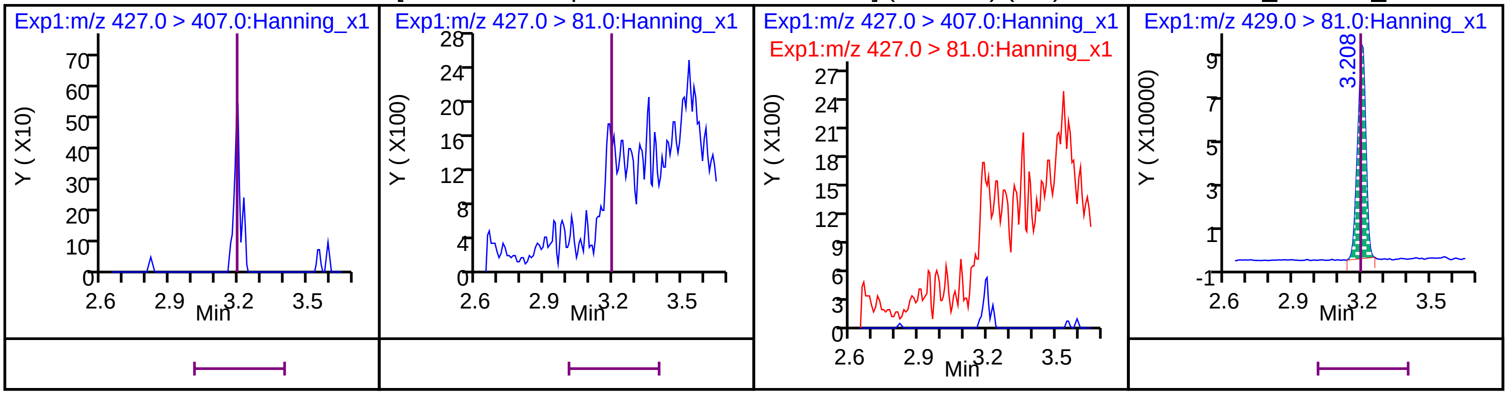


29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS

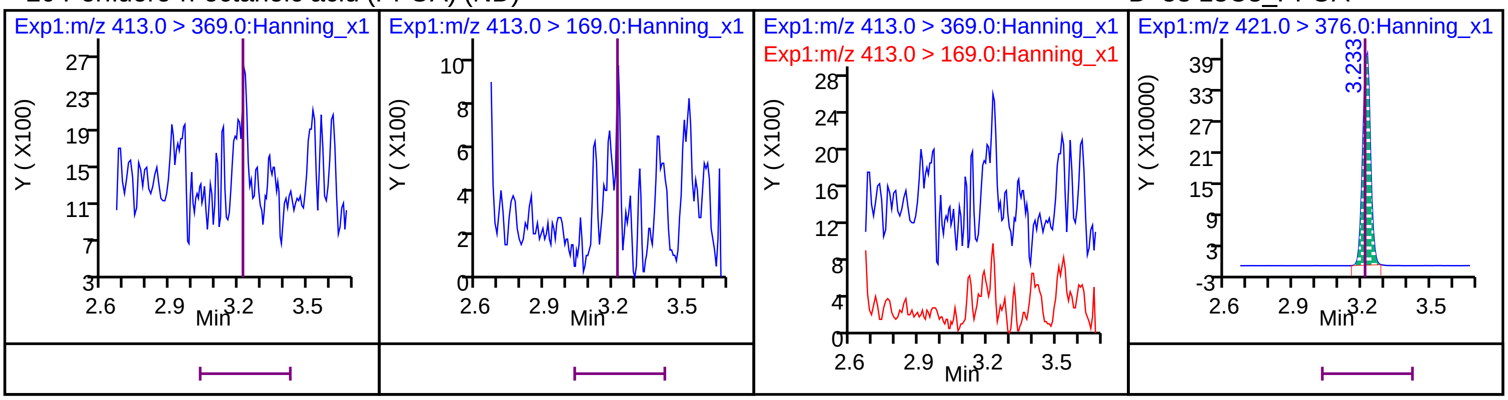


Report Date: 05-Nov-2021 13:58:36 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A074.d

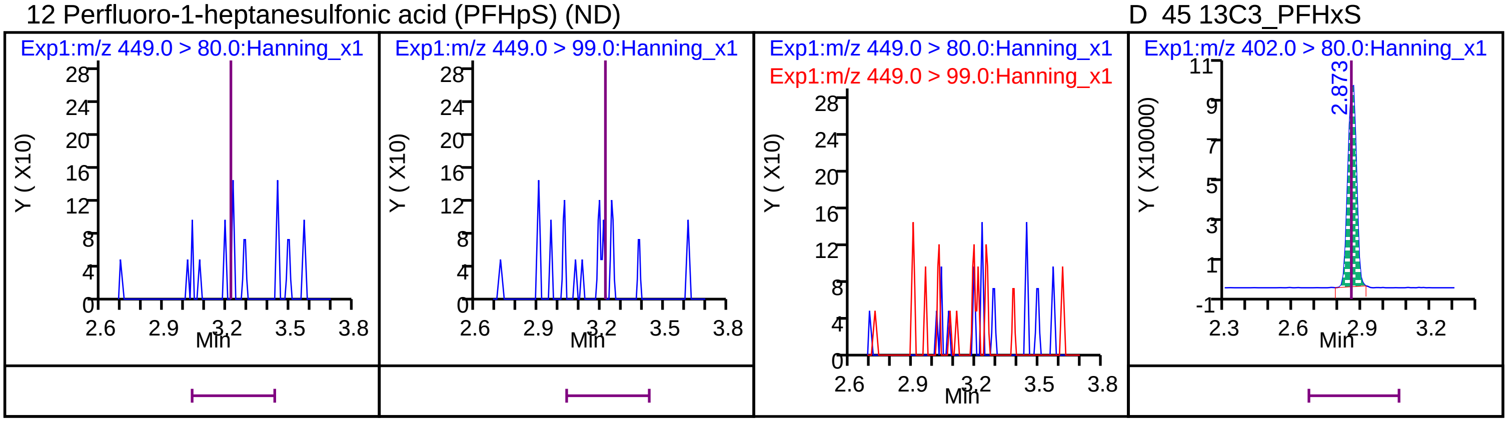
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) (ND) D 64 13C2_6:2 FTS_2



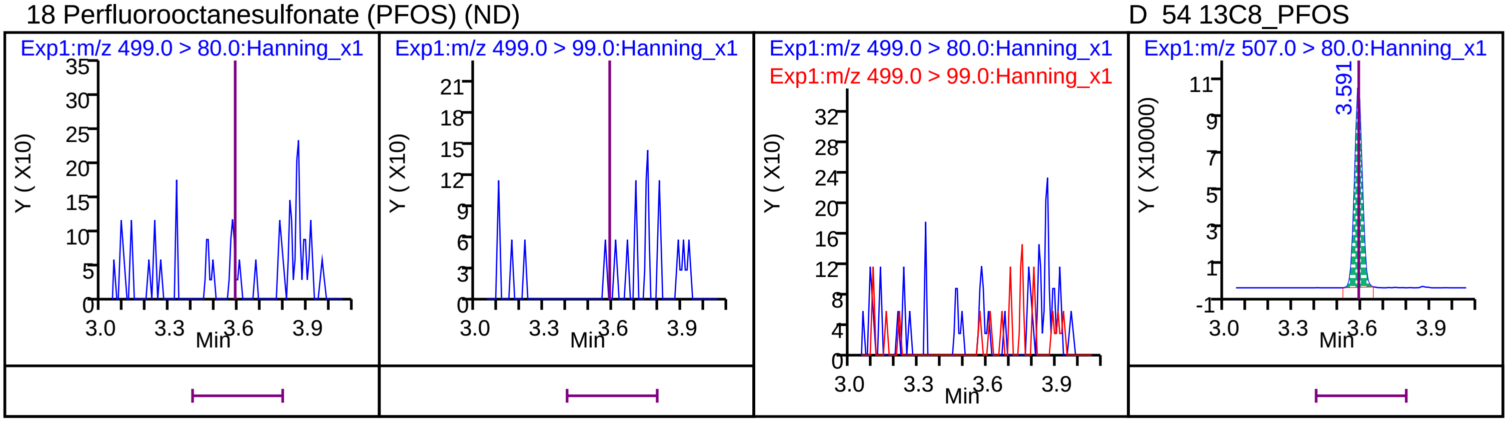
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



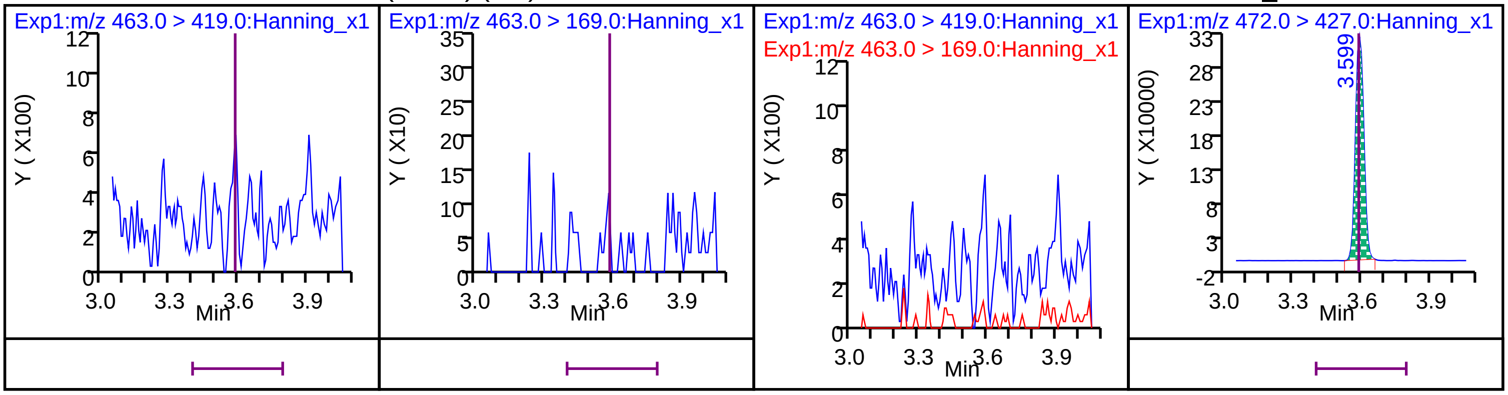
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



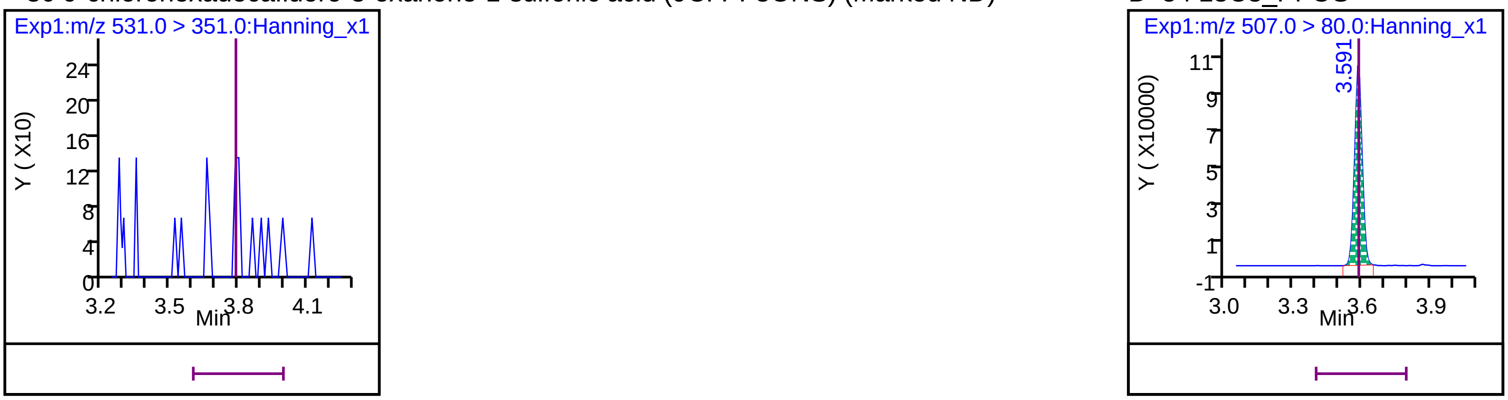
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



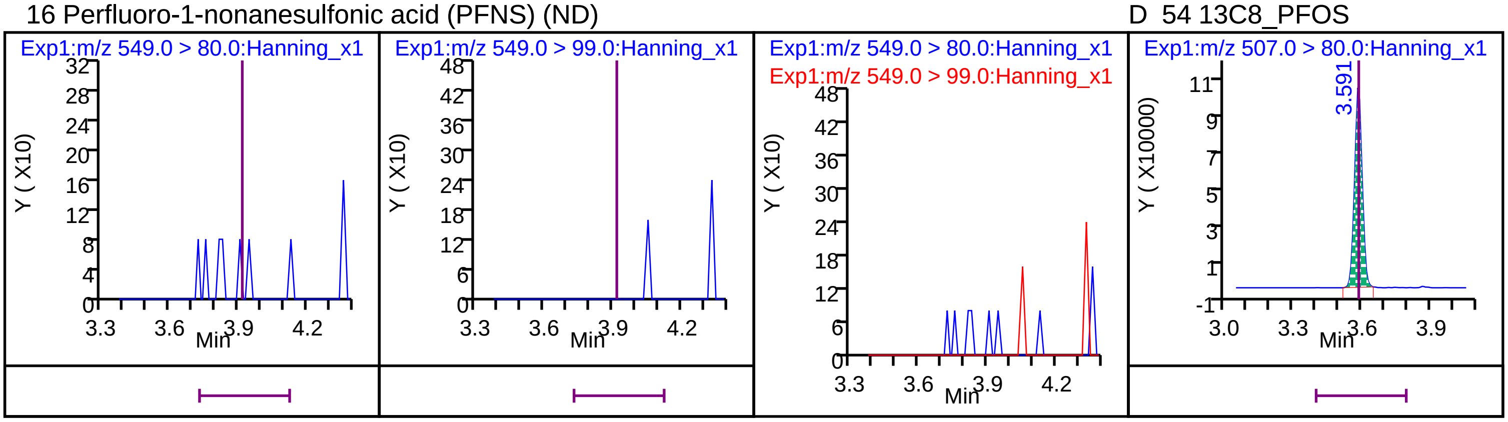
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



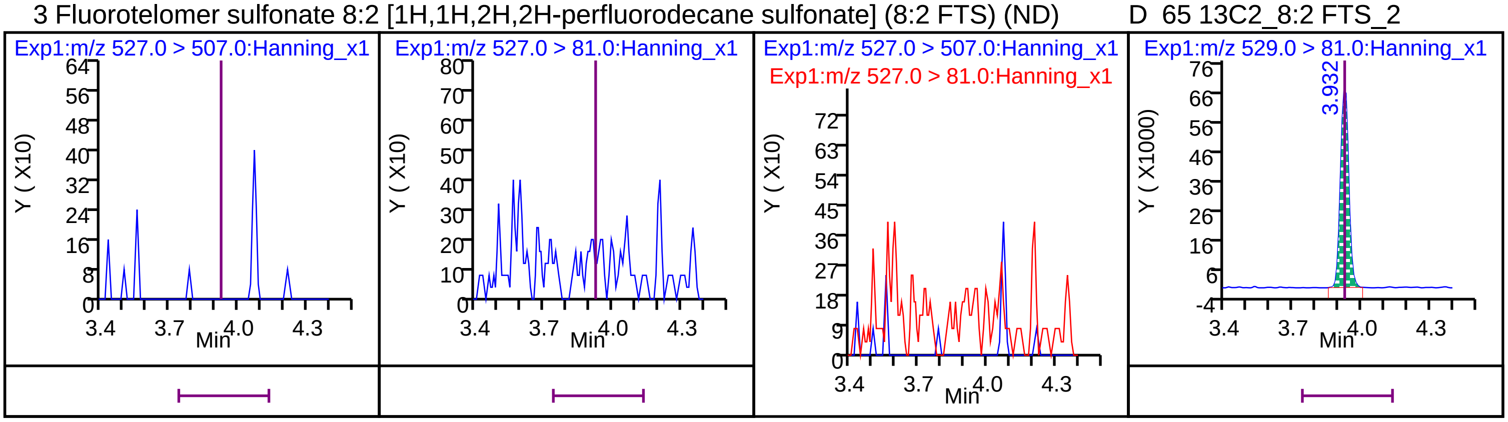
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



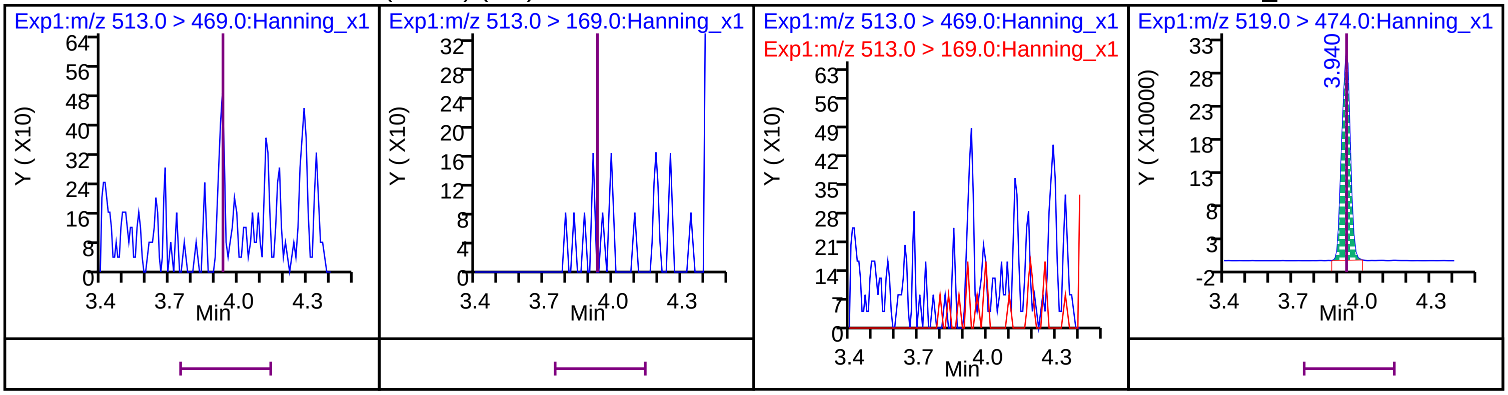
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



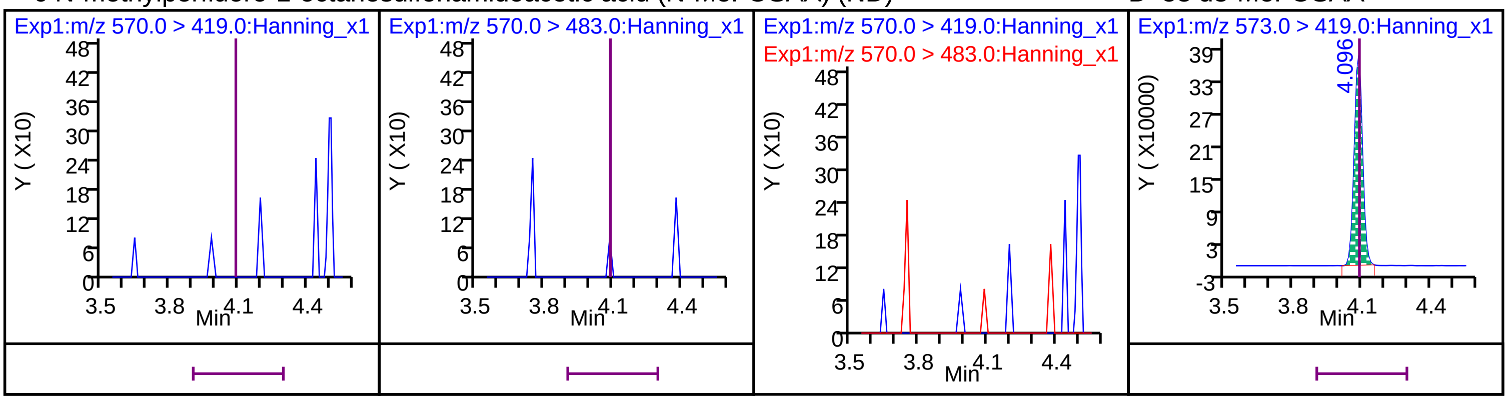
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



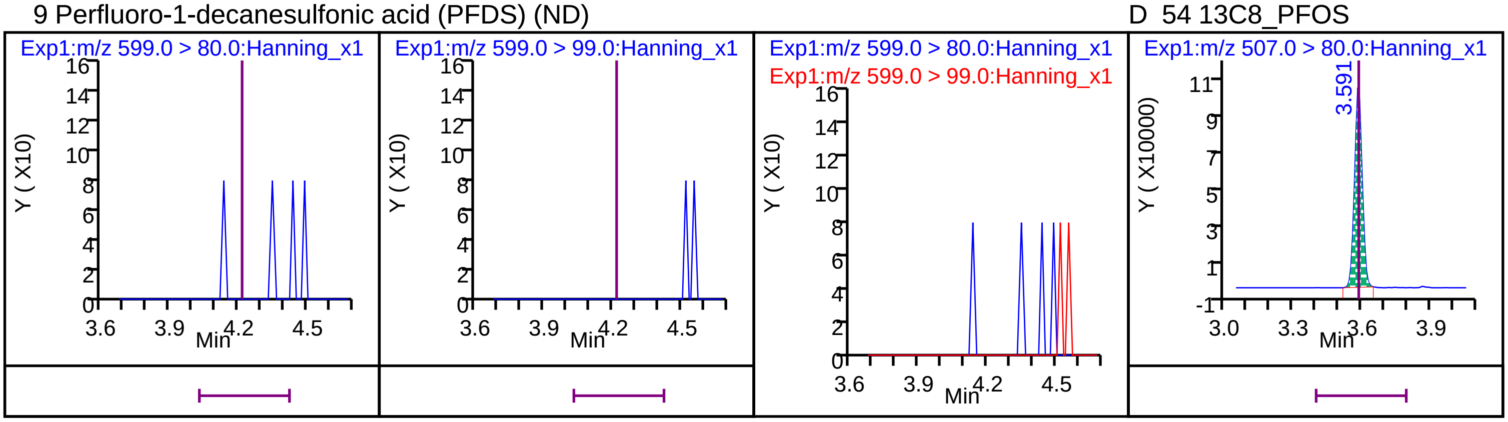
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



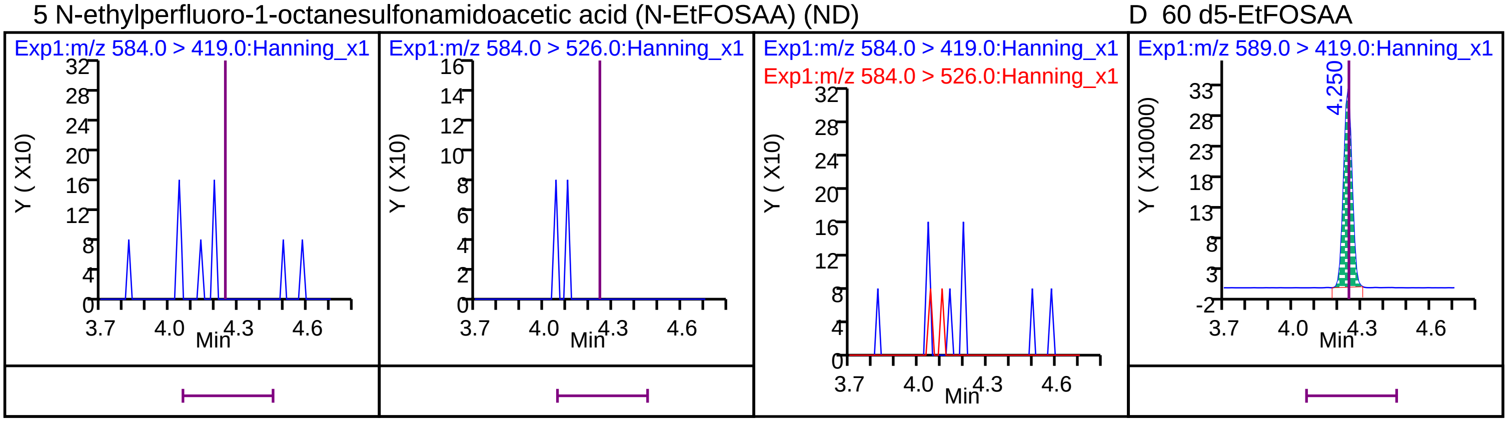
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



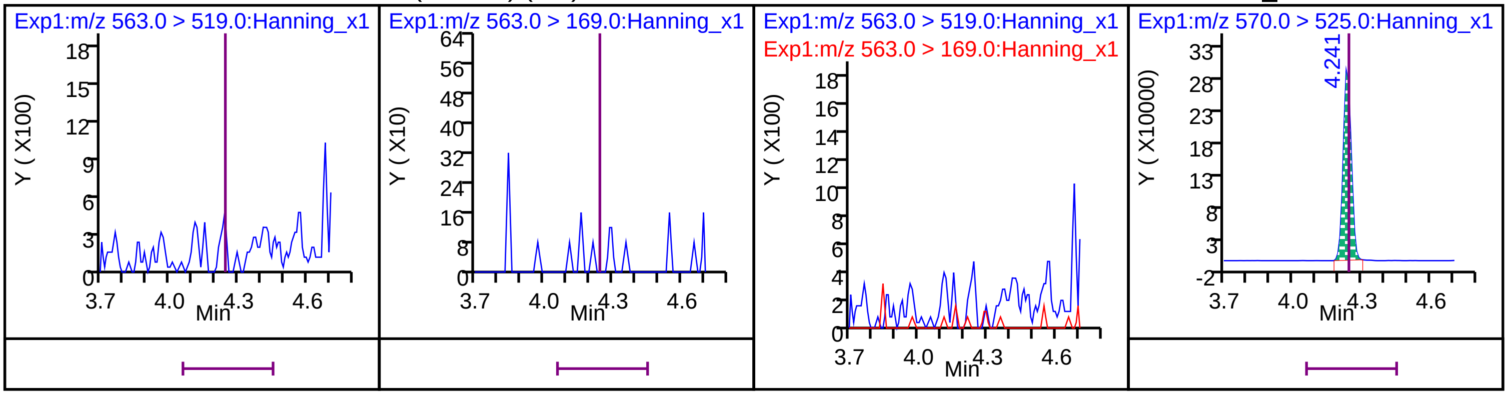
9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS



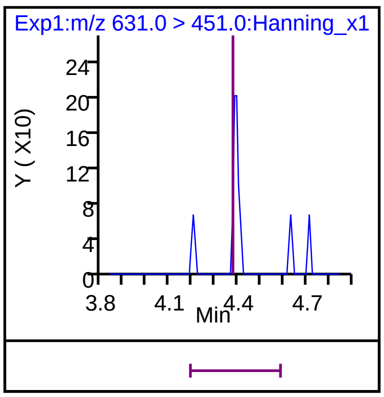
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



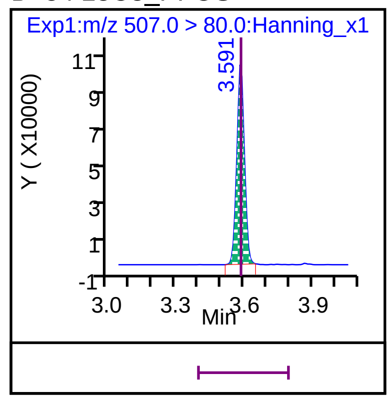
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



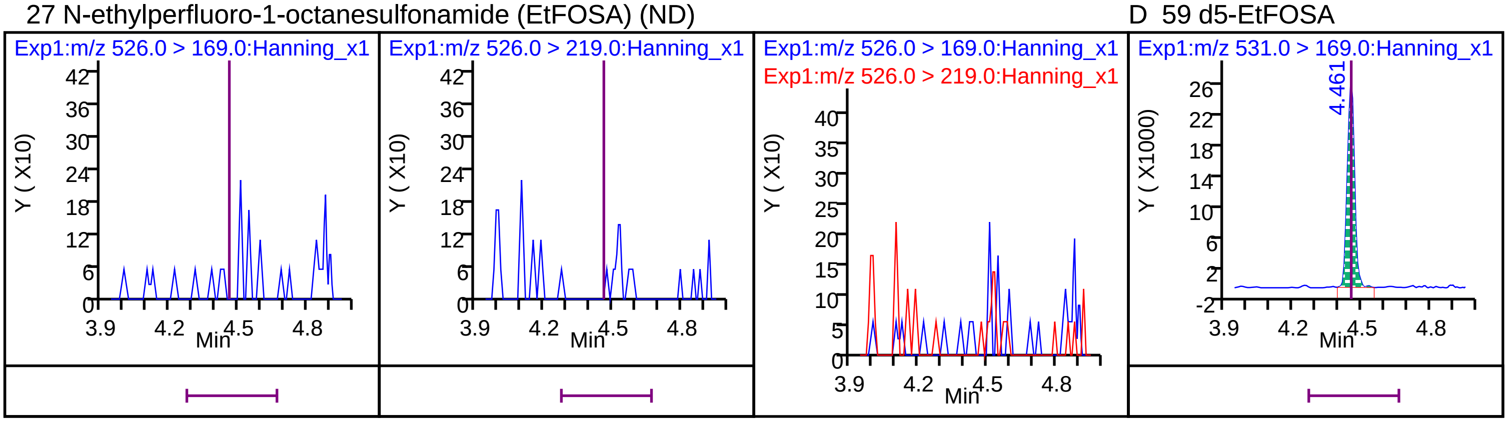
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



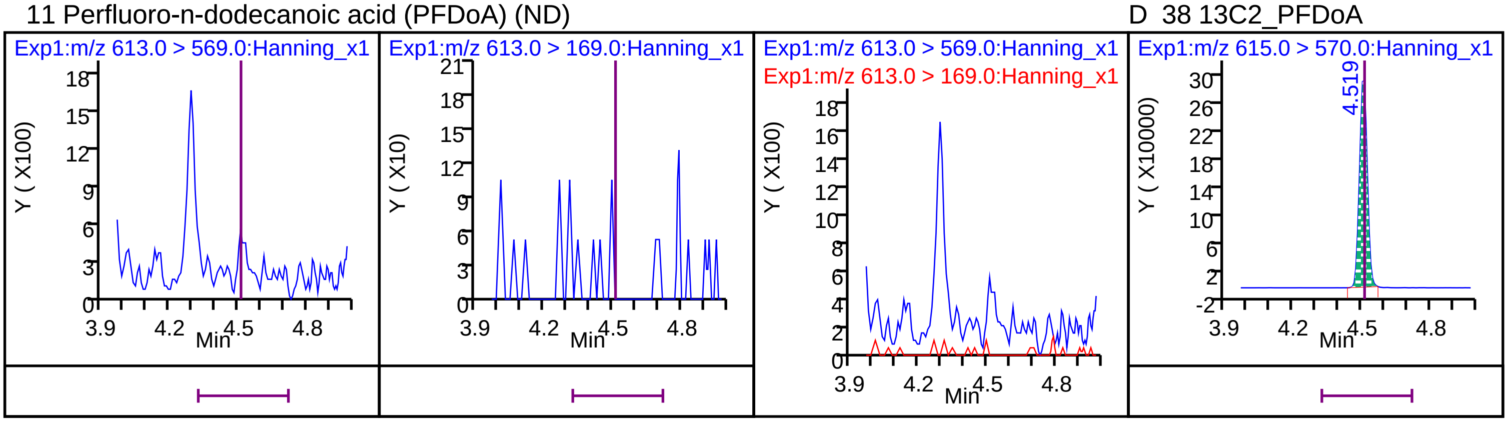
D 54 13C8_PFOS



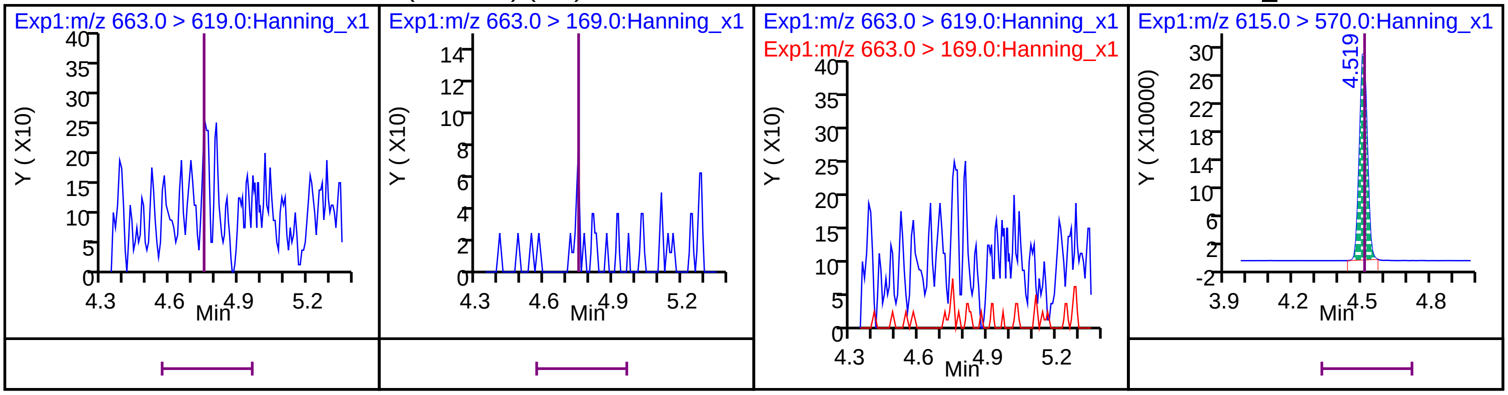
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



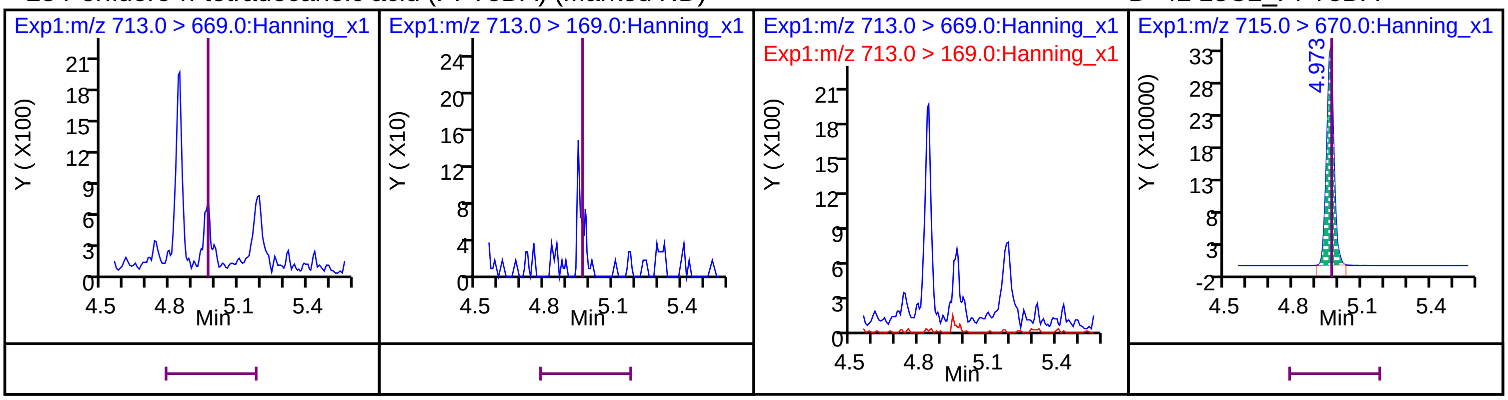
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND) D 38 13C2_PFDoA



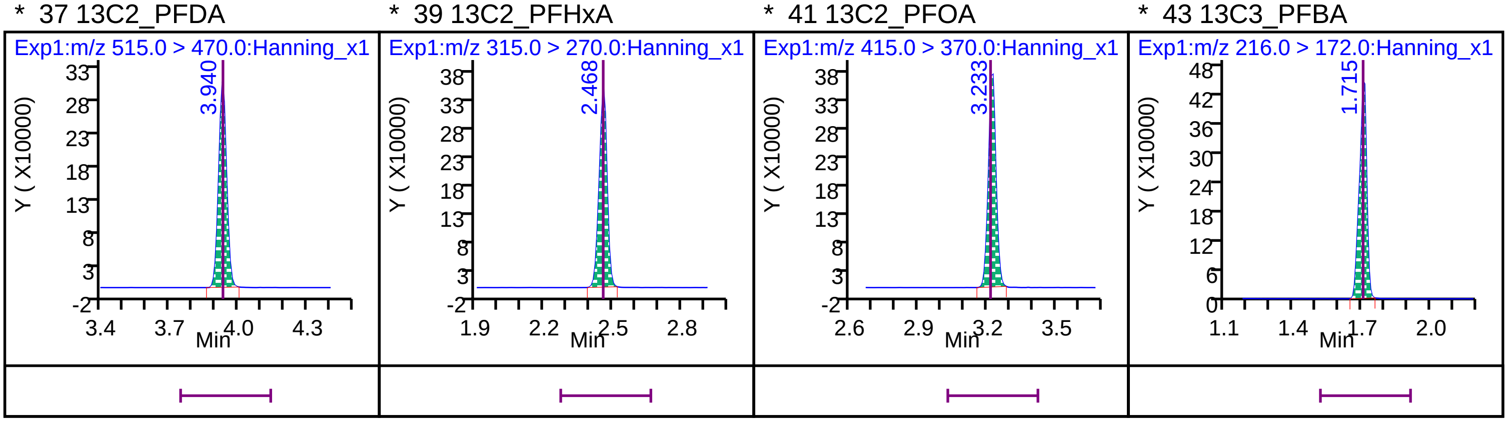
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND) | D 38 13C2_PFDoA



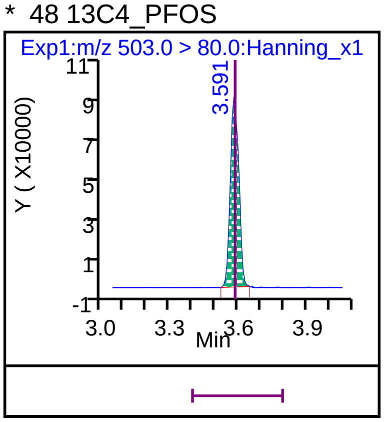
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (Marked ND) | D 42 13C2_PFTeDA



* 37 13C2_PFDA | * 39 13C2_PFHxA | * 41 13C2_PFOA | * 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - MB

Sample ID: WQ21582-001
Batch: 21582
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/07/2021 1308

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	8.0		1	8.0	4.0	2.0	ng/L	11/09/2021 2109

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		111	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		100	50-150
13C8_PFOS		104	50-150
13C9_PFNA		102	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921034.d

Injection Date:	09-Nov-2021 21:09:33	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	27
Lab Sample ID:	WQ21582-001	Lab Prep. Batch:	21582
Client ID:		Sample Group:	
Sample Info:	WQ21582-001	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.710	1.711	0	656961	19	>100:1			1001.00	1056.76	101.8	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													U
212.9 > 168.9	46		1.718		ND								
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.087	2.098	0	610553	14	>100:1			1001.00	1068.16	106.6	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													U
262.9 > 218.9	50		2.098		ND								
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.150	2.151	0	168904	15	>100:1			1001.00	976.49	97.8	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.162		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.505		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	0	109836	15	>100:1			5005.00	4850.62	106.3	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.424		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.469	0	664893	17	>100:1			1001.00	1020.89	98.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													U
313 > 269	49		2.469		ND								
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.582	2.583	0	1160153	16	>100:1			5005.00	5005.92	98.5	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.583		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.844	2.845	0	566403	17	>100:1			1001.00	1066.80	105.5	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													U
363 > 319	47		2.845		ND								
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.853	2.864	0	126643	16	>100:1			1001.00	1007.99	111.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													U
399 > 80	45		2.864		ND								
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.888		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.247		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.205	3.213	0	104832	21	>100:1			5005.00	5824.01	100.9	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													J
427 > 407	64	3.205	3.213	0/0	8978	17	>100:1	Target = 1.75		181.07	7.9591		
427 > 81	64	3.211	3.213		5527	18	10:1	1.62 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.232	3.240	0	549833	19	>100:1			1001.00	1047.95	100.2	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													U
413 > 369	53		3.240		ND								
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.614	3.623	0	116807	17	>100:1			1001.00	943.19	103.6	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													U
499 > 80	54		3.623		ND								
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.828		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.971		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.274		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.443		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.614	3.623	0	664730	19	>100:1			1001.00	1038.03	102.4	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													U
463 > 419	56		3.623		ND								
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.884	3.893	0	257130	17	>100:1			1001.00	959.23	104.5	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													U
498 > 78	55		3.893		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.969	3.981	0	652291	17	>100:1			1001.00	1135.09	103.3	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.981		ND								
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.969	3.981	0	97746	14	>100:1			5005.00	5655.12	105.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.981		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.129	4.139	0	741459	16	>100:1			5005.00	4906.67	104.4	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.148		ND								
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.312	4.325	0	32374	14	>100:1			1001.00	688.21	74.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													U
512 > 169	57		4.335		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.292	4.294	0	669051	14	>100:1			5005.00	5165.89	97.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.304		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.292	4.294	0	696836	15	>100:1			1001.00	1157.05	100.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.294		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.478	4.488	0	34353	23	>100:1			1001.00	798.91	80.8	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.497		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.567	4.577	0	700082	16	>100:1			1001.00	1166.15	99.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.577		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.822		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.042	5.042	0	816054	20	>100:1			1001.00	1003.77	86.2	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		5.048		ND								
*** 37 13C2_PFDA**													
515 > 470		3.969	3.981	0	773572	17	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.469	0	713502	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.232	3.240	0	623823	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.710	1.711	0	656398	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.614	3.623	0	126519	17	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit

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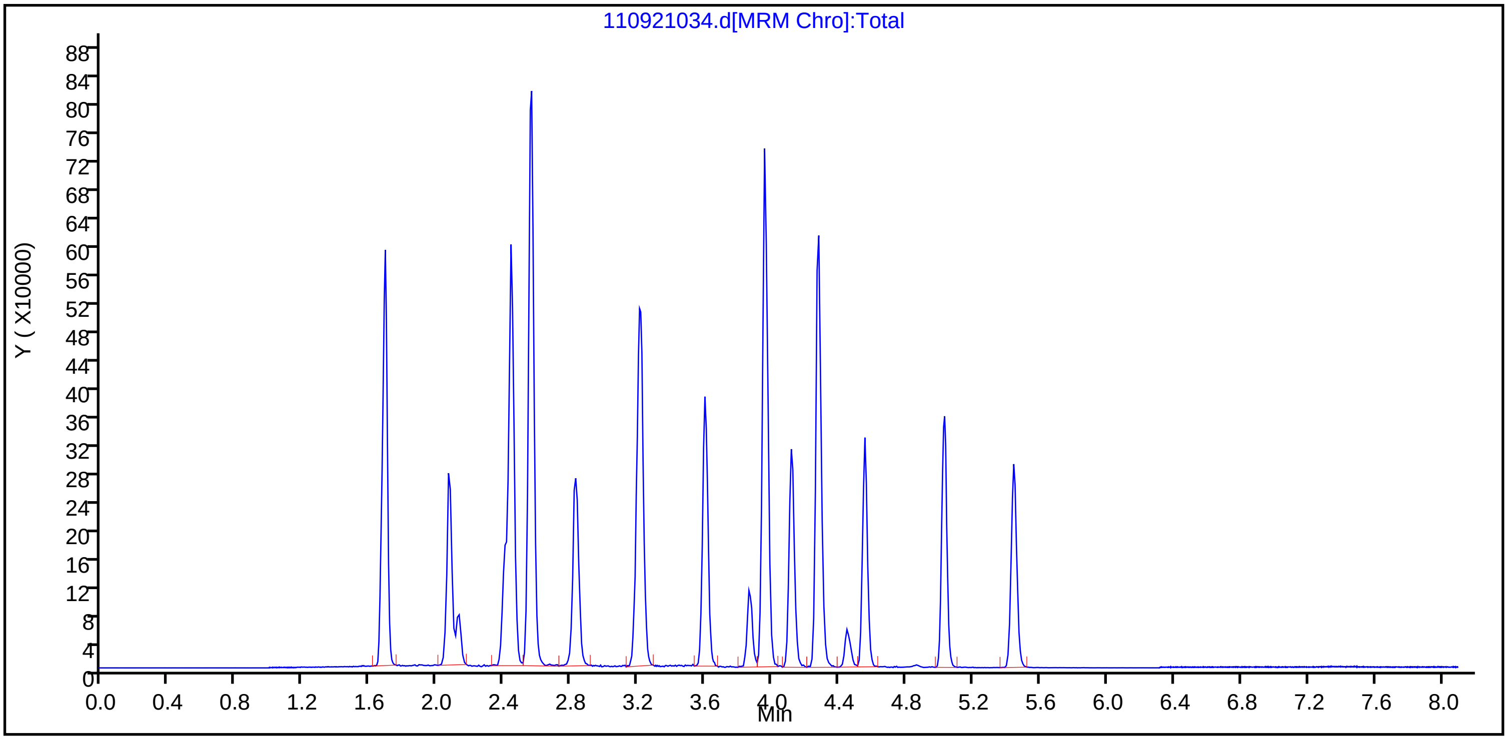
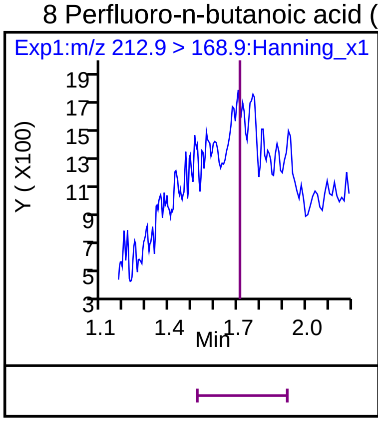
Pace Environmental Services, LLC

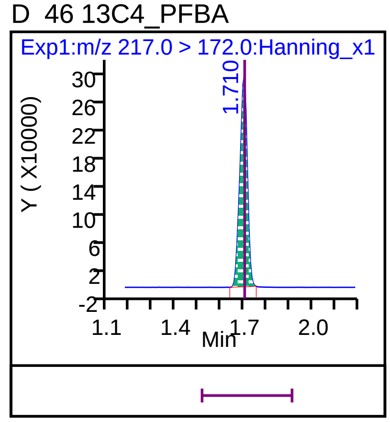
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921034.d		
Injection Date:	09-Nov-2021 21:09:33	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21582-001
Sample Info:	WQ21582-001		
Dil. Factor:	1	Operator:	Justin Gavin



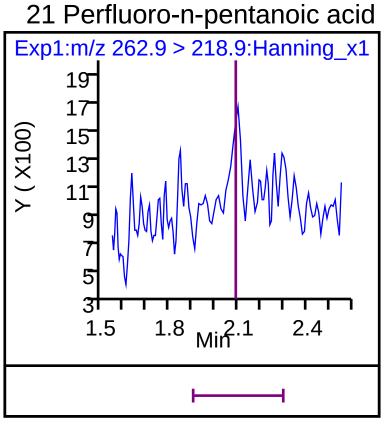
8 Perfluoro-n-butanoic acid (PFBA) (ND)



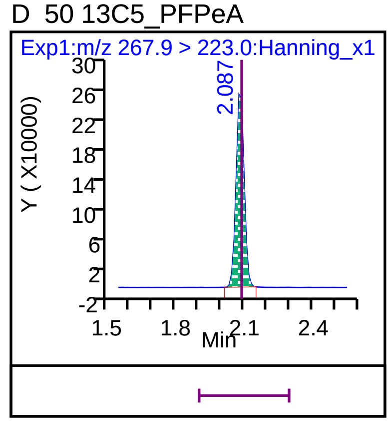
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (ND)



D 50 13C5_PFPeA



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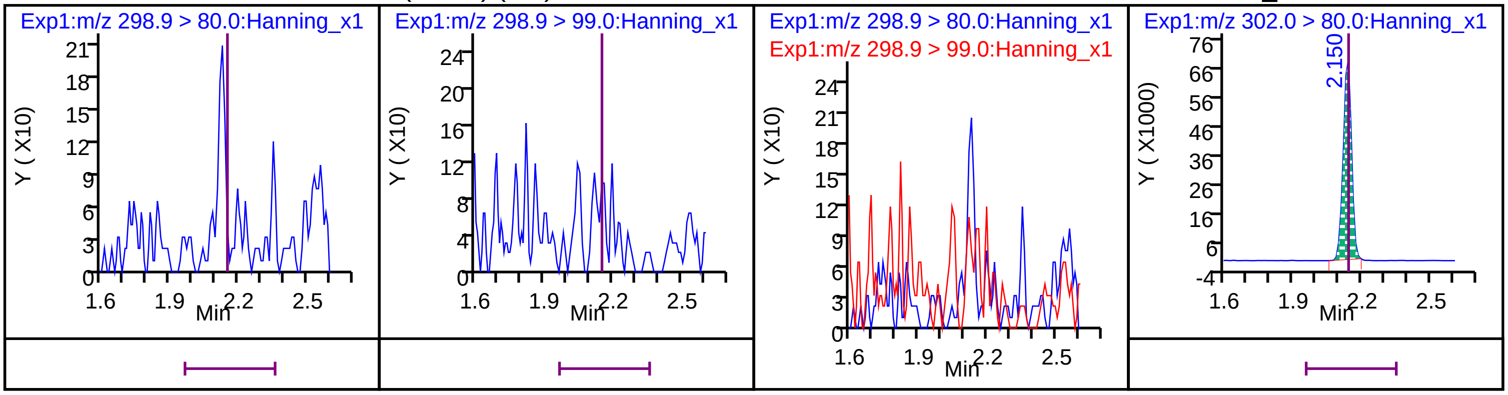
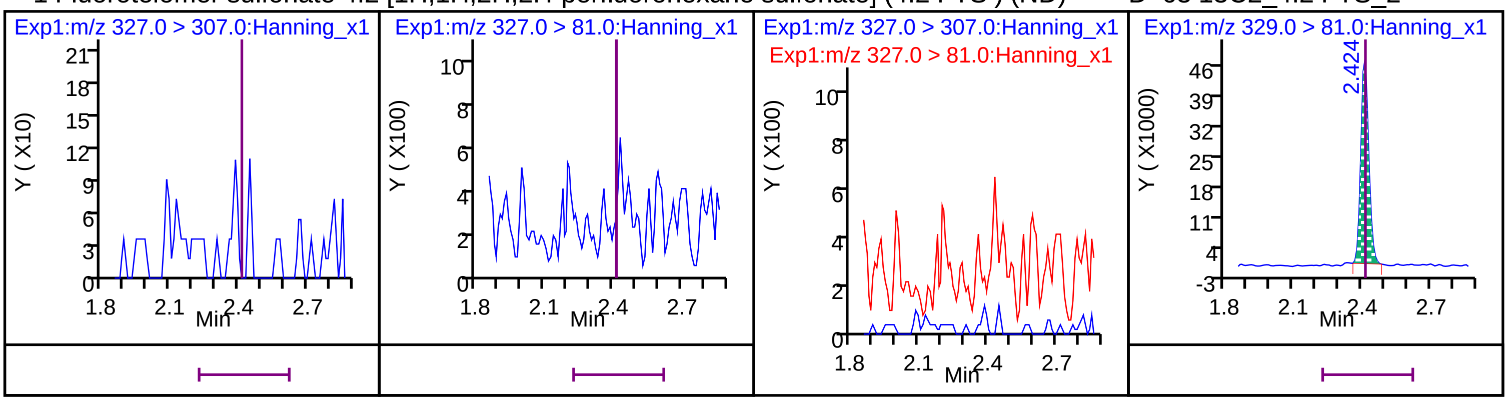
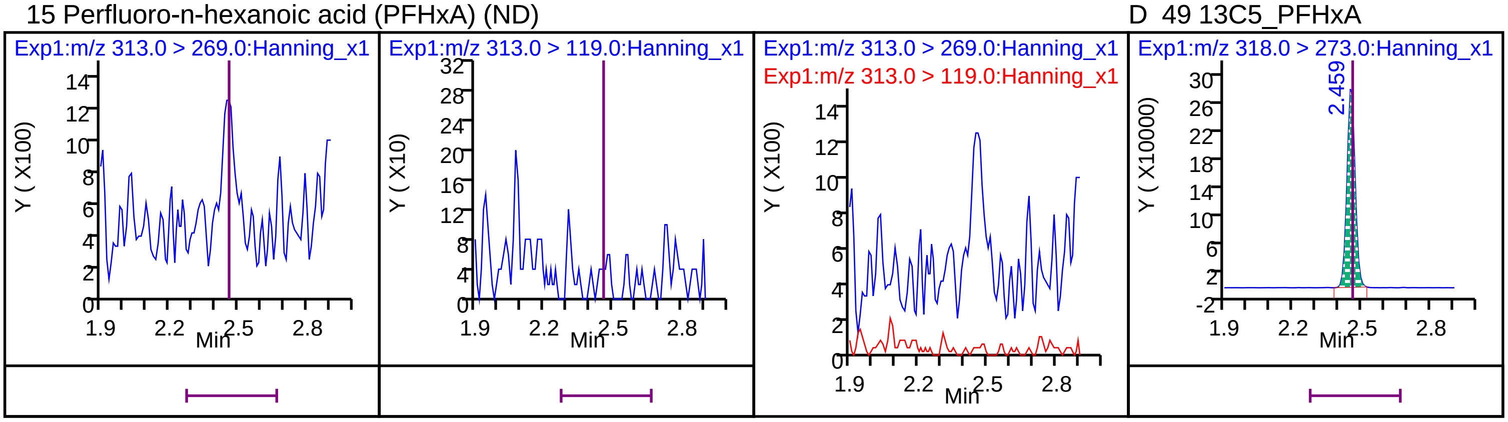
7 Perfluoro-1-butanesulfonate (PFBS) (ND) D 44 13C3_PFBS



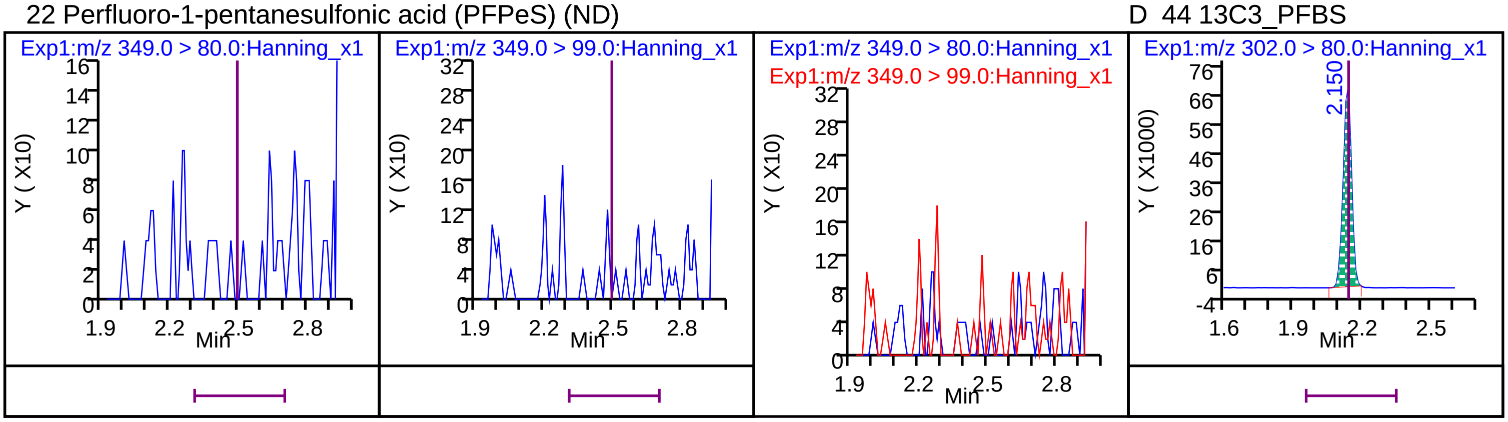
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) (ND) D 49 13C5_PFHxA



22 Perfluoro-1-pentanesulfonic acid (PFPeS) (ND) D 44 13C3_PFBS



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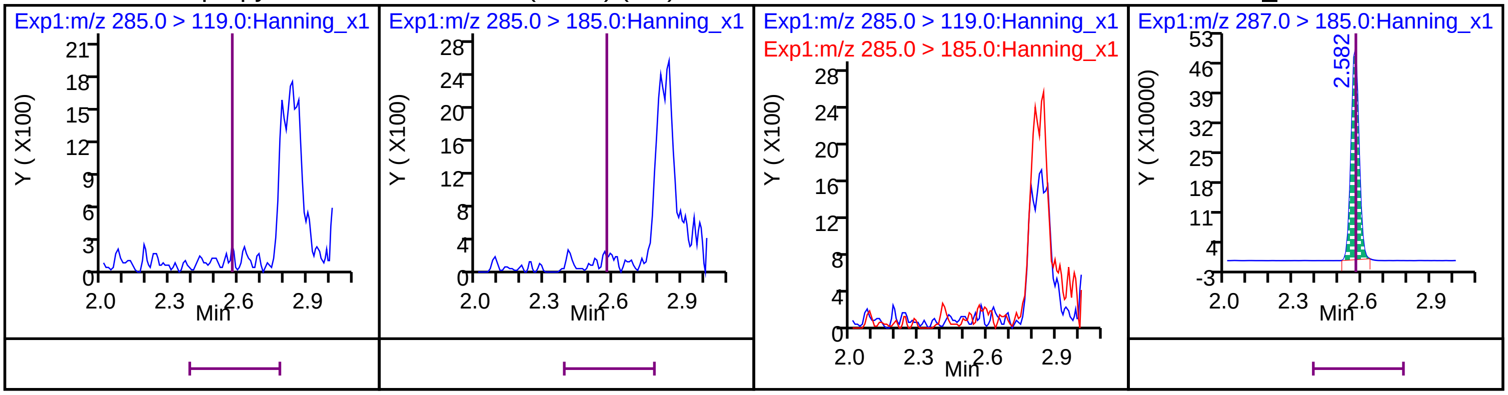
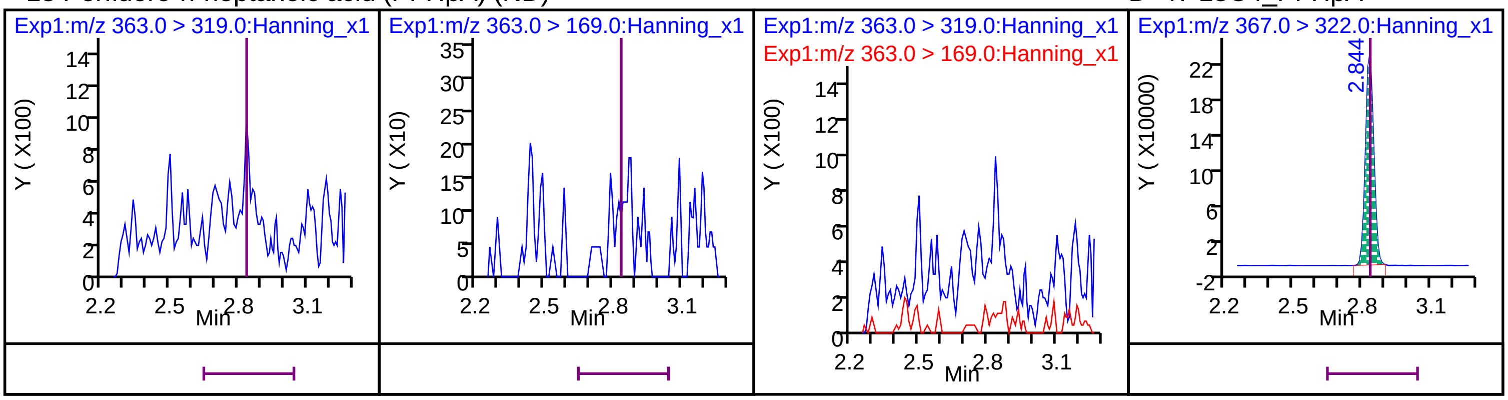
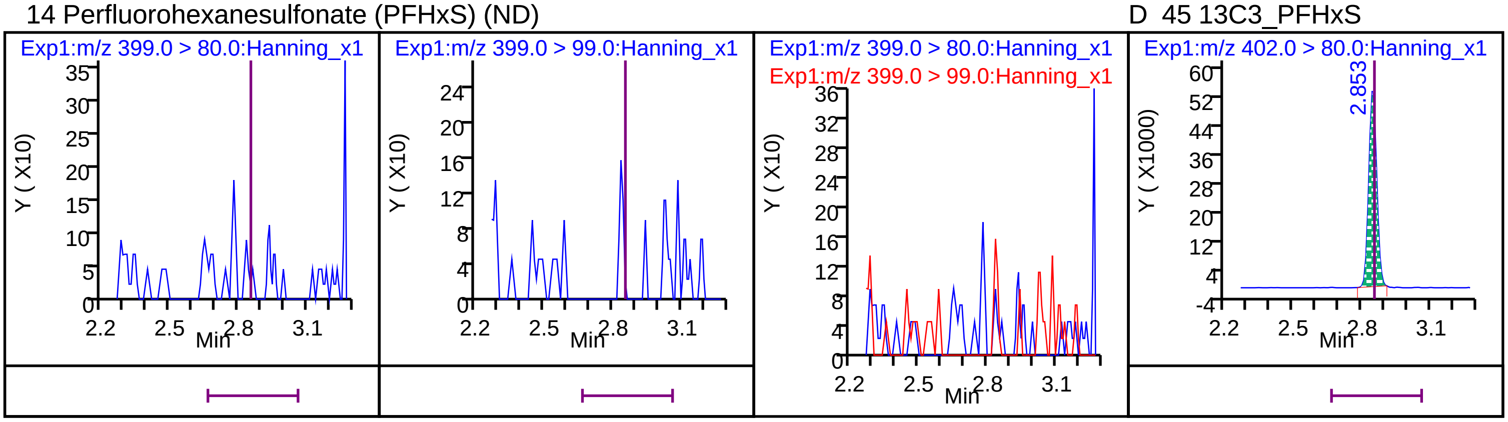
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



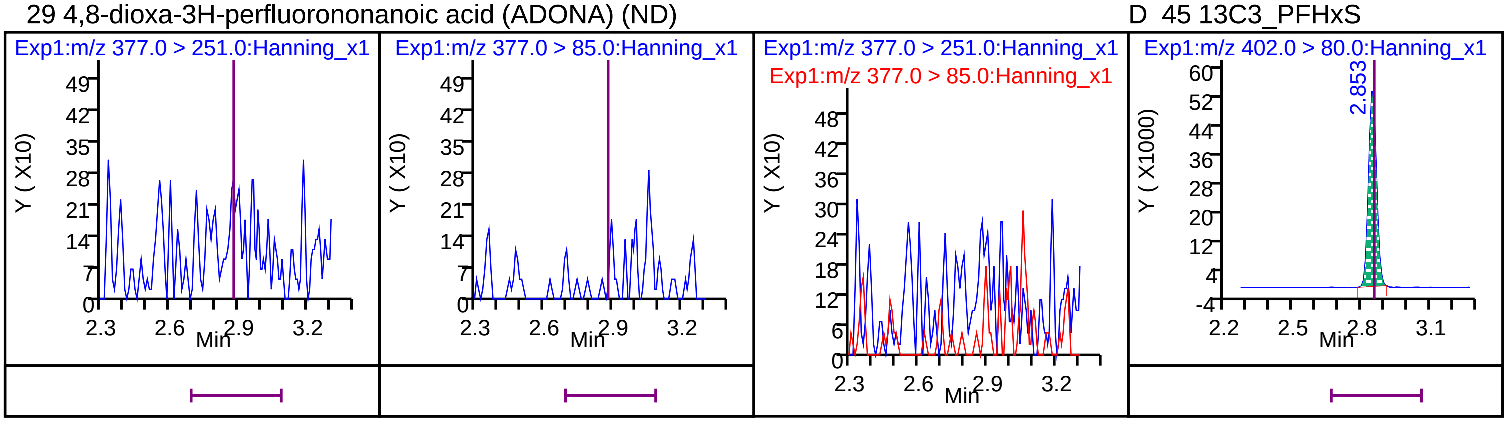
13 Perfluoro-n-heptanoic acid (PFHpA) (ND) D 47 13C4_PFHpA



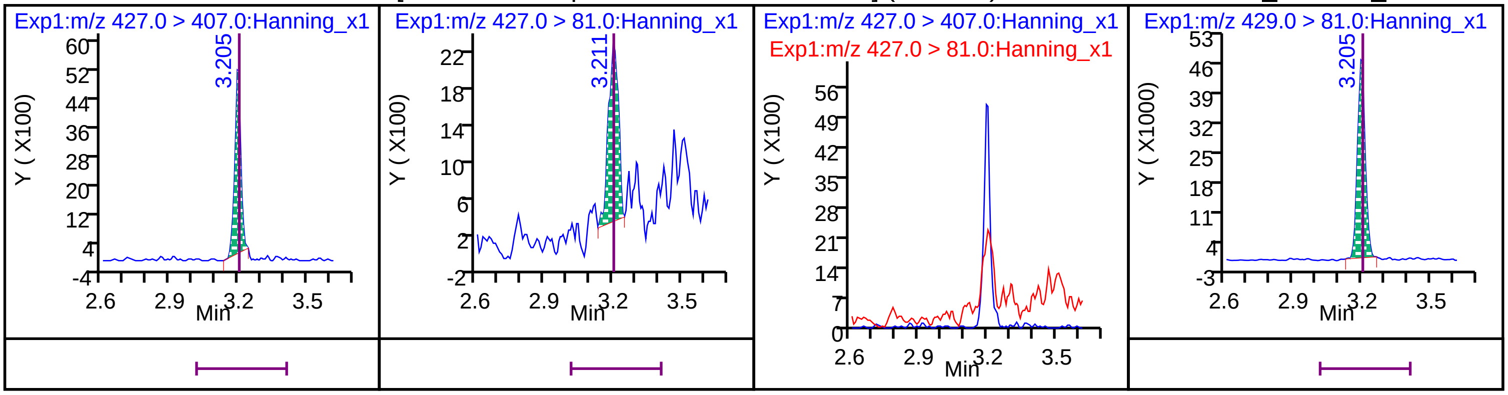
14 Perfluorohexanesulfonate (PFHxS) (ND) D 45 13C3_PFHxS



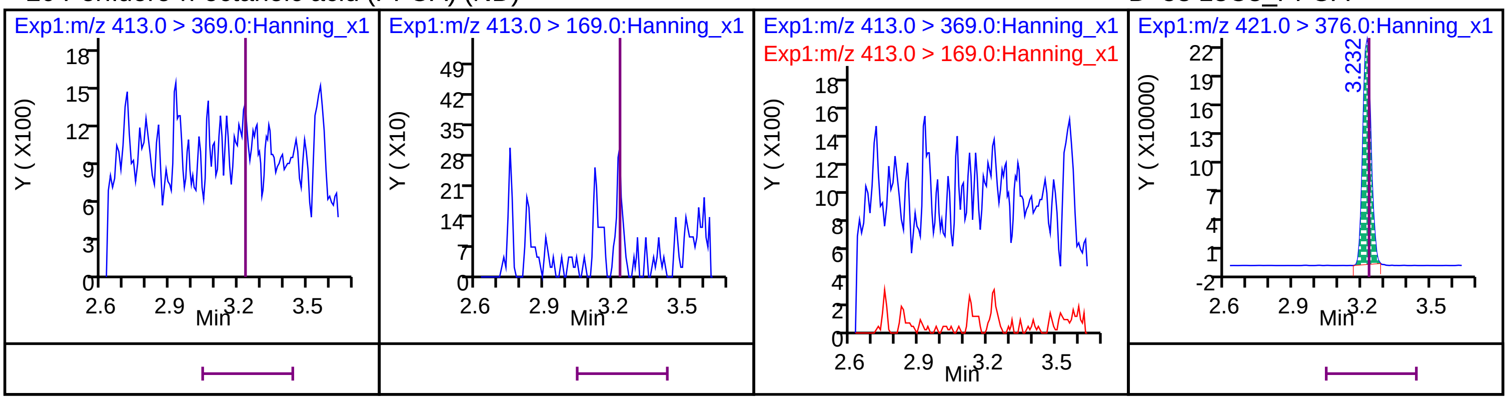
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



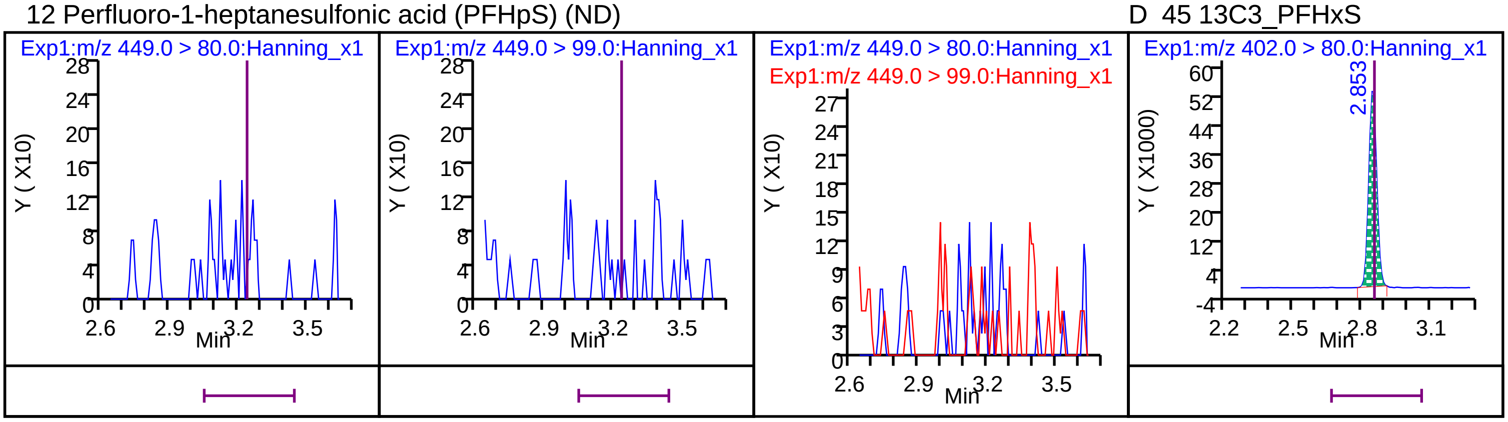
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



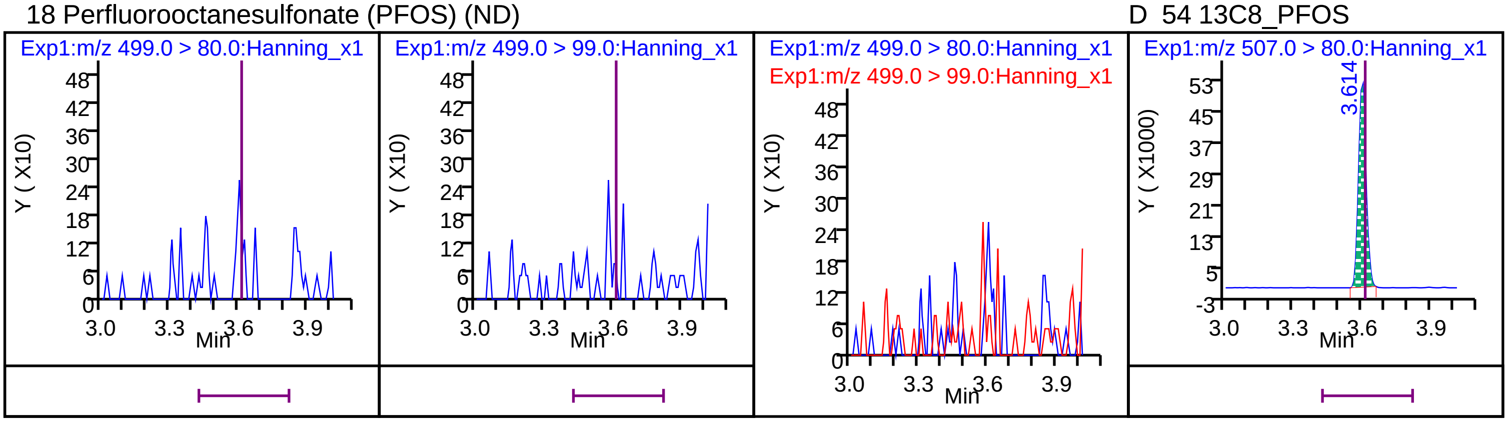
20 Perfluoro-n-octanoic acid (PFOA) (ND) D 53 13C8_PFOA



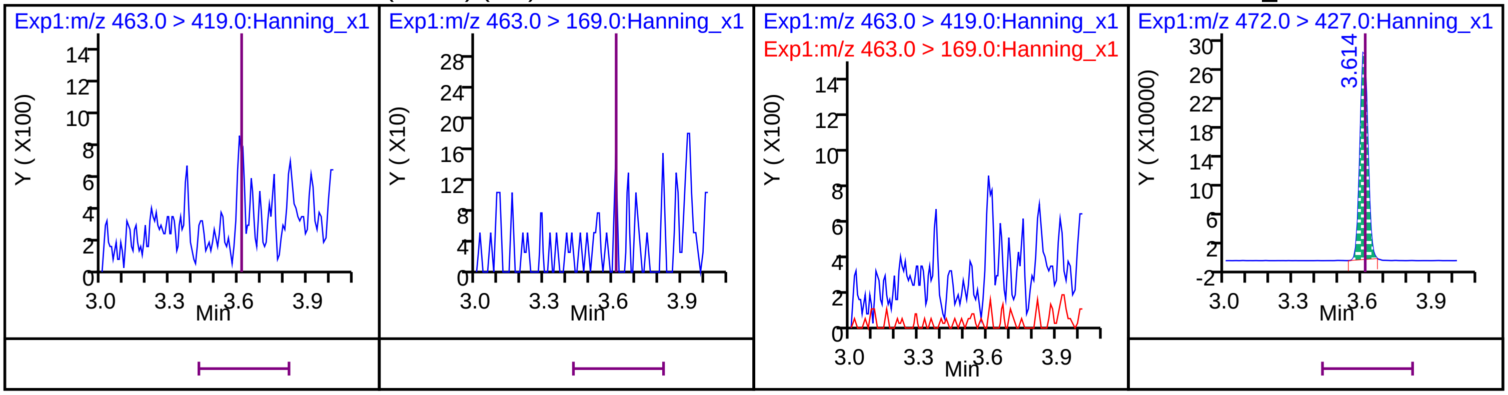
12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS



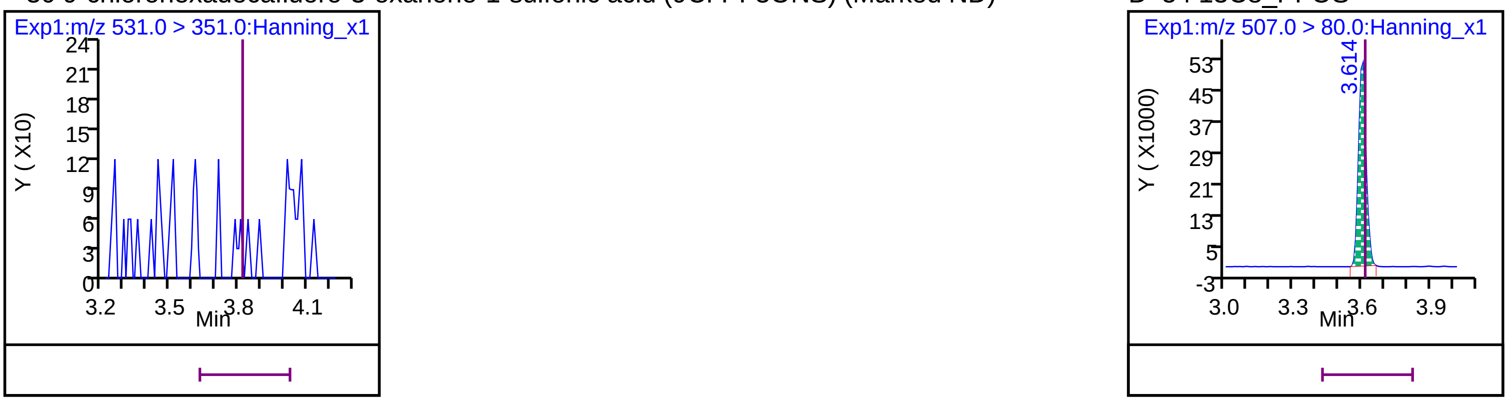
18 Perfluorooctanesulfonate (PFOS) (ND) D 54 13C8_PFOS



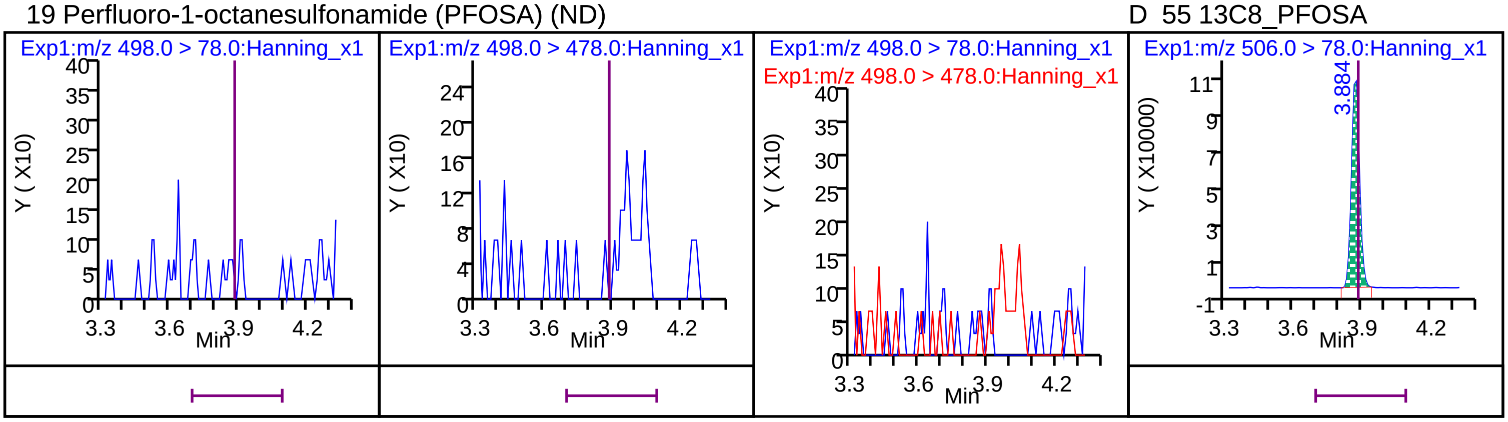
17 Perfluoro-n-nonanoic acid (PFNA) (ND) D 56 13C9_PFNA



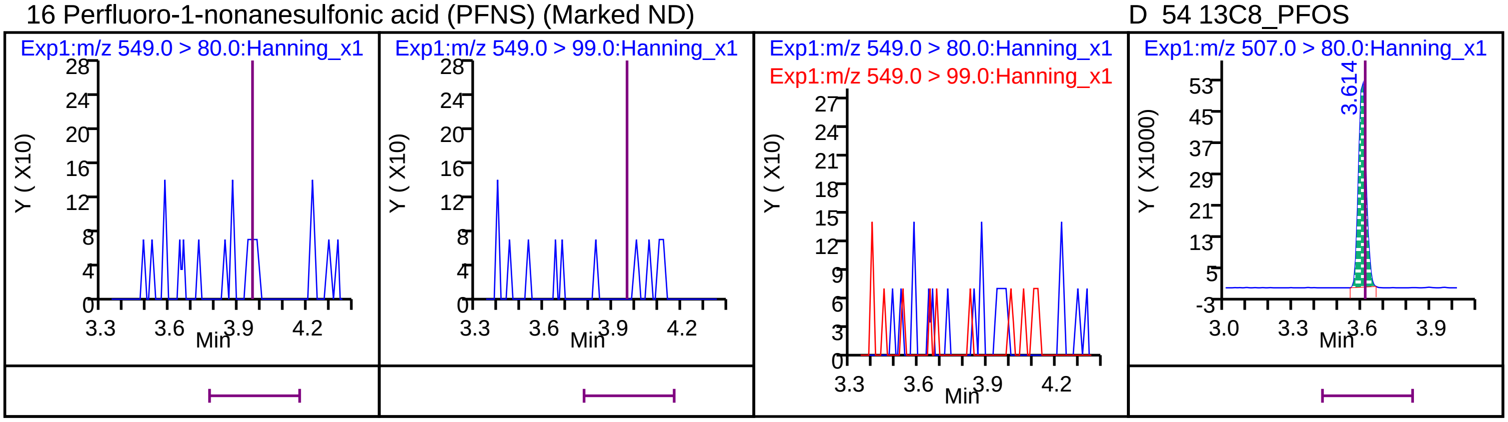
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) (ND) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) (Marked ND) D 54 13C8_PFOS



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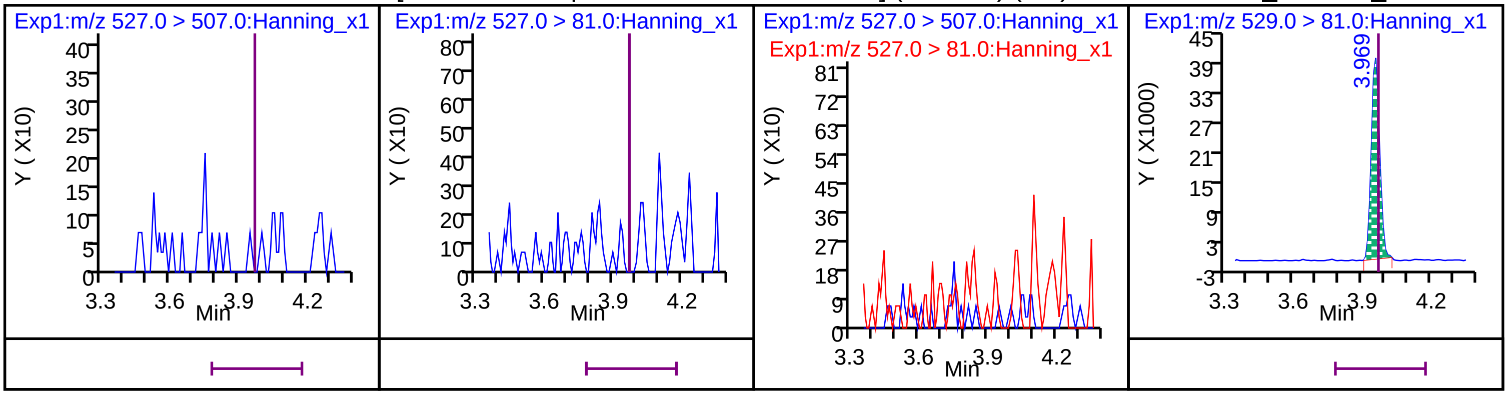
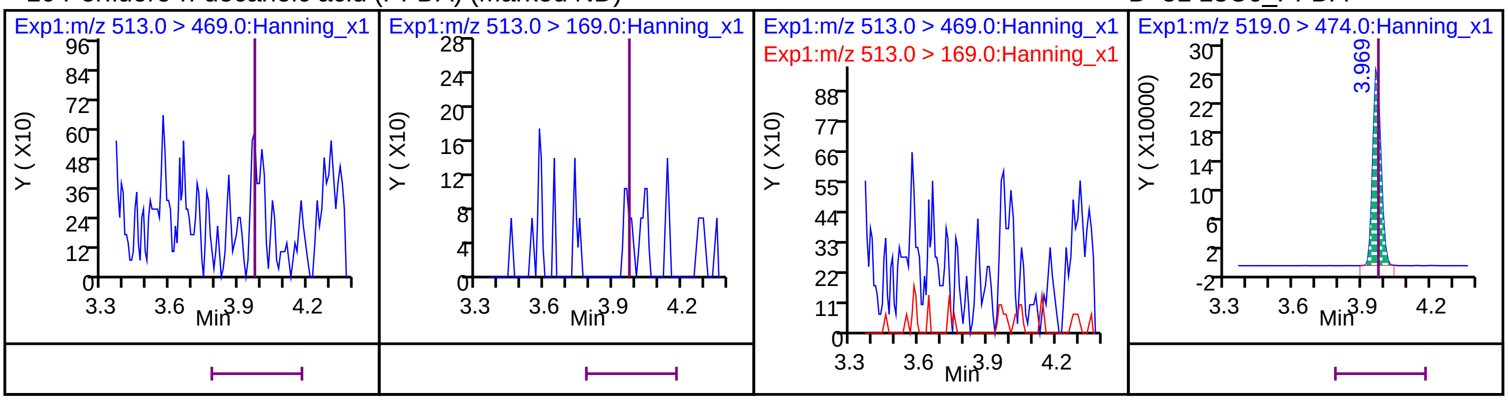
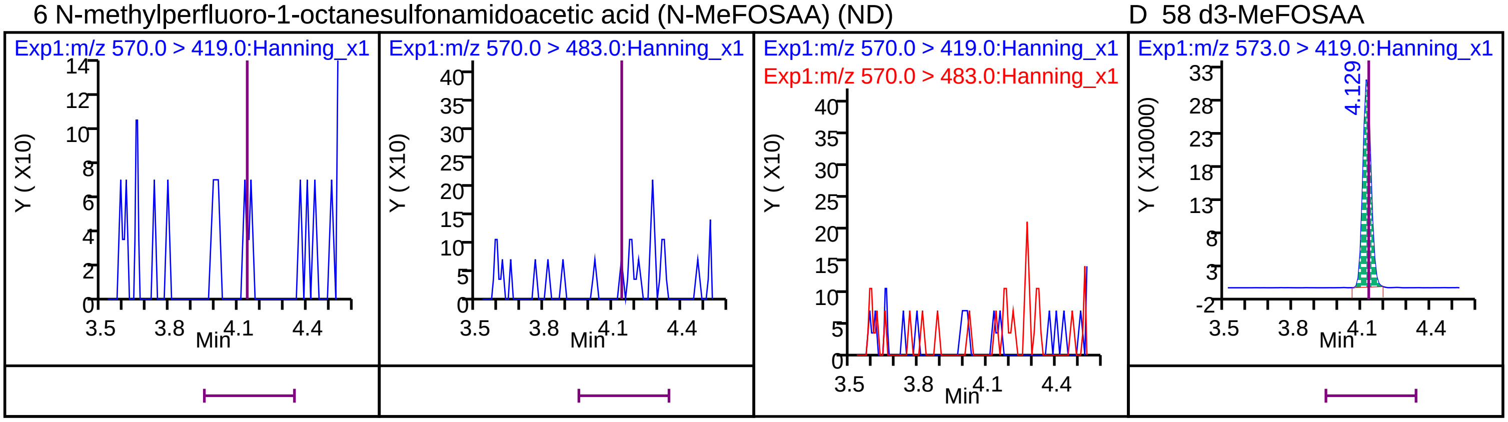
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



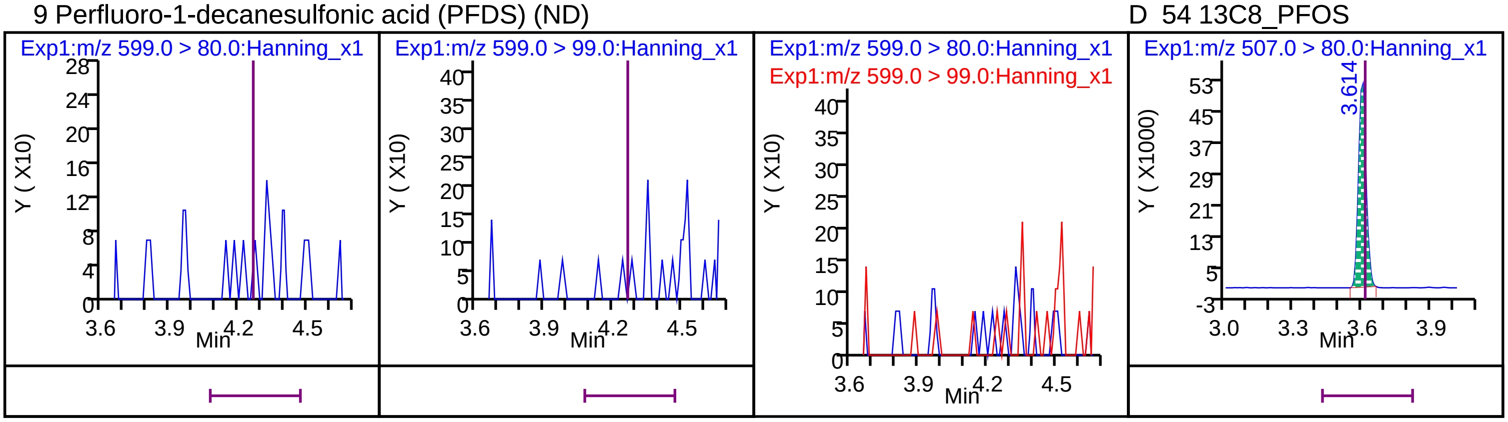
10 Perfluoro-n-decanoic acid (PFDA) (Marked ND) D 51 13C6_PFDA



6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA

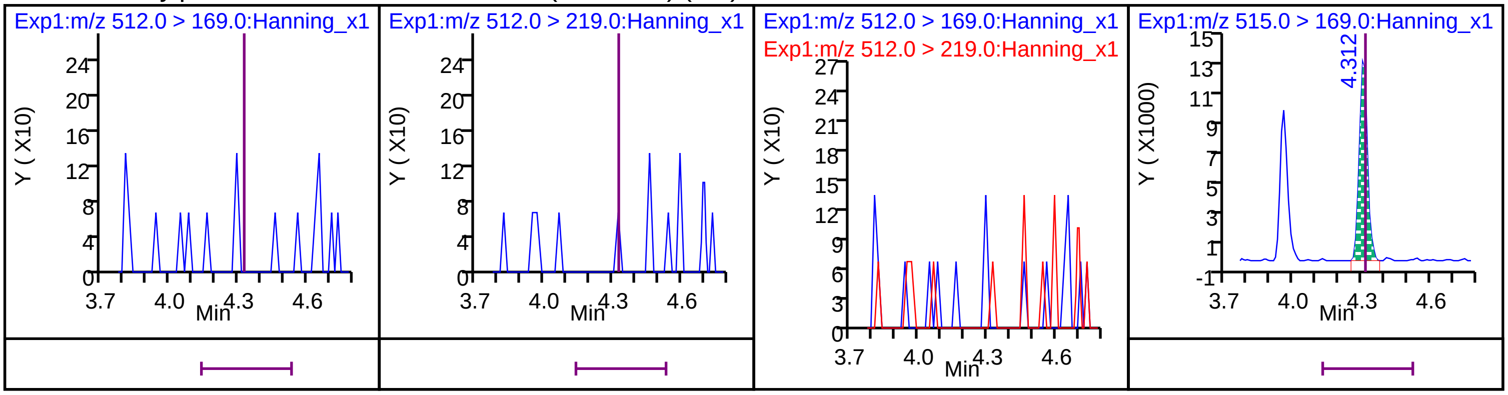


9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

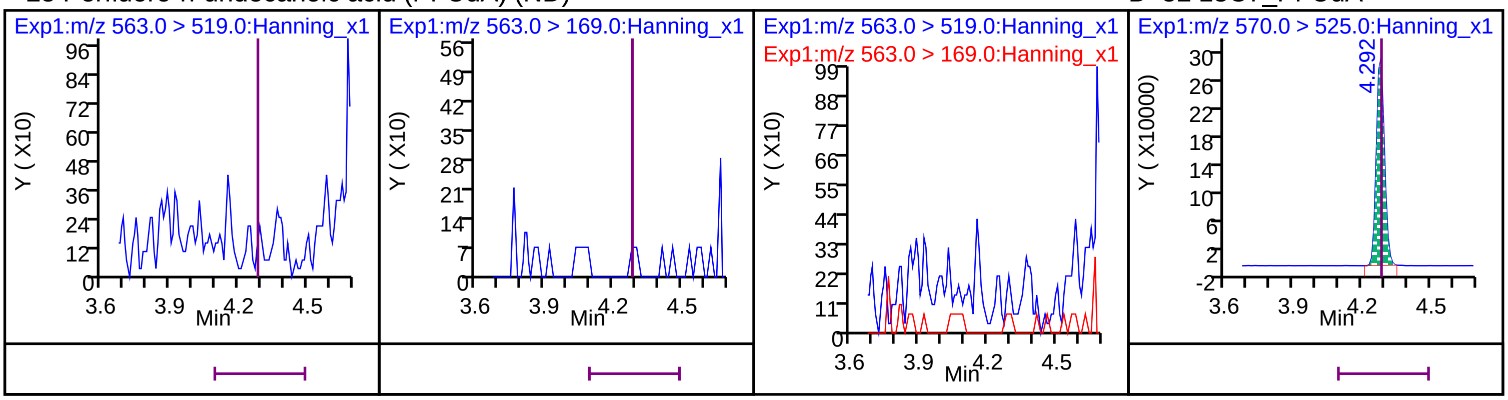


Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921034.d

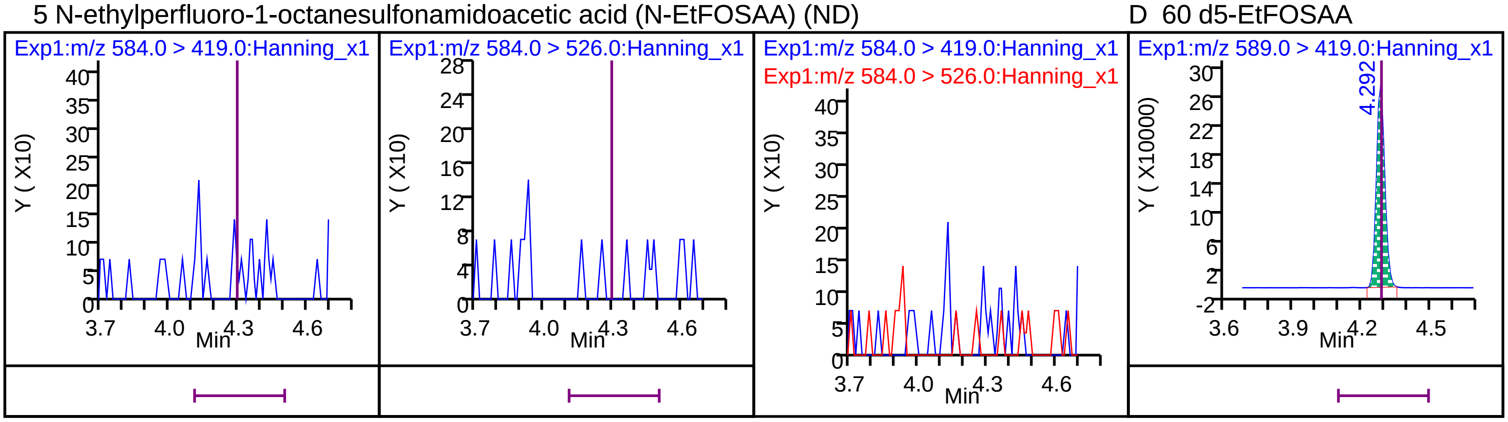
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) (ND) D 57 d3-MeFOSA



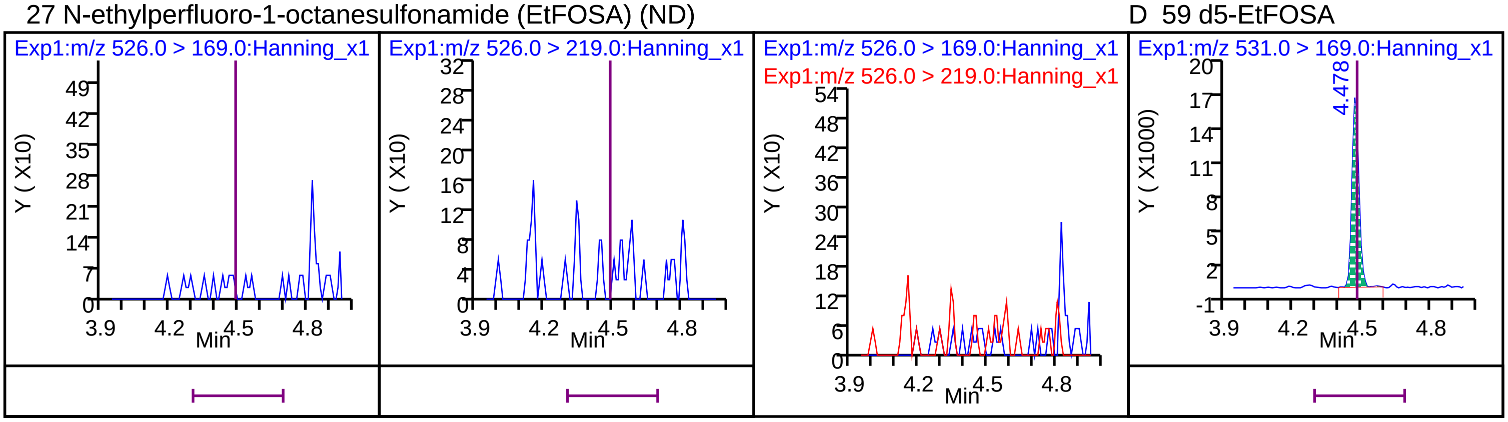
25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (ND) D 60 d5-EtFOSAA



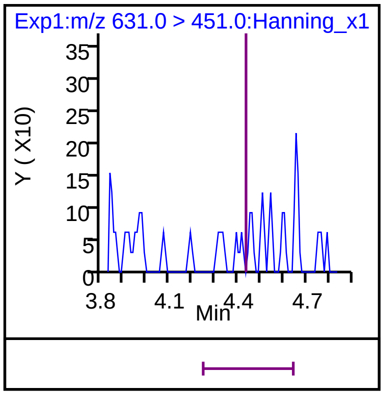
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND) D 59 d5-EtFOSA



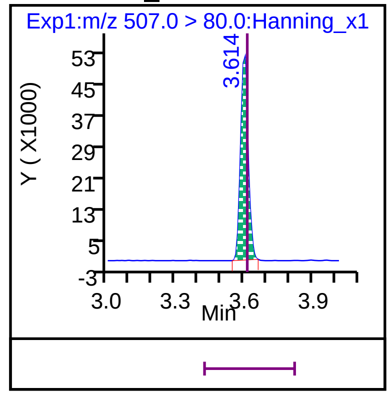
Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921034.d

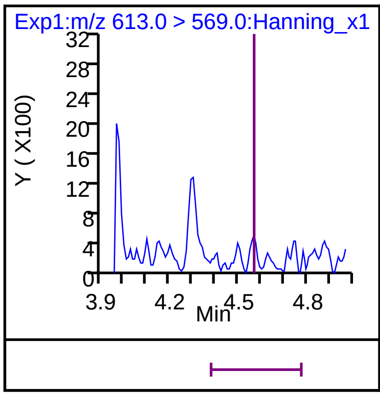
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)

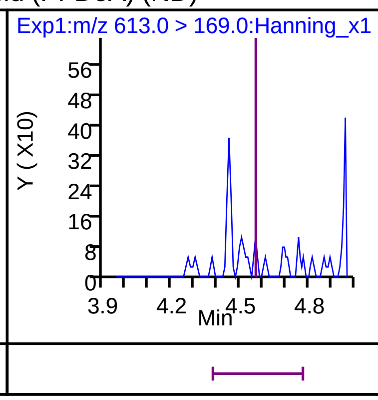


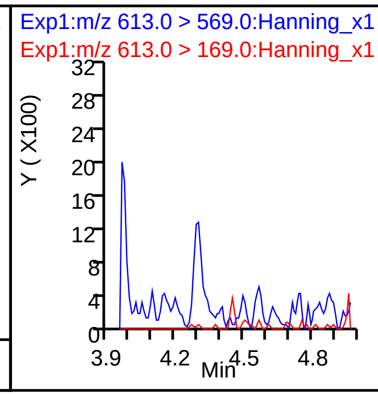
D 54 13C8_PFOS



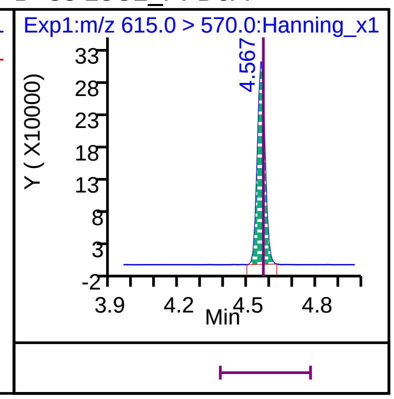
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



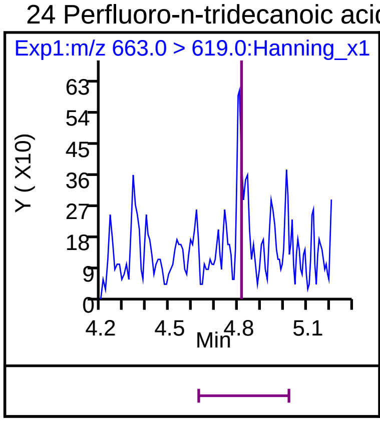


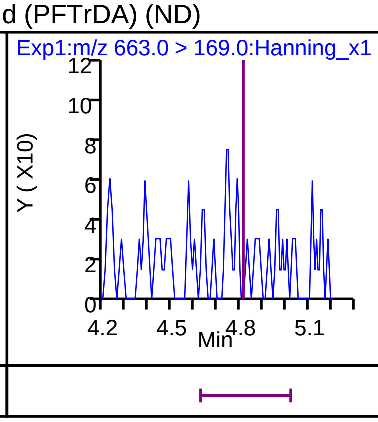


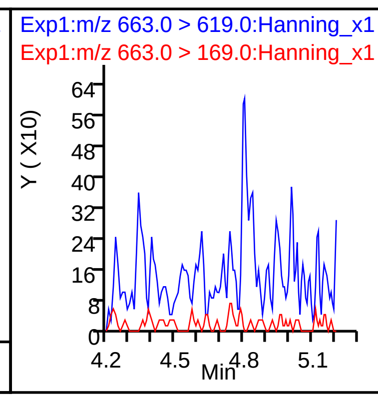
D 38 13C2_PFDoA



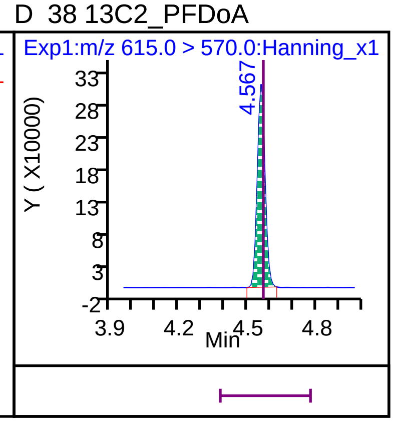
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



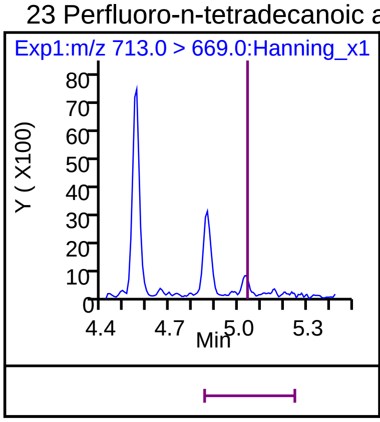


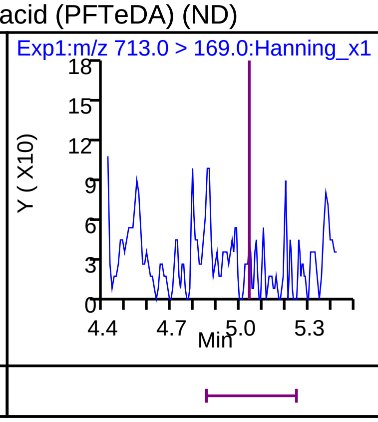


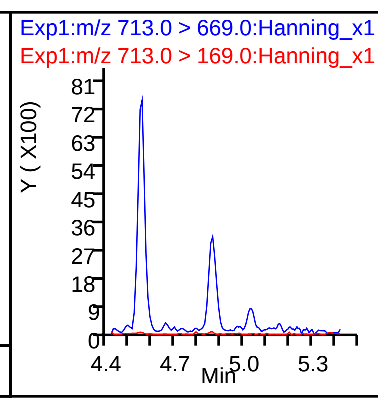
D 38 13C2_PFDoA



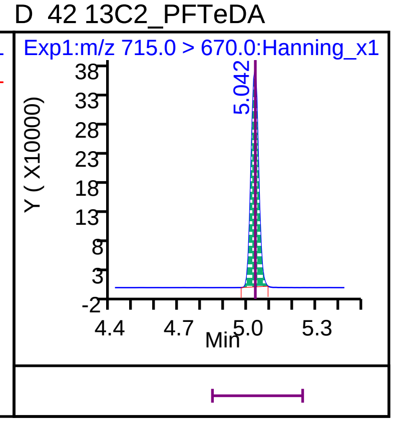
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



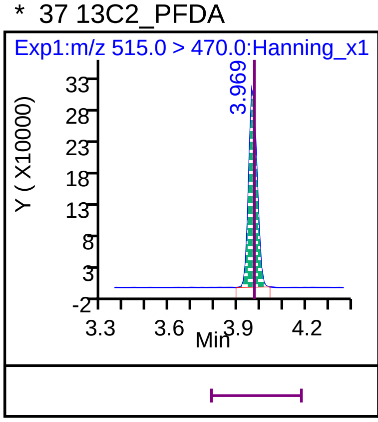


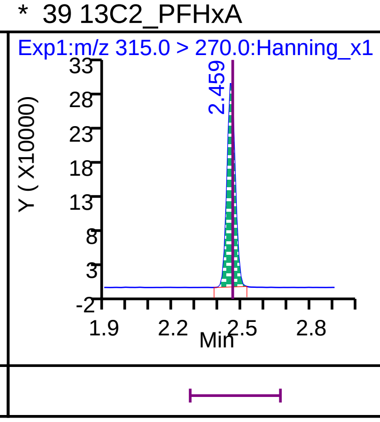


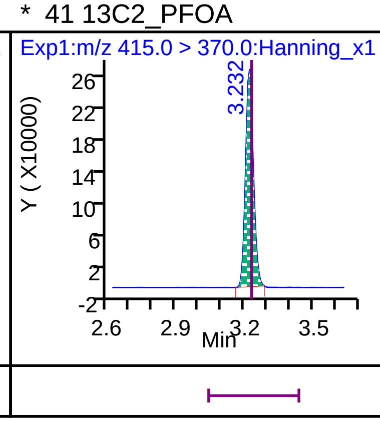
D 42 13C2_PFTeDA

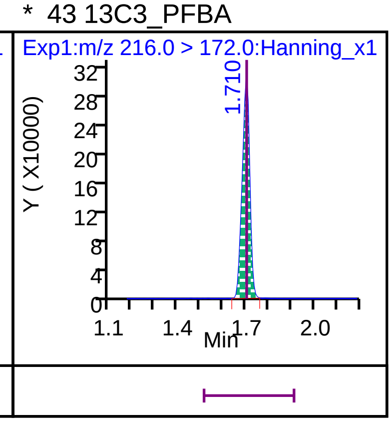


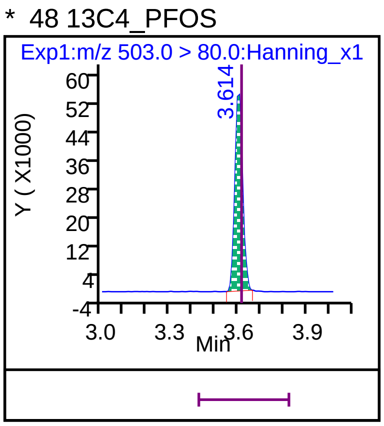
Report Date: 11-Nov-2021 18:39:21 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921034.d











PFAS by LC/MS/MS - LCS

Sample ID:	WQ21177-002	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	70-150	11/05/2021 0138
11Cl-PF3OUdS	15	13		1	85	70-150	11/05/2021 0138
8:2 FTS	15	15		1	97	67-138	11/05/2021 0138
6:2 FTS	15	22	N	1	143	64-140	11/05/2021 0138
4:2 FTS	15	16		1	107	63-143	11/05/2021 0138
GenX	32	28		1	88	70-150	11/05/2021 0138
ADONA	15	15		1	102	70-150	11/05/2021 0138
EtFOSA	16	17		1	103	70-150	11/05/2021 0138
EtFOSAA	16	14		1	85	61-135	11/05/2021 0138
MeFOSAA	16	17		1	103	65-136	11/05/2021 0138
PFBS	14	13		1	91	72-130	11/05/2021 0138
PFDS	15	14		1	93	53-142	11/05/2021 0138
PFHpS	15	15		1	101	69-134	11/05/2021 0138
PFNS	15	15		1	99	69-127	11/05/2021 0138
PFPeS	15	15		1	102	71-127	11/05/2021 0138
PFHxS	15	14		1	98	68-131	11/05/2021 0138
PFBA	16	16		1	97	73-129	11/05/2021 0138
PFDA	16	15		1	92	71-129	11/05/2021 0138
PFDoA	16	17		1	105	72-134	11/05/2021 0138
PFHpA	16	16		1	97	72-130	11/05/2021 0138
PFHxA	16	15		1	95	72-129	11/05/2021 0138
PFNA	16	15		1	95	69-130	11/05/2021 0138
PFOA	16	16		1	100	71-133	11/05/2021 0138
PFPeA	16	16		1	98	72-129	11/05/2021 0138
PFTeDA	16	16		1	98	71-132	11/05/2021 0138
PFTrDA	16	15		1	97	65-144	11/05/2021 0138
PFUdA	16	18		1	113	69-133	11/05/2021 0138
PFOS	15	14		1	94	65-140	11/05/2021 0138

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		88	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		92	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21177-002
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	50-150
13C7_PFUdA		92	50-150
13C8_PFOA		91	50-150
13C8_PFOS		89	50-150
13C9_PFNA		78	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A075.d		
Injection Date:	05-Nov-2021 01:38:55	Injection Vol:	10.0 uL
Sample Type:	LCS	Auto Sampler:	52
Lab Sample ID:	WQ21177-002	Lab Prep. Batch:	21177
Sample Info:	WQ21177-002	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Conc. Level:	Vol. Added:
Istds	Smp	0.0100 ml
Surrogates	Smp	0.1100 ml
Analytes	100x PDS	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	1	1043003	19	>100:1			1001.00	968.67	87.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	1/0	405724	21	>100:1			354.05	15.562		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	1	1005426	16	>100:1			1001.00	1002.51	92.2	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.089	2.089	1/0	382945	14	>100:1			355.84	15.641		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	1	314293	16	>100:1			1001.00	967.74	86.3	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	1/0	130806	22	>100:1	Target = 3.80		291.61	12.818		
298.9 > 99	44	2.141	2.141		34253	17	>100:1	3.81 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.493	2.493	1/0	109814	17	>100:1	Target = 3.42		347.60	15.279		
349 > 99	44	2.493	2.493		33870	18	>100:1	3.24 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	1	204327	19	>100:1			5005.00	4919.16	94.2	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/0	28864	16	>100:1	Target = 1.54		362.26	15.924		
327 > 81	63	2.424	2.415		22194	19	22:1	1.30 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.459	2.459	1	908657	18	>100:1			1001.00	1017.27	88.3	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	325405	17	>100:1	Target = 17.93		346.93	15.250		
313 > 119	49	2.467	2.467		18371	16	>100:1	17.71 (8.96-26.89)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.579	2.587	0	810701	19	>100:1			5005.00	4948.75	92.3	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.579	2.587	0/0	79509	19	>100:1	Target = 0.72		640.66	28.161		
285 > 185	66	2.587	2.587		118671	18	>100:1	0.66 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.846	2.846	1	866845	17	>100:1			1001.00	989.33	87.9	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.846	2.846	1/0	295552	18	>100:1	Target = 3.26		354.53	15.584		
363 > 169	47	2.846	2.846		92225	17	>100:1	3.20 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.863	2.863	1	251518	19	>100:1			1001.00	958.97	84.7	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.863	2.863	1/0	96716	26	>100:1	Target = 3.48	5.11	325.60	14.312		
399 > 99	45	2.863	2.863		25479	24	>100:1	3.79 (1.74-5.22)	7.47				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.890	2.890	1/0	484447	17	>100:1	Target = 2.31		350.28	15.397		
377 > 85	45	2.890	2.890		198573	18	>100:1	2.43 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.236	3.229	1/0	90489	20	>100:1	Target = 3.56		350.14	15.391		
449 > 99	45	3.236	3.229		26483	19	>100:1	3.41 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.204	3.204	1	193032	22	>100:1			5005.00	5118.71	99.2	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.204	3.204	1/0	33156	19		Target = 1.34		494.42	21.733		
427 > 81	64	3.204	3.204		28204	27	53:1	1.17 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.223	3.223	1	836671	21	>100:1			1001.00	1011.70	90.6	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.229	3.229	1/0	313299	21	>100:1	Target = 2.50		364.30	16.013		
413 > 169	53	3.229	3.229		121369	21	>100:1	2.58 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.588	3.595	0	219260	19	>100:1			1001.00	976.75	89.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.596	3.595	1/1	82142	35	>100:1	Target = 4.01	3.49	318.11	13.983		
499 > 99	54	3.588	3.595		20275	36	>100:1	4.05 (2.00-6.02)	6.99				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.799	3.799	1/1	218164	20	>100:1			322.28	14.166		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.927	3.926	1/1	76416	23	>100:1	Target = 3.78		345.41	15.183		
549 > 99	54	3.927	3.926		17042	16		4.48 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.226	4.226	1/1	70600	16	>100:1	Target = 3.98		326.48	14.351		
599 > 99	54	4.226	4.226		16405	14	>100:1	4.30 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.386	4.386	1/1	177467	17	>100:1			291.66	12.820		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.734	4.733	1/1	58096	20	>100:1	Target = 3.68		273.86	12.038		
699 > 99	54	4.734	4.733		16634	18	>100:1	3.49 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.603	3.595	1	780084	19	>100:1			1001.00	976.31	78.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.603	3.595	1/0	245606	20	>100:1	Target = 4.69		346.10	15.213		
463 > 169	56	3.603	3.595		52882	20	>100:1	4.64 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.873	3.873	1	415785	18	>100:1			1001.00	1003.85	97.2	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.873	3.873	1/0	157681	18	>100:1	Target = 40.85		335.73	14.757		
498>478	55	3.873	3.873		4380	21	24:1	36.00 (20.42-61.28)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.935	3.934	1	157525	17	>100:1			5005.00	5019.04	102.6	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.935	3.934	1/0	18875	23	>100:1	Target = 1.58		337.56	14.838		
527 > 81	65	3.935	3.934		14785	18	52:1	1.27 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.528	4.528	1/0	17024	18		Target = 2.46		303.30	13.332		
627 > 80	65	4.528	4.528		7331	18		2.32 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.943	3.942	1	718549	18	>100:1			1001.00	995.49	91.6	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.943	3.942	1/0	247490	19	>100:1	Target = 9.77		336.00	14.769		
513 > 169	51	3.943	3.942		24465	19	>100:1	10.11 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.099	4.098	1	882534	17	>100:1			5005.00	4977.27	97.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.099	4.098	1/0	54251	29	>100:1	Target = 1.41	9.07	376.30	16.541		
570 > 483	58	4.099	4.098		36272	32	>100:1	1.49 (0.70-2.11)	2.95				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.244	4.253	0	673039	17	>100:1			1001.00	984.80	91.9	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.244	4.253	0/0	248142	15	>100:1	Target = 9.19		411.38	18.083		
563 > 169	52	4.253	4.253		24752	15	>100:1	10.02 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.253	4.253	1	767361	17	>100:1			5005.00	5131.79	98.5	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.253	4.253	1/0	48551	33		Target = 1.75	7.35	309.80	13.617		
584 > 526	60	4.253	4.253		28905	30	>100:1	1.67 (0.87-2.63)	5.37				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.280	4.280	1	127553	15	>100:1			1001.00	924.39	95.7	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.298	4.288	1/0	37549	13	>100:1			289.94	12.745		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.306	4.306	1	48753	15	>100:1			1001.00	696.26	67.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.306	4.306	1/0	20989	20	>100:1	Target = 1.11		416.16	18.293		
512 > 219	57	4.306	4.306		16975	15	>100:1	1.23 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.441	4.448	0	113785	16	>100:1			1001.00	885.12	88	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.456	4.456	1/1	37222	24	>100:1			384.70	16.910		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.463	4.463	1	46512	16	>100:1			1001.00	722.18	71	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.470	4.470	1/0	20405	16	>100:1	Target = 1.06		375.62	16.511		
526 > 219	59	4.470	4.470		16956	19	>100:1	1.20 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.514	4.521	0	637588	18	>100:1			1001.00	927.21	85.4	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.514	4.521	0/0	239214	18	>100:1	Target = 6.38		382.41	16.809		
613 > 169	38	4.521	4.521		38655	18	>100:1	6.18 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.761	4.760	1/1	119946	19	>100:1	Target = 3.23		351.40	15.446		
663 > 169	38	4.761	4.760		35661	18	>100:1	3.36 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.974	4.978	0	699054	26	>100:1			1001.00	894.21	77.6	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.974	4.978	0/0	219567	25	83:1	Target = 7.33		357.76	15.726		
713 > 169	42	4.974	4.978		28818	25	>100:1	7.61 (3.66-11.00)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.372	5.372	1	336860	23	>100:1			1001.00	862.90	83.5	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/0	232969	22	>100:1	Target = 12.31		361.91	15.908		
813 > 269	40	5.372	5.372		19614	20	>100:1	11.87 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	1/0	145606	22	>100:1	Target = 165.31		286.60	12.598		
913 > 319	40	5.753	5.761		1028	25	>100:1	141.64 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.943	3.942	1	662693	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.459	2.467	0	774079	18	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.223	3.223	1	758131	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	1	904898	19	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.596	3.595	1	211315	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

Report Date: 05-Nov-2021 13:58:37 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

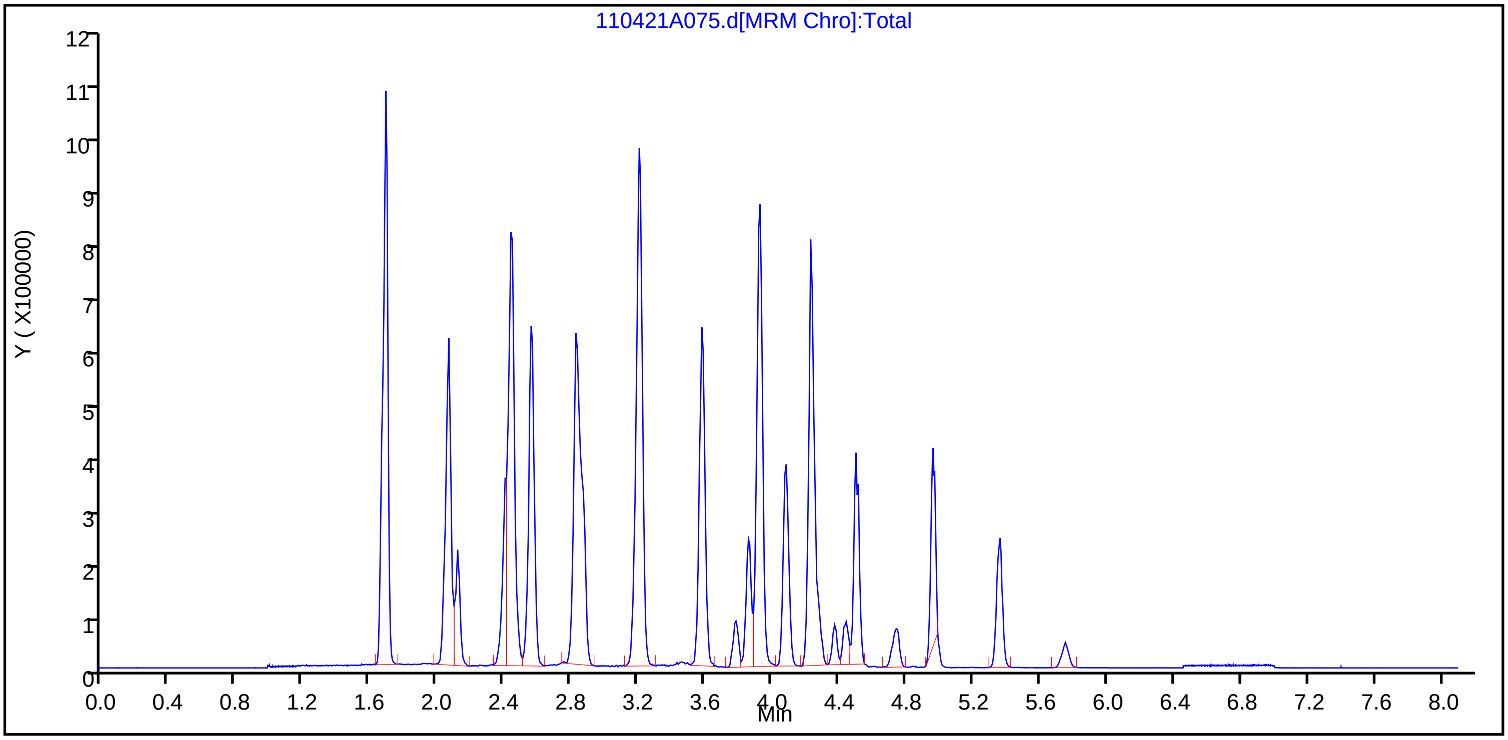
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A075.d

Injection Date: 05-Nov-2021 01:38:55 Inst. ID: LCMSMS01.i

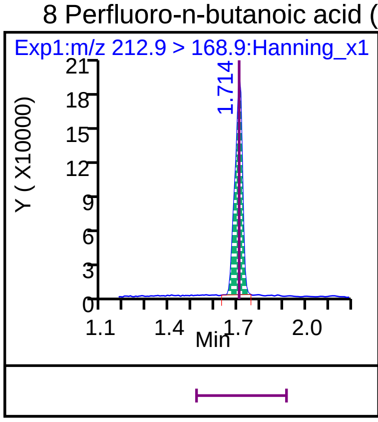
Client ID: Lab ID: WQ21177-002

Sample Info: WQ21177-002

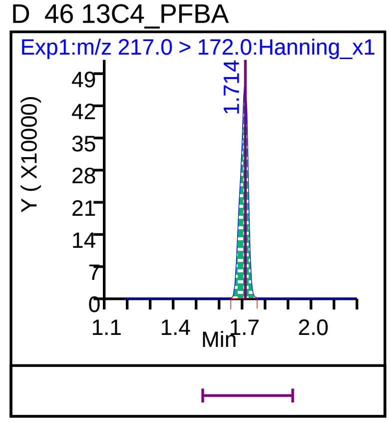
Dil. Factor: 1 Operator: Matthew M. Miller



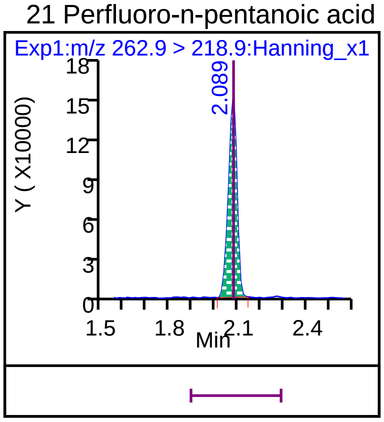
8 Perfluoro-n-butanoic acid (PFBA)



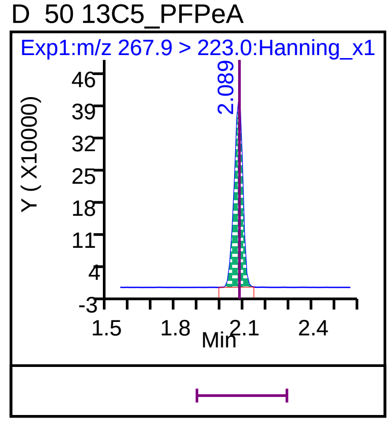
D 46 13C4_PFBA



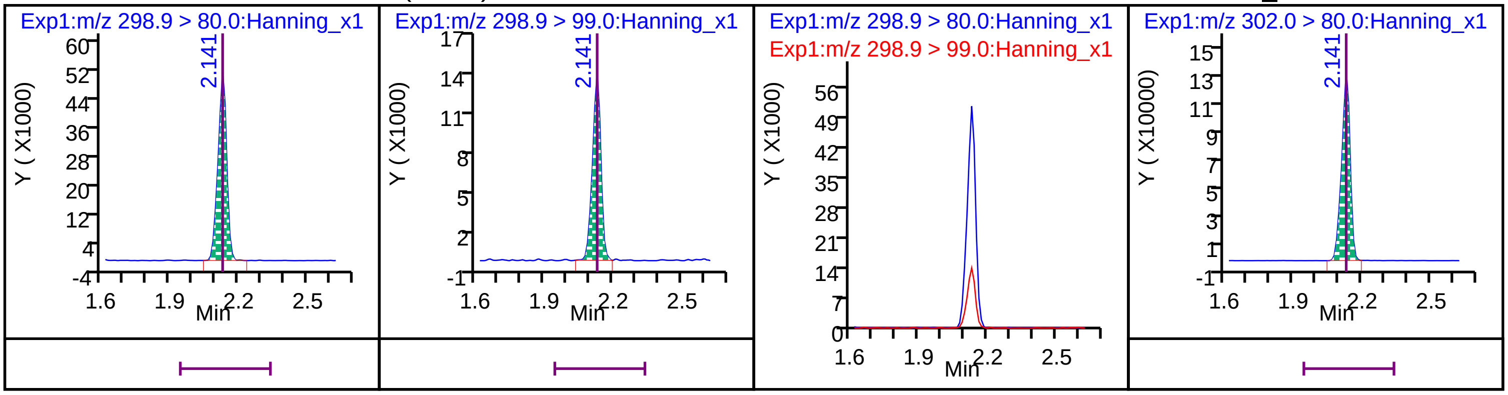
21 Perfluoro-n-pentanoic acid (PFPeA)



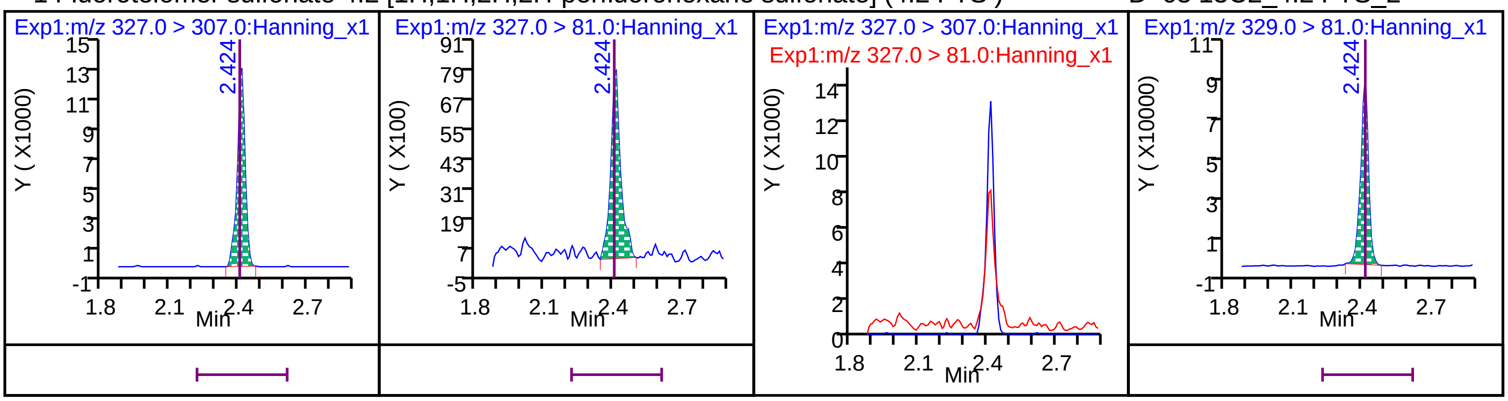
D 50 13C5_PFPeA



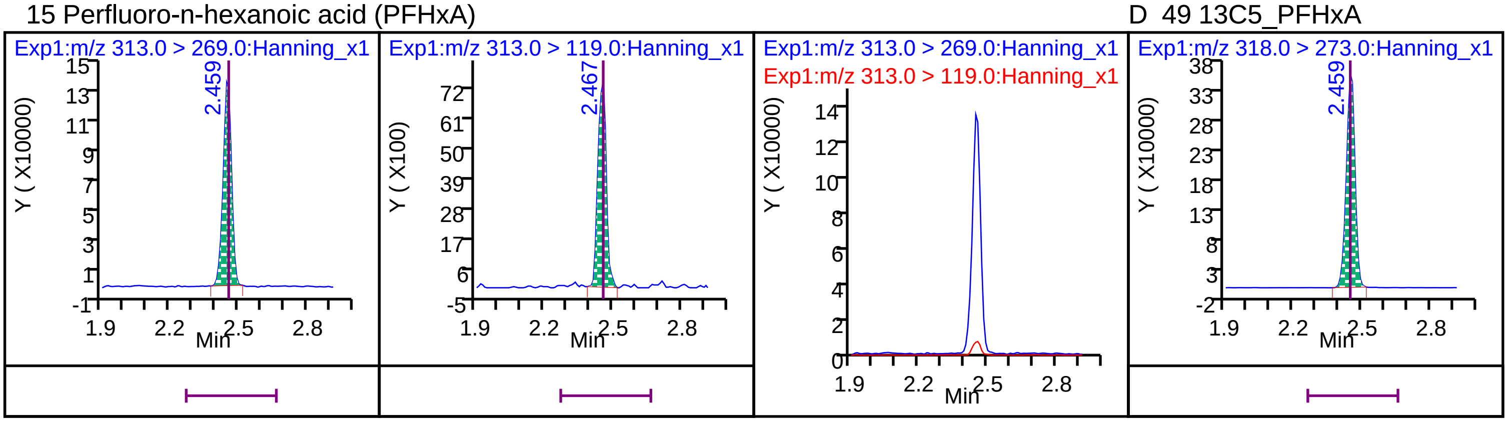
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



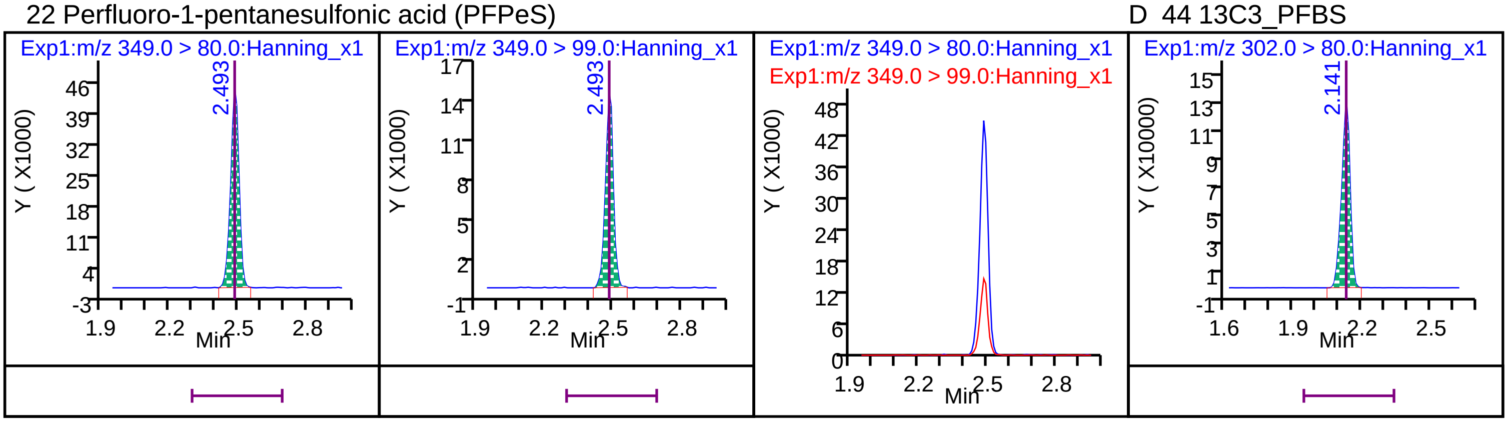
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



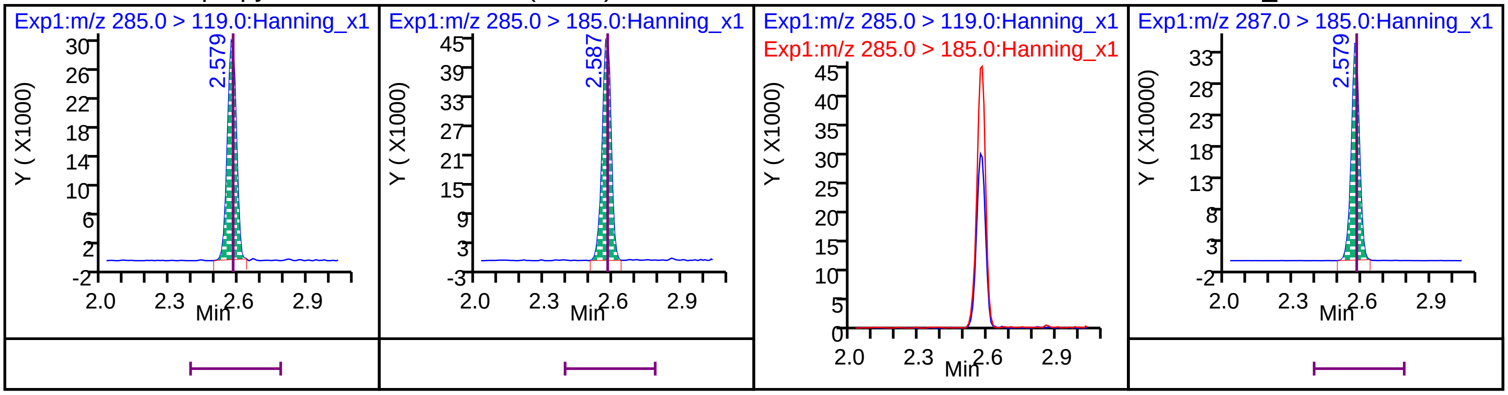
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



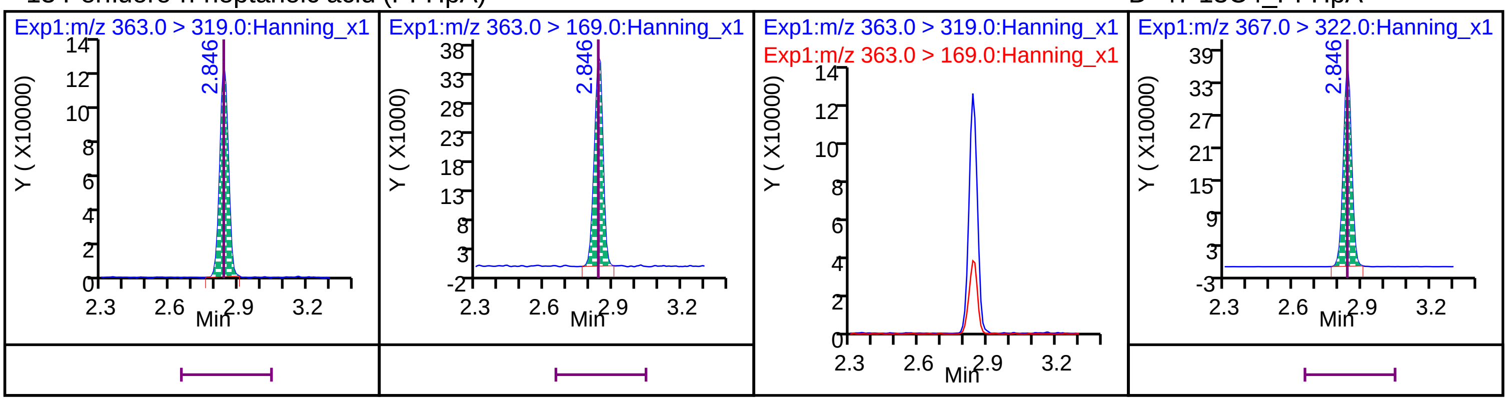
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



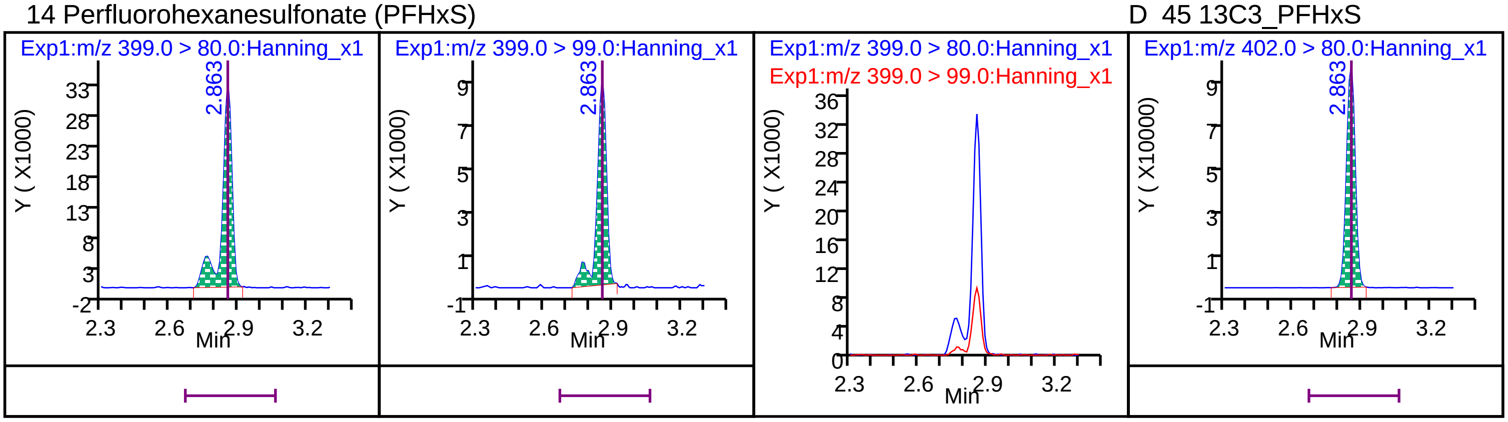
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



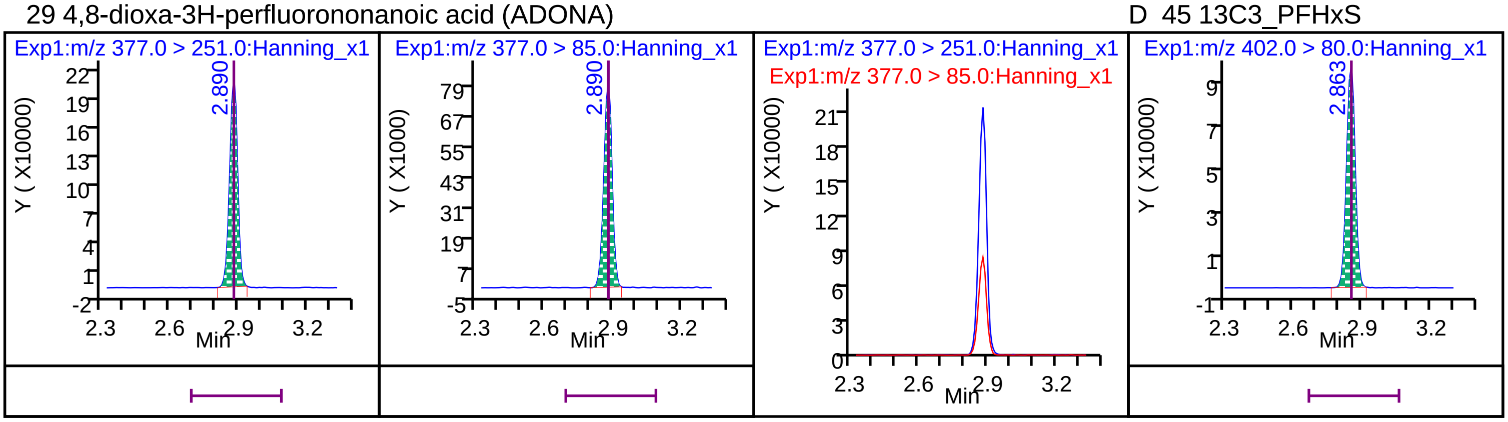
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



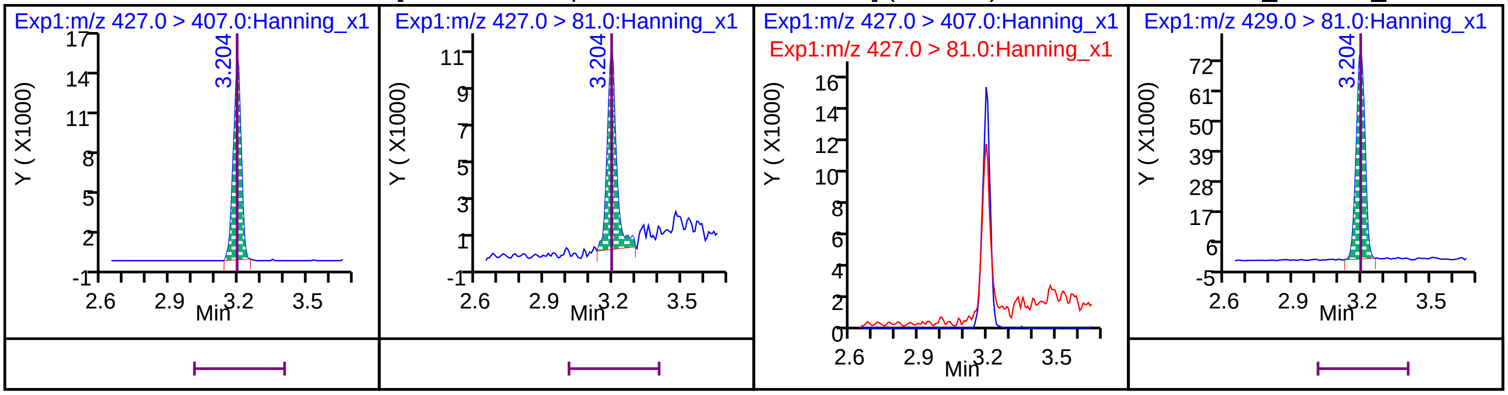
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



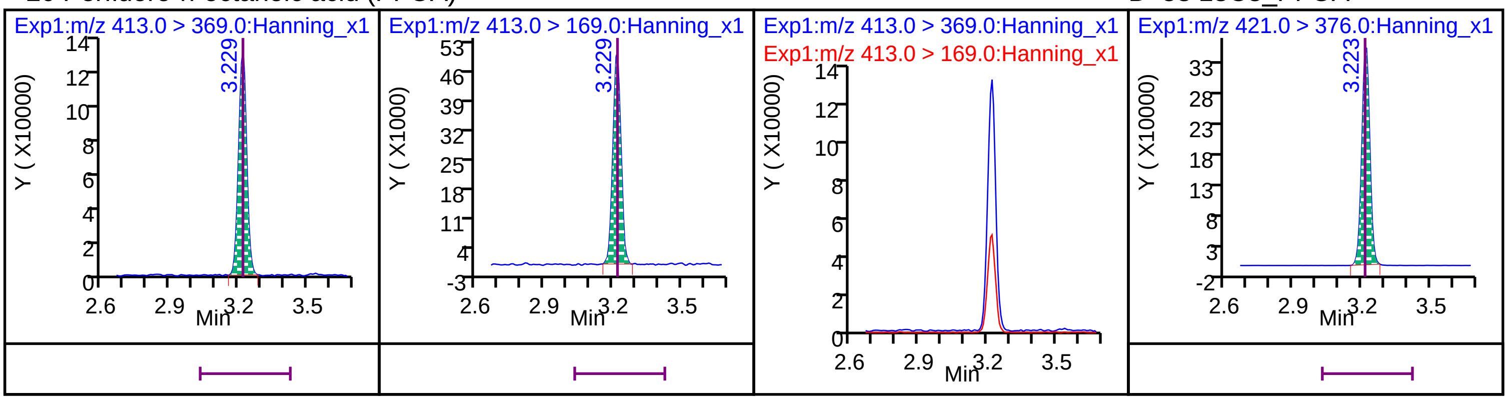
Report Date: 05-Nov-2021 13:58:37 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A075.d

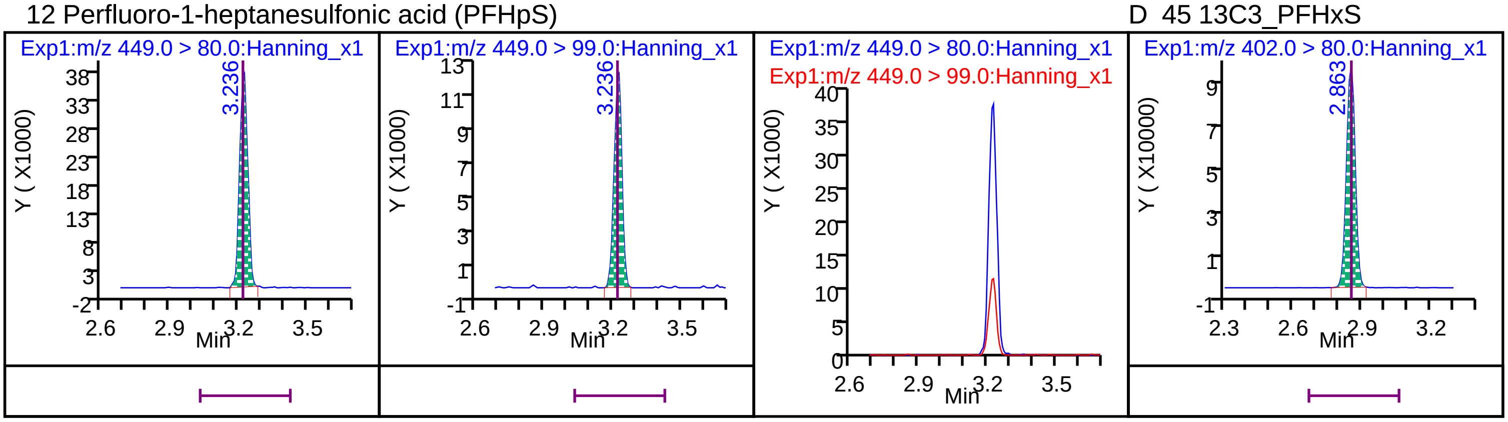
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



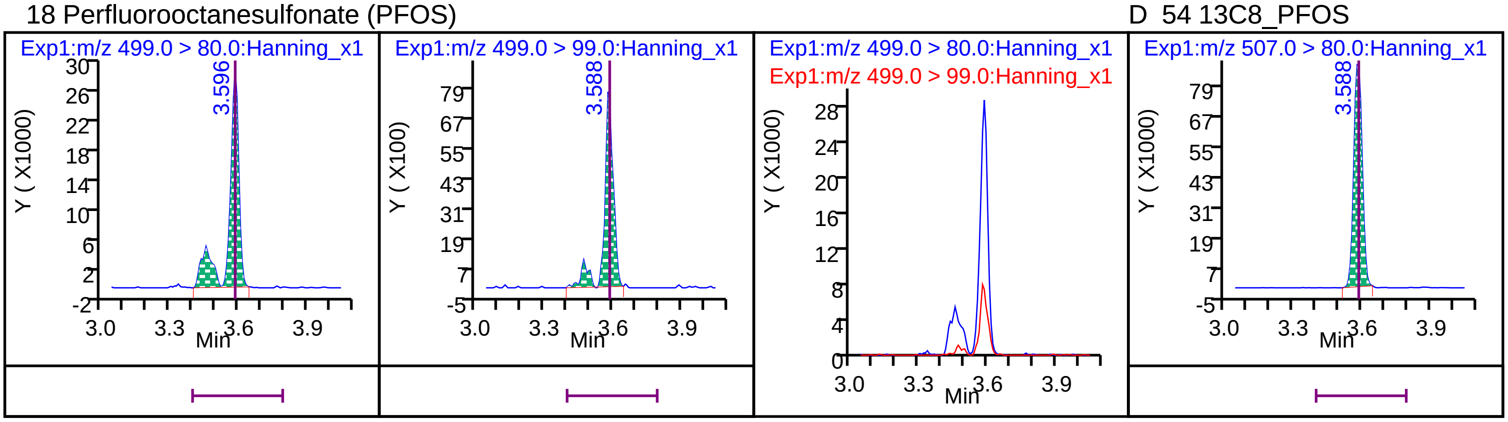
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



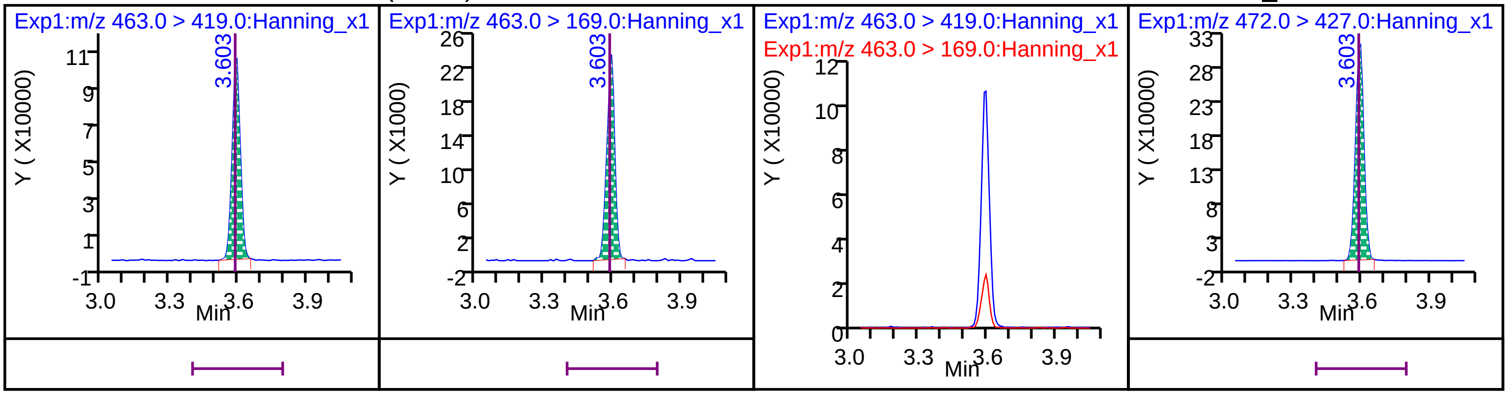
12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



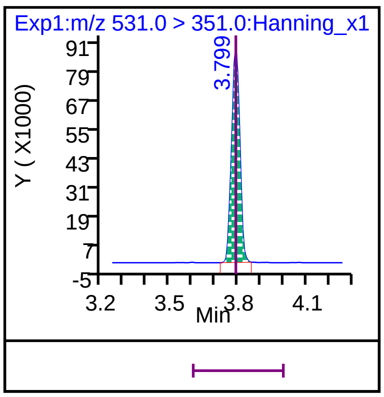
18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

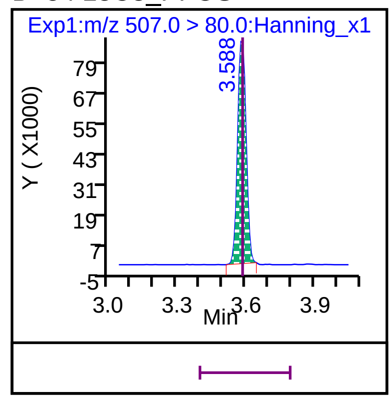


17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

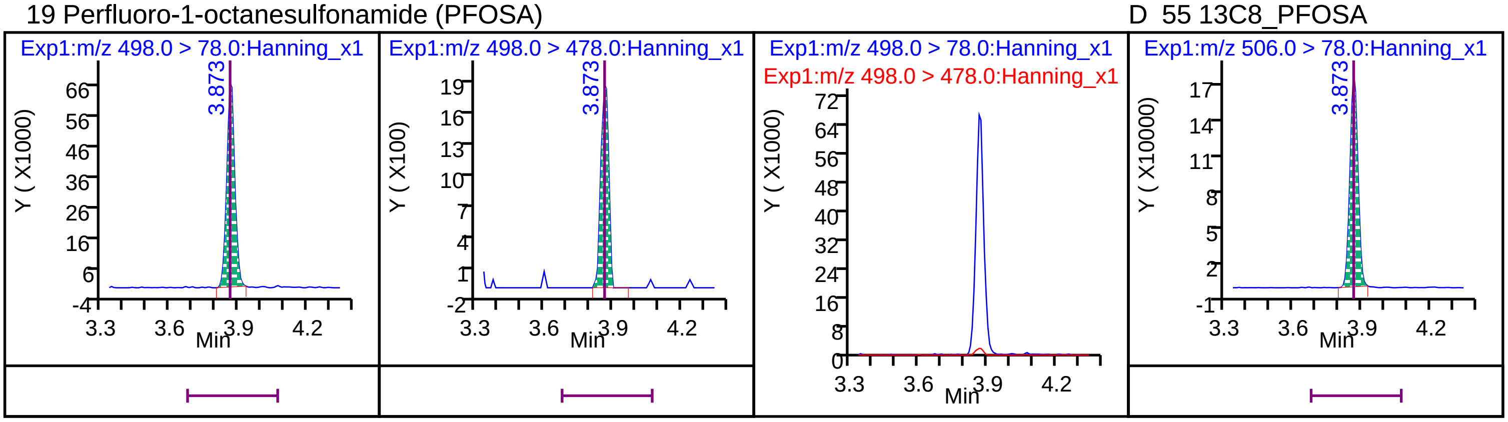


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS

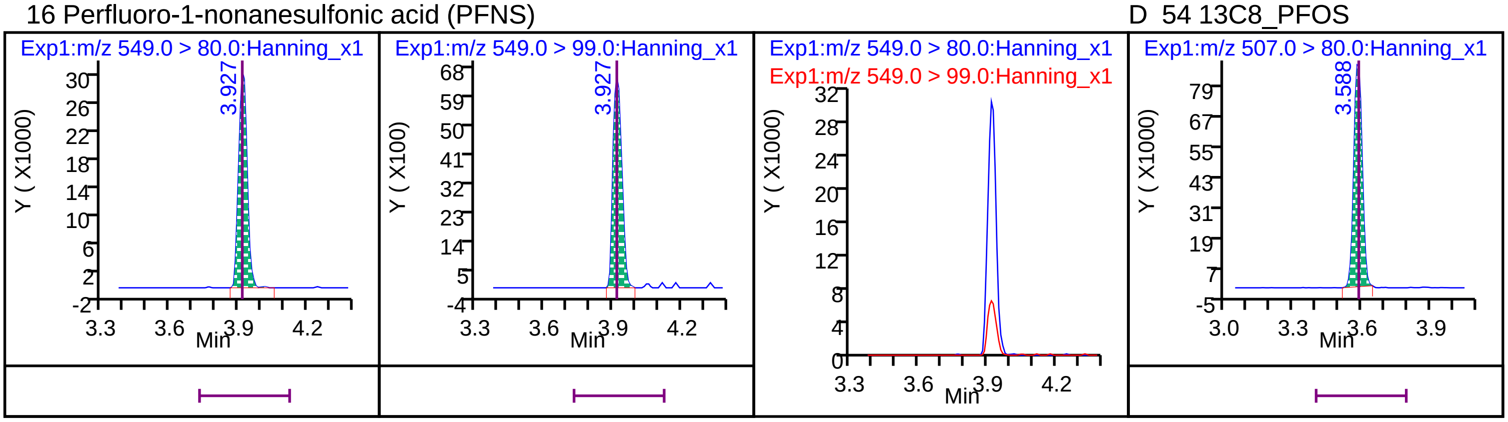




19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



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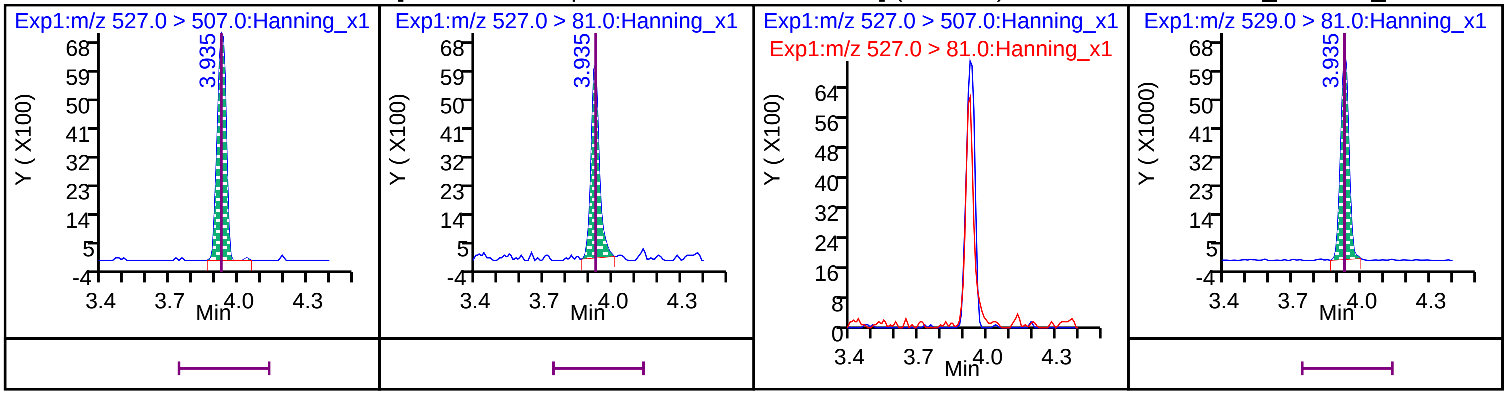
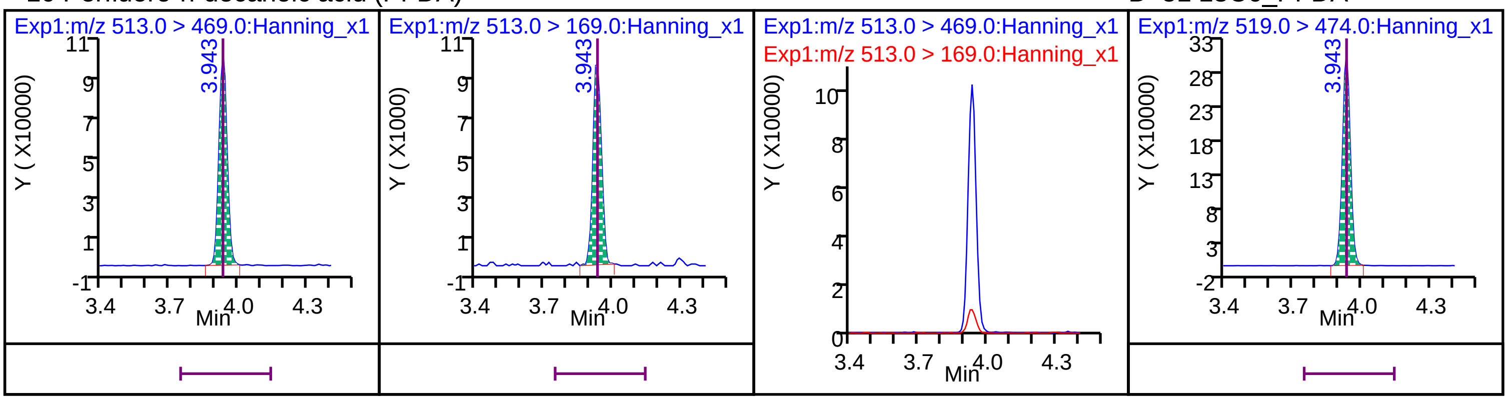
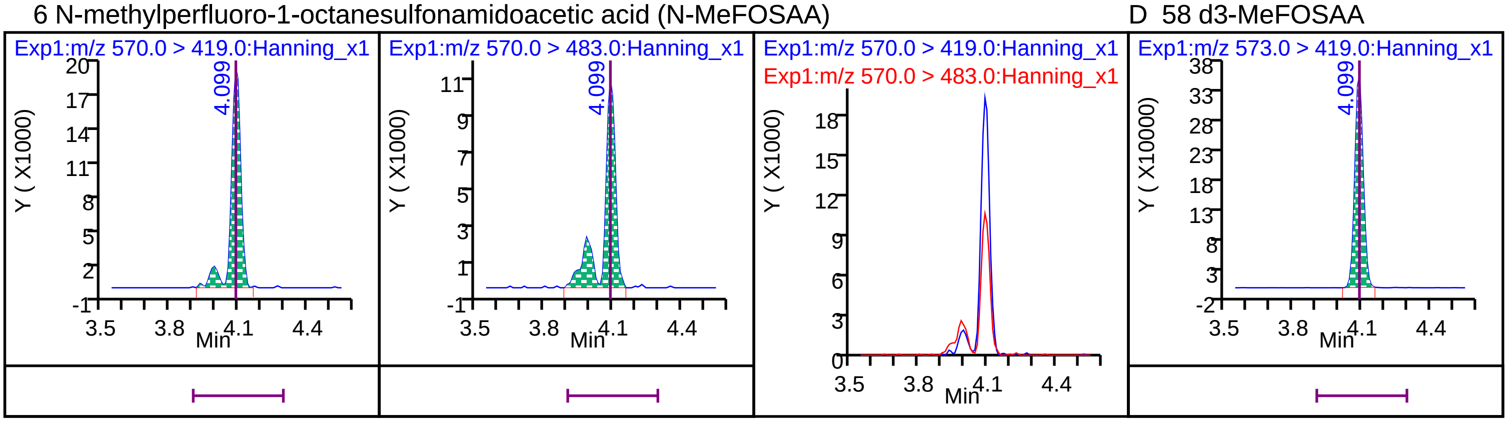
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



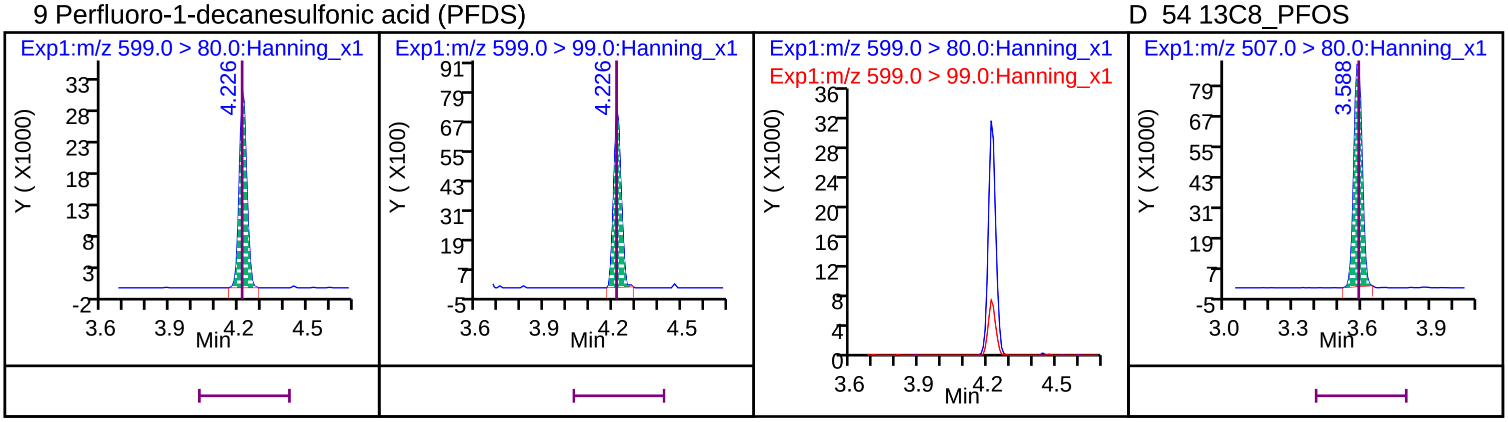
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



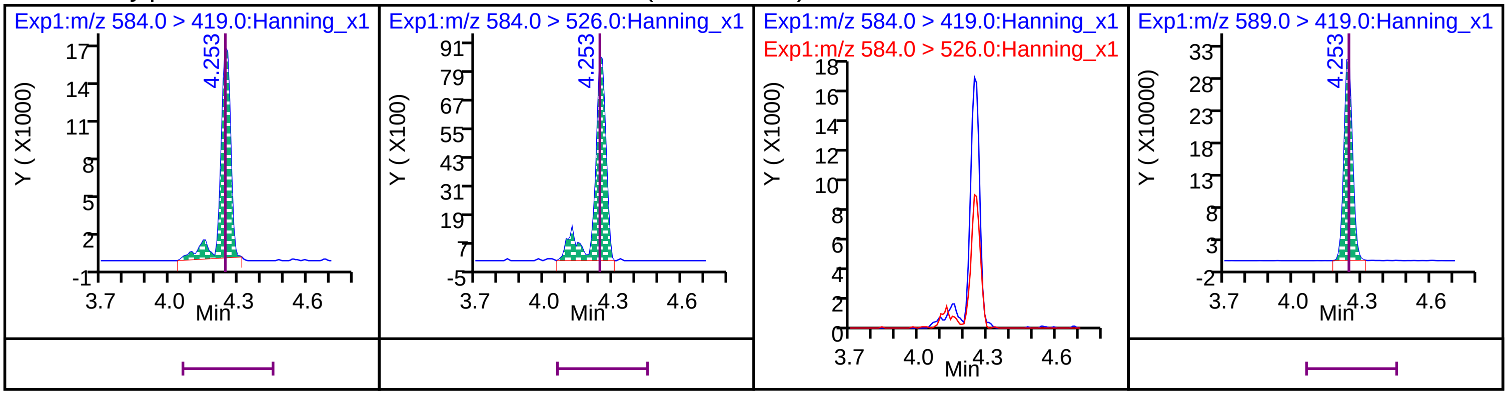
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA



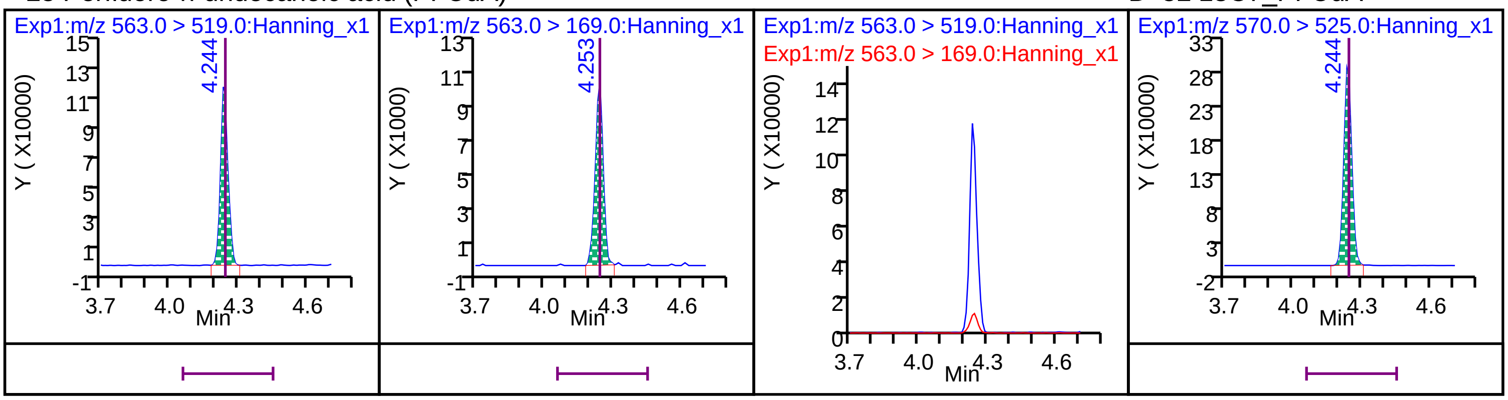
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



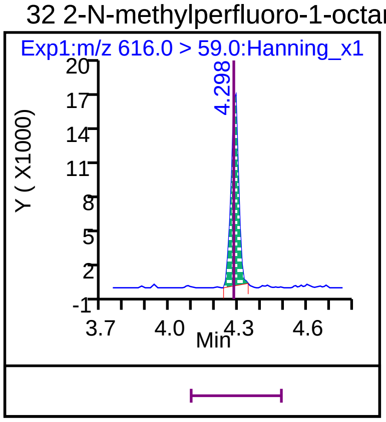
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



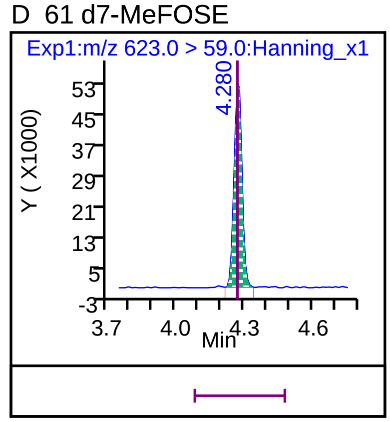
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



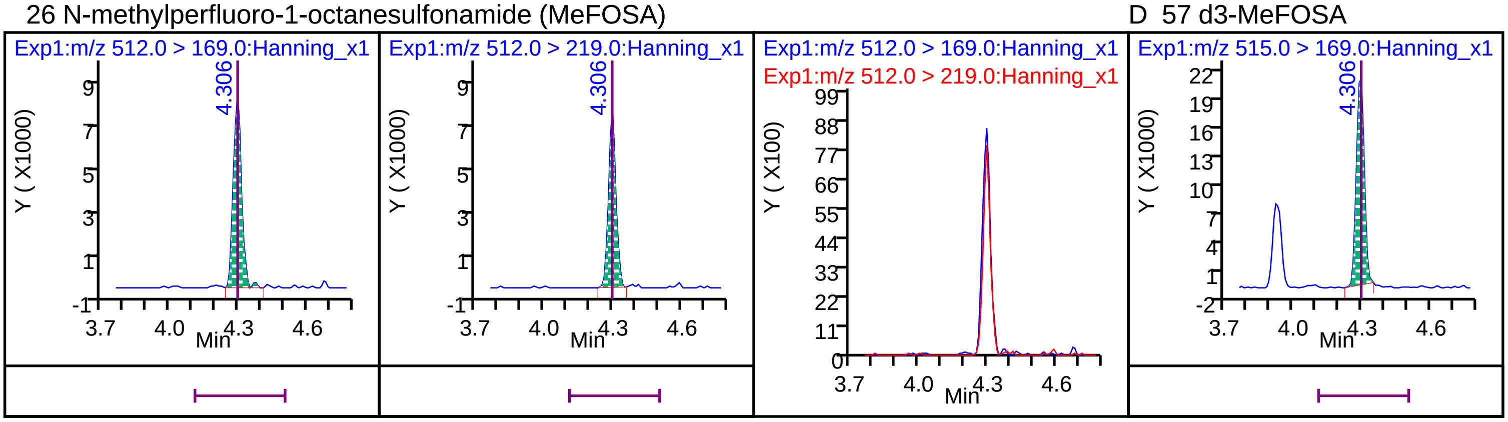
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)



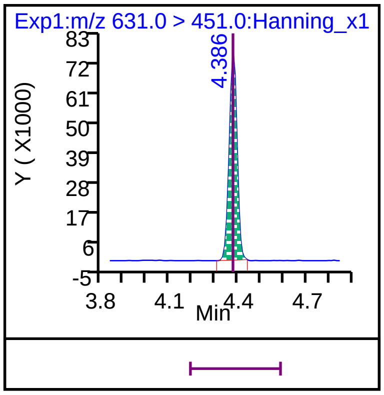
D 61 d7-MeFOSE



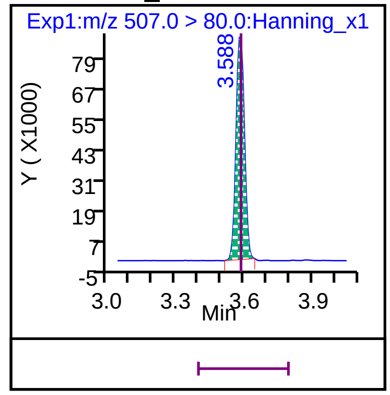
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



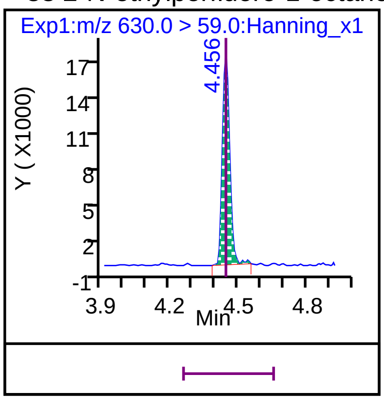
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



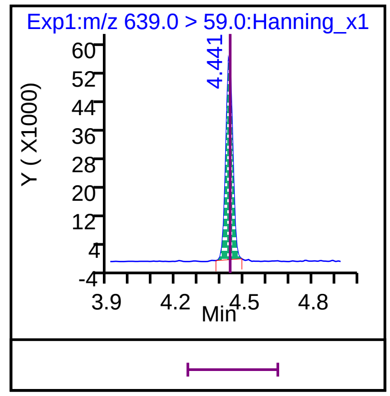
D 54 13C8_PFOS



33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

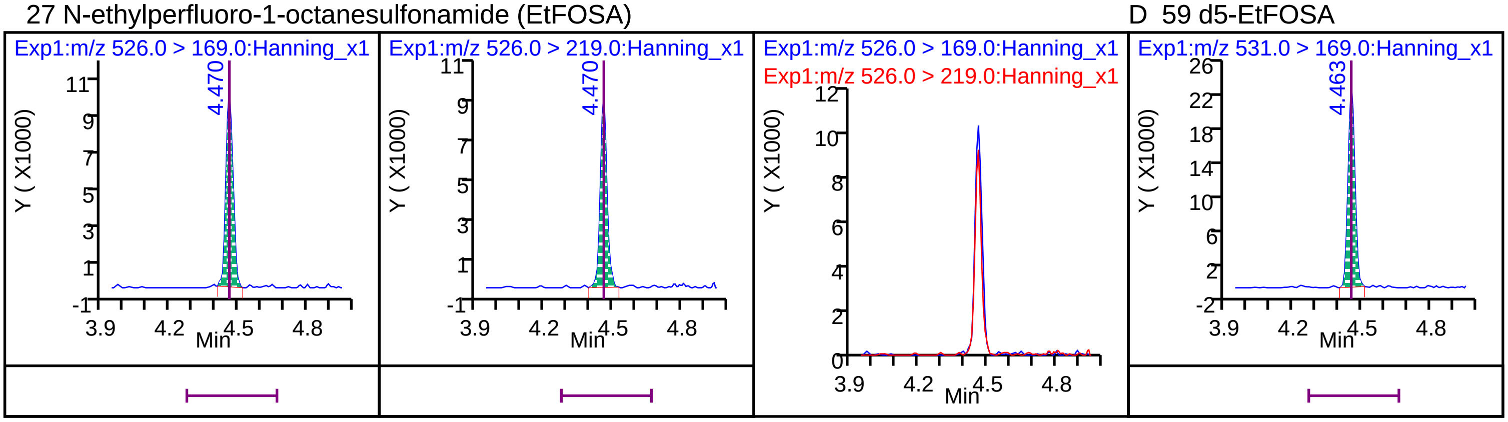


D 62 d9-EtFOSE



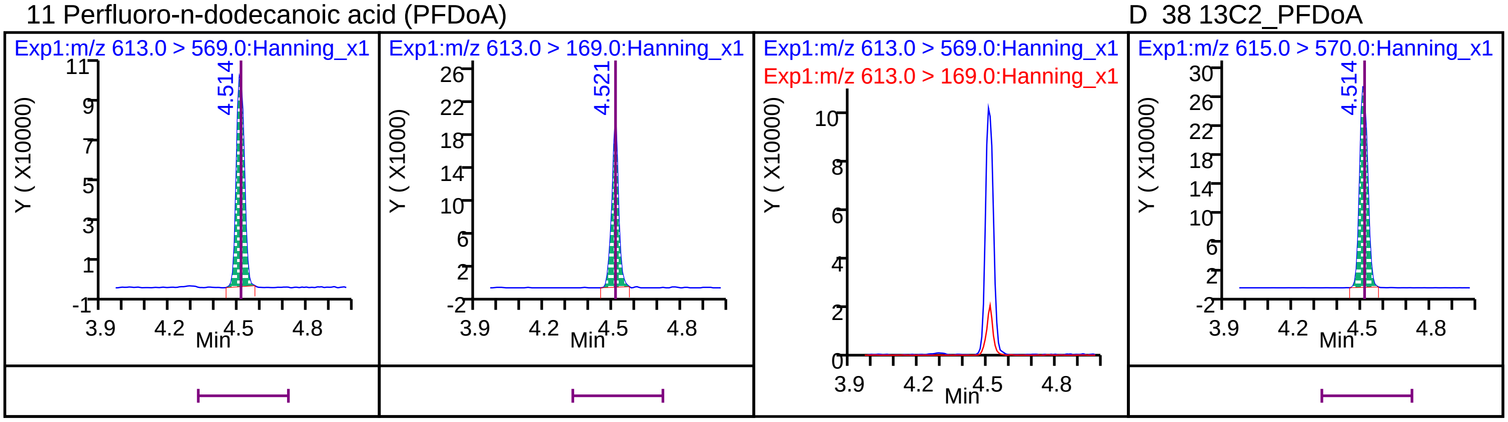
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)

D 59 d5-EtFOSA



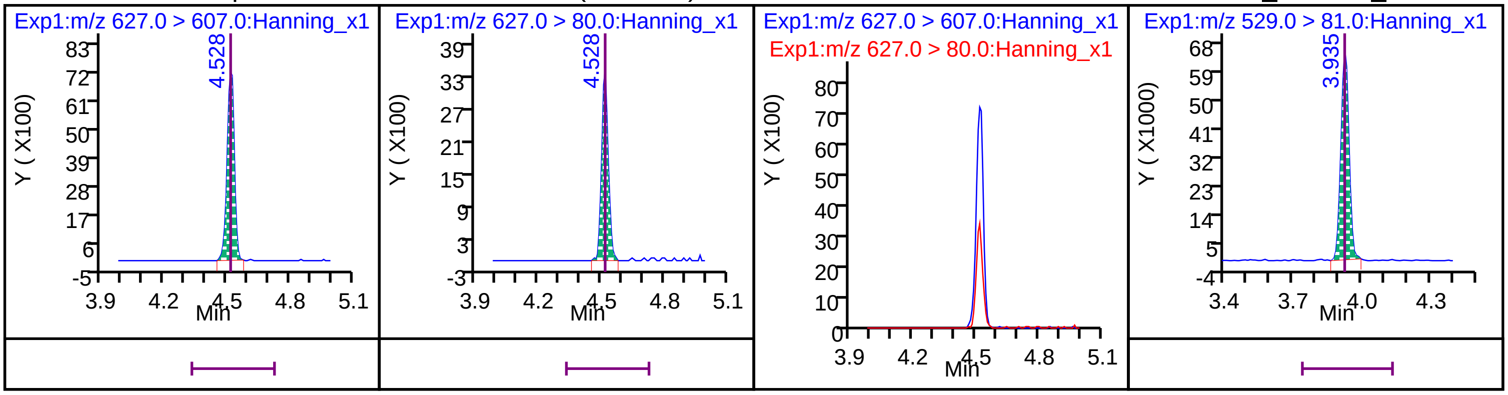
11 Perfluoro-n-dodecanoic acid (PFDoA)

D 38 13C2_PFDoA

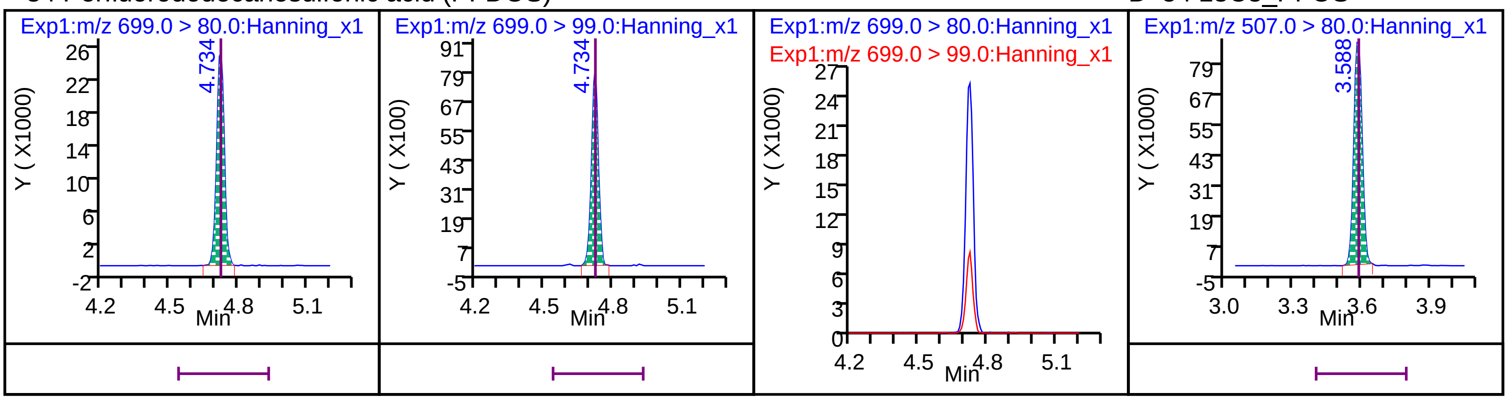


Report Date: 05-Nov-2021 13:58:37 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A075.d

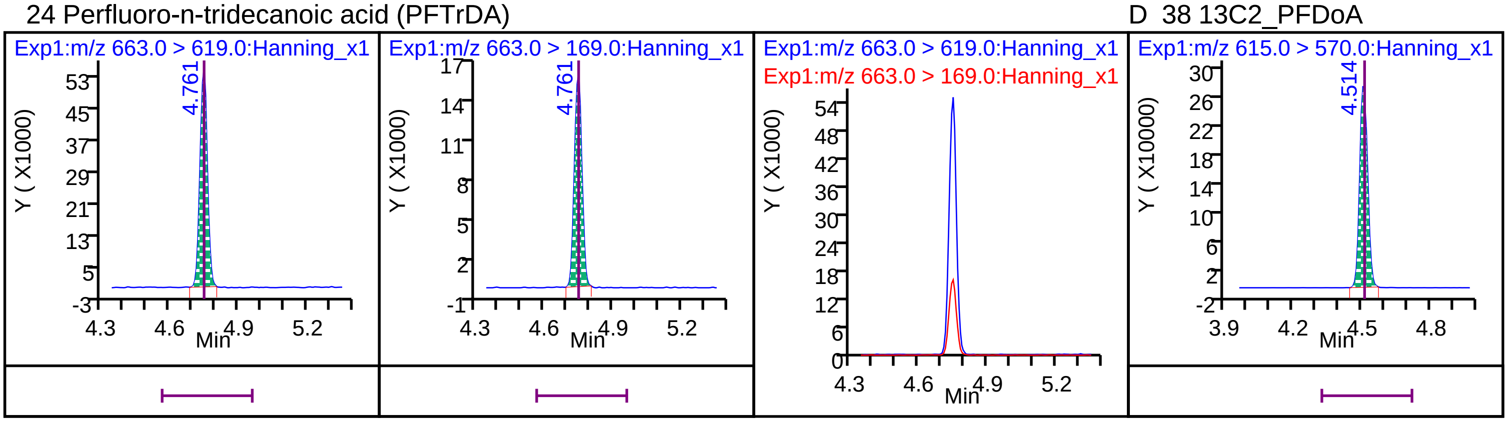
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



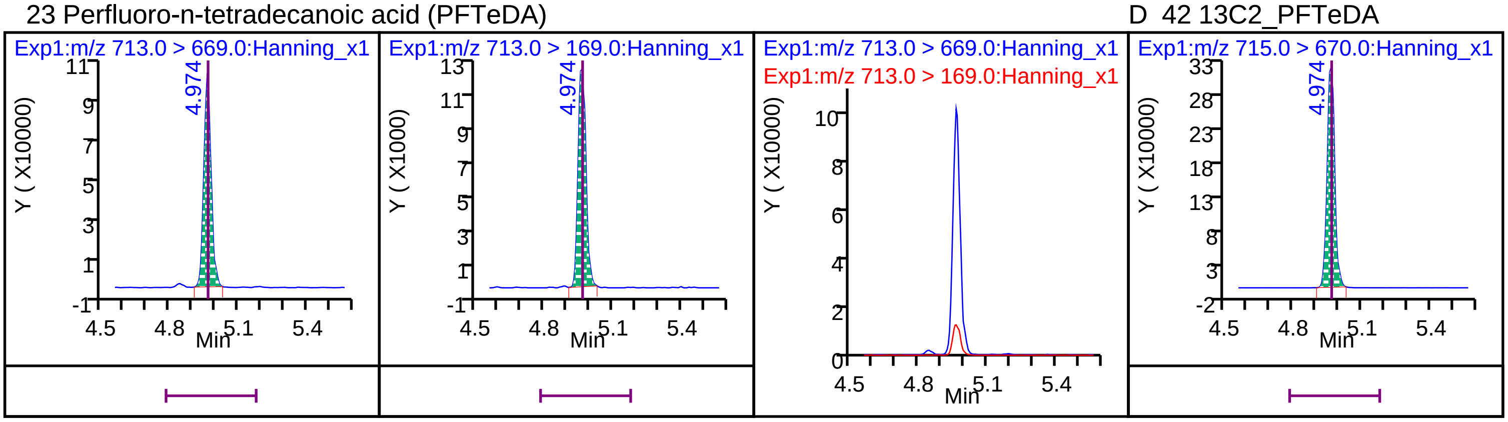
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



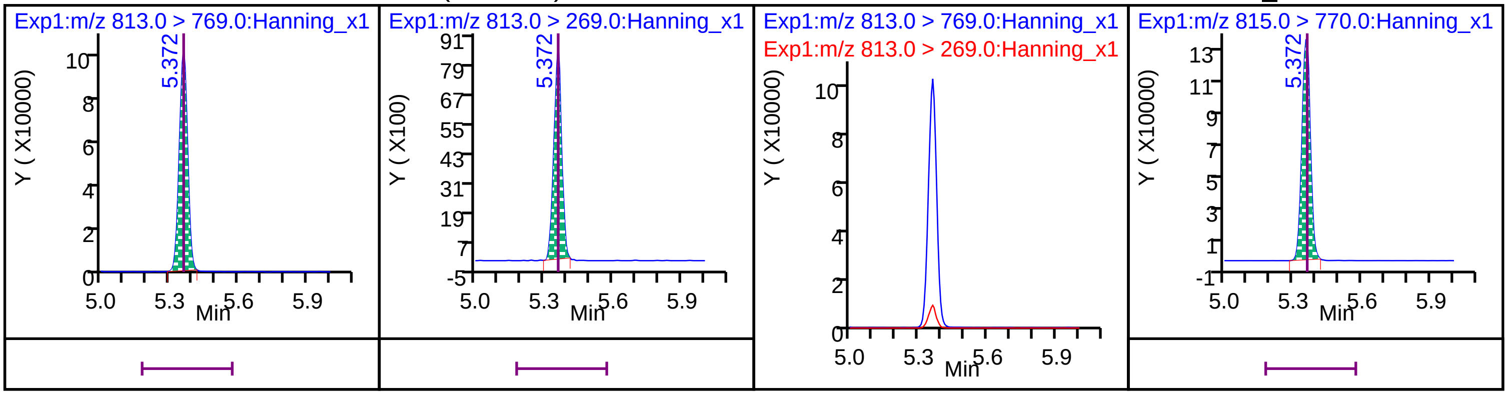
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



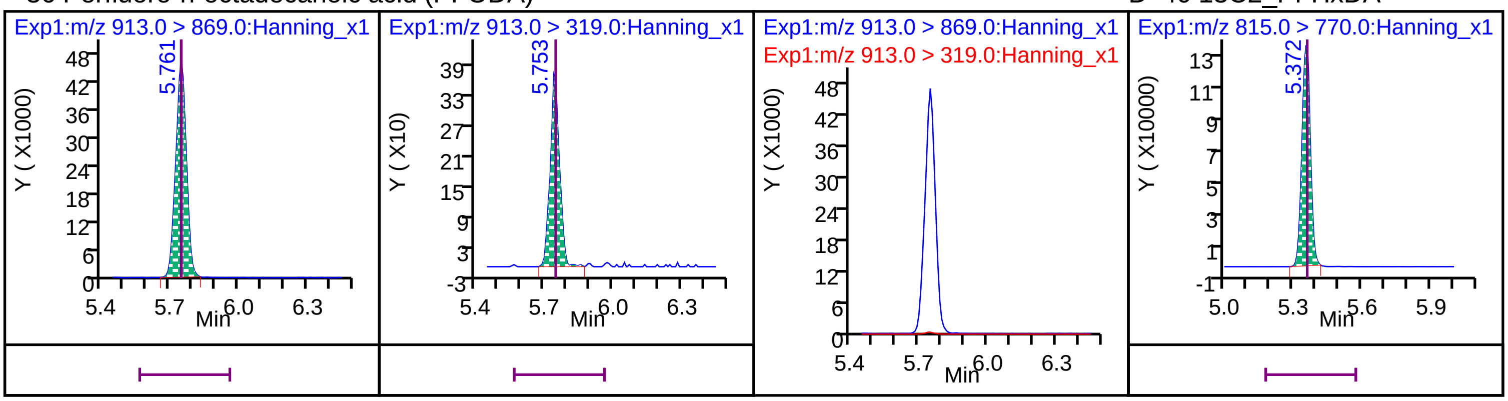
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



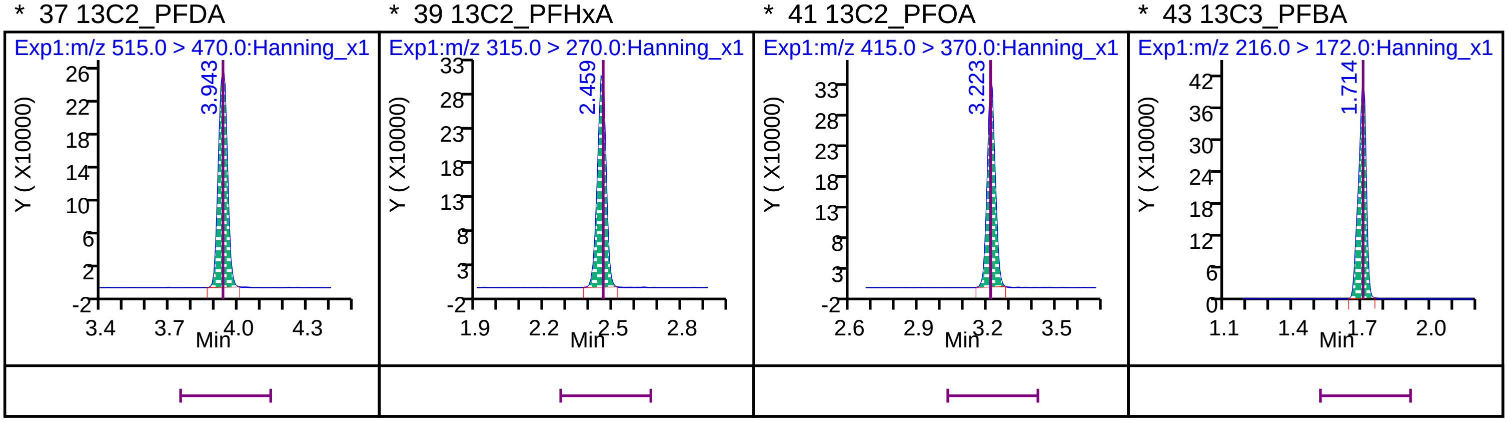
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



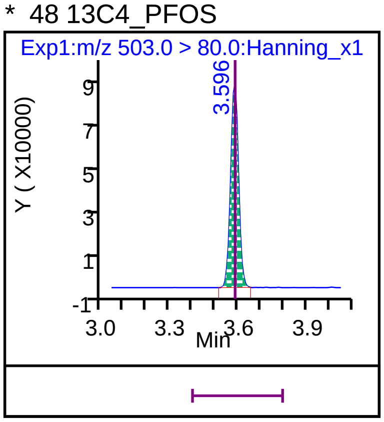
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - LCS

Sample ID: WQ21582-002
Batch: 21582
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/07/2021 1308

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16		1	104	64-140	11/09/2021 2120

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		103	50-150
13C8_PFOS		106	50-150
13C9_PFNA		99	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Report Date: 11-Nov-2021 18:39:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921035.d		
Injection Date:	09-Nov-2021 21:20:05	Injection Vol:	10.0 uL
Sample Type:	LCS	Auto Sampler:	28
Lab Sample ID:	WQ21582-002	Lab Prep. Batch:	21582
Sample Info:	WQ21582-002	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml
Reagent:	Analytes	Conc. Level:	100x PDS	Vol. Added:	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.712	1.711	1	656003	19	>100:1			1001.00	1055.22	101.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.712	1.718	0/-1	258190	21	>100:1			373.56	16.420		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	592732	16	>100:1			1001.00	1036.98	103.5	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.099	2.098	1/1	244356	16	>100:1			366.65	16.117		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	165865	15	>100:1			1001.00	958.93	96.1	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.162	0/-1	75202	16	>100:1	Target = 3.53		363.94	15.997		
298.9 > 99	44	2.151	2.162		19213	16	>100:1	3.91 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/-1	62104	16	>100:1	Target = 3.10		404.41	17.776		
349 > 99	44	2.496	2.505		18501	16	>100:1	3.35 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	117125	17	>100:1			5005.00	5172.52	113.4	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.425	2.424	1/0	17924	15	>100:1	Target = 1.75		347.46	15.273		
327 > 81	63	2.425	2.424		9060	22	18:1	1.97 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	678608	16	>100:1			1001.00	1041.95	100.9	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	283957	16	>100:1	Target = 18.91		402.84	17.707		
313 > 119	49	2.460	2.469		14823	22	>100:1	19.15 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.575	2.583	0	1130709	18	>100:1			5005.00	4878.87	96	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	1/1	119870	16	>100:1	Target = 0.79		819.29	36.013		
285 > 185	66	2.583	2.583		150509	15	>100:1	0.79 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.845	2.845	1	586291	15	>100:1			1001.00	1104.25	109.2	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	1/0	233552	17	>100:1	Target = 3.80		362.89	15.951		
363 > 169	47	2.845	2.845		63158	18	>100:1	3.69 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.864	0	128411	17	>100:1			1001.00	1022.06	112.8	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.864	0/0	50087	23	>100:1	Target = 2.89	4.55	355.15	15.611		
399 > 99	45	2.864	2.864		13905	22	>100:1	3.60 (1.44-4.34)	8.37				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.888	0/0	391948	18	>100:1	Target = 3.23		393.97	17.317		
377 > 85	45	2.881	2.888		105438	20	>100:1	3.71 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.234	3.247	0/0	46005	20	>100:1	Target = 3.12		349.17	15.348		
449 > 99	45	3.234	3.247		15272	18	>100:1	3.01 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.207	3.213	0	108506	20	>100:1			5005.00	6028.12	104.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.207	3.213	0/0	18432	20	>100:1	Target = 1.75		359.15	15.787		
427 > 81	64	3.213	3.213		11554	20	24:1	1.59 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.234	3.240	0	564526	19	>100:1			1001.00	1075.95	102.8	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.234	3.240	0/0	224237	19	>100:1	Target = 2.89		388.00	17.055		
413 > 169	53	3.234	3.240		78319	20	>100:1	2.86 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.608	3.623	0	119605	20	>100:1			1001.00	965.78	106.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.608	3.623	0/0	43533	34	>100:1	Target = 3.30	3.33	305.99	13.450		
499 > 99	54	3.608	3.623		13203	38	>100:1	3.29 (1.65-4.95)	7.26				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.820	3.828	0/0	171923	19	>100:1			379.94	16.701		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.962	3.971	0/0	36046	22	>100:1	Target = 3.08		376.02	16.528		
549 > 99	54	3.962	3.971		13923	15	>100:1	2.58 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.264	4.274	0/0	35490	14	>100:1	Target = 2.72		379.57	16.684		
599 > 99	54	4.274	4.274		10681	15	85:1	3.32 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.425	4.443	-1/-1	155740	18	>100:1			380.71	16.735		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.777	4.796	-1/-1	24092	18	>100:1	Target = 3.27		234.49	10.307		
699 > 99	54	4.777	4.796		8589	18	>100:1	2.80 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.616	3.623	0	643076	19	>100:1			1001.00	1004.21	99	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.616	3.623	0/0	278497	18	>100:1	Target = 6.51		402.18	17.678		
463 > 169	56	3.616	3.623		41279	19	>100:1	6.74 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.877	3.893	0	245573	16	>100:1			1001.00	916.12	99.8	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.877	3.893	0/0	96071	16	>100:1	Target = 41.63		372.18	16.360		
498>478	55	3.885	3.893		4691	21	33:1	20.47 (20.81-62.44)					J
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.971	3.981	0	650693	16	>100:1			1001.00	1132.31	103.1	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.971	3.981	0/0	290336	16	>100:1	Target = 13.80		383.80	16.870		
513 > 169	51	3.971	3.981		17614	14	55:1	16.48 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.962	3.981	-1	96644	16	>100:1			5005.00	5591.37	104.5	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.971	3.981	0/1	15819	15	99:1	Target = 1.94		362.56	15.937		
527 > 81	65	3.971	3.981		8329	14	24:1	1.89 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.568	4.577	0/1	15114	15	>100:1	Target = 3.54		308.57	13.564		
627 > 80	65	4.568	4.577		6180	17	60:1	2.44 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.130	4.139	0	738917	18	>100:1			5005.00	4889.85	104	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.130	4.148	-1/-1	43582	28	>100:1	Target = 1.37	6.23	367.88	16.171		
570 > 483	58	4.139	4.148		30870	33	>100:1	1.41 (0.68-2.05)	4.27				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.294	4.304	0	78005	13	>100:1			1001.00	864.91	93.4	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.305	4.314	0/0	32062	17	>100:1			376.48	16.549		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.315	4.325	0	31077	14	82:1			1001.00	660.63	71.1	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.315	4.335	-1/-1	16798	15	73:1	Target = 1.11		499.19	21.943		
512 > 219	57	4.315	4.335		13060	12	>100:1	1.28 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.284	4.294	0	654218	15	>100:1			5005.00	5051.36	95.6	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.294	4.304	0/0	48963	29	>100:1	Target = 1.51	6.66	384.17	16.887		
584 > 526	60	4.294	4.304		31629	36	>100:1	1.54 (0.75-2.26)	2.62				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.284	4.294	0	663550	17	>100:1			1001.00	1101.78	95.7	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.284	4.294	0/0	252682	22	>100:1	Target = 14.52		393.39	17.292		
563 > 169	52	4.284	4.294		15285	19	77:1	16.53 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.461	4.470	0	98708	14	>100:1			1001.00	930.53	104.8	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.470	4.479	0/0	43887	15	>100:1			457.18	20.096		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.480	4.488	0	30499	16	>100:1			1001.00	709.28	71.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.489	4.497	0/0	16178	14	>100:1	Target = 1.06		435.61	19.148		
526 > 219	59	4.480	4.497		15050	19	>100:1	1.07 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.568	4.577	0	645397	17	>100:1			1001.00	1075.06	91.7	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.568	4.577	0/0	283520	16	>100:1	Target = 10.70		412.48	18.131		
613 > 169	38	4.568	4.577		24470	14	>100:1	11.58 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.808	4.822	0/0	251959	19	>100:1	Target = 8.31		371.79	16.342		
663 > 169	38	4.813	4.822		26511	17	>100:1	9.50 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.036	5.042	0	713795	21	>100:1			1001.00	877.99	75.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.036	5.048	0/0	240074	20	44:1	Target = 12.17		385.68	16.953		
713 > 169	42	5.036	5.048		19613	20	>100:1	12.24 (6.08-18.25)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.453	5.454	0	632702	18	>100:1			1001.00	728.89	69.3	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.453	5.461	0/0	152961	17	34:1	Target = 10.43		377.86	16.609		
813 > 269	40	5.453	5.461		12341	17	>100:1	12.39 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.870	5.875	0/0	181934	30	21:1	Target = 13.67		316.17	13.898		
913 > 319	40	5.870	5.875		11800	35	>100:1	15.41 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.971	3.981	0	792696	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	710753	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.234	3.240	0	594170	19	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.712	1.711	1	634494	21	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.616	3.623	0	124943	17	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

Report Date: 11-Nov-2021 18:39:31 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

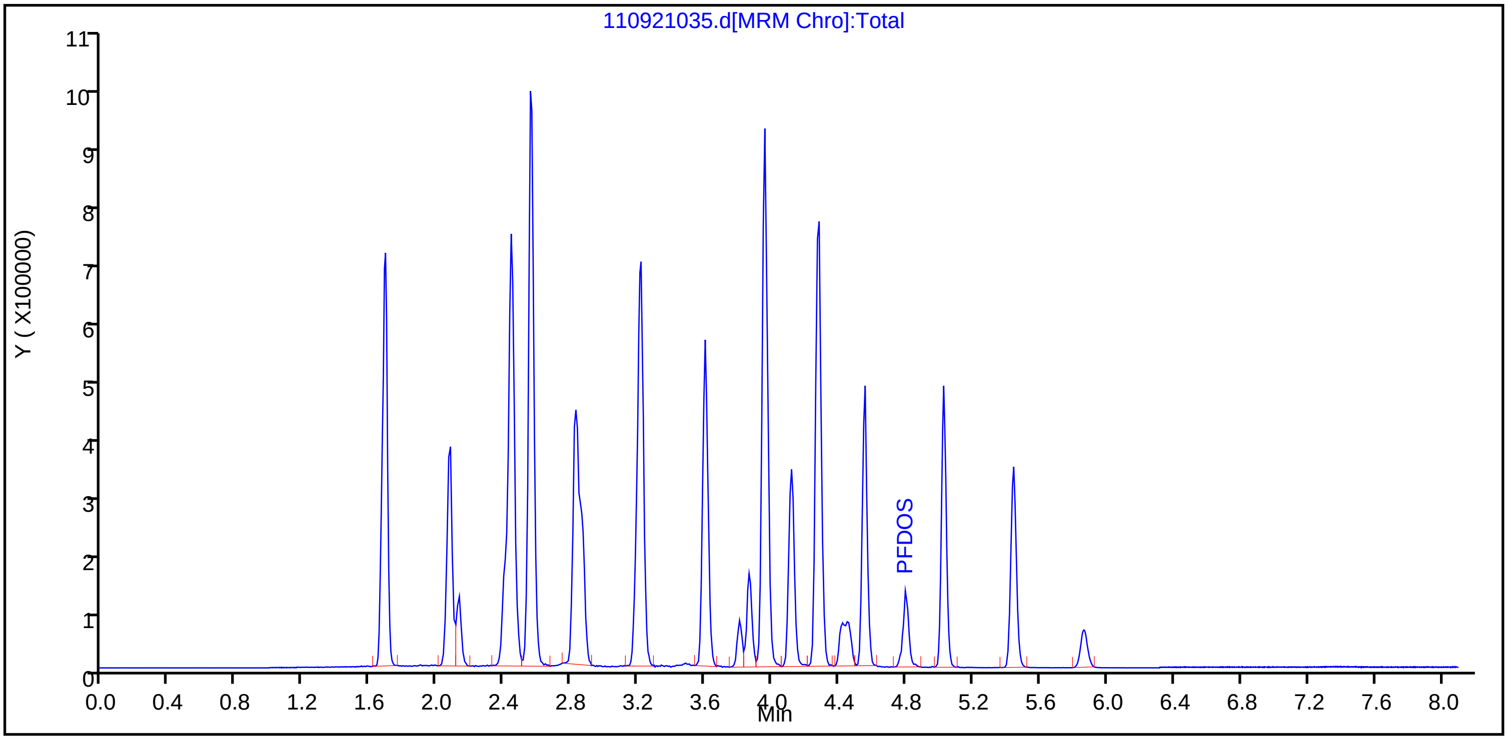
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921035.d

Injection Date: 09-Nov-2021 21:20:05 Inst. ID: LCMSMS02.i

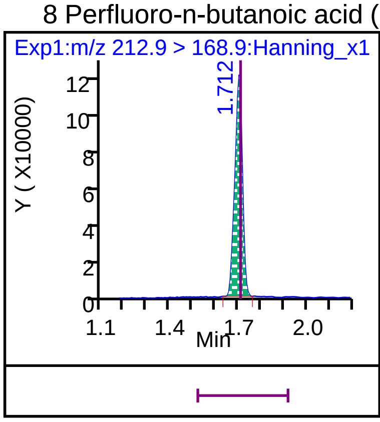
Client ID: Lab ID: WQ21582-002

Sample Info: WQ21582-002

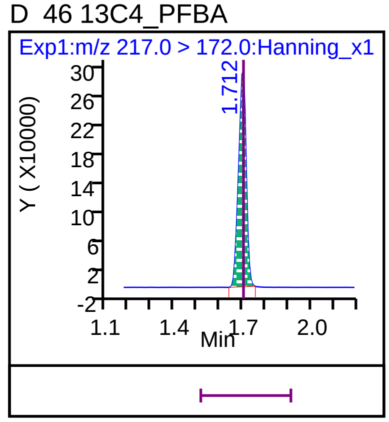
Dil. Factor: 1 Operator: Justin Gavin



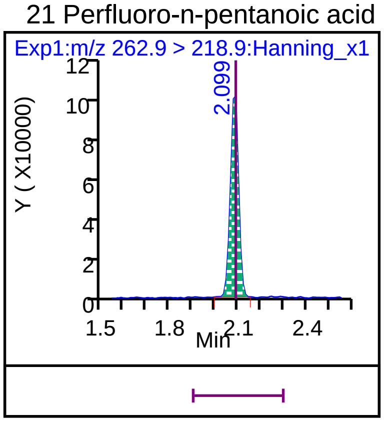
8 Perfluoro-n-butanoic acid (PFBA)



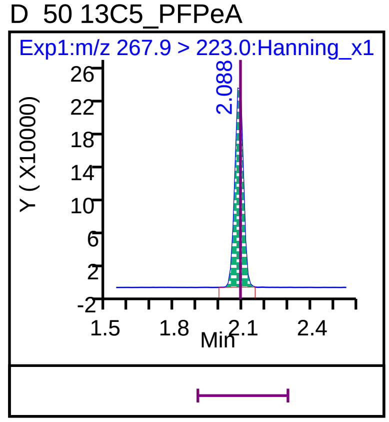
D 46 13C4_PFBA



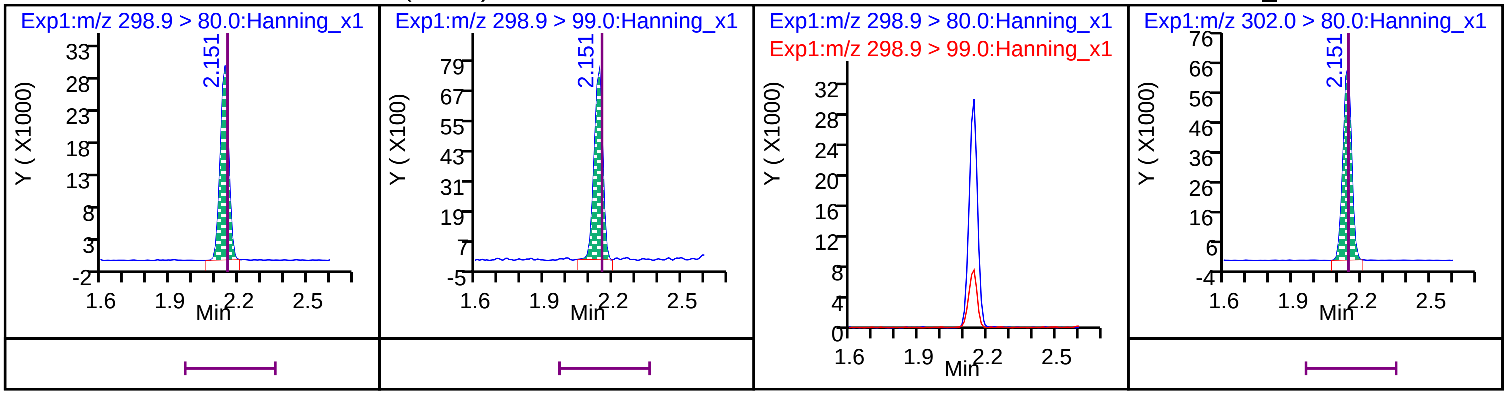
21 Perfluoro-n-pentanoic acid (PFPeA)



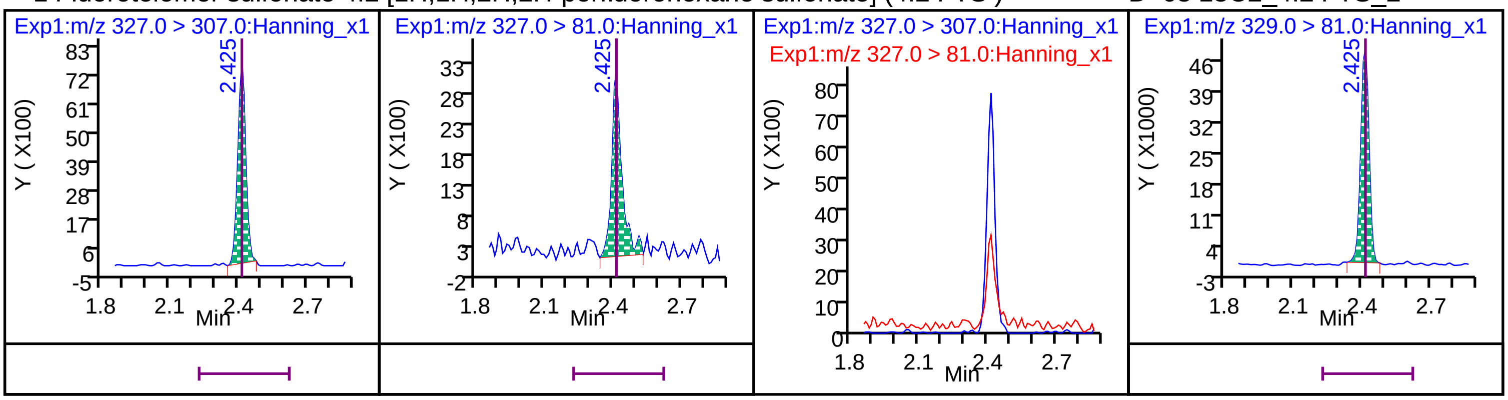
D 50 13C5_PFPeA



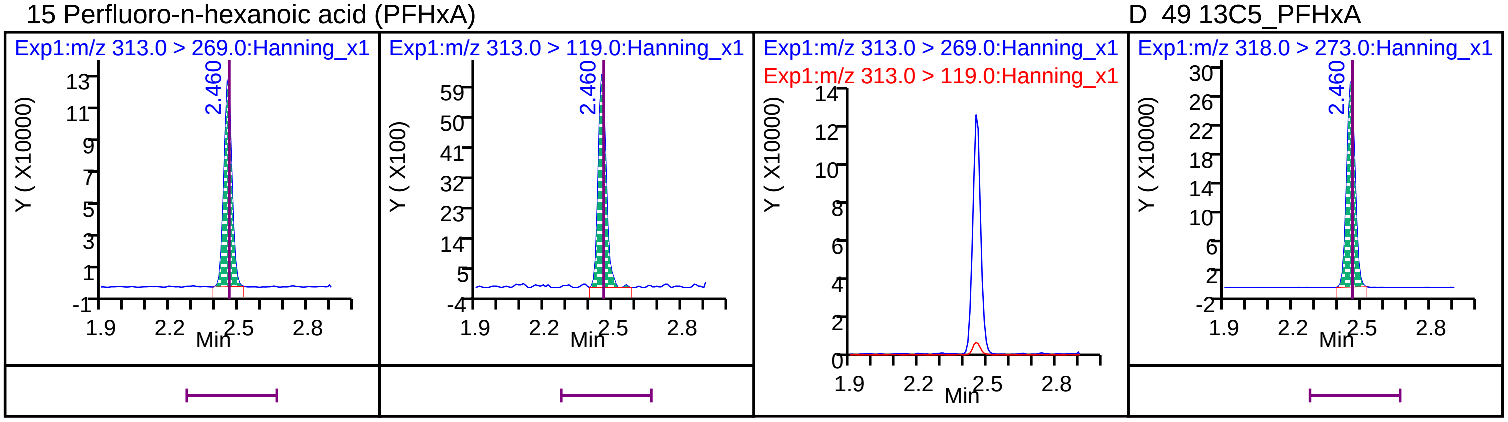
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



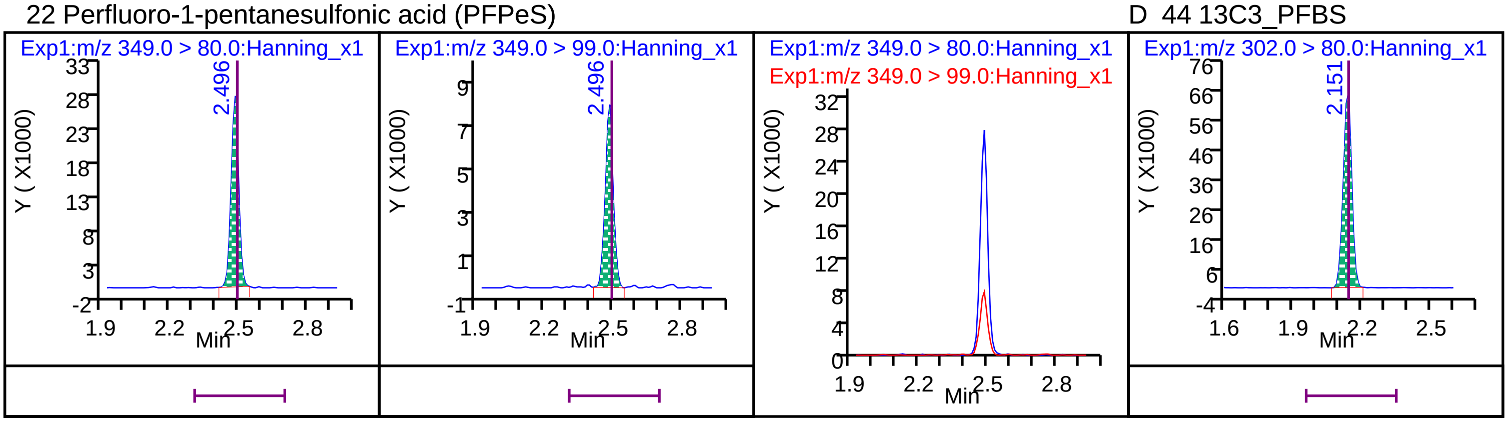
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



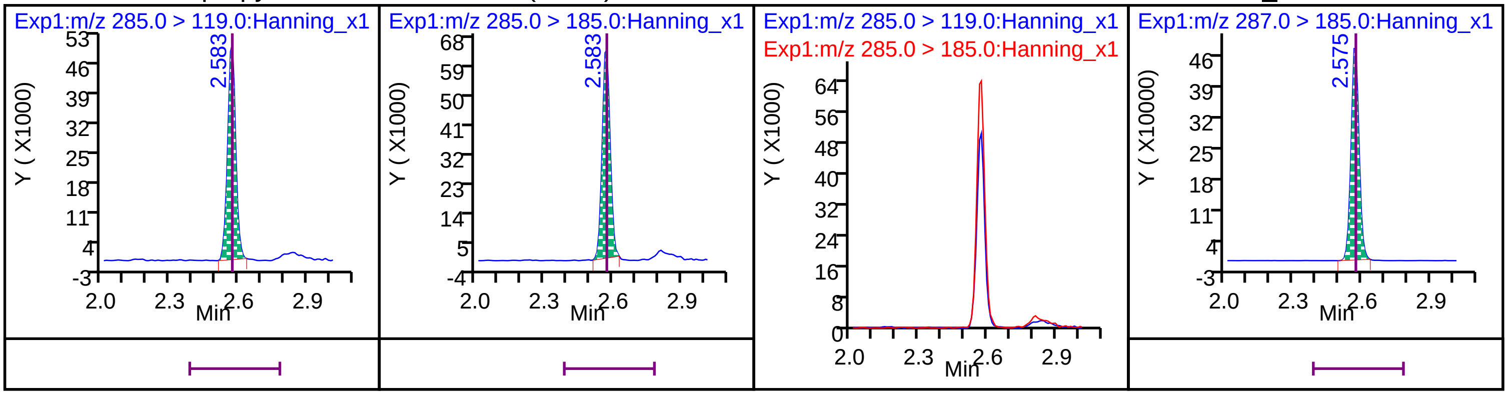
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



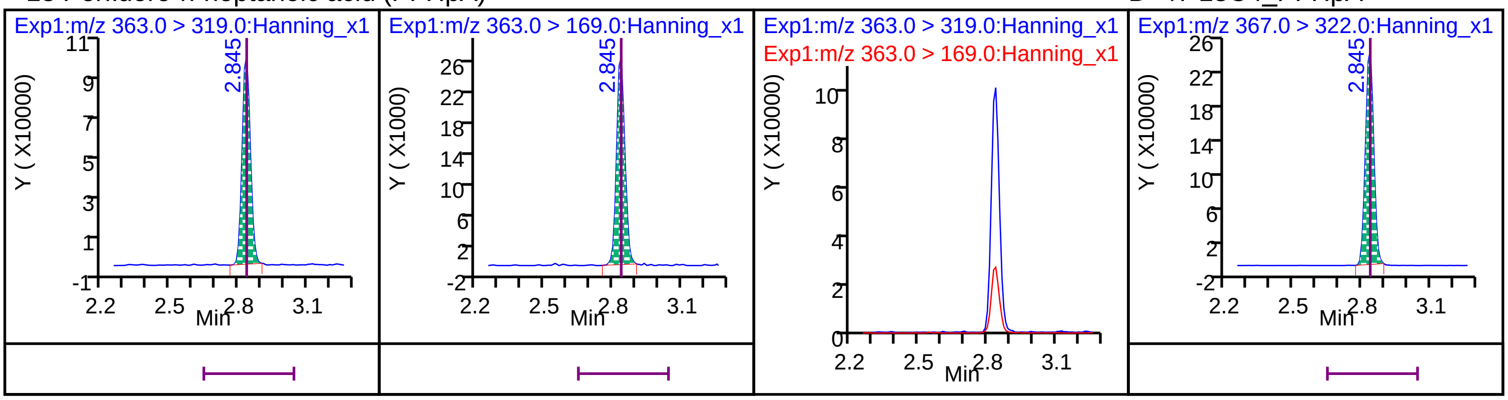
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



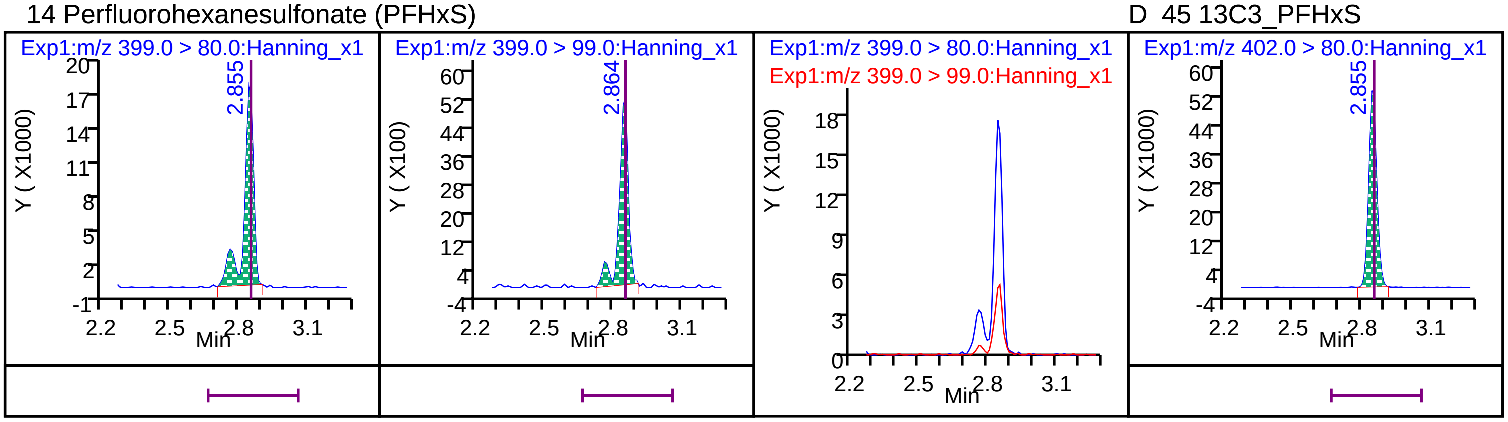
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



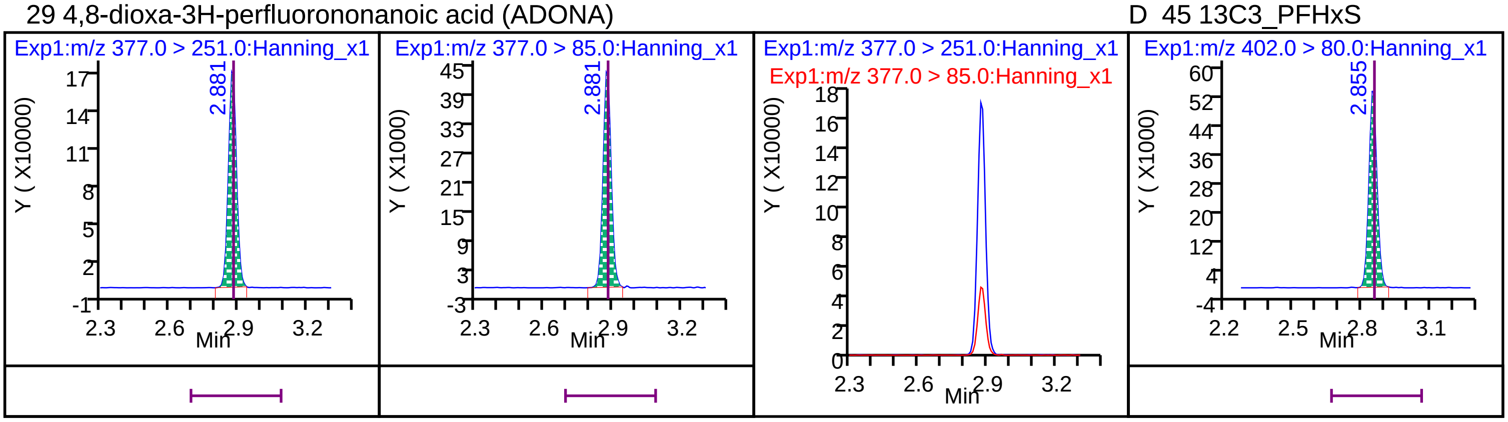
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



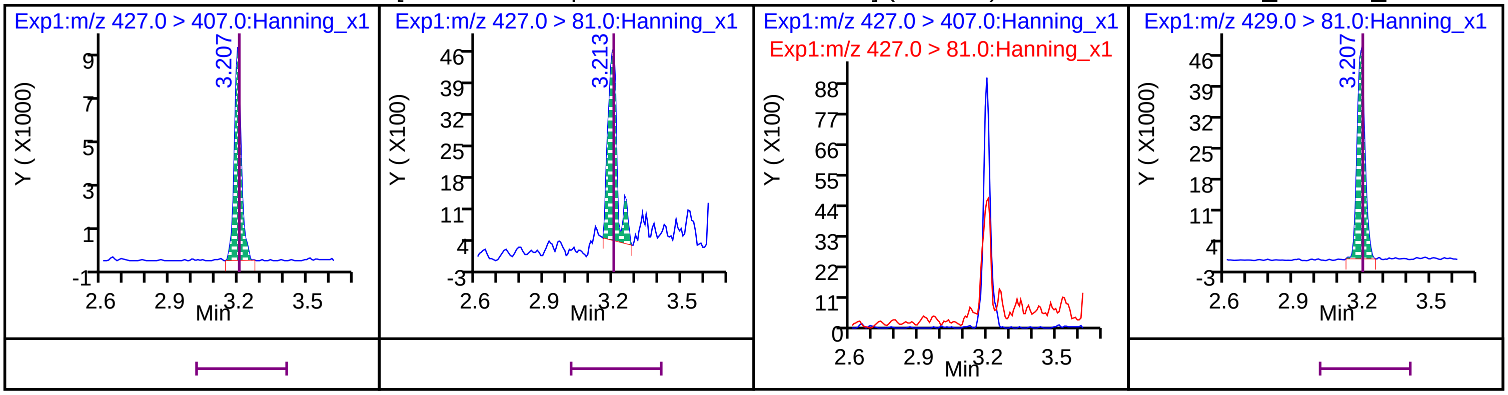
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



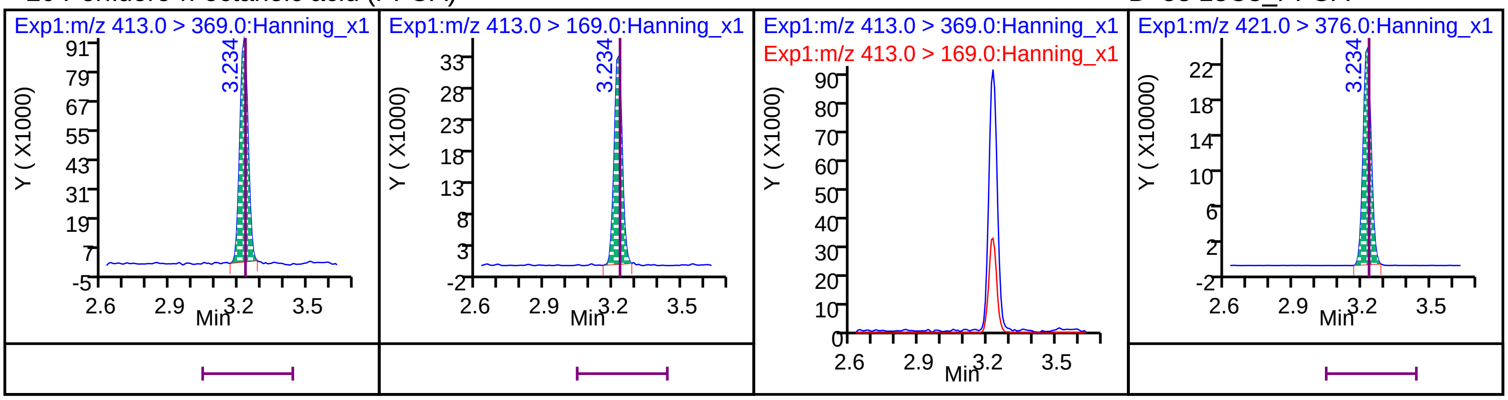
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



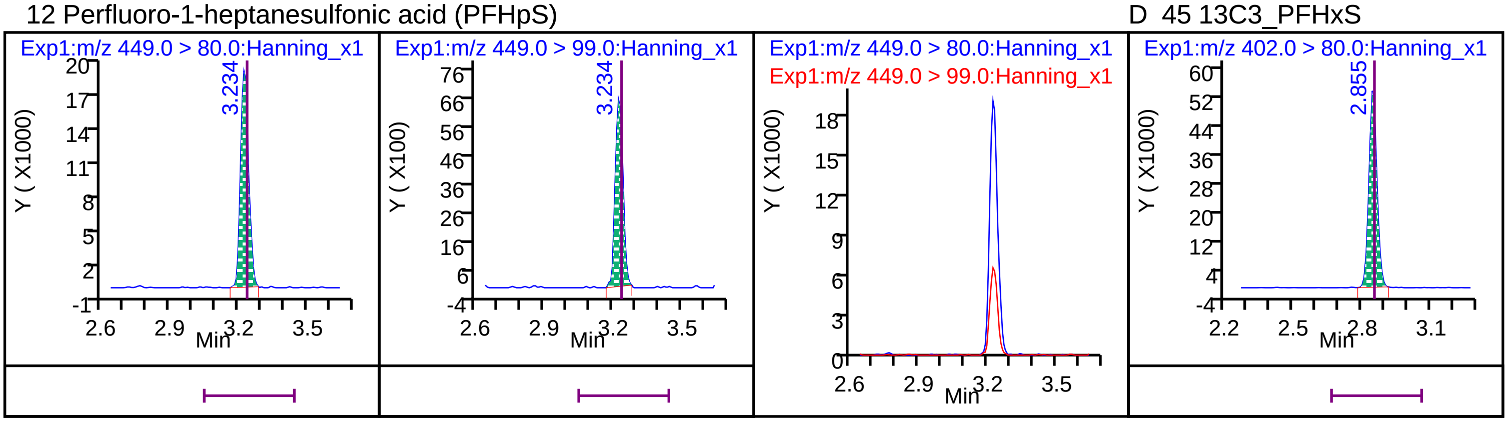
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



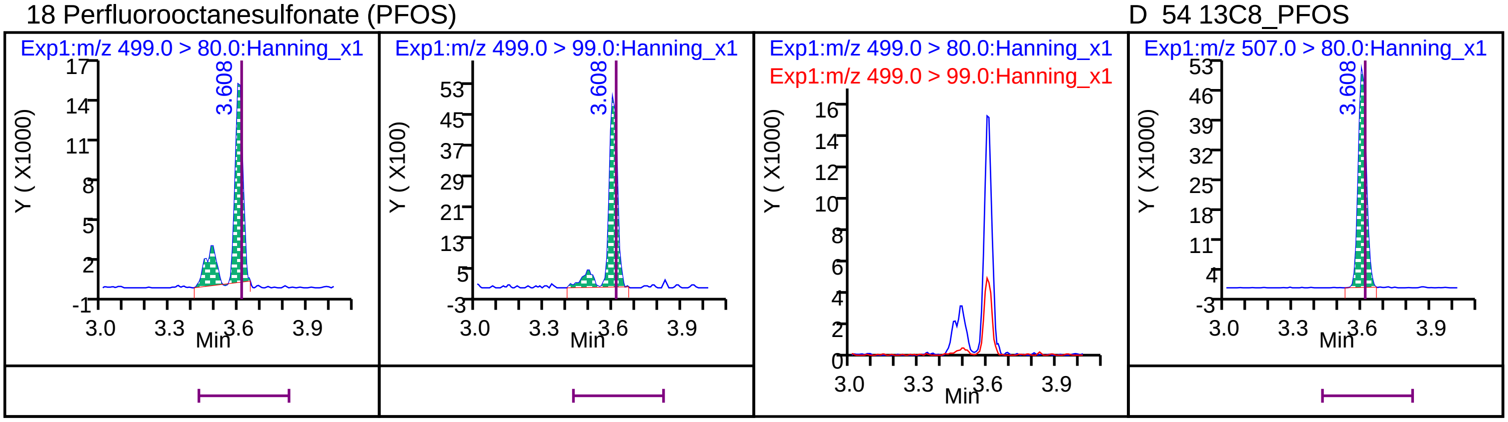
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS



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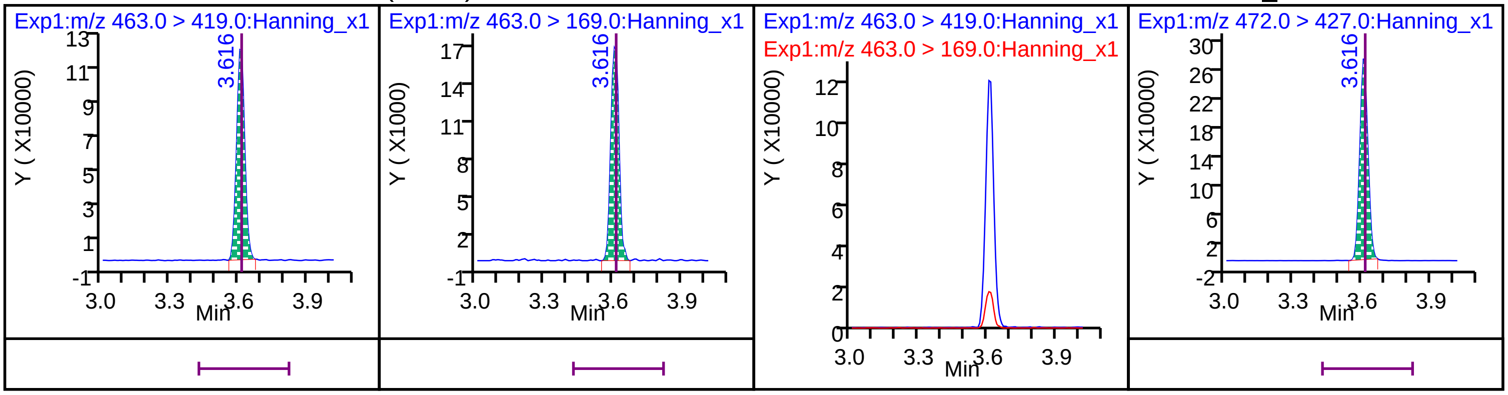
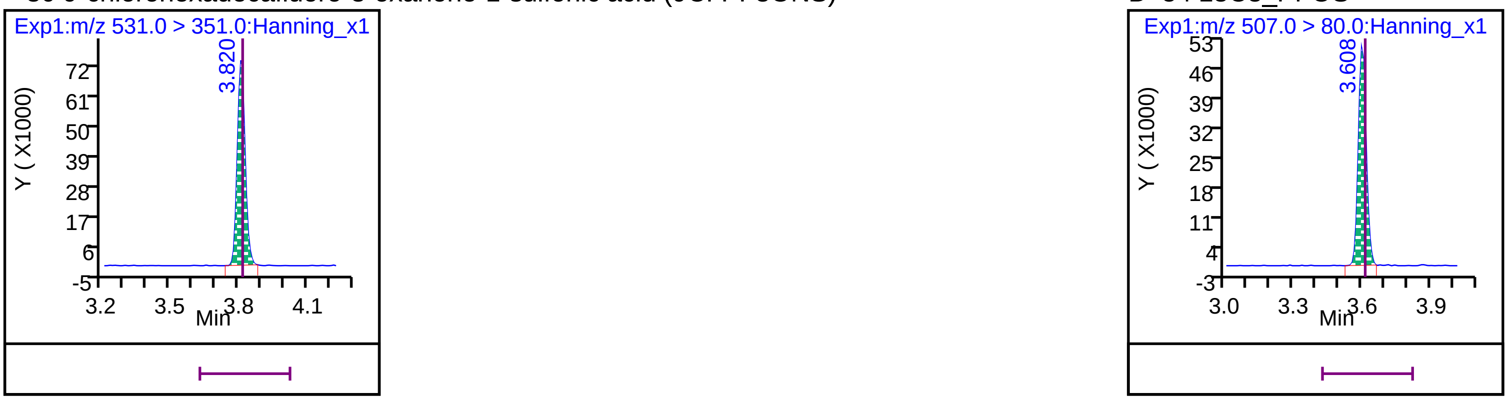
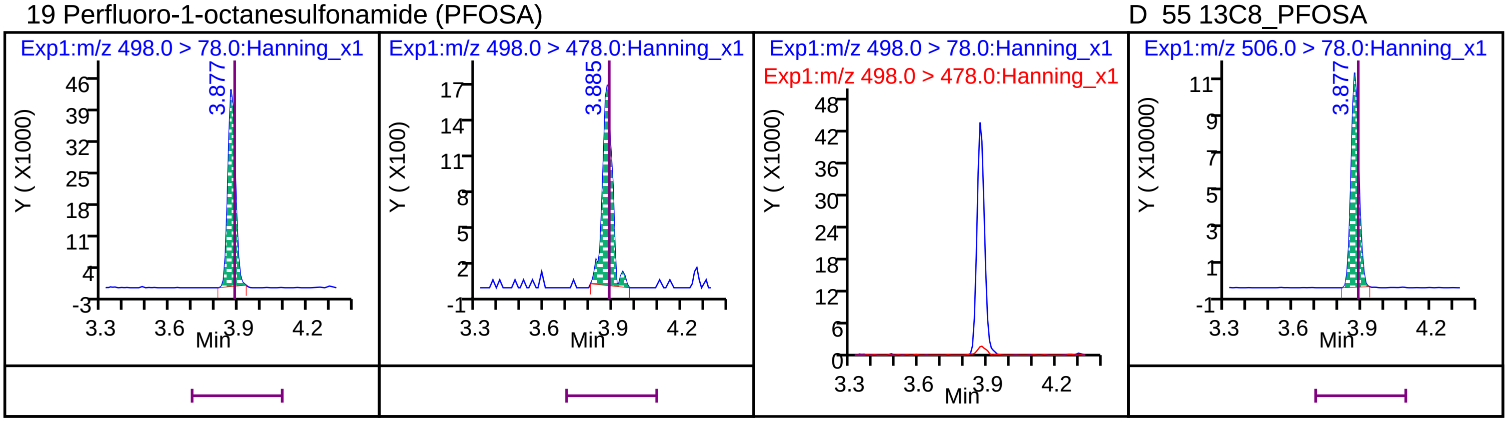
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



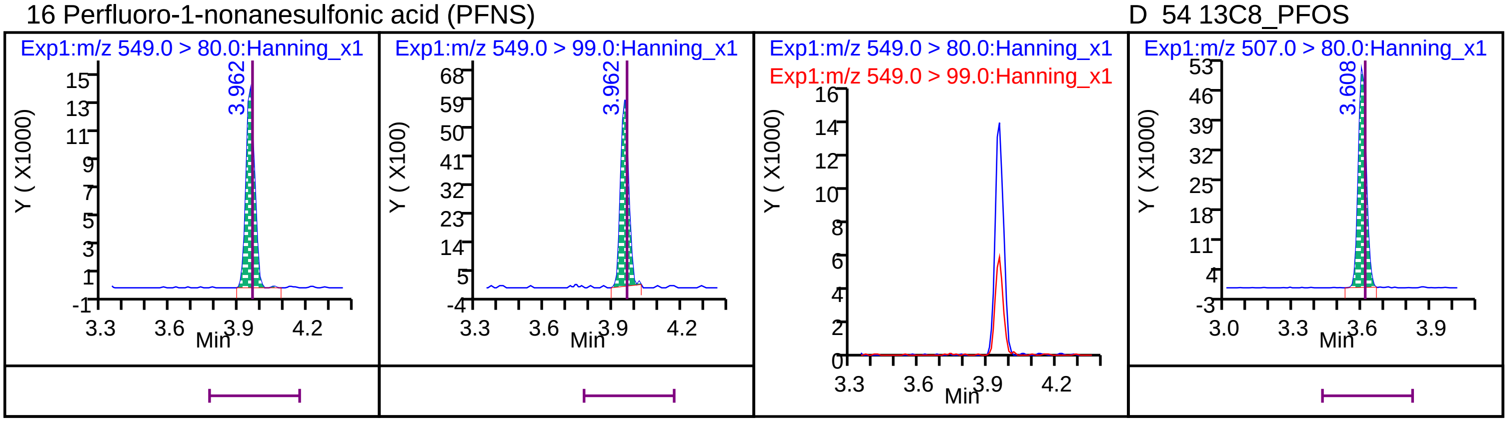
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



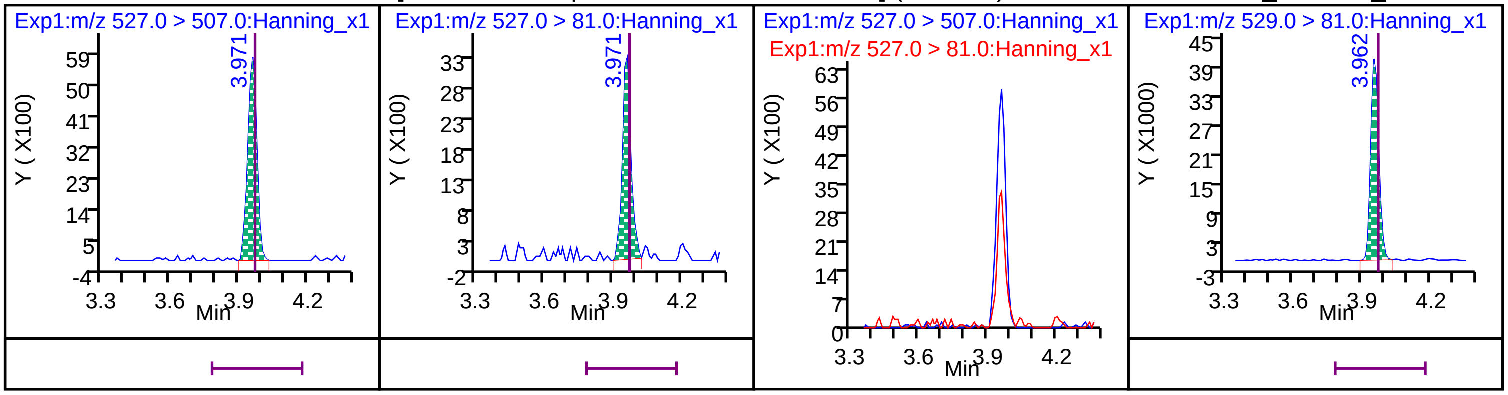
19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA



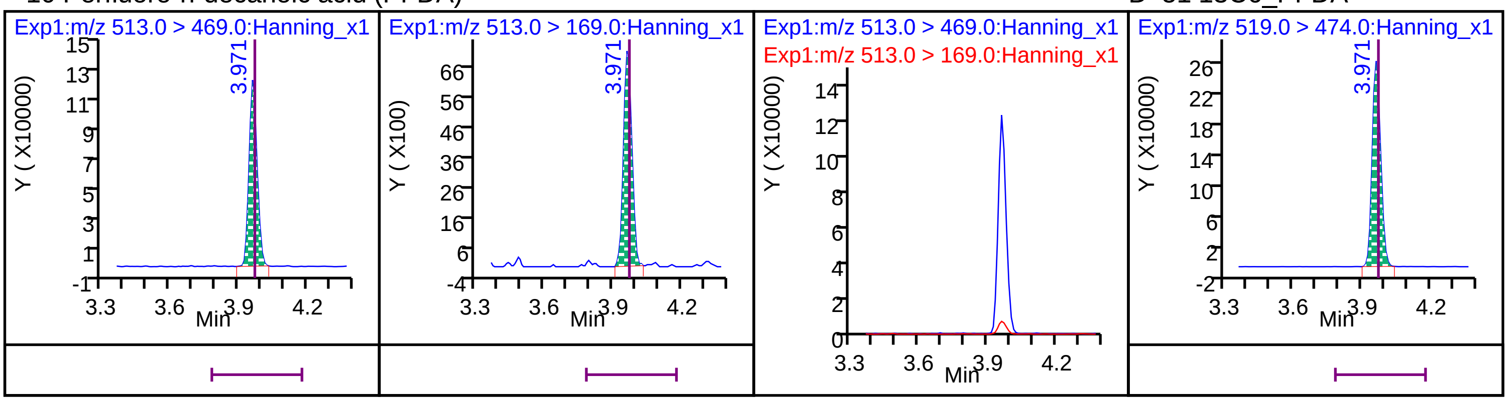
16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS



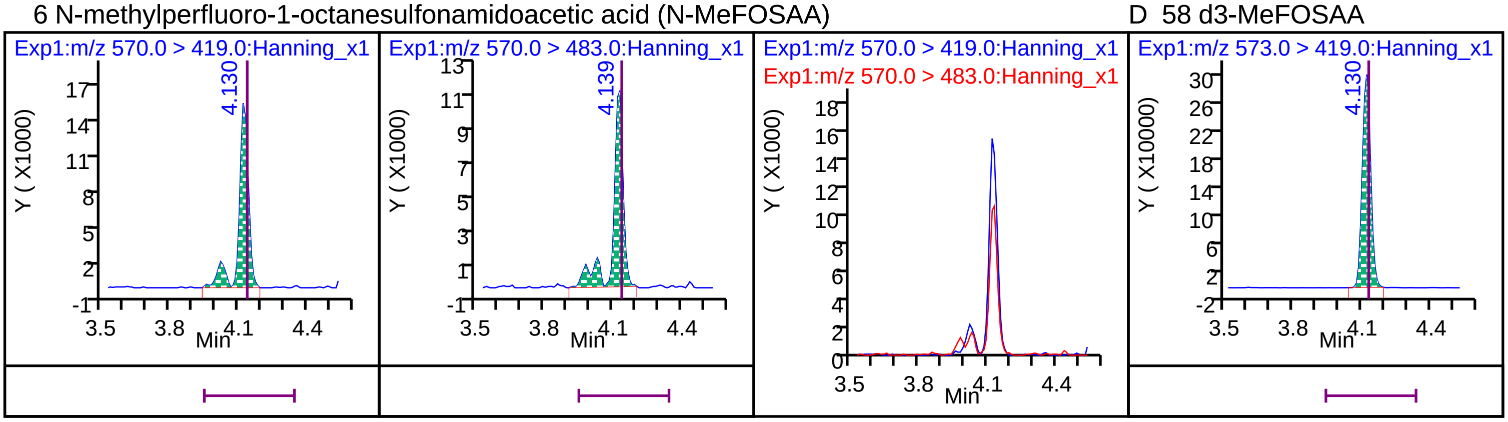
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



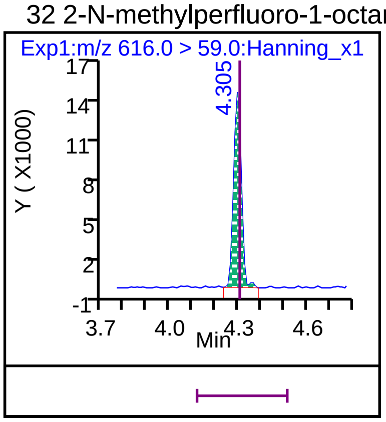
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

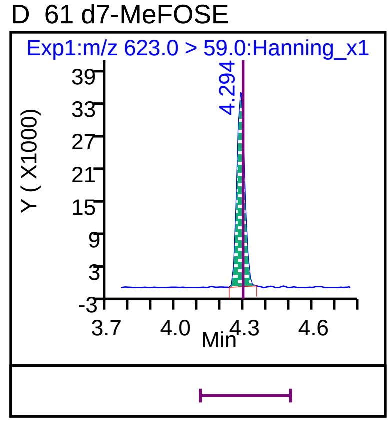


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) D 58 d3-MeFOSAA

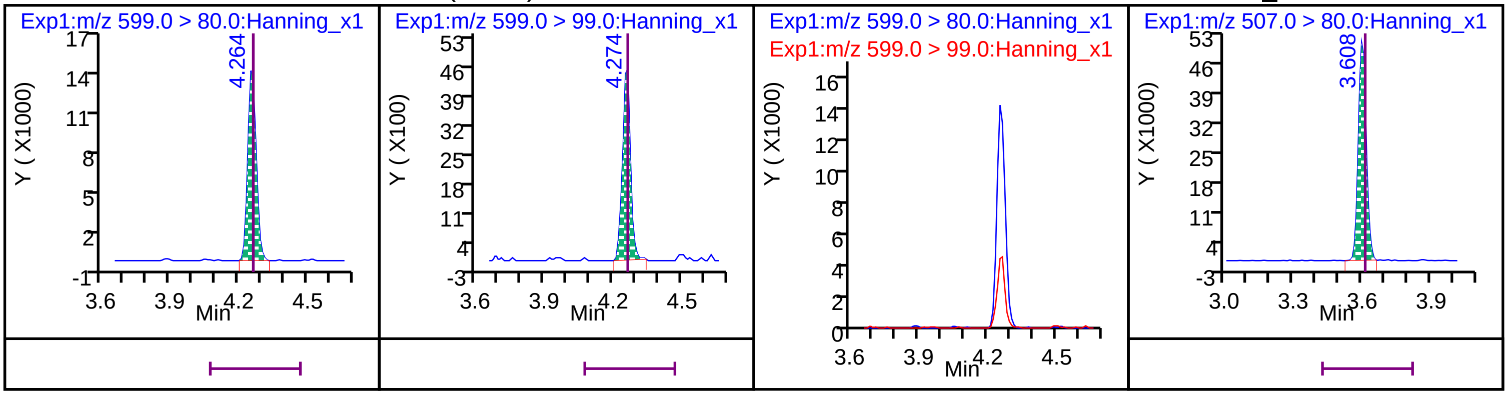


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

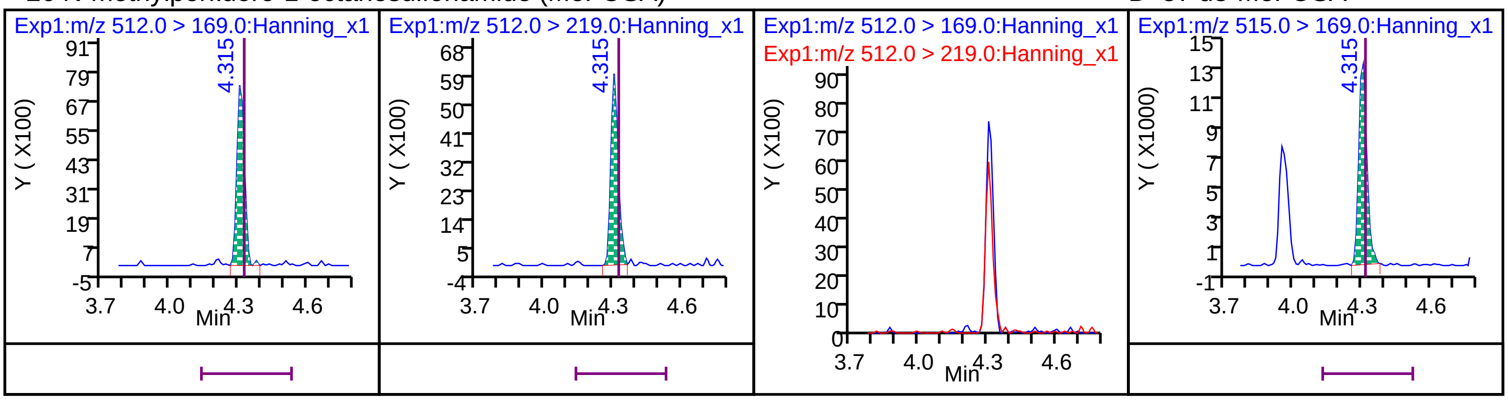




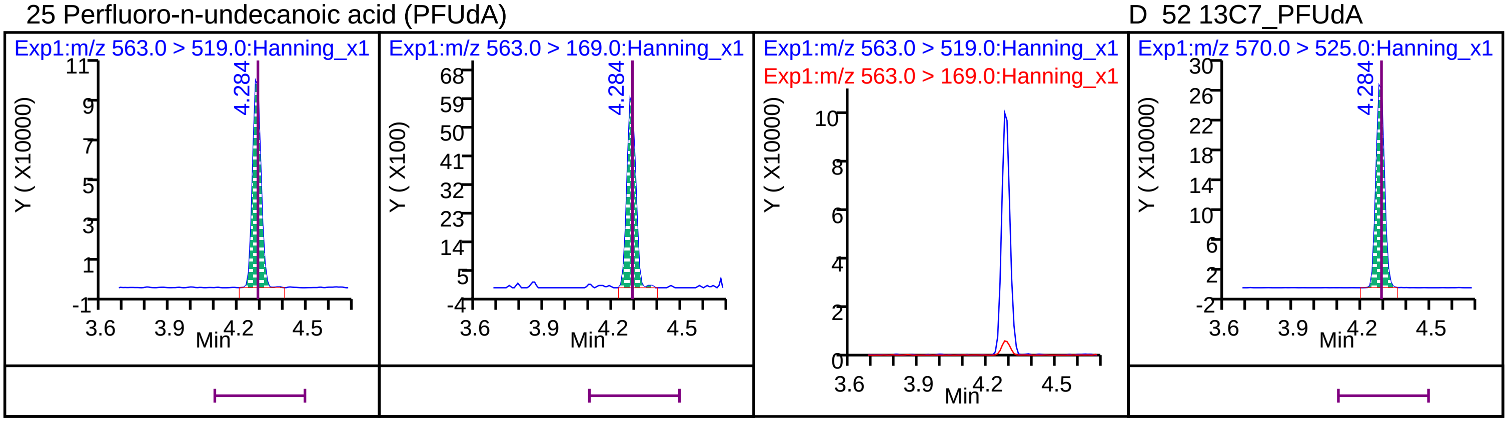
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



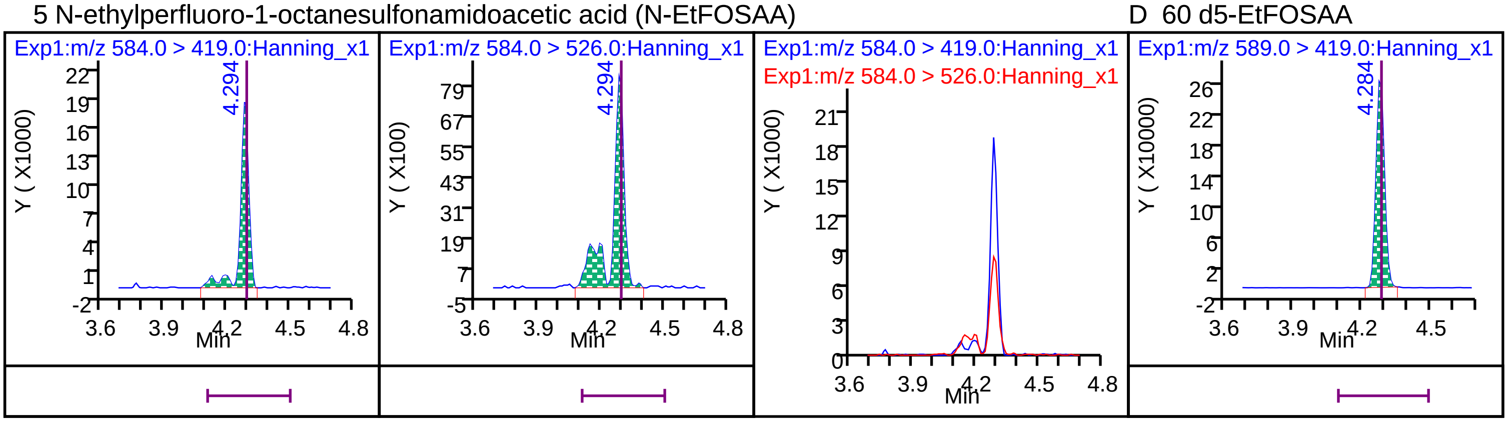
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA



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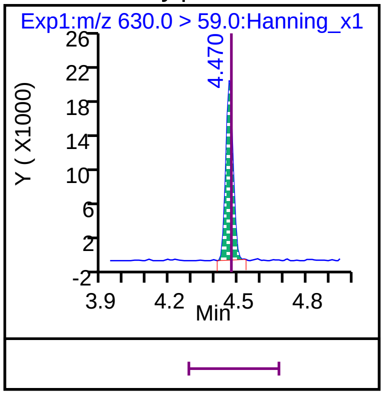
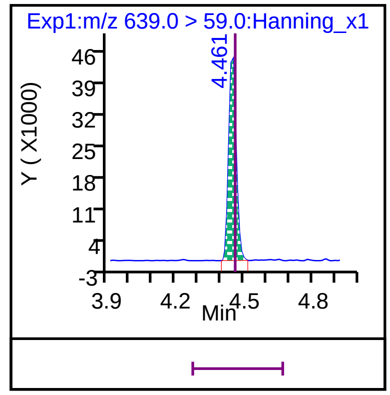
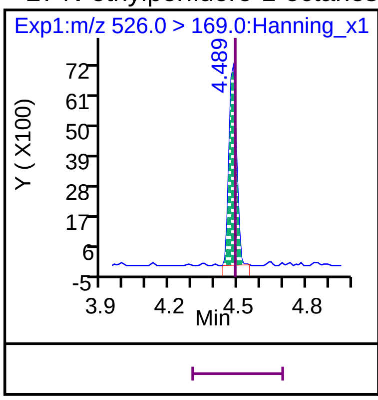
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

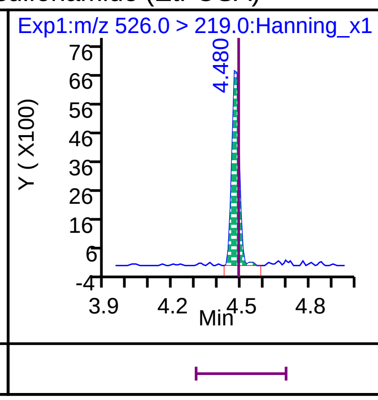


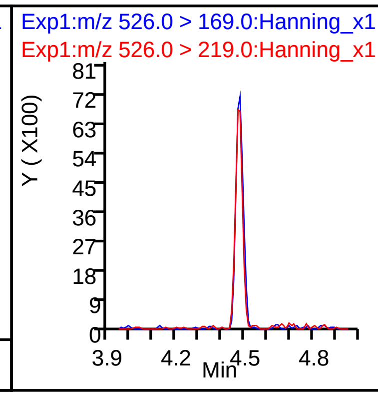
D 62 d9-EtFOSE



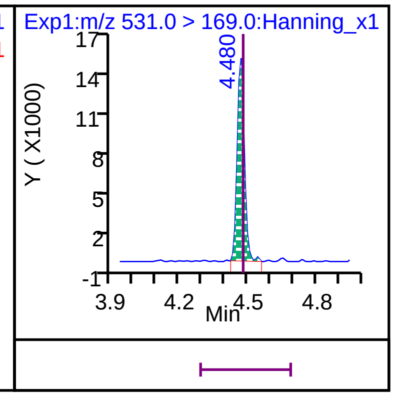
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



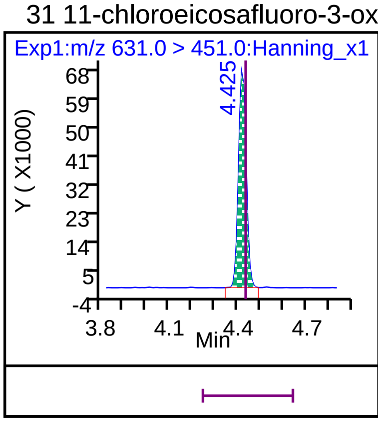




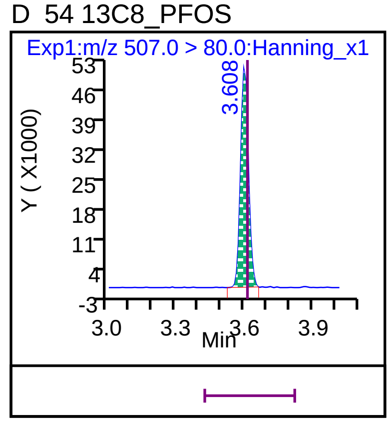
D 59 d5-EtFOSA



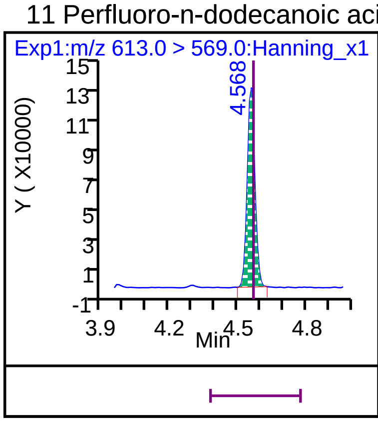
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

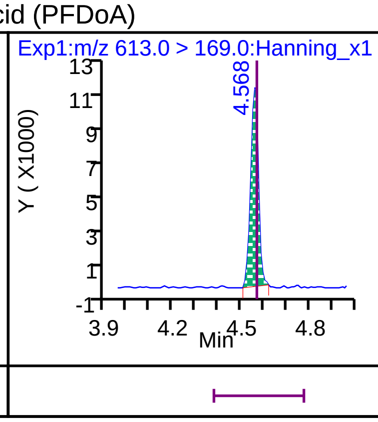


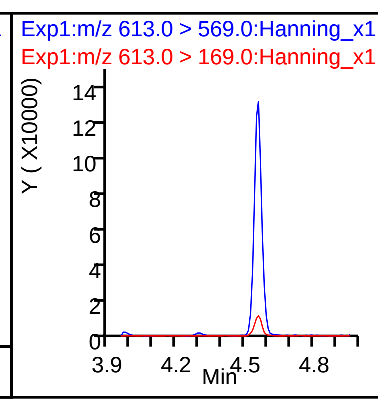
D 54 13C8_PFOS



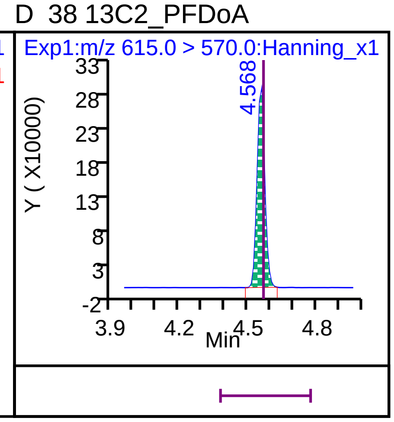
11 Perfluoro-n-dodecanoic acid (PFDoA)







D 38 13C2_PFDoA



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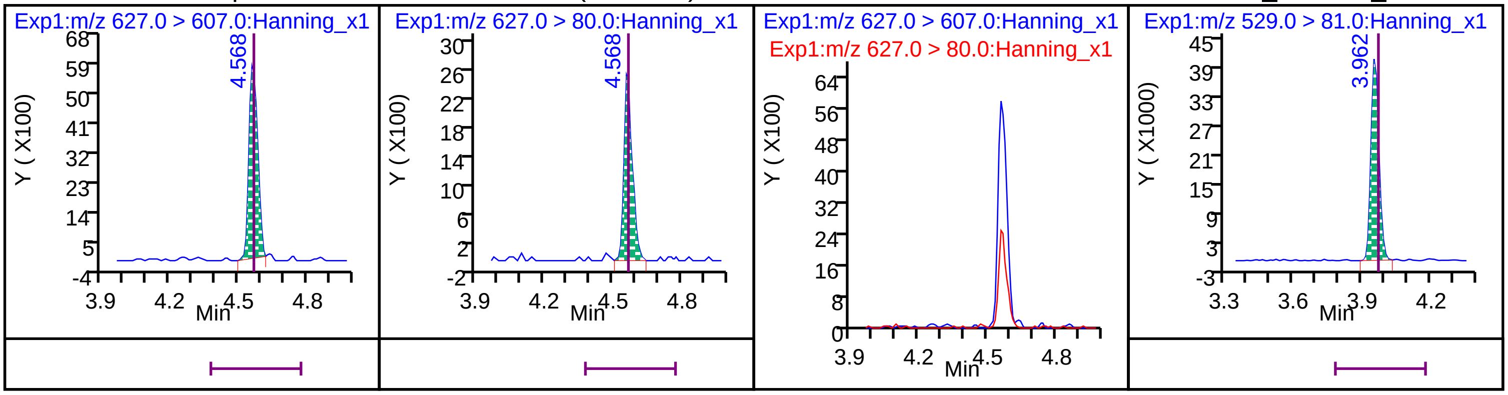
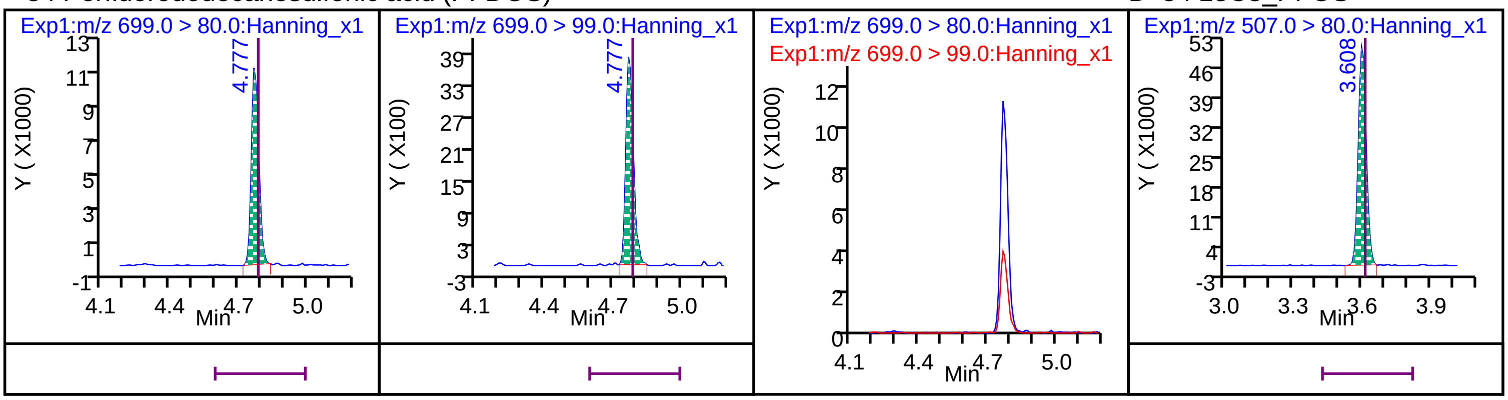
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921035.d

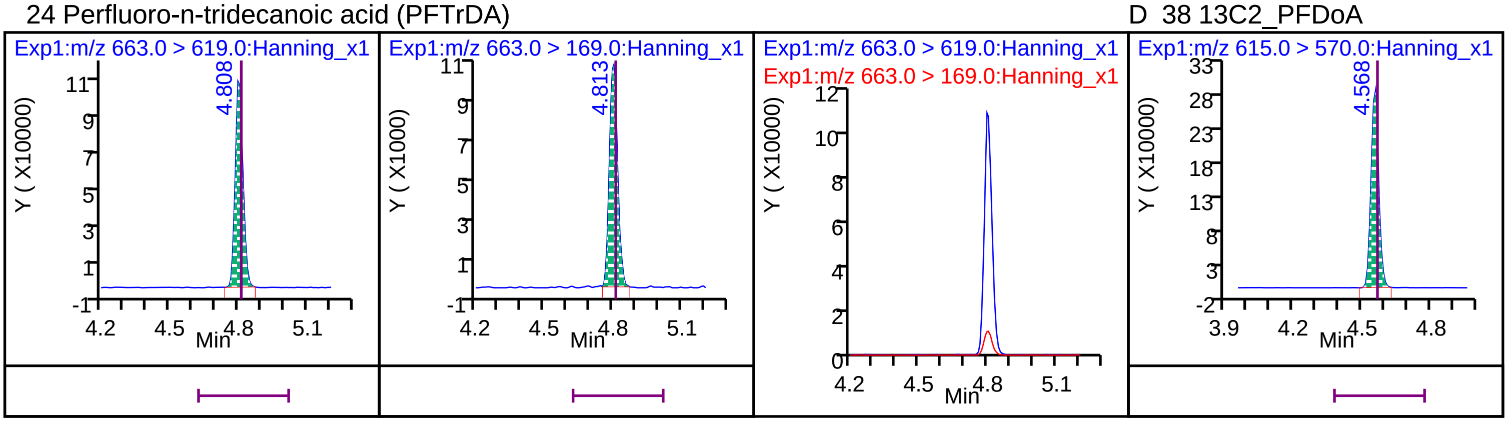
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



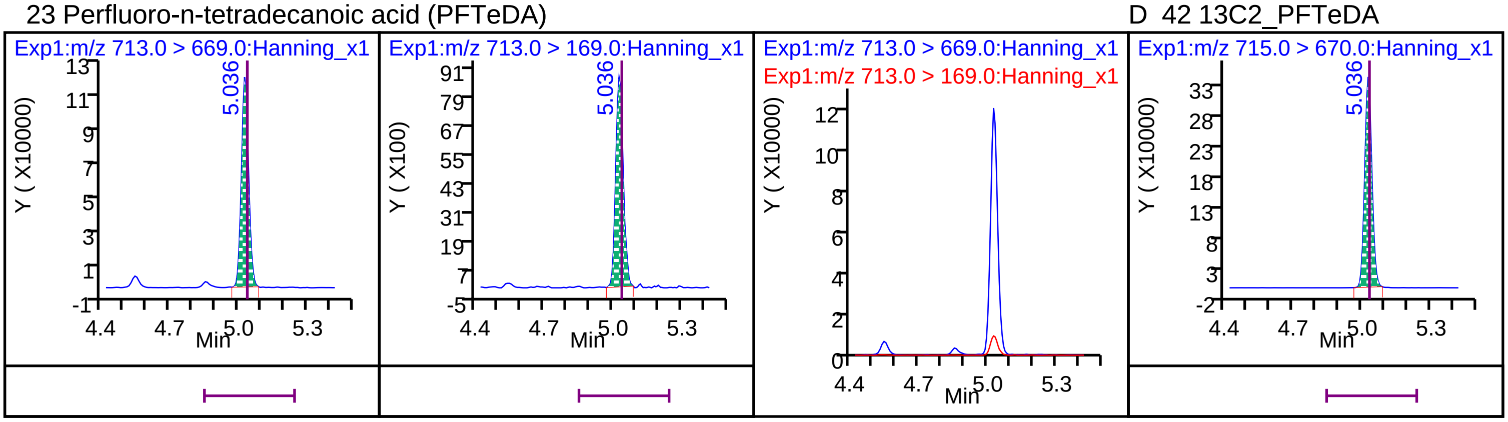
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



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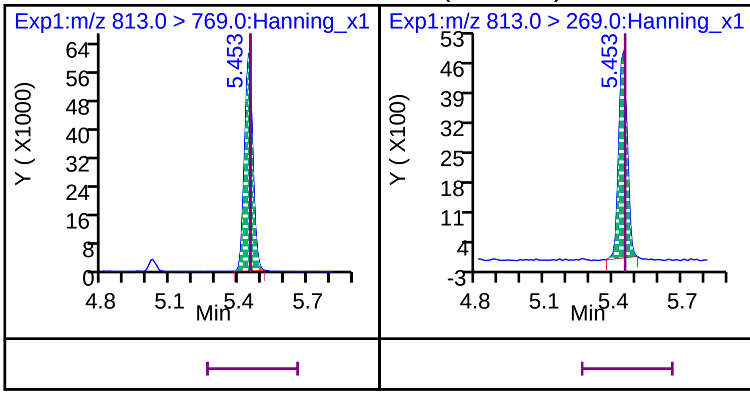
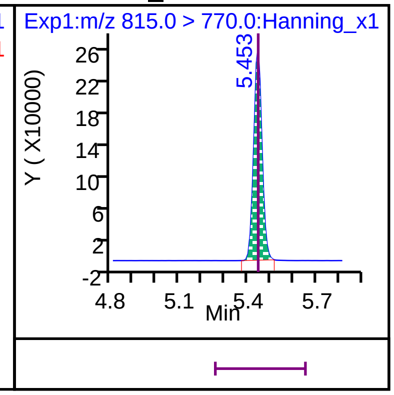
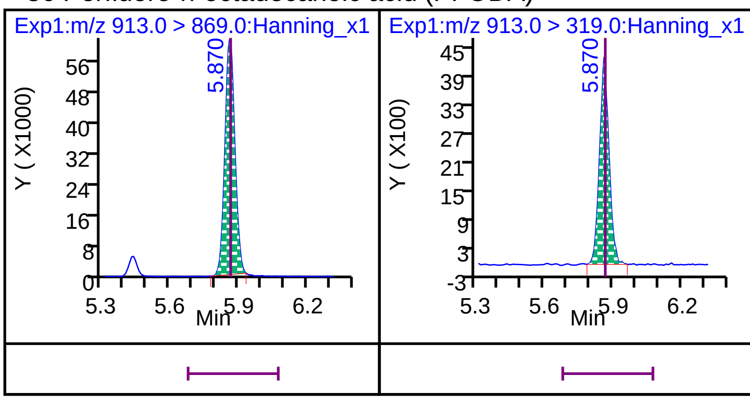
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



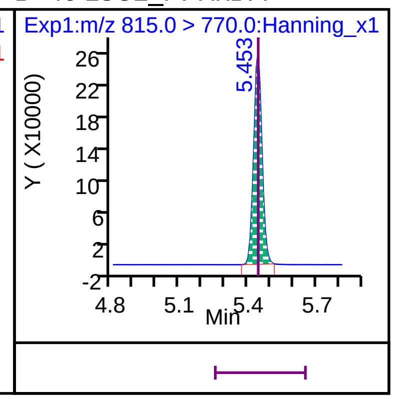
D 40 13C2_PFHxDA



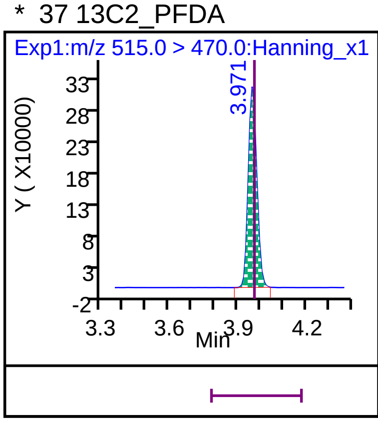
36 Perfluoro-n-octadecanoic acid (PFODA)



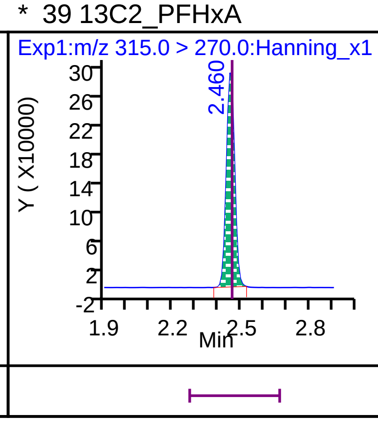
D 40 13C2_PFHxDA



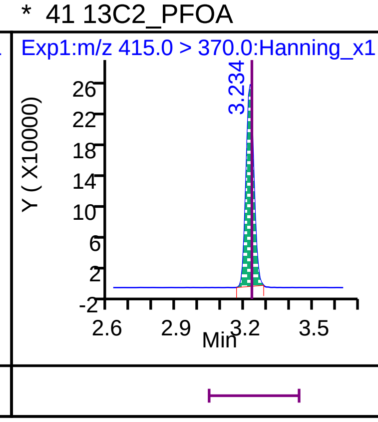
* 37 13C2_PFDA



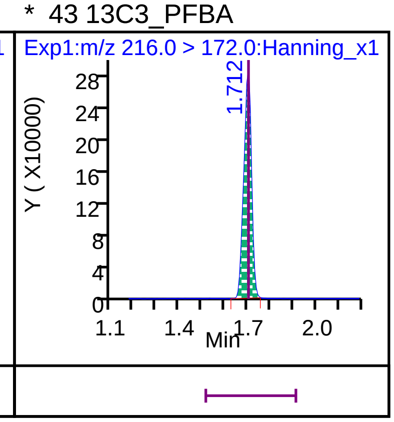
* 39 13C2_PFHxA



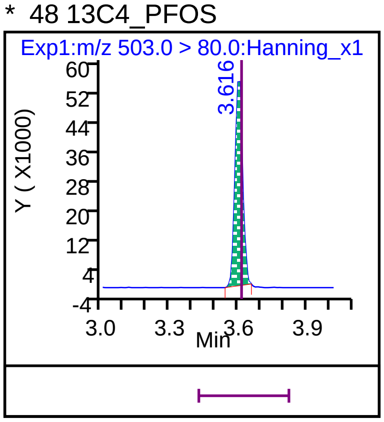
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



PFAS by LC/MS/MS - LCSD

Sample ID:	WQ21582-003	Matrix:	Aqueous
Batch:	21582	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/07/2021 1308

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
6:2 FTS	15	18		1	122	16	64-140	30	11/09/2021 2130

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		116	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		85	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		117	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		105	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		109	50-150
13C8_PFOS		104	50-150
13C9_PFNA		103	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria

DL = Detection Limit   I = Estimated result < LOQ and $\geq$ DL   P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d		
Injection Date:	09-Nov-2021 21:30:39	Injection Vol:	10.0 uL
Sample Type:	LCSD	Auto Sampler:	29
Lab Sample ID:	WQ21582-003	Lab Prep. Batch:	21582
Sample Info:	WQ21582-003	Misc. Info:	
Inst. ID:	LCMSMS02.i	Operator:	Justin Gavin
Method:	LCMSMS02_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0439560

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	250	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml
Reagent:	Analytes	Conc. Level:	100x PDS	Vol. Added:	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.711	1.711	1	685723	19	>100:1			1001.00	1103.03	106.3	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.711	1.718	0/-1	256268	19	>100:1			354.71	15.592		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.088	2.098	0	592446	16	>100:1			1001.00	1036.48	103.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.088	2.098	0/0	239214	15	>100:1			359.11	15.785		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.151	2.151	1	168323	14	>100:1			1001.00	973.14	97.5	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.151	2.162	0/-1	68983	17	>100:1	Target = 3.53		328.97	14.460		
298.9 > 99	44	2.151	2.162		19678	15	>100:1	3.50 (1.76-5.30)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.496	2.505	0/-1	52681	17	>100:1	Target = 3.10		338.04	14.859		
349 > 99	44	2.496	2.505		18109	16	>100:1	2.90 (1.55-4.65)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.425	2.424	1	110140	16	>100:1			5005.00	4864.04	106.6	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.425	2.424	1/0	20251	16	>100:1	Target = 1.75		417.46	18.350		
327 > 81	63	2.416	2.424		10041	16	16:1	2.01 (0.87-2.62)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.460	2.469	0	679401	17	>100:1			1001.00	1043.17	101	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.460	2.469	0/0	272543	18	>100:1	Target = 18.91		386.20	16.976		
313 > 119	49	2.460	2.469		14264	15	70:1	19.10 (9.45-28.37)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.575	2.583	0	1164039	18	>100:1			5005.00	5022.68	98.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.583	2.583	1/1	117291	19	>100:1	Target = 0.79		778.71	34.229		
285 > 185	66	2.575	2.583		145158	17	>100:1	0.80 (0.39-1.18)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.836	2.845	0	580379	17	>100:1			1001.00	1093.12	108.1	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.845	1/1	229234	17	>100:1	Target = 3.80		359.81	15.816		
363 > 169	47	2.836	2.845		58820	17	>100:1	3.89 (1.90-5.70)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.855	2.864	0	132692	17	>100:1			1001.00	1056.13	116.5	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.855	2.864	0/0	48757	27	>100:1	Target = 2.89	6.34	334.56	14.706		
399 > 99	45	2.855	2.864		14612	21	91:1	3.33 (1.44-4.34)	12.34				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.881	2.888	0/0	351333	18	>100:1	Target = 3.23		341.75	15.022		
377 > 85	45	2.881	2.888		102584	19	>100:1	3.42 (1.61-4.85)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.235	3.247	0/0	43402	20	>100:1	Target = 3.12		318.79	14.013		
449 > 99	45	3.235	3.247		13618	21	>100:1	3.18 (1.56-4.68)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.201	3.213	0	99212	19	>100:1			5005.00	5511.79	95.5	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.213	0/0	19694	18	>100:1	Target = 1.75		419.69	18.448		
427 > 81	64	3.201	3.213		11338	18	26:1	1.73 (0.87-2.62)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.228	3.240	0	598619	18	>100:1			1001.00	1140.93	109.1	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.228	3.240	0/0	203244	18	>100:1	Target = 2.89		331.65	14.578		
413 > 169	53	3.228	3.240		66402	21	>100:1	3.06 (1.44-4.34)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.609	3.623	0	117647	18	>100:1			1001.00	949.97	104.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.609	3.623	0/0	45789	37	>100:1	Target = 3.30	3.17	327.21	14.383		
499 > 99	54	3.609	3.623		12217	34	>100:1	3.74 (1.65-4.95)	10.02				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.823	3.828	0/0	155101	18	>100:1			348.47	15.317		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.964	3.971	0/0	35492	21	>100:1	Target = 3.08		376.40	16.545		
549 > 99	54	3.955	3.971		13591	14	>100:1	2.61 (1.54-4.62)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.268	4.274	0/0	34639	13	>100:1	Target = 2.72		376.63	16.555		
599 > 99	54	4.268	4.274		13310	15	99:1	2.60 (1.36-4.08)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.428	4.443	0/0	146748	16	>100:1			364.70	16.031		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.787	4.796	0/0	28121	17	>100:1	Target = 3.27		278.25	12.231		
699 > 99	54	4.780	4.796		9212	25	>100:1	3.05 (1.63-4.90)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.617	3.623	0	668340	19	>100:1			1001.00	1043.67	102.9	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.617	3.623	0/0	257628	18	>100:1	Target = 6.51		357.98	15.736		
463 > 169	56	3.617	3.623		38255	25	>100:1	6.73 (3.25-9.76)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.880	3.893	0	245430	23	>100:1			1001.00	915.59	99.7	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.880	3.893	0/0	96694	16	>100:1	Target = 41.63		374.81	16.475		
498>478	55	3.888	3.893		2246	21	17:1	43.05 (20.81-62.44)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.974	3.981	0	664145	15	>100:1			1001.00	1155.72	105.2	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.974	3.981	0/0	272767	16	>100:1	Target = 13.80		353.27	15.528		
513 > 169	51	3.974	3.981		18415	15	97:1	14.81 (6.90-20.70)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.964	3.981	-1	107584	17	>100:1			5005.00	6224.31	116.3	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.964	3.981	-1/0	14190	14	51:1	Target = 1.94		292.15	12.842		
527 > 81	65	3.964	3.981		8814	11	31:1	1.60 (0.97-2.91)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.580	4.577	1/2	17637	22	94:1	Target = 3.54		323.47	14.218		
627 > 80	65	4.572	4.577		4897	19	49:1	3.60 (1.77-5.31)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.134	4.139	0	773033	17	>100:1			5005.00	5115.61	108.8	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.134	4.148	0/0	43068	30	>100:1	Target = 1.37	6.74	347.50	15.275		M
570 > 483	58	4.134	4.148		33489	31	>100:1	1.28 (0.68-2.05)	6.09				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.298	4.304	0	87733	14	>100:1			1001.00	972.77	105	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.308	4.314	0/0	33752	14	>100:1			352.38	15.489		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.318	4.325	0	34832	13	>100:1			1001.00	740.46	79.7	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.318	4.335	0/0	16320	16	>100:1	Target = 1.11		432.71	19.020		
512 > 219	57	4.318	4.335		12755	16	96:1	1.27 (0.55-1.67)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.288	4.294	0	636166	15	>100:1			5005.00	4911.98	93	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.298	4.304	0/0	44409	28	>100:1	Target = 1.51	6.51	358.33	15.751		M
584 > 526	60	4.298	4.304		32398	28	>100:1	1.37 (0.75-2.26)	3.45				
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.288	4.294	0	662191	15	>100:1			1001.00	1099.53	95.5	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.288	4.294	0/0	244963	14	>100:1	Target = 14.52		382.16	16.798		
563 > 169	52	4.288	4.294		14630	14	>100:1	16.74 (7.26-21.78)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.455	4.470	0	94459	14	>100:1			1001.00	890.48	100.3	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.465	4.479	0/0	38291	16	>100:1			416.83	18.322		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.474	4.488	0	32729	14	>100:1			1001.00	761.14	77	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.492	4.497	0/0	18643	13	>100:1	Target = 1.06		468.77	20.605		
526 > 219	59	4.483	4.497		15165	17	>100:1	1.22 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.563	4.577	0	706326	16	>100:1			1001.00	1176.55	100.3	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.563	4.577	0/0	257866	15	52:1	Target = 10.70		342.80	15.068		
613 > 169	38	4.572	4.577		24827	18	>100:1	10.38 (5.35-16.05)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.810	4.822	0/0	258003	18	>100:1	Target = 8.31		347.87	15.291		
663 > 169	38	4.810	4.822		26679	19	>100:1	9.67 (4.15-12.47)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		5.038	5.042	0	807817	20	>100:1			1001.00	993.64	85.3	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	5.038	5.048	0/0	253099	20	44:1	Target = 12.17		359.28	15.792		
713 > 169	42	5.038	5.048		19084	18	>100:1	13.26 (6.08-18.25)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Drift/ %Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.451	5.454	0	819817	18	>100:1			1001.00	944.45	89.8	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.451	5.461	0/0	188064	19	34:1	Target = 10.43		358.54	15.760		
813 > 269	40	5.451	5.461		16333	18	>100:1	11.51 (5.21-15.65)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.868	5.875	0/0	214800	29	20:1	Target = 13.67		288.09	12.663		
913 > 319	40	5.868	5.875		13605	26	>100:1	15.78 (6.83-20.51)					
*** 37 13C2_PFDA**													
515 > 470		3.974	3.981	0	769622	16	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.460	2.469	0	716421	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.228	3.240	0	581568	20	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.711	1.711	1	643537	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.609	3.623	0	126579	17	>100:1			200.00			

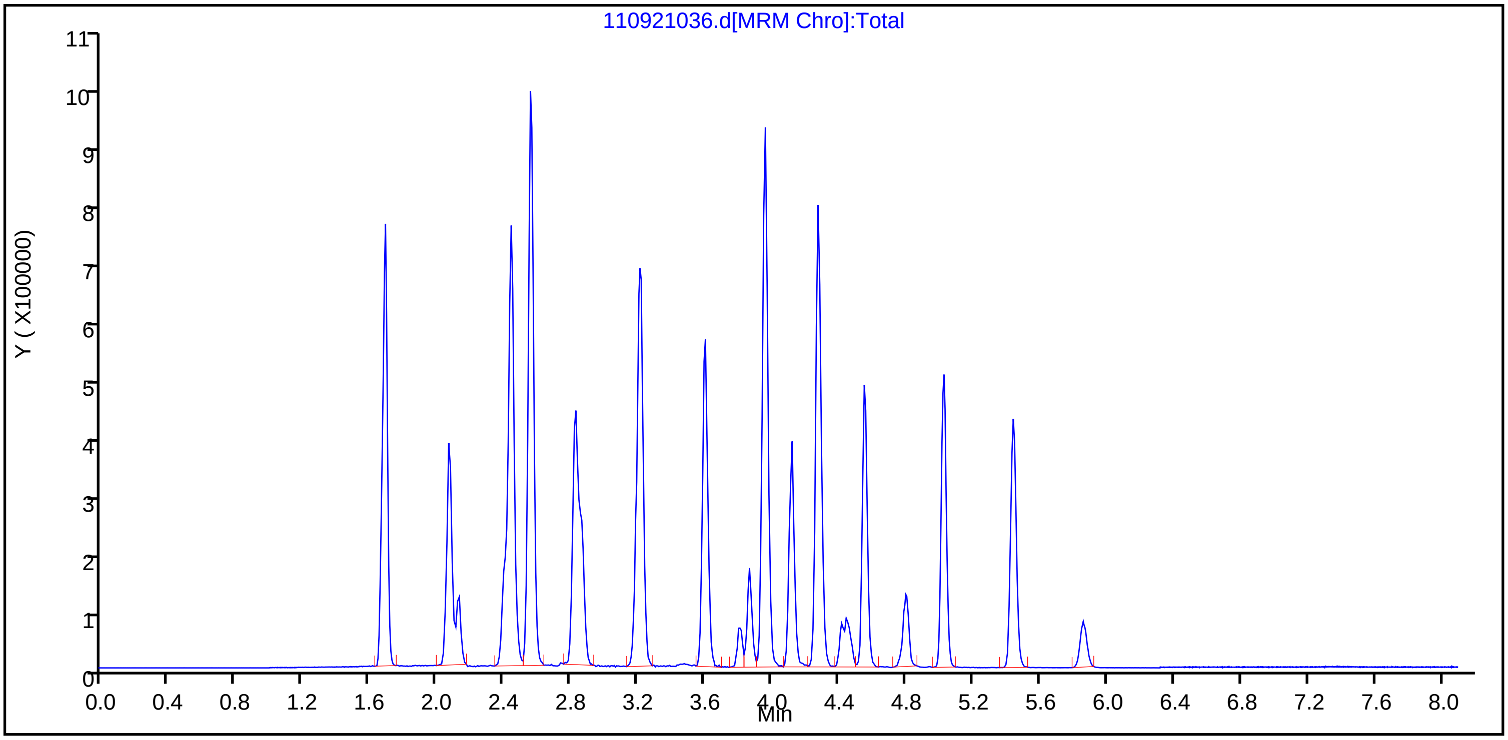
Compound Type Legend
D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend
M - Compound Hit/Peak Manually Integrated

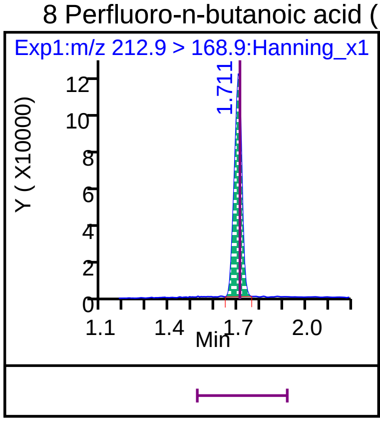
Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

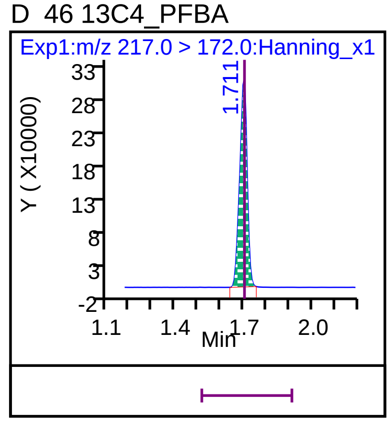
Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d		
Injection Date:	09-Nov-2021 21:30:39	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21582-003
Sample Info:	WQ21582-003		
Dil. Factor:	1	Operator:	Justin Gavin



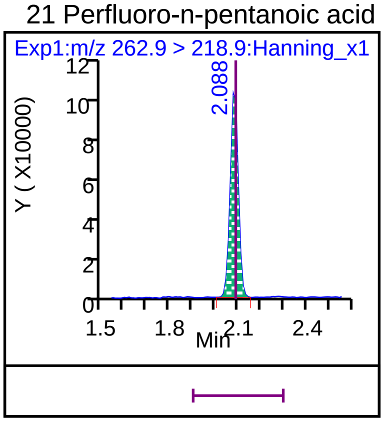
8 Perfluoro-n-butanoic acid (PFBA)



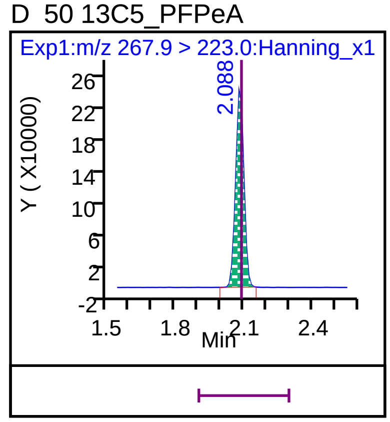
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA)

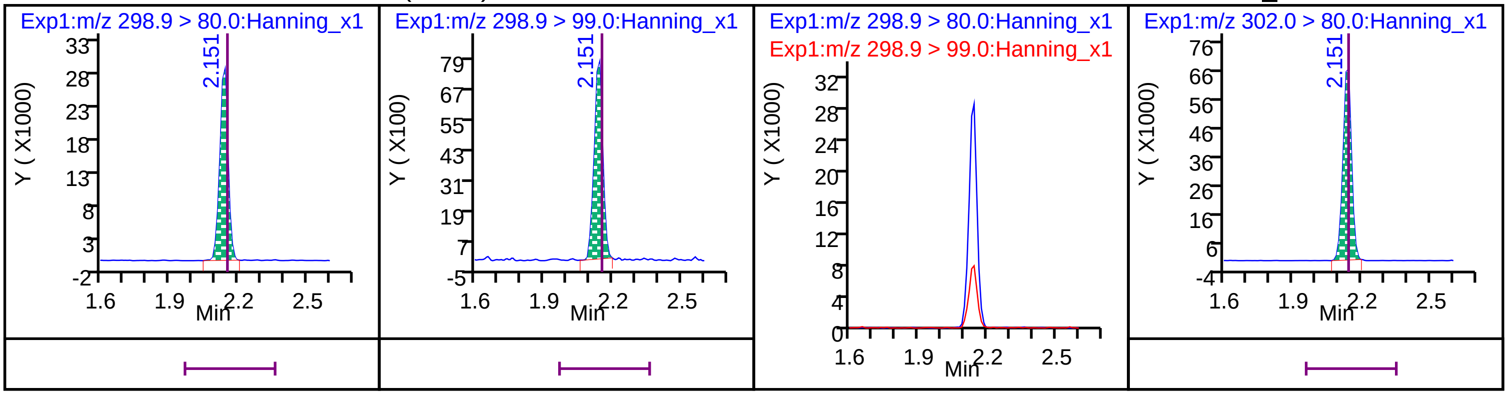


D 50 13C5_PFPeA

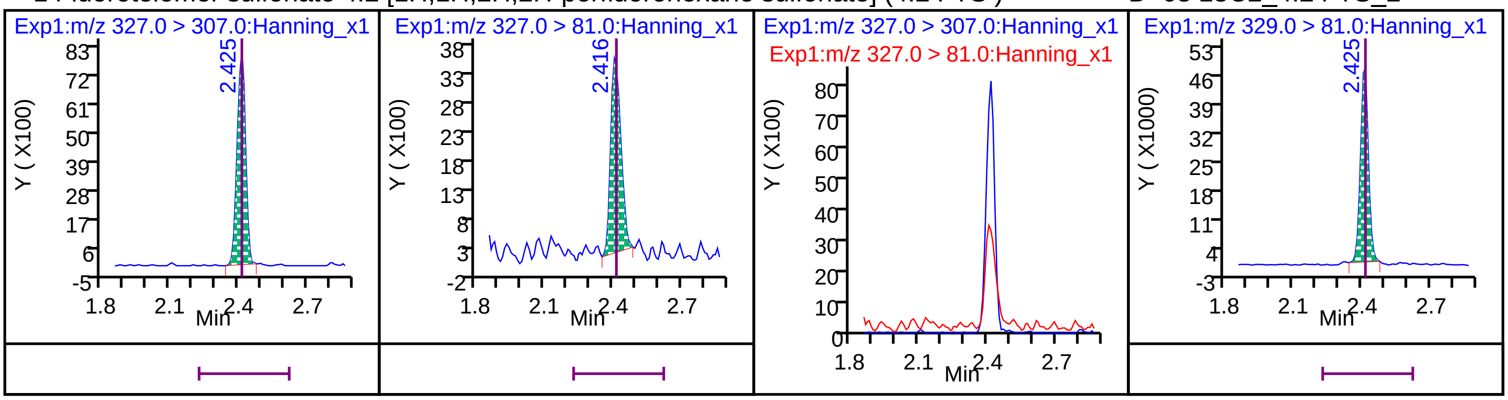


Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d

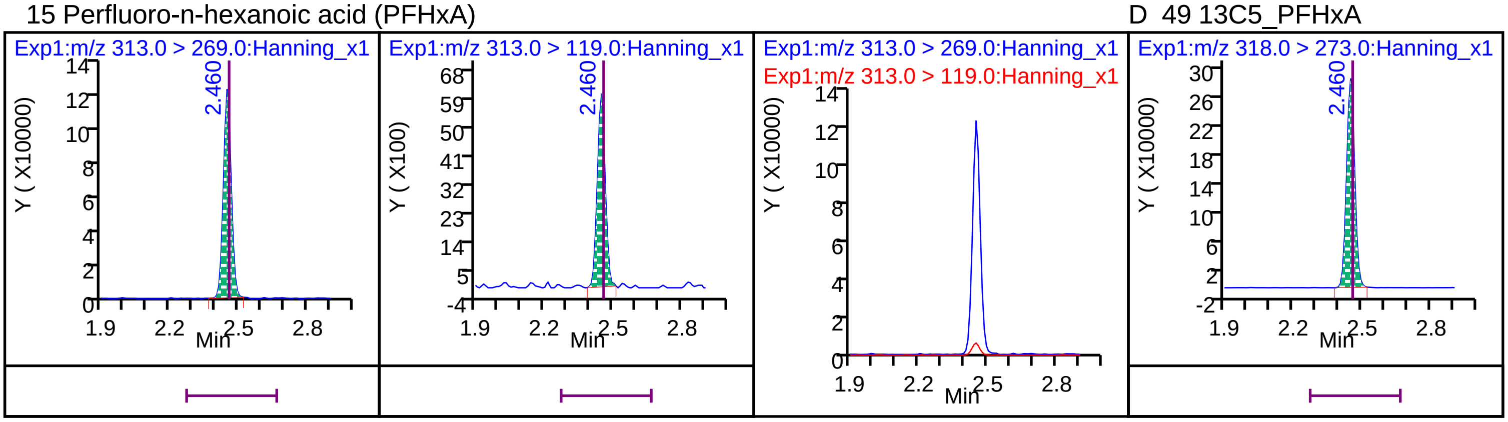
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



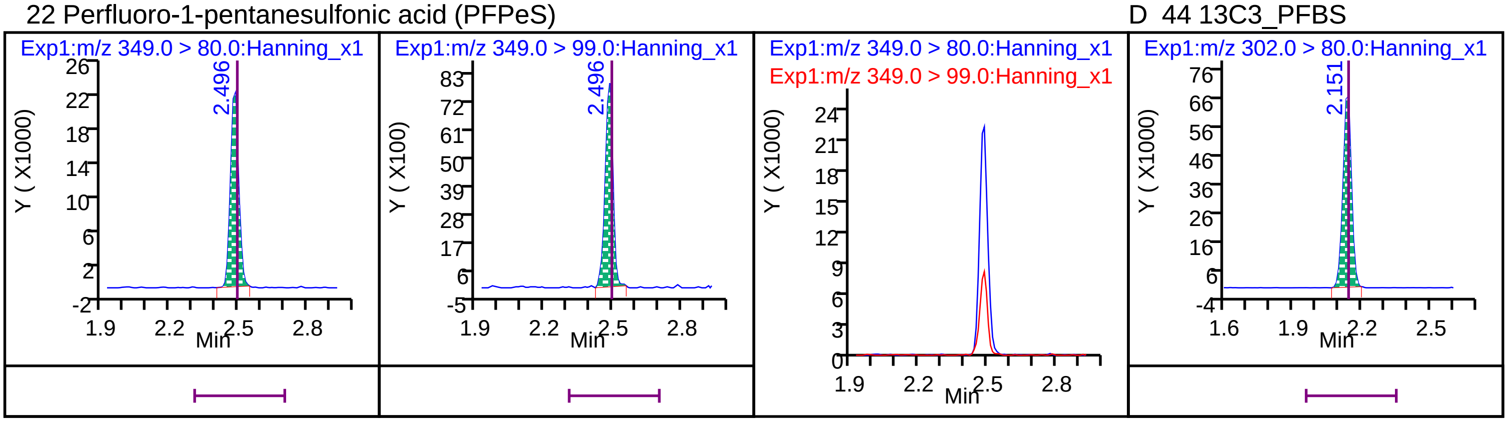
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA

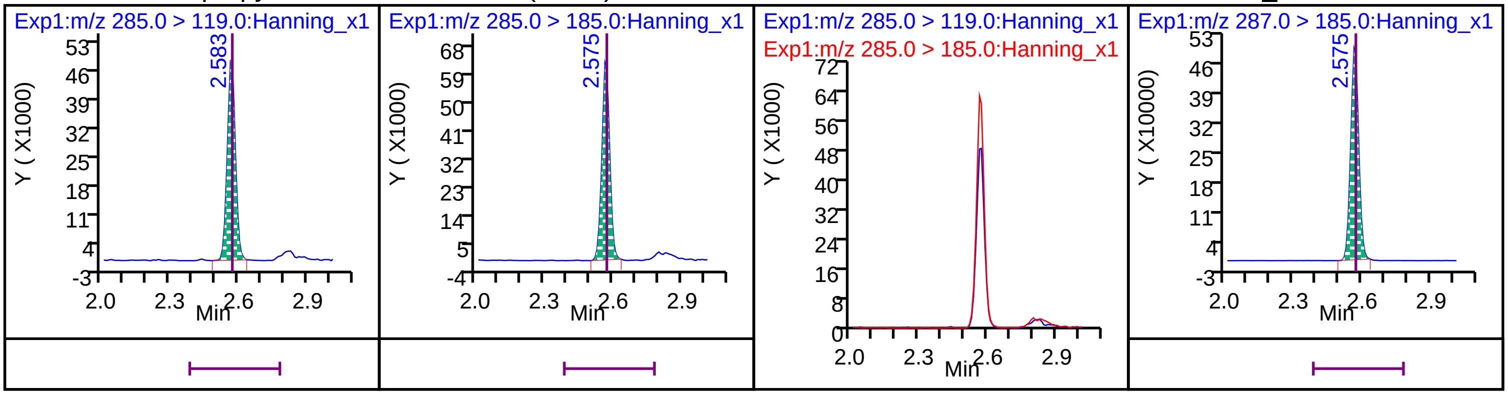


22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS

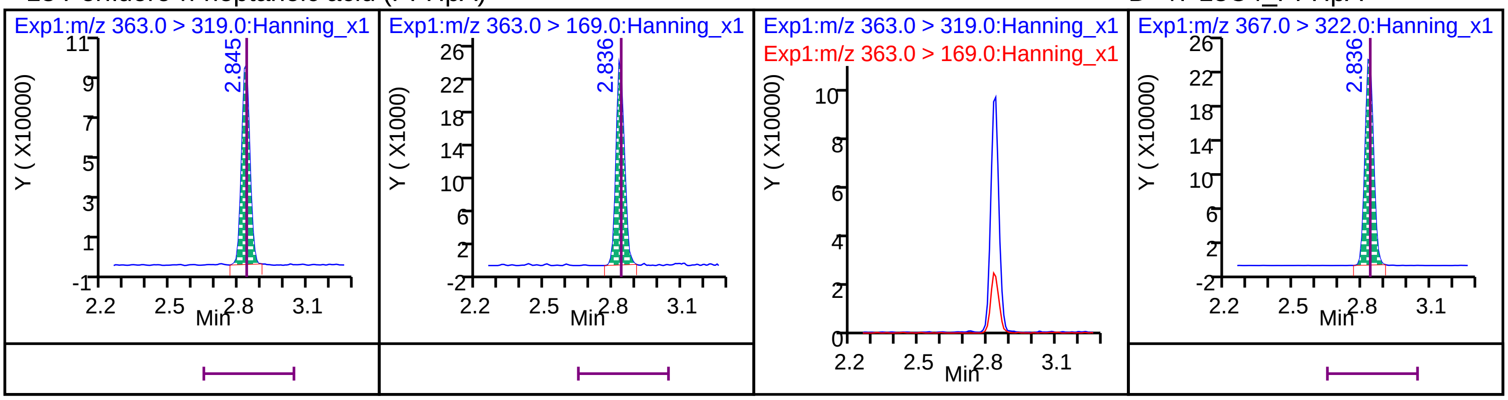


Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d

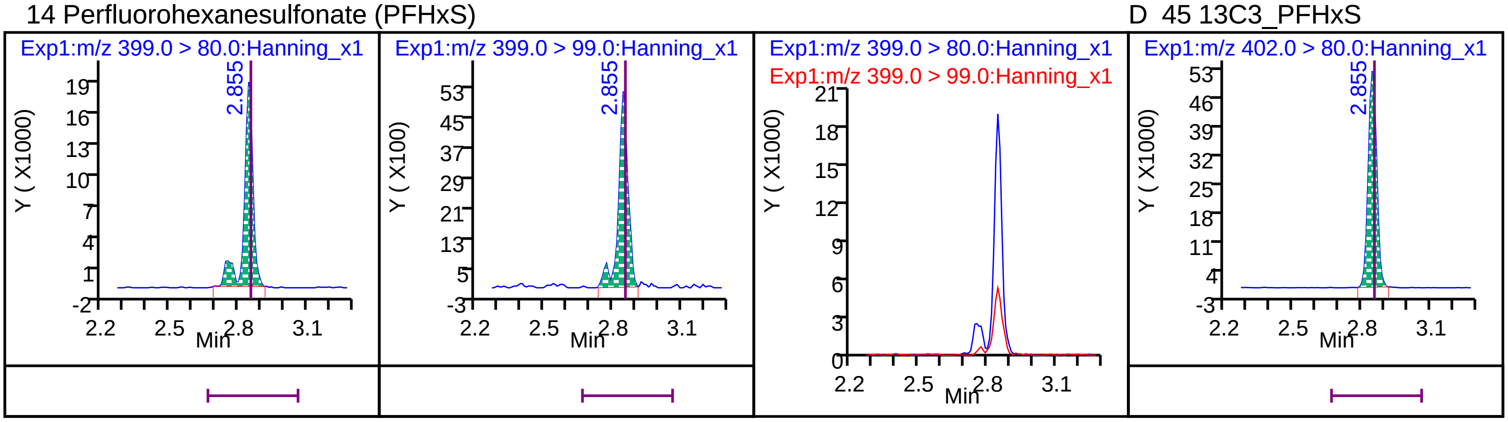
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



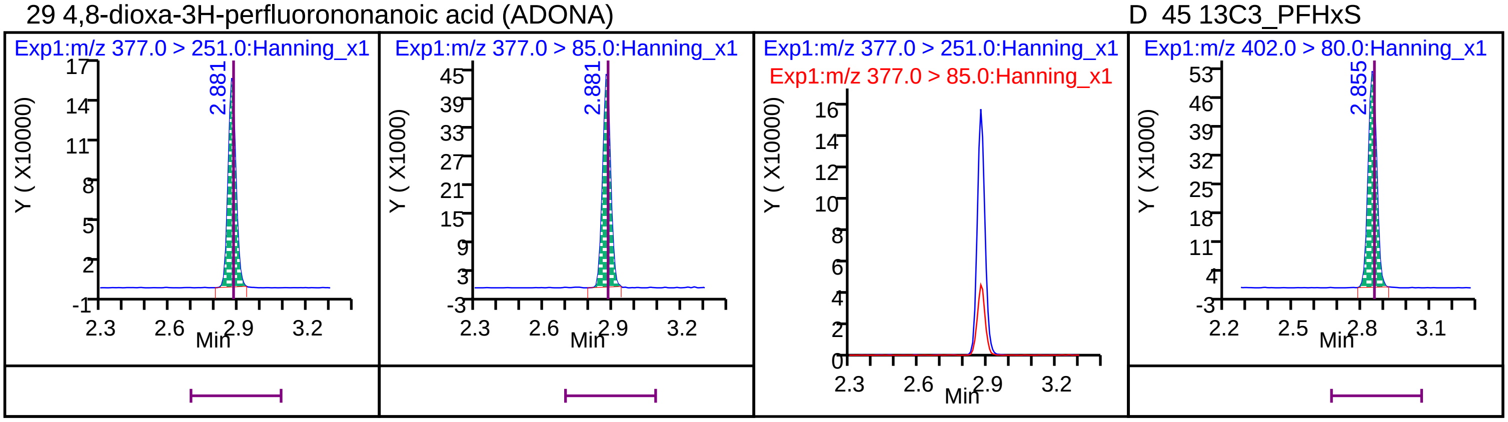
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



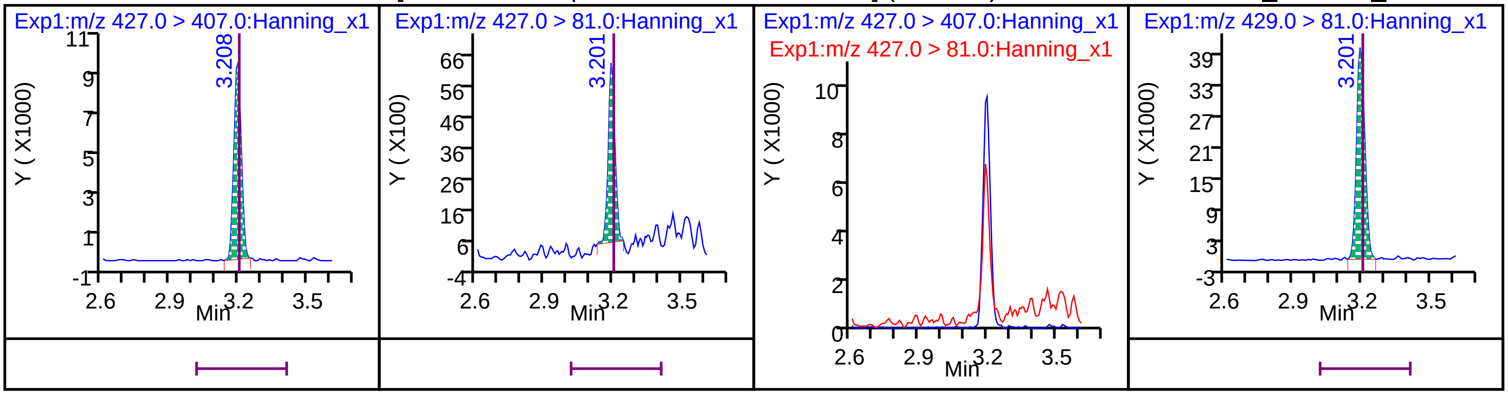
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



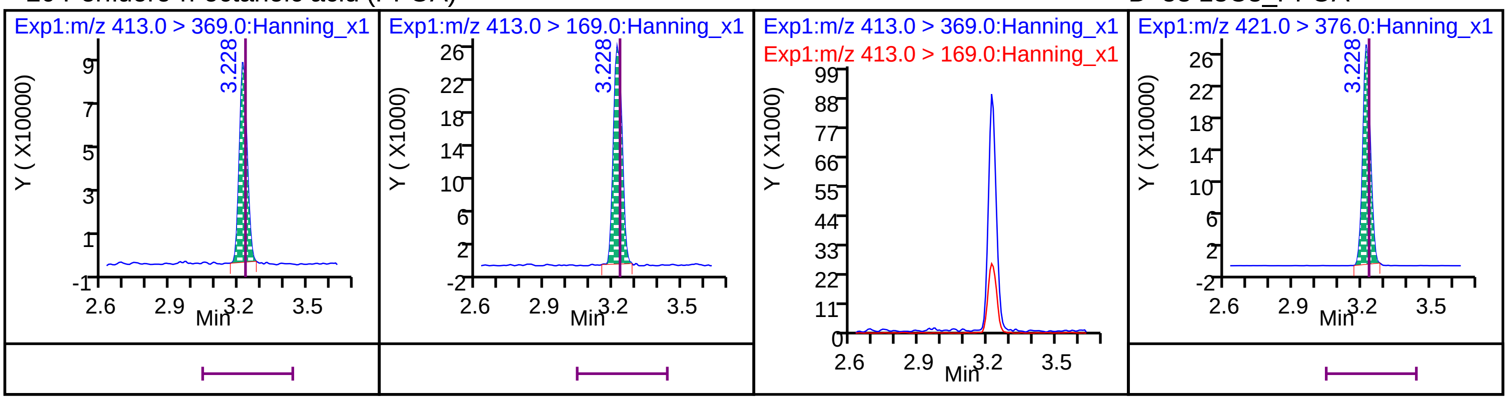
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



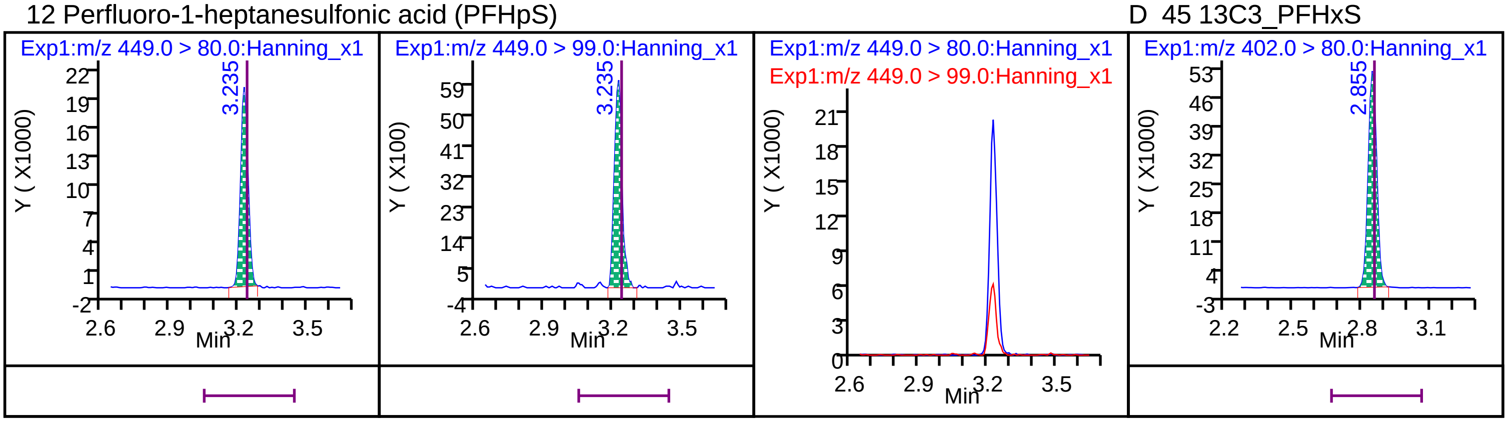
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



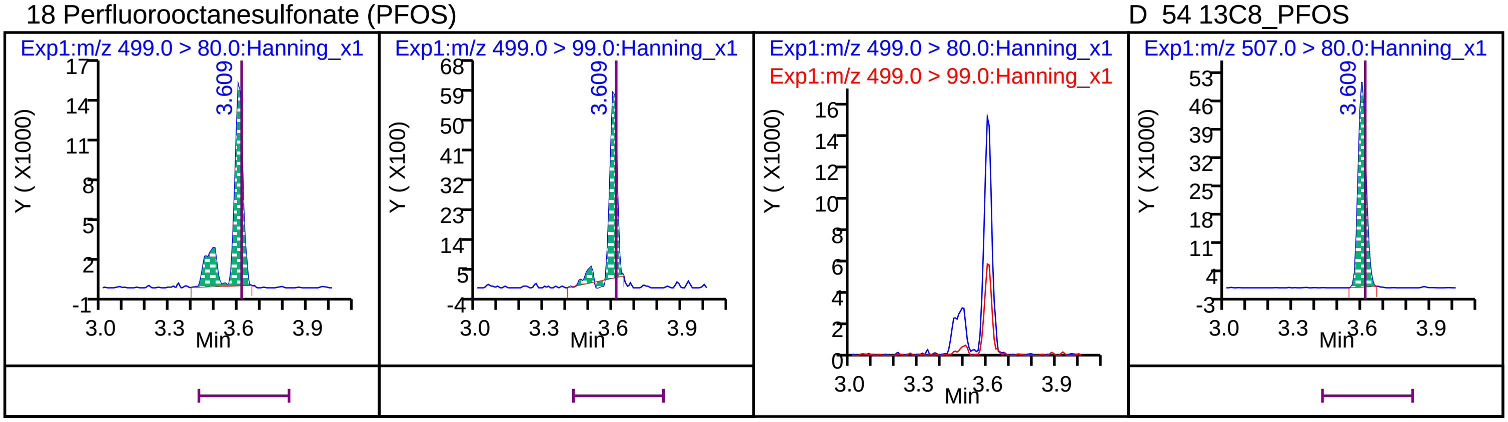
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS

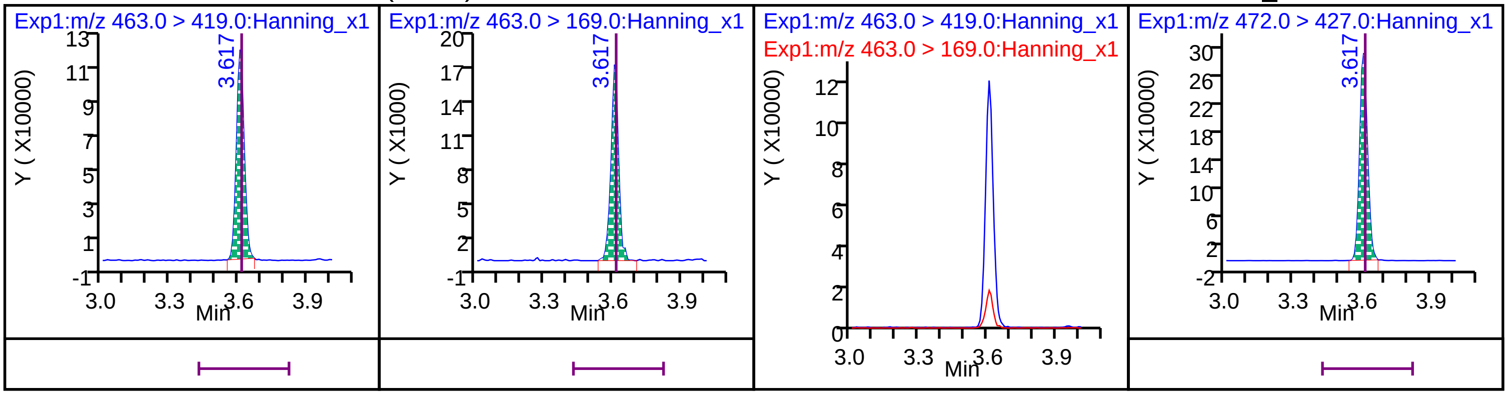


18 Perfluorooctanesulfonate (PFOS) D 54 13C8_PFOS

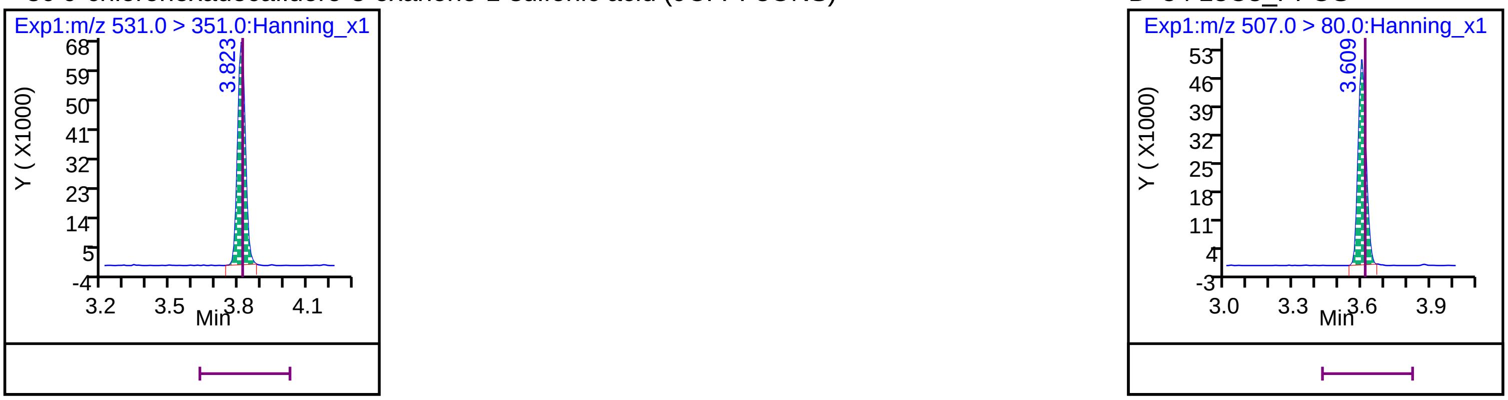


Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d

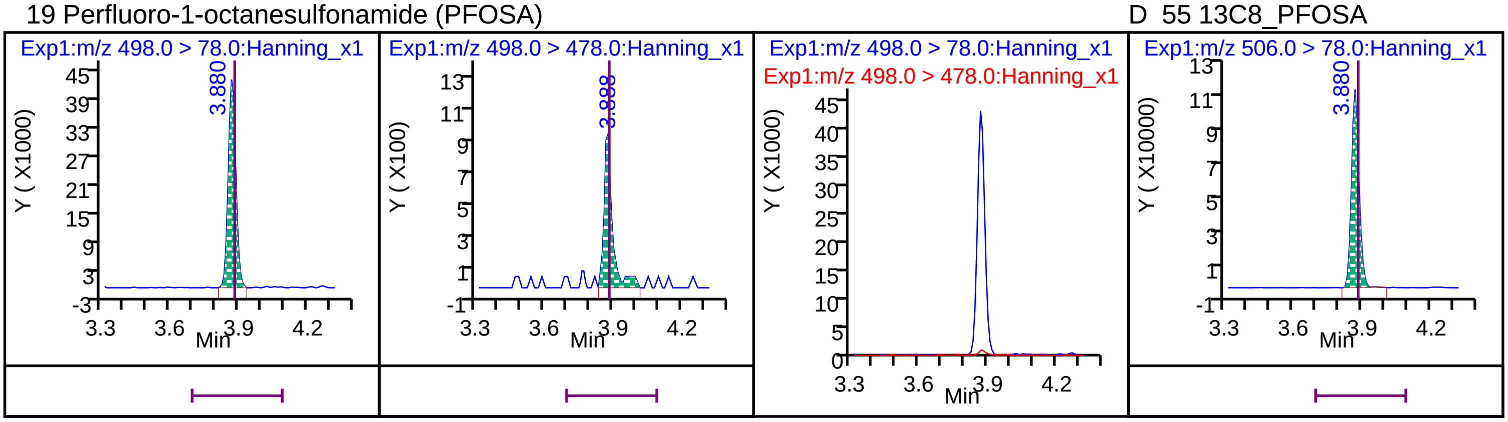
17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA



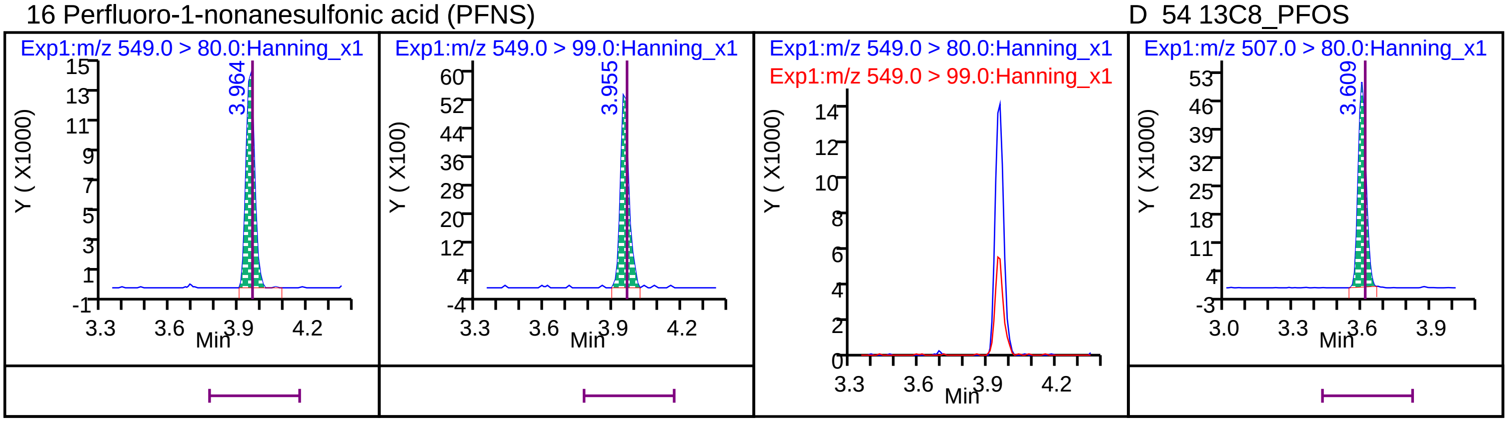
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) D 54 13C8_PFOS



19 Perfluoro-1-octanesulfonamide (PFOSA) D 55 13C8_PFOSA

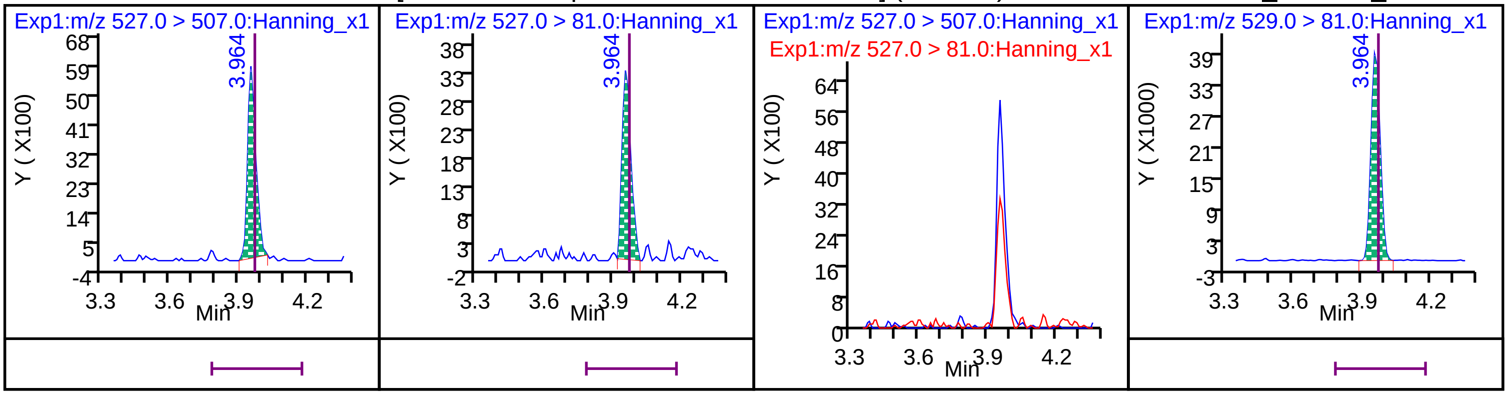


16 Perfluoro-1-nonanesulfonic acid (PFNS) D 54 13C8_PFOS

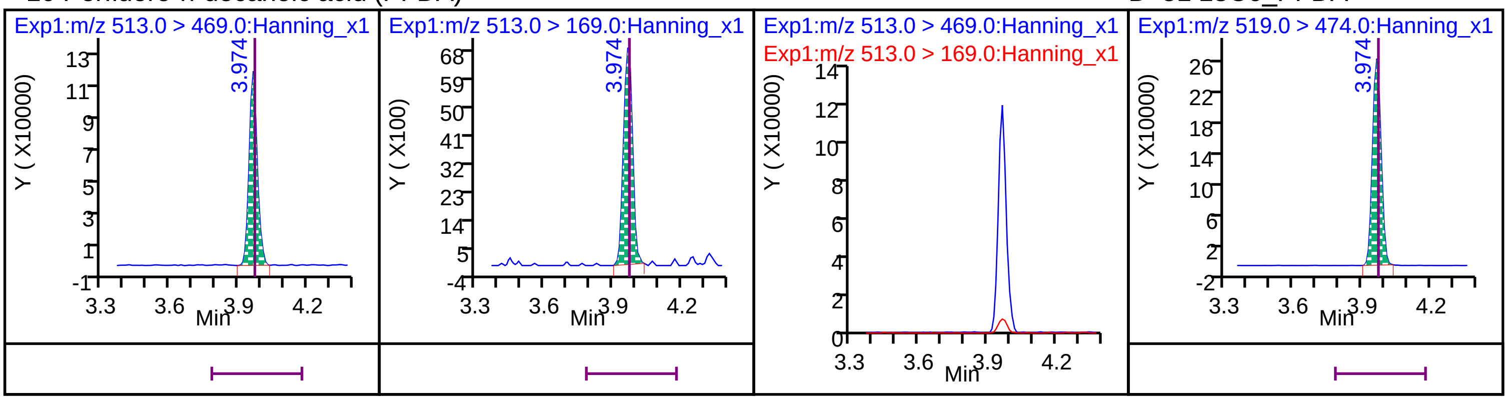


Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d

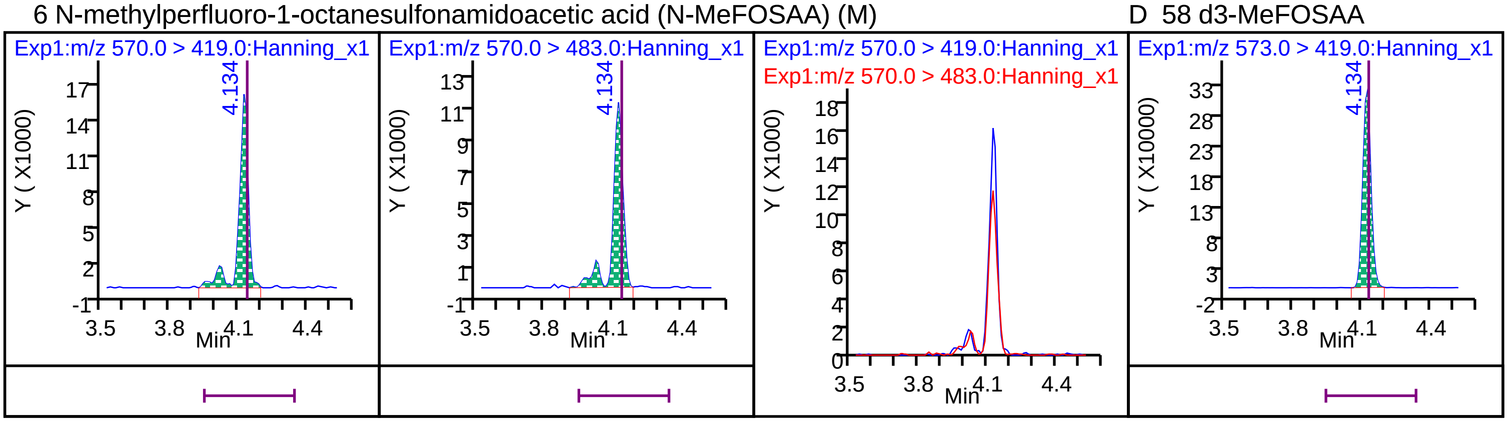
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



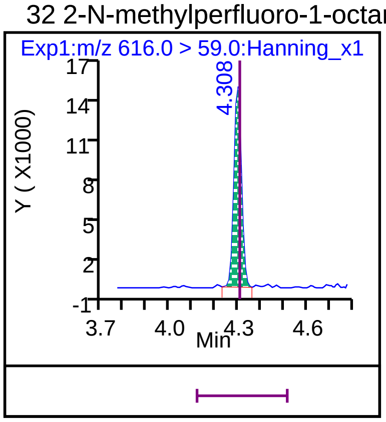
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA

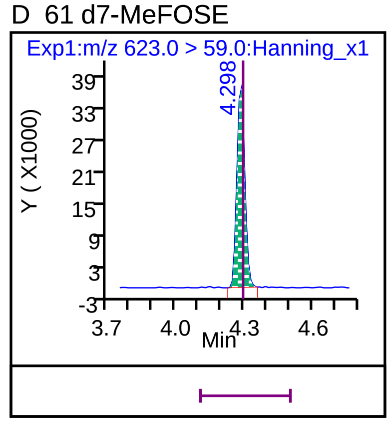


6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA

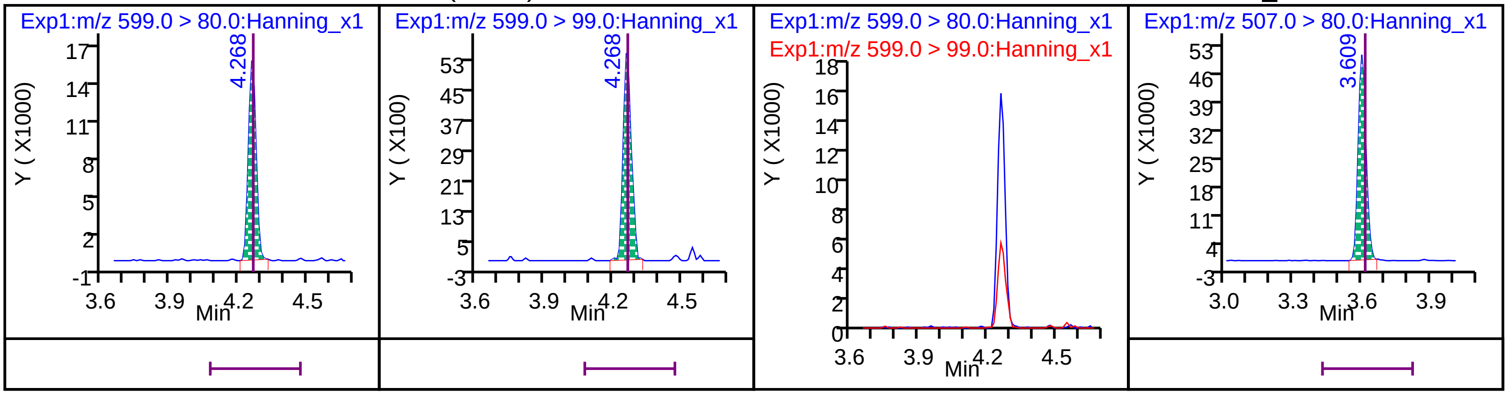


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE

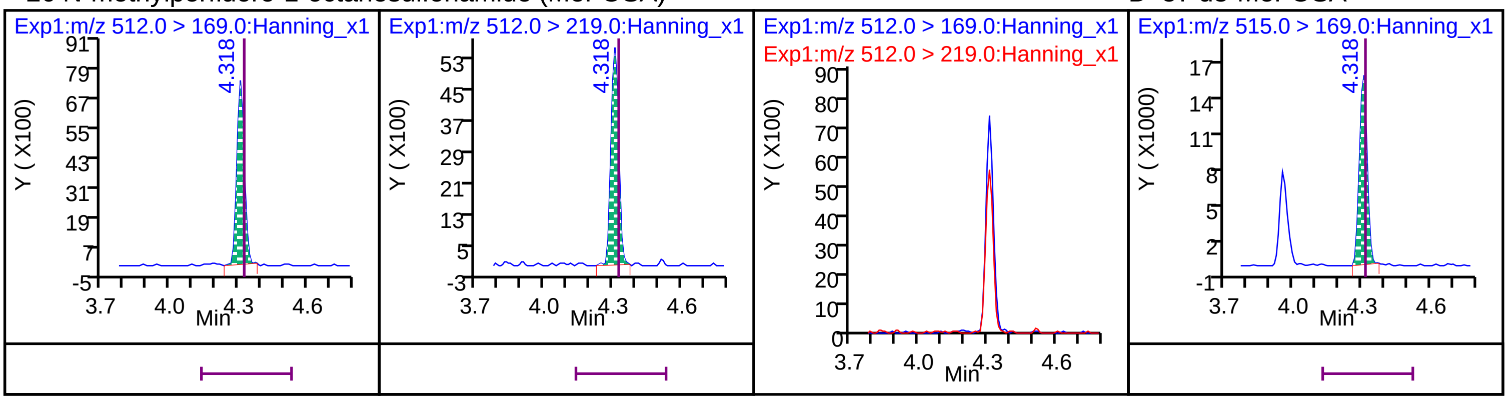




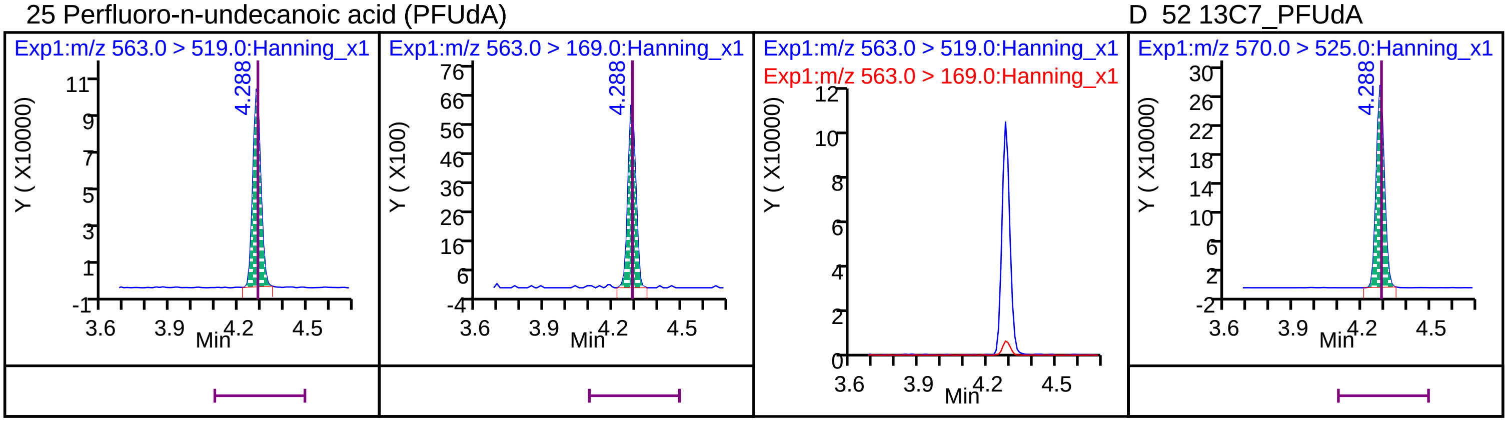
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



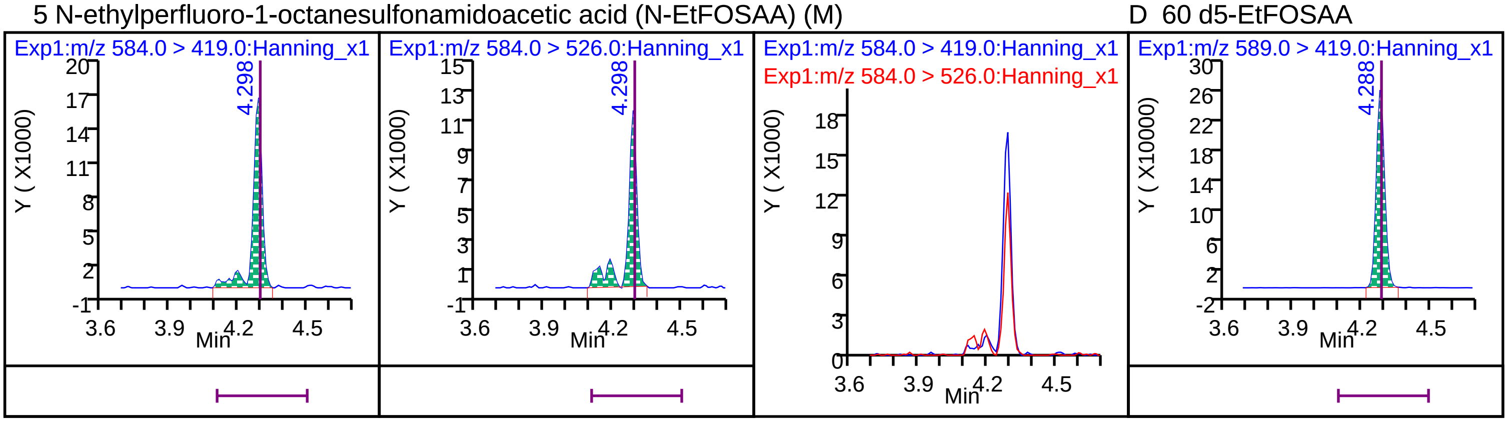
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA



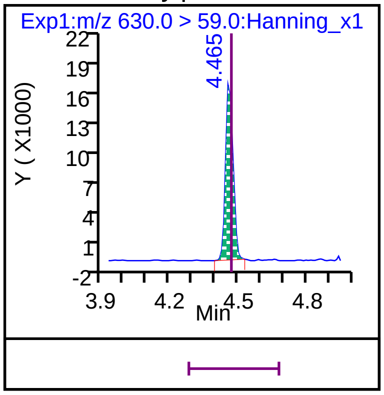
25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA



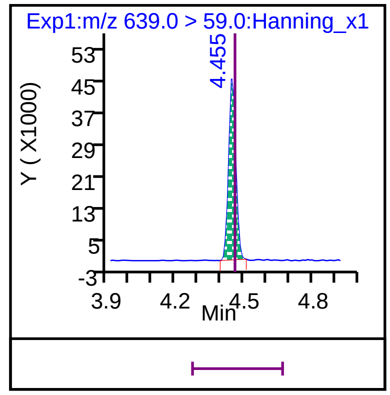
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (M) D 60 d5-EtFOSAA



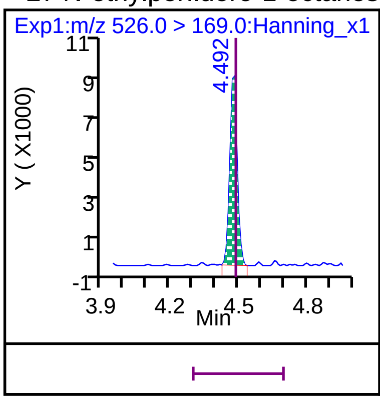
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)

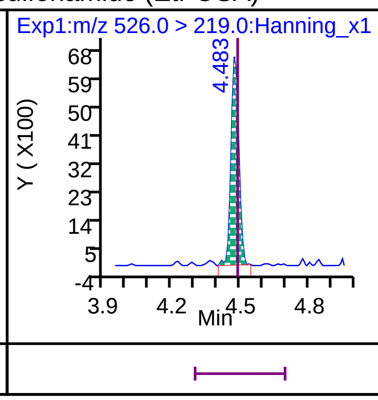


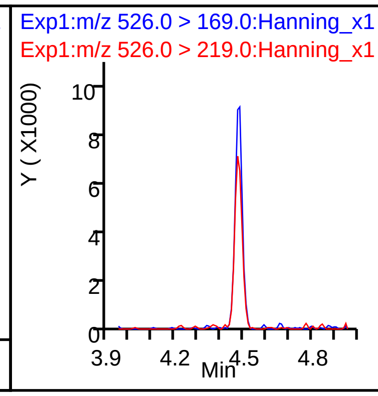
D 62 d9-EtFOSE



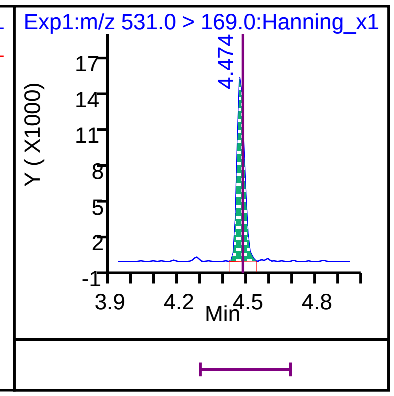
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



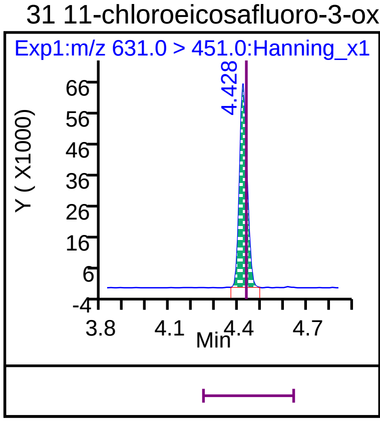




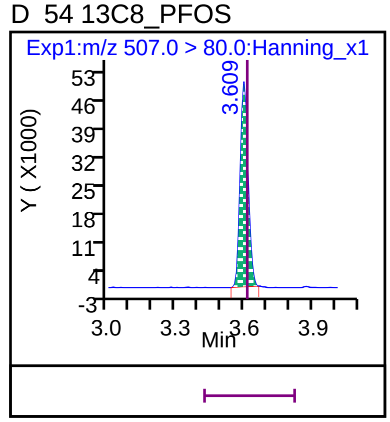
D 59 d5-EtFOSA



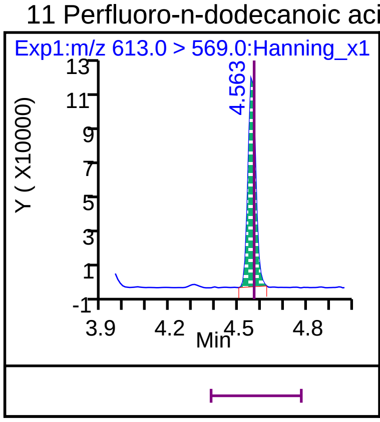
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)

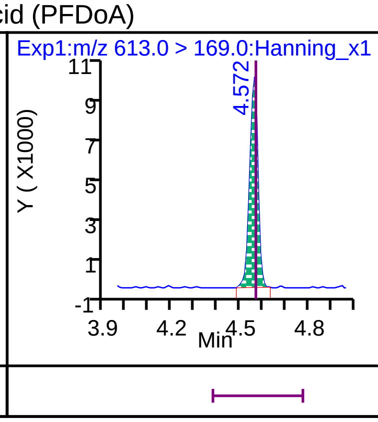


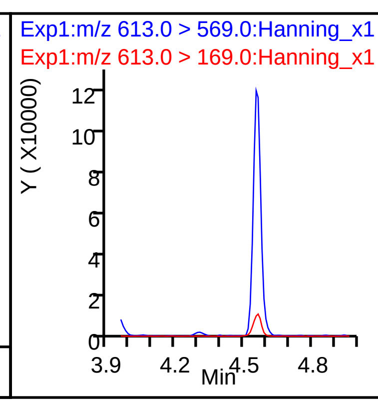
D 54 13C8_PFOS



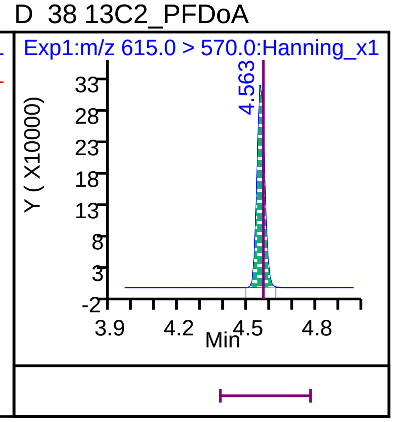
11 Perfluoro-n-dodecanoic acid (PFDoA)



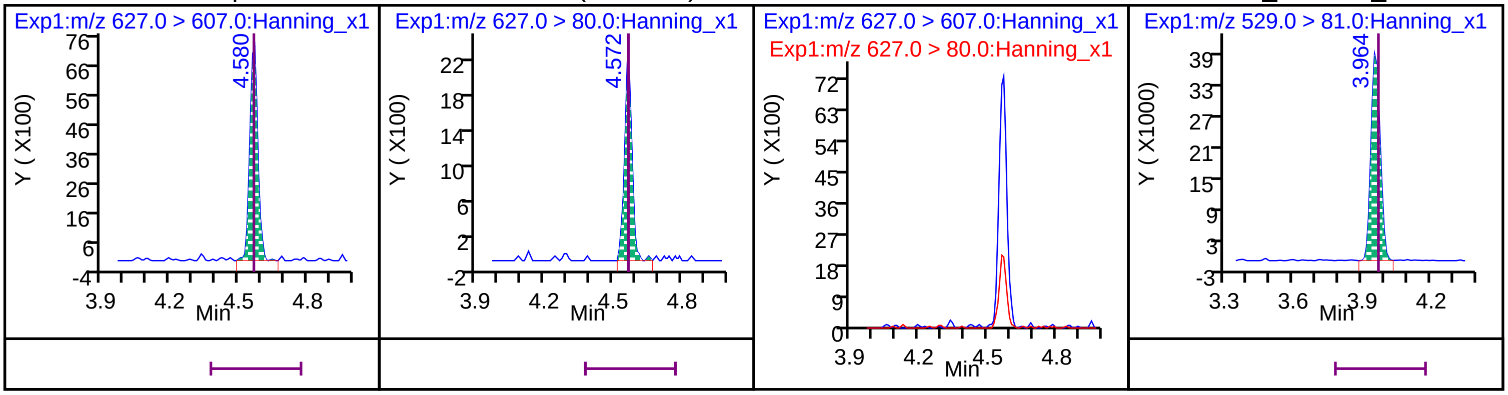




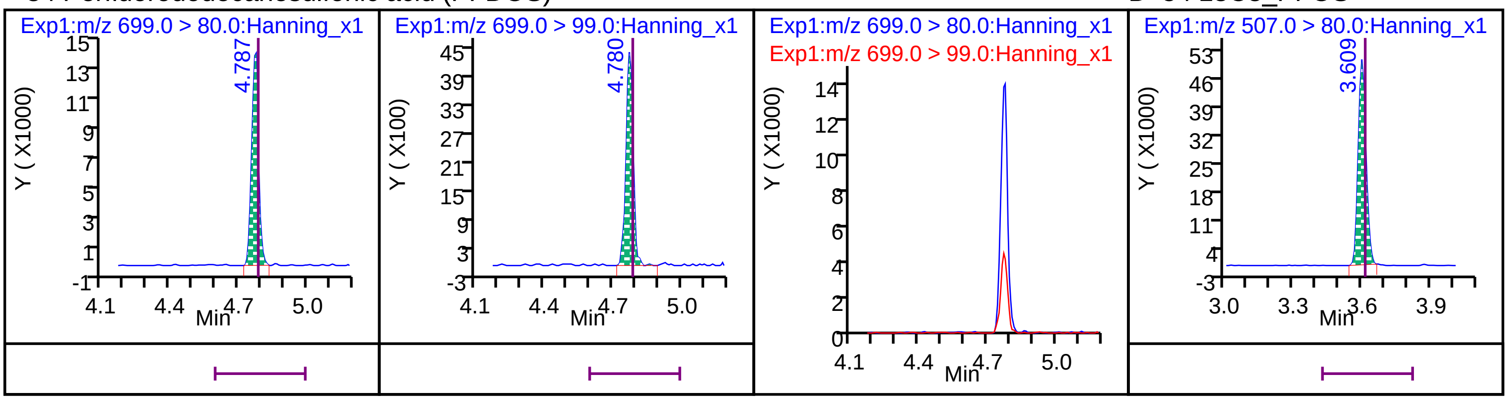
D 38 13C2_PFDoA



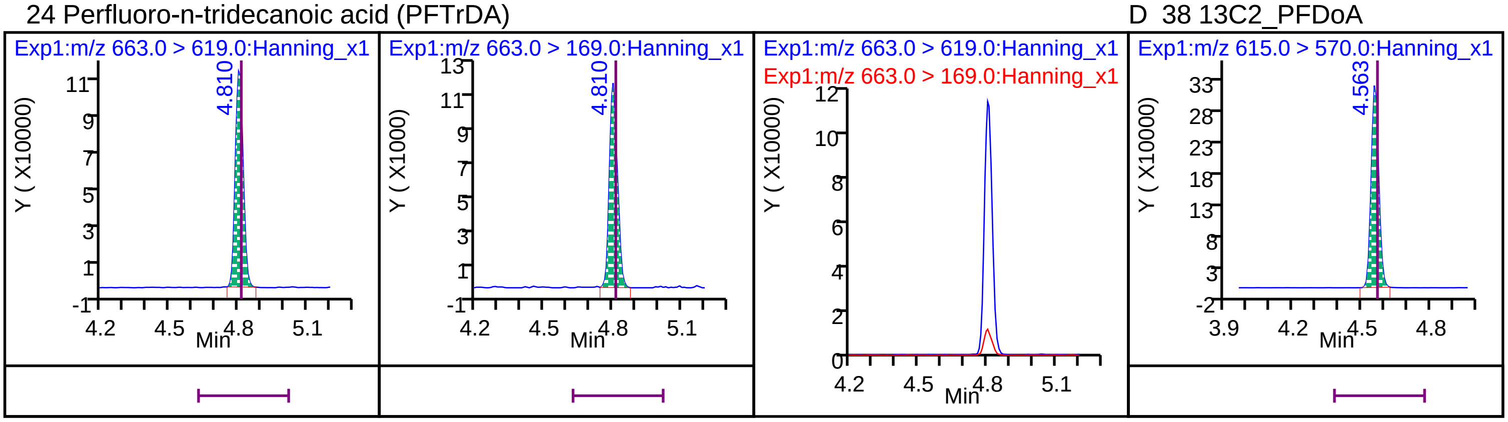
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



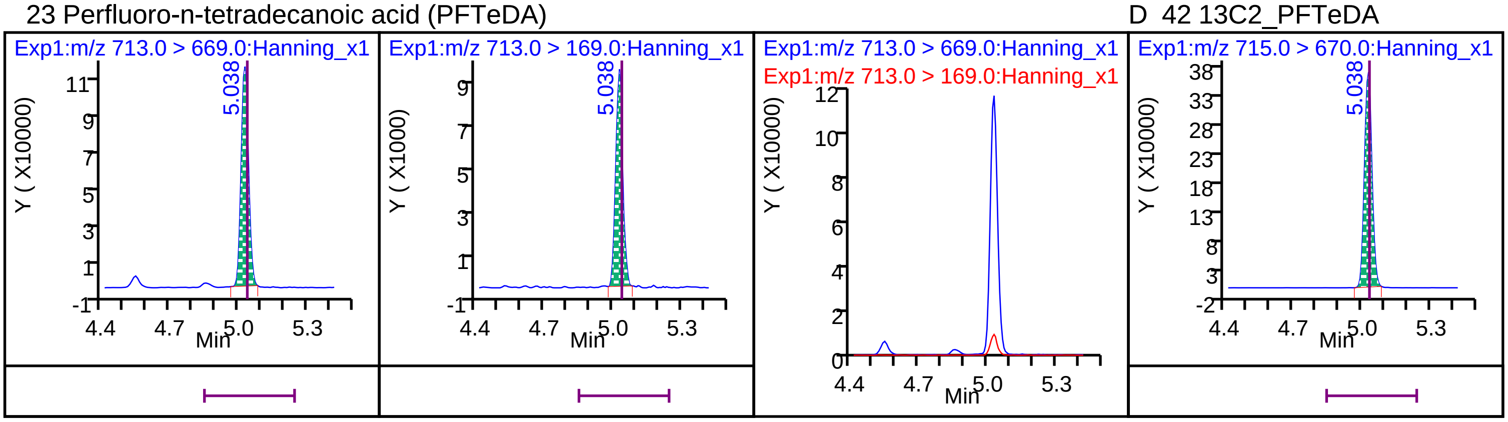
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA

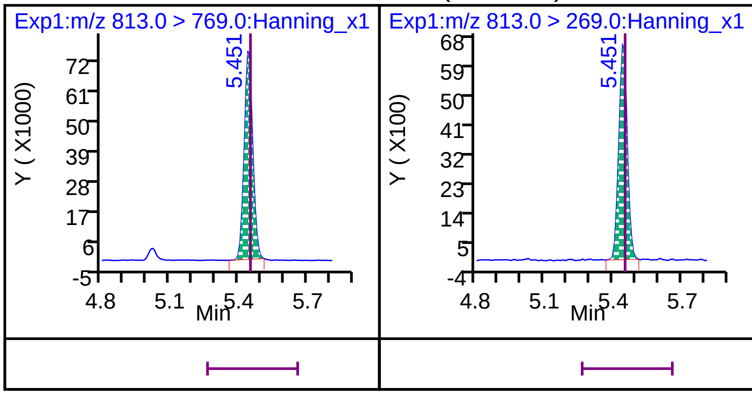


23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA

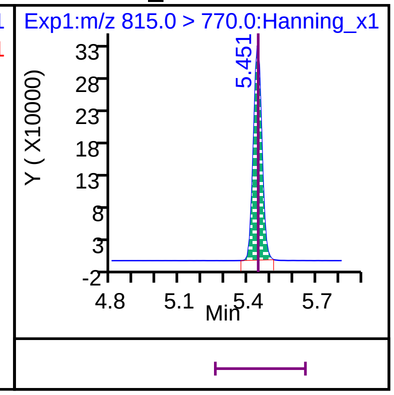


Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d

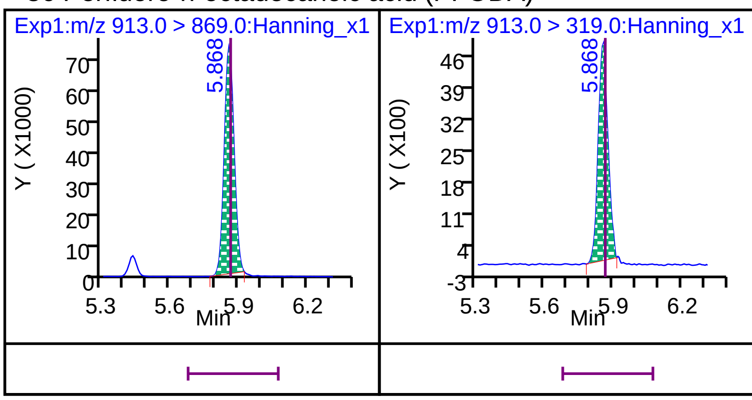
35 Perfluoro-n-hexadecanoic acid (PFHxDA)



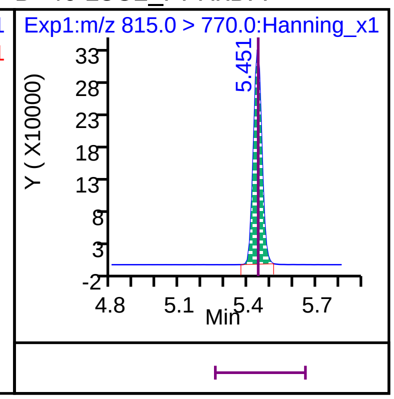
D 40 13C2_PFHxDA



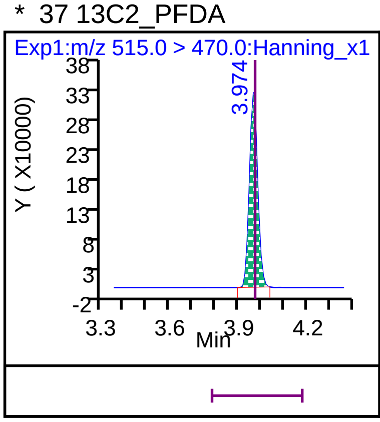
36 Perfluoro-n-octadecanoic acid (PFODA)



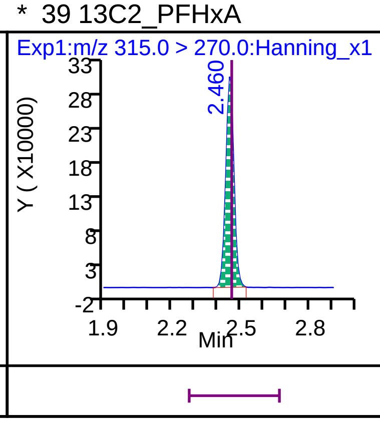
D 40 13C2_PFHxDA



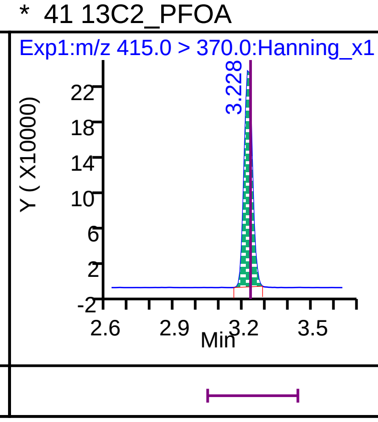
* 37 13C2_PFDA



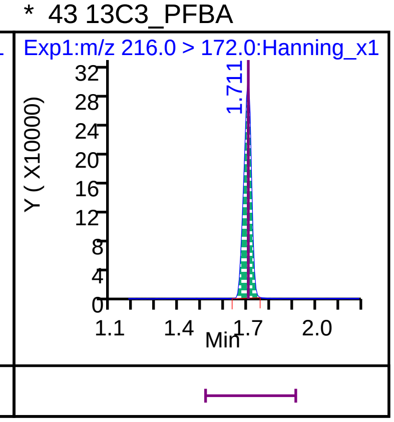
* 39 13C2_PFHxA



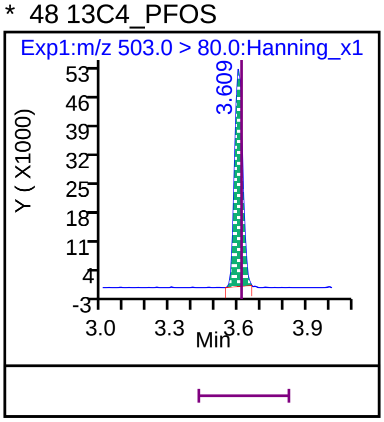
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Manual Integration Report

Data File: \\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d

Injection Date: 09-Nov-2021 21:30:39 Inst. ID: LCMSMS02.i

Client ID: Lab ID: WQ21582-003

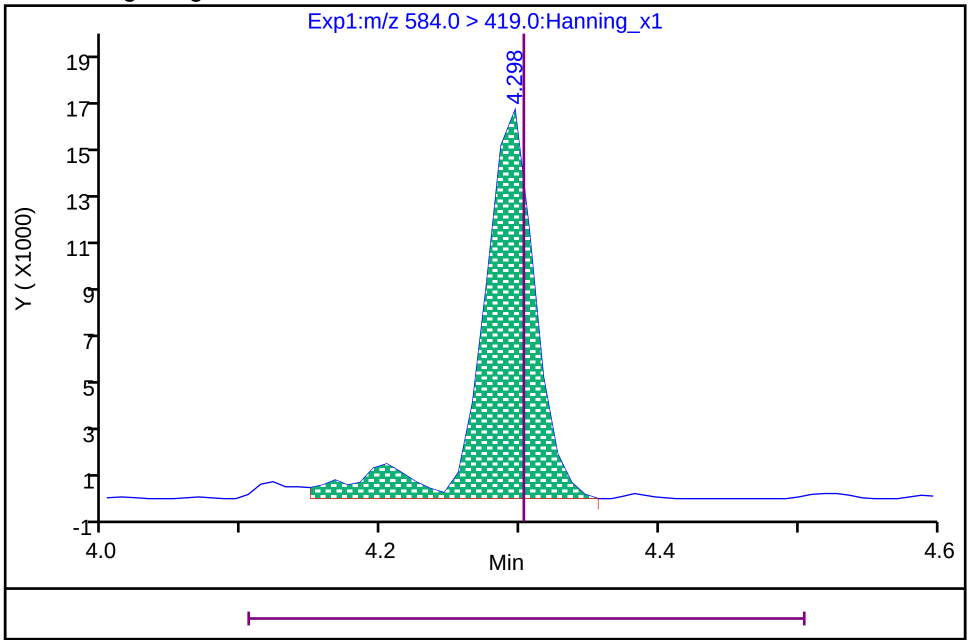
Sample Info: WQ21582-003

Dil. Factor: 1 Operator: Justin Gavin

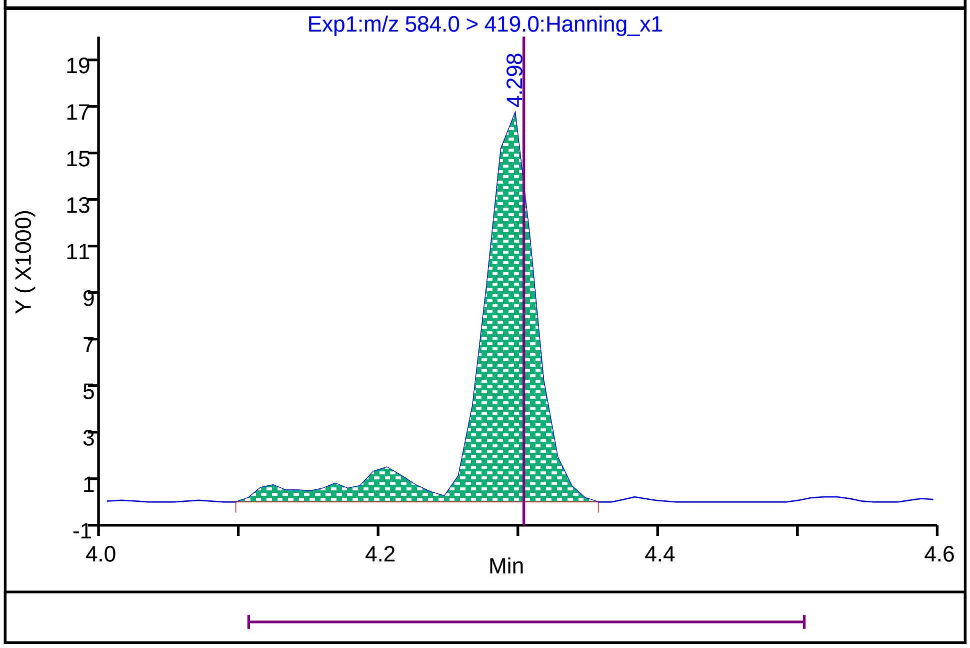
5 N-EtFOSAA, CAS: 2991-50-6

Processing Integration Results

RT:	4.298
Area:	43032
Conc:	15.262
Conc Units:	ng/L



RT:	4.298
Area:	44409
Conc:	15.751
Conc Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:25:51

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 11-Nov-2021 18:39:32 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

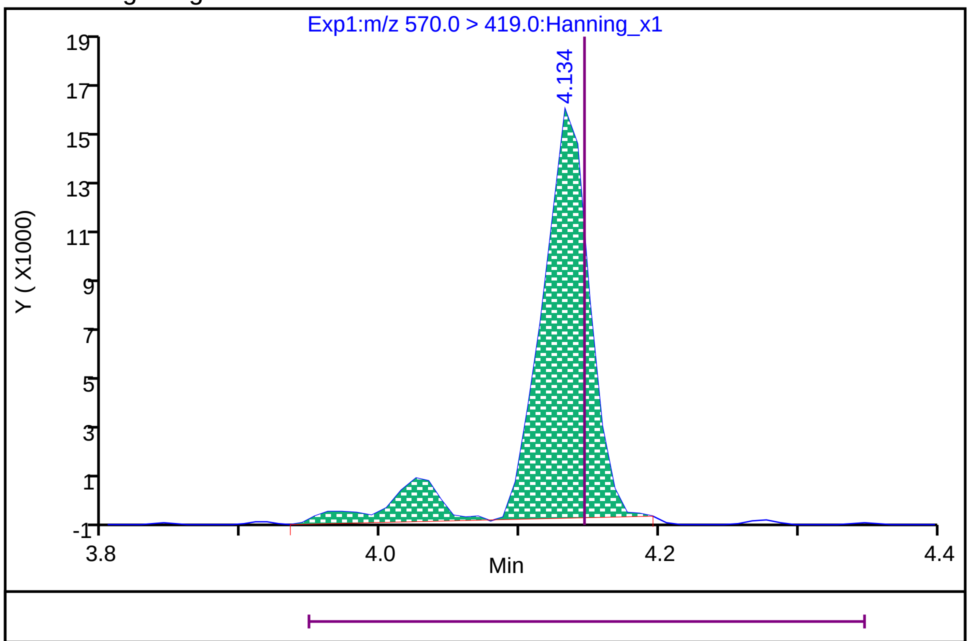
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS02.i\110921-DOD.b\110921036.d		
Injection Date:	09-Nov-2021 21:30:39	Inst. ID:	LCMSMS02.i
Client ID:		Lab ID:	WQ21582-003
Sample Info:	WQ21582-003		
Dil. Factor:	1	Operator:	Justin Gavin

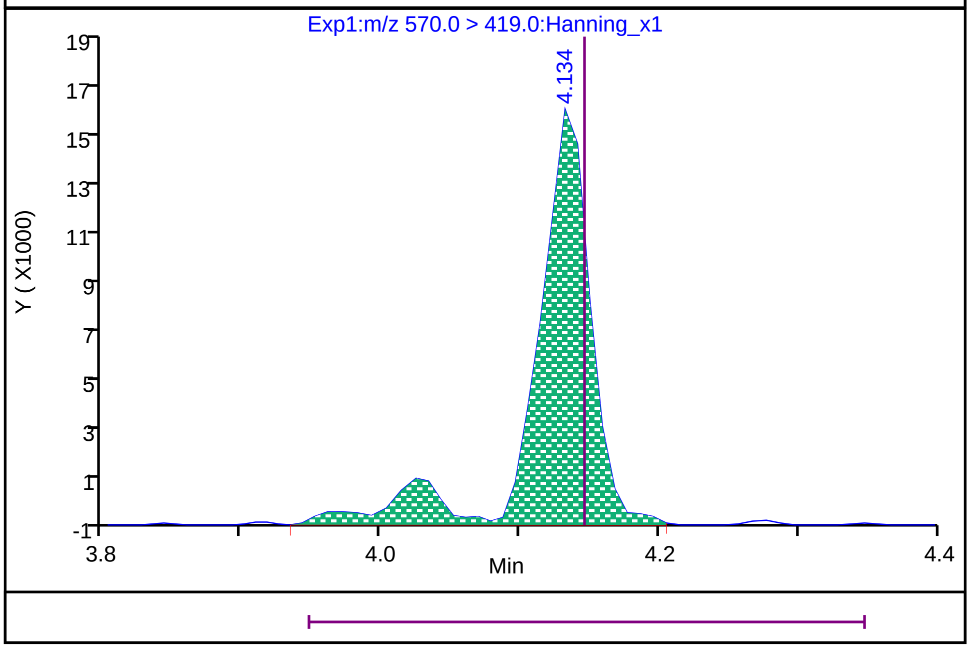
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.134
Area:	40343
Conc:	14.308
Conc Units:	ng/L



RT:	4.134
Area:	43068
Conc:	15.275
Conc Units:	ng/L



Data Editor: justin.gavin, 10-Nov-2021 12:25:44

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS - MS

Sample ID: WK03035-001MS
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	15		1	105	70-150	11/05/2021 0200
11Cl-PF3OUdS	ND	14	13		1	91	70-150	11/05/2021 0200
8:2 FTS	10	14	22		1	80	67-138	11/05/2021 0200
6:2 FTS	15000	14	15000	N	1	-426	64-140	11/05/2021 0200
4:2 FTS	150	14	150	N	1	23	63-143	11/05/2021 0200
GenX	ND	30	35		1	117	70-150	11/05/2021 0200
ADONA	ND	14	19		1	135	70-150	11/05/2021 0200
EtFOSA	ND	15	15		1	104	70-150	11/05/2021 0200
EtFOSAA	ND	15	12		1	80	61-135	11/05/2021 0200
MeFOSAA	ND	15	15		1	99	65-136	11/05/2021 0200
PFBS	5.0	13	16		1	82	72-130	11/05/2021 0200
PFDS	ND	14	14		1	99	53-142	11/05/2021 0200
PFHpS	26	14	41		1	106	69-134	11/05/2021 0200
PFNS	ND	14	15		1	104	69-127	11/05/2021 0200
PFPeS	6.6	14	22		1	112	71-127	11/05/2021 0200
PFHxS	240	13	260	N	1	140	68-131	11/05/2021 0200
PFBA	4300	15	4400	N	1	858	73-129	11/05/2021 0200
PFDA	7.2	15	23		1	107	71-129	11/05/2021 0200
PFDoA	ND	15	15		1	101	72-134	11/05/2021 0200
PFHpA	5200	15	5400	N	1	1360	72-130	11/05/2021 0200
PFHxA	6300	15	6000	N	1	-1630	72-129	11/05/2021 0200
PFNA	870	15	870	N	1	7.1	69-130	11/05/2021 0200
PFOA	ND	15	5100	N	1	34500	71-133	11/05/2021 0200
PFPeA	7400	15	7000	N	1	-2830	72-129	11/05/2021 0200
PFTeDA	ND	15	15		1	102	71-132	11/05/2021 0200
PFTrDA	ND	15	13		1	88	65-144	11/05/2021 0200
PFUdA	ND	15	15		1	101	69-133	11/05/2021 0200
PFOS	1600	14	1700	N	1	545	65-140	11/05/2021 0200

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	192	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		126	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		55	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		57	50-150
13C3-HFPO-DA		64	50-150
13C4_PFBA	N	21	50-150
13C4_PFHpA	N	44	50-150
13C5_PFHxA	N	35	50-150
13C5_PFPeA	N	25	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	WK03035-001MS	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		89	50-150
13C8_PFOA	N	44	50-150
13C8_PFOS		82	50-150
13C9_PFNA		73	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Injection Vol:	10.0 uL
Sample Type:	MS	Auto Sampler:	54
Lab Sample ID:	WK03035-001MS	Lab Prep. Batch:	21177
Sample Info:	WK03035-001MS	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker
Matrix:	Aqueous		
Final Conc.:	Amt * DF * CF		

Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0407000

Name	Value	Units	Description
DF	1		Dilution Factor
VF	10000	ul	Final Volume
VI	270	ml	Initial Sample Volume
AlsDf	0.91		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml
Reagent:	Analytes	Conc. Level:	100x PDS	Vol. Added:	0.2000 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.714	1.714	0	252249	16	>100:1			1001.00	234.27	21.2*	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.714	1.714	0/0	30085799	17	>100:1			108554	4418.16		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.089	2.089	0	269363	14	>100:1			1001.00	268.58	24.7*	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.110	2.089	2/2	49544444	19	>100:1			171840	6993.88		M
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.141	2.141	0	244775	13	>100:1			1001.00	753.69	67.2	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													
298.9 > 80	44	2.141	2.141	0/0	135168	14	47:1	Target = 3.80		386.92	15.748		
298.9 > 99	44	2.141	2.141		37535	13	22:1	3.60 (1.90-5.70)					
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													
349 > 80	44	2.502	2.493	1/1	133773	13	>100:1	Target = 3.42		543.69	22.128		
349 > 99	44	2.502	2.493		38454	12	52:1	3.47 (1.71-5.13)					
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.424	2.424	0	416710	14	>100:1			5005.00	10032	192.1*	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													
327 > 307	63	2.424	2.415	1/1	602880	15	>100:1	Target = 1.54		3710.15	151.00		
327 > 81	63	2.424	2.415		379308	15	>100:1	1.58 (0.77-2.32)					
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.467	2.459	1	355800	16	>100:1			1001.00	398.33	34.6*	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.459	2.467	0/-1	54308053	19	>100:1	Target = 17.93		147868	6018.22		
313 > 119	49	2.467	2.467		9849109	16	>100:1	5.51 (8.96-26.89)					J
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.587	2.587	0	559465	15	>100:1			5005.00	3415.13	63.7	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													
285 > 119	66	2.587	2.587	0/0	72675	15	>100:1	Target = 0.72		848.56	34.536		
285 > 185	66	2.587	2.587		86710	15	>100:1	0.83 (0.36-1.08)					
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.853	2.846	1	434504	17	>100:1			1001.00	495.90	44.1*	
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.845	2.846	0/-1	55322493	22	>100:1	Target = 3.26		132394	5388.45		M
363 > 169	47	2.853	2.846		34164656	17	>100:1	1.61 (1.63-4.89)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.871	2.863	1	169241	16	>100:1			1001.00	645.27	57	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													
399 > 80	45	2.871	2.863	1/0	1281225	24	>100:1	Target = 3.48	9.89	6410.33	260.90		
399 > 99	45	2.871	2.863		309160	15	>100:1	4.14 (1.74-5.22)					
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													
377 > 251	45	2.897	2.890	1/0	431304	15	>100:1	Target = 2.31		463.47	18.863		
377 > 85	45	2.897	2.890		167537	16	>100:1	2.57 (1.16-3.48)					
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													
449 > 80	45	3.246	3.229	1/0	174962	22	>100:1	Target = 3.56		1006.12	40.949		
449 > 99	45	3.239	3.229		46060	19	21:1	3.79 (1.78-5.34)					
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.208	3.204	1	180280	21	>100:1			5005.00	4780.56	92.6	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.208	3.204	1/0	23210816	21	>100:1	Target = 1.34		370598	15083		
427 > 81	64	3.201	3.204		17568133	21	>100:1	1.32 (0.67-2.02)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.233	3.223	1	406787	22	>100:1			1001.00	491.89	44*	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.227	3.229	0/-1	52437859	25	>100:1	Target = 2.50		125410	5104.18		M
413 > 169	53	3.239	3.229		34458091	21	>100:1	1.52 (1.25-3.75)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.599	3.595	1	201792	20	>100:1			1001.00	898.93	82.1	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.599	3.595	1/0	9716074	40	>100:1	Target = 4.01	0.88	40885	1664.01		M
499 > 99	54	3.599	3.595		2015584	37	>100:1	4.82 (2.00-6.02)	2.16				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													
531 > 351	54	3.803	3.799	1/0	222160	17	>100:1			356.59	14.513		
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													
549 > 80	54	3.931	3.926	1/0	73667	16	>100:1	Target = 3.78		361.80	14.725		
549 > 99	54	3.931	3.926		20848	15	97:1	3.53 (1.89-5.67)					
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													
599 > 80	54	4.232	4.226	1/0	68790	16	>100:1	Target = 3.98		345.64	14.068		
599 > 99	54	4.232	4.226		16674	14	95:1	4.12 (1.99-5.97)					
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													
631 > 451	54	4.384	4.386	0/-1	174221	17	>100:1			311.11	12.662		
34 Perfluorododecanesulfonic acid (PFDOS) CAS: 79780-39-5													
699 > 80	54	4.732	4.733	0/-1	45328	24	>100:1	Target = 3.68		232.17	9.4493		
699 > 99	54	4.732	4.733		10969	15	>100:1	4.13 (1.84-5.52)					
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.599	3.595	1	726674	18	>100:1			1001.00	909.46	72.7	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.606	3.595	1/0	14188757	19	>100:1	Target = 4.69		21464	873.58		
463 > 169	56	3.606	3.595		3276804	19	>100:1	4.33 (2.34-7.05)					
D 55 13C8_PFOSA CAS: SESI-0107													
506 > 78		3.878	3.873	1	386181	18	>100:1			1001.00	932.37	90.3	
19 Perfluoro-1-octanesulfonamide (PFOSA) CAS: 754-91-6													
498 > 78	55	3.878	3.873	1/0	156087	19	91:1	Target = 40.85		357.81	14.563		
498>478	55	3.870	3.873		2519	19	6.7:1	61.96 (20.42-61.28)					J
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.940	3.934	1	193078	17	>100:1			5005.00	6151.83	125.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													
527 > 507	65	3.940	3.934	1/0	36460	15	>100:1	Target = 1.58		531.98	21.652		
527 > 81	65	3.940	3.934		27317	17	37:1	1.33 (0.79-2.37)					
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) CAS: 120226-60-0													
627 > 607	65	4.534	4.528	1/0	17695	18		Target = 2.46		257.21	10.468		
627 > 80	65	4.527	4.528		7820	27	>100:1	2.26 (1.23-3.70)					
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.948	3.942	1	743632	17	>100:1			1001.00	1030.25	94.7	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													
513 > 469	51	3.948	3.942	1/0	432475	17	>100:1	Target = 9.77		567.34	23.091		
513 > 169	51	3.948	3.942		46149	18	>100:1	9.37 (4.88-14.65)					
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.104	4.098	1	835247	17	>100:1			5005.00	4710.58	92.5	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													
570 > 419	58	4.104	4.098	1/0	49125	32	>100:1	Target = 1.41	5.75	360.03	14.653		M
570 > 483	58	4.112	4.098		36943	31	>100:1	1.32 (0.70-2.11)	3.78				M
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.250	4.253	0	654230	16	>100:1			1001.00	957.28	89.3	
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													
563 > 519	52	4.250	4.253	0/0	215309	17	>100:1	Target = 9.19		367.21	14.946		
563 > 169	52	4.250	4.253		23445	15	>100:1	9.18 (4.59-13.78)					
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.250	4.253	0	779425	17	>100:1			5005.00	5212.47	100	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													
584 > 419	60	4.259	4.253	1/1	46560	31	>100:1	Target = 1.75	9.03	292.49	11.905		
584 > 526	60	4.259	4.253		27110	32	99:1	1.71 (0.87-2.63)	3.67				
D 61 d7-MeFOSE CAS: SESI-0129													
623 > 59		4.286	4.280	1	104339	22	>100:1			1001.00	756.16	78.3	
32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) CAS: 24448-09-7													
616 > 59	61	4.295	4.288	1/0	30893	16	>100:1			291.62	11.869		
D 57 d3-MeFOSA CAS: SESI-0109													
515 > 169		4.303	4.306	0	44584	14	>100:1			1001.00	636.72	61.4	
26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) CAS: 31506-32-8													
512 > 169	57	4.303	4.306	0/0	16908	15	>100:1	Target = 1.11		366.59	14.920		
512 > 219	57	4.303	4.306		16193	15	65:1	1.04 (0.55-1.67)					
D 62 d9-EtFOSE CAS: SESI-0130													
639 > 59		4.447	4.448	0	84223	18	>100:1			1001.00	655.16	65.1	
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE) CAS: 1691-99-2													
630 > 59	62	4.454	4.456	0/0	26726	16	>100:1			373.17	15.188		
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.469	4.463	1	39016	19	>100:1			1001.00	605.79	59.6	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													
526 > 169	59	4.476	4.470	1/0	17210	19	>100:1	Target = 1.06		377.68	15.371		
526 > 219	59	4.476	4.470		14625	20	>100:1	1.17 (0.53-1.59)					
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.519	4.521	0	610714	18	>100:1			1001.00	888.13	81.8	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													
613 > 569	38	4.519	4.521	0/0	220646	19	>100:1	Target = 6.38		368.25	14.988		
613 > 169	38	4.519	4.521		32878	24	>100:1	6.71 (3.19-9.57)					
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													
663 > 619	38	4.759	4.760	0/0	105225	19	>100:1	Target = 3.23		321.83	13.099		
663 > 169	38	4.759	4.760		29164	18	>100:1	3.60 (1.61-4.85)					
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.973	4.978	0	499538	25	>100:1			1001.00	639.00	55.4	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													
713 > 669	42	4.978	4.978	1/1	162097	25	52:1	Target = 7.33		369.61	15.043		
713 > 169	42	4.973	4.978		22065	25	>100:1	7.34 (3.66-11.00)					

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 40 13C2_PFHxDA CAS: SESI-0103													
815 > 770		5.366	5.372	0	151310	21	>100:1			1001.00	387.60	37.5*	
35 Perfluoro-n-hexadecanoic acid (PFHxDA) CAS: 67905-19-5													
813 > 769	40	5.372	5.372	1/1	100317	21	>100:1	Target = 12.31		346.94	14.121		
813 > 269	40	5.366	5.372		8518	21	>100:1	11.77 (6.15-18.47)					
36 Perfluoro-n-octadecanoic acid (PFODA) CAS: 16517-11-6													
913 > 869	40	5.761	5.761	1/1	52575	21	>100:1	Target = 165.31		230.39	9.3767		
913 > 319	40	5.769	5.761		327	21	42:1	160.77 (82.65-247.97)					
*** 37 13C2_PFDA**													
515 > 470		3.948	3.942	1	683775	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.467	2.467	0	407358	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.239	3.223	1	432273	22	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.714	1.714	0	205601	18	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.599	3.595	1	189264	20	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

QC Flag Legend

M - Compound Hit/Peak Manually Integrated

Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

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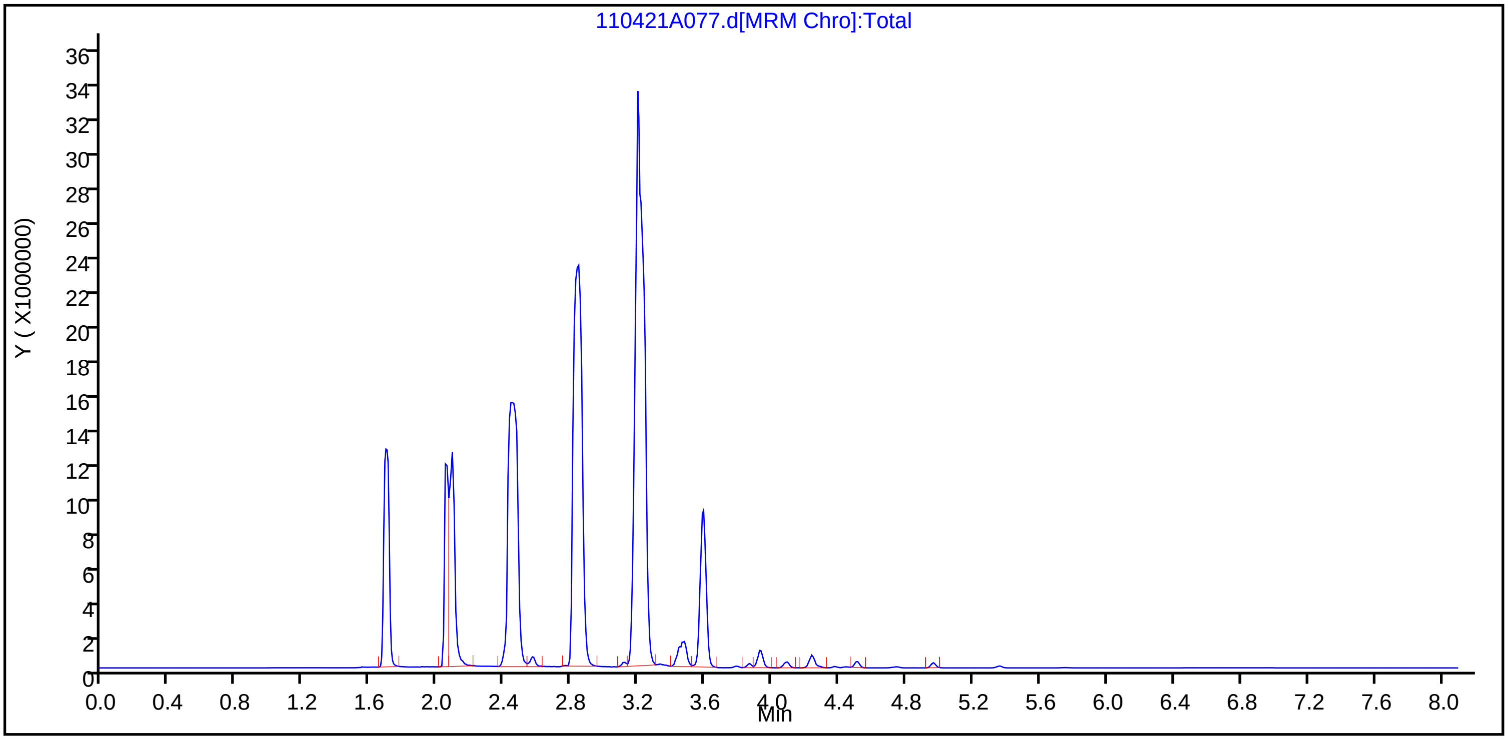
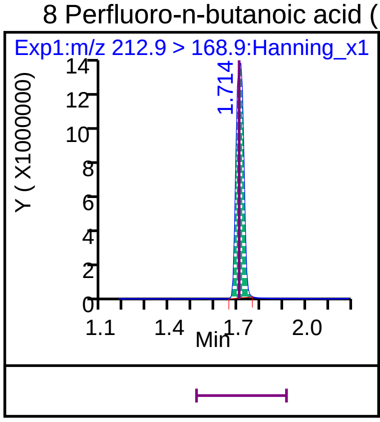
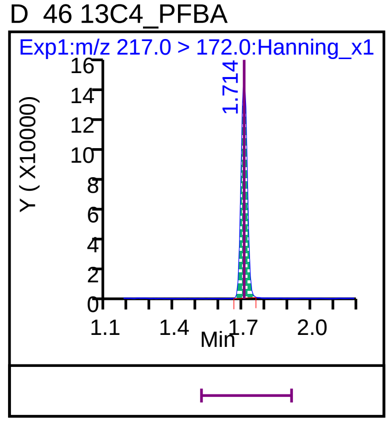
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller



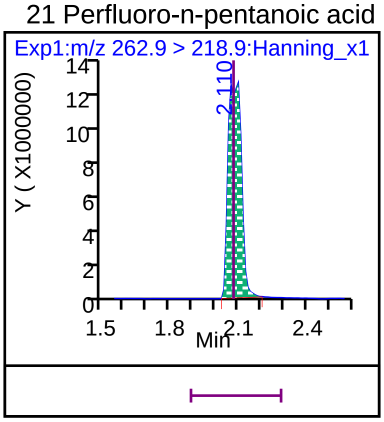
8 Perfluoro-n-butanoic acid (PFBA)



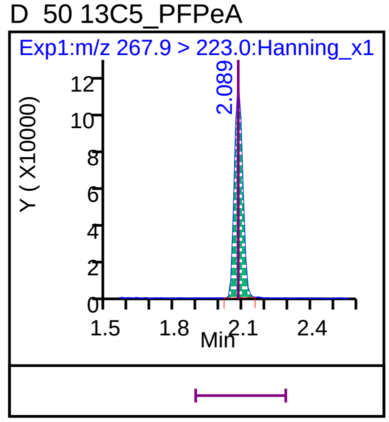
D 46 13C4_PFBA



21 Perfluoro-n-pentanoic acid (PFPeA) (M)

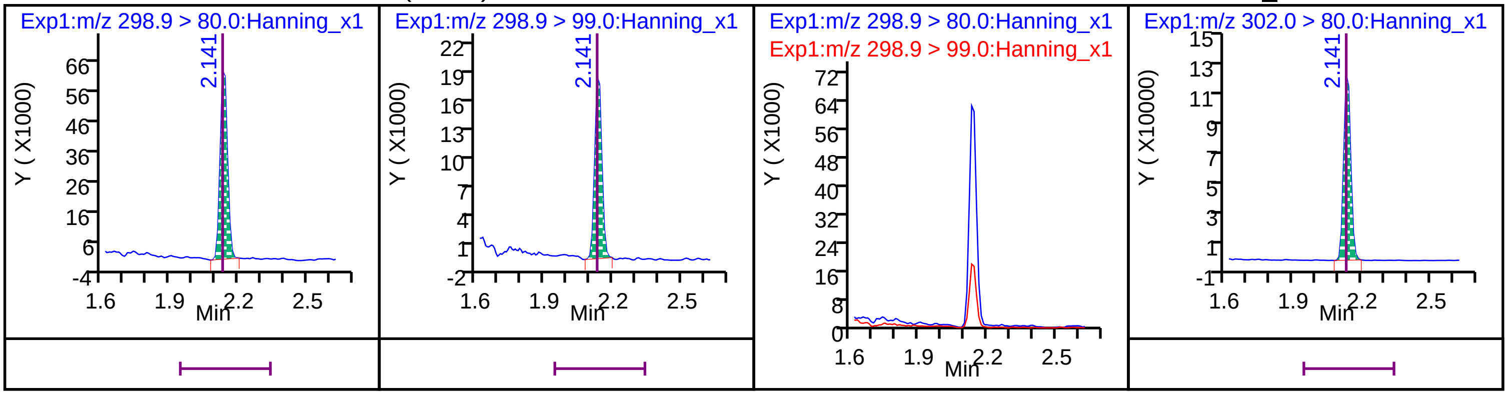


D 50 13C5_PFPeA

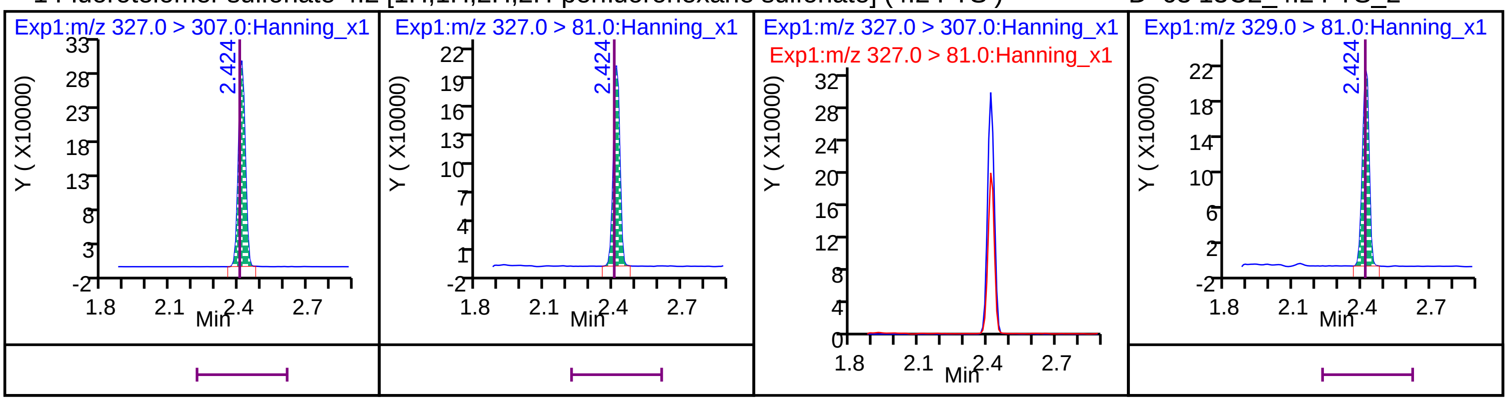


Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d

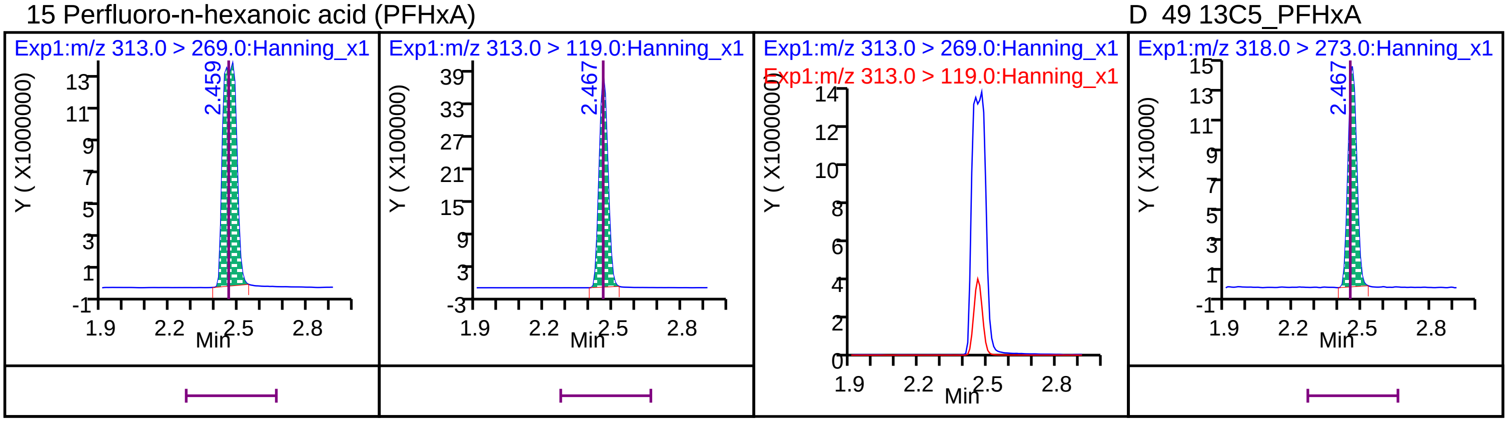
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



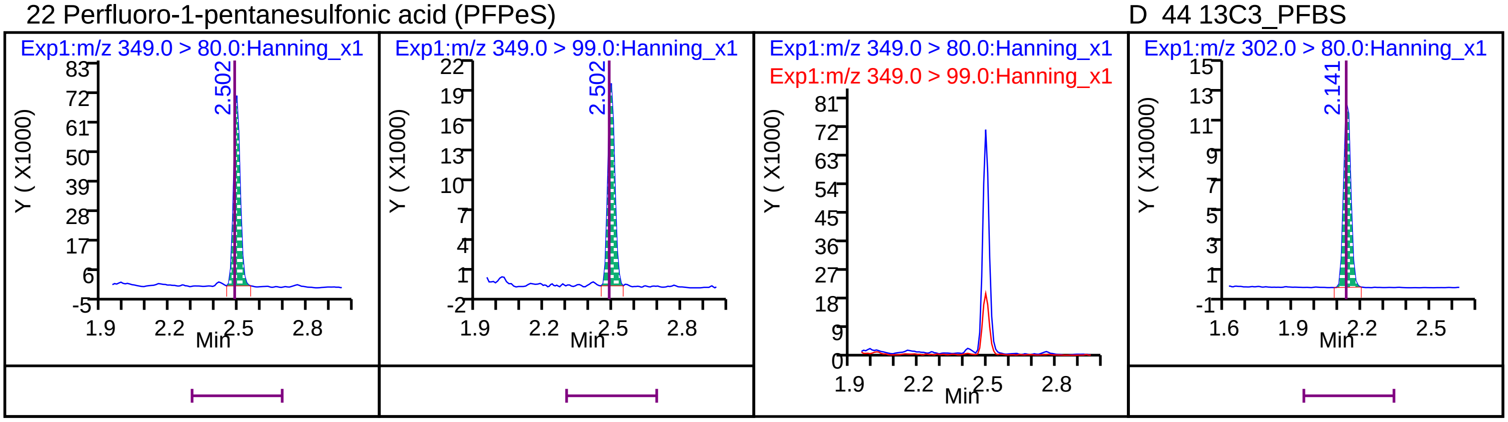
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) D 63 13C2_4:2 FTS_2



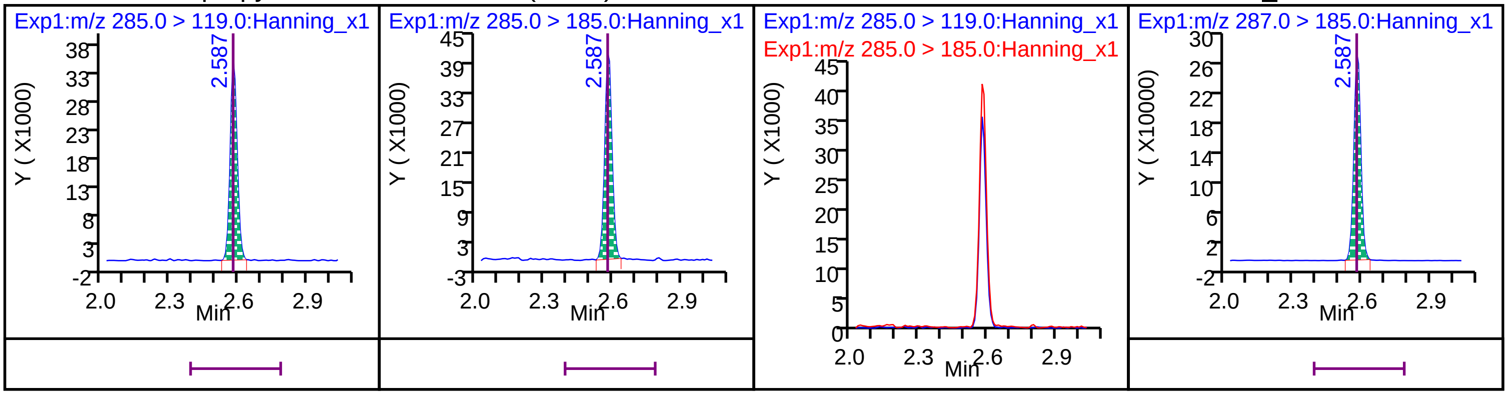
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



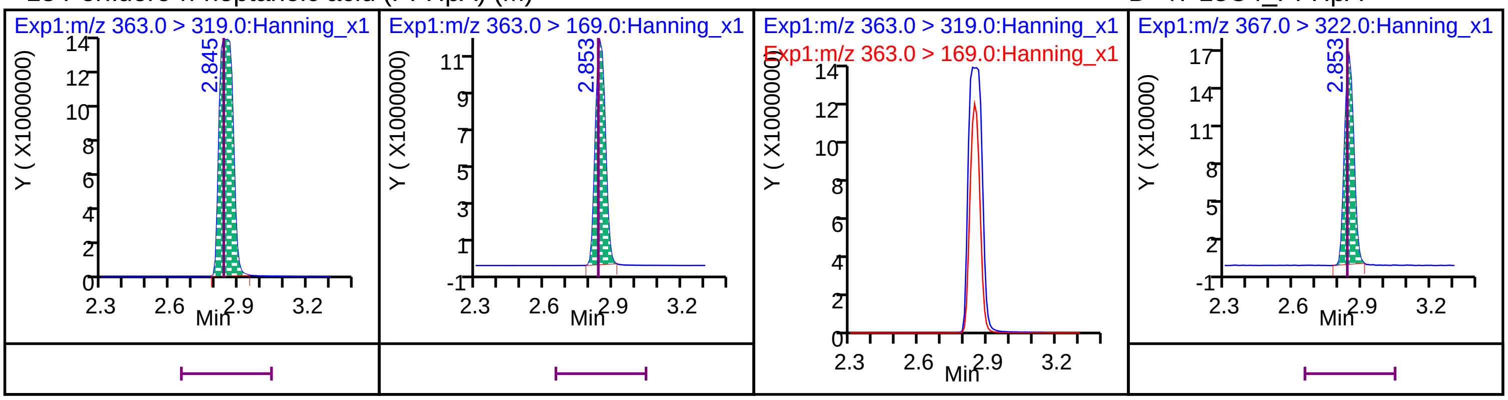
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



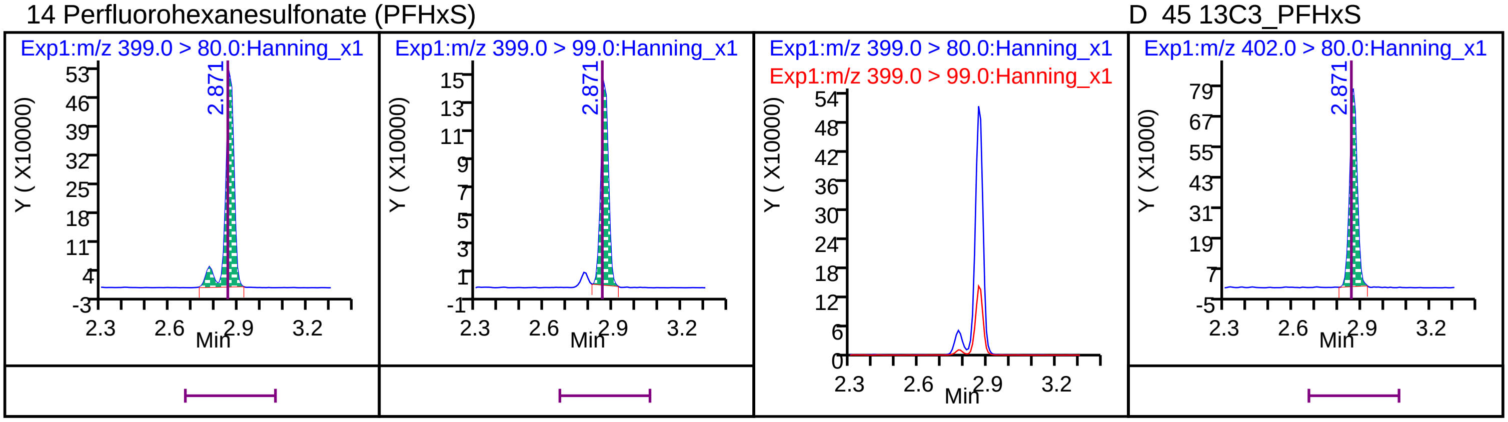
28 Hexafluoropropylene oxide dimer acid (GenX) D 66 13C3_GenX



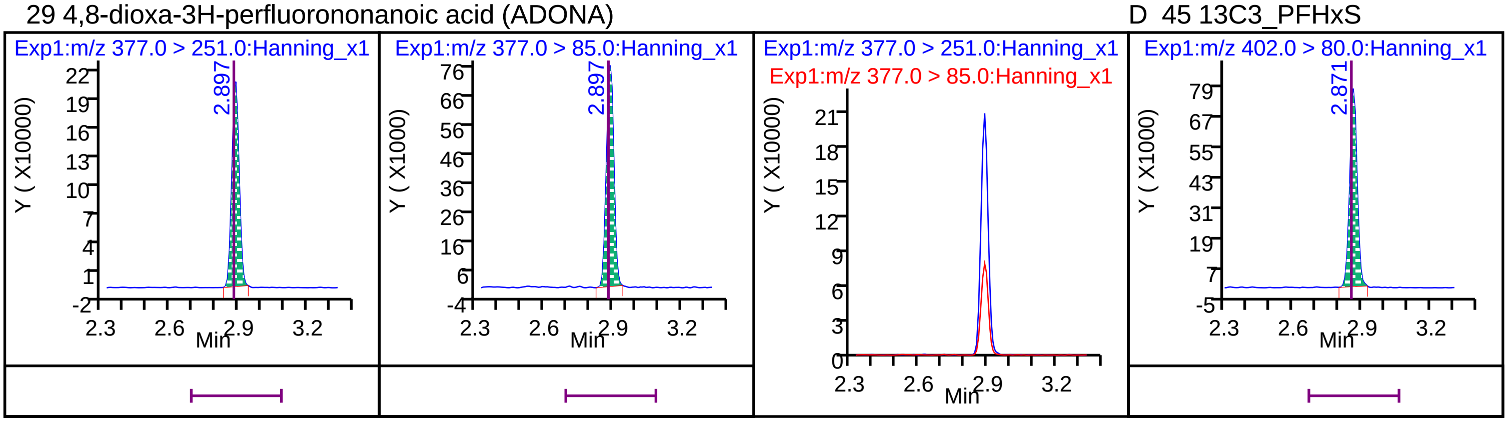
13 Perfluoro-n-heptanoic acid (PFHpA) (M) D 47 13C4_PFHpA



14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



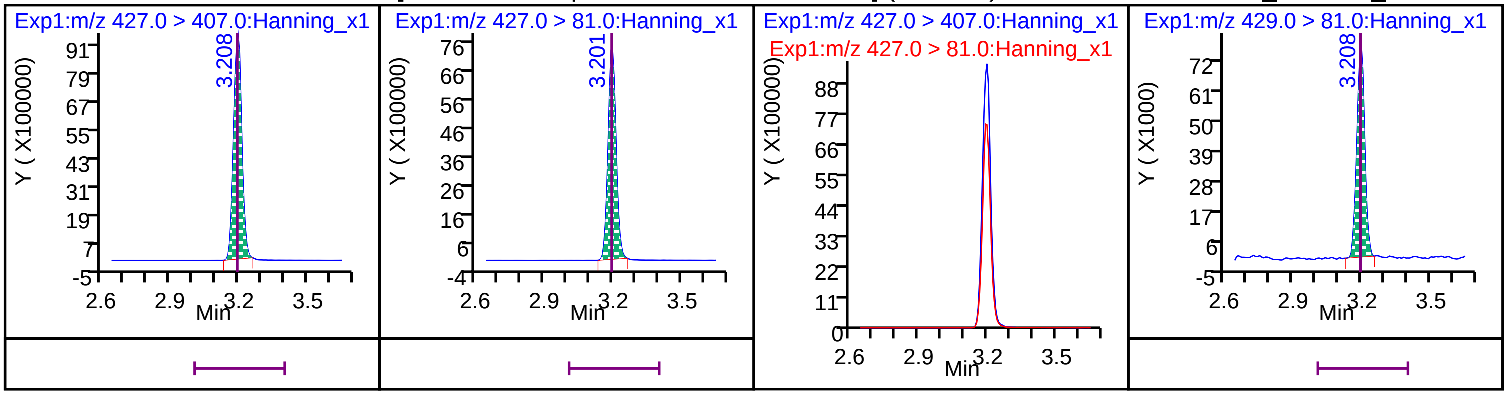
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) D 45 13C3_PFHxS



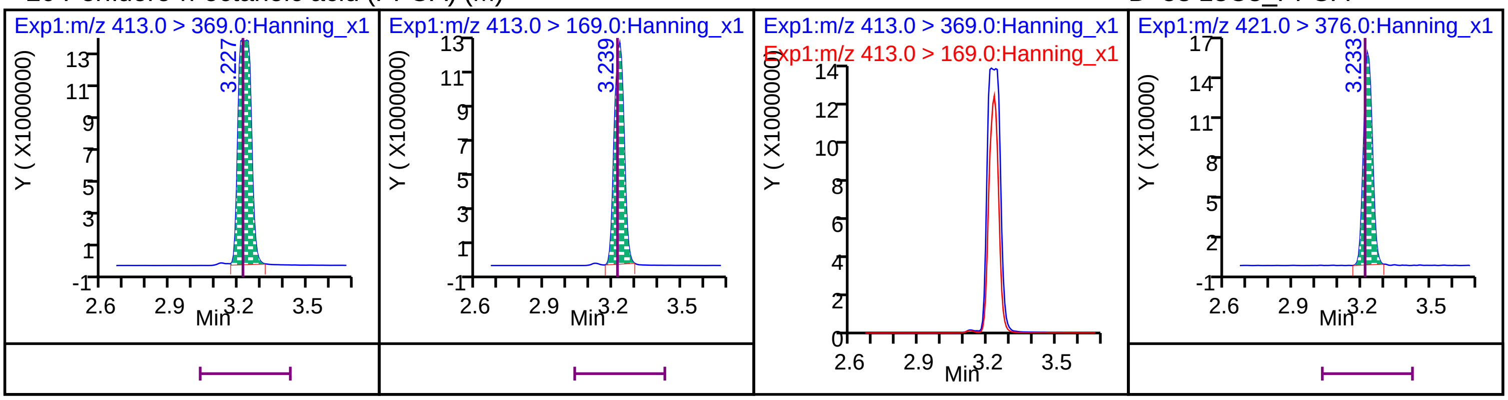
Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d

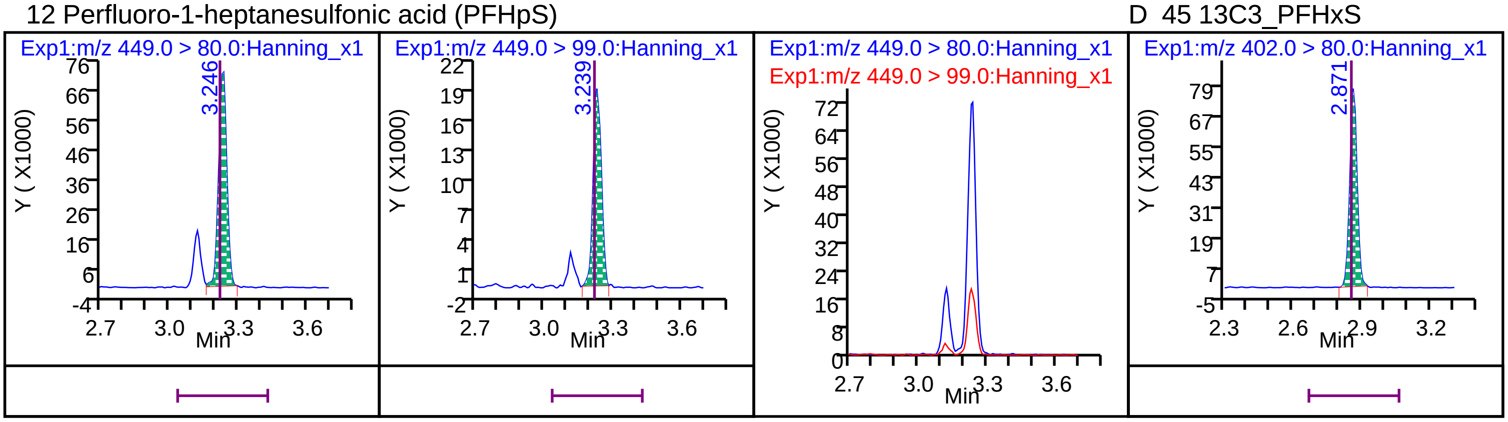
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



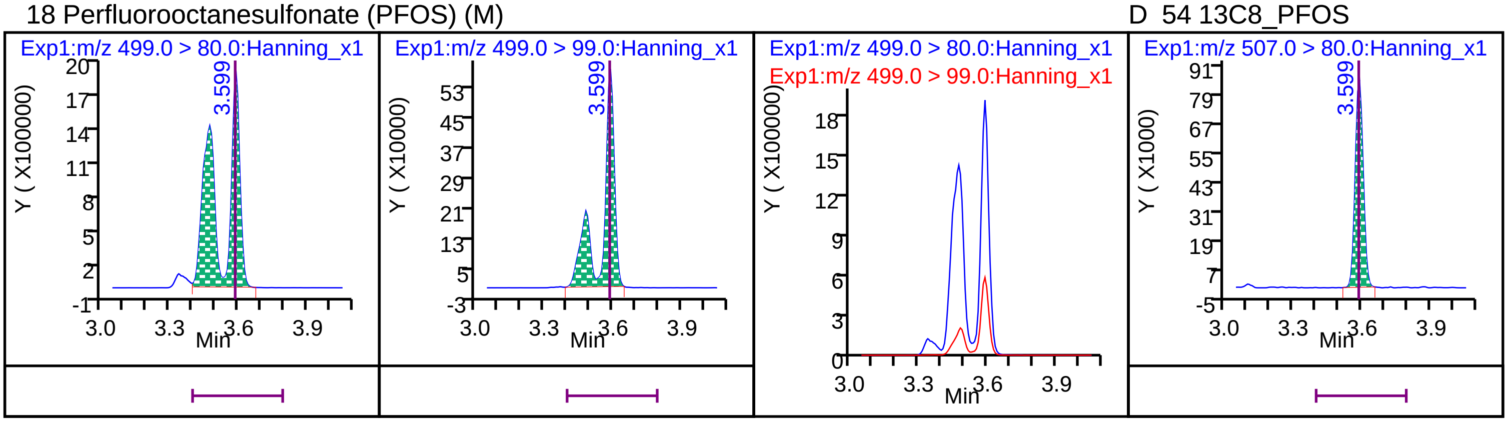
20 Perfluoro-n-octanoic acid (PFOA) (M) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) D 45 13C3_PFHxS



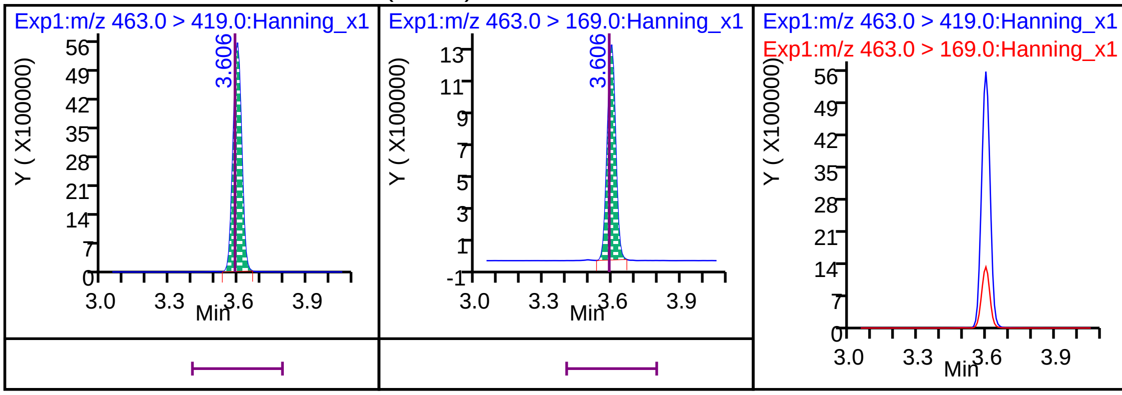
18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS



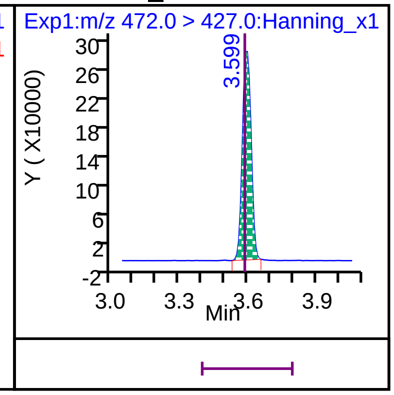
Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d

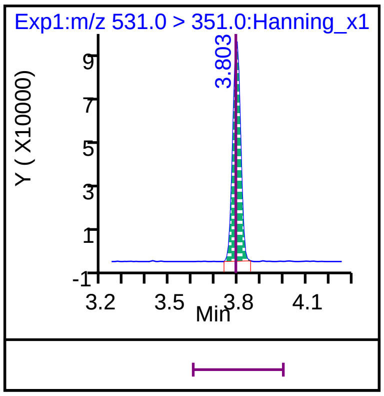
17 Perfluoro-n-nonanoic acid (PFNA)



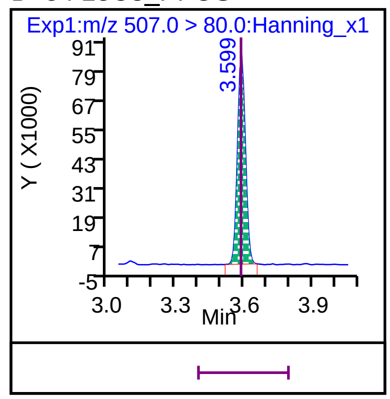
D 56 13C9_PFNA



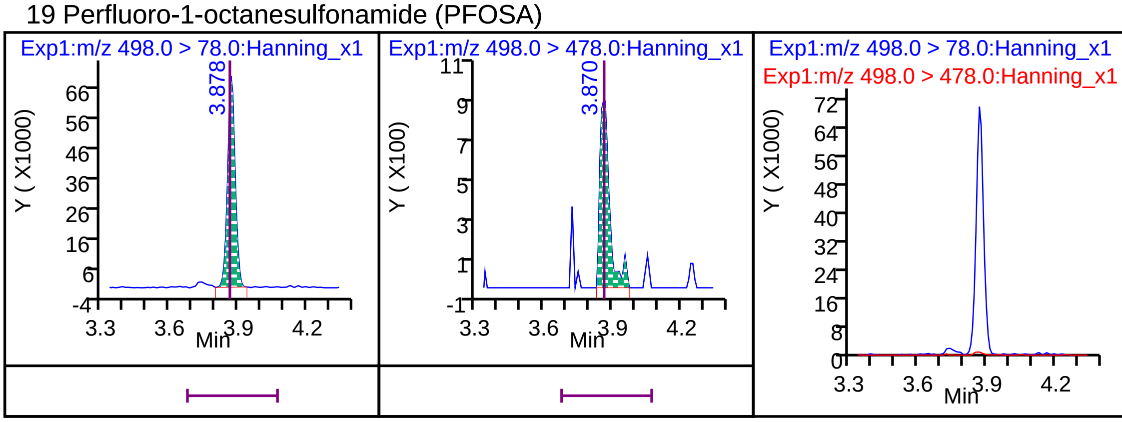
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)



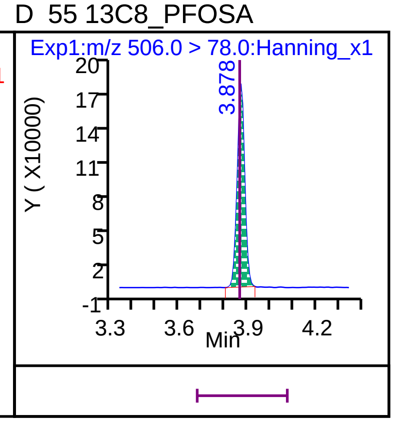
D 54 13C8_PFOS



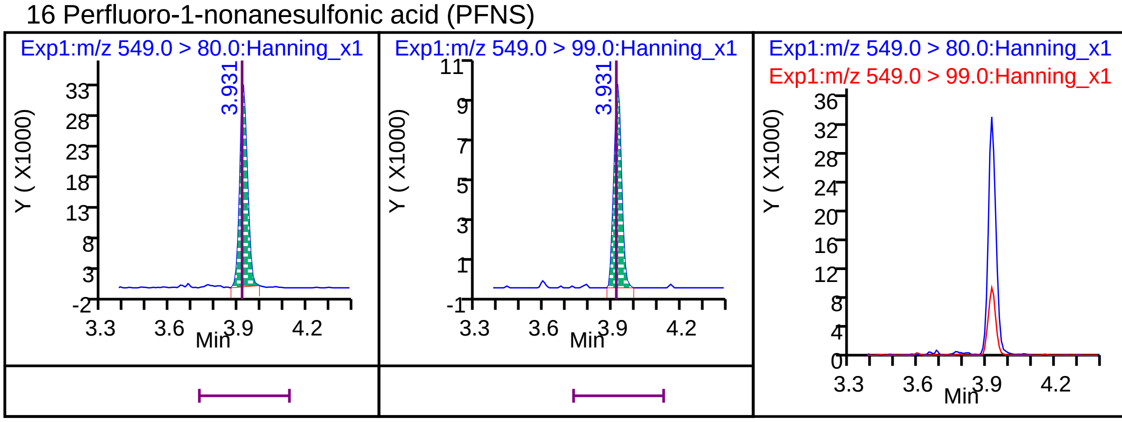
19 Perfluoro-1-octanesulfonamide (PFOSA)



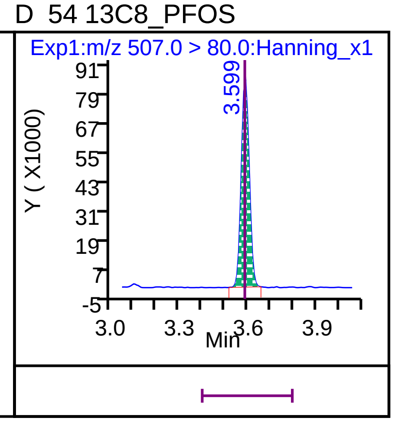
D 55 13C8_PFOSA



16 Perfluoro-1-nonanesulfonic acid (PFNS)

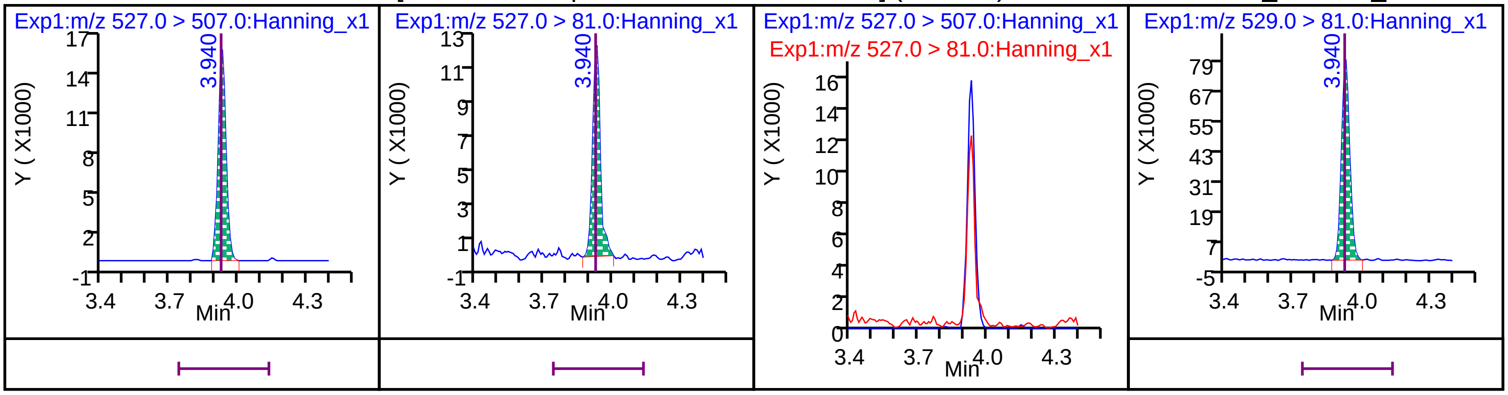


D 54 13C8_PFOS

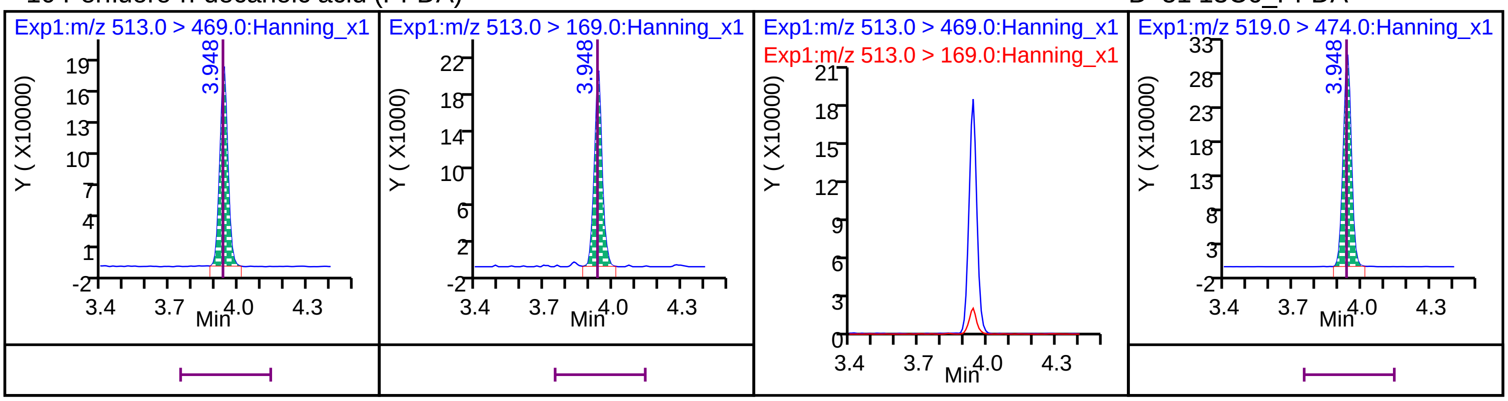


Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d

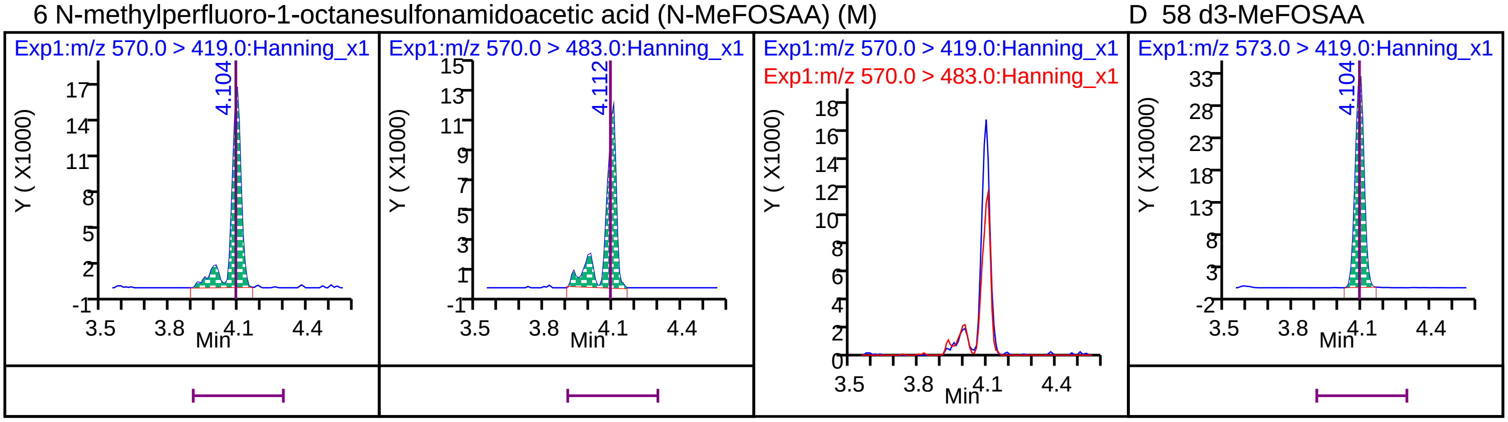
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) D 65 13C2_8:2 FTS_2



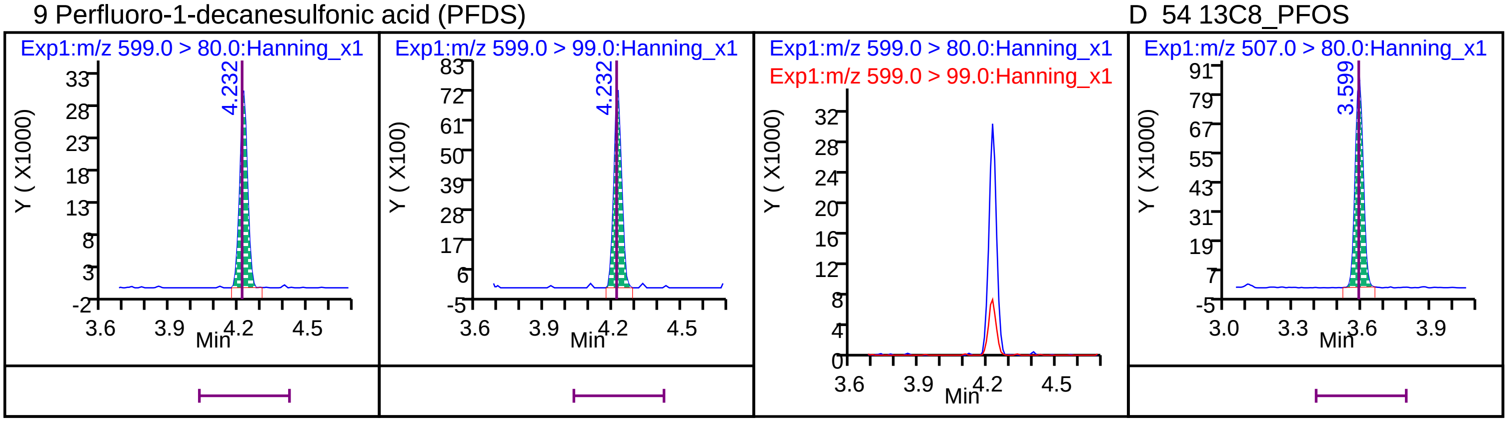
10 Perfluoro-n-decanoic acid (PFDA) D 51 13C6_PFDA



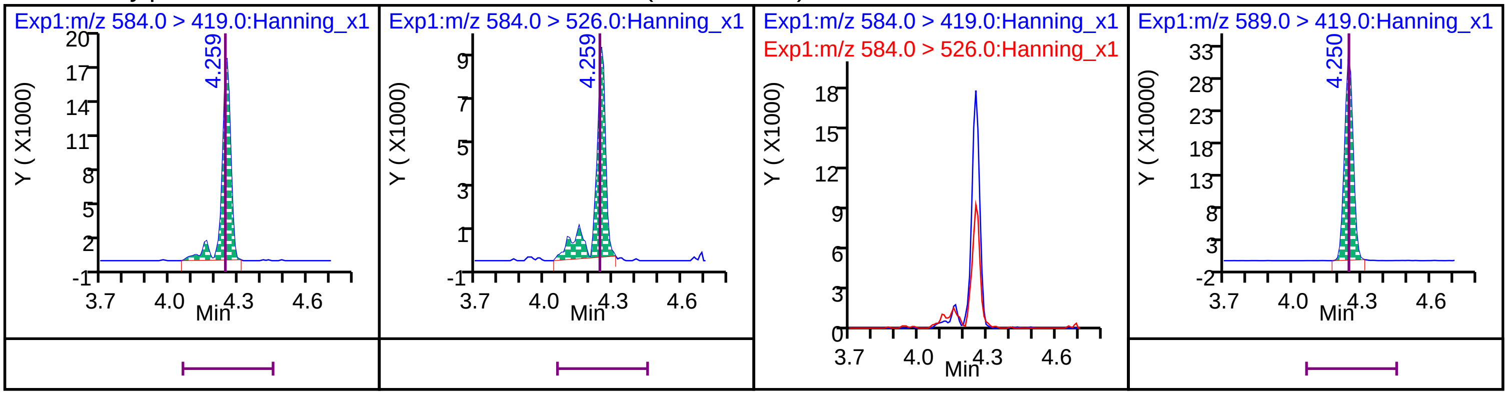
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (M) D 58 d3-MeFOSAA



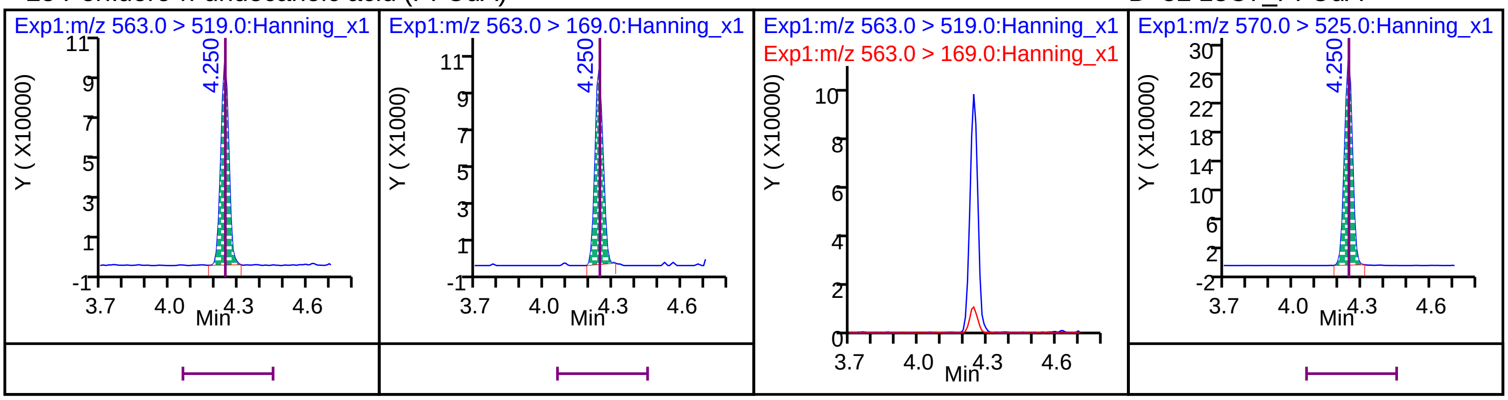
9 Perfluoro-1-decanesulfonic acid (PFDS) D 54 13C8_PFOS



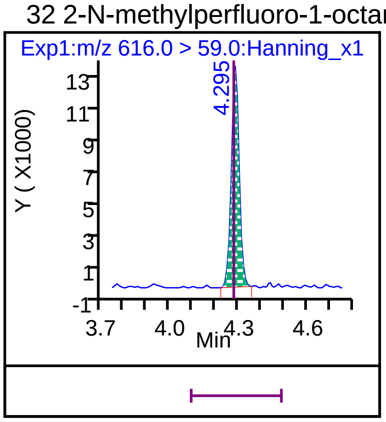
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) D 60 d5-EtFOSAA

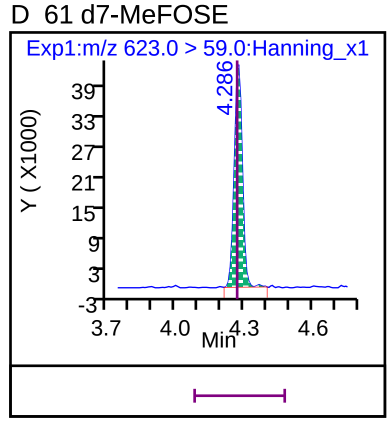


25 Perfluoro-n-undecanoic acid (PFUdA) D 52 13C7_PFUdA

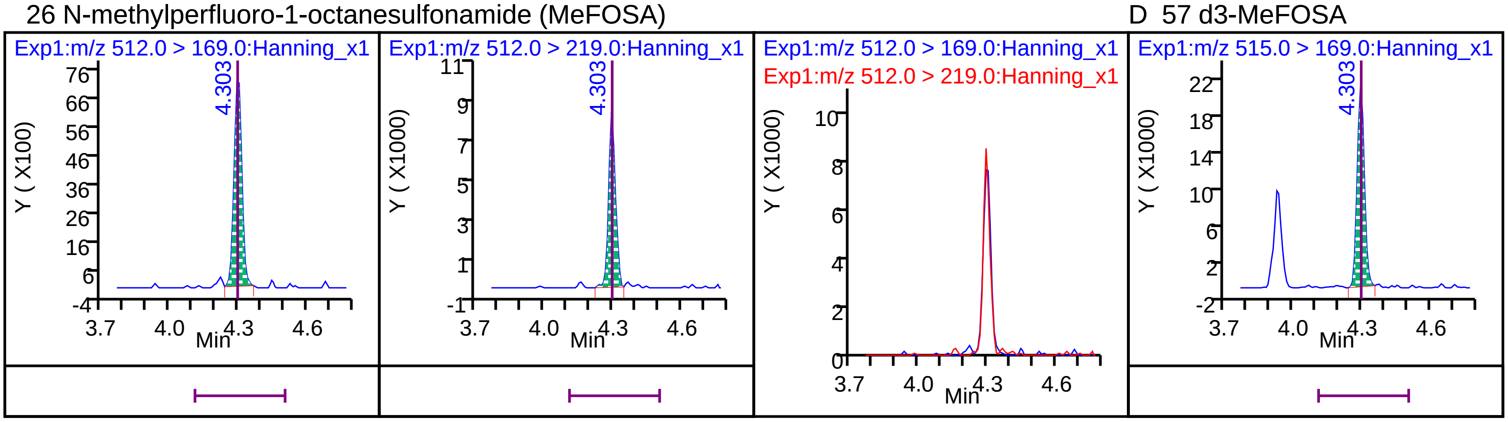


32 2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE) D 61 d7-MeFOSE



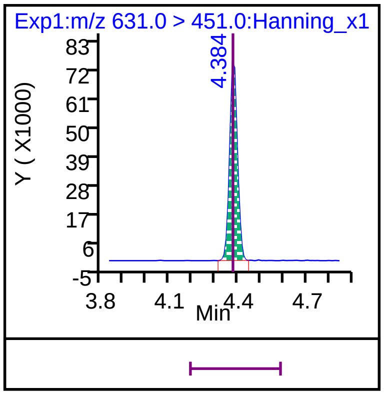


26 N-methylperfluoro-1-octanesulfonamide (MeFOSA) D 57 d3-MeFOSA

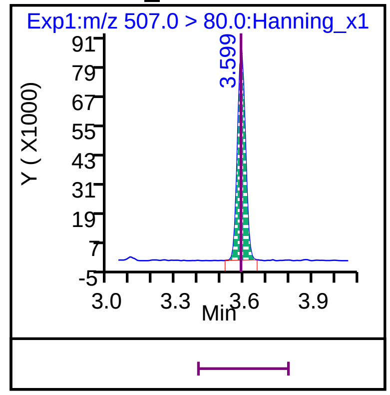


Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d

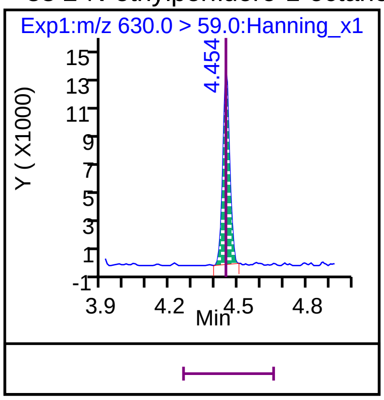
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)



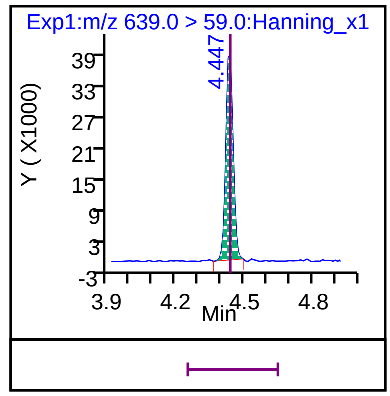
D 54 13C8_PFOS



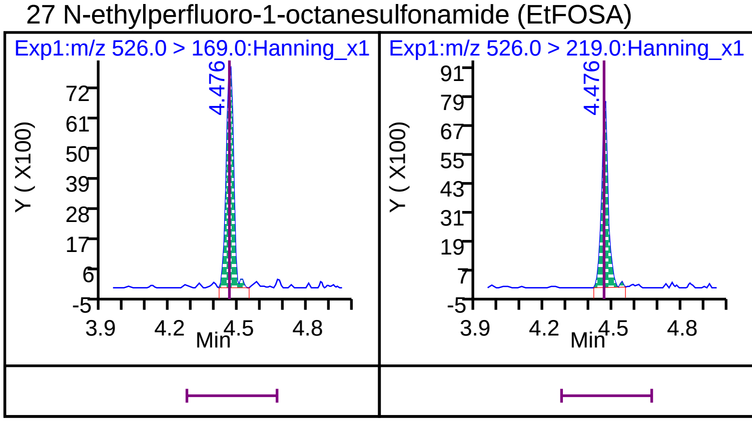
33 2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)



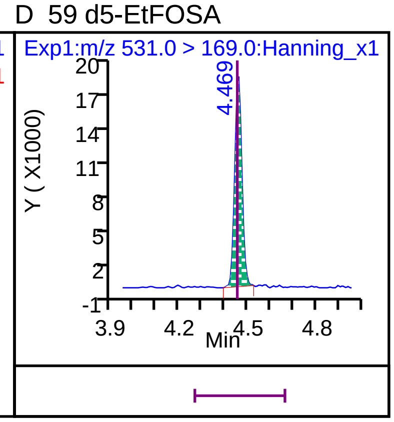
D 62 d9-EtFOSE



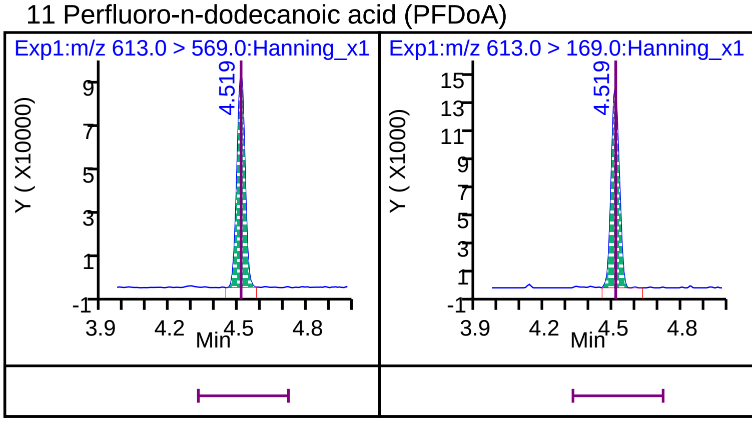
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA)



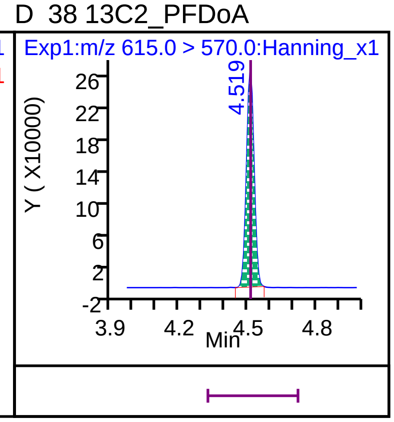
D 59 d5-EtFOSA



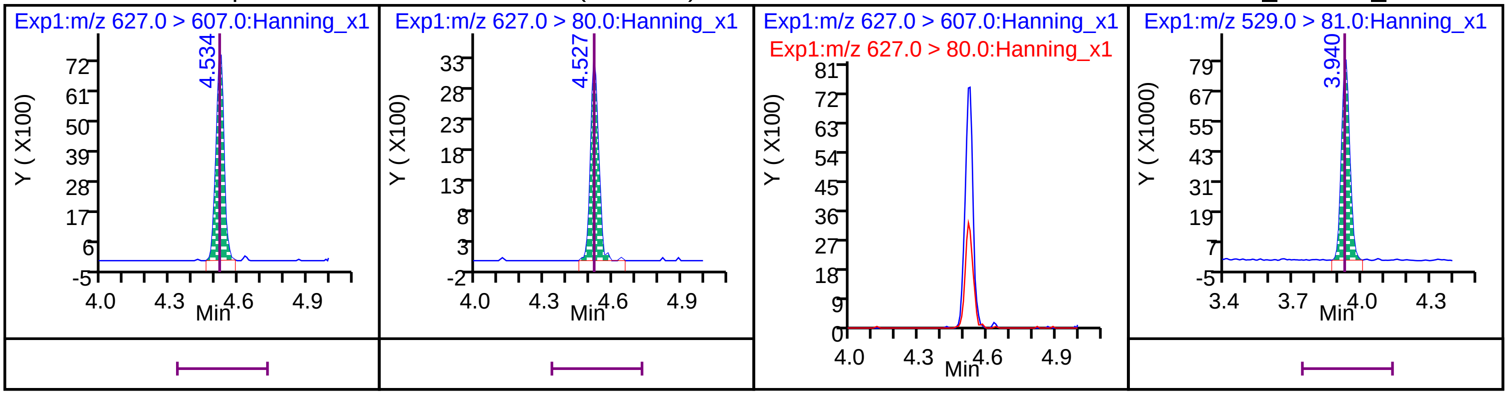
11 Perfluoro-n-dodecanoic acid (PFDoA)



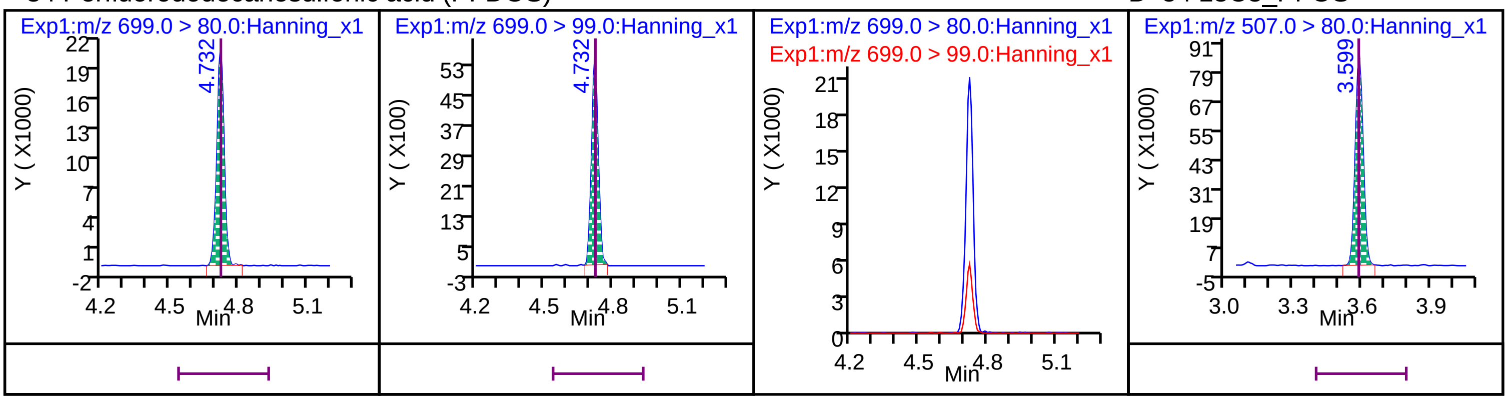
D 38 13C2_PFDoA



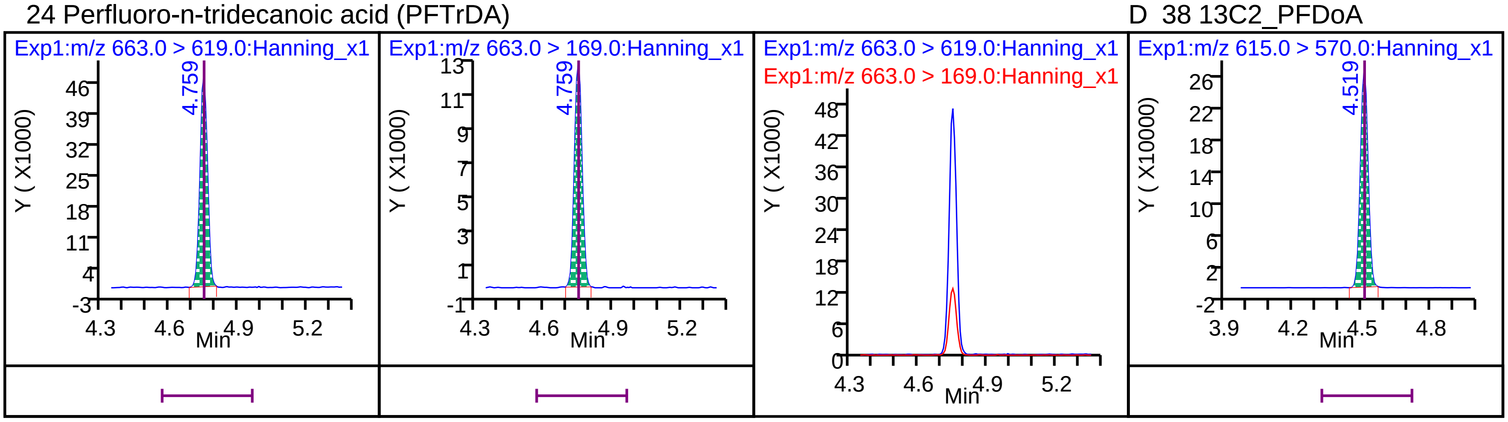
4 1H,1H,2H,2H-perfluorododecane sulfonate (10:2FTS) D 65 13C2_8:2 FTS_2



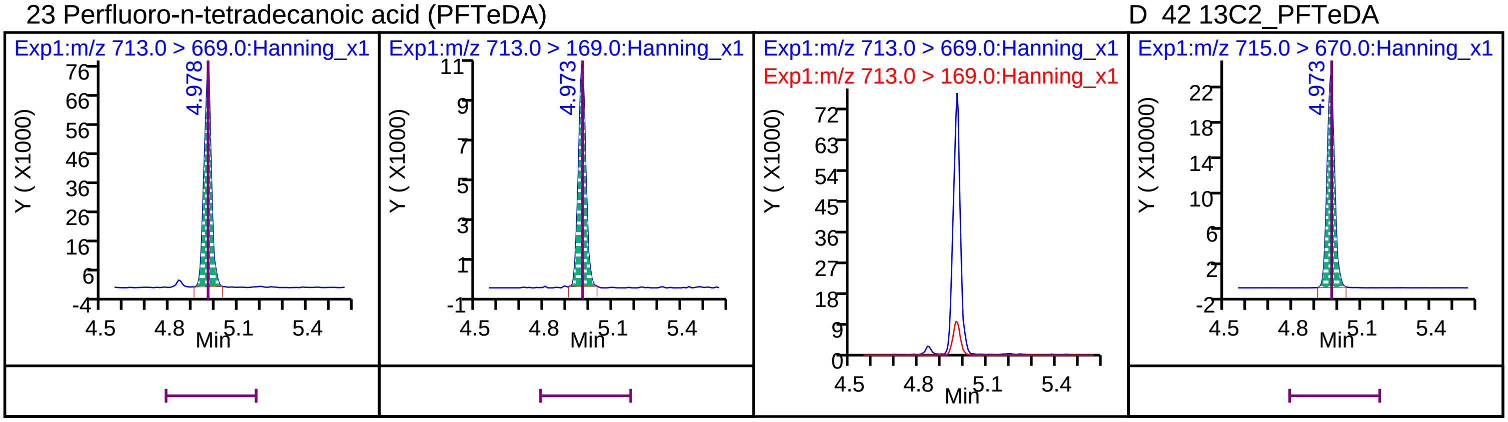
34 Perfluorododecanesulfonic acid (PFDOS) D 54 13C8_PFOS



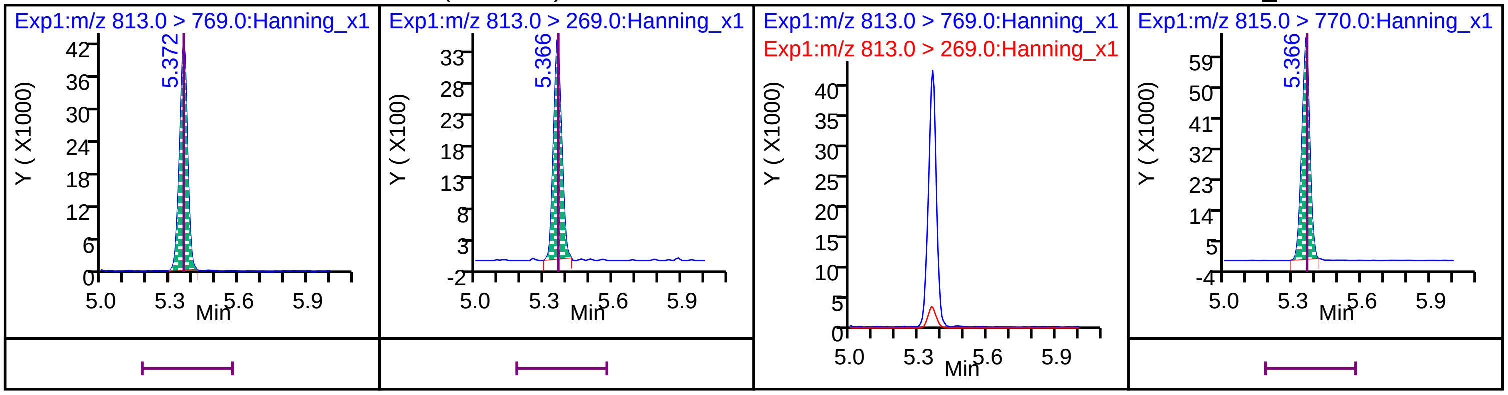
24 Perfluoro-n-tridecanoic acid (PFTrDA) D 38 13C2_PFDoA



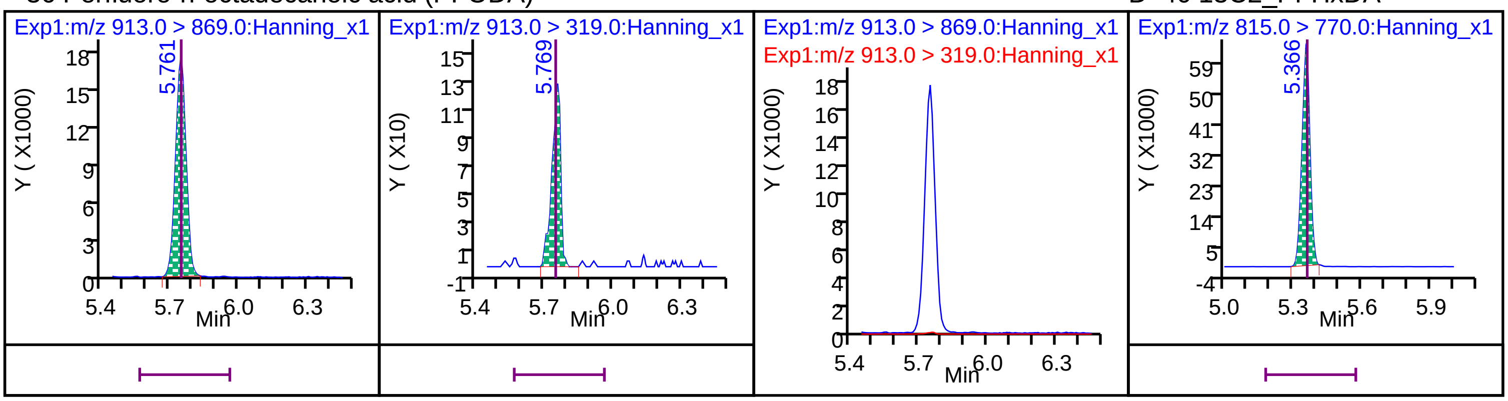
23 Perfluoro-n-tetradecanoic acid (PFTeDA) D 42 13C2_PFTeDA



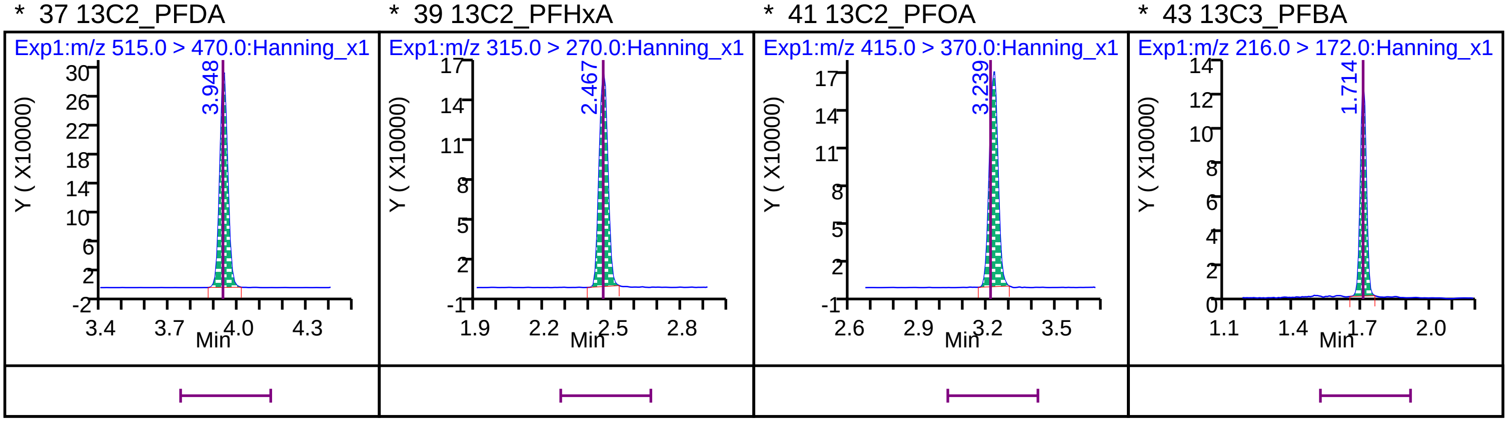
35 Perfluoro-n-hexadecanoic acid (PFHxDA) D 40 13C2_PFHxDA



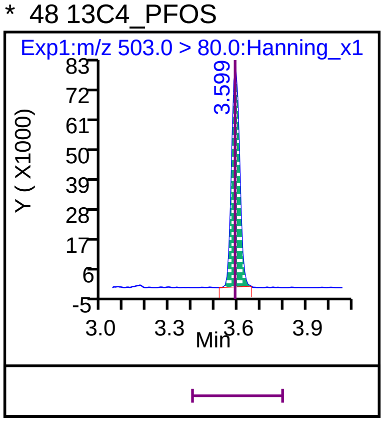
36 Perfluoro-n-octadecanoic acid (PFODA) D 40 13C2_PFHxDA



* 37 13C2_PFDA * 39 13C2_PFHxA * 41 13C2_PFOA * 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

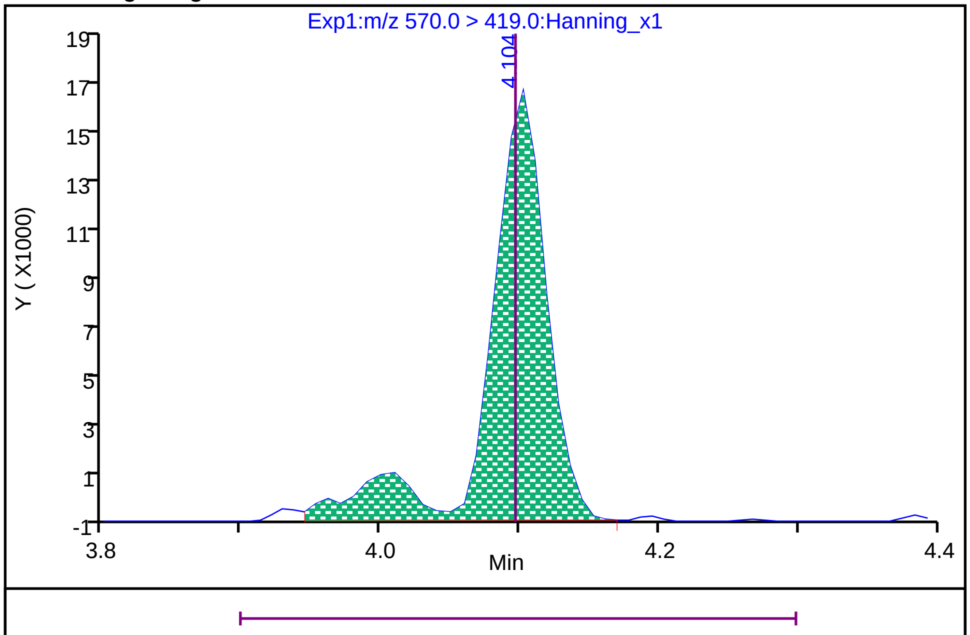
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller

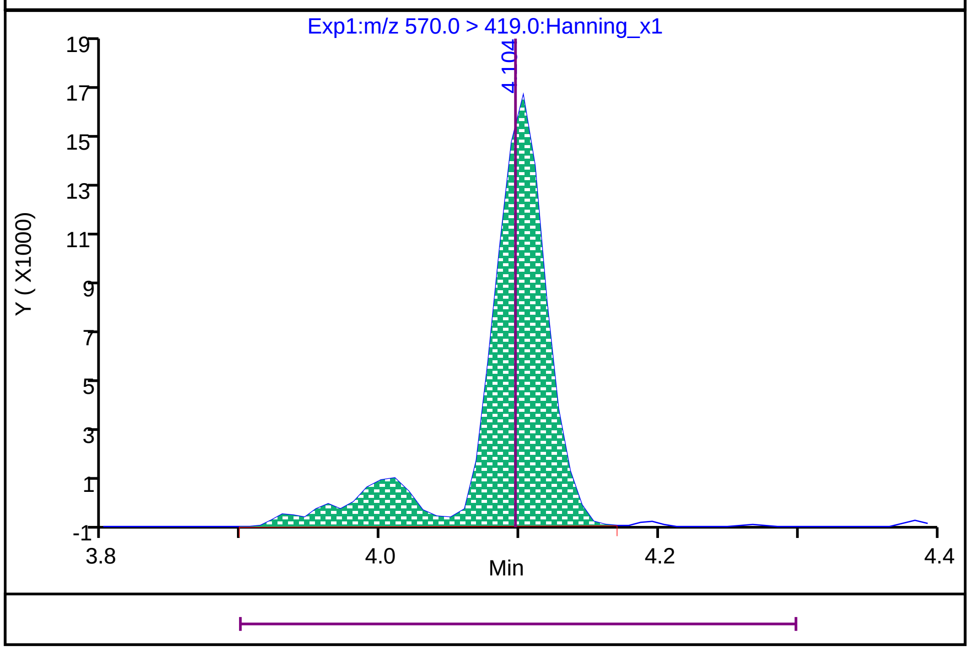
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT:	4.104
Area:	48184
Conc:	14.373
Conc Units:	ng/L



RT:	4.104
Area:	49125
Conc:	14.653
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:50:48

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

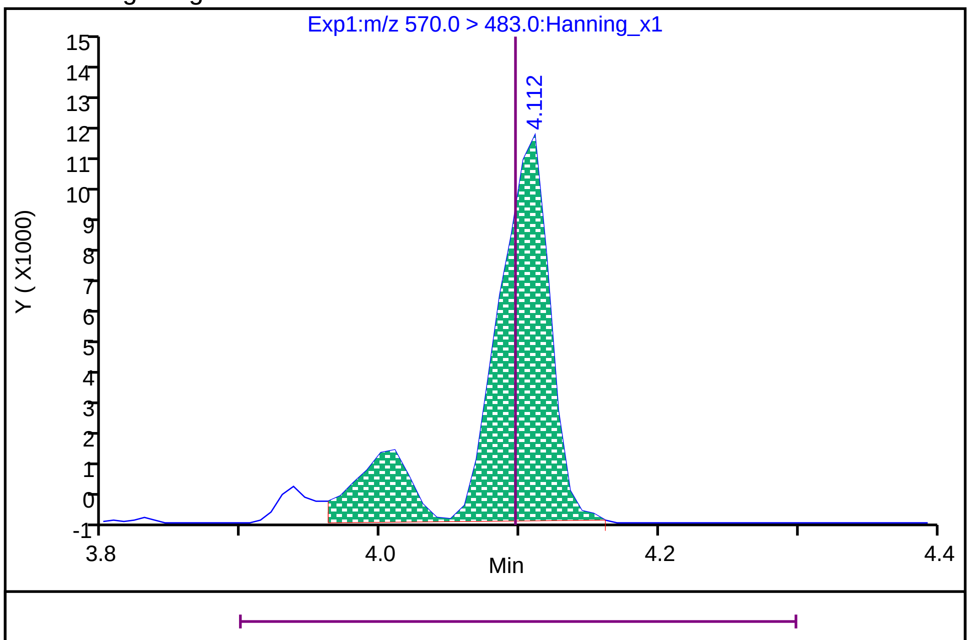
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller

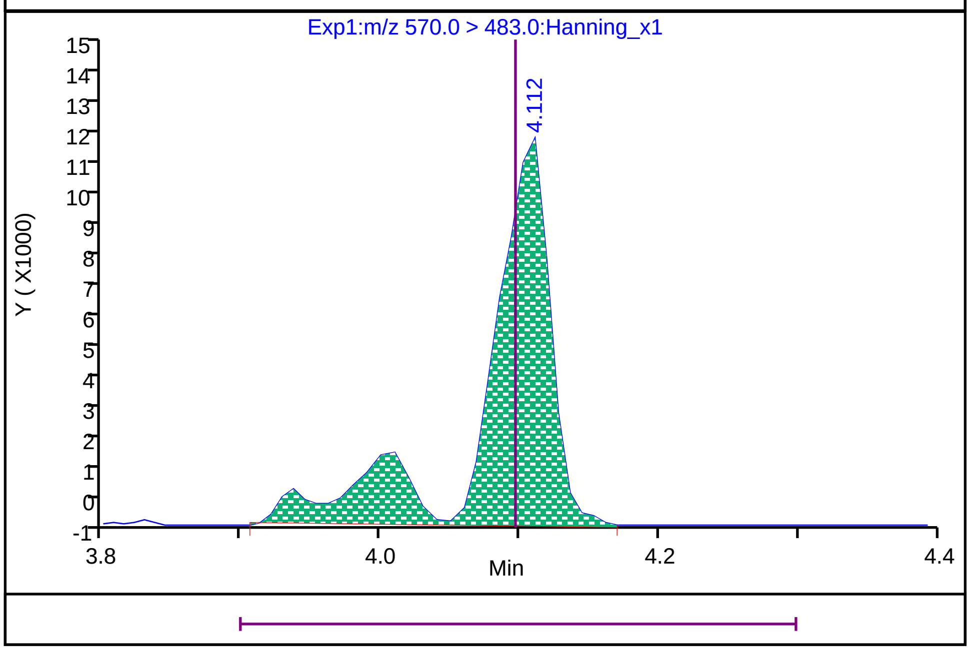
6 N-MeFOSAA, CAS: 2355-31-9

Processing Integration Results

RT: 4.112
Area: 34561
Conc: 14.653
Conc Units: ng/L



RT: 4.112
Area: 36943
Conc: 14.653
Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:50:51

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

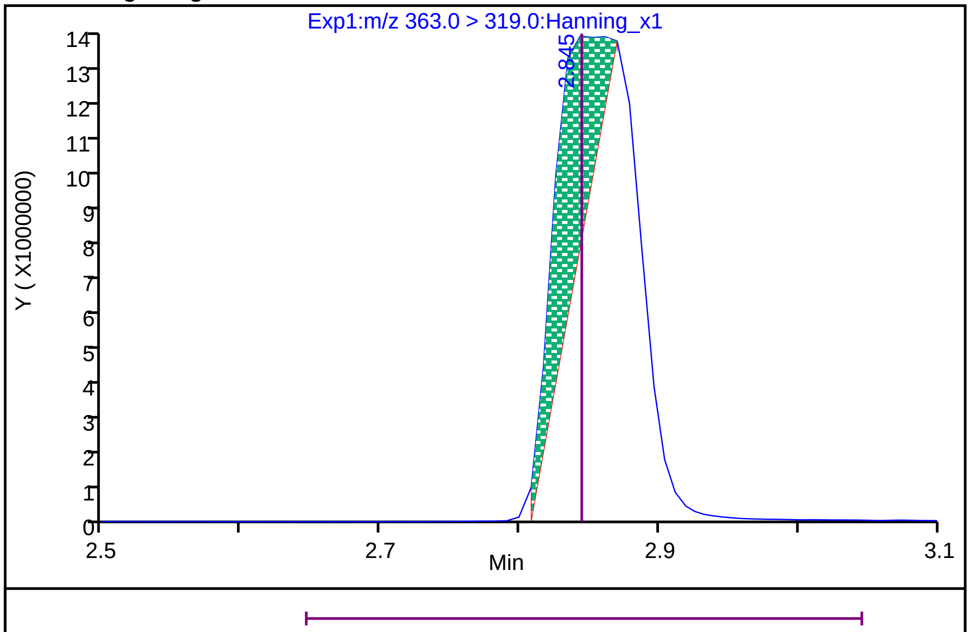
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller

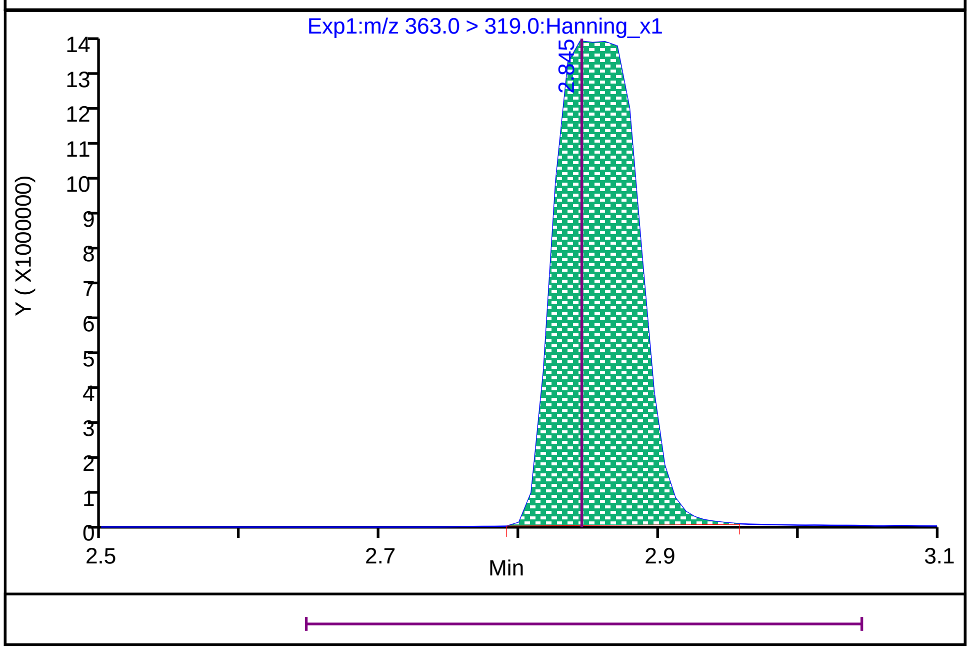
13 PFHpA, CAS: 375-85-9

Processing Integration Results

RT: 2.845
Area: 14313793
Conc: 5388.45
Conc Units: ng/L



RT: 2.845
Area: 55322493
Conc: 5388.45
Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:50:29

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

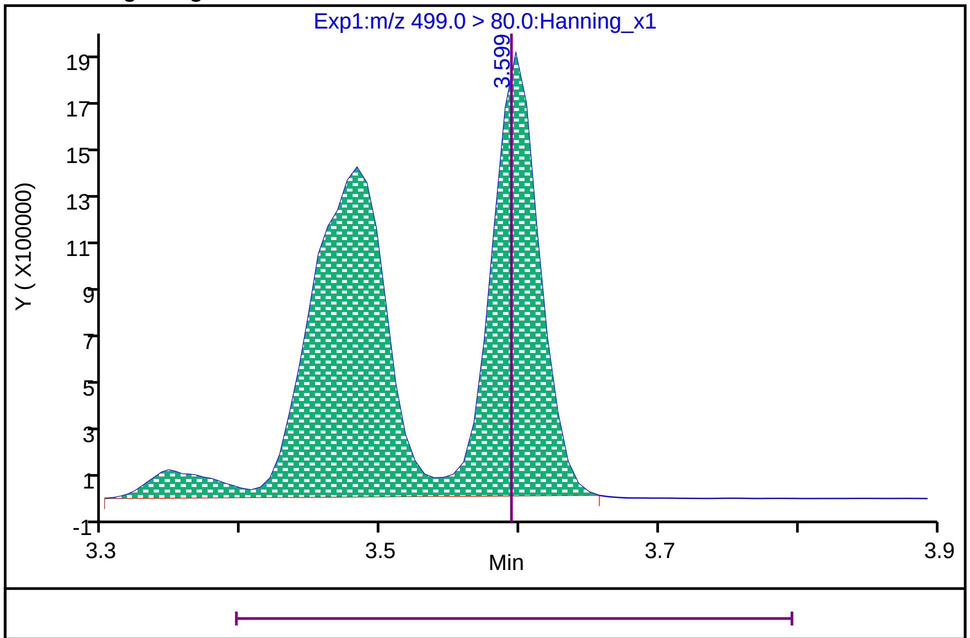
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller

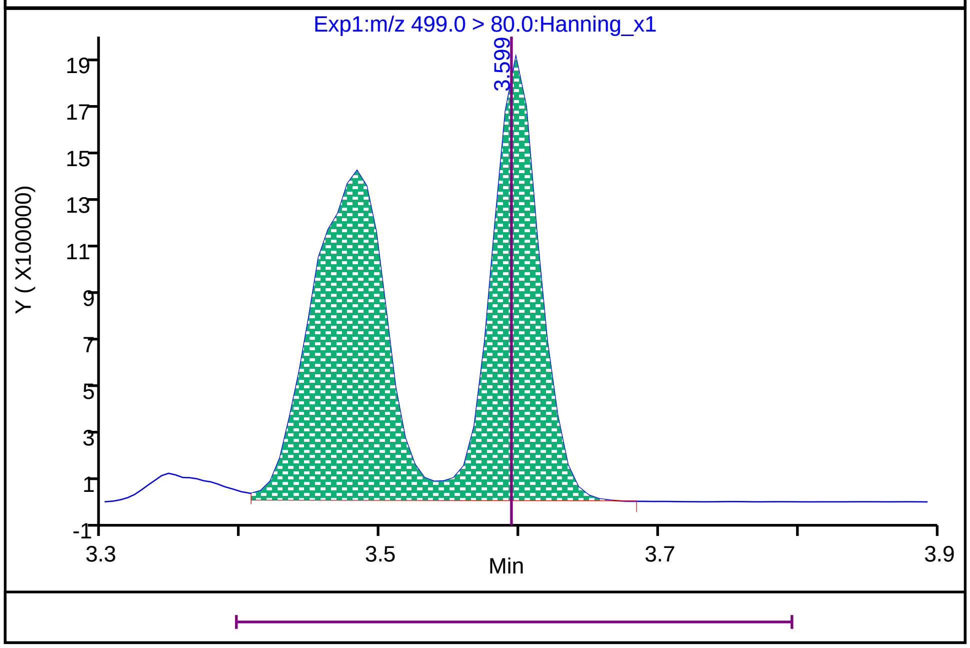
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT: 3.599
Area: 10086473
Conc: 1727.45
Conc Units: ng/L



RT: 3.599
Area: 9716074
Conc: 1664.01
Conc Units: ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:46:51

Audit Action: Mint

Audit Reason: Invalid Integration

Report Date: 05-Nov-2021 13:58:40 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

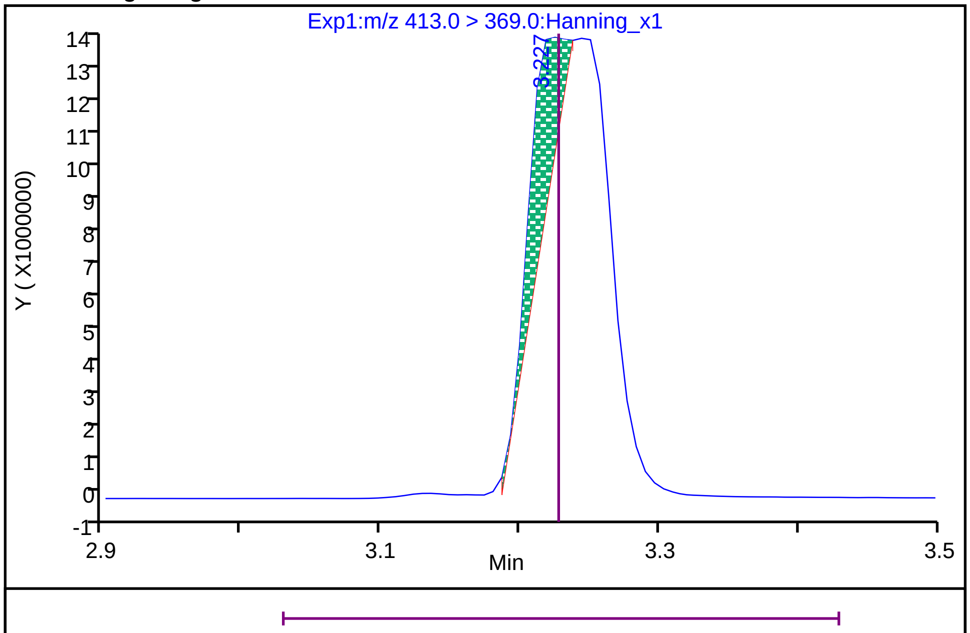
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller

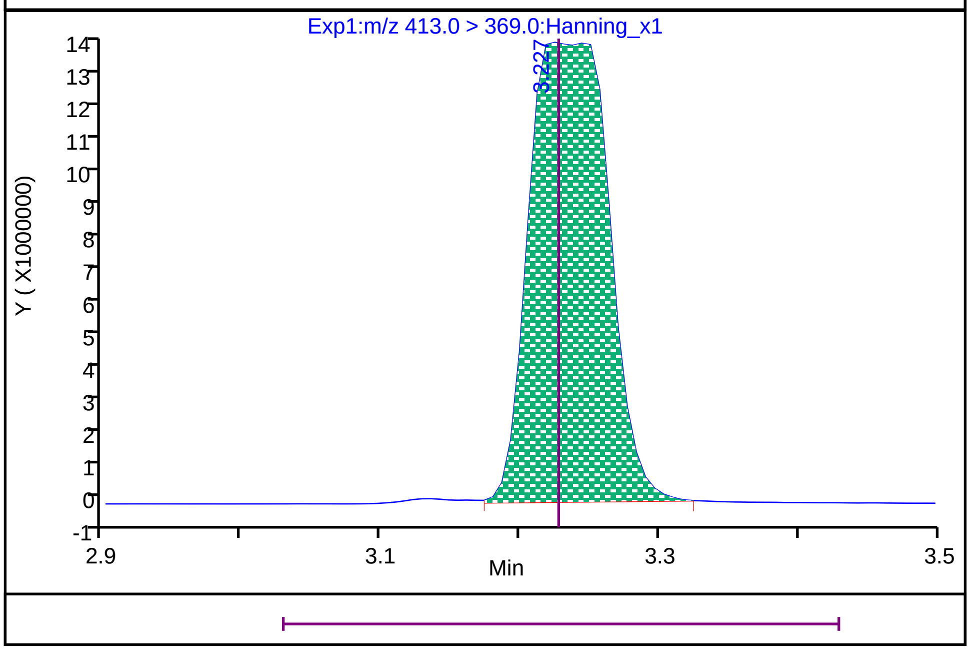
20 PFOA, CAS: 335-67-1

Processing Integration Results

RT:	3.227
Area:	7475858
Conc:	5104.18
Conc Units:	ng/L



RT:	3.227
Area:	52437859
Conc:	5104.18
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:50:38

Audit Action: Mint

Audit Reason: Invalid Integration

Pace Environmental Services, LLC

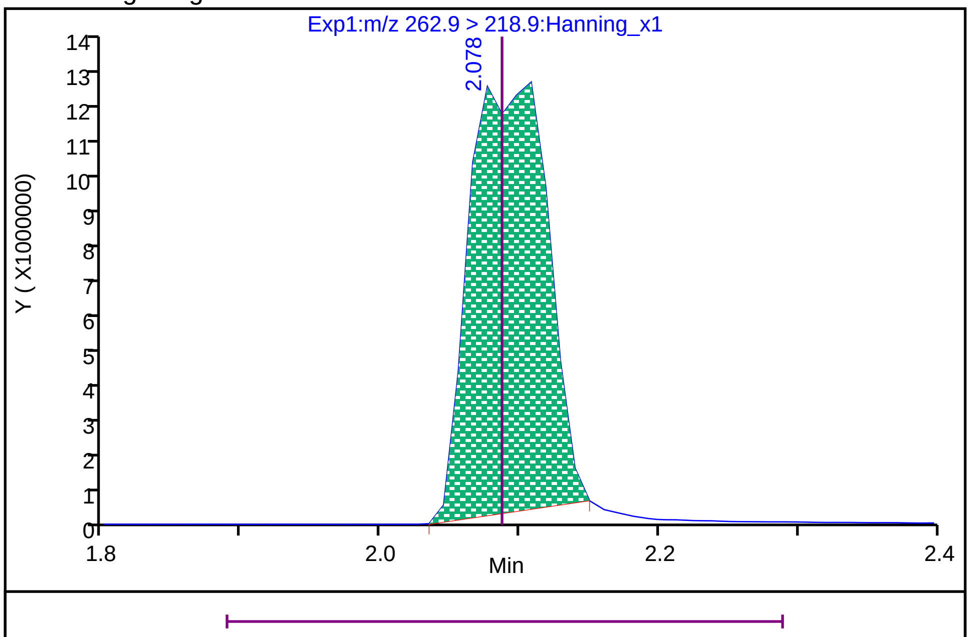
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b\110421A077.d		
Injection Date:	05-Nov-2021 02:00:06	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-001MS
Sample Info:	WK03035-001MS		
Dil. Factor:	1	Operator:	Matthew M. Miller

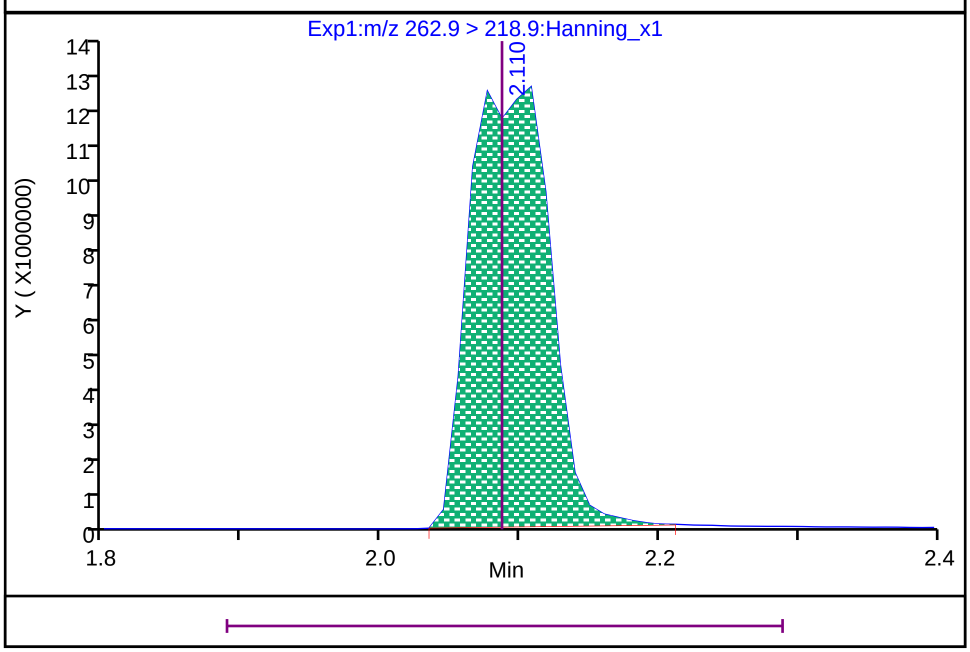
21 PFPeA, CAS: 2706-90-3

Processing Integration Results

RT:	2.078
Area:	46946458
Conc:	6627.14
Conc Units:	ng/L



RT:	2.110
Area:	49544444
Conc:	6993.88
Conc Units:	ng/L



Data Editor: matthew.miller, 05-Nov-2021 13:50:20

Audit Action: Mint

Audit Reason: Invalid Integration

PFAS by LC/MS/MS - Duplicate

Sample ID:	WK03035-002DU	Matrix:	Aqueous
Batch:	21177	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	11/03/2021 1629

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND		U	1	0.00	20	11/06/2021 2121
11Cl-PF3OUdS	ND		U	1	0.00	20	11/06/2021 2121
8:2 FTS	ND		U	1	0.00	20	11/06/2021 2121
6:2 FTS	6500	6100		1	5.5	20	11/06/2021 2121
4:2 FTS	ND		U	1	0.00	20	11/06/2021 2121
GenX	ND		U	1	0.00	20	11/06/2021 2121
ADONA	ND		U	1	0.00	20	11/06/2021 2121
EtFOSA	ND		U	1	0.00	20	11/06/2021 2121
EtFOSAA	ND		U	1	0.00	20	11/06/2021 2121
MeFOSAA	ND		U	1	0.00	20	11/06/2021 2121
PFBS	ND		U	1	0.00	20	11/06/2021 2121
PFDS	ND		U	1	0.00	20	11/06/2021 2121
PFHpS	ND		U	1	0.00	20	11/06/2021 2121
PFNS	ND		U	1	0.00	20	11/06/2021 2121
PFPeS	ND		U	1	0.00	20	11/06/2021 2121
PFHxS	140	160	I	1	15	20	11/06/2021 2121
PFBA	5800	5500		1	5.5	20	11/06/2021 2121
PFDA	ND		U	1	0.00	20	11/06/2021 2121
PFDoA	ND		U	1	0.00	20	11/06/2021 2121
PFHpA	11000	12000		1	1.7	20	11/06/2021 2121
PFHxA	13000	14000		1	8.6	20	11/06/2021 2121
PFNA	800	770		1	4.2	20	11/06/2021 2121
PFOA	10000	11000		1	7.0	20	11/06/2021 2121
PFPeA	20000	20000		1	0.38	20	11/06/2021 2121
PFTeDA	ND		U	1	0.00	20	11/06/2021 2121
PFTrDA	ND		U	1	0.00	20	11/06/2021 2121
PFUdA	ND		U	1	0.00	20	11/06/2021 2121
PFOS	350	280	+	1	22	20	11/06/2021 2121

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		94	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria

DL = Detection Limit — I = Estimated result < LOQ and $\geq$ DL — P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: WK03035-002DU
Batch: 21177
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/03/2021 1629

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		98	50-150
13C8_PFOS		95	50-150
13C9_PFNA		97	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		110	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Report Date: 09-Nov-2021 13:31:09 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC
Analyte Quantitation Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621052.d		
Injection Date:	06-Nov-2021 21:21:56	Injection Vol:	10.0 uL
Sample Type:	Client	Auto Sampler:	37
Lab Sample ID:	WK03035-002DU	Lab Prep. Batch:	21177
Client ID:		Sample Group:	
Sample Info:	WK03035-002DU,50	Misc. Info:	
Inst. ID:	LCMSMS01.i	Operator:	Matthew M. Miller
Method:	LCMSMS01_PFAS-ID	Version: V17	16-Sep-2021 08:57:04
Calib Method:	PFAS-ID	Lock State:	Unlocked
Quant Method:	IsoDil	Integrator:	picker

Matrix: Aqueous
Final Conc.: Amt * DF * CF
Concentration Formula: CF = (VF/1000) * 1/VI *(1/AlsDf) = 0.0353357

Name	Value	Units	Description
DF	50		Dilution Factor
VF	10000	ul	Final Volume
VI	283	ml	Initial Sample Volume
AlsDf	1		Auto Sampler Dilution Factor

Reagent:	Istds	Conc. Level:	Smp	Vol. Added:	0.0100 ml
Reagent:	Surrogates	Conc. Level:	Smp	Vol. Added:	0.1100 ml

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
D 46 13C4_PFBA CAS: SESI-0111													
217 > 172		1.725	1.725	0	1076811	20	>100:1			1100.00	982.33	97.7	
8 Perfluoro-n-butanoic acid (PFBA) CAS: 375-22-4													
212.9 > 168.9	46	1.725	1.732	0/0	3268887	20	>100:1			3133.45	5536.14		
D 50 13C5_PFPeA CAS: SESI-0112													
267.9 > 223		2.095	2.105	0	993967	16	>100:1			1100.00	974.39	96.4	
21 Perfluoro-n-pentanoic acid (PFPeA) CAS: 2706-90-3													
262.9 > 218.9	50	2.095	2.105	0/0	10808161	16	>100:1			11143	19688		
D 44 13C3_PFBS CAS: SESI-0116													
302 > 80		2.147	2.169	-1	330453	17	>100:1			1100.00	979.30	97	
7 Perfluoro-1-butanesulfonate (PFBS) CAS: 375-73-5													U
298.9 > 80	44		2.169		ND								
22 Perfluoro-1-pentanesulfonic acid (PFPeS) CAS: 2706-91-4													U
349 > 80	44		2.529		ND								
D 63 13C2_4:2 FTS_2 CAS: SESI-0104													
329 >81		2.431	2.449	-1	233963	19	>100:1			5500.00	5010.26	101.1	
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) CAS: 757124-72-4													U
327 > 307	63		2.449		ND								
D 49 13C5_PFHxA CAS: SESI-0113													
318 > 273		2.475	2.493	-1	865540	19	>100:1			1100.00	949.06	94.7	
15 Perfluoro-n-hexanoic acid (PFHxA) CAS: 307-24-4													
313 > 269	49	2.475	2.493	-1/0	6183906	18	>100:1	Target = 17.15		7732.44	13662		
313 > 119	49	2.475	2.493		339387	19	>100:1	18.22 (8.57-25.73)					
D 66 13C3_GenX CAS: SESI-0121													
287 > 185		2.598	2.614	0	754997	19	>100:1			5500.00	5129.27	110	
28 Hexafluoropropylene oxide dimer acid (GenX) CAS: 13252-13-6													U
285 > 119	66		2.622		ND								
D 47 13C4_PFHpA CAS: SESI-0114													
367 > 322		2.869	2.878	0	858139	18	>100:1			1100.00	969.79	94.8	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
13 Perfluoro-n-heptanoic acid (PFHpA) CAS: 375-85-9													
363 > 319	47	2.869	2.878	0/0	4898577	19	>100:1	Target = 3.21		6572.70	11613		
363 > 169	47	2.869	2.878		1589320	17	>100:1	3.08 (1.60-4.81)					
D 45 13C3_PFHxS CAS: SESI-0096													
402 > 80		2.878	2.896	-1	259723	19	>100:1			1100.00	939.05	94.2	
14 Perfluorohexanesulfonate (PFHxS) CAS: 355-46-4													J
399 > 80	45	2.887	2.896	0/1	25134	26	>100:1	Target = 3.35	7.72	92.345	163.15		
399 > 99	45	2.887	2.896		5905	24	43:1	4.25 (1.67-5.04)	11.20				
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) CAS: 919005-14-4													U
377 > 251	45		2.923		ND								
12 Perfluoro-1-heptanesulfonic acid (PFHpS) CAS: 375-92-8													U
449 > 80	45		3.226		ND								
D 64 13C2_6:2 FTS_2 CAS: SESI-0105													
429 > 81		3.226	3.201	2	203297	21	>100:1			5500.00	4932.54	93.7	
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) CAS: 27619-97-2													
427 > 407	64	3.220	3.201	2/0	213480	22	>100:1	Target = 1.26		3477.07	6143.23		
427 > 81	64	3.226	3.201		156146	21	>100:1	1.36 (0.63-1.89)					
D 53 13C8_PFOA CAS: SESI-0097													
421 > 376		3.252	3.220	2	823074	21	>100:1			1100.00	977.03	97.5	
20 Perfluoro-n-octanoic acid (PFOA) CAS: 335-67-1													
413 > 369	53	3.252	3.226	2/0	4621133	22	>100:1	Target = 2.46		6175.83	10911		
413 > 169	53	3.252	3.226		1767606	21	>100:1	2.61 (1.23-3.70)					
D 54 13C8_PFOS CAS: SESI-0098													
507 > 80		3.613	3.558	4	227165	23	>100:1			1100.00	958.80	95.3	
18 Perfluorooctanesulfonate (PFOS) CAS: 1763-23-1													
499 > 80	54	3.613	3.558	4/0	37786	40	30:1	Target = 3.98	0.77	157.27	277.86		M
499 > 99	54	3.613	3.558		9009	33	18:1	4.19 (1.99-5.97)	2.04				
30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) CAS: 756426-58-1													U
531 > 351	54		3.755		ND								
16 Perfluoro-1-nonanesulfonic acid (PFNS) CAS: 68259-12-1													U
549 > 80	54		3.886		ND								
9 Perfluoro-1-decanesulfonic acid (PFDS) CAS: 335-77-3													U
599 > 80	54		4.191		ND								
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) CAS: 763051-92-9													U
631 > 451	54		4.349		ND								
D 56 13C9_PFNA CAS: SESI-0099													
472 > 427		3.621	3.565	4	823063	19	>100:1			1100.00	1014.45	97.1	
17 Perfluoro-n-nonanoic acid (PFNA) CAS: 375-95-1													
463 > 419	56	3.621	3.565	4/0	291285	18	>100:1	Target = 4.45		436.47	771.15		
463 > 169	56	3.621	3.565		62856	24	>100:1	4.63 (2.22-6.68)					
D 65 13C2_8:2 FTS_2 CAS: SESI-0106													
529 > 81		3.946	3.894	4	165729	19	>100:1			5500.00	4759.29	92.7	
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) CAS: 39108-34-4													U
527 > 507	65		3.894		ND								
D 51 13C6_PFDA CAS: SESI-0115													
519 > 474		3.954	3.901	4	720220	23	>100:1			1100.00	1006.68	93.4	
10 Perfluoro-n-decanoic acid (PFDA) CAS: 335-76-2													U
513 > 469	51		3.901		ND								
D 58 d3-MeFOSAA CAS: SESI-0102													
573 > 419		4.109	4.053	4	859338	16	>100:1			5500.00	5314.78	108.6	
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) CAS: 2355-31-9													U
570 > 419	58		4.062		ND								
D 60 d5-EtFOSAA CAS: SESI-0110													
589 > 419		4.267	4.207	4	822010	16	>100:1			5500.00	5685.05	109.7	
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) CAS: 2991-50-6													U
584 > 419	60		4.223		ND								
D 52 13C7_PFUdA CAS: SESI-0117													
570 > 525		4.257	4.207	4	701310	16	>100:1			1100.00	998.69	97.4	

Signal	Quant Std	RT (min.)	Exp RT (min.)	c RT (secs.)	Response	Peak Pts	S/N	Ion Ratio	Isomer Ratio	OnCol Conc ng/L	Final Conc ng/L	%Rec	Flags
25 Perfluoro-n-undecanoic acid (PFUdA) CAS: 2058-94-8													U
563 > 519	52		4.207		ND								
D 38 13C2_PFDoA CAS: SESI-0118													
615 > 570		4.526	4.486	3	678968	16	>100:1			1100.00	975.43	98.5	
11 Perfluoro-n-dodecanoic acid (PFDoA) CAS: 307-55-1													U
613 > 569	38		4.486		ND								
24 Perfluoro-n-tridecanoic acid (PFTrDA) CAS: 72629-94-8													U
663 > 619	38		4.727		ND								
D 59 d5-EtFOSA CAS: SESI-0108													
531 > 169		4.510	4.486	2	60373	14	>100:1			1100.00	1000.77	93.7	
27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) CAS: 4151-50-2													U
526 > 169	59		4.494		ND								
D 42 13C2_PFTeDA CAS: SESI-0119													
715 > 670		4.983	4.942	3	713667	17	>100:1			1100.00	956.50	94.9	
23 Perfluoro-n-tetradecanoic acid (PFTeDA) CAS: 376-06-7													U
713 > 669	42		4.942		ND								
*** 37 13C2_PFDA**													
515 > 470		3.954	3.901	4	762221	18	>100:1			200.00			
*** 39 13C2_PFHxA CAS: SESI-0120**													
315 > 270		2.475	2.493	-1	935776	17	>100:1			200.00			
*** 41 13C2_PFOA CAS: 864071-08-9**													
415 > 370		3.252	3.226	2	839836	21	>100:1			200.00			
*** 43 13C3_PFBA**													
216 > 172		1.725	1.732	0	1026313	20	>100:1			200.00			
*** 48 13C4_PFOS CAS: 2795-39-3**													
503 > 80		3.613	3.558	4	245558	18	>100:1			200.00			

Compound Type Legend

D - Isotopic Dilution Std.
* - ISTD

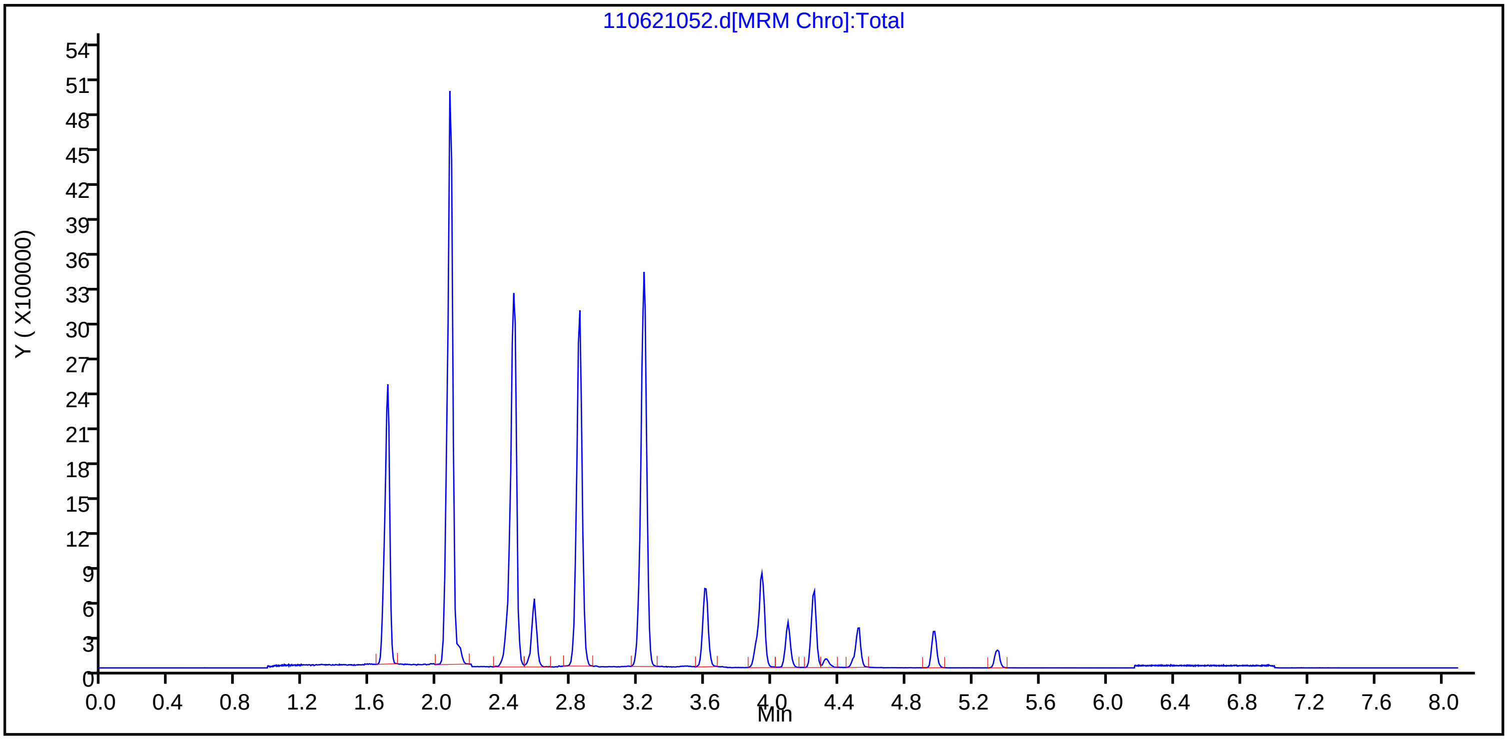
QC Flag Legend

U - Result Less Than Method Detection Limit
J - Compound Concentration Below Quantitation Limit
M - Compound Hit/Peak Manually Integrated

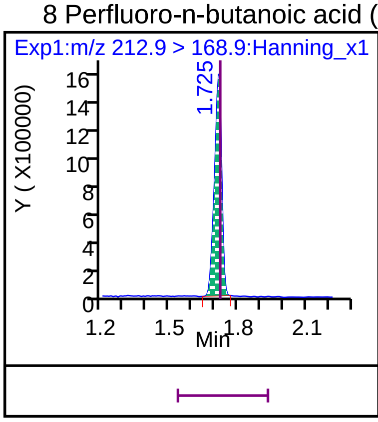
Report Date: 09-Nov-2021 13:31:09 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

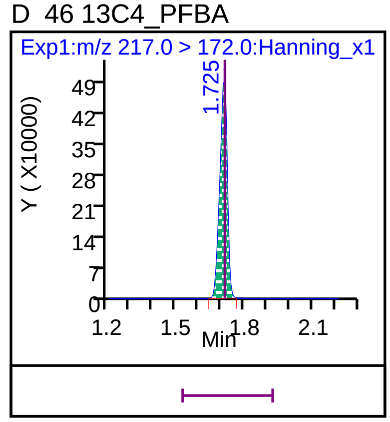
Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621052.d		
Injection Date:	06-Nov-2021 21:21:56	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-002DU
Sample Info:	WK03035-002DU,50		
Dil. Factor:	50	Operator:	Matthew M. Miller



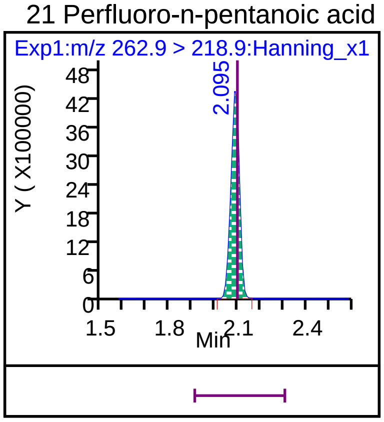
8 Perfluoro-n-butanoic acid (PFBA)



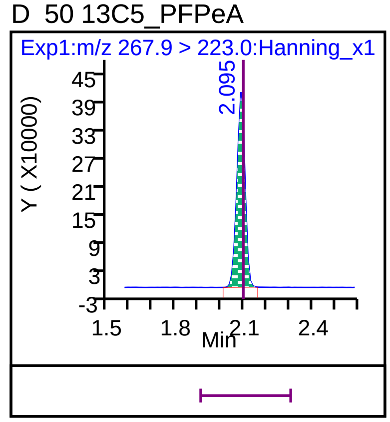
D 46 13C4_PFBA



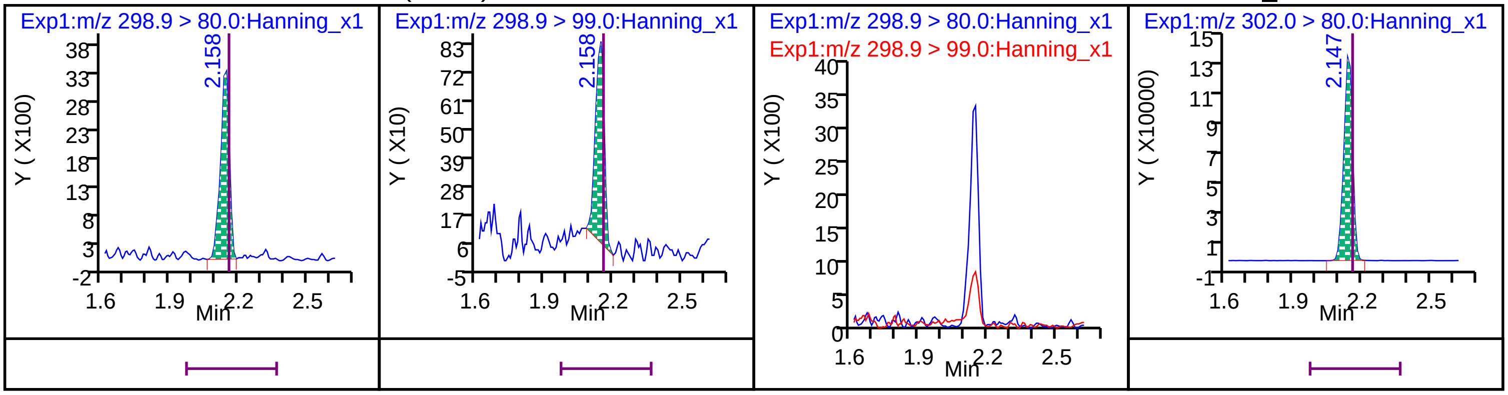
21 Perfluoro-n-pentanoic acid (PFPeA)



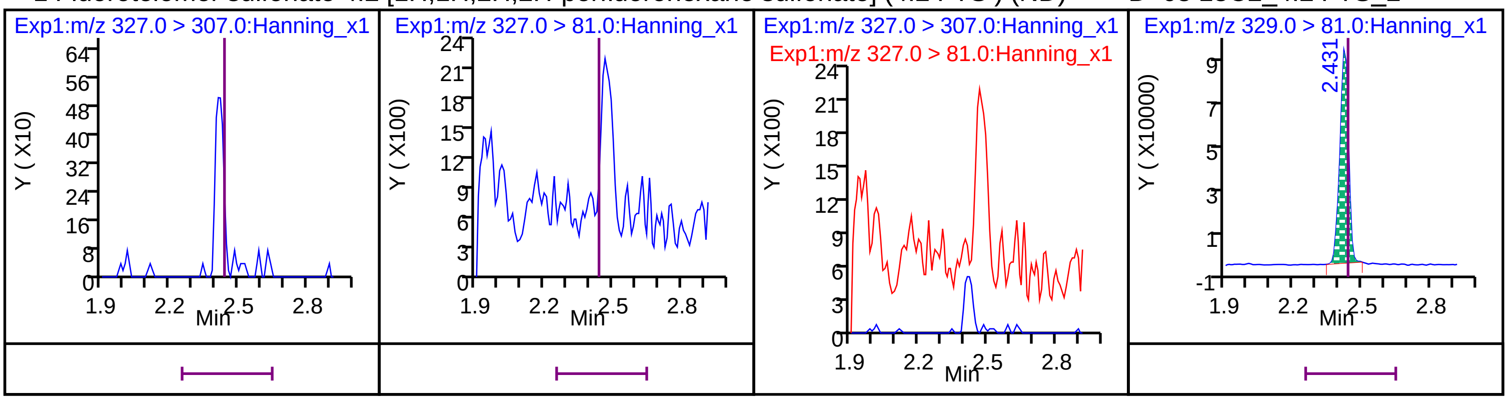
D 50 13C5_PFPeA



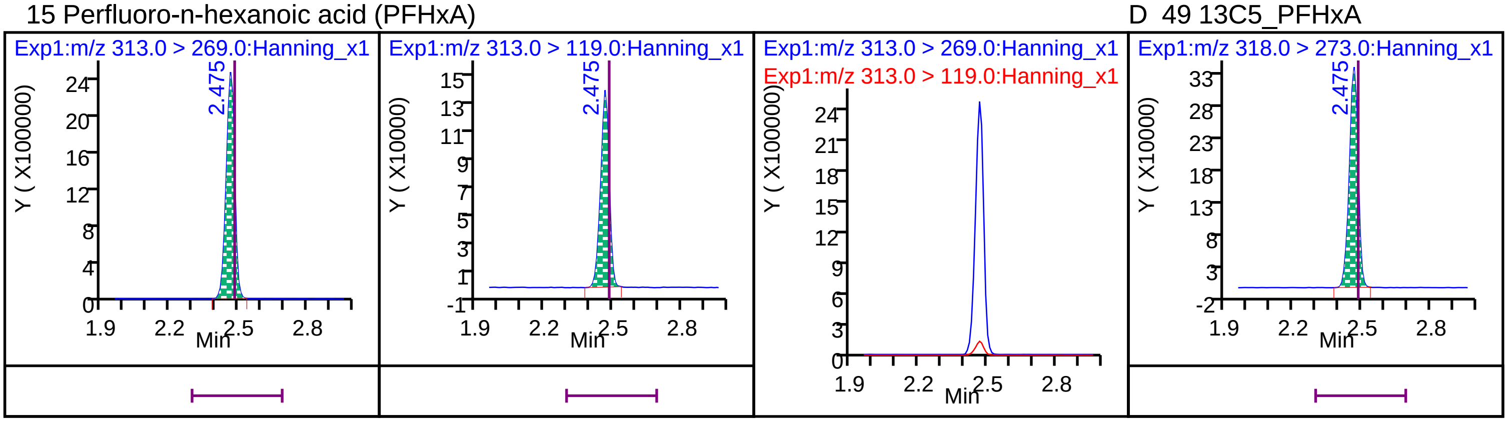
7 Perfluoro-1-butanesulfonate (PFBS) D 44 13C3_PFBS



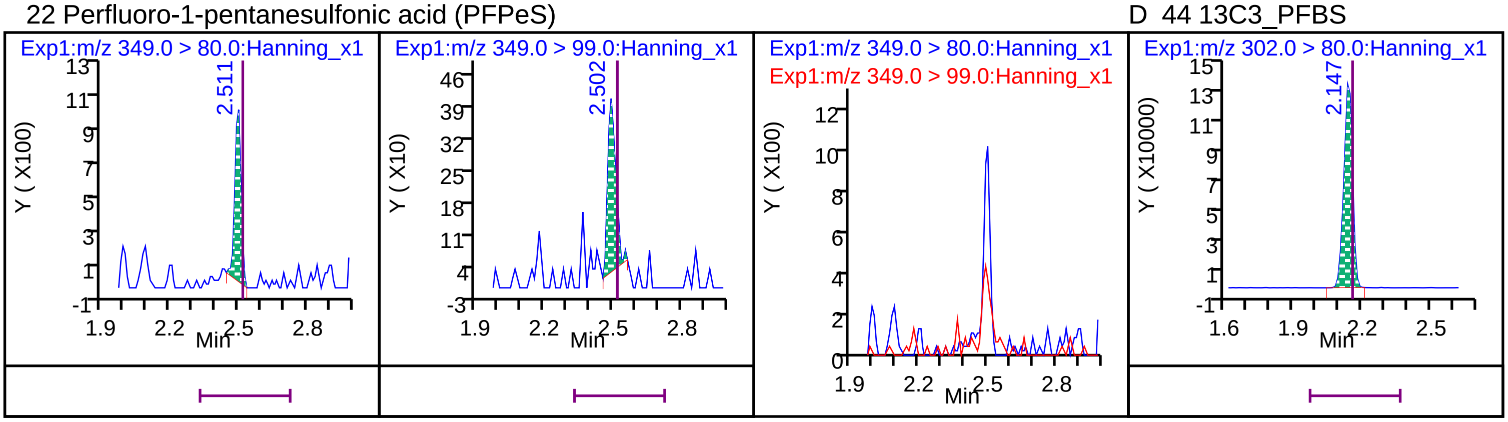
1 Fluorotelomer sulfonate 4:2 [1H,1H,2H,2H-perfluorohexane sulfonate] (4:2 FTS) (ND) D 63 13C2_4:2 FTS_2



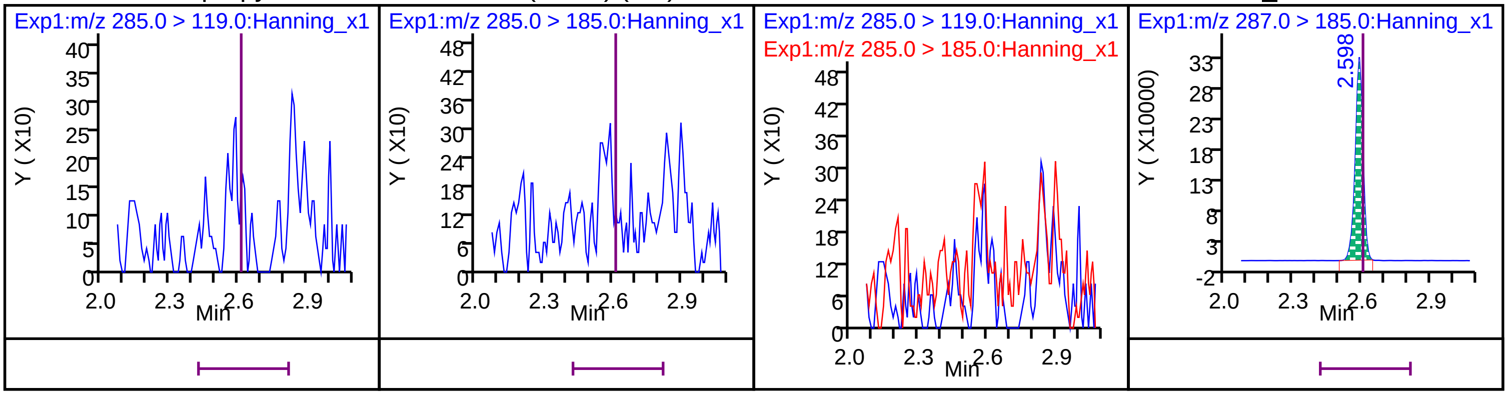
15 Perfluoro-n-hexanoic acid (PFHxA) D 49 13C5_PFHxA



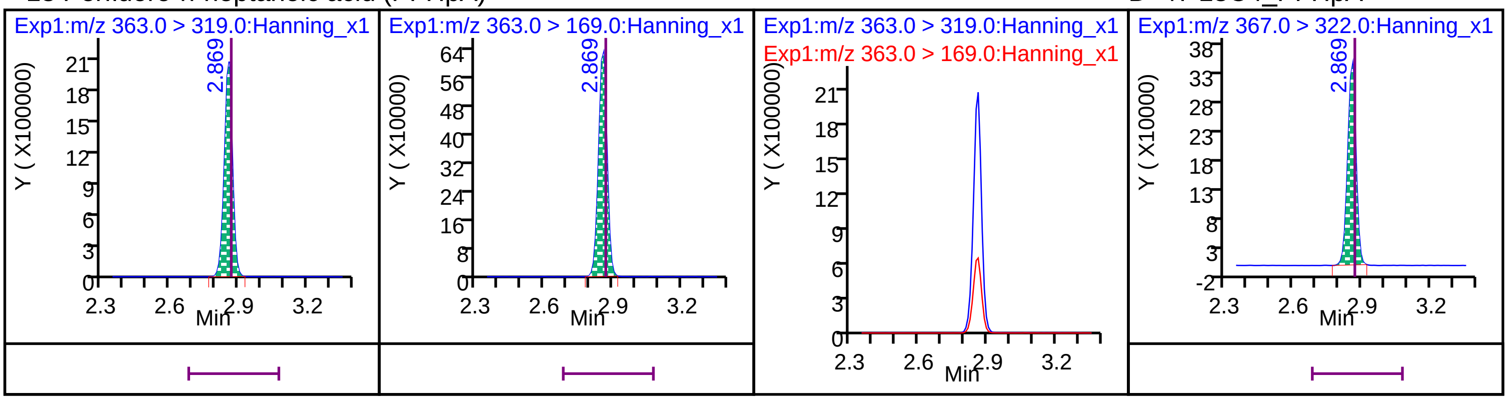
22 Perfluoro-1-pentanesulfonic acid (PFPeS) D 44 13C3_PFBS



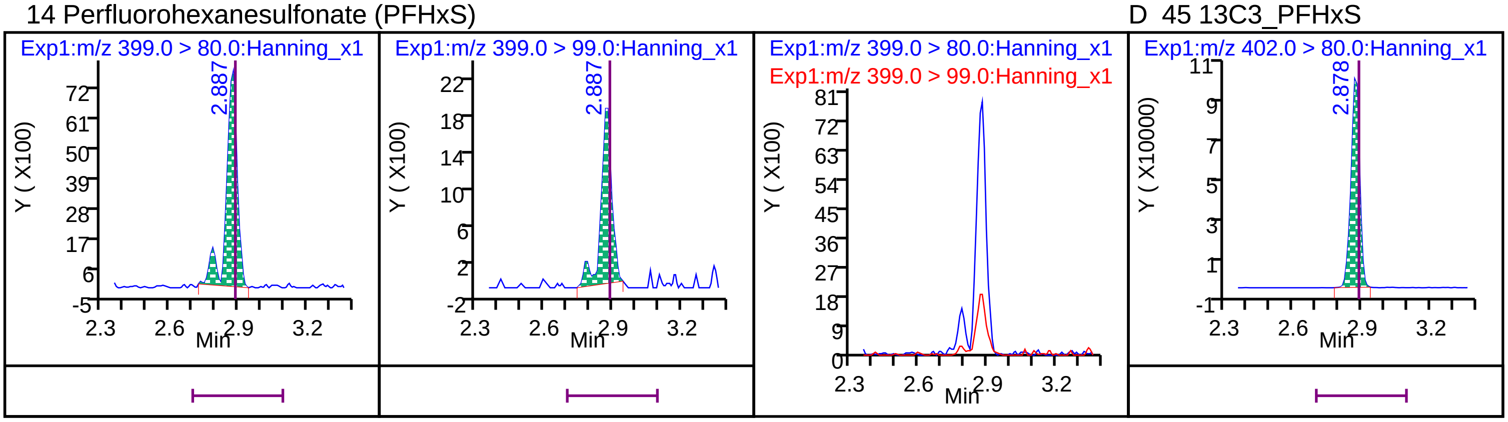
28 Hexafluoropropylene oxide dimer acid (GenX) (ND) D 66 13C3_GenX



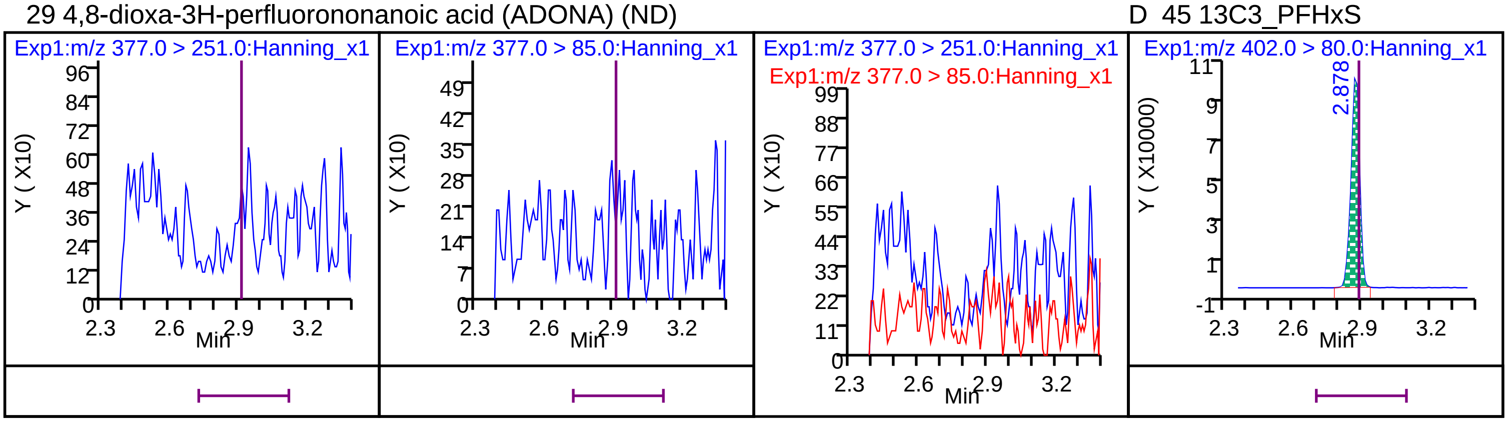
13 Perfluoro-n-heptanoic acid (PFHpA) D 47 13C4_PFHpA



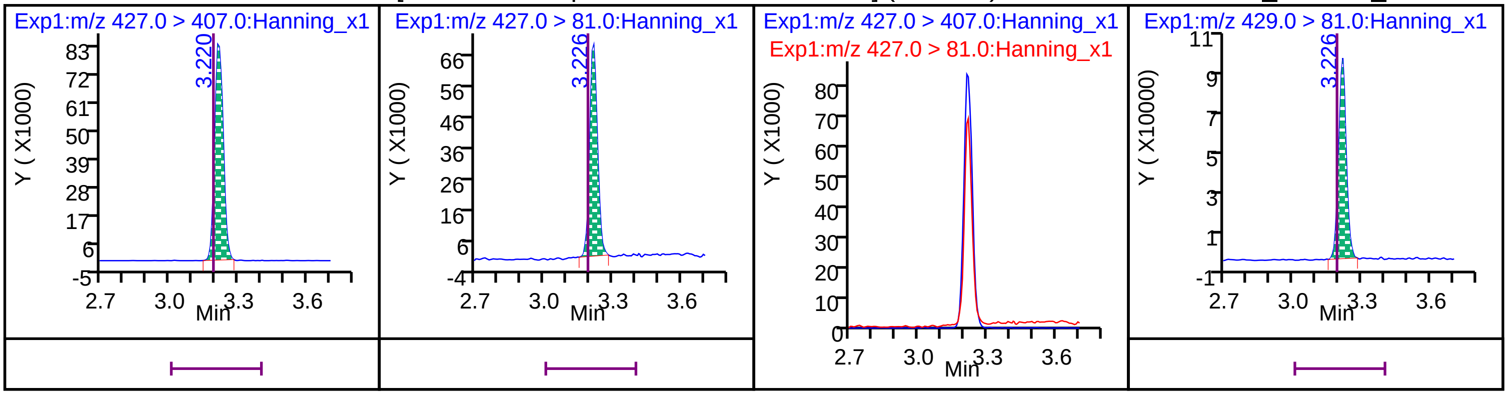
14 Perfluorohexanesulfonate (PFHxS) D 45 13C3_PFHxS



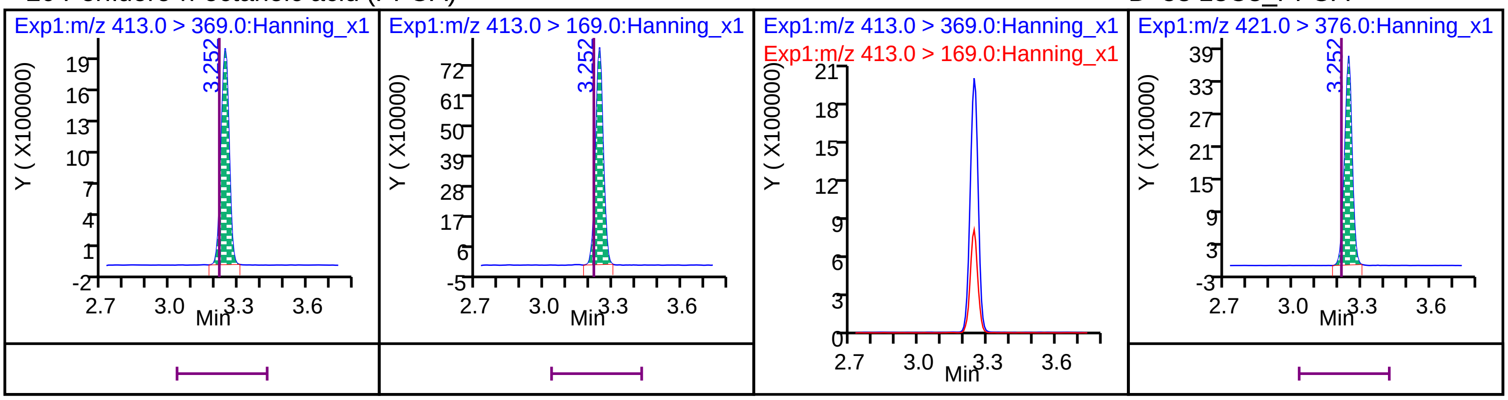
29 4,8-dioxa-3H-perfluorononanoic acid (ADONA) (ND) D 45 13C3_PFHxS



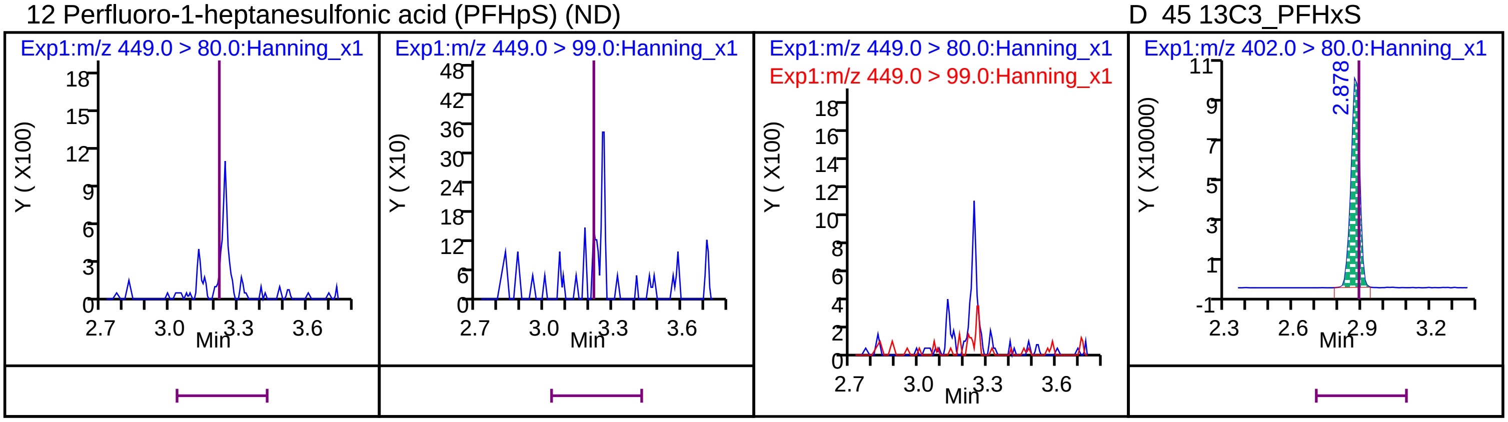
2 Fluorotelomer sulfonate 6:2 [1H,1H,2H,2H-perfluorooctane sulfonate] (6:2 FTS) D 64 13C2_6:2 FTS_2



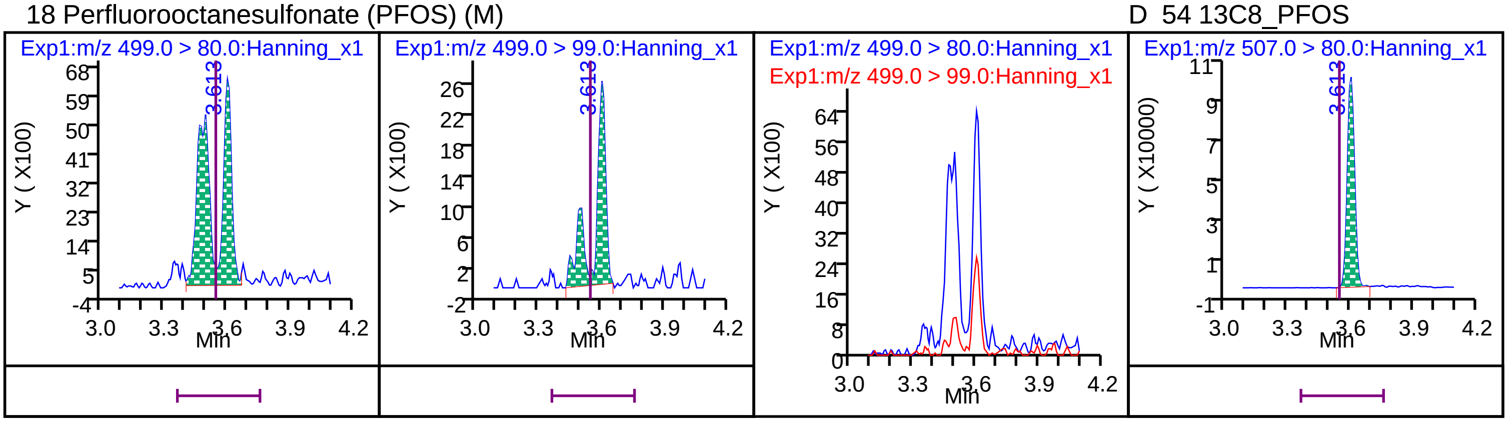
20 Perfluoro-n-octanoic acid (PFOA) D 53 13C8_PFOA



12 Perfluoro-1-heptanesulfonic acid (PFHpS) (ND) D 45 13C3_PFHxS

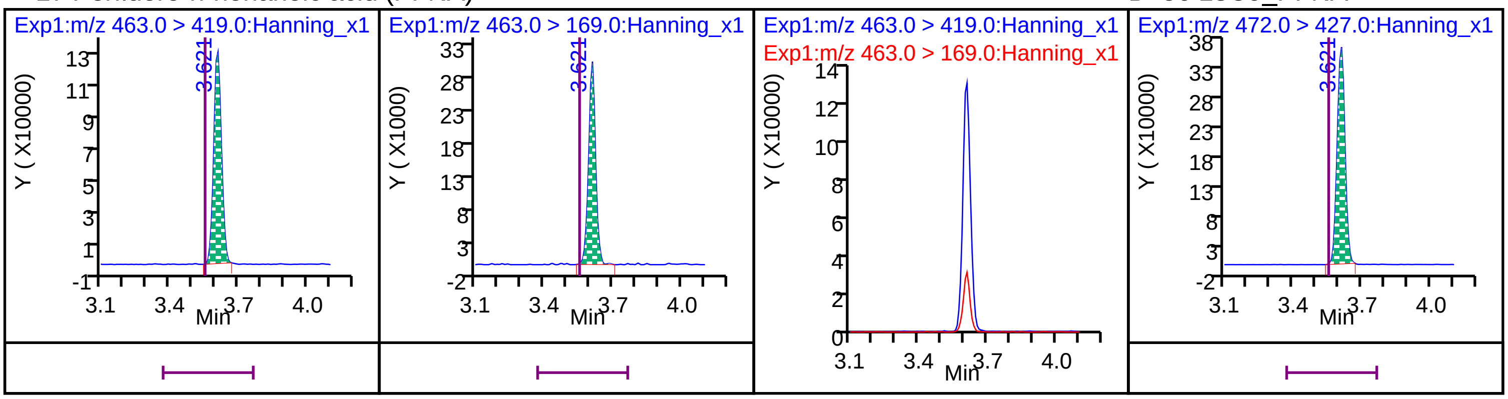


18 Perfluorooctanesulfonate (PFOS) (M) D 54 13C8_PFOS

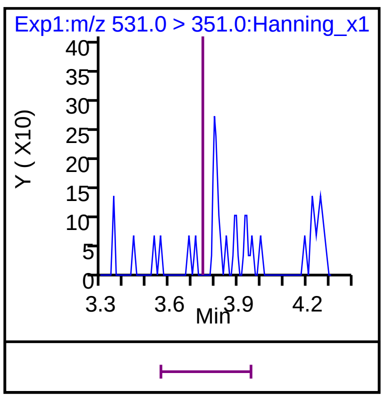


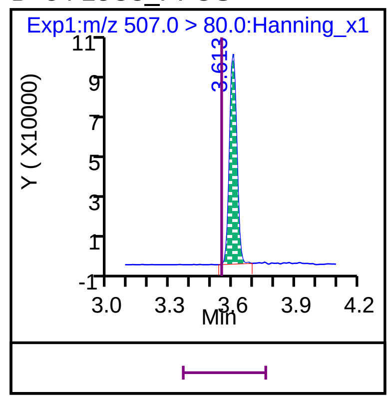
Report Date: 09-Nov-2021 13:31:09 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621052.d

17 Perfluoro-n-nonanoic acid (PFNA) D 56 13C9_PFNA

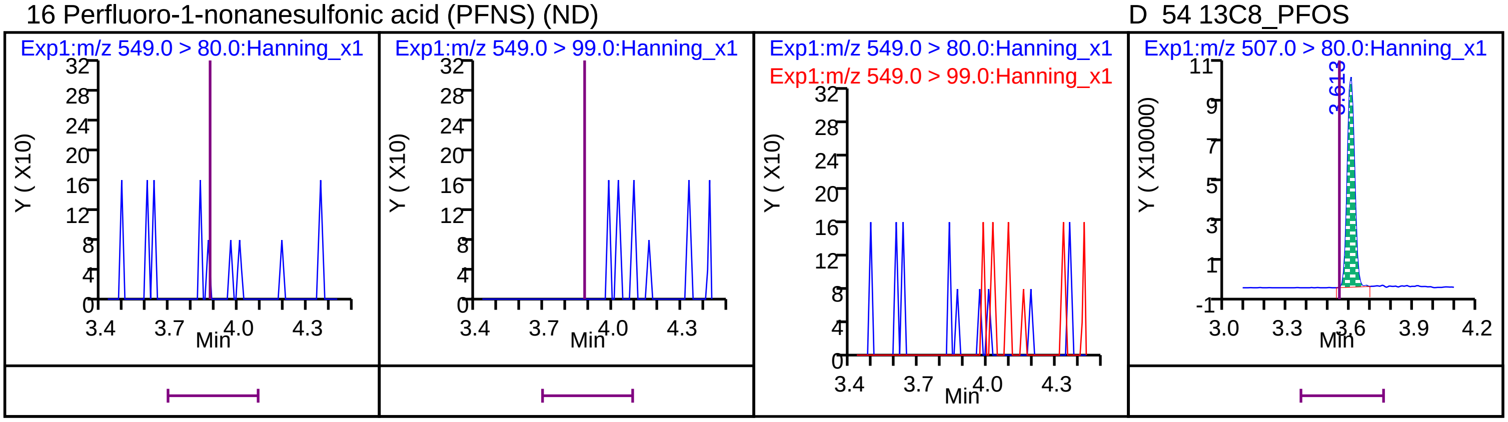


30 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) (Marked ND) D 54 13C8_PFOS

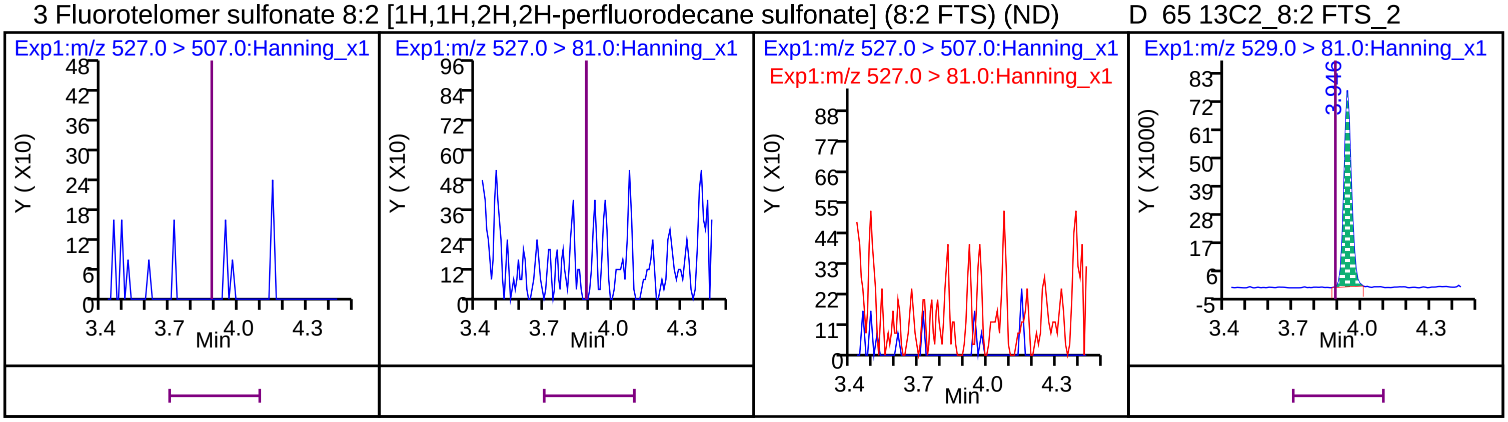




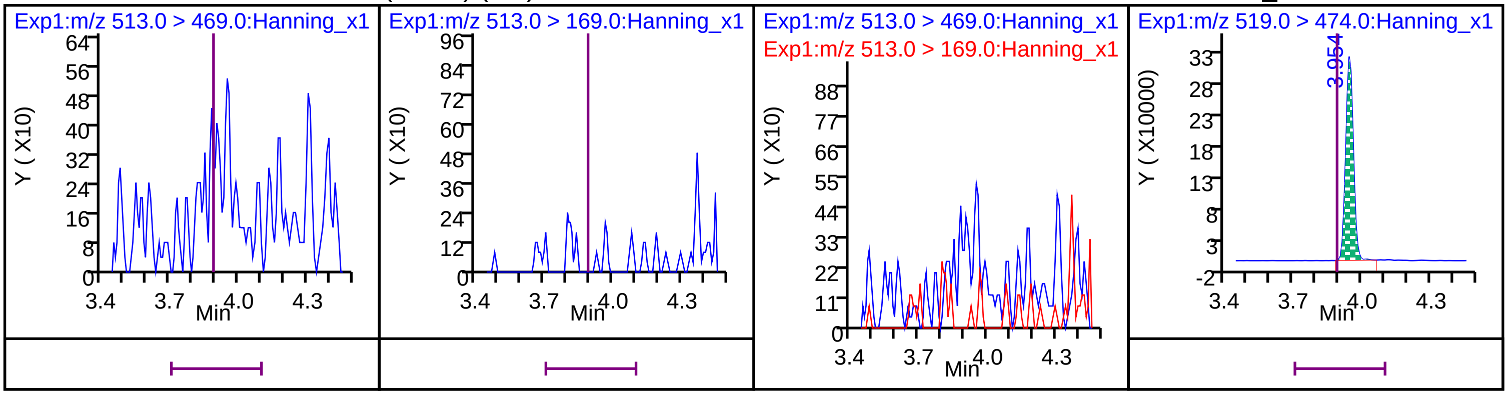
16 Perfluoro-1-nonanesulfonic acid (PFNS) (ND) D 54 13C8_PFOS



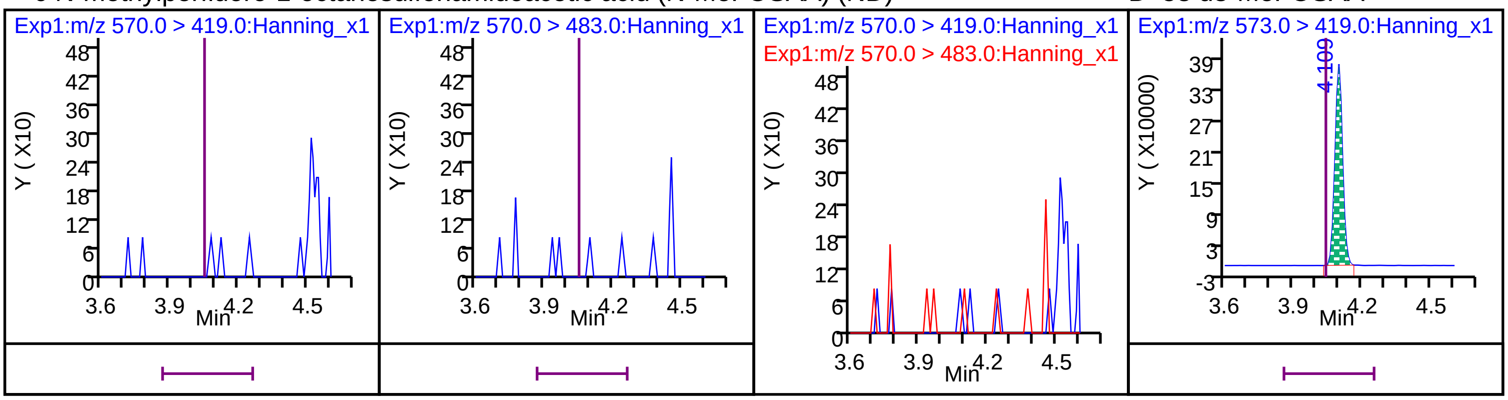
3 Fluorotelomer sulfonate 8:2 [1H,1H,2H,2H-perfluorodecane sulfonate] (8:2 FTS) (ND) D 65 13C2_8:2 FTS_2



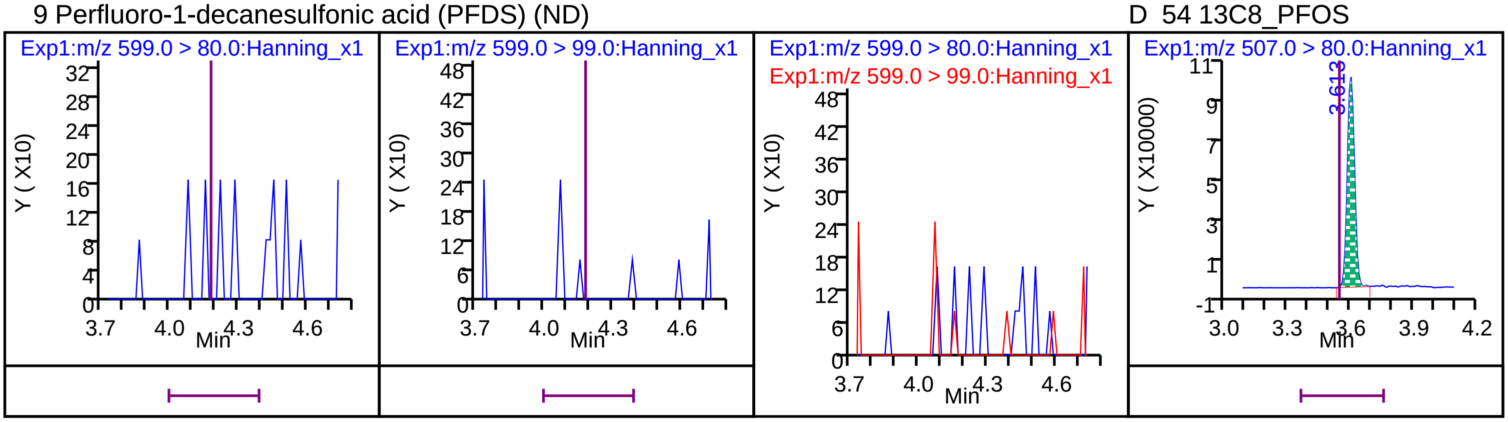
10 Perfluoro-n-decanoic acid (PFDA) (ND) D 51 13C6_PFDA



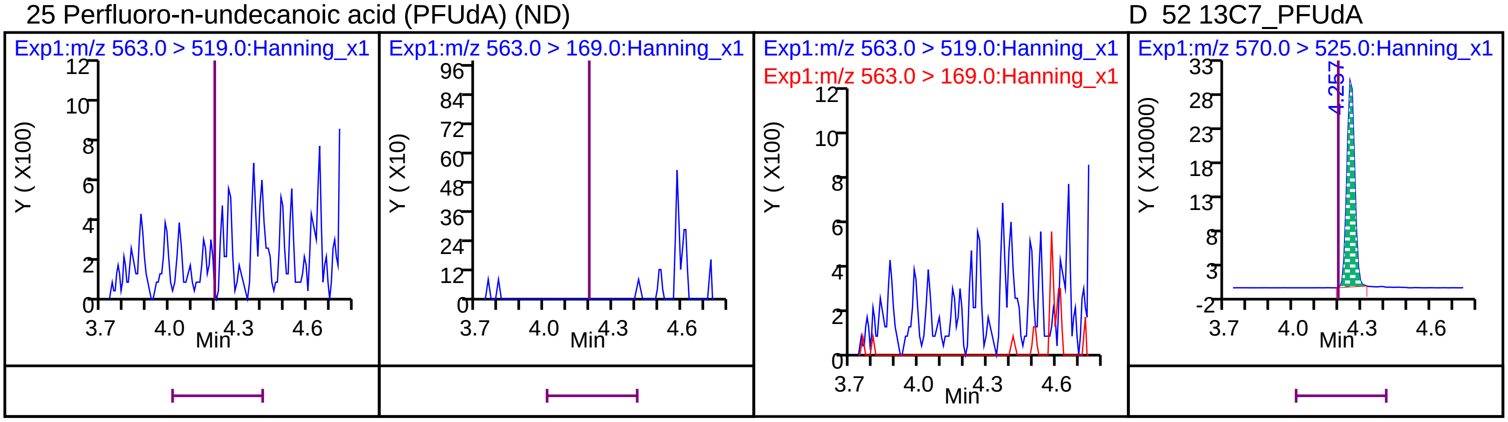
6 N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) (ND) D 58 d3-MeFOSAA



9 Perfluoro-1-decanesulfonic acid (PFDS) (ND) D 54 13C8_PFOS

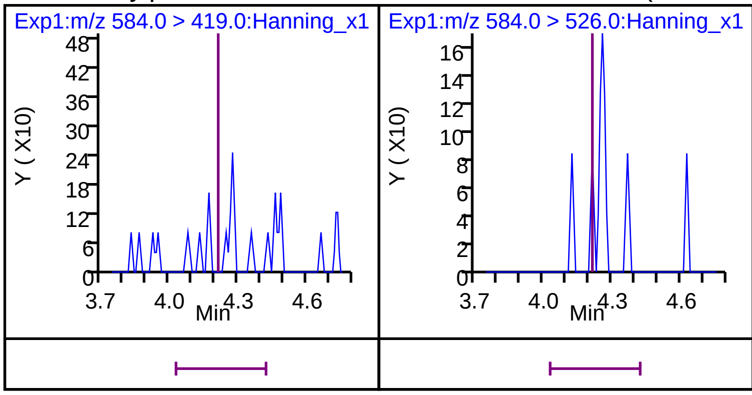


25 Perfluoro-n-undecanoic acid (PFUdA) (ND) D 52 13C7_PFUdA

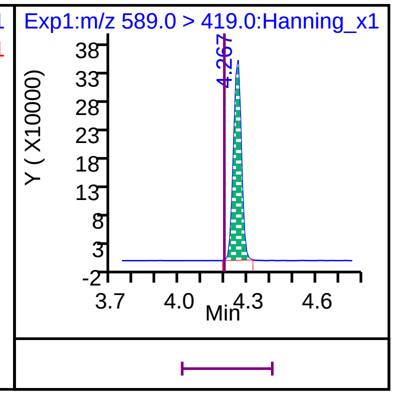


Report Date: 09-Nov-2021 13:31:09 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621052.d

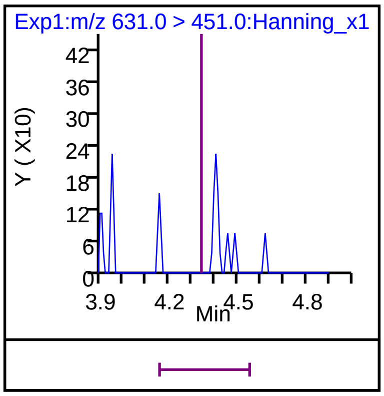
5 N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) (Marked ND)



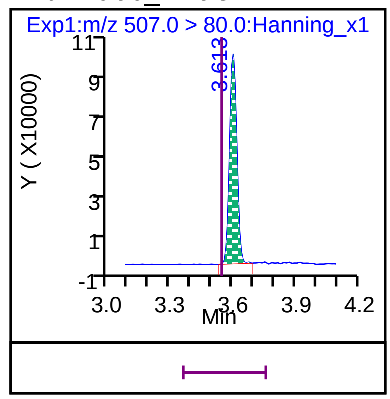
D 60 d5-EtFOSAA



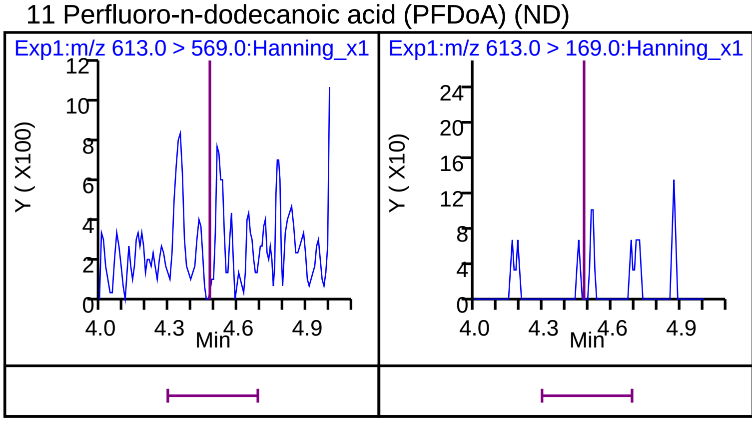
31 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) (Marked ND)



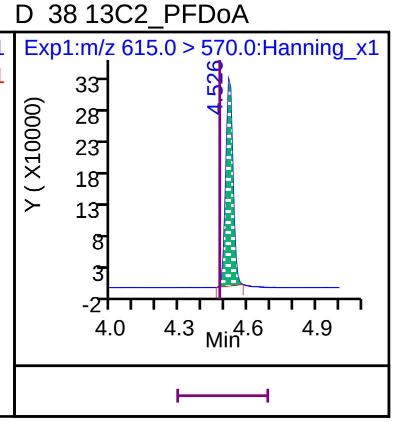
D 54 13C8_PFOS



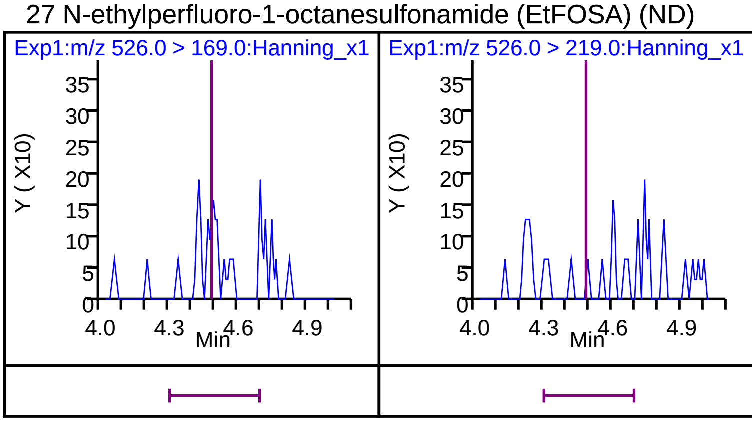
11 Perfluoro-n-dodecanoic acid (PFDoA) (ND)



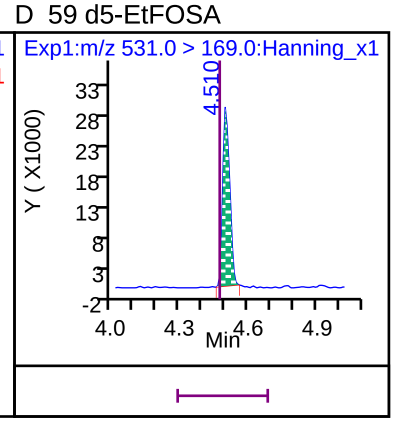
D 38 13C2_PFDoA



27 N-ethylperfluoro-1-octanesulfonamide (EtFOSA) (ND)

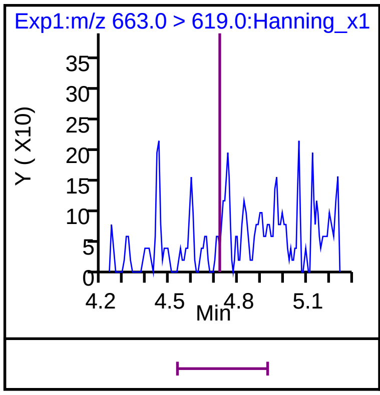


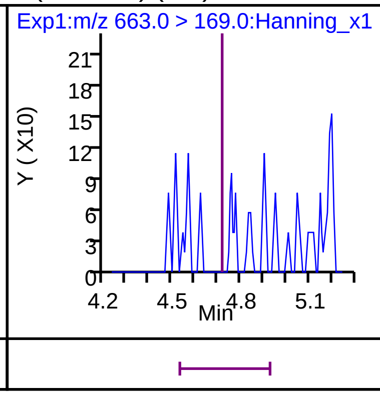
D 59 d5-EtFOSA

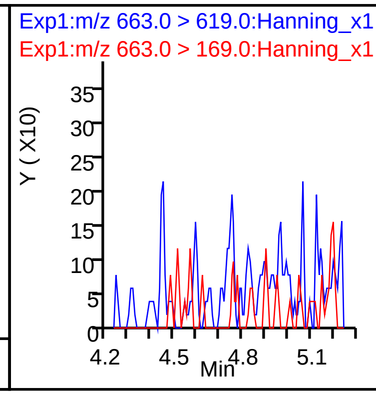


Report Date: 09-Nov-2021 13:31:09 AIM Revision: 2.0.2021.0812
Data File: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621052.d

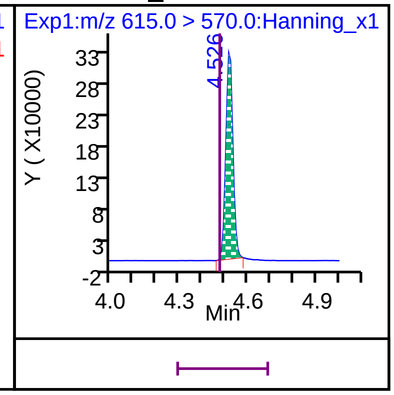
24 Perfluoro-n-tridecanoic acid (PFTrDA) (ND)



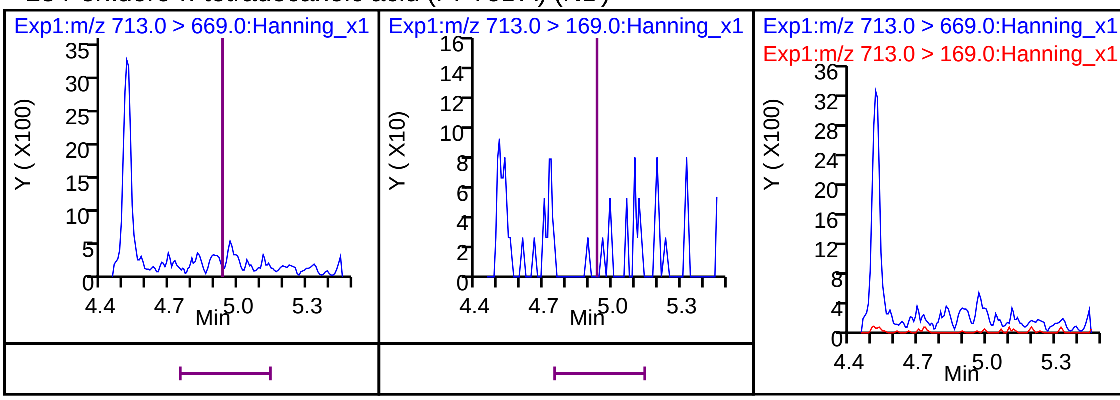




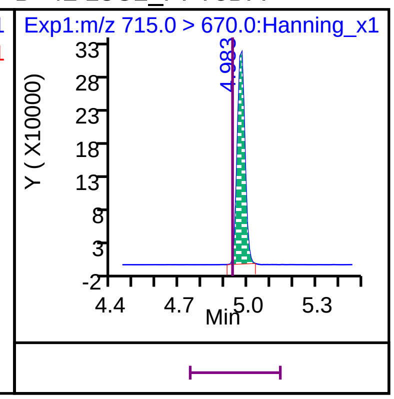
D 38 13C2_PFDoA



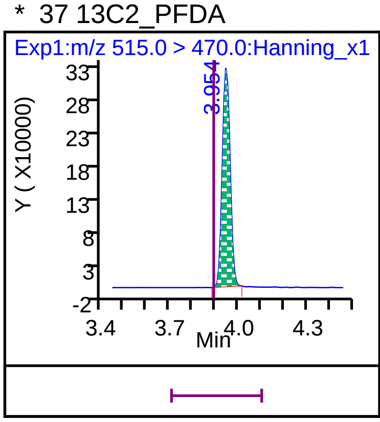
23 Perfluoro-n-tetradecanoic acid (PFTeDA) (ND)



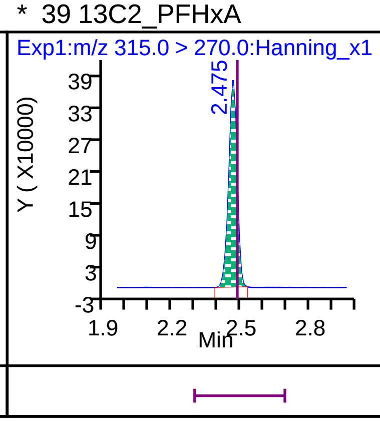
D 42 13C2_PFTeDA



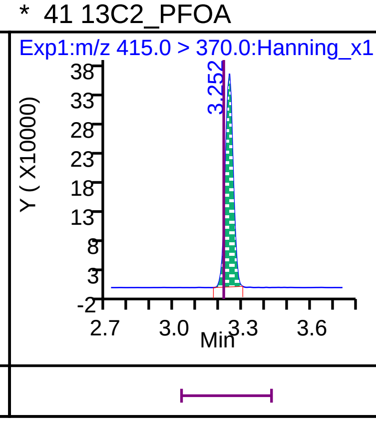
* 37 13C2_PFDA



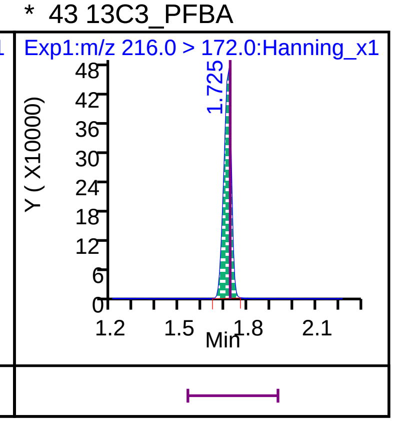
* 39 13C2_PFHxA



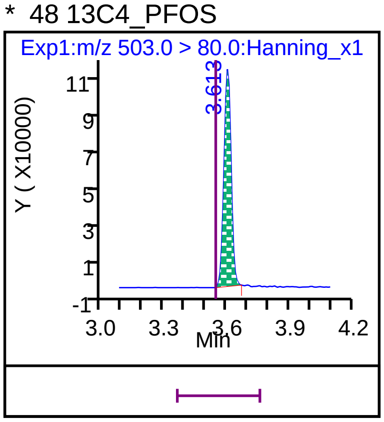
* 41 13C2_PFOA



* 43 13C3_PFBA



* 48 13C4_PFOS



Report Date: 09-Nov-2021 13:31:09 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

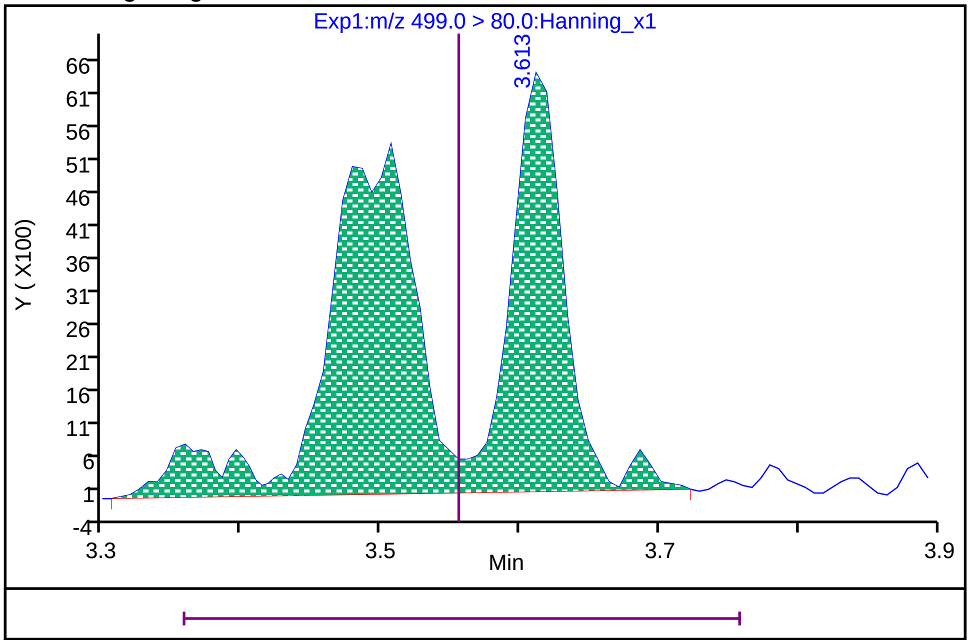
Manual Integration Report

Data File:	\\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b\110621052.d		
Injection Date:	06-Nov-2021 21:21:56	Inst. ID:	LCMSMS01.i
Client ID:		Lab ID:	WK03035-002DU
Sample Info:	WK03035-002DU,50		
Dil. Factor:	50	Operator:	Matthew M. Miller

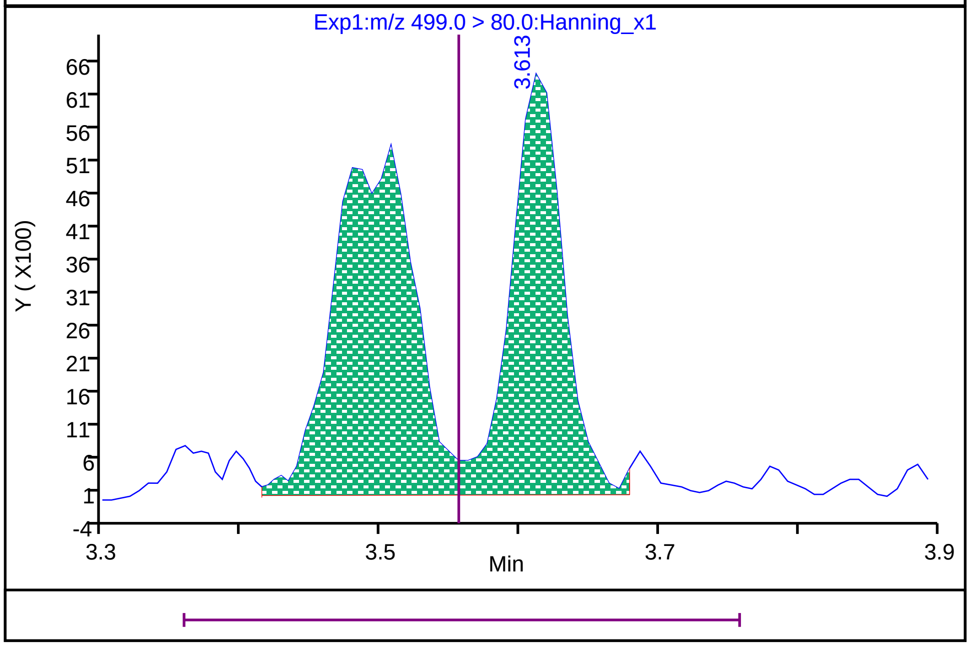
18 PFOS, CAS: 1763-23-1

Processing Integration Results

RT:	3.613
Area:	40924
Conc:	300.93
Conc Units:	ng/L



RT:	3.613
Area:	37786
Conc:	277.86
Conc Units:	ng/L



Data Editor: matthew.miller, 09-Nov-2021 13:02:10

Audit Action: Mint

Audit Reason: Invalid Integration

MISC. DATA

Extract Dilution Preparations

537	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	950	200	100	50	20	10	20	8	4	2
IS (uL)	50	40	45	47.5	49	49.5	199	199.6	199.8	199.9
96% MeOH (uL)	-	760	855	902.5	931	940.5	3781	3792.4	3796.2	3798.1
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/Vol	1/(Vol*0.2)	1/(Vol*0.1)	1/(Vol*0.05)	1/(Vol*0.02)	1/(Vol*0.01)	1/(Vol*0.005)	1/(Vol*0.002)	1/(Vol*0.001)	1/(Vol*0.0005)

ID Aq	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	(1/0.91)* (FV/V_o)	5* (FV/V_o)	10* (FV/V_o)	20* (FV/V_o)	50* (FV/V_o)	100* (FV/V_o)	200* (FV/V_o)	500* (FV/V_o)	1000* (FV/V_o)	2000* (FV/V_o)

DAI	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
SAMPLE (uL)	700	140	70	35	14	7	14	5.6	2.8	1.4
SUR (uL)	25	25	25	25	25	25	100	100	100	100
MeOH (uL)	275	275	275	275	275	275	1100	1100	1100	1100
Water (uL)	0	560	630	665	686	693	2786	2794.4	2797.2	2798.6
TOTAL (uL)	1000	1000	1000	1000	1000	1000	4000	4000	4000	4000
CF calc	1/.7	1/.14	1/.07	1/.035	1/.014	1/.007	4/.014	4/.0056	4/.0028	4/.0014

ID Solid	1X	5X	10X	20X	50X	100X	200X	500X	1000X	2000X
EXTRACT (uL)	182	200	100	50	20	10	20	8	4	2
IS (uL)	10	50	50	50	50	50	200	200	200	200
SUR (uL)	0	40	45	47.5	49	49.5	199	199.6	199.8	199.9
MeOH (uL)	0	674	769	816.5	845	854.5	3437	3448	3452	3454
WATER (uL)	8	36	36	36	36	36	144	144	144	144
TOTAL (uL)	200	1000	1000	1000	1000	1000	4000	3999.6	3999.8	3999.9
CF calc	((V_E/(M*S))/ 0.91)/1000	((V_E/(M*S))/ 0.2)/1000	((V_E/(M*S))/ 0.1)/1000	((V_E/(M*S))/ 0.05)/1000	((V_E/(M*S))/ 0.02)/1000	((V_E/(M*S))/ 0.01)/1000	((V_E/(M*S))/ 0.005)/1000	((V_E/ (M*S))/ 0.002)/1000	((V_E/ (M*S))/ 0.001)/1000	((V_E/ (M*S))/ 0.0005)/1000

NOTE: Dilutions of 100x or below will be prepped in 1-mL FV; dilutions higher than 100x and will be prepped in 4-mL FV.

Report Date: 05-Nov-2021 13:58:50 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 04-Nov-2021 13:48:20 Cal End Date: 04-Nov-2021 15:23:27

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
77	ICAL 50_SVLC-1655	04-Nov-2021 13:48:20	110421A008.d	ICal					Analytes	L-1	1.00		
78	ICAL 100_SVLC-1724	04-Nov-2021 13:58:59	110421A009.d	ICal					Analytes	L-2	1.00		
79	ICAL 200_SVLC-1725	04-Nov-2021 14:09:39	110421A010.d	ICal					Analytes	L-3	1.00		
80	ICAL 500_SVLC-1642	04-Nov-2021 14:20:19	110421A011.d	ICal					Analytes	L-4	1.00		
81	ICAL 1000_SVLC-1717	04-Nov-2021 14:31:00	110421A012.d	ICal					Analytes	L-5	1.00		
82	ICAL 2000_SVLC-1643	04-Nov-2021 14:41:28	110421A013.d	ICal					Analytes	L-6	1.00		
83	ICAL 5000_SVLC-1644	04-Nov-2021 14:51:55	110421A014.d	ICal					Analytes	L-7	1.00		
84	ICAL 10000_SVLC-1645	04-Nov-2021 15:02:24	110421A015.d	ICal					Analytes	L-8	1.00		
85	ICAL 15000_SVLC-1646	04-Nov-2021 15:12:55	110421A016.d	ICal					Analytes	L-9	1.00		
86	ICAL 20000_SVLC-1647	04-Nov-2021 15:23:27	110421A017.d	ICal					Analytes	L-10	1.00		
100	ID BLK C1	04-Nov-2021 15:33:59	110421A018.d	InstBlk					Surrogates	Smp	0.1100		
87	ICV 500_SVLC-1734	04-Nov-2021 15:44:42	110421A019.d	ICV					Analytes	ICV	1.00		
88	ISOMERS_SVLC-1652	04-Nov-2021 15:55:15	110421A020.d	CheckStd					Surrogates	Smp	1.00	Yes	
89	ID IBLK A	04-Nov-2021 16:05:48	110421A021.d	InstBlk					Surrogates	Smp	0.1100		
50	CCV 1000C_SVLC-1717	05-Nov-2021 01:06:57	110421A072.d	CCV					Analytes	L-5	1.00		
100	CCB C4	05-Nov-2021 01:17:37	110421A073.d	InstBlk					Surrogates	Smp	0.1100		
51	WQ21177-001	05-Nov-2021 01:28:20	110421A074.d	MBlk		Aqueous	1	21177	Surrogates	Smp	0.1100		
52	WQ21177-002	05-Nov-2021 01:38:55	110421A075.d	LCS		Aqueous	1	21177	Analytes	100x PDS	0.2000		RR-6:2 HIGH
53	WK03035-001	05-Nov-2021 01:49:30	110421A076.d	Client	SW3-DPT-0143-012.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-50X, SURS LOW,4:2 HIGH-DET, NCM/MTX
54	WK03035-001MS	05-Nov-2021 02:00:06	110421A077.d	MS		Aqueous	1	21177	Analytes	100x PDS	0.2000		
55	WK03035-002	05-Nov-2021 02:10:41	110421A078.d	Client	SW3-DPT-0143-022.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-10X-DNR-C/O
56	WK03035-002DU	05-Nov-2021 02:21:18	110421A079.d	Client		Aqueous	1	21177	Surrogates	Smp	0.1100		RR-10X, DNR-C/O
57	WK03035-003	05-Nov-2021 02:31:57	110421A080.d	Client	SW3-DPT-0143-032.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-1X-C/O
58	WK03035-004	05-Nov-2021 02:42:34	110421A081.d	Client	SW3-DPT-0143-042.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		4:2 HI-NCM/ND, 6:2 HIGH-NCM/MTX
59	WK03035-006	05-Nov-2021 02:53:10	110421A082.d	Client	SW3-DPT-0144-022.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-20X
60	WK03035-007	05-Nov-2021 03:03:48	110421A083.d	Client	SW3-DPT-0144-032.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-20X-DNR-C/O
61	WK03035-008	05-Nov-2021 03:14:29	110421A084.d	Client	SW3-DPT-0144-042.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-1X-C/O
62	CCV 1000D_SVLC-1717	05-Nov-2021 03:25:03	110421A085.d	CCV					Analytes	L-5	1.00		
100	CCB C5	05-Nov-2021 03:35:39	110421A086.d	InstBlk					Surrogates	Smp	0.1100		

Report Date: 09-Nov-2021 07:56:43 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS01.i\110421A-DOD-2.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 04-Nov-2021 13:48:20 Cal End Date: 04-Nov-2021 15:23:27

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
63	CCV 100A_SVLC-1724	05-Nov-2021 03:46:21	110421A087.d	CCV					Analytes	L-2	1.00		
64	CCV 200A_SVLC-1725	05-Nov-2021 03:56:57	110421A088.d	CCV					Analytes	L-3	1.00		
65	ID IBLK A2	05-Nov-2021 04:07:33	110421A089.d	InstBlk					Surrogates	Smp	0.1100		
66	WK03035-009	05-Nov-2021 04:18:13	110421A090.d	Client	SW3-DPT-0144-012.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-5X, PFBA LOW,4:2HI-DET-NCM/MTX.
67	WK03035-010	05-Nov-2021 04:28:49	110421A091.d	Client	SW3-EB-20211102-01	Aqueous	1	21177	Surrogates	Smp	0.1100		
68	WJ12026-003	05-Nov-2021 04:39:27	110421A092.d	Client	HBF-DPT0391-035.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		PFBA LO-NCM/MTX, 4:2HI-NCM/ND, RR-6:2HI-DET
69	WJ12026-004	05-Nov-2021 04:50:06	110421A093.d	Client	HBF-DPT0391-045.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		4:2HI-NCM/ND,RR-6:2HI-DET
70	WJ14015-010	05-Nov-2021 05:00:46	110421A094.d	Client	HBF-DPT0385-025.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-100X, SUR-NCM/MTX
71	WJ14015-011	05-Nov-2021 05:11:25	110421A095.d	Client	HBF-DPT0385-035.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-100X-DNR-C/O
72	WJ14015-012	05-Nov-2021 05:21:53	110421A096.d	Client	HBF-DPT0385-045.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-100X-DNR-C/O
73	WJ14015-013	05-Nov-2021 05:32:21	110421A097.d	Client	HBF-DPT0390-005.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-10X-DNR-C/O
74	WJ14015-015	05-Nov-2021 05:42:52	110421A098.d	Client	HBF-DPT0390-025.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-5X-DNR-C/O
75	WJ14015-017	05-Nov-2021 05:53:30	110421A099.d	Client	HBF-DPT0390-045.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-1X-DNR-C/O
76	CCV 1000E_SVLC-1717	05-Nov-2021 06:04:09	110421A100.d	CCV					Analytes	L-5	1.00		
100	CCB C6	05-Nov-2021 06:14:49	110421A101.d	InstBlk					Surrogates	Smp	0.1100		
77	WJ15043-001	05-Nov-2021 06:25:30	110421A102.d	Client	HBF-EB-20211014-01	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-6:2 HI-DET, 8:2,MEAA HI-NCM/ND
78	WJ15043-006	05-Nov-2021 06:36:08	110421A103.d	Client	HBF-DPT0381-010.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-20X, 4:2,6:2HI-DET, ETFOSA LOW-NCM/MTX
79	WJ15043-007	05-Nov-2021 06:46:45	110421A104.d	Client	HBF-DPT0381-025.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-10X-DNR-C/O
80	CCV 1000F_SVLC-1717	05-Nov-2021 06:57:24	110421A105.d	CCV					Analytes	L-5	1.00		6:2,MEFOSE,MEFOSA SUR HI-OK/TARGET PASS
100	CCB C7	05-Nov-2021 07:08:05	110421A106.d	InstBlk					Surrogates	Smp	0.1100		

Report Date: 09-Nov-2021 21:17:17 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\organics\LL\LCMSMS01.i\110521-DOD.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 04-Nov-2021 13:48:20 Cal End Date: 04-Nov-2021 15:23:27

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	CCV 100_SVLC-1724	05-Nov-2021 12:13:54	110521005.d	CCV					Analytes	L-2	1.00		
96	CCV 200_SVLC-1725	05-Nov-2021 12:24:26	110521006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	05-Nov-2021 12:34:58	110521007.d	InstBlk					Surrogates	Smp	0.1100		
7	CCV 1000_SVLC-1717	05-Nov-2021 14:10:04	110521016.d	CCV					Analytes	L-5	1.00		
100	CCB C1	05-Nov-2021 14:20:41	110521017.d	InstBlk					Surrogates	Smp	0.1100		
8	WQ21177-002	05-Nov-2021 14:31:22	110521018.d	LCS		Aqueous	1	21177	Analytes	100x PDS	0.2000		CONFIRMS 6:2 HIGH
9	WK03035-001	05-Nov-2021 14:41:59	110521019.d	Client	SW3-DPT-0143-012.0-20211	Aqueous	50	21177	Surrogates	Smp	0.1100		
10	WK03035-002	05-Nov-2021 14:52:38	110521020.d	Client	SW3-DPT-0143-022.0-20211	Aqueous	10	21177	Surrogates	Smp	0.1100		RR-50X
11	WK03035-002DU	05-Nov-2021 15:03:17	110521021.d	Client		Aqueous	10	21177	Surrogates	Smp	0.1100		RR-50X
12	WK03035-003	05-Nov-2021 15:13:50	110521022.d	Client	SW3-DPT-0143-032.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		RR-1X-C/O
13	WK03035-006	05-Nov-2021 15:24:24	110521023.d	Client	SW3-DPT-0144-022.0-20211	Aqueous	20	21177	Surrogates	Smp	0.1100		RR-500X
14	WK03035-007	05-Nov-2021 15:34:58	110521024.d	Client	SW3-DPT-0144-032.0-20211	Aqueous	20	21177	Surrogates	Smp	0.1100		RR-20X-C/O
15	WK03035-008	05-Nov-2021 15:45:31	110521025.d	Client	SW3-DPT-0144-042.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		SUR-NCM/MTX
16	WK03035-009	05-Nov-2021 15:56:06	110521026.d	Client	SW3-DPT-0144-012.0-20211	Aqueous	5	21177	Surrogates	Smp	0.1100		
17	WJ12026-003	05-Nov-2021 16:06:42	110521027.d	Client	HBF-DPT0391-035.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		CONFIRMS SUR HI-DET-NEED RX
18	WJ12026-004	05-Nov-2021 16:17:16	110521028.d	Client	HBF-DPT0391-045.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		REPORT THIS RUN
19	CCV 1000A_SVLC-1717	05-Nov-2021 16:27:50	110521029.d	CCV					Analytes	L-5	1.00		
100	CCB C2	05-Nov-2021 16:38:28	110521030.d	InstBlk					Surrogates	Smp	0.1100		
20	SUR 100_SVLC-1736	05-Nov-2021 16:49:11	110521031.d	InstBlk					Surrogates	Smp	0.1100		
21	WQ21287-001	05-Nov-2021 16:59:52	110521032.d	MBlk		Aqueous	1	21287	Surrogates	Smp	0.1100		
22	WQ21287-002	05-Nov-2021 17:10:24	110521033.d	LCS		Aqueous	1	21287	Analytes	100x PDS	0.2000		
23	WQ20737-038	05-Nov-2021 17:20:57	110521034.d	MBlk		Aqueous	1	21287	Surrogates	Smp	0.1100		
24	WI17055-008	05-Nov-2021 17:31:33	110521035.d	Client	ISM-382-5-Fb	Aqueous	1	21287	Surrogates	Smp	0.1100		
25	WI17055-009	05-Nov-2021 17:42:06	110521036.d	Client	ISM-382-5-Fc	Aqueous	1	21287	Surrogates	Smp	0.1100		
26	WI17055-010	05-Nov-2021 17:52:44	110521037.d	Client	ISM-382-5-Ga	Aqueous	1	21287	Surrogates	Smp	0.1100		
27	WI17055-011	05-Nov-2021 18:03:17	110521038.d	Client	ISM-382-5-Gb	Aqueous	1	21287	Surrogates	Smp	0.1100		
28	WI17055-012	05-Nov-2021 18:13:54	110521039.d	Client	ISM-382-5-Gc	Aqueous	1	21287	Surrogates	Smp	0.1100		
29	WJ01056-001	05-Nov-2021 18:24:30	110521040.d	Client	385-4-Sa	Aqueous	1	21287	Surrogates	Smp	0.1100		
30	WJ01056-002	05-Nov-2021 18:35:06	110521041.d	Client	385-4-Sb	Aqueous	1	21287	Surrogates	Smp	0.1100		
31	WJ01056-002MS	05-Nov-2021 18:45:45	110521042.d	MS		Aqueous	1	21287	Analytes	100x PDS	0.2000		
32	WJ01056-002MD	05-Nov-2021 18:56:20	110521043.d	MSD		Aqueous	1	21287	Analytes	100x PDS	0.2000		
33	WJ01056-003	05-Nov-2021 19:06:53	110521044.d	Client	385-4-Sc	Aqueous	1	21287	Surrogates	Smp	0.1100		
34	WJ01056-004	05-Nov-2021 19:17:29	110521045.d	Client	385-4-Gb	Aqueous	1	21287	Surrogates	Smp	0.1100		
35	CCV 1000B_SVLC-1717	05-Nov-2021 19:28:02	110521046.d	CCV					Analytes	L-5	1.00		
100	CCB C3	05-Nov-2021 19:38:37	110521047.d	InstBlk					Surrogates	Smp	0.1100		
36	WJ01056-005	05-Nov-2021 19:49:18	110521048.d	Client	385-4-Gc	Aqueous	1	21287	Surrogates	Smp	0.1100		
37	WJ01056-006	05-Nov-2021 19:59:55	110521049.d	Client	385-4-Uta	Aqueous	1	21287	Surrogates	Smp	0.1100		
38	WJ01056-007	05-Nov-2021 20:10:32	110521050.d	Client	385-4-Utb	Aqueous	1	21287	Surrogates	Smp	0.1100		
39	WJ01056-008	05-Nov-2021 20:21:07	110521051.d	Client	385-4-Utc	Aqueous	1	21287	Surrogates	Smp	0.1100		
40	WJ01056-009	05-Nov-2021 20:31:44	110521052.d	Client	385-4-Ga	Aqueous	1	21287	Surrogates	Smp	0.1100		
41	WJ07031-001	05-Nov-2021 20:42:24	110521053.d	Client	ISM-393-1-UTa	Aqueous	1	21287	Surrogates	Smp	0.1100		RR-5X
42	WJ07031-002	05-Nov-2021 20:52:55	110521054.d	Client	ISM-393-1-Utb	Aqueous	1	21287	Surrogates	Smp	0.1100		RR-5X
43	WJ07031-003	05-Nov-2021 21:03:30	110521055.d	Client	ISM-393-1-Utc	Aqueous	1	21287	Surrogates	Smp	0.1100		RR-5X
44	WJ07031-004	05-Nov-2021 21:14:06	110521056.d	Client	ISM-393-1-Ga	Aqueous	1	21287	Surrogates	Smp	0.1100		RR-5X

Report Date: 09-Nov-2021 21:17:17 AIM Revision: 2.0.2021.0812

Batch Path: \\organics\LL\LCMSMS01.i\110521-DOD.b

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
45	WJ07031-005	05-Nov-2021 21:24:41	110521057.d	Client	ISM-393-1-Gb	Aqueous	1	21287	Surrogates	Smp	0.1100		
46	CCV 1000C_SVLC-1717	05-Nov-2021 21:35:18	110521058.d	CCV					Analytes	L-5	1.00		
100	CCB C4	05-Nov-2021 21:45:53	110521059.d	InstBlk					Surrogates	Smp	0.1100		

Report Date: 09-Nov-2021 13:31:39 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS01.i\110621-DOD+ICAL.b

Method: LCMSMS01_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS01.i Integrator: picker

Cal Start Date: 06-Nov-2021 14:39:28 Cal End Date: 06-Nov-2021 16:14:38

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
1	ICAL 50_SVLC-1740	06-Nov-2021 14:39:28	110621014.d	ICal					Analytes	L-1	1.00		
2	ICAL 100_SVLC-1741	06-Nov-2021 14:50:00	110621015.d	ICal					Analytes	L-2	1.00		
3	ICAL 200_SVLC-1742	06-Nov-2021 15:00:33	110621016.d	ICal					Analytes	L-3	1.00		
4	ICAL 500_SVLC-1743	06-Nov-2021 15:11:07	110621017.d	ICal					Analytes	L-4	1.00		
5	ICAL 1000_SVLC-1744	06-Nov-2021 15:21:40	110621018.d	ICal					Analytes	L-5	1.00	Yes	
6	ICAL 2000_SVLC-1745	06-Nov-2021 15:32:15	110621019.d	ICal					Analytes	L-6	1.00		
7	ICAL 5000_SVLC-1746	06-Nov-2021 15:42:48	110621020.d	ICal					Analytes	L-7	1.00		
8	ICAL 10000_SVLC-1747	06-Nov-2021 15:53:24	110621021.d	ICal					Analytes	L-8	1.00		
9	ICAL 15000_SVLC-1748	06-Nov-2021 16:04:00	110621022.d	ICal					Analytes	L-9	1.00		
10	ICAL 20000_SVLC-1749	06-Nov-2021 16:14:38	110621023.d	ICal					Analytes	L-10	1.00		
100	ID BLK C1	06-Nov-2021 16:25:18	110621024.d	InstBlk					Surrogates	Smp	0.1100		
11	ICV 500_SVLC-1734	06-Nov-2021 16:36:00	110621025.d	ICV					Analytes	ICV	1.00		
12	ISOMERS_SVLC-1652	06-Nov-2021 16:46:32	110621026.d	CheckStd					Surrogates	Smp	1.00	Yes	
13	ID IBLK A	06-Nov-2021 16:57:05	110621027.d	InstBlk					Surrogates	Smp	0.1100		
26	CCV 1000_SVLC-1744	06-Nov-2021 19:14:38	110621040.d	CCV					Analytes	L-5	1.00		
100	CCB C1	06-Nov-2021 19:25:12	110621041.d	InstBlk					Surrogates	Smp	0.1100		
27	WJ14015-010	06-Nov-2021 19:35:55	110621042.d	Client	HBF-DPT0385-025.0-202110	Aqueous	100	21177	Surrogates	Smp	0.1100		
28	WJ14015-011	06-Nov-2021 19:46:33	110621043.d	Client	HBF-DPT0385-035.0-202110	Aqueous	100	21177	Surrogates	Smp	0.1100		
29	WJ14015-012	06-Nov-2021 19:57:10	110621044.d	Client	HBF-DPT0385-045.0-202110	Aqueous	100	21177	Surrogates	Smp	0.1100		
30	WJ14015-013	06-Nov-2021 20:07:47	110621045.d	Client	HBF-DPT0390-005.0-202110	Aqueous	10	21177	Surrogates	Smp	0.1100		
31	WJ14015-015	06-Nov-2021 20:18:26	110621046.d	Client	HBF-DPT0390-025.0-202110	Aqueous	5	21177	Surrogates	Smp	0.1100		4:2 HI-NCM/ND
32	WJ14015-017	06-Nov-2021 20:29:00	110621047.d	Client	HBF-DPT0390-045.0-202110	Aqueous	1	21177	Surrogates	Smp	0.1100		4:2,6:2 HI-DET-NEED RX
33	WJ15043-001	06-Nov-2021 20:39:34	110621048.d	Client	HBF-EB-20211014-01	Aqueous	1	21177	Surrogates	Smp	0.1100		SURS HI-NCM/ND
34	WJ15043-006	06-Nov-2021 20:50:09	110621049.d	Client	HBF-DPT0381-010.0-202110	Aqueous	20	21177	Surrogates	Smp	0.1100		FTSs HI@1X-NCM/MTX
35	WJ15043-007	06-Nov-2021 21:00:43	110621050.d	Client	HBF-DPT0381-025.0-202110	Aqueous	10	21177	Surrogates	Smp	0.1100		RR-20X
36	WK03035-002	06-Nov-2021 21:11:19	110621051.d	Client	SW3-DPT-0143-022.0-20211	Aqueous	50	21177	Surrogates	Smp	0.1100		
37	WK03035-002DU	06-Nov-2021 21:21:56	110621052.d	Client		Aqueous	50	21177	Surrogates	Smp	0.1100		
38	CCV 1000A_SVLC-1744	06-Nov-2021 21:32:32	110621053.d	CCV					Analytes	L-5	1.00		
100	CCB C2	06-Nov-2021 21:43:07	110621054.d	InstBlk					Surrogates	Smp	0.1100		
39	WK03035-003	06-Nov-2021 21:53:49	110621055.d	Client	SW3-DPT-0143-032.0-20211	Aqueous	1	21177	Surrogates	Smp	0.1100		SURS-NCM/MTX
40	WK03035-006	06-Nov-2021 22:04:30	110621056.d	Client	SW3-DPT-0144-022.0-20211	Aqueous	500	21177	Surrogates	Smp	0.1100		RR-1000X
41	WK03035-007	06-Nov-2021 22:15:11	110621057.d	Client	SW3-DPT-0144-032.0-20211	Aqueous	20	21177	Surrogates	Smp	0.1100		
42	WJ07031-001	06-Nov-2021 22:25:44	110621058.d	Client	ISM-393-1-UTa	Aqueous	5	21287	Surrogates	Smp	0.1100		
43	WJ07031-002	06-Nov-2021 22:36:19	110621059.d	Client	ISM-393-1-Utb	Aqueous	5	21287	Surrogates	Smp	0.1100		
44	WJ07031-003	06-Nov-2021 22:46:56	110621060.d	Client	ISM-393-1-Utc	Aqueous	5	21287	Surrogates	Smp	0.1100		
45	WJ07031-004	06-Nov-2021 22:57:31	110621061.d	Client	ISM-393-1-Ga	Aqueous	5	21287	Surrogates	Smp	0.1100		
46	CCV 1000B_SVLC-1744	06-Nov-2021 23:08:09	110621062.d	CCV					Analytes	L-5	1.00		
100	CCB C3	06-Nov-2021 23:18:42	110621063.d	InstBlk					Surrogates	Smp	0.1100		
47	WQ21420-001	06-Nov-2021 23:29:25	110621064.d	MBlk		Aqueous	1	21420	Surrogates	Smp	0.1100		
48	WQ20737-038	06-Nov-2021 23:40:03	110621065.d	MBlk		Aqueous	1	21420	Surrogates	Smp	0.1100		
49	WQ21420-002	06-Nov-2021 23:50:41	110621066.d	LCS		Aqueous	1	21420	Analytes	100x PDS	0.2000		
50	WJ07031-006	07-Nov-2021 00:01:20	110621067.d	Client	ISM-393-1-Gc	Aqueous	1	21420	Surrogates	Smp	0.1100		
51	WJ07031-007	07-Nov-2021 00:12:00	110621068.d	Client	ISM-393-1-Sa	Aqueous	1	21420	Surrogates	Smp	0.1100		MEAA HI-NCM/ND
52	WJ07031-008	07-Nov-2021 00:22:35	110621069.d	Client	ISM-393-1-Sb	Aqueous	1	21420	Surrogates	Smp	0.1100		

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
53	WJ07031-009	07-Nov-2021 00:33:11	110621070.d	Client	ISM-393-1-Sc	Aqueous	1	21420	Surrogates	Smp	0.1100		
54	WJ07033-001	07-Nov-2021 00:43:47	110621071.d	Client	385-4-Fa	Aqueous	1	21420	Surrogates	Smp	0.1100		
55	WJ07033-002	07-Nov-2021 00:54:20	110621072.d	Client	385-4-Fb	Aqueous	1	21420	Surrogates	Smp	0.1100		
56	WJ07033-003	07-Nov-2021 01:04:56	110621073.d	Client	385-4-Fc	Aqueous	1	21420	Surrogates	Smp	0.1100		
57	WJ07033-003MS	07-Nov-2021 01:15:36	110621074.d	MS		Aqueous	1	21420	Analytes	100x PDS	0.2000		
58	WJ07033-003MD	07-Nov-2021 01:26:15	110621075.d	MSD		Aqueous	1	21420	Analytes	100x PDS	0.2000		
59	CCV 1000C_SVLC-1744	07-Nov-2021 01:36:51	110621076.d	CCV					Analytes	L-5	1.00		
100	CCB C4	07-Nov-2021 01:47:30	110621077.d	InstBlk					Surrogates	Smp	0.1100		

Report Date: 08-Nov-2021 12:29:02 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch:	\\Organics\LL\LCMSMS02.i\110721A-DOD+ICAL.b		
Method:	LCMSMS02_PFAS-ID.M	Version: V17	16-Sep-2021 08:57:04
Instrument:	LCMSMS02.i	Integrator:	picker
Cal Start Date:	07-Nov-2021 18:47:44	Cal End Date:	07-Nov-2021 20:22:32
Method Lock:	Unknown	Lock Date:	
Calib Method:	PFAS-ID	No.Compounds:	66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
75	ID ICAL 50_SVLC-1740	07-Nov-2021 18:47:44	110721A12.d	ICal					Analytes	L-1	1.00		
76	ID ICAL 100_SVLC-1741	07-Nov-2021 18:58:19	110721A13.d	ICal					Analytes	L-2	1.00		
77	ID ICAL 200_SVLC-1742	07-Nov-2021 19:08:54	110721A14.d	ICal					Analytes	L-3	1.00		
78	ID ICAL 500_SVLC-1743	07-Nov-2021 19:19:30	110721A15.d	ICal					Analytes	L-4	1.00		
79	ID ICAL 1000_SVLC-1744	07-Nov-2021 19:30:06	110721A16.d	ICal					Analytes	L-5	1.00		
80	ID ICAL 2000_SVLC-1745	07-Nov-2021 19:40:43	110721A17.d	ICal					Analytes	L-6	1.00		
81	ID ICAL 5000_SVLC-1746	07-Nov-2021 19:51:18	110721A18.d	ICal					Analytes	L-7	1.00		
82	ID ICAL 10000_SVLC-1747	07-Nov-2021 20:01:42	110721A19.d	ICal					Analytes	L-8	1.00		
83	ID ICAL 15000_SVLC-1748	07-Nov-2021 20:12:06	110721A20.d	ICal					Analytes	L-9	1.00		
84	ID ICAL 20000_SVLC-1749	07-Nov-2021 20:22:32	110721A21.d	ICal					Analytes	L-10	1.00		
85	ID IBLK B	07-Nov-2021 20:32:59	110721A22.d	InstBlk					Surrogates	Smp	0.1100		
86	F.L. ICV 500_SVLC-1734	07-Nov-2021 20:43:28	110721A23.d	ICV					Analytes	ICV	1.00		
87	ISOMER CHECK_SVLC-1652	07-Nov-2021 20:53:57	110721A24.d	CheckStd					IsomerCheck	Smp	1.00		
88	ID IBLK C	07-Nov-2021 21:04:26	110721A25.d	InstBlk					Surrogates	Smp	0.1100		SUR:8:2,EFOSAA,DoA(high)
15	ID CCV 1000_SVLC-1717	07-Nov-2021 23:42:08	110721A40.d	CCV					Analytes	L-5	1.00		
16	CCB 1	07-Nov-2021 23:52:38	110721A41.d	InstBlk					Surrogates	Smp	0.1100		
17	WQ21364-001	08-Nov-2021 00:03:10	110721A42.d	MBlk		Aqueous	1	21367	Surrogates	Smp	0.1100		
18	WQ21367-002	08-Nov-2021 00:13:41	110721A43.d	LCS		Aqueous	1	21367	Analytes	100x PDS	0.2000		
21	WJ28013-001	08-Nov-2021 00:45:23	110721A46.d	Client	EFF-5	Aqueous	1	21364	Surrogates	Smp	0.1100		
22	WJ28013-002	08-Nov-2021 00:55:51	110721A47.d	Client	EFF-5D	Aqueous	1	21364	Surrogates	Smp	0.1100		
23	WJ28013-003	08-Nov-2021 01:06:20	110721A48.d	Client	Field Blank 5	Aqueous	1	21364	Surrogates	Smp	0.1100		
24	WJ28014-001	08-Nov-2021 01:16:51	110721A49.d	Client	EFF-6	Aqueous	1	21364	Surrogates	Smp	0.1100		
25	WJ28014-002	08-Nov-2021 01:27:22	110721A50.d	Client	EFF-6D	Aqueous	1	21364	Surrogates	Smp	0.1100		
26	WJ28014-003	08-Nov-2021 01:37:53	110721A51.d	Client	Field Blank 6	Aqueous	1	21364	Surrogates	Smp	0.1100		
27	WJ28018-001	08-Nov-2021 01:48:24	110721A52.d	Client	EFF-7	Aqueous	1	21364	Surrogates	Smp	0.1100		
28	WJ28018-002	08-Nov-2021 01:58:57	110721A53.d	Client	EFF-7D	Aqueous	1	21364	Surrogates	Smp	0.1100		
29	ID CCV 1000A_SVLC-1744	08-Nov-2021 02:09:30	110721A54.d	CCV					Analytes	L-5	1.00		
30	CCB 2	08-Nov-2021 02:20:02	110721A55.d	InstBlk					Surrogates	Smp	0.1100		
33	WJ28018-003	08-Nov-2021 02:51:36	110721A58.d	Client	Field Blank 7	Aqueous	1	21364	Surrogates	Smp	0.1100		RR-1X
38	WK03079-001	08-Nov-2021 03:44:21	110721A63.d	Client	STEW-EFF2-110221	Aqueous	1	21297	Surrogates	Smp	0.1100		RR-1X
45	ID CCV 1000B_SVLC-1744	08-Nov-2021 04:58:07	110721A70.d	CCV					Analytes	L-5	1.00		POOR INJECTION, RR PREVIOUS/NEXT WINDOW

Report Date: 11-Nov-2021 18:39:49 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\110921-DOD.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	ID CCV 100_SVLC-1741	09-Nov-2021 16:00:05	110921005.d	CCV					Analytes	L-2	1.00		
96	ID CCV 100_SVLC-1742	09-Nov-2021 16:10:34	110921006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	09-Nov-2021 16:21:04	110921007.d	MBlk		Aqueous	1		Surrogates	Smp	0.1100		
1	WQ21515-001	09-Nov-2021 16:35:44	110921008.d	MBlk		Aqueous	1	21515	Surrogates	Smp	0.1100		SUR:6:2,RR
2	WQ21515-002	09-Nov-2021 16:46:13	110921009.d	LCS		Aqueous	1	21515	Analytes	100x PDS	0.2000		
4	WJ16003-001	09-Nov-2021 17:07:14	110921011.d	Client	HBF-DPT0378-010.0-202110	Aqueous	500	21515	Surrogates	Smp	0.1100		
5	WJ16003-002	09-Nov-2021 17:17:44	110921012.d	Client	HBF-DPT0378-025.0-202110	Aqueous	200	21515	Surrogates	Smp	0.1100		
6	WJ16003-003	09-Nov-2021 17:28:14	110921013.d	Client	HBF-DPT0378-035.0-202110	Aqueous	200	21515	Surrogates	Smp	0.1100		
7	WJ15043-008	09-Nov-2021 17:38:45	110921014.d	Client	HBF-DPT0381-035.0-202110	Aqueous	20	21515	Surrogates	Smp	0.1100		
13	ID CCV 1000_SVLC-1744	09-Nov-2021 18:42:02	110921020.d	CCV					Analytes	L-5	1.00		
14	CCB 1	09-Nov-2021 18:52:31	110921021.d	InstBlk					Surrogates	Smp	0.1100		
21	WJ16026-004	09-Nov-2021 20:06:26	110921028.d	Client	HBF-DPT0388-025.0-202110	Aqueous	1	21421	Surrogates	Smp	0.1100		SUR:4:2(ND),6:2(DET),EFOSA(low),DoA(low),TeDA(low)
22	WJ16026-005	09-Nov-2021 20:16:55	110921029.d	Client	HBF-DPT0388-035.0-202110	Aqueous	1	21421	Surrogates	Smp	0.1100		SUR:4:2(ND),6:2(DET),EFOSA,TeDA(low),RR/RX
23	WJ15117-007	09-Nov-2021 20:27:25	110921030.d	Client	DUP-01	Aqueous	1	21299	Surrogates	Smp	0.1100		
24	WJ16026-007	09-Nov-2021 20:37:56	110921031.d	Client	HBF-DPT0388-045.0-202110	Aqueous	5	21421	Surrogates	Smp	0.1100		
25	ID CCV 1000A_SVLC-1744	09-Nov-2021 20:48:27	110921032.d	CCV					Analytes	L-5	1.00		
26	CCB 2	09-Nov-2021 20:59:00	110921033.d	InstBlk					Surrogates	Smp	0.1100		
27	WQ21582-001	09-Nov-2021 21:09:33	110921034.d	Client		Aqueous	1	21582	Surrogates	Smp	0.1100		6:2-FTS DETECTED(7.9591ng/L),RR TO CONFIRM
28	WQ21582-002	09-Nov-2021 21:20:05	110921035.d	LCS		Aqueous	1	21582	Analytes	100x PDS	0.2000		
29	WQ21582-003	09-Nov-2021 21:30:39	110921036.d	LCSD		Aqueous	1	21582	Analytes	100x PDS	0.2000		
30	WJ16026-003	09-Nov-2021 21:41:12	110921037.d	Client	HBF-DPT0388-010.0-202110	Aqueous	20	21421	Surrogates	Smp	0.1100		
31	WJ16026-008	09-Nov-2021 21:51:48	110921038.d	Client	HBF-DPT0385-005.0-202110	Aqueous	20	21421	Surrogates	Smp	0.1100		RR-100X,SUR:4:2(DET),MTX,NCM
32	WK06030-001	09-Nov-2021 22:02:18	110921039.d	Client	STEW-EFF-11052021	Aqueous	1	21582	Surrogates	Smp	0.1100		
33	WJ12026-003	09-Nov-2021 22:12:48	110921040.d	Client	HBF-DPT0391-035.0-202110	Aqueous	1	21582	Surrogates	Smp	0.1100		SUR: BA(LOW),4:2(ND), CENT,NCM
34	WK03035-003	09-Nov-2021 22:23:19	110921041.d	Client	SW3-DPT-0143-032.0-20211	Aqueous	1	21582	Surrogates	Smp	0.1100		SUR:4:2(DET),CENT, NCM
35	WK03035-004	09-Nov-2021 22:33:52	110921042.d	Client	SW3-DPT-0143-042.0-20211	Aqueous	1	21582	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
36	WK03035-008	09-Nov-2021 22:44:25	110921043.d	Client	SW3-DPT-0144-042.0-20211	Aqueous	1	21582	Surrogates	Smp	0.1100		SUR:4:2(DET),NCM
37	WK03035-010	09-Nov-2021 22:55:01	110921044.d	Client	SW3-EB-20211102-01	Aqueous	1	21582	Surrogates	Smp	0.1100		SUR:6:2(ND),NCM
38	ID CCV 1000B_SVLC-1744	09-Nov-2021 23:05:36	110921045.d	CCV					Analytes	L-5	1.00		
39	CCB 3	09-Nov-2021 23:16:10	110921046.d	InstBlk					Surrogates	Smp	0.1100		
40	WQ21639-001	09-Nov-2021 23:26:46	110921047.d	Client		Aqueous	1	21639	Surrogates	Smp	0.1100		
41	WQ21639-002	09-Nov-2021 23:37:21	110921048.d	LCS		Aqueous	1	21639	Analytes	100x PDS	0.2000		SUR:EFOSA(low),rr to confirm
42	WQ21639-003	09-Nov-2021 23:47:51	110921049.d	LCSD		Aqueous	1	21639	Analytes	100x PDS	0.2000		
43	WJ12026-004	09-Nov-2021 23:58:23	110921050.d	Client	HBF-DPT0391-045.0-202110	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:4:2(ND),EFOSA(LOW),CENT, NCM
44	WJ15043-001	10-Nov-2021 00:08:55	110921051.d	Client	HBF-EB-20211014-01	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:6:2(ND),NCM
45	WJ14015-017	10-Nov-2021 00:19:28	110921052.d	Client	HBF-DPT0390-045.0-202110	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:4:2(DET),CENT, NCM
46	WK03035-006	10-Nov-2021 00:30:01	110921053.d	Client	SW3-DPT-0144-022.0-20211	Aqueous	500	21582	Surrogates	Smp	0.1100		RR-5000X
47	WK03035-007	10-Nov-2021 00:40:34	110921054.d	Client	SW3-DPT-0144-032.0-20211	Aqueous	20	21582	Surrogates	Smp	0.1100		
48	WK03035-009	10-Nov-2021 00:51:07	110921055.d	Client	SW3-DPT-0144-012.0-20211	Aqueous	5	21582	Surrogates	Smp	0.1100		
49	WJ14015-010	10-Nov-2021 01:01:42	110921056.d	Client	HBF-DPT0385-025.0-202110	Aqueous	100	21639	Surrogates	Smp	0.1100		
50	WJ14015-011	10-Nov-2021 01:12:16	110921057.d	Client	HBF-DPT0385-035.0-202110	Aqueous	100	21639	Surrogates	Smp	0.1100		
51	WJ14015-012	10-Nov-2021 01:22:51	110921058.d	Client	HBF-DPT0385-045.0-202110	Aqueous	100	21639	Surrogates	Smp	0.1100		
52	WJ14015-013	10-Nov-2021 01:33:23	110921059.d	Client	HBF-DPT0390-005.0-202110	Aqueous	10	21639	Surrogates	Smp	0.1100		
53	ID CCV 1000C_SVLC-1744	10-Nov-2021 01:43:54	110921060.d	CCV					Analytes	L-5	1.00		

Report Date: 11-Nov-2021 18:39:49 AIM Revision: 2.0.2021.0812

Batch Path: \\Organics\LL\LCMSMS02.i\110921-DOD.b

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
54	CCB 4	10-Nov-2021 01:54:28	110921061.d	InstBlk					Surrogates	Smp	0.1100		
55	WJ14015-015	10-Nov-2021 02:05:01	110921062.d	Client	HBF-DPT0390-025.0-202110	Aqueous	5	21639	Surrogates	Smp	0.1100		SUR:4:2(DET),MTX,NCM
56	WJ15043-006	10-Nov-2021 02:15:34	110921063.d	Client	HBF-DPT0381-010.0-202110	Aqueous	20	21639	Surrogates	Smp	0.1100		
57	ID CCV 1000D_SVLC-1744	10-Nov-2021 02:26:08	110921064.d	CCV					Analytes	L-5	1.00		

Report Date: 11-Nov-2021 20:41:54 AIM Revision: 2.0.2021.0812

Pace Environmental Services, LLC

Batch Run Log Report

Batch: \\Organics\LL\LCMSMS02.i\111021-DOD.b

Method: LCMSMS02_PFAS-ID.M Version: V17 16-Sep-2021 08:57:04

Instrument: LCMSMS02.i Integrator: picker

Cal Start Date: 07-Nov-2021 18:47:44 Cal End Date: 07-Nov-2021 20:22:32

Method Lock: Unknown Lock Date:

Calib Method: PFAS-ID No.Compounds: 66

ALS Vial	LIMS Sample ID	Injection Date/Time	Data File	Sample Type	Client Sample ID	Matrix/ Level	Dil Fact	Prep Batch	Primary Reagent	Conc Level	Vol. Added	Inst QC	Comments
95	ID CCV 100_SVLC-1741	10-Nov-2021 13:49:27	111021005.d	CCV					Analytes	L-2	1.00		
96	ID CCV 200_SVLC-1742	10-Nov-2021 13:59:56	111021006.d	CCV					Analytes	L-3	1.00		
97	ID IBLK A	10-Nov-2021 14:10:25	111021007.d	InstBlk					Surrogates	Smp	0.1100		
1	WQ21749-001	10-Nov-2021 14:20:57	111021008.d	MBlk		Aqueous	1	21749	Surrogates	Smp	0.1100		SUR:6:2(HIGH), RR TO CONFIRM
2	WQ21749-002	10-Nov-2021 14:31:25	111021009.d	LCS		Aqueous	1	21749	Analytes	100x PDS	0.2000		
3	WQ21639-002	10-Nov-2021 14:41:55	111021010.d	LCS		Aqueous	1	21639	Surrogates	Smp	0.1100		
4	WQ21515-001	10-Nov-2021 14:52:26	111021011.d	MBlk		Aqueous	1	21515	Surrogates	Smp	0.1100		
5	WJ16026-005	10-Nov-2021 15:02:56	111021012.d	Client	HBF-DPT0388-035.0-202110	Aqueous	1	21421	Surrogates	Smp	0.1100		SUR: 4:2(ND),6:2(DET),EFOSA(LOW),TeDA(LOW),RX
6	WK03035-003	10-Nov-2021 15:13:26	111021013.d	Client	SW3-DPT-0143-032.0-20211	Aqueous	1	21582	Surrogates	Smp	0.1100		Reporting 6:2 only
7	WJ12026-004	10-Nov-2021 15:23:57	111021014.d	Client	HBF-DPT0391-045.0-202110	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:4:2(ND),6:2(ND),NCM
8	WJ14015-017	10-Nov-2021 15:34:30	111021015.d	Client	HBF-DPT0390-045.0-202110	Aqueous	1	21639	Surrogates	Smp	0.1100		SUR:4:2(DET),6:2(DET),CENT,NCM
9	WJ16026-008	10-Nov-2021 15:45:04	111021016.d	Client	HBF-DPT0385-005.0-202110	Aqueous	100	21421	Surrogates	Smp	0.1100		
10	WK03035-006	10-Nov-2021 15:55:38	111021017.d	Client	SW3-DPT-0144-022.0-20211	Aqueous	5000	21582	Surrogates	Smp	0.1100		
14	ID CCV 1000_SVLC-1744	10-Nov-2021 16:37:42	111021021.d	CCV					Analytes	L-5	1.00		
15	CCB 1	10-Nov-2021 16:48:12	111021022.d	InstBlk					Surrogates	Smp	0.1100		
16	WJ27023-001	10-Nov-2021 16:58:43	111021023.d	Client	POL-DPT0129-012.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		
17	WJ27023-002	10-Nov-2021 17:09:14	111021024.d	Client	POL-DPT0129-022.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		SUR:4:2(ND),NCM
18	WJ27023-003	10-Nov-2021 17:19:46	111021025.d	Client	POL-DPT0129-032.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		SUR:BA(LOW),4:2(ND),EFOSA,TeDA(low),MTX,NCM
19	WJ27023-004	10-Nov-2021 17:30:19	111021026.d	Client	POL-DPT0129-042.0-202110	Aqueous	1	21749	Surrogates	Smp	0.1100		Multiple sur failures,RR/RX
20	WJ25007-001	10-Nov-2021 17:40:55	111021027.d	Client	HBF-DRUM220294-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-20X,SUR:4:2(DET),6:2(DET),RX?
21	WJ25007-002	10-Nov-2021 17:51:29	111021028.d	Client	HBF-DRUM220295-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-10X, sur: 4:2(det),8:2(det),confirmed by MS,NCM
22	WJ25007-002MS	10-Nov-2021 18:01:58	111021029.d	MS		Aqueous	1	21749	Analytes	100x PDS	0.2000		
23	WJ25007-003	10-Nov-2021 18:12:27	111021030.d	Client	HBF-DRUM220296-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-10X, 4:2(DET),6:2(DET),CONFIRMED BY DUP,NCM
24	WJ25007-003DU	10-Nov-2021 18:22:58	111021031.d	Client		Aqueous	1	21749	Surrogates	Smp	0.1100		
25	WJ25007-004	10-Nov-2021 18:33:29	111021032.d	Client	HBF-DRUM220297-20211021	Aqueous	1	21749	Surrogates	Smp	0.1100		RR-20X,sur: 4:2(DET),6:2(DET)
26	ID CCV 1000A_SVLC-1744	10-Nov-2021 18:44:01	111021033.d	CCV					Analytes	L-5	1.00		
51	WJ16026-014	10-Nov-2021 23:07:42	111021058.d	Client	HBF-DPT0390-010.0-202110	Aqueous	50	21515	Surrogates	Smp	0.1100		RR-20X
52	WJ16026-017	10-Nov-2021 23:18:14	111021059.d	Client	HBF-DPT0390-045.0-202110	Aqueous	50	21515	Surrogates	Smp	0.1100		RR-5X
53	WJ16003-004	10-Nov-2021 23:28:46	111021060.d	Client	HBF-DPT0378-045.0-202110	Aqueous	50	21515	Surrogates	Smp	0.1100		RR-20X

Analyst: ALM **Level 2 Analyst:** N/A

Status: Level 1 review released

Matrix: Aqueous

Printed: 11/17/21 1446

Prep Batch: 21177

PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/03/2021 1629
End Date: 11/04/2021 0044

Conc Analyst: ALM
Conc Start Date: 11/03/2021 0000
Conc End Date: 11/03/2021 0000

Ext Solvent: MEOH>96%MEOH/4%H2O
Reagents Vol. (mL): 10
Chem ID: 21-2009>21-2009/21-2249

Surrogate: SVLG-1729
Surrogate Vol. (mL): 0.110

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WQ21177-001	MB		1	PFAS by ID SOP QSM B-15	250		250		0.000	10.0	Init: 278.13g; Final: 31.48g
WQ21177-002	LCS		1	PFAS by ID SOP QSM B-15	250		250	SVLG-1731	0.200	10.0	Init: 294.07g; Final: 31.36g
WK03035-001	Sample	SW3-DPT-0143-012.0-20211102	1	PFAS by ID SOP QSM B-15	300.05	32.22	268		0.000	10.0	NCM62822; Sorbent dry start/end:1st: 2054/2059,2nd: 2315/2320; Buffer:SV21-779; Amm-MeOH:SV21-783(4mL)
WK03035-001MSMS			1	PFAS by ID SOP QSM B-15	301.52	31.65	270	SVLG-1731	0.200	10.0	NCM62822; Bottletop#329; Pipettes:21-1600,21-1707; QC Bottles: M-1-243-01BB; GCB/WAX 500/50:21-2327;
WK03035-002	Sample	SW3-DPT-0143-022.0-20211102	1	PFAS by ID SOP QSM B-15	311.12	32.17	279		0.000	10.0	NCM62822; Reservoirs:21-1930; Elution tubes:21-1415; Falcon tubes:21-1651; Centrifuge tubes:21-2028
WK03035-002DUDuplicate			1	PFAS by ID SOP QSM B-15	315.12	31.83	283		0.000	10.0	NCM62822; MeOH Ext:4mL, Filt:2mL; IS: SVLG-1727(0.010mL); ASV/Caps: 21-1476/21-1813;
WK03035-003	Sample	SW3-DPT-0143-032.0-20211102	1	PFAS by ID SOP QSM B-15	318.91	31.82	287		0.000	10.0	NCM62822; QC Water: PFAS-21-009; Storage bottles:21-2270;
WK03035-004	Sample	SW3-DPT-0143-042.0-20211102	1	PFAS by ID SOP QSM B-15	308.94	32.25	277		0.000	10.0	NCM62822
WK03035-006	Sample	SW3-DPT-0144-022.0-20211102	1	PFAS by ID SOP QSM B-15	320.39	32.27	288		0.000	10.0	NCM62822
WK03035-007	Sample	SW3-DPT-0144-032.0-20211102	1	PFAS by ID SOP QSM B-15	318.98	32.12	287		0.000	10.0	NCM62822
WK03035-008	Sample	SW3-DPT-0144-042.0-20211102	1	PFAS by ID SOP QSM B-15	325.86	31.93	294		0.000	10.0	NCM62822
WK03035-009	Sample	SW3-DPT-0144-017.0-20211102	1	PFAS by ID SOP QSM B-15	313.47	32.52	281		0.000	10.0	NCM62822
WK03035-010	Sample	SW3-EQBLK-20211102	1	PFAS by ID SOP QSM B-15	304.25	31.7	273		0.000	10.0	
WJ12026-003	Sample	HBF-DPT0391-035.0-20211011	1	PFAS by ID	311.48	32.29	279		0.000	10.0	NCM62822

Analyst: ALM | Level 2 Analyst: N/A | Printed: 11/17/21 1446

Status: Level 1 review released

Matrix: Aqueous

Prep Batch: 21177
PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/03/2021 1629
End Date: 11/04/2021 0044

Conc Analyst: ALM
Conc Start Date: 11/03/2021 0000
Conc End Date: 11/03/2021 0000

Ext Solvent: MEOH>96%MEOH/4%H2O

Reagents Vol. (mL): 10

Chem ID: 21-2009>21-2009/21-2249

Surrogate: SVLG-1729
Surrogate Vol. (mL): 0.110

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
				SOP QSM B-15							
W012026-004	Sample	HBF-DPT0391-045.0-20211011	1	PFAS by ID SOP QSM B-15	314.73	32.36	282		0.000	10.0	NCM62822
W014015-010	Sample	HBF-DPT0385-025.0-20211013	1	PFAS by ID SOP QSM B-15	313.66	32.56	281		0.000	10.0	NCM62822
W014015-011	Sample	HBF-DPT0385-035.0-20211013	1	PFAS by ID SOP QSM B-15	317.9	32.27	286		0.000	10.0	NCM62822
W014015-012	Sample	HBF-DPT0385-045.0-20211013	1	PFAS by ID SOP QSM B-15	320.2	32.34	288		0.000	10.0	NCM62822
W014015-013	Sample	HBF-DPT0390-005.0-20211013	1	PFAS by ID SOP QSM B-15	315.59	31.88	284		0.000	10.0	NCM62822
W014015-015	Sample	HBF-DPT0390-025.0-20211013	1	PFAS by ID SOP QSM B-15	308.83	32.97	276		0.000	10.0	NCM62822
W014015-017	Sample	HBF-DPT0390-045.0-20211013	1	PFAS by ID SOP QSM B-15	317.97	32.43	286		0.000	10.0	NCM62822
W015043-001	Sample	HBF-EB-20211014-01	1	PFAS by ID SOP QSM B-15	307.17	31.6	276		0.000	10.0	
W015043-006	Sample	HBF-DPT0381-010.0-20211014	1	PFAS by ID SOP QSM B-15	319.31	49.8	270		0.000	10.0	NCM62822, 62823
W015043-007	Sample	HBF-DPT0381-025.0-20211014	1	PFAS by ID SOP QSM B-15	318.09	32.56	286		0.000	10.0	NCM62822

(end of report) **Total Samples: 20**

Analyst: ARC2 **Level 2 Analyst:** N/A
Status: Level 1 review released
Matrix: Aqueous

Printed: 11/17/21 1447

Prep Batch: 21582
PFAS Prep by ID SOP QSM B-15 - PFAS Aqueous Preparation

Start Date: 11/07/2021 1308
End Date: 11/07/2021 1946

Conc Analyst: ARC2
Conc Start Date: 11/07/2021 1946
Conc End Date: 11/07/2021 1946

Ext Solvent: MEOH>96%MEOH/4%H2O
Reagents Vol. (mL): 10
Chem ID: 21-2252>21-2252/21-2505

Surrogate: SVLG-1736
Surrogate Vol. (mL): 0.110

Balance ID: Balance # 20-1123

Sample ID	QC Code	Client Sample ID	Run	Analysis Method	Container + Sample (g)	Container Empty (g)	Initial Vol. (mL)	Spike ID	Spike Vol. (mL)	Final Vol. (mL)	Comments
WQ21582-001	MB		1	PFAS by ID SOP QSM B-15	280	30	250		0.000	10.0	MB init:282.93g,fin:30.62g;LCS init:288.22g,fin:30.32g;LCSD init:287.10g,fin:31.38g;
WQ21582-002	LCS		1	PFAS by ID SOP QSM B-15	280	30	250	SVLG-1731	0.200	10.0	Sorbent dry start/end:1818/1823; Buffer:SV21-786; Amm-MeOH:SV21-783(4mL); QC Water: PFAS-21-010;
WQ21582-003	LCSD		1	PFAS by ID SOP QSM B-15	280	30	250	SVLG-1731	0.200	10.0	Bottletop#329; Pipettes:21-1600,21-1707; QC Bottles: M-1-259-02BB; GCB/WAX 500/50:21-2327;
WJ12026-003	Sample	HBF-DPT0391-035.0-20211011	2	PFAS by ID SOP QSM B-15	308.35	33.63	275		0.000	10.0	Reservoirs:21-1930; Elution tubes:21-1415; Falcon tubes:21-1651; Centrifuge tubes:21-2028; Storage bottles:21-2556;
WK03035-003	Sample	SW3-DPT-0143-032.0-20211102	2	PFAS by ID SOP QSM B-15	313.64	31.71	282		0.000	10.0	MeOH Ext:4mL, Filt:2mL; IS: SVLG-1727(0.010mL); ASV/Caps: 21-1476/21-1813;
WK03035-004	Sample	SW3-DPT-0143-042.0-20211102	2	PFAS by ID SOP QSM B-15	323.14	33.25	290		0.000	10.0	NCM#63062,63063
WK03035-006	Sample	SW3-DPT-0144-022.0-20211102	3	PFAS by ID SOP QSM B-15	319.27	33.15	286		0.000	10.0	
WK03035-007	Sample	SW3-DPT-0144-032.0-20211102	2	PFAS by ID SOP QSM B-15	329.96	33.38	297		0.000	10.0	
WK03035-008	Sample	SW3-DPT-0144-042.0-20211102	2	PFAS by ID SOP QSM B-15	318.06	32.97	285		0.000	10.0	
WK03035-009	Sample	SW3-DPT-0144-012.0-20211102	3	PFAS by ID SOP QSM B-15	319.11	33.4	286		0.000	10.0	
WK03035-010	Sample	SW3-EB-20211102-01	2	PFAS by ID SOP QSM B-15	322.18	32.18	290		0.000	10.0	
WK06030-001	Sample	STEW-EFF-11052021	1	PFAS by ID SOP QSM B-15	287.68	33.24	254		0.000	10.0	

(end of report) **Total Samples: 9**

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1639	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1625	2,000	125	5	50	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,375		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1640	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1625	2,000	500	10	100	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,500		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1641	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	200 ppt PFAS FL ICAL (L3)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1625	2,000	1,000	10	200	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,000		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1642	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	500 ppt PFAS FL ICAL (L4)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1625	20,000	125	5	500	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,375		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1600	Level 2 Reviewed by:	ARC2
Prep. Date:	9/7/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-609		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1625	20,000	750	15	1000	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	750		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	750		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	12,750		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1643	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	2000 ppt PFAS FL ICAL (L6)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1625	20,000	500	5	2000	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,000		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1644	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	5000 ppt PFAS FL ICAL (L7)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	125	5	5000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	250		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	4,375		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: JJG
Prep. Date: 9/7/2021
Exp. Date: 11/19/2021
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1645
Mix Name: 10000 ppt PFAS FL ICAL (L8)
Solvent ID #: 21-702
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 9/14/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	500	10	10000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,500		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1646	Level 2 Reviewed by:	arc2
Prep. Date:	9/7/2021	Mix Name:	15000 ppt PFAS FL ICAL (L9)	Date:	9/14/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-702		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	750	10	15000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	500		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	8,250		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: JJG
Prep. Date: 9/7/2021
Exp. Date: 11/19/2021
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1647
Mix Name: 20000 ppt PFAS FL ICAL (L10)
Solvent ID #: 21-702
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 9/14/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1625	200,000	1,500	15	20000	1,2	-	8/26/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	750		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1631	20,000.0	750		1000	1	-	9/2/2021	4/14/2022
96% Methanol	21-702	pure	12,000		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 9/15/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1652
Mix Name: ISOMER CHECK STD
Solvent ID #: SV21-702
Solvent Name: Methanol/Water

Level 2 Reviewed by: ARC2
Date: 9/15/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Isomer Check 50X Mix	SVLC-0588	1,000	20	2	10	1	-	3/11/2019	2/7/2020
ID IS 20ppb	SVLC-1648	20	100		1	1	-	9/13/2021	4/14/2022
ID SUR 20ppb	SVLC-1633	20	100		1	1	-	9/2/2021	6/15/2022
96% Methanol	SV21-702	pure	1,780		#VALUE!	1	-	8/31/2021	8/31/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1655	Level 2 Reviewed by:	arc2
Prep. Date:	9/17/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	9/19/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-704		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	125	5	50	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	250		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1648	20,000.0	250		1000	1	-	9/13/2021	4/14/2022
96% Methanol	21-704	pure	4,375		#VALUE!	1	-	9/1/2021	9/1/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1656	Level 2 Reviewed by:	arc2
Prep. Date:	9/17/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	9/19/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-704		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	500	10	100	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1633	20,000.0	500		1000	1	-	9/2/2021	6/15/2022
ID IS 20ppb	SVLC-1648	20,000.0	500		1000	1	-	9/13/2021	4/14/2022
96% Methanol	21-704	pure	8,500		#VALUE!	1	-	9/1/2021	9/1/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 10/19/2021
Exp. Date: 6/15/2022
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1717
Mix Name: 1000 ppt PFAS FL ICAL (L5)
Solvent ID #: 21-758
Solvent Name: 96% Methanol

Level 2 Reviewed by: ALM
Date: 10/23/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1710	20,000	750	15	1000	1,2	-	10/12/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	750		1000	1	-	10/16/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	750		1000	1	-	10/13/2021	10/13/2022
96% Methanol	21-758	pure	12,750		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1724	Level 2 Reviewed by:	arc2
Prep. Date:	10/26/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	10/27/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-771		
Pipet ID:	20-2534,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	500	10	100	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	500		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	500		1000	1	-	10/13/2021	4/14/2022
96% Methanol	21-771	pure	8,500		#VALUE!	1	-	10/22/2021	10/22/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	JJG	Mix ID #:	SVLC- 1725	Level 2 Reviewed by:	arc2
Prep. Date:	10/26/2021	Mix Name:	200 ppt PFAS FL ICAL (L3)	Date:	10/27/2021
Exp. Date:	11/19/2021	Solvent ID #:	21-771		
Pipet ID:	20-2534,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1637	2,000	1,000	10	200	1,2	-	9/7/2021	11/19/2021
ID SUR 20ppb	SVLC-1713	20,000.0	500		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1711	20,000.0	500		1000	1	-	10/13/2021	4/14/2022
96% Methanol	21-771	pure	8,500		#VALUE!	1	-	10/22/2021	10/22/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	GLT	Mix ID #:	SVLC- 1729	Level 2 Reviewed by:	arc2
Prep. Date:	10/28/21	Mix Name:	PFAS ID SUR 100ppb	Date:	11/1/2021
Exp. Date:	06/15/22	Solvent ID #:	21-2252/21-2249		
Pipet ID:	20-1360, 20-2534	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
MPFAC-C-ES	21-2293	2,000	1,100	22	100	1	1/13/2026	10/20/2021	10/20/2022
ID 50X SUR Mix	SVLC-1687	1,000	2,200		100	1,2	-	9/30/2021	6/15/2022
Methanol	21-2252	pure	17,908		#VALUE!	1	6/30/2026	7/27/2021	6/30/2026
Water	21-2249	pure	792		#VALUE!	1	4/30/2026	7/15/2021	4/30/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. 13C3-GenX, 13C2-4:2FTS, 13C2-6:2FTS, 13C2-8:2FTS, d5-EtFOSAA,

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: arc2
Prep. Date: 11/01/21
Exp. Date: 11/19/21
Pipet ID: 21-1600

Mix ID #: SVLC- 1731
Mix Name: Full List 100X PDS
Solvent ID #: 21-771
Solvent Name: 96% Methanol

Level 2 Reviewed by: NK1
Date: 11/11/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
Full List Stock PDS (10X)	SVLC-1693	200.0	1,500	15	20	1,2	-	10/4/2021	11/19/2021
96% Methanol	21-771	pure	13,500		#VALUE!	1	-	10/12/2021	10/12/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water. 2. GenX is present at twice (2x) the concentration listed - 40ng/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: MMM
Prep. Date: 11/3/2021
Exp. Date: 4/14/2022
Pipet ID: 393,20-2533

Mix ID #: SVLC- 1734
Mix Name: PFAS Full List ICV, 500ppt
Solvent ID #: 21-2252/21-2249
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/4/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/mL	uL	mL	pg/mL				
PFAS ICV 100X Mix	SVLC-1025	20,000.0	50	2	500	1,2	-	6/8/2020	9/20/2022
ID SUR 20ppb	SVLC-1713	20,000.0	100		1000	1	-	10/14/2021	6/15/2022
ID IS 20ppb	SVLC-1727	20,000.0	100		1000	1	-	10/28/2021	4/14/2022
Methanol	21-2252	pure	1,680		#VALUE!	1	7/31/2026	10/14/2021	7/31/2026
Water	21-2249	pure	70		#VALUE!	1	8/31/2026	10/13/2021	8/31/2026

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at a final concentration of 2500 pg/mL

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: arc2
Prep. Date: 11/04/21
Exp. Date: 06/15/22
Pipet ID: 20-1360, 20-2534

Mix ID #: SVLC- 1736
Mix Name: PFAS ID SUR 100ppb
Solvent ID #: 21-2252/21-2249
Solvent Name: Methanol/Water

Level 2 Reviewed by: glt
Date: 11/13/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		ng/mL	uL	mL	ng/mL				
MPFAC-C-ES	21-2535	2,000	2,200	44	100	1	1/13/2026	11/4/2021	11/4/2022
ID 50X SUR Mix	SVLC-1735	1,000	4,400		100	1,2	-	11/4/2021	6/15/2022
Methanol	21-2252	pure	35,816		#VALUE!	1	6/30/2026	7/27/2021	6/30/2026
Water	21-2249	pure	1,584		#VALUE!	1	4/30/2026	7/15/2021	4/30/2026

Refer to COA for specific compound concentrations for mixed standards.
Footnotes:
1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. 13C3-GenX, 13C2-4:2FTS, 13C2-6:2FTS, 13C2-8:2FTS, d5-EtFOSAA,

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1741	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	100 ppt PFAS FL ICAL (L2)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	500	10	100	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1740	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	50 ppt PFAS FL ICAL (L1)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	125	5	50	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1742	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	200 ppt PFAS FL ICAL (L3)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 1000X PDS	SVLC-1738	2,000	1,000	10	200	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1743	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	500 ppt PFAS FL ICAL (L4)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	125	5	500	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1744	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	1000 ppt PFAS FL ICAL (L5)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	750	15	1000	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	750		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	750		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	12,750		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials: mmm
Prep. Date: 11/6/2021
Exp. Date: 2/4/2022
Pipet ID: 20-2533,20-1360

Mix ID #: SVLC- 1745
Mix Name: 2000 ppt PFAS FL ICAL (L6)
Solvent ID #: SV21-789
Solvent Name: Methanol/Water

Level 2 Reviewed by: arc2
Date: 11/10/2021

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 100X PDS	SVLC-1738	20,000	500	5	2000	1,2	-	11/6/2021	2/4/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1746	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	5000 ppt PFAS FL ICAL (L7)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	125	5	5000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	250		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	250		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	4,375		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1747	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	10000 ppt PFAS FL ICAL (L8)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	500	10	10000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,500		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1748	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	15000 ppt PFAS FL ICAL (L9)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	750	10	15000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	500		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	500		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	8,250		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Working Standards Prep Log - LC/MS/MS Semi-volatiles

Initials:	mmm	Mix ID #:	SVLC- 1749	Level 2 Reviewed by:	arc2
Prep. Date:	11/6/2021	Mix Name:	20000 ppt PFAS FL ICAL (L10)	Date:	11/10/2021
Exp. Date:	2/4/2022	Solvent ID #:	SV21-789		
Pipet ID:	20-2533,20-1360	Solvent Name:	Methanol/Water		

Component	Stock Std. # or Shealy ID #	Conc. of Stock Std.	Aliquoted Volume	Dilution Volume	Final Conc.	Foot Notes (if applicable)	MFG. Exp Date	Ampoule Date Opened	Ampoule Date Expired
		pg/ml	ul	ml	pg/ml				
Full List 10X PDS	SVLC-1733	200,000	1,500	15	20000	1,2	-	11/2/2021	2/14/2022
ID SUR 20ppb	SVLC-1728	20,000.0	750		1000	1	-	10/28/2021	6/15/2022
ID IS 20ppb	SVLC-1737	20,000.0	750		1000	1	-	11/5/2021	4/14/2022
96% Methanol	21-789	pure	12,000		#VALUE!	1	-	11/5/2021	11/5/2022

Refer to COA for specific compound concentrations for mixed standards.

Footnotes:

1. Final solvent composition of this standard is 96:4% (v/v) methanol:water 2. GenX is present at twice (2x) the concentration listed

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Chuck Sorden

Project Name: KSC PFAS

Project Number: 112G09237

Lot Number:**WL14016**

Date Completed:01/07/2022

Kathy Smith

01/07/2022 12:45 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc*.)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: WL14016

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

For solid samples:

CF = DF * FV / Ws/S/1000

FV is volume of extract (mL)
Ws is initial sample weight (gram)
S is %Solids
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Concentration (ug/kg) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform Colilert-18, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-

2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PFAS
The method blank associated with batch 25957 had 6:2 FTS detected at a concentration that was above the MDL but below ½ the PQL. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "B".

The method blank for prep batch 25999 contained analyte: PFOS greater than the acceptance criteria. The associated samples, WL14016-015, WL14016-016, WL14016-017, WL14016-018, WL14016-025, WL14016-026, did not contain detections for the target analyte; therefore, re-extraction and/or re-analysis of samples was not performed. The data has been reported.

The method blank for prep batch 25999 contained analyte: PFOS greater than the acceptance criteria. The associated samples, WL14016-022, WL14016-023, WL14016-024, contained detections for this analyte at concentrations greater than 10X the value found in the method blank; therefore sample results are not impacted. The data has been reported.

TOC
The MS/MSD associated with sample WL14016-024 had TOC recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Sample Summary

Tetra Tech

Lot Number: WL14016

Project Name: KSC PFAS

Project Number: 112G09237

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	FS3-RB01-20211209	Aqueous	12/09/2021 0930	12/14/2021
002	FS3-SB0001-011.5-20211209	Solid	12/09/2021 1155	12/14/2021
003	FS3-SB0001-025.5-20211209	Solid	12/09/2021 1200	12/14/2021
004	FS3-SB0001-038.5-20211209	Solid	12/09/2021 1205	12/14/2021
005	FS3-SB0001-055.5-20211209	Solid	12/09/2021 1210	12/14/2021
006	FS3-SB0001-059.5-20211209	Solid	12/09/2021 1215	12/14/2021
007	FS3-SB0001-070.5-20211209	Solid	12/09/2021 1220	12/14/2021
008	FS3-FB01-20211209	Aqueous	12/09/2021 1230	12/14/2021
009	SWB01-20211209	Aqueous	12/09/2021 1235	12/14/2021
010	SWB02-20211209	Aqueous	12/09/2021 1240	12/14/2021
011	STP1-RB02-20211209	Aqueous	12/09/2021 1630	12/14/2021
012	STP1-SB0001-009.5-20211209	Solid	12/09/2021 1730	12/14/2021
013	STP1-SB0001-021.5-20211209	Solid	12/09/2021 1735	12/14/2021
014	STP1-SB0001-029.5-20211209	Solid	12/09/2021 1740	12/14/2021
015	STP1-SB0001-043.5-20211210	Solid	12/10/2021 0810	12/14/2021
016	STP1-SB0001-045.5-20211210	Solid	12/10/2021 0815	12/14/2021
017	STP1-SB0001-049.5-20211210	Solid	12/10/2021 0820	12/14/2021
018	STP1-SB0001-053.5-20211210	Solid	12/10/2021 0830	12/14/2021
019	STP1-FB02-20211210	Aqueous	12/10/2021 0835	12/14/2021
020	FS1-RB03-20211210	Aqueous	12/10/2021 1000	12/14/2021
021	FS1-SB0001-013.5-20211210	Solid	12/10/2021 1200	12/14/2021
022	FS1-SB0001-019.5-20211210	Solid	12/10/2021 1205	12/14/2021
023	FS1-SB0001-033.5-20211210	Solid	12/10/2021 1210	12/14/2021
024	FS1-SB0001-046.5-20211210	Solid	12/10/2021 1215	12/14/2021
025	FS1-SB0001-052.5-20211210	Solid	12/10/2021 1220	12/14/2021
026	FS1-SB0001-059.5-20211210	Solid	12/10/2021 1225	12/14/2021
027	FS1-FB03-20211210	Aqueous	12/10/2021 1230	12/14/2021

(27 samples)

Detection Summary

Tetra Tech

Lot Number: WL14016

Project Name: KSC PFAS

Project Number: 112G09237

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	FS3-SB0001-011.5-20211209	Solid	TOC	Walkley-Black	20000		mg/kg	9
002	FS3-SB0001-011.5-20211209	Solid	PFHxS	PFAS by ID	1.1	I	ug/kg	10
002	FS3-SB0001-011.5-20211209	Solid	PFPeA	PFAS by ID	0.30	I	ug/kg	10
002	FS3-SB0001-011.5-20211209	Solid	PFOS	PFAS by ID	3.2		ug/kg	10
003	FS3-SB0001-025.5-20211209	Solid	TOC	Walkley-Black	4200		mg/kg	12
003	FS3-SB0001-025.5-20211209	Solid	6:2 FTS	PFAS by ID	5.4	V	ug/kg	13
003	FS3-SB0001-025.5-20211209	Solid	PFHxS	PFAS by ID	0.38	I	ug/kg	13
003	FS3-SB0001-025.5-20211209	Solid	PFOS	PFAS by ID	4.7		ug/kg	13
004	FS3-SB0001-038.5-20211209	Solid	TOC	Walkley-Black	1500		mg/kg	15
004	FS3-SB0001-038.5-20211209	Solid	6:2 FTS	PFAS by ID	3.8	V	ug/kg	16
004	FS3-SB0001-038.5-20211209	Solid	PFHxS	PFAS by ID	0.58	I	ug/kg	16
004	FS3-SB0001-038.5-20211209	Solid	PFOS	PFAS by ID	4.3		ug/kg	16
005	FS3-SB0001-055.5-20211209	Solid	TOC	Walkley-Black	2400		mg/kg	18
005	FS3-SB0001-055.5-20211209	Solid	6:2 FTS	PFAS by ID	3.4	V	ug/kg	19
005	FS3-SB0001-055.5-20211209	Solid	PFOS	PFAS by ID	0.30	I	ug/kg	19
006	FS3-SB0001-059.5-20211209	Solid	TOC	Walkley-Black	18000		mg/kg	21
006	FS3-SB0001-059.5-20211209	Solid	6:2 FTS	PFAS by ID	1.7	VI	ug/kg	22
007	FS3-SB0001-070.5-20211209	Solid	TOC	Walkley-Black	1900		mg/kg	24
007	FS3-SB0001-070.5-20211209	Solid	6:2 FTS	PFAS by ID	1.6	VI	ug/kg	25
012	STP1-SB0001-009.5-20211209	Solid	TOC	Walkley-Black	18000		mg/kg	35
012	STP1-SB0001-009.5-20211209	Solid	6:2 FTS	PFAS by ID	1.2	VI	ug/kg	36
012	STP1-SB0001-009.5-20211209	Solid	PFOS	PFAS by ID	1.9		ug/kg	36
013	STP1-SB0001-021.5-20211209	Solid	TOC	Walkley-Black	4600		mg/kg	38
013	STP1-SB0001-021.5-20211209	Solid	6:2 FTS	PFAS by ID	1.0	VI	ug/kg	39
013	STP1-SB0001-021.5-20211209	Solid	PFOS	PFAS by ID	0.76	I	ug/kg	39
014	STP1-SB0001-029.5-20211209	Solid	TOC	Walkley-Black	880		mg/kg	41
014	STP1-SB0001-029.5-20211209	Solid	PFOS	PFAS by ID	0.55	I	ug/kg	42
015	STP1-SB0001-043.5-20211210	Solid	TOC	Walkley-Black	1500		mg/kg	44
016	STP1-SB0001-045.5-20211210	Solid	TOC	Walkley-Black	3400		mg/kg	47
017	STP1-SB0001-049.5-20211210	Solid	TOC	Walkley-Black	3000		mg/kg	50
018	STP1-SB0001-053.5-20211210	Solid	TOC	Walkley-Black	3700		mg/kg	53
021	FS1-SB0001-013.5-20211210	Solid	TOC	Walkley-Black	7400		mg/kg	60
021	FS1-SB0001-013.5-20211210	Solid	8:2 FTS	PFAS by ID	2.6		ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFHxS	PFAS by ID	0.53	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFHpA	PFAS by ID	0.37	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFHxA	PFAS by ID	0.58	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFOA	PFAS by ID	0.28	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFPeA	PFAS by ID	0.57	I	ug/kg	61
021	FS1-SB0001-013.5-20211210	Solid	PFOS	PFAS by ID	4.6	V	ug/kg	61
022	FS1-SB0001-019.5-20211210	Solid	TOC	Walkley-Black	4200		mg/kg	63
022	FS1-SB0001-019.5-20211210	Solid	8:2 FTS	PFAS by ID	4.4		ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	6:2 FTS	PFAS by ID	1.5	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFHxS	PFAS by ID	2.2		ug/kg	64

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
022	FS1-SB0001-019.5-20211210	Solid	PFHpA	PFAS by ID	0.45	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFHxA	PFAS by ID	0.61	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFNA	PFAS by ID	0.39	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFOA	PFAS by ID	0.86	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFPeA	PFAS by ID	0.64	I	ug/kg	64
022	FS1-SB0001-019.5-20211210	Solid	PFOS	PFAS by ID	29	V	ug/kg	64
023	FS1-SB0001-033.5-20211210	Solid	TOC	Walkley-Black	1200		mg/kg	66
023	FS1-SB0001-033.5-20211210	Solid	8:2 FTS	PFAS by ID	2.2	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	6:2 FTS	PFAS by ID	4.6		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFBS	PFAS by ID	0.55	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHpS	PFAS by ID	0.91	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFPeS	PFAS by ID	0.64	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHxS	PFAS by ID	9.4		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFBA	PFAS by ID	0.34	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHpA	PFAS by ID	0.48	I	ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFHxA	PFAS by ID	2.1		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFOA	PFAS by ID	1.5		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFPeA	PFAS by ID	1.2		ug/kg	67
023	FS1-SB0001-033.5-20211210	Solid	PFOS	PFAS by ID	110	V	ug/kg	67
024	FS1-SB0001-046.5-20211210	Solid	TOC	Walkley-Black	590	S	mg/kg	69
024	FS1-SB0001-046.5-20211210	Solid	PFBS	PFAS by ID	0.31	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFHpS	PFAS by ID	0.29	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFPeS	PFAS by ID	0.33	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFHxS	PFAS by ID	3.2		ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFHxA	PFAS by ID	0.64	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFOA	PFAS by ID	0.54	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFPeA	PFAS by ID	0.32	I	ug/kg	70
024	FS1-SB0001-046.5-20211210	Solid	PFOS	PFAS by ID	8.4	V	ug/kg	70
025	FS1-SB0001-052.5-20211210	Solid	TOC	Walkley-Black	1300		mg/kg	72
026	FS1-SB0001-059.5-20211210	Solid	TOC	Walkley-Black	1300		mg/kg	75

(73 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-001
Description: FS3-RB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 0930	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1605	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-001	
Description: FS3-RB01-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 0930	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		101	50-150
13C9_PFNA		104	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-002	
Description: FS3-SB0001-011.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1155	Project Name: KSC PFAS	% Solids: 80.9	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	20000		2000	1000	980	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-002	
Description: FS3-SB0001-011.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1155	Project Name: KSC PFAS	% Solids: 80.9	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1329	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.1	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.30	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.2		1.2	0.60	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		92	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		72	50-150
13C3-HFPO-DA		69	50-150
13C4_PFBA		68	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		74	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		77	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-002
Description: FS3-SB0001-011.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1155	Project Name: KSC PFAS	% Solids: 80.9 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	50-150
13C8_PFOS		79	50-150
13C9_PFNA		73	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Inorganic non-metals

Client: Tetra Tech		Laboratory ID: WL14016-003
Description: FS3-SB0001-025.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1200	Project Name: KSC PFAS	% Solids: 79.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	4200		200	100	99	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-003
Description: FS3-SB0001-025.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1200	Project Name: KSC PFAS	% Solids: 79.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1340	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.4	V	2.5	1.3	0.63	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.6	U	5.1	2.6	1.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.38	I	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.7		1.3	0.65	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		78	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		74	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA		74	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		70	50-150
13C5_PFPeA		83	50-150
13C6_PFDA		72	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-003
Description: FS3-SB0001-025.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1200	Project Name: KSC PFAS	% Solids: 79.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	50-150
13C8_PFOS		84	50-150
13C9_PFNA		73	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		52	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-004
Description: FS3-SB0001-038.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1205	Project Name: KSC PFAS	% Solids: 78.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1500		200	100	99	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-004
Description: FS3-SB0001-038.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1205	Project Name: KSC PFAS	% Solids: 78.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1350	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	V	2.4	1.2	0.61	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.4	U	4.8	2.4	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.58	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.3		1.2	0.60	0.24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		87	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		92	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		74	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA		77	50-150
13C4_PFHpA		74	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		73	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-004
Description: FS3-SB0001-038.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1205	Project Name: KSC PFAS	% Solids: 78.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		81	50-150
13C9_PFNA		76	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Client: Tetra Tech		Laboratory ID: WL14016-005	
Description: FS3-SB0001-055.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1210	Project Name: KSC PFAS	% Solids: 83.7	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	2400		190	95	97	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-005	
Description: FS3-SB0001-055.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1210	Project Name: KSC PFAS	% Solids: 83.7	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1422	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.4	V	2.3	1.2	0.57	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.30	I	1.1	0.55	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		93	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		80	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		83	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		92	50-150
13C6_PFDA		77	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-005
Description: FS3-SB0001-055.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1210	Project Name: KSC PFAS	% Solids: 83.7 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		78	50-150
13C8_PFOS		85	50-150
13C9_PFNA		82	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-006	
Description: FS3-SB0001-059.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1215	Project Name: KSC PFAS	% Solids: 59.1	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	18000		1800	900	920	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-006	
Description: FS3-SB0001-059.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1215	Project Name: KSC PFAS	% Solids: 59.1	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1433	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.7	VI	2.9	1.5	0.72	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.9	U	5.8	2.9	1.4	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.5	U	2.9	1.5	0.72	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.70	U	1.4	0.70	0.29	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		72	50-150
13C2_6:2FTS		88	50-150
13C2_8:2FTS		78	50-150
13C2_PFDoA		69	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		64	50-150
13C3_PFHxS		58	50-150
13C3-HFPO-DA		58	50-150
13C4_PFBA		62	50-150
13C4_PFHpA		62	50-150
13C5_PFHxA		62	50-150
13C5_PFPeA		68	50-150
13C6_PFDA		61	50-150
13C7_PFUdA		75	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-006
Description: FS3-SB0001-059.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1215	Project Name: KSC PFAS	% Solids: 59.1 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		61	50-150
13C8_PFOS		68	50-150
13C9_PFNA		64	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		71	50-150
d3-MeFOSAA		73	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-007	
Description: FS3-SB0001-070.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1220	Project Name: KSC PFAS	% Solids: 76.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1900		200	100	98	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-007	
Description: FS3-SB0001-070.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1220	Project Name: KSC PFAS	% Solids: 76.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1444	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.6	VI	2.3	1.2	0.58	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150
13C2_6:2FTS		108	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		74	50-150
13C3_PFHxS		73	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA		72	50-150
13C4_PFHpA		73	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		75	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-007
Description: FS3-SB0001-070.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1220	Project Name: KSC PFAS	% Solids: 76.2 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	50-150
13C8_PFOS		76	50-150
13C9_PFNA		71	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-008	
Description: FS3-FB01-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 1230	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1616	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.8	3.9	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.97	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: WL14016-008
Description: FS3-FB01-20211209	Matrix: Aqueous
Date Sampled: 12/09/2021 1230	Project Name: KSC PFAS
Date Received: 12/14/2021	Project Number: 112G09237

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		95	50-150
13C9_PFNA		101	50-150
d-EtFOSA		91	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-009	
Description: SWB01-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 1235	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1626	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		148	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		109	50-150
13C2_PFDoA		76	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		115	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		113	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		105	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-009	
Description: SWB01-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 1235	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	50-150
13C8_PFOS		108	50-150
13C9_PFNA		107	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-010	
Description: SWB02-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 1240	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1637	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		145	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-010
Description: SWB02-20211209		Matrix: Aqueous
Date Sampled: 12/09/2021 1240	Project Name: KSC PFAS	
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		96	50-150
13C9_PFNA		102	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-011	
Description: STP1-RB02-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 1630	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1647	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		112	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		119	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		77	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		106	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-011	
Description: STP1-RB02-20211209		Matrix: Aqueous	
Date Sampled: 12/09/2021 1630	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		107	50-150
13C9_PFNA		104	50-150
d-EtFOSA		99	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Client: Tetra Tech		Laboratory ID: WL14016-012	
Description: STP1-SB0001-009.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1730	Project Name: KSC PFAS	% Solids: 79.7	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	18000		1800	900	890	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WL14016-012
Description: STP1-SB0001-009.5-20211209			Matrix: Solid
Date Sampled: 12/09/2021 1730	Project Name: KSC PFAS		% Solids: 79.7 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1454	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	VI	2.3	1.2	0.58	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.58	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9		1.2	0.60	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		86	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		88	50-150
13C2_PFDoA		69	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		76	50-150
13C3_PFHxS		69	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA		70	50-150
13C4_PFHpA		69	50-150
13C5_PFHxA		73	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		69	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-012
Description: STP1-SB0001-009.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1730	Project Name: KSC PFAS	% Solids: 79.7 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		71	50-150
13C8_PFOS		77	50-150
13C9_PFNA		73	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		76	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-013	
Description: STP1-SB0001-021.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1735	Project Name: KSC PFAS	% Solids: 82.6	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	4600		200	100	99	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-013	
Description: STP1-SB0001-021.5-20211209		Matrix: Solid	
Date Sampled: 12/09/2021 1735	Project Name: KSC PFAS	% Solids: 82.6	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1505	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.0	VI	2.3	1.2	0.57	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.76	I	1.1	0.55	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		92	50-150
13C2_6:2FTS		130	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		76	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		80	50-150
13C3_PFHxS		78	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA		78	50-150
13C4_PFHpA		78	50-150
13C5_PFHxA		78	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		69	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-013
Description: STP1-SB0001-021.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1735	Project Name: KSC PFAS	% Solids: 82.6 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	50-150
13C8_PFOS		80	50-150
13C9_PFNA		78	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		83	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech			Laboratory ID: WL14016-014
Description: STP1-SB0001-029.5-20211209			Matrix: Solid
Date Sampled: 12/09/2021 1740	Project Name: KSC PFAS		% Solids: 85.6 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	880		200	100	99	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-014
Description: STP1-SB0001-029.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1740	Project Name: KSC PFAS	% Solids: 85.6 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/17/2021 1515	MMM	12/16/2021 1855	25957

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.0	U	4.0	2.0	1.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.0	U	2.0	1.0	0.50	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.20	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.55	I	1.0	0.50	0.20	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		81	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		83	50-150
13C2_PFDoA		65	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		68	50-150
13C3_PFHxS		65	50-150
13C3-HFPO-DA		61	50-150
13C4_PFBA		66	50-150
13C4_PFHpA		66	50-150
13C5_PFHxA		62	50-150
13C5_PFPeA		70	50-150
13C6_PFDA		61	50-150
13C7_PFUdA		69	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection D = Dilution > 1 S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-014
Description: STP1-SB0001-029.5-20211209		Matrix: Solid
Date Sampled: 12/09/2021 1740	Project Name: KSC PFAS	% Solids: 85.6 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		64	50-150
13C8_PFOS		69	50-150
13C9_PFNA		66	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		70	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Client: Tetra Tech		Laboratory ID: WL14016-015	
Description: STP1-SB0001-043.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0810	Project Name: KSC PFAS	% Solids: 76.4	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1500		200	100	99	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-015	
Description: STP1-SB0001-043.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0810	Project Name: KSC PFAS	% Solids: 76.4	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/19/2021 2342	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0240	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.4	U	4.8	2.4	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		87	50-150		103	50-150
13C2_6:2FTS		89	50-150		102	50-150
13C2_8:2FTS		94	50-150		101	50-150
13C2_PFDoA		88	50-150		90	50-150
13C2_PFTeDA		92	50-150		93	50-150
13C3_PFBS		92	50-150		99	50-150
13C3_PFHxS		92	50-150		101	50-150
13C3-HFPO-DA		88	50-150		98	50-150
13C4_PFBA		87	50-150		98	50-150
13C4_PFHpA		89	50-150		97	50-150
13C5_PFHxA		87	50-150		101	50-150
13C5_PFPeA		92	50-150		95	50-150
13C6_PFDA		84	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-015	
Description: STP1-SB0001-043.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0810	Project Name: KSC PFAS	% Solids: 76.4	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		100	50-150
13C8_PFOA		86	50-150		94	50-150
13C8_PFOS		87	50-150		95	50-150
13C9_PFNA		84	50-150		95	50-150
d-EtFOSA		91	50-150		95	50-150
d5-EtFOSAA		85	50-150		98	50-150
d3-MeFOSAA		91	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-016	
Description: STP1-SB0001-045.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0815	Project Name: KSC PFAS	% Solids: 74.5	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	3400		200	100	98	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-016	
Description: STP1-SB0001-045.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0815	Project Name: KSC PFAS	% Solids: 74.5	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/19/2021 2353	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0253	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.3	U	2.6	1.3	0.65	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.6	U	5.1	2.6	1.3	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.63	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.65	U	1.3	0.65	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		84	50-150		105	50-150
13C2_6:2FTS		85	50-150		102	50-150
13C2_8:2FTS		88	50-150		105	50-150
13C2_PFDoA		84	50-150		92	50-150
13C2_PFTeDA		86	50-150		97	50-150
13C3_PFBS		85	50-150		99	50-150
13C3_PFHxS		89	50-150		102	50-150
13C3-HFPO-DA		82	50-150		102	50-150
13C4_PFBA		83	50-150		102	50-150
13C4_PFHpA		82	50-150		99	50-150
13C5_PFHxA		86	50-150		101	50-150
13C5_PFPeA		83	50-150		97	50-150
13C6_PFDA		87	50-150		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-016	
Description: STP1-SB0001-045.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0815	Project Name: KSC PFAS	% Solids: 74.5	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		100	50-150
13C8_PFOA		85	50-150		100	50-150
13C8_PFOS		80	50-150		100	50-150
13C9_PFNA		78	50-150		98	50-150
d-EtFOSA		88	50-150		99	50-150
d5-EtFOSAA		82	50-150		102	50-150
d3-MeFOSAA		87	50-150		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Inorganic non-metals

Client: Tetra Tech			Laboratory ID: WL14016-017
Description: STP1-SB0001-049.5-20211210			Matrix: Solid
Date Sampled: 12/10/2021 0820	Project Name: KSC PFAS		% Solids: 77.0 12/16/2021 0210
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	3000		200	100	100	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-017	
Description: STP1-SB0001-049.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0820	Project Name: KSC PFAS	% Solids: 77.0	12/16/2021 0210
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0004	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0331	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.56	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		66	50-150		109	50-150
13C2_6:2FTS		72	50-150		107	50-150
13C2_8:2FTS		72	50-150		106	50-150
13C2_PFDoA		77	50-150		104	50-150
13C2_PFTeDA		77	50-150		104	50-150
13C3_PFBS		67	50-150		105	50-150
13C3_PFHxS		72	50-150		105	50-150
13C3-HFPO-DA		69	50-150		104	50-150
13C4_PFBA		69	50-150		103	50-150
13C4_PFHpA		67	50-150		104	50-150
13C5_PFHxA		68	50-150		104	50-150
13C5_PFPeA		70	50-150		99	50-150
13C6_PFDA		77	50-150		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-017
Description: STP1-SB0001-049.5-20211210		Matrix: Solid
Date Sampled: 12/10/2021 0820	Project Name: KSC PFAS	% Solids: 77.0 12/16/2021 0210
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		70	50-150		107	50-150
13C8_PFOA		71	50-150		102	50-150
13C8_PFOS		71	50-150		102	50-150
13C9_PFNA		68	50-150		102	50-150
d-EtFOSA		73	50-150		103	50-150
d5-EtFOSAA		72	50-150		105	50-150
d3-MeFOSAA		75	50-150		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-018	
Description: STP1-SB0001-053.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0830	Project Name: KSC PFAS	% Solids: 76.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/05/2022 1700	DAK		27195

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	3700		200	100	99	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-018	
Description: STP1-SB0001-053.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 0830	Project Name: KSC PFAS	% Solids: 76.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0014	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0343	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150		113	50-150
13C2_6:2FTS		103	50-150		95	50-150
13C2_8:2FTS		104	50-150		99	50-150
13C2_PFDoA		92	50-150		95	50-150
13C2_PFTeDA		97	50-150		94	50-150
13C3_PFBS		89	50-150		100	50-150
13C3_PFHxS		95	50-150		97	50-150
13C3-HFPO-DA		88	50-150		99	50-150
13C4_PFBA		89	50-150		98	50-150
13C4_PFHpA		95	50-150		100	50-150
13C5_PFHxA		89	50-150		101	50-150
13C5_PFPeA		91	50-150		96	50-150
13C6_PFDA		87	50-150		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-018
Description: STP1-SB0001-053.5-20211210		Matrix: Solid
Date Sampled: 12/10/2021 0830	Project Name: KSC PFAS	% Solids: 76.2 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		96	50-150
13C8_PFOA		95	50-150		96	50-150
13C8_PFOS		88	50-150		96	50-150
13C9_PFNA		92	50-150		96	50-150
d-EtFOSA		98	50-150		98	50-150
d5-EtFOSAA		87	50-150		97	50-150
d3-MeFOSAA		91	50-150		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-019	
Description: STP1-FB02-20211210		Matrix: Aqueous	
Date Sampled: 12/10/2021 0835	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1658	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WL14016-019
Description: STP1-FB02-20211210			Matrix: Aqueous
Date Sampled: 12/10/2021 0835	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		100	50-150
13C9_PFNA		103	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-020	
Description: FS1-RB03-20211210		Matrix: Aqueous	
Date Sampled: 12/10/2021 1000	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1708	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WL14016-020
Description: FS1-RB03-20211210			Matrix: Aqueous
Date Sampled: 12/10/2021 1000	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		100	50-150
13C9_PFNA		100	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Client: Tetra Tech		Laboratory ID: WL14016-021
Description: FS1-SB0001-013.5-20211210		Matrix: Solid
Date Sampled: 12/10/2021 1200	Project Name: KSC PFAS	% Solids: 77.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	7400		400	200	200	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WL14016-021
Description: FS1-SB0001-013.5-20211210			Matrix: Solid
Date Sampled: 12/10/2021 1200	Project Name: KSC PFAS		% Solids: 77.0 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0025	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0356	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.6		2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.53	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.37	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.58	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.28	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.57	I	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.6	V	1.1	0.55	0.22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		90	50-150		123	50-150
13C2_6:2FTS		96	50-150		119	50-150
13C2_8:2FTS		94	50-150		124	50-150
13C2_PFDoA		90	50-150		114	50-150
13C2_PFTeDA		89	50-150		116	50-150
13C3_PFBS		86	50-150		124	50-150
13C3_PFHxS		93	50-150		120	50-150
13C3-HFPO-DA		86	50-150		122	50-150
13C4_PFBA		86	50-150		117	50-150
13C4_PFHpA		91	50-150		118	50-150
13C5_PFHxA		89	50-150		119	50-150
13C5_PFPeA		87	50-150		118	50-150
13C6_PFDA		91	50-150		119	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-021	
Description: FS1-SB0001-013.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1200	Project Name: KSC PFAS	% Solids: 77.0	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	50-150		120	50-150
13C8_PFOA		93	50-150		116	50-150
13C8_PFOS		89	50-150		119	50-150
13C9_PFNA		86	50-150		116	50-150
d-EtFOSA		89	50-150		115	50-150
d5-EtFOSAA		85	50-150		119	50-150
d3-MeFOSAA		91	50-150		120	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-022	
Description: FS1-SB0001-019.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1205	Project Name: KSC PFAS	% Solids: 78.8	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	4200		190	95	97	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-022	
Description: FS1-SB0001-019.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1205	Project Name: KSC PFAS	% Solids: 78.8	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0036	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0409	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.4		2.5	1.3	0.62	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.5	I	2.4	1.2	0.59	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	5.0	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.3	U	2.5	1.3	0.62	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.2		1.2	0.60	0.25	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.45	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.61	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.39	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.86	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.64	I	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	29	V	1.2	0.60	0.25	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		88	50-150		96	50-150
13C2_6:2FTS		94	50-150		91	50-150
13C2_8:2FTS		87	50-150		96	50-150
13C2_PFDoA		90	50-150		89	50-150
13C2_PFTeDA		93	50-150		91	50-150
13C3_PFBS		90	50-150		99	50-150
13C3_PFHxS		91	50-150		95	50-150
13C3-HFPO-DA		90	50-150		97	50-150
13C4_PFBA		87	50-150		95	50-150
13C4_PFHpA		87	50-150		95	50-150
13C5_PFHxA		93	50-150		96	50-150
13C5_PFPeA		93	50-150		96	50-150
13C6_PFDA		89	50-150		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-022	
Description: FS1-SB0001-019.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1205	Project Name: KSC PFAS	% Solids: 78.8	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		87	50-150		97	50-150
13C8_PFOA		90	50-150		93	50-150
13C8_PFOS		90	50-150		92	50-150
13C9_PFNA		85	50-150		94	50-150
d-EtFOSA		93	50-150		97	50-150
d5-EtFOSAA		88	50-150		95	50-150
d3-MeFOSAA		88	50-150		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-023	
Description: FS1-SB0001-033.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1210	Project Name: KSC PFAS	% Solids: 79.6	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1200		200	100	98	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-023	
Description: FS1-SB0001-033.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1210	Project Name: KSC PFAS	% Solids: 79.6	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0046	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0421	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.2	I	2.4	1.2	0.61	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.6		2.5	1.3	0.62	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.4	1.2	0.61	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.91	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.64	I	1.2	0.60	0.24	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	9.4		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.34	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.48	I	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.1		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.5		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.2		1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.60	U	1.2	0.60	0.24	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110	V	1.2	0.60	0.24	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		86	50-150		96	50-150
13C2_6:2FTS		82	50-150		93	50-150
13C2_8:2FTS		89	50-150		100	50-150
13C2_PFDoA		90	50-150		96	50-150
13C2_PFTeDA		89	50-150		94	50-150
13C3_PFBS		85	50-150		100	50-150
13C3_PFHxS		84	50-150		96	50-150
13C3-HFPO-DA		82	50-150		98	50-150
13C4_PFBA		83	50-150		98	50-150
13C4_PFHpA		86	50-150		98	50-150
13C5_PFHxA		86	50-150		98	50-150
13C5_PFPeA		86	50-150		98	50-150
13C6_PFDA		80	50-150		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: WL14016-023
Description: FS1-SB0001-033.5-20211210			Matrix: Solid
Date Sampled: 12/10/2021 1210	Project Name: KSC PFAS		% Solids: 79.6 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		78	50-150		98	50-150
13C8_PFOA		88	50-150		95	50-150
13C8_PFOS		81	50-150		93	50-150
13C9_PFNA		82	50-150		94	50-150
d-EtFOSA		79	50-150		93	50-150
d5-EtFOSAA		83	50-150		98	50-150
d3-MeFOSAA		87	50-150		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Inorganic non-metals

Client: Tetra Tech		Laboratory ID: WL14016-024
Description: FS1-SB0001-046.5-20211210		Matrix: Solid
Date Sampled: 12/10/2021 1215	Project Name: KSC PFAS	% Solids: 82.9 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	590	S	200	100	100	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-024	
Description: FS1-SB0001-046.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1215	Project Name: KSC PFAS	% Solids: 82.9	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0057	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/27/2021 0434	NK1	12/23/2021 0934	26623

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.2	U	2.3	1.2	0.57	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.31	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.29	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.33	I	1.1	0.55	0.23	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3.2		1.1	0.55	0.23	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.64	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.54	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.32	I	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.4	V	1.1	0.55	0.23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		79	50-150		97	50-150
13C2_6:2FTS		91	50-150		95	50-150
13C2_8:2FTS		81	50-150		98	50-150
13C2_PFDoA		86	50-150		88	50-150
13C2_PFTeDA		90	50-150		91	50-150
13C3_PFBS		87	50-150		100	50-150
13C3_PFHxS		89	50-150		96	50-150
13C3-HFPO-DA		83	50-150		99	50-150
13C4_PFBA		84	50-150		97	50-150
13C4_PFHpA		83	50-150		98	50-150
13C5_PFHxA		82	50-150		97	50-150
13C5_PFPeA		90	50-150		97	50-150
13C6_PFDA		80	50-150		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-024
Description: FS1-SB0001-046.5-20211210		Matrix: Solid
Date Sampled: 12/10/2021 1215	Project Name: KSC PFAS	% Solids: 82.9 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		98	50-150
13C8_PFOA		86	50-150		95	50-150
13C8_PFOS		80	50-150		92	50-150
13C9_PFNA		81	50-150		93	50-150
d-EtFOSA		90	50-150		94	50-150
d5-EtFOSAA		84	50-150		98	50-150
d3-MeFOSAA		87	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: WL14016-025
Description: FS1-SB0001-052.5-20211210		Matrix: Solid
Date Sampled: 12/10/2021 1220	Project Name: KSC PFAS	% Solids: 80.6 12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1300		200	100	98	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-025	
Description: FS1-SB0001-052.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1220	Project Name: KSC PFAS	% Solids: 80.6	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0107	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/29/2021 1224	MMM	12/28/2021 1304	26872

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.2	U	2.4	1.2	0.60	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.2	U	4.4	2.2	1.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.55	U	1.1	0.55	0.22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		76	50-150		107	50-150
13C2_6:2FTS		80	50-150		114	50-150
13C2_8:2FTS		79	50-150		114	50-150
13C2_PFDoA		87	50-150		89	50-150
13C2_PFTeDA		83	50-150		95	50-150
13C3_PFBS		83	50-150		93	50-150
13C3_PFHxS		82	50-150		92	50-150
13C3-HFPO-DA		80	50-150		98	50-150
13C4_PFBA		80	50-150		94	50-150
13C4_PFHpA		85	50-150		93	50-150
13C5_PFHxA		79	50-150		93	50-150
13C5_PFPeA		84	50-150		89	50-150
13C6_PFDA		82	50-150		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-025	
Description: FS1-SB0001-052.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1220	Project Name: KSC PFAS	% Solids: 80.6	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		96	50-150
13C8_PFOA		84	50-150		96	50-150
13C8_PFOS		78	50-150		93	50-150
13C9_PFNA		80	50-150		91	50-150
d-EtFOSA		86	50-150		98	50-150
d5-EtFOSAA		87	50-150		109	50-150
d3-MeFOSAA		84	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Client: Tetra Tech		Laboratory ID: WL14016-026	
Description: FS1-SB0001-059.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1225	Project Name: KSC PFAS	% Solids: 85.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(TOC) Walkley-Black	1	01/06/2022 1550	DAK		27188

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
TOC		Walkley-Black	1300		200	100	100	mg/kg	1

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-026	
Description: FS1-SB0001-059.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1225	Project Name: KSC PFAS	% Solids: 85.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/20/2021 0118	JJG	12/17/2021 1218	25999
2	SOP SPE	PFAS by ID SOP QSM B-15	1	12/29/2021 1234	MMM	12/28/2021 1304	26872

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.1	U	2.2	1.1	0.55	ug/kg	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	1.1	U	2.1	1.1	0.51	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	0.50	U	1.0	0.50	0.21	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		81	50-150		115	50-150
13C2_6:2FTS		92	50-150		118	50-150
13C2_8:2FTS		84	50-150		111	50-150
13C2_PFDoA		91	50-150		97	50-150
13C2_PFTeDA		88	50-150		95	50-150
13C3_PFBS		87	50-150		91	50-150
13C3_PFHxS		85	50-150		104	50-150
13C3-HFPO-DA		83	50-150		99	50-150
13C4_PFBA		82	50-150		95	50-150
13C4_PFHpA		84	50-150		92	50-150
13C5_PFHxA		84	50-150		89	50-150
13C5_PFPeA		86	50-150		88	50-150
13C6_PFDA		80	50-150		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-026	
Description: FS1-SB0001-059.5-20211210		Matrix: Solid	
Date Sampled: 12/10/2021 1225	Project Name: KSC PFAS	% Solids: 85.2	12/15/2021 0111
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		93	50-150
13C8_PFOA		85	50-150		98	50-150
13C8_PFOS		84	50-150		91	50-150
13C9_PFNA		86	50-150		96	50-150
d-EtFOSA		83	50-150		99	50-150
d5-EtFOSAA		80	50-150		108	50-150
d3-MeFOSAA		90	50-150		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-027	
Description: FS1-FB03-20211210		Matrix: Aqueous	
Date Sampled: 12/10/2021 1230	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	12/21/2021 1719	JJG	12/20/2021 1123	26214

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		100	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: WL14016-027	
Description: FS1-FB03-20211210		Matrix: Aqueous	
Date Sampled: 12/10/2021 1230	Project Name: KSC PFAS		
Date Received: 12/14/2021	Project Number: 112G09237		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		102	50-150
13C9_PFNA		106	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

Inorganic non-metals - MB

Sample ID: XQ27188-001 | Matrix: Solid

Batch: 27188

Analytical Method: Walkley-Black

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
TOC	100	U	1	200	100	100	mg/kg	01/06/2022 1550

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCS

Sample ID: XQ27188-002
Batch: 27188
Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1000	1100		1	110	80-120	01/06/2022 1550

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MS

Sample ID: WL14016-024MS

Batch: 27188

Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	590	1000	1800		1	125	70-130	01/06/2022 1550

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MSD

Sample ID: WL14016-024MD
Batch: 27188
Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	590	990	1900	N	1	133	3.8	70-130	20	01/06/2022 1550

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MB

Sample ID: XQ27195-001 Matrix: Solid
Batch: 27195
Analytical Method: Walkley-Black

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
TOC	100	U	1	200	100	100	mg/kg	01/05/2022 1700

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - LCS

Sample ID: XQ27195-002
Batch: 27195
Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1000	1100		1	113	80-120	01/05/2022 1700

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MS

Sample ID: WL14016-004MS
Batch: 27195
Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1500	960	2500		1	106	70-130	01/05/2022 1700

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MSD

Sample ID: WL14016-004MD
Batch: 27195
Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	1500	990	2600		1	114	4.7	70-130	20	01/05/2022 1700

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MS

Sample ID: WL14016-015MS Matrix: Solid

Batch: 27195

Analytical Method: Walkley-Black

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	1500	1000	2600		1	114	70-130	01/05/2022 1700

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Inorganic non-metals - MSD

Sample ID: WL14016-015MD

Batch: 27195

Analytical Method: Walkley-Black

Matrix: Solid

Parameter	Sample Amount (mg/kg)	Spike Amount (mg/kg)	Result (mg/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	1500	970	2600		1	114	1.1	70-130	20	01/05/2022 1700

LOQ = Limit of Quantitation

DL = Detection Limit

LOD = Limit of Detection

U = Not detected at or above the LOQ

I = Estimated result < LOQ and ≥ DL

* = RSD is out of criteria

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ25957-001	Matrix:	Solid
Batch:	25957	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/16/2021 1855

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
11Cl-PF3OUdS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
8:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
6:2 FTS	0.91	I	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
4:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
GenX	2.0	U	1	4.0	2.0	1.0	ug/kg	12/17/2021 1008
ADONA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
EtFOSA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
EtFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
MeFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/17/2021 1008
PFBS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFDS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHpS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFNS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFPeS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHxS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFBA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFDoA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHpA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFHxA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFNA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFOA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFPeA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFTeDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFTrDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFUdA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008
PFOS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/17/2021 1008

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		89	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		73	50-150
13C3-HFPO-DA		85	50-150
13C4_PFBA		78	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		78	50-150
13C5_PFPeA		88	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ25957-001
Batch: 25957
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/16/2021 1855

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		70	50-150
13C7_PFUdA		83	50-150
13C8_PFOA		79	50-150
13C8_PFOS		86	50-150
13C9_PFNA		78	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ25957-002
Batch: 25957
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/16/2021 1855

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	1.9	1.7		1	91	70-130	12/17/2021 1019
11Cl-PF3OUdS	1.9	1.8		1	94	70-130	12/17/2021 1019
8:2 FTS	1.9	1.5		1	76	65-137	12/17/2021 1019
6:2 FTS	1.9	2.6		1	139	64-140	12/17/2021 1019
4:2 FTS	1.9	1.8		1	97	62-145	12/17/2021 1019
GenX	4.0	4.3		1	108	70-150	12/17/2021 1019
ADONA	1.9	2.0		1	105	70-130	12/17/2021 1019
EtFOSA	2.0	2.1		1	107	70-150	12/17/2021 1019
EtFOSAA	2.0	2.0		1	102	61-139	12/17/2021 1019
MeFOSAA	2.0	1.8		1	92	63-144	12/17/2021 1019
PFBS	1.8	1.6		1	90	72-128	12/17/2021 1019
PFDS	1.9	1.8		1	96	59-134	12/17/2021 1019
PFHpS	1.9	2.4		1	125	70-132	12/17/2021 1019
PFNS	1.9	1.7		1	87	69-125	12/17/2021 1019
PFPeS	1.9	1.9		1	102	73-123	12/17/2021 1019
PFHxS	1.8	2.0		1	112	67-130	12/17/2021 1019
PFBA	2.0	1.9		1	96	71-135	12/17/2021 1019
PFDA	2.0	1.9		1	97	69-133	12/17/2021 1019
PFDoA	2.0	1.9		1	97	69-135	12/17/2021 1019
PFHpA	2.0	1.8		1	92	71-131	12/17/2021 1019
PFHxA	2.0	1.8		1	90	70-132	12/17/2021 1019
PFNA	2.0	2.1		1	106	72-129	12/17/2021 1019
PFOA	2.0	2.0		1	101	69-133	12/17/2021 1019
PFPeA	2.0	2.1		1	106	69-132	12/17/2021 1019
PFTeDA	2.0	1.9		1	96	69-133	12/17/2021 1019
PFTrDA	2.0	1.8		1	90	66-139	12/17/2021 1019
PFUdA	2.0	1.9		1	95	64-136	12/17/2021 1019
PFOS	1.9	1.7		1	91	68-136	12/17/2021 1019

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		71	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		82	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		87	50-150

LOQ = Limit of Quantitation　U = Not detected at or above the LOQ　N = Recovery is out of criteria
DL = Detection Limit　I = Estimated result < LOQ and $\geq$ DL　P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection　* = RSD is out of criteria　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ25957-002
Batch: 25957
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/16/2021 1855

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		87	50-150
13C8_PFOA		78	50-150
13C8_PFOS		85	50-150
13C9_PFNA		80	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ25999-001	Matrix:	Solid
Batch:	25999	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/17/2021 1218

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
11Cl-PF3OUdS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
8:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
4:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
GenX	2.0	U	1	4.0	2.0	1.0	ug/kg	12/19/2021 2321
ADONA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
EtFOSA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
EtFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
MeFOSAA	1.0	U	1	2.0	1.0	0.50	ug/kg	12/19/2021 2321
PFBS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFDS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHpS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFNS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFPeS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHxS	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFBA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFDoA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHpA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFHxA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFNA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFOA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFPeA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFTeDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFTrDA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFUdA	0.50	U	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321
PFOS	0.57	I	1	1.0	0.50	0.20	ug/kg	12/19/2021 2321

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		82	50-150
13C2_6:2FTS		95	50-150
13C2_8:2FTS		88	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		86	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		92	50-150
13C6_PFDA		92	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ25999-001	Matrix:	Solid
Batch:	25999	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/17/2021 1218

Surrogate	Q	% Rec	Acceptance Limit
13C7_PFUdA		83	50-150
13C8_PFOA		90	50-150
13C8_PFOS		86	50-150
13C9_PFNA		84	50-150
d-EtFOSA		93	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	WQ25999-002	Matrix:	Solid
Batch:	25999	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/17/2021 1218

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	1.9	1.7		1	93	70-130	12/19/2021 2332
11Cl-PF3OUdS	1.9	1.9		1	102	70-130	12/19/2021 2332
8:2 FTS	1.9	1.7		1	89	65-137	12/19/2021 2332
4:2 FTS	1.9	1.7		1	94	62-145	12/19/2021 2332
GenX	4.0	4.0		1	101	70-150	12/19/2021 2332
ADONA	1.9	1.8		1	94	70-130	12/19/2021 2332
EtFOSA	2.0	2.4		1	118	70-150	12/19/2021 2332
EtFOSAA	2.0	1.8		1	90	61-139	12/19/2021 2332
MeFOSAA	2.0	1.6		1	79	63-144	12/19/2021 2332
PFBS	1.8	1.6		1	88	72-128	12/19/2021 2332
PFDS	1.9	1.9		1	98	59-134	12/19/2021 2332
PFHpS	1.9	1.9		1	100	70-132	12/19/2021 2332
PFNS	1.9	1.8		1	91	69-125	12/19/2021 2332
PFPeS	1.9	1.6		1	84	73-123	12/19/2021 2332
PFHxS	1.8	1.7		1	94	67-130	12/19/2021 2332
PFBA	2.0	1.8		1	89	71-135	12/19/2021 2332
PFDA	2.0	1.7		1	86	69-133	12/19/2021 2332
PFDoA	2.0	1.7		1	84	69-135	12/19/2021 2332
PFHpA	2.0	1.9		1	94	71-131	12/19/2021 2332
PFHxA	2.0	1.9		1	95	70-132	12/19/2021 2332
PFNA	2.0	1.9		1	94	72-129	12/19/2021 2332
PFOA	2.0	1.7		1	87	69-133	12/19/2021 2332
PFPeA	2.0	2.0		1	99	69-132	12/19/2021 2332
PFTeDA	2.0	1.9		1	94	69-133	12/19/2021 2332
PFTrDA	2.0	1.9		1	93	66-139	12/19/2021 2332
PFUdA	2.0	1.7		1	87	64-136	12/19/2021 2332
PFOS	1.9	1.7		1	93	68-136	12/19/2021 2332

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA		88	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		96	50-150

LOQ = Limit of Quantitation　U = Not detected at or above the LOQ　N = Recovery is out of criteria

DL = Detection Limit　I = Estimated result < LOQ and ≥ DL　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　* = RSD is out of criteria　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ25999-002
Batch: 25999
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/17/2021 1218

Surrogate	Q	% Rec	Acceptance Limit
13C7_PFUdA		81	50-150
13C8_PFOA		90	50-150
13C8_PFOS		84	50-150
13C9_PFNA		83	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ26214-001
Batch: 26214
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/20/2021 1123

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	12/21/2021 1533
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	12/21/2021 1533

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		102	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ26214-001
Batch: 26214
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/20/2021 1123

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		108	50-150
13C8_PFOS		106	50-150
13C9_PFNA		112	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID:	WQ26214-002	Matrix:	Aqueous
Batch:	26214	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/20/2021 1123

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	90	70-150	12/21/2021 1544
11Cl-PF3OUdS	15	12		1	83	70-150	12/21/2021 1544
8:2 FTS	15	15		1	100	67-138	12/21/2021 1544
6:2 FTS	15	15		1	99	64-140	12/21/2021 1544
4:2 FTS	15	14		1	96	63-143	12/21/2021 1544
GenX	32	34		1	107	70-150	12/21/2021 1544
ADONA	15	15		1	103	70-150	12/21/2021 1544
EtFOSA	16	16		1	100	70-150	12/21/2021 1544
EtFOSAA	16	15		1	96	61-135	12/21/2021 1544
MeFOSAA	16	17		1	107	65-136	12/21/2021 1544
PFBS	14	12		1	87	72-130	12/21/2021 1544
PFDS	15	14		1	91	53-142	12/21/2021 1544
PFHpS	15	15		1	100	69-134	12/21/2021 1544
PFNS	15	14		1	89	69-127	12/21/2021 1544
PFPeS	15	14		1	91	71-127	12/21/2021 1544
PFHxS	15	14		1	100	68-131	12/21/2021 1544
PFBA	16	15		1	94	73-129	12/21/2021 1544
PFDA	16	14		1	90	71-129	12/21/2021 1544
PFDoA	16	16		1	97	72-134	12/21/2021 1544
PFHpA	16	15		1	93	72-130	12/21/2021 1544
PFHxA	16	15		1	96	72-129	12/21/2021 1544
PFNA	16	16		1	97	69-130	12/21/2021 1544
PFOA	16	14		1	88	71-133	12/21/2021 1544
PFPeA	16	15		1	96	72-129	12/21/2021 1544
PFTeDA	16	15		1	94	71-132	12/21/2021 1544
PFTrDA	16	14		1	91	65-144	12/21/2021 1544
PFUdA	16	15		1	91	69-133	12/21/2021 1544
PFOS	15	14		1	97	65-140	12/21/2021 1544

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria

DL = Detection Limit — I = Estimated result < LOQ and ≥ DL — P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ26214-002	Matrix: Aqueous
Batch: 26214	Prep Method: SOP SPE
Analytical Method: PFAS by ID SOP QSM B-15	Prep Date: 12/20/2021 1123

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		109	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C9_PFNA		107	50-150
d-EtFOSA		92	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ26623-001	Matrix:	Solid
Batch:	26623	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/23/2021 0934

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/27/2021 0214

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		108	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		106	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		101	50-150
13C8_PFOS		103	50-150
13C9_PFNA		101	50-150
d-EtFOSA		100	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ26623-002
Batch: 26623
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/23/2021 0934

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	1.9	2.0		1	104	64-140	12/27/2021 0227

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		99	50-150
13C2_6:2FTS		95	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		92	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		91	50-150
13C8_PFOS		90	50-150
13C9_PFNA		90	50-150
d-EtFOSA		91	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	WL14016-016MS	Matrix:	Solid
Batch:	26623	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/23/2021 0934

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	ND	2.2	2.3		1	103	64-140	12/27/2021 0305

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		102	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		96	50-150
13C8_PFOS		95	50-150
13C9_PFNA		94	50-150
d-EtFOSA		95	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID:	WL14016-016MD	Matrix:	Solid
Batch:	26623	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/23/2021 0934

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
6:2 FTS	ND	2.4	2.6		1	110	15	64-140	30	12/27/2021 0318

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		96	50-150
13C8_PFOS		95	50-150
13C9_PFNA		96	50-150
d-EtFOSA		98	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria

DL = Detection Limit — I = Estimated result < LOQ and ≥ DL — P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	WQ26872-001	Matrix:	Solid
Batch:	26872	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	12/28/2021 1304

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	1.0	U	1	2.0	1.0	0.50	ug/kg	12/29/2021 1152

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		90	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		92	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		95	50-150
13C8_PFOS		84	50-150
13C9_PFNA		93	50-150
d-EtFOSA		103	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ26872-002
Batch: 26872
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/28/2021 1304

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	1.9	2.2		1	117	64-140	12/29/2021 1202

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		118	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		90	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		94	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		94	50-150
13C8_PFOS		90	50-150
13C9_PFNA		91	50-150
d-EtFOSA		89	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: WQ26872-003
Batch: 26872
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 12/28/2021 1304

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
6:2 FTS	1.9	1.9		1	100	16	64-140	30	12/29/2021 1213

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		114	50-150
13C2_6:2FTS		115	50-150
13C2_8:2FTS		109	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		91	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		98	50-150
13C8_PFOS		90	50-150
13C9_PFNA		92	50-150
d-EtFOSA		108	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

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106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 128114

Client	Tetra Tech
Address	1353 N Courtenay Pkwy Ste S
City / State / Zip Code	Merritt Island / FL / 32953
Project Name	KSC PFAS Sampling
Project No.	112G09237
P.O. No.	
Report to Contact	Chuck Sorden
Sampler's Signature	x [signature]
Printed Name	Scott Anderson / Sue Rogers
Telephone No. / E-mail	(321) 591-7580
Quote No.	—
Page	1 of

Analysis (Attach list if more space is needed): PFAS QSM Table B-15; TOC

WL14016

Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	PFAS QSM Table B-15	TOC								Remarks / Cooler I.D.
FS3-RB01-20211209	12/9/21	930	G	X			X							X									
FS3-SB0001-011.5-20211209	12/9/21	1155	G		X		X							X	X								
FS3-SB0001-025.5-20211209	12/9/21	1200	G		X		X							X	X								
FS3-SB0001-038.5-20211209	12/9/21	1205	G		X		X							X	X								
FS3-SB0001-055.5-20211209	12/9/21	1210	G		X		X							X	X								
FS3-SB0001-059.5-20211209	12/9/21	1215	G		X		X							X	X								
FS3-SB0001-070.5-20211209	12/9/21	1220	G		X		X							X	X								
FS3-FB01-20211209	12/9/21	1230	G	X			X							X									
SWB01-20211209	12/9/21	1235	G	X			X							X									
SWB02-20211209	12/9/21	1240	G	X			X							X									

Turn Around Time Required (Prior lab approval required for expedited TAT.) X Standard ☐ Rush (Specify)

Sample Disposal ☐ Return to Client X Disposal by Lab

Possible Hazard Identification PFAS X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

Relinquished by	Date	Time	Received by	Date	Time
1. [signature]	12/10/21	1800	1. [signature]	12/10/21	1800
2. [signature]	12/13/21	1530 3:30	2. to Fed X		
3.			3.		
4. Fedex	12/14/21	1040	4. Laboratory received by [signature]	12/14/21	1040

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on ice (Circle) Yes No Ice Pack Receipt Temp. 2.4 °C Temp Blank ☐ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

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www.pacelabs.com

Number 128113

Client	Tetra Tech
Report to Contact	Chuck Sorden
Telephone No. / E-mail	(321) 591-7580
Quote No.	—
Address	1353 N. Courtenay Pkwy Ste S
Sampler's Signature	X
Analysis (Attach list if more space is needed)	
Page	2 of
City	Merritt Island
State	FL
Zip Code	32953
Printed Name	Scott Anderson / Sue Rogers
Project Name	KSC PFAS Sampling
Project No.	112G09237
P.O. No.	

WL14016

KF62

Analysis: PFAS (QSM 5.3 Table B-15), TOC

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (Military)	Grab / Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	PFAS	TOC								Remarks / Cooler I.D.
STP1-RB02-20211209	12/9/21	1630	G	X			X							X									
STP1-SB0001-009.5-20211209	12/9/21	1730	G		X		X							X	X								
STP1-SB0001-021.5-20211209	12/9/21	1735	G		X		X							X	X								
STP1-SB0001-029.5-20211209	12/9/21	1740	G		X		X							X	X								
STP1-SB0001-043.5-20211210	12/10/21	810	G		X		X							X	X								
STP1-SB0001-045.5-20211210	12/10/21	815	G		X		X							X	X								
STP1-SB0001-049.5-20211210	12/10/21	820	G		X		X							X	X								
STP1-SB0001-053.5-20211210	12/10/21	830	G		X		X							X	X								
STP1-FB02-20211210	12/10/21	835	G	X			X							X									
ES1-RB03-20211210	12/10/21	1000	G	X										X									

Turn Around Time Required (Prior lab approval required for expedited TAT.) ☒ Standard ☐ Rush (Specify)

Sample Disposal ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification PFAS ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by	12/10/21	1806	1. Received by	12/10/21	1808
2. Relinquished by	12/13/21	1530	2. Received by to FedX		
3. Relinquished by			3. Received by		
4. Relinquished by Fedex	12/14/21	1040	4. Laboratory received by	12/14/21	1040

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack
Receipt Temp. 2.4 °C
Temp Blank ☒ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

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Number 128115

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Tetra Tech	Chuck Surden	(321) 591-7580	—
Address: 1353 N. Courtenay Pkwy Ste S	Sampler's Signature: x [signature]	Analysis (Attach list if more space is needed)	Page ___ of ___
City: Merritt Island State: FL Zip Code: 32953	Printed Name: Scott Allison / Sue Rogers		WL14016
Project Name: KSC PFAS Sampling			K852
Project No. 112G09287 P.O. No.			

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab / Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	PFAS (QSM Table B-15)	TOC	Remarks / Cooler I.D.
FSI-SB001-013.5-20211210	12/10/21	1200	G		X		X							X	X	
FSI-SB001-019.5-20211210	12/10/21	1205	G		X		X							X	X	
FSI-SB001-033.5-20211210	12/10/21	1210	G		X		X							X	X	
FSI-SB001-046.5-20211210	12/10/21	1215	G		X		X							X	X	
FSI-SB001-052.5-20211210	12/10/21	1220	G		X		X							X	X	
FSI-SB001-058.5-20211210	12/10/21	1225	G		X		X							X	X	
FSI-FB03-20211210	12/10/21	1230	G	X			X							X		

Turn Around Time Required (Prior lab approval required for expedited TAT.): X Standard Rush (Specify)

Sample Disposal: ☐ Return to Client X Disposal by Lab

Possible Hazard Identification: PFAS ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

Relinquished by	Date	Time	Received by	Date	Time
1. [signature]	12/10/21	1800	1. [signature]	12/10/21	1800
2. [signature]	12/13/21	1530	2. to FedX		
3.			3.		
4. FedEx	12/14/21	1040	4. Laboratory received by [signature]	12/14/21	1040

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack Receipt Temp. 2.4 °C Temp Blank ☐ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

PaceAnalytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech   Cooler Inspected by/date: JRG2 / 12/14/2021   Lot #: WL14016

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ______

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: 21-2661

2.4 / 2.4 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☑ Yes	☐ No		21. Was the quote number listed on the container label? If yes, Quote # 24582

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: CBP   Date: 12/14/2021

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-STP1

Project Number: 112G09581

Lot Number:**XB18039**

Date Completed:03/19/2022

Kathy Smith

03/21/2022 11:16 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc*.)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XB18039

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

The following sample was diluted due to the nature of the sample matrix: XB18039-001, XB18039-002, XB18039-004, XB18039-007, XB18039-008, XB18039-009, XB18039-010, XB18039-011, XB18039-012. The LOQ has been elevated to reflect the dilution.

Surrogate recovery for the following samples was outside control limits:XB18039-005, XB18039-006, XB18039-007, XB18039-012, XB18039-013. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Samples XB18039-005, XB18039-006, XB18039-012 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

The LCS associated with batch 34241 had 6:2 FTS recovered above the acceptance limits. This demonstrates a high bias on analytical results. There were no detections for this compound in the samples associated with this batch; therefore, data quality is not impacted.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XB18039

Project Name: KSC-STP1

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-DPT0001-005.0-20220217	Aqueous	02/17/2022 0915	02/18/2022
002	STP1-DPT0001-010.0-20220217	Aqueous	02/17/2022 0940	02/18/2022
003	STP1-DPT0001-016.0-20220217	Aqueous	02/17/2022 1005	02/18/2022
004	STP1-DPT0001-023.0-20220217	Aqueous	02/17/2022 1030	02/18/2022
005	STP1-DPT0001-033.0-20220217	Aqueous	02/17/2022 1100	02/18/2022
006	STP1-DPT0001-042.0-20220217	Aqueous	02/17/2022 1130	02/18/2022
007	STP1-DPT0002-005.0-20220217	Aqueous	02/17/2022 1235	02/18/2022
008	STP1-DPT0002-010.0-20220217	Aqueous	02/17/2022 1300	02/18/2022
009	STP1-DPT0002-016.0-20220217	Aqueous	02/17/2022 1330	02/18/2022
010	STP1-DPT0002-023.0-20220217	Aqueous	02/17/2022 1355	02/18/2022
011	STP1-DPT0002-033.0-20220217	Aqueous	02/17/2022 1420	02/18/2022
012	STP1-DPT0002-042.0-20220217	Aqueous	02/17/2022 1450	02/18/2022
013	STP1-EB-20220217-01	Aqueous	02/17/2022 1500	02/18/2022

(13 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary
Tetra Tech
Lot Number: XB18039
Project Name: KSC-STP1
Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	STP1-DPT0001-005.0-20220217	Aqueous	PFHxS	PFAS by ID	39	I	ng/L	9
001	STP1-DPT0001-005.0-20220217	Aqueous	PFBA	PFAS by ID	14	I	ng/L	9
001	STP1-DPT0001-005.0-20220217	Aqueous	PFHxA	PFAS by ID	15	I	ng/L	9
001	STP1-DPT0001-005.0-20220217	Aqueous	PFPeA	PFAS by ID	22	I	ng/L	9
001	STP1-DPT0001-005.0-20220217	Aqueous	PFOS	PFAS by ID	58		ng/L	9
002	STP1-DPT0001-010.0-20220217	Aqueous	PFHxS	PFAS by ID	35	I	ng/L	11
002	STP1-DPT0001-010.0-20220217	Aqueous	PFBA	PFAS by ID	11	I	ng/L	11
002	STP1-DPT0001-010.0-20220217	Aqueous	PFHxA	PFAS by ID	18	I	ng/L	11
002	STP1-DPT0001-010.0-20220217	Aqueous	PFPeA	PFAS by ID	28	I	ng/L	11
003	STP1-DPT0001-016.0-20220217	Aqueous	PFHxS	PFAS by ID	43		ng/L	13
003	STP1-DPT0001-016.0-20220217	Aqueous	PFOA	PFAS by ID	12	I	ng/L	13
003	STP1-DPT0001-016.0-20220217	Aqueous	PFOS	PFAS by ID	13	I	ng/L	13
004	STP1-DPT0001-023.0-20220217	Aqueous	PFHxS	PFAS by ID	74		ng/L	15
004	STP1-DPT0001-023.0-20220217	Aqueous	PFHxA	PFAS by ID	13	I	ng/L	15
004	STP1-DPT0001-023.0-20220217	Aqueous	PFOA	PFAS by ID	14	I	ng/L	15
004	STP1-DPT0001-023.0-20220217	Aqueous	PFOS	PFAS by ID	22	I	ng/L	15
005	STP1-DPT0001-033.0-20220217	Aqueous	6:2 FTS	PFAS by ID	630		ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	4:2 FTS	PFAS by ID	110	Q	ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFBS	PFAS by ID	760	D	ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFHpS	PFAS by ID	1.7	I	ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFPeS	PFAS by ID	680	D	ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFHxS	PFAS by ID	2100	D	ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFBA	PFAS by ID	190		ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFHpA	PFAS by ID	170		ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFHxA	PFAS by ID	1000	D	ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFOA	PFAS by ID	70		ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFPeA	PFAS by ID	460		ng/L	17
005	STP1-DPT0001-033.0-20220217	Aqueous	PFOS	PFAS by ID	3.5	I	ng/L	17
006	STP1-DPT0001-042.0-20220217	Aqueous	PFBS	PFAS by ID	2.1	I	ng/L	19
006	STP1-DPT0001-042.0-20220217	Aqueous	PFPeS	PFAS by ID	2.3	I	ng/L	19
006	STP1-DPT0001-042.0-20220217	Aqueous	PFHxS	PFAS by ID	6.6		ng/L	19
006	STP1-DPT0001-042.0-20220217	Aqueous	PFBA	PFAS by ID	1.3	I	ng/L	19
006	STP1-DPT0001-042.0-20220217	Aqueous	PFHxA	PFAS by ID	2.6	I	ng/L	19
006	STP1-DPT0001-042.0-20220217	Aqueous	PFOA	PFAS by ID	7.6		ng/L	19
007	STP1-DPT0002-005.0-20220217	Aqueous	PFHxS	PFAS by ID	28	I	ng/L	21
007	STP1-DPT0002-005.0-20220217	Aqueous	PFBA	PFAS by ID	61		ng/L	21
007	STP1-DPT0002-005.0-20220217	Aqueous	PFHpA	PFAS by ID	20	I	ng/L	21
007	STP1-DPT0002-005.0-20220217	Aqueous	PFHxA	PFAS by ID	26	I	ng/L	21
007	STP1-DPT0002-005.0-20220217	Aqueous	PFOA	PFAS by ID	84		ng/L	21
007	STP1-DPT0002-005.0-20220217	Aqueous	PFPeA	PFAS by ID	21	I	ng/L	21
007	STP1-DPT0002-005.0-20220217	Aqueous	PFOS	PFAS by ID	350		ng/L	21
008	STP1-DPT0002-010.0-20220217	Aqueous	PFHxS	PFAS by ID	77		ng/L	23
008	STP1-DPT0002-010.0-20220217	Aqueous	PFBA	PFAS by ID	51		ng/L	23

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	STP1-DPT0002-010.0-20220217	Aqueous	PFHpA	PFAS by ID	61		ng/L	23
008	STP1-DPT0002-010.0-20220217	Aqueous	PFHxA	PFAS by ID	41		ng/L	23
008	STP1-DPT0002-010.0-20220217	Aqueous	PFOA	PFAS by ID	170		ng/L	23
008	STP1-DPT0002-010.0-20220217	Aqueous	PFPeA	PFAS by ID	41		ng/L	23
008	STP1-DPT0002-010.0-20220217	Aqueous	PFOS	PFAS by ID	45		ng/L	23
009	STP1-DPT0002-016.0-20220217	Aqueous	PFHxS	PFAS by ID	58		ng/L	25
009	STP1-DPT0002-016.0-20220217	Aqueous	PFBA	PFAS by ID	26	I	ng/L	25
009	STP1-DPT0002-016.0-20220217	Aqueous	PFHpA	PFAS by ID	44		ng/L	25
009	STP1-DPT0002-016.0-20220217	Aqueous	PFHxA	PFAS by ID	29	I	ng/L	25
009	STP1-DPT0002-016.0-20220217	Aqueous	PFOA	PFAS by ID	53		ng/L	25
009	STP1-DPT0002-016.0-20220217	Aqueous	PFPeA	PFAS by ID	24	I	ng/L	25
010	STP1-DPT0002-023.0-20220217	Aqueous	PFHxS	PFAS by ID	56		ng/L	27
010	STP1-DPT0002-023.0-20220217	Aqueous	PFBA	PFAS by ID	18	I	ng/L	27
010	STP1-DPT0002-023.0-20220217	Aqueous	PFHpA	PFAS by ID	45		ng/L	27
010	STP1-DPT0002-023.0-20220217	Aqueous	PFHxA	PFAS by ID	30	I	ng/L	27
010	STP1-DPT0002-023.0-20220217	Aqueous	PFOA	PFAS by ID	65		ng/L	27
010	STP1-DPT0002-023.0-20220217	Aqueous	PFPeA	PFAS by ID	25	I	ng/L	27
011	STP1-DPT0002-033.0-20220217	Aqueous	6:2 FTS	PFAS by ID	98		ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFBS	PFAS by ID	10	I	ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFPeS	PFAS by ID	13	I	ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFHxS	PFAS by ID	220		ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFBA	PFAS by ID	29	I	ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFHpA	PFAS by ID	44		ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFHxA	PFAS by ID	65		ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFOA	PFAS by ID	55		ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFPeA	PFAS by ID	72		ng/L	29
011	STP1-DPT0002-033.0-20220217	Aqueous	PFOS	PFAS by ID	88		ng/L	29
012	STP1-DPT0002-042.0-20220217	Aqueous	6:2 FTS	PFAS by ID	200		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFBS	PFAS by ID	31		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFHpS	PFAS by ID	3.2	I	ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFPeS	PFAS by ID	51		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFHxS	PFAS by ID	360		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFBA	PFAS by ID	58	Q	ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFHpA	PFAS by ID	70		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFHxA	PFAS by ID	190		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFOA	PFAS by ID	46		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFPeA	PFAS by ID	220		ng/L	31
012	STP1-DPT0002-042.0-20220217	Aqueous	PFOS	PFAS by ID	16		ng/L	31

(81 detections)

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-001	
Description: STP1-DPT0001-005.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 0915	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/12/2022 2138	ASD	03/09/2022 1157	34241

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UL	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	39	I	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	14	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	15	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	22	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	58		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		115	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		102	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-001
Description: STP1-DPT0001-005.0-20220217		Matrix: Aqueous
Date Sampled: 02/17/2022 0915	Project Name: KSC-STP1	
Date Received: 02/18/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		101	50-150
13C9_PFNA		97	50-150
d-EtFOSA		86	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-002	
Description: STP1-DPT0001-010.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 0940	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/12/2022 2149	ASD	03/09/2022 1157	34241

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UL	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	35	I	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	11	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	28	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		112	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		100	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB18039-002
Description: STP1-DPT0001-010.0-20220217	Matrix: Aqueous
Date Sampled: 02/17/2022 0940	Project Name: KSC-STP1
Date Received: 02/18/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		100	50-150
13C9_PFNA		97	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB18039-003
Description: STP1-DPT0001-016.0-20220217			Matrix: Aqueous
Date Sampled: 02/17/2022 1005	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/12/2022 2159	ASD	03/09/2022 1157	34241

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UL	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	43		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12	I	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	13	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		93	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		88	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		69	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-003	
Description: STP1-DPT0001-016.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1005	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		98	50-150
13C9_PFNA		94	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		79	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-004	
Description: STP1-DPT0001-023.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1030	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/12/2022 2210	ASD	03/09/2022 1157	34241
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1443	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	74		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	13	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	14	I	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	22	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150		113	50-150
13C2_6:2FTS		91	50-150		94	50-150
13C2_8:2FTS		85	50-150		90	50-150
13C2_PFDoA		79	50-150		82	50-150
13C2_PFTeDA		67	50-150		85	50-150
13C3_PFBS		85	50-150		98	50-150
13C3_PFHxS		85	50-150		94	50-150
13C3-HFPO-DA		84	50-150		95	50-150
13C4_PFBA		91	50-150		95	50-150
13C4_PFHpA		80	50-150		92	50-150
13C5_PFHxA		87	50-150		97	50-150
13C5_PFPeA		87	50-150		96	50-150
13C6_PFDA		78	50-150		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB18039-004
Description: STP1-DPT0001-023.0-20220217			Matrix: Aqueous
Date Sampled: 02/17/2022 1030	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		80	50-150		94	50-150
13C8_PFOA		85	50-150		98	50-150
13C8_PFOS		88	50-150		99	50-150
13C9_PFNA		84	50-150		92	50-150
d-EtFOSA		73	50-150		80	50-150
d5-EtFOSAA		91	50-150		94	50-150
d3-MeFOSAA		83	50-150		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-005	
Description: STP1-DPT0001-033.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1100	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/12/2022 2221	ASD	03/09/2022 1157	34241
2	SOP SPE	PFAS by ID SOP QSM B-15	5	03/13/2022 1219	MMM	03/09/2022 1157	34241
3	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1453	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	630		7.6	3.8	1.9	ng/L	3
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	110	Q	7.6	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	UQ	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	760	D	19	9.5	4.8	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.7	I	3.8	1.9	0.95	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	680	D	19	9.5	4.8	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2100	D	19	9.5	4.8	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	190		3.8	1.9	0.95	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	170		3.8	1.9	0.95	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1000	D	19	9.5	4.8	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	70		3.8	1.9	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	460		3.8	1.9	0.95	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.5	I	3.8	1.9	0.95	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C2_4:2FTS	N	198	50-150	N	163	50-150	N	168	50-150
13C2_6:2FTS	N	153	50-150		113	50-150		118	50-150
13C2_8:2FTS		108	50-150		117	50-150		84	50-150
13C2_PFDoA		86	50-150		111	50-150		70	50-150
13C2_PFTeDA	N	44	50-150		101	50-150	N	49	50-150
13C3_PFBS		82	50-150		113	50-150		77	50-150
13C3_PFHxS		95	50-150		108	50-150		78	50-150
13C3-HFPO-DA		88	50-150		118	50-150		76	50-150
13C4_PFBA		56	50-150		101	50-150	N	49	50-150
13C4_PFHpA		87	50-150		116	50-150		80	50-150
13C5_PFHxA		94	50-150		109	50-150		79	50-150
13C5_PFPeA		86	50-150		109	50-150		69	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB18039-005
Description: STP1-DPT0001-033.0-20220217	Matrix: Aqueous
Date Sampled: 02/17/2022 1100	Project Name: KSC-STP1
Date Received: 02/18/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C6_PFDA		98	50-150		103	50-150		83	50-150
13C7_PFUdA		96	50-150		109	50-150		81	50-150
13C8_PFOA		108	50-150		119	50-150		88	50-150
13C8_PFOS		102	50-150		110	50-150		84	50-150
13C9_PFNA		107	50-150		112	50-150		80	50-150
d-EtFOSA	N	28	50-150		93	50-150	N	45	50-150
d5-EtFOSAA		102	50-150		116	50-150		81	50-150
d3-MeFOSAA		91	50-150		105	50-150		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB18039-006
Description: STP1-DPT0001-042.0-20220217	Matrix: Aqueous
Date Sampled: 02/17/2022 1130	Project Name: KSC-STP1
Date Received: 02/18/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 1914	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	I	3.6	1.8	0.90	ng/L	2
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.3	I	3.6	1.8	0.90	ng/L	2
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.6		3.6	1.8	0.90	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.3	I	3.6	1.8	0.90	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.6	I	3.6	1.8	0.90	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.6		3.6	1.8	0.90	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	202	50-150
13C2_6:2FTS	N	165	50-150
13C2_8:2FTS		122	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		72	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		79	50-150
13C4_PFBA		52	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-006	
Description: STP1-DPT0001-042.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1130	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		95	50-150
13C9_PFNA		97	50-150
d-EtFOSA		68	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-007	
Description: STP1-DPT0002-005.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1235	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/07/2022 2051	JJG	03/03/2022 0924	33567

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	28	I	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	61		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	I	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	26	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	84		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	21	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	UQ	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	350		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		134	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA	N	47	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		74	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-007	
Description: STP1-DPT0002-005.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1235	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		93	50-150
13C9_PFNA		95	50-150
d-EtFOSA	N	42	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-008	
Description: STP1-DPT0002-010.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1300	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/07/2022 2102	JJG	03/03/2022 0924	33567

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	77		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	51		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	61		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	41		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	170		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	41		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	45		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		141	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		125	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		75	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB18039-008
Description: STP1-DPT0002-010.0-20220217	Matrix: Aqueous
Date Sampled: 02/17/2022 1300	Project Name: KSC-STP1
Date Received: 02/18/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		98	50-150
13C9_PFNA		95	50-150
d-EtFOSA		68	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-009	
Description: STP1-DPT0002-016.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1330	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/07/2022 2113	JJG	03/03/2022 0924	33567

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	58		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	26	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	44		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	29	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	53		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	24	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	50-150
13C2_6:2FTS		98	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		57	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		77	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-009
Description: STP1-DPT0002-016.0-20220217		Matrix: Aqueous
Date Sampled: 02/17/2022 1330	Project Name: KSC-STP1	
Date Received: 02/18/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		89	50-150
13C9_PFNA		87	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		66	50-150
d3-MeFOSAA		73	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-010	
Description: STP1-DPT0002-023.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1355	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/07/2022 2124	JJG	03/03/2022 0924	33567

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	56		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	45		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	30	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	65		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	25	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		117	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		102	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-010	
Description: STP1-DPT0002-023.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1355	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		96	50-150
13C9_PFNA		94	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		72	50-150
d3-MeFOSAA		76	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-011	
Description: STP1-DPT0002-033.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1420	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/07/2022 2134	JJG	03/03/2022 0924	33567

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	98		80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	10	I	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13	I	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	220		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	29	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	44		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	65		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	55		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	72		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	88		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		127	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		120	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		90	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-011	
Description: STP1-DPT0002-033.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1420	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		102	50-150
13C9_PFNA		97	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-012	
Description: STP1-DPT0002-042.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1450	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/07/2022 2145	JJG	03/03/2022 0924	33567

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	200		9.1	4.6	2.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.6	UQ	9.1	4.6	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.6	U	9.1	4.6	2.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	31		4.6	2.3	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.2	I	4.6	2.3	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	51		4.6	2.3	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	360		4.6	2.3	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	58	Q	4.6	2.3	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	70		4.6	2.3	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	190		4.6	2.3	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	46		4.6	2.3	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	220		4.6	2.3	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.3	UQ	4.6	2.3	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.3	U	4.6	2.3	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	16		4.6	2.3	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		144	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		84	50-150
13C2_PFDoA		53	50-150
13C2_PFTeDA	N	43	50-150
13C3_PFBS		65	50-150
13C3_PFHxS		68	50-150
13C3-HFPO-DA		68	50-150
13C4_PFBA	N	44	50-150
13C4_PFHpA		69	50-150
13C5_PFHxA		68	50-150
13C5_PFPeA		61	50-150
13C6_PFDA		74	50-150
13C7_PFUdA		63	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-012	
Description: STP1-DPT0002-042.0-20220217		Matrix: Aqueous	
Date Sampled: 02/17/2022 1450	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		69	50-150
13C8_PFOS		63	50-150
13C9_PFNA		66	50-150
d-EtFOSA	N	42	50-150
d5-EtFOSAA		64	50-150
d3-MeFOSAA		61	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-013	
Description: STP1-EB-20220217-01		Matrix: Aqueous	
Date Sampled: 02/17/2022 1500	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 1925	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	UQ	7.8	3.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.8	3.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	3.9	2.0	0.98	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		132	50-150
13C2_6:2FTS	N	157	50-150
13C2_8:2FTS		122	50-150
13C2_PFDoA		115	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		117	50-150
13C3_PFHxS		120	50-150
13C3-HFPO-DA		108	50-150
13C4_PFBA		117	50-150
13C4_PFHpA		114	50-150
13C5_PFHxA		115	50-150
13C5_PFPeA		117	50-150
13C6_PFDA		123	50-150
13C7_PFUdA		117	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB18039-013	
Description: STP1-EB-20220217-01		Matrix: Aqueous	
Date Sampled: 02/17/2022 1500	Project Name: KSC-STP1		
Date Received: 02/18/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		117	50-150
13C8_PFOS		112	50-150
13C9_PFNA		115	50-150
d-EtFOSA		97	50-150
d5-EtFOSAA		120	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ33567-001	Matrix:	Aqueous
Batch:	33567	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/03/2022 0924

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/07/2022 1734
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/07/2022 1734

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		126	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		118	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		115	50-150
13C4_PFBA		107	50-150
13C4_PFHpA		113	50-150
13C5_PFHxA		114	50-150
13C5_PFPeA		107	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ33567-001	Matrix:	Aqueous
Batch:	33567	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/03/2022 0924

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		107	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		115	50-150
13C8_PFOS		103	50-150
13C9_PFNA		105	50-150
d-EtFOSA		64	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation　　U = Not detected at or above the LOQ　　N = Recovery is out of criteria

DL = Detection Limit　　I = Estimated result < LOQ and $\geq$ DL　　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　　* = RSD is out of criteria　　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ33567-002
Batch: 33567
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/03/2022 0924

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	91	70-150	03/07/2022 1745
11Cl-PF3OUdS	15	13		1	86	70-150	03/07/2022 1745
8:2 FTS	15	12		1	76	67-138	03/07/2022 1745
6:2 FTS	15	13		1	83	64-140	03/07/2022 1745
4:2 FTS	15	13		1	90	63-143	03/07/2022 1745
GenX	32	27		1	86	70-150	03/07/2022 1745
ADONA	15	15		1	97	70-150	03/07/2022 1745
EtFOSA	16	16		1	103	70-150	03/07/2022 1745
EtFOSAA	16	14		1	90	61-135	03/07/2022 1745
MeFOSAA	16	15		1	91	65-136	03/07/2022 1745
PFBS	14	13		1	92	72-130	03/07/2022 1745
PFDS	15	14		1	92	53-142	03/07/2022 1745
PFHpS	15	15		1	99	69-134	03/07/2022 1745
PFNS	15	15		1	97	69-127	03/07/2022 1745
PFPeS	15	15		1	101	71-127	03/07/2022 1745
PFHxS	15	13		1	91	68-131	03/07/2022 1745
PFBA	16	16		1	99	73-129	03/07/2022 1745
PFDA	16	15		1	95	71-129	03/07/2022 1745
PFDoA	16	16		1	98	72-134	03/07/2022 1745
PFHpA	16	16		1	97	72-130	03/07/2022 1745
PFHxA	16	16		1	99	72-129	03/07/2022 1745
PFNA	16	16		1	98	69-130	03/07/2022 1745
PFOA	16	14		1	86	71-133	03/07/2022 1745
PFPeA	16	15		1	95	72-129	03/07/2022 1745
PFTeDA	16	16		1	99	71-132	03/07/2022 1745
PFTrDA	16	13		1	84	65-144	03/07/2022 1745
PFUdA	16	16		1	100	69-133	03/07/2022 1745
PFOS	15	13		1	88	65-140	03/07/2022 1745

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		116	50-150
13C2_6:2FTS		120	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		74	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		109	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation　U = Not detected at or above the LOQ　N = Recovery is out of criteria
DL = Detection Limit　I = Estimated result < LOQ and $\geq$ DL　P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection　* = RSD is out of criteria　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ33567-002
Batch: 33567
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/03/2022 0924

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		108	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		108	50-150
13C8_PFOS		100	50-150
13C9_PFNA		99	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34241-001	Matrix:	Aqueous
Batch:	34241	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1157

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/12/2022 1755
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/12/2022 1755

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS		118	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34241-001
Batch: 34241
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1157

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		99	50-150
13C8_PFOS		106	50-150
13C9_PFNA		98	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34241-002	Matrix:	Aqueous
Batch:	34241	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1157

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	18		1	119	70-150	03/12/2022 1806
11Cl-PF3OUdS	15	17		1	113	70-150	03/12/2022 1806
8:2 FTS	15	15		1	97	67-138	03/12/2022 1806
6:2 FTS	15	35	N	1	230	64-140	03/12/2022 1806
4:2 FTS	15	16		1	106	63-143	03/12/2022 1806
GenX	32	34		1	106	70-150	03/12/2022 1806
ADONA	15	17		1	115	70-150	03/12/2022 1806
EtFOSA	16	18		1	113	70-150	03/12/2022 1806
EtFOSAA	16	17		1	105	61-135	03/12/2022 1806
MeFOSAA	16	18		1	113	65-136	03/12/2022 1806
PFBS	14	15		1	105	72-130	03/12/2022 1806
PFDS	15	17		1	107	53-142	03/12/2022 1806
PFHpS	15	17		1	113	69-134	03/12/2022 1806
PFNS	15	16		1	105	69-127	03/12/2022 1806
PFPeS	15	16		1	107	71-127	03/12/2022 1806
PFHxS	15	17		1	114	68-131	03/12/2022 1806
PFBA	16	17		1	108	73-129	03/12/2022 1806
PFDA	16	18		1	114	71-129	03/12/2022 1806
PFDoA	16	19		1	116	72-134	03/12/2022 1806
PFHpA	16	20		1	125	72-130	03/12/2022 1806
PFHxA	16	17		1	106	72-129	03/12/2022 1806
PFNA	16	18		1	110	69-130	03/12/2022 1806
PFOA	16	18		1	110	71-133	03/12/2022 1806
PFPeA	16	18		1	112	72-129	03/12/2022 1806
PFTeDA	16	18		1	110	71-132	03/12/2022 1806
PFTrDA	16	17		1	108	65-144	03/12/2022 1806
PFUdA	16	16		1	100	69-133	03/12/2022 1806
PFOS	15	16		1	109	65-140	03/12/2022 1806

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS	N	158	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		96	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34241-002
Batch: 34241
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1157

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		100	50-150
13C8_PFOA		109	50-150
13C8_PFOS		98	50-150
13C9_PFNA		96	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34285-001	Matrix:	Aqueous
Batch:	34285	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1643

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		116	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		99	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34285-001
Batch: 34285
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1643

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		104	50-150
13C8_PFOS		99	50-150
13C9_PFNA		99	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation　　U = Not detected at or above the LOQ　　N = Recovery is out of criteria
DL = Detection Limit　　I = Estimated result < LOQ and ≥ DL　　P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection　　* = RSD is out of criteria　　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34285-002	Matrix:	Aqueous
Batch:	34285	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1643

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	70-150	03/10/2022 1853
11Cl-PF3OUdS	15	14		1	93	70-150	03/10/2022 1853
8:2 FTS	15	14		1	91	67-138	03/10/2022 1853
6:2 FTS	15	14		1	91	64-140	03/10/2022 1853
4:2 FTS	15	13		1	90	63-143	03/10/2022 1853
GenX	32	28		1	87	70-150	03/10/2022 1853
ADONA	15	15		1	99	70-150	03/10/2022 1853
EtFOSA	16	14		1	90	70-150	03/10/2022 1853
EtFOSAA	16	14		1	89	61-135	03/10/2022 1853
MeFOSAA	16	13		1	84	65-136	03/10/2022 1853
PFBS	14	13		1	93	72-130	03/10/2022 1853
PFDS	15	15		1	95	53-142	03/10/2022 1853
PFHpS	15	15		1	98	69-134	03/10/2022 1853
PFNS	15	14		1	92	69-127	03/10/2022 1853
PFPeS	15	14		1	92	71-127	03/10/2022 1853
PFHxS	15	14		1	99	68-131	03/10/2022 1853
PFBA	16	15		1	91	73-129	03/10/2022 1853
PFDA	16	16		1	97	71-129	03/10/2022 1853
PFDoA	16	15		1	92	72-134	03/10/2022 1853
PFHpA	16	16		1	100	72-130	03/10/2022 1853
PFHxA	16	15		1	93	72-129	03/10/2022 1853
PFNA	16	15		1	95	69-130	03/10/2022 1853
PFOA	16	15		1	92	71-133	03/10/2022 1853
PFPeA	16	15		1	92	72-129	03/10/2022 1853
PFTeDA	16	15		1	93	71-132	03/10/2022 1853
PFTrDA	16	15		1	96	65-144	03/10/2022 1853
PFUdA	16	14		1	87	69-133	03/10/2022 1853
PFOS	15	13		1	87	65-140	03/10/2022 1853

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		122	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		101	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34285-002
Batch: 34285
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1643

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		104	50-150
13C8_PFOA		104	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA		91	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34774-001
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		97	50-150
13C8_PFOS		97	50-150
13C9_PFNA		91	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34774-002	Matrix:	Aqueous
Batch:	34774	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/14/2022 1626

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	14		1	91	64-140	03/15/2022 1326

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		85	50-150
13C2_PFDoA		72	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		86	50-150
13C8_PFOA		98	50-150
13C8_PFOS		89	50-150
13C9_PFNA		87	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	U = Not detected at or above the LOQ	N = Recovery is out of criteria
DL = Detection Limit	I = Estimated result < LOQ and ≥ DL	P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection	* = RSD is out of criteria	+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc. CHAIN OF CUSTODY | NUMBER No. 2585 PAGE 1 OF 1

PROJECT NO: 112G09558	FACILITY: KSC-STP1
PROJECT MANAGER	Mark Jonnet
PHONE NUMBER	(412) 921-8622
LABORATORY NAME AND CONTACT:	Pace Analytical — Katie Smith
SAMPLERS (SIGNATURE)	- Chuck Sorden
FIELD OPERATIONS LEADER	Chuck Sorden
PHONE NUMBER	(321) 591-7580
ADDRESS	106 Vantage Point Dr.
CARRIER/WAYBILL NUMBER	
CITY, STATE	West Columbia, SC
CONTAINER TYPE PLASTIC (P) or GLASS (G)	P
PRESERVATIVE USED	None/4°C
TYPE OF ANALYSIS	PFAS QSM Table B-15

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
02/17	0915	STP1-DPT0001-005.0-20220217	27	3	7	GW	G	2	X	
	0940	STP1-DPT0001-010.0-20220217	27	8	12					
	1005	STP1-DPT0001-016.0-20220217	27	14	18					
	1030	STP1-DPT0001-023.0-20220217	27	21	25					
	1100	STP1-DPT0001-033.0-20220217	27	31	35					
	1130	STP1-DPT0001-042.0-20220217	27	40	44					
	1235	STP1-DPT0002-005.0-20220217	30	3	7					
	1300	STP1-DPT0002-010.0-20220217	30	8	12					
	1330	STP1-DPT0002-016.0-20220217	30	14	18					
	1355	STP1-DPT0002-023.0-20220217	30	21	25					
	1420	STP1-DPT0002-033.0-20220217	30	31	35					
	1450	STP1-DPT0002-042.0-20220217	30	40	44	GW				
02/17	1500	STP1-EB-20220217-01	—	—	—	QC	G	2	X	

XB18039

KE82

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	02/17/22	1630	1. RECEIVED BY FedEx	02/17/22	1630
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY FedEx	2/18/22	1805	3. RECEIVED BY	2/18/22	1901

COMMENTS TEMP=4.7°/2.1°

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R FORM NO. TINUS-001

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV – WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH Cooler Inspected by/date: MEH / 02/18/2022 Lot #: XB18039

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ____

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

4.7 / 4.7 °C 2.1 / 2.1 °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ____
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote # ____

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: MEH Date: 02/18/2022

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-STP1

Project Number: 112G09581

Lot Number:**XB23024**

Date Completed:03/19/2022

Kathy Smith

03/21/2022 11:38 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XB23024

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Surrogate recovery for the following samples was outside control limits: XB23024-001, XB23024-002, XB23024-003, XB23024-004, XB23024-005, XB23024-007, XB23024-008, XB23024-009, XB23024-010, XB23024-012, XB23024-013, XB23024-014, XB23024-015, XB23024-016, XB23024-021, XB23024-022, XB23024-023, XB23024-030, XB23024-031, XB23024-032, XB23024-033, XB23024-034. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Samples XB23024-001, XB23024-002, XB23024-003, XB23024-004, XB23024-005, XB23024-007, XB23024-008, XB23024-009, XB23024-010, XB23024-013, XB23024-014, XB23024-015, XB23024-016, XB23024-021, XB23024-022, XB23024-023, XB23024-030, XB23024-031, XB23024-032, XB23024-033, XB23024-034 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

The MS/MSD associated with sample XB23024-007 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Sample Summary
Tetra Tech
Lot Number: XB23024
Project Name: KSC-STP1
Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-DPT0003-010.0-20220221	Aqueous	02/21/2022 1120	02/23/2022
002	STP1-DPT0003-016.0-20220221	Aqueous	02/21/2022 1145	02/23/2022
003	STP1-DPT0003-023.0-20220221	Aqueous	02/21/2022 1210	02/23/2022
004	STP1-DPT0003-033.0-20220221	Aqueous	02/21/2022 1235	02/23/2022
005	STP1-DPT0003-042.0-20220221	Aqueous	02/21/2022 1300	02/23/2022
006	STP1-DPT0004-010.0-20220221	Aqueous	02/21/2022 1415	02/23/2022
007	STP1-DPT0004-016.0-20220221	Aqueous	02/21/2022 1435	02/23/2022
008	STP1-DPT0004-023.0-20220221	Aqueous	02/21/2022 1505	02/23/2022
009	STP1-DPT0004-033.0-20220221	Aqueous	02/21/2022 1530	02/23/2022
010	STP1-DPT0004-042.0-20220221	Aqueous	02/21/2022 1555	02/23/2022
011	STP1-EB-20220221-01	Aqueous	02/21/2022 1630	02/23/2022
012	STP1-FB-20220221-01	Aqueous	02/21/2022 1635	02/23/2022
013	STP1-DPT0005-010.0-20220222	Aqueous	02/22/2022 0715	02/23/2022
014	STP1-DPT0005-016.0-20220222	Aqueous	02/22/2022 0735	02/23/2022
015	STP1-DPT0005-023.0-20220222	Aqueous	02/22/2022 0755	02/23/2022
016	STP1-DPT0005-033.0-20220222	Aqueous	02/22/2022 0835	02/23/2022
017	STP1-DPT0005-042.0-20220222	Aqueous	02/22/2022 0900	02/23/2022
018	STP1-DPT0006-010.0-20220222	Aqueous	02/22/2022 1000	02/23/2022
019	STP1-EB-20220222-01	Aqueous	02/22/2022 1025	02/23/2022
020	STP1-DPT0006-016.0-20220222	Aqueous	02/22/2022 1030	02/23/2022
021	STP1-DPT0006-023.0-20220222	Aqueous	02/22/2022 1055	02/23/2022
022	STP1-DPT0006-033.0-20220222	Aqueous	02/22/2022 1120	02/23/2022
023	STP1-DPT0006-042.0-20220222	Aqueous	02/22/2022 1145	02/23/2022
024	STP1-EB-20220222-02	Aqueous	02/22/2022 1305	02/23/2022
025	STP1-DPT0007-005.0-20220222	Aqueous	02/22/2022 1310	02/23/2022
026	STP1-DPT0007-010.0-20220222	Aqueous	02/22/2022 1335	02/23/2022
027	STP1-FB-20220222-01	Aqueous	02/22/2022 1340	02/23/2022
028	STP1-DPT0007-016.0-20220222	Aqueous	02/22/2022 1405	02/23/2022
029	STP1-DPT0007-023.0-20220222	Aqueous	02/22/2022 1430	02/23/2022
030	STP1-DPT0007-033.0-20220222	Aqueous	02/22/2022 1500	02/23/2022
031	STP1-DPT0007-042.0-20220222	Aqueous	02/22/2022 1530	02/23/2022
032	STP1-FD-20220221-01	Aqueous	02/21/2022	02/23/2022
033	STP1-FD-20220221-02	Aqueous	02/21/2022	02/23/2022
034	STP1-FD-20220222-01	Aqueous	02/22/2022	02/23/2022

(34 samples)

Detection Summary

Tetra Tech

Lot Number: XB23024

Project Name: KSC-STP1

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	STP1-DPT0003-010.0-20220221	Aqueous	8:2 FTS	PFAS by ID	2.3	I	ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	6:2 FTS	PFAS by ID	27	Q	ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFBS	PFAS by ID	9.2		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFHpS	PFAS by ID	11		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFPeS	PFAS by ID	16		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFHxS	PFAS by ID	240		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFBA	PFAS by ID	72	Q	ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFHpA	PFAS by ID	30		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFHxA	PFAS by ID	58		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFNA	PFAS by ID	7.8		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFOA	PFAS by ID	64		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFPeA	PFAS by ID	75		ng/L	15
001	STP1-DPT0003-010.0-20220221	Aqueous	PFOS	PFAS by ID	530		ng/L	15
002	STP1-DPT0003-016.0-20220221	Aqueous	8:2 FTS	PFAS by ID	2.2	I	ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	6:2 FTS	PFAS by ID	7.0	Q	ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFBS	PFAS by ID	11		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFHpS	PFAS by ID	10		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFPeS	PFAS by ID	16		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFHxS	PFAS by ID	300		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFBA	PFAS by ID	75	Q	ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFHpA	PFAS by ID	55		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFHxA	PFAS by ID	89		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFNA	PFAS by ID	6.1		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFOA	PFAS by ID	68		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFPeA	PFAS by ID	110		ng/L	17
002	STP1-DPT0003-016.0-20220221	Aqueous	PFOS	PFAS by ID	470		ng/L	17
003	STP1-DPT0003-023.0-20220221	Aqueous	6:2 FTS	PFAS by ID	1.7	IQ	ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFBS	PFAS by ID	13		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFHpS	PFAS by ID	7.2		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFPeS	PFAS by ID	13		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFHxS	PFAS by ID	110		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFBA	PFAS by ID	7.3	Q	ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFDA	PFAS by ID	3.3	I	ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFHpA	PFAS by ID	10		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFHxA	PFAS by ID	12		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFNA	PFAS by ID	7.4		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFOA	PFAS by ID	43		ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFPeA	PFAS by ID	9.5	Q	ng/L	19
003	STP1-DPT0003-023.0-20220221	Aqueous	PFOS	PFAS by ID	660		ng/L	19
004	STP1-DPT0003-033.0-20220221	Aqueous	6:2 FTS	PFAS by ID	5.0	IQ	ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFBS	PFAS by ID	26		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFHpS	PFAS by ID	4.8		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFPeS	PFAS by ID	11		ng/L	21

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	STP1-DPT0003-033.0-20220221	Aqueous	PFHxS	PFAS by ID	91		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFBA	PFAS by ID	8.8	Q	ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFDA	PFAS by ID	1.6	I	ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFHpA	PFAS by ID	16		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFHxA	PFAS by ID	29		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFNA	PFAS by ID	4.4		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFOA	PFAS by ID	49		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFPeA	PFAS by ID	22		ng/L	21
004	STP1-DPT0003-033.0-20220221	Aqueous	PFOS	PFAS by ID	420		ng/L	21
005	STP1-DPT0003-042.0-20220221	Aqueous	8:2 FTS	PFAS by ID	8.6		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	6:2 FTS	PFAS by ID	91	Q	ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	4:2 FTS	PFAS by ID	4.2	IQ	ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	EtFOSAA	PFAS by ID	2.9	I	ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFBS	PFAS by ID	46		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFHpS	PFAS by ID	9.1		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFPeS	PFAS by ID	30		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFHxS	PFAS by ID	190		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFBA	PFAS by ID	18		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFDA	PFAS by ID	1.5	I	ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFHpA	PFAS by ID	30		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFHxA	PFAS by ID	84		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFNA	PFAS by ID	6.3		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFOA	PFAS by ID	75		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFPeA	PFAS by ID	51		ng/L	23
005	STP1-DPT0003-042.0-20220221	Aqueous	PFOS	PFAS by ID	960	D	ng/L	23
006	STP1-DPT0004-010.0-20220221	Aqueous	PFHpS	PFAS by ID	11	I	ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFHxS	PFAS by ID	240		ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFBA	PFAS by ID	44		ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFHpA	PFAS by ID	19	I	ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFHxA	PFAS by ID	19	I	ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFOA	PFAS by ID	72		ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFPeA	PFAS by ID	22	I	ng/L	25
006	STP1-DPT0004-010.0-20220221	Aqueous	PFOS	PFAS by ID	680		ng/L	25
007	STP1-DPT0004-016.0-20220221	Aqueous	8:2 FTS	PFAS by ID	5.5	I	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	6:2 FTS	PFAS by ID	11	Q	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	EtFOSAA	PFAS by ID	5.7	I	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFBS	PFAS by ID	19		ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFHpS	PFAS by ID	16		ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFPeS	PFAS by ID	28		ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFHxS	PFAS by ID	430	S	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFBA	PFAS by ID	120	Q	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFDA	PFAS by ID	1.3	I	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFHpA	PFAS by ID	63	S	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFHxA	PFAS by ID	120	S	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFNA	PFAS by ID	4.6		ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFOA	PFAS by ID	93		ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFPeA	PFAS by ID	180	S	ng/L	27
007	STP1-DPT0004-016.0-20220221	Aqueous	PFOS	PFAS by ID	430	S	ng/L	27

Detection Summary (Continued)

Lot Number: XB23024

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	STP1-DPT0004-023.0-20220221	Aqueous	8:2 FTS	PFAS by ID	12		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	6:2 FTS	PFAS by ID	14	Q	ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFBS	PFAS by ID	27		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFHpS	PFAS by ID	10		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFPeS	PFAS by ID	19		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFHxS	PFAS by ID	130		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFBA	PFAS by ID	11	Q	ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFDA	PFAS by ID	1.1	I	ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFHpA	PFAS by ID	24		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFHxA	PFAS by ID	39		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFNA	PFAS by ID	18		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFOA	PFAS by ID	73		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFPeA	PFAS by ID	42		ng/L	29
008	STP1-DPT0004-023.0-20220221	Aqueous	PFOS	PFAS by ID	1100	D	ng/L	29
009	STP1-DPT0004-033.0-20220221	Aqueous	8:2 FTS	PFAS by ID	15		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	6:2 FTS	PFAS by ID	21	Q	ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFBS	PFAS by ID	30		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFHpS	PFAS by ID	8.6		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFPeS	PFAS by ID	16		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFHxS	PFAS by ID	120		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFBA	PFAS by ID	12	Q	ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFDA	PFAS by ID	1.6	I	ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFHpA	PFAS by ID	21		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFHxA	PFAS by ID	33		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFNA	PFAS by ID	9.3		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFOA	PFAS by ID	68		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFPeA	PFAS by ID	24		ng/L	31
009	STP1-DPT0004-033.0-20220221	Aqueous	PFOS	PFAS by ID	1000	D	ng/L	31
010	STP1-DPT0004-042.0-20220221	Aqueous	8:2 FTS	PFAS by ID	5.1	I	ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	6:2 FTS	PFAS by ID	320		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	4:2 FTS	PFAS by ID	7.0	Q	ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFBS	PFAS by ID	50		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFHpS	PFAS by ID	29		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFPeS	PFAS by ID	44		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFHxS	PFAS by ID	440		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFBA	PFAS by ID	24		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFHpA	PFAS by ID	52		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFHxA	PFAS by ID	120		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFNA	PFAS by ID	16		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFOA	PFAS by ID	160		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFPeA	PFAS by ID	71		ng/L	33
010	STP1-DPT0004-042.0-20220221	Aqueous	PFOS	PFAS by ID	610		ng/L	33
013	STP1-DPT0005-010.0-20220222	Aqueous	PFHxS	PFAS by ID	1.0	I	ng/L	39
013	STP1-DPT0005-010.0-20220222	Aqueous	PFBA	PFAS by ID	6.1	Q	ng/L	39
014	STP1-DPT0005-016.0-20220222	Aqueous	PFHxS	PFAS by ID	0.95	I	ng/L	41
014	STP1-DPT0005-016.0-20220222	Aqueous	PFBA	PFAS by ID	6.4	Q	ng/L	41
016	STP1-DPT0005-033.0-20220222	Aqueous	6:2 FTS	PFAS by ID	4.8	I	ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFBS	PFAS by ID	16		ng/L	45

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
016	STP1-DPT0005-033.0-20220222	Aqueous	PFPeS	PFAS by ID	4.4		ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFHxS	PFAS by ID	21		ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFBA	PFAS by ID	5.0	Q	ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFHpA	PFAS by ID	3.8		ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFHxA	PFAS by ID	12		ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFOA	PFAS by ID	9.9		ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFPeA	PFAS by ID	11		ng/L	45
016	STP1-DPT0005-033.0-20220222	Aqueous	PFOS	PFAS by ID	1.0	I	ng/L	45
021	STP1-DPT0006-023.0-20220222	Aqueous	6:2 FTS	PFAS by ID	3.7	I	ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFBS	PFAS by ID	34		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFPeS	PFAS by ID	5.8		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFHxS	PFAS by ID	16		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFBA	PFAS by ID	7.5	Q	ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFHpA	PFAS by ID	3.7		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFHxA	PFAS by ID	19		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFOA	PFAS by ID	5.9		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFPeA	PFAS by ID	17		ng/L	55
021	STP1-DPT0006-023.0-20220222	Aqueous	PFOS	PFAS by ID	2.7	I	ng/L	55
022	STP1-DPT0006-033.0-20220222	Aqueous	6:2 FTS	PFAS by ID	240		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	4:2 FTS	PFAS by ID	11	Q	ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFBS	PFAS by ID	79		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFHpS	PFAS by ID	21		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFPeS	PFAS by ID	57		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFHxS	PFAS by ID	480		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFBA	PFAS by ID	43		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFHpA	PFAS by ID	70		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFHxA	PFAS by ID	200		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFNA	PFAS by ID	12		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFOA	PFAS by ID	170		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFPeA	PFAS by ID	130		ng/L	57
022	STP1-DPT0006-033.0-20220222	Aqueous	PFOS	PFAS by ID	310		ng/L	57
023	STP1-DPT0006-042.0-20220222	Aqueous	6:2 FTS	PFAS by ID	4.3	I	ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFBS	PFAS by ID	2.6	I	ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFPeS	PFAS by ID	1.9	I	ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFHxS	PFAS by ID	9.9		ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFBA	PFAS by ID	2.0	I	ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFHpA	PFAS by ID	1.6	I	ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFHxA	PFAS by ID	6.6		ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFOA	PFAS by ID	3.5		ng/L	59
023	STP1-DPT0006-042.0-20220222	Aqueous	PFPeA	PFAS by ID	4.9		ng/L	59
030	STP1-DPT0007-033.0-20220222	Aqueous	PFPeS	PFAS by ID	1.1	I	ng/L	73
030	STP1-DPT0007-033.0-20220222	Aqueous	PFHxS	PFAS by ID	6.1		ng/L	73
030	STP1-DPT0007-033.0-20220222	Aqueous	PFBA	PFAS by ID	1.9	IQ	ng/L	73
030	STP1-DPT0007-033.0-20220222	Aqueous	PFHpA	PFAS by ID	2.2	I	ng/L	73
030	STP1-DPT0007-033.0-20220222	Aqueous	PFHxA	PFAS by ID	3.0	I	ng/L	73
030	STP1-DPT0007-033.0-20220222	Aqueous	PFOA	PFAS by ID	3.1	I	ng/L	73
030	STP1-DPT0007-033.0-20220222	Aqueous	PFPeA	PFAS by ID	4.1		ng/L	73
031	STP1-DPT0007-042.0-20220222	Aqueous	PFBS	PFAS by ID	1.9	I	ng/L	75

Detection Summary (Continued)
Lot Number: XB23024

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
031	STP1-DPT0007-042.0-20220222	Aqueous	PFPeS	PFAS by ID	1.0	I	ng/L	75
031	STP1-DPT0007-042.0-20220222	Aqueous	PFHxS	PFAS by ID	4.1		ng/L	75
031	STP1-DPT0007-042.0-20220222	Aqueous	PFBA	PFAS by ID	2.2	IQ	ng/L	75
031	STP1-DPT0007-042.0-20220222	Aqueous	PFHpA	PFAS by ID	1.7	I	ng/L	75
031	STP1-DPT0007-042.0-20220222	Aqueous	PFHxA	PFAS by ID	3.4	I	ng/L	75
031	STP1-DPT0007-042.0-20220222	Aqueous	PFOA	PFAS by ID	3.3	I	ng/L	75
031	STP1-DPT0007-042.0-20220222	Aqueous	PFPeA	PFAS by ID	4.5		ng/L	75
032	STP1-FD-20220221-01	Aqueous	8:2 FTS	PFAS by ID	2.4	I	ng/L	77
032	STP1-FD-20220221-01	Aqueous	6:2 FTS	PFAS by ID	27		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFBS	PFAS by ID	8.1		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFHpS	PFAS by ID	11		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFPeS	PFAS by ID	14		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFHxS	PFAS by ID	230		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFBA	PFAS by ID	72	Q	ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFHpA	PFAS by ID	29		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFHxA	PFAS by ID	60		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFNA	PFAS by ID	7.9		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFOA	PFAS by ID	58		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFPeA	PFAS by ID	75		ng/L	77
032	STP1-FD-20220221-01	Aqueous	PFOS	PFAS by ID	480		ng/L	77
033	STP1-FD-20220221-02	Aqueous	8:2 FTS	PFAS by ID	5.8	I	ng/L	79
033	STP1-FD-20220221-02	Aqueous	6:2 FTS	PFAS by ID	8.5	Q	ng/L	79
033	STP1-FD-20220221-02	Aqueous	EtFOSAA	PFAS by ID	6.5	I	ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFBS	PFAS by ID	19		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFHpS	PFAS by ID	14		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFPeS	PFAS by ID	29		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFHxS	PFAS by ID	440		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFBA	PFAS by ID	120	Q	ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFDA	PFAS by ID	1.2	I	ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFHpA	PFAS by ID	64		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFHxA	PFAS by ID	110		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFNA	PFAS by ID	4.9		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFOA	PFAS by ID	89		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFPeA	PFAS by ID	180		ng/L	79
033	STP1-FD-20220221-02	Aqueous	PFOS	PFAS by ID	420		ng/L	79

(222 detections)

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-001	
Description: STP1-DPT0003-010.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1120	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 1956	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.3	I	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	27	Q	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	9.2		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	240		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	72	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	30		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	58		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.8		3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	64		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	75		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	530		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	188	50-150
13C2_6:2FTS	N	166	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		74	50-150
13C3_PFBS		83	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA	N	31	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		73	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-001
Description: STP1-DPT0003-010.0-20220221			Matrix: Aqueous
Date Sampled: 02/21/2022 1120	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		95	50-150
13C9_PFNA		95	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-002
Description: STP1-DPT0003-016.0-20220221			Matrix: Aqueous
Date Sampled: 02/21/2022 1145	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2007	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.2	I	7.0	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	7.0	Q	7.0	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	11		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	16		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	300		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	75	Q	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	55		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	89		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	6.1		3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	68		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	110		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	470		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	206	50-150
13C2_6:2FTS	N	198	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		77	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		69	50-150
13C4_PFBA	N	29	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		67	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-002	
Description: STP1-DPT0003-016.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1145	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		94	50-150
13C9_PFNA		90	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XB23024-003
Description:	STP1-DPT0003-023.0-20220221	Matrix:	Aqueous
Date Sampled:	02/21/2022 1210	Project Name:	KSC-STP1
Date Received:	02/23/2022	Project Number:	112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2018	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.7	IQ	6.9	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	13		3.4	1.7	0.86	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	7.2		3.4	1.7	0.86	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13		3.4	1.7	0.86	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	110		3.4	1.7	0.86	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	7.3	Q	3.4	1.7	0.86	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	3.3	I	3.4	1.7	0.86	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	10		3.4	1.7	0.86	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	12		3.4	1.7	0.86	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.4		3.4	1.7	0.86	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	43		3.4	1.7	0.86	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	9.5	Q	3.4	1.7	0.86	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.86	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	660		3.4	1.7	0.86	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	194	50-150
13C2_6:2FTS	N	211	50-150
13C2_8:2FTS		127	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		64	50-150
13C3_PFBS		57	50-150
13C3_PFHxS		81	50-150
13C3-HFPO-DA		51	50-150
13C4_PFBA	N	23	50-150
13C4_PFHpA		79	50-150
13C5_PFHxA		69	50-150
13C5_PFPeA	N	49	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-003
Description: STP1-DPT0003-023.0-20220221			Matrix: Aqueous
Date Sampled: 02/21/2022 1210	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		83	50-150
13C8_PFOS		82	50-150
13C9_PFNA		88	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-004	
Description: STP1-DPT0003-033.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1235	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2028	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.0	IQ	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	26		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	4.8		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	91		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	8.8	Q	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.6	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	16		3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	29		3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	4.4		3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	49		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	22		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	420		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	215	50-150
13C2_6:2FTS	N	178	50-150
13C2_8:2FTS		115	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		75	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		81	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-004
Description: STP1-DPT0003-033.0-20220221			Matrix: Aqueous
Date Sampled: 02/21/2022 1235	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		95	50-150
13C9_PFNA		90	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-005	
Description: STP1-DPT0003-042.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1300	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2039	ASD	03/09/2022 1643	34285
2	SOP SPE	PFAS by ID SOP QSM B-15	5	03/12/2022 1702	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	8.6		7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	91	Q	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.2	IQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	2.9	I	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	46		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	9.1		3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	30		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	190		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	18		3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.5	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	30		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	84		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	6.3		3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	75		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	51		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	960	D	18	9.0	4.4	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	220	50-150		144	50-150
13C2_6:2FTS	N	192	50-150		118	50-150
13C2_8:2FTS		126	50-150		106	50-150
13C2_PFDoA		95	50-150		109	50-150
13C2_PFTeDA		78	50-150		97	50-150
13C3_PFBS		90	50-150		101	50-150
13C3_PFHxS		103	50-150		103	50-150
13C3-HFPO-DA		73	50-150		97	50-150
13C4_PFBA		56	50-150		96	50-150
13C4_PFHpA		96	50-150		98	50-150
13C5_PFHxA		93	50-150		99	50-150
13C5_PFPeA		88	50-150		106	50-150
13C6_PFDA		107	50-150		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-005
Description: STP1-DPT0003-042.0-20220221		Matrix: Aqueous
Date Sampled: 02/21/2022 1300	Project Name: KSC-STP1	
Date Received: 02/23/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		98	50-150		103	50-150
13C8_PFOA		106	50-150		107	50-150
13C8_PFOS		96	50-150		105	50-150
13C9_PFNA		98	50-150		101	50-150
d-EtFOSA		74	50-150		108	50-150
d5-EtFOSAA		112	50-150		104	50-150
d3-MeFOSAA		99	50-150		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-006	
Description: STP1-DPT0004-010.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1415	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2111	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	11	I	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	240		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	44		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	19	I	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	19	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	72		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	22	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	680		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		119	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		81	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		100	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-006
Description: STP1-DPT0004-010.0-20220221	Matrix: Aqueous
Date Sampled: 02/21/2022 1415	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		92	50-150
13C9_PFNA		92	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-007	
Description: STP1-DPT0004-016.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1435	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2121	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.5	I	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	11	Q	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	5.7	I	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	19		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	28		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	430	S	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	120	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.3	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	63	S	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	120	S	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	4.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	93		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	180	S	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	430	S	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	203	50-150
13C2_6:2FTS	N	155	50-150
13C2_8:2FTS		124	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA	N	26	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		82	50-150
13C5_PFPeA		62	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		106	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-007	
Description: STP1-DPT0004-016.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1435	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	50-150
13C8_PFOS		94	50-150
13C9_PFNA		96	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-008	
Description: STP1-DPT0004-023.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1505	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2153	ASD	03/09/2022 1643	34285
2	SOP SPE	PFAS by ID SOP QSM B-15	5	03/12/2022 1713	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	12		7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	14	Q	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	27		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	10		3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	19		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	130		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	11	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.1	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	24		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	39		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	18		3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	73		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	42		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1100	D	18	9.0	4.5	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	223	50-150	N	153	50-150
13C2_6:2FTS	N	174	50-150		133	50-150
13C2_8:2FTS		115	50-150		114	50-150
13C2_PFDoA		93	50-150		116	50-150
13C2_PFTeDA		75	50-150		103	50-150
13C3_PFBS		90	50-150		111	50-150
13C3_PFHxS		101	50-150		117	50-150
13C3-HFPO-DA		73	50-150		110	50-150
13C4_PFBA	N	44	50-150		97	50-150
13C4_PFHpA		96	50-150		110	50-150
13C5_PFHxA		93	50-150		113	50-150
13C5_PFPeA		81	50-150		115	50-150
13C6_PFDA		102	50-150		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-008	
Description: STP1-DPT0004-023.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1505	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		107	50-150		113	50-150
13C8_PFOA		98	50-150		125	50-150
13C8_PFOS		94	50-150		114	50-150
13C9_PFNA		96	50-150		111	50-150
d-EtFOSA		70	50-150		115	50-150
d5-EtFOSAA		111	50-150		118	50-150
d3-MeFOSAA		85	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-009
Description: STP1-DPT0004-033.0-20220221			Matrix: Aqueous
Date Sampled: 02/21/2022 1530	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2204	ASD	03/09/2022 1643	34285
2	SOP SPE	PFAS by ID SOP QSM B-15	5	03/15/2022 1418	MMM	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	15		7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	21	Q	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	30		3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	8.6		3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	16		3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12	Q	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.6	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	21		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	33		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	9.3		3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	68		3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	24		3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1000	D	18	9.0	4.6	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	244	50-150		112	50-150
13C2_6:2FTS	N	214	50-150		95	50-150
13C2_8:2FTS		117	50-150		92	50-150
13C2_PFDoA		104	50-150		100	50-150
13C2_PFTeDA		79	50-150		84	50-150
13C3_PFBS		85	50-150		98	50-150
13C3_PFHxS		104	50-150		88	50-150
13C3-HFPO-DA		74	50-150		87	50-150
13C4_PFBA	N	43	50-150		82	50-150
13C4_PFHpA		97	50-150		89	50-150
13C5_PFHxA		91	50-150		89	50-150
13C5_PFPeA		80	50-150		98	50-150
13C6_PFDA		104	50-150		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-009	
Description: STP1-DPT0004-033.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1530	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		99	50-150		102	50-150
13C8_PFOA		102	50-150		87	50-150
13C8_PFOS		92	50-150		94	50-150
13C9_PFNA		97	50-150		93	50-150
d-EtFOSA		81	50-150		90	50-150
d5-EtFOSAA		112	50-150		106	50-150
d3-MeFOSAA		94	50-150		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-010	
Description: STP1-DPT0004-042.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1555	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2214	ASD	03/09/2022 1643	34285
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1504	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.1	I	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	320		7.0	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	7.0	Q	7.0	3.5	1.7	ng/L	2
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	50		3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	29		3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	44		3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	440		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	24		3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	52		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	120		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	16		3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	160		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	71		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	610		3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	221	50-150	N	179	50-150
13C2_6:2FTS	N	165	50-150		138	50-150
13C2_8:2FTS		118	50-150		92	50-150
13C2_PFDoA		100	50-150		78	50-150
13C2_PFTeDA		85	50-150		72	50-150
13C3_PFBS		91	50-150		83	50-150
13C3_PFHxS		97	50-150		85	50-150
13C3-HFPO-DA		73	50-150		82	50-150
13C4_PFBA		55	50-150	N	49	50-150
13C4_PFHpA		97	50-150		89	50-150
13C5_PFHxA		97	50-150		89	50-150
13C5_PFPeA		88	50-150		72	50-150
13C6_PFDA		104	50-150		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-010	
Description: STP1-DPT0004-042.0-20220221		Matrix: Aqueous	
Date Sampled: 02/21/2022 1555	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		96	50-150		86	50-150
13C8_PFOA		103	50-150		90	50-150
13C8_PFOS		99	50-150		91	50-150
13C9_PFNA		95	50-150		83	50-150
d-EtFOSA		74	50-150		62	50-150
d5-EtFOSAA		101	50-150		89	50-150
d3-MeFOSAA		102	50-150		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-011
Description: STP1-EB-20220221-01	Matrix: Aqueous
Date Sampled: 02/21/2022 1630	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2225	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		122	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		106	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		109	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		110	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		111	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		111	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-011
Description: STP1-EB-20220221-01		Matrix: Aqueous
Date Sampled: 02/21/2022 1630	Project Name: KSC-STP1	
Date Received: 02/23/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		107	50-150
13C9_PFNA		103	50-150
d-EtFOSA		86	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-012	
Description: STP1-FB-20220221-01		Matrix: Aqueous	
Date Sampled: 02/21/2022 1635	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2236	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		121	50-150
13C2_6:2FTS		145	50-150
13C2_8:2FTS		108	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		109	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		111	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-012
Description: STP1-FB-20220221-01	Matrix: Aqueous
Date Sampled: 02/21/2022 1635	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		100	50-150
13C9_PFNA		106	50-150
d-EtFOSA		93	50-150
d5-EtFOSAA		110	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-013	
Description: STP1-DPT0005-010.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 0715	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2246	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.0	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.1	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	212	50-150
13C2_6:2FTS	N	198	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		63	50-150
13C3_PFBS		83	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		79	50-150
13C4_PFBA	N	40	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-013
Description: STP1-DPT0005-010.0-20220222		Matrix: Aqueous
Date Sampled: 02/22/2022 0715	Project Name: KSC-STP1	
Date Received: 02/23/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		94	50-150
13C9_PFNA		94	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-014	
Description: STP1-DPT0005-016.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 0735	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2257	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.95	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.4	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	232	50-150
13C2_6:2FTS	N	175	50-150
13C2_8:2FTS		121	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA	N	37	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		74	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-014	
Description: STP1-DPT0005-016.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 0735	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		96	50-150
13C9_PFNA		95	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-015
Description: STP1-DPT0005-023.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 0755	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/10/2022 2307	ASD	03/09/2022 1643	34285

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	219	50-150
13C2_6:2FTS	N	167	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		83	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		71	50-150
13C4_PFBA	N	44	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-015	
Description: STP1-DPT0005-023.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 0755	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		90	50-150
13C9_PFNA		92	50-150
d-EtFOSA		55	50-150
d5-EtFOSAA		111	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-016	
Description: STP1-DPT0005-033.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 0835	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 0153	ASD	03/10/2022 1148	34442
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1515	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.8	I	7.1	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	16		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	4.4		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	21		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.0	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.8		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	12		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.9		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	11		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.0	I	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	182	50-150	N	181	50-150
13C2_6:2FTS	N	165	50-150		149	50-150
13C2_8:2FTS		114	50-150		92	50-150
13C2_PFDoA		85	50-150		86	50-150
13C2_PFTeDA		54	50-150		75	50-150
13C3_PFBS		74	50-150		79	50-150
13C3_PFHxS		87	50-150		92	50-150
13C3-HFPO-DA		73	50-150		83	50-150
13C4_PFBA	N	44	50-150	N	41	50-150
13C4_PFHpA		88	50-150		91	50-150
13C5_PFHxA		87	50-150		86	50-150
13C5_PFPeA		71	50-150		70	50-150
13C6_PFDA		91	50-150		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-016
Description: STP1-DPT0005-033.0-20220222	Matrix: Aqueous
Date Sampled: 02/22/2022 0835	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		85	50-150		93	50-150
13C8_PFOA		93	50-150		97	50-150
13C8_PFOS		89	50-150		94	50-150
13C9_PFNA		87	50-150		91	50-150
d-EtFOSA		50	50-150		71	50-150
d5-EtFOSAA		99	50-150		96	50-150
d3-MeFOSAA		87	50-150		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-017
Description: STP1-DPT0005-042.0-20220222	Matrix: Aqueous
Date Sampled: 02/22/2022 0900	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 0325	ASD	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		128	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		102	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-017
Description: STP1-DPT0005-042.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 0900	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		108	50-150
13C9_PFNA		103	50-150
d-EtFOSA		103	50-150
d5-EtFOSAA		116	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-018
Description: STP1-DPT0006-010.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1000	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 0336	ASD	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		113	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		96	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-018
Description: STP1-DPT0006-010.0-20220222	Matrix: Aqueous
Date Sampled: 02/22/2022 1000	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C9_PFNA		102	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-019	
Description: STP1-EB-20220222-01		Matrix: Aqueous	
Date Sampled: 02/22/2022 1025	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 0347	ASD	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		109	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		59	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-019	
Description: STP1-EB-20220222-01		Matrix: Aqueous	
Date Sampled: 02/22/2022 1025	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		102	50-150
13C9_PFNA		100	50-150
d-EtFOSA		92	50-150
d5-EtFOSAA		116	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-020	
Description: STP1-DPT0006-016.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1030	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 0357	ASD	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		121	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		90	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-020	
Description: STP1-DPT0006-016.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1030	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		103	50-150
13C9_PFNA		97	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-021
Description: STP1-DPT0006-023.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1055	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1511	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	I	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	34		3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	5.8		3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	16		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	7.5	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.7		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	19		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	5.9		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	17		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.7	I	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	187	50-150
13C2_6:2FTS		150	50-150
13C2_8:2FTS		119	50-150
13C2_PFDoA		106	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		84	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-021
Description: STP1-DPT0006-023.0-20220222	Matrix: Aqueous
Date Sampled: 02/22/2022 1055	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		94	50-150
13C9_PFNA		99	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-022	
Description: STP1-DPT0006-033.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1120	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1521	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	240		7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	11	Q	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	79		3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	21		3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	57		3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	480		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	43		3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	70		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	200		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	12		3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	170		3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	130		3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	310		3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	195	50-150
13C2_6:2FTS		138	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		74	50-150
13C2_PFTeDA	N	40	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		56	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-022
Description: STP1-DPT0006-033.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1120	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA	N	45	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-023
Description: STP1-DPT0006-042.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1145	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1532	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.3	I	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.6	I	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	I	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	9.9		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.6	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	6.6		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.5		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.9		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	199	50-150
13C2_6:2FTS		145	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		76	50-150
13C2_PFTeDA	N	39	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA		63	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-023
Description: STP1-DPT0006-042.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1145	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		90	50-150
13C9_PFNA		91	50-150
d-EtFOSA	N	39	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-024
Description: STP1-EB-20220222-02			Matrix: Aqueous
Date Sampled: 02/22/2022 1305		Project Name: KSC-STP1	
Date Received: 02/23/2022		Project Number: 112G09581	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1542	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	50-150
13C2_6:2FTS		112	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		92	50-150
13C3_PFBS		114	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		108	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		105	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-024
Description: STP1-EB-20220222-02			Matrix: Aqueous
Date Sampled: 02/22/2022 1305	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		104	50-150
13C9_PFNA		107	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		112	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-025	
Description: STP1-DPT0007-005.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1310	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1553	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		105	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-025	
Description: STP1-DPT0007-005.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1310	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	50-150
13C8_PFOS		97	50-150
13C9_PFNA		103	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-026	
Description: STP1-DPT0007-010.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1335	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1625	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		113	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		92	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-026	
Description: STP1-DPT0007-010.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1335	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		97	50-150
13C9_PFNA		99	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-027	
Description: STP1-FB-20220222-01		Matrix: Aqueous	
Date Sampled: 02/22/2022 1340	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1312	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		127	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		92	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		100	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-027
Description: STP1-FB-20220222-01		Matrix: Aqueous
Date Sampled: 02/22/2022 1340	Project Name: KSC-STP1	
Date Received: 02/23/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		105	50-150
13C9_PFNA		103	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-028
Description: STP1-DPT0007-016.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1405	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1323	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150
13C2_6:2FTS		98	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		89	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		91	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech	Laboratory ID: XB23024-028
Description: STP1-DPT0007-016.0-20220222	Matrix: Aqueous
Date Sampled: 02/22/2022 1405	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		98	50-150
13C9_PFNA		94	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-029	
Description: STP1-DPT0007-023.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1430	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1334	MMM	03/10/2022 1148	34442

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		139	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		129	50-150
13C2_PFDoA		103	50-150
13C2_PFTeDA		107	50-150
13C3_PFBS		112	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		119	50-150
13C4_PFBA		112	50-150
13C4_PFHpA		110	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		109	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-029	
Description: STP1-DPT0007-023.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1430	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		120	50-150
13C8_PFOS		110	50-150
13C9_PFNA		114	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-030	
Description: STP1-DPT0007-033.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1500	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1530	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.1	I	3.5	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.1		3.5	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	IQ	3.5	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.2	I	3.5	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	3.0	I	3.5	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.1	I	3.5	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.1		3.5	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	235	50-150
13C2_6:2FTS	N	160	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		78	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		75	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		79	50-150
13C4_PFBA	N	34	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		67	50-150
13C6_PFDA		88	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-030
Description: STP1-DPT0007-033.0-20220222			Matrix: Aqueous
Date Sampled: 02/22/2022 1500	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	50-150
13C8_PFOS		91	50-150
13C9_PFNA		94	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		75	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-031	
Description: STP1-DPT0007-042.0-20220222		Matrix: Aqueous	
Date Sampled: 02/22/2022 1530	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1541	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.0	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4.1		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.2	IQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.7	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	3.4	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.3	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.5		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	222	50-150
13C2_6:2FTS	N	174	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		77	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		74	50-150
13C4_PFBA	N	38	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		84	50-150
13C5_PFPeA		69	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech | Laboratory ID: XB23024-031
Description: STP1-DPT0007-042.0-20220222 | Matrix: Aqueous
Date Sampled: 02/22/2022 1530 | Project Name: KSC-STP1
Date Received: 02/23/2022 | Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	50-150
13C8_PFOS		95	50-150
13C9_PFNA		91	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XB23024-032
Description:	STP1-FD-20220221-01	Matrix:	Aqueous
Date Sampled:	02/21/2022	Project Name:	KSC-STP1
Date Received:	02/23/2022	Project Number:	112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1551	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	2.4	I	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	27		7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	8.1		3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	11		3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	14		3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	230		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	72	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	29		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	60		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.9		3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	58		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	75		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	480		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	206	50-150
13C2_6:2FTS		141	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		77	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		75	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA	N	30	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		81	50-150
13C5_PFPeA		64	50-150
13C6_PFDA		82	50-150
13C7_PFUdA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB23024-032
Description: STP1-FD-20220221-01	Matrix: Aqueous
Date Sampled: 02/21/2022	Project Name: KSC-STP1
Date Received: 02/23/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		96	50-150
13C9_PFNA		90	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		75	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB23024-033
Description: STP1-FD-20220221-02			Matrix: Aqueous
Date Sampled: 02/21/2022		Project Name: KSC-STP1	
Date Received: 02/23/2022		Project Number: 112G09581	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1602	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.8	I	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	8.5	Q	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	6.5	I	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	19		3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	14		3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	29		3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	440		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	120	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.2	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	64		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	110		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	4.9		3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	89		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	180		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	420		3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	197	50-150
13C2_6:2FTS	N	202	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		63	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA	N	25	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		56	50-150
13C6_PFDA		86	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-033	
Description: STP1-FD-20220221-02		Matrix: Aqueous	
Date Sampled: 02/21/2022	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		101	50-150
13C8_PFOS		94	50-150
13C9_PFNA		95	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-034	
Description: STP1-FD-20220222-01		Matrix: Aqueous	
Date Sampled: 02/22/2022	Project Name: KSC-STP1		
Date Received: 02/23/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1613	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	198	50-150
13C2_6:2FTS		150	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		74	50-150
13C3_PFBS		77	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA	N	34	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		67	50-150
13C6_PFDA		79	50-150
13C7_PFUdA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB23024-034
Description: STP1-FD-20220222-01		Matrix: Aqueous
Date Sampled: 02/22/2022	Project Name: KSC-STP1	
Date Received: 02/23/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		86	50-150
13C9_PFNA		89	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		70	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ34285-001	Matrix:	Aqueous
Batch:	34285	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1643

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/10/2022 1842
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/10/2022 1842

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		116	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		99	50-150

LOQ = Limit of Quantitation	U = Not detected at or above the LOQ	N = Recovery is out of criteria
DL = Detection Limit	I = Estimated result < LOQ and $\geq$ DL	P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection	* = RSD is out of criteria	+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34285-001
Batch: 34285
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1643

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		98	50-150
13C8_PFOA		104	50-150
13C8_PFOS		99	50-150
13C9_PFNA		99	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34285-002
Batch: 34285
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1643

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	70-150	03/10/2022 1853
11Cl-PF3OUdS	15	14		1	93	70-150	03/10/2022 1853
8:2 FTS	15	14		1	91	67-138	03/10/2022 1853
6:2 FTS	15	14		1	91	64-140	03/10/2022 1853
4:2 FTS	15	13		1	90	63-143	03/10/2022 1853
GenX	32	28		1	87	70-150	03/10/2022 1853
ADONA	15	15		1	99	70-150	03/10/2022 1853
EtFOSA	16	14		1	90	70-150	03/10/2022 1853
EtFOSAA	16	14		1	89	61-135	03/10/2022 1853
MeFOSAA	16	13		1	84	65-136	03/10/2022 1853
PFBS	14	13		1	93	72-130	03/10/2022 1853
PFDS	15	15		1	95	53-142	03/10/2022 1853
PFHpS	15	15		1	98	69-134	03/10/2022 1853
PFNS	15	14		1	92	69-127	03/10/2022 1853
PFPeS	15	14		1	92	71-127	03/10/2022 1853
PFHxS	15	14		1	99	68-131	03/10/2022 1853
PFBA	16	15		1	91	73-129	03/10/2022 1853
PFDA	16	16		1	97	71-129	03/10/2022 1853
PFDoA	16	15		1	92	72-134	03/10/2022 1853
PFHpA	16	16		1	100	72-130	03/10/2022 1853
PFHxA	16	15		1	93	72-129	03/10/2022 1853
PFNA	16	15		1	95	69-130	03/10/2022 1853
PFOA	16	15		1	92	71-133	03/10/2022 1853
PFPeA	16	15		1	92	72-129	03/10/2022 1853
PFTeDA	16	15		1	93	71-132	03/10/2022 1853
PFTrDA	16	15		1	96	65-144	03/10/2022 1853
PFUdA	16	14		1	87	69-133	03/10/2022 1853
PFOS	15	13		1	87	65-140	03/10/2022 1853

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		122	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		101	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34285-002	Matrix:	Aqueous
Batch:	34285	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1643

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		104	50-150
13C8_PFOA		104	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA		91	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XB23024-007MS	Matrix:	Aqueous
Batch:	34285	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1643

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	11		1	86	70-150	03/10/2022 2132
11Cl-PF3OUdS	ND	13	11		1	83	70-150	03/10/2022 2132
8:2 FTS	5.5	14	19		1	100	67-138	03/10/2022 2132
6:2 FTS	11	13	21		1	73	64-140	03/10/2022 2132
4:2 FTS	ND	13	12		1	90	63-143	03/10/2022 2132
GenX	ND	28	27		1	94	70-150	03/10/2022 2132
ADONA	ND	13	12		1	93	70-150	03/10/2022 2132
EtFOSA	ND	14	15		1	103	70-150	03/10/2022 2132
EtFOSAA	5.7	14	19		1	95	61-135	03/10/2022 2132
MeFOSAA	ND	14	10		1	71	65-136	03/10/2022 2132
PFBS	19	13	31		1	98	72-130	03/10/2022 2132
PFDS	ND	14	12		1	86	53-142	03/10/2022 2132
PFHpS	16	14	27		1	83	69-134	03/10/2022 2132
PFNS	ND	14	12		1	90	69-127	03/10/2022 2132
PFPeS	28	13	44		1	122	71-127	03/10/2022 2132
PFHxS	430	13	460	N	1	223	68-131	03/10/2022 2132
PFBA	120	14	130		1	88	73-129	03/10/2022 2132
PFDA	1.3	14	14		1	96	71-129	03/10/2022 2132
PFDoA	ND	14	13		1	91	72-134	03/10/2022 2132
PFHpA	63	14	82	N	1	133	72-130	03/10/2022 2132
PFHxA	120	14	130	N	1	66	72-129	03/10/2022 2132
PFNA	4.6	14	17		1	90	69-130	03/10/2022 2132
PFOA	93	14	110		1	119	71-133	03/10/2022 2132
PFPeA	180	14	190	N	1	55	72-129	03/10/2022 2132
PFTeDA	ND	14	13		1	93	71-132	03/10/2022 2132
PFTrDA	ND	14	12		1	82	65-144	03/10/2022 2132
PFUdA	ND	14	12		1	88	69-133	03/10/2022 2132
PFOS	430	13	460	N	1	274	65-140	03/10/2022 2132

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	201	50-150
13C2_6:2FTS	N	186	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		69	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		70	50-150
13C4_PFBA	N	26	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		66	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria
DL = Detection Limit   I = Estimated result < LOQ and $\geq$ DL   P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XB23024-007MS
Batch: 34285
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1643

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		103	50-150
13C7_PFUdA		108	50-150
13C8_PFOA		100	50-150
13C8_PFOS		94	50-150
13C9_PFNA		100	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XB23024-007MD
Batch: 34285
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/09/2022 1643

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	13	13		1	95	11	70-150	30	03/10/2022 2142
11Cl-PF3OUdS	ND	14	11		1	83	1.1	70-150	30	03/10/2022 2142
8:2 FTS	5.5	14	20		1	103	3.1	67-138	30	03/10/2022 2142
6:2 FTS	11	14	22		1	79	4.4	64-140	30	03/10/2022 2142
4:2 FTS	ND	13	12		1	86	3.7	63-143	30	03/10/2022 2142
GenX	ND	29	28		1	96	3.6	70-150	30	03/10/2022 2142
ADONA	ND	14	12		1	91	0.50	70-150	30	03/10/2022 2142
EtFOSA	ND	14	12		1	82	22	70-150	30	03/10/2022 2142
EtFOSAA	5.7	14	18		1	85	6.4	61-135	30	03/10/2022 2142
MeFOSAA	ND	14	12		1	82	16	65-136	30	03/10/2022 2142
PFBS	19	13	30		1	87	4.1	72-130	30	03/10/2022 2142
PFDS	ND	14	12		1	84	0.63	53-142	30	03/10/2022 2142
PFHpS	16	14	29		1	99	8.6	69-134	30	03/10/2022 2142
PFNS	ND	14	12		1	88	0.85	69-127	30	03/10/2022 2142
PFPeS	28	14	44		1	123	0.83	71-127	30	03/10/2022 2142
PFHxS	430	13	450	N	1	147	2.1	68-131	30	03/10/2022 2142
PFBA	120	14	130		1	96	1.0	73-129	30	03/10/2022 2142
PFDA	1.3	14	13		1	93	1.6	71-129	30	03/10/2022 2142
PFDoA	ND	14	13		1	91	1.3	72-134	30	03/10/2022 2142
PFHpA	63	14	81		1	124	1.2	72-130	30	03/10/2022 2142
PFHxA	120	14	120	N	1	25	4.6	72-129	30	03/10/2022 2142
PFNA	4.6	14	18		1	95	5.2	69-130	30	03/10/2022 2142
PFOA	93	14	100		1	78	5.3	71-133	30	03/10/2022 2142
PFPeA	180	14	180	N	1	44	0.80	72-129	30	03/10/2022 2142
PFTeDA	ND	14	13		1	87	4.7	71-132	30	03/10/2022 2142
PFTrDA	ND	14	13		1	90	11	65-144	30	03/10/2022 2142
PFUdA	ND	14	13		1	88	2.5	69-133	30	03/10/2022 2142
PFOS	430	13	470	N	1	311	1.2	65-140	30	03/10/2022 2142

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	189	50-150
13C2_6:2FTS	N	171	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		70	50-150
13C3_PFBS		76	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		66	50-150
13C4_PFBA	N	26	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		85	50-150
13C5_PFPeA		66	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID:	XB23024-007MD	Matrix:	Aqueous
Batch:	34285	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/09/2022 1643

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		103	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		103	50-150
13C8_PFOS		90	50-150
13C9_PFNA		93	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34442-001	Matrix:	Aqueous
Batch:	34442	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1148

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 0007
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 0007

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	50-150
13C2_6:2FTS		118	50-150
13C2_8:2FTS		87	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		89	50-150
13C4_PFHpA		85	50-150
13C5_PFHxA		85	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria

DL = Detection Limit — I = Estimated result < LOQ and ≥ DL — P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34442-001	Matrix:	Aqueous
Batch:	34442	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1148

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		87	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		97	50-150
13C8_PFOS		91	50-150
13C9_PFNA		88	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34442-002	Matrix:	Aqueous
Batch:	34442	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1148

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	90	70-150	03/13/2022 0018
11Cl-PF3OUdS	15	14		1	96	70-150	03/13/2022 0018
8:2 FTS	15	14		1	91	67-138	03/13/2022 0018
6:2 FTS	15	15		1	97	64-140	03/13/2022 0018
4:2 FTS	15	15		1	100	63-143	03/13/2022 0018
GenX	32	26		1	82	70-150	03/13/2022 0018
ADONA	15	15		1	97	70-150	03/13/2022 0018
EtFOSA	16	19		1	117	70-150	03/13/2022 0018
EtFOSAA	16	14		1	86	61-135	03/13/2022 0018
MeFOSAA	16	15		1	94	65-136	03/13/2022 0018
PFBS	14	12		1	88	72-130	03/13/2022 0018
PFDS	15	15		1	99	53-142	03/13/2022 0018
PFHpS	15	15		1	100	69-134	03/13/2022 0018
PFNS	15	13		1	82	69-127	03/13/2022 0018
PFPeS	15	15		1	98	71-127	03/13/2022 0018
PFHxS	15	15		1	105	68-131	03/13/2022 0018
PFBA	16	15		1	94	73-129	03/13/2022 0018
PFDA	16	14		1	89	71-129	03/13/2022 0018
PFDoA	16	15		1	92	72-134	03/13/2022 0018
PFHpA	16	15		1	96	72-130	03/13/2022 0018
PFHxA	16	15		1	91	72-129	03/13/2022 0018
PFNA	16	16		1	100	69-130	03/13/2022 0018
PFOA	16	16		1	99	71-133	03/13/2022 0018
PFPeA	16	15		1	93	72-129	03/13/2022 0018
PFTeDA	16	15		1	94	71-132	03/13/2022 0018
PFTrDA	16	15		1	94	65-144	03/13/2022 0018
PFUdA	16	15		1	93	69-133	03/13/2022 0018
PFOS	15	14		1	96	65-140	03/13/2022 0018

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		82	50-150
13C2_PFDoA		78	50-150
13C2_PFTeDA		69	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		85	50-150
13C4_PFHpA		83	50-150
13C5_PFHxA		79	50-150
13C5_PFPeA		87	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34442-002
Batch: 34442
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/10/2022 1148

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		79	50-150
13C7_PFUdA		72	50-150
13C8_PFOA		86	50-150
13C8_PFOS		82	50-150
13C9_PFNA		78	50-150
d-EtFOSA		56	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34564-001	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		125	50-150
13C2_6:2FTS		150	50-150
13C2_8:2FTS		109	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria

DL = Detection Limit   I = Estimated result < LOQ and $\geq$ DL   P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34564-001	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		107	50-150
13C8_PFOS		97	50-150
13C9_PFNA		95	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34564-002	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	87	70-150	03/13/2022 1520
11Cl-PF3OUdS	15	13		1	86	70-150	03/13/2022 1520
8:2 FTS	15	14		1	89	67-138	03/13/2022 1520
6:2 FTS	15	13		1	85	64-140	03/13/2022 1520
4:2 FTS	15	15		1	100	63-143	03/13/2022 1520
GenX	32	26		1	82	70-150	03/13/2022 1520
ADONA	15	16		1	104	70-150	03/13/2022 1520
EtFOSA	16	16		1	97	70-150	03/13/2022 1520
EtFOSAA	16	14		1	89	61-135	03/13/2022 1520
MeFOSAA	16	14		1	90	65-136	03/13/2022 1520
PFBS	14	12		1	86	72-130	03/13/2022 1520
PFDS	15	15		1	97	53-142	03/13/2022 1520
PFHpS	15	13		1	88	69-134	03/13/2022 1520
PFNS	15	14		1	91	69-127	03/13/2022 1520
PFPeS	15	14		1	91	71-127	03/13/2022 1520
PFHxS	15	13		1	90	68-131	03/13/2022 1520
PFBA	16	15		1	91	73-129	03/13/2022 1520
PFDA	16	15		1	96	71-129	03/13/2022 1520
PFDoA	16	15		1	92	72-134	03/13/2022 1520
PFHpA	16	16		1	100	72-130	03/13/2022 1520
PFHxA	16	16		1	98	72-129	03/13/2022 1520
PFNA	16	14		1	89	69-130	03/13/2022 1520
PFOA	16	15		1	96	71-133	03/13/2022 1520
PFPeA	16	14		1	90	72-129	03/13/2022 1520
PFTeDA	16	15		1	94	71-132	03/13/2022 1520
PFTrDA	16	16		1	99	65-144	03/13/2022 1520
PFUdA	16	14		1	88	69-133	03/13/2022 1520
PFOS	15	13		1	89	65-140	03/13/2022 1520

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria

DL = Detection Limit   I = Estimated result < LOQ and $\geq$ DL   P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34564-002	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		100	50-150
13C8_PFOS		94	50-150
13C9_PFNA		94	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34774-001	Matrix:	Aqueous
Batch:	34774	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/14/2022 1626

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		97	50-150
13C8_PFOS		97	50-150
13C9_PFNA		91	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34774-002	Matrix:	Aqueous
Batch:	34774	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/14/2022 1626

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	14		1	91	64-140	03/15/2022 1326
4:2 FTS	15	16		1	106	63-143	03/15/2022 1326

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		85	50-150
13C2_PFDoA		72	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		86	50-150
13C8_PFOA		98	50-150
13C8_PFOS		89	50-150
13C9_PFNA		87	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation　　U = Not detected at or above the LOQ　　N = Recovery is out of criteria

DL = Detection Limit　　I = Estimated result < LOQ and $\geq$ DL　　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　　* = RSD is out of criteria　　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc. CHAIN OF CUSTODY | NUMBER No. 2601 | PAGE 1 OF 3

PROJECT NO: 112G09581	FACILITY: KSC-STPI	PROJECT MANAGER: Mark Jonnet	PHONE NUMBER: (912) 921-8622	LABORATORY NAME AND CONTACT: Pace Analytical – Katny Smith
SAMPLERS (SIGNATURE): – Chuck Sorden		FIELD OPERATIONS LEADER: Chuck Sorden	PHONE NUMBER: (321) 591-7580	ADDRESS: 106 Vantage Point Dr.
		CARRIER/WAYBILL NUMBER:		CITY, STATE: West Colombia, SC
STANDARD TAT ☒ RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day				

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None / 4°C
TYPE OF ANALYSIS: PFAS GSM Table B-15

XB23024

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS GSM Table B-15	COMMENTS
02/21	1120	STPI-DPT0003-010.0-20220221	39	8	12	GW	G	2	X	
	1145	STPI-DPT0003-016.0-20220221	39	14	18					
	1210	STPI-DPT0003-023.0-20220221	39	21	25					
	1235	STPI-DPT0003-033.0-20220221	39	31	35					
	1300	STPI-DPT000~~4~~3-~~010.0~~042.0-20220221	39	40	44					
	1415	STPI-DPT0004-010.0-20220221	99	8	12			2		
	1435	STPI-DPT0004-016.0-20220221	99	14	18			6		MS/MSD Collected
	~~1455~~ 1505	STPI-DPT0004-023.0-20220221	99	21	25			2		
	1530	STPI-DPT0004-033.0-20220221	99	31	35			1		
	1555	STPI-DPT0004-042.0-20220221	99	40	44	GW		2		
	1630	STPI-EB-20220221-01	–	–	–	QC		1		
02/21	1635	STPI-FB-20220221-01	–	–	–	QC				
02/22	0715	STPI-DPT0005-010.0-20220222	42	8	12	GW	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	02/22/22	1630	1. RECEIVED BY FedEx	02/22/22	1630
2. RELINQUISHED BY FedEx			2. RECEIVED BY		
3. RELINQUISHED BY FedEx	2/23/22	1000	3. RECEIVED BY MHumez	2/23/22	1000
COMMENTS: temp = 2.5°C/3.7°C					

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 4/02R

FORM NO. TINUS-001

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2598 | PAGE 2 OF 3

PROJECT NO: 112G09237	FACILITY: KSL-STP1	PROJECT MANAGER Mark Sonnet	PHONE NUMBER (412) 921-8622	LABORATORY NAME AND CONTACT: Pace Analytical – Katy Smith
SAMPLERS (SIGNATURE) – Chuck Sardan		FIELD OPERATIONS LEADER Chuck Sardan	PHONE NUMBER (321) 591-7580	ADDRESS 106 Vantage Point Dr.
		CARRIER/WAYBILL NUMBER		CITY, STATE West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

XB23024
KES2

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
02/22	0735	STP1-DPT0005-016.0-20220222	42	14	18	GW	G	2	X	
	0755	STP1-DPT0005-023.0-20220222	42	21	25					
	0835	STP1-DPT0005-033.0-20220222	42	31	35					
	0900	STP1-DPT0005-042.0-20220222	42	40	44					
	1000	STP1-DPT0006-010.0-20220222	47	8	12	GW				
	1025	STP1-EB-20220222-01	—	—	—	QC				
	1030	STP1-DPT0006-016.0-20220222	47	14	18	GW				
	1055	STP1-DPT0006-023.0-20220222	47	21	25					
	1120	STP1-DPT0006-033.0-20220222	47	31	35					
	1145	STP1-DPT0006-042.0-20220222	47	40	44	GW				
	1305	STP1-EB-20220222-02	—	—	—	QC				
	1310	STP1-DPT0007-005.0-20220222	38	3	7	GW				
02/22	1335	STP1-DPT0007-010.0-20220222	38	8	12	GW	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	02/22/22	1630	1. RECEIVED BY FedEx	02/22/22	1630
2. RELINQUISHED BY FedEx			2. RECEIVED BY		
3. RELINQUISHED BY FedEx	2/23/22	1000	3. RECEIVED BY M Herrez	2/23/22	1000

COMMENTS Temp= 3.7°C/2.5°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2599 | PAGE 3 OF 3

PROJECT NO: 112G09581
FACILITY: KSC-STP1
PROJECT MANAGER: Mark Sonnes
PHONE NUMBER: (412) 921-8622
LABORATORY NAME AND CONTACT: Pace Analytical – Kathy Smith
SAMPLERS (SIGNATURE): – Chuck Serden
FIELD OPERATIONS LEADER: Chuck Serden
PHONE NUMBER: (321) 591-7580
ADDRESS: 106 Vantage Point Dr.
CARRIER/WAYBILL NUMBER:
CITY, STATE: West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None / 4°C
TYPE OF ANALYSIS: PFAS 6SM Table B-15

XB23024
KES2

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS 6SM Table B-15	COMMENTS
02/22	1340	STP1-FB-20220222-01	—	—	—	QC	G	2	X	
	1405	STP1-DPT0007-016.0-20220222	38	14	18	GW				
	1430	STP1-DPT0007-023.0-20220222	38	21	25					
	1500	STP1-DPT0007-033.0-20220222	38	31	35					
02/22	1530	STP1-DPT0007-042.0-20220222	38	40	44	GW				
02/21	0000	STP1-FD-20220221-01	—	—	—	QC				
02/21	0000	STP1-FD-20220221-02	—	—	—	QC				
02/22	0000	STP1-FD-20220222-01	—	—	—	QC	G	2	X	

CS

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	02/22/22	1630	1. RECEIVED BY FedEx	02/22/22	1630
2. RELINQUISHED BY FedEx			2. RECEIVED BY		
3. RELINQUISHED BY FedEx	2/23/22	1000	3. RECEIVED BY	2/23/22	1000

COMMENTS: temp = 3.7°C / 2.5°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV – WCOL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech   Cooler Inspected by/date: JSH / 02/23/2022   Lot #: XB23024

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

2.5 / 2.5 °C 3.7 / 3.7 °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☑ Yes	☐ No		21. Was the quote number listed on the container label? If yes, Quote # 24792

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: MEH   Date: 02/23/2022

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-STP1

Project Number: 112G09581

Lot Number:**XB25012**

Date Completed:03/24/2022

Kathy Smith

03/24/2022 9:52 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc*.)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XB25012

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace Analytical Services, LLC *(formerly Shealy Environmetal Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Samples XB25012-002, XB25012-003, XB25012-004, XB25012-005, XB25012-006, XB25012-011, XB25012-012, XB25012-013, XB25012-019, XB25012-020, XB25012-026, XB25012-027, XB25012-028, XB25012-032, XB25012-033, XB25012-034, XB25012-035, XB25012-039, XB25012-040, XB25012-041, XB25012-044, XB25012-045, XB25012-046, XB25012-047 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

For samples XB25012-001, XB25012-006, XB25012-011, XB25012-012, XB25012-013, XB25012-019, XB25012-020,and XB25012-026, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Surrogate recovery for the following samples was outside control limits: XB25012-001, XB25012-002, XB25012-003, XB25012-004, XB25012-005, XB25012-006, XB25012-012, XB25012-013, XB25012-019, XB25012-020, XB25012-026, XB25012-027, XB25012-028, XB25012-032, XB25012-033, XB25012-034, XB25012-035, XB25012-039, XB25012-040, XB25012-041, XB25012-044, XB25012-045, XB25012-046, XB25012-047. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The following samples were diluted due to the nature of the sample matrix: XB25012-007, XB25012-015, XB25012-016, XB25012-029, XB25012-030, XB25012-036, XB25012-037, XB25012-038, XB25012-048. The LOQ has been elevated to reflect the dilution.

The MS/MSD associated with samples XB25012-004, XB25012-012 had analytes recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

The method blank associated with batches 34361, 34663 had 6:2 FTS detected at a concentration that was above the MDL. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "B".

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Tetra Tech
Lot Number: XB25012
Project Name: KSC-STP1
Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-DPT0008-005.0-20220223	Aqueous	02/23/2022 0735	02/25/2022
002	STP1-DPT0008-010.0-20220223	Aqueous	02/23/2022 0800	02/25/2022
003	STP1-DPT0008-016.0-20220223	Aqueous	02/23/2022 0820	02/25/2022
004	STP1-DPT0008-023.0-20220223	Aqueous	02/23/2022 0850	02/25/2022
005	STP1-DPT0008-033.0-20220223	Aqueous	02/23/2022 0925	02/25/2022
006	STP1-DPT0008-042.0-20220223	Aqueous	02/23/2022 0955	02/25/2022
007	STP1-DPT0009-005.0-20220223	Aqueous	02/23/2022 1115	02/25/2022
008	STP1-DPT0009-010.0-20220223	Aqueous	02/23/2022 1140	02/25/2022
009	STP1-EB-20220223-01	Aqueous	02/23/2022 1200	02/25/2022
010	STP1-DPT0009-016.0-20220223	Aqueous	02/23/2022 1205	02/25/2022
011	STP1-DPT0009-023.0-20220223	Aqueous	02/23/2022 1230	02/25/2022
012	STP1-DPT0009-033.0-20220223	Aqueous	02/23/2022 1305	02/25/2022
013	STP1-DPT0009-042.0-20220223	Aqueous	02/23/2022 1335	02/25/2022
014	STP1-DPT0010-005.0-20220223	Aqueous	02/23/2022 1440	02/25/2022
015	STP1-DPT0010-010.0-20220223	Aqueous	02/23/2022 1500	02/25/2022
016	STP1-DPT0010-016.0-20220223	Aqueous	02/23/2022 1525	02/25/2022
017	STP1-EB-20220223-02	Aqueous	02/23/2022 1520	02/25/2022
018	STP1-DPT0010-023.0-20220223	Aqueous	02/23/2022 1545	02/25/2022
019	STP1-DPT0010-033.0-20220223	Aqueous	02/23/2022 1610	02/25/2022
020	STP1-DPT0010-042.0-20220223	Aqueous	02/23/2022 1635	02/25/2022
021	STP1-FB-20220223-01	Aqueous	02/23/2022 1640	02/25/2022
022	STP1-FB-20220224-01	Aqueous	02/24/2022 0720	02/25/2022
023	STP1-DPT0011-005.0-20220224	Aqueous	02/24/2022 0725	02/25/2022
024	STP1-DPT0011-010.0-20220224	Aqueous	02/24/2022 0745	02/25/2022
025	STP1-DPT0011-016.0-20220224	Aqueous	02/24/2022 0805	02/25/2022
026	STP1-DPT0011-023.0-20220224	Aqueous	02/24/2022 0840	02/25/2022
027	STP1-DPT0011-033.0-20220224	Aqueous	02/24/2022 0905	02/25/2022
028	STP1-DPT0011-042.0-20220224	Aqueous	02/24/2022 0935	02/25/2022
029	STP1-DPT0012-005.0-20220224	Aqueous	02/24/2022 1030	02/25/2022
030	STP1-DPT0012-010.0-20220224	Aqueous	02/24/2022 1050	02/25/2022
031	STP1-EB-20220224-01	Aqueous	02/24/2022 1110	02/25/2022
032	STP1-DPT0012-016.0-20220224	Aqueous	02/24/2022 1115	02/25/2022
033	STP1-DPT0012-023.0-20220224	Aqueous	02/24/2022 1140	02/25/2022
034	STP1-DPT0012-033.0-20220224	Aqueous	02/24/2022 1215	02/25/2022
035	STP1-DPT0012-042.0-20220224	Aqueous	02/24/2022 1245	02/25/2022
036	STP1-DPT0013-005.0-20220224	Aqueous	02/24/2022 1335	02/25/2022
037	STP1-DPT0013-010.0-20220224	Aqueous	02/24/2022 1405	02/25/2022
038	STP1-DPT0013-016.0-20220224	Aqueous	02/24/2022 1425	02/25/2022
039	STP1-DPT0013-023.0-20220224	Aqueous	02/24/2022 1450	02/25/2022
040	STP1-DPT0013-033.0-20220224	Aqueous	02/24/2022 1520	02/25/2022
041	STP1-DPT0013-042.0-20220224	Aqueous	02/24/2022 1550	02/25/2022
042	STP1-EB-20220224-02	Aqueous	02/24/2022 1555	02/25/2022
043	STP1-FB-20220224-02	Aqueous	02/24/2022 1600	02/25/2022

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
044	STP1-FD-20220223-01	Aqueous	02/23/2022	02/25/2022
045	STP1-FD-20220223-02	Aqueous	02/23/2022	02/25/2022
046	STP1-FD-20220223-03	Aqueous	02/23/2022	02/25/2022
047	STP1-FD-20220224-01	Aqueous	02/24/2022	02/25/2022
048	STP1-FD-20220224-02	Aqueous	02/24/2022	02/25/2022

(48 samples)

Detection Summary

Tetra Tech

Lot Number: XB25012

Project Name: KSC-STP1

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	STP1-DPT0008-005.0-20220223	Aqueous	PFHpS	PFAS by ID	1.6	I	ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFPeS	PFAS by ID	1.1	I	ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFHxS	PFAS by ID	36		ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFBA	PFAS by ID	12		ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFHpA	PFAS by ID	6.1		ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFHxA	PFAS by ID	6.2		ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFNA	PFAS by ID	1.7	I	ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFOA	PFAS by ID	6.4		ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFPeA	PFAS by ID	3.5	I	ng/L	19
001	STP1-DPT0008-005.0-20220223	Aqueous	PFOS	PFAS by ID	77		ng/L	19
002	STP1-DPT0008-010.0-20220223	Aqueous	PFPeS	PFAS by ID	1.9	I	ng/L	21
002	STP1-DPT0008-010.0-20220223	Aqueous	PFHxS	PFAS by ID	15		ng/L	21
002	STP1-DPT0008-010.0-20220223	Aqueous	PFBA	PFAS by ID	7.0		ng/L	21
002	STP1-DPT0008-010.0-20220223	Aqueous	PFHpA	PFAS by ID	1.3	I	ng/L	21
002	STP1-DPT0008-010.0-20220223	Aqueous	PFHxA	PFAS by ID	1.5	I	ng/L	21
002	STP1-DPT0008-010.0-20220223	Aqueous	PFOA	PFAS by ID	1.2	I	ng/L	21
002	STP1-DPT0008-010.0-20220223	Aqueous	PFOS	PFAS by ID	67		ng/L	21
003	STP1-DPT0008-016.0-20220223	Aqueous	8:2 FTS	PFAS by ID	5.8	I	ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	6:2 FTS	PFAS by ID	1.8	I	ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFBS	PFAS by ID	98		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFHpS	PFAS by ID	11		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFPeS	PFAS by ID	160		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFHxS	PFAS by ID	2000	D	ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFBA	PFAS by ID	150	Q	ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFHpA	PFAS by ID	460		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFHxA	PFAS by ID	520		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFNA	PFAS by ID	1.6	I	ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFOA	PFAS by ID	190		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFPeA	PFAS by ID	440		ng/L	23
003	STP1-DPT0008-016.0-20220223	Aqueous	PFOS	PFAS by ID	180		ng/L	23
004	STP1-DPT0008-023.0-20220223	Aqueous	PFBS	PFAS by ID	11		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFPeS	PFAS by ID	14		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFHxS	PFAS by ID	120	S	ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFBA	PFAS by ID	14		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFHpA	PFAS by ID	26		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFHxA	PFAS by ID	36		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFOA	PFAS by ID	7.4		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFPeA	PFAS by ID	31		ng/L	25
004	STP1-DPT0008-023.0-20220223	Aqueous	PFOS	PFAS by ID	1.2	I	ng/L	25
005	STP1-DPT0008-033.0-20220223	Aqueous	PFBS	PFAS by ID	3.0	I	ng/L	27
005	STP1-DPT0008-033.0-20220223	Aqueous	PFPeS	PFAS by ID	4.6		ng/L	27
005	STP1-DPT0008-033.0-20220223	Aqueous	PFHxS	PFAS by ID	36		ng/L	27
005	STP1-DPT0008-033.0-20220223	Aqueous	PFHxA	PFAS by ID	4.2		ng/L	27

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
005	STP1-DPT0008-033.0-20220223	Aqueous	PFOA	PFAS by ID	1.9	I	ng/L	27
006	STP1-DPT0008-042.0-20220223	Aqueous	PFHxS	PFAS by ID	6.4		ng/L	29
006	STP1-DPT0008-042.0-20220223	Aqueous	PFOS	PFAS by ID	7.1		ng/L	29
007	STP1-DPT0009-005.0-20220223	Aqueous	PFOA	PFAS by ID	19	I	ng/L	31
007	STP1-DPT0009-005.0-20220223	Aqueous	PFOS	PFAS by ID	32	I	ng/L	31
008	STP1-DPT0009-010.0-20220223	Aqueous	PFHxS	PFAS by ID	18	I	ng/L	33
008	STP1-DPT0009-010.0-20220223	Aqueous	PFBA	PFAS by ID	23	I	ng/L	33
008	STP1-DPT0009-010.0-20220223	Aqueous	PFHpA	PFAS by ID	12	I	ng/L	33
008	STP1-DPT0009-010.0-20220223	Aqueous	PFOA	PFAS by ID	32	I	ng/L	33
009	STP1-EB-20220223-01	Aqueous	6:2 FTS	PFAS by ID	1.8	VI	ng/L	35
010	STP1-DPT0009-016.0-20220223	Aqueous	PFBA	PFAS by ID	30	I	ng/L	37
011	STP1-DPT0009-023.0-20220223	Aqueous	PFBS	PFAS by ID	12		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFPeS	PFAS by ID	18		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFHxS	PFAS by ID	120		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFBA	PFAS by ID	33		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFHpA	PFAS by ID	7.3		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFHxA	PFAS by ID	12		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFNA	PFAS by ID	3.2	I	ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFOA	PFAS by ID	14		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFPeA	PFAS by ID	12		ng/L	39
011	STP1-DPT0009-023.0-20220223	Aqueous	PFOS	PFAS by ID	58		ng/L	39
012	STP1-DPT0009-033.0-20220223	Aqueous	6:2 FTS	PFAS by ID	720	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFBS	PFAS by ID	7.1		ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFHpS	PFAS by ID	2.3	I	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFPeS	PFAS by ID	7.8		ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFHxS	PFAS by ID	78	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFBA	PFAS by ID	220	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFHpA	PFAS by ID	1000	D	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFHxA	PFAS by ID	450	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFNA	PFAS by ID	210	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFOA	PFAS by ID	420	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFPeA	PFAS by ID	540	S	ng/L	41
012	STP1-DPT0009-033.0-20220223	Aqueous	PFOS	PFAS by ID	130	S	ng/L	41
013	STP1-DPT0009-042.0-20220223	Aqueous	6:2 FTS	PFAS by ID	580	V	ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	4:2 FTS	PFAS by ID	4.5	I	ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFBS	PFAS by ID	10		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFHpS	PFAS by ID	1.4	I	ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFPeS	PFAS by ID	13		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFHxS	PFAS by ID	92		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFBA	PFAS by ID	330	Q	ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFHpA	PFAS by ID	690		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFHxA	PFAS by ID	720		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFNA	PFAS by ID	24		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFOA	PFAS by ID	210		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFPeA	PFAS by ID	980		ng/L	43
013	STP1-DPT0009-042.0-20220223	Aqueous	PFOS	PFAS by ID	10		ng/L	43
014	STP1-DPT0010-005.0-20220223	Aqueous	PFHxS	PFAS by ID	11	I	ng/L	45
014	STP1-DPT0010-005.0-20220223	Aqueous	PFBA	PFAS by ID	110		ng/L	45

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
014	STP1-DPT0010-005.0-20220223	Aqueous	PFHpA	PFAS by ID	240		ng/L	45
014	STP1-DPT0010-005.0-20220223	Aqueous	PFHxA	PFAS by ID	200		ng/L	45
014	STP1-DPT0010-005.0-20220223	Aqueous	PFNA	PFAS by ID	200		ng/L	45
014	STP1-DPT0010-005.0-20220223	Aqueous	PFOA	PFAS by ID	120		ng/L	45
014	STP1-DPT0010-005.0-20220223	Aqueous	PFPeA	PFAS by ID	150		ng/L	45
014	STP1-DPT0010-005.0-20220223	Aqueous	PFOS	PFAS by ID	28	I	ng/L	45
015	STP1-DPT0010-010.0-20220223	Aqueous	8:2 FTS	PFAS by ID	86		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	6:2 FTS	PFAS by ID	28	I	ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFHxS	PFAS by ID	41		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFBA	PFAS by ID	650		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFHpA	PFAS by ID	2200		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFHxA	PFAS by ID	1300		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFNA	PFAS by ID	1000		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFOA	PFAS by ID	1500		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFPeA	PFAS by ID	1000		ng/L	47
015	STP1-DPT0010-010.0-20220223	Aqueous	PFOS	PFAS by ID	62		ng/L	47
016	STP1-DPT0010-016.0-20220223	Aqueous	6:2 FTS	PFAS by ID	49	I	ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFBS	PFAS by ID	18	I	ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFPeS	PFAS by ID	18	I	ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFHxS	PFAS by ID	120		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFBA	PFAS by ID	120		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFHpA	PFAS by ID	250		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFHxA	PFAS by ID	180		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFNA	PFAS by ID	760		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFOA	PFAS by ID	240		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFPeA	PFAS by ID	180		ng/L	49
016	STP1-DPT0010-016.0-20220223	Aqueous	PFOS	PFAS by ID	18	I	ng/L	49
018	STP1-DPT0010-023.0-20220223	Aqueous	6:2 FTS	PFAS by ID	530	V	ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFBS	PFAS by ID	12	I	ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFPeS	PFAS by ID	13	I	ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFHxS	PFAS by ID	64		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFBA	PFAS by ID	50		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFHpA	PFAS by ID	69		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFHxA	PFAS by ID	44		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFNA	PFAS by ID	640		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFOA	PFAS by ID	150		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFPeA	PFAS by ID	51		ng/L	53
018	STP1-DPT0010-023.0-20220223	Aqueous	PFOS	PFAS by ID	24	I	ng/L	53
019	STP1-DPT0010-033.0-20220223	Aqueous	6:2 FTS	PFAS by ID	26		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFBS	PFAS by ID	29		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFHpS	PFAS by ID	8.4		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFPeS	PFAS by ID	45		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFHxS	PFAS by ID	310		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFBA	PFAS by ID	26	Q	ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFHpA	PFAS by ID	26		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFHxA	PFAS by ID	70		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFNA	PFAS by ID	30		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFOA	PFAS by ID	31		ng/L	55

Detection Summary (Continued)

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Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
019	STP1-DPT0010-033.0-20220223	Aqueous	PFPeA	PFAS by ID	60		ng/L	55
019	STP1-DPT0010-033.0-20220223	Aqueous	PFOS	PFAS by ID	290		ng/L	55
020	STP1-DPT0010-042.0-20220223	Aqueous	6:2 FTS	PFAS by ID	13		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFBS	PFAS by ID	1.2	I	ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFHxS	PFAS by ID	8.9		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFBA	PFAS by ID	8.2		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFHpA	PFAS by ID	23		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFHxA	PFAS by ID	15		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFNA	PFAS by ID	7.6		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFOA	PFAS by ID	13		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFPeA	PFAS by ID	18		ng/L	57
020	STP1-DPT0010-042.0-20220223	Aqueous	PFOS	PFAS by ID	3.4	I	ng/L	57
022	STP1-FB-20220224-01	Aqueous	6:2 FTS	PFAS by ID	99	V	ng/L	61
024	STP1-DPT0011-010.0-20220224	Aqueous	6:2 FTS	PFAS by ID	390	V	ng/L	65
025	STP1-DPT0011-016.0-20220224	Aqueous	PFBS	PFAS by ID	39	I	ng/L	67
026	STP1-DPT0011-023.0-20220224	Aqueous	PFBS	PFAS by ID	37		ng/L	69
026	STP1-DPT0011-023.0-20220224	Aqueous	PFHxS	PFAS by ID	2.5	I	ng/L	69
026	STP1-DPT0011-023.0-20220224	Aqueous	PFBA	PFAS by ID	2.6	IQ	ng/L	69
026	STP1-DPT0011-023.0-20220224	Aqueous	PFHpA	PFAS by ID	1.2	I	ng/L	69
026	STP1-DPT0011-023.0-20220224	Aqueous	PFOA	PFAS by ID	3.8	I	ng/L	69
026	STP1-DPT0011-023.0-20220224	Aqueous	PFOS	PFAS by ID	7.9		ng/L	69
027	STP1-DPT0011-033.0-20220224	Aqueous	PFBS	PFAS by ID	2.9	I	ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFHxS	PFAS by ID	4.3		ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFBA	PFAS by ID	8.9		ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFHpA	PFAS by ID	1.8	I	ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFHxA	PFAS by ID	2.5	I	ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFOA	PFAS by ID	3.7		ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFPeA	PFAS by ID	2.1	I	ng/L	71
027	STP1-DPT0011-033.0-20220224	Aqueous	PFOS	PFAS by ID	26		ng/L	71
028	STP1-DPT0011-042.0-20220224	Aqueous	PFBS	PFAS by ID	1.4	I	ng/L	73
028	STP1-DPT0011-042.0-20220224	Aqueous	PFHxS	PFAS by ID	4.0		ng/L	73
028	STP1-DPT0011-042.0-20220224	Aqueous	PFBA	PFAS by ID	5.6		ng/L	73
028	STP1-DPT0011-042.0-20220224	Aqueous	PFHpA	PFAS by ID	1.5	I	ng/L	73
028	STP1-DPT0011-042.0-20220224	Aqueous	PFHxA	PFAS by ID	2.3	I	ng/L	73
028	STP1-DPT0011-042.0-20220224	Aqueous	PFOA	PFAS by ID	3.7		ng/L	73
028	STP1-DPT0011-042.0-20220224	Aqueous	PFOS	PFAS by ID	12		ng/L	73
029	STP1-DPT0012-005.0-20220224	Aqueous	PFBA	PFAS by ID	11	I	ng/L	75
029	STP1-DPT0012-005.0-20220224	Aqueous	PFOS	PFAS by ID	19	I	ng/L	75
030	STP1-DPT0012-010.0-20220224	Aqueous	PFBA	PFAS by ID	12	I	ng/L	77
030	STP1-DPT0012-010.0-20220224	Aqueous	PFOS	PFAS by ID	15	I	ng/L	77
032	STP1-DPT0012-016.0-20220224	Aqueous	PFHxS	PFAS by ID	6.5		ng/L	81
032	STP1-DPT0012-016.0-20220224	Aqueous	PFBA	PFAS by ID	9.3	Q	ng/L	81
032	STP1-DPT0012-016.0-20220224	Aqueous	PFHxA	PFAS by ID	1.9	I	ng/L	81
032	STP1-DPT0012-016.0-20220224	Aqueous	PFOA	PFAS by ID	2.6	I	ng/L	81
032	STP1-DPT0012-016.0-20220224	Aqueous	PFOS	PFAS by ID	8.0		ng/L	81
033	STP1-DPT0012-023.0-20220224	Aqueous	PFBS	PFAS by ID	2.0	I	ng/L	83
033	STP1-DPT0012-023.0-20220224	Aqueous	PFHxS	PFAS by ID	7.4		ng/L	83
033	STP1-DPT0012-023.0-20220224	Aqueous	PFBA	PFAS by ID	6.0		ng/L	83

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
033	STP1-DPT0012-023.0-20220224	Aqueous	PFOA	PFAS by ID	2.7	I	ng/L	83
033	STP1-DPT0012-023.0-20220224	Aqueous	PFOS	PFAS by ID	1.2	I	ng/L	83
034	STP1-DPT0012-033.0-20220224	Aqueous	PFHxS	PFAS by ID	4.2		ng/L	85
034	STP1-DPT0012-033.0-20220224	Aqueous	PFBA	PFAS by ID	3.5	I	ng/L	85
034	STP1-DPT0012-033.0-20220224	Aqueous	PFOA	PFAS by ID	1.9	I	ng/L	85
035	STP1-DPT0012-042.0-20220224	Aqueous	PFBS	PFAS by ID	1.0	I	ng/L	87
035	STP1-DPT0012-042.0-20220224	Aqueous	PFHxS	PFAS by ID	2.5	I	ng/L	87
035	STP1-DPT0012-042.0-20220224	Aqueous	PFBA	PFAS by ID	4.0		ng/L	87
035	STP1-DPT0012-042.0-20220224	Aqueous	PFHpA	PFAS by ID	1.3	I	ng/L	87
035	STP1-DPT0012-042.0-20220224	Aqueous	PFHxA	PFAS by ID	1.3	I	ng/L	87
035	STP1-DPT0012-042.0-20220224	Aqueous	PFOA	PFAS by ID	4.4		ng/L	87
035	STP1-DPT0012-042.0-20220224	Aqueous	PFOS	PFAS by ID	2.8	I	ng/L	87
036	STP1-DPT0013-005.0-20220224	Aqueous	PFOA	PFAS by ID	20	I	ng/L	89
036	STP1-DPT0013-005.0-20220224	Aqueous	PFOS	PFAS by ID	140		ng/L	89
037	STP1-DPT0013-010.0-20220224	Aqueous	PFBA	PFAS by ID	17	I	ng/L	91
037	STP1-DPT0013-010.0-20220224	Aqueous	PFHpA	PFAS by ID	18	I	ng/L	91
037	STP1-DPT0013-010.0-20220224	Aqueous	PFHxA	PFAS by ID	16	I	ng/L	91
037	STP1-DPT0013-010.0-20220224	Aqueous	PFOA	PFAS by ID	60		ng/L	91
037	STP1-DPT0013-010.0-20220224	Aqueous	PFPeA	PFAS by ID	14	I	ng/L	91
037	STP1-DPT0013-010.0-20220224	Aqueous	PFOS	PFAS by ID	100		ng/L	91
038	STP1-DPT0013-016.0-20220224	Aqueous	PFBA	PFAS by ID	10	I	ng/L	93
038	STP1-DPT0013-016.0-20220224	Aqueous	PFOA	PFAS by ID	21	I	ng/L	93
039	STP1-DPT0013-023.0-20220224	Aqueous	PFHxS	PFAS by ID	5.3		ng/L	95
039	STP1-DPT0013-023.0-20220224	Aqueous	PFBA	PFAS by ID	5.6	Q	ng/L	95
039	STP1-DPT0013-023.0-20220224	Aqueous	PFHpA	PFAS by ID	3.0	I	ng/L	95
039	STP1-DPT0013-023.0-20220224	Aqueous	PFHxA	PFAS by ID	2.3	I	ng/L	95
039	STP1-DPT0013-023.0-20220224	Aqueous	PFOA	PFAS by ID	2.9	I	ng/L	95
039	STP1-DPT0013-023.0-20220224	Aqueous	PFPeA	PFAS by ID	3.4	I	ng/L	95
040	STP1-DPT0013-033.0-20220224	Aqueous	PFBS	PFAS by ID	2.4	I	ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFPeS	PFAS by ID	3.3	I	ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFHxS	PFAS by ID	8.7		ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFBA	PFAS by ID	12		ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFHpA	PFAS by ID	14		ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFHxA	PFAS by ID	24		ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFOA	PFAS by ID	9.0		ng/L	97
040	STP1-DPT0013-033.0-20220224	Aqueous	PFPeA	PFAS by ID	20		ng/L	97
041	STP1-DPT0013-042.0-20220224	Aqueous	PFHxS	PFAS by ID	2.5	I	ng/L	99
041	STP1-DPT0013-042.0-20220224	Aqueous	PFBA	PFAS by ID	2.7	IQ	ng/L	99
041	STP1-DPT0013-042.0-20220224	Aqueous	PFHpA	PFAS by ID	2.4	I	ng/L	99
041	STP1-DPT0013-042.0-20220224	Aqueous	PFHxA	PFAS by ID	3.1	I	ng/L	99
041	STP1-DPT0013-042.0-20220224	Aqueous	PFOA	PFAS by ID	3.0	I	ng/L	99
041	STP1-DPT0013-042.0-20220224	Aqueous	PFPeA	PFAS by ID	4.3		ng/L	99
044	STP1-FD-20220223-01	Aqueous	PFBS	PFAS by ID	1.6	I	ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFHpS	PFAS by ID	1.3	I	ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFPeS	PFAS by ID	1.1	I	ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFHxS	PFAS by ID	34		ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFBA	PFAS by ID	12		ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFHpA	PFAS by ID	5.1		ng/L	105

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
044	STP1-FD-20220223-01	Aqueous	PFHxA	PFAS by ID	5.8		ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFNA	PFAS by ID	1.4	I	ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFOA	PFAS by ID	5.9		ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFPeA	PFAS by ID	3.5	I	ng/L	105
044	STP1-FD-20220223-01	Aqueous	PFOS	PFAS by ID	69		ng/L	105
045	STP1-FD-20220223-02	Aqueous	PFBS	PFAS by ID	7.4		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFPeS	PFAS by ID	11		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFHxS	PFAS by ID	82		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFBA	PFAS by ID	21		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFHpA	PFAS by ID	4.5		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFHxA	PFAS by ID	7.1		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFNA	PFAS by ID	2.1	I	ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFOA	PFAS by ID	8.3		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFPeA	PFAS by ID	7.6		ng/L	107
045	STP1-FD-20220223-02	Aqueous	PFOS	PFAS by ID	36		ng/L	107
046	STP1-FD-20220223-03	Aqueous	6:2 FTS	PFAS by ID	24		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFBS	PFAS by ID	20		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFHpS	PFAS by ID	7.1		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFPeS	PFAS by ID	29		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFHxS	PFAS by ID	240		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFBA	PFAS by ID	20	Q	ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFHpA	PFAS by ID	23		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFHxA	PFAS by ID	49		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFNA	PFAS by ID	24		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFOA	PFAS by ID	23		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFPeA	PFAS by ID	47		ng/L	109
046	STP1-FD-20220223-03	Aqueous	PFOS	PFAS by ID	230		ng/L	109
047	STP1-FD-20220224-01	Aqueous	PFHxS	PFAS by ID	3.1	I	ng/L	111
047	STP1-FD-20220224-01	Aqueous	PFBA	PFAS by ID	5.3		ng/L	111
047	STP1-FD-20220224-01	Aqueous	PFHpA	PFAS by ID	1.6	I	ng/L	111
047	STP1-FD-20220224-01	Aqueous	PFHxA	PFAS by ID	2.4	I	ng/L	111
047	STP1-FD-20220224-01	Aqueous	PFOA	PFAS by ID	3.9		ng/L	111
047	STP1-FD-20220224-01	Aqueous	PFPeA	PFAS by ID	2.3	I	ng/L	111
047	STP1-FD-20220224-01	Aqueous	PFOS	PFAS by ID	12		ng/L	111
048	STP1-FD-20220224-02	Aqueous	6:2 FTS	PFAS by ID	52	I	ng/L	113
048	STP1-FD-20220224-02	Aqueous	PFBA	PFAS by ID	12	I	ng/L	113
048	STP1-FD-20220224-02	Aqueous	PFOS	PFAS by ID	18	I	ng/L	113

(272 detections)

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-001
Description: STP1-DPT0008-005.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 0735	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1623	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.1	UQ	8.2	4.1	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.1	U	8.2	4.1	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.6	I	4.1	2.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.1	I	4.1	2.1	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	36		4.1	2.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12		4.1	2.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	6.1		4.1	2.1	1.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	6.2		4.1	2.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.7	I	4.1	2.1	1.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	6.4		4.1	2.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3.5	I	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	U	4.1	2.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	77		4.1	2.1	1.0	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	187	50-150
13C2_6:2FTS		93	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		73	50-150
13C2_PFTeDA		61	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		82	50-150
13C7_PFUdA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-001
Description: STP1-DPT0008-005.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 0735	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		91	50-150
13C9_PFNA		84	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		73	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-002	
Description: STP1-DPT0008-010.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 0800	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1655	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	I	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	15		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	7.0		3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.3	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.5	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.2	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	67		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	165	50-150
13C2_6:2FTS		123	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA		76	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		83	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-002
Description: STP1-DPT0008-010.0-20220223		Matrix: Aqueous
Date Sampled: 02/23/2022 0800	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		86	50-150
13C9_PFNA		92	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		82	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-003
Description: STP1-DPT0008-016.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 0820	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1706	MMM	03/11/2022 1638	34564
2	SOP SPE	PFAS by ID SOP QSM B-15	5	03/15/2022 1635	MMM	03/11/2022 1638	34564

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.8	I	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.8	I	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	98		3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	11		3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	160		3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2000	D	18	9.0	4.5	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	150	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	460		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	520		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.6	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	190		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	440		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	180		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	205	50-150		120	50-150
13C2_6:2FTS		142	50-150		121	50-150
13C2_8:2FTS		111	50-150		116	50-150
13C2_PFDoA		76	50-150		103	50-150
13C2_PFTeDA		62	50-150		106	50-150
13C3_PFBS		79	50-150		124	50-150
13C3_PFHxS		76	50-150		110	50-150
13C3-HFPO-DA		75	50-150		106	50-150
13C4_PFBA	N	47	50-150		108	50-150
13C4_PFHpA		84	50-150		106	50-150
13C5_PFHxA		87	50-150		112	50-150
13C5_PFPeA		73	50-150		116	50-150
13C6_PFDA		85	50-150		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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Client: Tetra Tech		Laboratory ID: XB25012-003	
Description: STP1-DPT0008-016.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 0820	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		83	50-150		113	50-150
13C8_PFOA		99	50-150		106	50-150
13C8_PFOS		86	50-150		107	50-150
13C9_PFNA		94	50-150		101	50-150
d-EtFOSA		57	50-150		115	50-150
d5-EtFOSAA		91	50-150		121	50-150
d3-MeFOSAA		87	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-004	
Description: STP1-DPT0008-023.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 0850	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1403	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	11		3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	14		3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120	S	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	14		3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	26		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	36		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.4		3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	31		3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.2	I	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	189	50-150
13C2_6:2FTS		142	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		58	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		83	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-004
Description: STP1-DPT0008-023.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 0850	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		94	50-150
13C9_PFNA		95	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-005	
Description: STP1-DPT0008-033.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 0925	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1435	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1706	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	3.0	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	4.6		3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	36		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.2		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	200	50-150	N	164	50-150
13C2_6:2FTS	N	151	50-150		100	50-150
13C2_8:2FTS		100	50-150		88	50-150
13C2_PFDoA		83	50-150		70	50-150
13C2_PFTeDA		64	50-150		52	50-150
13C3_PFBS		85	50-150		78	50-150
13C3_PFHxS		98	50-150		79	50-150
13C3-HFPO-DA		87	50-150		79	50-150
13C4_PFBA		55	50-150		53	50-150
13C4_PFHpA		102	50-150		83	50-150
13C5_PFHxA		92	50-150		89	50-150
13C5_PFPeA		81	50-150		74	50-150
13C6_PFDA		100	50-150		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-005
Description: STP1-DPT0008-033.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 0925	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		96	50-150		80	50-150
13C8_PFOA		101	50-150		83	50-150
13C8_PFOS		96	50-150		78	50-150
13C9_PFNA		92	50-150		74	50-150
d-EtFOSA		66	50-150	N	41	50-150
d5-EtFOSAA		97	50-150		78	50-150
d3-MeFOSAA		94	50-150		73	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-006	
Description: STP1-DPT0008-042.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 0955	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1446	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1717	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	5.5	U	11	5.5	2.6	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	5.5	U	11	5.5	2.6	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.5	U	11	5.5	2.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	5.5	U	11	5.5	2.6	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	5.5	U	11	5.5	2.6	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	5.5	U	11	5.5	2.6	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	5.5	UQ	11	5.5	2.6	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	5.5	UQ	11	5.5	2.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	5.5	UQ	11	5.5	2.6	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.4		5.3	2.7	1.3	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.7	UQ	5.3	2.7	1.3	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.7	U	5.3	2.7	1.3	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.7	UQ	5.3	2.7	1.3	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.7	UQ	5.3	2.7	1.3	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.7	UQ	5.3	2.7	1.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	7.1		5.3	2.7	1.3	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		129	50-150		142	50-150
13C2_6:2FTS		109	50-150		87	50-150
13C2_8:2FTS		66	50-150		69	50-150
13C2_PFDoA	N	24	50-150	N	21	50-150
13C2_PFTeDA	N	6.8	50-150	N	4.7	50-150
13C3_PFBS		66	50-150		73	50-150
13C3_PFHxS		72	50-150		72	50-150
13C3-HFPO-DA		67	50-150		73	50-150
13C4_PFBA		56	50-150		58	50-150
13C4_PFHpA		73	50-150		78	50-150
13C5_PFHxA		67	50-150		83	50-150
13C5_PFPeA		63	50-150		74	50-150
13C6_PFDA		64	50-150		63	50-150

LOQ = Limit of Quantitation | V = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure
U = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | I = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure
Q = Out of holding time | W = Reported on wet weight basis | LOD = Limit of Detection | D = Dilution > 1 | S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-006
Description: STP1-DPT0008-042.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 0955	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA	N	49	50-150	N	48	50-150
13C8_PFOA		72	50-150		74	50-150
13C8_PFOS		59	50-150		68	50-150
13C9_PFNA		65	50-150		70	50-150
d-EtFOSA	N	9.0	50-150	N	5.3	50-150
d5-EtFOSAA	N	44	50-150	N	41	50-150
d3-MeFOSAA	N	45	50-150	N	44	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-007
Description: STP1-DPT0009-005.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1115	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1457	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1728	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	19	I	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	32	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		112	50-150		117	50-150
13C2_6:2FTS		103	50-150		116	50-150
13C2_8:2FTS		105	50-150		109	50-150
13C2_PFDoA		101	50-150		99	50-150
13C2_PFTeDA		86	50-150		92	50-150
13C3_PFBS		100	50-150		110	50-150
13C3_PFHxS		108	50-150		108	50-150
13C3-HFPO-DA		99	50-150		114	50-150
13C4_PFBA		102	50-150		107	50-150
13C4_PFHpA		105	50-150		110	50-150
13C5_PFHxA		96	50-150		115	50-150
13C5_PFPeA		99	50-150		107	50-150
13C6_PFDA		110	50-150		112	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-007
Description: STP1-DPT0009-005.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1115	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		108	50-150		104	50-150
13C8_PFOA		106	50-150		119	50-150
13C8_PFOS		102	50-150		118	50-150
13C9_PFNA		96	50-150		109	50-150
d-EtFOSA		80	50-150		87	50-150
d5-EtFOSAA		104	50-150		104	50-150
d3-MeFOSAA		98	50-150		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-008	
Description: STP1-DPT0009-010.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1140	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1508	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	23	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	12	I	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	32	I	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		104	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		103	50-150
13C7_PFUdA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech	Laboratory ID: XB25012-008
Description: STP1-DPT0009-010.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 1140	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		100	50-150
13C9_PFNA		99	50-150
d-EtFOSA		86	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-009
Description: STP1-EB-20220223-01	Matrix: Aqueous
Date Sampled: 02/23/2022 1200	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1427	MMM	03/10/2022 1005	34361

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	1.8	VI	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		134	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		119	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		106	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		111	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		110	50-150
13C7_PFUdA		107	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-009	
Description: STP1-EB-20220223-01		Matrix: Aqueous	
Date Sampled: 02/23/2022 1200	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		112	50-150
13C8_PFOS		107	50-150
13C9_PFNA		106	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-010
Description: STP1-DPT0009-016.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1205	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1519	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	30	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		106	50-150
13C7_PFUdA		106	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-010
Description: STP1-DPT0009-016.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1205	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		107	50-150
13C9_PFNA		99	50-150
d-EtFOSA		86	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-011
Description: STP1-DPT0009-023.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1230	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1530	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1739	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	5.5	U	11	5.5	2.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	12		5.4	2.7	1.3	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	18		5.4	2.7	1.3	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		5.4	2.7	1.3	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	33		5.4	2.7	1.3	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	7.3		5.4	2.7	1.3	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	12		5.4	2.7	1.3	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.2	I	5.4	2.7	1.3	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	14		5.4	2.7	1.3	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	12		5.4	2.7	1.3	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.7	U	5.4	2.7	1.3	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	58		5.4	2.7	1.3	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		94	50-150	N	160	50-150
13C2_6:2FTS		98	50-150		107	50-150
13C2_8:2FTS		68	50-150		102	50-150
13C2_PFDoA		58	50-150		79	50-150
13C2_PFTeDA		53	50-150		69	50-150
13C3_PFBS		60	50-150		92	50-150
13C3_PFHxS		68	50-150		94	50-150
13C3-HFPO-DA		65	50-150		93	50-150
13C4_PFBA		51	50-150		63	50-150
13C4_PFHpA		69	50-150		91	50-150
13C5_PFHxA		60	50-150		96	50-150
13C5_PFPeA		62	50-150		92	50-150
13C6_PFDA		65	50-150		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-011	
Description: STP1-DPT0009-023.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1230	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		65	50-150		93	50-150
13C8_PFOA		65	50-150		94	50-150
13C8_PFOS		62	50-150		93	50-150
13C9_PFNA		61	50-150		96	50-150
d-EtFOSA		54	50-150		67	50-150
d5-EtFOSAA		59	50-150		88	50-150
d3-MeFOSAA		60	50-150		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-012	
Description: STP1-DPT0009-033.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1305	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1610	ASD	03/14/2022 1626	34774
2	SOP SPE	PFAS by ID SOP QSM B-15	5	03/16/2022 1918	NK1	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.0	US	7.9	4.0	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.0	US	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.0	US	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	720	S	7.9	4.0	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	UQ	7.9	4.0	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	7.1		4.0	2.0	0.99	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	US	4.0	2.0	0.99	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.3	I	4.0	2.0	0.99	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	US	4.0	2.0	0.99	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	7.8		4.0	2.0	0.99	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	78	S	4.0	2.0	0.99	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	220	S	4.0	2.0	0.99	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1000	D	20	10	5.0	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	450	S	4.0	2.0	0.99	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	210	S	4.0	2.0	0.99	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	420	S	4.0	2.0	0.99	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	540	S	4.0	2.0	0.99	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	UQ	4.0	2.0	0.99	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	130	S	4.0	2.0	0.99	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	164	50-150		106	50-150
13C2_6:2FTS		95	50-150		95	50-150
13C2_8:2FTS		81	50-150		97	50-150
13C2_PFDoA		63	50-150		89	50-150
13C2_PFTeDA	N	49	50-150		81	50-150
13C3_PFBS		84	50-150		94	50-150
13C3_PFHxS		90	50-150		87	50-150
13C3-HFPO-DA		84	50-150		89	50-150
13C4_PFBA		55	50-150		87	50-150
13C4_PFHpA		86	50-150		87	50-150
13C5_PFHxA		89	50-150		91	50-150
13C5_PFPeA		76	50-150		89	50-150
13C6_PFDA		80	50-150		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-012	
Description: STP1-DPT0009-033.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1305	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		79	50-150		86	50-150
13C8_PFOA		87	50-150		91	50-150
13C8_PFOS		86	50-150		93	50-150
13C9_PFNA		79	50-150		93	50-150
d-EtFOSA		55	50-150		82	50-150
d5-EtFOSAA		75	50-150		87	50-150
d3-MeFOSAA		73	50-150		82	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-013
Description: STP1-DPT0009-042.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 1335	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1541	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	580	V	9.4	4.7	2.4	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.5	I	9.4	4.7	2.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.7	UQ	9.4	4.7	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.7	U	9.4	4.7	2.4	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	10		4.7	2.4	1.2	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.4	I	4.7	2.4	1.2	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13		4.7	2.4	1.2	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	92		4.7	2.4	1.2	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	330	Q	4.7	2.4	1.2	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	690		4.7	2.4	1.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	720		4.7	2.4	1.2	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	24		4.7	2.4	1.2	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	210		4.7	2.4	1.2	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	980		4.7	2.4	1.2	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.4	UQ	4.7	2.4	1.2	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	10		4.7	2.4	1.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		115	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		72	50-150
13C2_PFDoA		60	50-150
13C2_PFTeDA	N	41	50-150
13C3_PFBS		62	50-150
13C3_PFHxS		75	50-150
13C3-HFPO-DA		67	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		73	50-150
13C5_PFHxA		67	50-150
13C5_PFPeA		59	50-150
13C6_PFDA		72	50-150
13C7_PFUdA		70	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-013
Description: STP1-DPT0009-042.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 1335	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	50-150
13C8_PFOS		70	50-150
13C9_PFNA		68	50-150
d-EtFOSA	N	44	50-150
d5-EtFOSAA		69	50-150
d3-MeFOSAA		65	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-014
Description: STP1-DPT0010-005.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 1440	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1614	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	11	I	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	110		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	240		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	200		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	200		40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	120		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	150		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	28	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		109	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		111	50-150
13C7_PFUdA		106	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-014
Description: STP1-DPT0010-005.0-20220223		Matrix: Aqueous
Date Sampled: 02/23/2022 1440	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		105	50-150
13C9_PFNA		100	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-015
Description: STP1-DPT0010-010.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1500	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1625	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1750	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	86		80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	28	I	80	40	20	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	41		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	650		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2200		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1300		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1000		40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1500		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1000		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	62		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150		90	50-150
13C2_6:2FTS		106	50-150		86	50-150
13C2_8:2FTS		97	50-150		94	50-150
13C2_PFDoA		88	50-150		74	50-150
13C2_PFTeDA		81	50-150		71	50-150
13C3_PFBS		102	50-150		88	50-150
13C3_PFHxS		108	50-150		87	50-150
13C3-HFPO-DA		103	50-150		86	50-150
13C4_PFBA		99	50-150		88	50-150
13C4_PFHpA		101	50-150		93	50-150
13C5_PFHxA		95	50-150		89	50-150
13C5_PFPeA		101	50-150		90	50-150
13C6_PFDA		105	50-150		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-015
Description: STP1-DPT0010-010.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1500	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		97	50-150		86	50-150
13C8_PFOA		101	50-150		88	50-150
13C8_PFOS		101	50-150		82	50-150
13C9_PFNA		98	50-150		78	50-150
d-EtFOSA		73	50-150		71	50-150
d5-EtFOSAA		91	50-150		80	50-150
d3-MeFOSAA		90	50-150		78	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-016	
Description: STP1-DPT0010-016.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1525	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1636	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1801	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	49	I	80	40	20	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	120		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	250		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	180		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	760		40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	240		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	180		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	18	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		119	50-150		103	50-150
13C2_6:2FTS		115	50-150		105	50-150
13C2_8:2FTS		108	50-150		94	50-150
13C2_PFDoA		94	50-150		87	50-150
13C2_PFTeDA		86	50-150		83	50-150
13C3_PFBS		108	50-150		99	50-150
13C3_PFHxS		112	50-150		94	50-150
13C3-HFPO-DA		106	50-150		100	50-150
13C4_PFBA		103	50-150		95	50-150
13C4_PFHpA		105	50-150		101	50-150
13C5_PFHxA		102	50-150		96	50-150
13C5_PFPeA		102	50-150		96	50-150
13C6_PFDA		112	50-150		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-016
Description: STP1-DPT0010-016.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1525	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		103	50-150		96	50-150
13C8_PFOA		109	50-150		96	50-150
13C8_PFOS		109	50-150		103	50-150
13C9_PFNA		100	50-150		91	50-150
d-EtFOSA		80	50-150		80	50-150
d5-EtFOSAA		93	50-150		91	50-150
d3-MeFOSAA		93	50-150		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-017	
Description: STP1-EB-20220223-02		Matrix: Aqueous	
Date Sampled: 02/23/2022 1520	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1437	MMM	03/10/2022 1005	34361

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		142	50-150
13C2_6:2FTS		125	50-150
13C2_8:2FTS		129	50-150
13C2_PFDoA		115	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		112	50-150
13C3_PFHxS		118	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		116	50-150
13C4_PFHpA		116	50-150
13C5_PFHxA		114	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-017	
Description: STP1-EB-20220223-02		Matrix: Aqueous	
Date Sampled: 02/23/2022 1520	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		119	50-150
13C8_PFOS		121	50-150
13C9_PFNA		115	50-150
d-EtFOSA		96	50-150
d5-EtFOSAA		122	50-150
d3-MeFOSAA		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-018
Description: STP1-DPT0010-023.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 1545	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1647	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	530	V	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	12	I	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	13	I	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	64		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	50		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	69		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	44		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	640		40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	150		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	51		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	24	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		118	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		119	50-150
13C3-HFPO-DA		109	50-150
13C4_PFBA		108	50-150
13C4_PFHpA		118	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		113	50-150
13C6_PFDA		111	50-150
13C7_PFUdA		113	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-018	
Description: STP1-DPT0010-023.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1545	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		114	50-150
13C9_PFNA		104	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-019	
Description: STP1-DPT0010-033.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1610	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1658	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1812	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	26		7.3	3.7	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.9	UQ	9.8	4.9	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.9	U	9.8	4.9	2.4	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	29		4.9	2.5	1.2	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	8.4		4.9	2.5	1.2	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	45		4.9	2.5	1.2	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	310		4.9	2.5	1.2	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	26	Q	4.9	2.5	1.2	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	26		4.9	2.5	1.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	70		4.9	2.5	1.2	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	30		4.9	2.5	1.2	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	31		4.9	2.5	1.2	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	60		4.9	2.5	1.2	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.5	UQ	4.9	2.5	1.2	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	290		4.9	2.5	1.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		150	50-150	N	171	50-150
13C2_6:2FTS		117	50-150		101	50-150
13C2_8:2FTS		76	50-150		85	50-150
13C2_PFDoA		51	50-150		54	50-150
13C2_PFTeDA	N	24	50-150	N	29	50-150
13C3_PFBS		64	50-150		72	50-150
13C3_PFHxS		79	50-150		73	50-150
13C3-HFPO-DA		69	50-150		71	50-150
13C4_PFBA	N	41	50-150	N	42	50-150
13C4_PFHpA		78	50-150		81	50-150
13C5_PFHxA		73	50-150		80	50-150
13C5_PFPeA		62	50-150		66	50-150
13C6_PFDA		75	50-150		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-019
Description: STP1-DPT0010-033.0-20220223	Matrix: Aqueous
Date Sampled: 02/23/2022 1610	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		70	50-150		71	50-150
13C8_PFOA		80	50-150		83	50-150
13C8_PFOS		73	50-150		76	50-150
13C9_PFNA		72	50-150		75	50-150
d-EtFOSA	N	24	50-150	N	23	50-150
d5-EtFOSAA		67	50-150		64	50-150
d3-MeFOSAA		68	50-150		66	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-020	
Description: STP1-DPT0010-042.0-20220223		Matrix: Aqueous	
Date Sampled: 02/23/2022 1635	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1708	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1822	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	13		7.2	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.9	UQ	9.7	4.9	2.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.9	U	9.7	4.9	2.4	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.2	I	4.9	2.5	1.2	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	8.9		4.9	2.5	1.2	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	8.2		4.9	2.5	1.2	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	23		4.9	2.5	1.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	15		4.9	2.5	1.2	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.6		4.9	2.5	1.2	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	13		4.9	2.5	1.2	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	18		4.9	2.5	1.2	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.5	UQ	4.9	2.5	1.2	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.5	U	4.9	2.5	1.2	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.4	I	4.9	2.5	1.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		140	50-150	N	168	50-150
13C2_6:2FTS		109	50-150		107	50-150
13C2_8:2FTS		73	50-150		79	50-150
13C2_PFDoA		53	50-150	N	40	50-150
13C2_PFTeDA	N	24	50-150	N	17	50-150
13C3_PFBS		68	50-150		78	50-150
13C3_PFHxS		76	50-150		83	50-150
13C3-HFPO-DA		69	50-150		81	50-150
13C4_PFBA		51	50-150		54	50-150
13C4_PFHpA		78	50-150		87	50-150
13C5_PFHxA		71	50-150		89	50-150
13C5_PFPeA		66	50-150		77	50-150
13C6_PFDA		77	50-150		75	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-020
Description: STP1-DPT0010-042.0-20220223			Matrix: Aqueous
Date Sampled: 02/23/2022 1635	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		71	50-150		66	50-150
13C8_PFOA		75	50-150		90	50-150
13C8_PFOS		75	50-150		80	50-150
13C9_PFNA		72	50-150		78	50-150
d-EtFOSA	N	27	50-150	N	17	50-150
d5-EtFOSAA		67	50-150		56	50-150
d3-MeFOSAA		67	50-150		62	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-021	
Description: STP1-FB-20220223-01		Matrix: Aqueous	
Date Sampled: 02/23/2022 1640	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1719	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-021
Description: STP1-FB-20220223-01		Matrix: Aqueous
Date Sampled: 02/23/2022 1640	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		99	50-150
13C9_PFNA		94	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-022	
Description: STP1-FB-20220224-01		Matrix: Aqueous	
Date Sampled: 02/24/2022 0720	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1730	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	99	V	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		103	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		95	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		106	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-022
Description: STP1-FB-20220224-01	Matrix: Aqueous
Date Sampled: 02/24/2022 0720	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		103	50-150
13C9_PFNA		98	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-023
Description: STP1-DPT0011-005.0-20220224	Matrix: Aqueous
Date Sampled: 02/24/2022 0725	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1741	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		107	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		89	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-023	
Description: STP1-DPT0011-005.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0725	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		104	50-150
13C9_PFNA		95	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-024	
Description: STP1-DPT0011-010.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0745	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1752	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	390	V	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		111	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-024
Description: STP1-DPT0011-010.0-20220224			Matrix: Aqueous
Date Sampled: 02/24/2022 0745		Project Name: KSC-STP1	
Date Received: 02/25/2022		Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	50-150
13C8_PFOS		102	50-150
13C9_PFNA		96	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-025	
Description: STP1-DPT0011-016.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0805	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1825	NK1	03/13/2022 1251	34663

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	39	I	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		102	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		77	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation · V = Detected in the method blank · E = Quantitation of compound exceeded the calibration range · DL = Detection Limit · Q = Surrogate failure
U = Not detected at or above the LOQ · N = Recovery is out of criteria · P = The RPD between two GC columns exceeds 40% · I = Estimated result < LOQ and ≥ DL · L = LCS/LCSD failure
Q = Out of holding time · W = Reported on wet weight basis · LOD = Limit of Detection · D = Dilution > 1 · S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-025	
Description: STP1-DPT0011-016.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0805	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		96	50-150
13C9_PFNA		89	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		82	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-026	
Description: STP1-DPT0011-023.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0840	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/14/2022 1836	NK1	03/13/2022 1251	34663
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1833	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.5	U	9.0	4.5	2.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	37		4.5	2.3	1.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.5	I	4.5	2.3	1.1	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.6	IQ	4.5	2.3	1.1	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.2	I	4.5	2.3	1.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.8	I	4.5	2.3	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.3	U	4.5	2.3	1.1	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	7.9		4.5	2.3	1.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		147	50-150	N	163	50-150
13C2_6:2FTS		102	50-150		107	50-150
13C2_8:2FTS		72	50-150		91	50-150
13C2_PFDoA		61	50-150		72	50-150
13C2_PFTeDA		52	50-150		52	50-150
13C3_PFBS		69	50-150		81	50-150
13C3_PFHxS		79	50-150		86	50-150
13C3-HFPO-DA		70	50-150		86	50-150
13C4_PFBA	N	46	50-150		51	50-150
13C4_PFHpA		76	50-150		89	50-150
13C5_PFHxA		73	50-150		89	50-150
13C5_PFPeA		63	50-150		76	50-150
13C6_PFDA		77	50-150		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-026
Description: STP1-DPT0011-023.0-20220224			Matrix: Aqueous
Date Sampled: 02/24/2022 0840	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		72	50-150		84	50-150
13C8_PFOA		77	50-150		92	50-150
13C8_PFOS		69	50-150		91	50-150
13C9_PFNA		68	50-150		81	50-150
d-EtFOSA		50	50-150	N	49	50-150
d5-EtFOSAA		73	50-150		81	50-150
d3-MeFOSAA		69	50-150		78	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-027	
Description: STP1-DPT0011-033.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0905	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1643	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.9	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4.3		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	8.9		3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.5	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.7		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.1	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	26		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	183	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		70	50-150
13C2_PFTeDA		50	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		55	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		81	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-027
Description: STP1-DPT0011-033.0-20220224		Matrix: Aqueous
Date Sampled: 02/24/2022 0905	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		97	50-150
13C9_PFNA		89	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-028	
Description: STP1-DPT0011-042.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 0935	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1654	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.4	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4.0		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.5	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.3	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.7		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	12		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150
13C2_6:2FTS		95	50-150
13C2_8:2FTS		85	50-150
13C2_PFDoA		70	50-150
13C2_PFTeDA		54	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		55	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		77	50-150
13C6_PFDA		85	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-028
Description: STP1-DPT0011-042.0-20220224	Matrix: Aqueous
Date Sampled: 02/24/2022 0935	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		89	50-150
13C9_PFNA		84	50-150
d-EtFOSA		50	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-029	
Description: STP1-DPT0012-005.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1030	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/16/2022 2024	ASD	03/15/2022 1843	34944

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	11	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	19	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		102	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-029	
Description: STP1-DPT0012-005.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1030	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		98	50-150
13C9_PFNA		99	50-150
d-EtFOSA		68	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-030	
Description: STP1-DPT0012-010.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1050	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1705	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	15	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		111	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		83	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-030	
Description: STP1-DPT0012-010.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1050	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		99	50-150
13C9_PFNA		94	50-150
d-EtFOSA		83	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-031	
Description: STP1-EB-20220224-01		Matrix: Aqueous	
Date Sampled: 02/24/2022 1110	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1716	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		109	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		110	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		111	50-150
13C4_PFBA		108	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		108	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-031
Description: STP1-EB-20220224-01		Matrix: Aqueous
Date Sampled: 02/24/2022 1110	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	50-150
13C8_PFOS		110	50-150
13C9_PFNA		102	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-032
Description: STP1-DPT0012-016.0-20220224	Matrix: Aqueous
Date Sampled: 02/24/2022 1115	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1726	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.5		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	9.3	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.6	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.0		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	181	50-150
13C2_6:2FTS		106	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA		60	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		75	50-150
13C6_PFDA		87	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-032
Description: STP1-DPT0012-016.0-20220224		Matrix: Aqueous
Date Sampled: 02/24/2022 1115	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		93	50-150
13C9_PFNA		89	50-150
d-EtFOSA		57	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-033	
Description: STP1-DPT0012-023.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1140	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1737	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	7.4		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.0		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.7	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.2	I	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	189	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		72	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		54	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-033
Description: STP1-DPT0012-023.0-20220224	Matrix: Aqueous
Date Sampled: 02/24/2022 1140	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		98	50-150
13C9_PFNA		92	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-034	
Description: STP1-DPT0012-033.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1215	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/15/2022 1748	ASD	03/14/2022 1626	34774

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4.2		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	3.5	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	193	50-150
13C2_6:2FTS		120	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		74	50-150
13C2_PFTeDA		63	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		59	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		84	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-034	
Description: STP1-DPT0012-033.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1215	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	50-150
13C8_PFOS		98	50-150
13C9_PFNA		91	50-150
d-EtFOSA		57	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-035	
Description: STP1-DPT0012-042.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1245	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/16/2022 2057	ASD	03/15/2022 1843	34944

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.0	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.5	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.0		3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.3	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.3	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.4		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.8	I	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	186	50-150
13C2_6:2FTS		108	50-150
13C2_8:2FTS		105	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		83	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBA		50	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		74	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-035
Description: STP1-DPT0012-042.0-20220224			Matrix: Aqueous
Date Sampled: 02/24/2022 1245	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		90	50-150
13C8_PFOS		91	50-150
13C9_PFNA		93	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-036	
Description: STP1-DPT0013-005.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1335	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2128	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	I	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	140		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		98	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		100	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-036	
Description: STP1-DPT0013-005.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1335	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		102	50-150
13C9_PFNA		97	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		97	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-037
Description: STP1-DPT0013-010.0-20220224			Matrix: Aqueous
Date Sampled: 02/24/2022 1405	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2139	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	17	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	16	I	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	60		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	14	I	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	100		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150
13C2_6:2FTS		112	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		113	50-150
13C3_PFHxS		110	50-150
13C3-HFPO-DA		113	50-150
13C4_PFBA		109	50-150
13C4_PFHpA		113	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		111	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-037	
Description: STP1-DPT0013-010.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1405	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		114	50-150
13C9_PFNA		107	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-038	
Description: STP1-DPT0013-016.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1425	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2150	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	10	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	21	I	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		100	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-038
Description: STP1-DPT0013-016.0-20220224			Matrix: Aqueous
Date Sampled: 02/24/2022 1425	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	50-150
13C8_PFOS		102	50-150
13C9_PFNA		91	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-039	
Description: STP1-DPT0013-023.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1450	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2201	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	5.3		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.6	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.0	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.3	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.9	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3.4	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	174	50-150
13C2_6:2FTS		125	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-039	
Description: STP1-DPT0013-023.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1450	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		105	50-150
13C9_PFNA		99	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-040	
Description: STP1-DPT0013-033.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1520	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2212	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.4	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	3.3	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	8.7		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12		3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	14		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	24		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.0		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	195	50-150
13C2_6:2FTS		126	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		77	50-150
13C2_PFTeDA		56	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		55	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-040
Description: STP1-DPT0013-033.0-20220224		Matrix: Aqueous
Date Sampled: 02/24/2022 1520	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	50-150
13C8_PFOS		107	50-150
13C9_PFNA		98	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-041	
Description: STP1-DPT0013-042.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1550	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2223	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.5	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.7	IQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.4	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	3.1	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.0	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.3		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	175	50-150
13C2_6:2FTS		97	50-150
13C2_8:2FTS		84	50-150
13C2_PFDoA		68	50-150
13C2_PFTeDA	N	47	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		83	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		71	50-150
13C6_PFDA		78	50-150
13C7_PFUdA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-041	
Description: STP1-DPT0013-042.0-20220224		Matrix: Aqueous	
Date Sampled: 02/24/2022 1550	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		85	50-150
13C9_PFNA		78	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		77	50-150
d3-MeFOSAA		75	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-042	
Description: STP1-EB-20220224-02		Matrix: Aqueous	
Date Sampled: 02/24/2022 1555	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2234	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150
13C2_6:2FTS		116	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		110	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-042
Description: STP1-EB-20220224-02		Matrix: Aqueous
Date Sampled: 02/24/2022 1555	Project Name: KSC-STP1	
Date Received: 02/25/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		112	50-150
13C8_PFOS		108	50-150
13C9_PFNA		105	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-043	
Description: STP1-FB-20220224-02		Matrix: Aqueous	
Date Sampled: 02/24/2022 1600	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2245	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS		120	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		102	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		109	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		108	50-150
13C4_PFHpA		114	50-150
13C5_PFHxA		115	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-043
Description: STP1-FB-20220224-02			Matrix: Aqueous
Date Sampled: 02/24/2022 1600	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		116	50-150
13C8_PFOS		118	50-150
13C9_PFNA		108	50-150
d-EtFOSA		84	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-044
Description: STP1-FD-20220223-01			Matrix: Aqueous
Date Sampled: 02/23/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2256	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.6	I	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.3	I	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.1	I	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	34		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12		3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.1		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	5.8		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.4	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	5.9		3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3.5	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	69		3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	170	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		70	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBA		54	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-044
Description: STP1-FD-20220223-01			Matrix: Aqueous
Date Sampled: 02/23/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		95	50-150
13C9_PFNA		93	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-045	
Description: STP1-FD-20220223-02		Matrix: Aqueous	
Date Sampled: 02/23/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2307	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	7.4		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	82		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	21		3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	4.5		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	7.1		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.1	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	8.3		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	7.6		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	36		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	155	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		77	50-150
13C2_PFTeDA		53	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		66	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-045
Description: STP1-FD-20220223-02	Matrix: Aqueous
Date Sampled: 02/23/2022	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		97	50-150
13C9_PFNA		89	50-150
d-EtFOSA		57	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-046	
Description: STP1-FD-20220223-03		Matrix: Aqueous	
Date Sampled: 02/23/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2340	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	24		7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	7.1		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	29		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	240		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	Q	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	23		3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	49		3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	24		3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	23		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	47		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	230		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	151	50-150
13C2_6:2FTS		96	50-150
13C2_8:2FTS		73	50-150
13C2_PFDoA		53	50-150
13C2_PFTeDA	N	24	50-150
13C3_PFBS		70	50-150
13C3_PFHxS		71	50-150
13C3-HFPO-DA		72	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		75	50-150
13C5_PFHxA		75	50-150
13C5_PFPeA		66	50-150
13C6_PFDA		70	50-150
13C7_PFUdA		64	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB25012-046
Description: STP1-FD-20220223-03	Matrix: Aqueous
Date Sampled: 02/23/2022	Project Name: KSC-STP1
Date Received: 02/25/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		81	50-150
13C8_PFOS		70	50-150
13C9_PFNA		71	50-150
d-EtFOSA	N	24	50-150
d5-EtFOSAA		65	50-150
d3-MeFOSAA		63	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-047	
Description: STP1-FD-20220224-01		Matrix: Aqueous	
Date Sampled: 02/24/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2351	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3.1	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.3		3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.6	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.4	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	3.9		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.3	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	12		3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	195	50-150
13C2_6:2FTS		127	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		77	50-150
13C2_PFTeDA	N	48	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		60	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-047	
Description: STP1-FD-20220224-01		Matrix: Aqueous	
Date Sampled: 02/24/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB25012-048	
Description: STP1-FD-20220224-02		Matrix: Aqueous	
Date Sampled: 02/24/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0002	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	52	I	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	18	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		98	50-150
13C2_6:2FTS		102	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		95	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB25012-048
Description: STP1-FD-20220224-02			Matrix: Aqueous
Date Sampled: 02/24/2022	Project Name: KSC-STP1		
Date Received: 02/25/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		92	50-150
13C9_PFNA		91	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		83	50-150
d3-MeFOSAA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ34361-001	Matrix:	Aqueous
Batch:	34361	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1005

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
6:2 FTS	9.9		1	8.0	4.0	2.0	ng/L	03/13/2022 1405
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		128	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation	U = Not detected at or above the LOQ	N = Recovery is out of criteria
DL = Detection Limit	I = Estimated result < LOQ and $\geq$ DL	P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection	* = RSD is out of criteria	+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34361-001	Matrix:	Aqueous
Batch:	34361	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1005

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		105	50-150
13C8_PFOS		118	50-150
13C9_PFNA		103	50-150
d-EtFOSA		83	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34361-002
Batch: 34361
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/10/2022 1005

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	12		1	81	70-150	03/13/2022 1416
11Cl-PF3OUdS	15	13		1	84	70-150	03/13/2022 1416
8:2 FTS	15	12		1	78	67-138	03/13/2022 1416
6:2 FTS	15	17		1	110	64-140	03/13/2022 1416
4:2 FTS	15	13		1	86	63-143	03/13/2022 1416
GenX	32	27		1	85	70-150	03/13/2022 1416
ADONA	15	14		1	94	70-150	03/13/2022 1416
EtFOSA	16	15		1	92	70-150	03/13/2022 1416
EtFOSAA	16	14		1	88	61-135	03/13/2022 1416
MeFOSAA	16	13		1	79	65-136	03/13/2022 1416
PFBS	14	12		1	85	72-130	03/13/2022 1416
PFDS	15	13		1	86	53-142	03/13/2022 1416
PFHpS	15	13		1	88	69-134	03/13/2022 1416
PFNS	15	13		1	84	69-127	03/13/2022 1416
PFPeS	15	14		1	96	71-127	03/13/2022 1416
PFHxS	15	12		1	86	68-131	03/13/2022 1416
PFBA	16	14		1	87	73-129	03/13/2022 1416
PFDA	16	14		1	87	71-129	03/13/2022 1416
PFDoA	16	15		1	94	72-134	03/13/2022 1416
PFHpA	16	15		1	91	72-130	03/13/2022 1416
PFHxA	16	13		1	84	72-129	03/13/2022 1416
PFNA	16	16		1	99	69-130	03/13/2022 1416
PFOA	16	14		1	89	71-133	03/13/2022 1416
PFPeA	16	15		1	92	72-129	03/13/2022 1416
PFTeDA	16	15		1	91	71-132	03/13/2022 1416
PFTrDA	16	15		1	96	65-144	03/13/2022 1416
PFUdA	16	15		1	94	69-133	03/13/2022 1416
PFOS	15	12		1	80	65-140	03/13/2022 1416

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		121	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		121	50-150
13C2_PFDoA		103	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		112	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34361-002	Matrix:	Aqueous
Batch:	34361	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1005

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		110	50-150
13C8_PFOS		114	50-150
13C9_PFNA		101	50-150
d-EtFOSA		86	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34564-001	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1509
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1509

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		125	50-150
13C2_6:2FTS		150	50-150
13C2_8:2FTS		109	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		99	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MB

Sample ID:	XQ34564-001	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		107	50-150
13C8_PFOS		97	50-150
13C9_PFNA		95	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34564-002	Matrix:	Aqueous
Batch:	34564	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/11/2022 1638

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	87	70-150	03/13/2022 1520
11Cl-PF3OUdS	15	13		1	86	70-150	03/13/2022 1520
8:2 FTS	15	14		1	89	67-138	03/13/2022 1520
6:2 FTS	15	13		1	85	64-140	03/13/2022 1520
4:2 FTS	15	15		1	100	63-143	03/13/2022 1520
GenX	32	26		1	82	70-150	03/13/2022 1520
ADONA	15	16		1	104	70-150	03/13/2022 1520
EtFOSA	16	16		1	97	70-150	03/13/2022 1520
EtFOSAA	16	14		1	89	61-135	03/13/2022 1520
MeFOSAA	16	14		1	90	65-136	03/13/2022 1520
PFBS	14	12		1	86	72-130	03/13/2022 1520
PFDS	15	15		1	97	53-142	03/13/2022 1520
PFHpS	15	13		1	88	69-134	03/13/2022 1520
PFNS	15	14		1	91	69-127	03/13/2022 1520
PFPeS	15	14		1	91	71-127	03/13/2022 1520
PFHxS	15	13		1	90	68-131	03/13/2022 1520
PFBA	16	15		1	91	73-129	03/13/2022 1520
PFDA	16	15		1	96	71-129	03/13/2022 1520
PFDoA	16	15		1	92	72-134	03/13/2022 1520
PFHpA	16	16		1	100	72-130	03/13/2022 1520
PFHxA	16	16		1	98	72-129	03/13/2022 1520
PFNA	16	14		1	89	69-130	03/13/2022 1520
PFOA	16	15		1	96	71-133	03/13/2022 1520
PFPeA	16	14		1	90	72-129	03/13/2022 1520
PFTeDA	16	15		1	94	71-132	03/13/2022 1520
PFTrDA	16	16		1	99	65-144	03/13/2022 1520
PFUdA	16	14		1	88	69-133	03/13/2022 1520
PFOS	15	13		1	89	65-140	03/13/2022 1520

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		90	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria

DL = Detection Limit — I = Estimated result < LOQ and $\geq$ DL — P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34564-002
Batch: 34564
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/11/2022 1638

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		100	50-150
13C8_PFOS		94	50-150
13C9_PFNA		94	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria
DL = Detection Limit   I = Estimated result < LOQ and $\geq$ DL   P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34663-001	Matrix:	Aqueous
Batch:	34663	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/13/2022 1251

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
6:2 FTS	8.5		1	8.0	4.0	2.0	ng/L	03/14/2022 1341
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/14/2022 1341
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/14/2022 1341

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	50-150
13C2_6:2FTS		136	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		100	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34663-001	Matrix:	Aqueous
Batch:	34663	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/13/2022 1251

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	50-150
13C7_PFUdA		99	50-150
13C8_PFOA		109	50-150
13C8_PFOS		101	50-150
13C9_PFNA		96	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ34663-002
Batch: 34663
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/13/2022 1251

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	70-150	03/14/2022 1352
11Cl-PF3OUdS	15	14		1	95	70-150	03/14/2022 1352
8:2 FTS	15	13		1	88	67-138	03/14/2022 1352
6:2 FTS	15	17		1	112	64-140	03/14/2022 1352
4:2 FTS	15	15		1	97	63-143	03/14/2022 1352
GenX	32	31		1	96	70-150	03/14/2022 1352
ADONA	15	14		1	94	70-150	03/14/2022 1352
EtFOSA	16	15		1	93	70-150	03/14/2022 1352
EtFOSAA	16	16		1	97	61-135	03/14/2022 1352
MeFOSAA	16	15		1	94	65-136	03/14/2022 1352
PFBS	14	12		1	85	72-130	03/14/2022 1352
PFDS	15	14		1	93	53-142	03/14/2022 1352
PFHpS	15	15		1	101	69-134	03/14/2022 1352
PFNS	15	15		1	98	69-127	03/14/2022 1352
PFPeS	15	15		1	100	71-127	03/14/2022 1352
PFHxS	15	13		1	92	68-131	03/14/2022 1352
PFBA	16	15		1	93	73-129	03/14/2022 1352
PFDA	16	15		1	91	71-129	03/14/2022 1352
PFDoA	16	16		1	97	72-134	03/14/2022 1352
PFHpA	16	16		1	101	72-130	03/14/2022 1352
PFHxA	16	15		1	95	72-129	03/14/2022 1352
PFNA	16	16		1	97	69-130	03/14/2022 1352
PFOA	16	15		1	95	71-133	03/14/2022 1352
PFPeA	16	15		1	95	72-129	03/14/2022 1352
PFTeDA	16	16		1	98	71-132	03/14/2022 1352
PFTrDA	16	15		1	95	65-144	03/14/2022 1352
PFUdA	16	15		1	95	69-133	03/14/2022 1352
PFOS	15	14		1	93	65-140	03/14/2022 1352

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	50-150
13C2_6:2FTS		144	50-150
13C2_8:2FTS		110	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		103	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		95	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34663-002
Batch: 34663
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/13/2022 1251

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		105	50-150
13C8_PFOS		99	50-150
13C9_PFNA		93	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XB25012-004MS	Matrix:	Aqueous
Batch:	34663	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/13/2022 1251

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	12		1	90	70-150	03/14/2022 1414
11Cl-PF3OUdS	ND	13	10		1	77	70-150	03/14/2022 1414
8:2 FTS	ND	14	13		1	92	67-138	03/14/2022 1414
6:2 FTS	ND	13	18		1	135	64-140	03/14/2022 1414
4:2 FTS	ND	13	12		1	89	63-143	03/14/2022 1414
GenX	ND	28	26		1	91	70-150	03/14/2022 1414
ADONA	ND	13	13		1	95	70-150	03/14/2022 1414
EtFOSA	ND	14	12		1	85	70-150	03/14/2022 1414
EtFOSAA	ND	14	13		1	92	61-135	03/14/2022 1414
MeFOSAA	ND	14	13		1	91	65-136	03/14/2022 1414
PFBS	11	13	22		1	86	72-130	03/14/2022 1414
PFDS	ND	14	12		1	88	53-142	03/14/2022 1414
PFHpS	ND	14	12		1	88	69-134	03/14/2022 1414
PFNS	ND	14	12		1	91	69-127	03/14/2022 1414
PFPeS	14	13	27		1	97	71-127	03/14/2022 1414
PFHxS	120	13	130	N	1	65	68-131	03/14/2022 1414
PFBA	14	14	27		1	92	73-129	03/14/2022 1414
PFDA	ND	14	13		1	93	71-129	03/14/2022 1414
PFDoA	ND	14	14		1	95	72-134	03/14/2022 1414
PFHpA	26	14	37		1	77	72-130	03/14/2022 1414
PFHxA	36	14	50		1	100	72-129	03/14/2022 1414
PFNA	ND	14	13		1	89	69-130	03/14/2022 1414
PFOA	7.4	14	21		1	98	71-133	03/14/2022 1414
PFPeA	31	14	46		1	103	72-129	03/14/2022 1414
PFTeDA	ND	14	14		1	97	71-132	03/14/2022 1414
PFTrDA	ND	14	12		1	84	65-144	03/14/2022 1414
PFUdA	ND	14	12		1	86	69-133	03/14/2022 1414
PFOS	1.2	13	13		1	92	65-140	03/14/2022 1414

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	184	50-150
13C2_6:2FTS		146	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		61	50-150
13C3_PFBS		90	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		54	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		81	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID:	XB25012-004MS	Matrix:	Aqueous
Batch:	34663	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/13/2022 1251

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		98	50-150
13C8_PFOS		101	50-150
13C9_PFNA		99	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XB25012-004MD
Batch: 34663
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/13/2022 1251

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	95	7.2	70-150	30	03/14/2022 1425
11Cl-PF3OUdS	ND	14	11		1	77	2.6	70-150	30	03/14/2022 1425
8:2 FTS	ND	14	11		1	82	9.9	67-138	30	03/14/2022 1425
6:2 FTS	ND	14	12	+	1	90	38	64-140	30	03/14/2022 1425
4:2 FTS	ND	14	14		1	106	19	63-143	30	03/14/2022 1425
GenX	ND	29	27		1	94	5.8	70-150	30	03/14/2022 1425
ADONA	ND	14	12		1	91	1.6	70-150	30	03/14/2022 1425
EtFOSA	ND	14	12		1	81	2.5	70-150	30	03/14/2022 1425
EtFOSAA	ND	14	13		1	93	2.9	61-135	30	03/14/2022 1425
MeFOSAA	ND	14	13		1	90	0.79	65-136	30	03/14/2022 1425
PFBS	11	13	23		1	93	5.2	72-130	30	03/14/2022 1425
PFDS	ND	14	12		1	87	0.25	53-142	30	03/14/2022 1425
PFHpS	ND	14	13		1	97	12	69-134	30	03/14/2022 1425
PFNS	ND	14	13		1	95	5.7	69-127	30	03/14/2022 1425
PFPeS	14	14	29		1	109	7.1	71-127	30	03/14/2022 1425
PFHxS	120	13	130		1	106	4.2	68-131	30	03/14/2022 1425
PFBA	14	14	28		1	92	1.1	73-129	30	03/14/2022 1425
PFDA	ND	14	13		1	90	0.58	71-129	30	03/14/2022 1425
PFDoA	ND	14	14		1	95	1.5	72-134	30	03/14/2022 1425
PFHpA	26	14	37		1	74	0.27	72-130	30	03/14/2022 1425
PFHxA	36	14	50		1	94	1.1	72-129	30	03/14/2022 1425
PFNA	ND	14	14		1	94	6.8	69-130	30	03/14/2022 1425
PFOA	7.4	14	21		1	94	1.3	71-133	30	03/14/2022 1425
PFPeA	31	14	45		1	96	1.5	72-129	30	03/14/2022 1425
PFTeDA	ND	14	14		1	93	1.1	71-132	30	03/14/2022 1425
PFTrDA	ND	14	12		1	85	3.7	65-144	30	03/14/2022 1425
PFUdA	ND	14	14		1	95	11	69-133	30	03/14/2022 1425
PFOS	1.2	13	14		1	93	3.0	65-140	30	03/14/2022 1425

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	166	50-150
13C2_6:2FTS		138	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		56	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		81	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XB25012-004MD
Batch: 34663
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/13/2022 1251

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		102	50-150
13C8_PFOS		97	50-150
13C9_PFNA		96	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34774-001	Matrix:	Aqueous
Batch:	34774	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/14/2022 1626

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/15/2022 1315
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/15/2022 1315

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		94	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		86	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		94	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34774-001
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		97	50-150
13C8_PFOS		97	50-150
13C9_PFNA		91	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34774-002
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	109	70-150	03/15/2022 1326
11Cl-PF3OUdS	15	13		1	87	70-150	03/15/2022 1326
8:2 FTS	15	15		1	97	67-138	03/15/2022 1326
6:2 FTS	15	14		1	91	64-140	03/15/2022 1326
4:2 FTS	15	16		1	106	63-143	03/15/2022 1326
GenX	32	31		1	97	70-150	03/15/2022 1326
ADONA	15	14		1	93	70-150	03/15/2022 1326
EtFOSA	16	17		1	103	70-150	03/15/2022 1326
EtFOSAA	16	16		1	97	61-135	03/15/2022 1326
MeFOSAA	16	15		1	91	65-136	03/15/2022 1326
PFBS	14	14		1	96	72-130	03/15/2022 1326
PFDS	15	13		1	87	53-142	03/15/2022 1326
PFHpS	15	15		1	98	69-134	03/15/2022 1326
PFNS	15	15		1	100	69-127	03/15/2022 1326
PFPeS	15	16		1	108	71-127	03/15/2022 1326
PFHxS	15	14		1	97	68-131	03/15/2022 1326
PFBA	16	16		1	97	73-129	03/15/2022 1326
PFDA	16	15		1	93	71-129	03/15/2022 1326
PFDoA	16	16		1	103	72-134	03/15/2022 1326
PFHpA	16	15		1	95	72-130	03/15/2022 1326
PFHxA	16	16		1	97	72-129	03/15/2022 1326
PFNA	16	16		1	98	69-130	03/15/2022 1326
PFOA	16	17		1	108	71-133	03/15/2022 1326
PFPeA	16	16		1	97	72-129	03/15/2022 1326
PFTeDA	16	16		1	99	71-132	03/15/2022 1326
PFTrDA	16	15		1	97	65-144	03/15/2022 1326
PFUdA	16	16		1	97	69-133	03/15/2022 1326
PFOS	15	15		1	103	65-140	03/15/2022 1326

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		85	50-150
13C2_PFDoA		72	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		94	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		94	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34774-002	Matrix:	Aqueous
Batch:	34774	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/14/2022 1626

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		86	50-150
13C8_PFOA		98	50-150
13C8_PFOS		89	50-150
13C9_PFNA		87	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XB25012-012MS
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	97	70-150	03/15/2022 1621
11Cl-PF3OUdS	ND	14	12		1	83	70-150	03/15/2022 1621
8:2 FTS	ND	14	23	N	1	159	67-138	03/15/2022 1621
6:2 FTS	720	14	640	N	1	-519	64-140	03/15/2022 1621
4:2 FTS	ND	14	15		1	112	63-143	03/15/2022 1621
GenX	ND	30	26		1	89	70-150	03/15/2022 1621
ADONA	ND	14	13		1	92	70-150	03/15/2022 1621
EtFOSA	ND	15	14		1	96	70-150	03/15/2022 1621
EtFOSAA	ND	15	12		1	84	61-135	03/15/2022 1621
MeFOSAA	ND	15	12		1	80	65-136	03/15/2022 1621
PFBS	7.1	13	18		1	87	72-130	03/15/2022 1621
PFDS	ND	14	14		1	96	53-142	03/15/2022 1621
PFHpS	2.3	14	15		1	94	69-134	03/15/2022 1621
PFNS	ND	14	13		1	95	69-127	03/15/2022 1621
PFPeS	7.8	14	22		1	100	71-127	03/15/2022 1621
PFHxS	78	13	88		1	76	68-131	03/15/2022 1621
PFBA	220	15	220	N	1	-26	73-129	03/15/2022 1621
PFDA	ND	15	13		1	86	71-129	03/15/2022 1621
PFDoA	ND	15	14		1	93	72-134	03/15/2022 1621
PFHpA	970	15	890	N	1	-528	72-130	03/15/2022 1621
PFHxA	450	15	450	N	1	-27	72-129	03/15/2022 1621
PFNA	210	15	200	N	1	-43	69-130	03/15/2022 1621
PFOA	420	15	390	N	1	-212	71-133	03/15/2022 1621
PFPeA	540	15	500	N	1	-270	72-129	03/15/2022 1621
PFTeDA	ND	15	14		1	93	71-132	03/15/2022 1621
PFTrDA	ND	15	13		1	87	65-144	03/15/2022 1621
PFUdA	ND	15	14		1	93	69-133	03/15/2022 1621
PFOS	130	14	130	N	1	39	65-140	03/15/2022 1621

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	178	50-150
13C2_6:2FTS		108	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		70	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA		57	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		82	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria
DL = Detection Limit — I = Estimated result < LOQ and $\geq$ DL — P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XB25012-012MS
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		93	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		97	50-150
13C8_PFOS		92	50-150
13C9_PFNA		90	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XB25012-012MD
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	14	32	N,+	1	235	82	70-150	30	03/15/2022 1632
11Cl-PF3OUdS	ND	14	28	N,+	1	203	83	70-150	30	03/15/2022 1632
8:2 FTS	ND	14	23	N	1	168	4.2	67-138	30	03/15/2022 1632
6:2 FTS	720	14	670	N	1	-359	3.5	64-140	30	03/15/2022 1632
4:2 FTS	ND	14	14		1	105	8.1	63-143	30	03/15/2022 1632
GenX	ND	29	26		1	90	0.46	70-150	30	03/15/2022 1632
ADONA	ND	14	13		1	92	1.7	70-150	30	03/15/2022 1632
EtFOSA	ND	15	15		1	106	8.5	70-150	30	03/15/2022 1632
EtFOSAA	ND	15	13		1	88	4.2	61-135	30	03/15/2022 1632
MeFOSAA	ND	15	13		1	86	6.0	65-136	30	03/15/2022 1632
PFBS	7.1	13	17		1	80	5.4	72-130	30	03/15/2022 1632
PFDS	ND	14	30	N,+	1	215	75	53-142	30	03/15/2022 1632
PFHpS	2.3	14	15		1	89	5.6	69-134	30	03/15/2022 1632
PFNS	ND	14	32	N,+	1	228	82	69-127	30	03/15/2022 1632
PFPeS	7.8	14	21		1	99	2.1	71-127	30	03/15/2022 1632
PFHxS	78	13	86	N	1	61	2.5	68-131	30	03/15/2022 1632
PFBA	220	15	220	N	1	-30	0.24	73-129	30	03/15/2022 1632
PFDA	ND	15	13		1	89	1.5	71-129	30	03/15/2022 1632
PFDoA	ND	15	13		1	92	2.1	72-134	30	03/15/2022 1632
PFHpA	970	15	870	N	1	-679	2.4	72-130	30	03/15/2022 1632
PFHxA	450	15	450	N	1	3.2	0.98	72-129	30	03/15/2022 1632
PFNA	210	15	200	N	1	-55	0.81	69-130	30	03/15/2022 1632
PFOA	420	15	410	N	1	-121	3.4	71-133	30	03/15/2022 1632
PFPeA	540	15	510	N	1	-186	2.5	72-129	30	03/15/2022 1632
PFTeDA	ND	15	13		1	91	3.6	71-132	30	03/15/2022 1632
PFTrDA	ND	15	12		1	86	2.8	65-144	30	03/15/2022 1632
PFUdA	ND	15	13		1	93	1.4	69-133	30	03/15/2022 1632
PFOS	130	13	330	N,+	1	1510	85	65-140	30	03/15/2022 1632

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	172	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		81	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA		56	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		80	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XB25012-012MD
Batch: 34774
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/14/2022 1626

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		90	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		95	50-150
13C8_PFOS	N	38	50-150
13C9_PFNA		90	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ34944-001	Matrix:	Aqueous
Batch:	34944	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/15/2022 1843

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/16/2022 1951
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/16/2022 1951

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		81	50-150
13C2_6:2FTS		92	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		86	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA		91	50-150
13C4_PFHpA		84	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		85	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34944-001
Batch: 34944
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/15/2022 1843

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		84	50-150
13C8_PFOA		92	50-150
13C8_PFOS		86	50-150
13C9_PFNA		90	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34944-002	Matrix:	Aqueous
Batch:	34944	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/15/2022 1843

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	70-150	03/16/2022 2002
11Cl-PF3OUdS	15	14		1	91	70-150	03/16/2022 2002
8:2 FTS	15	14		1	89	67-138	03/16/2022 2002
6:2 FTS	15	14		1	92	64-140	03/16/2022 2002
4:2 FTS	15	12		1	79	63-143	03/16/2022 2002
GenX	32	32		1	99	70-150	03/16/2022 2002
ADONA	15	16		1	104	70-150	03/16/2022 2002
EtFOSA	16	19		1	117	70-150	03/16/2022 2002
EtFOSAA	16	16		1	100	61-135	03/16/2022 2002
MeFOSAA	16	14		1	90	65-136	03/16/2022 2002
PFBS	14	13		1	94	72-130	03/16/2022 2002
PFDS	15	14		1	91	53-142	03/16/2022 2002
PFHpS	15	15		1	98	69-134	03/16/2022 2002
PFNS	15	15		1	99	69-127	03/16/2022 2002
PFPeS	15	14		1	95	71-127	03/16/2022 2002
PFHxS	15	14		1	94	68-131	03/16/2022 2002
PFBA	16	16		1	99	73-129	03/16/2022 2002
PFDA	16	15		1	94	71-129	03/16/2022 2002
PFDoA	16	16		1	100	72-134	03/16/2022 2002
PFHpA	16	16		1	101	72-130	03/16/2022 2002
PFHxA	16	16		1	100	72-129	03/16/2022 2002
PFNA	16	16		1	98	69-130	03/16/2022 2002
PFOA	16	16		1	98	71-133	03/16/2022 2002
PFPeA	16	16		1	98	72-129	03/16/2022 2002
PFTeDA	16	15		1	96	71-132	03/16/2022 2002
PFTrDA	16	16		1	98	65-144	03/16/2022 2002
PFUdA	16	15		1	95	69-133	03/16/2022 2002
PFOS	15	14		1	91	65-140	03/16/2022 2002

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		87	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA		90	50-150
13C4_PFHpA		88	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		88	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria
DL = Detection Limit   I = Estimated result < LOQ and ≥ DL   P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ34944-002	Matrix:	Aqueous
Batch:	34944	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/15/2022 1843

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		88	50-150
13C8_PFOA		86	50-150
13C8_PFOS		89	50-150
13C9_PFNA		91	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation	U = Not detected at or above the LOQ	N = Recovery is out of criteria
DL = Detection Limit	I = Estimated result < LOQ and $\geq$ DL	P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection	* = RSD is out of criteria	+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XB25012-029MS
Batch: 34944
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/15/2022 1843

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	150	140		1	95	70-150	03/16/2022 2035
11Cl-PF3OUdS	ND	150	130		1	87	70-150	03/16/2022 2035
8:2 FTS	ND	150	130		1	86	67-138	03/16/2022 2035
6:2 FTS	ND	150	140		1	86	64-140	03/16/2022 2035
4:2 FTS	ND	150	130		1	88	63-143	03/16/2022 2035
GenX	ND	320	310		1	95	70-150	03/16/2022 2035
ADONA	ND	150	150		1	101	70-150	03/16/2022 2035
EtFOSA	ND	160	160		1	98	70-150	03/16/2022 2035
EtFOSAA	ND	160	140		1	85	61-135	03/16/2022 2035
MeFOSAA	ND	160	150		1	91	65-136	03/16/2022 2035
PFBS	ND	140	130		1	89	72-130	03/16/2022 2035
PFDS	ND	150	150		1	99	53-142	03/16/2022 2035
PFHpS	ND	150	150		1	99	69-134	03/16/2022 2035
PFNS	ND	150	150		1	97	69-127	03/16/2022 2035
PFPeS	ND	150	150		1	97	71-127	03/16/2022 2035
PFHxS	ND	150	130		1	89	68-131	03/16/2022 2035
PFBA	11	160	160		1	95	73-129	03/16/2022 2035
PFDA	ND	160	150		1	92	71-129	03/16/2022 2035
PFDoA	ND	160	150		1	95	72-134	03/16/2022 2035
PFHpA	ND	160	160		1	98	72-130	03/16/2022 2035
PFHxA	ND	160	150		1	94	72-129	03/16/2022 2035
PFNA	ND	160	150		1	96	69-130	03/16/2022 2035
PFOA	ND	160	130		1	84	71-133	03/16/2022 2035
PFPeA	ND	160	150		1	92	72-129	03/16/2022 2035
PFTeDA	ND	160	150		1	96	71-132	03/16/2022 2035
PFTrDA	ND	160	150		1	94	65-144	03/16/2022 2035
PFUdA	ND	160	150		1	95	69-133	03/16/2022 2035
PFOS	19	150	160		1	92	65-140	03/16/2022 2035

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		108	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		119	50-150
13C2_PFDoA		103	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		106	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		108	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		107	50-150
13C5_PFPeA		106	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - MS

Sample ID: XB25012-029MS
Batch: 34944
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/15/2022 1843

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		103	50-150
13C8_PFOA		108	50-150
13C8_PFOS		107	50-150
13C9_PFNA		108	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		109	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID:	XB25012-029MD	Matrix:	Aqueous
Batch:	34944	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/15/2022 1843

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	150	150		1	103	7.9	70-150	30	03/16/2022 2046
11Cl-PF3OUdS	ND	150	130		1	89	1.8	70-150	30	03/16/2022 2046
8:2 FTS	ND	150	150		1	96	11	67-138	30	03/16/2022 2046
6:2 FTS	ND	150	140		1	83	3.0	64-140	30	03/16/2022 2046
4:2 FTS	ND	150	140		1	91	3.4	63-143	30	03/16/2022 2046
GenX	ND	320	330		1	102	6.3	70-150	30	03/16/2022 2046
ADONA	ND	150	150		1	101	0.51	70-150	30	03/16/2022 2046
EtFOSA	ND	160	150		1	94	3.9	70-150	30	03/16/2022 2046
EtFOSAA	ND	160	140		1	87	3.1	61-135	30	03/16/2022 2046
MeFOSAA	ND	160	160		1	97	5.7	65-136	30	03/16/2022 2046
PFBS	ND	140	140		1	93	3.9	72-130	30	03/16/2022 2046
PFDS	ND	150	150		1	98	0.32	53-142	30	03/16/2022 2046
PFHpS	ND	150	150		1	100	1.2	69-134	30	03/16/2022 2046
PFNS	ND	150	160		1	102	5.5	69-127	30	03/16/2022 2046
PFPeS	ND	150	140		1	93	4.7	71-127	30	03/16/2022 2046
PFHxS	ND	150	140		1	93	4.2	68-131	30	03/16/2022 2046
PFBA	11	160	170		1	99	3.7	73-129	30	03/16/2022 2046
PFDA	ND	160	150		1	92	0.77	71-129	30	03/16/2022 2046
PFDoA	ND	160	160		1	99	3.8	72-134	30	03/16/2022 2046
PFHpA	ND	160	160		1	98	0.28	72-130	30	03/16/2022 2046
PFHxA	ND	160	150		1	95	0.73	72-129	30	03/16/2022 2046
PFNA	ND	160	160		1	100	4.0	69-130	30	03/16/2022 2046
PFOA	ND	160	160		1	100	18	71-133	30	03/16/2022 2046
PFPeA	ND	160	160		1	99	6.9	72-129	30	03/16/2022 2046
PFTeDA	ND	160	160		1	99	2.1	71-132	30	03/16/2022 2046
PFTrDA	ND	160	160		1	100	6.8	65-144	30	03/16/2022 2046
PFUdA	ND	160	160		1	97	2.0	69-133	30	03/16/2022 2046
PFOS	19	150	160		1	95	3.2	65-140	30	03/16/2022 2046

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		107	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		107	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		98	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XB25012-029MD
Batch: 34944
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/15/2022 1843

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		99	50-150
13C8_PFOA		102	50-150
13C8_PFOS		98	50-150
13C9_PFNA		102	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35017-001
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	50-150
13C2_6:2FTS		88	50-150
13C2_8:2FTS		82	50-150
13C2_PFDoA		74	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		82	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		84	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35017-001
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		82	50-150
13C8_PFOA		93	50-150
13C8_PFOS		86	50-150
13C9_PFNA		83	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		78	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35017-002
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	70-150	03/17/2022 2117
11Cl-PF3OUdS	15	12		1	79	70-150	03/17/2022 2117
8:2 FTS	15	13		1	86	67-138	03/17/2022 2117
6:2 FTS	15	17		1	110	64-140	03/17/2022 2117
4:2 FTS	15	12		1	80	63-143	03/17/2022 2117
GenX	32	30		1	93	70-150	03/17/2022 2117
ADONA	15	13		1	88	70-150	03/17/2022 2117
EtFOSA	16	17		1	104	70-150	03/17/2022 2117
EtFOSAA	16	16		1	99	61-135	03/17/2022 2117
MeFOSAA	16	13		1	83	65-136	03/17/2022 2117
PFBS	14	13		1	92	72-130	03/17/2022 2117
PFDS	15	14		1	90	53-142	03/17/2022 2117
PFHpS	15	15		1	97	69-134	03/17/2022 2117
PFNS	15	14		1	92	69-127	03/17/2022 2117
PFPeS	15	15		1	101	71-127	03/17/2022 2117
PFHxS	15	14		1	94	68-131	03/17/2022 2117
PFBA	16	15		1	96	73-129	03/17/2022 2117
PFDA	16	14		1	88	71-129	03/17/2022 2117
PFDoA	16	16		1	98	72-134	03/17/2022 2117
PFHpA	16	15		1	95	72-130	03/17/2022 2117
PFHxA	16	14		1	90	72-129	03/17/2022 2117
PFNA	16	15		1	94	69-130	03/17/2022 2117
PFOA	16	13		1	82	71-133	03/17/2022 2117
PFPeA	16	15		1	93	72-129	03/17/2022 2117
PFTeDA	16	15		1	94	71-132	03/17/2022 2117
PFTrDA	16	15		1	96	65-144	03/17/2022 2117
PFUdA	16	14		1	88	69-133	03/17/2022 2117
PFOS	15	13		1	91	65-140	03/17/2022 2117

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		105	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35017-002
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		106	50-150
13C8_PFOA		114	50-150
13C8_PFOS		108	50-150
13C9_PFNA		99	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ35107-001	Matrix:	Aqueous
Batch:	35107	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1718

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		84	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		85	50-150
13C4_PFBA		86	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		82	50-150
13C6_PFDA		83	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		95	50-150
13C8_PFOS		83	50-150
13C9_PFNA		83	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ35107-002	Matrix:	Aqueous
Batch:	35107	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1718

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	14		1	95	64-140	03/17/2022 1655

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		82	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		87	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		92	50-150
13C6_PFDA		82	50-150
13C7_PFUdA		85	50-150
13C8_PFOA		90	50-150
13C8_PFOS		90	50-150
13C9_PFNA		82	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2600 | PAGE 1 OF 4

PROJECT NO: 112G09581 KSC-STP1

FACILITY: KSC-STP1

SAMPLERS (SIGNATURE): [signature] - Chuck Sarden

PROJECT MANAGER: Mark Jonnet
PHONE NUMBER: (412) 921-8622

FIELD OPERATIONS LEADER: Chuck Sarden
PHONE NUMBER: (321) 591-7580

CARRIER/WAYBILL NUMBER:

LABORATORY NAME AND CONTACT: Pace Analytical - Katy Smith
ADDRESS: 106 Vantage Point Dr.
CITY, STATE: West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None / 4°C
TYPE OF ANALYSIS: PFAS EPA Method Table B-15

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS EPA Method Table B-15							COMMENTS
02/23	0755 ~~0805~~	STP1-DPT0008-005.0-20220223	31	3	7	GW	G	2	X							
↓	0800	STP1-DPT0008-010.0-20220223	31	8	12	↓	↓	2	↓							
	0820	STP1-DPT0008-016.0-20220223	31	14	18			2								
	0850	STP1-DPT0008-023.0-20220223	31	21	25			6								
	0925	STP1-DPT0008-033.0-20220223	31	31	35			2								MS/MSD Collected
	0955	STP1-DPT0008-042.0-20220223	31	40	44			↓								
	1115	STP1-DPT0009-005.0-20220223	29	3	7	↓										
	1140	STP1-DPT0009-010.0-20220223	29	8	12	GW										
	1200	STP1-EBTEO-20220223-01	—	—	—	QC										
	1205	STP1-DPT0009-016.0-20220223	29	14	18	GW										
	1230	STP1-DPT0009-023.0-20220223	29	21	25	↓		2								
↓	1303 ~~1255~~	STP1-DPT0009-033.0-20220223	29	31	35	↓	↓	6	↓							
02/23	1335	STP1-DPT0009-042.0-20220223	29	40	44	GW	G	2	X							

XB25012
KES2

		DATE	TIME			DATE	TIME
1. RELINQUISHED BY	[signature]	02/24/22	1630	1. RECEIVED BY	Fed Ex	02/24/22	1630
2. RELINQUISHED BY	Fed Ex	02/25/22	1228	2. RECEIVED BY	[signature]	02/25/22	1228
3. RELINQUISHED BY				3. RECEIVED BY			

COMMENTS

T-5.5, 4.9, 2.2 °C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TTNUS-001

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2587 | PAGE 2 OF 4

PROJECT NO:	112G07581
FACILITY:	KSC-STP1
SAMPLERS (SIGNATURE)	- Chuck Sorden
PROJECT MANAGER	Mark Jonnet
PHONE NUMBER	(412) 921-8622
FIELD OPERATIONS LEADER	Chuck Sorden
PHONE NUMBER	(321) 591-7580
CARRIER/WAYBILL NUMBER	
LABORATORY NAME AND CONTACT:	Pace Analytical - Kathy Smith
ADDRESS	106 Vantage Point Dr.
CITY, STATE	West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
02/23	~~1500~~ 1440	STP1-DPT0010-005.0-20220223	28	3	7	GW	G	2	X	
	1500	STP1-DPT0010-010.0-20220223	28	8	12					
	~~1530~~ 1525	STP1-DPT0010-012.0-20220223	28	14	18	GW				
	1520	STP1-~~Gr~~EB-20220223-02	—	—	—	QC				XB25012
	1545	STP1-DPT0010-023.0-20220223	28	21	25	GW				KES2
	1610	STP1-DPT0010-033.0-20220223	28	31	35					
	1635	STP1-DPT0010-042.0-20220223	28	40	44	GW				
02/23	1640	STP1-FB-20220223-01	—	—	—	QC				
02/24	0720	STP1-FB-20220224-01	—	—	—	QC				
	0725	STP1-DPT0011-005.0-20220224	25	3	7	GW				
	0745	STP1-DPT0011-010.0-20220224	25	8	12					
	0805	STP1-DPT0011-016.0-20220224	25	14	18					
02/24	0840	STP1-DPT0011-023.0-20220224	25	21	25	GW	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	02/24/22	1630	1. RECEIVED BY Fed Ex	02/24/22	1630
2. RELINQUISHED BY Fed Ex	02/25/22	1228	2. RECEIVED BY	02/25/22	1228
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS
T=5.5, 4.9, 2.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

PACE ANALYTICAL SERVICES, LLC

Tetra Tech, Inc.

CHAIN OF CUSTODY NUMBER No. 2588 PAGE 3 OF 4

PROJECT NO: 112G09551	FACILITY: KSC-STP1
SAMPLERS (SIGNATURE) - Chuck Sorden	
PROJECT MANAGER: Mark Sumner	PHONE NUMBER: (412) 921-8622
FIELD OPERATIONS LEADER: Chuck Sorden	PHONE NUMBER: (321) 591-7560
CARRIER/WAYBILL NUMBER:	
LABORATORY NAME AND CONTACT: Pace Analytical – Katie Smith	
ADDRESS: 106 Vantage Point Dr.	
CITY, STATE: West Columbia, SC	

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
02/24	0905	STP1-DPT0011-033.0-20220224	25	31	35	GW	G	2	X	
	0935	STP1-DPT0011-042.0-20220224	25	40	44			2		
	1030	STP1-DPT0012-005.0-20220224	26	3	7			6		MS/MSD Collected
	1050	STP1-DPT0012-010.0-20220224	26	8	12	GW		2		
	1110	STP1-EB-20220224-01	—	—	—	QC		1		
	1115	STP1-DPT0012-016.0-20220224	26	14	18	GW				
	1140	STP1-DPT0012-023.0-20220224	26	21	25					
	1215	STP1-DPT0012-033.0-20220224	26	31	35					XB25012
	1245	STP1-DPT0012-042.0-20220224	26	40	44					KES2
	1335	STP1-DPT0013-005.0-20220224	35	3	7					
	1405	STP1-DPT0013-010.0-20220224	35	8	12					
	1425	STP1-DPT0013-016.0-20220224	35	14	18					
02/24	1450	STP1-DPT0013-023.0-20220224	35	21	25	GW	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	02/24/22	1630	1. RECEIVED BY Fed Ex	02/24/22	1630
2. RELINQUISHED BY Fed Ex	02/25/22	1228	2. RECEIVED BY	02/25/22	1228
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

T=5.5°C, 4.9, 2.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Tetra Tech, Inc. CHAIN OF CUSTODY NUMBER No. 2589 PAGE 4 OF 4

PROJECT NO: 112G09581	FACILITY: KSC-STPI	PROJECT MANAGER: Mark Sonner	PHONE NUMBER: (412) 921-8622	LABORATORY NAME AND CONTACT: Pace Analytical	
SAMPLERS (SIGNATURE): - Chuck Sorden		FIELD OPERATIONS LEADER: Chuck Sorden	PHONE NUMBER: (321) 591-7580	ADDRESS: 106 Vantage Point Dr.	
		CARRIER/WAYBILL NUMBER		CITY, STATE: West Colombia, SC	

STANDARD TAT ☒ RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
02/24	1520	STPI-DPT0013-033.0-20220224	35	31	35	GW	G	2	X	
↓	1550	STPI-DPT0013-042.0-20220224	35	40	44	GW	G	2	X	XB25012
↓	1555	STPI-EB-20220224-02	—	—	—	QC	↓	↓	↓	KES2
02/24	1600	STPI-FB-20220224-02	—	—	—	↓	↓	↓	↓	
02/23	0000	STPI-FD-20220223-01	—	—	—	↓	↓	↓	↓	
↓	0000	STPI-FD-20220223-02	—	—	—	↓	↓	↓	↓	
02/23	0000	STPI-FD-20220223-03	—	—	—	↓	↓	↓	↓	
02/24	0000	STPI-FD-20220224-01	—	—	—	↓	↓	↓	↓	
02/24	0000	STPI-FD-20220224-02	—	—	—	QC	G	2	X	

1. RELINQUISHED BY	DATE 02/24/22	TIME 1630	1. RECEIVED BY Fed Ex	DATE 02/24/22	TIME 1630
2. RELINQUISHED BY Fed Ex	DATE 02/25/22	TIME 1228	2. RECEIVED BY	DATE 02/25/22	TIME 1228
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS T= 5.5, 4.9, 2.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R FORM NO. TINUS-001

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH   Cooler Inspected by/date: MEH / 02/25/2022   Lot #: XB25012

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

5.5 / 5.5 °C 4.9 / 4.9 °C 2.2 / 2.2 °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: MEH   Date: 02/25/2022

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-STP1

Project Number: 112G09581

Lot Number:**XB26004**

Date Completed:03/19/2022

Kathy Smith

03/21/2022 11:48 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XB26004

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Samples XB26004-004, XB26004-005, XB26004-006, XB26004-010, XB26004-011, XB26004-012, XB26004-014 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: XB26004-004, XB26004-005, XB26004-006, XB26004-010, XB26004-011, XB26004-012, XB26004-014. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Tetra Tech
Lot Number: XB26004
Project Name: KSC-STP1
Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-DPT0014-005.0-20220225	Aqueous	02/25/2022 0735	02/26/2022
002	STP1-DPT0014-010.0-20220225	Aqueous	02/25/2022 0800	02/26/2022
003	STP1-DPT0014-016.0-20220225	Aqueous	02/25/2022 0825	02/26/2022
004	STP1-DPT0014-023.0-20220225	Aqueous	02/25/2022 0845	02/26/2022
005	STP1-DPT0014-033.0-20220225	Aqueous	02/25/2022 0910	02/26/2022
006	STP1-DPT0014-042.0-20220225	Aqueous	02/25/2022 0945	02/26/2022
007	STP1-DPT0015-010.0-20220225	Aqueous	02/25/2022 1105	02/26/2022
008	STP1-EB-20220225-01	Aqueous	02/25/2022 1125	02/26/2022
009	STP1-DPT0015-016.0-20220225	Aqueous	02/25/2022 1130	02/26/2022
010	STP1-DPT0015-023.0-20220225	Aqueous	02/25/2022 1155	02/26/2022
011	STP1-DPT0015-033.0-20220225	Aqueous	02/25/2022 1220	02/26/2022
012	STP1-DPT0015-042.0-20220225	Aqueous	02/25/2022 1245	02/26/2022
013	STP1-FB-20220225	Aqueous	02/25/2022 1250	02/26/2022
014	STP1-FD-20220225-01	Aqueous	02/25/2022	02/26/2022

(14 samples)

Detection Summary

Tetra Tech

Lot Number: XB26004

Project Name: KSC-STP1

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
005	STP1-DPT0014-033.0-20220225	Aqueous	PFBS	PFAS by ID	1.9	I	ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFPeS	PFAS by ID	1.7	I	ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFHxS	PFAS by ID	5.5		ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFBA	PFAS by ID	9.7	Q	ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFHpA	PFAS by ID	11		ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFHxA	PFAS by ID	20		ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFOA	PFAS by ID	6.5		ng/L	16
005	STP1-DPT0014-033.0-20220225	Aqueous	PFPeA	PFAS by ID	17		ng/L	16
006	STP1-DPT0014-042.0-20220225	Aqueous	6:2 FTS	PFAS by ID	2.3	I	ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFBS	PFAS by ID	1.9	I	ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFPeS	PFAS by ID	2.2	I	ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFHxS	PFAS by ID	8.3		ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFBA	PFAS by ID	12		ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFHpA	PFAS by ID	16		ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFHxA	PFAS by ID	23		ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFOA	PFAS by ID	12		ng/L	18
006	STP1-DPT0014-042.0-20220225	Aqueous	PFPeA	PFAS by ID	22		ng/L	18
007	STP1-DPT0015-010.0-20220225	Aqueous	6:2 FTS	PFAS by ID	45	I	ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFBS	PFAS by ID	860		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFHpS	PFAS by ID	77		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFPeS	PFAS by ID	770		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFHxS	PFAS by ID	4600		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFBA	PFAS by ID	280		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFHpA	PFAS by ID	490		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFHxA	PFAS by ID	1100		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFNA	PFAS by ID	18	I	ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFOA	PFAS by ID	350		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFPeA	PFAS by ID	790		ng/L	20
007	STP1-DPT0015-010.0-20220225	Aqueous	PFOS	PFAS by ID	1700		ng/L	20
009	STP1-DPT0015-016.0-20220225	Aqueous	6:2 FTS	PFAS by ID	110		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFBS	PFAS by ID	150		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFHpS	PFAS by ID	32	I	ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFPeS	PFAS by ID	120		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFHxS	PFAS by ID	750		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFBA	PFAS by ID	65		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFHpA	PFAS by ID	110		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFHxA	PFAS by ID	250		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFNA	PFAS by ID	19	I	ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFOA	PFAS by ID	200		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFPeA	PFAS by ID	160		ng/L	24
009	STP1-DPT0015-016.0-20220225	Aqueous	PFOS	PFAS by ID	1500		ng/L	24
010	STP1-DPT0015-023.0-20220225	Aqueous	6:2 FTS	PFAS by ID	58		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFBS	PFAS by ID	12		ng/L	26

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
010	STP1-DPT0015-023.0-20220225	Aqueous	PFHpS	PFAS by ID	5.3		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFPeS	PFAS by ID	11		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFHxS	PFAS by ID	110		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFBA	PFAS by ID	12	Q	ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFHpA	PFAS by ID	19		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFHxA	PFAS by ID	37		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFNA	PFAS by ID	1.0	I	ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFOA	PFAS by ID	50		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFPeA	PFAS by ID	33		ng/L	26
010	STP1-DPT0015-023.0-20220225	Aqueous	PFOS	PFAS by ID	53		ng/L	26
011	STP1-DPT0015-033.0-20220225	Aqueous	PFBS	PFAS by ID	1.6	I	ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFPeS	PFAS by ID	1.6	I	ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFHxS	PFAS by ID	11		ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFBA	PFAS by ID	4.3		ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFHpA	PFAS by ID	2.7	I	ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFHxA	PFAS by ID	4.9		ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFOA	PFAS by ID	4.8		ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFPeA	PFAS by ID	5.3		ng/L	28
011	STP1-DPT0015-033.0-20220225	Aqueous	PFOS	PFAS by ID	7.1		ng/L	28
012	STP1-DPT0015-042.0-20220225	Aqueous	6:2 FTS	PFAS by ID	5.0	I	ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFBS	PFAS by ID	4.2		ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFPeS	PFAS by ID	2.4	I	ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFHxS	PFAS by ID	16		ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFBA	PFAS by ID	3.2	IQ	ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFHpA	PFAS by ID	2.6	I	ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFHxA	PFAS by ID	9.0		ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFOA	PFAS by ID	8.8		ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFPeA	PFAS by ID	6.0		ng/L	30
012	STP1-DPT0015-042.0-20220225	Aqueous	PFOS	PFAS by ID	17		ng/L	30

(72 detections)

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB26004-001
Description: STP1-DPT0014-005.0-20220225			Matrix: Aqueous
Date Sampled: 02/25/2022 0735	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0013	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		109	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		109	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		110	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		106	50-150
13C6_PFDA		110	50-150
13C7_PFUdA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-001	
Description: STP1-DPT0014-005.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 0735	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		116	50-150
13C8_PFOS		108	50-150
13C9_PFNA		104	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-002	
Description: STP1-DPT0014-010.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 0800	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0024	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150
13C2_6:2FTS		113	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		97	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		95	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB26004-002
Description: STP1-DPT0014-010.0-20220225	Matrix: Aqueous
Date Sampled: 02/25/2022 0800	Project Name: KSC-STP1
Date Received: 02/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		108	50-150
13C8_PFOS		102	50-150
13C9_PFNA		93	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB26004-003
Description: STP1-DPT0014-016.0-20220225			Matrix: Aqueous
Date Sampled: 02/25/2022 0825	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0035	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	50-150
13C2_6:2FTS		111	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		105	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-003	
Description: STP1-DPT0014-016.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 0825	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		114	50-150
13C8_PFOS		104	50-150
13C9_PFNA		100	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XB26004-004
Description: STP1-DPT0014-023.0-20220225			Matrix: Aqueous
Date Sampled: 02/25/2022 0845	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0046	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	196	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		72	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		51	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		82	50-150
13C6_PFDA		100	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB26004-004
Description: STP1-DPT0014-023.0-20220225	Matrix: Aqueous
Date Sampled: 02/25/2022 0845	Project Name: KSC-STP1
Date Received: 02/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		101	50-150
13C9_PFNA		97	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-005	
Description: STP1-DPT0014-033.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 0910	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0057	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	I	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.7	I	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	5.5		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	9.7	Q	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	11		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	6.5		3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	17		3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	UQ	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	201	50-150
13C2_6:2FTS		118	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		74	50-150
13C2_PFTeDA	N	47	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		88	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		78	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: XB26004-005
Description: STP1-DPT0014-033.0-20220225		Matrix: Aqueous
Date Sampled: 02/25/2022 0910	Project Name: KSC-STP1	
Date Received: 02/26/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	50-150
13C8_PFOS		102	50-150
13C9_PFNA		99	50-150
d-EtFOSA		59	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-006	
Description: STP1-DPT0014-042.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 0945	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0129	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2.3	I	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.2	I	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	8.3		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12		3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	16		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	23		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	12		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	22		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA		71	50-150
13C2_PFTeDA	N	34	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		57	50-150
13C4_PFHpA		101	50-150
13C5_PFHxA		104	50-150
13C5_PFPeA		84	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		88	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB26004-006
Description: STP1-DPT0014-042.0-20220225	Matrix: Aqueous
Date Sampled: 02/25/2022 0945	Project Name: KSC-STP1
Date Received: 02/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		95	50-150
13C9_PFNA		96	50-150
d-EtFOSA	N	38	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-007	
Description: STP1-DPT0015-010.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1105	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/18/2022 0140	ASD	03/16/2022 1227	35017

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	45	I	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	860		40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	77		40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	770		40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4600		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	280		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	490		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1100		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	350		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	790		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1700		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		122	50-150
13C2_6:2FTS		110	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		105	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		105	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-007
Description: STP1-DPT0015-010.0-20220225		Matrix: Aqueous
Date Sampled: 02/25/2022 1105	Project Name: KSC-STP1	
Date Received: 02/26/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		105	50-150
13C9_PFNA		97	50-150
d-EtFOSA		67	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		84	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-008	
Description: STP1-EB-20220225-01		Matrix: Aqueous	
Date Sampled: 02/25/2022 1125	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1844	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		101	50-150
13C2_6:2FTS		107	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		101	50-150
13C2_PFTeDA		98	50-150
13C3_PFBS		106	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		110	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		110	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		104	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-008	
Description: STP1-EB-20220225-01		Matrix: Aqueous	
Date Sampled: 02/25/2022 1125	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	50-150
13C8_PFOS		106	50-150
13C9_PFNA		105	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-009	
Description: STP1-DPT0015-016.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1130	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1917	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	110		80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	150		40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	32	I	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	120		40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	750		40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	65		40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	110		40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	250		40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	19	I	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	200		40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	160		40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1500		40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		111	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		106	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		106	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		102	50-150
13C6_PFDA		97	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB26004-009
Description: STP1-DPT0015-016.0-20220225	Matrix: Aqueous
Date Sampled: 02/25/2022 1130	Project Name: KSC-STP1
Date Received: 02/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		103	50-150
13C9_PFNA		98	50-150
d-EtFOSA		79	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-010	
Description: STP1-DPT0015-023.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1155	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1928	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	58		7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	12		3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	5.3		3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	110		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	19		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	37		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.0	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	50		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	33		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	53		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	179	50-150
13C2_6:2FTS		105	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		89	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		77	50-150
13C6_PFDA		89	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-010	
Description: STP1-DPT0015-023.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1155	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	50-150
13C8_PFOS		95	50-150
13C9_PFNA		94	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-011	
Description: STP1-DPT0015-033.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1220	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 1939	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.6	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.6	I	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.3		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.7	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.9		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.8		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	5.3		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	7.1		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		142	50-150
13C2_6:2FTS		101	50-150
13C2_8:2FTS		86	50-150
13C2_PFDoA		66	50-150
13C2_PFTeDA	N	45	50-150
13C3_PFBS		80	50-150
13C3_PFHxS		79	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA		52	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		74	50-150
13C7_PFUdA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XB26004-011
Description: STP1-DPT0015-033.0-20220225	Matrix: Aqueous
Date Sampled: 02/25/2022 1220	Project Name: KSC-STP1
Date Received: 02/26/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	50-150
13C8_PFOS		79	50-150
13C9_PFNA		80	50-150
d-EtFOSA	N	43	50-150
d5-EtFOSAA		71	50-150
d3-MeFOSAA		75	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-012	
Description: STP1-DPT0015-042.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1245	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2001	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.0	I	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	4.2		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.4	I	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	3.2	IQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.6	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.0		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	8.8		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.0		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	17		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	180	50-150
13C2_6:2FTS		103	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA		82	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		78	50-150
13C6_PFDA		90	50-150
13C7_PFUdA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-012	
Description: STP1-DPT0015-042.0-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1245	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	50-150
13C8_PFOS		96	50-150
13C9_PFNA		93	50-150
d-EtFOSA		55	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-013	
Description: STP1-FB-20220225		Matrix: Aqueous	
Date Sampled: 02/25/2022 1250	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/13/2022 1448	MMM	03/10/2022 1005	34361

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		137	50-150
13C2_6:2FTS		125	50-150
13C2_8:2FTS		128	50-150
13C2_PFDoA		108	50-150
13C2_PFTeDA		98	50-150
13C3_PFBS		119	50-150
13C3_PFHxS		113	50-150
13C3-HFPO-DA		118	50-150
13C4_PFBA		116	50-150
13C4_PFHpA		116	50-150
13C5_PFHxA		114	50-150
13C5_PFPeA		114	50-150
13C6_PFDA		111	50-150
13C7_PFUdA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-013
Description: STP1-FB-20220225		Matrix: Aqueous
Date Sampled: 02/25/2022 1250	Project Name: KSC-STP1	
Date Received: 02/26/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		123	50-150
13C8_PFOS		113	50-150
13C9_PFNA		120	50-150
d-EtFOSA		94	50-150
d5-EtFOSAA		118	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-014	
Description: STP1-FD-20220225-01		Matrix: Aqueous	
Date Sampled: 02/25/2022	Project Name: KSC-STP1		
Date Received: 02/26/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/17/2022 2023	ASD	03/16/2022 1718	35107

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		146	50-150
13C2_6:2FTS		94	50-150
13C2_8:2FTS		75	50-150
13C2_PFDoA		66	50-150
13C2_PFTeDA		60	50-150
13C3_PFBS		73	50-150
13C3_PFHxS		78	50-150
13C3-HFPO-DA		76	50-150
13C4_PFBA	N	43	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		70	50-150
13C6_PFDA		75	50-150
13C7_PFUdA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XB26004-014
Description: STP1-FD-20220225-01		Matrix: Aqueous
Date Sampled: 02/25/2022	Project Name: KSC-STP1	
Date Received: 02/26/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		76	50-150
13C8_PFOS		81	50-150
13C9_PFNA		76	50-150
d-EtFOSA		52	50-150
d5-EtFOSAA		75	50-150
d3-MeFOSAA		74	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ34361-001	Matrix:	Aqueous
Batch:	34361	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/10/2022 1005

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
6:2 FTS	9.9		1	8.0	4.0	2.0	ng/L	03/13/2022 1405
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/13/2022 1405
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/13/2022 1405

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		128	50-150
13C2_6:2FTS		99	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		100	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		104	50-150
13C3-HFPO-DA		105	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		105	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation — U = Not detected at or above the LOQ — N = Recovery is out of criteria

DL = Detection Limit — I = Estimated result < LOQ and ≥ DL — P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection — * = RSD is out of criteria — + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ34361-001
Batch: 34361
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/10/2022 1005

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		100	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		105	50-150
13C8_PFOS		118	50-150
13C9_PFNA		103	50-150
d-EtFOSA		83	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		96	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34361-002
Batch: 34361
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/10/2022 1005

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	12		1	81	70-150	03/13/2022 1416
11Cl-PF3OUdS	15	13		1	84	70-150	03/13/2022 1416
8:2 FTS	15	12		1	78	67-138	03/13/2022 1416
6:2 FTS	15	17		1	110	64-140	03/13/2022 1416
4:2 FTS	15	13		1	86	63-143	03/13/2022 1416
GenX	32	27		1	85	70-150	03/13/2022 1416
ADONA	15	14		1	94	70-150	03/13/2022 1416
EtFOSA	16	15		1	92	70-150	03/13/2022 1416
EtFOSAA	16	14		1	88	61-135	03/13/2022 1416
MeFOSAA	16	13		1	79	65-136	03/13/2022 1416
PFBS	14	12		1	85	72-130	03/13/2022 1416
PFDS	15	13		1	86	53-142	03/13/2022 1416
PFHpS	15	13		1	88	69-134	03/13/2022 1416
PFNS	15	13		1	84	69-127	03/13/2022 1416
PFPeS	15	14		1	96	71-127	03/13/2022 1416
PFHxS	15	12		1	86	68-131	03/13/2022 1416
PFBA	16	14		1	87	73-129	03/13/2022 1416
PFDA	16	14		1	87	71-129	03/13/2022 1416
PFDoA	16	15		1	94	72-134	03/13/2022 1416
PFHpA	16	15		1	91	72-130	03/13/2022 1416
PFHxA	16	13		1	84	72-129	03/13/2022 1416
PFNA	16	16		1	99	69-130	03/13/2022 1416
PFOA	16	14		1	89	71-133	03/13/2022 1416
PFPeA	16	15		1	92	72-129	03/13/2022 1416
PFTeDA	16	15		1	91	71-132	03/13/2022 1416
PFTrDA	16	15		1	96	65-144	03/13/2022 1416
PFUdA	16	15		1	94	69-133	03/13/2022 1416
PFOS	15	12		1	80	65-140	03/13/2022 1416

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		121	50-150
13C2_6:2FTS		104	50-150
13C2_8:2FTS		121	50-150
13C2_PFDoA		103	50-150
13C2_PFTeDA		103	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		109	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		106	50-150
13C4_PFHpA		112	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ34361-002
Batch: 34361
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/10/2022 1005

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		110	50-150
13C8_PFOS		114	50-150
13C9_PFNA		101	50-150
d-EtFOSA		86	50-150
d5-EtFOSAA		105	50-150
d3-MeFOSAA		100	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35017-001
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 2107
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 2107

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	50-150
13C2_6:2FTS		88	50-150
13C2_8:2FTS		82	50-150
13C2_PFDoA		74	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA		82	50-150
13C4_PFHpA		87	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		84	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35017-001
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		77	50-150
13C7_PFUdA		82	50-150
13C8_PFOA		93	50-150
13C8_PFOS		86	50-150
13C9_PFNA		83	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		78	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35017-002
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	96	70-150	03/17/2022 2117
11Cl-PF3OUdS	15	12		1	79	70-150	03/17/2022 2117
8:2 FTS	15	13		1	86	67-138	03/17/2022 2117
6:2 FTS	15	17		1	110	64-140	03/17/2022 2117
4:2 FTS	15	12		1	80	63-143	03/17/2022 2117
GenX	32	30		1	93	70-150	03/17/2022 2117
ADONA	15	13		1	88	70-150	03/17/2022 2117
EtFOSA	16	17		1	104	70-150	03/17/2022 2117
EtFOSAA	16	16		1	99	61-135	03/17/2022 2117
MeFOSAA	16	13		1	83	65-136	03/17/2022 2117
PFBS	14	13		1	92	72-130	03/17/2022 2117
PFDS	15	14		1	90	53-142	03/17/2022 2117
PFHpS	15	15		1	97	69-134	03/17/2022 2117
PFNS	15	14		1	92	69-127	03/17/2022 2117
PFPeS	15	15		1	101	71-127	03/17/2022 2117
PFHxS	15	14		1	94	68-131	03/17/2022 2117
PFBA	16	15		1	96	73-129	03/17/2022 2117
PFDA	16	14		1	88	71-129	03/17/2022 2117
PFDoA	16	16		1	98	72-134	03/17/2022 2117
PFHpA	16	15		1	95	72-130	03/17/2022 2117
PFHxA	16	14		1	90	72-129	03/17/2022 2117
PFNA	16	15		1	94	69-130	03/17/2022 2117
PFOA	16	13		1	82	71-133	03/17/2022 2117
PFPeA	16	15		1	93	72-129	03/17/2022 2117
PFTeDA	16	15		1	94	71-132	03/17/2022 2117
PFTrDA	16	15		1	96	65-144	03/17/2022 2117
PFUdA	16	14		1	88	69-133	03/17/2022 2117
PFOS	15	13		1	91	65-140	03/17/2022 2117

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		103	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		107	50-150
13C5_PFHxA		106	50-150
13C5_PFPeA		105	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria
DL = Detection Limit   I = Estimated result < LOQ and ≥ DL   P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35017-002
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		106	50-150
13C8_PFOA		114	50-150
13C8_PFOS		108	50-150
13C9_PFNA		99	50-150
d-EtFOSA		85	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XB26004-005MS	Matrix:	Aqueous
Batch:	35017	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1227

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	11		1	86	70-150	03/18/2022 0107
11Cl-PF3OUdS	ND	13	9.9		1	74	70-150	03/18/2022 0107
8:2 FTS	ND	14	11		1	83	67-138	03/18/2022 0107
6:2 FTS	ND	13	9.8		1	73	64-140	03/18/2022 0107
4:2 FTS	ND	13	11		1	85	63-143	03/18/2022 0107
GenX	ND	28	25		1	89	70-150	03/18/2022 0107
ADONA	ND	13	13		1	95	70-150	03/18/2022 0107
EtFOSA	ND	14	14		1	96	70-150	03/18/2022 0107
EtFOSAA	ND	14	12		1	86	61-135	03/18/2022 0107
MeFOSAA	ND	14	12		1	86	65-136	03/18/2022 0107
PFBS	1.9	13	11		1	76	72-130	03/18/2022 0107
PFDS	ND	14	10		1	76	53-142	03/18/2022 0107
PFHpS	ND	14	12		1	88	69-134	03/18/2022 0107
PFNS	ND	14	12		1	91	69-127	03/18/2022 0107
PFPeS	1.7	13	15		1	98	71-127	03/18/2022 0107
PFHxS	5.5	13	18		1	97	68-131	03/18/2022 0107
PFBA	9.7	14	22		1	88	73-129	03/18/2022 0107
PFDA	ND	14	12		1	85	71-129	03/18/2022 0107
PFDoA	ND	14	13		1	94	72-134	03/18/2022 0107
PFHpA	11	14	24		1	96	72-130	03/18/2022 0107
PFHxA	20	14	33		1	97	72-129	03/18/2022 0107
PFNA	ND	14	13		1	91	69-130	03/18/2022 0107
PFOA	6.5	14	18		1	84	71-133	03/18/2022 0107
PFPeA	17	14	30		1	86	72-129	03/18/2022 0107
PFTeDA	ND	14	13		1	90	71-132	03/18/2022 0107
PFTrDA	ND	14	11		1	77	65-144	03/18/2022 0107
PFUdA	ND	14	12		1	84	69-133	03/18/2022 0107
PFOS	ND	13	12		1	92	65-140	03/18/2022 0107

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	198	50-150
13C2_6:2FTS		123	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		78	50-150
13C2_PFTeDA		51	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		78	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XB26004-005MS
Batch: 35017
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1227

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		103	50-150
13C8_PFOS		98	50-150
13C9_PFNA		96	50-150
d-EtFOSA		54	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		86	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID:	XB26004-005MD	Matrix:	Aqueous
Batch:	35017	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1227

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	14	11		1	83	0.63	70-150	30	03/18/2022 0118
11Cl-PF3OUdS	ND	14	10		1	72	1.4	70-150	30	03/18/2022 0118
8:2 FTS	ND	14	12		1	84	4.3	67-138	30	03/18/2022 0118
6:2 FTS	ND	14	12		1	89	24	64-140	30	03/18/2022 0118
4:2 FTS	ND	14	11		1	83	0.092	63-143	30	03/18/2022 0118
GenX	ND	29	25		1	87	0.48	70-150	30	03/18/2022 0118
ADONA	ND	14	13		1	93	0.82	70-150	30	03/18/2022 0118
EtFOSA	ND	15	13		1	86	7.9	70-150	30	03/18/2022 0118
EtFOSAA	ND	15	12		1	83	0.21	61-135	30	03/18/2022 0118
MeFOSAA	ND	15	13		1	86	2.7	65-136	30	03/18/2022 0118
PFBS	1.9	13	13		1	86	13	72-130	30	03/18/2022 0118
PFDS	ND	14	11		1	81	9.2	53-142	30	03/18/2022 0118
PFHpS	ND	14	12		1	89	4.1	69-134	30	03/18/2022 0118
PFNS	ND	14	11		1	80	11	69-127	30	03/18/2022 0118
PFPeS	1.7	14	15		1	100	3.8	71-127	30	03/18/2022 0118
PFHxS	5.5	13	18		1	91	2.3	68-131	30	03/18/2022 0118
PFBA	9.7	15	22		1	86	0.42	73-129	30	03/18/2022 0118
PFDA	ND	15	12		1	84	2.1	71-129	30	03/18/2022 0118
PFDoA	ND	15	13		1	89	3.0	72-134	30	03/18/2022 0118
PFHpA	11	15	24		1	92	0.78	72-130	30	03/18/2022 0118
PFHxA	20	15	31		1	77	7.7	72-129	30	03/18/2022 0118
PFNA	ND	15	13		1	87	0.83	69-130	30	03/18/2022 0118
PFOA	6.5	15	19		1	83	1.3	71-133	30	03/18/2022 0118
PFPeA	17	15	29		1	78	2.7	72-129	30	03/18/2022 0118
PFTeDA	ND	15	13		1	85	2.1	71-132	30	03/18/2022 0118
PFTrDA	ND	15	10		1	69	6.8	65-144	30	03/18/2022 0118
PFUdA	ND	15	12		1	82	0.34	69-133	30	03/18/2022 0118
PFOS	ND	14	12		1	85	4.2	65-140	30	03/18/2022 0118

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	201	50-150
13C2_6:2FTS		117	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		77	50-150
13C2_PFTeDA	N	48	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA	N	47	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		80	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID:	XB26004-005MD	Matrix:	Aqueous
Batch:	35017	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1227

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		103	50-150
13C8_PFOS		100	50-150
13C9_PFNA		95	50-150
d-EtFOSA		51	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		82	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ35107-001	Matrix:	Aqueous
Batch:	35107	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1718

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/17/2022 1644
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/17/2022 1644

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		84	50-150
13C2_6:2FTS		90	50-150
13C2_8:2FTS		91	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		75	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		77	50-150
13C3-HFPO-DA		85	50-150
13C4_PFBA		86	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		88	50-150
13C5_PFPeA		82	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35107-001
Batch: 35107
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1718

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		83	50-150
13C7_PFUdA		90	50-150
13C8_PFOA		95	50-150
13C8_PFOS		83	50-150
13C9_PFNA		83	50-150
d-EtFOSA		62	50-150
d5-EtFOSAA		85	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35107-002
Batch: 35107
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1718

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	104	70-150	03/17/2022 1655
11Cl-PF3OUdS	15	13		1	89	70-150	03/17/2022 1655
8:2 FTS	15	12		1	81	67-138	03/17/2022 1655
6:2 FTS	15	14		1	95	64-140	03/17/2022 1655
4:2 FTS	15	15		1	101	63-143	03/17/2022 1655
GenX	32	30		1	93	70-150	03/17/2022 1655
ADONA	15	16		1	104	70-150	03/17/2022 1655
EtFOSA	16	17		1	104	70-150	03/17/2022 1655
EtFOSAA	16	16		1	100	61-135	03/17/2022 1655
MeFOSAA	16	14		1	88	65-136	03/17/2022 1655
PFBS	14	13		1	94	72-130	03/17/2022 1655
PFDS	15	13		1	86	53-142	03/17/2022 1655
PFHpS	15	15		1	101	69-134	03/17/2022 1655
PFNS	15	13		1	86	69-127	03/17/2022 1655
PFPeS	15	15		1	97	71-127	03/17/2022 1655
PFHxS	15	15		1	101	68-131	03/17/2022 1655
PFBA	16	16		1	100	73-129	03/17/2022 1655
PFDA	16	15		1	93	71-129	03/17/2022 1655
PFDoA	16	16		1	100	72-134	03/17/2022 1655
PFHpA	16	16		1	98	72-130	03/17/2022 1655
PFHxA	16	16		1	101	72-129	03/17/2022 1655
PFNA	16	16		1	103	69-130	03/17/2022 1655
PFOA	16	16		1	98	71-133	03/17/2022 1655
PFPeA	16	15		1	95	72-129	03/17/2022 1655
PFTeDA	16	15		1	96	71-132	03/17/2022 1655
PFTrDA	16	15		1	93	65-144	03/17/2022 1655
PFUdA	16	16		1	99	69-133	03/17/2022 1655
PFOS	15	14		1	95	65-140	03/17/2022 1655

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		82	50-150
13C2_6:2FTS		91	50-150
13C2_8:2FTS		90	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		76	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		87	50-150
13C4_PFHpA		90	50-150
13C5_PFHxA		91	50-150
13C5_PFPeA		92	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35107-002
Batch: 35107
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1718

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		82	50-150
13C7_PFUdA		85	50-150
13C8_PFOA		90	50-150
13C8_PFOS		90	50-150
13C9_PFNA		82	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		84	50-150
d3-MeFOSAA		83	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XB26004-011MS	Matrix:	Aqueous
Batch:	35107	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1718

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	13		1	100	70-150	03/17/2022 1950
11Cl-PF3OUdS	ND	14	11		1	81	70-150	03/17/2022 1950
8:2 FTS	ND	14	12		1	90	67-138	03/17/2022 1950
6:2 FTS	ND	14	12		1	84	64-140	03/17/2022 1950
4:2 FTS	ND	13	12		1	89	63-143	03/17/2022 1950
GenX	ND	29	25		1	87	70-150	03/17/2022 1950
ADONA	ND	14	13		1	99	70-150	03/17/2022 1950
EtFOSA	ND	14	13		1	92	70-150	03/17/2022 1950
EtFOSAA	ND	14	15		1	103	61-135	03/17/2022 1950
MeFOSAA	ND	14	13		1	91	65-136	03/17/2022 1950
PFBS	1.6	13	13		1	90	72-130	03/17/2022 1950
PFDS	ND	14	13		1	91	53-142	03/17/2022 1950
PFHpS	ND	14	13		1	97	69-134	03/17/2022 1950
PFNS	ND	14	14		1	98	69-127	03/17/2022 1950
PFPeS	1.6	14	16		1	103	71-127	03/17/2022 1950
PFHxS	11	13	24		1	98	68-131	03/17/2022 1950
PFBA	4.3	14	18		1	95	73-129	03/17/2022 1950
PFDA	ND	14	13		1	89	71-129	03/17/2022 1950
PFDoA	ND	14	13		1	90	72-134	03/17/2022 1950
PFHpA	2.7	14	17		1	97	72-130	03/17/2022 1950
PFHxA	4.9	14	18		1	91	72-129	03/17/2022 1950
PFNA	ND	14	13		1	92	69-130	03/17/2022 1950
PFOA	4.8	14	19		1	95	71-133	03/17/2022 1950
PFPeA	5.3	14	19		1	97	72-129	03/17/2022 1950
PFTeDA	ND	14	13		1	89	71-132	03/17/2022 1950
PFTrDA	ND	14	12		1	83	65-144	03/17/2022 1950
PFUdA	ND	14	14		1	94	69-133	03/17/2022 1950
PFOS	7.1	13	20		1	97	65-140	03/17/2022 1950

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	156	50-150
13C2_6:2FTS		100	50-150
13C2_8:2FTS		89	50-150
13C2_PFDoA		73	50-150
13C2_PFTeDA		53	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		82	50-150
13C3-HFPO-DA		85	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		76	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria
DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XB26004-011MS
Batch: 35107
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1718

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		81	50-150
13C7_PFUdA		79	50-150
13C8_PFOA		89	50-150
13C8_PFOS		85	50-150
13C9_PFNA		84	50-150
d-EtFOSA	N	44	50-150
d5-EtFOSAA		81	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID:	XB26004-012DU	Matrix:	Aqueous
Batch:	35107	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/16/2022 1718

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND		U	1	0.00	20	03/17/2022 2012
11Cl-PF3OUdS	ND		U	1	0.00	20	03/17/2022 2012
8:2 FTS	ND		U	1	0.00	20	03/17/2022 2012
6:2 FTS	5.0	4.3	I	1	15	20	03/17/2022 2012
4:2 FTS	ND		U	1	0.00	20	03/17/2022 2012
GenX	ND		U	1	0.00	20	03/17/2022 2012
ADONA	ND		U	1	0.00	20	03/17/2022 2012
EtFOSA	ND		U	1	0.00	20	03/17/2022 2012
EtFOSAA	ND		U	1	0.00	20	03/17/2022 2012
MeFOSAA	ND		U	1	0.00	20	03/17/2022 2012
PFBS	4.2	3.7		1	12	20	03/17/2022 2012
PFDS	ND		U	1	0.00	20	03/17/2022 2012
PFHpS	ND		U	1	0.00	20	03/17/2022 2012
PFNS	ND		U	1	0.00	20	03/17/2022 2012
PFPeS	2.4	2.1	I	1	13	20	03/17/2022 2012
PFHxS	16	16		1	3.4	20	03/17/2022 2012
PFBA	3.2	3.5	I	1	8.0	20	03/17/2022 2012
PFDA	ND		U	1	0.00	20	03/17/2022 2012
PFDoA	ND		U	1	0.00	20	03/17/2022 2012
PFHpA	2.6	3.2	+	1	22	20	03/17/2022 2012
PFHxA	9.0	7.0	+	1	26	20	03/17/2022 2012
PFNA	ND		U	1	0.00	20	03/17/2022 2012
PFOA	8.8	7.5		1	16	20	03/17/2022 2012
PFPeA	6.0	6.0		1	0.39	20	03/17/2022 2012
PFTeDA	ND		U	1	0.00	20	03/17/2022 2012
PFTrDA	ND		U	1	0.00	20	03/17/2022 2012
PFUdA	ND		U	1	0.00	20	03/17/2022 2012
PFOS	17	18		1	3.5	20	03/17/2022 2012

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	195	50-150
13C2_6:2FTS		114	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		67	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		77	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: XB26004-012DU
Batch: 35107
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/16/2022 1718

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		103	50-150
13C8_PFOS		93	50-150
13C9_PFNA		92	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2590 | PAGE 1 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
12G09581	KSC-STP1	Mark Jonnet	(412) 921-8622	Pace Analytical — Katy Smith
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
[signature] - Chuck Sarden		Chuck Sarden	(321) 591-7580	106 Vantage Point Dr
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Fed Ex — 7761 1378 8656		West Columbia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/ice

XB26004

KES2

TYPE OF ANALYSIS: PFAS QSM Table B-15

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
02/25	0735	STP1-DPT0014-005.0-20220225	36	4	8	GW	G	2	X	
	0800	STP1-DPT0014-010.0-20220225	36	8	12					
	0825	STP1-DPT0014-016.0-20220225	36	14	18					
	0845	STP1-DPT0014-023.0-20220225	36	21	25			2		
	0910	STP1-DPT0014-033.0-20220225	36	31	35			6		MS/MSD Collected
	0945	STP1-DPT0014-042.0-20220225	36	40	44			2		
	1105	STP1-DPT0015-010.0-20220225	37	8	12	GW				
	1125	STP1-EB-20220225-01	—	—	—	QC				
	1130	STP1-DPT0015-016.0-20220225	37	14	18	GW				
	1155	STP1-DPT0015-023.0-20220225	37	21	25					
	1220	STP1-DPT0015-033.0-20220225	37	31	35					
	1245	STP1-DPT0015-042.0-20220225	37	40	44	GW				
02/25	1250	STP1-FB-20220225-01	—	—	—	QC	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	02/25/22	1530	1. RECEIVED BY FedEx	02/25/22	1530
2. RELINQUISHED BY FedEx			2. RECEIVED BY		
3. RELINQUISHED BY FedEx	2/26/22	0955	3. RECEIVED BY M McHaney	2/26/22	0955

COMMENTS temp = 2.1°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

PACE ANALYTICAL SERVICES, LLC

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2591 | PAGE 2 OF 2

PROJECT NO: 112G09581	FACILITY: KSC-STP1	PROJECT MANAGER Mark Jonnes	PHONE NUMBER (412) 921-8622	LABORATORY NAME AND CONTACT: Pace Analytical - Kathy Smith
SAMPLERS (SIGNATURE) - Chuck Sorden		FIELD OPERATIONS LEADER Chuck Sorden	PHONE NUMBER (321) 591-7580	ADDRESS 106 Vantage Point Dr.
		CARRIER/WAYBILL NUMBER FedEx - 7761 1378 5656		CITY, STATE West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P

PRESERVATIVE USED: None/4°C

TYPE OF ANALYSIS: PFAS QSM Table B-15

XB26004

KBS2

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15								COMMENTS
02/25	0000	STP-FD-20220225-01	—	—	—	QC	G	2	X								

1. RELINQUISHED BY	DATE 02/25/22	TIME 1530	1. RECEIVED BY Fed Ex	DATE 02/25/22	TIME 1530
2. RELINQUISHED BY FedEx	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY FedEx	DATE 2/26/22	TIME 0955	3. RECEIVED BY Y.M. Haney	DATE 2/26/22	TIME 0955

COMMENTS Temp 2.1°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH   Cooler Inspected by/date: MEH / 2/26/2022   Lot #: XB26004

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ________

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

2.1 / 2.1 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☐ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ________
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (<0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote # ________

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA ________ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA ________ were received with bubbles >6 mm in diameter.

Samples(s) NA ________ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: JRG2   Date: 2/26/2022

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-STP1

Project Number: 112G09581

Lot Number:**XC11023**

Date Completed:04/07/2022

Kathy Smith

04/08/2022 9:35 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XC11023

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Sample XC11023-010 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Samples XC11023-001, XC11023-002, XC11023-003, XC11023-004, XC11023-005, XC11023-006, XC11023-007, XC11023-008, XC11023-009, XC11023-010, XC11023-011 had surrogates recovered outside of the acceptance limits due to confirmed matrix interference.

The method blank associated with batch 36434 had 6:2 FTS detected at a concentration that was above the PQL. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "V”.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

Tetra Tech

Lot Number: XC11023

Project Name: KSC-STP1

Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-SW0001-000.5-20220308	Aqueous	03/08/2022 1545	03/11/2022
002	STP1-SW0002-000.5-20220309	Aqueous	03/09/2022 0910	03/11/2022
003	STP1-SW0003-000.5-20220309	Aqueous	03/09/2022 0955	03/11/2022
004	STP1-SW0004-000.5-20220309	Aqueous	03/09/2022 1025	03/11/2022
005	STP1-SW0005-000.5-20220309	Aqueous	03/09/2022 1050	03/11/2022
006	STP1-SW0006-000.5-20220309	Aqueous	03/09/2022 1115	03/11/2022
007	STP1-SW0007-000.5-20220309	Aqueous	03/09/2022 1220	03/11/2022
008	STP1-SW0008-000.5-20220309	Aqueous	03/09/2022 1330	03/11/2022
009	STP1-EB-20220309-01	Aqueous	03/09/2022 1340	03/11/2022
010	STP1-SW0009-000.5-20220309	Aqueous	03/09/2022 1405	03/11/2022
011	STP1-FD-20220309-01	Aqueous	03/09/2022	03/11/2022

(11 samples)

Detection Summary

Tetra Tech

Lot Number: XC11023

Project Name: KSC-STP1

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	STP1-SW0001-000.5-20220308	Aqueous	6:2 FTS	PFAS by ID	2.1	IQ	ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFBS	PFAS by ID	2.7	I	ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFHpS	PFAS by ID	1.4	I	ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFPeS	PFAS by ID	2.9	I	ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFHxS	PFAS by ID	32		ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFBA	PFAS by ID	6.2		ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFHpA	PFAS by ID	3.9		ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFHxA	PFAS by ID	6.7		ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFNA	PFAS by ID	1.3	I	ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFOA	PFAS by ID	5.9		ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFPeA	PFAS by ID	6.9		ng/L	11
001	STP1-SW0001-000.5-20220308	Aqueous	PFOS	PFAS by ID	120		ng/L	11
002	STP1-SW0002-000.5-20220309	Aqueous	PFBS	PFAS by ID	9.4		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFHpS	PFAS by ID	2.8	I	ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFPeS	PFAS by ID	11		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFHxS	PFAS by ID	95		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFBA	PFAS by ID	13	Q	ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFHpA	PFAS by ID	8.6		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFHxA	PFAS by ID	18		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFNA	PFAS by ID	1.7	I	ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFOA	PFAS by ID	9.7		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFPeA	PFAS by ID	19		ng/L	13
002	STP1-SW0002-000.5-20220309	Aqueous	PFOS	PFAS by ID	150		ng/L	13
003	STP1-SW0003-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	64	Q	ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFBS	PFAS by ID	9.3		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFHpS	PFAS by ID	3.5		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFPeS	PFAS by ID	11		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFHxS	PFAS by ID	100		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFBA	PFAS by ID	19	Q	ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFHpA	PFAS by ID	20		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFHxA	PFAS by ID	35		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFNA	PFAS by ID	2.3	I	ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFOA	PFAS by ID	23		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFPeA	PFAS by ID	45		ng/L	15
003	STP1-SW0003-000.5-20220309	Aqueous	PFOS	PFAS by ID	180		ng/L	15
004	STP1-SW0004-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	47	Q	ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFBS	PFAS by ID	11		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFHpS	PFAS by ID	4.1		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFPeS	PFAS by ID	12		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFHxS	PFAS by ID	110		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFBA	PFAS by ID	17	Q	ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFHpA	PFAS by ID	21		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFHxA	PFAS by ID	37	S	ng/L	17

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Detection Summary (Continued)

Lot Number: XC11023

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	STP1-SW0004-000.5-20220309	Aqueous	PFNA	PFAS by ID	2.5	I	ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFOA	PFAS by ID	22		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFPeA	PFAS by ID	42		ng/L	17
004	STP1-SW0004-000.5-20220309	Aqueous	PFOS	PFAS by ID	190	S	ng/L	17
005	STP1-SW0005-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	64	Q	ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	4:2 FTS	PFAS by ID	3.2	IQ	ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFBS	PFAS by ID	23		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFHpS	PFAS by ID	6.0		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFPeS	PFAS by ID	25		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFHxS	PFAS by ID	180		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFBA	PFAS by ID	32	Q	ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFHpA	PFAS by ID	43		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFHxA	PFAS by ID	77		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFNA	PFAS by ID	2.6	I	ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFOA	PFAS by ID	43		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFPeA	PFAS by ID	100		ng/L	19
005	STP1-SW0005-000.5-20220309	Aqueous	PFOS	PFAS by ID	210		ng/L	19
006	STP1-SW0006-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	2.5	IQ	ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFBS	PFAS by ID	16		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFHpS	PFAS by ID	3.1	I	ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFPeS	PFAS by ID	18		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFHxS	PFAS by ID	130		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFBA	PFAS by ID	19	Q	ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFHpA	PFAS by ID	24		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFHxA	PFAS by ID	47		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFNA	PFAS by ID	2.2	I	ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFOA	PFAS by ID	21		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFPeA	PFAS by ID	50		ng/L	21
006	STP1-SW0006-000.5-20220309	Aqueous	PFOS	PFAS by ID	140		ng/L	21
007	STP1-SW0007-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	25	Q	ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFBS	PFAS by ID	18		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFHpS	PFAS by ID	4.0		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFPeS	PFAS by ID	19		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFHxS	PFAS by ID	140		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFBA	PFAS by ID	23	Q	ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFHpA	PFAS by ID	29		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFHxA	PFAS by ID	55		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFNA	PFAS by ID	3.0	I	ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFOA	PFAS by ID	26		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFPeA	PFAS by ID	68		ng/L	23
007	STP1-SW0007-000.5-20220309	Aqueous	PFOS	PFAS by ID	210		ng/L	23
008	STP1-SW0008-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	20	Q	ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFBS	PFAS by ID	3.8		ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFHpS	PFAS by ID	1.5	I	ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFPeS	PFAS by ID	4.4		ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFHxS	PFAS by ID	56		ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFBA	PFAS by ID	11	Q	ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFHpA	PFAS by ID	9.3		ng/L	25

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	STP1-SW0008-000.5-20220309	Aqueous	PFHxA	PFAS by ID	16		ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFNA	PFAS by ID	2.3	I	ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFOA	PFAS by ID	10		ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFPeA	PFAS by ID	18		ng/L	25
008	STP1-SW0008-000.5-20220309	Aqueous	PFOS	PFAS by ID	120		ng/L	25
010	STP1-SW0009-000.5-20220309	Aqueous	6:2 FTS	PFAS by ID	10	VQ	ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFBS	PFAS by ID	5.8		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFHpS	PFAS by ID	3.1	I	ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFPeS	PFAS by ID	8.4		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFHxS	PFAS by ID	120		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFBA	PFAS by ID	17	Q	ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFHpA	PFAS by ID	20		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFHxA	PFAS by ID	35		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFNA	PFAS by ID	5.1		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFOA	PFAS by ID	23		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFPeA	PFAS by ID	43		ng/L	29
010	STP1-SW0009-000.5-20220309	Aqueous	PFOS	PFAS by ID	310		ng/L	29
011	STP1-FD-20220309-01	Aqueous	PFBS	PFAS by ID	15		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFHpS	PFAS by ID	2.9	I	ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFPeS	PFAS by ID	15		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFHxS	PFAS by ID	120		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFBA	PFAS by ID	18	Q	ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFHpA	PFAS by ID	23		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFHxA	PFAS by ID	41		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFNA	PFAS by ID	2.2	I	ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFOA	PFAS by ID	19		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFPeA	PFAS by ID	45		ng/L	31
011	STP1-FD-20220309-01	Aqueous	PFOS	PFAS by ID	140		ng/L	31

(119 detections)

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-001	
Description: STP1-SW0001-000.5-20220308		Matrix: Aqueous	
Date Sampled: 03/08/2022 1545	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/24/2022 2359	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2.1	IQ	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.7	I	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.4	I	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.9	I	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	32		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.2		3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.9		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	6.7		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.3	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	5.9		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.9		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	120		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	246	50-150
13C2_6:2FTS	N	256	50-150
13C2_8:2FTS	N	154	50-150
13C2_PFDoA		101	50-150
13C2_PFTeDA		71	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA		53	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		112	50-150
13C7_PFUdA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-001	
Description: STP1-SW0001-000.5-20220308		Matrix: Aqueous	
Date Sampled: 03/08/2022 1545	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		112	50-150
13C8_PFOS		108	50-150
13C9_PFNA		121	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		107	50-150
d3-MeFOSAA		129	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-002	
Description: STP1-SW0002-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 0910	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0020	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	9.4		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	95		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	13	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	8.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	18		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.7	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.7		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	19		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	150		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	253	50-150
13C2_6:2FTS	N	294	50-150
13C2_8:2FTS		138	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		64	50-150
13C3_PFBS		89	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA	N	39	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		82	50-150
13C6_PFDA		109	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-002
Description: STP1-SW0002-000.5-20220309		Matrix: Aqueous
Date Sampled: 03/09/2022 0910	Project Name: KSC-STP1	
Date Received: 03/11/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	50-150
13C8_PFOS		112	50-150
13C9_PFNA		113	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		111	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-003	
Description: STP1-SW0003-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 0955	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0031	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	64	Q	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	9.3		3.5	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.5		3.5	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	11		3.5	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	100		3.5	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	19	Q	3.5	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20		3.5	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	35		3.5	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	I	3.5	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	23		3.5	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	45		3.5	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	180		3.5	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	252	50-150
13C2_6:2FTS	N	267	50-150
13C2_8:2FTS		141	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		69	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		102	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA	N	42	50-150
13C4_PFHpA		112	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		86	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		102	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11023-003
Description: STP1-SW0003-000.5-20220309	Matrix: Aqueous
Date Sampled: 03/09/2022 0955	Project Name: KSC-STP1
Date Received: 03/11/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		110	50-150
13C9_PFNA		110	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		103	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-004	
Description: STP1-SW0004-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1025	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0041	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	47	Q	7.4	3.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	11		3.7	1.9	0.93	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	4.1		3.7	1.9	0.93	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	12		3.7	1.9	0.93	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	110		3.7	1.9	0.93	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	17	Q	3.7	1.9	0.93	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	21		3.7	1.9	0.93	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	37	S	3.7	1.9	0.93	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.5	I	3.7	1.9	0.93	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	22		3.7	1.9	0.93	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	42		3.7	1.9	0.93	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.93	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	190	S	3.7	1.9	0.93	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	240	50-150
13C2_6:2FTS	N	248	50-150
13C2_8:2FTS		118	50-150
13C2_PFDoA		80	50-150
13C2_PFTeDA		56	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		80	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11023-004
Description: STP1-SW0004-000.5-20220309	Matrix: Aqueous
Date Sampled: 03/09/2022 1025	Project Name: KSC-STP1
Date Received: 03/11/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		107	50-150
13C8_PFOS		102	50-150
13C9_PFNA		104	50-150
d-EtFOSA		56	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC11023-005
Description: STP1-SW0005-000.5-20220309			Matrix: Aqueous
Date Sampled: 03/09/2022 1050	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0103	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	64	Q	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.2	IQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	23		3.8	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	6.0		3.8	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	25		3.8	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	180		3.8	1.9	0.94	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	32	Q	3.8	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	43		3.8	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	77		3.8	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.6	I	3.8	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	43		3.8	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	100		3.8	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	210		3.8	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	242	50-150
13C2_6:2FTS	N	258	50-150
13C2_8:2FTS		138	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		77	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA	N	36	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		118	50-150
13C7_PFUdA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC11023-005
Description: STP1-SW0005-000.5-20220309			Matrix: Aqueous
Date Sampled: 03/09/2022 1050	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		109	50-150
13C8_PFOS		112	50-150
13C9_PFNA		111	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		113	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-006	
Description: STP1-SW0006-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1115	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0113	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2.5	IQ	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	16		3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.1	I	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	18		3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	130		3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	19	Q	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	24		3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	47		3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.2	I	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	21		3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	50		3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	140		3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	244	50-150
13C2_6:2FTS	N	237	50-150
13C2_8:2FTS		132	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		66	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		92	50-150
13C4_PFBA	N	41	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		84	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-006	
Description: STP1-SW0006-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1115	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		108	50-150
13C9_PFNA		112	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		103	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-007	
Description: STP1-SW0007-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1220	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0145	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	25	Q	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	18		3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	4.0		3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	19		3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	140		3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	23	Q	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	29		3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	55		3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.0	I	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	26		3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	68		3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	210		3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	255	50-150
13C2_6:2FTS	N	264	50-150
13C2_8:2FTS		143	50-150
13C2_PFDoA		112	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA	N	42	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		87	50-150
13C6_PFDA		112	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-007	
Description: STP1-SW0007-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1220	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		115	50-150
13C8_PFOS		106	50-150
13C9_PFNA		110	50-150
d-EtFOSA		69	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-008	
Description: STP1-SW0008-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1330	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/25/2022 0156	MMM	03/23/2022 1615	35849

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	20	Q	6.9	3.5	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	6.9	3.5	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	3.8		3.5	1.8	0.87	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.5	I	3.5	1.8	0.87	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	4.4		3.5	1.8	0.87	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	56		3.5	1.8	0.87	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	11	Q	3.5	1.8	0.87	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	9.3		3.5	1.8	0.87	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	16		3.5	1.8	0.87	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.3	I	3.5	1.8	0.87	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10		3.5	1.8	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	18		3.5	1.8	0.87	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.87	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	120		3.5	1.8	0.87	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	293	50-150
13C2_6:2FTS	N	267	50-150
13C2_8:2FTS	N	151	50-150
13C2_PFDoA		104	50-150
13C2_PFTeDA		58	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		85	50-150
13C4_PFBA	N	49	50-150
13C4_PFHpA		108	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		112	50-150
13C7_PFUdA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-008	
Description: STP1-SW0008-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1330	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	50-150
13C8_PFOS		106	50-150
13C9_PFNA		119	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		108	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC11023-009
Description: STP1-EB-20220309-01	Matrix: Aqueous
Date Sampled: 03/09/2022 1340	Project Name: KSC-STP1
Date Received: 03/11/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 0206	ASD	03/24/2022 1130	35886
2	SOP SPE	PFAS by ID SOP QSM B-15	1	04/06/2022 1846	MMM		37103

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	6.9	3.5	1.7	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.0	U	7.9	4.0	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.0	U	4.0	2.0	0.99	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS		105	50-150		99	50-150
13C2_6:2FTS		129	50-150	N	172	50-150
13C2_8:2FTS		106	50-150		107	50-150
13C2_PFDoA		99	50-150		95	50-150
13C2_PFTeDA		89	50-150		96	50-150
13C3_PFBS		109	50-150		106	50-150
13C3_PFHxS		107	50-150		100	50-150
13C3-HFPO-DA		102	50-150		107	50-150
13C4_PFBA		104	50-150		106	50-150
13C4_PFHpA		108	50-150		100	50-150
13C5_PFHxA		106	50-150		106	50-150
13C5_PFPeA		113	50-150		107	50-150
13C6_PFDA		114	50-150		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC11023-009
Description: STP1-EB-20220309-01			Matrix: Aqueous
Date Sampled: 03/09/2022 1340	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		109	50-150		96	50-150
13C8_PFOA		123	50-150		116	50-150
13C8_PFOS		110	50-150		103	50-150
13C9_PFNA		108	50-150		105	50-150
d-EtFOSA		89	50-150		69	50-150
d5-EtFOSAA		98	50-150		98	50-150
d3-MeFOSAA		99	50-150		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-010	
Description: STP1-SW0009-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1405	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 0217	ASD	03/24/2022 1130	35886
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/30/2022 2214	MMM	03/29/2022 1803	36434

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	10	VQ	8.7	4.4	2.2	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	UQ	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	5.8		3.8	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	3.1	I	3.8	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	8.4		3.8	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.8	1.9	0.94	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	17	Q	3.8	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20		3.8	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	35		3.8	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.1		3.8	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	23		3.8	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	43		3.8	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	310		3.8	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	199	50-150		148	50-150
13C2_6:2FTS	N	181	50-150	N	176	50-150
13C2_8:2FTS		130	50-150		62	50-150
13C2_PFDoA		97	50-150	N	8.2	50-150
13C2_PFTeDA		77	50-150	N	1.0	50-150
13C3_PFBS		87	50-150		80	50-150
13C3_PFHxS		96	50-150		80	50-150
13C3-HFPO-DA		87	50-150		74	50-150
13C4_PFBA	N	44	50-150	N	39	50-150
13C4_PFHpA		110	50-150		82	50-150
13C5_PFHxA		94	50-150		82	50-150
13C5_PFPeA		78	50-150		81	50-150
13C6_PFDA		115	50-150		55	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-010	
Description: STP1-SW0009-000.5-20220309		Matrix: Aqueous	
Date Sampled: 03/09/2022 1405	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		112	50-150	N	25	50-150
13C8_PFOA		109	50-150		83	50-150
13C8_PFOS		102	50-150		59	50-150
13C9_PFNA		104	50-150		79	50-150
d-EtFOSA		76	50-150	N	0.30	50-150
d5-EtFOSAA		104	50-150	N	33	50-150
d3-MeFOSAA		106	50-150		51	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-011	
Description: STP1-FD-20220309-01		Matrix: Aqueous	
Date Sampled: 03/09/2022	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 0228	ASD	03/24/2022 1130	35886
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/30/2022 2224	MMM	03/29/2022 1803	36434

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	15		3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.9	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	15		3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	120		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	18	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	23		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	41		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.2	I	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	19		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	45		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	140		3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	210	50-150	N	192	50-150
13C2_6:2FTS	N	157	50-150	N	247	50-150
13C2_8:2FTS		124	50-150		121	50-150
13C2_PFDoA		94	50-150		109	50-150
13C2_PFTeDA		66	50-150		74	50-150
13C3_PFBS		85	50-150		91	50-150
13C3_PFHxS		101	50-150		104	50-150
13C3-HFPO-DA		84	50-150		86	50-150
13C4_PFBA	N	36	50-150	N	44	50-150
13C4_PFHpA		106	50-150		96	50-150
13C5_PFHxA		94	50-150		95	50-150
13C5_PFPeA		72	50-150		81	50-150
13C6_PFDA		114	50-150		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC11023-011	
Description: STP1-FD-20220309-01		Matrix: Aqueous	
Date Sampled: 03/09/2022	Project Name: KSC-STP1		
Date Received: 03/11/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		107	50-150		124	50-150
13C8_PFOA		114	50-150		110	50-150
13C8_PFOS		106	50-150		96	50-150
13C9_PFNA		109	50-150		120	50-150
d-EtFOSA		88	50-150		69	50-150
d5-EtFOSAA		103	50-150		101	50-150
d3-MeFOSAA		109	50-150		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ35849-001	Matrix:	Aqueous
Batch:	35849	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/23/2022 1615

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/24/2022 2036
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/24/2022 2036

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		113	50-150
13C2_6:2FTS	N	190	50-150
13C2_8:2FTS		112	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		112	50-150
13C3_PFBS		112	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		113	50-150
13C4_PFBA		115	50-150
13C4_PFHpA		116	50-150
13C5_PFHxA		109	50-150
13C5_PFPeA		114	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35849-001
Batch: 35849
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/23/2022 1615

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		109	50-150
13C8_PFOA		131	50-150
13C8_PFOS		107	50-150
13C9_PFNA		119	50-150
d-EtFOSA		89	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		119	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ35849-002	Matrix:	Aqueous
Batch:	35849	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/23/2022 1615

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	100	70-150	03/24/2022 2047
11Cl-PF3OUdS	15	12		1	80	70-150	03/24/2022 2047
8:2 FTS	15	14		1	93	67-138	03/24/2022 2047
6:2 FTS	15	15		1	102	64-140	03/24/2022 2047
4:2 FTS	15	15		1	98	63-143	03/24/2022 2047
GenX	32	33		1	104	70-150	03/24/2022 2047
ADONA	15	15		1	101	70-150	03/24/2022 2047
EtFOSA	16	18		1	112	70-150	03/24/2022 2047
EtFOSAA	16	17		1	105	61-135	03/24/2022 2047
MeFOSAA	16	16		1	100	65-136	03/24/2022 2047
PFBS	14	14		1	97	72-130	03/24/2022 2047
PFDS	15	13		1	87	53-142	03/24/2022 2047
PFHpS	15	16		1	102	69-134	03/24/2022 2047
PFNS	15	15		1	97	69-127	03/24/2022 2047
PFPeS	15	15		1	102	71-127	03/24/2022 2047
PFHxS	15	15		1	100	68-131	03/24/2022 2047
PFBA	16	17		1	103	73-129	03/24/2022 2047
PFDA	16	16		1	100	71-129	03/24/2022 2047
PFDoA	16	17		1	106	72-134	03/24/2022 2047
PFHpA	16	16		1	102	72-130	03/24/2022 2047
PFHxA	16	14		1	88	72-129	03/24/2022 2047
PFNA	16	16		1	98	69-130	03/24/2022 2047
PFOA	16	17		1	103	71-133	03/24/2022 2047
PFPeA	16	17		1	104	72-129	03/24/2022 2047
PFTeDA	16	16		1	98	71-132	03/24/2022 2047
PFTrDA	16	15		1	94	65-144	03/24/2022 2047
PFUdA	16	15		1	91	69-133	03/24/2022 2047
PFOS	15	14		1	96	65-140	03/24/2022 2047

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		112	50-150
13C2_6:2FTS	N	216	50-150
13C2_8:2FTS		114	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		89	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		114	50-150
13C3-HFPO-DA		108	50-150
13C4_PFBA		112	50-150
13C4_PFHpA		114	50-150
13C5_PFHxA		121	50-150
13C5_PFPeA		115	50-150

LOQ = Limit of Quantitation　U = Not detected at or above the LOQ　N = Recovery is out of criteria

DL = Detection Limit　I = Estimated result < LOQ and $\geq$ DL　P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection　* = RSD is out of criteria　+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: XQ35849-002
Batch: 35849
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/23/2022 1615

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		107	50-150
13C7_PFUdA		115	50-150
13C8_PFOA		131	50-150
13C8_PFOS		106	50-150
13C9_PFNA		112	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		119	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID:	XC11023-001DU	Matrix:	Aqueous
Batch:	35849	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/23/2022 1615

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND		U	1	0.00	20	03/25/2022 0009
11Cl-PF3OUdS	ND		U	1	0.00	20	03/25/2022 0009
8:2 FTS	ND		U	1	0.00	20	03/25/2022 0009
6:2 FTS	2.1		U	1	0.00	20	03/25/2022 0009
4:2 FTS	ND		U	1	0.00	20	03/25/2022 0009
GenX	ND		U	1	0.00	20	03/25/2022 0009
ADONA	ND		U	1	0.00	20	03/25/2022 0009
EtFOSA	ND		U	1	0.00	20	03/25/2022 0009
EtFOSAA	ND		U	1	0.00	20	03/25/2022 0009
MeFOSAA	ND		U	1	0.00	20	03/25/2022 0009
PFBS	2.7	2.6	I	1	2.6	20	03/25/2022 0009
PFDS	ND		U	1	0.00	20	03/25/2022 0009
PFHpS	1.4	1.4	I	1	0.96	20	03/25/2022 0009
PFNS	ND		U	1	0.00	20	03/25/2022 0009
PFPeS	2.9	2.9	I	1	1.4	20	03/25/2022 0009
PFHxS	32	32		1	2.3	20	03/25/2022 0009
PFBA	6.2	6.1		1	0.81	20	03/25/2022 0009
PFDA	ND		U	1	0.00	20	03/25/2022 0009
PFDoA	ND		U	1	0.00	20	03/25/2022 0009
PFHpA	3.9	4.0		1	0.85	20	03/25/2022 0009
PFHxA	6.7	6.2		1	7.0	20	03/25/2022 0009
PFNA	1.3	1.4	I	1	6.4	20	03/25/2022 0009
PFOA	5.9	5.4		1	9.2	20	03/25/2022 0009
PFPeA	6.9	6.5		1	5.2	20	03/25/2022 0009
PFTeDA	ND		U	1	0.00	20	03/25/2022 0009
PFTrDA	ND		U	1	0.00	20	03/25/2022 0009
PFUdA	ND		U	1	0.00	20	03/25/2022 0009
PFOS	120	110		1	8.5	20	03/25/2022 0009

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	247	50-150
13C2_6:2FTS	N	269	50-150
13C2_8:2FTS	N	154	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA		51	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		93	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: XC11023-001DU
Batch: 35849
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/23/2022 1615

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		106	50-150
13C7_PFUdA		101	50-150
13C8_PFOA		110	50-150
13C8_PFOS		108	50-150
13C9_PFNA		107	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		106	50-150
d3-MeFOSAA		116	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC11023-004MS	Matrix:	Aqueous
Batch:	35849	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/23/2022 1615

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	96	70-150	03/25/2022 0052
11Cl-PF3OUdS	ND	14	11		1	83	70-150	03/25/2022 0052
8:2 FTS	ND	14	14		1	101	67-138	03/25/2022 0052
6:2 FTS	47	14	63		1	114	64-140	03/25/2022 0052
4:2 FTS	ND	14	13		1	98	63-143	03/25/2022 0052
GenX	ND	29	33		1	114	70-150	03/25/2022 0052
ADONA	ND	14	14		1	99	70-150	03/25/2022 0052
EtFOSA	ND	15	13		1	91	70-150	03/25/2022 0052
EtFOSAA	ND	15	16		1	108	61-135	03/25/2022 0052
MeFOSAA	ND	15	15		1	106	65-136	03/25/2022 0052
PFBS	11	13	23		1	88	72-130	03/25/2022 0052
PFDS	ND	14	12		1	85	53-142	03/25/2022 0052
PFHpS	4.1	14	17		1	91	69-134	03/25/2022 0052
PFNS	ND	14	14		1	102	69-127	03/25/2022 0052
PFPeS	12	14	25		1	96	71-127	03/25/2022 0052
PFHxS	110	13	120		1	73	68-131	03/25/2022 0052
PFBA	17	15	30		1	87	73-129	03/25/2022 0052
PFDA	ND	15	13		1	91	71-129	03/25/2022 0052
PFDoA	ND	15	14		1	97	72-134	03/25/2022 0052
PFHpA	21	15	37		1	109	72-130	03/25/2022 0052
PFHxA	37	15	47	N	1	71	72-129	03/25/2022 0052
PFNA	2.5	15	17		1	99	69-130	03/25/2022 0052
PFOA	22	15	35		1	84	71-133	03/25/2022 0052
PFPeA	42	15	59		1	115	72-129	03/25/2022 0052
PFTeDA	ND	15	14		1	98	71-132	03/25/2022 0052
PFTrDA	ND	15	12		1	83	65-144	03/25/2022 0052
PFUdA	ND	15	16		1	108	69-133	03/25/2022 0052
PFOS	190	14	210	N	1	186	65-140	03/25/2022 0052

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	232	50-150
13C2_6:2FTS	N	261	50-150
13C2_8:2FTS		122	50-150
13C2_PFDoA		97	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA	N	45	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		85	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XC11023-004MS
Batch: 35849
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/23/2022 1615

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		114	50-150
13C8_PFOS		100	50-150
13C9_PFNA		103	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ35886-001	Matrix:	Aqueous
Batch:	35886	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/24/2022 1130

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 0144
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 0144

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		110	50-150
13C2_6:2FTS		126	50-150
13C2_8:2FTS		116	50-150
13C2_PFDoA		108	50-150
13C2_PFTeDA		104	50-150
13C3_PFBS		115	50-150
13C3_PFHxS		114	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		115	50-150
13C4_PFHpA		120	50-150
13C5_PFHxA		112	50-150
13C5_PFPeA		116	50-150
13C6_PFDA		120	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Sample ID: XQ35886-001
Batch: 35886
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1130

Surrogate	Q	% Rec	Acceptance Limit
13C7_PFUdA		117	50-150
13C8_PFOA		121	50-150
13C8_PFOS		116	50-150
13C9_PFNA		114	50-150
d-EtFOSA		95	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		108	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35886-002
Batch: 35886
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1130

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	97	70-150	03/26/2022 0155
11Cl-PF3OUdS	15	13		1	89	70-150	03/26/2022 0155
8:2 FTS	15	15		1	98	67-138	03/26/2022 0155
4:2 FTS	15	16		1	105	63-143	03/26/2022 0155
GenX	32	30		1	94	70-150	03/26/2022 0155
ADONA	15	16		1	106	70-150	03/26/2022 0155
EtFOSA	16	16		1	97	70-150	03/26/2022 0155
EtFOSAA	16	14		1	87	61-135	03/26/2022 0155
MeFOSAA	16	16		1	97	65-136	03/26/2022 0155
PFBS	14	14		1	98	72-130	03/26/2022 0155
PFDS	15	14		1	93	53-142	03/26/2022 0155
PFHpS	15	14		1	95	69-134	03/26/2022 0155
PFNS	15	14		1	92	69-127	03/26/2022 0155
PFPeS	15	14		1	96	71-127	03/26/2022 0155
PFHxS	15	14		1	95	68-131	03/26/2022 0155
PFBA	16	15		1	95	73-129	03/26/2022 0155
PFDA	16	15		1	92	71-129	03/26/2022 0155
PFDoA	16	16		1	98	72-134	03/26/2022 0155
PFHpA	16	15		1	95	72-130	03/26/2022 0155
PFHxA	16	15		1	92	72-129	03/26/2022 0155
PFNA	16	16		1	102	69-130	03/26/2022 0155
PFOA	16	16		1	98	71-133	03/26/2022 0155
PFPeA	16	15		1	96	72-129	03/26/2022 0155
PFTeDA	16	16		1	98	71-132	03/26/2022 0155
PFTrDA	16	15		1	96	65-144	03/26/2022 0155
PFUdA	16	16		1	100	69-133	03/26/2022 0155
PFOS	15	14		1	94	65-140	03/26/2022 0155

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	50-150
13C2_6:2FTS		119	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		91	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		104	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		106	50-150
13C6_PFDA		107	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35886-002
Batch: 35886
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1130

Surrogate	Q	% Rec	Acceptance Limit
13C7_PFUdA		105	50-150
13C8_PFOA		111	50-150
13C8_PFOS		102	50-150
13C9_PFNA		99	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ36434-001
Batch: 36434
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/29/2022 1803

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	41		1	8.0	4.0	2.0	ng/L	03/31/2022 2123

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS	N	225	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		106	50-150
13C8_PFOS		98	50-150
13C9_PFNA		94	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ36434-002
Batch: 36434
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/29/2022 1803

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	15		1	102	64-140	03/30/2022 2142

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS	N	227	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		110	50-150
13C8_PFOS		90	50-150
13C9_PFNA		97	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ37103-001
Batch: 37103
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/30/1899 0000

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	04/06/2022 1824

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		100	50-150
13C2_6:2FTS		140	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		96	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		103	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		107	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		99	50-150
13C8_PFOA		111	50-150
13C8_PFOS		106	50-150
13C9_PFNA		100	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ37103-002
Batch: 37103
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 12/30/1899 0000

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16		1	103	64-140	04/06/2022 1835

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	50-150
13C2_6:2FTS	N	153	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		96	50-150
13C3_PFBS		100	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		100	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		96	50-150
13C8_PFOA		109	50-150
13C8_PFOS		99	50-150
13C9_PFNA		99	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2593 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G09581	HSC-STP1	Mark Sonner	(412) 921-8622	Pace Analytical – Tiffany Smith
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
– Chuck Sorden – Kyle Heard		Chuck Sorden	(321) 591-7580	106 Vantage Point Dr.
		CARRIER/WAYBILL NUMBER		CITY, STATE
				West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None 4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
03/08	1545	STP1-SW0001-000.5-20220308	16	0.0	0.5	GW	G	2	X	
03/09	0910	STP1-SW0002-000.5-20220309	15							
	0955	STP1-SW0003-000.5-20220309	17							
	1025	STP1-SW0004-000.5-20220309	18							
	1050	STP1-SW0005-000.5-20220309	19							
	1115	STP1-SW0006-000.5-20220309	24							
	1220	STP1-SW0007-000.5-20220309	23							
	1330	STP1-SW0008-000.5-20220309	22	0.0	0.5	GW				
	1340	STP1-EB-20220309-01	—	—	—	QC				
03/09	1405	STP1-SW0009-000.5-20220309	21	0.0	0.5	GW	G			
03/09	0000	STP1-FD-20220309-01	—	—	—	QC	G	2	X	

XC11023
KE92

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	03/10/22	1600	1. RECEIVED BY FedEx	03/10/22	1600
2. RELINQUISHED BY FedEx	3/11/22	0950	2. RECEIVED BY	3/11/22	0950
3. RELINQUISHED BY			3. RECEIVED BY T=3.1°C		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH Cooler Inspected by/date: JSH / 03/11/2022 Lot #: XC11023

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ____

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

3.1 / 3.1 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ____
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote # ____

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA ____ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA ____ were received with bubbles >6 mm in diameter.

Samples(s) NA ____ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KNR Date: 03/11/2022

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC - STP1/FS1

Project Number: 112G09581

Lot Number:**XC12009**

Date Completed:04/04/2022

Kathy Smith

04/05/2022 12:03 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XC12009

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

For sample XC12009-006, sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Samples XC12009-002, XC12009-003 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <5mL and reconstituted to 5mL using MeOH by transfer pipet.

Surrogate recovery for the following samples was outside control limits: XC12009-001, XC12009-002, XC12009-003, XC12009-004, XC12009-006, XC12009-007, XC12009-010. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The method blank associated with prep batch 36434 contained analyte: 6:2 FTS greater than the method criteria. For the following sample there was an insufficient amount to perform a re-extraction or re-analysis: XC12009-003. The data has been reported.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for prep batch 36434 exceeded acceptance criteria for the following analytes: 6:2 FTS surrogate. The associated target analyte passed, therefore the data were reported: XC12009-003.

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Tetra Tech
Lot Number: XC12009

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-SW0010-000.5-20220310	Aqueous	03/10/2022 0805	03/12/2022
002	FS1-SW0001-000.5-20220310	Aqueous	03/10/2022 0845	03/12/2022
003	STP1-SW0011-000.5-20220310	Aqueous	03/10/2022 0910	03/12/2022
004	STP1-SW0012-000.5-20220310	Aqueous	03/10/2022 1035	03/12/2022
005	STP1-SW0013-000.5-20220310	Aqueous	03/10/2022 1110	03/12/2022
006	STP1-SW0014-000.5-20220310	Aqueous	03/10/2022 1120	03/12/2022
007	STP1-SW0015-000.5-20220310	Aqueous	03/10/2022 1145	03/12/2022
008	STP1-EB-20220310-01	Aqueous	03/10/2022 1200	03/12/2022
009	STP1-FB-20220310-01	Aqueous	03/10/2022 1210	03/12/2022
010	STP1-FD-20220310-01	Aqueous	03/10/2022	03/12/2022

(10 samples)

Detection Summary

Tetra Tech

Lot Number: XC12009

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	STP1-SW0010-000.5-20220310	Aqueous	PFBS	PFAS by ID	2.0	I	ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFPeS	PFAS by ID	1.2	I	ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFHxS	PFAS by ID	12		ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFBA	PFAS by ID	6.7	Q	ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFHpA	PFAS by ID	2.2	I	ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFHxA	PFAS by ID	3.7		ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFOA	PFAS by ID	4.6		ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFPeA	PFAS by ID	3.7		ng/L	8
001	STP1-SW0010-000.5-20220310	Aqueous	PFOS	PFAS by ID	9.4		ng/L	8
002	FS1-SW0001-000.5-20220310	Aqueous	8:2 FTS	PFAS by ID	470	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	6:2 FTS	PFAS by ID	2700	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	MeFOSAA	PFAS by ID	50		ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFBS	PFAS by ID	79		ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFDS	PFAS by ID	3.9	Q	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFHpS	PFAS by ID	130		ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFNS	PFAS by ID	23	Q	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFPeS	PFAS by ID	140		ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFHxS	PFAS by ID	3300	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFBA	PFAS by ID	270	Q	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFDA	PFAS by ID	18		ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFHpA	PFAS by ID	480	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFHxA	PFAS by ID	1000	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFNA	PFAS by ID	110		ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFOA	PFAS by ID	1200	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFPeA	PFAS by ID	1000	D	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFUdA	PFAS by ID	2.1	I	ng/L	10
002	FS1-SW0001-000.5-20220310	Aqueous	PFOS	PFAS by ID	14000	D	ng/L	10
003	STP1-SW0011-000.5-20220310	Aqueous	8:2 FTS	PFAS by ID	9.8		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	6:2 FTS	PFAS by ID	87	V	ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFBS	PFAS by ID	13		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFHpS	PFAS by ID	11		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFNS	PFAS by ID	1.4	I	ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFPeS	PFAS by ID	23		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFHxS	PFAS by ID	340	D	ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFBA	PFAS by ID	26	Q	ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFDA	PFAS by ID	3.0	I	ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFHpA	PFAS by ID	46		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFHxA	PFAS by ID	76		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFNA	PFAS by ID	20		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFOA	PFAS by ID	58		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFPeA	PFAS by ID	87		ng/L	12
003	STP1-SW0011-000.5-20220310	Aqueous	PFOS	PFAS by ID	1200	D	ng/L	12
004	STP1-SW0012-000.5-20220310	Aqueous	PFBS	PFAS by ID	4.1		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFDS	PFAS by ID	8.2		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFHpS	PFAS by ID	1.0	I	ng/L	14

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	STP1-SW0012-000.5-20220310	Aqueous	PFPeS	PFAS by ID	1.0	I	ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFHxS	PFAS by ID	15		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFBA	PFAS by ID	33		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFDA	PFAS by ID	3.7	I	ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFHpA	PFAS by ID	25		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFHxA	PFAS by ID	33		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFNA	PFAS by ID	11		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFOA	PFAS by ID	37		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFPeA	PFAS by ID	41		ng/L	14
004	STP1-SW0012-000.5-20220310	Aqueous	PFOS	PFAS by ID	91		ng/L	14
005	STP1-SW0013-000.5-20220310	Aqueous	PFBS	PFAS by ID	1.9	I	ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFPeS	PFAS by ID	0.96	I	ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFHxS	PFAS by ID	4.5		ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFBA	PFAS by ID	27		ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFHpA	PFAS by ID	8.5		ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFHxA	PFAS by ID	9.9		ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFOA	PFAS by ID	5.8		ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFPeA	PFAS by ID	6.6		ng/L	16
005	STP1-SW0013-000.5-20220310	Aqueous	PFOS	PFAS by ID	5.8		ng/L	16
006	STP1-SW0014-000.5-20220310	Aqueous	PFBS	PFAS by ID	8.4	IQ	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFHxS	PFAS by ID	6.6	IQ	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFBA	PFAS by ID	95	Q	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFHpA	PFAS by ID	17	Q	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFHxA	PFAS by ID	37	Q	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFOA	PFAS by ID	21	Q	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFPeA	PFAS by ID	25	Q	ng/L	18
006	STP1-SW0014-000.5-20220310	Aqueous	PFOS	PFAS by ID	11	IQ	ng/L	18
007	STP1-SW0015-000.5-20220310	Aqueous	PFBS	PFAS by ID	1.0	I	ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFHxS	PFAS by ID	2.3	I	ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFBA	PFAS by ID	19		ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFHpA	PFAS by ID	3.6		ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFHxA	PFAS by ID	8.3		ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFOA	PFAS by ID	9.1		ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFPeA	PFAS by ID	6.5		ng/L	20
007	STP1-SW0015-000.5-20220310	Aqueous	PFOS	PFAS by ID	9.5		ng/L	20
010	STP1-FD-20220310-01	Aqueous	PFBS	PFAS by ID	1.7	I	ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFPeS	PFAS by ID	1.1	I	ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFHxS	PFAS by ID	13		ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFBA	PFAS by ID	6.4		ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFHpA	PFAS by ID	2.3	I	ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFHxA	PFAS by ID	4.4		ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFOA	PFAS by ID	4.2		ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFPeA	PFAS by ID	4.0		ng/L	26
010	STP1-FD-20220310-01	Aqueous	PFOS	PFAS by ID	8.7		ng/L	26

(89 detections)

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XC12009-001
Description:	STP1-SW0010-000.5-20220310	Matrix:	Aqueous
Date Sampled:	03/10/2022 0805		
Date Received:	03/12/2022		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1732	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.0	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.2	I	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	12		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.7	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.2	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	3.7		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.6		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3.7		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	9.4		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	206	50-150
13C2_6:2FTS	N	171	50-150
13C2_8:2FTS		117	50-150
13C2_PFDoA		89	50-150
13C2_PFTeDA		78	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBA	N	46	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		76	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-001
Description: STP1-SW0010-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 0805	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		100	50-150
13C9_PFNA		103	50-150
d-EtFOSA		65	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC12009-002	
Description: FS1-SW0001-000.5-20220310		Matrix: Aqueous	
Date Sampled: 03/10/2022 0845			
Date Received: 03/12/2022			

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1804	ASD	03/24/2022 1128	35925
2	SOP SPE	PFAS by ID SOP QSM B-15	50	03/30/2022 1251	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	470	D	370	190	92	ng/L	2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	2700	D	370	190	92	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	50		7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	79		3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	3.9	Q	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	130		3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	23	Q	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	140		3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3300	D	180	90	46	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	270	Q	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	18		3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	480	D	180	90	46	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1000	D	180	90	46	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	110		3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1200	D	180	90	46	ng/L	2
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1000	D	180	90	46	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.1	I	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	14000	D	180	90	46	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	189	50-150		96	50-150
13C2_6:2FTS		109	50-150		89	50-150
13C2_8:2FTS		121	50-150		96	50-150
13C2_PFDoA		97	50-150		94	50-150
13C2_PFTeDA		70	50-150		94	50-150
13C3_PFBS		77	50-150		95	50-150
13C3_PFHxS		63	50-150		92	50-150
13C3-HFPO-DA		75	50-150		91	50-150
13C4_PFBA	N	44	50-150		96	50-150
13C4_PFHpA		73	50-150		95	50-150
13C5_PFHxA		78	50-150		95	50-150
13C5_PFPeA		64	50-150		97	50-150
13C6_PFDA		92	50-150		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-002
Description: FS1-SW0001-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 0845	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		95	50-150		98	50-150
13C8_PFOA		82	50-150		89	50-150
13C8_PFOS	N	46	50-150		92	50-150
13C9_PFNA		50	50-150		90	50-150
d-EtFOSA		58	50-150		94	50-150
d5-EtFOSAA		105	50-150		96	50-150
d3-MeFOSAA		101	50-150		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XC12009-003
Description:	STP1-SW0011-000.5-20220310	Matrix:	Aqueous
Date Sampled:	03/10/2022 0910		
Date Received:	03/12/2022		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1815	ASD	03/24/2022 1128	35925
2	SOP SPE	PFAS by ID SOP QSM B-15	10	03/29/2022 1859	MMM	03/24/2022 1128	35925
3	SOP SPE	PFAS by ID SOP QSM B-15	1	03/30/2022 2307	MMM	03/29/2022 1803	36434

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	9.8		7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	87	V	8.3	4.2	2.1	ng/L	3
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	13		3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	11		3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.4	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	23		3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	340	D	36	18	9.1	ng/L	2
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	26	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	3.0	I	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	46		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	76		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20		3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	58		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	87		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1200	D	36	18	9.1	ng/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C2_4:2FTS	N	185	50-150		110	50-150		113	50-150
13C2_6:2FTS	N	153	50-150		117	50-150		122	50-150
13C2_8:2FTS		118	50-150		88	50-150		59	50-150
13C2_PFDoA		86	50-150		87	50-150	N	6.8	50-150
13C2_PFTeDA		65	50-150		63	50-150	N	0.30	50-150
13C3_PFBS		79	50-150		97	50-150		63	50-150
13C3_PFHxS		90	50-150		93	50-150		58	50-150
13C3-HFPO-DA		80	50-150		98	50-150		56	50-150
13C4_PFBA	N	48	50-150		97	50-150	N	43	50-150
13C4_PFHpA		92	50-150		90	50-150		59	50-150
13C5_PFHxA		93	50-150		97	50-150		62	50-150
13C5_PFPeA		76	50-150		93	50-150		62	50-150

LOQ = Limit of Quantitation; V = Detected in the method blank; E = Quantitation of compound exceeded the calibration range; DL = Detection Limit; Q = Surrogate failure
U = Not detected at or above the LOQ; N = Recovery is out of criteria; P = The RPD between two GC columns exceeds 40%; I = Estimated result < LOQ and ≥ DL; L = LCS/LCSD failure
Q = Out of holding time; W = Reported on wet weight basis; LOD = Limit of Detection; S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-003
Description: STP1-SW0011-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 0910	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
13C6_PFDA		93	50-150		103	50-150	N	47	50-150
13C7_PFUdA		87	50-150		99	50-150	N	22	50-150
13C8_PFOA		94	50-150		96	50-150		64	50-150
13C8_PFOS		83	50-150		103	50-150	N	43	50-150
13C9_PFNA		86	50-150		95	50-150		53	50-150
d-EtFOSA		58	50-150		66	50-150	N	0.30	50-150
d5-EtFOSAA		91	50-150		98	50-150	N	30	50-150
d3-MeFOSAA		96	50-150		96	50-150	N	48	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XC12009-004
Description:	STP1-SW0012-000.5-20220310	Matrix:	Aqueous
Date Sampled:	03/10/2022 1035		
Date Received:	03/12/2022		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1826	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.9	UQ	7.7	3.9	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.9	U	7.7	3.9	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	4.1		3.8	1.9	0.96	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	8.2		3.8	1.9	0.96	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.0	I	3.8	1.9	0.96	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.0	I	3.8	1.9	0.96	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	15		3.8	1.9	0.96	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	33		3.8	1.9	0.96	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	3.7	I	3.8	1.9	0.96	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	25		3.8	1.9	0.96	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	33		3.8	1.9	0.96	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	11		3.8	1.9	0.96	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	37		3.8	1.9	0.96	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	41		3.8	1.9	0.96	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.96	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	91		3.8	1.9	0.96	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	201	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		83	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		84	50-150
13C4_PFBA		52	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation V = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% I = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
Q = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-004
Description: STP1-SW0012-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 1035	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		94	50-150
13C8_PFOS		93	50-150
13C9_PFNA		91	50-150
d-EtFOSA		74	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-005
Description: STP1-SW0013-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 1110	
Date Received: 03/12/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1837	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.6	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	I	3.8	1.9	0.95	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	0.96	I	3.8	1.9	0.95	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	4.5		3.8	1.9	0.95	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	27		3.8	1.9	0.95	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	8.5		3.8	1.9	0.95	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	9.9		3.8	1.9	0.95	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	5.8		3.8	1.9	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.6		3.8	1.9	0.95	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.95	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.8		3.8	1.9	0.95	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		148	50-150
13C2_6:2FTS		136	50-150
13C2_8:2FTS		76	50-150
13C2_PFDoA		66	50-150
13C2_PFTeDA		55	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA		67	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		80	50-150
13C7_PFUdA		67	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech
Laboratory ID: XC12009-005
Description: STP1-SW0013-000.5-20220310
Matrix: Aqueous
Date Sampled: 03/10/2022 1110
Date Received: 03/12/2022

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		85	50-150
13C9_PFNA		91	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		82	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-006
Description: STP1-SW0014-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 1120	
Date Received: 03/12/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1848	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	16	UQ	31	16	7.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	8.4	IQ	15	7.5	3.8	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.6	IQ	15	7.5	3.8	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	95	Q	15	7.5	3.8	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	17	Q	15	7.5	3.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	37	Q	15	7.5	3.8	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	21	Q	15	7.5	3.8	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	25	Q	15	7.5	3.8	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	7.5	UQ	15	7.5	3.8	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	11	IQ	15	7.5	3.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	31	50-150
13C2_6:2FTS	N	34	50-150
13C2_8:2FTS	N	30	50-150
13C2_PFDoA	N	31	50-150
13C2_PFTeDA	N	24	50-150
13C3_PFBS	N	24	50-150
13C3_PFHxS	N	26	50-150
13C3-HFPO-DA	N	25	50-150
13C4_PFBA	N	26	50-150
13C4_PFHpA	N	26	50-150
13C5_PFHxA	N	25	50-150
13C5_PFPeA	N	26	50-150
13C6_PFDA	N	29	50-150
13C7_PFUdA	N	28	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-006
Description: STP1-SW0014-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 1120	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA	N	28	50-150
13C8_PFOS	N	27	50-150
13C9_PFNA	N	26	50-150
d-EtFOSA	N	25	50-150
d5-EtFOSAA	N	32	50-150
d3-MeFOSAA	N	30	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech | Laboratory ID: XC12009-007
Description: STP1-SW0015-000.5-20220310 | Matrix: Aqueous
Date Sampled: 03/10/2022 1145
Date Received: 03/12/2022

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1859	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.0	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.3	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	19		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	8.3		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.1		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6.5		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	9.5		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	165	50-150
13C2_6:2FTS		126	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		79	50-150
13C2_PFTeDA		61	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA		63	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		88	50-150
13C6_PFDA		90	50-150
13C7_PFUdA		86	50-150

LOQ = Limit of Quantitation | V = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure
U = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | I = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure
Q = Out of holding time | W = Reported on wet weight basis | LOD = Limit of Detection | S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-007
Description: STP1-SW0015-000.5-20220310	Matrix: Aqueous
Date Sampled: 03/10/2022 1145	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		100	50-150
13C9_PFNA		97	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-008
Description: STP1-EB-20220310-01	Matrix: Aqueous
Date Sampled: 03/10/2022 1200	
Date Received: 03/12/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1910	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.8	U	7.5	3.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.8	1.9	0.94	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	50-150
13C2_6:2FTS		121	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		90	50-150
13C3_PFBS		85	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA		93	50-150
13C4_PFHpA		94	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation; V = Detected in the method blank; E = Quantitation of compound exceeded the calibration range; DL = Detection Limit; Q = Surrogate failure
U = Not detected at or above the LOQ; N = Recovery is out of criteria; P = The RPD between two GC columns exceeds 40%; I = Estimated result < LOQ and ≥ DL; L = LCS/LCSD failure
Q = Out of holding time; W = Reported on wet weight basis; LOD = Limit of Detection; S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XC12009-008
Description:	STP1-EB-20220310-01	Matrix:	Aqueous
Date Sampled:	03/10/2022 1200		
Date Received:	03/12/2022		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		97	50-150
13C9_PFNA		92	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-009
Description: STP1-FB-20220310-01	Matrix: Aqueous
Date Sampled: 03/10/2022 1210	
Date Received: 03/12/2022	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1921	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		97	50-150
13C2_6:2FTS		126	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		93	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		94	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		98	50-150
13C5_PFPeA		96	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-009
Description: STP1-FB-20220310-01	Matrix: Aqueous
Date Sampled: 03/10/2022 1210	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		102	50-150
13C8_PFOS		95	50-150
13C9_PFNA		96	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XC12009-010
Description:	STP1-FD-20220310-01	Matrix:	Aqueous
Date Sampled:	03/10/2022		
Date Received:	03/12/2022		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1932	ASD	03/24/2022 1128	35925
2	SOP SPE	PFAS by ID SOP QSM B-15	1	03/30/2022 2318	MMM	03/29/2022 1803	36434

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.4	UQ	6.8	3.4	1.7	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.4	U	6.8	3.4	1.7	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.7	I	3.4	1.7	0.85	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.1	I	3.4	1.7	0.85	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	13		3.4	1.7	0.85	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.4		3.5	1.8	0.88	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.3	I	3.4	1.7	0.85	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.4		3.4	1.7	0.85	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	4.2		3.4	1.7	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	4.0		3.4	1.7	0.85	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.7	U	3.4	1.7	0.85	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	8.7		3.4	1.7	0.85	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C2_4:2FTS	N	190	50-150	N	181	50-150
13C2_6:2FTS	N	167	50-150	N	241	50-150
13C2_8:2FTS		126	50-150		125	50-150
13C2_PFDoA		93	50-150		83	50-150
13C2_PFTeDA		79	50-150		67	50-150
13C3_PFBS		78	50-150		91	50-150
13C3_PFHxS		94	50-150		100	50-150
13C3-HFPO-DA		79	50-150		81	50-150
13C4_PFBA	N	41	50-150		52	50-150
13C4_PFHpA		96	50-150		93	50-150
13C5_PFHxA		88	50-150		91	50-150
13C5_PFPeA		71	50-150		87	50-150
13C6_PFDA		93	50-150		100	50-150

LOQ = Limit of Quantitation | V = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure
U = Not detected at or above the LOQ | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | I = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure
Q = Out of holding time | W = Reported on wet weight basis | LOD = Limit of Detection | S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC12009-010
Description: STP1-FD-20220310-01	Matrix: Aqueous
Date Sampled: 03/10/2022	
Date Received: 03/12/2022	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C7_PFUdA		90	50-150		92	50-150
13C8_PFOA		93	50-150		101	50-150
13C8_PFOS		98	50-150		97	50-150
13C9_PFNA		99	50-150		101	50-150
d-EtFOSA		69	50-150		64	50-150
d5-EtFOSAA		97	50-150		94	50-150
d3-MeFOSAA		98	50-150		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection		S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ35925-001	Matrix:	Aqueous
Batch:	35925	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/24/2022 1128

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		100	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35925-001
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		105	50-150
13C8_PFOS		99	50-150
13C9_PFNA		99	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35925-002
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	99	70-150	03/26/2022 1721
11Cl-PF3OUdS	15	14		1	94	70-150	03/26/2022 1721
8:2 FTS	15	16		1	102	67-138	03/26/2022 1721
6:2 FTS	15	15		1	97	64-140	03/26/2022 1721
4:2 FTS	15	16		1	105	63-143	03/26/2022 1721
GenX	32	31		1	98	70-150	03/26/2022 1721
ADONA	15	16		1	107	70-150	03/26/2022 1721
EtFOSA	16	17		1	103	70-150	03/26/2022 1721
EtFOSAA	16	16		1	97	61-135	03/26/2022 1721
MeFOSAA	16	17		1	107	65-136	03/26/2022 1721
PFBS	14	14		1	101	72-130	03/26/2022 1721
PFDS	15	15		1	96	53-142	03/26/2022 1721
PFHpS	15	16		1	107	69-134	03/26/2022 1721
PFNS	15	16		1	103	69-127	03/26/2022 1721
PFPeS	15	15		1	101	71-127	03/26/2022 1721
PFHxS	15	15		1	100	68-131	03/26/2022 1721
PFBA	16	17		1	105	73-129	03/26/2022 1721
PFDA	16	16		1	102	71-129	03/26/2022 1721
PFDoA	16	17		1	107	72-134	03/26/2022 1721
PFHpA	16	17		1	105	72-130	03/26/2022 1721
PFHxA	16	17		1	107	72-129	03/26/2022 1721
PFNA	16	17		1	103	69-130	03/26/2022 1721
PFOA	16	17		1	108	71-133	03/26/2022 1721
PFPeA	16	17		1	105	72-129	03/26/2022 1721
PFTeDA	16	17		1	105	71-132	03/26/2022 1721
PFTrDA	16	16		1	98	65-144	03/26/2022 1721
PFUdA	16	16		1	101	69-133	03/26/2022 1721
PFOS	15	16		1	106	65-140	03/26/2022 1721

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		95	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35925-002
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		94	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		94	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC12009-001MS	Matrix:	Aqueous
Batch:	35925	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/24/2022 1128

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	14		1	105	70-150	03/26/2022 1743
11Cl-PF3OUdS	ND	13	13		1	95	70-150	03/26/2022 1743
8:2 FTS	ND	13	14		1	106	67-138	03/26/2022 1743
6:2 FTS	ND	13	14		1	106	64-140	03/26/2022 1743
4:2 FTS	ND	13	14		1	109	63-143	03/26/2022 1743
GenX	ND	28	29		1	105	70-150	03/26/2022 1743
ADONA	ND	13	14		1	105	70-150	03/26/2022 1743
EtFOSA	ND	14	15		1	110	70-150	03/26/2022 1743
EtFOSAA	ND	14	14		1	99	61-135	03/26/2022 1743
MeFOSAA	ND	14	15		1	109	65-136	03/26/2022 1743
PFBS	2.0	12	15		1	103	72-130	03/26/2022 1743
PFDS	ND	13	13		1	94	53-142	03/26/2022 1743
PFHpS	ND	13	14		1	106	69-134	03/26/2022 1743
PFNS	ND	13	14		1	101	69-127	03/26/2022 1743
PFPeS	1.2	13	17		1	119	71-127	03/26/2022 1743
PFHxS	12	13	26		1	109	68-131	03/26/2022 1743
PFBA	6.7	14	22		1	106	73-129	03/26/2022 1743
PFDA	ND	14	15		1	105	71-129	03/26/2022 1743
PFDoA	ND	14	15		1	106	72-134	03/26/2022 1743
PFHpA	2.2	14	16		1	101	72-130	03/26/2022 1743
PFHxA	3.7	14	18		1	106	72-129	03/26/2022 1743
PFNA	ND	14	15		1	110	69-130	03/26/2022 1743
PFOA	4.6	14	20		1	111	71-133	03/26/2022 1743
PFPeA	3.7	14	18		1	101	72-129	03/26/2022 1743
PFTeDA	ND	14	15		1	107	71-132	03/26/2022 1743
PFTrDA	ND	14	14		1	101	65-144	03/26/2022 1743
PFUdA	ND	14	16		1	112	69-133	03/26/2022 1743
PFOS	9.4	13	22		1	95	65-140	03/26/2022 1743

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	197	50-150
13C2_6:2FTS	N	168	50-150
13C2_8:2FTS		120	50-150
13C2_PFDoA		90	50-150
13C2_PFTeDA		79	50-150
13C3_PFBS		75	50-150
13C3_PFHxS		89	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA	N	40	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		72	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC12009-001MS	Matrix:	Aqueous
Batch:	35925	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		95	50-150
13C7_PFUdA		86	50-150
13C8_PFOA		93	50-150
13C8_PFOS		96	50-150
13C9_PFNA		95	50-150
d-EtFOSA		70	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XC12009-001MD
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	13	13		1	103	0.69	70-150	30	03/26/2022 1754
11Cl-PF3OUdS	ND	13	13		1	100	5.5	70-150	30	03/26/2022 1754
8:2 FTS	ND	13	14		1	107	2.5	67-138	30	03/26/2022 1754
6:2 FTS	ND	13	14		1	104	0.88	64-140	30	03/26/2022 1754
4:2 FTS	ND	13	14		1	109	1.1	63-143	30	03/26/2022 1754
GenX	ND	28	32		1	113	8.1	70-150	30	03/26/2022 1754
ADONA	ND	13	14		1	109	4.1	70-150	30	03/26/2022 1754
EtFOSA	ND	14	15		1	106	2.9	70-150	30	03/26/2022 1754
EtFOSAA	ND	14	14		1	101	2.9	61-135	30	03/26/2022 1754
MeFOSAA	ND	14	16		1	110	1.8	65-136	30	03/26/2022 1754
PFBS	2.0	12	15		1	103	1.3	72-130	30	03/26/2022 1754
PFDS	ND	14	14		1	101	7.7	53-142	30	03/26/2022 1754
PFHpS	ND	13	14		1	102	2.9	69-134	30	03/26/2022 1754
PFNS	ND	14	14		1	103	3.3	69-127	30	03/26/2022 1754
PFPeS	1.2	13	17		1	120	1.9	71-127	30	03/26/2022 1754
PFHxS	12	13	27		1	117	4.3	68-131	30	03/26/2022 1754
PFBA	6.7	14	23		1	113	5.2	73-129	30	03/26/2022 1754
PFDA	ND	14	15		1	109	4.1	71-129	30	03/26/2022 1754
PFDoA	ND	14	15		1	106	0.69	72-134	30	03/26/2022 1754
PFHpA	2.2	14	16		1	101	1.0	72-130	30	03/26/2022 1754
PFHxA	3.7	14	19		1	107	1.6	72-129	30	03/26/2022 1754
PFNA	ND	14	16		1	115	5.6	69-130	30	03/26/2022 1754
PFOA	4.6	14	21		1	114	2.9	71-133	30	03/26/2022 1754
PFPeA	3.7	14	19		1	107	5.7	72-129	30	03/26/2022 1754
PFTeDA	ND	14	16		1	111	5.1	71-132	30	03/26/2022 1754
PFTrDA	ND	14	14		1	98	2.0	65-144	30	03/26/2022 1754
PFUdA	ND	14	16		1	115	3.9	69-133	30	03/26/2022 1754
PFOS	9.4	13	24		1	110	9.3	65-140	30	03/26/2022 1754

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	198	50-150
13C2_6:2FTS	N	169	50-150
13C2_8:2FTS		125	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		80	50-150
13C3_PFBS		79	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		76	50-150
13C4_PFBA	N	40	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		90	50-150
13C5_PFPeA		72	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XC12009-001MD
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		98	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		91	50-150
13C8_PFOS		98	50-150
13C9_PFNA		96	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		98	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ36434-001	Matrix:	Aqueous
Batch:	36434	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/29/2022 1803

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
6:2 FTS	41		1	8.0	4.0	2.0	ng/L	03/31/2022 2123
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/31/2022 2123

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		106	50-150
13C2_6:2FTS	N	225	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		103	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		93	50-150
13C8_PFOA		106	50-150
13C8_PFOS		98	50-150
13C9_PFNA		94	50-150
d-EtFOSA		80	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		85	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ36434-002	Matrix:	Aqueous
Batch:	36434	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/29/2022 1803

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	15		1	102	64-140	03/30/2022 2142
PFBA	16	16		1	102	73-129	03/30/2022 2142

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	50-150
13C2_6:2FTS	N	227	50-150
13C2_8:2FTS		95	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		95	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		110	50-150
13C8_PFOS		90	50-150
13C9_PFNA		97	50-150
d-EtFOSA		75	50-150
d5-EtFOSAA		90	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria

DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Chain of Custody

and

Miscellaneous Documents

Tetra Tech, Inc.

CHAIN OF CUSTODY | NUMBER No. 2595 | PAGE 1 OF 1

PROJECT NO: 112G089581
FACILITY: KSC-STP1/FSI
PROJECT MANAGER: Mark Sonnen
PHONE NUMBER: (412) 921-8622
LABORATORY NAME AND CONTACT: Pace Analytical — Katy Smith

SAMPLERS (SIGNATURE): — Chuck Sordan
Kyle Hoard
FIELD OPERATIONS LEADER: Chuck Sordan
PHONE NUMBER: (321) 591-7580
ADDRESS: 106 Vantage Point Dr.
CARRIER/WAYBILL NUMBER:
CITY, STATE: West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/Ice
TYPE OF ANALYSIS: PFAS QSM Table B-15

XC12009
KFS2

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15							COMMENTS
03/10	0805	STP1-SW0010-0005-20220310	20	0.0	0.5	SW	G	6	X							MS/MSD Collected
	0845	FSI-SW0009-0005-20220310	09					2								
	0910	STP1-SW0011-0005-20220310	14													
	1035	STP1-SW0012-0005-20220310	12													
	1110	STP1-SW0013-0005-20220310	11													
	1120	STP1-SW0014-0005-20220310	~~15~~ 10													
	1145	STP1-SW0015-0005-20220310	13	0.0	0.5	SW										
	1200	STP1-EB-20220310-01	—	—	—	QC										
	1210	STP1-FB-20220310-01	—	—	—	QC										
03/10	0000	STP1-FD-20220310-01	—	—	—	QC	G	2	X							

1. RELINQUISHED BY	DATE 03/11/22	TIME 1500	1. RECEIVED BY FedEx	DATE 03/11/22	TIME 1500
2. RELINQUISHED BY FedEx	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY FedEx	DATE 3/12/22	TIME 1110	3. RECEIVED BY M Nemez	DATE 3/12/22	TIME 1110

COMMENTS: FedEx temp = 1.6°

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: TETRA TECH   Cooler Inspected by/date: MEH / 3/12/2022   Lot #: XC12009

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ______

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

1.6 / 1.6 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? ______
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA ______ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA ______ were received with bubbles >6 mm in diameter.

Samples(s) NA ______ were received with TRC > 0.5 mg/L (If #19 is ***no***) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: MEH   Date: 3/12/2022

Comments:

Report of Analysis

Tetra Tech
Foster Plaza 7
661 Anderson Drive
Pittsburgh, PA 15220
Attention: Mark Jonnet

Project Name: KSC-STP1

Project Number: 112G09581

Lot Number:**XC17055**

Date Completed:03/29/2022

Kathy Smith

03/30/2022 9:26 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Tetra Tech
Lot Number: XC17055

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

The following samples were diluted due to the nature of the sample matrix: XC17055-001, XC17055-002, XC17055-007, XC17055-008, XC17055-020, XC17055-021, XC17055-023, XC17055-024. The LOQ has been elevated to reflect the dilution.

Samples XC17055-003, XC17055-004, XC17055-005, XC17055-006, XC17055-011, XC17055-012, XC17055-013, XC17055-019 required centrifugation prior to extraction, due to excessive solids present in the samples. Centrifugation was performed following the PFAS Aqueous Centrifuge Protocol; samples were spiked with Surrogate (SUR; Extracted Internal Standard/EIS) and shaken vigorously before being poured into a conical bottle and centrifuged. The centrifuged aqueous sample was decanted back into the original sample bottle, off of the condensed solids remaining in the centrifuge bottle. Original sample bottle was rinsed as normal and centrifuge bottle was rinsed with 4mL of MeOH. Centrifuge bottle rinsate was added to the elution. Samples concentrated to <10mL and reconstituted to 10mL using MeOH by transfer pipet.

For sample XC17055-020 sample matrix prevented full volume from being extracted, precluding method mandated bottle rinse. Elution solvent was aliquoted directly into the reservoir, rinsing the inside. Surrogate recovery may be adversely affected.

Surrogate recovery for the following samples was outside control limits: XC17055-003, XC17055-004, XC17055-005, XC17055-006, XC17055-009, XC17055-011, XC17055-012, XC17055-013, XC17055-014, XC17055-015, XC17055-016, XC17055-017, XC17055-018, XC17055-019, XC17055-020, XC17055-021, XC17055-022, XC17055-023, XC17055-024. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

The MS/MSD associated with samples XC17055-013, XC17055-021 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

PACE ANALYTICAL SERVICES, LLC

Sample Summary
Tetra Tech
Lot Number: XC17055
Project Name: KSC-STP1
Project Number: 112G09581

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	STP1-DPT0016-005.0-20220314	Aqueous	03/14/2022 1455	03/17/2022
002	STP1-DPT0016-010.0-20220314	Aqueous	03/14/2022 1515	03/17/2022
003	STP1-DPT0016-016.0-20220314	Aqueous	03/14/2022 1535	03/17/2022
004	STP1-DPT0016-023.0-20220314	Aqueous	03/14/2022 1555	03/17/2022
005	STP1-DPT0016-033.0-20220314	Aqueous	03/14/2022 1615	03/17/2022
006	STP1-DPT0016-042.0-20220314	Aqueous	03/14/2022 1635	03/17/2022
007	STP1-DPT0017-005.0-20220315	Aqueous	03/15/2022 0935	03/17/2022
008	STP1-DPT0017-010.0-20220315	Aqueous	03/15/2022 0955	03/17/2022
009	STP1-DPT0017-016.0-20220315	Aqueous	03/15/2022 1015	03/17/2022
010	STP1-EB-20220315-01	Aqueous	03/15/2022 1020	03/17/2022
011	STP1-DPT0017-023.0-20220315	Aqueous	03/15/2022 1035	03/17/2022
012	STP1-DPT0017-033.0-20220315	Aqueous	03/15/2022 1105	03/17/2022
013	STP1-DPT0017-042.0-20220315	Aqueous	03/15/2022 1145	03/17/2022
014	STP1-DPT0018-005.0-20220315	Aqueous	03/15/2022 1410	03/17/2022
015	STP1-EB-20220315-02	Aqueous	03/15/2022 1425	03/17/2022
016	STP1-DPT0018-010.0-20220315	Aqueous	03/15/2022 1430	03/17/2022
017	STP1-EB-20220315-03	Aqueous	03/15/2022 1435	03/17/2022
018	STP1-DPT0018-016.0-20220315	Aqueous	03/15/2022 1450	03/17/2022
019	STP1-DPT0018-023.0-20220315	Aqueous	03/15/2022 1510	03/17/2022
020	STP1-DPT0018-033.0-20220315	Aqueous	03/15/2022 1530	03/17/2022
021	STP1-DPT0018-042.0-20220315	Aqueous	03/15/2022 1550	03/17/2022
022	STP1-FB-20220315-01	Aqueous	03/15/2022 1555	03/17/2022
023	STP1-FD-20220315-01	Aqueous	03/15/2022	03/17/2022
024	STP1-FD-20220315-02	Aqueous	03/15/2022	03/17/2022

(24 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

Tetra Tech

Lot Number: XC17055

Project Name: KSC-STP1

Project Number: 112G09581

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	STP1-DPT0017-005.0-20220315	Aqueous	PFBA	PFAS by ID	18	I	ng/L	23
007	STP1-DPT0017-005.0-20220315	Aqueous	PFOS	PFAS by ID	18	I	ng/L	23
008	STP1-DPT0017-010.0-20220315	Aqueous	PFBA	PFAS by ID	12	I	ng/L	25
008	STP1-DPT0017-010.0-20220315	Aqueous	PFOS	PFAS by ID	20	I	ng/L	25
009	STP1-DPT0017-016.0-20220315	Aqueous	PFBA	PFAS by ID	13	I	ng/L	27
009	STP1-DPT0017-016.0-20220315	Aqueous	PFOS	PFAS by ID	11	I	ng/L	27
011	STP1-DPT0017-023.0-20220315	Aqueous	PFBS	PFAS by ID	9.3		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFHpS	PFAS by ID	1.8	I	ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFPeS	PFAS by ID	9.1		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFHxS	PFAS by ID	78		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFBA	PFAS by ID	17		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFHpA	PFAS by ID	7.7		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFHxA	PFAS by ID	12		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFNA	PFAS by ID	1.9	I	ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFOA	PFAS by ID	9.9		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFPeA	PFAS by ID	11		ng/L	31
011	STP1-DPT0017-023.0-20220315	Aqueous	PFOS	PFAS by ID	110		ng/L	31
012	STP1-DPT0017-033.0-20220315	Aqueous	PFBS	PFAS by ID	25		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFPeS	PFAS by ID	25		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFHxS	PFAS by ID	140		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFBA	PFAS by ID	21		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFHpA	PFAS by ID	16		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFHxA	PFAS by ID	35		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFOA	PFAS by ID	6.4		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFPeA	PFAS by ID	35		ng/L	33
012	STP1-DPT0017-033.0-20220315	Aqueous	PFOS	PFAS by ID	11		ng/L	33
013	STP1-DPT0017-042.0-20220315	Aqueous	PFBS	PFAS by ID	12		ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFHpS	PFAS by ID	2.0	I	ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFPeS	PFAS by ID	15	S	ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFHxS	PFAS by ID	150	S	ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFBA	PFAS by ID	4.2	Q	ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFHpA	PFAS by ID	2.8	I	ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFHxA	PFAS by ID	12		ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFOA	PFAS by ID	7.6		ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFPeA	PFAS by ID	5.1		ng/L	35
013	STP1-DPT0017-042.0-20220315	Aqueous	PFOS	PFAS by ID	17		ng/L	35
018	STP1-DPT0018-016.0-20220315	Aqueous	PFHxS	PFAS by ID	10	I	ng/L	45
018	STP1-DPT0018-016.0-20220315	Aqueous	PFOS	PFAS by ID	23	I	ng/L	45
019	STP1-DPT0018-023.0-20220315	Aqueous	PFBS	PFAS by ID	1.8	I	ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFHpS	PFAS by ID	1.0	I	ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFPeS	PFAS by ID	1.6	I	ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFHxS	PFAS by ID	24		ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFBA	PFAS by ID	5.5	Q	ng/L	47

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
019	STP1-DPT0018-023.0-20220315	Aqueous	PFHpA	PFAS by ID	3.6		ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFHxA	PFAS by ID	4.6		ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFOA	PFAS by ID	8.9		ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFPeA	PFAS by ID	3.6		ng/L	47
019	STP1-DPT0018-023.0-20220315	Aqueous	PFOS	PFAS by ID	24		ng/L	47
020	STP1-DPT0018-033.0-20220315	Aqueous	PFHxS	PFAS by ID	2.3	I	ng/L	49
020	STP1-DPT0018-033.0-20220315	Aqueous	PFOA	PFAS by ID	2.1	I	ng/L	49
020	STP1-DPT0018-033.0-20220315	Aqueous	PFOS	PFAS by ID	2.4	I	ng/L	49
023	STP1-FD-20220315-01	Aqueous	PFBA	PFAS by ID	13	I	ng/L	55
023	STP1-FD-20220315-01	Aqueous	PFOS	PFAS by ID	17	I	ng/L	55
024	STP1-FD-20220315-02	Aqueous	PFBS	PFAS by ID	1.7	I	ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFHpS	PFAS by ID	1.0	I	ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFPeS	PFAS by ID	1.5	I	ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFHxS	PFAS by ID	25		ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFBA	PFAS by ID	6.0	Q	ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFHpA	PFAS by ID	3.6		ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFHxA	PFAS by ID	5.1		ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFOA	PFAS by ID	10		ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFPeA	PFAS by ID	3.9		ng/L	57
024	STP1-FD-20220315-02	Aqueous	PFOS	PFAS by ID	26		ng/L	57

(63 detections)

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-001	
Description: STP1-DPT0016-005.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1455	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2027	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		113	50-150
13C2_6:2FTS		120	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		85	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		71	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		97	50-150
13C6_PFDA		93	50-150
13C7_PFUdA		89	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client:	Tetra Tech	Laboratory ID:	XC17055-001
Description:	STP1-DPT0016-005.0-20220314	Matrix:	Aqueous
Date Sampled:	03/14/2022 1455	Project Name:	KSC-STP1
Date Received:	03/17/2022	Project Number:	112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		98	50-150
13C8_PFOS		95	50-150
13C9_PFNA		95	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		92	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-002	
Description: STP1-DPT0016-010.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1515	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2038	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	50-150
13C2_6:2FTS		120	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		80	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		94	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-002	
Description: STP1-DPT0016-010.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1515	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		97	50-150
13C8_PFOS		91	50-150
13C9_PFNA		93	50-150
d-EtFOSA		71	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-003	
Description: STP1-DPT0016-016.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1535	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2049	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	189	50-150
13C2_6:2FTS	N	160	50-150
13C2_8:2FTS		96	50-150
13C2_PFDoA		68	50-150
13C2_PFTeDA	N	39	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		76	50-150
13C4_PFBA	N	40	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		66	50-150
13C6_PFDA		88	50-150
13C7_PFUdA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-003
Description: STP1-DPT0016-016.0-20220314	Matrix: Aqueous
Date Sampled: 03/14/2022 1535	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		89	50-150
13C9_PFNA		92	50-150
d-EtFOSA	N	35	50-150
d5-EtFOSAA		80	50-150
d3-MeFOSAA		81	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-004
Description: STP1-DPT0016-023.0-20220314	Matrix: Aqueous
Date Sampled: 03/14/2022 1555	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2100	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	201	50-150
13C2_6:2FTS	N	153	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		73	50-150
13C2_PFTeDA		73	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		91	50-150
13C3-HFPO-DA		78	50-150
13C4_PFBA	N	44	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		72	50-150
13C6_PFDA		91	50-150
13C7_PFUdA		80	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-004	
Description: STP1-DPT0016-023.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1555	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		91	50-150
13C8_PFOS		89	50-150
13C9_PFNA		95	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		80	50-150
d3-MeFOSAA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-005	
Description: STP1-DPT0016-033.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1615	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2111	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	199	50-150
13C2_6:2FTS	N	159	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		68	50-150
13C3_PFBS		82	50-150
13C3_PFHxS		92	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA		56	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		80	50-150
13C6_PFDA		90	50-150
13C7_PFUdA		87	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-005	
Description: STP1-DPT0016-033.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1615	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		93	50-150
13C8_PFOS		97	50-150
13C9_PFNA		98	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-006	
Description: STP1-DPT0016-042.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1635	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2122	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	212	50-150
13C2_6:2FTS	N	156	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		69	50-150
13C2_PFTeDA	N	32	50-150
13C3_PFBS		81	50-150
13C3_PFHxS		93	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBA		52	50-150
13C4_PFHpA		99	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		79	50-150
13C6_PFDA		92	50-150
13C7_PFUdA		83	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-006	
Description: STP1-DPT0016-042.0-20220314		Matrix: Aqueous	
Date Sampled: 03/14/2022 1635	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		95	50-150
13C8_PFOS		94	50-150
13C9_PFNA		99	50-150
d-EtFOSA	N	40	50-150
d5-EtFOSAA		87	50-150
d3-MeFOSAA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC17055-007
Description: STP1-DPT0017-005.0-20220315			Matrix: Aqueous
Date Sampled: 03/15/2022 0935	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2133	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	18	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	18	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150
13C2_6:2FTS		118	50-150
13C2_8:2FTS		98	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		88	50-150
13C3_PFBS		92	50-150
13C3_PFHxS		94	50-150
13C3-HFPO-DA		90	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		94	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-007	
Description: STP1-DPT0017-005.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 0935	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		96	50-150
13C8_PFOS		96	50-150
13C9_PFNA		95	50-150
d-EtFOSA		73	50-150
d5-EtFOSAA		88	50-150
d3-MeFOSAA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-008
Description: STP1-DPT0017-010.0-20220315	Matrix: Aqueous
Date Sampled: 03/15/2022 0955	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 2143	ASD	03/24/2022 1128	35925

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	12	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		110	50-150
13C2_6:2FTS		112	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		82	50-150
13C3_PFBS		95	50-150
13C3_PFHxS		97	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		99	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		91	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-008	
Description: STP1-DPT0017-010.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 0955	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		100	50-150
13C9_PFNA		100	50-150
d-EtFOSA		72	50-150
d5-EtFOSAA		91	50-150
d3-MeFOSAA		92	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-009	
Description: STP1-DPT0017-016.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1015	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1437	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	13	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	11	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		113	50-150
13C2_6:2FTS	N	165	50-150
13C2_8:2FTS		99	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		107	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		105	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-009
Description: STP1-DPT0017-016.0-20220315	Matrix: Aqueous
Date Sampled: 03/15/2022 1015	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		105	50-150
13C8_PFOS		100	50-150
13C9_PFNA		110	50-150
d-EtFOSA		87	50-150
d5-EtFOSAA		99	50-150
d3-MeFOSAA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-010	
Description: STP1-EB-20220315-01		Matrix: Aqueous	
Date Sampled: 03/15/2022 1020	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1447	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.4	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.9	U	3.7	1.9	0.92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS		132	50-150
13C2_8:2FTS		125	50-150
13C2_PFDoA		101	50-150
13C2_PFTeDA		113	50-150
13C3_PFBS		114	50-150
13C3_PFHxS		115	50-150
13C3-HFPO-DA		107	50-150
13C4_PFBA		108	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-010	
Description: STP1-EB-20220315-01		Matrix: Aqueous	
Date Sampled: 03/15/2022 1020	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	50-150
13C8_PFOS		103	50-150
13C9_PFNA		109	50-150
d-EtFOSA		91	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		106	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-011	
Description: STP1-DPT0017-023.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1035	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1458	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	9.3		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	9.1		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	78		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	17		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	7.7		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	12		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.9	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.9		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	110		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	187	50-150
13C2_6:2FTS	N	195	50-150
13C2_8:2FTS		131	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA	N	43	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		83	50-150
13C4_PFBA		50	50-150
13C4_PFHpA		103	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		78	50-150
13C6_PFDA		101	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-011	
Description: STP1-DPT0017-023.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1035	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		102	50-150
13C9_PFNA		109	50-150
d-EtFOSA	N	36	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-012
Description: STP1-DPT0017-033.0-20220315	Matrix: Aqueous
Date Sampled: 03/15/2022 1105	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1508	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	25		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	25		3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	140		3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	21		3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	16		3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	35		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	6.4		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	35		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	11		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	165	50-150
13C2_6:2FTS	N	180	50-150
13C2_8:2FTS		115	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		105	50-150
13C3-HFPO-DA		91	50-150
13C4_PFBA		54	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		85	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-012
Description: STP1-DPT0017-033.0-20220315	Matrix: Aqueous
Date Sampled: 03/15/2022 1105	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		101	50-150
13C9_PFNA		102	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		96	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC17055-013
Description: STP1-DPT0017-042.0-20220315			Matrix: Aqueous
Date Sampled: 03/15/2022 1145	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1519	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	12		3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.0	I	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	15	S	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	150	S	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	4.2	Q	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.8	I	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	12		3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	7.6		3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	5.1		3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	17		3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	199	50-150
13C2_6:2FTS	N	232	50-150
13C2_8:2FTS		146	50-150
13C2_PFDoA		86	50-150
13C2_PFTeDA		54	50-150
13C3_PFBS		86	50-150
13C3_PFHxS		100	50-150
13C3-HFPO-DA		72	50-150
13C4_PFBA	N	38	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		71	50-150
13C6_PFDA		107	50-150
13C7_PFUdA		93	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-013	
Description: STP1-DPT0017-042.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1145	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		100	50-150
13C9_PFNA		112	50-150
d-EtFOSA		50	50-150
d5-EtFOSAA		102	50-150
d3-MeFOSAA		108	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC17055-014
Description: STP1-DPT0018-005.0-20220315			Matrix: Aqueous
Date Sampled: 03/15/2022 1410	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1551	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		111	50-150
13C2_6:2FTS	N	251	50-150
13C2_8:2FTS		113	50-150
13C2_PFDoA		100	50-150
13C2_PFTeDA		93	50-150
13C3_PFBS		109	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		100	50-150
13C4_PFBA		72	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		97	50-150
13C5_PFPeA		101	50-150
13C6_PFDA		96	50-150
13C7_PFUdA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-014
Description: STP1-DPT0018-005.0-20220315	Matrix: Aqueous
Date Sampled: 03/15/2022 1410	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		113	50-150
13C8_PFOS		107	50-150
13C9_PFNA		103	50-150
d-EtFOSA		76	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-015	
Description: STP1-EB-20220315-02		Matrix: Aqueous	
Date Sampled: 03/15/2022 1425	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1601	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		95	50-150
13C2_6:2FTS	N	177	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		95	50-150
13C2_PFTeDA		101	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		107	50-150
13C3-HFPO-DA		97	50-150
13C4_PFBA		95	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		91	50-150
13C6_PFDA		99	50-150
13C7_PFUdA		100	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-015	
Description: STP1-EB-20220315-02		Matrix: Aqueous	
Date Sampled: 03/15/2022 1425	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		103	50-150
13C8_PFOS		104	50-150
13C9_PFNA		102	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		94	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and $\geq$ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-016	
Description: STP1-DPT0018-010.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1430	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1633	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		107	50-150
13C2_6:2FTS	N	224	50-150
13C2_8:2FTS		118	50-150
13C2_PFDoA		102	50-150
13C2_PFTeDA		115	50-150
13C3_PFBS		115	50-150
13C3_PFHxS		112	50-150
13C3-HFPO-DA		113	50-150
13C4_PFBA		98	50-150
13C4_PFHpA		104	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		105	50-150
13C6_PFDA		104	50-150
13C7_PFUdA		105	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

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PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-016	
Description: STP1-DPT0018-010.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1430	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		122	50-150
13C8_PFOS		112	50-150
13C9_PFNA		114	50-150
d-EtFOSA		92	50-150
d5-EtFOSAA		125	50-150
d3-MeFOSAA		109	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-017
Description: STP1-EB-20220315-03	Matrix: Aqueous
Date Sampled: 03/15/2022 1435	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1644	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	50-150
13C2_6:2FTS	N	162	50-150
13C2_8:2FTS		111	50-150
13C2_PFDoA		106	50-150
13C2_PFTeDA		118	50-150
13C3_PFBS		108	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		102	50-150
13C5_PFPeA		95	50-150
13C6_PFDA		102	50-150
13C7_PFUdA		107	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-017
Description: STP1-EB-20220315-03	Matrix: Aqueous
Date Sampled: 03/15/2022 1435	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		111	50-150
13C8_PFOS		109	50-150
13C9_PFNA		107	50-150
d-EtFOSA		102	50-150
d5-EtFOSAA		106	50-150
d3-MeFOSAA		104	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-018	
Description: STP1-DPT0018-016.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1450	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1654	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	10	I	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	23	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		114	50-150
13C2_6:2FTS	N	296	50-150
13C2_8:2FTS		129	50-150
13C2_PFDoA		115	50-150
13C2_PFTeDA		132	50-150
13C3_PFBS		118	50-150
13C3_PFHxS		124	50-150
13C3-HFPO-DA		114	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		111	50-150
13C5_PFHxA		108	50-150
13C5_PFPeA		103	50-150
13C6_PFDA		119	50-150
13C7_PFUdA		127	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-018	
Description: STP1-DPT0018-016.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1450	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		126	50-150
13C8_PFOS		122	50-150
13C9_PFNA		115	50-150
d-EtFOSA		109	50-150
d5-EtFOSAA		120	50-150
d3-MeFOSAA		116	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-019	
Description: STP1-DPT0018-023.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1510	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1705	MMM	03/25/2022 1218	36079

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.1	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.1	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.0	I	3.6	1.8	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.6	I	3.6	1.8	0.89	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	24		3.6	1.8	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.5	Q	3.6	1.8	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.6		3.6	1.8	0.89	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6		3.6	1.8	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	8.9		3.6	1.8	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3.6		3.6	1.8	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	24		3.6	1.8	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	168	50-150
13C2_6:2FTS	N	192	50-150
13C2_8:2FTS		118	50-150
13C2_PFDoA		99	50-150
13C2_PFTeDA		94	50-150
13C3_PFBS		87	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA	N	48	50-150
13C4_PFHpA		96	50-150
13C5_PFHxA		89	50-150
13C5_PFPeA		75	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		99	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech	Laboratory ID: XC17055-019
Description: STP1-DPT0018-023.0-20220315	Matrix: Aqueous
Date Sampled: 03/15/2022 1510	Project Name: KSC-STP1
Date Received: 03/17/2022	Project Number: 112G09581

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	50-150
13C8_PFOS		101	50-150
13C9_PFNA		113	50-150
d-EtFOSA		78	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-020	
Description: STP1-DPT0018-033.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1530	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1747	MMM	03/25/2022 1457	36108

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.7	UQ	9.4	4.7	2.3	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	4.7	UQ	9.4	4.7	2.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	4.7	U	9.4	4.7	2.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	2.3	I	4.7	2.4	1.2	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	2.4	UQ	4.7	2.4	1.2	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	2.4	UQ	4.7	2.4	1.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	2.1	I	4.7	2.4	1.2	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	2.4	UQ	4.7	2.4	1.2	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	2.4	UQ	4.7	2.4	1.2	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	2.4	U	4.7	2.4	1.2	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.4	I	4.7	2.4	1.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		144	50-150
13C2_6:2FTS	N	176	50-150
13C2_8:2FTS		88	50-150
13C2_PFDoA	N	27	50-150
13C2_PFTeDA	N	2.1	50-150
13C3_PFBS		64	50-150
13C3_PFHxS		72	50-150
13C3-HFPO-DA		62	50-150
13C4_PFBA	N	33	50-150
13C4_PFHpA		70	50-150
13C5_PFHxA		67	50-150
13C5_PFPeA		54	50-150
13C6_PFDA		70	50-150
13C7_PFUdA		50	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-020
Description: STP1-DPT0018-033.0-20220315		Matrix: Aqueous
Date Sampled: 03/15/2022 1530	Project Name: KSC-STP1	
Date Received: 03/17/2022	Project Number: 112G09581	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		76	50-150
13C8_PFOS		68	50-150
13C9_PFNA		72	50-150
d-EtFOSA	N	0.20	50-150
d5-EtFOSAA		56	50-150
d3-MeFOSAA		56	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-021	
Description: STP1-DPT0018-042.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1550	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1809	MMM	03/25/2022 1457	36108

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.6	US	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.6	UQ	7.2	3.6	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.6	UQS	7.2	3.6	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.6	U	7.2	3.6	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.90	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	UQS	3.6	1.8	0.90	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.90	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	181	50-150
13C2_6:2FTS	N	194	50-150
13C2_8:2FTS		102	50-150
13C2_PFDoA	N	30	50-150
13C2_PFTeDA	N	2.8	50-150
13C3_PFBS		88	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		77	50-150
13C4_PFBA		56	50-150
13C4_PFHpA		97	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		77	50-150
13C6_PFDA		87	50-150
13C7_PFUdA		60	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Client: Tetra Tech		Laboratory ID: XC17055-021	
Description: STP1-DPT0018-042.0-20220315		Matrix: Aqueous	
Date Sampled: 03/15/2022 1550	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		100	50-150
13C8_PFOS		91	50-150
13C9_PFNA		95	50-150
d-EtFOSA	N	0.30	50-150
d5-EtFOSAA		74	50-150
d3-MeFOSAA		77	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC17055-022
Description: STP1-FB-20220315-01			Matrix: Aqueous
Date Sampled: 03/15/2022 1555	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1830	MMM	03/25/2022 1457	36108

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.5	UQ	7.0	3.5	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.5	U	7.0	3.5	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.8	U	3.5	1.8	0.88	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		102	50-150
13C2_6:2FTS	N	169	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		84	50-150
13C2_PFTeDA		92	50-150
13C3_PFBS		101	50-150
13C3_PFHxS		103	50-150
13C3-HFPO-DA		101	50-150
13C4_PFBA		100	50-150
13C4_PFHpA		91	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		90	50-150
13C6_PFDA		98	50-150
13C7_PFUdA		90	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC17055-022
Description: STP1-FB-20220315-01			Matrix: Aqueous
Date Sampled: 03/15/2022 1555	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		106	50-150
13C8_PFOS		110	50-150
13C9_PFNA		99	50-150
d-EtFOSA		66	50-150
d5-EtFOSAA		93	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-023	
Description: STP1-FD-20220315-01		Matrix: Aqueous	
Date Sampled: 03/15/2022	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1840	MMM	03/25/2022 1457	36108

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	40	U	80	40	20	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	40	UQ	80	40	20	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	40	U	80	40	20	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	40	U	80	40	20	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	13	I	40	20	10	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	20	U	40	20	10	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	17	I	40	20	10	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	50-150
13C2_6:2FTS	N	167	50-150
13C2_8:2FTS		100	50-150
13C2_PFDoA		88	50-150
13C2_PFTeDA		89	50-150
13C3_PFBS		104	50-150
13C3_PFHxS		106	50-150
13C3-HFPO-DA		112	50-150
13C4_PFBA		102	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		93	50-150
13C5_PFPeA		98	50-150
13C6_PFDA		108	50-150
13C7_PFUdA		96	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech			Laboratory ID: XC17055-023
Description: STP1-FD-20220315-01			Matrix: Aqueous
Date Sampled: 03/15/2022	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		104	50-150
13C8_PFOS		107	50-150
13C9_PFNA		104	50-150
d-EtFOSA		92	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		101	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-024	
Description: STP1-FD-20220315-02		Matrix: Aqueous	
Date Sampled: 03/15/2022	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP QSM B-15	1	03/26/2022 1851	MMM	03/25/2022 1457	36108

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	3.7	UQ	7.3	3.7	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	3.7	U	7.3	3.7	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	1.7	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	1.0	I	3.6	1.8	0.91	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.5	I	3.6	1.8	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	25		3.6	1.8	0.91	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	6.0	Q	3.6	1.8	0.91	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.91	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	3.6		3.6	1.8	0.91	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	5.1		3.6	1.8	0.91	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10		3.6	1.8	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3.9		3.6	1.8	0.91	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.91	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	1.8	UQ	3.6	1.8	0.91	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	1.8	U	3.6	1.8	0.91	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	26		3.6	1.8	0.91	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	159	50-150
13C2_6:2FTS	N	167	50-150
13C2_8:2FTS		94	50-150
13C2_PFDoA	N	34	50-150
13C2_PFTeDA	N	4.3	50-150
13C3_PFBS		78	50-150
13C3_PFHxS		88	50-150
13C3-HFPO-DA		81	50-150
13C4_PFBA	N	45	50-150
13C4_PFHpA		89	50-150
13C5_PFHxA		83	50-150
13C5_PFPeA		74	50-150
13C6_PFDA		84	50-150
13C7_PFUdA		64	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

PFAS by LC/MS/MS

Client: Tetra Tech		Laboratory ID: XC17055-024	
Description: STP1-FD-20220315-02		Matrix: Aqueous	
Date Sampled: 03/15/2022	Project Name: KSC-STP1		
Date Received: 03/17/2022	Project Number: 112G09581		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		89	50-150
13C8_PFOS		73	50-150
13C9_PFNA		91	50-150
d-EtFOSA	N	0.20	50-150
d5-EtFOSAA		73	50-150
d3-MeFOSAA		76	50-150

LOQ = Limit of Quantitation	V = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
U = Not detected at or above the LOQ	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	I = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
Q = Out of holding time	W = Reported on wet weight basis	LOD = Limit of Detection	D = Dilution > 1	S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID:	XQ35925-001	Matrix:	Aqueous
Batch:	35925	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/24/2022 1128

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1710
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1710

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		100	50-150
13C2_6:2FTS		135	50-150
13C2_8:2FTS		104	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		97	50-150
13C3_PFBS		97	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		98	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		102	50-150
13C5_PFHxA		101	50-150
13C5_PFPeA		102	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ35925-001
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		105	50-150
13C8_PFOS		99	50-150
13C9_PFNA		99	50-150
d-EtFOSA		88	50-150
d5-EtFOSAA		95	50-150
d3-MeFOSAA		95	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ35925-002	Matrix:	Aqueous
Batch:	35925	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/24/2022 1128

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	99	70-150	03/26/2022 1721
11Cl-PF3OUdS	15	14		1	94	70-150	03/26/2022 1721
8:2 FTS	15	16		1	102	67-138	03/26/2022 1721
6:2 FTS	15	15		1	97	64-140	03/26/2022 1721
4:2 FTS	15	16		1	105	63-143	03/26/2022 1721
GenX	32	31		1	98	70-150	03/26/2022 1721
ADONA	15	16		1	107	70-150	03/26/2022 1721
EtFOSA	16	17		1	103	70-150	03/26/2022 1721
EtFOSAA	16	16		1	97	61-135	03/26/2022 1721
MeFOSAA	16	17		1	107	65-136	03/26/2022 1721
PFBS	14	14		1	101	72-130	03/26/2022 1721
PFDS	15	15		1	96	53-142	03/26/2022 1721
PFHpS	15	16		1	107	69-134	03/26/2022 1721
PFNS	15	16		1	103	69-127	03/26/2022 1721
PFPeS	15	15		1	101	71-127	03/26/2022 1721
PFHxS	15	15		1	100	68-131	03/26/2022 1721
PFBA	16	17		1	105	73-129	03/26/2022 1721
PFDA	16	16		1	102	71-129	03/26/2022 1721
PFDoA	16	17		1	107	72-134	03/26/2022 1721
PFHpA	16	17		1	105	72-130	03/26/2022 1721
PFHxA	16	17		1	107	72-129	03/26/2022 1721
PFNA	16	17		1	103	69-130	03/26/2022 1721
PFOA	16	17		1	108	71-133	03/26/2022 1721
PFPeA	16	17		1	105	72-129	03/26/2022 1721
PFTeDA	16	17		1	105	71-132	03/26/2022 1721
PFTrDA	16	16		1	98	65-144	03/26/2022 1721
PFUdA	16	16		1	101	69-133	03/26/2022 1721
PFOS	15	16		1	106	65-140	03/26/2022 1721

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		88	50-150
13C2_6:2FTS		109	50-150
13C2_8:2FTS		93	50-150
13C2_PFDoA		94	50-150
13C2_PFTeDA		87	50-150
13C3_PFBS		91	50-150
13C3_PFHxS		90	50-150
13C3-HFPO-DA		93	50-150
13C4_PFBA		96	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		96	50-150
13C5_PFPeA		95	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ35925-002
Batch: 35925
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/24/2022 1128

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		94	50-150
13C7_PFUdA		89	50-150
13C8_PFOA		94	50-150
13C8_PFOS		96	50-150
13C9_PFNA		97	50-150
d-EtFOSA		63	50-150
d5-EtFOSAA		86	50-150
d3-MeFOSAA		90	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ36079-001	Matrix:	Aqueous
Batch:	36079	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1218

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1344
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1344

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		90	50-150
13C2_6:2FTS	N	201	50-150
13C2_8:2FTS		103	50-150
13C2_PFDoA		92	50-150
13C2_PFTeDA		109	50-150
13C3_PFBS		102	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		108	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		100	50-150
13C5_PFHxA		99	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS - MB

Sample ID: XQ36079-001
Batch: 36079
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/25/2022 1218

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		104	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		105	50-150
13C8_PFOS		100	50-150
13C9_PFNA		101	50-150
d-EtFOSA		90	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
\+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ36079-002	Matrix:	Aqueous
Batch:	36079	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1218

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	93	70-150	03/26/2022 1354
11Cl-PF3OUdS	15	13		1	83	70-150	03/26/2022 1354
8:2 FTS	15	14		1	92	67-138	03/26/2022 1354
6:2 FTS	15	14		1	92	64-140	03/26/2022 1354
4:2 FTS	15	13		1	88	63-143	03/26/2022 1354
GenX	32	33		1	104	70-150	03/26/2022 1354
ADONA	15	14		1	95	70-150	03/26/2022 1354
EtFOSA	16	15		1	91	70-150	03/26/2022 1354
EtFOSAA	16	16		1	101	61-135	03/26/2022 1354
MeFOSAA	16	16		1	101	65-136	03/26/2022 1354
PFBS	14	13		1	89	72-130	03/26/2022 1354
PFDS	15	14		1	90	53-142	03/26/2022 1354
PFHpS	15	14		1	92	69-134	03/26/2022 1354
PFNS	15	15		1	95	69-127	03/26/2022 1354
PFPeS	15	15		1	98	71-127	03/26/2022 1354
PFHxS	15	14		1	96	68-131	03/26/2022 1354
PFBA	16	16		1	100	73-129	03/26/2022 1354
PFDA	16	16		1	99	71-129	03/26/2022 1354
PFDoA	16	15		1	97	72-134	03/26/2022 1354
PFHpA	16	17		1	105	72-130	03/26/2022 1354
PFHxA	16	16		1	100	72-129	03/26/2022 1354
PFNA	16	16		1	98	69-130	03/26/2022 1354
PFOA	16	15		1	96	71-133	03/26/2022 1354
PFPeA	16	16		1	98	72-129	03/26/2022 1354
PFTeDA	16	15		1	95	71-132	03/26/2022 1354
PFTrDA	16	14		1	88	65-144	03/26/2022 1354
PFUdA	16	16		1	102	69-133	03/26/2022 1354
PFOS	15	13		1	86	65-140	03/26/2022 1354

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		97	50-150
13C2_6:2FTS	N	175	50-150
13C2_8:2FTS		106	50-150
13C2_PFDoA		98	50-150
13C2_PFTeDA		107	50-150
13C3_PFBS		107	50-150
13C3_PFHxS		108	50-150
13C3-HFPO-DA		104	50-150
13C4_PFBA		103	50-150
13C4_PFHpA		98	50-150
13C5_PFHxA		92	50-150
13C5_PFPeA		101	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID:	XQ36079-002	Matrix:	Aqueous
Batch:	36079	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1218

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		99	50-150
13C7_PFUdA		97	50-150
13C8_PFOA		109	50-150
13C8_PFOS		108	50-150
13C9_PFNA		100	50-150
d-EtFOSA		82	50-150
d5-EtFOSAA		101	50-150
d3-MeFOSAA		102	50-150

LOQ = Limit of Quantitation	U = Not detected at or above the LOQ	N = Recovery is out of criteria
DL = Detection Limit	I = Estimated result < LOQ and $\geq$ DL	P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection	* = RSD is out of criteria	+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC17055-013MS	Matrix:	Aqueous
Batch:	36079	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1218

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	92	70-150	03/26/2022 1530
11Cl-PF3OUdS	ND	14	11		1	81	70-150	03/26/2022 1530
8:2 FTS	ND	14	14		1	101	67-138	03/26/2022 1530
6:2 FTS	ND	14	15		1	107	64-140	03/26/2022 1530
4:2 FTS	ND	14	14		1	106	63-143	03/26/2022 1530
GenX	ND	29	30		1	102	70-150	03/26/2022 1530
ADONA	ND	14	14		1	101	70-150	03/26/2022 1530
EtFOSA	ND	15	15		1	103	70-150	03/26/2022 1530
EtFOSAA	ND	15	15		1	104	61-135	03/26/2022 1530
MeFOSAA	ND	15	15		1	101	65-136	03/26/2022 1530
PFBS	12	13	29		1	128	72-130	03/26/2022 1530
PFDS	ND	14	12		1	84	53-142	03/26/2022 1530
PFHpS	2.0	14	17		1	109	69-134	03/26/2022 1530
PFNS	ND	14	13		1	95	69-127	03/26/2022 1530
PFPeS	15	14	32	N	1	130	71-127	03/26/2022 1530
PFHxS	150	13	150	N	1	-13	68-131	03/26/2022 1530
PFBA	4.2	15	18		1	94	73-129	03/26/2022 1530
PFDA	ND	15	14		1	96	71-129	03/26/2022 1530
PFDoA	ND	15	15		1	102	72-134	03/26/2022 1530
PFHpA	2.8	15	17		1	99	72-130	03/26/2022 1530
PFHxA	12	15	27		1	102	72-129	03/26/2022 1530
PFNA	ND	15	16		1	107	69-130	03/26/2022 1530
PFOA	7.6	15	21		1	95	71-133	03/26/2022 1530
PFPeA	5.1	15	19		1	94	72-129	03/26/2022 1530
PFTeDA	ND	15	14		1	94	71-132	03/26/2022 1530
PFTrDA	ND	15	12		1	85	65-144	03/26/2022 1530
PFUdA	ND	15	17		1	114	69-133	03/26/2022 1530
PFOS	17	14	30		1	94	65-140	03/26/2022 1530

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	177	50-150
13C2_6:2FTS	N	218	50-150
13C2_8:2FTS		143	50-150
13C2_PFDoA		109	50-150
13C2_PFTeDA		84	50-150
13C3_PFBS		84	50-150
13C3_PFHxS		101	50-150
13C3-HFPO-DA		87	50-150
13C4_PFBA	N	38	50-150
13C4_PFHpA		105	50-150
13C5_PFHxA		87	50-150
13C5_PFPeA		77	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC17055-013MS	Matrix:	Aqueous
Batch:	36079	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1218

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		119	50-150
13C7_PFUdA		102	50-150
13C8_PFOA		109	50-150
13C8_PFOS		111	50-150
13C9_PFNA		114	50-150
d-EtFOSA		61	50-150
d5-EtFOSAA		104	50-150
d3-MeFOSAA		115	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID: XC17055-013MD
Batch: 36079
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/25/2022 1218

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	95	3.3	70-150	30	03/26/2022 1540
11Cl-PF3OUdS	ND	14	10		1	73	11	70-150	30	03/26/2022 1540
8:2 FTS	ND	14	13		1	91	11	67-138	30	03/26/2022 1540
6:2 FTS	ND	14	13		1	93	14	64-140	30	03/26/2022 1540
4:2 FTS	ND	14	15		1	108	2.1	63-143	30	03/26/2022 1540
GenX	ND	29	36		1	125	20	70-150	30	03/26/2022 1540
ADONA	ND	14	14		1	101	0.26	70-150	30	03/26/2022 1540
EtFOSA	ND	15	14		1	96	6.4	70-150	30	03/26/2022 1540
EtFOSAA	ND	15	14		1	94	11	61-135	30	03/26/2022 1540
MeFOSAA	ND	15	15		1	102	0.58	65-136	30	03/26/2022 1540
PFBS	12	13	26		1	110	8.4	72-130	30	03/26/2022 1540
PFDS	ND	14	12		1	88	4.8	53-142	30	03/26/2022 1540
PFHpS	2.0	14	16		1	102	5.8	69-134	30	03/26/2022 1540
PFNS	ND	14	14		1	97	1.9	69-127	30	03/26/2022 1540
PFPeS	15	14	30		1	113	7.2	71-127	30	03/26/2022 1540
PFHxS	150	13	160		1	83	8.2	68-131	30	03/26/2022 1540
PFBA	4.2	15	18		1	92	1.1	73-129	30	03/26/2022 1540
PFDA	ND	15	14		1	99	3.1	71-129	30	03/26/2022 1540
PFDoA	ND	15	14		1	99	2.3	72-134	30	03/26/2022 1540
PFHpA	2.8	15	18		1	107	6.5	72-130	30	03/26/2022 1540
PFHxA	12	15	26		1	94	4.2	72-129	30	03/26/2022 1540
PFNA	ND	15	14		1	97	9.9	69-130	30	03/26/2022 1540
PFOA	7.6	15	23		1	104	6.1	71-133	30	03/26/2022 1540
PFPeA	5.1	15	19		1	92	1.7	72-129	30	03/26/2022 1540
PFTeDA	ND	15	14		1	96	1.7	71-132	30	03/26/2022 1540
PFTrDA	ND	15	12		1	80	5.9	65-144	30	03/26/2022 1540
PFUdA	ND	15	15		1	103	10	69-133	30	03/26/2022 1540
PFOS	17	14	31		1	100	2.5	65-140	30	03/26/2022 1540

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	168	50-150
13C2_6:2FTS	N	230	50-150
13C2_8:2FTS	N	154	50-150
13C2_PFDoA		87	50-150
13C2_PFTeDA		57	50-150
13C3_PFBS		83	50-150
13C3_PFHxS		96	50-150
13C3-HFPO-DA		74	50-150
13C4_PFBA	N	37	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		72	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and $\geq$ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MSD

Sample ID:	XC17055-013MD	Matrix:	Aqueous
Batch:	36079	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1218

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		105	50-150
13C7_PFUdA		91	50-150
13C8_PFOA		97	50-150
13C8_PFOS		103	50-150
13C9_PFNA		112	50-150
d-EtFOSA		60	50-150
d5-EtFOSAA		100	50-150
d3-MeFOSAA		110	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and $\geq$ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ36108-001	Matrix:	Aqueous
Batch:	36108	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1457

Parameter	Result	Q	Dil	LOQ	LOD	DL	Units	Analysis Date
9Cl-PF3ONS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
11Cl-PF3OUdS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
8:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
6:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
4:2 FTS	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
GenX	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
ADONA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
EtFOSA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
EtFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
MeFOSAA	4.0	U	1	8.0	4.0	2.0	ng/L	03/26/2022 1726
PFBS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFDS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFHpS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFNS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFPeS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFHxS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFBA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFDoA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFHpA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFHxA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFNA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFOA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFPeA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFTeDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFTrDA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFUdA	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726
PFOS	2.0	U	1	4.0	2.0	1.0	ng/L	03/26/2022 1726

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		90	50-150
13C2_6:2FTS	N	198	50-150
13C2_8:2FTS		97	50-150
13C2_PFDoA		85	50-150
13C2_PFTeDA		81	50-150
13C3_PFBS		98	50-150
13C3_PFHxS		95	50-150
13C3-HFPO-DA		96	50-150
13C4_PFBA		99	50-150
13C4_PFHpA		95	50-150
13C5_PFHxA		94	50-150
13C5_PFPeA		93	50-150

LOQ = Limit of Quantitation   U = Not detected at or above the LOQ   N = Recovery is out of criteria

DL = Detection Limit   I = Estimated result < LOQ and $\geq$ DL   P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection   * = RSD is out of criteria   + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID:	XQ36108-001	Matrix:	Aqueous
Batch:	36108	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1457

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		94	50-150
13C7_PFUdA		95	50-150
13C8_PFOA		108	50-150
13C8_PFOS		94	50-150
13C9_PFNA		97	50-150
d-EtFOSA		77	50-150
d5-EtFOSAA		89	50-150
d3-MeFOSAA		98	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ36108-002
Batch: 36108
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/25/2022 1457

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	18		1	119	70-150	03/26/2022 1737
11Cl-PF3OUdS	15	18		1	119	70-150	03/26/2022 1737
8:2 FTS	15	15		1	98	67-138	03/26/2022 1737
6:2 FTS	15	17		1	114	64-140	03/26/2022 1737
4:2 FTS	15	15		1	98	63-143	03/26/2022 1737
GenX	32	32		1	100	70-150	03/26/2022 1737
ADONA	15	16		1	109	70-150	03/26/2022 1737
EtFOSA	16	16		1	102	70-150	03/26/2022 1737
EtFOSAA	16	16		1	98	61-135	03/26/2022 1737
MeFOSAA	16	17		1	108	65-136	03/26/2022 1737
PFBS	14	14		1	101	72-130	03/26/2022 1737
PFDS	15	17		1	112	53-142	03/26/2022 1737
PFHpS	15	16		1	105	69-134	03/26/2022 1737
PFNS	15	19		1	124	69-127	03/26/2022 1737
PFPeS	15	16		1	103	71-127	03/26/2022 1737
PFHxS	15	14		1	98	68-131	03/26/2022 1737
PFBA	16	16		1	101	73-129	03/26/2022 1737
PFDA	16	16		1	99	71-129	03/26/2022 1737
PFDoA	16	16		1	100	72-134	03/26/2022 1737
PFHpA	16	18		1	114	72-130	03/26/2022 1737
PFHxA	16	16		1	97	72-129	03/26/2022 1737
PFNA	16	16		1	99	69-130	03/26/2022 1737
PFOA	16	16		1	103	71-133	03/26/2022 1737
PFPeA	16	17		1	104	72-129	03/26/2022 1737
PFTeDA	16	16		1	98	71-132	03/26/2022 1737
PFTrDA	16	15		1	91	65-144	03/26/2022 1737
PFUdA	16	16		1	100	69-133	03/26/2022 1737
PFOS	15	18		1	120	65-140	03/26/2022 1737

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	50-150
13C2_6:2FTS	N	182	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA		91	50-150
13C2_PFTeDA		106	50-150
13C3_PFBS		99	50-150
13C3_PFHxS		98	50-150
13C3-HFPO-DA		102	50-150
13C4_PFBA		101	50-150
13C4_PFHpA		92	50-150
13C5_PFHxA		95	50-150
13C5_PFPeA		96	50-150

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection

U = Not detected at or above the LOQ
I = Estimated result < LOQ and $\geq$ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ36108-002
Batch: 36108
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/25/2022 1457

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		96	50-150
13C7_PFUdA		94	50-150
13C8_PFOA		107	50-150
13C8_PFOS		80	50-150
13C9_PFNA		99	50-150
d-EtFOSA		81	50-150
d5-EtFOSAA		94	50-150
d3-MeFOSAA		97	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and ≥ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID:	XC17055-020DU	Matrix:	Aqueous
Batch:	36108	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1457

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND		U	1	0.00	20	03/26/2022 1758
11Cl-PF3OUdS	ND		U	1	0.00	20	03/26/2022 1758
8:2 FTS	ND		U	1	0.00	20	03/26/2022 1758
6:2 FTS	ND		U	1	0.00	20	03/26/2022 1758
4:2 FTS	ND		U	1	0.00	20	03/26/2022 1758
GenX	ND		U	1	0.00	20	03/26/2022 1758
ADONA	ND		U	1	0.00	20	03/26/2022 1758
EtFOSA	ND		U	1	0.00	20	03/26/2022 1758
EtFOSAA	ND		U	1	0.00	20	03/26/2022 1758
MeFOSAA	ND		U	1	0.00	20	03/26/2022 1758
PFBS	ND		U	1	0.00	20	03/26/2022 1758
PFDS	ND		U	1	0.00	20	03/26/2022 1758
PFHpS	ND		U	1	0.00	20	03/26/2022 1758
PFNS	ND		U	1	0.00	20	03/26/2022 1758
PFPeS	ND		U	1	0.00	20	03/26/2022 1758
PFHxS	2.3	2.4	I	1	2.0	20	03/26/2022 1758
PFBA	ND		U	1	0.00	20	03/26/2022 1758
PFDA	ND		U	1	0.00	20	03/26/2022 1758
PFDoA	ND		U	1	0.00	20	03/26/2022 1758
PFHpA	ND		U	1	0.00	20	03/26/2022 1758
PFHxA	ND		U	1	0.00	20	03/26/2022 1758
PFNA	ND		U	1	0.00	20	03/26/2022 1758
PFOA	2.1	1.6	+	1	29	20	03/26/2022 1758
PFPeA	ND		U	1	0.00	20	03/26/2022 1758
PFTeDA	ND		U	1	0.00	20	03/26/2022 1758
PFTrDA	ND		U	1	0.00	20	03/26/2022 1758
PFUdA	ND		U	1	0.00	20	03/26/2022 1758
PFOS	2.4	2.4	I	1	2.9	20	03/26/2022 1758

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	159	50-150
13C2_6:2FTS	N	230	50-150
13C2_8:2FTS		121	50-150
13C2_PFDoA	N	38	50-150
13C2_PFTeDA	N	2.0	50-150
13C3_PFBS		67	50-150
13C3_PFHxS		85	50-150
13C3-HFPO-DA		68	50-150
13C4_PFBA	N	36	50-150
13C4_PFHpA		86	50-150
13C5_PFHxA		74	50-150
13C5_PFPeA		59	50-150

LOQ = Limit of Quantitation U = Not detected at or above the LOQ N = Recovery is out of criteria

DL = Detection Limit I = Estimated result < LOQ and ≥ DL P = The RPD between two GC columns exceeds 40%

LOD = Limit of Detection * = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - Duplicate

Sample ID: XC17055-020DU
Batch: 36108
Analytical Method: PFAS by ID SOP QSM B-15

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 03/25/2022 1457

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		91	50-150
13C7_PFUdA		68	50-150
13C8_PFOA		95	50-150
13C8_PFOS		93	50-150
13C9_PFNA		99	50-150
d-EtFOSA	N	0.40	50-150
d5-EtFOSAA		75	50-150
d3-MeFOSAA		79	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC17055-021MS	Matrix:	Aqueous
Batch:	36108	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1457

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	14	13		1	95	70-150	03/26/2022 1819
11Cl-PF3OUdS	ND	14	6.1	N	1	44	70-150	03/26/2022 1819
8:2 FTS	ND	14	15		1	105	67-138	03/26/2022 1819
6:2 FTS	ND	14	13		1	97	64-140	03/26/2022 1819
4:2 FTS	ND	14	15		1	109	63-143	03/26/2022 1819
GenX	ND	29	31		1	108	70-150	03/26/2022 1819
ADONA	ND	14	13		1	96	70-150	03/26/2022 1819
EtFOSA	ND	16		U	1	0.00	70-150	03/26/2022 1819
EtFOSAA	ND	15	14		1	96	61-135	03/26/2022 1819
MeFOSAA	ND	15	16		1	111	65-136	03/26/2022 1819
PFBS	ND	13	13		1	98	72-130	03/26/2022 1819
PFDS	ND	14	8.9		1	63	53-142	03/26/2022 1819
PFHpS	ND	14	13		1	94	69-134	03/26/2022 1819
PFNS	ND	14	12		1	89	69-127	03/26/2022 1819
PFPeS	ND	14	14		1	105	71-127	03/26/2022 1819
PFHxS	ND	13	14		1	104	68-131	03/26/2022 1819
PFBA	ND	15	15		1	101	73-129	03/26/2022 1819
PFDA	ND	15	15		1	101	71-129	03/26/2022 1819
PFDoA	ND	15	15		1	102	72-134	03/26/2022 1819
PFHpA	ND	15	16		1	108	72-130	03/26/2022 1819
PFHxA	ND	15	15		1	102	72-129	03/26/2022 1819
PFNA	ND	15	14		1	98	69-130	03/26/2022 1819
PFOA	ND	15	15		1	103	71-133	03/26/2022 1819
PFPeA	ND	15	15		1	100	72-129	03/26/2022 1819
PFTeDA	ND	15	14		1	97	71-132	03/26/2022 1819
PFTrDA	ND	15	5.5	N	1	38	65-144	03/26/2022 1819
PFUdA	ND	15	15		1	102	69-133	03/26/2022 1819
PFOS	ND	13	13		1	100	65-140	03/26/2022 1819

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	165	50-150
13C2_6:2FTS	N	182	50-150
13C2_8:2FTS		101	50-150
13C2_PFDoA	N	42	50-150
13C2_PFTeDA	N	5.6	50-150
13C3_PFBS		93	50-150
13C3_PFHxS		99	50-150
13C3-HFPO-DA		86	50-150
13C4_PFBA		56	50-150
13C4_PFHpA		93	50-150
13C5_PFHxA		86	50-150
13C5_PFPeA		83	50-150

LOQ = Limit of Quantitation | U = Not detected at or above the LOQ | N = Recovery is out of criteria
DL = Detection Limit | I = Estimated result < LOQ and $\geq$ DL | P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection | * = RSD is out of criteria | + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID:	XC17055-021MS	Matrix:	Aqueous
Batch:	36108	Prep Method:	SOP SPE
Analytical Method:	PFAS by ID SOP QSM B-15	Prep Date:	03/25/2022 1457

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	50-150
13C7_PFUdA		69	50-150
13C8_PFOA		93	50-150
13C8_PFOS		92	50-150
13C9_PFNA		101	50-150
d-EtFOSA	N	0.60	50-150
d5-EtFOSAA		77	50-150
d3-MeFOSAA		76	50-150

LOQ = Limit of Quantitation
U = Not detected at or above the LOQ
N = Recovery is out of criteria
DL = Detection Limit
I = Estimated result < LOQ and ≥ DL
P = The RPD between two GC columns exceeds 40%
LOD = Limit of Detection
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

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Tetra Tech, Inc.

CHAIN OF CUSTODY NUMBER No. 2596 PAGE 1 OF 2

PROJECT NO: 112G09581	FACILITY: KSC-STP1	PROJECT MANAGER Mark Sonnet	PHONE NUMBER (412) 921-8622	LABORATORY NAME AND CONTACT: Pace Analytical – Kathy Smith
SAMPLERS (SIGNATURE) – Chuck Sorden		FIELD OPERATIONS LEADER Chuck Sorden	PHONE NUMBER (321) 591-7580	ADDRESS 106 Vantage Point Dr.
		CARRIER/WAYBILL NUMBER		CITY, STATE West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None/4°C
TYPE OF ANALYSIS: PFAS QSM Table B-15

XC17055
KES2

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15								COMMENTS
03/14	1455	STP1-DPT0016-005.0-20220314	34	3	7	GW	G	2	X								
	1515	STP1-DPT0016-010.0-20220314	34	8	12												
	1535	STP1-DPT0016-016.0-20220314	34	14	18												
	1555	STP1-DPT0016-023.0-20220314	34	21	25												
	1615	STP1-DPT0016-033.0-20220314	34	31	35												
03/14	1635	STP1-DPT0016-042.0-20220314	34	40	44												
03/15	~~1035~~ 0935	STP1-DPT0017-005.0-20220315	32	3	7												
	0955	STP1-DPT0017-010.0-20220315	32	8	12												
	1015	STP1-DPT0017-016.0-20220315	32	14	18	GW											
	1020	STP1-EB-20220315-01	—	—	—	QC											
	1035	STP1-DPT0017-023.0-20220315	32	21	25	GW											
	1105	STP1-DPT0017-033.0-20220315	32	31	35			2									
03/15	1145	STP1-DPT0017-042.0-20220315	32	40	44	GW	G	6	X								MS/MSD Collected

1. RELINQUISHED BY	DATE 03/16/22	TIME 1615	1. RECEIVED BY Fed Ex	DATE 03/16/15	TIME 1615
2. RELINQUISHED BY Fed Ex	DATE 3/17/22	TIME 10:15	2. RECEIVED BY Amanda M Roberts	DATE 3/17/22	TIME 10:15
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

T=2.1°C

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

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Tetra Tech, Inc.

CHAIN OF CUSTODY **NUMBER** No. 2597 **PAGE** 2 **OF** 2

PROJECT NO: 112G09581	FACILITY: KSC-STP1	PROJECT MANAGER: Mark Jonnet	PHONE NUMBER: (412) 921-8622	LABORATORY NAME AND CONTACT: Pace Analytical — Katy Smith
SAMPLERS (SIGNATURE): — Chuck Sorden		FIELD OPERATIONS LEADER: Chuck Sorden	PHONE NUMBER: (321) 591-7580	ADDRESS: 106 Vantage Point Dr.
		CARRIER/WAYBILL NUMBER		CITY, STATE: West Colombia, SC

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: None / 4°C

TYPE OF ANALYSIS: PFAS QSM Table B-15

XC17055
KES2

DATE YEAR 2022	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PFAS QSM Table B-15	COMMENTS
03/15	1410	STP1-DPT0018-005.0-20220315	33	3	7	GW	G	2	X	
	1425	STP1-EB-20220315-02	—	—	—	QC				
	1430	STP1-DPT0018-010.0-20220315	33	8	12	GW				
	1435	STP1-EB-20220315-03	—	—	—	QC				
	1450	STP1-DPT0018-016.0-20220315	33	14	18	GW				
	1510	STP1-DPT0018-023.0-20220315	33	21	25					
	1530	STP1-DPT0018-033.0-20220315	33	31	35					
	1550	STP1-DPT0018-042.0-20220315	33	40	44	GW				
03/15	1555	STP1-EB-20220315-01	—	—	—	QC				
	0000	STP1-FD-20220315-01	—	—	—					
03/15	0000	STP1-FD-20220315-02	—	—	—	QC	G	2	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	03/16/22	1615	1. RECEIVED BY FedEx	03/16/15	1615
2. RELINQUISHED BY FedEx	3/17/22	10:15	2. RECEIVED BY Rayna N Roberts	3/17/22	10:15
3. RELINQUISHED BY			3. RECEIVED BY T=2.1°C		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

PACE ANALYTICAL SERVICES, LLC

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Tetra Tech   Cooler Inspected by/date: CBP / 03/17/2022   Lot #: XC17055

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: ____

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA   Chlorine Strip ID: NA   Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt   %Solid Snap-Cup ID: NA

2.1 / 2.1 °C   NA / NA °C   NA / NA °C   NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles   IR Gun ID: 5   IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☐ No	☑ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☐ Yes	☑ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☑ No	☐ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☑ Yes	☐ No		21. Was the quote number listed on the container label? If yes, Quote # 24792

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: CBP   Date: 03/17/2022

Comments: